MINNESOTA DEPARTMENT OF TRANSPORTATION
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS, SP 0202-101

CONSTRUCTION PLAN FOR SITE GRADING, BITUMINOUS SURFACING AND WATER MAIN

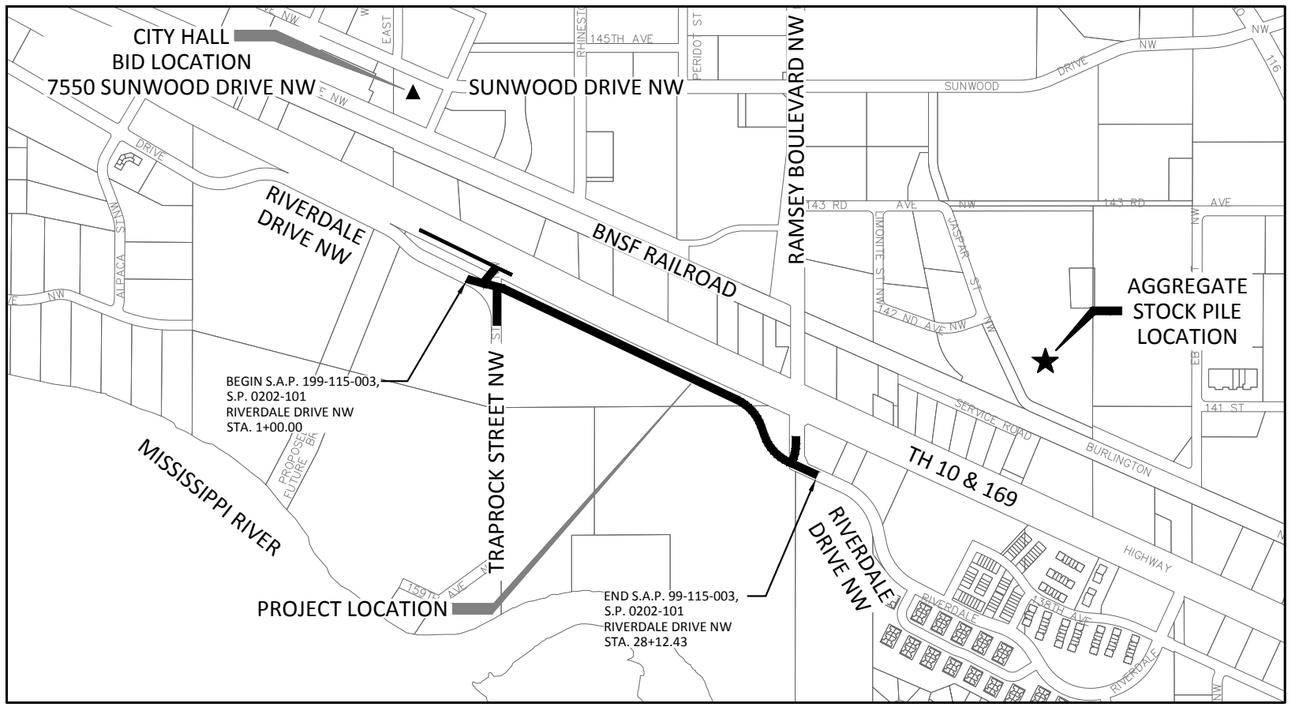
LOCATED ON: RIVERDALE DRIVE FROM: 300' WEST OF TRAPROCK STREET NW TO: 200' EAST OF RAMSEY BOULEVARD NW

RIVERDALE DRIVE NW

STATE PROJ. NO. S.A.P. 199-115-003, SP 0202-101

GROSS LENGTH	2712.43	FEET	0.514	MILES
BRIDGES-LENGTH		FEET		MILES
EXCEPTIONS-LENGTH		FEET		MILES
NET LENGTH	2712.43	FEET	0.514	MILES

REF. POINT 221+00.064 TO REF. POINT 221+00.449



AGREEMENT NO. 1002020
CITY OF RAMSEY
S.P. 0202-101 (TH 10=003)
LOCAL FUNDS
METRO DISTRICT

MAP LEGEND

- PROJECT LIMITS
- BID LOCATION

TYPICAL PLAN SCALE UNLESS OTHERWISE NOTED:

HORZ. 0 50 100 SCALE FEET

VERT. 0 5 10 SCALE FEET

DESIGN DESIGNATION

ADT (2017) = 2,000
ADT (2037) = 4,000
HCADT (2036) = 6.3%
$\Sigma N18_{20}$ 421,000
R VALUE 40
STRUCTURAL DESIGN STRENGTH = 10 TON
DESIGN SPEED ..... 30 MPH
FUNCTIONAL CLASSIFICATION: ... URBAN-COLLECTOR

TRAFFIC LANES: ..... 2 - 12'
SHOULDER: ..... 8'
PARKING LANES: 2
BASED ON: ..... STOPPING SIGHT DISTANCE
HEIGHT OF EYE: ..... 3.5'
HEIGHT OF OBJECT: ..... 2.0'

BIKE TRAIL DESIGN DESIGNATION OFF-ROAD TRAIL

STA. 1+07.00 TO STA. 5+16.00 RT
STA. 1+07.00 TO STA. 2+70.26 LT

FUNCTIONAL CLASSIFICATION — BIKE TRAIL
DESIGN SPEED — 20 MPH

DESIGN SPEED FOR BIKEWAY BASED ON STOPPING SIGHT DISTANCE:
HEIGHT OF EYE = 4.5 FT
HEIGHT OF OBJECT = 0 FT

PROJECT LOCATION

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

MINN. PROJ. NO. STATE FUNDS

GOVERNING SPECIFICATIONS
THE 2016 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."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE
2	LEGEND
3	ESTIMATED QUANTITES/STANDARD PLATES
4 - 5	TABULATIONS
6	ALIGNMENT PLAN & TABULATION
7	TYPICAL SECTIONS
8 - 11	CONSTRUCTION DETAILS
12 - 17	MnDOT PEDESTRIAN CURB RAMP DETAILS
18 - 21	MnDOT DRIVEWAY AND SIDEWALK DETAILS
22 - 23	INTERSECTION & PEDESTRIAN RAMP DETAILS
24 - 26	STORM WATER POLLUTION PREVENTION PLAN
27	EROSION & SEDIMENT CONTROL
28	EXISTING CONDITIONS & REMOVALS
29	POND GRADING
30 - 31	RIVERDALE DRIVE PLAN & PROFILE - WATERMAIN
32 - 33	RIVERDALE DRIVE PLAN & PROFILE - STREET & STORM SEWER
34	TRAPROCK STREET PLAN & PROFILE - STREET & STORM SEWER
35	STORM SEWER LEADS
36	SIGNING & STRIPING
37 - 44	CROSS SECTIONS

THIS SET OF PLANS CONTAINS 44 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:

APPROVED: CITY ENGINEER, CITY OF RAMSEY DATE

RECOMMENDED FOR APPROVAL: DISTRICT TRANSPORTATION ENGINEER DATE

RECOMMENDED FOR APPROVAL: DISTRICT TRAFFIC ENGINEER DATE

RECOMMENDED FOR APPROVAL: STATE PRE-LETTING ENGINEER DATE

OFFICE OF LAND MANAGEMENT APPROVAL: DIRECTOR, LAND MANAGEMENT DATE

APPROVED: STATE DESIGN ENGINEER DATE

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

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

PROJECT DATUM:
HORIZONTAL: ANOKA COUNTY COORDINATES NAD83, 1996 ADJUSTMENT
VERTICAL: NAVD88 DATUM

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
TITLE SHEET

SHEET 1 OF 44

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EXISTING

- IRON PIPE MONUMENT SET
- MONUMENT FOUND
- CAST IRON MONUMENT FOUND
- STONE MONUMENT FOUND
- POST SET
- BENCH MARK
- AUTO SPRINKLER
- ANTENNA
- AIR CONDITIONER
- ANCHOR
- AIR PUMP
- APRON
- BASKETBALL HOOP
- BIRD FEEDER
- BENCH
- BRACE POLE
- CATCH BASIN
- CLOTHES LINE POLE
- CONTROL POINT
- CLEAN OUT
- COMMUNICATION PEDESTAL
- CURB STOP VALVE
- DITCH TOP
- DRINKING FOUNTAIN
- DOWN SPOUT
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC PEDESTAL
- ELECTRIC TRANSFORMER
- EXHAUST VENT
- FLAG POLE
- FILL PIPE
- GAS MANHOLE
- GAS REGULATOR
- GAS VALVE
- GAS METER
- ACCESS GRATE
- HANDICAPPED PARKING
- HAND HOLE
- HYDRANT
- IRRIGATION CONTROL VALVE
- LIGHT DECORATIVE
- LIGHT POLE
- MAILBOX
- METER
- POST
- MANHOLE
- LIFT STATION MANHOLE
- MONITORING WELL
- ORDER MICROPHONE
- PARK GRILL
- GAS PUMP
- POST INDICATOR VALVE
- PARKING METER
- SANITARY MANHOLE
- SATELLITE DISH
- SEMAPHORE TRAFFIC LIGHT
- SIGNAL BOX
- SIGNAL POLE - RR
- SOIL BORING
- SIREN
- SPRINKLER HEAD
- STORM MANHOLE
- TELEPHONE MANHOLE
- PUBLIC TELEPHONE
- TILE INLET
- TILE RISER
- TRAFFIC ARM BARRIER
- TRAFFIC SIGN
- TRANSMISSION TOWER
- UTILITY POLE
- VACUUM
- VENT PIPE
- DECIDUOUS TREE
- CONIFEROUS TREE
- STUMP
- BUSH
- WELL
- WATER MANHOLE
- WATER METER
- WATER SPIGOT
- WATER VALVE
- WETLAND / MARSH
- WETLAND - DELINEATED

PROPOSED

- ALIGNMENT/CENTERLINE (22+00)
- RIGHT-OF-WAY LINE
- TEMPORARY EASEMENT
- CONSTRUCTION LIMITS
- CURB & GUTTER (B618)
- CURB & GUTTER (B624)
- BITUMINOUS EDGE
- CONCRETE EDGE
- GRAVEL EDGE
- SILT FENCE-PREASSEMBLED
- SILT FENCE-HEAVY DUTY
- EROSION PROTECTION AT INLET
- MANHOLE
- CATCH BASIN
- STORM INLET
- APRON
- STORM SEWER
- PERFORATED PIPE DRAIN
- STORM DRAIN TILE
- CULVERT W/APRON
- STORM MANHOLE NUMBER (1)
- SANITARY SEWER
- SANITARY FORCEMAIN
- SANITARY SEWER SERVICE
- SANITARY LIFT STATION
- SANITARY MANHOLE
- SANITARY MANHOLE NUMBER (A)
- WATERMAIN
- WATERMAIN SERVICE
- WATER SYSTEM MANHOLE
- HYDRANT
- HYDRANT W/ VALVE
- VALVE
- CURBSTOP
- BEND
- REDUCER
- CROSS
- TEE
- CAP
- SLEEVE
- SIGN
- LIGHT POLE
- GUARD RAIL
- SOIL BORING (B-?)
- WETLAND
- BUSH
- CONIFEROUS TREE
- DECIDUOUS TREE

- OVERHEAD ELECTRIC LINE (EO)
- UNDERGROUND ELECTRIC LINE (EU)
- GAS LINE (G)
- FIBER OPTIC LINE (FO)
- UNDERGROUND COMMUNICATIONS LINE (CU)
- OVERHEAD UTILITY LINE (OU)
- WATER SYSTEM
- STORM SEWER
- TILE LINE
- SANITARY SEWER
- SANITARY FORCEMAIN
- CULVERT
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- COUNTY LINE
- CITY LIMITS
- SIXTEENTH LINE
- QUARTER LINE
- SECTION LINE
- ADJACENT LINES
- EASEMENT LINE
- BUILDING SETBACK LINE
- FENCE LINE
- GUARD RAIL
- ACCESS CONTROL LINE
- CENTERLINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- RAILROAD RIGHT-OF-WAY LINE
- GRAVEL EDGE
- BITUMINOUS EDGE
- CONCRETE EDGE
- CURB & GUTTER
- WATER EDGE
- WATER CENTERLINE
- HIGHWATER LINE
- WETLAND EDGE
- SWALE CENTERLINE
- RAILROAD TRACKS

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Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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RAMSEY, MINNESOTA 55303
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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

LEGEND

SHEET 2 OF 44

STATEMENT OF ESTIMATED QUANTITIES (A)

TAB INDEX	NOTES	ITEM NUMBER	SPEC NO.	ITEM	UNIT	TOTAL	PARTICIPATING S.A.P. 199-115-003 & S.P. 0202-101	NON-PARTICIPATING QUANTITY
		1	2021.501	MOBILIZATION	LUMP SUM	1	1	
F		2	2101.511	CLEARING AND GRUBBING	LUMP SUM	1	1	
F		3	2102.501	PAVEMENT MARKING REMOVAL	SQ FT	123	123	
F		4	2104.501	REMOVE FENCE	LIN FT	115	115	
F		5	2104.501	REMOVE CURB AND GUTTER	LIN FT	1640	1640	
F		6	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	100	100	
F		7	2104.501	REMOVE PIPE CULVERTS	LIN FT	125	125	
F		8	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	5760	5760	
F		9	2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	185	185	
F		10	2104.509	REMOVE DRAINAGE STRUCTURE	EACH	3	3	
F		11	2104.509	REMOVE WOOD POST	EACH	3	3	
F		12	2104.509	REMOVE SIGN	EACH	17	17	
F		13	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	80	80	
F		14	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	940	940	
F	1	15	2104.601	RELOCATE MISCELLANEOUS STRUCTURE	LUMP SUM	1	1	
G		16	2105.501	COMMON EXCAVATION (P)	CU YD	9905	9905	
G		17	2105.507	SUBGRADE EXCAVATION	CU YD	200	200	
G		18	2105.511	CHANNEL AND POND EXCAVATION	CU YD	3215	3215	
G		19	2105.521	GRANULAR BORROW (CV)	CU YD	200	200	
H	2	20	2211.501	AGGREGATE BASE CLASS 5	TON	6575	6575	
J		21	2360.501	TYPE SP 9.5 WEARING COURSE MIXTURE (3,A)	TON	1653	1653	
J		22	2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	1950	1950	
K	3	23	2501.515	18" RC PIPE APRON	EACH	1	1	
K		24	2503.541	15" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	1709	1709	
K		25	2503.541	18" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	260	260	
K		26	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	2	2	
M		27	2504.602	ADJUST VALVE BOX	EACH	3		3
M		28	2504.602	ADJUST HYDRANT AND VALVE	EACH	1		1
M		29	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2		2
M		30	2504.602	HYDRANT	EACH	1		1
M		31	2504.602	6" GATE VALVE & BOX	EACH	1		1
M		32	2504.602	12" GATE VALVE & BOX	EACH	2		2
M		33	2504.603	6" WATERMAIN DUCTILE IRON CLASS 52	LIN FT	97		97
M		34	2504.603	12" WATERMAIN DUCTILE IRON CLASS 52	LIN FT	2360		2360
M		35	2504.608	WATERMAIN FITTINGS	POUND	1040		1040
K		36	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	5.2	5.2	
K	4	37	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1	LIN FT	6.1	6.1	
K	5	38	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2	LIN FT	43.6	43.6	
K		39	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	LIN FT	3.0	3.0	
L		40	2506.516	CASTING ASSEMBLY	EACH	14	14	
K		41	2506.522	ADJUST FRAME AND RING CASTING	EACH	2	2	
O		42	2511.502	RANDOM RIPRAP CLASS III	TON	24	24	
I		43	2521.501	6" CONCRETE WALK	SQ FT	750	750	
I		44	2531.501	CONCRETE CURB & GUTTER DES B618	LIN FT	5900	5900	
I		45	2531.501	CONCRETE CURB & GUTTER DES B624	LIN FT	20	20	
I		46	2531.507	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	110	110	
I		47	2531.618	TRUNCATED DOMES	SQ FT	90	90	
		48	2563.601	TRAFFIC CONTROL	LUMP SUM	1	1	
		49	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
N		50	2564.531	SIGN PANELS TYPE C	SQ FT	58	58	
O		51	2573.502	SILT FENCE, TYPE MS	LIN FT	1126	1126	
O		52	2573.530	STORM DRAIN INLET PROTECTION	EACH	20	20	
O		53	2573.533	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	100	100	
O		54	2573.535	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	1	
P		55	2574.508	FERTILIZER, TYPE 3	POUND	1610	1610	
P		56	2575.501	SEEDING	ACRE	4.6	4.6	
P		57	2575.502	SEED, MIXTURE 25-121	POUND	230	230	
P		58	2575.502	SEED, MIXTURE 33-262	POUND	26	26	
P		59	2575.502	SEED, MIXTURE 35-221	POUND	95	95	
P		60	2575.505	SODDING TYPE SALT TOLERANT	SQ YD	545	545	
O		61	2575.523	EROSION CONTROL BLANKET CATEGORY 3N	SQ YD	8095	8095	
P		62	2575.560	HYDRAULIC BONDED FIBER MATRIX	POUND	13750	13750	
N		63	2582.501	PAVEMENT MESSAGE EPOXY	SQ FT	60	60	
N		64	2582.502	4" SOLID LINE EPOXY	LIN FT	6800	6800	
N		65	2582.502	4" DOUBLE SOLID LINE EPOXY	LIN FT	3130	3130	
N		66	2582.502	24" SOLID LINE EPOXY	LIN FT	210	210	

1. ITEM INCLUDES RELOCATING TRAIL GATE TO NEW TRAIL ALIGNMENT
2. ITEM INCLUDES AGGREGATE MATERIAL FROM CITY STOCKPILE
3. ITEM INCLUDES TRASH GUARD
4. DESIGN 48-4020 WITH 2'X3' OPENING
5. 2' x 3' CATCH BASIN

TABULATION INDEX (B)

TABLE		SHEET NO.
A	STATEMENT OF ESTIMATED QUANTITIES	3
B	TABULATION INDEX	3
C	BASIS OF ESTIMATED QUANTITES	3
D	PRIVATE UTILITY OWNERS TABULATION	3
D-1	EXISTING PRIVATE UTILITIES	3
E	STANDARD PLATES	3
F	MISCELLANEOUS REMOVAL TABULATION	4
G	EARTHWORK TABULATION	4
H	AGGREGATE TABULATION	4
I	CONCRETE TABULATION	4
J	BITUMINOUS TABULATION	4
K	STORM SEWER TABLE	5
L	CASTING ASSEMBLY TABULATION	5
M	WATER MAIN TABLE	5
N	STRIPING & STRIPING TABULATION	5
O	EROSION CONTROL TABULATION	5
P	TURF ESTABLISHMENT TABULATION	5

BASIS OF ESTIMATED QUANTITES (C)

MATERIAL	CONVERSION FACTORS
AGGREGATE BASE CLASS 5	1.8 TON/CU YD
NON WEARING BITUMINOUS COURSE MIXTURE	110 LBS/SY-IN
WEARING BITUMINOUS COURSE MIXTURE	110 LBS/SY-IN
BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL/SY
FERTILIZER TYPE 3	350 LBS/ACRE
HYDRAULIC MATRIX, TYPE (BFM)	3500 LBS/ACRE

PRIVATE UTILITY OWNERS TABULATION (D)

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

EXISTING PRIVATE UTILITIES (D–1)

NOTES	STATION	OFFSET	ITEM INPLACE	OWNER	REMARKS
	1+33.66	25.4' RT	LIGHT POLE	CONNEXUS ENERGY	NO CONFLICT
	1+67.56	32.4' LT	LIGHT POLE	CONNEXUS ENERGY	RELOCATE TO STA. 2+59.09, OS 26.7' LT
	2+07.80'	111.3 LT	MnDOT VAULT	MnDOT	NO CONFLICT
	2+17.39	86.3' RT	LIGHT POLE	CONNEXUS ENERGY	RELOCATE TO STA 2+75.65, OS 34.2' RT
	3+12.29'	68.3' LT	PEDESTAL	MnDOT	NO CONFLICT
	3+73.97'	2.2' RT	POWER POLE	CONNEXUS ENERGY	REMOVE POLE, RELOCATE UTILITY POLE ANCHOR TO STA. 3+73.97, OS 33.0' LT
	22+80.69'	36.1' RT	MONITORING WELL	CITY OF RAMSEY	NO CONFLICT
	27+38.73'	25.7 LT	LIGHT POLE	CONNEXUS ENERGY	NO CONFLICT

NOTES:

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

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. 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."

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)
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4006L	MANHOLE OF CATCH BASIN PRECAST - DESIGNS G & H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER - 3' 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
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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Kevin. P. Kielb

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
ESTIMATED QUANTITIES

SHEET 3 OF 44

MISCELLANEOUS REMOVAL TABULATION (F)

STATION	OFFSET	CLEARING & GRUBBING	PAVEMENT MARKING REMOVAL	REMOVE CURB & GUTTER	REMOVE SEWER PIPE (STORM)	REMOVE PIPE CULVERTS	REMOVE BITUMINOUS PAVEMENT	REMOVE CONCRETE PAVEMENT	REMOVE DRAINAGE STRUCTURE	SAWING BITUMINOUS PAVEMENT (FUL DEPTH)	SAWING CONCRETE PAVEMENT (FUL DEPTH)	REMOVE SIGN	REMOVE FENCE	REMOVE WOOD POST	RELOCATE MISCELLANEOUS STRUCTURE
		LUMP SUM	SQ FT	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	EACH	LIN FT	LIN FT	EACH	LF	EACH	EACH
-3+23 TO 3+62	LT		115				400								
1+00 TO 28+13	LT & RT	1													
1+00 TO 5+15	LT & RT			1075	100	125	3360	65	3	790		13			1
3+60	40' LT													3	
26+02	LT & RT												115		
24+93 TO 28+13	LT & RT		8	565			2000	120		150	80	4			
	TOTALS:	1	123	1640	100	125	5760	185	3	940	80	17	115	3	1

EARTHWORK SUMMARY (G)

NOTES	ITEMS	UNIT	PROJECT TOTAL	RIVERDALE DRIVE STA 1+00 - STA 12+50 [1]	RIVERDALE DRIVE STA 12+50 - STA 28+13 [2]	TRAPROCK STREET STA 50+50 - STA 52+80	PROPOSED POND (3)
	UNADJUSTED VOLUMES BASED ON CROSS SECTIONS						
	EXCAVATION						
1,2,3	TOPSOIL (EV)	CY	6611	1160	3310		2141
4	REGULAR EXCAVATION (EV)	CY	3294	2214	830	250	
5	POND EXCAVATION (EV)	CY	3215				3215
	EMBANKMENT						
6	TOPSOIL REQUIRED (CV)	CY	1430	491	554	60	325
7	EMBANKMENT MATERIAL REQUIRED (CV) (UNDER ROADWAY)	CY	3155	215	2930	10	0
8	EMBANKMENT MATERIAL REQUIRED (CV) (IN BLVD)	CY	1660	109	1311	0	240
	EARTHWORK BALANCE						
	TOPSOIL BALANCE						
9	TOPSOIL REQUIRED (EV)	CY	2145	737	831	90	488
	TOPSOIL GENERATED (EV)	CY	6611	1160	3310	0	2141
10	EXCESS TOPSOIL (EV)	CY	4466	423	2479	-90	1654
	GRADING MATERIAL BALANCE						
11	MATERIAL GENERATED (EV)	CY	6509	2214	830	250	3215
12	EMBANKMENT MATERIAL REQUIRED (EV)	CY	6260	421	5513	13	312
13	EXCESS EMBANKMENT MATERIAL (EV)	CY	249	1793	-4683	237	2903
	EARTHWORK QUANTITIES TO SEQ						
	POND EXCAVATION (EV)	CY	3215				3215
14	COMMON EXCAVATION (EV)	CY	9905	3374	4140	250	2141
15	SUBGRADE EXCAVATION (EV)	CY	200				
15	GRANULAR BORROW (CV)	CY	200				

1 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 8 INCHES OF TOPSOIL THICKNESSS FROM STA 1+00 TO STA 12+50.
2 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 16 INCHES OF TOPSOIL THICKNESS FROM STA 12+50 TO STA 28+13.
3 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 18 INCHES OF TOPSOIL THICKNESS IN POND AREA.
4 EXCAVATION REQUIRED BELOW EXISTING TOPSOIL AND BELOW PROPOSED AGGREGATE BASE COURSE.
5 EXCAVATION REQUIRED BELOW TOPSOIL.
6 MINIMUM 4 INCHES OF TOPSOIL PLACED IN ALL VEGETATED AREAS DISTURBED DURING CONSTRUCTION.
7 FILL VOLUMES FROM CROSS SECTIONS.
8 FILL VOLUMES FROM CROSS SECTIONS (LESS TOPSOIL).
9 MINIMUM 4 INCHES OF TOPSOIL PLACED WITH A SHRINKAGE FACTOR OF 1.5 APPLIED FROM CV TO EV.
10 MATERIAL TO BE LOADED ONTO CITY TRUCKS BY CONTRACTOR & HAULED OFF-SITE BY OWNER.
11 REGULAR EXCAVATION AND POND EXCAVATION BELOW TOPSOIL.
12 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.
13 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.
14 INCLUDES TOPSOIL EXCAVATION AND REGULAR EXCAVATION.
15 QUANTITIES TO BE USED AS DIRECTED BY ENGINEER IF POOR SOILS ARE ENCOUNTERED.

AGGREGATE TABULATION (H)

STATION	OFFSET	AGGREGATE BASE, CL 5
		TON
1+00 TO 28+13	LT & RT	6400
1+08 TO 2+71	29' LT	50
1+09 TO 2+62	29' RT	50
3+68 TO 5+14	40' RT	45
26+65 TO 27+60	LT & RT	30
	TOTALS:	6575

NOTES
1) AGGREGATE BASE CLASS 5 BASED ON 1.8 TON/CY
2) FOR ROADWAY AND TRAIL ONLY
3) AGGREGATE BASED ON 8" DEPTH FOR ROAD SECTIONS
4) AGGREGATE BASED ON 4" DEPTH FOR TRAIL SECTIONS
5) AGGREGATE TO BE SALVAGED FROM CITY STOCKPILE. LOCATION SHOWN ON TITLE PAGE.

CONCRETE TABULATION (I)

STATION	OFFSET	6" CONCRETE WALK	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B624	8" CONCRETE DRIVEWAY PAVEMENT	TRUNCATED DOMES
		SQ FT	LIN FT	LIN FT	SQ YD	SQ FT
1+00 TO 28+13	LT & RT		5900			
2+61 TO 2+71	20' LT	90				20
2+61 TO 2+97	20' RT	460				40
3+56 TO 3+68	30' RT	200				30
25+40	LT			5		
26+34 TO 28+13	LT			15	110	
	TOTALS:	750	5900	20	110	90

BITUMINOUS TABULATION (J)

STATION	OFFSET	BITUMINOUS MATERIAL FOR TACKCOAT (INCIDENTAL)	TYPE SP 9.5 WEARING COURSE MIXTURE SPWEA340B	TYPE SP 12.5 NON WEARING COURSE MIXTURE SPNWB340B
		GAL	TON	TON
1+00 TO 28+13	LT & RT	710	1560	1950
1+08 TO 2+71	29' LT		25	
1+09 TO 2+62	29' RT		26	
3+68 TO 5+14	40' RT		25	
26+65 TO 27+60	LT & RT		17	
	TOTALS:	710	1653	1950

NOTES
1) WEARING BITUMINOUS COURSE MIXTURE BASED ON 110 LBS/SY-IN
2) NON WEARING BITUMINOUS COURSE MIXTURE BASED ON 110 LBS/SY-IN
3) BITUMINOUS MATERIAL FOR TACK COAT BASED ON .05 GAL/SY (INCIDENTAL)

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Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TABULATIONS

SHEET 4 OF 44

STORM SEWER TABLE (K)

STRUCTURE	STATION, OFFSET	RIM ELEV	OUTLET ELEV	ASSEMBLY	DRAINS TO	DOWNSTREAM ELEV	PIPE GRADE (%)	18" RCP APRON EACH	15" RCP STORM LIN FT	18" RCP STORM LIN FT	DESIGN 48-4020 LIN FT	DESIGN SPECIAL 1 LIN FT	DESIGN SPECIAL 2 LIN FT	DESIGN G LIN FT	CONNECT TO EXISTING STM EACH	ADJUST CASTING EACH	NOTES
FES 1	22+33.50, 65.88' LT	NA	858.00	NA	NA	NA	NA	1									INCLUDES TRASH GUARD
CB 2	20+00.00, 20.67' LT	862.69	858.58	R-3246AR	FES 1	858.00	0.22%			260		6.11					SUMP ELEV = 856.58
CB 3	19+94.00, 20.67' LT	862.70	858.70	R-3246AR	CB2	858.68	0.28%		6				4.00				
CB 4	20+00.00, 20.67' RT	862.69	858.70	R-3246AR	CB 2	858.58	0.29%		41				3.99				
CB 5	19+94.00, 20.67' RT	862.70	858.72	R-3246AR	CB 4	858.70	0.30%		6				3.98				
EOF 6	20+00.00, 35.0' RT	861.80	858.80	R-2560E	CB 4	858.70	0.70%		14					3.00			
CB 7	14+75.93, 20.67' LT	865.17	860.65	R-3246AR	CB 3	858.80	0.36%		518				4.52				
CB 8	14+75.93, 20.67' RT	865.17	861.17	R-3246AR	CB 7	860.75	1.02%		41				4.00				
CB 9	9+50.46, 20.67' LT	866.22	862.22	R-3246AR	CB 7	860.75	0.28%		525				4.00				
CB 10	9+50.49, 20.67' RT	866.22	862.72	R-3246AR	CB 9	862.32	0.97%		41				3.50				
CB 11	5+50.00, 20.67' LT	868.09	864.09	R-3246AR	CB 9	862.32	0.44%		400				4.00				
CB 12	5+50.00, 20.67' RT	868.09	864.59	R-3246AR	CB 11	864.19	0.97%		41				3.50				
MH 13	2+10.48, 51.92' RT	870.33	865.16	R-2560E	EX MH	NA	NA				5.17				1		
CB 14	52+54.41, 21.25' LT	869.14	865.39	R-3246AR	MH 13	865.16	0.30%		76				3.75				
CB 15	1+67.81, 20.67' LT	870.00	865.68	R-3246AR	EX MH	NA	NA						4.32		1		
EX MH	1+15.58, 15.14' RT	870.48	NA	NA	NA	NA	NA									2	SALVAGE AND REINSTALL EX CASTING
							TOTALS:	1	1709	260	5.17	6.11	43.56	3.00	2	2	

WATER MAIN TABLE (M)

STATION, OFFSET	ADJUST GV & BOX EACH	ADJUST HYDRANT & VALVE EA	CONNECT TO EXISTING WMN EACH	HYDRANT EACH	6" GV & BOX EACH	12" GV & BOX EACH	6" DIP WATERMAIN LIN FT	12" DIP WATERMAIN LIN FT	WMN FITTINGS POUNDS
2+55, 32' RT		1							
2+97, 74' RT	1		1						172
2+97 TO 26+62								2360	430
8+00, 10' RT							40		126
11+20, 10' RT				1	1		17		110
11+23, 10' RT	1					1			
18+00, 10' RT							40		126
26+62	1		1			1			76
TOTALS:	3	1	2	1	1	2	97	2360	1040

CASTING ASSEMBLY TABULATION (L)

ASSEMBLY	DESCRIPTION (CASTING NO.)	QUANTITY
R-2560E	SERIES BEEHIVE GRATES WITH FRAMES	2
R-3246AR	CASTING TYPE: NEENAH R-3246AR; EAST JORDAN IRON WORKS 7030Z1/7030T4/7030M5 COMBINATION; D&L FOUNDRY MODEL NO 1-3519; OR EQUAL	12

EROSION CONTROL TABULATION (O)

STATION	OFFSET	STORM DRAIN INLET PROTECTION EACH	EROSION CONTROL BLANKET CATEGORY 3N SQ YD	RANDOM RIPRAP CLASS III TON	SEDIMENT CONTROL LOG TYPE COMPOST LIN FT	SILT FENCE TYPE MS LIN FT	STABILIZED CONSTRUCTION EXIT (1) LUMP SUM
		20					1
1+00 TO 3+80	100' LT		3680				
1+07 TO 2+96	LT					180	
2+00 TO 3+00	LT				60		
14+00 TO 23+76	40' RT					946	
21+90 TO 25+53	60' LT		4415				
22+32	65' LT			24			
19+95	65' RT				40		
	TOTALS:	20	8095	24	100	1126	1

1. TWO LOCATIONS REQUIRED (MINIMUM)

TURF ESTABLISHMENT TABULATION (P)

STATION	OFFSET	SEEDING ACRE	SEED, MIXTURE 25-121 POUND	SEED, MIXTURE 33-262 POUND	SEED, MIXTURE 35-221 POUND	SODDING TYPE SALT TOLERANT SQ YD	FERTILIZER TYPE 3 POUND	HYDRAULIC BONDED FIBER MATRIX POUND
1+00 TO 28+13	LT	2.5	230				875	6400
1+00 TO 28+13	RT	1.7			95		595	5950
22+33 TO 24+93	65' LT	0.4		26			140	1400
26+60 TO 27+60	LT					545		
	TOTALS:	4.60	230	26	95	545	1610	13750

NOTES
1) SEED, MIXTURE 25-121 BASED ON 92 LBS/ACRE
2) SEED, MIXTURE 33-262 BASED ON 66 LBS/ACRE
3) SEED, MIXTURE 35-221 BASED ON 55 LBS/ACRE
4) FERTILIZER TYPE 3 BASED ON 350 LBS/ACRE
5) HYDRAULIC MATRIX, TYPE (BFM) BASED ON 3500 LBS/ACRE

SIGNING & STRIPING TABULATION (N)

STATION	OFFSET	SIGN PANEL TYPE C SQ FT	PAVEMENT MESSAGE EPOXY WHITE SQ FT	4" SOLID LINE EPOXY WHITE LIN FT	4" DOUBLE SOLID LINE EPOXY YELLOW LIN FT	24" SOLID LINE EPOXY WHITE LIN FT	24" SOLID LINE EPOXY YELLOW LIN FT
-3+23 TO 3+62	LT			750			
1+00 TO 28+13	LT & RT		60	6050	3130		110
3+14	LT	8.00					
3+55	RT	6.25				22	
4+20	LT	8.25					
23+65	RT	9.00					
25+58	RT	6.25				18	
25+60	LT	6.25				40	
26+00	RT	8.00					
26+83	LT	6.25				20	
	TOTALS:	58	60	6800	3130	100	110

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Kevin P. Kielb

LIC. NO. 23211 DATE 04/20/2017

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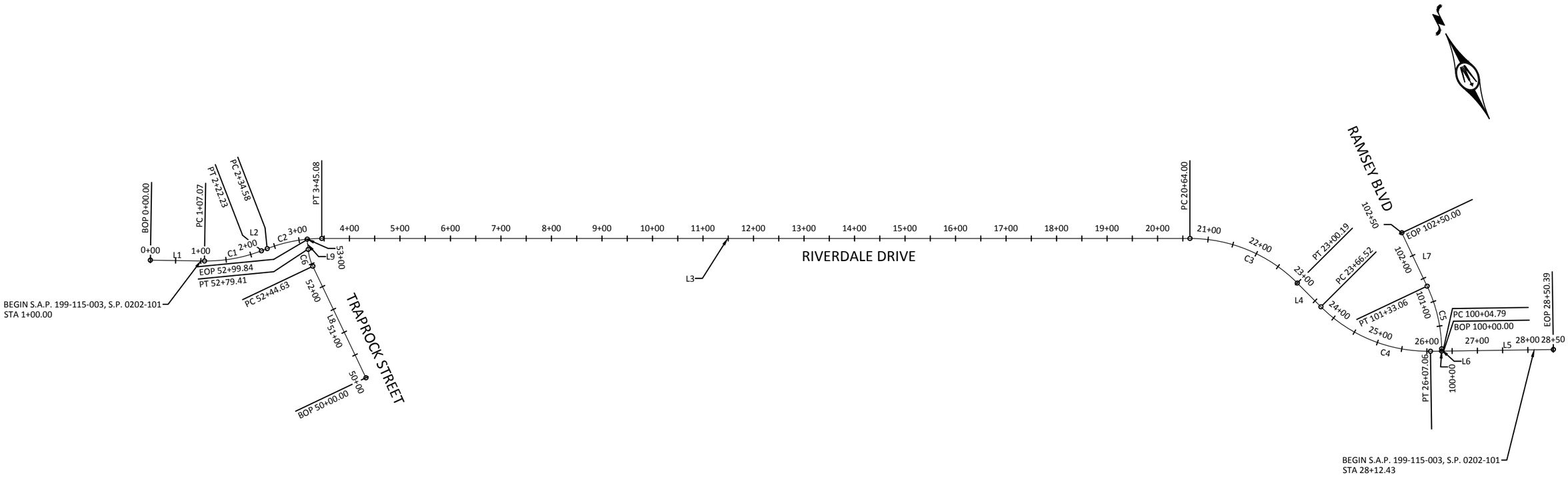
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TABULATIONS



RIVERDALE DRIVE											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L1	0+00	1+07.07	107.07				170699.80	450575.68	170652.28	450671.63	S63° 39' 17"E
C1	1+07.07	2+22.23	115.16	21°59'36"	300.00	114.45	170652.28	450671.63	170621.99	450782.00	S74° 39' 05"E
L2	2+22.23	2+34.58	12.35				170621.99	450782.00	170621.05	450794.31	S85° 38' 53"E
C2	2+34.58	3+45.08	110.50	21°06'15"	300.00	109.88	170621.05	450794.31	170592.79	450900.49	S75° 05' 46"E
L3	3+45.08	20+64	1718.92				170592.79	450900.49	169853.97	452452.53	S64° 32' 38"E
C3	20+64	23+00.19	236.20	45°06'38"	300.00	230.15	169853.97	452452.53	169682.91	452606.49	S41° 59' 19"E
L4	23+00.19	23+66.52	66.33				169682.91	452606.49	169620.35	452628.56	S19° 26' 00"E
C4	23+66.52	26+07.06	240.53	45°56'19"	300.00	234.14	169620.35	452628.56	169447.46	452786.45	S42° 24' 09"E
L5	26+07.06	28+50.39	243.33				169447.46	452786.45	169346.05	453007.65	S65° 22' 19"E

TRAPROCK STREET											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L8	50+00	52+44.63	244.63				170306.01	450860.82	170550.64	450860.92	N0° 01' 17"E
C6	52+44.63	52+79.41	34.77	19°55'27"	100.00	34.60	170550.64	450860.92	170584.72	450866.91	N9° 59' 01"E
L9	52+79.41	52+99.84	20.43				170584.72	450866.91	170603.92	450873.88	N19° 56' 44"E

RAMSEY BOULEVARD											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L6	100+00	100+04.79	4.79				169438.22	452806.60	169442.58	452808.60	N24° 37' 41"E
C5	100+04.79	101+33.06	128.26	24°29'48"	300.00	127.29	169442.58	452808.60	169566.91	452835.89	N12° 22' 47"E
L7	101+33.06	102+50	116.94				169566.91	452835.89	169683.85	452836.16	N0° 07' 53"E

0 100 200
SCALE FEET

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Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

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CHECKED JWC

City of RAMSEY

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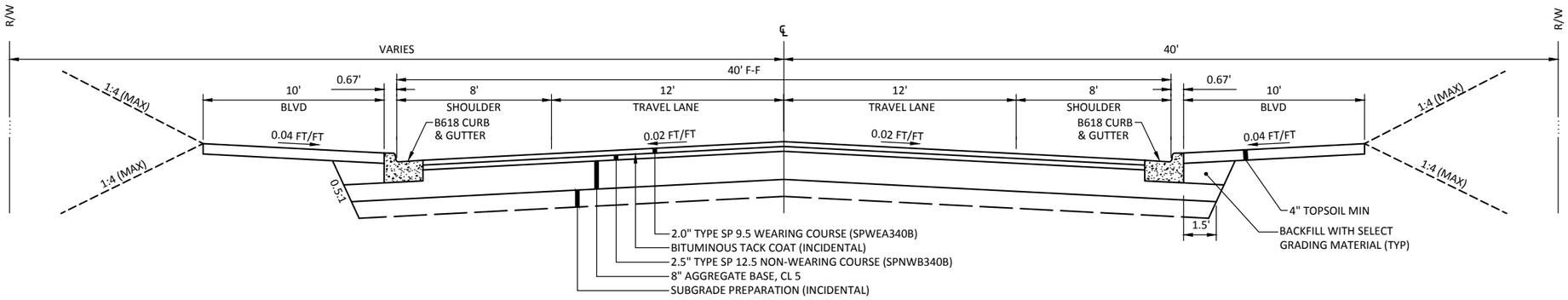
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
ALIGNMENT PLAN & TABULATION

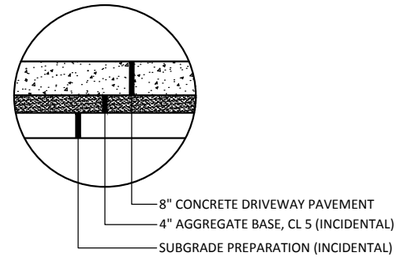
SHEET 6 OF 44



TYPICAL SECTION - RIVERDALE DRIVE STA. 5+16.00 TO 25+36.36

NOT TO SCALE

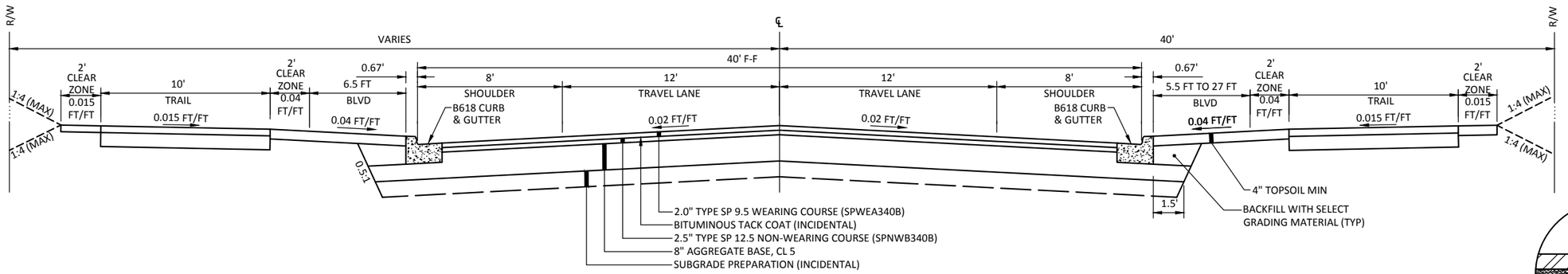
NOTE: AGGREGATE BASE CL 5 TO BE SALVAGED FROM CITY STOCKPILE SHOWN ON THE TITLE PAGE OF THIS PLAN



FULL SECTION IN UNIT BID PRICE

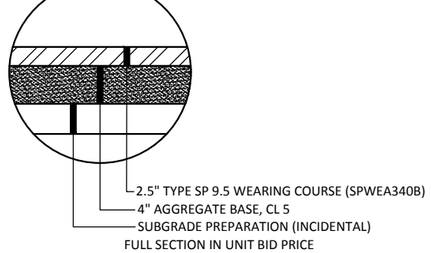
CONCRETE DRIVEWAY PAVEMENT

NOT TO SCALE



TYPICAL SECTION - RIVERDALE DRIVE STA. 1+00 TO STA. 5+16.00

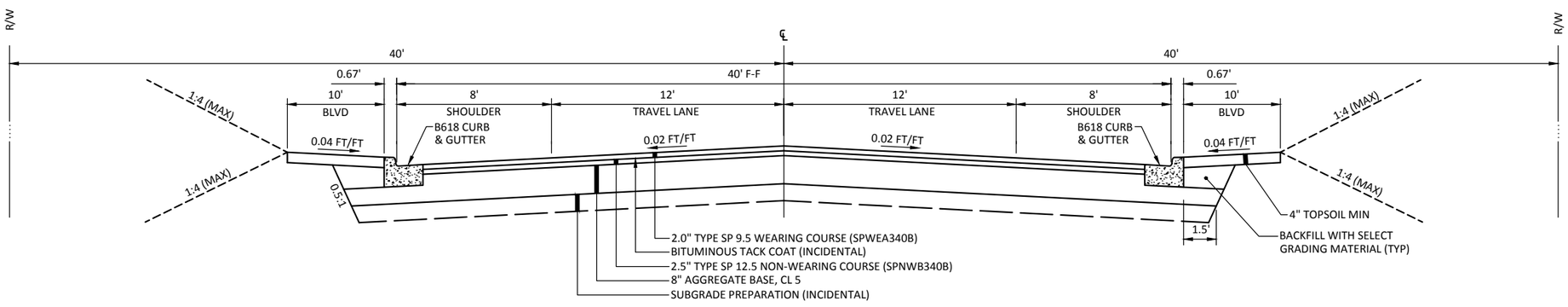
NOT TO SCALE



FULL SECTION IN UNIT BID PRICE

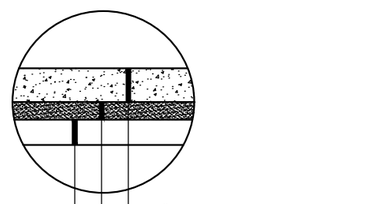
BITUMINOUS TRAIL PAVEMENT

NOT TO SCALE



TYPICAL SECTION - TRAPROCK STREET

NOT TO SCALE



FULL SECTION IN UNIT BID PRICE

CONCRETE WALK

NOT TO SCALE

NOTE: DETAILS ARE NOT TO SCALE

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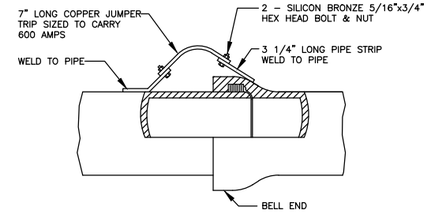
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

TYPICAL SECTIONS

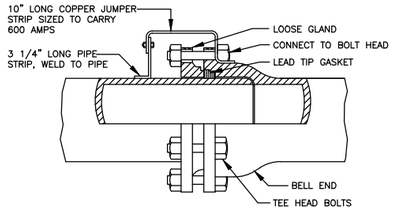
SHEET 7 OF 44



PUSH ON JOINT

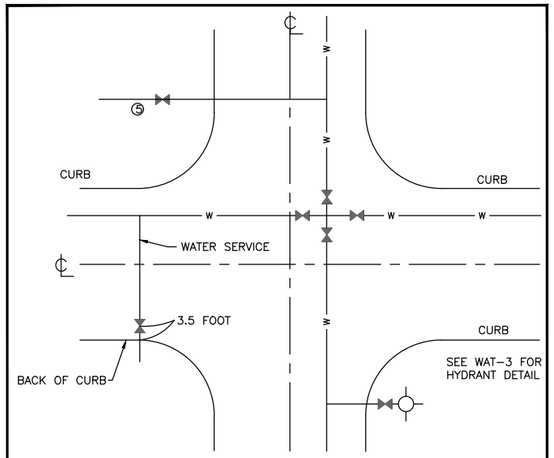
NOTE: DO NOT PASS CURRENT THROUGH PIPE UNLESS PIPE IS FULL OF WATER.

ALTERNATE METHOD BY AMERICAN CAST –IRON USING 4 COPPER CONTACT STRIPS IS AN APPROVED EQUAL TO ABOVE



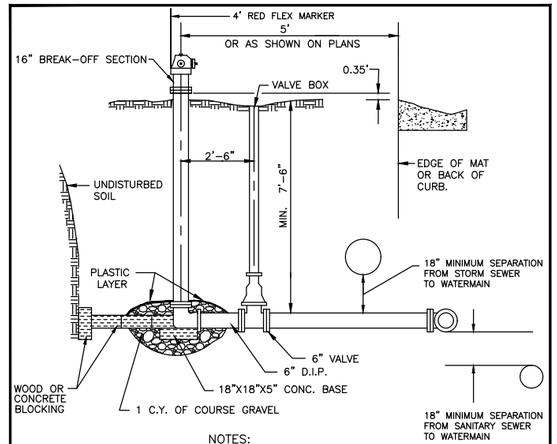
MECHANICAL JOINT

APPROVED		
DATE 7–93	City of RAMSEY	**STANDARD DETAILS** JOINT CONNECTION FOR ELECTRICAL CONDUCTIVITY
		CITY PLATE No. **WAT–1**



1) VALVES TO BE CLUSTERED AT CROSS ON THE TEE BY PLACING IMMEDIATELY ADJACENT TO FITTING
2) VALVE EXTENSIONS SHALL BE REQUIRED SUCH THAT VALVE OPERATOR NUT IS WITHIN 1 FOOT OF FINISHED GRADE
3) WATERMAIN TO BE LOCATED ON NORTH AND EAST SIDES OF STREET 10 FEET FROM CENTERLINE
4) ALL SERVICE VALVES IN ROAD WAY SHALL BE 3.5 FOOT FROM BACK OF CONCRETE CURB
5) ALL VALVES NOT IN BITUMINOUS PAVEMENT SHALL BE MARKED WITH A BLUE 5 FOOT CARSONITE MARKER

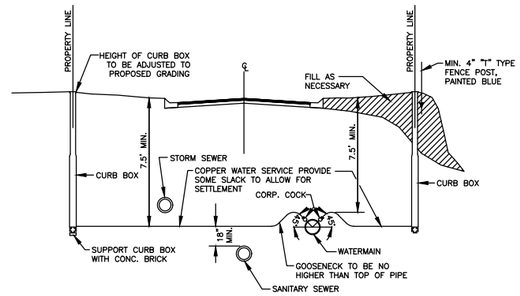
APPROVED		
DATE 3–2004	City of RAMSEY	**STANDARD DETAILS** GENERAL WATERMAIN VALVE LOCATION
		CITY PLATE No. **WAT–2**



NOTES:

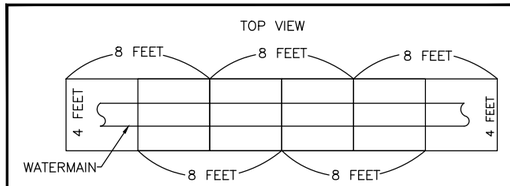
1. HYDRANTS TO BE ORDERED FOR 8'–0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANT EXTENSIONS MAY BE REQUIRED.
2. HYDRANT SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2–3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS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

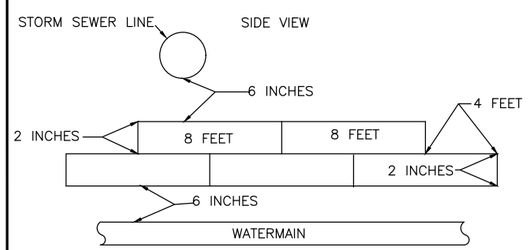
APPROVED		
DATE 4–2005	City of RAMSEY	**STANDARD DETAILS** HYDRANT
		CITY PLATE No. **WAT–3**



WATER SERVICE
NTS

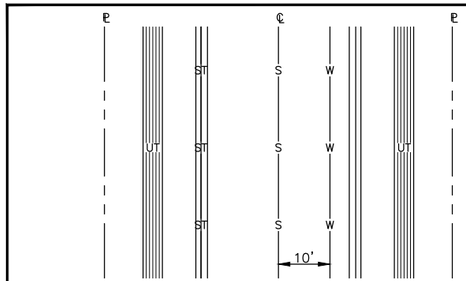
APPROVED		
DATE 7–93	City of RAMSEY	**STANDARD DETAILS** WATER SERVICE
		CITY PLATE No. **WAT–4**





NOTES: 1) SHEETS ARE 2 INCHES BY 4 FEET BY 8 FEET
2) SURFACE PREPARATION SHALL BE SMOOTH AND ROCK FREE
3) JOINTS WILL BE OVERLAPPED BY 4 FEET
4) POLYSTYRENE INSULATION OR APPROVED EQUAL

APPROVED		
DATE 4–2005	City of RAMSEY	**STANDARD DETAILS** UTILITY INSULATION
		CITY PLATE No. **WAT–5**



LEGEND

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

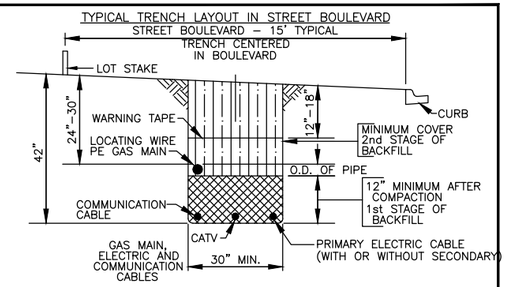
NOTES:

- 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.

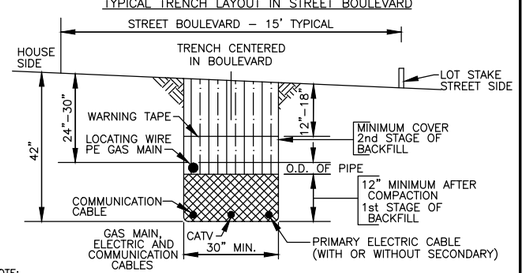
UTILITY LOCATIONS
N.T.S.

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

TYPICAL TRENCH LAYOUT IN STREET BOULEVARD
STREET BOULEVARD – 15' TYPICAL
TRENCH CENTERED IN BOULEVARD



TYPICAL TRENCH LAYOUT IN STREET BOULEVARD
STREET BOULEVARD – 15' TYPICAL
TRENCH CENTERED IN BOULEVARD



NOTE:
TRENCH AND UTILITY LOCATIONS SHALL CORRESPOND WITH STREET SERIES LAYOUT AND CONNEXUS PLANS.

TYPICAL TRENCH LOCATIONS
N.T.S.

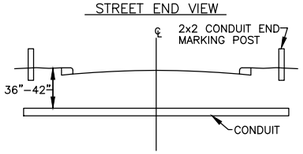
APPROVED		
DATE 7–96	City of RAMSEY	**STANDARD DETAILS** TYPICAL TRENCH LOCATIONS
		CITY PLATE No. **UTL–2**

CONDUIT INSTALLATION GUIDE

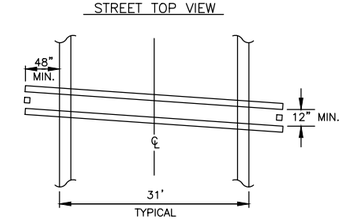
REQUIREMENTS:

1. Conduit(s) shall be 4" PVC Schedule 40 unless otherwise noted.
2. Depth of conduit(s) shall be 36" to 42".
3. Extend conduit(s) a minimum of 48" beyond curb and mark ends with a 2x2 marking post.
4. If multiple conduit(s) are needed, they shall be separated by a minimum of 12".
5. At street intersections, install the conduit(s) in line with utility trench line which is 7' from lot line (See drawing of street intersection on back of this spec).

STREET END VIEW



STREET TOP VIEW



CONDUIT INSTALLATION
N.T.S.

APPROVED		
DATE 7–96	City of RAMSEY	**STANDARD DETAILS** CONDUIT INSTALLATION
		CITY PLATE No. **UTL–3**

NOTE: DETAILS ARE NOT TO SCALE

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Kevin. P. Kielb
Kevin. P. Kielb LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

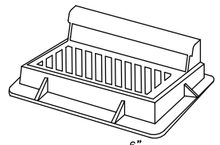
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

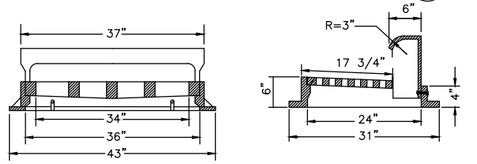
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
WATERMAIN DETAILS

SHEET 8 OF 44

NOTE:
1. CATCH BASIN CASTING SHALL BE NEENAH R-3246R APPROVED EQUAL





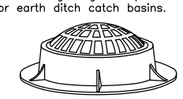
STANDARD CATCHBASIN CASTING
N.T.S.

APPROVED		STANDARD DETAILS
DATE 2-2007	City of RAMSEY	STORMWATER CASTINGS
		CITY PLATE No. STO-2

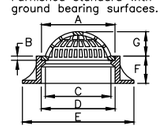
R-2560 Series
Beehive Grates with Frames

Suitable for drainage in circumstances where clogging of a flat grating is a problem. Excellent for roadside or earth ditch catch basins.

Furnished standard with ground bearing surfaces.

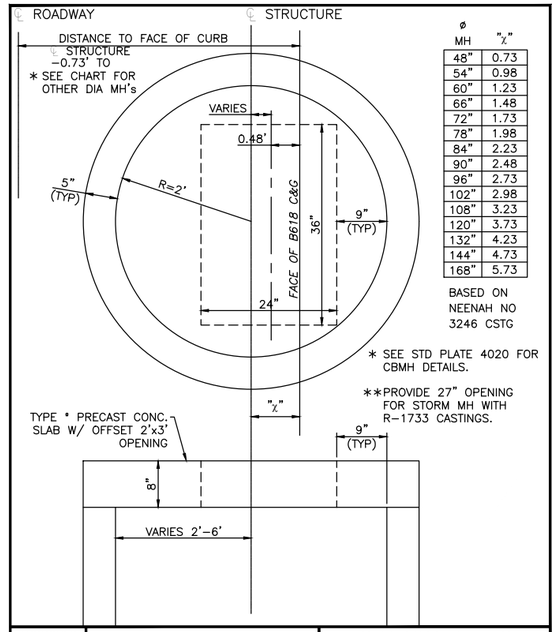


Illustrating R-2560-E



Catalog No.	Dimensions in inches							Wt. LBS
	A	B	C	D	E	F	G	
R-2560-A	12	1	11	12 1/2	19	4	4	80
R-2560-B	15 1/2	1 1/4	15	15	21	5	3	120
R-2560-C	18	1 1/4	16 1/2	20 1/2	30	8	4	190
R-2560-C1	22	1 1/2	20	23	28	4	4 1/2	195
R-2560-C2	22	1 1/2	20 1/2	24	28 1/4	6	4 1/2	270
R-2560-D	22	1 1/2	20	24 1/2	35	9	4 1/2	315
R-2560-D1	22	1 1/2	20	23	28 1/4	4	7	210
R-2560-D2	22	1 1/2	20 1/2	24	35	6	7	285
R-2560-D3	22	1 1/2	20	24 1/2	36	9	7	345
R-2560-E	23	1 1/2	21	25 1/2	35 1/2	9	7	340
R-2560-EA	25 3/4	7/8	24 1/8	26 1/2	35 1/2	4	6	235
R-2560-EB	25 3/4	7/8	24 1/8	26 1/2	35 1/2	4	9	255
R-2560-E1	25 3/4	7/8	24 1/8	26 1/2	35 1/2	7	6	285
R-2560-E2	25 3/4	7/8	24 1/8	26 1/2	35 1/2	7	9	300
R-2560-E5	25 3/4	7/8	24 1/8	26 1/2	35 1/2	8	6	345
R-2560-E6	25 3/4	7/8	24 1/8	26 1/2	35 1/2	8	9	365
R-2560-E7	25 3/4	7/8	24 1/8	26 1/2	35 1/2	9	6	350
R-2560-E8	25 3/4	7/8	24 1/8	26 1/2	35 1/2	9	9	365
R-2560-E9	25 3/4	7/8	24 1/8	26 1/2	35 1/2	10	6	360
R-2560-E10	25 3/4	7/8	24 1/8	26 1/2	35 1/2	10	9	385
R-2560-G	32	1 1/2	30	36	46	7	4	535

APPROVED		STANDARD DETAILS
DATE 2-2007	City of RAMSEY	STORMWATER CASTINGS
		CITY PLATE No. STO-2



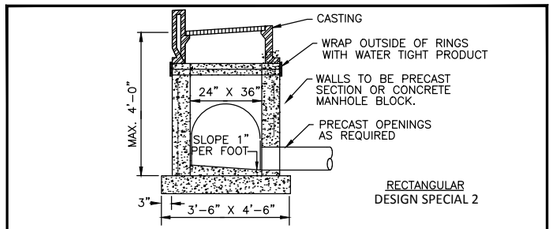
Ø MH	"X"
48"	0.73
54"	0.98
60"	1.23
66"	1.48
72"	1.73
78"	1.98
84"	2.23
90"	2.48
96"	2.73
102"	2.98
108"	3.23
120"	3.73
132"	4.23
144"	4.73
168"	5.73

BASED ON NEENAH NO 3246 CSTG

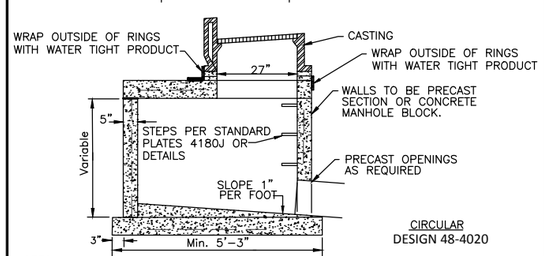
* SEE STD PLATE 4020 FOR CBMH DETAILS.

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

APPROVED		STANDARD DETAILS
DATE 4-2005	City of RAMSEY	SLAB TOP MANHOLE DESIGN SPECIAL 1
		CITY PLATE No. STO-5



RECTANGULAR
DESIGN SPECIAL 2

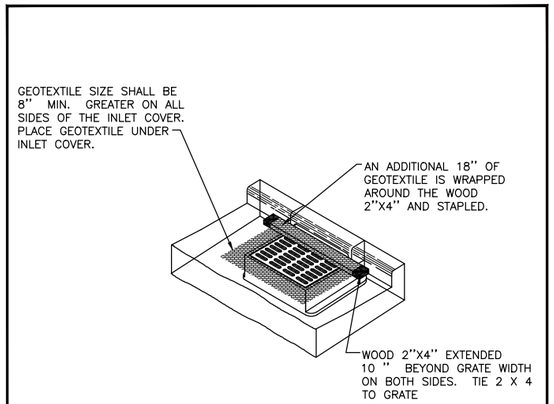


CIRCULAR
DESIGN 48-4020

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

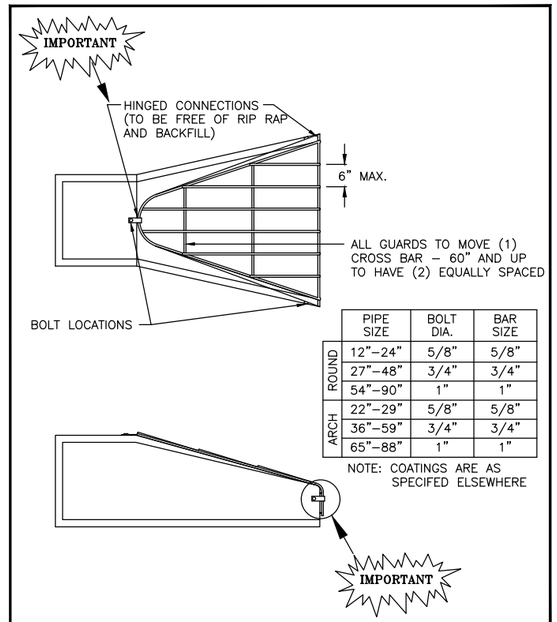
APPROVED		STANDARD DETAILS
DATE 4-2007	City of RAMSEY	CATCH BASIN
		CITY PLATE No. STO-7



GEOTEXTILE FILTER AT STREET INLET WITH CURB BOX
(TYPE III SPEC. 3733)

STREET INLET CONTROL DEVICE
N.T.S.

APPROVED		STANDARD DETAILS
DATE 10-2005	City of RAMSEY	STREET INLET CONTROL DEVICE
		CITY PLATE No. STO-11



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

NOTE: COATINGS ARE AS SPECIFED ELSEWHERE

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

NOTE: DETAILS ARE NOT TO SCALE

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Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

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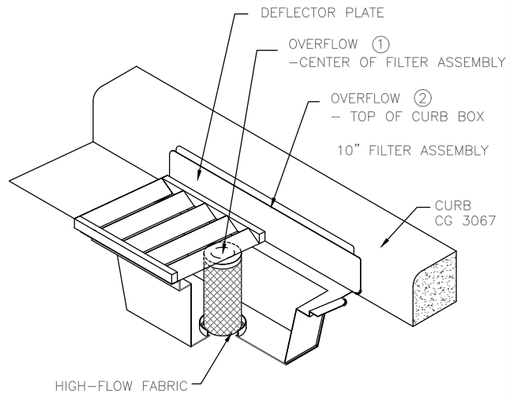
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORM SEWER DETAILS

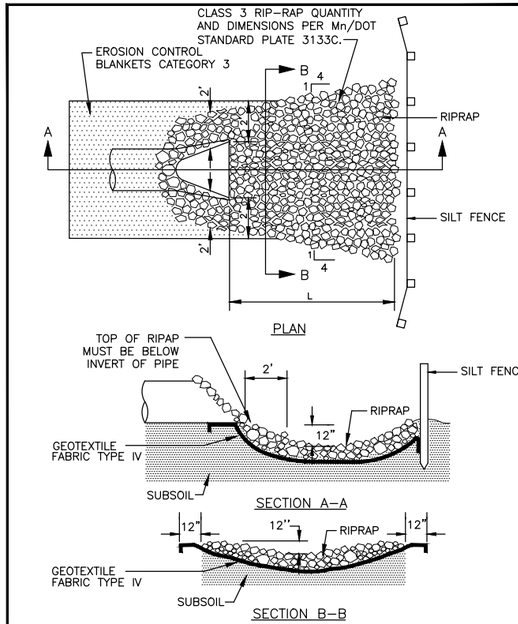


INLET PROTECTION
- WIMCO CURB AND GUTTER 3067
- LANGE INDUSTRIES STANDARD CURB IPD
- ADS FLEXSTORM CATCH–IT
- OR APPROVED EQUAL

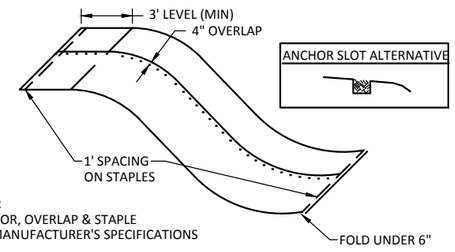
NOTE: N.T.S.

THIS INLET PROTECTION SHALL BE USED IMMEDIATELY FOLLOWING CURB & GUTTER CONSTRUCTION. INLET PROTECTION SHALL REMAIN INSTALLED AND MAINTAINTED UNTIL ALL HOME CONSTRUCTION IS COMPLETE.

APPROVED		STANDARD DETAILS
DATE 9–2011	City of RAMSEY	CITY PLATE No. STM–16

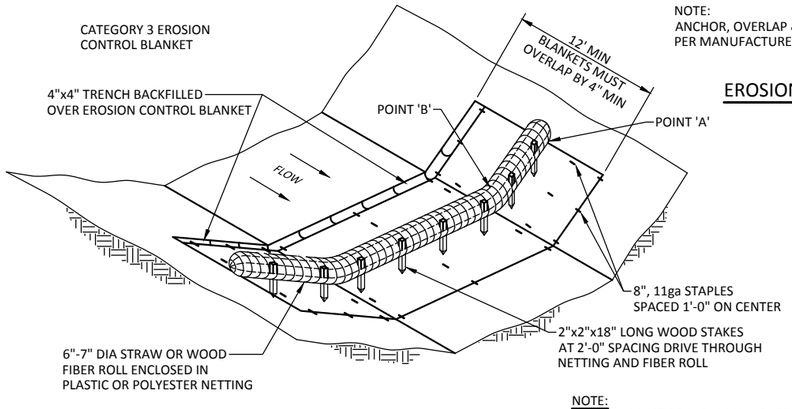


APPROVED		STANDARD DETAILS SEDIMENT CONTROL AT PIPE
DATE 2–2006	City of RAMSEY	CITY PLATE No. STO–9



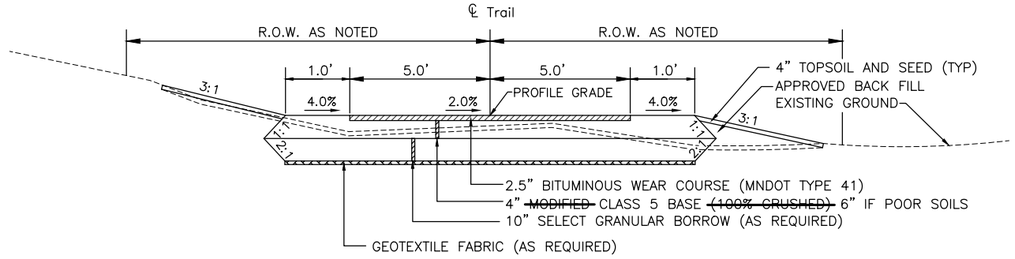
NOTE:
ANCHOR, OVERLAP & STAPLE PER MANUFACTURER'S SPECIFICATIONS

EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

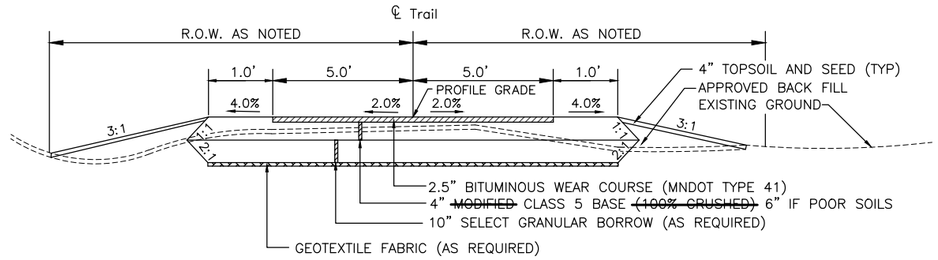


NOTE:
POINT 'A' MUST BE 1'-0" MIN HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE DITCH CHECK AND NOT AROUND THE ENDS

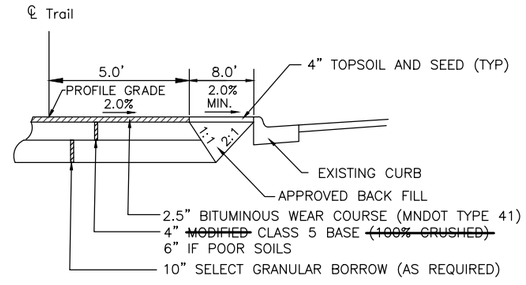
DITCH CHECK - BIOROLL
NOT TO SCALE



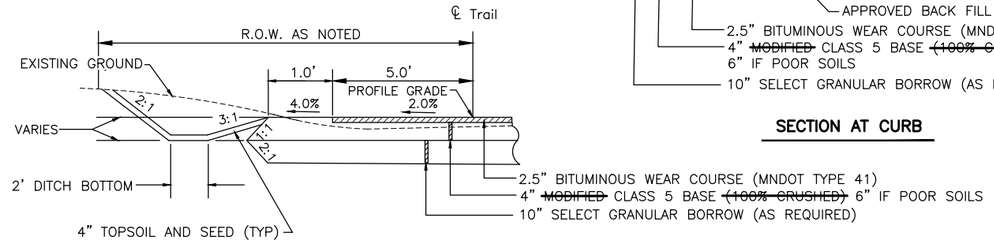
TYPICAL SECTION A



TYPICAL SECTION B



SECTION AT CURB



DITCH SECTION

NOTES:
APPROVED TOPSOIL MUST MEET ORGANIC CONTENT SPECIFICATIONS FOR ENTIRE BOULEVARD IN AREAS INCLUDING BOULEVARD TREES

APPROVED		STANDARD DETAILS TRAIL SPECIFICATIONS
DATE 1–2004	City of RAMSEY	CITY PLATE No. PARK 1

NOTE: DETAILS ARE NOT TO SCALE

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Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
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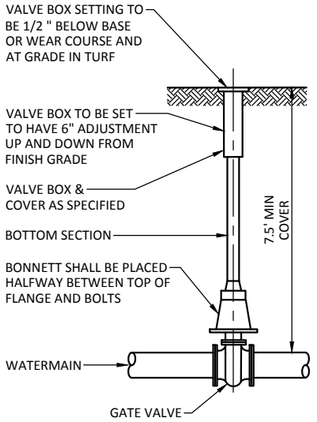
REV.	BY	DATE

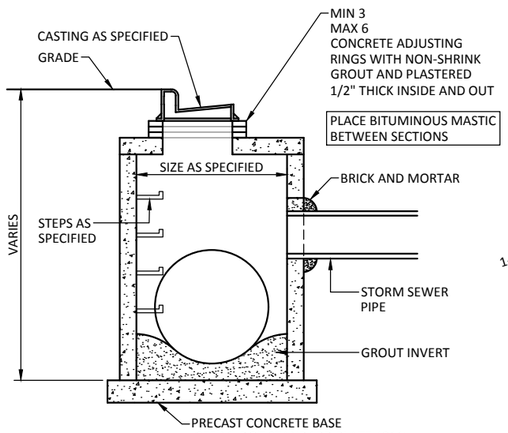
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DETAILS

SHEET 10 OF 44

NOTES:
1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS, STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN
2. VALVES IN EASEMENTS SHALL HAVE CHANNEL POST WITNESS MARKERS WITH REFLECTIVE "GV" SIGN
3. DEEP VALVES SHALL HAVE NUT EXTENSIONS INSTALLED TO ELEVATION TO ACCOMMODATE STANDARD 10' KEY; BOTTOM NUT SHALL BE BOLTED TO VALVE NUT AND ONLY ONE SECTION
4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION
5. GATE VALVES LOCATED WITHIN THE CONCRETE SIDEWALK SHALL INCLUDE A METAL SEPARATOR BETWEEN THE VALVE BOX AND THE CONCRETE

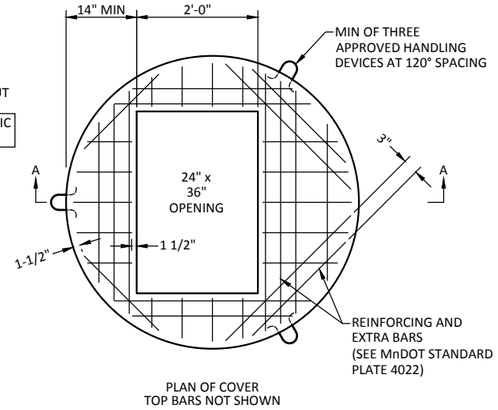


GATE VALVE BOX INSTALLATION
NOT TO SCALE

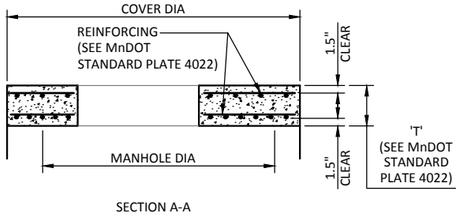


TYPICAL DESIGN 4022 CATCH BASIN

NOTES:
1. AASHTO HS 25 LOADING MAX FILL HEIGHT 15'
2. THE # 4022 SHALL BE PERMANENTLY MARKED ON THE TOP COVER
3. EQUIVALENT STEEL AREAS IN WIRE MESH MAY BE USED
4. REINFORCEMENT PER SPEC 3301, GRADE 60 A SINGLE HOOP OF 8ga STEEL WIRE



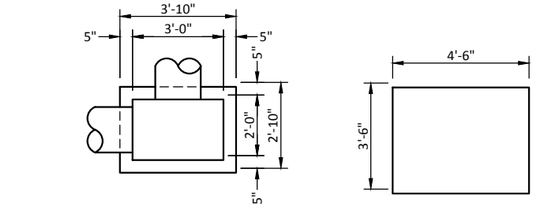
PLAN OF COVER
TOP BARS NOT SHOWN

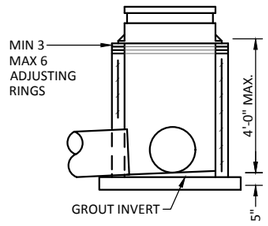


SECTION A-A

DESIGNATION:
DESIGN DIAMETER - STANDARD PLATE #
DESIGN 48-4020

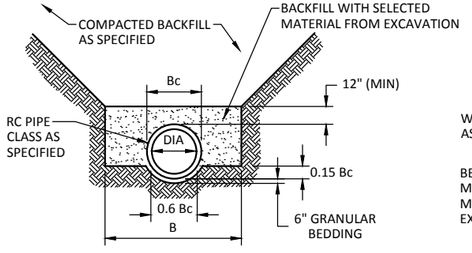
DRAINAGE STRUCTURE DESIGN SPECIAL 1
NOT TO SCALE





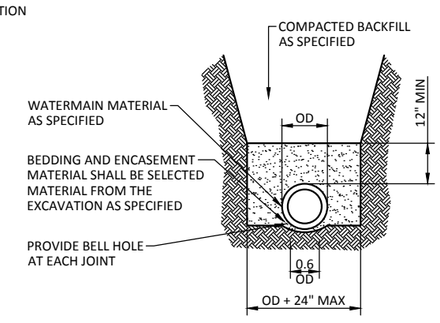
NOTES:
1. CASTING PER CONSTRUCTION DOCUMENTS
2. PIPE CUT-OUTS PER CONSTRUCTION DOCUMENTS
3. ALTERNATE CAST-IN-PLACE BASE CAN BE USED
4. MIN REINFORCING SHALL BE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN PER FOOT IN BOTH DIRECTIONS

DRAINAGE STRUCTURE DESIGN SPECIAL 2
NOT TO SCALE

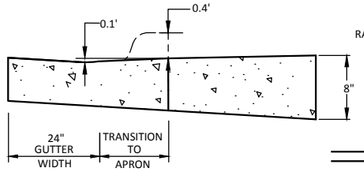


PIPE DIA	B
36" OR LESS	B + 24"$_C$
42" TO 54"	1.5 X Bc
60" OR OVER	B + 36"$_C$

RC PIPE CLASS "B" BEDDING
NOT TO SCALE

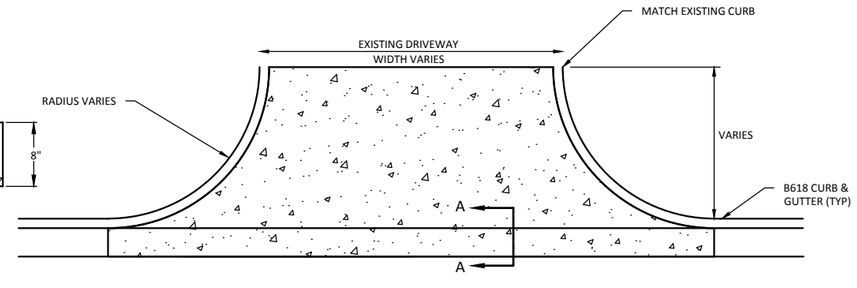


DIP WATERMAIN TRENCH
NOT TO SCALE

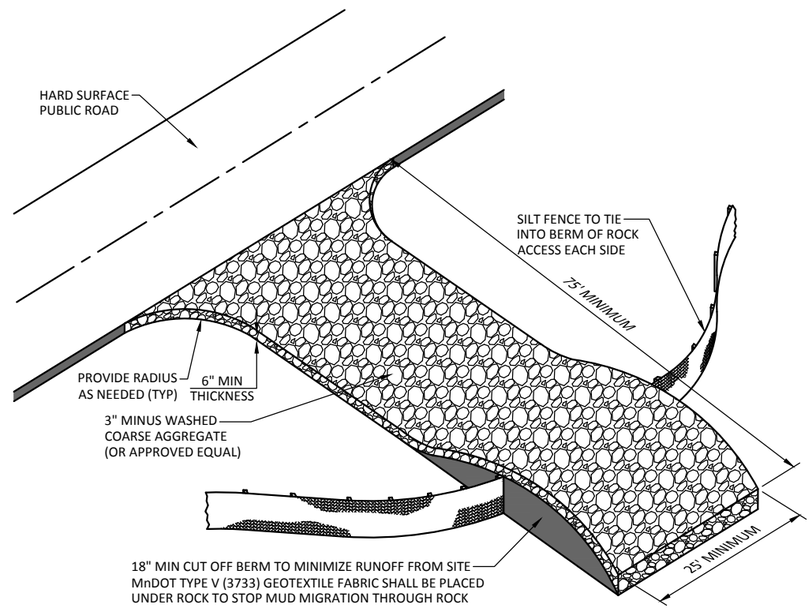


SECTION A-A
NOT TO SCALE

NOTE:
1. 8" CONCRETE W/4" CL. 5 BASE SHALL MAKE UP THE DRWY SECTION



CONCRETE DRIVEWAY APRON
NOT TO SCALE



STABILIZED CONSTRUCTION EXIT
NOT TO SCALE

NOTE: DETAILS ARE NOT TO SCALE

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

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 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

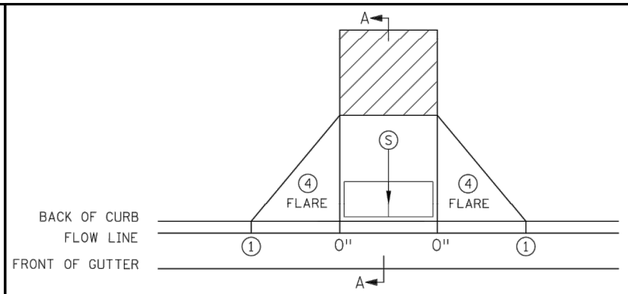
BOLTON & MENK

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

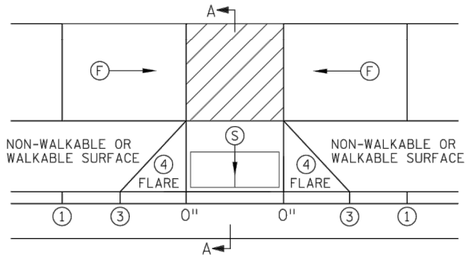
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DETAILS

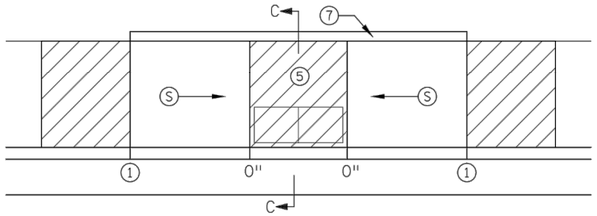
SHEET 11 OF 44



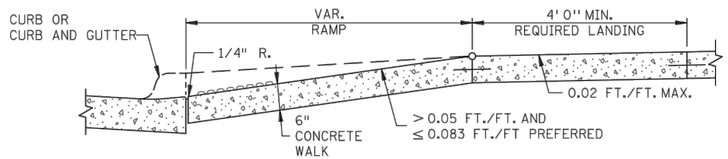
PERPENDICULAR



TIERED PERPENDICULAR

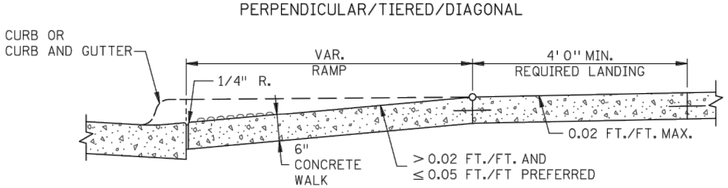


PARALLEL



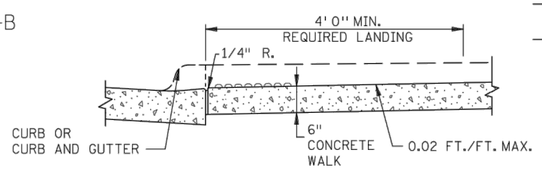
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



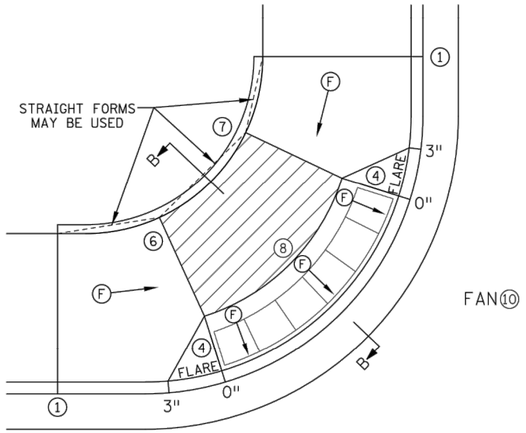
SECTION B-B

FAN

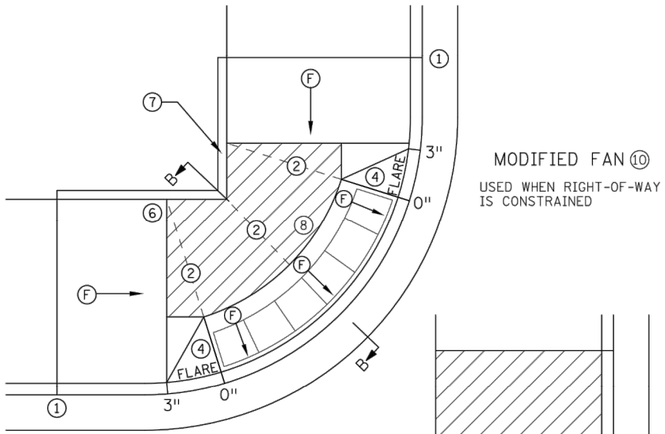


SECTION C-C

PARALLEL/DEPRESSED CORNER

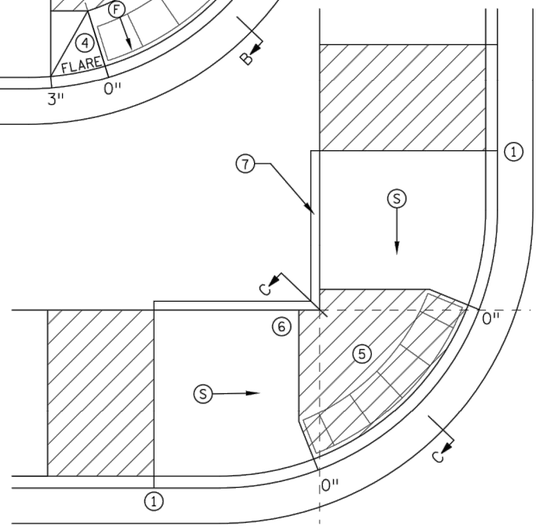


FAN (10)

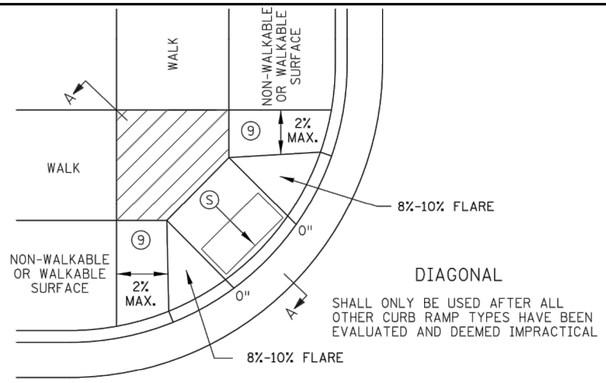


MODIFIED FAN (10)

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

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 6

NOTE: DETAILS ARE NOT TO SCALE

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DESIGNED	DRAWN	CHECKED
JWC	ZFL	JWC

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

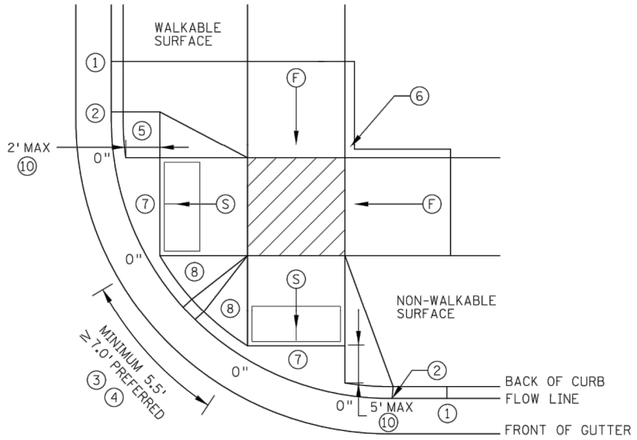
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

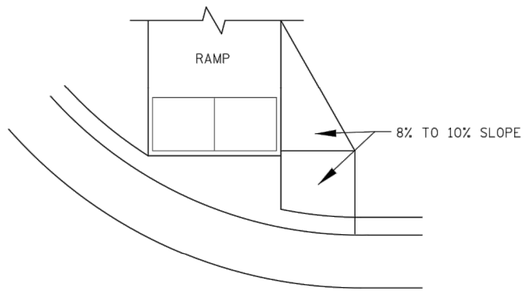
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

PEDESTRIAN CURB RAMP DETAILS

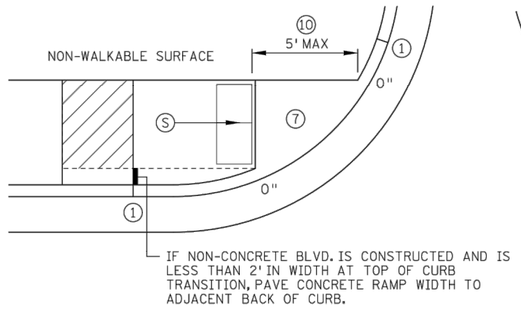
SHEET 12 OF 44



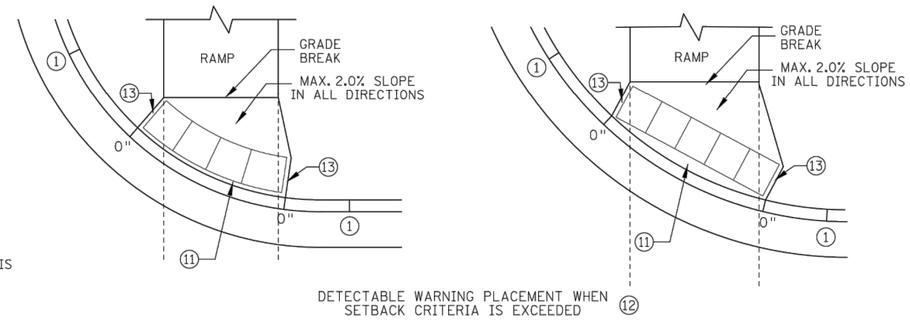
COMBINED DIRECTIONAL ⑨



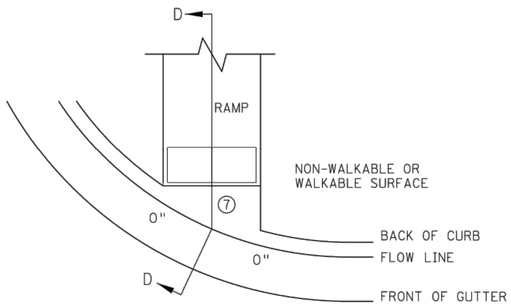
DIRECTIONAL RAMP WALKABLE FLARE



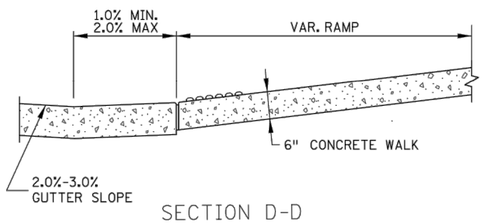
STANDARD ONE-WAY DIRECTIONAL ⑨



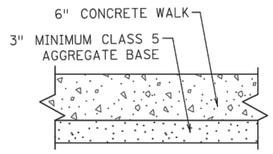
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

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

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

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

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

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

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

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

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

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

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

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(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

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

REVISED:

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 6

NOTE: DETAILS ARE NOT TO SCALE

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DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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RAMSEY, MINNESOTA 55303
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Email: Ramsey@bolton-menk.com
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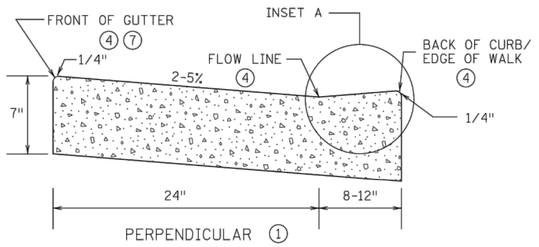
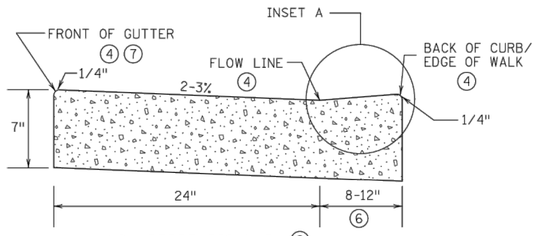
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

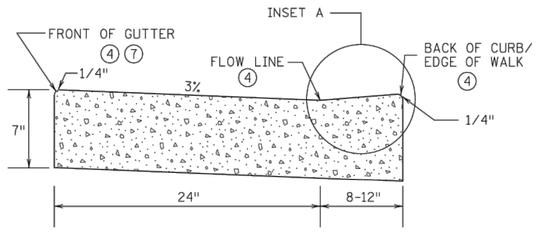
SHEET 13 OF 44



PERPENDICULAR ①

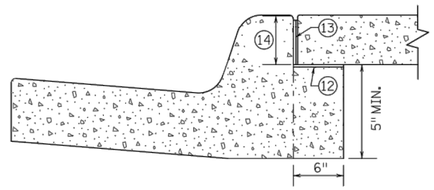


NON PERPENDICULAR ②



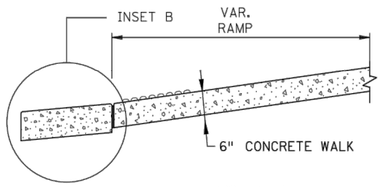
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

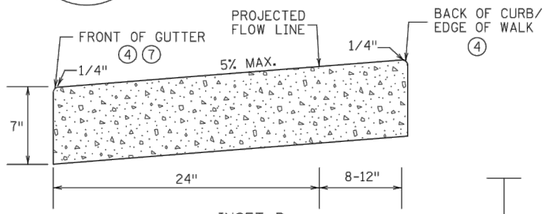
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

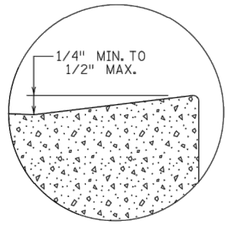
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



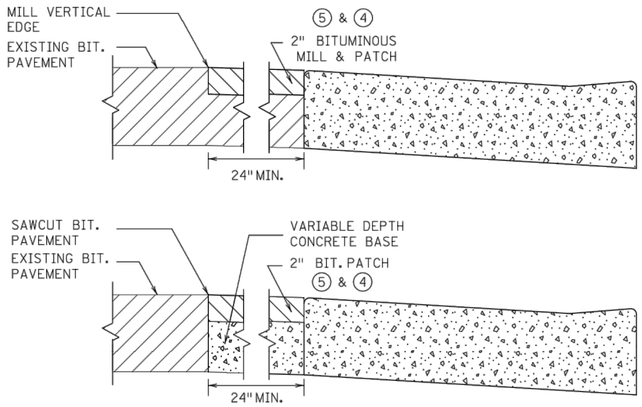


INSET B

OUTFLOW GUTTER ⑧



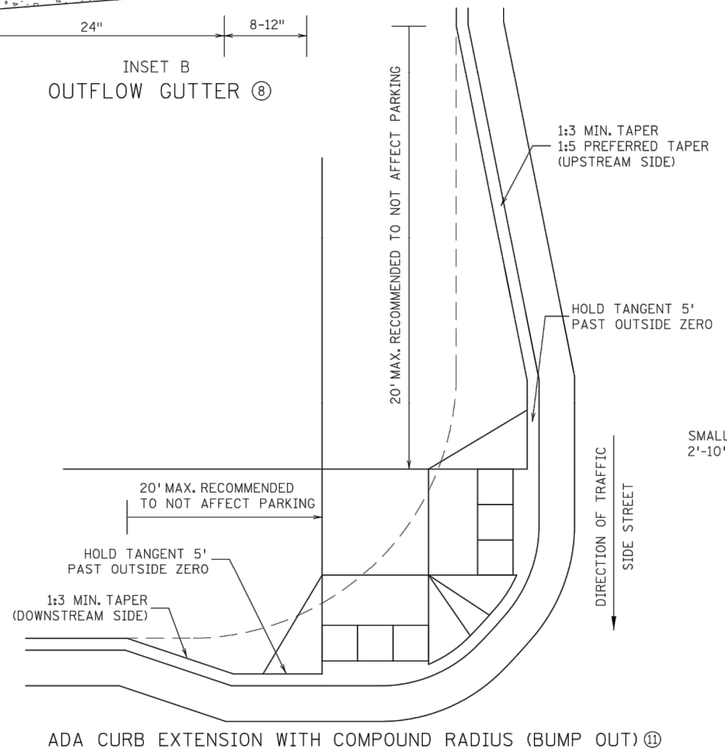
INSET A



ONLY ALLOWED PER ENGINEER'S APPROVAL

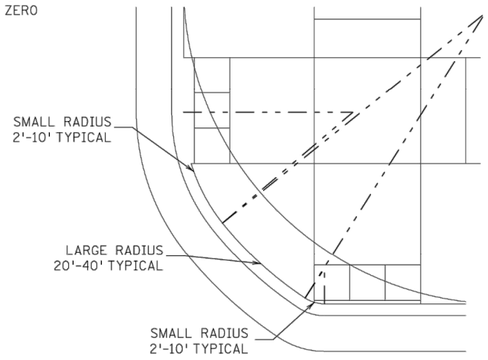
PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪

DIRECTION OF TRAFFIC
MAIN STREET



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:
1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 3 OF 6

NOTE: DETAILS ARE NOT TO SCALE

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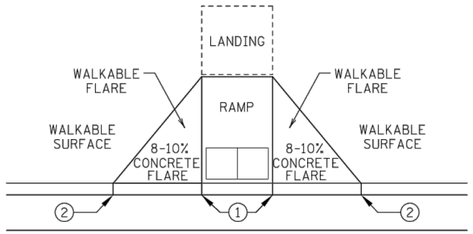
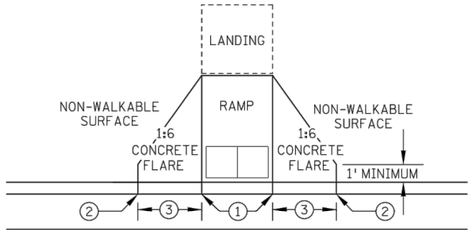
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

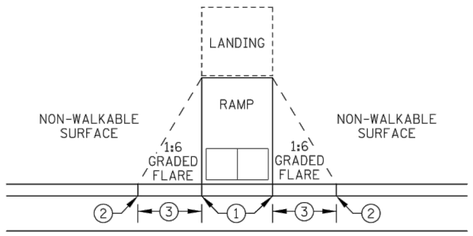
SHEET 14 OF 44



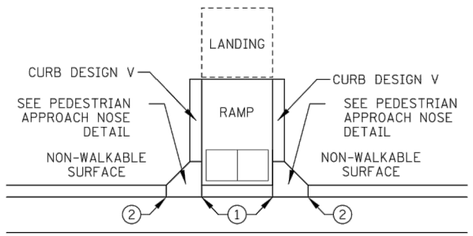
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

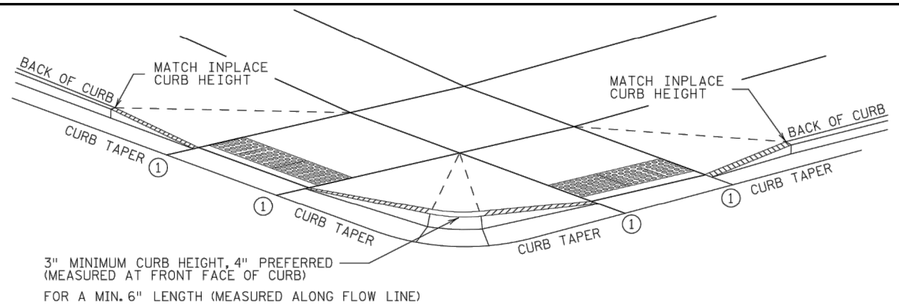


GRADED FLARES

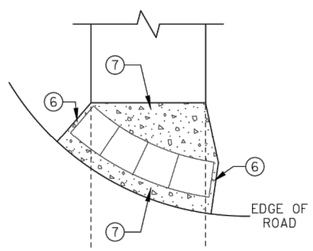


RETURNED CURB ⑤

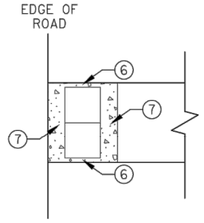
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

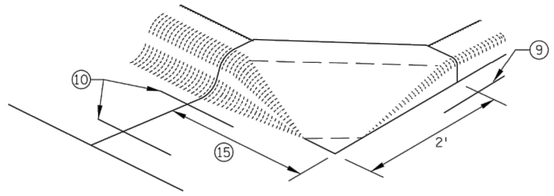


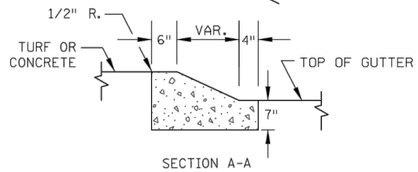
RADIAL DETECTABLE WARNING



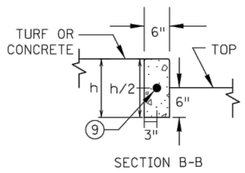
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

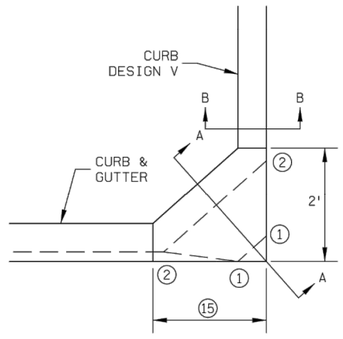




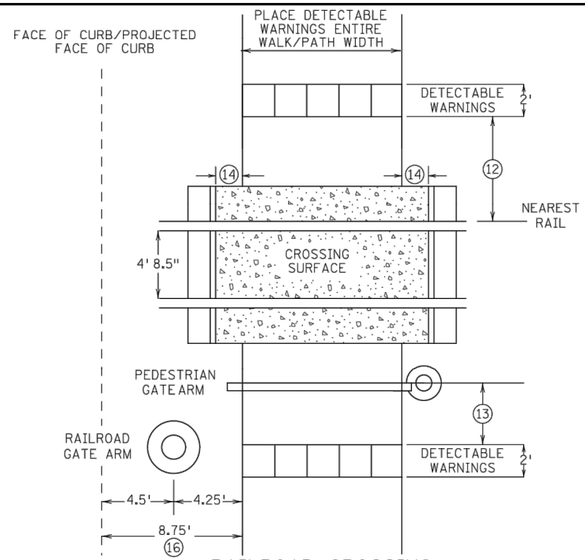
SECTION A-A



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:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 4 OF 6

NOTE: DETAILS ARE NOT TO SCALE

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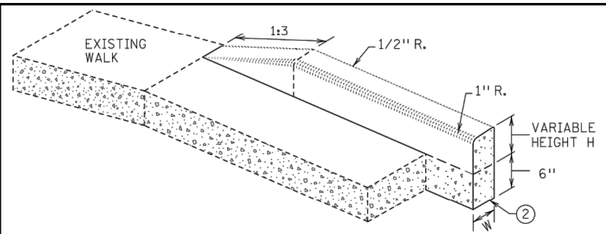
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

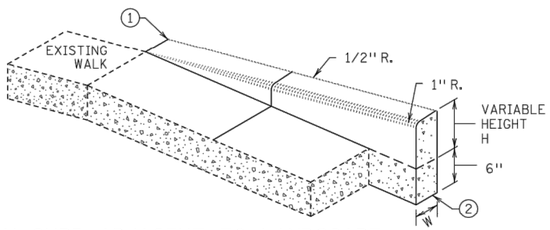
PEDESTRIAN CURB RAMP DETAILS

SHEET 15 OF 44



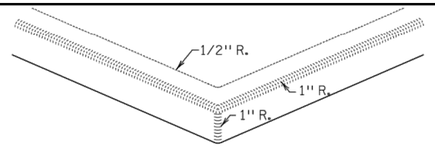
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

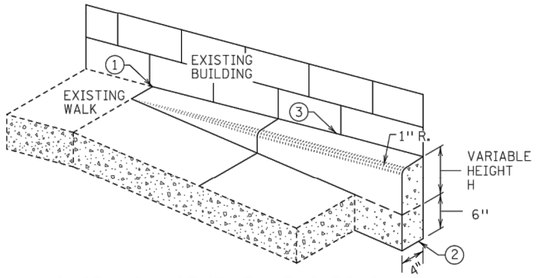


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

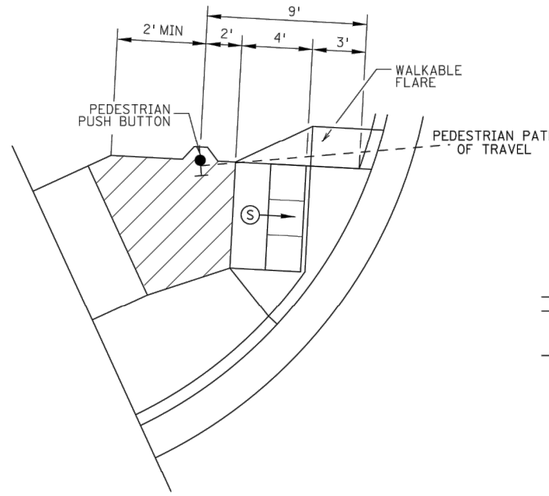


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

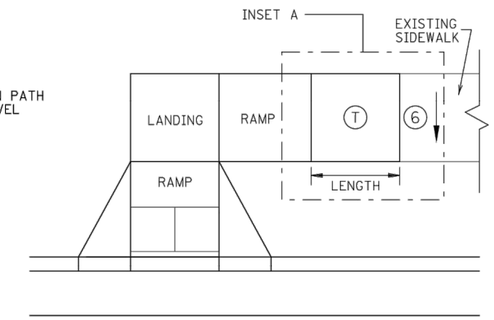
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"

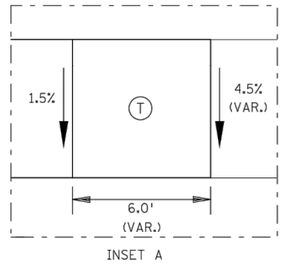


SEMI-DIRECTIONAL RAMP (3,4,9)

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%.

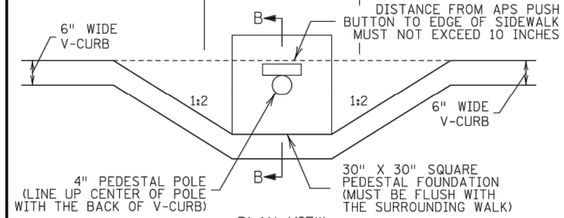
LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

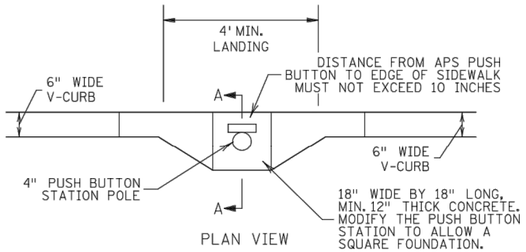
(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

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.

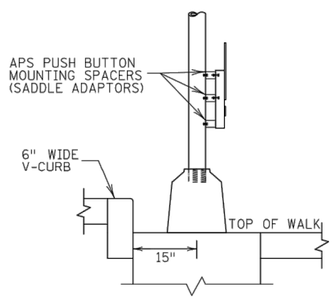
(T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.



PLAN VIEW

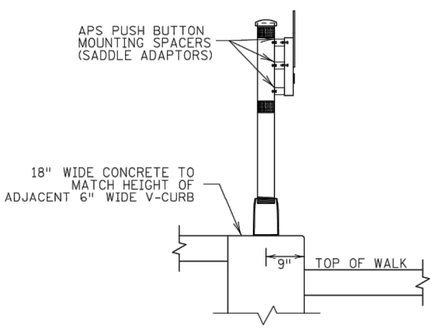


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



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

NOTE: DETAILS ARE NOT TO SCALE

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DESIGNED JWC

DRAWN ZFL

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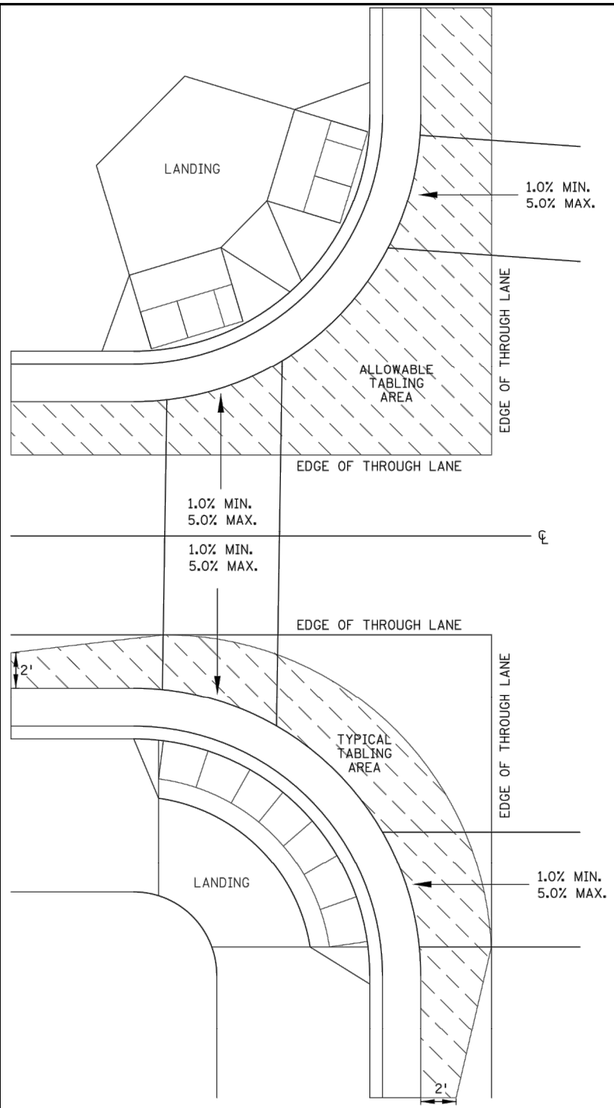
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

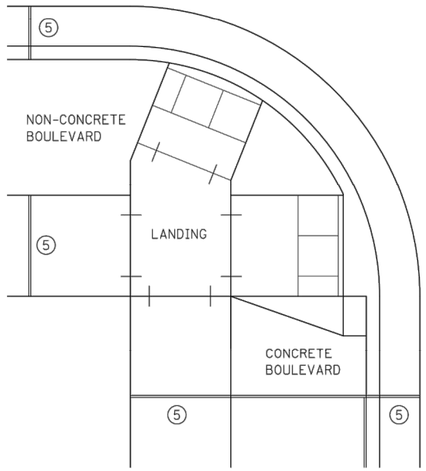
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

PEDESTRIAN CURB RAMP DETAILS

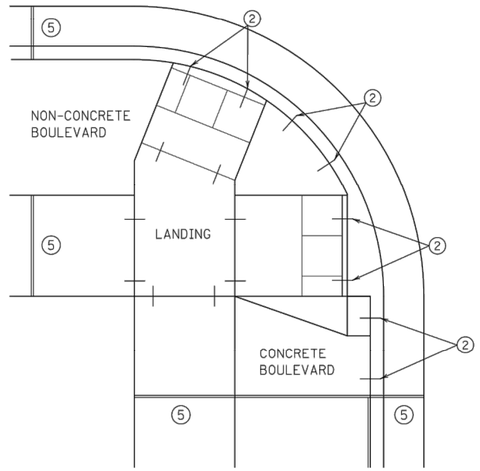
SHEET 16 OF 44



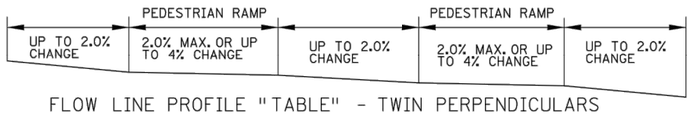
CURB LINE AND ROAD CROSSING ADJUSTMENTS



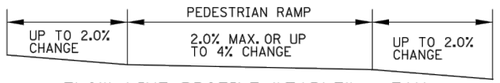
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④



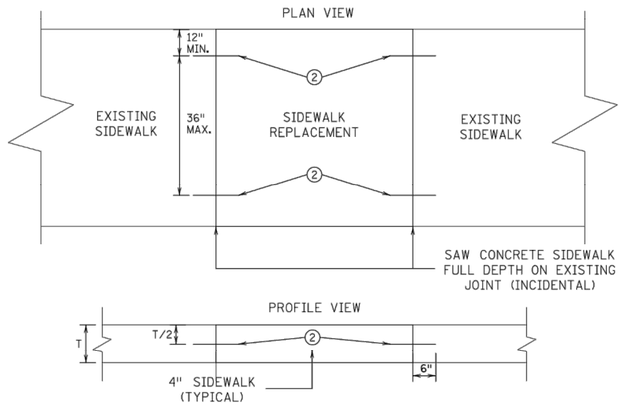
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



FLOW LINE PROFILE "TABLE" - FAN

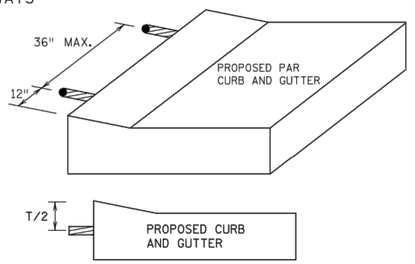
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

FLOW LINE PROFILE RAISE - FAN

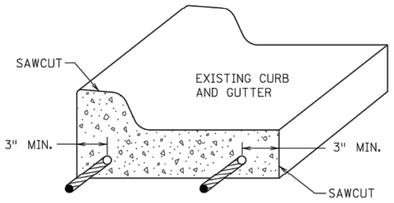


OPTIONAL SIDEWALK REINFORCEMENT

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

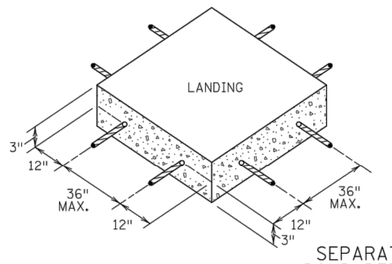


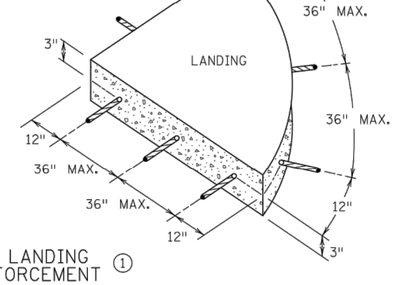
OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④



FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③





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

NOTE: DETAILS ARE NOT TO SCALE

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CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

SHEET 17 OF 44

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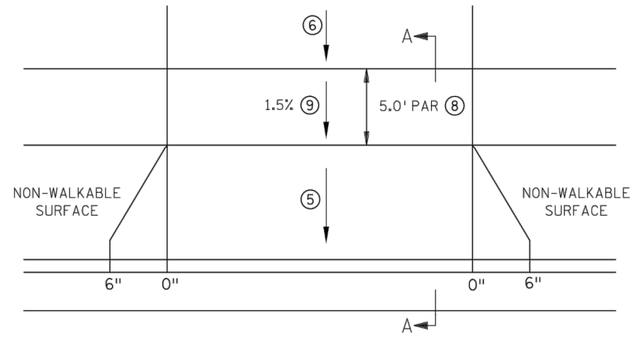
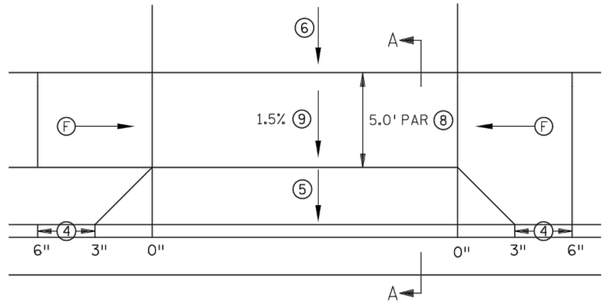
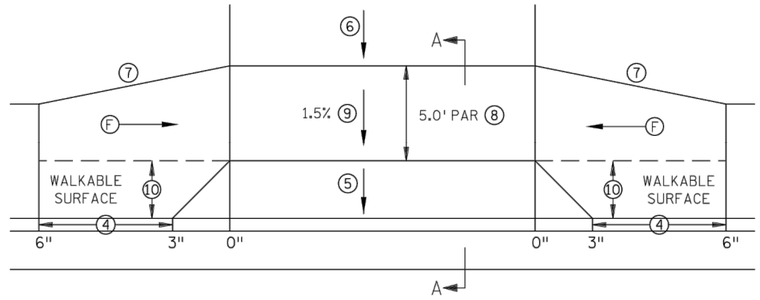


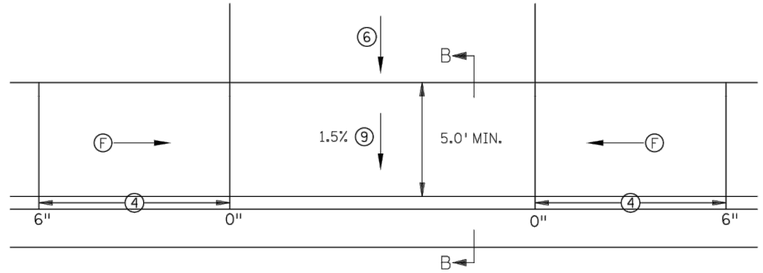
PERPENDICULAR DRIVEWAY ①



TIERED PERPENDICULAR DRIVEWAY ②



TIERED PERPENDICULAR OFFSET DRIVEWAY



PARALLEL DRIVEWAY ③

NOTES:

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

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

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

① TO BE USED WHEN THE DRIVEWAY PAR IS LEVEL WITH OR ABOVE THE TOP OF CURB, RESULTING IN A CONTINUOUS PAR PROFILE.

② TO BE USED WHEN THE DRIVEWAY PAR IS BELOW THE ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

③ SHOULD BE USED FOR NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 CURB SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

④ TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

⑤ 8% MAX. PREFERRED, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

⑥ 8% MAX. PREFERRED, SEE SHEET 2 FOR MORE INFORMATION.

⑦ 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

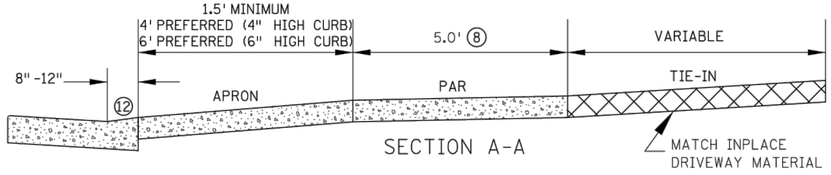
⑧ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

⑨ THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

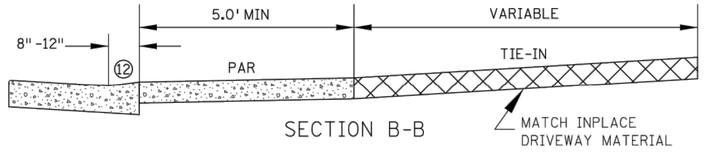
⑩ SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

⑪ VALLEY GUTTER APRON TO BE POURED INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

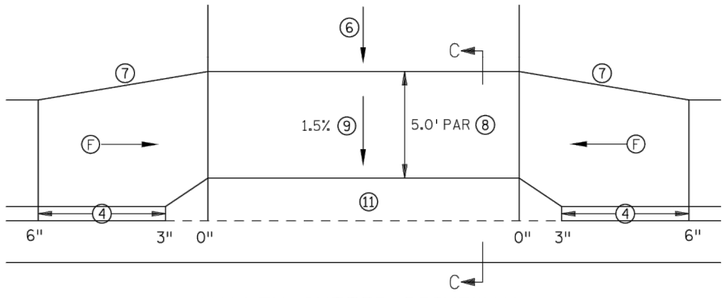
⑫ SEE SHEET 2 FOR CURB TYPE INFORMATION.



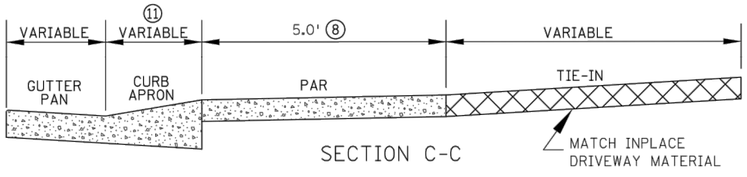
SECTION A-A



SECTION B-B



VALLEY GUTTER DRIVEWAY



SECTION C-C

LEGEND	
Ⓕ	INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
X"	CURB HEIGHT (INCHES)

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 1 OF 4

NOTE: DETAILS ARE NOT TO SCALE

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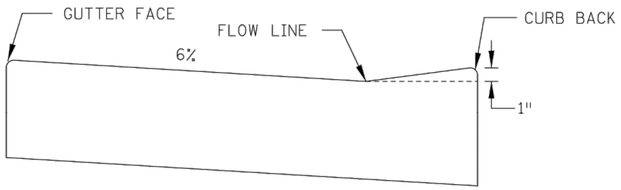
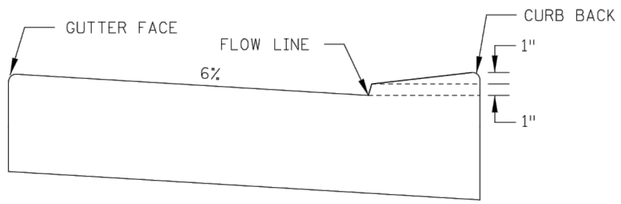
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS



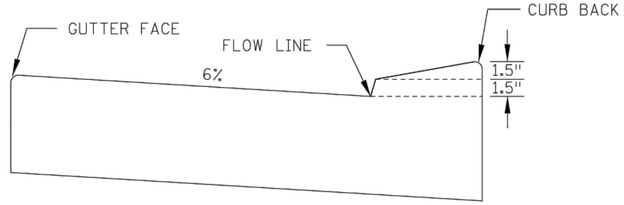
DW CURB STANDARD

STANDARD CURB AT DRIVEWAY



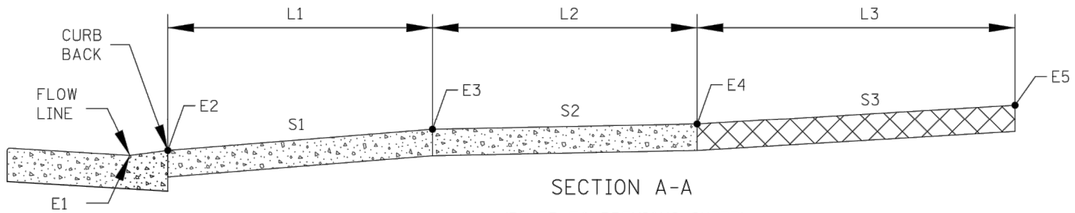
DW CURB TYPE 2

VERTICALLY CONSTRAINED



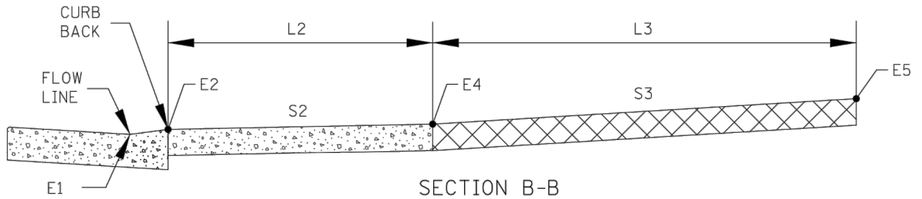
DW CURB TYPE 3

VERTICALLY CONSTRAINED



SECTION A-A

(REFER TO PREVIOUS SHEET)



SECTION B-B

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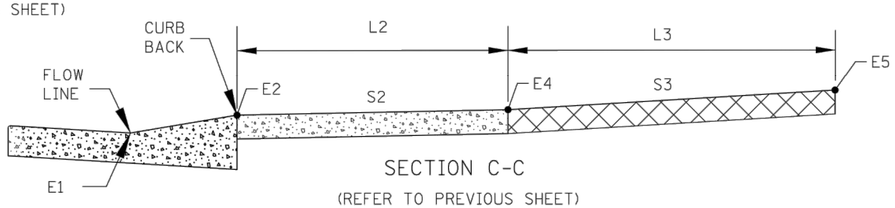
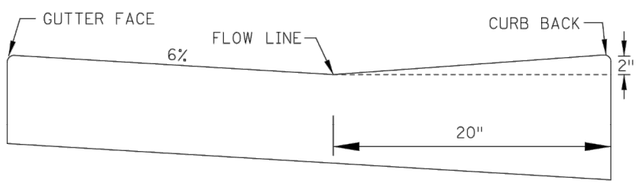


SECTION C-C

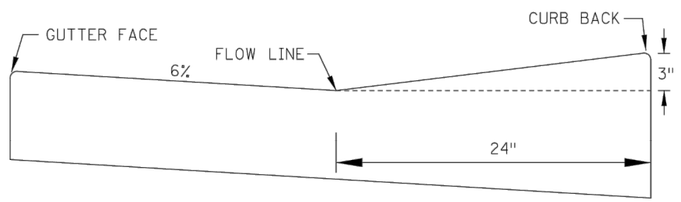
(REFER TO PREVIOUS SHEET)

DRIVEWAY TABULATION ①

STATION	SIDE	DRIVEWAY TYPE	CURB TYPE ③	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 ② %	E4	L3 FT	S3 %	EXISTING %	E5	COMMENTS



VG 220



VG 324

VALLEY GUTTER CURB

OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED

NOTES:

DW CURB STANDARD SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB STANDARD SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% MAX PREFERRED, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/ OR STEEPEN S3.

DW CURB TYPE 3 SHALL ONLY BE USED IN EXTREME TIE-IN CASES.

S3 8% MAX PREFERRED, IF THIS SLOPE IS EXCEEDED OR IS CONTINUED FOR MORE THAN 5' ANALYZE THE NEED FOR VERTICAL CURVE(S). SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

① EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY.

② SHOULD BE DESIGNED AT 1.5%.

③ DW CURB STANDARD SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPES 2 AND 3 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED:

STATE DESIGN ENGINEER

1-23-2017

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 2 OF 4

NOTE: DETAILS ARE NOT TO SCALE

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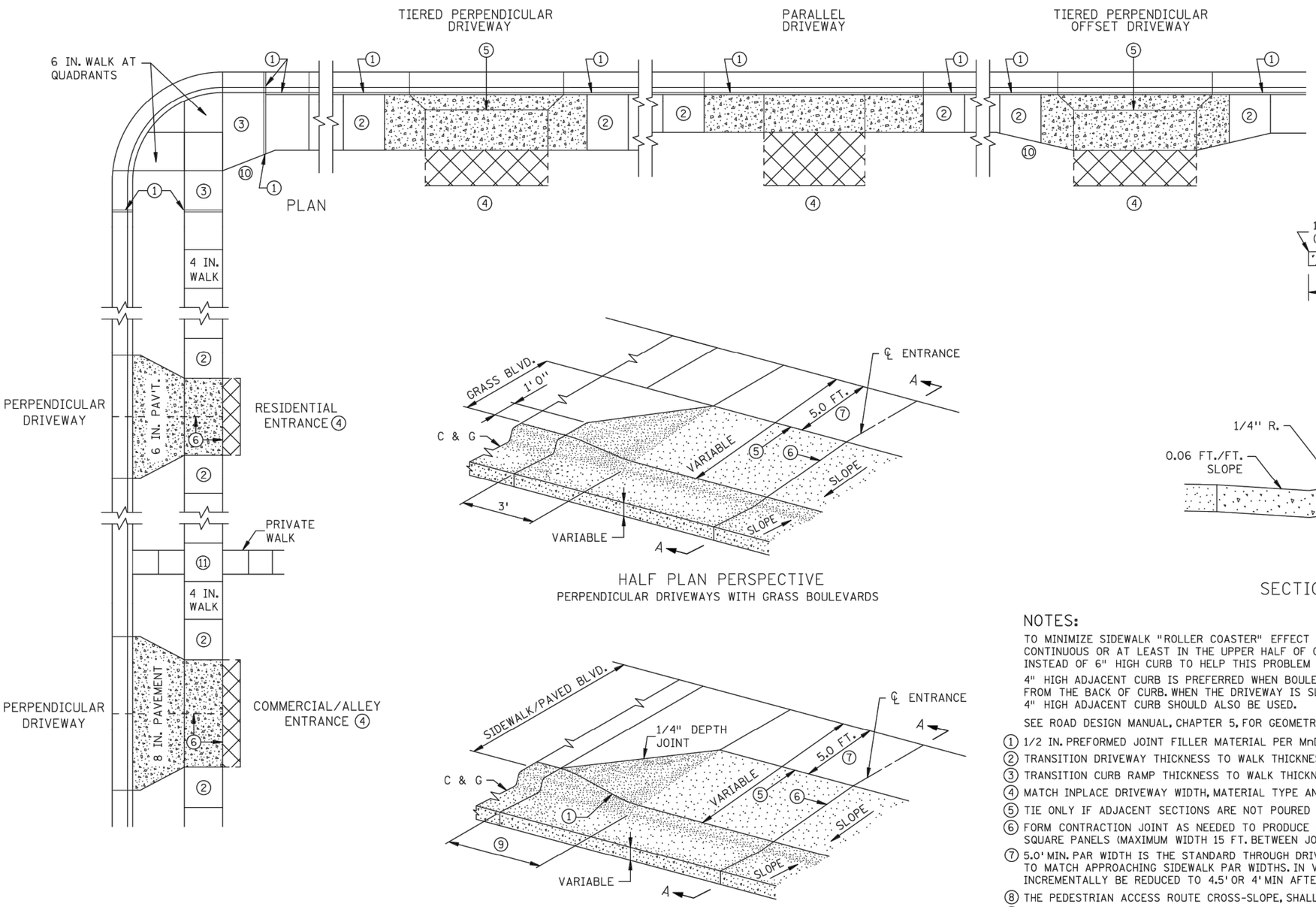
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS

SHEET 19 OF 44

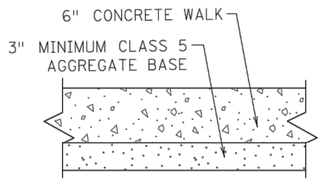


HALF PLAN PERSPECTIVE

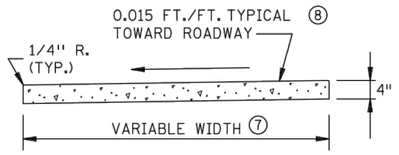
PERPENDICULAR DRIVEWAYS WITH GRASS BOULEVARDS

HALF PLAN PERSPECTIVE

PERPENDICULAR DRIVEWAYS WITH CONCRETE BOULEVARDS AND ALL TIERED DRIVEWAYS



SECTION THRU CURB RAMP



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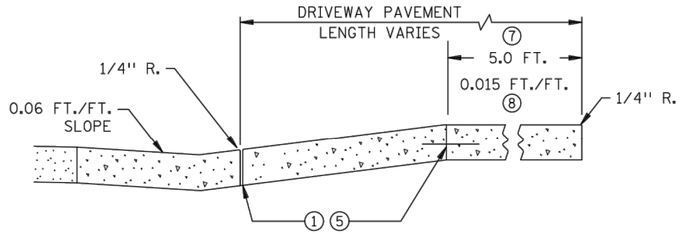

SECTION A-A

SECTION THRU DRIVEWAY

NOTES:

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

① 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MnDOT SPEC. 3702, EXCEPT AT GRASS BOULEVARDS.
② TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS.
③ TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.
④ MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.
⑤ TIE ONLY IF ADJACENT SECTIONS ARE NOT POURED MONOLITHICALLY. SEE SECTION A-A.
⑥ FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAXIMUM WIDTH 15 FT. BETWEEN JOINTS).
⑦ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.
⑧ THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
⑨ 8% TO 10% FLARES SHALL BE USED WHEN ADJACENT TO WALKABLE SURFACES AND FOR ALL TIERED DRIVEWAYS WITH GRASS BOULEVARDS.
⑩ 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.
⑪ LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 3 OF 4

NOTE: DETAILS ARE NOT TO SCALE

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DESIGNED JWC
DRAWN ZFL
CHECKED JWC

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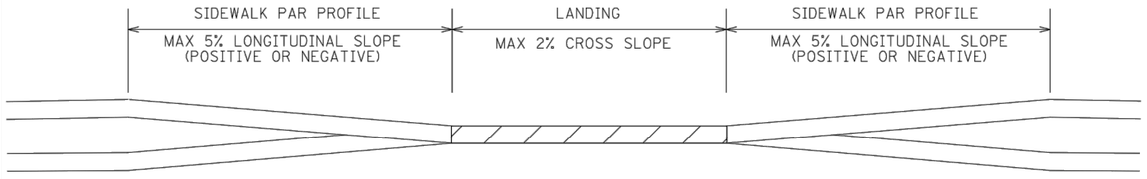
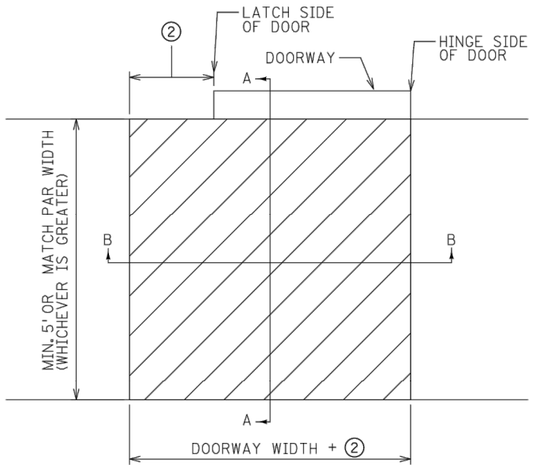
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

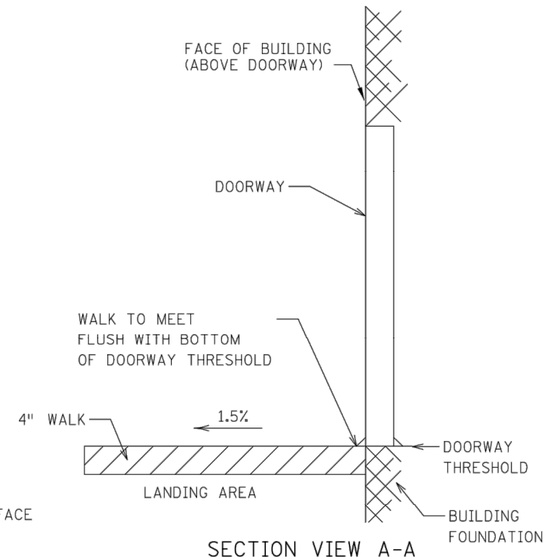
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DRIVEWAY AND SIDEWALK DETAILS



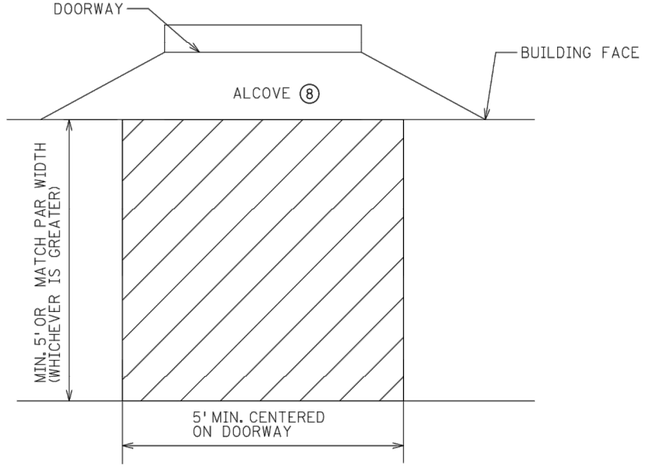
SECTION VIEW B-B



PLAN VIEW DOORWAY

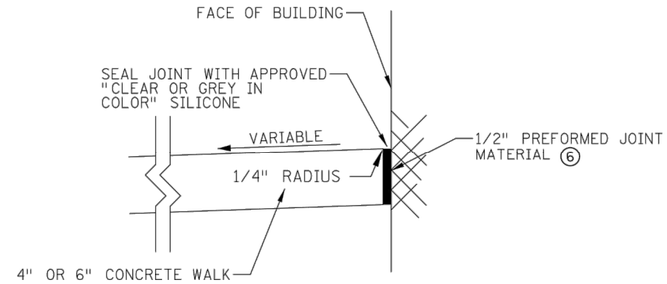


SECTION VIEW A-A

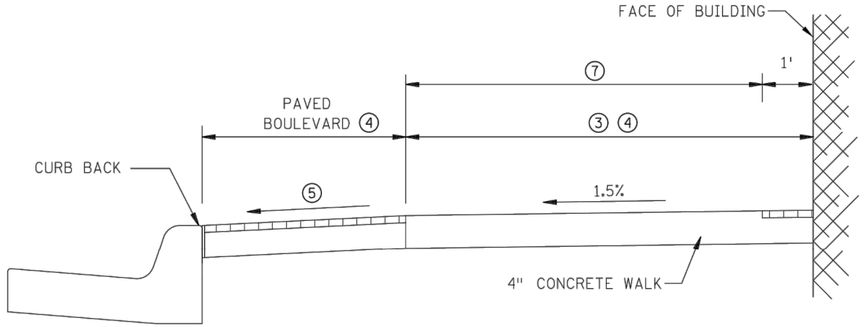


PLAN VIEW DOORWAY WITH ALCOVE

SIDEWALK LANDING REQUIREMENTS ①



BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION

NOTES:

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, PRIVATE WALKS AND STEPS.

② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING.
12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.

③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.

④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE.

⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS. 10% MAX. FOR SHORT SECTIONS ALLOWED TO ACCOUNT FOR FIELD TOLERANCES.

⑥ FURNISH AND INSTALL BACKER ROD OF APPROPRIATE DIAMETER.

⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHOULD BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.

⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.

LEGEND

LANDING - ALL SLOPES TO BE LESS THAN 2%

OPTIONAL AESTHETIC TREATMENT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 1-23-2017

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 4 OF 4

NOTE: DETAILS ARE NOT TO SCALE

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City of RAMSEY

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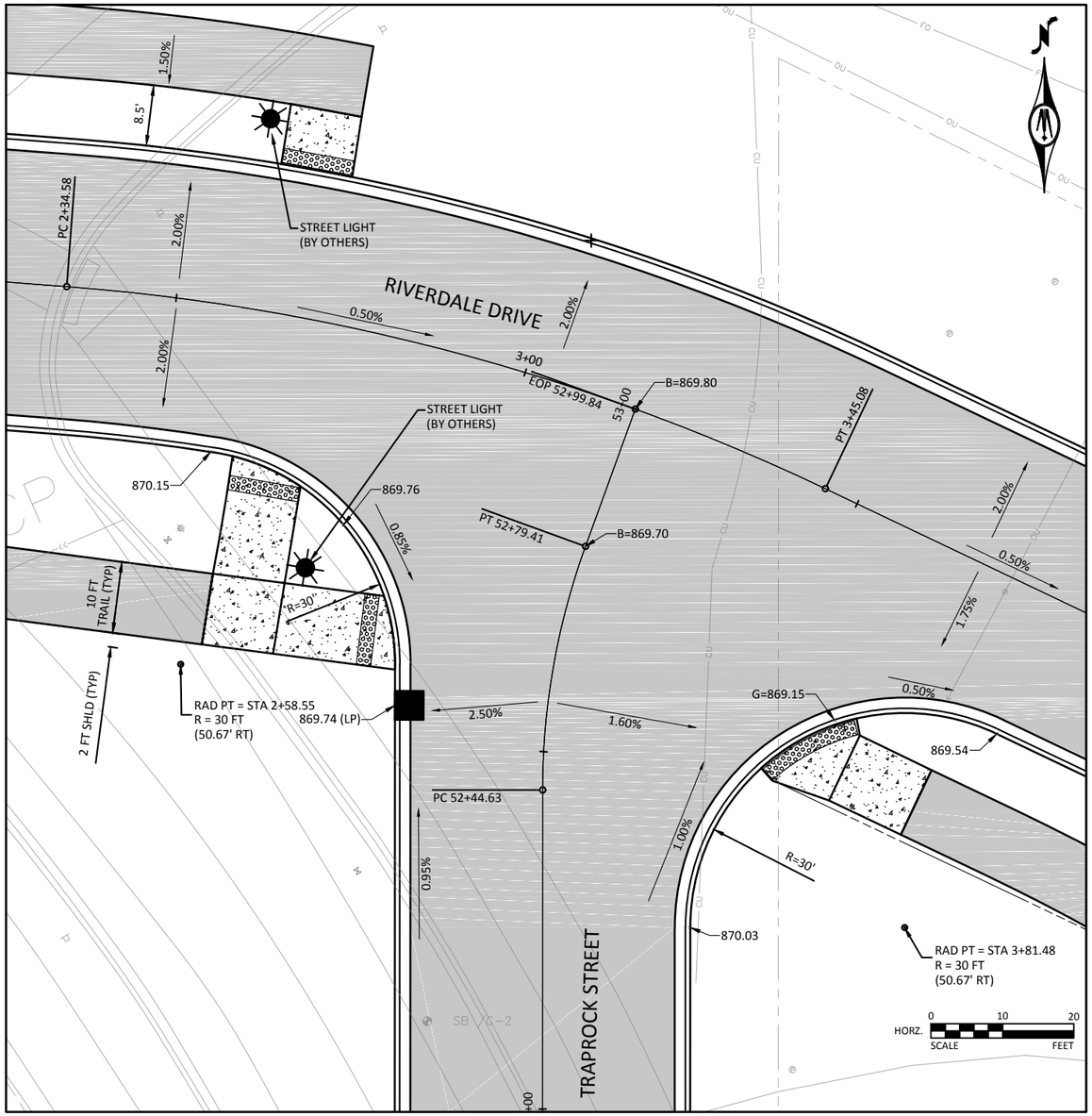
REV.	BY	DATE

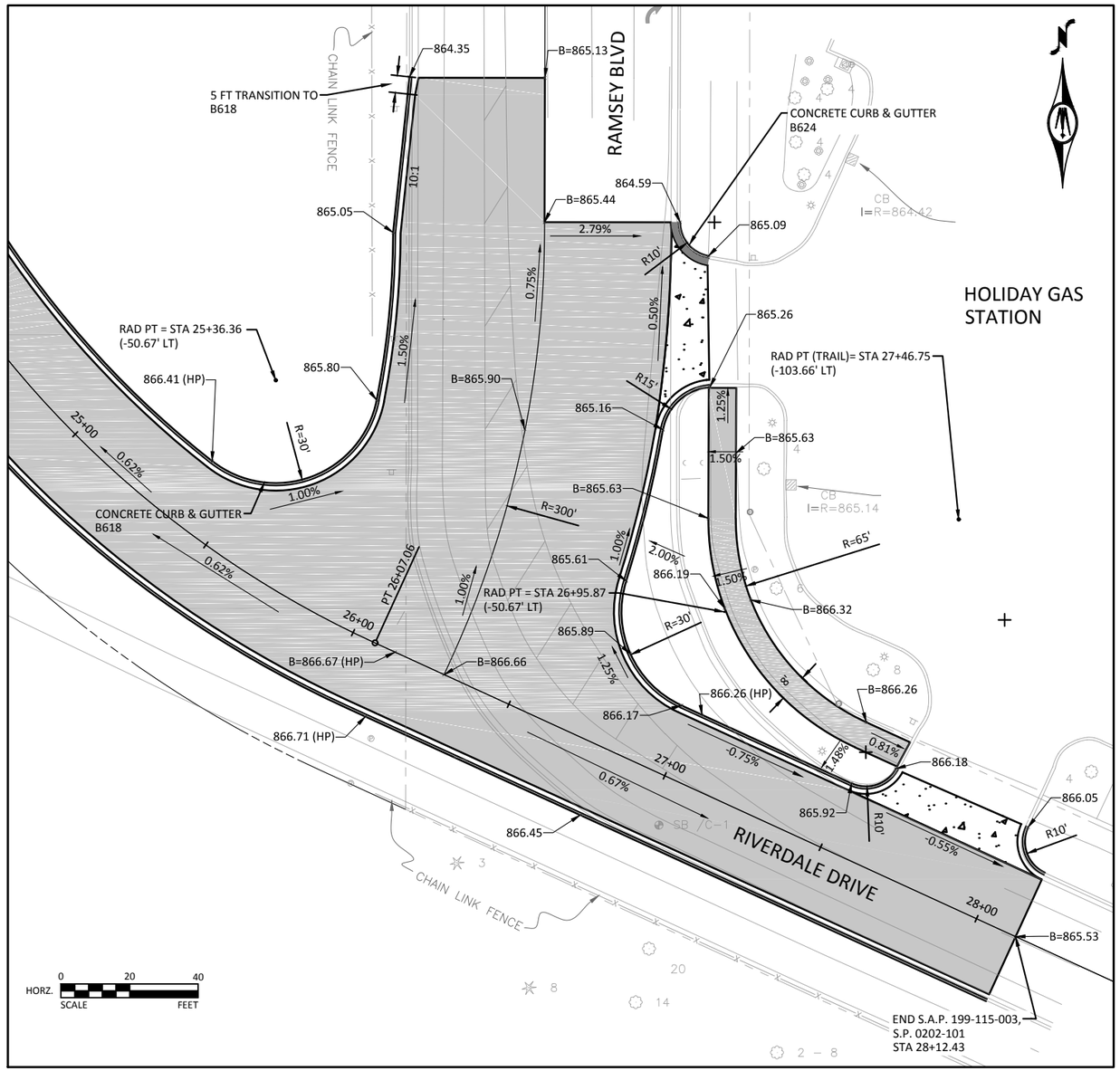
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS

SHEET 21 OF 44





LEGEND

- PROPOSED B618 CURB & GUTTER
- CONCRETE WALK
- BITUMINOUS PAVEMENT
- XXX.XX — PROPOSED TOP OF CURB ELEVATION
- B=XXX.XX — PROPOSED BITUMINOUS SURFACE ELEVATION
- STREET LIGHT

NOTES

1. ACCESS TO TRAPROCK STREET TO BE MAINTAINED AT ALL TIMES
2. ACCESS TO HOLIDAY GAS STATION TO BE MAINTAINED AT ALL TIMES

LEGEND

- PROPOSED B618 CURB & GUTTER
- PROPOSED B624 CURB & GUTTER
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- XXX.XX — PROPOSED TOP OF CURB ELEVATION
- B=XXX.XX — PROPOSED BITUMINOUS SURFACE ELEVATION
- STREET LIGHT

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

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

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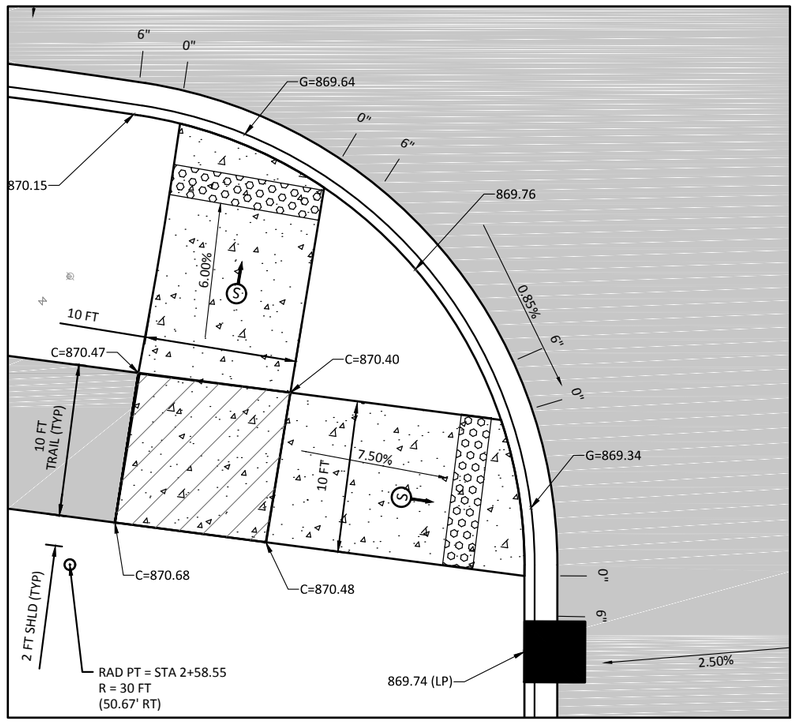
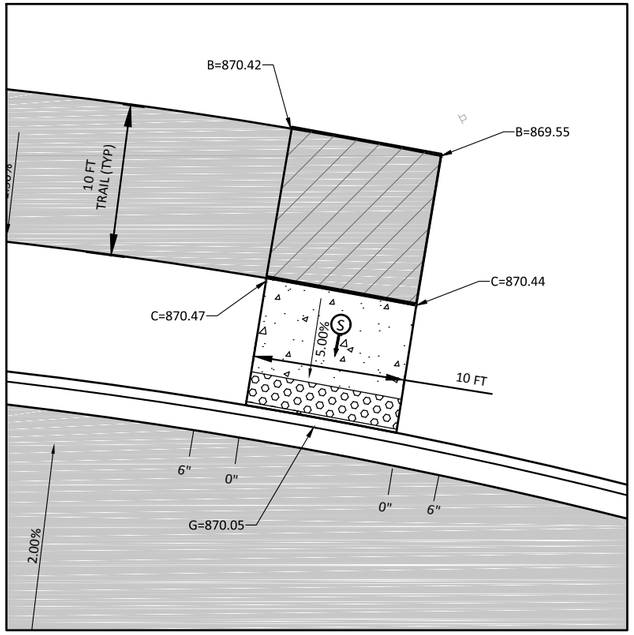
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
INTERSECTION DETAILS

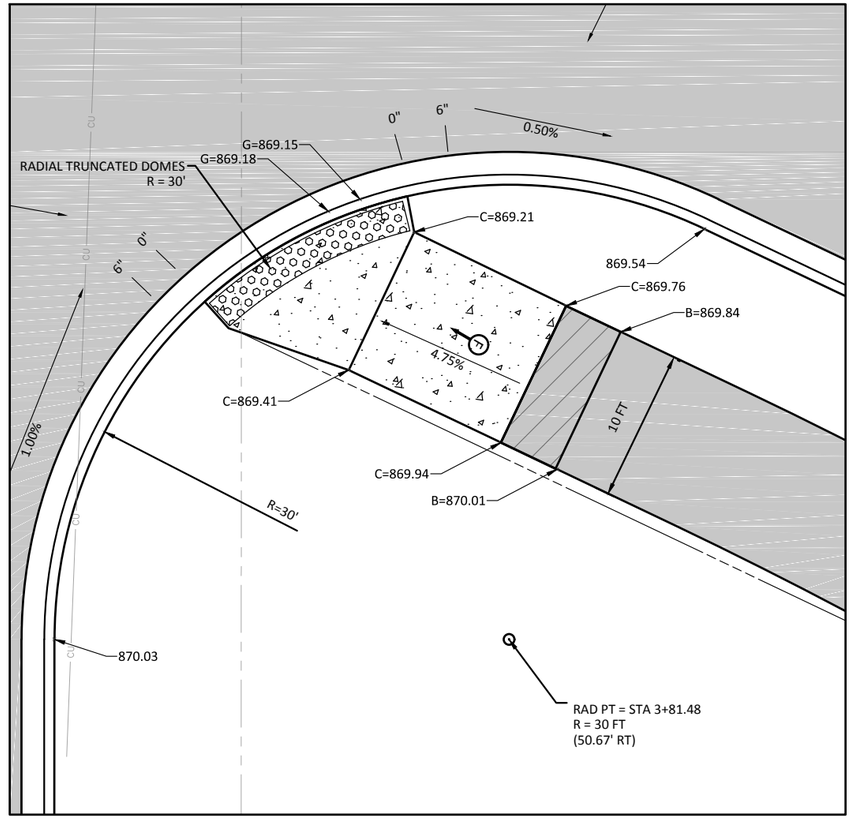
SHEET 22 OF 44



PEDESTRIAN RAMP SOUTHWEST QUADRANT
OF RIVERDALE AND TRAPROCK



PEDESTRIAN RAMP NORTH



PEDESTRIAN RAMP SOUTHEAST QUADRANT
OF RIVERDALE AND TRAPROCK

LEGEND

- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN AL DIRECTIONS
- PROPOSED B618 CURB & GUTTER
- CONCRETE WALK
- BITUMINOUS PAVEMENT
- (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) INDICATEDS PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

X"	CURB HEIGHT
XXX.XX	PROPOSED TOP OF CURB ELEVATION
B=XXX.XX	PROPOSED BITUMINOUS SURFACE ELEVATION
C=XXX.XX	PROPOSED CONCRETE SURFACE ELEVATION
G=XXX.XX	PROPOSED GUTTER ELEVATION

HORZ. SCALE 0 5 10 FEET

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Kevin. P. Kielb
Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN RAMP DETAILS

SHEET 23 OF 44

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

RIVERDALE DRIVE EXTENSION IMIPROVEMENTS

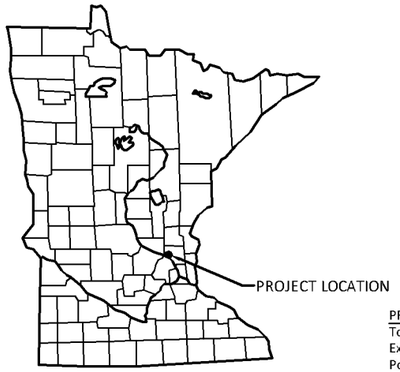
CITY OF RAMSEY
ANOKA COUNTY, MINNESOTA

SWPPP DESIGNER

UNIVERSITY OF MINNESOTA

Jason Cook

Design of Construction SWPPP (May 31 2017)



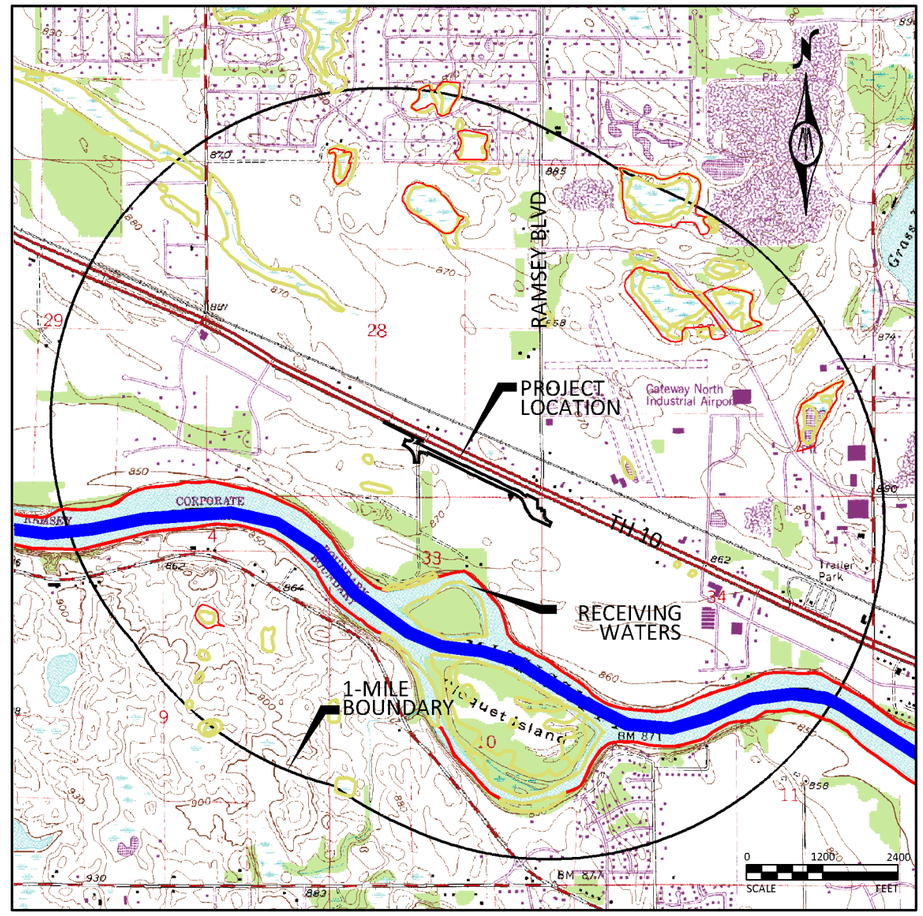
LEGEND

- PROJECT BOUNDARY
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- RECEIVING WATERS

PROJECT AREAS:

Total Project Size (disturbed area) =	6.8	ACRES
Existing area of impervious surface =	1.2	ACRES
Post construction area of impervious surface =	3.0	ACRES
Total new impervious surface area created =	1.8	ACRES

Planned Construction Start Date: MAY 2017
Estimated Construction Completion Date: JULY 2018



RESPONSIBLE PARTIES:
The Contractor and Owner must apply for coverage under the MPCA's neral Storm Water Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDEPhase II program. Coverage under the permit will begin automatically 7 calendar days after the electronic submittal date or aftthe 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 anager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee theplementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPA Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	CITY OF RAMSEY	BRUCE WESTBY	763-433-9825
SWPPP DESIGNER:	Bolton & Menk, Inc.	JASON COOK	763-433-2851
CONTRACTOR:			
CONSTRUCTION SWPPP MANAGER:			
PARTY RESPONSIBLE FOR LONG TERM O&M:	CITY OF RAMSEY	BRUCE WESTBY	763-433-9825
MINNESOTA POLLUTION CONTROL AGENCY		DUTY OFFICER	800-422-0798 OR 651-649-5451

The SWPPP Designer and Construction SWPPP Manager must have appriate training. Documentation showing training commensurate with the job duties and responsibilities is required to beluded in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on thiheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager prior to the start of cstruction. 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 shae as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any ork required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Ancy (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) including but not limited to inspection, maintence, 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 rt 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 threatied 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 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 manement design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" forny 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 burare 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 atitlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

PERMANENT STORMWATER MANAGEMENT SYSTEM:
Type of storm water management used if more than 1 acre of new imervious surface is created:

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

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
ANOKA	32N	25W	28, 33, 34	45°13'38" N	93°27'13" W

BMP SUMMARY	QUANTITY	UNIT
STORM DRAIN INLET PROTECTION	20	EACH
EROSION CONTROL BLANKET CATEGORY 3N	8095	SQ YD
RANDOM RIPRAP CLASS III	24	TON
SEDIMENT CONTROL LOG TYPE COMPOST	100	LIN FT
STABILIZED CONTRUCTION EXIT	1	LUMP SUM
HYDRAULIC BONDED FIBER MATRIX	13750	POUND

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:
Construction activities include: Site grading, pond excavation, watenain extensions, storm sewer construction, temporary erosion and sediment control, concrete curb & gutter, roway and trail paving, and permanent stabilization.

The project consists of construction of 0.5 miles of new street. The sting site consists of native prairie and drains to the Mississippi River. The proposed storm sewer system provides infiltration basin that will provide water quality treatment and ultimately discharge to the Mississippi River.

DOCUMENT RETENTION
The following documentation will be retained for a period of not lesnan 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 agreemer; 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 stowater ponds, are identified on the USGS 7.5 min quad map within one mile of the project boundary. Receiving waters that are impaireche impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in this permit for special and paired waters have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for constructin 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	YES
Impairments: NOT FOR CONSTRUCTION, MERCURY & PCB IN FISH TISSUE				

IMPLEMENTATION SCHEDULE AND PHASING:

1) Submit SWPPP Updates to Engineer. Submittal shall include any requed changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Saniton Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceance of the SWPPP as designed with no changes.
2) Install perimeter sediment control, inlet protection, and construction exit.
3) Remove existing impervious surfaces, clear and grub trees
4) Strip and stockpile top soil
5) Rough grade site
6) Install underground utilities
7) Install proposed impervious surfaces
8) Add additional temporary BMPs as necessary during construction based on inspection reports.
9) Ensure final stabilization measures are complete.
10) Submit Notice of Termination (NOT) to MPCA within 30 days of final stabilization.

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Kevin P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
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City of RAMSEY

BOLTON & MENK

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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORMWATER POLLUTION PREVENTION PLAN

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 RI0000I 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 with 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 100 foot natural buffer, or redundant BMPs (where a buffer is infeasible) must be maintained when a surface water is located within 100 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 5 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 5 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 and Infested Waters Permit or written notification from MN DNR that an Infested Waters Permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Water Permit or written notification that in Infested Water is not required is obtained.

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.

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 bee 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 site within 24-hours of discovery, or if applicable, within a shorter time to comply with the permit.

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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Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

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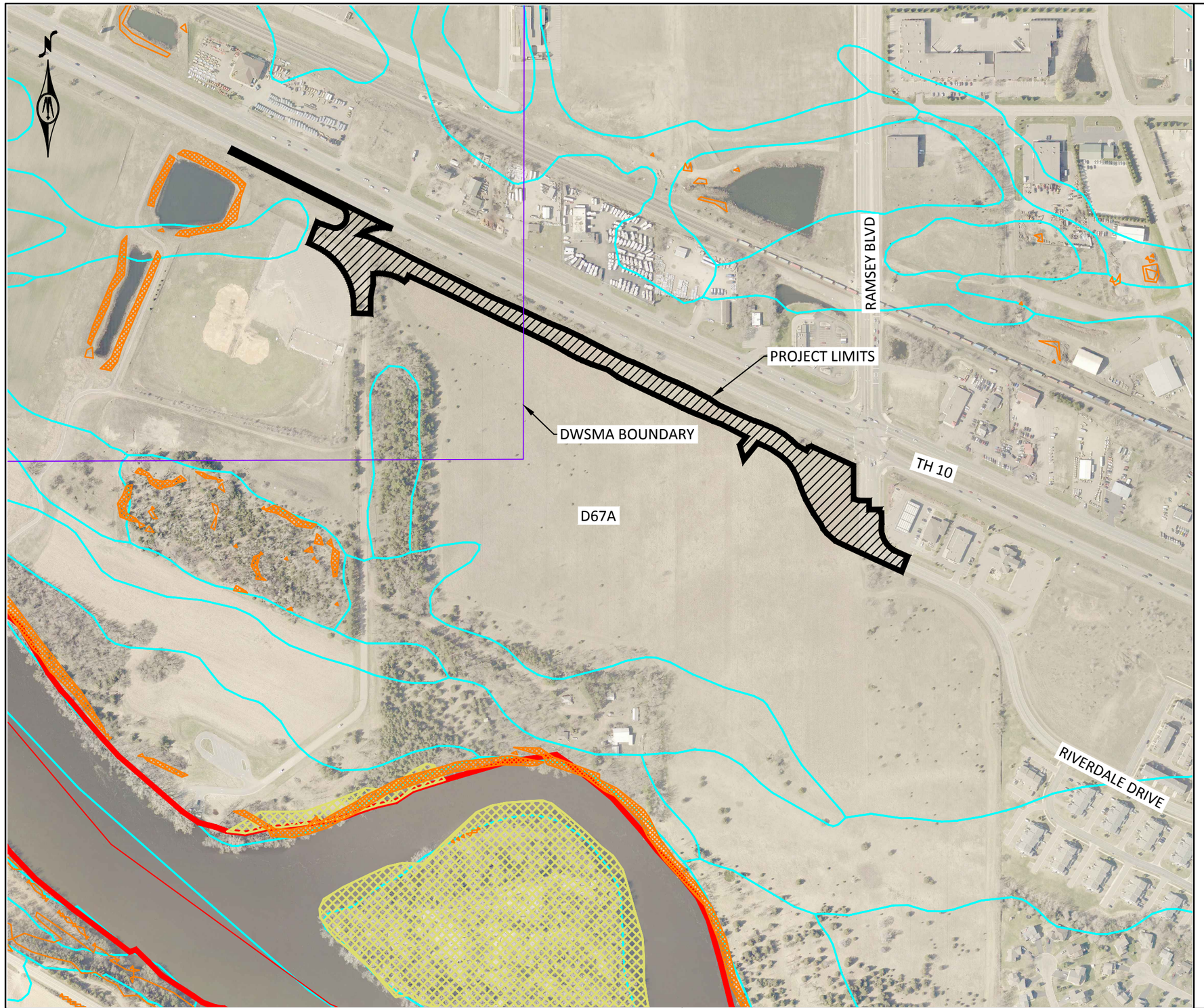
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORMWATER POLLUTION PREVENTION PLAN



LEGEND

- PROJECT BOUNDARY
- SOIL TYPE
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- DWSMA, LOW VULNERABILITY
- STEEP SLOPES (>33.3%)

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
D67A	Hubbard loamy sand, Mississippi River Valley, 0 to 2 percent slopes	A	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	24
DIRECTION OF FLOW	27
FINAL STABILIZATION	27
SOILS	26
DRAINAGE STRUCTURES	5
DRAINAGE TABULATION	5
STORM SEWER PLAN/PROFILE SHEETS	30 - 35
EROSION & SEDIMENT CONTROL DETAILS	10
EROSION CONTROL TABULATION	5
TURF ESTABLISHMENT TABULATION	5
NARRATIVE & NOTES	24 - 25

0 200 400
SCALE FEET

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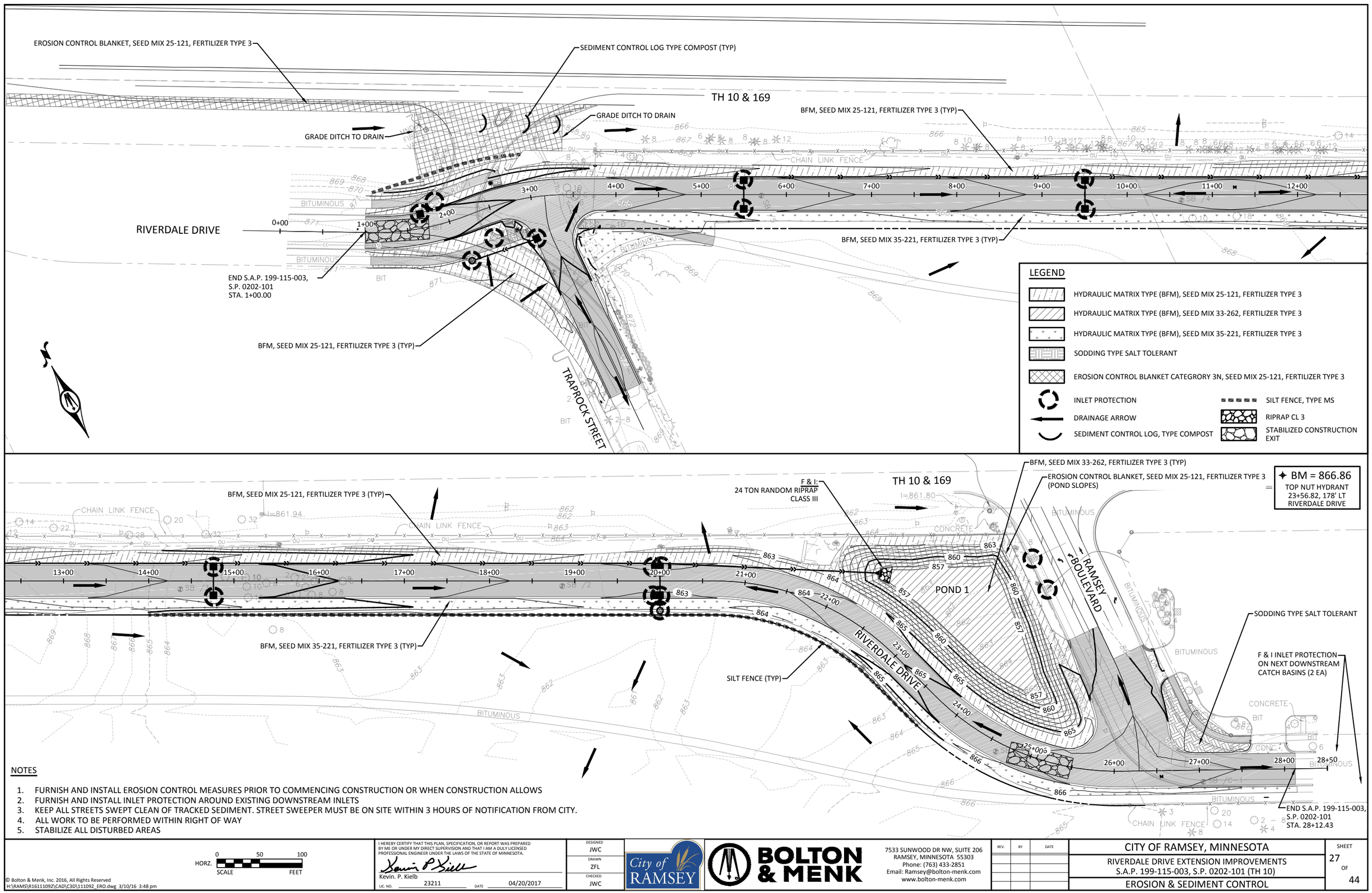
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
STORMWATER POLLUTION PREVENTION PLAN



NOTES

1. FURNISH AND INSTALL EROSION CONTROL MEASURES PRIOR TO COMMENCING CONSTRUCTION OR WHEN CONSTRUCTION ALLOWS
2. FURNISH AND INSTALL INLET PROTECTION AROUND EXISTING DOWNSTREAM INLETS
3. KEEP ALL STREETS SWEPT CLEAN OF TRACKED SEDIMENT. STREET SWEEPER MUST BE ON SITE WITHIN 3 HOURS OF NOTIFICATION FROM CITY.
4. ALL WORK TO BE PERFORMED WITHIN RIGHT OF WAY
5. STABILIZE ALL DISTURBED AREAS

HORZ. SCALE 0 50 100 FEET

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JWC	ZFL	JWC

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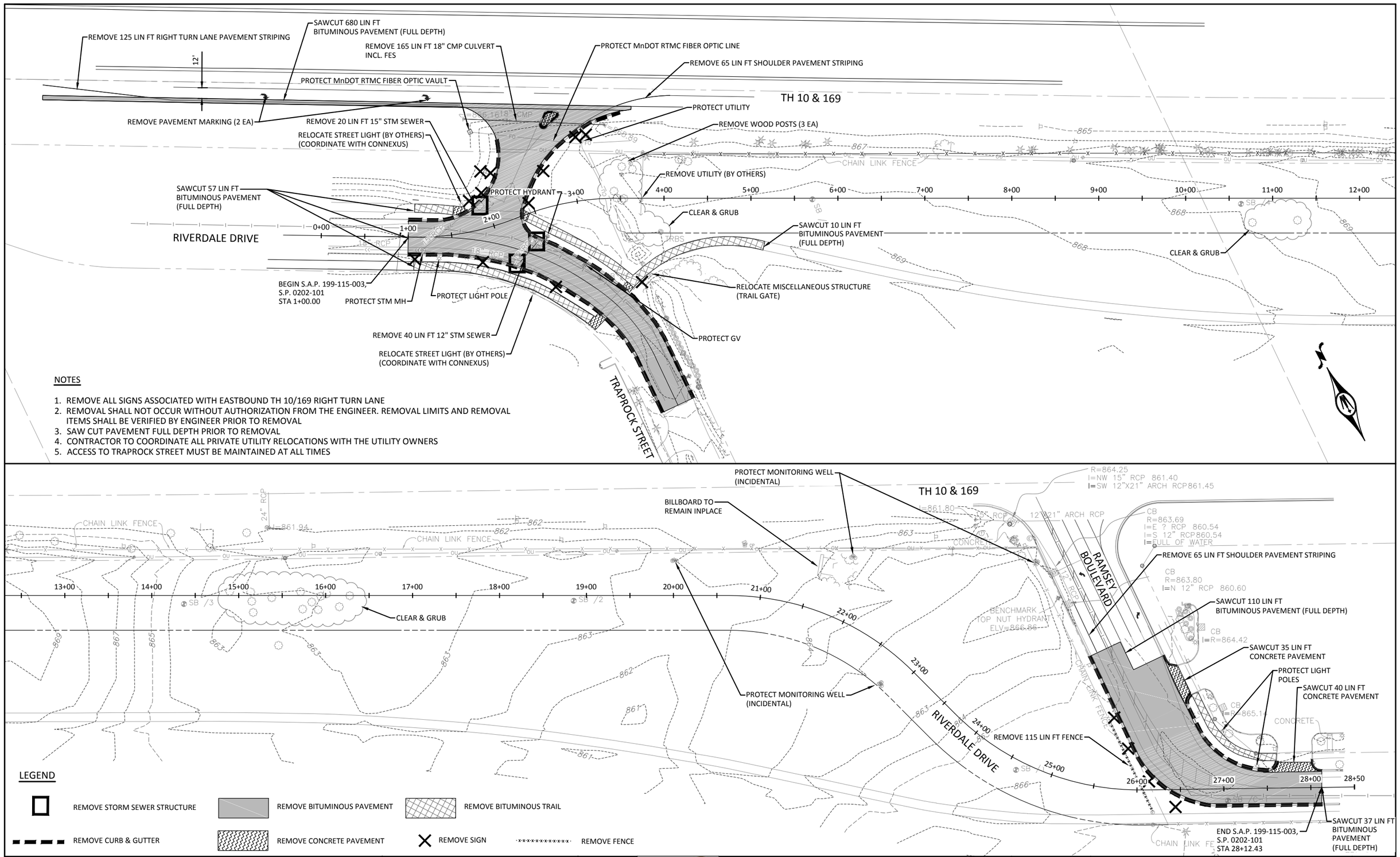
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

EROSION & SEDIMENT CONTROL

SHEET 27 OF 44



NOTES

1. REMOVE ALL SIGNS ASSOCIATED WITH EASTBOUND TH 10/169 RIGHT TURN LANE
2. REMOVAL SHALL NOT OCCUR WITHOUT AUTHORIZATION FROM THE ENGINEER. REMOVAL LIMITS AND REMOVAL ITEMS SHALL BE VERIFIED BY ENGINEER PRIOR TO REMOVAL
3. SAW CUT PAVEMENT FULL DEPTH PRIOR TO REMOVAL
4. CONTRACTOR TO COORDINATE ALL PRIVATE UTILITY RELOCATIONS WITH THE UTILITY OWNERS
5. ACCESS TO TRAPROCK STREET MUST BE MAINTAINED AT ALL TIMES

HORZ. SCALE 0 50 100 FEET

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LIC. NO. 23211 DATE 04/20/2017

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CHECKED JWC

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CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

EXISTING CONDITIONS & REMOVALS

SHEET 28 OF 44

BM = 866.86
TOP NUT HYDRANT
23+56.82, 178' LT
RIVERDALE DRIVE

LEGEND
- DRAINAGE ARROW
- RIPRAP CL 3
- 860 PROPOSED MAJOR CONTOUR
- 861 PROPOSED MINOR CONTOUR
- EXISTING CONTOUR

STM MH
R=864.25
I=NW 15" RCP
I=SW 12"X21"
ARCH RCP

12"X21" ARCH RCP

861.45

PROTECT MONITORING WELL

I=861.80

CONC

MONITORING WELL

CB
R=863.80
I=N 12" RCP 860.60

CB
I=R=864.42

CB
I=R=865.14

BITUMINOUS

RAMSEY BLVD

CHAIN LINK FENCE

POND 1
INFILTRATION BASIN
BOTTOM = 857.00
100 HWL = 860.80

10'

1:4

FES 1

18" STM

PROTECT BILLBOARD

SIGN

RIVERDALE DRIVE

22+00

23+00

24+00

25+00

26+00

27+00

21+00

STEEL POST

SB /1

PROTECT MONITORING WELL

857 860 863 864 865 866

HORZ. 0 20 40
SCALE FEET

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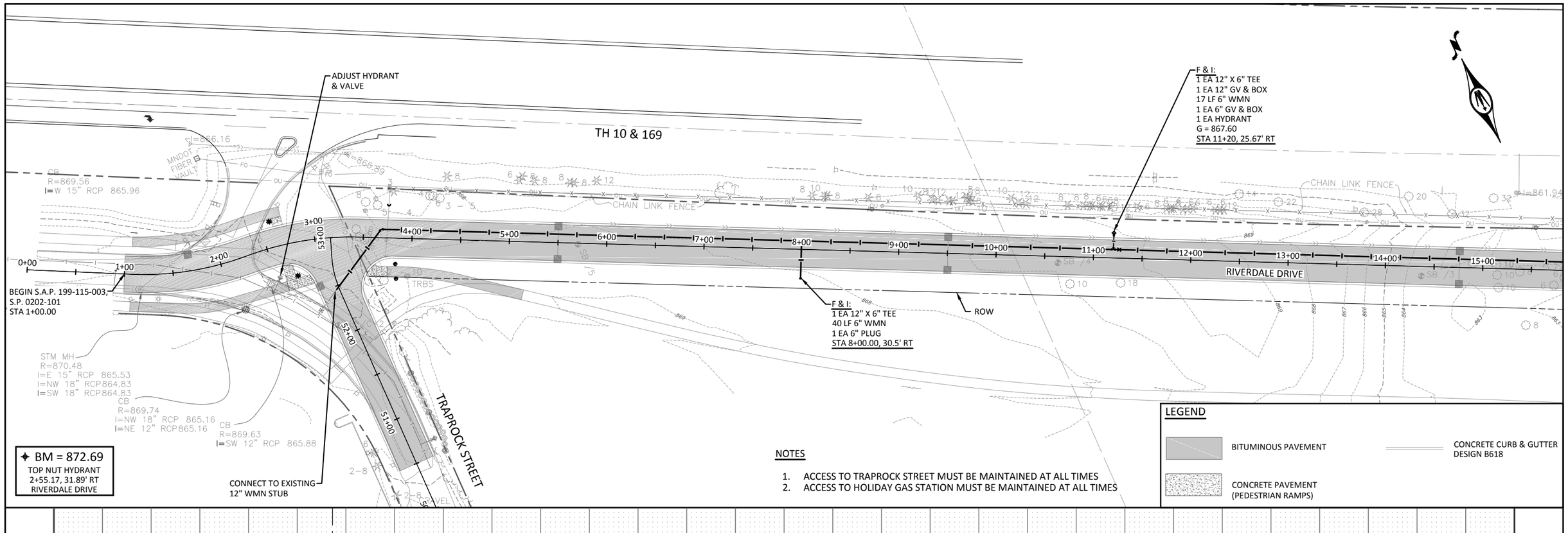
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
POND GRADING

SHEET 29 OF 44



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CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
RIVERDALE DRIVE - P & P - WATERMAIN

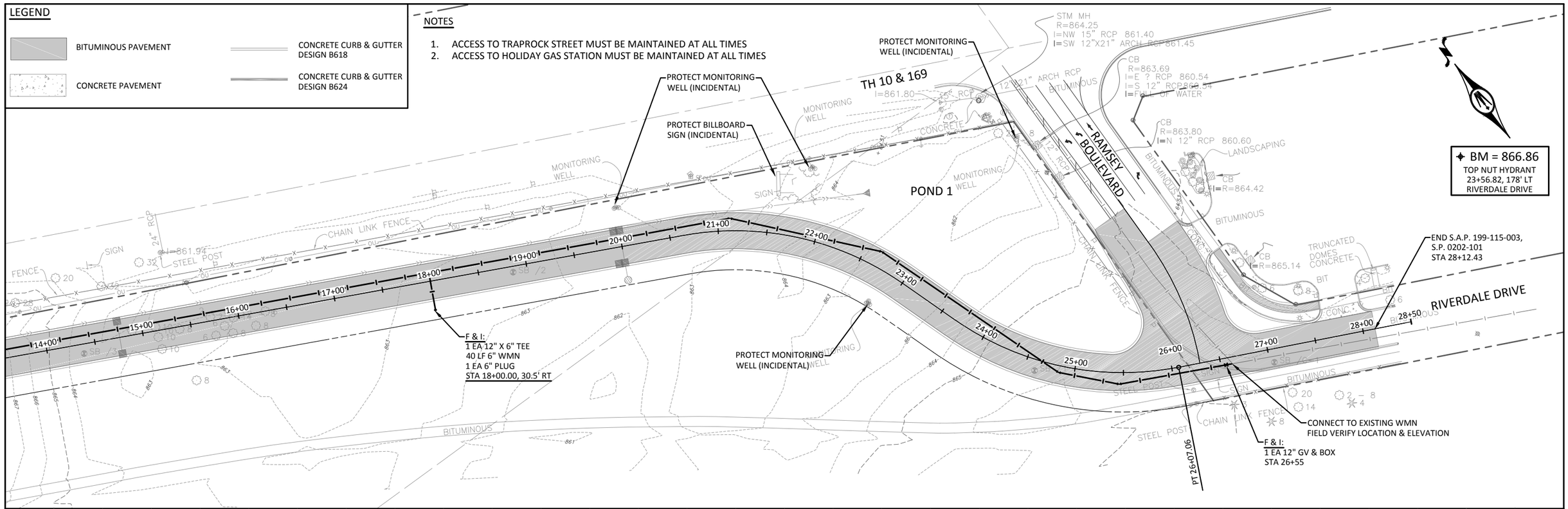
SHEET 30 OF 44

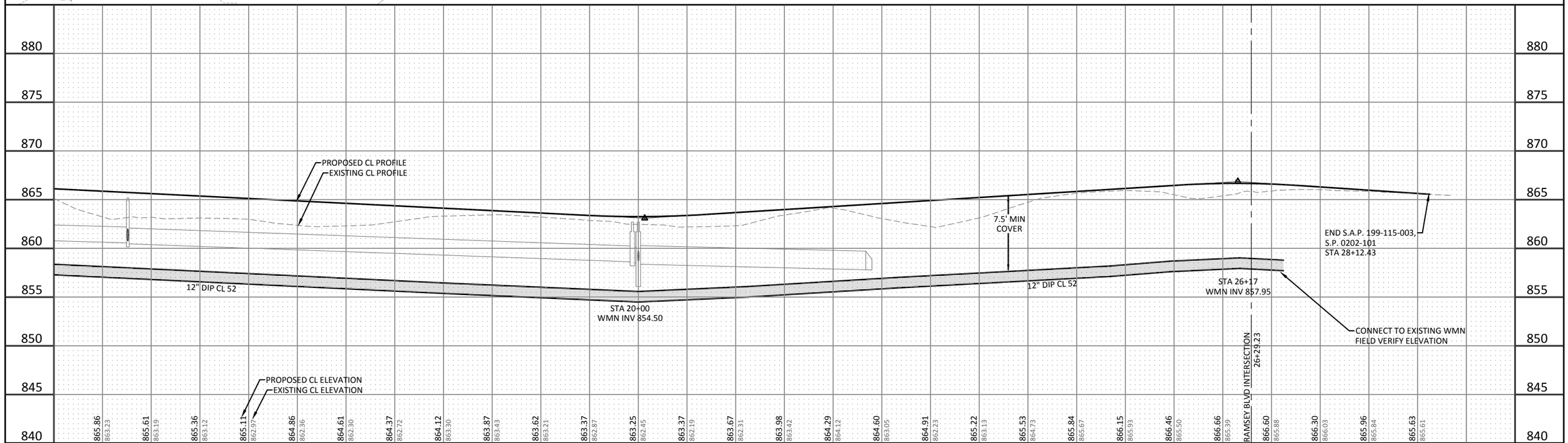
LEGEND

- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB & GUTTER DESIGN B618
- CONCRETE CURB & GUTTER DESIGN B624

NOTES

1. ACCESS TO TRAPROCK STREET MUST BE MAINTAINED AT ALL TIMES
2. ACCESS TO HOLIDAY GAS STATION MUST BE MAINTAINED AT ALL TIMES





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VERT. SCALE 0 5 10 FEET

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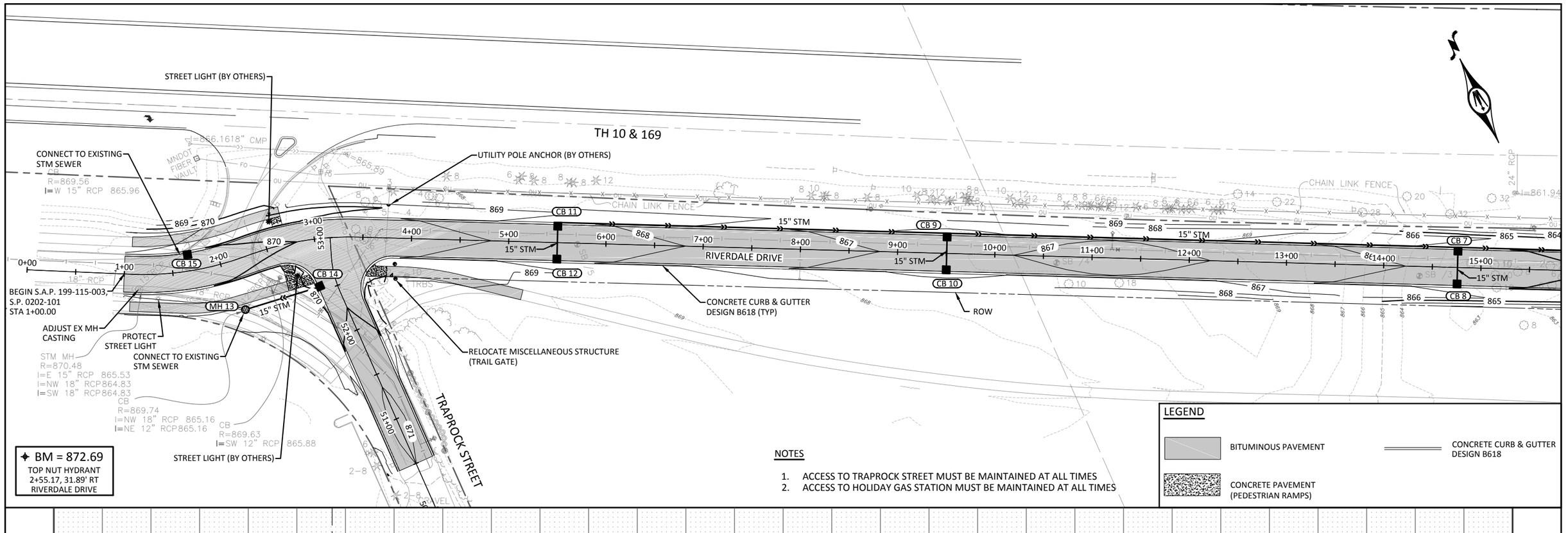
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
RIVERDALE DRIVE - P & P - WATERMAIN

SHEET 31 OF 44



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VERT. SCALE 0 5 10 FEET

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DESIGNED JWC
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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
RIVERDALE DRIVE - P & P - STREET & STORM SEWER

SHEET 32 OF 44

LEGEND

- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB & GUTTER DESIGN B618
- CONCRETE CURB & GUTTER DESIGN B624

NOTES

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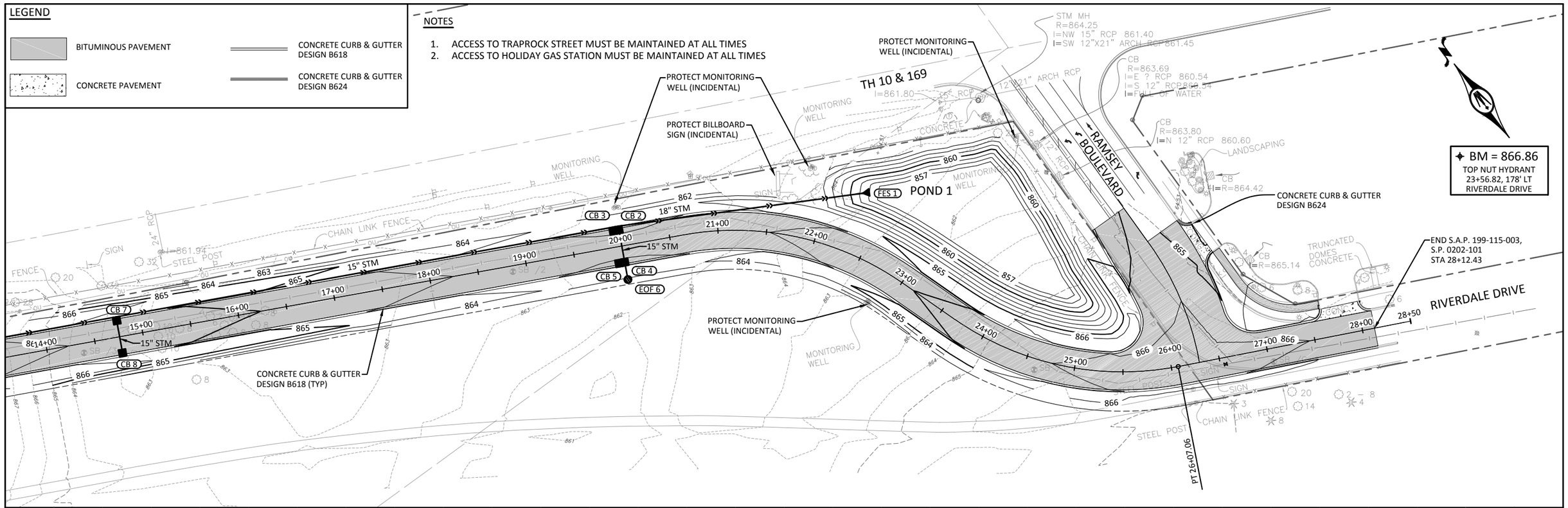

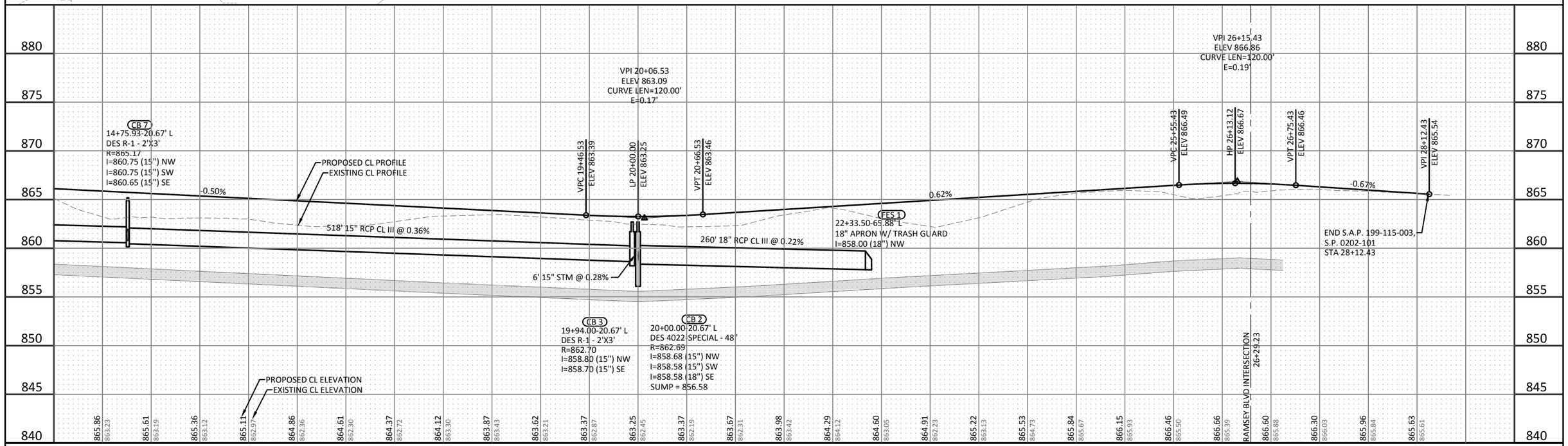

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VERT. SCALE 0 5 10 FEET

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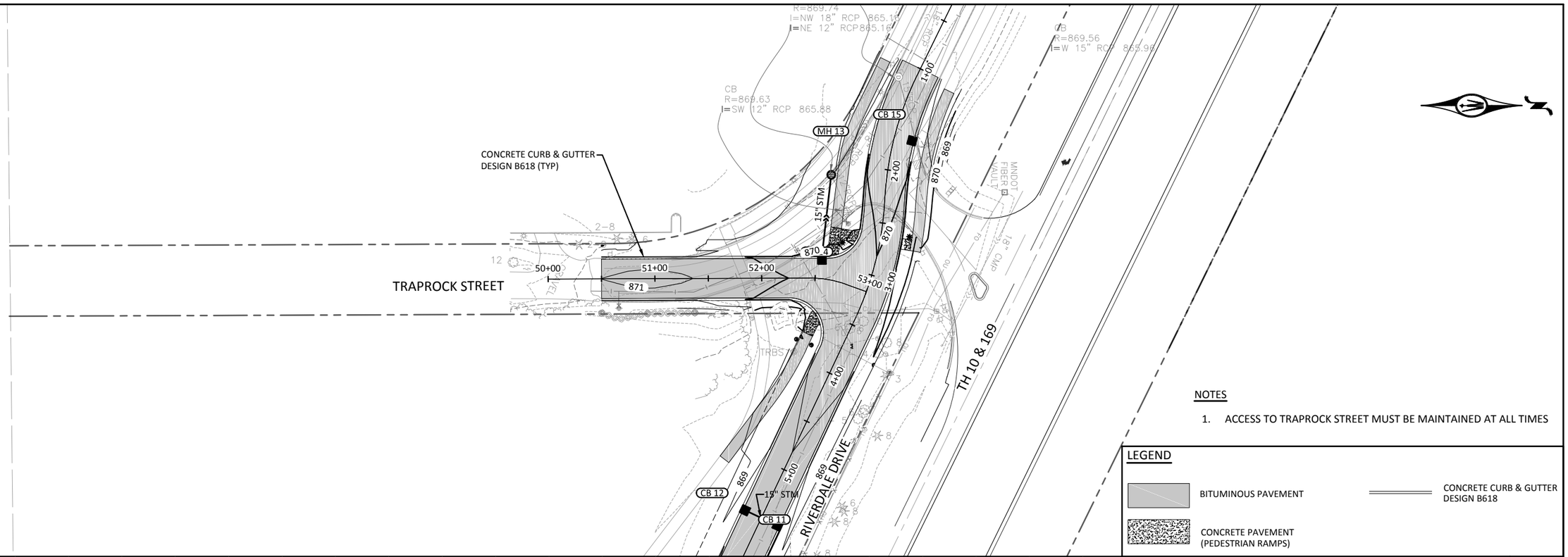
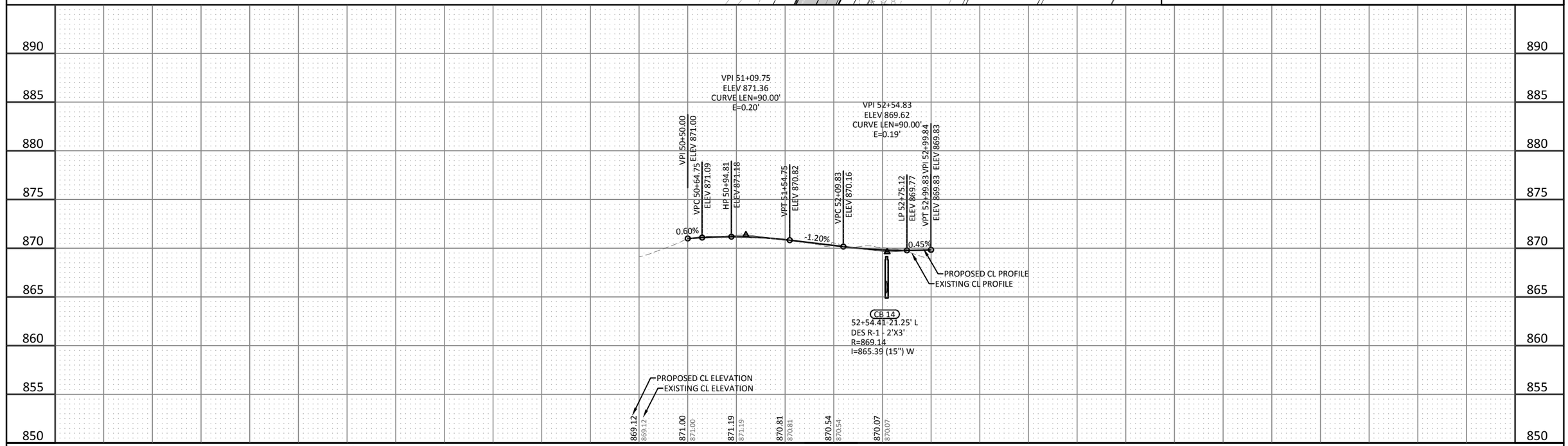
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
RIVERDALE DRIVE - P & P - STREET & STORM SEWER

SHEET 33 OF 44





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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TRAPROCK STREET - PLAN & PROFILE

SHEET 34 OF 44

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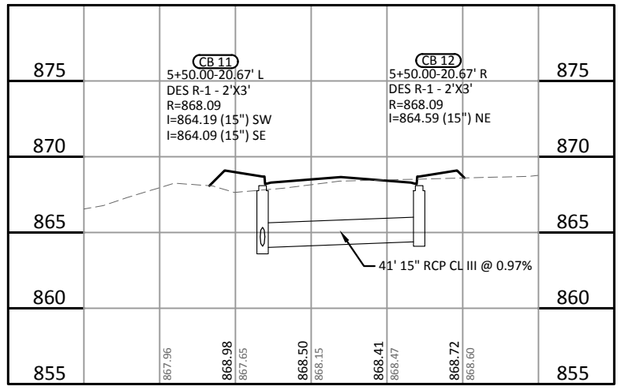

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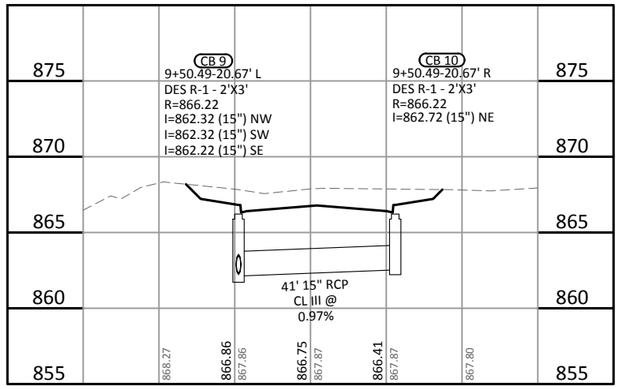
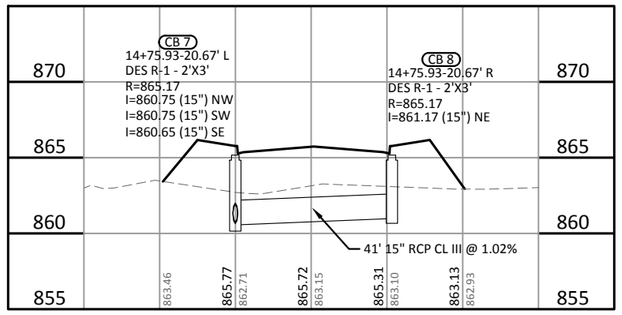
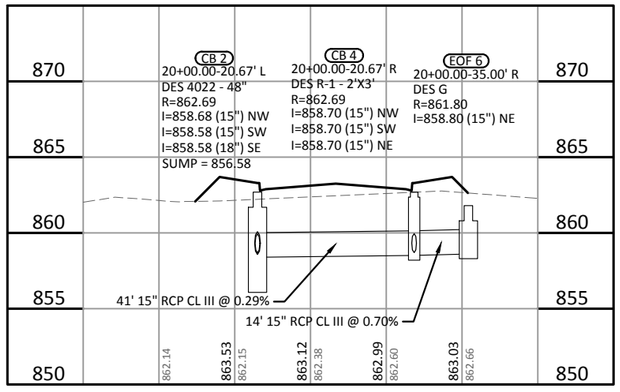


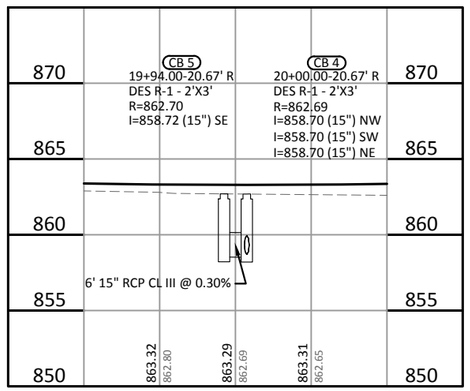
STA 14+75.93



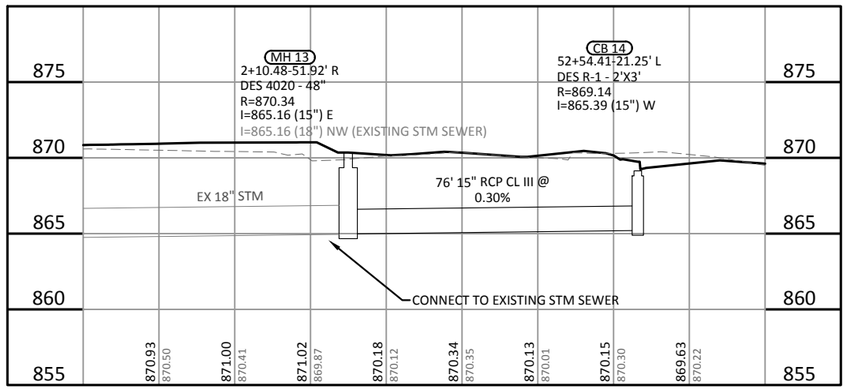
STA 20+00.00



STA 20+00.00, RT



STA 52+54.41



HORZ. SCALE 0 20 40 FEET
VERT. SCALE 0 5 10 FEET

H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

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 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

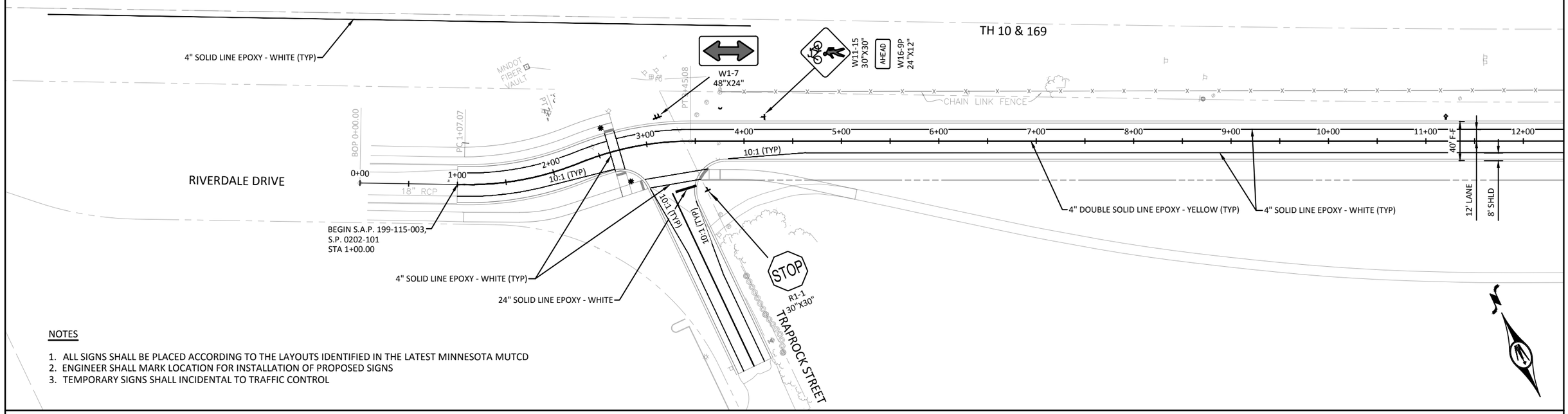
BOLTON & MENK

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

REV.	BY	DATE

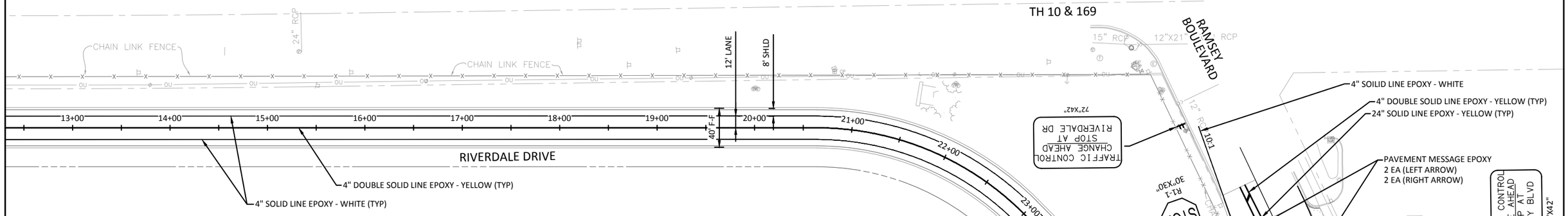
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORM SEWER LEADS

SHEET 35 OF 44



NOTES

1. ALL SIGNS SHALL BE PLACED ACCORDING TO THE LAYOUTS IDENTIFIED IN THE LATEST MINNESOTA MUTCD
2. ENGINEER SHALL MARK LOCATION FOR INSTALLATION OF PROPOSED SIGNS
3. TEMPORARY SIGNS SHALL INCIDENTAL TO TRAFFIC CONTROL



SIGN LEGEND	SIGN NUMBER/SIZE	NOTES	ESTIMATED QUANTITY
STOP	R1-1 30"X30"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	4
	W1-7 48"X24"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	2
	W3-1 36"X36"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	1

SIGN LEGEND	SIGN NUMBER/SIZE	NOTES	ESTIMATED QUANTITY
AHEAD	W11-15 30"X30" W16-9P 24"X12"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	1
TRAFFIC CONTROL CHANGE AHEAD STOP AT RIVERDALE DR	72"X42"	BLACK ON ORANGE BACKGROUND, FURNISH AND INSTALL SIGN, POST, & ASSEMBLY - PERMANENTLY MOUNTED	1
TRAFFIC CONTROL CHANGE AHEAD STOP AT RAMSEY BLVD	72"X42"	BLACK ON ORANGE BACKGROUND, FURNISH AND INSTALL SIGN, POST, & ASSEMBLY - PERMANENTLY MOUNTED	1

HORZ. 0 50 100
SCALE FEET

H:\RAMS\R16111092\CAD\C3D\111092_SIGN STRIP.dwg 3/16/16 5:54 pm

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 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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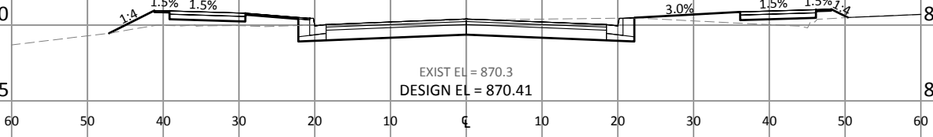
REV.	BY	DATE

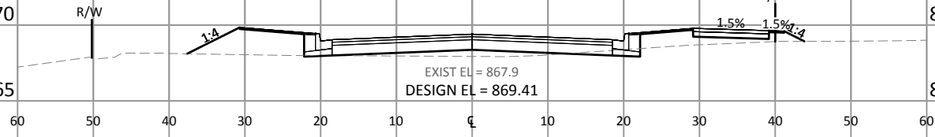
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
SIGNING & STRIPING

SHEET 36 OF 44

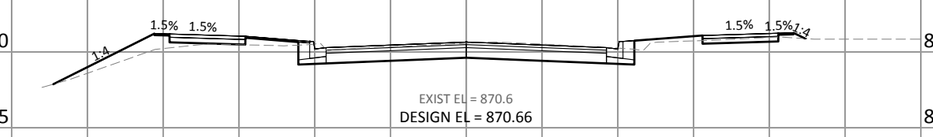
STA 2+00



STA 4+00



STA 1+50



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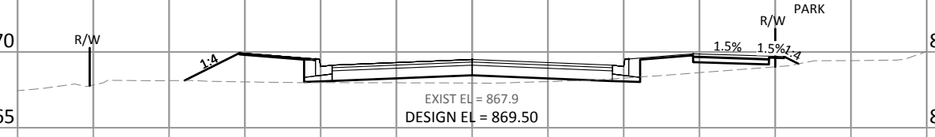

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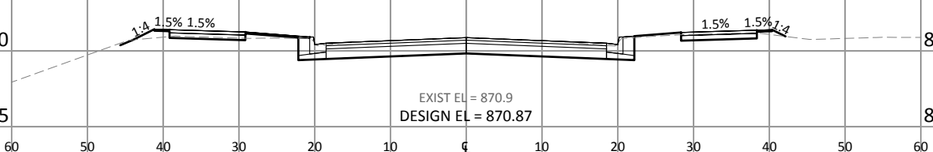
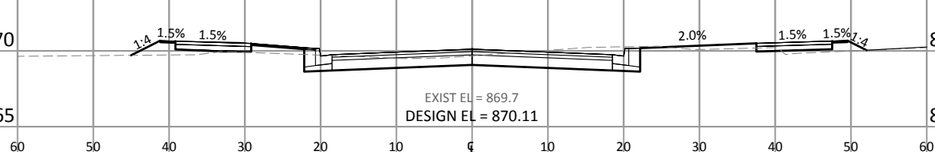
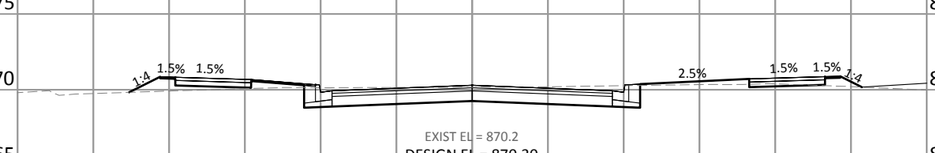


STA 2+58.51



STA 1+00

STA 2+22.23



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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DESIGNED JWC
DRAWN ZFL
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City of RAMSEY

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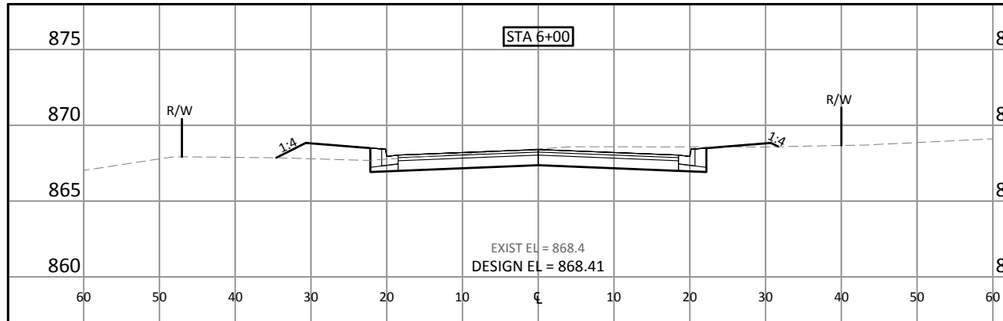
REV.	BY	DATE

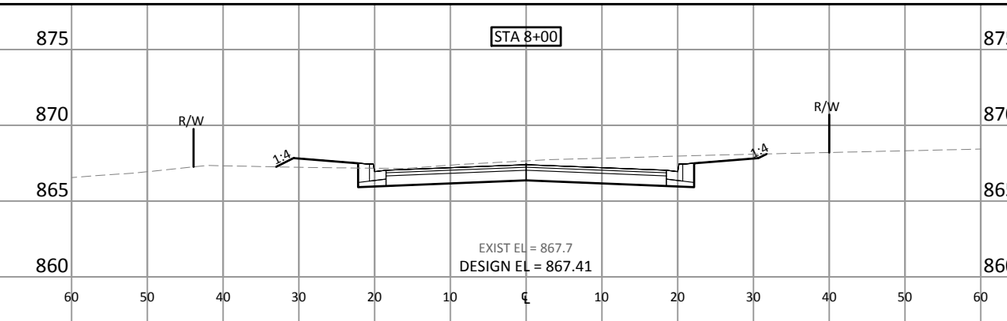
CITY OF RAMSEY, MINNESOTA

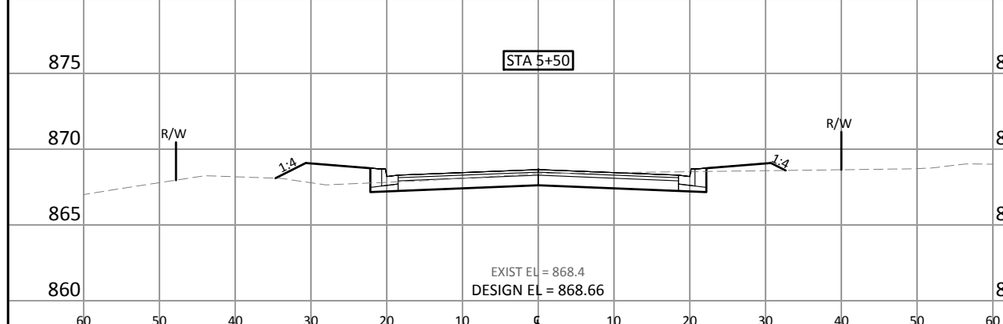
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

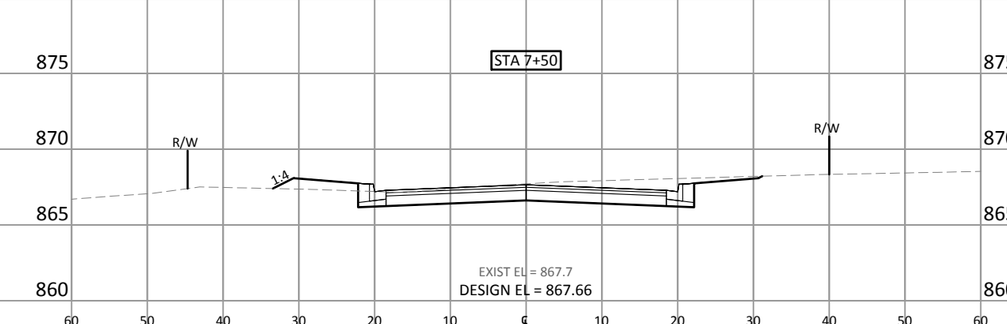
CROSS SECTIONS - RIVERDALE DRIVE

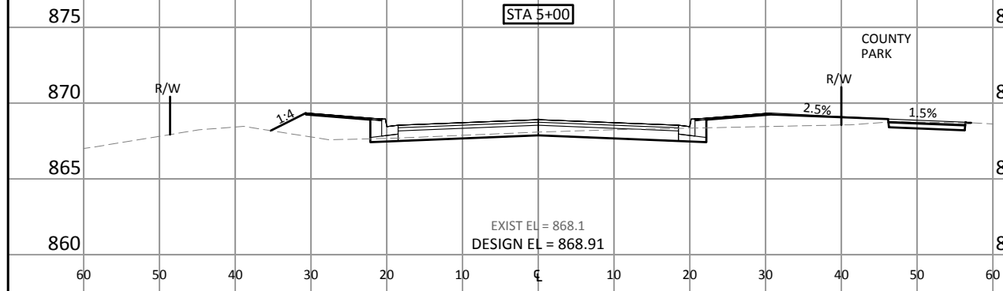
SHEET 37 OF 44

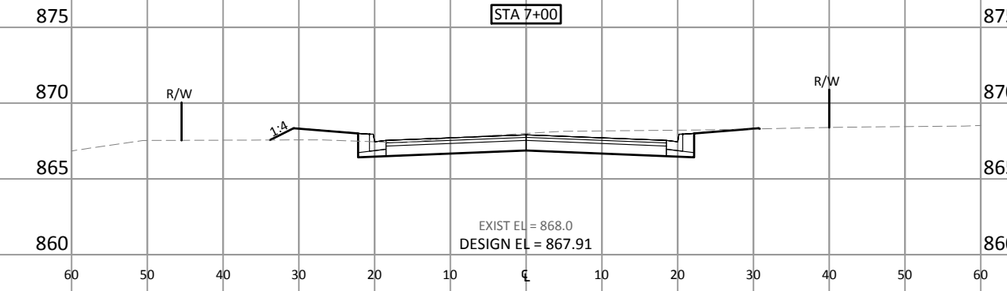


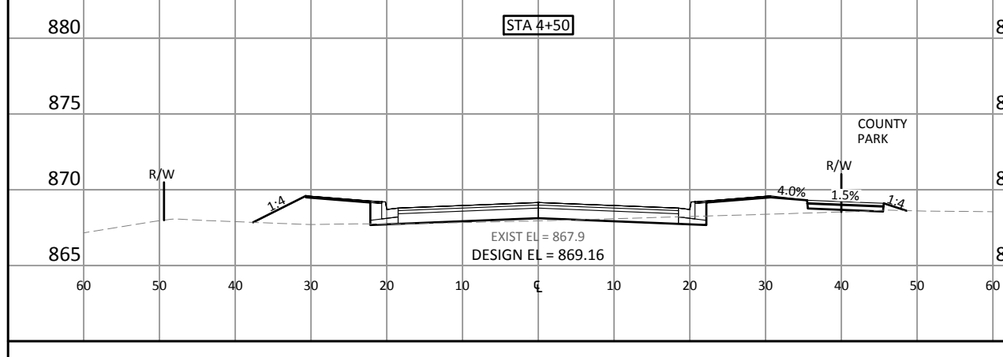


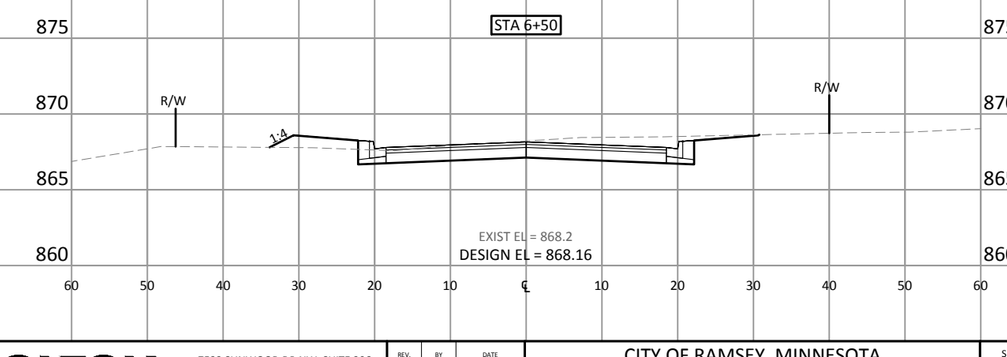












HORIZ. 0 10 20 SCALE FEET
VERT. 0 5 10 SCALE FEET

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DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

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REV.	BY	DATE

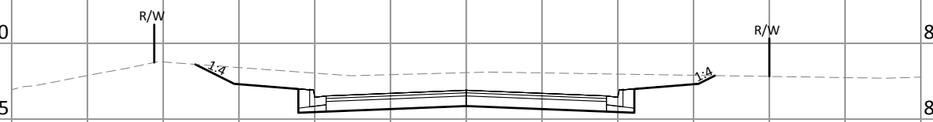
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

SHEET 38 OF 44

STA 10+00



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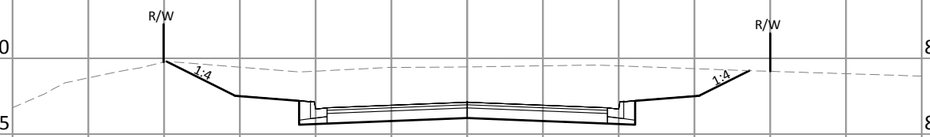
DESIGN EL = 866.90

STA 12+00



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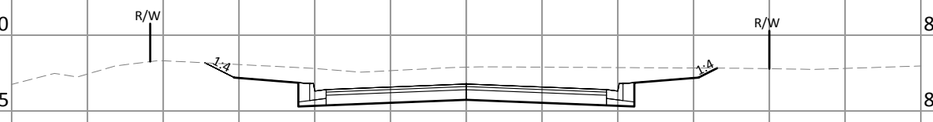
STA 9+50



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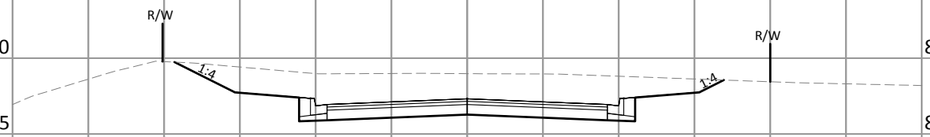
STA 11+50



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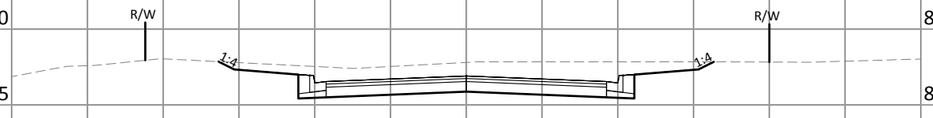
DESIGN EL = 867.32

STA 9+00



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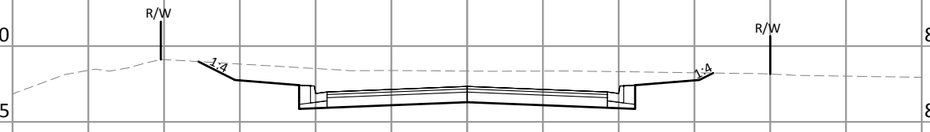
STA 11+00



EXIST EL = 868.4
DESIGN EL = 867.34

STA 8+50

EXIST EL = 867.7
DESIGN EL = 867.16

STA 10+50

EXIST EL = 868.1
DESIGN EL = 867.15

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

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DESIGNED JWC
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City of RAMSEY

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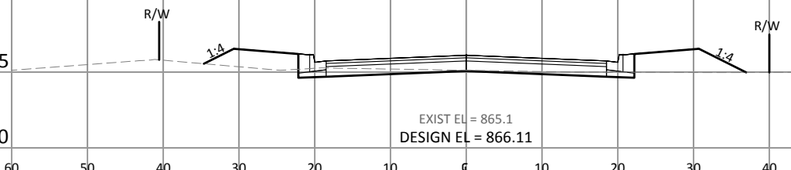
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

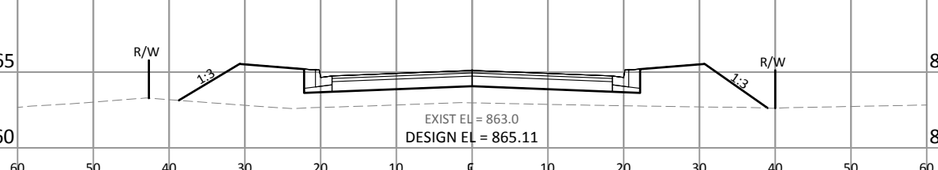
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

STA 14+00



STA 16+00



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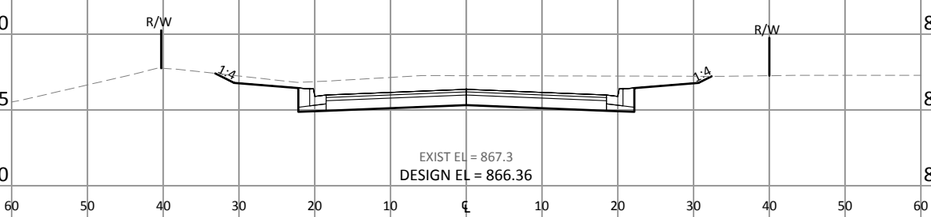

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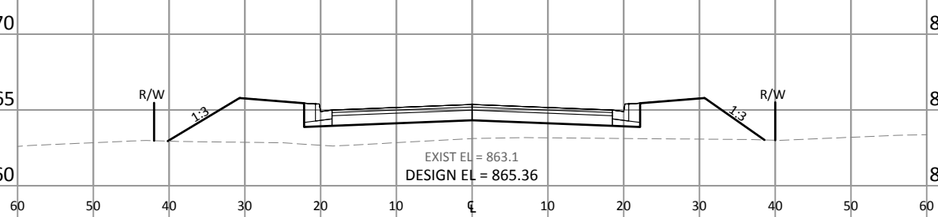
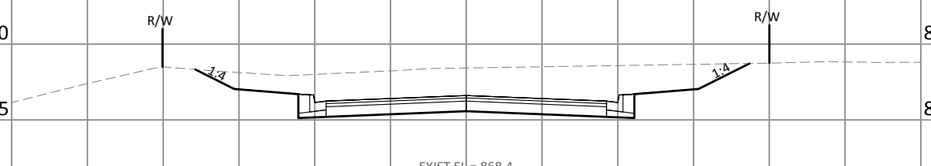


STA 13+00



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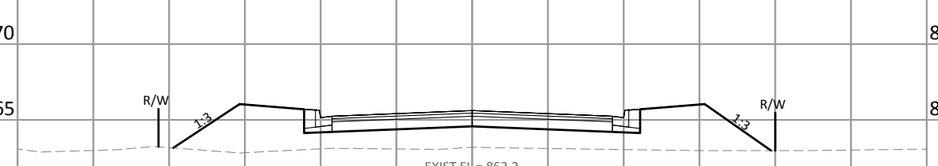

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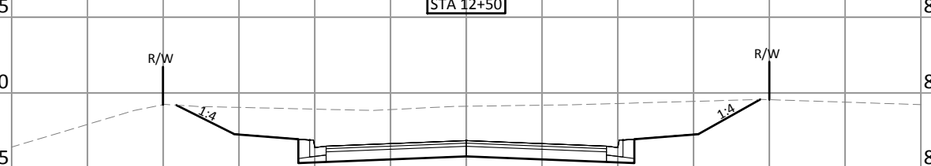

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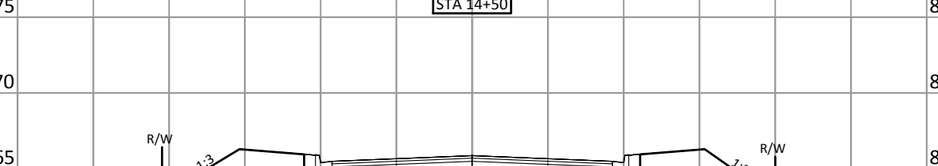

HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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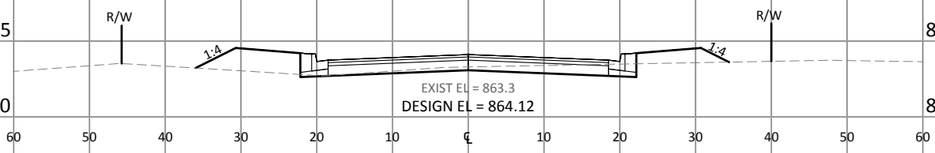
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

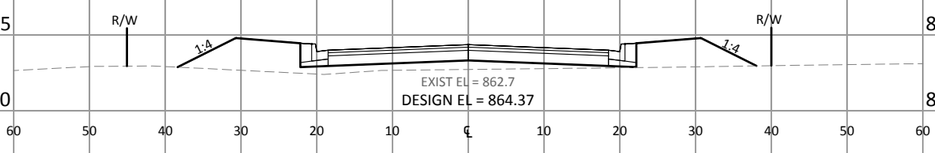
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

STA 18+00

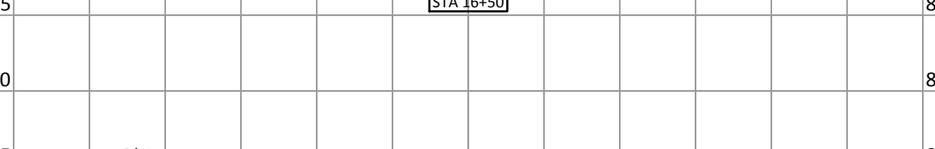


STA 17+50



STA 17+00

STA 16+50



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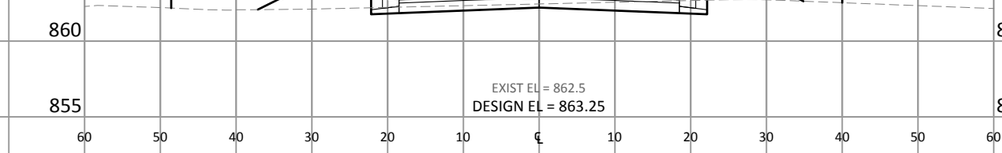
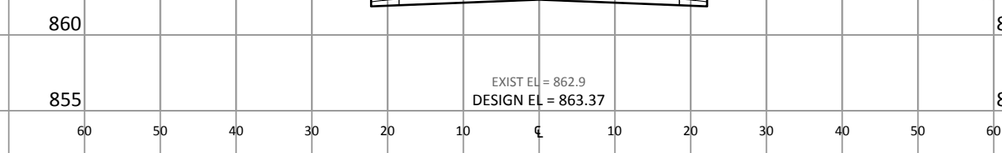
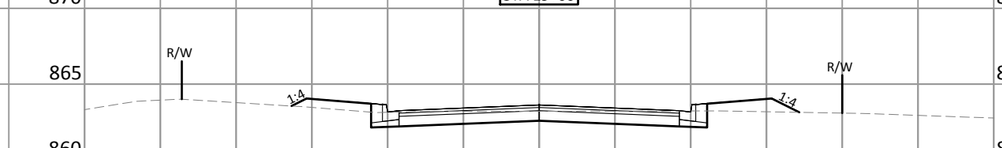


STA 19+50



STA 19+00



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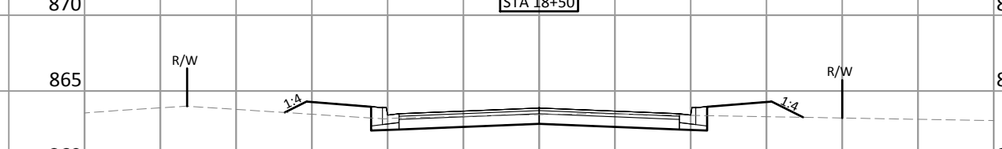

HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
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City of RAMSEY

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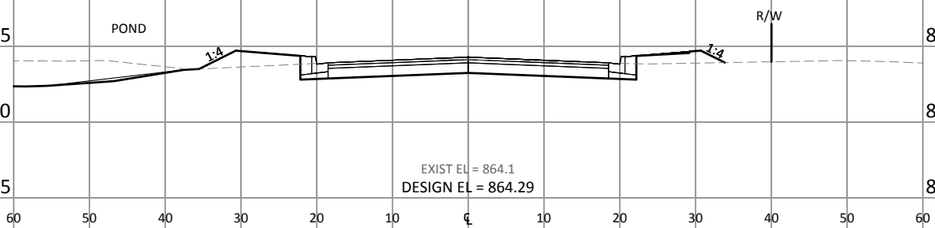
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

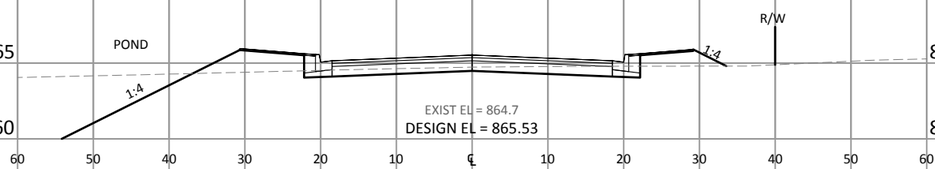
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

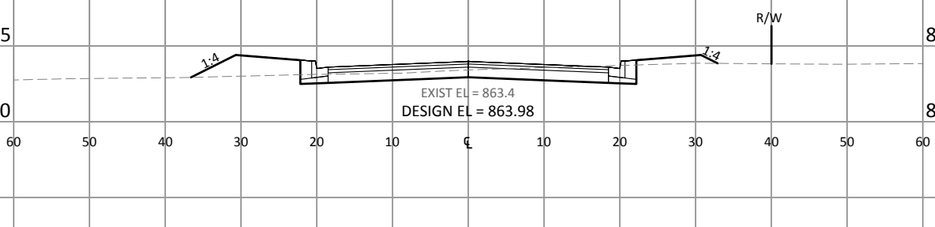
STA 22+00



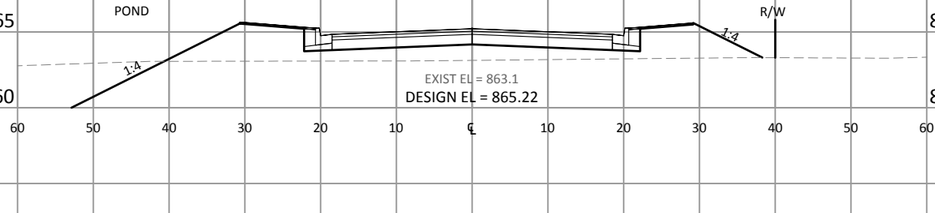
STA 24+00



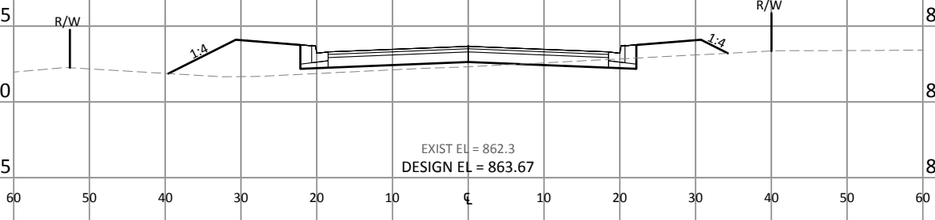
STA 21+50



STA 23+50



STA 21+00



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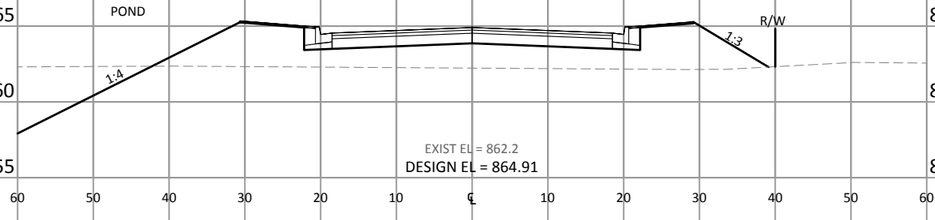
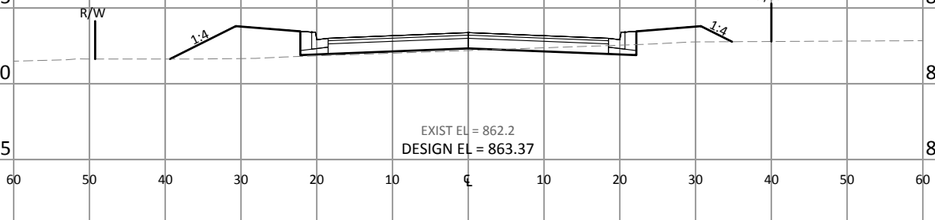
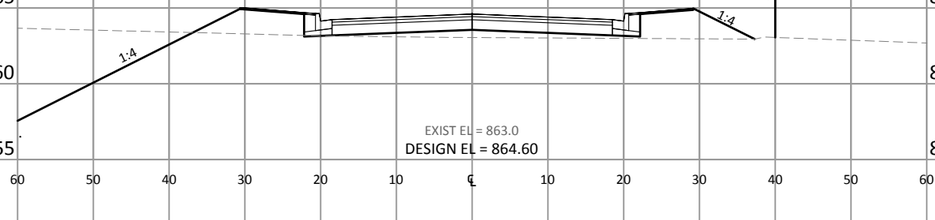


STA 20+50



STA 22+50



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

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DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

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www.bolton-menk.com

REV.	BY	DATE

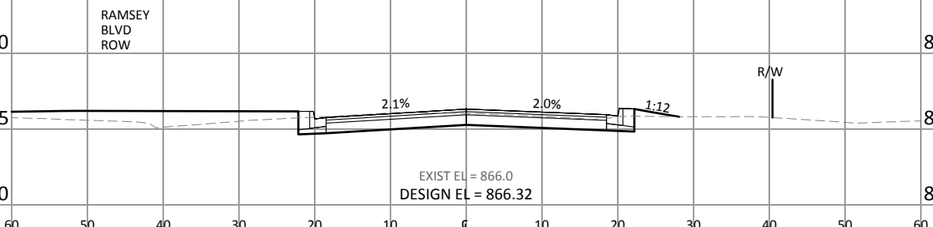
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

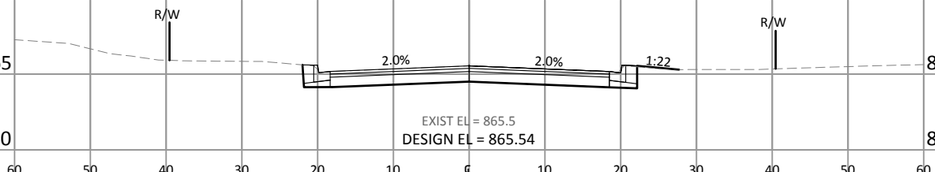
CROSS SECTIONS - RIVERDALE DRIVE

SHEET 42 OF 44

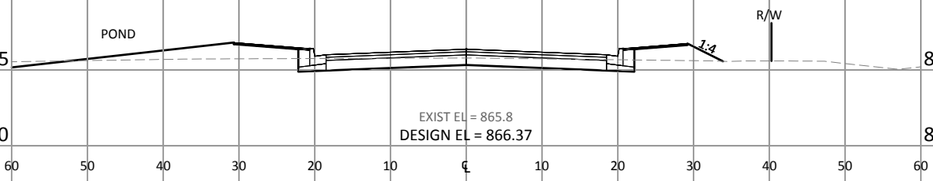
STA 26+95.87



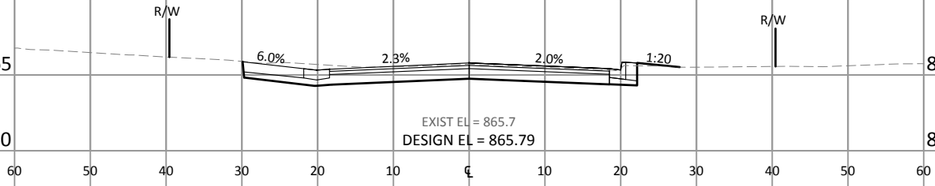
STA 28+12.43



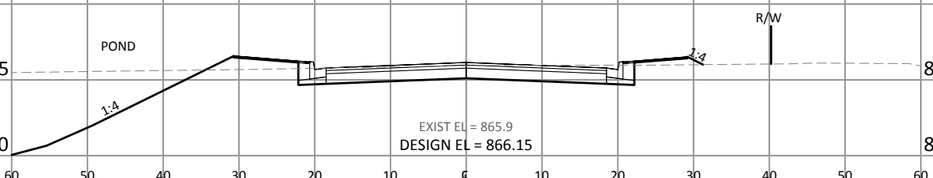
STA 25+36.36



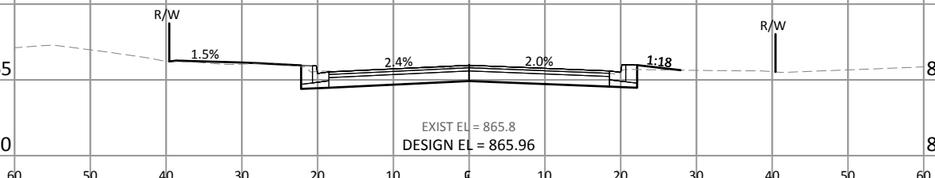
STA 27+75



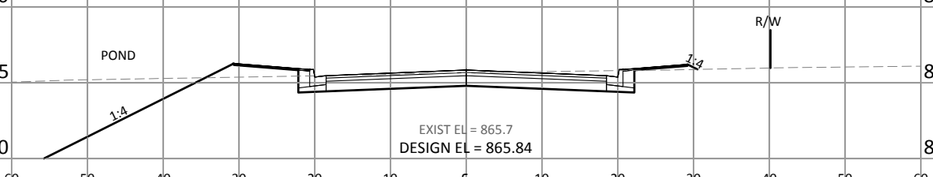
STA 25+00



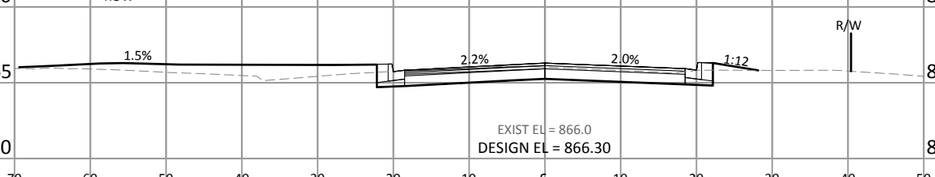
STA 27+50



STA 24+50



STA 27+00



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

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DESIGNED JWC
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City of RAMSEY

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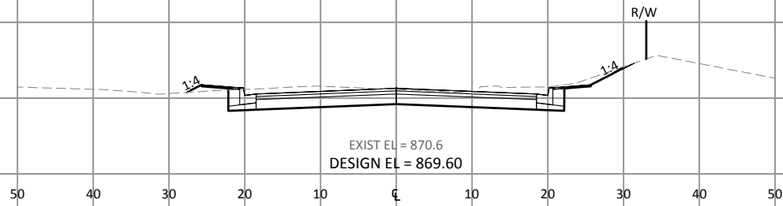
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

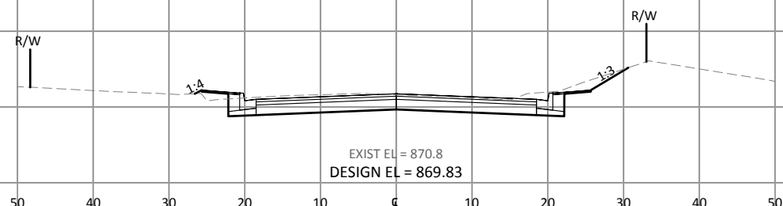
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)

CROSS SECTIONS - RIVERDALE DRIVE

STA 51+69.45

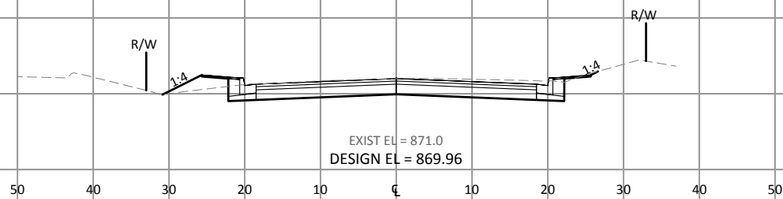


STA 51+50

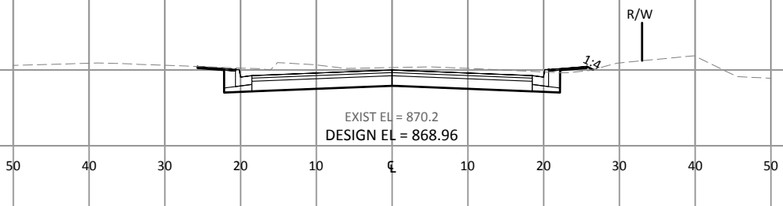


STA 51+00

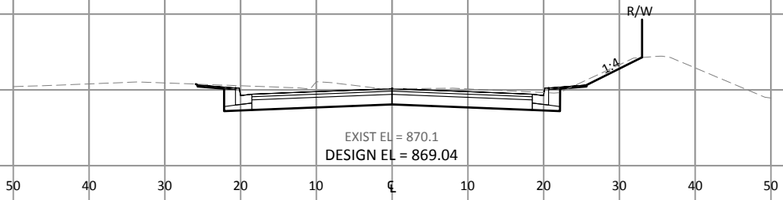
STA 50+50



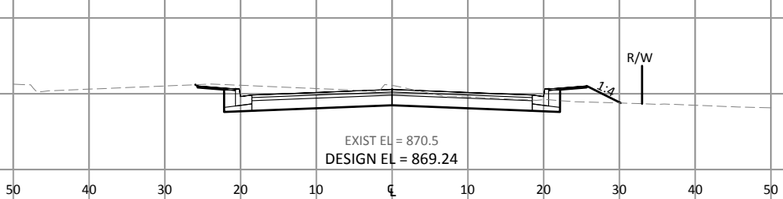
STA 52+25.41



STA 52+16.81



STA 52+00



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - TRAPROCK STREET

SHEET 44 OF 44