

CSAH 7		STATEMENT OF ESTIMATED QUANTITIES		
ITEM NO.	ITEM	NOTES	UNIT	TOTAL EST. QUANT.
2011.601	CONSTRUCTION SURVEYING		LUMP SUM	1
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE CURB AND GUTTER	7	LN FT	2259
2104.503	REMOVE CONCRETE WALK		SQ FT	2862
2104.503	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ FT	1235
2104.505	REMOVE BITUMINOUS PAVEMENT	1	SQ YD	867
2104.509	REMOVE MANHOLES OR CATCH BASINS		EACH	19
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LN FT	613
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	8	LN FT	2864
2105.501	COMMON EXCAVATION	16	CU YD	100
2105.525	TOPSOIL BORROW (LV)	9	CU YD	93
2211.501	AGGREGATE BASE CLASS 5	15	TON	180
2232.501	MILL BITUMINOUS SURFACE (3.0")	11	SQ YD	6316
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	733
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE(4,E)		TON	1131
2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (4,B)	1	TON	130
2360.503	TYPE SP 12.5 NON WR CRS MX(4,B)1.5" THICK	15	SQ YD	584
2360.503	TYPE SP 12.5 WEAR CRS MX(4,E)1.5" THICK	15	SQ YD	584
2504.602	ADJUST GATE VALVE	7	EACH	18
2506.501	CONST DRAINAGE STRUCTURE DESIGN G		LN FT	5
2506.501	CONST DRAINAGE STRUCTURE DESIGN H		LN FT	4
2506.503	RECONSTRUCT DRAINAGE STRUCTURE		LN FT	10
2506.516	CASTING ASSEMBLY	13	EACH	19
2506.602	GROUT CATCH BASIN OR MANHOLE		EACH	5
2521.501	6" CONCRETE WALK		SQ FT	2862
2531.501	CONCRETE CURB & GUTTER DESIGN B612		LN FT	2148
2531.501	CONCRETE CURB & GUTTER DESIGN B624		LN FT	111
2531.507	6" CONCRETE DRIVEWAY PAVEMENT	12	SQ YD	137
2531.618	TRUNCATED DOMES	7	SQ FT	96
2563.601	TRAFFIC CONTROL	2,3,5	LUMP SUM	1
2565.602	NMC LOOP DETECTORS 6' X 6'	4	EACH	9
2573.530	STORM DRAINAGE INLET PROTECTION	10	EACH	13
2575.505	SODDING TYPE SALT RESISTANT	14	SQ YD	846
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	6A	LN FT	220
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	6B	LN FT	220
2582.502	4" SOLID LINE WHITE-EPOXY	7	LN FT	2280
2582.502	4" BROKEN LINE WHITE-EPOXY	7	LN FT	500
2582.502	4" SOLID LINE YELLOW - EPOXY	7	LN FT	250
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	7	LN FT	1080
2582.603	24" WHITE PREF THERMOPLASTIC	7	LN FT	80
2582.603	24" YELLOW PREF THERMOPLASTIC	7	LN FT	35
2582.618	3 X 6 ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	7	SQ FT	432

CSAH 7		CONSTRUCTION NOTES
1	ITEM FOR PATCHING OR REMOVING AROUND NEW CURB AREA	
2	DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE AND BUMP/BUMP AHEAD SIGNS TO BE INPLACE	
3	MARKINGS SHALL BE IN PLACE WITH IN 72 HOURS OF FINAL MAINLINE PAVING	
4	ONLY NEED TO REPLACE IF HIT DURING MILLING OPERATION	
5	ALL TRAFFIC CONTROL DEVICES AND METHODS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL	
6A	SINGLE WHITE LANE LINE SKIPS WILL BE PLACED AS SOON AS POSSIBLE AFTER MILLING AND PAVING OPERATIONS	
6B	DOUBLE YELLOW CENTER LINE SKIPS WILL BE PLACED AS SOON AS POSSIBLE AFTER MILLING AND PAVING OPERATIONS	
7	INSTALL AT EVERY CROSSING	
8	SAW 2' FROM PROPOSED LIP OF CONCRETE CURB AND GUTTER	
9	ITEM USED AT LOCATION FOR SOD AREAS	
10	ALL DRAINAGE STRUCTURES ON THIS ROAD SEGMENT MUST HAVE INLET PROTECTION	
11	DETAIL MILLING AROUND MANHOLE AND CATCH BASINS IS INCIDENTAL TO THIS ITEM	
12	HIGH EARLY CONCRETE TO BE USED FOR THIS ITEM (ALL COMMERCIAL DRIVEWAYS TO BE CONSTRUCTED IN 2 STAGES)	
13	ITEM INCLUDES FURNISH AND INSTALL	
14	ITEM TO BE USED BEHIND NEW CURB	
15	ITEM FOR STREET APPROACHES	
16	ITEM FOR GRADING BOULEVARDS AND STREET APPROACHES	

CSAH 7		BASIS OF PLANNED QUANTITIES		
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		.05 GAL / SQ YD	
2361.501	TYPE SP 12.5 WEARING COURSE MIX (4, E)		115/SQ.YD./IN THICKNESS	
2362.502	TYPE SP 12.5 NON-WEARING COURSE MIX (4, B)		115/SQ.YD./IN THICKNESS	
2581.501	REMOVABLE PREFORMED PLASTIC MARKING		2' AT 50' INTERVALS FOR SKIPS	

CSAH 7		STRUCTURE REPAIRS														
STRUCTURE	STATION	OFFSET	FURNISH AND INSTALL CASTING		GROUT REMOVE C&G	SAW BITUMINOUS PAVEMENT	SAW CONC. PAVEMENT OR CONC. CURB & GUTTER	REMOVE BIT. PAVEMENT	REMOVE CONC. WALK	REPLACE 6" CONC. WALK	RECONSTRUCT DRAINAGE STR. (RING HT)	CONSTRUCT DRAIN STR G	CONSTRUCT DRAIN STR H	REPLACE B624 C&G	REPLACE BIT. PAVEMENT	ACTION
			EA	EA LF												
100	100+86.0	0.8														NONE
101	104+16.2	1.0														NONE
102	107+33.8	1.1														NONE
103	107+48.6	-0.5			1											GROUT
104	107+59.3	0.8			1											GROUT
105	109+93.0	0.8														NONE
106	110+80.9	0.9		1		32		7.1			0.2					2.5 RE-RING
107	114+09.2	1.1														NONE
108	115+84.7	-0.9														NONE
200	100+54.7	-21.0														NONE
201	100+67.8	-7.3			1											GROUT
202	100+59.3	21.0														NONE
203	102+52.4	21.0		1							0.6					RE-RING
204	102+62.3	-21.0		1							0.8					RE-RING
205	102+70.8	58.7														NONE
206	102+67.1	-11.1														NONE
207	104+22.0	-41.3		1		32		7.1			0.8					2.5 RE-RING
208	104+31.3	-10.7														NONE
209	104+53.6	-21.0		1							0.4					RE-RING
210	107+08.3	-21.0		1							0.6					RE-RING
211	107+13.6	21.0		1							0.4					RE-RING
212	107+42.6	41.2														NONE
213	107+59.6	-41.1		1		32		7.1			0.6					2.5 RE-RING
214	107+73.6	-11.4		1		32		7.1			0.6					2.5 RE-RING
215	109+31.4	0.4		1		32		7.1			0.2					2.5 RE-RING
216	109+53.6	21.0		1							0.2					RE-RING
217	109+70.7	-10.9		1		32		7.1			0.2					2.5 RE-RING
218	109+71.6	-21.0		1							0.8					RE-RING
219	110+33.0	21.0		1							0.6					RE-RING
220	110+32.2	43.1														NONE
221	111+12.8	-10.9		1												GROUT
222	111+13.3	-21.0		1							0.8					RE-RING
223	113+70.8	-11.1		1		32		7.1			1.2					2.5 RE-RING
224	113+98.3	42.5		1								5				CONSTRUCT (G)
225	114+26.0	44.3		1	35	39		11	8.5	87	87			4	35	3 CONSTRUCT (H)
226	115+52.5	-35.6		1	23	27		24	5.1	28	28	0.6			23	2.06 RE-RING
227	115+63.2	37.0		1												GROUT
228	115+96.2	80.1														NONE
300	107+44.3	-21.8														NONE
TOTAL:			19	6	58	280	35	63.3	115	115	9.6	5	4	58	22.56	

CASTING ASSEMBLIES SUMMARY					
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	STANDARD PLAT NO.	QUANTITY
A-7D	700-7	715		4101, 4110	6
B-17	806	816	825	4125, 4154, 4134	3
NEENAH	R-3070	V			10

ALL CASTING HEIGHTS ARE TO BE DETERMINED IN THE FIELD.

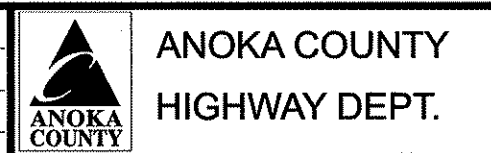
ALL MANHOLE CASTINGS NEED TO HAVE "SANITARY SEWER" OR "WATER" STAMPED ON THEM.

NO	DATE	BY	CKD	APPR	REVISION	\$TIMES

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: 3/2/12 LICENSE NO. 40416

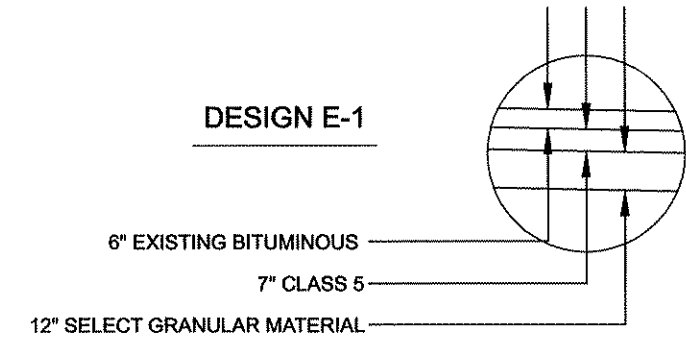
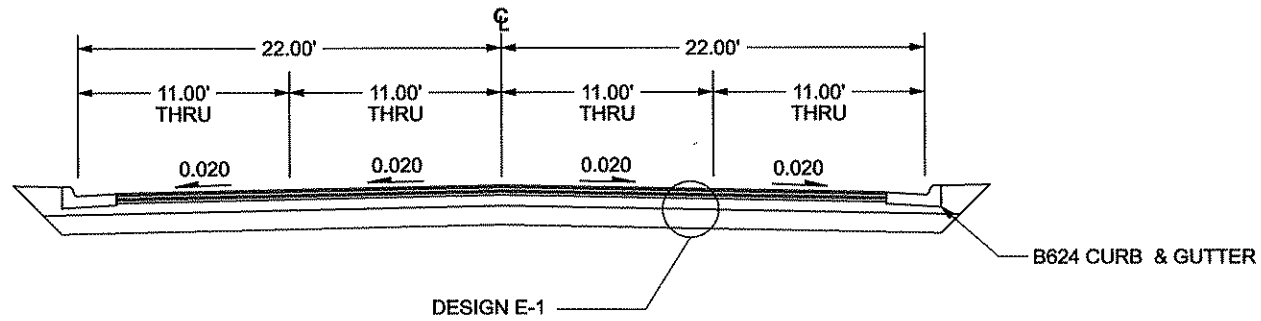
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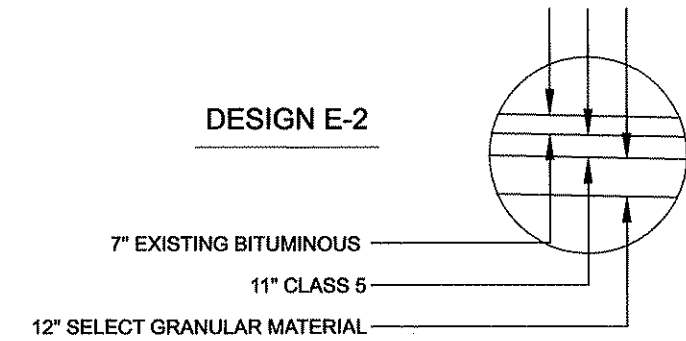
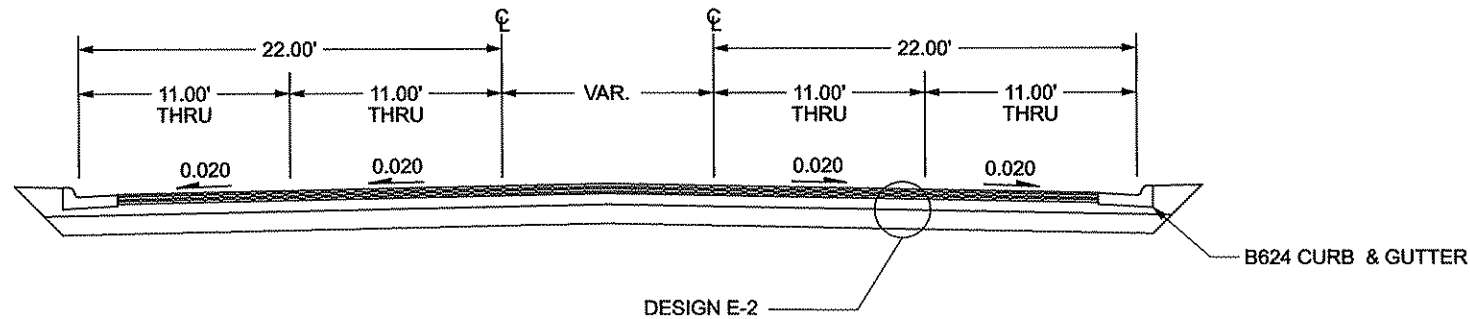
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 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 12-11-07

STATEMENT OF ESTIMATED QUANTITIES
 Sheet 2 of 15 Sheets

C.S.A.H. 7
EXISTING ROAD
 STA 102+13 LT/RT - STA 112+08 LT
 STA 102+13 LT/RT - STA 112+65.5 RT



C.S.A.H. 7
EXISTING ROAD
 STA 112+08 LT - STA 114+38 LT
 STA 112+62.5 RT - STA 114+38 RT



GENERAL NOTES:

- ALL CROSS SLOPES ARE APPROXIMATE
- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: \$DGN\$ \$DATE\$ \$TIMES\$

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SIGNATURE: *[Signature]*

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ANOKA COUNTY
HIGHWAY DEPT.

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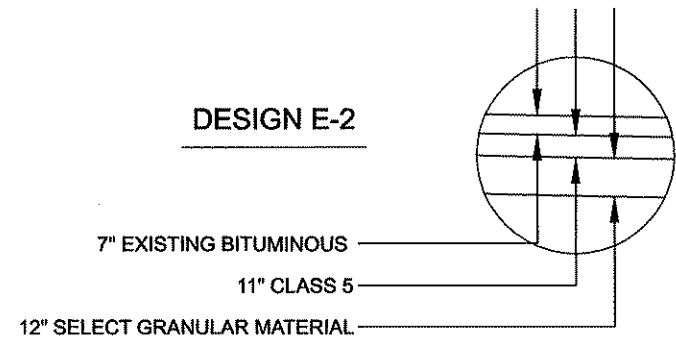
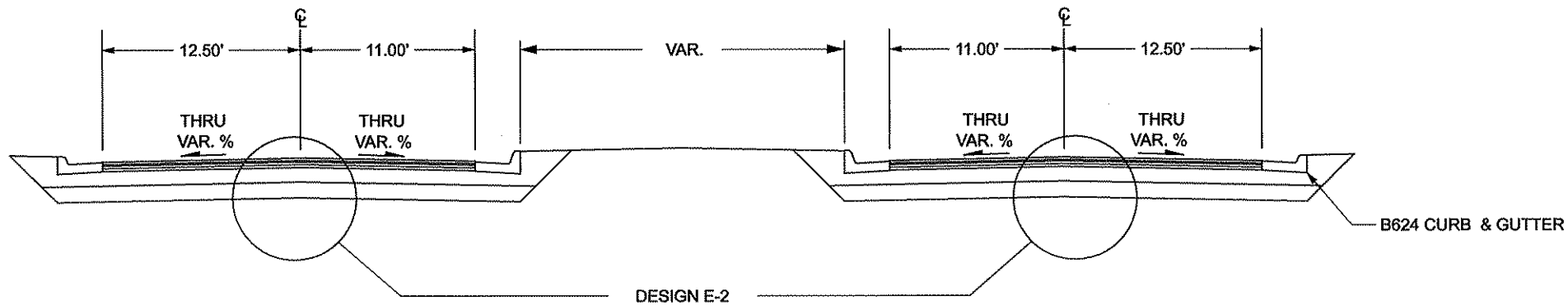
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TYPICAL SECTIONS

Sheet 3 of 15 Sheets

C.S.A.H. 7
EXISTING ROAD

STA 114+38 - STA 115+66



DESIGN E-2

7" EXISTING BITUMINOUS
11" CLASS 5
12" SELECT GRANULAR MATERIAL

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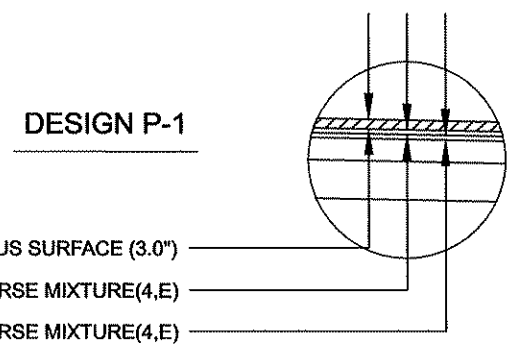
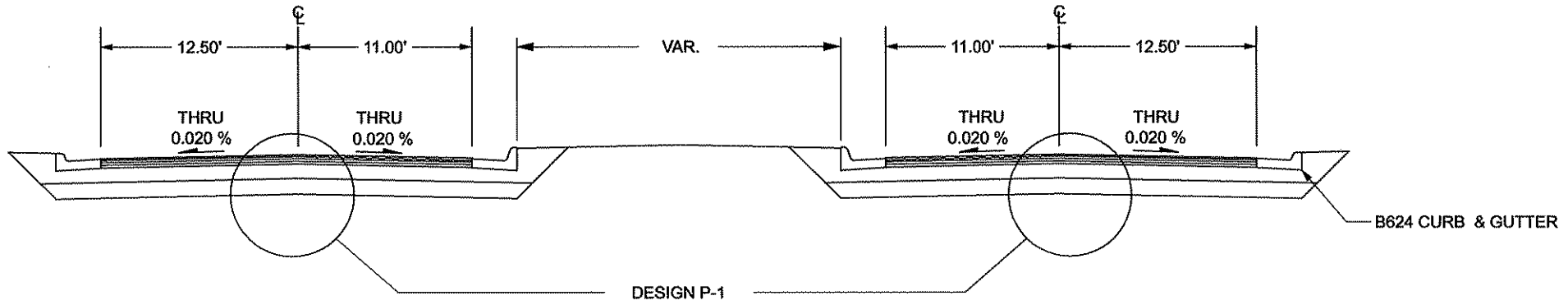
ANOKA COUNTY
HIGHWAY DEPT.

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TYPICAL SECTIONS

Sheet 4 of 15 Sheets

C.S.A.H. 7
PROPOSED ROAD
 STA 114+38 - STA 115+66



MILL BITUMINOUS SURFACE (3.0")
 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE(4,E)
 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE(4,E)

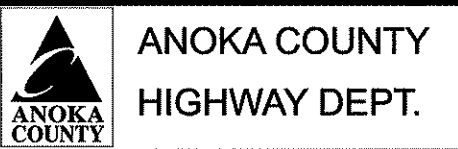
GENERAL NOTES:
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NO	DATE	BY	CHKD	APPR	REVISION

NAME: \$DGN\$ \$DATES\$ \$TIMES\$

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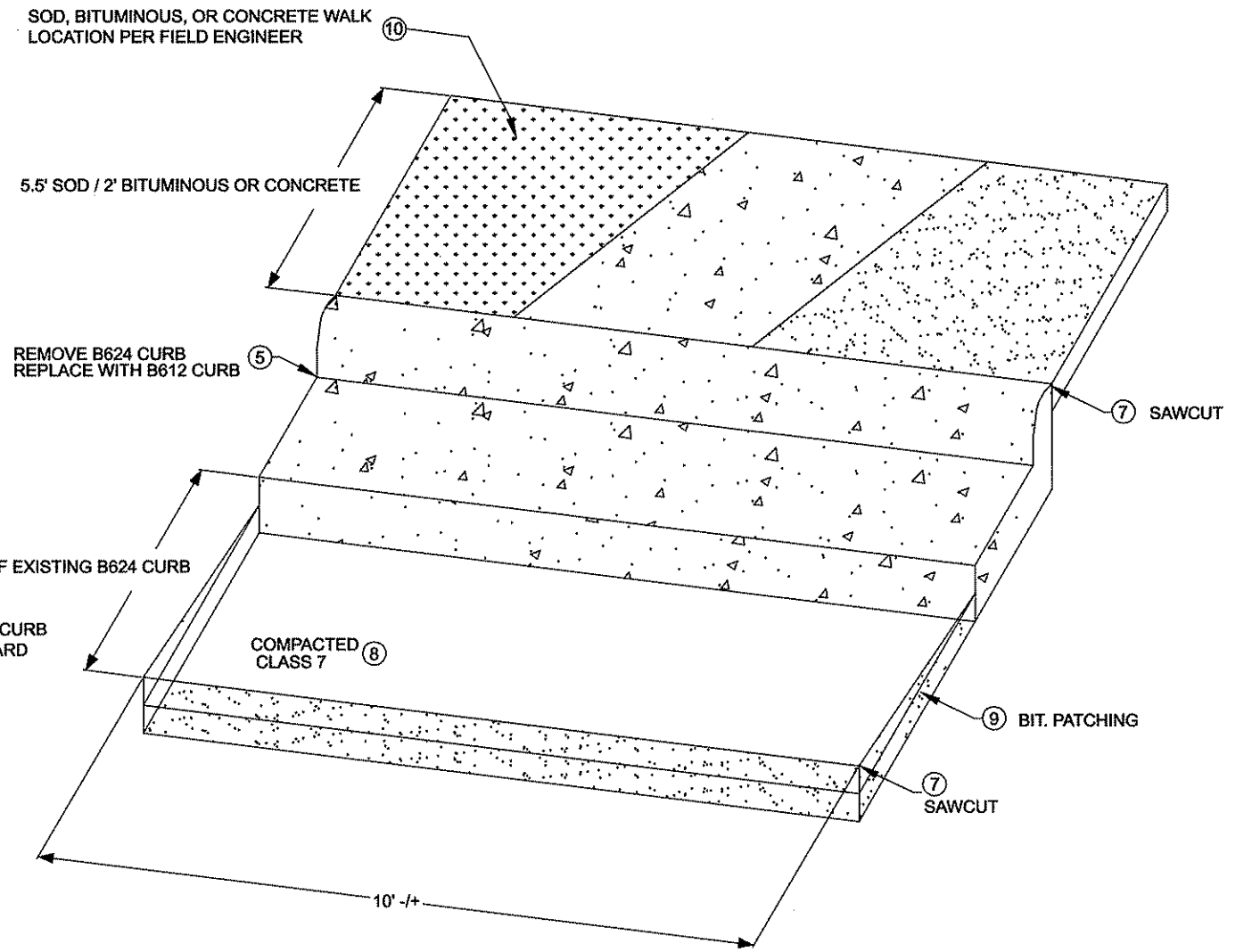
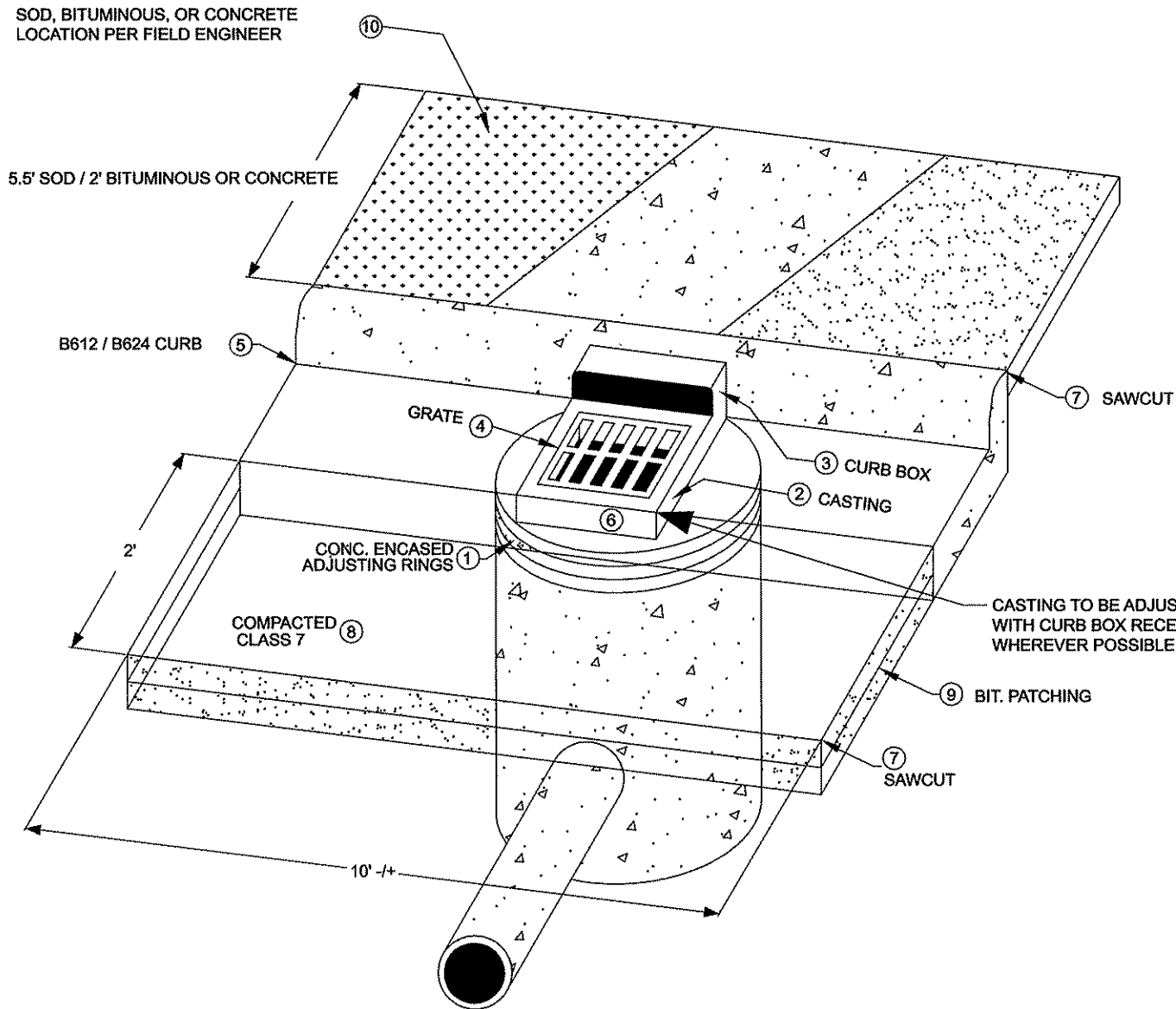
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TYPICAL SECTIONS

Sheet 6 of 15 Sheets



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

- 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
- ⑥ INSTALLATION OF CATCH BASIN CASTINGS REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BIT PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT CL-7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO C.B. REPAIR
- ⑨ REMOVE VAR. 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), ERSION CONTROL BLANKET, BITUMINOUS ,OR CONCRETE

CURB STAKING NOTES:

OFFSET HUB AT 3 FEET TO THE BACK OF EXISTING CURB.
TRANSFER EXISTING GUTTER GRADE TO HUB.
GRADE IS TO MATCH EXISTING.

NO	DATE	BY	CKD	APPR	REVISION	\$DGN\$	\$TIMES\$

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**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
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COUNTY PROJECT NO. 12-11-07

MISCELLANEOUS
DETAILS

Sheet 7 of 15 Sheets

NOTES:

- 1) LOCATION OF POLES, CABINET FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN FIELD BY ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
- 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- 5) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 6) EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION "FILLED" HAND/WALKING PERSON INDICATION.
- 7) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
- 8) ALL MAST ARM POLE AND PEDESTAL POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS. SEE SPECIAL PROVISIONS AND DETAILS.
- 9) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6" FROM THE END OF EACH MAST ARM (FOR EVP).
- 10) SEE SPECIAL PROVISIONS, DETAILS AND REMAINDER OF PLANS FOR INFORMATION REGARDING SIGN PANELS, STRIPING, DRIVEWAY REMOVAL AND CONSTRUCTION, AND CONCRETE WALK TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 - FULL TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM).
- 11) CONTRACTOR SHALL MAINTAIN OPERATION OF INPLACE SIGNAL SYSTEM AT ALL TIMES, UNTIL APPROVED BY ENGINEER FOR SIGNAL SYSTEM TO BE TURNED OFF AND REMOVED.
- 12) SEE SPECIAL PROVISIONS REGARDING REMOVAL OF INPLACE SIGNAL SYSTEM (INCIDENTAL TO ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).

NMC LOOP DETECTORS			
NUMBER	SIZE (FT)	LOCATION	FUNCTION
D2-1	6 x 8	180'	1
D2-2	6 x 8	180'	1
D3-1	6 x 6	100'	3,8
D3-2	6 x 6	100'	3,8
D3-3	2-6 x 6	0' & 15'	7
D3-4	2-6 x 6	0' & 15'	7
D4-1	6 x 6	120'	3,8
D4-2	2-6 x 6	0' & 15'	7
D6-1	6 x 6	180'	1
D6-2	6 x 6	180'	1

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

DETECTOR 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) COUNT DETECTOR

- ③ PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED
1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.4:
3"R.S.C.
1-12/c#14
1-3/c#14
1-3/c#20

- ② PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED
1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.3:
3"R.S.C.
1-12/c#14
1-2/c#14

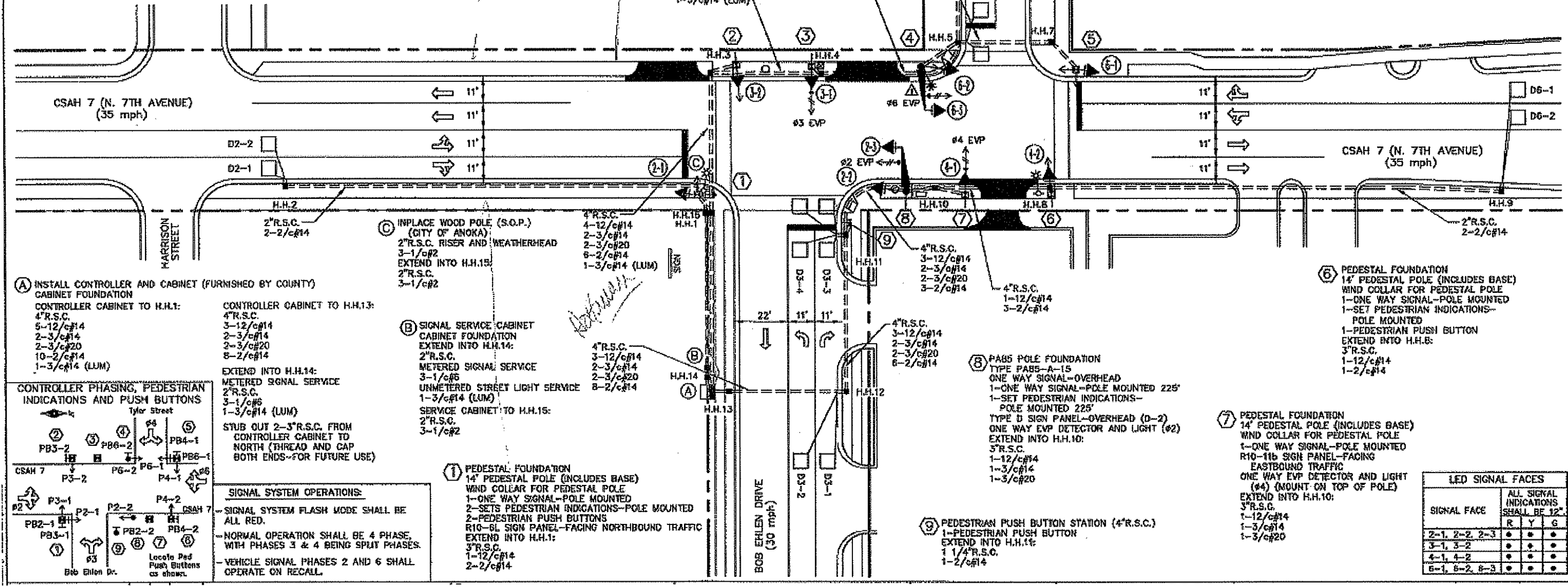
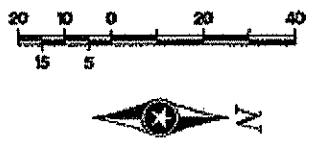
- ④ PABE POLE FOUNDATION
TYPE PABE-A-15-D40-9 (DAMT AT 350')
LUMINAIRE-250 W HPS
ONE WAY SIGNAL-POLE MOUNTED 225'
1-ONE WAY SIGNAL-POLE MOUNTED 225'
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED 225'
1-PEDESTRIAN PUSH BUTTON
TYPE D SIGN PANEL-OVERHEAD (D-1)
ONE WAY EVP DETECTOR AND LIGHT (#6)
EXTEND INTO H.H.5:
3"R.S.C.
1-12/c#14
1-3/c#14
1-3/c#20
1-2/c#14
1-3/c#14 (LUM)

- ⑤ PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED
2-PEDESTRIAN PUSH BUTTONS
R10-6L SIGN PANEL-FACING SOUTHBOUND TRAFFIC
EXTEND INTO H.H.7:
3"R.S.C.
1-12/c#14
2-2/c#14

- ⑥ PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED
1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.8:
3"R.S.C.
1-12/c#14
1-2/c#14

- ⑦ PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
R10-11b SIGN PANEL-FACING EASTBOUND TRAFFIC
ONE WAY EVP DETECTOR AND LIGHT (#4) (MOUNT ON TOP OF POLE)
EXTEND INTO H.H.10:
3"R.S.C.
1-12/c#14
1-3/c#14
1-3/c#20

- ⑧ PEDESTRIAN PUSH BUTTON STATION (4"R.S.C.)
1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.11:
1 1/4"R.S.C.
1-2/c#14



- A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
CABINET FOUNDATION
CONTROLLER CABINET TO H.H.1:
4"R.S.C.
5-12/c#14
2-3/c#14
2-3/c#20
10-2/c#14
1-3/c#14 (LUM)

- CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS
-
- CONTROLLER CABINET TO H.H.13:
4"R.S.C.
3-12/c#14
2-3/c#14
2-3/c#20
8-2/c#14
- EXTEND INTO H.H.14:
METERED SIGNAL SERVICE
2"R.S.C.
3-1/c#6
1-3/c#14 (LUM)
- SYUB OUT 2-3"R.S.C. FROM CONTROLLER CABINET TO NORTH (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)

- B) SIGNAL SERVICE CABINET
CABINET FOUNDATION
EXTEND INTO H.H.14:
2"R.S.C.
METERED SIGNAL SERVICE
3-1/c#6
UNMETERED STREET LIGHT SERVICE
1-3/c#14 (LUM)

- ① PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED
2-PEDESTRIAN PUSH BUTTONS
R10-6L SIGN PANEL-FACING NORTHBOUND TRAFFIC
EXTEND INTO H.H.1:
3"R.S.C.
1-12/c#14
2-2/c#14

- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASES 3 & 4 BEING SPLIT PHASES.
 - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

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

NO	DATE	BY	CHKD	APPR	REVISION

NAME: SDGNS

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: 3/2/12 LICENSE NO. 40416

DRAWN BY: JJ DATE: 3-1-2012
 DESIGN BY: JJ DATE: 3-1-2012
 CHECKED BY: BL/JO DATE: 3-1-2012

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 12-11-07

MISCELLANEOUS DETAILS

Sheet 8 of 15 Sheets

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	6X6	20' & 50'
D1-2	6X6	5' & 35'
D2-1, D2-2	6X6	150'
D4-1, D4-2	6X6	120'
D4-3	2-6X6	5' & 20'
D4-4	2-6X6	5' & 20'
D6-1, D6-2	6X6	170'

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

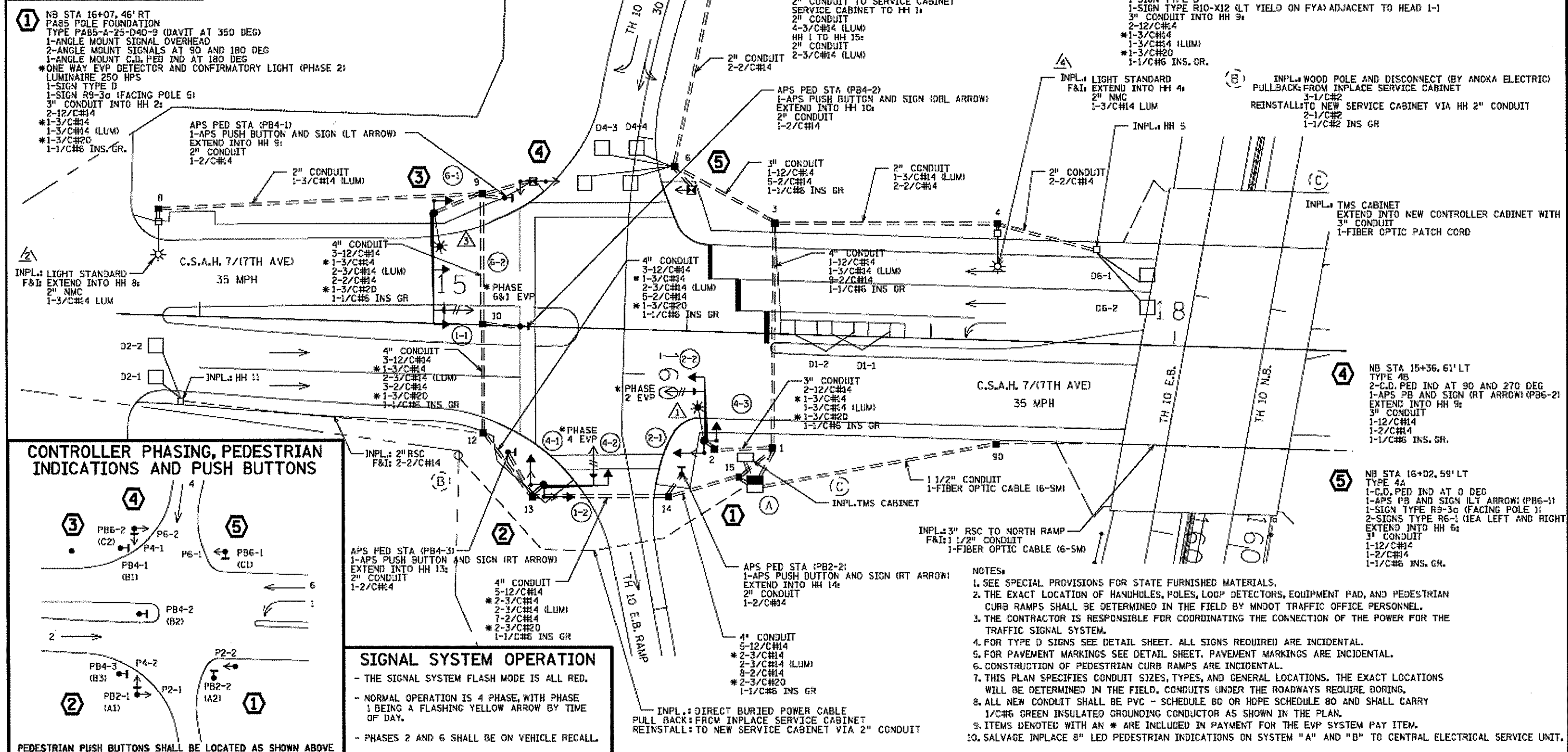
② NB STA 15+41, 66' RT
PA85 POLE FOUNDATION
TYPE PA85-A-25
1-ANGLE MOUNT SIGNAL OVERHEAD
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
2-ANGLE MOUNT C.D. PED IND AT 90 AND 180 DEG
*ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)
1-APS PB AND SIGN (LT ARROW) (PB 2-1)
2-SIGNS TYPE R6-1 (1EA LEFT AND RIGHT)
1-SIGN TYPE D
3" CONDUIT INTO HH 13:
2-12/C#4
*1-3/C#14
1-2/C#14
*1-3/C#20
1-1/C#6 INS. GR.

① NB STA 16+07, 46' RT
PA85 POLE FOUNDATION
TYPE PA85-A-25-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
1-ANGLE MOUNT C.D. PED IND AT 180 DEG
*ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
LUMINAIRE 250 HPS
1-SIGN TYPE D
1-SIGN R9-3a (FACING POLE S)
3" CONDUIT INTO HH 2:
2-12/C#4
*1-3/C#14
1-3/C#14 (LUM)
*1-3/C#20
1-1/C#6 INS. GR.

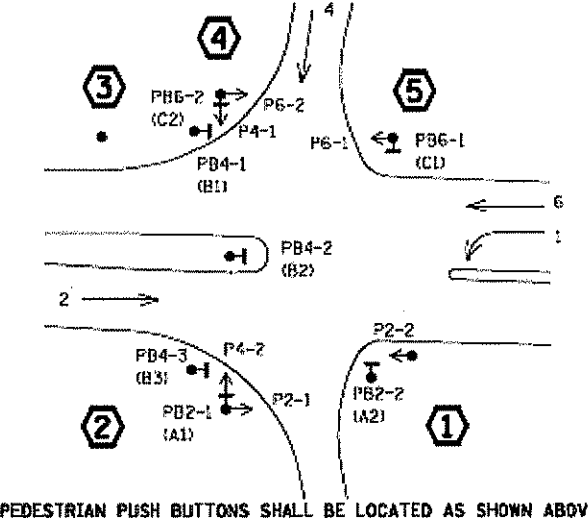
③ NB STA 14+95, 47' LT
PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 23'
1-ANGLE MOUNT SIGNAL AT 180 DEG
*ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6&1)
1-SIGN TYPE D
1-SIGN TYPE R10-X12 (LT YIELD ON FYA) ADJACENT TO HEAD 1-1
3" CONDUIT INTO HH 9:
2-12/C#4
*1-3/C#14
1-3/C#14 (LUM)
*1-3/C#20
1-1/C#6 INS. GR.

SIGNAL FACE CHART				
FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
6-1, 6-2	●	●	●	●

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING A FLASHING YELLOW ARROW BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

- NOTES:**
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 - THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE DETERMINED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
 - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 - FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCIDENTAL.
 - FOR PAVEMENT MARKINGS SEE DETAIL SHEET. PAVEMENT MARKINGS ARE INCIDENTAL.
 - CONSTRUCTION OF PEDESTRIAN CURB RAMPS ARE INCIDENTAL.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
 - ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 - SALVAGE INPLACE 8" LED PEDESTRIAN INDICATIONS ON SYSTEM "A" AND "B" TO CENTRAL ELECTRICAL SERVICE UNIT.

CURB REPLACEMENT AREA [Hatched Pattern]

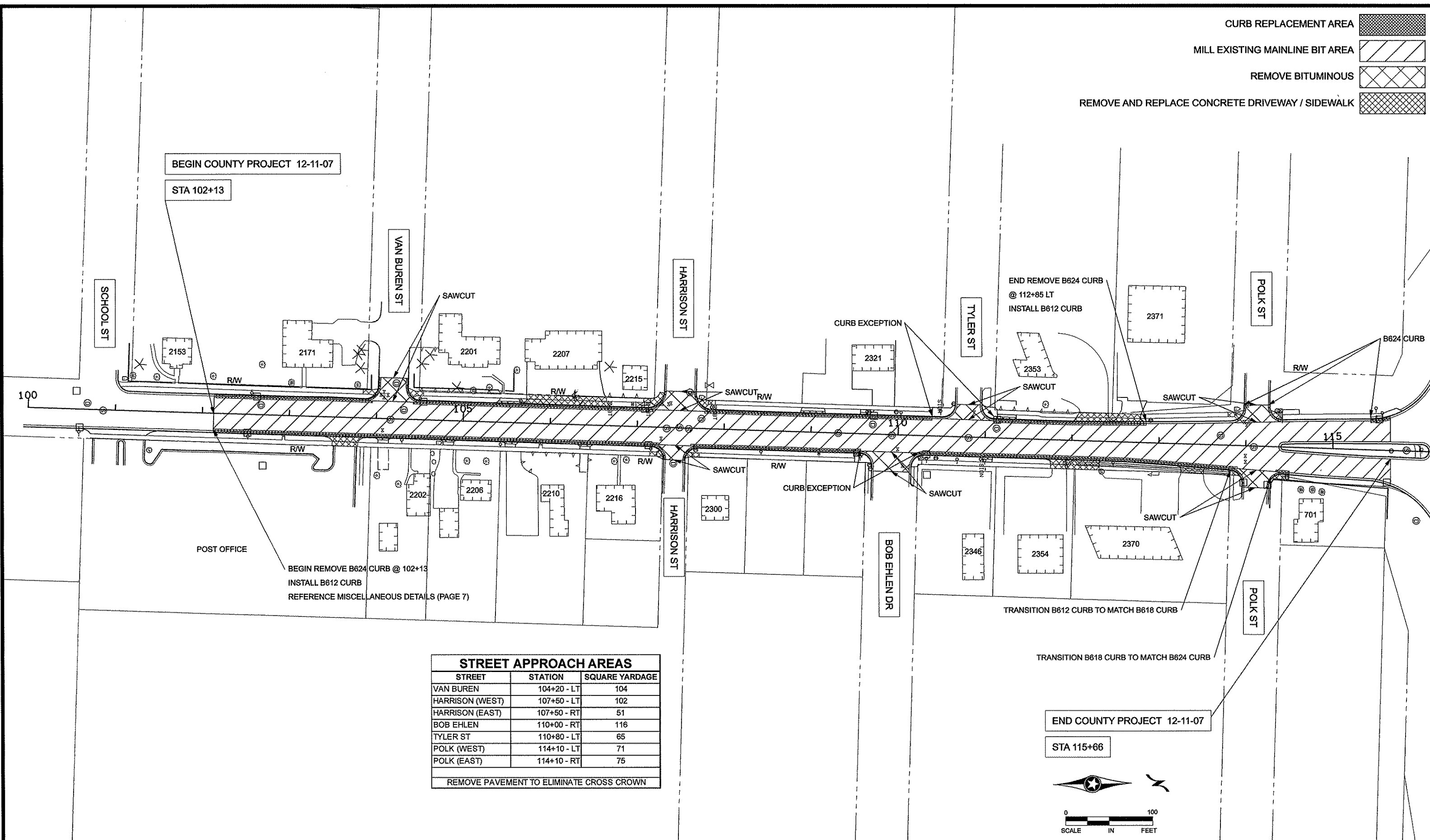
MILL EXISTING MAINLINE BIT AREA [Diagonal Lines]

REMOVE BITUMINOUS [Cross-hatched Pattern]

REMOVE AND REPLACE CONCRETE DRIVEWAY / SIDEWALK [Grid Pattern]

BEGIN COUNTY PROJECT 12-11-07

STA 102+13



END REMOVE B624 CURB @ 112+85 LT
INSTALL B612 CURB

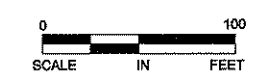
POST OFFICE

BEGIN REMOVE B624 CURB @ 102+13
INSTALL B612 CURB
REFERENCE MISCELLANEOUS DETAILS (PAGE 7)

STREET APPROACH AREAS		
STREET	STATION	SQUARE YARDAGE
VAN BUREN	104+20 - LT	104
HARRISON (WEST)	107+50 - LT	102
HARRISON (EAST)	107+50 - RT	51
BOB EHLEN	110+00 - RT	116
TYLER ST	110+80 - LT	65
POLK (WEST)	114+10 - LT	71
POLK (EAST)	114+10 - RT	75
REMOVE PAVEMENT TO ELIMINATE CROSS CROWN		

END COUNTY PROJECT 12-11-07

STA 115+66



NO	DATE	BY	CKD	APPR	REVISION	\$DATES	\$TIMES

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: *[Signature]*

DATE: 7/2/12 LICENSE NO. 40416

DRAWN BY JJ DATE 3-1-2012

DESIGN BY JJ DATE 3-1-2012

CHECKED BY BL / JO DATE 3-1-2012

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. 12-11-07

CONSTRUCTION PLAN

STA 100+00 TO 116+00

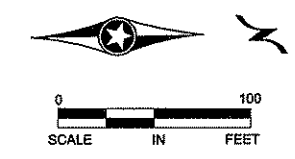
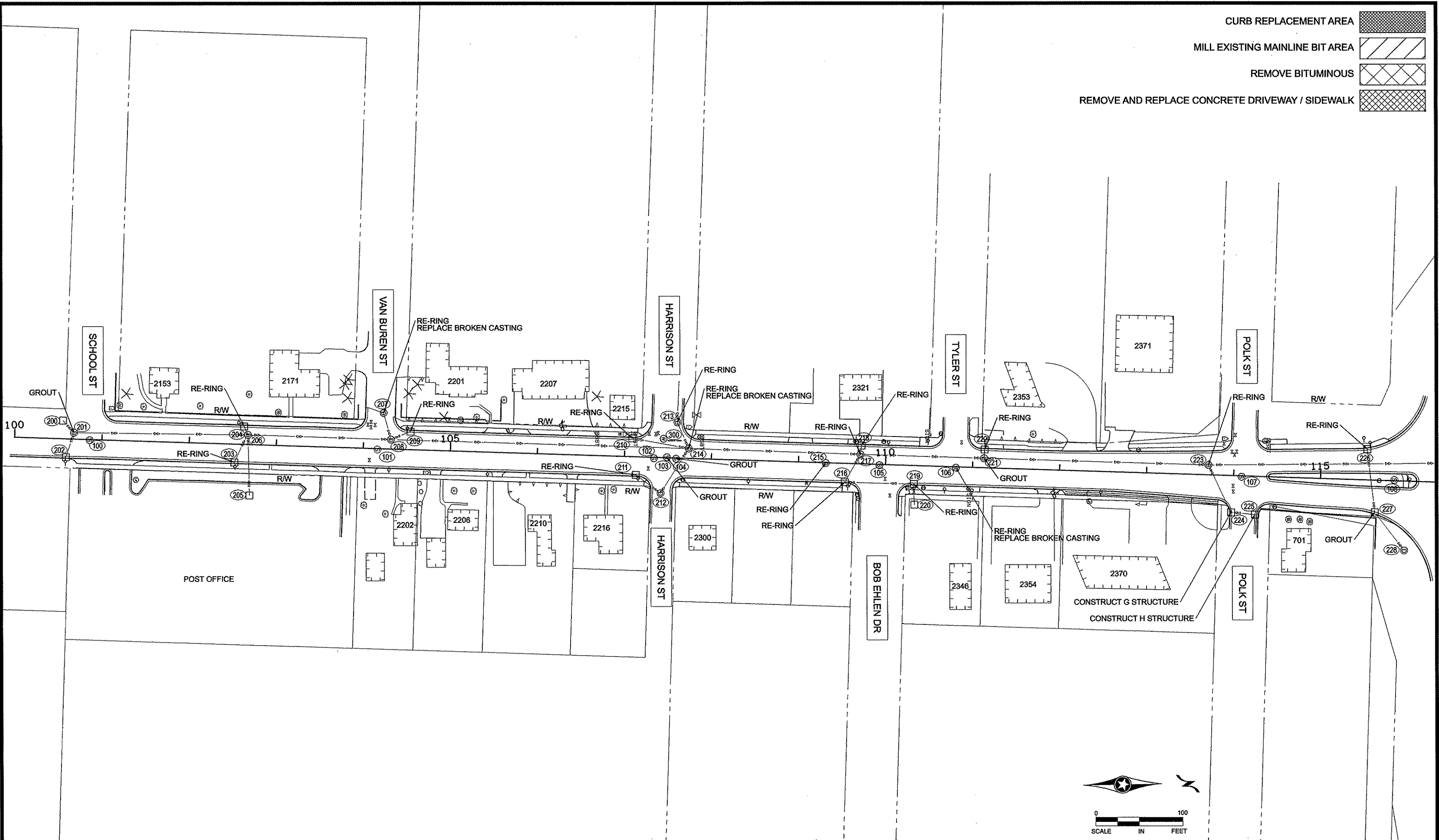
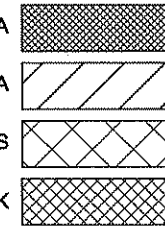
Sheet 10 of 15 Sheets

CURB REPLACEMENT AREA

MILL EXISTING MAINLINE BIT AREA

REMOVE BITUMINOUS

REMOVE AND REPLACE CONCRETE DRIVEWAY / SIDEWALK



NO	DATE	BY	CKD	APPR	REVISION	\$DATES	\$TIMES

NAME: \$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: CHARLES CADENHEAD

SIGNATURE: *Charles Cadenhead*

DATE: 3/22/12 LICENSE NO. 40416

DRAWN BY JJ DATE 3-1-2012

DESIGN BY JJ DATE 3-1-2012

CHECKED BY BL/JQ DATE 3-1-2012



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. 12-11-07

STORM SEWER PLAN

STA 100+00 TO 116+00

Sheet 11 of 15 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 BEANS 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 BEANS 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 FILD 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 PAVEMENT MARKING TABULATION		
ITEM	Quantity	Units
4" Solid Line Yellow - Epoxy	250	Lin Ft
4" Solid Line White - Epoxy	2260	Lin Ft
4" Broken White Line - Epoxy (10 ft stripe / 40 ft gap)	500	Lin Ft
4" Double Solid Line Yellow - Epoxy	1080	Lin Ft
24" White Pref Thermoplastic	80	Lin Ft
24" Yellow Pref Thermoplastic	35	Lin Ft
3'x6' Zebra Crosswalk - Preformed Thermoplastic	432	SQ FT

SYMBOLS & MATERIALS LEGEND

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

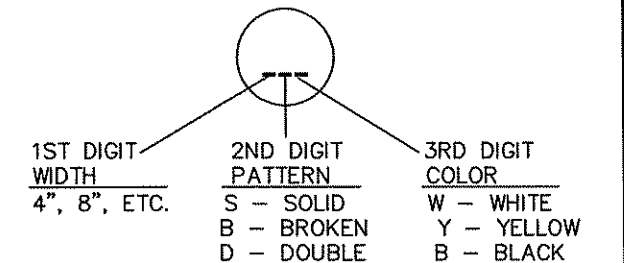
← PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

STRIPING KEY

○ CIRCLE - EPOXY □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



EXAMPLE: (4SW) = 4" SOLID LINE WHITE -- EPOXY

NO	DATE	BY	CKD	APPR	REVISION

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: 7/2/12 LICENSE NO. 40416

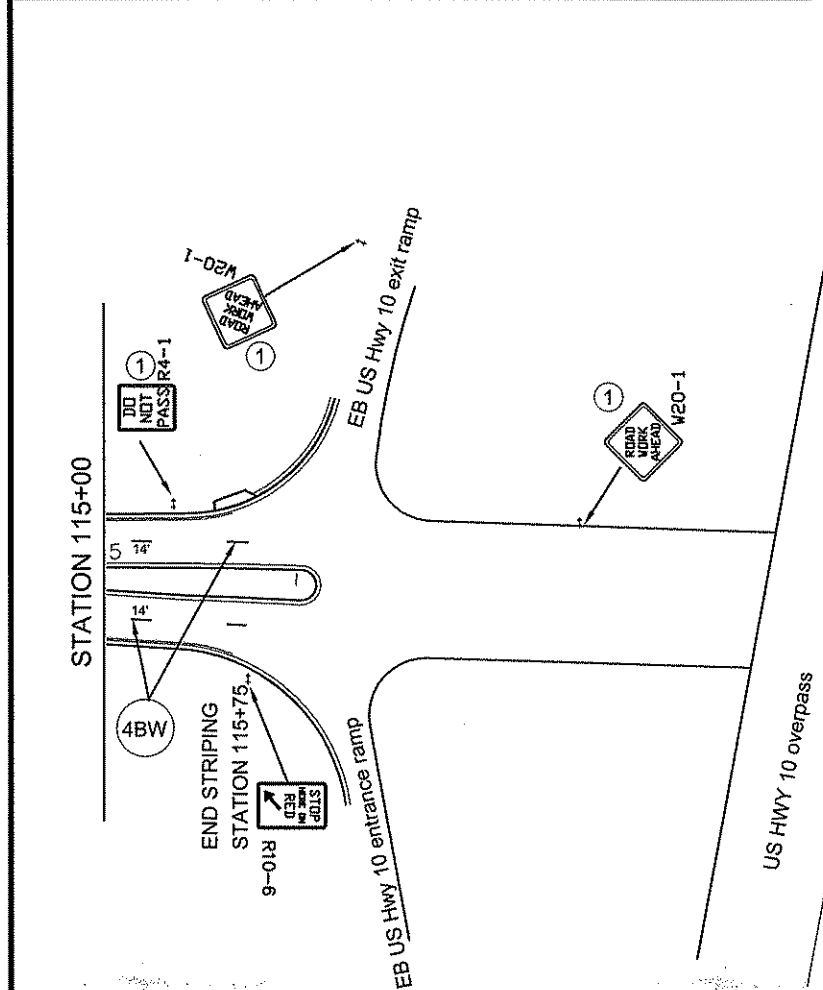
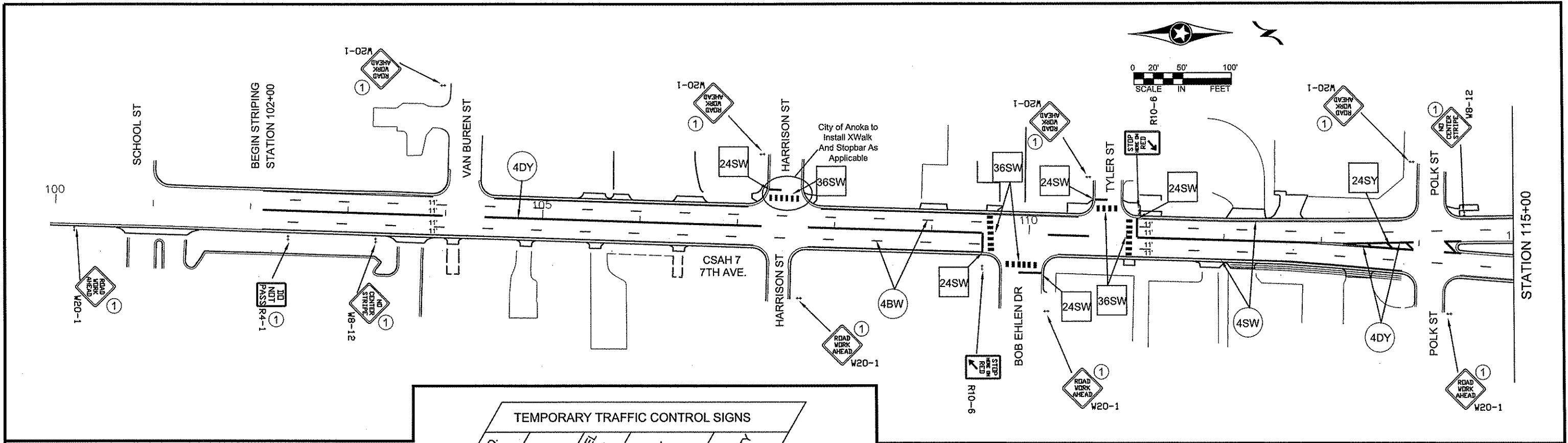
DRAWN BY: ST DATE 02/07/2012
 DESIGN BY: ST DATE 02/07/2012
 CHECKED BY: JR DATE 02/14/2012



ANOKA COUNTY
HIGHWAY DEPT.

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 COUNTY PROJECT NO. 12-11-07

PERMANENT MARKING TABULATION
 Sheet 12 of 15 Sheets



TEMPORARY TRAFFIC CONTROL SIGNS

M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY
W8-12	48" x 48"	16.00		2
R4-1	24" x 30"	5.00		2
R8-10	24" x 36"	6.00		3
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
W8-11	48" x 48"	16.00		AS NEEDED
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 10)

SEE SPECIAL PROVISIONS

- ① TEMPORARY TRAFFIC CONTROL SIGN
- ② F & I PERMANENT SIGN
- 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), INCLUDING 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.
 - ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.
 - ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. IF A SIGN IS TO BE SALVAGED AND REINSTALLED, IT SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE, AND THIS WILL BE CONSIDERED AS INCIDENTAL TO SIGN TYPE C REINSTALL INSTALLATION.

NO	DATE	BY	CKD	APPR	REVISION

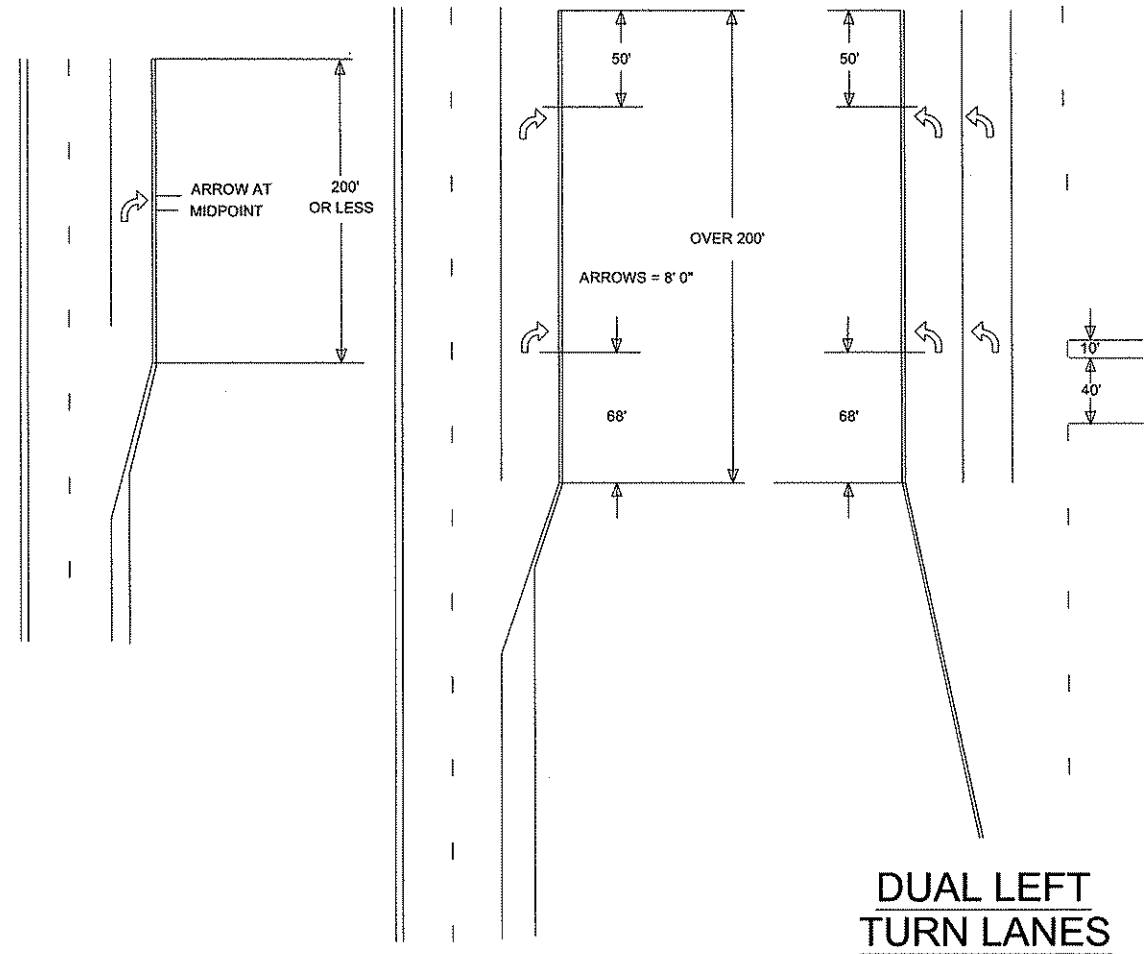
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *Charles Cadenhead*
 DATE: 3/2/12 REG. NO. 40416

DRAWN BY: S.T. DATE: 02/07/12
 DESIGN BY: S.T. DATE: 02/07/12
 CHECKED BY: J.R. DATE: 02/14/12

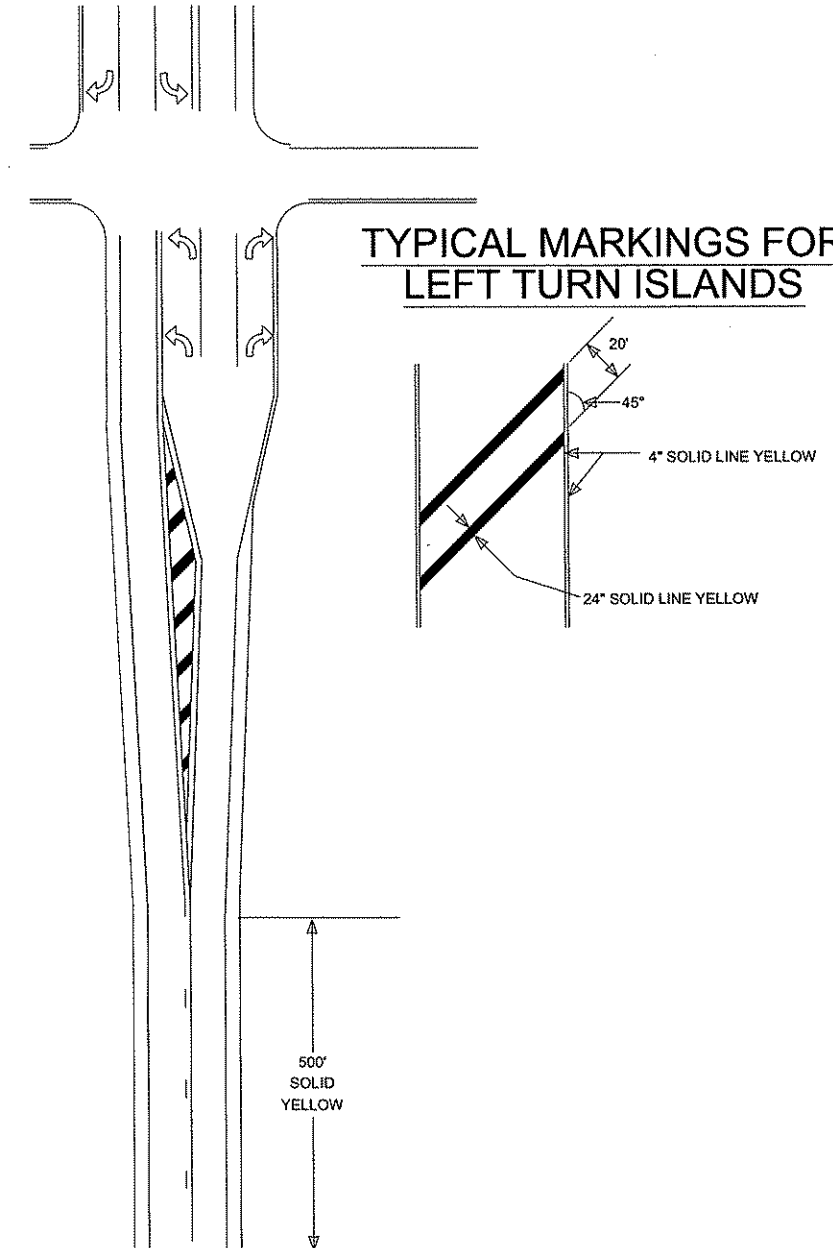
ANOKA COUNTY
HIGHWAY DEPT.

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 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 12-11-07

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

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: 3/2/12 LICENSE NO. 40416

DRAWN BY ST DATE 02-07-12

DESIGN BY ST DATE 02-07-12

CHECKED BY JR DATE 02-XX-12



**ANOKA COUNTY
HIGHWAY DEPT.**

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STATE PROJECT NO. _____

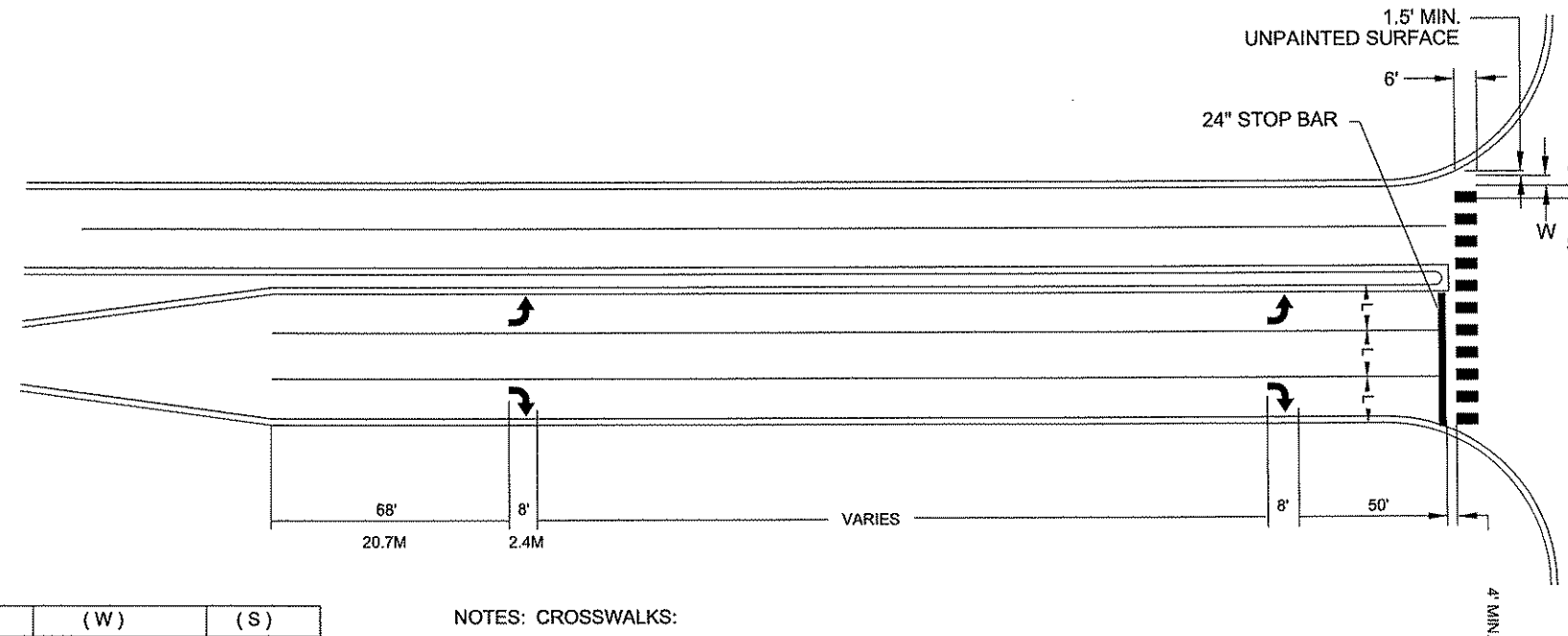
STATE PROJECT NO. _____

COUNTY PROJECT NO. 12-11-07

SIGNING & STRIPING DETAILS

Sheet 14 of 15 Sheets

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' (3.3m) INSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *Charles Cadenhead*
 DATE: 7/2/12 LICENSE NO. 40416

DRAWN BY ST DATE 02-07-12
 DESIGN BY ST DATE 02-07-12
 CHECKED BY JR DATE 02-14-12



**ANOKA COUNTY
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SIGNING & STRIPING DETAILS
 Sheet 15 of 15 Sheets