

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ MILL BITUMINOUS, BITUMINOUS RECLAMATION, BITUMINOUS SURFACING, CURB & GUTTER, AND SEWER REPAIRS

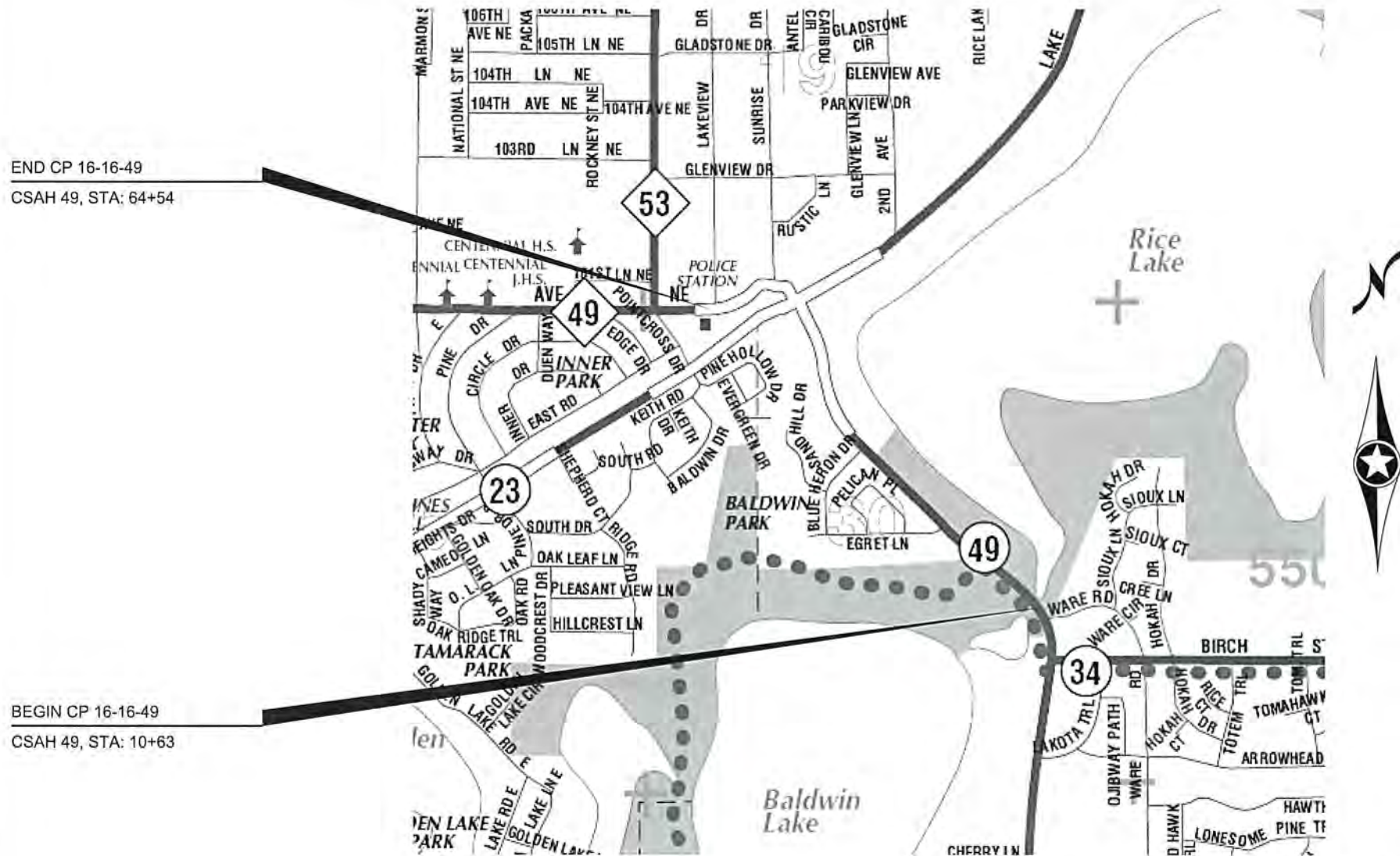
LOCATED ON CSAH 49 BETWEEN WARE RD AND LAKEVIEW DR

GOVERNING SPECIFICATIONS
 THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 21 SHEETS

INDEX

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END CP 16-16-49
 CSAH 49, STA: 64+54

BEGIN CP 16-16-49
 CSAH 49, STA: 10+63

PROJECT LOCATION



CSAH 49			
GROSS LENGTH	5391.0 FEET	1.021 MILES	
EXCEPTIONS-LENGTH	195.0 FEET	0.037 MILES	
NET LENGTH	5196.0 FEET	0.984 MILES	
DESIGN SPEED	50 MPH		
CURRENT ADT	0.00		

CITY OF CIRCLE PINES
 ANOKA COUNTY
 MN/DOT TRANSPORTATION DISTRICT - METRO
 SECTION 30
 TOWNSHIP 31 NORTH
 RANGE 22 WEST

Approved 4/11/2016
 ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION	

NAME: P:\16-01-00\CSAH_49(RiceCreek-Sunset)\Base\PROPOSED\PROPOSED.dgn

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.

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE:
 DATE: 4/8/16 LICENSE NO. 51639

DRAWN BY SH DATE 04/05/2016
 DESIGN BY SH DATE 04/05/2016
 CHECKED BY MJ DATE 04/05/2016

ANOKA COUNTY
 HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

TITLE SHEET

Sheet 1 of 21 Sheets

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STATEMENT OF ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE CURB AND GUTTER		LN FT	823
2104.503	REMOVE CONCRETE MEDIAN		SQ FT	4512
2104.503	REMOVE CONCRETE SIDEWALK		SQ FT	214
2104.505	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	1	SQ YD	102
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	607
2104.509	REMOVE CASTING		EACH	5
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LN FT	25
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LN FT	1338
2104.523	SALVAGE SIGN TYPE C	24	EACH	4
2105.602	CONSTRUCT BYPASS LANE (BLUE HERON DR.) (P)	5	EACH	1
2105.602	CONSTRUCT BYPASS LANE (EGRET LANE) (P)	5	EACH	1
2123.503	MOTOR GRADER	3	HOUR	10
2130.501	WATER		MGAL	114
2211.501	AGGREGATE BASE CLASS 5	22	TON	335
2215.501	FULL DEPTH RECLAMATION		SQ YD	11615
2215.502	HAUL FULL DEPTH RECLAMATION (LV)	10	CU YD	403
2221.501	SHOULDER BASE AGGREGATE CLASS 5	4	TON	280
2232.501	MILL BITUMINOUS SURFACE (2.0")	6	SQ YD	14229
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	7	SQ YD	202
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	1392
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	1	TON	105
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,E)		TON	4838
2360.505	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	21	TON	61
2504.602	ADJUST GATE VALVE	17	EACH	2
2504.603	HYDRANT RISER	20	LN FT	2
2506.516	CASTING ASSEMBLY	9	EACH	5
2506.602	GROUT CATCH BASIN OR MANHOLE	18	EACH	5
2521.501	4" CONCRETE WALK (MEDIAN)		SQ FT	4512
2531.501	CONCRETE CURB AND GUTTER DESIGN B624		LN FT	830
2550.602	LOOP DETECTOR DESIGN NMC	23	EACH	1
2563.601	TRAFFIC CONTROL	11	LUMP SUM	1
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	12	UNIT DAY	28
2573.502	SILT FENCE, TYPE MS	2	LN FT	1558
2573.530	STORM DRAIN INLET PROTECTION	13	EACH	17
2574.525	COMMON TOPSOIL BORROW (LV)	2	CU YD	75
2575.523	EROSION CONTROL BLANKETS CATEGORY 0	2, 14	SQ YD	1736
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	15	LN FT	810
2582.501	PAVEMENT MESSAGE PREFORMED THERMOPLASTIC	19	SQ FT	434
2582.502	4" SOLID LINE EPOXY	16	LN FT	16755
2582.502	4" BROKEN LINE EPOXY	16	LN FT	570
2582.502	4' DOUBLE SOLID LINE EPOXY	16	LN FT	1790

CONSTRUCTION NOTES

1	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
2	ITEM FOR RESTORATION ALONG PROFILE, CROSS-SLOPE AND / OR SUPERELEVATION CORRECTION AREAS.
3	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT
4	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
5	ITEMS INCLUDED IN THE BYPASS BY THE EACH ARE - COMMON EXCAVATION, SELECT GRANULAR BORROW, TOPSOIL AND AGG BASE CL-5.
6	DETAIL MILLING AROUND MANHOLES, CATCHBASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM
7	TO BE USED FOR MILLING STREET APPROACHES; DETAIL MILLING AROUND MANHOLES, CATCHBASINS, GATE VALVES, AND ALONG THE CURB LINE IS INCIDENTAL TO THIS ITEM
8	EXCESS MATERIAL SHALL BECOME PROPERTY OF CONTRACTOR
9	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS. CASTINGS IN RECLAIM / BITUMINOUS REMOVAL AREAS SHALL BE INSTALLED BETWEEN BASE AND WEAR LIFT PAVING
10	SHALL BE USED FOR PROFILE ADJUSTMENT BETWEEN STA. 10+63 - 18+00 AND ALSO TO MATCH EXISTING CURB LANE BETWEEN STA. 34+50 - 38+33
11	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE MOST CURRENT REVISION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS SHALL BE INPLACE WHENEVER PAVEMENT MARKINGS ARE NOT PRESENT.
12	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
13	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
14	TYPE 1 FERTILIZER, TYPE 25-121 SEED ARE INCIDENTAL
15	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL PAINT STRIPING.
16	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
17	GATE VALVES SHALL BE ADJUSTED ONLY AS NECESSARY AS DIRECTED BY THE ENGINEER
18	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS AND CASTINGS AS REQUIRED.
19	INCLUDES ANY THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS, AND PAVEMENT MESSAGES
20	ITEM INCLUDES ALL TIME, MATERIAL AND EQUIPMENT NECESSARY TO ADJUST HYDRANT ASSEMBLY TO PROPOSED FINISHED GRADE.
21	BITUMINOUS PATCHING ITEM INCLUDES BITUMINOUS TRAIL PAVING AT BRIDGE
22	ITEM SHALL BE USED FOR BASE MATERIAL UNDER BITUMINOUS SHOULDERS, STREET APPROACHES AND DRIVEWAYS AS WELL AS AT SIDEWALK / PATH APPROACH PANELS AT BRIDGE
23	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY FOR PLACEMENT LOCATION. ORIGINAL SIGNAL PLANS ARE LOCATED AT THE END OF THIS PLAN SET.
24	ITEM FOR SALVAGING SIGNS IN MEDIAN AREA. SEE TEMP. SIGNING AND PERMANENT SIGNING SHEETS.

CASTING ASSEMBLIES SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	QUANTITY	DESCRIPTION
A-7D	700-7	715		2	STD. PLATE: 4101D, 4110F
NEENAH*	R-3250-DVSP	V	YES	4	
*OR APPROVED EQUAL					
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD.					
ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY					

MNDOT STANDARD PLATES

PLATE NUMBER	DESCRIPTION
4020J	MANHOLE OR CATCHBASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4035N	CONCRETE WALK
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
7100H	CONCRETE CURB AND GUTTER
7113A	CONCRETE APPROACH NOSE DETAIL

BASIS OF PLANNED QUANTITIES

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD (LV)
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2401	REINFORCEMENT BARS (EPOXY COATED) #4 BAR	0.668 LBS / LN FT

sp/haas

STORM DRAINAGE TAB														
NUMBER	TYPE	ACTION	NEW CASTING	CASTING ASSEMBLY (EACH)	RING HEIGHT -INCIDENTAL- (LN FT)	GROUT (EACH)	NOTES	SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CURB & GUTTER	CONCRETE CURB & GUTTER DESIGN B624	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	NOTES
								LIN FT	LIN FT	LIN FT		SQ YD	TON	
102	MH	NONE			1.8		STRUCTURE OK							
103	CB	GROUT			0.0	1	GROUT STRUCTURE							
104	CB	NONE			0.4		STRUCTURE OK							
105	CB	RE-RING	R-3250-DVSP	1	0.6			5	10	10	14	2.2	0.5	
106	CB	NONE			0.7		STRUCTURE OK							
107	CB	GROUT			0.5	1	GROUT STRUCTURE							
108	CB	NONE			0.0		STRUCTURE OK							
109	CB	NONE			0.0		STRUCTURE OK							
110	CB	GROUT			0.6	1	GROUT STRUCTURE							
111	CB	NONE			0.6		STRUCTURE OK							
112	CB	RERING	R-3250-DVSP	1	0.3			5	10	10	14	2.2	0.5	
113	CB	RE-RING / GROUT	R-3250-DVSP	1	0.7	1	GROUT INVERT(S)	5	10	10	14	2.2	0.5	
114	CB	RERING	R-3250-DVSP	1	0.6			5	10	10	14	2.2	0.5	
115	CB	NONE			0.6		STRUCTURE OK							
116	CB	NONE			1.3		STRUCTURE OK							
119	CB	NONE			0.5		STRUCTURE OK							
120	STRM MH	NONE			0.0		STRUCTURE OK							
121	CB	NONE			0.0		STRUCTURE OK							
202	SAN MH	NONE			0.6		STRUCTURE OK							
203	SAN MH	NONE			0.3		STRUCTURE OK							
204	CB	GROUT			0.9	1	GROUT STRUCTURE							
205	STRM MH	NONE			0.0		STRUCTURE OK							
207	SAN MH	RE-RING	A-7D	1	0.9						28	5.4	1.2	
210	SAN MH	RE-RING	A-7D	1	0.5		STRUCTURE OK				28	5.4	1.2	
211	STRM MH	NONE			0.6		STRUCTURE OK							
212	STRM MH	NONE			0.0		STRUCTURE OK							
TOTALS:				6	13.0	5		20	40	40	112	19.6	4.4	

CURB REPLACEMENT TAB														
		STATION						SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CURB & GUTTER	CONCRETE CURB & GUTTER DESIGN B624	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	NOTES
		56+08 TO 59+54						5	346	346	354	79.0	18.1	MEDIAN
		56+08 TO 59+77						5	369	369	377	82.0	18.9	MEDIAN
TOTALS:								10	715	715	731	161.0	37.0	

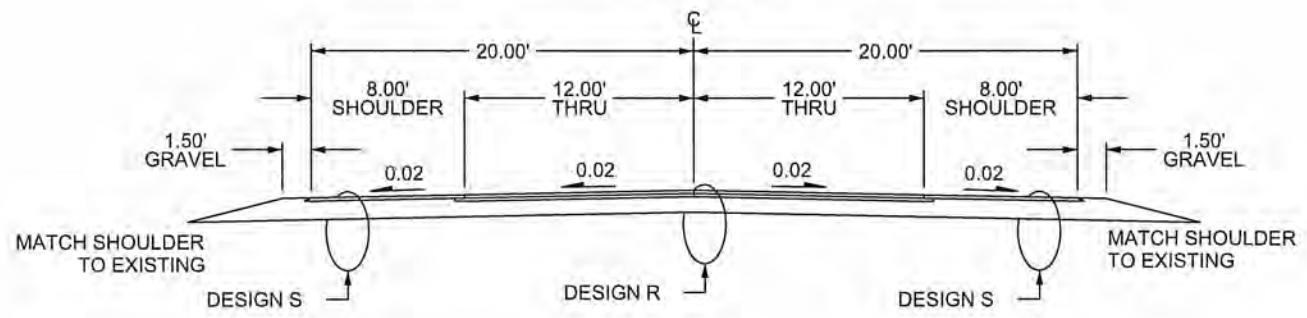
NEW BYPASS LANE LOCATIONS (BY THE EACH)									
STREET	STATION RANGE	DIR	RTL / BYPASS	WIDTH	LENGTH	COMMON EXCAVATION (CU YDS)	SELECT GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
EGRET ST	19+75 - 26+00	NB	BYPASS	12	620	168	289	97	233
BLUE HERON ST	32+00 - 38+50	NB	BYPASS	12	620	74	208	54	120
TOTALS:						242	497	151	353

ESTIMATED AVERAGE DEPTH FOR BYPASSES USING ELEVATION AT EDGE OF MAT, SHOULDER PI AND DITCH BOTTOM								
EGRET LANE					BLUE HERON DRIVE			
EM	SH	PI	BOTTOM		EM	SH	PI	BOTTOM
890.30	890.10		886.88		887.59	887.18		882.22
890.31	889.90		886.00		888.20	888.01		885.78
890.51	889.90		887.15		888.32	888.18		886.54
890.24	889.87		886.51		888.92	888.62		885.76
888.76	888.32		886.84		889.29	888.96		885.51
<hr/>					<hr/>			
4450.12	4448.09		4433.38		4442.32	4440.95		4425.81
<hr/>					<hr/>			
890.02	889.62		886.68		888.46	888.19		885.16
<hr/>					<hr/>			
AVERAGE DEPTH					3.35			
MINUS 0.5' (AGG. BASE)					2.85			
AVERAGE DEPTH					3.30			
MINUS 0.5' (AGG. BASE)					2.80			

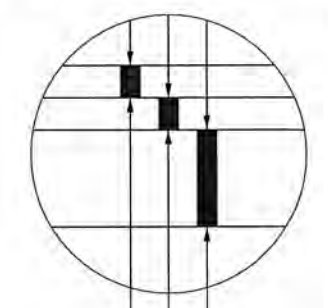
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CSAH 49 - HODGSON RD RECLAIM SECTION

10+63 - 19+50

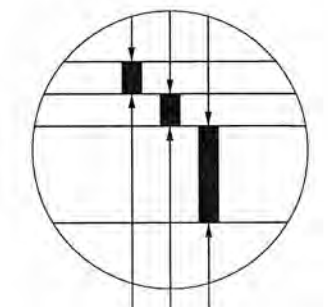


DESIGN R RECLAIM SECTION



2.0" BITUMINOUS WEAR (SPWEB440E)
 2.0" BITUMINOUS WEAR (SPWEB440E)
 RECLAIMED BITUMINOUS

DESIGN N BYPASS LANE



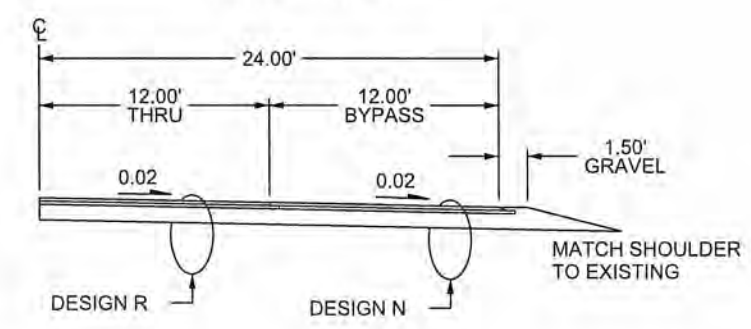
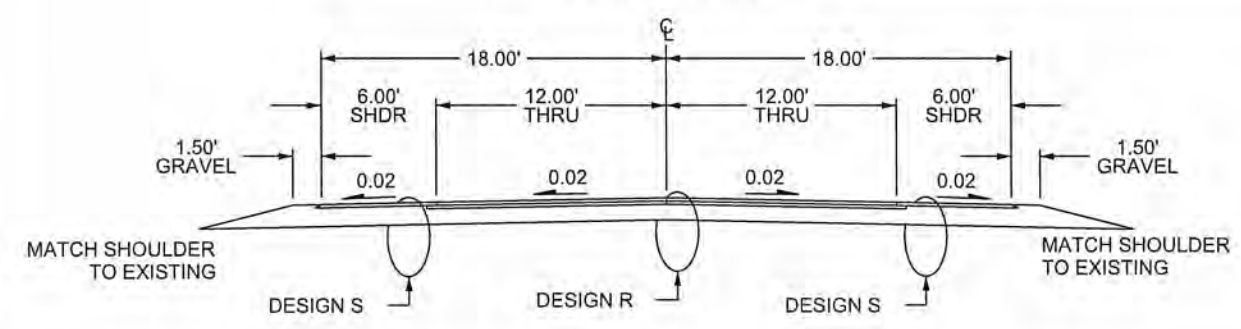
2.0" BITUMINOUS WEAR (SPWEB440E)
 2.0" BITUMINOUS WEAR (SPWEB440E)
 6" AGGREGATE BASE, CLASS 5

CSAH 49 - HODGSON RD RECLAIM SECTION

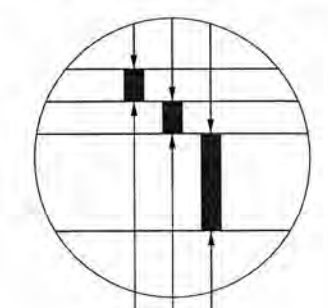
19+50 - 32+10

BYPASS SECTION

19+80 - 26+00



DESIGN S SHOULDER SECTION



2.0" BITUMINOUS WEAR (SPWEB440E)
 2.0" AGGREGATE BASE CLASS 5
 RECLAIMED BITUMINOUS

NO	DATE	BY	CKD	APPR	REVISION	04/05/2016	8:38:04 AM
NAME: P:\116-01-00\CSAH_49(RiceCreek-Sunset)\Base\PROPOSED\PROPOSED.dgn							

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ANOKA COUNTY
 HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

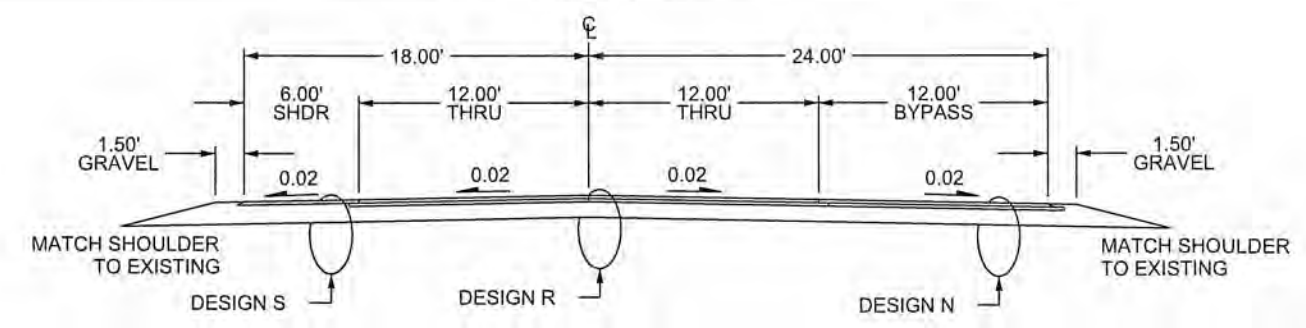
TYPICAL SECTIONS
 Sheet 4 of 21 Sheets

spoons

CSAH 49 - HODGSON RD

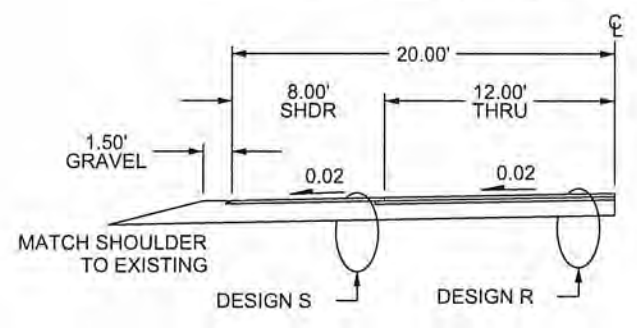
RECLAIM SECTION

32+10 - 38+30



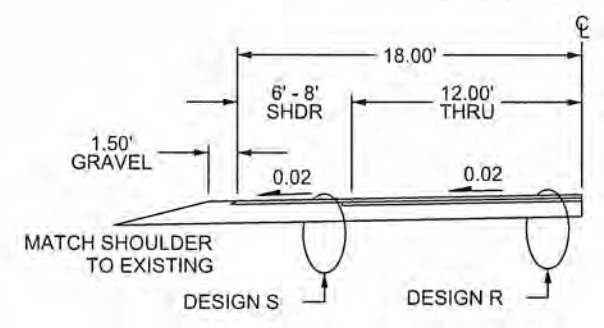
SHOULDER SECTION

34+44 - 35+50



SHOULDER SECTION

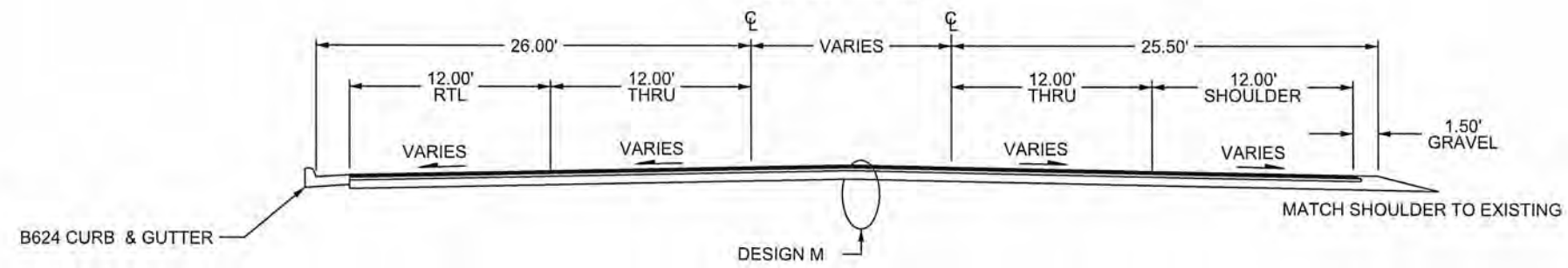
33+04 - 34+44



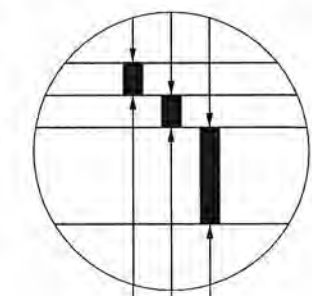
CSAH 49 - HODGSON RD

MILL SECTION

38+30 - 42+50

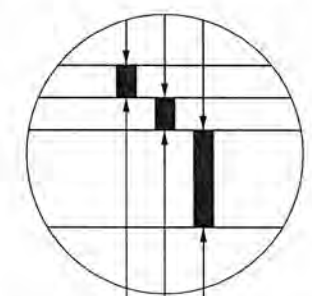


DESIGN R RECLAIM SECTION



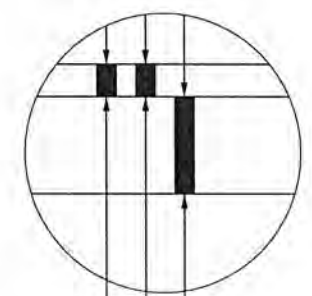
2.0" BITUMINOUS WEAR(SPWEB440E)
 2.0" BITUMINOUS WEAR(SPWEB440E)
 RECLAIMED BITUMINOUS

DESIGN S SHOULDER SECTION



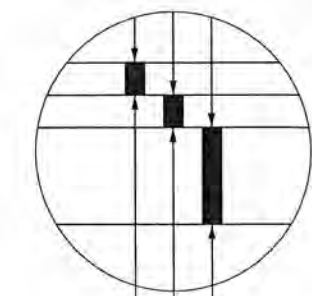
2.0" BITUMINOUS WEAR(SPWEB440E)
 2.0" AGGREGATE BASE CLASS 5
 RECLAIMED BITUMINOUS

DESIGN M MILL SECTION



2.0" MILL BITUMINOUS
 2.0" BITUMINOUS WEAR(SPWEB440E)
 REMAINING BITUMINOUS

DESIGN N BYPASS LANE



2.0" BITUMINOUS WEAR(SPWEB440E)
 2.0" BITUMINOUS WEAR(SPWEB440E)
 6" AGGREGATE BASE, CLASS 5

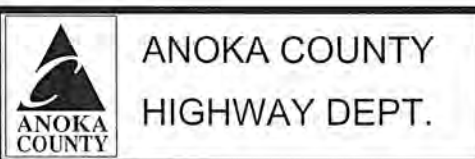
NO	DATE	BY	CKD	APPR	REVISION	
	04/05/2016					8:38:08 AM

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COUNTY PROJECT 16-16-49

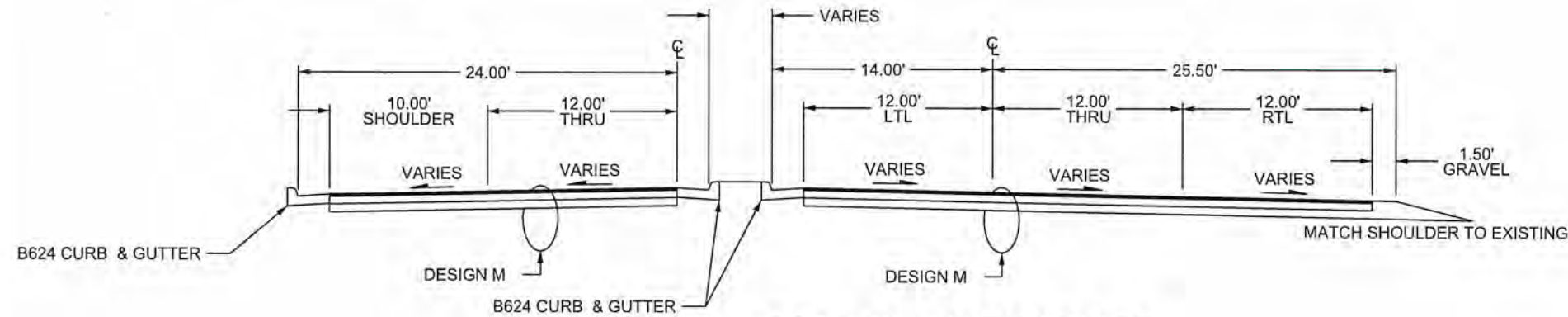
TYPICAL SECTIONS
 Sheet 5 of 21 Sheets

sphaos

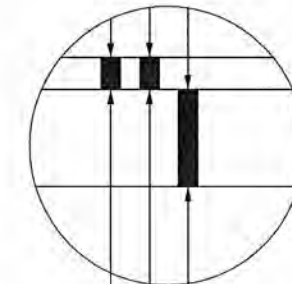
CSAH 49 - HODGSON RD

MILL SECTION

42+50 - 47+50
49+50 - 52+50



DESIGN M MILL SECTION

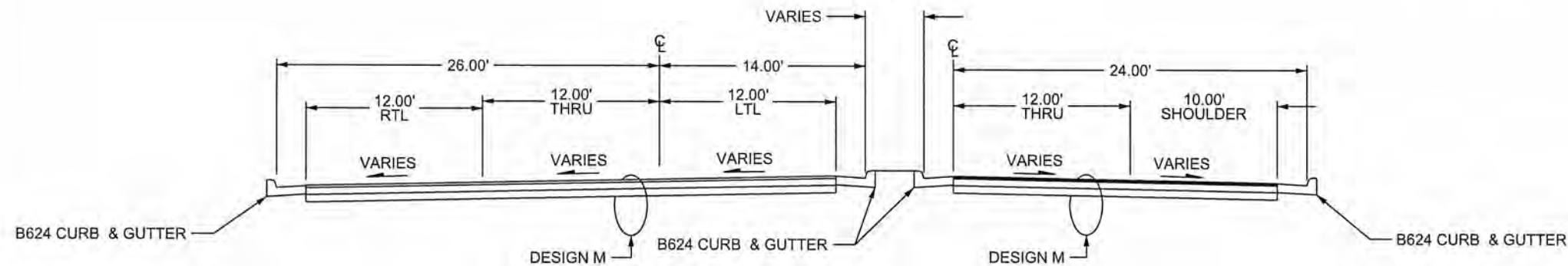


2.0" MILL BITUMINOUS
2.0" BITUMINOUS WEAR(SPWEB440E)
REMAINING BITUMINOUS

CSAH 49 - HODGSON RD

MILL SECTION

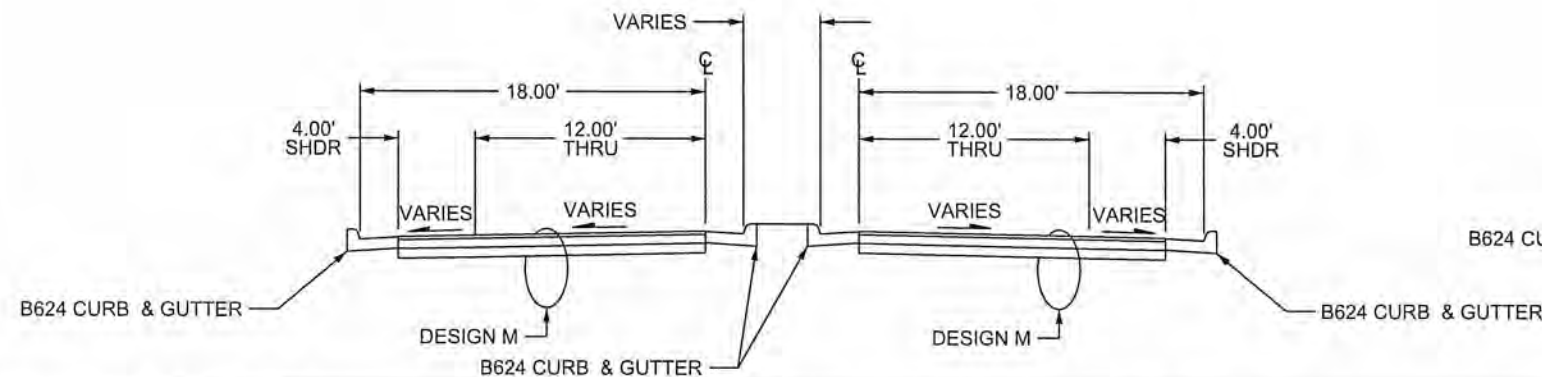
47+50 - 49+50
54+34 - 57+00



CSAH 49 - HODGSON RD

MILL SECTION

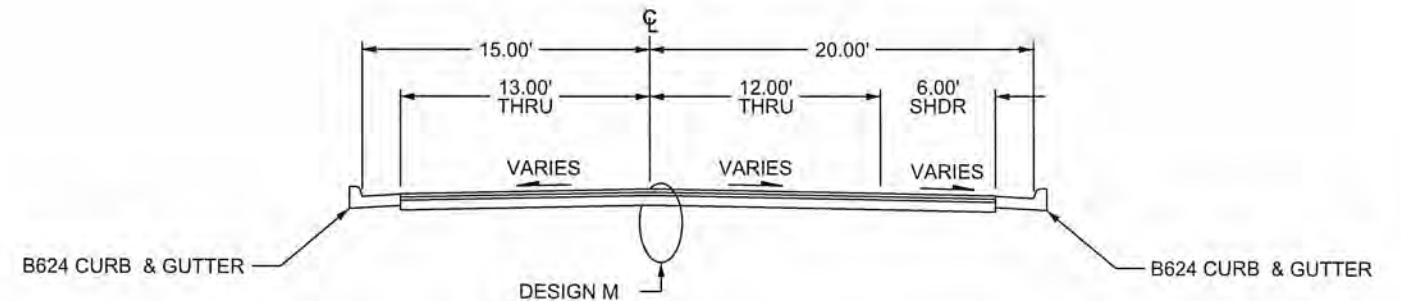
57+00 - 62+40



CSAH 49 - NORTH RD

MILL SECTION

62+40 - 64+54



NO	DATE	BY	CKD	APPR	REVISION	04/05/2016	8:38:11 AM
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HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

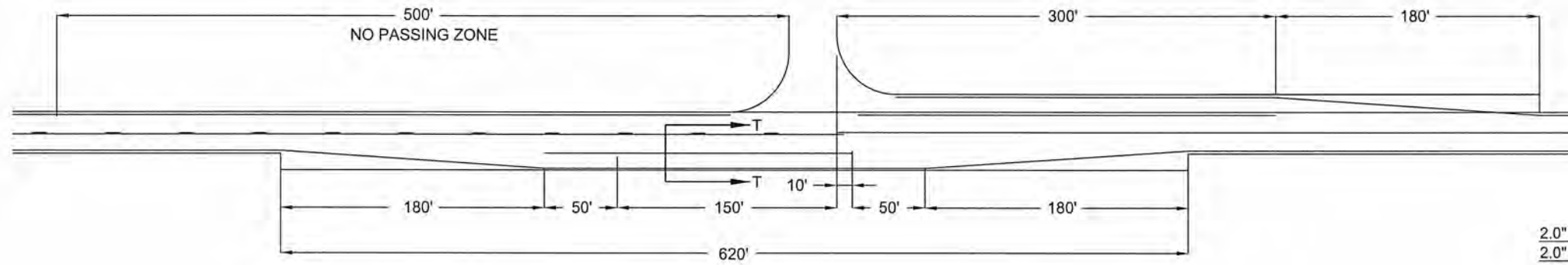
TYPICAL SECTIONS

Sheet 6 of 21 Sheets

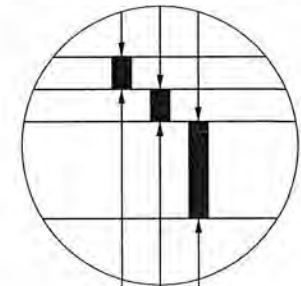
sphaas

BYPASS LANE

GENERAL LAYOUT PLAN VIEW



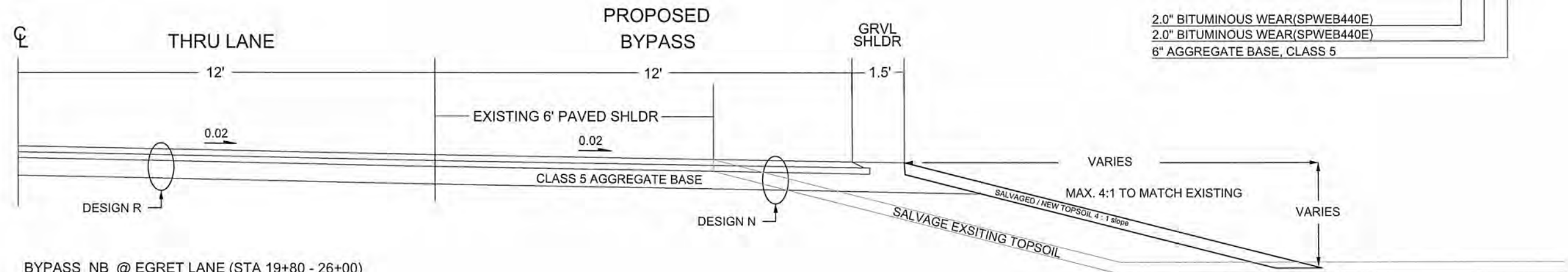
DESIGN R RECLAIM SECTION



2.0" BITUMINOUS WEAR (SPWEB440E)
 2.0" BITUMINOUS WEAR (SPWEB440E)
 RECLAIMED BITUMINOUS

BYPASS LANE

SECTION T - T



2.0" BITUMINOUS WEAR (SPWEB440E)
 2.0" BITUMINOUS WEAR (SPWEB440E)
 6" AGGREGATE BASE, CLASS 5

BYPASS NB @ EGRET LANE (STA 19+80 - 26+00)

BYPASS NB @ BLUE HERON DR (STA 32+10 - 38+30)

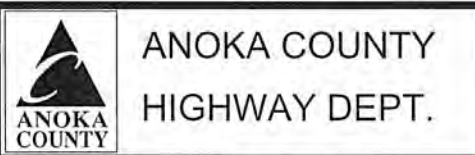
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY: JJ DATE: 04/05/2016
 DESIGN BY: SH DATE: 04/05/2016
 CHECKED BY: MJ DATE: 04/05/2016

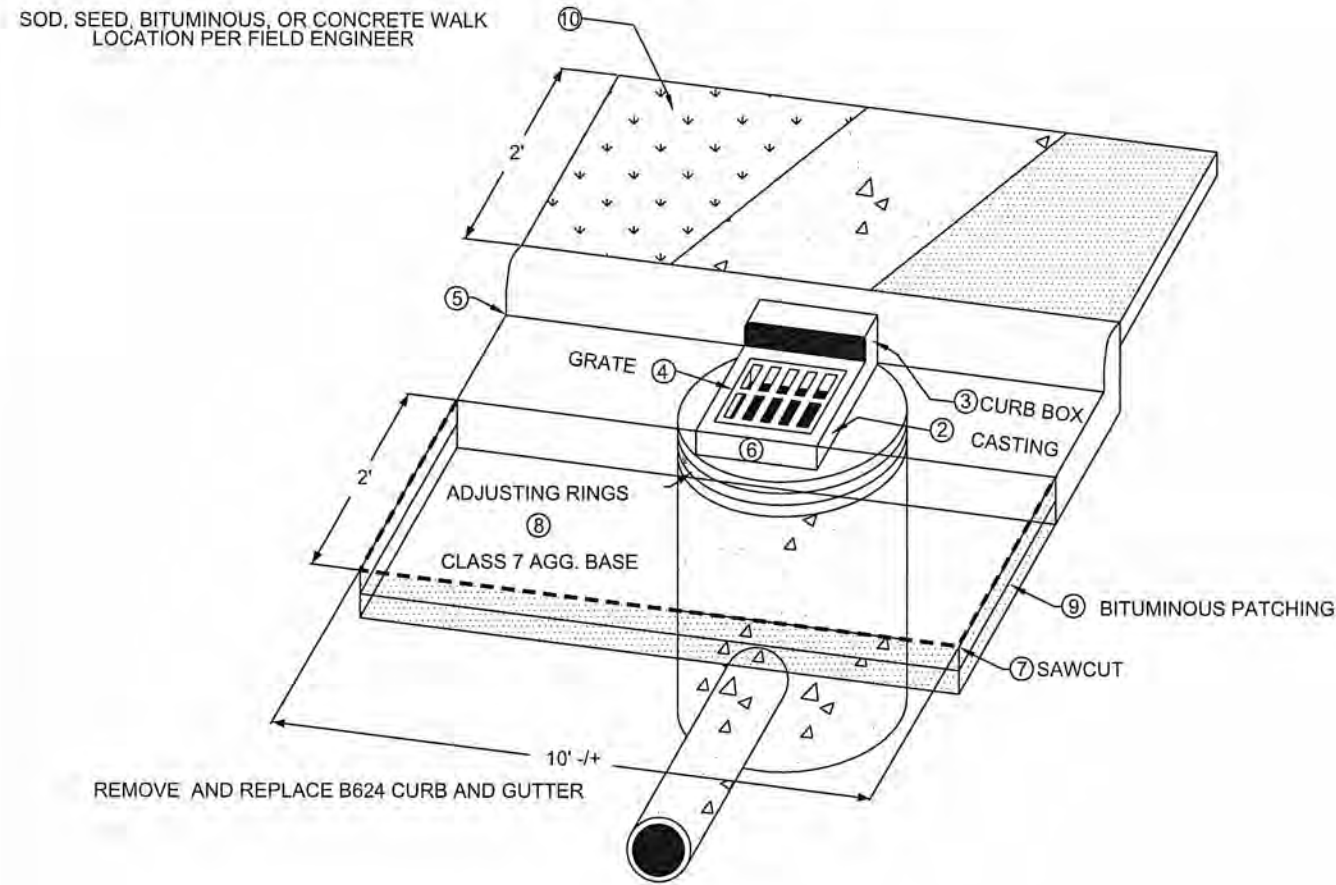


COUNTY PROJECT 16-16-49

TYPICAL SECTIONS
 Sheet 7 of 21 Sheets

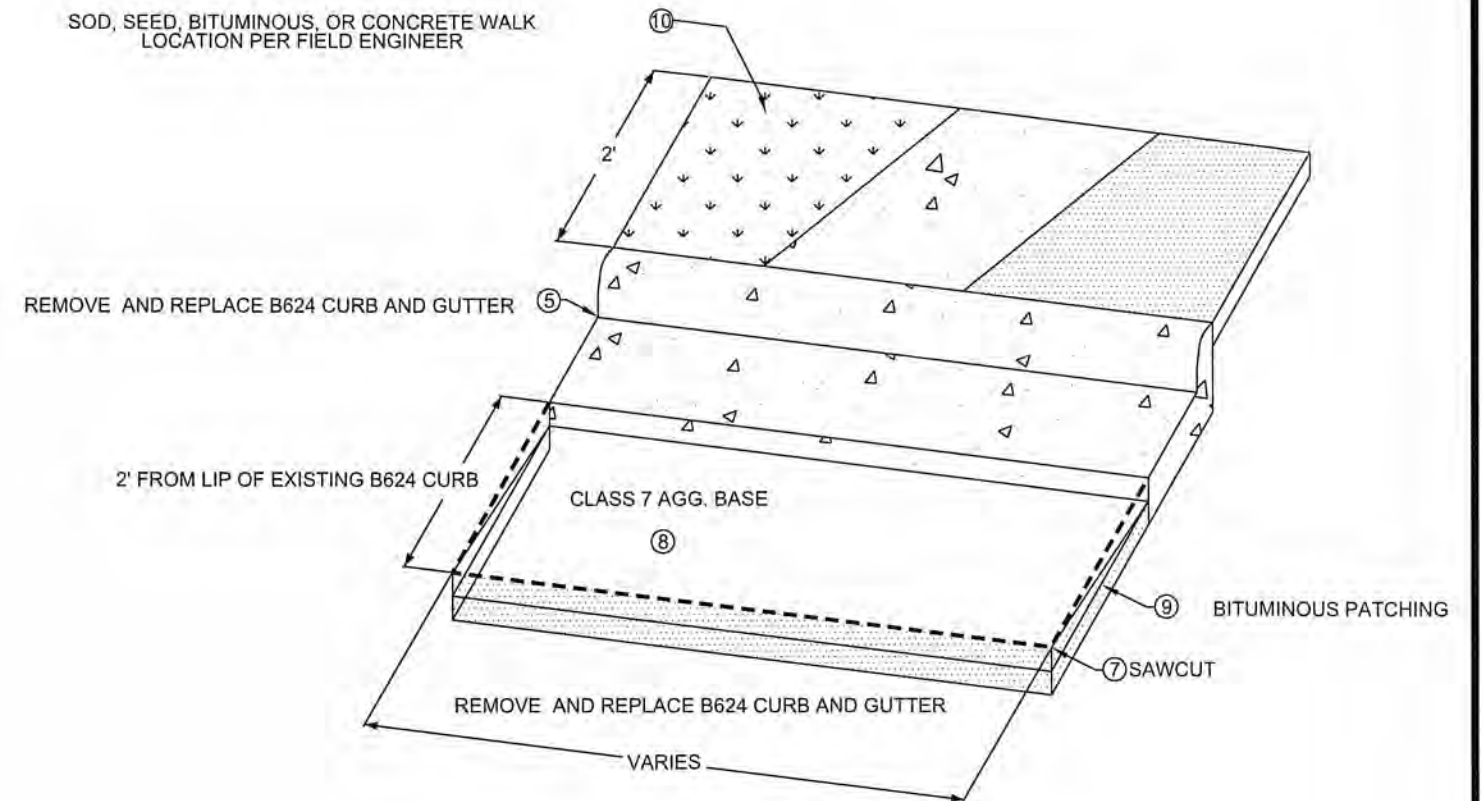
CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION
(PAGE 3)



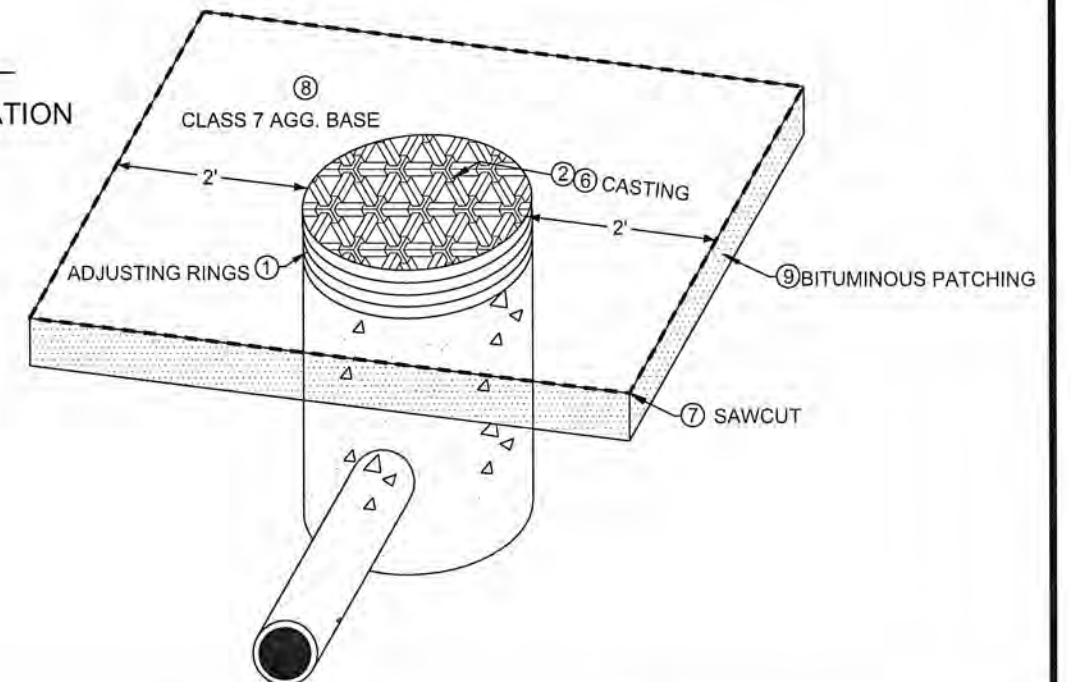
NEW CURB DETAIL

SEE PLAN FOR LOCATION



MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION
(PAGE 2)



NOTES

FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G, FORM CURB TO FIT CASTING
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTIAL AREAS), EROSION CONTROL BLANKET, BITUMINOUS, OR CONCRETE

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ANOKA COUNTY
HIGHWAY DEPT.

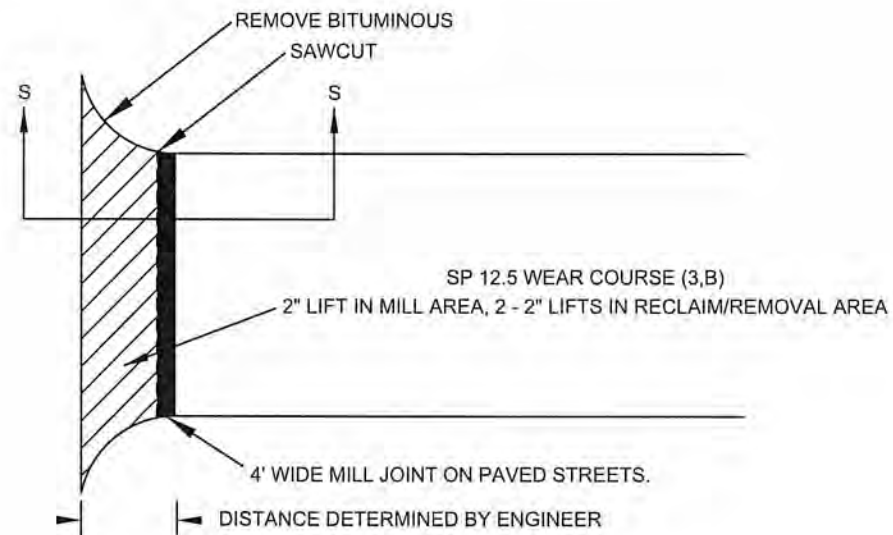
COUNTY PROJECT 16-16-49

DETAILS
Sheet 8 of 21 Sheets

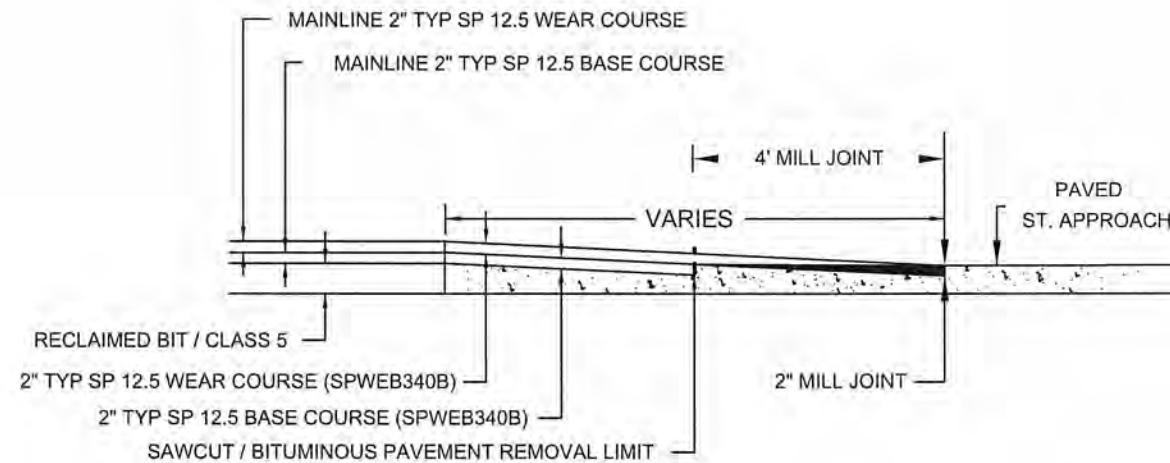
RECLAIM AREA - STREET APPROACH DETAIL

BITUMINOUS STREET

PLAN VIEW



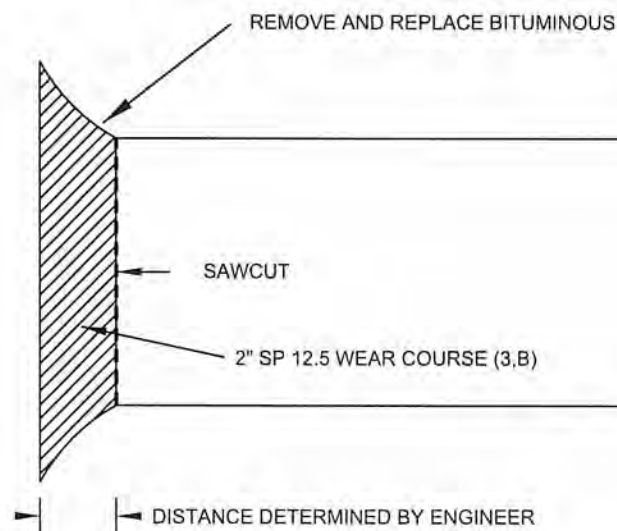
SECTION S - S



RECLAIM AREA - DRIVEWAY DETAIL

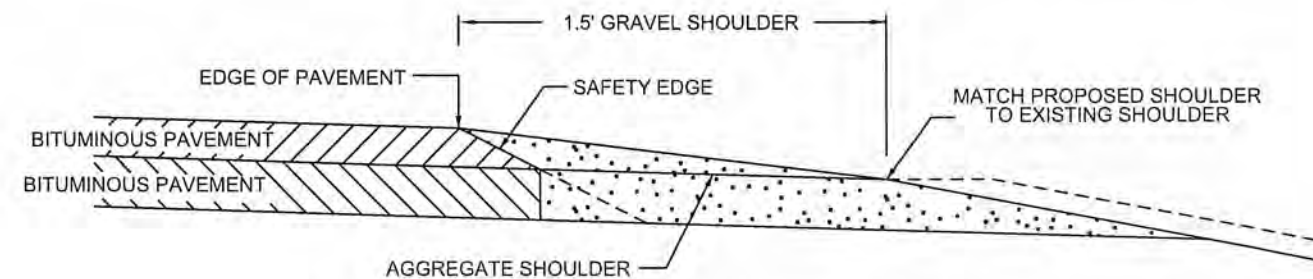
BITUMINOUS

PLAN VIEW



SHOULDER DETAIL

BITUMINOUS SAFETY EDGE
GRAVEL SHOULDER



SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS.

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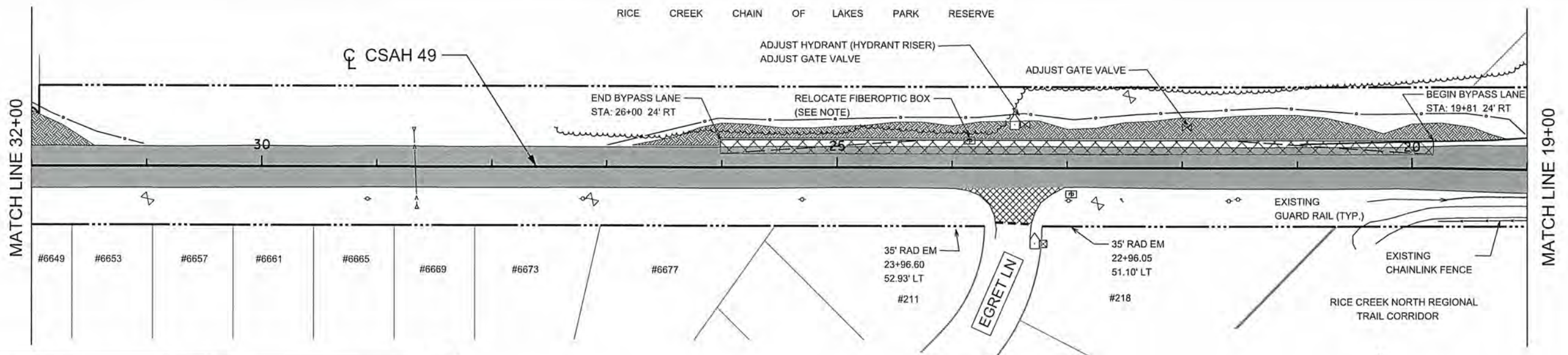
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

DETAILS

Sheet 9 of 21 Sheets

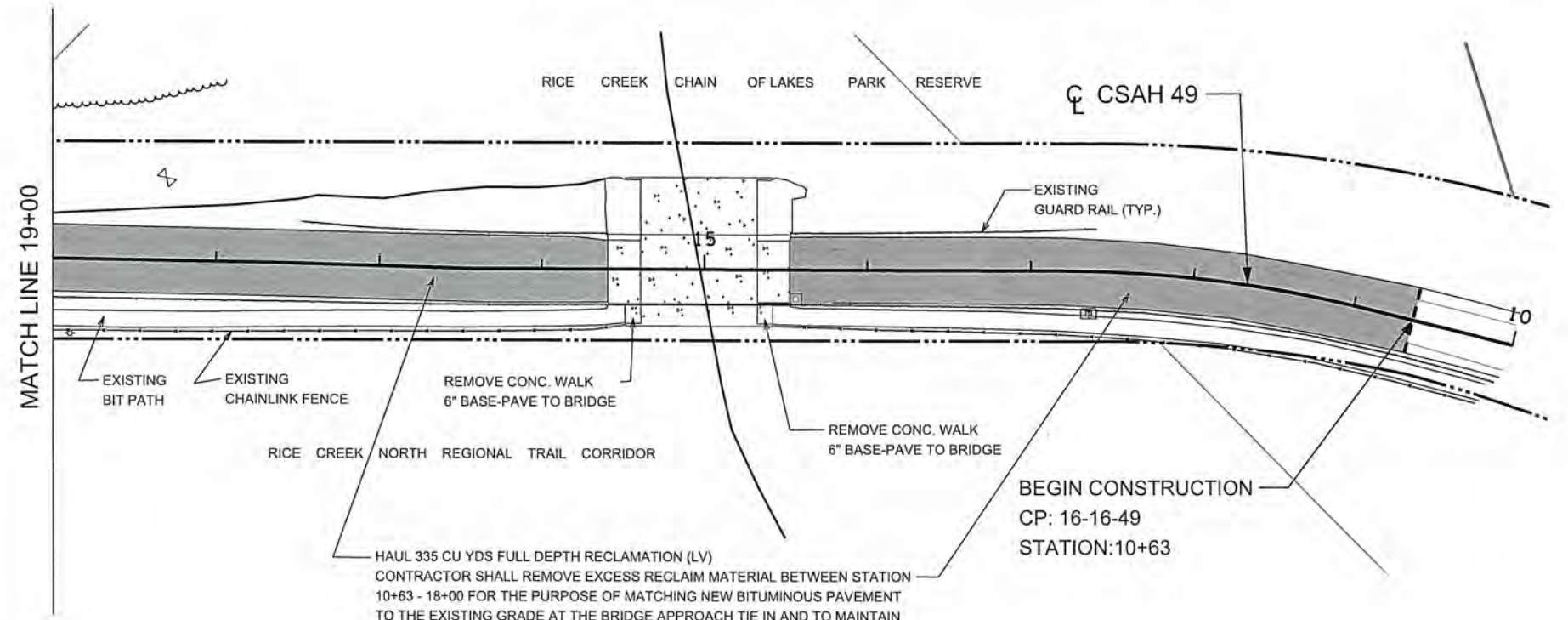
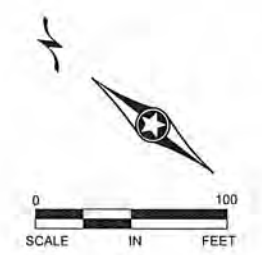
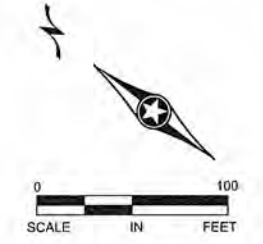
mjohn



LEGEND

- (B) BITUMINOUS
- (C) CONCRETE
- (G) GRAVEL
- SEWER WORK LOCATION
- ⊗ GATE VALVE
- SILT FENCE
- - - SAWCUT
- APRX. LOOP LOCATION
- >> STORM SEWER
- CROSS CULVERT
- REGRADING AREA
- MAINLINE MILL
- MAINLINE RECLAIM
- CONSTRUCT BYPASS LANE
- REMOVE AND REPLACE BITUMINOUS / CONCRETE
- R / W

NOTE:
CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND RELOCATION OF THE UTILITY OBSTRUCTION (WITH THE PRIVATE UTILITY OWNER) TO A POINT OUTSIDE THE GRADING P.I. AS DEEMED SATISFACTORY BY THE ENGINEER (INCIDENTAL)



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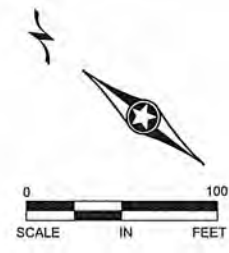
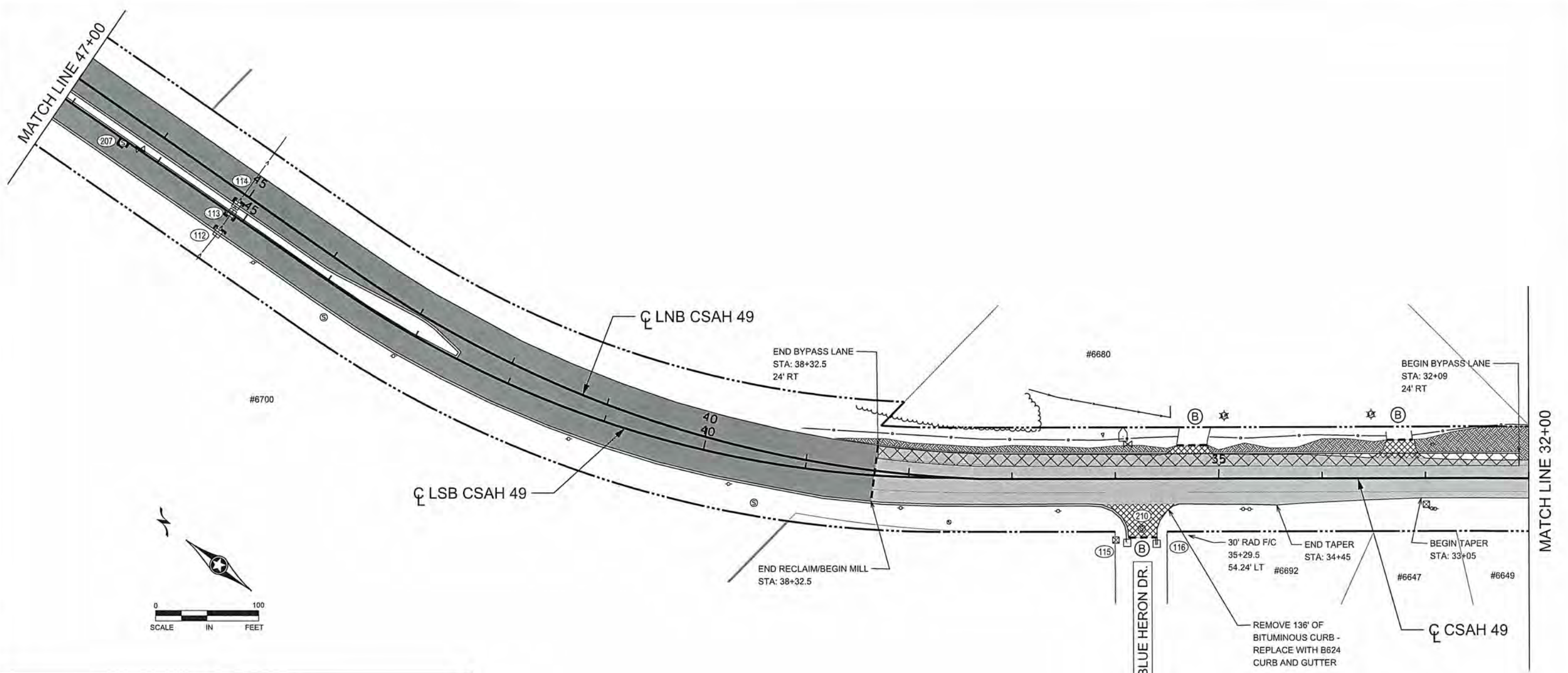
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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

CONSTRUCTION PLAN
STA 10+63 TO 32+00
Sheet 10 of 21 Sheets

sphaas



LEGEND			
(B)	BITUMINOUS	—>—	STORM SEWER
(C)	CONCRETE	— —	CROSS CULVERT
(G)	GRAVEL	[Hatched Box]	REGRADING AREA
(O)	SEWER WORK LOCATION	[Solid Black Box]	MAINLINE MILL
(X)	ADJUST GATE VALVE	[Light Gray Box]	MAINLINE RECLAIM
—+—	SILT FENCE	[Cross-hatched Box]	CONSTRUCT BYPASS LANE
---	SAWCUT	[Diagonal-hatched Box]	REMOVE AND REPLACE BITUMINOUS / CONCRETE
(L)	APRX. LOOP LOCATION	---	R / W

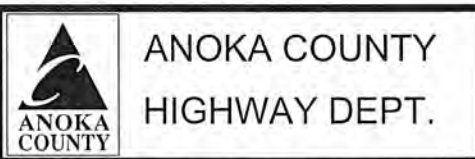
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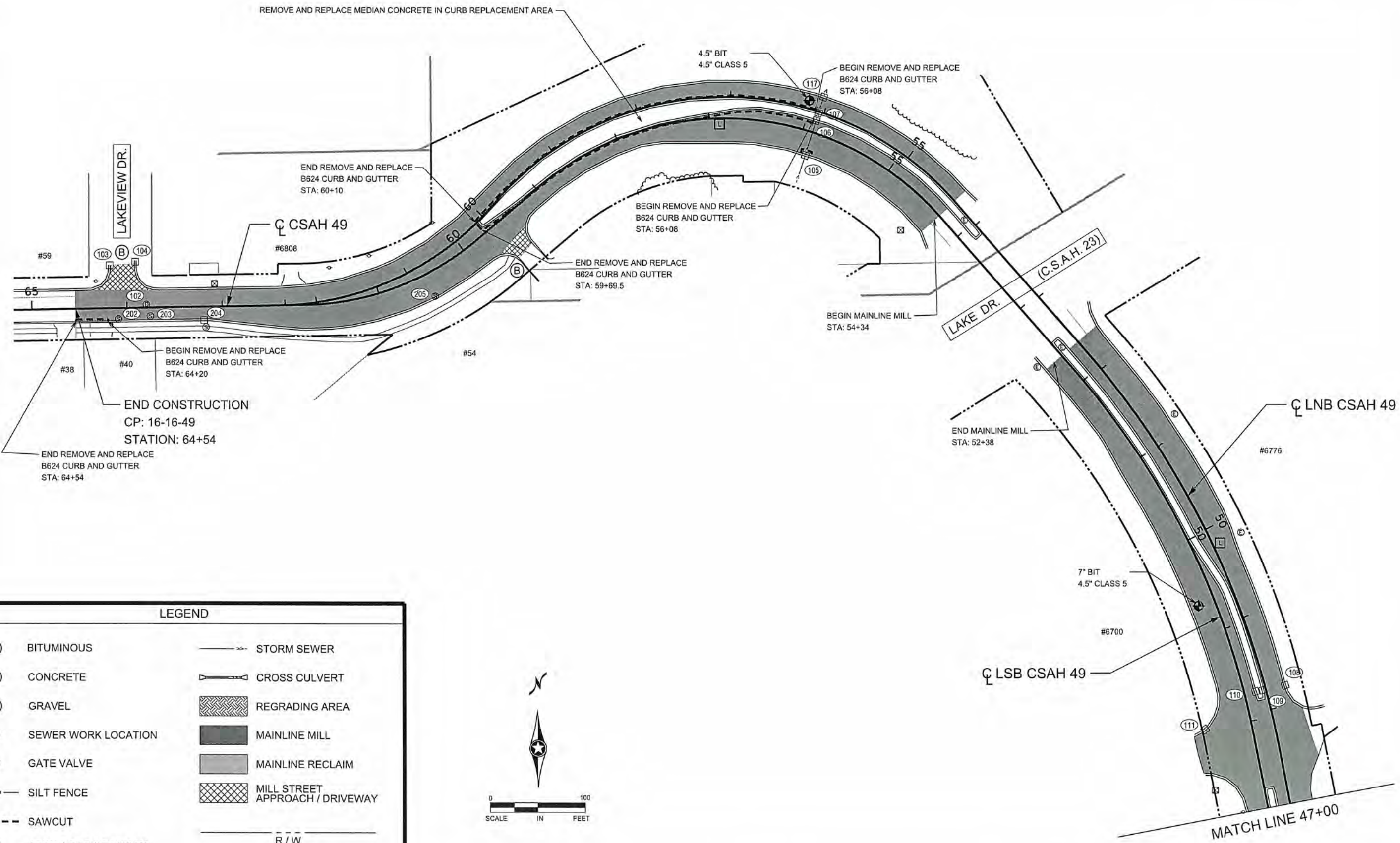
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ANOKA COUNTY
 HIGHWAY DEPT.
 COUNTY PROJECT 16-16-49

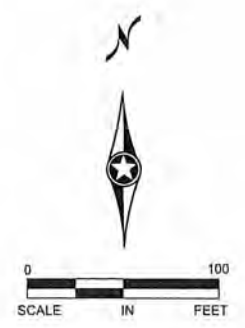
CONSTRUCTION PLAN
 STA 32+00 TO 47+00
 Sheet 11 of 21 Sheets

sphaos



LEGEND

(B)	BITUMINOUS	---x---	STORM SEWER
(C)	CONCRETE	--- ---	CROSS CULVERT
(G)	GRAVEL	▨	REGRAIDING AREA
O	SEWER WORK LOCATION	■	MAINLINE MILL
⊗	GATE VALVE	■	MAINLINE RECLAIM
---	SILT FENCE	▨	MILL STREET APPROACH / DRIVEWAY
- - -	SAWCUT	---	R / W
[]	APRX. LOOP LOCATION		



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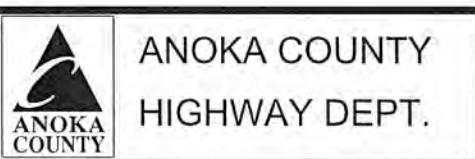
SIGNATURE: *[Signature]*

DATE: 4/8/2016 LICENSE NO. 51639

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COUNTY PROJECT 16-16-49

CONSTRUCTION PLAN
STA 47+00 TO 64+54
Sheet 12 of 21 Sheets

PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS, LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS, ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

PREFORMED THERMOPLASTIC:

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

PAINT:

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

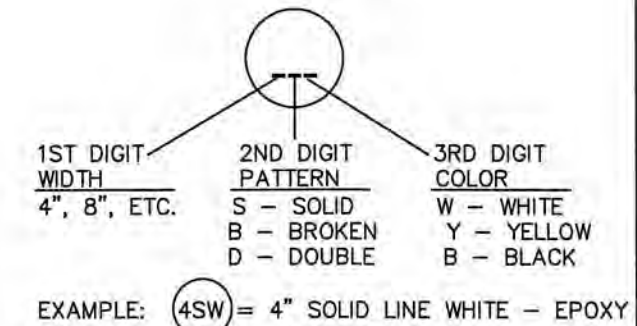
PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	12815
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	80
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	3940
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	35
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	1790
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC	SQ FT	434

SYMBOLS & MATERIALS LEGEND

- CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC
- ← PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

STRIPING KEY

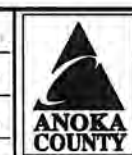
- CIRCLE - EPOXY
- SQUARE PREFORMED THERMOPLASTIC
- △ TRIANGLE - PAINT
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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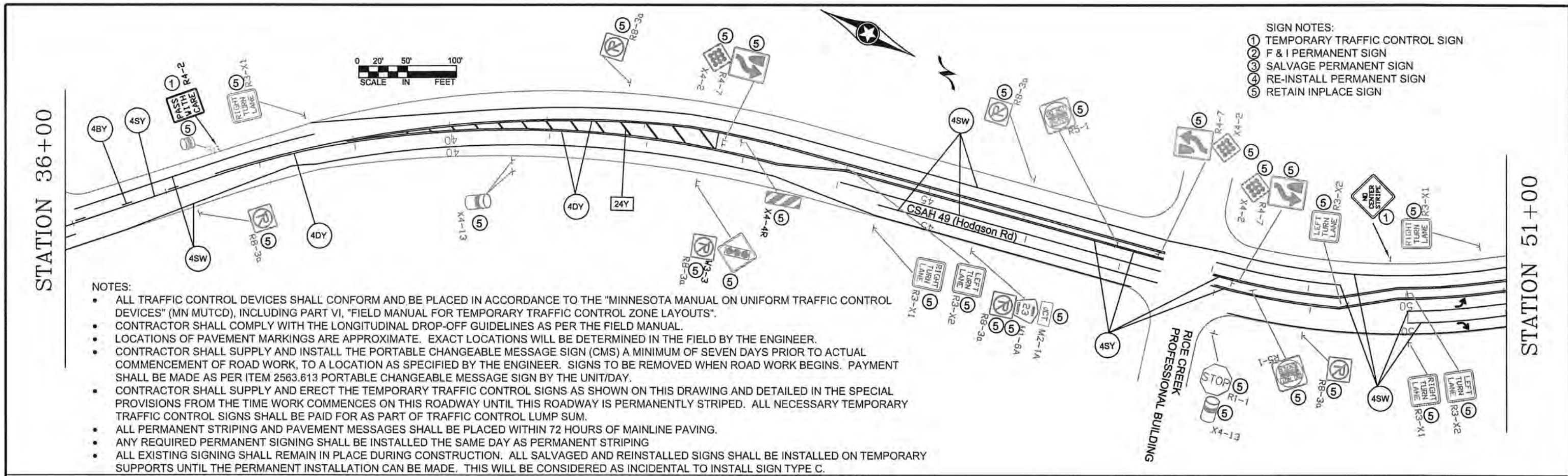
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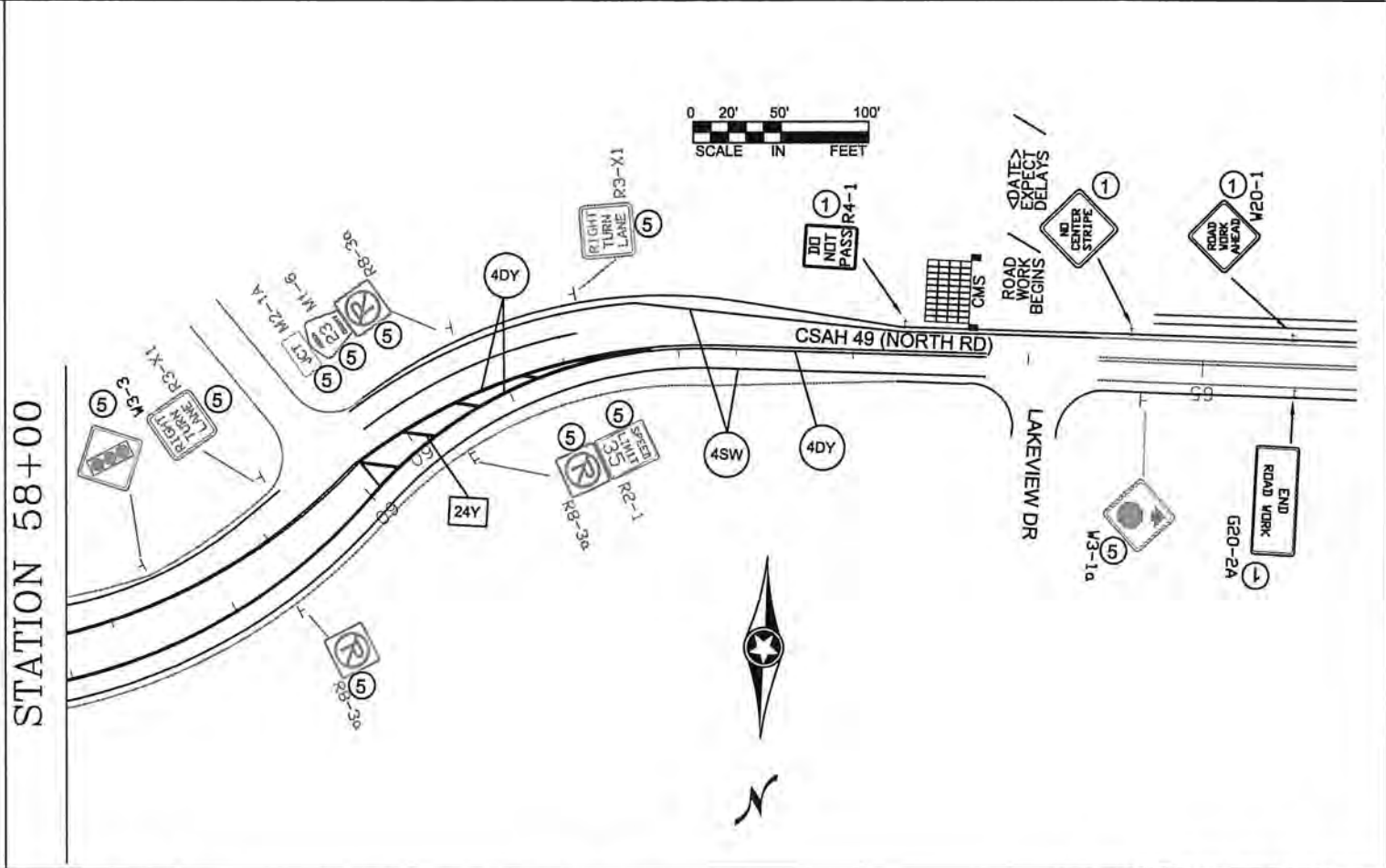
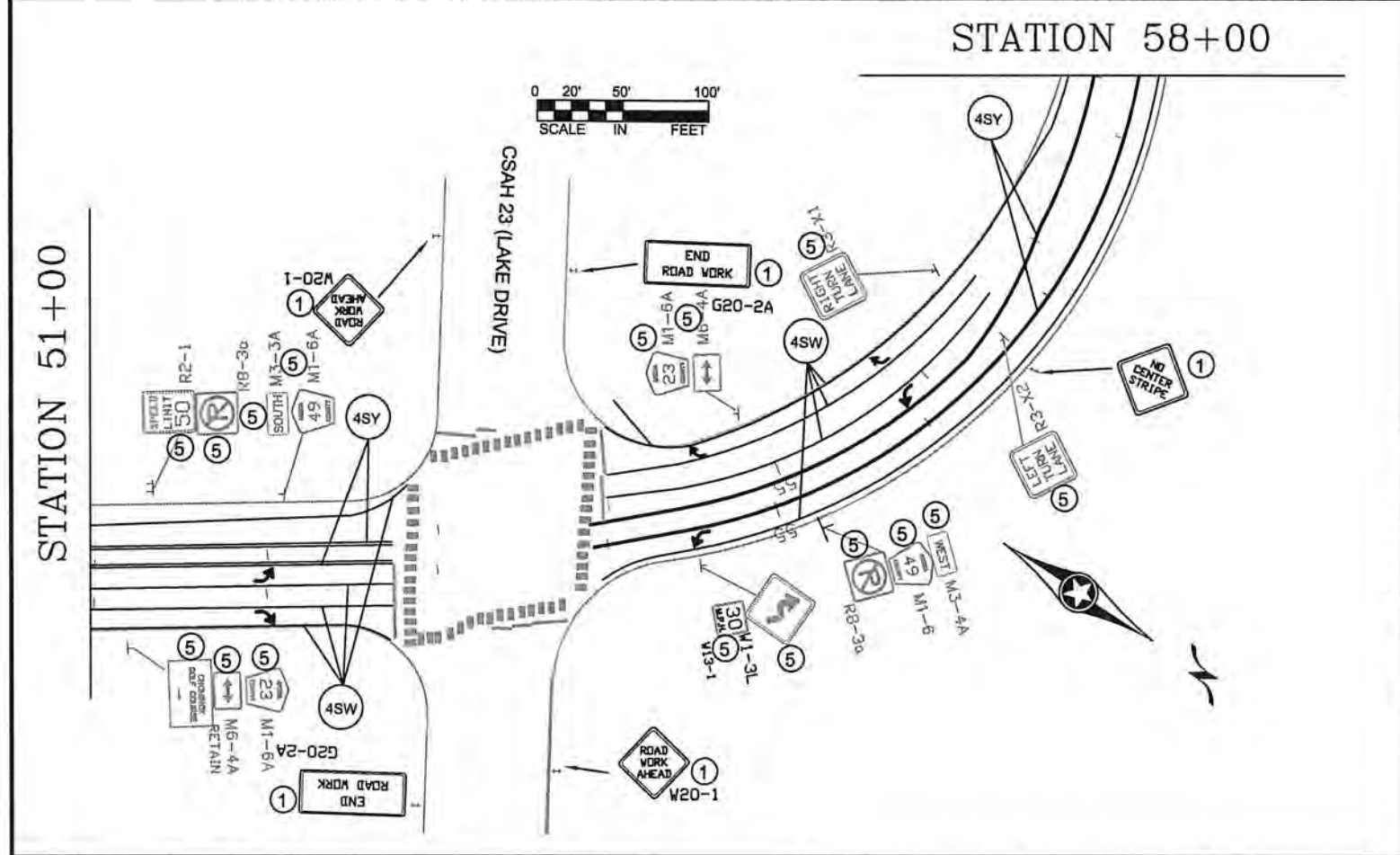
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 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-16-49

PERMANENT MARKING
TABULATION
 Sheet 13 of 21 Sheets



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.



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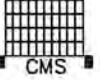
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ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-16-49

TEMPORARY SIGNING,
 PERMANENT SIGNING
 AND STRIPING

Sheet 15 of 21 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY		MOUNTING HEIGHT TO PAVEMENT EDGE) FT.
					No. POST	
W8-12	48" x 48"	16.00		4	2	7.0'
R4-1	24" x 30"	5.00		2	1	7.0'
R4-2	24" x 30"	5.00		3	1	7.0'
G20-2A	48" x 24"	8.00		4	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 7)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				2		

NOTES:

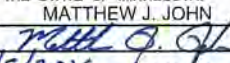
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S

	<	D	A	T	E	>	
		E	X	P	E	C	T
		D	E	L	A	Y	S

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: 
 DATE: 4/8/2016 REG. NO. 51639

DRAWN BY: RLB DATE: 1/23/15
 DESIGN BY: RLB DATE: 1/23/15
 CHECKED BY: JR DATE: 1/30/15



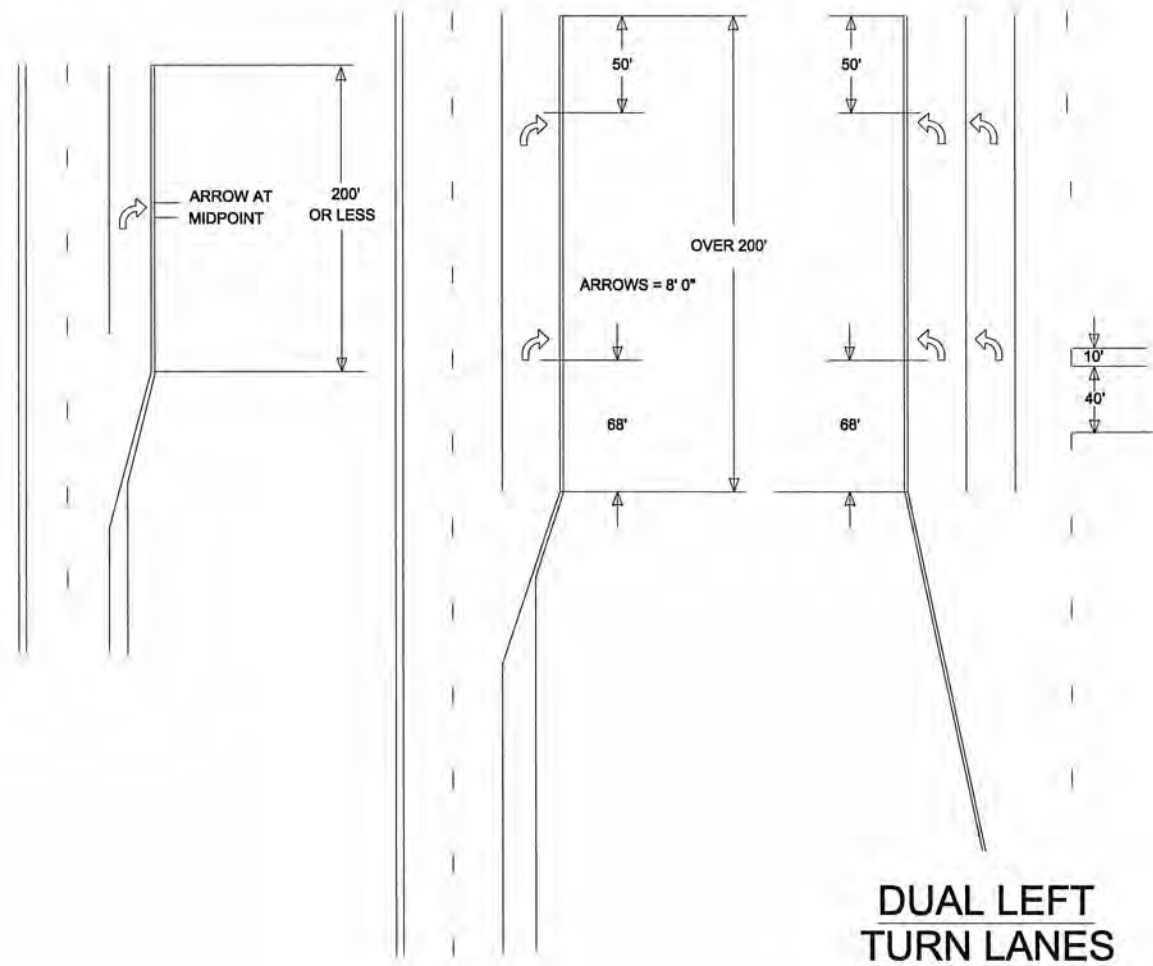
ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-16-49

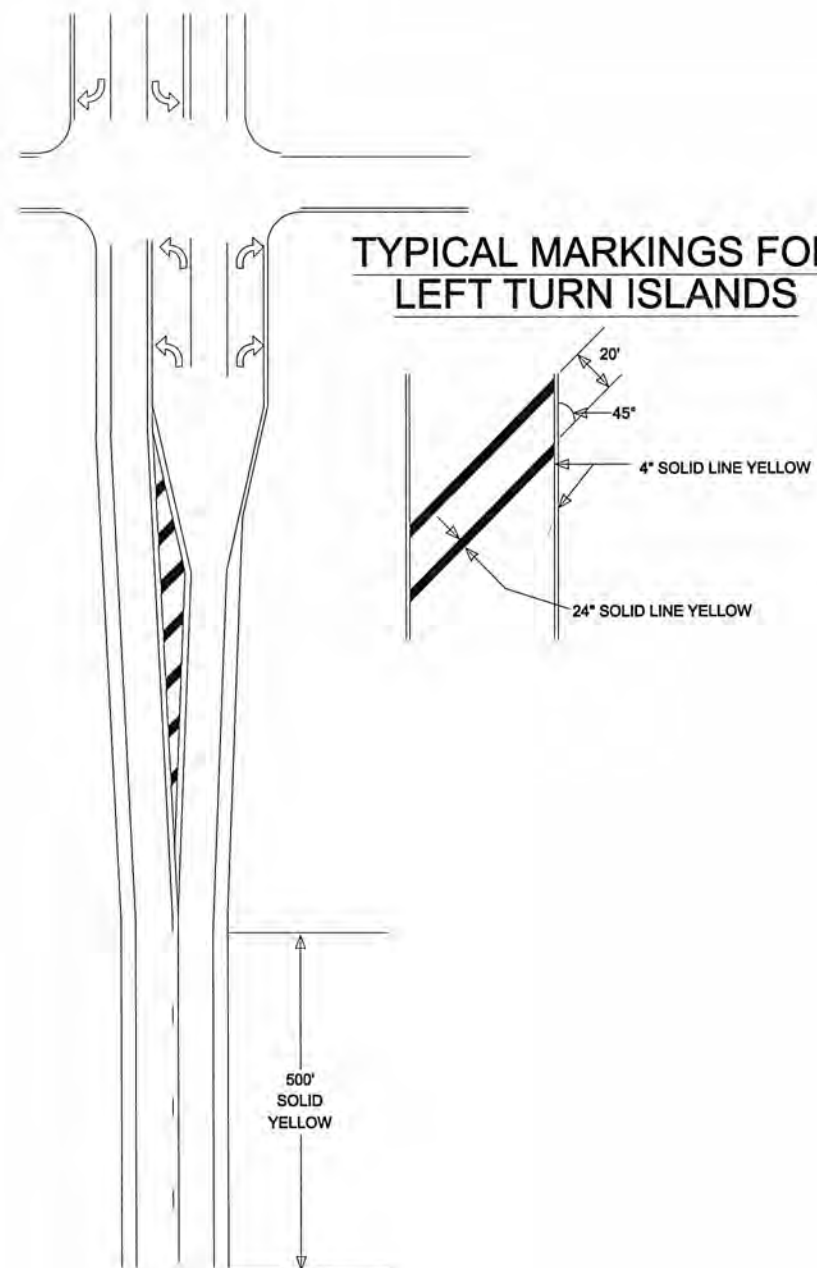
TRAFFIC CONTROL
 QUANTITY

Sheet 16 of 21 Sheets

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



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

PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/8/2016 REG. NO. 51639

DRAWN BY: RLB DATE: 2/6/14

DESIGN BY: RLB DATE: 2/6/14

CHECKED BY: JR DATE: 2/6/14



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
STATE AID PROJECT NO. _____
STATE AID PROJECT NO. _____
COUNTY PROJECT NO. 16-16-49

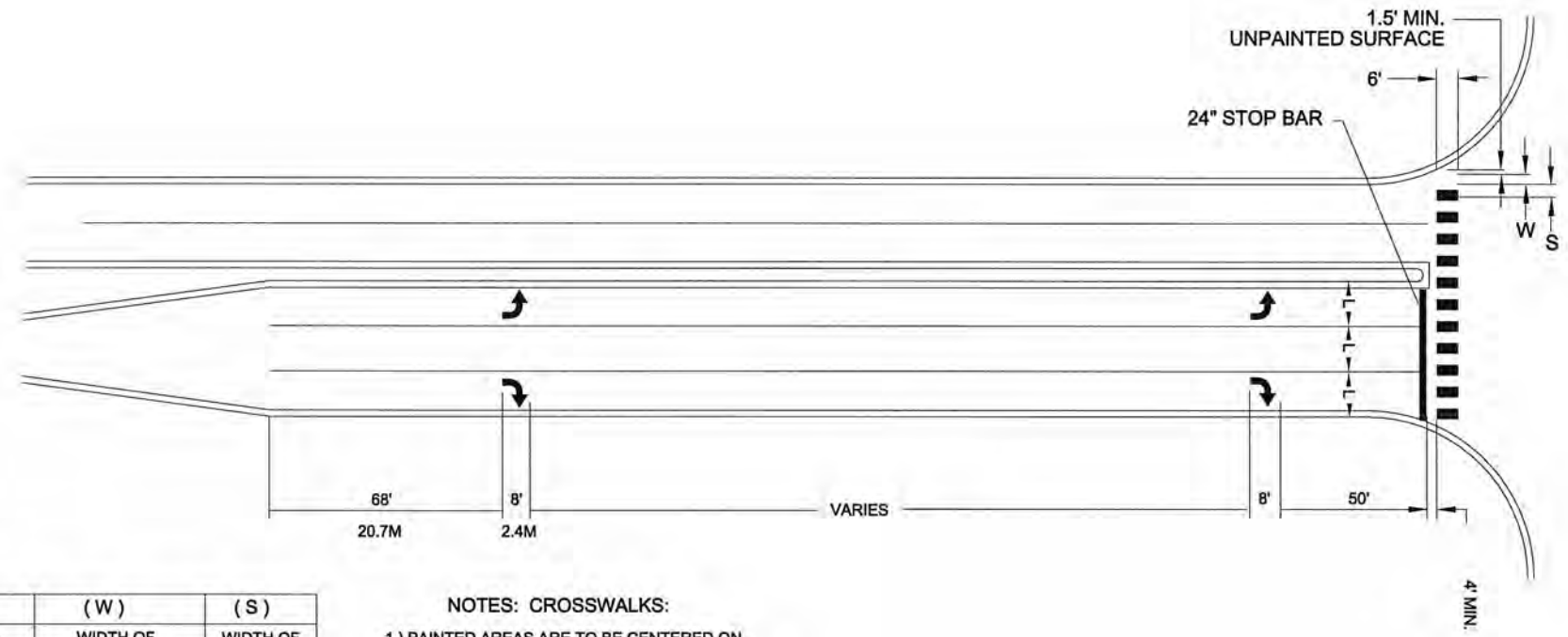
**SIGNING & STRIPING
DETAILS**

Sheet 17 of 21 Sheets

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CSAH 49\Bose\Traffic\Signing_Striping.dwg

MARKINGS FOR PEDESTRIAN CROSSWALKS



(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CSAH 49\Base\Traffic\Signing_Striping.dwg

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PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/8/2016 REG. NO. 51639

DRAWN BY: RLB DATE: 2/6/14
 DESIGN BY: RLB DATE: 2/6/14
 CHECKED BY: JR DATE: 2/6/14



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-16-49

SIGNING & STRIPING
DETAILS

Sheet 18 of 21 Sheets

7196

7196

NOTES:

- 1) LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY Mn/DOT METRO TRAFFIC OFFICE PERSONNEL.
- 2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 3) EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION HAND/WALKING PERSON INDICATION. SEE SPECIAL PROVISIONS.
- 4) ALL HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS, AND SHALL CONTAIN A DEPARTMENT FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
- 5) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED FOR EVP APPROXIMATELY 6" FROM THE END OF EACH MAST ARM.
- 6) SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
- 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511).
- 8) CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL CONSTRUCTION WITH ROAD CONSTRUCTION TO BE DONE AS PART OF THIS PROJECT.
- 9) SEE SPECIAL PROVISIONS AND DETAILS REGARDING INSTALLATION OF CROSSWALKS (INCIDENTAL TO ITEM NO. 2565.511).
- 10) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATION LENSES SHALL BE GLASS LENSES.

① PA100 POLE FOUNDATION
 TYPE PA100-A-50-D40-9 (DAVIT AT 350")
 LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD
 MID MAST ARM MOUNT AT 11'
 2-TYPE 108-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
 TYPE "D" SIGN PANEL (108"x36")-OVERHEAD (D-4)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (D5 & D6)
 EXTEND INTO H.H.1:
 3*R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#12 (LUM.)
 1-3/c#20

② PA100 POLE FOUNDATION
 TYPE PA100-A-45-D40-9 (DAVIT AT 350")
 LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD
 MID MAST ARM MOUNT AT 11'
 2-TYPE 108-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
 TYPE "D" SIGN PANEL (66"x18")-OVERHEAD (D-2)
 ONE WAY EVP DETECTOR - POLE MOUNTED 180° (D2 & D3)
 EXTEND INTO H.H.4:
 3*R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#12 (LUM.)
 1-3/c#20

A) EQUIPMENT PAD - SEE DETAILS
 INSTALL CONTROLLER AND CABINET
 (FURNISHED BY DEPARTMENT)
 SERVICE EQUIPMENT (PAD MOUNTED)

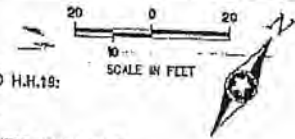
CABINET TO H.H.1:
 4*R.S.C.
 4-12/c#12
 6-3/c#12
 8-2/c#14
 2-3/c#20

METER TO H.H.18:
 2*R.S.C.
 3-1/c#2

LOAD CENTER TO CABINET:
 1 1/4*R.S.C.
 2-1/c#8
 1-1/c#6 Br.Gr.

CABINET TO H.H.18:
 4*R.S.C.
 4-12/c#12
 6-3/c#12
 8-2/c#14
 2-3/c#20

LOAD CENTER TO H.H.18:
 2*R.S.C.
 4-3/c#12 (LUM.)



SIGNAL FACES

SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12"				
	R	Y	G	R	G
1-1, 1-2, 5-1, 5-2	•	•	•	•	•
2-1, 2-2	•	•	•	•	•
3-1, 3-2, 7-1, 7-2	•	•	•	•	•
4-1, 4-2	•	•	•	•	•
6-1, 6-2	•	•	•	•	•
8-1, 8-2	•	•	•	•	•

STUB OUT 1-2*R.S.C.
 AND 1-3*R.S.C. FROM
 CABINET TO SOUTH
 (THREAD AND CAP BOTH
 ENDS - FOR FUTURE USE)

B) GROUND MOUNTED TRANSFORMER (F&I
 BY MSP)
 EXTEND INTO H.H.19:
 2*R.S.C.
 3-1/c#2

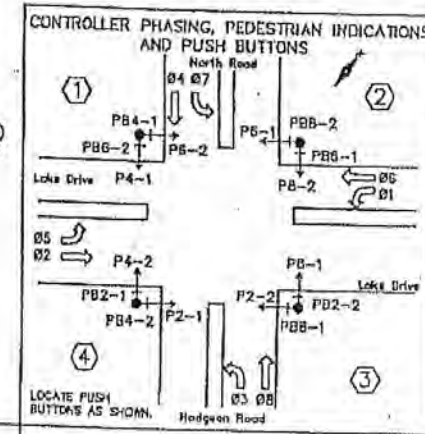
LOOP DETECTORS

NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	10'	1
D2-1	6x6	400'	1
D3-1	2-6x6	20' & 50'	1
D3-2	2-6x6	5' & 35'	1
D4-1	6x6	120'	1
D4-2	6x10&6x6	5' & 20'	7
D4-3	2-6x6	5' & 20'	1
D5-1	6x6	40'	1
D5-2	6x6	10'	1
D6-1	6x6	400'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	5' & 35'	1
D8-1	6x6	300'	1
D8-2	6x10&6x6	5' & 20'	7
D8-3	2-6x6	5' & 20'	1

FUNCTIONS:
 1) CALL AND EXTEND
 7) DELAYED CALL-IMMEDIATE
 EXTEND

④ PA100 POLE FOUNDATION
 TYPE PA100-A-50-D40-9 (DAVIT AT 350")
 LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD
 MID MAST ARM MOUNT AT 11'
 2-TYPE 108-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
 TYPE "D" SIGN PANEL (66"x18")-OVERHEAD (D-4)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (D4 & D7)
 EXTEND INTO H.H.14:
 3*R.S.C.
 2-12/c#12
 3-3/c#12
 5-2/c#14
 1-3/c#12 (LUM.)
 1-3/c#20

③ PA100 POLE FOUNDATION
 TYPE PA100-A-50-D40-9 (DAVIT AT 350")
 LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
 2-ONE WAY SIGNALS-OVERHEAD
 MID MAST ARM MOUNT AT 11'
 2-TYPE 108-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
 TYPE "D" SIGN PANEL (108"x36")-OVERHEAD (D-3)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (D2 & D3)
 EXTEND INTO H.H.8:
 3*R.S.C.
 2-12/c#12
 3-3/c#12
 1-3/c#12 (LUM.)
 1-3/c#20



T/E #811 ID#22021

NORMAL OPERATION IS B PHASE WITH:
 - VEHICLE PHASES 2 AND 6 ON RECALL.
 - PROTECTED LEFT TURNS ON PHASES 1,3,5 ON 7.
 - SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.

S.P. 0204-12
 S.A.P. 02-623-07
 S.A.P. 02-610-09

FOR REFERENCE PURPOSES ONLY

ANOKA COUNTY HIGHWAY DEPT. COUNTY PROJECT 16-16-49

SIGNAL PLAN STA 47+00 TO 64+54 Sheet 19 of 21 Sheets

FILE NO. 16-16-49-01

DATE: 4/8/2016 LICENSE NO. 51639

DESIGN BY: SH DATE: 03/31/2016

CHECKED BY: MJ DATE: 03/31/2016

DRAWN BY: SH DATE: 03/31/2016

PRINT NAME: MATTHEW J. JOHN

SIGNATURE: *Matthew J. John*

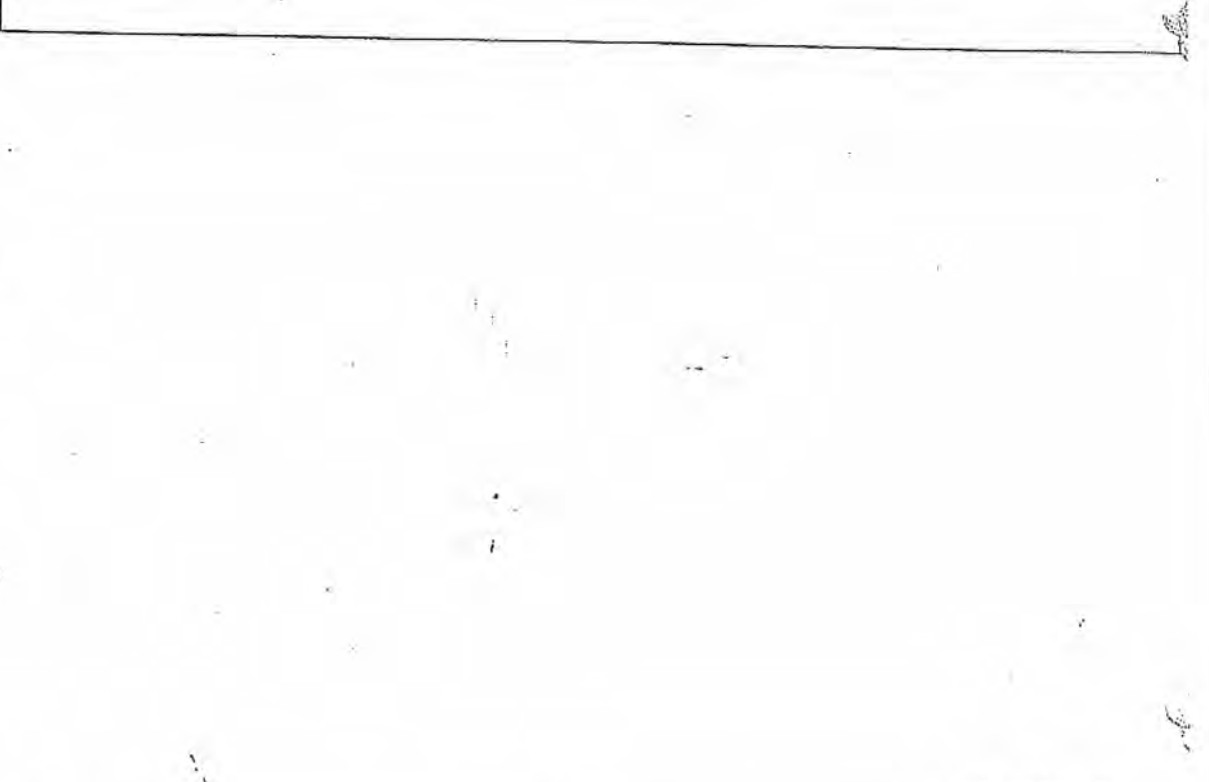
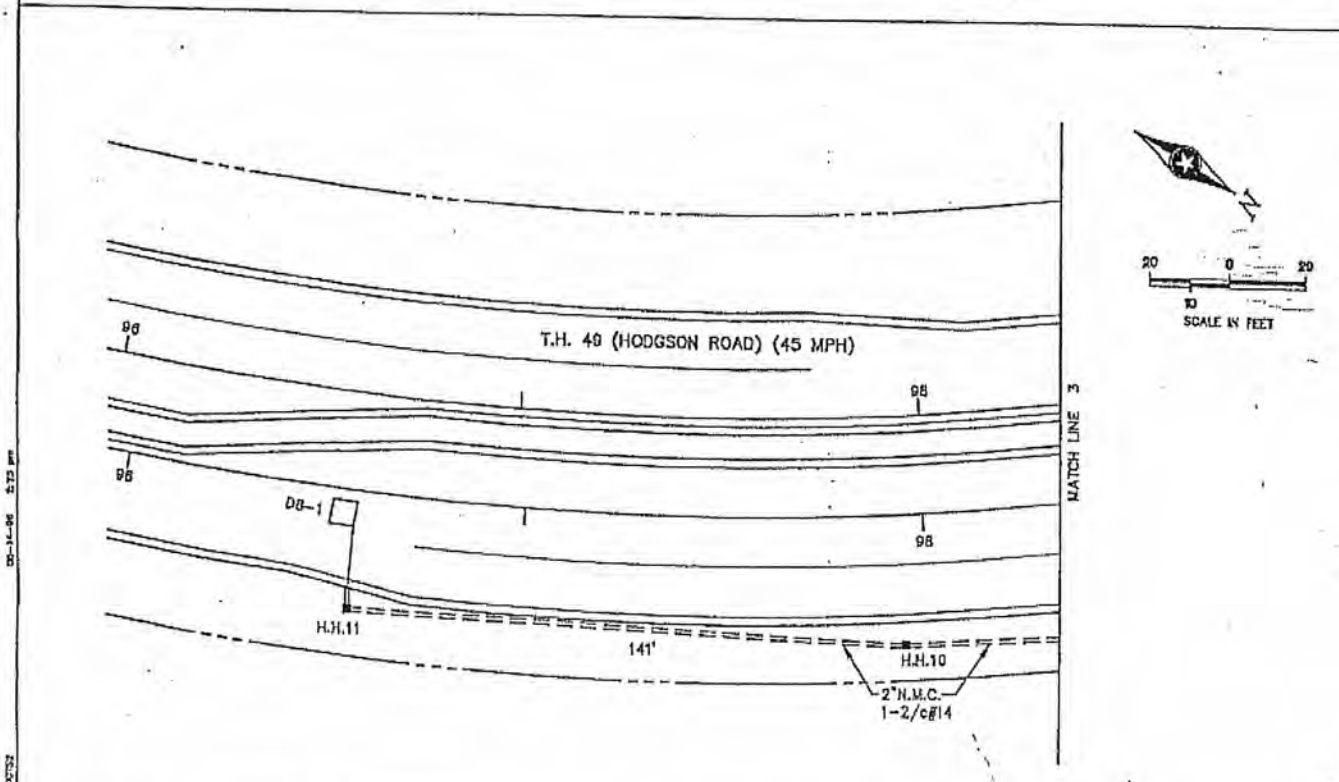
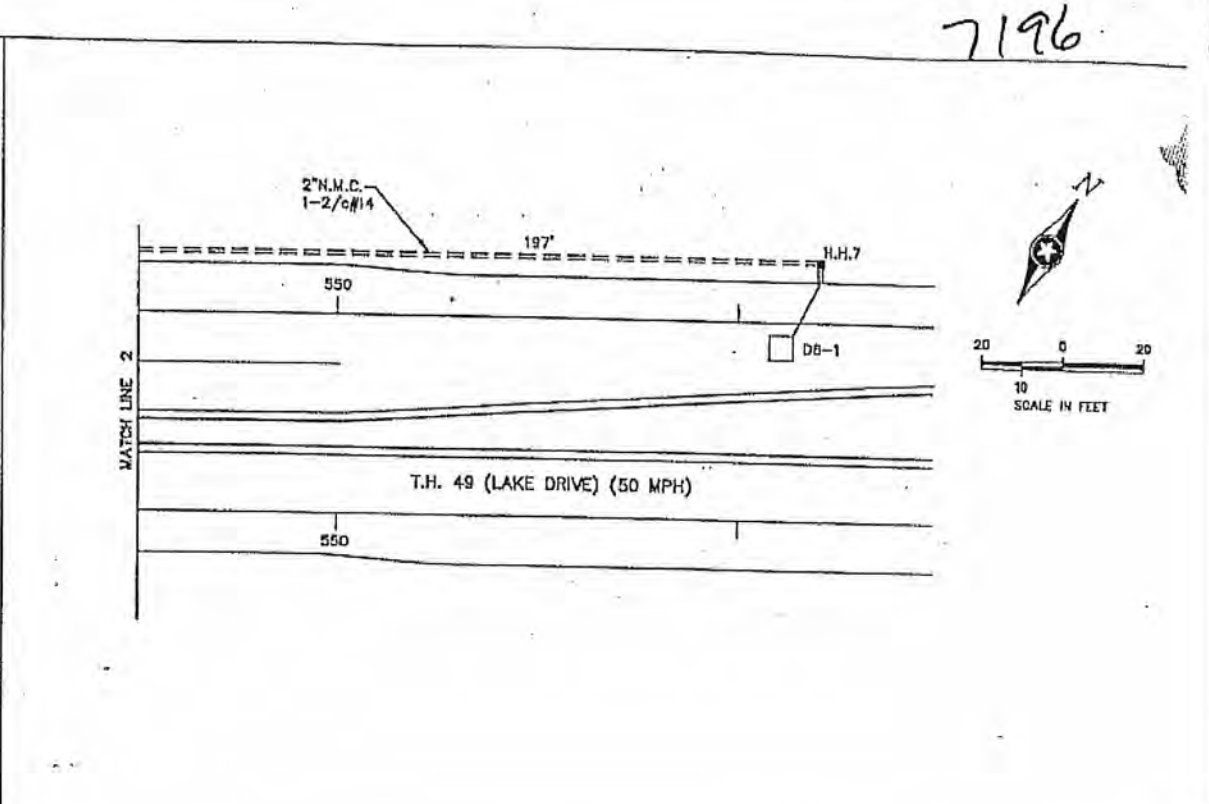
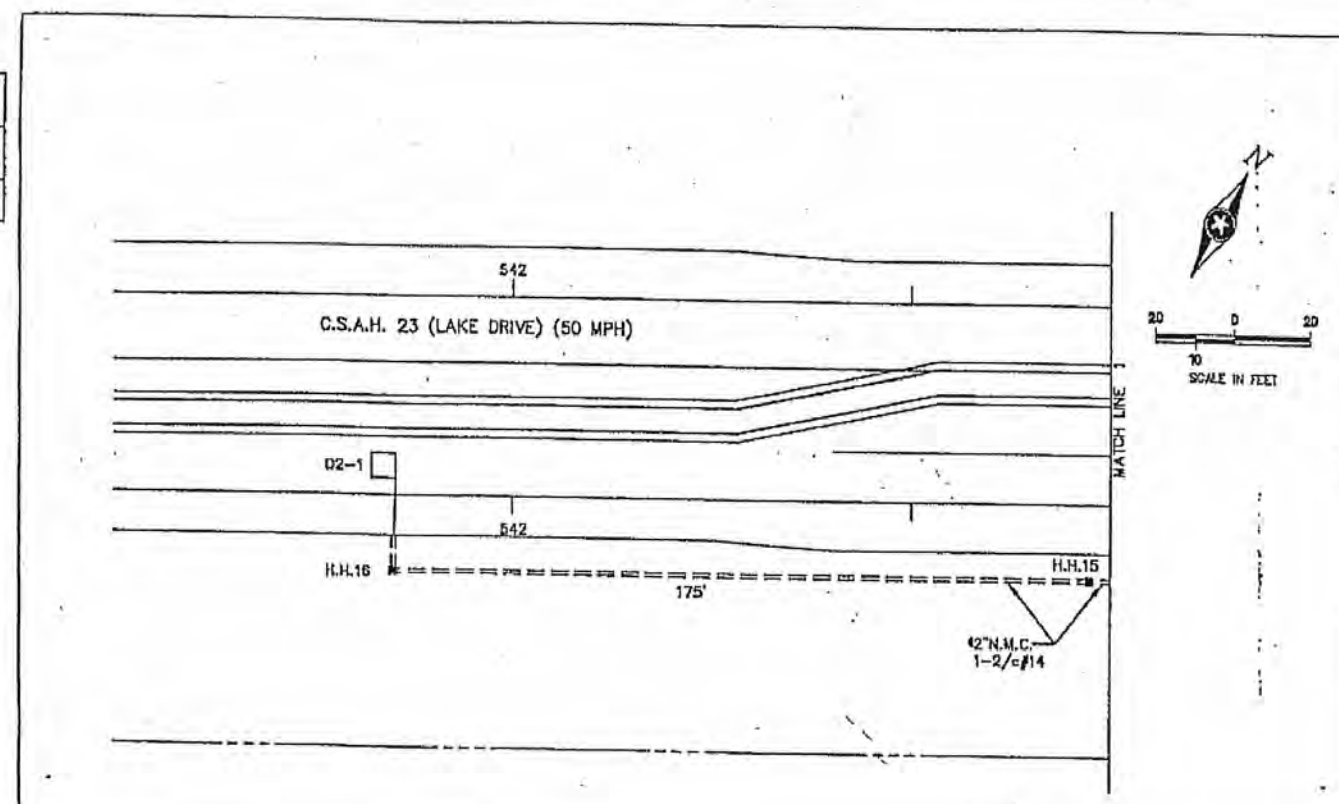
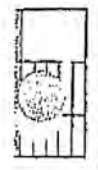
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NO DATE BY CKD APPR REVISION 03/31/2016 1:50:16 PM

NAME: P:\16-01-00\CSAH_49\16-16-49\16-16-49\PROPOSED\PROPOSED.dgn

sphaos

7196



1	MJC	5/24	Per Mn/DOT Comments
2	MJC	5/96	Record Drawing

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.



S.P. 0204-12
S.A.P. 02-623-07

FOR REFERENCE PURPOSES ONLY

NO	DATE	BY	CKD	APPR	REVISION	03/31/2016	1:50:20 PM

NAME: P:116-01-00\CSAH_49(RiceCreek-Sunset)\Base\PROPOSED\PROPOSED.dgn

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.

PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/8/2016 LICENSE NO. 51639

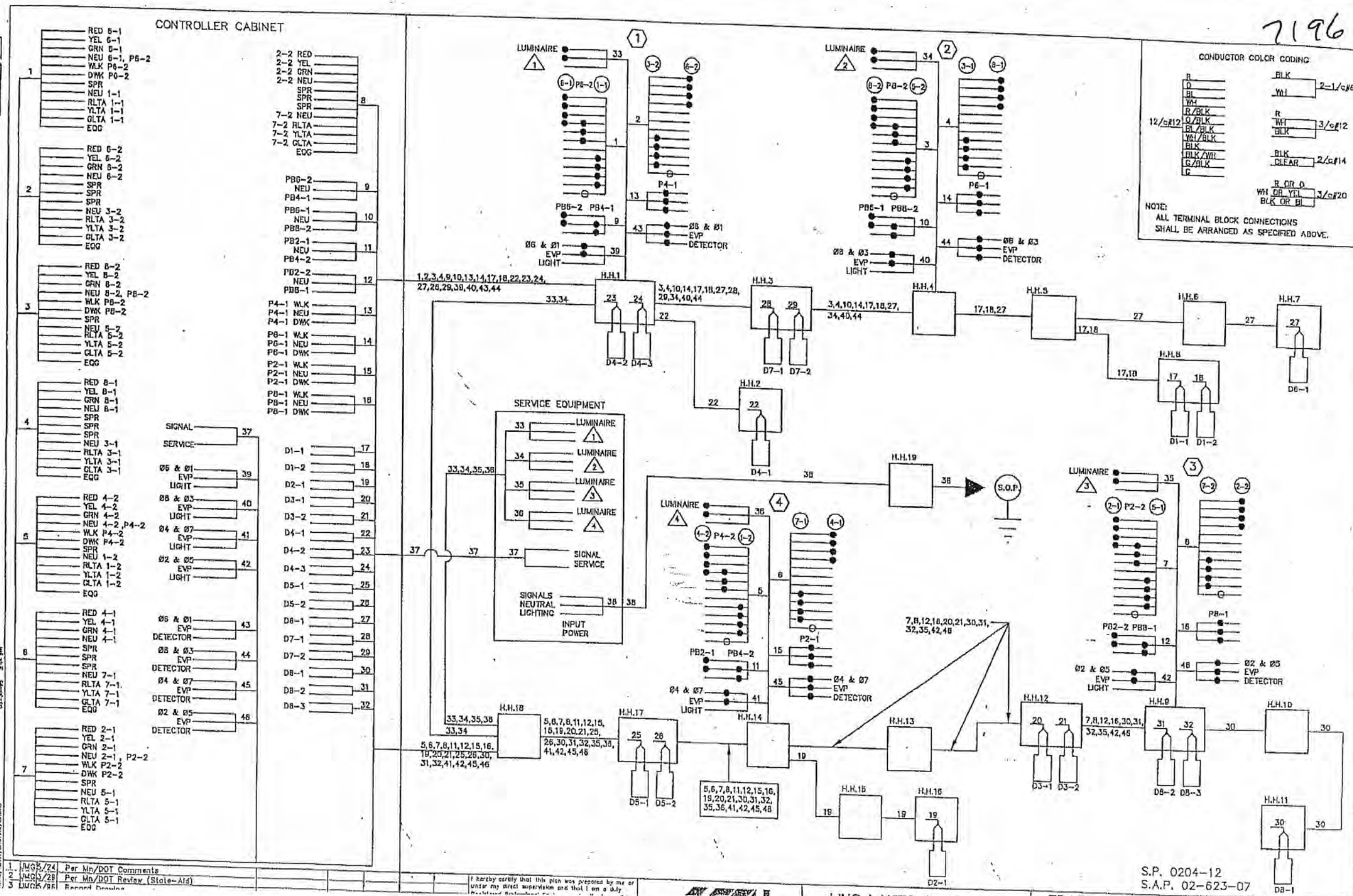
DRAWN BY SH DATE 03/31/2016
DESIGN BY SH DATE 03/31/2016
CHECKED BY MJ DATE 03/31/2016

ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

SIGNAL PLAN
STA 47+00 TO 64+54
Sheet 20 of 21 Sheets

7196



CONDUCTOR COLOR CODING

R	BLK	2-1/c#6
O	WHI	
BL		
WY		
R/BLK		
O/BLK	R	3/c#12
BL/BLK	WHI	
WHI/BLK	BLK	2/c#14
BLK	BLK	
BLK/WHI	BLK	
G/BLK		
G		

NOTE:
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

FOR REFERENCE PURPOSES ONLY

- 1. JMG/S/24 Per Mn/DOT Comments
- 2. JMG/S/28 Per Mn/DOT Review (State-Aid)
- 3. JMG/S/28 Record Drawing

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.

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.

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SIGNATURE: *[Signature]*
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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-16-49

SIGNAL PLAN
STA 47+00 TO 64+54
Sheet 21 of 21 Sheets