Hwy 96 FROM

McMENEMY to BRAMBLE WOOD

RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

RAMSEY COUNTY

CONSTRUCTION PLAN FOR GRADING, CONCRETE PAVING, CONCRETE CURB & GUTTER, STORM SEWER, RETAINING WALLS, NOISE WALLS, TRAFFIC SIGNALS & MISC. CONSTRUCTION

LOCATED IN RAMSEY COUNTY ON HWY 96 FROM MCMENEMY ST. TO BRAMBLEWOOD AVE.

MINN. PROJ. NO. .....

LEGAL DESCRIPTION

BEGINNING AT A POINT 2 m NORTH AND 477 m WEST FROM THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 30, RANGE 22 RAMSEY COUNTY, MINNESOTA

ENDING AT A POINT 0.5 m SOUTH AND 122 m WEST FROM THE NORTHEAST CORNER OF SECTION 20, TOWNSHIP 30, RANGE 22 RAMSEY COUNTY, MINNESOTA

S.A.P. 62-696-05 CTB HWY 96
S.A.P. 209-101-02 SIGINAL AT GREENHAVEN DR.
S.A.P. 62-657-03 MCMENEMY ST. (C.S.A.H. 57)

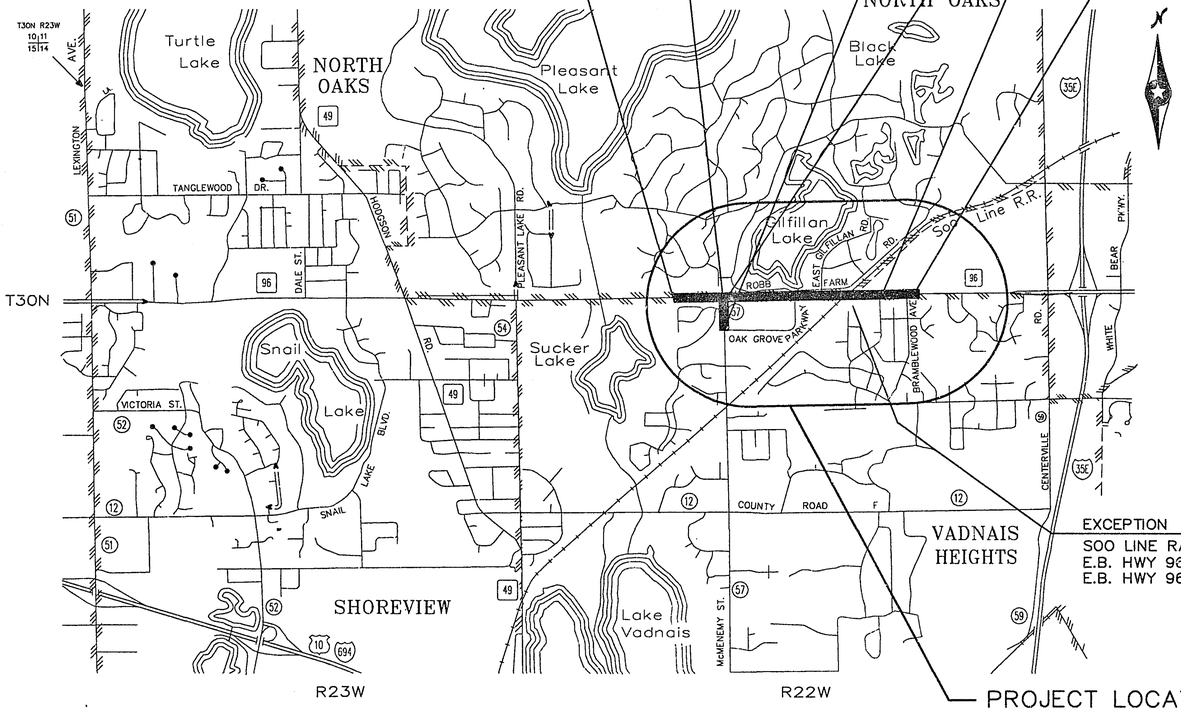
END S.A.P. 62-657-03
℄ MCMENEMY ST. P.O.T. 10+231.059

S.A.P. 209-020-01
SIG. SYS. A E.V.P.
S.A.P. 209-101-02
GREENHAVEN DR. SIGNAL

BEGIN S.A.P. 62-657-03
℄ MCMENEMY ST. P.O.T. 10+035.000

END S.A.P. 62-696-05 CTB
℄ HWY. 96 P.O.T. 9+900.000

BEGIN S.A.P. 62-696-05 CTB
℄ E.B. HWY. 96 P.O.T. 7+777.000



PROJECT LOCATION

NOTE:
THE EXACT LOCATION OF UNDERGROUND GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV AND PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL BEFORE COMMENCING EXCAVATION.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, APRIL 1995.

SCALES (FULL SIZE)

PLAN		1:500
PROFILE	HORZ.	1:500
	VERT.	1:50
X-SECTION		1:100

EXCEPTION
SOO LINE RAILROAD
E.B. HWY 96 STA. 9+184.655 –
E.B. HWY 96 STA. 9+191.655

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: SJB/BL
DATE: 12-27-99

HWY 96
S.A.P. 62-696-05 CTB

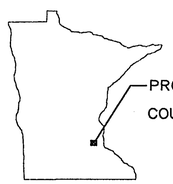
FUNCTIONAL CLASSIFICATION:	HIGH DENSITY ARTERIAL	
NO. OF TRAFFIC LANES:	4	
NO. OF PARKING LANES:	0	
STRUCTURAL DESIGN:	9.1 t	
R VALUE:	22	
ADT (Current Year) (1997) =	15,500	
ADT (Future Year) (2017) =	23,000	
HCADT (Future Year) (2017) =	7.5%	
CESALS = 20 YEAR CUMULATIVE	5,585,000	
GROSS LENGTH	2123.000 m	2.123 km
BRIDGE LENGTH	0.00 m	0.000 km
EXCEPTION LENGTH	7.00 m	0.007 km
NET LENGTH	2116.000 m	2.116 km
DESIGN SPEED:	90 km/h	
BASED ON:	STOPPING SIGHT DISTANCE	
HEIGHT OF EYE:	1070 mm	HEIGHT OF OBJECT: 150 mm

MCMENEMY ST. (C.S.A.H. 57)
S.A.P. 62-657-03

FUNCTIONAL CLASSIFICATION:	COLLECTOR	
NO. OF TRAFFIC LANES:	2	
NO. OF PARKING LANES:	0	
STRUCTURAL DESIGN:	9.1 t	
R VALUE:	22	
ADT (Current Year) (1997) =	3,250	
ADT (Future Year) (2017) =	7,500	
HCADT (Future Year) (2017) =	7.5%	
SIGMA N 18	1,137,000	
GROSS LENGTH	196.059 m	0.196 km
BRIDGE LENGTH	0.00 m	0.000 km
EXCEPTION LENGTH	0.00 m	0.000 km
NET LENGTH	196.059 m	0.196 km
DESIGN SPEED:	65 km/h	
BASED ON:	STOPPING SIGHT DISTANCE	
HEIGHT OF EYE:	1070 mm	HEIGHT OF OBJECT: 150 mm

PLAN REVISIONS

DATE	SHEET NO.	APPROVED BY



28-161

PROJECT LOCATION
COUNTY RAMSEY
METRO DIVISION

GOVERNING SPECIFICATIONS

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" SHALL GOVERN

INDEX

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5	CONSTRUCTION SOILS NOTES, STD. PLATES & EARTHWORK SUMMARY
6–12	TYPICAL SECTIONS
13–17	TABULATION OF QUANTITIES
18–19	STORM SEWER TABULATION
20–22	DETAILS
23	MODULAR BLOCK WALL PLAN & DETAILS
24–25	MECHANICALLY STABILIZED EARTH SLOPE PLAN & DETAILS
26–34	NOISE WALL DETAILS & PLANS
35–38	EROSION CONTROL STANDARD PLANS
39–42	CONCRETE PAVING DETAILS
43–47	CONCRETE PAVING LAYOUT
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51–54	TOPOGRAPHY AND REMOVAL PLANS
55E–60E	PLAN / PROFILE SHEETS – EB HIGHWAY 96
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73–81	IRRIGATION DETAILS & PLANS
82–83	POND CONTOURS
84–130	CROSS SECTIONS
131–135	STORM SEWER PROFILE SHEETS
136–160	TRAFFIC CONTROL SHEETS
151–153	SIGNAL DETAILS
154–161	SIGNAL SYSTEM A & B
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163A	PERMANENT SIGNING AND STRIPING DETAILS & PLANS
164–170	

THIS PLAN CONTAINS 182 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.

ENGR. Jerry M Mooney Reg. No. 16672 Date 2/13/97

SEH SHORT ELLIOTT HENDRICKSON INC.

Approved Paul Kirkwold 2/24 1997
RAMSEY COUNTY DIRECTOR OF PUBLIC WORKS

Approved ..... 19 ....
CHAIR OF THE RAMSEY COUNTY BOARD

Approved 2/21 1997
RAMSEY COUNTY PROJECT MANAGER

Approved Gerald J Urban 2/27 1997
CITY OF VADNAIS HEIGHTS

Approved 3/7 1997
CITY OF NORTH OAKS

Approved 3/14 1997
WHITE BEAR TOWNSHIP

Approved for State Aid Division ..... 19 ....
STATE AID ENGINEER

Recommended for Approval ..... 19 ....
METRO – ASSISTANT DIVISION ENGINEER – STATE AID

Recommended for Approval ..... 19 ....
TRAFFIC ENGINEER

I HEREBY CERTIFY THAT THE FINAL REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE ..... REG. NO. .....

STATE PROJ. NO. 62-696-05 CTB SHEET NO. 1 OF 170 SHEETS

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE (-XW-XW-)
CHAIN LINK FENCE (-XC-XC-)
WOODEN FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER, ORCHARD, BRUSH, NURSERY (TIMBER)
CATCH BASIN C.B.
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F 75'
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)

UTILITY SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES ON TELEPHONE POLES
ANCHOR
STEEL TOWER TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL.) T
GAS MAIN G-G
WATER MAIN W-W
CONDUIT
TELEPHONE CABLE IN CONDUIT T
ELECTRIC CABLE IN CONDUIT P
TELEPHONE MANHOLE T
ELECTRIC MANHOLE E
BURIED COMMUNICATION CABLE COM-BUR
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
SEWER, (SANITARY)
SEWER, (STORM)
SEWER MANHOLE
HANDHOLE H
CATCH BASIN

R9601COV.DWG

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-05 CTB RAMSEY COUNTY		S.A.P. 62-657-03 MCMENEMY ST (CSAH 57)		100% CITY OF VADNAIS HEIGHTS		STORM SEWER 100% S.A.P. 62-696-05 CTB		STORM SEWER 100% S.A.P. 62-657-03		CITY OF NORTH OAKS & WHITE BEAR TOWNSHIP	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		2021.501	MOBILIZATION	L.S.	1		0.89		0.03		0.01		0.06				③ 0.01	
		0031.602	FIELD OFFICE, TYPE SPECIAL	EACH	1		1											
		SPEC	COMPUTER EQUIPMENT	L.S.	1		1											
		SPEC	CELLULAR AIR TIME	MIN	2500		2500											
A		2101.501	CLEARING	ha	1.23		1.23											
A		2101.502	CLEARING	TREE	317		317											
A		2101.506	GRUBBING	ha	1.23		1.23											
A		2101.507	GRUBBING	TREE	320		320											
C		2104.501	REMOVE PIPE CULVERTS	m	147.5		147.50											
D		2104.501	REMOVE CONCRETE CURB & GUTTER	m	172.5		172.50											
E		2104.501	REMOVE GUARDRAIL – PLATE BEAM	m	149.2		149.20											
E		2104.501	REMOVE FENCE	m	625		625											
E		2104.501	REMOVE SEWER PIPE (STORM)	m	145		145											
		2102.502	PAVEMENT MARKING REMOVAL	m	2400		2400											
D		2104.503	REMOVE CONCRETE PAVEMENT	m2	13373.66		13373.66											
F		2104.509	REMOVE CATCH BASIN	EACH	2		2											
G		2104.511	SAWING CONCRETE PAVEMENT	m	2137.6		2137.60											
G		2104.513	SAWING BITUMINOUS PAVEMENT	m	316.3		316.30											
E		2104.521	SALVAGE FENCE	m	239		239											
E		2104.521	SALVAGE GUARD RAIL – PLATE BEAM	m	3.8		3.80											
F		2104.523	SALVAGE CASTING	EACH	2		2											
H,J		2104.523	SALVAGE SIGN TYPE C	EACH	46		40		6									
I		2104.523	SALVAGE SIGN TYPE D	EACH	6		6											
J		2104.523	SALVAGE STREET NAME SIGNS	EACH	4		4											
J		2104.523	SALVAGE DELINEATOR & POST	EACH	190		190											
		2104.523	SALVAGE SIGN	EACH	1				1									
		0104.603	SALVAGE STONE	m2	20		20											
K		2105.501	COMMON EXCAVATION (P)	m3	33774		31987		1787									
K		2105.505	MUCK EXCAVATION	m3	45870		45870											
K		2105.507	SUBGRADE EXCAVATION (P)	m3	47849		46533		1316									
K		2105.515	UNCLASSIFIED EXCAVATION	m3	16905								16905					
K		2105.521	GRANULAR BORROW (LV)	m3	113932		113932											
K		2105.522	SELECT GRANULAR BORROW (LV)	m3	38810		37095		1715									
K		2105.523	COMMON BORROW (LV)	m3	47288		46762		526									
	(6)	2105.525	TOPSOIL BORROW (LV)	m3	940		940											
K		0105.603	WOOD CHIPS (CV)	m3	7045		7045											
		0123.601	STREET SWEEPER	HOUR	50		50											
		0123.601	TRACTOR MOUNTED BACKHOE	HOUR	75		75											
		2130.501	WATER	m3	379		379											
L		2211.503	AGG. BASE, CLASS 6 RECYCLED (CV)(P)	m3	10379.1		9892.0		487.1									
M		2301.502	CONC. PAVEMENT STANDARD WIDTH 200 mm	m2	31061.0		31061.0											
M		2301.503	CONC. PAVEMENT IRREGULAR WIDTH 200 mm	m2	8858.3		8858.3											
		2301.513	STRUCTURAL CONCRETE – HIGH EARLY	m3	7892		7892											
		2301.529	REINFORCEMENT BAR (EPOXY COATED)	kg	26850		26850											
		0301.604	DOWEL BAR ASSEMBLIES	m	8948		8948											
		0301.604	PERMAMENT TERMINAL HEADERS	m	108		108											
		0301.605	STRUCTURAL CONCRETE – HIGH EARLY (SPECIAL)	m3	115.5		94.90				20.6							
N		2340.508	TYPE 41 WEARING COURSE MIXTURE	t	837.4		566.50		270.9									
N		2340.510	TYPE 41 BINDER COURSE MIXTURE	t	912.5		575.10		337.4									
N		2340.510	TYPE 31 BINDER COURSE MIXTURE	t	400.4		400.40											
N		2340.514	TYPE 31 BASE COURSE MIXTURE	t	878.7		547.30		331.4									
		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	liter	3384.7		2125.30		1259.4									
K		2411.511	STRUCTURE EXCAVATION CLASS U	m3	1328		1328											
		0411.602	INSTALL SIGN	EACH	1				1									
		0411.603	CONCRETE BLOCK RETAINING WALL	m2	186.4		186.40											
		0411.603	REINFORCED EARTH WALL	m2	720.4		720.40											
O		0422.602	WOOD NOISE ATTENUATOR WALL	m2	2353.68		2353.68											
O		0422.603	CONCRETE POSTS 300mm x 450mm	m	1823.56		1823.56											

SEE SHEET 4A FOR INDEX OF TABULATIONS AND NOTES

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISED REINFORCED BAR & COMMON EXCAVATION QTY'S			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

ESTIMATED QUANTITIES
28-161

FILE NO. RAMSE9601.01

H:\TH96\R60SEQ 05-01-97 2:58 pm Jay Becker, SEH

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-05 CTB RAMSEY COUNTY		S.A.P. 62-657-03 MCMENEMY ST (CSAH 57)		100% CITY OF VADNAIS HEIGHTS		STORM SEWER 100% S.A.P. 62-696-05 CTB		STORM SEWER 100% S.A.P. 62-657-03		CITY OF NORTH OAKS & WHITE BEAR TOWNSHIP	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		2451.507	GRANULAR BEDDING (CV)	m3	780								780					
		0501.602	TRASH GUARD FOR 300 mm RC PIPE APRON	EACH	4								4					
		0501.602	TRASH GUARD FOR 375 mm RC PIPE APRON	EACH	2								2					
		0501.602	TRASH GUARD FOR 450 mm RC PIPE APRON	EACH	6								6					
		0501.602	TRASH GUARD FOR 600 mm RC PIPE APRON	EACH	4								4					
P,Q		2501.515	375 mm R C PIPE APRON	EACH	2								2					
P,Q		2501.515	450 mm R C PIPE APRON	EACH	3								2			1		
P,Q		2501.515	750 mm R C PIPE APRON	EACH	1								1					
P,Q		2501.515	900 mm R C PIPE APRON	EACH	2								2					
P,Q		2501.515	1050 mm R C PIPE APRON	EACH	1								1					
		2502.541	100 mm PERFORATED P.E. DRAIN PIPE	m	45		45											
P,Q		2503.541	375 mm RCP SEWER DESIGN 3006 CL V	m	864.95								800.55			64.4		
P,Q		2503.541	450 mm RCP SEWER DESIGN 3006 CL III	m	34.4											34.4		
P,Q		2503.541	450 mm RCP SEWER DESIGN 3006 CL V	m	522.1								452.10			70		
P,Q		2503.541	600 mm RCP SEWER DESIGN 3006 CL III	m	59.5								59.50					
P,Q		2503.541	600 mm RCP SEWER DESIGN 3006 CL V	m	80.6								80.60					
P,Q		2503.541	750 mm RCP SEWER DESIGN 3006 CL II	m	85								85					
P,Q		2503.541	750 mm RCP SEWER DESIGN 3006 CL III	m	105								105					
P,Q		2503.541	750 mm RCP SEWER DESIGN 3006 CL IV	m	197.6								197.60					
P,Q		2503.541	900 mm RCP SEWER DESIGN 3006 CL III	m	199.5								199.50					
P,Q		2503.541	900 mm RCP SEWER DESIGN 3006 CL IV	m	123.7								123.70					
P,Q		2503.541	1050 mm RCP SEWER DESIGN 3006 CL III	m	89								89					
		0504.601	IRRIGATION SYSTEM	L.S.	1						1							
R		0504.602	RELOCATE HYDRANT	EACH	2		2											
R		0504.602	ADJUST HYDRANT	EACH	1		1											
R		0504.602	CONNECT TO EXISTING WATERMAIN	EACH	5		2				3							
R		0504.602	ADJUST VALVE BOX	EACH	2		2											
		0504.602	ADJUST CURB STOP BOX	EACH	1		1											
R		0504.602	50 mm CURB STOP AND BOX	EACH	2						2							
R		0504.602	50 mm CORPORATION STOP	EACH	2						2							
R		0504.602	150 mm GATE VALVE & BOX	EACH	2						2							
R		0504.602	250 mm GATE VALVE & BOX	EACH	1						1							
R		0504.603	HYDRANT RISER	m	0.46		0.46											
R		0504.603	150 mm WATER MAIN-DUCT IRON CL 52	m	9		9											
		0504.603	50 mm TYPE K COPPER WATER SERVICE	m	16						16							
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN A or F	EACH	48								46			2		
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN C or G	EACH	18								16			2		
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 1200 mm-4020	EACH	2								2					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 1350 mm-4020	EACH	5								5					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 1500 mm-4020	EACH	3								3					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 1650 mm-4020	EACH	2								2					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 1800 mm-4020	EACH	3								3					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN 3000 mm-4020	EACH	1								1					
P		2506.502	CONST DRAINAGE STRUCTURE DESIGN H	EACH	6								6					
		0506.602	CONSTRUCT CONTROL STRUCTURE	EACH	2		2											
F		0506.603	RECONSTRUCT SANITARY MANHOLE	m	1.2		1.20											
P,Q		2511.501	RANDOM RIPRAP, CLASS III	m3	30.6								30.6					
P,Q		2511.501	RANDOM RIPRAP, CLASS IV	m3	10.6								10.6					
P,Q		2511.501	RANDOM RIPRAP, CLASS V	m3	13.2								13.2					
M		2521.501	75 mm CONCRETE WALK	m2	1916.9		1916.90											
M		2521.501	100 mm CONCRETE WALK	m2	477		477											
M		2531.501	CONC. CURB & GUTTER, DES. D412	m	22		22											
M		2531.501	CONC. CURB & GUTTER, DES. B624	m	224				224									
M		2531.501	CONC. CURB & GUTTER, DES. B618	m	96		96											
M		2531.501	CONC. CURB & GUTTER, DES. B424	m	7106.1		7106.1											
M		2531.507	200 mm CONCRETE DRIVEWAY PAVEMENT-HIGH EARLY	m2	51		51											
M		0531.602	PEDESTRIAN CURB RAMP	EACH	2		2											
		0531.603	PRECAST CONCRETE CURB DESIGN 7103	m	184		184											

SEE SHEET 4A FOR INDEX OF TABULATIONS AND NOTES

Joy Becker, SEH
03-21-97 11:54 am
H:\TH96\9601SEQ

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

ESTIMATED QUANTITIES
28-161

FILE NO. RAMSE9601.01

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-05 CTB RAMSEY COUNTY		S.A.P. 62-657-03 MCMENEMY ST (CSAH 57)		100% CITY OF VADNAIS HEIGHTS		STORM SEWER 100% S.A.P. 62-696-05 CTB		STORM SEWER 100% S.A.P. 62-657-03		CITY OF NORTH OAKS & WHITE BEAR TOWNSHIP	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		0531.602	CONCRETE MEDIAN NOSE DESIGN 7109	EACH	1		1											
		0531.602	CONCRETE MEDIAN NOSE DESIGN 7113	EACH	4		4											
		0554.603	RECONSTRUCT PLATE BEAM GUARDRAIL	m	3.8		3.8											
		0563.601	TRAFFIC CONTROL	L.S.	1		1											
		0563.602	FLASHER TYPE A (LOW INTENSITY)	UNIT DAY	100		100											
		0563.602	TYPE III BARRICADES	UNIT DAY	100		100											
		0563.603	ONE-WAY TEMP. RAISED PAVEMENT MARKERS-YELLOW	EACH	7345		7345											
J		0564.602	F&I STREET NAME SIGNS	EACH	3		3											
		0564.602	PAVEMENT MESSAGE (LEFT ARROW) EPOXY	EACH	8		6		2									
		0564.602	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY	EACH	20		16		4									
		0564.602	PAVEMENT MESSAGE (LEFT/THRU ARROW) EPOXY	EACH	2		2											
		0564.602	PAVEMENT MESSAGE (RR CROSSING) POLY PREFORMED	EACH	4		4											
		0564.603	100 mm SOLID LINE WHITE, EPOXY	m	4800		4450		350									
		0564.603	600 mm SOLID LINE YELLOW, EPOXY	m	255		255											
		0564.603	100 mm BROKEN LINE WHITE, EPOXY	m	582		578		4									
		0564.603	600 mm SOLID LINE WHITE , POLY PREFORMED	m	125		110		15									
		0564.603	100 mm DOUBLE SOLID LINE YELLOW, EPOXY	m	1472		1312		160									
T		2564.531	F & I SIGN PANEL TYPE C	m2	50.02		44.73		5.29									
U		2564.531	F & I SIGN PANEL TYPE D	m2	13.54		13.54											
		2564.531	F & I SIGN PANEL TYPE D (signals)	m2	8.6		8.60											
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM A	SIG SYS	1		0.67		0.33									
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM B	SIG SYS	1		0.50				⑤ 0.25						① 0.25	
		0565.601	EMERGENCY VEHICLE PRE-EMPTION SYSTEM A	L.S.	1						④ 0.5						② 0.5	
		0565.601	EMERGENCY VEHICLE PRE-EMPTION SYSTEM B	L.S.	1						⑤ 0.5						① 0.5	
		0565.602	HANDHOLE TYPE C (INTERCONNECT)	EACH	20		20											
		0565.603	6 CONDUCTOR FIBER OPTIC CABLE (INTERCONNECT)	m	1250		1250											
		0565.603	1 CONDUCTOR NO. 14 CABLE (INTERCONNECT)	m	1250		1250											
		0565.603	50 mm NON-METALLIC CONDUIT (INTERCONNECT)	m	1375		1375											
		0565.603	75 mm NON-METALLIC CONDUIT (INTERCONNECT)	m	20		20											
		2571.501	CONIFEROUS TREE 2.5 m B&B	TREE	54		54											
		2571.501	CONIFEROUS TREE 3 m B&B	TREE	23		23											
		2571.502	DECIDUOUS TREE 50 mm CAL B&B	TREE	288		288											
		2571.503	ORNAMENTAL TREE 1.25 m HT CONT	TREE	39		39											
		2571.503	ORNAMENTAL TREE 1.25 m HT B&B	TREE	12		12											
		2571.503	ORNAMENTAL TREE 500mm B&B	TREE	34		34											
		2571.503	ORNAMENTAL TREE 900mm CONT	TREE	3		3											
		2571.505	DECIDUOUS SHRUB 500 mm CONT	SHRUB	343		14				329							
		2571.505	DECIDUOUS SHRUB 600 mm CONT	SHRUB	166		166											
		2571.505	DECIDUOUS SHRUB 900 mm CONT	SHRUB	127		91				36							
		2571.506	IVY, BOSTON 2 YR #1 POT	VINE	78						78							
		2571.506	IVY, ENGELMAN 2 YR #1 POT	VINE	62						62							
		2571.507	PERENNIAL 60 mm CONT	PLANT	2285						2285							
B		2571.541	TRANSPLANT TREE	TREE	25		25											
V		2573.501	BALE CHECK	EACH	130		105		25									
W		2573.502	SILT FENCE, PREASSEMBLED	m	3225		3060		165									
W		2573.505	FLOTATION SILT FENCE	m	235		235											
X		2575.501	SEEDING	ha	5.72		5.59		0.13									
X		2575.502	SEED MIXTURE 25A (MOD)	kg	47.2		47.20											
X		2575.502	SEED MIXTURE 30A (MOD)	kg	99.4		99.40											
X		2575.502	SEED MIXTURE 40A	kg	228		218.40		9.6									
X		2575.502	SEED MIXTURE 115A	kg	63.0		63.0											
X		2575.505	SODDING TYPE LAWN	m2	3041		2041		1000									
X		2575.511	MULCH MATERIAL TYPE 1	t	3.2		3.20											
X		2575.519	DISC ANCHORING	ha	0.76		0.76											
X		2575.523	WOOD FIBER BLANKET TYPE REGULAR	m2	45466		44186		1280									
X		2575.532	COMM. FERT. ANALYSIS 10-20-20	kg	2107.9		2018.50		89.4									
S		0580.603	TEMPORARY LANE MARKING PAINT	m	8068		8068											
S		2581.501	REMOVABLE PREFORMED PLASTIC MARKING	m	14209		14209											

SEE SHEET 4A FOR INDEX OF TABULATIONS AND NOTES

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISED SEED MIX TYPES			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ARCHITECTS PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

ESTIMATED QUANTITIES
28-161

FILE NO. RAMSE9601.01

H:\TH96\R601SEQ 05-01-97 2:58 pm Joy Becker, SEH

NOTES:

(1) 100% WHITE BEAR TOWNSHIP

(2) 100% CITY OF NORTH OAKS

(3) 7% NORTH OAKS – 93% WHITE BEAR TOWNSHIP

(4) 100% S.A.P. 209–020–01 (VADNAIS HEIGHTS)

(5) 100% S.A.P. 209–101–02 (VADNAIS HEIGHTS)

(6) FOR USE IN MEDIAN TREE PLANTING BEDS

TABULATION INDEX

TAB	SHEET NO.	DESCRIPTION
A	16–17	CLEAR & GRUB TABULATION
B	17	TRANSPLANT TREE TABULATION
C	13	REMOVE PIPE CULVERTS
D	13	REMOVE CONCRETE PAVEMENT & CONCRETE C & G
E	13	MISCELLANEOUS REMOVALS & SALVAGE ITEMS
F	13	INPLACE STRUCTURE SUMMARY
G	13	PAVEMENT SAWING
H	162	TYPE "C" SIGNS (SALVAGE)
I	162	TYPE "D" SIGNS (SALVAGE)
J	162	MISCELLANEOUS SIGNS
K	5	EARTHWORK SUMMARY
L	14	AGGREGATE BASE SUMMARY
M	15	CONCRETE PAVEMENT SUMMARY
N	14	BITUMINOUS BASE SUMMARY
O	13	WOOD NOISE ATTENUATOR WALL
P	18–19	PROPOSED STORM SEWER
Q	19	PROPOSED CULVERT
R	13	WATERMAIN SUMMARY
S	136	TRAFFIC CONTROL
T	162	TYPE "C" SIGNS (F&I)
U	162	TYPE "D" SIGNS (F&I)
V	14	BALE CHECK SUMMARY
W	14	FLOTATION SILT CURTAIN/SILT FENCE SUMMARY
X	14	TURF ESTABLISHMENT

H:\TH96\R601SEQ 03-21-97 11:54 am Jay Becker, SEH

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Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62–696–05 CTB

ESTIMATED QUANTITIES

28-161

FILE NO. RAMSE9601.01

(K) EARTHWORK SUMMARY

(m3)(E.V.) EXCAVATION 145,696
- COMMON 33,744 ④⑤
- SUBGRADE 47,849 ④
- STRUCTURE 1,328 ④
- MUCK 45,870
- POND 16,905 ④

(m3)(C.V.) EMBANKMENT 167,222
- COMMON BORROW 37,830 (47,288 L.V.) ①
- GRANULAR MATERIAL 87,640 (113,932 L.V.) ②
- SELECT GRANULAR MATERIAL 29,854 (38,810 L.V.) ②
- TOPSOIL 4,853
- WOODCHIPS 7,045 ③

①125% SHRINKAGE FACTOR USED FROM LOOSE VOLUME (L.V.) TO COMPACTED VOLUME (C.V.).
②130% SHRINKAGE FACTOR USED FROM LOOSE VOLUME (L.V.) TO COMPACTED VOLUME (C.V.).
③LIGHT WEIGHT FILL FOR USE IN BERM CONSTRUCTION ALONG ROBB FARM ROAD
④ALL EXCAVATED MATERIAL IS THE PROPERTY OF THE CONTRACTOR AND MAY BE USED FOR BORROW ITEMS.
⑤INCLUDES REMOVAL OF TEMP. WIDENING EMBANKMENT

BASIS OF ESTIMATED QUANTITIES

2340.508	TYPE 41 WEARING COURSE	2.4	kg/mm/m2
2340.510	TYPE 41 BINDER COURSE	2.4	kg/mm/m2
2340.510	TYPE 31 BINDER COURSE	2.4	kg/mm/m2
2340.514	TYPE 31 BASE COURSE	2.4	kg/mm/m2
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.226	l/m2
2575.502	SEED MIXTURE 25A(MOD)	50	kg/ha
2575.502	SEED MIXTURE 30A(MOD)	75	kg/ha
2575.502	SEED MIXTURE 40A(MOD)	75	kg/ha
2575.502	SEED MIXTURE 115A(MOD)	100	kg/ha
2575.511	MULCH MATERIAL TYPE 1	4.5	t/ha
2575.531	COMM. FERT. ANALYSIS 10-20-20	392	kg/ha

The following Standard Plates, approved by the FEDERAL HIGHWAY ADMINISTRATION, shall apply on this project.

MN/DOT STANDARD PLATES

PLATE NO.	DESCRIPTION
M1103 J	TYPICAL DOWEL BAR ASSEMBLY
M1141 D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
M1150 P	CONSTRUCTION OF HEADER JOINTS
M3000 L	REINFORCED CONCRETE PIPE (5 SHEETS)
M3006 G	GASKET JOINT FOR R.C. PIPE
M3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
M3131 B	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
M3133 B	RIPRAP AT RCP OUTLETS
M3145 E	CONCRETE PIPE TIES
M4000 J	MANHOLE OR CATCH BASIN
M4002 F	MANHOLE OR CATCH BASIN
M4005 L	MANHOLE OR CATCH BASIN
M4006 L	MANHOLE OR CATCH BASIN
M4010 H	CONCRETE SHORT CONE AND ADJUSTING RING
M4011 E	PRECAST CONCRETE BASE
M4020 G	MANHOLE OR CATCH BASIN FOR USE UNDER TRAFFIC LOADS
M4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN
M4110 F	COVER CASTING FOR MANHOLE
M4143 E	STOOL GRATE & CONCRETE FRAME
4180 H	MANHOLE OR CATCH BASIN STEP
M7000 E	INTEGRANT CURBS
M7036 D	PEDESTRIAN CURB RAMP
M7100 G	CONCRETE CURB AND GUTTER
7103 C	PRECAST CONCRETE CURB
M7111 J	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
M7112 C	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
M7113 A	CONCRETE APPROACH NOSE DETAIL
M80001 I	STANDARD BARRICADES
M8110 D	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111 C	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
M8112 C	PEDESTAL FOUNDATION
M8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8117 F	PRECAST CONCRETE HANDHOLE
M8119 C	GROUND MOUNTED CABINET FOUNDATION
M8120 K	POLE FOUNDATION (PA85 & PA90)
M8121 D	TRANSFORMER BASE WITH POLE BASE PLATE
8122 C	PEDESTAL & PEDESTAL BASE
M8123 D	POLE & MAST ARM
8124 E	MAST ARM SIGNAL HEAD MOUNTS
M8126 F	PA90 AND PA100 FOUNDATION
8130 D	SAW CUT LOOP DETECTORS
M8307 P	STEEL PLATE BEAM GUARDRAIL
M8323 H	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER
M9102 D	TURF ESTABLISHMENT AREAS

NOTE:
IF METRIC STANDARD PLATE IS NOT AVAILABLE CONVERT ENGLISH STANDARD PLATE TO NEAREST 0.0001m.

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 PROPOERTIES. ANY PROPERTY OUT OF SERVICE LONGER THAN 8 HOURS MUST BE PROVIDED WITH A TEMPORARY SERVICE.

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 2104.3C3

EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 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 OF COMPACTION METHOD".

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

WHEN CONNECTION TO EXITING 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 TV 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 CONSTRUCTION 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 30mm 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.

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISED EARTHWORK SUMMARY			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

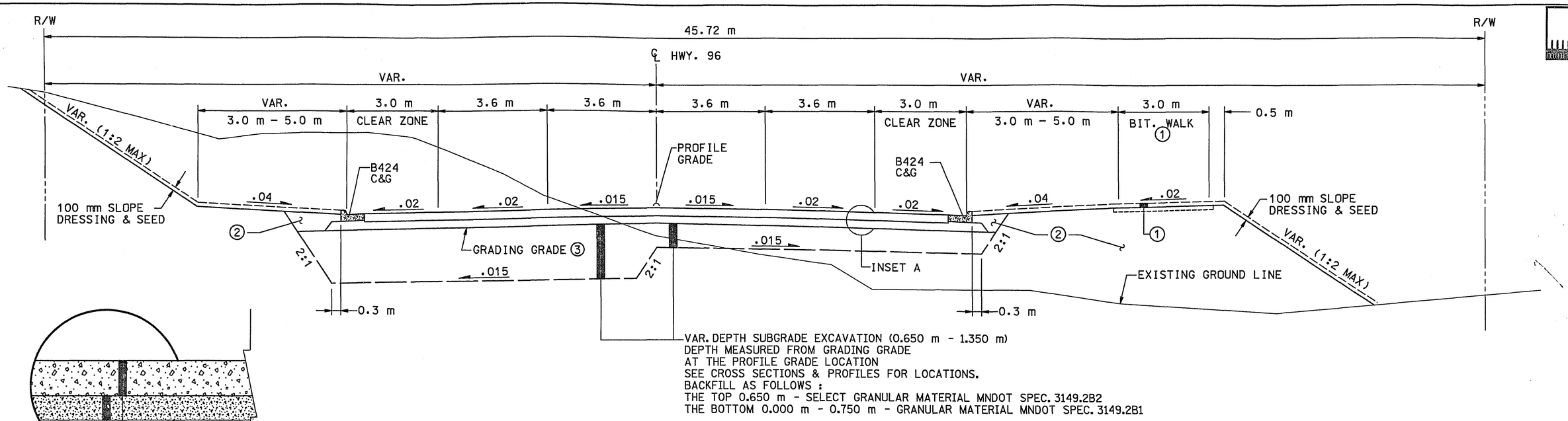
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

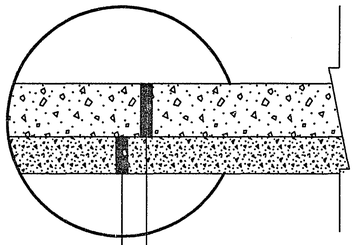
EARTHWORK SUMMARY
CONSTRUCTION NOTES AND
STANDARD PLATES

FILE NO. RAMSE9601.01

5/170

Joy Becker, SEH 3:10 pm 05-01-97
H:\TH96\R6015SOIL





INSET A

HWY 96

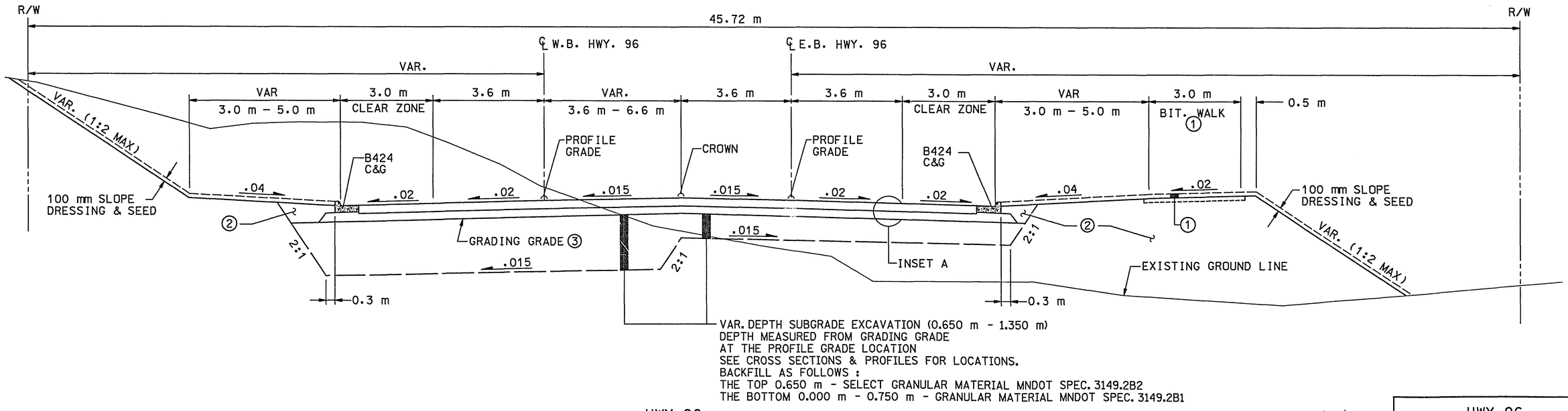
STA. 7+880.0 – STA. 7+927.3

NOTES:

① BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. CONTRACTOR TO PLACE 100 mm SLOPE DRESSING AND SEED OVER BIT. WALK AREA.

② BACKFILL WITH COMMON BORROW.

③ COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.



HWY 96

STA. 7+927.3 – STA. 8+130.1

28-161

HWY 96

STA. 7+880.0 – STA. 8+078.8

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

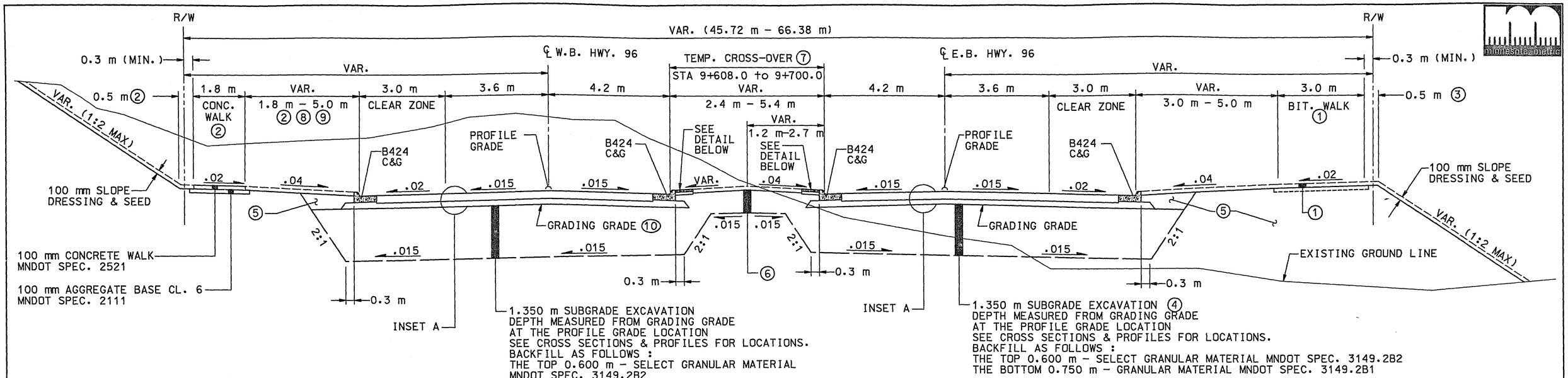
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

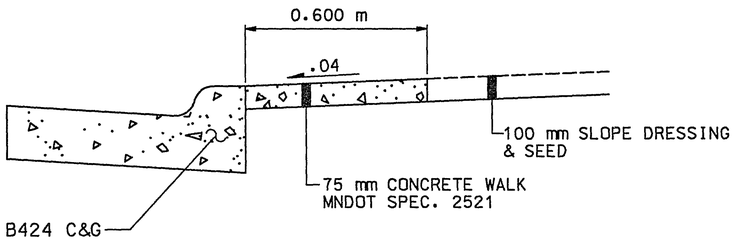
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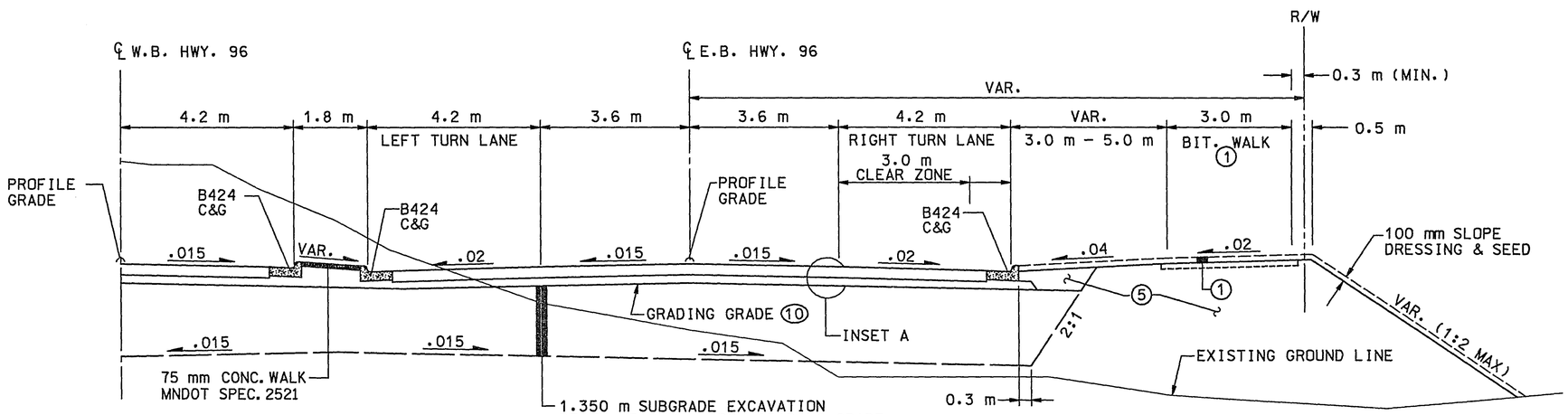
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HWY 96
STA. 8+130.1 – STA. 9+700.0



MEDIAN CURB DETAIL



HWY 96
TURN LANE SECTION

NOTES:

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. CONTRACTOR TO PLACE 100 mm SLOPE DRESSING AND SEED OVER BIT. WALK AREA.

(2) CONC. WALK STA. 9+450.0 – STA. 9+700
SEE CONSTRUCTION PLANS FOR BOULEVARD WIDTH.

(3) STA. 8+490.0 – STA. 8+530.0
STA. 8+660.0 – STA. 8+710.0
STA. 8+950.0 – STA. 9+090.0
STA. 9+250.0 – STA. 9+350.0
USE 0.80 m TO P.I. AS TO PROVIDE ROOM FOR FUTURE RAILING ALONG BIT. WALK

(4) STA. 8+130.1 – STA. 8+300.0
STA. 9+674.0 – STA. 9+710.0
0.650 SUBGRADE EXCAVATION
SEE CROSS SECTIONS & PROFILES
BACKFILL WITH SELECT GRANULAR MATERIAL
MNDOT SPEC. 3149.2B2

(5) BACKFILL WITH COMMON BORROW.

(6) 0.600 m SUBGRADE EXCAVATION
SEE CROSS SECTIONS
BACKFILL WITH SELECT GRANULAR MATERIAL
MNDOT SPEC. 3149.2B2

(7) SEE EAST TEMP. X-OVER TYPICAL SECTION FOR TEMPORARY PAVEMENT.

(8) BOULEVARD WIDTH:
STA. 8+078.0 – STA. 8+200.0 (3.0 m)
STA. 8+200.0 – STA. 3+380.0 (1.8 m)
STA. 8+380.0 – STA. 9+450.0 (3.0 m)

(9) SEE BERM DETAIL FOR BERM CONSTRUCTION:
STA. 8+451.0 TO STA. 9+189.0

(10) COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.

28-161

HWY 96
STA. 8+078.8 - STA. 9+700.0
TURN LANES

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

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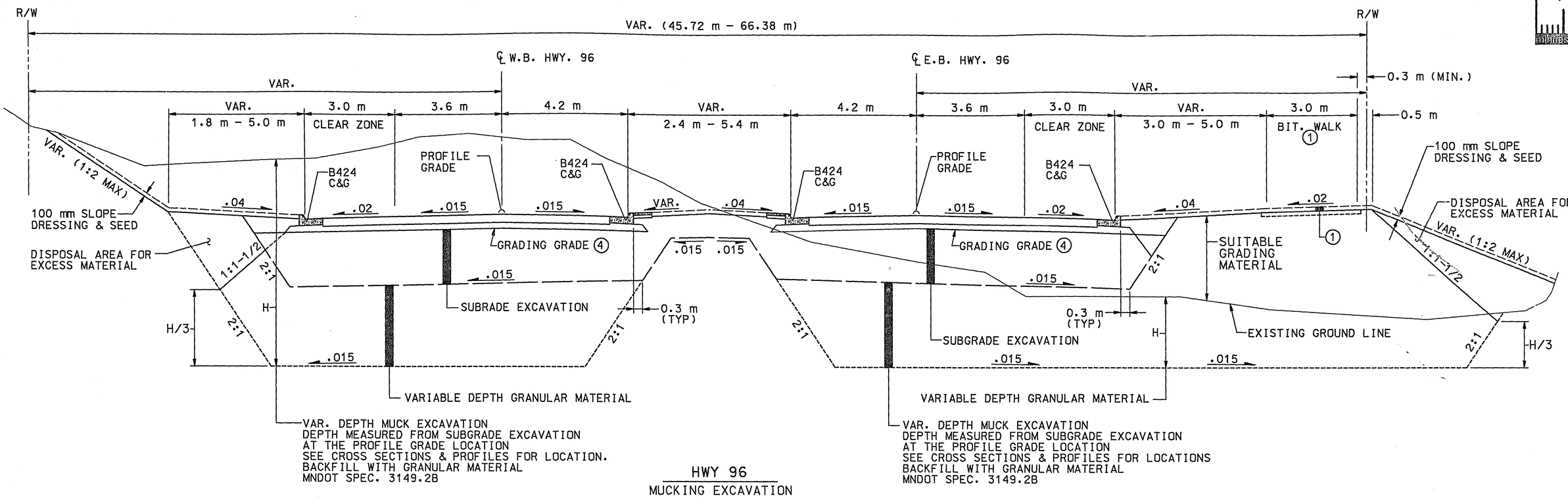
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

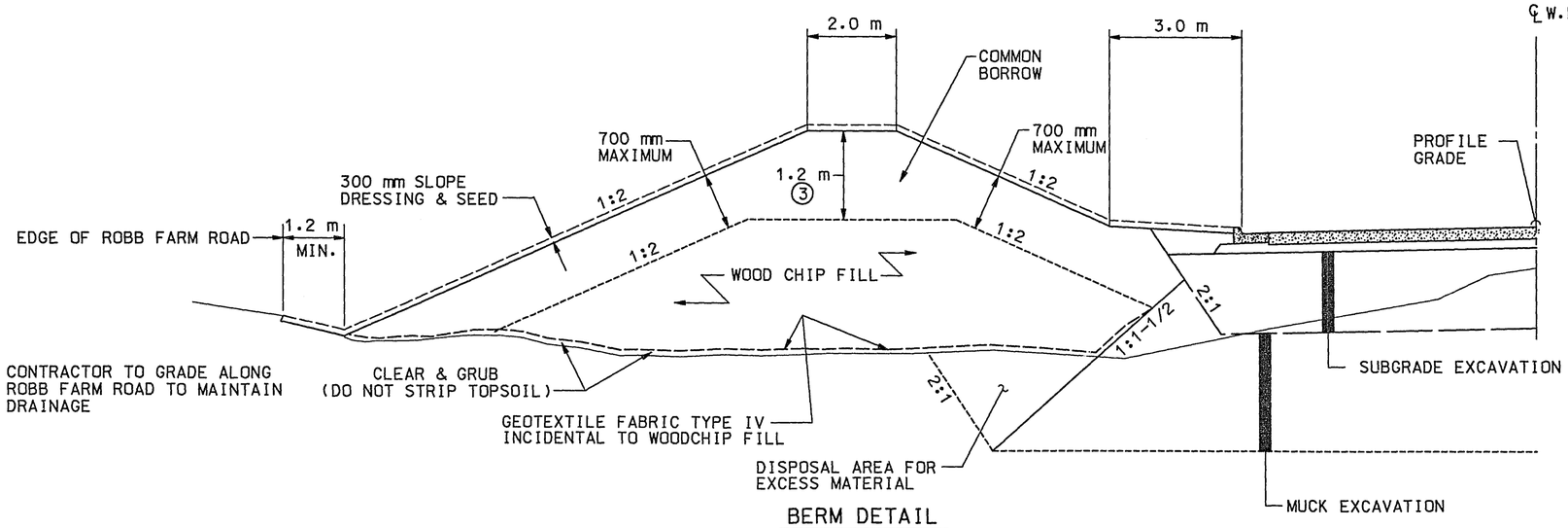
FILE NO. RAMSE9601.01

7/170

NAME: RAM9601.TS1 DATE: Mar. 12, 1997



HWY 96
MUCKING EXCAVATION



BERM DETAIL
STA. 8+390.0 TO STA. 8+990.0 ②
STA. 9+017.0 TO STA. 9+189.0 ②

NOTES:

① BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. CONTRACTOR TO PLACE 100 mm SLOPE DRESSING AND SEED OVER BIT. WALK AREA.

② TAPER BERM AT A RATE OF 1:3 FROM EXISTING GROUND LINE TO ELEV. SHOWN ON THE CROSS SECTIONS AT THE BEGINING AND END OF BERM.

③ 2 m DEPTH AT POWER POLE LOCATIONS CONTRACTOR TO COORDINATE POLE ADJUSTMENT.

④ COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.

28-161

BERM DETAIL
MUCKING EXCAVATION

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18312

ENGINEERS ■ ARCHITECTS ■ PLANNERS

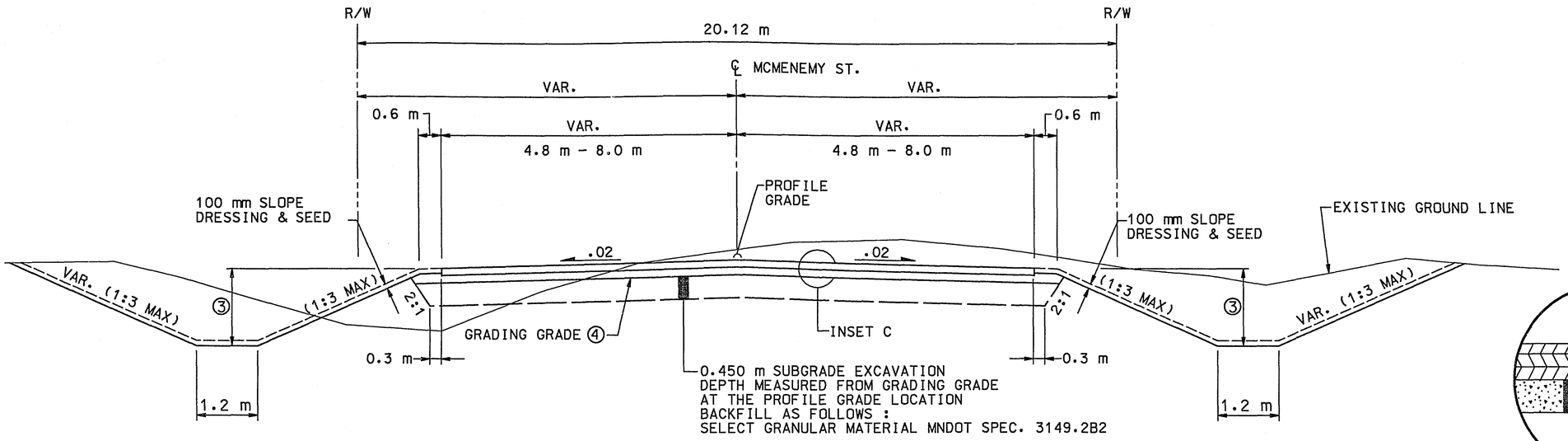
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

FILE NO. RAMSE9601.01

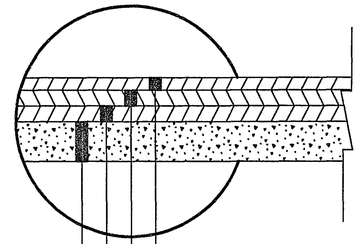
8 / 170

NAME: RAM9601.TS1 DATE: Mar. 17, 1997



MCMENEMY ST.

STA. 10+035 - STA. 10+100



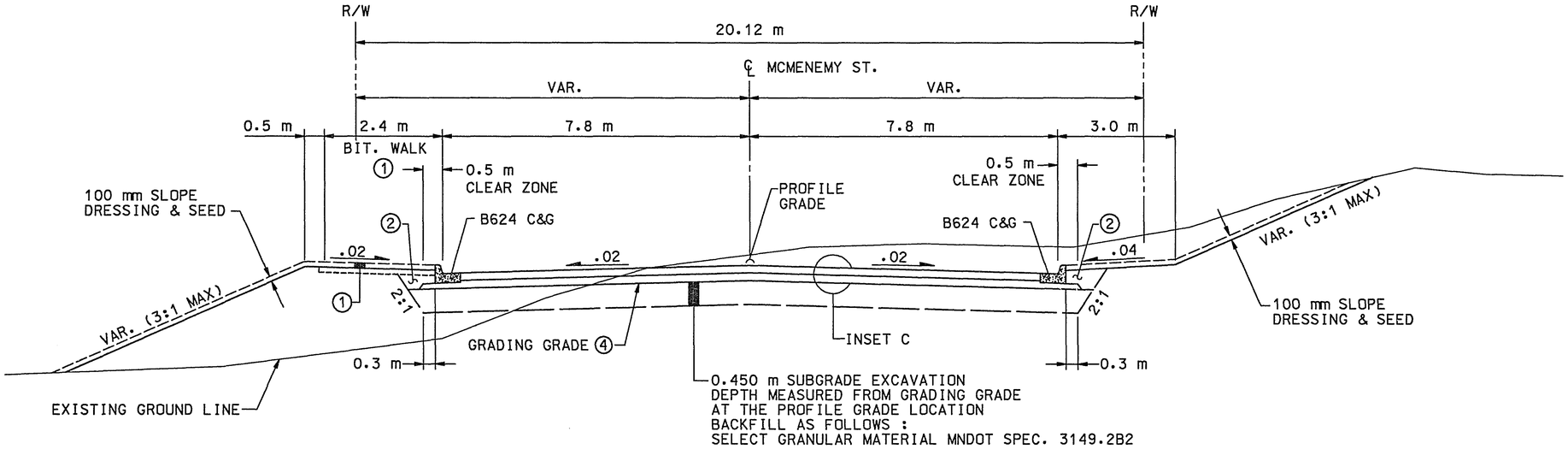
40 mm TYPE 41 WEARING COURSE
MIX DESIGNATION 41WEA50055 [PG-58-28]

50 mm TYPE 41 BINDER COURSE
MIX DESIGNATION 41BIB50055 [PG-58-28]

50 mm TYPE 31 BASE COURSE
MIX DESIGNATION 31BBB50000 [PG-58-28]

150 mm AGGREGATE BASE CLASS 6 (RECYCLED)
SPEC. 2211

INSET C



MCMENEMY ST.

STA. 10+100 - STA. 10+238.259

NOTES:

① BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. CONTRACTOR TO PLACE 100 mm SLOPE DRESSING AND SEED OVER BIT. WALK AREA.

② BACKFILL WITH COMMON BORROW.

③ VAR. DEPTH DITCH SEE CROSS SECTIONS FOR LOCATION AND DITCH ELEVATIONS.

④ COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.

28-161

MCMENEMY ST.

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

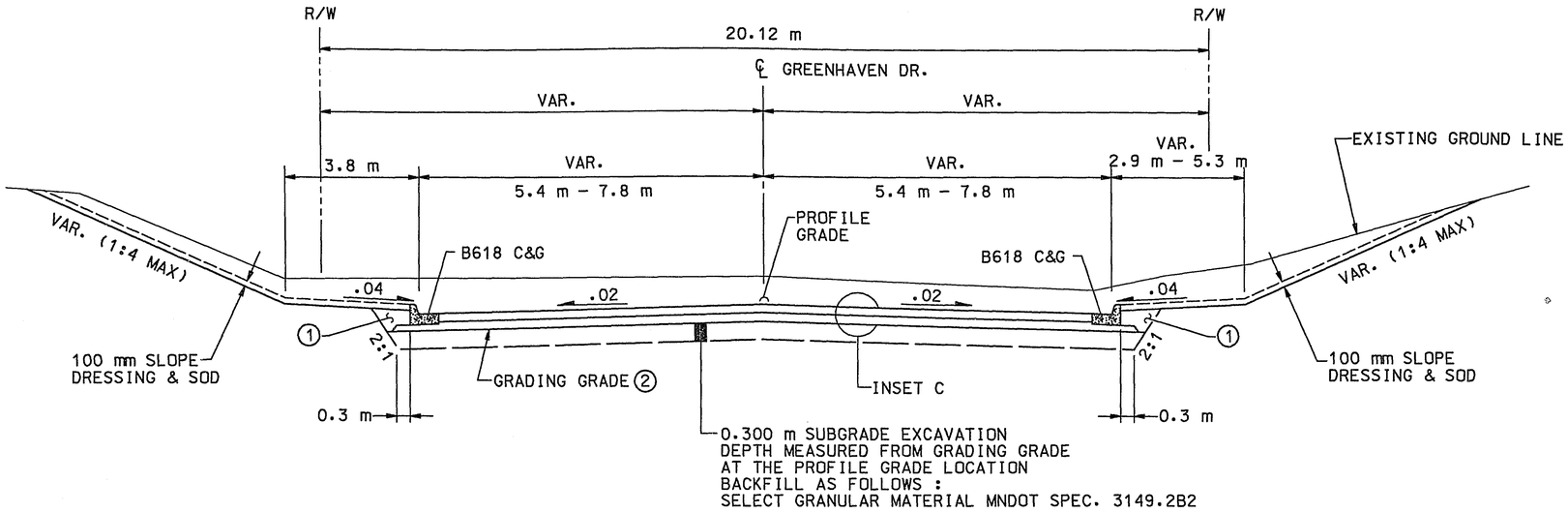
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

FILE NO. RAMSE9601.01

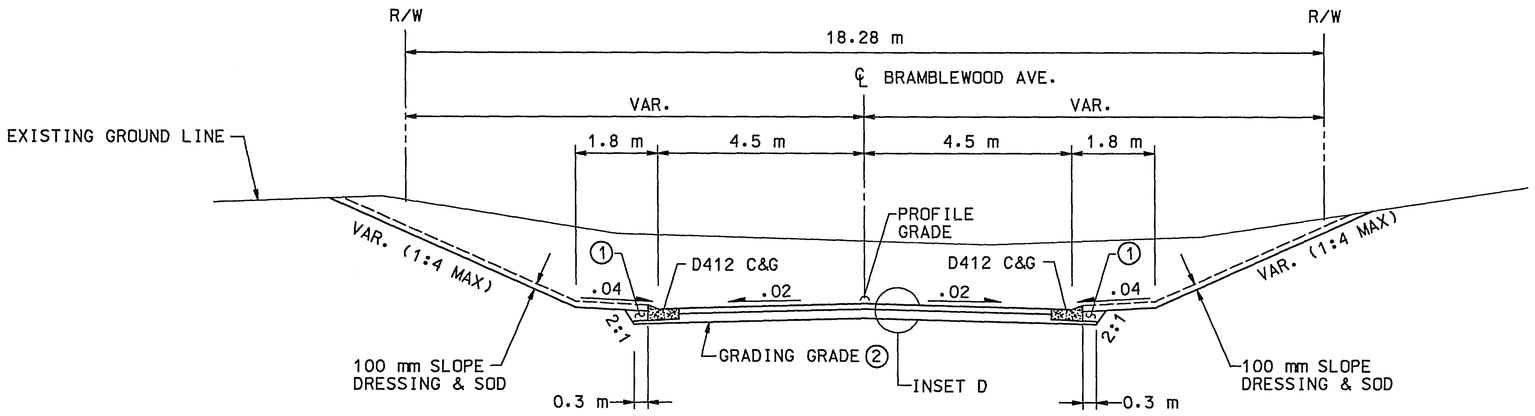
9/170

NAME: RAM9601.TS1 DATE: Mar. 12, 1997



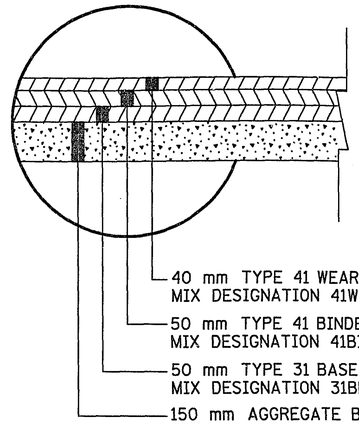
GREENHAVEN DR.

STA. 40+016.0 – STA. 40+058.3

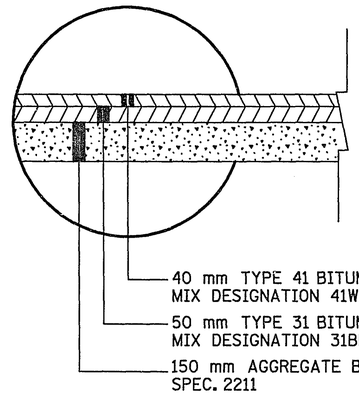


BRAMBLEWOOD AVE.

STA. 50+053.0 – STA. 50+065.0



INSET C



INSET D

NOTES:

① BACKFILL WITH COMMON BORROW.

② COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.

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GREENHAVEN DR.
BRAMBLEWOOD AVE.

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

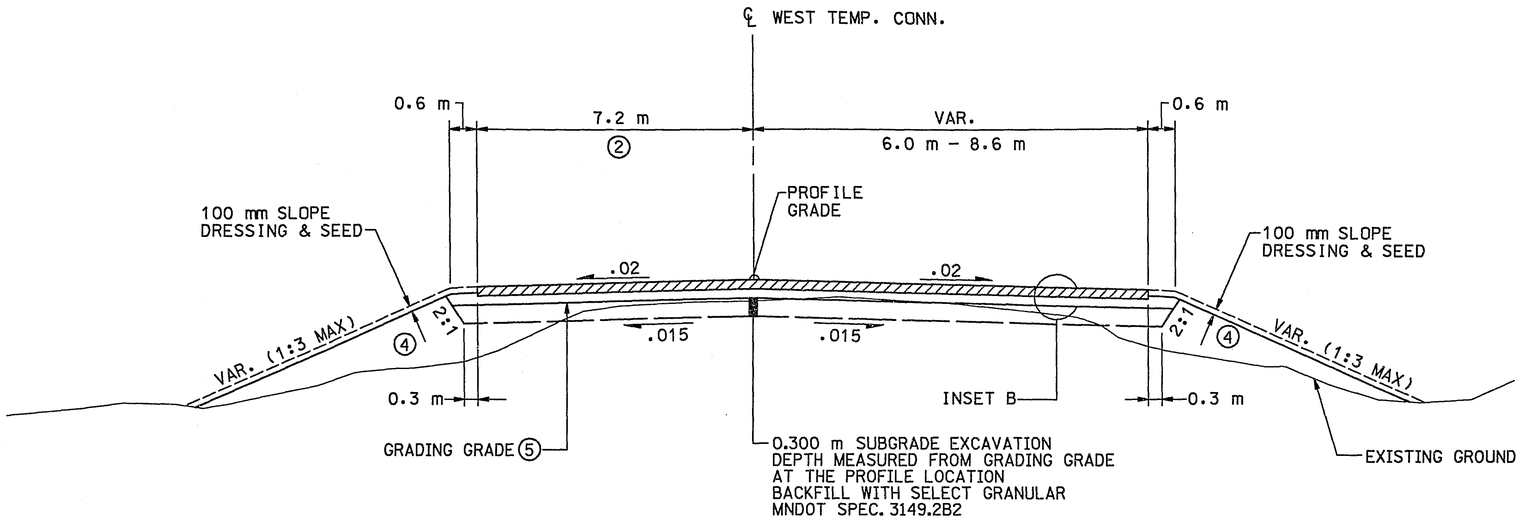
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

FILE NO. RAMSE9601.01

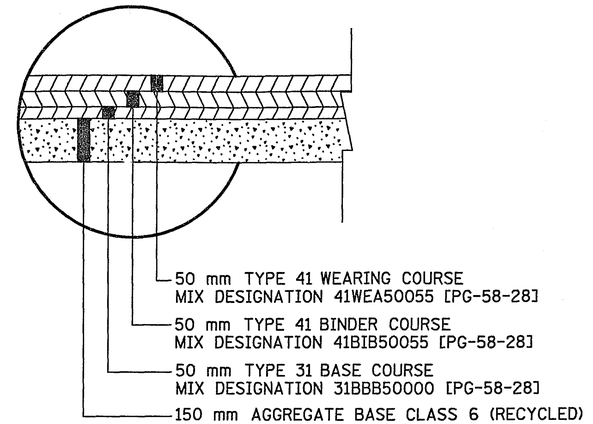
10 / 170

NAME: RAM9601.TS1 DATE: Mar. 12, 1997

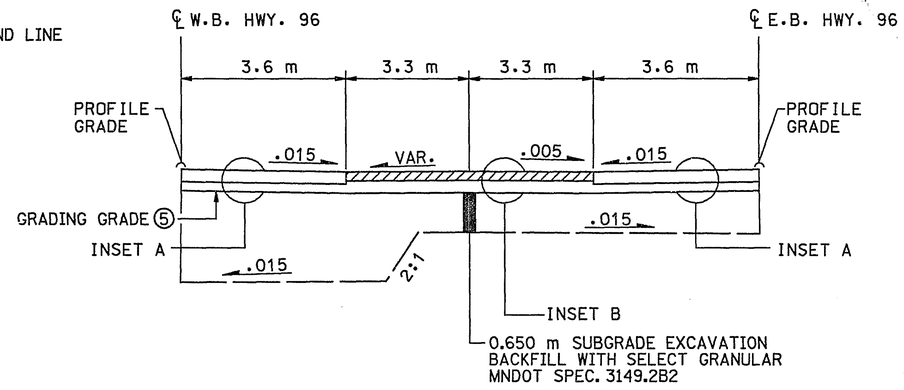


WEST TEMP. CONN.

STA. 7+777.0 – STA. 7+880.0 (HWY 96)

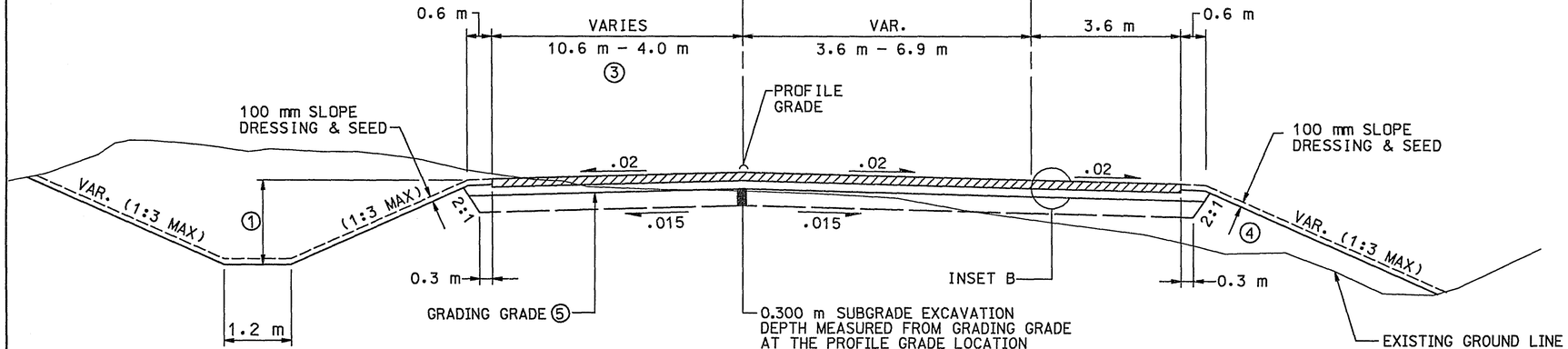


INSET B



EAST TEMP. X-OVER

E.B. STA. 9+608.0 – STA. 9+700.0



EAST TEMP. CONN.

STA. 9+700.0 – STA. 9+900.0 (E.B. HWY 96)

NOTES:

① VAR. DEPTH DITCH SEE CROSS SECTIONS FOR LOCATION AND DITCH ELEVATIONS.

② REMOVE EXISTING SHOULDER:
STA. 7+777.0 TO STA. 7+840.0 (HWY 96)
REPLACE PAVEMENT WITH INSET B MATCH EXISTING PAVEMENT ELEVATION AND CROSS SLOPE
SEE CONSTRUCTION PLANS AND CROSS SECTIONS.

③ REMOVE EXISTING SHOULDER:
STA. 9+770.0 TO STA. 9+900.0 (W.B. HWY 96)
REPLACE PAVEMENT WITH INSET B MATCH EXISTING PAVEMENT ELEVATION AND CROSS SLOPE
SEE CONSTRUCTION PLANS AND CROSS SECTIONS.

④ BACKFILL WITH COMMON BORROW.

⑤ COMMON EXCAVATION IS DEFINED AS ALL EXCAVATION ABOVE THE GRADING GRADE.

28-161

WEST TEMP. CONN.
EAST TEMP. CONN.
EAST TEMP. X-OVER

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	ADD COMMON EXCAVATION NOTE			

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

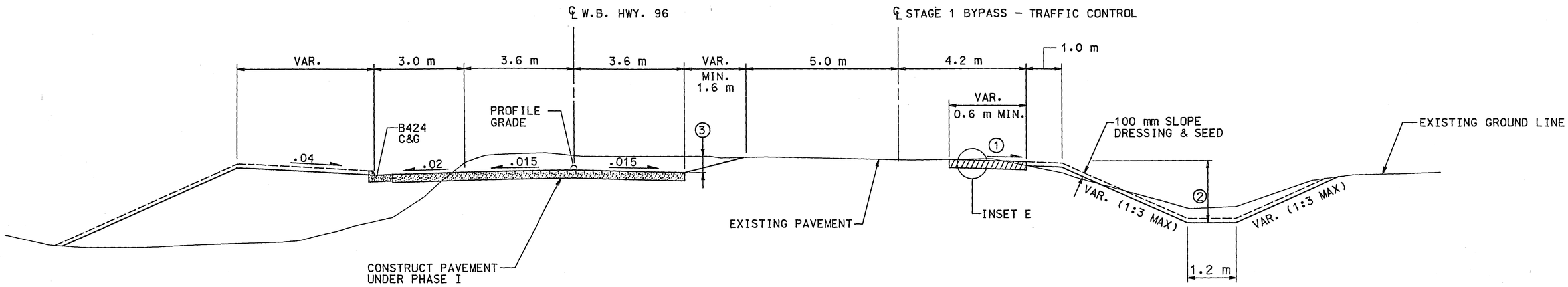
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

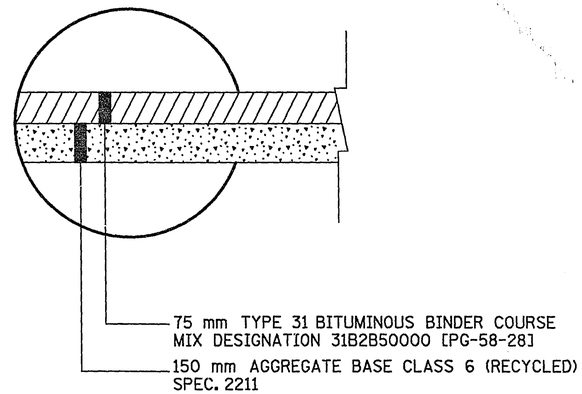
FILE NO. RAMSE9601.01

11/170

NAME: RAM9601.TS1 DATE: Mar. 12, 1997



TEMPORARY PAVEMENT WIDENING



INSET E

NOTES:

① MATCH EXISTING PAVEMENT ELEVATION AND CROSS SLOPE.

② VAR. DITCH DEPTH (0.600 m MIN.) TO BE GRADED AS DIRECTED BY THE ENGINEER IN THE FIELD TO MAINTAIN DRAINAGE.

③ IF GREATER THAN 150 mm AND IT IS NOT PRACTICAL TO BACKFILL CUT, USE TEMPORARY PORTABLE PRECAST CONCRETE BARRIER, SEE MNDOT STANDARD PLATE NO. M8323H.

28-161

TEMPORARY PAVEMENT

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TYPICAL SECTIONS

FILE NO. RAMSE9601.01

12/170

NAME: RAM9601.TS1 DATE: Mar. 12, 1997

Ⓓ REMOVE CONCRETE PAVEMENT & CONCRETE C & G

C/L E.B. HWY. 96 STATION – STATION	LOCATION	CONCRETE PAVEMENT①	CONCRETE C & G
	LT/RT	m2	m
7+880 – 8+286.5	LT & RT	2973.63	
8+286.5 – 8+780	LT & RT	3610.05	
8+780 – 9+200	LT & RT	3072.38	41.5
9+200 – 9+700	LT & RT	3657.60	131
PROJECT TOTAL		13373.66	172.5

① – EXISTING PAVEMENT SECTION INCLUDES APPROX. 90 mm BIT. SURFACE OVER 175 mm X 7.315 m WIDE CONCRETE PAVEMENT.

Ⓡ WATERMAIN SUMMARY

C/L E.B. HWY. 96 STATION	LOCATION	TYPE	ADJUST	RELOCATE	FURNISH & INSTALL 150 mm DIP	150 mm GATE VALVE & BOX	250 mm GATE VALVE & BOX	50 mm TYPE K COPPER SERVICE	50 mm CURB STOP & BOX	50 mm CORPORATION	CONNECT TO EXISTING WATERMAIN	REMARKS
	LT/RT (m)		EA.	EA.	m	EA.	EA.	m	EA.	EA.		
8+816	RT 14	GATE VALVE BOX	1									
8+922	RT 11	SERVICE						4	1	1	1	
8+931	RT 9	HYDRANT		1	2		1				1	F&I 0.46 m HYDRANT EXTENSION
9+433	RT 18	HYDRANT		1	7	1					1	
9+636	RT 18	HYDRANT	1			1					1	150 mm WATERMAIN
9+640	RT 20	SERVICE						12	1	1	1	
TOTALS			2	2	9	2	1	16	2	2	5	

Ⓞ WOOD NOISE ATTENUATOR WALL

C/L E.B. HWY. 96 STATION – STATION LOCATION C/L NOISE WALL	WOOD WALL PLANKING	CONCRETE POSTS 300 mm X 450 mm	
	m2	# POSTS	SIZE (m)
WALL 1			
17+897.77 – 7+960.98	198.00	28	179.14
7+960.98 – 18+004.76	166.09	20	140.20
18+004.76 – 18+063.31	226.49	26	167.70
18+063.31 – 18+153.31	268.89	38	269.17
18+153.31 – 18+187.48	112.92	13	73.77
18+187.48 – 18+226.52	127.93	16	90.24
18+226.52 – 18+270.44	138.61	19	105.81
SUBTOTAL	1238.93	160	1026.03
WALL 2			
19+340.40 – 19+354.53	44.60	7	70.4
19+354.53 – 19+408.06	170.40	23	137.11
19+408.06 – 19+449.557	133.71	18	114.89
SUBTOTAL	348.71	48	322.40
WALL 3			
19+458.8 – 19+505.00	162.00	16	107.56
19+505.00 – 19+539.16	114.46	14	86.22
19+539.16 – 19+584.69	153.58	19	85.91
19+584.69 – 19+650.09	336.00	28	195.44
SUBTOTAL	766.04	77	475.13
TOTAL	2353.68	285	1823.56

Ⓔ MISCELLANEOUS REMOVALS & SALVAGE ITEMS

ITEM	C/L E.B. HWY 96 STATION	LOCATION	QUANTITY	REMARKS
		LT/RT (m)	m	
GUARDRAIL				
GUARDRAIL – PLATE BEAM	7+876–7+899	RT 9	19.2	SALVAGE AND INSTALL 3.8m TERMINAL END AT STA. 7+876
GUARDRAIL – PLATE BEAM	8+112 – 8+242	RT 5	130.0	REMOVE
TOTAL			149.2	
STORM SEWER				
STORM SEWER PIPE (450mm)	9+430 – 9+457	RT 9	27.0	INCLUDES APRON
STORM SEWER PIPE (375mm)	9+457 – 9+575	RT 7	118.0	INCLUDES APRON
TOTAL			145.0	
FENCE				
WOOD FENCE	8+987 – 8+994	LT 31	7.0	REMOVE
WOOD FENCE	9+018 – 9+025	LT 32	7.0	REMOVE
BARBED WIRE FENCE	9+025 – 9+200	LT 32	181.0	REMOVE
WIRE FENCE	9+300 – 9+730	LT 28	430.0	REMOVE
TOTAL			625.0	
CHAIN LINK FENCE	8+040 – 8+136	RT 21	96.0	SALVAGE
CHAIN LINK FENCE	9+505 – 9+590	RT 18	85.0	SALVAGE
WOOD FENCE	9+590 – 9+620	RT 18	30.0	SALVAGE
CHAIN LINK FENCE	9+663 – 9+691	RT 18	28.0	SALVAGE
TOTAL			239.0	

Ⓖ PAVEMENT SAWING

STATION – STATION	LOCATION	BITUMINOUS	CONCRETE	REMARKS
	LT/RT (m)	m	m	
C/L E.B. HWY 96				
7+777 – 7+840	LT	66.0		REMOVE SHOULDER
7+840	LT & RT	2.3	7.3	BEGIN FULL WIDTH CONST.
8+800	RT 25	12.0		OAK GROVE PARKWAY
9+000	LT 37	40.0		EAST GILFILLAN RD.
9+100	RT 19.5	7.5		ENTRANCE
9+642	RT 30	8.5		BRAMBLEWOOD AVE.
9+770	LT & RT	4.0	7.3	END FULL WIDTH CONST.
9+770 – 9+900	LT	133.0		REMOVE SHOULDER
7+777 – 9+900			2123.0	PAVEMENT REMOVAL FOR STAGED CONSTRUCTION
C/L MCMENEMY ST.				
10+35	LT & RT	10.0		
10+138	LT 22	8.5		OAKWOOD TERRACE
C/L GREENHAVEN DR.				
40+015	LT & RT	17.0		
40+035	RT 17.5	7.5		ENTRANCE
TOTALS		316.3	2137.6	

Ⓕ INPLACE STRUCTURES SUMMARY

C/L E.B. HWY. 96 STATION	LOCATION LT/RT (m)	ITEM NO.	TYPE	EXISTING CASTING ELEVATION	PROPOSED CASTING ELEVATION	UTILITY	REMARKS
7+920	LT 15	11	MH			TEL	BY OTHERS
8+153	LT 20	12	MH			TEL	BY OTHERS
8+279	LT 21	13	MH			TEL	BY OTHERS
8+295	RT 14	14	VALVE			GAS	BY OTHERS
8+409	LT 22	15	MH			TEL	BY OTHERS
8+991	LT 33.5	16	VALVE			GAS	BY OTHERS
9+143	RT 14	17	VALVE			GAS	BY OTHERS
9+437	RT 11	18	CB			STORM	REMOVE ③
9+458	RT 6	19	CB			STORM	REMOVE ③
MCMENEMY ST.							
10+138	LT 12	20	MH	280.41	280.04	SANITARY	RECONSTRUCT (1.2 m)

③ SALVAGE CASTINGS

Ⓒ REMOVE PIPE CULVERTS – SEE REMOVALS CHART FOR STORM SEWER

C/L E.B. HWY. 96 STATION	LOCATION	C.M. PIPE CULVERT ②	R.C. PIPE CULVERT ②	SIZE	PIPE APRONS	REMARKS
	LT/RT (m)	m	m	mm	EA.	
7+906	RT 11	5			2	
8+335	LT & RT		23	675	2	
8+603	LT 33	1.5		375		F & I APRON
8+607	LT & RT		20	675–A	2	
8+635	RT 3	17		300	2	
8+974	LT & RT		20	750	2	
9+021	LT 30	6 (PVC)		150	1	CONNECT TO CB 253B (INC.)
9+081	LT & RT		24	750	2	
9+100	RT 6	19		450	2	
9+340	RT 8	12		450	2	
TOTALS		60.5	87		17	

② – LENGTH INCLUDES APRONS

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NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TABULATIONS

FILE NO. RAMSE9601.01

13/170

/CADS/7196/R601TAB1 01-11-97 4:16 pm Mark Wick, SEH

Ⓛ AGGREGATE BASE SUMMARY

LOCATION	AGGREGATE BASE m3
HWY 96	8385.0
MCMENEMY ST.	479.6
GREENHAVEN DRIVE	85.8
BRAMBLEWOOD	18.7
WEST TEMP CONNECTION	177.1
EAST TEMP CONNECTION	370.4
MEDIAN 9+608–9+700	100.1
RESIDENTIAL DRIVES	22.0
COMMERCIAL DRIVE (TH 96)	7.7
STAGE 1	531.3
STAGE 1A	116.4
CONCRETE SIDEWALK	59.5
BIT DRIVE (MCMENEMY ST.)	7.5
SERVICE ROAD	9.0
ROBB FARM ROAD	9.0
TOTALS	10,379.1

Ⓝ BITUMINOUS PAVEMENT SUMMARY

LOCATION	TYPE 41 WEARING COURSE t	TYPE 41 BINDER COURSE t	TYPE 31 BASE COURSE t	TYPE 31 BINDER COURSE t	TACK COAT l
MCMENEMY ST.	264.9	331.4	331.4		1248.1
GREENHAVEN DRIVE	47.3	59.4	59.4		221.1
BRAMBLEWOOD	11.0	13.2			25.3
WEST TEMP CONNECTION	104.5	104.5	104.5		392.7
EAST TEMP CONNECTION	295.9	295.9	295.9		1127.2
MEDIAN 9+608–9+700	80.3	80.3	80.3		302.5
RESIDENTIAL DRIVES	16.2	16.2			31.9
COMMERCIAL DRIVE	5.6	5.6			11.0
STAGE 1				104.5	
STAGE 1A				295.9	
BIT. DRIVE / (MCMENEMY ST.)	6	6			11.3
ROBB FARM ROAD	5.7		7.2		13.6
TOTALS	837.4	912.5	878.7	400.4	3384.7

Ⓧ TURF ESTABLISHMENT

STATION	LOCATION	SEEDING ha	SEED MIX 40A kg	SEED MIX 30A MOD kg	SEED MIX 25A MOD kg	SEED MIX 115A ① kg	WOOD FIBER BLANKET m2	SOD m2	FERTILIZER kg	MULCH TYPE 1 t	DISK ANCHORING ha
C/L E.B. HWY 96											
7+776 – 8+287	LT	0.4100	8.8	21.9			4100		160.8		
8+100.0 – 9+600	RT	0.6300				63.0					
8+155.7 – 8+259.9	MEDIAN	0.0629	4.7				629		24.7		
7+840 – 8+280.2	RT	0.4948	37.1				4948		194.1		
7+885.8 – 8+280.2	RT							520	20.4		
8+287 – 8+808.5	LT	0.7149	9.0	44.7			7149		280.5		
8+417 – 8+808.5	MEDIAN	0.1485	11.1				1485		58.3		
8+296.5 – 8+793	RT	0.6104	45.8				6104		239.5		
8+790 – 8+799	RT							70	2.7		
8+806 – 8+808.5	RT							28	1.1		
8+375 – 8+445	RT/POND	0.2164			10.8				84.8	0.77	0.2164
8+480 – 8+520	RT	0.0088			0.4		88		3.5		
8+808.5 – 9+194	LT	0.5192	6.2	32.8			5192		203.7		
8+808.5 – 9+197	MEDIAN	0.1515	11.8				1515		59.4		
8+822 – 9+187.5	RT	0.3303	24.8				3303		129.6		
8+808.5 – 8+810.5	RT							28	1.1		
8+818.5 – 8+840.0	RT							264	10.4		
8+920 – 8+960	RT/POND	0.2800			14.0				109.8	1.26	0.2800
8+960 – 9+087	RT	0.1300			6.5		1300		51.0		
9+194 – 9+900	LT	0.2629	19.7				2629		103.1		
9+199.5 – 9+313	MEDIAN	0.0415	3.1				415		16.3		
9+572 – 9+607	MEDIAN	0.0106	0.8				106		4.2		
9+187.5–9+772.5	RT	0.4728	35.5				4728		185.5		
9+340 – 9+428	RT							123	4.8		
9+428 – 9+462	RT							606	23.8		
9+462 – 9+636	RT							244	9.6		
9+636 – 9+651	RT							64	2.5		
9+651 – 9+720	RT							94	3.7		
9+245 – 9+378	LT/POND	0.2600			13.0				10.2	1.17	0.2600
9+279 – 9+340	RT	0.0495			2.5		495		19.4		
C/L MCMENEMY ST											
10+000 – 10+100	LT	0.0606	4.5				606		23.8		
10+035 – 10+207	RT	0.0674	5.1				674		26.4		
10+100 – 10+218	LT							1000	39.2		
TOTAL		5.3030	228.0	99.4	47.2	63.0	45 466	3041	2107.9	3.20	0.7564

① USED FOR TEMPORARY EROSION CONTROL

Ⓦ FLOTATION SILT CURTAIN SUMMARY

STATION	LOCATION	QUANTITY m	REMARKS
C/L E.B. HWY. 96			
8+235 – 8+380	LT	60	ALONG POND
8+570 – 8+605	RT	40	ALONG POND AT (2) F.E.S.'S
8+970 – 9+020	RT	65	ALONG POND
9+280 – 9+335	RT	70	ALONG POND
TOTAL		235	

NOTE: EXACT LOCATION SHALL BE DETERMINED IN FIELD.

SILT FENCE SUMMARY

STATION	LOCATION	QUANTITY m	REMARKS
C/L E.B. HWY. 96			
7+800 – 7+910	LT & RT	220	
8+000 – 8+050	RT	50	
8+140 – 8+160	RT	20	
8+160 – 8+210	LT & RT	10	
8+210 – 8+230	RT	20	
8+230 – 8+275	LT & RT	90	
8+310 – 8+400	LT & RT	180	
8+400 – 8+660	LT	260	ALONG BERM
8+430 – 8+720	LT & RT	290	
8+750 – 9+220	LT	470	ALONG BERM
8+830 – 8+925	RT	95	
9+090 – 9+250	RT	160	
9+250 – 9+435	LT & RT	370	
9+315 – 9+375	LT	60	ALONG POND
9+455 – 9+635	LT & RT	360	
9+635 – 9+650	LT	15	
9+650 – 9+720	RT	70	
9+740 – 9+900	LT & RT	320	
C/L MCMENEMY ST.			
10+090 – 10+135	LT	45	
10+145 – 10+230	LT	85	
10+190 – 10+225	RT	35	
TOTAL		3225	

Ⓥ BALE CHECK SUMMARY

STATION	LOCATION	QUANTITY EA.
C/L E.B. HWY. 96		
7+960	RT	15
7+990	RT	15
8+080	RT	15
9+040 – 9+120	LT	30
9+740 – 9+770	RT	30
C/L MCMENEMY ST.		
10+060	LT & RT	25
TOTAL		130

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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.
Jason M Moson
Date: 1-31-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TABULATIONS

FILE NO. RAMSE9601.01

14/170

/CADS/TH96/96017AB5 01-11-97 5:56 pm Mark Wick, SEH

CONCRETE PAVEMENT SUMMARY

STATION	LOCATION	C & G D412 (m)	C & G B618 (m)	C & G B424 (m)	C & G B624 (m)	PRECAST CONC CURB DES 7103 (m)	MEDIAN CONC STRIP (m2)	75 mm CONC WALK (m2)	100 mm CONC WALK (m2)	NOSE EACH	CONC DRIVE-WAY 200mm (m2)	PAVEMENT STANDARD WIDTH (m2)	PAVEMENT IRREGULAR WIDTH (m2)
C/L E.B. 96													
7+880.0–8+259.9	LT & RT			609.4									
7+880.0–7+926.0	LT											440.6	
7+880.0–7+926.0	RT											440.6	
7+926.0–8+077.9	LT & RT											1458.3	
8+077.9–8+309.6	LT & RT											1938.6	989.8
8+155.7–8+259.9	LT						62.5						
8+130.4–8+155.7	MEDIAN							86.1		1			
8+259.9–8+286.5	LT & RT			46				41.2		1			
8+286.5–8+309.0	LT & RT			44						1			
8+309.0–8+780.0	LT & RT			942									
8+309.6–8+784.4	LT & RT											4228.6	431.2
8+301.4–8+417.0	MEDIAN							258.2					
8+417.0–8+780.0	LT						217.8						
8+780.0–8+834.0	LT & RT		20	114									
8+834.0–8+994.0	LT & RT			320									
8+780.0–9+200.0	LT						252.0						
8+780.0–9+200.0	LT & RT			840.0									
8+784.4–9+200.0	LT & RT											3553.2	798.0
9+200.0–9+428.7	LT & RT			457.4						2			
9+200.0–9+313.0	LT						67.8						
9+200.0–9+700.0	LT & RT											4522.0	1663.2
9+313.0–9+427.7	MEDIAN							256.4		1			
9+427.7–9+458.0	RT			45									
9+458.0–9+606.0	LT & RT			296									
9+572.0–9+605.0	RT			23									
9+606.0–9+629.0	LT						19.8						
9+608.0–9+700.0	LT					92							
9+459.0–9+572.0	MEDIAN							253		1			
9+629.0–9+657.0	RT			32									
9+657.0–9+700.0	RT			43									
C/L W.B. 96													
7+880.0–8+259.9	LT & RT			509.4									
7+926.0–8+077.9	LT & RT											1410.7	237.5
8+077.9–8+309.6	LT & RT											1625.8	941.6
8+155.7–8+259.9	RT						62.5						
8+259.9–8+286.5	LT & RT			38									
8+286.5–8+300.4	LT			13.9									
8+300.4–8+780.0	LT & RT			959.2									
8+309.6–8+784.4	LT & RT											4297.8	647.4
8+417.0–8+780.0	RT						252.0						
8+780.0–9+200.0	LT & RT			872.8									
8+784.4–9+200.0	LT & RT											3040.4	1382.1
9+200.0–9+428.7	LT & RT			457.4									
9+200.0–9+313.0	RT						67.8						
9+200.0–9+700.0												4104.4	1767.5
9+428.7–9+433.0	LT								22				
9+428.7–9+458.0	LT			54									
9+458.0–9+606.0	LT & RT			296									
9+572.0–9+605.0	RT						19.8			1			
9+452.0–9+700.0	LT								455				
9+606.0–9+700.0	LT			94									
9+608.0–9+700.0	RT					92							
C/L MCMENEMY													
10+100–10+205	LT & RT				224.0								
C/L GREENHAVEN													
40+016–40+052	LT & RT		76										
C/L BRAMBLEWOOD													
50+053.0–50+061.9	LT & RT	22											
COMMERCIAL ENTRANCE													
C/L E.B. 9+108	LT										51.0		
TOTALS		22	96	7106.1	224.0	184	1022.0	894.9	477.0	8	51.0	31,061.0	8858.3

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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.
Jason M Moson
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TABULATIONS

FILE NO. RAMSE9601.01

15/170

/CAD6/TH96/R601TAB6 01-11-97 5:45 pm Mark Wick, SEH

Ⓐ CLEAR & GRUB TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	CLEAR EACH	GRUB EACH	CLEAR ha	GRUB ha
C/L E.B. 96						
7+860.0–7+911	RT	WOODS			0.05	0.05
7+945.9	RT 15.3	DECIDUOUS	1	1		
7+948.8–8+140	RT	WOODS			0.02	0.02
8+139.0–8+276	RT	WOODS			0.20	0.20
8+305.8	RT 29.7	DECIDUOUS	1	1		
8+330.0	RT 17.2	120, 300 ELM	1	1		
8+376.0	RT 16.5	140 BOXELDER	1	1		
8+408.0	RT 14.0	100 CRAB	1	1		
8+415.2	RT 49.4	DECIDUOUS	1	1		
8+415.8	RT 28.0	DECIDUOUS	1	1		
8+415.8	RT 41.0	DECIDUOUS	1	1		
8+419.0	RT 26.0	DECIDUOUS	1	1		
8+421.1	RT 62.0	DECIDUOUS	1	1		
8+422.6	RT 24.0	DECIDUOUS	1	1		
8+424.0	RT 31.0	DECIDUOUS	1	1		
8+425.8	RT 32.5	DECIDUOUS	1	1		
8+426.0	RT 22.1	DECIDUOUS	1	1		
8+430.0	RT 31.5	DECIDUOUS	1	1		
8+430.0	RT 42.6	DECIDUOUS	1	1		
8+438.0	RT 46.0	DECIDUOUS	1	1		
8+438.3	RT 17.0	DECIDUOUS	1	1		
8+441.5	RT 51.0	DECIDUOUS	1	1		
8+447.6	RT 20.5	100 ELM	1	1		
8+458.8	RT 16.0	150 CHERRY	1	1		
8+474.4	RT 15.6	130 ASH	1	1		
8+481.6–8+493	RT	WOODS			0.02	0.02
8+526.5	RT 19.8	400 RED OAK	1	1		
8+533.1	RT 18.2	750 RED OAK	1	1		
8+618.8	RT 10.8	DECIDUOUS	1	1		
8+615.3–8+638	RT	WOODS			0.02	0.02
8+643.8–8+701	RT	WOODS			0.08	0.08
8+703.8	RT 16.0	100 ELM	1	1		
8+711.8	RT 14.2	120 ELM	1	1		
8+714.1	RT 19.0	DECIDUOUS	1	1		
8+716.7	RT 16.8	120 ELM	1	1		
8+733.4	RT 19.8	DECIDUOUS	1	1		
8+757.3–8+778	RT	WOODS			0.02	0.02
8+793.2	RT 15.8	150 CRAB	1	1		
8+808.2	RT 24.0	DECIDUOUS	1	1		
9+091.9	RT 17.3	80 ASH	1	1		
9+113.7	RT 17.6	80 SPRUCE	1	1		
9+120.1	RT 17.2	80 ASH	1	1		
9+120.3	RT 24.0	DECIDUOUS	1	1		
9+265.5	RT 18.6	80 SPRUCE	1	1		
9+269.0	RT 18.7	80 SPRUCE	1	1		
9+455.1	RT 21.0	150 ASH	1	1		
9+502.2–9+553	RT	WOODS			0.04	0.04
9+541.3	RT 15.4	170 ASH	1	1		
9+549.9	RT 17.6	220 MAPLE	1	1		
9+550.0	RT 17.6	200 ASH	1	1		
9+556.2	RT 16.4	260 ASH	1	1		
9+559.3	RT 16.9	150 SPRUCE	1	1		
9+562.0	RT 14.3	150 SPRUCE	1	1		
9+567.6	RT 14.1	150 SPRUCE	1	1		
9+567.7	RT 15.1	CONIFEROUS	1	1		
9+570.0	RT 17.8	100 SPRUCE	1	1		
9+572.8	RT 15.4	110 RED OAK	1	1		
9+573.1	RT 16.3	110 ASH	1	1		
9+576.0	RT 16.0	100 RED OAK	1	1		
9+577.0	RT 14.5	100 ASH	1	1		
9+577.7	RT 15.2	100 ASH	1	1		
9+579.1	RT 14.1	140 DECIDUOUS	1	1		
9+579.1	RT 16.2	DECIDUOUS	1	1		
9+580.3	RT 16.2	100 ASH	1	1		
9+581.1	RT 14.9	140 ASH	1	1		
9+586.5	RT 18.2	100 ASH	1	1		
9+594.2	RT 16.5	650 WILLOW	1	1		
9+622.3	RT 18.2	200 SPRUCE	1	1		
9+625.4	RT 18.5	240 SPRUCE	1	1		

Ⓐ CLEAR & GRUB TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	CLEAR EACH	GRUB EACH	CLEAR ha	GRUB ha
C/L E.B. 96						
9+630.0	RT 19.3	200 SPRUCE	1	1		
9+633.7	RT 18.6	300 SPRUCE	1	1		
9+634.5	RT 24.0	300 SPRUCE	1	1		
9+690.1	RT 21.0	DECIDUOUS	1	1		
9+695.1	RT 13.5	350 COTTONWOOD	1	1		
9+715.2	RT 20.0	DECIDUOUS	1	1		
9+717.0	RT 18.3	DECIDUOUS	1	1		
9+721.5	RT 19.5	DECIDUOUS	1	1		
9+734.0	RT 20.0	DECIDUOUS	1	1		
C/L W.B. 96						
7+889–8+005	LT	WOODS			0.12	0.12
8+019–8+042	LT	WOODS			0.02	0.02
8+102–8+121	LT	WOODS			0.02	0.02
8+147–8+251	LT	WOODS			0.16	0.16
8+281–8+332	LT	WOODS			0.04	0.04
8+301.0	LT 6.5	150 ELM	1	1		
8+307.0	LT 7.0	150 ELM	1	1		
8+317.0	LT 4.0	400 WILLOW	1	1		
8+319.0	LT 4.0	450 WILLOW	1	1		
8+368.0	LT 2.5	150 ASH	1	1		
8+370.0	LT 7.5	120 ASH	1	1		
8+371.0	LT 2.5	180 ASH	1	1		
8+375.0	LT 4.0	480 RED OAK	1	1		
8+377.0	LT 5.0	550 WHITE OAK	1	1		
8+377.5	LT 6.0	150 ASH	1	1		
8+395.1	LT 6.3	100 RED OAK	1	1		
8+397.5	LT 7.0	300 PINE	1	1		
8+398.5	LT 5.5	220 PINE	1	1		
8+399.4	LT 6.0	110 RED OAK	1	1		
8+400.1	LT 8.5	120 RED OAK	1	1		
8+401.6	LT 7.4	250 PINE	1	1		
8+401.7	LT 3.0	230 ASH	1	1		
8+401.8	LT 6.8	150 RED OAK	1	1		
8+405.0	LT 8.8	120 ASH	1	1		
8+409.3	LT 12.0	100 RED OAK	1	1		
8+409.9	LT 5.0	230 PINE	1	1		
8+410.0	LT 4.5	200 PINE	1	1		
8+410.1	LT 6.5	200 ELM	1	1		
8+411.5	LT 6.0	150 PINE	1	1		
8+412.0	LT 4.0	200 PINE	1	1		
8+413.3	LT 4.9	130 PINE	1	1		
8+414.9	LT 4.9	200 PINE	1	1		
8+416.8	LT 4.7	250 PINE	1	1		
8+417.8	LT 5.1	200 PINE	1	1		
8+427.5	LT 5.2	190 WHITE OAK	1	1		
8+428–8+463	LT	WOODS			0.04	0.04
8+431.4	LT 5.0	250 SPRUCE	1	1		
8+433.5	LT 6.2	270 SPRUCE	1	1		
8+439.4	LT 5.3	600 RED OAK	1	1		
8+445.0	LT 5.1	600 RED OAK	1	1		
8+446.4	RT 0.2	450 WHITE OAK	1	1		
8+449.3	LT 5.3	600 RED OAK	1	1		
8+459.6	LT 6.4	550 RED OAK	1	1		
8+460.8	LT 2.4	400 WHITE OAK	1	1		
8+461.2	LT 14.0	200 RED OAK	1	1		
8+464.6	LT 1.4	120 ASH	1	1		
8+465.0	LT 6.8	500 STUMP		1		
8+506.0	LT 18.5	DECIDUOUS	1	1		
8+511.8	LT 1.9	400 WHITE OAK	1	1		
8+514.3	LT 2.9	450 WHITE OAK	1	1		
8+515.7	LT 12.5	2–200 WHITE OAK	2	2		
8+516.0	LT 6.4	400 RED OAK	1	1		
8+516.6	LT 13.6	150 WHITE OAK	1	1		
8+517.5	LT 7.9	700 STUMP		1		
8+518.3	LT 13.4	250 STUMP		1		
8+521.1	LT 9.5	300 WHITE OAK	1	1		
8+522.4	LT 12.0	130 SPRUCE	1	1		

Ⓐ CLEAR & GRUB TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	CLEAR EACH	GRUB EACH	CLEAR ha	GRUB ha
8+524.4	LT 14.5	300 SPRUCE	1	1		
8+524.8	LT 12.0	200 SPRUCE	1	1		
8+527.3	LT 14.4	150 SPRUCE	1	1		
8+528.0	LT 12.1	250 SPRUCE	1	1		
8+528.2	LT 10.9	250 SPRUCE	1	1		
8+530.4	LT 14.1	250 SPRUCE	1	1		
8+532.8	LT 14.0	250 SPRUCE	1	1		
8+538.6	LT 13.8	100 SPRUCE	1	1		
8+553.7	LT 4.9	680 RED OAK	1	1		
8+553.9	LT 18.8	DECIDUOUS	1	1		
8+555.6	LT 4.4	130 WHITE OAK	1	1		
8+555.7	LT 5.0	190 WHITEOAK	1	1		
8+558.2	LT 8.0	190 BUR OAK	1	1		
8+561.2	LT 5.9	130 WHITE OAK	1	1		
8+562.3	LT 9.4	2–200 RED OAK	2	2		
8+572.0	LT 18.3	300 ELM	1	1		
8+581.1	LT 18.1	4–260 ELM	4	4		
8+596.2	LT 20.2	150 ASH	1	1		
8+603.0	LT 20.4	2–100 BOX–ELDER	2	2		
8+607.3	LT 19.6	2–120 BOX–ELDER	2	2		
8+609.0	LT 35.0	120 CONIFEROUS	1	1		
8+610.2	LT 34.4	120 CONIFEROUS	1	1		
8+615.8	LT 35.5	70 CONIFEROUS	1	1		
8+616.0	LT 20.8	4–150 ASH	4	4		
8+616.5	LT 35.0	70 CONIFEROUS	1	1		
8+617.5	LT 35.0	70 CONIFEROUS	1	1		
8+630.4–8+662	LT	WOODS			0.04	0.04
8+636.5	LT 21.2	180 BOX–ELDER	1	1		
8+650.0–8+660	LT	WOODS			0.02	0.02
8+672.5	LT 9.6	100 ASPEN	1	1		
8+674.4	LT 8.5	110 ASPEN	1	1		
8+674.4	LT 17.0	2–330 RED OAK	2	2		
8+678.0	LT 8.6	150 ASPEN	1	1		
8+681.8	LT 10.5	5–130 RED OAK	5	5		
8+684.0	LT 8.0	130 ASPEN	1	1		
8+684.2	LT 8.4	100 ASPEN	1	1		
8+685.0	LT 8.7	140 WHITE OAK	1	1		
8+685.5	LT 8.3	150 ASPEN	1	1		
8+686.3	LT 14.8	110 WHITE OAK	1	1		
8+686.4	LT 13.8	110 WHITE OAK	1	1		
8+686.5	LT 8.3	175 ASPEN	1	1		
8+689.5	LT 12.7	130 WHITE OAK	1	1		
8+689.7	LT 8.9	150 ASPEN	1	1		
8+694.0	LT 13.2	300 RED OAK	1	1		
8+698.3	LT 7.3	100 ASPEN	1	1		
8+699.0	LT 6.3	130 RED OAK	1	1		
8+699.0	LT 6.3	150 RED OAK	1	1		
8+699.0	LT 6.3	100 REDOAK	1	1		
8+703.6	LT 7.9	510 WHITEOAK	1	1		
8+704.5	LT 6.0	100 WHITEOAK	1	1		
8+714.0	LT 9.6	250 REDOAK	1	1		
8+724.2	LT 8.0	620 WHITE OAK	1	1		
8+731.5–8+760	LT	WOODS			0.02	0.02
8+751.0	LT 12.2	100 RED OAK	1	1		
8+757.3	LT 14.4	150 WHITE OAK	1	1		
8+760.7	LT 12.7	300 WHITE OAK	1	1		
8+763.2	LT 13.5	150 ASH	1	1		
8+775.2	LT 13.7	200 ASH	1	1		
8+787.0	LT 12.8	130 ASH	1	1		
8+788.2	LT 13.0	250 ASH	1	1		
8+796.2	LT 9.0	DECIDUOUS	1	1		
8+801.3	LT 8.7	DECIDUOUS	1	1		
8+805.0–8+818	LT	WOODS			0.02	0.02
8+817.6	LT 14.0	120 SCOTS PINE	1	1		
8+836.5	LT 10.0	200 BOXELDER	1	1		
8+838.3	LT 12.8	300 BOXELDER	1	1		
8+856.1	LT 11.8	200 MAPLE	1	1		
8+857.0	LT 12.3	350 MAPLE	1	1		
8+862.5	LT 11.6	3–150 BOXELDER	3	3		
8+869.2	LT 11.9	7–200 MAPLE	7	7		
9+267.0–9+319.0	LT	WOODS			0.12	0.12

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62–696–05 CTB

28-161 TABULATIONS

FILE NO. RAMSE9601.01

16/170

H:\TH96\R6017AB2 01–08–97 9:23 am Jay Backer, SEH

Ⓐ CLEAR & GRUB TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	CLEAR EACH	GRUB EACH	CLEAR ha	GRUB ha
C/L W.B. 96						
8+874.5	LT 12.4	100 MAPLE	1	1		
8+876.4	LT 11.3	100 SPRUCE	1	1		
8+878.3	LT 12.4	5–150 MAPLE	5	5		
8+882.7	LT 13.8	110 MAPLE	1	1		
8+885.5	LT 15.8	5–150 DECIDUOUS	5	5		
8+886.2	LT 7.5	580 WILLOW	1	1		
8+890.5	LT 12.0	200 BOXELDER	1	1		
8+891.8	LT 15.5	4–150 DECIDUOUS	4	4		
8+892.0	LT 12.6	150 COTTONWOOD	1	1		
8+893.9	LT 16.0	2–250 DECIDUOUS	2	2		
8+896.0	LT 12.6	2–100 DECIDUOUS	2	2		
8+899.3	LT 12.0	150 RED OAK	1	1		
8+901.0	LT 15.4	150 RED OAK	1	1		
8+901.4	LT 16.3	100 CONIFEROUS	1	1		
8+903.8	LT 7.9	200 SPRUCE	1	1		
8+905.0	LT 8.6	110 WILLOW	1	1		
8+909.1	LT 12.5	230 COTTONWOOD	1	1		
8+910.8	LT 7.3	250 SPRUCE	1	1		
8+911.7	LT 11.9	250 SPRUCE	1	1		
8+911.8	LT 14.2	130 CONIFEROUS	1	1		
8+914.4	LT 8.5	600 RED OAK	1	1		
8+917.7	LT 12.0	250 SPRUCE	1	1		
8+919.0	LT 9.0	175 SPRUCE	1	1		
8+920.6	LT 12.2	110 SPRUCE	1	1		
8+922.0	LT 9.5	450 STUMP	1	1		
8+926.1	LT 11.6	200 SPRUCE	1	1		
8+933.4	LT 11.7	300 ASH	1	1		
8+941.8	LT 12.5	300 ASH	1	1		
8+947.0	LT 18.2	DECIDUOUS	1	1		
8+947.5	LT 11.5	300 ASH	1	1		
8+952.2	LT 18.2	DECIDUOUS	1	1		
8+960.0	LT 18.5	DECIDUOUS	1	1		
8+975.0	LT 17.2	3–100 DECIDUOUS	3	3		
8+977.3	LT 14.6	4–200 DECIDUOUS	4	4		
8+979.9	LT 15.0	250 WILLOW	1	1		
8+981.1	LT 18.3	3–200 DECIDUOUS	3	3		
8+982.5	LT 12.8	100 WILLOW	1	1		
8+983.5	LT 13.5	110 BOXELDER	1	1		
8+983.9	LT 18.0	2–100 DECIDUOUS	2	2		
8+984.5	LT 15.5	300 WILLOW	1	1		
8+984.7	LT 14.0	110 WILLOW	1	1		
8+985.1	LT 17.5	350 DECIDUOUS	1	1		
8+985.7	LT 18.1	WILLOW	1	1		
8+994.4	LT 12.0	200 DECIDUOUS	1	1		
9+012.0	LT 12.0	50 ASH	1	1		
9+034.5	LT 8.0	50 ASH	1	1		
9+036.8	LT 18.9	DECIDUOUS	1	1		
9+039.5	LT 8.7	2–70 ASH	2	2		
9+044.5	LT 19.3	DECIDUOUS	1	1		
9+045.1	LT 10.3	100 ASH	1	1		
9+049.0	LT 10.0	100 ASH	1	1		
9+051.5	LT 19.0	DECIDUOUS	1	1		
9+058.6–9+080	LT	WOODS			0.02	0.02
9+064.1	LT 11.2	110 ASH	1	1		
9+064.7	LT 12.0	120 ASH	1	1		
9+103.5	LT 19.0	DECIDUOUS	1	1		
9+106.0	LT 4.3	DECIDUOUS	1	1		
9+109.7	LT 19.2	140 DECIDUOUS	1	1		
9+112.0	LT 18.0	120 ASH	1	1		
9+117.1	LT 18.8	350 ASH	1	1		
9+117.5	LT 5.1	DECIDUOUS	1	1		
9+126.3	LT 16.5	150 ASH	1	1		
9+130.5	LT 18.8	410 ASH	1	1		
9+133.7	LT 19.5	150 ASH	1	1		
9+143.8	LT 18.7	250 ASH	1	1		
9+156.8	LT 18.7	330 ASH	1	1		
9+170.2	LT 19.4	DECIDUOUS	1	1		
9+298.0	LT 5.5	150, 110 COTTONWOOD	2	2		
9+506.5	LT 6.0	110 ELM	1	1		

Ⓐ CLEAR & GRUB TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	CLEAR EACH	GRUB EACH	CLEAR ha	GRUB ha
C/L W.B. 96						
9+507.6	LT 10.4	110 ELM	1	1		
9+518.0	LT 6.0	110 ELM	1	1		
9+544.4	LT 13.0	110 ELM	1	1		
9+547.5	LT 11.0	120 ELM	1	1		
9+560.5	LT 3.0	120 ELM	1	1		
9+572.9	LT 11.2	140 ELM	1	1		
9+630.0	LT 4.5	540 COTTONWOOD	1	1		
9+630.1	LT 5.3	110 ELM	1	1		
9+632.2	LT 2.4	590 COTTONWOOD	1	1		
9+639.0	LT 5.0	110 ELM	1	1		
9+645.4	LT 5.2	140 ELM	1	1		
9+649.4	LT 2.5	100 ELM	1	1		
9+653.4	LT 7.0	150 COTTONWOOD	1	1		
9+662.9	LT 16.5	DECIDUOUS	1	1		
9+668.0	LT 13.5	70 JUNIPER	1	1		
9+685.6	LT 2.5	150 ELM	1	1		
9+734.8	LT 7.5	500 COTTONWOOD	1	1		
9+758.9	LT 0.6	540 BUR OAK	1	1		
9+838.5	LT 0.2	DECIDUOUS	1	1		
C/L MCMENEMY ST.						
10+000.0–10+019.0	LT	WOODS			0.02	0.02
10+093.3–10+103.8	LT	WOODS			0.02	0.02
10+145.0–10+219.0	LT	WOODS			0.1	0.1
TOTALS			317	320	1.23	1.23

Ⓑ TRANSPLANT TREE TABULATION

STATION	LOCATION	DESCRIPTION DIAMETER, TYPE	TRANSPLANT EACH	TRANSPLANT ha
C/L E.B. 96				
9+343.0	RT 27.2	80 SPRUCE	1	
9+343.4	RT 24.3	80 SPRUCE	1	
9+344.1	RT 21.3	80 SPRUCE	1	
9+348.9	RT 20.4	80 SPRUCE	1	
9+352.4	RT 22.2	80 SPRUCE	1	
9+355.8	RT 20.2	80 SPRUCE	1	
9+358.5	RT 22.6	80 SPRUCE	1	
9+361.5	RT 20.5	80 SPRUCE	1	
9+366.0	RT 22.3	80 SPRUCE	1	
9+370.0	RT 21.2	80 SPRUCE	1	
9+373.6	RT 22.6	80 SPRUCE	1	
9+377.1	RT 21.4	80 SPRUCE	1	
9+381.0	RT 22.7	80 SPRUCE	1	
9+385.3	RT 21.2	80 SPRUCE	1	
9+388.2	RT 23.0	80 SPRUCE	1	
9+391.0	RT 22.0	80 SPRUCE	1	
9+395.0	RT 22.2	80 SPRUCE	1	
9+398.0	RT 20.8	80 SPRUCE	1	
9+402.0	RT 22.6	80 SPRUCE	1	
9+405.4	RT 21.2	80 SPRUCE	1	
9+409.4	RT 22.1	80 SPRUCE	1	
9+413.2	RT 20.8	80 SPRUCE	1	
9+416.0	RT 22.4	80 SPRUCE	1	
9+419.6	RT 22.9	80 SPRUCE	1	
9+428.8	RT 22.2	80 SPRUCE	1	
TOTALS			25	

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62–696–05 CTB

TABULATIONS
28-161

FILE NO. RAMSE9601.01

17/170

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PROPOSED STORM SEWER STRUCTURE CHART

* NOTE OFFSET & STATION GIVEN TO FACE OF CURB

C/L ALIGNMENT	STATION	LOCATION	NUMBER	TYPE	DESIGN	CONSTR. HEIGHT	CASTING ASSEMBLY	ELEVATION			F & I R.C. PIPE SEWER										DRAINS TO	
								PROFILE	NEW GRATE OR RING	C.B./M.H. OR APRON INVERT	375 mm	450 mm	600 mm	750 mm	900 mm	1050 mm	PIPE CLASS	F & I RIP-RAP CL III	F & I RIP-RAP CL IV	F & I RIP-RAP CL V	STRUCTURE NUMBER	INVERT ELEVATION
											m	m	m	m	m	m		m3	m3	m3		
E.B. HWY 96	8+079	RT 6.6	200	CB	C OR G	1.32	B	0.0030	283.771	282.448	22.8						V				201	282.380
W.B. HWY 96	8+079	LT 6.6	201	CB	A OR F	1.39	B	0.0160	283.772	282.380	60.0						V				203	281.420
E.B. HWY 96	8+139	RT 6.6	202	CB	C OR G	1.257	B	0.0065	282.850	281.593	24.2						V				203	281.437
W.B. HWY 96	8+139	LT 6.6	203	CB	A OR F	1.397	B	0.0177	282.817	281.420	57.0						V				207	281.411
E.B. HWY 96	8+196	RT 7.8	204	CB	A OR F	1.301	B	0.0050	281.846	280.545	11.6						V				205	280.488
E.B. HWY 96	8+196	LT 4.2	205	CB	A OR F	1.426	B	0.0050	281.914	280.488	5.3						V				206	280.460
W.B. HWY 96	8+196	RT 4.2	206	CB	C OR G	1.427	B	0.0050	281.887	280.460	10.4						V				207	280.409
W.B. HWY 96	8+196	LT 6.6	207	CB	A OR F	1.490	B	0.0110	281.839	280.349		65.0					V				212	279.634
E.B. HWY 96	8+261	RT 7.8	208	CB	C OR G	1.38	B	0.0050	280.933	279.546	11.6						V				209	279.488
E.B. HWY 96	8+261	LT 4.2	209	CB	A OR F	1.516	B	0.0030	281.005	279.489	5.8						V				210	279.471
W.B. HWY 96	8+261	RT 4.2	210	CB	A OR F	1.538	B	0.0030	281.009	279.471	10.4						V				212	279.440
W.B. HWY 96	8+261	LT 6.6	212	CB	A OR F	1.629	B	0.0150	280.957	279.328		60.2					V				216	278.425
W.B. HWY 96	8+261	LT 18	211	APRON				0.0050		279.990	9.45						V				212	279.943
E.B. HWY 96	8+321	RT 6.6	215	CB	C OR G	1.603	B	0.0030	280.561	278.958		26.6					V				216	278.879
W.B. HWY 96	8+321	LT 6.6	216	CB	54-4020	2.380	B	0.0050	280.565	278.185				60.0			III				220	277.885
E.B. HWY 96	8+381	RT 6.6	217	CB	C OR G	1.434	B	0.0040	280.261	278.928	10.4						V				218	278.886
E.B. HWY 96	8+381	LT 4.2	218	CB	A OR F	1.422	B	0.0030	280.309	278.886	2.2						V				219	278.880
W.B. HWY 96	8+381	RT 7.8	219	CB	A OR F	1.362	B	0.0030	280.241	278.880	14.0						V				220	278.838
W.B. HWY 96	8+381	LT 6.6	220	CB	54-4020	2.38	B	0.0149	280.265	277.885				40.0			III				234	277.289
W.B. HWY 96	8+421	LT 6.6	234	CB	72-4020	3.464	B	0.0041	280.062	276.598					44.7		IV				235	276.415
E.B. HWY 96	8+421	RT 24.5	235	APRON				0.0030		278.051								8.4				
E.B. HWY 96	8+495	RT 6.6	228	CB	C OR G	1.244	B	0.0030	279.743	278.186			4.9				III				229	278.036
W.B. HWY 96	8+495	LT 6.6	233	CB	54-4020	3.226	B	0.0030	279.746	276.520					74.0		IV				234	276.298
E.B. HWY 96	8+500	RT 6.6	229	CB	A OR F	1.753	D	0.0030	279.789	278.036			10.4				V				230	278.005
E.B. HWY 96	8+500	LT 4.2	230	CB	A OR F	1.742	D	0.0050	279.747	278.005			5.8				V				231	277.976
W.B. HWY 96	8+500	RT 4.2	231	CB	A OR F	1.818	D	0.0080	279.793	277.975			10.4				V				232	277.893
W.B. HWY 96	8+500	LT 6.6	232	CB	54-4020	3.21	D	0.0030	279.745	276.535					5.0		IV				233	276.520
E.B. HWY 96	8+590	RT 6.6	224	CB	C OR G	1.328	B	0.0070	280.116	278.784	10.4						V				225	278.711
E.B. HWY 96	8+590	LT 4.2	225	CB	A OR F	1.452	B	0.0030	280.164	278.711	5.8						V				226	278.694
W.B. HWY 96	8+590	RT 4.2	226	CB	A OR F	1.523	B	0.0030	280.217	278.694	10.4						V				227	278.663
W.B. HWY 96	8+590	LT 6.6	227	CB	A OR F	2.79	B	0.0045	280.120	277.330	90.0						V				232	276.535
E.B. HWY. 96	8+597.9	RT 36.1	310	APRON				0.0037		278.020				25.4			IV				311	277.920
E.B. HWY. 96	8+612.6	RT 13	311	MH	60-4020	2.655	A	0.0037	280.575	277.920				37.2			IV				312	277.783
W.B. HWY. 96	8+612.6	LT 10	312	MH	120-4020	2.602	A	0.0037	280.385	277.783		87.3					V				313-314-315	277.650
W.B. HWY 96	8+611.5	LT 40.8	313	APRON						277.650										4.4		
W.B. HWY 96	8+612.6	LT 40.8	314	APRON						277.650										4.4		
W.B. HWY 96	8+613.7	LT 40.8	315	APRON						277.650										4.4		
E.B. HWY 96	8+640	RT 20.0	221	APRON				0.0050		279.226	38.0						V				222	279.036
E.B. HWY 96	8+640	RT 6.6	222	CB	A OR F	1.330	B	0.0030	280.366	279.036	26.4						V				223	278.957
W.B. HWY 96	8+640	LT 6.6	223	CB	A OR F	3.137	B	0.0050	280.416	277.279	49.8						V				227	277.030
N.B. OAK GROVE PKWY.	20+055	RT 3.6	239	CB	C OR G	1.391	B	0.0040	280.309	278.918	18.6						V				240	278.844
S.B. OAK GROVE PKWY.	20+055	LT 3.6	240	CB	A OR F	1.522	B	0.0040	280.306	278.786		12.9					V				241	278.734
E.B. HWY 96	8+782.5	RT 7.8	242	CB	A OR F	1.854	B	0.0030	280.529	278.675		13.4					V				243	278.635
E.B. HWY 96	8+788	LT 4.2	243	CB	A OR F	1.894	B	0.0030	280.529	278.635		5.8					V				244	278.618
W.B. HWY 96	8+788	RT 4.2	244	CB	A OR F	2.165	B	0.0040	280.782	278.618		10.4					V				245	278.576
W.B. HWY 96	8+788	LT 6.6	245	CB	A OR F	2.006	B	0.0045	280.576	278.570		92.0					V				249	278.156
E.B. HWY. 96	8+796.5	RT 11	241	MH	A OR F	1.770	B	0.0040	280.504	278.734		14.7					V				242	278.675
E.B. HWY 96	8+880	RT 6.6	246	CB	C OR G	1.261	B	0.0040	280.066	278.805	10.2						V				247	278.764
E.B. HWY 96	8+880	LT 4.2	247	CB	A OR F	1.321	B	0.0034	280.114	278.764	6.0						V				248	278.744
W.B. HWY 96	8+880	RT 4.2	248	CB	A OR F	1.350	B	0.0040	280.117	278.744	10.4						V				249	278.702
W.B. HWY 96	8+880	LT 6.6	249	CB	54-4020	2.035	B	0.0030	280.069	278.036			54.0				V				260	277.874
W.B. HWY 96	8+934	LT 6.6	260	CB	72-4020	2.129	B	0.0024	279.799	277.670					43.5		III				261	277.566
E.B. HWY 96	8+934	LT 24.0	261	APRON						277.560								8.4				
E.B. HWY 96	8+975	RT 6.6	254	CB	C OR G	1.310	B	0.0040	279.643	278.333	4.9						V				255	278.313
W.B. HWY 96	8+975	LT 6.6	259	CB	A OR F	1.705	B	0.0032	279.646	277.921				41.0			II				260	277.790
W.B. HWY 96	8+975	LT 21.6	259A	MH	H	1.020	C	0.0200	279.400	278.380	15.2						V				259	278.076
E.B. HWY 96	8+980	RT 6.6	255	CB	A OR F	1.509	D	0.0020	279.641	278.132			10.4				III				256	278.111
E.B. HWY 96	8+980	LT 4.2	256	CB	A OR F	1.513	D	0.0020	279.689	278.111			6.0				III				257	278.099
W.B. HWY 96	8+980	RT 4.2	257	CB	A OR F	1.594	D	0.0040	279.692	278.099			10.4				III				258	278.057
W.B. HWY 96	8+980	LT 6.6	258	CB	60-4020	1.707	D	0.0032	279.644	277.936				5.0			III				259	277.921
W.B. HWY 96	9+021	LT 20.0	258B	MH	H	0.700	C	0.0110	279.100	278.400	11.6						V				258A	278.272
W.B. HWY 96	9+022	LT 7.8	258A	CB	48-4020	1.262	B	0.0026	279.791	278.050				44.0			II				258	277.936
E.B. HWY 96	9+060	RT 6.6	250	CB	C OR G	1.196	B	0.0030	280.162	278.966	10.2						V				251	278.782
E.B. HWY 96	9+060	LT 4.2	251	CB	A OR F	1.434	B	0.0030	280.216	278.782	6.0						V				252	278.764
W.B. HWY 96	9+060	RT 4.2	252	CB	A OR F	1.519	B	0.0050	280.283	278.764	11.4						V				253	278.707
W.B. HWY 96	9+060	LT 7.8	253	CB	48-4020	1.471	B	0.0050	280.171	278.700		36.0					V				258A	278.520
E.B. HWY 96	9+327	RT 6.8	290	CB	C OR G	1.501	B	0.0100	280.615	279.111	5.2						III				291	278.704
W.B. HWY 96	9+330.1	LT 6.6	295	CB	C OR G	2.409	D	0.0070	280.637	278.099						21.0	III				296	276.406
W.B. HWY 96	9+334.3	LT 27.3	296	APRON						276.406								8.4				
E.B. HWY 96	9+342	RT 22	289	MH	H	0.661	C	0.0030	279.420	278.759	18.2						V				291	278.704

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TABULATIONS
28-161

FILE NO. RAMSE9601.01

18/170

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Ⓠ PROPOSED CULVERT TABULATION

* NOTE OFFSET & STATION GIVEN TO TOE OF APRON

C/L ALIGNMENT	STATION	LOCATION	INLET ELEV.	OUTLET ELEV.	F & I R.C. PIPE CULVERT									REMARKS
					375 mm	450 mm	600 mm	750 mm	F & I APRON	PIPE CLASS	F & I RIP-RAP CL III	F & I RIP-RAP CL IV	F & I RIP-RAP CL V	
					m	m	m	m			m3	m3	m3	
E.B. HWY 96	8+436.9	RT 37.75	278.500		12.2				1	V				
E.B. HWY 96	8+449.8	RT 47.10		278.450					1		1.6			
E.B. HWY 96	8+520.0	RT 29.40	278.500					48.8	1	III				
E.B. HWY 96	8+571.6	RT 38.70		278.025					1			5.3		
E.B. HWY 96	8+519.7	RT 31.30	278.500					48.8	1	III				
E.B. HWY 96	8+571.2	RT 40.50		278.025					1			5.3		
E.B. HWY 96	8+920.6	RT 66.80	277.860			13.9			1	V				
E.B. HWY 96	8+927.4	RT 79.00		277.804					1		2.2			
W.B. HWY 96	9+343.5	LT 31.70	278.000		12.6				1	V				
W.B. HWY 96	9+358.0	LT 39.00		277.900					1		1.6			

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 = NEENAH 3065V OR EQUIVALENT
C = CB = STOOL GRATE & CONCRETE FRAME MN/DOT STD. PLATE 4143: MN/DOT NO. 731
D = NEENAH 3965 OR EQUIVALENT

STRUCTURES

DESIGN W-4020 = MN/DOT STANDARD PLATE 4020 SEE DETAIL SHEET
DESIGN H = MN/DOT STANDARD PLATE 4006
DESIGN A OR F = MN/DOT STANDARD PLATE 4000 OR 4005
DESIGN C OR G = MN/DOT STANDARD PLATE 4002 OR 4006

Ⓟ PROPOSED STORM SEWER STRUCTURE CHART

* NOTE OFFSET & STATION GIVEN TO FACE OF CURB

C/L ALIGNMENT	STATION	LOCATION	NUMBER	TYPE	DESIGN	CONSTR. HEIGHT	CASTING ASSEMBLY	ELEVATION			F & I R.C. PIPE SEWER										DRAINS TO	
								PROFILE	NEW GRATE OR RING	C.B./M.H. OR APRON INVERT	375 mm	450 mm	600 mm	750 mm	900 mm	1050 mm	PIPE CLASS	F & I RIP-RAP CL III	F & I RIP-RAP CL IV	F & I RIP-RAP CL V	STRUCTURE NUMBER	INVERT ELEVATION
											m	m	m	m	m	m		m3	m3	m3		
E.B. HWY 96	9+332	RT 6.9	291	CB	A OR F	1.901	D	0.0030	280.606	278.704			13.7				III				292	278.663
E.B. HWY 96	9+332	LT 6.9	292	CB	A OR F	1.943	D	0.0089	280.606	278.663			3.5				III				293	278.632
W.B. HWY 96	9+330.1	RT 4.2	293	CB	A OR F	2.051	D	0.0070	280.682	278.632			10.6				III				295	278.558
W.B. HWY 96	9+325.1	LT 6.6	294	CB	72-4020	2.368	B	0.0010	280.631	279.119	5.2						V				295	279.067
GREENHAVEN DR.	40+051	RT 7.8	283	CB	C OR G	1.315	B	0.0030	282.481	281.135	12.8						V				284	281.097
GREENHAVEN DR.	40+051	LT 5.4	284	CB	A OR F	1.305	B	0.0613	282.433	281.097	29.2						V				285	279.307
E.B. HWY 96	9+419	RT 7.8	285	CB	A OR F	1.231	B	0.0040	280.560	279.307	15.2						V				286	279.246
E.B. HWY 96	9+419	LT 7.8	286	CB	A OR F	1.293	B	0.0040	280.560	279.246	2.2						V				287	279.237
W.B. HWY 96	9+419	RT 4.2	287	CB	A OR F	1.378	B	0.0050	280.637	279.237	10.4						V				288	279.185
W.B. HWY 96	9+419	LT 6.6	288	CB	66-4020	1.936	B	0.0060	280.589	278.633						89.0	III				295	278.099
E.B. HWY 96	9+458	RT 20.0	278	CB	H	0.742	C	0.1400	283.420	282.594	15.9						V				279	280.368
E.B. HWY 96	9+468	RT 6.6	279	CB	A OR F	1.337	B	0.0040	281.648	280.297	10.4						V				280	280.255
E.B. HWY 96	9+468	LT 4.2	280	CB	A OR F	1.726	B	0.0050	281.696	280.255	2.2						V				281	280.244
W.B. HWY 96	9+468	RT 7.8	281	CB	A OR F	1.367	B	0.0070	281.630	280.244	15.2						V				282	280.138
W.B. HWY 96	9+468	LT 7.8	282	CB	60-4020	1.914	B	0.0192	281.630	279.696					49.0		III				288	278.755
E.B. HWY 96	9+575	RT 7.8	273	CB	A OR F	3.047	B	0.0030	284.792	281.725		11.6					V				274	281.691
E.B. HWY 96	9+575	LT 4.2	274	CB	A OR F	3.057	B	0.0039	284.768	281.691		4.2					V				275	281.675
W.B. HWY 96	9+575	RT 5.2	275	CB	A OR F	3.185	B	0.0060	284.879	281.675		12.0					V				277	281.603
W.B. HWY 96	9+575	LT 6.6	277	CB	66-4020	3.606	B	0.0144	284.863	281.237					107.0		III				282	279.696
W.B. HWY 96	9+575	LT 17.0	276	CB	H	1.333	C	0.0110	284.500	283.146	19.8						V				277	282.928
E.B. HWY 96	9+592	RT 21.0	272	CB	H	1.390	C	0.0043	284.120	281.916	20.4						V				273	281.828
E.B. HWY 96	9+660	RT 7.8	270	CB	C OR G	1.630	B	0.0148	285.730	284.080	27.8						V				271	283.672
W.B. HWY 96	9+660	LT 6.6	271	CB	A OR F	3.793	B	0.0080	285.730	281.917				85.0			IV				277	281.237
W.B. HWY 96	9+710	LT 6.6	STUB					0.0050		282.167				50.0			IV				271	281.917
MCMENEMY ST.	10+154.4	LT 7.5	300	CB	C OR G	1.205	B	0.0030	280.157	278.932	49.7						V				302	278.783
MCMENEMY ST.	10+104.6	RT 7.5	301	CB	C OR G	1.048	B	0.0060	279.939	278.891	14.7						V				302	278.783
MCMENEMY ST.	10+104.6	LT 7.5	302	CB	A OR F	1.136	B	0.0040	279.939	278.783		70.0					V				303	278.503
MCMENEMY ST.	10+035	LT 7.5	303	CB	A OR F	1.475	C	0.0394	279.998	278.503		34.9					III				304	277.128
MCMENEMY ST.	10+003.8	LT 23.5	304	APRON						277.128								2.2				

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3/18/97 Reg. No. 18612

ENGINEERS ARCHITECTS PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

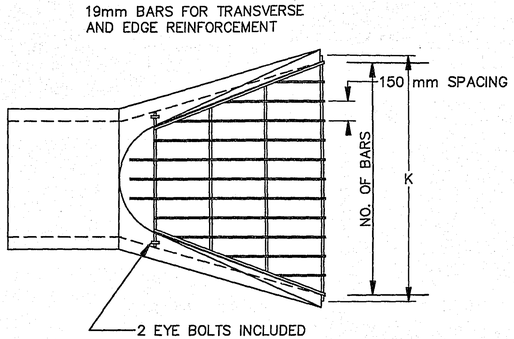
TABULATIONS
28-161

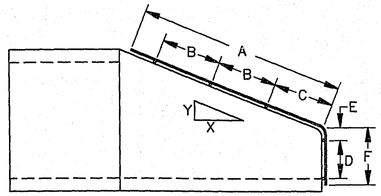
FILE NO. RAMSE9601.01

19/170

H:\TH96\R601TAB4 03-10-97 11:14 am Joy Becker, SEH

TRASH GUARD (GALVANIZED)
(FOR CONCRETE APRON)

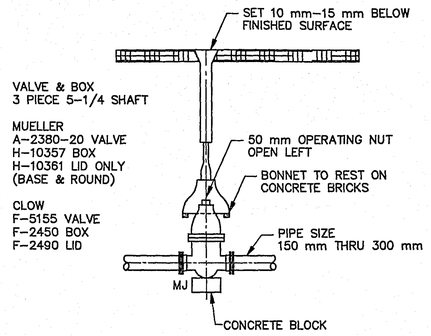




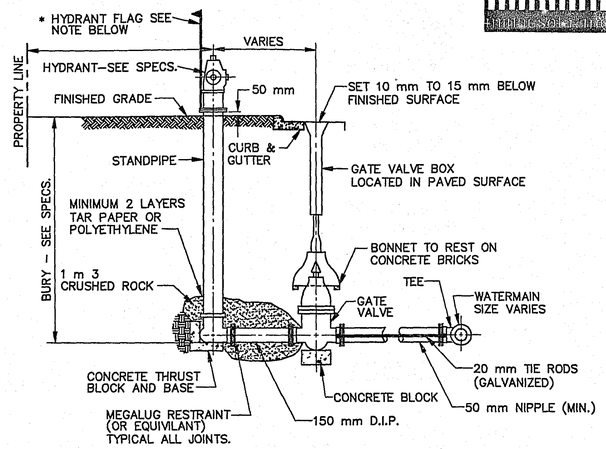
GALVANIZED PER MN/DOT SPEC. 3392
12 mm BARS FOR LONGITUDINAL INTERIOR BARS, WELD EACH INTERSECTION.

CONTRACTOR SHALL FURNISH SUITABLE LOCKING DEVICE APPROVED BY ENGINEER.

SIZE	NO. OF BARS	X–Y SLOPE	A	B	C	D	E	F	K
300mm	5	3:1	610mm	180mm	150mm	75mm	25mm	125mm	660mm
375mm	6	3:1	610mm	180mm	150mm	150mm	50mm	255mm	860mm
450mm	7	3:1	610mm	180mm	150mm	150mm	75mm	305mm	1015mm
525mm	8	3:1	915mm	280mm	255mm	180mm	75mm	305mm	1270mm
600mm	9	3:1	1115mm	355mm	305mm	255mm	100mm	410mm	1320mm
675mm	10	3:1	1270mm	410mm	360mm	255mm	100mm	410mm	1475mm
750mm	11	3:1	1420mm	460mm	410mm	305mm	100mm	460mm	1625mm
900mm	13	3:1	1625mm	510mm	510mm	305mm	100mm	460mm	1930mm
1050mm	15	3:1	1730mm	560mm	510mm	360mm	205mm	660mm	2235mm
1200mm	16	3:1	1930mm	610mm	610mm	410mm	255mm	710mm	2335mm
1350mm	17	2.4:1	1930mm	610mm	610mm	410mm	305mm	810mm	2440mm



STANDARD GATE VALVE & INSTALLATION



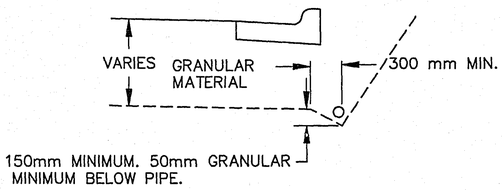
* NOTES:

1. HYDRANT SHALL BE WATEROUS PACER WB67 OR EQUAL W/ HYDRA – FINDERS (RED & WHITE) AND CAP CHAINS.

HYDRANT (& GATE VALVE) INSTALLATION

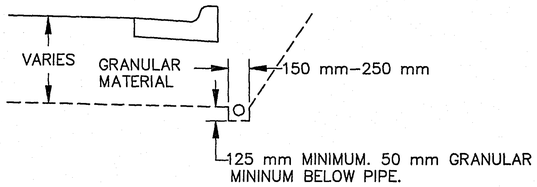
100 mm LONGITUDINAL P.E. PIPE DETAIL
(SUBCUT DRAINAGE)

100 mm PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



OPTION NO. 1

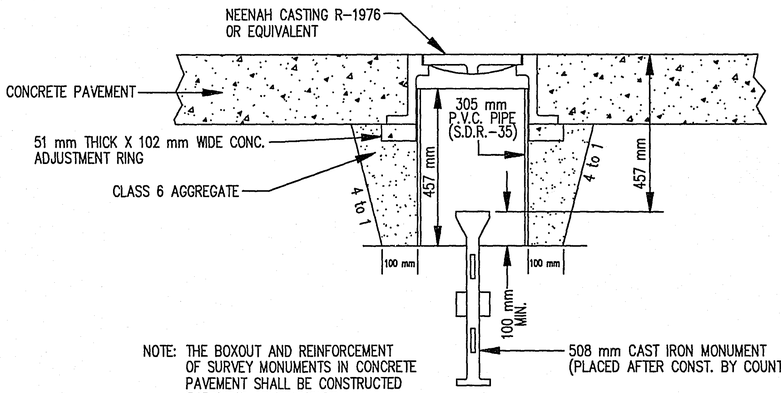
100 mm PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



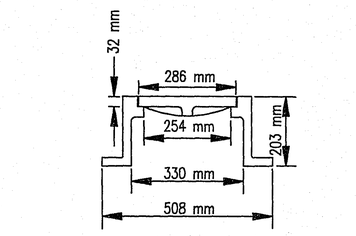
OPTION NO. 2

50 mm MIN. GRANULAR AT ALL POINTS BELOW PIPE

NOTE: PAYMENT SHALL INCLUDE ALL WORK AND MATERIALS REQUIRED TO CONNECT TO CATCH BASINS.



NOTE: THE BOXOUT AND REINFORCEMENT OF SURVEY MONUMENTS IN CONCRETE PAVEMENT SHALL BE CONSTRUCTED THE SAME AS MANHOLES.



NEENAH CASTING R–1976 OR EQUIVALENT

WEIGHT = 43.2 kg

SURVEY MONUMENT MANHOLE
(FOR CONCRETE PAVEMENT) – METRIC

28-161

SURVEY MARKER
TRASH GUARD
SUBCUT DRAINAGE
GATE VALVE
HYDRANT

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62–696–05 CTB

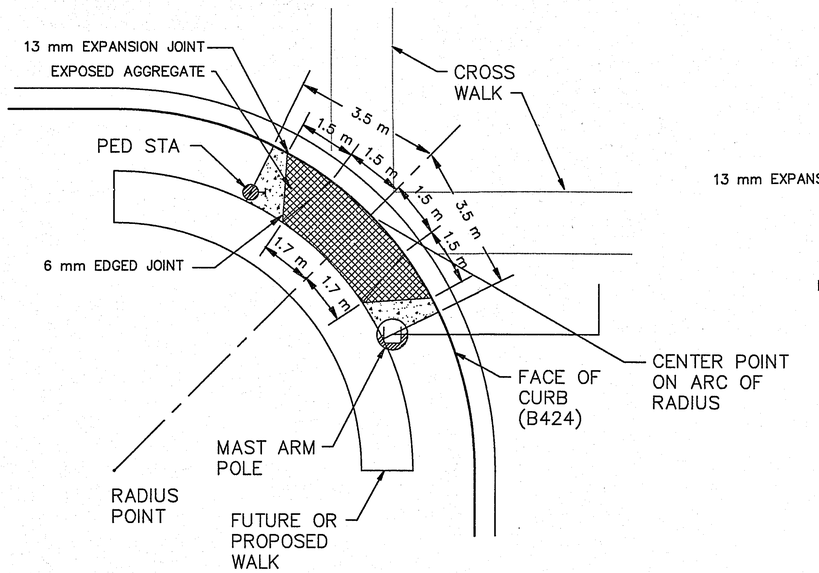
DETAILS

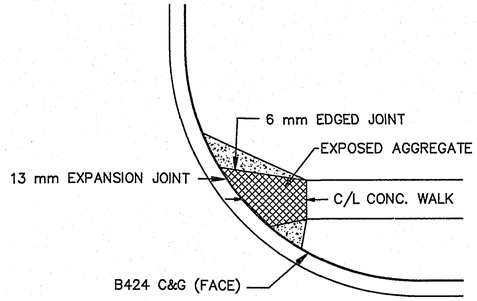
FILE NO. RAMSE9601.01

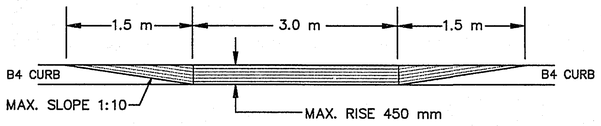
20 / 170

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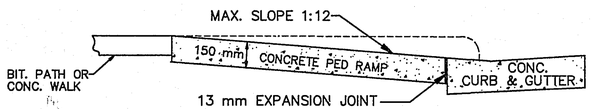
PEDESTRIAN CURB RAMP DETAIL



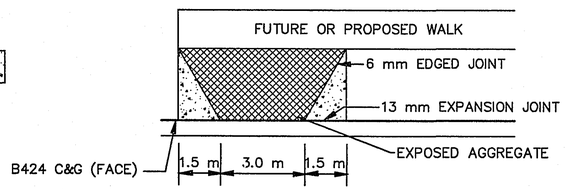




TYPICAL RAMP ELEVATION



TYPICAL RAMP PROFILE



NOTES:

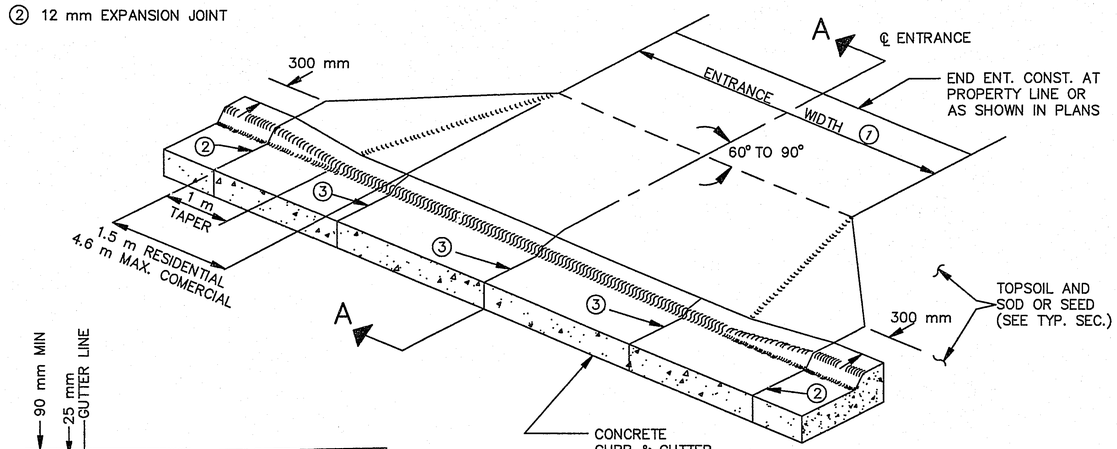
CONSTRUCT PEDESTRIAN CURB RAMPS AT ALL STREET RADII AND ENTRANCES AS INDICATED IN THE PLANS.
DESIGN OF INDIVIDUAL RAMPS SHALL BE AS SHOWN AT EACH LOCATION.
PAYMENT SHALL BE MADE AS ITEM 0531.602, BY THE EACH.
ADJACENT CONC. WALK SHALL BE PAID FOR AS 100 mm CONC. WALK, BY THE m2
BITUMINOUS WALK TO BE CONSTRUCTED UNDER SEPERATE CONTRACT.
ALL RAMPS SHALL BE INSTALLED PER STD. PLATE M7036.

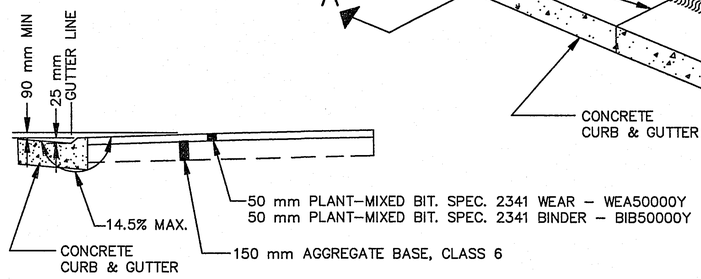
RESIDENTIAL BITUMINOUS ENTRANCE DETAIL

① ENTRANCE WIDTHS
RESIDENTIAL – 3.6 m MIN.
– 8 m MAX.

② 12 mm EXPANSION JOINT

③ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION





SECTION A–A

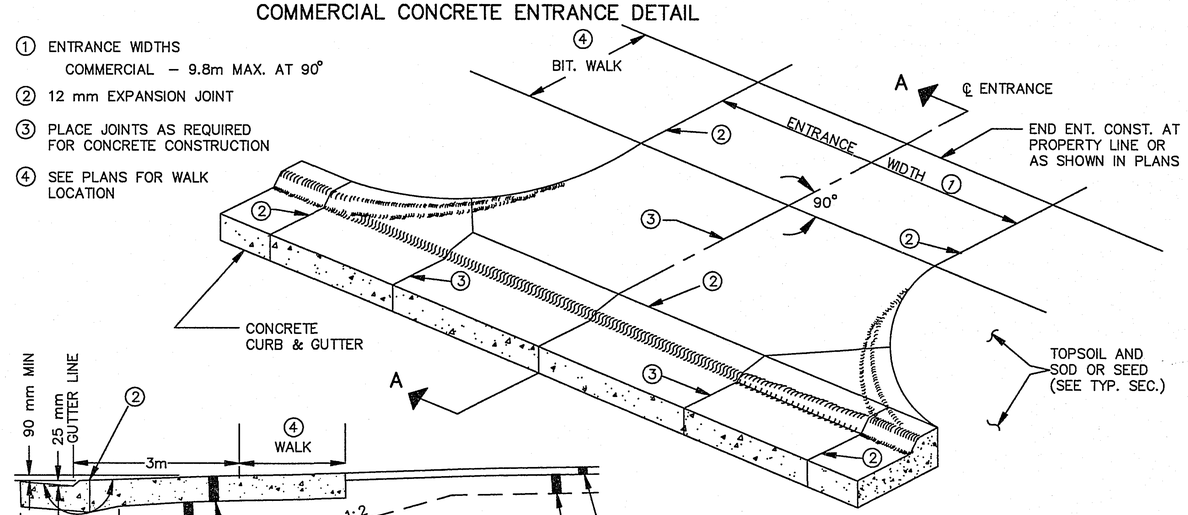
COMMERCIAL CONCRETE ENTRANCE DETAIL

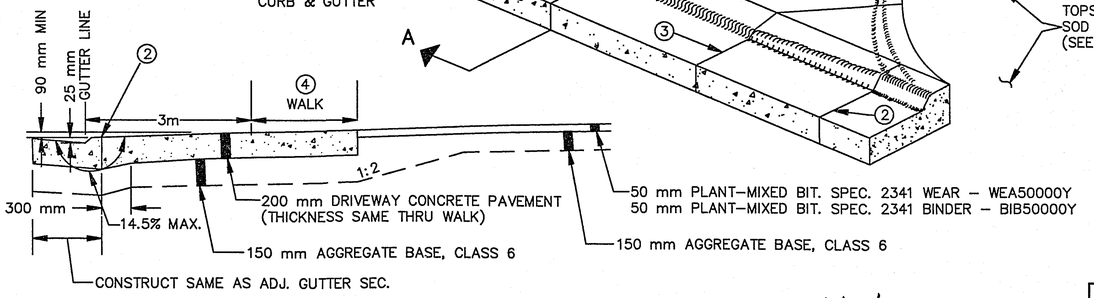
① ENTRANCE WIDTHS
COMMERCIAL – 9.8m MAX. AT 90°

② 12 mm EXPANSION JOINT

③ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION

④ SEE PLANS FOR WALK LOCATION





SECTION A–A

28-161

PED RAMP ENTRANCE

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3/18/97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

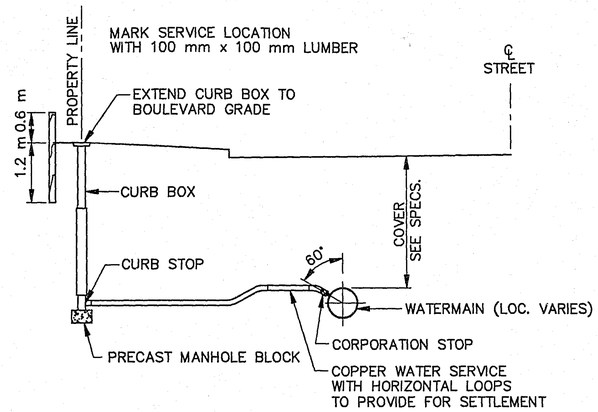
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62–696–05 CTB

DETAILS

FILE NO. RAMSE9601.01

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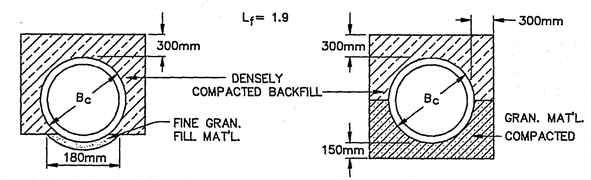
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NOTES:
1. SEE SPECS FOR SIZE & TYPE OF MATERIALS.
2. MAINTAIN 450 mm VERTICAL & 600 mm HORIZONTAL SEPARATION BETWEEN SEWER & WATER SERVICE LINES

WATER SERVICE CONNECTION

TRENCH BEDDING–CIRCULAR PIPE



SHAPED SUBGRADE WITH GRANULAR FOUNDATION

GRANULAR FOUNDATION

LEGEND

B_c = OUTSIDE DIAMETER

28-161

PIPE BEDDING
WATER SERVICE

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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RAMSEY COUNTY

HIGHWAY 96

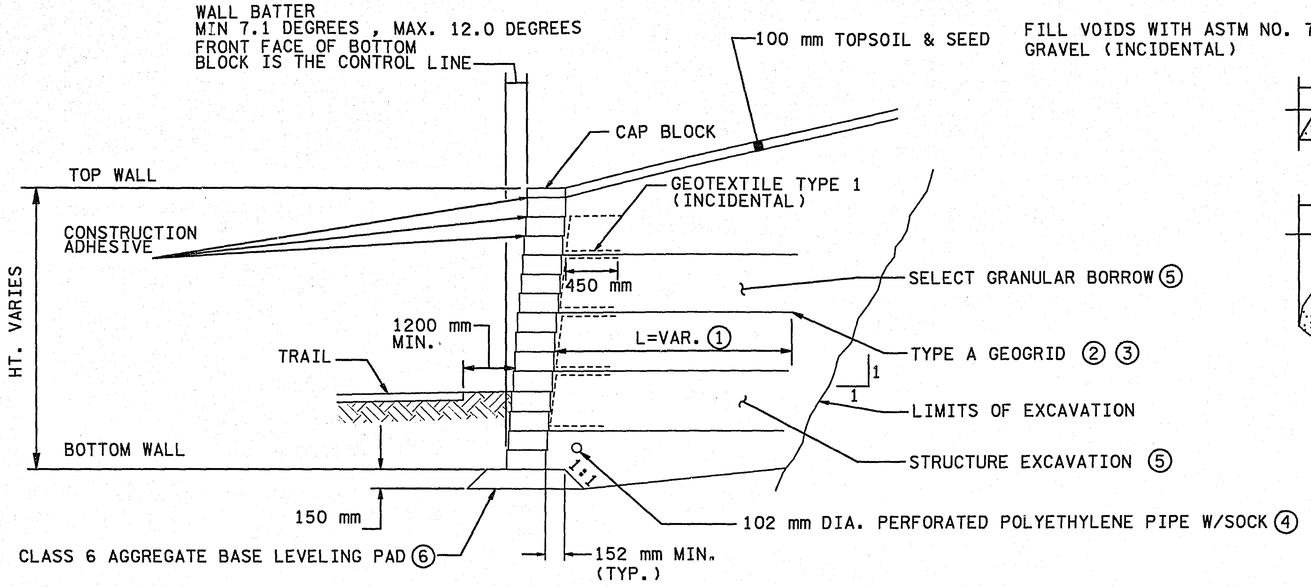
S.A.P. 62–696–05 CTB

DETAILS

FILE NO. RAMSE9601.01

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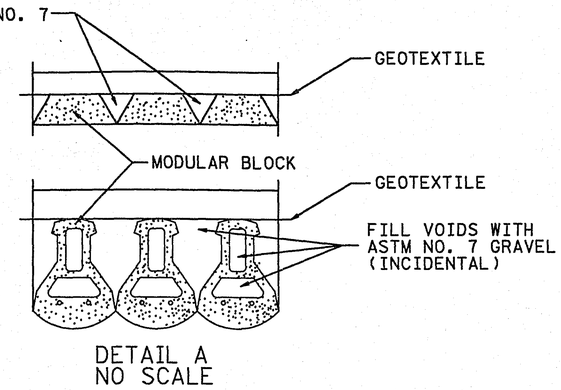
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SECTION

TYPICAL MODULAR BLOCK RETAINING WALL

STA. 8+066 TO 8+133



DETAIL A
NO SCALE

NOTES:

① GEOGRID LENGTH VARIES:

STA.	LENGTH
8+066 TO 8+080	2.00
8+080 TO 8+122	2.20
8+122 TO 8+133	2.80

② GEOGRID LENGTH "L" SHALL BE MEASURED FROM THE BACK OF WALL. GEOGRID INCIDENTAL TO WALL CONSTRUCTION.

③ VERTICAL SPACING AND GEOGRID TYPE SHOWN ON WALL PROFILE, THIS SHEET.

④ EXIT PIPE AT STA. 8+139, 16.5 m WITH A CONCRETE HEADWALL SEGMENT, (STANDARD PLATE 3131)USE A NON-PERFORATED SECTION OF PIPE BEYOND THE END OF THE MSE WALL. INCIDENTAL TO WALL CONSTRUCTION.

⑤ MEASURED AND PAID FOR SEPARATELY

⑥ COMPACT NATIVE MATERIAL BELOW LEVELING PAD BY:

A. 650 mm COMPACTION SUBCUT, 225 mm LIFTS TO 98% MAXIMUM DENSITY.

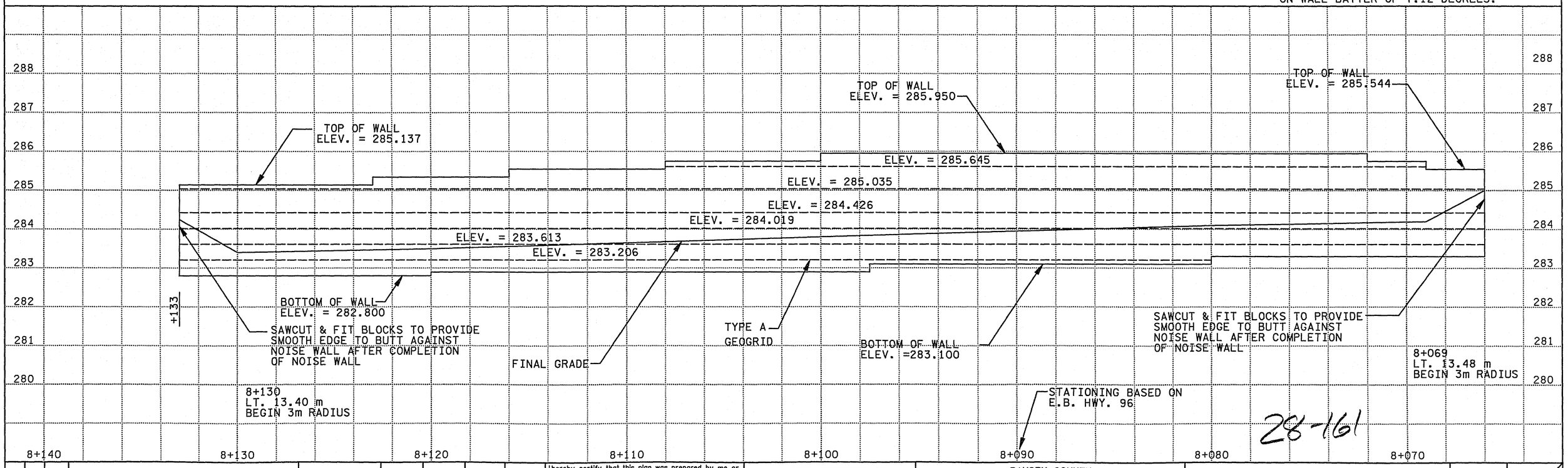
B. SUBCUT AND COMPACT ALONG ENTIRE WALL LENGTH PRIOR TO PLACING ANY WALL BLOCKS. THIS WORK IS INCIDENTAL TO WALL CONSTRUCTION.

⑦ BLOCKS SHALL HAVE A NOMINAL DEPTH 305 mm (12") AND HAVE A SPLIT ROCK FACE.

⑧ CAP UNITS SHALL BE USED ON TOP COURSE OF WALL. ELEVATIONS SHOWN ON WALL PROFILE INCLUDE USE OF CAP UNIT.

⑨ MINIMUM DEPTH OF BURY IS 0.61 m.

⑩ OFFSETS ARE TO EBL CL AND ARE BASED ON WALL BATTER OF 7.12 DEGREES.



28-161

NAME: RAM9601.DT4 DATE: Jan. 30, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Ronald B. Lamer
Date: 3/17/97 Reg. No. 19423

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

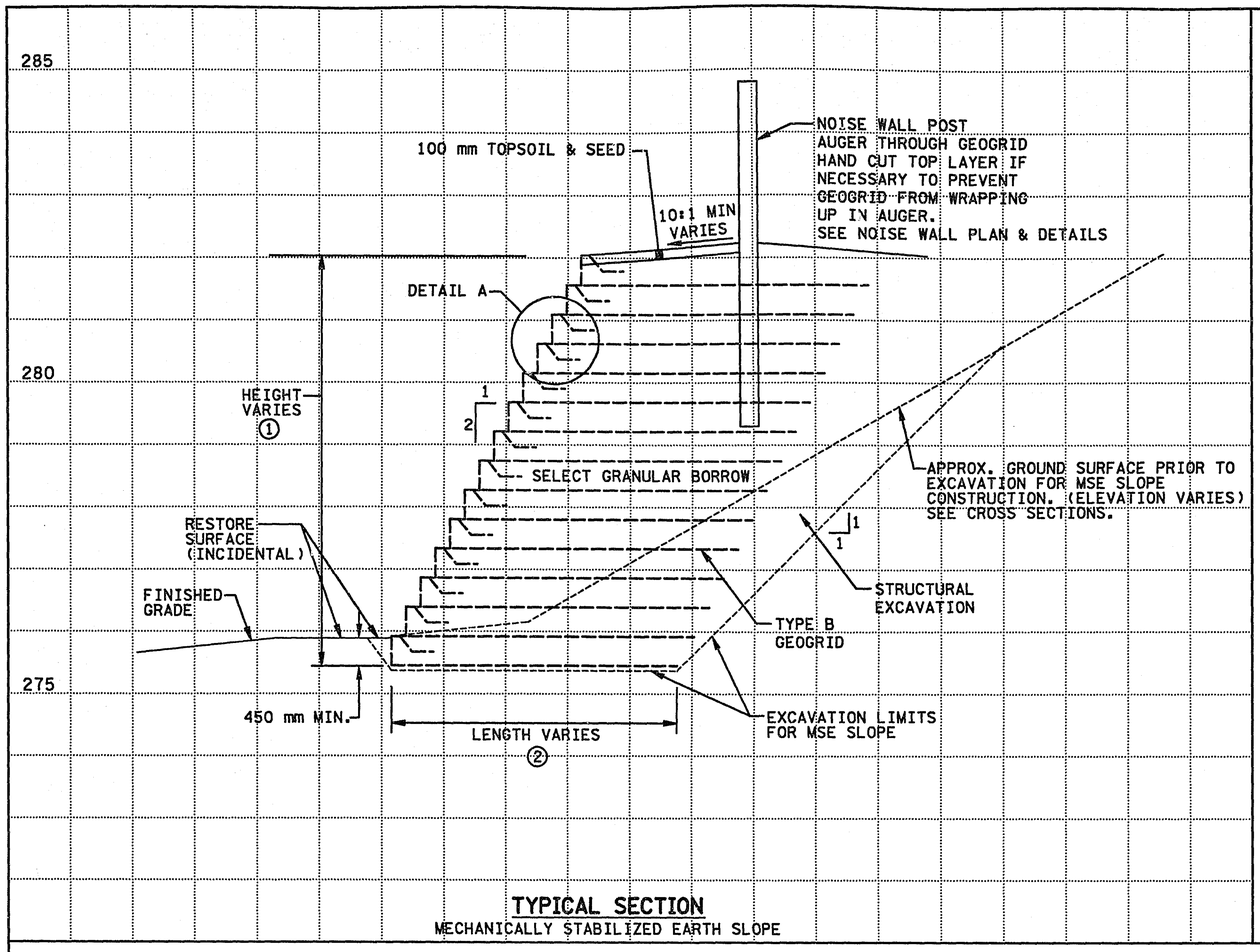
HIGHWAY 96

S.A.P. 62-696-05 CTB

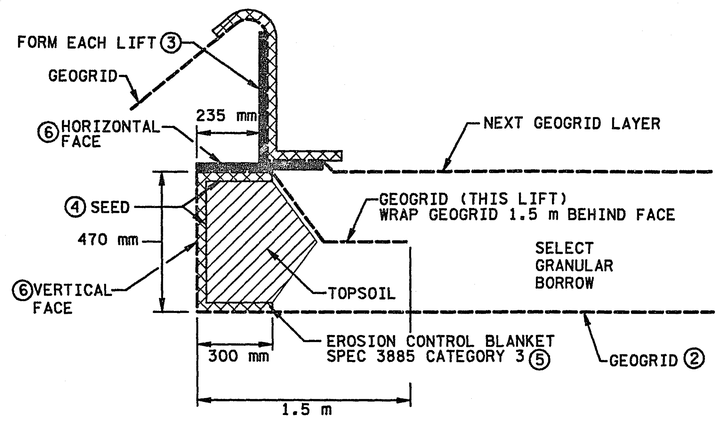
MODULAR BLOCK RETAINING WALL
PROFILE & DETAILS

FILE NO. RAMSE9601.01

23/170



TYPICAL SECTION
MECHANICALLY STABILIZED EARTH SLOPE



DETAIL A

NOTES:

① SEE MSE SLOPE PROFILE FOR HEIGHT OF MSE SLOPE.

② GEOGRID LENGTH VARIES:

MSE SLOPE STA.	GEOGRID LENGTH (m)
8+147 - 8+154	2.9
8+154 - 8+223	4.8
8+223 - 8+244	3.6
8+244 - 8+277	2.9

GEOGRID IS INCIDENTAL TO MSE SLOPE CONSTRUCTION SEE SPEC. FOR TYPE.

③ FORM SHALL BE PROVIDED BY THE CONTRACTOR & WILL BE CONSIDERED INCIDENTAL TO MSE SLOPE CONSTRUCTION.

④ SPREAD SEED MIX 20A WITH SW FORB IN EROSION CONTROL BLANKET AT VERTICAL FACE AND ON TOPSOIL AT A RATE OF 112 kg/ha. SEED & TOPSOIL ON VERTICAL FACE INCIDENTAL TO MSE SLOPE CONSTRUCTION.

⑤ PROVIDE EROSION CONTROL BLANKET WHICH MEETS MANUFACTURER RECOMMENDATIONS FOR SLOPES STEEPER THAN 1:1. INCIDENTAL TO MSE SLOPE CONSTRUCTION.

⑥ MEASUREMENT FOR MSE SLOPE BASED ON VERTICAL FACE. HORIZONTAL FACE NOT MEASURED FOR PAYMENT.

⑦ OVERLAP GEOGRID 25mm MINIMUM. INCREASE OVERLAP ON CURVES TO PREVENT OPENINGS AT FACE OF SLOPE.

⑧ STRUCTURAL EXCAVATION AND SELECT GRANULAR BORROW SHALL BE MEASURED AND PAID FOR SEPERATLEY.

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Ronald B. Farmer
Date: 3/17/97 Reg. No. 19423

ENGINEERS ■ ARCHITECTS ■ PLANNERS

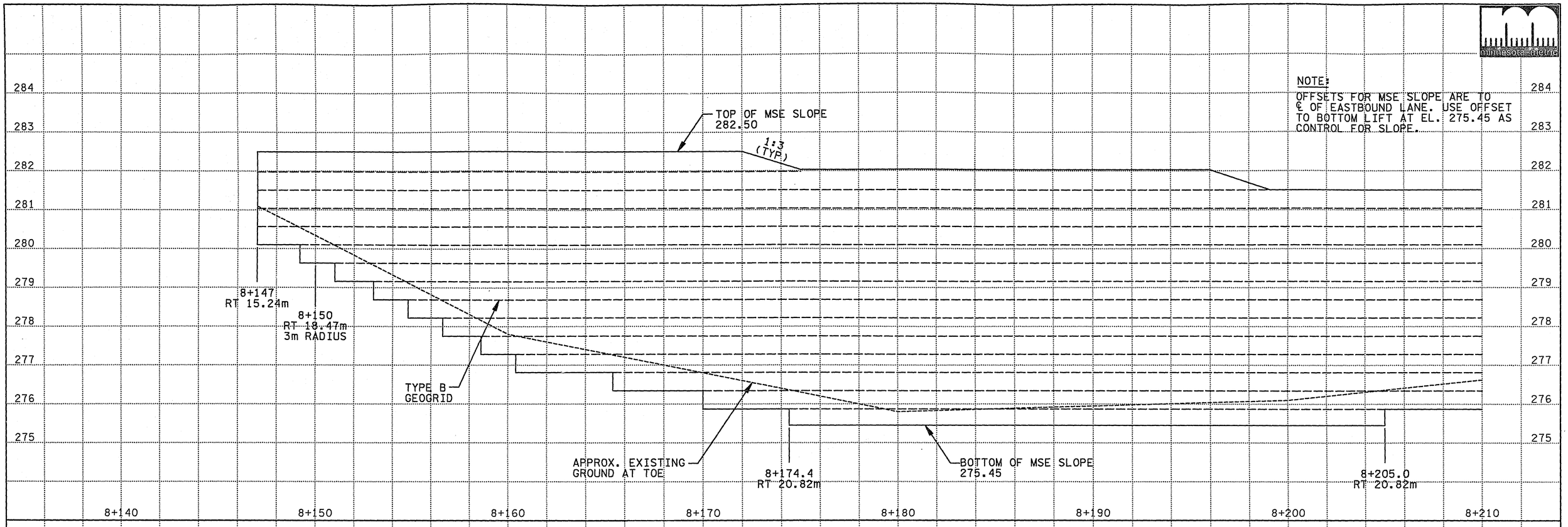
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

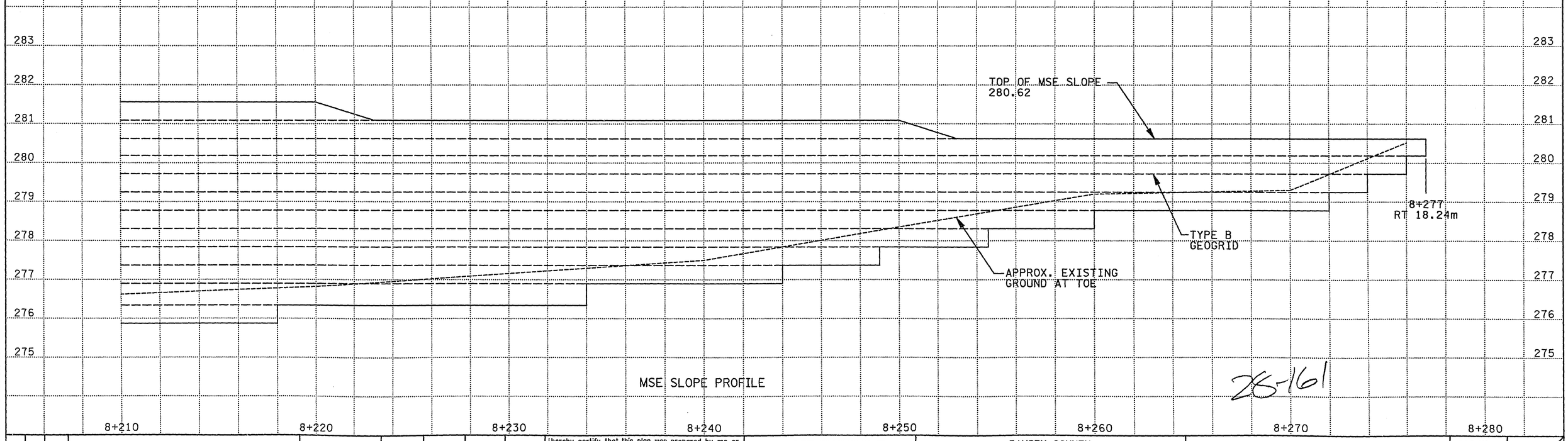
HWY 96
MECHANICALLY STABILIZED EARTH (MSE) SLOPE

FILE NO. RAMSE9601.01

24/170

NAME: RAM9601.DT3 DATE: Jan. 30, 1997





MSE SLOPE PROFILE

28-161

NAME: RAM9601.DT2 DATE: Jan. 30, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3/17/97 Reg. No. 19623

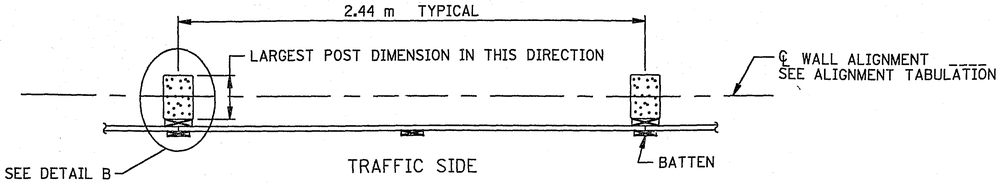
ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

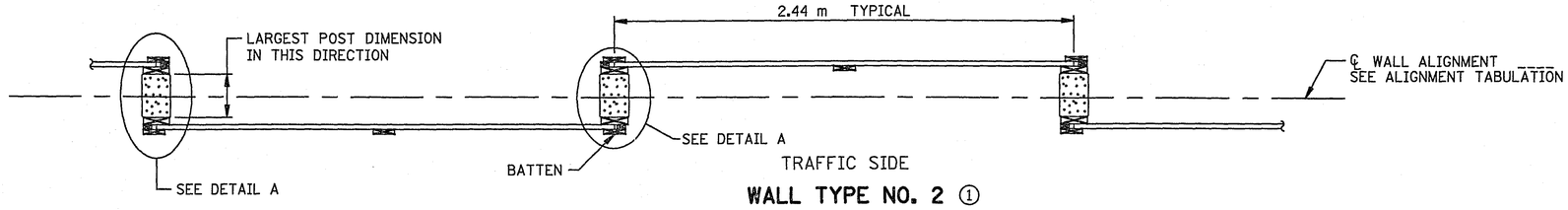
HWY 96
MECHANICALLY STABILIZED EARTH (MSE) SLOPE

FILE NO. RAMSE9601.01

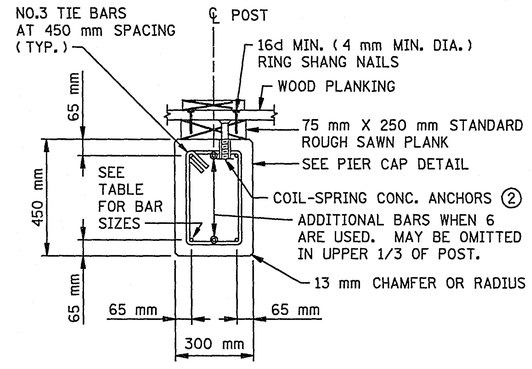
25/170

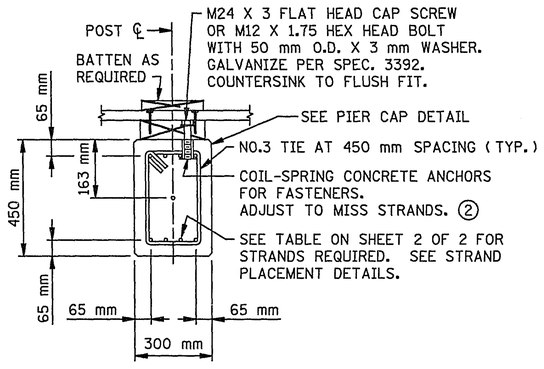


WALL TYPE NO. 1 ①

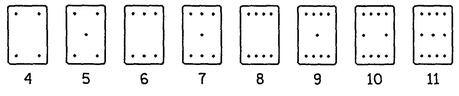


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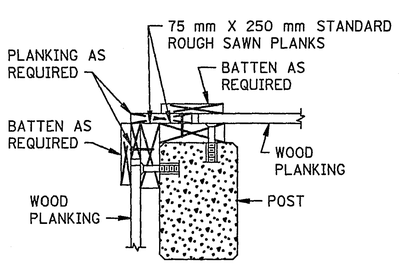


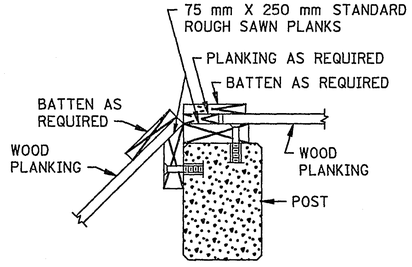


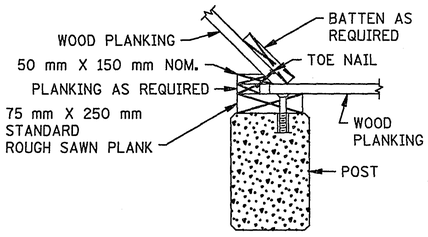
POST DETAILS



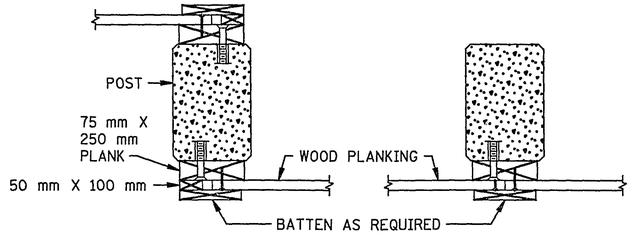
STRAND PLACEMENT DETAILS







POST LOCATIONS FOR ANGLE TURNS



DETAIL A **DETAIL B**

NOTES:

① SEE NOISE WALL PLAN & PROFILE SHEETS FOR WALL TYPE REQUIRED.

② SPACE AT 1.22 m ON ALTERNATE SIDES OF POST ℄. ULTIMATE PULL-OUT 10kN PER ANCHOR.

③ SEE NOISE WALL DETAIL FOR SPECIAL WALL & POST TREATMENT.

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

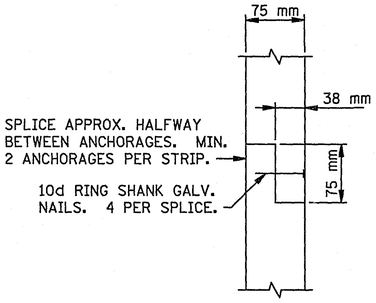
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

NOISE WALL DETAILS

FILE NO. RAMSE9601.01

26
170

NAME: SM661C94.SPN DATE: Jan. 30, 1997 MNDOT FILE NAME: SM6611A94.SPN



NAILER STRIP SPLICE DETAIL

FILL HEIGHT W = 0 TO 0.3 m

"H" WALL HEIGHT (m)	POST SPACING (m)	POST SIZE (mm)	REINF. BARS	PRE-STRESSED STRANDS	POST EMBEDMENT (m) LEVEL GROUND	1:2 SLOPE	1:3 SLOPE	1:4 SLOPE
1.52	2.44	300 X 450	6-NO.4	4	1.52	2.44	2.13	1.83
1.83			6-NO.4	4	1.83	2.74	2.44	2.13
2.13			6-NO.4	4	1.83	2.74	2.44	2.44
2.44			6-NO.4	4	2.13	3.05	2.74	2.44
2.74			6-NO.4	4	2.13	3.35	3.05	2.74
3.05			6-NO.4	4	2.44	3.35	3.05	2.74
3.35			6-NO.5	4	2.44	3.66	3.35	3.05
3.66			6-NO.5	4	2.44	3.66	3.35	3.05
3.96			6-NO.5	4	2.74	3.96	3.35	3.05
4.27			6-NO.5	4	2.74	3.96	3.35	3.05
4.57			6-NO.5	4	2.74	3.96	3.35	3.35
4.88			6-NO.5	4	2.74	4.27	3.66	3.35
5.18			6-NO.5	4	3.05	4.27	3.66	3.35
5.49			6-NO.6	4	3.05	4.57	3.96	3.66
5.79			6-NO.6	5	3.05	4.57	3.96	3.66
6.10			6-NO.6	5	3.05	4.57	3.96	3.66
6.40			6-NO.6	6	3.35	4.88	4.27	3.96
6.71			6-NO.7	6	3.35	4.88	4.27	3.96
7.01			6-NO.7	7	3.35	5.18	4.27	3.96
7.32	↓	↓	6-NO.7	8	3.35	5.18	4.57	4.27
7.62	2.44	300 X 450	6-NO.7	9	3.66	5.18	4.57	4.27

FILL HEIGHT W = OVER 0.3 m TO 0.6 m

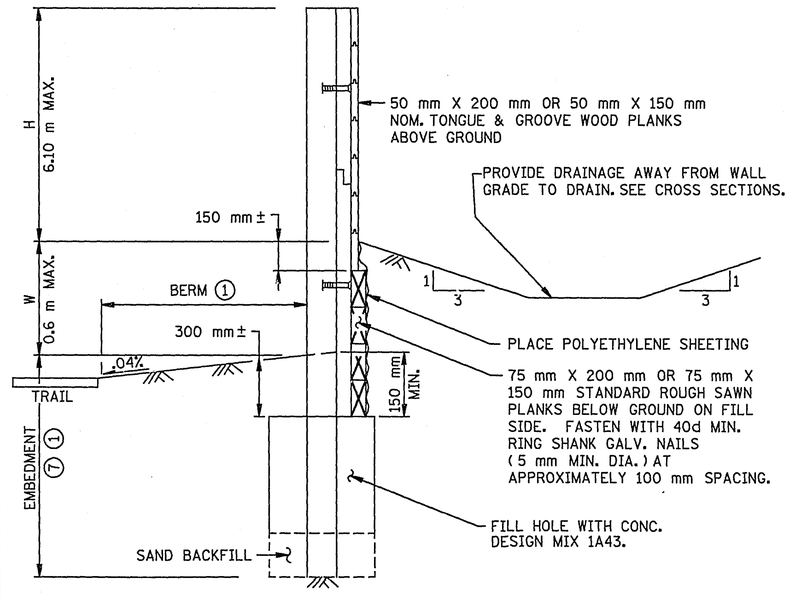
"H" WALL HEIGHT (m)	POST SPACING (m)	POST SIZE (mm)	REINF. BARS	PRE-STRESSED STRANDS	POST EMBEDMENT (m) LEVEL GROUND	1:2 SLOPE	1:3 SLOPE	1:4 SLOPE
1.52	2.44	300 X 450	6-NO.4	4	2.13	3.96	3.05	2.74
1.83			6-NO.4	4	2.44	4.27	3.35	3.05
2.13			6-NO.4	4	2.44	4.57	3.35	3.05
2.44			8-NO.4	4	2.44	4.57	3.66	3.35
2.74			8-NO.4	4	2.44	4.57	3.66	3.35
3.05			8-NO.4	4	2.44	4.57	3.66	3.35
3.35			6-NO.5	4	2.74	4.57	3.66	3.35
3.66			6-NO.5	4	2.74	4.57	3.96	3.35
3.96			6-NO.5	4	2.74	4.57	3.96	3.66
4.27			6-NO.5	4	3.05	4.57	3.96	3.66
4.57			6-NO.6	4	3.05	4.57	3.96	3.66
4.88			6-NO.6	4	3.05	4.88	4.27	3.96
5.18			6-NO.6	5	3.05	4.88	4.27	3.96
5.49	↓	↓	6-NO.6	6	3.35	5.18	4.27	3.96
5.79			6-NO.6	7	3.35	5.18	4.57	4.27
6.10	2.44	300 X 450	6-NO.7	8	3.35	5.18	4.57	4.27

DESIGN CRITERIA:

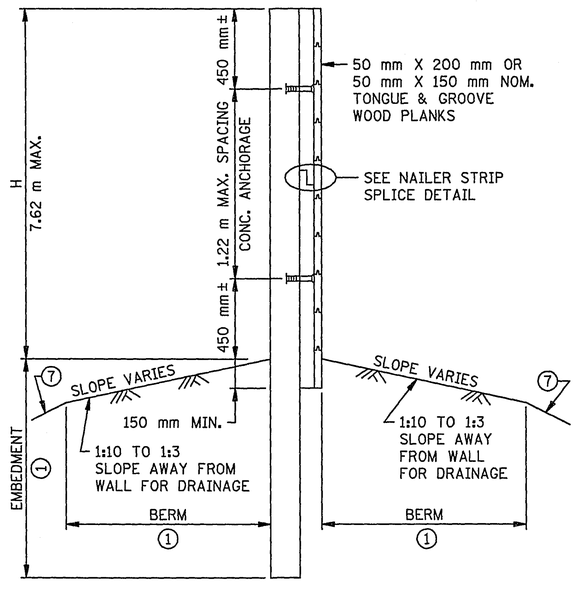
ϕ = 30° (GRANULAR)
WIND LOAD = 1100 Pa
f_b = 28 MPa CONCRETE POSTS.
f_b = 10 MPa WOOD PLANKING.
f_b = 8 MPa ALL OTHER WOOD MEMBERS.
STRESS LEVEL SYMBOL
PER AITC-117-(LATEST ADDITION):
24F = 16.5 MPa ALLOWABLE BENDING STRESS
20F = 13.8 MPa ALLOWABLE BENDING STRESS

POST DESIGN CRITERIA

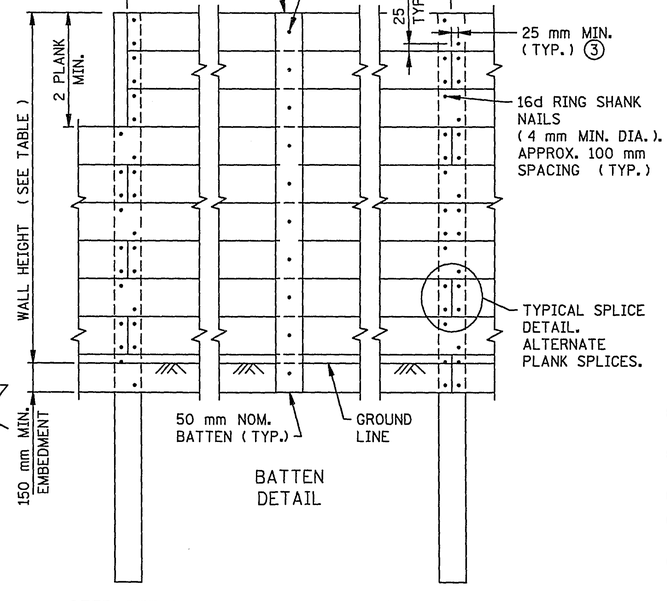
NO. OF STRANDS	f'ci (5)	f'c (6)
6 OR LESS	28 MPa	38 MPa
7 OR MORE	28 MPa	41 MPa



SECTION AT POST
WITH EARTH FILL



SECTION AT POST
WITHOUT EARTH FILL



FRONT ELEVATION
POST BATTENS NOT SHOWN

NOTES:

EMBEDMENT LENGTH IS BASED ON THE WATER TABLE BEING BELOW THE EMBEDMENT DEPTH. OTHER CONDITIONS REQUIRE A SPECIAL DESIGN.

FOR SLOPES BETWEEN THOSE SHOWN, USE INTERPOLATION TO DETERMINE THE EMBEDMENTS.

THE FINISHED WIDE FACE DIMENSION FOR THE ROUGH SAWN 75 mm PLANKS SHALL BE THE SAME AS THE FINISHED WIDE FACE DIMENSION FOR THE 50 mm PLANKS.

GALVANIZE NAILS PER SPEC. 3392. SEE SPECIAL PROVISIONS FOR POWER NAILS OPTION.

SOIL TESTS AT 60 m INTERVALS SHALL BE REQUIRED AT EACH SITE LOCATION AND THE RESULTS REVIEWED BY THE SOILS ENGINEER FOR RECOMMENDATIONS.

SOIL TREATMENT AND BACKFILL SHALL CONFORM TO SPEC. 2451.

SEE SPEC. 2554 FOR ADDITIONAL CONSTRUCTION INFORMATION, UNLESS OTHERWISE NOTED.

PRESTRESSED STEEL STRANDS ARE 13 mm DIA. (AREA = 133 mm²), MIN. OF 2 SPACES, 1200 kN ULTIMATE STRENGTH. INITIAL PRESTRESS EQUALS 129 kN/STRAND.

STEEL STRANDS PER SPEC. 3348 AND PAINT THE EXPOSED ENDS OF THE STRANDS WITH AN APPROVED GRAY EPOXY.

ALL REINF. BARS SHALL BE EPOXY COATED GRADE 420 PER SPEC. 3301 AND HAVE A MINIMUM 50 mm CLEAR UNLESS OTHERWISE NOTED.

(1) EMBEDMENT DEPTHS IN THE TABLES ARE BASED ON A 0.9 m MIN. BERM IN FRONT OF THE WALL.

(2) WHEN THE CURB LINE IS CLOSER THAN 1:2 SLOPE, A SPECIAL DESIGN IS REQUIRED.

(3) 25 mm MIN. DISTANCE FROM EDGE OR END OF PLANK.

(4) USE THE POST SIZE AND EMBEDMENT FOR THE HIGHER WALL SECTION AT THE STEP.

(5) MINIMUM CONCRETE STRENGTH AT THE TIME OF PRESTRESS TRANSFER.

(6) MINIMUM CONCRETE STRENGTH THE POST CAN BE TRANSPORTED AND INSTALLED. THE CONCRETE SHALL BE PER SPEC. 2461, WITH 25 mm MAX. SIZE AGGREGATE.

(7) SEE EMBEDMENT TABLES.

(8) SEE NOISE WALL DETAILS FOR SPECIAL WALL & POST TREATMENT.

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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.
Robert J. Eaton
Date: 3-17-97 Reg. No. 7545

ENGINEERS ■ ARCHITECTS ■ PLANNERS

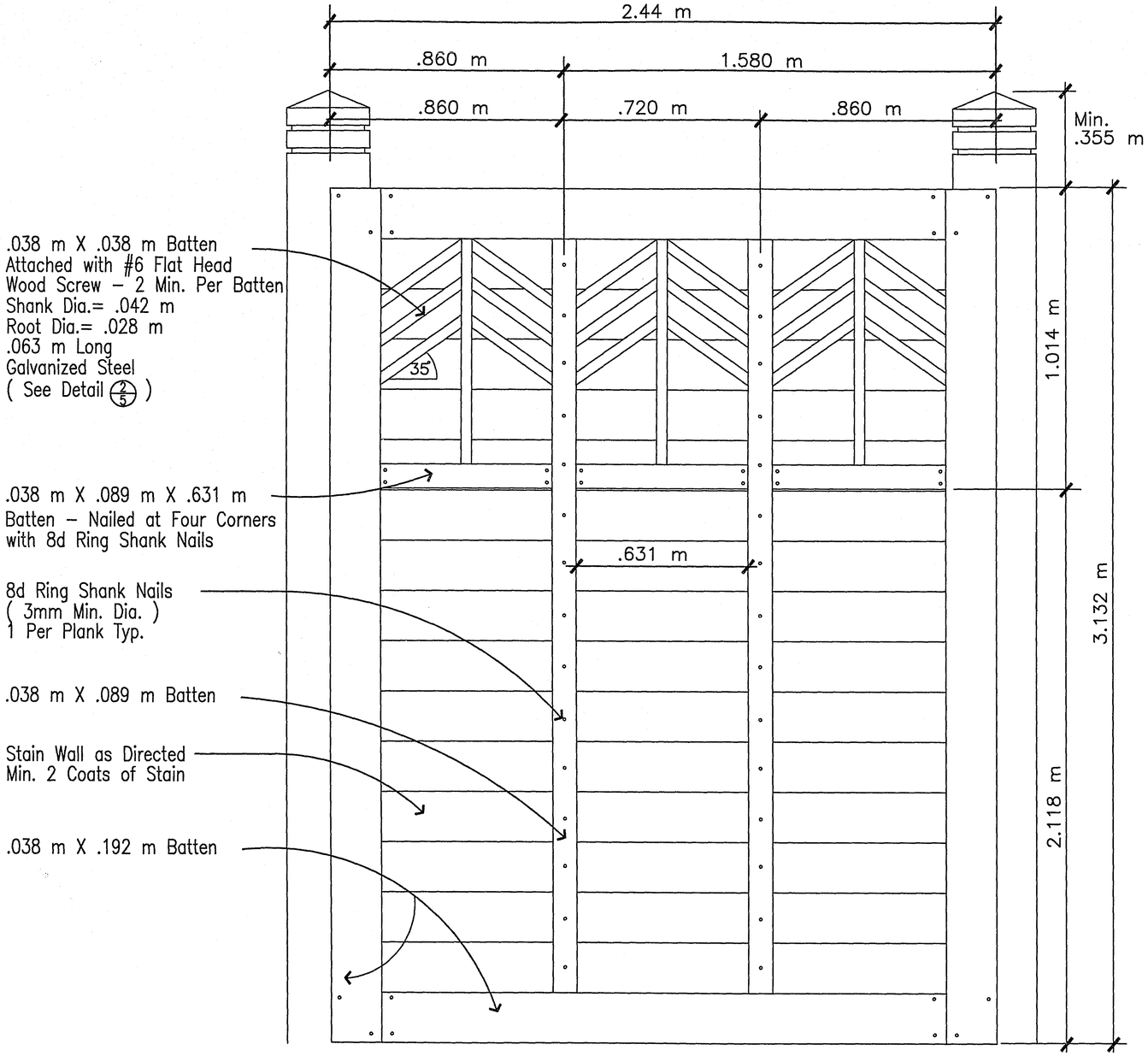
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

NOISE WALL DETAILS

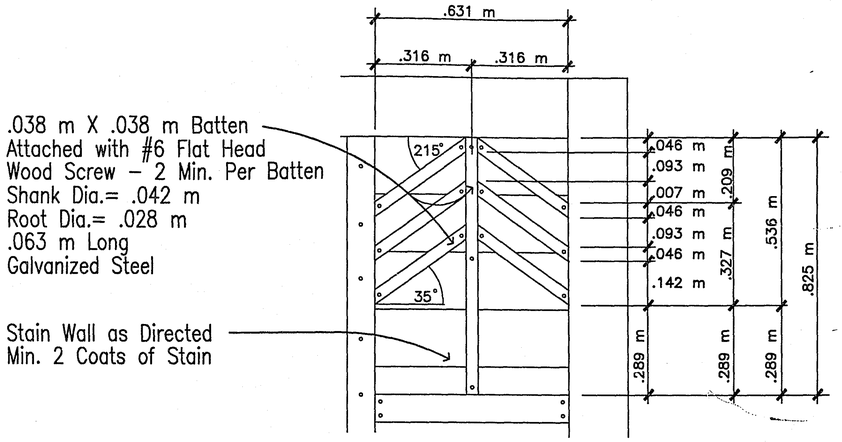
FILE NO. RAMSE9601.01

27/170

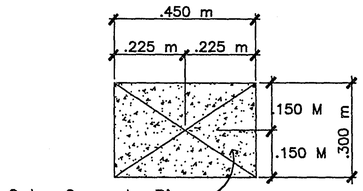
MNDOT FILE NAME SM6612A94.SPN
NAME: SM6612C94.SPN DATE: Jan. 30, 1997



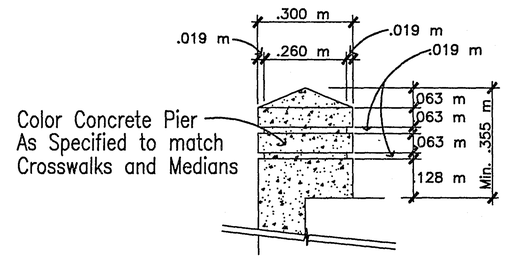
1/5 NOISE WALL DETAIL – DECORATIVE WALL PANEL (TYPICAL)
SCALE: 1:20



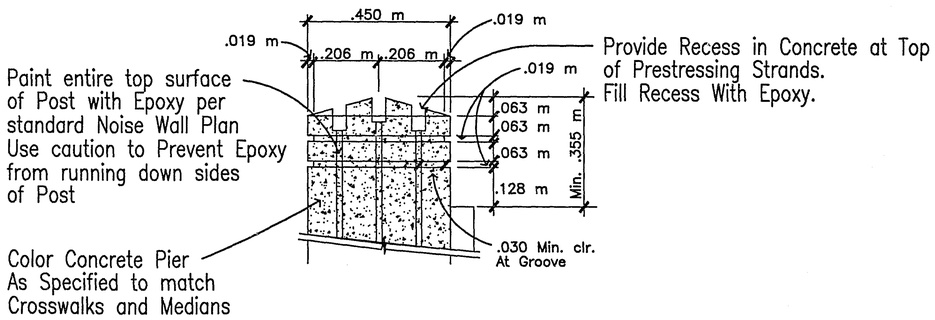
2/5 NOISE WALL DETAIL – DECORATIVE BATTEN DESIGN
SCALE: 1:20



3/5 PLAN VIEW – CONCRETE PIER CAP
SCALE: 1:20



4/5 FRONT ELEVATION – CONCRETE PIER CAP
SCALE: 1:20



5/5 SIDE ELEVATION – CONCRETE PIER CAP
SCALE: 1:20

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

SEH ENGINEERS ARCHITECTS PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
NOISE WALL DETAILS

FILE NO. RAMSE9601.01

28/170

H:\TH96\DLDN\LS\DETAIL3 Jay Becker, SEH 05-01-97 12:37 pm

N

SCALE = 1 : 200

0 5 10 20 m

XXXX ALIGNMENT POINT NUMBER SEE ALIGNMENT TABULATION AND NOISE WALL DETAIL.

+940 +960 +980 8+000 +020

C/L E.B. HWY 96

B424 C&G

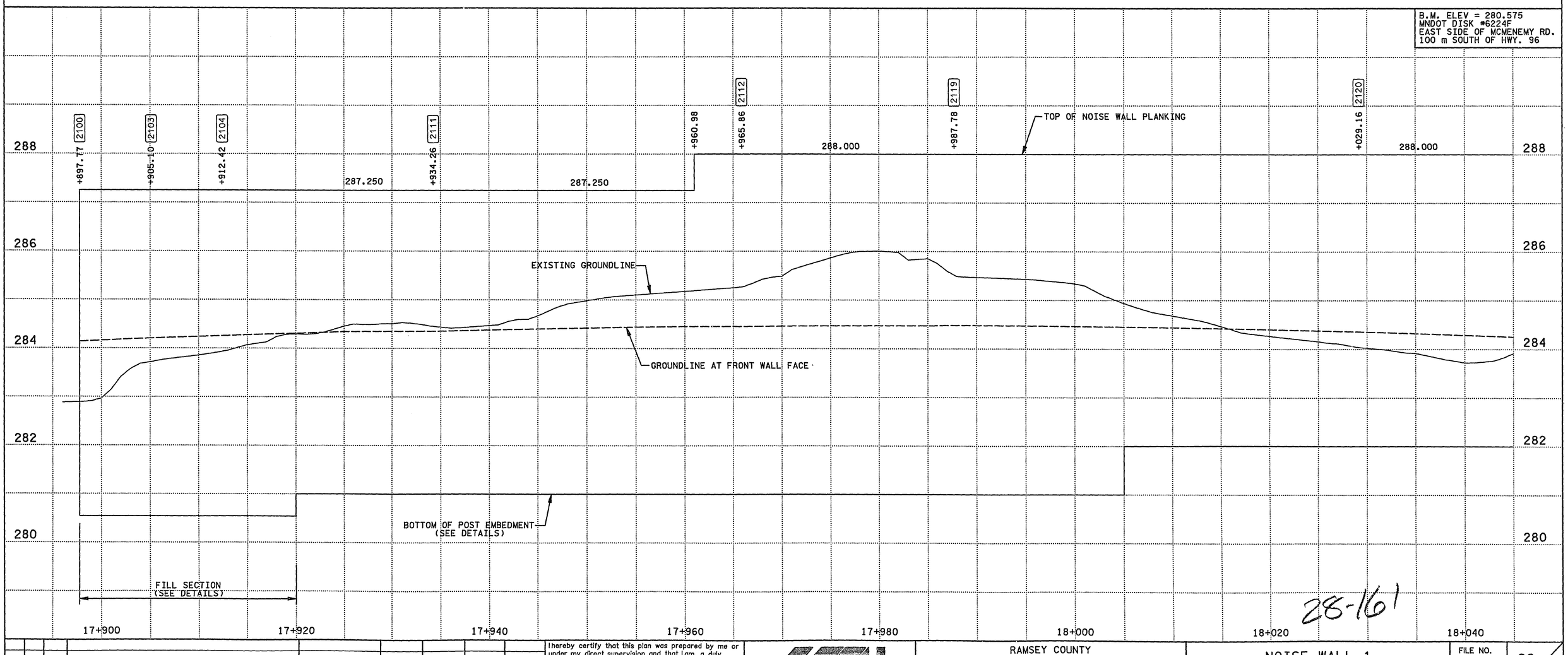
FUTURE BIT WALK

BEGIN NOISE WALL
STA 17+897.769 =
EB HWY 96
STA. 7+897.769
22.300 m RT.

2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123

C/L NOISE WALL 1

B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96



28-161

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

NOISE WALL 1
PLAN & PROFILE
STA. 17+897.77 TO 18+045.00

FILE NO. RAMSE9601.01

29 / 170

NAME: RAM9601.NW1 DATE: Mar. 12, 1997

N

SCALE = 1 : 200

0 5 10 20 m

XXXX ALIGNMENT POINT NUMBER SEE ALIGNMENT TABULATION AND NOISE WALL DETAIL.

+040 +060 +080 8+100 +120 +140 +160

SAWCUT & FIT BLOCKS TO PROVIDE SMOOTH EDGE TO BUTT AGAINST NOISE WALL AFTER COMPLETION OF NOISE WALL.

C/L E.B. HWY 96

B424 C&G

MODULAR BLOCK WALL
SEE DETAILS AND PROFILE

SAWCUT & FIT BLOCKS TO PROVIDE SMOOTH EDGE TO BUTT AGAINST NOISE WALL AFTER COMPLETION OF NOISE WALL.

FUTURE BIT WALK

2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132

C/L NOISE WALL 1

B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96

290 288 286 284 282 280

+051.11 2127
+063.31 2128
+075.23 2129
+077.67
289.500
288.750
288.000
TOP OF NOISE WALL PLANKING
+131.35
+138.67 2130
288.750
+143.55
288.000
+148.43
+138.67 2131
287.250
+153.31
286.500
+172.84 2132
285.750

EXISTING GROUNDLINE

GROUNDLINE AT FRONT WALL FACE

BOTTOM OF POST EMBEDMENT (SEE DETAILS)

FILL SECTION (SEE DETAILS)

28-161

18+040 18+060 18+080 18+100 18+120 18+140 18+160

NAME: RAM9601.NW2 DATE: Mar. 12, 1997

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Date: 3-18-97 Reg. No. 18612

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

NOISE WALL 1
PLAN & PROFILE
STA. 18+030.00 TO 18+180.00

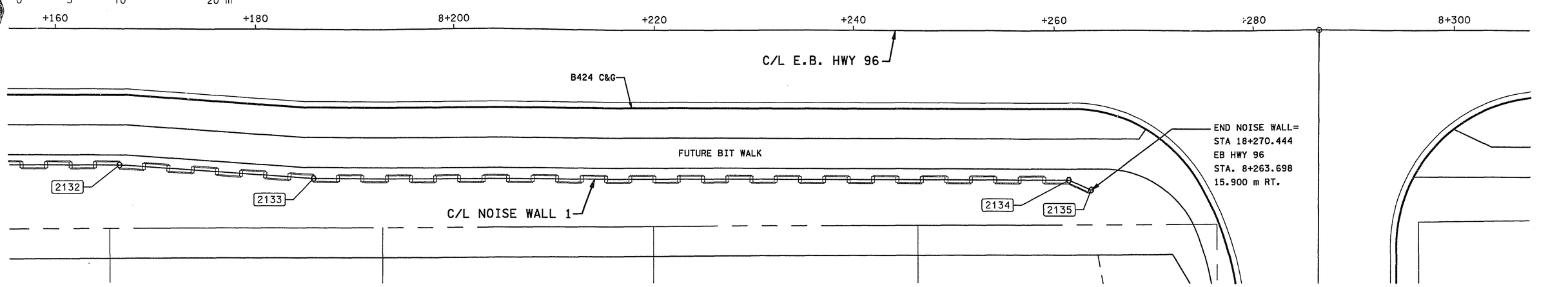
FILE NO. RAMSE9601.01

30 / 170

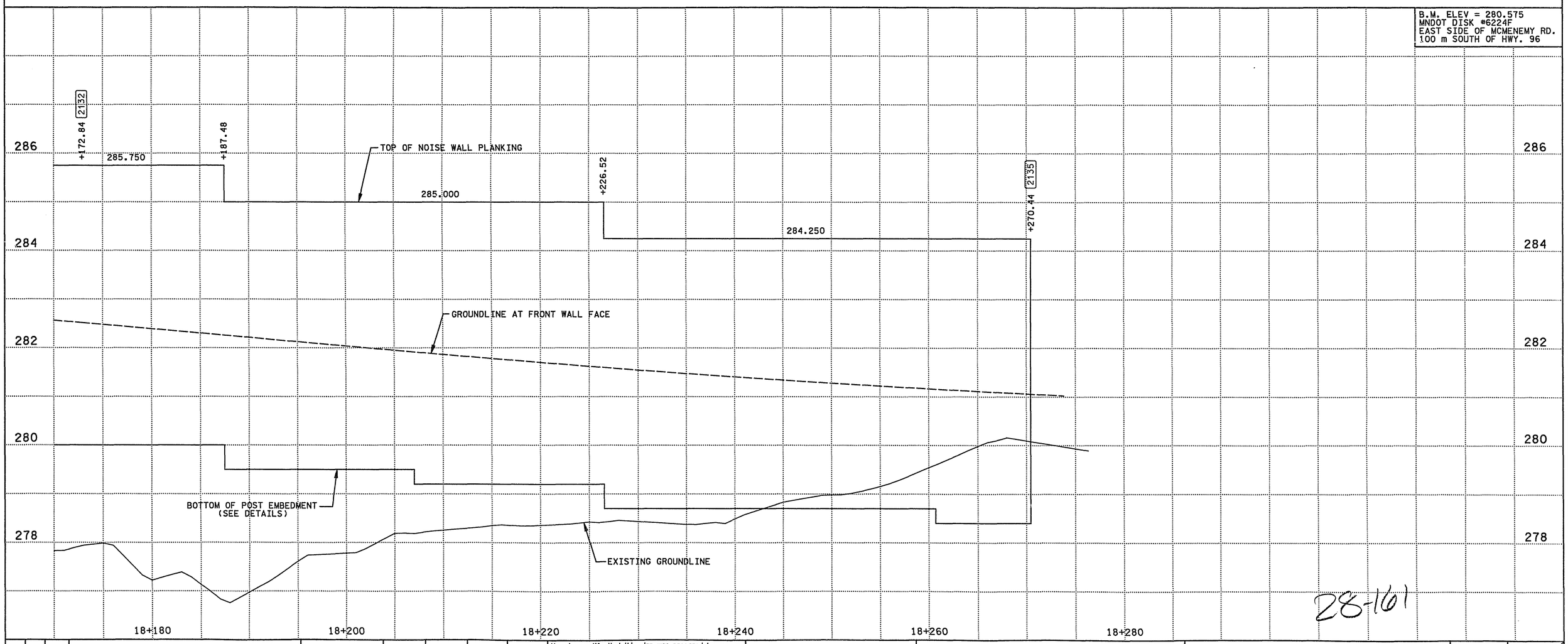
SCALE = 1 : 200

0 5 10 20 m

XXXX ALIGNMENT POINT NUMBER SEE ALIGNMENT TABULATION AND NOISE WALL DETAIL.



B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96



28-161

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ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

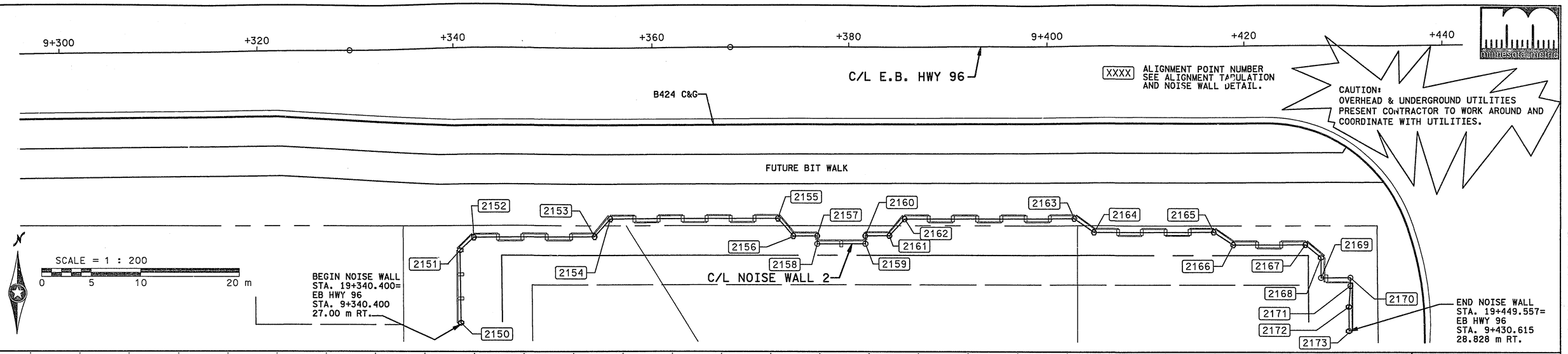
S.A.P. 62-696-05 CTB

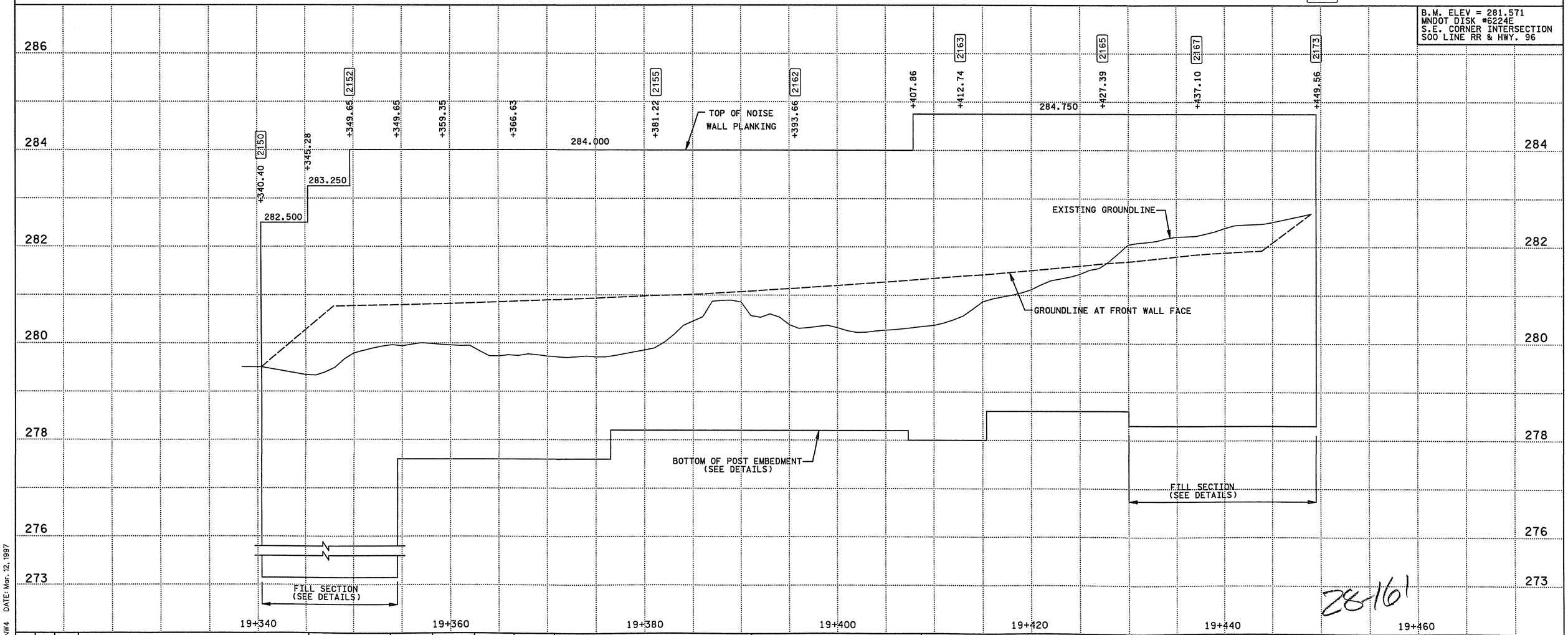
NOISE WALL 1
PLAN & PROFILE
STA. 18+170.00 TO 18+270.44

FILE NO. RAMSE9601.01

31 / 170

NAME: RAM9601.NW3 DATE: Mar. 12, 1997





28-161

NAME: RAM9601.NW4 DATE: Mar. 12, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

NOISE WALL 2
PLAN & PROFILE
STA. 19+340.40 TO 19+449.56

FILE NO. RAMSE9601.01

32 / 170

N

SCALE = 1 : 200

0 5 10 20 m

XXXX ALIGNMENT POINT NUMBER
SEE ALIGNMENT TABULATION
AND NOISE WALL DETAIL.

minnesota | metric

+480 9+500 +520 +540 +560 +580

C/L E.B. HWY 96

B424 C&G

CAUTION:
OVERHEAD & UNDERGROUND UTILITIES
PRESENT CONTRACTOR TO WORK AROUND AND
COORDINATE WITH UTILITIES.

FUTURE BIT WALK

2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201

BEGIN NOISE WALL
STA. 19+458.800=
EB HWY 96 STA. 9+458.800
23.000 m RT.

C/L NOISE WALL 3

B.M. ELEV = 281.571
MNDOT DISK #6224E
S.E. CORNER INTERSECTION
SOO LINE RR & HWY. 96

TOP OF NOISE WALL PLANKING

+458.80 2180 +463.68 +468.40 2185 +480.60 2186 +487.92 2189 +495.24 2190 +500.12 +502.56 2193 +505.00 +509.88 2194 +513.99 2195 +538.39 +560.34 2198 +582.14 2201 +584.58

286.250 287.000 287.750

288 286 284 282 280

EXISTING GROUNDLINE

GROUNDLINE AT FRONT WALL FACE

BOTTOM OF POST EMBEDMENT
(SEE DETAILS)

FILL SECTION
(SEE DETAILS)

28-161

19+460 19+480 19+500 19+520 19+540 19+560 19+580

NAME: RAW9601.NW5 DATE: Mar. 17, 1997

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Date: 3-18-97 Reg. No. 18612

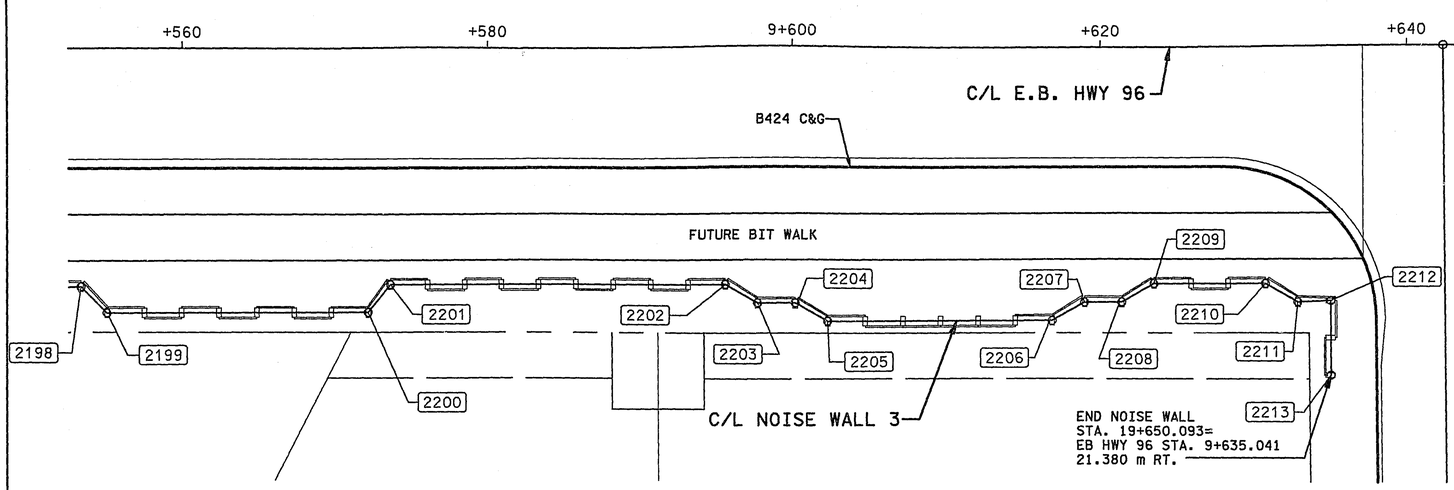
SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

NOISE WALL 3
PLAN & PROFILE
STA. 19+458.80 TO 19+590.000

FILE NO. RAMSE9601.01

33 / 170



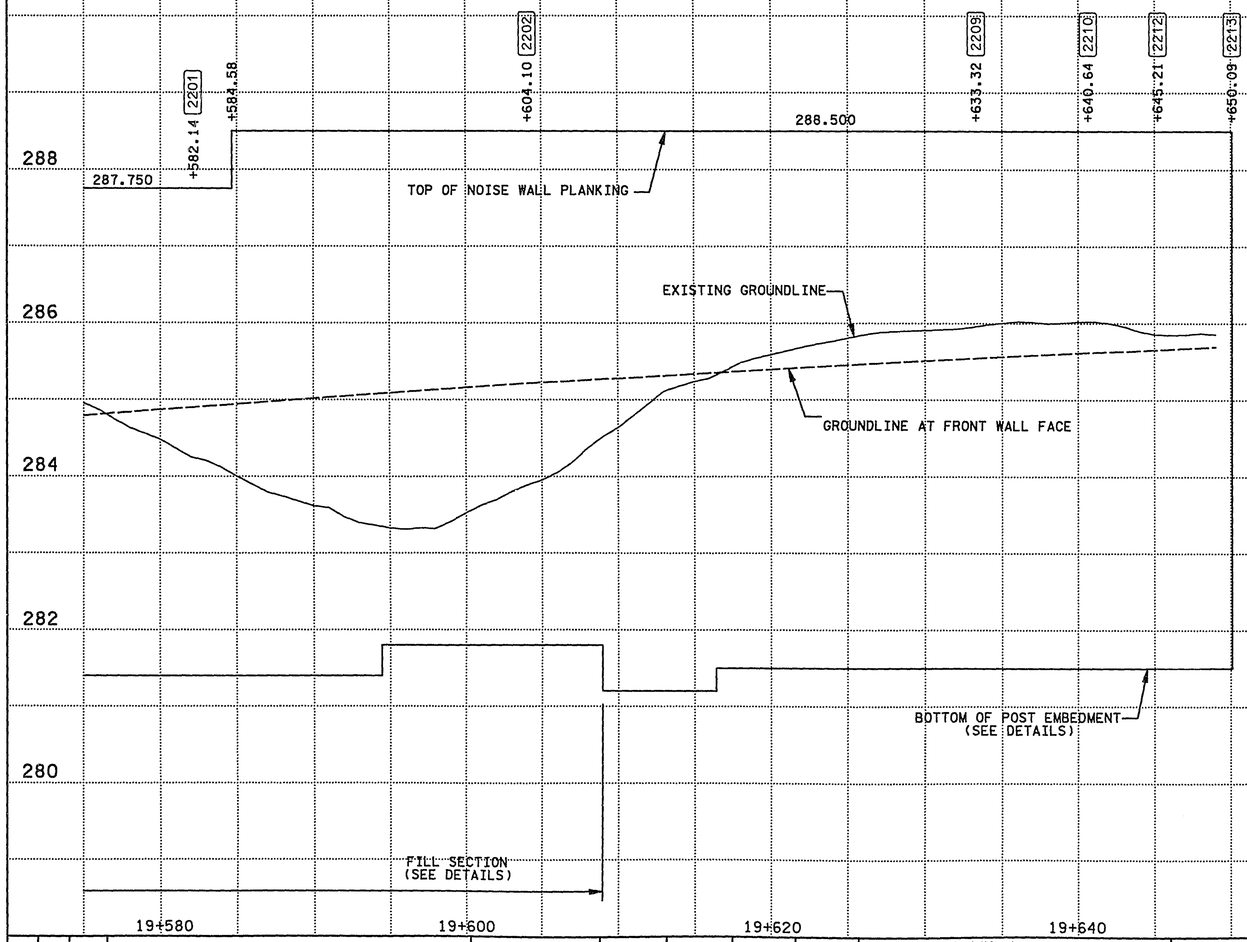
XXXX ALIGNMENT POINT NUMBER
SEE ALIGNMENT TABULATION
AND NOISE WALL DETAIL.

CAUTION:
OVERHEAD & UNDERGROUND UTILITIES
PRESENT CONTRACTOR TO WORK AROUND AND
COORDINATE WITH UTILITIES.

N

SCALE = 1 : 200
0 5 10 20 m

B.M. ELEV = 281.571
MNDOT DISK #6224E
S.E. CORNER INTERSECTION
SOO LINE RR & HWY. 96



28-161

NAME: RAM9601.DWG DATE: Mar. 12, 1997

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ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

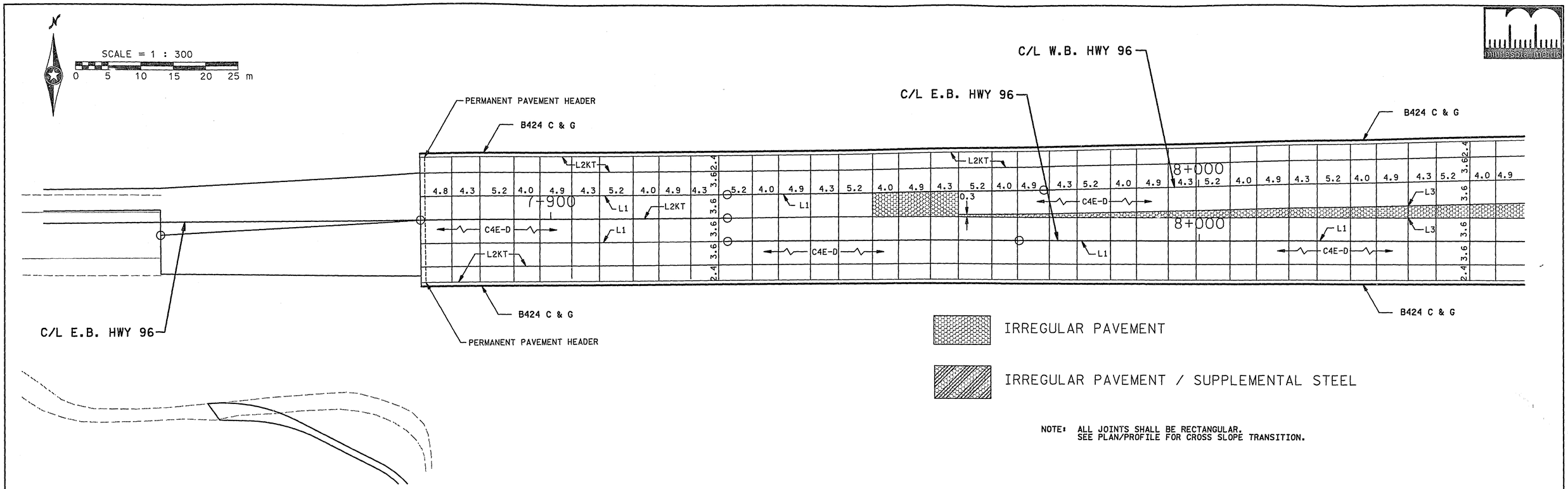
NOISE WALL 3
PLAN & PROFILE
STA. 19+575.00 TO 19+650.09

FILE NO. RAMSE9601.01

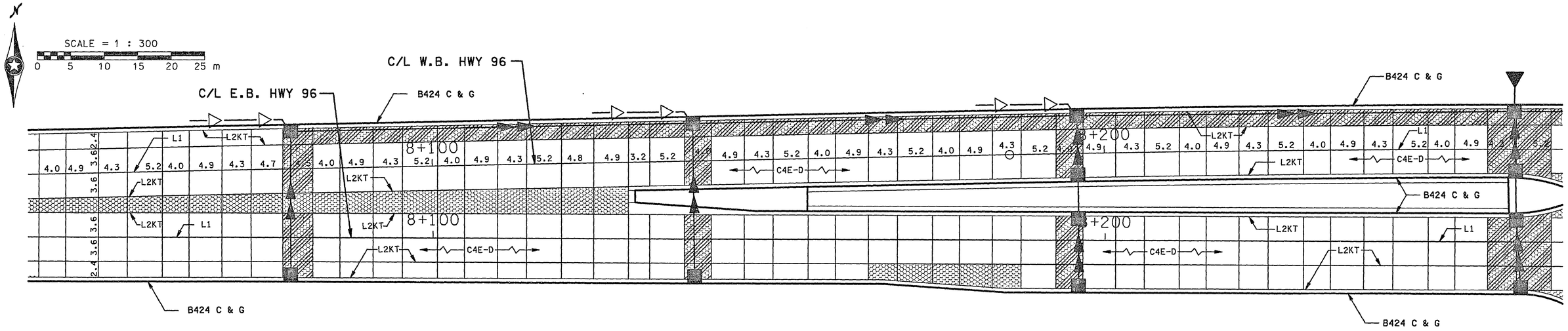
34
170

NO SHEET

#35 — 42



NOTE: ALL JOINTS SHALL BE RECTANGULAR.
SEE PLAN/PROFILE FOR CROSS SLOPE TRANSITION.



28-161

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ENGINEERS ■ ARCHITECTS ■ PLANNERS

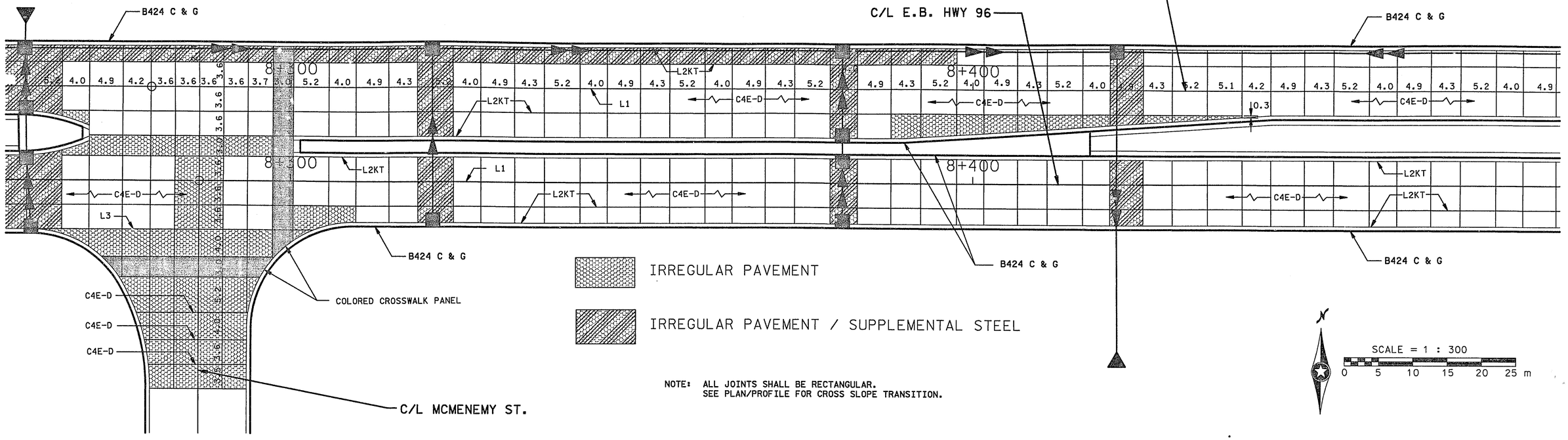
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
PAVING PLAN
STA. 7+820.000 TO 8+270.000

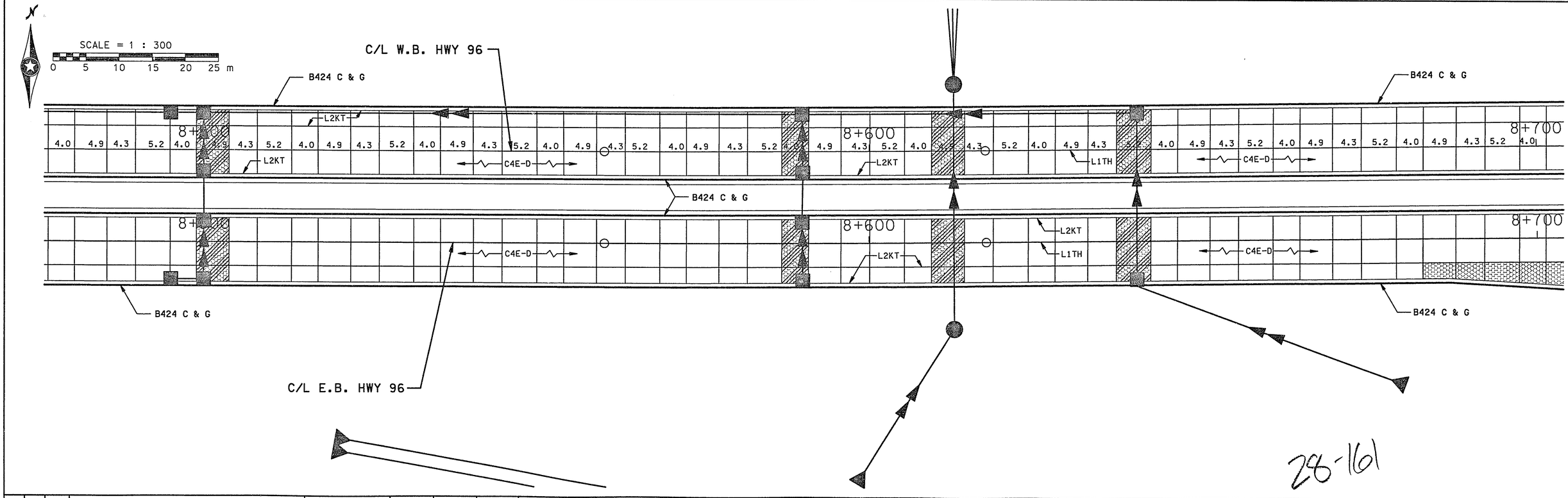
FILE NO. RAMSE9601.01

43 / 170

NAME: RAM9601.PJ1 DATE: Feb. 3, 1997



NOTE: ALL JOINTS SHALL BE RECTANGULAR.
SEE PLAN/PROFILE FOR CROSS SLOPE TRANSITION.



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

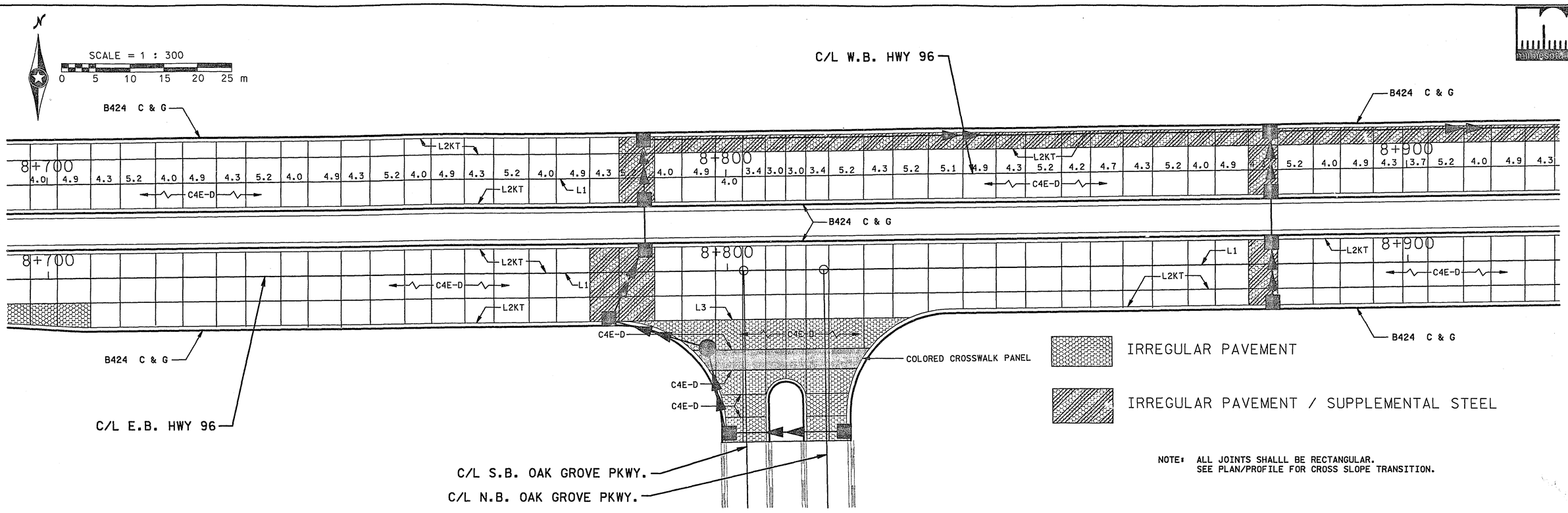
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
PAVING PLAN
STA. 8+270.000 TO 8+705.000

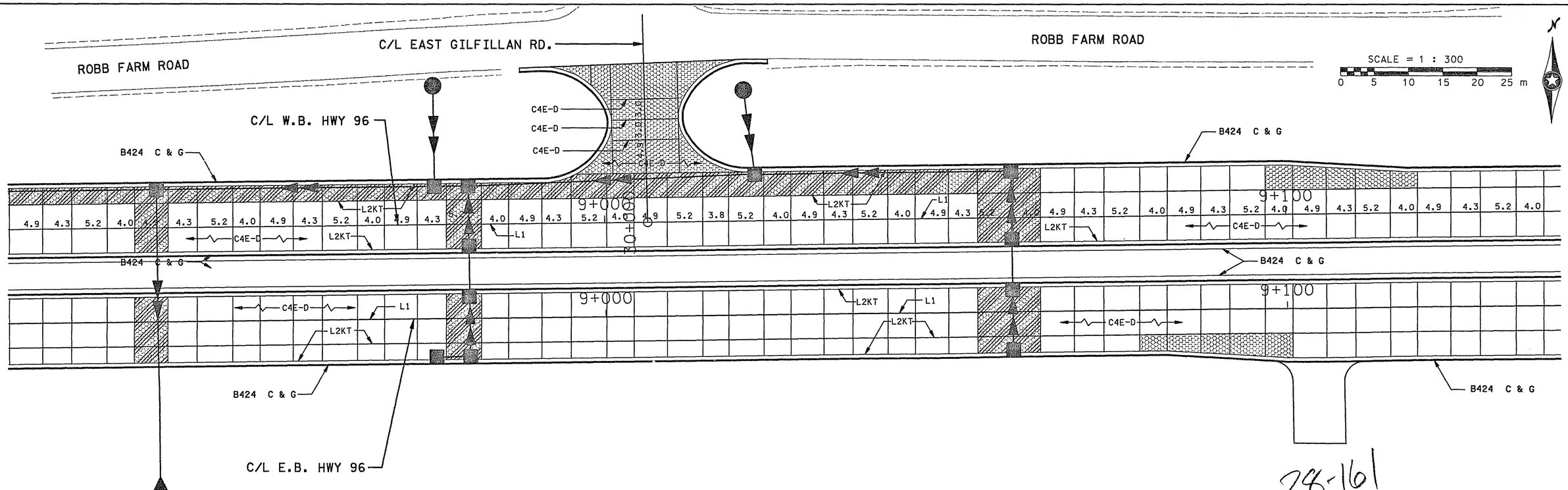
FILE NO. RAMSE9601.01

44 / 170

NAME: RAM9601.PJ2 DATE: Feb. 3, 1997



NOTE: ALL JOINTS SHALLL BE RECTANGULAR.
SEE PLAN/PROFILE FOR CROSS SLOPE TRANSITION.



28-161

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

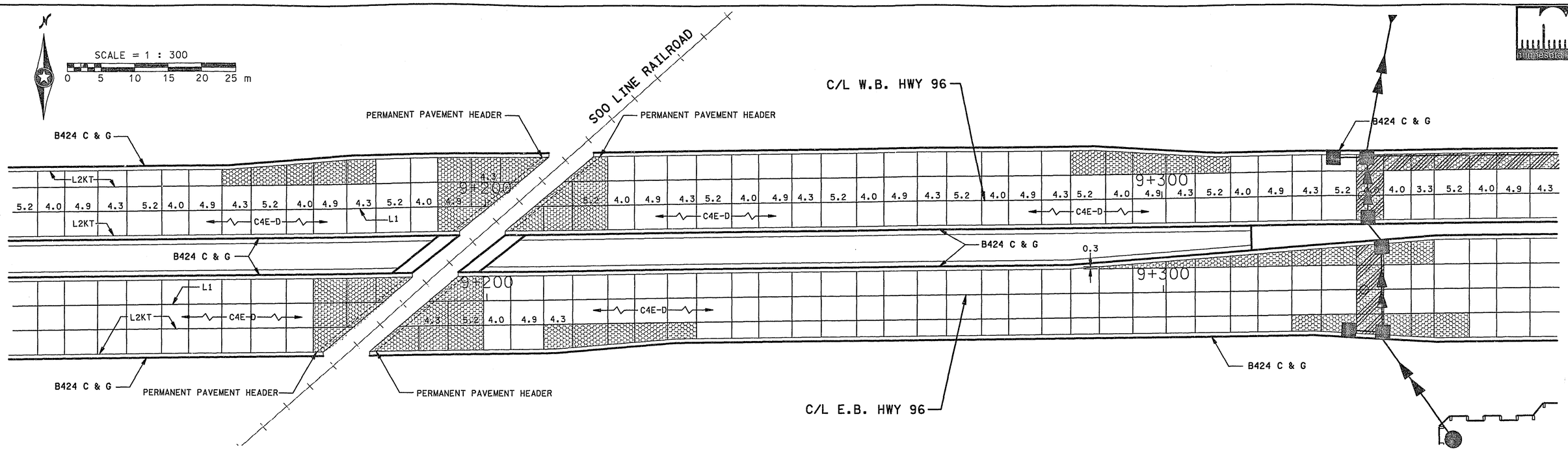
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

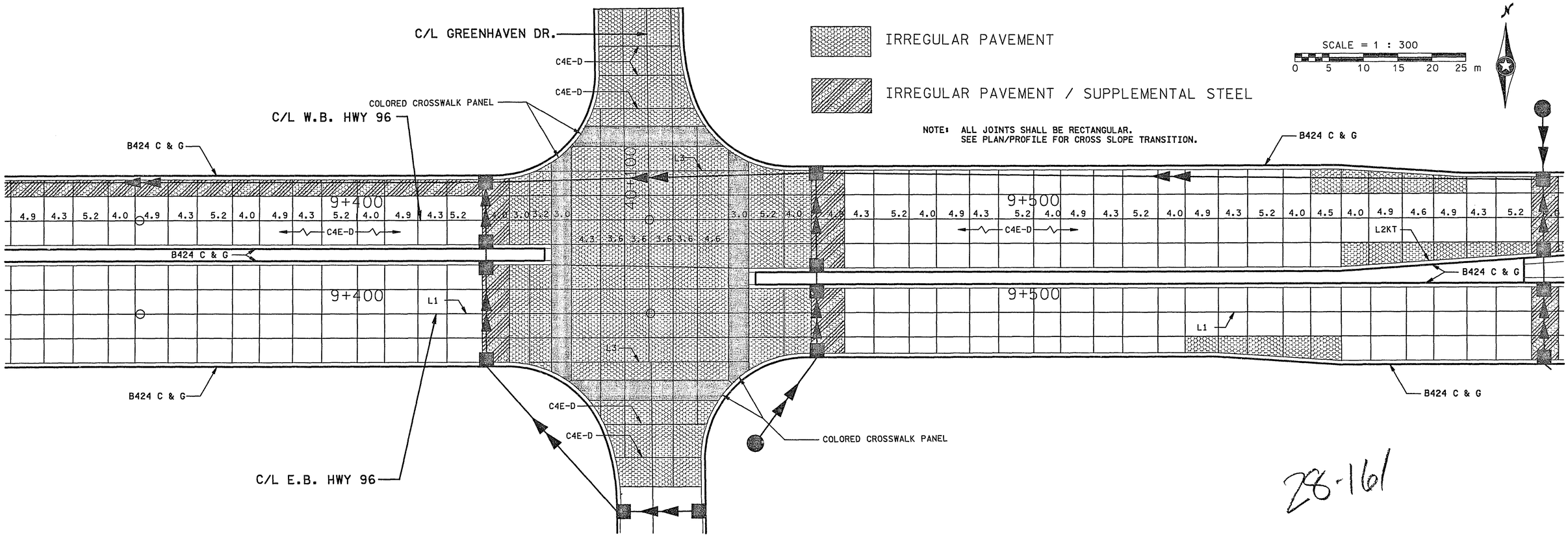
HIGHWAY 96
PAVING PLAN
STA. 8+695.000 TO 9+140.000

FILE NO. RAMSE9601.01

45
170

NAME: RAM9601.PJ3 DATE: Feb. 3, 1997





28-161

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
PAVING PLAN
STA. 9+130.000 TO 9+575.000

FILE NO. RAMSE9601.01

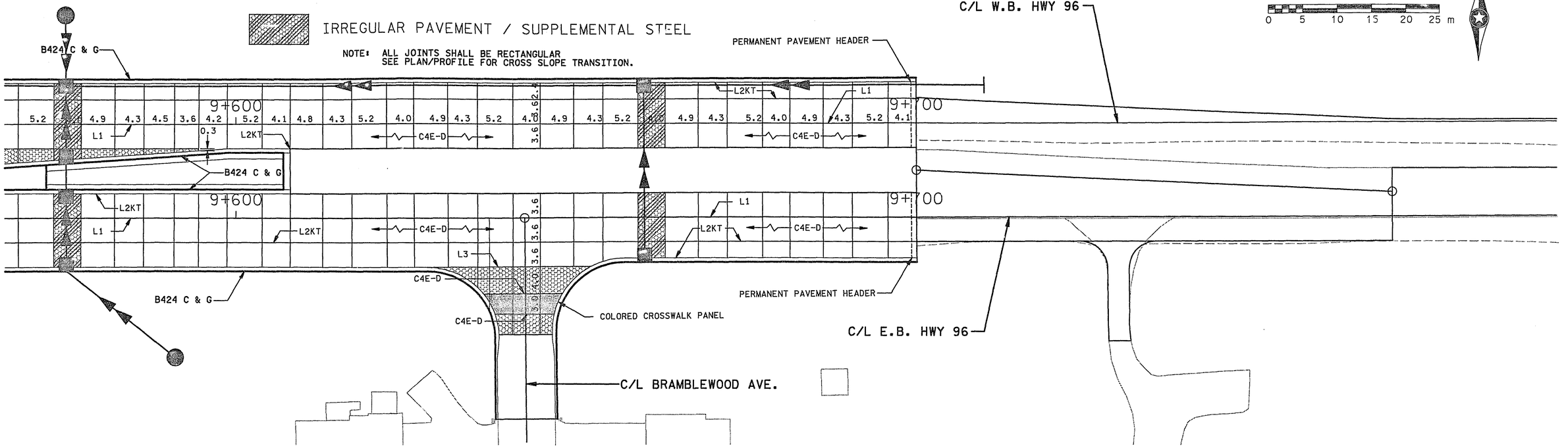
46
170

NAME: RAM9601P14 DATE: Feb. 3, 1997

IRREGULAR PAVEMENT

IRREGULAR PAVEMENT / SUPPLEMENTAL STEEL

NOTE: ALL JOINTS SHALL BE RECTANGULAR
SEE PLAN/PROFILE FOR CROSS SLOPE TRANSITION.



28-161

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

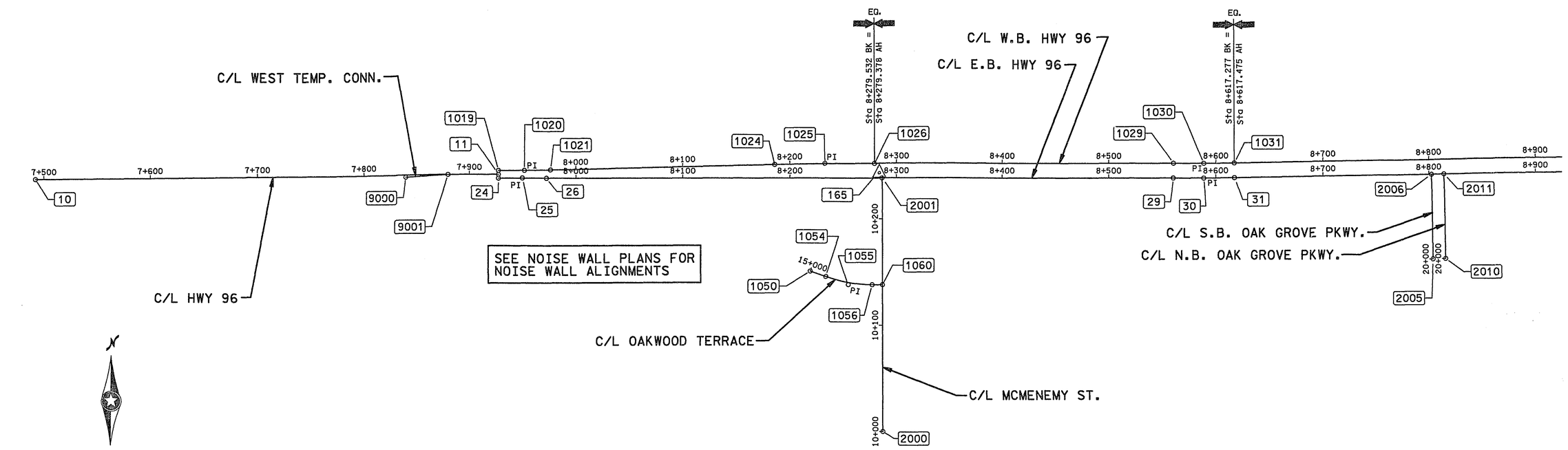
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

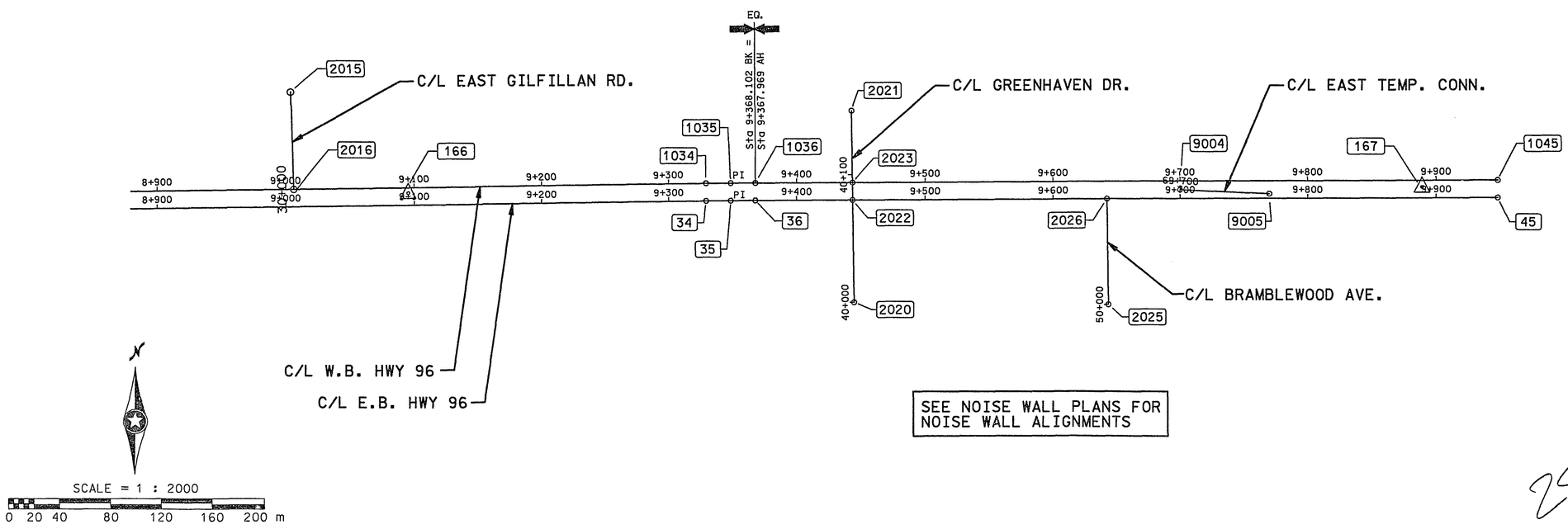
HIGHWAY 96
PAVING PLAN
STA. 9+565.000 TO 9+790.000

FILE NO. RAMSE9601.01

47/170

NAME: RAM9601.PJS DATE: Feb. 3, 1997





LEGEND

△ HORIZONTAL CONTROL POINT

XXXX ALIGNMENT POINT NUMBER

28-16

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

ALIGNMENT PLAN

FILE NO. RAMSE9601.01

48/170

NAME: RAM9601AL1 DATE: Nov. 20, 1996

METRIC ALIGNMENT TABULATION

POINT NO.	POINT	STATION	CURVE DATA DELTA	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
		℄ HWY. 96							
10	POT	7+492.000					174,957.7840	62,537.1740	89° 26' 39.4"
11	POT	7+927.306 =					175,393.0700	62,541.3960	
		A PT. 3.600 m RT C/L E.B. HWY. 96 7+927.306							
		℄ E.B. HWY. 96							
24	PC	7+927.306 =							
		A PT. 3.600 m LT C/L HWY. 96 7+927.306					175,393.1049	62,537.7962	89° 26' 39.4"
25	PI	7+949.746	0° 38' 34.2" RT	4,000.000	22.439	44.878	175,415.5431	62,538.0138	PI
	CC						175,431.9006	58,537.9843	
26	PT	7+972.185					175,437.9823	62,537.9797	90° 05' 13.6"
29	PC	8+560.150					176,025.9467	62,537.0857	90° 05' 13.6"
30	PI	8+588.813	0° 49' 16.0" LT	4,000.000	28.663	57.325	176,054.6097	62,537.0421	PI
	CC						176,032.0285	66,537.0811	
31	PT	8+617.475					176,083.2704	62,537.4093	89° 15' 57.6"
34	PC	9+329.371					176,795.1086	62,546.5291	89° 15' 57.6"
35	PI	9+348.670	0° 33' 10.3" RT	4,000.000	19.299	38.598	176,814.4061	62,546.7763	PI
	CC						176,846.3506	58,546.8573	
36	PT	9+367.969					176,833.7051	62,546.8373	89° 49' 07.9"
45	POT	9+947.999					177,413.7320	62,548.6710	
		℄ W.B. HWY. 96							
1019	PC	7+927.306 =					175,393.0351	62,544.9958	89° 26' 39.4"
		A PT. 3.600 m LT C/L E.B. HWY. 96 7+927.306							
1020	PI	7+951.692	0° 41' 54.9" LT	4,000.000	24.385	48.770	175,417.4193	62,545.2323	PI
	CC						175,354.2394	66,544.8077	
1021	PT	7+976.077					175,441.7989	62,545.7661	88° 44' 44.5"
1024	PC	8+185.883					175,651.5554	62,550.3588	88° 44' 44.5"
1025	PI	8+232.710	1° 20' 29.1" RT	4,000.000	46.826	93.648	175,698.3704	62,551.3838	PI
	CC						175,739.1148	58,551.3172	
1026	PT	EQ. 8+279.532 (BK) =					175,745.1966	62,551.3126	90° 05' 13.6"
		8+279.378 (AH)							
1029	PC	8+560.150					176,025.9677	62,550.8857	90° 05' 13.6"
1030	PI	8+588.714	0° 49' 16.0" LT	3,986.200	28.564	57.127	176,054.5318	62,550.8423	PI
	CC						176,032.0285	66,537.0811	
1031	PT	EQ. 8+617.277 (BK) =					176,083.0936	62,551.2082	89° 15' 57.6"
		8+617.475 (AH)							
1034	PC	9+329.371					176,794.9318	62,560.3279	89° 15' 57.6"
1035	PI	9+348.737	0° 33' 10.3" RT	4,013.800	19.366	38.731	176,814.2959	62,560.5760	PI
	CC						176,846.3506	58,546.8573	
1036	PT	EQ. 9+368.102 (BK) =					176,833.6615	62,560.6372	89° 49' 07.9"
		9+367.969 (AH)							
1045	POT	9+947.999 =					177,413.6884	62,562.4709	
		A PT. 13.800 m LT C/L E.B. HWY. 96 9+947.999							
		℄ MCMENEMY ST.							
2000	POT	10+000.000					175,751.8780	62,299.2430	00° 05' 55.8"
2001	POT	10+238.259 =					175,752.2890	62,537.5018	
		A PT. ON C/L E.B. HWY. 96 8+286.492							
		CONTROL POINTS							
165		CAST IRON MON'T NORTHEAST CORNER SECTION 19					175,752.2542	62,541.1294	
166		CAST IRON MON'T SOUTH QUARTER CORNER SECTION 17					176,553.5238	62,551.3946	
167		CAST IRON MON'T SOUTHEAST QUARTER CORNER SECTION 17					177,358.0470	62,552.1781	

METRIC ALIGNMENT TABULATION

POINT NO.	POINT	STATION	CURVE DATA DELTA	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
		℄ OAKWOOD TERRACE							
1050	POT	15+000.000					175,684.3190	62,450.3240	
1054	PC	15+015.167					175,698.5925	62,445.1956	109° 45' 47.0"
1055	PI	15+037.754	19° 40' 06.4" LT	130.300	22.587	44.729	175,719.8490	62,437.5583	PI
	CC						175,742.6510	62,567.8208	
1056	PT	15+059.896					175,742.4359	62,437.5210	90° 05' 40.6"
1060	POT	15+069.577=					175,752.1170	62,437.5050	
		A PT. ON C/L MCMENEMY RD. 10+138.262							
		℄ S.B. OAK GROVE PKWY.							
2005	POT	20+000.000					176,269.2880	62,460.6480	359° 12' 25.9"
2006	POT	20+079.138 =					176,268.1930	62,539.7785	
		A PT. ON C/L E.B. HWY. 96 8+802.412							
		℄ S.B. OAK GROVE PKWY.							
2010	POT	20+000.000					176,281.1370	62,460.8090	359° 13' 20.3"
2011	POT	20+079.129 =					176,280.0630	62,539.9305	
		A PT. ON C/L E.B. HWY. 96 8+814.283							
		℄ EAST GILFILLAN RD.							
2015	POT	30+000.000 =					176,471.9220	62,556.1897	358° 35' 44.2"
		A PT. ON C/L W.B. HWY. 96 9+006.335							
2016	POT	30+076.218					176,470.0540	62,632.3850	
		℄ GREENHAVEN DR.							
2020	POT	40+000.000					176,909.9990	62,467.0220	359° 23' 34.1"
2022	POT	40+080.058 =					176,909.1506	62,547.0758	
		A PT. ON C/L E.B. HWY. 96 9+443.415							
2023	POT	40+093.859 =					176,909.0043	62,560.8754	
		A PT. ON C/L W.B. HWY. 96 9+443.312							
2021	POT	40+150.000					176,908.4094	62,617.0136	
		℄ BRAMBLEWOOD AVE.							
2025	POT	50+000.000					177,108.9110	62,465.0630	359° 26' 28.4"
2026	POT	50+082.646 =					177,108.1050	62,547.7048	
		A PT. ON C/L E.B. HWY. 96 9+642.370							
		℄ WEST TEMP. CONN.							
9000	POT	67+839.950 =					175,305.7870	62,538.5493	86° 34' 54.8"
		A PT. 2.000 m RT C/L HWY. 96 7+840.000							
9001	POT	67+880.000 =					175,345.7658	62,540.9372	
		A PT. ON C/L HWY. 96 7+880.000							
		℄ EAST TEMP. CONN.							
9004	POT	69+700.000 =					177,165.7125	62,554.7870	92° 31' 04.6"
		A PT. 6.900 m LT C/L E.B. HWY. 96 9+700.000							
9005	POT	69+770.078 =					177,235.7226	62,551.7083	
		A PT. 3.600 m LT C/L E.B. HWY. 96 9+770.000							

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

28-161
ALIGNMENT TABULATION

FILE NO. RAMSE9601.01

49/170

NAME: RAM9601.ALT DATE: Nov. 19, 1996

METRIC ALIGNMENT TABULATION

POINT NO.	POINT	STATION	CURVE DATA DELTA	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
		℄ NOISE WALL 1							
2100	POT	17+897.769 =					175,363.7502	62,518.8106	
		A PT. 22.300 m RT C/L E.B. HWY 96 7+897.769						62,520.5850	
2101	POT	17+900.218					175,365.4381	62,520.5807	
2102	POT	17+902.658					175,367.8782	62,522.4856	
2103	POT	17+905.099					175,369.4048	62,522.4766	
2104	POT	17+912.420					175,376.7253	62,520.8692	
2105	POT	17+914.854					175,378.5539	62,520.8649	
2106	POT	17+917.295 =					175,380.9941	62,520.0649	
2107	POT	A PT. 0.800 m RT C/L NOISE WALL 1 17+917.295					175,381.0018	62,520.0649	
2108	POT	17+929.495 =					175,393.2016	62,520.1453	
2109	POT	A PT. 0.800 m LT C/L NOISE WALL 1 17+929.495					175,393.1939	62,520.9452	
2110	POT	17+931.925					175,395.6238	62,520.9681	
2111	POT	17+934.260					175,397.1529	62,522.7328	
2112	POT	17+965.860					175,428.7529	62,522.6961	
2113	POT	17+968.296					175,430.7019	62,521.2341	
2114	POT	17+970.726 =					175,433.1317	62,521.2341	
2115	POT	A PT. 0.800 m RT C/L NOISE WALL 1 17+970.726					175,433.1314	62,520.4341	
2116	POT	17+982.905 =					175,445.3101	62,520.4185	
2117	POT	A PT. 0.800 m LT C/L NOISE WALL 1 17+982.905					175,445.3114	62,521.2185	
2118	POT	17+985.345					175,447.7514	62,521.2148	
2119	POT	17+987.680					175,449.3010	62,522.9625	
2120	POT	18+029.160					175,490.7810	62,522.8994	
2121	POT	18+031.592					175,492.6095	62,521.2966	
2122	POT	18+034.032 =					175,495.0495	62,521.2929	
2123	POT	A PT. 0.800 m RT C/L NOISE WALL 1 18+034.032					175,495.0483	62,520.4929	
2124	POT	18+046.232 =					175,507.2483	62,520.4744	
2125	POT	A PT. 0.800 m LT C/L NOISE WALL 1 18+046.232					175,507.2495	62,521.2744	
2126	POT	18+048.672					175,509.6895	62,521.2706	
2127	POT	18+051.106					175,511.2134	62,523.1683	
2128	POT	18+063.306					175,523.4134	62,523.1498	
2129	POT	18+072.789					175,532.5847	62,520.7358	
2130	POT	18+138.669					175,598.4646	62,520.6357	
2131	POT	18+150.881					175,610.1690	62,524.1179	
2132	POT	18+172.841					175,632.1289	62,524.0845	
2133	POT	18+192.361					175,651.6039	62,522.7549	
2134	POT	18+268.001					175,727.2438	62,522.6399	
2135	POT	18+270.444 =					175,729.4713	62,521.6365	
		A PT. 15.900 m RT C/L E.B. HWY 96 8+263.698							
		℄ NOISE WALL 2							
2150	POT	19+340.400 =							
		A PT. 27.700 m RT C/L E.B. HWY 96 9+340.400							
2151	POT	19+347.720					176,806.4151	62,518.9566	
2152	POT	19+349.649					176,807.7716	62,527.5704	
2153	POT	19+361.791					176,819.9130	62,527.6695	
2154	POT	19+364.194					176,821.4941	62,529.4797	
2155	POT	19+381.221					176,838.5206	62,529.5525	
2156	POT	19+383.611					176,821.4941	62,529.4797	
2157	POT	19+386.051 =					176,838.5206	62,529.5525	
2158	POT	A PT. 0.800 m RT C/L NOISE WALL 2 19+386.051					176,842.5408	62,526.9651	
2159	POT	19+390.931 =					176,847.4208	62,526.9806	
2160	POT	A PT. 0.800 m LT C/L NOISE WALL 2 19+390.931					176,847.4183	62,527.7806	

METRIC ALIGNMENT TABULATION

POINT NO.	POINT	STATION	CURVE DATA DELTA	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
2161	POT	19+393.371					176,849.8583	62,527.7883	
2162	POT	19+395.663					176,851.3909	62,529.4931	
2163	POT	19+412.743					176,868.4708	62,529.5471	
2164	POT	19+415.188					176,870.4802	62,528.1535	
2165	POT	19+427.388					176,882.6801	62,528.1920	
2166	POT	19+429.783					176,884.6952	62,526.8984	
2167	POT	19+437.103					176,892.0152	62,526.9216	
2168	POT	19+439.147					176,893.5963	62,525.6265	
2169	POT	19+441.187					176,893.6028	62,523.5866	
2170	POT	19+444.164					176,896.5797	62,523.5960	
2171	POT	19+444.974					176,896.5823	62,522.7860	
2172	POT	19+447.117					176,896.4341	62,520.6475	
2173	POT	19+449.557 =					176,896.4418	62,518.2075	
		A PT. 28.828 m RT C/L E.B. HWY 96 9+430.615							
		℄ NOISE WALL 3							
2180	POT	19+458.800					176,924.6082	62,524.1246	
		A PT. 23.000 m RT C/L E.B. HWY 96 9+458.800							
2181	POT	19+461.240 =					176,924.6005	62,526.5646	
2182	POT	A PT. 0.800 m LT C/L NOISE WALL 3 19+461.240					176,923.8005	62,526.5620	
2183	POT	19+463.680					176,923.7928	62,529.0020	
2184	POT	19+465.924					176,926.0368	62,529.0091	
2185	POT	19+468.401					176,927.9880	62,530.5353	
2186	POT	19+480.601 =					176,940.1879	62,530.5739	
2187	POT	A PT. 0.800 m RT C/L NOISE WALL 3 19+480.601					176,940.1904	62,529.7739	
2188	POT	19+487.921 =					176,947.5104	62,529.7970	
2189	POT	A PT. 0.800 m LT C/L NOISE WALL 3 19+487.921					176,947.5079	62,530.5970	
2190	POT	19+495.241 =					176,954.8278	62,530.6201	
2191	POT	A PT. 0.800 m RT C/L NOISE WALL 3 19+495.241					176,954.8304	62,529.8201	
2192	POT	19+502.561 =					176,962.1503	62,529.8433	
2193	POT	A PT. 0.800 m LT C/L NOISE WALL 3 19+502.561					176,962.1478	62,530.6433	
2194	POT	19+509.881					176,969.4678	62,530.6664	
2195	POT	19+513.986					176,972.7901	62,533.0769	
2196	POT	19+533.506					176,992.3100	62,533.1387	
2197	POT	19+553.019					177,011.7841	62,531.9002	
2198	POT	19+560.339					177,019.1040	62,531.9234	
2199	POT	19+562.729					177,020.7894	62,530.2287	
2200	POT	19+579.809					177,037.8693	62,530.2827	
2201	POT	19+582.138					177,039.3406	62,532.0873	
2202	POT	19+604.098					177,061.3005	62,532.1568	
2203	POT	19+606.519					177,063.4073	62,530.9634	
2204	POT	19+608.959					177,065.8473	62,530.9711	
2205	POT	19+611.378					177,067.9511	62,529.7778	
2206	POT	19+626.018					177,082.5910	62,529.8240	
2207	POT	19+628.445					177,084.6972	62,531.0307	
2208	POT	19+630.885					177,087.1372	62,531.0384	
2209	POT	19+633.321					177,089.2534	62,532.2451	
2210	POT	19+640.641					177,096.5733	62,532.2683	
2211	POT	19+643.060					177,098.6771	62,531.0749	
2212	POT	19+645.213					177,100.8278	62,531.1817	
2213	POT	19+650.093					177,100.8432	62,526.3017	
		A PT. 21.380 m RT C/L E.B. HWY 96 9+635.041							

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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.
Jason M Mason
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

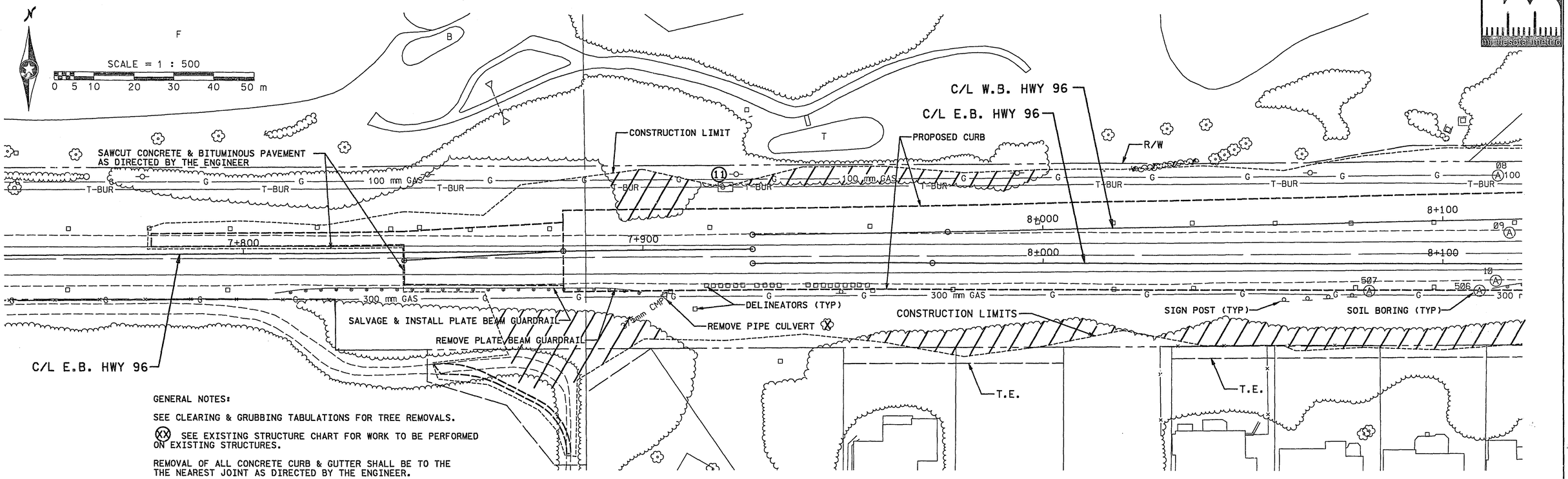
28-16

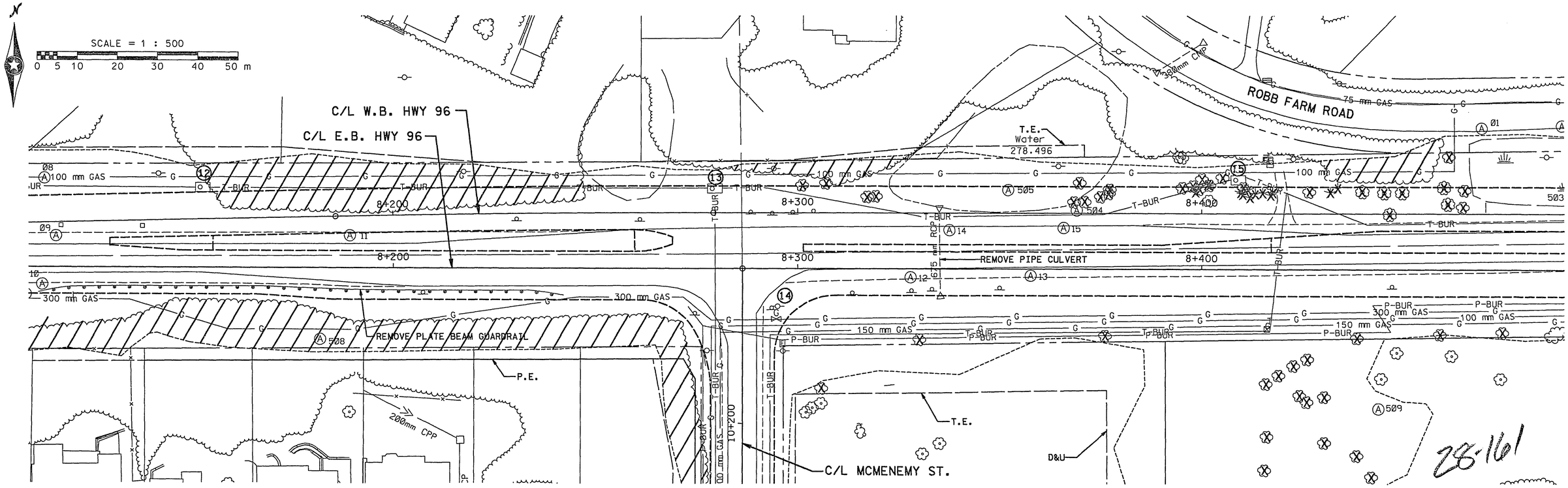
ALIGNMENT TABULATION

FILE NO. RAMSE9601.01

50/170

NAME: RAM9601.ALT DATE: Nov. 19, 1996





NAME: RAM9601.EX1 DATE: Jan. 11, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

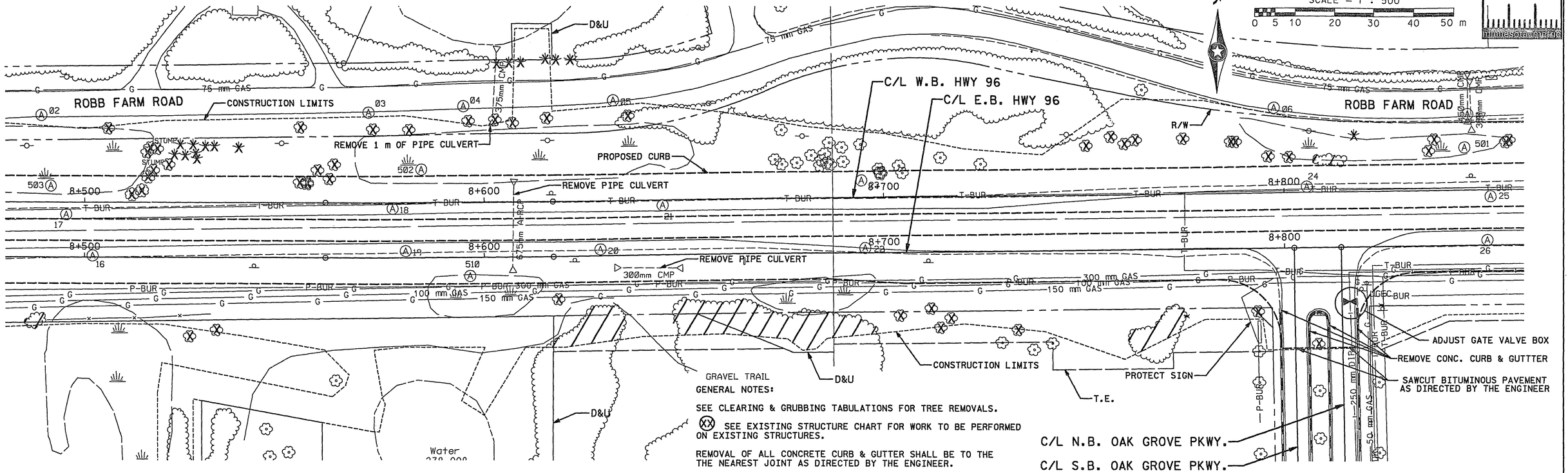
ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
UTILITY & REMOVAL PLAN
STA. 7+740.000 TO 8+490.000

FILE NO. RAMSE9601.01

51 / 170

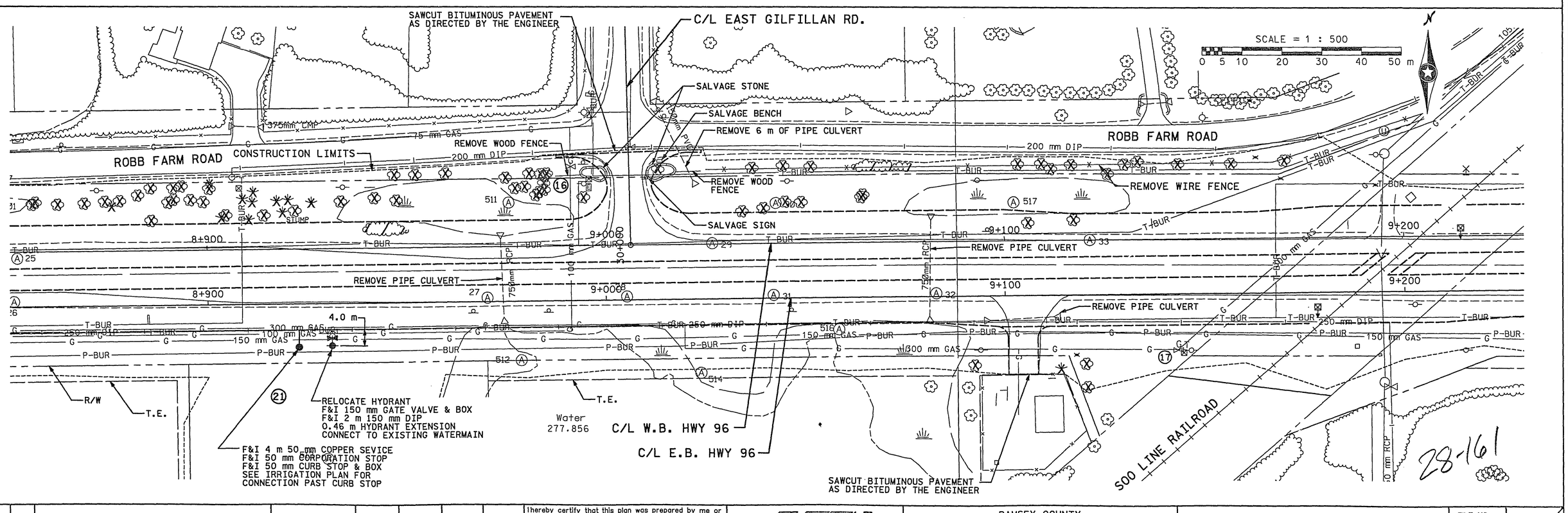


GENERAL NOTES:

SEE CLEARING & GRUBBING TABULATIONS FOR TREE REMOVALS.

(XX) SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES.

REMOVAL OF ALL CONCRETE CURB & GUTTER SHALL BE TO THE THE NEAREST JOINT AS DIRECTED BY THE ENGINEER.



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

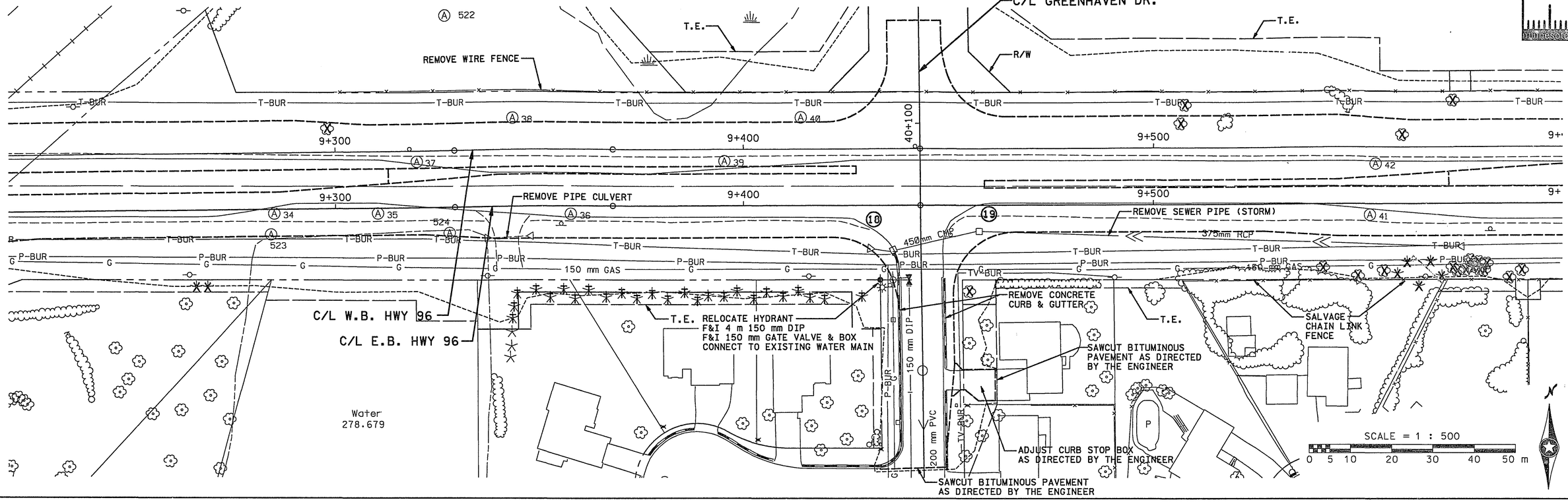
S.A.P. 62-696-05 CTB

HIGHWAY 96
UTILITY & REMOVAL PLAN
STA. 8+480.000 TO 9+230.000

FILE NO. RAMSE9601.01

52 / 170

NAME: RAM9601.EX2 DATE: Jan. 11, 1997

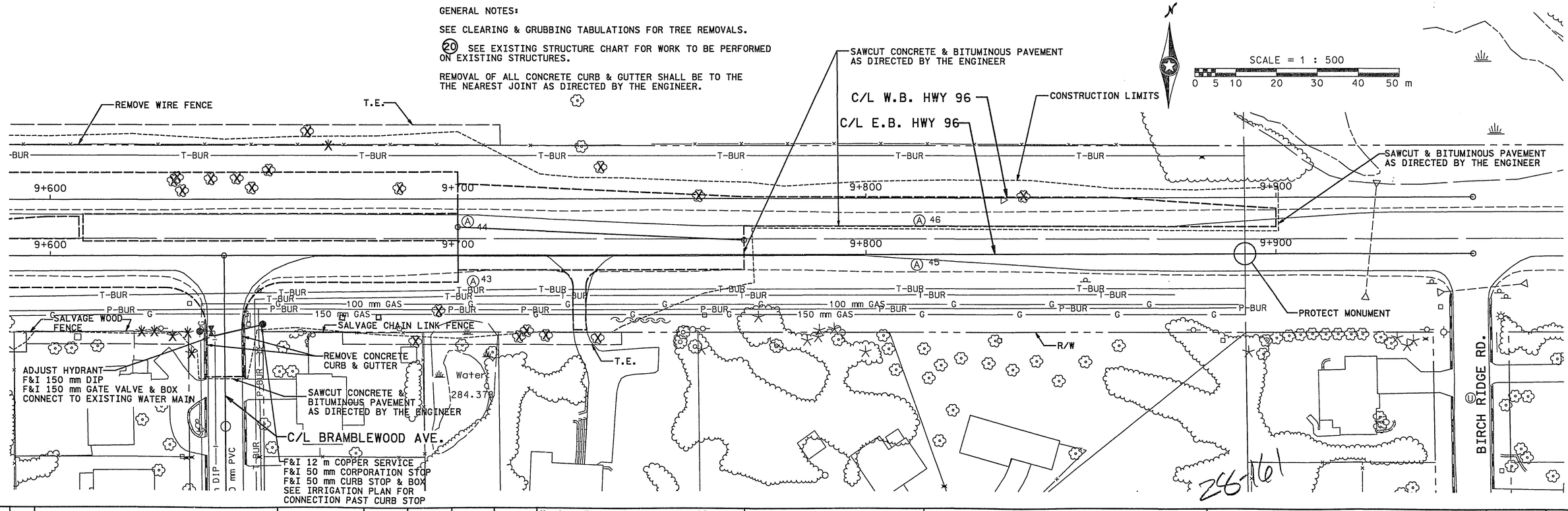


GENERAL NOTES:

SEE CLEARING & GRUBBING TABULATIONS FOR TREE REMOVALS.

(20) SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES.

REMOVAL OF ALL CONCRETE CURB & GUTTER SHALL BE TO THE THE NEAREST JOINT AS DIRECTED BY THE ENGINEER.



246-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

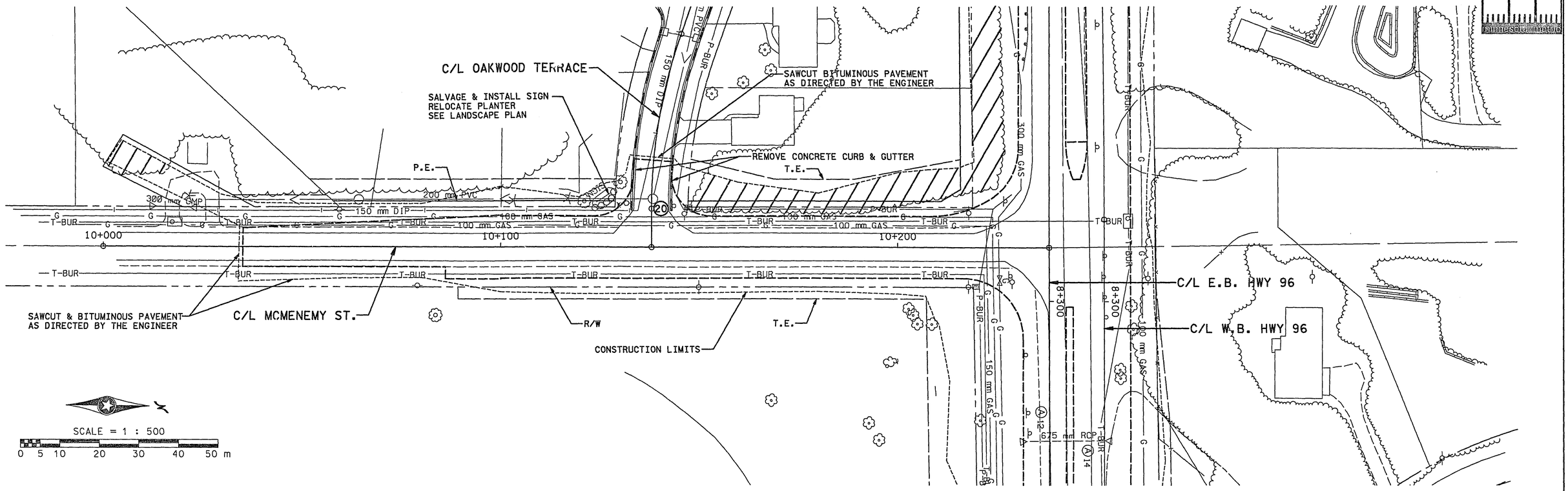
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
UTILITY & REMOVAL PLAN
STA. 9+220.000 TO 9+940.000

FILE NO. RAMSE9601.01

53
170

NAME: RAM9601.EX3 DATE: Mar. 17, 1997



GENERAL NOTES:

SEE CLEARING & GRUBBING TABULATIONS FOR TREE REMOVALS.

(XX) SEE EXISTING STRUCTURE CHART FOR WORK TO BE PERFORMED ON EXISTING STRUCTURES.

REMOVAL OF ALL CONCRETE CURB & GUTTER SHALL BE TO THE THE NEAREST JOINT AS DIRECTED BY THE ENGINEER.

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
UTILITY & REMOVAL PLAN
MCMENMEY STREET

FILE NO. RAMSE9601.01

54/170

NAME: RAM9601.EX4 DATE: Jan. 11, 1997

N

SCALE = 1 : 500

0 5 10 20 30 40 50 m

NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

PAVEMENT CROSS SLOPE TRANSITION

① BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

7+880.000 BEGIN PERM. CONSTRUCTION
END WEST TEMP. CONN. 67+880.000

CONSTRUCTION LIMITS

C/L HWY 96

C/L W.B. HWY 96

C/L E.B. HWY 96

15 m X 100 mm PERF P.E. PIPE DRAIN SEE DETAILS

R/W

T-BUR G 100 mm GAS

3.3 m +840.0 7+800

7.2 m

6.0 m

8.6 m

10.2 m 7+900

3.0 m 3.0 m BIT. WALK ①

6.6 m 8+000

8+000

B424 C&G

8+100 6.6 m

300 mm GAS

7+777.000 BEGIN CONSTRUCTION
BEGIN WEST TEMP. CONN.
S.A.P. 62-696-05 CTB MATCH EXISTING

REMOVE EXISTING SHOULDER PAVEMENT
REPLACE PAVEMENT (SEE TYPICAL SECTIONS)
MATCH EXISTING PROFILE AND ELEVATION.

C/L WEST TEMP. CONN.

RECONSTRUCT GRAVEL SERVICE ROAD WITH 150 mm AGGREGATE BASE CLASS 6 FINAL LOCATION TO BE DETERMINED IN THE FIELD. MATCH EXISTING WIDTH.

T.E.

R/W

NOISE WALL 1
SEE NOISE WALL PLAN & PROFILE

T.E.

T.E.

MODULAR BLOCK WALL
SEE PLAN & PROFILE

B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96

VERTICAL CURVE 1 VERTICAL CURVE 2

C/L E.B. HWY 96 PROFILE GRADE (TOP FINISHED SURFACE)

EXISTING GROUND LINE

VERTICLE CURVE 2

GRADING GRADE

0.350 m

C/L HWY 96
FUTURE PROFILE GRADE
(TOP FINISHED SURFACE)

C/L WEST TEMP. CONN.
PROFILE GRADE
(TOP FINISHED SURFACE)

7+870.0 BEGIN FULL WIDTH SUBGRADE EXCAVATION & EMBANKMENT (TRANSITION FROM TEMP. CONNECTION SECTION.) SEE CROSS SECTIONS & TYPICAL SECTIONS.

0.300 m SUBGRADE EXCAVATION

0.300 m

+ 1.48%

+ 1.15%

+ 1.18%

1:20

1:20

VERTICLE CURVE 1

0.650 m DEPTH SUBGRADE EXCAVATION

SEE CROSS SECTIONS AND TYPICAL SECTIONS FOR TRANSITIONS

VERTICLE CURVE 1
520.00 m V.C.
M = -3.939 m
BVC
PVI 7+870.000 ELEV. 287.790
EVC
G1 = +4.30%
G2 = +1.76%

20.00 m V.C. M = +0.008 m

20.00 m V.C. M = -0.008 m

VERTICLE CURVE 2
520.00 m V.C.
M = -3.939 m
BVC
PVI 7+870.000 ELEV. 287.736
EVC 8+130.00 ELEV. 283.160
G1 = +4.30%
G2 = -1.76%
HIGH POINT 7+978.977 ELEV. 284.89

A PT. ON C/L WEST TEMP. CONN. P.O.T. 7+839.950 MATCH EXISTING
67+839.950 ELEV. 283.443

BEGIN CONSTRUCTION S.A.P. 62-696-05 CTB C/L E.B. HWY 96 P.O.T. 7+840.000 2.000 m RT =
283.20 283.40

BVC 67+839.950 ELEV. 283.443
283.44 283.443

PVI 67+850.000 ELEV. 283.561
283.56 283.709

BVCC 67+860.000 ELEV. 283.709
283.56 283.709

PVI 67+870.000 ELEV. 283.857
283.73 283.972

EVC 67+880.000 ELEV. 283.972
283.73 283.972

END TEMPORARY CONSTRUCTION C/L WEST TEMP. CONN. P.O.T. 67+880.000 0.000 m RT =

A PT. ON C/L HWY 96 P.O.T. 7+880.000 BEGIN PERMANENT CONSTRUCTION
284.05 284.180

C/L SHIFT C/L HWY 96 7+927.306 ELEV. 284.387 = C/L E.B. HWY 96 7+927.306 3.60 m RT ELEV. 284.333 =
284.32 284.340

284.54 284.400

284.69 284.468

284.87 284.489

284.93 284.463

284.87 284.391

284.81 284.272

284.65 284.106

284.43 283.894

284.12 283.636

283.79

7+800 7+900 8+000 8+100

286 284 282 280 278

NOTE SEE W.B. HWY 96 PLAN & PROFILE FOR STORM SEWER PROFILES

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

E.B. HWY 96
PLAN & PROFILE
STA. 7+740.000 TO 8+120.000

FILE NO. RAMSE9601.01

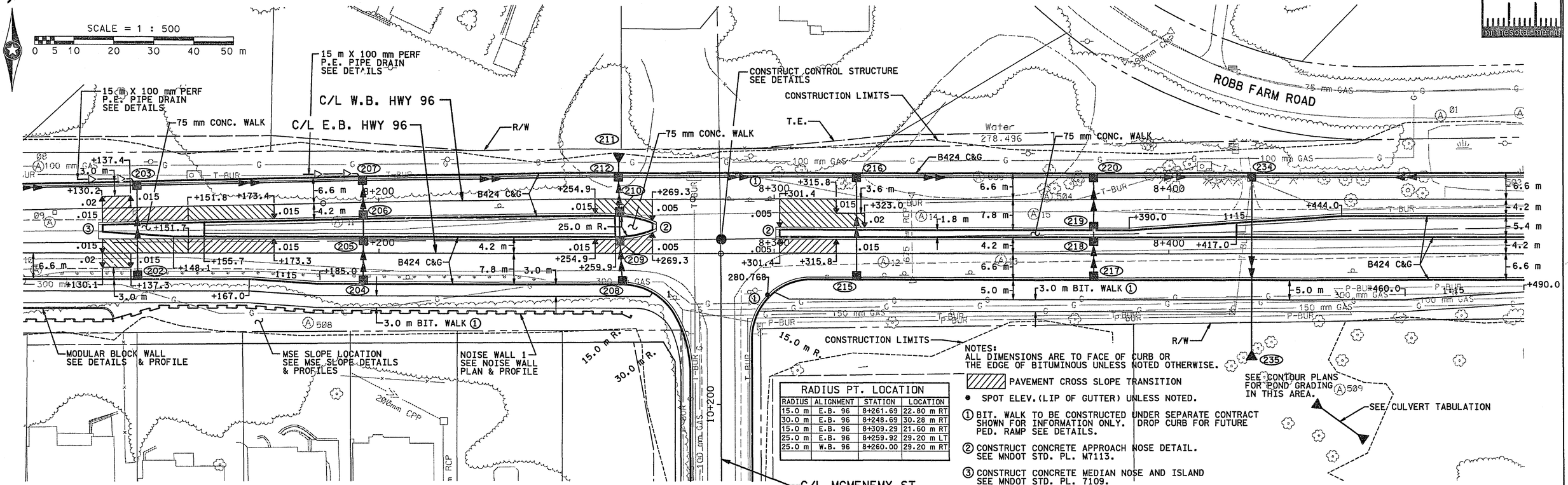
55E / 170

NAME: RAM9601.GM1 DATE: Mar. 17, 1997

N

SCALE = 1 : 500

0 5 10 20 30 40 50 m



RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	E.B. 96	8+261.69	22.80 m RT
30.0 m	E.B. 96	8+248.69	30.28 m RT
15.0 m	E.B. 96	8+309.29	21.60 m RT
25.0 m	E.B. 96	8+259.92	29.20 m LT
25.0 m	W.B. 96	8+260.00	29.20 m RT

NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

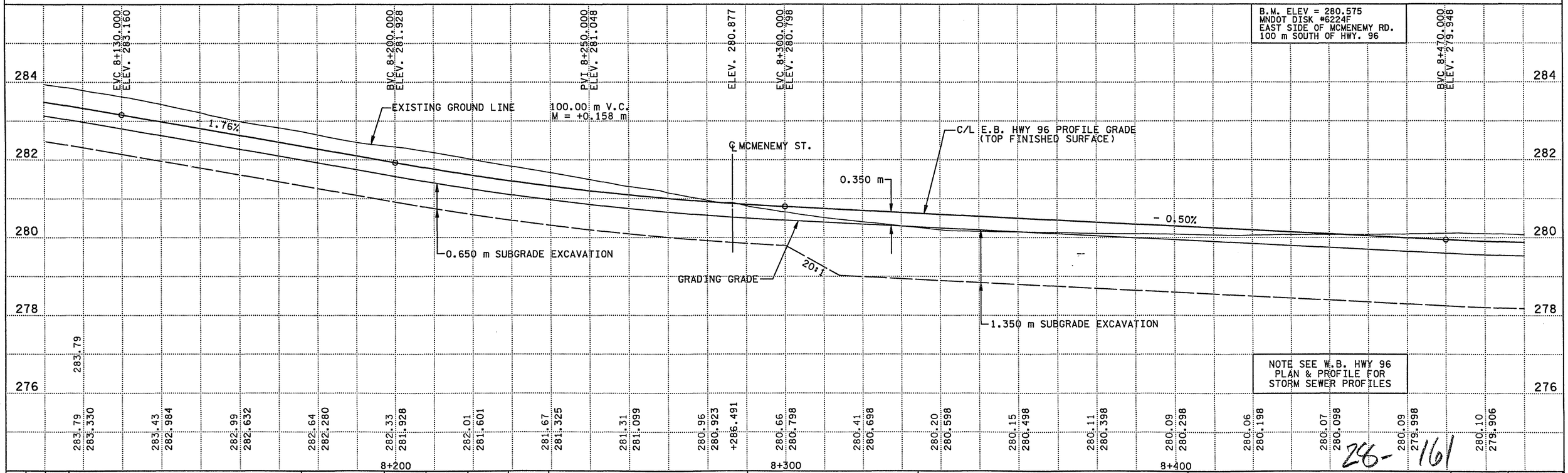
PAVEMENT CROSS SLOPE TRANSITION

• SPOT ELEV.(LIP OF GUTTER) UNLESS NOTED.

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) CONSTRUCT CONCRETE MEDIAN NOSE AND ISLAND SEE MNDOT STD. PL. 7109.



B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96

NOTE SEE W.B. HWY 96 PLAN & PROFILE FOR STORM SEWER PROFILES

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

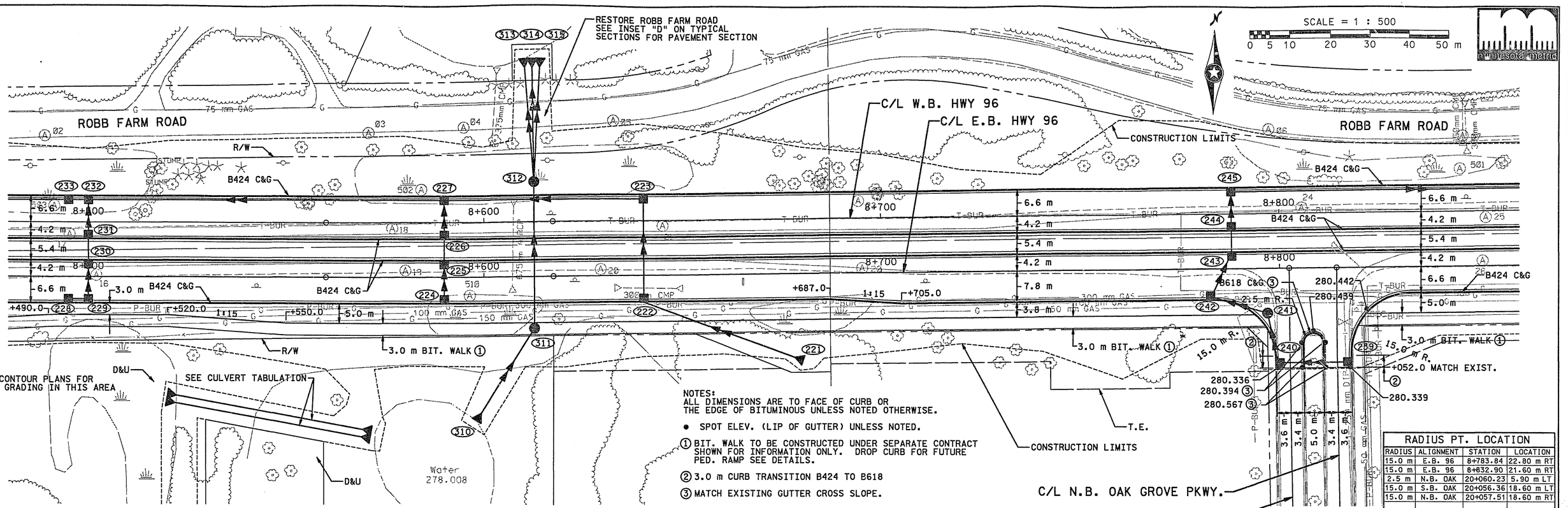
E.B. HWY 96
PLAN & PROFILE
STA. 8+110.000 TO 8+490.000

FILE NO. RAMSE9601.01

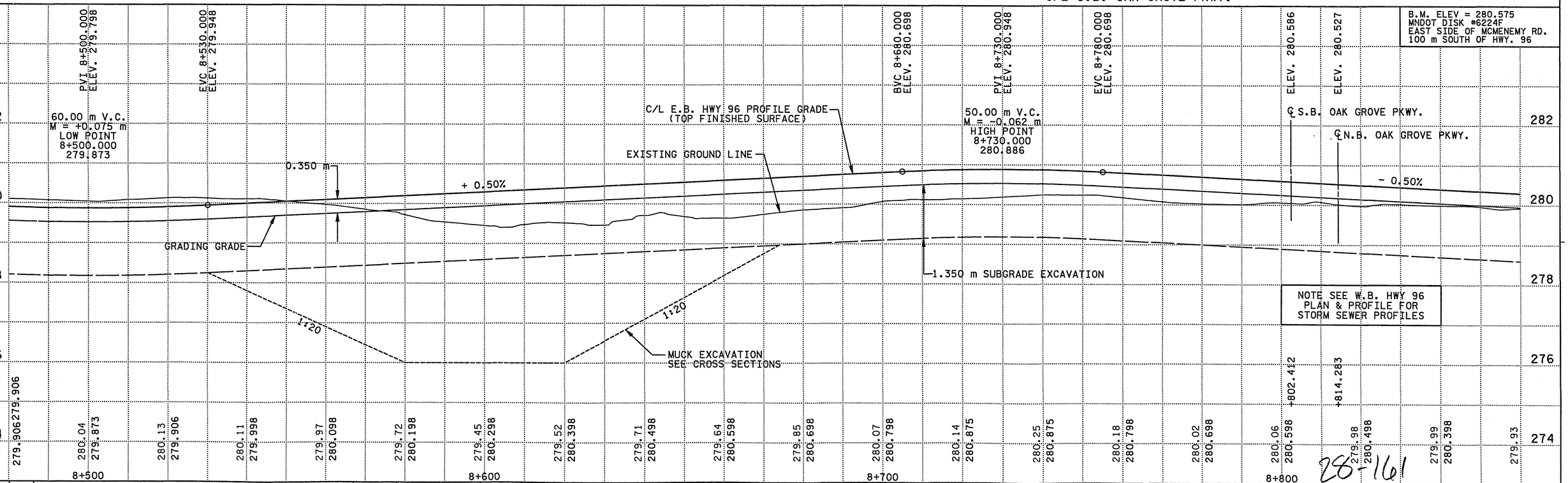
56E / 170

Z6-161

NAME: RAM9601.GM2 DATE: Jan. 7, 1997



RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	E.B. 96	8+783.84	22.80 m RT
15.0 m	E.B. 96	8+832.90	21.60 m RT
2.5 m	N.B. OAK	20+060.23	5.90 m LT
15.0 m	S.B. OAK	20+056.36	18.60 m LT
15.0 m	N.B. OAK	20+057.51	18.60 m RT



NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

E.B. HWY 96
PLAN & PROFILE
STA. 8+480.000 TO 8+860.000

FILE NO. RAMSE9601.01

57E / 170

28-161

NAME: RAM9601.GM3 DATE: Jan. 11, 1997

SCALE = 1 : 500
0 5 10 20 30 40 50 m

ROBB FARM ROAD

R/W

GRADE TO DRAIN

+023.5 MATCH EXISTING

CONNECT TO EXISTING PIPE
SEE REMOVE CULVERT TABULATION (INC)

CONSTRUCT CONTROL STRUCTURE
SEE DETAILS

B424 C&G

3.0 m BIT. WALK (1)

C/L W.B. HWY 96

C/L E.B. HWY 96

T.E.

CONSRUCTION LIMITS

D&U

CONSTRUCT COMMERCIAL
ENTRANCE SEE DETAILS

SOO LINE RAILROAD

25.0 m R.

50.0 m R.

SEE CONTOUR PLANS FOR
POND GRADING IN THIS AREA

NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR
THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

PAVEMENT CROSS SLOPE TRANSITION

• SPOT ELEV.(LIP OF GUTTER) UNLESS NOTED.

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) 3.0 m CURB TRANSITION B424 TO PAVEMENT

(4) CONSTRUCT COMMERCIAL ENTRANCE SEE DETAILS.

(5) CONTRACTOR TO COORDINATE WITH RAILROAD DURING CONSTRUCTION FOR PLACEMENT OF NEW AT GRADE CROSSING. FIELD VERIFY TRACK ELEVATION FOR FINAL PAVEMENT CROSS SLOPE AND ELEVATION.

SEE CULVERT TABULATION

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	W.B. 96	8+991.06	16.60 m LT
5.0 m	W.B. 96	8+995.65	14.63 m LT
10.0 m	W.B. 96	8+991.19	12.38 m LT
10.0 m	W.B. 96	9+021.03	17.80 m LT
5.0 m	W.B. 96	9+016.68	15.34 m LT
10.0 m	W.B. 96	9+021.18	13.16 m LT

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	GILFILLAN	30+016.78	15.08 m LT
5.0 m	GILFILLAN	30+014.76	10.50 m LT
10.0 m	GILFILLAN	30+012.56	15.00 m LT
10.0 m	GILFILLAN	30+017.63	14.90 m RT
5.0 m	GILFILLAN	30+015.22	10.50 m RT
10.0 m	GILFILLAN	30+012.99	15.00 m RT

TRAIL RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
25.0 m	E.B. 96	9+159.95	36.60 m RT
25.0 m	E.B. 96	9+182.93	8.32 m RT
50.0 m	E.B. 96	9+215.65	59.60 m RT

B.M. ELEV = 281.571
MNDOT DISK #6224E
S.E. CORNER INTERSECTION
SOO LINE RR & HWY. 96

BVC 8+950.000 ELEV. 279.848
PVI 9+000.000 ELEV. 279.598
EVC 9+050.000 ELEV. 280.178
BVC 9+095.000 ELEV. 280.700
PVI 9+190.000 ELEV. 281.802

100.00 m V.C.
M = +0.208 m
LOW POINT
8+980.120
279.773

190.00 m V.C.
M = -0.489 m
HIGH POINT
9+201.990
281.320

C/L E.B. HWY 96 PROFILE GRADE
(TOP FINISHED SURFACE)

EXISTING GROUND LINE

C SOO LINE R.R.

- 0.50%

+ 1.16%

0.350 m

GRADING GRADE

1.350 m SUBGRADE EXCAVATION

1:20

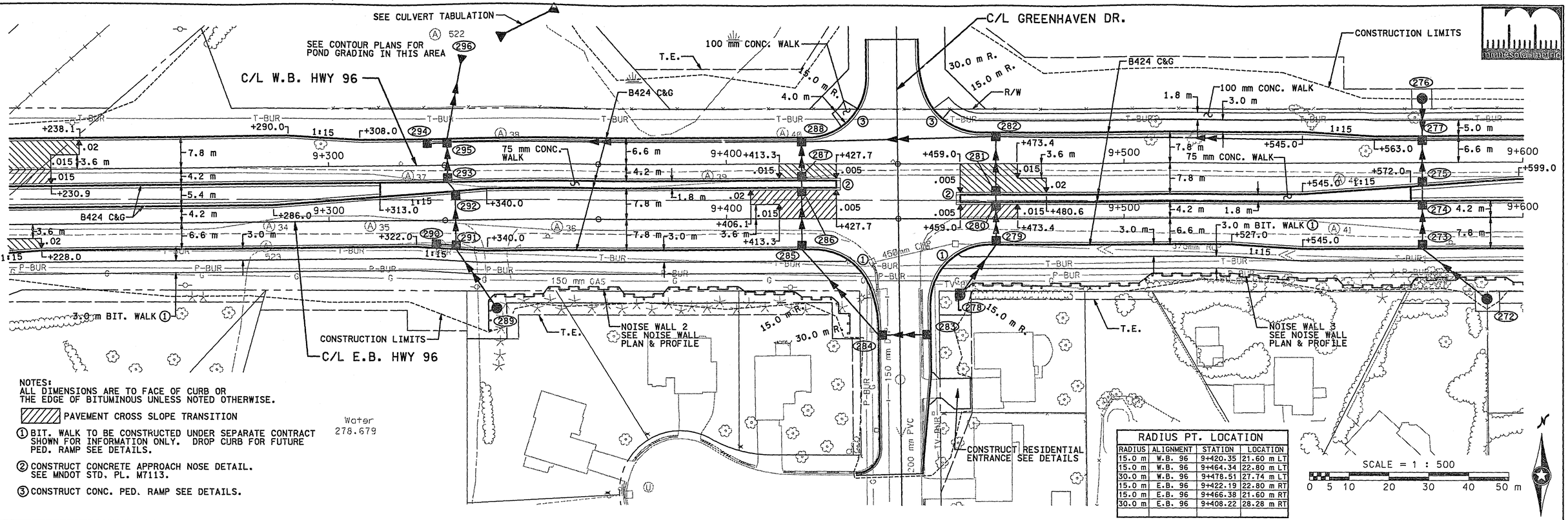
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MUCK EXCAVATION
SEE CROSS SECTIONS

+188.500

NOTE SEE W.B. HWY 96
PLAN & PROFILE FOR
STORM SEWER PROFILES

| | | |



NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

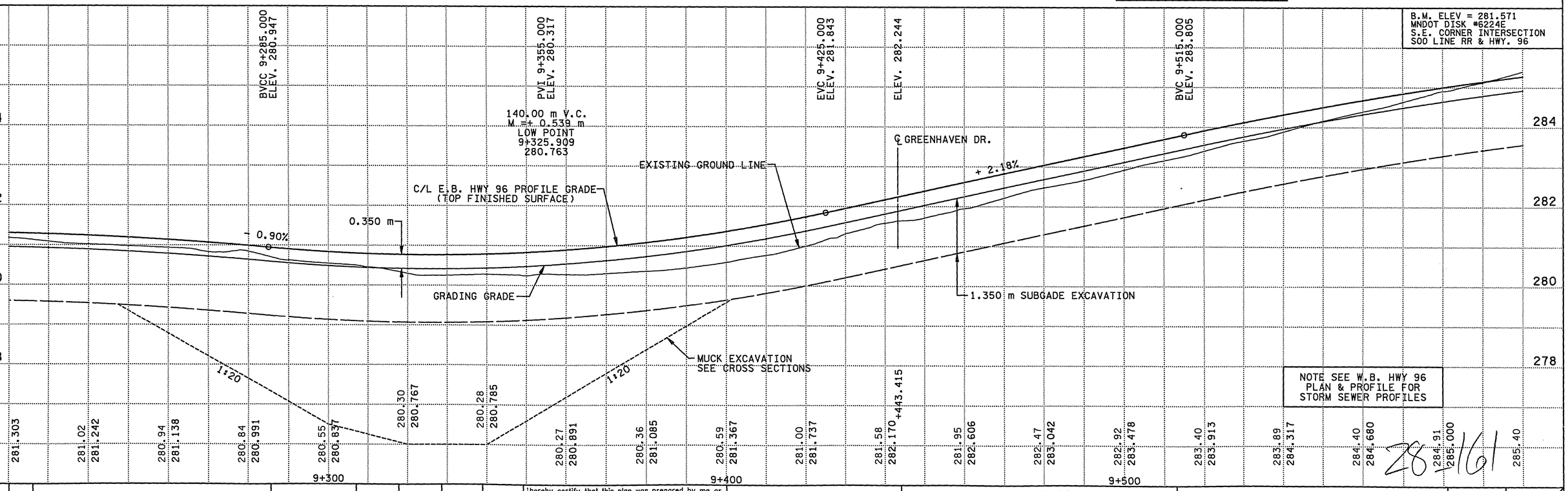
PAVEMENT CROSS SLOPE TRANSITION

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) CONSTRUCT CONC. PED. RAMP SEE DETAILS.

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	W.B. 96	9+420.35	21.60 m LT
15.0 m	W.B. 96	9+464.34	22.80 m LT
30.0 m	W.B. 96	9+478.51	27.74 m LT
15.0 m	E.B. 96	9+422.19	22.80 m RT
15.0 m	E.B. 96	9+466.38	21.60 m RT
30.0 m	E.B. 96	9+408.22	28.28 m RT



NOTE SEE W.B. HWY 96 PLAN & PROFILE FOR STORM SEWER PROFILES

28 1161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

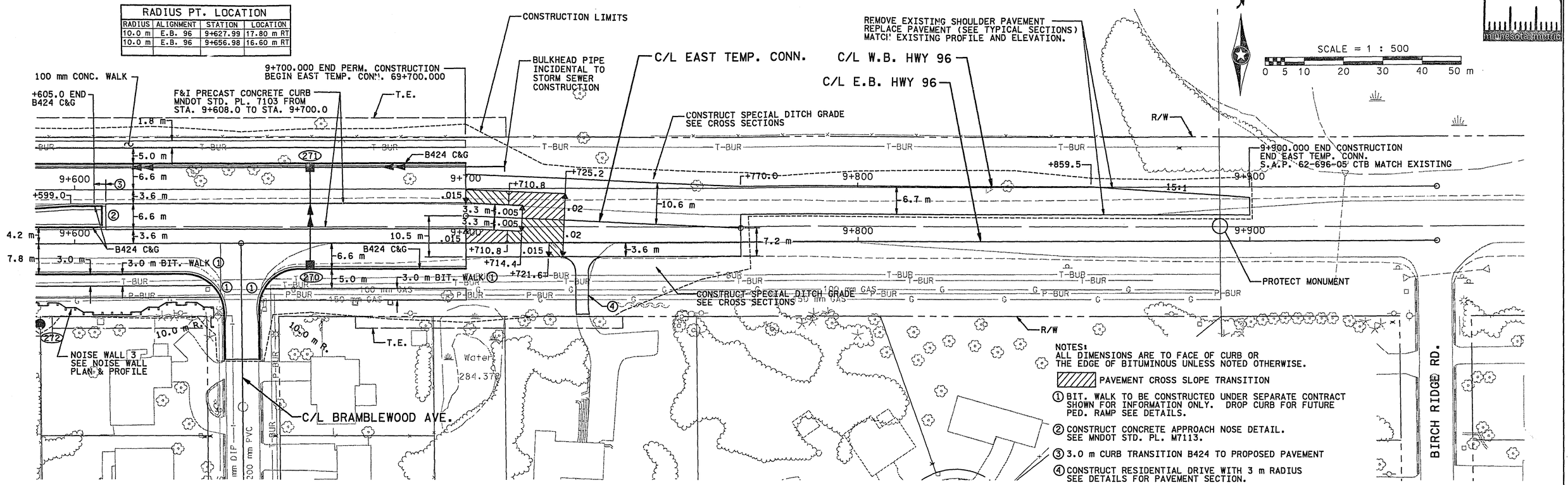
E.B. HWY 96
PLAN & PROFILE
STA. 9+220.000 TO 9+600.000

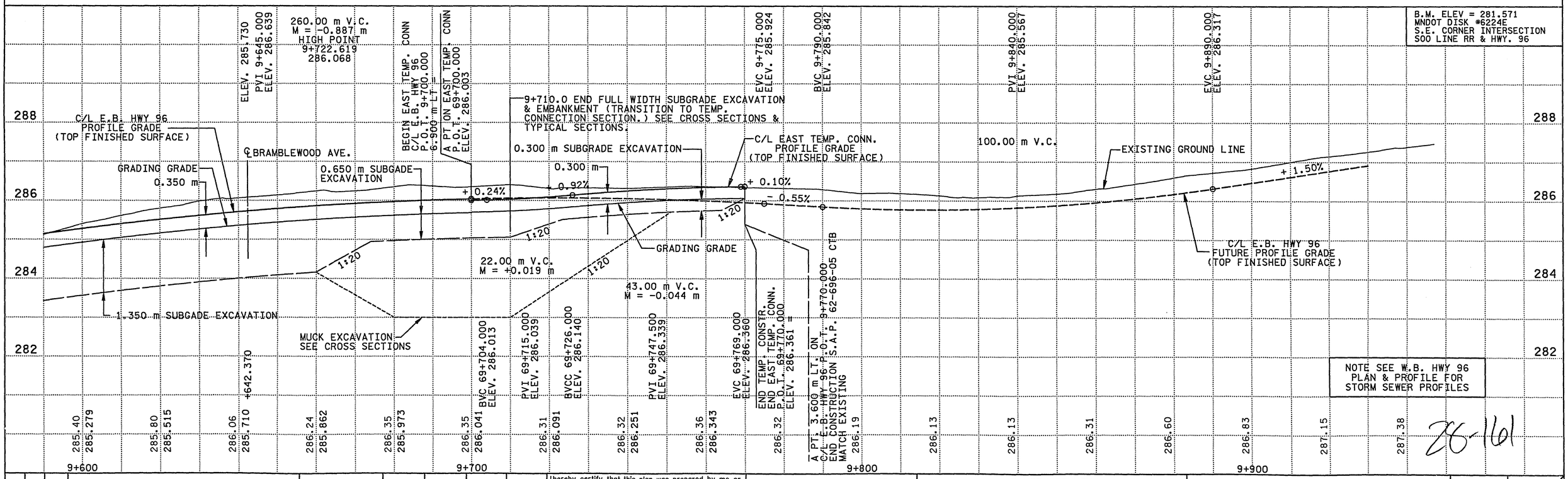
FILE NO. RAMSE9601.01

59E / 170

NAME: RAM9601.GM5 DATE: Jan. 11, 1997

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	E.B. 96	9+627.99	17.80 m RT
10.0 m	E.B. 96	9+656.98	16.60 m RT





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ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

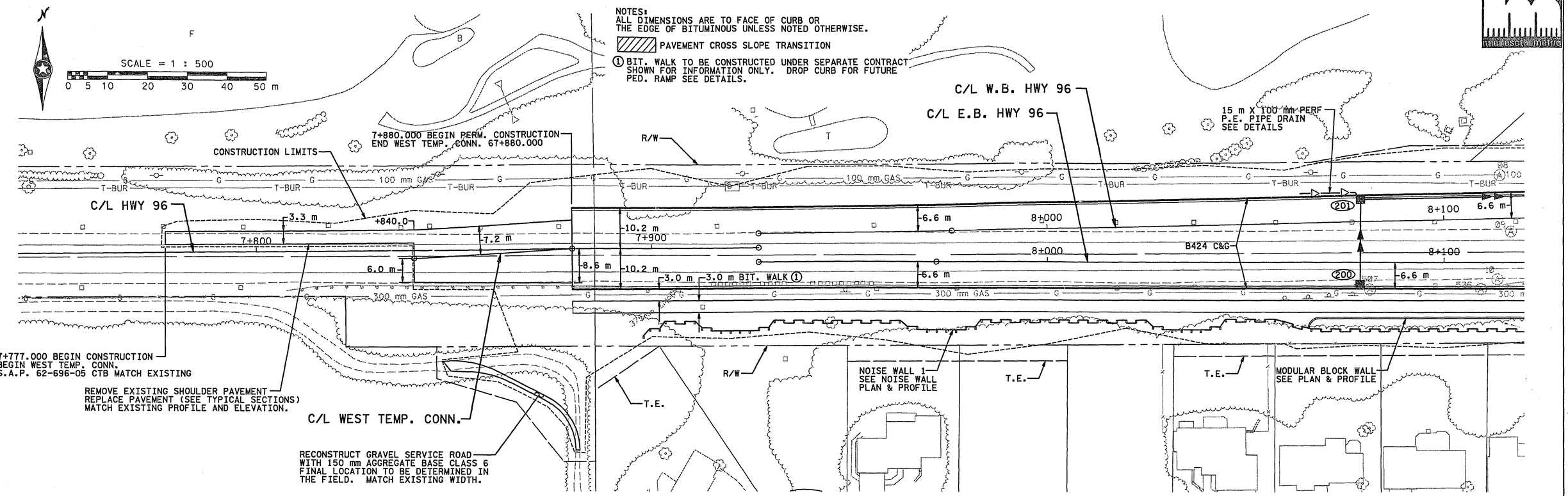
E.B. HWY 96
PLAN & PROFILE
STA. 9+590.000 TO 9+940.000

FILE NO. RAMSE9601.01

60E / 170

26-161

NAME: RAM9601.GM6 DATE: Jan. 11, 1997



AS BUILT PLANS
CONFORMING TO CONST. RECORDS
DONE BY: SJB/REL
DATE: 12-27-99

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

W.B. HWY 96
PLAN & PROFILE
STA. 7+740.000 TO 8+120.000

FILE NO. RAMSE9601.01

55W / 170

NAME: RAMS9601B.GM1 DATE: Jan. 11, 1997

SCALE = 1 : 500
0 5 10 20 30 40 50 m

15 m X 100 mm PERF P.E. PIPE DRAIN SEE DETAILS

C/L W.B. HWY 96

C/L E.B. HWY 96

R/W

CONSTRUCT CONTROL STRUCTURE SEE DETAILS

CONSTRUCTION LIMITS

T.E.

ROBB FARM ROAD

75 mm CONC. WALK

B424 C&G

MODULAR BLOCK WALL SEE DETAILS & PROFILE

MSE SLOPE LOCATION SEE MSE SLOPE DETAILS & PROFILES

NOISE WALL 1 SEE NOISE WALL PLAN & PROFILE

3.0 m BIT. WALK (1)

5.0 m BIT. WALK (1)

C/L MCMENEMY ST.

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	E.B. 96	8+261.69	22.80 m RT
30.0 m	E.B. 96	8+248.69	30.28 m RT
15.0 m	E.B. 96	8+309.29	21.60 m RT
25.0 m	E.B. 96	8+259.92	29.20 m LT
25.0 m	W.B. 96	8+260.00	29.20 m RT

NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

PAVEMENT CROSS SLOPE TRANSITION

• SPOT ELEV.(LIP OF GUTTER) UNLESS NOTED.

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) CONSTRUCT CONCRETE MEDIAN NOSE AND ISLAND SEE MNDOT STD. PL. 7109.

SEE CONTOUR PLANS FOR POND GRADING IN THIS AREA.

SEE CULVERT TABULATION

B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96

CB 203 8+139.0 T.c. 282.793

BVC 8+200.000 ELEV. 281.903

CB 207 8+196.0 T.c. 281.854

BVC 8+200.000 ELEV. 281.903

PVI 8+250.000 ELEV. 281.052

100.00 m V.C. M = +0.150 m

CB 212 8+261.0 T.c. 280.912

STATION EQUATION

STA. 8+279.532 (BK)

STA. 8+279.378 (AH)

EVC 8+299.846 ELEV. 280.802

CB 216 8+321.0 T.c. 280.565

CB 220 8+381.0 T.c. 280.745

CB 234 8+421.0 T.c. 280.064

BVC 8+470.000 ELEV. 279.952

C/L W.B. HWY 96 PROFILE GRADE (TOP FINISHED SURFACE)

GRADING GRADE

EXISTING GROUND LINE

+ 1.70%

- 0.50%

0.350 m

57.0 m x 375 mm RCP CL V @ 1.77%

65.0 m x 450 mm RCP CL V @ 1.10%

60.0 m x 750 mm RCP CL III @ 0.50%

60.2 m x 450 mm RCP CL V @ 1.50%

40.0 m x 750 mm RCP CL III @ 1.49%

74.0 m x 900 mm RCP CL IV @ 0.30%

1.350 m SUBGRADE EXCAVATION

MUCK EXCAVATION SEE CROSS SECTIONS

1:20

281.420 / 453

280.411 / 419

280.349 / 914

279.634 / 762

279.328 / 462

278.685

278.695

278.185 / 265

278.425 / 265

277.885 / 355

277.289 / 276.984

276.298 / 184.676

283.47 282.925
282.41 282.584
281.56 282.244
281.32 281.903
281.76 281.587
281.13 281.319
280.44 281.098
280.71 280.926
280.40 280.802
279.86 280.702
279.16 280.602
279.09 280.502
279.56 280.402
279.73 280.302
280.00 280.202
279.67 280.102
280.12 280.002
279.70 279.910

8+200 8+300 8+400

ASBUILT PLAN
ENGINEERING & CONST. RECORDS
DONE BY: DJB/REL
DATE: 12-27-99

28+161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

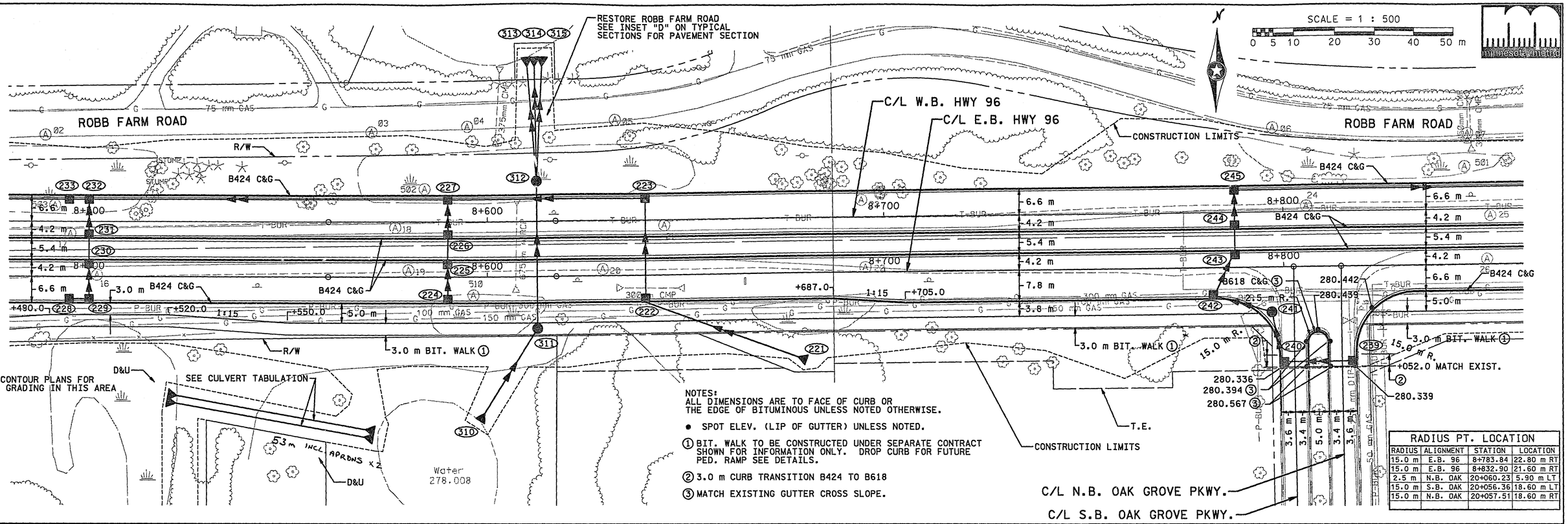
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

W.B. HWY 96
PLAN & PROFILE
STA. 8+110.000 TO 8+490.000

FILE NO. RAMSE9601.01

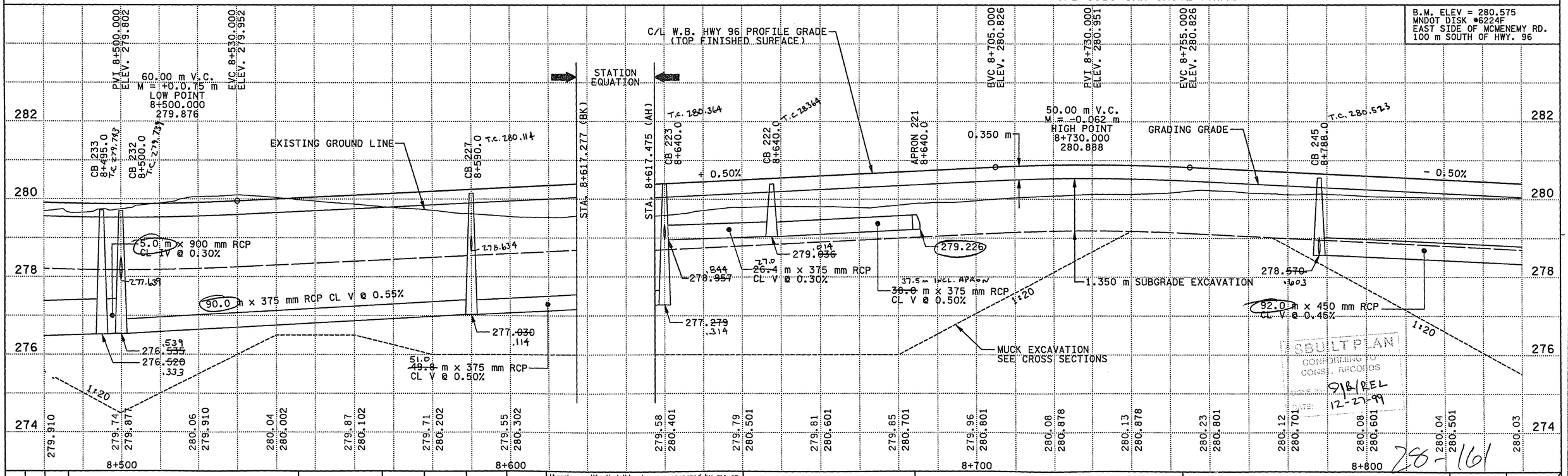
56W / 170

NAME: RAM9601B.GM2 DATE: Jan. 11, 1997



RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	E.B. 96	8+783.84	22.80 m RT
15.0 m	E.B. 96	8+832.90	21.60 m RT
2.5 m	N.B. OAK	20+060.23	5.90 m LT
15.0 m	S.B. OAK	20+056.36	18.60 m LT
15.0 m	N.B. OAK	20+057.51	18.60 m RT

B.M. ELEV = 280.575
MNDOT DISK #6224F
EAST SIDE OF MCMENEMY RD.
100 m SOUTH OF HWY. 96



AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DATE: 12-27-99

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

W.B. HWY 96
PLAN & PROFILE
STA. 8+480.000 TO 8+860.000

FILE NO. RAMSE9601.01

57W / 170

NAME: RAM9601B.GM3 DATE: Jan. 11, 1997

SCALE = 1 : 500

0 5 10 20 30 40 50 m

ROBB FARM ROAD

R/W

+023.5 MATCH EXISTING

CONNECT TO EXISTING PIPE
SEE REMOVE CULVERT TABULATION (INC)

GRADE TO DRAIN

CONSTRUCT CONTROL STRUCTURE
SEE DETAILS

B424 C&G

T-BUR

P-BUR

3.0 m BIT. WALK (1)

C/L W.B. HWY 96

C/L E.B. HWY 96

T.E.

CONSRUCTION LIMITS

D&U

CONSTRUCT COMMERCIAL
ENTRANCE SEE DETAILS

SOO LINE RAILROAD (5)

25.0 m R.

50.0 m R.

SEE CONTOUR PLANS FOR
POND GRADING IN THIS AREA

NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

PAVEMENT CROSS SLOPE TRANSITION

• SPOT ELEV.(LIP OF GUTTER) UNLESS NOTED.

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) 3.0 m CURB TRANSITION B424 TO PAVEMENT

(4) CONSTRUCT COMMERCIAL ENTRANCE SEE DETAILS.

(5) CONTRACTOR TO COORDINATE WITH RAILROAD DURING CONSTRUCTION FOR PLACEMENT OF NEW AT GRADE CROSSING. FIELD VERIFY TRACK ELEVATION FOR FINAL PAVEMENT CROSS SLOPE AND ELEVATION.

SEE CULVERT TABULATION

16m INCL. APRON

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	W.B. 96	8+991.06	16.60 m LT
5.0 m	W.B. 96	8+995.65	14.63 m LT
10.0 m	W.B. 96	8+991.19	12.38 m LT
10.0 m	W.B. 96	9+021.03	17.80 m LT
5.0 m	W.B. 96	9+016.68	15.34 m LT
10.0 m	W.B. 96	9+021.18	13.16 m LT

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	GILFILLAN	30+016.78	15.08 m LT
5.0 m	GILFILLAN	30+014.76	10.50 m LT
10.0 m	GILFILLAN	30+012.56	15.00 m LT
10.0 m	GILFILLAN	30+017.63	14.90 m RT
5.0 m	GILFILLAN	30+015.22	10.50 m RT
10.0 m	GILFILLAN	30+012.99	15.00 m RT

TRAIL RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
25.0 m	E.B. 96	9+159.95	36.60 m RT
25.0 m	E.B. 96	9+182.93	8.32 m RT
50.0 m	E.B. 96	9+215.65	59.60 m RT

B.M. ELEV = 281.571
MNDOT DISK #6224E
S.E. CORNER INTERSECTION
SOO LINE RR & HWY. 96

EXISTING GROUND LINE

C/L W.B. HWY 96 PROFILE GRADE
(TOP FINISHED SURFACE)

GRADING GRADE

C EAST GILFILLAN RD.

C SOO LINE R.R.

CB 249 8+880.0 T.C. 280.063

CB 260 8+934.0 T.C. 279.793

CB 259 8+975.0 T.C. 279.642

CB 258 8+980.0 T.C. 279.638

CB 258A 9+022 T.C. 279.763

CB 253 9+060.0 T.C. 280.141

CB 252 9+060.0 T.C. 280.313

CB 251 9+060.0 T.C. 280.210

CB 250 9+060.0 T.C. 280.062

BVC 8+950.000 ELEV. 279.851

PVI 9+000.000 ELEV. 279.601

ELEV. 279.834

EVC 9+050.000 ELEV. 280.186

EVC 9+100.000 ELEV. 280.771

100.00 m V.C.
M = +0.20.9 m
LOW POINT
8+979.940
279.776

190.00 m V.C.
M = -0.508 m
HIGH POINT
9+203.878
281.882

PVI 9+195.000 ELEV. 281.882

- 0.50%

+ 1.17%

0.350 m

1.350 m SUBGRADE EXCAVATION

MUCK EXCAVATION
SEE CROSS SECTIONS

54.0 m x 600 mm RCP CL V @ 0.30%

41.0 m x 750 mm RCP CL II @ 0.32%

5.0 m x 750 mm RCP CL III @ 0.32%

42.0
44.0 m x 750 mm RCP CL II @ 0.26%

39.0
36.0 m x 450 mm RCP CL V @ 0.50%

10.4
10.2 m x 375 mm RCP CL V @ 1.80%

5.6
6.0 m x 375 mm RCP CL V @ 0.30%

11.9
11.4 m x 375 mm RCP CL V @ 0.56%

278.156 .063 278.036 .063

277.893 277.874 277.670 .893

277.790 .893 277.921 278.062

277.936 278.018

278.520 .213 278.05 .193

278.700 .641 278.707 .721

278.764

278.966 .902 278.782

1:20

280.03 280.401 | 280.11 280.301 | 280.20 280.201 | 280.10 280.101 | 280.07 280.001 | 280.02 279.901 | 279.82 279.809 | 279.77 279.776 | 279.86 279.809 | +006.335 | 279.94 279.910 | 280.14 280.077 | 280.07 280.303 | 280.14 280.537 | 280.36 280.771 | 280.54 280.982 | 280.73 281.148 | 280.99 281.270 | 281.20 281.346 | 281.31 281.377

8+900 9+000 9+100 9+200

+205.000

AS BUILT PLAN
CONFORMING TO CONSTRUCT. RECORDS
DONE BY: SJB/REL
DATE: 12-27-99

28-116

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

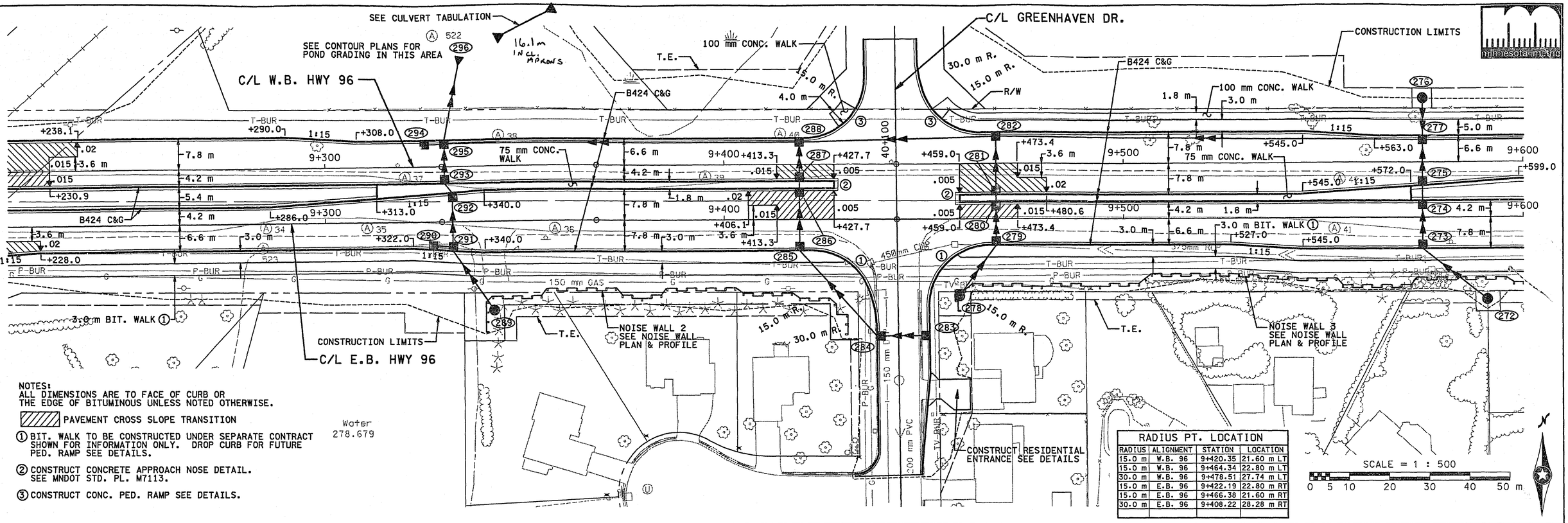
S.A.P. 62-696-05 CTB

W.B. HWY 96
PLAN & PROFILE
STA. 8+850.000 TO 9+230.000

FILE NO. RAMSE9601.01

58W / 170

NAME: RAM9601B.GM4 DATE: Jan. 11, 1997



NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

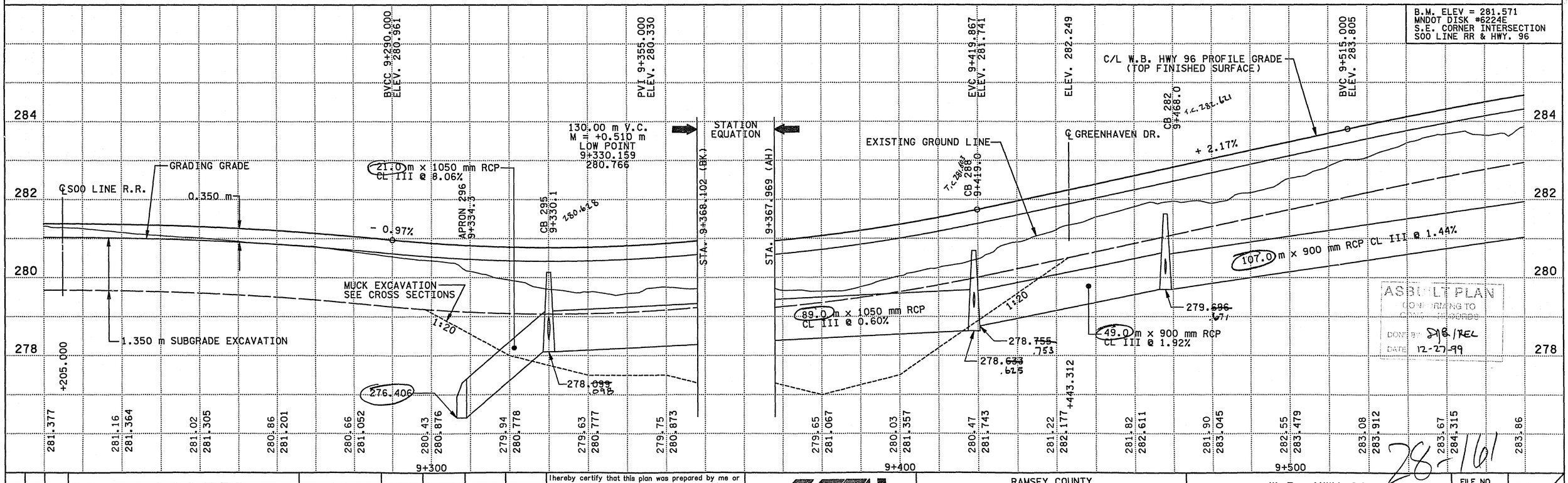
▨ PAVEMENT CROSS SLOPE TRANSITION

(1) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(2) CONSTRUCT CONCRETE APPROACH NOSE DETAIL. SEE MNDOT STD. PL. M7113.

(3) CONSTRUCT CONC. PED. RAMP SEE DETAILS.

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
15.0 m	W.B. 96	9+420.35	21.60 m LT
15.0 m	W.B. 96	9+464.34	22.80 m LT
30.0 m	W.B. 96	9+478.51	27.74 m LT
15.0 m	E.B. 96	9+422.19	22.80 m RT
15.0 m	E.B. 96	9+466.38	21.60 m RT
30.0 m	E.B. 96	9+408.22	28.28 m RT



ASBUILT PLAN
CONFORMING TO
CHANGE ORDERS
DONE BY SHB/REL
DATE 12-27-99

28-2161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

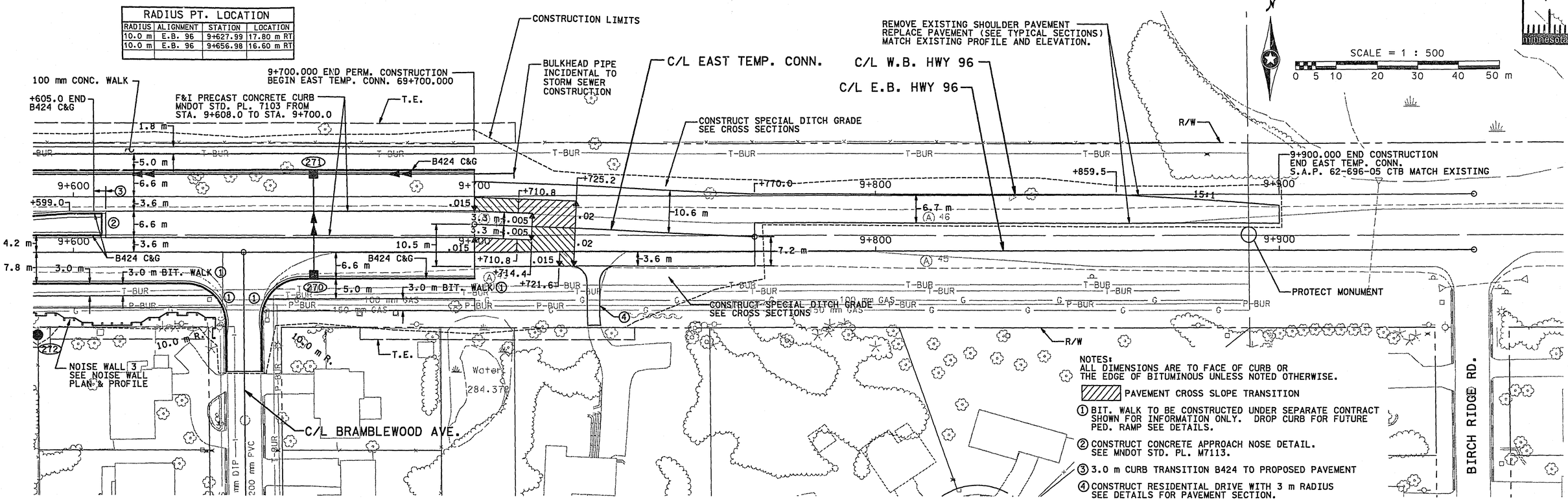
W.B. HWY 96
PLAN & PROFILE
STA. 9+220.000 TO 9+600.000

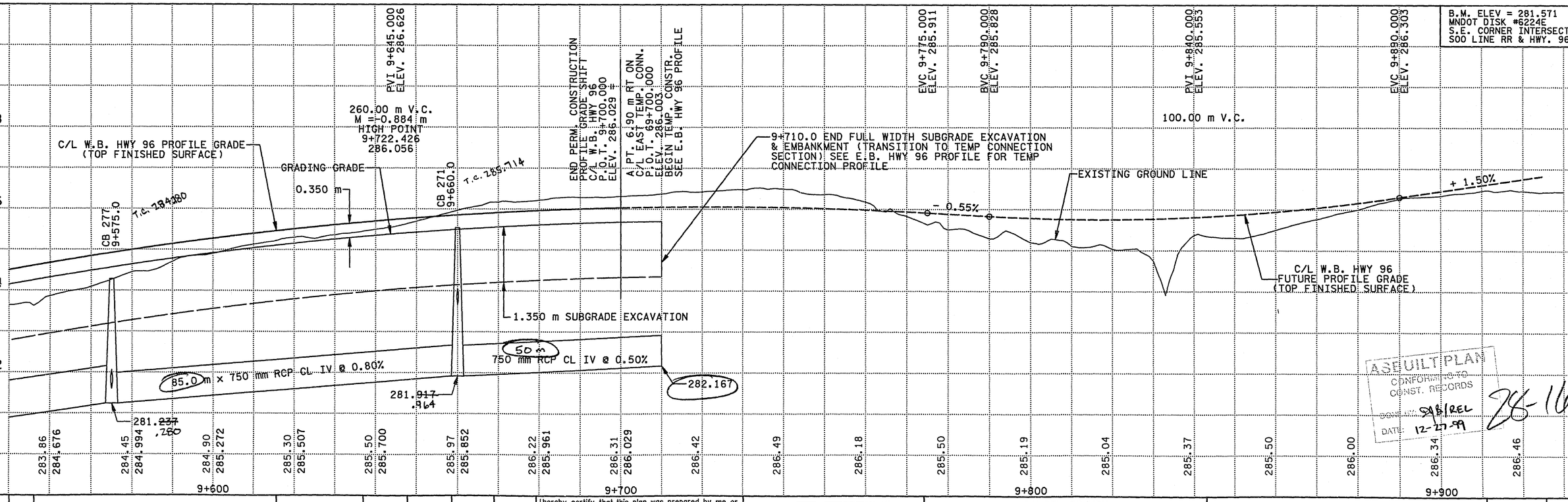
FILE NO. RAMSE9601.01

59W / 170

NAME: RAM9601B.GM5 DATE: Jan. 11, 1997

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	E.B. 96	9+627.99	17.80 m RT
10.0 m	E.B. 96	9+656.98	16.60 m RT





AS BUILT PLAN
CONFORMING TO CONST. RECORDS
SIGNATURE: SAB/REL
DATE: 12-27-99
28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

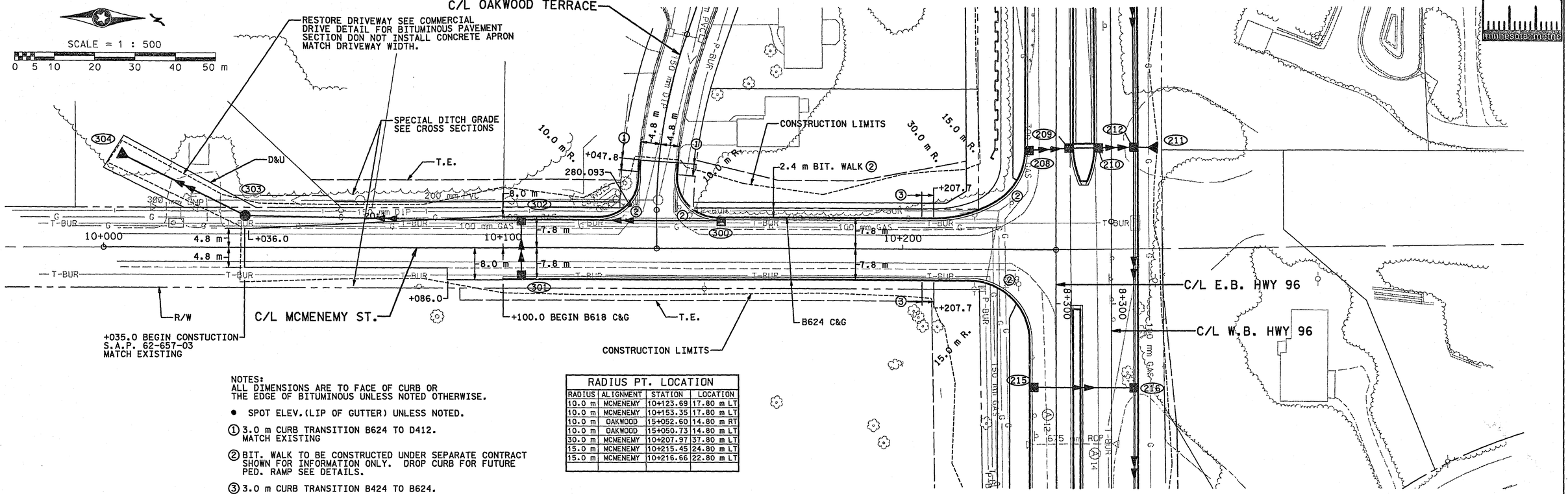
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

W.B. HWY 96
PLAN & PROFILE
STA. 9+590.000 TO 9+940.000

FILE NO. RAMSE9601.01

60W / 170

NAME: RAM9601B.GM6 DATE: Jan. 11, 1997



NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

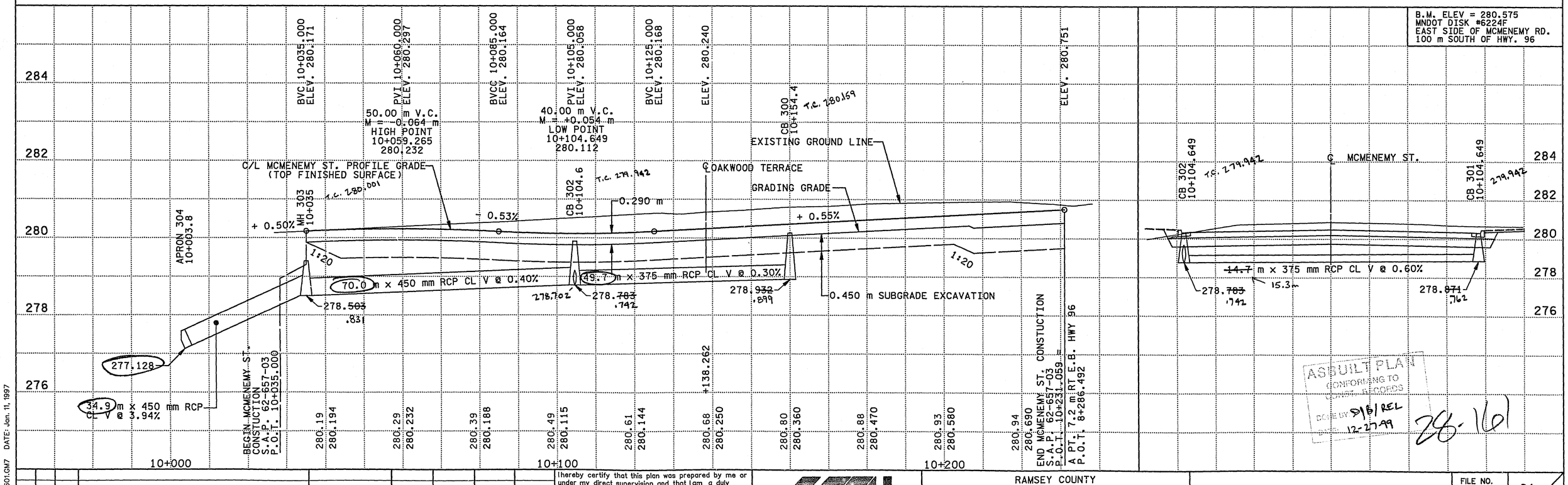
- SPOT ELEV.(LIP OF GUTTER) UNLESS NOTED.

(1) 3.0 m CURB TRANSITION B624 TO D412. MATCH EXISTING

(2) BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

(3) 3.0 m CURB TRANSITION B424 TO B624.

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	MCMENEMY	10+123.69	17.80 m LT
10.0 m	MCMENEMY	10+153.35	17.80 m LT
10.0 m	OAKWOOD	15+052.60	14.80 m RT
10.0 m	OAKWOOD	15+050.73	14.80 m LT
30.0 m	MCMENEMY	10+207.97	37.80 m LT
15.0 m	MCMENEMY	10+215.45	24.80 m LT
15.0 m	MCMENEMY	10+216.66	22.80 m LT



AS BUILT PLAN CONFORMING TO CONST. RECORDS DONE BY SJB/REL 12-27-99

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

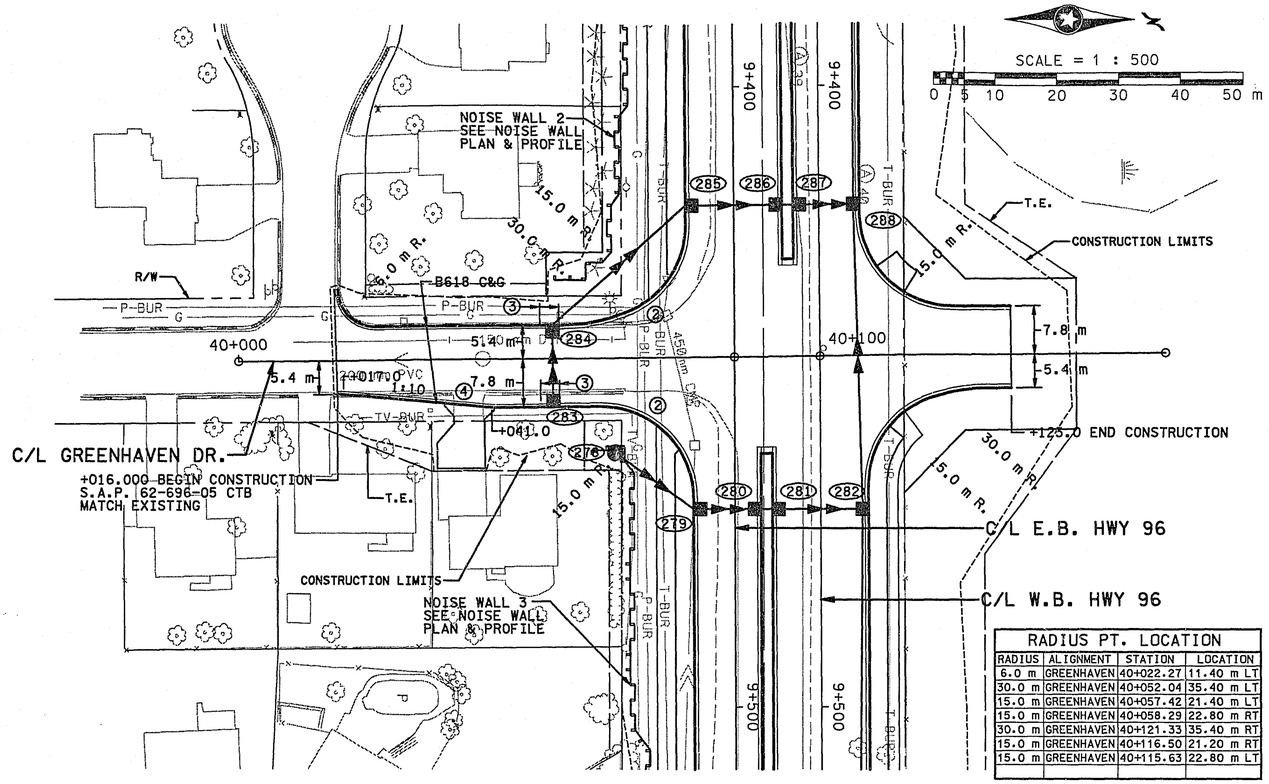
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

MCMENEMY ST.
PLAN & PROFILE

FILE NO. RAMSE9601.01

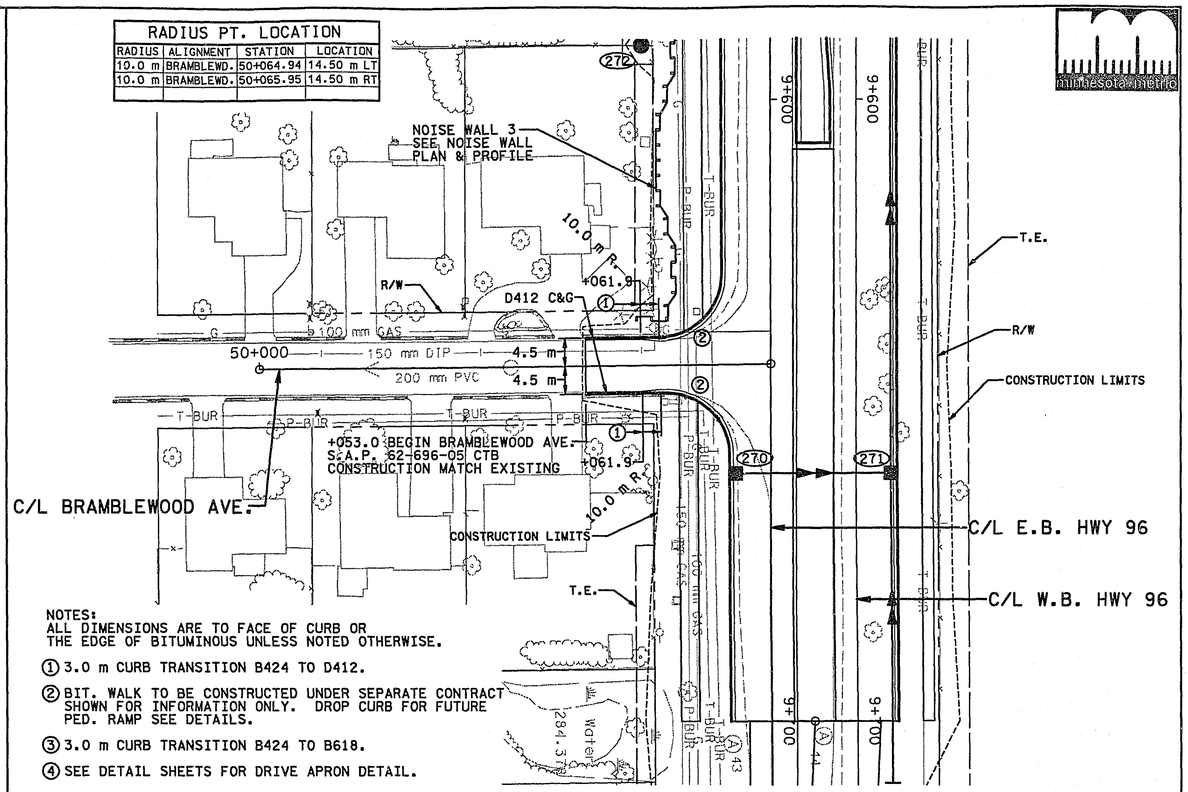
61/170

NAME: RAM9601.GM7 DATE: Jan. 11, 1997



RADIUS	ALIGNMENT	STATION	LOCATION
6.0 m	GREENHAVEN	40+022.27	11.40 m LT
30.0 m	GREENHAVEN	40+052.04	35.40 m LT
15.0 m	GREENHAVEN	40+057.42	21.40 m LT
15.0 m	GREENHAVEN	40+058.29	22.80 m RT
30.0 m	GREENHAVEN	40+121.33	35.40 m RT
15.0 m	GREENHAVEN	40+116.50	21.20 m RT
15.0 m	GREENHAVEN	40+115.63	22.80 m LT

RADIUS PT. LOCATION			
RADIUS	ALIGNMENT	STATION	LOCATION
10.0 m	BRAMBLEWD.	50+064.94	14.50 m LT
10.0 m	BRAMBLEWD.	50+065.95	14.50 m RT



NOTES:
ALL DIMENSIONS ARE TO FACE OF CURB OR THE EDGE OF BITUMINOUS UNLESS NOTED OTHERWISE.

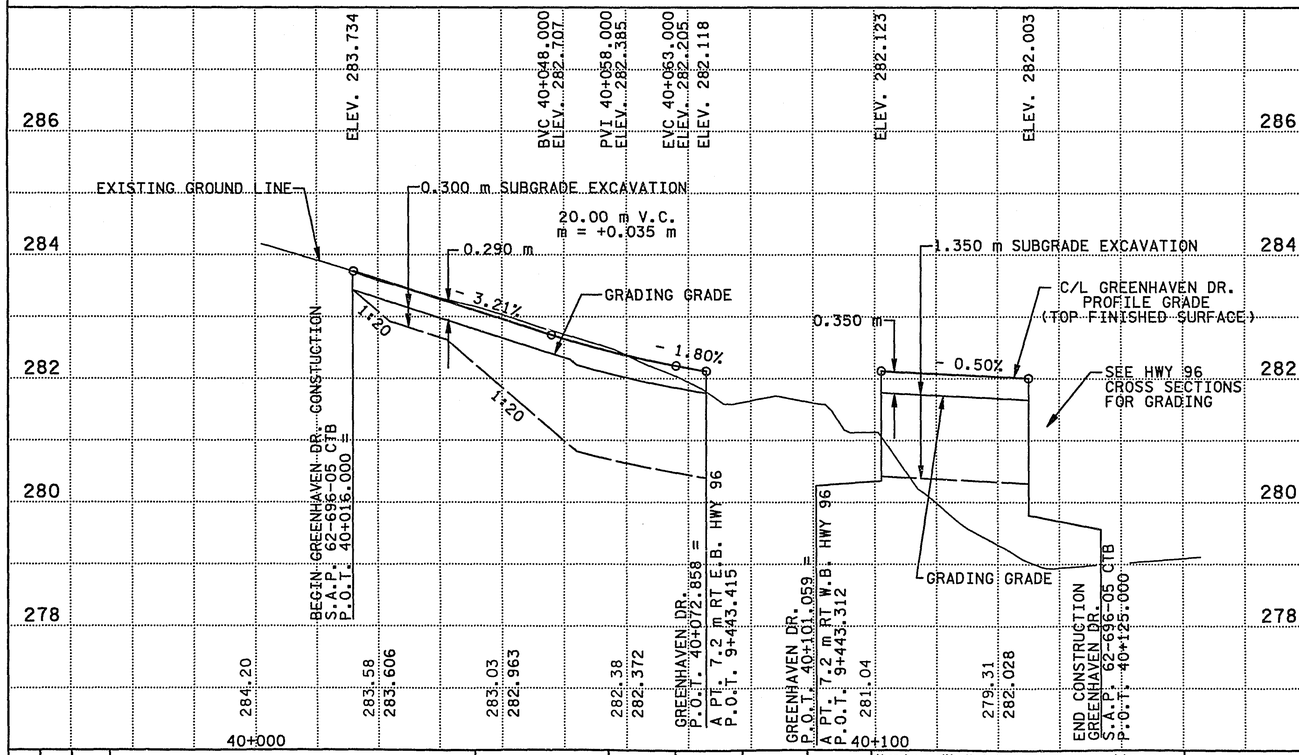
① 3.0 m CURB TRANSITION B424 TO D412.

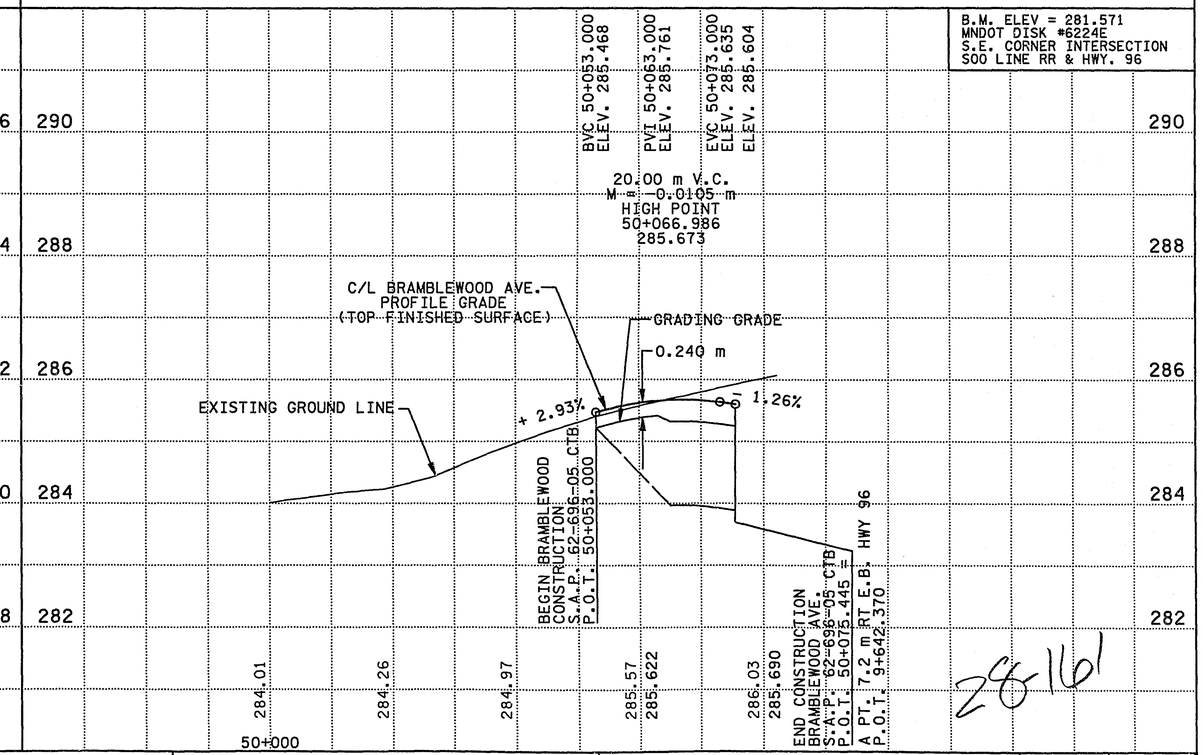
② BIT. WALK TO BE CONSTRUCTED UNDER SEPARATE CONTRACT SHOWN FOR INFORMATION ONLY. DROP CURB FOR FUTURE PED. RAMP SEE DETAILS.

③ 3.0 m CURB TRANSITION B424 TO B618.

④ SEE DETAIL SHEETS FOR DRIVE APRON DETAIL.

B.M. ELEV = 281.571
MNDOT DISK #6224E
S.E. CORNER INTERSECTION
SOO LINE RR & HWY. 96





26161

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

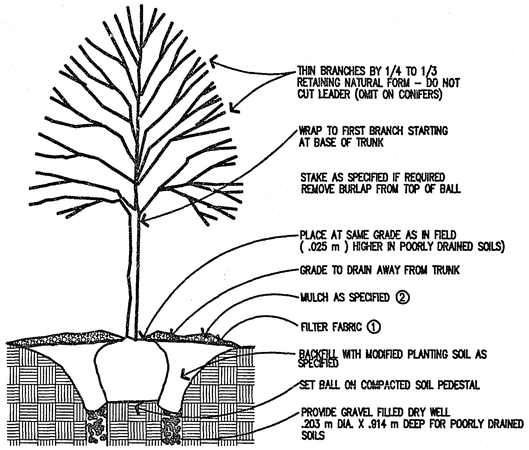
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

GREENHAVEN DR. & BRAMBLEWOOD AVE.
PLAN & PROFILE

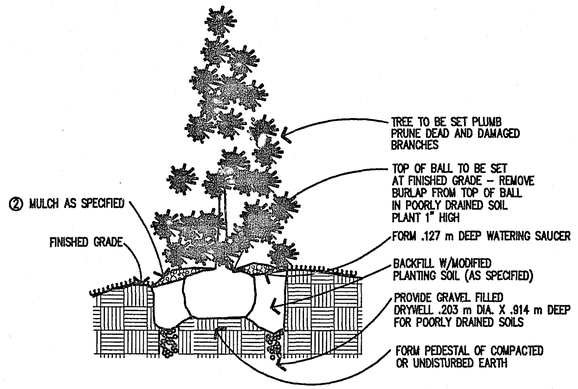
FILE NO. RAMSE9601.01

62/170

NAME: RAM9601.GMB DATE: Jan. 11, 1997



TREE PLANTING
NO SCALE

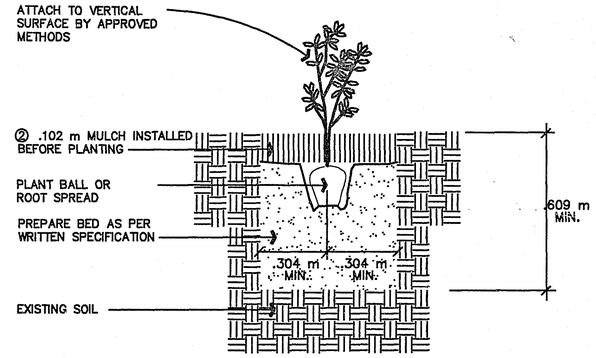


EVERGREEN TREE PLANTING
NO SCALE

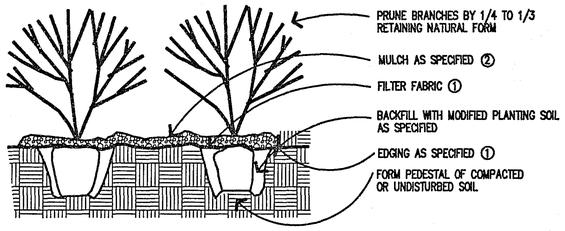
NOTE:

① FILTER FABRIC AND EDGING TO BE USED IN ALL PLANTING BEDS SOUTH OF THE FUTURE TRAIL ONLY–INCIDENTAL TO PLANT MATERIAL

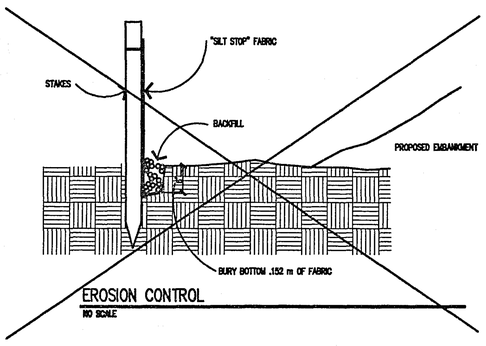
② SHREDDED HARDWOOD MULCH TO BE USED AT ALL PLANTING LOCATIONS 300mm MIN. THICKNESS EXCEPT AS NOTED. INCIDENTAL TO PLANT MATERIAL



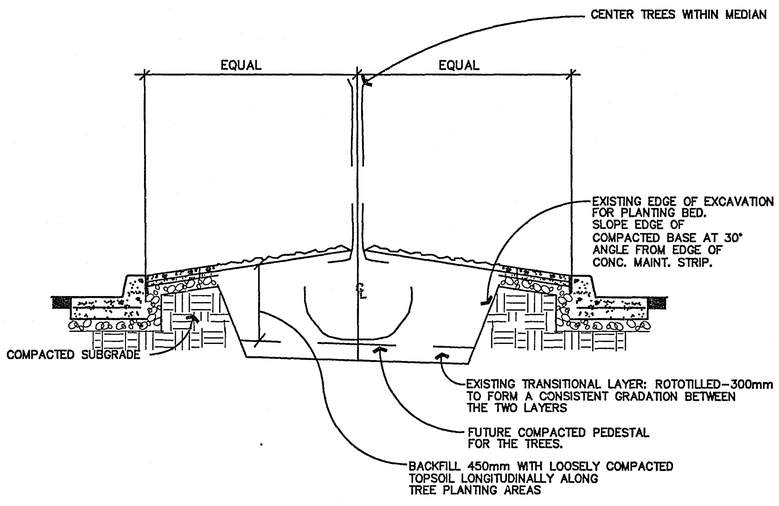
TYPICAL VINE PLANTING
NO SCALE



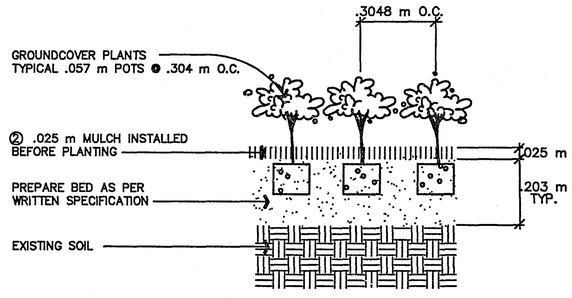
CONTAINER GROWN AND B&B SHRUB PLANTING
NO SCALE



EROSION CONTROL
NO SCALE



MEDIAN CROSS SECTION TYPICAL
SCALE: NOT TO SCALE



GROUND COVER PLANTING DETAIL
SCALE: NOT TO SCALE

28-161

NO.	BY	DATE	REVISIONS	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
Date: 5-2-97 Reg. No. 12335

ENGINEERS ■ ARCHITECTS ■ PLANNERS

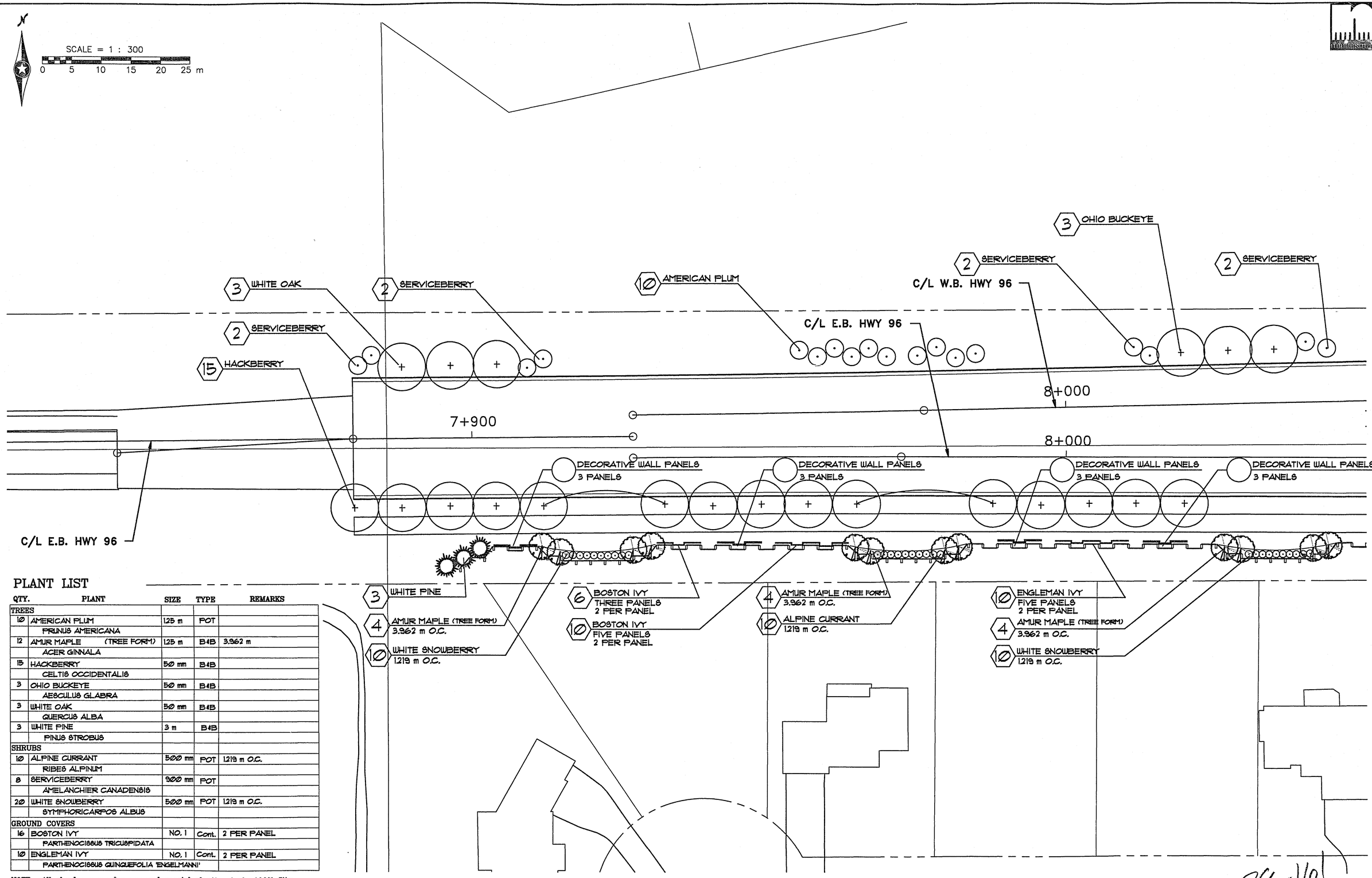
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
LANDSCAPE DETAILS

FILE NO. RAMSE9601.01

63
170

H:\TH96\DLS\PLNTDETL 05-01-97 6:07 am Jay Becker, SEH



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
10	AMERICAN PLUM	1.25 m	POT	
	PRUNUS AMERICANA			
12	AMUR MAPLE (TREE FORM)	1.25 m	B&B	3.962 m
	ACER GINNALA			
15	HACKBERRY	50 mm	B&B	
	CELTIS OCCIDENTALIS			
3	OHIO BUCKEYE	50 mm	B&B	
	AESCULUS GLABRA			
3	WHITE OAK	50 mm	B&B	
	QUERCUS ALBA			
3	WHITE PINE	3 m	B&B	
	PINUS STROBUS			
SHRUBS				
10	ALPINE CURRANT	500 mm	POT	1.219 m O.C.
	RIBES ALPINUM			
8	SERVICEBERRY	900 mm	POT	
	AMELANCHIER CANADENSIS			
20	WHITE SNOWBERRY	500 mm	POT	1.219 m O.C.
	SYMPHORICARPOS ALBUS			
GROUND COVERS				
16	BOSTON IVY	NO. 1	Cont.	2 PER PANEL
	PARTHENOCISSUS TRICUSPIDATA			
10	ENGLEMAN IVY	NO. 1	Cont.	2 PER PANEL
	PARTHENOCISSUS QUINQUEFOLIA 'ENGELMANNI'			

NOTE: All shrubs, groundcovers and special planting beds 100% City Participating (Same all streets)

26-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
William D. Smith
Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

ENGINEERS ■ ARCHITECTS ■ PLANNERS

SANDERS WACKER WEHRMAN BERGLY
355 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-3817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

64
170

H:\TH96\DLDV\SV12896-1 Joy Becker, SEH 609 am 05-01-97

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
27	GREEN ASH	50 mm	B&B	
	FRAXINUS PENNSYLVANICA			
4	OHIO BUCKEYE	50 mm	B&B	
	AESCULUS GLABRA			
2	WHITE OAK	50 mm	B&B	
	QUERCUS ALBA			
SHRUBS				
17	COMPACT AMUR MAPLE	500 mm	POT	1.828 m O.C.
	ACER GINNALA 'COMPACT'			
56	WHITE SNOWBERRY	500 mm	POT	1.219 m O.C.
	SYMPHORICARPOS ALBUS			
15	AUTUMN BRIL. SERVICEBERRY	900 cm	POT	
	AMELANCHIER X GRANDIFLORA			
3	SERVICEBERRY	900 cm	POT	
	AMELANCHIER CANADENSIS			
GROUND COVERS				
52	BOSTON IVY	NO. 1	Cont.	2 PER PANEL
	PARTHENOCISSUS TRICUSPIDATA			
24	ENGLEMAN IVY	NO. 1	Cont.	2 PER PANEL
	PARTHENOCISSUS QUINQUEFOLIA 'ENGELMANNI'			

N

SCALE = 1 : 300

0 5 10 15 20 25 m

2 OHIO BUCKEYE

2 WHITE OAK

1 SERVICEBERRY

2 SERVICEBERRY

8 AUT. BRIL. SERVICEBERRY

C/L E.B. HWY 96

C/L W.B. HWY 96

2 OHIO BUCKEYE

7 AUT. BRIL. SERVICEBERRY

8+100

8+200

7 GREEN ASH

20 GREEN ASH

8+100

8+200

DECORATIVE WALL PANELS
3 PANELS

DECORATIVE WALL PANELS
3 PANELS

DECORATIVE WALL PANELS
3 PANELS

DECORATIVE WALL PANELS
3 PANELS

6 ENGLEMAN IVY
TREE PANELS
2 PER PANEL

56 WHITE SNOWBERRY
1.219 m O.C.

40 BOSTON IVY
ALONG FACE OF MODULAR
WALL - 1.829 m O.C.

17 COMPACT AMUR MAPLE
2.438 m O.C.

6 ENGLEMAN IVY
THREE PANELS
2 PER PANEL

12 ENGLEMAN IVY
THREE PANELS
2 PER PANEL

12 BOSTON IVY
TREE PANELS
2 PER PANEL

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

William D. Snyder

Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND URAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

SEH ENGINEERS ARCHITECTS PLANNERS

SANDERS
WACKER
WEHRMAN
BERGLY

365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-5817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
LANDSCAPE PLAN

FILE NO.
RAMSE9601.01

65
170

H:\TH96\DLDN\LS\12896-2 05-01-97 6:11 am Jay Becker, SEH

N

SCALE = 1 : 300

0 5 10 15 20 25 m

11 SMOOTH SUMAC

5 EASTERN RED CEDER

9 HAWTHORNE

10 LILAC

ROBB FARM ROAD

3 SWAMP WHITE OAK

5 STAGHORN SUMAC

C/L W.B. HWY 96

C/L E.B. HWY 96

8+300

8+400

4 SWAMP WHITE OAK

COLORED CONCRETE CROSSWALK

14 COMPACT AMUR MAPLE 1.829 m O.C.

5 BLACK HILLS SPRUCE

15 BUR OAK

C/L MCMENEMY ST.

10+200

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
15	BUR OAK	50 mm	B&B	
	QUERCUS MACROCARPA			
5	EASTERN RED CEDAR	2.5 m	B&B	
	JUNIPERUS VIRGINIANA			
7	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
9	HAWTHORNE	50 mm	B&B	
	CRATGEUS SPP.			
5	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA 'DENSATA'			
SHRUBS				
14	COMPACT AMUR MAPLE	500 mm	POT	1.829 m O.C.
	ACER GINNALA 'COMPACT'			
11	SMOOTH SUMAC	600 mm	POT	1.829 m O.C.
	RHUS GLABRA			
5	STAGHORN SUMAC	600 mm	POT	1.829 m O.C.
	RHUS TYPHINA			
10	COMMON LILAC	600 mm	POT	
	SYRINYA VULGARIS			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

ENGINEERS ■ ARCHITECTS ■ PLANNERS

SANDERS WACKER WEHRMAN BERGLY

385 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-6517

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

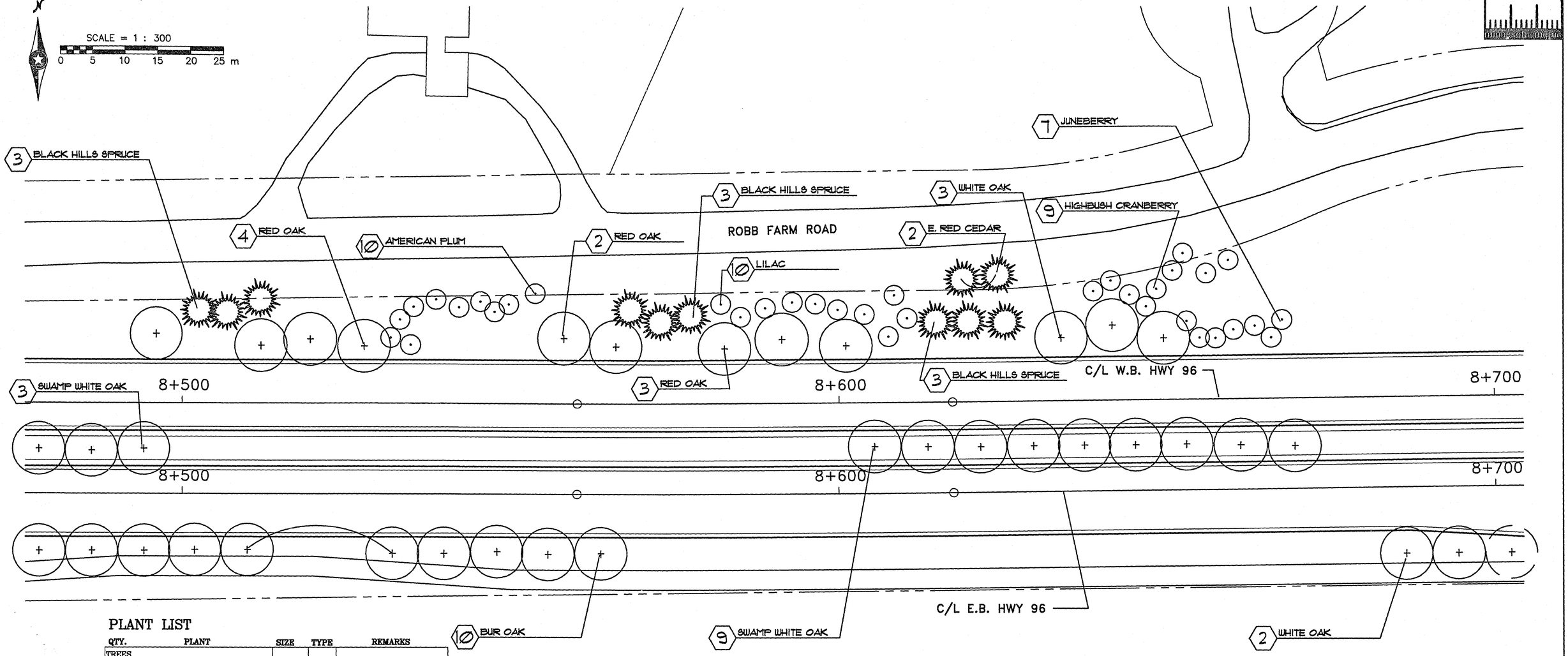
FILE NO. RAMSE9601.01

66 / 170

H:\TH96\DLDVLS\12R96-3 05-01-97 6:16 am Jay Becker, SEH

SCALE = 1 : 300

0 5 10 15 20 25 m



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
9	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA DENSATA			
10	BUR OAK	50 mm	B&B	
	QUERCUS MACROCARPA			
2	EASTERN RED CEDAR	2.5 m	B&B	
	JUNIPERUS VIRGINIANA			
10	AMERICAN PLUM	1.25 m	POT	
	PRUNUS AMERICANA			
9	RED OAK	50 mm	B&B	
	QUERCUS RUBRA			
12	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
5	WHITE OAK	50 mm	B&B	
	QUERCUS ALBA			
SHRUBS				
9	HIGH BUSH CRANBERRY	600 mm	POT	
	VIBURNUM TRILOBUM			
10	COMMON LILAC	600 mm	POT	
	SYRINYA VULGARIS			
7	JUNEBERRY	900 mm	POT	
	AMELANCHIER SPP.			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
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WEHRMAN
BERGLY

365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-3817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
LANDSCAPE PLAN

FILE NO.
RAMSE9601.01

67
170

Jay Becker, SEH
05-01-97 12:19 pm
H:\TH96\DLDVLS\12R96-4

13 JUNEBERRY
4 RED OAK
8 CHOKECHERRY
3 EASTERN RED CEDER
15 RED OSIER DOGWOOD
3 RED OAK
4 OHIO BUCKEYE
20 SMOOTH SUMAC
2 WHITE OAK
ROBB FARM ROAD
9 SWAMP WHITE OAK
C/L W.B. HWY 96
8+700
8+800
8+900
4 EASTERN RED CEDER
3 BLACK HILLS SPRUCE
COLORED CONCRETE CROSSWALK
C/L E.B. HWY 96
8 WHITE OAK
8 WHITE OAK
1 CRABAPPLE
C/L S.B. OAK GROVE PKWY.
C/L N.B. OAK GROVE PKWY.

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
3	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA DENSATA			
7	EASTERN RED CEDAR	2.5 m	B&B	
	JUNIPERUS VIRGINIANA			
4	OHIO BUCKEYE	50 mm	B&B	
	AESCULUS GLABRA			
9	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
18	WHITE OAK	50 mm	B&B	
	QUERCUS ALBA			
7	RED OAK	50 mm	B&B	
	QUERCUS RUBRA			
1	CRABAPPLE	50 mm	B&B	
	MALUS "SNOWDRIFT"			
SHRUBS				
8	CHOKECHERRY	900 mm	POT	
	PRUNUS VIRGINIANA			
15	RED OSIER DOGWOOD	900 mm	POT	
	CORNUS SERICEA			
20	SMOOTH SUMAC	600 mm	POT	1829 m O.C.
	RHUS GLABRA			
13	JUNEBERRY	900 mm	POT	
	AMELANCHIER SPP.			

N

SCALE = 1 : 300

0 5 10 15 20 25 m

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND URBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

SEH ENGINEERS ARCHITECTS PLANNERS

SANDERS WACKER WEHRMAN BERGLY

365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-3817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

68 / 170

H:\TH96\DLDLS\12R96-5 05-01-97 12:22 pm Jay Becker, SEH

E. GILFILLAN RD.

ROBB FARM ROAD

ROBB FARM ROAD

ROBB FARM ROAD

12 WINTERBERRY

3 BLACK HILLS SPRUCE

2 EASTERN RED CEDER

4 SWAMP WHITE OAK

7 GREEN ASH

12 WHITE OAK

9+000

9+000

9 GREEN ASH

5 CHOKECHERRY

6 SMOOTH SUMAC

14 AMERICAN PLUM

12 WINTERBERRY

5 RED OAK

9+100

9+100

3 AUTUMN BRILLIANCE SERVICEBERRY 3.962 m O.C.

14 DWARF COMMON NINEBARK 1.067 m O.C.

15 WHITE SNOWBERRY 1.067 m O.C.

3 BLACK HILLS SPRUCE 2.438 m

8 ENGLEMAN IVY ALONG FENCE

16 RED TWIGGED DOGWOOD STAGGERED 1.219 m O.C.

12 WHITE SNOWBERRY 1.067 m O.C.

3 BLACK HILLS SPRUCE 2.438 m

8 RED TWIGGED DOGWOOD - 1.219 m O.C.

8 ENGLEMAN IVY ALONG FENCE

C/L W.B. HWY 96

C/L E.B. HWY 96

N

SCALE = 1 : 300

0 5 10 15 20 25 m

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
14	AMERICAN PLUM	1.25 m	POT	
	PRUNUS AMERICANA			
3	AUTUMN BRILLANCE SERVICEBERRY	900 mm	POT	3.962 m O.C.
	AMELANCHIER X GRANDIFLORA			
9	BLACK HILLS SPRUCE	2.5 m	B4B	
	PICEA GLAUCA 'DENSATA'			
2	EASTERN RED CEDAR	2.5 m	B4B	
	JUNIPERUS VIRGINIANA			
16	GREEN ASH	50 mm	B4B	3.962 m O.C.
	FRAXINUS PENNSYLVANICA			
12	WHITE OAK	50 mm	B4B	
	QUERCUS ALBA			
5	RED OAK	50 mm	B4B	
	QUERCUS RUBRA			
4	SWAMP WHITE OAK	50 mm	B4B	
	QUERCUS BICOLOR			
SHRUBS				
5	CHOKECHERRY	900 mm	POT	
	PRUNUS VIRGINIANA			
14	DWARF COMMON NINEBARK	500 mm	POT	1.067 m O.C.
	PHYSOCARPUS OPULIFOLIUS 'NANA'			
27	WHITE SNOWBERRY	500 mm	POT	1.067 m O.C.
	SYMPHORICARPOS ALBUS			
SHRUBS				
24	RED TWIGGED DOGWOOD	500 mm	POT	1.219 m O.C.
	CORNUS SERICEA			
6	SMOOTH SUMAC	600 mm	POT	
	RHUS GLABRA			
24	WINTERBERRY	600 mm	POT	
	ILEX VERTICILLATA			
GROUND COVERS				
16	ENGLEMAN IVY	NO. 1	Cont.	EVENLY SPACED
	PARTHENOCISSUS QUINQUEFOLIA 'ENGELMANNI'			ALONG FENCE

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

ENGINEERS ■ ARCHITECTS ■ PLANNERS

SANDERS
WACKER
WEHRMAN
BERGLY

365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax: 612-297-8817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

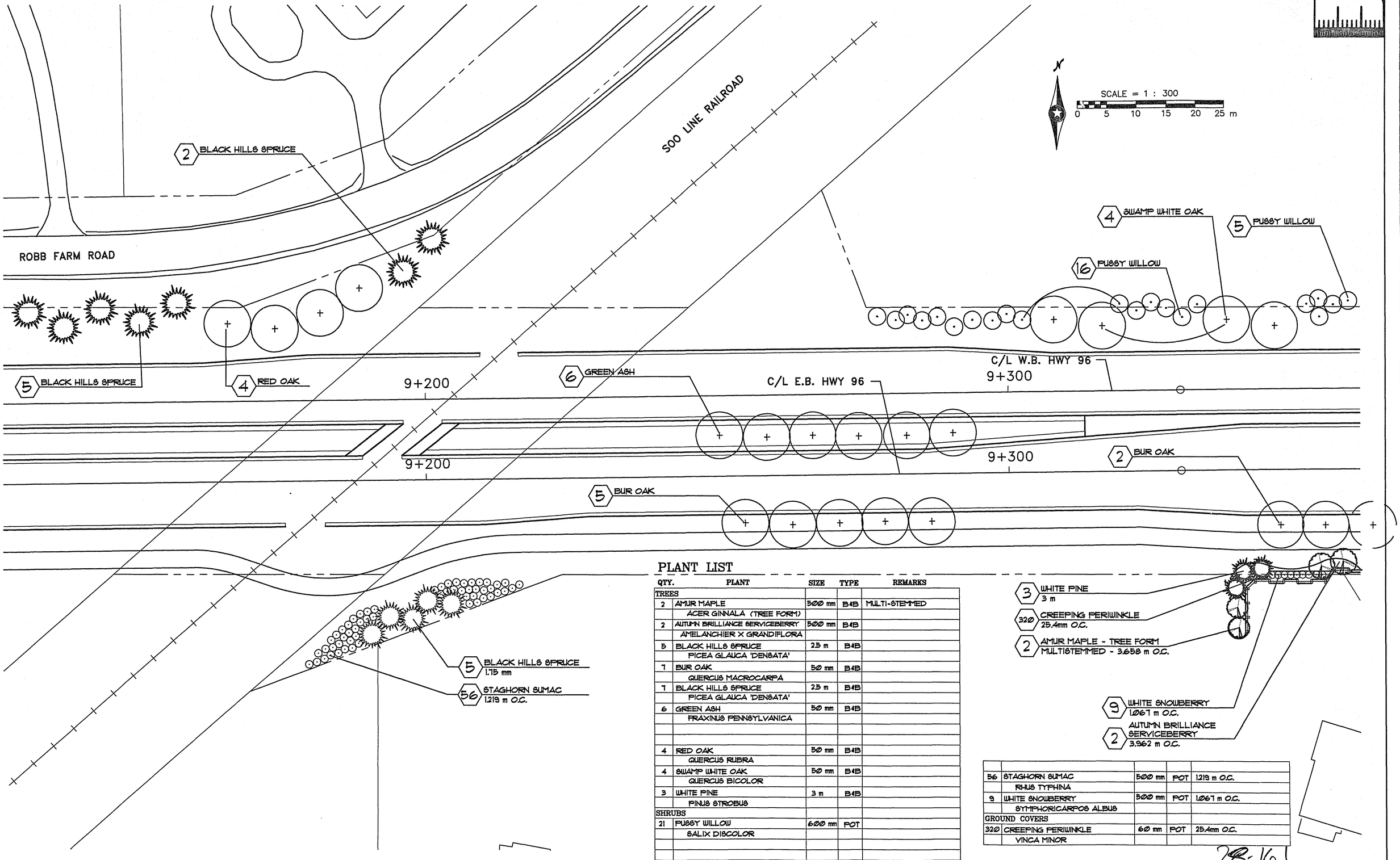
HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

69
170

28-161

H:\TH96\DLD\LS\12896-6 05-01-97 12:24 pm Jay Becker, SEH



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
2	AMUR MAPLE	500 mm	B&B	MULTI-STEMMED
	ACER GINNALA (TREE FORM)			
2	AUTUMN BRILLIANCE SERVICEBERRY	500 mm	B&B	
	AMELANCHIER X GRANDIFLORA			
5	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA 'DENSATA'			
7	BUR OAK	50 mm	B&B	
	QUERCUS MACROCARPA			
7	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA 'DENSATA'			
6	GREEN ASH	50 mm	B&B	
	FRAXINUS PENNSYLVANICA			
4	RED OAK	50 mm	B&B	
	QUERCUS RUBRA			
4	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
3	WHITE PINE	3 m	B&B	
	PINUS STROBUS			
SHRUBS				
21	PUSSY WILLOW	600 mm	POT	
	SALIX DISCOLOR			
56	STAGHORN SUMAC	500 mm	POT	1.219 m O.C.
	RHUS TYPHINA			
9	WHITE SNOWBERRY	500 mm	POT	1.067 m O.C.
	SYMPHORICARPOS ALBUS			
GROUND COVERS				
320	CREEPING PERIWINKLE	60 mm	POT	25.4mm O.C.
	VINCA MINOR			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND URBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

ENGINEERS ■ ARCHITECTS ■ PLANNERS

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365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-6817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

70 / 170

H:\TH96\DLD\LS\12R96-7 05-01-97 12:26 pm Jay Becker, SEH

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
4	AUSTRIAN PINE	3 mm	B&B	
	PINUS NIGRA			
13	AMUR MAPLE (TREE FORM)	500 mm	B&B	MULTI-STEMMED
	ACER GINNALA			
5	AUTUMN BRILLIANCE SERVICEBERRY	500 mm	B&B	
	AMELANCHIER X GRANDIFLORA			
1	BUR OAK	50 mm	B&B	
	QUERCUS MACROCARPA			
31	BLACK ASH	50 mm	B&B	
	FRAXINUS NIGRA			
SHRUBS				
20	ALPINE CURRANT	500 mm	POT	.9144 m O.C.
	RIBES ALPINUM			
33	CLAVEY'S DWARF HONEYSUCKLE	500 mm	POT	.9144 m O.C.
	LONICERA XYLOSTEUM 'CLAVEY'			
6	PUSSY WILLOW	600 mm	POT	
	SALIX BICOLOR			

GROUND COVERS				
560	BUGLEWEED	60 mm	POT	25.4mm O.C.
	AJUGA REPTANS			
880	JAPANESE SPURGE	60 mm	POT	25.4mm O.C.
	PACHYSANDRA TERMINALIS			
10	BOSTON IVY	NO. 1	CONT.	2 PER PANEL
	PARTHENOCISSUS TRICUSPIDATA			
6	ENGELMAN IVY	NO. 1	CONT.	2 PER PANEL
	PARTHENOCISSUS QUINQUEFOLIA 'ELGELMANN'			

N

SCALE = 1 : 300
0 5 10 15 20 25 m

C/L GREENHAVEN DR.

C/L W.B. HWY 96

C/L E.B. HWY 96

6 BLACK ASH

6 PUSSY WILLOW

10 BLACK ASH

9+400

40+100

9+500

COLORED CONCRETE CROSSWALK

1 BUR OAK

5 BLACK ASH

9+400

10 BLACK ASH

9+500

DECORATIVE WALL PANELS 3 PANELS

DECORATIVE WALL PANELS 3 PANELS

DECORATIVE WALL PANELS 3 PANELS

DECORATIVE WALL PANELS 3 PANELS

3 AMUR MAPLE (TREE FORM) MULTI-STEMMED - 3.962 m O.C.

20 ALPINE CURRANT .9144 m O.C.

440 JAPANESE SPURGE UNDER TREES -25.4mm O.C.

3 AUTUMN BRILLIANCE SERVICEBERRY 3.962 m O.C.

19 CLAVEY'S DWARF HONEYSUCKLE -.9144 m O.C.

2 AUSTRIAN PINE 3.048 m

280 BUGLEWEED 25.4mm O.C.

3 AMUR MAPLE- TREE FORM MULTI-STEMMED - 3.048 m O.C.

sidewalk

2 AUSTRIAN PINE 3.048 m

3 AMUR MAPLE- TREE FORM MULTI-STEMMED - 3.048 m O.C.

280 BUGLEWEED 25.4mm O.C.

2 AUTUMN BRILLIANCE SERVICEBERRY 3.962 m O.C.

180 JAPANESE SPURGE 25.4mm O.C.

14 CLAVEY'S DWARF HONEYSUCKLE -.9144 m O.C.

6 ENGELMAN IVY THREE PANELS 2 PER PANEL

10 BOSTON IVY FIVE PANELS 2 PER PANEL

4 AMUR MAPLE- TREE FORM MULTI-STEMMED - 3.962 m O.C.

270 JAPANESE SPURGE 25.4mm O.C.

P

28-161

Jay Becker, SEH
05-01-97 12:28 pm
H:\TH96\DLDLS\12R96-8

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

ENGINEERS ■ ARCHITECTS ■ PLANNERS

SANDERS WACKER WEHRMAN BERGLY
365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax: 612-297-6817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

71
170

PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
4	AUSTRIAN PINE	3 m	B&B	
	PINUS NIGRA			
9	BLACK HILLS SPRUCE	3 m	B&B	
	PICEA GLAUCA 'DENSATA'			
7	AMUR MAPLE (TREE FORM)	500 mm	B&B	MULTI-STEMMED
	ACER GINNALA			
4	AUTUMN BRILLIANCE SERVICEBERRY	500 mm	B&B	
	AMELANCHIER X GRANDIFLORA			
21	BLACK ASH	50 mm	B&B	
	FRAXINUS NIGRA			
SHRUBS				
11	CLAVEY'S DWARF HONEYSUCKLE	500 mm	POT	.9144 m O.C.
	LONICERA XYLOSTEUM 'CLAVEYI'			
32	STAGHORN SUMAC	500 mm	POT	.9144 m O.C.
	RHUS TYPHINA			
GROUND COVERS				
215	CREEPING PERIWINKLE	60 mm	POT	25.4mm O.C.
	VINCA MINOR			
300	JAPANESE SPURGE	60 mm	POT	25.4mm O.C.
	PACHYSANDRA TERMINALIS			
6	ENGELMAN IVY	NO. 1	CONT.	2 PER PANEL
	PARTHENOCISSUS QUINQUEFOL	A 'ELGELMANN'		

N

SCALE = 1 : 300

0 5 10 15 20 25 m

C/L W.B. HWY 96

C/L E.B. HWY 96

BLACK ASH

9+600

9+700

9+600

9+700

6 BLACK ASH

DECORATIVE WALL PANELS
3 PANELS

COLORED CONCRETE
CROSSWALK

5 BLACK ASH

6 ENGELMAN IVY
THREE PANELS
2 PER PANEL

4 AUTUMN BRILLANCE
SERVICEBERRY
3.962 m O.C.

300 JAPANESE SPURGE
25.4mm O.C.

11 CLAVEY'S DWARF
HONEYSUCKLE
.9144 m O.C.

2 AUSTRIAN PINE
3 m

215 CREEPING PERIWINKLE
25.4mm O.C.

4 AMUR MAPLE - TREE FORM
MULTI-STEM 3.048 m O.C.

C/L BRAMBLEWOOD AVE.

32 STAGHORN SUMAC
.9144 m O.C.

4 BLACK HILLS SPRUCE
3 m

5 BLACK HILLS SPRUCE
3 m

2 AUSTRIAN PINE
3 m

3 AMUR MAPLE - TREE FORM
MULTI-STEM - 3.048 m O.C.

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

SEH ENGINEERS ARCHITECTS PLANNERS

SANDERS
WACKER
WEHRMAN
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612-221-0401
Fax : 612-297-3817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
LANDSCAPE PLAN

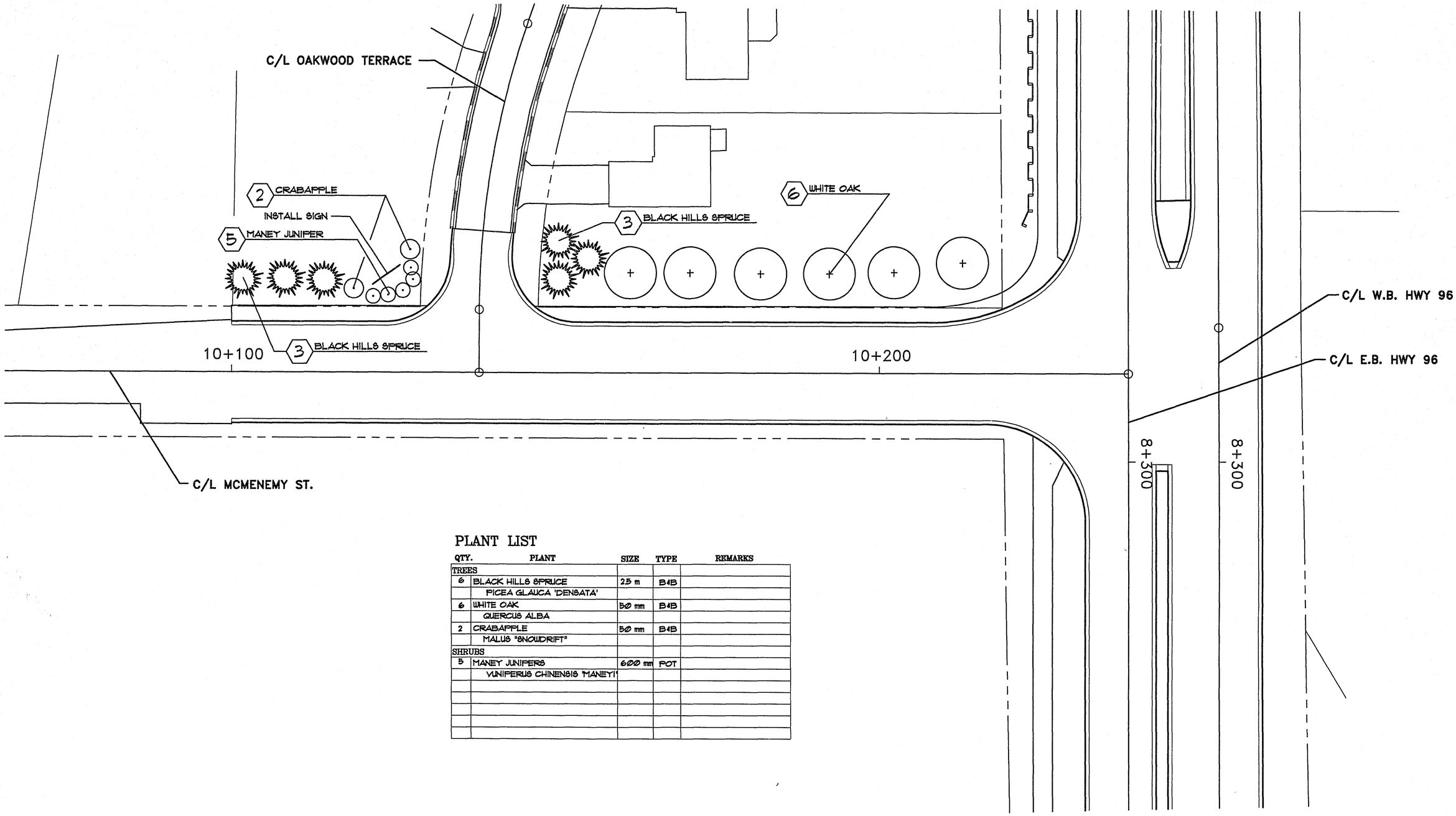
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RAMSE9601.01

72
170

H:\TH96\DLD\LS\12896-9 05-01-97 12:29 pm Jay Becker, SEH

SCALE = 1 : 300

0 5 10 15 20 25 m



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
6	BLACK HILLS SPRUCE	2.5 m	B&B	
	PICEA GLAUCA 'DENSATA'			
6	WHITE OAK	50 mm	B&B	
	QUERCUS ALBA			
2	CRABAPPLE	50 mm	B&B	
	MALUS "SNOWDRIFT"			
SHRUBS				
5	MANEY JUNIPERS	600 mm	POT	
	JUNIPERUS CHINENSIS 'MANEY1'			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 5-2-97 Reg. No. 12335

DAHLGREN SHARDLOW AND UBAN INCORPORATED
CONSULTING PLANNERS LANDSCAPE ARCHITECTS

SEH ENGINEERS ARCHITECTS PLANNERS

SANDERS WACKER WEHRMAN BERGLY

365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-6817

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

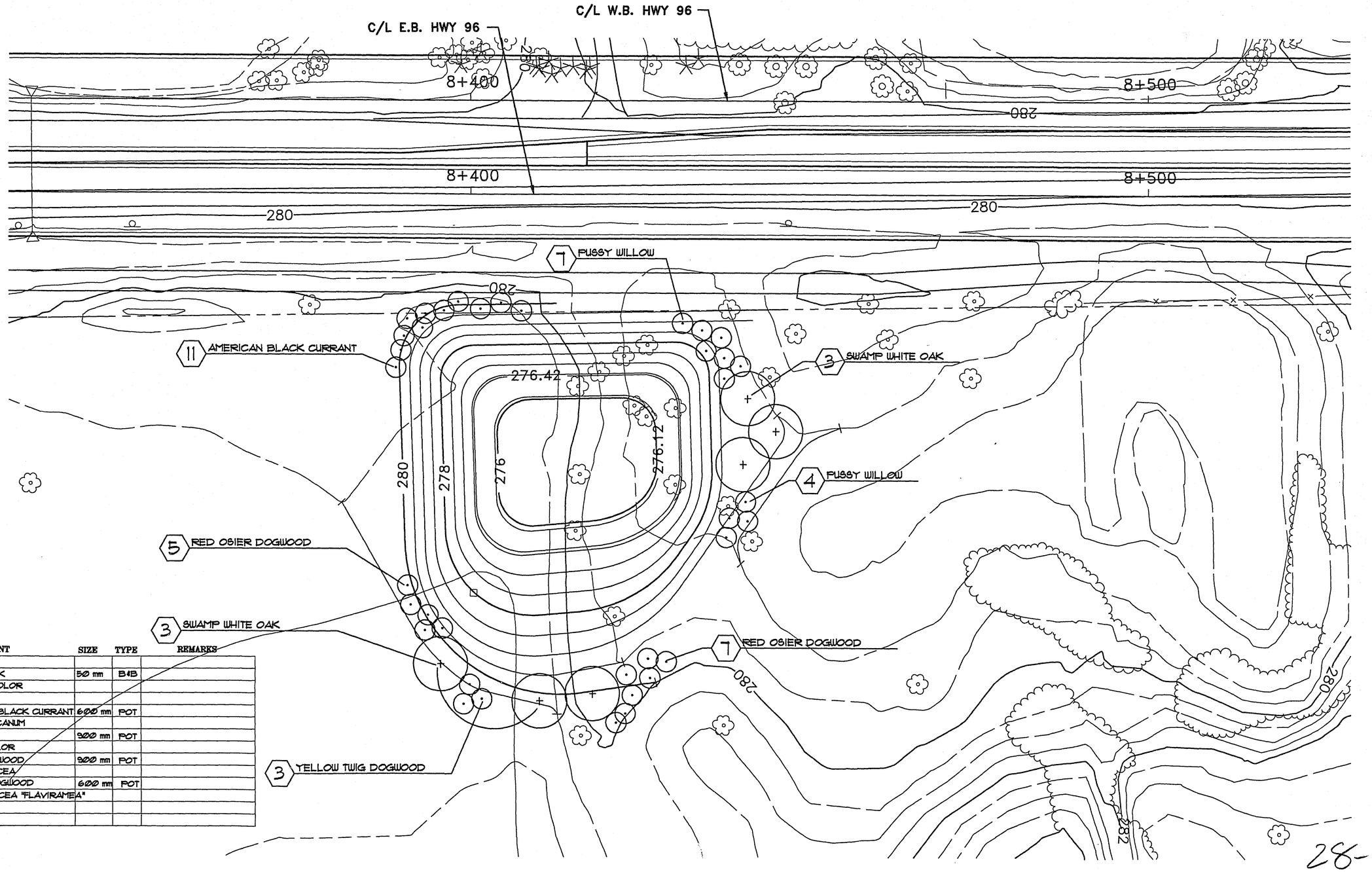
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72A / 170

H:\TH96\DLD\LS\R601LSD 05-01-97 12:41 pm Jay Becker, SEH

SCALE = 1 : 300

0 5 10 15 20 25 m



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
6	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
SHRUBS				
11	AMERICAN WILD BLACK CURRANT	600 mm	POT	
	RIBES AMERICANUM			
11	PUSSY WILLOW	900 mm	POT	
	SALIX DISCOLOR			
12	RED OSIER DOGWOOD	900 mm	POT	
	CORNUS SERICEA			
3	YELLOW TWIG DOGWOOD	600 mm	POT	
	CORNUS SERICEA "FLAVIRAMEA"			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 5-2-97 Reg. No. 12335

ENGINEERS ■ ARCHITECTS ■ PLANNERS

SANDERS WACKER WEHRMAN BERGLY

385 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-6917

RAMSEY COUNTY

HIGHWAY 96

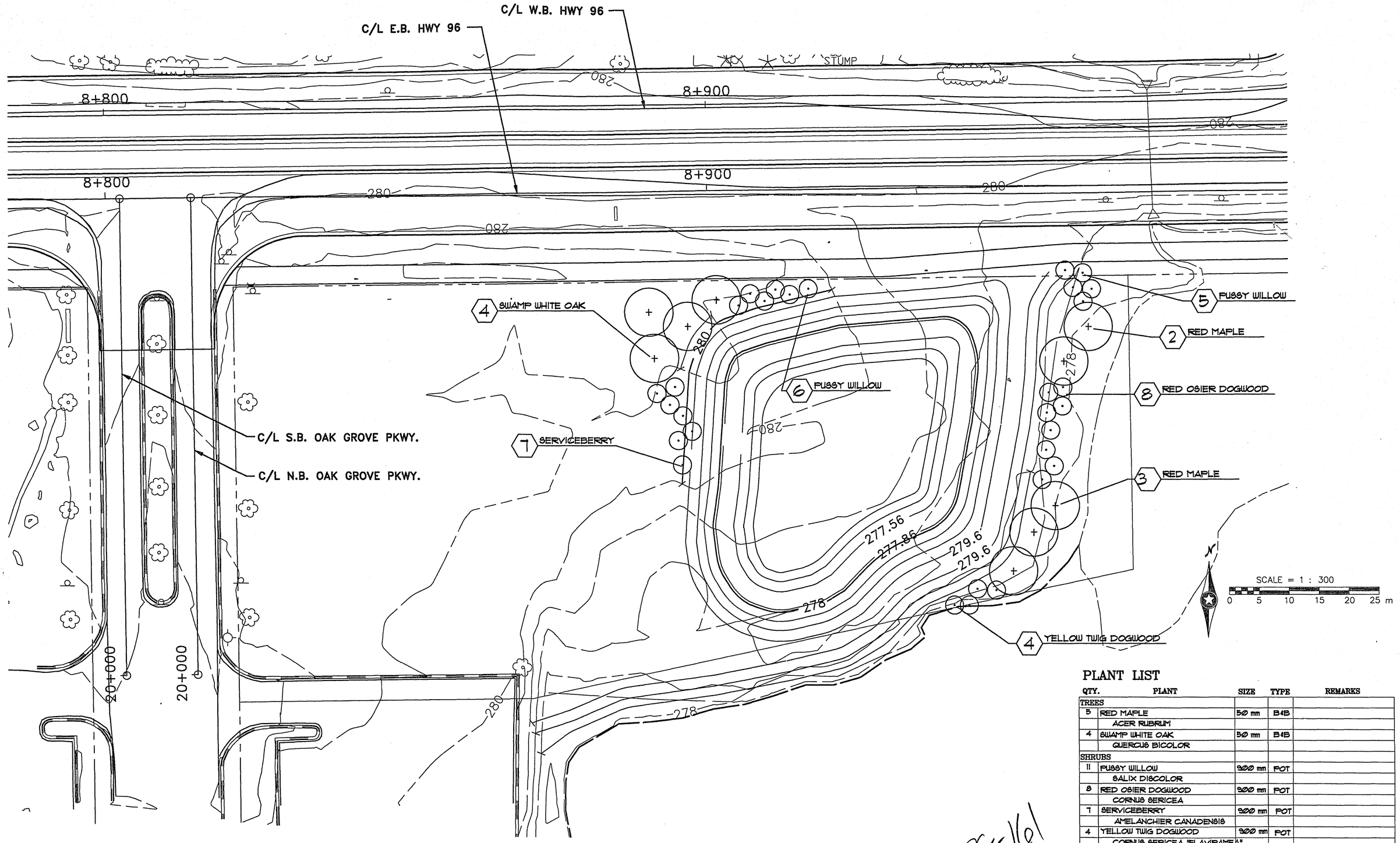
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

72B / 170

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PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
5	RED MAPLE	50 mm	B&B	
	ACER RUBRUM			
4	SWAMP WHITE OAK	50 mm	B&B	
	QUERCUS BICOLOR			
SHRUBS				
11	PUSSY WILLOW	900 mm	POT	
	SALIX DISCOLOR			
8	RED OSIER DOGWOOD	900 mm	POT	
	CORNUS SERICEA			
7	SERVICEBERRY	900 mm	POT	
	AMELANCHIER CANADENSIS			
4	YELLOW TWIG DOGWOOD	900 mm	POT	
	CORNUS SERICEA "FLAVIRAMEA"			

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Landscape Architect under the laws of the state of Minnesota.
William D. Sanders
Date: 5-2-97 Reg. No. 12335

ENGINEERS ■ ARCHITECTS ■ PLANNERS
SANDERS WACKER WEHRMAN BERGLY
365 East Kellogg Boulevard
Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-0817

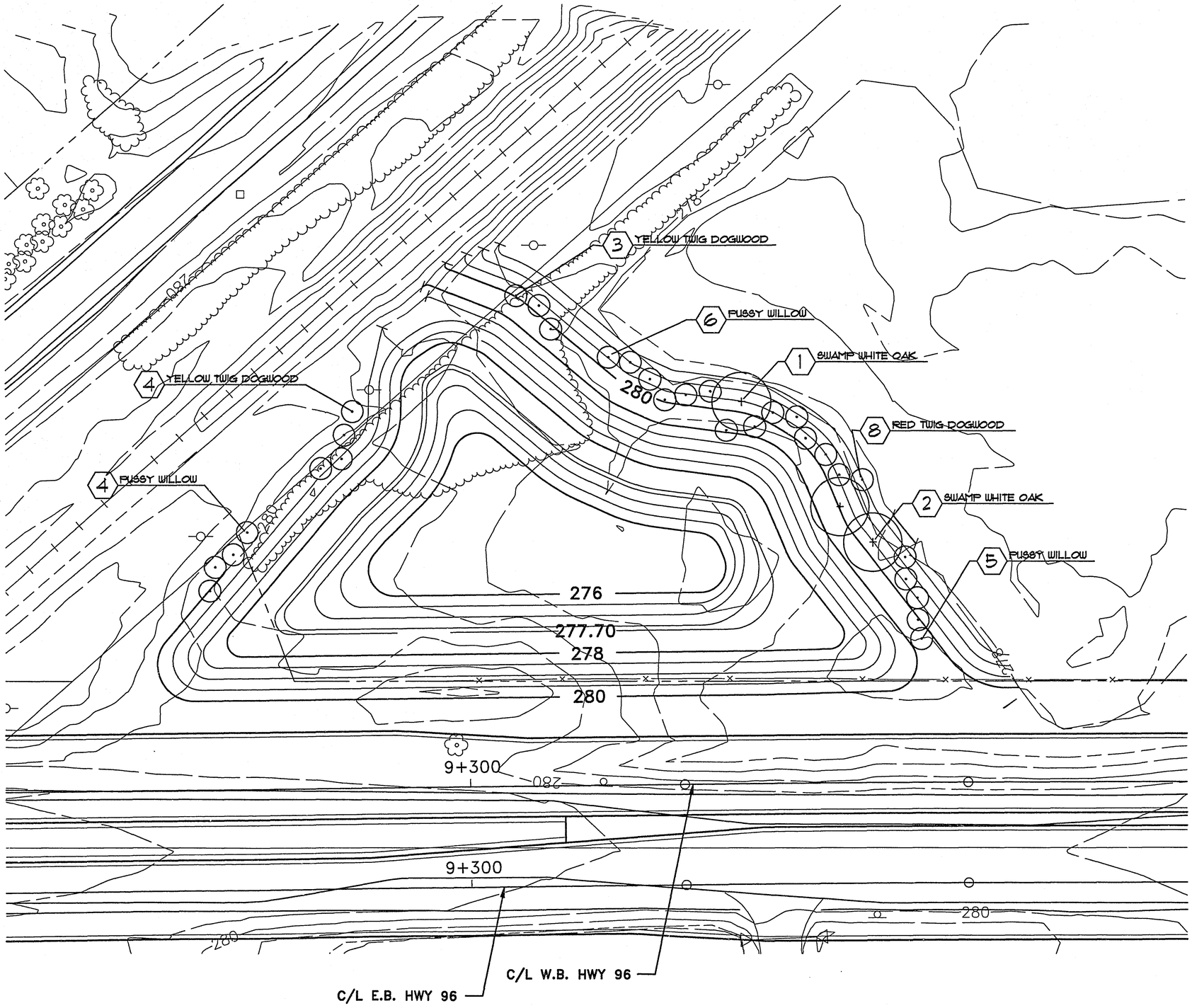
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

72C / 170

H:\TH96\OL\DLS\R2ELSB 05-01-97 12:35 pm Jay Becker, SEH



PLANT LIST

QTY.	PLANT	SIZE	TYPE	REMARKS
TREES				
3	SWAMP WHITE OAK.	50 mm	B&B	
	QUERCUS BICOLOR			
SHRUBS				
15	PUSSY WILLOW	600 mm	POT	
	SALIX DISCOLOR			
8	RED TWIG DOGWOOD	600 mm	POT	
	CORNUS SERICEA			
7	YELLOW TWIG DOGWOOD	600 mm	POT	
	CORNUS SERICEA "FLAVIRAMEA"			

SCALE = 1 : 300

0 5 10 15 20 25 m

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 5-2-97 Reg. No. 12335

ENGINEERS ■ ARCHITECTS ■ PLANNERS

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Saint Paul, Minnesota 55101
612-221-0401
Fax : 612-297-6817

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96 LANDSCAPE PLAN

FILE NO. RAMSE9601.01

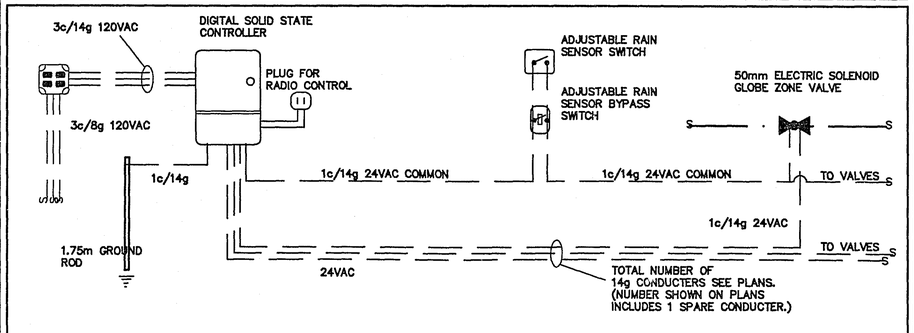
72D / 170

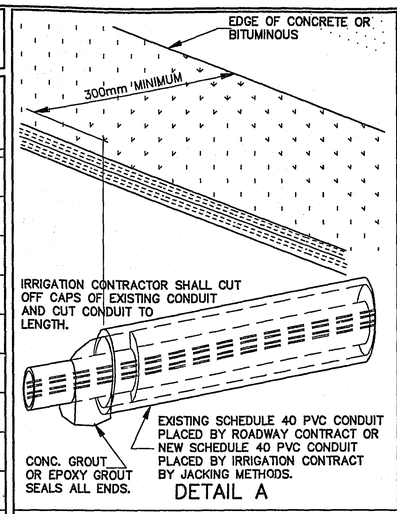
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LEGEND

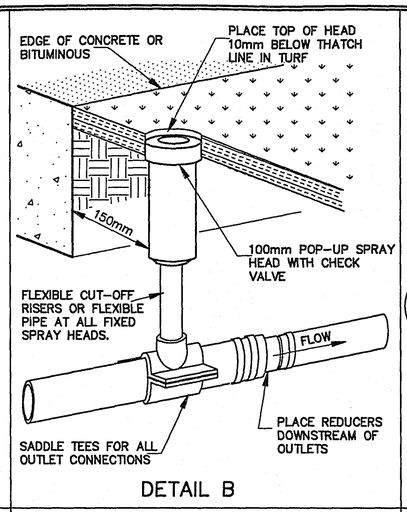
SYMBOL	DESCRIPTION
QS4	100mm POP-UP SPRAY HEAD WITH CHECK VALVE, 4m QUARTER CIRCLE PRESSURE COMPENSATING NOZZLE – SEE DET. B
HS4	100mm POP-UP SPRAY HEAD WITH CHECK VALVE, 4m HALF CIRCLE PRESSURE COMPENSATING NOZZLE – SEE DET. B
QS3	100mm POP-UP SPRAY HEAD WITH CHECK VALVE, 3m QUARTER CIRCLE PRESSURE COMPENSATING NOZZLE – SEE DET. B
HS3	100mm POP-UP SPRAY HEAD WITH CHECK VALVE, 3m HALF CIRCLE PRESSURE COMPENSATING NOZZLE – SEE DET. B
	50mm ELECTRIC GLOBE ZONE VALVE SEE DET. C
	25mm QUICK COUPLER VALVE IN VALVE BOX SEE DET. D
	60 mm PVC 1100 kPa (160 PSI) SERVICE PIPE SEE DET. F
	25mm OR 30mm POLYETHYLENE 550 kPa (80 psi) NSF PIPE SEE DET. G
	150mm SCHEDULE 40 PVC CONDUIT SEE DET. A
	14 GAGE SINGLE STRAND CONTROL WIRE BUNDLE, SEE PLAN FOR NUMBER OF CONDUCTERS SEE DET. E
	DIGITAL SOLID STATE CONTROLLER IN PEDESTAL MOUNT WITH MOISTURE CONTROLS AND WIRING PER SPECIFICATION SEE DET. H
DCVA	RP BACKFLOW DEVICE AND METER IN STEEL CABINET WITH GATE VALVES AND SYSTEM POWER CONNECTION SEE DET. H

WIRING SCHEMATIC

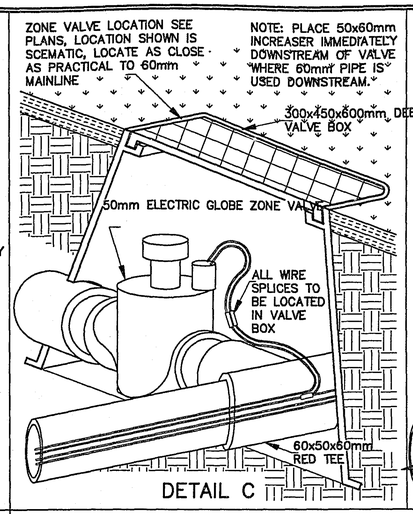




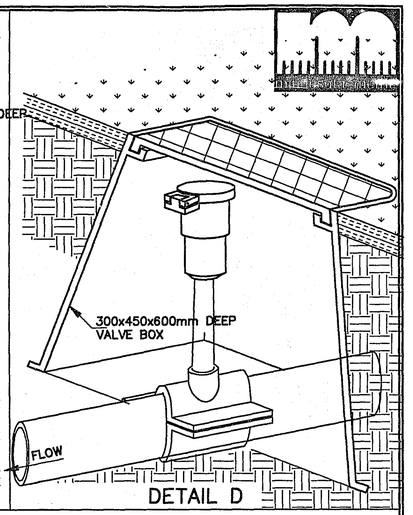
DETAIL A



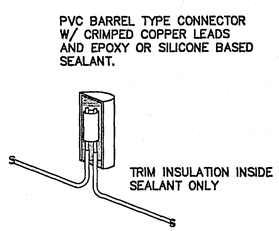
DETAIL B



DETAIL C



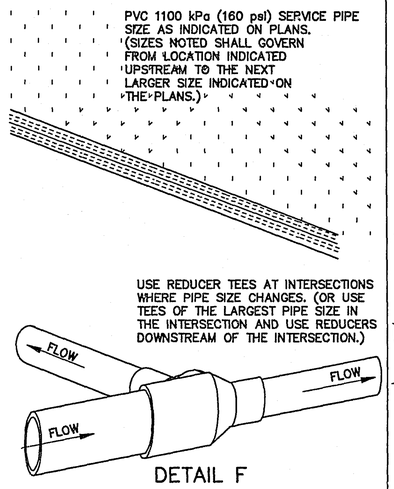
DETAIL D



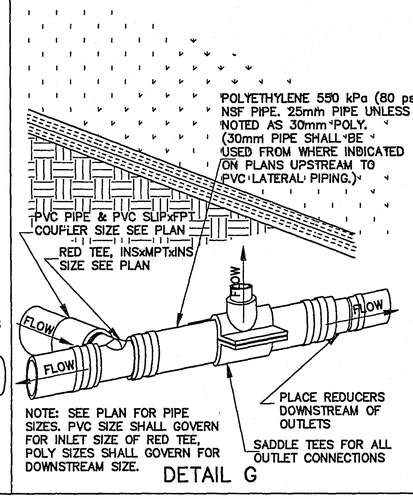
TYPICAL BURIED SPLICE DETAIL

14 GAGE SINGLE STRAND CONTROL WIRE BUNDLE SEE PLAN FOR NUMBER OF CONDUCTERS PER BUNDLE

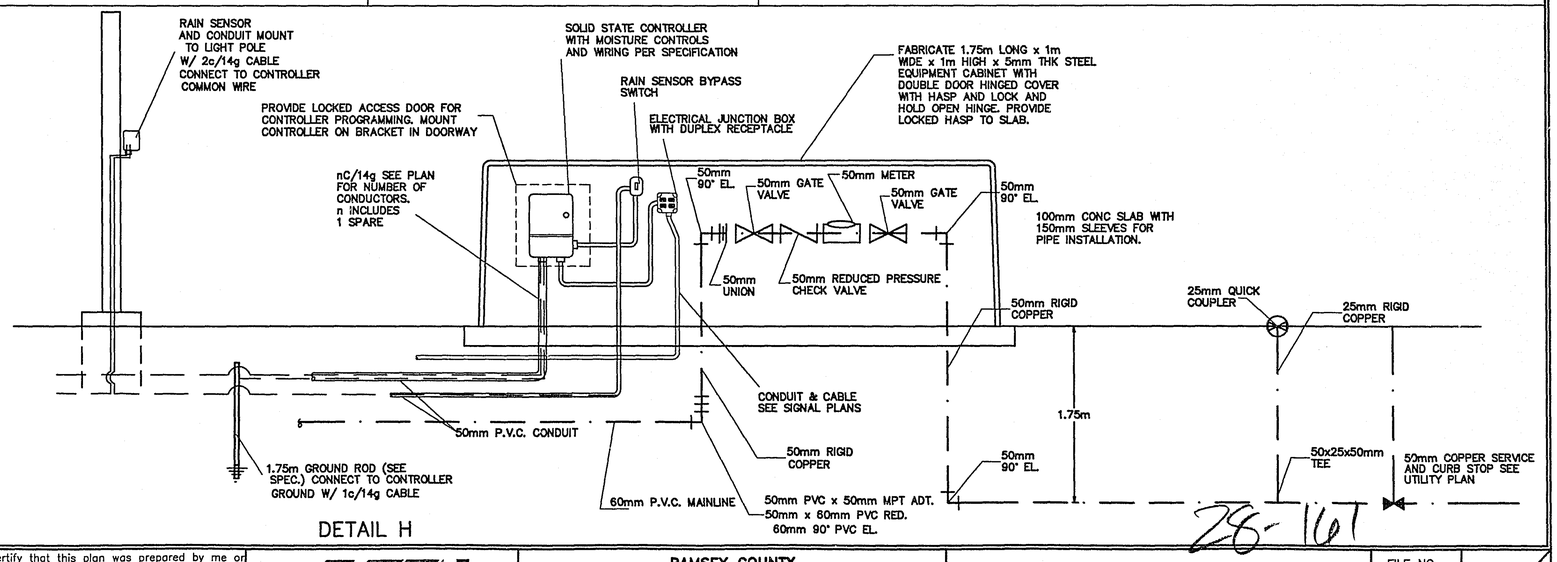
DETAIL E



DETAIL F



DETAIL G



DETAIL H

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN

FILE NO. RAMSE9601.01

73
170

26-161

NAME: S1R.DWG DATE: APRIL 11, 1997

SCALE = 1 : 300

0 5 10 15 20 25 m

C/L W.B. HWY 96

C/L E.B. HWY 96

8+100

8+100

8+200

8+200

30mm POLY

30mm POLY

30mm POLY

30mm POLY

30mm POLY

30mm POLY

30mm POLY

30mm POLY

QS3

QS3

QS4

QS4

60mm PVC LATERAL

60mm PVC LATERAL

150mm CONDUIT

150mm CONDUIT

3c/14g CONTROL WIRE

4c/14g CONTROL WIRE

ZONE VALVE 1A

ZONE VALVE 2A

60mm PVC MAIN

60mm PVC MAIN

150mm CONDUIT

150mm CONDUIT

30mm POLY

QUICK COUPLER

QUICK COUPLER

QUICK COUPLER

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.

Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN
STA 8+50.000 TO 8+260.000

FILE NO. RAMSE9601.01

74 / 170

NAME: S2.DWG DATE: APRIL 8, 1997

NO SHEET

#75

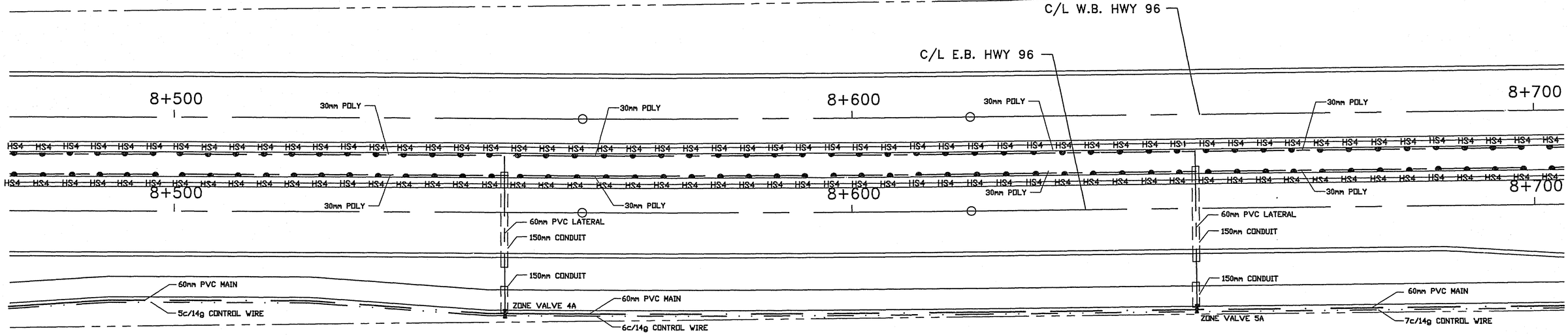
SCALE = 1 : 300

0 5 10 15 20 25 m

ROBB FARM ROAD

C/L W.B. HWY 96

C/L E.B. HWY 96



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION SYSTEM			

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

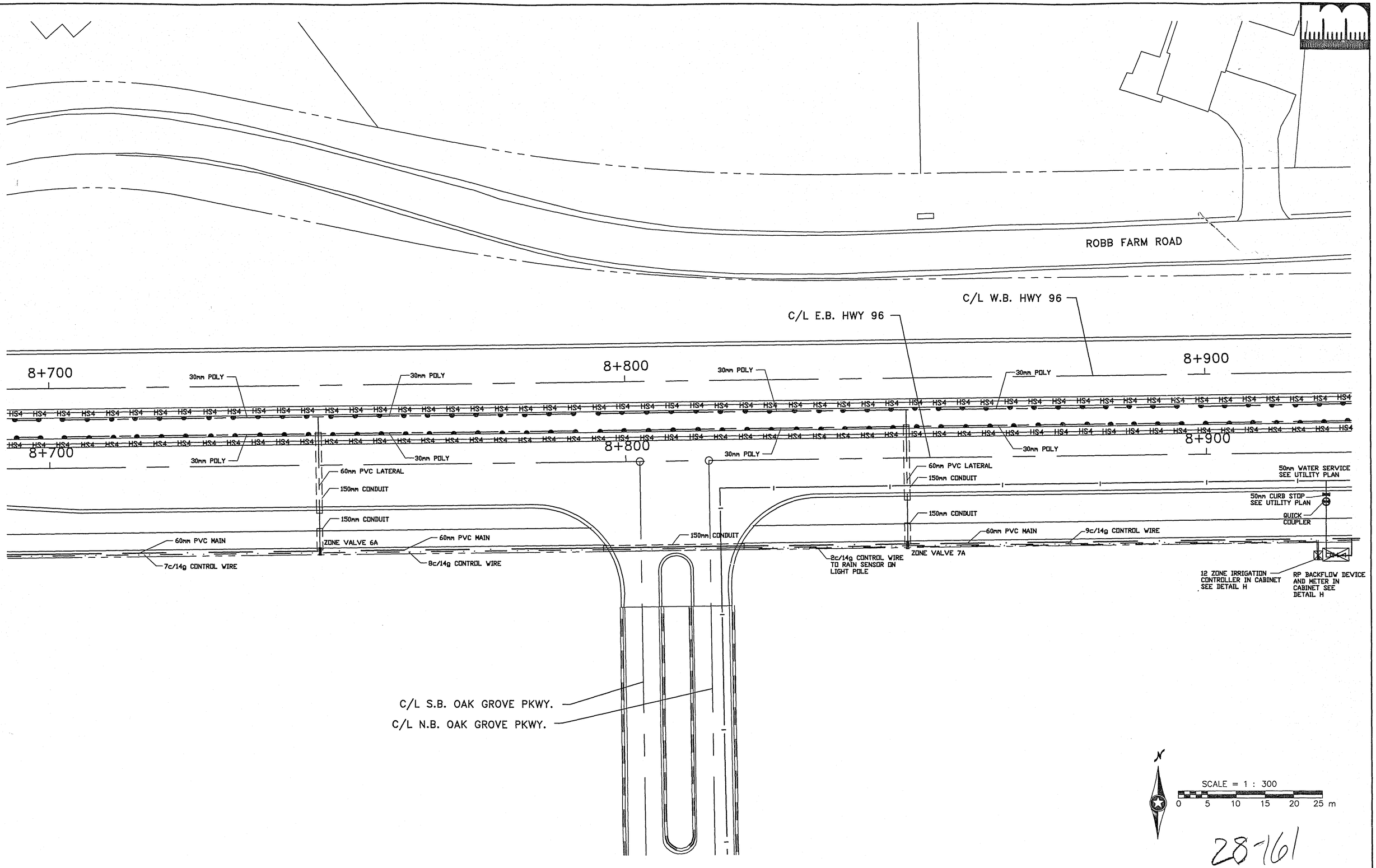
S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN
STA 8+480.000 TO 8+700.000

FILE NO. RAMSE9601.01

76 / 170

NAME: S4.DWG DATE: APRIL 8, 1997



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN
STA8+700.000 TO 8+915.000

FILE NO. RAMSE9601.01

77
170

NAME: SSR.DWG DATE: APRIL 11, 1997

C/L E. GILFILLAN RD.

ROBB FARM ROAD

ROBB FARM ROAD

C/L W.B. HWY 96

C/L E.B. HWY 96

9+000

9+100

30mm POLY

HS4

60mm PVC LATERAL

150mm CONDUIT

50mm WATER SERVICE
SEE UTILITY PLAN

50mm CURB STOP
SEE UTILITY PLAN

QUICK
COUPLER

60mm PVC MAIN

ZONE VALVE 8A

5c/14g CONTROL WIRE

4c/14g CONTROL WIRE

ZONE VALVE 9A

3c/14g CONTROL WIRE

ZONE VALVE 10A

12 ZONE IRRIGATION
CONTROLLER IN CABINET
SEE DETAIL H

RP BACKFLOW AND
METER IN CABINET
SEE DETAIL H

SCALE = 1 : 300

0 5 10 15 20 25 m

28-161

NAME: S6R.DWG DATE: APRIL 11, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.

Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

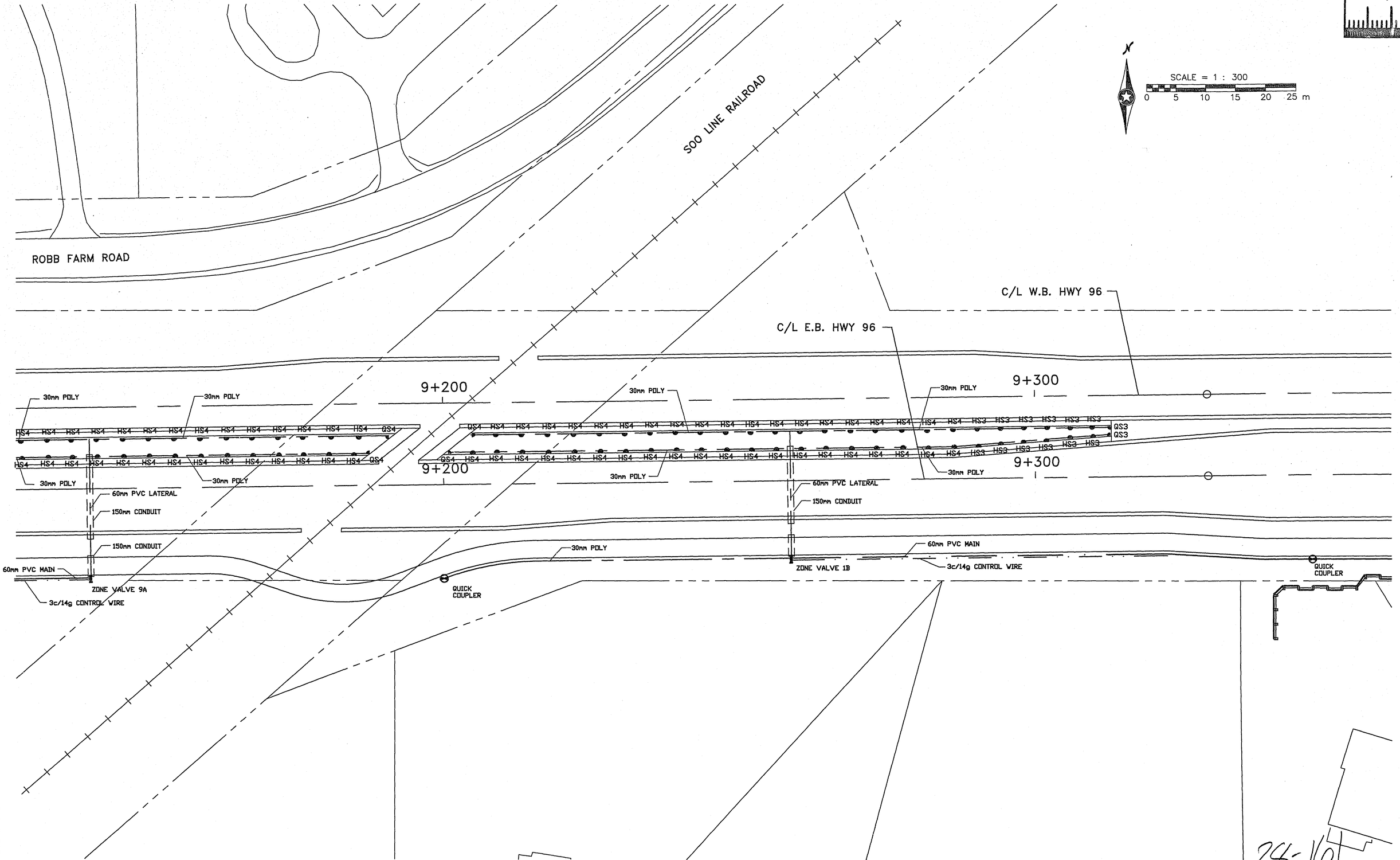
HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN
STA 8+915.000 TO 9+135.000

FILE NO. RAMSE9601.01

78 / 170



NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.

Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

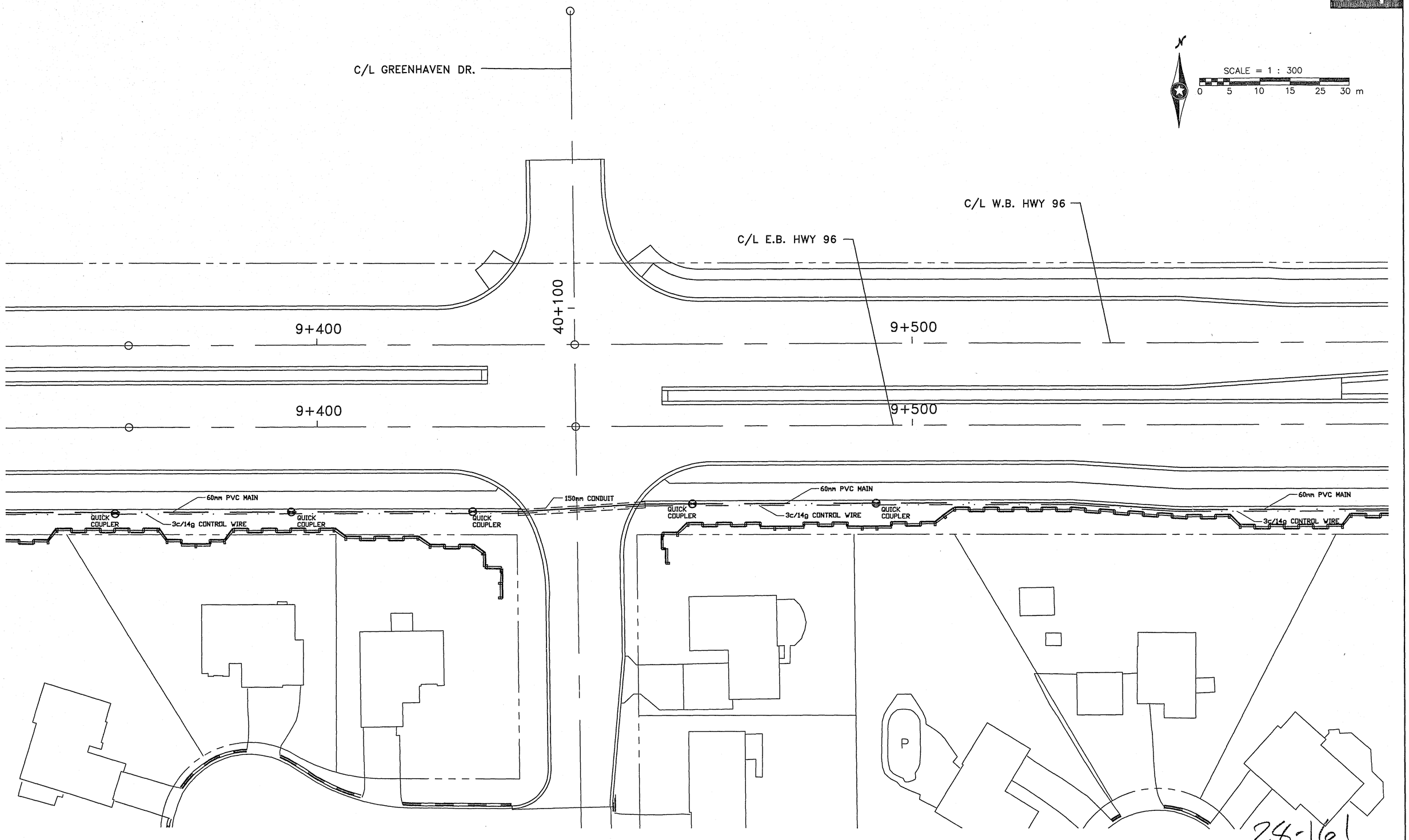
HIGHWAY 96
IRRIGATION PLAN
STA 9+135.000 TO 9+355.000

FILE NO. RAMSE9601.01

79 / 170

26-16

NAME: S7.DWG DATE: APRIL 8, 1997



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.

Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96 IRRIGATION PLAN STA 9+355.000 TO 9+570.000

FILE NO. RAMSE9601.01

80 / 170

NAME: S8.DWG DATE: APRIL 8, 1997

SCALE = 1 : 300

0 5 10 15 20 25 m

C/L W.B. HWY 96

C/L E.B. HWY 96

9+600

9+700

9+600

9+700

QS4

INSTALL LATERAL FOR FUTURE USE. PLACE ONE SPRAY HEAD ON LINE TO FACILITATE WINTERIZATION OF THIS ZONE.

60mm PVC LATERAL

150mm CONDUIT

150mm CONDUIT

60mm PVC MAIN

60mm PVC MAIN

QUICK COUPLER

150mm CONDUIT

QUICK COUPLER

2c/14g CONTROL WIRE TO RAIN SENSOR MOUNTED ON LIGHT POLE

4c/14g CONTROL WIRE

60mm PVC MAIN

ZONE VALVE 2B

3c/14g CONTROL WIRE

4c/14g CONTROL WIRE

RP BACKFLOW PREVENTER AND METER IN CABINET SEE DETAIL H

QUICK COUPLER

12 STATION CONTROLLER IN CABINET SEE DETAIL H

50mm WATER SERVICE SEE UTILITY PLAN

50mm CURB STOP SEE UTILITY PLAN

C/L BRAMBLEWOOD AVE.

78-161

NAME: SSR.DWG DATE: APRIL 11, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	DS	4/30	REVISE IRRIGATION 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.

Jason M Mason

Date: 3-18-97 Reg. No. 18612

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96
IRRIGATION PLAN
STA 9+570.000 TO 9+700.000

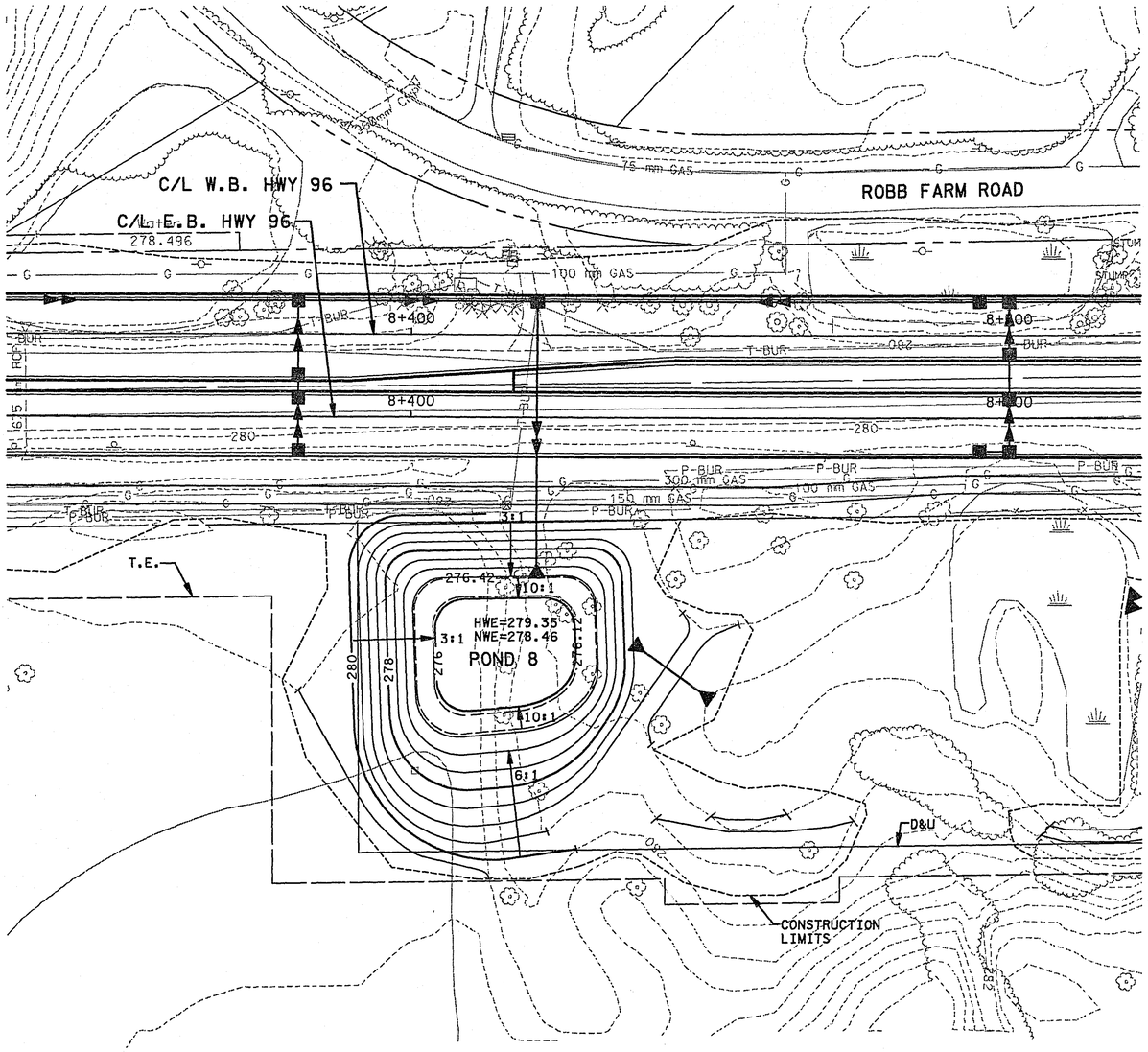
FILE NO. RAMSE9601.01

81 / 170

SCALE = 1 : 500

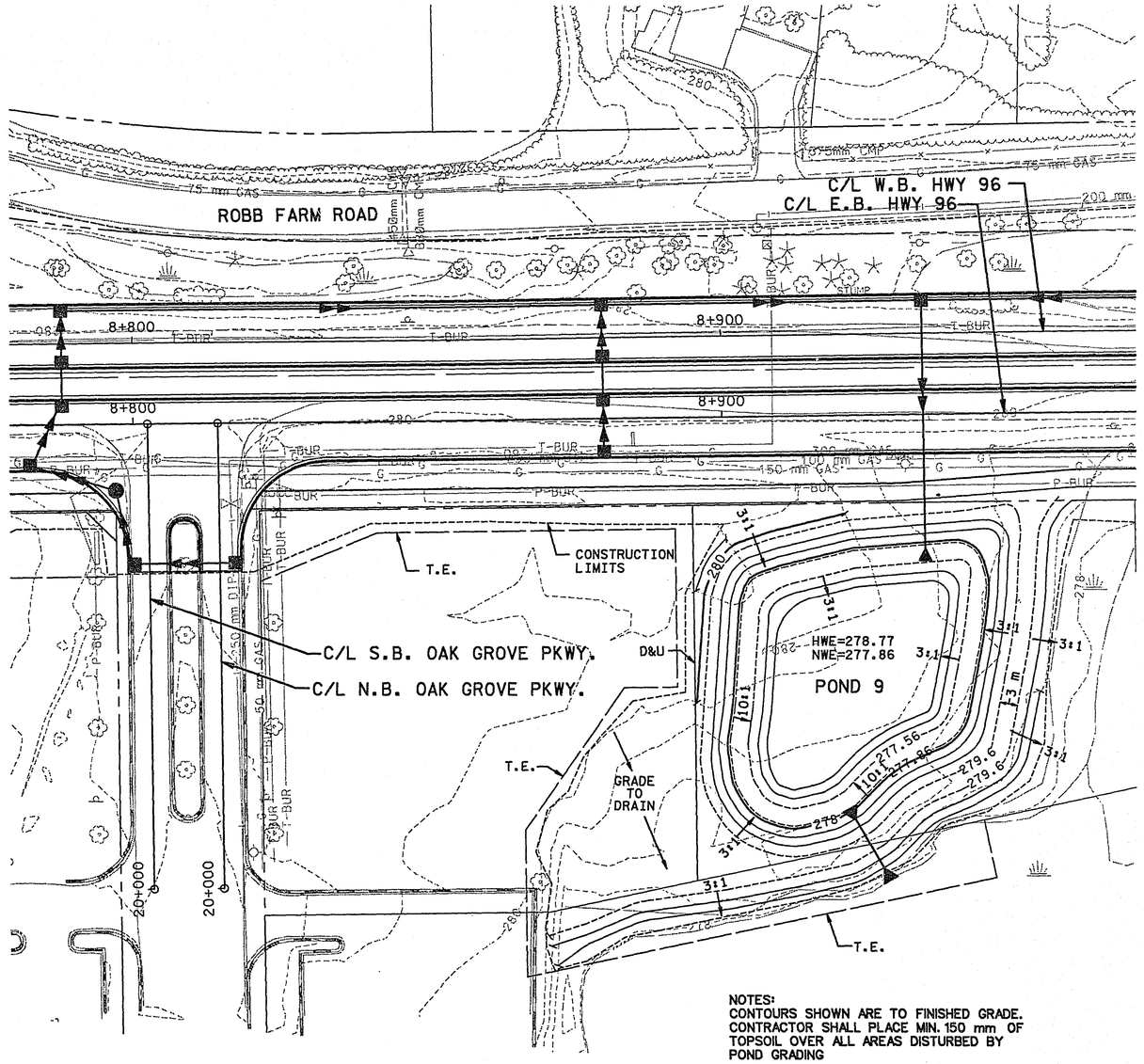
0 5 10 20 30 40 50 m

NOTES:
CONTOURS SHOWN ARE TO FINISHED GRADE.
CONTRACTOR SHALL PLACE MIN. 150 mm OF TOPSOIL OVER ALL AREAS DISTURBED BY POND GRADING



SCALE = 1 : 500

0 5 10 20 30 40 50 m



NOTES:
CONTOURS SHOWN ARE TO FINISHED GRADE.
CONTRACTOR SHALL PLACE MIN. 150 mm OF TOPSOIL OVER ALL AREAS DISTURBED BY POND GRADING

28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

POND CONTOUR PLAN

FILE NO. RAMSE9601.01

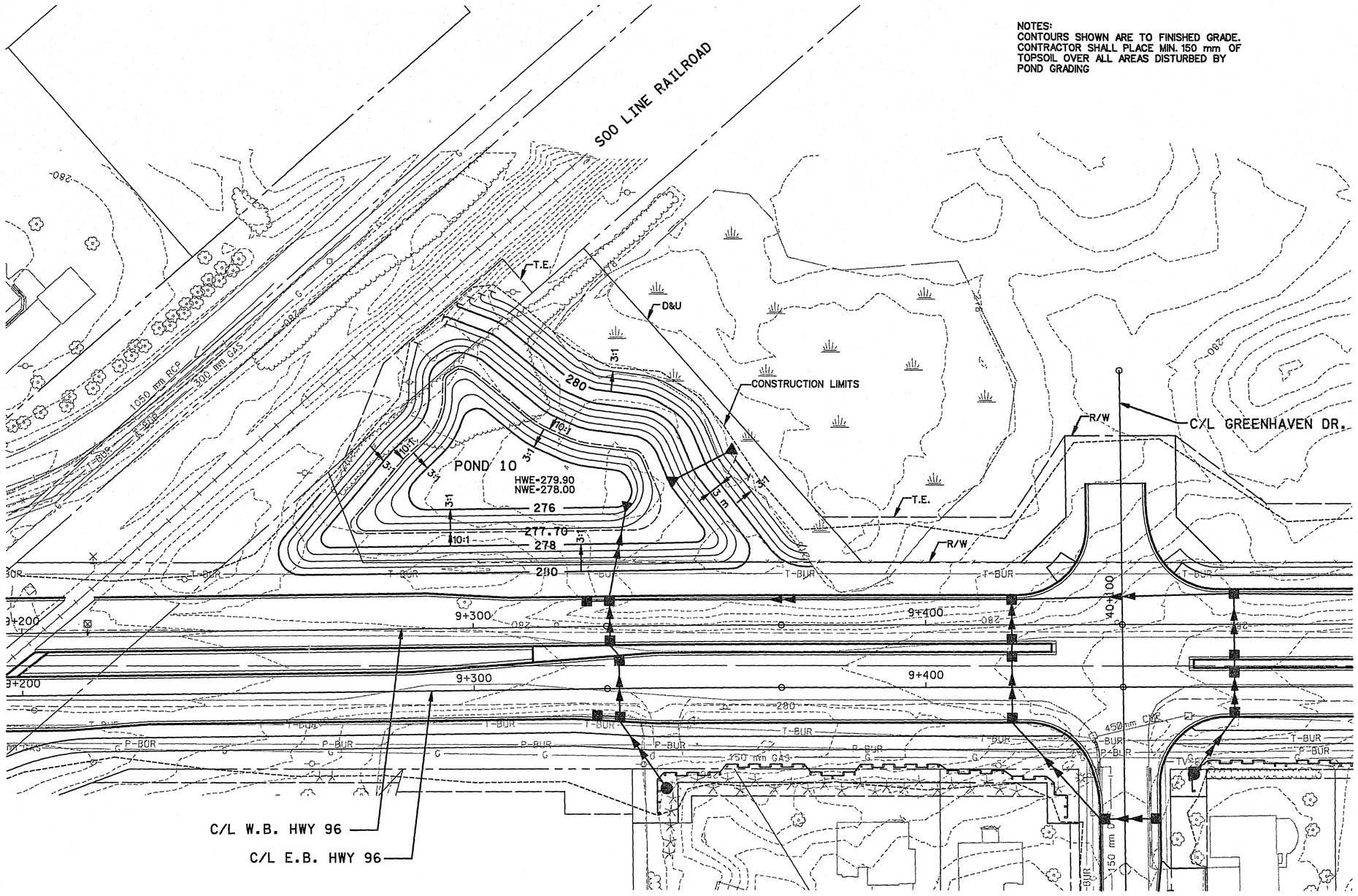
82
170

NAME: RAM9601.CN1 DATE: Mar. 7, 1997

SCALE = 1 : 500

0 5 10 20 30 40 50 m

NOTES:
CONTOURS SHOWN ARE TO FINISHED GRADE.
CONTRACTOR SHALL PLACE MIN. 150 mm OF TOPSOIL OVER ALL AREAS DISTURBED BY POND GRADING



28-161

NAME: RAM9601.CN2 DATE: Mar. 7, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ARCHITECTS PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

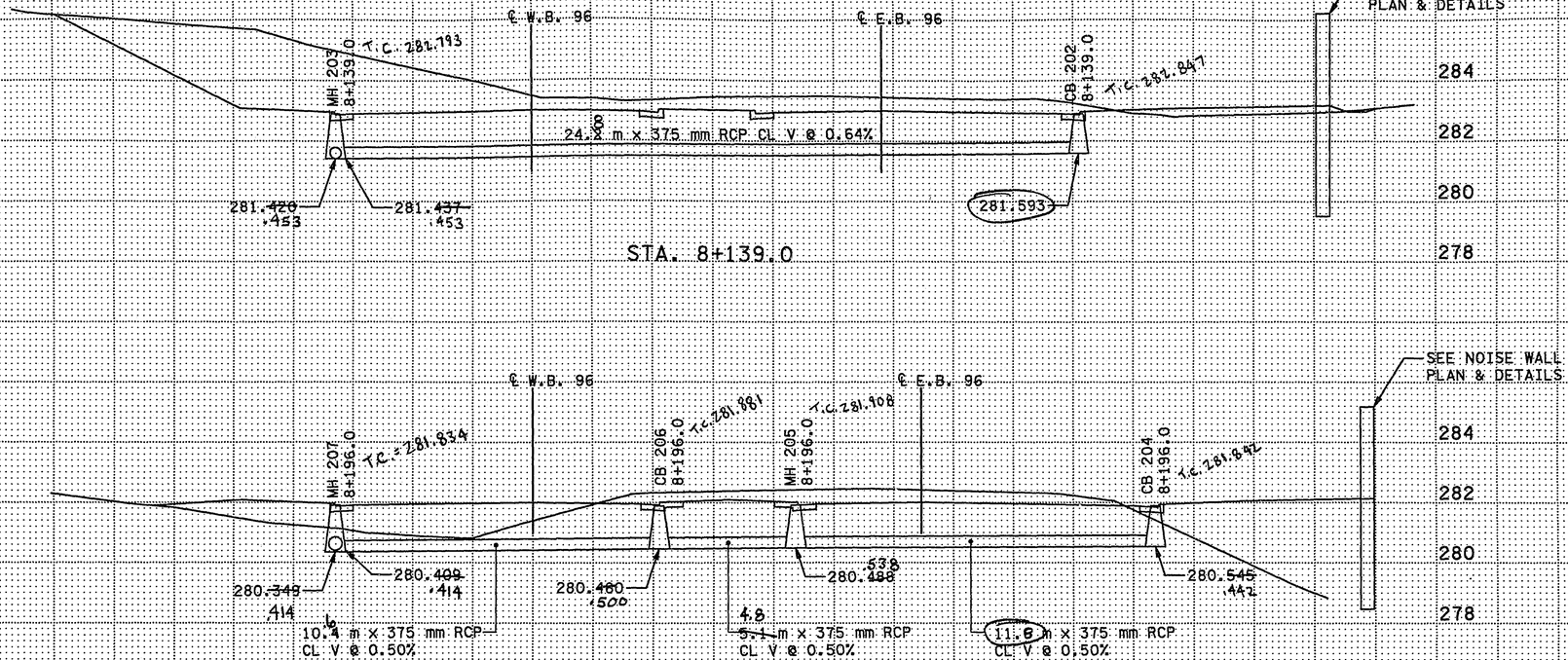
POND CONTOUR PLAN

FILE NO. RAMSE9601.01

83/170

NO SHEET

#84-130



NAME: RAM9601.SM1 DATE: Mar. 7, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

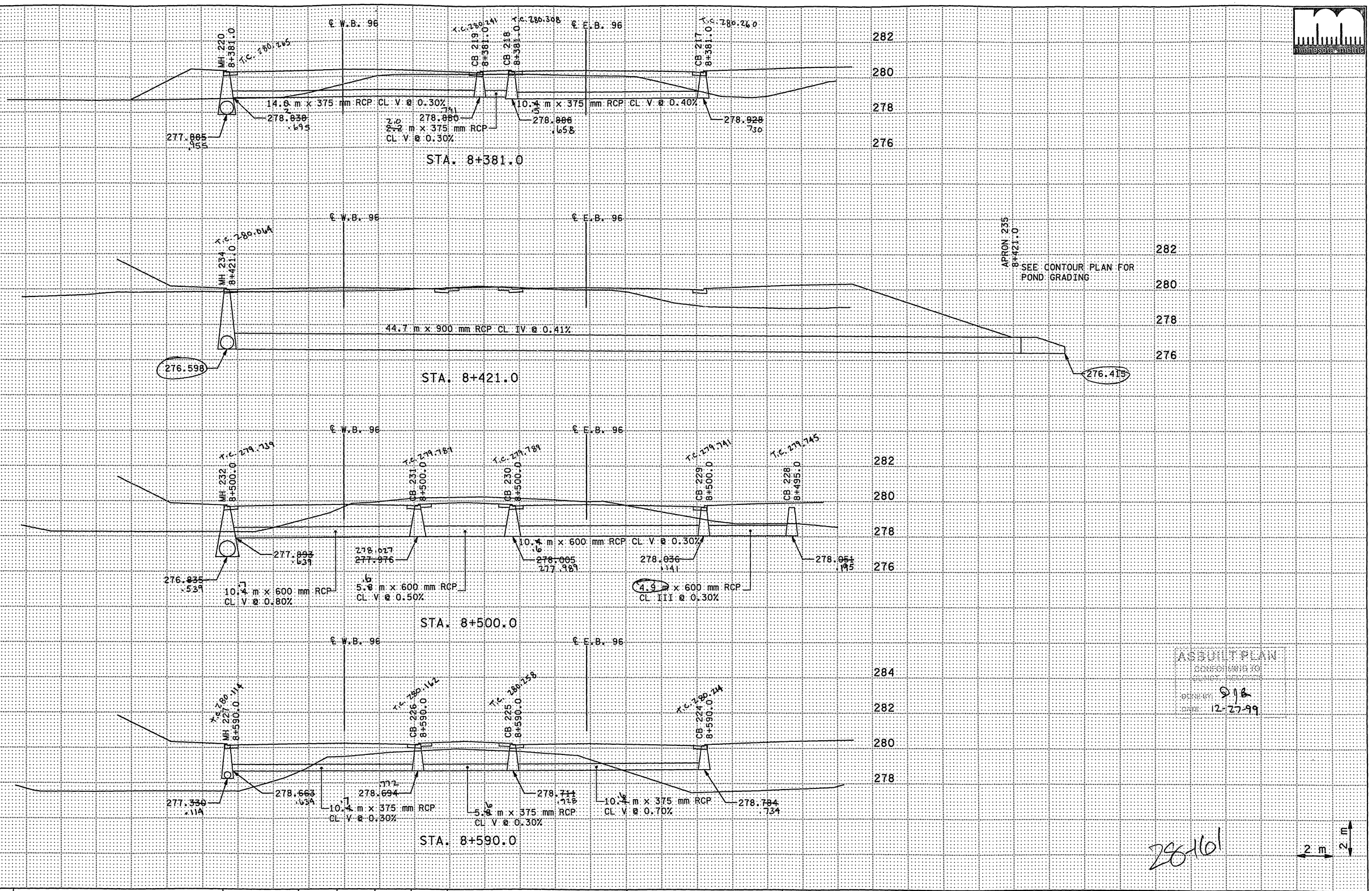
ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
STORM SEWER
STA. 8+139.000 TO 8+321.000

FILE NO. RAMSE9601.01
DATE

131 / 170



ASBUILT PLAN
CONSTRUCTION
DRAWN BY: SJB
DATE: 12-27-99

26101

NAME: RAM9601.SM1 DATE: Mar. 7, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

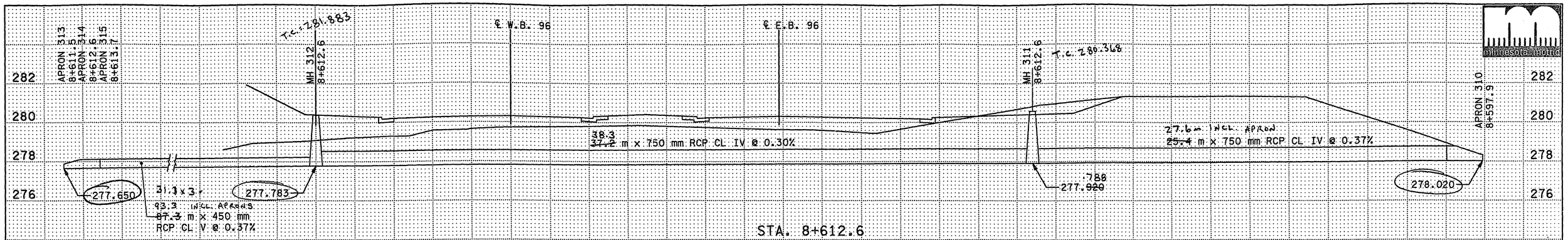
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

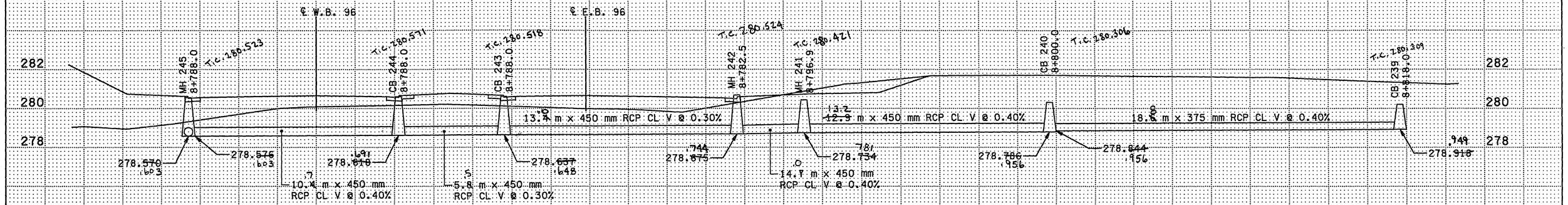
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
STORM SEWER
STA. 8+381.000 TO 8+590.000

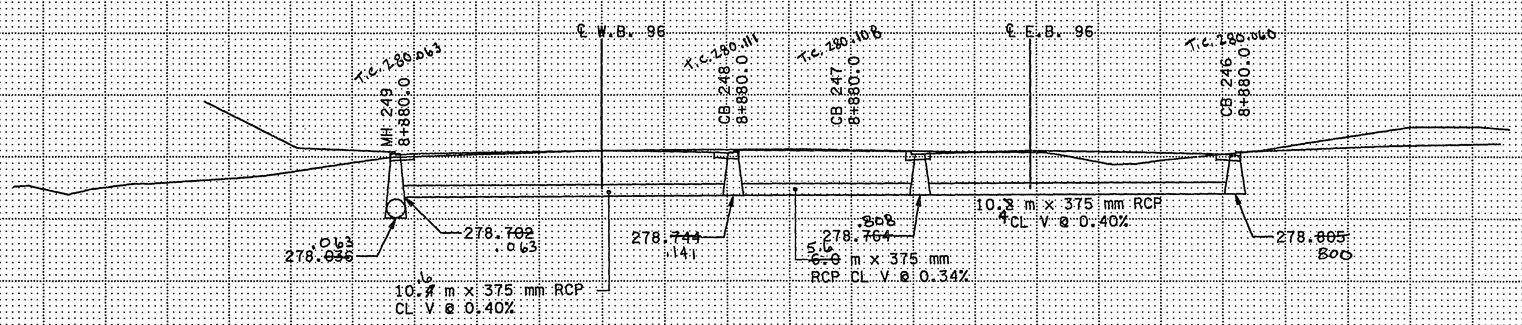
FILE NO. RAMSE9601.01
DATE
132
170



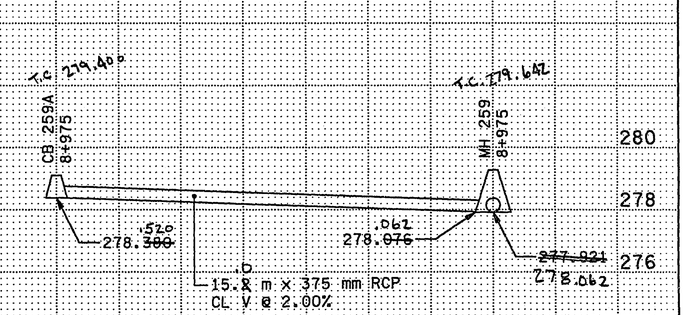
STA. 8+612.6



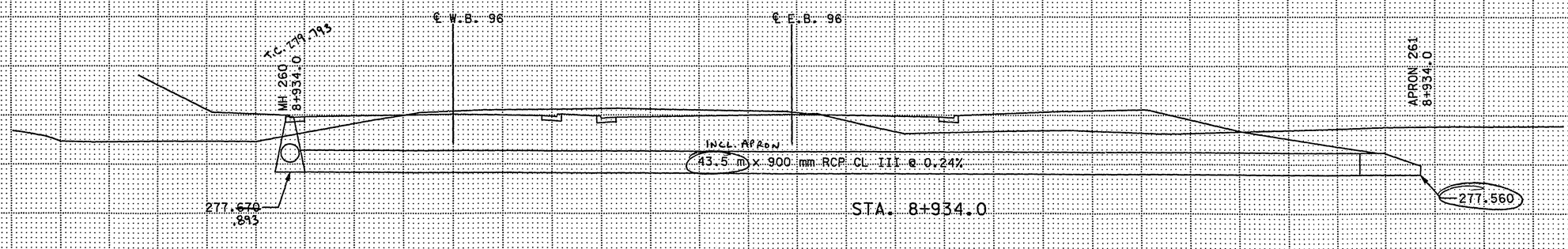
STA. 8+782.5



STA. 8+880.0



STA. 8+975



STA. 8+934.0

AS BUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: SJB
DATE: 12-21-97

2 m
2 m

NAME: RAM9601.SM1 DATE: Mar. 7, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

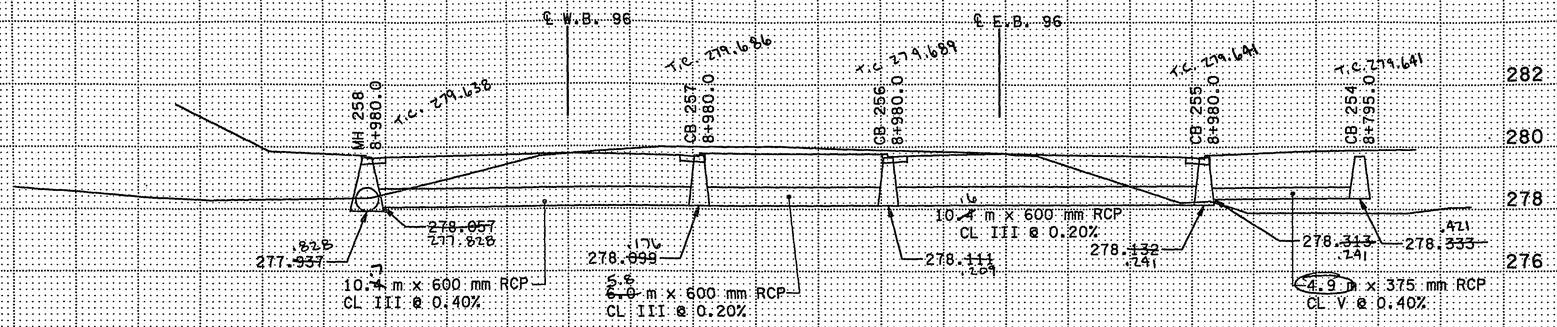
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ARCHITECTS PLANNERS

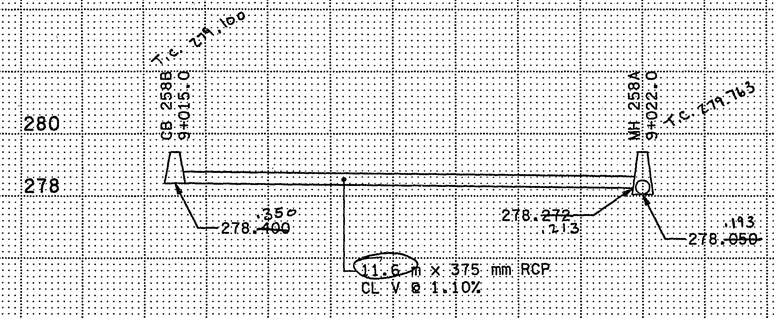
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
STORM SEWER
STA. 8+612.600 TO 8+934.000

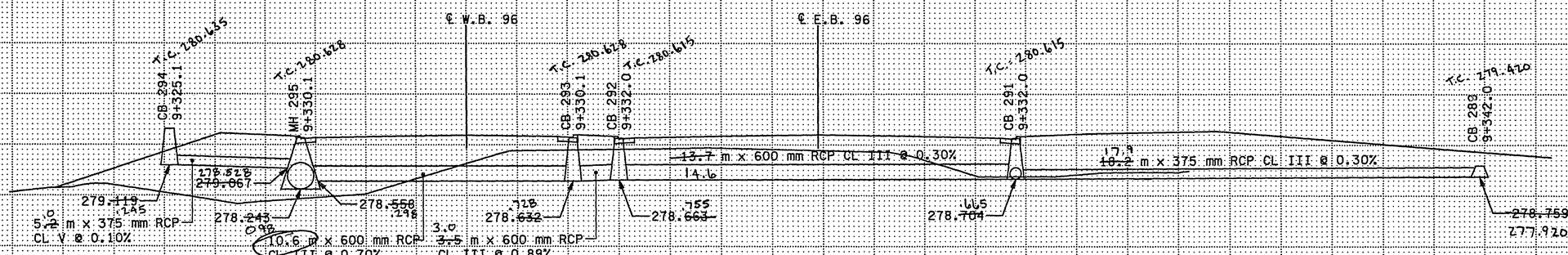
FILE NO. RAMSE9601.01
DATE
133/170



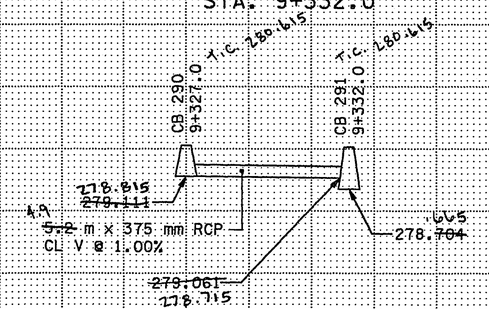
STA. 8+980.0



STA. 9+015



STA. 9+332.0



STA. 9+332.0

AS BUILT PLANS
CONSTRUCTION BY
CONTRACT NO.
DATE
12-27-99

26-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

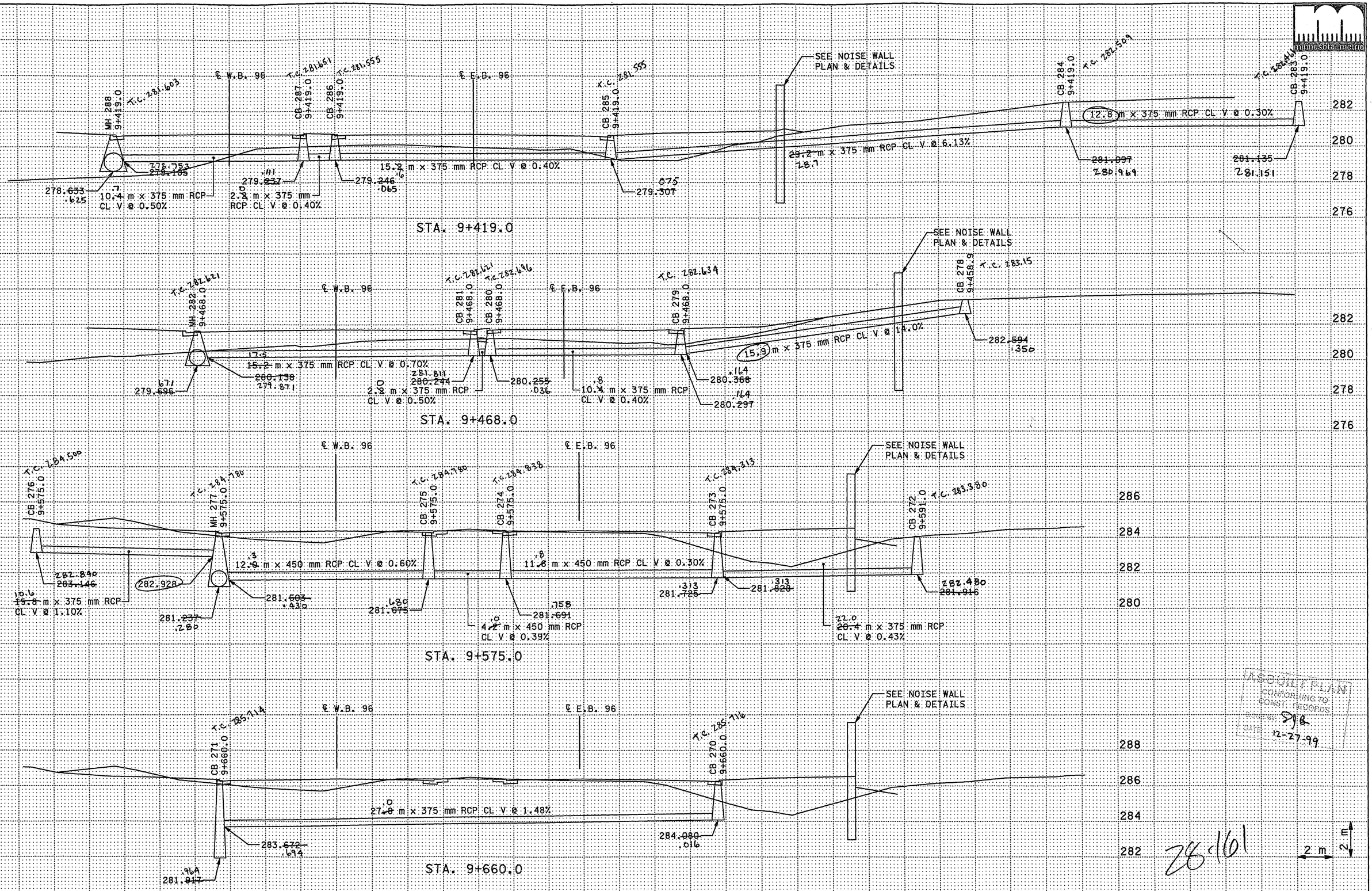
ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
STORM SEWER
STA. 8+980.000 TO 9+332.000

FILE NO. 134
DATE 170

NAME: RAM9601.SM1 DATE: Mar. 7, 1997



NAME: RAM9601.SM1 DATE: Mar. 7, 1997

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 3-18-97 Reg. No. 18612

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

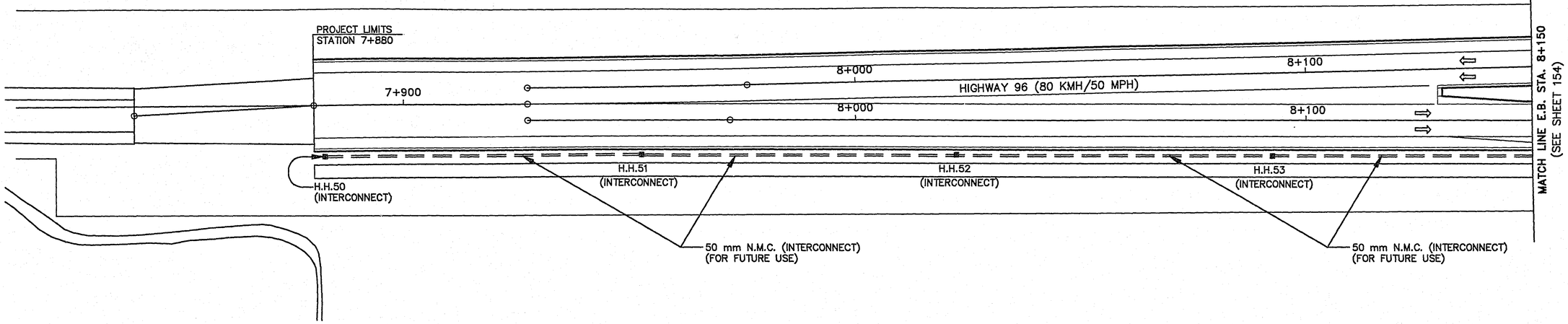
HIGHWAY 96
STORM SEWER
STA. 9+419.000 TO 9+660.000

FILE NO. RAMSE9601.01
DATE
135 / 170

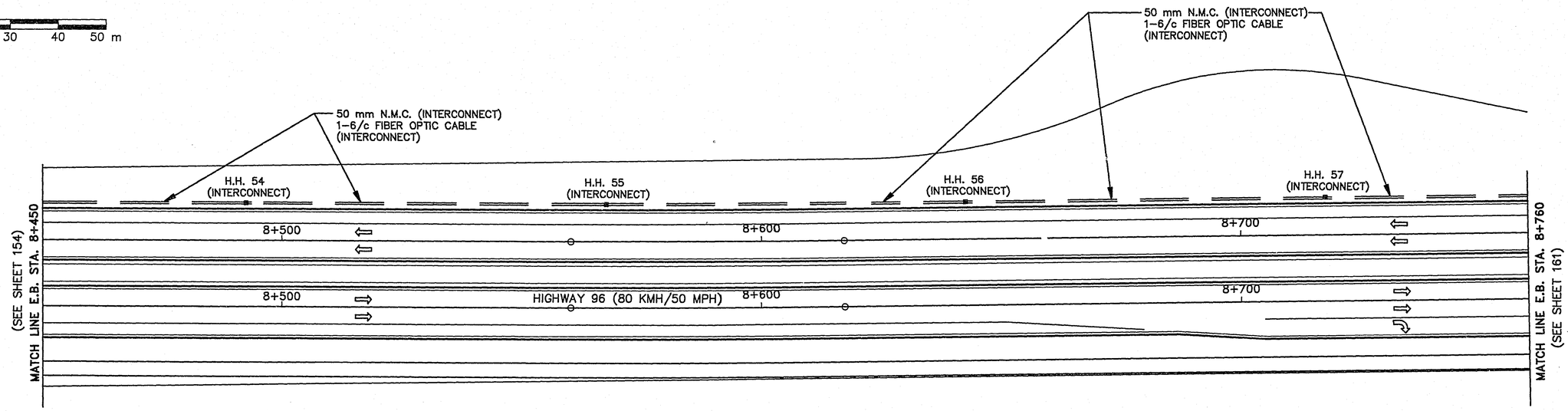
NO SHEET

#136—159

0 5 10 20 30 40 50 m



0 5 10 20 30 40 50 m



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

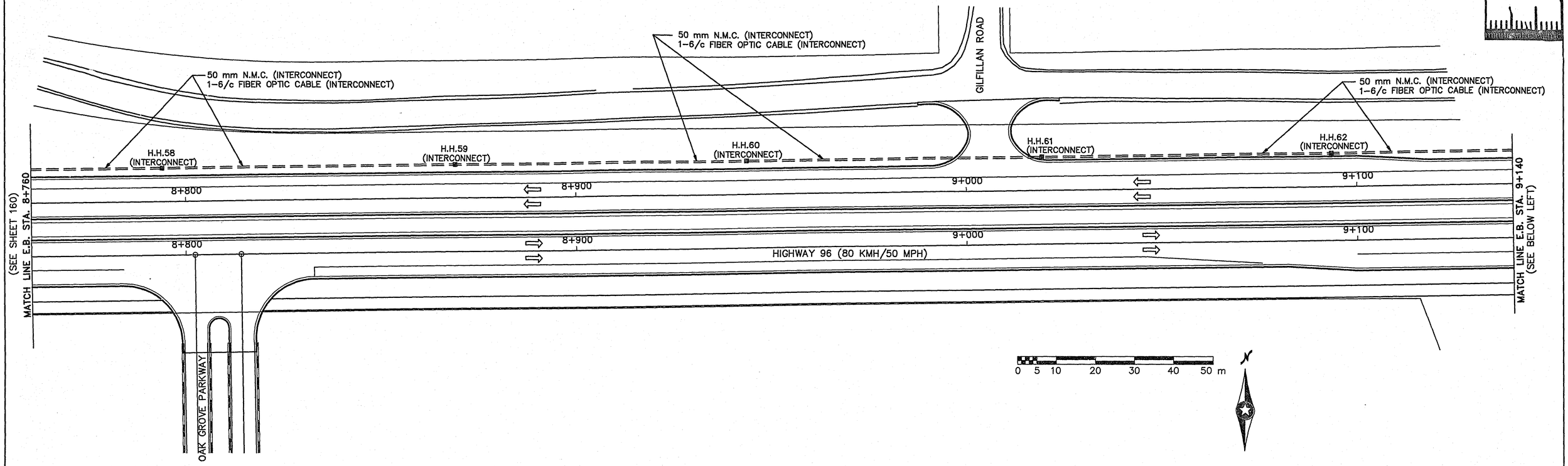
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 1/31/97 Reg. No. 22457

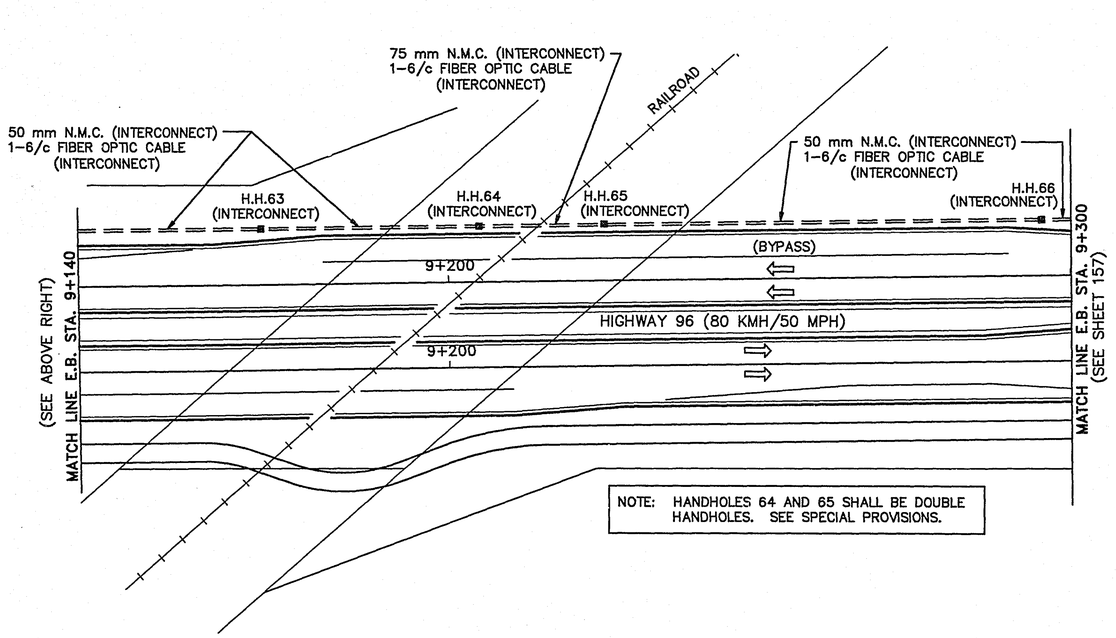
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

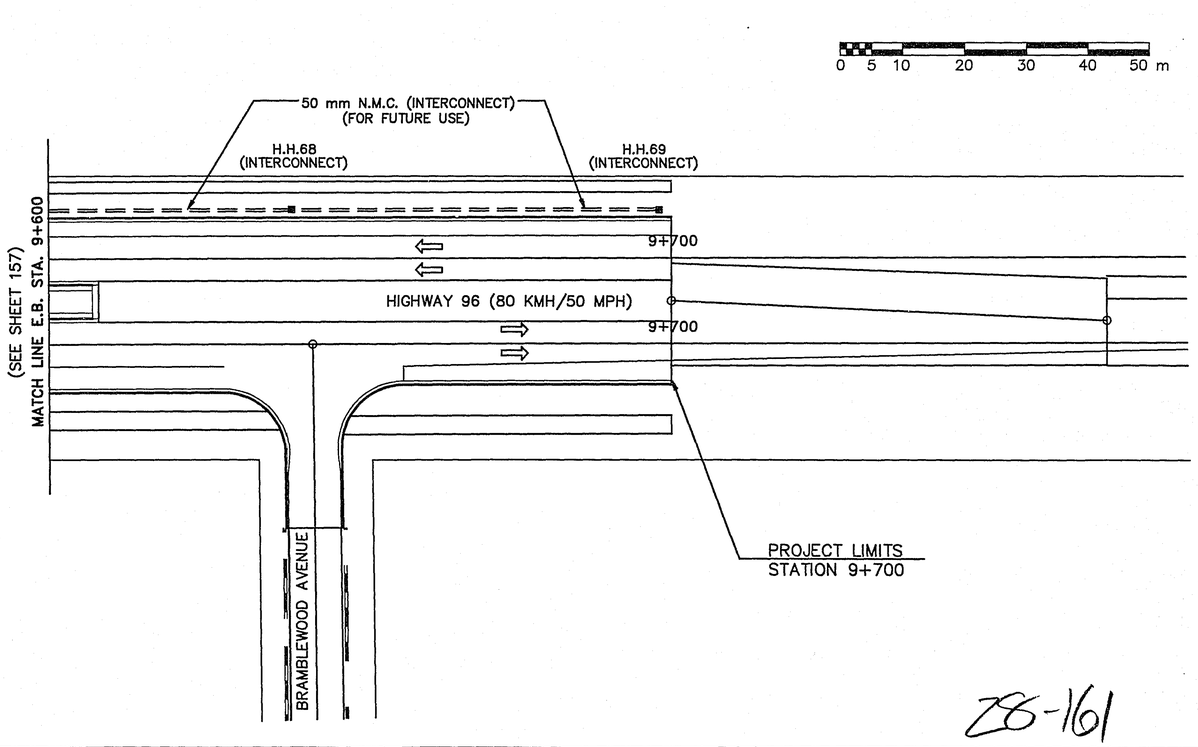
TRAFFIC SIGNAL INTERCONNECTION
HIGHWAY 96
STATION 7+880 TO STATION 8+760

FILE NO. RAMSE9601.01
DATE 1/31/97
160
170

12-19-96 1:28 pm
S:\TRANS\RAMSEY\R9601LD







Z8-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 1/31/97 Reg. No. 22457

SEH

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

TRAFFIC SIGNAL INTERCONNECTION
HIGHWAY 96
STATION 8+760 TO STATION 9+700

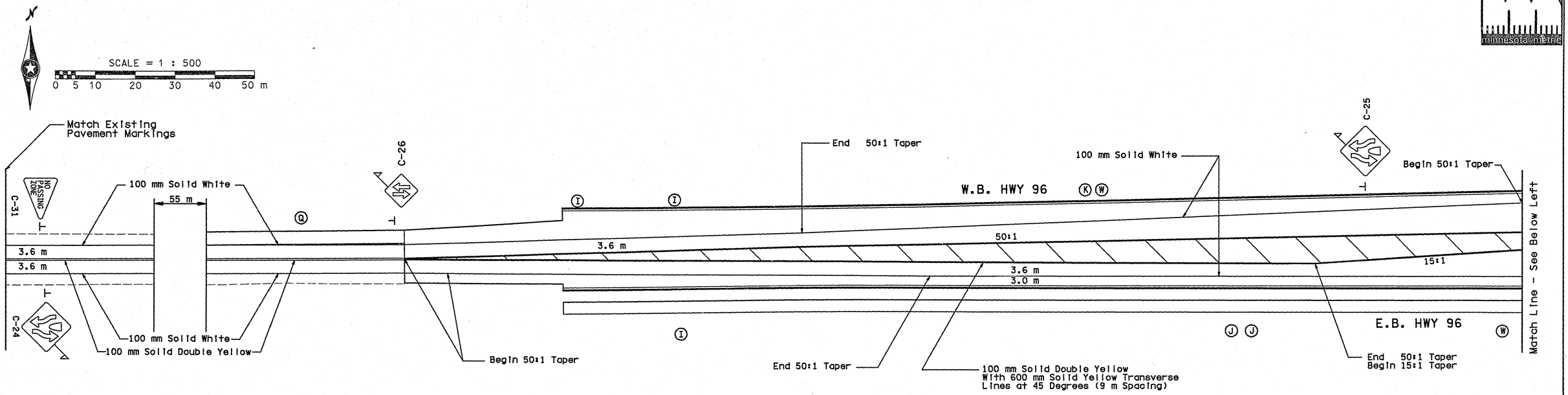
FILE NO. RAMSE9601.01
DATE 1/31/97

161
170

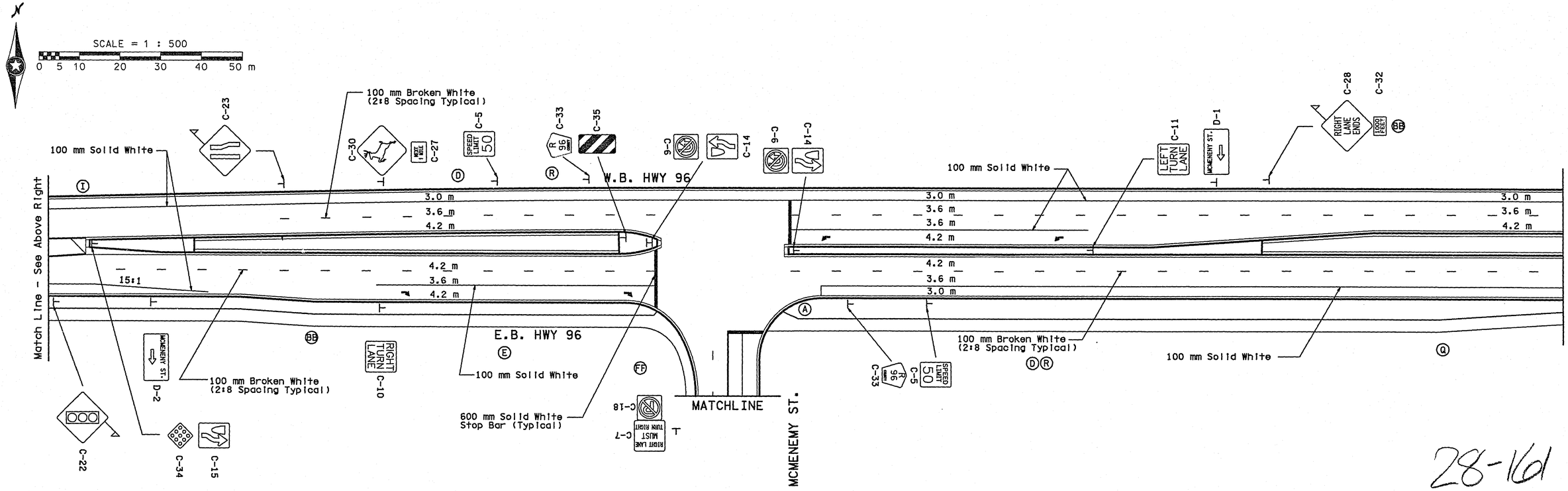
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12-19-96 1:31 pm

NO SHEET

#162-166



Note: See notes for signing plan regarding "Deer Reflector " signs and posts to be salvaged and reinstalled by Contractor.



28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 1/31/97 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

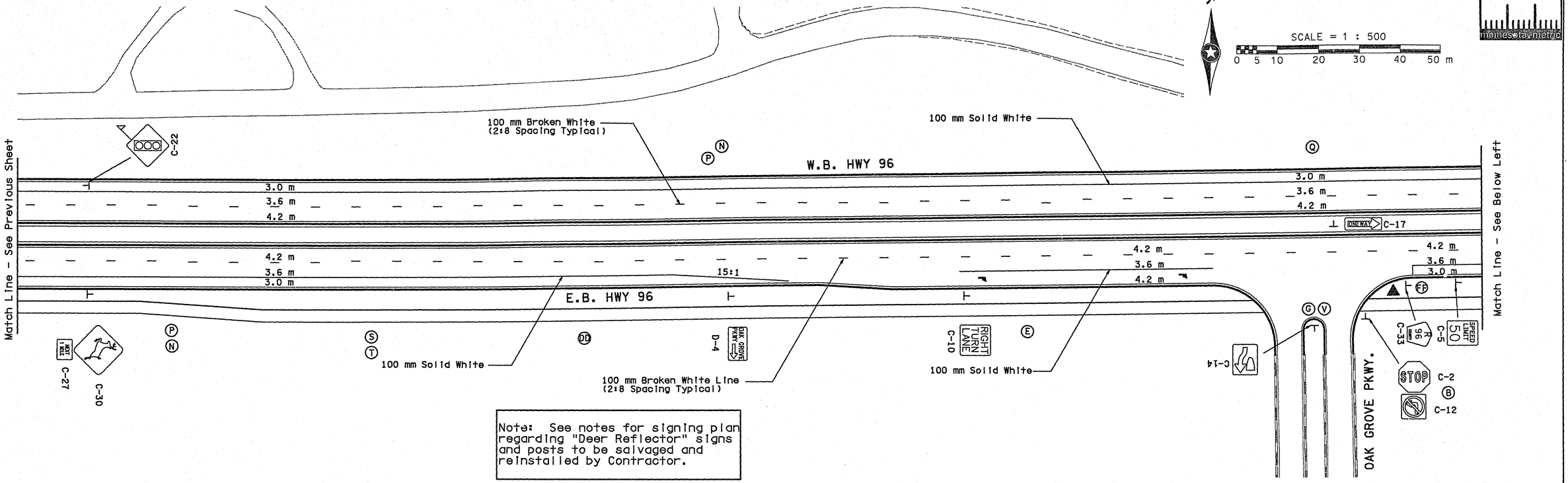
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

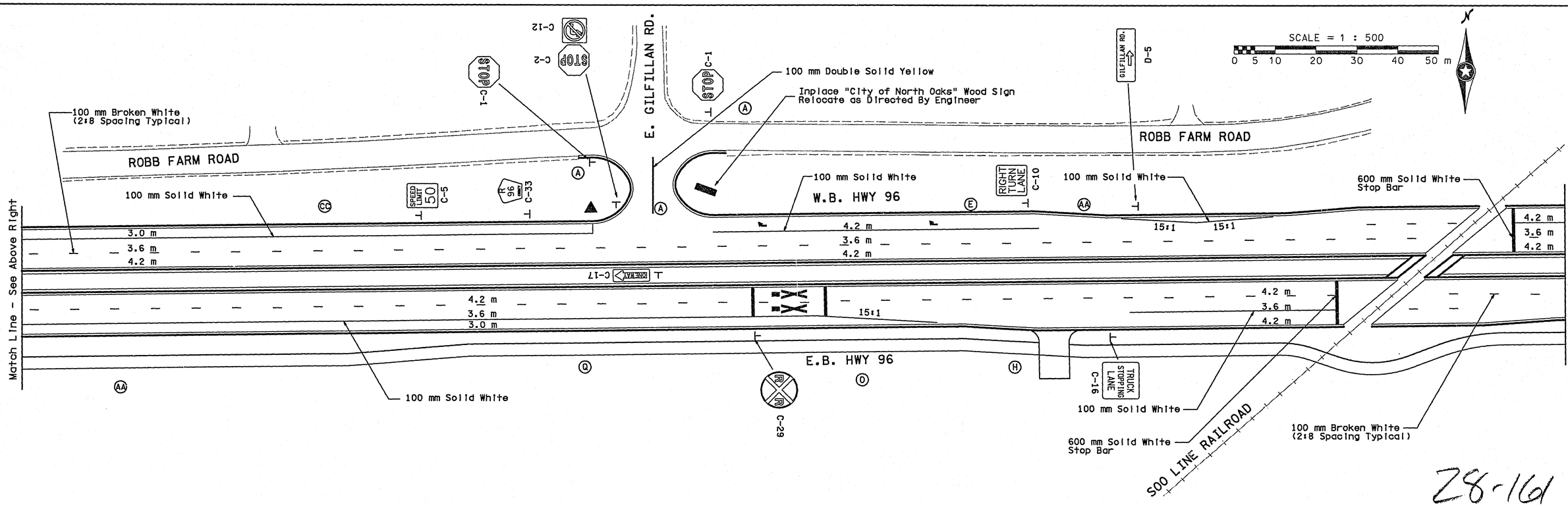
HIGHWAY 96
SIGNING & STRIPING PLAN

FILE NO. RAMSE9601.01

167 / 170

NAME: RAM9601.SS1 DATE: Jan. 28, 1997





28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 1/31/97 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

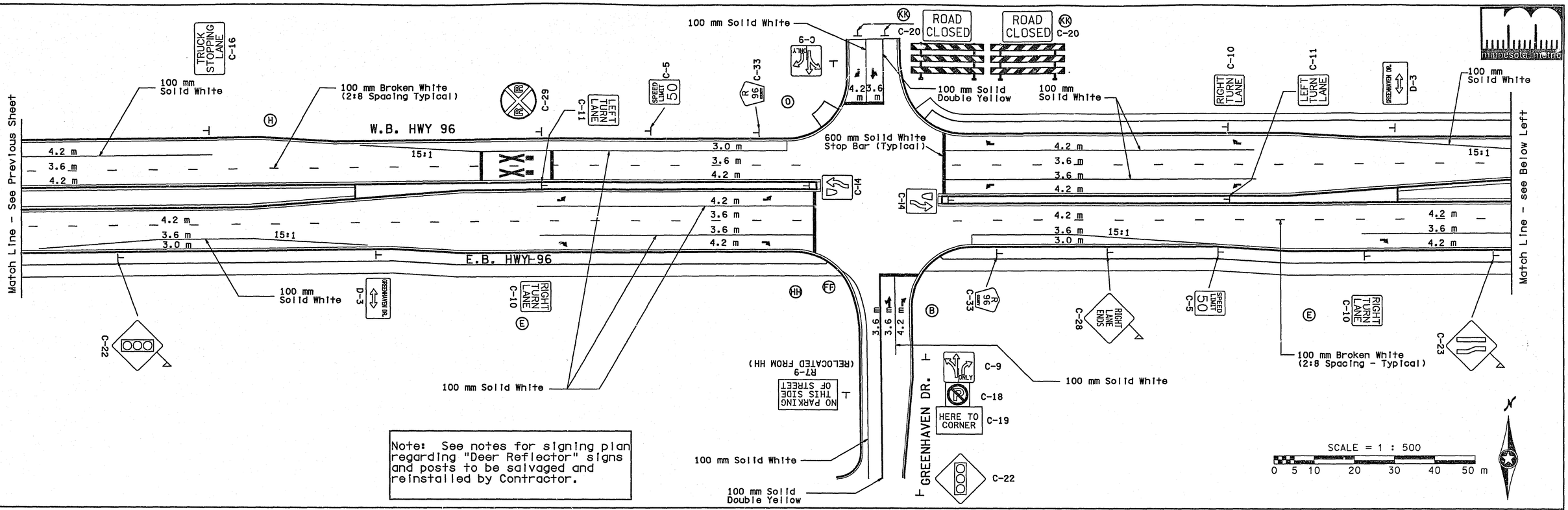
RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

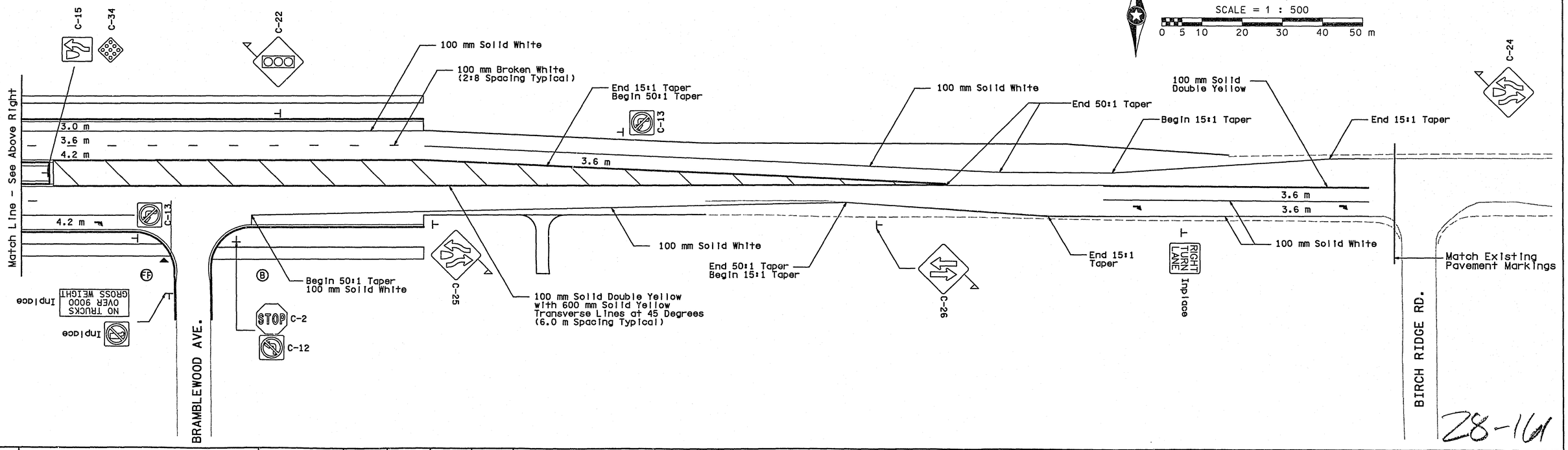
HIGHWAY 96
SIGNING & STRIPING PLAN

FILE NO. RAMSE9601.01

168/170

NAME: RAM9601.SS2 DATE: Jan. 30, 1997





28-161

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 1/31/97 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY
HIGHWAY 96
S.A.P. 62-696-05 CTB

HIGHWAY 96
SIGNING & STRIPING PLAN

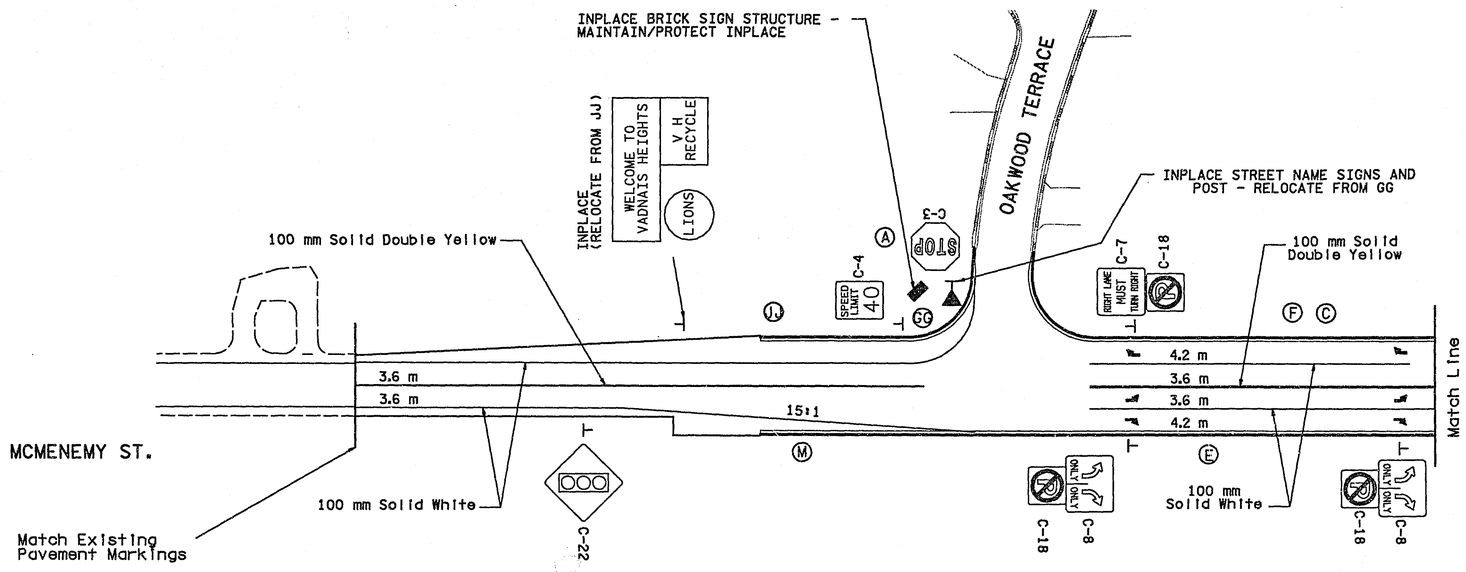
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169
170

NAME: RAM9601.SS3 DATE: Jan. 30, 1997

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NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Date: 1/31/97 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

RAMSEY COUNTY

HIGHWAY 96

S.A.P. 62-696-05 CTB

HIGHWAY 96
SIGNING & STRIPING PLAN

FILE NO. RAMSE9601.01

170 / 170

28-161

NAME: RAM9601.SS4 DATE: Mar. 7, 1997