RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, CONCRETE SURFACING, STORM SEWER, CONCRETE CURB & GUTTER, CONCRETE SIDEWALK, BITUMINOUS PATH, UTILITY IMPROVEMENTS, AND TRAFFIC SIGNAL IMPROVEMENTS.

COUNTY ROAD "G" (T.H. 96)
S.A.P. No. 62-696-01 CTB, S.A.P. 174-020-13

BETWEEN: WHITE BEAR PARKWAY AND OTTER LAKE ROAD
BEGINNING: AT A POINT 1360.25 FEET WEST OF THE SOUTHEAST CORNER, SEC16, T30N, R22W
ENDING: AT A POINT 2884.75 FEET EAST OF THE SOUTHWEST CORNER, SEC15, T30N, R22W

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING RIGHT OF WAY LINE
PROPOSED RIGHT OF WAY LINE
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OF CREEK
CULVERT
GUARDRAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
STONE WALL
HEDGE
RAILROAD CROSSING SIGN
CROSSING GATE
MEANDER CORNER
SLOPE EASEMENT (CONST. LIMITS)
MARSH
DECIDUOUS TREE
CONIFEROUS TREE
WOODS
CATCH BASIN
BRIDGE
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE OR METAL)
WOODEN HUB

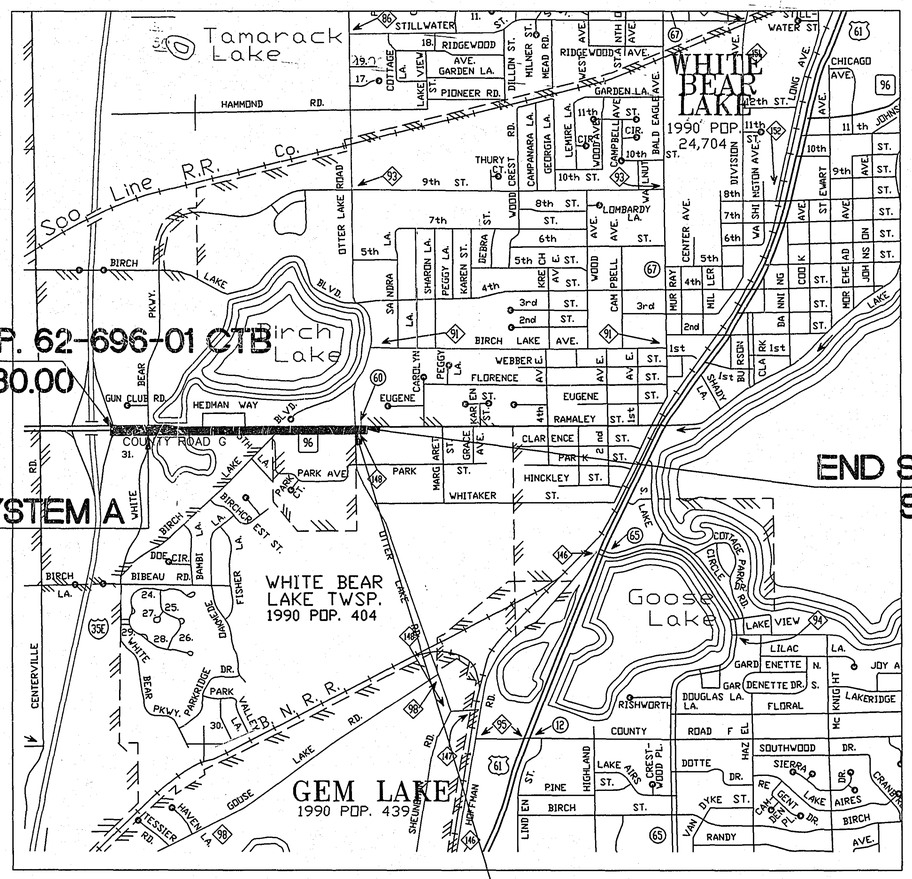
UTILITY SYMBOLS

UTILITY POLE
GUY OR ANCHOR
STREET LIGHT
TELEPHONE PEDESTAL
GAS MAIN
WATER MAIN
TELEPHONE VAULT
ELECTRIC VAULT
TELEPHONE CABLE
ELECTRIC CABLE
STORM SEWER
SANITARY SEWER
SEWER MANHOLE
GATE VALVE
CONTROLLER CABINET
EXISTING HYDRANT
CABLE TELEVISION
TRAFFIC SIGNAL LINE
TRAFFIC SIGNAL HAND HOLE

FOR PLANS AND UTILITIES SYMBOLS SEE MN/DOT TECHNICAL MANUAL.

SCALES IN FEET

PLAN	0 20 40 60 / 10 30 50	
PROFILE HORIZ.	0 20 40 60 / 10 30 50	
PROFILE VERT.	0 10 / 5	
CROSS SECTIONS	0 20 / 10	
GROSS LENGTH	4245 FEET	0.804 MILES
BRIDGE LENGTH	----	----
EXCEPTIONS	----	----
NET LENGTH	4245 FEET	0.804 MILES



-GOVERNING SPECIFICATIONS-

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATION FOR CONSTRUCTION" AS AMENDED BY THE MAY 2, 1994 "SUPPLEMENTAL SPECIFICATIONS" SHALL GOVERN.

DESIGN DESIGNATION

INTERSTATE HIGHWAY 35E
TO OTTER LAKE ROAD

PRESENT ADT (1995)	22600
PROJECTED ADT (2015)	40200
FUNCTIONAL CLASS	HIGH DENSITY ARTERIAL
TRAFFIC LANES	4
PARKING LANES	0
DESIGN LOAD	10 TON
STABILOMETER "R" VALUE	60
DESIGN SPEED	40
CESALS-35 YEAR CUMULATIVE	4127000

BASED ON STOPPING DISTANCE
HEIGHT OF EYE: 3.50 FEET
HEIGHT OF OBJECT: 0.50 FEET

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: PSK
DATE: 12-96

CENTER SECTION 35 T 29 N R 24 W
T 29 N R 24 W 35 36 2 1 R 24 W T 29 N

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES; INDEX OF TABULATIONS
3	STATEMENT OF ESTIMATED QUANTITES; CONSTRUCTION NOTES
4	STATEMENT OF ESTIMATED QUANTITIES; STANDARD PLATES
5-6	TYPICAL SECTIONS
7-8	TABULATIONS
9	EXISTING STRUCTURES AND PROPOSED SANITARY SEWER
10	PROPOSED STORM SEWER CHART
11	STORM SEWER DETAILS
12	EROSION CONTROL
14-15	ENTRANCE, PEDESTRIAN RAMP DETAILS, TIMBER WEIR
16-17	TREE PLANTING DETAILS
18-20	PRECAST WALLS
21-24	CONCRETE PAVING DETAILS
25-27	CONCRETE PAVING LAYOUT
28	ALIGNMENT
29-31	CITY UTILITIES & REMOVALS
32-36	PLAN AND PROFILE COUNTY ROAD G
37	PLAN AND PROFILE BIRCH LAKE BLVD.
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39	PROFILES ENGLISH AND CLARENCE
40-55	CROSS SECTIONS COUNTY ROAD G
56	CROSS SECTIONS BIRCH LAKE BLVD
57-58	CROSS SECTIONS OTTER LAKE ROAD
59-61	LATERAL STORM SEWER PROFILES
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72-73	SIGNAL DETAILS AND MAST ARM SIGNS
74-79	SIGNAL SYSTEM A REVISIONS WHITE BEAR PARKWAY
80-84	SIGNAL SYSTEM B REVISIONS OTTER LAKE ROAD
85-91	PERMANANT SIGNING AND STRIPING LAYOUT
92	CITY UTILITY DETAILS

THIS PLAN CONTAINS 92 SHEETS

DESIGN SQUAD BJ, JL, SB, JC, JF, ML DATE 1/95
DRAWN BY JL, SB, JC, JF, BL DATE 1/95
CHECKED BY BJ - ML DATE 3/13/95

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

David T. Rhull REG. NO. 14257 DATE 3-13-95

RAMSEY COUNTY

RECOMMENDED FOR APPROVAL Robert C. Wilson CONST. ENGR. DATE 3/14/95
RECOMMENDED FOR APPROVAL Kathy Boeddeker DESIGN ENGR. DATE 3/13/95
RECOMMENDED FOR APPROVAL Terry Thomas ENVIR. ENGR. DATE 3/14/95
RECOMMENDED FOR APPROVAL David D. Schrodt MAINT. ENGR. DATE 3/13/95
RECOMMENDED FOR APPROVAL Thomas M. Murphy PLANNER DATE 3/13/95
RECOMMENDED FOR APPROVAL Joseph G. Brownlee R.O.W. ENGR. DATE 3-13-95
RECOMMENDED FOR APPROVAL Daniel E. Soler TRAFFIC ENGR. DATE 3-14-95
RECOMMENDED Wayne Sorensen COORDINATING ENGR. DATE 3/13-95
RECOMMENDED James E. Olson PROJECT MANAGER DATE 3/15/95
RECOMMENDED _____ DATE _____

RECOMMENDED FOR APPROVAL Paul Kurtz COUNTY ENGINEER DATE 3/20/95
APPROVED _____ CHAIR OF THE RAMSEY COUNTY BOARD DATE _____
APPROVED Mark Enebo CITY OF WHITE BEAR LAKE DATE 3-15-95
APPROVED _____ WHITE BEAR TOWNSHIP DATE _____

MINNESOTA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL Robert E. Ramsay DISTRICT STATE AID ENGINEER DATE 3/24/95
RECOMMENDED OFR APPROVAL _____ DATE _____
RECOMMENDED FOR APPROVAL Michael R. Kaehler TRAFFIC ENGINEER DATE 4/7/95
APPROVED Mark Griesche FOR STATE AID ENGINEER DATE 4-12-95

28-143

PLAN REVISIONS

DATE	SHEET NO. & DESCRIPTION	BY
4-13-'95	S.A.P. 174-020-13 : 1,2,3,4	
	EARTHWORK CHART : 9	

S.A.P. 62-660-04 S.A.P 174-123-05 S.A.P 174-020-13

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-01 C.T.B. RAMSEY COUNTY		40% S.A.P. 174-020-13 60% RAMSEY COUNTY LOCAL		100% CITY OF WHITE BEAR		STORM SEWER 84.2% S.A.P.62-696-01 C.T.B. 15.8% CITY OF WH. BEAR LAKE	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		2021.501	MOBILIZATION	LS	1		1							
		2031.501	FIELD OFFICE, TYPE SPECIAL	EACH	1		1							
J		2101.502	CLEARING	TREE	43		43							
J		2101.507	GRUBBING	TREE	44		44							
M	1	2104.501	REMOVE R.C.P. PIPE CULVERT	LF	140		140							
M	1	2104.501	REMOVE C.M.P. PIPE CULVERT	LF	993		993							
I	2	2104.501	REMOVE CONCRETE CURB & GUTTER	LF	2502		2502							
D		2104.501	REMOVE GUARDRAIL	LF	1295		1295							
D		2104.501	REMOVE CHAIN LINK FENCE	LF	100		100							
D		2104.501	REMOVE 10" D.I.P. SANITARY SEWER	LF	961		961							
		2104.502	PAVEMENT MARKING REMOVAL	LF	10032		10032							
I		2104.503	REMOVE CONCRETE SIDEWALK	SF	12352		12352							
I	3	2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	SY	164		164							
D		2104.509	REMOVE MANHOLE	EACH	3		3							
L		2104.511	SAWING CONCRETE PAVEMENT	LF	82		82							
C		2104.513	SAWING BITUMINOUS PAVEMENT	LF	1119		1119							
F		2104.521	SALVAGE WOOD FENCE	LF	220		220							
N		2104.523	SALVAGE CASTING	EACH	3		3							
N		2104.523	SALVAGE 42" R.C. PIPE APRON	EACH	1		1							
	12	2104.523	SALVAGE TRAFFIC SIGNS	EACH	120		120							
		2104.523	SALVAGE DELINEATOR & POST	EACH	6		6							
		2105.501	COMMON EXCAVATION (P)	CY	58813		58813							
		2105.505	MUCK EXCAVATION	CY	17831		17831							
		2105.521	GRANULAR BORROW (LV)	CY	27408		27408							
		2105.522	SELECT GRANULAR BORROW (LV)	CY	18978		18978							
		2105.525	TOPSOIL BORROW (LV)	CY	1554		1554							
		0123.601	STREET SWEEPER	HOUR	20		20							
		0123.601	TRACTOR MOUNTED BACKHOE	HOUR	20		20							
	4	2130.501	WATER	(M)GAL	75		75							
E		2211.503	AGG. BASE, CLASS 6 RECYCLED (CV)(P)	CY	9844		8669		1175					
		2232.501	MILL BITUMINOUS SURFACE (1.5")	SY	3715		3715							
B		2301.502	CONCRETE PAVEMENT STANDARD WIDTH 8"	SY	25093		25093							
B		2301.503	CONCRETE PAVEMENT IRREGULAR WIDTH 8"	SY	9991		9991							
		2301.513	STRUCTURAL CONCRETE - HIGH EARLY	CY	7925		7925							
		2301.529	REINFORCEMENT BAR (EPOXY COATED)	LB	16900		16900							
		2301.538	DOWEL BARS	LF	19642		19642							
		0301.604	PERMANENT TERMINAL HEADERS	LF	94		94							
	14	0331.601	BITUMINOUS DRIVEWAY REPLACEMENT - PRIVATE	SY	250						250			
A		2340.508	TYPE 31 WEARING COURSE MIXTURE	TON	796		150		646					
A		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	892		892							
A		2340.510	TYPE 41 BINDER COURSE MIXTURE	TON	304		304							
A		2340.510	TYPE 31 BINDER COURSE MIXTURE	TON	1848		1202		646					
A		2340.514	TYPE 31 BASE COURSE MIXTURE	TON	530		530							
A		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	973		681		292					
Q		0411.603	CONCRETE BLOCK RETAINING WALL	SF	3202		3202							
		0412.602	RELOCATE MAILBOX	EACH	10		10							
B	8	0412.604	BRICK PAVERS	SF	24861		24861							
		2502.541	4" PERFORATED P.E. DRAIN PIPE	LF	750		750							
O		0501.602	TRASH GUARD FOR 15" RCP APRON	EACH	3								3	
O		0501.602	TRASH GUARD FOR 33" RCP APRON	EACH	1								1	
O		2501.515	15" RC PIPE APRON	EACH	3								3	
O		2501.515	33" RC PIPE APRON	EACH	1								1	
		2501.515	42" LONG RADIUS R.C.P. BENDS	EACH	3		3							
O		2503.541	15" RCP SEWER, DES. 3006, CL V	LF	2827								2827	
O		2503.541	18" RCP SEWER, DES. 3006, CL V	LF	694								694	
O		2503.541	24" RCP SEWER, DES. 3006, CL V	LF	751								751	
O		2503.541	30" RCP SEWER, DES. 3006, CL V	LF	643								643	
O		2503.541	33" RCP SEWER, DES. 3006, CL V	LF	97								97	
O		2503.573	INSTALL 42" R.C.P. APRON	EACH	1		1							

BASIS FOR ESTIMATED QUANTITIES

2211.501 - AGGREGATE BASE - 140 LBS. PER CU. FT.
2340. - BITUMINOUS MIXTURES - 110 LBS. PER SQ. YD.PER INCH THICKNESS
2357.502 - BITUMINOUS MATERIAL FOR TACK COAT ESTIMATED AT 0.05 GAL. PER SQ. YD. PER APPLICATION
2575.531 - FERTILIZER 350 LBS./ACRE

QUANTITY NOTES

1. SHALL INCLUDE APRONS
2. REMOVE TO NEAREST JOINT
3. ALL PAVEMENT REGARDLESS OF THICKNESS
4. FOR DUST CONTROL
5. SHALL INCLUDE GEOTEXTILE FABRIC & GRANULAR FILTER
6. LOCATIONS TO BE DETERMINED BY ENGINEER
7. STA. 396+75 45'LT. TO 76'RT. MH 30 TO MH 31
8. 30% S.A.P 62-696-01 C.T.B.; 70% LOCAL FUNDS WHITE BEAR LAKE
9. 50% S.A.P. 62-696-01 C.T.B.; 25% LOCAL FUNDS WHITE BEAR LAKE; 25% S.A.P. 174-123-05
10. 50% S.A.P. 62-696-01 C.T.B.; 25% S.A.P. 62-660-04; 25% LOCAL FUNDS RAMSEY COUNTY
11. FOR FUTURE SIGNAL SYSTEM AT BIRCH LAKE ROAD
12. SEE SPECIAL PROVISIONS
13. SEE DETAIL SHEET NO. 20
14. SEE SPECIAL PROVISIONS
15. SEE STRUCTURE CHART SHEET 9

INDEX OF TABULATION CHARTS

SHEET NO.	CHART	DESCRIPTION
7	A	BITUMINOUS QUANTITIES
7	B	CONCRETE QUANTITIES
7	C	SAWCUT BITUMINOUS PAVEMENT
7	D	MISCELLANEOUS REMOVALS
7	E	AGGREGATE BASE, CL.6
7	F	SALVAGE & INSTALL WOOD FENCE
7	G	FURNISH & INSTALL WIRE FENCE
8	H	WATER SERVICE WORK
7	I	REMOVE CONC. PAVEMENT , C&G, SIDEWALK
8	J	CLEAR & GRUB
8	K	WATERMAIN ADJUST & RELOCATES
8	L	SAWCUT CONCRETE PAVEMENT
8	M	REMOVE PIPE CULVERT
9	N	EXISTING STRUCTURES
10	O	PROPOSED DRAINAGE CHART
9	P	EARTHWORK SUMMARY
18	Q	CONCRETE BLOCK WALL CHART
8	R	D.I.P. WATERMAIN/INSULATION
8	S	SILT FENCE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Kroll
REG. NO. 14257 DATE 3-20-95

28-143
ESTIMATED QUANTITIES

REVISED: 4-13-'95

S.A.P. NO. 62-696-01 C.T.B. SHEET 2 OF 92 SHEETS

X:\DWGS\TH-96\CHART 3/6/95

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-01 C.T.B. RAMSEY COUNTY		40% S.A.P. 174-020-13 60% RAMSEY COUNTY LOCAL		100% CITY OF WHITE BEAR		STORM SEWER 84.2% S.A.P.62-696-01 C.T.B. 15.8% CITY OF WH. BEAR LAKE	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
O		0503.602	CONNECT TO EXISTING M.H. - STORM SEWER	EACH	1								1	
		0503.602	CONNECT TO EXISTING M.H. - SANITARY SEWER	EACH	6		2				4			
		0503.602	4" TAPPING SADDLE	EACH	2						2			
		0503.603	CONSTRUCT 8' OUTSIDE DROP	LF	8		8							
		0503.603	10' D.I.P. SANITARY SEWER, CL 52	LF	234		234							
		0503.603	8" PVC SANITARY SEWER SDR 26	LF	240						240			
		0503.603	4" PVC SANITARY SEWER, SCHEDULE 40	LF	60						60			
R		0504.602	CONNECT TO EXISTING WATERMAIN	EACH	6		6							
K		0504.602	ADJUST VALVE BOX	EACH	20		20							
K		0504.602	ADJUST CURB STOP BOX	EACH	13		13							
		0504.602	1" CURB STOP AND BOX	EACH	12						12			
		0504.602	1" CORPORATION STOP	EACH	15						15			
		0504.602	CONNECT TO EXISTING WATER SERVICE	EACH	13		3				10			
		0504.602	REMOVE 3/4" CORPORATION STOP	EACH	10						10			
		0504.602	8" WET TAP WITH GATE VALVE AND BOX	EACH	2						2			
		0504.602	OFFSET EXISTING WATERMAIN	EACH	2		2							
		0504.602	6" GATE VALVE & BOX	EACH	3		3							
		0504.602	12" GATE VALVE & BOX	EACH	2		2							
K		0504.602	RELOCATE HYDRANT ASSEMBLY	EACH	2		2							
		0504.602	HYDRANT	EACH	1		1							
	7	0504.603	REPLACE 10" PVC SANITARY SEWER	LF	121						121			
L		0504.603	6" D.I.P. WATERMAIN, CL. 52	LF	300		300							
L		0504.603	12" D.I.P. WATERMAIN, CL. 52	LF	870		870							
		0504.603	8" D.I.P. WATERMAIN CLASS 52	LF	240						240			
		0504.603	1" TYPE K WATER SERVICE	LF	240						240			
L		0504.605	4" POLYSTYRENE INSULATION	SY	267		267							
L		0504.620	DUCTILE IRON FITTINGS	LB	2000		2000							
		2506.502	CONSTRUCT MANHOLE, DES. A OR F- SANITARY	EACH	1						1			
O		2506.502	CONSTRUCT MANHOLE, DES. A OR F- STORM	EACH	2								2	
O		2506.502	CONSTRUCT MANHOLE, DES. G	EACH	2								2	
O		2506.502	CONSTRUCT MANHOLE, DES. 54-4020	EACH	2								2	
O		2506.502	CONSTRUCT CATCH BASIN, DES. 48-4020	EACH	2								2	
O		2506.502	CONSTRUCT CATCH BASIN, DES. 54-4020	EACH	4								4	
O		2506.502	CONSTRUCT MANHOLE, DES. 78-4020	EACH	1								1	
O		2506.502	CONSTRUCT CATCH BASIN, DES. 90-4020	EACH	1								1	
O		2506.502	CONSTRUCT CATCH BASIN, DES. SP-2	EACH	32								32	
O		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES. H	EACH	4								4	
		2506.511	RECONSTRUCT MANHOLE, SANITARY SEWER	LF	52		52							
O	15	2506.521	INSTALL CASTING	EACH	10		10							
		0506.601	TIMBER BAFFLE WEIR	LS	1								1	
O		2506.522	ADJUST FRAME & RING CASTING	EACH	8		8							
	5	2511.501	RANDOM RIPRAP, CLIII	CY	8.3								8.3	
B		2521.501	4" CONCRETE WALK	SF	5100				5100					
B		2531.501	CONC. CURB & GUTTER, DES. B624	LF	14516		14516							
B		2531.501	CONC. CURB & GUTTER, DES. B612	LF	598		598							
B		2531.507	6" CONCRETE DRIVEWAY PAVEMENT-HIGH EARLY	SY	75		75							
B		2531.507	8" CONCRETE DRIVEWAY PAVEMENT-HIGH EARLY	SY	405		405							
	14	2531.507	6" CONCRETE DRIVEWAY PAVEMENT - PRIVATE	SY	80						80			
		0531.602	PEDESTRIAN CURB RAMP	EACH	24		24							
G		2557.501	F & I WIRE FENCE, DES. 48-9322	LF	785		785							
	13	0557.603	WOOD FENCE 6' HIGH	LF	72		72							
F		0557.603	INSTALL WOOD FENCE	LF	220		220							
		0563.601	TRAFFIC CONTROL	LS.	1		1							
		0563.602	48" X 48" SIGN WITH SUPPORTS	UN/DAY	100		100							
		0563.603	2-WAY TEMP. RAISED PVMT. MARKERS-YELLOW	EACH	950		950							
		0563.602	FLASHER TYPE A (LOW INTENSITY)	UN/DAY	200		200							
		0563.602	TYPE III BARRICADES	UN/DAY	100		100							
		2564.602	PAVEMENT MESSAGE (LEFT ARROW) EPOXY	EACH	21		21							
		2564.602	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY	EACH	18		18							

* SEE QUANTITY NOTES AND INDEX TO TABULATION CHARTS SHEET NO. 2

REVISED: 4-13-'95

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

David L. Kroll

REG. NO. 14257 DATE 3-20-95

CONSTRUCTION NOTES

UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.

CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 72 HOURS IN ADVANCE OF DISRUPTION TO SANITARY SEWER AND WATERMAIN SERVICES.

CONTRACTOR SHALL MINIMIZE INTERRUPTION OF SANITARY SEWER AND WATER SERVICE TO ADJACENT PROPERTIES. ANY PROPERTY OUT OF SERVICE LONGER THAN 8 HOURS MUST BE PROVIDED WITH TEMPORARY SERVICE.

NEW SANITARY SEWER AND WATER SERVICE LOCATIONS ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE CITY PRIOR TO CONSTRUCTION. SERVICE LOCATIONS MAY BE ADJUSTED AS REQUESTED BY THE CITY AND AS APPROVED BY THE ENGINEER.

ANY DEWATERING AND OR ANY USE OF TRENCH BOX, SHEETING, SHORING OR OTHER METHODS OR MEANS OF CONSTRUCTION NECESSARY TO COMPLETE CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS OR SLOPE EASEMENTS SHOWN WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.

PROVIDE FOR REMOVAL AND DISPOSAL (OUTSIDE THE CONSTRUCTION ZONE) OF ALL INPLACE STRUCTURES THAT WILL INTERFERE WITH CONSTRUCTION. DISPOSAL OF ITEMS REMOVED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.303.

EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.303 AND 2105.3D

SODDING QUANTITIES ALONG ROADWAY SLOPES ARE BASED ON SODDING LIMITS FROM THE BACK OF THE CURB TO THE CONSTRUCTION LIMITS.

COMPACTION IN GRADING ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SPEC. 2105.3F2 " QUALITY COMPACTION METHOD".

WHEN EXCAVATING ADJACENT TO INPLACE PAVEMENT, NO MATERIAL SHALL BE REMOVED FROM INSIDE AN APPROXIMATE 1/2:1 SLOPED LINE DRAWN DOWNWARD AND OUTWARD FROM THE BOTTOM OF THE INPLACE PAVEMENT.

WHEN CONNECTION TO EXISTING BITUMINOUS PAVEMENT IS REQUIRED, THE EDGE OF EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE PRIOR TO CONSTRUCTING ASPHALT SURFACING.

STABILIZING AGGREGATE SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACE STABILITY AS DETERMINED BY THE ENGINEER. THE MATERIAL SHALL SATISFY THE REQUIREMENTS OF SECTION 3149.2C AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 2105.3G OF THE STANDARD SPECIFICATIONS.

USE TACK COAT BETWEEN ALL BITUMINOUS LIFTS.
COMPACTION OF ALL BITUMINOUS ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "ORDINARY COMPACTION METHOD".

WATER, GAS, ELECTRIC,TELEPHONE, SEWER, AND T.V. CABLE LINES SHOWN ON THE DRAWINGS AND CROSS-SECTIONS ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION, BUT MAY NOT REFLECT ACTUAL LOCATIONS OR ELEVATIONS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCITON WHICH MAY BE AFFECTED BY A UTILITY CONFLICT. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE OWNERS OF ALL KNOWN UTILITIES BEFORE STARTING ANY OPERATIONS AFFECTING THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES. THE CONTRACTORS ATTENTION IS DIRECTED TO SECTION 1507 IN THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BETWEEN CROSSING OF EXISTING MINOR WATER LINES AND PROPOSED STORM SEWER LINES. WHERE CONFLICTS OCCUR, THE WATER LINE SHALL BE RELOCATED WHERE DIRECTED BY THE ENGINEER. METHOD OF COMPENSATION IS COVERED UNDER THE SPECIAL PROVISIONS.

ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.

ALL EXISTING TRAFFIC SIGNS ON THE PROJECT WILL BE SALVAGED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

PEDESTRIAN CURB RAMPS SHALL BE INSTALLED IN ALL STREET RADII. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. RAMPS SHALL BE PER STANDARD PLATE 7036 AND AS MODIFIED BY THE DETAIL IN THIS PLAN.
ALL CONSTRUCTION OUTSIDE R/W SHALL BE COVERED BY SLOPE EASEMENTS.

X:\DWGS\TH-96\CHART 3/6/95

28-143

ESTIMATED QUANTITIES

S.A.P. NO. 62-696-01 C.T.B. SHEET 3 OF 92 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-01 C.T.B. RAMSEY COUNTY		40% S.A.P. 174-020-13 60% RAMSEY COUNTY LOCAL		100% CITY OF WHITE BEAR		STORM SEWER 84.2% S.A.P.62-696-01 C.T.B. 15.8% CITY OF WH. BEAR LAKE	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		0564.603	4" SOLID LINE WHITE-EPOXY	LF	7260		7260							
		0564.603	4" SOLID LINE YELLOW-EPOXY	LF	6175		6175							
		0564.603	4" BROKEN LINE WHITE-EPOXY	LF	1900		1900							
		0564.603	4" BROKEN LINE YELLOW-EPOXY	LF	150		150							
		0564.604	CROSSWALK MARKING, EPOXY	SF	2052		2052							
		2564.531	F & I SIGN PANELS - TYPE C	SF	303		303							
		2564.531	F & I SIGN PANELS, - TYPE D	SF	93		93							
	9	2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM A	SIGSYS	1		1							
	10	2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM B	SIGSYS	1		1							
		0565.601	EMERGENCY VEHICLE PRE-EMPTION SYSTEM A	LS	1						1			
		0565.601	EMERGENCY VEHICLE PRE-EMPTION SYSTEM B	LS	1						1			
	11	0565.602	HANDHOLE TYPE C	EACH	10		10							
	11	0565.603	4" RIGID STEEL CONDUIT	LF	255		255							
	11	0565.603	2" RIGID STEEL CONDUIT	LF	120		120							
	6	2571.501	SPRUCE, COLORADO BLUE 5' HT B&B	TREE	46		46							
	6	2571.502	ASH, SUMMIT 3" CAL B&B	TREE	25		25							
	6	2571.502	HONEYLOCUST, IMPERIAL 3" CAL B&B	TREE	16		16							
	6	2571.502	LINDEN, GREENSPIRE 2.5" CAL B&B	TREE	16		16							
	6	2571.502	MAPLE, NORWAY 2.5" CAL B&B	TREE	25		25							
S		2573.503	SILT FENCE, PREASSEMBLED	LF	1025		1025							
S		2573.505	FLOTATION SILT FENCE	LF	750		750							
		2575.505	SODDING, LAWN & BOULEVARD	SY	15770		15770							
		2575.532	COMMERCIAL FERT., ANALYSIS 10-20-20	LB	1155		1155							
		2581.501	4" REMOVABLE PREF. PLASTIC MARKING-YELLOW	LF	19000		19000							
		2581.501	4" REMOVABLE PREF. PLASTIC MARKING-WHITE	LF	1000		1000							

* SEE QUANTITY NOTES AND INDEX TO TABULATION CHARTS SHEET NO. 2.
* ADDITIONAL CASTING REQUIREMENT INFORMATION TO BE FOUND ON SHEETS 9, 10, AND 11.

STANDARD DETAIL PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
1103 J	TYPICAL DOWEL BAR ASSEMBLY
1141 D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
1150 P	CONSTRUCTION OF HEADER JOINTS
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR REINFORCED CONCRETE PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133 B	RIPRAP AT RCP OUTLETS
3145 E	CONCRETE PIPE TIES
4000 J	MANHOLE OR CATCH BASIN DESIGN A
4005 K	MANHOLE OR CATCH BASIN DESIGN F
4006 K	MANHOLE OR CATCH BASIN DESIGN G AND H
4010 G	CONCRETE SHORT CONE AND ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 G	MANHOLE OR CATCH BASIN FOR USE UNDER TRAFFIC LOADS
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 E	COVER CASTING FOR MANHOLE
4140 D	SPECIAL GRATE CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7000 E	INTEGRANT CURBS
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7036 D	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
7100 G	CONCRETE CURB & GUTTER
7105 C	CONCRETE MEDIAN (MOUNTABLE TYPE)
7111 H	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
7112 B	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADE
8110 C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
8117 F	PRECAST CONCRETE HANDHOLE
8120 J	POLE FOUNDATION (PA85 & PA90)
8121 C	TRANSFORMER BASE WITH POLE BASE PLATE
8123 C	POLE & MAST (LUMINAIRE AND TRAFFIC LIGHTS)
8124 D	MAST ARM SIGNAL HEAD MOUNTS
8126 E	PA100 POLE FOUNDATION
8130 D	SAW CUT LOOP DETECTORS
9102 D	TURF ESTABLISHMENT AREAS
9322 J	CHAIN LINK FENCE

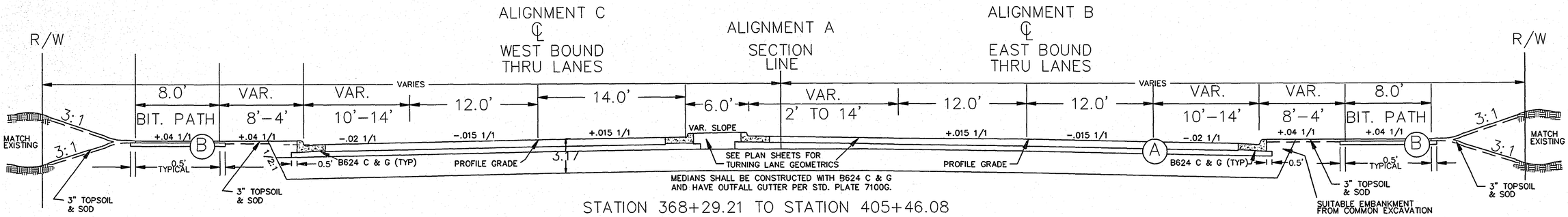
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David F. Bohall
REG. NO. 14257 DATE 3-20-95

REVISED: 4-13-'95

28-143
ESTIMATED QUANTITIES

S.A.P. NO. 62-696-01 C.T.B. SHEET 4 OF 92 SHEETS

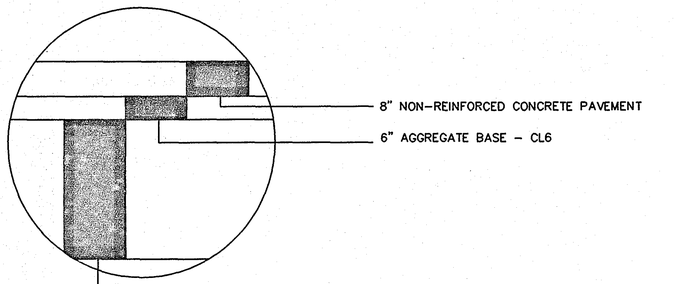
X:\DWGS\TH-96\CHART 3/13/95



STATION 368+29.21 TO STATION 405+46.08
WHITE BEAR PARKWAY TO OTTER LAKE ROAD

NOTE: 1.5' CLEAR ZONE REQUIRED FROM FACE OF CURB TO ANY FIXED OBJECT

DETAIL A



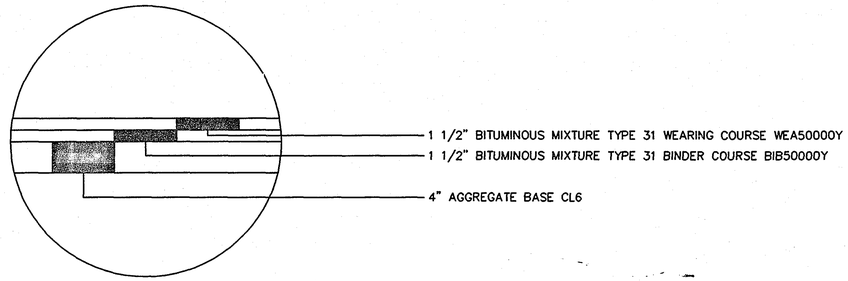
STA. 369+40 TO STA. 381+00
2' SUBGRADE CORRECTION
2.0' SELECT GRANULAR BORROW

STA. 381+00 TO STA. 386+00
5' SUBGRADE CORRECTION
2.0' SELECT GRANULAR BORROW
3.0' GRANULAR BORROW

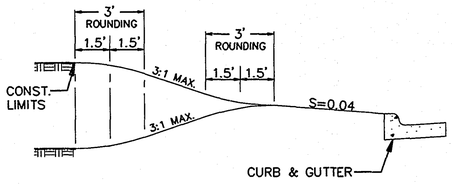
STA. 386+00 TO STA. 405+50
2.0' SUBCUT FOR UNIFORMITY AND COMPACTION

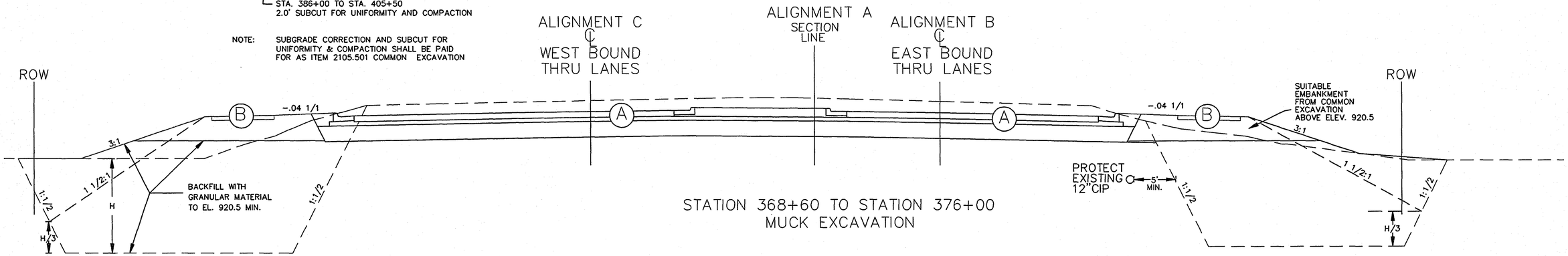
NOTE: SUBGRADE CORRECTION AND SUBCUT FOR UNIFORMITY & COMPACTION SHALL BE PAID FOR AS ITEM 2105.501 COMMON EXCAVATION

DETAIL B



SLOPE ROUNDING DETAIL





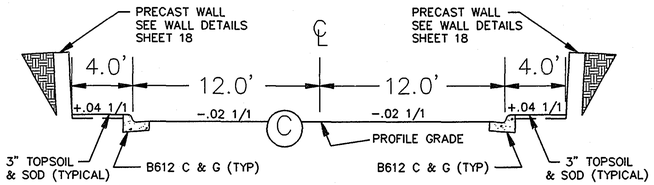
STATION 368+60 TO STATION 376+00
MUCK EXCAVATION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David R. Rholl
REG. NO. 14257 DATE 3-20-95

28-143

S.A.P. 62–696–01 C.T.B. SHEET NO. 5 OF 92 SHEETS

G:\DWGS\TH-96\TYPICAL 3/08/95

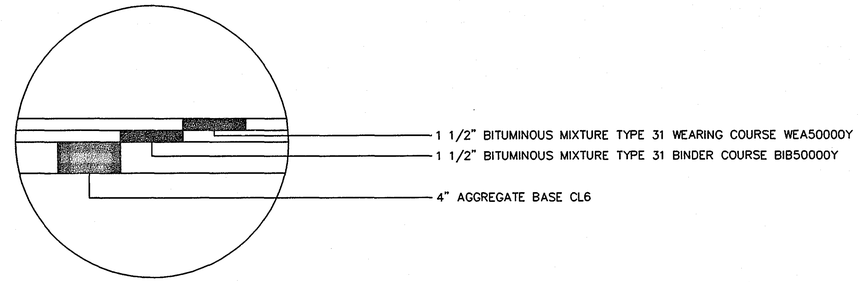


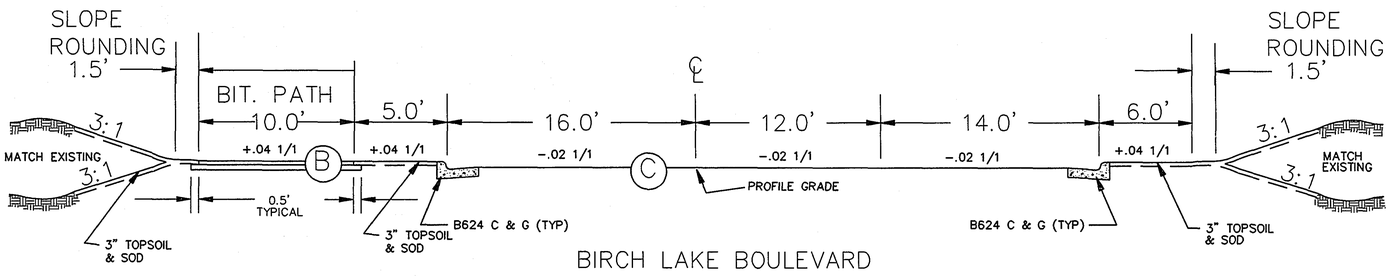
ENGLISH STREET
(HEDMAN WAY WEST)

CLARENCE STREET
(HEDMAN WAY EAST)

NOTE: BITUMINOUS COURSES EXCEEDING 2 1/2" IN THICKNESS SHALL BE PLACED IN NOT LESS THAN TWO APPROXIMATELY EQUAL LIFTS.

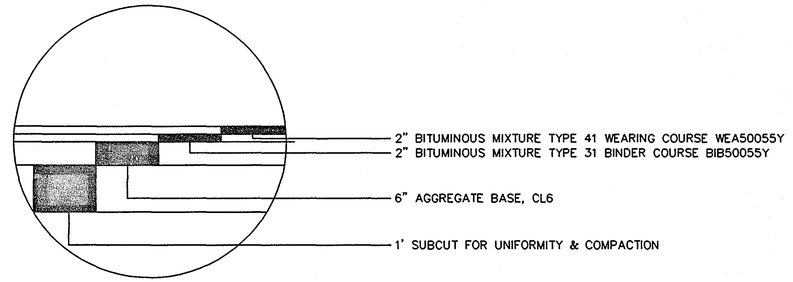
DETAIL B

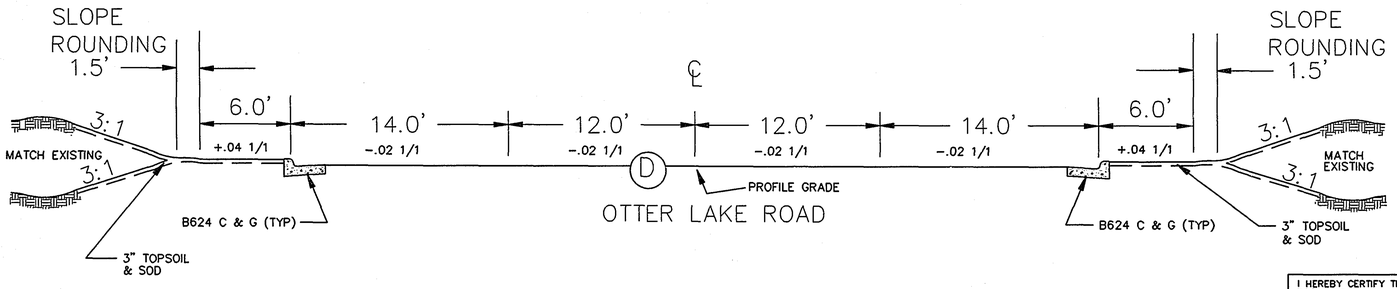




BIRCH LAKE BOULEVARD

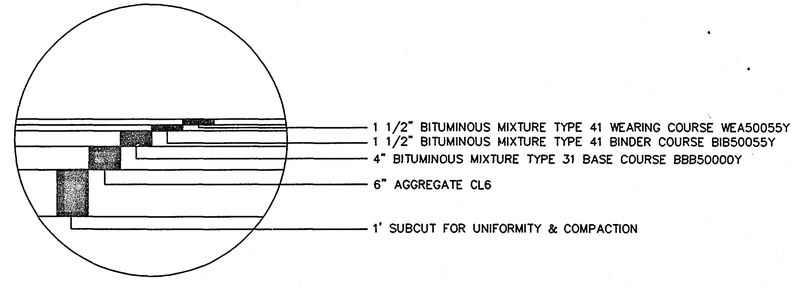
DETAIL C





OTTER LAKE ROAD

DETAIL D



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David A. Kroll
REG. NO. 14257 DATE 3-20-96

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 6 OF 92 SHEETS

G:\DWGS\TH-96\TYPICAL 3/08/95

A

BITUMINOUS QUANTITIES SUMMARY – TONS OF MIXTURE

STATION TO STATION	LOCATION	SIDE STREETS				BIKE PATH		ENTRANCES	
		TYPE 31 31 BASE	TYPE 31 BINDER	TYPE 41 BINDER	TYPE 41 WEAR	TYPE 31 BINDER	TYPE 31 WEAR	TYPE 31 BINDER	TYPE 31 WEAR
363+30 TO 367+42	OVERLAY				338				
368+50	LT		72		72				
369+44 TO 377+05	RT					80	80		
369+44 TO 377+05	LT					80	80	4	4
377+05 TO 385+10	RT					79	79	35	35
377+05 TO 385+10	LT		40		40	84	84	7	7
385+10 TO 393+43	RT					77	77	6	6
385+10 TO 393+43	LT					80	80	24	24
393+43 TO 401+54	RT					88	88	4	4
393+43 TO 401+54	LT							38	38
401+54 TO 405+50	RT					33	33		
401+54 TO 405+50	LT							20	20
BIRCH LAKE BLVD.			214		214				
OTTER LAKE ROAD		530		304	228	45	45	12	12
BYPASS			361						
BIT. MIX FOR PATCHING			441						
TOTALS		530	1052	304	892	646	646	150	150
TACK COAT	LT & RT	388				272		66	

B

CONCRETE & BRICK PAVER QUANTITIES

STATION TO STATION	LOCATION	CURB & GUTTER B612 L.F.	CURB & GUTTER B624 L.F.	SIDEWALK 4" S.F.	BRICK PAVER (MEDIAN) S.F.	DRIVEWAY 6" S.Y.	DRIVEWAY 8" S.Y.	PAVEMENT STANDARD WIDTH 8" S.Y.	PAVEMENT IRREGULAR WIDTH 8" S.Y.
363+30 TO 367+90	LT & RT		920		5220				
368+29 TO 369+44	LT & RT								1661
369+44 TO 377+05	RT		825					2363	819
369+44 TO 377+05	LT		765					2605	896
369+44 TO 377+05	MEDIAN		1460		10221				
377+05 TO 385+10	RT		972				238	3055	498
377+05 TO 385+10	LT		795					2687	1171
377+05 TO 385+10	MEDIAN		1125		4254				
ENGLISH STREET	LT	254				42			
385+10 TO393+43	RT		1413				167	2779	922
385+10 TO393+43	LT		873					3057	937
385+10 TO393+43	MEDIAN		1326		5166				
CLARENCE STREET	LT	344				33			
393+43 TO 401+54	RT		811					2411	986
393+43 TO 401+54	LT		925	3520		44		2679	843
393+43 TO 401+54	MEDIAN		824		4182		243		
401+54 TO 405+50	RT		826					1796	553
401+54 TO 405+50	MEDIAN		656	1580		14		1661	705
TOTALS		598	14516	5100	24861	75	405	25093	9991

C

SAWCUT BITUMINOUS PAVEMENT

STATION	LOCATION	QUANTITY L.F.	REMARKS
STA. 368+29	℄	80	BEGIN CONSTRUCTION
STA. 369+50	LT & RT	180	WHITE BEAR PKWY ①
STA. 376+50	RT	33	ENTRANCE
STA. 378+10	LT	24	ENGLISH STREET
STA. 378+20	RT	130	PARKING LOT
ENGLISH STREET ENT.	LT	12	ENTRANCE
STA. 381+25	RT	30	ENTRANCE
STA. 385+30	LT	24	CLARENCE STREET
STA. 385+30	RT	45	ENTRANCE
STA. 387+40	LT	12	ENTRANCE
STA. 387+60	LT	12	ENTRANCE
STA. 389+00	LT	12	ENTRANCE
STA. 389+50	LT	12	ENTRANCE
STA. 390+50	RT	38	BIRCH LAKE ROAD
STA. 0+84 BIRCH LAKE	LT	10	BIT. PATH
STA. 4+38 BIRCH LAKE	RT	10	BIT. PATH
PARK AVE.	RT	30	PARK AVE.
STA. 391+50	LT	26	ENTRANCE
STA. 393+50	LT	100	ENTRANCE
STA. 394+20	LT	34	ENTRANCE (S.A.)
STA. 395+75	LT	30	ENTRANCE (S.A.)
STA. 396+90	RT	12	ENTRANCE
STA. 399+00	LT	20	ENTRANCE
STA. 399+50	LT	18	ENTRANCE
STA. 400+90	LT	12	ENTRANCE
STA. 401+80	LT	15	ENTRANCE
STA. 403+80	LT	15	ENT. (OTTER LAKE)
STA. 404+00	LT	40	OTTER LAKE ROAD
STA. 404+00	RT	40	OTTER LAKE ROAD
STA. 404+30	LT	18	ENT. (OTTER LAKE)
STA. 404+50	RT	20	ENT. (OTTER LAKE)
STA. 405+50	RT	25	ENT. (OTTER LAKE)
TOTALS		1119	

① SAWCUT AS DIRECTED FOR SANITARY SEWER CONSTRUCTION

D

MISCELLANEOUS REMOVALS

ITEM	STATION	LOCATION	QUANTITY
SANITARY SEWER PIPE	369+25 TO 372+05	RT	280
SANITARY SEWER PIPE	372+05 TO 375+05	RT	300
SANITARY SEWER PIPE	375+05 TO 378+10	RT	305
SANITARY SEWER PIPE	378+10 TO 378+12	RT & LT	76
TOTALS			961
SANITARY SEWER MANHOLE	372+05	RT	1
SANITARY SEWER MANHOLE	375+05	RT	1
SANITARY SEWER MANHOLE	378+10	RT	1
TOTALS			3
GUARDRAIL–3 CABLE	370+00 TO 376+00	RT	600
GUARDRAIL–3 CABLE	370+00 TO 376+35	LT	635
GUARDRAIL–PLATE BEAM	376+50	LT	60
TOTALS			1295
CHAIN LINK FENCE	379+00 TO 380+00	LT	100
TOTALS			100

G

FURNISH & INSTALL WIRE FENCE

ITEM	STATION	LOCATION	QUANTITY
WIRE FENCE, DES. 48-9322	378+25	LT	80
WIRE FENCE, DES. 48-9322	378+25 TO 383+50	LT.93' TO LT.173'	525
WIRE FENCE, DES. 48-9322	385+05±	LT.90' TO LT.180'	90
WIRE FENCE, DES. 48-9322	385+45±	LT.90' TO LT.180'	90
EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD			
TOTALS			785

E

AGGREGATE BASE CLASS 6 (CV)

LOCATION AREA	LOCATION	QUANTITY
		C.Y.
CONCRETE ROADWAY	LT & RT	7015
SIDE STREETS	LT & RT	922
ENTRANCES	LT & RT	231
5' CONCRETE WALK	LT	154
8' BITUMINOUS PATH	LT	392
8' BITUMINOUS PATH	RT	629
BYPASS		230
WHITE BEAR PARKWAY	LT	206
BIRCH LAKE ROAD–BIKE PATH	RT	65
TOTALS		9844

F

SALVAGE & INSTALL WOOD FENCE

ITEM	STATION	LOCATION	QUANTITY
WOOD FENCE	376+80 TO 378+00	LT	120
WOOD FENCE	385+52 TO 386+30	LT	100
TOTALS			220

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Kroll
REG. NO. 14257 DATE 3-30-95

I

REMOVE CONCRETE PAVEMENT, C & G, SIDEWALK

STATION	LOCATION LT/RT	PAVEMENT S.Y.	CONCRETE C & G L.F.	SIDEWALK S.F.
STA. 364+30 TO 368+86	LT & RT		960	4020
STA. 378+30 (ENG.ST.ENT.)	LT	42		
STA. 385+50 (ENT.)	LT	34		
STA. 408+50 (ENT.)	LT	60		
STA. 369+50	RT		60	
STA. 369+50	LT		60	
STA. 369+60 TO 375+22 MEDIAN	LT & RT		1232	7982
STA. 385+30 MEDIAN	RT		80	175
STA. 394+00	LT		20	
STA. 394+50	LT		30	
STA. 395+50	LT		30	
STA. 396+00	LT		30	
STA 364+30 TO 368+86 MEDIAN	LT & RT		960	4020
OTTER LAKE ROAD STA. 12+10 (ENT)	RT	28	960	4020
TOTALS		164	2502	12352

28-143

CHARTS

S.A.P. NO. 62-696-01 C.T.B. SHEET 7 OF 92 SHEETS

G:\DWGS\TH96\CHART 3/10/95

J

CLEAR & GRUB CHART

STATION	LOCATION	DESCRIPTION	CLEAR	GRUB
370+33	RT. 43	6" COTTONWOOD	1	1
371+95	RT. 45	5" COTTONWOOD	1	1
372+64	LT. 67	6" WILLOW	1	1
372+67	LT. 67	4" WILLOW	1	1
372+87	RT. 48	5" COTTONWOOD	1	1
374+39	LT. 47	5" COTTONWOOD	1	1
374+90	LT. 58	6" WILLOW	1	1
374+90	LT. 60	6" WILLOW	1	1
374+92	LT. 58	6" WILLOW	1	1
374+92	LT. 60	4" WILLOW	1	1
374+92	RT. 46	4" COTTONWOOD	1	1
375+08	RT. 47	6" COTTONWOOD	1	1
375+10	RT. 48	5" COTTONWOOD	1	1
375+19	RT. 54	4" COTTONWOOD	1	1
375+30	RT. 54	6" COTTONWOOD	1	1
376+43	LT. 47	4" ELM	1	1
376+45	LT. 47	4" ELM	1	1
378+30	LT. 74	10" SILVER MAPLE	1	1
378+30	LT. 76	8" SILVER MAPLE	1	1
378+32	LT. 74	6" SILVER MAPLE	1	1
378+32	LT. 76	6" SILVER MAPLE	1	1
379+06	LT. 49	10" WHITE POPPLE	1	1
379+06	LT. 51	10" WHITE POPPLE	1	1
379+08	LT. 48	8" WHITE POPPLE	1	1
379+08	LT. 50	8" WHITE POPPLE	1	1
379+10	LT. 47	8" WHITE POPPLE	1	1
379+10	LT. 49	8" WHITE POPPLE	1	1
379+10	LT. 51	4" WHITE POPPLE	1	1
379+28	LT. 48	10" WHITE POPPLE	1	1
379+30	LT. 48	8" WHITE POPPLE	1	1
381+37	LT. 40	4" WHITE POPPLE	1	1
382+40	LT. 66	4" SPRUCE	1	1
382+45	LT. 65	4" SPRUCE	1	1
382+52	LT. 66	4" SPRUCE	1	1
382+73	LT. 55	6" APPLE	1	1
382+99	LT. 55	6" APPLE	1	1
384+10	LT. 65	10" SPRUCE	1	1
385+05	LT. 78	12" SPRUCE	1	1
385+45	LT. 85	14" PINE	1	1
387+11	RT. 50	4" LOCUST	1	1
387+11	RT. 52	4" LOCUST	1	1
391+90	RT. 52	STUMP		1
398+36	LT. 67	4" BOXELDER	1	1
404+35	LT. 135	12" SPRUCE	1	1
TOTALS			43	44

K

WATERMAIN–ADJUSTS & RELOCATES

STATION	HYDRANT OR GATE VALVE	LOCATION SECTION LINE	ADJUST	RELOCATE
369+05	GATE VALVE	LT. 113	1	
369+14	GATE VALVE	RT. 40	1	
369+14	GATE VALVE	RT. 48	1	
396+17	GATE VALVE	RT. 42	1	
377+92	GATE VALVE	RT. 38	1	
378+00	GATE VALVE	LT. 72	1	
378+37	GATE VALVE	LT. 52	1	
381+11	GATE VALVE	LT. 54	1	
381+78	GATE VALVE	LT. 55	1	
385+44	HYDRANT	LT. 65		1
385+19	GATE VALVE	LT. 77	1	
392+01	GATE VALVE	LT. 56	1	
392+82	GATE VALVE	LT. 71	1	
392+92	GATE VALVE	LT. 53	1	
396+47	GATE VALVE	LT. 54	1	
396+82	GATE VALVE	LT. 54	1	
402+70	HYDRANT	LT. 65		1
403+71	GATE VALVE	LT. 53	1	
403+80	GATE VALVE	LT. 90	1	
404+24	GATE VALVE	LT. 70	1	
404+52	GATE VALVE	RT. 53	1	
404+73	GATE VALVE	RT. 60	1	
TOTALS			20	2

REVISED 1-25-95

R

12" D.I.P. WATERMAIN CL52

STATION	LOCATION FROM SECTION LINE–ALIGNMENT A	QUANTITY
STA. 378+50 TO 387+00	LT. 54	870 L.F.
12" GATE VALVE & BOX ON EACH END		2 EACH
8" D.I.P. WATERMAIN CL52		
STA. 388+57	LT. 50' TO RT. 70'	120 L.F.
STA. 400+07	LT. 50' TO RT. 70'	120 L.F.
TOTAL		240
WITH WET TAP AND GATE VALVE & BOX		2 EACH
6" D.I.P. WATERMAIN CL52		
STA. 378+03	LT. 52' TO LT. 200'	150 L.F.
STA. 385+23	LT. 52' TO LT. 202'	150 L.F.
TOTAL		300
6" GATE VALVE AND BOX		
STA. 378+55	LT. 62'	1 EACH
STA. 385+44	LT. 62'	1 EACH
STA. 402+70	LT. 56'	1 EACH
TOTAL		3
HYDRANT		
STA. 378+55	LT. 66'	1 EACH
4" POLYSTYRENE INSULATION		
STA. 393+00 TO 397+00	LT. 52'	267 S.Y.

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

David L. Rhull

REG. NO. 14257 DATE 3-20-96

S

FLOTATION SILT CURTAIN

STATION	LOCATION	QUANTITY
STA. 369+60 TO 372+35	160' LT.	275'
STA. 369+60 TO 374+35	100' RT.	475'
TOTAL		750'
EXACT LOCATION SHALL BE DETERMINED IN THE FIELD.		

SILT FENCE PREASSEMBLED

(FILL SLOPES)

STA. 375+50 TO 376+50	RT. 65'±	100 L.F.
STA. 376+00 TO 376+50	LT. 110'±	50 L.F.
STA. 397+00 TO 399+50	RT. 48'±	250 L.F.
STA. 397+00 TO 398+75	LT. 88'±	175 L.F.
SUBTOTAL		575'

(STORM SEWER CONSTRUCTION)

45 STRUCTURES	@10L.F. EACH	450 L.F.
TOTAL		1025'

L

SAWCUT CONCRETE PAVEMENT

STATION	LOCATION	QUANTITY L.F.	REMARKS
STA. 378+30	LT	16	ENTRANCE
STA. 385+50	LT	30	ENTRANCE
STA. 408+50	LT	20	ENTRANCE
OTTER LAKE			
STA. 12+10	RT	16	ENTRANCE
TOTALS		82	

M

REMOVE PIPE CULVERTS

STATION	LOCATION	C.M. PIPE CULVERT L.F.	R.C. PIPE CULVERT L.F.
375+80	LT & RT	105	
376+50	RT	60	
376+60	LT	45	
378+20	LT	80	
381+20	RT	46	
385+40	LT	50	
385+45	RT	70	
387+50	LT	65	
389+00	LT	35	
389+50	LT	35	
390+50	RT	120	
394+25	LT	72	
395+75	LT	55	
396+50	LT		50
398+10	LT & RT		90
399+00	LT	35	
399+50	LT	35	
400+90	LT	30	
401+75	LT	35	
405+65	LT	20	
TOTALS		993	140

H

WATER SERVICES EXISTING

STATION	LOCATION	ADJUST CURB BOX	REMOVE CORPORATION STOP	1" CORPORATION STOP	1" TYPE "K" COPPER	1" CURB STOP & BOX	CONNECT TO EXISTING
386+95	LT	1	1	1	20	1	1
387+45	LT	1	1	1	20	1	1
388+00	LT	1	1	1	20	1	1
388+85	LT	1	1	1	20	1	1
389+95	LT	1	1	1	20	1	1
398+65	LT	1	1	1	20	1	1
399+80	LT	1	1	1	20	1	1
400+55	LT	1	1	1	20	1	1
401+50	LT	1	1	1	20	1	1
402+65	LT	1	1	1	20	1	1
ENGLISH STREET							
13+40	LT 20	1		1			1
13+60	RT 30	1		1			1
CLARENCE STREET							
41+40	RT 30	1		1			1
NEW WATER SERVICES							
397+15	LT 52			1	20	1	
397+80	LT 52			1	20	1	
TOTALS		13	10	15	240	12	13

28-143 CHARTS

S.A.P. NO. 62–696–01 C.T.B. SHEET 8 OF 92 SHEETS

X:\DWGS\TH-96\CHART 3/6/95

N

EXISTING STRUCTURE CHART

STATION	LOCATION SECTION LINE	NUMBER	TYPE	DESIGN	PROFILE	ELEVATION ORIGINAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B./M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONST. C.B./M.H. L.F.	INSTALL CASTING ASSEMBLY	REMARKS
368+65	RT. 77	1	AP.	STORM	927.17		----	918.49				OK
368+71	LT. 102	2	AP.	STORM	927.11		----	916.56				OK
368+98	RT. 81	3	C.B.	STORM	926.84	927.44	----	920.24				OK
369+22	RT. 32	4	M.H.	SAN.	926.61	926.24	926.04	922.74	1			122 L.F. 10" DIP FROM MH 4 TO MH 4A
369+22	LT. 201	5	M.H.	SAN.	926.57	925.01	925.00	914.41	1			112 L.F. 10" DIP FROM MH 4A TO MH 5
369+31	LT. 100	6	M.H.	STORM	926.52	925.69	----	916.59	1			PROTECT DURING SANITARY SEWER CONST.
369+68	LT. 102	6A	AP.	STORM	926.14		----	916.00				SALVAGE & INSTALL 42" AP, F & I 3 EACH 42" LONG RADIUS BENDS
369+49	RT. 81	7	C.B.	STORM	926.33	927.22	----	920.82				OK
372+08	RT. 32	8	M.H.	SAN.	923.96	924.51	----	922.01				REMOVE; SALVAGE CASTING
375+08	RT. 32	9	M.H.	SAN.	926.06	925.92	----	921.12				REMOVE; SALVAGE CASTING
377+86	RT. 79	10	M.H.	SAN.	928.84	930.98	----	922.88				OK
378+10	RT. 32	11	M.H.	SAN.	929.07	926.44	----	920.54				REMOVE; SALVAGE CASTING
378+12	LT. 44	12	M.H.	SAN.	929.09	928.02	928.32	920.52	1			PLUG PIPE TO SOUTH
379+68	RT. 66	13	M.H.	GAS	928.89	929.31	----	921.31				OK
379+96	RT. 66	14	M.H.	GAS	928.75	929.41	----	921.51				OK
381+26	RT. 80	15	M.H.	SAN.	928.11	928.07	----	920.77				OK
381+61	RT. 82	16	M.H.	SAN.	927.92	928.91	----	921.21				OK
381+66	LT. 44	17	M.H.	SAN.	927.91	931.58	927.13	919.78		7	1	ROTATE CONE
384+68	LT. 44	18	M.H.	SAN.	928.92	929.95	928.15	919.16		5	1	ROTATE CONE
388+67	LT. 44	19	M.H.	SAN.	930.51	931.99	929.78	918.29		7	1	ROTATE CONE – SEE PROPOSED CHART FOR NEW SERVICE
390+27	RT. 185	20	M.H.	SAN.	931.49	933.34	932.18	924.64		7	1	
392+32	LT. 44	21	M.H.	SAN.	931.61	930.84	930.83	917.64		2	1	NEW TOP SLAB W/OFFSET HOLE (27")
392+76	LT. 111	22	M.H.	TEL.	931.27	932.75	----	923.05				OK
395+20	LT. 85	23	C.B.	STORM	929.39	930.86	----	927.06				OK
395+49	LT. 65	24	VAULT	IRR.		931.01	----					OK – PRIVATE SPRINKLER SYSTEM –SEE SPECIAL PROVISIONS
396+18	LT. 44	25	M.H.	SAN.	926.46	928.85	925.69	916.85		6	1	
396+26	LT. 87	26	M.H.	STORM	928.34	931.15	----	924.75				OK
396+36	LT. 112	27	C.B.	STORM	928.21	930.85	----	927.15				OK
396+37	LT. 39	28	AP.	STORM	928.17		----	928.17				REMOVE – INCLUDE IN L.F. OF R.C.P. CULVERT REMOVAL
396+63	RT. 110	29	M.H.	STORM	927.74	927.47	----	919.32				REMOVE; SALVAGE CASTING
396+75	LT. 44	30	M.H.	SAN.	927.55	926.55	926.78	916.65	1			REPLACE 10" PVC SAN SEWER MH 30 TO MH 31
396+76	RT. 76	31	M.H.	SAN.	927.53	926.96	----	916.97	1			CONNECT TO EXISTING MANHOLES
396+95	RT. 90	32	AP.	STORM	927.23		----	921.05				OK
398+07	RT. 40	33	AP.	STORM	925.95		----	922.82				REMOVE – INCLUDE IN L.F. OF R.C.P. CULVERT REMOVAL
398+09	LT. 41	34	AP.	STORM	925.93		----	922.32				REMOVE – INCLUDE IN L.F. OF R.C.P. CULVERT REMOVAL
398+10	RT. 60	35	M.H.	SAN.	925.93	923.41	925.83	915.61		5	1	
400+17	LT. 44	36	M.H.	SAN.	926.54	925.25	926.51	916.06	1			SEE PROPOSED CHART FOR NEW SERVICE
404+14	LT. 44	37	M.H.	SAN.	930.29	931.06	929.52	915.16		5	1	
404+14	LT. 395	38	M.H.	SAN.	930.29	928.54	----	914.54				OK
404+24	RT. 182	39	M.H.	SAN.	930.34	929.81	929.65	919.01	1			
405+61	LT. 27	40	M.H.	SAN.	931.04	932.06	930.57	924.66		2	1	
405+68	RT. 28	41	M.H.	SAN.	931.06	931.95	930.56	922.95		6	1	
									8 EA	52 LF	10 EA	TOTALS

PROPOSED SANITARY SEWER STRUCTURE CHART

STATION	LOCATION SECTION LINE	NUMBER	TYPE	DESIGN	PROFILE	ELEVATION ORIGINAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B./M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONST. C.B./M.H. L.F.	INSTALL CASTING ASSEMBLY	REMARKS
369+82	LT. 90	4A	M.H.	A OR F	926.61	----	925.70	914.84	----	---	---	CONSTRUCT OUTSIDE DROP SEE CITY DETAIL SHEET 52 FOR CONSTRUCTION REQUIREMENTS. INCLUDE CASTING IN PRICE OF M.H.
388+67	LT. 44	19						918.29				INSTALL 120 LF 8" PVC. CONNECT TO EXISTING MH
400+17	LT. 44	36						916.06				INSTALL 120 LF 8" PVC. CONNECT TO EXISTING MH
397+05	LT. 44											INSTALL 30 LF 4" PVC SERVICE WITH 4" TAPPING SADDLE
397+90	LT. 44											INSTALL 30 LF 4" PVC SERVICE WITH 4" TAPPING SADDLE

P

EARTHWORK SUMMARY

REVISED: 4-13-'95

LOCATION	EXCAVATION COMMON CU. YD.	EXCAVATION MUCK CU. YD.	EMBANKMENT GRANULAR CU. YD.	EMBANKMENT SELECT GRANULAR CU. YD.	EMBANKMENT REGULAR CU. YD.	EMBANKMENT UNIFORMITY & COMPACTION CU. YD.
369+00 to 386+00	25,983			12,652	5,781	
369+00 to 376+00		17,831	17,539			
386+00 to 407+00	28,371				1,679	13,929
BIRCH LAKE BLVD.	1,553				78	514
OTTER LAKE RD.	2,906				138	1,151
BY–PASS			733			
SUBTOTALS	58,813 E.V.	17,831 E.V.	18,272 C.V.	12,652 C.V.	7,676 C.V.	15,594 C.V.
			X 1.5	X 1.5	X 1.3	X 1.3
TOTALS			27,408 LV 18987 CY (LV)		9,979 E.V.	20,272 E.V.
COMMON EXCAVATION	58,813 E.V.					
EMBANKMENT	–30,251 E.V.	(REGULAR 9,979 E.V. + U & C 20272 E.V.)				
	28,562 CY E.V.	EXCESS COMMON EXCAVATION				

EXCESS COMMON EXCAVATION AND MUCK EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE COST FOR DISPOSAL SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND NO ADDITIONAL COMPENSATION WILL BE PAID OUTSIDE THE PRICE BID FOR COMMON EXCAVATION AND MUCK EXCAVATION.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Ruhl
REG. NO. 14257 DATE 3-20-95

REVISED: 4-13-'95

28-143

PROPOSED SANITARY SEWER STRUCTURE CHART
EXISTING STRUCTURE CHART

S.A.P. NO. 62–696–01 C.T.B. SHEET 9 OF 52 SHEETS

X:\DWGS\TH-96\CHART 3/6/95

PROPOSED STORM SEWER STRUCTURE CHART

STATION	EB ℄ OFFSET ALIGN B	NUMBER	TYPE DESIGN	CASTING ASSEMBLY	ELEVATION			F & I R.C. PIPE SEWER					DRAINS TO		REMARKS
					PROFILE	NEW GRATE OR RING	C.B./M.H. OR APRON INVERT	15"	18"	24"	30"	33"	STRUCT. NO.	INVERT ELEVATION	
372+42	LT. 115	201	APRON 15"	--	923.90	--	917.00								
372+42	LT. 82.5	202	C.B. SP-2	D	923.90	923.23	917.14	27					201	917.00	
372+42	RT. 21.5	203	C.B. SP-2	D	923.90	923.31	917.65	104					202	917.14	
372+42	RT. 58	204	APRON 15"	--	923.90	--	917.8	31					203	917.65	
375+58	RT. 52	205	APRON 33"	--	926.56	--	918.0								INSTALL CL III RIPRAP
376+15	RT. 25.5	206	C.B. 54-4020	B	927.13	926.46	918.31					57	205	918.0	
376+50	RT. 6	207	M.H. 54-4020	A	927.48	927.36	918.51					40	206	918.31	
376+15	LT. 67.5	208	C.B. SP-2	B	927.13	926.54	922.50	93					206	922.04	
378+23	RT. 6	209	M.H. 54-4020	A	929.17	929.05	919.53				173		207	918.51	
378+23	LT. 95	210	C.B. SP-2	B	929.17	928.6	923.76	101					209	923.26	
378+00	LT. 95	211	C.B. SP-2	B	928.98	928.6	924.00	24					210	923.76	
378+26	RT. 50	212	C.B. SP-2	B	929.19	928.7	924.54	44					209	924.32	
378+00	RT. 50	213	C.B. SP-2	B	928.98	928.7	924.80	26					212	924.54	
380+76	RT. 25.5	214	C.B. 54-4020	B	928.35	927.68	920.82				254		209	919.53	
381+11	RT. 25	214A	M.H. A OR F	A	928.18	927.66	920.98				35		214	920.82	
380+76	LT. 67.5	215	C.B. SP-2	B	928.35	927.76	922.74	93					214	920.82	
381+11	RT. 50	216	C.B. SP-2	B	928.18	927.5	924.54	25					214A	922.25	
381+41	RT. 50	217	C.B. SP-2	B	929.34	927.5	924.69	29					216	924.54	
382+92	RT. 23.5	218	C.B. 54-4020	D	927.31	926.68	921.89				181		214A	920.98	INSTALL 4" PE PIPE DRAIN
382+92	LT. 67.5	219	C.B. SP-2	D	927.31	926.64	922.34	91					218	921.89	INSTALL 4" PE PIPE DRAIN
382+92	RT. 50	220	S.D. DES. H	C	927.31	928.0	924.0	27					218	921.89	
384+72	RT. 25.5	221	C.B. 54-4020	B	928.97	928.30	922.79			180			218	921.89	
385+09	RT. 25	221A	M.H. A OR F	A	929.34	928.82	922.98		37				221	922.79	
384+72	LT. 67.5	222	C.B. SP-2	B	928.97	928.38	923.71	93					221	922.79	
385+15	LT. 95	223	C.B. SP-2	B	929.40	928.4	924.22	51					222	923.71	
385+38	LT. 95	224	C.B. SP-2	B	929.64	928.4	924.45	23					223	924.22	
385+09	RT. 50	225	C.B. SP-2	B	929.34	929.5	925.62	25					221A	923.30	
385+55	RT. 50	226	C.B. SP-2	B	929.81	929.5	925.89	46					225	925.62	
388+24	RT. 25.5	227	C.B. SP-2	D	930.33	929.66	924.55		315				221A	922.98	
388+24	LT. 67.5	228	C.B. SP-2	D	930.33	929.74	925.02	93					227	924.55	
389+86	LT. 67.5	229	C.B. SP-2	B	931.24	930.65	927.15	22					229A	927.04	
389+86	LT. 90	229A	S.D. DES. H	C	931.24	931.0	927.04	163					228	925.02	
390+18	RT. 66	230	C.B. SP-2	D	931.44	930.5	927.43	41					231	927.23	
390+59	RT. 66	231	C.B. SP-2	D	931.69	930.5	927.23	47					232	927.00	
390+74	RT. 22	232	M.H. DESIGN G	A	931.78	931.34	927.00	306					233	924.16	
393+80	RT. 21.5	233	C.B. SP-2	B	930.46	929.87	924.16	255					235	921.61	
393+80	LT. 67.5	234	C.B. SP-2	B	930.46	929.87	925.00	89					233	924.16	
396+35	RT. 21.5	235	C.B. 90-4020	B	928.19	927.60	920.06			71			237	919.32	
396+35	LT. 71.5	236	C.B. SP-2	B	928.19	927.52	923.35	93					235	922.43	
396+26	LT. 87	26	M.H. EXISTING	--	928.33	931.15	924.75	40					236	923.35	MAKE SUITABLE CONNECTION
396+63	RT. 87	237	M.H. 78-4020	A	927.74	927.47	919.32								REPLACES EXISTING MH 29
398+80	RT. 21.5	239	C.B. 48-4020	D	925.71	925.12	921.29			245			235	920.06	
398+80	LT. 62.5	240	C.B. SP-2	D	925.71	925.12	921.70	84					239	921.29	
398+50	LT. 93	241	APRON 15"	--	925.75	----	924.0	36					240	921.70	
401+35	RT. 25.5	242	C.B. 48-4020	B	927.81	927.14	923.16			255			239	921.29	
401+35	LT. 59.5	243	C.B. SP-2	B	927.81	927.22	924.00	85					242	923.16	
401+35	LT. 88	244	S.D. DES. H	C	927.81	927.3	924.3	30					243	924.00	
402+94	LT. 88	245	S.D. DES. H	C	929.52	928.0	925.10	159					244	924.3	
403+79	LT. 129	246	C.B. SP-2	D	930.12	929.0	925.57	95					245	925.10	
404+30	LT. 129	247	C.B. SP-2	D	930.38	929.0	925.82	51					246	925.57	
403+67	RT. 24	248	M.H. DESIGN G	A	930.06	929.58	924.52		232				242	923.16	
403+80	RT. 81	249	C.B. SP-2	D	930.13	928.7	924.82		59				248	924.52	
403+30	RT. 81	250	C.B. SP-2	D	929.85	928.7	925.07		51				249	924.82	
405+10	RT. 21.5	251	C.B. SP-2	B	930.78	930.19	925.57	100					250	925.07	
405+10	LT. 63.5	252	C.B. SP-2	B	930.78	930.11	926.00	85					251	925.57	

CASTING ASSEMBLIES –INCLUDE IN BID PRICE FOR NEW STRUCTURES

A = MH = RING CASTING MN/DOT 700-8, STD. PLATE 4101, : COVER CASTING MN/DOT NO. 716 STD. PLATE 4110
B = SP2 = NEENAH 3067V OR EQUIVALENT
C = SD = RING CASTING MN/DOT 700-7, STD PLATE 4101, : COVER CASTING MN/DOT NO. 720 STD. PLATE 4140
D = SP2 = NEENAH 3067C OR EQUIVALENT

STRUCTURES

DESIGN SP-2 = DETAIL SHEET 11
DESIGN W-4020 = MN/DOT STANDARD PLATE 4020, DETAIL SHEET 11
DESIGN H = MN/DOT STANDARD PLATE 4006
DESIGN A OR F = MN/DOT STANDARD PLATE 4000 OR 4005

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
Katherine Rautstein
REG. NO. 21864 DATE 3/20/95

28-143
PROPOSED STORM SEWER

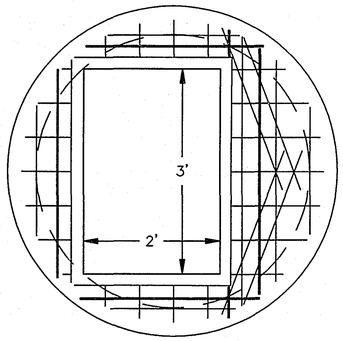
S.A.P. NO. 62-696-01 C.T.B. SHEET 10 OF 92 SHEETS

X:\DWGS\TH-96\CHART 3/07/95

CATCH-BASIN DESIGN W-4020

ADD 2 BARS ON EACH SIDE 6" O.C. 5'6" LONG CUT TO SUIT ROUNDING

ADD 3 BARS ON EACH END 6" O.C. 4' LONG ADD 2 BARS ON EACH CORNER 3" O.C. 4' LONG CUT TO SUIT ROUNDING



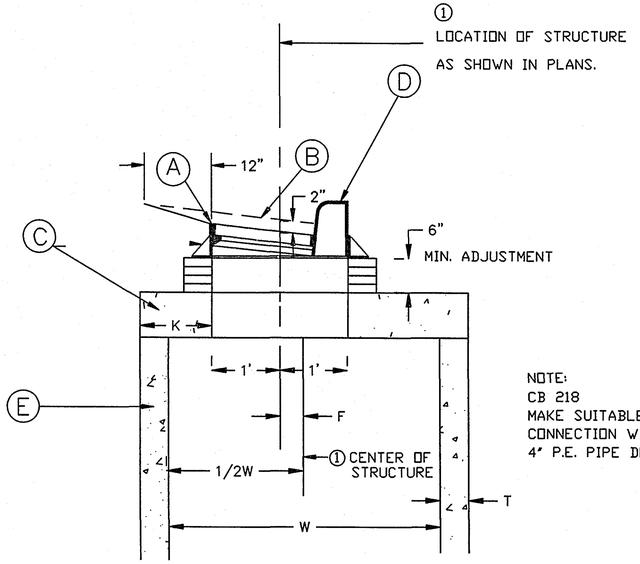
BOTTOM BARS GRADE 60 NO. 6 6"O.C. EACH WAY

CONCRETE 5000 P.S.I.

CATCH BASIN COVER SLAB

STRUCTURE DIMENSION CHART

W	48"	54"	60"	72"
K	14"	14"	14"	13"
F	3"	7"	11"	18"



SECTIONAL VIEW CATCH BASIN

NOTES

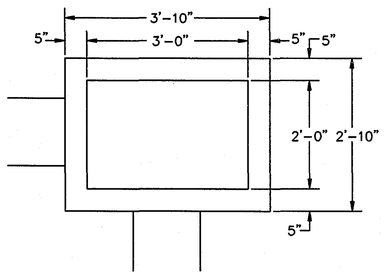
STRUCTURE SHALL BE CONSTRUCTED PER MN/DOT STD. PLATE 4020 WITH COVER SLAB MODIFIED AS DETAILED ABOVE.

- (A) ELEVATION OF STRUCTURE
- (B) NORMAL GUTTER GRADE
- (C) SEE COVER SLAB DETAIL ABOVE
- (D) CASTING ASSEMBLY - SEE DETAIL FOR DESIGN SP-2
- (E) CATCH BASIN - DESIGN 4020 SEE STD. PLATE NO. 4020

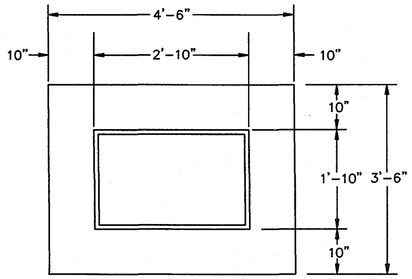
① CENTER OF STRUCTURE FOR STAKING PURPOSES SHALL BE LOCATION OF STRUCTURE AS SHOWN IN PLANS, PLUS DISTANCE F.

G:\DWGS\TH96\DETAILS 3/7/95

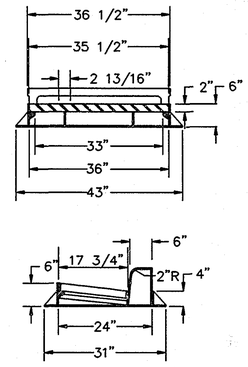
CATCH-BASIN DESIGN SP-2



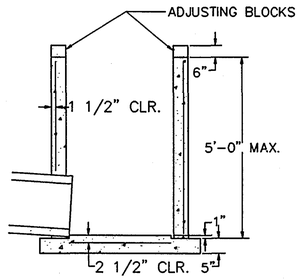
CATCH BASIN PLAN



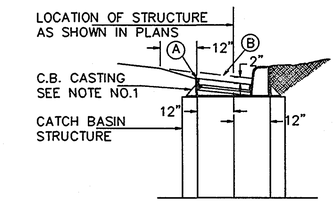
BASE SLAB PLAN



NOTE:
CB 219
MAKE SUITABLE
CONNECTION WITH
4" P.E. PIPE DRAIN.



SECTIONAL VIEW CATCH BASIN & BASE SLAB



(A) ELEVATION OF STRUCTURE COMPUTED AT THIS LOCATION

(B) NORMAL GUTTER GRADE

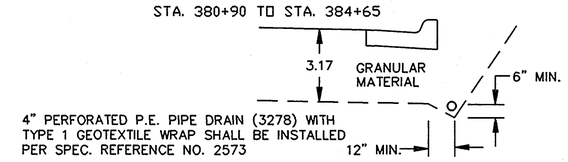
INSTALLATION DETAIL

NOTES

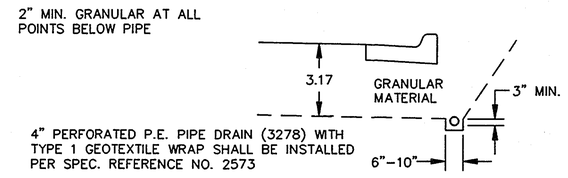
1. TO BE USED WITH NEENAH R-3067-V OR EQUIVALENT.
2. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.
3. ALTERNATE CAST-IN-PLACE BASE SLAB CAN BE USED.
4. INSTALL AS PER MN/DOT STANDARD PLATE NO. 7111
5. REINFORCING: SINGLE LINE STEEL WIRE FABRIC. W3.0 X W3.0 HAVING AN AREA OF NOT LESS THAN 0.21 SQ. IN. PER FOOT.
6. ALTERNATE CONSTRUCTION - THE CATCH BASIN MAY BE CONSTRUCTED OF BLOCKS OR BRICKS CONFORMING TO THE REQUIREMENTS OF MN/DOT SPEC. 2506 AND AS DIRECTED BY THE ENGINEER.
7. ADJUSTING RINGS SHALL BE LIMITED TO PROVIDE A MAXIMUM THICKNESS OF 6" INCLUDING MORTAR THICKNESS.

4" LONGITUDINAL P.E. PIPE DETAIL (SUBCUT DRAINAGE)

STA. 380+90 TO STA. 384+65



OPTION NO. 1



OPTION NO. 2

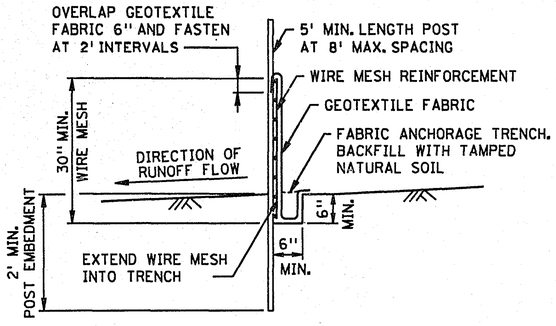
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

David L. Bholl

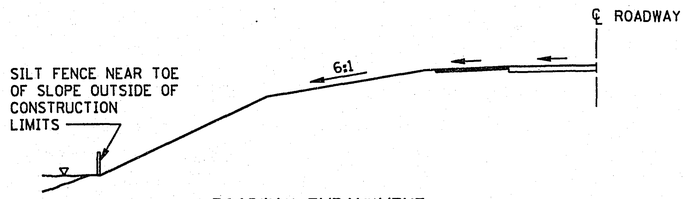
REG. NO. 14257 DATE 3-20-96

28-143

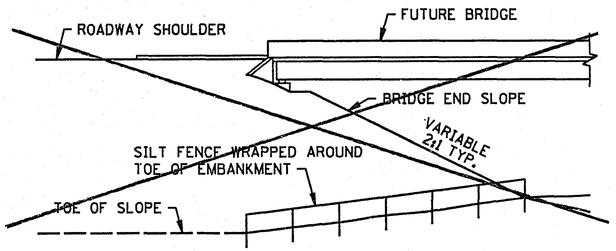
STORM SEWER DETAILS



SILT FENCE DETAIL



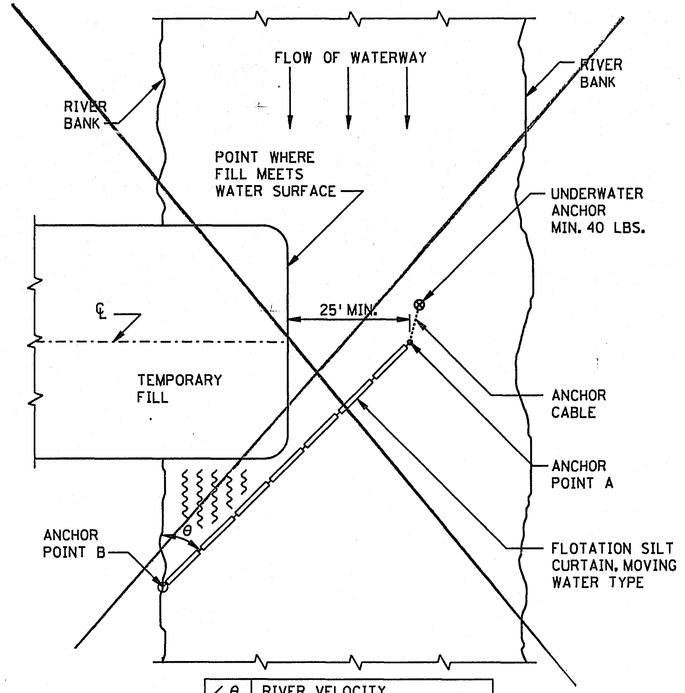
ROADWAY EMBANKMENT



~~BRIDGE ABUTMENT~~

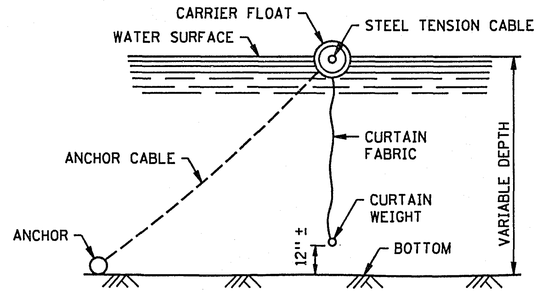
SILT FENCE OR BALE CHECK
TO PROTECT ADJACENT CRITICAL AREAS

~~TEMPORARY DRAIN ON FILL SLOPE~~

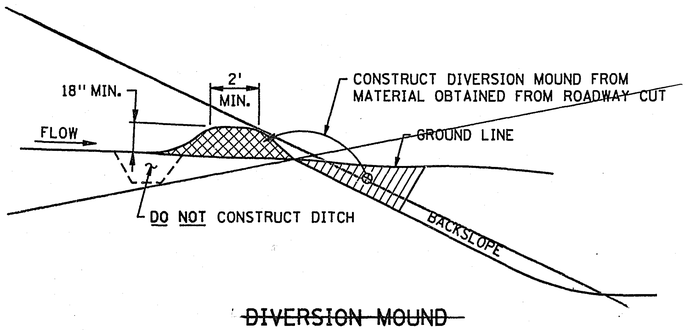


∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 5 FT./SEC.
35°	MODERATE, 5 TO 7 FT./SEC.

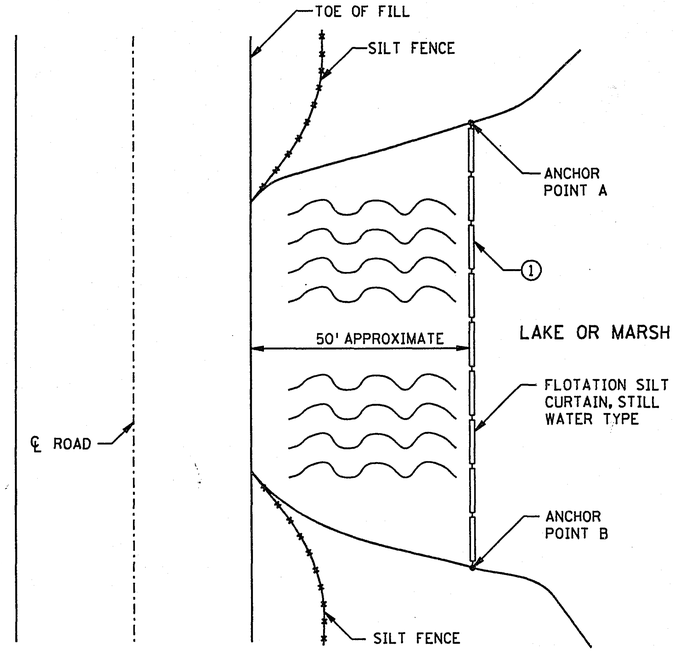
~~PLAN VIEW OF SILT CURTAIN - MOVING WATER~~



FLOTATION SILT CURTAIN

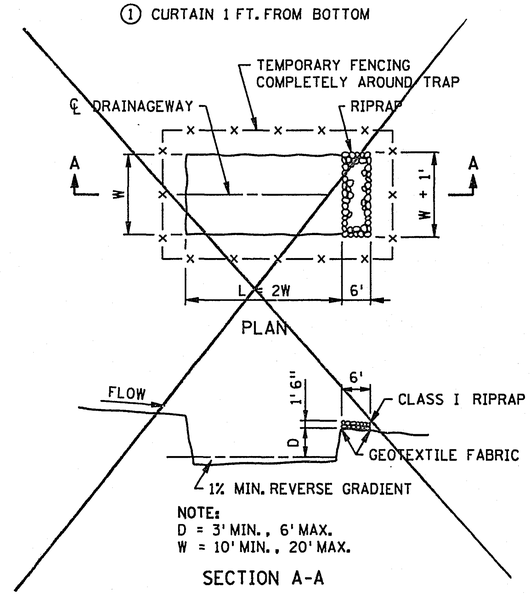


~~DIVERSION MOUND~~



PLAN VIEW OF SILT CURTAIN - STILL WATER

① CURTAIN 1 FT. FROM BOTTOM



NOTE:
D = 3' MIN., 6' MAX.
W = 10' MIN., 20' MAX.

SECTION A-A

~~TEMPORARY SEDIMENT TRAP~~

28-143

STANDARD SHEET NO.	TITLE:
5-297.405 (1 OF 2)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: AUGUST 2, 1993	

S.A.P. NO. 62-696-01 C.T.B. SHEET NO. 12 OF 92 SHEETS

SERVER CA645i:/USR/STANDARDS FILE NAME S405IH93.SPN

THIS SHEET HAS BEEN INTENTIONALLY LEFT BLANK

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

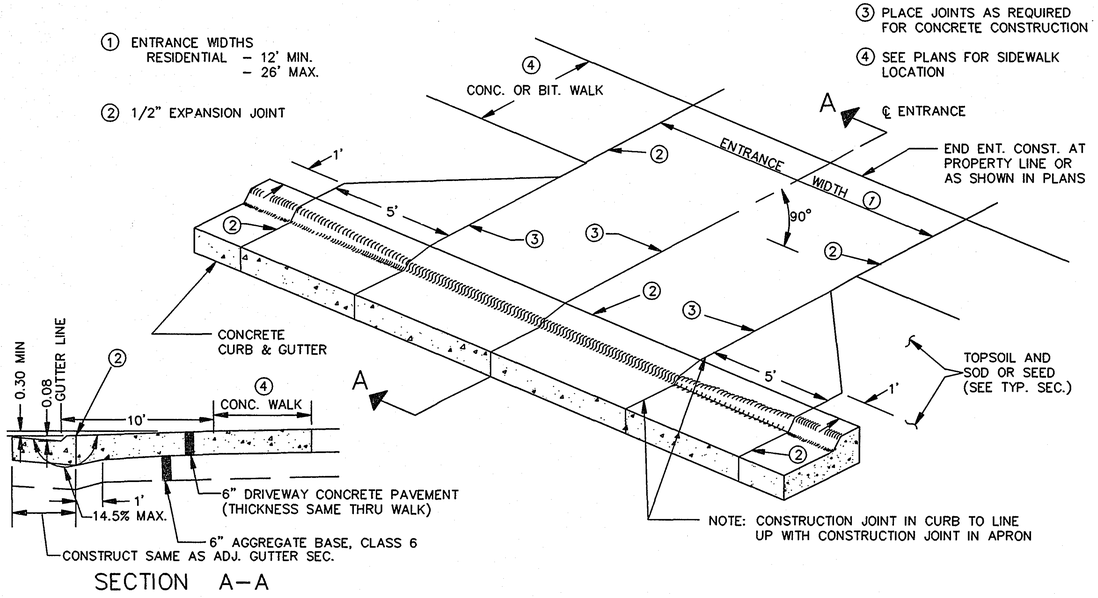
David L. Rhull

REG. NO. 14257 DATE 3-20-96

28-143

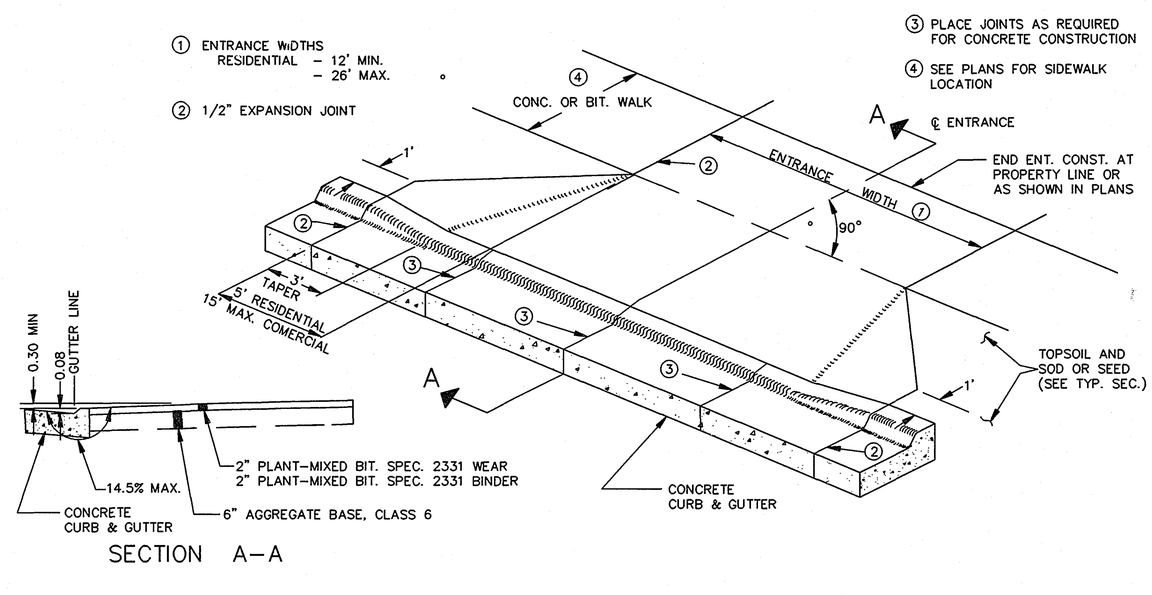
G:\DWGS\TH-96\TYPICAL 3/08/95

RESIDENTIAL CONCRETE ENTRANCE DETAIL

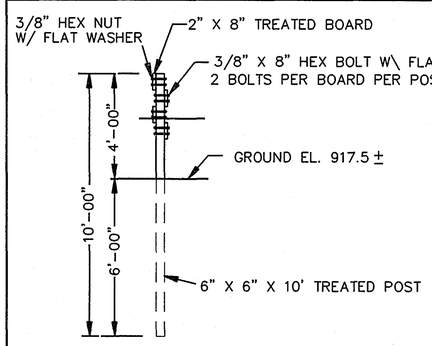


SECTION A–A

RESIDENTIAL BITUMINOUS ENTRANCE DETAIL



SECTION A–A



SECTION A–A

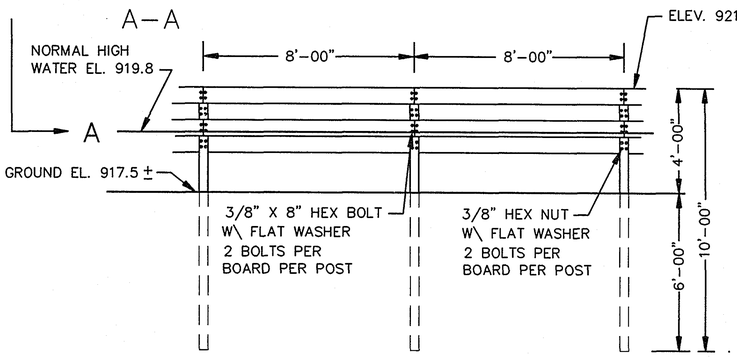
ESTIMATED QUANTITIES

(176) 3/8" X 8" HOT DIP GALVANIZED BOLT ASSEMBLIES– (USING 2" X 8" X 8' BOARDS)

(12) 6" X 6" X 10' CREOSOTE TREATED DOUGLAS FIR POST

(352 L.F.) CREOSOTE TREATED DOUGLAS FIR TREATED BOARDS

THE SUMMARY OF QUANTITIES IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. ANY ADDITIONAL ITEMS REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.



WOOD BAFFLE WEIR

STA.375+00 RT. 51 TO STA 375+75 RT. 100

NOTES

PAYMENT SHALL BE MADE AS ITEM 0506.601 TIMBER BAFFLE WEIR, WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED. SEE SPECIAL PROVISIONS.

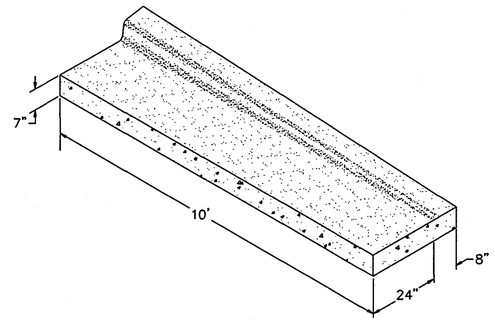
LENGTH OF WEIR SHALL BE 88 L.F. EXACT LOCATION SHALL BE DETERMINED IN THE FIELD.

BOTH ENDS OF WEIR SHALL BE BURIED INTO SLOPES A MINIMUM OF 2' SO THAT FLOW WILL NOT BE ALLOWED TO PASS AROUND WEIR.

ALL LUMBER SHALL BE CREOSOTE TREATED DOUGLAS FIR. MN/DOT SPEC. 3491.

ALL HARDWARE SHALL BE HOT DIP GALVANIZED AND COMPLY WITH MN/DOT SPEC. 3392 AND ASTM A 153.

TRANSITION B624 VERTICAL TAPER



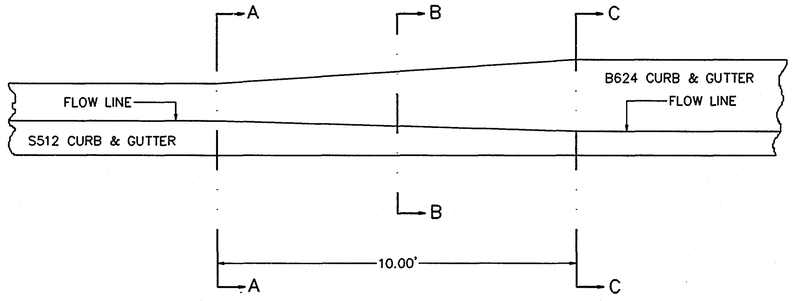
FOR OTHER DIMENSIONS SEE STD. PLATE NO. 7100

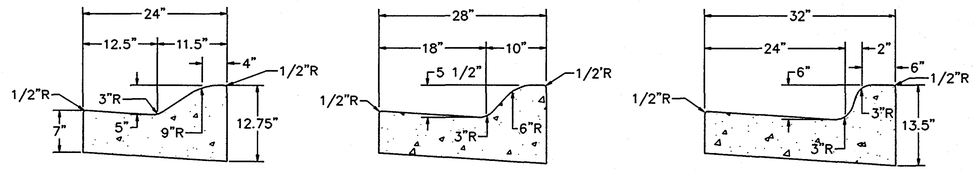
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

David L Rholl

REG. NO. 14257 DATE 3-20-96

CURB TRANSITION – B624 C & G TO S512 C & G



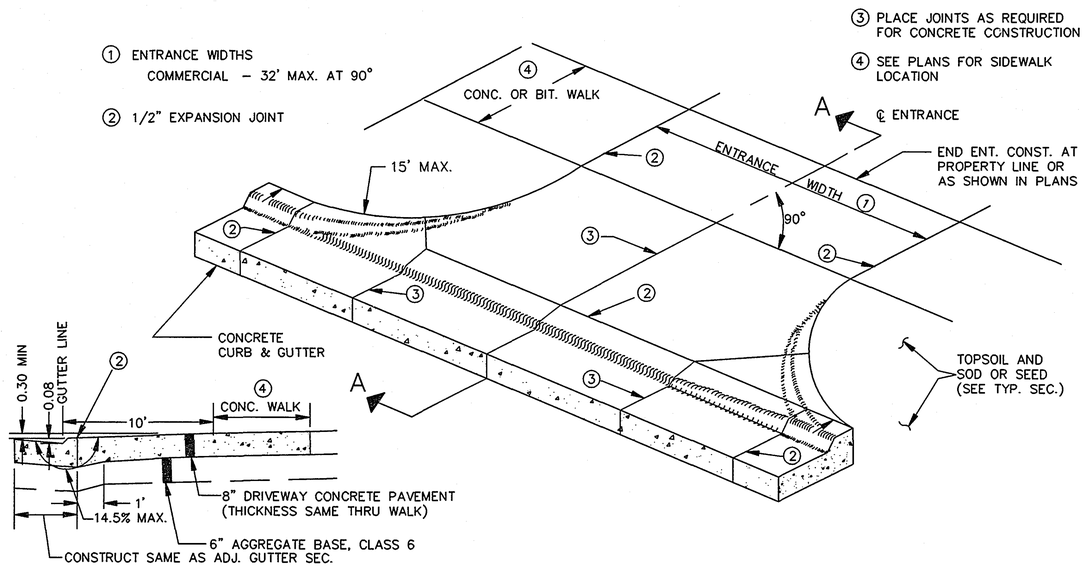


SECTION A–A SECTION B–B SECTION C–C

28-143

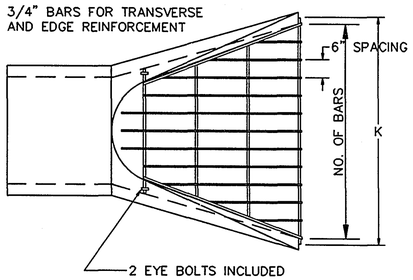
G:\DWGS\TH96\DETAILS 3/7/95

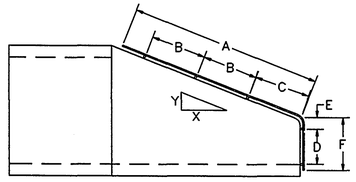
COMMERCIAL CONCRETE ENTRANCE DETAIL



SECTION A–A

TRASH GUARD (GALVANIZED)
(FOR CONCRETE APRON)



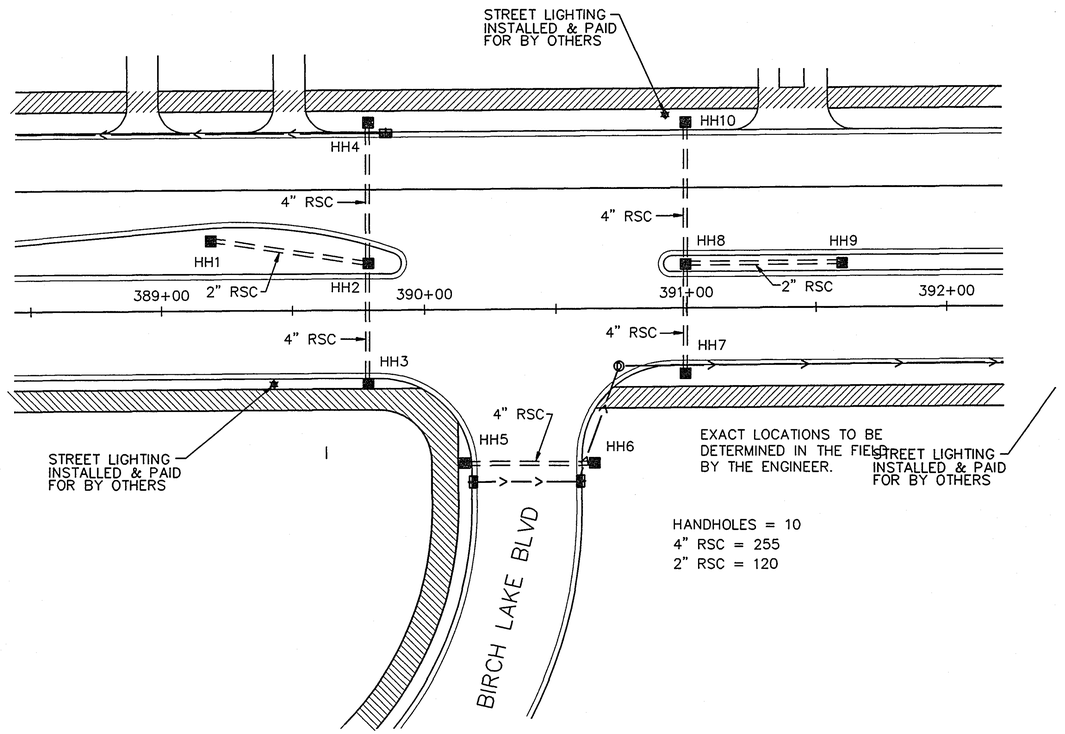


1/2" BARS FOR LONGITUDINAL INTERIOR BARS, WELD EACH INTERSECTION.

CONTRACTOR SHALL FURNISH SUITABLE LOCKING DEVICE APPROVED BY ENGINEER.

ALL HARDWARE SHALL BE HOT DIP GALVANIZED AND COMPLY WITH MnDOT SPEC. 3392 AND ASTM A 153.

SIZE	NO. OF BARS	X–Y SLOPE	A	B	C	D	E	F	K
12"	5	3 to 1	24"	7"	6"	3"	1"	5"	26"
15"	6	3 to 1	24"	7"	6"	6"	2"	10"	34"
18"	7	3 to 1	24"	7"	6"	6"	3"	12"	40"
21"	8	3 to 1	36"	11"	10"	7"	3"	12"	50"
24"	9	3 to 1	44"	14"	12"	10"	4"	16"	52"
27"	10	3 to 1	50"	16"	14"	10"	4"	16"	58"
30"	11	3 to 1	56"	18"	16"	12"	4"	18"	64"
33"	11	3 to 1	60"	19"	18"	12"	4"	18"	70"
36"	13	3 to 1	64"	20"	20"	12"	4"	18"	76"
42"	15	3 to 1	68"	22"	20"	14"	8"	26"	88"
48"	16	3 to 1	76"	24"	24"	16"	10"	28"	92"
54"	17	2.4:1	76"	24"	24"	16"	12"	32"	96"



HANDHOLES = 10
4" RSC = 255
2" RSC = 120

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

David L. Kholl

REG. NO. 14257 DATE 3-20-96

28-143

FUTURE SIGNALS AT BIRCH LAKE BLVD.

COMMERCIAL ENT. DETAIL
TRASH GAURD DETAIL

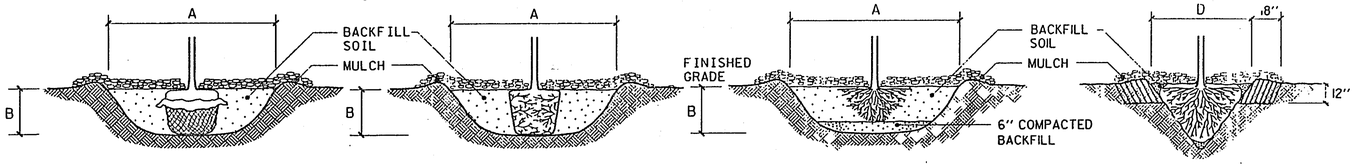
S.A.P. No. 62–696–01 C.T.B. Sheet No. 15 of 92 Sheets

G:\DWGS\TH96\DETAILS 3/10/95

PLANTING HOLE DIMENSIONS

(MINIMUM WIDTH DOES NOT APPLY IN MASS PLANTING BEDS)

PLANT TYPE	PLANT SIZE (UP TO AND INCLUDING)	MINIMUM HOLE WIDTH (INCHES) A	APPROXIMATE HOLE DEPTH (INCHES) B
EVERGREEN TREES	3' B.B.	42	11
	4' B.B.	51	13
	5' B.B.	60	13
	6' B.B.	66	15
	7' B.B.	72	16
	8' B.B.	81	18
	9' B.B.	90	20
	10' B.B.	102	21
SHADE & FLOWERING TREES	1" B.R.	54	14
	1 1/4" B.R.	60	14
	1 1/2" B.R.	66	15
	1 3/4" B.R.	72	16
	2" B.R.	84	19
	2" B.B.	72	16
	2 1/2" B.B.	84	19
	3" B.B.	96	20
	3 1/2" B.B.	114	23
	4" B.B.	126	25
EVERGREEN SHRUBS (UPRIGHT)	2' B.B.	36	9
	3' B.B.	48	12
	4' B.B.	63	14
EVERGREEN SHRUBS (SPREADING)	18" spread B.B.	30	8
	2' spread B.B.	36	9
	2 1/2' spread B.B.	42	11
	3' spread B.B.	48	12
DECIDUOUS SHRUBS	18" B.R.	30	8
	2' B.R.	33	9
	3' B.R.	42	11
	4' B.R.	48	12
	5' B.R.	54	14
	6' B.R.	60	14
	18" B.B.	27	7
	2' B.B.	30	8
	3' B.B.	36	9
	4' B.B.	42	11
	5' B.B.	48	12
	6' B.B.	54	14
CONTAINER GROWN PLANTS	Cellpacks	6	2.5
	2.25" cont.	7	3
	3.5" cont.	10	3
	4.0" cont.	11	4
	4.5" cont.	13	4
	1 Quart cont.	15	5.5
	#1 cont.	18	6
	#2 cont.	23	7.5
	#3 cont.	29	8.5
	#5 cont.	30	11
	#7 cont.	37	11
	#10 cont.	44	14
	#15 cont.	45	15
	#20 cont.	60	17
	#25 cont.	72	16



BALLED & BURLAPPED STOCK

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
3. SET PLANT ON UNDISTURBED NATIVE SOIL, OR THOROUGHLY COMPACTED BACKFILL SOIL AT THE SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY.
4. PLANT SHALL BE PLACED IN PLANTING HOLE WITH BURLAP AND WIRE BASKET, IF USED, INTACT. ONCE IN PLACE, THE PLANT SHALL BE BACKFILLED TO WITHIN 12" OF THE TOP OF THE ROOTBALL AND WATERED. THETOP LOOPS OF THE WIRE BASKETS SHALL BE REMOVED AND THE BURLAP SHALL BE FOLDED OR CUT BACK.
5. PLUMB AND BACKFILL WITH THE BACKFILL SOIL SPECIFIED.
6. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
7. WATER THOROUGHLY WITHIN 2 HOURS.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.
9. BIODEGRADABLE TWINE MAY BE LEFT ON AS SUPPORT BETWEEN THE ROOT BALL AND ROOT COLLAR UNTIL THE ENDOF THE PLANT ESTABLISHMENT PERIOD AT WHICH TIME IT MUST BE CUT AND TOTALLY REMOVED FROM THE ROOT COLLAR, THE TWINE MUST BE TIED OR RETIED TO MID-LEVEL LOOPS OR POINTS ON THE BASKET. USE OF NONBIODEGRADABLE TWINE SHALL NOT BE PERMITTED.

CONTAINER STOCK

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
3. REMOVE CONTAINER AND SCORE OR PRUNE OUTSIDE OF SOIL MASS TO REDIRECT CIRCLING FIBROUS ROOTS AS NECESSARY.
4. SET PLANT ON UNDISTURBED NATIVE SOIL, OR THOROUGHLY COMPACTED BACKFILL SOIL AT THE SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY.
5. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

BARE ROOT STOCK

1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOM OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT AT SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY. PLUMB AND IMMEDIATELY BACKFILL WITH THE BACKFILL SOIL SPECIFIED.
5. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

MACHINE-TRANSPLANT STOCK (TREE SPADE)

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. SET PLANT ON UNDISTURBED NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
3. PLUMB AND BACKFILL WITH THE BACKFILL SOIL SPECIFIED, FILLING ALL VOIDS AND ACCOMPLISHING SETTLEMENT BY WATERING.
4. AFTER PLANTING, THE SOIL IMMEDIATELY ADJACENT TO THE SPADE MOVED SOIL, FOR A MINIMUM DISTANCE OF 18" SHALL BE TURNED OVER AND/OR ROTOTILLED TO A MINIMUM DEPTH OF 12".
5. CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING. UNLESS SOIL MOISTURE IS EXCESSIVE.

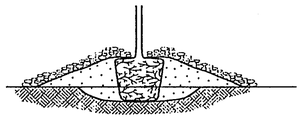
NOTES:

1. THE PLANTING DETAILS REPRESENT ADEQUATELY DRAINED SOIL CONDITIONS. THE CONTRACTOR SHOULD EXERCISE DISCRETION IN SETTING PLANTS 1"-3" HIGHER IN POORLY DRAINED SOILS.
2. ON 2:1 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.
3. ON WET, POORLY DRAINED SOILS, DO NOT CONSTRUCT WATERING BASIN.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE DRAINAGE IN HEAVY POORLY DRAINED OR IMPERVIOUS SOILS.
5. PLANTS SHOULD BE SET AT THE PROPER DEPTH WHEREBY THE BEGINNING TAPER OF THE ROOT FLARE IS AT THE SAME ELEVATION AS THE FINISHED SOIL GRADE. THIS SHOULD BE THE SAME DEPTH AS THE PLANTS WERE GROWN AT IN THE NURSERY. NOTE THAT THE ROOTS OF BALLED AND BURLAPPED PLANTS ARE UNACCEPTABLE WHEN THEY ARE COVERED BY MORE THAN 4" OF SOIL IN THE TOP OF THE BALL.
6. DELAY MULCH PLACEMENT IF NECESSARY TO ALLOW MORE TIME FOR EXCESS SOIL MOISTURE TO EVAPORATE FROM PLANTING AREAS BEFORE PLACING MULCH.

MINIMUM TREE SPADE SIZE REQUIREMENTS

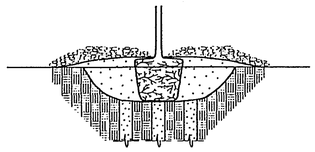
SPADE SIZE (DIAMETER) 'D'	OAK TREES (CALIPER)	DECIDUOUS TREES (CALIPER)	EVERGREEN TREES (HEIGHT)
42"	1.0" to 1.5"	2" to 3"	5' to 7'
60"	1.5" to 2.5"	3" to 4"	7' to 9'
78"	2.5" to 3.5"	4" to 6"	9' to 14'
85"	3.5" to 5.0"	6" to 8"	14' to 18'

PLANTING DETAILS FOR ISOLATED PLANTING LOCATIONS



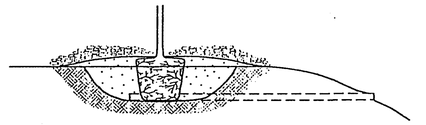
INSTALL MINI-BERM

1. EXCAVATE HOLE OR BED 1/4 THE DEPTH OF THE ROOT MASS.
2. SET ROOT MASS IN HOLE.
3. CONSTRUCT BERM WITH SANDY LOAM TOPSOIL EXTENDING THE BERM BASE TO A WIDTH 3 TIMES THE HEIGHT OF THE BERM.
4. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.



INSTALL GRANULAR FILTER

1. EXCAVATE HOLE OR BED TO ALLOW PLACING TOP OF ROOT MASS 1"-3" HIGHER THAN FINISHED GRADE.
2. AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAINED SUBSOIL.
3. BACKFILL AUGER HOLES WITH A THOROUGHLY INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
4. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.

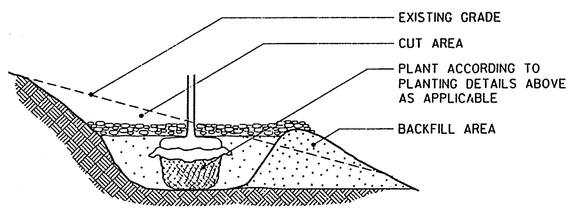


INSTALL TILE DRAINAGE

1. EXCAVATE HOLE OR BED TO ALLOW PLACMENT OF THE TOP OF THE ROOT MASS 1"-3" HIGHER THAN FINISHED GRADE.
2. INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE AS APPROVED BY THE ENGINEER.
3. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.

ALTERNATIVE PLANTING DETAILS IN POORLY DRAINED SOIL

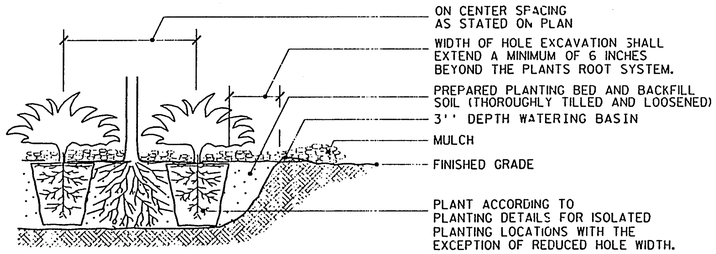
(NEED AND ALTERNATIVE SELECTION SHALL BE DETERMINED BY CONTRACTOR SUBJECT TO APPROVAL BY THE ENGINEER.)



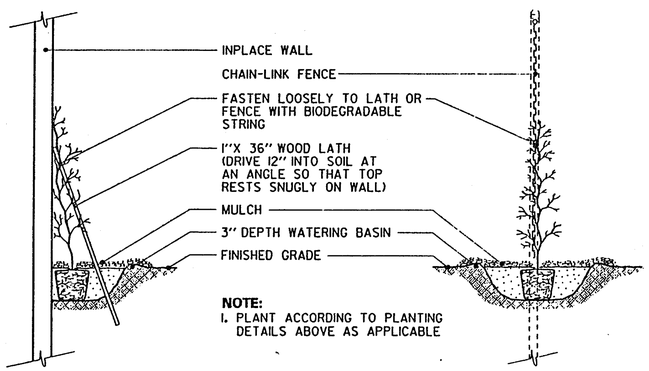
NOTE:

1. EXTENDED EXCAVATION AND BACKFILL SOIL TO A POINT DOWNSLOPE EQUAL TO OR LOWER IN ELEVATION THAN THE BOTTOM OF THE HOLE DIRECTLY BENEATH THE PLANT TO INSURE ADEQUATE DRAINAGE IN HEAVY SOILS. GRANULAR SOIL MUST BE ADDED AS BACKFILL IN AREAS OF POOR DRAINAGE.

PLANTING DETAIL FOR STEEP SLOPES



PLANTING DETAIL FOR MASS PLANTING BEDS



NOTE:

1. PLANT ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE

VINE PLANTING DETAIL

GENERAL NOTES

- SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS

PLANTING HOLE AND BED CULTIVATION: ALL ISOLATED TREE PLANTING LOCATIONS AND PLANTING BEDS SHALL BE CULTIVATED BY TILLING TO A MINIMUM DEPTH OF 10". SOIL AMENDMENTS SHALL BE APPLIED DURING CULTIVATION.

BACKFILL SOIL: USE CULTIVATED AND AMENDED SOIL EXCAVATED FROM PLANTING HOLES. REMOVE ALL DEBRIS INCLUDING ROCKS LARGER THAN 3" DIA.

FERTILIZER: ___ NONE
_X_ MN/DOT 3881

COMPOST: ___ NONE
_X_ Mn/DOT 3890

MULCH MATERIAL: Mn/DOT 3882 TYPE 6. UNLESS OTHERWISE SPECIFIED.

TREE STAKING: TREE STAKING (ALL SIZES) WILL NOT BE REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM OR AS REQUESTED BY THE ENGINEER.

TREE PAINTING: PAINT OAKS, LINDENS, LOCUSTS, MAPLES, CRABAPPLES, AND MOUNTAIN ASHES. ONLY UNDILUTED EXTERIOR WHITE LATEX BASE PAINT IS ACCEPTABLE.

RODENT PROTECTION PROVIDE ON ALL DECIDUOUS TREES AND PINE TREES UNLESS OTHERWISE SPECIFIED.

MASS PLANTINGS: PLANT SPACING OF 8' OR LESS SHALL BE MASS CULTIVATED BY TILLING. PLANT IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING QUANTITY USING TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5' RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8' RADIUS AROUND EACH EVERGREEN TREE. THIS RADIUS (CLEARANCE) SHALL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. PLANT SPACINGS OF 8' OR LESS SHALL BE MASS MULCHED.

PLANTING PLAN: RESPECT STATED DIMENSIONS BEFORE SCALING FROM PLAN.

WATERING GUIDELINES:

PLANT TYPE	AVERAGE AMOUNT OF WATER PER APPLICATION (GALLONS)
MACHINE TRANSPLANTED TREES (3" CALIPER+)	50-100
BALLED & BURLAPPED TREES	20±
BARE ROOT TREES	15±
BALLED & BURLAPPED SHRUBS	10±
BARE ROOT OR CONTAINER SHRUBS	7±
WOODY SEEDLINGS	4±
HERBACEOUS GROUNDCOVERS AND VINES	3±

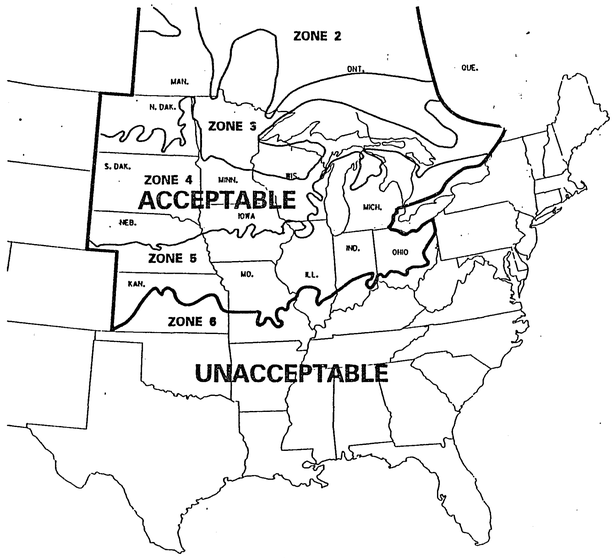
1) THE WATERING GUIDELINES ASSUME A SOIL CONDITION WITH ADEQUATE BUT NOT EXCESSIVE OR POOR DRAINAGE. WATERING INTERVALS AND AMOUNT OF APPLICATION MUST BE VARIED CONSIDERING PREVAILING SOIL MOISTURE AND WEATHER CONDITIONS THROUGHOUT THE GROWING SEASON. ADEQUATE BUT NOT EXCESSIVE SOIL MOISTURE IN THE ROOT ZONE OF NEW PLANTINGS MUST BE MAINTAINED AT ALL TIMES THROUGHOUT THE GROWING SEASON FOR THE FIRST TWO YEARS FOLLOWING PLANTING. WATERING MAY BE REQUIRED WEEKLY OR INFREQUENTLY. THIS DETERMINATION SHALL BE MADE BY THE CONTRACTOR.

2) THE CONTRACTOR IS ADVISED THAT THE WATERING GUIDELINES ARE NOT REQUIREMENTS OF THE CONTRACT ALTHOUGH FAILURE TO CORRECT WATER DEFICITS BY SUPPLEMENTAL WATERING OR FAILURE TO COMPENSATE FOR EXCESSIVE SOIL MOISTURE AND DRAINAGE PROBLEMS MAY RESULT IN UNACCEPTABLE PLANTS LEADING TO REDUCED OR NO PAYMENT.

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STANDARD PLANTING DETAILS (A)

DATED MARCH 1, 1993



ZONE 1		BELOW -50 F
ZONE 2		-50 to -40
ZONE 3		-40 to -30
ZONE 4		-30 to -20

STATE INSPECTED PLANTS GROWN WITHIN ZONES 1-4 AND THE ACCEPTABLE GROWING RANGE FOR A MINIMUM OF 2 YEARS MAY BE USED ON ALL PROJECTS UNLESS OTHERWISE SPECIFIED.

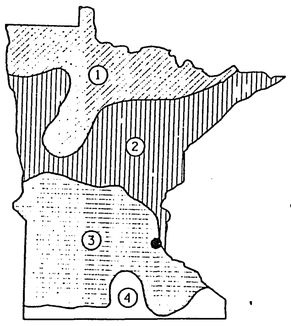
ZONE 5		-20 to -10

STATE INSPECTED PLANTS GROWN WITHIN ZONE 5 AND THE ACCEPTABLE GROWING RANGE FOR A MINIMUM OF 2 YEARS ARE ALLOWED ONLY ON PROJECTS WITHIN ZONE 4 IN MINNESOTA. UNLESS CERTIFIED AS MINNESOTA ZONE HARDY IN ZONES 3 AND 2.

PLANT STOCK NOT GROWN WITHIN THE THE ACCEPETABLE ZONES AND GROWING RANGE FOR A MINIMUM OF 2 YEARS MAY BE ACCEPTED IF THE SEED SOURCE OR ROOT AND GRAFT STOCK IS CERTIFIED AND DOCUMENTED AS MIDWEST AND NORTHERN GROWN AND MINNESOTA ZONE HARDY.

ACCEPTABLE GROWING RANGE FOR MIDWEST AND NORTHERN GROWN PLANT STOCK

SOURCE: U.S.D.A. PLANT HARDINESS ZONE MAP

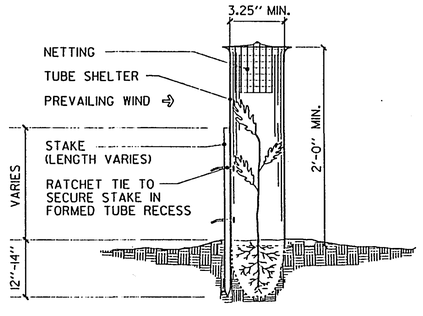


● - INDICATES PROJECT LOCATION

	SPRING			FALL	
	SEEDLING	DECIDUOUS	EVERGREEN	DECIDUOUS	EVERGREEN
1	APRIL 15 TO MAY 15	APRIL 21 TO JUNE 1	APRIL 21 TO JUNE 1	OCT. 1 TO NOV. 1	AUG. 25 TO SEPT. 15
2	APRIL 7 TO MAY 15	APRIL 14 TO JUNE 1	APRIL 14 TO MAY 24	OCT. 1 TO NOV. 6	AUG. 25 TO SEPT. 15
3	APRIL 1 TO MAY 15	APRIL 7 TO JUNE 1	APRIL 7 TO MAY 17	OCT. 10 TO NOV. 15	AUG. 25 TO SEPT. 15
4	APRIL 1 TO MAY 15	APRIL 1 TO MAY 25	APRIL 1 TO MAY 15	OCT. 15 TO NOV. 20	SEPT. 5 TO OCT. 1

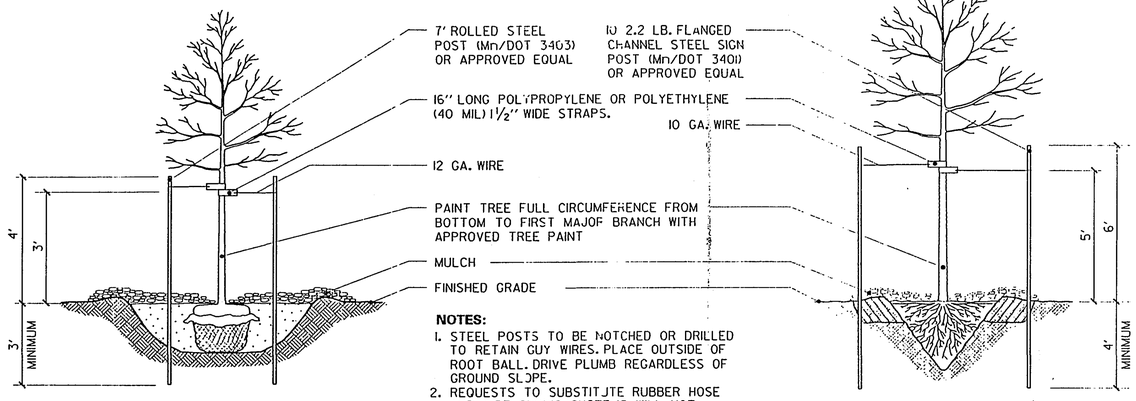
NOTES:
1. SEEDLING INCLUDES DECIDUOUS AND EVERGREEN STOCK.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING MAY NOT BE RECOMMENDED OR ALLOWED. SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS. THE FOLLOWING PLANTS ARE NOT RECOMMENDED FOR FALL INSTALLATION. HAWTHORNE, RUSSIAN OLIVE, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, SUMAC.

OPTIMUM PLANTING DATE ZONES IN MINNESOTA



USE SEAMLESS, EXTRUDED, TWIN-WALL, RIGID AND SEMI TRANSLUCENT POLYPROPYLENE TUBES WITH A TOP RIM FLARED OUTWARD TO PREVENT ABRASION TO STEMS AND BRANCHES. THE SHELTERS WILL BE SECURED WITH NYLON RACHET-LOCKING TIES ATTACHED TO A 1" x 1" WHITE OAK STAKE IN A SECURE MANNER TO PREVENT DISLODGING OR TWISTING. THE THE BOTTOM OF THE TUBE WILL BE IMBEDDED A MINIMUM OF 1" BELOW THE SURFACE OF THE SOIL WITHOUT DISTURBING THE TREE ROOTS. A PLASTIC PHOTO DEGRADABLE NETTING COVER AND SLEEVE SHALL BE INSTALLED OVER THE TOP OF THE TUBE TO PREVENT ENTRAPMENT OF BIRDS.

SEEDLING TREE SHELTER DETAIL

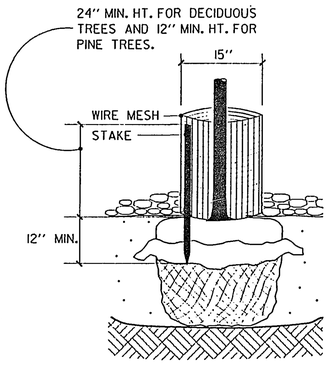


NOTES:
1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.

APPLICABLE TO DECIDUOUS TREES OVER 4" CALIPER AND EVERGREEN TREES OVER 10' IN HEIGHT ONLY WHEN NECESSARY OR SPECIFIED.

STANDARD TREE STAKING /GUYING AND PAINTING DETAIL

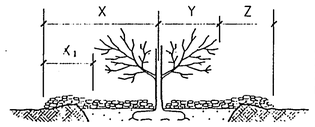
LARGE MACHINE - TRANSPLANT TREE STAKING /GUYING AND PAINTING DETAIL



USE ¼" GRID GALVANIZED AND WELDED WIRE MESH (HARDWARE CLOTH) TO FORM A DOUBLE LAYERED CYLINDER WITH A 2" OVERLAP OF THE CUT ENDS. IMBED A 1" X 1" WHITE OAK STAKE INTO THE GROUND AT A RADIUS POINT OF 7" FROM THE CENTER OF THE TREE STEM. SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKE USING GALVANIZED ⅛" DIAM. X ¾" LONG ROUND HEAD SCREWS WITH WASHERS SPACED APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP. THE LOWER EDGE OF THE MESH CYLINDER SHALL BE IMBEDDED 1" BELOW THE SURFACE OF THE SOIL WITHOUT DISTURBING THE TREE ROOTS. CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. THE STAKE SHALL BE CUT OFF FLUSH WITH THE TOP OF THE CYLINDER. MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH.

NOTE:
THE BOTTOM WHORL OF BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HT. RODENT GUARDS ON PINE TREES.

RODENT PROTECTION DETAIL



SUBSIDENCE OR DETERIORATION OF MULCH THROUGHOLT THE CONTRACT IS ACCEPTABLE TO THE EXTENT THAT THE MULCH DEPTH IS MAINTAINED AT A MINIMUM DEPTH OF 3 INCHES AT ALL TIMES AND UPON FINAL ACCEPTANCE. REPLACEMENT MULCH SHALL BE REQUIRED TO PROVIDE THE MINIMUM MULCH DEPTH SPECIFIED WHEN SUBSIDENCE OR LOSS IS EXCESSIVE OR WHEN THE CONTRACTOR'S OPERATIONS HAVE CONTAMINATED THE MULCH WITH SOIL.

TYPE OF PLANT	X CENTER OF PLANT TO MULCH LINE	X_1 EDGE OF BRANCHING TO MULCH LINE	Y DEPTH OF MULCH MIN.	Y DEPTH OF MULCH MAX.	Z DEPTH OF MULCH MIN.	Z DEPTH OF MULCH MAX.
EVERGREEN TREES	VARIES	3' MIN.	4"	6"	4"	6"
DECIDUOUS TREES	3' MIN.	N/A	4"	6"	4"	6"
EVERGREEN SHRUBS	VARIES	3' MIN.	3"	4"	4"	6"
DECIDUOUS SHRUBS	3' MIN.	N/A	4"	6"	4"	6"
VINES	2' MIN.	N/A	4"	6"	4"	6"
GROUNDCOVERS	VARIES	2' MIN.	3"	4"	3"	4"
MACHINE-TRANSPLANTED TREES	12" BEYOND EDGE OF HOLE		4"	6"	4"	6"

NOTE:
REMOVE MULCH PLACED TO A DEPTH GREATER THAN THAT SPECIFIED WHEN DIRECTED BY THE ENGINEER.

MULCH PLACEMENT DETAIL

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STANDARD PLANTING DETAILS (B) DATED MARCH 1, 1993

S. A. P. NO. 62 - 696 - 01 C.T.B. SHEET NO **17** OF **92** SHEETS

Q

WALL CHART
LOCATION IS FROM ALIGNMENT B

	BEGIN WALL LOCATION STATION	END WALL LOCATION STATION	HIGH ELEVATION TOP OF WALL	LOW ELEVATION BOTTOM OF WALL	REMARKS	ESTIMATE SF EXPOSED FACE
1	376+70 LT 91±	377+96 LT 163±	935±	929.5±		863
2	378+25 LT 178±	383+20 LT 91±	934±	929.5±		1913
3	385+09 LT 91±	385+09 LT 184±	933±	928.5±		219
4	385+43 LT 91±	385+43 LT 183±	933±	928.5±		207
					TOTAL	3202

FENCE NOTES

① STA 376+80 TO STA 378+00 LT 93'± SALVAGE AND INSTALL WOOD FENCE AS DIRECTED.
STA 377+94 LT 93'± TO LT 165'± FURNISH AND INSTALL 6' WOOD FENCE.

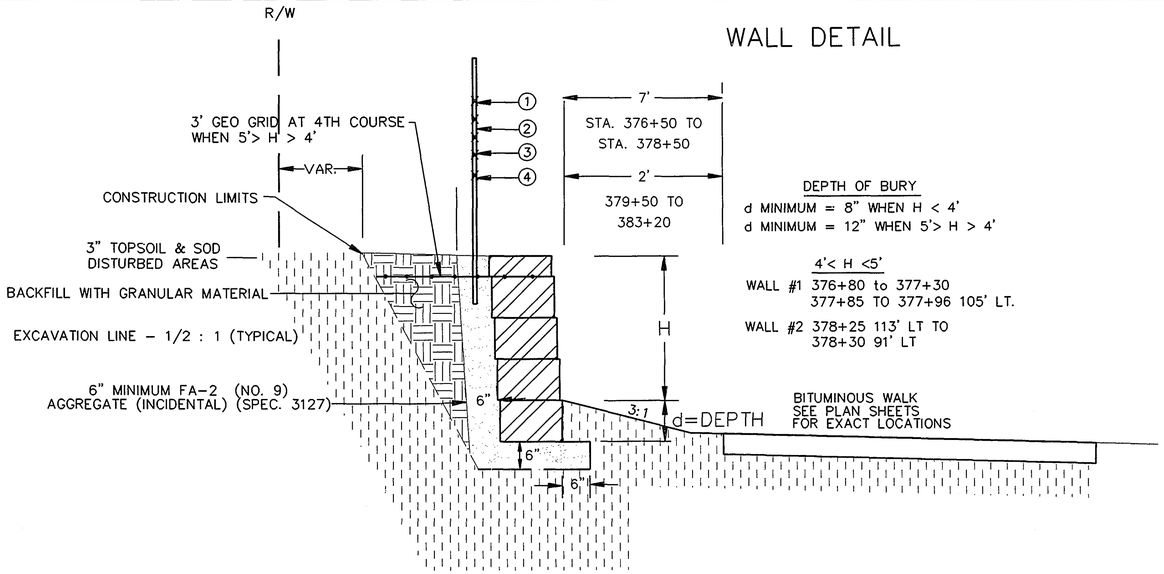
② STA 378+25 LT 93'± TO LT 173'± AND STA 378+25 LT 93'± TO STA 383+50 LT 88'± FURNISH AND INSTALL 48-9322 CHAIN LINK FENCE.

③ STA 385+05 LT 90'± TO LT 180'± FURNISH AND INSTALL 48-9322 CHAIN LINK FENCE.

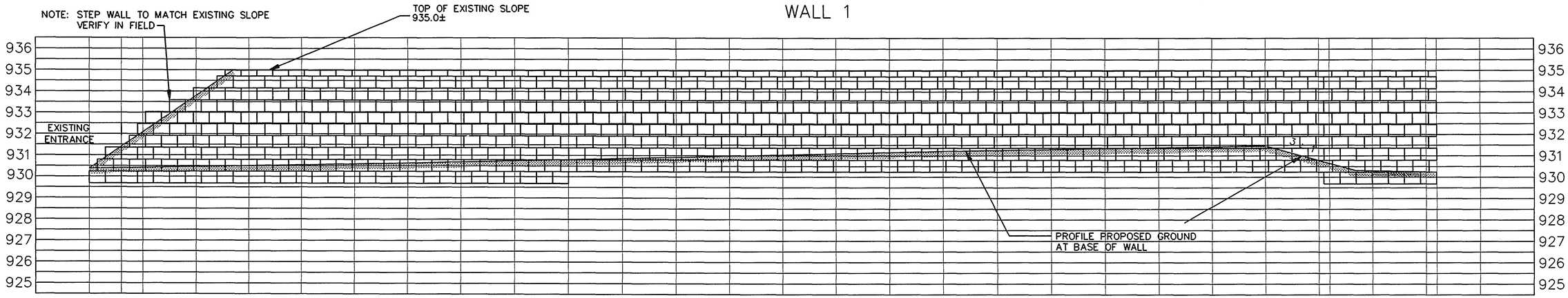
④ STA 385+45 LT 90'± TO LT 180'± FURNISH AND INSTALL 48-9322 CHAIN LINK FENCE.

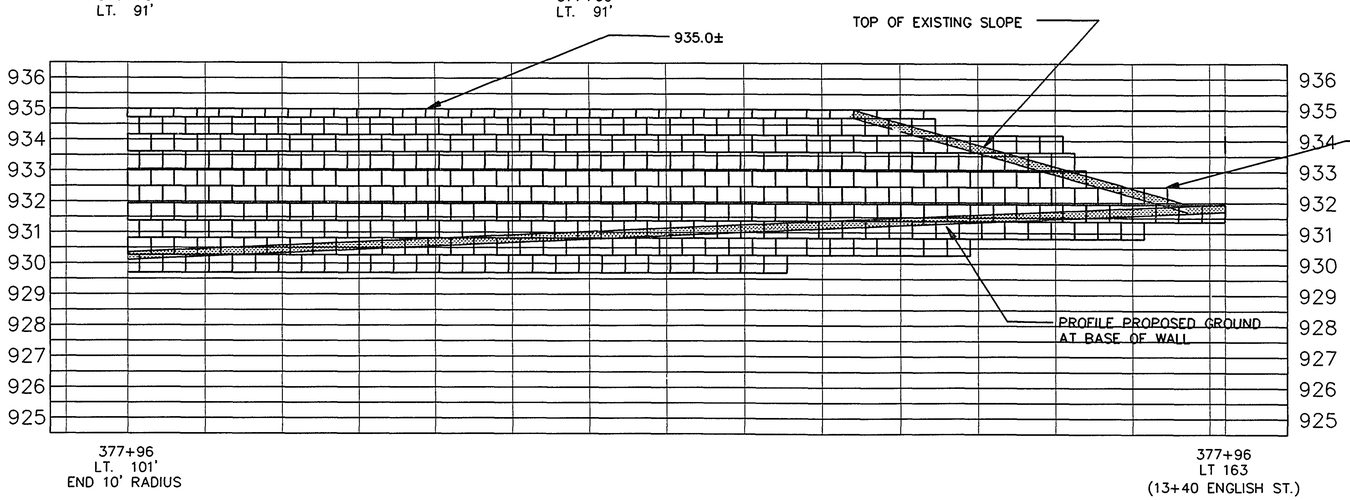
NOTES:
- BLOCKS SHALL BE NOMINAL 8"H X 16"W X 12"D AND HAVE ROCK FACE (OR APPROVED EQUAL).
- BLOCKS SHALL BE 50 LBS MINIMUM
- CAP UNITS SHALL BE USED ON TOP COURSE OF WALL.
- PLACE 3" TOPSOIL & SOD IN DISTURBED AREAS.
- PAYMENT SHALL BE MADE BY SF OF EXPOSED FACE.

WALL DETAIL



WALL 1





NOTE: STEP WALL TO MATCH EXISTING SLOPE VERIFY IN FIELD

END WALL # 1 STA. 13+40 LT. 16' ENGLISH STREET
STA. 377+96 LT. 163' CO. RD. G

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Kholl
REG. NO. 14257 DATE 3-20-96

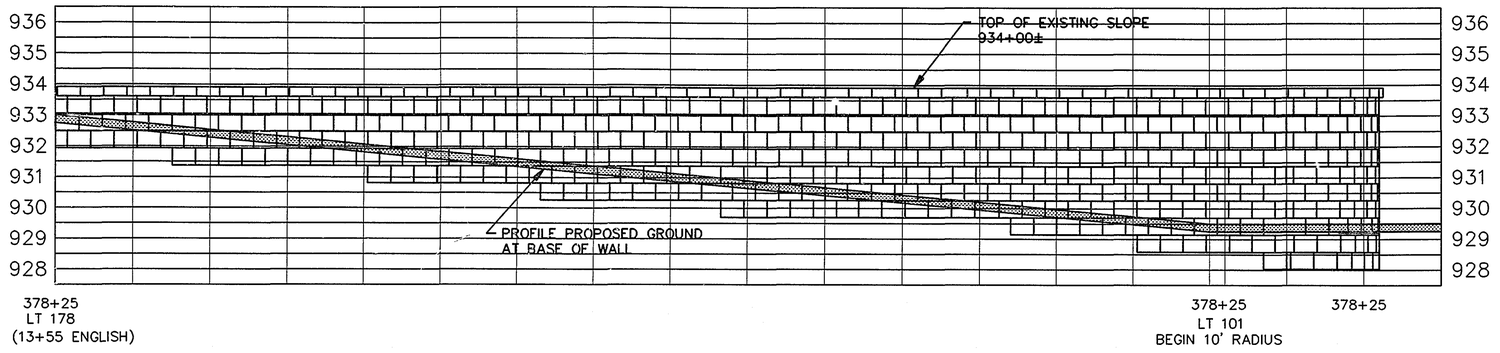
28-143
BLOCK WALLS

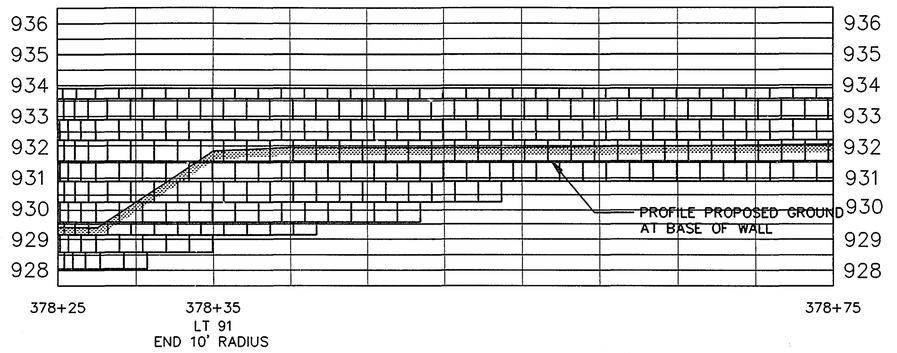
S.A.P. 62-696-01 C.T.B. SHEET NO. 18 OF 92 SHEETS

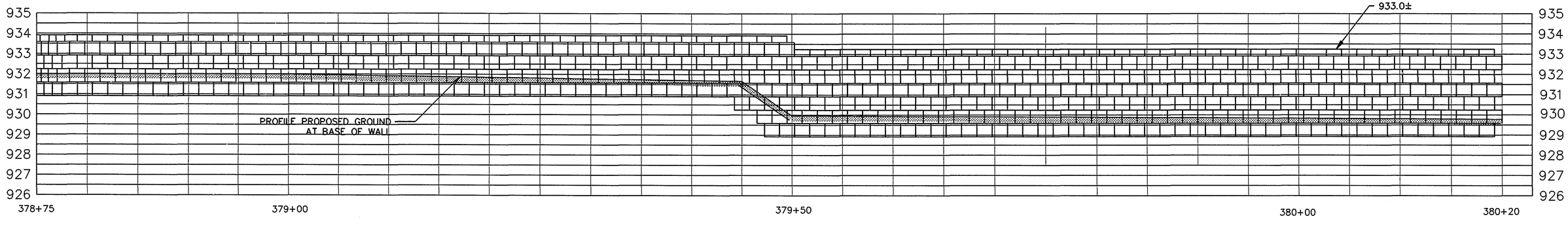
G:\DWGS\TH96\DETAILS 3/7/95

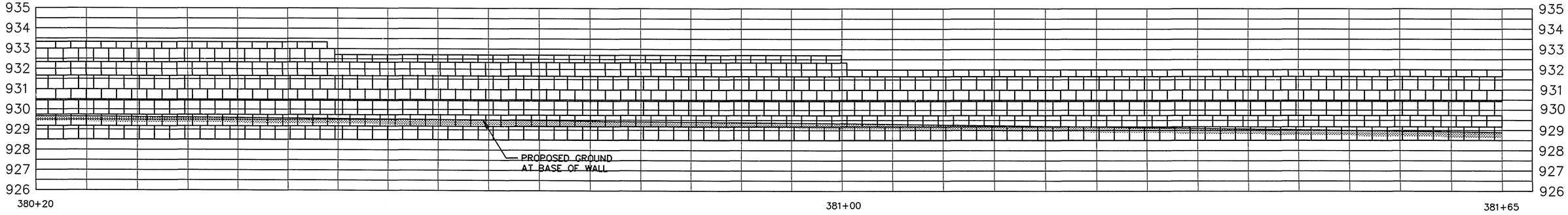
BEGIN WALL # 2 STA. 13+55 RT. 16' ENGLISH STREET
STA. 378+25 LT. 178' CO. RD. G EAST BOUND CENTERLINE, ALIGNMENT B

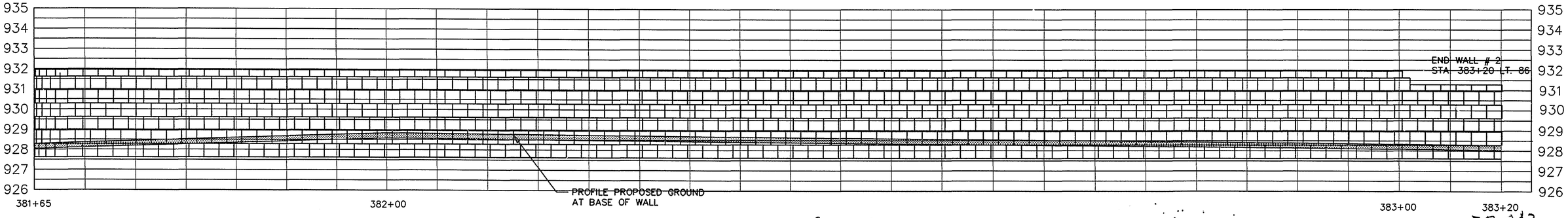
WALL 2











David L. Rhodd
Reg No. 14257 3-20-95

28-143
BLOCK WALLS

S.A.P. 62-696-01 C.T.B. SHEET NO. 19 OF 92 SHEETS

G:\DWGS\TH96\DETAILS 3/8/95

WALL 3

BEGIN WALL # 3 STA. 40+68 LT. 16' CLARENCE STREET
STA. 385+09 LT. 91' CO. RD. G EAST BOUND CENTERLINE (ALIGNMENT B)

WALL 4

BEGIN WALL # 3 STA. 40+68 RT. 16' CLARENCE STREET
STA. 385+43 LT. 91' CO. RD. G EAST BOUND CENTERLINE (ALIGNMENT B)

WOOD FENCE DETAIL

STA. 377+94± LT. 93.3± TO LT. 165.3±

SECTION A–A

FENCE SHALL BE CONSTRUCTED TO MATCH THE EXISTING WOOD FENCE ALONG CO. RD. G. THE FENCE SHALL BE PLACED DIRECTLY BEHIND WALL. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD. SEE SPECIAL PROVISIONS.

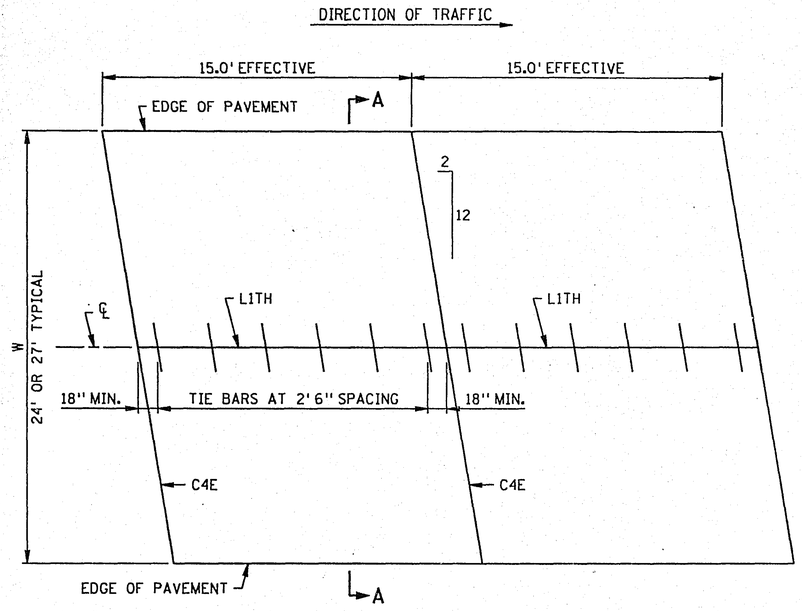
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
REG. NO. 14252 DATE 3-20-98

WOOD FENCE DETAIL
BLOCK WALLS

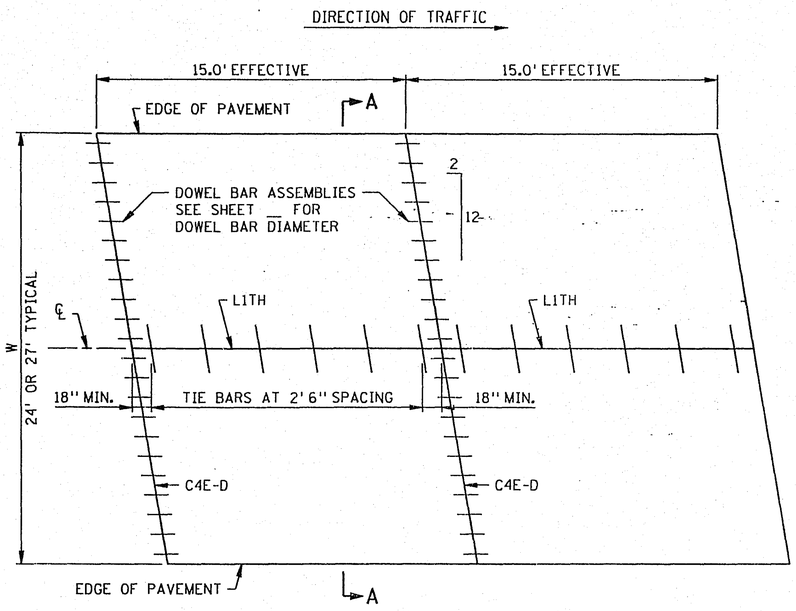
28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 20 OF 92 SHEETS

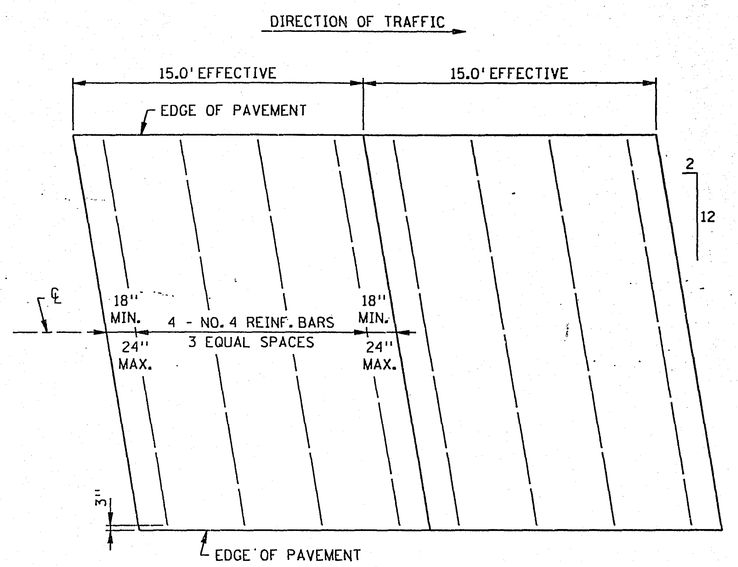
3/17/98 2:SMA/DETAIL/98HT/SMA/3



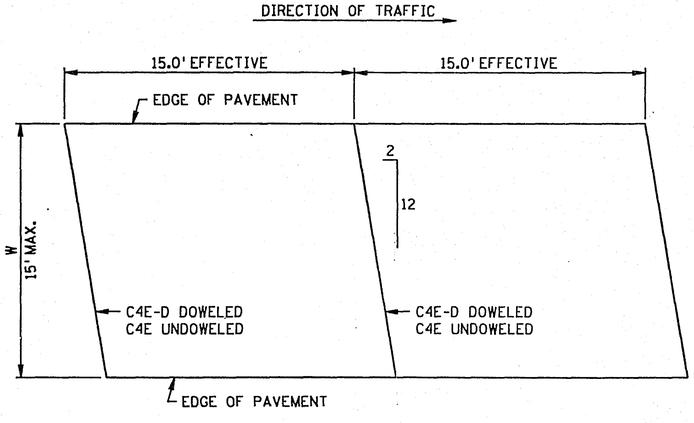
MAINLINE PAVEMENT
UNDOWELED



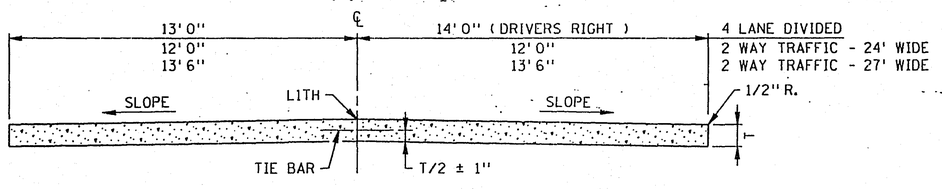
MAINLINE PAVEMENT
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A-A

GENERAL NOTES:

WHEN THE PAVEMENT WIDTH EXCEEDS 27 FT., THE LONGITUDINAL JOINT SHALL BE L1TH OR L2KTH AS DESIGNATED.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 18 IN. FROM AND PARALLEL TOTHE CONTRACTION JOINT.

15.0 FT. EFFECTIVE JOINT SPACING IS ACTUAL 13 FT., 16 FT., 14 FT., 17 FT. AND REPEAT JOINT SPACING.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

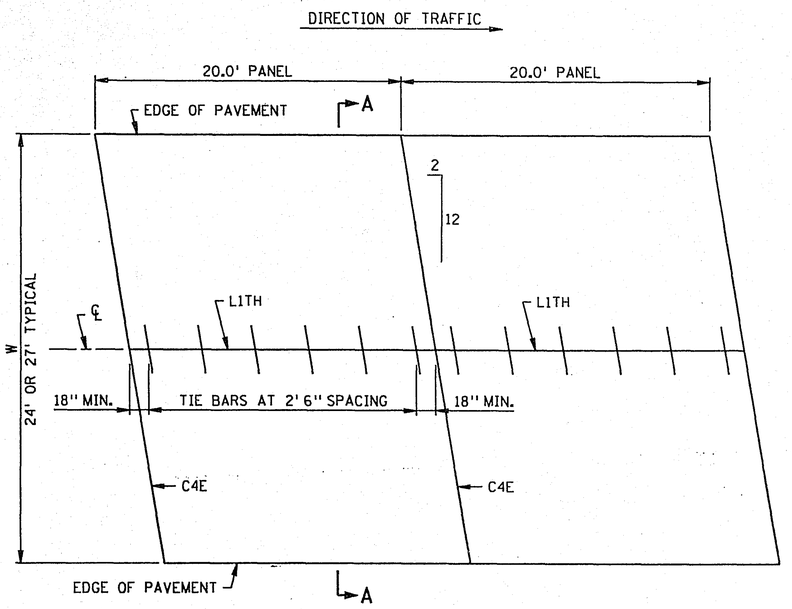
TIE BARS:
USE NO. 4 BARS 2'6" LONG, AT 2'6" SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE NO. 4 BARS IN PANELS WHERE PAVEMENT WIDTHS EXCEED 16 FT. WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 30 FT. PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1 IN.

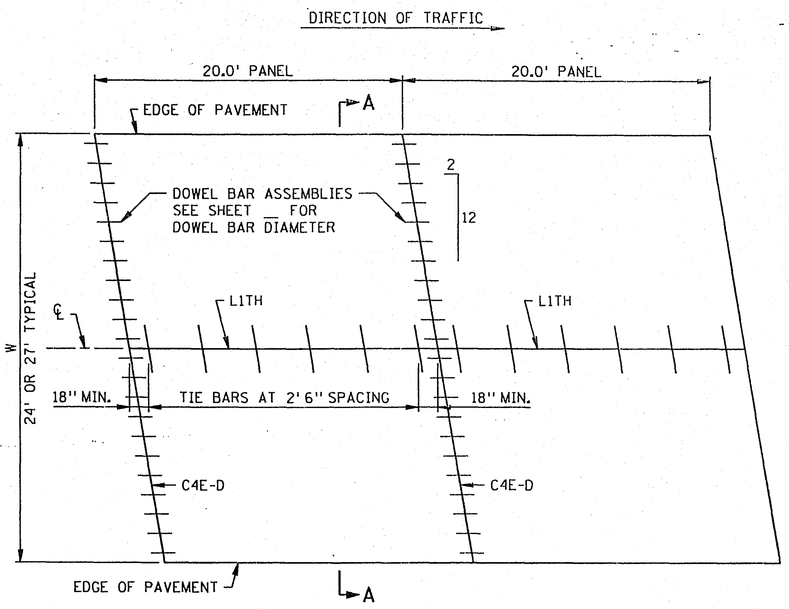
28-143

STANDARD SHEET NO. 5-297.217 (1 OF 2)	TITLE: NON-REINFORCED CONCRETE MAINLINE PAVEMENT WITH SKEWED JOINTS
STANDARD APPROVED: JANUARY 25, 1993	15.0 FT. EFFECTIVE PANELS (T = 10 IN. OR LESS)
S.A.P. NO. 62-696-01 C.T.B.	SHEET NO. 21 OF 92 SHEETS

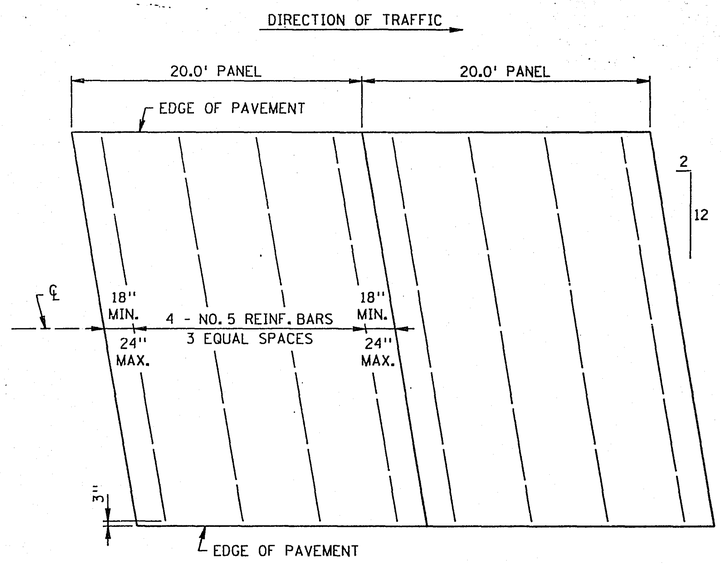
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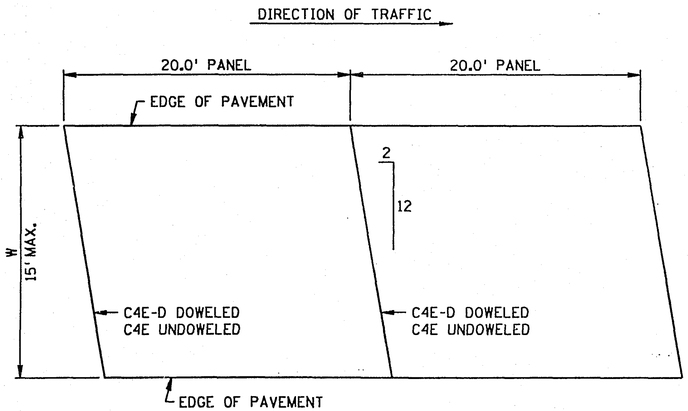
MAINLINE PAVEMENT
UNDOWELED



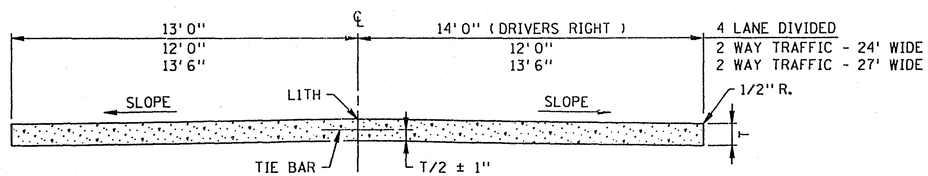
MAINLINE PAVEMENT
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A-A

GENERAL NOTES:

WHEN THE PAVEMENT WIDTH EXCEEDS 27 FT., THE LONGITUDINAL JOINT SHALL BE L1TH OR L2KTH AS DESIGNATED.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 18 IN. FROM AND PARALLEL TO THE CONTRACTION JOINT.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

TIE BARS:
USE NO. 5 BARS 3'0" LONG, AT 2'6" SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE NO. 5 BARS IN PANELS WHERE PAVEMENT WIDTHS EXCEED 16 FT. WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 30 FT. PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1 IN.

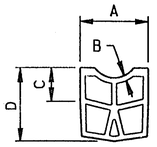
28-143

STANDARD SHEET NO. 5-297.217 (2 OF 2)	TITLE: NON-REINFORCED CONCRETE MAINLINE PAVEMENT WITH SKEWED JOINTS
STANDARD APPROVED: JANUARY 25, 1993	20.0 FT. PANELS (T = GREATER THAN 10 IN.)
S.A.P. NO. 62-696-01 C.T.B.	SHEET NO. 22 OF 92 SHEETS

SERVER CA645i:/USR/STANDARDS FILE NAME S2172A93.SPN

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	13/16" USE IN ALL 3/8" JOINTS
A	0.80" +0.14" -0.05"
B	0.08" ± 0.02"
C	0.60" MIN.
D	0.80" MIN.
WEB AND WALL THICKNESS, UNLESS NOTED	0.03" MIN.



SPEC. REFERENCE 3721

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

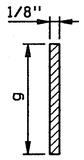
NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.

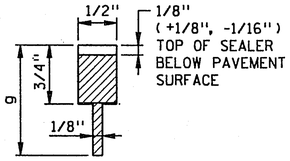
SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

CONTRACTION JOINT SEALER

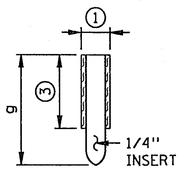
PREFORMED ELASTIC TYPE



DETAIL A
FORMED & SAWED



DETAIL B ②
SAWED



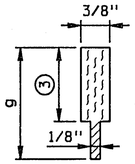
DETAIL C
FORMED
(INSERT TO BE REMOVED)

CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

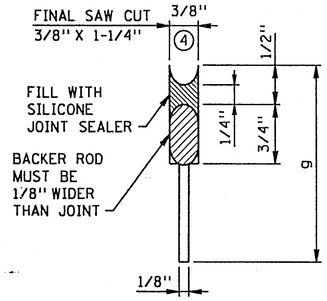
CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3723
C2X	C2X-D	B OR C	3723
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	SILICONE

CONTRACTION JOINT DEPTH & DOWEL BAR TABLE

PAVEMENT THICKNESS †	CONCRETE PAVEMENT JOINT DEPTH g ⑤	CONCRETE BASE JOINT DEPTH g	DOWEL BAR DIAMETER
6"	1-1/2"	1-1/4"	3/4"
6-1/2"	1-5/8"	1-1/4"	3/4"
7"	1-3/4"	1-1/2"	1"
7-1/2"	1-7/8"	1-1/2"	1"
8"	2"	1-1/2"	1"
8-1/2"	2-1/8"	1-1/2"	1"
9"	2-1/4"	1-1/2"	1"
9-1/2"	2-3/8"	2"	1-1/4"
10"	2-1/2"	2"	1-1/4"
10-1/2"	2-5/8"	—	1-1/4"
11"	2-3/4"	—	1-1/2"
11-1/2"	2-7/8"	—	1-1/2"
12"	3"	—	1-1/2"
12-1/2"	3-1/8"	—	1-1/2"
13"	3-1/4"	—	1-3/4"
13-1/2"	3-3/8"	—	1-3/4"
14"	3-1/2"	—	1-3/4"



DETAIL D
SAWED

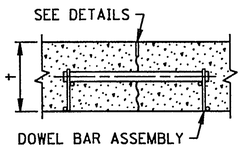


DETAIL E
SAWED

LEGEND

C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3723
3 = 3721
4 = SILICONE
LETTER = DETAIL
X = MORE THAN 1 DETAIL
-D = DOWEL BARS

EXAMPLE C2B-D



SECTION AT JOINT

CONTRACTION JOINT NOTES:

IN CONCRETE BASE CONSTRUCTION THE CONTRACTION JOINTS SHALL BE SPACED AT 30 FT. INTERVALS AND AT RIGHT ANGLES TO THE LONGITUDINAL JOINTS, EXCEPT AS NOTED BELOW. WHERE THE CONCRETE BASE IS CONSTRUCTED ADJACENT TO EXISTING PAVEMENT OR BASE, THE CONTRACTION JOINTS IN THE NEW BASE SHALL MATCH THOSE IN THE EXISTING PAVEMENT OR BASE, EXCEPT THAT THE SPACING SHALL NOT BE LESS THAN 15 FT., NOR MORE THAN 30 FT.

JOINT WIDTH TOLERANCES: + 1/16 IN. AND - 1/32 IN.

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEET FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY, 1103; CONSTRUCTION OF HEADER JOINTS, 1150; AND CONCRETE PAVEMENT WITH SKEWED JOINTS, 5-297.215 - .219.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

NOTES:

① DESIGN C3X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 3/8" BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.

DESIGN C2X OR C2X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH WIDTH OF 1/2" FOR A DEPTH OF 3/4", + 1/8", - 1/16", BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT. THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.

② DESIGN C2B OR C2B-D - PRIOR TO SEALING JOINT (DETAIL B) WITH HOT POUR JOINT SEALER, A STRIP OF PAPER 1/2" WIDE SHALL BE PLACED ON THE BOTTOM OF THE 1/2" WIDE JOINT.

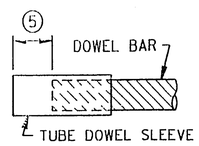
③ WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH.

④ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4".

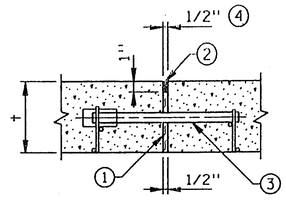
⑤ FOR UNBONDED OVERLAYS, THE JOINT DEPTH "G" SHALL BE T/3.

CONTRACTION JOINTS

DESIGN C

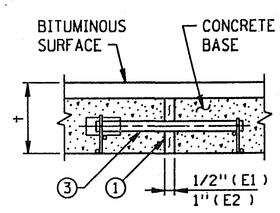


DOWEL BAR SLEEVE DETAIL



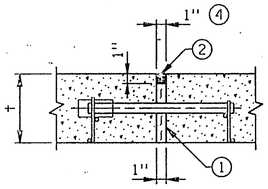
E1D-1 (W/DOWELS) E1-1 (W/O DOWELS)

DETAIL A



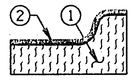
E1DB & E2DB (W/DOWELS) E1B & E2B (W/O DOWELS)

DETAIL B

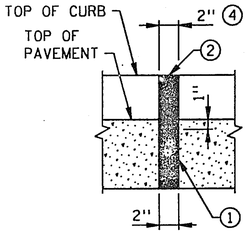


E2D-1 (W/DOWELS) E2-1 (W/O DOWELS)

DETAIL C



SECTION THRU CURB E2-1

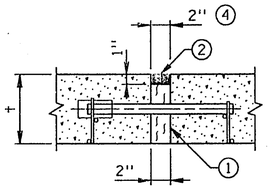


E4-1 (W/O DOWELS)

DETAIL D



SECTION THRU CURB E4-1



E4D-1 (W/DOWELS)

DETAIL E

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	②
E1DB	E1B	B	UNSEALED
E2D-1	E2-1	C	②
E2DB	E2B	B	UNSEALED
	E4-1	D	②
E4D-1		E	②

LEGEND

E = EXPANSION JOINT
NO. = JOINT REFERENCE
-1 = HOT POURED SEAL ②
D = DOWEL BARS
B = CONCRETE BASE
S = CONCRETE SILL

EXAMPLE

E1D-1
- HOT POURED SEAL ②
- DOWEL BARS
- JOINT REFERENCE
- EXPANSION JOINT

NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 1/8 IN. BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE (0 IN.) ± 1/8 IN.

③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

④ JOINT WIDTH IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2 IN. INTERVALS (i.e. E1 = 1/2 IN., E2 = 1 IN., E3 = 1-1/2 IN., E4 = 2 IN., E8 = 4 IN.).

⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

EXPANSION JOINTS

DESIGN E

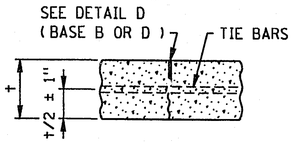
28-143

STANDARD SHEET NO. 5-297.221 (1 OF 2)
STANDARD APPROVED: JANUARY 25, 1993

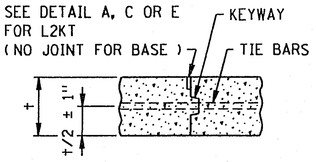
TITLE: PAVEMENT JOINTS
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

S.A.P. NO. - 62-696-01 C.T.B. SHEET NO. 23 OF 92 SHEETS

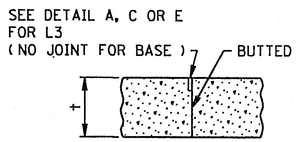
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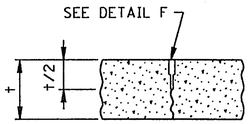
L1, L1T, L1B & L1TB



L2KT & L2KTB



L3 & L3B



L4

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3723
L1BU	L1TBU			A OR B	UNSEALED
		L2KTH		D OR E	3723
		L2KTS		C	SILICONE
			L3H	D OR E	3723
			L3S	C	SILICONE
L4S				F	SILICONE

LEGEND

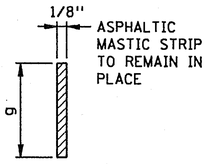
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
K = KEYWAY
T = TIE BARS
B = CONCRETE BASE
U = UNSEALED
H = HOT POUR
S = SILICONE

JOINT REFERENCE NUMBERS

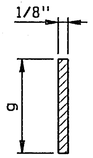
1 = SAWED TO A DEPTH OF t/3
2 = KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
4 = SAWED TO A DEPTH OF t/2

LONGITUDINAL JOINT DEPTH TABLE

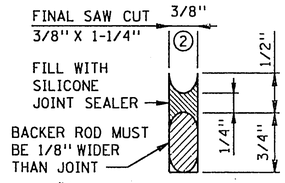
PAVEMENT THICKNESS t	CONCRETE PAVEMENT JOINT DEPTH g	CONCRETE BASE JOINT DEPTH g
6"	2"	2"
6-1/2"	2-1/8"	2"
7"	2-1/4"	2-1/4"
7-1/2"	2-1/2"	2-1/4"
8"	2-5/8"	2-1/2"
8-1/2"	2-7/8"	2-1/2"
9"	3"	2-3/4"
9-1/2"	3-1/4"	3"
10"	3-3/8"	
10-1/2"	3-1/2"	
11"	3-5/8"	
11-1/2"	3-7/8"	
12"	4"	
12-1/2"	4-1/8"	
13"	4-3/8"	
13-1/2"	4-1/2"	
14"	4-5/8"	



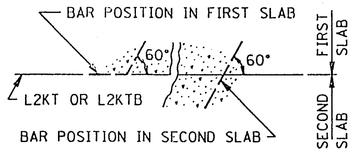
DETAIL A
(FORMED & UNSEALED)



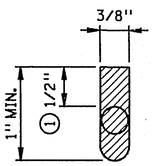
DETAIL B
(SAWED & SEALER, SPEC. 3723)
(BASE JOINTS UNSEALED)



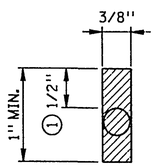
DETAIL C
(SAWED)



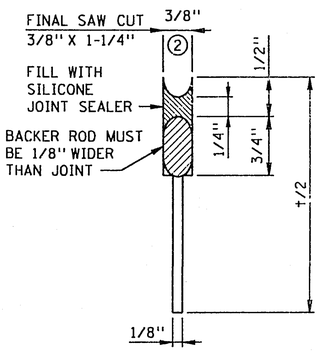
TIE BAR BENDING DETAIL



DETAIL D
(FORMED & SEALED SPEC. 3723)



DETAIL E
(SAWED & SEALER SPEC. 3723)



DETAIL F
(SAWED)

LONGITUDINAL JOINT NOTES:

TIE BARS FOR L1TB JOINTS SHALL BE THE SAME SIZE AND SPACING AS SHOWN ON STANDARD PLAN SHEETS 5-297.216 - .219.

EXCEPT WHEN NOTED OTHERWISE IN THE PLANS, THE TIE BAR SPACING FOR ALL L2KT AND L2KTB JOINTS SHALL BE 2'6" C. TO C. AND BENT 60° AS SHOWN.

TIE BARS IN THE L2KT AND L2KTB JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T OR L1TB JOINTS, WHEN TYING PAVEMENT TO PAVEMENT OR BASE TO BASE. TIE BARS IN THE L2KT OR L2KTB JOINTS SHALL BE NO. 4 X 2'6", WHEN TYING CURB & GUTTER TO PAVEMENT OR BASE.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED 30 FEET, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

SPEC. 3723 SEALER - TOP OF SEALER FLUSH TO - 3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

① THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENING, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.

② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEETS FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY 1103, PAVEMENT KEYWAY 1141 AND CONCRETE PAVEMENT WITH SKEWED JOINTS 5-297.216 - .219.

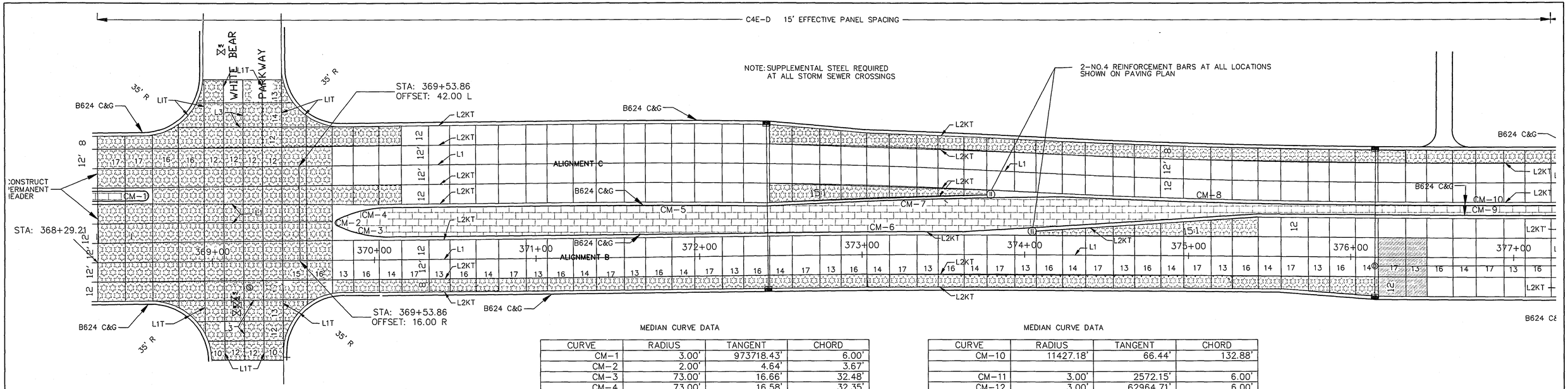
SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

Z8-143

STANDARD SHEET NO.	TITLE:
5-297.221 (2 OF 2)	PAVEMENT JOINTS
STANDARD APPROVED: JANUARY 25, 1993	LONGITUDINAL (DESIGN L)

S.A.P. NO. 62-696-01 C.T.B. SHEET NO. 24 OF 92 SHEETS

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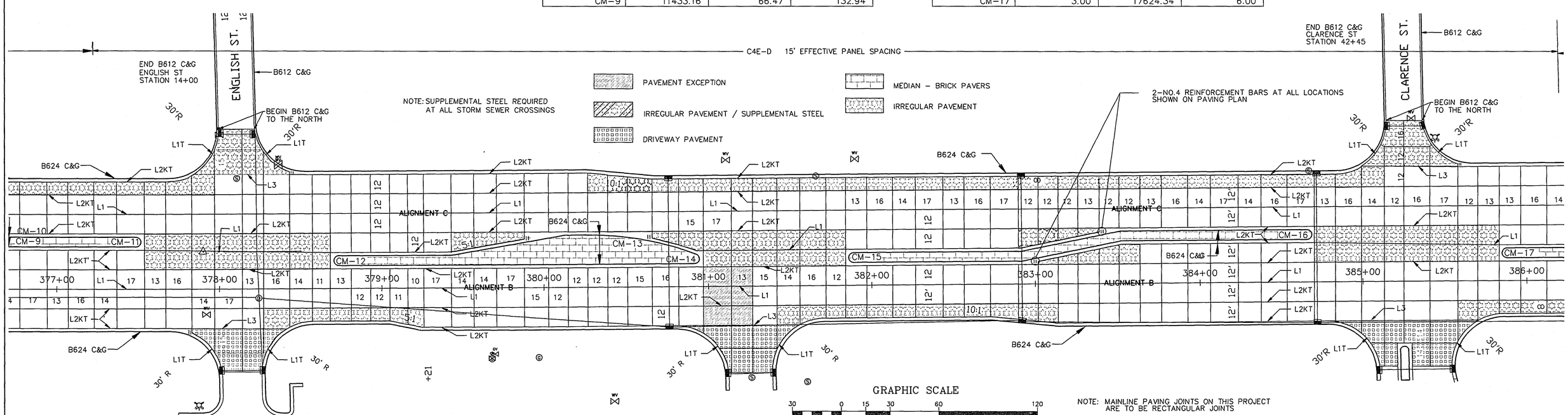


MEDIAN CURVE DATA

CURVE	RADIUS	TANGENT	CHORD
CM-1	3.00'	973718.43'	6.00'
CM-2	2.00'	4.64'	3.67'
CM-3	73.00'	16.66'	32.48'
CM-4	73.00'	16.58'	32.35'
CM-5	4557.66'	58.21'	116.42'
CM-6	11473.17'	56.82'	113.63'
CM-7	4685.02'	89.99'	179.95'
CM-8	4597.66'	90.77'	181.49'
CM-9	11433.16'	66.47'	132.94'

MEDIAN CURVE DATA

CURVE	RADIUS	TANGENT	CHORD
CM-10	11427.18'	66.44'	132.88'
CM-11	3.00'	2572.15'	6.00'
CM-12	3.00'	62964.71'	6.00'
CM-13	180.00'	33.72'	66.28'
CM-14	3.00'	16.02'	5.90'
CM-15	3.00'	17901.94'	6.00'
CM-16	3.00'	196.15'	6.00'
CM-17	3.00'	17624.34'	6.00'



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

NOTE: MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS

SEE DETAIL SHEET 85 FOR BREAKAWAY SIGN POST FOUNDATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

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

David L. Bhrll

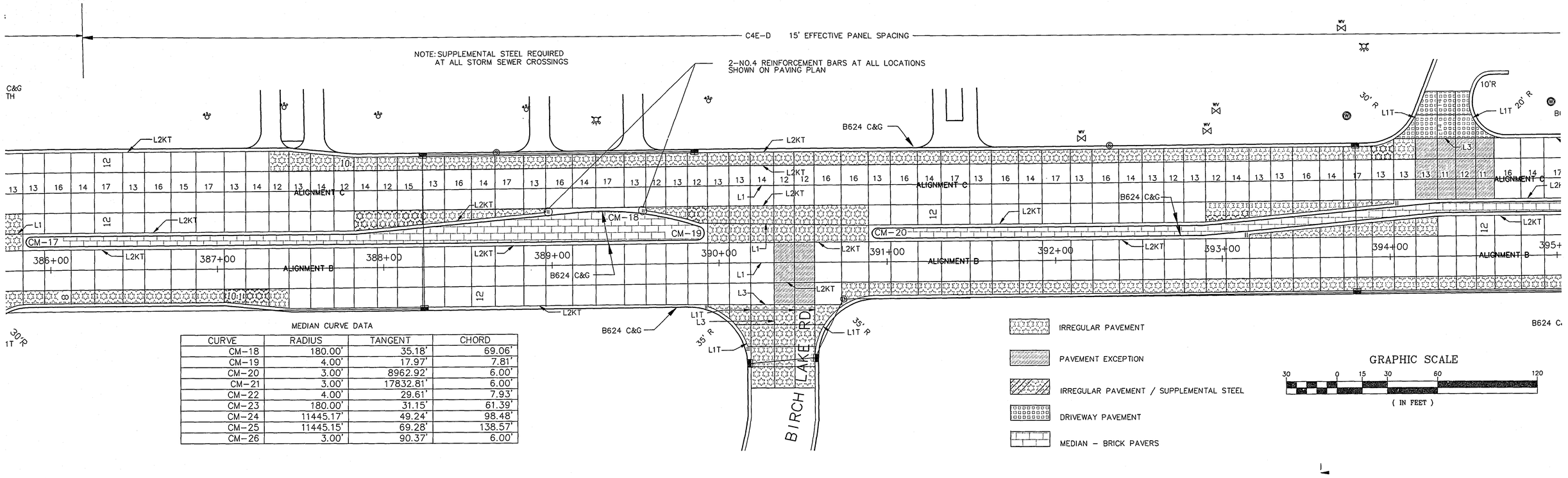
REG. NO. 14257 DATE 3-20-95

28-143

PAVING PLAN
STA. 368+29.21 TO 386+00

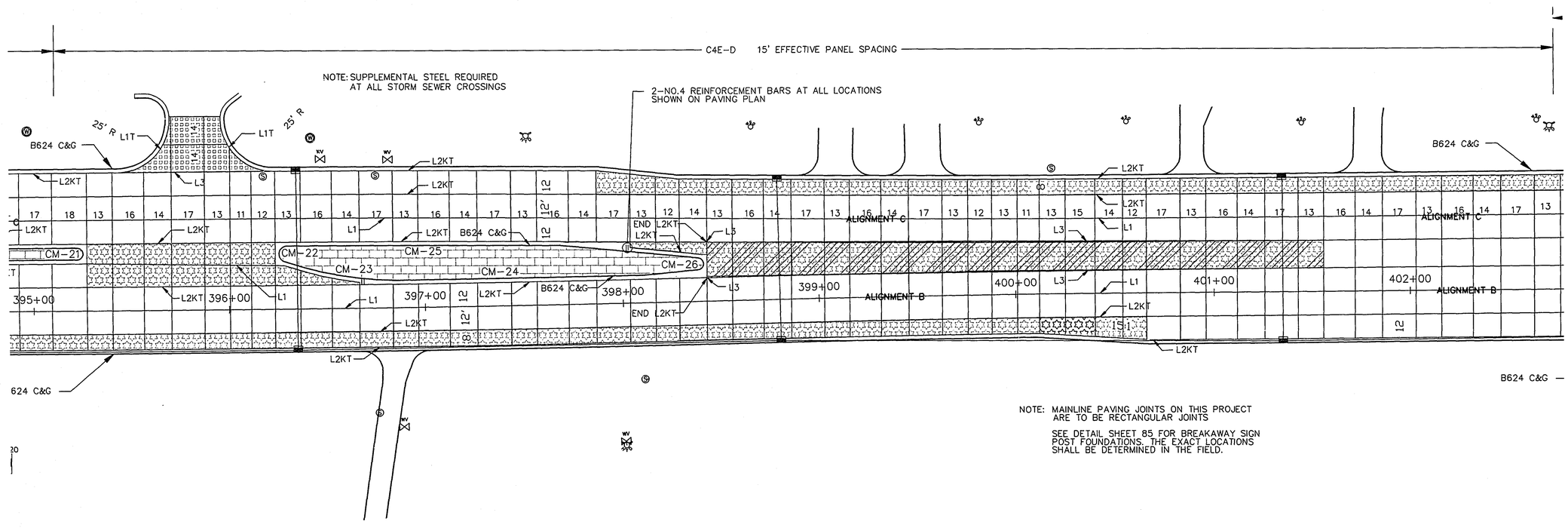
S.A.P. 62-696-01 C.T.B. SHEET NO. 25 OF 92 SHEETS

G:\DWGS\TH96/PAVEPLAN 3/7/95



MEDIAN CURVE DATA

CURVE	RADIUS	TANGENT	CHORD
CM-18	180.00'	35.18'	69.06'
CM-19	4.00'	17.97'	7.81'
CM-20	3.00'	8962.92'	6.00'
CM-21	3.00'	17832.81'	6.00'
CM-22	4.00'	29.61'	7.93'
CM-23	180.00'	31.15'	61.39'
CM-24	11445.17'	49.24'	98.48'
CM-25	11445.15'	69.28'	138.57'
CM-26	3.00'	90.37'	6.00'



NOTE: MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS

SEE DETAIL SHEET 85 FOR BREAKAWAY SIGN POST FOUNDATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

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

David L. Rhodd

REG. NO. 14257 DATE 3-20-95

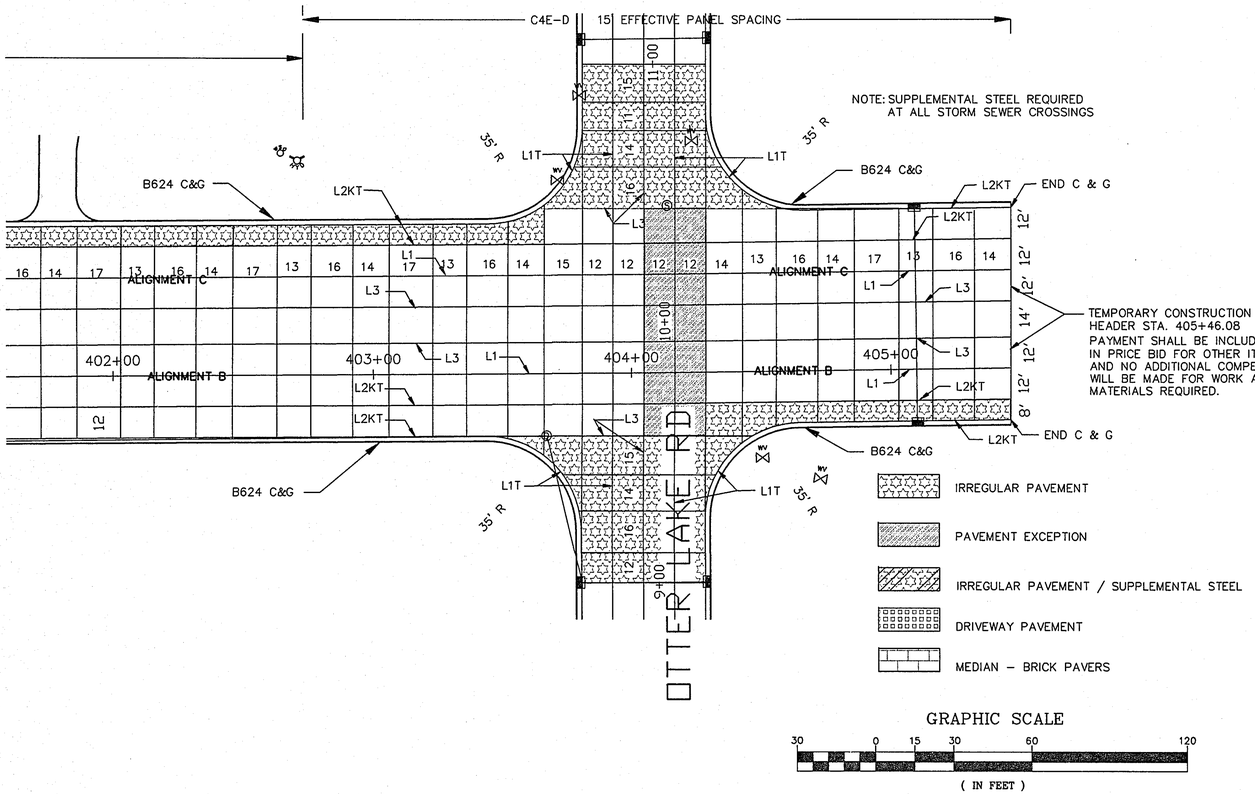
28-143

PAVING PLAN

STA. 386+00 TO 402+00

S.A.P. 62-696-01 C.T.B. SHEET NO. 26 OF 92 SHEETS

G:\DWGS\TH96/PAVEPLAN 3/7/95

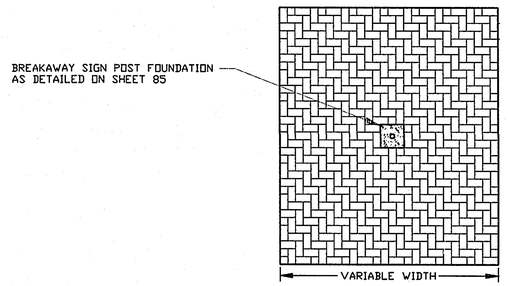


GRAPHIC SCALE

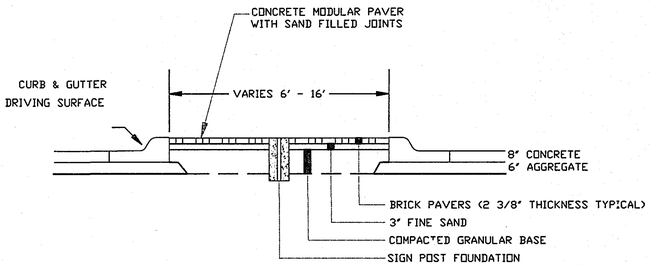
30 0 15 30 60 120

(IN FEET)

NOTE: ALL BRICK PAVING SHALL BE HERRINGBONE 90 DEGREE PATTERN



PAVING PATTERN FOR BRICK PAVER



BRICK PAVER PLACEMENT

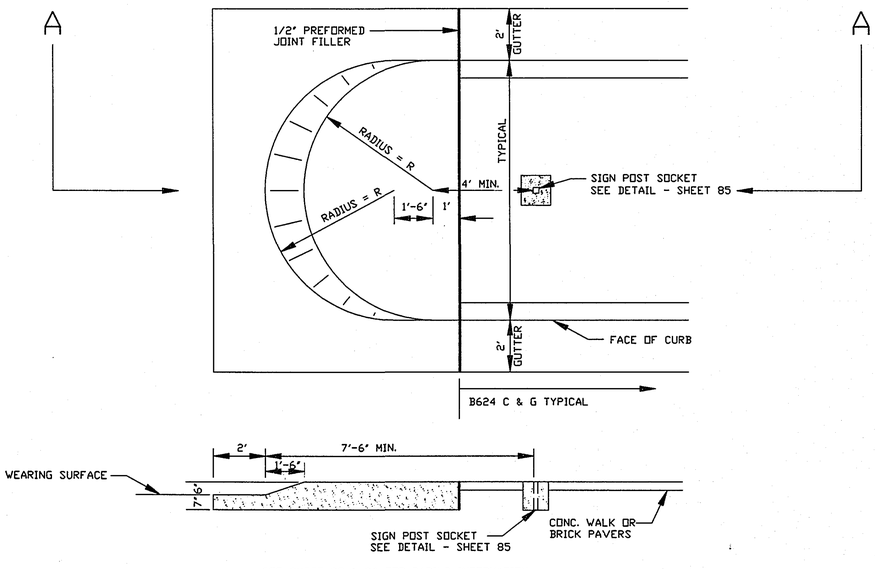
NOTES

BRICK PAVERS SHALL BE INSTALLED PER MANUFACTURES SPECIFICATIONS.

MEDIAN HOLES FOR SIGN POST SHALL BE AS DETAILED ON SHEET 85. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD.

SEE DETAIL SHEET 85 FOR BREAKAWAY SIGN POST FOUNDATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

PAYMENT SHALL BE MADE BY THE S.F. OF PAVERS PLACED WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED. SEE SPECIAL PROVISIONS, SECTION 0412.604.



SEE SHEET 25 & 26 FOR RADIUS INFORMATION

SECTION A-A

MOUNTABLE CONCRETE MEDIAN NOSE

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

David L. Rholl

REG. NO. 14257 DATE 3-20-95

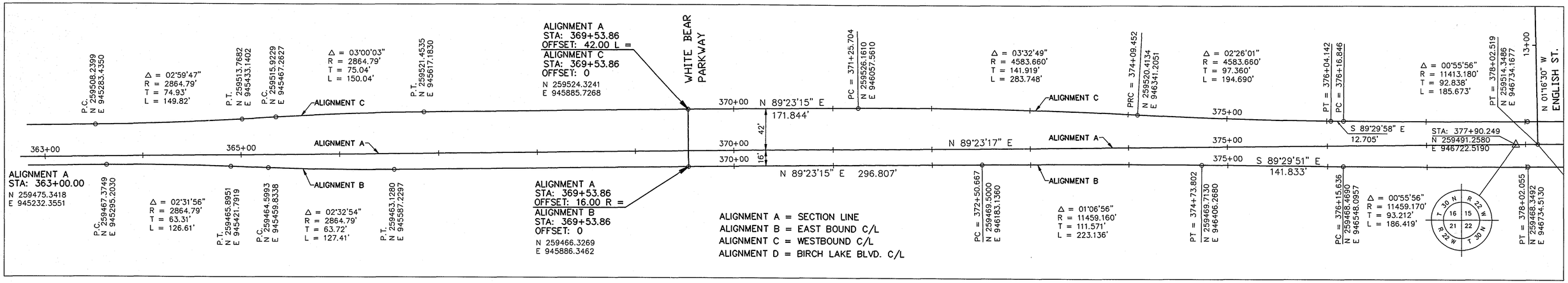
28-143

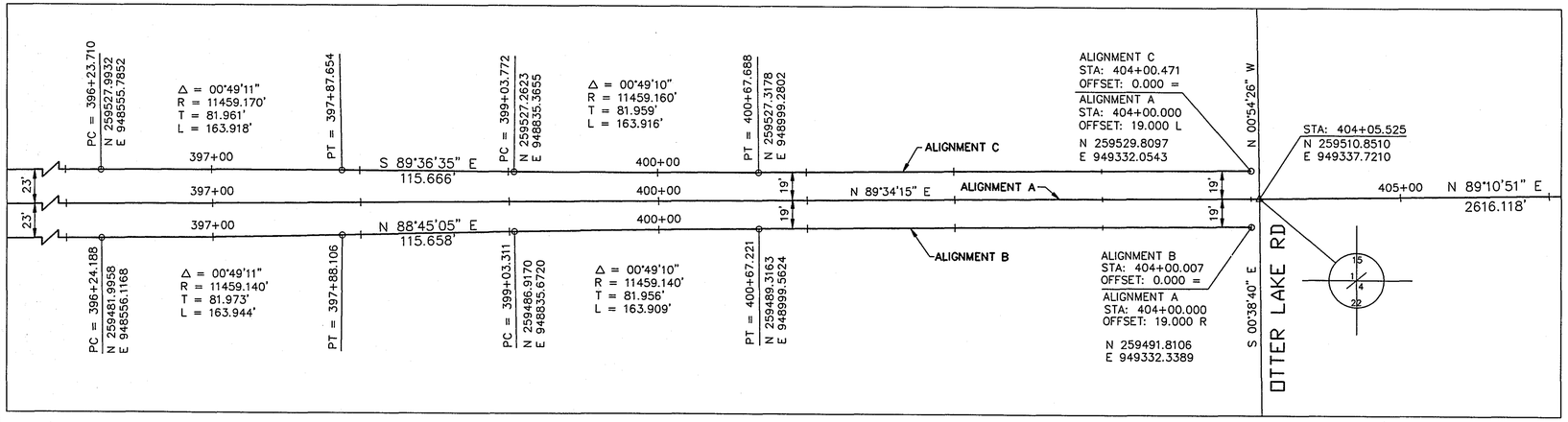
PAVING PLAN

STA. 402+00 TO 405+46.08

S.A.P. 62-696-01 C.T.B. SHEET NO. 27 OF 92 SHEETS

G:\DWGS\TH96/PAVEPLAN 3/7/95





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

David L. Kholl

REG. NO. 14257 DATE 3-20-95

28-143
ALIGNMENT

MILL BITUMINOUS STA. 364+30 TO 368+29 AND OVERLAY WITH 1 1/2" OF TYPE 41 WEARING COURSE

WHITE BEAR PARKWAY

SAWCUT AS DIRECTED FOR SANITARY SEWER CONSTRUCTION.

REMOVE MEDIAN 364+30 – 368+86

CONSTRUCT 10" DIP SANITARY SEWER AND MANHOLE 4A. CONNECT TO EXISTING MANHOLES 4 AND 5. SEE PROFILE THIS SHEET.

MH 5

SALVAGE 42" R.C.P. APRON. FURNISH AND INSTALL 3 42" R.C.P. LONG BENDS INSTALL R.C.P. APRON

REMOVE SANITARY SEWER PIPE STATION 369+25 – 378+10. PLUG AS DIRECTED – SEE SPECIAL PROVISIONS.

ADJUST GATE VALVE BOX

10" DIP

AP 2 42"RCP

MH6

AP 6A 42"RCP

REMOVE CONC. CURB & GUTTER

CONST. LIMITS

MH 4A

REMOVE C & GUTTER AND CONC S.W. 369+60 – 375+22

REMOVE GUARDRAIL 370+00 – 376+35 LT. 376+50 LT.

REMOVE C.M.P.

10" DIP

MILL AND OVERLAY

REMOVE MANHOLE

MH 8

REMOVE MANHOLE

MH 9

REMOVE C.M.P.

REMOVE MANHOLE

MH 11

ADJUST GATE VALVE BOX

REMOVE C.M.P.

MH 4

ADJUST GATE VALVE BOXES

AP 1 24"RCP

24"RCP

CB 3

CB 7

REMOVE CONC. CURB & GUTTER

REMOVE GUARDRAIL 370+00 – 376+00 RT.

CONST. LIMITS

SAWCUT INTERSECTION AS DIRECTED

EDGE OF ROAD

NOTES

REMOVAL OF ALL CONCRETE CURB AND GUTTER SHALL BE TO THE NEAREST JOINT AS DIRECTED

SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES

GRAPHIC SCALE

(IN FEET)

CONNECT 6" D.I.P. TO EXISTING WATERMAIN LEFT 202'± 1 EACH

SAWCUT BIT. AS DIRECTED

1" CORPORATION STOP 2 EACH. ADJUST CURB STOP BOX 2 EACH. CONNECT TO EXISTING WATER SERVICES 2 EACH.

SAWCUT AND REMOVE CONCRETE PAVEMENT AS DIRECTED

SAWCUT BIT. AS DIRECTED

6" DIP WATERMAIN 150 LF

REMOVE CHAIN LINK FENCE 379+00 – 380+00

SALVAGE AND INSTALL WOOD FENCE

ADJUST GATE VALVE BOXES

FURNISH AND INSTALL 12" X 6" TEE, 1 HYDRANT, 1 – 6" GATE VALVE AND BOX AS DIRECTED.

FURNISH AND INSTALL 12" X 6" TEE AND CONNECT TO EXISTING 6" WATERMAIN

ADJUST GATE VALV

CONST. LIMITS

ENGLISH ST

MH 12

CONNECT 12" D.I.P. TO EXISTING WATERMAIN (378+50) FURNISH AND INSTALL 1 – 12" GV AND BOX

MH 17

REMOVE C.M.P.

REMOVE C.M.P.

REMOVE C.M.P.

MH 10

SAWCUT BIT. AS DIRECTED AND CLOSE ENTRANCE

SAWCUT BIT. AS DIRECTED AND CONSTUCT NEW ENTRANCE

MH 13

MH 14

MH 15

MH 16

SAWCUT BIT. AS DIRECTED

N.S.P. GAS MANHOLE AND GATEVALES TO BE ADJUSTED BY OWNERS

M.H. 5
T.C. 926.24
INV. SO. 914.50
MAKE SUITABLE CONNECTION AND PLUG AS DIRECTED.

M.H. 4A
T.C 925.70
INV. SO. 922.47
INV. SO. 914.84
INV. NO. 914.84

M.H. 4
T.C. 926.24
INV. 922.95
MAKE SUITABLE CONNECTION AND PLUG AS DIRECTED

925.00
920.00
915.00

EXISTING 42" RCP INVERT 916.0±

112' 10" D.I.P. + 0.3 %

122' 10" D.I.P. + 0.4 %

CONSTRUCT OUTSIDE DROP

EXISTING PVC SEWER

0+00 1+00 2+00 3+00

SANITARY SEWER PROFILE WHITE BEAR PARKWAY

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

David R. Ahl

REG. NO. 14257 DATE 3-2095

28-143

CITY UTILITIES AND REMOVALS

C:\DWGS\PL96-A\BORDER 3/10/95

GRAPHIC SCALE

(IN FEET)

① CONTRACTOR SHALL EXCAVATE AND EXPOSE EXISTING SERVICE. IF SIZE OR TYPE OF SERVICE REQUIRES, THE CONTRACTOR SHALL: REPLACE CORPORATION STOP; INSTALL 1" TYPE K COPPER WATER SERVICE; REPLACE CURB STOP BOX; AND CONNECT TO EXISTING WATER SERVICE. ALL WORK SHALL BE PAID FOR AT APPROPRIATE BID PRICE FOR WORK AND MATERIALS. SEE SPECIAL PROVISIONS.

NK FENCE
00

RNISH AND INSTALL
" X 6" TEE AND CONNECT
EXISTING 6" WATERMAIN

ADJUST GATE VALVE BOX

CONST. LIMITS

MH 17

BOX

C.M.P.

SAWCUT BIT. AS DIRECTED

D
TED

CONNECT 6" D.I.P. TO EXISTING WATERMAIN LEFT 202'±

6" DIP WATERMAIN 150 LF

ADJUST GATE VALVE BOX

FURNISH AND INSTALL 12" X 6" TEE

SAWCUT BIT. AS DIRECTED

CLARENCE ST

CONNECT TO EXISTING WATER SERVICE, F & I 1" CORPORATION STOP, ADJUST CURB STOP BOX

SAWCUT AND REMOVE CONCRETE PAVEMENT AS DIRECTED

RELOCATE HYDRANT F & I 6" GATE VALVE AND BOX.

SALVAGE & INSTALL WOOD FENCE

MH 18

REMOVE C.M.P.

CONST. LIMITS

REMOVE C.M.P.

SAWCUT BIT. AS DIRECTED

CONNECT 1" WATER SERVICE F & I 1" CORPORATION STOP ADJUST CURB STOP BOX

SAWCUT BIT. AS DIRECTED

ADJUST CURB BOXES

REMOVE C.M.P.

END 12" WATERMAIN LOWERING 387+00 F & I 12" GATE VALVE AND BOX

REMOVE C.M.P.

REMOVE CONC. CURB & GUTTER AND SIDEWALK (MEDIAN) AS DIRECTED

STA 388+57± WET TAP AND F & I 8" DIP

STA 388+67± F & I 8" PVC SEWER. CONNECT TO EXISTING MH 19. SEE SPECIAL PROVISIONS.

SAWCUT BIT. AS DIRECTED

MH 19

ADJUST CURB BOX

REMOVE BIT. PATH AS DIRECTED

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

MH 22

SALVAGE DELINEATORS AND POST AS NECESSARY FOR PATH AND SIDEWALK CONST.

CONST. LIMITS

MH 21

ADJUST GATE VALVE BOXES

REMOVE C.M.P.

SUPERAMERICA

PROTECT INPLACE SIGN AND LANDSCAPE.

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

REMOVE CONC CURB & GUTTER

12" RCP

CB 23
VAULT 27

12" RCP

12" RCP

MH 25

REMOVE C.M.P.

REMOVE R.C.P. AND APRONS AS DIRECTED

CONST. LIMITS

8" PVC

MH 15

MH 16

SAWCUT BIT. AS DIRECTED

NOTES

REMOVAL OF ALL CONCRETE CURB AND GUTTER SHALL BE TO THE NEAREST JOINT AS DIRECTED

SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES

EXISTING BIT. PATH

BIRCH LAKE ROAD

MH 20

REMOVE CONC. CURB & GUTTER AS DIRECTED

PARK AVE.

SAWCUT BIT. AS DIRECTED

REMOVE CONC. SIDEWALK AS DIRECTED

SAWCUT BIT. AS DIRECTED

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

David L. Rholl

REG. NO. 14257 DATE 3-20-95

28-193

CITY UTILITIES AND REMOVALS

C:\DWGS\PL96-A\BORDER 3/10/95

① CONTRACTOR SHALL EXCAVATE AND EXPOSE EXISTING SERVICE. IF SIZE OR TYPE OF SERVICE REQUIRES, THE CONTRACTOR SHALL: REPLACE CORPORATION STOP; INSTALL 1" TYPE K COPPER WATER SERVICE; REPLACE CURB STOP BOX; AND CONNECT TO EXISTING WATER SERVICE. ALL WORK SHALL BE PAID FOR AT APPROPRIATE BID PRICE FOR WORK AND MATERIALS. SEE SPECIAL PROVISIONS.

GRAPHIC SCALE
(IN FEET)

SUPERAMERICA

SALVAGE DELINEATORS AND POST AS NECESSARY FOR PATH AND SIDEWALK CONST.

PROTECT INPLACE SIGN AND LANDSCAPE.

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

ADJUST GATE VALVE BOXES

REMOVE CONC CURB & GUTTER

STA 397+15± AND STA 397+80± F & I 1" CORPORATION STOP, 1" CURB STOP BOX, AND 1" TYPE K WATER SERVICE. SEE SPECIAL PROVISIONS.

STA 397+05± AND STA 397+90± F & I 4" PVC SEWER WITH 4" SADDLE. SEE SPECIAL PROVISIONS.

SAWCUT BIT. AS DIRECTED

ADJUST CURB BOXES

SAWCUT BIT. AS DIRECTED

ADJUST CURB BOXES

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

SAWCUT CONC. AS DIRECTED

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

SAWCUT BIT. AND CONSTRUCT TEMPORARY ENT. AS DIRECTED

SAWCUT BIT. AS DIRECTED

MH 22 · MH 21 · MH 25 · MH 26 · MH 30 · MH 36 · MH 37 · MH 38 · MH 40 · MH 41 · MH 39 · MH 31 · MH 29 · MH 35

CB 23 · VAULT 24 · CB 27 · AP 28 · AP 34 · AP 33 · AP 32

12"RCP · 15"RCP · 8"PVC · 36"CP

CONST. LIMITS

ADJUST GATE VALVE BOXES

REMOVE C.M.P.

REMOVE C.M.P.

REMOVE C.M.P.

REMOVE C.M.P.

REMOVE C.M.P.

RELOCATE HYDRANT F & I 6" GATE VALVE AND BOX.

ADJUST GATE VALVE BOXES

REMOVE R.C.P. AND APRONS AS DIRECTED

REMOVE R.C.P. AND APRONS AS DIRECTED

ADJUST CURB BOX

393+00 · 394+00 · 395+00 · 396+00 · 397+00 · 398+00 · 399+00 · 400+00 · 401+00 · 402+00 · 403+00 · 404+00 · 405+00 · 405+46 END · 407+00 · 408

405+46 END
CONCRETE PAVEMENT

15" CMP

SAWCUT BIT. AS DIRECTED

REPLACE 10" PVC SANITARY SEWER. CONNECT TO EXISTING MANHOLES 30 AND 31.

STA 400+07± WET TAP AND F & I 8" DIP

STA 400+17± F & I 8" PVC SEWER. CONNECT TO MH 36. SEE SPECIAL PROVISIONS.

NOTES

REMOVAL OF ALL CONCRETE CURB AND GUTTER SHALL BE TO THE NEAREST JOINT AS DIRECTED

SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES

SAWCUT BIT. AND CONSTRUCT TEMPORARY ENT. AS DIRECTED

FUTURE CONSTRUCTION
TEMPORARY BIT. TRANSITION AREA

OTTER LAKE ROAD

SAWCUT BIT AND CONC. AS DIRECTED

SAWCUT BIT AS DIRECTED

SAWCUT BIT AS DIRECTED

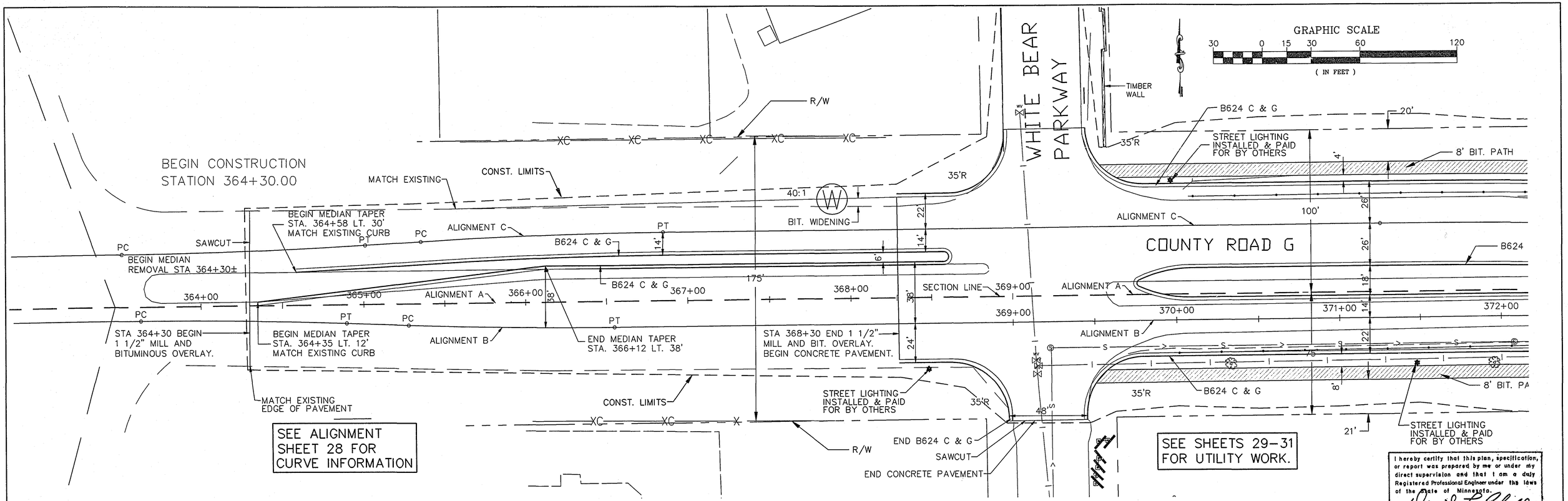
SAWCUT BIT. AS DIRECTED

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Rhodes
REG. NO. 14257 DATE 3-20-96

28-143

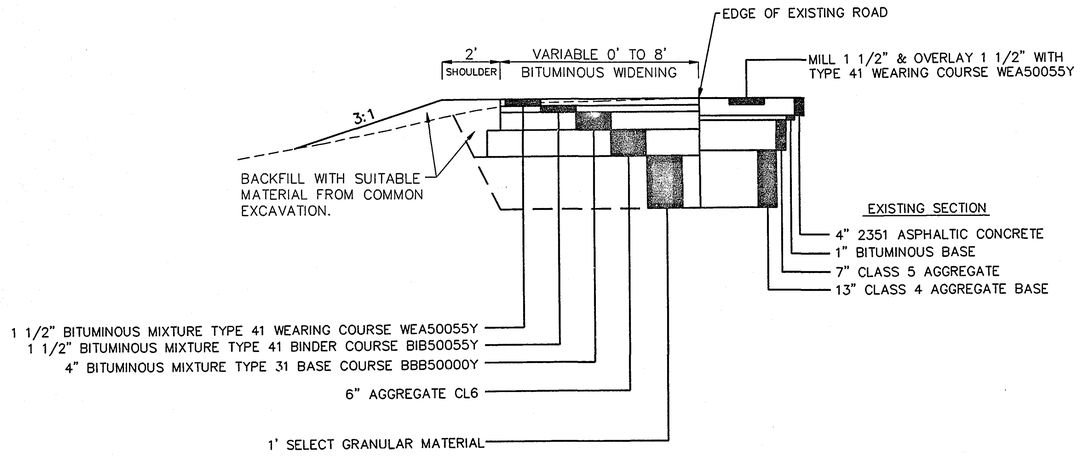
CITY UTILITIES AND REMOVALS

C:\DWGS\PL96-A\BORDER 3/10/95

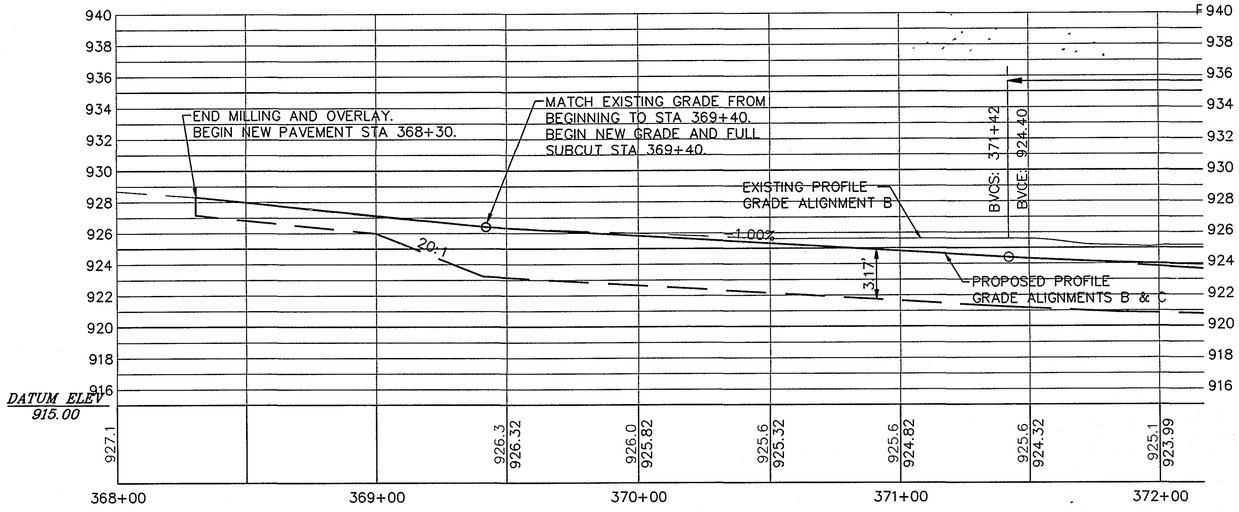


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel F. Rindt
Date 3-20-95 Reg. No. 14257

DETAIL W



TYPICAL SECTION
BITUMINOUS WIDENING
STA. 366+50 TO STA. 368+30



PLAN & PROFILE
STA. 363+00 TO 372+00

28-143

X:\DWGS\TH-96\PL96-A1 3/13/95

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

SEE SHEETS 29–31 FOR UTILITY WORK.

SEE SHEETS 18–20 FOR WALL DETAILS

COUNTY ROAD G

ENGLISH ST.

WALL

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: PJK
DATE: 12-96

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David T. Krull
Date 3-20-95 Reg. No. 14257

LOW POINT ELEV = 923.90
LOW POINT STA = 372+42
PVI STA = 372+42
PVI ELEV = 923.40
A.D. = 2.00
K = 100.00
200.00' VC

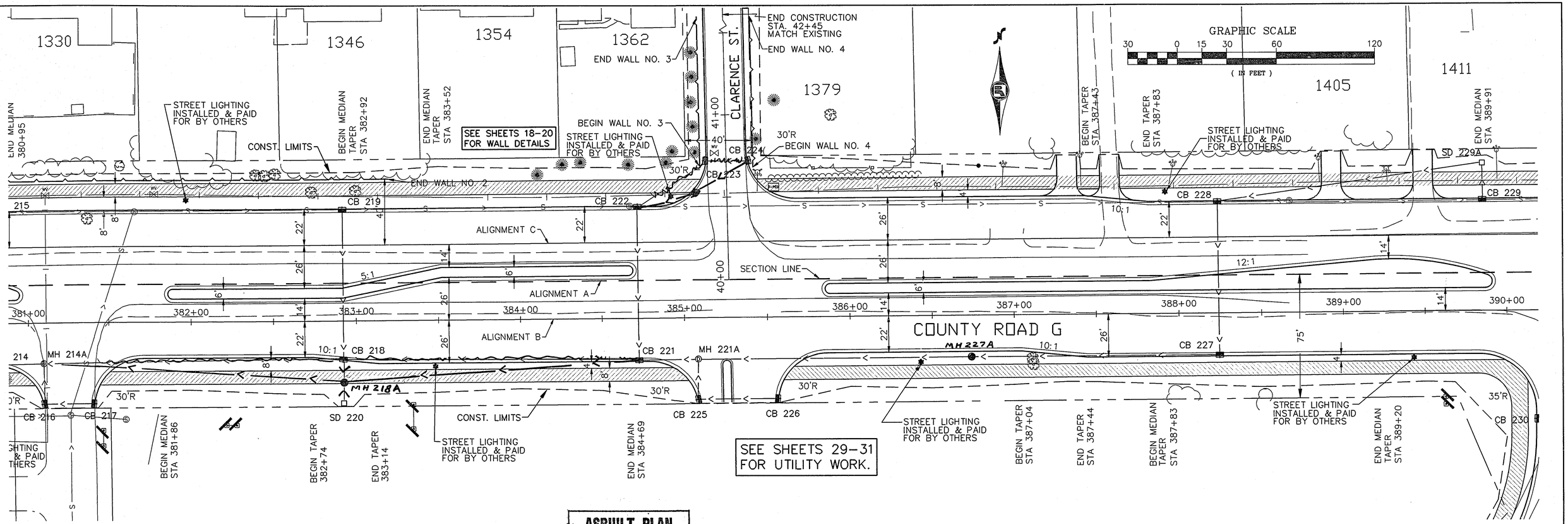
HIGH POINT ELEV = 929.31
HIGH POINT STA = 378+66.67
PVI STA = 378+50
PVI ELEV = 929.48
A.D. = −1.50
K = 66.67
100.00' VC

PLAN & PROFILE
STA. 372+00 TO 381+00

28-143

S.A.P. 62–696–01 C.T.B. SHEET NO. 33 OF 92 SHEETS

X:\DWGS\TH-96\PL96-A1 3/13/95



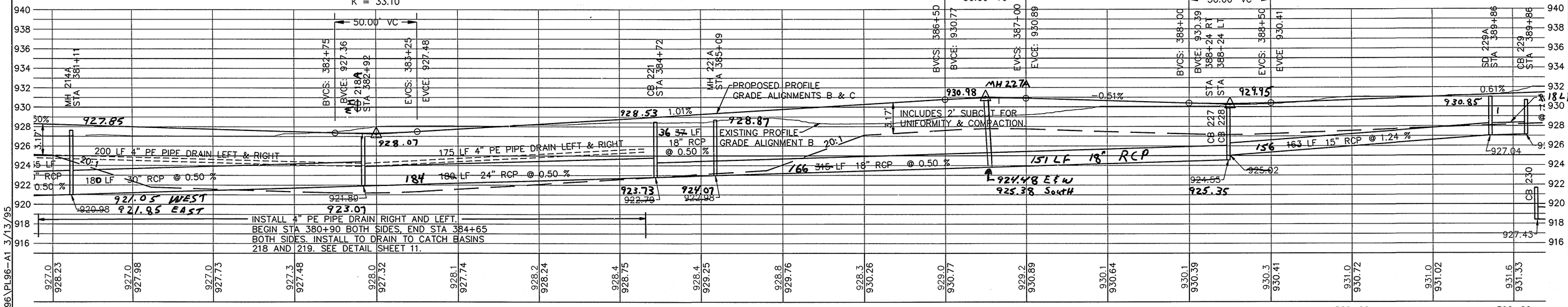
ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: PJK
DATE: 12-96

LOW POINT ELEV = 927.31
LOW POINT STA = 382+91.55
PVI STA = 383+00
PVI ELEV = 927.23
A.D. = 1.51
K = 33.10

HIGH POINT ELEV = 930.94
HIGH POINT STA = 386+83.30
PVI STA = 386+75
PVI ELEV = 931.02
A.D. = −1.52
K = 32.95

LOW POINT ELEV = 930.33
LOW POINT STA = 388+22.70
PVI STA = 388+25
PVI ELEV = 930.26
A.D. = 1.12
K = 44.81

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David R. Rholl
Date 3-20-95 Reg. No. 14757



PLAN & PROFILE 28-143
STA. 381+00 TO 390+00

S.A.P. 62-696-01 C.T.B. SHEET NO. 34 OF 92 SHEETS

X:\DWGS\TH-96\PL96-A1 3/13/95

1425

1493

CANOPY
SUPERAMERICA

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

END MEDIAN STA 389+91

BEGIN MEDIAN STA 390+91

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

PROTECT TEST WELL

CONST. LIMITS

GP

PROTECT

END C & G LT. 116' MATCH EXISTING

MATCH AS DIRECTED

END MEDIAN STA 395+26

MATCH AS DIRECTED

MH 26

PROTECT TEST WELL

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

BEGIN TAPER STA 397+89

END TAPER STA 398+29

AP 241

CB 229

CB 234

CB 236

CB 240

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

ALIGNMENT C

ALIGNMENT A

ALIGNMENT B

SECTION LINE

COUNTY ROAD G

MH 232

CB 233

MH 235A

CB 235A

MH 236A

MH 239A

CB 239

MH 237A

CB 230

CB 231

BIRCH LAKE BLVD

SEE SHEET NO. 37

CONST. LIMITS

BEGIN MEDIAN TAPER STA 392+89

END MEDIAN TAPER STA 394+29

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

PROTECT TEST WELL

CONST. LIMITS

BEGIN MEDIAN STA 396+26

MH 237

REMOVE MH 29 AND BUILD MH 237 AT SAME LOCATION.

BEGIN MEDIAN TAPER STA 397+69

END MEDIAN STA 398+42

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

SEE SHEETS 29-31
FOR UTILITY WORK.

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: PJK
DATE: 12-96

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David T. Rholl
Date 3-20-95 Reg. No. 14257

HIGH POINT ELEV = 932.15
HIGH POINT STA = 391+47.00
PVI STA = 391+50
PVI ELEV = 932.24
A.D. = -1.38
K = 36.11
50.00' VC

PVI STA = 396+00
PVI ELEV = 928.75
A.D. = -0.82
K = 60.65
50.00' VC

LOW POINT ELEV = 925.71
LOW POINT STA = 398+79.53
PVI STA = 398+50
PVI ELEV = 924.75
A.D. = 2.67
K = 112.20
300.00' VC

BVCS: 391+25
BVCE: 932.09
EVCS: 391+75
EVCE: 932.05

BVCS: 395+75
BVCE: 928.94
EVCS: 396+25
EVCE: 928.35

BVCS: 397+00
BVCE: 927.15

EXISTING PROFILE GRADE ALIGNMENT B

PROPOSED PROFILE GRADE ALIGNMENTS B & C

61%

0.78%

1.60%

3.17

930.16

924.16

930.87 — 18 LF 15" RCP @ 0.5% — 927.04 / 927.15

931.54 — 67 LF 15" RCP @ 0.5% — 927.00 / 926.74

930.57 — 40 LF 15" RCP @ 0.5% — 927.43 / 927.21

930.38 — 51 LF 15" RCP @ 0.5% — 927.00 / 926.79

931.54

300 306 LF 15" RCP @ 0.93 %

223 255 LF 15" RCP @ 1.00 %

75 71 LF @1.04 % 24" RCP — 921.61 / 920.86

245 LF 24" RCP @ 0.50 % — 920.79 / 920.39

921.45

319.32

MH 236A 926.89

MH 237A 925.63

24" RCP
60 LF

920.53

925.62

921.29
52

173

931.6 931.33
932.3 931.63
932.7 931.94
933.1 932.15
933.0 931.85
933.1 931.46
933.1 931.08
932.5 930.69
932.1 930.30
932.0 929.91
931.0 929.53
930.7 929.14
930.1 928.70
929.3 927.95
929.2 927.15
928.3 926.46
928.0 926.00
927.8 925.75
928.0 925.73

390+00 391+00 392+00 393+00 394+00 395+00 396+00 397+00 398+00 399+00

PLAN & PROFILE
STA. 390+00 TO 399+00 28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 35 OF 92 SHEETS

X:\DWGS\TH-96\PL96-A1 3/13/95

1493 1501 1501 1509 1509

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

CONST. LIMITS

CB 246

SEE SHEET NO. 38

CB 247

11+00

BEGIN TAPER STA 405+46

1561 1571

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

END TAPER STA 406+75

CONSTRUCT TEMPORARY BIT. ENTRANCE AS DIRECTED.

SD 244 SD 245

35'R 26' 26'

CB 243

CB 252

75' 22' 45' 50'

COUNTY ROAD G

SECTION LINE

ALIGNMENT C

END CONCRETE PAVEMENT AND BEGIN TEMPORARY CONSTRUCTION STA 405+46.

MATCH EXISTING BIT. STA 406+75

TAPER BITUMINOUS TO MATCH EXISTING AS DIRECTED. 408+00

399+00 400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00

MH242A MH243A ALIGNMENT B ALIGNMENT A 10+00

22' 26' 38' 41'

15:1

CB 242

75'

MH 248

CB 251

BIT. WIDENING

CONST. LIMITS

CONSTRUCT TEMPORARY BIT. ENTRANCE AS DIRECTED.

UTIL. BOX

35'R 35'R

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

BEGIN TAPER STA 400+68

END TAPER STA 400+68

CONST. LIMITS

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

BEGIN TAPER STA 405+46

1558 1566

26' 26'

CB 249 9+00 CB 250

OTTERLAKE RD

SEE SHEET NO. 38

1584

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

SEE SHEETS 29-31 FOR UTILITY WORK.

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: PJK
DATE: 12-96

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel D. Kroll
Date 3-20-95 Reg. No. 14257

PVI STA = 403+25
PVI ELEV = 929.85
A.D. = -0.58
K = 86.95
50.00' VC

PVI STA = 405+75
PVI ELEV = 931.10
A.D. = 0.83
K = 60.00
50.00' VC

HIGH POINT ELEV = 932.10
HIGH POINT STA = 406+75
PVI STA = 406+50
PVI ELEV = 932.10
A.D. = -1.33
K = 37.50
50.00' VC

940 938 936 934 932 930 928 926 924 922 920 918 916

EVCS: 400+00 EVCE: 926.36

CB 242A STA 401+35 RH

EXISTING PROFILE GRADE ALIGNMENT B

1.07%

927.66

PROPOSED PROFILE GRADE ALIGNMENTS B & C

INCLUDES 2' SUBCUT FOR UNIFORMITY & COMPACTION.

3.17'

144 ~~232~~ LF 18" RCP @ 0.59 %

~~2.53~~ ~~255~~ LF 24" RCP @ ~~0.73~~ %

923.~~16~~ 26

921.29

924.~~52~~ 15

929.25

BVCS: 403+00 BVCE: 929.58

EVCS: 403+50 EVCE: 929.97

MH 243A STA 403+67

405+46 END PERMANENT CONSTRUCTION BEGIN TEMPORARY CONSTRUCTION

BVCS: 405+50 BVCE: 930.98

EVCS: 406+00 EVCE: 931.43

BVCS: 406+25 BVCE: 931.77

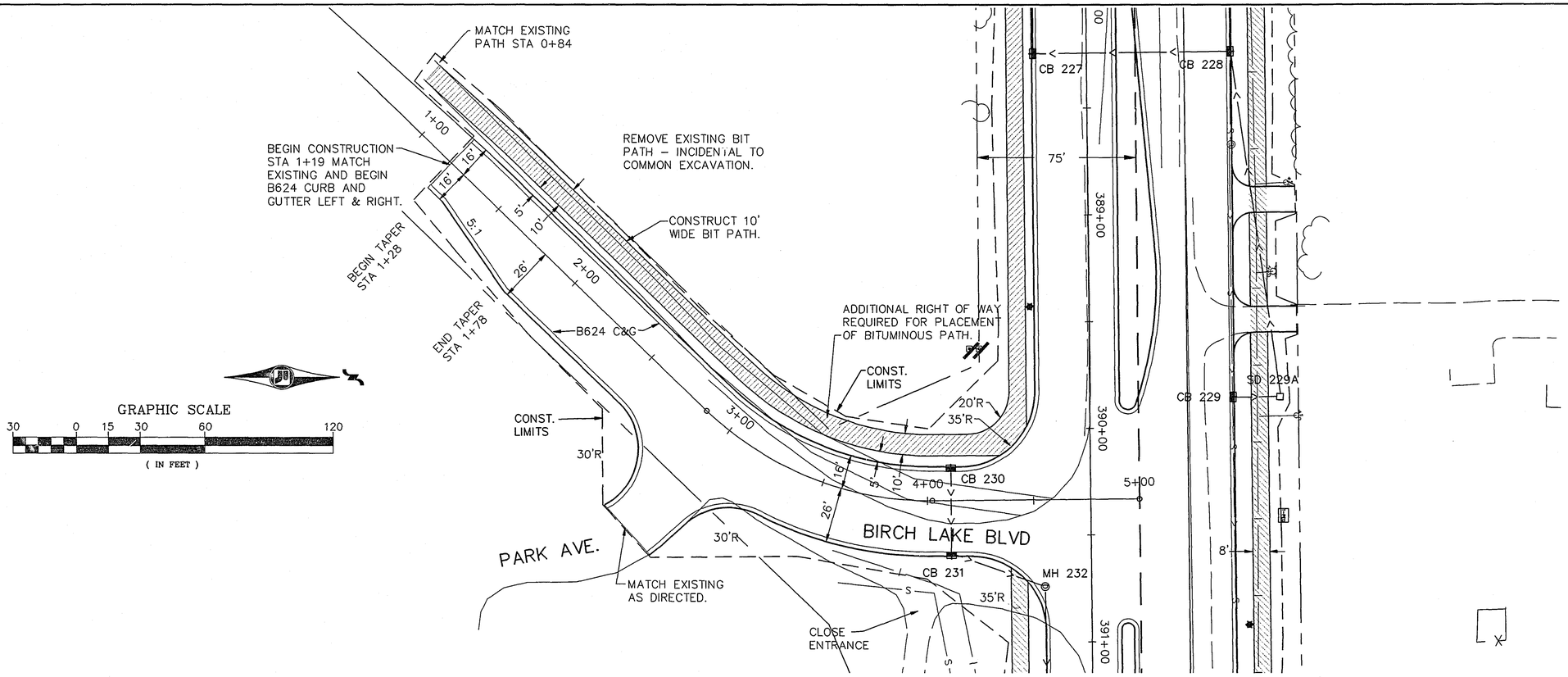
EVCS: 406+75 EVCE: 932.10 MATCH EXISTING

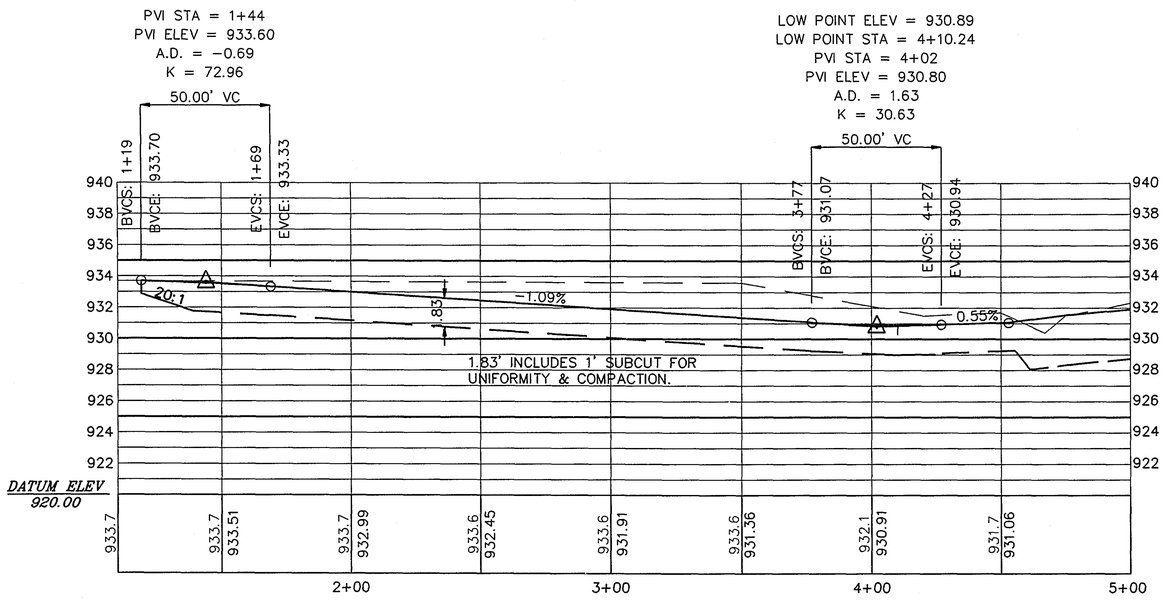
0.50% 1.33% 0.0%

20:1

405+50 END 2' SUBCUT FOR UNIFORMITY & COMPACTION.

| | | |





I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David S. Wall
Date 3-20-95 Reg. No. 14257

PLAN & PROFILE
BIRCH LAKE BLVD.
STA. 0+50 TO 5+00 28-143

S.A.P. 62–696–01 C.T.B. SHEET NO. 37 OF 92 SHEETS

X:\DWGS\TH-96\PL96-A2 3/16/95

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

BEGIN CONSTRUCTION STA 6+00

BEGIN TAPER
END TAPER
CONST. LIMITS
UTIL. BOX
35'R
CB 248
CB 249
CB 250
CB 251
CB 252
CB 246
CB 247
SD 245
OTTER LAKE RD
26'
BEGIN B624 CURB AND GUTTER STA 7+50 BOTH SIDES.
BEGIN TAPER STA 12+50
END B624 CURB AND GUTTER STA 12+50 BOTH SIDES.
END TAPER STA 14+00
END CONSTRUCTION STA 14+00
20:1±
30:1
4580
403+00
404+00
405+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00

HIGH POINT ELEV = 929.95
HIGH POINT STA = 7+67.53
PVI STA = 7+62
PVI ELEV = 930.03
A.D. = −1.28
K = 38.94

LOW POINT ELEV = 929.38
LOW POINT STA = 8+99.44
PVI STA = 9+08
PVI ELEV = 929.30
A.D. = 1.52
K = 32.89

LOW POINT ELEV = 929.28
LOW POINT STA = 11+10.33
PVI STA = 11+02
PVI ELEV = 929.20
A.D. = 1.50
K = 33.33

HIGH POINT ELEV = 929.83
HIGH POINT STA = 12+37.47
PVI STA = 12+42
PVI ELEV = 929.90
A.D. = −1.22
K = 40.93

50.00' VC

PVI STA = 6+00
PVI ELEV = 928.76
MATCH EXISTING

BVCS: 7+37
BVCE: 929.83
EVCS: 7+87
EVCE: 929.91

BVCS: 8+83
BVCE: 929.43
EVCS: 9+33
EVCE: 929.56

PVI STA = 9+57
PVI ELEV = 929.80
SOUTH EDGE TH 96
NORTH EDGE TH 96

PVI STA = 10+42
PVI ELEV = 929.80

BVCS: 10+77
BVCE: 929.45
EVCS: 11+27
EVCE: 929.33

BVCS: 12+17
BVCE: 929.78
EVCS: 12+67
EVCE: 929.72

PVI STA = 14+00
PVI ELEV = 928.76
MATCH EXISTING

0.78% −0.50% 1.02% −1.00% 0.50% −0.72%
20:1 20:1
2.08' 3.17'
2.08' INCLUDES 1" SUBCUT FOR UNIFORMITY & COMPACTION.
3.17' INCLUDES 2' SUBCUT FOR UNIFORMITY & COMPACTION.

934 932 930 928 926 924 922 920 918 916

DATUM ELEV 915.00

6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	14+00
928.8 / 928.76	929.1 / 929.15	929.5 / 929.54	929.9 / 929.91	930.2 / 929.84	930.4 / 929.59	930.5 / 929.38	931.0 / 929.73	931.5 / 930.51
931.0 / 929.72	930.5 / 929.30	930.4 / 929.44	930.2 / 929.69	929.9 / 929.81	929.7 / 929.48	929.2 / 929.12	928.8 / 928.76	

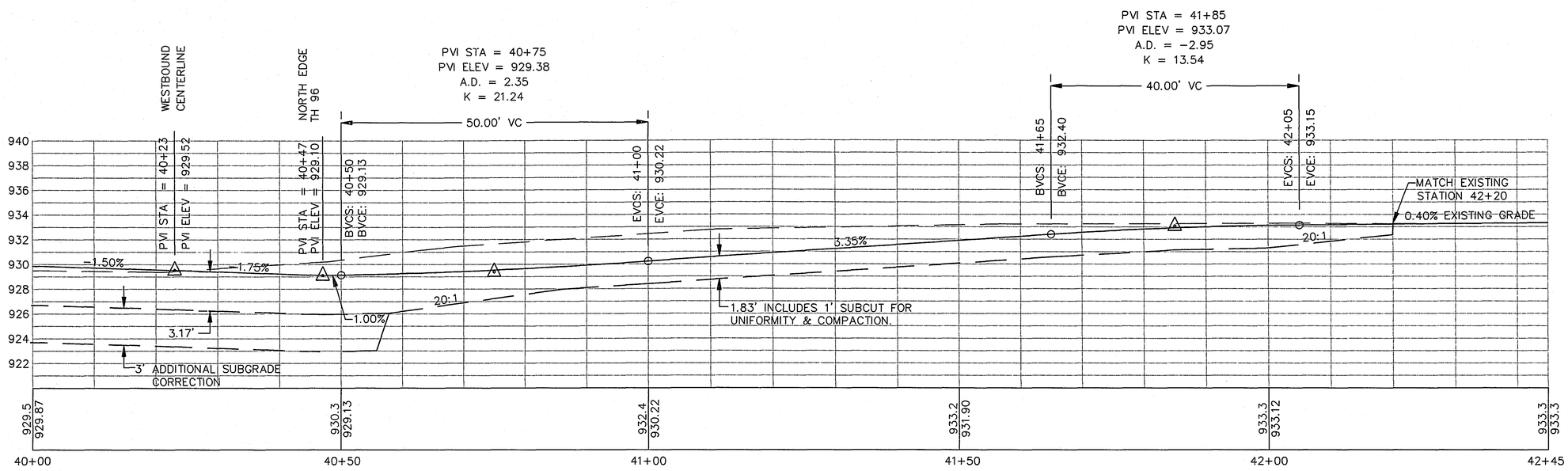
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David L. Bhall
Date 3-20-95 Reg. No. 14257

PLAN & PROFILE
OTTER LAKE ROAD
STA. 6+00 TO 14+00

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 38 OF 92 SHEETS

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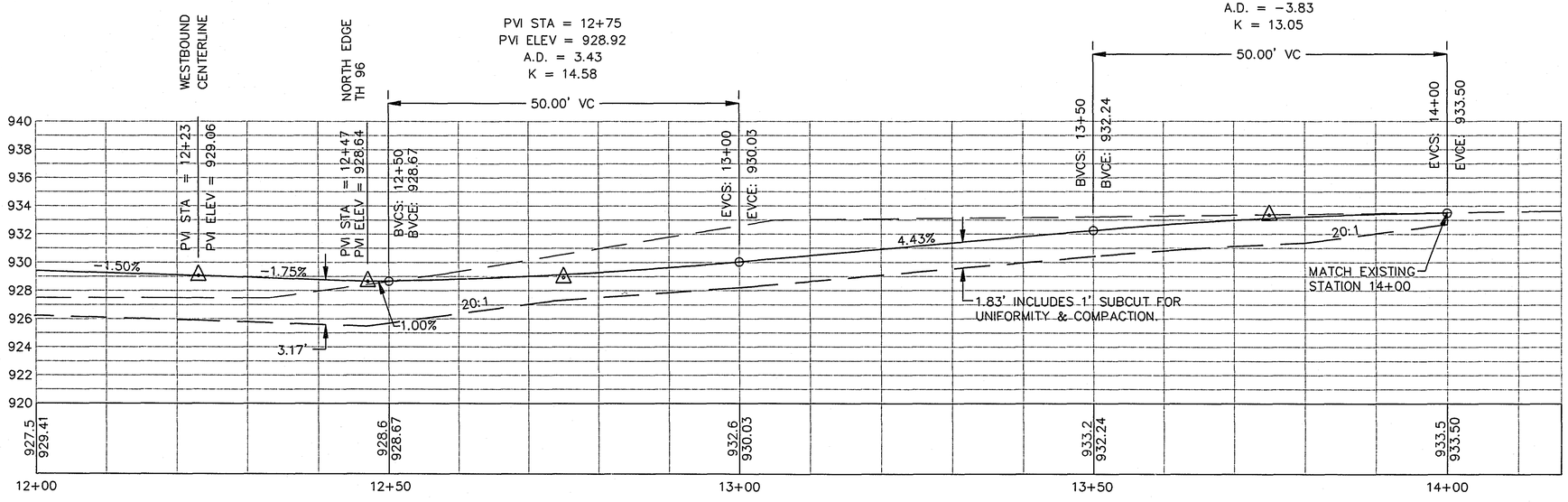


STATION 40+00 = SECTION LINE
(TH96) STATION 385+27.030

CLARENCE ST. PROFILE

HORIZONTAL SCALE
10 0 5 10 20 40
(IN FEET)

VERTICLE SCALE
0 1 2 3 4 5 10 20
(IN FEET)



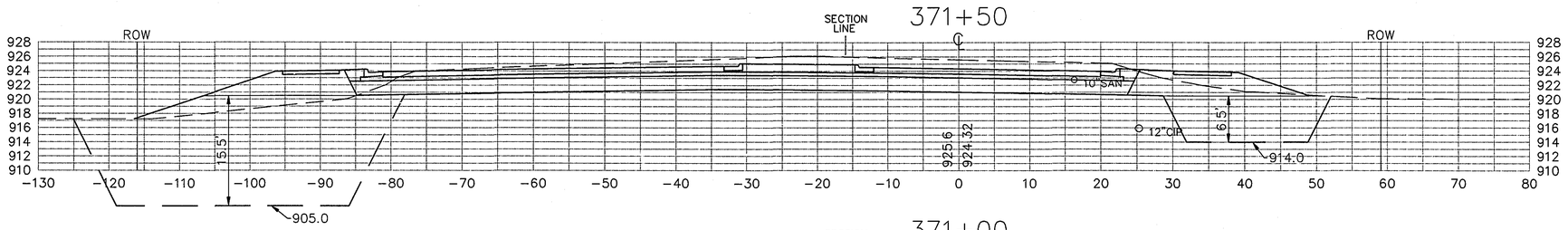
STATION 12+00 = SECTION LINE
(TH96) STATION 378+12.473

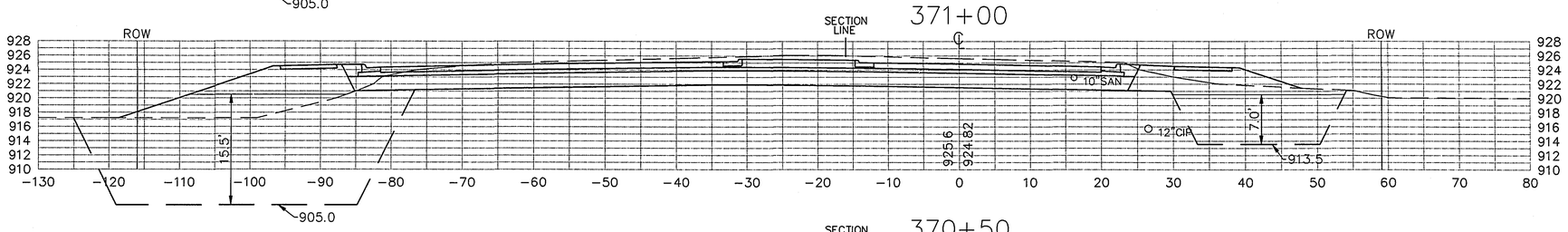
ENGLISH ST. PROFILE

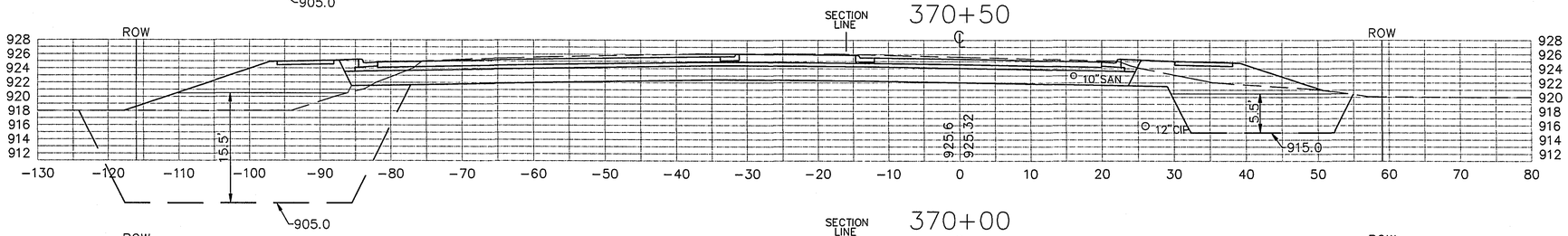
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Kroll
REG. NO. 14257 DATE 3-20-96

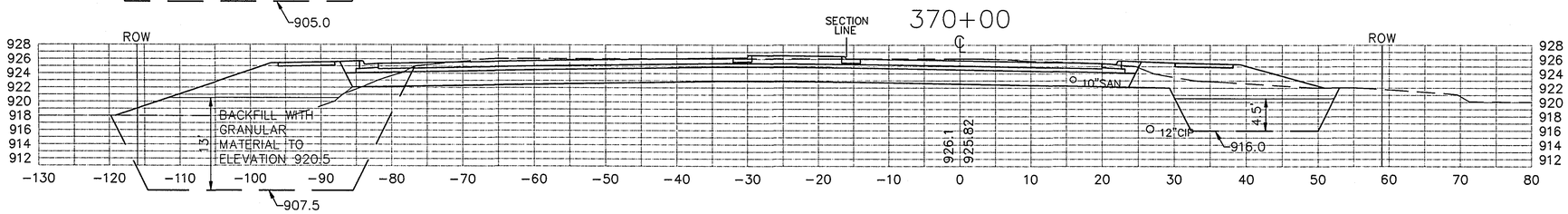
HORIZONTAL SCALE: 1" = 10'
VERTICLE SCALE: 1" = 5'

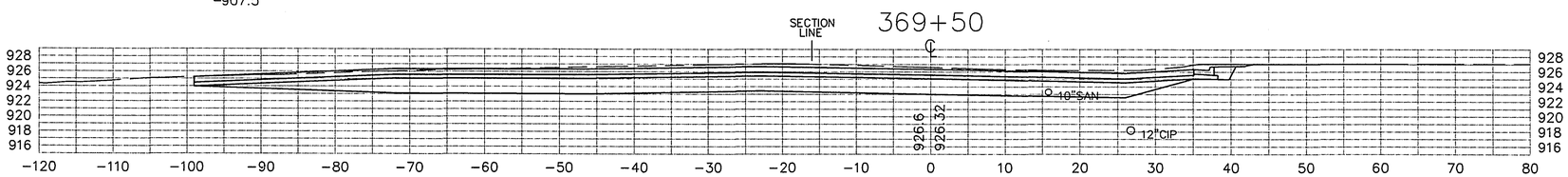
28-143
ENGLISH ST. PROFILE
CLARENCE ST. PROFILE

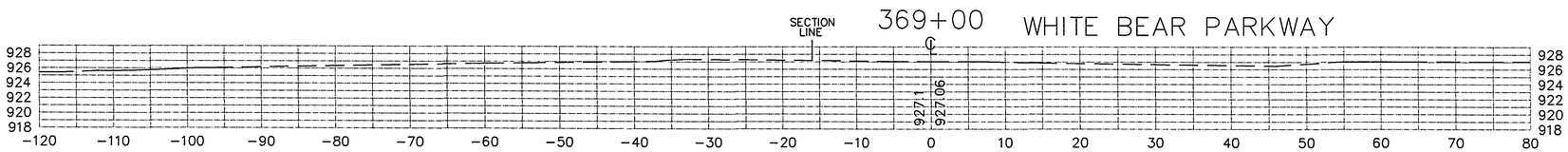










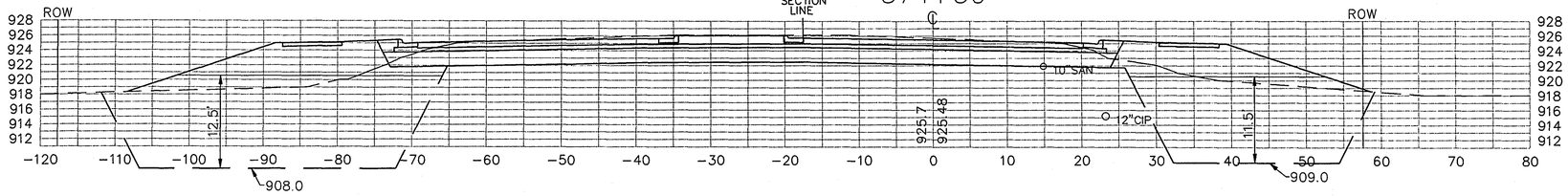


SCALE 10 X 10

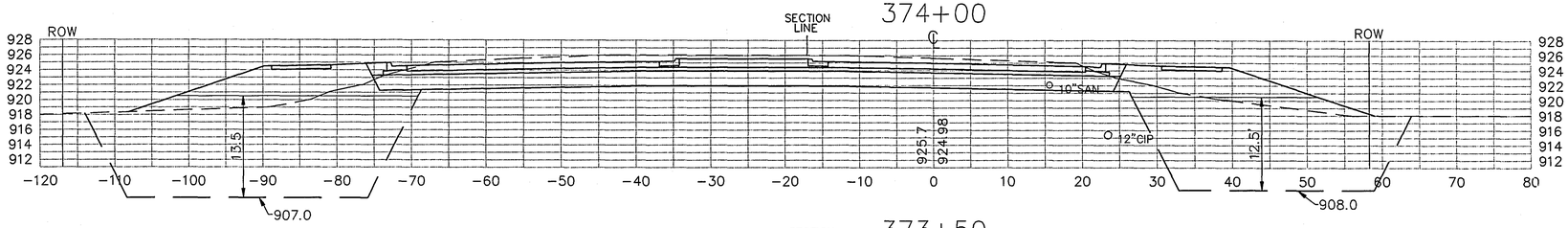
ZB-143

CROSS SECTIONS
STA. 369+00 TO 371+50

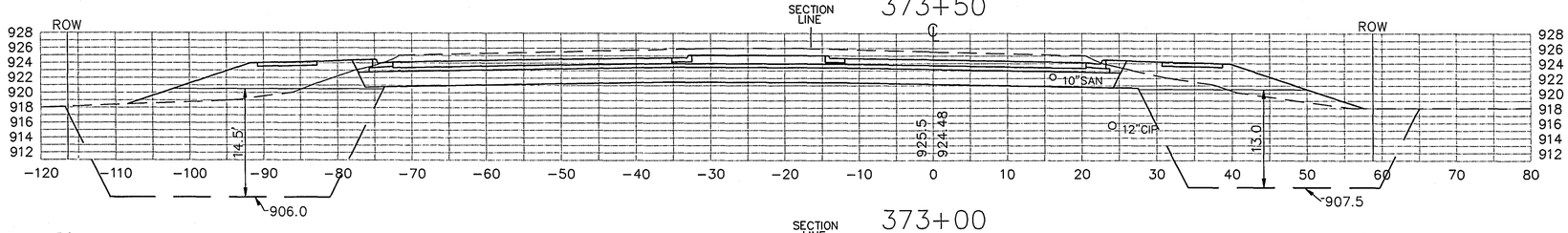
374+50



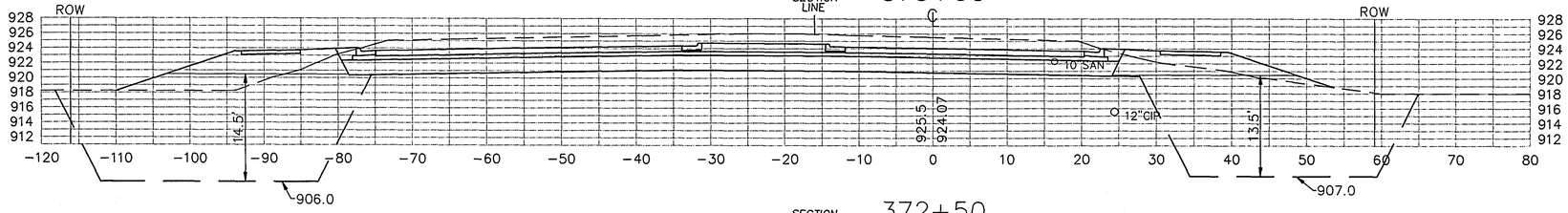
374+00



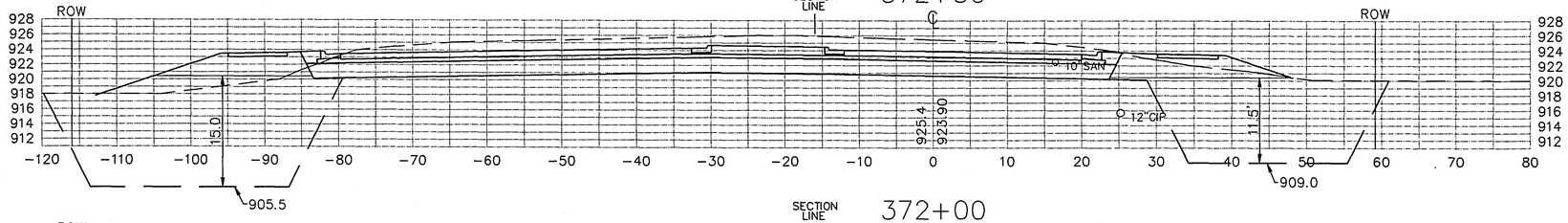
373+50



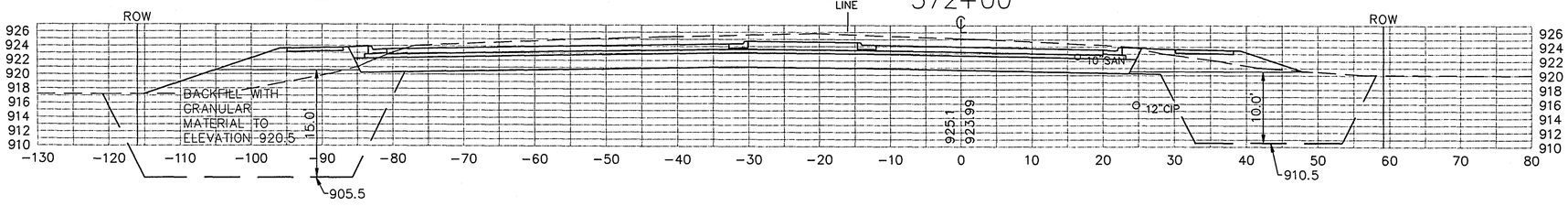
373+00



372+50



372+00

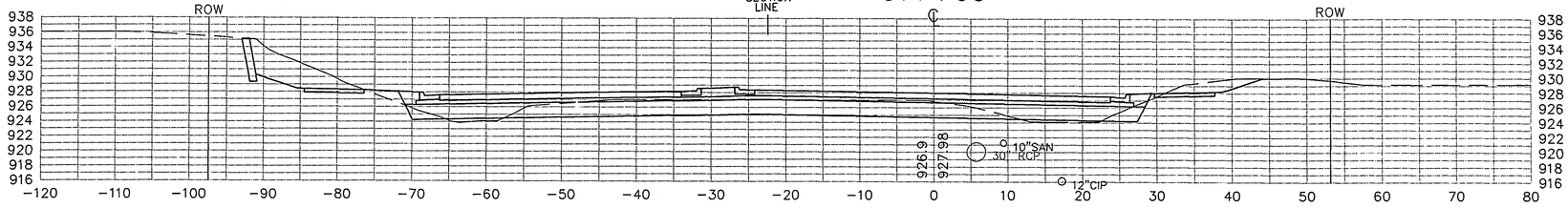


SCALE 10 X 10

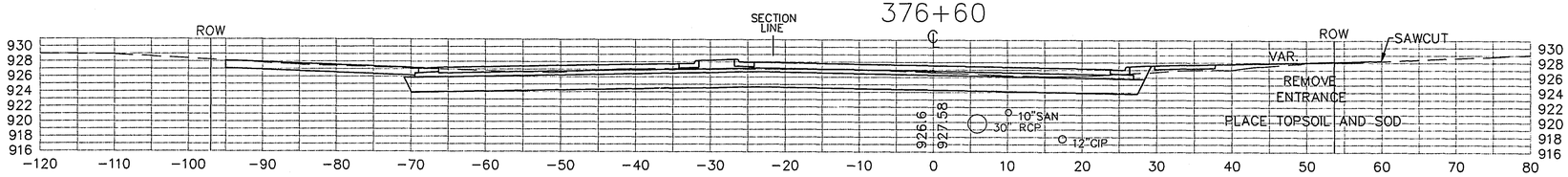
28-193

CROSS SECTIONS
STA. 372+00 TO 374+50

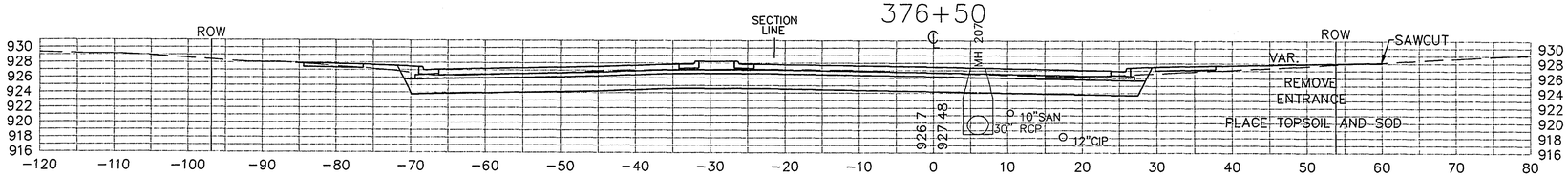
377+00



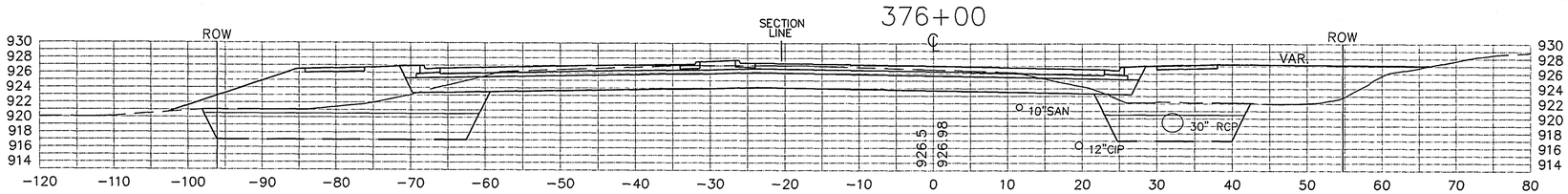
376+60



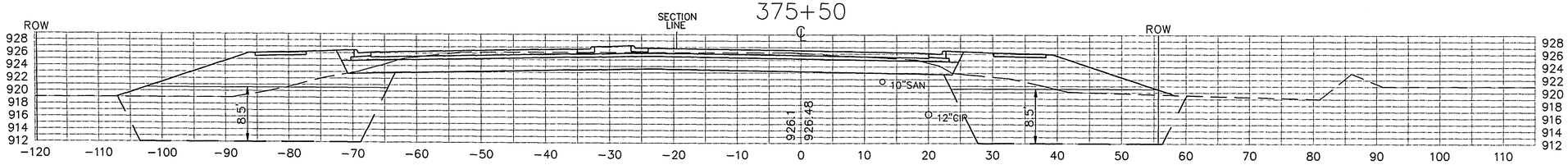
376+50



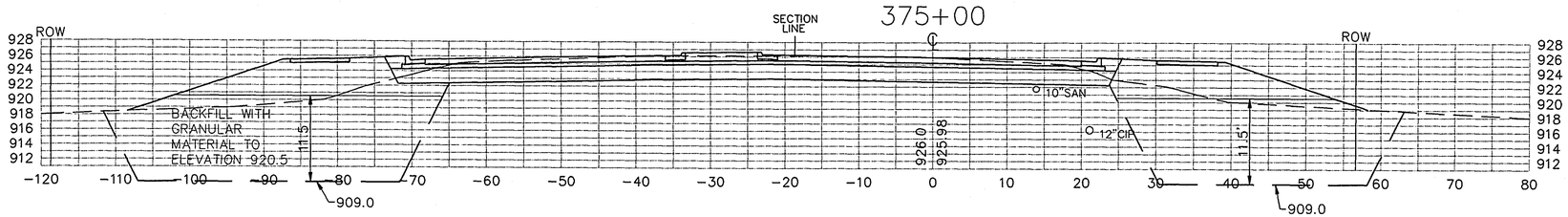
376+00



375+50



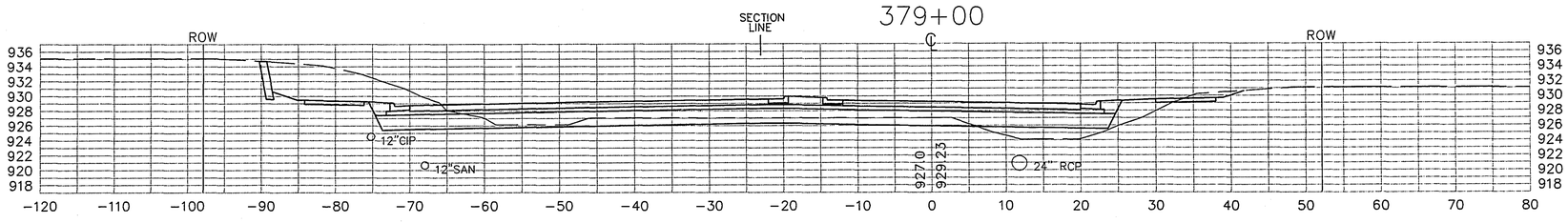
375+00

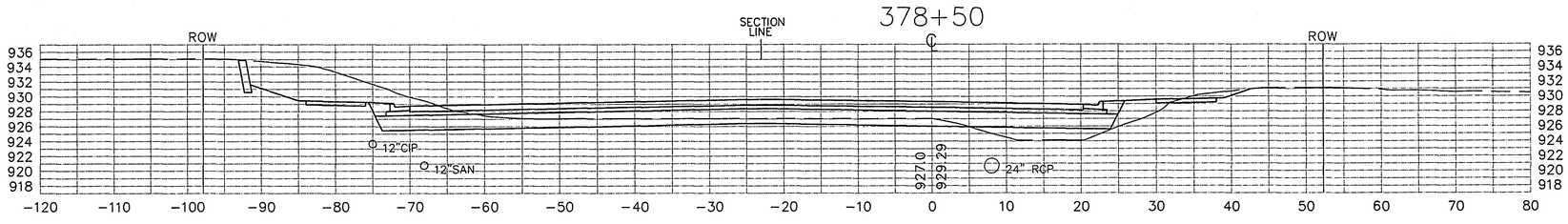


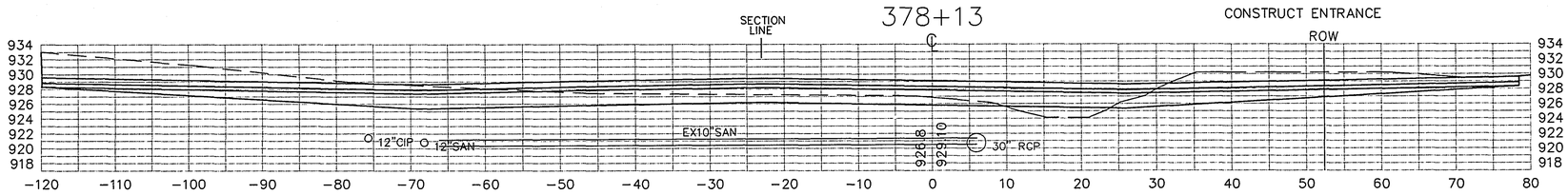
28-143

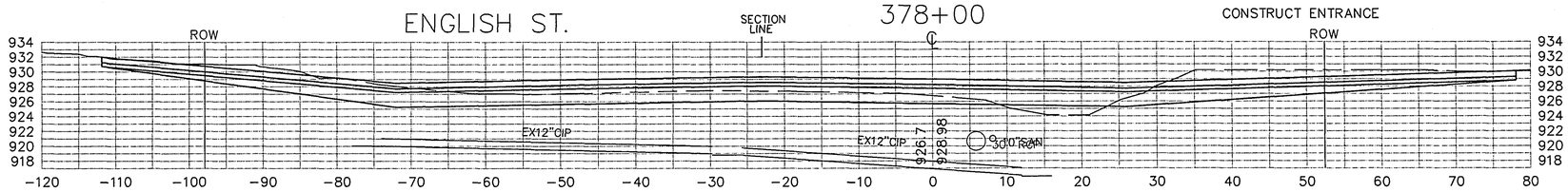
CROSS SECTIONS
STA. 375+00 TO 377+00

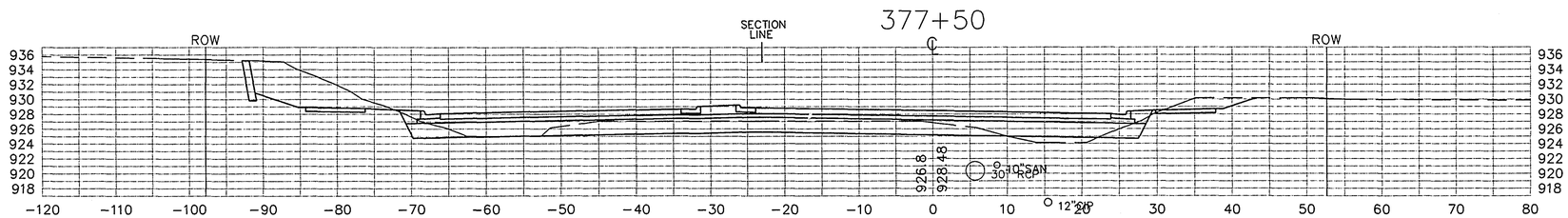
SCALE 10 X 10







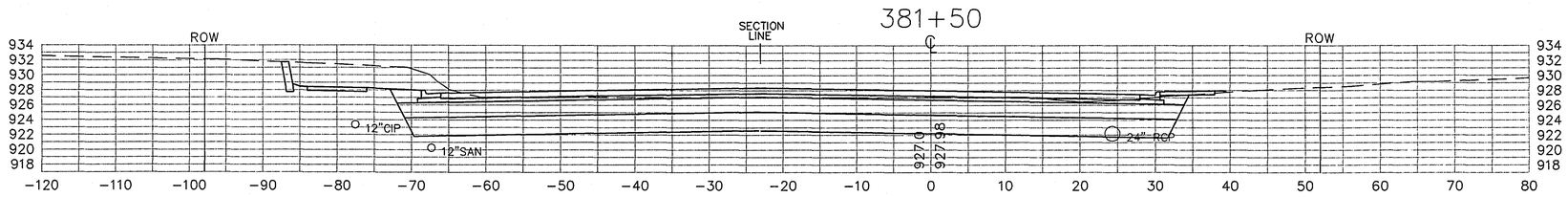


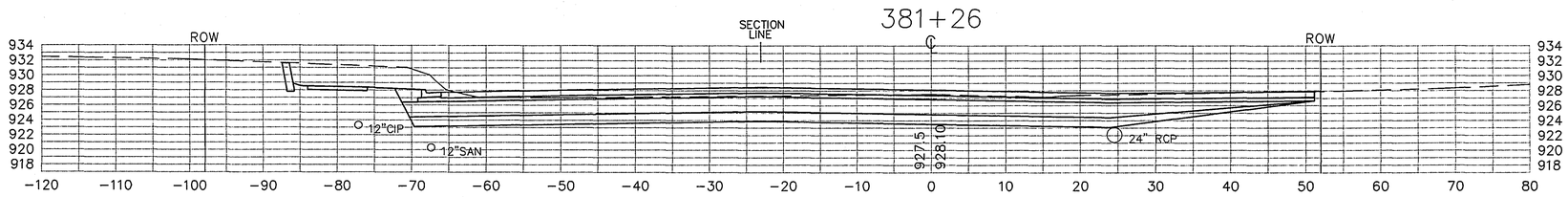


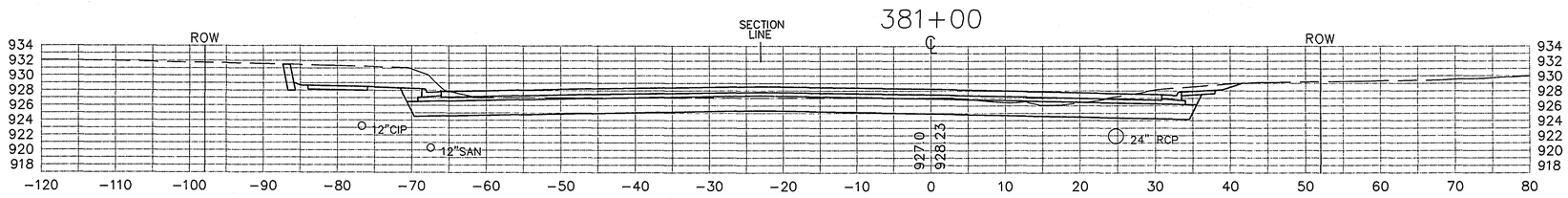
SCALE 10 X 10

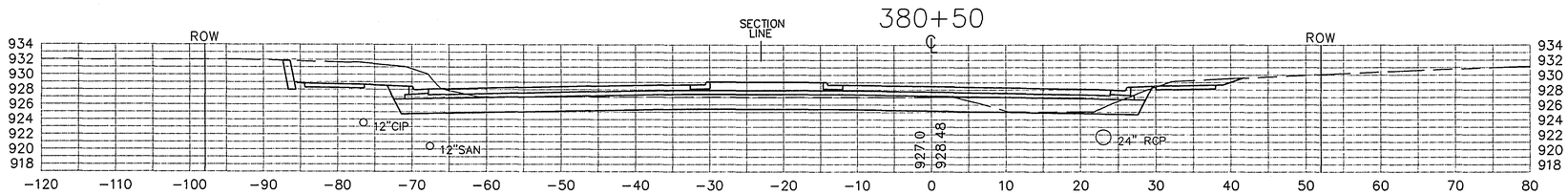
28-143

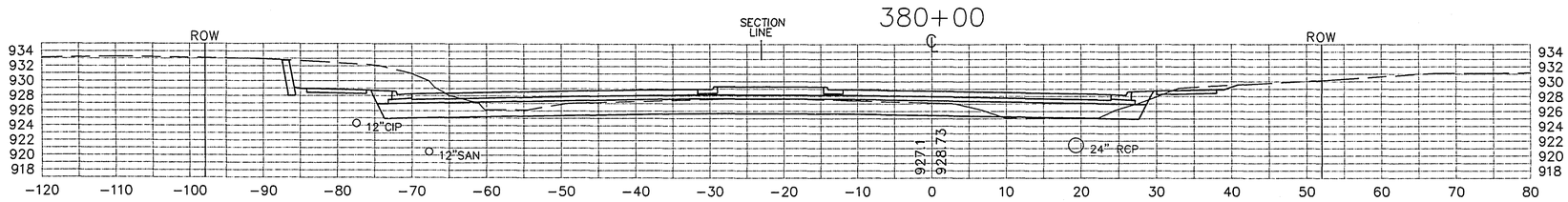
CROSS SECTIONS
STA. 377+50 TO 379+00

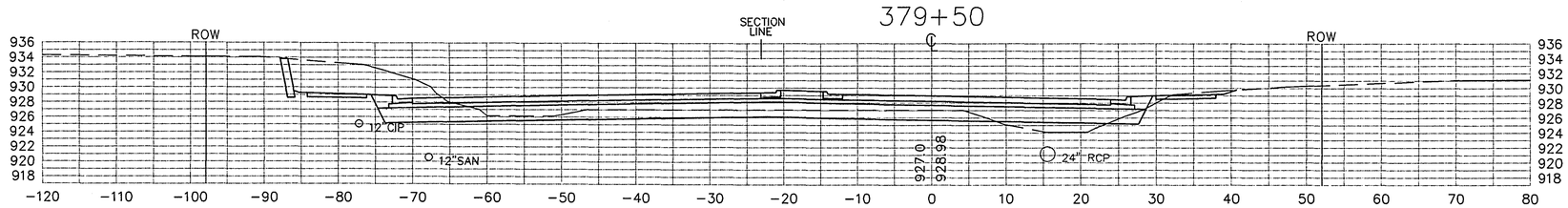










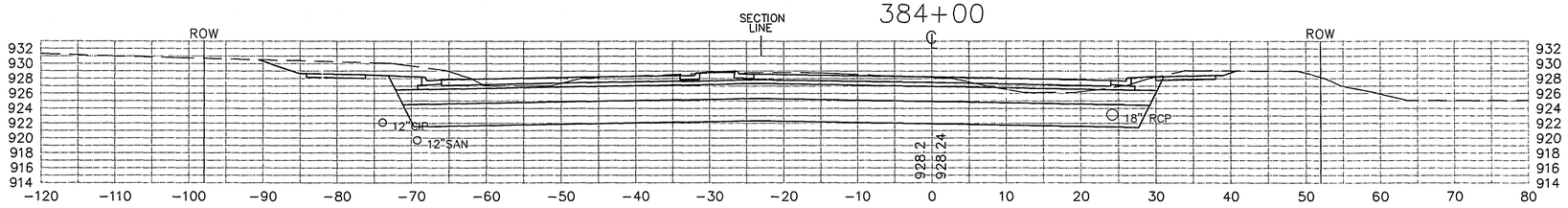


SCALE 10 X 10

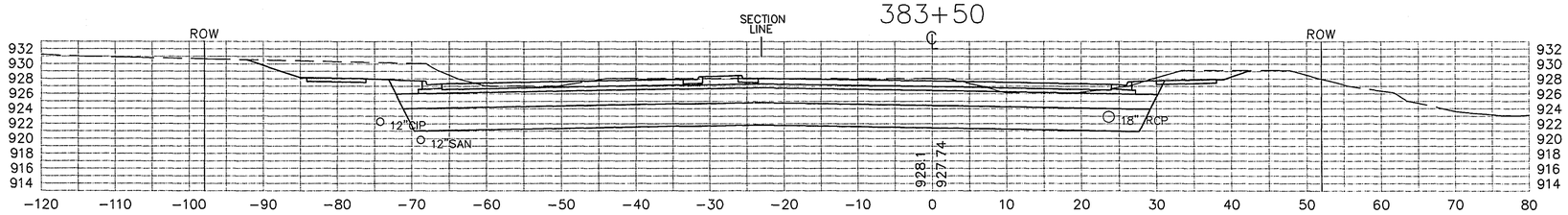
28-143

CROSS SECTIONS
STA. 379+50 TO 381+50

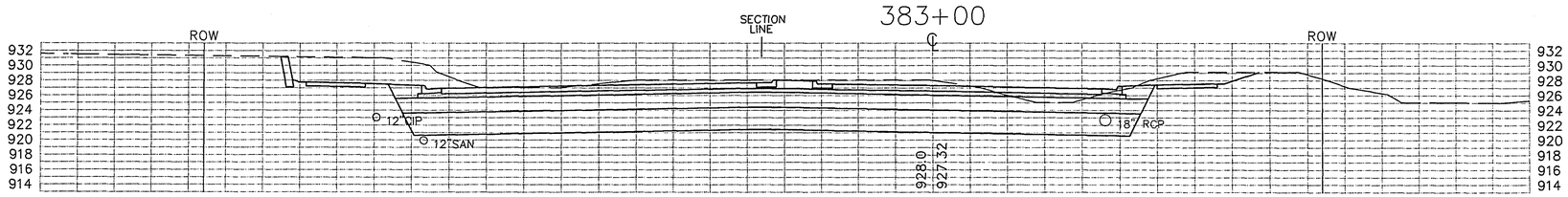
384+00



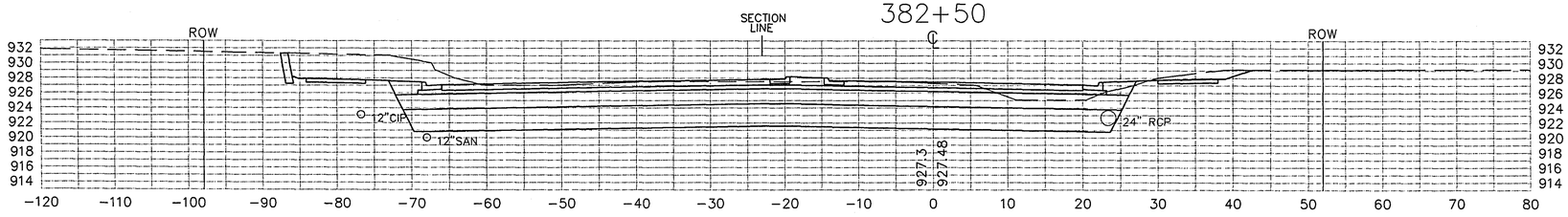
383+50



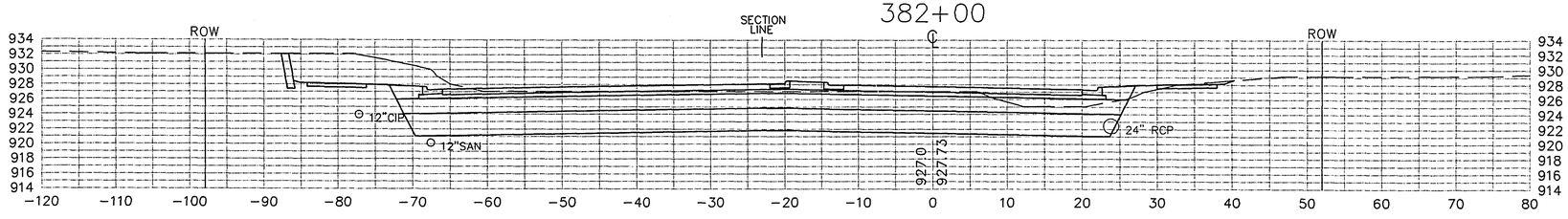
383+00



382+50



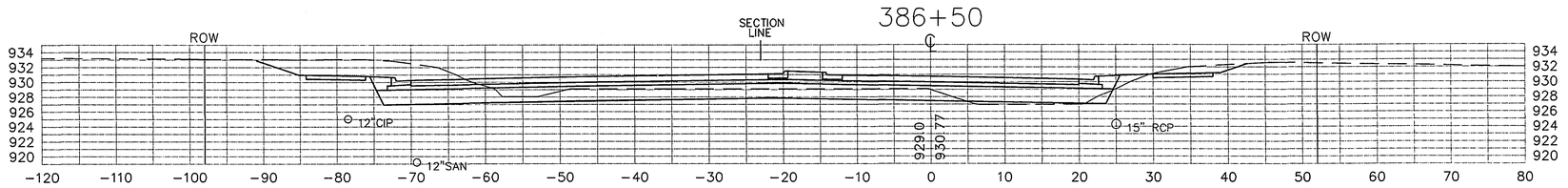
382+00

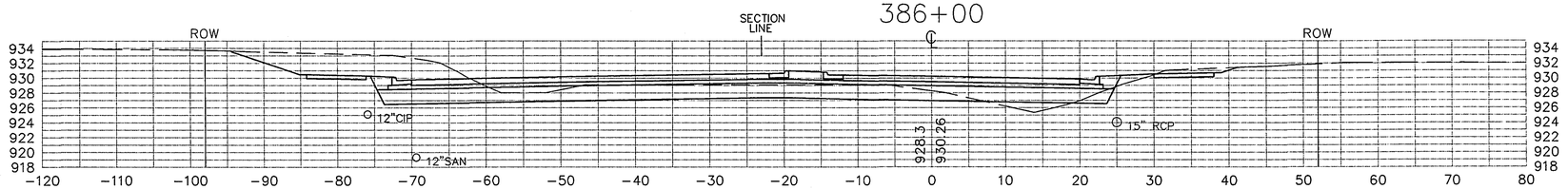


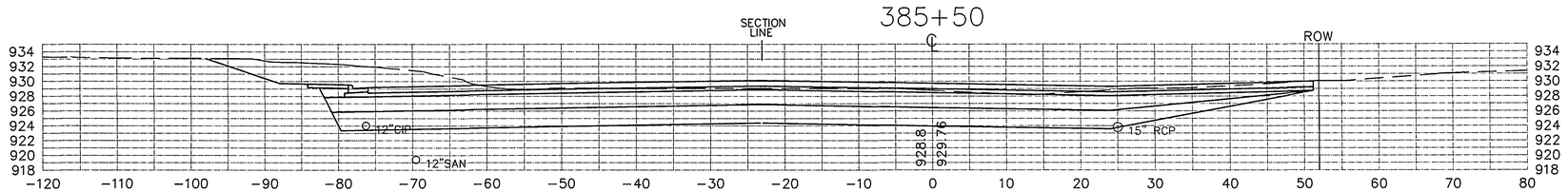
SCALE 10 X 10

28-193

CROSS SECTIONS
STA. 382+00 TO 384+00

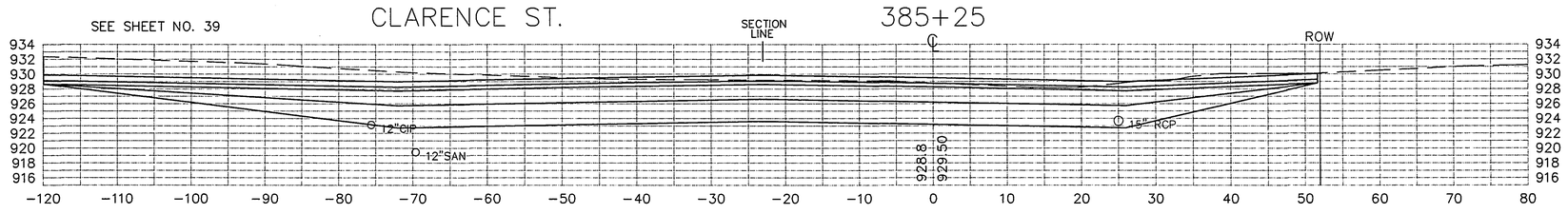


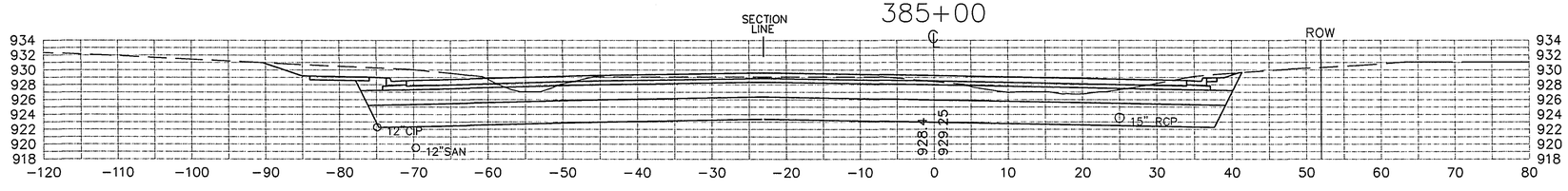


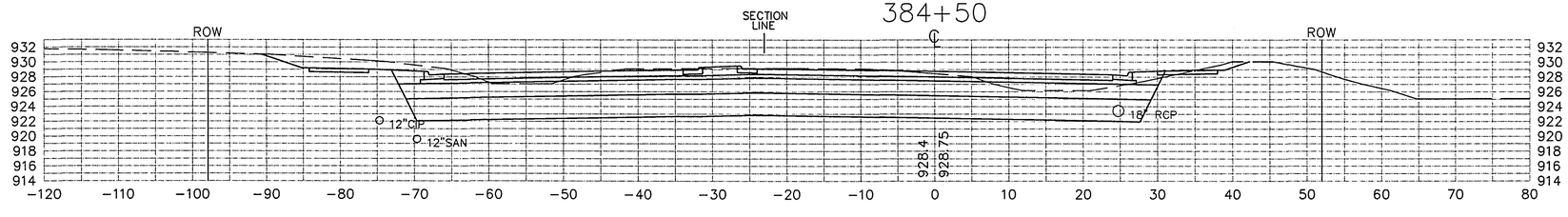


SEE SHEET NO. 39

CLARENCE ST.



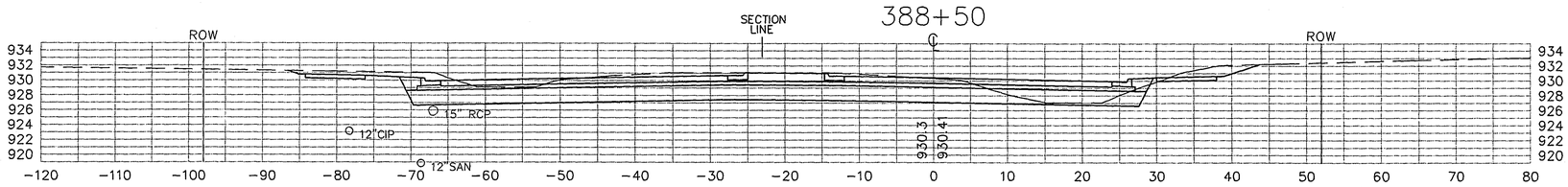


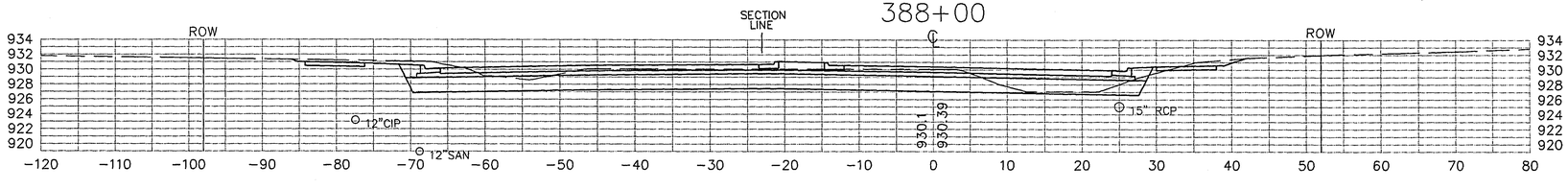


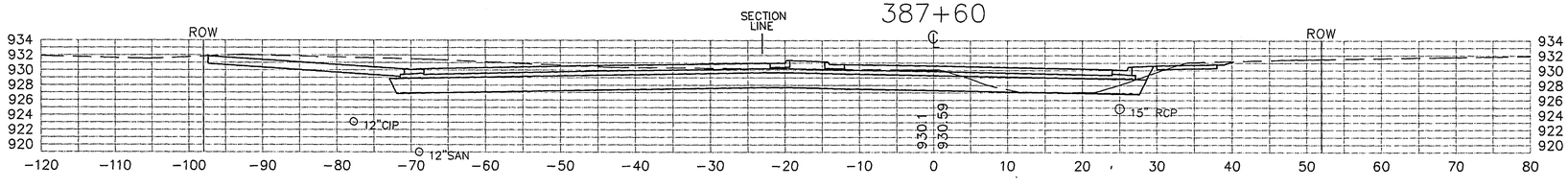
SCALE 10 X 10

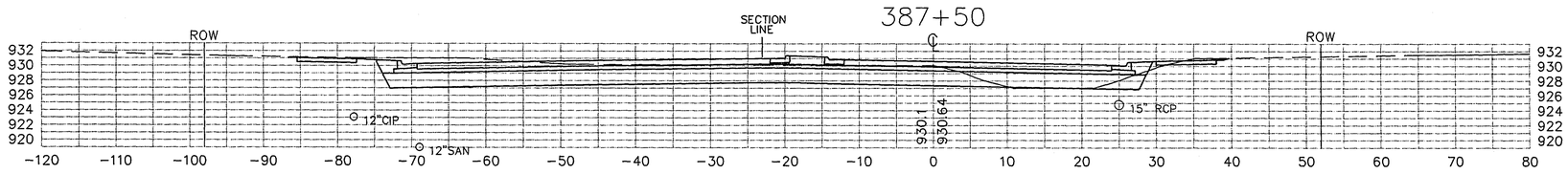
28-143

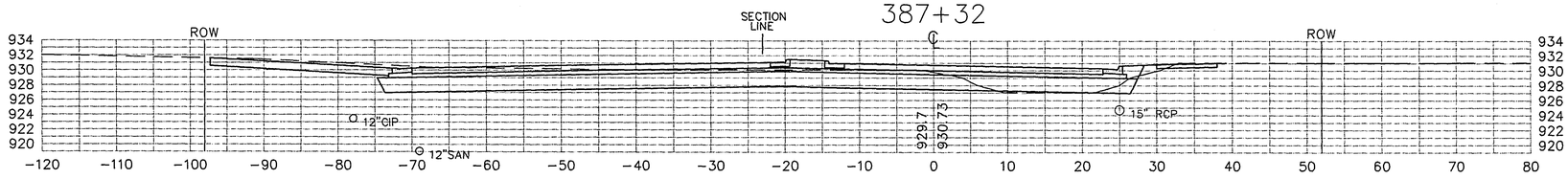
CROSS SECTIONS
STA. 384+50 TO 386+50

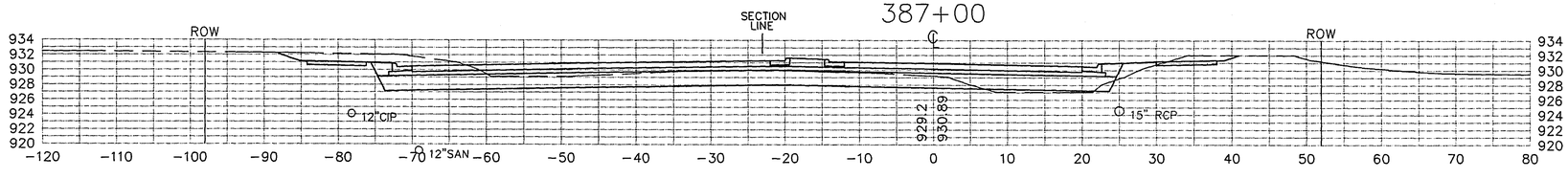










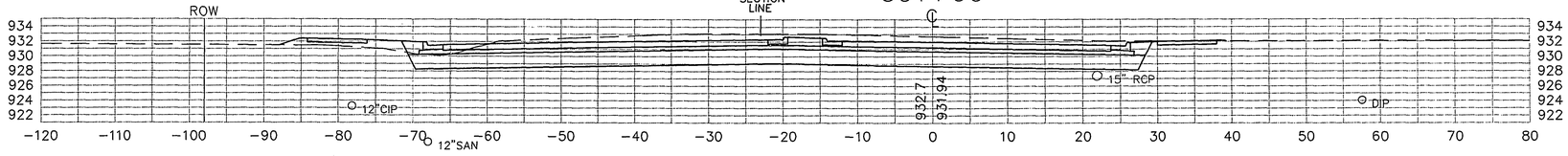


SCALE 10 X 10

Z8-143

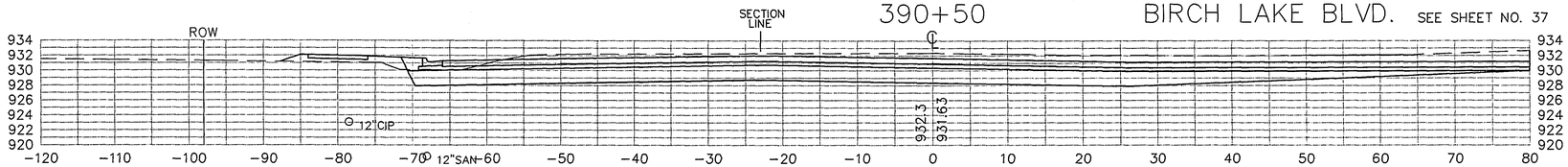
CROSS SECTIONS
STA. 387+00 TO 388+50

391+00

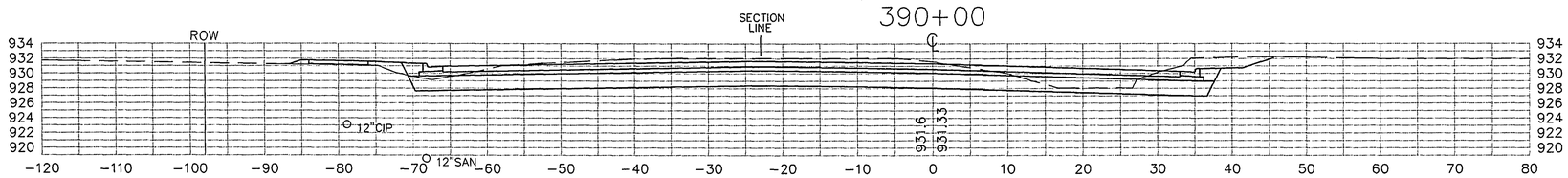


390+50

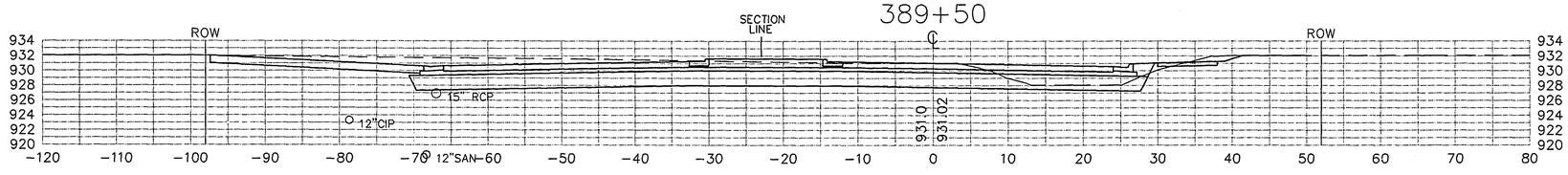
BIRCH LAKE BLVD. SEE SHEET NO. 37



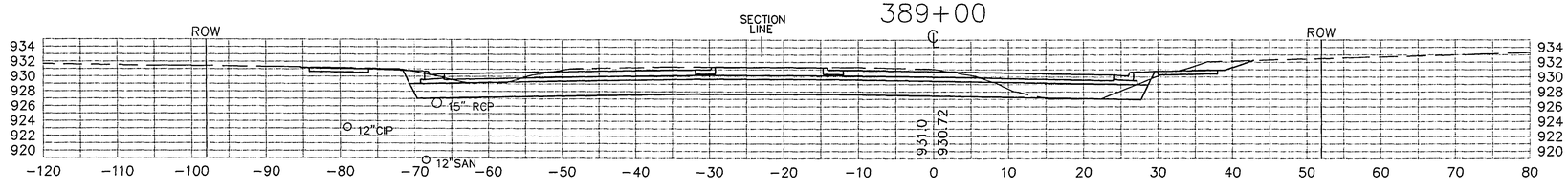
390+00



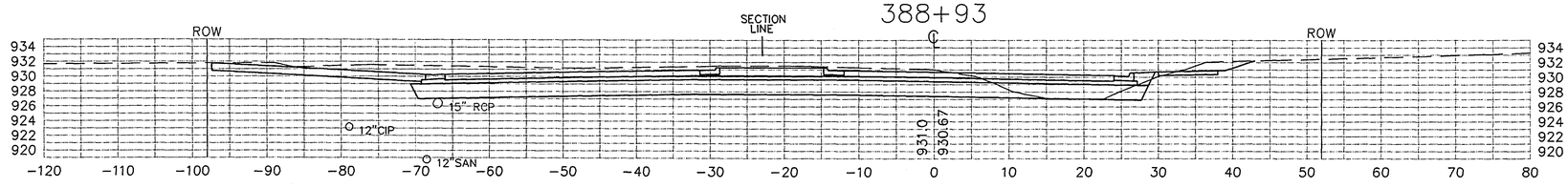
389+50



389+00



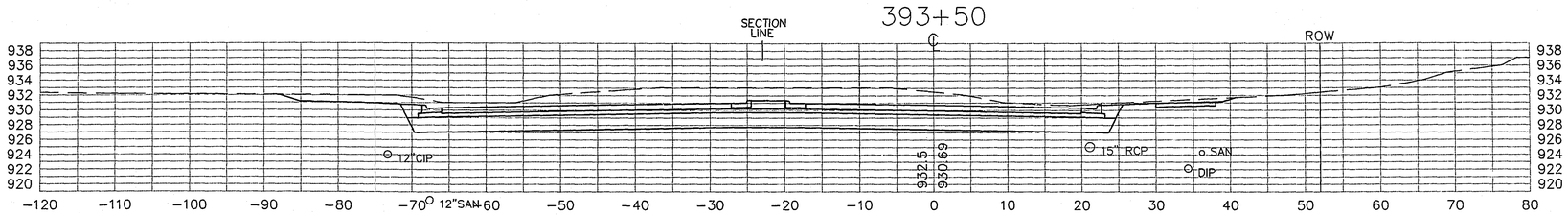
388+93

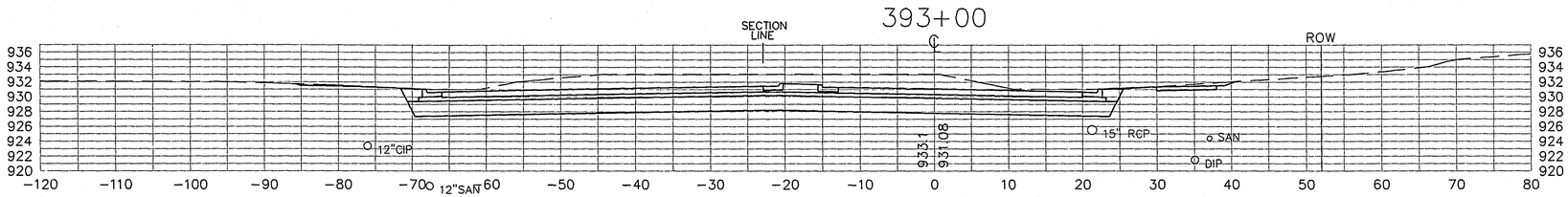


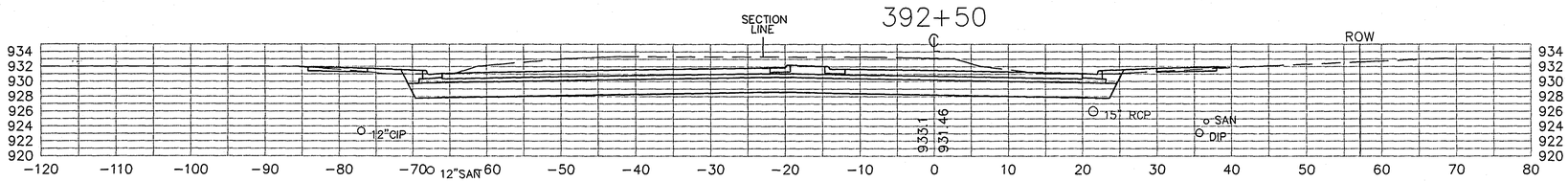
SCALE 10 X 10

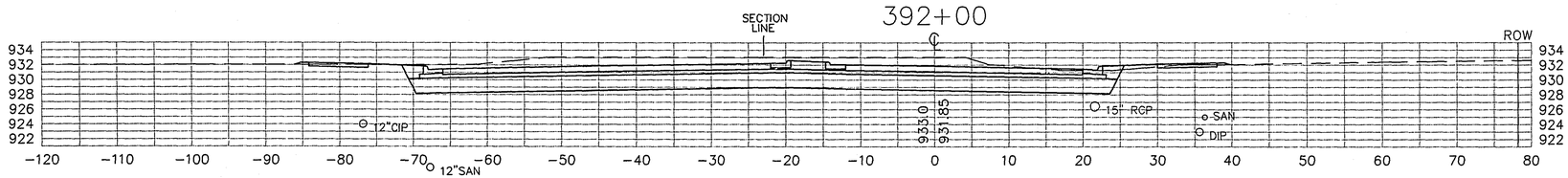
28-143

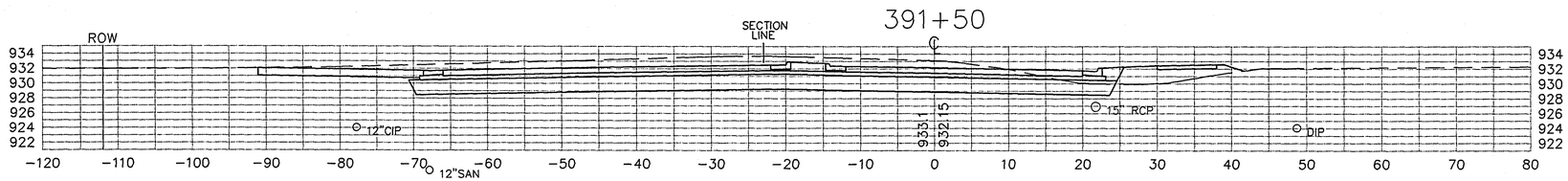
CROSS SECTIONS
STA. 388+93 TO 391+00

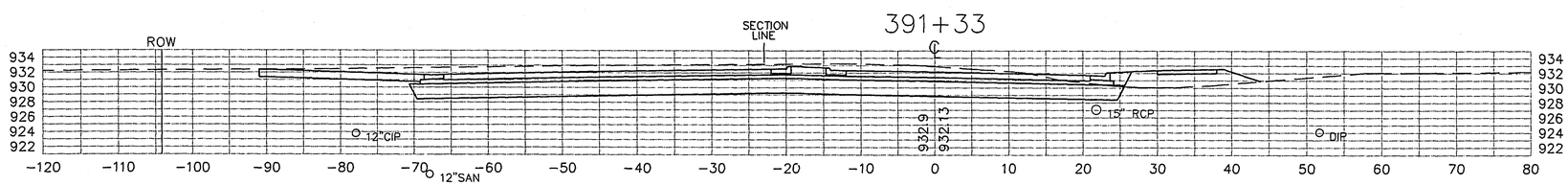








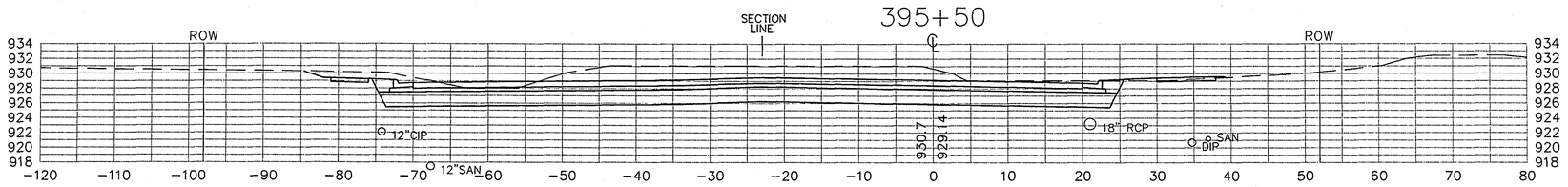


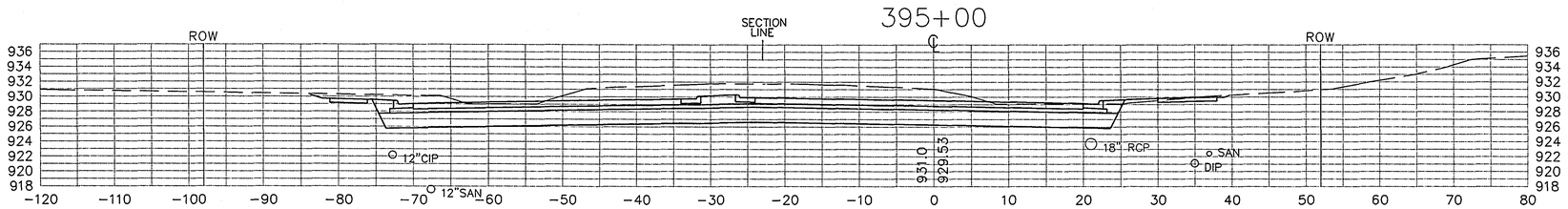


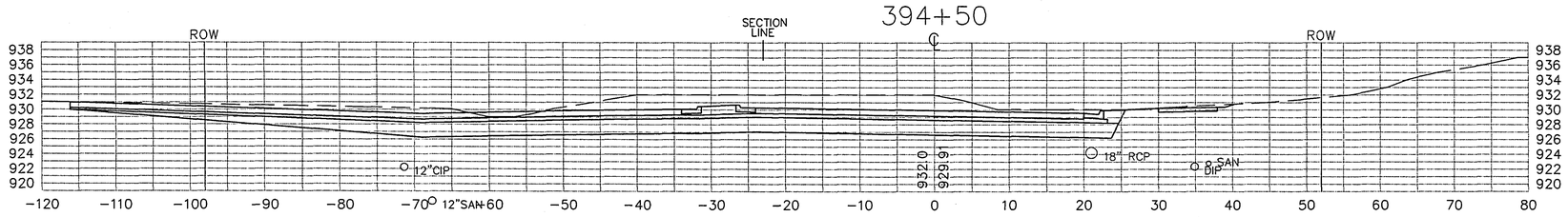
SCALE 10 X 10

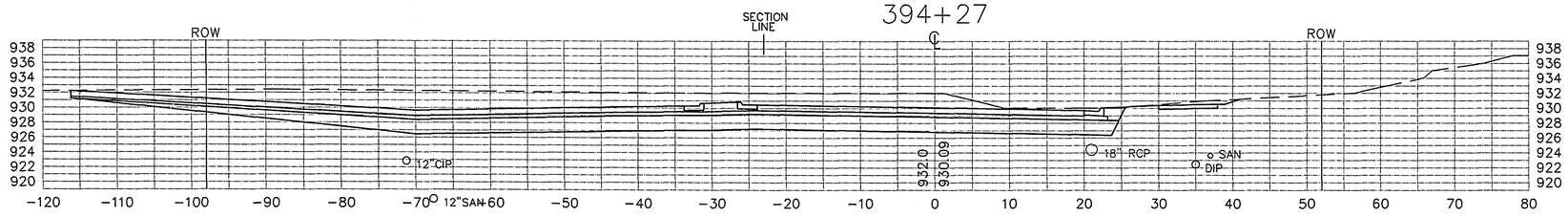
Z8-143

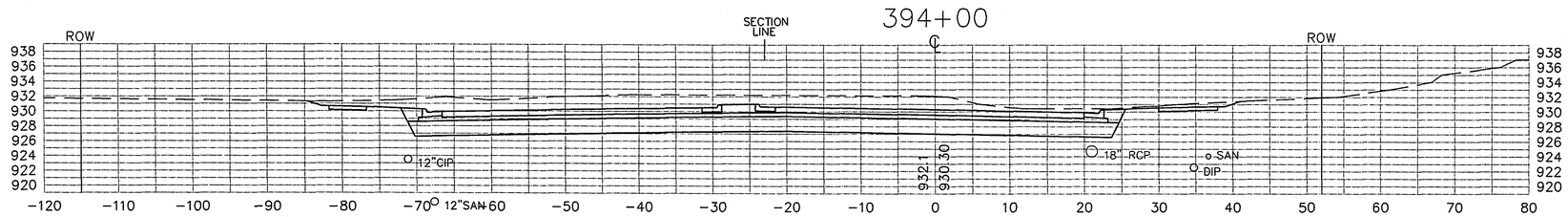
CROSS SECTIONS
STA. 391+33 TO 393+50







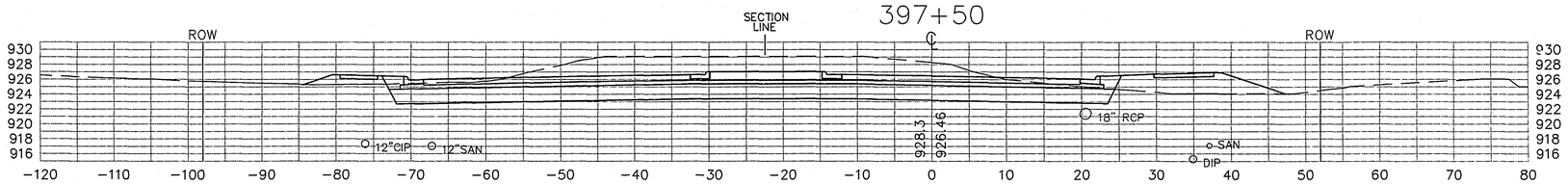


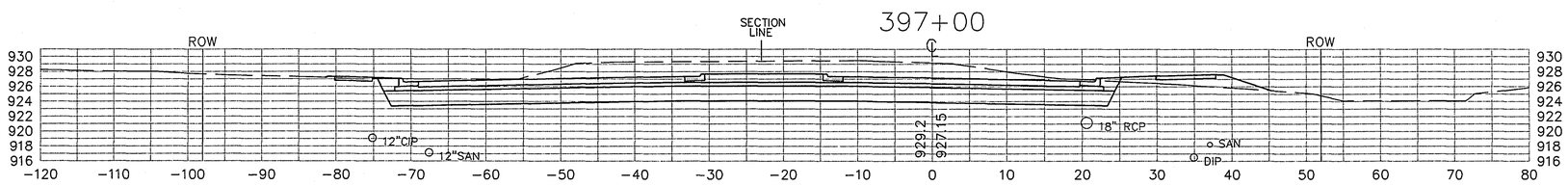


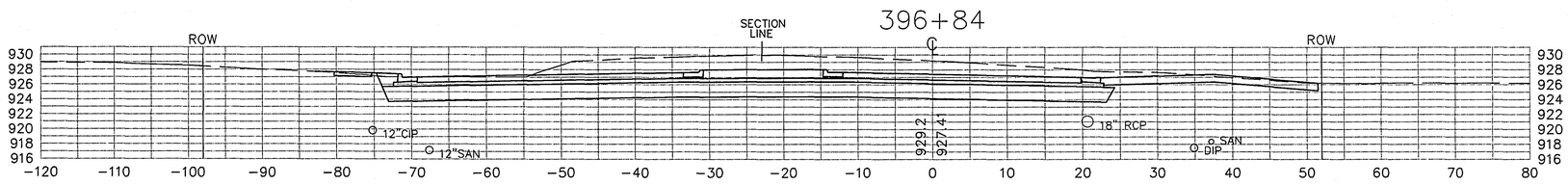
SCALE 10 X 10

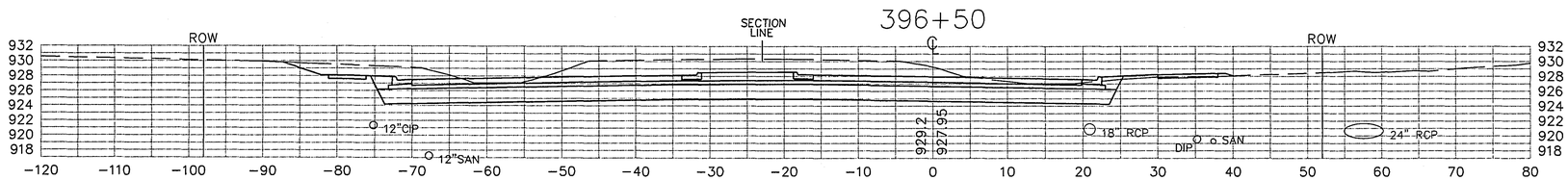
28-143

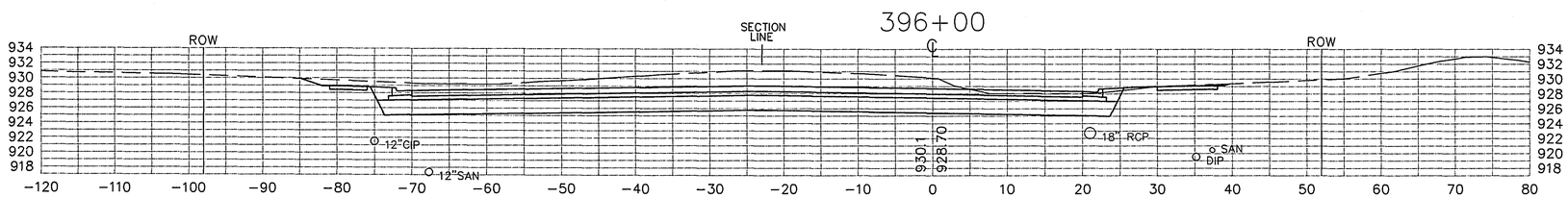
CROSS SECTIONS
STA. 394+00 TO 395+50

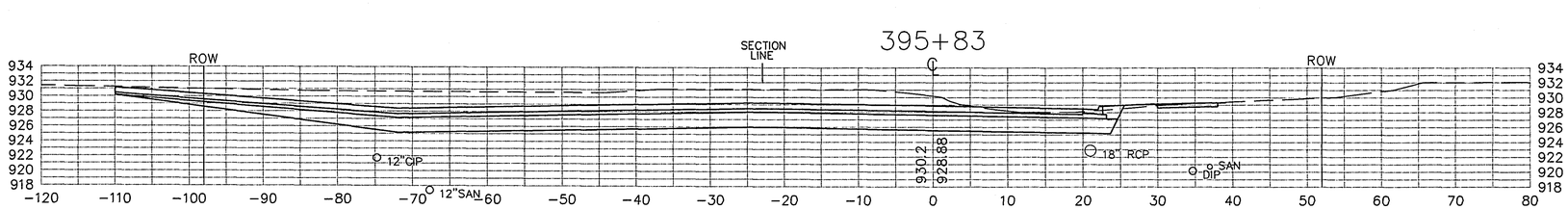










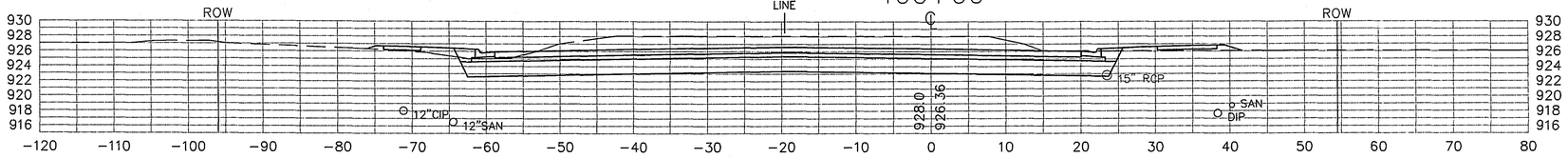


SCALE 10 X 10

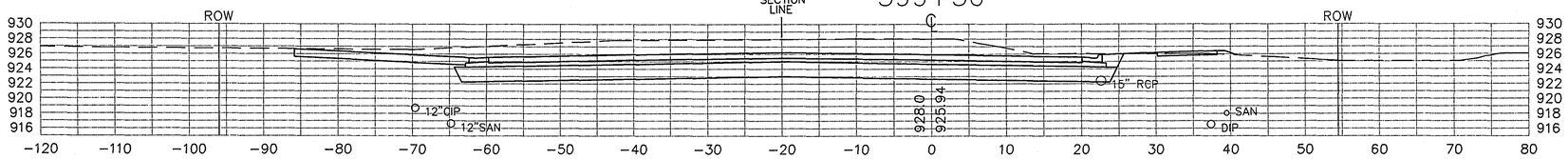
28-143

CROSS SECTIONS
STA. 395+83 TO 397+50

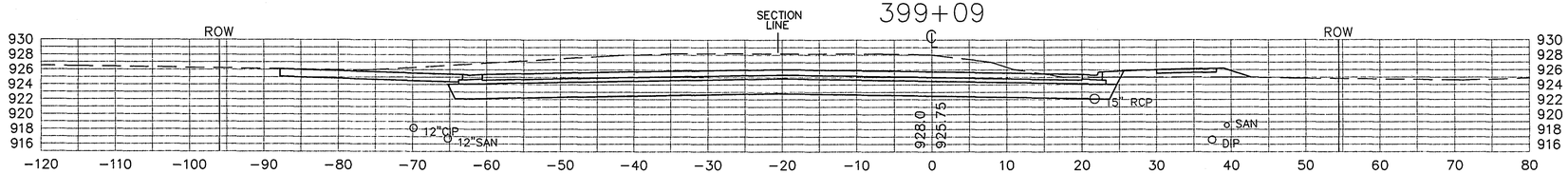
400+00



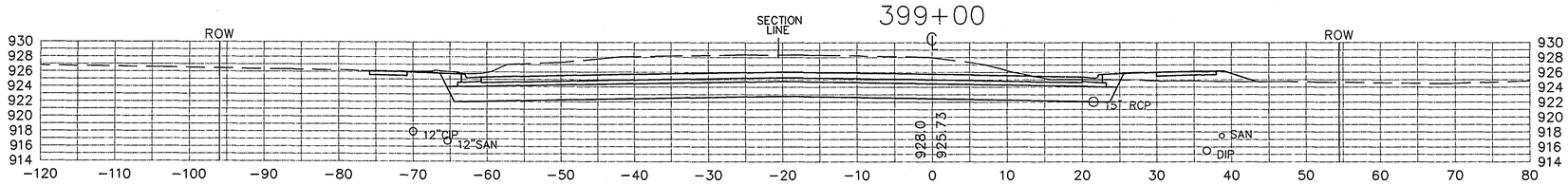
399+50



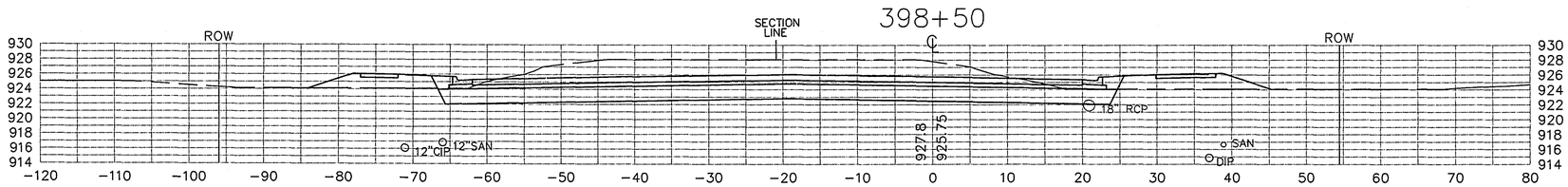
399+09



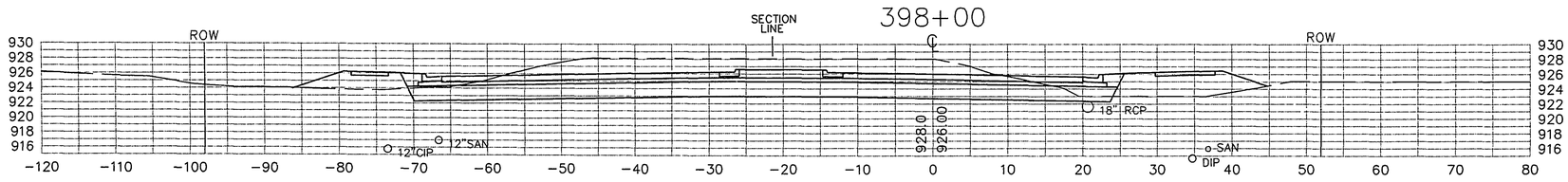
399+00



398+50



398+00

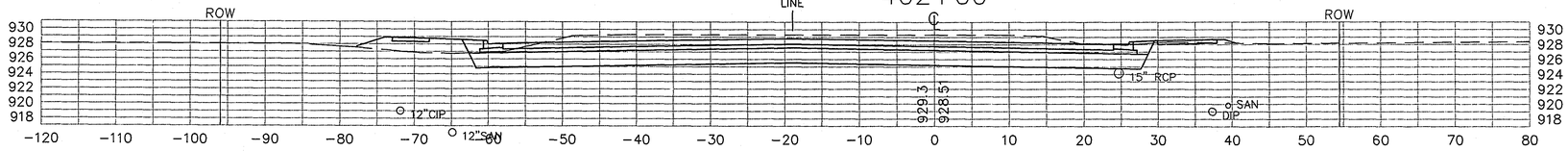


SCALE 10 X 10

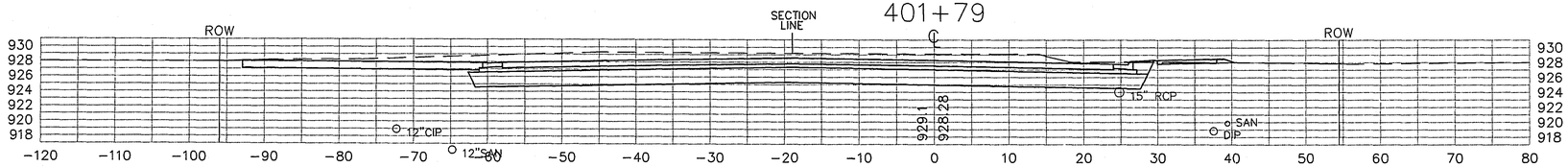
28-143

CROSS SECTIONS
STA. 398+00 TO 400+00

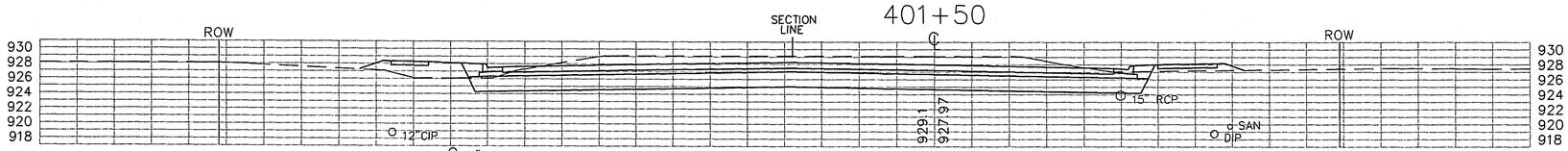
402+00



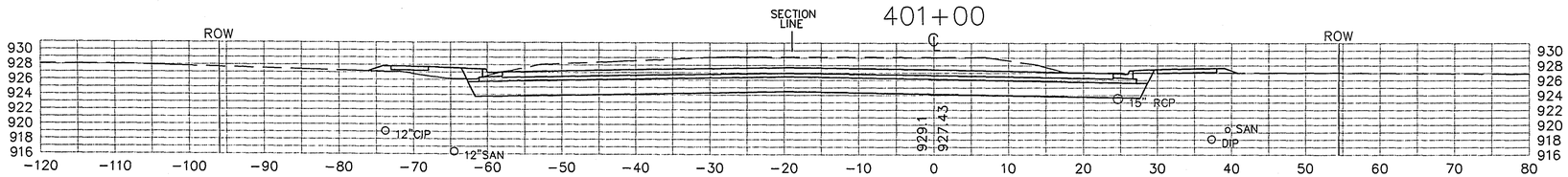
401+79



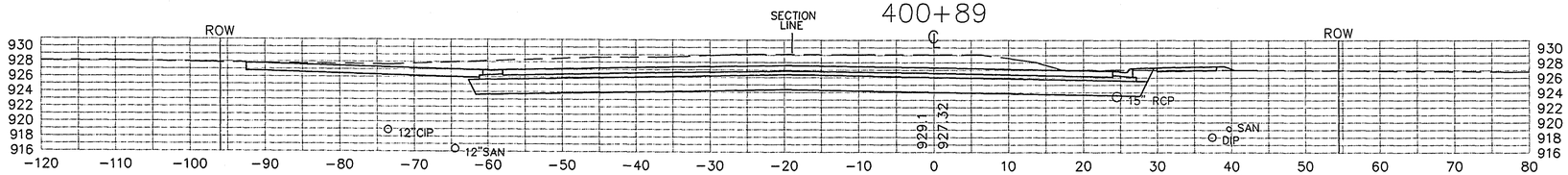
401+50



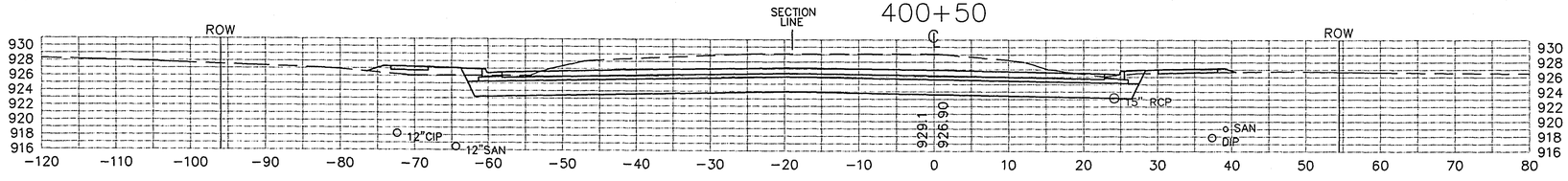
401+00



400+89



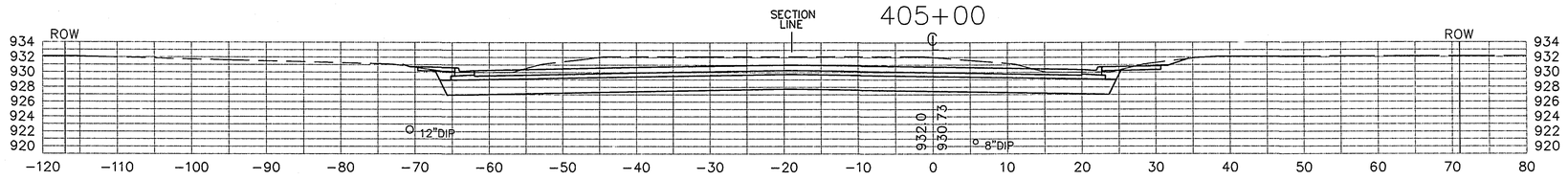
400+50

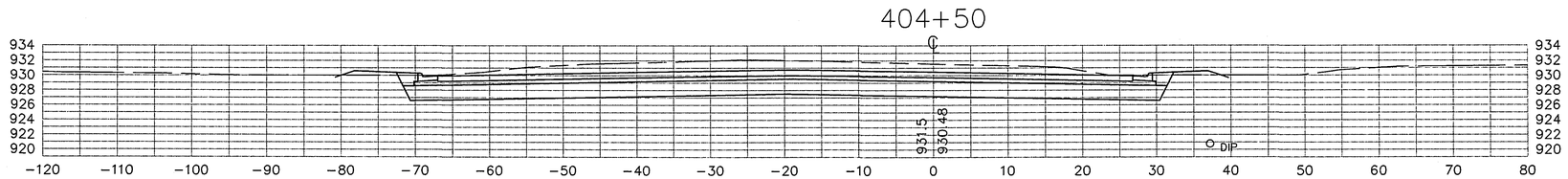


SCALE 10 X 10

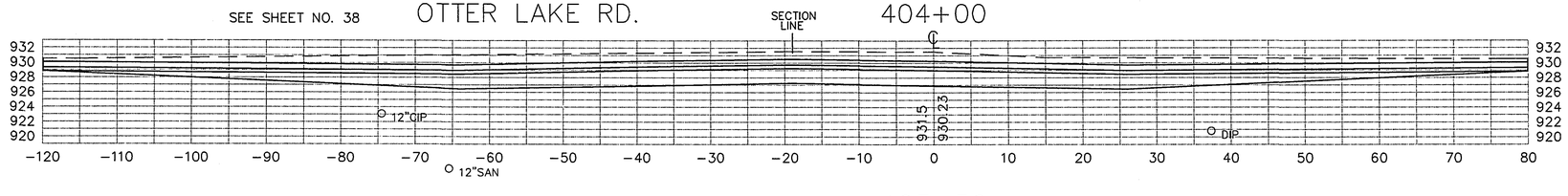
28-143

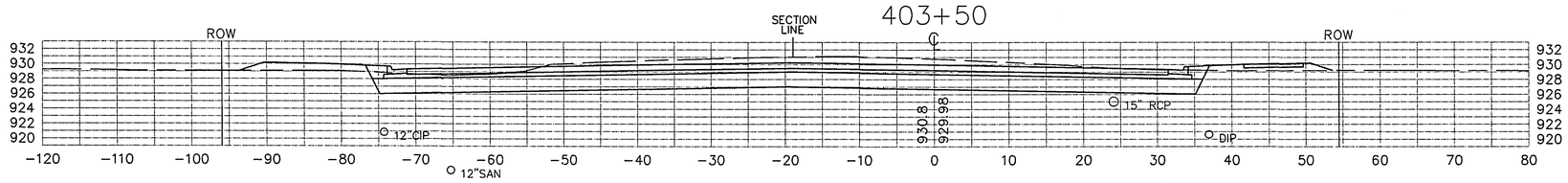
CROSS SECTIONS
STA. 400+50 TO 402+00

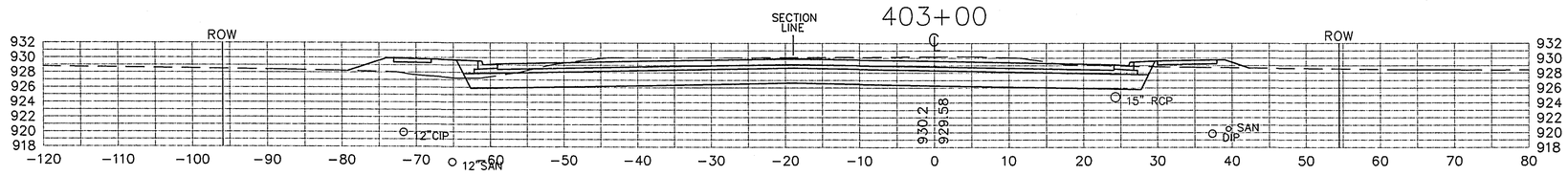


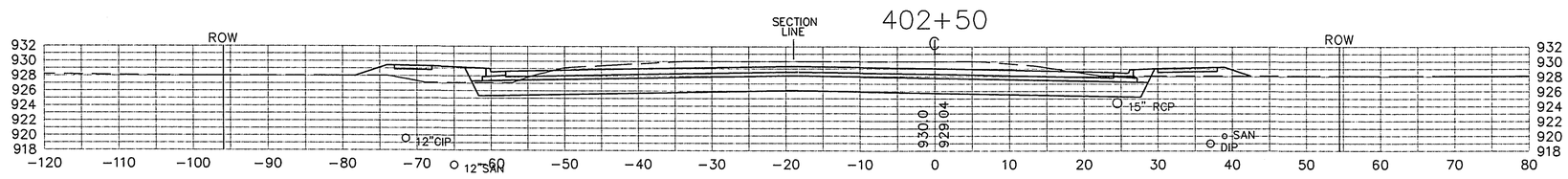


SEE SHEET NO. 38 OTTER LAKE RD.





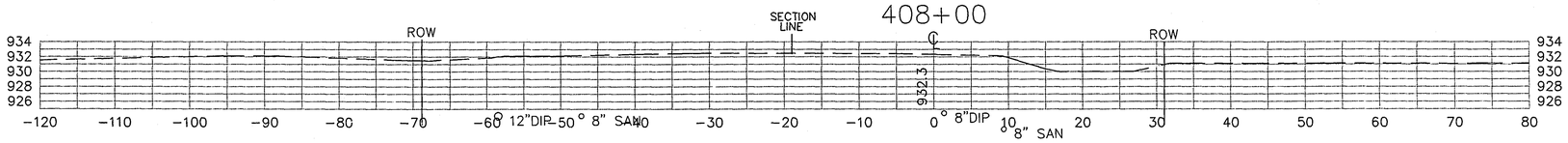


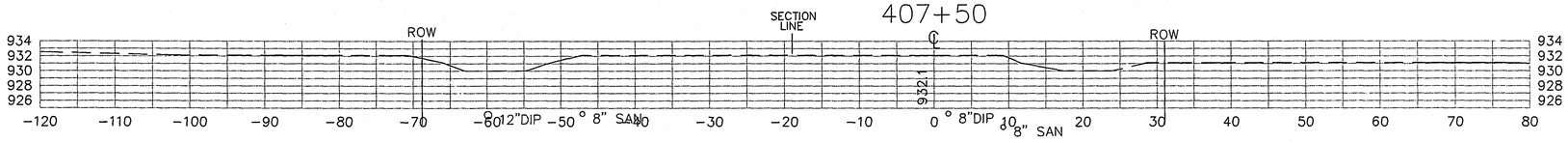


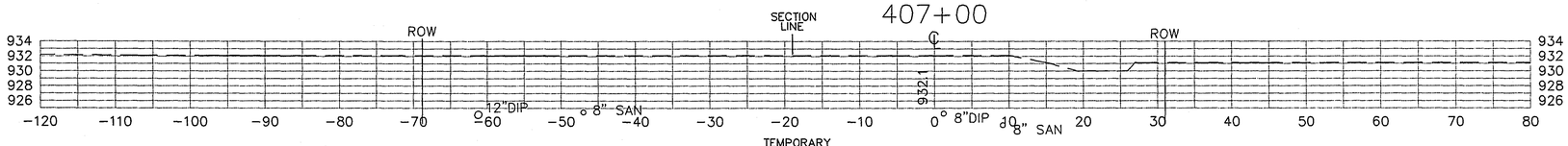
SCALE 10 X 10

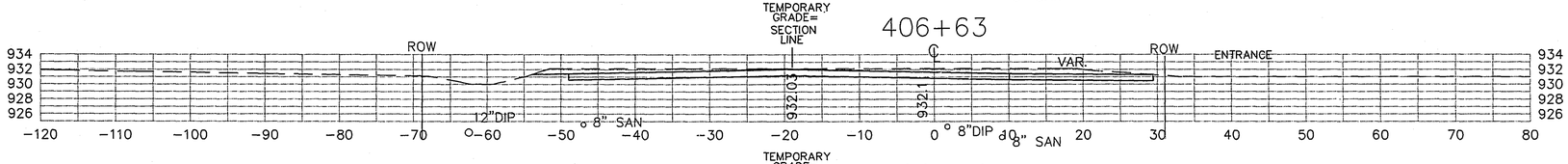
28-143

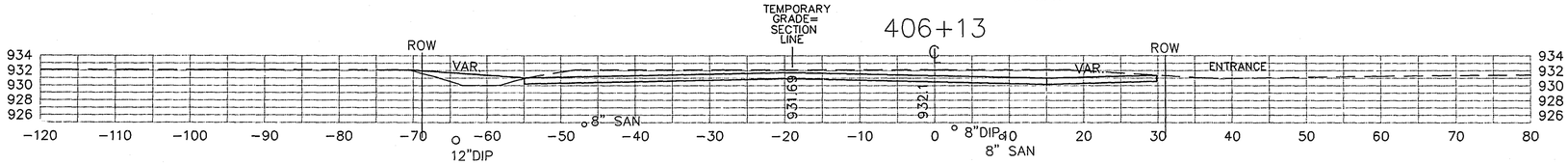
CROSS SECTIONS
STA. 402+50 TO 405+00

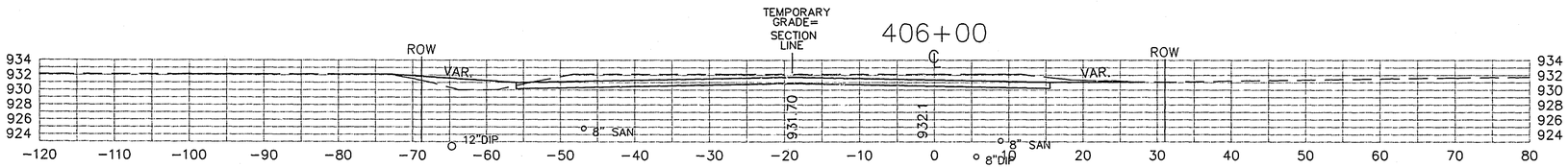


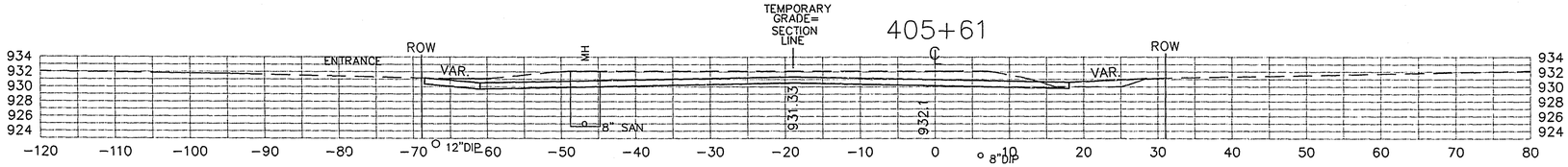


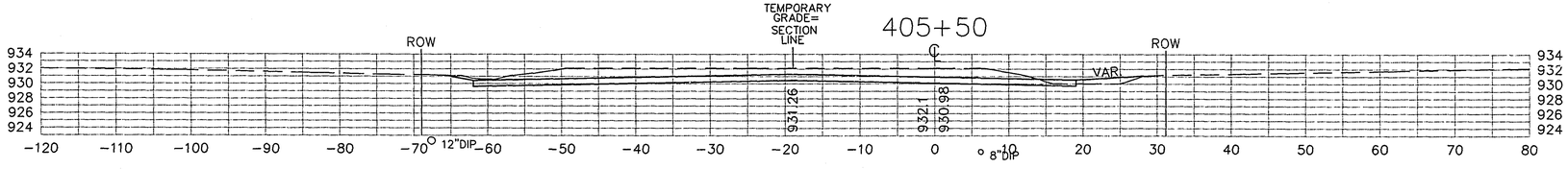










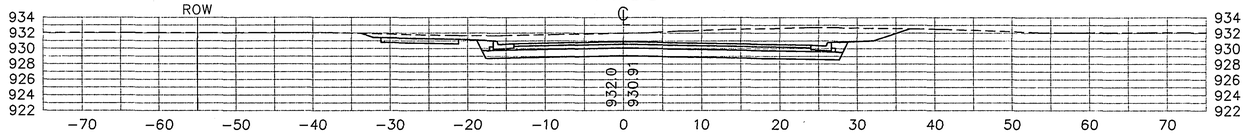


SCALE 10 X 10

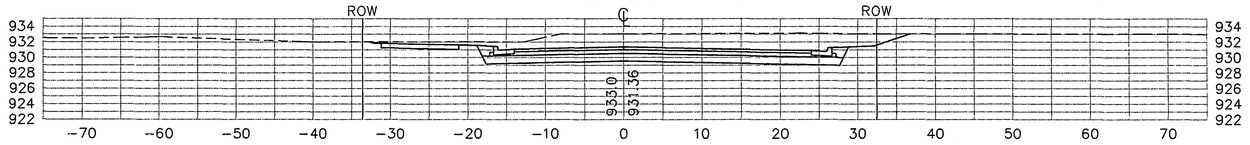
28-143

CROSS SECTIONS
STA. 405+50 TO 408+00

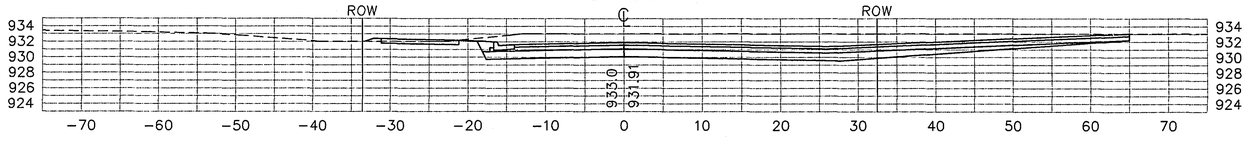
4+00



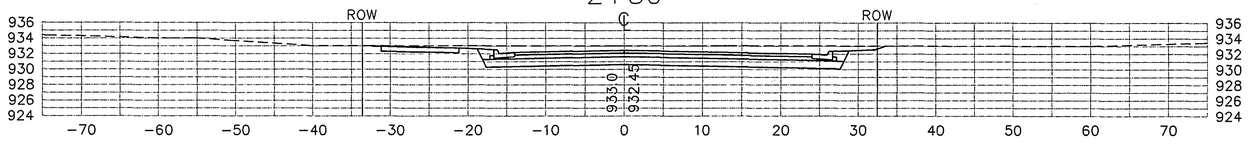
3+50



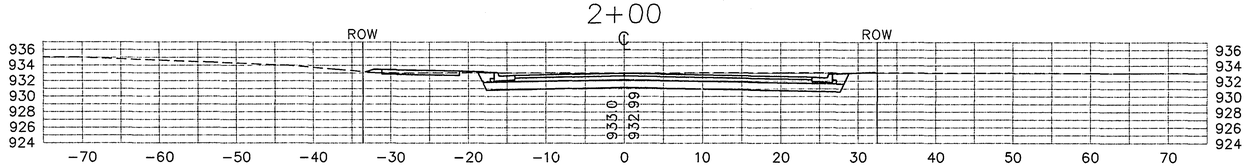
3+00



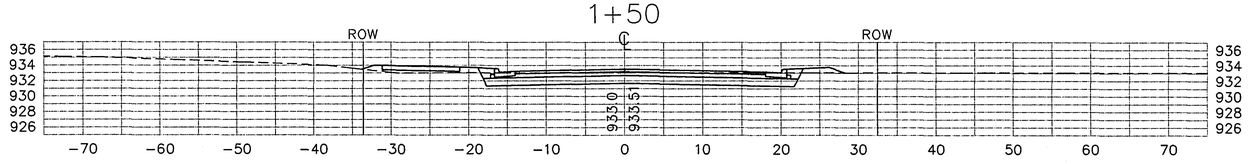
2+50



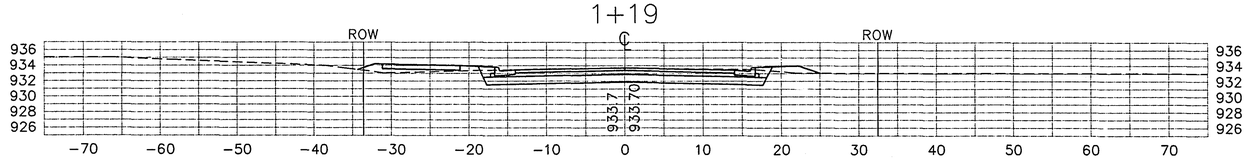
2+00



1+50



1+19

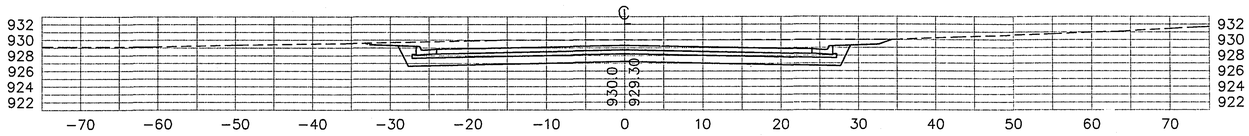


SCALE 10 X 10

28-143

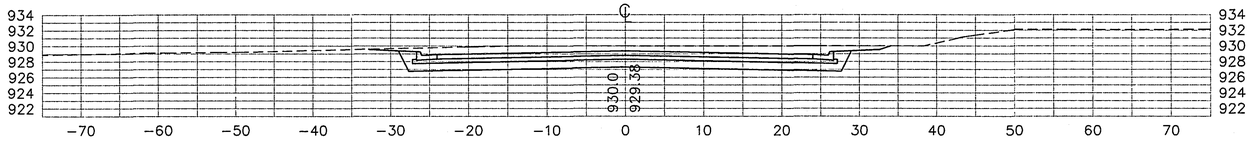
CROSS SECTIONS
BIRCH LAKE BLVD.
STA. 1+19 TO 4+00

11+00

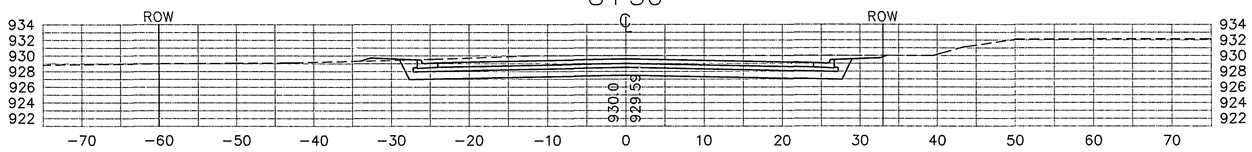


STA 9+00 TO 11+00 – TRUNK HIGHWAY 96

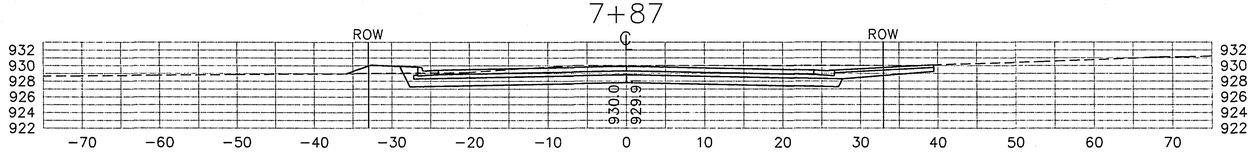
9+00



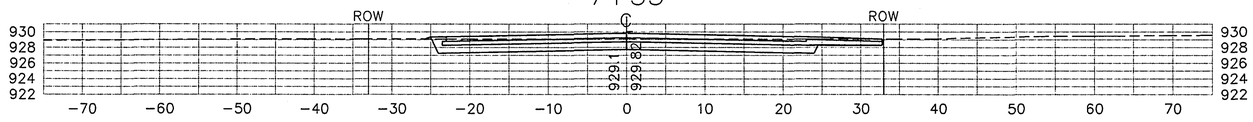
8+50



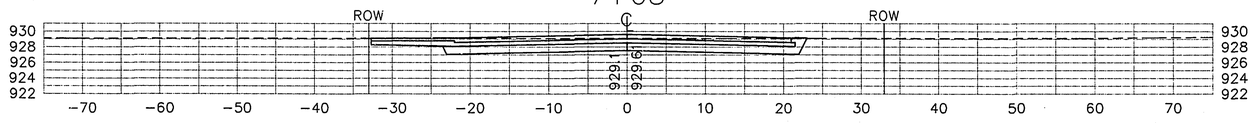
7+87



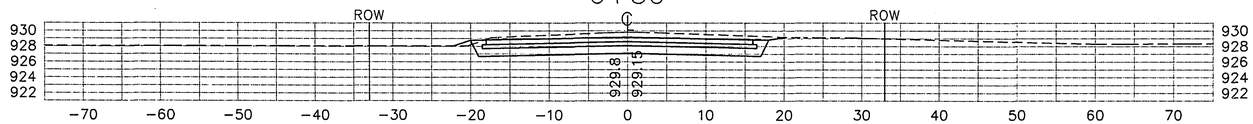
7+35



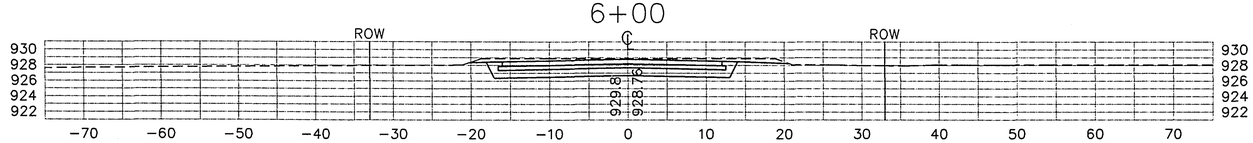
7+08



6+50



6+00

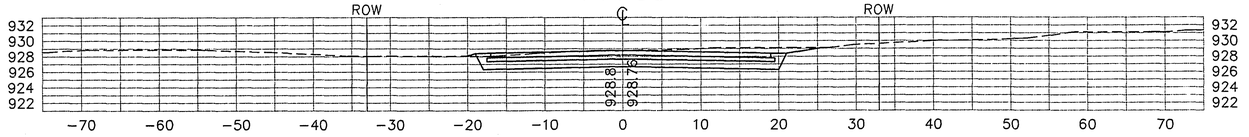


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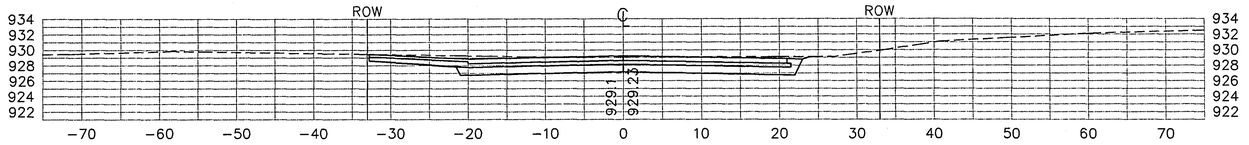
28-143

CROSS SECTIONS
OTTER LAKE RD.
STA. 6+00 TO 11+00

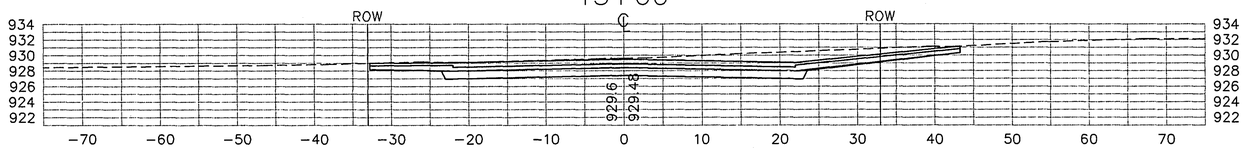
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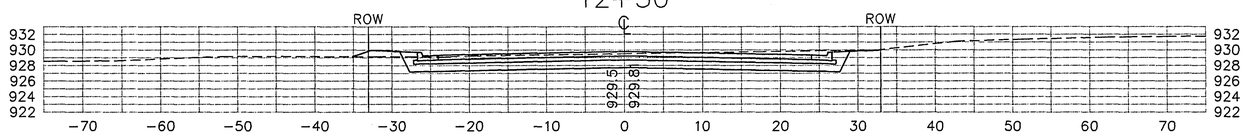
13+35



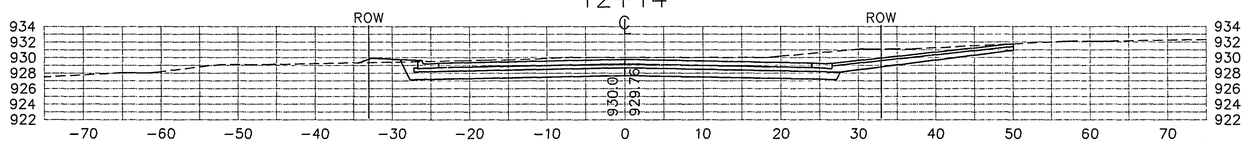
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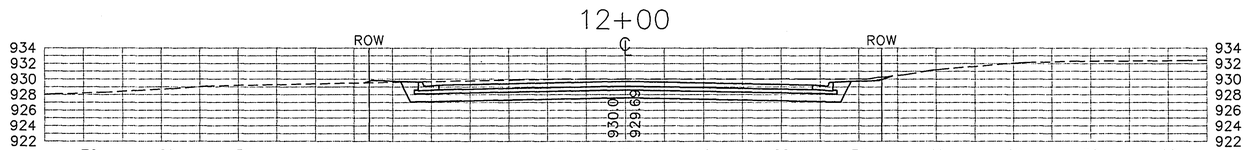
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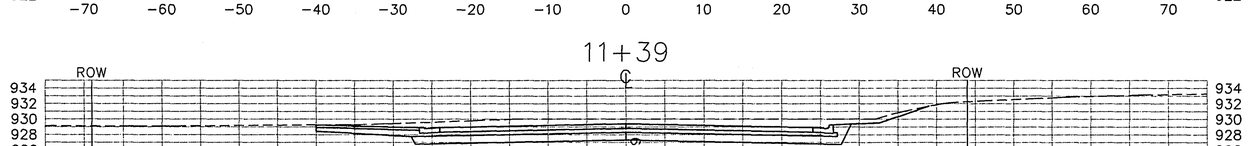
12+14



12+00



11+39

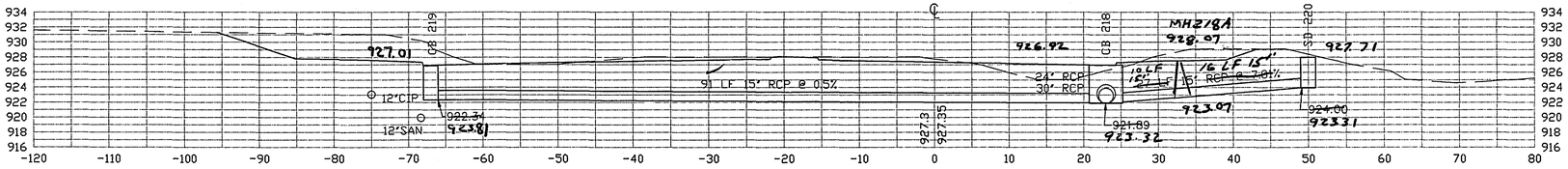


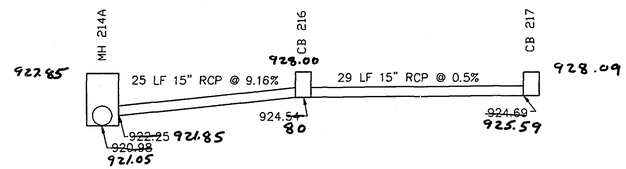
SCALE 10 X 10

28-143

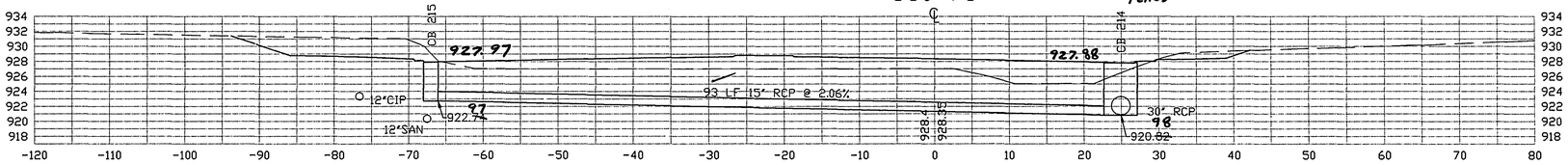
CROSS SECTIONS
OTTER LAKE RD.
STA. 11+39 TO 14+00

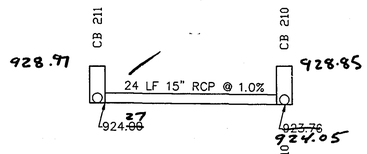
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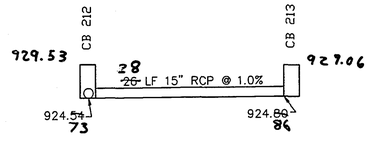




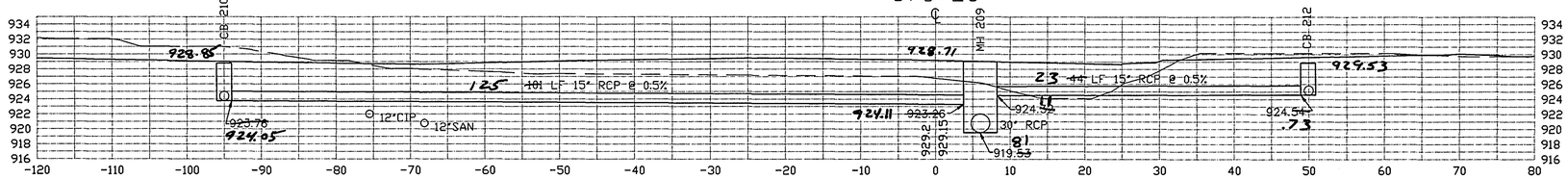
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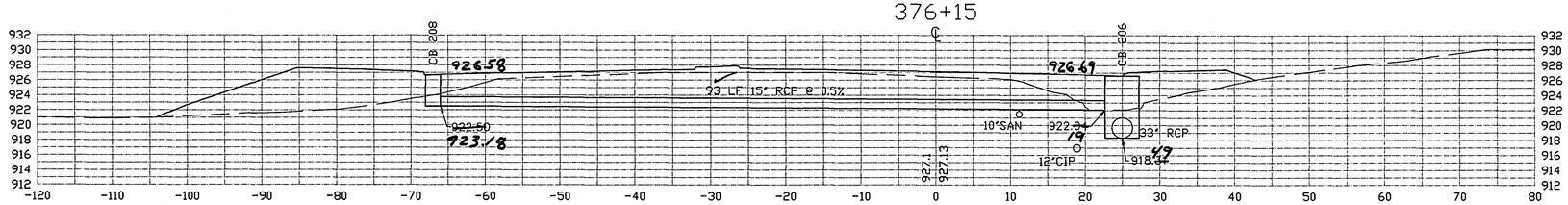




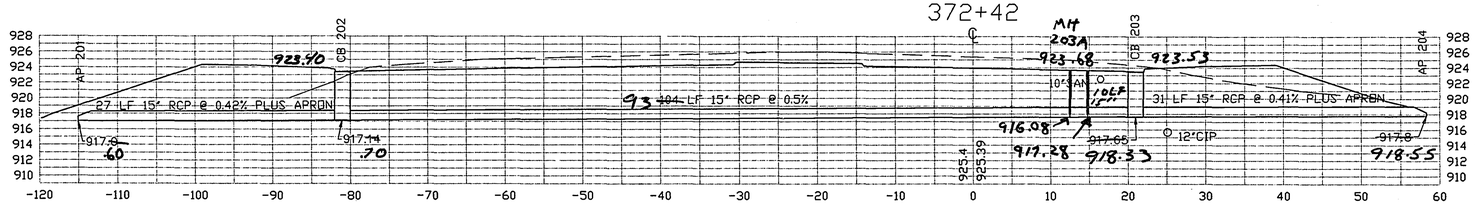
378+23



376+15



372+42



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: PJK
DATE: 12-96

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

Katherine Roettger

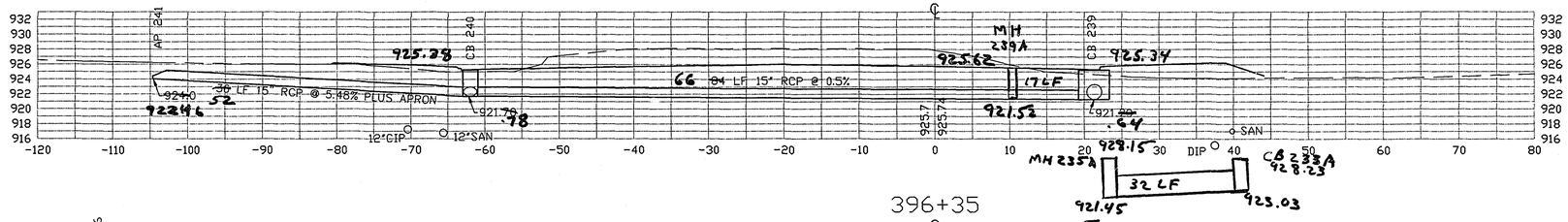
REG. NO. 21869 DATE 8/20/98

SCALE 10 X 10

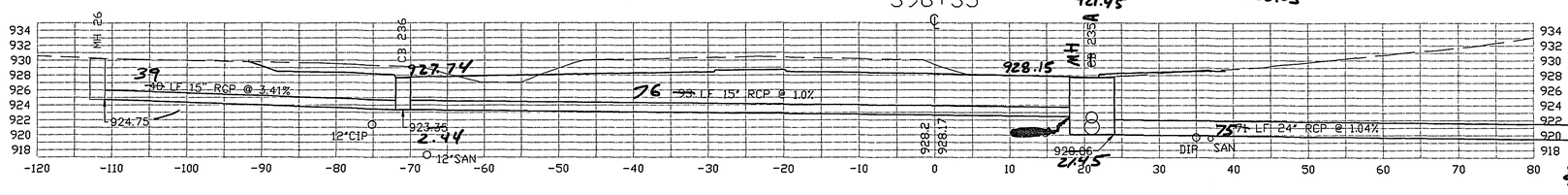
28-143

STORM SEWER PROFILES

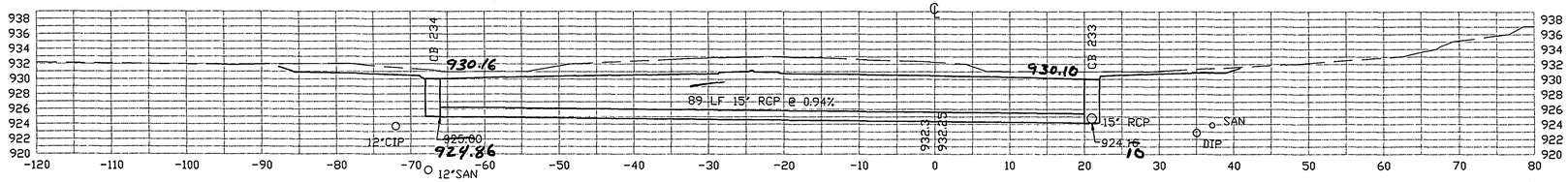
398+80



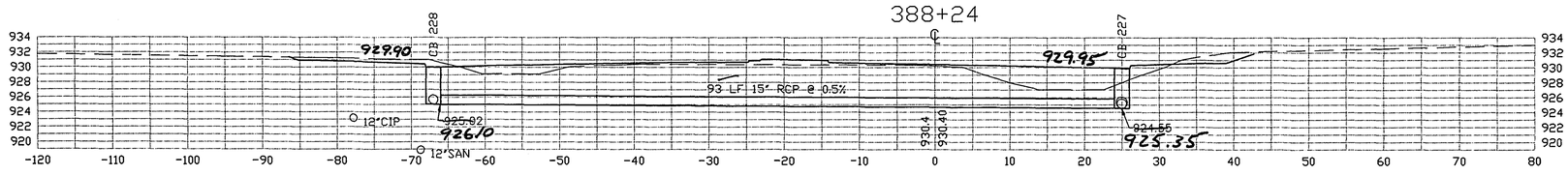
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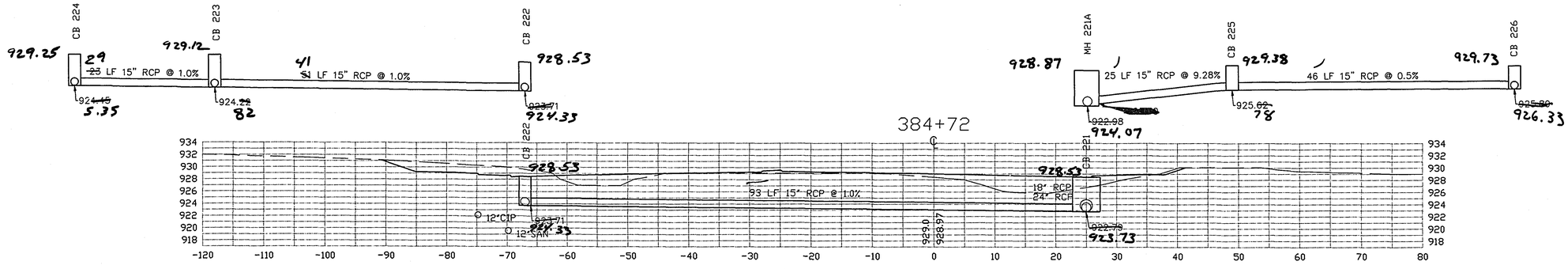
393+80



388+24



384+72



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: PJK
DATE: 12-96

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

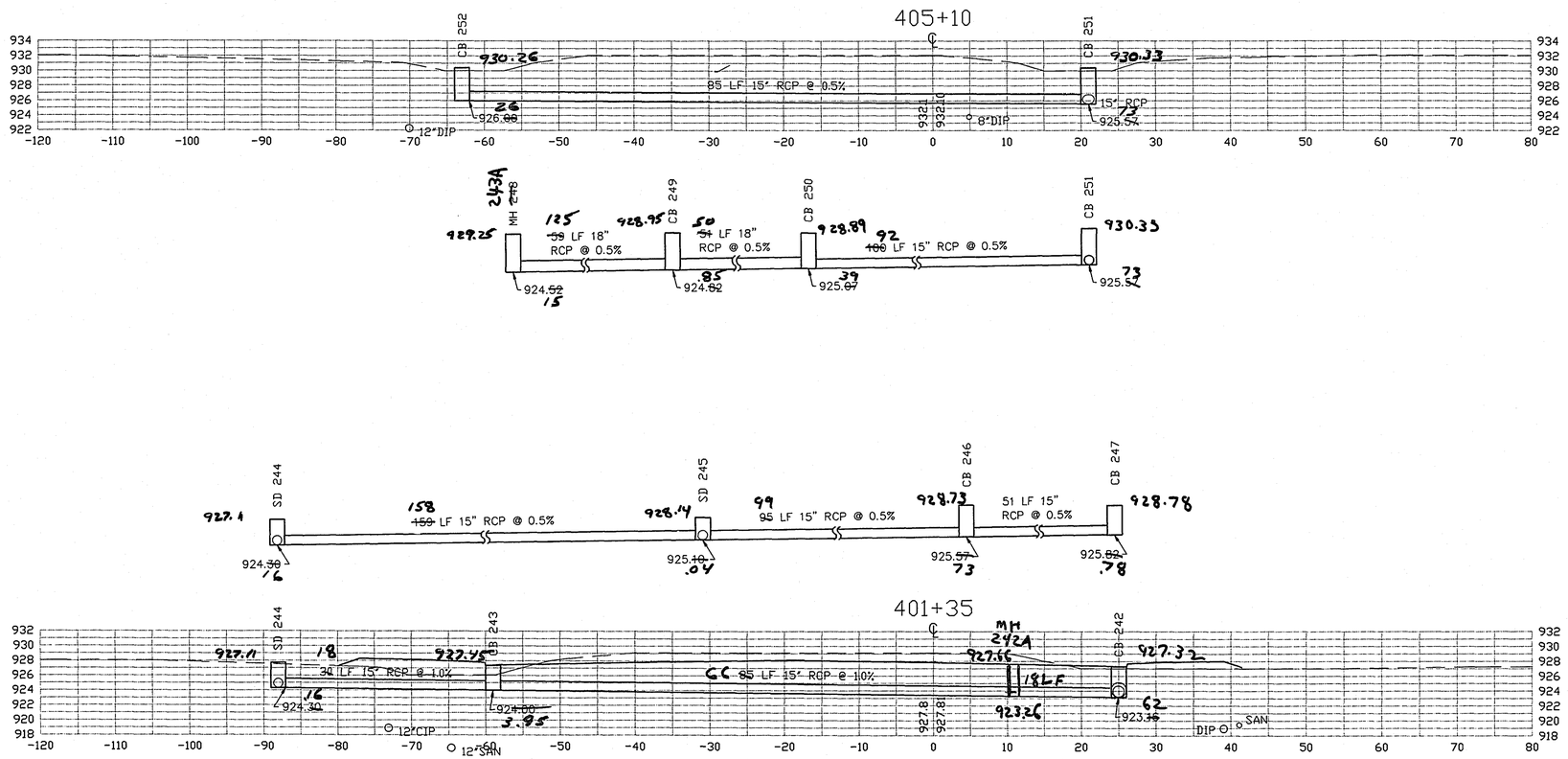
Katherine Roettger

REG. NO. 21864 DATE 5/20/95

28-143

STORM SEWER PROFILES

SCALE 10 X 10



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: PJK
DATE: 12-96

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
Katherine Raetzman
REG. NO. 21864 DATE 3/20/96

SCALE 10 X 10

28-143

STORM SEWER PROFILES

SIGN OR DEVICE	SIGN	COLOR	SIZE	QUANTITY		
				PHASE 1	PHASE 2	PHASE 3
STOP	R1-1	WHITE ON RED	36"X36"	12	10	11
SPEED LIMIT 30	R2-1	BLACK ON WHITE	24"X30"	4	4	4
REDUCED SPEED AHEAD	R2-5a	BLACK ON WHITE	24"X30"	2	2	2
RIGHT TURN LANE	R3-X1	BLACK ON WHITE	30"X30"	1	0	0
LEFT TURN LANE	R3-X2	BLACK ON WHITE	30"X30"	1	0	0
	R4-7	BLACK ON WHITE	24"X30"	5	3	1
WORK ZONE	R2-X6P	BLACK ON ORANGE	24"X18"	4	4	4
ROAD CLOSED	R11-2	BLACK ON WHITE	48"X30"	2	2	0

SIGN OR DEVICE	SIGN	COLOR	SIZE	QUANTITY		
				PHASE 1	PHASE 2	PHASE 3
	W3-1a	BLACK RED, WHITE ON YELLOW	36"X36"	8	8	8
	W6-3	BLACK ON ORANGE	30"X30"	1	1	1
ROAD CONSTRUCTION AHEAD	W20-1	BLACK ON ORANGE	48"X48"	7	7	7
BYPASS AHEAD	W20-X6	BLACK ON ORANGE	48"X48"	1	1	1
RIGHT LANE CLOSED	W21-X5R	BLACK ON ORANGE	48"X48"	1	1	1

SIGN OR DEVICE	SIGN	COLOR	SIZE	QUANTITY		
				PHASE 1	PHASE 2	PHASE 3
END CONSTRUCTION	G20-2	BLACK ON ORANGE	60"X24"	2	2	2
COUNTY G (TH 96) ROAD WORK 135E to Otter Lake Road BEGINS DATE	G20-X2	BLACK ON ORANGE	168"X132"	1	1	1
COUNTY G (TH 96) ROAD WORK 135E to Otter Lake Road BEGINS DATE (1)	G20-X2	BLACK ON ORANGE	96"X84"	2	2	2
EXPECT DELAYS	(1) PLAQUE	BLACK ON ORANGE	90"X8"	2	2	2
COUNTY G (TH 96) ROAD WORK 135E to Otter Lake Road EXPECT DELAYS	G20-X2	BLACK ON ORANGE	96"X84"	1	1	1
4" SOLID LINE YELLOW-PAINT				9400 LIN. FT.	0	0
PAINTED ARROWS				7	0	0
	W1-6 MTD ON TYPE III BARRICADE	BLACK ON ORANGE	48"X24"	11	10	3
	PLASTIC DRUM	WHITE ON ORANGE	18"X36" MINUMUM	150	150	150
	TYPE III	WHITE ON ORANGE	8 FT MINUMUM	14	13	23

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

David E. Sohn

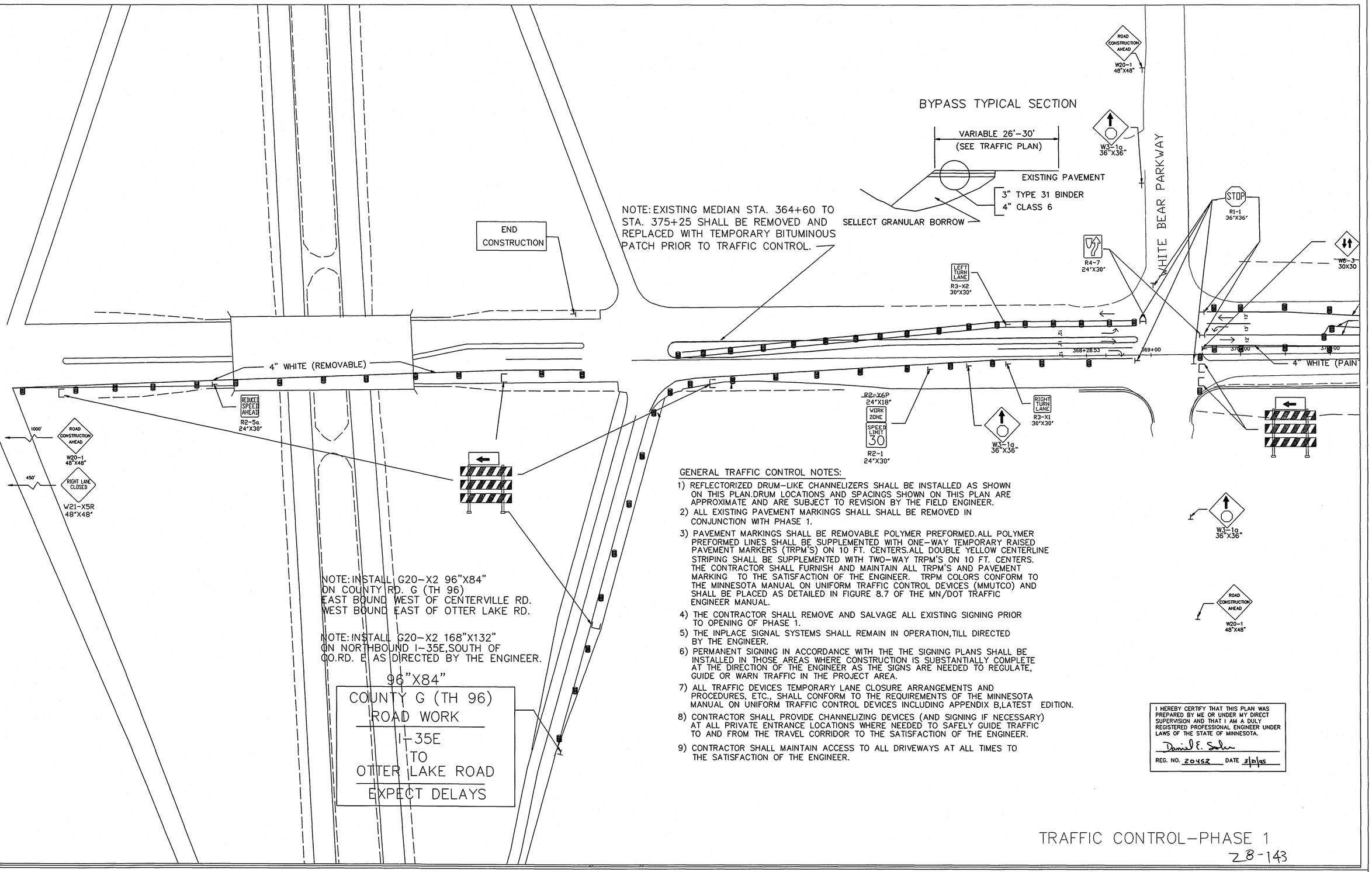
Date 3/21/95 Reg. No. 20452

COUNTY ROAD G
I35E to OTTER LAKE ROAD

SIGN & MARKING TABULATION

FOR TRAFFIC CONTROL

28-143



GENERAL TRAFFIC CONTROL NOTES:

1) REFLECTORIZED DRUM-LIKE CHANNELIZERS SHALL BE INSTALLED AS SHOWN ON THIS PLAN.DRUM LOCATIONS AND SPACINGS SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE SUBJECT TO REVISION BY THE FIELD ENGINEER.
2) ALL EXISTING PAVEMENT MARKINGS SHALL SHALL BE REMOVED IN CONJUNCTION WITH PHASE 1.
3) PAVEMENT MARKINGS SHALL BE REMOVABLE POLYMER PREFORMED.ALL POLYMER PREFORMED LINES SHALL BE SUPPLEMENTED WITH ONE-WAY TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S) ON 10 FT. CENTERS.ALL DOUBLE YELLOW CENTERLINE STRIPING SHALL BE SUPPLEMENTED WITH TWO-WAY TRPM'S ON 10 FT. CENTERS. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL TRPM'S AND PAVEMENT MARKING TO THE SATISFACTION OF THE ENGINEER. TRPM COLORS CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCO) AND SHALL BE PLACED AS DETAILED IN FIGURE 8.7 OF THE MN/DOT TRAFFIC ENGINEER MANUAL.
4) THE CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING SIGNING PRIOR TO OPENING OF PHASE 1.
5) THE INPLACE SIGNAL SYSTEMS SHALL REMAIN IN OPERATION,TILL DIRECTED BY THE ENGINEER.
6) PERMANENT SIGNING IN ACCORDANCE WITH THE THE SIGNING PLANS SHALL BE INSTALLED IN THOSE AREAS WHERE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AT THE DIRECTION OF THE ENGINEER AS THE SIGNS ARE NEEDED TO REGULATE, GUIDE OR WARN TRAFFIC IN THE PROJECT AREA.
7) ALL TRAFFIC DEVICES TEMPORARY LANE CLOSURE ARRANGEMENTS AND PROCEDURES, ETC., SHALL CONFORM TO THE REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING APPENDIX B,LATEST EDITION.
8) CONTRACTOR SHALL PROVIDE CHANNELIZING DEVICES (AND SIGNING IF NECESSARY) AT ALL PRIVATE ENTRANCE LOCATIONS WHERE NEEDED TO SAFELY GUIDE TRAFFIC TO AND FROM THE TRAVEL CORRIDOR TO THE SATISFACTION OF THE ENGINEER.
9) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES TO THE SATISFACTION OF THE ENGINEER.

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

Daniel E. Sather

REG. NO. 20452 DATE 3/21/95

TRAFFIC CONTROL-PHASE 1

Z8-143

C:\DWGS\PL96-A\BORDER 11/30/94

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

ENGLISH ST.

CLARENCE ST.

CONST. LIMITS

4" WHITE (PAINT)

DOUBLE YELLOW (PAINT)

W6-3
30X30

W3-1a
36"X36"

ROAD CLOSED

STOP
R1-1
36"X36"

STA AHEAD 372+77.33
STA BACK 21+73.47

R4-7
24"X30"

24"X18"
WORK ZONE
SPEED LIMIT 30
R2-1
24"X30"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT 30
R2-1
24"X30"

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

BIRCH LAKE ROAD

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

Daniel E. Sahr

REG. NO. 20452 DATE 3/2/95

TRAFFIC CONTROL—PHASE 1

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 64 OF 92 SHEETS

C:\DWGS\PL96-A\BORDER 11/30/94

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

250'

W3-1a
36"X36"

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

R4-7
24"X30"

STOP
R1-1
36"X36"

CONST. LIMITS

W3-1a
36"X36"

R4-7
24"X30"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT 30
R2-1
24"X30"

BYPASS AHEAD
W20-X6
48"X48"

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

CAROLYN ST.

402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00 414+00 415+00 416+00

17' 30'

END CONSTRUCTION

REDUCED SPEED AHEAD
R2-5a
24"X30"

CONST

51A

OTTER LAKE ROAD

W3-1a
36"X36"

200'

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

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

Daniel E. Soler

REG. NO. 20462 DATE 3/21/95

TRAFFIC CONTROL–PHASE 1

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 65 OF 92 SHEETS

C:\DWGS\PL96-A\BORDER 11/30/94

4" WHITE (REMOVABLE)

1000'
ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

450'
RIGHT LANE CLOSED
W21-X5R
48"X48"

REDUCE SPEED AHEAD
R2-5a
24"X30"

END CONSTRUCTION

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

W3-1a
36"X36"

R4-7
24"X30"

WHITE BEAR PARKWAY

STOP
R1-1
36"X36"

368+28.53
369+00
370+00
370+00

W6-3
30X30

W3-1a
36"X36"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT
30
R2-1
24"X30"

W3-1a
36"X36"

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

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

Daniel E. Soler

REG. NO. 20452 DATE 3/21/95

TRAFFIC CONTROL-PHASE 2

28-143

C:\DWGS\PL96-A\BORDER 11/30/94

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = ft.

ENGLISH ST

CLARENCE ST

CONST. LIMITS

ROAD CLOSED

W3-1a
36"X36"

STOP
R1-1
36"X36"

372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00

17'

34'

DOUBLE YELLOW (REMOVABLE)

CONST. LIMITS

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT
30
R2-1
24"X30"

387+00 388+00 389+00 390+00 391+00 392+00 393+00 394+00 395+00 396+00 397+00 398+00 399+00 400+00 401+00

17'

17'

17'

34'

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

BIRCH LAKE ROAD

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

Daniel F. Soler

REG. NO. 20452 DATE 3/31/95

TRAFFIC CONTROL-PHASE 2

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 67 OF 92 SHEETS

C:\DWGS\PL96-A\BORDER 11/30/94

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

250'

W3-1a
36"X36"

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = ft.

51A

R4-7
24"X30"

W3-1a
36"X36"

51A

R4-7
24"X30"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT
30
R2-1
24"X30"

BYPASS AHEAD
W20-X6
48"X48"

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

CAROLYN ST.

REDUCE SPEED AHEAD
R2-5a
24"X30"

CONST. LIMITS

402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00 414+00 415+00 416+00

END CONSTRUCTION

CONST. LIMITS

DOUBLE YELLOW (REMOVABLE)

STOP
R1-1
36"X36"

OTTER LAKE ROAD

W3-1a
36"X36"

200'

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

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

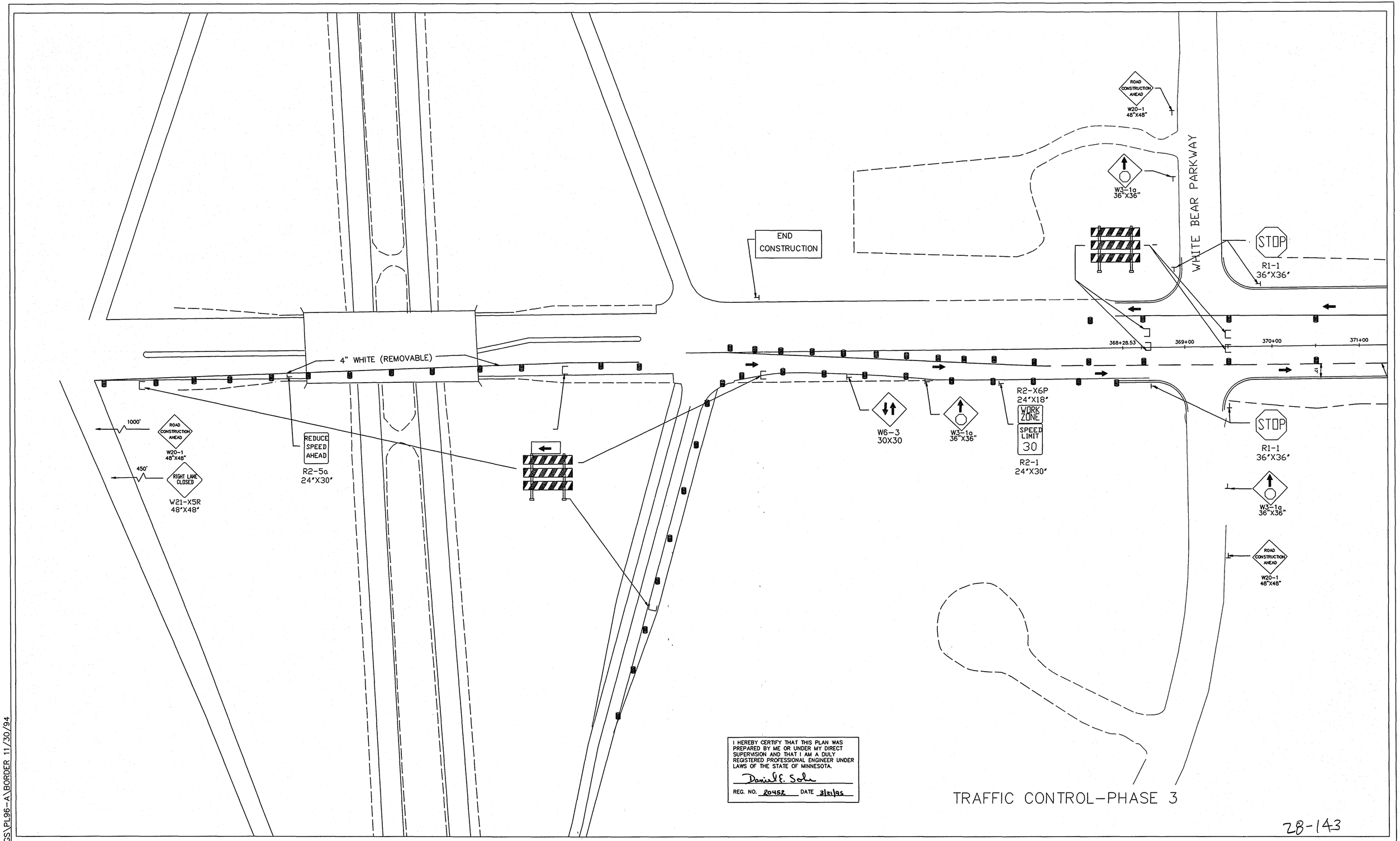
Daniel E. Sohn

REG. NO. 20452 DATE 3/31/95

TRAFFIC CONTROL–PHASE 2

28-143

C:\DWGS\PL96-A\BORDER 11/30/94



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

Daniel E. Sohn

REG. NO. 20452 DATE 3/21/95

TRAFFIC CONTROL–PHASE 3

28-143

C:\DWGS\P196-A\BORDER 11/30/94

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = ft.

ENGLISH ST

CLARENCE ST

CONST. LIMITS

W3-1a
36"X36"

STOP
R1-1
36"X36"

372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00

DOUBLE YELLOW (REMOVABLE)

CONST. LIMITS

DOUBLE YELLOW (REMOVABLE)

CONST. LIMITS

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT 30
R2-1
24"X30"

STOP
R1-1
36"X36"

CONST. LIMITS

387+00 388+00 389+00 390+00 391+00 392+00 393+00 394+00 395+00 396+00 397+00 398+00 399+00 400+00 401+00

BIRCH LAKE ROAD

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT 30
R2-1
24"X30"

CONST. LIMITS

DOUBLE YELLOW (REMOVABLE)

W3-1a
36"X36"

CONST. LIMITS

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

Daniel F. Sohn

REG. NO. 20452 DATE 3/21/95

TRAFFIC CONTROL-PHASE 3

28-143

S.A.P. 62-696-01 C.T.B. SHEET NO. 70 OF 92 SHEETS

C:\DWGS\PL96-A\BORDER 11/30/94

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

250'

W3-1a
36"X36"

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = ft.

STOP
R1-1
36"X36"

CONST. LIMITS

W3-1a
36"X36"

R4-7
24"X30"

R2-X6P
24"X18"
WORK ZONE
SPEED LIMIT
30
R2-1
24"X30"

BYPASS AHEAD
W20-X6
48"X48"

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

CAROLYN ST.

REDUCE SPEED AHEAD
R2-5a
24"X30"

402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00 414+00 415+00 416+00

END CONSTRUCTION

CONST. LIMITS

DOUBLE YELLOW (REMOVABLE)

STOP
R1-1
36"X36"

OTTER LAKE ROAD

W3-1a
36"X36"

200'

ROAD CONSTRUCTION AHEAD
W20-1
48"X48"

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

Daniel E. Sohn

REG. NO. 20452 DATE 8/2/95

TRAFFIC CONTROL-PHASE 3

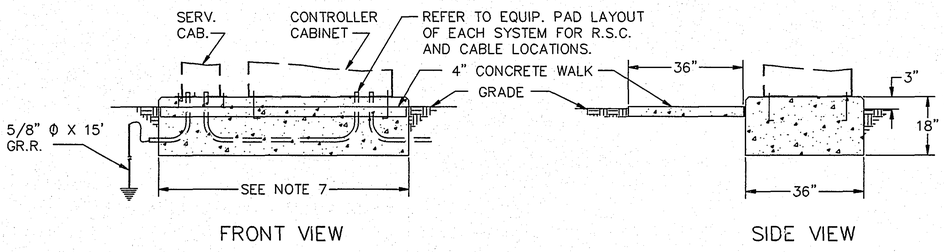
28-143

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EQUIPMENT PAD FOUNDATION

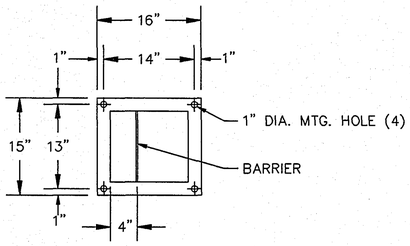
NOTES:

1. ANCHOR RODS, NUTS AND WASHERS PER MN/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER (NUMBER, SIZE AND LENGTH OF ANCHOR RODS) SHALL BE AS REQUIRED BY THE CABINET (MANUFACTURER).
2. UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER IN THE FIELD.
3. TOP OF CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED). CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER BUT SHALL NOT INTERFERE WITH CABINET FUNCTIONS.
4. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR FOUNDATION AND CONCRETE WALK.
5. CONDUITS WHICH HAVE BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
6. EXACT LOCATIONS OF CONDUIT WITHIN THE PAD SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.
7. REFER TO EQUIPMENT PAD LAYOUT OF EACH SYSTEM FOR FOUNDATION SIZE, CONDUIT PLACEMENT AND EQUIPMENT TO BE INSTALLED.



FRONT VIEW SIDE VIEW

SERVICE CABINET DETAILS



BASE LAYOUT

NOTES:

PEDESTAL SHALL BE FABRICATED FROM 0.125 INCH ALUMINUM WITH WELDED SEAMS FOR USE AS AN OUTDOOR WEATHE PROOF SERVICE.

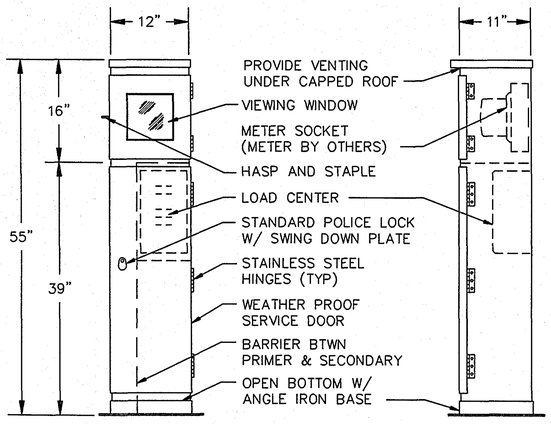
DOOR OPENINGS SHALL BE SEALED WITH NEOPRENE GASKET.

ALL HINGES, HINGE PINS AND LOCKS SHALL BE MADE FROM NON-CORRODING MATERIALS.

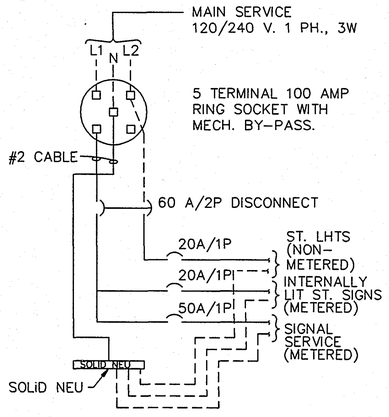
THE VIEWING WINDOW SHALL BE LEXAN MATERIAL – 7" X 7" MIN.

THE PEDESTAL CABINET SHALL BE PROTECTED INSIDE AND OUT WITH A ANODIC COATING. SEE SPECIAL PROVISIONS.

ANCHOR RODS, NUTS & WASHERS – SEE EQUIPMENT PAD NOTE No. 1.

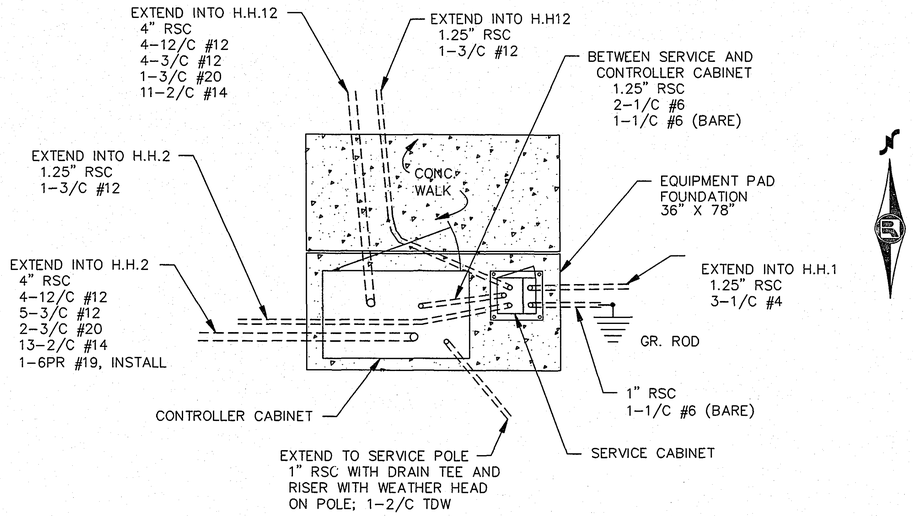


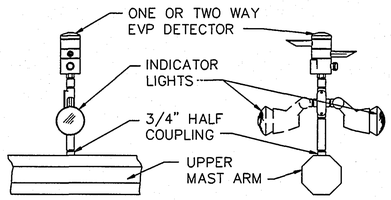
FRONT ELEVATION SIDE ELEVATION



WIRING DIAGRAM

COUNTY ROAD G & WHITE BEAR PKWY
SYSTEM A
EQUIPMENT PAD LAYOUT





FRONT VIEW SIDE VIEW

EVP DETECTOR & LIGHT MOUNTING DETAIL ON MAST ARM

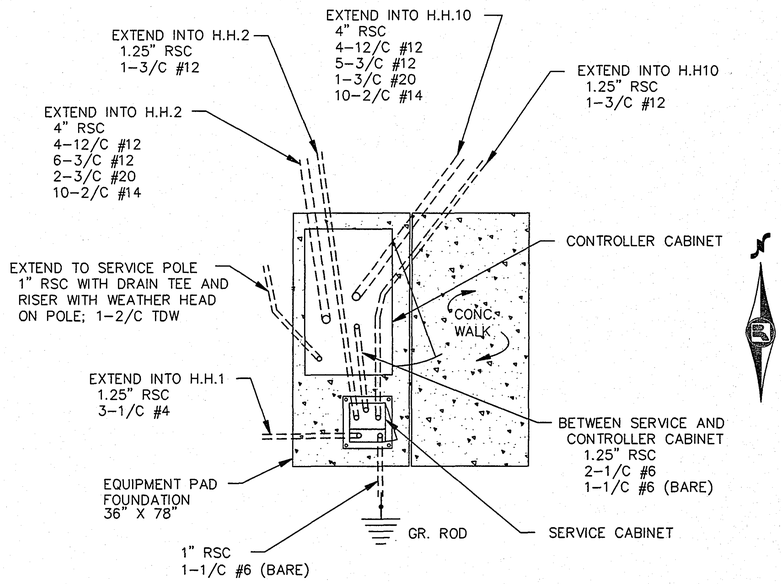
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Daniel E. Soler

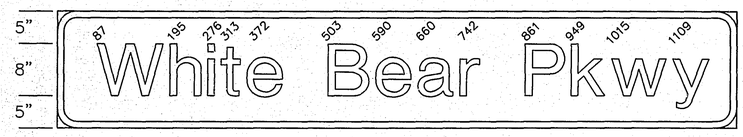
Date 3/21/95 Reg. No. 20452

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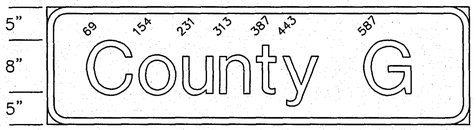
COUNTY ROAD G & OTTER LAKE ROAD
SYSTEM B
EQUIPMENT PAD LAYOUT



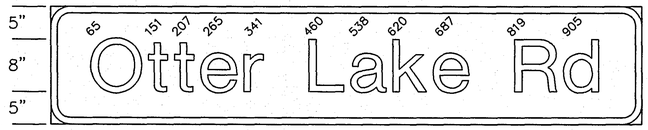
DETAILS 28-143
SYSTEM A & SYSTEM B



D–1 & D–2
126" X 18", 3.0 R. 1.0 B
LINE 1 = 108.67" : 8"–6" "E" MOD.



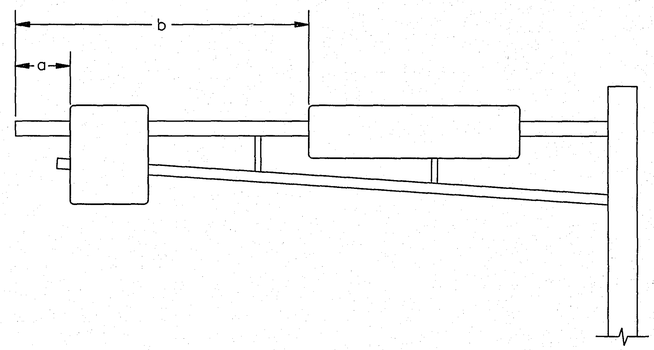
D–3, D–4, D–5 & D–6
72" X 18", 3.0 R. 1.0 B
LINE 1 = 58.24" : 8"–6" "E" MOD.



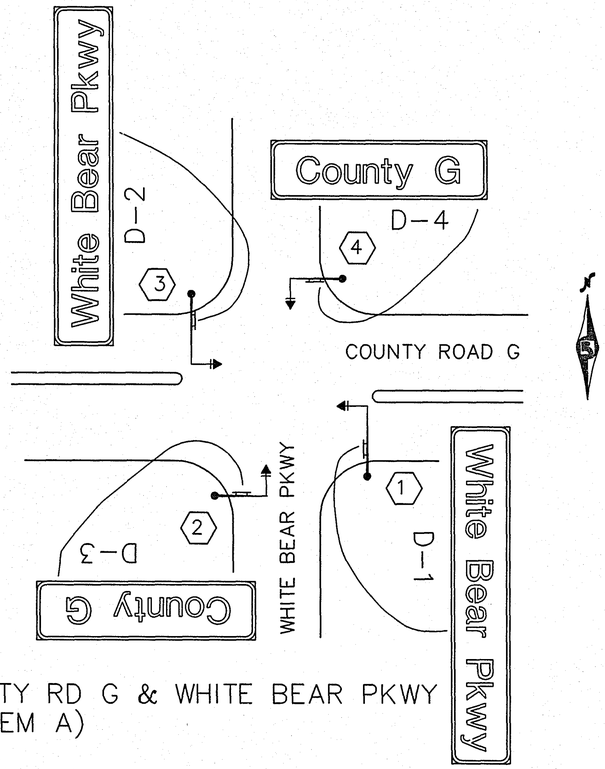
D–7 & D–8
102" X 18", 3.0 R. 1.0 B
LINE 1 = 89.08" : 8"–6" "E" MOD.

TYPE "D" SIGNS – SIGNALS								
SIGN PANEL	SIZE	QUANTITY REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	MAST ARM POLE NUMBER
D–1	126" x 18"	1	3	42"	15.75		37'	(A)(1)
D–2	126" x 18"	1	3	42"	15.75		31'	(A)(3)
D–3	72" x 18"	1	2	42"	9		8'	(A)(2)
D–4	72" x 18"	1	2	42"	9		8'	(A)(4)
D–5	72" x 18"	1	2	42"	9		6'	(B)(1)
D–6	72" x 18"	1	2	42"	9		6'	(B)(3)
D–7	102" X 18"	1	3	36"	12.75		28'	(B)(2)
D–8	102" X 18"	1	3	36"	12.75		28'	(B)(4)

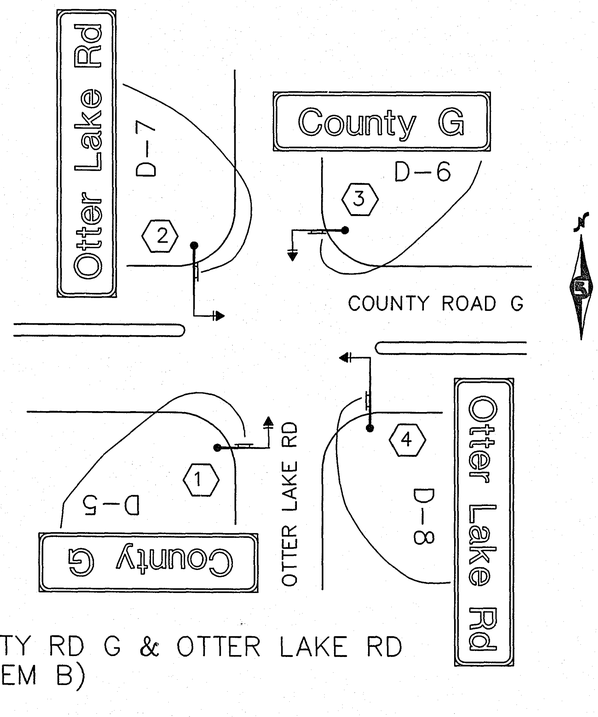
(A) – SYSTEM A
(B) – SYSTEM B



MAST ARM SIGN DIMENSIONING DETAIL



COUNTY RD G & WHITE BEAR PKWY
(SYSTEM A)



COUNTY RD G & OTTER LAKE RD
(SYSTEM B)

NOTES:

1. COLOR – WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED WITH PRISMATIC LENS REFLECTIVE SHEETING.
2. CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3. BOARDERS SHALL BE 1".
4. SEE STANDARD SIGN MANUAL FOR ARROW DETAILS
5. FOR STRUCTURAL DETAILS, TYPE "D" SIGNS SEE STANDARD SIGNS MANUAL, PAGE 105.
6. FOR TYPE "D" STRINGER AND PANEL – JOINT DETAIL, SEE STANDARD SIGNS MANUAL, PAGE 105.
7. LETTERING STYLE SHALL BE HIGHWAY GOTHIC CONFORMING TO MN/DOT STANDARDS.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel F. Sohn
Date 3/2/95 Reg. No. 20152

MAST ARM SIGNS 78-143
SYSTEM A AND SYSTEM B

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S.A.P. No. 62–696–01 C.T.B. Sheet No. 73 of 92 Sheets

SIGNAL INDICATION CHART

FACE	PHASE	INDICATION SIZE					
		R	Y	G	⟲R	⟲Y	⟲G
1–1	1				12"	12"	12"
1–2	1				12"	12"	12"
2–1	2	12"	12"	12"			
2–2	2	12"	12"	12"			
2–3	2	12"	12"	12"			
4–1	4	12"	12"	12"			
4–2	4	12"	12"	12"			
4–3	4	12"	12"	12"			
5–1	5				12"	12"	12"
5–3	5				12"	12"	12"
6–1	6	12"	12"	12"			
6–2	6	12"	12"	12"			
6–3	6	12"	12"	12"			
8–1	8	12"	12"	12"			
8–2	8	12"	12"	12"			
8–3	8	12"	12"	12"			

SIGNING

R&S INPLACE TYPE D SIGNS ON MAST ARMS 1,2,3 & 4 SEE SHEET

F&I OVERHEAD TYPE D SIGNS ON MAST ARMS 1,2,3 & 4 SEE SHEET 73 (SEPARATE PAY ITEM)

PEDESTRIAN PUSH BUTTON SIGNS, TYPE R10–4c, SHALL BE MODIFIED WITH SYMBOL MESSAGE

ALL SIGNING SHALL BE INCIDENTAL WORK TO THIS SIGNAL SYSTEM UNLESS SPECIFIC PAY ITEMS ARE INDICATED.

SIGNAL SYSTEM OPERATION

THE SIGNAL SYSTEM FLASH MODE IS ALL RED.

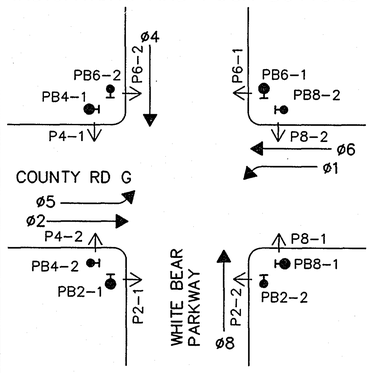
PHASES 1, AND 5 ARE PROTECTED LEFT TURNS.

PHASES 4 AND 8 ARE NON–LOCK DETECTION

PHASES 1,2,5 AND 6 ARE LOCK DETECTION.

PHASES 2 AND 6 ARE ON VEHICLE RECALL.

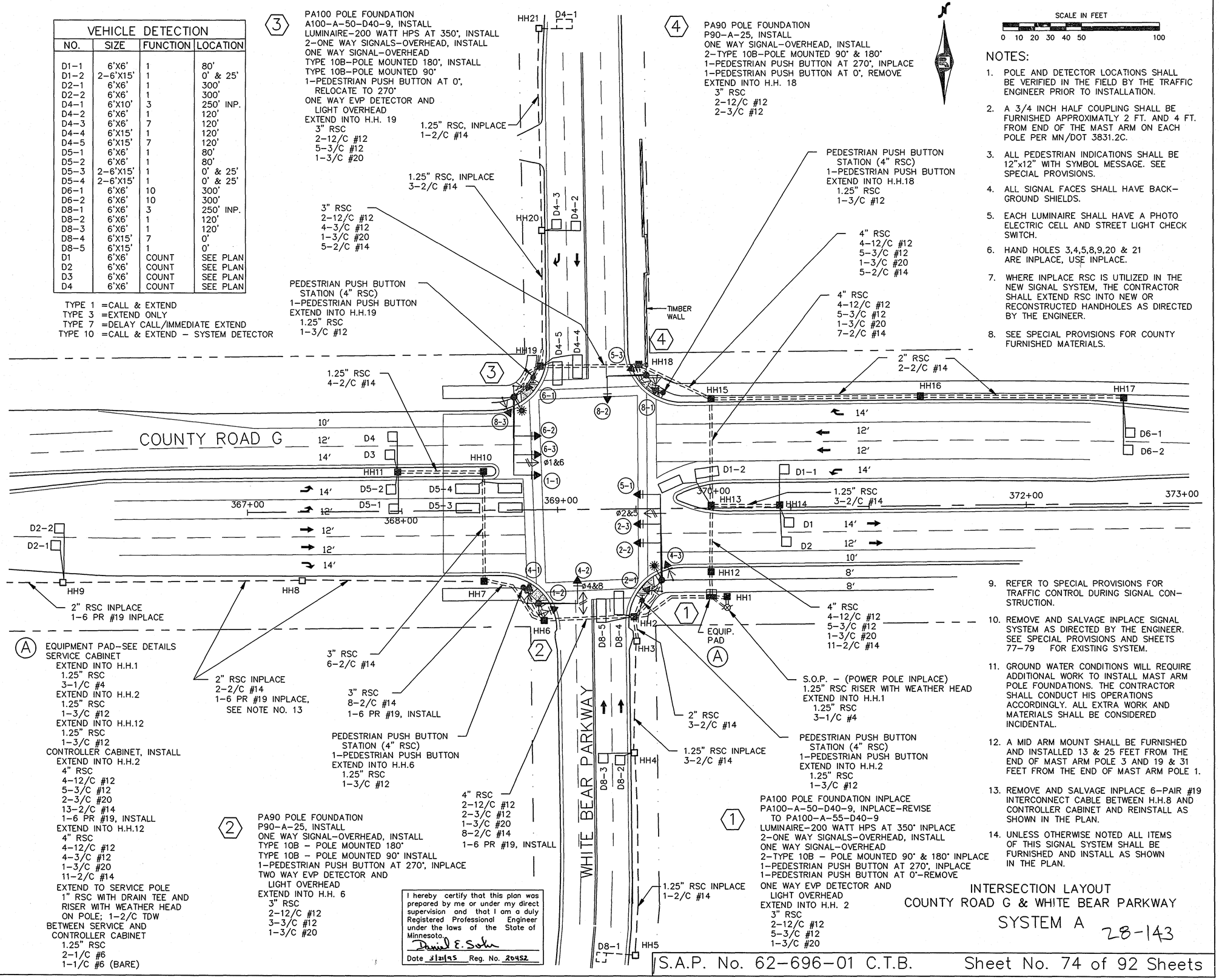
CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



VEHICLE DETECTION

NO.	SIZE	FUNCTION	LOCATION
D1–1	6'X6'	1	80'
D1–2	2–6'X15'	1	0' & 25'
D2–1	6'X6'	1	300'
D2–2	6'X6'	1	300'
D4–1	6'X10'	3	250' INP.
D4–2	6'X6'	1	120'
D4–3	6'X6'	7	120'
D4–4	6'X15'	1	120'
D4–5	6'X15'	7	120'
D5–1	6'X6'	1	80'
D5–2	6'X6'	1	80'
D5–3	2–6'X15'	1	0' & 25'
D5–4	2–6'X15'	1	0' & 25'
D6–1	6'X6'	10	300'
D6–2	6'X6'	10	300'
D8–1	6'X6'	3	250' INP.
D8–2	6'X6'	1	120'
D8–3	6'X6'	1	120'
D8–4	6'X15'	7	0'
D8–5	6'X15'	1	0'
D1	6'X6'	COUNT	SEE PLAN
D2	6'X6'	COUNT	SEE PLAN
D3	6'X6'	COUNT	SEE PLAN
D4	6'X6'	COUNT	SEE PLAN

TYPE 1 =CALL & EXTEND
TYPE 3 =EXTEND ONLY
TYPE 7 =DELAY CALL/IMMEDIATE EXTEND
TYPE 10 =CALL & EXTEND – SYSTEM DETECTOR



(A) EQUIPMENT PAD–SEE DETAILS
SERVICE CABINET
EXTEND INTO H.H.1
1.25" RSC
3–1/C #4
EXTEND INTO H.H.2
1.25" RSC
1–3/C #12
EXTEND INTO H.H.12
1.25" RSC
1–3/C #12
CONTROLLER CABINET, INSTALL
EXTEND INTO H.H.2
4" RSC
4–12/C #12
5–3/C #12
2–3/C #20
13–2/C #14
1–6 PR #19, INSTALL
EXTEND INTO H.H.12
4" RSC
4–12/C #12
4–3/C #12
1–3/C #20
11–2/C #14
EXTEND TO SERVICE POLE
1" RSC WITH DRAIN TEE AND RISER WITH WEATHER HEAD ON POLE; 1–2/C TDW
BETWEEN SERVICE AND CONTROLLER CABINET
1.25" RSC
2–1/C #6
1–1/C #6 (BARE)

(2) PA90 POLE FOUNDATION
P90–A–25, INSTALL
ONE WAY SIGNAL–OVERHEAD, INSTALL
TYPE 10B – POLE MOUNTED 180°
TYPE 10B – POLE MOUNTED 90° INSTALL
1–PEDESTRIAN PUSH BUTTON AT 270°, INPLACE
TWO WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 6
3" RSC
2–12/C #12
3–3/C #12
1–3/C #20

(3) PA100 POLE FOUNDATION
A100–A–50–D40–9, INSTALL
LUMINAIRE–200 WATT HPS AT 350°, INSTALL
2–ONE WAY SIGNALS–OVERHEAD, INSTALL
ONE WAY SIGNAL–OVERHEAD
TYPE 10B–POLE MOUNTED 180°, INSTALL
TYPE 10B–POLE MOUNTED 90°
1–PEDESTRIAN PUSH BUTTON AT 0°, RELOCATE TO 270°
ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 19
3" RSC
2–12/C #12
5–3/C #12
1–3/C #20

(4) PA90 POLE FOUNDATION
P90–A–25, INSTALL
ONE WAY SIGNAL–OVERHEAD, INSTALL
2–TYPE 10B–POLE MOUNTED 90° & 180°
1–PEDESTRIAN PUSH BUTTON AT 270°, INPLACE
1–PEDESTRIAN PUSH BUTTON AT 0°, REMOVE
EXTEND INTO H.H. 18
3" RSC
2–12/C #12
2–3/C #12

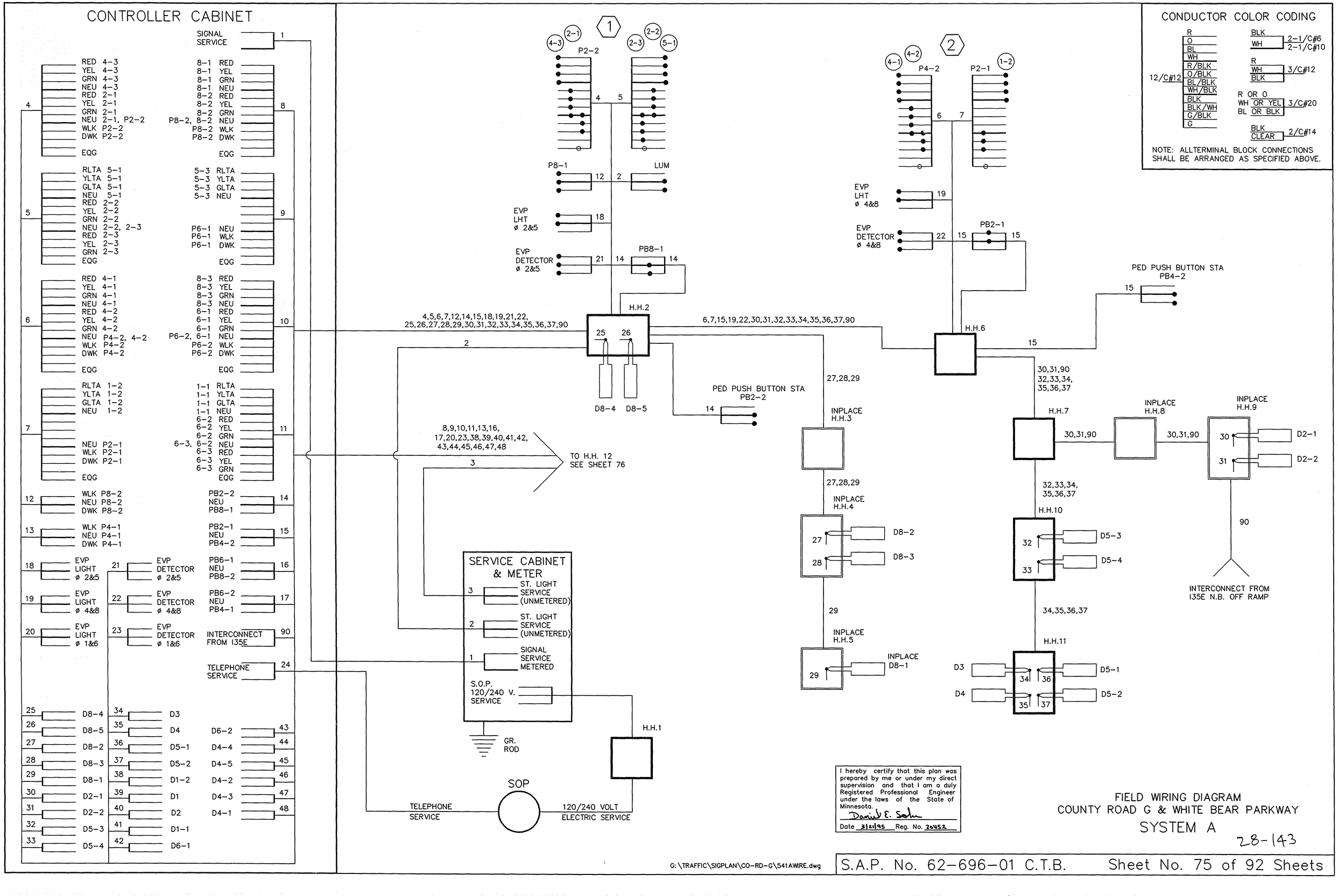
(1) PA100 POLE FOUNDATION INPLACE
PA100–A–50–D40–9, INPLACE–REVISE TO PA100–A–55–D40–9
LUMINAIRE–200 WATT HPS AT 350° INPLACE
2–ONE WAY SIGNALS–OVERHEAD, INSTALL
ONE WAY SIGNAL–OVERHEAD
2–TYPE 10B – POLE MOUNTED 90° & 180° INPLACE
1–PEDESTRIAN PUSH BUTTON AT 270°, INPLACE
1–PEDESTRIAN PUSH BUTTON AT 0°–REMOVE
ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 2
3" RSC
2–12/C #12
5–3/C #12
1–3/C #20

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel E. Soler
Date 3/21/95 Reg. No. 20452

NOTES:

1. POLE AND DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
2. A 3/4 INCH HALF COUPLING SHALL BE FURNISHED APPROXIMATLY 2 FT. AND 4 FT. FROM END OF THE MAST ARM ON EACH POLE PER MN/DOT 3831.2C.
3. ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12" WITH SYMBOL MESSAGE. SEE SPECIAL PROVISIONS.
4. ALL SIGNAL FACES SHALL HAVE BACK–GROUND SHIELDS.
5. EACH LUMINAIRE SHALL HAVE A PHOTO ELECTRIC CELL AND STREET LIGHT CHECK SWITCH.
6. HAND HOLES 3,4,5,8,9,20 & 21 ARE INPLACE, USE INPLACE.
7. WHERE INPLACE RSC IS UTILIZED IN THE NEW SIGNAL SYSTEM, THE CONTRACTOR SHALL EXTEND RSC INTO NEW OR RECONSTRUCTED HANDHOLES AS DIRECTED BY THE ENGINEER.
8. SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
9. REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL DURING SIGNAL CON–STRUCTION.
10. REMOVE AND SALVAGE INPLACE SIGNAL SYSTEM AS DIRECTED BY THE ENGINEER. SEE SPECIAL PROVISIONS AND SHEETS 77–79 FOR EXISTING SYSTEM.
11. GROUND WATER CONDITIONS WILL REQUIRE ADDITIONAL WORK TO INSTALL MAST ARM POLE FOUNDATIONS. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS ACCORDINGLY. ALL EXTRA WORK AND MATERIALS SHALL BE CONSIDERED INCIDENTAL.
12. A MID ARM MOUNT SHALL BE FURNISHED AND INSTALLED 13 & 25 FEET FROM THE END OF MAST ARM POLE 3 AND 19 & 31 FEET FROM THE END OF MAST ARM POLE 1.
13. REMOVE AND SALVAGE INPLACE 6–PAIR #19 INTERCONNECT CABLE BETWEEN H.H.8 AND CONTROLLER CABINET AND REINSTALL AS SHOWN IN THE PLAN.
14. UNLESS OTHERWISE NOTED ALL ITEMS OF THIS SIGNAL SYSTEM SHALL BE FURNISHED AND INSTALL AS SHOWN IN THE PLAN.

INTERSECTION LAYOUT
COUNTY ROAD G & WHITE BEAR PARKWAY
SYSTEM A 28-143



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

David E. Sohn

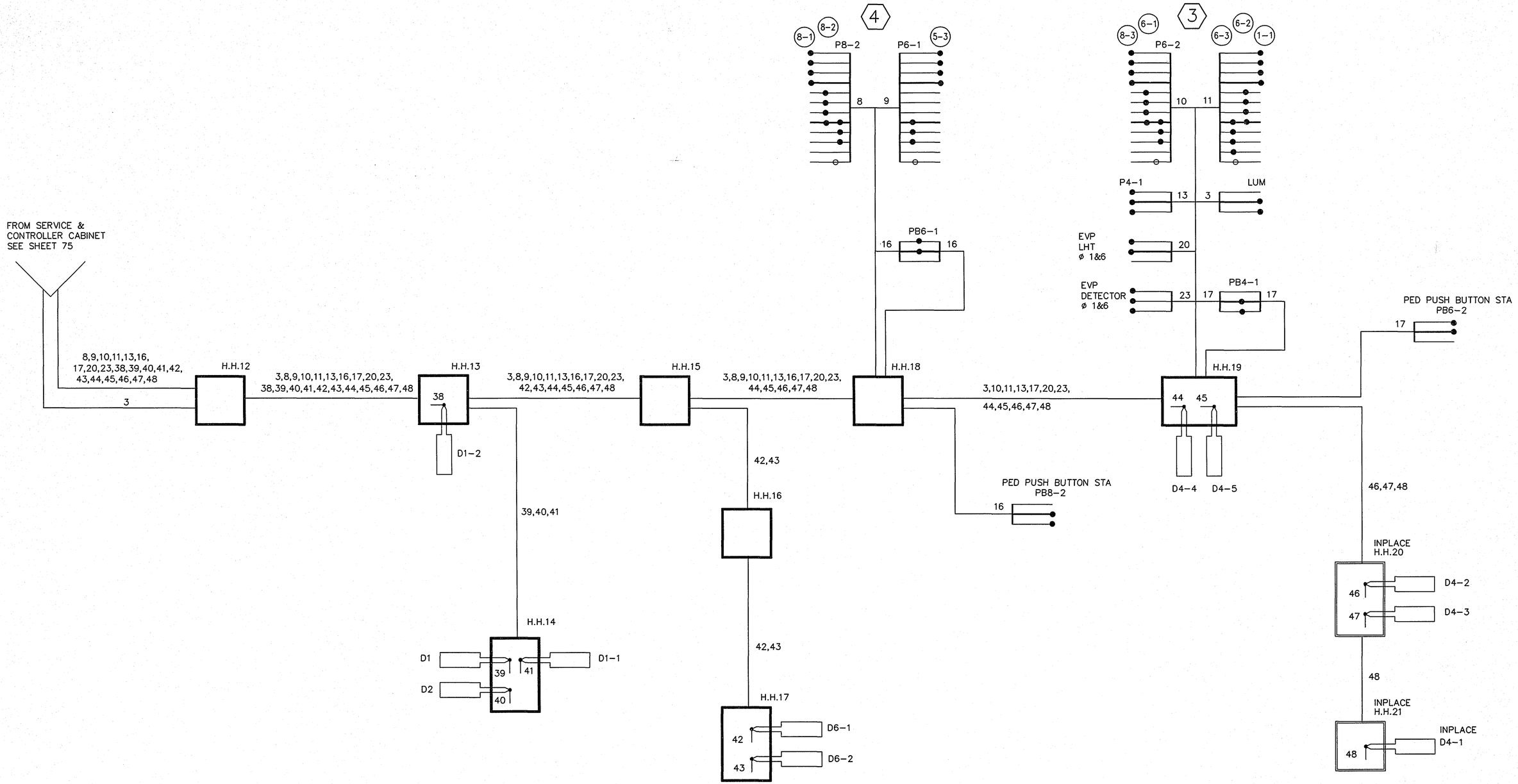
Date 3/21/95 Reg. No. 20452

FIELD WIRING DIAGRAM
COUNTY ROAD G & WHITE BEAR PARKWAY
SYSTEM A

28-143

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S.A.P. No. 62–696–01 C.T.B. Sheet No. 75 of 92 Sheets



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Daniel E. Soler

Date 3/21/95 Reg. No. 20452

FIELD WIRING DIAGRAM
COUNTY ROAD G & WHITE BEAR PARKWAY
SYSTEM A 28-143

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NOTE:

1) SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.

2) ALL VEHICLE SIGNAL INDICATIONS SHALL HAVE GLASS LENSES.

3) ALL PEDESTRIAN INDICATIONS SHALL BE 12 INCH BY 12 INCH.

4) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.

5) ALL NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. (SEE SPECIAL PROVISIONS)

6) EXACT LOCATION OF CABINET, POLES, HANDHOLES, AND LOOP DETECTORS SHALL BE DETERMINED BY TRAFFIC OFFICE PERSONNEL.

7) EACH LUMINAIRE SHALL HAVE A PHOTO-ELECTRIC CELL AND CHECK SWITCH.

8) A R9-3a SIGN SHALL BE INSTALLED ADJACENT TO POLES 2 AND 3.

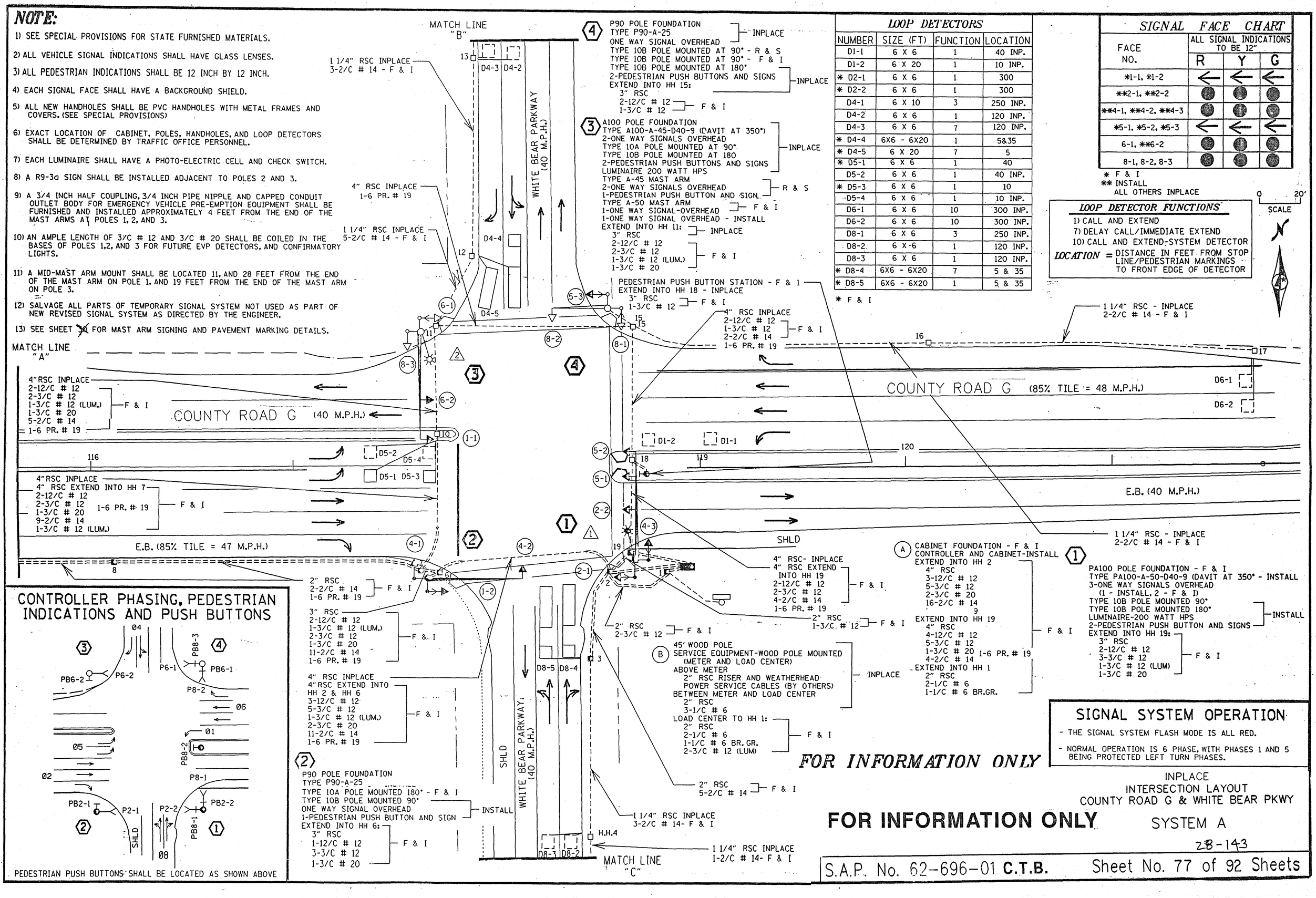
9) A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CAPPED CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 4 FEET FROM THE END OF THE MAST ARMS AT POLES 1, 2, AND 3.

10) AN AMPLE LENGTH OF 3/C # 12 AND 3/C # 20 SHALL BE COILED IN THE BASES OF POLES 1,2, AND 3 FOR FUTURE EVP DETECTORS, AND CONFIRMATORY LIGHTS.

11) A MID-MAST ARM MOUNT SHALL BE LOCATED 11, AND 28 FEET FROM THE END OF THE MAST ARM ON POLE 1, AND 19 FEET FROM THE END OF THE MAST ARM ON POLE 3.

12) SALVAGE ALL PARTS OF TEMPORARY SIGNAL SYSTEM NOT USED AS PART OF NEW REVISED SIGNAL SYSTEM AS DIRECTED BY THE ENGINEER.

13) SEE SHEET ~~16~~ FOR MAST ARM SIGNING AND PAVEMENT MARKING DETAILS.



LOOP DETECTORS

NUMBER	SIZE (FT)	FUNCTION	LOCATION
D1-1	6 X 6	1	40 INP.
D1-2	6 X 20	1	10 INP.
* D2-1	6 X 6	1	300
* D2-2	6 X 6	1	300
D4-1	6 X 10	3	250 INP.
D4-2	6 X 6	1	120 INP.
D4-3	6 X 6	7	120 INP.
* D4-4	6X6 - 6X20	1	5&35
* D4-5	6 X 20	7	5
* D5-1	6 X 6	1	40
D5-2	6 X 6	1	40 INP.
* D5-3	6 X 6	1	10
D5-4	6 X 6	1	10 INP.
D6-1	6 X 6	10	300 INP.
D6-2	6 X 6	10	300 INP.
D8-1	6 X 6	3	250 INP.
D8-2	6 X 6	1	120 INP.
D8-3	6 X 6	1	120 INP.
* D8-4	6X6 - 6X20	7	5 & 35
* D8-5	6X6 - 6X20	1	5 & 35

* F & I

SIGNAL FACE CHART

FACE NO.	ALL SIGNAL INDICATIONS TO BE 12" R	Y	G
*1-1, *1-2	←	←	←
**2-1, **2-2	●	●	●
**4-1, **4-2, **4-3	●	●	●
*5-1, *5-2, *5-3	←	←	←
6-1, **6-2	●	●	●
8-1, 8-2, 8-3	●	●	●

* F & I
** INSTALL ALL OTHERS INPLACE

LOOP DETECTOR FUNCTIONS

1) CALL AND EXTEND
7) DELAY CALL/IMMEDIATE EXTEND
10) CALL AND EXTEND-SYSTEM DETECTOR

LOCATION = DISTANCE IN FEET FROM STOP LINE/PEDESTRIAN MARKINGS TO FRONT EDGE OF DETECTOR

0 20' SCALE

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.

FOR INFORMATION ONLY

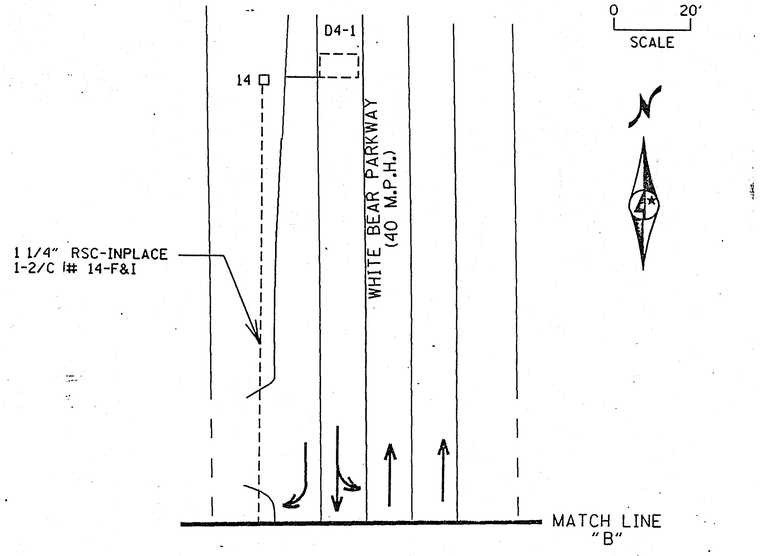
INPLACE
INTERSECTION LAYOUT
COUNTY ROAD G & WHITE BEAR PKWY

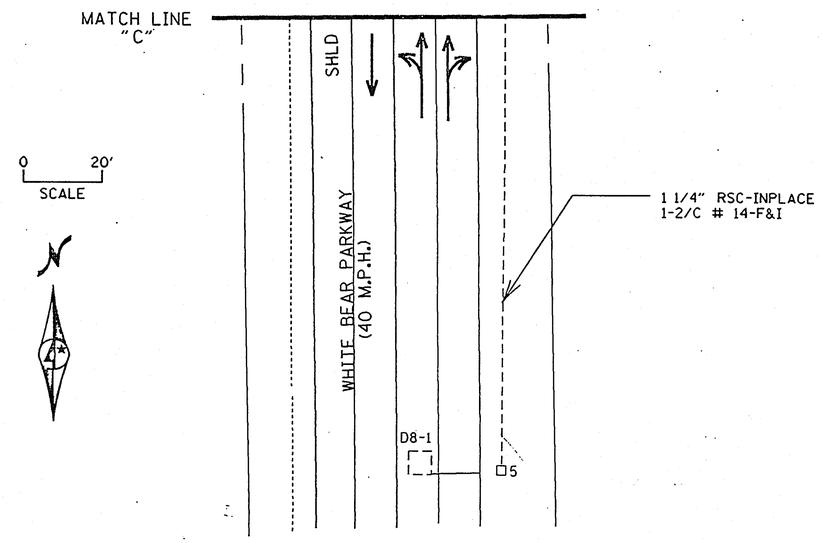
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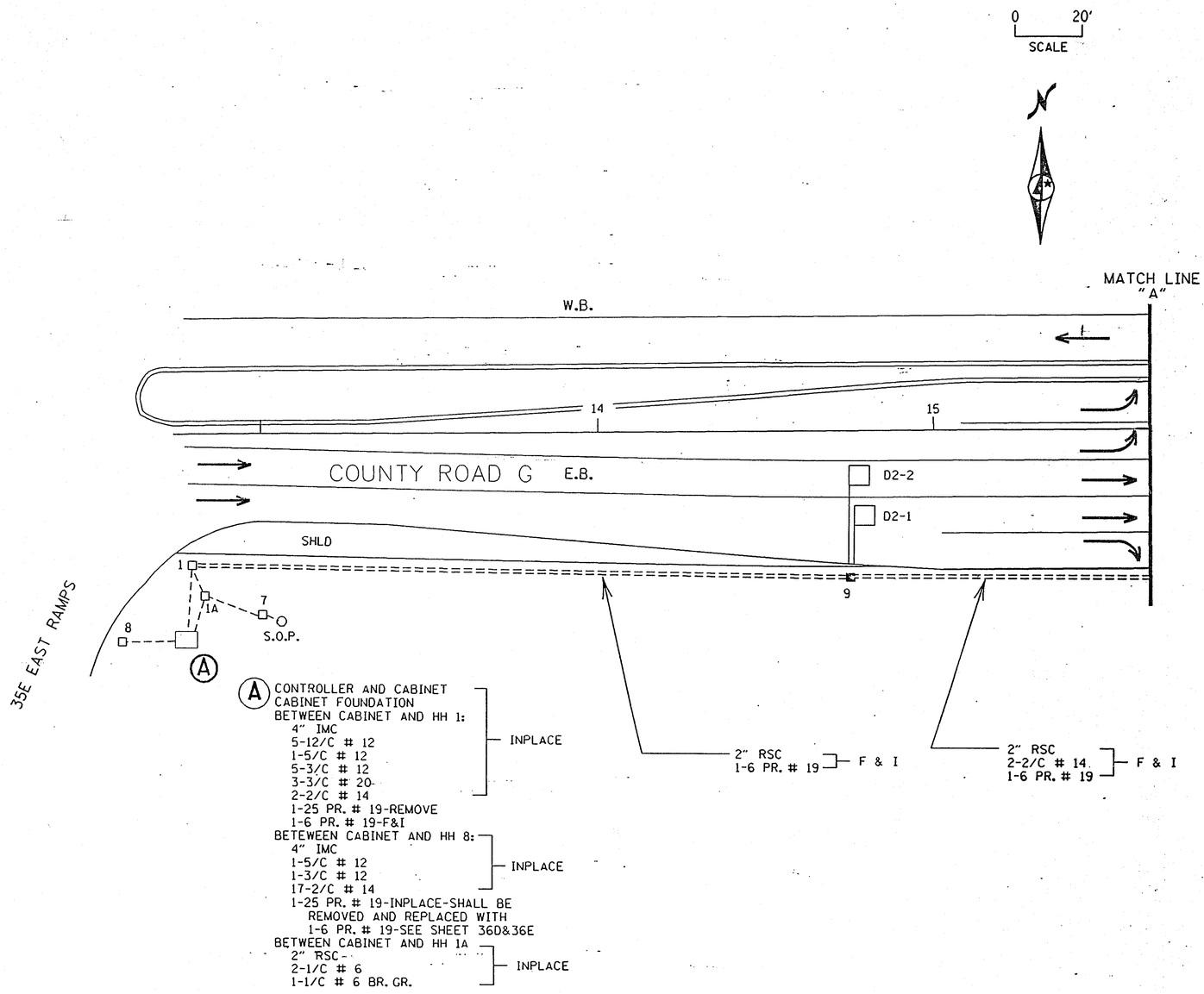
SYSTEM A

28-143

S.A.P. No. 62-696-01 **C.T.B.** Sheet No. 77 of 92 Sheets







(A) CONTROLLER AND CABINET
CABINET FOUNDATION
BETWEEN CABINET AND HH 1:
4" IMC
5-12/C # 12
1-5/C # 12
5-3/C # 12
3-3/C # 20
2-2/C # 14
1-25 PR. # 19-REMOVE
1-6 PR. # 19-F&I
— INPLACE

BETEWEEN CABINET AND HH 8:
4" IMC
1-5/C # 12
1-3/C # 12
17-2/C # 14
1-25 PR. # 19-INPLACE-SHALL BE
REMOVED AND REPLACED WITH
1-6 PR. # 19-SEE SHEET 36D&36E
— INPLACE

BETWEEN CABINET AND HH 1A
2" RSC
2-1/C # 6
1-1/C # 6 BR. GR.
— INPLACE

FOR INFORMATION ONLY

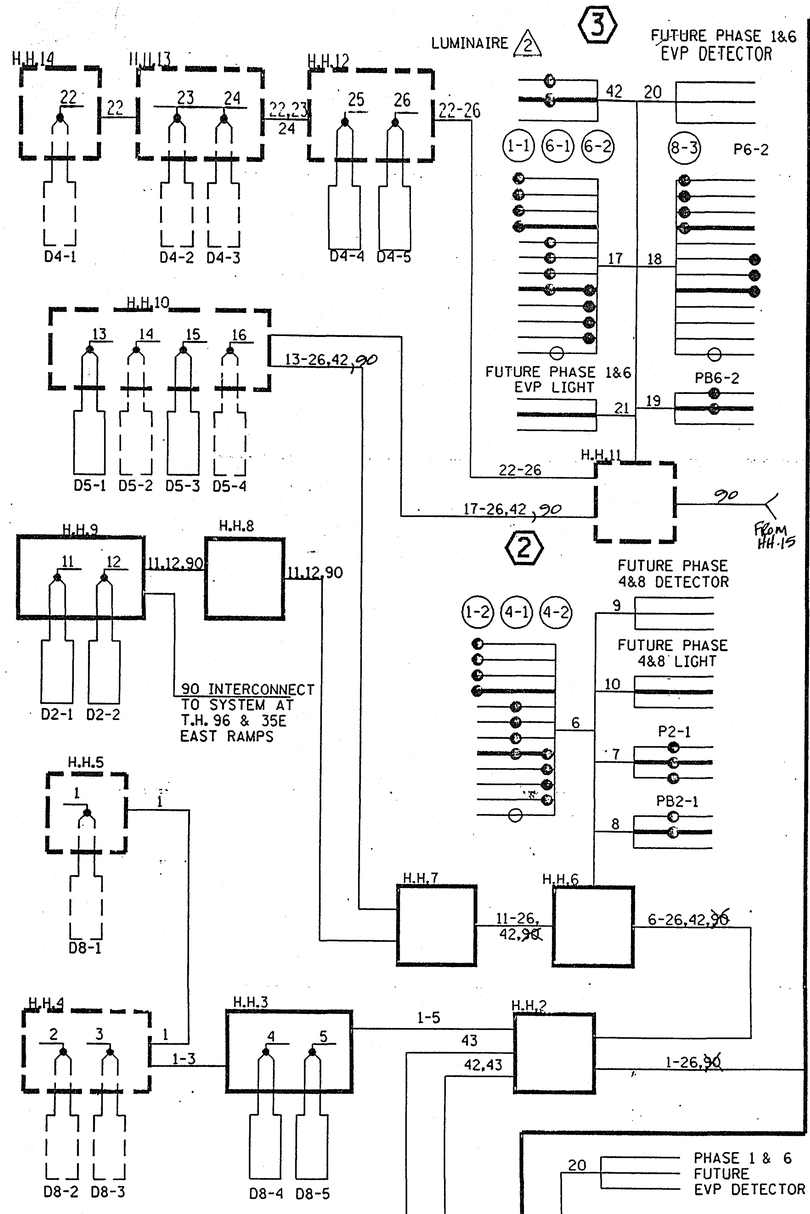
INPLACE
INTERSECTION LAYOUT
COUNTY ROAD G & WHITE BEAR PKWY

FOR INFORMATION ONLY

SYSTEM A

28-143

S.A.P. No. 62-696-01 **C.T.B.** Sheet No. 78 of 92 Sheets



CONTROLLER CABINET

1	D8-1		
2	D8-2		
3	D8-3		
4	D8-4		
5	D8-5		
6	RLTA, YLTA, GLTA, NEU	1-2	
	RED, YEL, GRN, NEU	4-1	
	RED, YEL, GRN, EQG	4-2	
7	WLK, NEU, DWK	P2-1	
8	PB2-1, NEU, SPR		
9	PHASE 4 & 8 FUTURE EVP DETECTOR		
10	PHASE 4 & 8 FUTURE EVP LIGHT		
11	D2-1		
12	D2-2		
13	D5-1		
14	D5-2		
15	D5-3		
16	D5-4		
17	RLTA, YLTA, GLTA, NEU	1-1	
	RED, YEL, GRN, NEU	6-1	
	RED, YEL, GRN, EQG	6-2	
18	RED, YEL, GRN, NEU	8-3	
	SPR, WLK, DWK, NEU	P6-2	
	SPR, SPR, SPR, EQG		
19	PB6-2, NEU, SPR		
27	RLTA, YLTA, GLTA, NEU	5-1	
	RLTA, YLTA, GLTA, NEU	5-2	
	NEU, RED, YEL, GRN, EQG	4-3	
28	RED, YEL, GRN, NEU	2-1	
	RED, YEL, GRN, NEU	2-2	
	WLK, DWK, SPR, EQG	P2-2	
29	WLK P8-1, NEU P8-1, DWK P8-1		
30	PB8-1, NEU, PB2-2		
31	PHASE 2 & 5 FUTURE EVP DETECTOR		
32	PHASE 2 & 5 FUTURE EVP LIGHT		
33	D1-1		
34	D1-2		
35	PB8-2, NEU, SPR		
36	D6-1		
37	D6-2		
38	RLTA, YLTA, GLTA, NEU	5-3	
	RED, YEL, GRN, NEU	8-1	
	WLK, DWK, SPR, EQG	P8-2	
39	RED, YEL, GRN, NEU	8-2	
	SPR, WLK, DWK, NEU	P6-1	
	SPR, SPR, SPR, EQG		
40	PB6-1, NEU, PB8-3		
41	SIGNAL SERVICE		

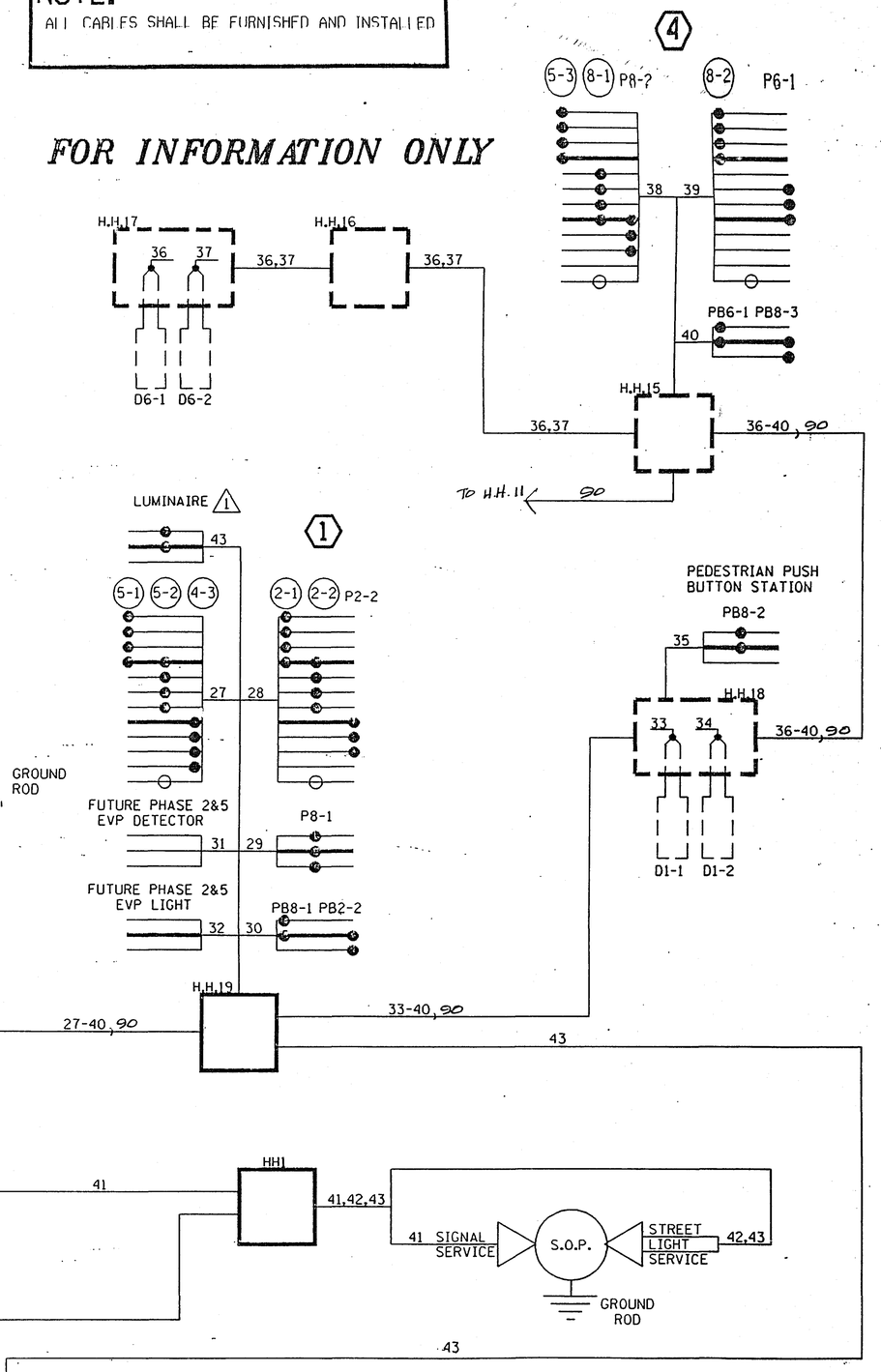
CONDUCTOR COLOR CODING

12/C#12	R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, G/BLK, G	
	R, O, BL, WH, C	5/C#12
	R, WH, BLK	3/C#12
	R OR O, WH OR YEL, BLK OR BL	3/C#20
2-1/C#6	BLK, WH	
	BLK, CLEAR	2/C#14

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

NOTE:
ALL CABLES SHALL BE FURNISHED AND INSTALLED

FOR INFORMATION ONLY



INPLACE
FIELD WIRING DIAGRAM
COUNTY ROAD G & WHITE BEAR PKWY

FOR INFORMATION ONLY

SYSTEM A

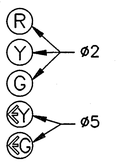
Z8-143

SIGNAL INDICATION CHART

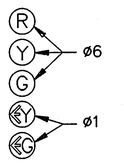
FACE	PHASE	INDICATION SIZE					
		R	Y	G	⟲Y	⟲G	
2-1	2	12"	12"	12"			
2-2	2 and 5	12"	12"	12"	12"	12"	
2-3	2 and 5	12"	12"	12"	12"	12"	
2-4	2	12"	12"	12"			
4-1	4	12"	12"	12"			
4-2	4	12"	12"	12"			
4-3	4	12"	12"	12"			
6-1	6	12"	12"	12"			
6-2	1 and 6	12"	12"	12"	12"	12"	
6-3	1 and 6	12"	12"	12"	12"	12"	
6-4	6	12"	12"	12"			
8-1	8	12"	12"	12"			
8-2	8	12"	12"	12"			
8-3	8	12"	12"	12"			

SIGNAL HEAD PHASING

HEADS 2-2 and 2-3



HEADS 6-2 and 6-3



SIGNING

F&I OVERHEAD TYPE D SIGNS, SEE SHEET 73 (SEPARATE PAY ITEM)

F&I OVERHEAD TYPE R10-12 (36"X48") SIGNS ON MAST ARM POLES 1 & 3.

PEDESTRIAN PUSH BUTTON SIGNS, TYPE R10-4c, SHALL BE MODIFIED WITH SYMBOL MESSAGE

ALL SIGNING SHALL BE INCIDENTAL WORK TO THIS SIGNAL SYSTEM UNLESS SPECIFIC PAY ITEMS ARE INDICATED.

SIGNAL SYSTEM OPERATION

THE SIGNAL SYSTEM FLASH MODE IS ALL RED.

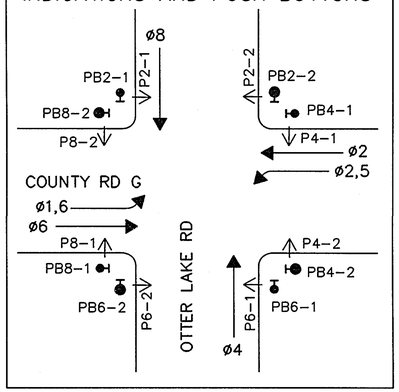
PHASES 1, AND 5 ARE PROTECTED/PERMISSIVE LEFT TURNS.

PHASES 1, 4, 5 & 8 ARE NON-LOCK DETECTION

PHASES 2 AND 6 ARE LOCK DETECTION.

PHASES 2 AND 6 ARE ON VEHICLE RECALL.

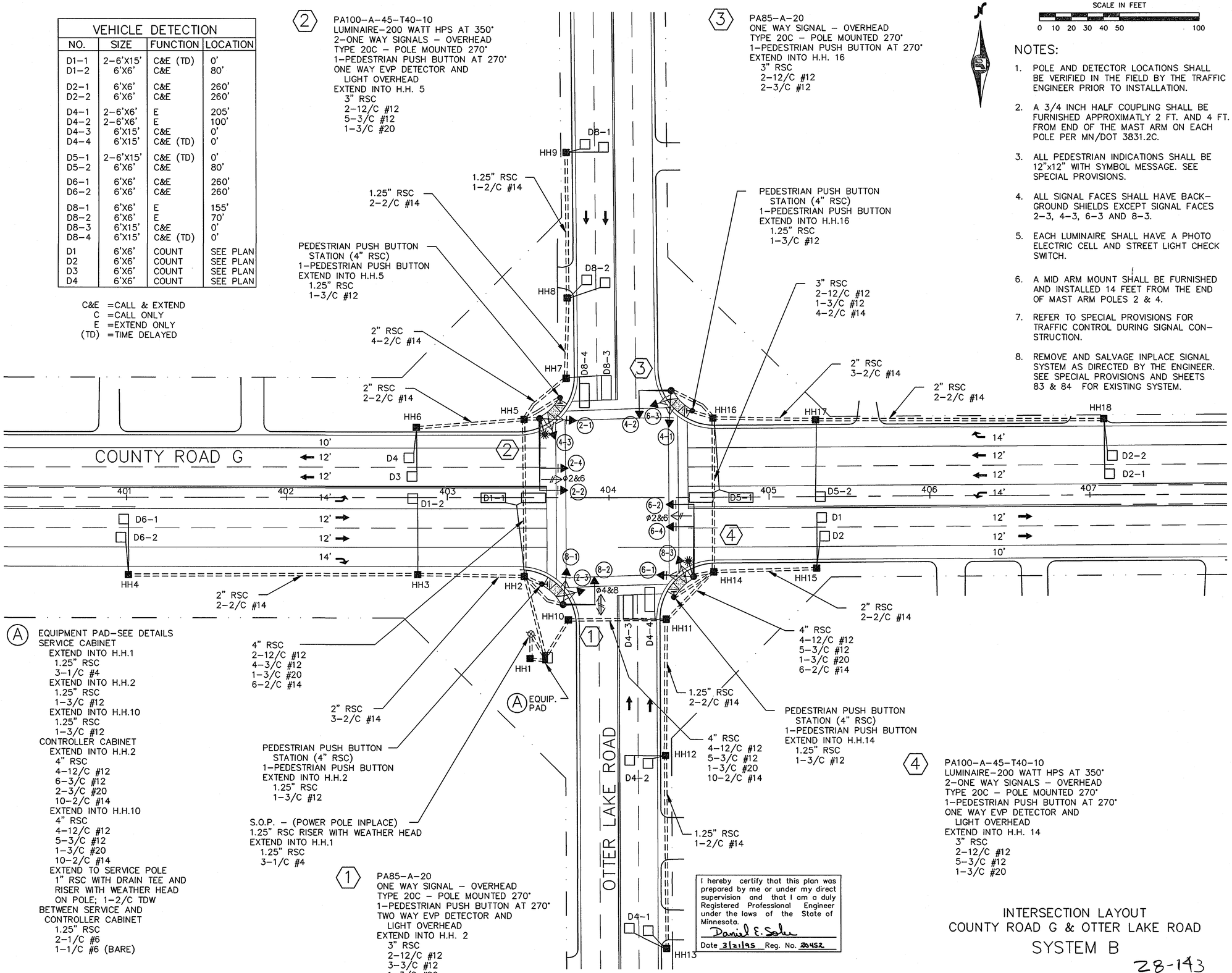
CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



VEHICLE DETECTION

NO.	SIZE	FUNCTION	LOCATION
D1-1	2-6'X15'	C&E (TD)	0'
D1-2	6'X6'	C&E	80'
D2-1	6'X6'	C&E	260'
D2-2	6'X6'	C&E	260'
D4-1	2-6'X6'	E	205'
D4-2	2-6'X6'	E	100'
D4-3	6'X15'	C&E	0'
D4-4	6'X15'	C&E (TD)	0'
D5-1	2-6'X15'	C&E (TD)	0'
D5-2	6'X6'	C&E	80'
D6-1	6'X6'	C&E	260'
D6-2	6'X6'	C&E	260'
D8-1	6'X6'	E	155'
D8-2	6'X6'	E	70'
D8-3	6'X15'	C&E	0'
D8-4	6'X15'	C&E (TD)	0'
D1	6'X6'	COUNT	SEE PLAN
D2	6'X6'	COUNT	SEE PLAN
D3	6'X6'	COUNT	SEE PLAN
D4	6'X6'	COUNT	SEE PLAN

C&E =CALL & EXTEND
C =CALL ONLY
E =EXTEND ONLY
(TD) =TIME DELAYED



(A) EQUIPMENT PAD-SEE DETAILS
SERVICE CABINET
EXTEND INTO H.H.1
1.25" RSC
3-1/C #4
EXTEND INTO H.H.2
1.25" RSC
1-3/C #12
EXTEND INTO H.H.10
1.25" RSC
1-3/C #12
CONTROLLER CABINET
EXTEND INTO H.H.2
4" RSC
4-12/C #12
6-3/C #12
2-3/C #20
10-2/C #14
EXTEND INTO H.H.10
4" RSC
4-12/C #12
5-3/C #12
1-3/C #20
10-2/C #14
EXTEND TO SERVICE POLE
1" RSC WITH DRAIN TEE AND RISER WITH WEATHER HEAD ON POLE; 1-2/C TDW
BETWEEN SERVICE AND CONTROLLER CABINET
1.25" RSC
2-1/C #6
1-1/C #6 (BARE)

(1) PA85-A-20
ONE WAY SIGNAL - OVERHEAD
TYPE 20C - POLE MOUNTED 270°
1-PEDESTRIAN PUSH BUTTON AT 270°
TWO WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 2
3" RSC
2-12/C #12
3-3/C #12
1-3/C #20

(2) PA100-A-45-T40-10
LUMINAIRE-200 WATT HPS AT 350°
2-ONE WAY SIGNALS - OVERHEAD
TYPE 20C - POLE MOUNTED 270°
1-PEDESTRIAN PUSH BUTTON AT 270°
ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 5
3" RSC
2-12/C #12
5-3/C #12
1-3/C #20

(3) PA85-A-20
ONE WAY SIGNAL - OVERHEAD
TYPE 20C - POLE MOUNTED 270°
1-PEDESTRIAN PUSH BUTTON AT 270°
EXTEND INTO H.H. 16
3" RSC
2-12/C #12
2-3/C #12

(4) PA100-A-45-T40-10
LUMINAIRE-200 WATT HPS AT 350°
2-ONE WAY SIGNALS - OVERHEAD
TYPE 20C - POLE MOUNTED 270°
1-PEDESTRIAN PUSH BUTTON AT 270°
ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H. 14
3" RSC
2-12/C #12
5-3/C #12
1-3/C #20

SCALE IN FEET
0 10 20 30 40 50 100

NOTES:

1. POLE AND DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
2. A 3/4 INCH HALF COUPLING SHALL BE FURNISHED APPROXIMATLY 2 FT. AND 4 FT. FROM END OF THE MAST ARM ON EACH POLE PER MN/DOT 3831.2C.
3. ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12" WITH SYMBOL MESSAGE. SEE SPECIAL PROVISIONS.
4. ALL SIGNAL FACES SHALL HAVE BACK-GROUND SHIELDS EXCEPT SIGNAL FACES 2-3, 4-3, 6-3 AND 8-3.
5. EACH LUMINAIRE SHALL HAVE A PHOTO ELECTRIC CELL AND STREET LIGHT CHECK SWITCH.
6. A MID ARM MOUNT SHALL BE FURNISHED AND INSTALLED 14 FEET FROM THE END OF MAST ARM POLES 2 & 4.
7. REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL DURING SIGNAL CON-STRUCTION.
8. REMOVE AND SALVAGE INPLACE SIGNAL SYSTEM AS DIRECTED BY THE ENGINEER. SEE SPECIAL PROVISIONS AND SHEETS 83 & 84 FOR EXISTING SYSTEM.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel E. Soler
Date 3/21/95 Reg. No. 20452

INTERSECTION LAYOUT
COUNTY ROAD G & OTTER LAKE ROAD
SYSTEM B

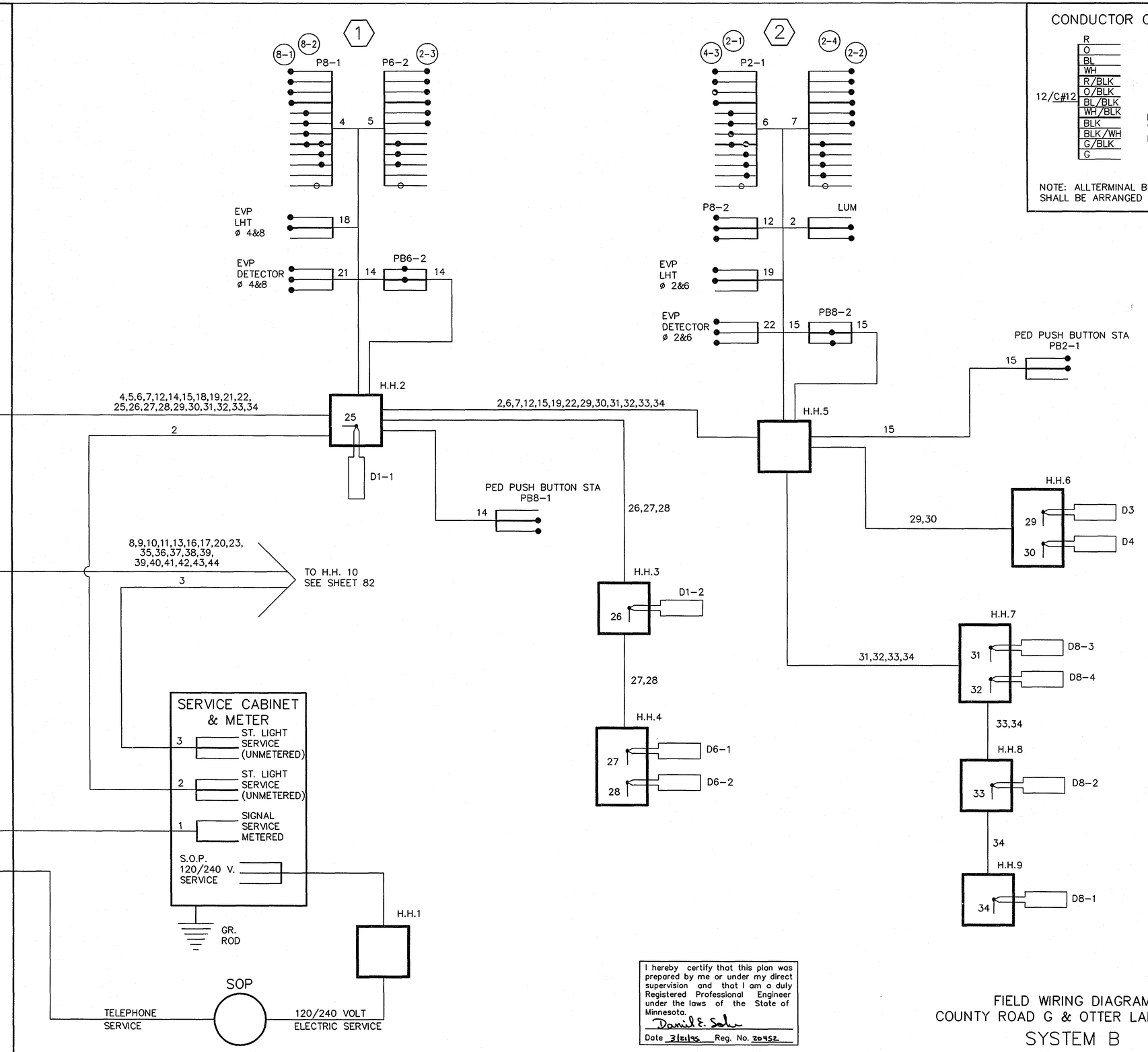
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S.A.P. No. 62-696-01 C.T.B.

CONTROLLER CABINET

		SIGNAL SERVICE	1
	RED 8-1	8-3 RED	
	YEL 8-1	8-3 YEL	
	GRN 8-1	8-3 GRN	
	NEU 8-1	8-3 NEU	
	RED 8-2	6-1 RED	
4	YEL 8-2	6-1 YEL	8
	GRN 8-2	6-1 GRN	
	NEU 8-2, P8-1	P6-1, 6-1 NEU	
	WLK P8-1	P6-1 WLK	
	DWK P8-1	P6-1 DWK	
	EQG	EQG	
	RED 2-3	6-2 RED	
	YEL 2-3	6-2 YEL	
	GRN 2-3	6-2 GRN	
	NEU 2-3	6-2 NEU	
	YEL LTA 2-3	6-2 YEL LTA	
5	GRN LTA 2-3	6-2 GRN LTA	9
	NEU P6-2	6-4 NEU	
	WLK P6-2	6-4 RED	
	DWK P6-2	6-4 YEL	
	EQG	6-4 GRN	
		EQG	
	RED 4-3	4-1 RED	
	YEL 4-3	4-1 YEL	
	GRN 4-3	4-1 GRN	
	NEU 4-3	4-1 NEU	
	RED 2-1	4-2 RED	
6	YEL 2-1	4-2 YEL	10
	GRN 2-1	4-2 GRN	
	NEU 2-1, P2-1	P4-1, 4-2 NEU	
	WLK P2-1	P4-1 WLK	
	DWK P2-1	P4-1 DWK	
	EQG	EQG	
	RED 2-2	6-3 RED	
	YEL 2-2	6-3 YEL	
	GRN 2-2	6-3 GRN	
	NEU 2-2	6-3 NEU	
	YEL LTA 2-2	6-3 YEL LTA	
7	GRN LTA 2-2	6-3 GRN LTA	11
	NEU 2-4	P2-2 NEU	
	RED 2-4	P2-2 WLK	
	YEL 2-4	P2-2 DWK	
	GRN 2-4		
	EQG	EQG	
12	WLK P8-2	PB6-2 NEU	14
	NEU P8-2	PB8-1	
	DWK P8-2		
13	WLK P4-2	PB2-1 NEU	15
	NEU P4-2	PB8-2	
	DWK P4-2		
18	EVP LIGHT ø 4&8	PB6-1 NEU	16
		PB4-2	
19	EVP LIGHT ø 2&6	PB2-2 NEU	17
		PB4-1	
20	EVP LIGHT ø 2&6		
21	EVP DETECTOR ø 4&8		
		TELEPHONE SERVICE	24
22	EVP DETECTOR ø 2&6		
23	EVP DETECTOR ø 2&6	D4-2	37
		D4-1	38
25	D1-1	31 D8-3 D1	39
26	D1-2	32 D8-4 D2	40
27	D6-1	33 D8-2 D5-1	41
28	D6-2	34 D8-1 D5-2	42
29	D3	35 D4-3 D2-1	43
30	D4	36 D4-4 D2-2	44



CONDUCTOR COLOR CODING

12/C#12: R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, G/BLK, G

- BLK, WH — 2-1/C#6, 2-1/C#10
- R, WH, BLK — 3/C#12
- R OR O, WH OR YEL, BL OR BLK — 3/C#20
- BLK, CLEAR — 2/C#14

NOTE: ALLTERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

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

Daniel E. Soler

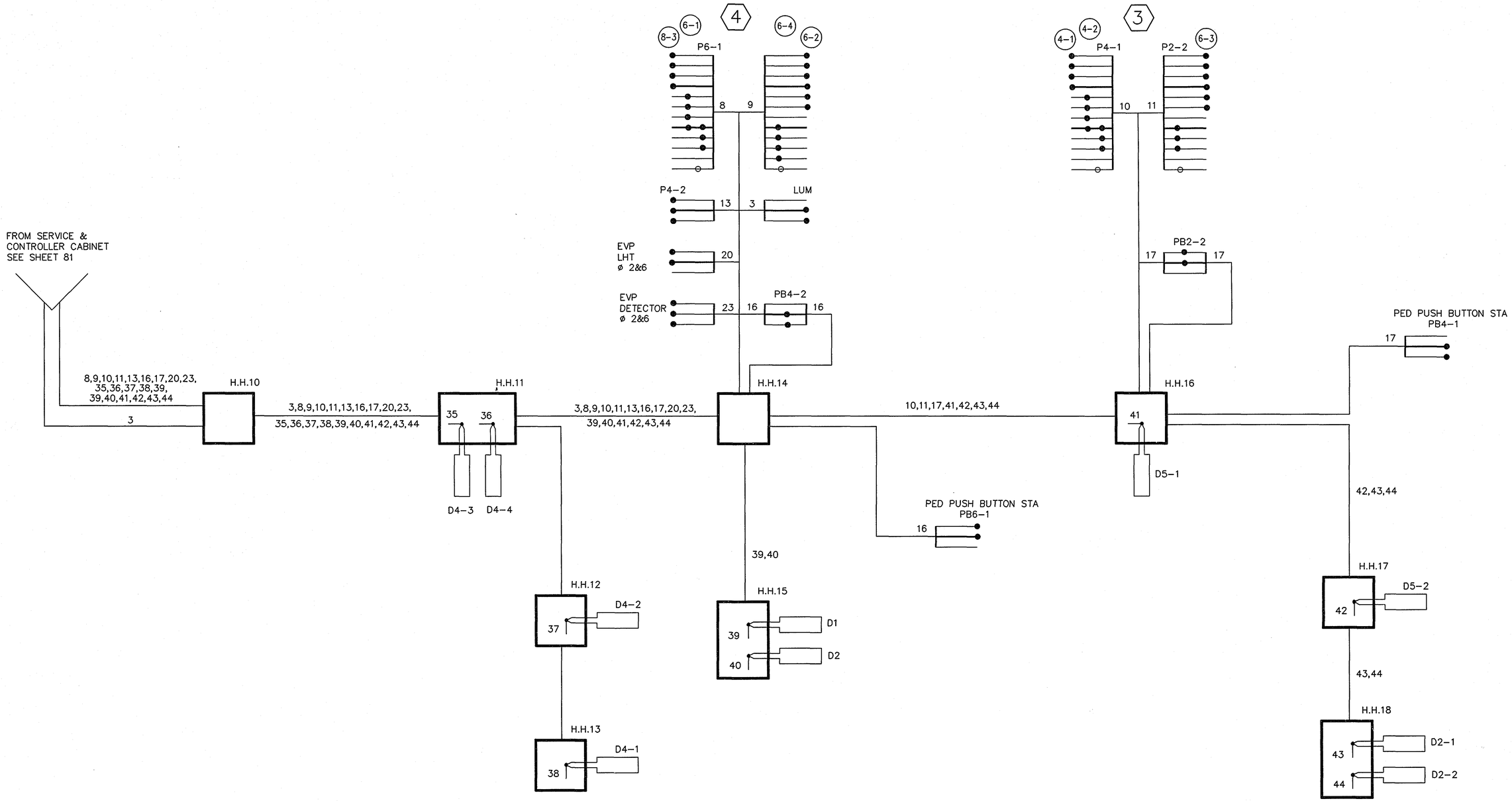
Date 3/21/95 Reg. No. 20452

FIELD WIRING DIAGRAM
COUNTY ROAD G & OTTER LAKE ROAD
SYSTEM B

28-143

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S.A.P. No. 62-696-01 C.T.B. Sheet No. 81 of 92 Sheets



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

Daniel E. Soler

Date 3/21/95 Reg. No. 20452

FIELD WIRING DIAGRAM
COUNTY ROAD G & OTTER LAKE ROAD
SYSTEM B

28-143

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S.A.P. No. 62-696-01 C.T.B. Sheet No. 82 of 92 Sheets

NOTE:

*1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE USED INPLACE UNLESS OTHERWISE NOTED WITH A *.(* = WORK TO BE DONE - SHEET 18 ONLY.)

2) SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT.

*3) EACH LUMINAIRE SHALL HAVE A PHOTOELECTRIC CELL AND CHECK SWITCH.

*4) INSTALL SALVAGED TYPE "D" SIGN PANELS ON NEW MAST ARMS AT POLES 2 AND 4.

*5) ALL PEDESTRIAN INDICATIONS SHALL BE 9" X 9."

*6) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS

*7) ALL SIGNAL FACES SHALL BE 12" 3 SECTION R-Y-G EXCEPT FACE NO'S 2-1, 2-3, 6-1 AND 6-3 WHICH SHALL BE 12" 5 SECTION R-Y-G-YLTA-GLTA.

*8) A MID-MAST ARM MOUNT SHALL BE LOCATED 12' FROM THE END OF THE MAST ARM AT POLES 2 AND 4.

*9) A 3/4" HALF COUPLING 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 4' FROM THE END OF THE MAST ARMS AT POLES 2 AND 4.

*10) REMOVE AND SALVAGE ALL ITEMS OF EXISTING SIGNAL SYSTEM "D" NOT USED AS PART OF THIS SIGNAL SYSTEM SEE SHEET 20 FOR EXISTING SIGNAL SYSTEM. "D".

LOOP DETECTORS			
NUMBER	SIZE	FUNCTION	LOCATION
*D1-1	MULTIPLE	1	5'
D2-1	6'X6'	1	300'
D4-1	2-6'X6'	1	180'
D4-2	6'X20'	1	5'
D4-3	6'X20'	2	5'
D4-4	6'X20'	2	5'
D4-5	6'X20'	1	5'
D4-6	2-6'X6'	1	180'
*D5-1	MULTIPLE	1	5'
D6-1	6'X6'	1	300'

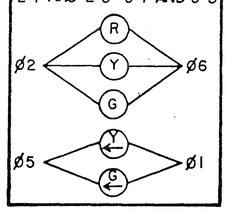
LOCATION = DISTANCE FROM STOP LINE TO DETECTOR.

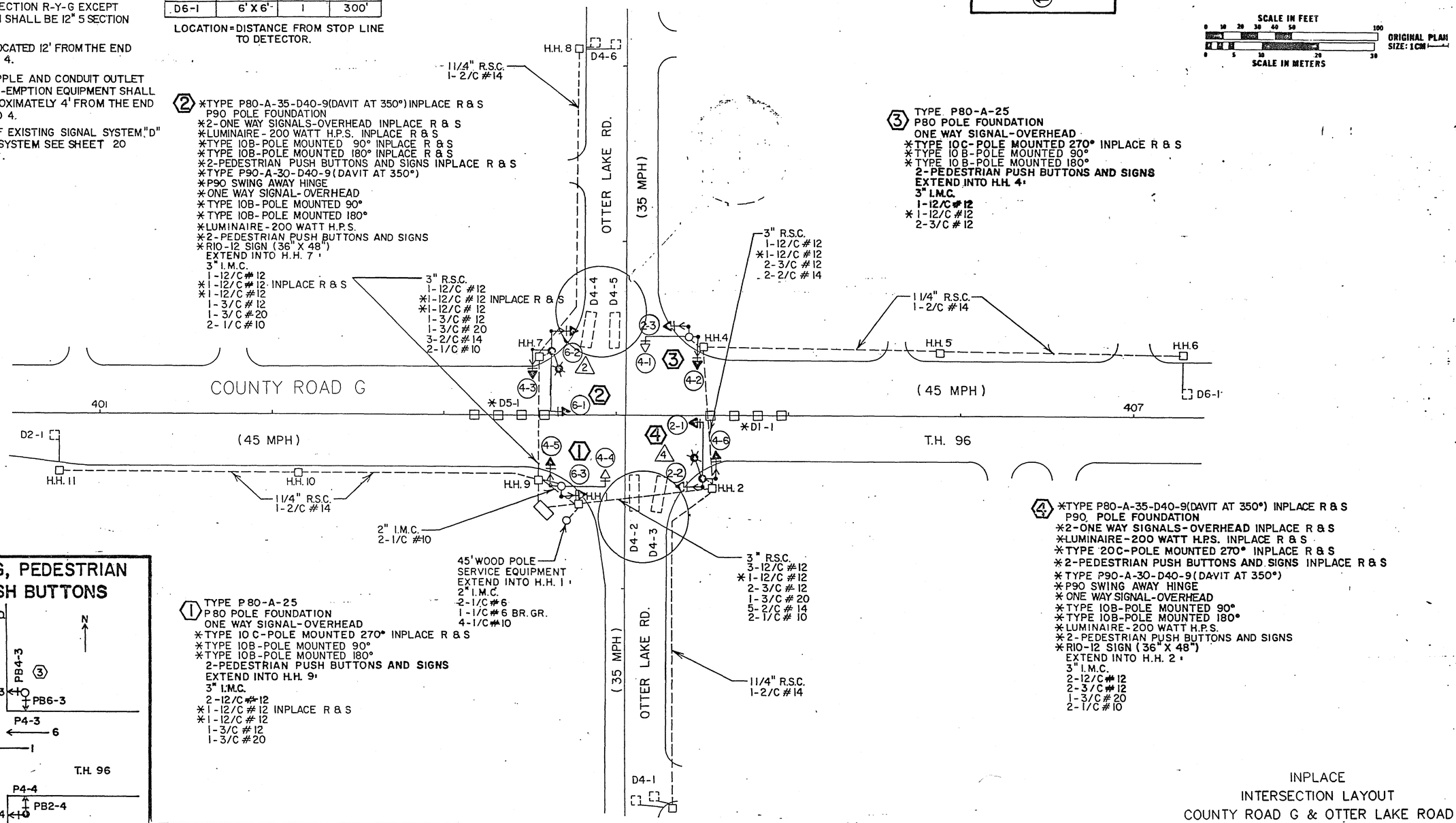
LOOP DETECTOR FUNCTIONS

1. CALL AND EXTEND
2. DELAYED CALL - IMMEDIATE EXTEND

SIGNAL HEAD PHASING

HEADS 2-1 AND 2-3 — HEADS 6-1 AND 6-3





② *TYPE P80-A-35-D40-9(DAVIT AT 350°) INPLACE R & S
P90 POLE FOUNDATION
*2-ONE WAY SIGNALS-OVERHEAD INPLACE R & S
*LUMINAIRE-200 WATT H.P.S. INPLACE R & S
*TYPE 10B-POLE MOUNTED 90° INPLACE R & S
*TYPE 10B-POLE MOUNTED 180° INPLACE R & S
*2-PEDESTRIAN PUSH BUTTONS AND SIGNS INPLACE R & S
*TYPE P90-A-30-D40-9(DAVIT AT 350°)
*P90 SWING AWAY HINGE
*ONE WAY SIGNAL-OVERHEAD
*TYPE 10B-POLE MOUNTED 90°
*TYPE 10B-POLE MOUNTED 180°
*LUMINAIRE-200 WATT H.P.S.
*2-PEDESTRIAN PUSH BUTTONS AND SIGNS
*R10-12 SIGN (36" X 48")
EXTEND INTO H.H. 7'
3" I.M.C.
1-12/C #12
*1-12/C #12 INPLACE R & S
*1-12/C #12
1-3/C #12
1-3/C #20
2-1/C #10

CONTROLLER AND CABINET
CABINET FOUNDATION
EXTEND INTO H.H. 1'
4" I.M.C.
3-12/C #12
*1-12/C #12
2-3/C #12
1-3/C #20
2-1/C #6
1-1/C #6 BR. GR.
5-2/C #14
EXTEND INTO H.H. 9'
4" I.M.C.
3-12/C #12
*1-12/C #12
2-3/C #12
2-3/C #20
5-2/C #14

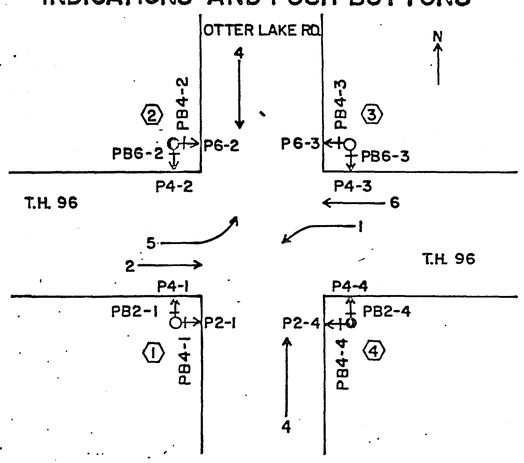
③ TYPE P80-A-25
P80 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
*TYPE 10C-POLE MOUNTED 270° INPLACE R & S
*TYPE 10B-POLE MOUNTED 90°
*TYPE 10B-POLE MOUNTED 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
EXTEND INTO H.H. 4'
3" I.M.C.
1-12/C #12
*1-12/C #12
2-3/C #12
2-2/C #14

① TYPE P80-A-25
P80 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
*TYPE 10C-POLE MOUNTED 270° INPLACE R & S
*TYPE 10B-POLE MOUNTED 90°
*TYPE 10B-POLE MOUNTED 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
EXTEND INTO H.H. 9'
3" I.M.C.
2-12/C #12
*1-12/C #12 INPLACE R & S
*1-12/C #12
1-3/C #12
1-3/C #20

④ *TYPE P80-A-35-D40-9(DAVIT AT 350°) INPLACE R & S
P90 POLE FOUNDATION
*2-ONE WAY SIGNALS-OVERHEAD INPLACE R & S
*LUMINAIRE-200 WATT H.P.S. INPLACE R & S
*TYPE 20C-POLE MOUNTED 270° INPLACE R & S
*2-PEDESTRIAN PUSH BUTTONS AND SIGNS INPLACE R & S
*TYPE P90-A-30-D40-9(DAVIT AT 350°)
*P90 SWING AWAY HINGE
*ONE WAY SIGNAL-OVERHEAD
*TYPE 10B-POLE MOUNTED 90°
*TYPE 10B-POLE MOUNTED 180°
*LUMINAIRE-200 WATT H.P.S.
*2-PEDESTRIAN PUSH BUTTONS AND SIGNS
*R10-12 SIGN (36" X 48")
EXTEND INTO H.H. 2'
3" I.M.C.
2-12/C #12
2-3/C #12
1-3/C #20
2-1/C #10

SCALE IN FEET
0 10 20 30 40 50 100
0 5 10 20 30
SCALE IN METERS
ORIGINAL PLAN SIZE: 1CM

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE.

SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED
- NORMAL OPERATION SHALL BE 5 PHASE WITH PHASES 1 AND 5 BEING PROTECTED PERMISSIVE LEFT TURNS

INPLACE
INTERSECTION LAYOUT
COUNTY ROAD G & OTTER LAKE ROAD

SYSTEM B

FOR INFORMATION ONLY

28-143.

CONTROLLER CABINET

1
RED 4-4
YEL 4-4
GRN 4-4
NEU 4-4 4-5
RED 4-5
YEL 4-5
GRN 4-5
NEU P2-1
WLK P2-1
DWK P2-1
EVP LIGHT
EQG

2
RED 6-2
YEL 6-2
GRN 6-2
NEU 6-2
SPR
SPR
SPR
NEU 4-3
RED 4-3
YEL 4-3
GRN 4-3
EQG

3
RED 6-3
YEL 6-3
GRN 6-3
NEU 6-3
YLTA 6-3
GLTA 6-3
SPR
NEU P4-1
WLK P4-1
DWK P4-1
SPR
EQG

4
RED 2-2
YEL 2-2
GRN 2-2
NEU 2-2
SPR
SPR
SPR
NEU 4-6
RED 4-6
YEL 4-6
GRN 4-6
EQG

5
RED 2-1
YEL 2-1
GRN 2-1
NEU P4-3 P4-4
WLK P4-3 P4-4
DWK P4-3 P4-4
YLTA 2-1
NEU P2-4 2-1
WLK P2-4
DWK P2-4
GLTA 2-1
EQG

6
RED 4-1
YEL 4-1
GRN 4-1
NEU 4-1 4-2
RED 4-2
YEL 4-2
GRN 4-2
NEU P6-3
WLK P6-3
DWK P6-3
EVP LIGHT
EQG

PB2-1 NEU PB4-1	7
PB4-2 NEU PB6-2	8
PB2-4 NEU PB4-4	9
PB4-3 NEU PB6-3	10
EVP CABLE	11
EVP CABLE	12
EVP CABLE	13
SIGNAL SERVICE	14
D1-1	15
D2-1	16
D4-1	17
D4-2	18
D4-3	19
D4-4	20
D4-5	21
D4-6	22
D5-1	23
D6-1	24
P6-2 6-1 RED 6-1 YEL 6-1 GRN 6-1 NEU 6-1 YLTA 6-1 GLTA P6-2 WLK P4-2 NEU P6-2 DWK P4-2 WLK P4-2 DWK EQG	28Δ
2-3 RED 2-3 YEL 2-3 GRN 2-3 NEU 2-3 YLTA 2-3 GLTA SPR SPR SPR SPR SPR EQG	29Δ

CONDUCTOR COLOR CODING

12/C # 12: R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, G/BLK, G

BLK, WH — 2-1/C # 6, 2-1/C # 10

R, WH, BLK — 3/C # 12

BLK, CLEAR — 2/C # 14

R OR O, WH OR YEL, BLK OR BL — 3/C # 20

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

NOTE:

- Δ = NEW CABLES - ALL OTHERS INPLACE
- NEW TERMINATIONS OF EXISTING CABLES ARE SHOWN IN **BOLD PRINT.**

(1) PB2-1 PB4-1 — 7 — 11 — (4-4)(4-5) P2-1 — (6-3) P4-1
1 3
H.H. 9 — 23 — 16
25
D5-1
1,2,3,7,8,11,12,16,20,21,22,23,28Δ

H.H. 10 — 16 — H.H. 11 — 16 — D2-1

(2) LUMINAIRE Δ2 — 25 — (6-2) (4-3) (6-1) P4-2 P6-2
2 — 28Δ
PB4-2 PB6-2 — 8 — 12
H.H. 7 — 20 — 21 — 22
D4-4 D4-5
H.H. 8 — 22 — D4-6
2,8,12,20,21,22,25,28Δ

(4) LUMINAIRE Δ4 — 26 — (2-2) (4-6) (2-1) P4-4 P2-4
4 5
WH, RED, BLK — 27
PB2-4 PB4-4 — 13 — 9

(3) (2-3) (4-1)(4-2) P6-3
29Δ — 6
PB4-3 PB6-3 — 10 — 27 — P4-3

H.H. 1 — 25 — 4,5,6,9,10,13,14,15,17,18,19,24,29Δ
4,5,6,9,10,13,15,17,18,19,24,26,29Δ

H.H. 2 — 18 — 19
6,10,15,24,27,29Δ
17
D4-2 D4-3

H.H. 3 — 17 — D4-1

H.H. 4 — 15 — 24 — H.H. 5 — 24 — H.H. 6 — 24
D1-1 D6-1

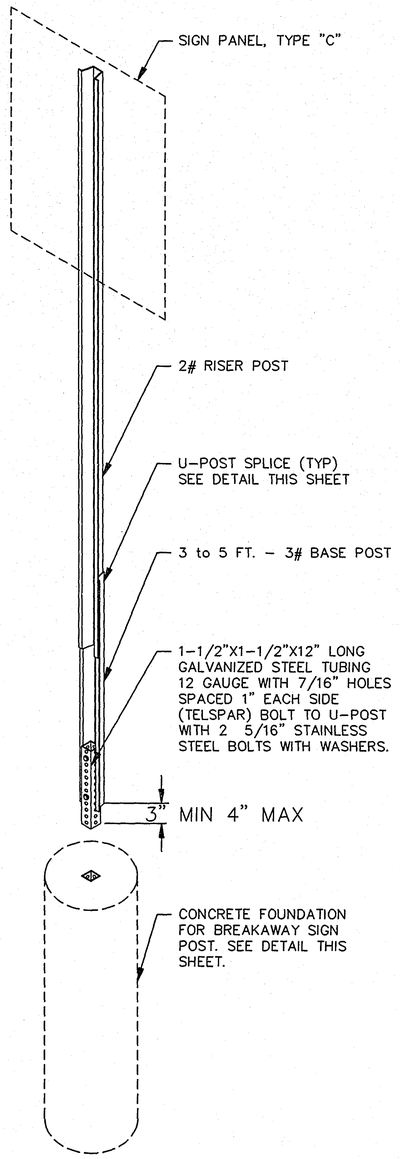
14 SIGNAL SERVICE — S.O.P. — STREET 25, LIGHT 26, SERVICE
GROUND ROD
14, 25, 26

INPLACE
FIELD WIRING DIAGRAM
COUNTY ROAD G & OTTER LAKE ROAD
SYSTEM B

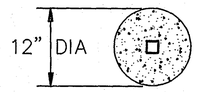
FOR INFORMATION ONLY

28-143

BREAKAWAY SIGN POST
FOR TYPE "C" SIGNS INSTALLED IN MEDIANS



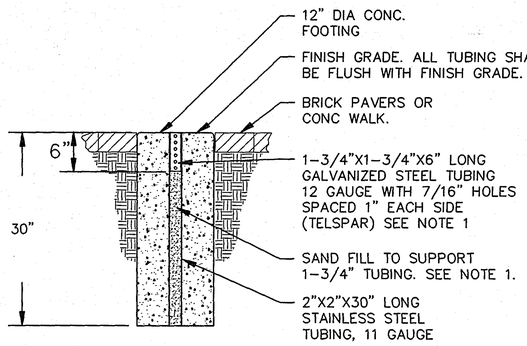
BREAKAWAY SIGN POST FOUNDATION
FOR TYPE "C" SIGNS INSTALLED IN MEDIANS



PLAN

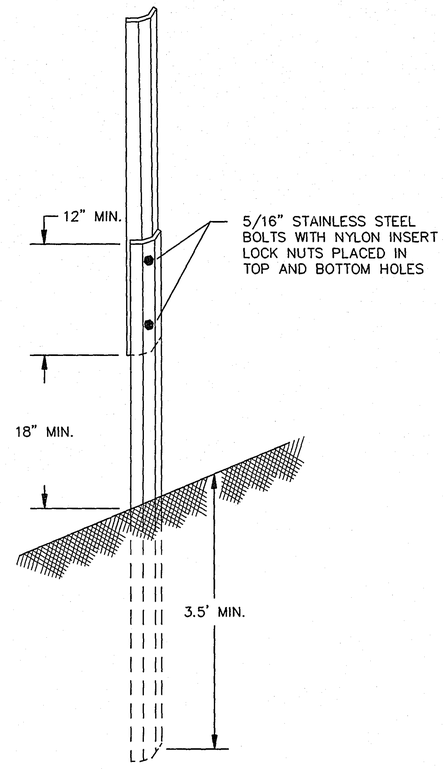
NOTES:

1. THE 1-3/4" X 6" TUBING SHALL NOT BE WELDED OR BOLTED TO THE 2" STAINLESS STEEL TUBING.
2. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. CONCRETE MIX SHALL BE 3A32 OR EQUAL.
4. 12" SQUARE FOUNDATION WITH BRICK PAVERS.



SECTION

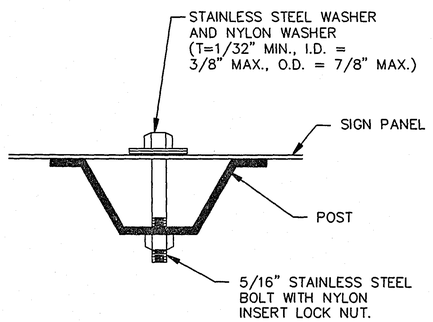
TYPE "C" POST



"U" POST SPLICE

NOTES:

1. USE 3# RISER STUB POSTS, WITH 2# RISER POSTS, ALL SHALL CONFORM TO MN/DOT SPECIFICATION 3401.
2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
3. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7 FEET LONG.
4. USE STAINLESS STEEL 5/16" BOLTS, WASHERS, AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL SIGNS.
5. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.



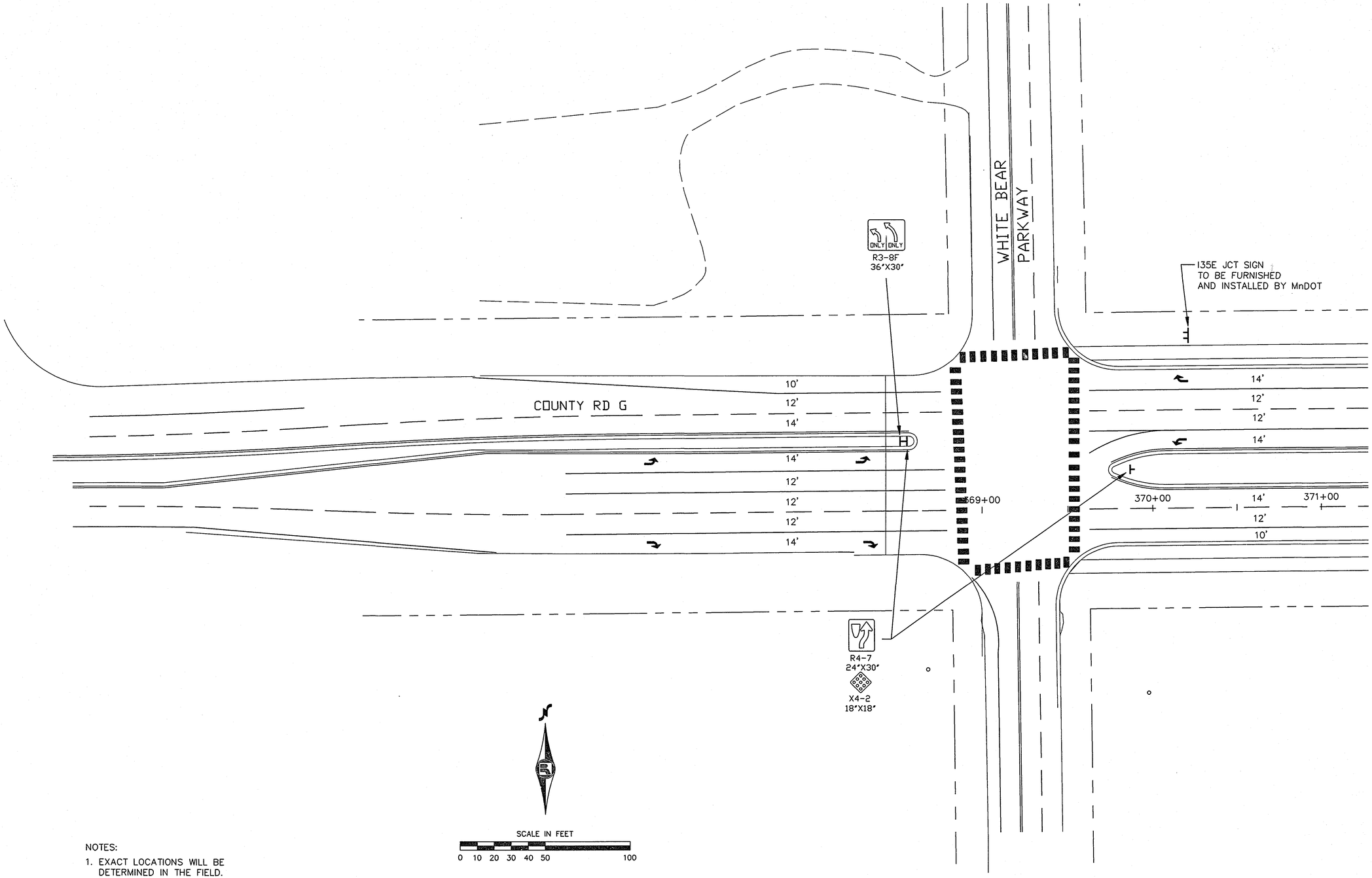
"U" POST MOUNTING
TYPE "C" SIGNS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David E. Sohn
Date 3 Oct 95 Reg. No. 20452

COUNTY ROAD G
135E to OTTER LAKE ROAD
TYPE "C" SIGN DETAILS

28-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 85 of 92 Sheets



SCALE IN FEET

0 10 20 30 40 50 100

NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. CROSSWALK BLOCKS SHALL BE 3' WIDE AND 6' LONG.
3. SKIP RATIO IS 10' LINE 30' GAP.
4. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS.

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

Daniel F. Sohn

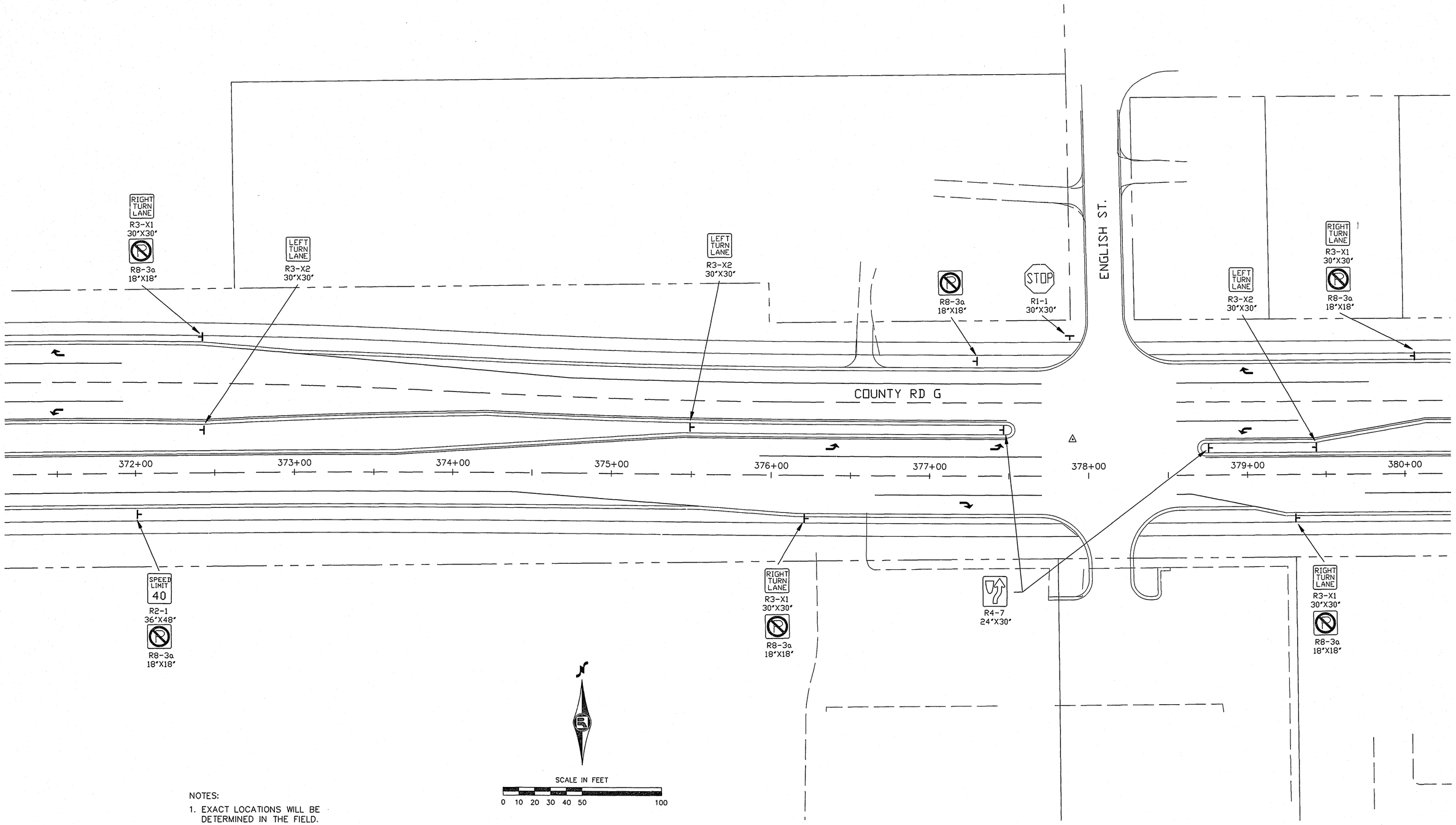
Date 3/21/95 Reg. No. 20452

COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

78-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 86 of 92 Sheets



SCALE IN FEET

0 10 20 30 40 50 100

NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. CROSSWALK BLOCKS SHALL BE 3' WIDE AND 6' LONG.
3. SKIP RATIO IS 10' LINE 30' GAP.
4. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS.

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

Daniel E. Sahr

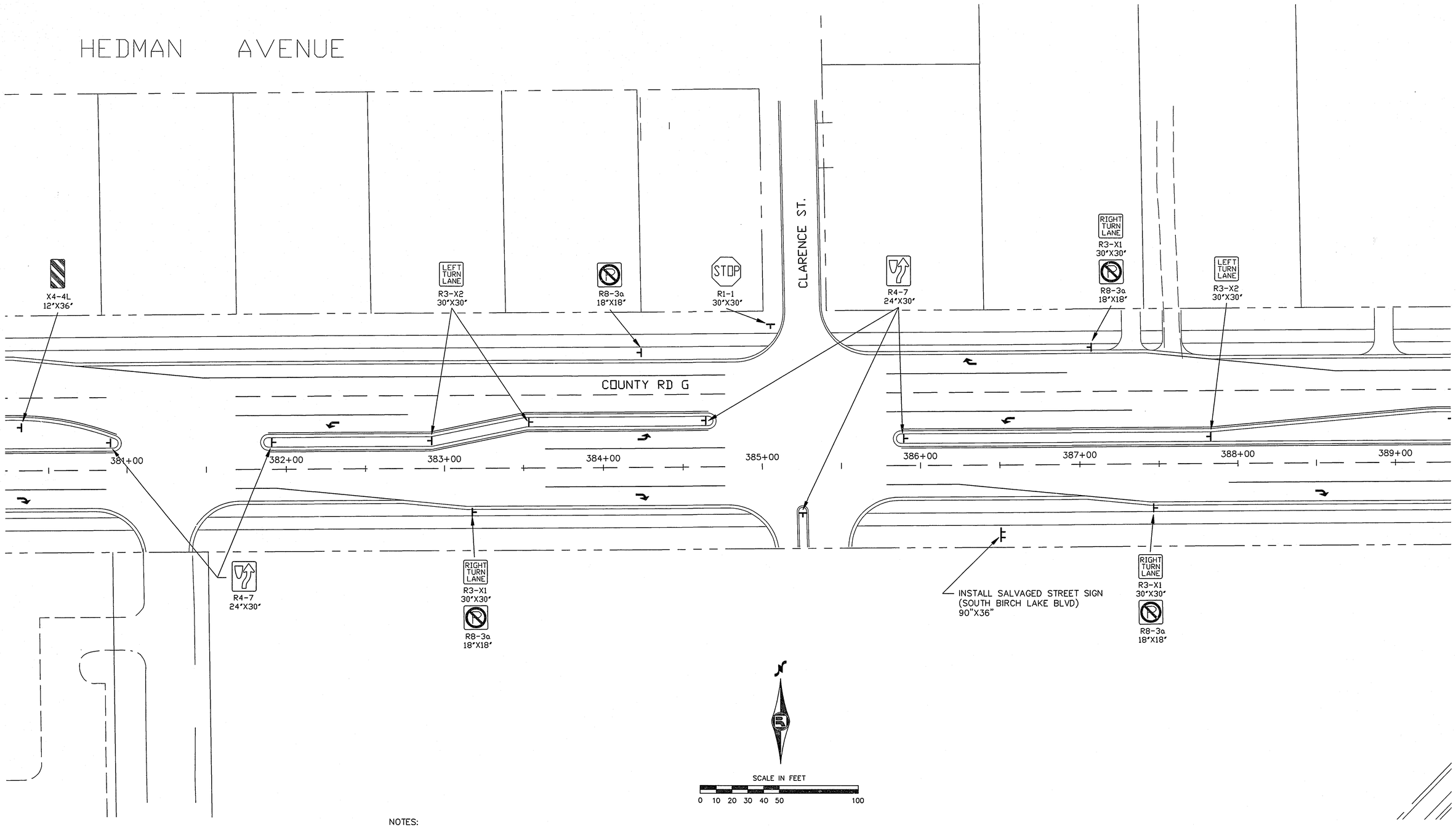
Date 3/31/95 Reg. No. 20952

COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

28-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 87 of 92 Sheets



NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. CROSSWALK BLOCKS SHALL BE 3' WIDE AND 6' LONG.
3. SKIP RATIO IS 10' LINE 30' GAP.
4. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS SHEET 85.

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

David E. Sahr

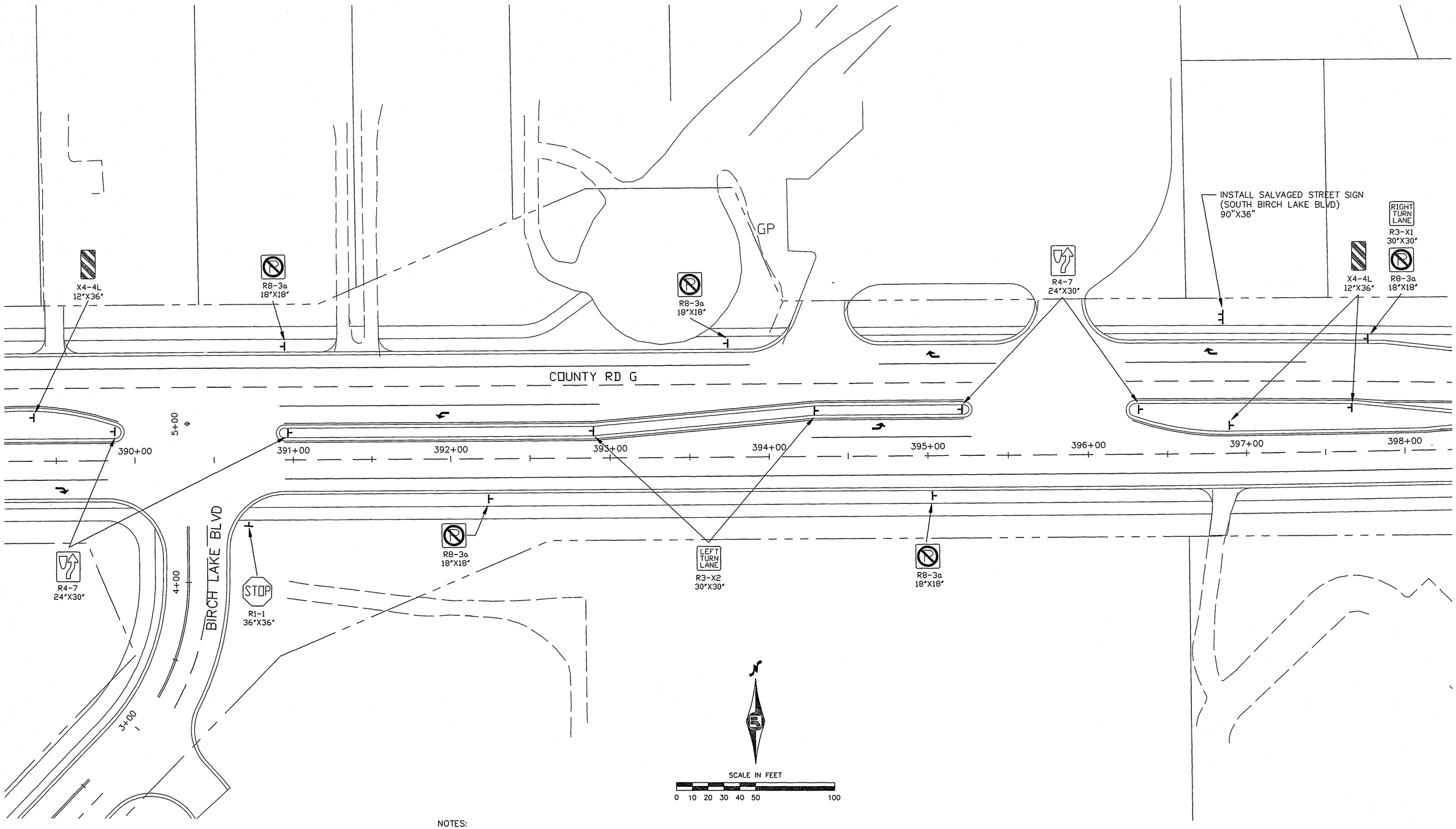
Date 3/21/95 Reg. No. 20452

COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

28-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 88 of 92 Sheets



NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. CROSSWALK BLOCKS SHALL BE 3' WIDE AND 6' LONG.
3. SKIP RATIO IS 10' LINE 30' GAP.
4. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS.

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

Daniel E. Soler

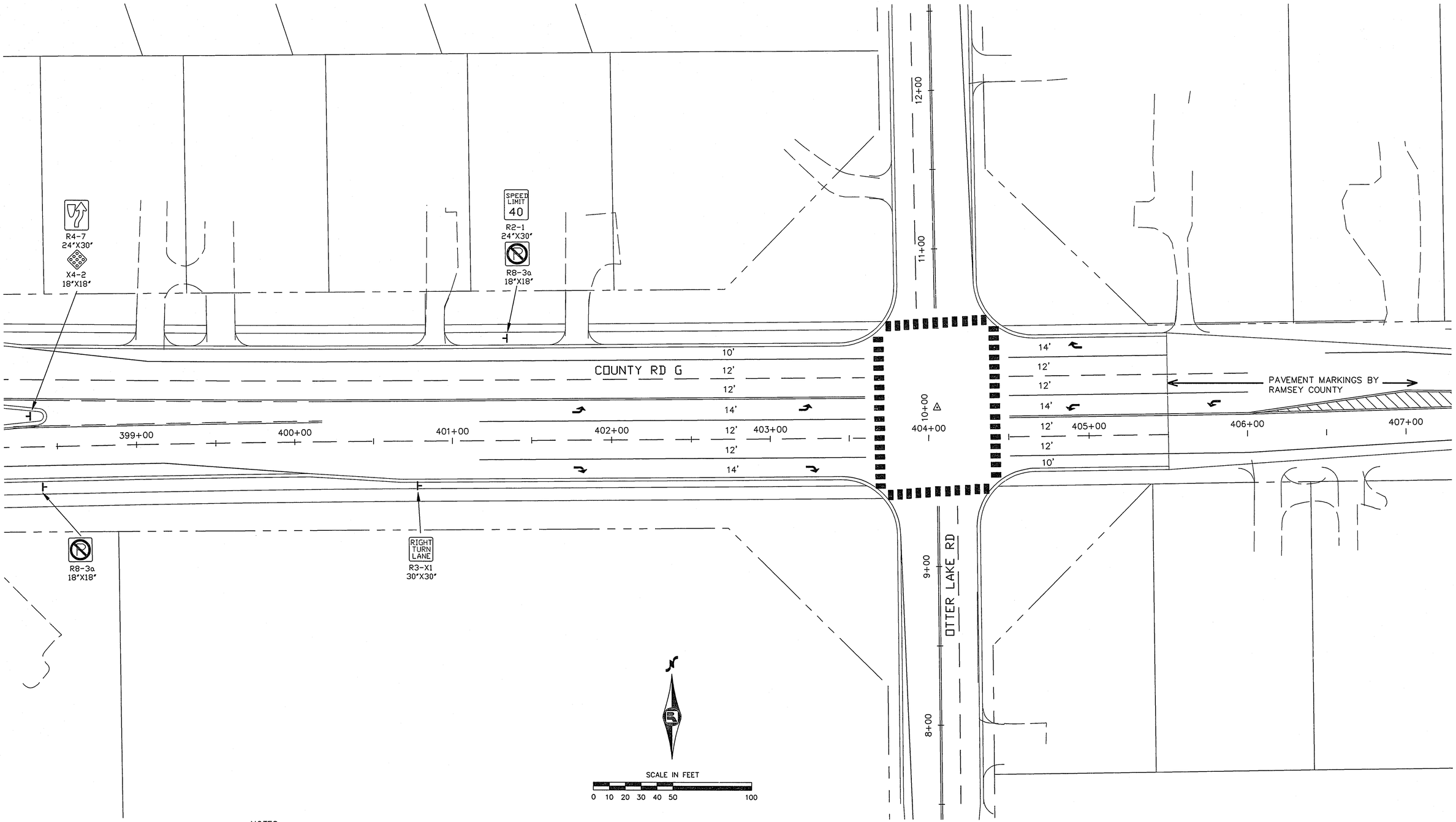
Date 3/21/95 Reg. No. 20452

COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

28-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 89 of 92 Sheets



NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. CROSSWALK BLOCKS SHALL BE 3' WIDE AND 6' LONG.
3. SKIP RATIO IS 10' LINE 30' GAP.
4. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS SHEET 85.

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

Daniel E. Soler

Date 3/21/95 Reg. No. 20452

COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

28-143

S.A.P. No. 62-696-01 C.T.B. Sheet No. 90 of 92 Sheets

CAROLYN ST.

COUNTY RD G

413+00

414+00

415+00

SCALE IN FEET

0 10 20 30 40 50 100

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

Daniel E. Soler

Date 3/21/95 Reg. No. 20452

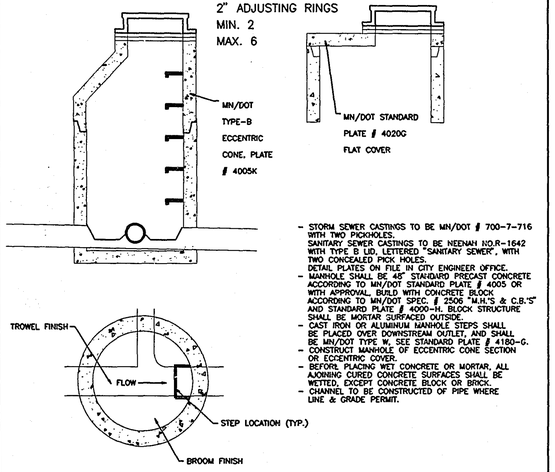
COUNTY ROAD G
135E to OTTER LAKE RD

SIGNING and STRIPING PLAN

28-143

S.A.P. No. 62-696-01 C.T.B.

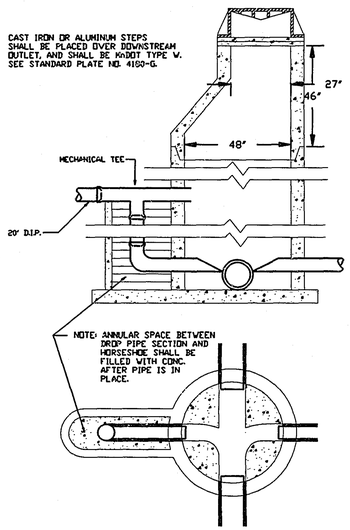
Sheet No. 91 of 92 Sheets



STANDARD MANHOLE
STORM OR SANITARY

EFFECTIVE APRIL, 1994

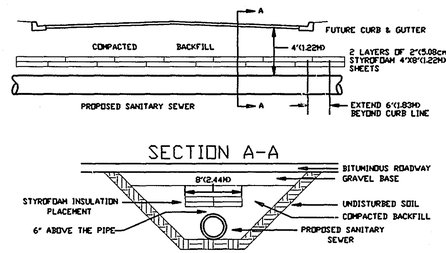
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



MANHOLE DETAIL
OUTSIDE DROP

EFFECTIVE APRIL, 1994

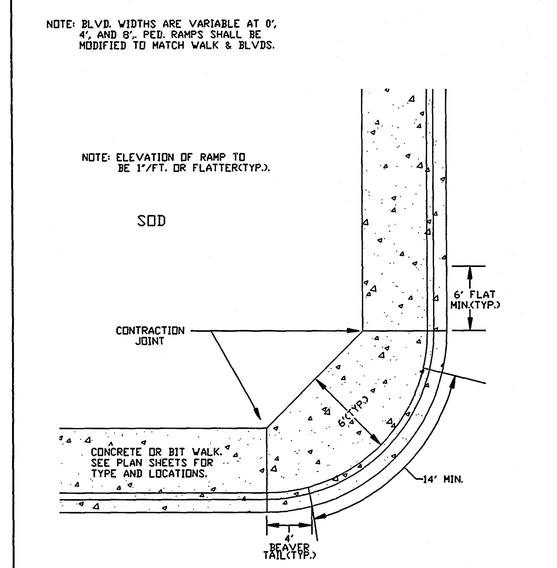
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



INSULATED SANITARY SEWER
STANDARD DETAIL

EFFECTIVE APRIL, 1994

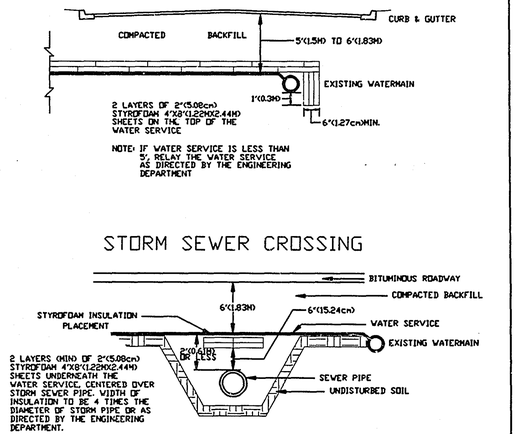
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



PEDESTRIAN RAMPS
TYPE TWO

EFFECTIVE APRIL, 1994

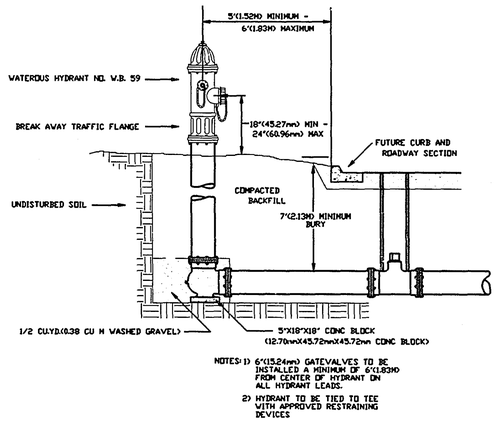
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



INSULATED WATER SERVICE

EFFECTIVE APRIL, 1994

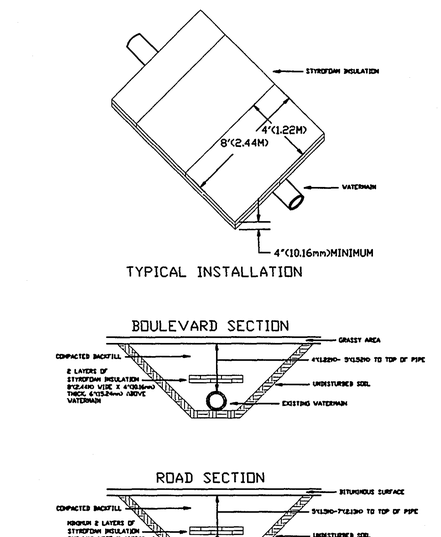
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



FIRE HYDRANT DETAIL
TYPICAL INSTALLATION

EFFECTIVE APRIL, 1994

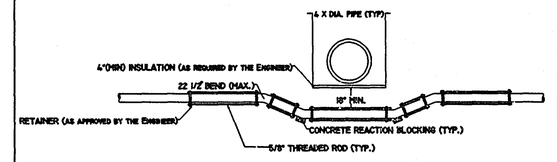
CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



INSULATED WATERMAIN
STANDARD DETAIL

EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT



EFFECTIVE APRIL, 1994

WATERMAIN ADJUSTMENT
TYPICAL

CITY OF WHITE BEAR LAKE ENGINEERING DEPARTMENT

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

Mark Lund

REG. NO. 16186 DATE 3-15-95

28-143

G:\DWGS\TH96\DETAILS 3/13/95