

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## CITY OF LINO LAKES

ENGINEERING COPY  
REC'D 8-14-12 CAK

### LEGEND

EXISTING CONDITIONS AND REMOVALS	
	EXIST. RIGHT-OF-WAY
	EXIST. PROPERTY LINE
	EXIST. CONC. CURB AND GUTTER
	EXIST. CURB (TYPE AS NOTED)
	EXIST. EDGE OF BIT. SURFACE
	EXIST. EDGE OF GRAVEL
	EXIST. SIDEWALK (TYPE AS NOTED)
	EXIST. POWER POLE, GUY
	EXIST. LIGHT POLE, HAND HOLE
	EXIST. TREE
	EXIST. CHAIN LINK FENCE
	EXIST. WOOD FENCE
	EXIST. RETAINING WALL
	EXIST. BUILDING
	EXIST. SANITARY SEWER
	EXIST. STORM SEWER (12"-36")
	EXIST. STORM SEWER (> 42")
	EXIST. MANHOLE
	EXIST. CATCHBASIN
	EXIST. WATERMAIN
	EXIST. HYDRANT, GATE VALVE
	EXIST. GAS MAIN
	BURIED ELECTRIC
	ELECTRIC BOX
	BURIED TELEPHONE
	TELEPHONE PEDESTAL
	BURIED CABLE TELEVISION

CONSTRUCTION PLAN FOR: SUBGRADE PREPARATION, AGGREGATE BASE, BIT MIL, BIT PAVING, STORM SEWER, TRAILS, AND APPURTENANT WORK

LOCATED ON: BIRCH STREET FROM APPROX. 450' FEET EAST OF HODGSON ROAD TO APPROX. 2000' FEET EAST.  
SIOUX LANE FROM 350' FEET EAST OF SIOUX LOOKOUT TO HOKAH DRIVE.

S.A.P. 002-634-002, BIRCH ST (CSAH 34)			
GROSS LENGTH	1550 FEET	0.29 MILES	
BRIDGES-LENGTH	0 FEET	0 MILES	
EXCEPTIONS-LENGTH	0 FEET	0 MILES	
NET LENGTH	1550 FEET	0.29 MILES	

### 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" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

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THIS PLAN CONTAINS 63 SHEETS

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

SIGNATURE: *James E. Studenski*  
PRINTED NAME: JAMES E. STUDENSKI  
DATE: 7/23/2012 LIC. NO. 23757

**TKDA**  
ENGINEERING • ARCHITECTURE • PLANNING

APPROVED *Jim Wald* LINO LAKES ENGINEER 7/31/12 DATE

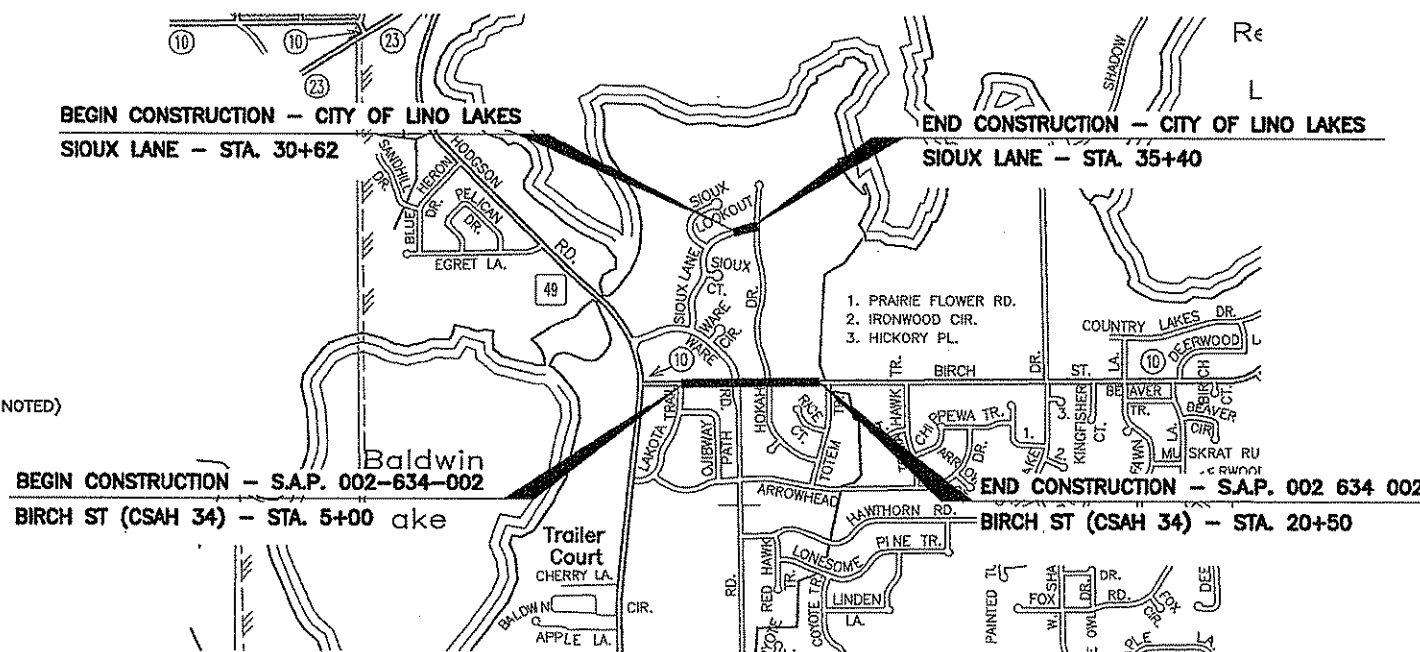
APPROVED *Robert J. [Signature]* ANOKA COUNTY ENGINEER 7/31/12 DATE

### STATE AID APPROVALS:

METRO DISTRICT STATE AID ENGINEER REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY  
*[Signature]* 8/7/12 DATE  
APPROVED FOR STATE FUNDING STATE AID ENGINEER  
*[Signature]* 8/7/12 DATE

### PROPOSED CONSTRUCTION

	TEMPORARY EASEMENT
	RIGHT-OF-WAY
	PROPERTY LINE
	CURB & GUTTER
	CONC. DRIVEWAY (THICKNESS AS NOTED)
	CONC. SIDEWALK
	CONC. SIDEWALK DECORATIVE
	SANITARY SEWER
	WATERMAIN
	STORM SEWER
	MANHOLE
	CATCHBASIN
	ADJUST MANHOLE
	CHAIN LINK FENCE
	WOOD FENCE
	RETAINING WALL
	BITUMINOUS DRIVE
	BITUMINOUS SURFACING
	SILT FENCE
	CONDUIT
	STREET LIGHT
	TREE
	TREE GRATE
	SIGNAL POLE

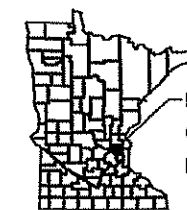
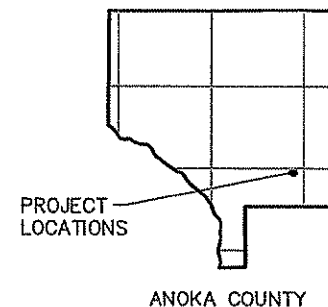


PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

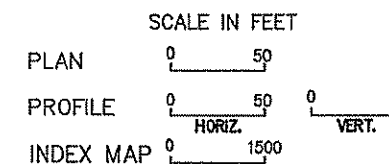
### DESIGN DESIGNATION BIRCH STREET (CSAH 34)

Present ADT (2012) = 13,300 Projected ADT (2032) = 19,000  
No. of Traffic Lanes = 2 No. of Parking Lanes = 0  
Ton Design = 9 ton

Design Speed = 50 MPH  
Soil Factor = 50%  
Functional Classification = B MINOR ARTERIAL  
Stopping Sight Distance Based On: 3.5' Height Of Eyes And  
2.0' Height Of Object

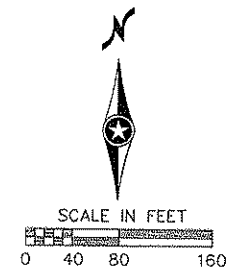
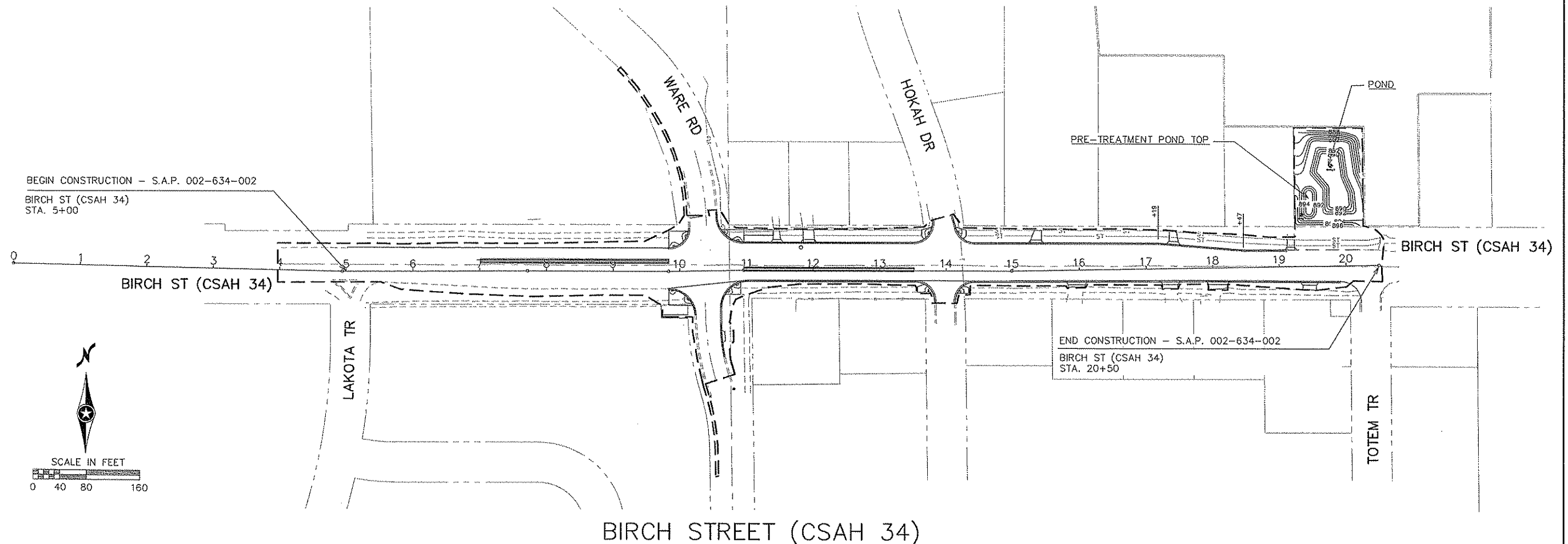


PROJECT LOCATION  
COUNTY: ANOKA  
DISTRICT: METRO

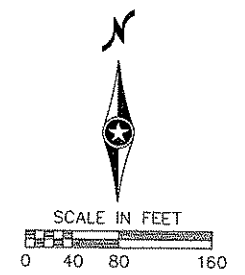
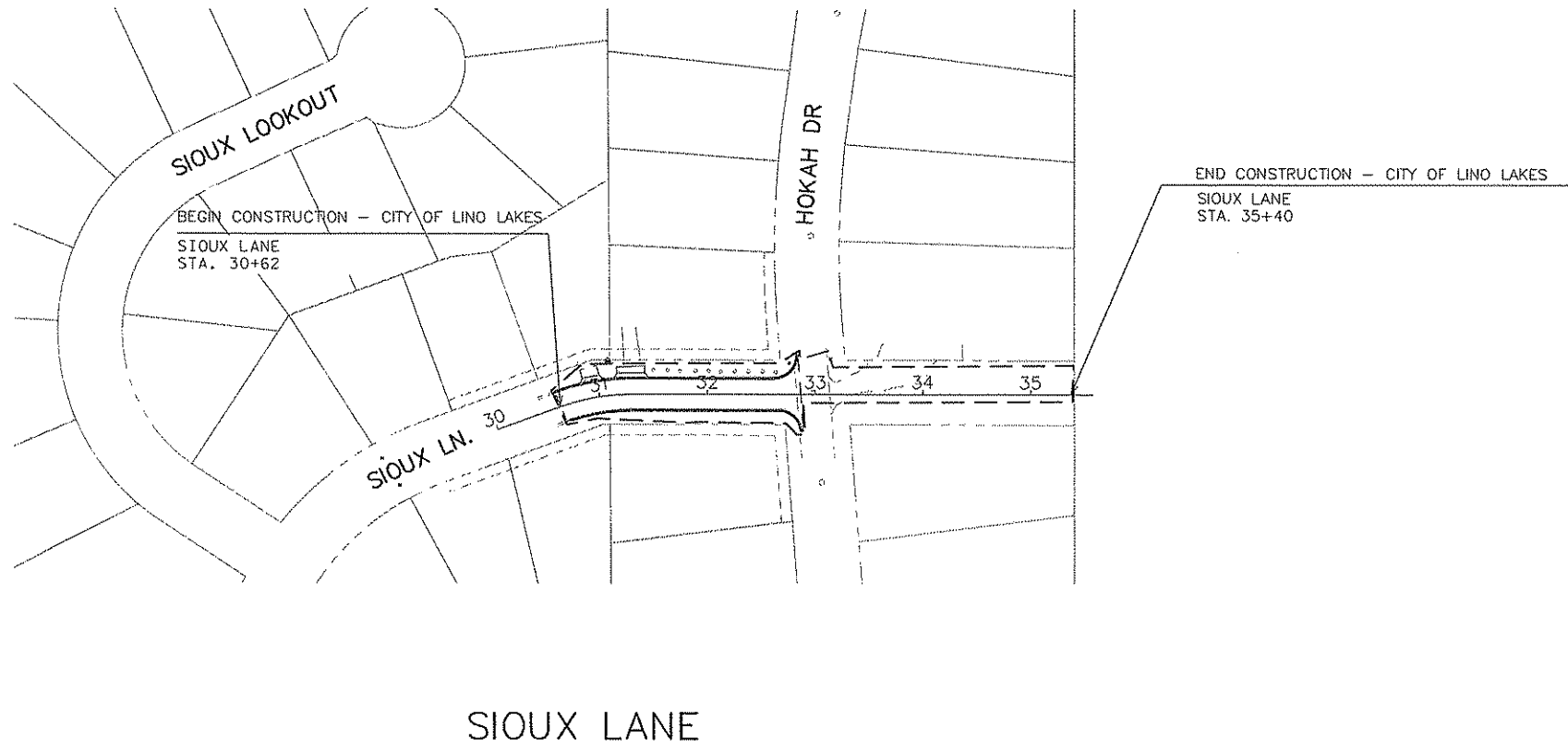


S.A.P. 002-634-002

SHEET NO. 1 OF 63 SHEETS



BIRCH STREET (CSAH 34)



SIOUX LANE

File Path: \\sps1\proj\14851000\mxd\CD011-Signal\_Birch-Ware\Plan\SIG02-Birch-Ware-Plan.dwg  
 Drawing Name: SIG02-Birch-Ware-Plan.dwg  
 Xrefs: 2204-Ware\_Proposed\_Base\_BestMgt\Bldg\Ware\_ACHD\_7June11\_Electrical.dwg - Birch-Ware\_JES.spl  
 Xrefs: 2204-Ware\_Proposed\_Base\_BestMgt\Bldg\Ware\_ACHD\_7June11\_Electrical.dwg - Birch-Ware\_JES.spl

NO	DATE	BY	CKD	APPR	REVISION

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 BY ME OR UNDER MY DIRECT SUPERVISION AND THAT  
 I AM A DULY LICENSED PROFESSIONAL ENGINEER  
 UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 GENERAL LAYOUT  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 2  
 OF  
 63

**ESTIMATED QUANTITIES**

SHEET NO.	ITEM NUMBER	ITEM	NOTE NO.	UNIT	TOTAL ESTIMATED QUANTITY	CITY OF LINO LAKES BIRCH STREET NON-PARTICIPATING	ANOKA COUNTY BIRCH STREET S.A.P. 002-634-002	CITY OF LINO LAKES WARE ROAD NON-PARTICIPATING	CITY OF LINO LAKES SIOUX LANE NON-PARTICIPATING
						QUANTITY	QUANTITY	QUANTITY	QUANTITY
	2021.501	MOBILIZATION		LUMP SUM	1	0.31	0.43	0.17	0.09
	2101.501	CLEARING	(6)	ACRE	0.35	0.35			
	2101.502	CLEARING	(6)	TREE	1	1			
	2101.506	GRUBBING	(6)	TREE	0.35	0.35			
	2101.507	GRUBBING	(6)	ACRE	1	1			
	2104.501	REMOVE CONCRETE CURB AND GUTTER		LIN FT	280		80	125	75
	2105.501	REMOVE BITUMINOUS CURB		LIN FT	75		75		
	2106.503	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ FT	2433		2185	248	
	2104.505	REMOVE BITUMINOUS PAVEMENT	(7)	SQ YD	2142		2092		50
	2105.505	REMOVE BITUMINOUS TRAIL	(7)	SQ YD	838		838		
	2104.509	REMOVE SIGN TYPE C		EACH	7	7			
	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)		LIN FT	5178		5078		100
	2104.523	SALVAGE MAIL BOX AND SUPPORT		EACH	7	7			
	2104.523	SALVAGE & REINSTALL IRRIGATION SYSTEM		EACH	2				2
	2104.523	SALVAGE SIGN TYPE C		EACH	3		3		
	2104.525	ABANDON STRUCTURE		EACH	1		1		
	2105.501	COMMON EXCAVATION	(P)	(4)	CU YD	1390	1133		257
	2105.511	COMMON CHANNEL EXCAVATION		(5)	CU YD	1121	1121		
	2105.525	TOPSOIL BORROW MOD (LV)		(15)	CU YD	115	115		
	2105.525	TOPSOIL BORROW (CV)			CU YD	329	329		
	2105.601	DEWATERING		LUMP SUM	1		1		
	2211.503	AGGREGATE BASE (CV) CLASS 5	(P)		CU YD	732		560	172
	2221.501	AGGREGATE SHOULDERING (CV) CLASS 2 MOD			CU YD	50		50	
	2232.501	MILL BITUMINOUS SURFACE (2.0")			SQ YD	7646		7646	
	2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,E)	(8)	TON	1205		1205		
	2360.501	TYPE SP 12.5 WEARING COURSE MIX (2,B)	(8)	TON	67				67
	2360.503	TYPE SP 12.5 NON WEAR COURSE MIX (4,B)	(1)(8)	TON	580		580		
	2360.503	TYPE SP 12.5 NON WEAR COURSE MIX (2,B)	(1)(8)	TON	89				89
	2501.515	24" RC PIPE APRON		EACH	1		1		
	2501.602	TRASH GUARD FOR 24" PIPE APRON		EACH	1		1		
	2502.541	4" PERF PE PIPE DRAIN		(2)	LIN FT	100	100		
	2502.602	4" PE PIPE DRAIN CLEANOUT			EACH	1	1		
	2503.541	15" RC PIPE SEWER DES 3006 CL II			LIN FT	660	300	300	60
	2503.541	18" RC PIPE SEWER DES 3006 CL II			LIN FT	414	207	207	
	2503.541	24" RC PIPE SEWER DES 3006 CL II			LIN FT	220	110	110	
	2504.602	ADJUST GATE VALVE			EACH	6	6		
	2504.602	CONNECT TO EXISTING WATER MAIN			EACH	1			1
	2504.602	HYDRANT			EACH	2			2
	2504.602	6" GATE VALVE			EACH	2			2
	2504.602	1" CORPORATION STOP			EACH	4			4
	2504.602	1" CURB STOP & BOX			EACH	4			4
	5204.603	1" TYPE K COPPER PIPE			LIN FT	119			119
	2504.603	6" WATERMAIN DUCTILE IRON CL 52			LIN FT	13			13
	2504.603	8" WATERMAIN DUCTILE IRON CL 52			LIN FT	425			425
	2504.604	2" POLYSTYRENE INSULATION			SY	50			50
	2504.608	DUCTILE IRON FITTINGS			LB	288			288

**NOTES:**

- (P) DENOTES PLAN QUANTITY.
- (1) 3" THICK WEAR COURSE MIX SHALL BE USED FOR DRIVEWAYS AND SHALL BE PLACED IN ONE LIFT.
- (2) INCLUDES INSTALLATION OF 4" PERFORATED PE PIPE WITH A FILTER SOCK EMBEDDED IN ONE FOOT OF GRAVEL ON BOTH SIDES OF PIPE.
- (3) POND OVERFLOW - SEE SHEET NO. 45 FOR DETAILS.
- (4) INCLUDES INPLACE TOPSOIL. TOPSOIL ENCOUNTERED IN THE PROJECT LIMITS IS ASSUMED TO BE 4" AND SHALL BE STOCKPILED FOR SLOPE DRESSING. ANY MATERIAL NOT USED ON PROJECT, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OUTSIDE THE RIGHT-OF-WAY.
- (5) NO ATTEMPT HAS BEEN MADE TO DETERMINE THE TYPE OF MATERIAL TO BE EXCAVATED.
- (6) LIMITS OF CLEARING AND GRUBBING SHALL BE STAKED IN THE FIELD.
- (7) DEPTH MAY VARY
- (8) SPEC. 2360 BITUMINOUS MIXTURES COMPUTED AT 113 POUNDS / SQ YD / INCH.
- (9) ALL TRAFFIC CONTROL AND SIGNING SHALL CONFORM TO THE MUTCD INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- (10) F&I SIGN POST SHALL BE INCIDENTAL.
- (11) INCLUDES REMOVING SEDIMENT BUILD-UP AND REPAIRING, REPLACING, OR SUPPLEMENTING WHEN NON-FUNCTIONAL.
- (12) LUMP SUM ITEM INCLUDES INSTALLATION, MAINTENANCE AND REMOVAL OF CULVERT END PROTECTION FOR THE LIFE OF THE PROJECT.
- (13) FERTILIZER ANALYSIS 18-1-18, APPLIED AT A RATE OF 150 LBS PER ACRE
- (14) SEED MIX 350 APPLIED AT A RATE OF 84.5 POUNDS/ACRE.
- (15) PLANTING MEDIUM FOR FILTRATION PONDS AND SWALES. A WELL BLENDED, HOMOGENOUS MIXTURE OF 55-65% CONSTRUCTION SAND; 10-20% TOP SOIL; AND 25-35% ORGANIC LEAF COMPOST.

Plot Date: 08/29/2012  
 Drawing: C:\Users\jstuden\OneDrive\Documents\2012\14851000\14851000.dwg  
 User: jstuden  
 Title: 14851000.dwg

NO	DATE	BY	CKD	APPR	REVISION

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 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



**CITY OF LINO LAKES**  
**ESTIMATED QUANTITIES**  
**BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

ESTIMATED QUANTITIES

SHEET NO.	ITEM NUMBER	ITEM	NOTE NO.	UNIT	TOTAL ESTIMATED QUANTITY	CITY OF LINO LAKES BIRCH STREET NON-PARTICIPATING	ANOKA COUNTY BIRCH STREET S.A.P. 002-634-002	CITY OF LINO LAKES WARE ROAD NON-PARTICIPATING	CITY OF LINO LAKES SIOUX LANE NON-PARTICIPATING
						QUANTITY	QUANTITY	QUANTITY	QUANTITY
	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN H		LIN FT	19.3	19.3			
	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 402		LIN FT	8				8
	2506.501	CONSTRUCT DRAINAGE STRUCTURE DES 48-4020		LIN FT	21.7	17.2			4.5
	2506.501	CONSTRUCT DRAINAGE STRUCTURE DES 60-4020		LIN FT	4.87	4.87			
	2506.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE		EACH	1				1
	2506.516	CASTING ASSEMBLY		EACH	9	9			
	2506.522	ADJUST FRAME & RING CASTING		EACH	5	5			
	2506.602	CONSTRUCT POND OVERFLOW	(3)	EACH	1	1			
	2511.501	RANDOM RIPRAP CLASS III		CU YD	30	30			
	2521.501	4" CONCRETE WALK		SQ FT	5939	5939			
	2521.511	2" BITUMINOUS TRAIL		SQ FT	7059		7059		
	2531.507	6" CONCRETE DRIVEWAY PAVEMENT		SQ YD	84	84			
	2531.501	CONCRETE CURB & GUTTER DESIGN B418		LIN FT	3002	1501	1501		
	2531.501	CONCRETE CURB & GUTTER DESIGN B618		LIN FT	100	50	50		
	2531.501	CONCRETE CURB & GUTTER DESIGN D412		LIN FT	470				470
	2531.618	TRUNCATED DOMES		SQ FT	96	96			
	2540.602	INSTALL MAILBOX & SUPPORT		EACH	7	7			
	2540.602	MAILBOX SUPPORT		EACH	7	7			
	2554.509	GUIDE POST TYPE B		EACH	1		1		
	2563.601	TRAFFIC CONTROL	(9)	LUMP SUM	1	0.31	0.43	0.17	0.09
	2564.531	SIGN PANELS TYPE C	(10)	SQ FT	60.5	60.5			
	2564.537	INSTALL SIGN TYPE C	(10)	EACH	3	3			
	2564.602	INSTALL DELINEATOR		EACH	4	4			
	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM B		SIGS	1	0.25	0.25	0.5	
	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM B		LS	1	1			
	2565.601	TRAFFIC CONTROL INTERCONNECTION		LS	1	0.25	0.25	0.5	
	2573.530	STORM DRAIN INLET PROTECTION		EACH	11	11			
	2573.540	FILTER LOG TYPE COMPOST LOG	(11)	LIN FT	2400	2400			
	2573.601	CULVERT END PROTECTION	(12)	LUMP SUM	1	1			
	2573.602	TEMPORARY ROCK CONSTRUCTION ENTRANCE		EACH	1	1			
	2575.501	SEEDING		ACRE	0.85	0.85			
	2575.502	SEED MIXTURE 350	(14)	POUND	72	72			
	2575.511	MULCH MATERIAL TYPE 3		TON	1.7	1.7			
	2575.519	DISC ANCHORING		ACRE	0.85	0.85			
	2575.532	FERTILIZER TYPE 4	(13)	POUND	128	128			
	2582.501	PAVT MSSG (RT ARROW) POLY PREFORM		EACH	11		11		
	2582.501	PAVT MSSG (LT ARROW) POLY PREFORM		EACH	6		6		
	2582.502	4" SOLID LINE WHITE-EPOXY		LIN FT	6390		6390		
	2582.502	4" SOLID LINE YELLOW-EPOXY		LIN FT	1080		1080		
	2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY		LIN FT	3125		3125		
	2582.502	24" SOLID LINE WHITE-POLY PREFORM		LIN FT	125		125		
	2582.502	24" SOLID LINE YELLOW-POLY PREFORM		LIN FT	380		380		
	2582.503	CROSSWALK MARKINGS-POLY PREFORM		SQ FT	756		756		

NOTES:

- (P) DENOTES PLAN QUANTITY.
- (1) 3" THICK WEAR COURSE MIX SHALL BE USED FOR DRIVEWAYS AND SHALL BE PLACED IN ONE LIFT.
- (2) INCLUDES INSTALLATION OF 4" PERFORATED PE PIPE WITH A FILTER SOCK EMBEDDED IN ONE FOOT OF GRAVEL ON BOTH SIDES OF PIPE.
- (3) POND OVERFLOW - SEE SHEET NO. 45 FOR DETAILS.
- (4) INCLUDES INPLACE TOPSOIL. TOPSOIL ENCOUNTERED IN THE PROJECT LIMITS IS ASSUMED TO BE 4" AND SHALL BE STOCKPILED FOR SLOPE DRESSING. ANY MATERIAL NOT USED ON PROJECT, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OUTSIDE THE RIGHT-OF-WAY.
- (5) NO ATTEMPT HAS BEEN MADE TO DETERMINE THE TYPE OF MATERIAL TO BE EXCAVATED.
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Plot Date: 08/09/2012  
 File: L:\Projects\14851000\mnc\CD\11-Signal\_BirchWarePlan\Plan\14851000-ES.dwg  
 Xref: 2244.dwg, ISS.dwg

NO	DATE	BY	CKD	APPR	REVISION

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S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 ESTIMATED QUANTITIES  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

## SOILS AND CONSTRUCTION NOTES

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007D	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3022C	PRECAST CONCRET SAFETY APRON (3 SHEETS)
3040F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" X 1/2" CORRUGATION)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133C	RIPRAP AT RCP OUTLETS
3134C	RIPRAP AT CMP OUTLETS
3145F	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS) - CASTING NO. 825
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7102J	CONCRETE CURB AND GUTTER (DESIGN D, S, B4, B5, AND D3) (2 SHEETS)
7109C	MEDIAN NOSE AND ISLAND (UNDIVIDED TO DIVIDED ROADWAY)
7111J	INSTALLATION OF CAST BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000I	STANDARD BARRICADES
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8112G	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
8114A	P.V.C. HAND HOLE / PULL BOX (NO VEHICLE LOAD) (2 SHEETS)
8119C	GROUND MOUNTED CABINET FOUNDATION
8120P	POLE FOUNDATION (PA85)
8121G	TRANSFORMER BASE & POLE BASE PLATE (PA85, PA90, & PA100) (2 SHEETS)
8122F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123G	POLE & MAST ARM - LUMINARIES & TRAFFIC LIGHT ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126J	POLE FOUNDATION (PA90 & PA100)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR (3 SHEETS)
8150C	INSTALLATION OF CULVERT MARKERS
9350A	MAILBOX SUPPORT
9102D	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)

1. THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 OR 6 AGGREGATE.
2. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED EXCEPT TOPSOIL, SILT, DEBRIS, ORGANIC MATERIAL, AND OTHER UNSTABLE MATERIAL.
3. STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND, IF PRACTICAL, STOCKPILE FOR REPLACEMENT LATER AS SLOPE DRESSING. TOPSOIL SHALL NOT BE REMOVED OFF THIS PROJECT.
4. SLOPE DRESSING IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF. IN ALL AREAS OF CONSTRUCTION, PROVIDE FOR A MINIMUM 4" OF SLOPE DRESSING.
5. THE TOP OF BACKSLOPES AND THE TOE OF FILL SLOPES SHALL BE ROUNDED TO NATURALIZE THE CONSTRUCTION EVEN THOUGH THE CROSS SECTIONS DO NOT SHOW ANY SUCH ROUNDING.
6. THE BOTTOM OF ALL SUBCUTS SHALL BE SHAPED AND COMPACTED BY THE "QUALITY COMPACTION METHOD".
7. OBTAIN COMPACTION ON THE GRADING PORTION OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS.
8. TEST ROLLING WILL NOT BE REQUIRED.
9. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.
10. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE PROPOSED CUT OR FILL SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
11. THE CONTRACTOR SHALL NOT STORE EXCAVATED MATERIAL OUTSIDE THE PLANNED CONSTRUCTION LIMITS UNLESS APPROVED BY THE ENGINEER.
12. EARTHWORK FINISHING AND TOPSOIL COVERING OPERATIONS SHALL BE CONDUCTED CONCURRENTLY WITH GRADING OPERATIONS SO FAR AS TO PERMIT COMPLETION OF THE EROSION CONTROL ITEMS AT THE EARLIEST PRACTICAL TIME. TOPSOIL COVERING SHALL BE COMPLETED AS SOON AS POSSIBLE AFTER THE GRADING SOILS HAVE BEEN FINISHED TO GRADE IN ANY SIGNIFICANT AREA.
13. SEED ALL AREAS DISTURBED BY CONSTRUCTION AS SHOWN ON THE EROSION CONTROL PLANS. ALL AREAS OUTSIDE THE PLANNED CONSTRUCTION DISTURBED BY THE CONTRACTOR'S EQUIPMENT SHALL BE RESTORED, AS APPROVED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
14. PROVIDE FOR THE REMOVAL AND DISPOSAL, OUTSIDE THE RIGHT-OF-WAY, OF ANY INPLACE SURFACING OR OTHER STRUCTURES THAT WOULD INTERFERE WITH CONSTRUCTION. ALL SUCH MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED TO THE EXTENT ALLOWED OR DISPOSED OF OFF THE RIGHT-OF-WAY.
15. THE CONTRACTOR SHALL COORDINATE THE SALVAGE OR REMOVAL OF ALL MISCELLANEOUS STRUCTURES, SUCH AS PRIVATE SIGNS, WITHIN THE PROJECT LIMITS WITH THE APPROPRIATE OWNERS.
16. FOR ALL PERMANENT AND TEMPORARY CONSTRUCTION, PROVIDE A FULL DEPTH SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT. ALL LONGITUDINAL SAWCUTS SHALL BE PLACED AT THE INSIDE EDGE OF PROPOSED LANE LINES. ALL TRANSVERSE SAWCUTS SHALL BE PERPENDICULAR TO PROPOSED LANELINES. SAWCUT EDGES SHALL BE TACK-COATED PRIOR TO PAVING (INCIDENTAL).
17. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1 (V) : 1 (H) SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
18. IN LOCATIONS OF WIDENING, THE CONTRACTOR SHALL MATCH THE EXISTING SOILS AND LAYERS IN THE UPPER 4 FEET OF THE ROADWAYS TO THE GREATEST EXTENT POSSIBLE. GRANULAR BACKFILL SHALL NOT BE PERMITTED ADJACENT TO EXISTING NON-GRANULAR (FROST SUSCEPTIBLE) SOILS IN ORDER TO PREVENT AN ABRUPT SOILS DIFFERENTIAL. THE CONTRACTOR SHALL PROVIDE A 1:1 (V:H) TRANSVERSE TRANSITION BETWEEN THE CHANGES IN MATERIAL TO PREVENT AN ABRUPT SOILS DIFFERENTIAL WHERE WIDENING ADJACENT TO NON-GRANULAR (FROST SUSCEPTIBLE) EXISTING SOILS.
19. AS A PRECAUTIONARY MEASURE, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING A 1V:2H OR FLATTER SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION.
20. OBTAIN COMPACTION ON 4 INCH OR GREATER AGGREGATE BASE LIFTS IN ACCORDANCE WITH THE "MODIFIED PENETRATION INDEX METHOD" REQUIREMENTS. THE TESTS SHALL BE PERFORMED IN ACCORDANCE WITH MNDOT SPEC. 2211.3C3. THIS WOULD INCLUDE ANY AREAS WHERE CRUSHED CONCRETE OR SALVAGED ASPHALT MAY BE USED FOR AGGREGATE BASE. FOR LIFTS OF LESS THAN 4 INCHES OBTAIN COMPACTION IN ACCORDANCE WITH QUALITY COMPACTION METHOD (MNDOT SPEC. 2211.3C2).
21. THE CONTRACTOR SHALL SHAPE AND RECOMPACT ANY AGGREGATE BASE THAT IS EXPOSED AFTER MILLING THE BITUMINOUS SHOULDER PAVEMENT. THIS WORK SHALL BE PERFORMED AHEAD OF THE SHOULDER PAVING OPERATION AND BE DONE TO THE SATISFACTION OF THE ENGINEER. THIS WORK SHALL BE INCIDENTAL.
22. AFTER MILLING THE PAVEMENT TO THE REQUIRED DEPTH AND PRIOR TO OVERLAYING, AIR BLAST ANY DETERIORATED CRACKS AND JOINTS TO REMOVE LOOSE OR DETERIORATED BITUMINOUS SURFACING. THE AIR BLASTING SHALL BE DONE WITH HIGH-PRESSURE (100+ PSI) EQUIPMENT.
23. DEPRESSIONS RESULTING AFTER AIR BLASTING, SWEEPING OR MILLING OPERATIONS WHICH ARE GREATER THAN 2 INCHES IN DEPTH AND 4 INCHES IN WIDTH AND JOINTS AND CRACKS THAT ARE GREATER THAN 1-1/2 INCHES IN DEPTH AND WIDTH SHALL BE PATCHED WITH BITUMINOUS PATCHING MIXTURE. PATCHING OF THESE AREAS SHALL BE DONE AHEAD OF THE PAVING OPERATIONS AND COMPACTED WITH A SMALL VIBRATORY OR PNEUMATIC ROLLER. DEPRESSIONS OF LESSER DIMENSIONS SHALL BE FILLED WITH THE WEAR COURSE MIXTURE IN FRONT OF THE PAVER.
24. ADDITIONAL WORK REQUIRED TO MILL AND OVERLAY AROUND MANHOLES AND VALVES, INCLUDING THOSE NOT SHOWN ON THE PLANS, SHALL BE INCIDENTAL.
25. TEMPORARY GRADING AND SURFACING MATERIALS REQUIRED TO FILL IN EXCAVATIONS TO MEET TEMPORARY DROP-OFF GUIDELINES AND MAINTAIN TEMPORARY PEDESTRIAN ACCESS ROUTES SHALL BE INCIDENTAL.
26. PROVIDE FOR A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL COURSES. PLACE BITUMINOUS MATERIAL FOR TACK COAT IN ACCORDANCE WITH SPECIFICATION 2357 AT A RATE OF 0.04 GALLONS PER SQUARE YARD BETWEEN BITUMINOUS LAYERS (INCIDENTAL).
27. BITUMINOUS PAVEMENT SHALL BE CONSTRUCTED IN LAYERS OF THE THICKNESS SPECIFIED IN THE CONSTRUCTION DETAILS AND TYPICAL SECTIONS. BITUMINOUS DRIVEWAYS SHALL BE CONSTRUCTED IN ONE 3" LAYER.
28. LOCATIONS OF UNDERGROUND UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE LOCATIONS PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING UTILITY LOCATIONS PRIOR TO ANY EXCAVATING OPERATIONS.
29. THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL AND RAILROAD ENGINEERING REPRESENTATIVES.
30. PIPE SEWERS CONNECTING MANHOLES AND CATCHBASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM SUITABLE GRADING MATERIAL MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
31. THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL AND HORIZONTAL CONTROLS AND RIGHT OF WAY MONUMENTS.
32. ALL CONCRETE TRUCKS SHALL WASH OUT WITHIN THE PROJECT LIMITS AWAY FROM ANY OPEN WATERS, DITCHES, OR WETLANDS AT A LOCATION SPECIFIED BY THE ENGINEER. HARDENED CONCRETE WASTE MUST BE REMOVED FROM THE PROJECT LIMITS AND PROPERLY DISPOSED. SEE SWPPP NOTES FOR ADDITIONAL POLLUTION PREVENTION MEASURES.

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 User: jstuden

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

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DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

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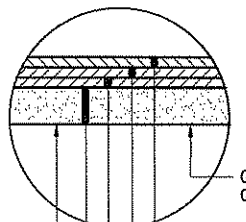
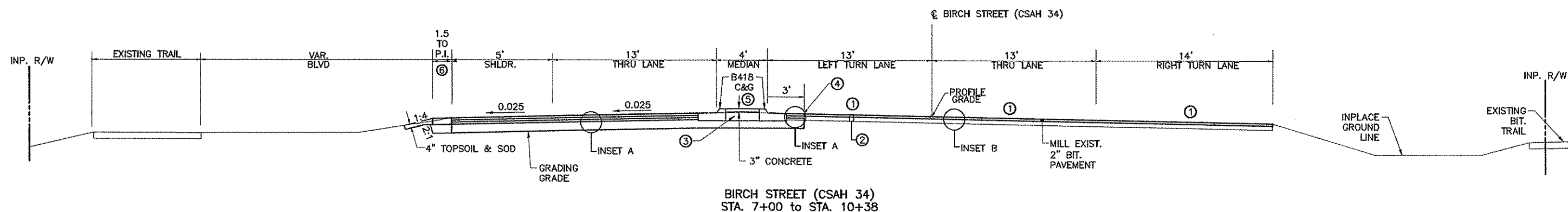
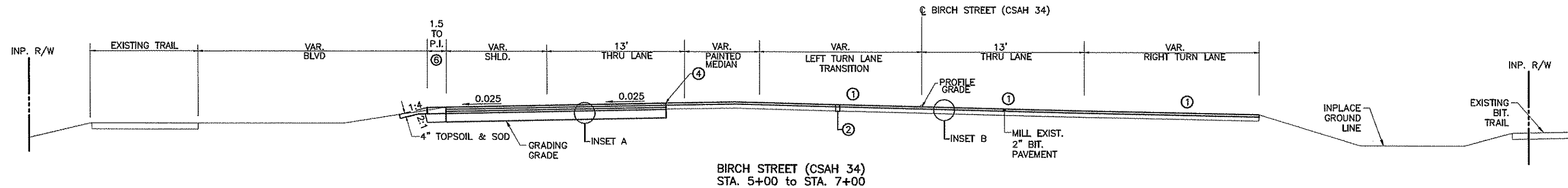
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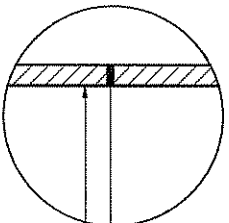
**CITY OF LINO LAKES**

**STANDARD PLATES,  
 SOILS AND CONSTRUCTION NOTES  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

**SHEET  
 5  
 OF  
 63**



**INSET A**  
FULL DEPTH PAVING



**INSET B**  
2" MILL AND OVERLAY

**GENERAL NOTES:**

- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS.
- ALL CROSS SLOPES EXPRESSED IN FT./FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- UNLESS OTHERWISE SPECIFIED, SUBGRADE EXCAVATION WILL EXTEND 1' BEYOND BACK OF CURB, AND 1.5' BEYOND RURAL SHOULDER EDGE.

**NOTES:**

- ① MATCH INPLACE CROSS SLOPE.
- ② INPLACE BITUMINOUS PAVEMENT. DEPTH VARIES.
- ③ SUITABLE BACKFILL MATERIAL.
- ④ SAWCUT 1' FROM EXISTING EDGE OF PAVEMENT OR LIP OF CURB AND REMOVE BITUMINOUS PAVEMENT.
- ⑤ B418 C&G MEDIAN STA. 7+00 TO STA. 9+84
- ⑥ AGGREGATE SHOULDERING, CLASS 2 MOD.

Proj. Data: 08/01/2012  
 Drawing Name: KS  
 Proj. Location: KS  
 Date: 7/23/2012

NO	DATE	BY	CKD	APPR	REVISION

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 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

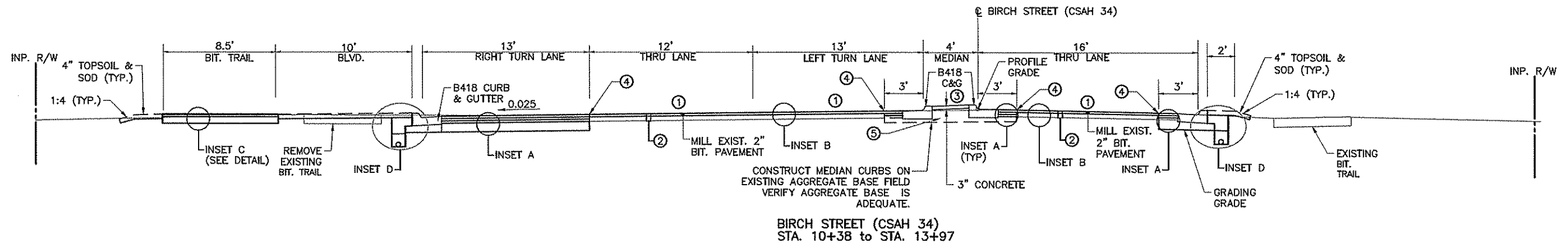
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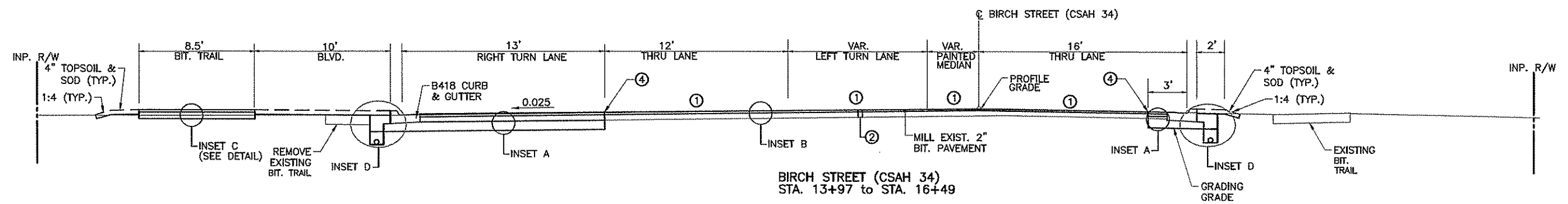


CITY OF LINO LAKES  
 TYPICAL SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

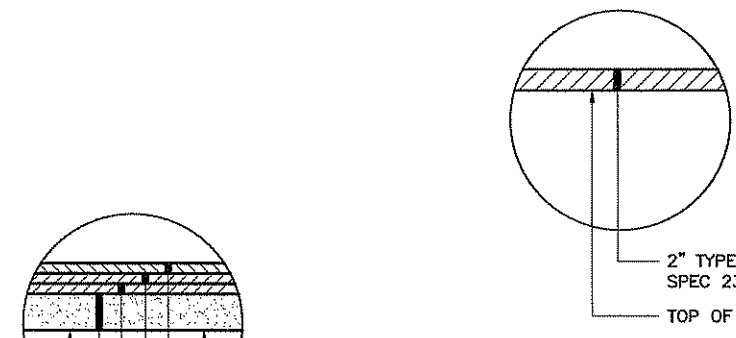
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**6**  
 OF  
**63**



BIRCH STREET (CSAH 34)  
STA. 10+38 to STA. 13+97

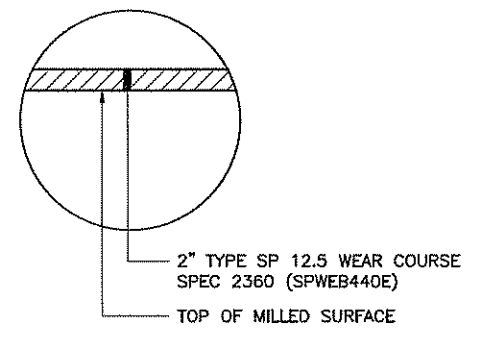


BIRCH STREET (CSAH 34)  
STA. 13+97 to STA. 16+49



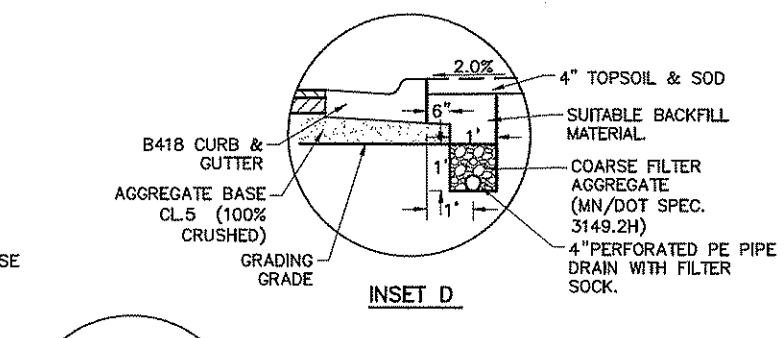
**INSET A**  
FULL DEPTH PAVING

- GRADING GRADE
- 2" TYPE SP 12.5 WEAR COURSE SPEC 2360 (SPWEB440E)
- 2" TYPE SP 12.5 NON-WEARING COURSE SPEC 2360 (SPNWB430B)
- 2" TYPE SP 12.5 NON-WEARING COURSE SPEC 2360 (SPNWB430B)
- 8" AGGREGATE BASE, CLASS 5 (100% CRUSHED)
- SUBGRADE EXCAVATION OR INSTALL APPROVED SUBGRADE AS DIRECTED BY ENGINEER



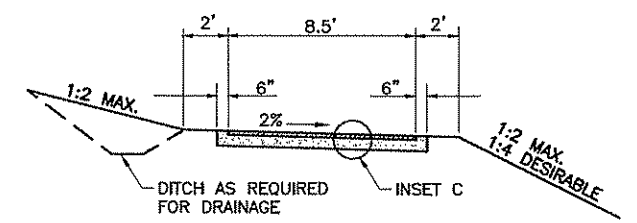
**INSET B**  
2" MILL AND OVERLAY

- 2" TYPE SP 12.5 WEAR COURSE SPEC 2360 (SPWEB440E)
- TOP OF MILLED SURFACE



**INSET C**  
BITUMINOUS TRAIL

- 2" TYPE SP 12.5 WEAR COURSE SPEC 2360 (SPWEB440E)
- 6" CLASS 5, AGGREGATE BASE (100% CRUSHED)
- SUBGRADE (APPROVED BY CITY)



**BITUMINOUS TRAIL DETAIL**  
STA. 10+96 TO STA. 20+50

**GENERAL NOTES:**

- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS.
- ALL CROSS SLOPES EXPRESSED IN FT./FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- UNLESS OTHERWISE SPECIFIED, SUBGRADE EXCAVATION WILL EXTEND 1' BEYOND BACK OF CURB, AND 1.5' BEYOND RURAL SHOULDER EDGE.

**NOTES:**

- ① MATCH INPLACE CROSS SLOPE.
- ② INPLACE BITUMINOUS PAVEMENT. DEPTH VARIES.
- ③ SUITABLE GRADING MATERIAL
- ④ SAWCUT 1' FROM EXISTING EDGE OF PAVEMENT OR LIP OF CURB AND REMOVE BITUMINOUS PAVEMENT.
- ⑤ B418 C&G MEDIAN STA. 10+96 TO STA. 13+51.5

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SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

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DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

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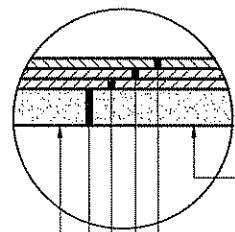
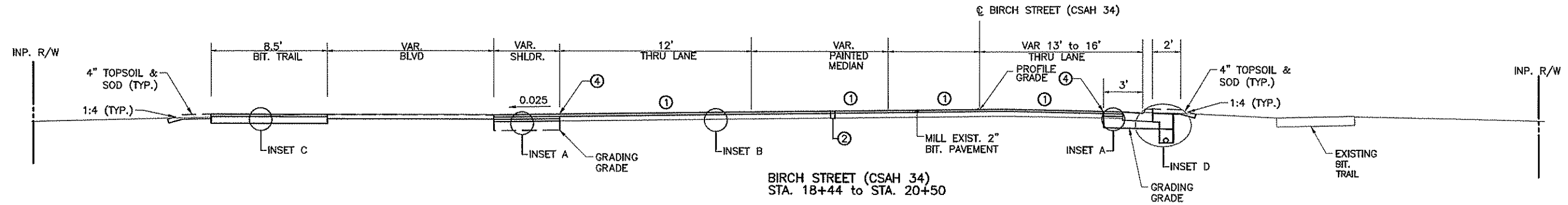
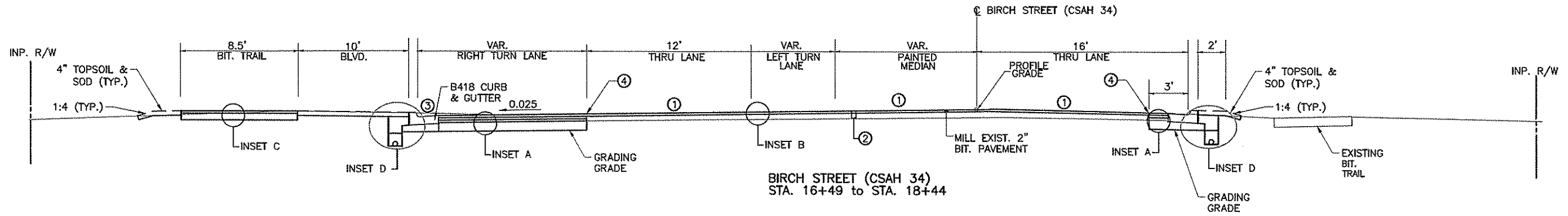
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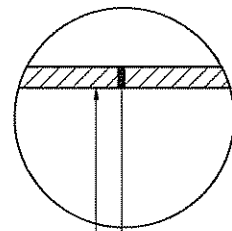
CITY OF LINO LAKES

TYPICAL SECTIONS  
BIRCH STREET (CSAH 34)  
BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

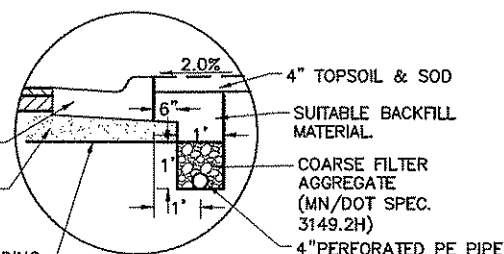
SHEET  
7  
OF  
63



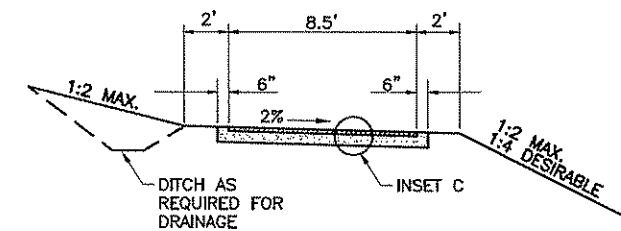
**INSET A**  
FULL DEPTH PAVING



**INSET B**  
2" MILL AND OVERLAY



**INSET C**  
BITUMINOUS TRAIL



**BITUMINOUS TRAIL DETAIL**  
STA. 10+96 TO STA. 20+50

**GENERAL NOTES:**

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- UNLESS OTHERWISE SPECIFIED, SUBGRADE EXCAVATION WILL EXTEND 1' BEYOND BACK OF CURB, AND 1.5' BEYOND RURAL SHOULDER EDGE.

**NOTES:**

- ① MATCH INPLACE CROSS SLOPE.
- ② INPLACE BITUMINOUS PAVEMENT. DEPTH VARIES.
- ③ B418 C&G STA. 13+97 TO STA. 19+12
- ④ UNLESS OTHERWISE SPECIFIED, SAWCUT 1' FROM EXISTING EDGE AND REMOVE BITUMINOUS PAVEMENT.

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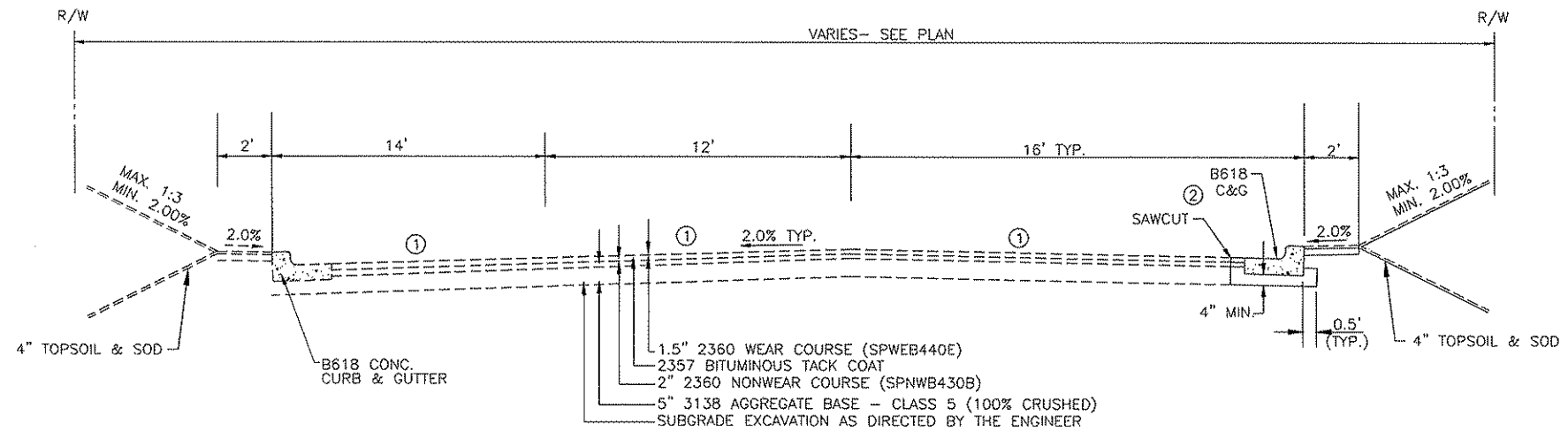
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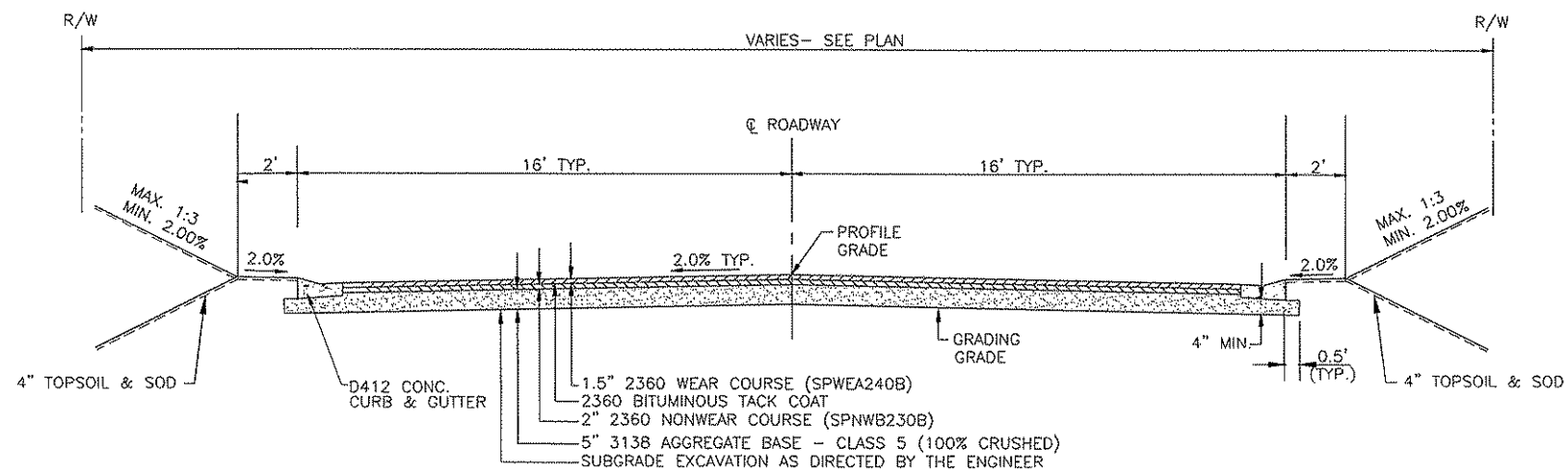
**CITY OF LINO LAKES**  
**TYPICAL SECTIONS**  
**BIRCH STREET (CSAH 34)**  
**BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

**SHEET**  
**8**  
**OF**  
**63**





**TYPICAL SECTION**  
WARE ROAD



**TYPICAL SECTION**  
SIOUX LANE

**NOTES:**

- ① MATCH INPLACE CROSS SLOPE.
- ② SAWCUT 1' FROM EXISTING EDGE OF PAVEMENT OR LIP OF CURB AND REMOVE BITUMINOUS PAVEMENT. DEPTH VARIES.

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 Title: 228-PHOTO\_128

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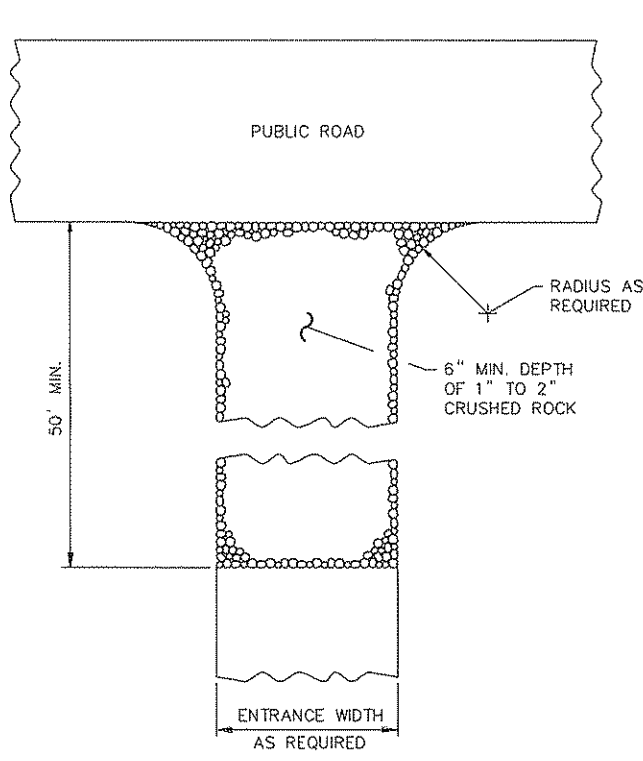
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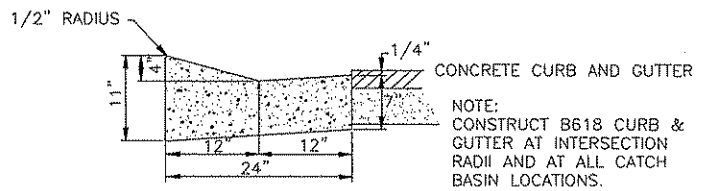


CITY OF LINO LAKES  
 TYPICAL SECTIONS  
 SIOUX LANE & WARE ROAD  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

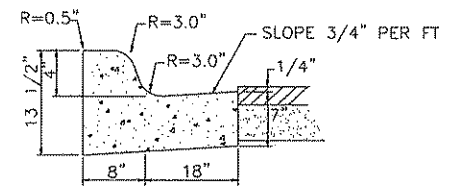
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 9  
 OF  
 63



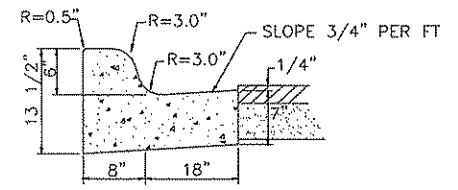
ROCK CONSTRUCTION ENTRANCE



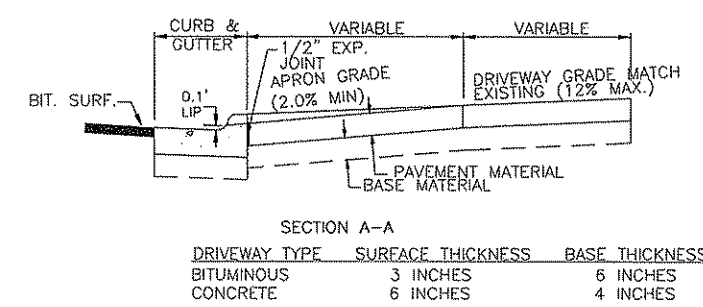
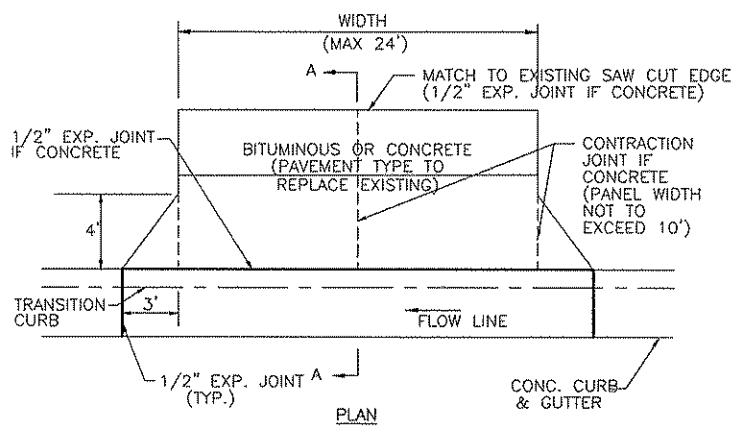
D412 CONCRETE CURB



B418 CONCRETE CURB & GUTTER

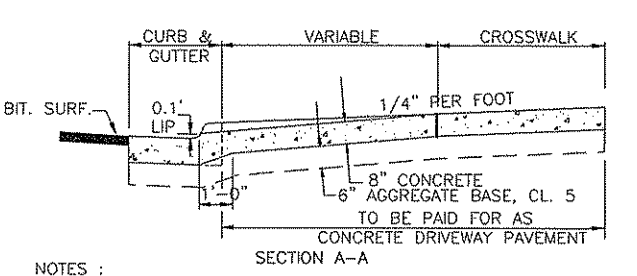
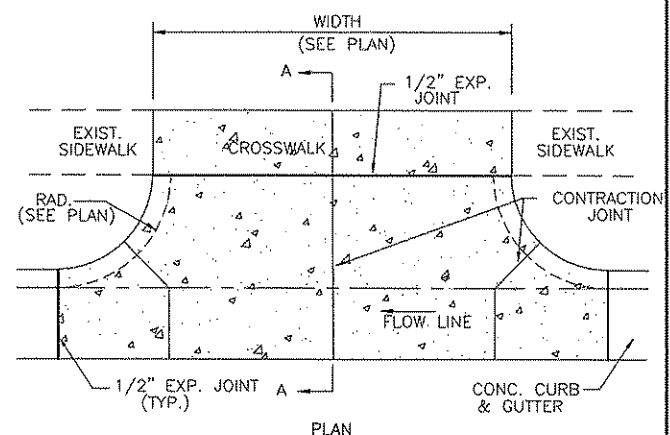


B618 CONCRETE CURB AND GUTTER



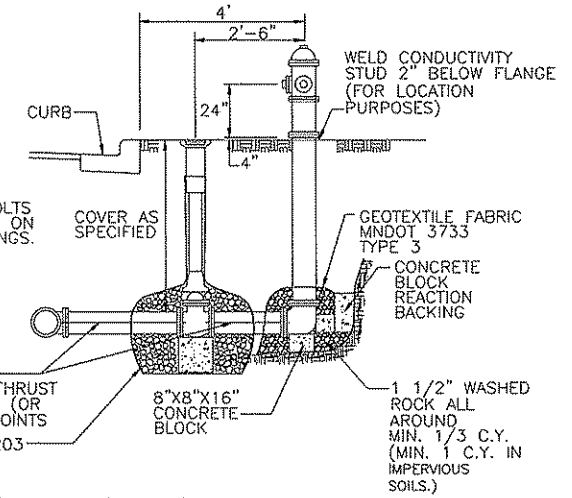
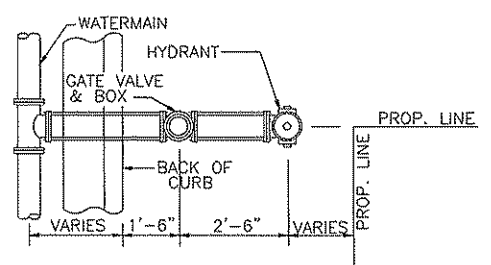
NOTES:  
 1. BITUMINOUS SHALL BE TYPE SP 12.5 WEAR COURSE SPEC 2360 (SPWEB440E).  
 2. AGGREGATE BASE SHALL BE MNDOT 3136 CL. 5, 100% CRUSHED STONE.

RESIDENTIAL DRIVEWAY

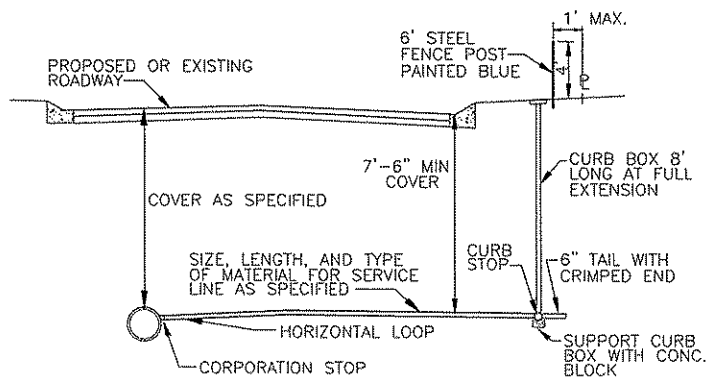


NOTES:  
 1. PANEL WIDTH SHALL NOT EXCEED 10' WITHOUT CONTR. JOINT.  
 2. WHERE SIDEWALK EXISTS OR IS PROPOSED, CROSSWALK SHALL BE SAME THICKNESS AS DRIVEWAY.

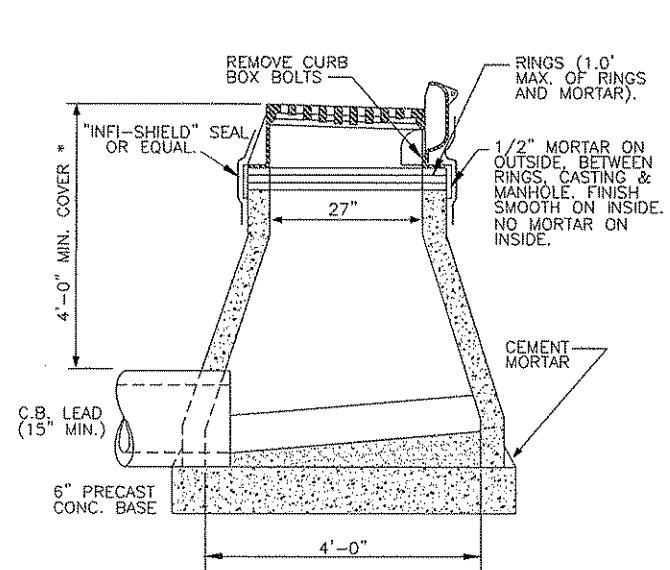
COMMERCIAL CONCRETE DRIVEWAY



TYPICAL HYDRANT LAYOUT (VALVE IN BOULEVARD)

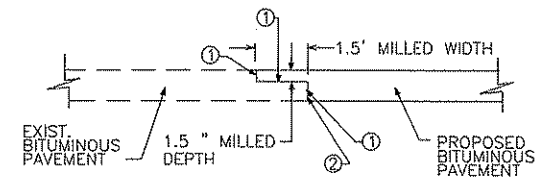


WATER SERVICE DETAIL



A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.  
 NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.  
 CAST IRON CATCH BASIN FRAME & COVER CASTINGS PER SPECIFICATIONS.  
 PRECAST REINFORCED CONCRETE CONE SECTION & PRECAST BASE PER ASTM C478.  
 FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR  
 INSIDE SURFACE SHALL BE FINISHED SMOOTH.  
 \* MINIMUM PIPE COVER CAN BE REDUCED FROM 4' TO 2'-6" WITH INSTALLATION OF PERFORATED PIPE DRAIN PER "GRANULAR SUBCUT AND PERFORATED PIPE DRAIN" DETAIL.

CATCH BASIN, TYPE 402



MILLED LAP JOINT SHALL BE CONSTRUCTED WHERE MATCHING INTO EXISTING BITUMINOUS PAVEMENT. MILL IMMEDIATELY PRIOR TO CONSTRUCTING BITUMINOUS WEARING COURSE.  
 NOTES:  
 ① APPLY BITUMINOUS TACK COAT, MNDOT SPEC. 2357.  
 ② SAW BITUMINOUS PAVEMENT FULL DEPTH TO ESTABLISH A NEAT LINE FROM WHICH TO EXTEND THE NEW WORK.

MILLED LAP JOINT DETAIL

Plot Date: 08/07/2012  
 File Path: C:\Users\jstuden\OneDrive\Documents\2012\Projects\2012\BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION  
 Project: 14851.000

NO	DATE	BY	CHKD	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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

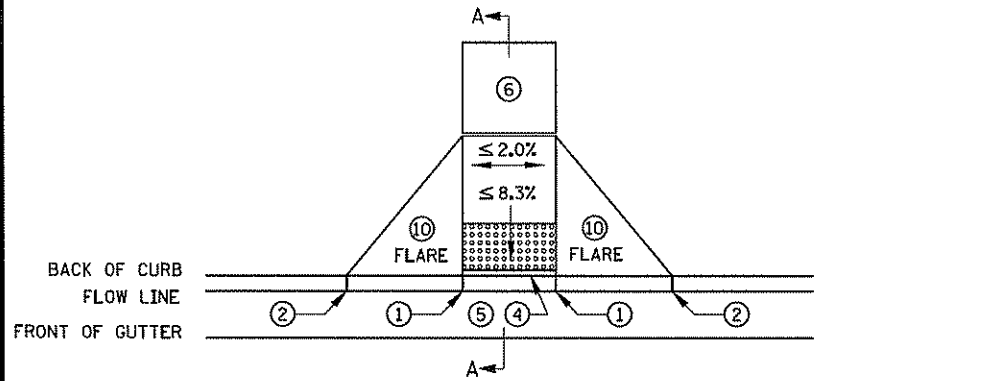
S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



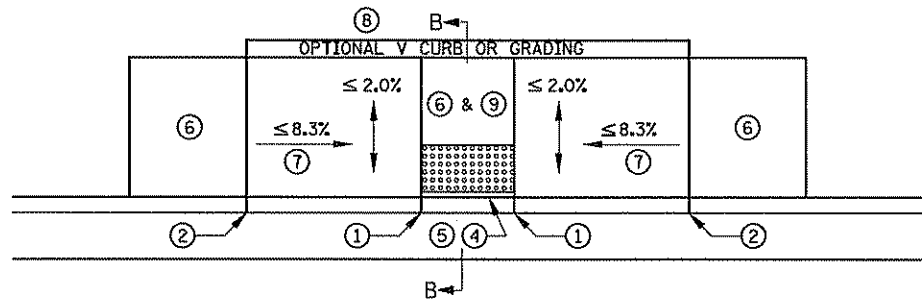
CITY OF LINO LAKES  
 MISCELLANEOUS DETAILS  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 10  
 OF  
 63

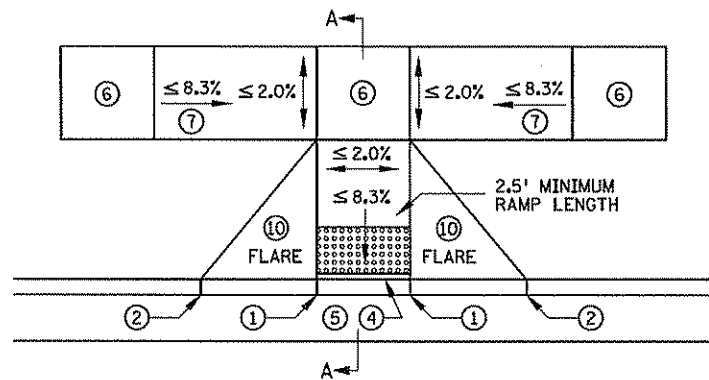
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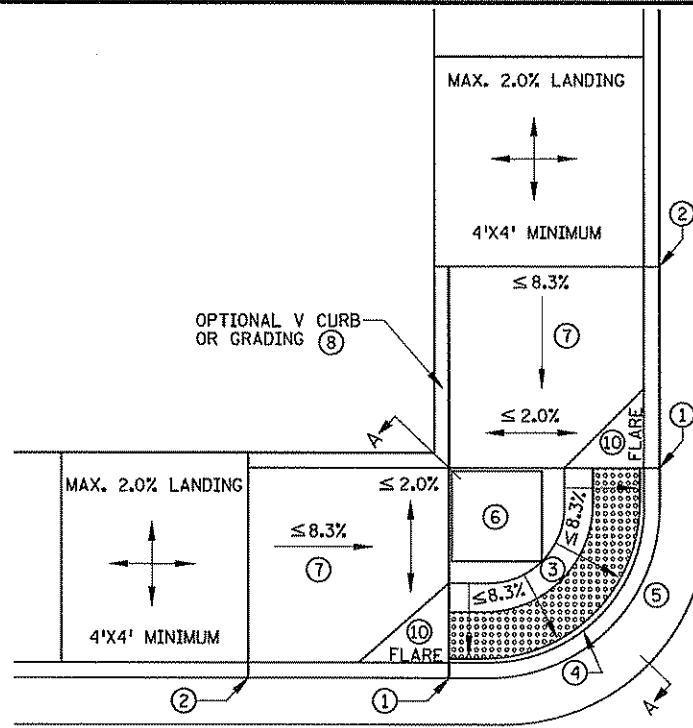
**PERPENDICULAR**



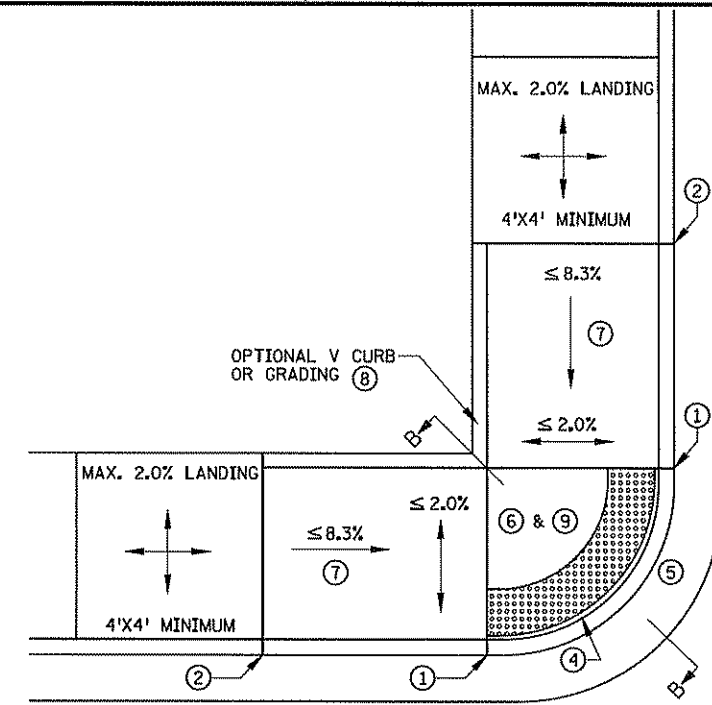
**PARALLEL**



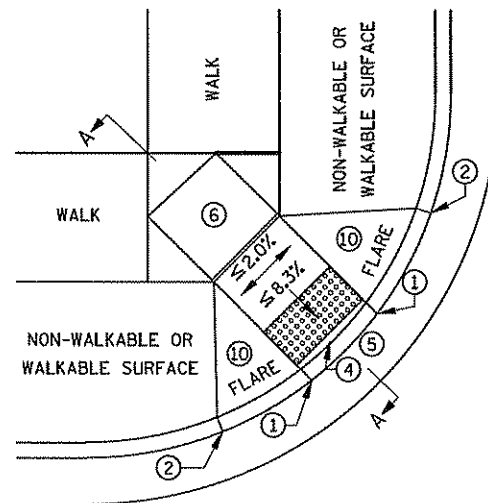
**TIERED PERPENDICULAR**



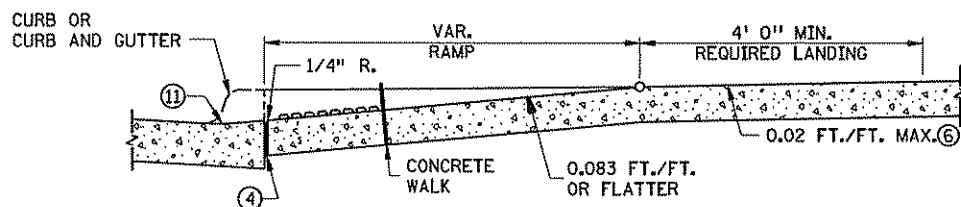
**FAN**



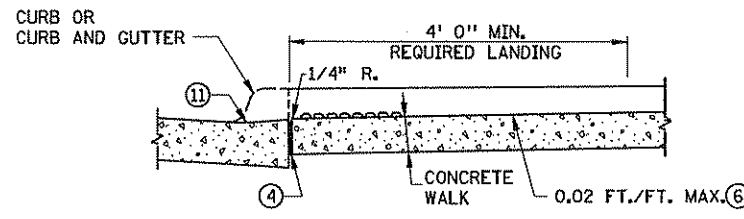
**DEPRESSED CORNER**



**DIAGONAL 12**



**SECTION A-A  
 PERPENDICULAR/TIERED/DIAGONAL/FAN**



**SECTION B-B  
 PARALLEL/DEPRESSED CORNER**

**NOTES:**

SEE STANDARD PLATE 7038, AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING. SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN, (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMP THAT HAVE RUNNING SLOPES GREATER THAN 5%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.

CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

USE 6" CONCRETE FOR ALL RAMP AND LANDING AREAS.

CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.

ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ LESS THAN 5% PREFERRED, 5-8.3% SHOULD ONLY BE USED AFTER ALL OTHER SLOPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. DOMES SHALL BE SET BACK 3" FROM THE BACK OF CURB OR EDGE OF ROADWAY.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
- ⑦ IF RUNNING SLOPE IS LESS THAN 5.0% NO UPPER LANDING IS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN ROW ALLOWS. SEE SHEET 5 OF 5.
- ⑨ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ⑩ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND CURBS.
- ⑪ ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH. SEE INSET A ON SHEET 3 OF 5 FOR FURTHER DETAIL.
- ⑫ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.

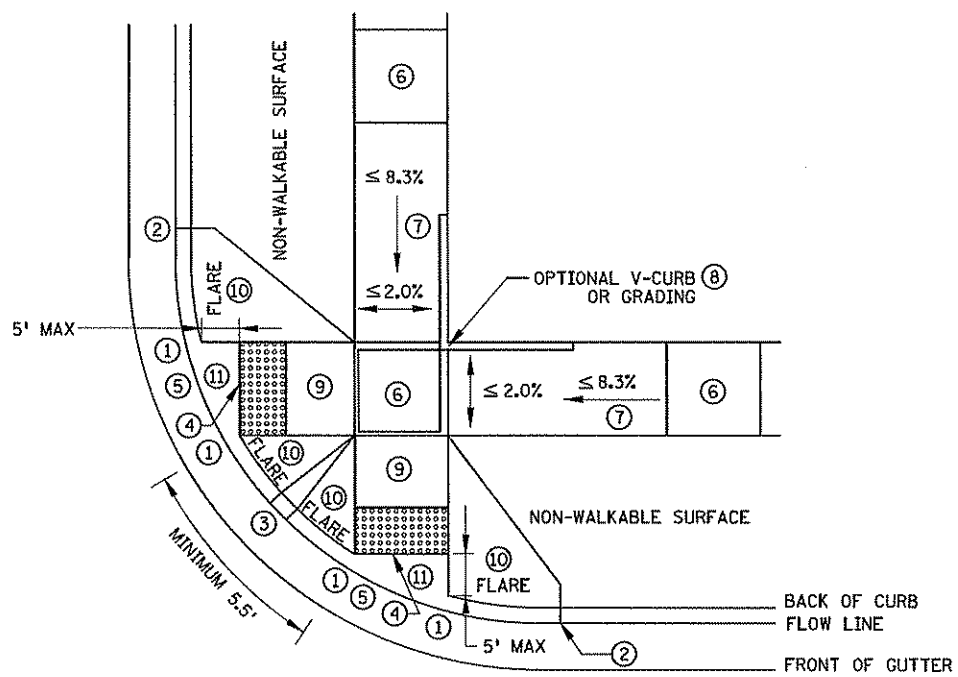
STANDARD PLAN SHEET NO.  
 5-297.250 (1 OF 5)  
 STANDARD APPROVED:  
 MAY 10, 2012

**PEDESTRIAN CURB RAMP DETAILS**

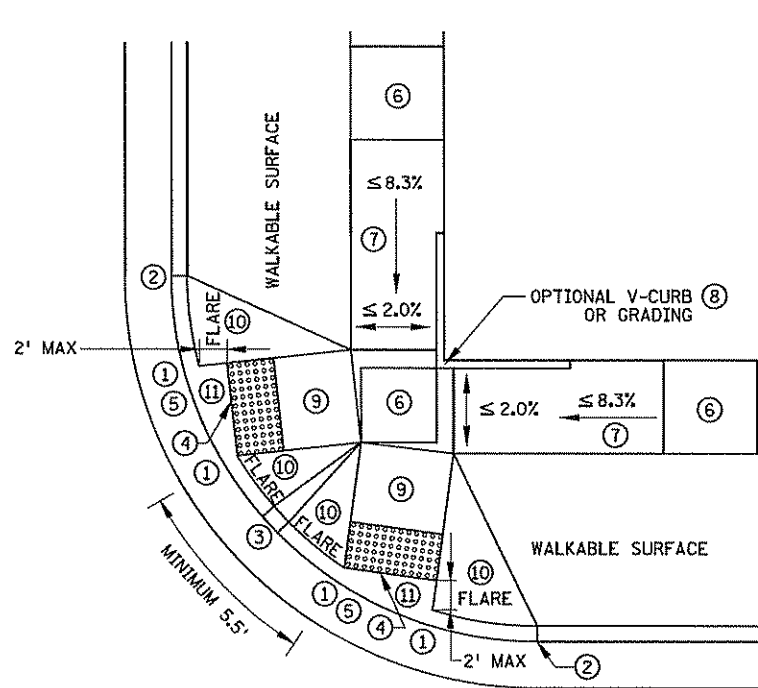
STATE AID PROJ. NO. 002-634-002 BIRCH STREET (CSAH 34)

**SHEET NO. 11 OF 63 SHEETS**

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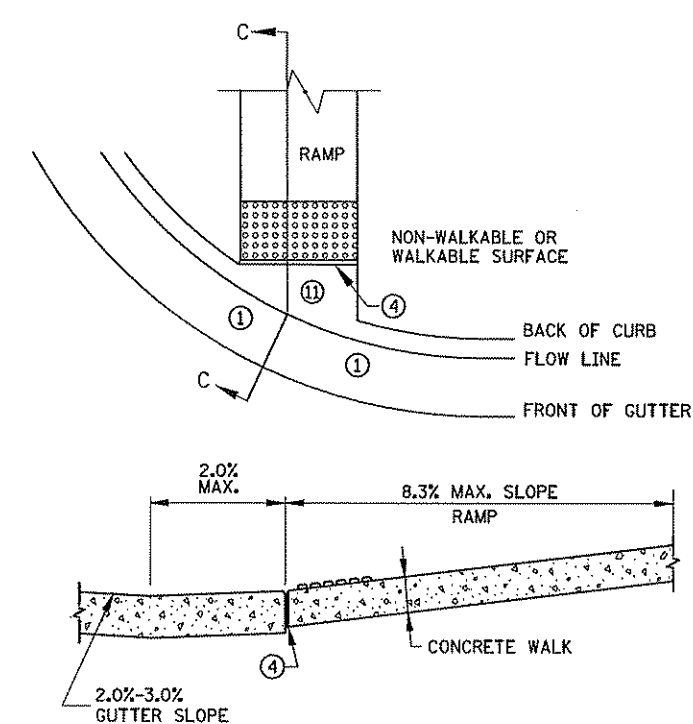


ADJACENT TO NON-WALKABLE SURFACE



ADJACENT TO WALKABLE SURFACE

**COMBINED DIRECTIONAL**



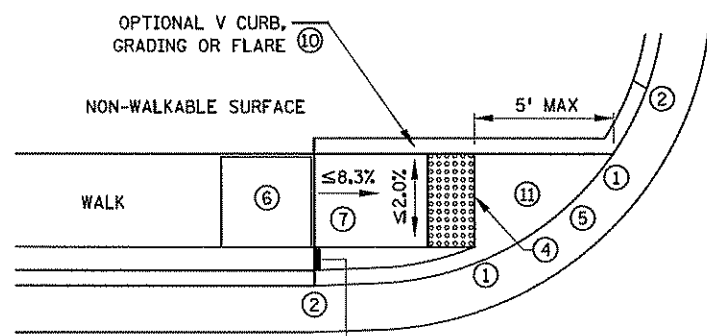
SECTION C-C

**CURB FOR DIRECTIONAL RAMPS 12**

**NOTES:**

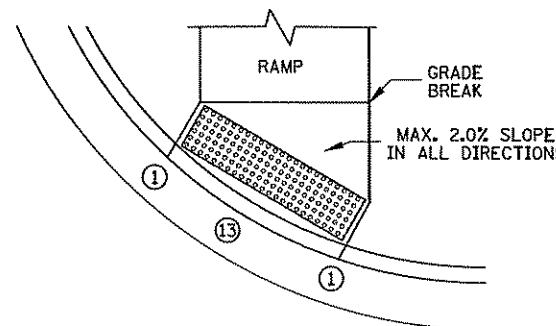
SEE STANDARD PLATE 7038, AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING. SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.) LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%. INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE. SECONDARY CURB RAMP LANDINGS ARE REQUIRED EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER. CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS. TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. USE 6" CONCRETE WALK FOR ALL RAMP AND LANDING AREAS. CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY. ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.

- 1 0" CURB HEIGHT.
- 2 FULL CURB HEIGHT.
- 3 3" MINIMUM CURB HEIGHT.
- 4 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. DOMES SHALL BE SET BACK 3" FROM THE BACK OF CURB OR EDGE OF ROADWAY.
- 5 SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- 6 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
- 7 IF RAMP SLOPE IS LESS THAN 5% NO UPPER LANDING IS REQUIRED.
- 8 V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN ROW ALLOWS.
- 9 RUNNING SLOPE LESS THAN OR EQUAL TO 8.3% & CROSS SLOPE LESS THAN OR EQUAL TO 2%.
- 10 SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 11 MAX. 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER (SEE DIRECTIONAL CURB DETAIL ON THIS SHEET).
- 12 TO BE USED FOR ALL DIRECTIONAL RAMPS.
- 13 DOMES PLACED AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.



IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

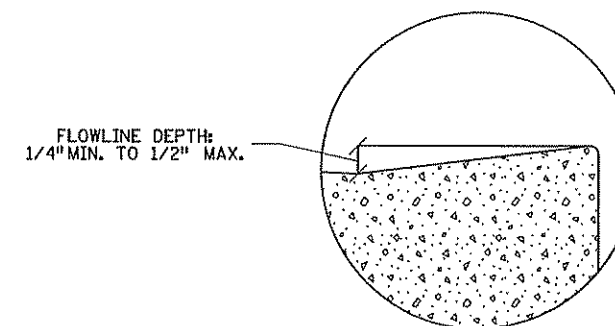
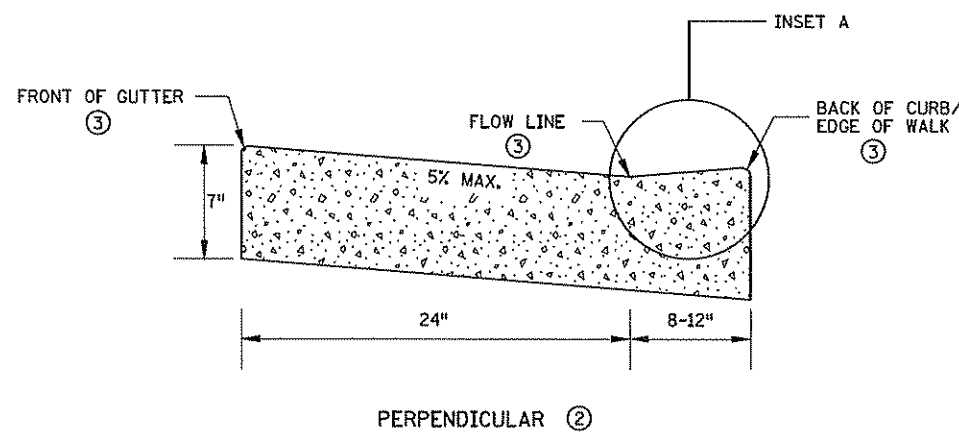
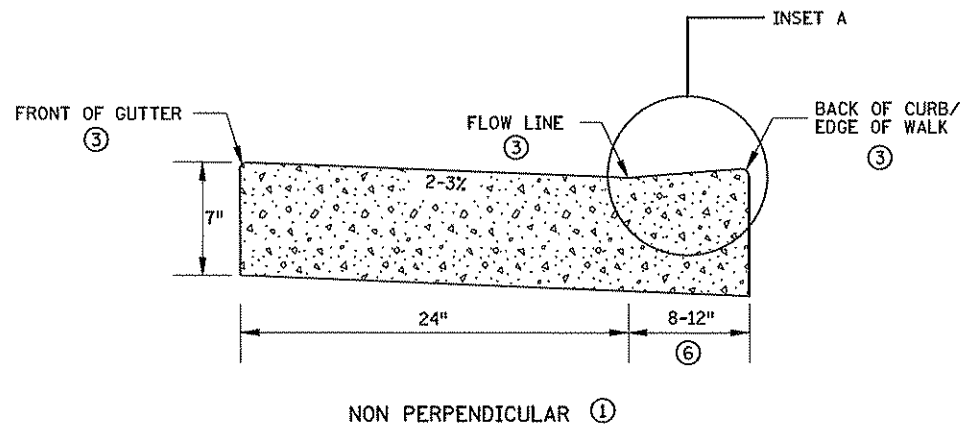
**ONE-WAY DIRECTIONAL**



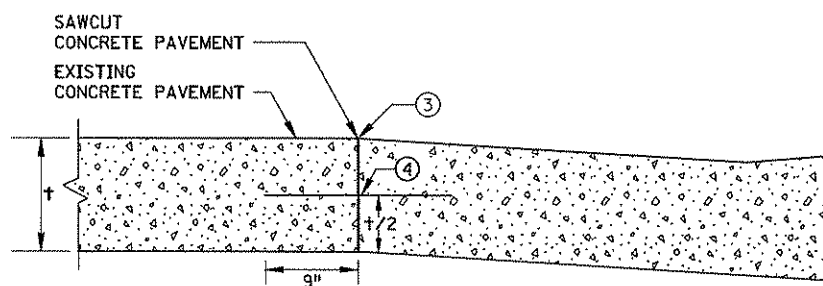
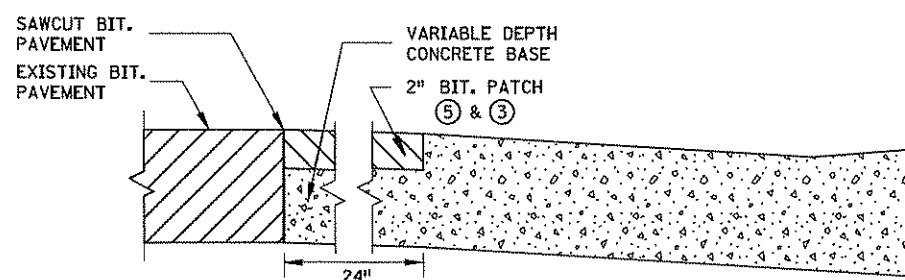
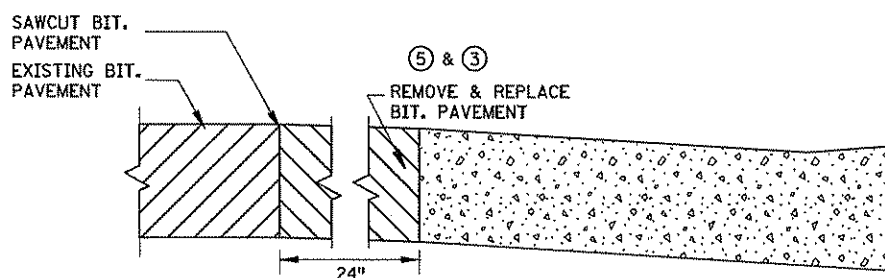
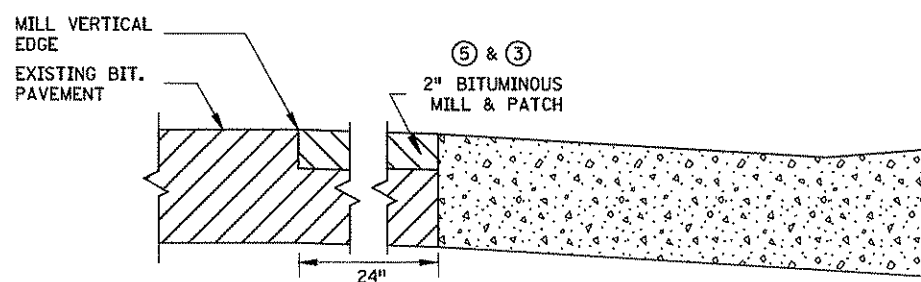
STANDARD PLAN SHEET NO.  
 5-297,250 (2 OF 5)  
 STANDARD APPROVED  
 MAY 10, 2012

**PEDESTRIAN CURB RAMP DETAILS**

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**PEDESTRIAN ACCESS ROUTE  
CURB & GUTTER DETAIL**



**PAVEMENT TREATMENT OPTIONS  
IN FRONT OF CURB & GUTTER  
FOR USE ON CURB RAMP RETROFITS**

**NOTES:**

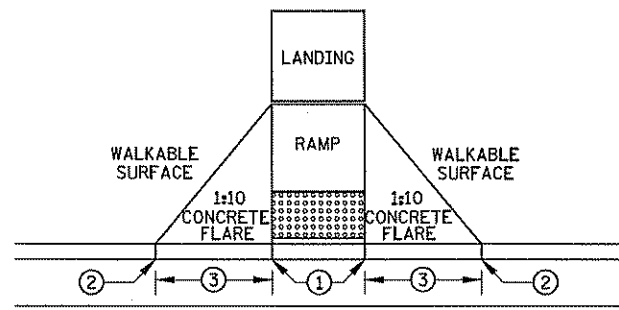
- ADEQUATE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.
- NO PONDING SHALL BE PRESENT IN THE PAR.
- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.
- ② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, PARALLEL AND DIAGONAL RAMPS.
- ③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- ④ DRILL AND GROUT NO. 13 EPOXY-COATED 18" LONG BARS AT 2' CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

STANDARD PLAN SHEET NO.  
5-297.250 (3 OF 5)  
STANDARD APPROVED:  
MAY 10, 2012

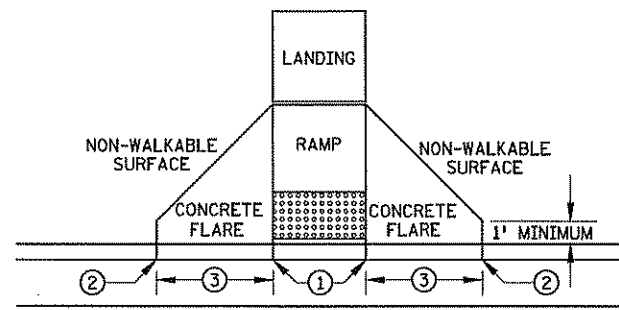
**PEDESTRIAN CURB RAMP DETAILS**

STATE AID PROJ. NO. 002-634-002 BIRCH STREET (CSAH 34) SHEET NO. 13 OF 63 SHEETS

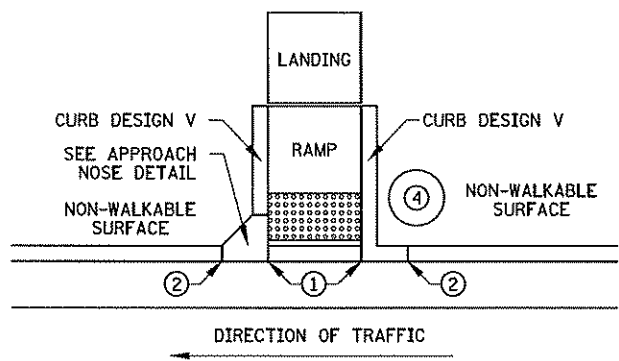
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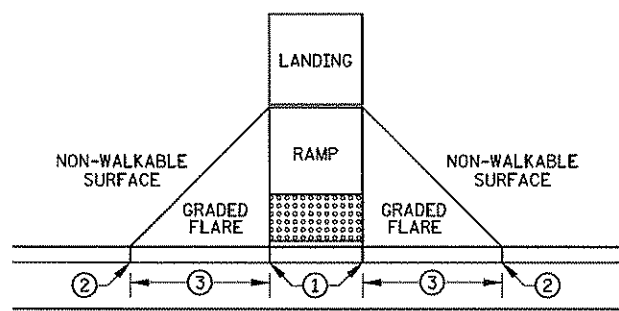
PAVED FLARES



PAVED FLARES

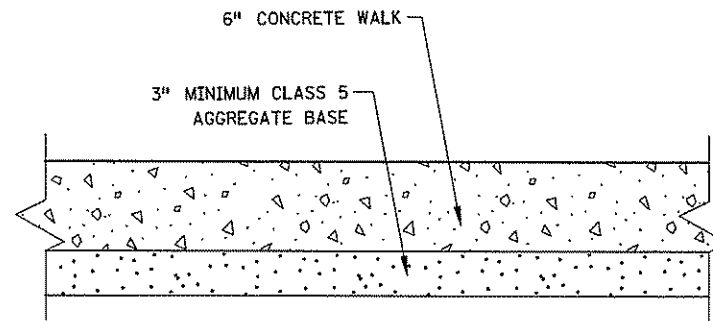


RETURNED CURB

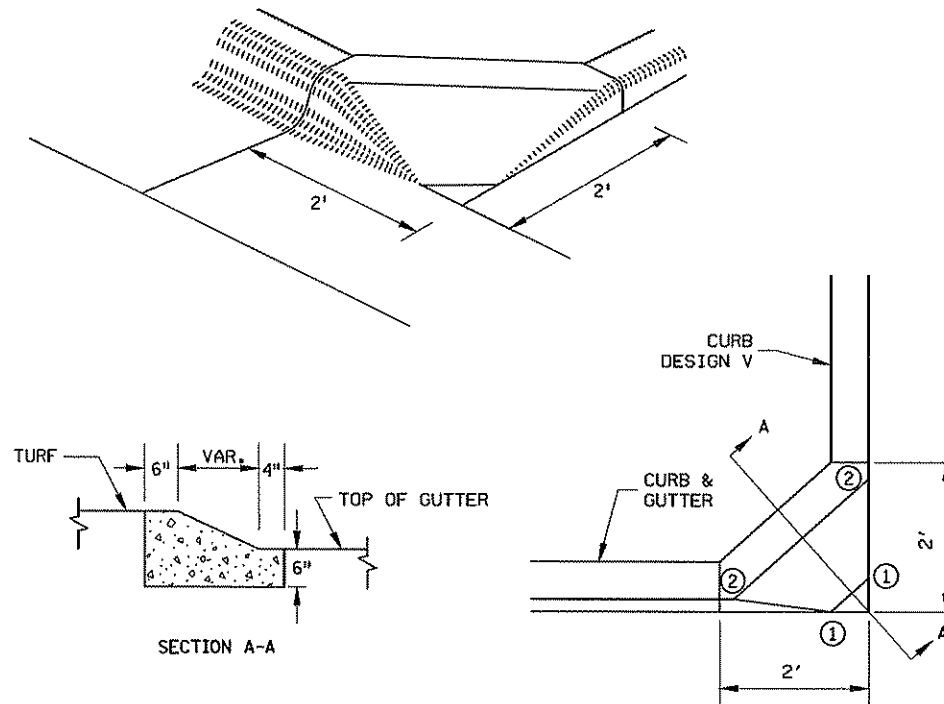


GRADED FLARES

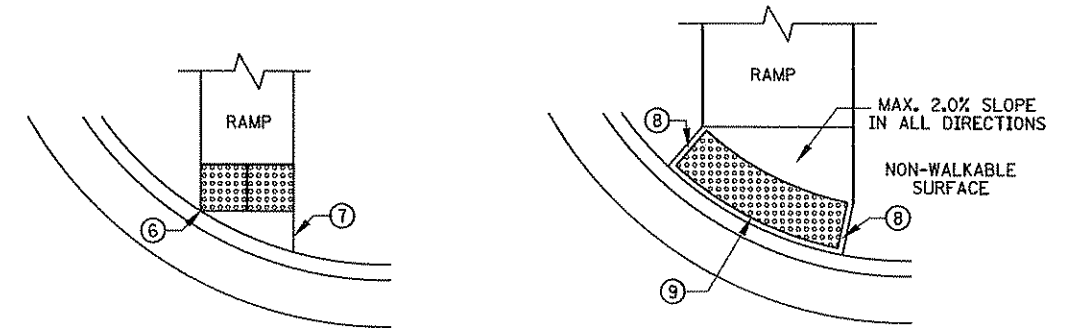
TYPICAL SIDE TREATMENT OPTIONS ⑤



TYPICAL SIDEWALK SECTION AT QUADRANT



APPROACH NOSE DETAIL  
 FOR DOWNSTREAM SIDE OF TRAFFIC



DETECTABLE WARNING  
 SETBACK CRITERIA

RADIAL DETECTABLE  
 WARNING AT RADIUS

DETECTABLE WARNING PLACEMENT

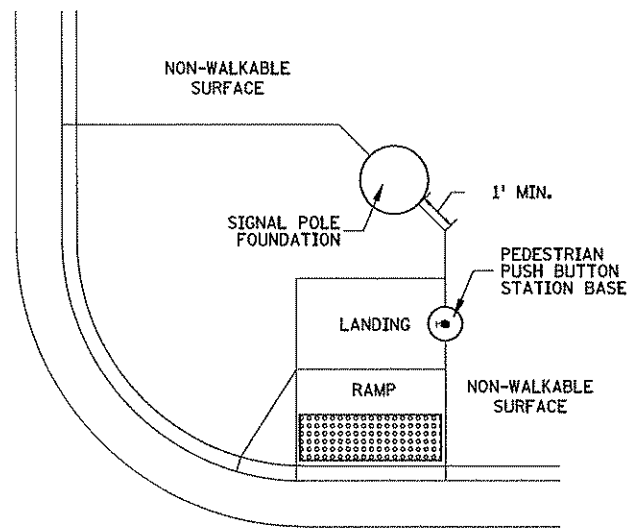
NOTES:

- SEE STANDARD PLATE 7038, AND THIS SHEET FOR DETAILS ON DETECTABLE WARNING.
- USE 6" CONCRETE WALK UP TO EXISTING SIDEWALK GRADES FOR ALL RAMP AND LANDING AREAS. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.
- FLARE LENGTHS SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ SHALL BE 1:10 WHEN ADJACENT TO WALKABLE SURFACES, A PAVED FLARE SHOULD BE 2' WHEN ADJACENT TO NON-WALKABLE SURFACES WHILE A GRADED FLARE SHOULD BE 1:6.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑥ DETECTABLE WARNING SHALL HAVE ONE CORNER 3" FROM THE BACK OF CURB.
- ⑦ SHALL BE 2' MAXIMUM OFFSET WHEN ADJACENT TO WALKABLE SURFACE AND 5' MAXIMUM OFFSET WHEN ADJACENT TO NON-WALKABLE SURFACE.
- ⑧ WHEN NO FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑨ DETECTABLE WARNING TO BE PLACED AT AN UNIFORM OFFSET DISTANCE FROM 3" TO 6" FROM THE BACK OF CURB. IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNING SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE CONCRETE BORDER.

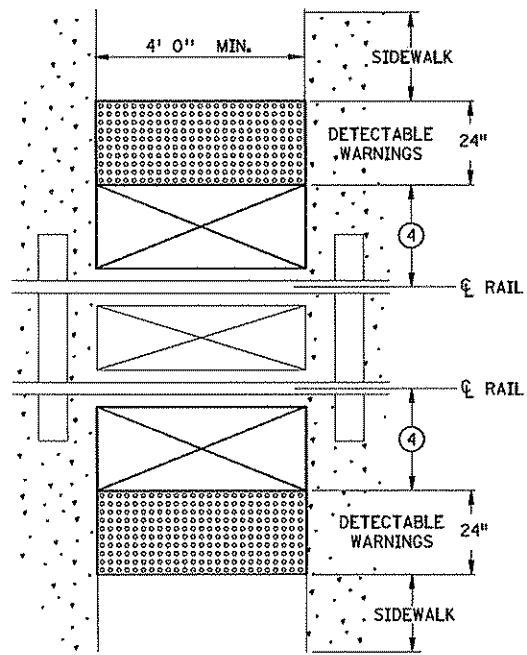
STANDARD PLAN SHEET NO.  
 5-297.250 (4 OF 5)  
 STANDARD APPROVED:  
 MAY 10, 2012

PEDESTRIAN CURB RAMP DETAILS

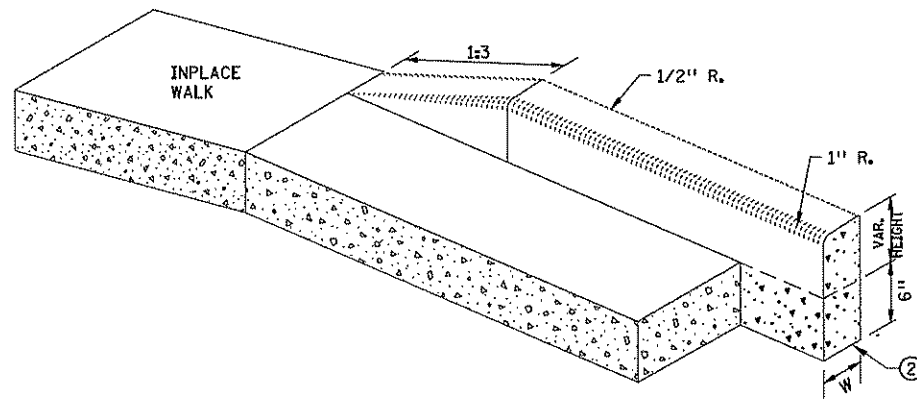
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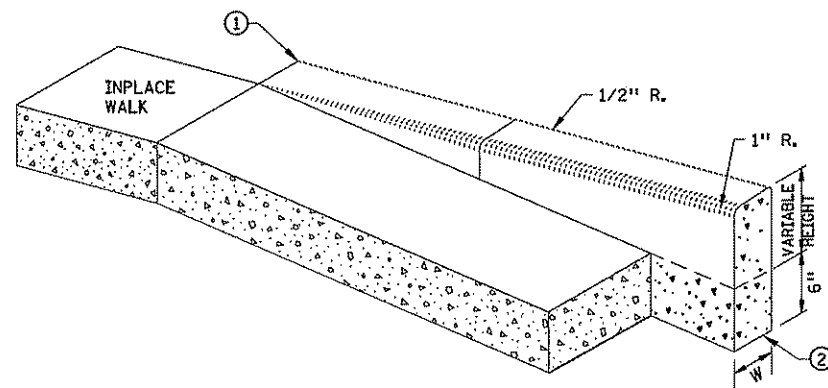
CONCRETE WALK EDGES ADJACENT TO CONCRETE STRUCTURES



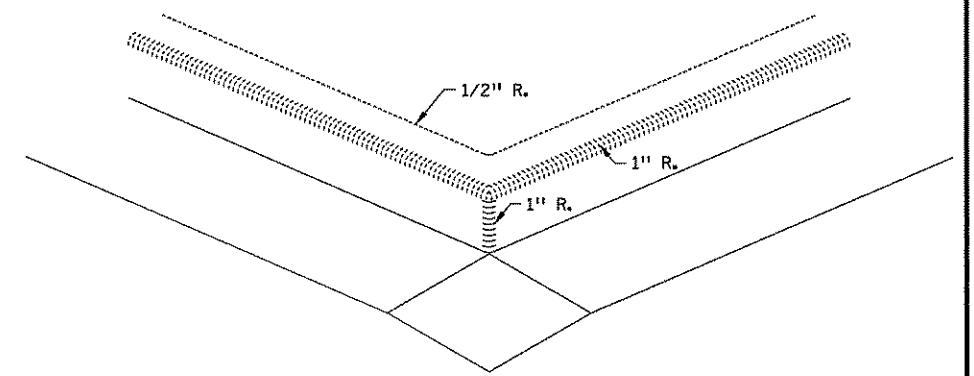
RAILROAD CROSSING PLAN VIEW



V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS

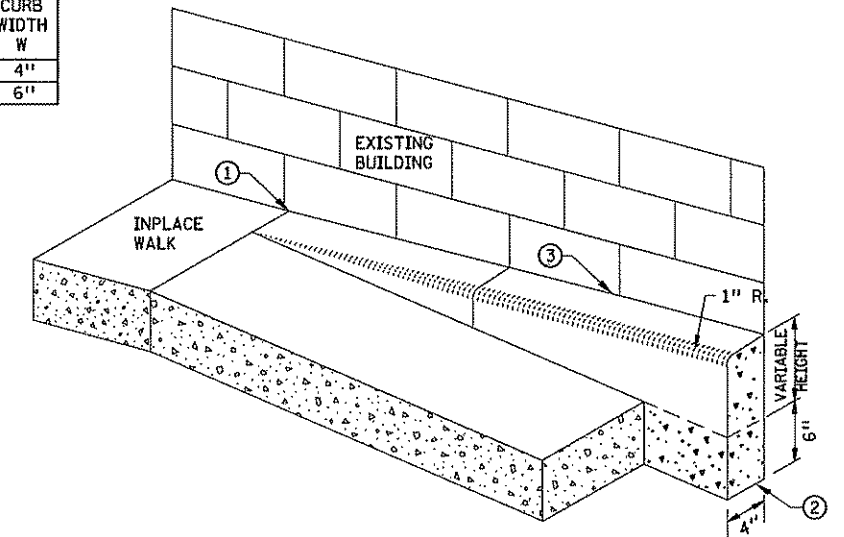


V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

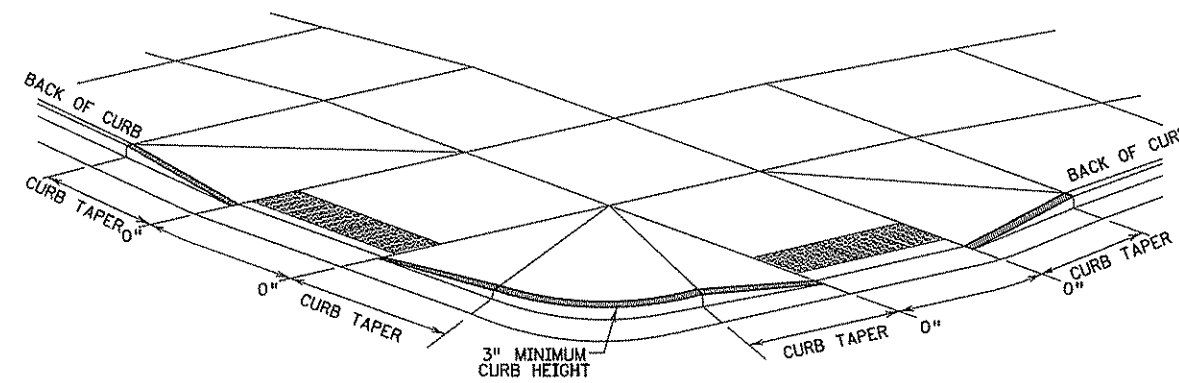


V CURB AT CORNER

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



V CURB ADJACENT TO BUILDING



DETECTABLE EDGE AT QUADRANT ⑤

NOTES:

- ALL V-CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN ROW ALLOWS.
- V-CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V-CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V-CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 6' MINIMUM TO 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL.
- ⑤ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES TRUNCATED DOMES WHEREVER THERE IS ZERO INCH HIGH CURB. CURB TRANSITIONS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS IMMEDIATELY AT THE EDGE OF THE TRUNCATED DOMES AND UNIFORMLY RISES TO A 3 INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TRANSITION AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT PROWAG COMPLIANT.

STANDARD PLAN SHEET NO.  
5-297.250 (5 OF 5)  
STANDARD APPROVED  
MAY 10, 2012

PEDESTRIAN CURB RAMP DETAILS

STATE AID PROJ. NO. 002-634-002 BIRCH STREET (CSAH 34) SHEET NO. 15 OF 63 SHEETS

**GENERAL NOTES:**

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD) AND "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF LAYOUTS AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. BARRICADES ARE 8 FOOT TYPE III AND SHALL BE REFLECTORIZED ON BOTH SIDES.
5. OBLITERATING ANY CONFLICTING PAVEMENT MARKINGS SHALL BE INCIDENTAL.
6. ALL TRAFFIC CONTROL DEVICES ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATIONS SHALL BE COVERED, REMOVED, OR REVISED (INCIDENTAL).
7. THE CONTRACTOR IS RESPONSIBLE FOR EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
8. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MNMUTCD INCLUDING THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
9. THE CONTRACTOR SHALL COORDINATE THE PERMANENT SIGNING SO THAT THE INSTALLATION OF THE PERMANENT SIGNS IS COMPLETED BEFORE THE ROADWAYS ARE OPEN TO TRAFFIC.
10. IF THE CONTRACTOR DESIRES TO PERFORM WORK IN A SEQUENCE OTHER THAN SHOWN IN THE PLANS, THE CONTRACTOR SHALL SUBMIT THE PROPOSED CHANGES, IN WRITING, TO THE ENGINEER FOR APPROVAL AT LEAST 10 WORKING DAYS PRIOR TO THE COMMENCEMENT OF THE WORK. IF THE SEQUENCE OF CONSTRUCTION CHANGES ARE APPROVED AND THE CHANGES RESULT IN CHANGES TO THE TRAFFIC CONTROL, THE CONTRACTOR SHALL SUBMIT, IN WRITING, REVISED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL AT LEAST 14 DAYS PRIOR TO IMPLEMENTING THE TRAFFIC CONTROL.
11. SEE SIGNING DETAIL SHEETS FOR TYPICAL ERECTION DETAILS (FOR SIGNS TYPES "C & D").
12. ALL DRUMS, BARRICADES, AND SIGNS SHALL BE RETRO-REFLECTIVE.
13. THE DEVICES IN THIS TRAFFIC CONTROL PLAN SHALL BE FURNISHED, INSTALLED AND MAINTAINED UNLESS OTHERWISE NOTED.
14. ALL TRAFFIC CONTROL ITEMS SHALL BE INCLUDED IN THE LUMP SUM BID FOR TRAFFIC CONTROL.

**SIGNING:**

1. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE MNMUTCD.
2. ALL ORANGE SIGNS SHALL BE MADE OF HIGH PERFORMANCE FLUORESENT SIGN SHEETING OR AN APPROVED SUBSTITUTE.
3. LONGITUDINAL DROP OFFS SHALL BE SIGNED AS SHOWN ON PAGES 6K-100 THROUGH 6K-102 OF THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
4. REMOVAL OF EXISTING SIGNS SHALL BE COORDINATED WITH THE SIGNING PLANS. ANY CONFLICTING SIGNS SHALL BE REMOVED.
5. THE REMOVAL OF THE TEMPORARY SIGNS WILL BE COORDINATED TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR TEMPORARY SIGNING WILL BE PROVIDED UNTIL THE FINAL SIGNING IS INSTALLED.
6. EXISTING SIGNS MAY BE RE-USED FOR CONSTRUCTION SIGNING.

**STAGING NARRATIVE**

STAGE 1 (SEE SHEET 17)

CONSTRUCT POND AND STORM SEWER ALONG BIRCH ST. (CSAH 34) AND ALL CROSSINGS.

STAGE 2 (SEE SHEET 18)

SHIFT TRAFFIC TO SOUTH BIRCH STREET (CSAH 34) AND CONSTRUCT WIDENING.

STAGE 3 (SEE SHEET 19)

SHIFT TRAFFIC TO NORTH BIRCH STREET (CSAH 34) AND WEST WARE ROAD. CONSTRUCT WIDENING AND PORTION OF MEDIAN ON BIRCH STREET (CSAH 34).

STAGE 4 (SEE SHEET 20)

SHIFT WB TRAFFIC TO NORTH BIRCH STREET (CSAH 34) AND EB TRAFFIC TO SOUTH BIRCH STREET (CSAH 34). CONSTRUCT REMAINDER OF MEDIAN ON BIRCH STREET (CSAH 34).

STAGE 5 (NO SHEET)

MILL OF REMAINING EXISTING PAVEMENT. FINAL BITUMINOUS WEAR COURSE PAVING. STOP ON WARE ROAD AT BIRCH STREET (CSAH 34) TO REMAIN UNTIL SIGNAL SYSTEM COMPLETE.

DATE: 8/1/2012 10:03:03 AM FILENAME: \\m:\linalakes\14851000\hwy-brdg\hwy-pbr-sit\linalakes-ware\_let.dwg

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.

SIGNATURE: *Bryant J. Fick*  
 PRINTED NAME: BRYANT J. FICK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 STAGING NARRATIVE AND NOTES  
 CONSTRUCTION STAGING AND TRAFFIC CONTROL  
 BIRCH STREET (CSAH 34)  
 BIRCH ST. (CSAH 34) AND WARE ROAD

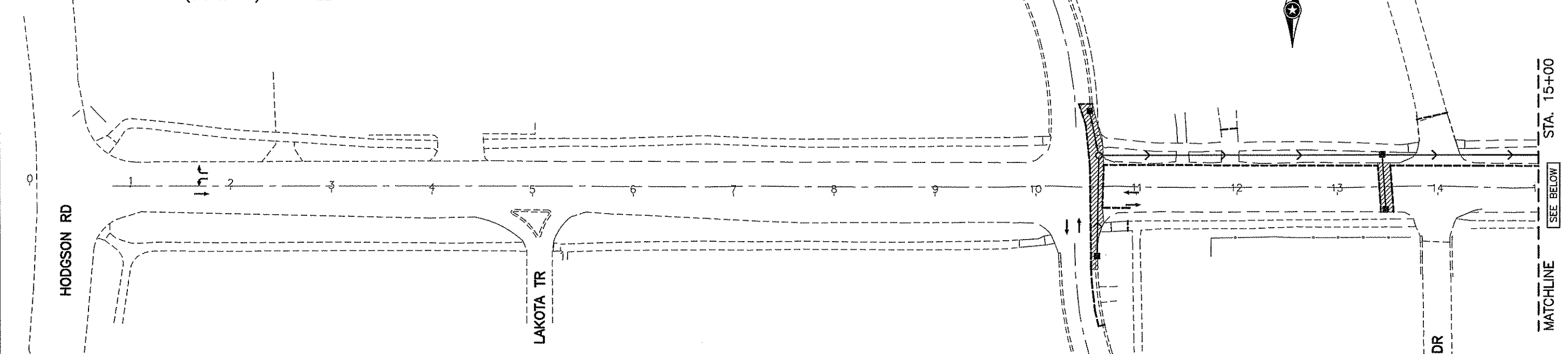
SHEET  
 16  
 OF  
 63



**STAGE 1**

CONSTRUCT POND AND STORM SEWER ALONG BIRCH ST.  
(CSAH 34) AND ALL CROSSINGS.

SCALE IN FEET  
0 25 50 100



**LEGEND**



PERMANENT CONSTRUCTION IN THIS STAGE  
PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE. THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.

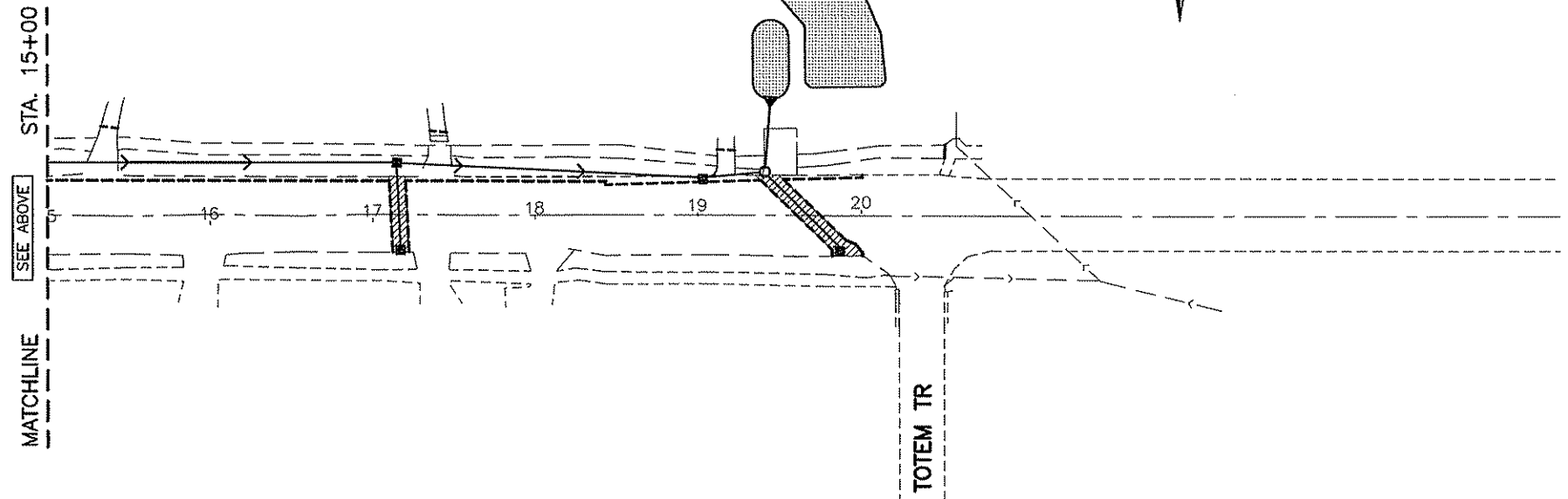
- ⇄ TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- ⊥ TRAFFIC CONTROL SIGN
- ⊥ TYPE III BARRICADE
- ☀ TYPE A FLASHING WARNING LIGHT

BIRCH STREET (CSAH 34)

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- TRPM'S SHALL BE PLACED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS AND TRANSITION AREAS.

SCALE IN FEET  
0 25 50 100



BIRCH STREET (CSAH 34)

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

DATE: 6/1/2012 10:08 AM FILENAME: C:\p\m\lino\lakes\14851000\hwy-birdg\hwy\plan-sht1\birch-warm-tc10.dwg

NO	DATE	BY	CHKD	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.  
SIGNATURE: *Bryant J. Ficek*  
PRINTED NAME: BRYANT J. FICEK  
DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.

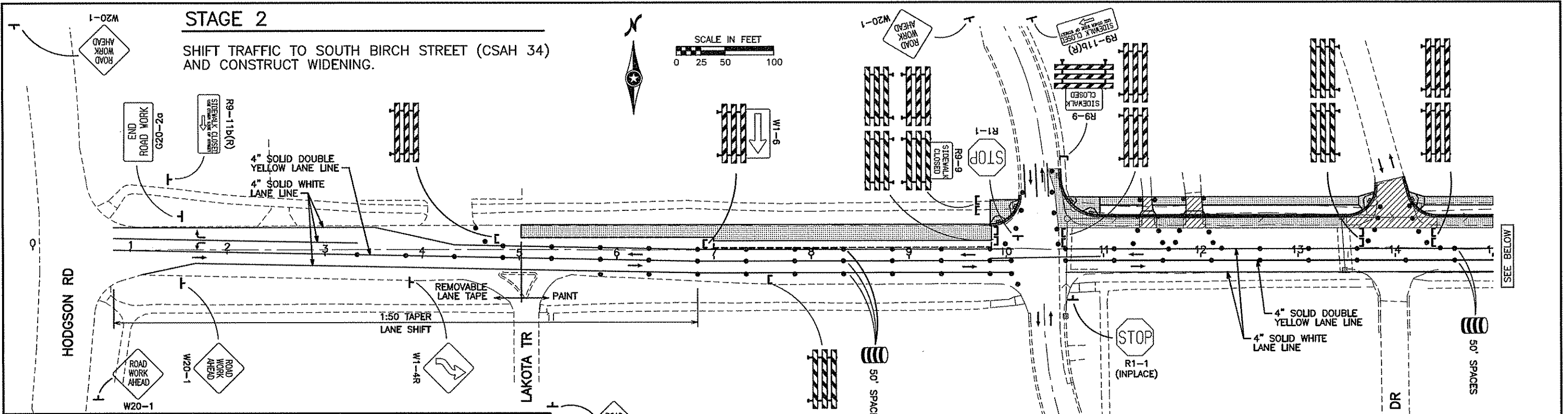
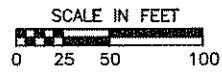


CITY OF LINO LAKES  
STAGE 1  
CONSTRUCTION STAGING AND TRAFFIC CONTROL  
BIRCH STREET (CSAH 34)  
BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
17  
OF  
63

**STAGE 2**

SHIFT TRAFFIC TO SOUTH BIRCH STREET (CSAH 34) AND CONSTRUCT WIDENING.

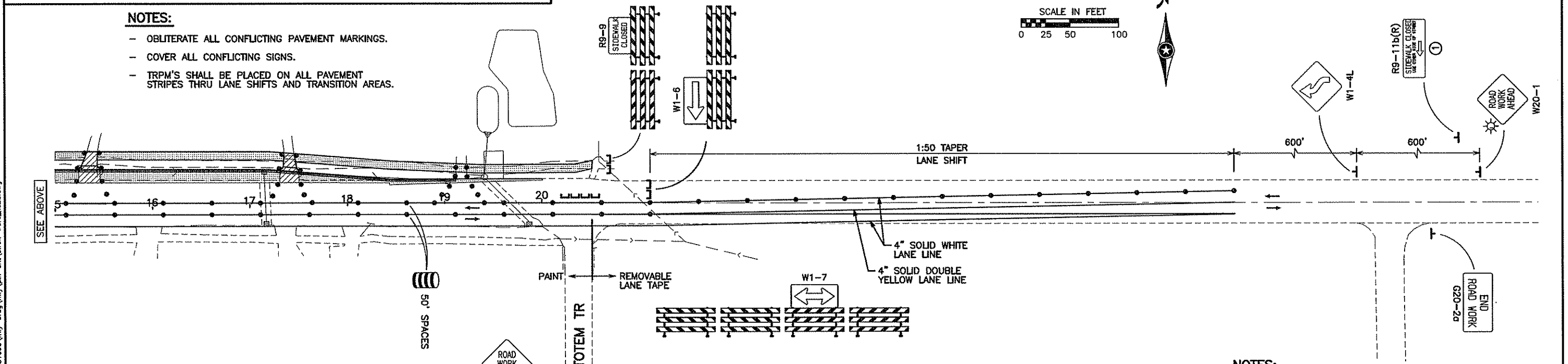
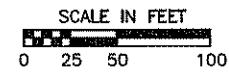


**LEGEND**

- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE. THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE
- TYPE A FLASHING WARNING LIGHT

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- TRPM'S SHALL BE PLACED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS AND TRANSITION AREAS.



ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

**NOTES:**

- ① LOCATE ON WEST SIDE OF BIRCH STREET PEDESTRIAN CROSSING.

DATE: 8/1/2012 TIME: 10:02:16 AM FILENAME: K:\gmm\linolakes\14851000\hwy-brdg\hwy\plan-sht\birch-wrct-wrct\_fc2a.dwg

NO	DATE	BY	CHKD	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.

SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.

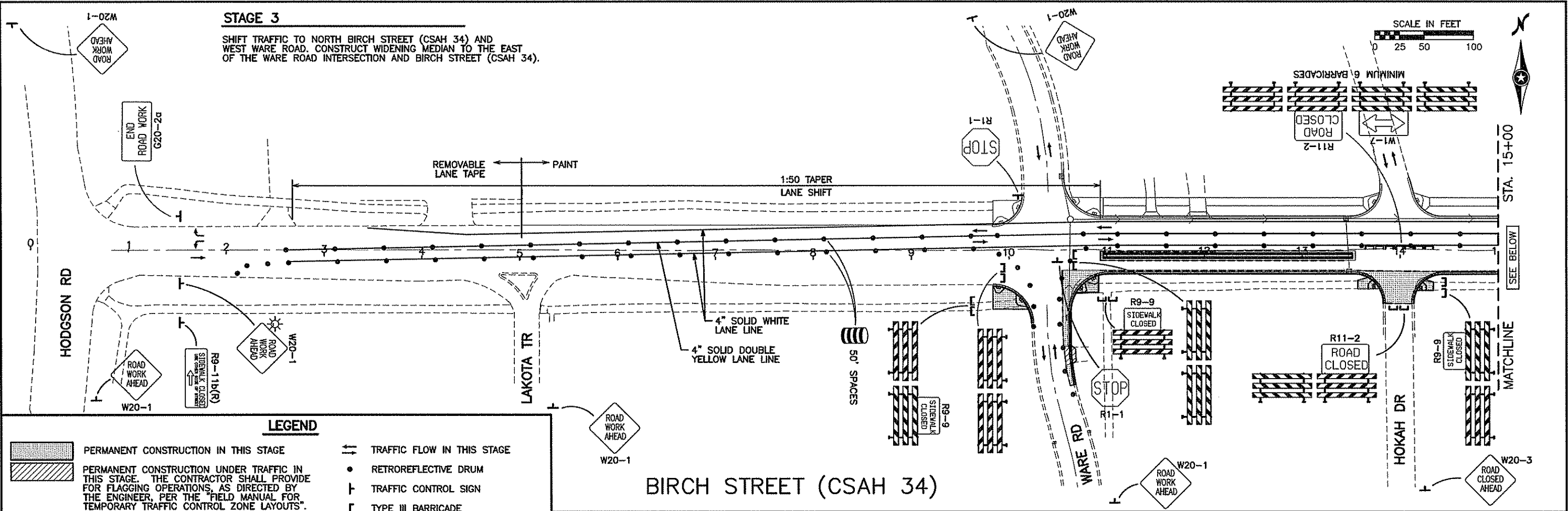
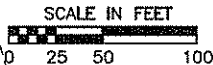


CITY OF LINO LAKES  
 STAGE 2  
 CONSTRUCTION STAGING AND TRAFFIC CONTROL  
 BIRCH STREET (CSAH 34)  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 18  
 OF  
 63

**STAGE 3**

SHIFT TRAFFIC TO NORTH BIRCH STREET (CSAH 34) AND WEST WARE ROAD. CONSTRUCT WIDENING MEDIAN TO THE EAST OF THE WARE ROAD INTERSECTION AND BIRCH STREET (CSAH 34).

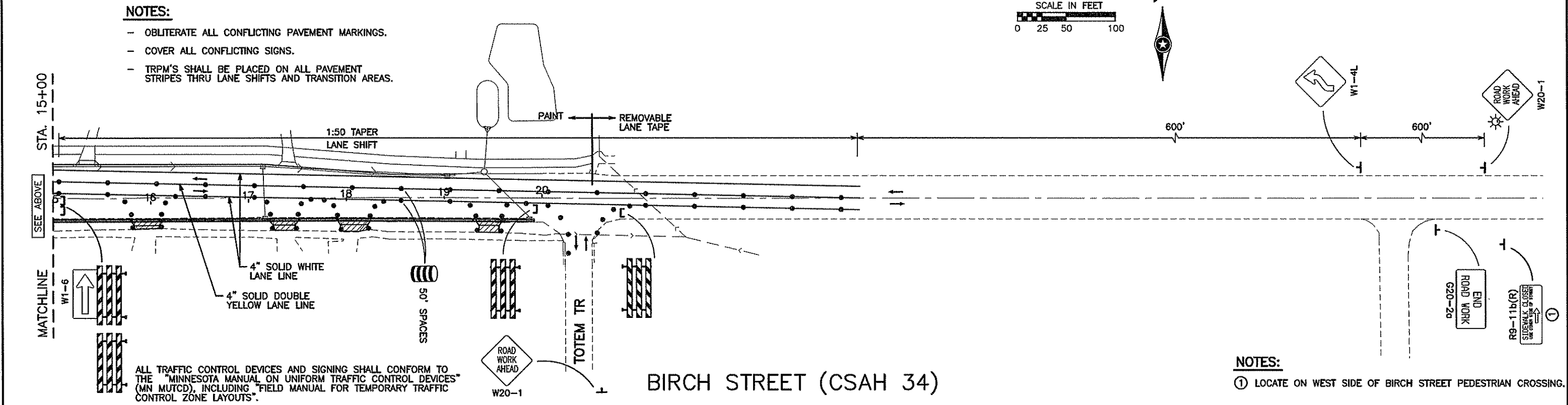
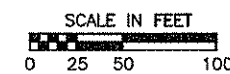


**LEGEND**

	PERMANENT CONSTRUCTION IN THIS STAGE		TRAFFIC FLOW IN THIS STAGE
	PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE. THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.		RETROREFLECTIVE DRUM
			TRAFFIC CONTROL SIGN
			TYPE III BARRICADE
			TYPE A FLASHING WARNING LIGHT

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- TRPM'S SHALL BE PLACED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS AND TRANSITION AREAS.



ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

**NOTES:**

- ① LOCATE ON WEST SIDE OF BIRCH STREET PEDESTRIAN CROSSING.

DATE: 8/1/2012 TIME: 10:05:32 AM FILENAME: K:\p-r\Linolakes\14851000\my-brdg\my-plan-shit\birch-ware\_1c3a.dwg

NO	DATE	BY	CHKD	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.

SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



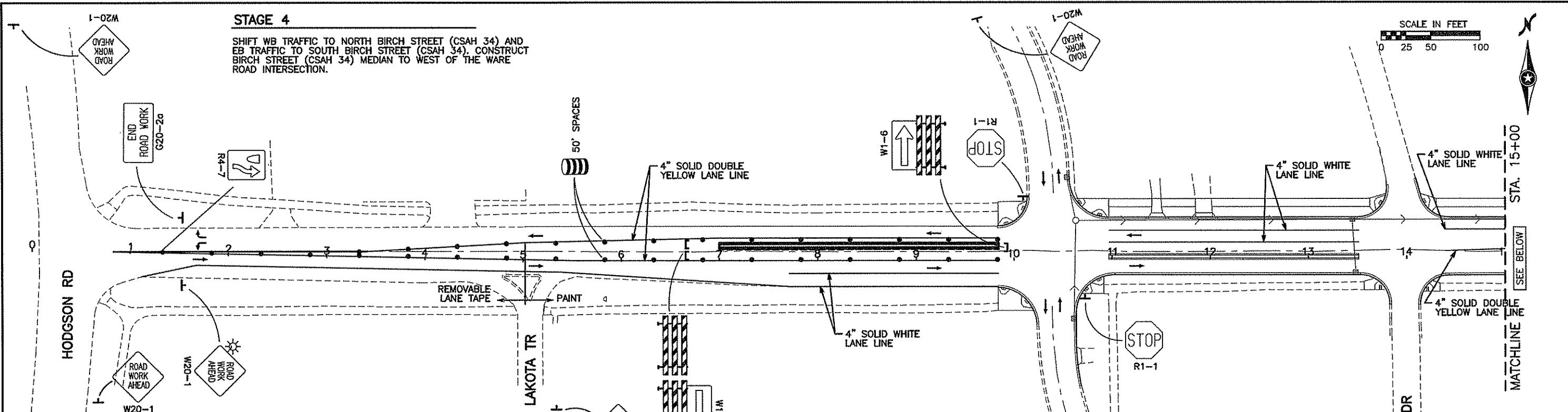
CITY OF LINO LAKES  
 STAGE 3  
 CONSTRUCTION STAGING AND TRAFFIC CONTROL  
 BIRCH STREET (CSAH 34)  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 19  
 OF  
 63

**STAGE 4**

SHIFT WB TRAFFIC TO NORTH BIRCH STREET (CSAH 34) AND EB TRAFFIC TO SOUTH BIRCH STREET (CSAH 34). CONSTRUCT BIRCH STREET (CSAH 34) MEDIAN TO WEST OF THE WARE ROAD INTERSECTION.

SCALE IN FEET  
0 25 50 100



**LEGEND**



PERMANENT CONSTRUCTION IN THIS STAGE  
PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE. THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.

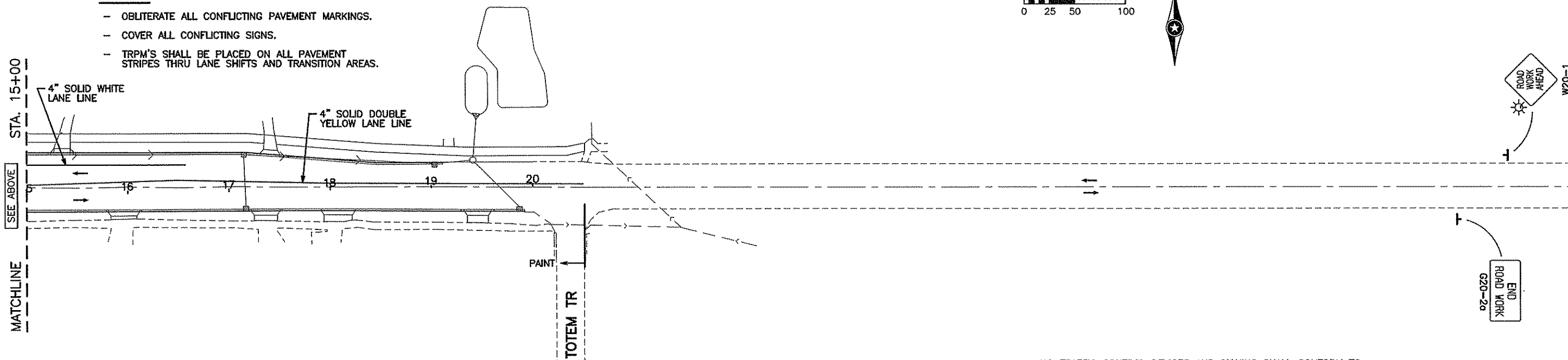
- ⇄ TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- ⊥ TRAFFIC CONTROL SIGN
- ⌈ TYPE III BARRICADE
- ⚡ TYPE A FLASHING WARNING LIGHT

BIRCH STREET (CSAH 34)

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- TRPM'S SHALL BE PLACED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS AND TRANSITION AREAS.

SCALE IN FEET  
0 25 50 100



BIRCH STREET (CSAH 34)

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

DATE: 8/1/2012  
TIME: 10:00:29 AM  
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NO	DATE	BY	CHKD	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.  
SIGNATURE: *Bryant J. Ficek*  
PRINTED NAME: BRYANT J. FICEK  
DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.

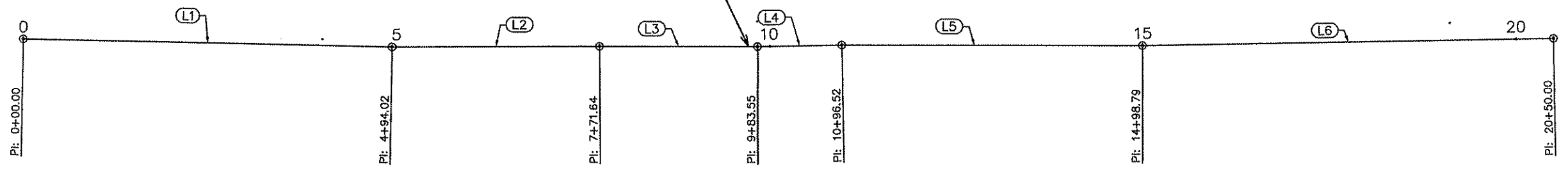


CITY OF LINO LAKES  
STAGE 4  
CONSTRUCTION STAGING AND TRAFFIC CONTROL  
BIRCH STREET (CSAH 34)  
BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
20  
OF  
63



BIRCH ST (CSAH 34)  
CONSTRUCTION ALIGNMENT



**HORIZONTAL CONTROL**

COORDINATE VALUES SHOWN IN THIS PLAN ARE ANOKA COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (1996 ADJ.) THROUGH THE MINNESOTA STATE PLANE COORDINATE SYSTEM.

BIRCH ST (CSAH 34) CONSTRUCTION ALIGNMENT							
NUMBER	POINT	START STATION	END STATION	LINE CURVE LENGTH	START OF LINE COORDINATES	END OF LINE COORDINATES	LINE CHORD DIRECTION
L1	PI	0+00.00	4+94.02	494.02	N=139039.11 E=536182.77	N=139028.10 E=536676.67	S88°43' 21.73"E
L2	PI	4+94.02	7+71.64	277.61	N=139028.10 E=536676.67	N=139028.76 E=536954.28	N89°51' 52.61"E
L3	PI	7+71.64	9+83.55	211.91	N=139028.76 E=536954.28	N=139028.66 E=537166.19	S89°58' 24.71"E
L4	PI	9+83.55	10+96.52	112.97	N=139028.66 E=537166.19	N=139030.61 E=537279.15	N89°00' 43.38"E
L5	PI	10+96.52	14+98.79	402.27	N=139030.61 E=537279.15	N=139030.42 E=537681.42	S89°58' 24.71"E
L6	PI	14+98.79	20+50.00	551.21	N=139030.42 E=537681.42	N=139040.35 E=538232.54	N88°58' 06.52"E

**HORIZONTAL CONTROL**

COORDINATE VALUES SHOWN IN THIS PLAN ARE ANOKA COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (1996 ADJ.) THROUGH THE MINNESOTA STATE PLANE COORDINATE SYSTEM.

X:\s:\22624-Munl\_Editing\Baso - Birch-Ware\_Base\Map\BIRCH\Ware\_ACHD\_Trim011\_Proposed\_Base\_ES signature

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

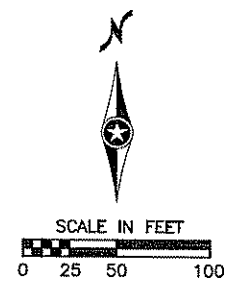
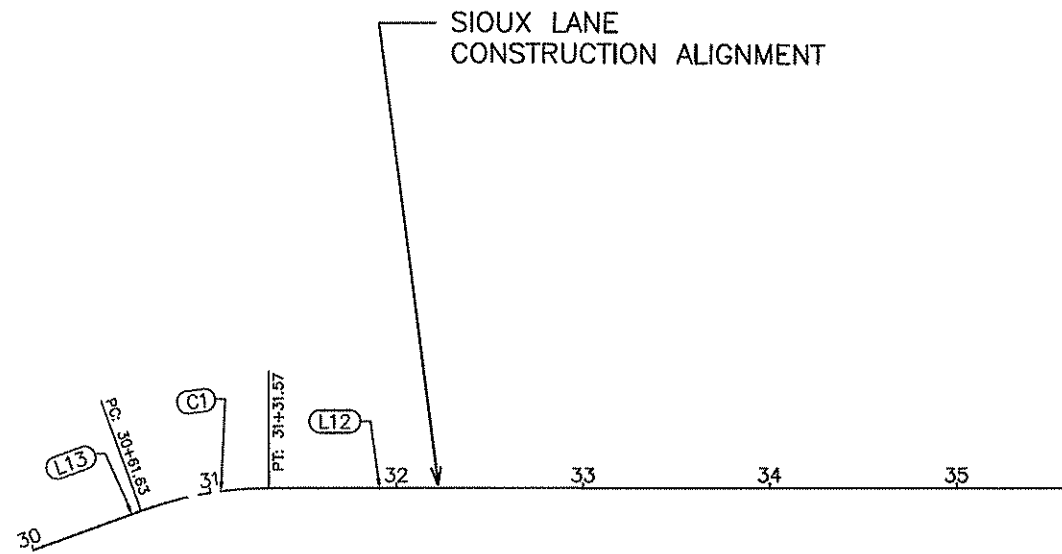
S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.



CITY OF LINO LAKES

ALIGNMENT PLAN  
BIRCH STREET (CSAH 34)  
BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
21  
OF  
63



SIOUX LANE CONSTRUCTION ALIGNMENT													
NUMBER	POINT	START STATION	P.I. STATION	END STATION	Δ Delta	DEGREE	RADIUS	TANGENT	LINE\CURVE LENGTH	START OF LINE COORDINATES	CURVE P.I. COORDINATES	END OF LINE COORDINATE	LINE\CHORD DIRECTION
L13	PI	30+00.00		30+61.63					61.63	N=140654.54 E=537137.15		N=140675.63 E=537195.06	N69°59' 21.20"E
C1	PC-PI-PT	30+61.63	30+96.96	31+31.57	20.04	28°57' 18.09"	200.00	35.33	69.94	N=140675.63 E=537195.06	N=140687.72 E=537228.26	N=140687.70 E=537263.60	N80°00' 28.2"E
L12	PI	31+31.57		35+40.00					426.53	N=140687.70 E=537263.60		N=140687.51 E=537672.02	S89°58' 24.71"E

**HORIZONTAL CONTROL**

COORDINATE VALUES SHOWN IN THIS PLAN ARE ANOKA COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (1996 ADJ.) THROUGH THE MINNESOTA STATE PLANE COORDINATE SYSTEM.

Plot Date: 08/01/2012  
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 System: AutoCAD LT 2011  
 Plot Device: HP DesignJet 5000 Series  
 Plot Style: C:\gandrud\work\1051005\1051005.ctb  
 Plot Date: 08/01/2012  
 Plot Time: 10:51:00 AM  
 Plot User: jstuden

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
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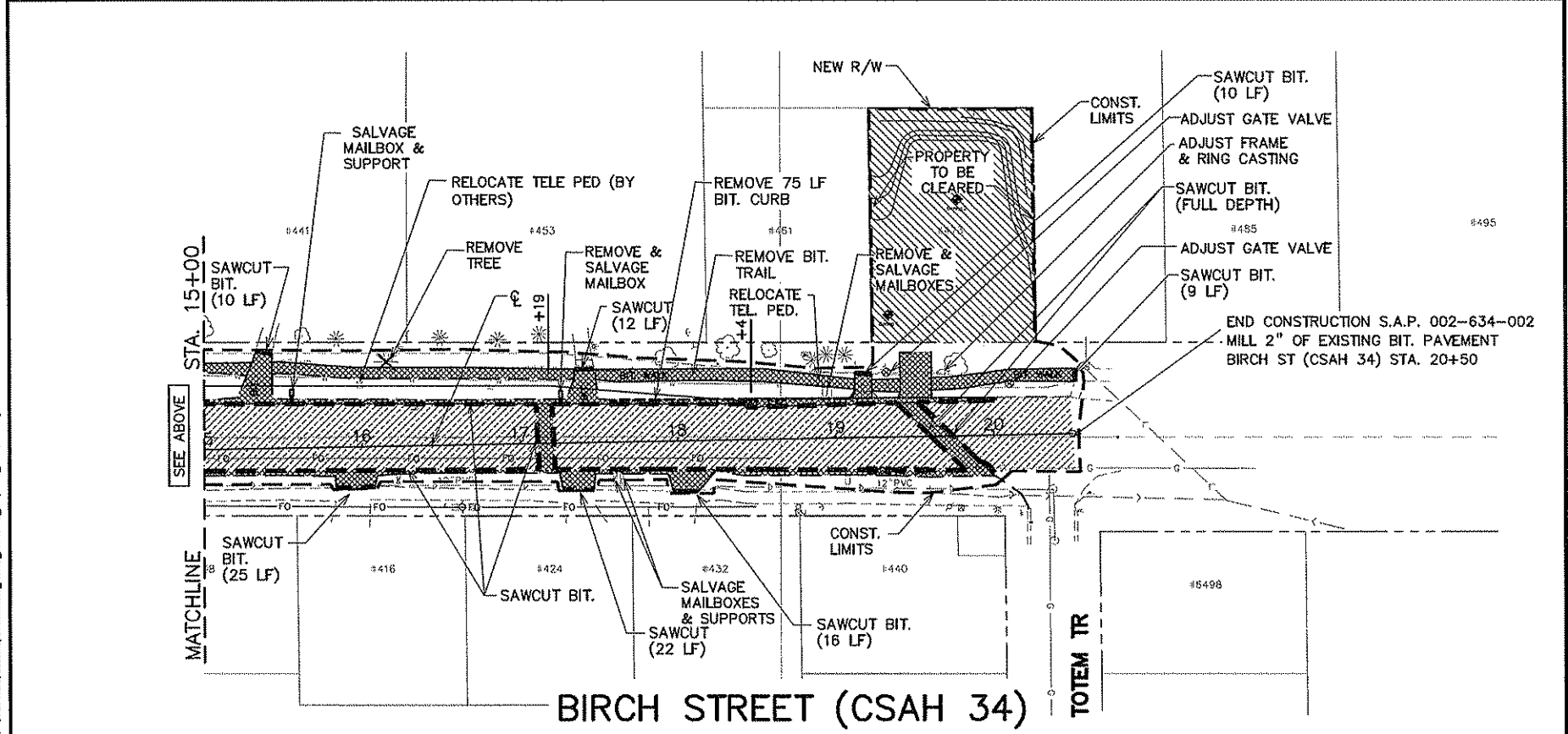
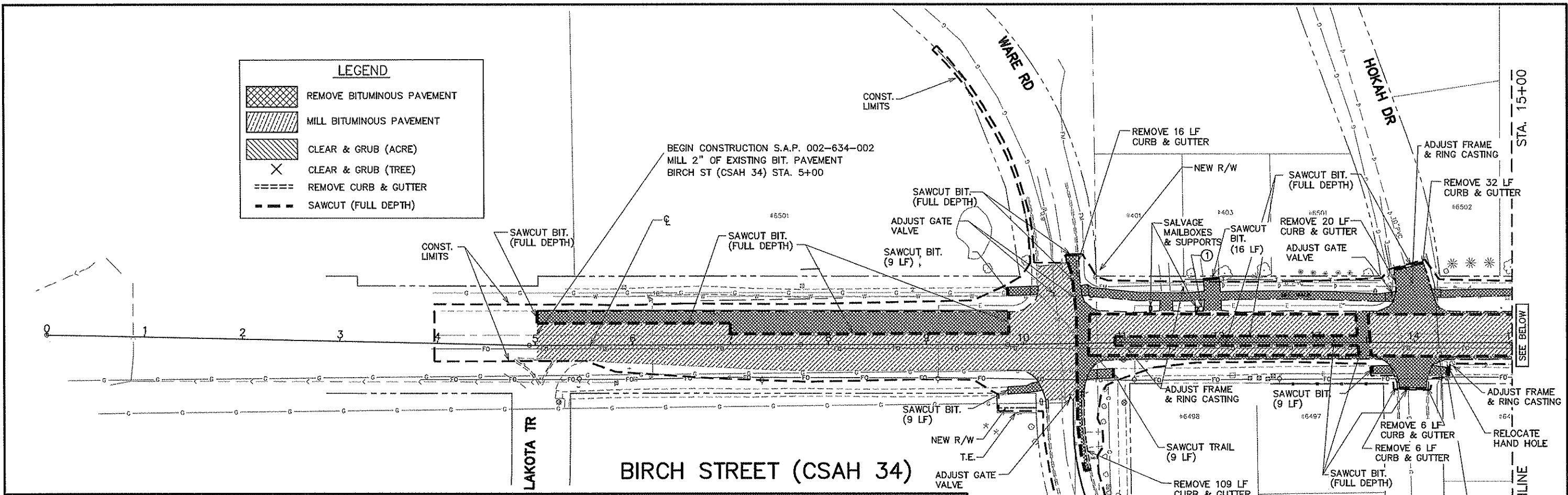


CITY OF LINO LAKES

ALIGNMENT PLAN  
 SIOUX LANE  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 22  
 OF  
 63

LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	MILL BITUMINOUS PAVEMENT
	CLEAR & GRUB (ACRE)
	CLEAR & GRUB (TREE)
	REMOVE CURB & GUTTER
	SAWCUT (FULL DEPTH)

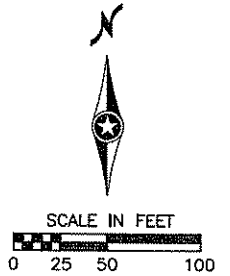


**NOTES:**

① ABANDON EX. FORCEMAIN MANHOLE, REMOVE CASTING AND AIR RELEASE VALVE, CAP MAINLINE, AND FILL WITH SAND.

**NOTE:**  
THE CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN & THOSE THAT ARE SHOWN, MAY NOT BE SHOWN IN THE EXACT LOCATIONS.

- GENERAL NOTES:**
1. DRIVEWAY REMOVAL LENGTH SHALL BE DETERMINED IN THE FIELD AS DIRECTED BY THE ENGINEER.
  2. DRIVEWAYS SHALL BE SAWCUT TO PROVIDE A CLEAN EDGE FOR REMOVAL.
  3. CONTRACTOR SHALL SALVAGE MAILBOX AND SUPPORTS AND REINSTALL AS DIRECTED BY THE ENGINEER.
  4. CONTRACTOR SHALL SALVAGE SIGNS AND SIGN POSTS AND REINSTALL AS DIRECTED BY THE ENGINEER.
  5. ALL SAWCUTS SHALL BE FULL DEPTH.



Plot Date: 08/02/2012  
 Drawing Name: K:\g\m\l\m\l\14851000\proj\14851000\14851000.dwg  
 User: jstuden  
 Title: Birch St (CSAH 34) Signalization  
 Author: jstuden  
 Date: 7/23/2012  
 Project: 002-634-002  
 Sheet: 23 of 63

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

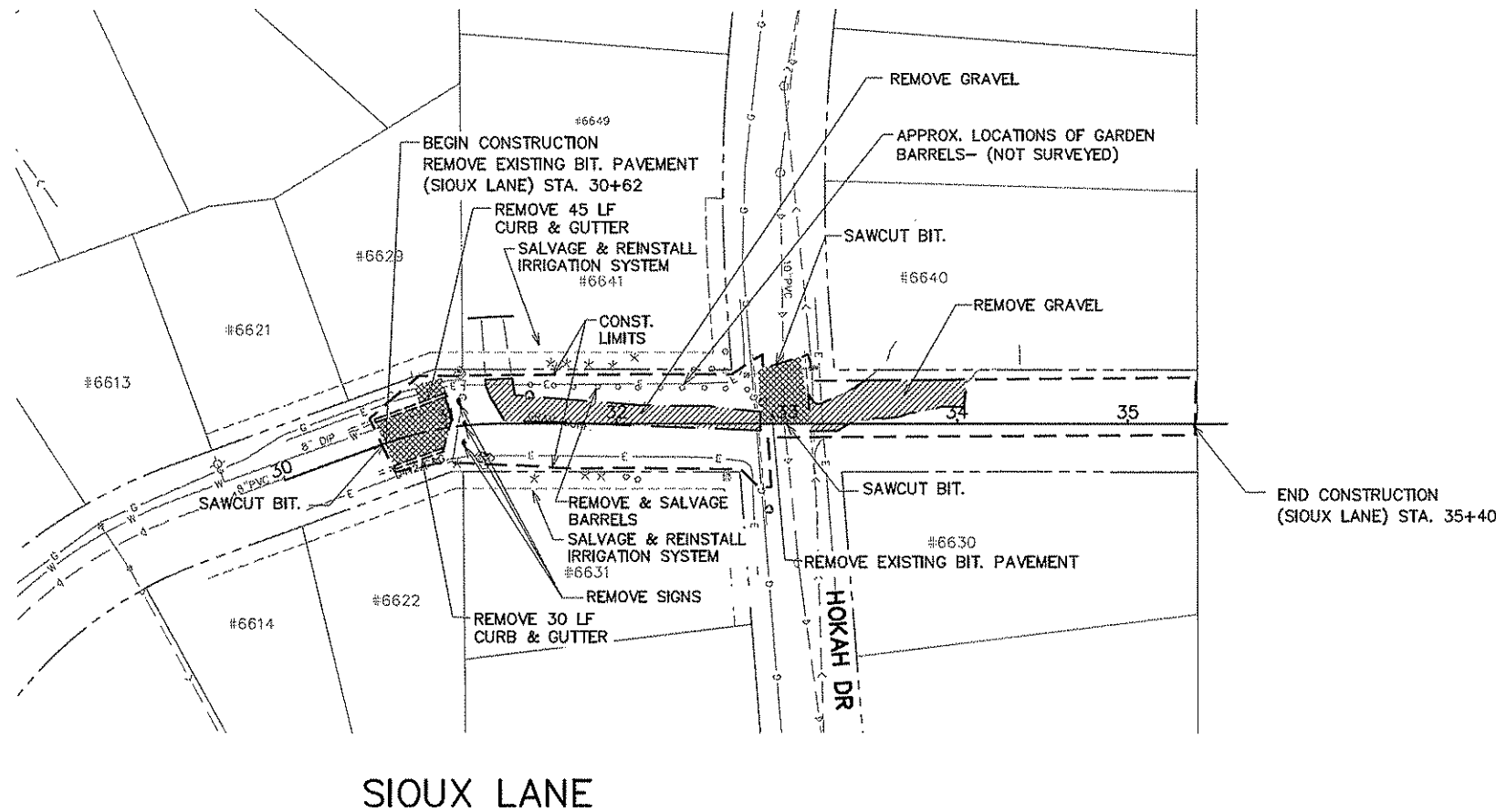
S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



**CITY OF LINO LAKES**

**INPLACE TOPO., UTILITIES, & REMOVAL PLAN**  
**BIRCH STREET (CSAH 34)**  
**BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

**SHEET**  
**23**  
**OF**  
**63**



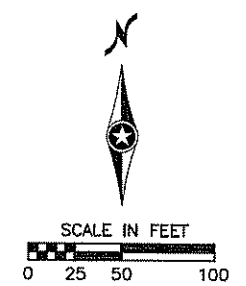
**LEGEND**

	REMOVE BITUMINOUS PAVEMENT
	REMOVE GRAVEL SURFACE
	CLEAR AND GRUB (TREE)
	REMOVE CURB & GUTTER
	SAWCUT (FULL DEPTH)

**SIoux LANE**

**NOTE:**  
 THE CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN & THOSE THAT ARE SHOWN, MAY NOT BE SHOWN IN THE EXACT LOCATIONS.

- GENERAL NOTES:**
1. DRIVEWAY REMOVAL LENGTH SHALL BE DETERMINED IN THE FIELD AS DIRECTED BY THE ENGINEER.
  2. DRIVEWAYS SHALL BE SAWCUT TO PROVIDE A CLEAN EDGE FOR REMOVAL.
  3. CONTRACTOR SHALL SALVAGE MAILBOX POSTS AND REINSTALL AS DIRECTED BY THE ENGINEER.
  4. CONTRACTOR SHALL SALVAGE SIGNS AND SIGN POSTS AND REINSTALL AS DIRECTED BY THE ENGINEER.
  5. ALL SAWCUTS SHALL BE FULL DEPTH.



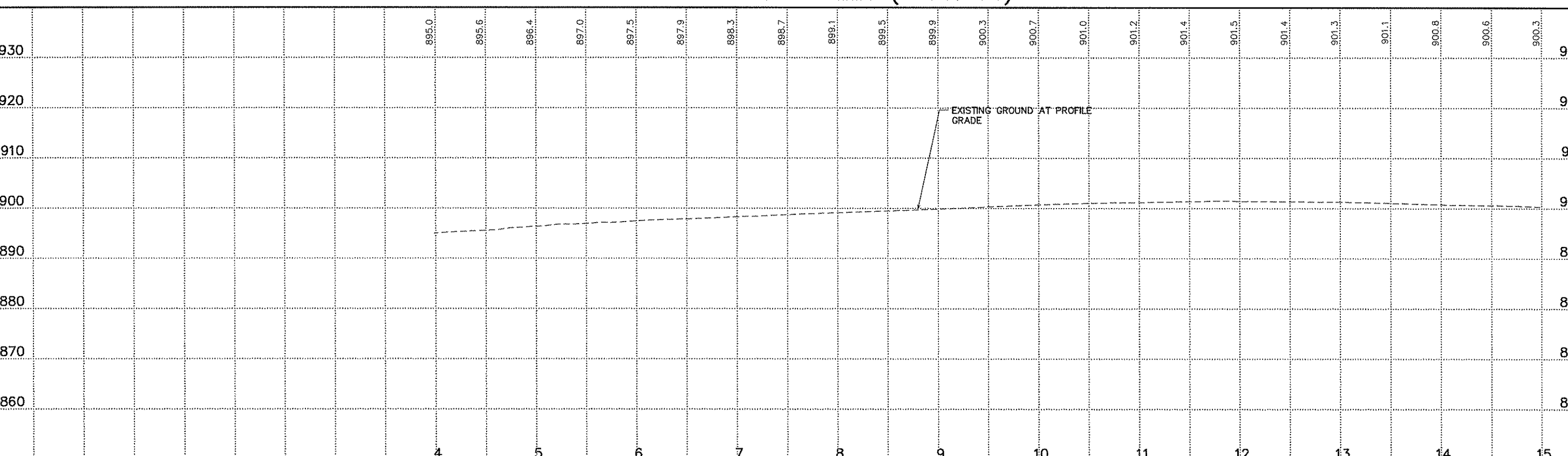
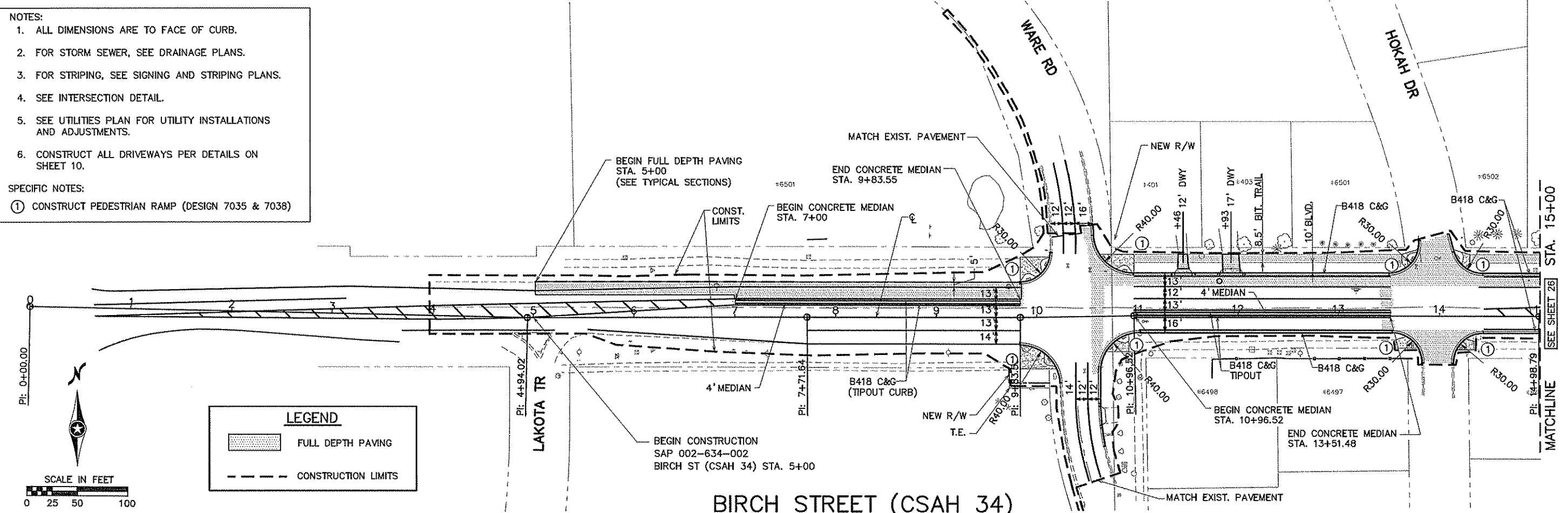
File Path: 08/01/2012  
 Drawing name: K:\gms\mod\asst\148100\m\148100.dwg  
 User: jstuden  
 Title: INPLACE TOPO., UTILITIES, & REMOVAL PLAN  
 Project: BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

	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. SIGNATURE: <i>James E. Studenski</i> PRINTED NAME: JAMES E. STUDENSKI DATE: 7/23/2012 LIC. NO. 23757	DRAWN BY _____ DATE _____ DESIGN BY _____ DATE _____ CHECKED BY _____ DATE _____	S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		<b>CITY OF LINO LAKES</b> INPLACE TOPO., UTILITIES, & REMOVAL PLAN SIOUX LANE BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION	<b>SHEET</b> <b>24</b> <b>OF</b> <b>63</b>
NO	DATE	BY	CKD	APPR	REVISION	



NOTES:  
 1. ALL DIMENSIONS ARE TO FACE OF CURB.  
 2. FOR STORM SEWER, SEE DRAINAGE PLANS.  
 3. FOR STRIPING, SEE SIGNING AND STRIPING PLANS.  
 4. SEE INTERSECTION DETAIL.  
 5. SEE UTILITIES PLAN FOR UTILITY INSTALLATIONS AND ADJUSTMENTS.  
 6. CONSTRUCT ALL DRIVEWAYS PER DETAILS ON SHEET 10.

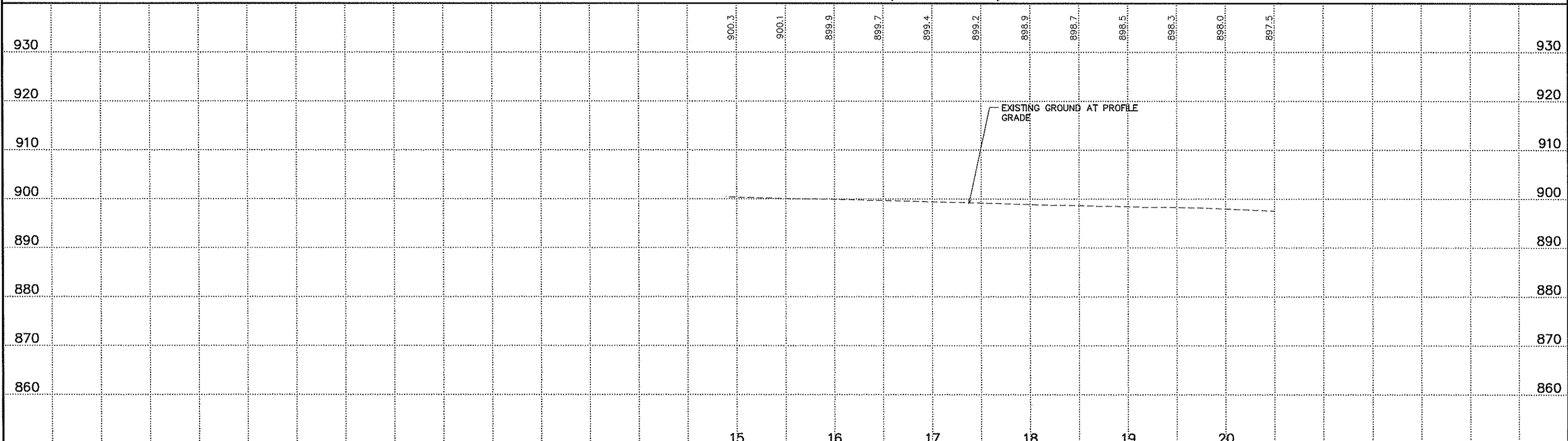
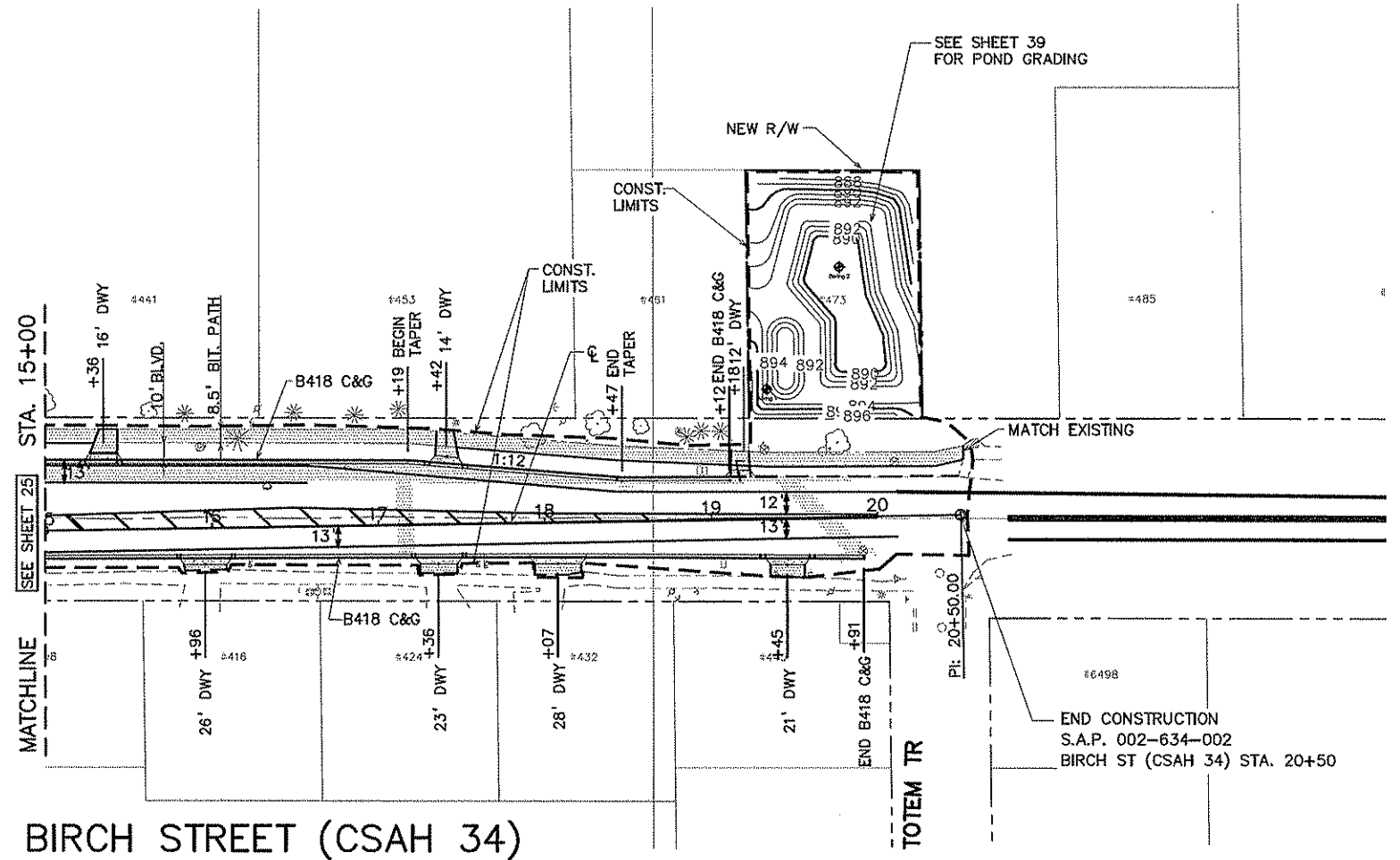
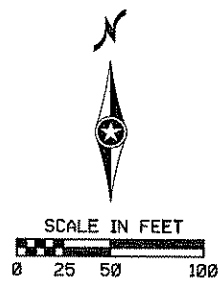
SPECIFIC NOTES:  
 ① CONSTRUCT PEDESTRIAN RAMP (DESIGN 7035 & 7038)



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. SIGNATURE: <i>James E. Studenski</i> PRINTED NAME: <b>JAMES E. STUDENSKI</b> DATE: 7/23/2012 LIC. NO. 23757		DRAWN BY _____ DATE _____ DESIGN BY _____ DATE _____ CHECKED BY _____ DATE _____	S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.	<b>TKDA</b> ENGINEERING * ARCHITECTURE * PLANNING	CITY OF LINO LAKES CONSTRUCTION PLAN AND PROFILE BIRCH STREET (CSAH 34) BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION	SHEET <b>25</b> OF <b>63</b>
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File Date: 06/07/2012  
 Project: Birch Street (CSAH 34) Signalization  
 Job No: 14851.000  
 Drawing: Construction Plan and Profile  
 Scale: 1" = 40' (Plan), 1" = 10' (Profile)

- NOTES:
1. ALL DIMENSIONS ARE TO FACE OF CURB.
  2. FOR STORM SEWER, SEE DRAINAGE PLANS.
  3. FOR STRIPING, SEE SIGNING AND STRIPING PLANS.
  4. SEE INTERSECTION DETAIL.
  5. SEE UTILITIES PLAN FOR UTILITY INSTALLATIONS AND ADJUSTMENTS.
  6. CONSTRUCT ALL DRIVEWAYS PER DETAILS ON SHEET 10.
- SPECIFIC NOTES:
- ① CONSTRUCT PEDESTRIAN RAMP (DESIGN 7035 & 7038)



Plot Date: 08/01/2012  
 Drawing Name: K:\gms\lino\lakes\02-000\proj\02-001\10\plan\B Birch Ware Rd\11-B Birch Ware Rd.dwg  
 Author: Zsolt-Henri, E:\gms\lino\lakes\02-000\proj\02-001\10\plan\B Birch Ware Rd\11-B Birch Ware Rd.dwg

NO	DATE	BY	CHKD	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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: **JAMES E. STUDENSKI**  
 DATE: 7/23/2012 LIC. NO. 23757

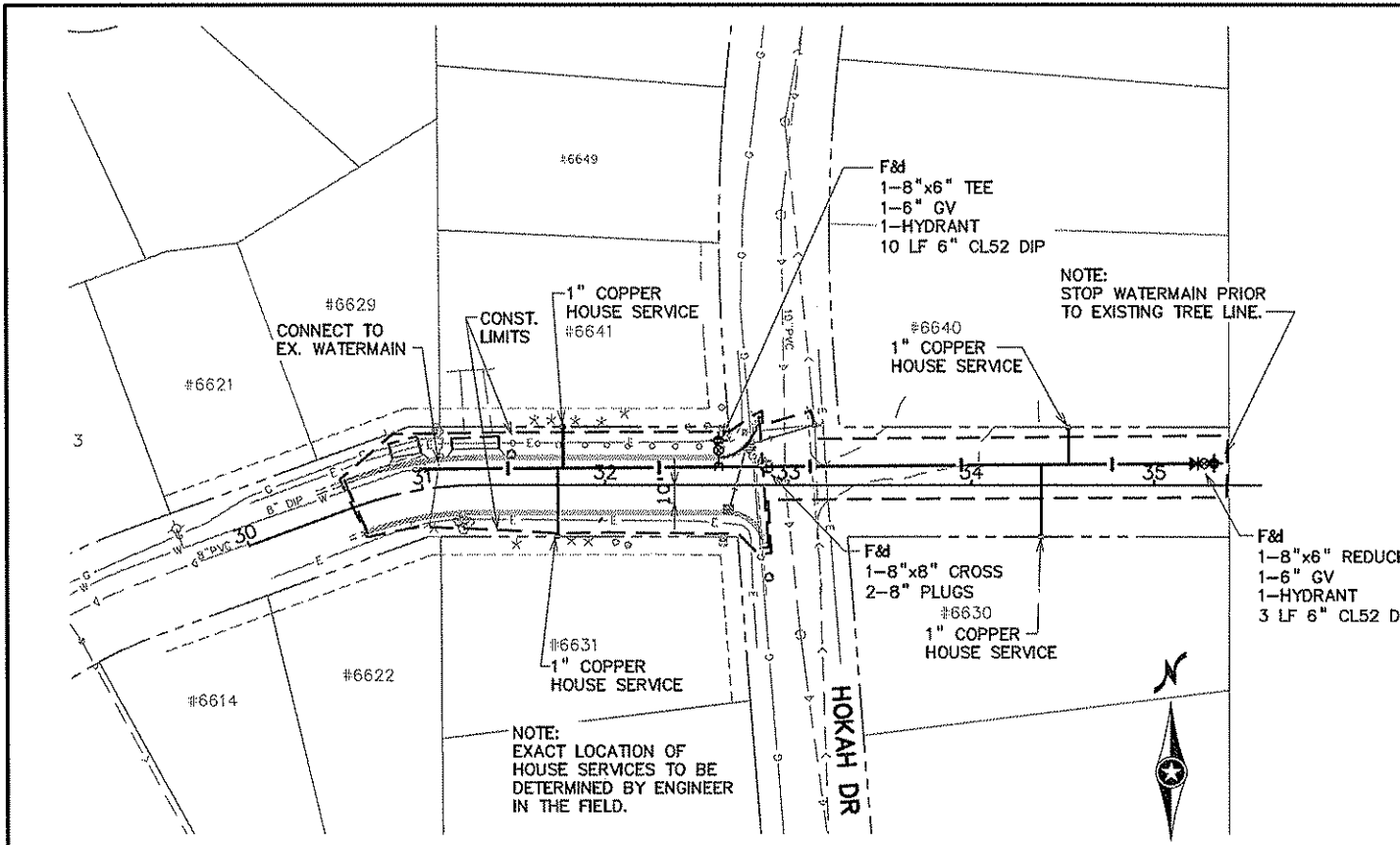
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 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
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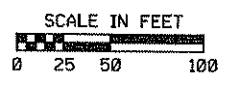


CITY OF LINO LAKES  
**CONSTRUCTION PLAN AND PROFILE**  
**BIRCH STREET (CSAH 34)**  
**BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

SHEET  
**26**  
 OF  
**63**

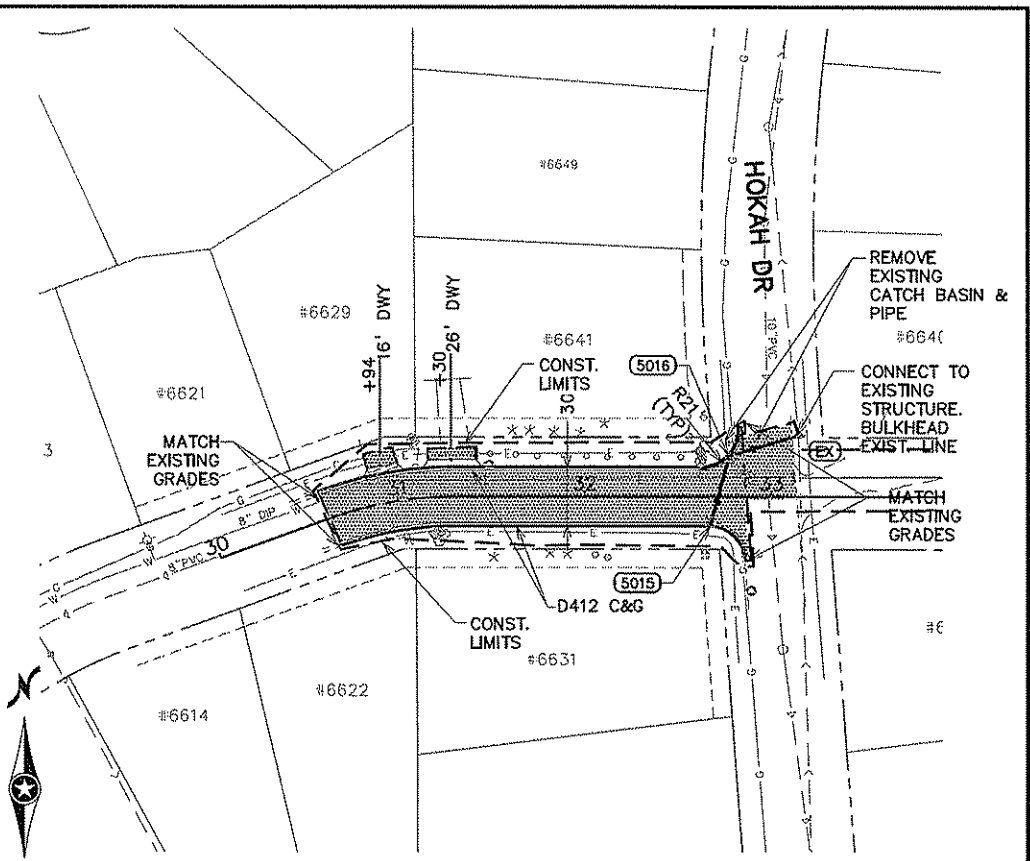


PROPOSED WATERMAIN  
SIOUX LANE

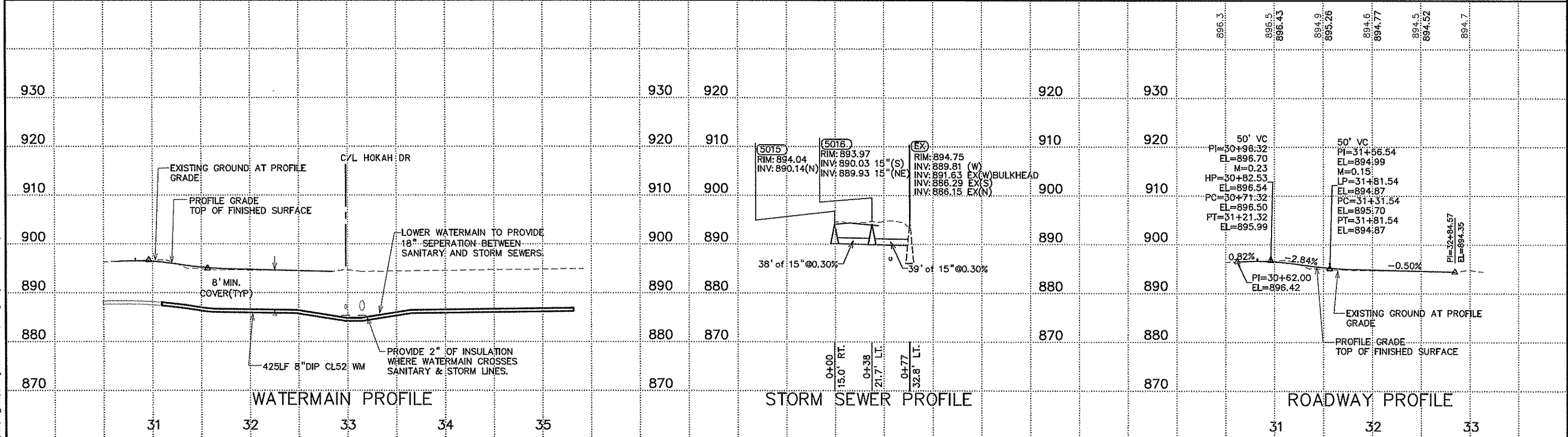
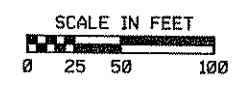


**LEGEND**

- (XXXX) PROPOSED STRUCTURE NUMBER
- PROPOSED CATCH BASIN
- INPLACE CATCH BASIN
- INPLACE MANHOLE
- PROPOSED MANHOLE
- ▲ PROPOSED APRON
- ▲ INPLACE APRON
- PROPOSED STORM SEWER/CULVERT
- INPLACE STORM SEWER
- ▨ NEW BITUMINOUS, SEE DETAIL



STORM SEWER & STREET  
SIOUX LANE



WATERMAIN PROFILE

STORM SEWER PROFILE

ROADWAY PROFILE

Proj. Date: 08/01/2012  
 Drawing Name: C:\p\m\lino\lino\14851000\m\14851000\14851000.dwg  
 Author: J. Studenski  
 Title: Engineer  
 Date: 7/23/2012

NO	DATE	BY	CHKD	APPR	REVISION

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 SIGNATURE: *James E. Studenski*  
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 DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 CONSTRUCTION PLAN AND PROFILE  
 SIOUX LANE  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 27  
 OF  
 63

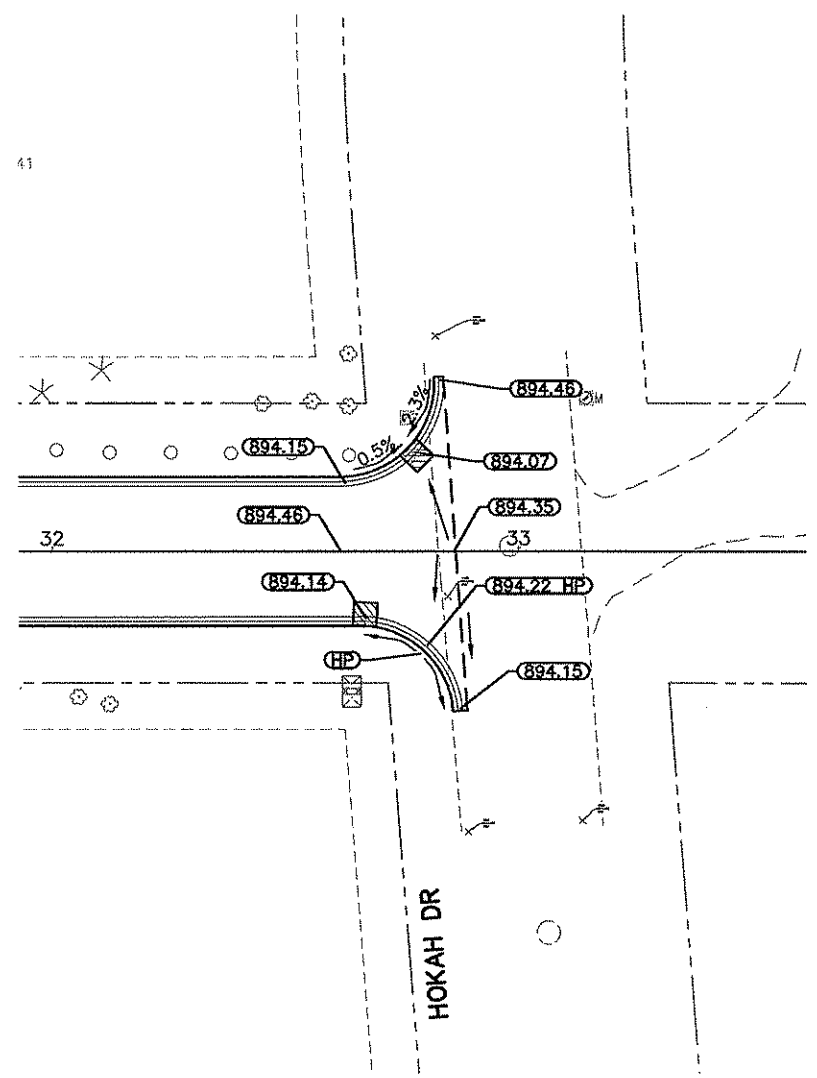
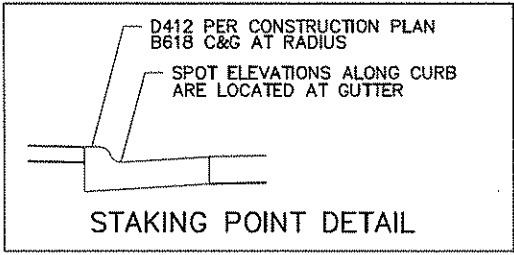
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**GENERAL NOTES:**

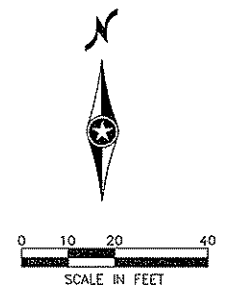
- GUTTERLINE PROFILE ELEVATIONS DO NOT REFLECT DRAINAGE STRUCTURE SUMP.
- ALL CURB AND GUTTER IS GUTTER IN UNLESS NOTED OTHERWISE.

**LEGEND:**

SURFACE DRAINAGE FLOW DIRECTION.



SIoux LN & HOKAH DR INTERSECTION



NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

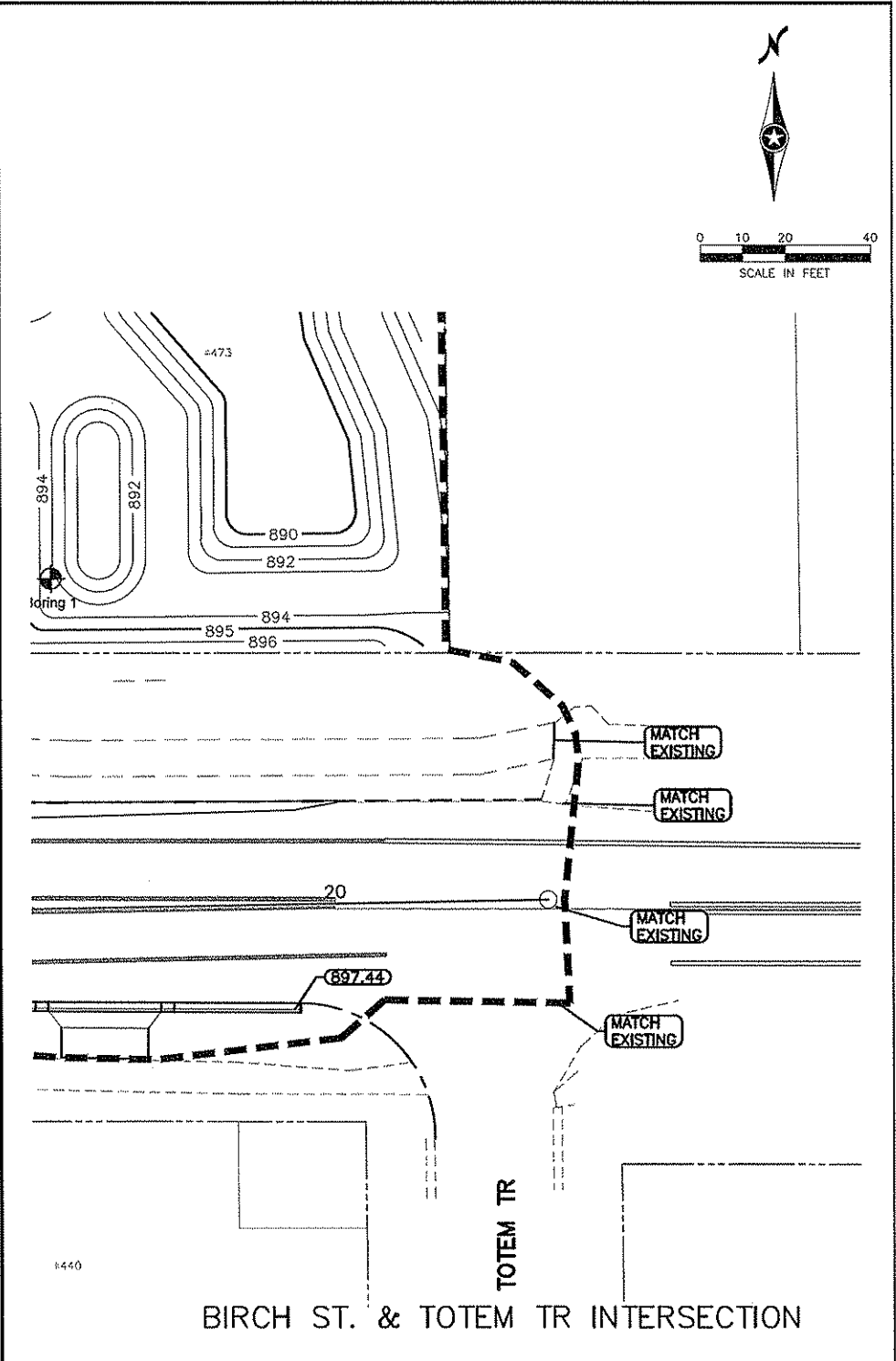
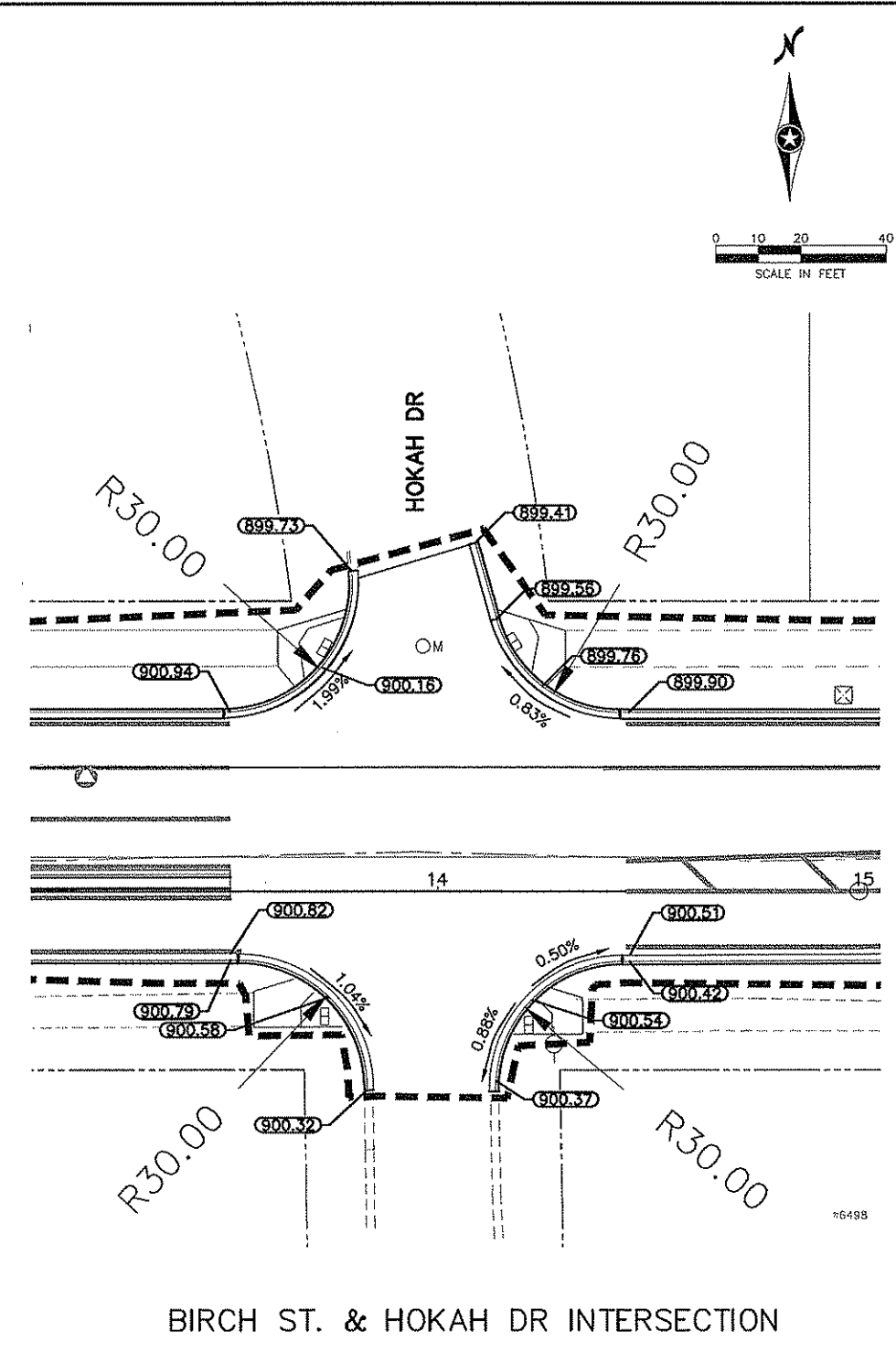
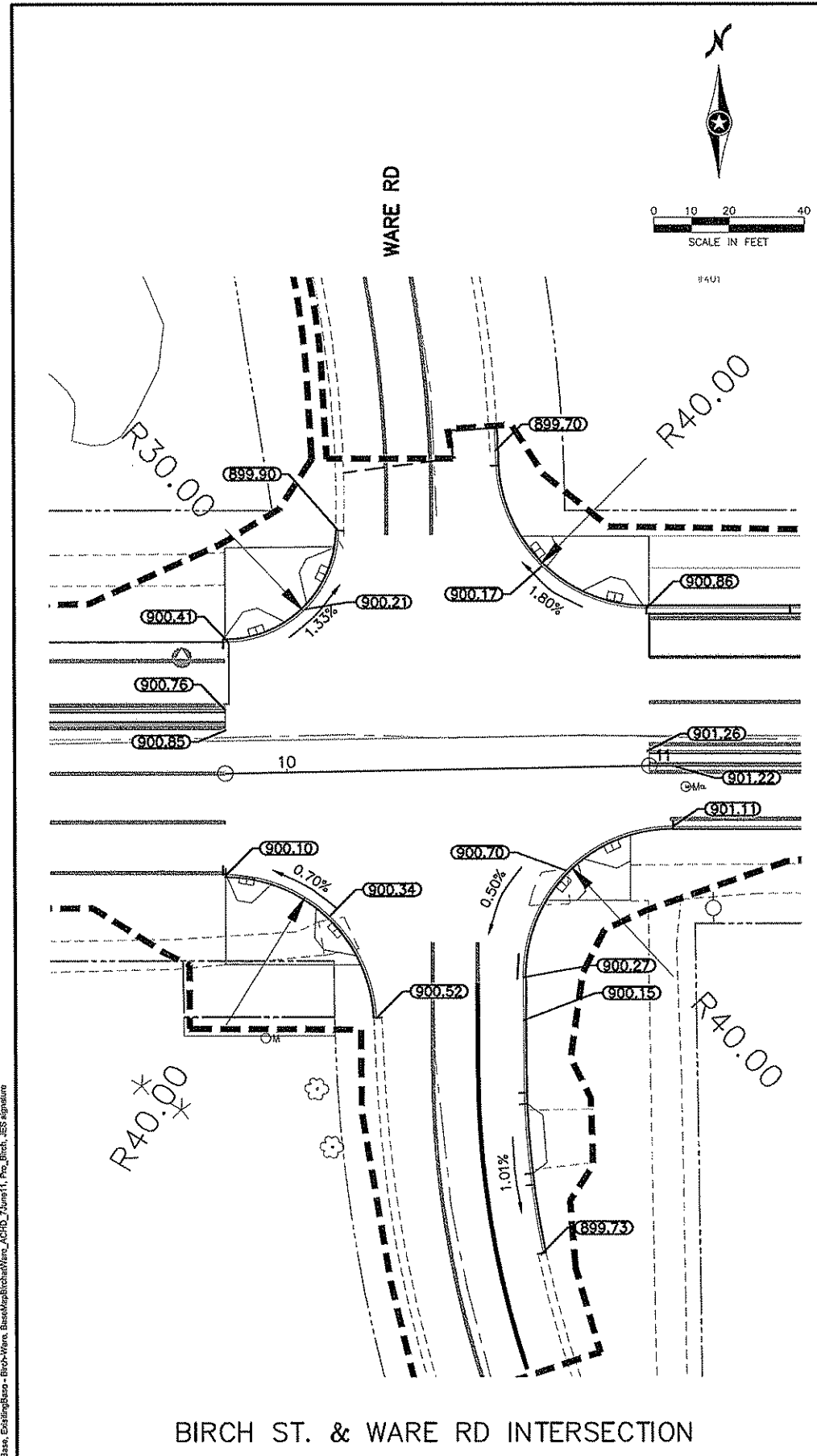
S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



**CITY OF LINO LAKES**

**INTERSECTION DETAIL**  
**SIoux LANE**  
**BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION**

**SHEET**  
**28**  
**OF**  
**63**

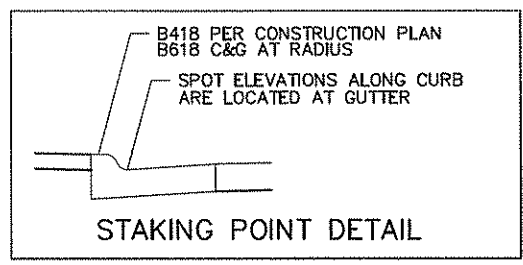


**GENERAL NOTES:**

- GUTTERLINE PROFILE ELEVATIONS DO NOT REFLECT DRAINAGE STRUCTURE SUMP.
- ALL CURB AND GUTTER IS GUTTER IN UNLESS NOTED OTHERWISE.

**LEGEND:**

— SURFACE DRAINAGE FLOW DIRECTION.



NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.



CITY OF LINO LAKES

INTERSECTION DETAIL  
BIRCH STREET (CSAH 34)  
BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
29  
OF  
63

STORM WATER POLLUTION PREVENTION PLAN NOTES

PROJECT LOCATION AND DESCRIPTION

THE PROJECT (S.A.P. 002-634-002) IS LOCATED ON BIRCH STREET FROM APPROXIMATELY 450 FEET EAST OF HODGSON ROAD TO APPROXIMATELY 2000 FEET TO THE EAST. ALSO, THE PROJECT INCLUDES SIOUX LANE FROM 350 FEET EAST OF SIOUX LOOKOUT TO HOKAY DRIVE AS SHOWN ON THE TITLE SHEET AND GENERAL LAYOUT (SHEETS 1-2).

THE PROJECT INCLUDES:

- GRADING
- BITUMINOUS MILL & OVERLAY
- ADA IMPROVEMENTS
- TRAFFIC SIGNALS
- TURN LANE CONSTRUCTION
- MISCELLANEOUS STORM SEWER, CULVERT, AND DRAINAGE STRUCTURE REPAIRS AND REPLACEMENTS
- MINOR DITCH GRADING
- TEMPORARY EROSION AND SEDIMENT CONTROL
- PERMANENT EROSION CONTROL AND TURF ESTABLISHMENT

THE APPROXIMATE CONSTRUCTION TIMELINE IS JULY 2012 TO DECEMBER 2012.

PROJECT CONTACTS / RESPONSIBLE PARTIES

IN ACCORDANCE WITH MN/DOT SPEC. 2573.3A1, THE CONTRACTOR WILL PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES...

THE ANOKA COUNTY INSPECTOR AND THE CITY EROSION CONTROL SUPERVISOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION UNTIL THE NOTICE OF TERMINATION HAS BEEN FILED WITH THE MPCA.

THE CITY OF LINO LAKES WILL BE RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM.

LINO LAKES ENGINEER

JASON WEDEL
600 TOWN CENTER PARKWAY
LINO LAKES, MN 55014
(651) 982-2430

CITY EROSION CONTROL SUPERVISOR

TIM PAYNE
600 TOWN CENTER PARKWAY
LINO LAKES, MN 55014
(651) 982-2245

MPCA CONTACT

SHAWN NELSON
MPCA COUNTY STAFF CONTACT
(651) 757-2604

SWPPP DESIGNER

FRANK TICKNOR TKDA
DESIGN OF SWPPP
CERTIFICATION
EXPIRES MAY 31, 2014
(651) 726-7925

CONTRACTOR EROSION CONTROL SUPERVISOR TO BE DETERMINED

MPCA 24-HR EMERGENCY NOTIFICATION (STATE DUTY OFFICER)

(651) 649-5451
(800) 422-0798

ENVIRONMENTALLY SENSITIVE AREAS

THERE ARE NO ENVIRONMENTALLY SENSITIVE AREAS WITHIN THE PROJECT LIMITS. NO WETLANDS EXIST WITHIN THE PROJECT LIMITS. THERE ARE NO CALCAREOUS FENS WITHIN THE PROJECT LIMITS. THIS PROJECT IS NOT LOCATED IN AN AREA THAT IS KNOWN TO BE ACTIVE KARST.

ENVIRONMENTAL REVIEW

THERE ARE NOT STORM WATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL, OR AGENCY REVIEW.

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE SILTY SAND AND SAND WITH SILT.

SWPPP TRAINING REQUIREMENTS

THIS SWPPP WAS PREPARED BY TKDA PERSONNEL THAT ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. COPIES OF THE CERTIFICATIONS ARE ON FILE WITH MN/DOT AND ARE AVAILABLE UPON REQUEST. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A CERTIFIED EROSION CONTROL SUPERVISOR THAT IS RESPONSIBLE FOR OVERSEEING THE IMPLEMENTATION OF THE SWPPP. THE CONTRACTOR MUST PROVIDE PROOF

OF CERTIFICATION AT THE PRECONSTRUCTION MEETING AND WILL NOT BE ALLOWED TO COMMENCE WORK UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

LAND FEATURE CHANGES \*

Table with 2 columns: Description, Value. Rows include: TOTAL DISTURBED SURFACE AREA: 2.16 ACRES; TOTAL EXISTING IMPERVIOUS SURFACE AREA: 0.46 ACRES; TOTAL POST-CONSTRUCTION IMPERVIOUS SURFACE AREA: 0.85 ACRES; TOTAL POST-CONSTRUCTION NET CHANGE IN IMPERVIOUS SURFACE AREA: 0.39 ACRES.

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET, AS WELL AS IN THE SPECIAL PROVISIONS, MN/DOT SPEC. BOOK (2005 EDITION), OR ON FILE WITH MN/DOT. THE NOTES AND TABLE BELOW ARE INTENDED TO BE A QUICK REFERENCE FOR THE CONTRACTOR AND PROJECT ENGINEER TO USE IN THE FIELD. THERE MAY BE ADDITIONAL REQUIRED SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET.

Table with 2 columns: Description, Location. Rows include: SOILS AND CONSTRUCTION NOTES, STANDARD PLATES (SHEET NO. 5); EROSION CONTROL AND TURF ESTABLISHMENT (SHEET NOS. 35-37); INPLACE TOPOGRAPHY, UTILITIES, AND REMOVALS (SHEET NOS. 23-24); CONSTRUCTION PLANS (SHEET NOS. 25-27); DRAINAGE PLANS (SHEET NO. 32); DRAINAGE PROFILES AND TABULATIONS (SHEET NO. 33).

INSPECTIONS AND MAINTENANCE

THE EROSION CONTROL SUPERVISOR MUST ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS...

ALL EROSION AND SEDIMENT CONTROL BMPs MUST BE INSPECTED BY THE CONTRACTOR TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPs MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPs AS DIRECTED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER.

ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING, AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP IN ACCORDANCE WITH PART III.D OF THE NPDES PERMIT AND KEPT ON SITE DURING CONSTRUCTION.

SITE PLANS REQUIREMENT AREAS

THE CONTRACTOR WILL PREPARE AND SUBMIT A SITE PLAN FOR THE ENGINEER'S APPROVAL AS PER MN/DOT SPEC. 1717.2E FOR CONCRETE MANAGEMENT WORK NEAR ENVIRONMENTALLY SENSITIVE AREAS, AREAS IDENTIFIED IN THE PLANS AS "SITE PLAN REQUIREMENT AREA," ANY WORK THAT WILL REQUIRE DEWATERING, THE STAGING OF INLET PROTECTION DEVICES, AND AS REQUESTED BY THE ENGINEER...

DRAINAGE COMPUTATIONS

COMPUTATIONS ARE KEPT ON FILE WITH THE CITY OF LINO LAKES. CHANGES MADE IN THE FIELD MUST BE DISCUSSED WITH THE PROJECT ENGINEER, APPROVED BY THE CITY ENGINEER, AND NOTED IN THE CONTRACTOR'S CONSTRUCTION LOG.

CONSTRUCTION NOTES

CONSTRUCTION SHALL BE GOVERNED BY THE MN/DOT 2005 SPEC. BOOK AND THE SPECIAL PROVISIONS. THE CONTRACTOR MUST KEEP THE SWPPP, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS AT THE SITE DURING CONSTRUCTION.

POLLUTION PREVENTION MANAGEMENT

THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DIRECTED IN THE NPDES PERMIT, PART IV.F AS IT PERTAINS TO SOLID WASTE, HAZARDOUS MATERIALS, EXTERNAL TRUCK WASHING, BITUMINOUS PAVING MACHINE, AND CONCRETE TRUCK WASHOUT. THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

THE EROSION CONTROL SUPERVISOR SHALL MAKE A SPILL RESPONSE PLAN BEFORE THE APPLICATION OF ANY CHEMICAL THAT MAY BE HARMFUL TO THE ENVIRONMENT. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM CONVEYANCE SYSTEM MUST BE REPORTED TO THE MPCA STATE DUTY OFFICER. THE CONTRACTOR MUST HAVE A SPILL KIT ON SITE AT ALL TIMES (INCIDENTAL).

SOLID WASTE SUCH AS COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS, AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CREATING AND FOLLOWING A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS...

THE CONTRACTOR MUST USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DUST, PARTICLES, SAW CUT SLURRY, CONCRETE WASTES, BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER WASTE FROM LEAVING MN/DOT RIGHT-OF-WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, OR ENTERING STORM WATER CONVEYANCE SYSTEMS, INCLUDING INLETS AND CURB FLOW LINES.

CONCRETE CRUSHING, PECKING, SAWING, AND GRINDING WILL REQUIRE DUST CONTROL USING WATER MISTS (INCIDENTAL), AND ALL CONCRETE PUMPING, WASHOFF, AND WASHOUT AREAS WILL NEED TO BE DESIGNATED AND KEPT FUNCTIONAL SOMEPLACE INSIDE THE PROJECT LIMITS. LEAD PAINT CHIPS MUST NOT COME INTO CONTACT WITH SOILS UNLESS IT IS THE INTENT OF THE CONTRACTOR TO HAUL OFF ALL CONTAMINATED SOILS.

CHEMICALS SUCH AS OIL, FUEL, FERTILIZER, AND PAINT MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS. THE CONTRACTOR WILL BE REQUIRED TO UPDATE THE SWPPP FOR PORTABLE RESTROOM PLACEMENT, REFUELING METHODS (INCLUDING SPILL KITS), AND SECONDARY CONTAINMENT OF STATIONARY MACHINES WITH FLUIDS. PORTABLE RESTROOM FACILITIES WILL BE ANCHORED TO PREVENT TIPPING.

TRUCK WASHING AND CONCRETE WASHOUT SHALL TAKE PLACE IN A FIELD OR COMMERCIAALLY ENGINEERED LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER THAT PREVENTS RUNOFF ONTO ADJACENT SOILS. LOCATION OF WASHOUT AREAS MUST BE IDENTIFIED BY SIGNAGE, MUST BE AT LEAST 200 FEET FROM ENVIRONMENTALLY SENSITIVE AREAS, AND MUST BE SHOWN ON AN ENGINEER-APPROVED SITE PLAN. IF DEEMED NECESSARY BY THE PROJECT ENGINEER, THE CONTENTS SHALL BE DISPOSED OF AT AN APPROPRIATE FACILITY OFF SITE.

BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN THE PROJECT BOUNDARY.

CONSTRUCTION PHASE POLLUTANT SOURCES ANTICIPATED AT THIS SITE ARE DISTURBED (BARE) SOIL; SEDIMENT; VEHICLE FUELS AND LUBRICANTS; CHEMICALS ASSOCIATED WITH CONSTRUCTION; BITUMINOUS GRINDINGS, CUTTINGS, AND MILLINGS; CONSTRUCTION-GENERATED LITTER AND DEBRIS; AND CONCRETE WASTE. WITHOUT ADEQUATE CONTROL, THERE IS POTENTIAL FOR EACH TYPE OF POLLUTANT TO BE TRANSPORTED BY STORM WATER.

IF SEDIMENT DEPOSITS IN A WATER OF THE STATE (AS DEFINED IN THE NPDES

PERMIT), THE SEDIMENT MUST BE REMOVED WITHIN SEVEN DAYS.

EROSION PREVENTION PRACTICES

THE CONTRACTOR MUST PLAN FOR AND IMPLEMENT CONSTRUCTION PRACTICES THAT MINIMIZE EROSION. PHASED CONSTRUCTION SHALL BE USED TO MINIMIZE SEDIMENT TRANSPORT.

DITCHES AND EXPOSED SOILS MUST BE KEPT IN AN EVEN, ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES AND BLANKETS. ALL EXPOSED SOIL AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED NO MORE THAN SEVEN DAYS AFTER CONSTRUCTION ACTIVITY ON THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. IN MANY INSTANCES, THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING ROUGH GRADING. RAPID STABILIZATION METHOD 1, 2, 3, OR 4 WILL BE USED TO PROVIDE TEMPORARY COVER IN THESE AREAS AS APPROPRIATE.

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM OR AROUND THE CONSTRUCTION SITE MUST BE STABILIZED WITHIN 200 FEET FROM THE PROPERTY EDGE OR POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, EXISTING GUTTER, STORM SEWER INLET, DRAINAGE DITCH, OR OTHER STORM WATER CONVEYANCE SYSTEM ACCORDING TO MN/DOT SPEC 1717.2A2. RAPID STABILIZATION METHOD 4 WILL BE USED TO STABILIZE THESE AREAS...

PIPE OUTLETS INTO SURFACE WATERS MUST BE STABILIZED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF BEING CONSTRUCTED.

UNDISTURBED GRASS BUFFERS ON INSLOPES SHALL REMAIN IN PLACE AS PERIMETER CONTROL.

ALL EXPOSED SOIL AREAS WILL BE STABILIZED PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, OR BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.

ALL TEMPORARY TOPSOIL BERMS SHALL BE STABILIZED AS FOLLOWS:

- BETWEEN APRIL 1 AND AUGUST 31, SEED WITH MIXTURE 150.
- BETWEEN SEPTEMBER 1 AND MARCH 31, SEED WITH SEED MIXTURE 150 AND TOP WITH RAPID STABILIZATION 2.

Bottom section of the page containing a signature block for James E. Studenski, project details for S.A.P. 002-634-002, the TKDA logo, and the sheet number 30 of 63.

**SEDIMENT CONTROL PRACTICES**

SEDIMENT CONTROL PRACTICES MUST BE ESTABLISHED ON ALL DOWN-GRADIENT PERIMETERS BEFORE ANY UP-GRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED. SEE THE STANDARD PLANS FOR DETAILS. SEDIMENT CONTROL PRACTICES MUST MINIMIZE SEDIMENT ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS. ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL DISCHARGE TO THE INLET HAVE BEEN STABILIZED. SEDIMENT REACHING SURFACE WATERS MUST BE REMOVED WITHIN SEVEN DAYS.

PERIMETER CONTROL SUCH AS SILT FENCE OR FILTER LOGS SHALL BE LOCATED ON THE CONTOUR TO CAPTURE OVERLAND, LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS, WITH THE BMP J-HOOKED AT A MAXIMUM OF 100-FOOT INTERVALS, AND SHALL CONTAIN NO MORE THAN 1/4 ACRE OF DRAINAGE AREA. PERIMETER CONTROL MUST BE REPAIRED OR REPLACED WHEN IT BECOMES NONFUNCTIONAL OR THE SEDIMENT REACHES ONE-THIRD OF THE HEIGHT OF THE BMP. REPAIRS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY AND ARE CONSIDERED INCIDENTAL.

DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION. TEMPORARY DITCH CHECKS WILL CONSIST OF USING ROCK DITCH CHECKS, BIOLOGS, AND ROCK WEEPERS IN FRONT OF CULVERT INLETS. IN LIEU OF REMOVING TEMPORARY DITCH CHECKS, THE ROCK MAY BE PUSHED INTO THE GROUND. FILTER LOGS WILL BE PLACED DURING PERMANENT TURF ESTABLISHMENT AT THE INTERVALS IDENTIFIED IN THE PLAN.

SEDIMENT DAMAGE FROM SOIL STOCKPILES WILL BE MINIMIZED BY PLACING A ROW OF HEAVY DUTY OR SUPER DUTY SILT FENCE A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF SLOPE. IF THERE IS NOT ADEQUATE PROJECT AREA TO PLACE THE SILT FENCE MORE THAN 5 FEET FROM THE TOE, THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE FOR APPROVAL BY THE PROJECT ENGINEER. SOIL STOCKPILES CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORM WATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS OR DITCHES.

STORM SEWER INLETS WILL BE PROTECTED AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. ALL STORM SEWER INLET PROTECTION DEVICES WILL BE KEPT IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE, OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES, IT WILL BE REPLACED WITH A SUITABLE ALTERNATIVE AT NO COST TO MNDOT.

THE CONTRACTOR WILL PLACE WOOD CHIP PADS, SLASH MULCH PADS, OR ROCK PADS AT MAJOR VEHICLE EXIT LOCATIONS TO MINIMIZE VEHICLE TRACKING OF SEDIMENT ONTO PAVED SURFACES (INCIDENTAL). PADS WILL BE SUFFICIENTLY SIZED AND MAINTAINED TO PREVENT TRACK OUT. STREET SWEEPING MUST BE USED IF SEDIMENT IS BEING TRACKED OFF THE CONSTRUCTION SITE (INCIDENTAL). TRACKED SEDIMENT MUST BE REMOVED WITHIN 24 HOURS OF DISCOVERY. PAVEMENT SHALL BE LIGHTLY WETTED PRIOR TO SWEEPING.

**DEWATERING**

TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR THE ROADWAY CONSTRUCTION AND UTILITY WORK. A WATER APPROPRIATIONS PERMIT WILL BE REQUIRED FROM THE MNDNR FOR CONSTRUCTION DEWATERING EXCEEDING 10,000 GALLONS PER DAY. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING THIS PERMIT.

TEMPORARY DEWATERING RELATED TO THE CONSTRUCTION ACTIVITY THAT MAY HAVE TURBID OR SEDIMENT-LADEN DISCHARGE WATER MUST BE DISCHARGED TO A TEMPORARY SEDIMENT BASIN ON THE PROJECT SITE OR AN ACCEPTABLE ALTERNATIVE. IF THE WATER CANNOT BE

DISCHARGED TO A SEDIMENT BASIN PRIOR TO ENTERING RECEIVING WATERS, IT MUST BE TREATED WITH THE APPROPRIATE BMPS SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM LANDOWNERS. THE CONTRACTOR MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR. THE DISCHARGE MUST BE DISPERSED OVER NATURAL ROCK RIPRAP, SAND BAGS, PLASTIC SHEETING, OR OTHER ACCEPTED ENERGY DISSIPATION MEASURES. ADEQUATE SEDIMENTATION CONTROL MEASURES ARE REQUIRED FOR DISCHARGE WATER THAT CONTAINS SUSPENDED SOLIDS. ALL DEWATERING REQUIRES A SITE PLAN TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK, ACCORDING TO MNDOT SPEC. 1717.2E.

**FINAL STABILIZATION**

THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. FINAL STABILIZATION SHALL INCLUDE A MINIMUM OF 70% VEGETATION ESTABLISHMENT (100% STABILIZED) ON ALL PVIOUS AREAS.

ALL TEMPORARY EROSION CONTROL MEASURES AND BMPS MUST BE REMOVED AS PART OF THE FINAL STABILIZATION, UNLESS DIRECTED OTHERWISE BY THE OWNER OR ENGINEER.

THE PERMITEES MUST SUBMIT A NOTICE OF TERMINATION TO THE MPCA WITHIN 30 DAYS OF FINAL STABILIZATION OR OF TRANSFERRING PERMIT RESPONSIBILITY TO ANOTHER OWNER OR OPERATOR.

Plot Date: 08/02/2012 14:51:00 mms\c3d11\signed\_Birch\Hrs\Plan\081818-Birch-Hrs-ns-dwg Xrefs: 2024.dwg, ISS.dwg

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.



CITY OF LINO LAKES

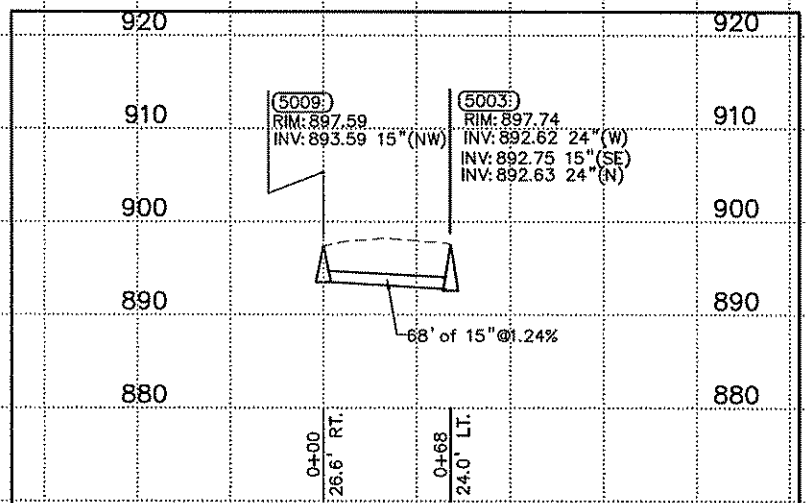
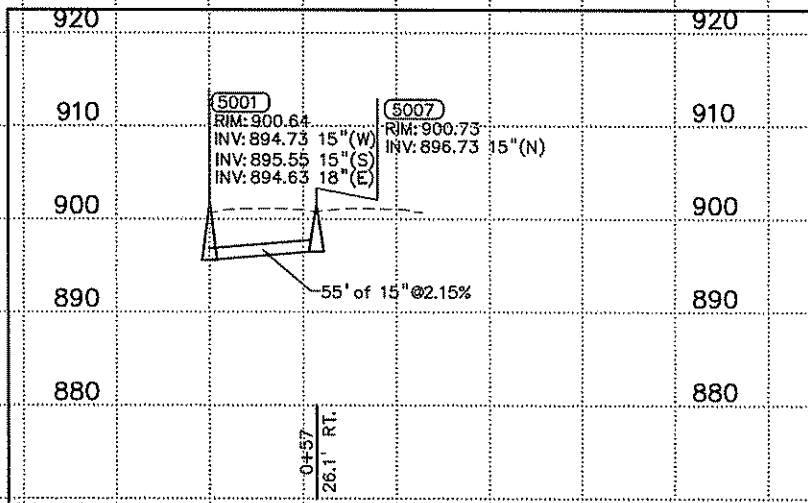
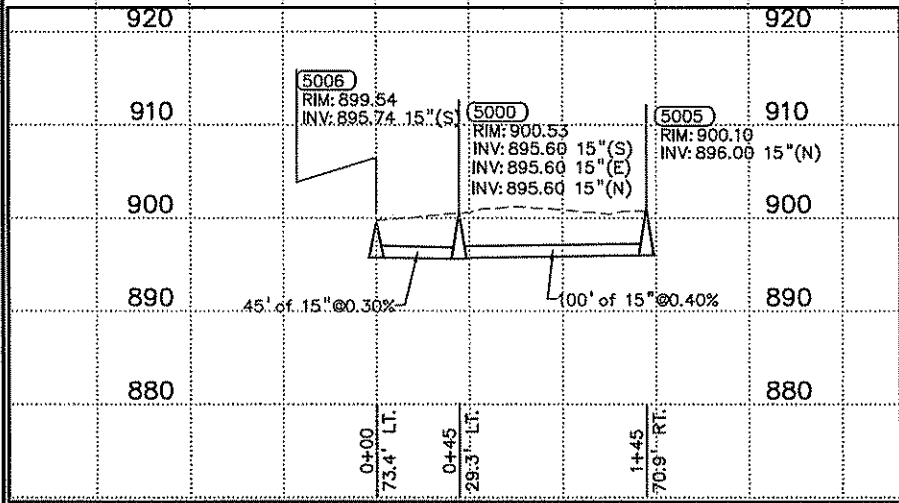
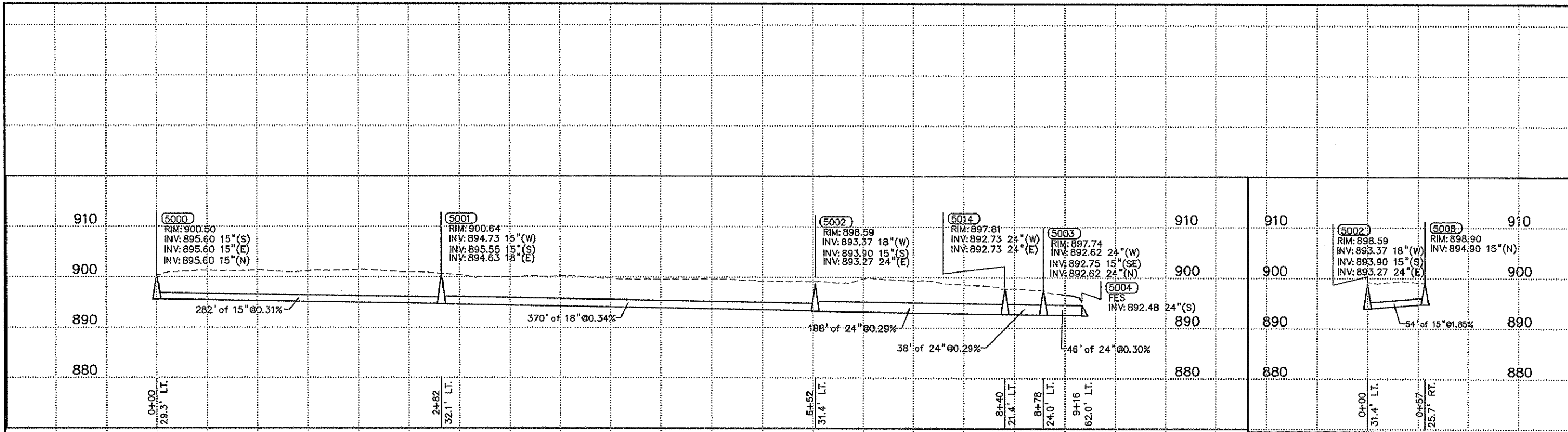
STORM WATER POLLUTION PREVENTION PLAN NOTES

BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET 31 OF 63







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NO	DATE	BY	CHKD	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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

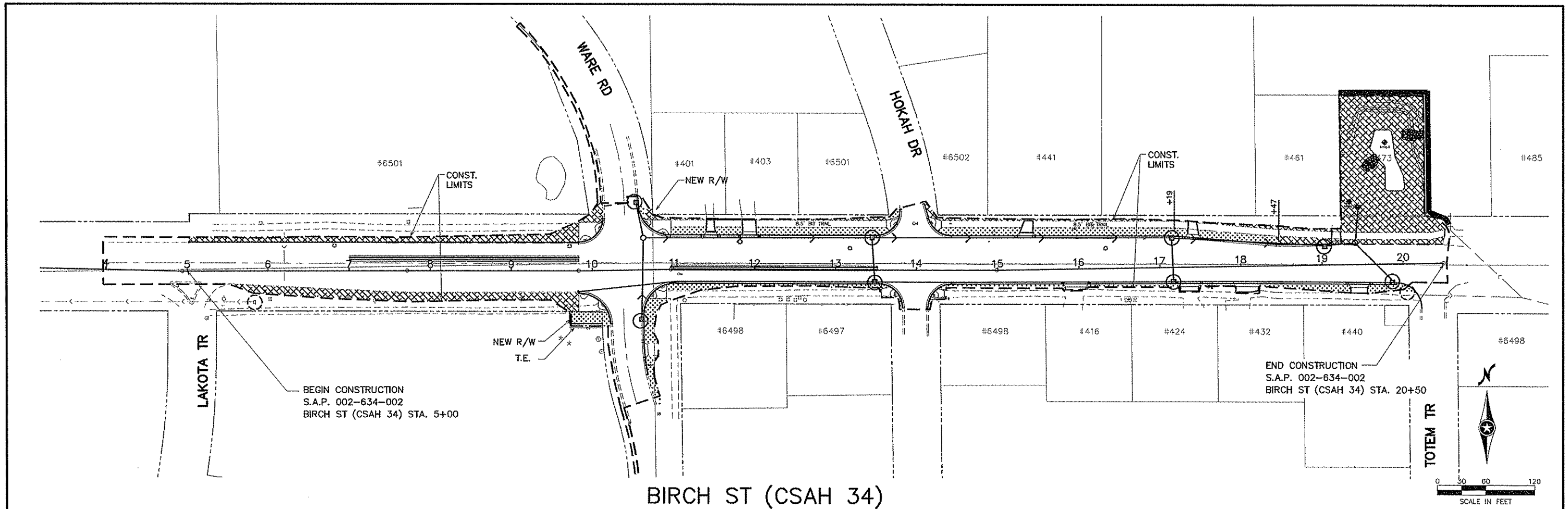
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S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 DRAINAGE PROFILES  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 33  
 OF  
 63



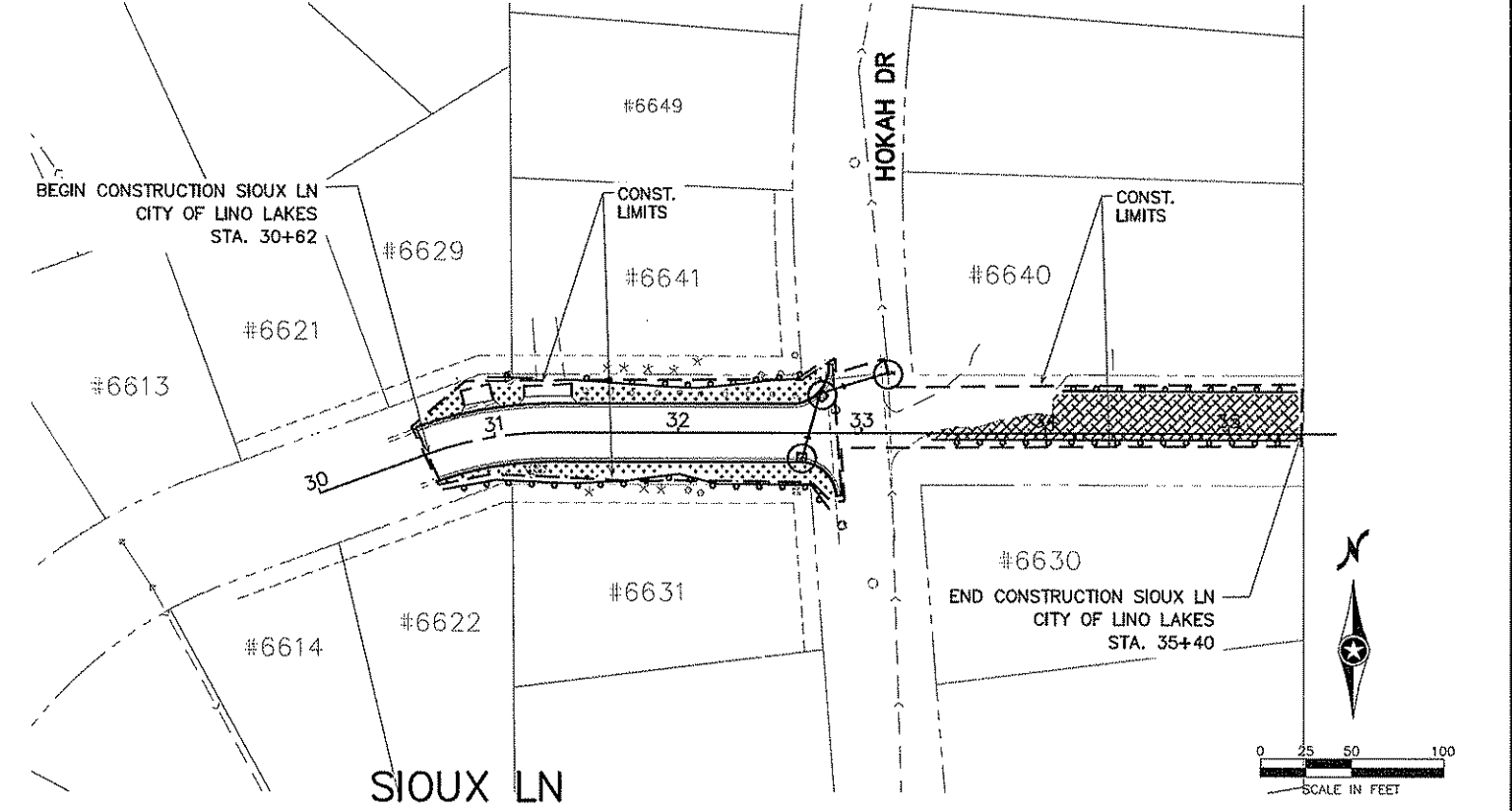
BIRCH ST (CSAH 34)

**GENERAL EROSION CONTROL NOTES**

1. FILTER LOG TYPE COMPOST LOG SHALL FOLLOW, AS CLOSELY AS POSSIBLE, TO A SINGLE CONTOUR LINE AND SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING ACTIVITIES.
2. THE QUANTITIES INCLUDE FILTER LOG TYPE COMPOST LOG TO BE USED AS PERIMETER CONTROL AS SHOWN IN THE PLANS.
3. ALL PONDS MUST BE SURVEYED AND CLEANED OUT AT THE END OF CONSTRUCTION TO MATCH THE PLAN CONTOURS. ALL MATERIAL EXCAVATED FROM THE PONDS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE THE RIGHT-OF-WAY.
4. RIPRAP AT THE PIPE APRON OUTLETS MUST BE PLACED PRIOR TO APRON INSTALLATION. RIPRAP SHALL BE F&I UNDER THE LIP OF THE APRON AS PER DETAIL ON SHEET NO. 38.
5. ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AS DIRECTED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER AFTER TURF IS SUFFICIENTLY ESTABLISHED IN ACCORDANCE WITH PART IV.G OF THE NPDES PERMIT.

**LEGEND**

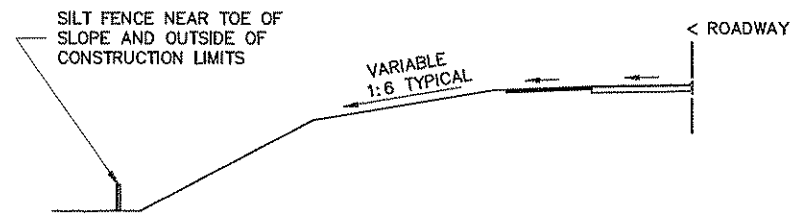
	SEED MIXTURE 350, TYPE 3 MULCH, TYPE 4 FERTILIZER 18-1-18 @ 150 lbs./ACRE
	SOD TYPE SALT RESISTANT, TYPE 2 FERTILIZER (22-5-10) 80% WIN FERTILIZER.
	CONSTRUCTION LIMITS
	STORM DRAIN INLET PROTECTION
	CULVERT PROTECTION
	SILT FENCE
	RIP RAP
	FILTER LOG TYPE COMPOST LOG



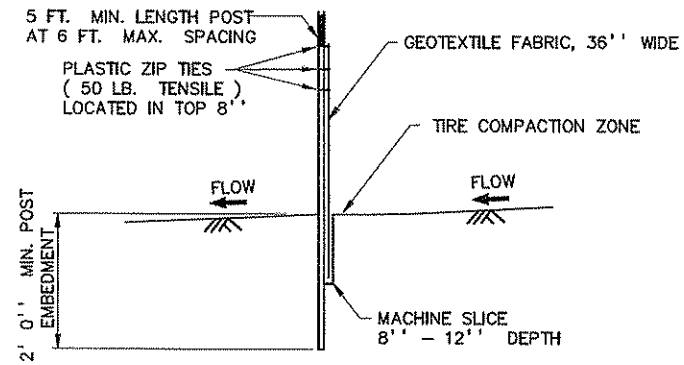
SIOUX LN

Plot Date: 08/01/2012  
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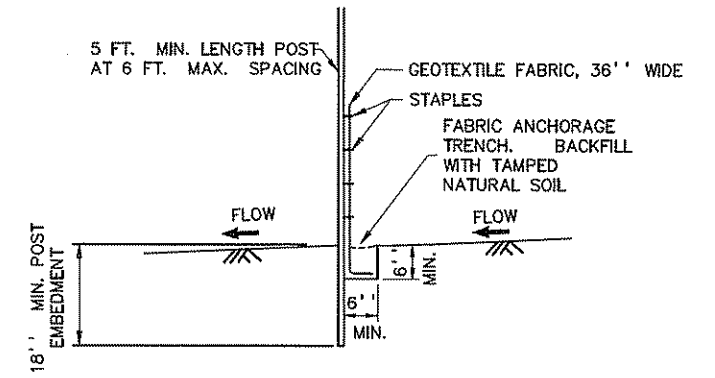
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  SIGNATURE: PRINTED NAME: JAMES E. STUDENSKI DATE: 7/23/2012 LIC. NO. 23757	DRAWN BY: _____ DATE: _____ DESIGN BY: _____ DATE: _____ CHECKED BY: _____ DATE: _____	S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		CITY OF LINO LAKES	SHEET <b>34</b> OF <b>63</b>												
<b>EROSION CONTROL AND TURF ESTABLISHMENT PLAN</b> <b>BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION</b>																	
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NO	DATE	BY	CHKD	APPR	REVISION												



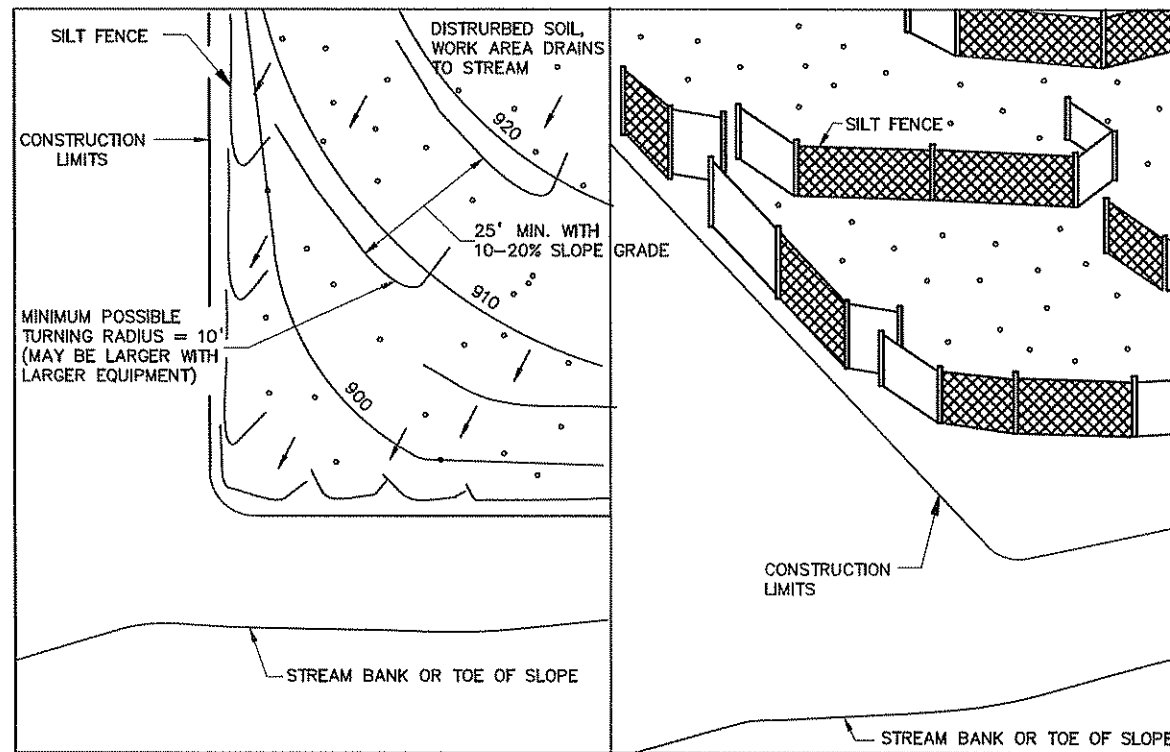
LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



SILT FENCE, MACHINE SLICED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



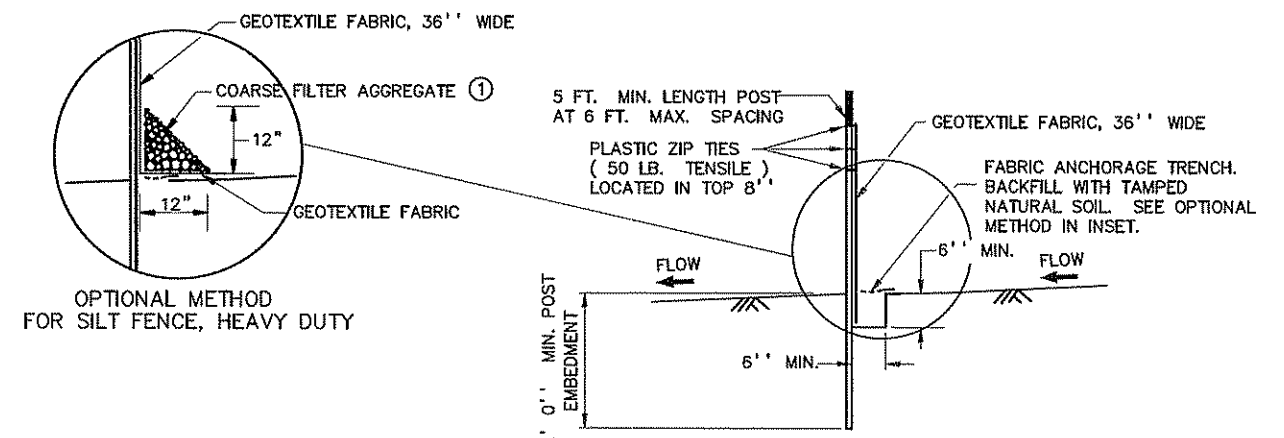
SILT FENCE, PREASSEMBLED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



PLAN VIEW

SIDE VIEW

SILT FENCE, J-HOOK INSTALLATION



OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY

SILT FENCE, HEAVY DUTY (HAND INSTALLED)

DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.

Plot Date: 08/01/2012  
 File Path: C:\Users\jstuden\OneDrive\Documents\14851000\14851000.dwg  
 User: jstuden  
 Title: 220-4-1-103

NO	DATE	BY	CHKD	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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

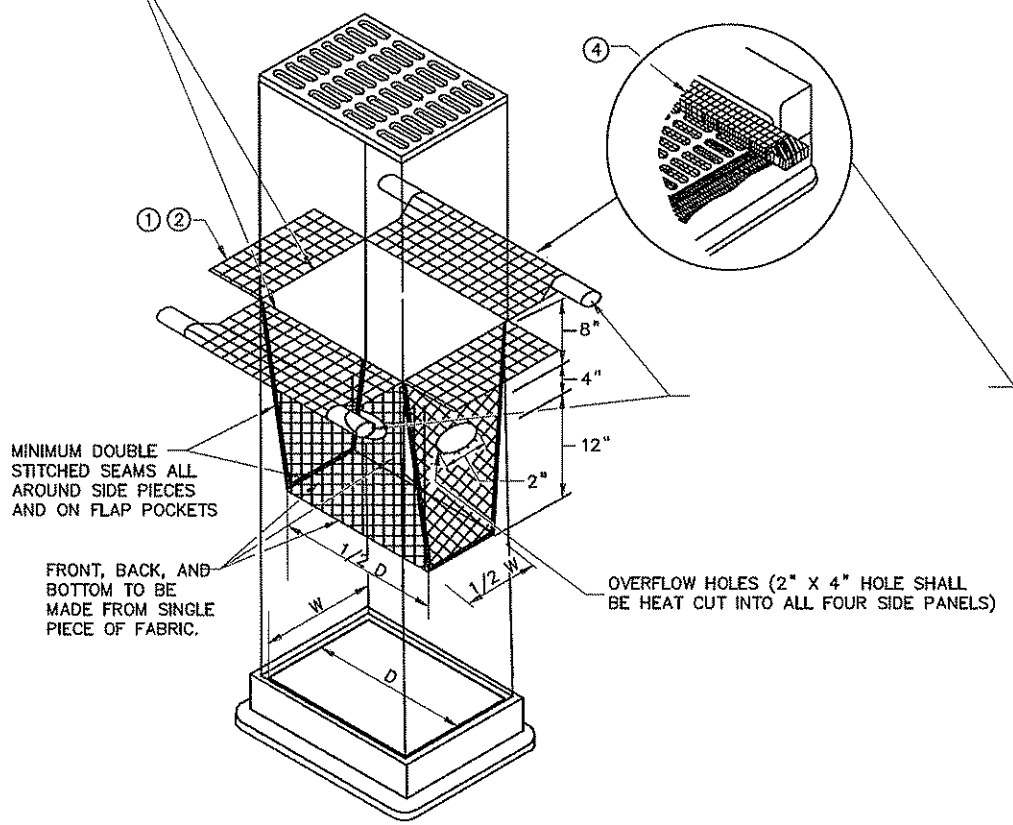
S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



CITY OF LINO LAKES  
 EROSION CONTROL DETAILS  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 35  
 OF  
 63

INLET SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH FLAP POCKET



MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS

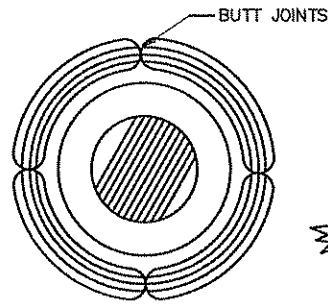
FRONT, BACK, AND BOTTOM TO BE MADE FROM SINGLE PIECE OF FABRIC.

OVERFLOW HOLES (2" X 4" HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS)

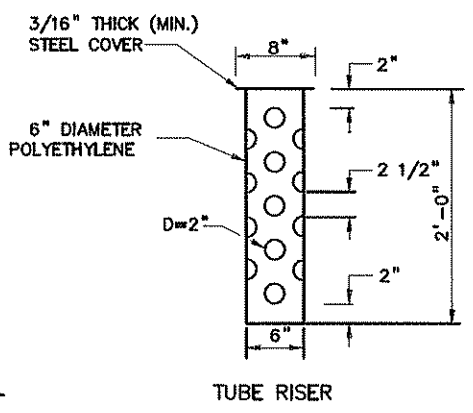
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

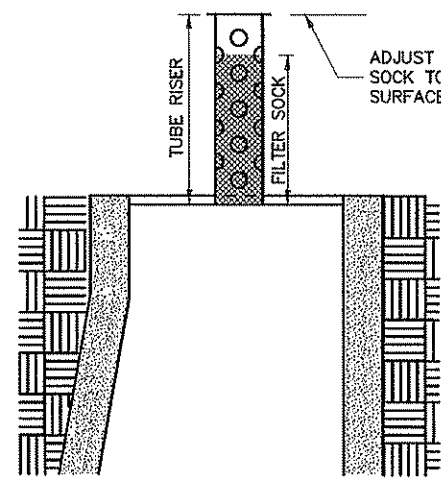
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI. ZIP TIE.



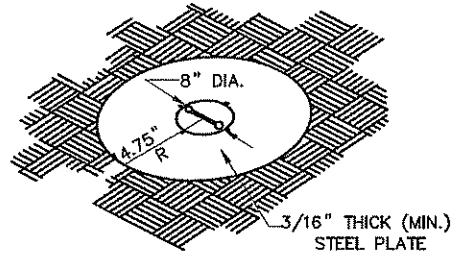
ROCK LOG/COMPOST LOG



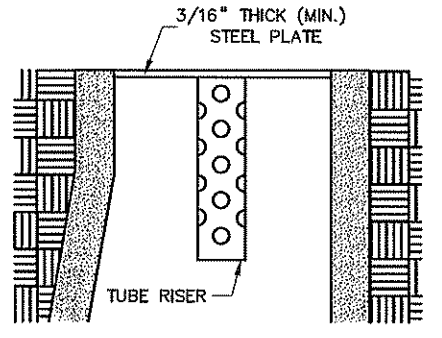
TUBE RISER



SECTION (UP POSITION)

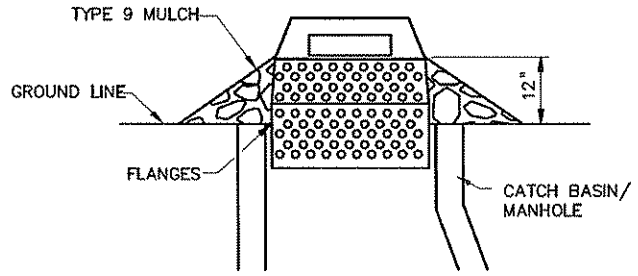


PERSPECTIVE VIEW

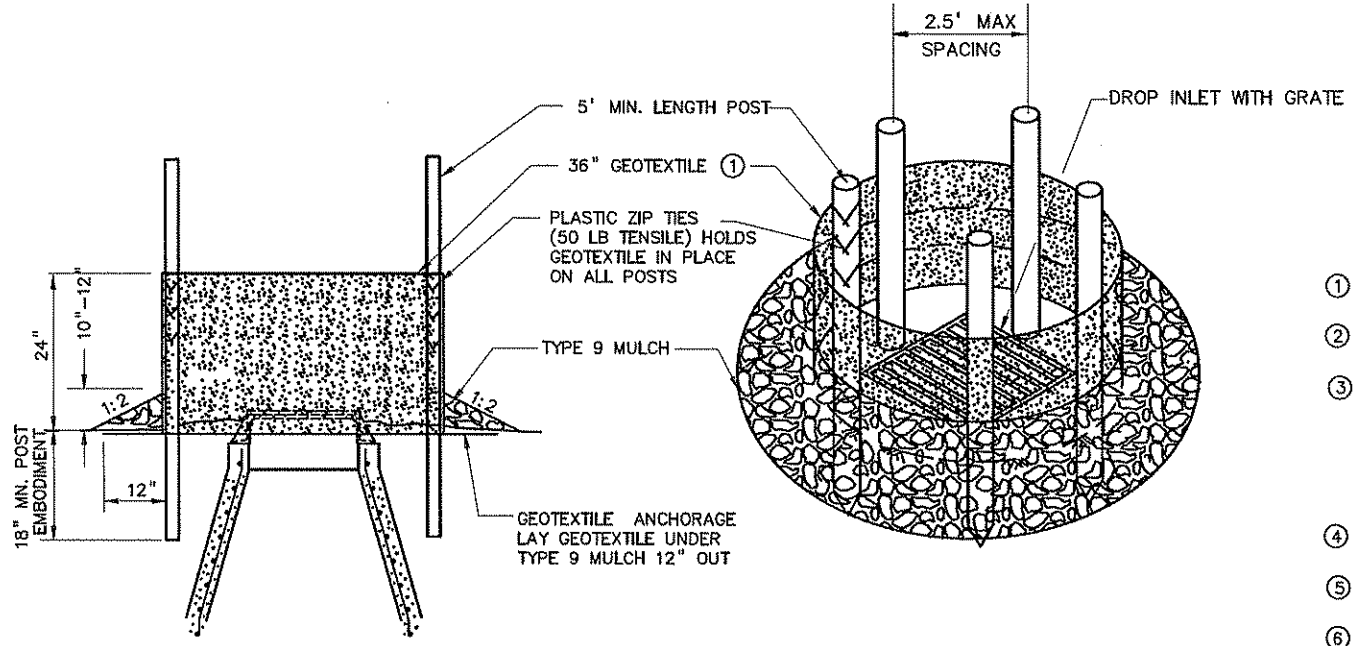


SECTION (DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT



SILT FENCE RING AND ROCK FILTER BERM  
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

NOTES:

SEE SPECS. 2573, 3137, 3886 & 3891.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:  
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

NOTE:  
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING

Plot Date: 08/01/2012  
 Drawing Name: K:\gms\lino\lake\1485100\main\2011-1-signal\_birch\_ware\1485103-81rsh-1485103.dwg  
 Author: zack.helm  
 User: zack.helm

NO	DATE	BY	CHKD	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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

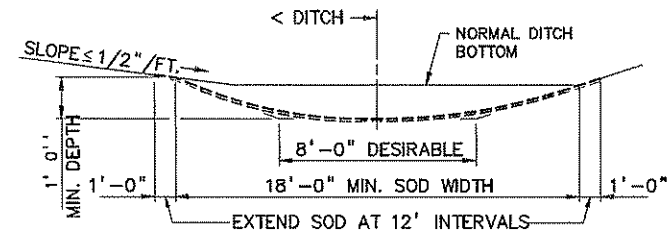
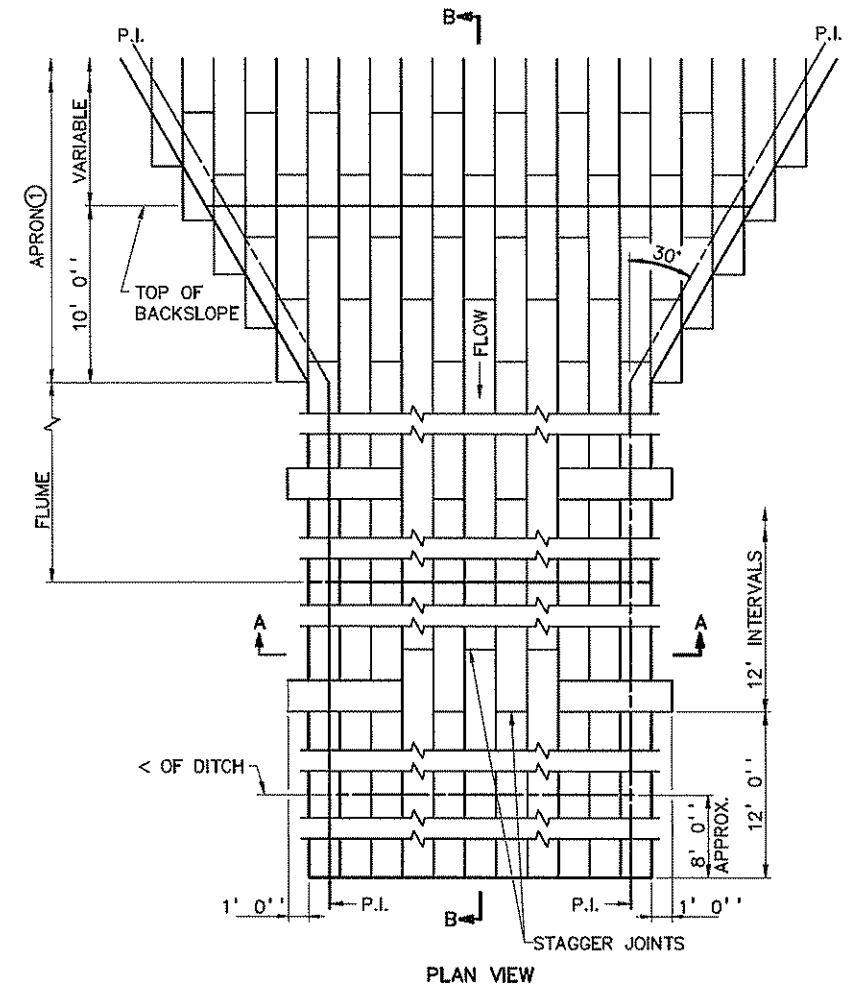
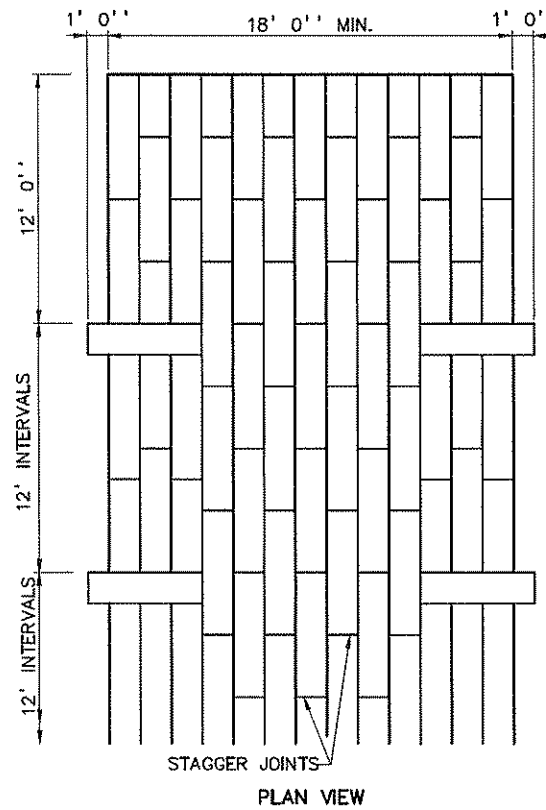
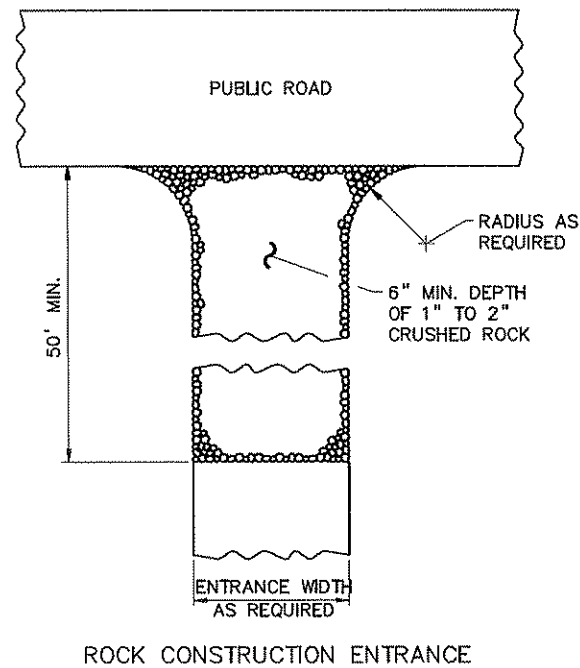
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.

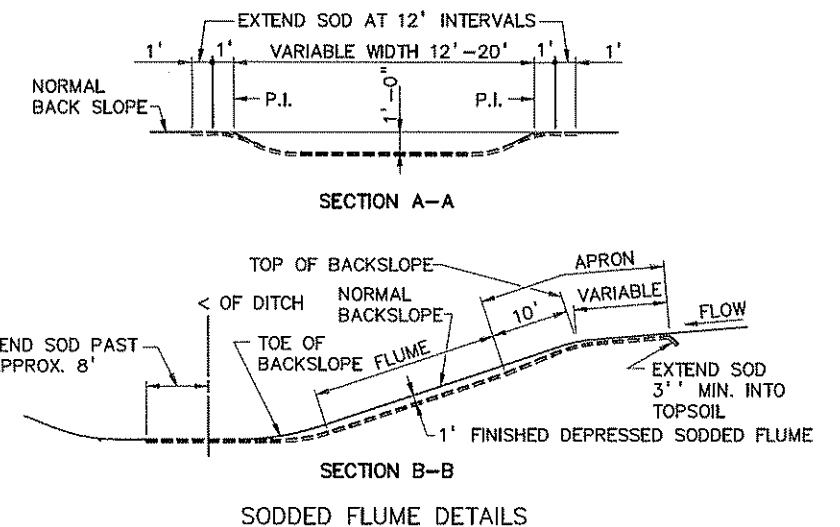
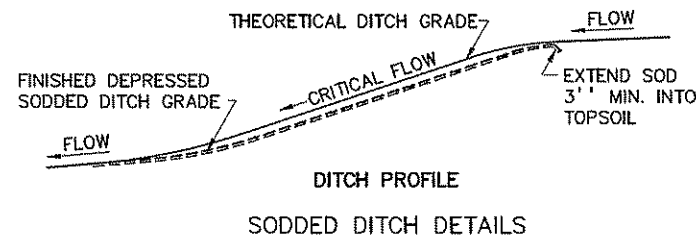


CITY OF LINO LAKES  
EROSION CONTROL DETAILS  
BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

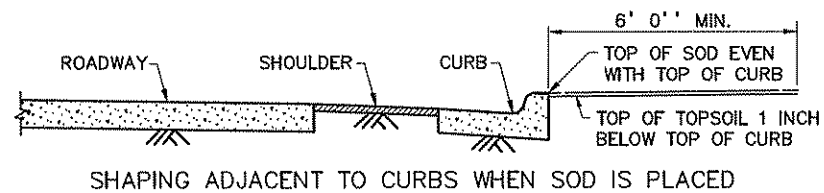
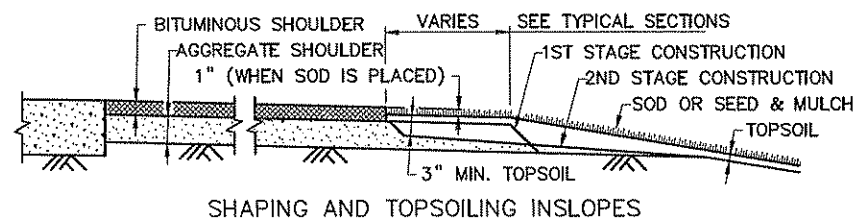
SHEET  
36  
OF  
63



**SODDED DITCH CROSS SECTION**  
 WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2" / FT.) , FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES



NOTES:  
 SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
 ① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

P:\01\08101\08101.dwg  
 Drawing Name: K:\p\01\08101\08101.dwg  
 Xref: 2004\01\08101.dwg

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.

SIGNATURE: *James E. Studenski*

PRINTED NAME: JAMES E. STUDENSKI

DATE: 7/23/2012 LIC. NO. 23757

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

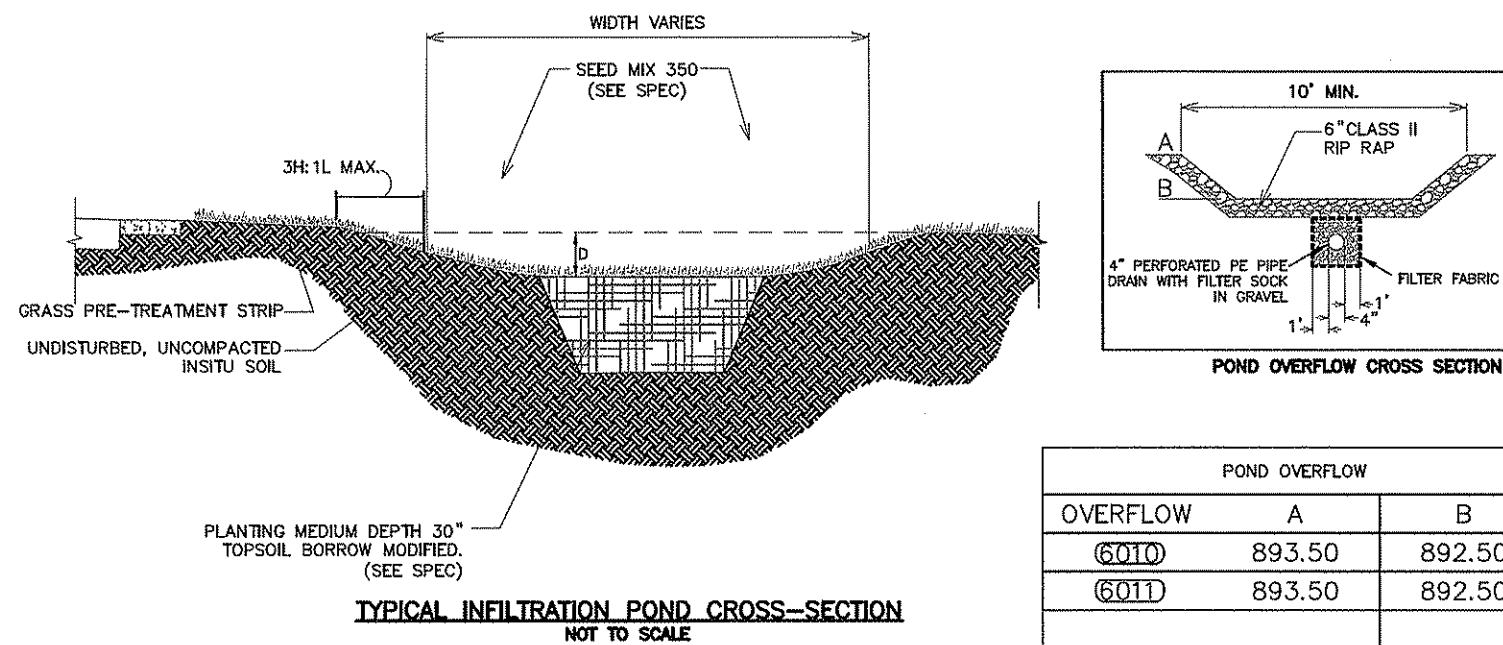
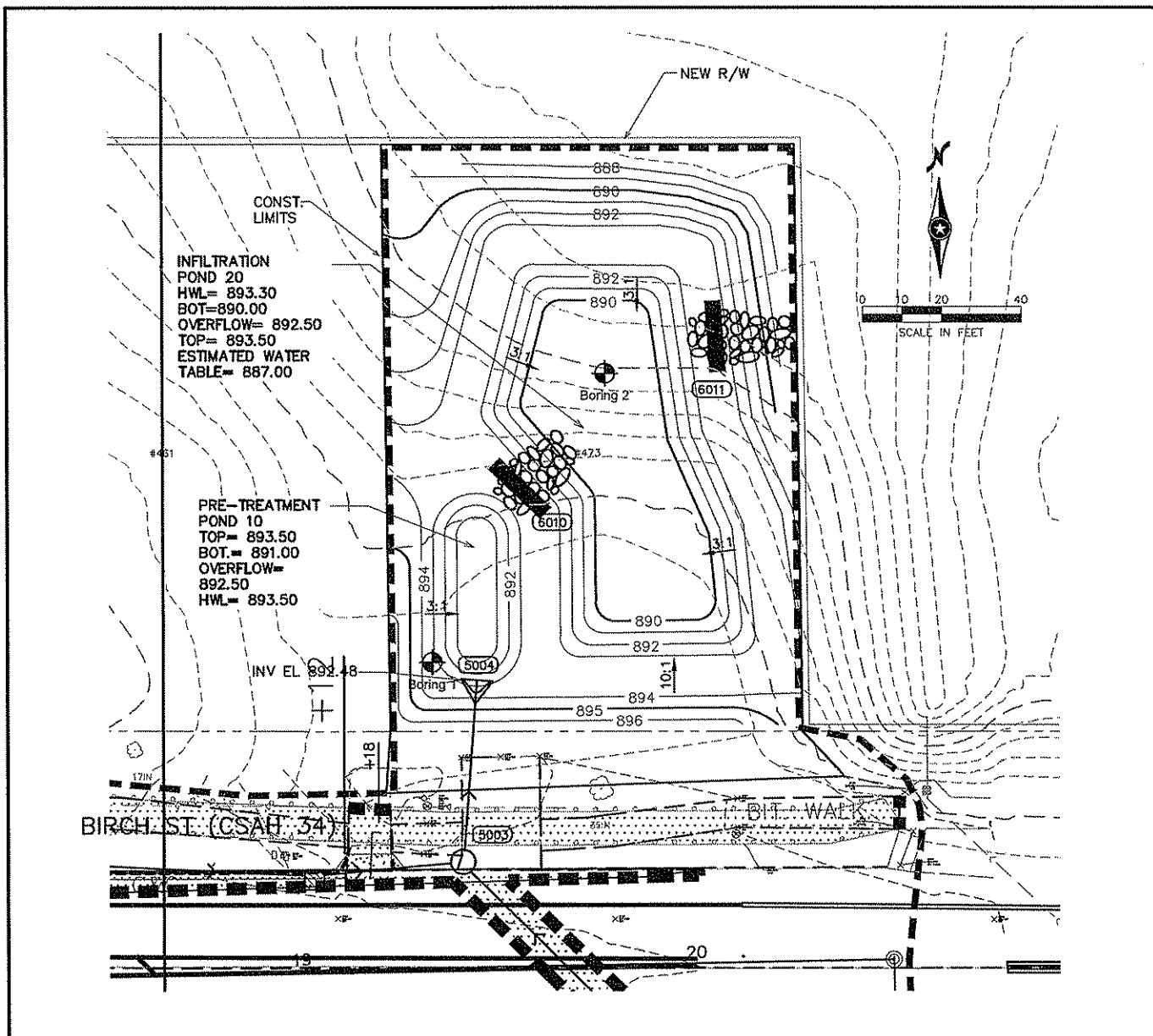
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.

**TKDA**  
 ENGINEERING • ARCHITECTURE • PLANNING

CITY OF LINO LAKES  
 EROSION CONTROL DETAIL  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

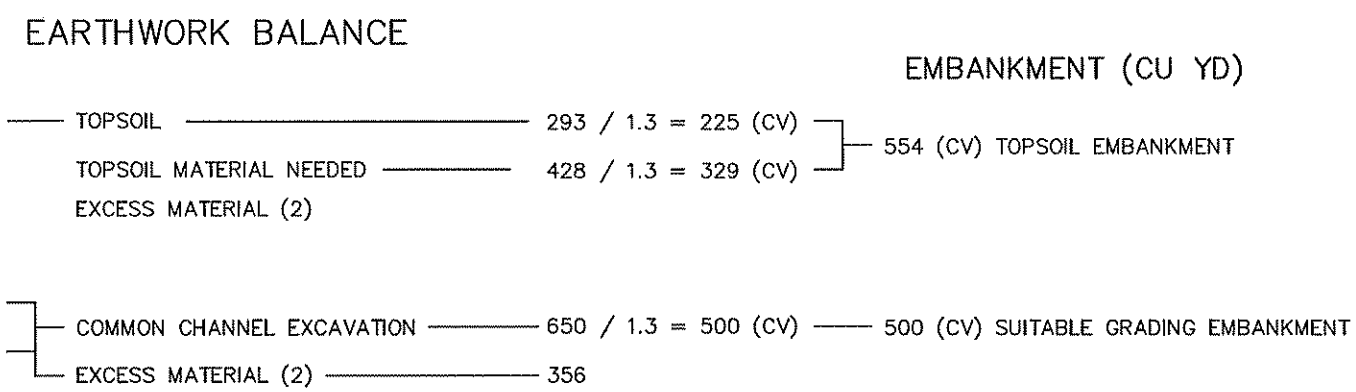
SHEET  
 37  
 OF  
 63



POND OVERFLOW		
OVERFLOW	A	B
(6010)	893.50	892.50
(6011)	893.50	892.50

LOCATION	EARTHWORK SUMMARY					
	EXCAVATION			EMBANKMENT		
	COMMON (E.V.)	TOPSOIL (E.V.)	POND SUBCUT (E.V.) (A)	COMMON CHANNEL (E.V.) (A)	SUITABLE GRADING (C.V.)	TOPSOIL (C.V.)
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
BIRCH STREET	840					370
SIOUX LANE	257					49
POND 10		73	18	252		
POND 20		220	97	754	500	
<b>TOTALS</b>	<b>1097</b>	<b>293</b>	<b>115</b>	<b>1006</b>	<b>500</b>	<b>554</b>

(A) POND EXCAVATION. NO ATTEMPT HAS BEEN MADE TO DETERMINE THE TYPE OF MATERIAL TO BE EXCAVATED.



LEGEND	
	PROPOSED STORM SEWER\CULVERT
	RIPRAP
	PROPOSED STRUCTURE NUMBER
	PROPOSED MANHOLE
	PROPOSED APRON

**NOTES:**  
 (1) A DEPTH OF 6" WAS USED FOR QUANTITY PURPOSES.  
 (2) MATERIAL NOT USED ON PROJECT WILL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE PROJECT.

File Path: G:\2012\0212... Drawing Name: K:\Projects\Ware Rd Signalization\Ware Rd Signalization.dwg Xref: 2012 Ware Rd Signalization.dwg, 2012 Ware Rd Signalization.dwg, 2012 Ware Rd Signalization.dwg, 2012 Ware Rd Signalization.dwg

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. SIGNATURE: <i>James E. Studenski</i> PRINTED NAME: JAMES E. STUDENSKI DATE: 7/23/2012 LIC. NO. 23757		DRAWN BY: _____ DATE: _____ DESIGN BY: _____ DATE: _____ CHECKED BY: _____ DATE: _____		S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		<b>TKDA</b> ENGINEERING • ARCHITECTURE • PLANNING		CITY OF LINO LAKES POND GRADING AND EARTHWORK SUMMARY BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION		SHEET 38 OF 63	
----	------	----	-----	------	----------	---	--	--	--	--	--	--	--	--	--	-------------------------	--

SALVAGE AND INSTALL SIGN TYPE "C"								
SIGN NO.	QUANT.	POSTS		MTG. HT. (1)	PANEL		CODE NO.	PANEL LEGEND
		NO. & TYPE	LEN. FEET		SIZE INCHES			
C-101	1	1U	10	7	30 X 30		R1-1	STOP
C-102	1	2U	10	7	54 X 30		R3-30ACA	LANE USE
C-103	1	2U	10	7	36 X 36		W3-3	SIGNAL AHEAD

PAVEMENT MARKINGS - EPOXY			
	4" SOLID LINE WHITE (LIN FT)	4" SOLID LINE YELLOW (LIN FT)	4" DOUBLE SOLID LINE YELLOW (LIN FT)
TOTAL	6,390	1,080	3,125

PAVEMENT MARKINGS - PREFORMED THERMOPLASTIC					
	PAVEMENT MESSAGES		24" SOLID LINE YELLOW (LIN FT)	24" SOLID LINE WHITE (LIN FT)	CROSS WALK MARKINGS (SQ FT)
	LEFT ARROW (EACH)	RIGHT ARROW (EACH)			
TOTAL	6	11	380	125	756

SIGN PANELS TYPE "C" - ROADWAY									
SIGN NO.	QUANT.	POSTS		MTG. HT. (1)	PANEL			CODE NO.	PANEL LEGEND
		NO. & TYPE	LEN. FT		SIZE INCHES	AREA SQ. FT.	TOTAL AREA SQ. FT.		
C-01	4	2U	10	7	30 X 36	7.5	30	R4-7	KEEP RIGHT (2)
C-02	3	2U	10	7	30 X 30	6.25	18.8	R3-7	RIGHT LANE MUST TURN RIGHT
C-03	2	2U	10	7	36 X 36	9	18	W3-3	SIGNAL AHEAD
C-04	3	2U	10	7	30 X 30	6.25	18.8	R5-1	DO NOT ENTER (2)
TOTAL					85.6				

DELINEATORS AND MARKERS		
TYPE	QUANT.	LOCATION
X4-2	4	MEDIAN NOSE MOUNTED WITH KEEP RIGHT SIGN (3)(4)(5)


**SPECIFIC NOTES:**

- (1) Mounting height is minimum, see sheet 41 for Typical Mounting
- (2) Mounted in concrete, see sheet 42
- (3) See Standard Signs Manual for Hazard markers (X4-2) (background black)
- (4) Install on 3lb/ft post (MnDOT 3401)
- (5) Mount 4 (qty) BELOW SIGN C-01

**GENERAL NOTES:**

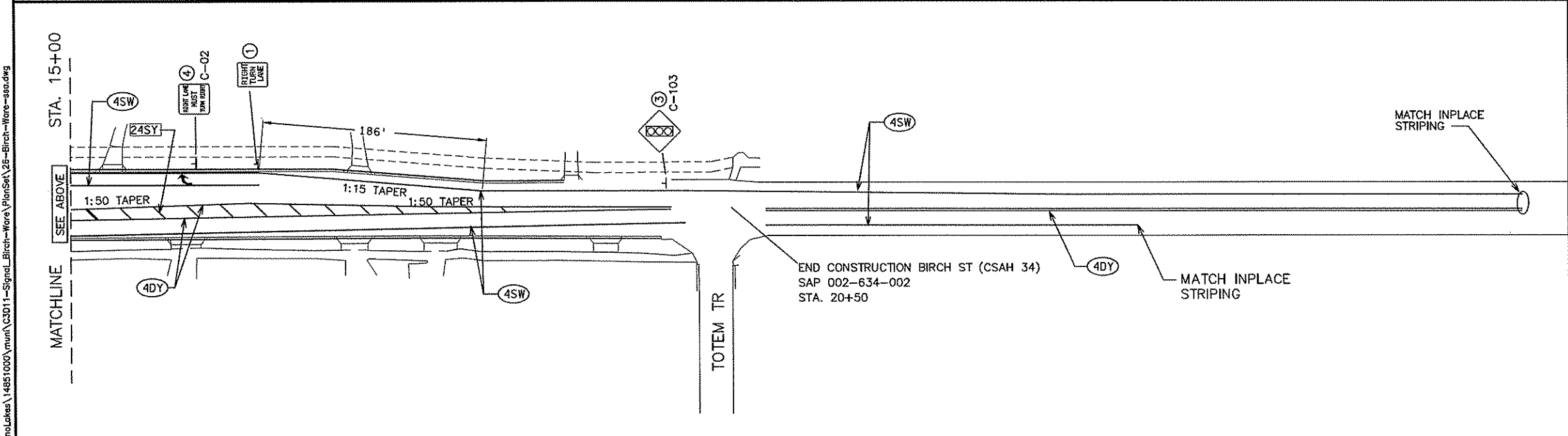
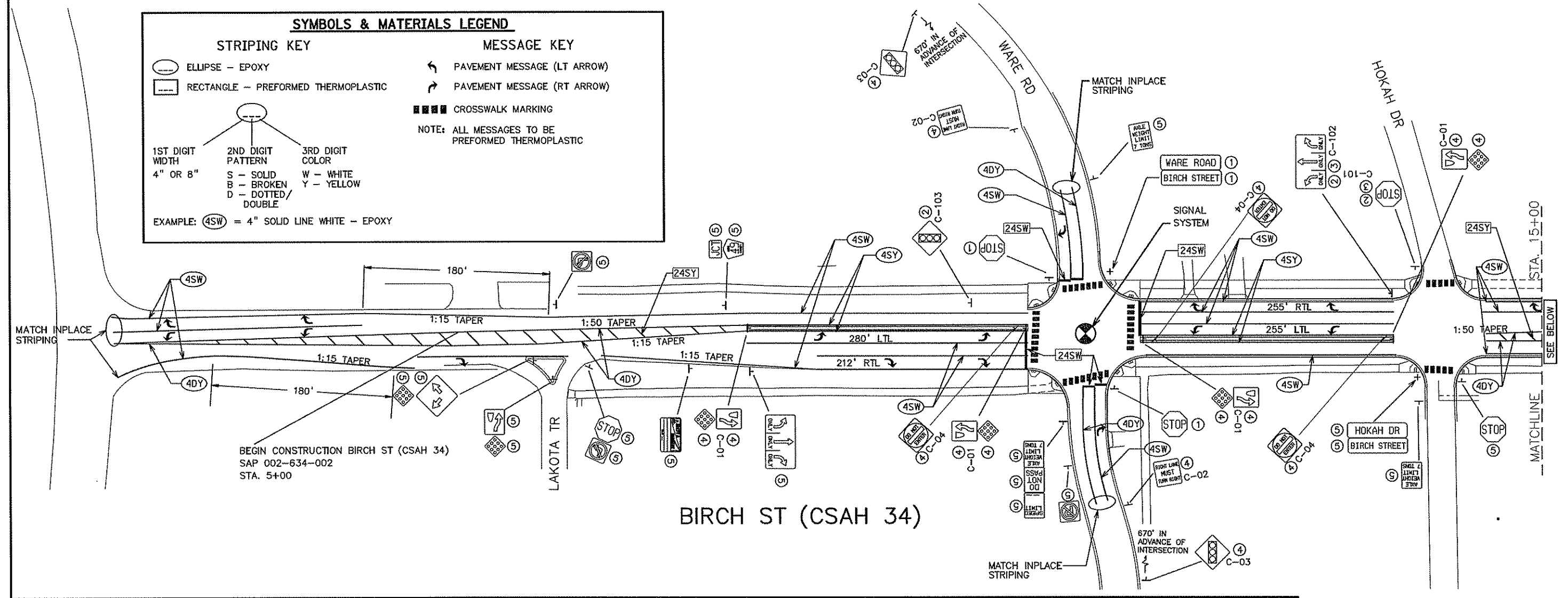
- (a) Post lengths are approximate and include embedment but do not include additional length required for splice.
- (b) See sheet 41 for structural details.
- (c) See Standard Signs Manual for punching code and detailed drawings of type C sign panels.

DATE: 8/1/2012 10:02 AM FILENAME: C:\p\Linolakes\14851000\m\14851000\3011-Signs\Birch-Ware\PlanSet\25-Birch-Ware-sab.dwg

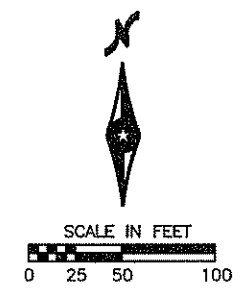
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNATURE: <i>Bryant J. Fick</i> PRINTED NAME: BRYANT J. FICK DATE: July 23, 2012 LIC. NO. 42802				DRAWN BY _____ DATE _____ DESIGN BY _____ DATE _____ CHECKED BY _____ DATE _____	S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		CITY OF LINO LAKES SIGNING AND STRIPING TABULATIONS BIRCH ST. (CSAH 34) AND WARE ROAD	SHEET 39 OF 63	
NO	DATE	BY	CKD	APPR	REVISION				

**SYMBOLS & MATERIALS LEGEND**

STRIPING KEY			MESSAGE KEY	
	ELLIPSE - EPOXY			PAVEMENT MESSAGE (LT ARROW)
	RECTANGLE - PREFORMED THERMOPLASTIC			PAVEMENT MESSAGE (RT ARROW)
	DOTTED/DOUBLE			CROSSWALK MARKING
1ST DIGIT WIDTH 4" OR 8"	2ND DIGIT PATTERN S - SOLID B - BROKEN D - DOTTED/ DOUBLE	3RD DIGIT COLOR W - WHITE Y - YELLOW	NOTE: ALL MESSAGES TO BE PREFORMED THERMOPLASTIC	
EXAMPLE: (4SW) = 4" SOLID LINE WHITE - EPOXY				



- NOTE:
- ① REMOVE SIGN
  - ② SALVAGE SIGN
  - ③ INSTALL SALVAGED SIGN
  - ④ F&I SIGN
  - ⑤ INPLACE TO REMAIN



DATE: 8/1/2012 TIME: 10:07:12 AM FILENAME: K:\14851000\muni\03011-Signal\_Birch-Ware\PlanSet\26-Birch-Ware-ssd.dwg

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.

SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

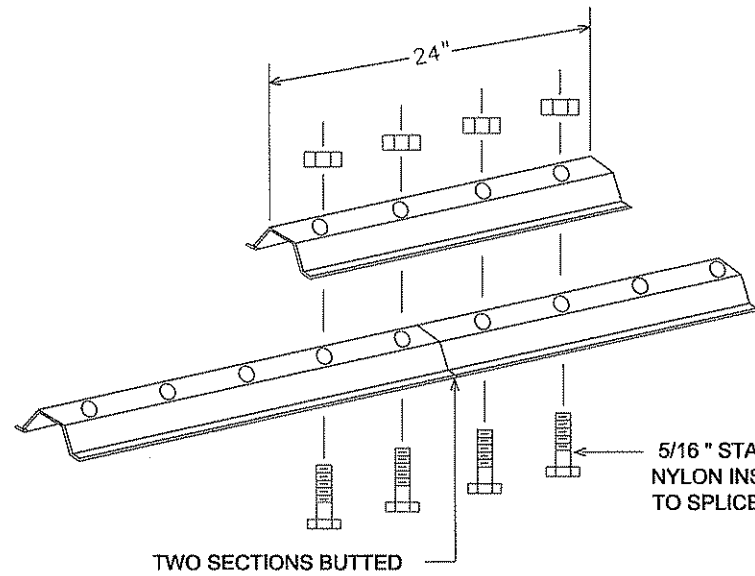
S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
 S.P.



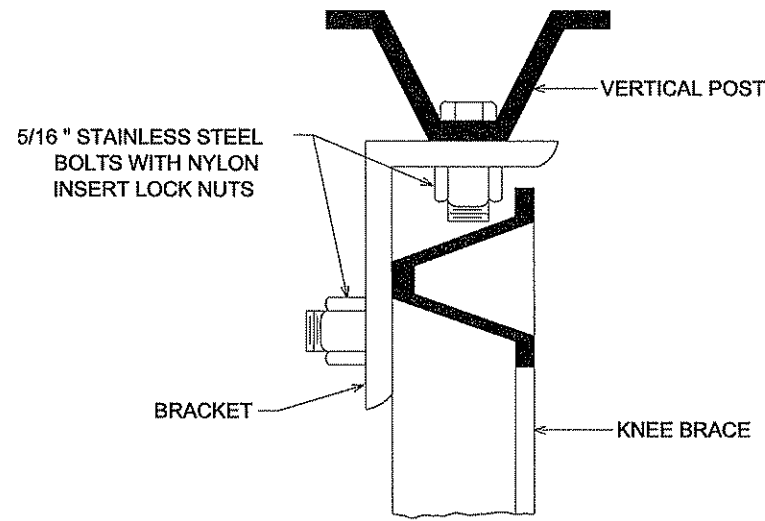
CITY OF LINO LAKES  
 SIGNING & STRIPING PLAN  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 40  
 OF  
 63

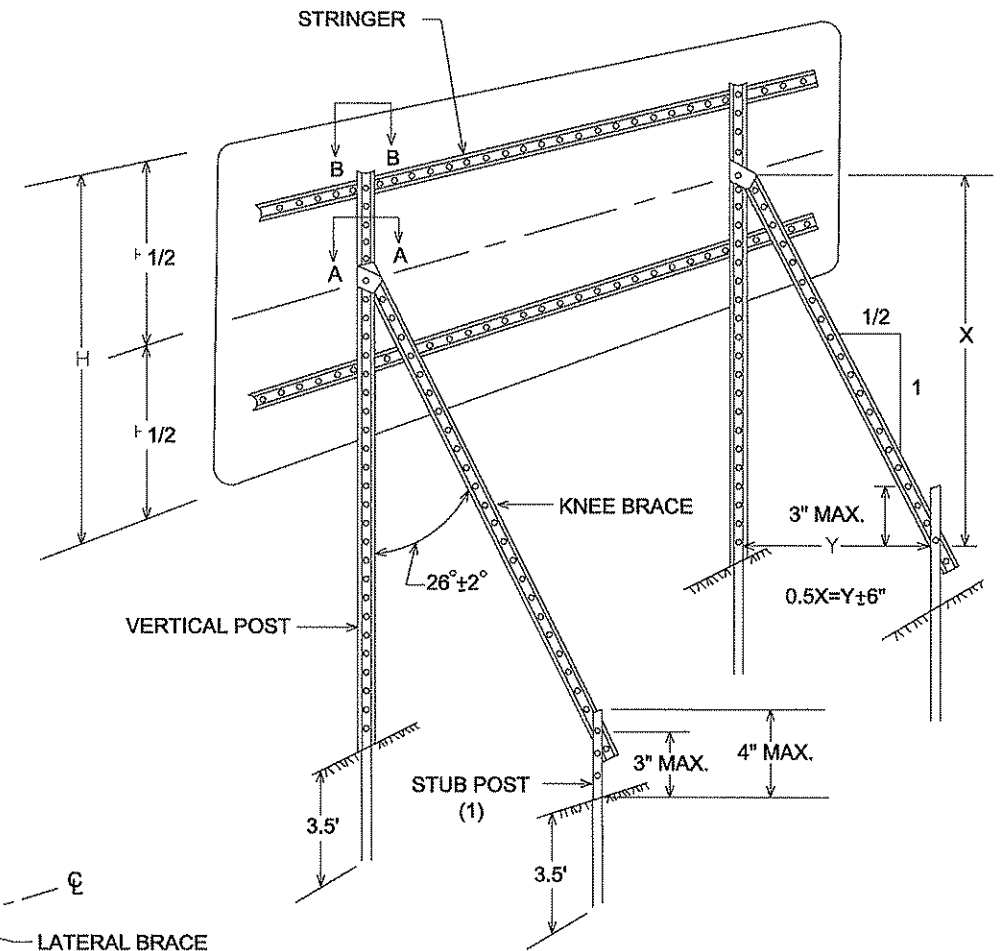




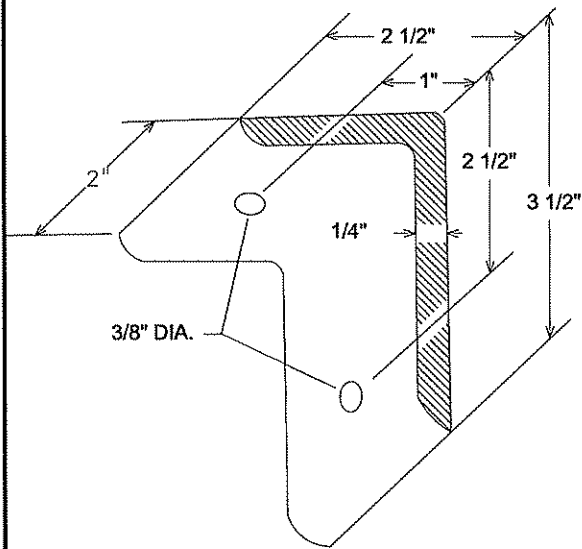
LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

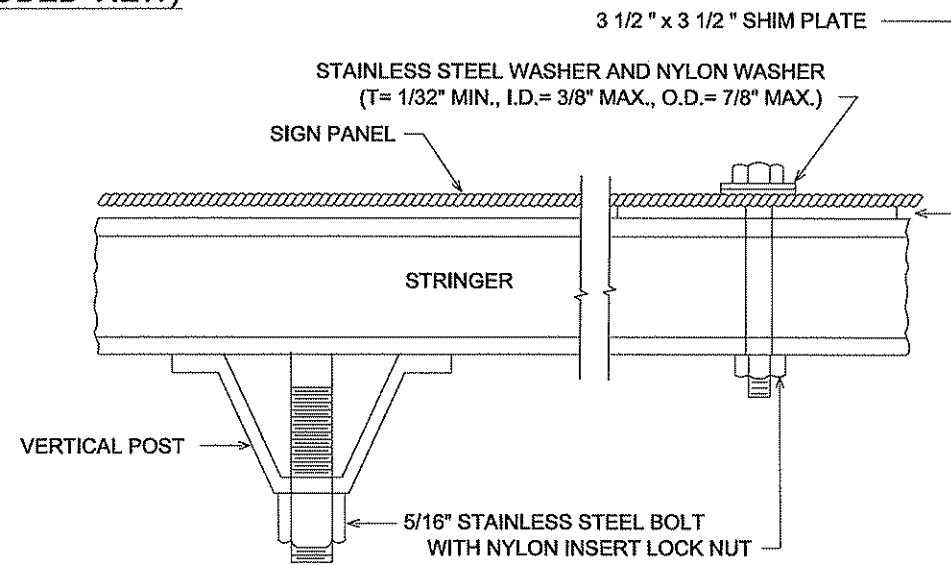


TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS

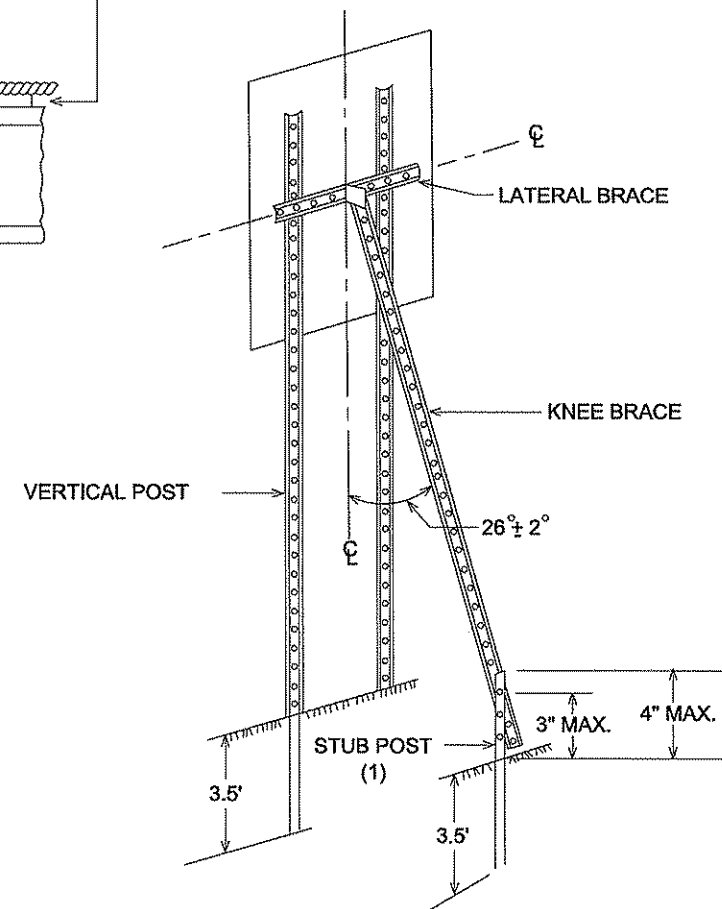


A-FRAME BRACKET

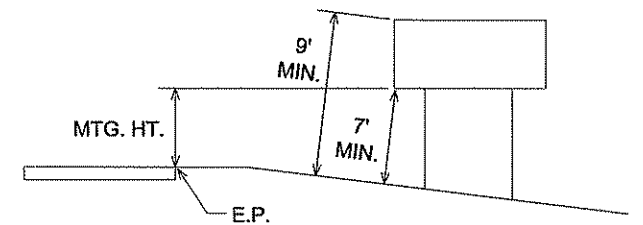
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B-B



TYPICAL "A-FRAME" INSTALLATION  
TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY  
RELATIVE TO VERTICAL POST.

TYPE C & D SIGN  
STRUCTURAL DETAILS

1 OF 5

DATE: 8/1/2012  
TIME: 10:07:17 AM  
FILENAME: K:\p-m\Unlabeled\14851000\mum\c3011-Signs\_L\_Birch-Ware\PlanSet\28-Birch-Ware-asm.dwg

NO	DATE	BY	CHKD	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.

SIGNATURE: *Bryant J. Fieck*  
PRINTED NAME: BRYANT J. FIECK  
DATE: JULY 23, 2012 LIC. NO. 42802

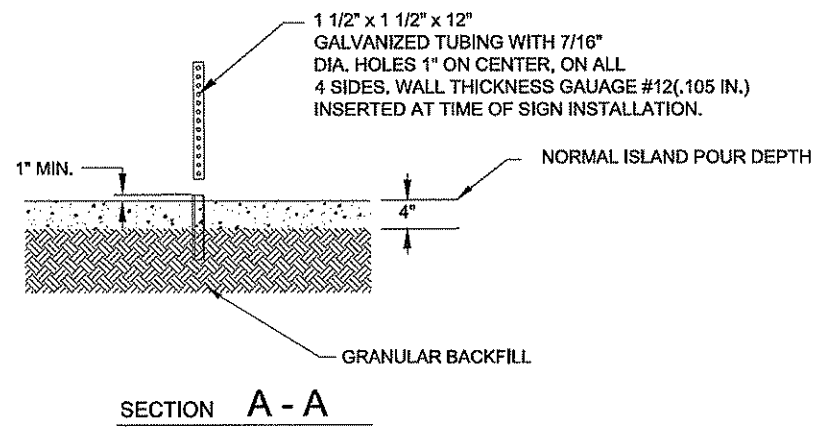
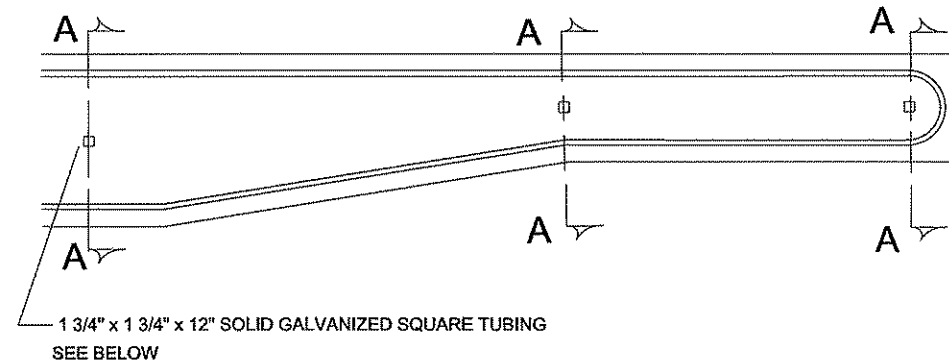
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S.A.P. 002-634-002  
TKDA Proj. 14851.000  
S.P.  
S.P.

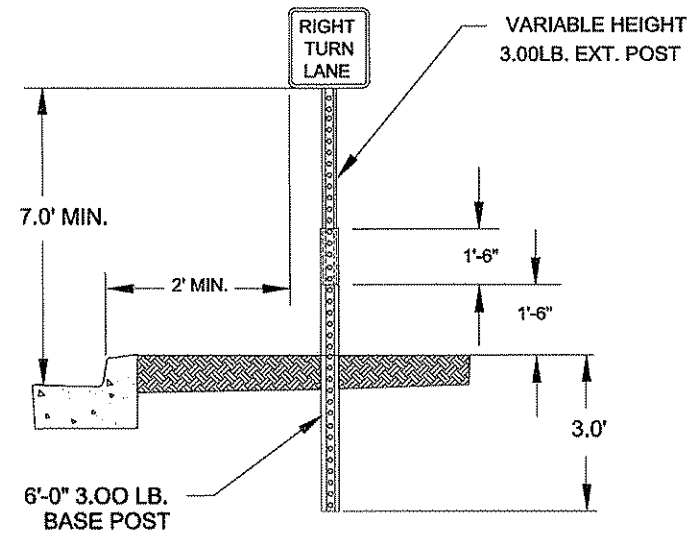


CITY OF LINO LAKES  
SIGNING & STRIPING DETAILS  
BIRCH ST. (CSAH 34) AND WARE ROAD

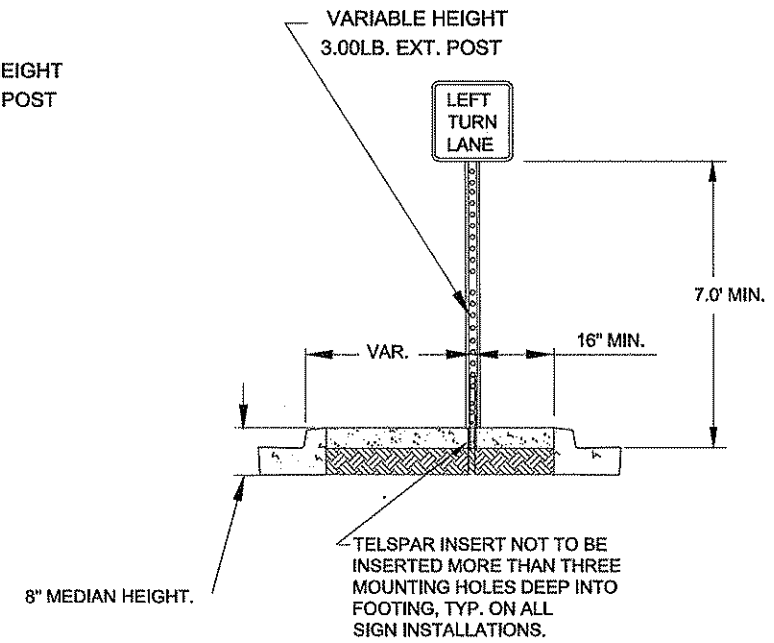
SHEET  
41  
OF  
63



GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL



DATE: 8/1/2012  
 TIME: 10:07:22 AM  
 FILENAME: K:\p-r-m\linolakes\14851000\mum\c3d11-Signd\_Birch-Ware\PlanSet\28-Birch-Ware-dsn.dwg

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.  
 SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: **BRYANT J. FICEK**  
 DATE: **July 23, 2012** LIC. NO. **42802**

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

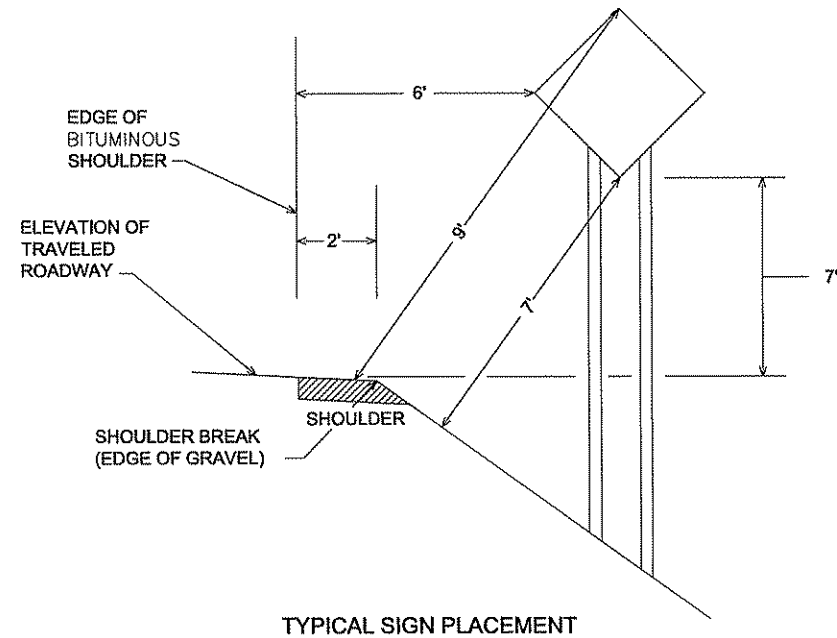
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 S.P.  
 S.P.



CITY OF LINO LAKES  
 SIGNING & STRIPING DETAILS  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 42  
 OF  
 63

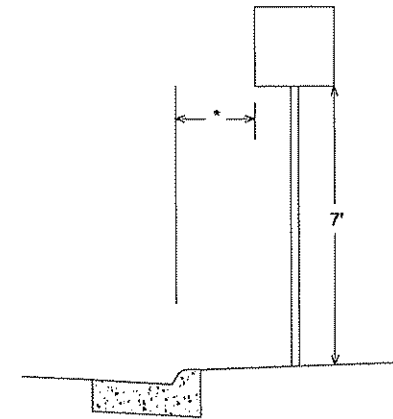
RURAL



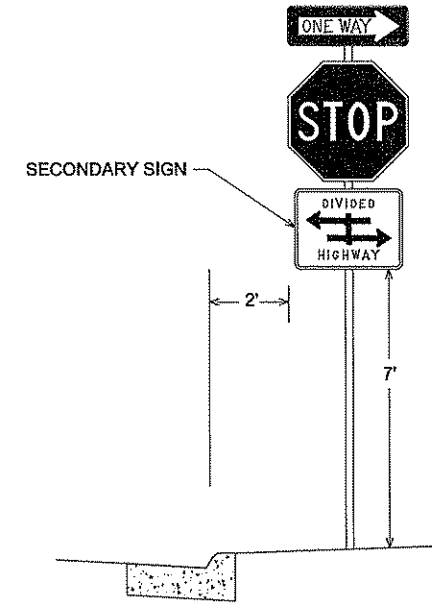
TYPICAL SIGN PLACEMENT

URBAN

- 2' - NARROW BOULEVARD (< 8' WIDE)
- 6' - WIDE BOULEVARD



TYPICAL SIGN PLACEMENT



NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

DATE: 8/1/2012  
TIME: 10:07:27 AM  
FILENAME: K:\gmm\Linolakes\14851000\muni\CSD11-Signal\_Birch-Ware\Plan Set\26-Birch-Ware-ssd.dwg

NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

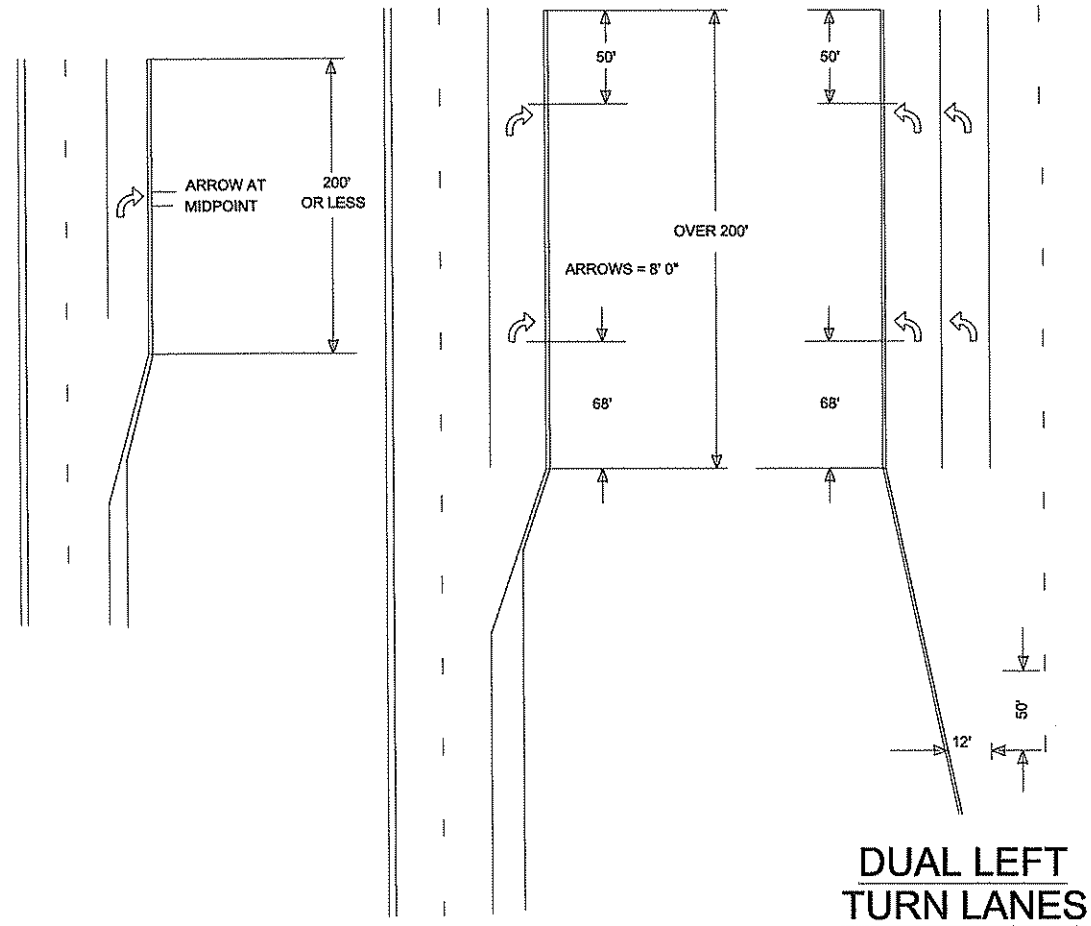
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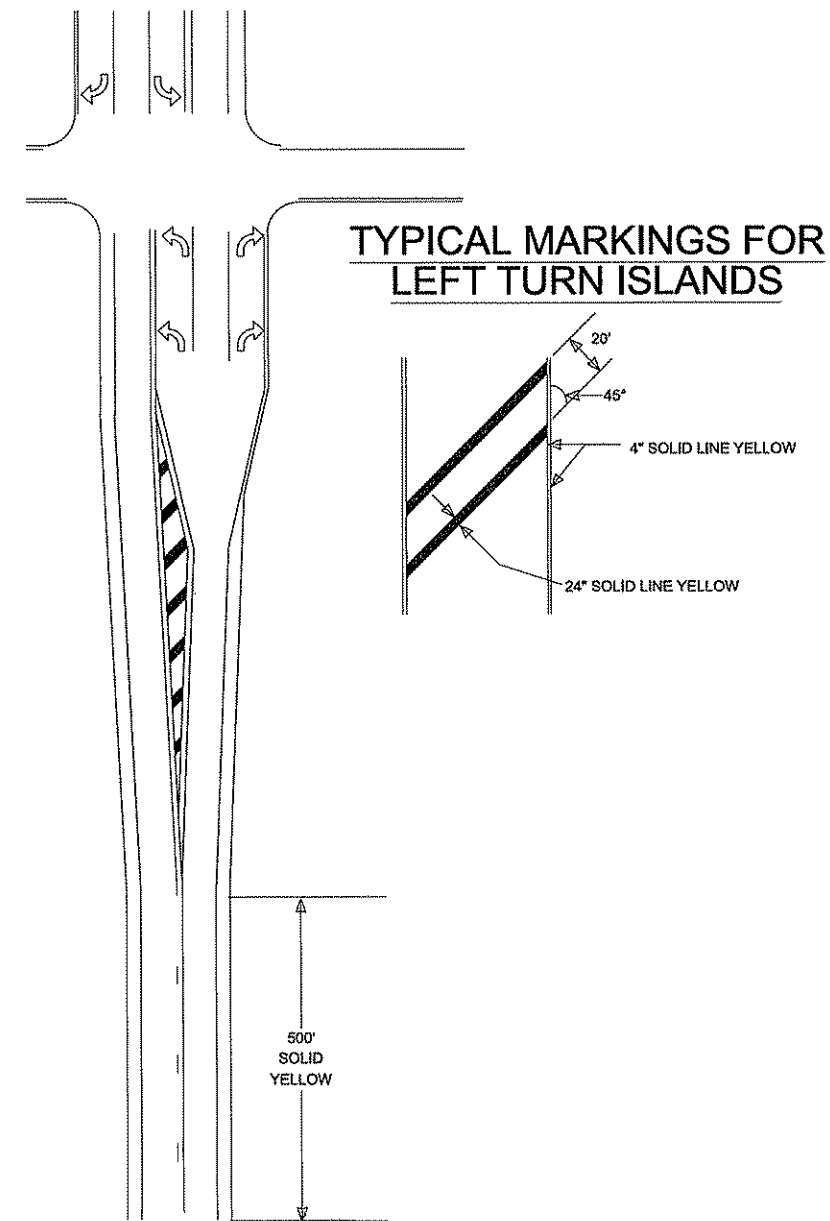
CITY OF LINO LAKES  
 SIGNING & STRIPING DETAILS  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 43  
 OF  
 63

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



DATE: 8/1/2012  
TIME: 10:07:31 AM  
FILENAME: K:\gmm\Linolakes\14851000\muni\CSD11-Signal\_Birch-Ware\PlanSet\26-Birch-Ware-ssp.dwg

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.

SIGNATURE: *Bryant J. Ficek*

PRINTED NAME: BRYANT J. FICEK

DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_

DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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TKDA Proj. 14851.000  
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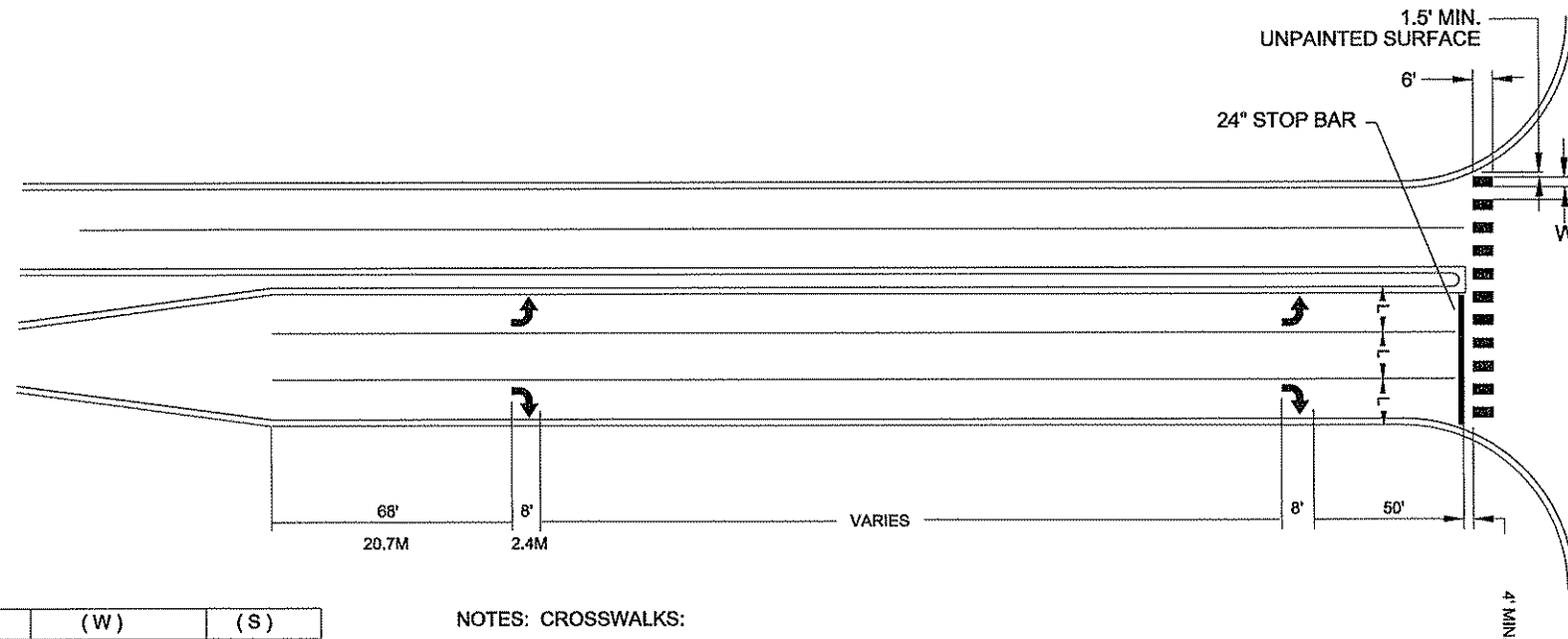


CITY OF LINO LAKES  
SIGNING & STRIPING DETAILS  
BIRCH ST. (CSAH 34) AND WARE ROAD

4 OF 5

SHEET  
44  
OF  
63

# MARKINGS FOR PEDESTRIAN CROSSWALKS



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

### NOTES: CROSSWALKS:

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

# NOTES & GUIDELINES

## GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR 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 TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

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

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

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

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

## 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°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF 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.

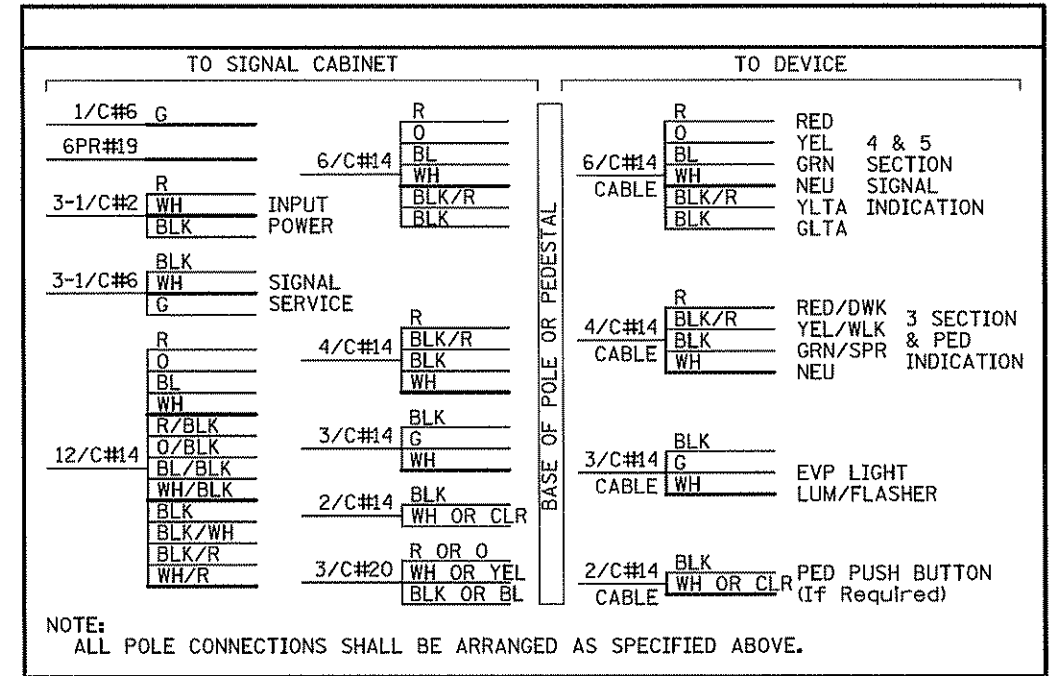
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNATURE: <i>Bryant J. Fick</i> PRINTED NAME: BRYANT J. FICK DATE: July 23, 2012 LIC. NO. 42802					DRAWN BY _____ DATE _____ DESIGN BY _____ DATE _____ CHECKED BY _____ DATE _____	S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		CITY OF LINO LAKES SIGNING & STRIPING DETAILS BIRCH ST. (CSAH 34) AND WARE ROAD	SHEET 45 OF 63
NO DATE BY CKD APPR REVISION									

ABBREVIATIONS	
APS	ACCESSIBLE PEDESTRIAN SIGNAL
AWF	ADVANCE WARNING FLASHER
C.D.	COUNT DOWN
D2-1 (e.g.)	DETECTOR (PHASE 2, NO. 1)
DEG	DEGREES
DWK	DON'T WALK
EQ.G	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
FYA	FLASHING YELLOW ARROW
FYLA	FLASHING YELLOW LEFT ARROW
GLA	GREEN LEFT ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
GRA	GREEN RIGHT ARROW
GTA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
IND	INDICATION
IMC	INTERMEDIATE METAL CONDUIT
INP	INPLACE
INS. GR.	INSULATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P1-1 (e.g.)	PEDESTRIAN INDICATION (PHASE 1, NO. 1)
PB	PUSH BUTTON
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
PVC	POLYVINYL CHLORIDE (CONDUIT)
RED	RED INDICATION
R&S	REMOVE AND SALVAGE
RLA	RED LEFT ARROW
RSC	RIGID STEEL CONDUIT
S&I	SALVAGE AND INSTALL
SOP	SOURCE OF POWER
SPR	SPARE
STA	STATION
WLK	WALK
YEL	YELLOW INDICATION
YLA	YELLOW LEFT ARROW
YRA	YELLOW RIGHT ARROW

SYMBOLS	
	EQ.G CONNECTION
	EVP CONFIRMATORY LIGHT
	EVP DETECTOR
	EVP DETECTOR AND CONFIRMATORY LIGHT
	FIBER OPTIC VAULT
	LUMINAIRE NO.
	SIGNAL BASE NO.
	SIGNAL FACE NO./FLASHER FACE NO.
	BARREL MOUNT BASE NO.
	WOOD POLE NO.
	SPLICE
	VIDEO DETECTION
	MICROWAVE DETECTION
	SONIC DETECTION

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL



THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

TRAFFIC SIGNAL STANDARD PLATES

PLATE NO.	DESCRIPTION
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8112G	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
8114A	P.V.C. HAND HOLE/PULL BOX (NO VEHICLE LOAD)(2 SHEETS)
8119C	GRAND MOUNTED CABINET FOUNDATION
8120P	POLE FOUNDATION (PA85)
8121G	TRANSFORMER BASE & POLE BASE PLATE (PA85, PA90, & PA100)(2 SHEETS)
8122F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT)(2 SHEETS)
8123G	POLE & MAST ARM - LUMINAIRES & TRAFFIC LIGHT ASSEMBLY (FOR ALL POLE TYPES)(2 SHEETS)
8126J	POLE FOUNDATION (PA90 & PA100)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR (3 SHEETS)

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NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE: *Bryant J. Ficek*  
PRINTED NAME: **BRYANT J. FICEK**  
DATE: **July 23, 2012** LIC. NO. **42802**

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

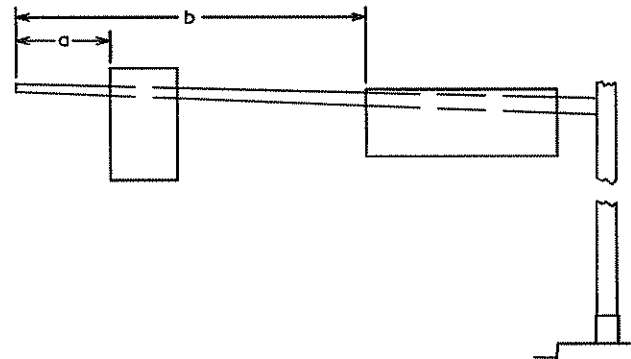
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TKDA Proj. 14851.000  
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CITY OF LINO LAKES  
SIGNAL PLAN AND DETAILS  
STANDARD PLATES AND DETAILS  
BIRCH ST. (CSAH 34) AND WARE ROAD

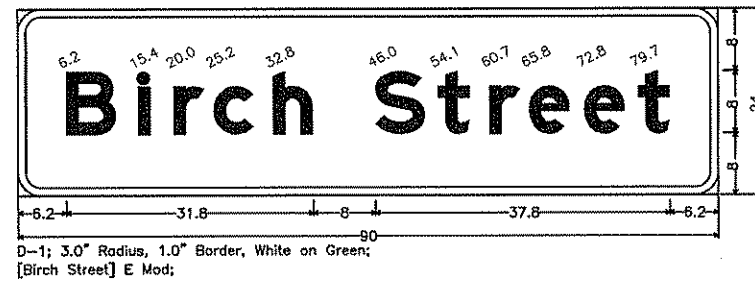
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MAST ARM SIGN LOCATION

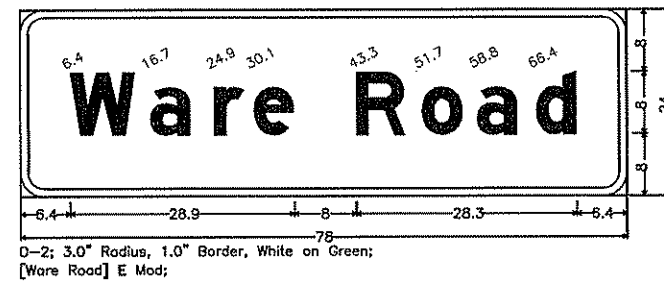


MAST ARM MOUNTED SIGNS								
SIGN PANELS TYPE D (FURNISH AND INSTALL)								
SIGN PANEL	SIZE (INCH)	NO. REQ.	NO. POSTS/STIFFENERS PER SIGN	BAND SPACING (**)	SQFT PER SIGN	POLE NO.	a	b
D-1	90X24	1	4	---	15.00	1	10'	---
D-2	78X24	1	4	---	13.00	2	18'	---
D-1	90X24	1	4	---	15.00	3	10'	---
D-2	78X24	1	4	---	13.00	4	18'	---
TOTAL QUANTITIES		4			56.00			

(\*\*) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE SPECIAL PROVISIONS AND STANDARD SIGN MANUAL, PAGE 105A (REVISION DATE 7-06-07) FOR BRACKET SPACING REQUIREMENTS.



SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN - PANELS TYPE C (FURNISH AND INSTALL)										
SIGN PANEL	SIZE (IN.)	NO. REQ.	NO. POSTS / STIFFENERS PER SIGN	BAND SPACING (**)	SQ. FT. PER SIGN	TOTAL AREA (SQ. FT.)	POLE NO.	a	b	PANEL LEGEND
R10-12	30X36	2	(1)	---	7.50	15.00	2,4	2'	---	LEFT TURN YIELD ON GREEN



NOTES:

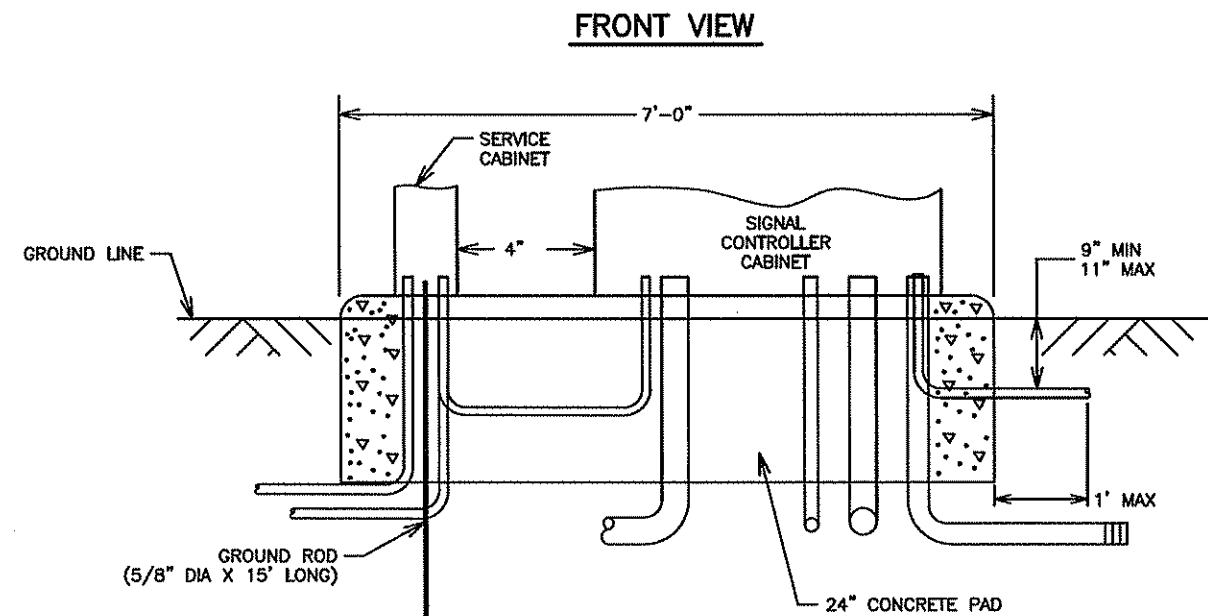
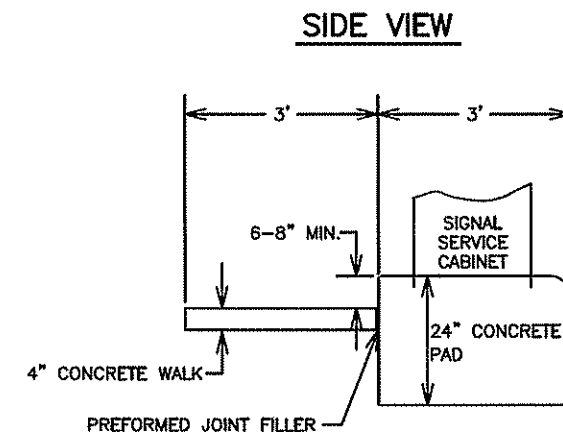
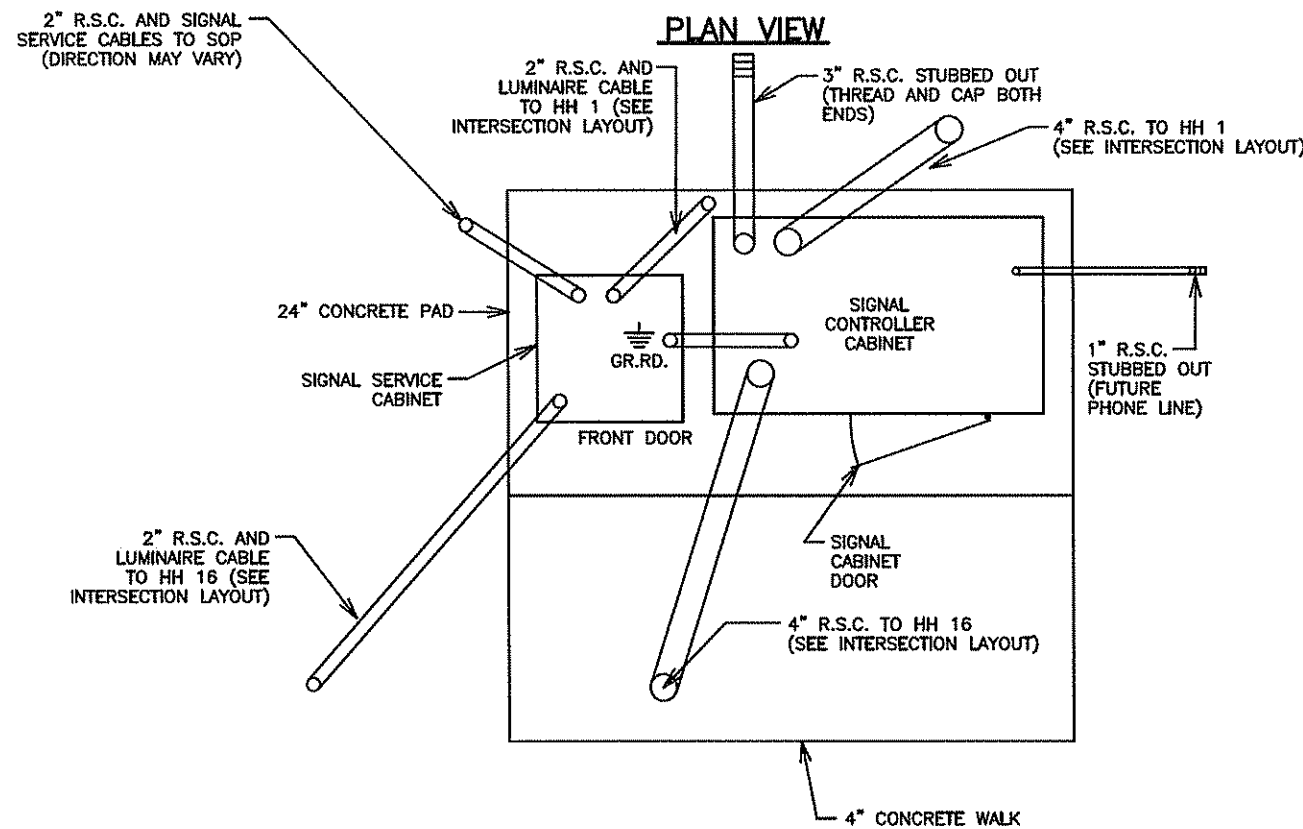
- 1) COLOR FOR ALL NEW TYPE D SIGNS SHALL BE WITH LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED
- 2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- 3) FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISED DATE 7/06/07) AND SPECIAL PROVISIONS.
- 4) SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWING OF TYPE C SIGN PANELS
- 5) FURNISHING AND INSTALLING TYPE C AND D SIGNS SHALL BE CONSIDERED INCIDENTAL TO ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE SPECIAL PROVISIONS.
- 6) ALL NEW TYPE C AND D SIGN PANELS SHALL BE FABRICATED USING HP SHEETING. SEE SPECIAL PROVISIONS

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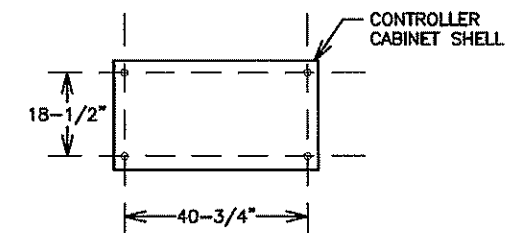
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNATURE: <i>Bryant J. Ficek</i> PRINTED NAME: BRYANT J. FICEK DATE: July 23, 2012 LIC. NO. 42802					DRAWN BY: _____ DATE: _____ DESIGN BY: _____ DATE: _____ CHECKED BY: _____ DATE: _____		S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.				CITY OF LINO LAKES SIGNAL PLAN AND DETAILS SIGNAL SIGNING DETAILS BIRCH ST. (CSAH 34) AND WARE ROAD		SHEET 47 OF 63
NO	DATE	BY	CKD	APPR	REVISION								

# TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)



## CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



DIMENSION SHOWN ARE  
CENTER ROD TO CENTER ROD

### NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR EACH COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF EACH EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATIONS OF CONDUITS WITHIN EACH PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4 INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATIONS AS SHOWN.
10. CABINETS TO BE CENTERED (LEFT & RIGHT) ON THE PAD.
11. BRUSH ON ANTI-SEIZE LUBRICANT MUST BE APPLIED TO ALL ANCHOR ROD THREADS PROTRUDING ABOVE THE CONCRETE PAD BEFORE THE CABINET IS SET.

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NO	DATE	BY	CHKD	APPR	REVISION

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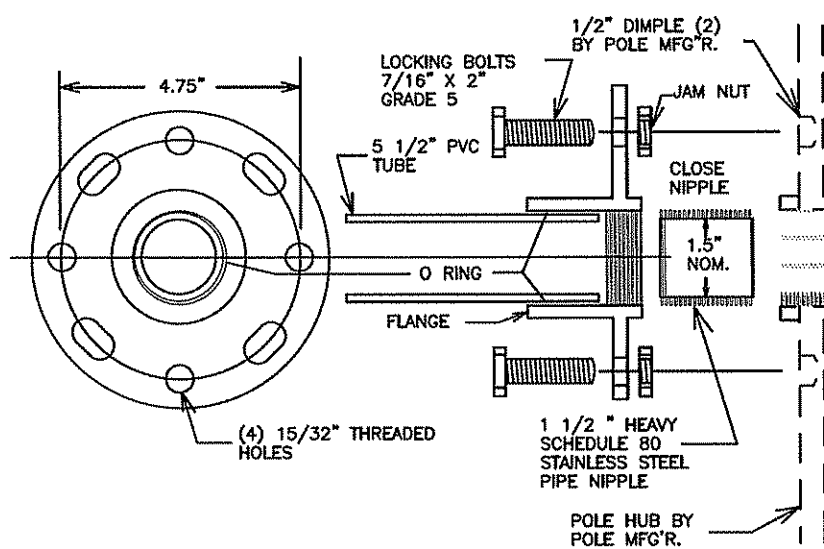
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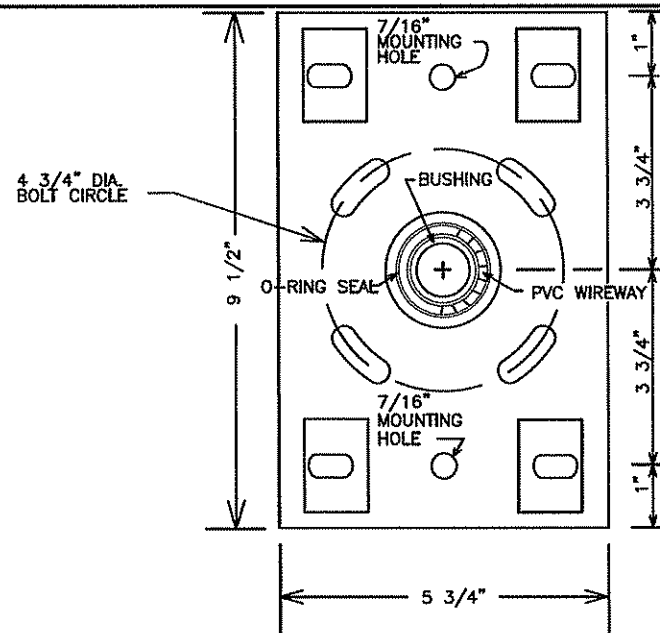
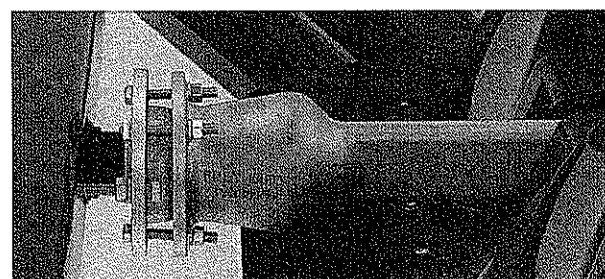
CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 EQUIPMENT PAD DETAILS  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 48  
 OF  
 63

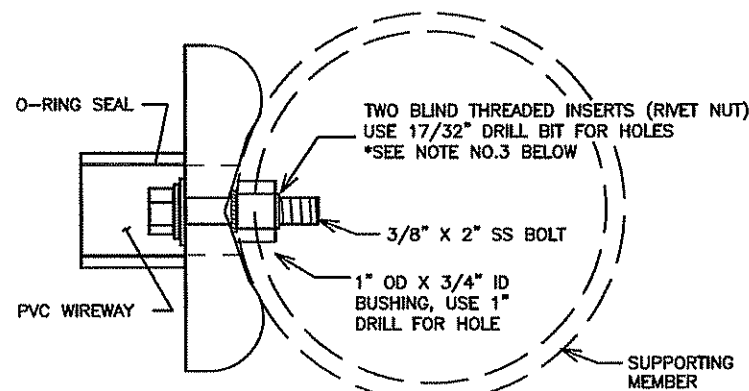




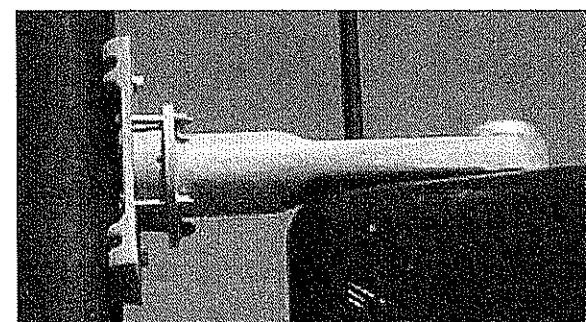
**THREADED HUB AND FLANGE POLE ADAPTOR**



**BOLT ON HUB & FLANGE**

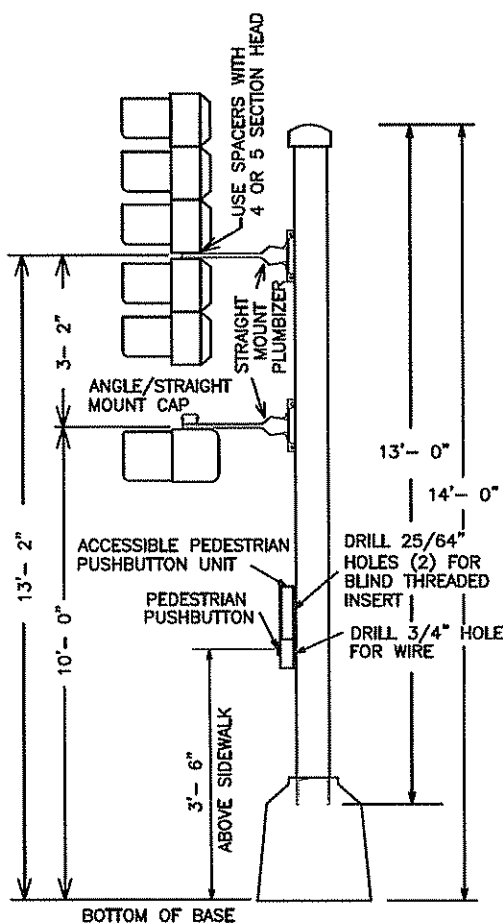


**TOP VIEW**



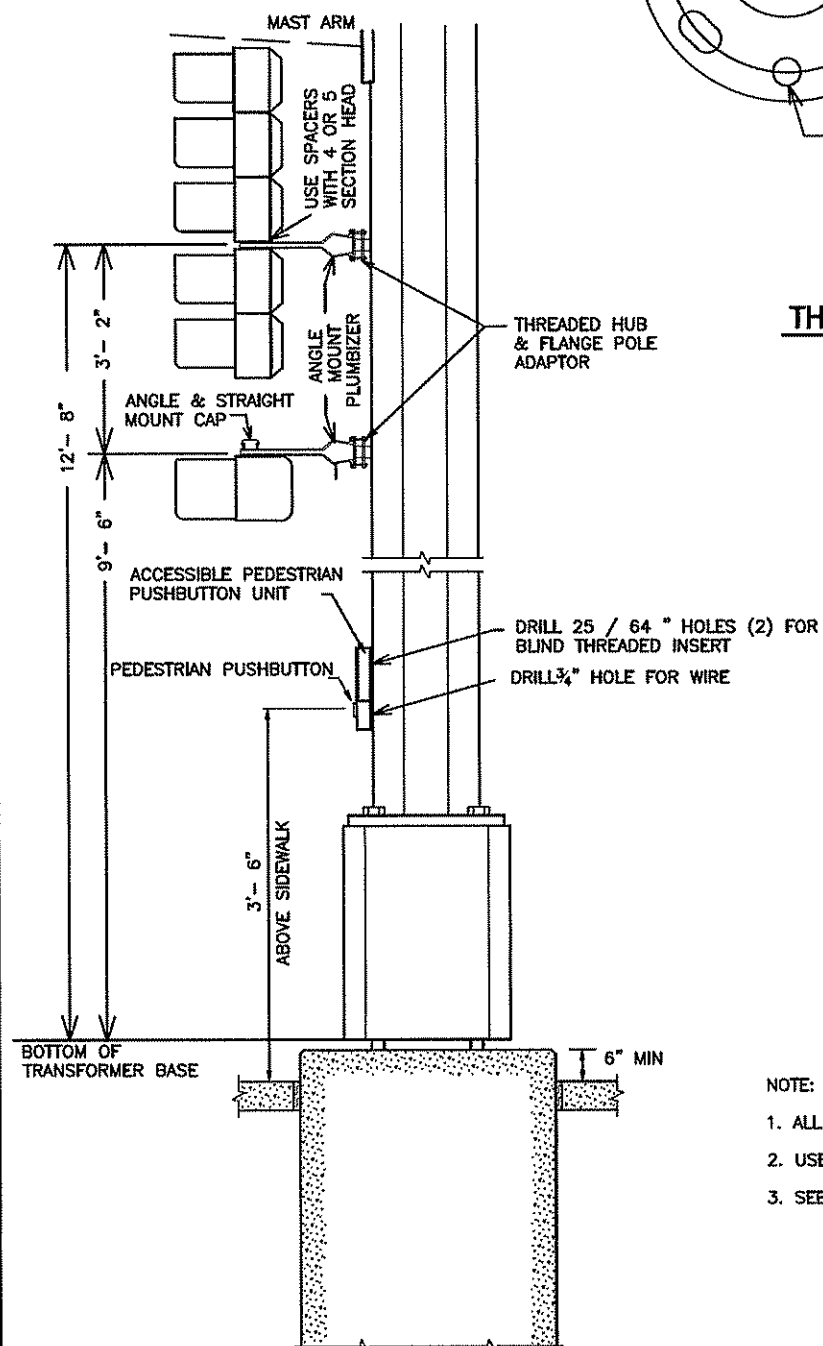
NOTE:

1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



**TYPICAL PEDESTAL MOUNTING**

NOT TO SCALE



**TYPICAL SIGNAL POLE MOUNTING**

NOT TO SCALE

NOTE:

1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.

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NO	DATE	BY	CKD	APPR	REVISION

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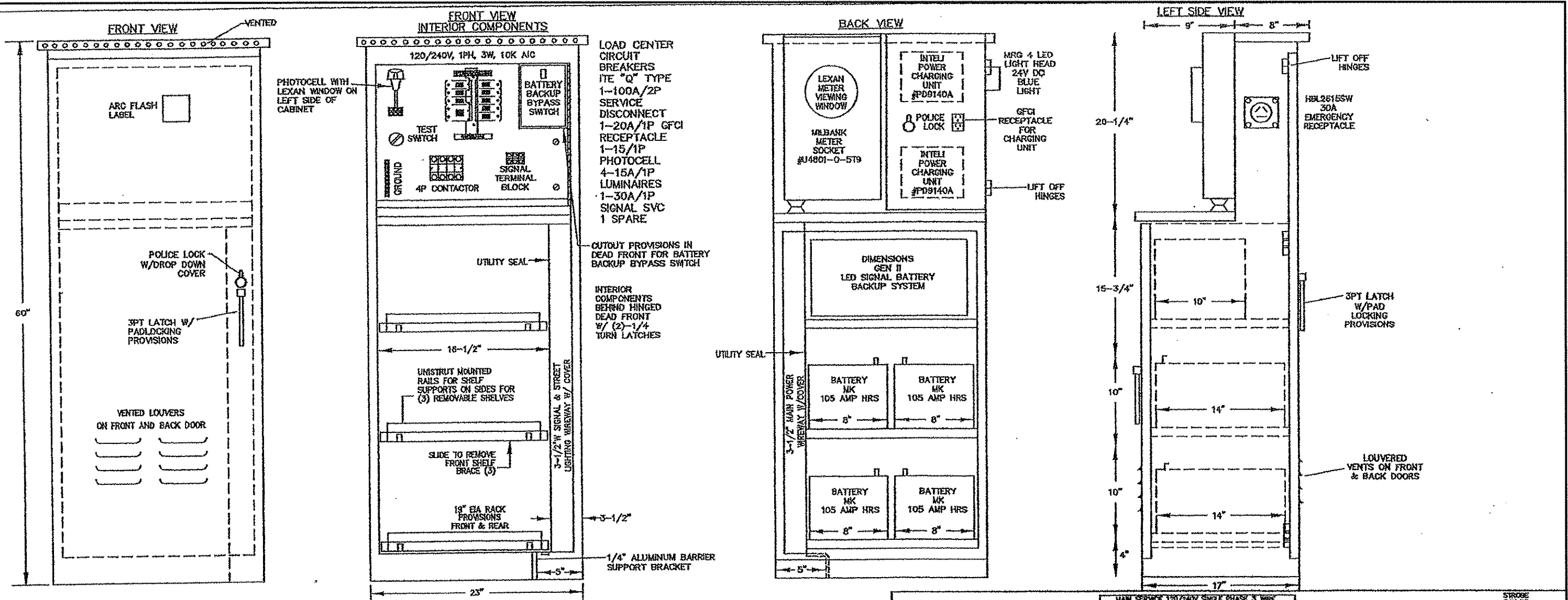
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S.A.P. 002-634-002  
 TKDA Proj. 14851.000  
 S.P.  
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CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 POLE MOUNT DETAILS  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 49  
 OF  
 63



- LOAD CENTER CIRCUIT BREAKERS**  
 ITE "Q" TYPE  
 1-100A/2P SERVICE DISCONNECT  
 1-20A/1P GFCI RECEPTACLE  
 1-15/1P PHOTOCELL  
 4-15A/1P LUMINAIRES  
 1-30A/1P SIGNAL SVC  
 1 SPARE

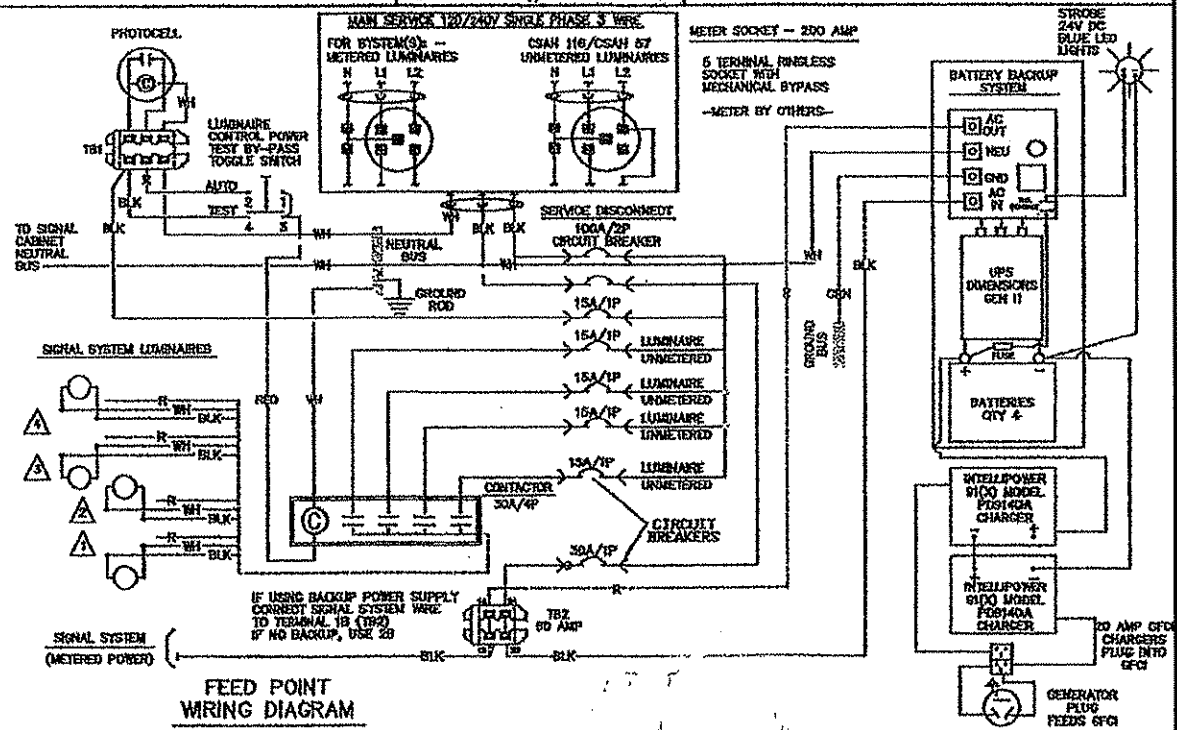
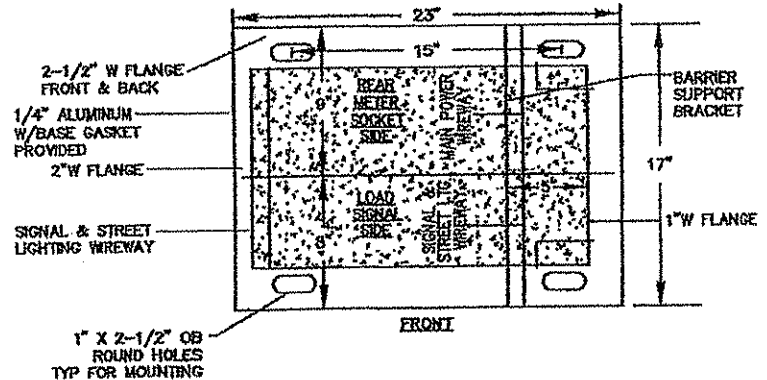
CUTOFF PROVISIONS IN DEAD FRONT FOR BATTERY BACKUP BYPASS SWITCH

INTERIOR COMPONENTS BEHIND HINGED DEAD FRONT W/ (2)-1/4 TURN LATCHES

**CABINET CONSTRUCTION**

- NEMA 3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 30 MINUTE CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.

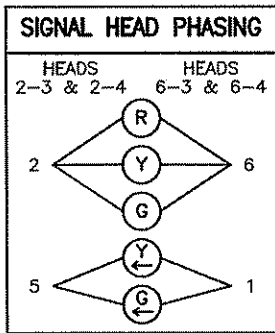


DATE: 8/1/2012 TIME: 10:16:55 AM FILENAME: K:\p\m\linolakes\14851000\bay-birdg\bay\plan-sht\lino\_birch\_sgn.dwg

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. SIGNATURE: <i>Bryant J. Fick</i> PRINTED NAME: BRYANT J. FICK DATE: July 23, 2012 LIC. NO. 42802					DRAWN BY _____ DATE _____ DESIGN BY _____ DATE _____ CHECKED BY _____ DATE _____		S.A.P. 002-634-002 TKDA Proj. 14851.000 S.P. S.P.		<b>TKDA</b> ENGINEERING • ARCHITECTURE • PLANNING		CITY OF LINO LAKES SIGNAL PLAN AND DETAILS SERVICE CABINET DETAILS BIRCH ST. (CSAH 34) AND WARE ROAD		SHEET 50 OF 63
NO	DATE	BY	CKD	APPR	REVISION								

SIGNAL INDICATIONS						
FACE	R	Y	G	RLTA	YLTA	GLTA
2-1,2-2	●	●	●			
2-3,2-4	●	●	●	←	←	
4-1,4-2	●	●	●			
4-3	●	●	●			
6-1,6-2	●	●	●			
6-3,6-4	●	●	●	←	←	
8-1,8-2	●	●	●			
8-3	●	●	●			

- ALL SIGNAL INDICATIONS SHALL BE 12".  
 - ALL SIGNAL INDICATIONS SHALL BE LED.  
 - ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD.



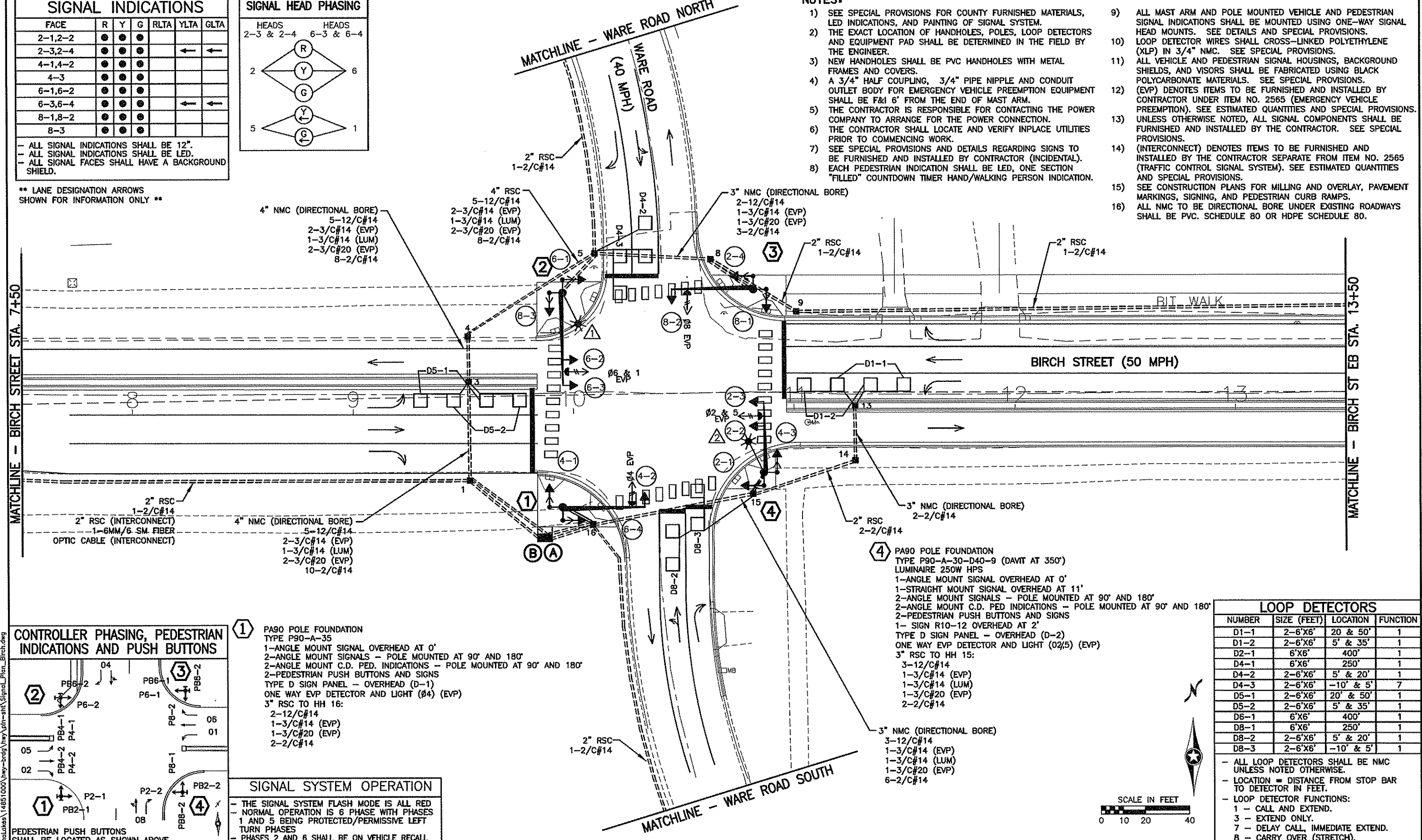
\*\* LANE DESIGNATION ARROWS SHOWN FOR INFORMATION ONLY \*\*

**NOTES:**

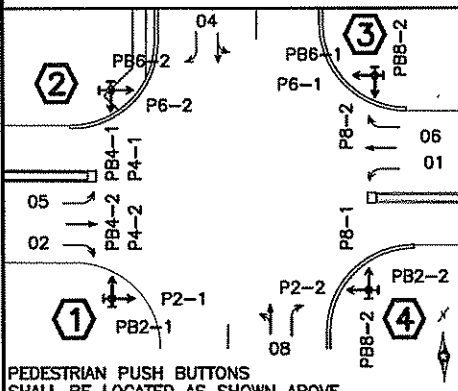
- SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS, LED INDICATIONS, AND PAINTING OF SIGNAL SYSTEM.
- THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE F&I 6' FROM THE END OF MAST ARM.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION.
- THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
- SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL).
- EACH PEDESTRIAN INDICATION SHALL BE LED, ONE SECTION "FILLED" COUNTDOWN TIMER HAND/WALKING PERSON INDICATION.
- ALL MAST ARM AND POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS. SEE DETAILS AND SPECIAL PROVISIONS.
- LOOP DETECTOR WIRES SHALL CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- ALL VEHICLE AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELDS, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- (EVP) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- UNLESS OTHERWISE NOTED, ALL SIGNAL COMPONENTS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SPECIAL PROVISIONS.
- (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SEPARATE FROM ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- SEE CONSTRUCTION PLANS FOR MILLING AND OVERLAY, PAVEMENT MARKINGS, SIGNING, AND PEDESTRIAN CURB RAMPS.
- ALL NMC TO BE DIRECTIONAL BORE UNDER EXISTING ROADWAYS SHALL BE PVC. SCHEDULE 80 OR HDPE SCHEDULE 80.

MATCHLINE - BIRCH STREET STA. 7+50

MATCHLINE - BIRCH ST EB STA. 13+50



**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



- 1** PA90 POLE FOUNDATION  
 TYPE P90-A-35  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS - POLE MOUNTED AT 90° AND 180°  
 2-ANGLE MOUNT C.D. PED. INDICATIONS - POLE MOUNTED AT 90° AND 180°  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 TYPE D SIGN PANEL - OVERHEAD (D-1)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø4) (EVP)  
 3" RSC TO HH 16:  
 2-12/C#14  
 1-3/C#14 (EVP)  
 1-3/C#20 (EVP)  
 2-2/C#14

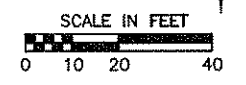
**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED
- NORMAL OPERATION IS 6 PHASE WITH PHASES 1 AND 5 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL

- 4** PA90 POLE FOUNDATION  
 TYPE P90-A-30-D40-9 (DAVT AT 350°)  
 LUMINAIRE 250W HPS  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'  
 2-ANGLE MOUNT SIGNALS - POLE MOUNTED AT 90° AND 180°  
 2-ANGLE MOUNT C.D. PED INDICATIONS - POLE MOUNTED AT 90° AND 180°  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 1- SIGN R10-12 OVERHEAD AT 2'  
 TYPE D SIGN PANEL - OVERHEAD (D-2)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø2/5) (EVP)  
 3" RSC TO HH 15:  
 3-12/C#14  
 1-3/C#14 (EVP)  
 1-3/C#14 (LUM)  
 1-3/C#20 (EVP)  
 2-2/C#14

LOOP DETECTORS				
NUMBER	SIZE (FEET)	LOCATION	FUNCTION	
D1-1	2-6'x6'	20' & 50'	1	
D1-2	2-6'x6'	5' & 35'	1	
D2-1	6'x6'	400'	1	
D4-1	6'x6'	250'	1	
D4-2	2-6'x6'	5' & 20'	1	
D4-3	2-6'x6'	-10' & 5'	7	
D5-1	2-6'x6'	20' & 50'	1	
D5-2	2-6'x6'	5' & 35'	1	
D6-1	6'x6'	400'	1	
D8-1	6'x6'	250'	1	
D8-2	2-6'x6'	5' & 20'	1	
D8-3	2-6'x6'	-10' & 5'	1	

- ALL LOOP DETECTORS SHALL BE NMC UNLESS NOTED OTHERWISE.
- LOCATION = DISTANCE FROM STOP BAR TO DETECTOR IN FEET.
- LOOP DETECTOR FUNCTIONS:  
 1 - CALL AND EXTEND.  
 3 - EXTEND ONLY.  
 7 - DELAY CALL, IMMEDIATE EXTEND.  
 8 - CARRY OVER (STRETCH).



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NO	DATE	BY	CKD	APPR	REVISION

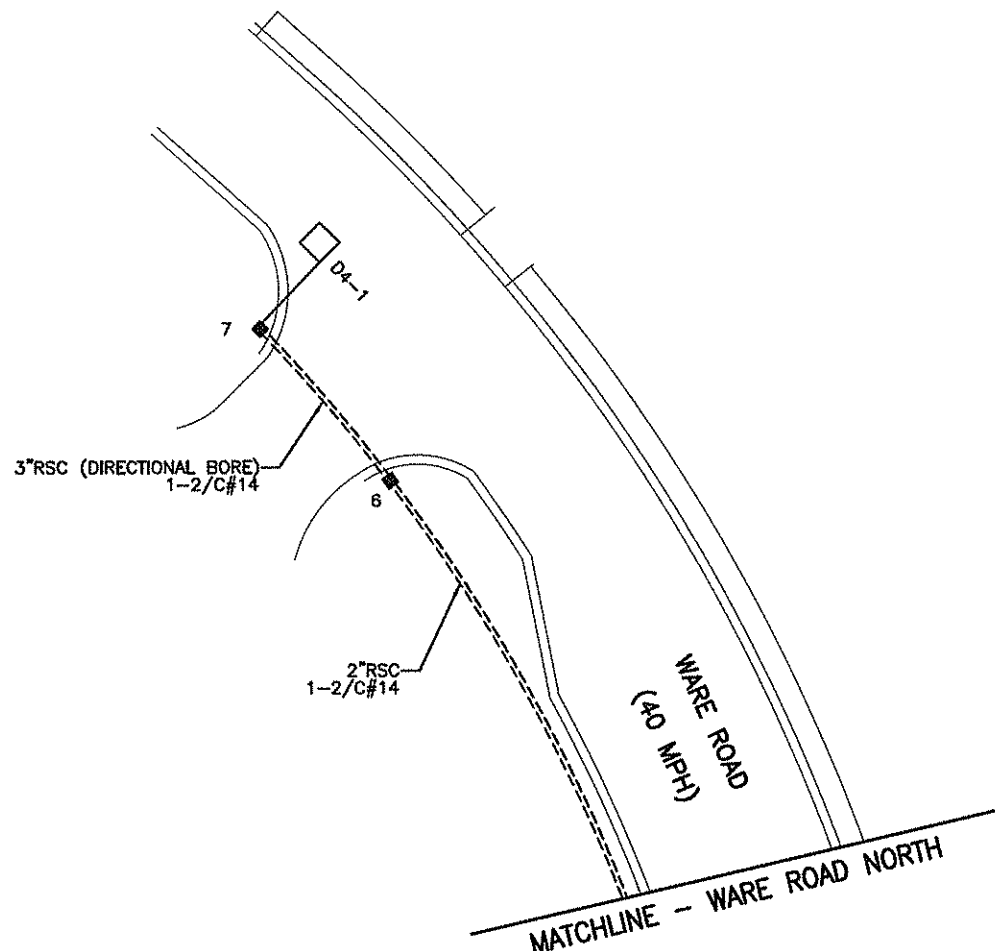
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SIGNATURE: *Bryant J. Fick*  
 PRINTED NAME: BRYANT J. FICK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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 TKDA Proj. 14851.000  
 S.P.  
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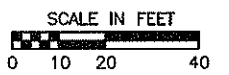
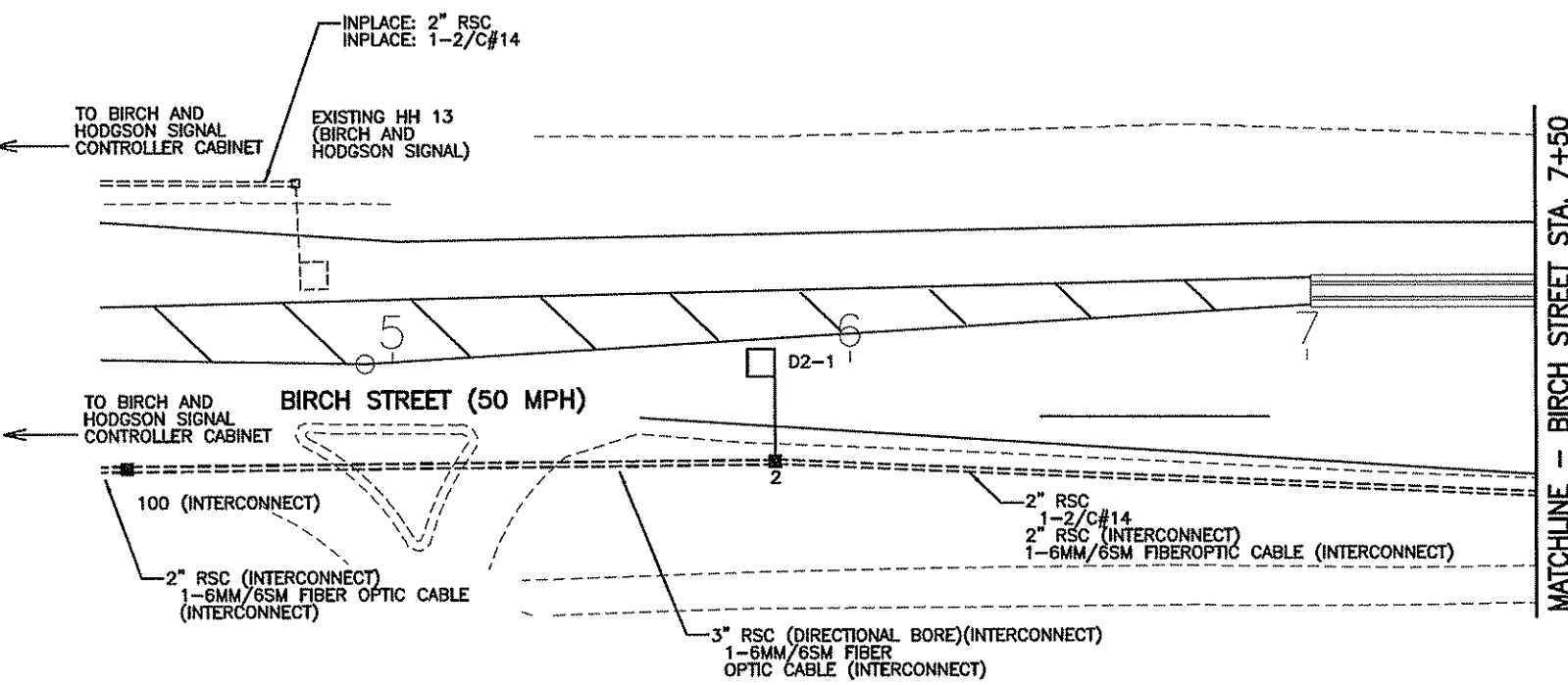
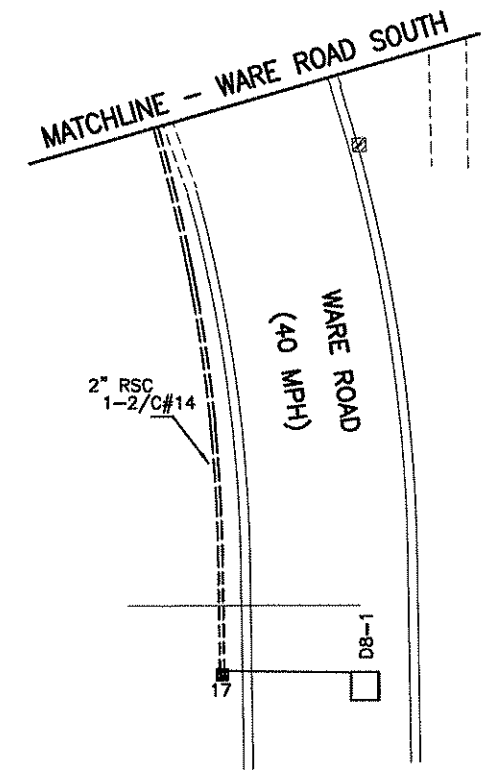
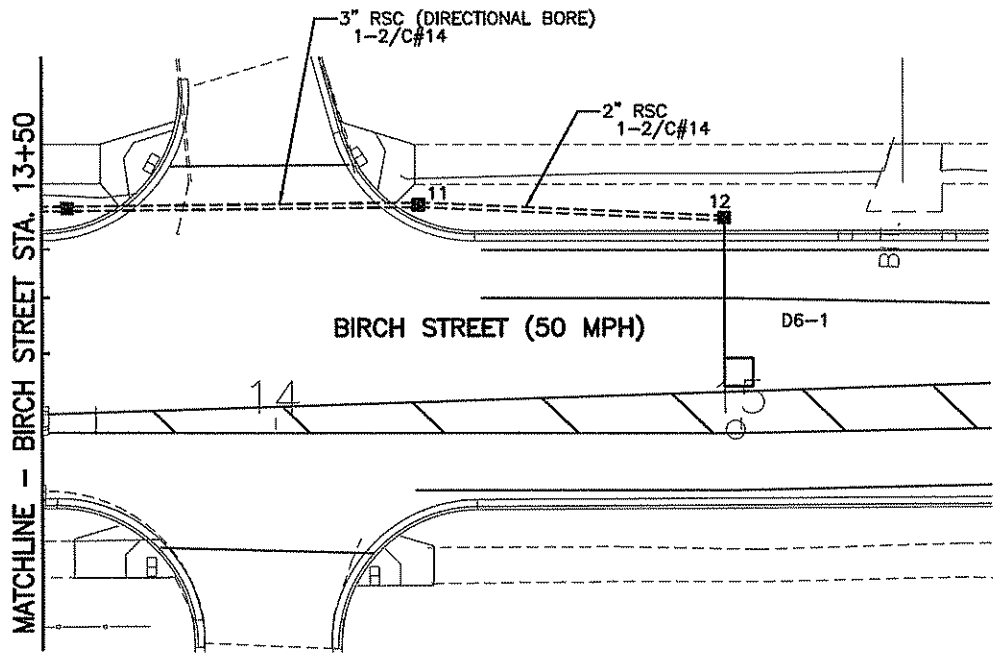


- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)**  
 EQUIPMENT PAD FOUNDATION  
 BETWEEN CONTROLLER AND CABINET AND SERVICE CABINET:  
 METERED SIGNAL SERVICE  
 2" RSC  
 3-1/C #6  
 4" RSC INTO HH 1:  
 5-12/C#14  
 2-3/C#14 (EVP)  
 2-3/C#20 (EVP)  
 11-2/C#14  
 4" RSC INTO HH 16:  
 5-12/C#14  
 2-3/C#14 (EVP)  
 2-3/C#20 (EVP)  
 9-2/C#14  
 2" RSC (INTERCONNECT) INTO HH1  
 1-6MM/6SM FIBEROPTIC CABLE (INTERCONNECT)  
 STUB OUT 3" RSC FROM CABINET TO EAST  
 (THREAD AND CAP FOR FUTURE USE)  
 STUB OUT 1" RSC FROM CABINET  
 (FOR FUTURE PHONE LINE BY OTHERS)

- (B) SIGNAL SERVICE CABINET (ON SAME FOUNDATION AS CONTROLLER CABINET)**  
 2" RSC INTO HH 1:  
 UNMETERED STREET LIGHT SERVICE  
 1-3/C#14 (LUM)  
 2" RSC INTO HH 16:  
 UNMETERED STREET LIGHT SERVICE  
 1-3/C#14 (LUM)  
 STUB OUT 2" RSC FROM SERVICE CABINET TO WEST  
 (FOR POWER CONNECTION)

- (2) PA100 POLE FOUNDATION**  
 TYPE PA100-A-40-D40-9 (DAVIT AT 350')  
 LUMINAIRE 250W HPS  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED AT 90° AND 180°  
 2-ANGLE MOUNT C.D. PED. INDICATIONS-POLE MOUNTED AT 90° AND 180°  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 1-SIGN R10-12 OVERHEAD AT 2'  
 TYPE D SIGN PANEL-OVERHEAD (D-2)  
 ONE WAY EVP DETECTOR AND LIGHT (06,1) (EVP)  
 3" RSC INTO HH 5:  
 3-12/C#14  
 1-3/C#14 (EVP)  
 1-3/C#14 (LUM)  
 1-3/C#20 (EVP)  
 2-2/C#14

- (3) PA90 POLE FOUNDATION**  
 TYPE PA90-A-35  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED AT 90° + 180°  
 2-ANGLE MOUNT C.D. PED. INDICATIONS-POLE MOUNTED AT 90° + 180°  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 TYPE D SIGN PANEL-OVERHEAD (D-1)  
 ONE WAY EVP DETECTOR AND LIGHT (08) (EVP)  
 3" RSC INTO HH 8:  
 2-12/C#14  
 1-3/C#14 (EVP)  
 1-3/C#20 (EVP)  
 2-2/C#14



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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.

SIGNATURE: *Bryant J. Ficek*  
 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

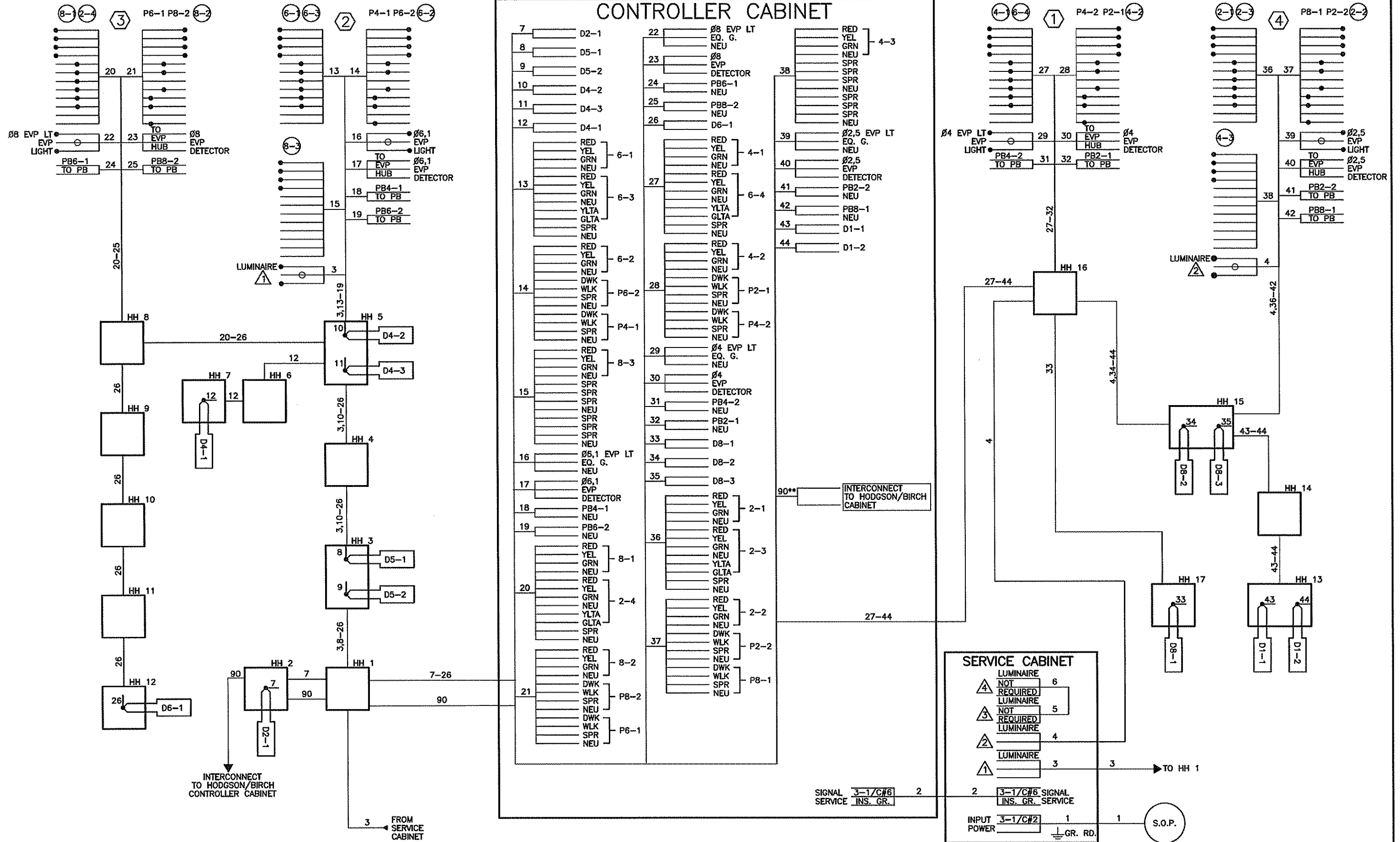
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 S.P.  
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CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 BIRCH/WARE SIGNAL MATCHLINES  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 52  
 OF  
 63

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NO	DATE	BY	CKD	APPR	REVISION

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PRINTED NAME: BRYANT J. FICK

DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

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 S.P.  
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**TKDA**  
 ENGINEERING • ARCHITECTURE • PLANNING

CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 BIRCH/WARE SIGNAL WIRING DIAGRAM  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET 53 OF 63

- ② PA100 POLE FOUNDATION  
 TYPE PA100-A-35 (COUNTY FURNISHED TRANSFORMER BASE, POLE, AND MAST ARM)  
 2-ONE WAY SIGNALS-OVERHEAD (0, AND 11' FROM THE END OF THE MAST ARM)  
 TYPE 10B POLE MOUNTED AT 90'  
 TYPE 10A POLE MOUNTED AT 180'  
 PEDESTRIAN PUSH BUTTON  
 TYPE "D" SIGN PANEL (90"x24")-OVERHEAD (D-2)  
 R6-1 SIGN PANEL (36"x12")-POLE MOUNTED 0'  
 ONE WAY DETECTOR AND LIGHT OVERHEAD (#6)  
 (5' FROM THE END OF MAST ARM)  
 EXTEND INTO HH 4:  
 3" R.S.C.  
 2-12/C #12  
 2-3/C #12  
 1-3/C #20

- ③ PA90 POLE FOUNDATION  
 TYPE PA90-A-30 (COUNTY FURNISHED TRANSFORMER BASE, POLE, AND MAST ARM)  
 1-ONE WAY SIGNALS-OVERHEAD (0' FROM THE END OF THE MAST ARM)  
 1-TYPE 10A POLE MOUNTED AT 90'  
 1-TYPE 10B POLE MOUNTED AT 180'  
 PEDESTRIAN PUSH BUTTON  
 TYPE "D" SIGN PANEL (102"x18")-OVERHEAD (D-1)  
 R6-1 SIGN PANEL (36"x12")-POLE MOUNTED 270'  
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (#8)  
 (5' FROM THE END OF MAST ARM)  
 EXTEND INTO HH 5:  
 3" R.S.C.  
 1-12/C #12  
 3-3/C #12  
 1-3/C #20

- NOTES:**  
 1. SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.  
 2. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.  
 3. ALL SIGNAL COMPONENTS TO BE FURNISHED AND INSTALLED BY CONTRACTOR ARE INDICATED BY [ ]  
 4. (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SEPARATE FROM ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

**SIGNAL INDICATIONS**  
 ALL INDICATIONS SHALL BE 12" LED

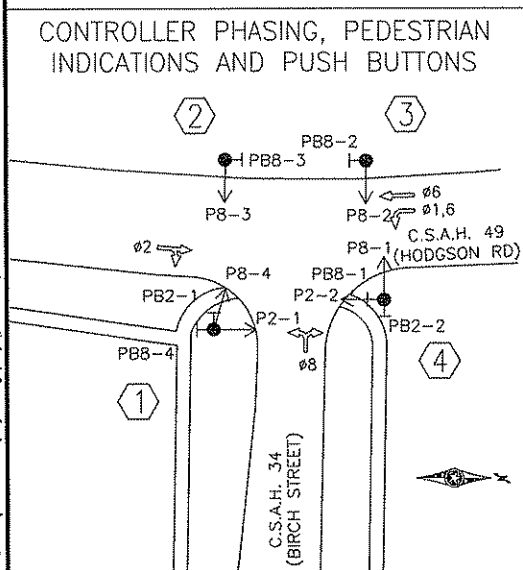
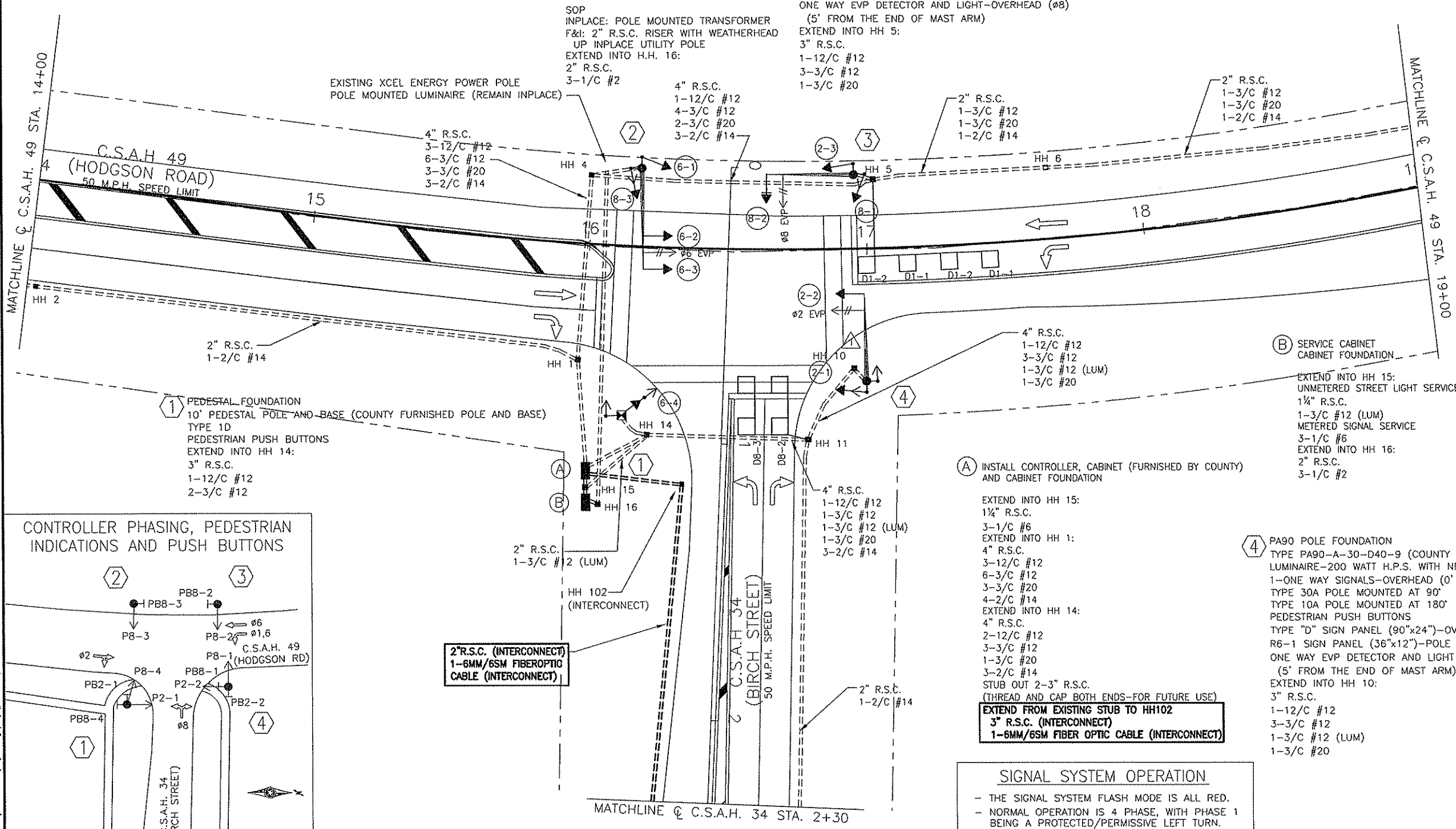
FACE	R	Y	G	YLTA	GLTA
2-1,2-2,2-3	○	○	○		
6-1,6-2	○	○	○		
6-3,6-4	○	○	○		
8-1,8-2,8-3	○	○	○		

**LOOP DETECTORS**

NUMBER	SIZE (FT.)	FUNCTION	LOCATION
D1-1	6x6	1	15 & 45
D1-2	6x6	1	0 & 30
D2-1	6x6	1	400
D6-1	6x6	1	400
D8-1	6x6	3,8	400
D8-2	2-6x6	7	0 & 9
D8-3	2-6x6	1	0 & 9

**LOOP DETECTOR FUNCTIONS**

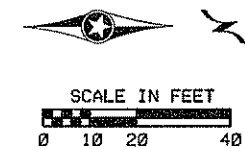
- 1) CALL AND EXTEND  
 3) EXTEND ONLY  
 7) DELAY CALL/IMMEDIATE EXTEND  
 8) CARRY OVER (STRETCH)  
 LOCATION = DISTANCE FROM STOP LINE TO DETECTOR IN FEET



④ SERVICE CABINET  
 CABINET FOUNDATION  
 EXTEND INTO HH 15:  
 UNMETERED STREET LIGHT SERVICE  
 1 1/2" R.S.C.  
 1-3/C #12 (LUM)  
 METERED SIGNAL SERVICE  
 3-1/C #6  
 EXTEND INTO HH 16:  
 2" R.S.C.  
 3-1/C #2

④ INSTALL CONTROLLER, CABINET (FURNISHED BY COUNTY) AND CABINET FOUNDATION  
 EXTEND INTO HH 15:  
 1 1/2" R.S.C.  
 3-1/C #6  
 EXTEND INTO HH 1:  
 4" R.S.C.  
 3-12/C #12  
 6-3/C #12  
 3-3/C #20  
 4-2/C #14  
 EXTEND INTO HH 14:  
 4" R.S.C.  
 2-12/C #12  
 3-3/C #12  
 1-3/C #20  
 3-2/C #14  
 STUB OUT 2-3" R.S.C.  
 (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)  
 EXTEND FROM EXISTING STUB TO HH102  
 3" R.S.C. (INTERCONNECT)  
 1-6MM/6SM FIBER OPTIC CABLE (INTERCONNECT)

**SIGNAL SYSTEM OPERATION**  
 - THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING A PROTECTED/PERMISSIVE LEFT TURN.  
 - PHASES 2 AND 6 ARE ON VEHICLE RECALL.



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NO	DATE	BY	CKD	APPR	REVISION

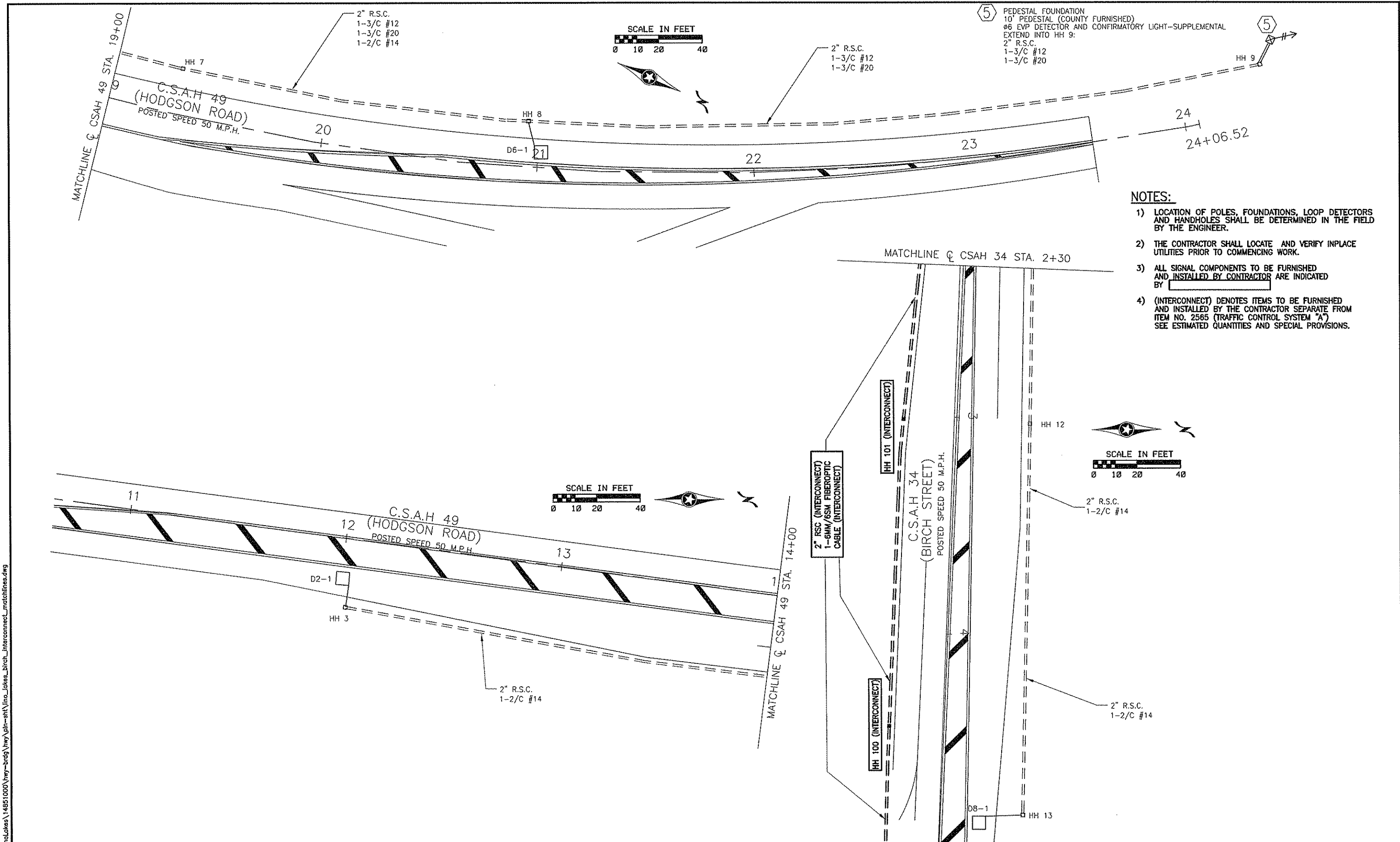
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 PRINTED NAME: BRYANT J. FICEK  
 DATE: July 23, 2012 LIC. NO. 42802

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

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 TKDA Proj. 14851.000  
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DATE: 8/1/2012  
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- NOTES:**
- 1) LOCATION OF POLES, FOUNDATIONS, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
  - 3) ALL SIGNAL COMPONENTS TO BE FURNISHED AND INSTALLED BY CONTRACTOR ARE INDICATED BY [ ]
  - 4) (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SEPARATE FROM ITEM NO. 2565 (TRAFFIC CONTROL SYSTEM "A") SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

NO	DATE	BY	CKD	APPR	REVISION

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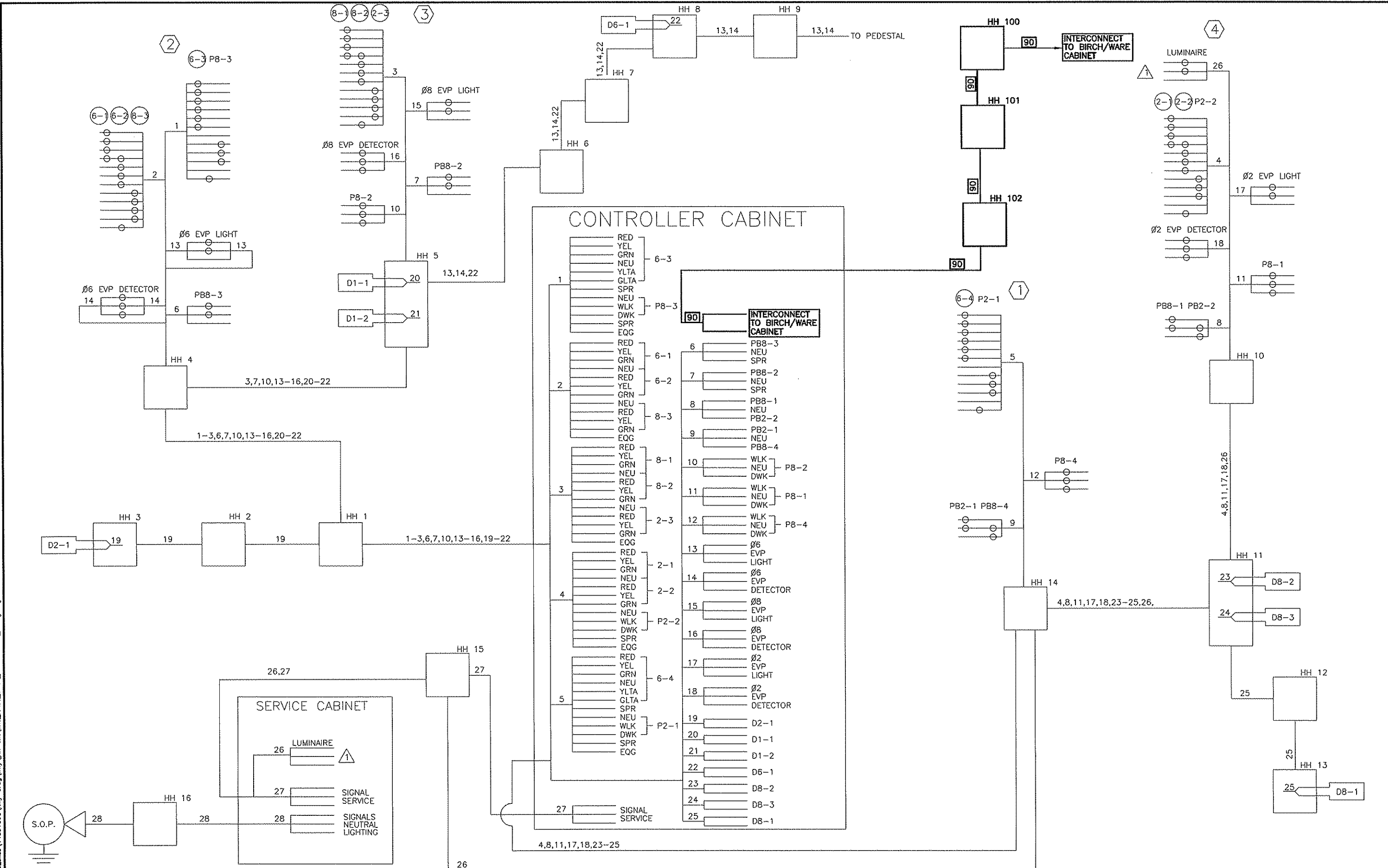
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 S.P.



CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 INTERCONNECT MATCHLINES  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET  
 55  
 OF  
 63

DATE: 8/1/2012  
 TIME: 10:26:38 AM  
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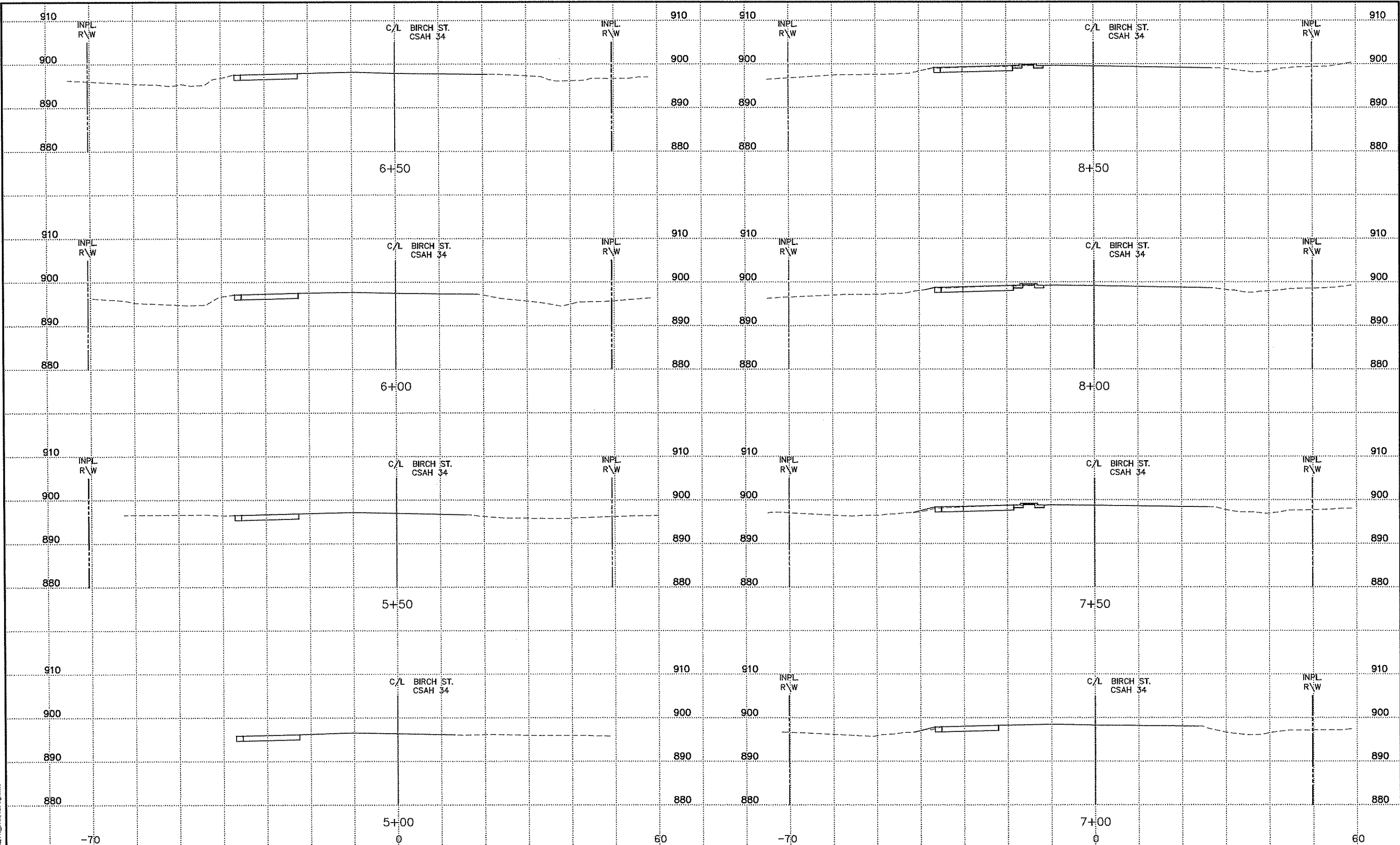
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CITY OF LINO LAKES  
 SIGNAL PLAN AND DETAILS  
 INTERCONNECT WIRING DIAGRAM  
 BIRCH ST. (CSAH 34) AND WARE ROAD

SHEET 56 OF 63





File Data: 08/07/2012  
 Drawing Name: K:\proj\14851000\14851000\m12011\Signal\_Birch-Ware\Plan\57-58-Birch-Ware-spl.dwg  
 Xref: 2303-Ware\_A\_Sig\_Birch\_Plan\_57-58.dwg

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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

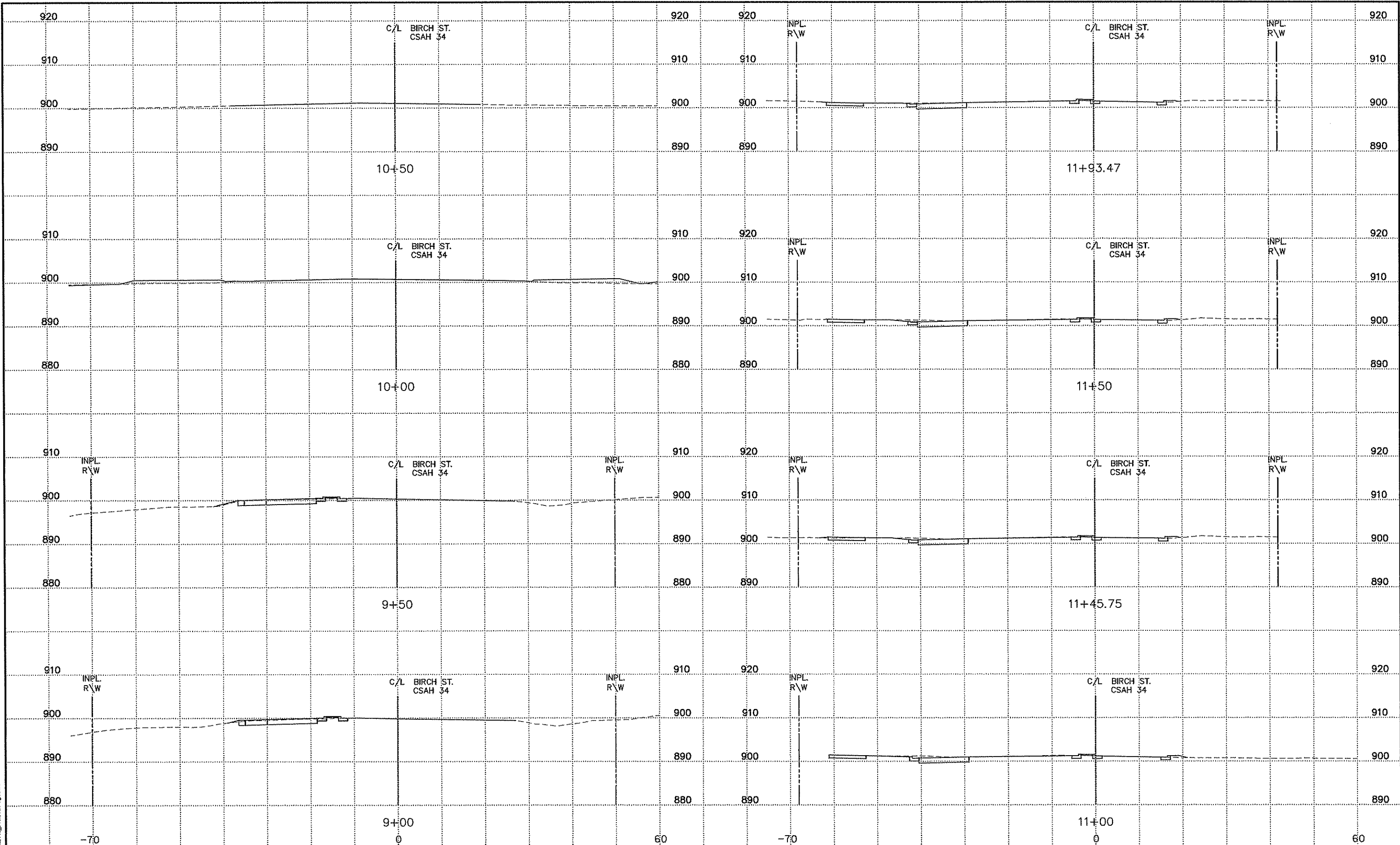
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CITY OF LINO LAKES  
 CROSS SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 57  
 OF  
 63



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NO	DATE	BY	CKD	APPR	REVISION

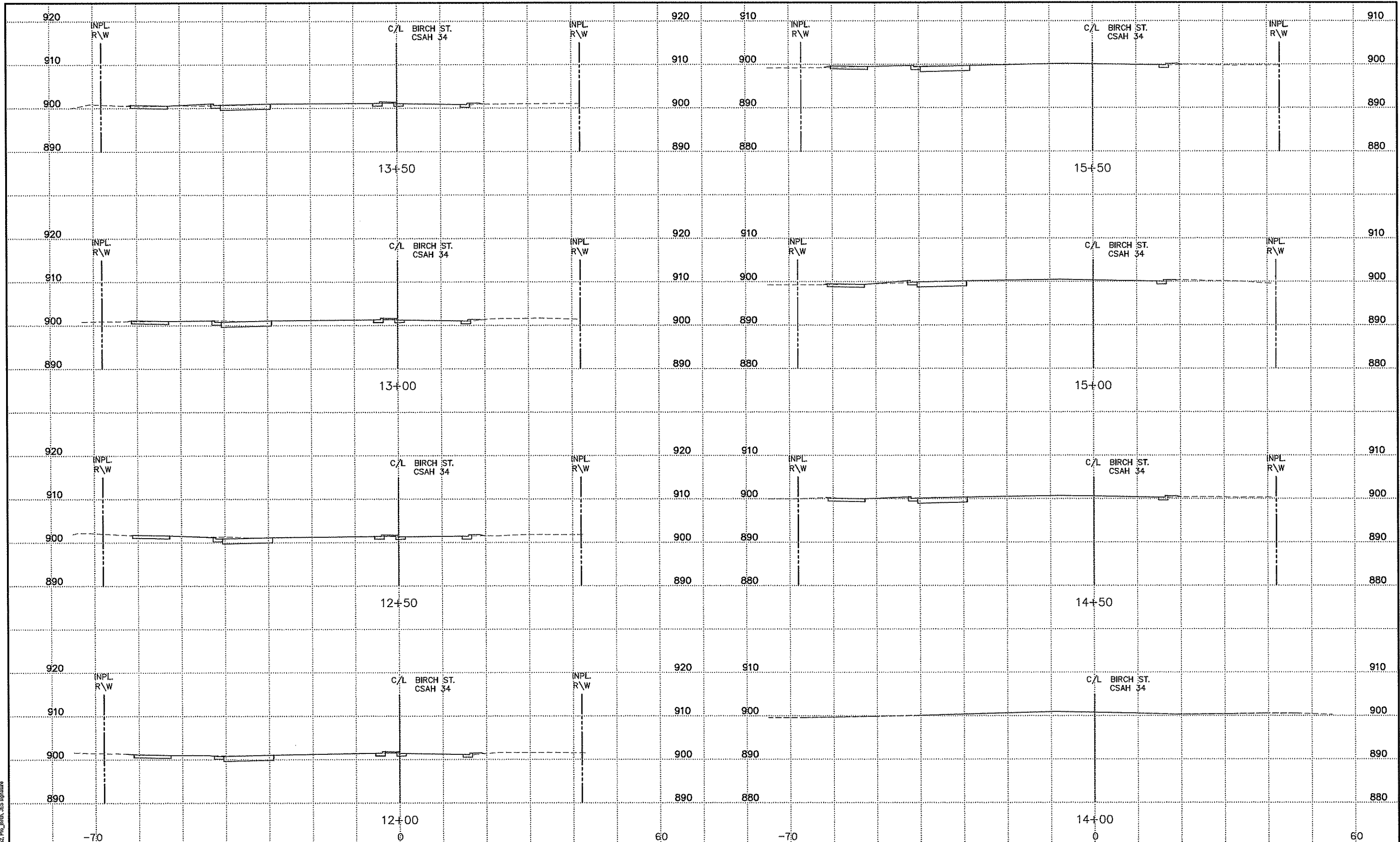
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

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 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

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CITY OF LINO LAKES  
 CROSS SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION



File Date: 10/17/2012  
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 User: jstudies

NO	DATE	BY	CKD	APPR	REVISION

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 UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

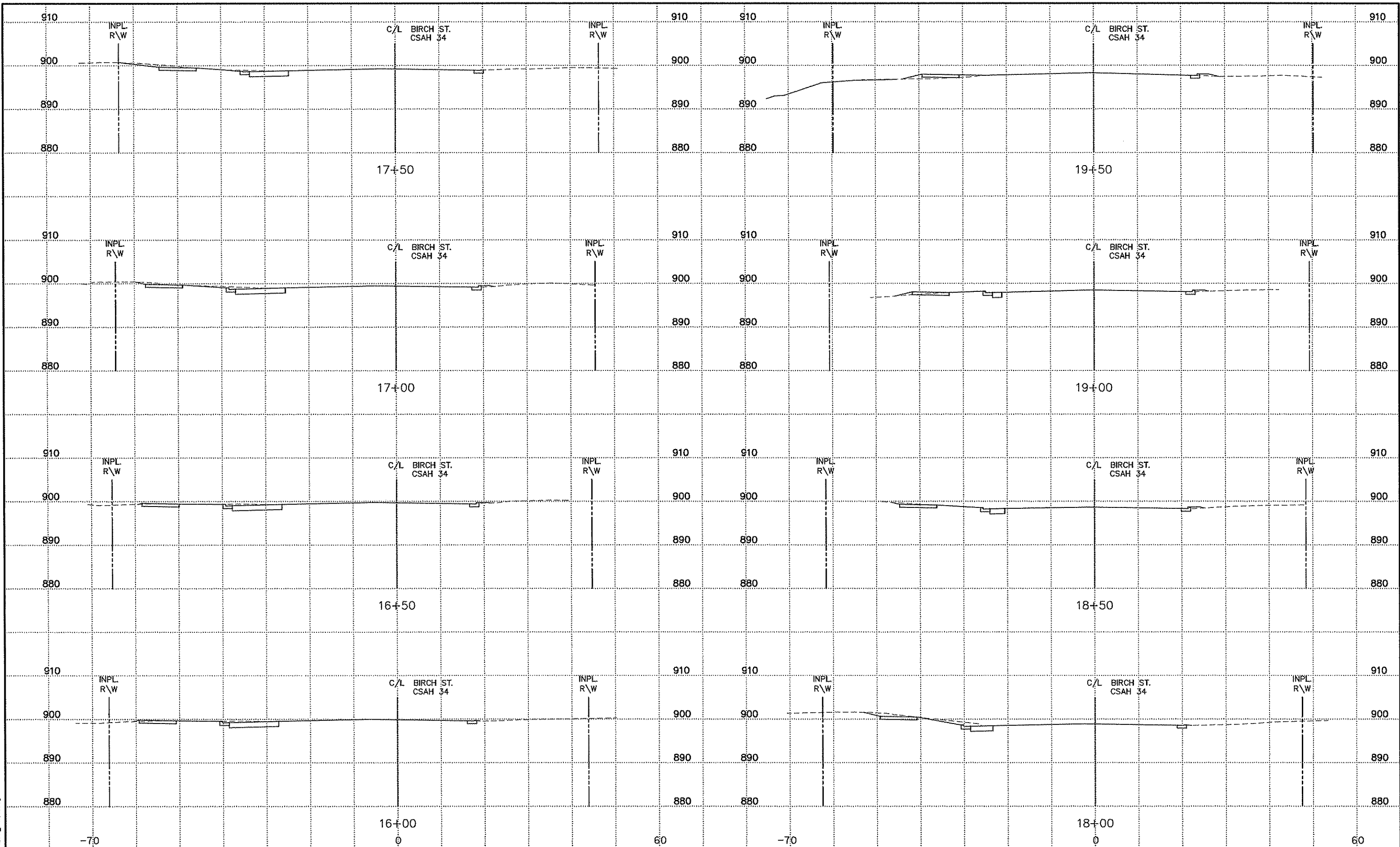
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CITY OF LINO LAKES  
 CROSS SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 59  
 OF  
 63



Plot Date: 08/01/2012  
 Drawing Name: K:\projects\14851\14851.dwg  
 Title: Birch St. CSAH 34/Ware Rd Signalization  
 Author: JES

NO	DATE	BY	CHKD	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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

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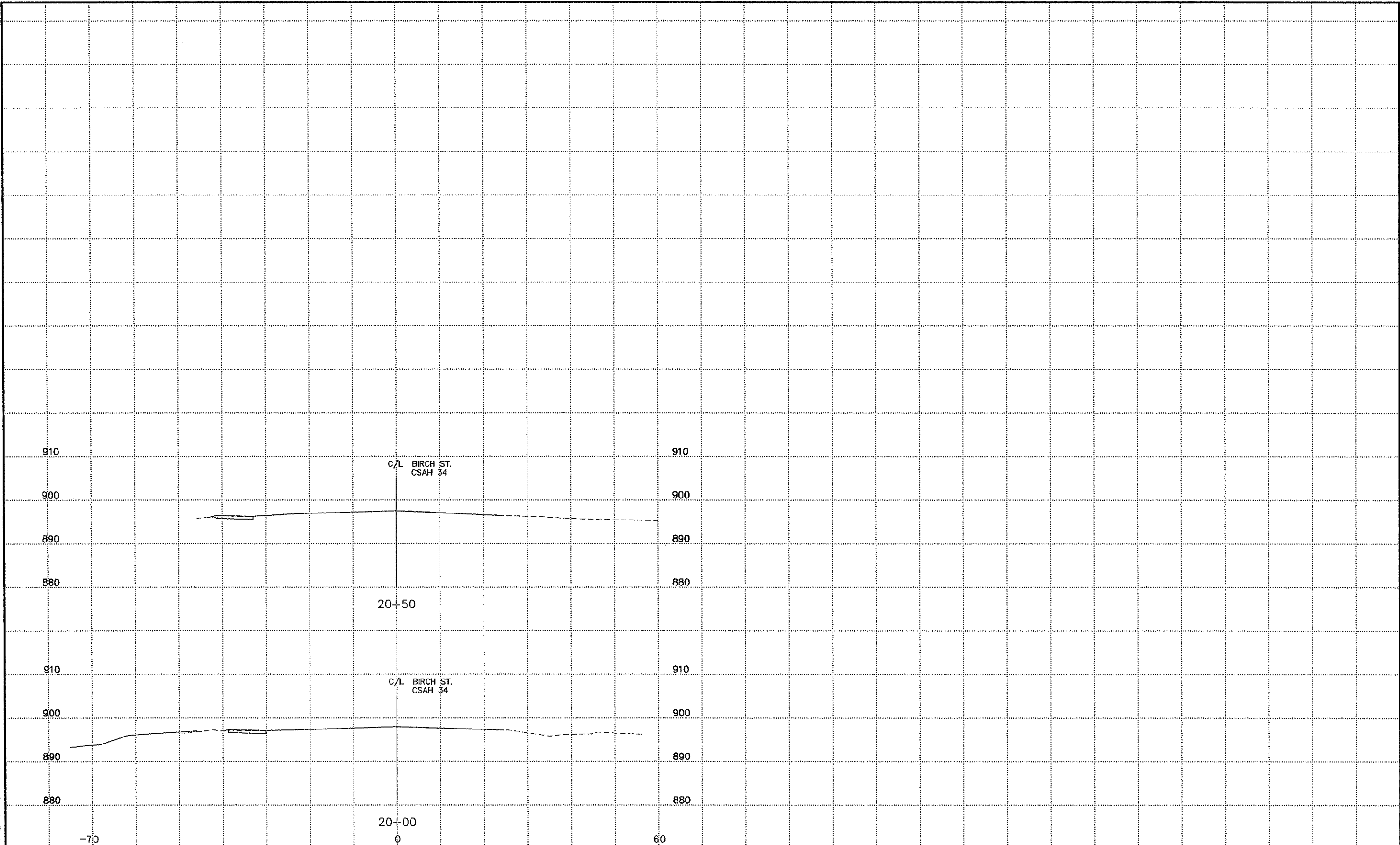
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CITY OF LINO LAKES  
 CROSS SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
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 OF  
 63

File Date: 08/07/2012  
 Drawing Name: K:\gundlach\west148100\Drawings\2011\Signal\_Birch\Ware\Signalization\BirchWare.spl.dwg  
 Author: Zachary, C:\Users\zack\Documents\Projects\Ware\Ware.spl.dwg



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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.  
 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757.

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 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
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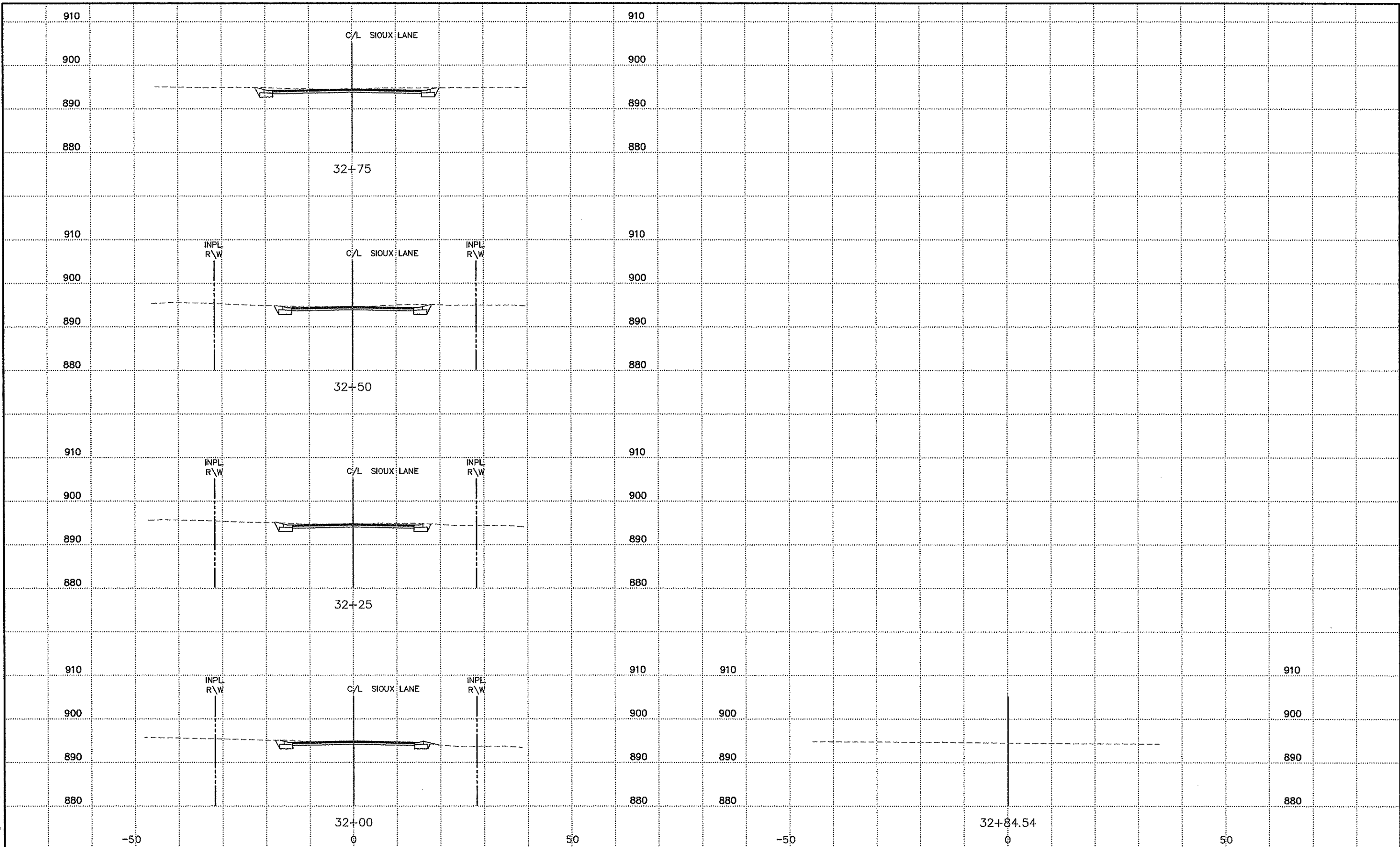
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CITY OF LINO LAKES  
 CROSS SECTIONS  
 BIRCH STREET (CSAH 34)  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 61  
 OF  
 63





File Date: 09/01/2012  
 Drawing Name: X:\projects\14851000\14851000.dwg  
 User: jstuden  
 Plot Date: 07/23/2012

NO	DATE	BY	CKD	APPR	REVISION
	11/2011	FT	FT		XX

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 SIGNATURE: *James E. Studenski*  
 PRINTED NAME: JAMES E. STUDENSKI  
 DATE: 7/23/2012 LIC. NO. 23757

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 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

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 TKDA Proj. 14851.000  
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CITY OF LINO LAKES  
 CROSS SECTIONS  
 SIOUX LANE  
 BIRCH ST (CSAH 34)/WARE RD SIGNALIZATION

SHEET  
 63  
 OF  
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