

PLAN SYMBOLS

- COUNTY LINE _____
- TOWNSHIP OR RANGE LINE _____
- SECTION LINE _____
- QUARTER LINE _____
- SIXTEENTH LINE _____
- RIGHT OF WAY LINE _____
- SLOPE EASEMENT _____
- EXISTING RIGHT OF WAY _____
- PROPERTY LINE _____
- CORPORATE OR CITY LIMITS _____
- RETAINING WALL _____
- RAILROAD _____
- RAILROAD RIGHT OF WAY _____
- RIVER OR CREEK _____
- DRAINAGE DITCH _____
- CULVERT _____
- DROP INLET _____
- GUARD RAIL _____
- BARBED WIRE FENCE _____
- WOVEN WIRE FENCE _____
- CHAIN LINK FENCE _____
- WOOD FENCE _____
- STONE WALL OR FENCE _____
- HEDGE _____

- LOWLAND
- TIMBER
 - ORCHARD
 - BRUSH
 - NURSERY
 - CATTLE GUARD
 - OVERPASS (Highway Over)
 - UNDERPASS (Highway Under)
 - BRIDGE
 - BUILDING (One Story Frame)
 - F-FRAME C-CONCRETE
 - S-STONE T-TILE
 - B-BRICK ST-STUCCO
 - RAILROAD CROSSING BELL
 - RAILROAD CROSSING GATE
 - MANHOLE
 - CATCH BASIN
 - FIRE HYDRANT
 - CAST IRON MONUMENT
 - IRON PIN
 - GRAVEL PIT
 - SAND PIT
 - BORROW PIT
 - ROCK QUARRY

UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE & POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN
- WATERMAIN
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- SEWER (Sanitary or Storm)
- SEWER MANHOLE

SCALES

- PLAN
- PROFILE HORIZONTAL
- VERTICAL
- X-SECTIONS HORIZONTAL
- VERTICAL

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

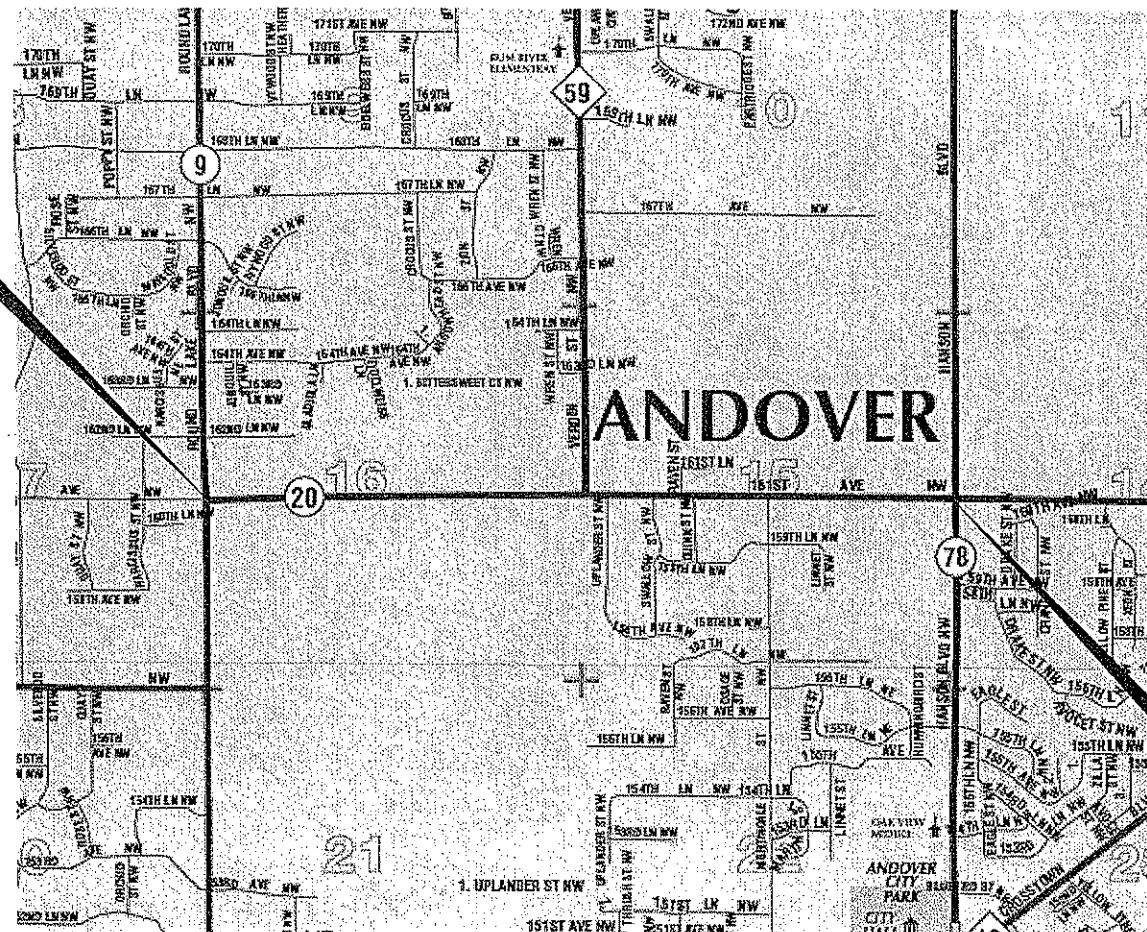
CONSTRUCTION PLAN FOR RECLAIM BITUMINOUS AND OVERLAY

LOCATED ON C.S.A.H. 20 BETWEEN CSAH 9 AND CSAH 78

COUNTY PROJ. NO. C.P. 11-27-20

C.S.A.H. 20

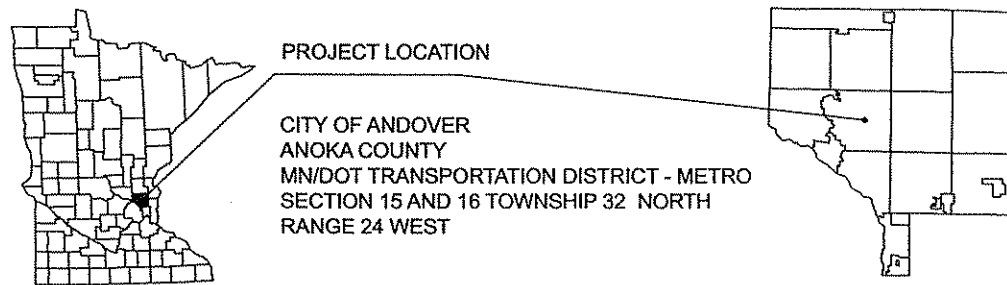
GROSS LENGTH	9840 FEET	1.864 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	9840 FEET	1.864 MILES



CITY OF
ANDOVER

BEGIN C.P. 11-27-20
C.S.A.H. 20 STA. 305+60

END C.P. 11-27-20
C.S.A.H. 20 STA. 404+00



GOVERNING SPECIFICATIONS

THE 2005 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."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-6	TYPICAL SECTIONS
7-8	MISCELLANEOUS DETAILS
9-12	CONSTRUCTION PLAN
13	SIGNAL LOOP DETAIL
14-17	TEMPORARY SIGNING, PERMANENT STRIPING, AND PAVEMENT MESSAGES
18	SIGNING AND STRIPING DETAILS
19-20	MISCELLANEOUS SIGNAL SHEET

THIS PLAN CONTAINS 20 SHEETS
DESIGN DESIGNATION

ESAL 20	753300
R VALUE	50
ADT (2009) =	5804
Proj. ADT (2029) =	8706
Proj. HCADT (2029) =	NA
Soil Factor	NA
<u>9</u> TON DESIGN	

Functional Classification	B MINOR
No. of Traffic Lanes	<u>2</u>
No. of Parking Lanes	<u>0</u>
Design Speed	<u>55</u> MPH
Based on Stopping Sight Distance	N/A
Height of eye	<u>3.5'</u>
Height of object	<u>2.0'</u>
Design Speed not achieved at:	
STA. _____ TO STA. _____	MPH _____

Approved 4/7/11, 2011
ANOKA COUNTY ENGINEER

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: CHARLES CADENEHEAD
SIGNATURE:
DATE: 4/7/11 LICENSE NO. 40116

DRAWN BY: KPR DATE: 4/07/11
DESIGN BY: KPR DATE: 4/07/11
CHECKED BY: JO DATE: _____



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
STATE AID PROJECT NO. _____
CITY PROJECT NO. _____
COUNTY PROJECT NO. 11-27-20

TITLE SHEET
Sheet 1 of 20 Sheets

CSAH 20		STATEMENT OF ESTIMATED QUANTITIES		
ITEM NO.	ITEM	NOTES	UNIT	TOTAL EST. QUANT.
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE SEWER PIPE (STORM)		LIN FT	95
2104.503	REMOVE CONCRETE DRIVEWAY PAVEMENT	17	SQ FT	440
2104.509	REMOVE BITUMINOUS FLUME		EACH	1
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	17	LIN FT	34
2105.525	TOPSOIL BORROW (LV)	1	CU YD	72
2105.607	EXCAVATION SPECIAL	2	CU YD	58
2123.503	MOTOR GRADER	3	HOUR	33
2123.521	PNEUMATIC-TIRED ROLLER		HOUR	33
2130.501	WATER		M-GAL	147
2211.501	AGGREGATE BASE CLASS 5	4	TON	1558
2221.501	AGGREGATE SHOULDERING CLASS 5	5	TON	414
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	6,17	SQ YD	152
2331.604	BITUMINOUS PAVEMENT RECLAMATION	7	SQ YD	40615
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	1670
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,B)	6,17	TON	190
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE(4,E)		TON	5228
2360.502	TYPE SP 12.5 NON-WEARING COURSE MIXTURE(4,B)		TON	3167
2451.511	COARSE FILTER AGGREGATE (CV)	8	CU YD	23
2501.515	72" RC PIPE APRON	18	EACH	2
2501.561	72" RC PIPE CULVERT DES 3006 CL III	18	LIN FT	88
2501.602	TRASH GUARD FOR 72" PIPE APRON	18	EACH	2
2531.507	6" CONCRETE DRIVEWAY PAVEMENT		SQ YD	49
2535.501	BITUMINOUS CURB (MODIFIED)	9,10	LIN FT	1931
2540.602	INSTALL MAIL BOX SUPPORTS	11	EACH	35
2563.601	TRAFFIC CONTROL	12,13	LUMP SUM	1
2565.602	NMC LOOP DETECTOR 6'X6'		EACH	1
2573.508	BITUMINOUS LINED FLUME		SQ YD	5
2575.523	EROSION CONTROL BLANKET CATEGORY 3	14	SQ YD	858
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	15	LIN FT	787
2582.502	24" WHITE PREF THERMOPLASTIC	16	LIN FT	184
2582.502	4" SOLID LINE WHITE-EPOXY	16	LIN FT	20025
2582.502	4" BROKEN LINE WHITE-EPOXY	16	LIN FT	80
2582.502	4" SOLID LINE YELLOW - EPOXY	16	LIN FT	3112
2582.502	4" BROKEN YELLOW LINE-EPOXY	16	LIN FT	1860
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	16	LIN FT	1088

NOTES:

- 1 ITEM FOR BACK FILLING BITUMINOUS CURB.
- 2 REMOVAL OF MATERIAL 1.25' BELOW EXISTING 72" CMP CULVERT.
- 3 INCLUDES TIME TO REMOVE EXCESS RECLAIMED MATERIAL AT BEGINNING AND END OF RECLAIM AREAS TO MATCH EXISTING BITUMINOUS HEIGHT.
- 4 LEVELING SHOULDER TO MAINLINE BASE COURSE.
- 5 MATERIAL FOR SHOULDERS AND GRAVEL ENTRANCES.
- 6 FOR DRIVEWAYS AND STREET APPROACHES.
- 7 ITEM INCLUDES THE REMOVAL OF BITUMINOUS CURB.
- 8 TO BE PLACED 0.5' BELOW 72" RCP CULVERT.
- 9 SHALL BE INSTALLED WITH SAME OPERATION AS MAINLINE BITUMINOUS WEAR COURSE.
- 10 BITUMINOUS TONS TO CREATE BIT CURB SHALL BE PAID UNDER 2360.501 WEARING COURSE MIX (4,E).
- 11 TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION.
- 12 ALL TRAFFIC CONTROL DEVICES AND METHODS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL. DO NOT PASS, PASS WITH CARE, NO CENTERLINE STRIPE, BUMP AND BUMP AHEAD SIGNS TO BE INPLACE AT THE START OF RECLAIM AND OVERLAY OPERATIONS.
- 13 ITEM INCLUDES BLANKET, FERTILIZER, AND SEED.
- 14 SHALL BE PLACED AFTER EACH DAYS PAVING OPERATION.
- 15 SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
- 16 CONTRACTOR IS REQUIRED TO CONTACT THE OWNER 48 HOURS BEFORE STARTING OPERATION.
- 17 ROADWAY MUST BE OPEN TO TRAFFIC DURING CONSTRUCTION.

BASIS OF PLANNED QUANTITIES

ITEM NO.		
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4, E)	115/SQ.YD./IN THICKNESS
2361.502	TYPE SP 12.5 NON-WEARING COURSE MIX (4, B)	115/SQ.YD./IN THICKNESS
2211.501	AGGREGATE BASE CLASS 5	CU YDS * 1.8 = TONS
2221.501	AGGREGATE SHOULDERING CLASS 5	CU YDS * 1.8 = TONS
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	2' AT 50' INTERVALS FOR SKIPS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\11-01-00\CSAH_20 (CSAH9-CSAH78)\Planseq.dgn 04/06/2011 11:15:17 AM

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: *[Signature]*

DATE: 4/17/11 LICENSE NO. 40416

DRAWN BY: KPR DATE: 4/07/11

DESIGN BY: KPR DATE: 4/07/11

CHECKED BY: JO DATE: _____



STATE PROJECT NO. _____

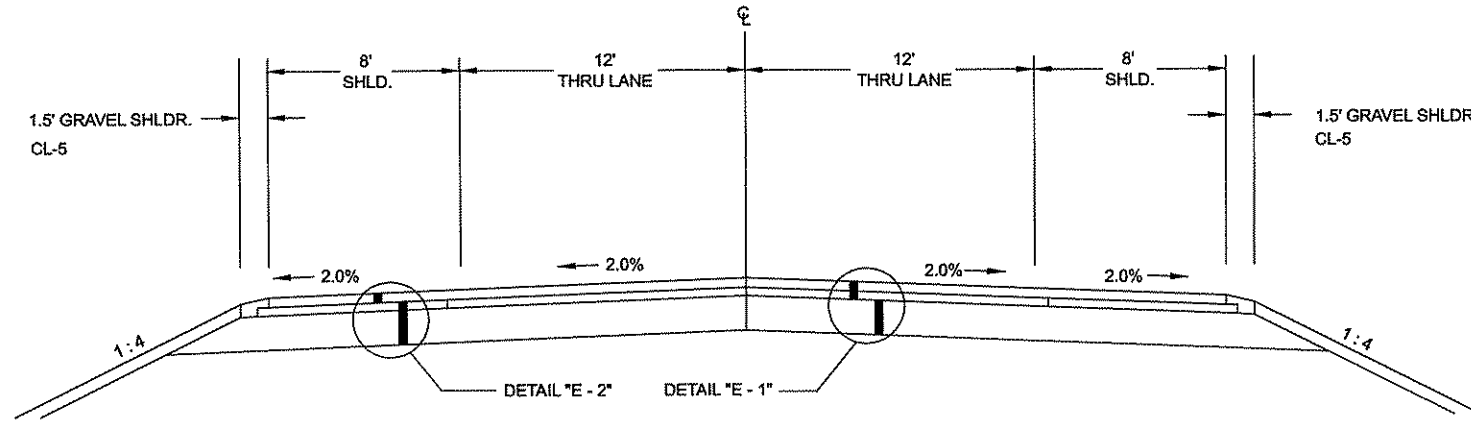
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CITY PROJECT NO. _____

COUNTY PROJECT NO. 11-27-20

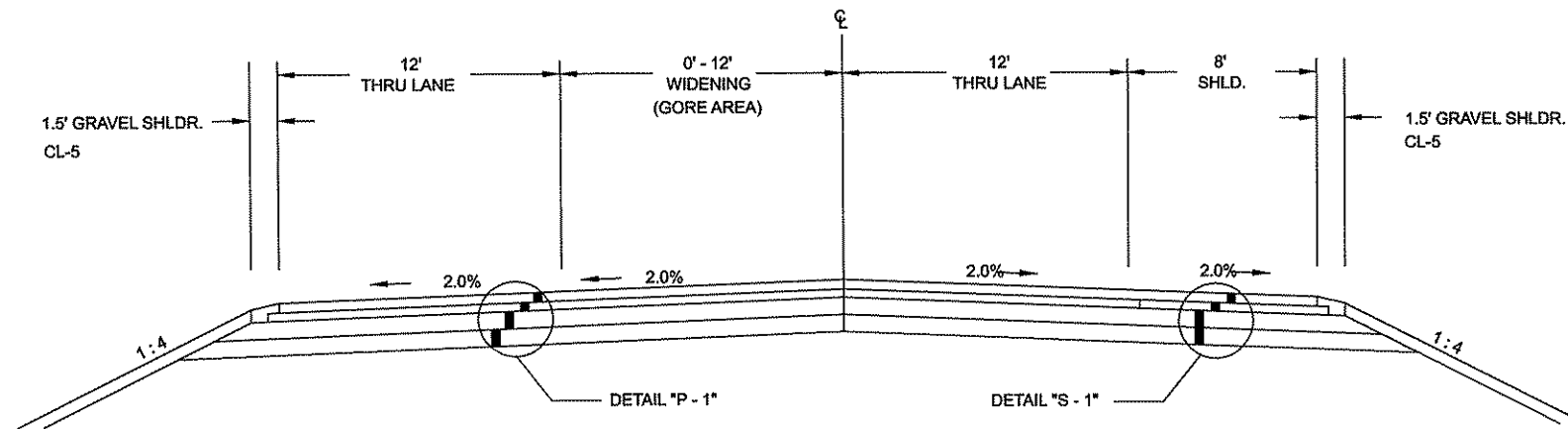
EXISTING TYPICAL SECTION

STA. 305+60 - 404+00



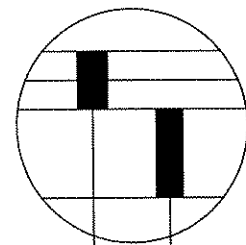
PROPOSED TYPICAL SECTION (WIDENING FOR LT. TURN LANE WB.)

STA. 305+60 - 313+22



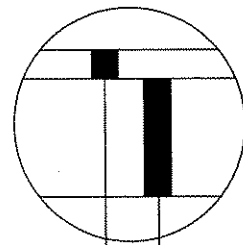
DETAIL "E - 1"

APPROX. 5.0" BITUMINOUS
EXISTING BASE MATERIAL



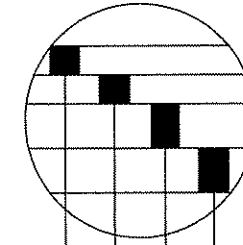
DETAIL "E - 2"

APPROX. 2.0" BITUMINOUS
EXISTING BASE MATERIAL



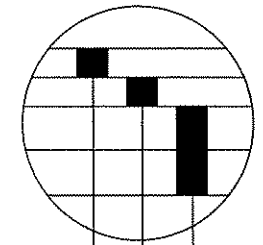
DETAIL "P - 1"

2" TYPE SP 12.5 WEARING COURSE (SPWEB440E)
2" TYPE SP 12.5 NON WEARING COURSE (SPNWB440B)
RECLAIM EXISTING BIT / AGG. BASE
EXISTING AGG. BASE



DETAIL "S - 1"

2" TYPE SP 12.5 WEARING COURSE (SPWEB440E)
2" AGGREGATE BASE CL - 5 LEVELING
RECLAIM EXISTING BIT / AGGREGATE BASE



NO	DATE	BY	CHKD	APPR	REVISION
NAME: P:\11-01-00\CSAH_20 (CSAH9-CSAH78)\Plan\typ.dgn					
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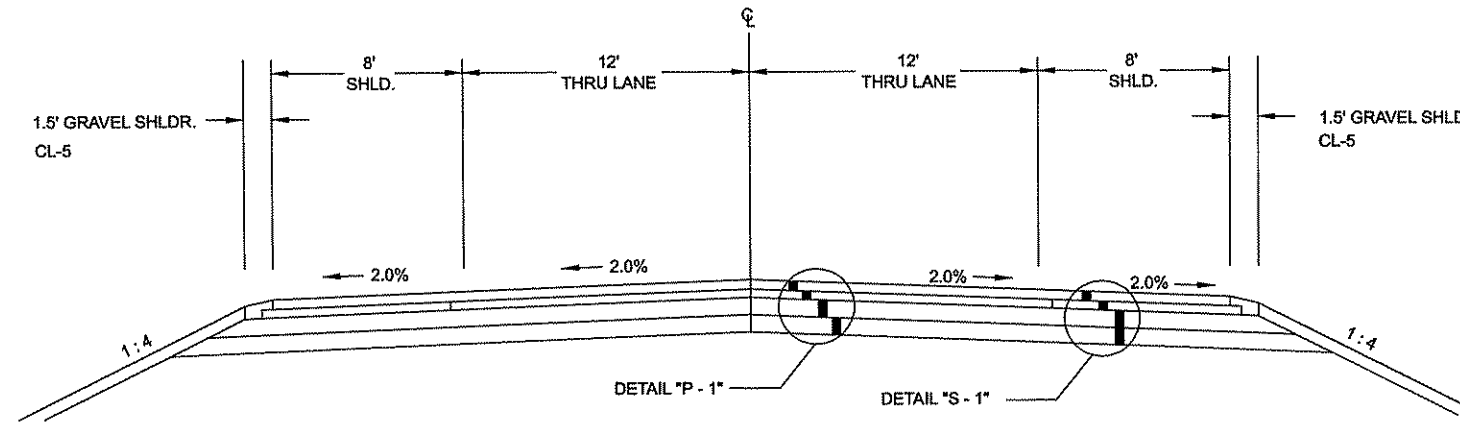
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ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
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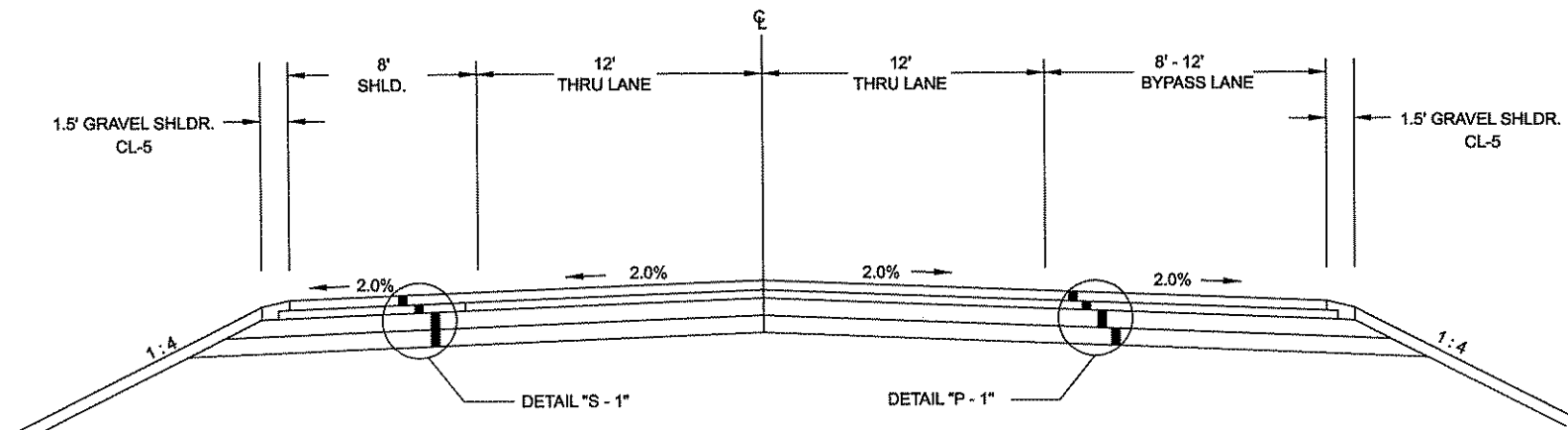
PROPOSED TYPICAL SECTION

STA. 313+22 - 349+01, STA 357+61 - 376+15, STA 382+35 - 392+00



PROPOSED TYPICAL SECTION (BYPASS LANE EB)

STA. 349+01 - 352+81



NO	DATE	BY	CKD	APPR	REVISION
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 SIGNATURE: *[Signature]*
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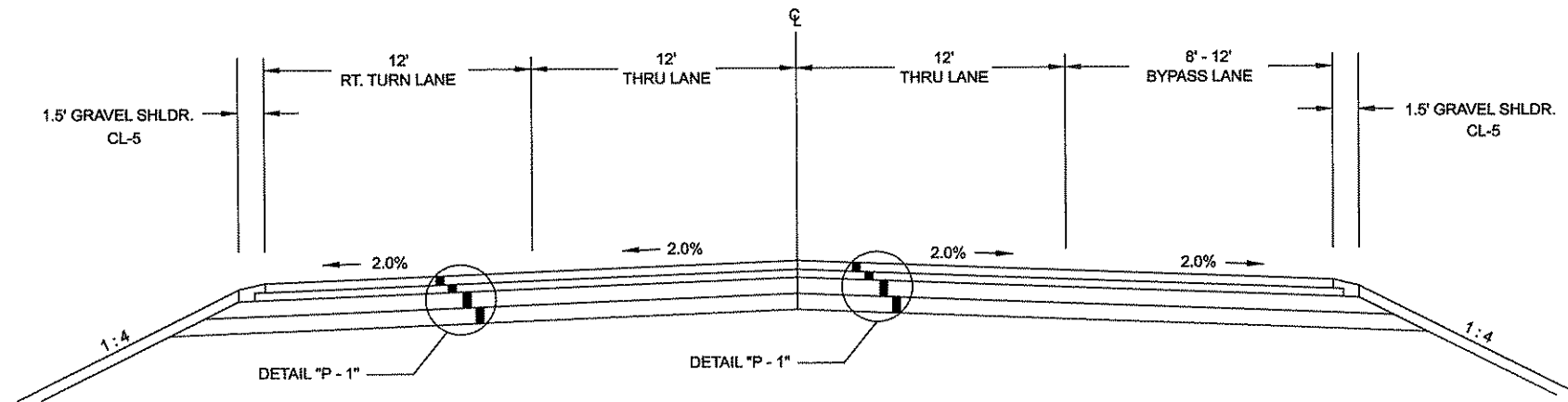


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 COUNTY PROJECT NO. 11-27-20

TYPICAL SECTION
 Sheet 4 of 20 Sheets

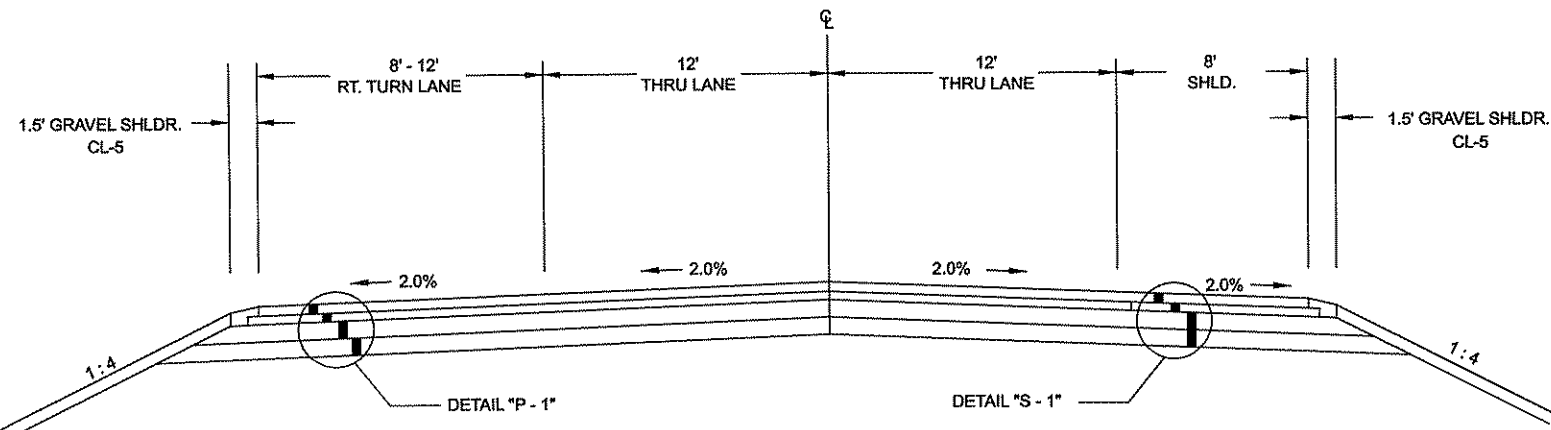
PROPOSED TYPICAL SECTION (BYPASS LANE AND RT. TURN LANE)

STA. 352+81 - 355+21



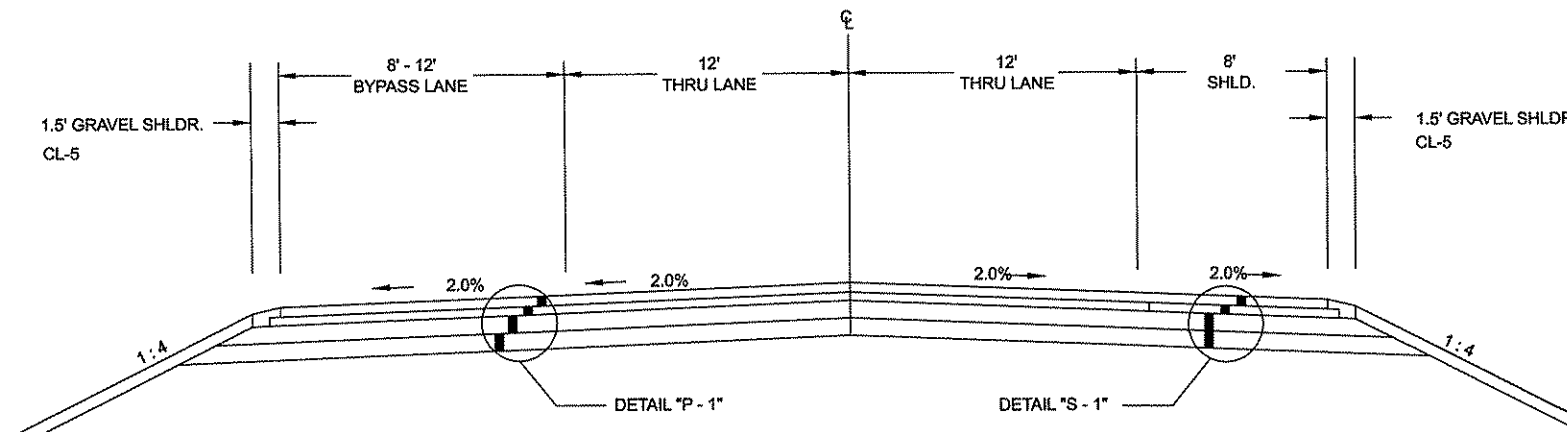
PROPOSED TYPICAL SECTION (RT TURN LANE WB. IN BYPASS AREA)

STA. 355+21 - 357+61



PROPOSED TYPICAL SECTION (BYPASS LANE WB.)

STA. 376+15 - 382+35



NO	DATE	BY	CKD	APPR	REVISION

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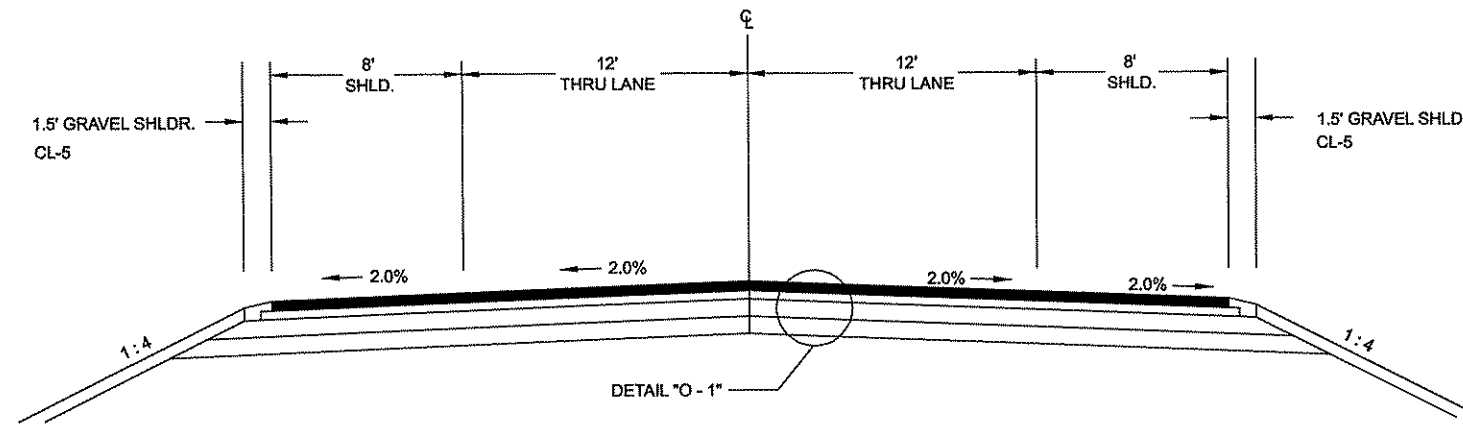


STATE PROJECT NO. _____
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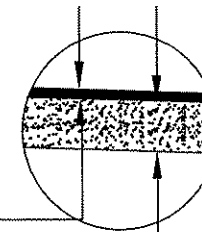
TYPICAL SECTION
 Sheet 5 of 20 Sheets

PROPOSED TYPICAL SECTION (OVERLAY)

STA. 392+00 - 404+00



DETAIL "O-1"



2.0" TYPE 12.5 WEARING COURSE (SPWEB440E)

EXISTING BITUMINOUS

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\11-01-00\CSAH_20 (CSAH9-CSAH78)\Plan\typ.dgn 04/05/2011 3:31:38 PM

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: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 4/7/11 LICENSE NO. 40418

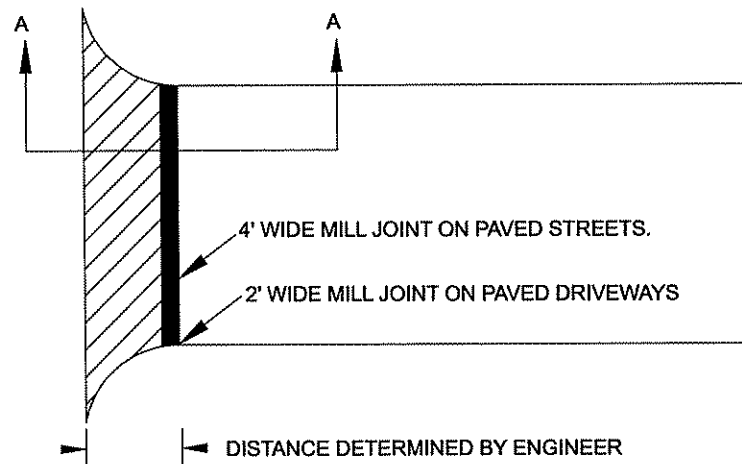
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**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
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PAVED DRIVEWAYS / PAVED STREETS

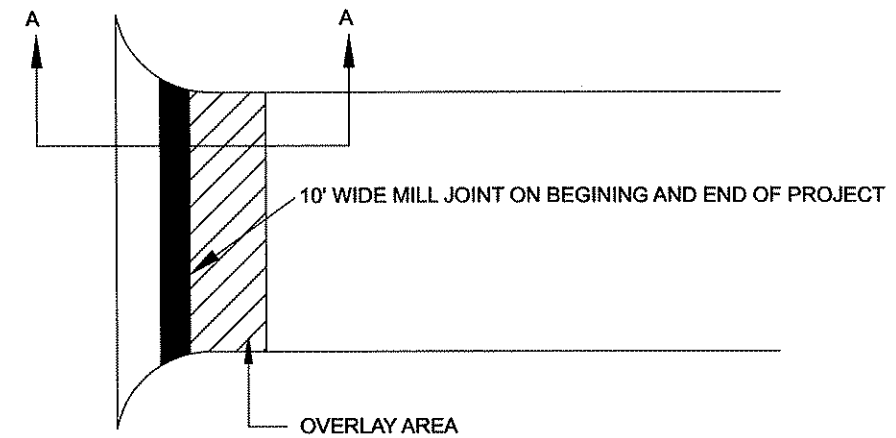
JOINT DETAILS



DRIVEWAYS BUMPED OUT TO BE PAVED WITH MAINLINE, PAID AS MAINLINE.
 DRIVEWAYS PAVED IN DIFFERENT OPERATION FROM MAIN LINE PAVING PAID AS ST./DR. APPROACH.
 STREETS PAID AS ST./DR. APPROACH.

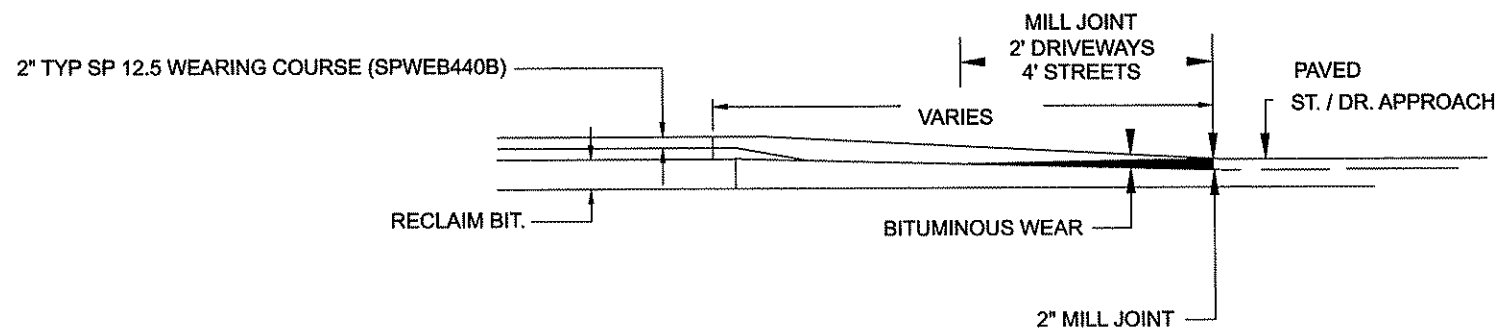
MAINLINE

JOINT DETAILS

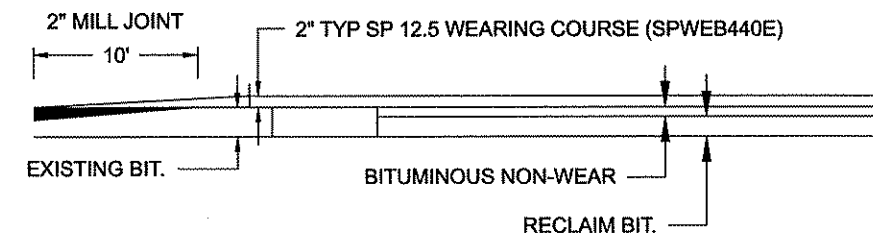


GRADING NEEDED TO TIE NONWEAR INTO EXISTING PAVING. TO BE PAID UNDER 2123.503 MOTOR GRADER HOURS

JOINT DETAILS A - A



JOINT DETAILS A - A



PAID AS STREET APPROACH

NO	DATE	BY	CHKD	APPR	REVISION

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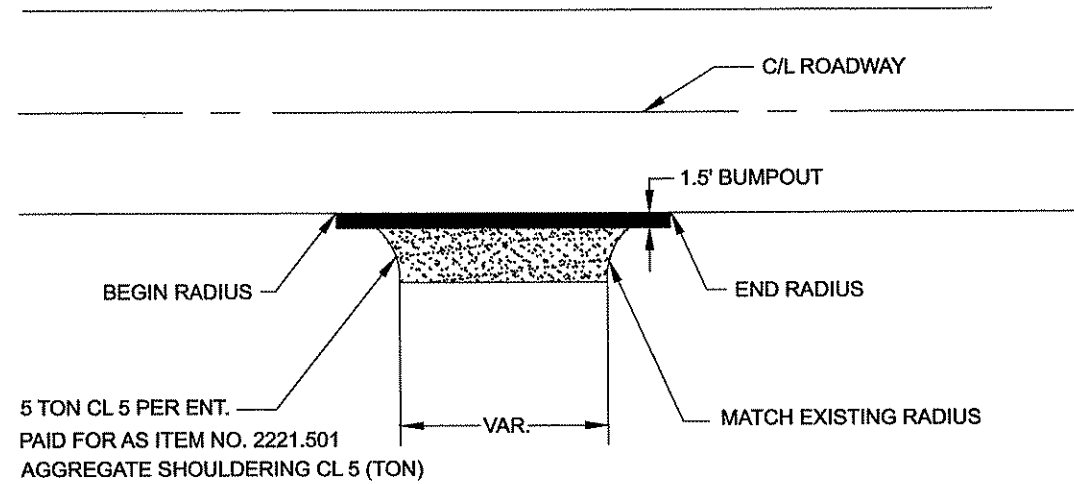


ANOKA COUNTY
 HIGHWAY DEPT.

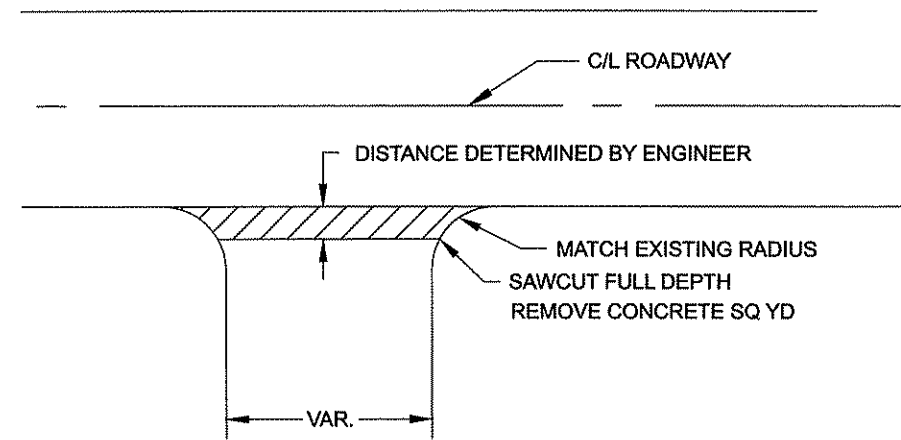
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MISCELLANEOUS DETAILS
 Sheet 7 of 20 Sheets

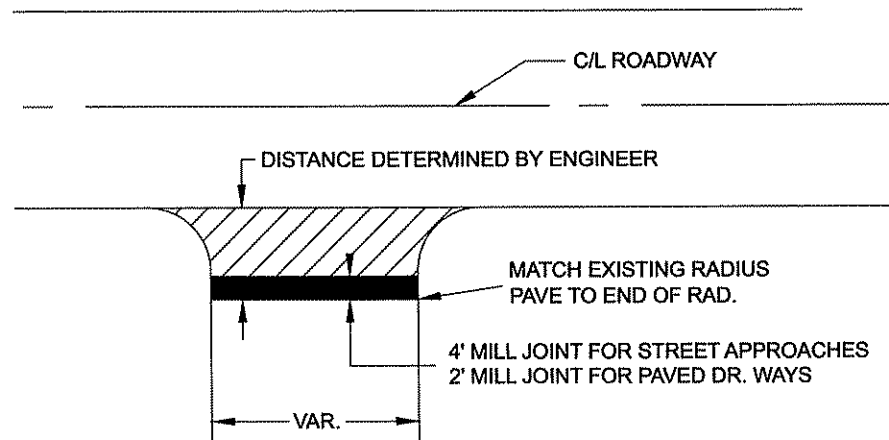
GRAVEL DR. WAYS AND FEILD ENT.



CONCRETE DR. WAYS

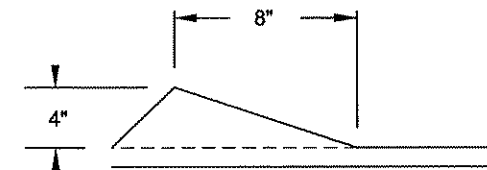


PAVED STREET APPROACHES / PAVED DR. WAYS



BITUMINOUS CURB

(PLACED DURING THE PAVING OF MAIN LINE WEAR COURSE)



EXISTING BITUMINOUS CURB (LIP) TO BE RECLAIMED WITH SHOULDER
 PROPOSED BITUMINOUS CURB (LIP) TO BE PAID UNDER ITEM NO. 2535.501

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\11-01-00\CSAH_20_(CSAH9-CSAH78)\Plan\det.dgn					

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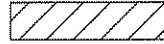
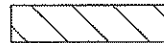




ANOKA COUNTY
 HIGHWAY DEPT.

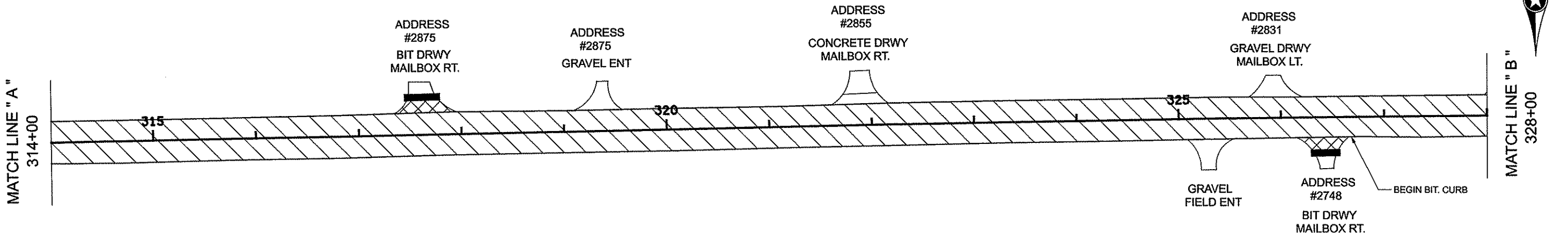
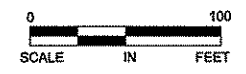
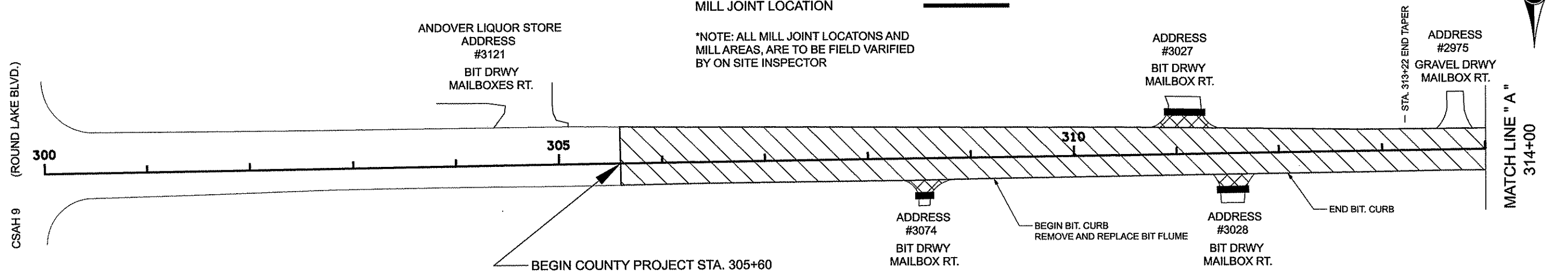
STATE PROJECT NO. _____
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 COUNTY PROJECT NO. 11-27-20

MISCELLANEOUS DETAILS

Sheet 8 of 20 Sheets

MILL AND OVERLAY AREA 
 RECLAIM AREA 
 DRIVEWAYS AND APPROACHES 
 MILL JOINT LOCATION 

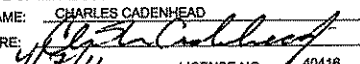
*NOTE: ALL MILL JOINT LOCATIONS AND MILL AREAS, ARE TO BE FIELD VERIFIED BY ON SITE INSPECTOR



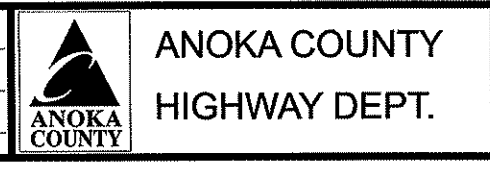
1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

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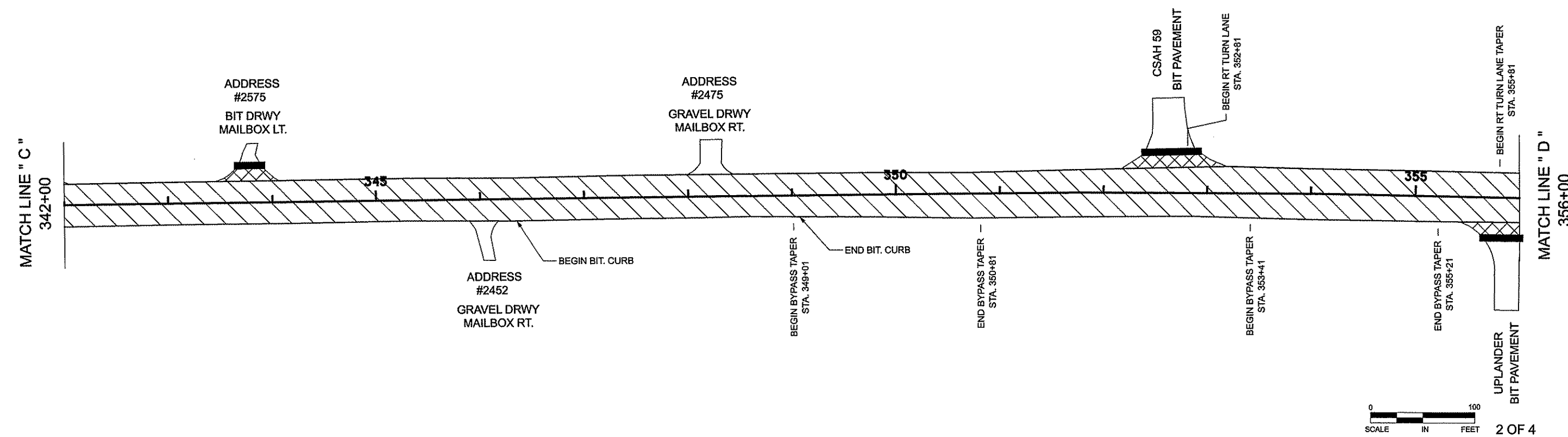
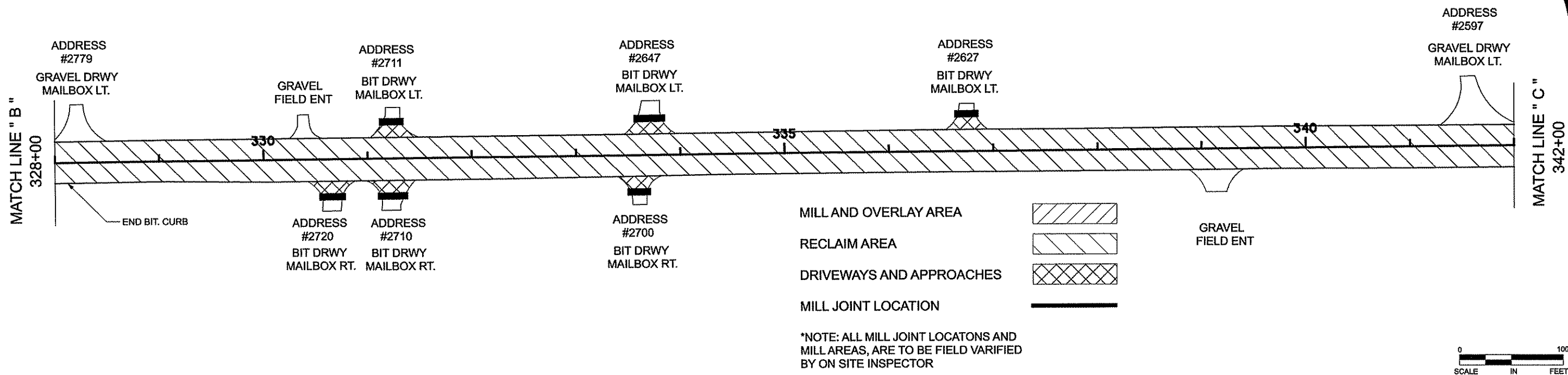
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: 
 DATE: 4/4/11 LICENSE NO. 40416

DRAWN BY: KPR DATE: 4/07/11
 DESIGN BY: KPR DATE: 4/07/11
 CHECKED BY: JO DATE:



STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 11-27-20

CONSTRUCTION PLAN
 STA 305+60 TO 328+00
 Sheet 9 of 20 Sheets



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\11-01-00\CSAH_20_(CSAH9-CSAH78)\Plan\plan.dgn					
04/05/2011 3:40:04 PM					

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: CHARLES CADENHEAD

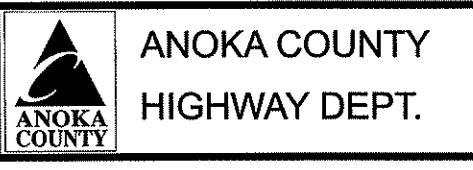
SIGNATURE: *[Signature]*

DATE: 4/7/11 LICENSE NO. 40416

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STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

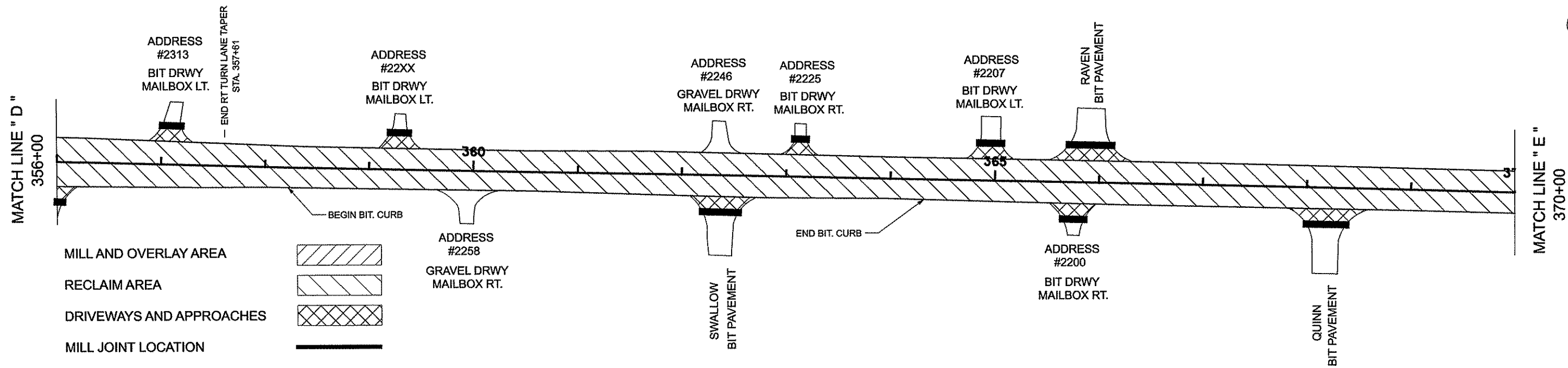
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COUNTY PROJECT NO. 11-27-20

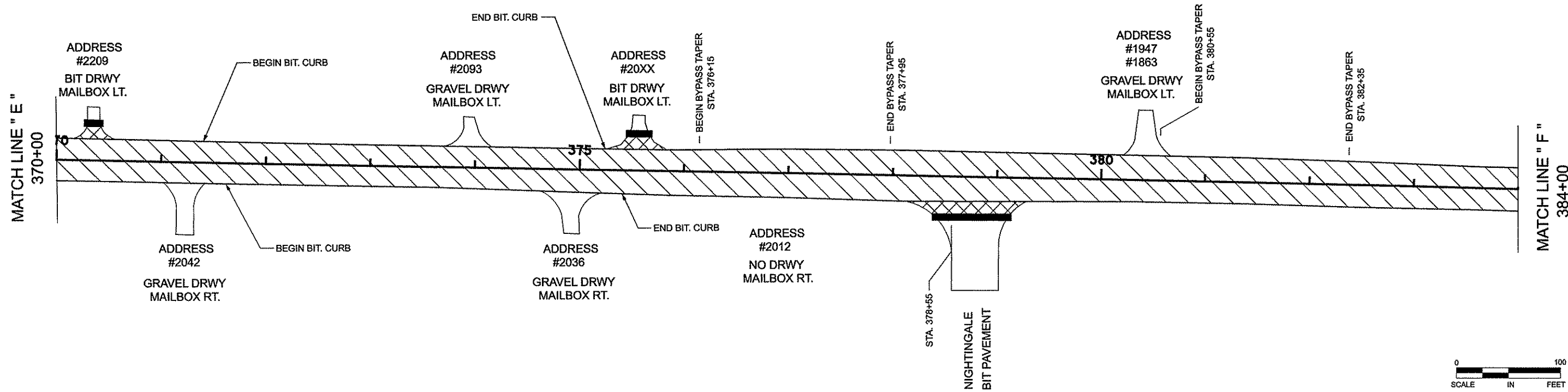
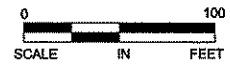
CONSTRUCTION PLAN

STA 328+00 TO 356+00

Sheet 10 of 20 Sheets



*NOTE: ALL MILL JOINT LOCATIONS AND MILL AREAS, ARE TO BE FIELD VERIFIED BY ON SITE INSPECTOR

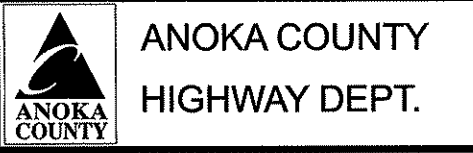


3 OF 4

NO	DATE	BY	CKD	APPR	REVISION
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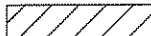
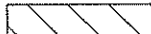


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 PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 4/7/11 LICENSE NO. 40416

DRAWN BY: KPR DATE: 4/07/11
 DESIGN BY: KPR DATE: 4/07/11
 CHECKED BY: JO DATE: _____

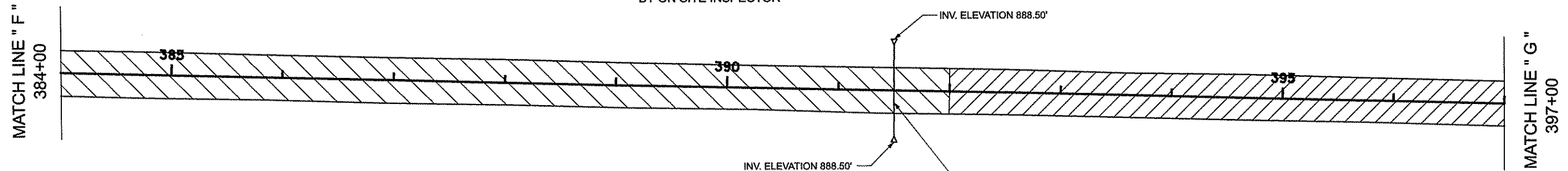


STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 11-27-20

CONSTRUCTION PLAN
 STA 356+00 TO 384+00
 Sheet 11 of 20 Sheets

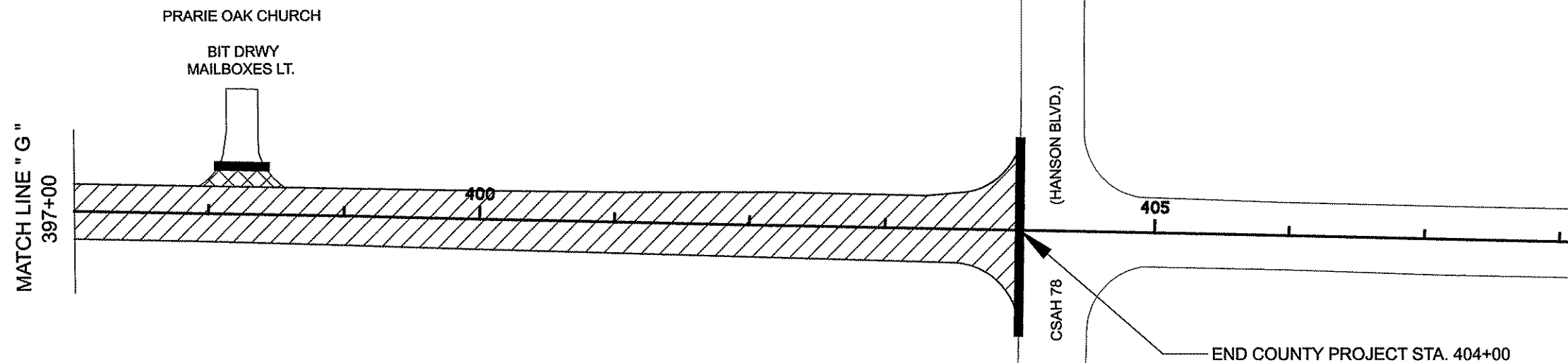
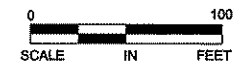
- MILL AND OVERLAY AREA 
- RECLAIM AREA 
- DRIVEWAYS AND APPROACHES 
- MILL JOINT LOCATION 

*NOTE: ALL MILL JOINT LOCATIONS AND MILL AREAS, ARE TO BE FIELD VARIFIED BY ON SITE INSPECTOR



REMOVE 95' OF 72" CMP CULVERT AND REPLACE WITH 88' OF 72" RC PIPE CULVERT AND APRONS, USING EXISTING INVERT ELEVATIONS.

NOTE: SPECIAL EXCAVATION IS 1.25' BELOW THE INPLACE 72" CMP INVERT. COURSE FILTER AGGREGATE IS 0.5' BELOW THE BOTTOM OF 72" RC PIPE CL 3.



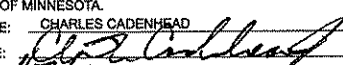
4 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\11-01-00\CSAH_20_(CSAH9-CSAH78)\Plan\plan.dgn 04/05/2011 3:41:41 PM

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: 

DATE: 4/7/11 LICENSE NO. 40418

DRAWN BY: KPR DATE: 4/07/11

DESIGN BY: KPR DATE: 4/07/11

CHECKED BY: JO DATE: _____



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

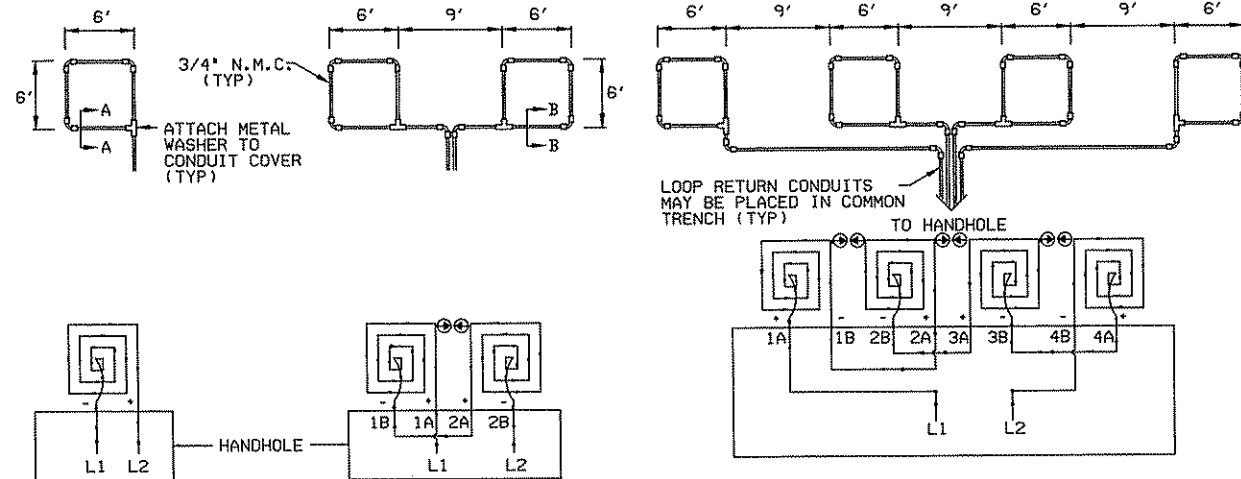
COUNTY PROJECT NO. 11-27-20

CONSTRUCTION PLAN

STA 384+00 TO 404+00

Sheet 12 of 20 Sheets

ANOKA COUNTY SIGNAL LOOP DETAIL

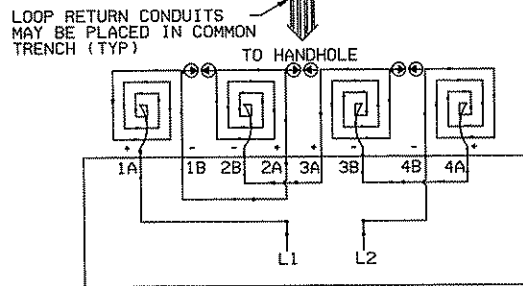


**LOOP DETECTOR
DETAIL 'A'**
(LOOP PHASING FOR
SINGLE CONNECTION)

LOOP CONNECTIONS SHALL BE
LABELED AND SPLICED IN THE
HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO L2

**LOOP DETECTOR
DETAIL 'B'**
(LOOP PHASING FOR
SERIES CONNECTION)

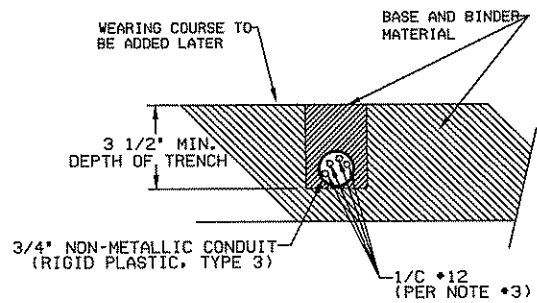


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED
IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A 3B TO 4A
1B TO 2A 4B TO L2
2B TO 3A

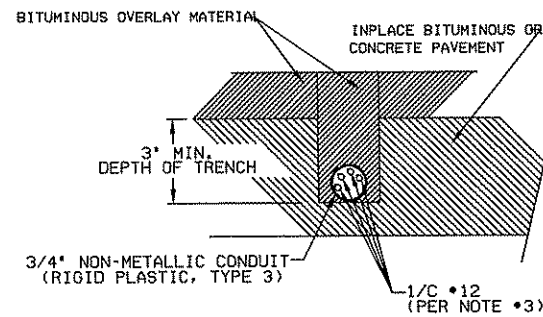
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE.
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE
(1A, 1B, ECT)

**LOOP DETECTOR
DETAIL 'C'**
(LOOP PHASING FOR
SERIES CONNECTION)



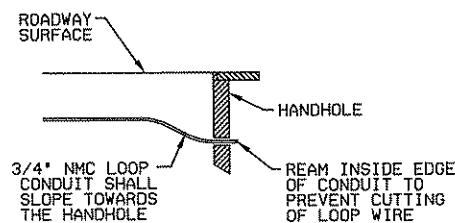
SECTION A-A

DETAIL FOR LOOP INSTALLATION
IN NEW ROADWAY



SECTION B-B

DETAIL FOR LOOP INSTALLATION
IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP), SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LDOPS 6' X 6' THRU 6' X 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' X 15' AND LARGER SHALL HAVE (2) TURNS.

ABBREVIATIONS			
3-1(EG)	SIGNAL HEAD PHASE '3' - NO. '1'	P2-1(EG)	PED INDICATION PHASE '2' - NO. '1'
BR, GR	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE '2' - NO. '1'
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE '2' - NO. '1'	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EDG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SDP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR, R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SVD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:	
PLATE NO.	DESCRIPTION
7035 L	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7036 E	PEDESTRIAN CURB RAMP
7100 B	CONCRETE CURB AND GUTTER (DESIGN B)
8110 D	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 C	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
8112 C	PEDESTAL FOUNDATION
8114 A	PVC HANDHOLE/PULLBOX
8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8118 C	SERVICE EQUIPMENT AND POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 K	P&S POLE FOUNDATION
8121 D	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
8123 E	POLE AND MAST ARM
8124 E	MAST ARM SIGNAL HEAD MOUNTS
8125 F	PA100 AND PA100 POLE FOUNDATION

CONDUCTOR COLOR CODE	
R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
O/BLK	GREEN WITH BLACK TRACER
G	GREEN

LEGEND OF SYMBOLS	
CONTROLLER AND SERVICE EQUIP. NO'S	⊙
SIGNAL BASE NO.	⊙
SIGNAL FACE NO.	⊙
LUMINAIRE NO.	⊙
CONTROLLER AND CABINET	⊙
CONTROLLER AND CABINET - IN PLACE	⊙
HANDHOLE	⊙
HANDHOLE - IN PLACE	⊙
RIGID STEEL CONDUIT (RSC)	⊙
RIGID STEEL CONDUIT (RSC) - IN PLACE	⊙
SIGNAL FACE WITH BACKGROUND SHIELD	⊙
SIGNAL FACE W/O BACKGROUND SHIELD	⊙
SIGNAL FACE - IN PLACE	⊙
PEDESTRIAN INDICATORS	⊙
PEDESTRIAN INDICATORS - IN PLACE	⊙
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	⊙
PEDESTRIAN PUSH BUTTON STATION	⊙
TRAFFIC SIGNAL PEDESTAL	⊙
TRAFFIC SIGNAL PEDESTAL - INPLACE	⊙
TRAFFIC SIGNAL POLE AND MAST ARM	⊙
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	⊙
STREET LIGHT POLE AND LUMINAIRE	⊙
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	⊙
MAST ARM AND LUMINAIRE	⊙
MAST ARM AND LUMINAIRE - INPLACE	⊙
WOOD POLE	⊙
WOOD POLE - IN PLACE	⊙
SOURCE OF POWER	⊙
RAILROAD SIGNAL - IN PLACE	⊙
RIGHT OF WAY LINE	⊙
CENTERLINE	⊙
EDGE OF ROADWAY	⊙
SHOULDERLINE	⊙
CURB LINE	⊙
STOP BAR	⊙
EMERGENCY VEHICLE PREEMPTION DETECTOR	⊙

NOTE: NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\11-01-00\CSAH_20_(CSAH9-CSAH78)\Plans\signalloop.dgn					04/05/2011
					3:38:22 PM

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: *[Signature]*

DATE: 4/7/11 LICENSE NO. 40416

DRAWN BY: KPR DATE: 4/07/11

DESIGN BY: KPR DATE: 4/07/11

CHECKED BY: JO DATE:

**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

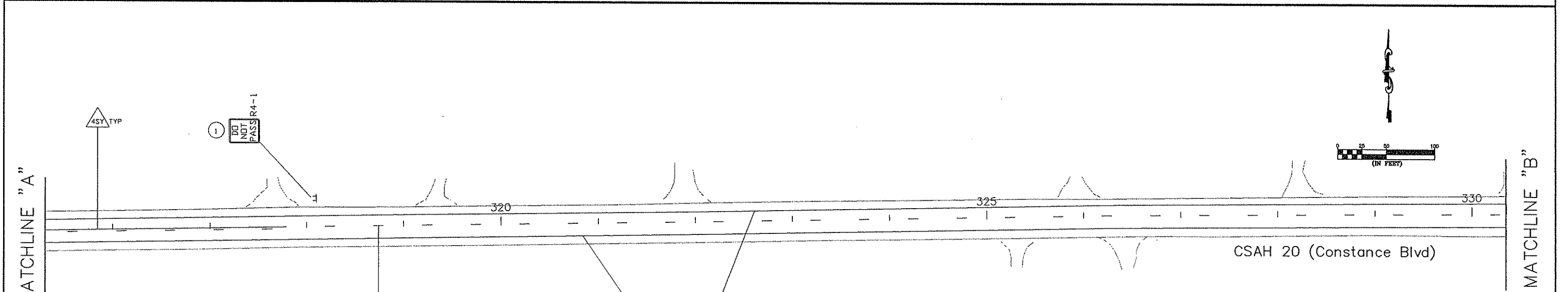
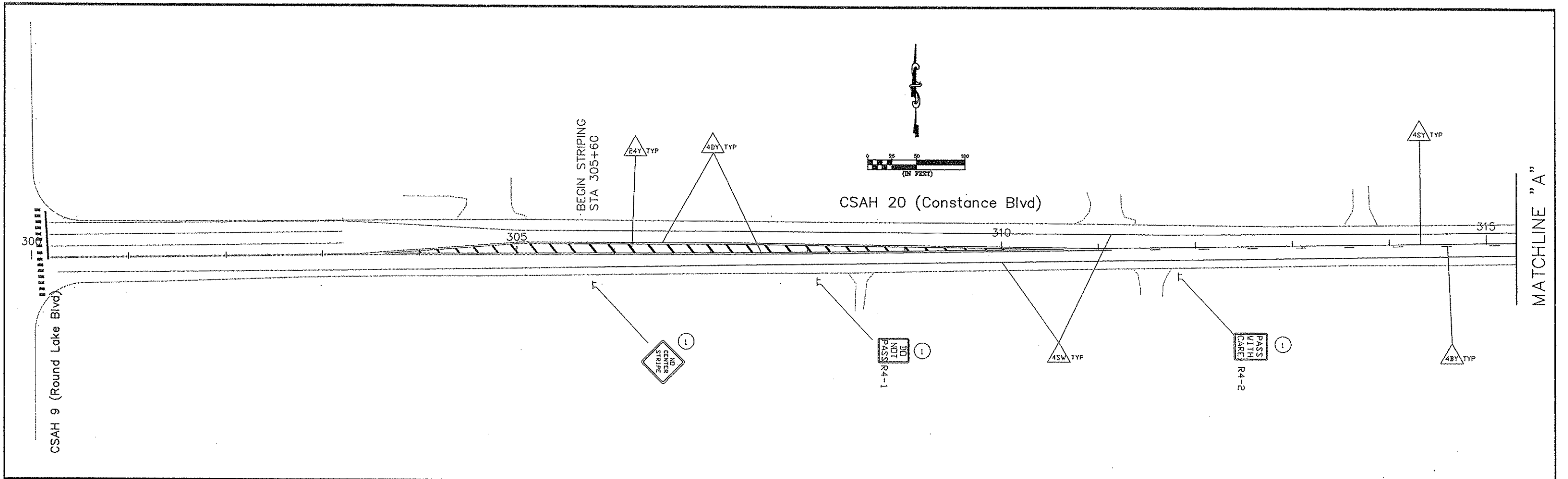
STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. 11-27-20

SIGNAL LOOP DETAIL

Sheet 13 of 20 Sheets



- NOTES:
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
 2. LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 3. 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.
 4. ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
 5. ALL PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

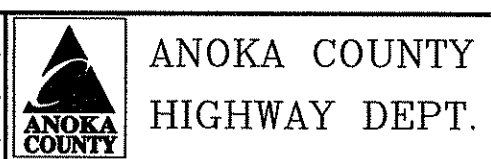
NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 20 (157th Av, Constance Blvd)\from CSAH 78 to CSAH 16.dwg

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: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 4/7/11 LICENSE NO. 40419

DRAWN BY: MTH DATE 3/25/11
 DESIGN BY: MTH DATE 3/25/11
 CHECKED BY: JR DATE 3/31/11



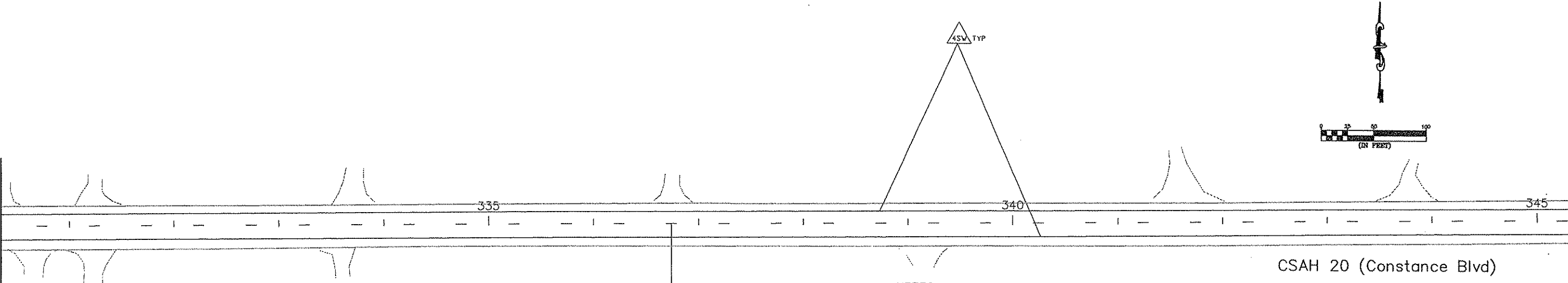
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 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 11-27-20

CSAH 20 (CONSTANCE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES

Sheet 14 of 20 Sheets

MATCHLINE "B"

MATCHLINE "C"

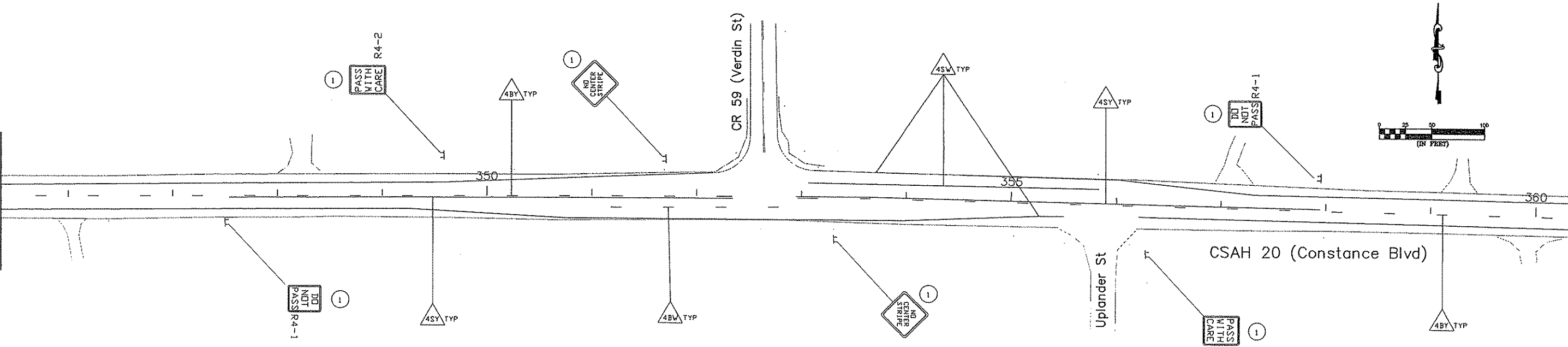


CSAH 20 (Constance Blvd)

- NOTES:
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
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MATCHLINE "C"

MATCHLINE "D"



CSAH 20 (Constance Blvd)

NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 20 (157th Av, Constance Blvd)\from CSAH 78 to CSAH 18.dwg

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PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *Charles Cadenhead*
 DATE: 4/7/11 LICENSE NO. 40412

DRAWN BY: MTH DATE 3/25/11
 DESIGN BY: MTH DATE 3/25/11
 CHECKED BY: JR DATE 3/31/11



ANOKA COUNTY
 HIGHWAY DEPT.

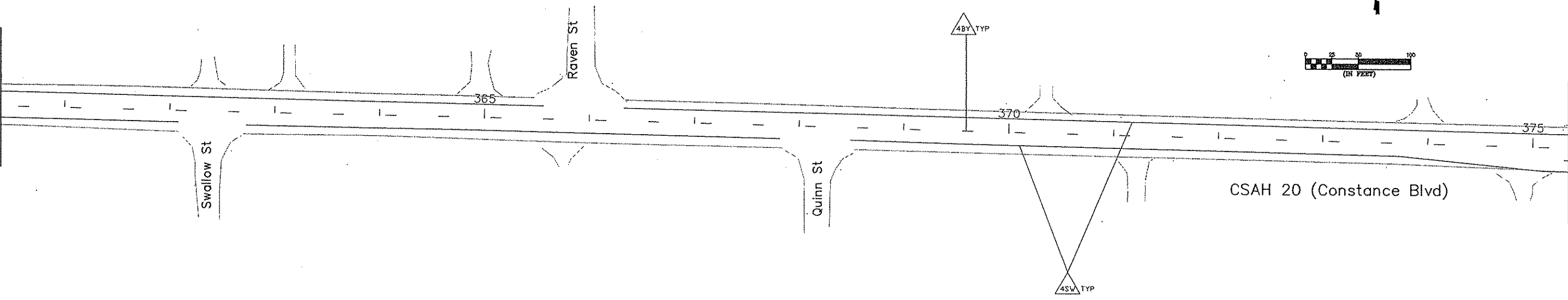
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 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 11-27-20

CSAH 20 (CONSTANCE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES

Sheet 15 of 20 Sheets

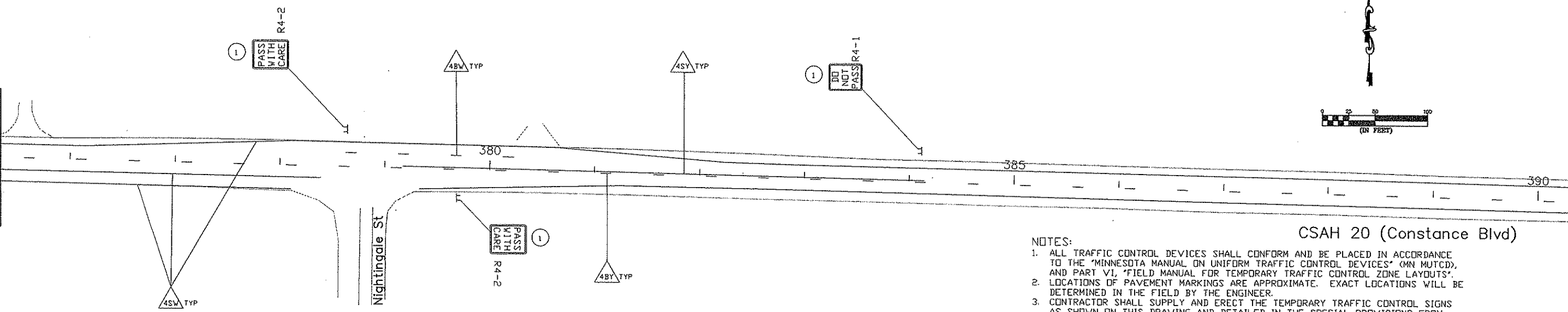
MATCHLINE "D"

MATCHLINE "E"



MATCHLINE "E"

MATCHLINE "F"



NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
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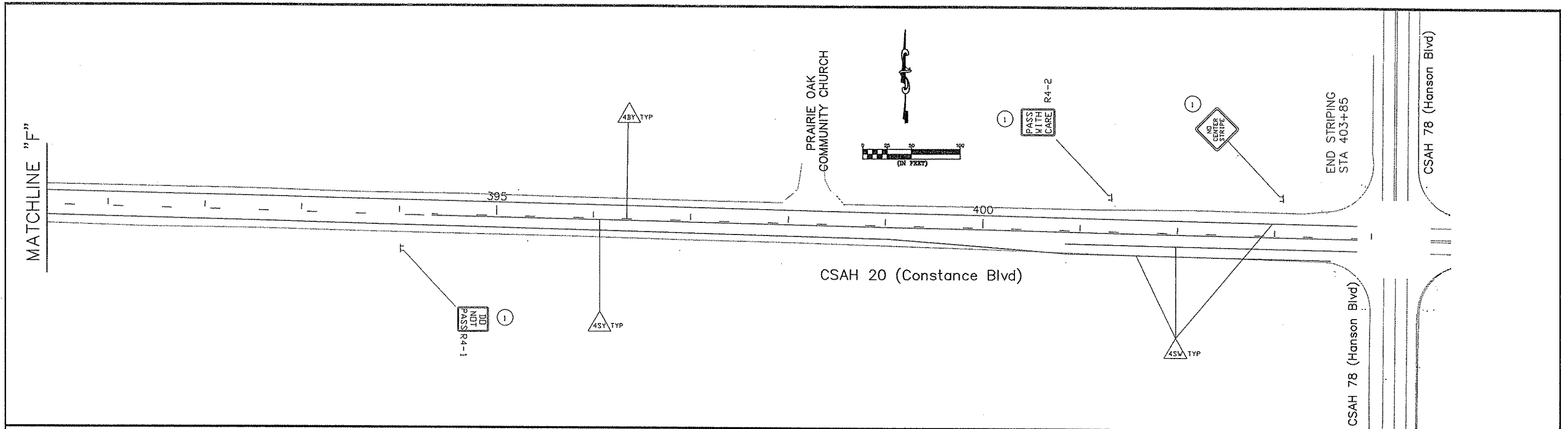


ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
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CSAH 20 (CONSTANCE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES

Sheet 16 of 20 Sheets



Item	Quantity	Units
4" Double Yellow Striping	1088	Lin Ft
4" Solid Yellow Striping	3112	Lin Ft
4" Broken Yellow Striping	1860	Lin Ft
4" Solid White Striping	20025	Lin Ft
4" Broken White Striping	80	Lin Ft
24" Yellow Thermoplastic	184	Lin Ft
24" White Thermoplastic	0	Lin Ft
3'x6' Zebra Crosswalk Thermoplastic	0	SQ FT
Right Turn Arrow Thermoplastic	0	Each
Left Turn Arrow Thermoplastic	0	Each
Thru/Right Turn Arrow Thermoplastic	0	Each
Thru Arrow Thermoplastic	0	Each

	4" SOLID LINE DOUBLE YELLOW PAINT		PAVEMENT MESSAGE RIGHT
	4" SOLID LINE YELLOW PAINT		PAVEMENT MESSAGE LEFT
	4" BROKEN LINE YELLOW PAINT		PAVEMENT MESSAGE THRU/RIGHT
	4" SOLID LINE WHITE PAINT		PAVEMENT MESSAGE THRU
	4" BROKEN LINE WHITE PAINT	<u>SEE SPECIAL PROVISIONS</u>	
	24" YELLOW PERMANENT PAVEMENT MESSAGE	1	TEMPORARY TRAFFIC CONTROL SIGN
	24" WHITE PERMANENT PAVEMENT MESSAGE	2	F & I PERMANENT SIGN
	3' x 6' ZEBRA CROSSWALK	3	SALVAGE PERMANENT SIGN
		4	RE-INSTALL PERMANENT SIGN

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 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.
- ALL PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

M. U. T. C. D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY		MOUNTING HEIGHT (to pavement edge) FT.
				No.	Post	
WB-12	48' x 48'	16.00		4	2	7.0'
R4-1	24' x 30'	5.00		6	1	7.0'
R4-2	24' x 30'	5.00		5	1	7.0'
WB-1A	48' x 48'	16.00		AS NEEDED		
WB-1A	48' x 48'	16.00		AS NEEDED		
WB-8	48' x 48'	16.00		AS NEEDED		
WB-11	48' x 48'	16.00		AS NEEDED		

NO	DATE	BY	CHKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 20 (157th Av. Constance Blvd)\from CSAH 78 to CSAH 18.dwg

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: CHARLES CADENHEAD
 SIGNATURE:
 DATE: 4/7/11 LICENSE NO. 40416

DRAWN BY: MTH DATE 3/25/11
 DESIGN BY: MTH DATE 3/25/11
 CHECKED BY: JR DATE 3/31/11

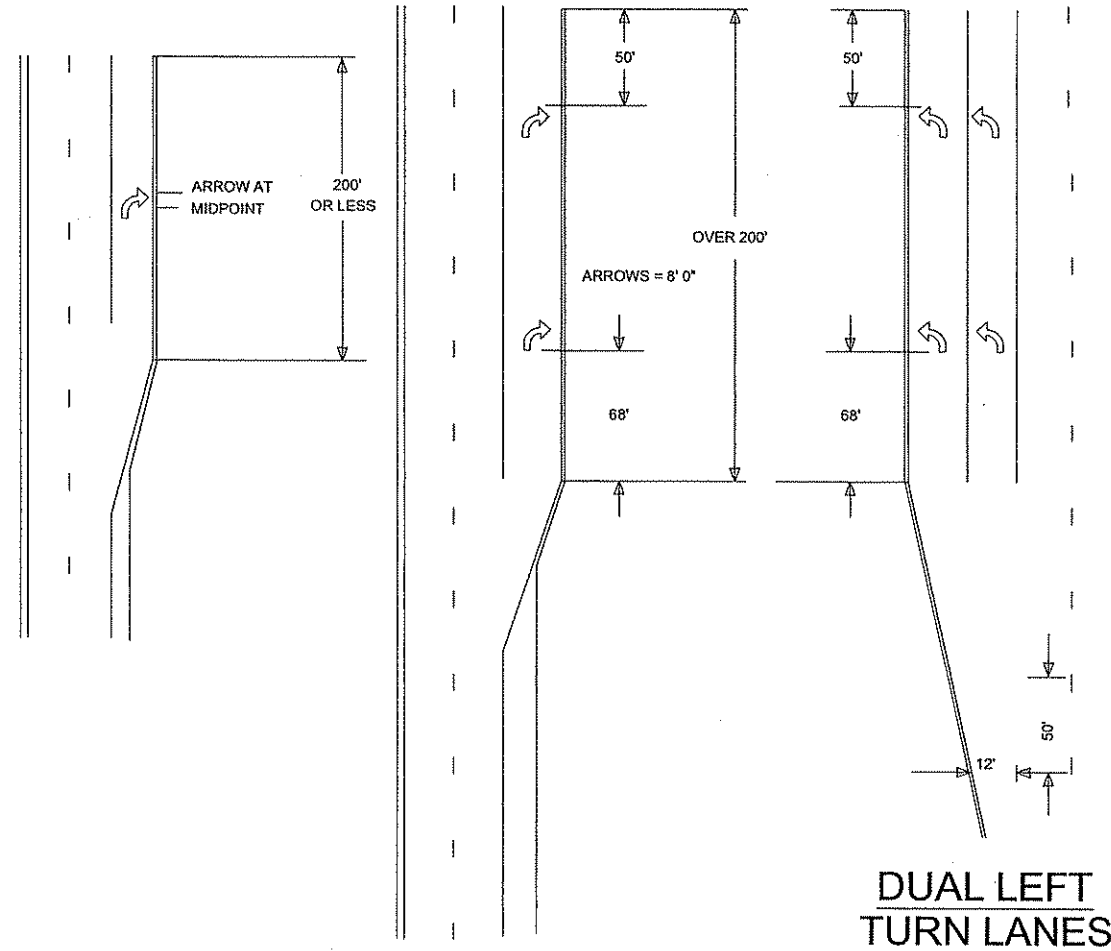
ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 11-27-20

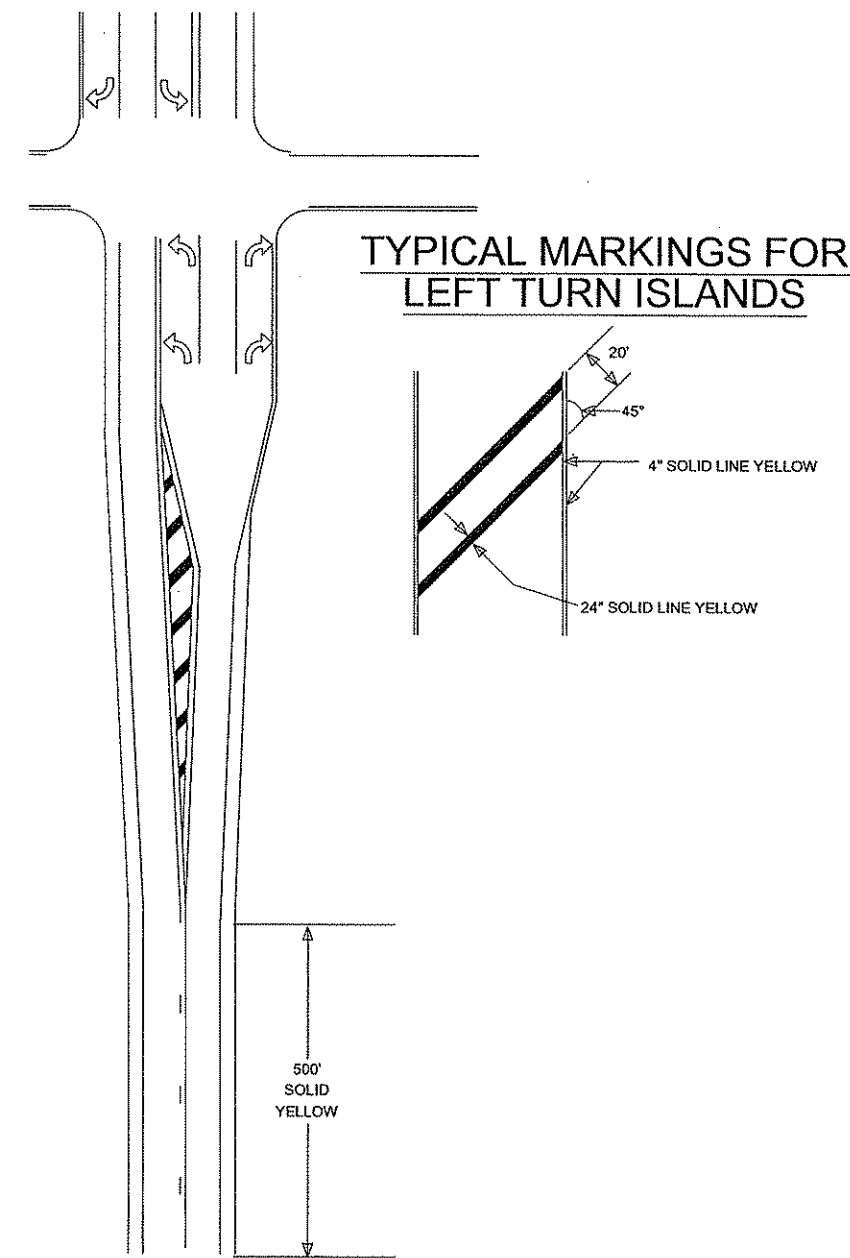
CSAH 20 (CONSTANCE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES

Sheet 17 of 20 Sheets

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



NO	DATE	BY	CHKD	APPR	REVISION

NAME: T:\Traffic\Dwg\CSAH 20 (Constance Blvd)\Sign&Stripe_Details.dwg

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: CHARLES CADENHEAD

SIGNATURE: *[Signature]*

DATE: 1/7/11 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-11

DESIGN BY MTH DATE 1-21-11

CHECKED BY JR DATE 1-21-11



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE PROJECT NO. _____

STATE PROJECT NO. _____

COUNTY PROJECT NO. 11-27-20

SIGNING & STRIPING DETAILS

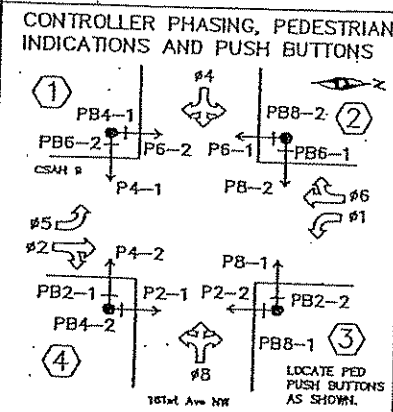
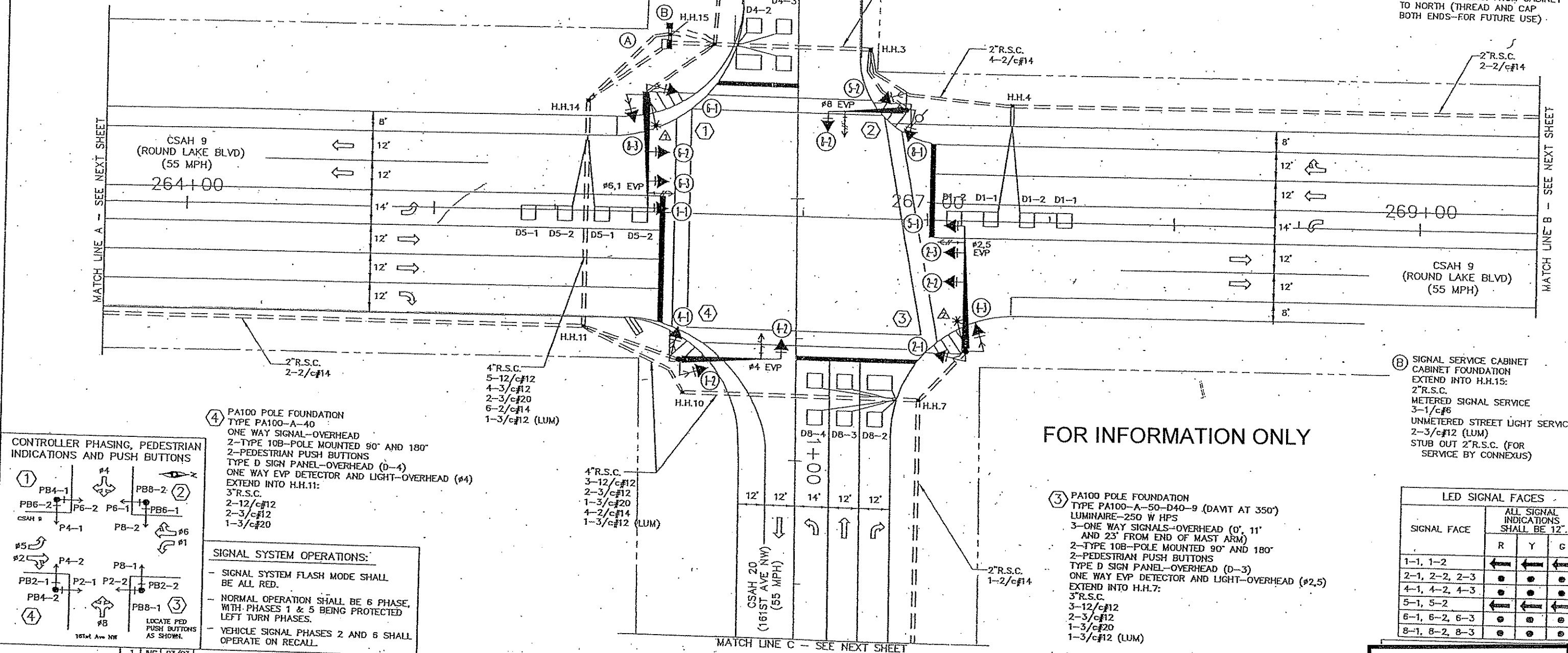
Sheet 18 of 20 Sheets

- NOTES:
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - 3) LOOP DETECTOR WRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
 - 4) HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS, PER Mn/DOT STANDARD PLATE NO. 8114A.
 - 5) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
 - 6) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION HAND/WALKING PERSON INDICATION. SEE SPECIAL PROVISIONS.
 - 7) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED. SEE SPECIAL PROVISIONS.
 - 8) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS AND CONCRETE WALK TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511).
 - 9) CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL FACE.
 - 10) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
 - 11) SEE SPECIAL PROVISIONS REGARDING REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM (INCIDENTAL TO ITEM NO. 2565.511).
 - 12) SEE SPECIAL PROVISIONS REGARDING "DUMMY ORDERS" PLACED BY THE COUNTY FOR TRAFFIC SIGNAL MATERIALS AND ELECTRICAL EQUIPMENT, FOR ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565.511.

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	475'	1
D2-2	6x6	475'	1
D4-1	6x6	180'	3,8
D4-2	6x6 & 6x10	5' & 20'	7
D4-3	2-6x6	5' & 20'	7
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	475'	1
D6-2	FUTURE	-	-
D8-1	2-6x6	400'	3,8
D8-2	6x6 & 8x10	5' & 20'	7
D8-3	2-6x6	5' & 20'	7
D8-4	2-6x6	5' & 20'	7

- LOOP DETECTORS FUNCTIONS:
- 1) CALL AND EXTEND
 - 2) CALL ONLY
 - 3) EXTEND ONLY
 - 4) CALL ONLY DENSITY
 - 5) DELAYED CALL ONLY
 - 6) DELAYED CALL ONLY DENSITY
 - 7) DELAYED CALL- IMMEDIATE EXTEND
 - 8) CARRY OVER (STRETCH)
 - 9) ADVISORY DETECTOR
 - 10) SAMPLING DETECTOR
 - 11) SPECIAL DETECTOR

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



- ④ PA100 POLE FOUNDATION
 TYPE PA100-A-40
 ONE WAY SIGNAL-OVERHEAD
 2-TYPE 10B-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD (D-4)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (#4)
 EXTEND INTO H.H.11:
 3"R.S.C.
 2-12/c#12
 2-3/c#12
 1-3/c#20

- SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING PROTECTED LEFT TURN PHASES.
 - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

FOR INFORMATION ONLY

- ③ PA100 POLE FOUNDATION
 TYPE PA100-A-50-D40-9 (DAVIT AT 350°)
 LUMINAIRE-250 W HPS
 3-ONE WAY SIGNALS-OVERHEAD (0°, 11° AND 23° FROM END OF MAST ARM)
 2-TYPE 10B-POLE MOUNTED 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD (D-3)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (#2,5)
 EXTEND INTO H.H.7:
 3"R.S.C.
 3-12/c#12
 2-3/c#12
 1-3/c#20
 1-3/c#12 (LUM)

- ⑧ SIGNAL SERVICE CABINET
 CABINET FOUNDATION
 EXTEND INTO H.H.15:
 2"R.S.C.
 METERED SIGNAL SERVICE
 3-1/c#6
 UNMETERED STREET LIGHT SERVICE
 2-3/c#12 (LUM)
 STUB OUT 2"R.S.C. (FOR SERVICE BY CONNEXUS)

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

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS
1	JMG	03/03	REVISED PER COUNTY COMMENTS
2	JMG	05/03	RELOCATED CABINETS TO SW CORNER PER COUNTY

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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 John M. Gray, P.E.
 Date: May 5, 2003 Lic. No. 22457

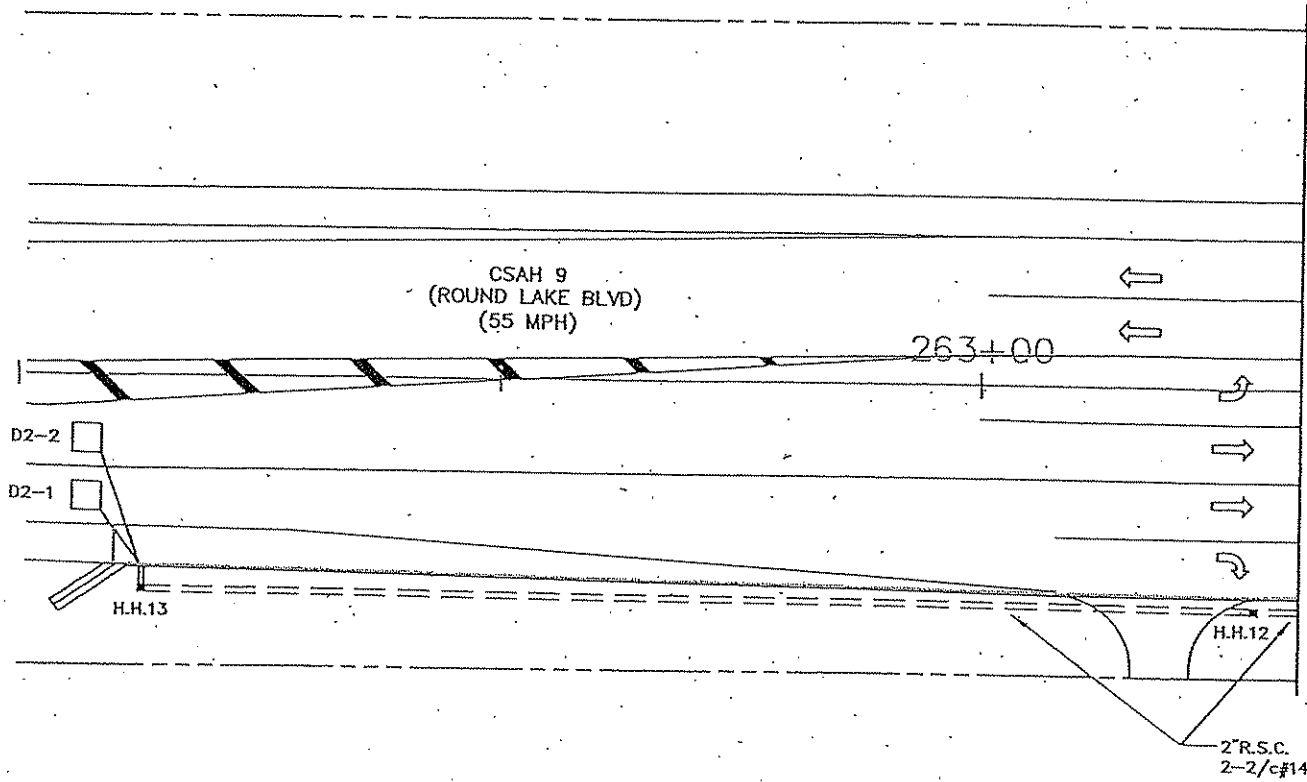
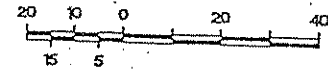


ANOKA COUNTY
 CSAH 9 (ROUND LAKE BLVD.)
 S.P. 02-609-11
 S.P. 02-620-06

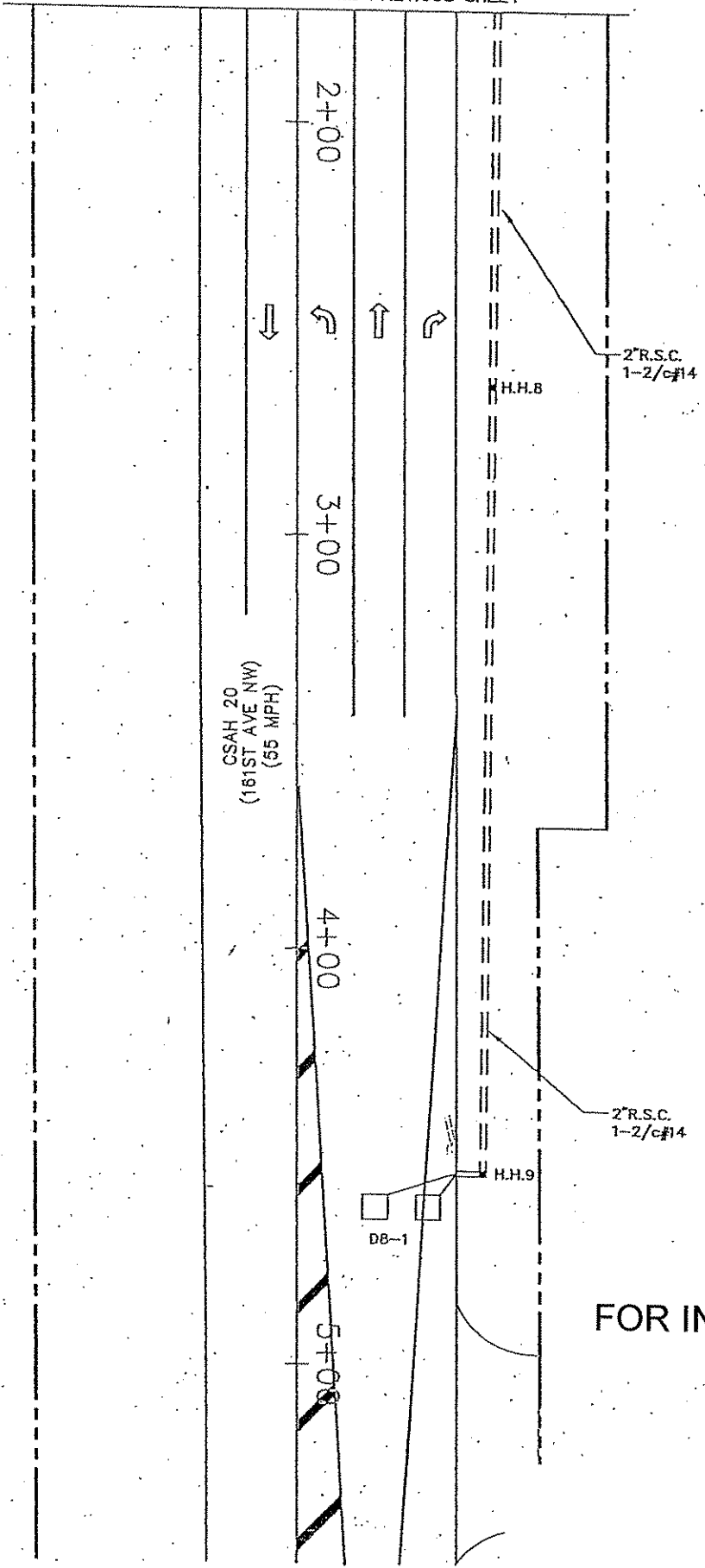
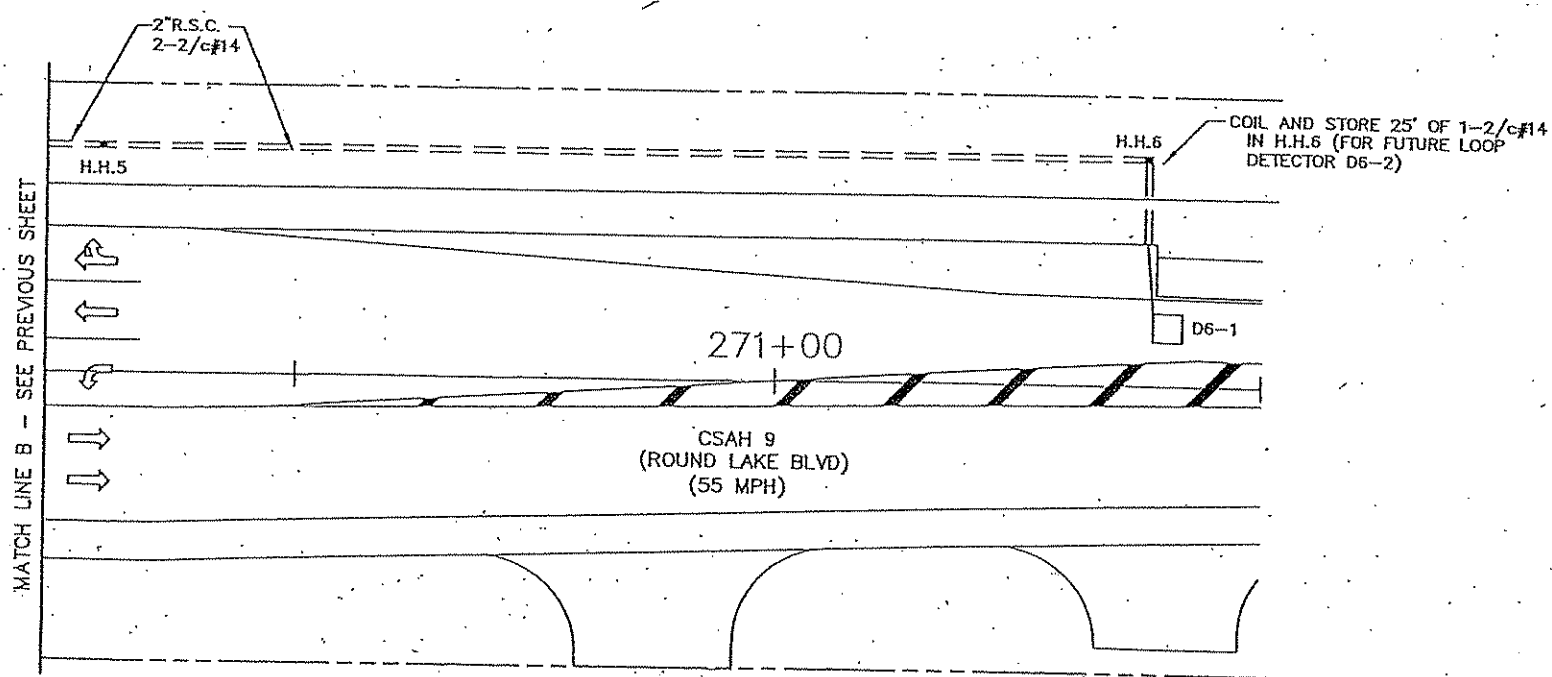
TRAFFIC SIGNAL
 INTERSECTION L
 CSAH 9 AT CSAH 20

MISCELLANEOUS SIGNAL SHEET
 Sheet 19 of 20 Sheets

MATCH LINE C - SEE PREVIOUS SHEET



MATCH LINE A - SEE PREVIOUS SHEET



FOR INFORMATION ONLY

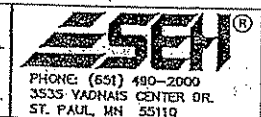
W:\A\ANOKA\980205\TRAFFIC SIGNALS\1\030803.dwg 5/4/03

DRAWN BY:	JMG	1	JMG	05/05	RELOCATED CABINETS TO SW CORNER PER COUNTY
DESIGNER:	JMG				
CHECKED BY:	JMG				
DESIGN TEAM		NO.	BY	DATE	REVISIONS

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John M. Gray
 Date: May 5, 2003 Lic. No. 22457



ANOKA COUNTY
 CSAH 9 (ROUND LAKE BLVD.)