

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 Termination) _____
- 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 _____ 0' 100'
- PROFILE _____ 0' 100'
- HORIZONTAL _____ 0' 10'
- VERTICAL _____ 0' 10'
- X-SECTIONS _____ 0' 10'
- HORIZONTAL _____ 0' 10'
- VERTICAL _____ 0' 10'

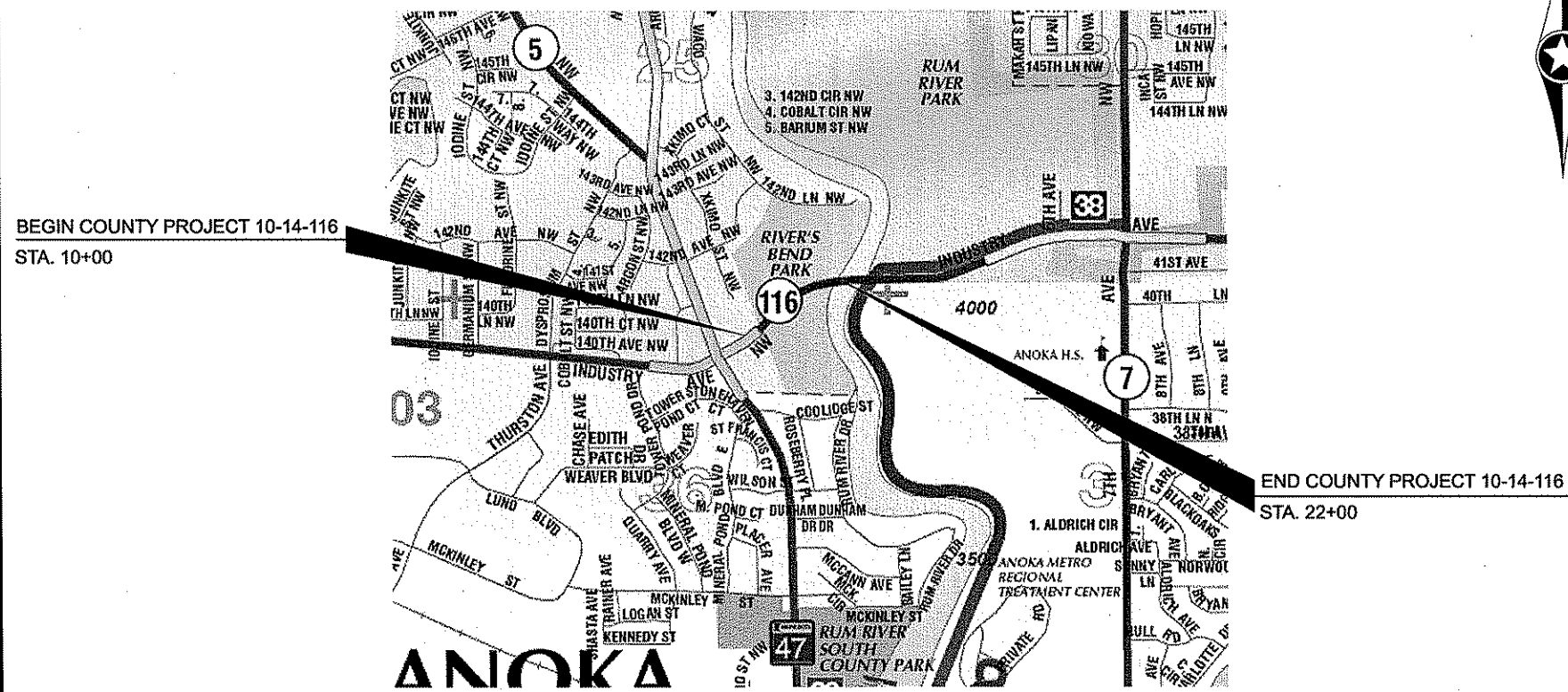
MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR 2" BITUMINOUS MILL, 2" BITUMINOUS OVERLAY, AND STORM SEWER REPAIRS
 LOCATED ON CSAH 116 BETWEEN 400' EAST OF MN 47 AND WEST END RUM RIVER BRIDGE APPROACH

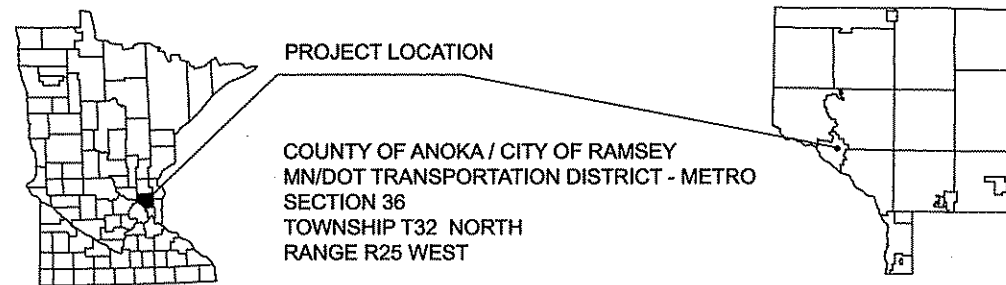
COUNTY PROJECT	10-14-116	
GROSS LENGTH	1200 FEET	0.23 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	1200 FEET	0.23 MILES

CITY OF ANOKA & CITY OF RAMSEY



BEGIN COUNTY PROJECT 10-14-116
STA. 10+00

END COUNTY PROJECT 10-14-116
STA. 22+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 PAR VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	EXISTING AND PROPOSED TYPICAL SECTIONS
4	CB REPAIR DETAILS
5	PLAN
6	STRIPING PLAN
6A-6E	MISC. SIGNAL PLANS

Approved 3/26/2010 ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_116_147-RUMBRIDGE\PLAN\113\2010\2010 2:45:44 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 CADONHEAD
 SIGNATURE:
 DATE: 3/26/10 LICENSE NO. 40418

DRAWN BY: JF DATE: 3/1/2010
 DESIGN BY: JF DATE: 3/1/2010
 CHECKED BY: JO DATE: 3/1/2010

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116

TITLE SHEET
Sheet 1 of 6E Sheets

STATEMENT OF ESTIMATED QUANTITIES				
ITEM NO.	ITEM	NOTE OR TAB NO.	UNIT	TOTAL EST. QUANT.
2013.601	SURVEY EQUIPMENT		LUMP SUM	1.0
2021.501	MOBILIZATION		LUMP SUM	1.0
2104.505	REMOVE BITUMINOUS PAVEMENT	7	SQ YD	22.5
2104.501	REMOVE CONCRETE CURB	7	LIN FT	75.0
2104.511	SAWING CONCRETE CURB (FULL DEPTH)	7	LIN FT	20.0
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	7	LIN FT	115.0
2105.525	TOPSOIL BORROW	7	CU YD	10.0
2211.501	AGGREGATE BASE CLASS 5	8	TON	36.0
2232.501	MILL BITUMINOUS SURFACE (2") MAINLINE	1, 10, 11	SQ YD	8666.0
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	433.3
2360.501	TYPE SP 12.5 WEARING COURSE MIX (SPWEB440B)	3	TON	996.6
2360.501	TYPE SP 12.5 WEARING COURSE MIX (SPWEB440B) PATCHING CB'S REPAIRS	9	TON	5.2
2506.516	CASTING ASSEMBLY	7	EACH	5.0
2506.522	RECONSTRUCT RING AND CASTING (PAY HT= TOP OF STRUCTURE TO BOTTOM CASTING)	7, 8, 14, 15	LIN FT	3.2
2506.602	GROUT CATCH BASIN OR MANHOLE	7	EACH	10.0
2531.501	CONCRETE CURB AND GUTTER DESIGN B618	7	LIN FT	75.0
2563.601	TRAFFIC CONTROL	5, 13	LUMP SUM	1.0
2565.602	LOOP DETECTOR 6' X 6'	1, 2	EACH	2.0
2575.523	EROSION CONTROL BLANKET CAT 3	12	SQ YD	45.0
2581.501	REMOVABLE PREFORM PLASTIC MARKINGS (WHITE)	6	LIN FT	192.0
2581.501	REMOVABLE PREFORM PLASTIC MARKINGS (YELLOW)	6	LIN FT	192.0
2582.502	4" SOLID LINE WHITE - EPOXY	4	LIN FT	4888.0
2582.502	4" SOLID LINE YELLOW - EPOXY	4	LIN FT	472.0
2582.502	4" BROKEN LINE WHITE-EPOXY	4	LIN FT	910.0
2582.502	4" DOUBLE YELLOW-EPOXY	4	LIN FT	2455.0
2582.602	LEFT TURN ARROW THERMOPLASTIC	4	EACH	2.0
2582.603	24" SOLID LINE YELLOW-PREFORMED THERMOPLASTIC	4	LIN FT	298.0
2582.603	24" SOLID LINE WHITE-PREFORMED THERMOPLASTIC	4	LIN FT	55.0
2582.618	3' X 6' THERMOPLASTIC ZEBRA CROSSWALK	4	SQ FT	288.0

NOTES:

- 1 CONTRACTOR RESPONSIBLE TO REQUEST LOOPS TO BE LOCATED BY MNDOT ESS 48 HOURS PRIOR TO MILLING.
- 2 REPLACE ONLY IF DAMAGED DURING MILLING OPERATION. / CONTRACTOR TO COORDINATE WITH MNDOT ESS. ON PLAN IF HIT DURING MILL.
- 3 FINAL MAINLINE PAVING TO TAKE PLACE WITHIN 72 HOURS OF MILLING.
- 4 PERMANENT MARKINGS TO BE IN PLACE WITHIN 72 HOURS OF FINAL MAINLINE PAVING.
- 5 ALL TRAFFIC CONTROL METHODS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).
- 6 TEMP LANE TAPE TO BE PLACED ON MILLED MAT / NEW MAT AT END OF EACH MILLING /PAVING DAY.
- 7 CATCH BASIN REPAIRS TO BE COMPLETED PRIOR TO MILLING.
- 8 AGGREGATE SHOULDERING CLASS 7B USED FOR COMPACTING AROUND CB'S PRIOR TO PAVING.
- 9 BIT PATCHING USED AROUND CB REPAIRS.
- 10 MAINLINE MILLING INCLUDES DETAIL MILLING AROUND MANHOLES, GATE VALVES, AND ALL STRUCTURES IN BIT. PAVEMENT AREA TO BE MILLED.
- 11 ALL MANHOLES / GV'S MUST BE LOCATED AND PROTECTED AT ALL TIMES DURING MILLING AND PAVING OPERATIONS. CONTRACTORS RESPONSIBILITY.
- 12 INCLUDES SEED AND FERTILIZER, INCIDENTAL TO BLANKET AT CB REPAIRS.
- 13 PASS WITH CARE, NO CENTER STRIPE AND BUMP/BUMP AHEAD SIGNS TO BE INPLACE DURING MILL / PAVING OPERATIONS.
- 14 ROUND CASTING AND RINGS TO BE REPLACED SAME AS EXISTING.
- 15 STRUCTURE TO REMAIN INPLACE, PAID AS RECONSTRUCT. TOP OF STRUCTURE TO BOTTOM OF CASTING.

ITEM NO. BASIS OF PLANNED QUANTITIES

2105.525	TOPSOIL BORROW	CU YD (LV)
2211.501	AGGREGATE BASE CLASS-5	1 CU = 1.8 TONS (CV)
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE MIX (SPWEB440B)	(SQ YD * IN. *115 LBS)/2000 = TONS
2360.501	TYPE SP 12.5 WEARING COURSE MIX (SPWEB440B) PATCHING CB'S REPAIRS	(SQ YD * IN. *115 LBS)/2000 = TONS

PLATE NO. STANDARD PLATE DETAIL

4010H	CONCRETE SHORT CONE AND ADJUSTING RING
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4126F	CATCH BASIN FRAME CASTING
4161F	CURB BOX CASTING FOR CATCH BASIN
4149C	CATCH BASIN GRATE CASTING
7100H	CONCRETE CURB AND GUTTER

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\10-01-00\CSAH_116_(47-Rumbridge)\PLAN\2 Seq.dgn					
3/11/2010 2:07:38 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: *Charles Cadenhead*
DATE: 3/26/10 LICENSE NO. #40419

DRAWN BY JF DATE 3/1/2010
DESIGN BY JF DATE 3/1/2010
CHECKED BY JO DATE 3/1/2010



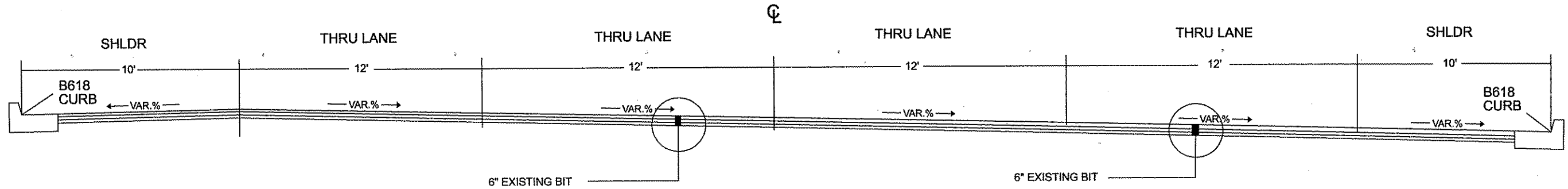
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116

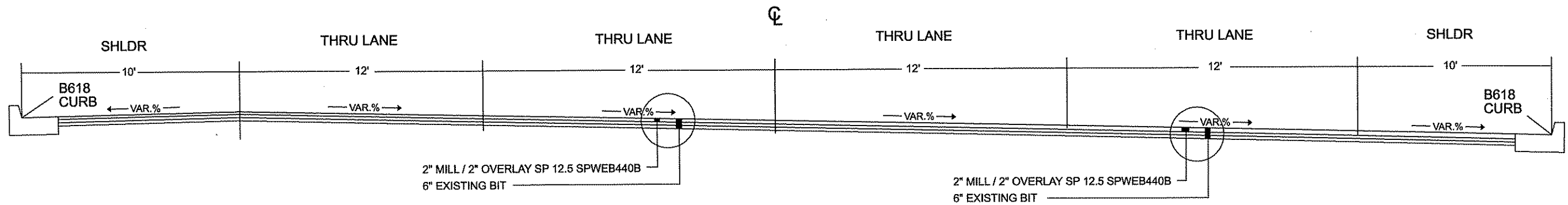
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 6 E Sheets

EXISTING TYPICAL
10+00 - 22+00
(ROTATING SUPER)



PROPOSED TYPICAL
10+00 - 22+00
(ROTATING SUPER)



NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_116_(47-Rumbridge)\PLAN3 typical.dgn 3/3/2010 8:22:55 AM

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: *Charles Cadenhead*
DATE: 3/26/10 LICENSE NO. #40316

DRAWN BY: JF DATE: 3/1/2010
DESIGN BY: JF DATE: 3/1/2010
CHECKED BY: JO DATE: 3/1/2010

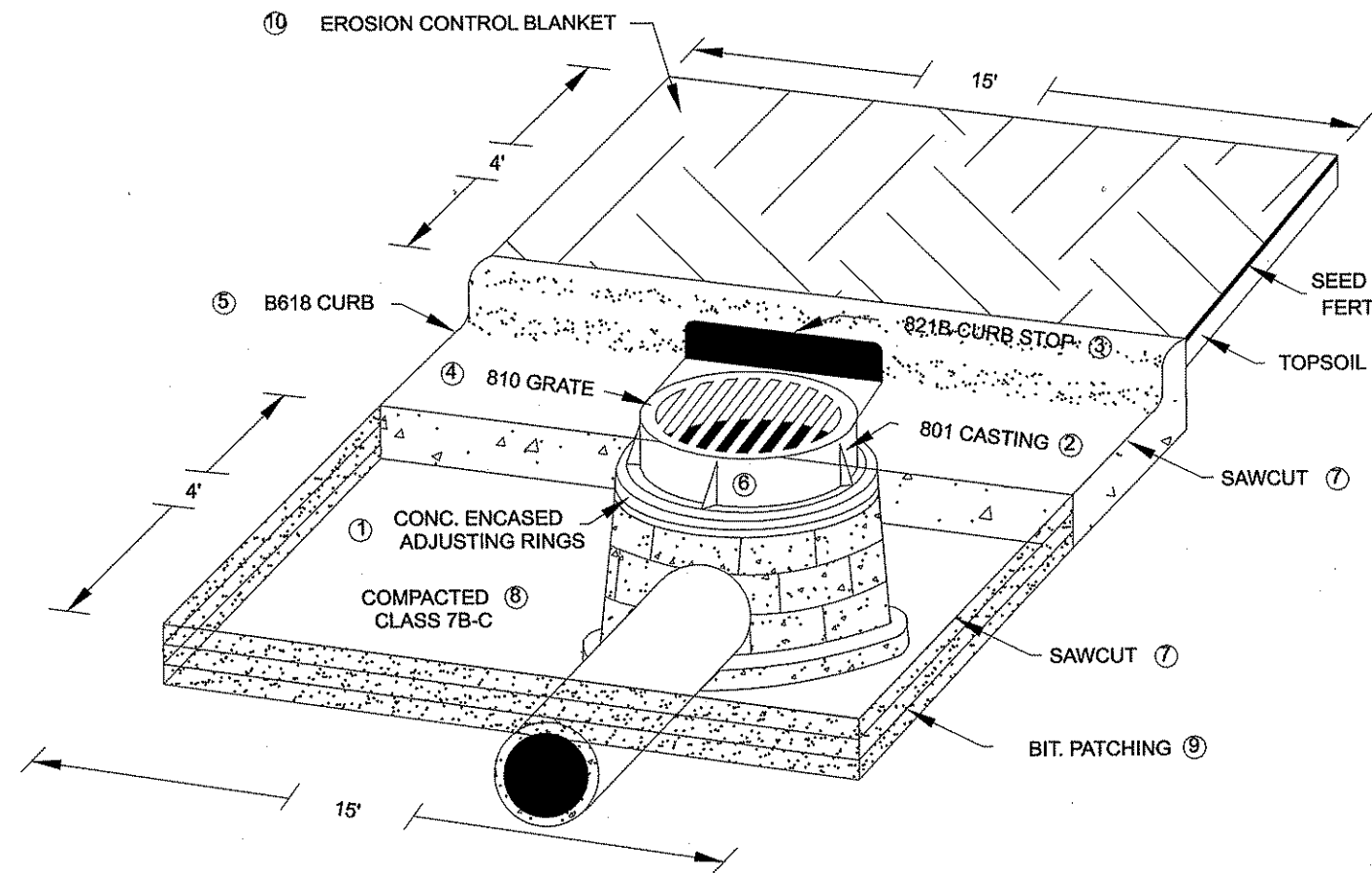


ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116

EXISTING AND PROPOSED TYPICAL SECTIONS
Sheet 3 of 6 Sheets

C.B. REPAIR DETAIL



- FOR TRAFFIC CONTROL AT CATCH BASIN REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS
- NOTES.. REFER TO MINNESOTA STANDARD PLATES MANUAL FOR THE FOLLOWING...
- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
 - ② RING AND FRAME CASTING 801 STANDARD PLATE 4126F
 - ③ CURB BOX 821B STANDARD PLATE 4161F
 - ④ GRATE CASTING 810 STANDARD PLATE 4149C
 - ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G
 - ⑥ INSTALLATION OF CATCH BASIN CASTINGS STANDARD PLATE 7111J
 - ⑦ SAWCUT BIT. / CONCRETE CURB FULL DEPTH.
 - ⑧ ADD AND COMPACT CLASS 5 AROUND REPAIRED STRUCTURE.
 - ⑨ REMOVE VAR. DEPTH BITUMINOUS 3"-7" / PATCH 2-LIFTS OF BITUMINOUS.
 - ⑩ REPLACE DISPLACED TOPSOIL- SEED, FERT. AND COVER WITH EROS. BLANKET. SEED AND FERT INNCCIDENTAL TO BLANKET.

CSAH 116 STORM SEWER REPAIRS																							
STRUCTURE	STATION	LEB / LWB	LT / RT	SAW BIT. PAVEMENT		REMOVE BIT. PAVEMENT		REPLACE BIT. PAVEMENT		SAW CONC. (CURB)		REMOVE C&G		REPLACE B618 C&G		ASSEMBLY	CASTING HT.	801 CASTING	GROUT	RECONSTRUCT PAY HT = TOP OF STRUCTURE TO BOTTOM OF CASTING	EROSION CONT. BLANKET	ACTION	
				LF	SY	TON	LF	LF	LF	EA	EA	EA	EA	EA	EA								EA
1	10+50	LWB	LT																			GROUT	
2	12+00	LEB	RT	23	4.5	1.04	4	15	15	A-1,2	6-11"	1	1	0.6	4.5							RE-RING / GROUT STRUCTURE	
3	12+00	LWB	LT	23	4.5	1.04	4	15	15	A-1,2	6-11"	1	1	0.4	4.5							RE-RING / GROUT STRUCTURE	
4	14+00	LEB	RT																			GROUT	
5	14+00	LWB	LT	23	4.5	1.04	4	15	15	A-1,2	6-11"	1	1	0.6	4.5							RE-RING / GROUT STRUCTURE	
6	16+00	LEB	RT																			GROUT	
7	18+00	LWB	LT																			GROUT	
8	18+00	LEB	RT	23	4.5	1.04	4	15	15	A-1,2	6-11"	1	1	0.8	4.5							RE-RING / GROUT STRUCTURE	
9	19+30	LEB	RT																			GROUT	
10	19+40	LEB	RT	23	4.5	1.04	4	15	15	A-1,2	6-11"	1	1	0.8	4.5							RE-RING / GROUT STRUCTURE	
TOTALS:				115	22.5	5.2	20	75	75			5	10	3.2	22.5								
ASSEMBLY	A1 =	11"																					
ASSEMBLY	A2 =	6"																					

PAY HT. = TOP OF STRUCTURE TO BOTTOM OF CASTING

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_116 (47-Rumbridge)\PLAN4 cb detail.dgn 3/3/2010 8:23:20 AM

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: *Charles Cadenhead*
 DATE: 3/26/10 LICENSE NO. #40416

DRAWN BY: JF DATE: 3/1/2010
 DESIGN BY: JF DATE: 3/1/2010
 CHECKED BY: JO DATE: 3/1/2010

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116



MILL AREA = 8666 SQ YDS

END 2" MILL & OVERLAY
STA 22+00

RUM RIVER
BRIDGE

STRUCTURE	CONDITION	ACTION
#1	FAIR	GROUT RINGS
#2	POOR	NEEDS 2-RINGS & GROUT
#3	POOR	NEEDS 1-RING & GROUT
#4	FAIR	GROUT RINGS
#5	POOR	NEEDS 2-RINGS & GROUT
#6	FAIR	GROUT RINGS
#7	FAIR	GROUT RINGS
#8	POOR	NEEDS 3-RINGS & GROUT
#9	FAIR	GROUT RINGS
#10	POOR	NEEDS 3-RINGS & GROUT

* NOTE - GATE VALVE LEB 21+50

BEGIN 2" MILL & OVERLAY
STA 10+00

BACK WATER BRIDGE



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_116 (47-Rumbridge)\PLAN5 plan sheet.dgn 3/3/2010 8:23:45 AM

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.

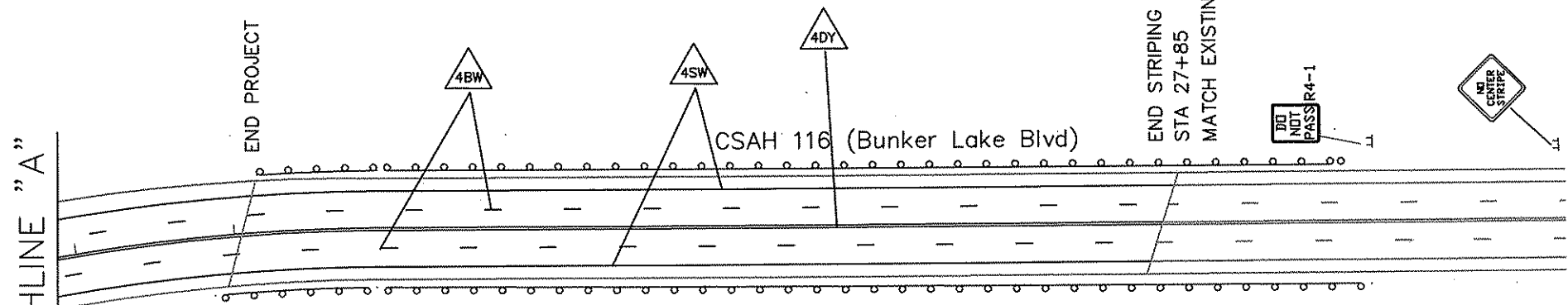
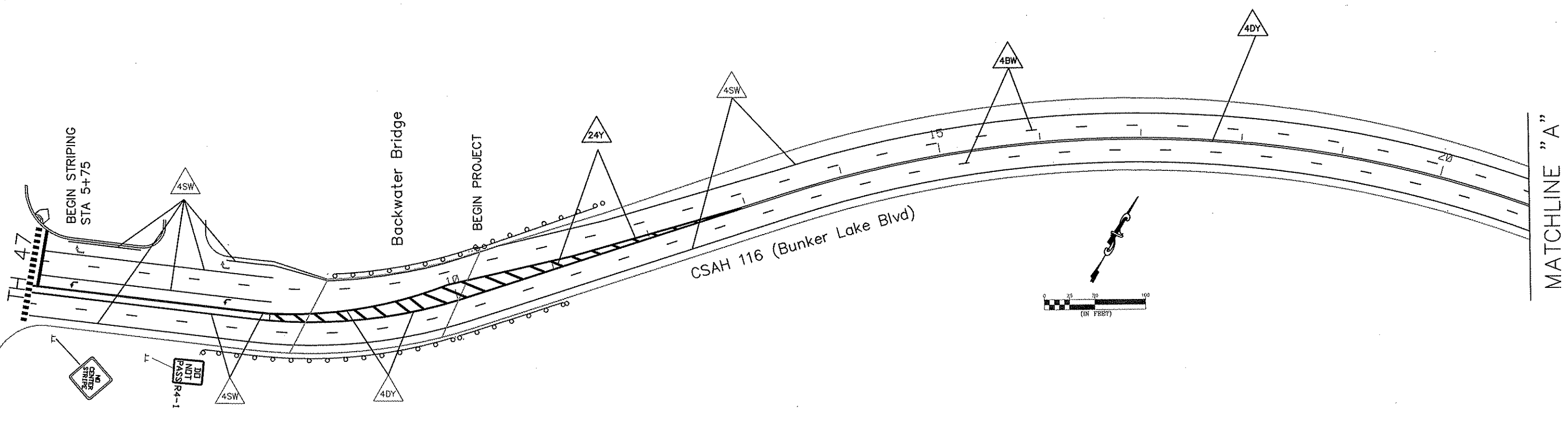
PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *Charles Cadenhead*
 DATE: 3/26/10 LICENSE NO. #4416

DRAWN BY: JF DATE: 3/1/2010
 DESIGN BY: JF DATE: 3/1/2010
 CHECKED BY: JO DATE: 3/1/2010

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116

PLAN SHEET
 STA 10+00 TO 22+00
 Sheet 5 of 6 Sheets



	4" SOLID LINE DOUBLE YELLOW EPOXY		PAVEMENT MESSAGE LEFT
	4" SOLID LINE YELLOW EPOXY		24" WHITE PERMANENT PAVEMENT MESSAGE (STOP BAR)
	4" SOLID LINE WHITE EPOXY		24" YELLOW PERMANENT PAVEMENT MESSAGE
	4" BROKEN LINE WHITE EPOXY		ZEBRA CROSSWALK

SIGN PANELS TYPE C						
M. U. T. C. D. CODE	SIZE	PANEL AREA FT ²	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT (to base of sign) FT.
V8-12	48' x 48'	16.00		2	2	7.0'
R4-1	24' x 30'	5.00		2	2	7.0'
R4-2	24' x 30'	5.00		0	2	7.0'

GENERAL 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".

- NOTES:**
1. LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. THE TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
 3. ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.

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: Charles Cadenhead
 SIGNATURE: *Charles Cadenhead*
 DATE: 3/26/10 REG. NO. 40416

DRAWN BY: MTH DATE: 2/03/10
 DESIGN BY: DATE: _____
 CHECKED BY: DATE: _____



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 10-14-116

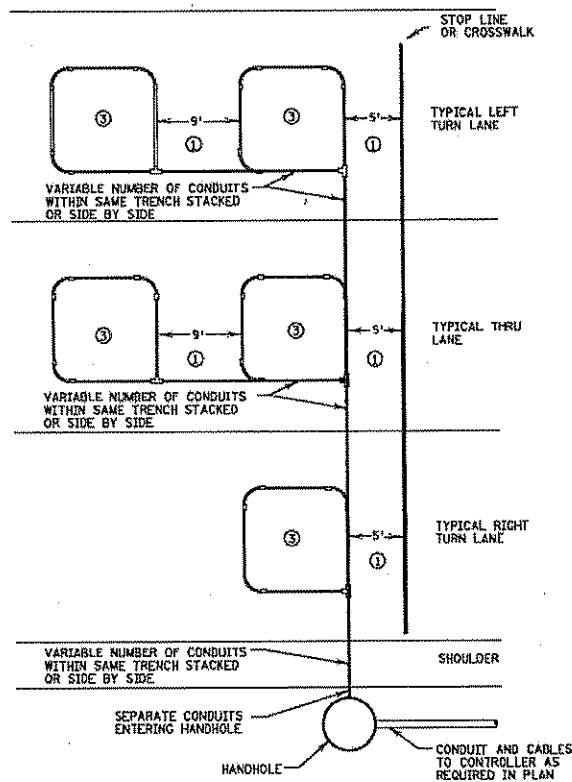
CSAH 116 (BUNKER LAKE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES
 Sheet 6 of 6 Sheets

NO	DATE	BY	CKD	APPR	REVISION

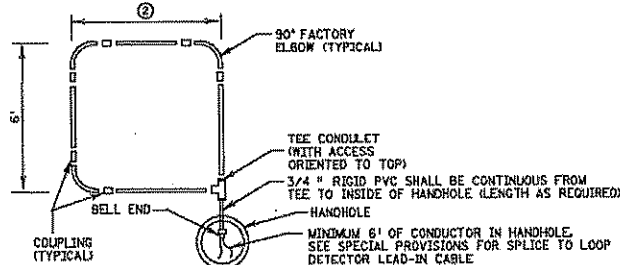
NAME: T:\Traffic\dwg\CSAH 116 (Bunker Lake Blvd)\from CSAH 83 to CSAH 17.dwg

MNDOT SIGNAL LOOP DETAIL

TYPICAL CROSS STREET RIGID PVC LOOP DETECTOR LAYOUT



TYPICAL RIGID PVC LOOP DETECTOR DETAIL

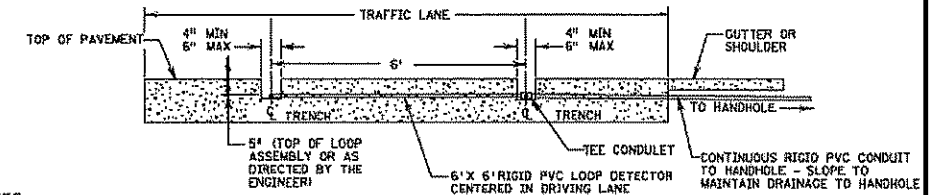


- NOTES:**
- SEE SHEET 2 FOR ADDITIONAL NOTES.
 - ① DIMENSION SHOWN IS TYPICAL. USE GIVEN DIMENSION INDICATED ON PLAN LAYOUT.
 - ② THIS DIMENSION MAY VARY ACCORDING TO LOOP SIZE ON PLAN LAYOUT.
 - ③ 6' x 6' RIGID PVC LOOP DETECTOR (CENTERED IN THE LANE).

NOTES:

1. ROADWAY LOOP DETECTOR CONDUCTORS AND LOOP DETECTOR LEAD IN CABLES SHALL BE IN ACCORDANCE WITH MN/DOT SPEC 3815.
2. THE 3/4" RIGID PVC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40. SEE SPEC. 3803.
3. THREE CORNERS OF EACH LOOP DETECTOR SHALL BE A 90° FACTORY ELBOW (6" RADIUS), THE FOURTH SHALL BE A RIGID PVC TEE CONDULET.
4. APPROVED RIGID PVC PRIMER AND CEMENT SHALL BE USED FOR THE RIGID PVC JOINTS.
5. ALL SLACK MUST BE REMOVED FROM LOOP DETECTOR CONDUCTORS WITHIN THE RIGID PVC.
6. THE ROADWAY LOOP DETECTOR CONDUCTORS (1/2" x 1/4") SHALL BE TWISTED THREE TURNS PER FOOT FROM THE RIGID PVC TEE CONDULET TO THE HANDHOLE.
7. ATTACH A FERROUS METAL ITEM IN OR ADJACENT TO THE TEE CONDULET COVER OR AS DIRECTED BY THE ENGINEER.
8. EACH LOOP DETECTOR CONDUIT TO THE HANDHOLE SHALL BE SLOPED TOWARDS THE HANDHOLE.
9. LOOP DETECTOR CONDUITS TO THE HANDHOLE MAY BE PLACED WITHIN THE SAME TRENCH.
10. THE LOOP DETECTOR ROADWAY CONDUCTORS SHALL EXTEND 6' TO 10' INTO THE HAND HOLE FOR SPLICING.
11. NO SPLICES ALLOWED IN CONDUIT.
12. IF BENDING OF THE RIGID PVC LOOP LEAD-IN CONDUIT IS REQUIRED, AN APPROPRIATE HEATING BLANKET OR DEVICE APPROVED BY THE ENGINEER SHALL BE USED. EXPOSED FLAME OR TORCHES ARE NOT ALLOWED.
13. TYPICAL SIZE OF LOOP DETECTORS ARE 6' x 6' AND 6' x 10'. REFER TO INTERSECTION LAYOUT FOR SPECIFIC LOOP DETECTORS TO BE PLACED.
14. ALL LOOP DETECTORS SHALL HAVE 4 TURNS OF CONDUCTORS.
15. THE LOOP DETECTOR ROADWAY CONDUCTORS AND THE LOOP DETECTOR LEAD-IN CABLE CONDUCTORS SHALL BE PROPERLY PREPARED AND CLEANED BEFORE SPLICING.
16. PRIOR TO FURNISHING AND INSTALLING THE APPROVED SPLICE KIT, THE CONTRACTOR SHALL SOLDER THE ENDS OF THE LOOP DETECTOR LEAD IN CONDUCTOR AND SHALL FURNISH AND INSTALL AN APPROPRIATE SIZED WIRE NUT TO THE SOLDERED ENDS PRIOR TO THE INSTALLATION OF THE SPLICE KITS.
17. LOOP DETECTORS SHALL BE SPLICED USING A MN/DOT APPROVED SPLICE KIT AS LISTED ON THE MN/DOT APPROVED PRODUCTS LIST (APL). MN/DOT APPROVED SPLICE KITS SHALL BE FURNISHED AND INSTALLED, EITHER ACCORDING TO MANUFACTURERS INSTRUCTIONS, OR BY AN ALTERNATIVE METHOD APPROVED BY THE ENGINEER.
18. SPLICE KITS SHALL BE FURNISHED AND INSTALLED IN HANDHOLES IN SUCH A MANNER AS TO ENSURE THAT EACH SPLICE KIT IS SUSPENDED AND/OR SECURED NEAR THE TOP OF THE HANDHOLE TO THE SATISFACTION OF THE ENGINEER. (PLACING SPLICE KITS ON TOP OF THE ELECTRICAL CABLES AND CONDUCTORS IS NOT ACCEPTABLE).

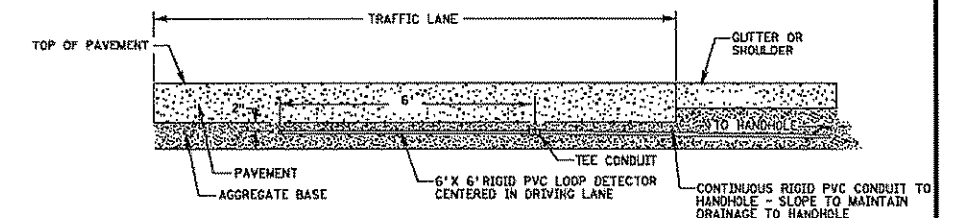
INPLACE PAVEMENT



NOTES:

1. USE THE LOOP DETECTOR TO BE PLACED FOR THE PURPOSE OF MARKING THE PAVEMENT LOCATION FOR THE MILLING OPERATION.
2. TO ACHIEVE FULL TRENCH DEPTH FOR CONDUIT PLACEMENT, MILL BEYOND THE DESIRED PAVEMENT MARKING.
3. PROVIDE A MINIMUM 5" CLEARANCE, MEASURED FROM THE TOP OF THE FINISHED PAVEMENT TO HIGHEST POINT OF LOOP ASSEMBLY (INCLUDING CONDUIT).
4. AN AIR COMPRESSOR UNIT (50 HP) IS REQUIRED FOR REMOVING ALL LOOSE MATERIAL FROM TRENCH PRIOR TO TACK COAT APPLICATION.
5. APPLY A TACK COAT AT A UNIFORM RATE TO THE BOTTOM AND EDGES OF THE MILLED AREA. USE AN EMULSIFIED ASPHALT PER SPEC. 2357.2A.
6. MIXTURE USED TO FILL THE RETROFIT LOOP DETECTOR TRENCHES SHALL MEET THE REQUIREMENTS OF MN/DOT SPECIFICATION 2360. AGGREGATE SIZE A OR B WILL BE ALLOWED WHEN 2360 IS UTILIZED. OTHER WEARING COURSE MIXTURE TYPES ARE ALLOWED WHEN APPROVED BY THE ENGINEER.
7. COMPACTION SHALL BE OBTAINED BY THE ORDINARY COMPACTION METHOD. BACKFILL THE TRENCH WITH A MINIMUM OF TWO LIFTS AND COMPACT EACH LIFT. BEFORE COMPACTING THE FIRST LIFT ENSURE THAT THERE IS ADEQUATE MIXTURE ON EACH SIDE AND ABOVE THE CONDUIT SO THAT THE CONDUIT IS NOT DAMAGED DURING COMPACTION OPERATIONS.
8. THE COMPACTION MIXTURE IN THE TRENCH SHOULD BE LEFT 1/4" TO 1/2" ABOVE THE ADJACENT PAVEMENT SURFACE TO PROVIDE FOR ADDITIONAL COMPACTION BY TRAFFIC.
9. WHEN LOOP DETECTORS ARE MILLED INTO CONCRETE SURFACES, REMOVE RUBBLE, SANDBLAST AND AIR BLAST THE TRENCH TO REMOVE DEBRIS. FILL THE TRENCH WITH AN APPROVED MATERIAL LISTED ON THE MN/DOT CONCRETE UNIT'S WEBSITE FOR "PACKAGED DRY RAPID HARDENING CEMENTITIOUS MATERIALS FOR CONCRETE REPAIRS".
10. MILLING IS REQUIRED FOR ALL RIGID PVC LOOP INSTALLATIONS. WHEN LOOPS ARE MILLED INTO EXISTING MILLED SURFACE THAT WILL BE OVERLAIN WITH BITUMINOUS, THE MINIMUM TRENCH DEPTH SHALL BE NO LESS THAN THE HIGHEST LOOP ASSEMBLY IN THE TRENCH.
11. WHEN MILLING INTO EXISTING BITUMINOUS SURFACE, BE ADVISED THAT CONCRETE MAY BE ENCOUNTERED UNDER THE BITUMINOUS SURFACE.

NEW PAVEMENT



NOTES:

1. OBTAIN THE REQUIRED COMPACTION OF THE AGGREGATE BASE AFTER PLACEMENT OF LOOP DETECTOR AND LEAD-IN CONDUIT.
2. THE DEPTH OF THE LOOP MEASURED FROM THE TOP OF THE AGGREGATE BASE TO THE TOP OF THE CONDUIT SHALL NOT EXCEED 2".

APPROVED DECEMBER 11, 2009

M. Rakus
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**PREFORMED RIGID PVC CONDUIT
LOOP DETECTOR**
LAYOUT DETAILS

SPECIFICATION
REFERENCE
2357
2360
2565

STANDARD
PLATE
NO.
8132A
1 OF 3

APPROVED DECEMBER 11, 2009

M. Rakus
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**PREFORMED RIGID PVC CONDUIT
LOOP DETECTOR**
LAYOUT NOTES

SPECIFICATION
REFERENCE
2357
2360
2565

STANDARD
PLATE
NO.
8132A
2 OF 3

APPROVED DECEMBER 11, 2009

M. Rakus
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**PREFORMED RIGID PVC CONDUIT
LOOP DETECTOR**
TYPICAL INSTALLATION

SPECIFICATION
REFERENCE
2357
2360
2565

STANDARD
PLATE
NO.
8132A
3 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_116 (47-Rumbridge)\PLAN7 signal loops.dgn 8:24:08 AM

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: *Charles Cadenhead*
DATE: 3/26/10 LICENSE NO. #40416

DRAWN BY: JF DATE: 3/1/2010
DESIGN BY: JF DATE: 3/1/2010
CHECKED BY: JO DATE: 3/1/2010

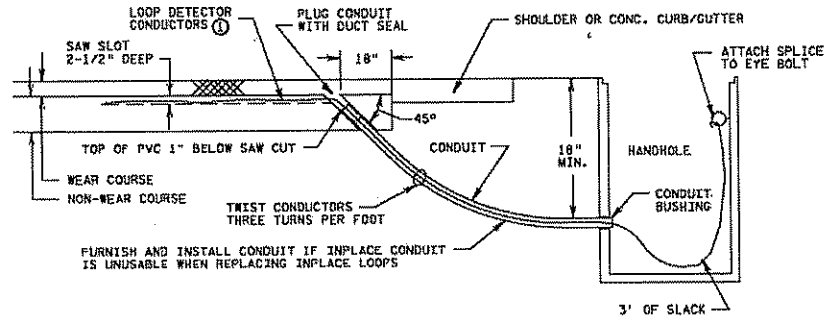
**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT NO. 10-14-116

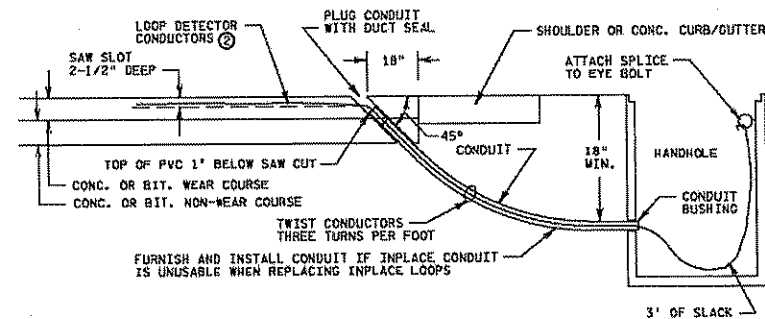
MISC. SIGNAL LAYOUTS
6A OF 6E

MNDOT SIGNAL LOOP DETAIL

MILL & OVERLAY CONSTRUCTION



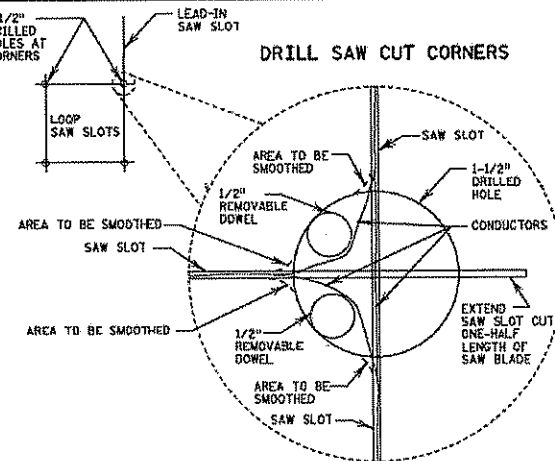
INPLACE ROADWAYS



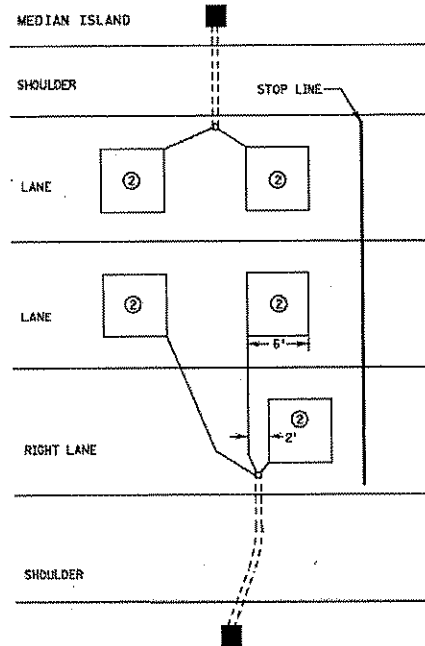
NOTES:

- SEE SHEET 3 FOR ADDITIONAL NOTES
- ① SAW CUT LOOP DETECTOR BETWEEN NON-WEAR AND WEAR COURSES
- ② SAW CUT LOOP DETECTOR INTO WEAR COURSE OR CONC. SURFACE

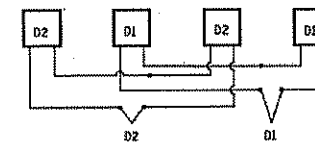
DRILL SAW CUT CORNERS



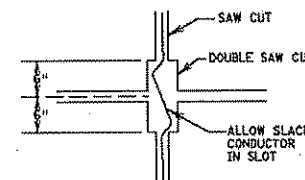
TYPICAL APPROACH DETECTORS



MULTIPLE LOOP SERIES HOOKUP



JOINT/CRACK INSTALLATION



NOTES:

- SEE SHEET 3 FOR ADDITIONAL NOTES.
- ① LOOP LEADS SHALL NOT CROSS TRANSVERSE JOINTS IN CONCRETE PAVEMENT. MOVE A LOOP TO THE NEXT PANEL AND INSTALL A SEPARATE CONDUIT TO THE HANDHOLE IF ALL LOOPS WILL NOT FIT ONE PANEL AND MAINTAIN SEPARATIONS SHOWN.
- ② SEE PLAN LAYOUT FOR ACTUAL DETECTOR SIZE AND PLACEMENT LOCATION.

NOTES:

1. WHERE LOOP DETECTORS ARE TO BE FURNISHED AND INSTALLED AND THE ROADWAYS ARE TO BE SURFACED WITH NEW BITUMINOUS PAVEMENT, THE LOOP DETECTORS SHALL BE SAW CUT IN THE ROADWAY AND SEALANT MATERIAL PLACED TO THE SATISFACTION OF THE ENGINEER BEFORE THE BITUMINOUS WEARING COURSE IS PLACED BY THE BITUMINOUS PAVING CONTRACTOR; HOWEVER, THE ENGINEER MAY DIRECT THE CONTRACTOR NOT TO PLACE THE LOOP DETECTORS IN THE ROADWAY UNTIL PAVEMENT MARKINGS AND LANE STRIPING HAS BEEN DETERMINED AND/OR PLACED.
2. AREA TO BE SAW CUT SHALL BE THOROUGHLY CLEANED BY SWEEPING, WASHING, OR BLOWING SURFACE CLEAR OF DIRT AND DEBRIS.
3. LOOP DETECTORS AND LOOP DETECTOR HOME-RUN WILL BE MARKED ON PAVEMENT BY THE ENGINEER OR BY THE CONTRACTOR AS DIRECTED.
4. LOOP DETECTOR SAW CUTS SHALL BE A UNIFORM DEPTH OF 2-1/2" +/- 1/4" AND 1/8" WIDER THAN THE OUTER DIAMETER OF THE TUBING.
5. THE CONTRACTOR SHALL AVOID CROSSING CONCRETE JOINTS OR CRACKS. HOWEVER, IF A CONCRETE JOINT OR CRACK MUST BE CROSSED, THE CONTRACTOR SHALL USE THE JOINT/CRACK DETAIL SHOWN ON SHEET 2 OF 3.
6. ALL LOOP CORNERS SHALL BE SQUARE. CORNERS SHALL BE DRILLED WITH 1-1/2" DIAMETER DRILL TO A DEPTH OF 1/4" DEEPER THAN SAW CUT. CORNERS SHALL BE ROUNDED TO PREVENT DAMAGE TO THE CONDUCTORS OR TUBING.
7. ALL LOOP DETECTOR SAW CUTS SHALL BE CLEANED AND FLUSHED OF FOREIGN MATERIAL USING A COMBINATION OF AIR AND WATER, AND DRIED WITH COMPRESSED AIR PRIOR TO INSTALLATION OF LOOP DETECTOR CONDUCTORS. DRY SAWING DOES NOT REQUIRE WATER FLUSHING, HOWEVER, THE SAW CUT SHALL BE CLEANED OF ALL FOREIGN MATERIAL.
8. THE CONTRACTOR SHALL FURNISH AND INSTALL FROM THE END OF THE SAW-CUT TO THE ADJACENT HANDHOLE A MINIMUM OF A 3/4" CONDUIT FOR A SINGLE LOOP DETECTOR OR AN APPROPRIATE SIZED CONDUIT BASED ON N.E.C. FILL RATINGS FOR 2 OR MORE LOOP DETECTORS.
9. BEFORE INSTALLATION OF LOOP DETECTOR CONDUCTORS, THE CONTRACTOR SHALL PLACE A BEAD OF APPROVED LOOP DETECTOR SEALANT IN SAW CUT SLOT TO WITHIN 6" OF THE CONDUIT THAT RUNS FROM THE END OF THE SAW-CUT TO THE ADJACENT HANDHOLE.
10. THE CONTRACTOR SHALL PLACE THE CLEAN AND DRIED LOOP DETECTOR CONDUCTORS CONTINUOUS WITH 4 TURNS OF WIRE AND WOUND IN A CLOCKWISE DIRECTION.
11. THE LOOP DETECTOR CONDUCTORS SHALL BE PUSHED TO THE BOTTOM OF THE SAW-CUT WITH A BLUNT INSTRUMENT TO AVOID DAMAGING TUBING OR CONDUCTORS. THE CONTRACTOR SHALL INSTALL 3/4" DIAMETER BY 2" BACKER ROD AT 2' INTERVALS TO ENSURE THAT THE CONDUCTORS ARE AT THE BOTTOM OF THE SAW CUT.
12. LOOP DETECTOR CONDUCTORS SHALL BE TWISTED 3 TURNS PER FOOT THROUGH THE CONDUIT TO THE SPLICE IN THE HANDHOLE.
13. LOOP DETECTOR LEAD-IN CONDUIT SHALL BE SEALED WITH DUCT SEAL OR OTHER APPROVED SEAL TO PREVENT LOOP DETECTOR SEALANT FROM ENTERING CONDUIT.
14. SEAL LOOP DETECTOR CONDUCTORS WITH A MN/DOT APPROVED LOOP DETECTOR SEALANT AS LISTED ON THE MN/DOT APPROVED PRODUCTS LIST (APL) AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
15. THE LOOP DETECTOR ROADWAY CONDUCTORS AND THE LOOP DETECTOR LEAD-IN CABLE CONDUCTORS SHALL BE PROPERLY PREPARED AND CLEANED BEFORE SPLICING. ROUGHEN CABLE JACKET WITH SAND PAPER TO ENSURE GOOD ADHESION WITH SPLICE KIT.
16. LOOP DETECTORS SHALL BE SPLICED USING AN APPROVED SPLICE KIT AS LISTED ON THE MN/DOT APPROVED PRODUCTS LIST (APL). MN/DOT APPROVED SPLICE KITS SHALL BE INSTALLED, EITHER ACCORDING TO MANUFACTURER'S INSTRUCTIONS, OR BY AN ALTERNATE METHOD APPROVED BY THE ENGINEER.
17. PRIOR TO FURNISHING AND INSTALLING THE APPROVED LOOP DETECTOR SPLICE KIT, THE CONTRACTOR SHALL SOLDER THE ENDS OF THE LOOP DETECTOR LEAD-IN CONDUCTORS TO THE ROADWAY LOOP DETECTOR CONDUCTORS, AND SHALL FURNISH AND INSTALL AN APPROPRIATE SIZED WIRE NUT TO THE SOLDERED ENDS PRIOR TO INSTALLATION OF THE SPLICE KIT.
18. SPLICE KITS SHALL BE FURNISHED AND INSTALLED IN HANDHOLES IN SUCH A MANNER AS TO ENSURE THAT EACH SPLICE KIT IS SUSPENDED AND/OR SECURED NEAR THE TOP OF THE HANDHOLE TO THE SATISFACTION OF THE ENGINEER (PLACING SPLICE KITS ON TOP OF THE ELECTRICAL CABLES AND CONDUCTORS IS NOT ACCEPTABLE).

APPROVED DECEMBER 11, 2009 <i>M. Rakus</i> STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION SAW CUT LOOP DETECTORS LOOP/HANDHOLE INSTALLATION	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8130E 1 OF 3	APPROVED DECEMBER 11, 2009 <i>M. Rakus</i> STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION SAW CUT LOOP DETECTORS DETAILS	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8130E 2 OF 3	APPROVED DECEMBER 11, 2009 <i>M. Rakus</i> STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION SAW CUT LOOP DETECTORS NOTES	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8130E 3 OF 3
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NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\10-01-00\CSAH_116_(47-Rumbridge)\PLAN7 signal loops.dgn					
DATE: 3/3/2010 8:24:20 AM					

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: *Charles Cadenhead*
 DATE: 3/26/10 LICENSE NO. #40416

DRAWN BY: JF DATE: 3/1/2010
 DESIGN BY: JF DATE: 3/1/2010
 CHECKED BY: JO DATE: 3/1/2010

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-14-116

MISC. SIGNAL LAYOUTS
 6B OF 6E

NOTES:

- 1) LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY Mn/DOT DISTRICT TRAFFIC OFFICE PERSONNEL AND BY ANOKA COUNTY PERSONNEL.
- 2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 3) EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION HAND/WALKING PERSON INDICATION.
- 4) ALL RED (CIRCULAR AND ARROW) SIGNAL INDICATIONS SHALL BE LED.
- 5) ALL NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND SHALL CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
- 6) INPLACE HANDHOLES 2,3,4,13,14,15 AND 16 SHALL ALSO CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
- 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO.2565.511).
- 8) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING STATE AND COUNTY FURNISHED MATERIALS.
- 9) SEE SPECIAL PROVISIONS AND DETAILS REGARDING CONSTRUCTION STAGING INVOLVING TRAFFIC SIGNAL OPERATION AND CONSTRUCTION DURING ROAD CONSTRUCTION.
- 10) REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM SHALL BE MEASURED AND PAID FOR AS ITEM NO. 0565.601. SEE SPECIAL PROVISIONS.
- 11) ALL NEW LOOP DETECTORS SHALL BE INSTALLED IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
- 12) A - 3/4" HALF COUPLING AND CONDUIT OUTLET BODY FOR FUTURE EVP DETECTOR SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM. A 1-3/c#20 CABLE SHALL BE WIRED DIRECT TO THE CONDUIT OUTLET BODY CONTINUOUS WITHOUT SPLICES FROM CONTROLLER CABINET. 2-1/c#14 CONDUCTORS SHALL BE WIRED FROM THE CONDUIT OUTLET BODY TO THE TERMINAL BLOCK IN EACH POLE BASE FOR FUTURE EVP LIGHT.

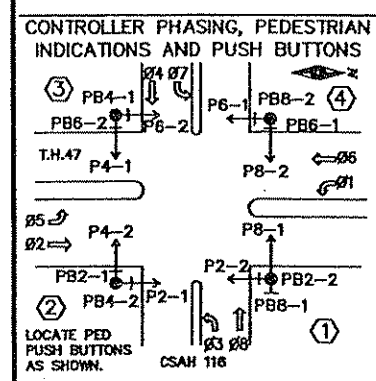
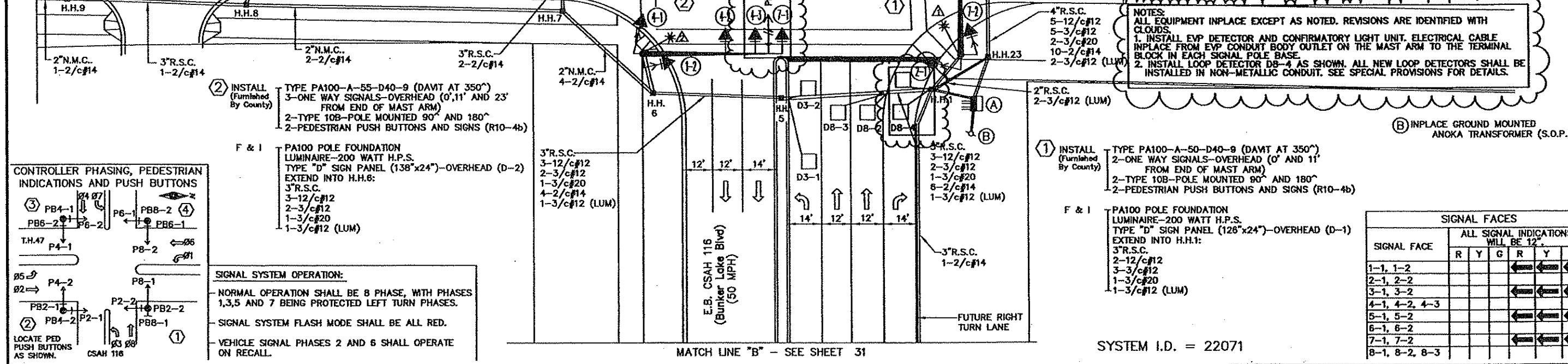
LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION
D1-1	6x6	40'
D1-2	6x6	10'
D2-1	6x6	300'
D2-2	6x6	150'
D3-1	6x6	40'
D3-2	6x6	10'
D4-1	2-6x6	475'
D4-2	6x15	0'
D4-3	6x6	20'
D4-4	6x6	20'
D5-1	6x6	40'
D5-2	6x6	10'
D6-1	8x8	300'
D6-2	6x6	150'
D7-1	6x6	40'
D7-2	6x6	10'
D8-1	2-6x6	475'
D8-2	6x6	20'
D8-3	6x6	20'
D8-4	2-6x6	5', 15'

NOTE: LOCATION-DISTANCE FROM CROSSWALK TO FRONT OF LOOP DETECTOR.

* = INPLACE LOOP DETECTOR - REUSE AND MAINTAIN INPLACE. SEE SPECIAL PROVISIONS.

MATCH LINE - STATION 57+35 (N.B.)

MATCH LINE - STATION 63+35 (N.B.)



SIGNAL SYSTEM OPERATION:

- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 AND 7 BEING PROTECTED LEFT TURN PHASES.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

NO	DATE	BY	CHKD	APPR	REVISION
1	04/21/06	MAS	AJW	AJW	BID ADDENDUM #1 ADDED EVP DETECTOR AND CONFIRM. LIGHT

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: ANTHONY J. WISNICKI
 SIGNATURE: *Anthony J. Wisnicki*
 DATE: 5/2/06 LICENSE NO. 2312B

ANOKA COUNTY HIGHWAY DISTRICT

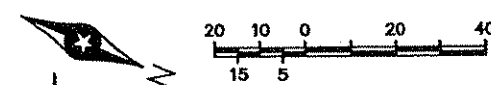
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 DESIGN BY: AJW DATE: 03/22/06
 CHECKED BY: AJW DATE: 03/22/06

STATE AID PROJECT NO. _____
 STATE PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 10-14-116

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

MISCELLANEOUS SIGNAL SHEETS

Sheet 6C of 6E Sheets

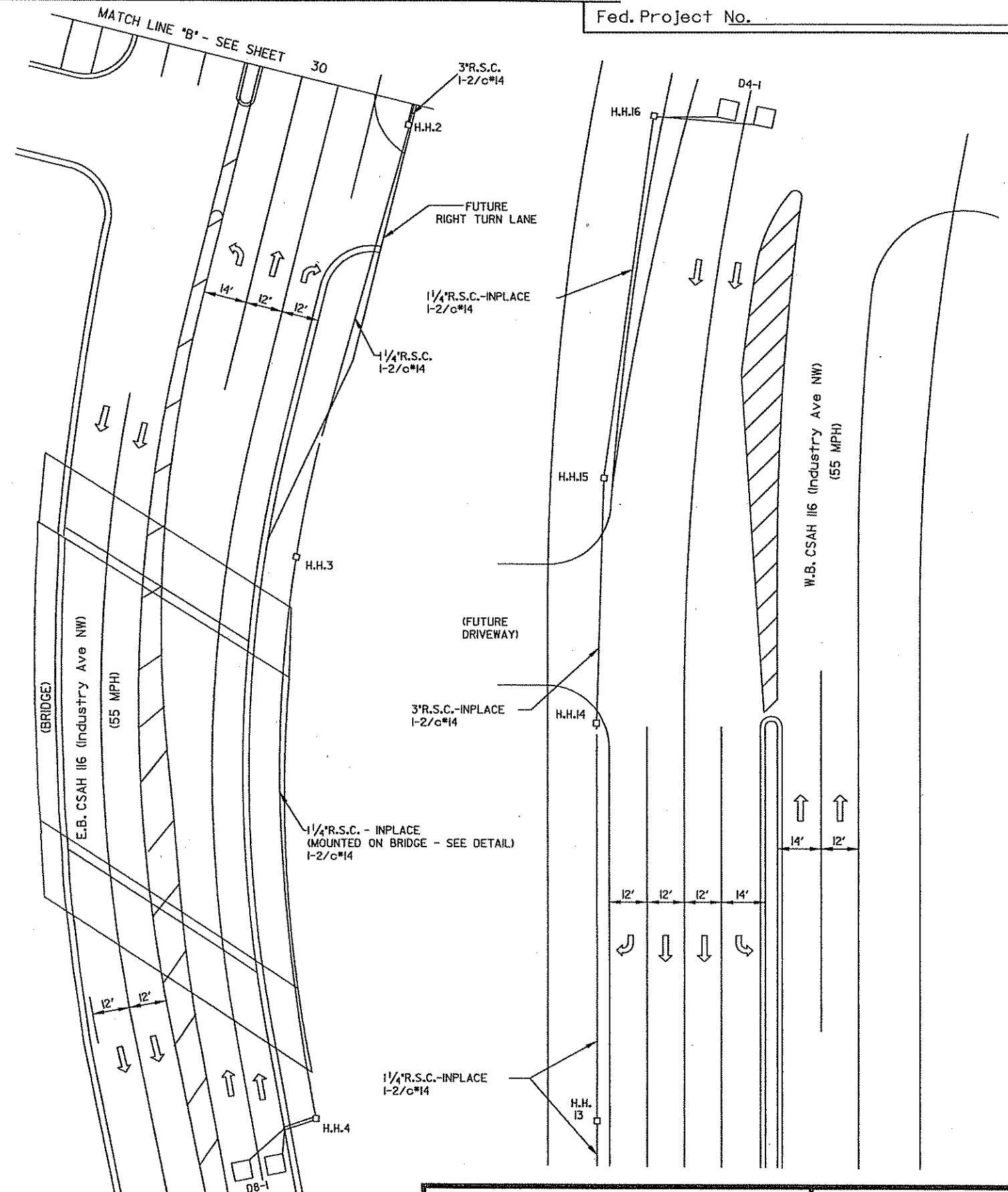
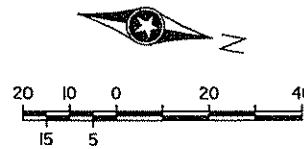
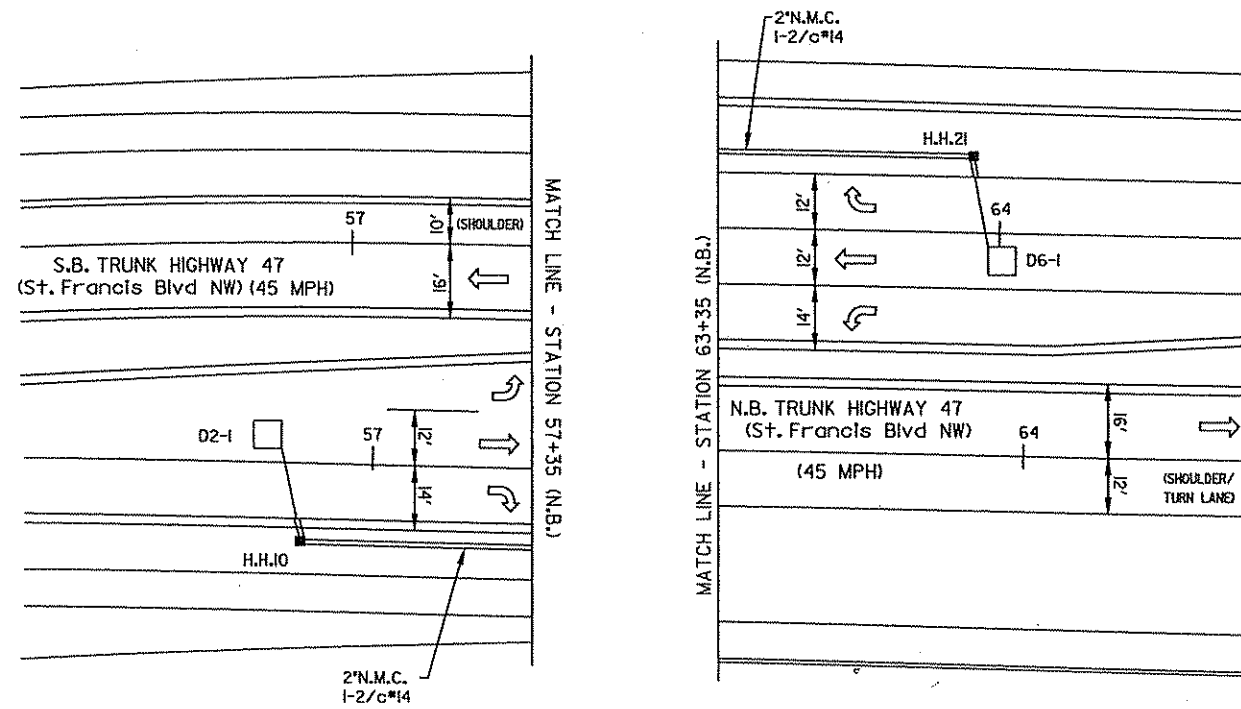


- (A) EQUIPMENT PAD - SEE DETAILS
 INSTALL CONTROLLER AND CABINET (FURNISHED BY STATE)
 SERVICE CABINET - SEE DETAILS
- CONTROLLER CABINET TO H.H.1: 4" R.S.C., 5-12/c#12, 5-3/c#12, 2-3/c#20, 9-2/c#14
- SERVICE CABINET TO H.H.23: 2" R.S.C., 4-3/c#12 (LUM)
- BETWEEN SERVICE CABINET AND CONTROLLER CABINET: 2" R.S.C., 2-1/c#6, 1-1/c#5 INS. GR.
- CONTROLLER CABINET TO H.H.23: 4" R.S.C., 5-12/c#12, 5-3/c#12, 2-3/c#20, 10-2/c#14
- SERVICE CABINET TO S.O.P.: 2" R.S.C., 3-1/c#2 (SOLID COPPER CABLE)
- STUB OUT 1-2" R.S.C. AND 1-3" R.S.C. FROM CONTROLLER CABINET TO SOUTH (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)

SYSTEM I.D. = 22071

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY

Fed. Project No. _____



PLOTTED/REVISED: 17-DEC-2009-06:50

DISTRICT #: METRO
 PLOT NAME: T2207112.sgl
 PATH & FILENAME: \\s:\p\working\basal\ch\dot\81062\T2207112.sgl.dgn

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments
2	JMG	8/97	Record Drawing

ELECTRICAL ENGINEER CERTIFICATION
 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.
 Date: 5/14/96 Reg. No. 5859

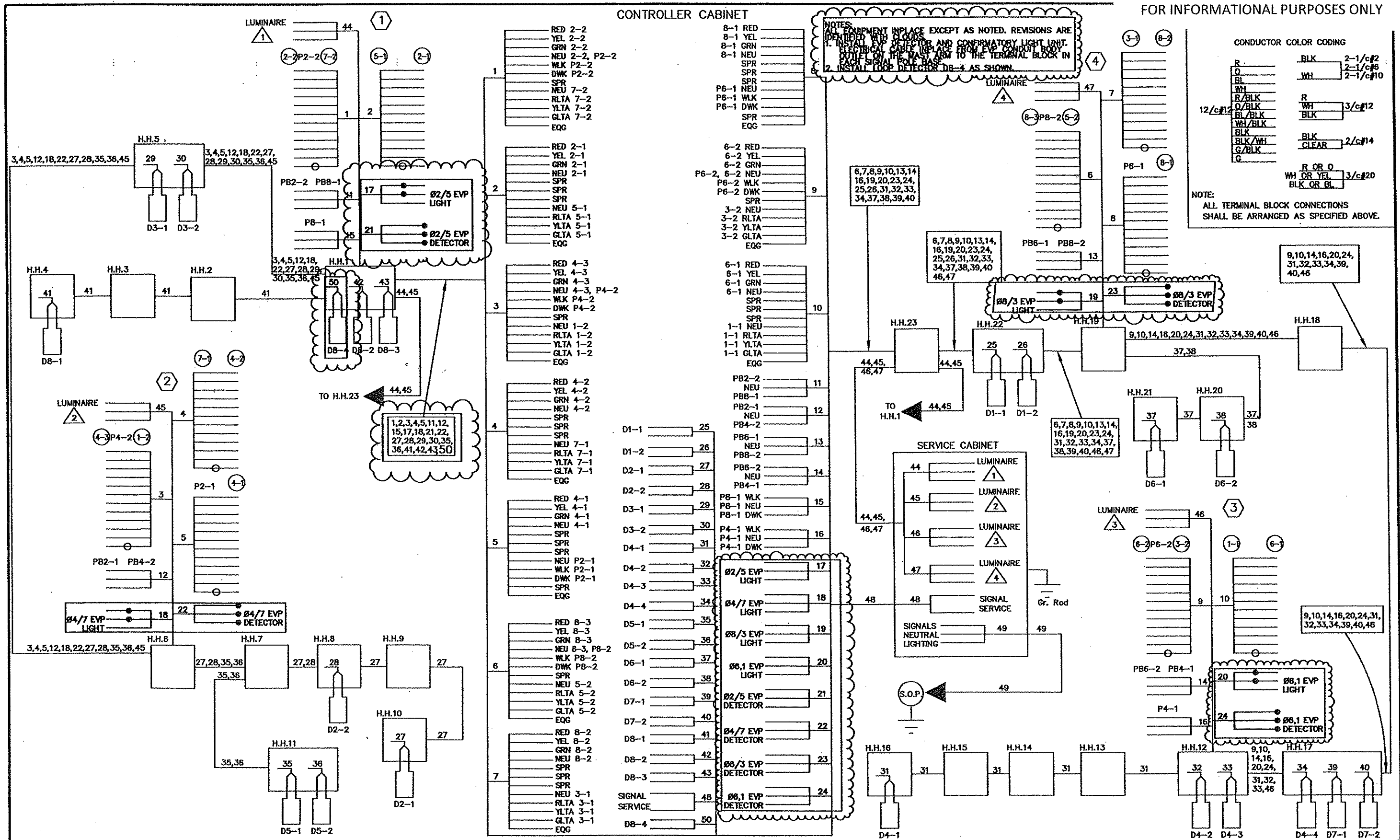
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
 Date: 5/14/96 Reg. No. 22457



ANOKA COUNTY, CITIES OF ANOKA
 S.A.P. 02-716-01 S.P. 0206-47

STATE AID PROJECT NO. _____
 STATE PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 10-14-116

MISCELLANEOUS SIGNAL SHEETS
 Sheet 6D of 6E Sheets



NO	DATE	BY	CHKD	APPR	REVISION
1	04/21/06	MAS	AJW	AJW	BID ADDENDUM #1 ADDED EVP DETECTOR AND CONFIRM. LIGHT

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: ANTHONY J. JANIECKI
 SIGNATURE: *Anthony Janiecki*
 DATE: 3/21/06 LICENSE NO. 23128

DRAWN BY: MAS DATE: 03/22/06
 DESIGN BY: AJW DATE: 03/22/06
 CHECKED BY: AJW DATE: 03/22/06



ANOKA COUNTY
 HIGHWAY D

STATE AID PROJECT NO. _____
 STATE PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 10-14-116

MISCELLANEOUS SIGNAL SHEETS
 Sheet 6E of 6E Sheets