MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

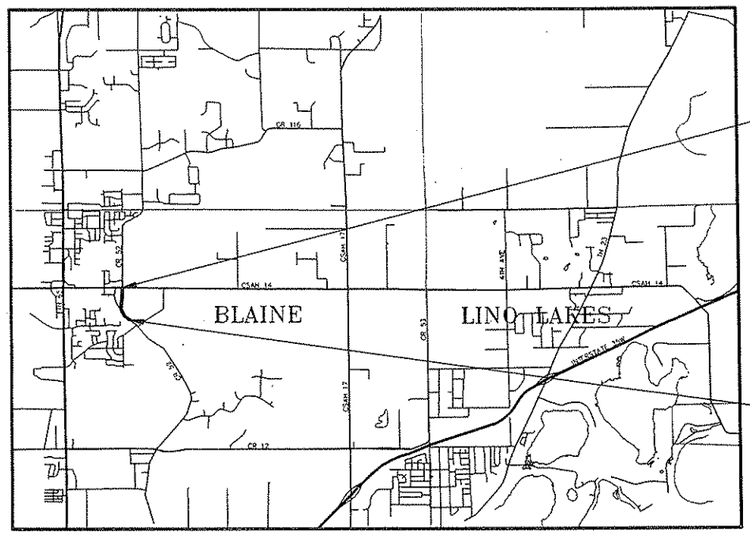
CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACING, UTILITES AND SIGNAL SYSTEM REVISION

LOCATED ON C.R. 52 BETWEEN 1/2 MILE S. OF C.S.A.H. 14 AND C.S.A.H. 14 (Geographic Description)

FROM A POINT 1022.87' E. OF THE NW. CORNER OF SECTION 12, T31N, R23W TO A POINT 167.74' W. OF THE NW. CORNER OF SECTION 8, T31N, R22W (Legal Description)

COUNTY PROJECT NO. 87-05-52 STATE AID PROJ. NO.

GROSS LENGTH	2,254.98 FEET	0.427 MILES	GROSS LENGTH	FEET	MILES
BRIDGES–LENGTH	0.00 FEET	0.000 MILES	BRIDGES–LENGTH	FEET	MILES
EXCEPTIONS–LENGTH	0.00 FEET	0.000 MILES	EXCEPTIONS–LENGTH	FEET	MILES
NET LENGTH	2,254.98 FEET	0.427 MILES	NET LENGTH	FEET	MILES



END C.P. 87–05–52
STATION 499+53.98

BEGIN C.P. 87–05–52
STATION 476+99.00

N
W ANOKA COUNTY E
S

87-05-52
RADSSON RD. S. OF MAIN ST.

PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
SLOPE EASEMENT
PRESENT RIGHT OF WAY
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY
RIVER OR CREEK
DRAINAGE DITCH
CULVERT
DROP INLET
GAURD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
WOOD FENCE
STONE WALL OR FENCE
HEDGE
LOWLAND
TIMBER
ORCHARD
BRUSH
NURSERY
CATTLE GAURD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F
F–FRAME C–CONCRETE
S–STONE T–TILE
B–BRICK ST–STUCCO
RAILROAD CROSSING BELL
RAILROAD CROSSING GATE
MANHOLE M.H.
CATCH BASIN C.B.
FIRE HYDRANT
CAST IRON MONUMENT
IRON PIN
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

UTILITY SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE & POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (Cable Terminal)
GAS MAIN G
WATERMAIN W
TELEPHONE CABLE IN CONDUIT T
ELECTRIC CABLE IN CONDUIT P
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER (Sanitary or Storm)
SEWER MANHOLE

SCALES

PLAN 0 50 100
PROFILE HORIZONTAL 0 50 100
VERTICAL 0 5 10
X–SECTIONS HORIZONTAL 0 10 20
VERTICAL 0 10 20
MAP 0 1/2 1

MINN. PROJ. NO.
MINN. PROJ. NO.

GOVERNING SPECIFICATIONS

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

INDEX

THIS PLAN CONTAINS 37 SHEETS

DESIGN DESIGNATION

$\mathcal{E}N18_{20}$ 843,694
R VALUE 65
ADT (1994)= 4,257
Proj. ADT (2014)= 7,237
Proj. HCADT (2014)= 543
Soil Factor NA
10 TON DESIGN
Shoulder Width 8 FT.

Functional Classification LOW DENSITY ARTERIAL
No. of Traffic Lanes 2 No. of Parking Lanes 0
Design Speed 45 MPH
Based on Stopping Sight Distance
Height of eye 3.5 Height of object 0.5
Design Speed not achieved at: NA
STA. TO STA. MPH
STA. TO STA. MPH
STA. TO STA. MPH

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 9/23/94 REG. NO. 20235 ENGR. Douglas W. Turnbow DESIGN ENGINEER
DESIGN SQUAD G. ANDERSON
Recommended for Approval Michael R Kelly RIGHT-OF-WAY SECTION 9/23, 19 94
Recommended for Approval TRAFFIC SECTION 9/23, 19 94
Recommended for Approval Peter C. Jenson CONSTRUCTION ENGINEER 9/23, 19 94
Approved 9/23, 1994 ANOKA COUNTY ENGINEER
Approved , 19 CITY OF BLAINE

COUNTY PROJECT NO. 87-05-52
STATE PROJ. NO. SHEET NO. 1 OF 37 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

CHART NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED	TOTAL FINAL	ANOKA COUNTY C.P. 87-05-52 ESTIMATED	ANOKA COUNTY C.P. 87-05-52 FINAL	CITY OF BLAINE CITY PROJ. 94-05 ESTIMATED	CITY OF BLAINE CITY PROJ. 94-05 FINAL
		2021.501	MOBILIZATION	LUMP SUM	1		1			
		2031.501	FIELD OFFICE TYPE D	EACH	1		1			
A		2101.501	CLEARING	ACRE	2.85		2.85			
A		2101.502	CLEARING	TREE	44		44			
A		2101.506	GRUBBING	ACRE	2.85		2.85			
A		2101.507	GRUBBING	TREE	47		47			
J	(1)	2104.501	REMOVE CULVERT PIPE	LIN FT	134		134			
B	(1)	2104.501	REMOVE RETAINING WALL	LIN FT	80		80			
C,D	(2)	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	6565		5136		1429	
E		2104.513	SAWING BITUMINOUS PAVEMENT	LIN FT	390		390			
J		2105.501	COMMON EXCAVATION	CU YD	9933 (P)		9933			
J		2105.505	MUCK EXCAVATION	CU YD	6015		6015			
J		2105.522	SELECT GRANULAR BORROW (LV)	CU YD	14588		14588			
	(3)	2130.501	WATER	M-GAL	20		20			
G		2211.503	AGGREGATE BASE (CV) CL-5A	CU YD	1910 (P)		1754		156	
G		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	1262		1130		132	
G	(6)	2340.510	TYPE 31 BINDER COURSE MIXTURE	TON	1085		1085			
G	(6)	2340.514	TYPE 31 BASE COURSE MIXTURE	TON	1396		1396			
C	(4)	0340.601	2" THICK WEARING COURSE PLACED	SQ YD	485		227		258	
G		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1128		1128			
	(8)	0412.602	RELOCATE MAILBOX	EACH	12		12			
J		2451.509	AGGREGATE BEDDING (LV)	CU YD	74		74			
J		2501.511	15" CS PIPE CULVERT	LIN FT	128		128			
J		2501.511	18" CS PIPE CULVERT	LIN FT	70		70			
J		2501.511	24" RC PIPE CULVERT	LIN FT	76		76			
J		2501.515	15" CS PIPE APRON	EACH	2		2			
J		2501.515	24" RC PIPE APRON	EACH	2		2			
J		2501.521	22" SPAN RC PIPE-ARCH CULVERT	LIN FT	60		60			
J		2501.525	22"SPAN RC PIPE-ARCH APRON	EACH	2		2			
J	(5)	2501.567	15" CS SAFETY APRON & GRATE, DES. 3128	EACH	4		4			
J	(5)	2501.567	18" CS SAFETY APRON & GRATE, DES. 3128	EACH	2		2			
		0503.602	CONNECT TO EXISTING MANHOLE	EACH	1				1	
		0503.602	8-INCH CLEANOUT	EACH	1				1	
		0503.602	8-INCH x 4-INCH PVC WYE	EACH	38				38	
		0503.602	4-INCH DIAMETER MANHOLE, 10 FEET DEEP	EACH	12				12	
		0503.603	8-INCH PVC, 0 TO 10 FEET DEEP	LIN FT	600				600	
		0503.603	8-INCH PVC, 10 TO 12 FEET DEEP	LIN FT	275				275	
		0503.603	8-INCH PVC, 12 TO 14 FEET DEEP	LIN FT	1332				1332	
		0503.603	8-INCH PVC, 14 TO 16 FEET DEEP	LIN FT	290				290	
		0503.603	8-INCH PVC, 16 TO 18 FEET DEEP	LIN FT	292				292	
		0503.603	8-INCH PVC, 18 TO 20 FEET DEEP	LIN FT	200				200	
		0503.603	8-INCH PVC, 20 TO 22 FEET DEEP	LIN FT	125				125	
		0503.603	EXTRA DEPTH MANHOLE, 4-INCH DIAMETER	LIN FT	52				52	
		0503.603	4-INCH PVC SERVICE PIPE	LIN FT	1550				1550	
		0503.603	BORE 4-INCH PVC	LIN FT	280				280	
		0504.602	CONNECT TO EXISTING SYSTEM	EACH	1				1	
		0504.602	REMOVE AND SALVAGE FITTING	EACH	1				1	
		0504.602	RECONNECT EXISTING SERVICE	EACH	1				1	
		0504.602	HYDRANT WITH GATE VALVE	EACH	6				6	
		0504.602	12-INCH GATE VALVE	EACH	1				1	
		0504.602	1-INCH SERVICE CONNECTION	EACH	43				43	
		0504.603	6-INCH DIP WATERMAIN, CLASS 52	LIN FT	400				400	
		0504.603	6-INCH DIP HYDRANT BRANCH, CLASS 52	LIN FT	45				45	
		0504.603	12-INCH DIP WATERMAIN, CLASS 50	LIN FT	2800				2800	
		0504.603	8-INCH DIP WATERMAIN, CLASS 52	LIN FT	80				80	
		0504.603	1-INCH COPPER SERVICE PIPE	LIN FT	1800				1800	
		0504.603	BORE 1-INCH COPPER	LIN FT	320				320	
		0504.620	WATERMAIN FITTINGS, CLASS 50	POUND	1224				1224	
		2535.501	BITUMINOUS CURB	LIN FT	584		584			
		0563.601	TRAFFIC CONTROL, STAGE 1	LUMP SUM	1		1			
		0563.601	TRAFFIC CONTROL, STAGE 2	LUMP SUM	1		1			
		0563.601	TRAFFIC CONTROL, STAGE 3	LUMP SUM	1		1			
		0565.604	REVISE SIGNAL SYSTEM	SYSTEM	1		0.5		0.5	
	(7)	2573.501	BALE CHECK	EACH	160		160			
I	(7)	2573.503	SILT FENCE, PREASSEMBLED	LIN FT	1650		1650			
F		2575.501	SEEDING	ACRE	4.0 (P)		3.75 (P)		0.25 (P)	
F		2575.502	SEED, MIXTURE 700	POUND	140		131		9	
F,J		2575.505	SODDING TYPE LAWN	SQ YD	10219		4720		5499	
F		2575.511	MULCH MATERIAL, TYPE 1	TON	8.0		7.5		0.5	
		2575.519	DISK ANCHORING	ACRE	4.0 (P)		3.75 (P)		0.25 (P)	
F		2575.531	COMM FERT ANALYSIS 10-10-10	TON	1.0		0.9		0.1	
		2580.501	TEMPORARY LANE MARKING	RD STA	46		46			

INDEX OF TABULATION CHARTS

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY.

PLATE NO.	DESCRIPTION
0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 L	REINFORCED CONCRETE PIPE
3006 F	GASKET JOINT FOR R.C. PIPE
3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURE
3014 J	REINFORCED CONCRETE PIPE ARCH
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123 J	METAL APRON FOR CS PIPE
3128 F	SAFETY APRON
3145 E	CONCRETE PIPE TIES
3148 A	SAFETY SLOPE METAL END SECTIONS FOR PIPES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 I	STANDARD BARRICADES
9102 D	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)

BASIS OF PLANNED QUANTITIES

2340 TYPE 41 PLANT MIXED WEARING COURSE MIXTURE:
110 LBS./SQ.YD. PER 1" THICKNESS
BITUMINOUS MIXTURE DESIGNATION: 41WEA50055Y

2340 TYPE 31 PLANT MIXED BINDER COURSE MIXTURE:
110 LBS./SQ.YD. PER 1" THICKNESS
BITUMINOUS MIXTURE DESIGNATION: 31BIB50000Y

2340 TYPE 31 PLANT MIXED BASE COURSE MIXTURE:
110 LBS./SQ.YD. PER 1" THICKNESS
BITUMINOUS MIXTURE DESIGNATION: 31BBB50000Y

2357 BITUMINOUS MATERIAL FOR TACK
0.05 GALLONS PER SQ.YD. PER LIFT APPLIED

2575 MULCH MATERIAL TYPE 1: 2 TONS/ACRE

2575 COMMERCIAL FERTILIZER, ANALYSIS 10-10-10:
500 LBS./ACRE ON ALL SEED AREAS

2575 ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENT
+10% SEED MIXTURE NO. 700, 35 LBS. PER ACRE

NOTES

(1) INCLUDES ALL SIZES AND TYPES.
(2) INCLUDES ALL BITUMINOUS PAVEMENTS REGARDLESS OF DEPTH AND WIDTH.
(3) FOR DUST CONTROL AS DIRECTED BY ENGINEER.
(4) FOR DRIVEWAY PAVEMENTS.
(5) DESIGN 3148 ACCEPTABLE ALTERNATE.
(6) INCLUDES QUANTITY FOR ADDING 1/4" TO THE DESIGN THICKNESS.
(7) FOR TEMPORARY EROSION CONTROL AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
(8) FOR C.R. 52 ONLY, NOT OLD C.R. 52.

Fed. Project No. _____

CLEARING AND GRUBBING (A)

STATION - STATION	LOCATION	CLEARING TREE	CLEARING ACRE	GRUBBING TREE	GRUBBING ACRE
477+75	53' LT	1		1	
480+06	36' LT	1		1	
480+16	41' LT	1		1	
481+84	40' LT	1		1	
481+93	52' LT	1		1	
482+92	52' LT	1		1	
483+38	59' LT			1	
483+40	55' LT			1	
483+44	51' LT			1	
483+64	46' RT	1		1	
483+88	40' RT	1		1	
483+90	45' RT	1		1	
483+92	42' RT	1		1	
483+94	38' RT	1		1	
484+00	41' RT	1		1	
484+05	38' RT	1		1	
484+08	39' RT	1		1	
484+09	35' RT	1		1	
484+12	42' RT	1		1	
484+19	39' RT	1		1	
484+21	36' RT	1		1	
484+43 - 484+85	60' LT		.05		.05
484+60	25' RT	1		1	
484+93	21' RT	1		1	
485+21	21' RT	1		1	
485+33	19' RT	1		1	
485+42	28' RT	1		1	
485+46	29' RT	1		1	
485+49	15' RT	1		1	
485+57	13' RT	1		1	
485+67	25' RT	1		1	
485+76	3' RT	1		1	
485+79	16' LT	1		1	
485+82	41' RT	1		1	
485+86	10' RT	1		1	
485+90	7' LT	1		1	
485+99	6' LT	1		1	
486+00	10' LT	1		1	
486+12	3' RT	1		1	
486+13	2' LT	1		1	
486+88 - 490+57	LT & RT		0.90		0.90
490+07 - 490+90	60' RT		0.10		0.10
490+42	3' LT	1		1	
490+62	40' LT	1		1	
490+72	31' LT	1		1	
491+17	56' LT	1		1	
491+26	30' LT	1		1	
491+40	54' LT	1		1	
492+00 - 499+10	LT & RT		1.80		1.80
612+21	64' LT	1		1	
612+67	60' LT			1	
	TOTAL	44	2.85	47	2.85

RETAINING WALL REMOVAL (B)

STATION - STATION	LOCATION	DESCRIPTION	REMOVE LIN.FT.
484+62	RT. C/L 20' - 60'	RAILROAD TIES	40
484+77	RT. C/L 20' - 60'	RAILROAD TIES	40
		TOTAL	80

BITUMINOUS REMOVAL (D)

STATION - STATION	LOCATION	DESCRIPTION	SQ.YD.
476+99 - 480+00	LT & RT	BEGIN BIT. REMOVAL	1013
480+00 - 602+51	LT & RT	BIT. REMOVAL	3053
602+51 - 606+00	LT & RT	BIT. REMOVAL	② 1171
611+96 - 613+91	LT & RT	BIT. REMOVAL FOR CUL DE SAC	723
465+90 - 612+95	LT & RT	DRIVEWAY BIT. REMOVAL	① 605
		TOTAL	6565

① REFER TO DRIVEWAY CONSTRUCTION CHART (C)
② CITY OF BLAINE COST PARTICIPATION.

SAWING BITUMINOUS PAVEMENT (E)

STATION - STATION	LOCATION	DESCRIPTION	LIN.FT.
476+99	C/L	BEGIN BIT. REMOVAL	30
478+96	51' LT.	ENT.	15
499+55	C/L	NEW 52 & 14 CONNECT	119
605+03	30' RT.	ENT.	16
605+62	30' RT.	ENT.	14
606+00	C/L	END BIT. REMOVAL	31
611+97	C/L	BEGIN BIT. REMOVAL	31
612+38	78' LT.	ENT.	16
612+85	64' LT.	ENT.	17
613+80	C/L	END BIT. REMOVAL	101
		TOTAL	390

TURF ESTABLISHMENT (F)

STATION TO STATION	LOC.	SODDING SQ.YDS.	SEEDING ACRES	SEED POUND	FERTILIZER POUND	COST SPLIT
464+70 - 465+50	RT.		0.05	2	25	BLAINE
464+70 - 466+37	LT.	333				BLAINE
465+50 - 465+80	RT.	63				BLAINE
466+00 - 466+75	RT.	155				BLAINE
466+50 - 470+70	LT.	890				BLAINE
466+85 - 469+60	RT.	543				BLAINE
469+85 - 470+70	RT.	121				BLAINE
470+85 - 473+00	RT.	463				BLAINE
471+20 - 473+10	LT.		0.1	3	50	BLAINE
473+15 - 474+45	RT.	228				BLAINE
473+10 - 474+60	LT.	550				BLAINE
474+60 - 475+70	RT.	257				BLAINE
474+80 - 475+80	LT.	382				BLAINE
476+00 - 476+99	RT.	219				BLAINE
476+05 - 476+99	LT.	333				BLAINE
476+99 - 477+30	RT.	76				ANOKA CO.
476+99 - 478+89	LT.	775				ANOKA CO.
477+30 - 483+85	RT.		0.6	21	300	ANOKA CO.
479+05 - 479+35	LT.	135				ANOKA CO.
479+35 - 482+10	LT.		0.3	11	150	ANOKA CO.
482+10 - 483+72		707				ANOKA CO.
483+85 - 484+68	RT.	245				ANOKA CO.
483+96 - 484+50	LT.	256				ANOKA CO.
484+50 - 601+03			0.6	21	300	ANOKA CO.
484+83 - 486+27	RT.	333				ANOKA CO.
486+43 - 499+55	RT.		1.4	49	700	ANOKA CO.
487+58 - 499+55	LT.		0.8	28	400	ANOKA CO.
600+59 - 602+51	RT.		0.05	2	25	ANOKA CO.
601+03 - 601+50	LT.	333				ANOKA CO.
602+51 - 604+24	RT.		0.1	3	50	BLAINE
601+63 - 602+51	LT.	272				ANOKA CO.
602+51 -605+55	LT.	608				BLAINE
604+24 - 604+95	RT.	143				BLAINE
605+11 - 605+95	RT.	159				BLAINE
605+68 - 606+00	LT.	52				BLAINE
611+96 - 613+92	RT.& LT.	1510				ANOKA CO.
PIPE CULVERT ENDS		① 78				ANOKA CO.
TOTAL		10219	4	140	2000	

① REFER TO CULVERT TABULATION CHART (J)

DRIVEWAY REMOVAL AND CONSTRUCTION (C)

DESCRIPTION STATION	ADDRESS	LOC.	COST SPLIT	REMARKS	EXISTING LENGTH	EXISTING WIDTH	REPLACEMENT LENGTH	REPLACEMENT WIDTH	BIT. REMOVAL SQ.YD.	BIT. CONSTRUCT SQ.YD.	AGGREGATE ENTRANCE SQ.YD.
465+90		14' RT	BLAINE	BIT.	19	14	19	14	33	33	
466+85		14' RT	BLAINE	BIT.	22	8	22	8	24	24	
466+40		14' LT	BLAINE	BIT.	19	10	19	10	34	34	
470+75		17' RT	BLAINE	BIT.	14	14	14	14	33	33	
473+11		15' RT	BLAINE	AGG.	20	13	20	13			49
474+52		15' RT	BLAINE	AGG.	21	12	21	12			46
474+70	12116	15' LT	BLAINE	AGG.	32	11	32	11			72
475+85	12157	15' RT	BLAINE	BIT.	21	33	21	33	77	77	
475+97	12134	15' LT	BLAINE	BIT.	31	14	31	14	57	57	
478+86	12160	17' LT	ANOKA CO.	BIT.	31	15	31	15	84	52	
483+95	12242	23' LT	ANOKA CO.	AGG.	35	28	38	24			95
484+68	12257	RT	ANOKA CO.	AGG.	61	15	31	15			50
486+35	FIELD ENT.	24' RT	ANOKA CO.	AGG.			34	16			60
601+51	12316	38' LT	ANOKA CO.	AGG.	20	16	40	16			73
605+06	12339	15' RT	ANOKA CO.	BIT.	19	16	19	16	39	34	
605+60	12338	15' LT	ANOKA CO.	BIT.	16	14	16	14	25	25	
612+52	12480	15' LT	ANOKA CO.	BIT.	60	16	20	16	108	36	
612+95	12488	15' LT	ANOKA CO.	BIT.	48	17	43	17	91	80	
								TOTALS	605	① 485	445

① PAID FOR AS 2" THICK WEARING COURSE PLACED

TABULATION CHARTS

CLEARING AND GRUBBING, RETAINING WALL REMOVAL, DRIVEWAY REMOVAL AND CONSTRUCTION, BITUMINOUS REMOVAL, SAWING BITUMINOUS PAVEMENT, TURF ESTABLISHMENT

REVISIONS
BY | DATE | BY

FILE NAME: 870552/TAB-CH.DWG MN.(09-19-94)

CERTIFIED BY Douglas M Fischer P.E. REG NO. 20235 9/23 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

BASE AND BITUMINOUS QUANTITIES CHART (G)

LOCATION	DESCRIPTION	BIT. SURF.	WEAR COURSE		BINDER COURSE		BASE COURSE		TACK COAT		AGG. BASE CLASS 5		
		SQ.YD.	DEPTH	TONS	DEPTH	TONS	DEPTH	TONS	LIFTS	GALLON	SQ.YD.	DEPTH	CU.YD.
476+99 – 477+89	MAINLINE & TAPER LT. & RT.	349	1.5"	28.8	1.5"	28.8	2"	38.4	2	34.9	349	5"	48.5
477+89 – 499+55	MAINLINE	4829	1.5"	398.4	1.5"	398.4	2"	531.2	2	482.9	4829	5"	670.7
477+89 – 499+55	MAINLINE	4829	1.5"	398.4	1.5"	398.4	2"	531.2	2	482.9	4829	5"	670.7
482+57 – 489+93	BY PASS	266	1.5"	21.9	1.5"	21.9	2"	29.3	2	26.6	266	5"	36.9
495+65 – 499+55	RIGHT TURN LANE	238	1.5"	19.6	1.5"	19.6	2"	26.2	2	23.8	238	5"	33.1
494+86 – 499+54	RT ACCEL. LANE	564	1.5"	46.6	1.5"	46.6	2"	62.1	2	56.4	564	5"	78.4
487+00 – 492+40	RIGHT TURN LANE & INT.	212	1.5"	17.5	1.5"	16.6	2"	22.1	2	20.1	212	5"	29.4
600+25 – 602+52	OLD 52 CONNECTION	809	2"	89.0							809	4"	89.9
602+52 – 606+00	OLD 52 ②	1199	2"	131.9							1199	4"	133.2
611+96 – 612+77	CUL DE SAC	516	2"	56.8							516	4"	57.3
465+90 – 612+95	DRIVEWAY CONSTRUCTION										(1) 445	5"	61.8
	TOTALS			1262		930		1241		1128			1910

① REFER TO DRIVEWAY CONSTRUCTION CHART (B)

② CITY OF BLAINE COST PARTICIPATION.

BITUMINOUS CURB (H)

STATION - STATION	LOCATION	LIN.FT.
483+47 – 486+00	C/L RT.	232
495+65 – 499+16	C/L RT.	352
	TOTAL	584

SILT FENCE (I)

STATION - STATION	LOCATION	LIN.FT.
488+20 – 494+80	C/L RT	705
490+00 – 499+00	C/L LT	945
	TOTAL	1650

CULVERT TABULATION (J)

STATION	LOC.	INPLACE	REMARKS	REMOVE CULV.PIPE		TURF ESTABLISHMENT AT PIPE CULVERT ENDS			FURNISH & INSTALL CULVERT								AGGREGATE BEDDING
									15" CSP		18" CSP		22" RCP-A		24" RCP		
				LIN.FT.	APR.	INLET SQ.YD.	OUTLET SQ.YD.	TYPE	LIN.FT.	APR.	LIN.FT.	APR.	LIN.FT.	APR.	LIN.FT.	APR.	CU.YD.
478+97	LT	–							32	2 ④							
483+84	LT	–							55	2 ④							
487+41	LT	–				11	11	SOD			72	2 ④					
491+00	℄	–				13	15	SOD							76	2	41
494+35	℄	–				13	15	SOD					60	2			33
601+50	LT	–							44	2							
612+49	LT	15" x 30' C.M.P.	NO CULV. REQUIRED	30													
612+92	LT	15" x 30' C.M.P.	NO CULV. REQUIRED	30													
613+79	℄	36" x 74' C.M.P.	NO CULV. REQUIRED	74													
			TOTALS	134		37	41		131	6	72	2	60	2	76	2	74

NOTES: ① REMOVAL LENGTH INCLUDES APRONS.

② SEE SHEET 7 FOR C/L CULVERT INSTALLATION DETAIL, FOR USE AS DIRECTED BY THE ENGINEER.

③ APPROACH AND ENTRANCE CULVERT FLOWLINES TO BE SET TO DITCH GRADES AS SHOWN ON X-SECTION AND PROFILE SHEETS, UNLESS OTHERWISE NOTED ON PLAN SHEETS.

④ SAFETY APRON AND GRATE REQUIRED.

FILE NAME: 870592/TAB-CH.DWG MN.(09-19-94)

REVISIONS

DATE	BY

DATE	BY

TABULATION CHARTS

BASE AND BITUMINOUS QUANTITIES, BITUMINOUS CURB, SILT FENCE, CULVERT TABULATION

CERTIFIED BY Douglas M. Fineday P.E. REG NO. 20235 9/23 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

EARTHWORK SUMMARY (N)

EXCAVATION:

COMMON: 10,610 CU.YDS. — REGULAR: 4,452 CU.YDS. (1); TOPSOIL: 3,423 CU.YDS.; SUBCUT: 2,735 CU.YDS.

MUCK: 6,015 CU.YDS.

(1) INCLUDES 677 CU.YDS. BITUMINOUS REMOVAL.

EMBANKMENT: (CV)

REGULAR FILL: 17,828 CU.YDS.

MUCK FILL: 2,365 CU.YDS. (2)

TOPSOIL DRESSING: 1,712 CU.YDS.

(2) INCLUDES 449 CU. YDS. FOR 1.0' MUCK HOLD-DOWN IN MITIGATION AREA.

BALANCE:

TOPSOIL:

TOPSOIL DRESSING (CV) - [TOPSOIL STRIPPING (EV) x SHRINKAGE FACTOR] = EXCESS(-) OR SHORTAGE(+)
1,712 - (3,423 x 0.85) = -1,198 (EXCESS)

MUCK:

MUCK FILL (CV) - [MUCK EXCAVATION (EV) x SHRINKAGE FACTOR] = EXCESS(-) OR SHORTAGE(+)
2,365- (6,015 x 0.60) = -1,244 (EXCESS)

GRANULAR:

REGULAR FILL (CV) - [REGULAR EXCAVATION (EV) x SHRINKAGE FACTOR] -
[SUBCUT EXCAVATION x SHRINKAGE FACTOR] = EXCESS(-) OR (SHORTAGE(+)
17,828 - [(4,452 - 677) x 0.85] - (2,735 x 0.90) = 12,157 (SHORTAGE)
GRANULAR BORROW = (CV) x SWELL FACTOR = 12,157 x 1.2 = 14,588 (LV)

SOIL FACTORS:

(1) REGULAR GRADING AND TOPSOIL DRESSING (EV TO CV): 85% SHRINKAGE

(2) SUBCUT COMPACTION (EV TO CV): 90% SHRINKAGE

(3) MUCK EXCAVATION/COMPACTION (EV TO CV): 60% SHRINKAGE

(4) GRANULAR BORROW (CV TO EV): 120% SWELL

SOILS AND CONSTRUCTION NOTES

1. TOP OF GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE.
2. IN FILL AREAS, THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECT GRADING MATERIAL.
3. SELECTED GRADING MATERIALS SHALL CONSIST OF SELECT GRANULAR MATERIALS.
4. SELECT GRANULAR MATERIAL, REGARDLESS OF SOURCE, SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B.
5. MATERIAL PLACED BELOW THE WATER TABLE SHALL BE SELECT GRANULAR MATERIAL MODIFIED SO THAT NOT MORE THAN 5%, BY WEIGHT, WILL PASS A NO. 200 SIEVE. PAYMENT FOR THIS MODIFIED MATERIAL SHALL BE MEASURED AND PAID AT THE BID PRICE FOR ITEM 2105.522 SELECT GRANULAR BORROW. IN LIEU OF USING THIS MODIFIED MATERIAL, THE CONTRACTOR MAY DEWATER THE BOTTOM OF THE EXCAVATED AREAS AND USE SELECT GRANULAR MATERIAL FOR NOTE 4.
6. COMPACTION OF THE GRADING PORTION OF THIS PROJECT SHALL BE BY THE 'ORDINARY COMPACTION METHOD' WITH THE EXCEPTION OF THE CULVERT TRENCHES WHICH SHALL BE COMPACTED BY THE 'SPECIFIED DENSITY METHOD'.
7. TEST ROLLING WILL NOT BE REQUIRED.
8. BITUMINOUS AND/OR CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF OFF THE PROJECT LIMITS WITH NO DIRECT COMPENSATION MADE THEREFORE.
9. DISPOSITIN OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPEC. 2105.3D WITH NO DIRECT COMPENSATION MADE THEREFORE.
10. WHERE CONNECTING NEW SURFACING TO AN INPLACE PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING THE INPLACE PAVEMENT.
11. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES PRIOR TO PLACING BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING CONCRETE OR BITUMINOUS SURFACES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS PER SQUARE YARD BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY); ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
12. COMPACTION OF ALL BITUMINOUS COURSES SHALL BE BY THE 'MODIFIED SPECIFIED DENSITY METHOD'.
13. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE BY THE 'SPECIFIED DENSITY METHOD'.
14. IN AREAS TO BE DISTURBED BY CONSTRUCTION, STRIP AND RE-USE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING. REFER TO THE CROSS-SECTION FOR THE LIMITS OF TOPSOIL STRIPPING. GENERAL DEPTHS OF TOPSOIL LAYER ARE ASSUMED TO BE 6'-12'.
15. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLAGED DURING PRIOR CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
16. PLACE A MINIMUM OF 3 INCHES OF TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. FERTILIZE WITH COMMERCIAL FERTILIZER, ANALYSIS 10-10-10, AT A RATE OF 500 POUNDS PER ACRE OR EQUIVALENT.
17. SOD ALL DISTURBED LAWNS.
18. ALL SOD UTILIZED WITHIN THE PROJECT LIMITS SHALL MEET THE REQUIREMENTS OF SPEC. 3878.2A (LAWN AND BOULEVARD SOD).
19. EXCESS TOPSOIL AND MUCK EXCAVATION MAY BE USED IN EMBANKMENT CONSTRUCTION IN AREAS OUTSIDE OF A 1 1/2:1 SLOPE FROM THE GRADING SHOULDER P.I.
20. EXISTING STABILIZED SUBGRADE MUST BE PULVERIZED PRIOR TO USE AS EMBANKMENT MATERAIL.
21. EXCESS MUCK EXCAVATION TO BE DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE RIGHT-OF-WAY LIMITS WITH NO DIRECT COMPENSATION MADE THEREFORE.
22. BITUMINOUS REMOVAL QUANTITY BASED ON 6" OF BITUMINOUS SURFACING. THE CONTACTOR SHALL INVESTIGATE AND MAKE THIER OWN DETERMINATION OF ACTUAL PAVEMENT DEPTH.

FILE NAME: 870352/TAB-CH.DWG MN.(09-19-94)

REVISIONS

DATE	BY	DATE	BY

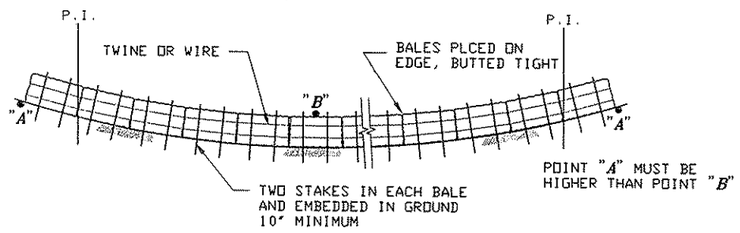
EARTHWORK SUMMARY AND CONSTRUCTION NOTES

CERTIFIED BY _____ P.E. REG NO. 20235 9/23 19 94

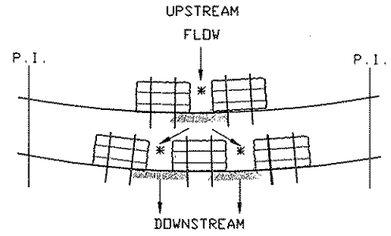
S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

BALE HAY OR STRAW DITCH CHECK

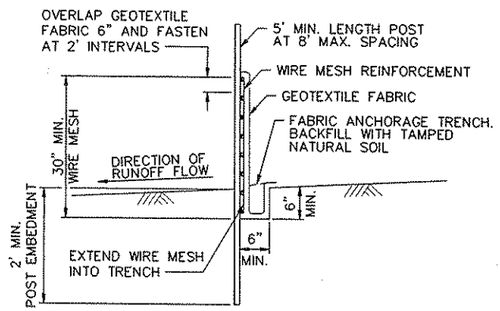


ALTERNATE BALE CHECK

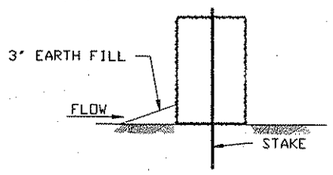


NOTES:
1. PLACEMENT OF BALES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. WHEN USING THE ALTERNATE BALE CHECK, THE TWIN BALES WILL BE ON THE UPSTREAM SIDE.
3. * THE DISTANCE BETWEEN BALES SHALL BE 1 FT.. (TYP.)

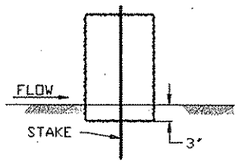
SILT FENCE DETAIL



DITCH CHECK SECTIONS



OPTION 1



OPTION 2

TEMPORARY EROSION CONTROL

REVISIONS

DATE	BY	DATE	BY

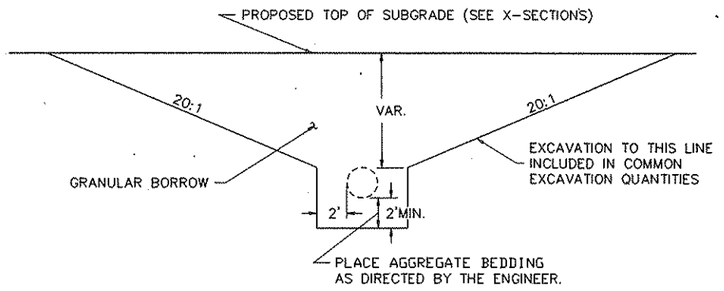
FILE NAME: 870552/TAB-CH.DWG MN.(09-19-94)

CERTIFIED BY Douglas N. Finley P.E. REG NO. 20235 9/23 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

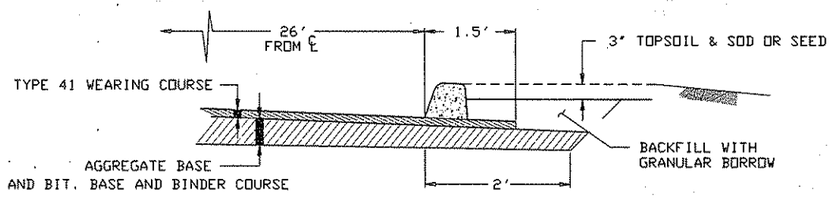
CENTERLINE CULVERT INSTALLATION



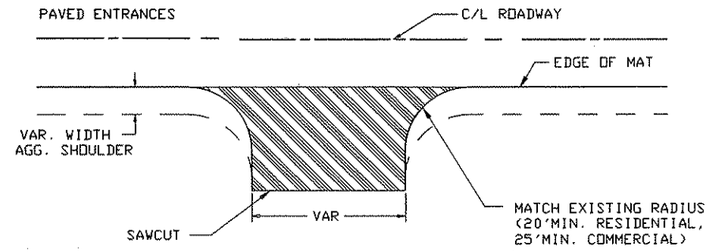
NOTES:
- FILL AND COMPACT GRANULAR TO 2" ABOVE FLOWLINE BEFORE PLACING CULVERT.
- AT CENTERLINE CULVERT LOCATIONS CULVERT EXCVATION TO EXTEND 3' BEYOND END OF APRON.
- SEE CROSS SECTION AND PROFILE SHEETS FOR DEPTH AND LIMITS OF CULVERT EXCAVATION.

BITUMINOUS CURB DETAIL

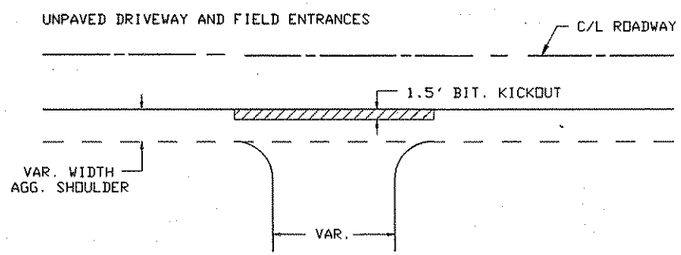
STANDARD PLATE NO. 7065
(USE IN BERM LOCATIONS)



TYPICAL DRIVEWAY AND FIELD ENTRANCES



NOTE: PAID FOR AS ITEM NO. 0340.601
(2" THICK BIT. WEAR COURSE)



NOTE: KICKOUTS PAID FOR AS ITEM NO. 2340.508
(TYPE 41 WEAR COURSE MIXTURE)

STANDARD DETAILS

TYPICAL DRIVEWAY AND FIELD ENTRANCES
CENTERLINE CULVERT INSTALLATION
BITUMINOUS CURB DETAIL

FILE NAME: 870552/TAB-CN.DWG MN(09-19-94)

REVISIONS

DATE	BY	DATE	BY

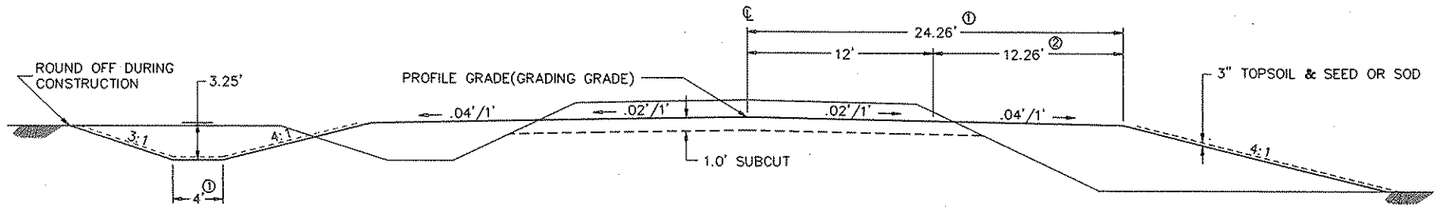
CERTIFIED BY Douglas M. Tinsley P.E. REG NO. 20235 9/23 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

NORMAL GRADING

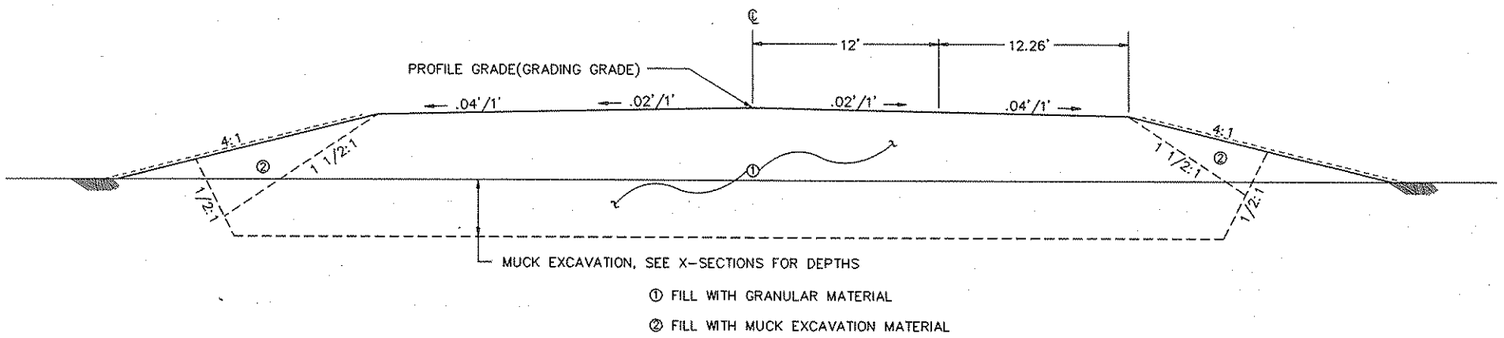
STATION 476+99 TO STATION 499+55



① FOR SPECIAL DITCHES SEE PROFILE SHEETS & X-SECTIONS.
② 16.09' IN RT.TN.LN., 28.09 FROM ℄.

MUCK EXCAVATION

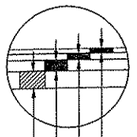
STATION 488+75 TO STATION 499+50



① FILL WITH GRANULAR MATERIAL
② FILL WITH MUCK EXCAVATION MATERIAL

DESIGN F-1

STATION 476+99 TO STATION 499+55



1 1/2" TYPE 41 WEARING COURSE-SPEC. 2340
BITUMINOUS MIXTURE DESIGNATION: 41WEA50055Y

1 1/2" TYPE 31 BINDER COURSE-SPEC. 2340
BITUMINOUS MIXTURE DESIGNATION: 31BIB50000Y

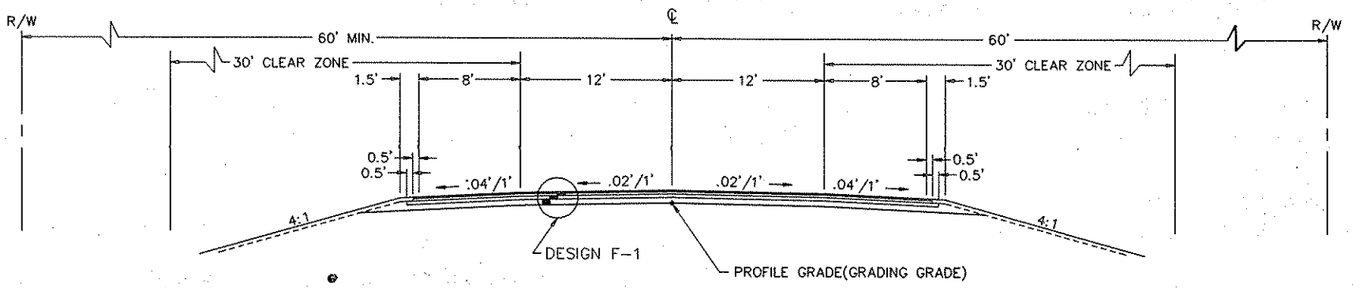
2" TYPE 31 BASE COURSE-SPEC. 2340
BITUMINOUS MIXTURE DESIGNATION: 31BBB50000Y

5" AGGREGATE BASE CL-5-SPEC. 2211

TACK COAT-SPEC. 2357, TO BE APPLIED BETWEEN ALL BITUMINOUS LIFTS.

RURAL TYPICAL SECTION

STATION 476+99 TO STATION 499+55



TYPICAL SECTIONS

FILE NAME: 970552/TAB-CHI.DWG MN.(09-19-94)

REVISIONS

DATE	BY	DATE	BY

CERTIFIED BY Ronald M. Tinsley P.E. REG NO. 20235 9/23 19 94

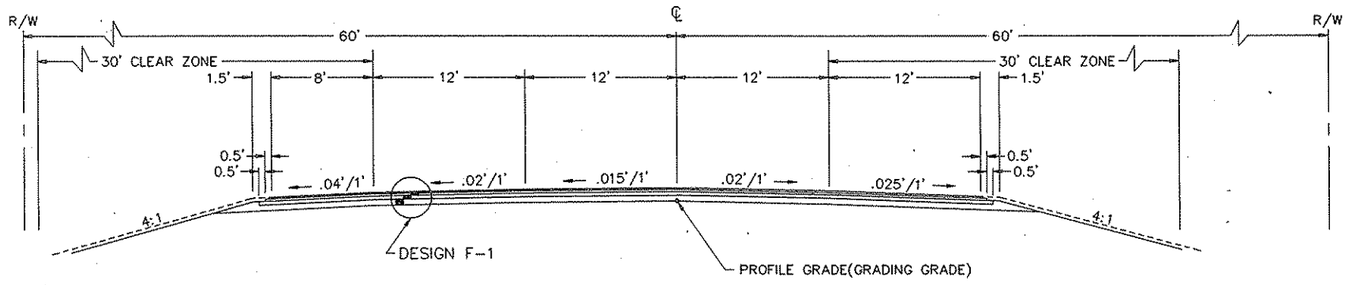
S.P. _____ S.A.P. _____ C.P. 87-05-52

Fed. Project No. _____

LEFT TURN/RIGHT TURN LANES

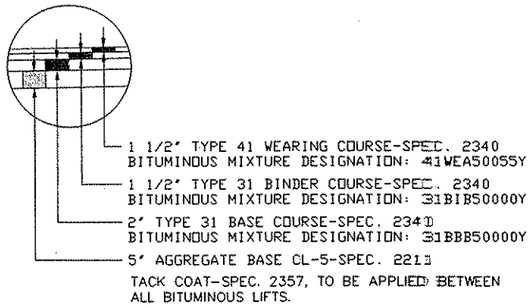
LEFT TURN LANES
STA. 496+66 TO STA. 499+55, LNB

RIGHT TURN/BYPASS LANES
STA. 485+50 TO STA. 488+07, LNB
STA. 487+86 TO STA. 490+50, LSB



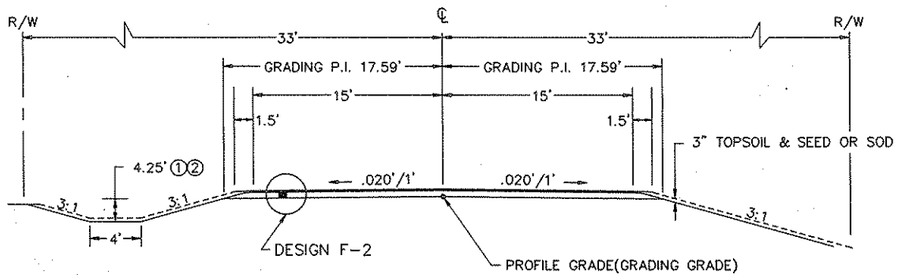
DESIGN F-1

STATION 476+99 TO STATION 499+55



L1 ALIGNMENT TYPICAL SECTION

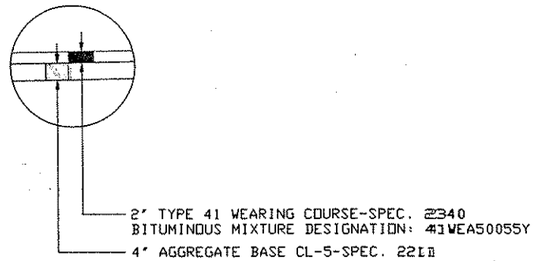
STATION 600+00 TO STATION 606+00



① MEASURED FROM FINISH PROFILE ELEV.
② SEE PLAN & PROFILE SHEETS FOR SPECIAL DITCHES

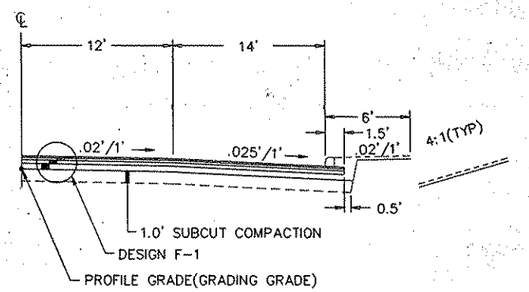
DESIGN F-2

STATION 600+00 TO STATION 606+00



TYPICAL BERM SECTION

STATION 483+50 TO STATION 486+25, RT
STATION 495+65 TO STATION 499+16, RT



TYPICAL SECTIONS

FILE NAME: 870552/TAB-CHLDWG MN:(09-19-94)

REVISIONS

DATE	BY	DATE	BY

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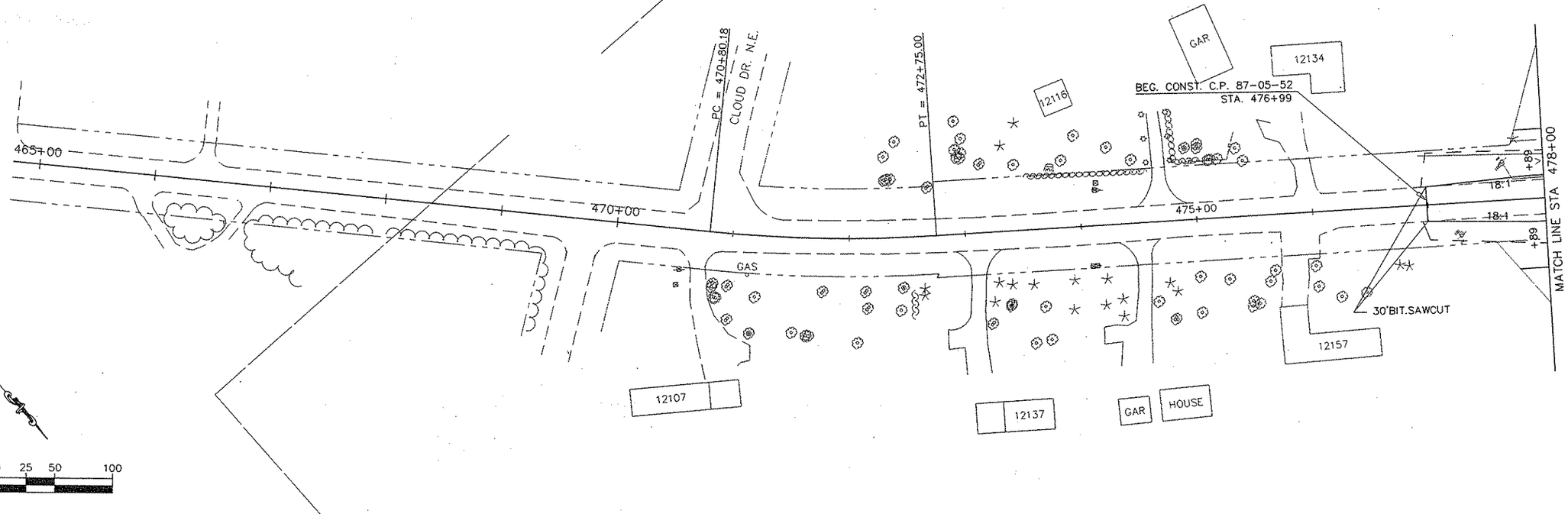
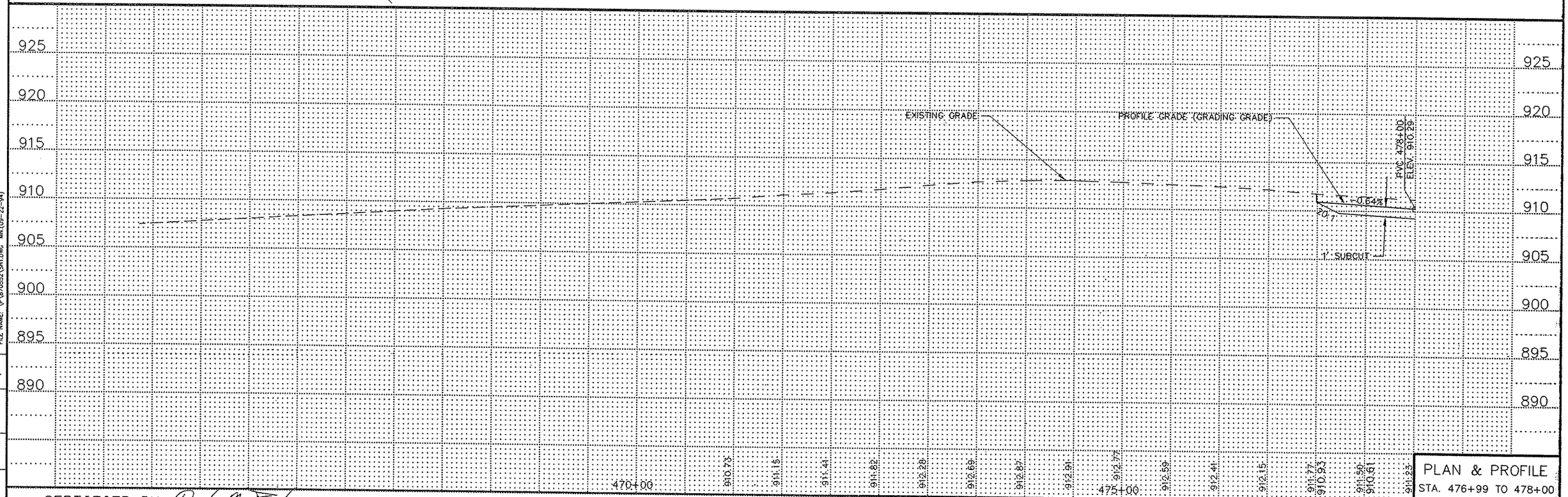
Fed. Project No. _____





FILE NAME: \P\870552\SH1.DWG MN (09-22-94)

REVISIONS					
DATE	BY	DATE	BY		

PLAN & PROFILE
STA. 476+99 TO 478+00

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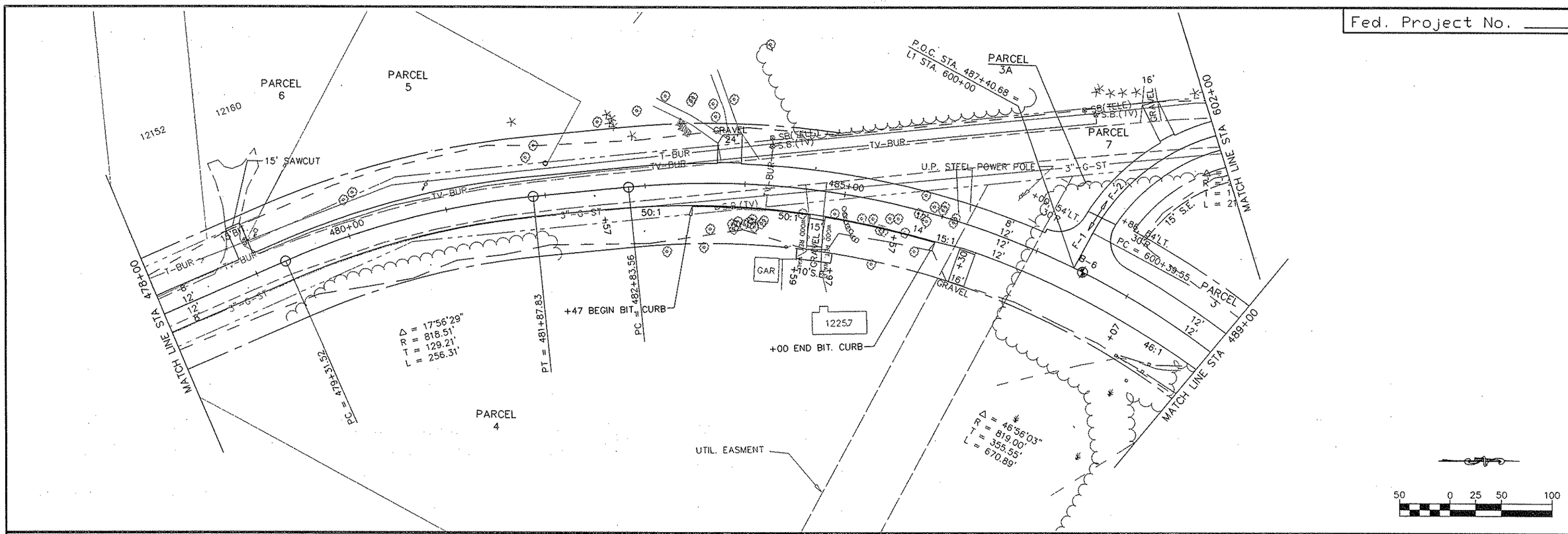
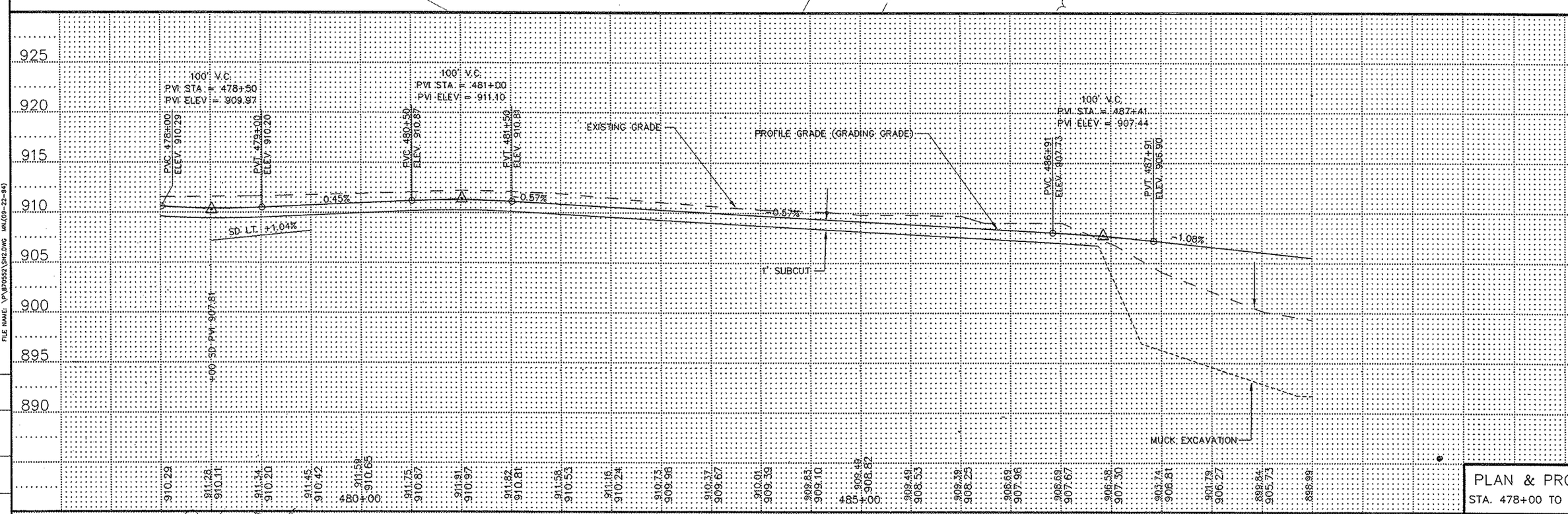
S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 10 of 37 Sheets

Fed. Project No. _____



50 0 25 50 100



FILE NAME: \P\870552\SH2.DWG MN.(09-22-84)

REVISIONS					
DATE	BY	DATE	BY	DATE	BY

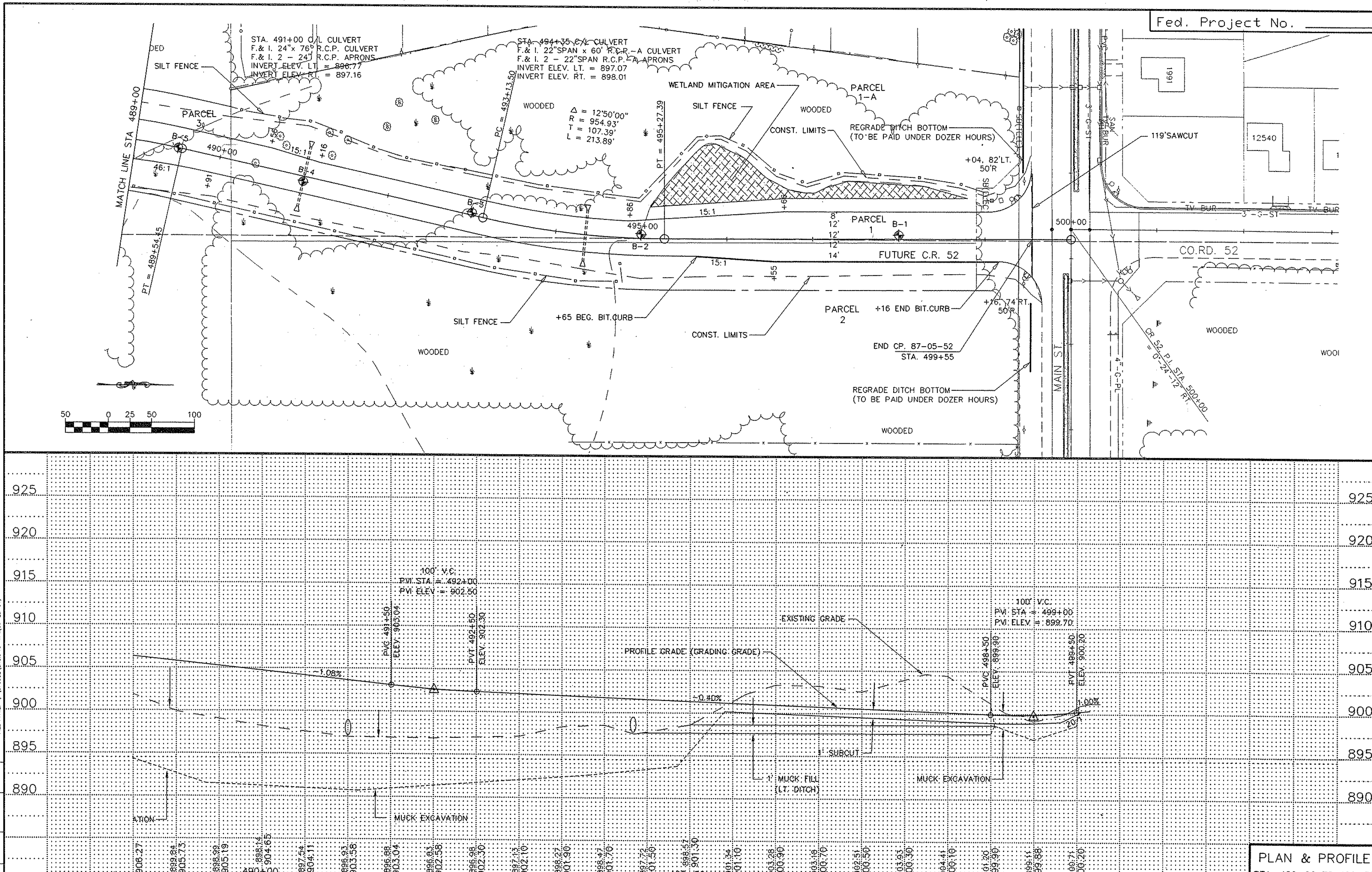
PLAN & PROFILE
STA. 478+00 TO 489+00

CERTIFIED BY Douglas M. Finley P.E. REG NO. 20235 9/24 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 11 of 37 Sheets

Fed. Project No.



STA. 491+00 C/L CULVERT
F.& I. 24"x 76' R.C.P. CULVERT
F.& I. 2 - 24" R.C.P. APRONS
INVERT ELEV. LT. = 896.77
INVERT ELEV. RT. = 897.16
STA. 494+35 C/L CULVERT
F.& I. 22"SPAN x 60' R.C.P.-A CULVERT
F.& I. 2 - 22"SPAN R.C.P.-A APRONS
INVERT ELEV. LT. = 897.07
INVERT ELEV. RT. = 898.01
SILT FENCE
MATCH LINE STA 489+00
PARCEL 3
PARCEL 1-A
PARCEL 1
PARCEL 2
WOODED
WETLAND MITIGATION AREA
CONST. LIMITS
REGRADE DITCH BOTTOM (TO BE PAID UNDER DOZER HOURS)
119'SAWCUT
Δ = 12°50'00"
R = 954.93'
T = 107.39'
L = 213.89'
PC = 493+13.50
PT = 495+27.39
PT = 489+54.45
+04, 82'LT. 50'R
+16, 74'RT. 50'R
FUTURE C.R. 52
CO.RD. 52
MAIN ST.
+65 BEG. BIT.CURB
+16 END BIT.CURB
END CP. 87-05-52 STA. 499+55
CR 52 P.I. STA. 500+00 Δ = 0°-24'-12" RT.
490+00
495+00
500+00
B-1
B-2
B-3
B-4
B-5
15:1
46:1
12540
1991
100' V.C.
PVI STA. = 492+00
PVI ELEV. = 902.50
PVC 491+50 ELEV. 903.04
PVT 492+50 ELEV. 902.30
100' V.C.
PVI STA = 499+00
PVI ELEV = 899.70
PVC 498+50 ELEV. 899.90
PVT 499+50 ELEV. 900.20
-1.08%
-0.40%
1.00%
EXISTING GRADE
PROFILE GRADE (GRADING GRADE)
1' SUBCUT
1' MUCK FILL (LT. DITCH)
MUCK EXCAVATION
925
920
915
910
905
900
895
890

REVISIONS DATE BY DATE BY

CERTIFIED BY [signature] P.E. REG NO. 20235 9/24 19 94

S.P. ______ S.A.P. ______ C.P. 87-05-52

PLAN & PROFILE
STA. 489+00 TO 499+55

Sheet No. 12 of 37 Sheets

Fed. Project No. _____

50 0 25 50 100

STA. 612+49 LT.
INPL. 15"x 30' C.M.P.
REMOVE
NO CULVERT REQUIRED

STA. 613+79 LT.
INPL. 36"x 74' C.M.P.
REMOVE
NO CULVERT REQUIRED

STA. 612+92 LT.
INPL. 15"x 30' C.M.P.
REMOVE
NO CULVERT REQUIRED

606+00 BEG. BIT. OVERLAY

14'SAWCUT

31'SAWCUT

16'SAWCUT

16'SAWCUT

17'SAWCUT

10'SAWCUT

+97 END BIT. OVERLAY

REGRADE DITCH BOTTOM
(TO BE PAID UNDER DOZER HOURS)

1.5" BIT. OVERLAY

12316 12338 12339 12351 12365 12401 12430 12431 12441 12451 12472 12480 12488 1908 1909

124TH LANE

MAIN ST.

CSAH. 14

GAR

12"DIP WM

3"-G-ST

T-BUR

TV-BUR

S.B.(TV)

SB(TELE)

SB(ELEC)

SAN

15'S.E.

Δ = 41°37'15"
R = 1301.37'
T = 494.62'
L = 945.34'

PT = 611+96.74

96.54
10' R

41.28
35' R

MATCH LINE STA 602+00

60.41' 22.00° 17.08' 11.85'

602+51.40

PROFILE GRADE (GRADING GRADE)

PVI 602+52
ELEV. 909.09

PVI 498+30
ELEV. 899.90

PVI 488+50
ELEV. 899.90

EXISTING GRADE

+0.329%

+0.338%

+0.507%

50' L.T. +0.292%

+38.50 PVI 904.27

+00.50 PVI 904.74

PLACE 1 1/2" BITUMINOUS OVERLAY
(BITUMINOUS MIXTURE DESIGNATION: 41WEAS0055Y)

1.5" OVERLAY SURFACE

PROFILE GRADE (GRADING GRADE)

T.C. 903.24

T.C. 903.64

+69

+70

+1.70%

900.74

900.36

899.36

18"x 74' R.C.P. @ 0.51%

18"x 100' C.M.P. @ 1.00%

925 920 915 910 905 900 895 890 885

+00 908.09 908.03 908.38 907.76 908.54 908.13 908.70 909.02 908.87 909.40 909.03 909.59 909.46 909.65 909.61 910.33 605+00 910.67 910.84 910.82 910.49 910.08 909.43 908.83 908.34 907.78 907.23 610+00 906.67 906.08 905.45 904.80 904.43 904.31 903.58 903.24 903.57 902.91 615+00

REVISIONS

DATE	BY	DATE	BY

PLAN & PROFILE
STA. 602+00 TO 614+00

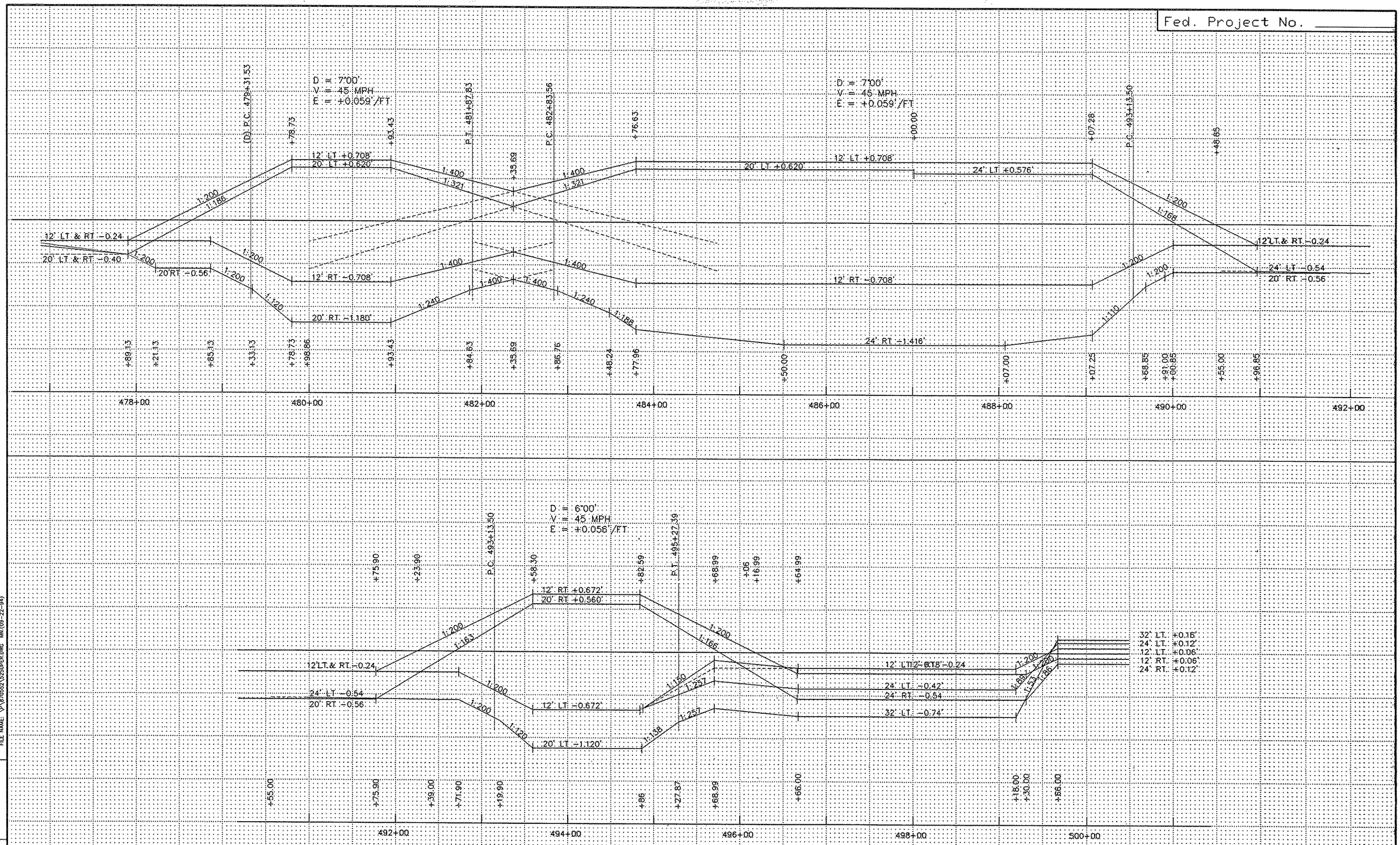
CERTIFIED BY _____ P.E. REG NO. 20235 9/24 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 13 of 37 Sheets

FILE NAME: \P\970552\SH4.DWG MN (09-22-94)

Fed. Project No. _____



FILE NAME: V:\870552\S2SUPER.DWG MN(09-22-94)

REVISIONS		
DATE	BY	DESCRIPTION

SUPERELEVATION CHART

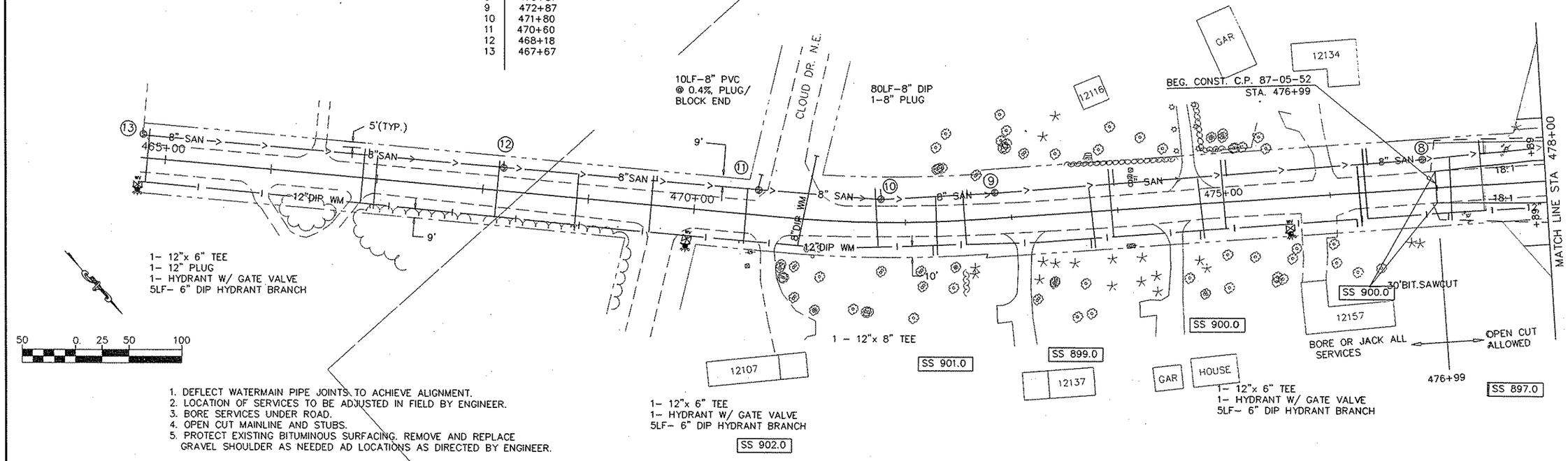
CERTIFIED BY Rupert M Turnbey P.E. REG NO. 20235 9/23 19 94

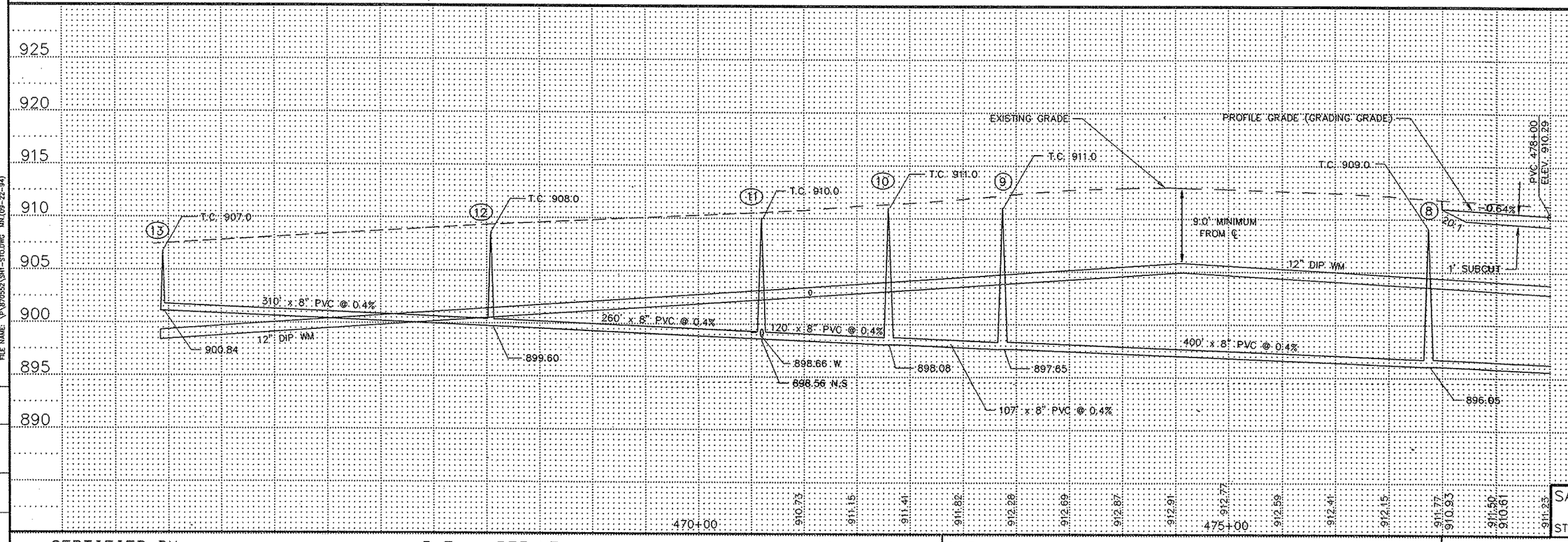
S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 14 of 37 Sheets

Fed. Project No. _____

MH.	LOCATION
8	476+87
9	472+87
10	471+80
11	470+60
12	468+18
13	467+67





FILE NAME: \P\870552\SHT-STO.DWG MN.(09-22-94)

REVISIONS					
DATE	BY		DATE	BY	

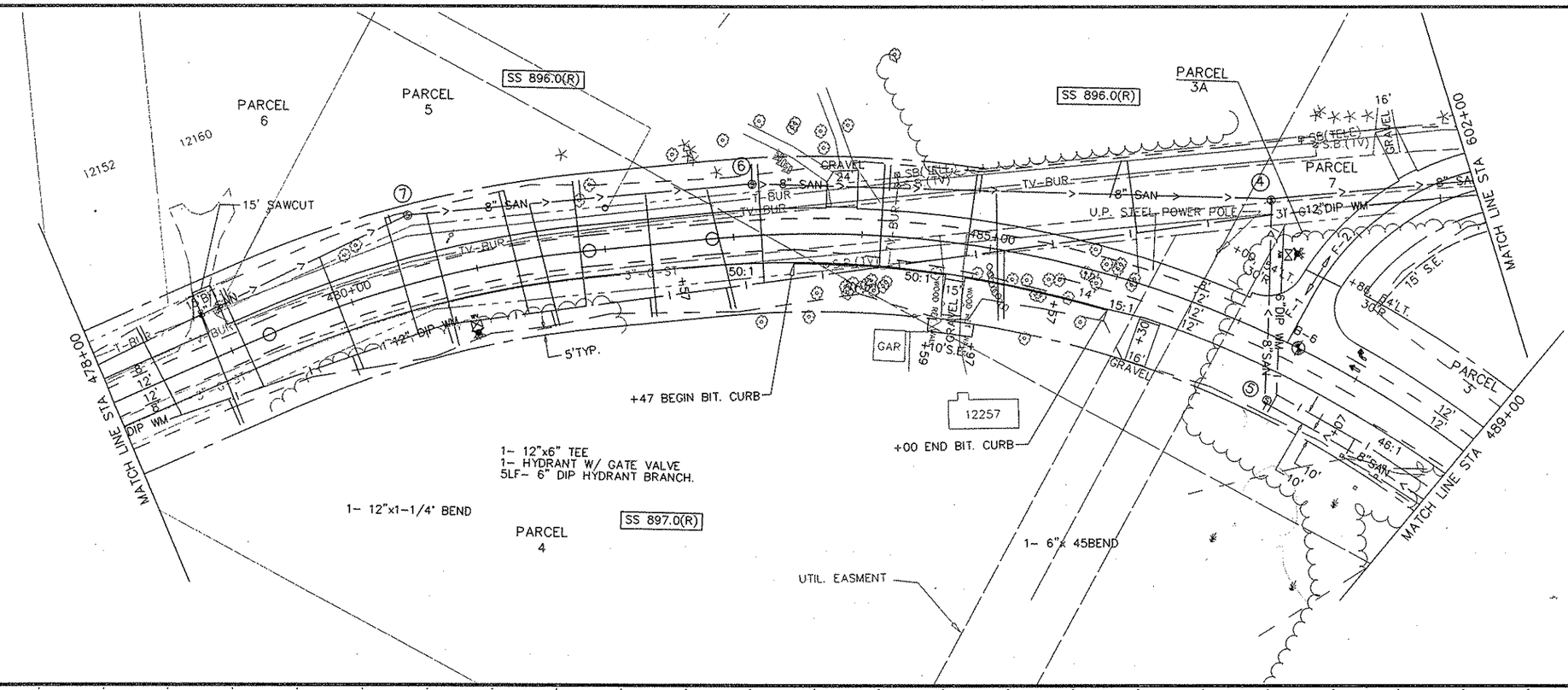
SANITARY SEWER & WATERMAIN
STA. 464+97 TO 478+00

CERTIFIED BY _____ P.E. REG NO. _____ _____ 19 ____

S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 15 of 37 Sheets

Fed. Project No. _____



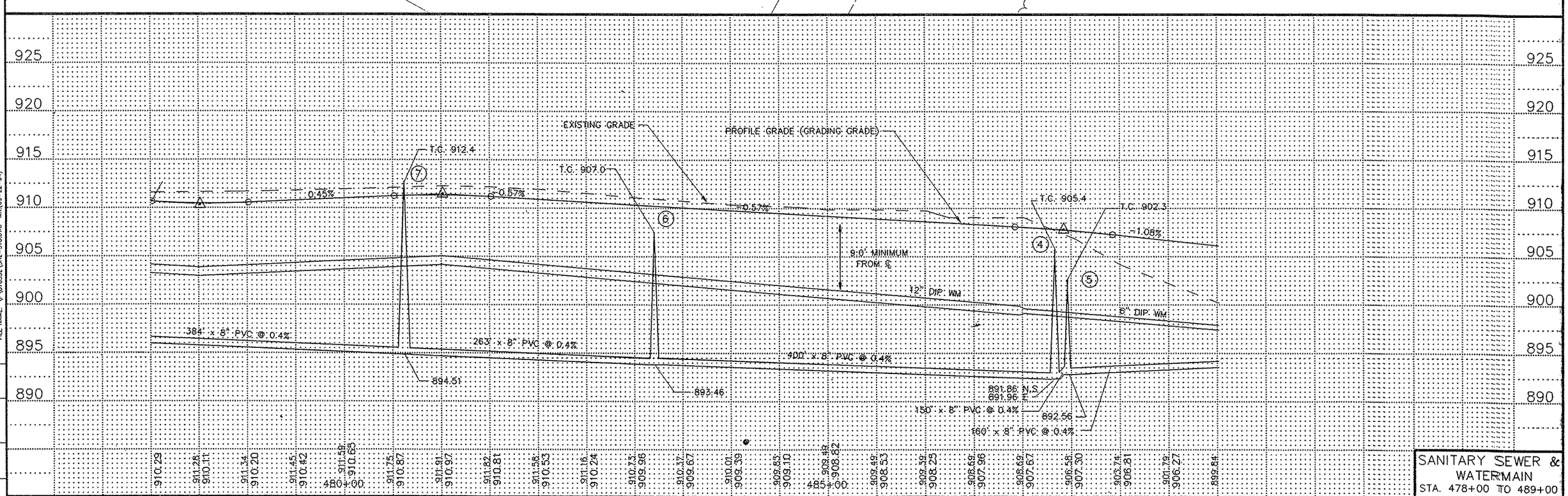
MH.	LOCATION
4	600+77, 68' LT.
5	687+45, 45' RT.
6	483+19, 40' LT.
7	480+60, 67' LT.

1- 12"x 6" TEE
1- 6"x 11-1/4BEND
1- 6" TEE
1- HYDRANT W/ GATE VALVE
5LF- 6" DIP HYDRANT BRANCH

1. DEFLECT WATERMAIN PIPE JOINTS TO ACHIEVE ALIGNMENT.
2. LOCATION OF SERVICES TO BE ADJUSTED IN FIELD BY ENGINEER.

SS 897.0(R) INDICATES ELLEVATION AT END OF HORIZZONTAL RUN OF SANITARY SEWER SERVICE TO THAT PARCEL. (R) INDICATES A RISER AT MAIN PER DETAIL SSS-3. IF NO ELEVATION IS INDICATED, INSTALL SERVICE AT MINIMUM GRADES PER DETAIL SSS-4.

50 0 25 50 100



FILE NAME: \P\870552\SH2-STD.DWG MN.(09-22-94)

REVISIONS		
DATE	BY	DATE	BY

SANITARY SEWER & WATERMAIN
STA. 478+00 TO 489+00

CERTIFIED BY _____ P.E. REG NO. _____ 19 _____

S.P. _____ S.A.P. _____ C.P. 87-05-52

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Fed. Project No. _____

MATCH LINE STA 489+00

SILT FENCE

PARCEL 3

B-5

490+00

46:1

6"DIP WM

B-4

+91

+55

15:1

+16

WETLAND MITIGATION AREA

SILT FENCE

WOODED

PARCEL 1-A

CONST. LIMITS

+86

B-3

495+00

B-2

+62

15:1

+04, 82'LT. 50'R

SSMH

8'
12'
12'
12'
14'

PARCEL 1

B-1

FUTURE C.R. 52

15:1

+55

PARCEL 2

+16 END BIT.CURB

+16, 74'RT. 50'R

END CP. 87-05-52
STA. 499+55

1- 6" TEE
1- 6" PLUG
1- HYDRANT W/ GATE VALVE
20LF- 6" DIP HYDRANT BRANCH

SILT FENCE

+65 BEG. BIT.CURB

CONST. LIMITS

WOODED

1. DEFLECT WATERMAIN PIPE JOINTS TO ACHIEVE ALIGNMENT.
2. LOCATION OF SERVICES TO BE ADJUSTED IN FIELD BY ENGINEER.

50 0 25 50 100

1991

12540

21

3"-G-ST

SAN MANHOLE

119'SAWCUT

TV BUR

500+00

CO.RD. 52

MAIN ST.

4"-G-PL

CR 52 P.I. STA. 500+00
= 0°-24'-12" RT.

WOODED

WOOI

489+12, 44'RT.
T.C. 900.6
CLEAN OUT
SEE DETAIL

EXISTING GRADE

PROFILE GRADE (GRADING GRADE)

-1.08%

-0.40%

1.00%

20'

6" DIP WM

PLUG END

893.20

160' x 8" PVC @ 0.4%

925 920 915 910 905 900 895 890

906.27
899.84 905.73
898.99 905.19
898.14 904.65
897.54 904.11
896.93 903.58
896.88 903.04
896.83 902.58
896.98 902.30
897.13 902.10
898.27 901.90
898.47 901.70
897.72 901.50
898.57 901.30
901.54 901.10
903.28 900.90
903.18 900.70
902.51 900.50
903.93 900.30
904.41 900.10
901.20 899.90
899.11 899.88
900.71 900.20

490+00 495+00 500+00

SANITARY SEWER & WATERMAIN
STA. 489+00 TO 499+55

REVISIONS

DATE	BY	DATE	BY

FILE NAME: V:\870552\SHS-STODWG MN(09-22-94)

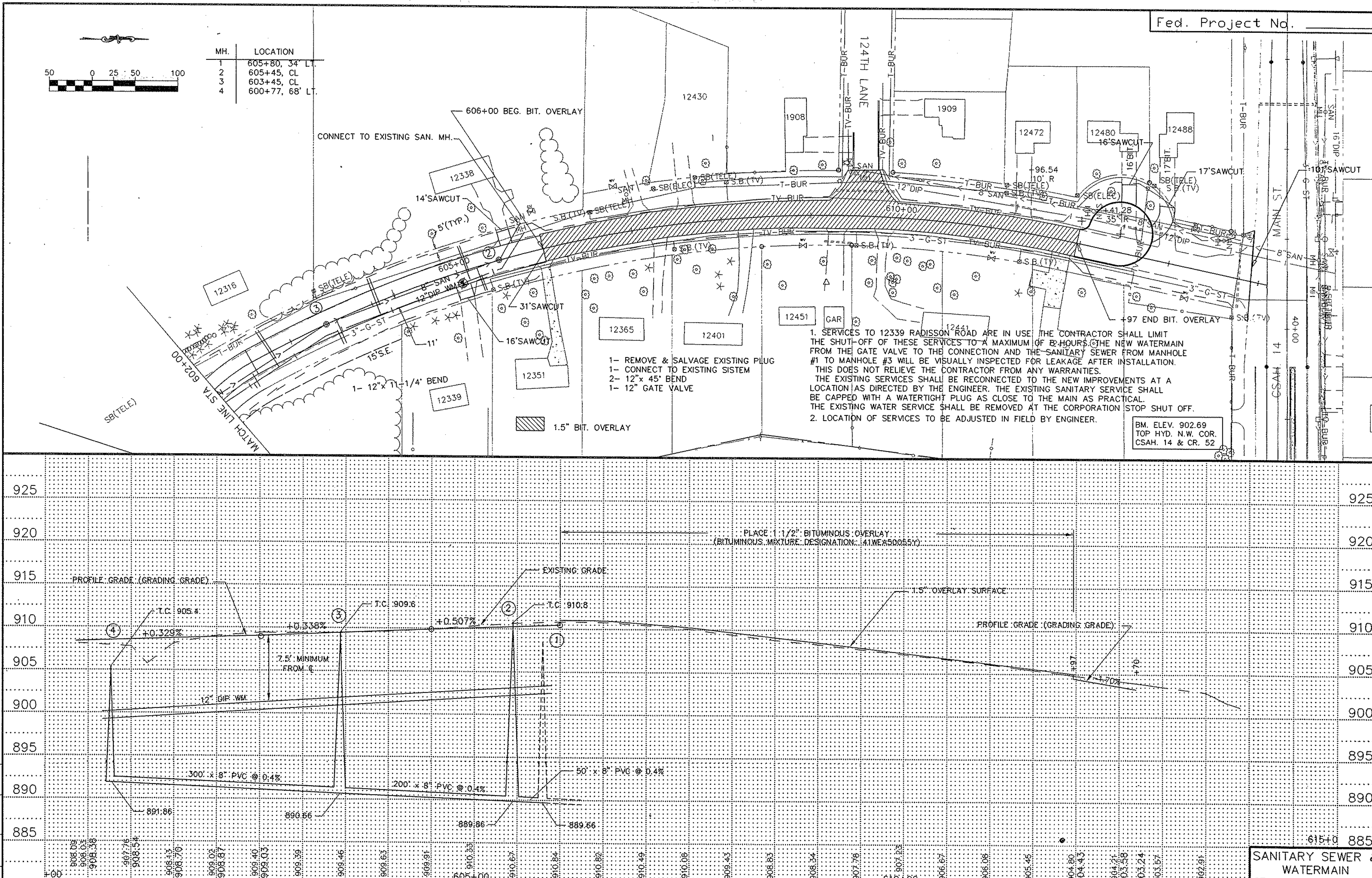
CERTIFIED BY _____ P.E. REG NO. _____ 19 ____

S.P. _____ S.A.P. _____ C.P. 87-05-52

Sheet No. 17 of 37 Sheets

Fed. Project No. ____

MH.	LOCATION
1	605+80, 34' LT.
2	605+45, CL
3	603+45, CL
4	600+77, 68' LT.



1- REMOVE & SALVAGE EXISTING PLUG
1- CONNECT TO EXISTING SISTEM
2- 12"x 45' BEND
1- 12" GATE VALVE

1. SERVICES TO 12339 RADISSON ROAD ARE IN USE. THE CONTRACTOR SHALL LIMIT THE SHUT-OFF OF THESE SERVICES TO A MAXIMUM OF 8 HOURS. THE NEW WATERMAIN FROM THE GATE VALVE TO THE CONNECTION AND THE SANITARY SEWER FROM MANHOLE #1 TO MANHOLE #3 WILL BE VISUALLY INSPECTED FOR LEAKAGE AFTER INSTALLATION. THIS DOES NOT RELIEVE THE CONTRACTOR FROM ANY WARRANTIES.
THE EXISTING SERVICES SHALL BE RECONNECTED TO THE NEW IMPROVEMENTS AT A LOCATION AS DIRECTED BY THE ENGINEER. THE EXISTING SANITARY SERVICE SHALL BE CAPPED WITH A WATERTIGHT PLUG AS CLOSE TO THE MAIN AS PRACTICAL. THE EXISTING WATER SERVICE SHALL BE REMOVED AT THE CORPORATION STOP SHUT OFF.
2. LOCATION OF SERVICES TO BE ADJUSTED IN FIELD BY ENGINEER.

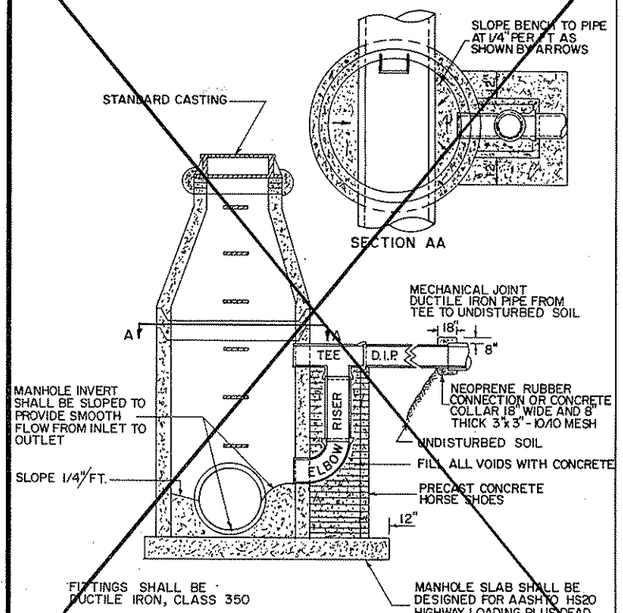
BM. ELEV. 902.69
TOP HYD. N.W. COR.
CSAH. 14 & CR. 52

REVISIONS		
DATE	BY	DATE	BY

FILE NAME: \P\870552\sh4-sto.DWG MN.(09-22-94)

SANITARY SEWER & WATERMAIN
STA. 602+00 TO 614+00

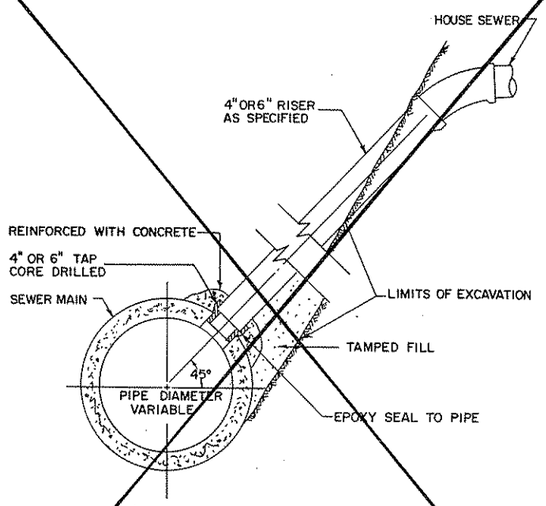
CERTIFIED BY ____ P.E. REG NO. ____ 19 ____ S.P. ____ S.A.P. ____ C.P. 87-05-52



NOT IN CONTRACT

STANDARD OUTSIDE DROP MANHOLE

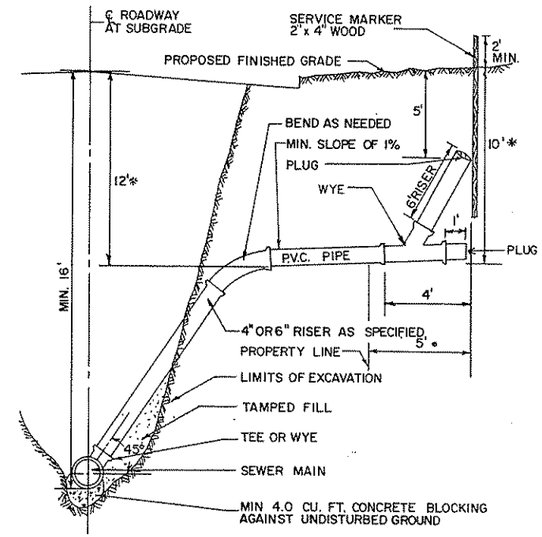
SSS-1



NOT IN CONTRACT

SERVICE TAP CONNECTION

SSS-2



NOTE: WHEN SANITARY SERVICE IS NOT ACCOMPANIED BY A WATER SERVICE IN THE SAME TRENCH, INSTALL A 6' HEAVY METAL FENCE POST NEXT TO THE 2"x 4" MARKER, AND PAINT THE TOP 6" OF THE POST FLORESCENT ORANGE.

* UNLESS OTHERWISE INDICATED ON PLANS

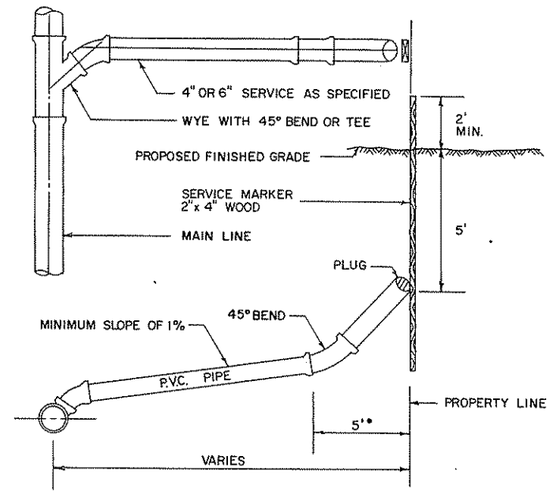
NO BEND MAY BE USED OTHER THEN THOSE SHOWN ON THIS DETAIL

SOLVENT WELD ALL JOINTS

* WILL BE ADJUSTED IN FIELD BY ENGINEER TO SERVE EXISTING STRUCTURES.

SERVICE RISER SECTION

SSS-3



NOTE: WHEN SANITARY SERVICE IS NOT ACCOMPANIED BY A WATER SERVICE IN THE SAME TRENCH, INSTALL A 6' HEAVY METAL FENCE POST NEXT TO THE 2"x 4" MARKER, AND PAINT THE TOP 6" OF POST FLORESCENT ORANGE

* UNLESS OTHERWISE INDICATED ON PLANS

NO BEND MAY BE USED OTHER THEN THOSE SHOWN ON THIS DETAIL

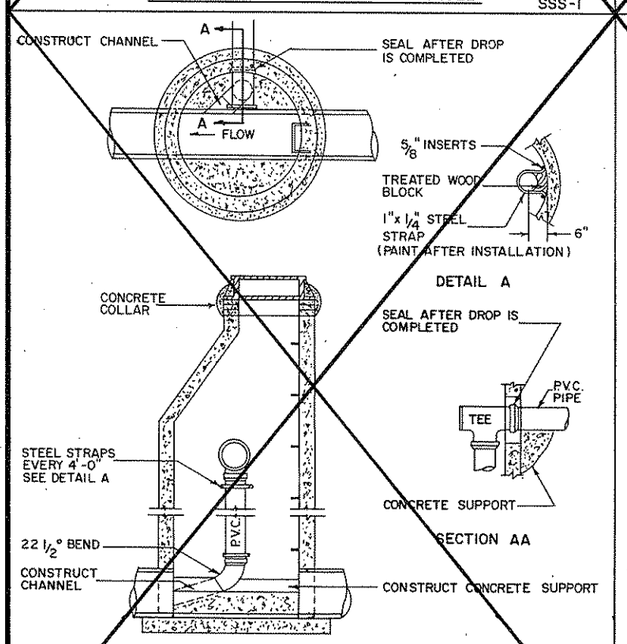
SOLVENT WELD ALL JOINTS

THE PIPE SHALL BE TERMINATED WITH A 4" OR 6" FACTORY P.V.C. PLUG

SADDLES ARE ALLOWED ON EXISTING MAINS ONLY

SERVICE CONNECTION

SSS-4

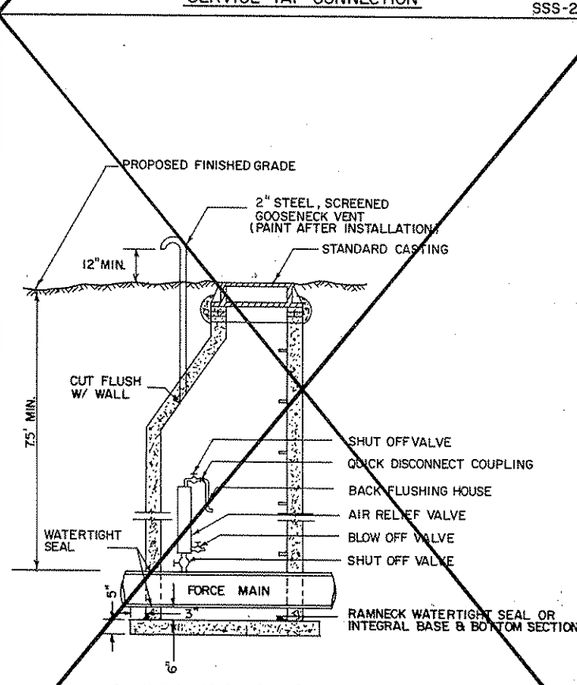


NOTE: FOR EXISTING MANHOLES ONLY CITY APPROVAL REQUIRED

NOT IN CONTRACT

STANDARD INSIDE DROP MANHOLE

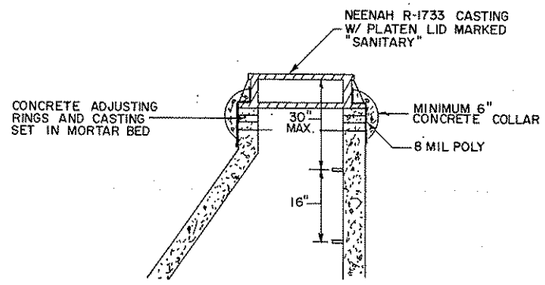
SSS-5



NOT IN CONTRACT

STANDARD AIR RELIEF MANHOLE - F.M.

SSS-6



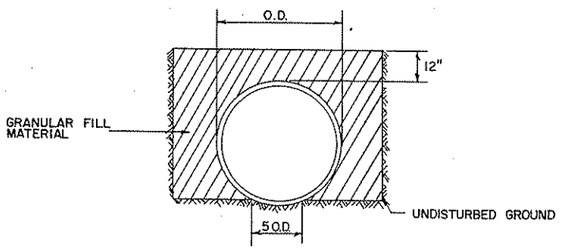
NOTE: USE MINIMUM OF 2-2" ADJUSTING RINGS, MAXIMUM OF 6-2" ADJUSTING RINGS.

MANHOLE STEPS PER MNDOT PLATE 4180, TYPE W.

STEPS SHALL BE LOCATED ON UPSTREAM WALL FOR PIPE SIZES UP TO AND INCLUDING 15" AND ON SIDE WALL FOR PIPE SIZES GREATER THAN 15"

CONCRETE COLLAR / STEPS

SSS-7



NOTE: THIS IS THE STANDARD PIPE BEDDING APPLICATION, UNLESS OTHER BEDDING IS CALLED FOR IN SPECIFICATION OR ON PLANS

THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO FIT THE BARREL FOR AT LEAST 50% OF THE OUTSIDE DIAMETER, THE REMAINDER OF THE PIPE IS SURROUNDED TO A HEIGHT OF AT LEAST 12" ABOVE ITS TOP

GRANULAR FILL MATERIAL SHALL BE FINE COMPACTABLE SOIL AND NOT CONTAIN STONES, WHICH WILL BE RETAINED ON A 3" SIEVE, FROZEN LUMPS, CHUNKS OF HIGHLY PLASTIC CLAY OR OTHER OBJECTIONABLE MATERIALS

CLASS C PIPE BEDDING

SSS-8

ENGINEERING DEPARTMENT
9150 Central Ave., N.E. Blaine, Minnesota 55434
Phone (612) 784-6700

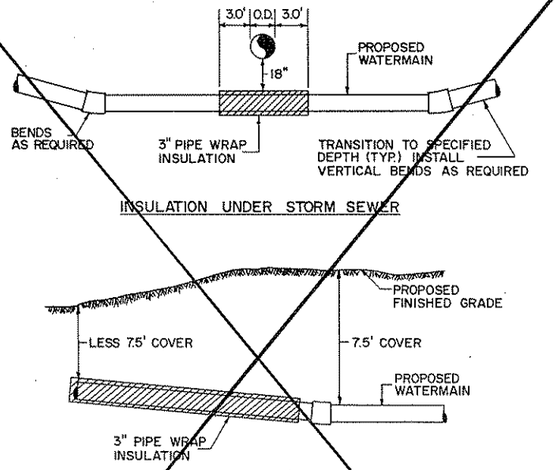
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.

Date _____ Reg No _____

DATE	REVISION

PROJECT NO CP. 87-05-52	
DESIGN BY	DRAWN BY
CHECKED BY	APPROVED BY
AS BUILT BY	DATE

SANITARY SEWER CONSTRUCTION DETAILS



INSULATION UNDER STORM SEWER

INSULATION FOR SHALLOW WATERMAIN

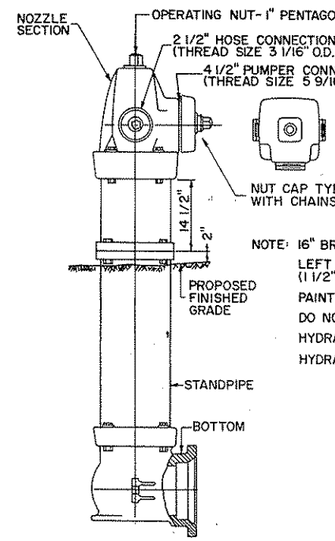
NOTES: WHEN WATERMAIN AND STORM SEWER CROSSING HAVE LESS THAN 18" VERTICAL SEPARATION, INSTALL CROSSING AS SHOWN.

WHEN WATERMAIN COVER IS LESS THAN 7.5', INSULATION WILL BE REQUIRED.

PIPE WRAPPED INSULATION SHALL BE 3" OF DOW STYROFOAM FB BRAND FOAM OR EQUAL WRAPPED AROUND ENTIRE PIPE, PIPE JOINTS AND BENDS FOR THOSE AREAS DESIGNATED ON PLANS. THE INSULATION SHALL BE INSTALLED WITH BANDS AS PER THE MANUFACTURE'S SPECIFICATIONS.

NOT IN CONTRACT

WATERMAIN INSULATION WS-1



NOZZLE ARRANGEMENT

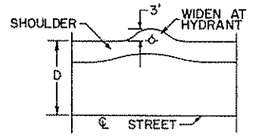
TWO 2 1/2" NOZZLES PLUS PUMPER NOZZLE WITH 1" PENTAGON OPERATING NUTS

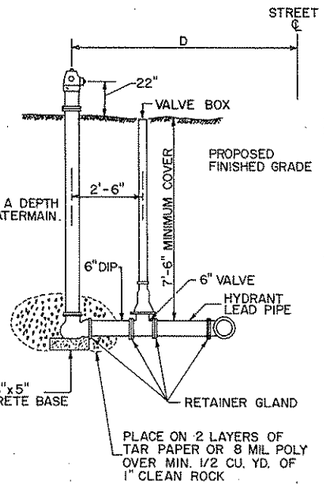
NOTE: 16" BREAKOFF SECTION
LEFT HAND OPERATING NUT (1 1/2" POINT TO FLAT)
PAINT BARREL SECTION RED TO GRADE
DO NOT PLUG DRAIN HOLES
HYDRANT SHALL HAVE OIL RESERVOIR
HYDRANT SHALL BE WATEROUS WB-67

TYPICAL HYDRANT WS-2

D	STREET TYPE
23'-0"	36' COMM.- INDUSTRIAL (W/ C & G URBAN SEC.)
SEE PLANS AND SPECS	36' COMM.- INDUSTRIAL (W/O C & G RURAL SEC.)

D	STREET TYPE
20'-6"	30' RESIDENTIAL (W/ C & G URBAN SEC.)
20'-6"	30' RESIDENTIAL (W/O C & G RURAL SEC.)

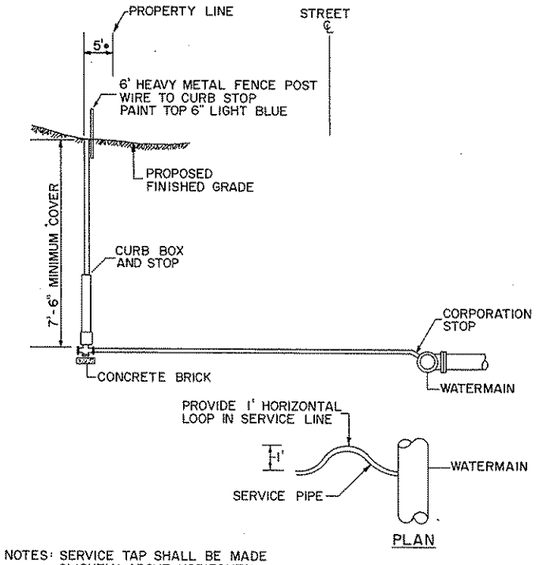




NOTES: HYDRANT TO BE ORDERED FOR A DEPTH TO MATCH SIZE OF MAINLINE WATERMAIN.

JOINTS SHALL BE RESTRAINED AS PER SPECIFICATION

HYDRANT INSTALLATION WS-3



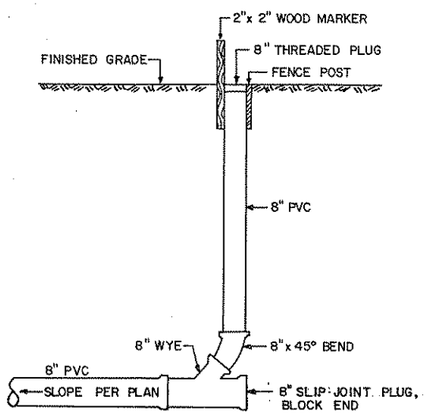
NOTES: SERVICE TAP SHALL BE MADE SLIGHTLY ABOVE HORIZONTAL CENTER OF PIPE.

COPPER SERVICE PIPE SHALL BE TYPE K

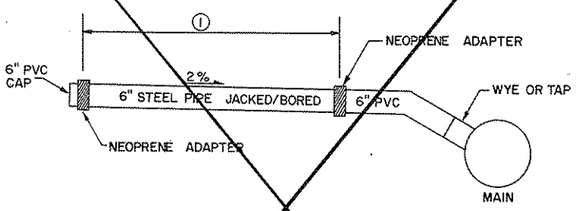
• UNLESS OTHERWISE INDICATED ON PLANS

WATER SERVICE CONNECTION WS-4

NOTES:
1 - ALL JOINTS SHALL BE SOLVENT WELD, EXCEPT WHERE NOTED.
2 - INSTALL 2"x 2" WOOD MARKER BY CLEAN-OUT.
3 - INSTALL 12" LENGTH OF METAL FENCE POST BELOW GRADE FOR LOCATION PURPOSES.



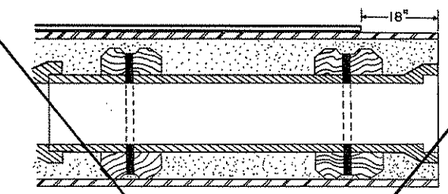
CLEAN-OUT DETAIL SSS-11



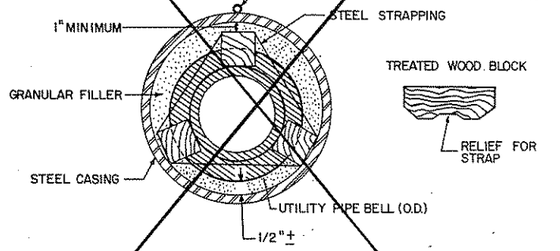
① STEEL PIPE TO BE PAID AS JACK/BORE 6" STEEL PIPE. SEE SPECIAL CONDITIONS.
PVC PIPE TO BE PAID AS 6" PVC. SEE STANDARD SPECIFICATIONS.

NOT IN CONTRACT

STEEL PIPE SERVICE INSTALLATION SSS-11



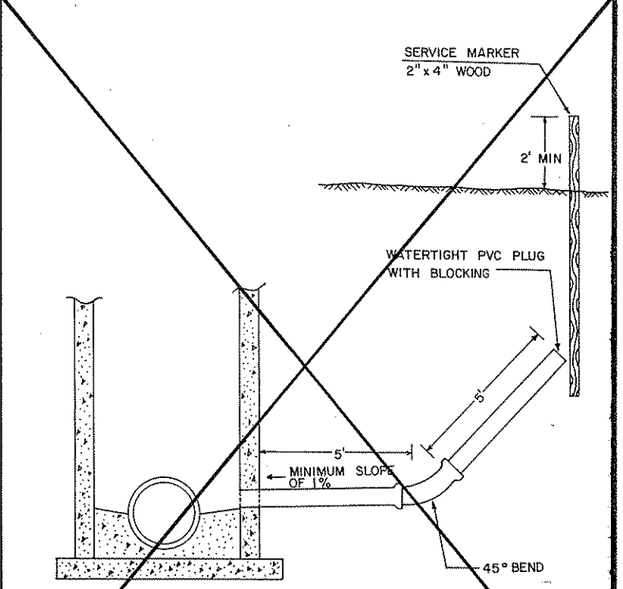
NOTE: 2 SETS OF WOOD BLOCKING ARE REQUIRED FOR EACH SECTION OF PIPE.



NOTE: BLOCKING & STRAPPING MATERIALS TO BE APPROVED BY ENGINEER PRIOR TO USE.

NOT IN CONTRACT

BLOCKING DETAIL FOR STEEL CASING M-8



PIPE SHALL BE SLIP JOINTS

NOT IN CONTRACT

8" PVC SANITARY SEWER SEWER (AT MH BENCH) SSS-10

ENGINEERING DEPARTMENT
9150 Central Ave., N.E. Blaine, Minnesota 55434
Phone (612) 784-6700

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.

Date _____ Reg. No. _____

DATE	REVISION

PROJECT NO	CP. 87-05-52
DESIGN BY	DRAWN BY
CHECKED BY	APPROVED BY
AS BUILT BY	DATE

WATER SYSTEM & MISCELLANEOUS DETAILS

SHEET NO. 20 OF 37 SHEETS

NOTES:

1) LOCATION OF HANDHOLES AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
3) EACH PEDESTRIAN INDICATION SHALL BE 12"x12".
4) NEW LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
5) NEW HANDHOLES SHALL BE CONCRETE HANDHOLES WITH TYPE "C" COVERS PER Mn/DOT STANDARD PLATE NO. 8117F.
6) SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
7) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AS SHOWN, EXCEPT AS OTHERWISE NOTED.
8) NEW SIGNAL INDICATION LENSES (CIRCULAR AND ARROW) SHALL BE GLASS LENSES.
9) ALL TRAFFIC SIGNAL CABLES ARE INPLACE AND SHALL BE REUSED INPLACE (AND UNCOILED FROM AN INPLACE HANDHOLE AND INSTALLED WHERE APPLICABLE) AS SHOWN. SEE SPECIAL PROVISIONS.
10) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.

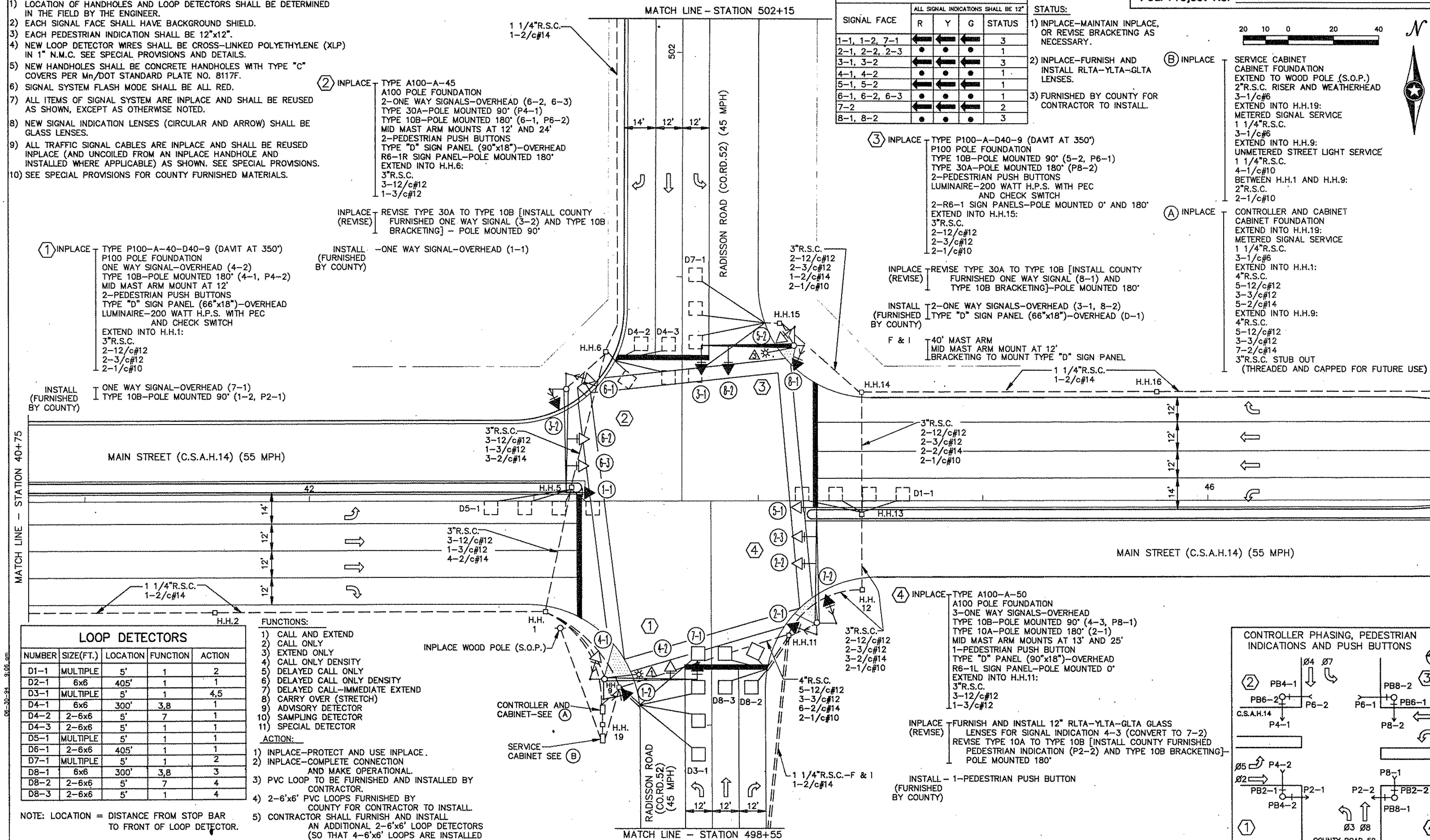
SIGNAL FACES				
SIGNAL FACE	R	Y	G	STATUS
1-1, 1-2, 7-1	⬅	⬅	⬅	3
2-1, 2-2, 2-3	●	●	●	1
3-1, 3-2	⬅	⬅	⬅	3
4-1, 4-2	●	●	●	1
5-1, 5-2	⬅	⬅	⬅	1
6-1, 6-2, 6-3	●	●	●	1
7-2	⬅	⬅	⬅	2
8-1, 8-2	●	●	●	3

ALL SIGNAL INDICATIONS SHALL BE 12"

STATUS:

1) INPLACE-MAINTAIN INPLACE, OR REVISE BRACKETING AS NECESSARY.
2) INPLACE-FURNISH AND INSTALL RLTA-YLTA-GLTA LENSES.
3) FURNISHED BY COUNTY FOR CONTRACTOR TO INSTALL.

Fed. Project No.



MATCH LINE - STATION 502+15
MATCH LINE - STATION 498+55
MATCH LINE - STATION 40+75
MATCH LINE - STATION 47+00
RADISSON ROAD (CO.RD.52) (45 MPH)
MAIN STREET (C.S.A.H.14) (55 MPH)
1 1/4"R.S.C. 1-2/c#14
(2) INPLACE TYPE A100-A-45 A100 POLE FOUNDATION 2-ONE WAY SIGNALS-OVERHEAD (6-2, 6-3) TYPE 30A-POLE MOUNTED 90° (P4-1) TYPE 10B-POLE MOUNTED 180° (6-1, P6-2) MID MAST ARM MOUNTS AT 12' AND 24' 2-PEDESTRIAN PUSH BUTTONS TYPE "D" SIGN PANEL (90"x18")-OVERHEAD R6-1R SIGN PANEL-POLE MOUNTED 180° EXTEND INTO H.H.6: 3"R.S.C. 3-12/c#12 1-3/c#12
INPLACE (REVISE) REVISE TYPE 30A TO TYPE 10B [INSTALL COUNTY FURNISHED ONE WAY SIGNAL (3-2) AND TYPE 10B BRACKETING] - POLE MOUNTED 90°
INSTALL (FURNISHED BY COUNTY) -ONE WAY SIGNAL-OVERHEAD (1-1)
(1) INPLACE TYPE P100-A-40-D40-9 (DAVIT AT 350°) P100 POLE FOUNDATION ONE WAY SIGNAL-OVERHEAD (4-2) TYPE 10B-POLE MOUNTED 180° (4-1, P4-2) MID MAST ARM MOUNT AT 12' 2-PEDESTRIAN PUSH BUTTONS TYPE "D" SIGN PANEL (66"x18")-OVERHEAD LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH EXTEND INTO H.H.1: 3"R.S.C. 2-12/c#12 2-3/c#12 2-1/c#10
INSTALL (FURNISHED BY COUNTY) ONE WAY SIGNAL-OVERHEAD (7-1) TYPE 10B-POLE MOUNTED 90° (1-2, P2-1)
(3) INPLACE TYPE P100-A-D40-9 (DAVIT AT 350°) P100 POLE FOUNDATION TYPE 10B-POLE MOUNTED 90° (5-2, P6-1) TYPE 30A-POLE MOUNTED 180° (P8-2) 2-PEDESTRIAN PUSH BUTTONS LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH 2-R6-1 SIGN PANELS-POLE MOUNTED 0° AND 180° EXTEND INTO H.H.15: 3"R.S.C. 2-12/c#12 2-3/c#12 2-1/c#10
INPLACE (REVISE) REVISE TYPE 30A TO TYPE 10B [INSTALL COUNTY FURNISHED ONE WAY SIGNAL (8-1) AND TYPE 10B BRACKETING]-POLE MOUNTED 180°
INSTALL (FURNISHED BY COUNTY) 2-ONE WAY SIGNALS-OVERHEAD (3-1, 8-2) TYPE "D" SIGN PANEL (66"x18")-OVERHEAD (D-1)
F & I 40' MAST ARM MID MAST ARM MOUNT AT 12' BRACKETING TO MOUNT TYPE "D" SIGN PANEL
(B) INPLACE SERVICE CABINET CABINET FOUNDATION EXTEND TO WOOD POLE (S.O.P.) 2"R.S.C. RISER AND WEATHERHEAD 3-1/c#6 EXTEND INTO H.H.19: METERED SIGNAL SERVICE 1 1/4"R.S.C. 3-1/c#6 EXTEND INTO H.H.9: UNMETERED STREET LIGHT SERVICE 1 1/4"R.S.C. 4-1/c#10 BETWEEN H.H.1 AND H.H.9: 2"R.S.C. 2-1/c#10
(A) INPLACE CONTROLLER AND CABINET CABINET FOUNDATION EXTEND INTO H.H.19: METERED SIGNAL SERVICE 1 1/4"R.S.C. 3-1/c#6 EXTEND INTO H.H.1: 4"R.S.C. 5-12/c#12 3-3/c#12 5-2/c#14 EXTEND INTO H.H.9: 4"R.S.C. 5-12/c#12 3-3/c#12 7-2/c#14 3"R.S.C. STUB OUT (THREADED AND CAPPED FOR FUTURE USE)
3"R.S.C. 2-12/c#12 2-3/c#12 1-2/c#14 2-1/c#10
3"R.S.C. 3-12/c#12 1-3/c#12 3-2/c#14
3"R.S.C. 3-12/c#12 1-3/c#12 4-2/c#14
3"R.S.C. 2-12/c#12 2-3/c#12 2-2/c#14 2-1/c#10
(4) INPLACE TYPE A100-A-50 A100 POLE FOUNDATION 3-ONE WAY SIGNALS-OVERHEAD TYPE 10B-POLE MOUNTED 90° (4-3, P8-1) TYPE 10A-POLE MOUNTED 180° (2-1) MID MAST ARM MOUNTS AT 13' AND 25' 1-PEDESTRIAN PUSH BUTTON TYPE "D" PANEL (90"x18")-OVERHEAD R6-1L SIGN PANEL-POLE MOUNTED 0° EXTEND INTO H.H.11: 3"R.S.C. 3-12/c#12 1-3/c#12
3"R.S.C. 2-12/c#12 2-3/c#12 3-2/c#14 2-1/c#10
4"R.S.C. 5-12/c#12 3-3/c#12 6-2/c#14 2-1/c#10
INPLACE (REVISE) FURNISH AND INSTALL 12" RLTA-YLTA-GLTA GLASS LENSES FOR SIGNAL INDICATION 4-3 (CONVERT TO 7-2) REVISE TYPE 10A TO TYPE 10B [INSTALL COUNTY FURNISHED PEDESTRIAN INDICATION (P2-2) AND TYPE 10B BRACKETING]-POLE MOUNTED 180°
INSTALL (FURNISHED BY COUNTY) 1-PEDESTRIAN PUSH BUTTON
1 1/4"R.S.C.-F & I 1-2/c#14
INPLACE WOOD POLE (S.O.P.)
CONTROLLER AND CABINET-SEE (A)
SERVICE CABINET SEE (B)
H.H.1 H.H.2 H.H.5 H.H.6 H.H.9 H.H.11 H.H.12 H.H.13 H.H.14 H.H.15 H.H.16 H.H.19
D1-1 D3-1 D4-2 D4-3 D5-1 D7-1 D8-2 D8-3
CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS
PB4-1 PB6-2 P6-2 P4-1 PB8-2 PB6-1 P6-1 P8-2 P4-2 PB2-1 P2-1 PB4-2 P8-1 P2-2 PB2-2 PB8-1
Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7 Ø8
C.S.A.H.14 COUNTY ROAD 52

LOOP DETECTORS				
NUMBER	SIZE(FT.)	LOCATION	FUNCTION	ACTION
D1-1	MULTIPLE	5'	1	2
D2-1	6x6	405'	1	1
D3-1	MULTIPLE	5'	1	4,5
D4-1	6x6	300'	3,8	1
D4-2	2-6x6	5'	7	1
D4-3	2-6x6	5'	1	1
D5-1	MULTIPLE	5'	1	1
D6-1	2-6x6	405'	1	1
D7-1	MULTIPLE	5'	1	2
D8-1	6x6	300'	3,8	3
D8-2	2-6x6	5'	7	4
D8-3	2-6x6	5'	1	4

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

FUNCTIONS:

1) CALL AND EXTEND
2) CALL ONLY
3) EXTEND ONLY
4) CALL ONLY DENSITY
5) DELAYED CALL ONLY
6) DELAYED CALL ONLY DENSITY
7) DELAYED CALL-IMMEDIATE EXTEND
8) CARRY OVER (STRETCH)
9) ADVISORY DETECTOR
10) SAMPLING DETECTOR
11) SPECIAL DETECTOR

ACTION:

1) INPLACE-PROTECT AND USE INPLACE.
2) INPLACE-COMPLETE CONNECTION AND MAKE OPERATIONAL.
3) PVC LOOP TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
4) 2-6'x6' PVC LOOPS FURNISHED BY COUNTY FOR CONTRACTOR TO INSTALL.
5) CONTRACTOR SHALL FURNISH AND INSTALL AN ADDITIONAL 2-6'x6' LOOP DETECTORS (SO THAT 4-6'x6' LOOPS ARE INSTALLED AS SHOWN).

NO.	BY	DATE	REVISIONS

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: 6/24/94 Reg. No. 22457

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA

CITY OF BLAINE

TRAFFIC SIGNAL SYSTEM

INTERSECTION LAYOUT

MAIN STREET (CSAH 14) AT RADISSON ROAD (CO.RD.52)

FILE NO. ANOKC9404

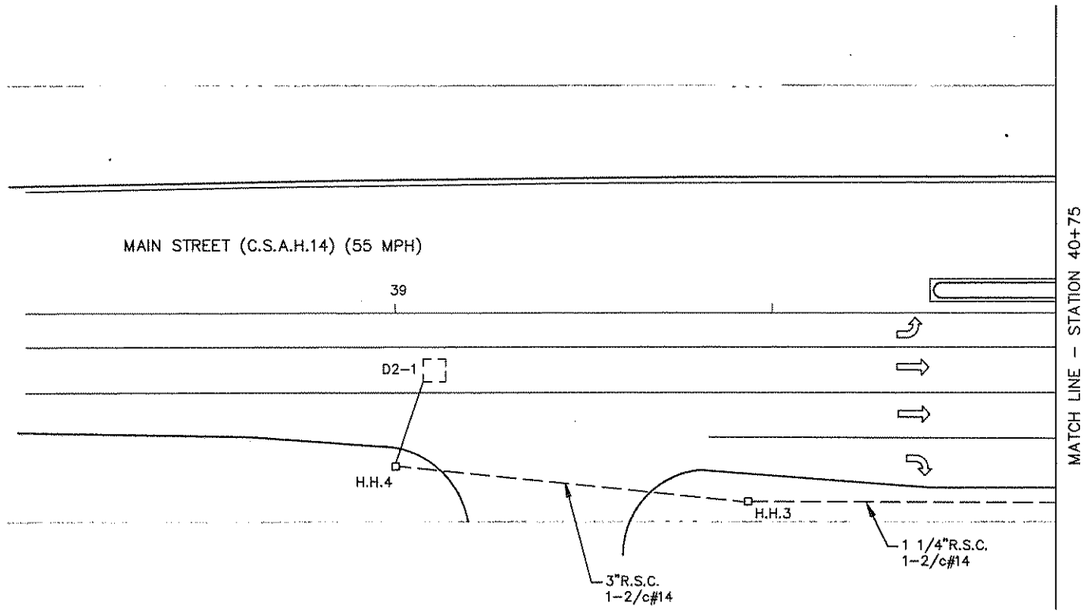
DATE 6/24/94

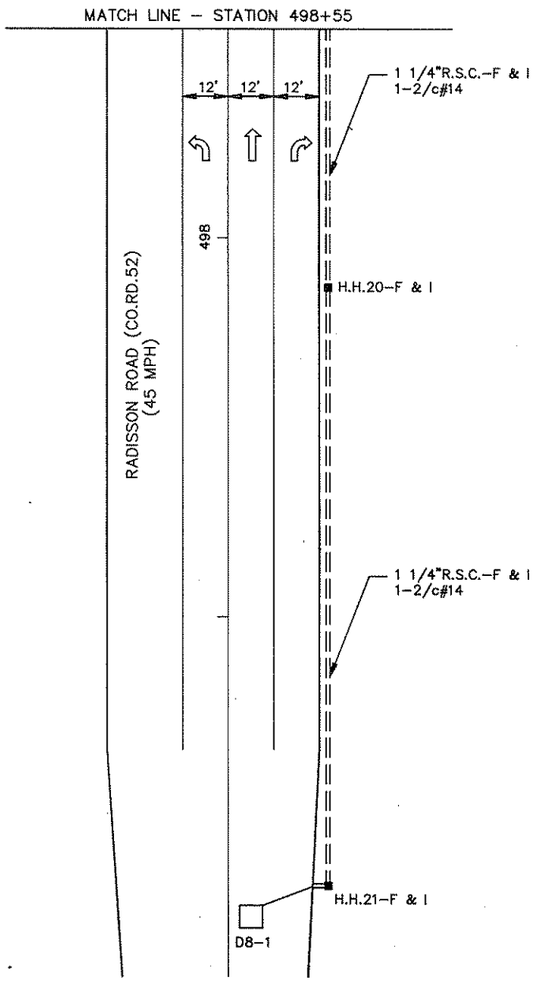
S.A.P. ______ S.P. ______ C.P. 87-05-52

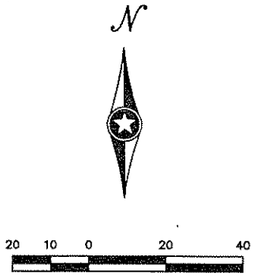
Sheet No. 21 of 37 Sheets

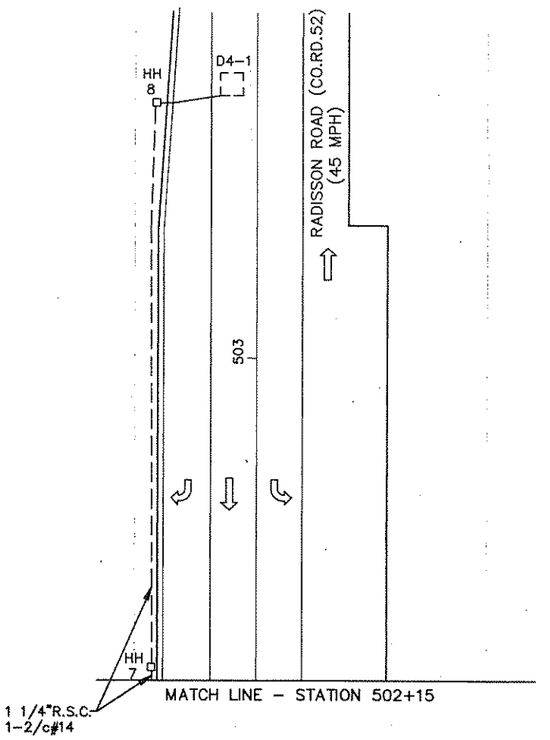
Fed. Project No. _____

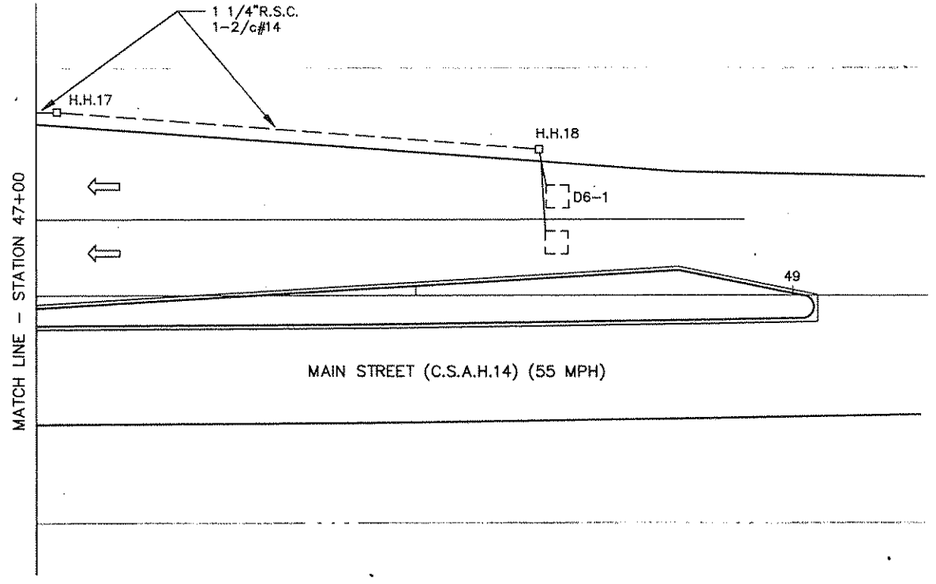
BASE OVERLAY DRG. NO.











06-28-94 11:47 am

D:\GRACE\AN9404A1

NO.	BY	DATE	REVISIONS

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: 6/24/94 John M. Iverson Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

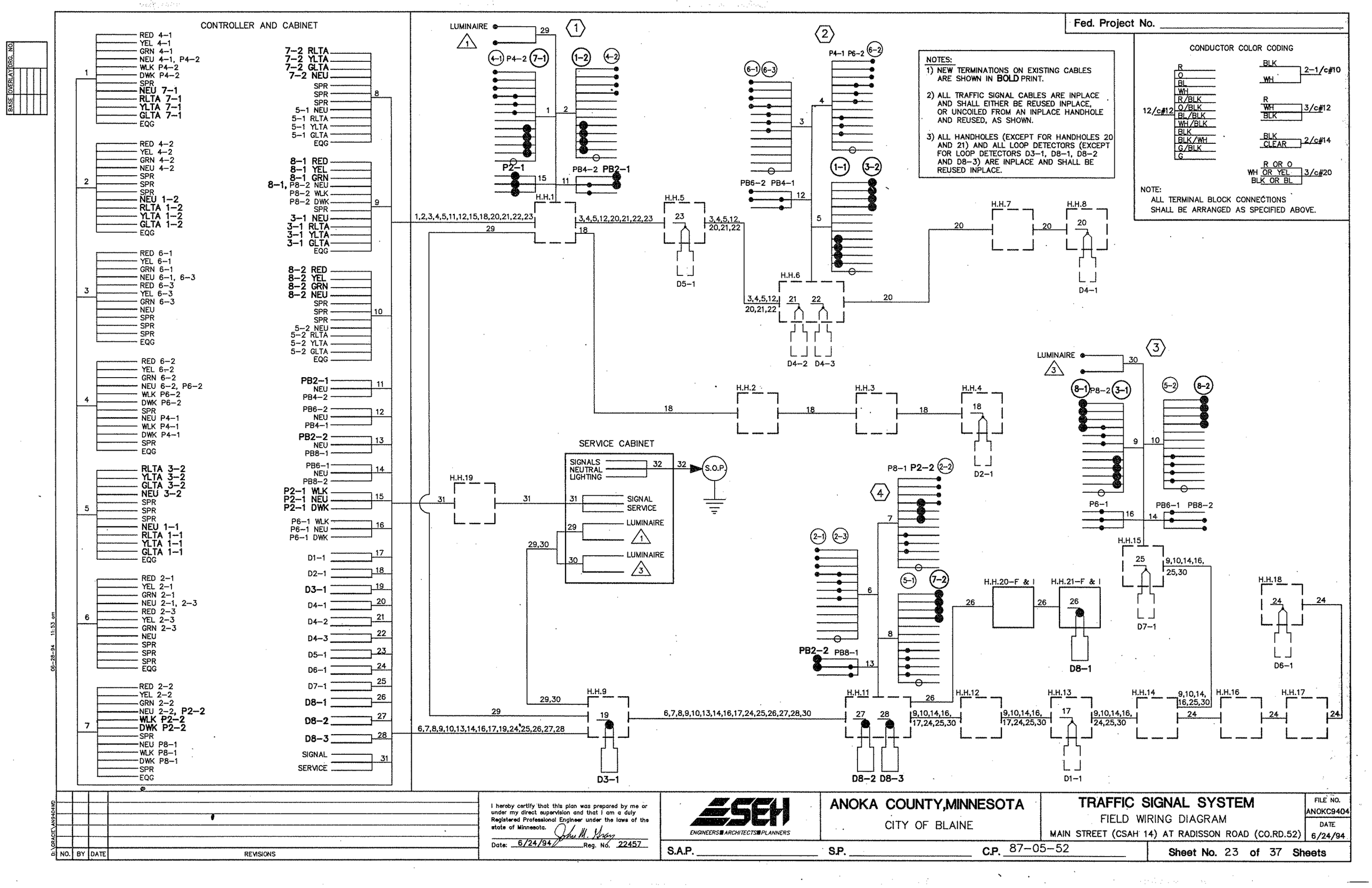
ANOKA COUNTY, MINNESOTA
CITY OF BLAINE

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
MAIN STREET (CSAH 14) AT RADISSON ROAD (CO.RD.52)

FILE NO. ANOKC9404
DATE 6/24/94

S.A.P. _____ S.P. _____ C.P. 87-05-52

Sheet No. 22 of 37 Sheets


CONTROLLER AND CABINET
RED 4-1
YEL 4-1
GRN 4-1
NEU 4-1, P4-2
WLK P4-2
DWK P4-2
SPR
NEU 7-1
RLTA 7-1
YLTA 7-1
GLTA 7-1
EQG
RED 4-2
YEL 4-2
GRN 4-2
NEU 4-2
SPR
SPR
SPR
NEU 1-2
RLTA 1-2
YLTA 1-2
GLTA 1-2
EQG
RED 6-1
YEL 6-1
GRN 6-1
NEU 6-1, 6-3
RED 6-3
YEL 6-3
GRN 6-3
NEU
SPR
SPR
SPR
SPR
EQG
RED 6-2
YEL 6-2
GRN 6-2
NEU 6-2, P6-2
WLK P6-2
DWK P6-2
SPR
NEU P4-1
WLK P4-1
DWK P4-1
SPR
EQG
RLTA 3-2
YLTA 3-2
GLTA 3-2
NEU 3-2
SPR
SPR
SPR
NEU 1-1
RLTA 1-1
YLTA 1-1
GLTA 1-1
EQG
RED 2-1
YEL 2-1
GRN 2-1
NEU 2-1, 2-3
RED 2-3
YEL 2-3
GRN 2-3
NEU
SPR
SPR
SPR
EQG
RED 2-2
YEL 2-2
GRN 2-2
NEU 2-2, P2-2
WLK P2-2
DWK P2-2
SPR
NEU P8-1
WLK P8-1
DWK P8-1
SPR
EQG
7-2 RLTA
7-2 YLTA
7-2 GLTA
7-2 NEU
SPR
SPR
SPR
5-1 NEU
5-1 RLTA
5-1 YLTA
5-1 GLTA
EQG
8-1 RED
8-1 YEL
8-1 GRN
8-1, P8-2 NEU
P8-2 WLK
P8-2 DWK
SPR
3-1 NEU
3-1 RLTA
3-1 YLTA
3-1 GLTA
EQG
8-2 RED
8-2 YEL
8-2 GRN
8-2 NEU
SPR
SPR
SPR
5-2 NEU
5-2 RLTA
5-2 YLTA
5-2 GLTA
EQG
PB2-1
NEU
PB4-2
PB6-2
NEU
PB4-1
PB2-2
NEU
PB8-1
PB6-1
NEU
PB8-2
P2-1 WLK
P2-1 NEU
P2-1 DWK
P6-1 WLK
P6-1 NEU
P6-1 DWK
D1-1
D2-1
D3-1
D4-1
D4-2
D4-3
D5-1
D6-1
D7-1
D8-1
D8-2
D8-3
SIGNAL
SERVICE
LUMINAIRE
P2-1
PB4-2 PB2-1
H.H.1
1,2,3,4,5,11,12,15,18,20,21,22,23
29
3,4,5,12,20,21,22,23
H.H.5
D5-1
3,4,5,12,
20,21,22
PB6-2 PB4-1
P4-1 P6-2
H.H.6
D4-2 D4-3
H.H.7
H.H.8
D4-1
H.H.2
H.H.3
H.H.4
D2-1
SERVICE CABINET
SIGNALS
NEUTRAL
LIGHTING
SIGNAL
SERVICE
LUMINAIRE
S.O.P.
H.H.19
29,30
H.H.9
D3-1
6,7,8,9,10,13,14,16,17,19,24,25,26,27,28
P8-1 P2-2
PB2-2 PB8-1
H.H.11
D8-2 D8-3
6,7,8,9,10,13,14,16,17,24,25,26,27,28,30
H.H.12
H.H.13
D1-1
H.H.14
H.H.16
H.H.17
H.H.20-F & I
H.H.21-F & I
D8-1
H.H.15
D7-1
H.H.18
D6-1
P6-1
PB6-1 PB8-2
NOTES:
1) NEW TERMINATIONS ON EXISTING CABLES ARE SHOWN IN BOLD PRINT.
2) ALL TRAFFIC SIGNAL CABLES ARE INPLACE AND SHALL EITHER BE REUSED INPLACE, OR UNCOILED FROM AN INPLACE HANDHOLE AND REUSED, AS SHOWN.
3) ALL HANDHOLES (EXCEPT FOR HANDHOLES 20 AND 21) AND ALL LOOP DETECTORS (EXCEPT FOR LOOP DETECTORS D3-1, D8-1, D8-2 AND D8-3) ARE INPLACE AND SHALL BE REUSED INPLACE.
CONDUCTOR COLOR CODING
12/c#12
R
O
BL
WH
R/BLK
O/BLK
BL/BLK
WH/BLK
BLK
BLK/WH
G/BLK
G
BLK
WH
2-1/c#10
R
WH
BLK
3/c#12
BLK
CLEAR
2/c#14
R OR O
WH OR YEL
BLK OR BL
3/c#20
NOTE:
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.
Fed. Project No.
BASE OVERLAY DRG. NO.
06-28-94 11:53 am
D:\GRADE\ANO940WD
NO. BY DATE REVISIONS
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: 6/24/94 Reg. No. 22457
SEH ENGINEERS ARCHITECTS PLANNERS
ANOKA COUNTY, MINNESOTA
CITY OF BLAINE
TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
MAIN STREET (CSAH 14) AT RADISSON ROAD (CO.RD.52)
FILE NO. ANOKC9404
DATE 6/24/94
S.A.P. S.P. C.P. 87-05-52
Sheet No. 23 of 37 Sheets

BASE | OVERLAY | DRG. NO.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQPT NOs.
SIGNAL BASE NO.
SIGNAL FACE NO.
LUMINAIRE NO.
CONTROLLER AND CABINET
CONTROLLER AND CABINET IN PLACE
HANDHOLE
HANDHOLE IN PLACE
RIGID STEEL CONDUIT (R.S.C.)
RIGID STEEL CONDUIT (R.S.C.) IN PLACE
SIGNAL FACE WITH BACKGROUND SHIELD
SIGNAL FACE W/O BACKGROUND SHIELD
SIGNAL FACE IN PLACE
PEDESTRIAN INDICATORS
PEDESTRIAN INDICATORS IN PLACE
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE
PEDESTRIAN PUSH BUTTON STATION
TRAFFIC SIGNAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL IN PLACE
TRAFFIC SIGNAL POLE AND MAST ARM
TRAFFIC SIGNAL POLE AND MAST ARM IN PLACE
STREET LIGHT POLE AND LUMINAIRE
STREET LIGHT POLE AND LUMINAIRE IN PLACE
MAST ARM AND LUMINAIRE
MAST ARM AND LUMINAIRE IN PLACE
WOOD POLE
WOOD POLE IN PLACE
SOURCE OF POWER
RAILROAD SIGNAL IN PLACE
RIGHT OF WAY LINE
CENTERLINE
EDGE OF ROADWAY
SHOULDERLINE
CURB LINE
STOP BAR
EMERGENCY VEHICLE PREEMPTION DETECTOR

ABBREVIATIONS
EQUIPMENT AND INDICATIONS

RED - RED
YEL - YELLOW
GRN - GREEN
WLK - WALK
NEU - NEUTRAL
DWK - DON'T WALK
LUM - LUMINAIRE
DNL - DOWNLIGHT
H.H. - HANDHOLE
EQG - EQUIPMENT GROUND
R.S.C. - RIGID STEEL CONDUIT
GLTA - GREEN LEFT TURN ARROW
YRTA - YELLOW RIGHT TURN ARROW
D2-1(eg) - DETECTOR-PHASE'2'
GR.R - GROUND ROD
SER. - SERVICE
P2 - 2 PEDESTRIAN INDICATIONS-PHASE "2"
2-1(eg) - SIGNAL HEADS-PHASE'2'
SPR. - SPARE CONNECTORS
N.M.C. - NON METALLIC CONDUIT
E.V.P. - EMERGENCY VEHICLE PRE-EMPTION
J.B. - JUNCTION BOX
W.P. - WOOD POLE
P.E.C. - PHOTOELECTRIC CELL
GTHA - GREEN THROUGH ARROW
PB2-2 (eg) - PEDESTRIAN PUSH BUTTONS-PHASE "2"
TDW - TELEPHONE DROP WIRE
S.O.P. - SOURCE OF POWER
H.P.S. - HIGH PRESSURE SODIUM
F & I - FURNISH AND INSTALL
R & S - REMOVE AND SALVAGE
Br.Gr. - BARE GROUND
EQG CONNECTION
SPLICE

STANDARD PLATES

	PLATE NO.	DESCRIPTION
*	8110 C	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
	8111 B	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
	8112 C	PEDESTAL FOUNDATION
	8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
	8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
*	8117 F	PRECAST CONCRETE HAND HOLE
	8118 C	SERVICE EQUIPMENT AND POLE
	8119 C	GROUND MOUNTED CABINET FOUNDATION
	8120 J	PA85 AND PA90 POLE FOUNDATION
	8121 C	TRANSFORMER BASE AND POLE BASE PLATE
	8122 C	PEDESTAL AND PEDESTAL BASE
*	8123 C	POLE AND MAST ARM
*	8124 D	MAST ARM SIGNAL HEAD MOUNTS
	8126 E	PA100 POLE FOUNDATION
	8130 D	SAW CUT LOOP DETECTORS
*	0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
	3124 B	METAL APRON CONNECTION
	3221 C	CORRUGATED STEEL PIPE COUPLING BAND
	7035 J	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
	7036 D	PEDESTRIAN CURB RAMP
	7100 F	CONCRETE CURB AND GUTTERS

* THESE STANDARD PLATES, AS APPROVED BY THE FHWA, SHALL APPLY TO THIS PROJECT.

CONDUCTOR COLOR CODE

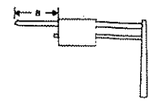
R - RED
O - ORANGE
BL - BLUE
WH - WHITE
R/BLK - RED WITH BLACK TRACER
O/BLK - ORANGE WITH BLACK TRACER
BL/BLK - BLUE WITH BLACK TRACER
WH/BLK - WHITE WITH BLACK TRACER
BLK - BLACK
BLK/WH - BLACK WITH WHITE TRACER
G/BLK - GREEN WITH BLACK TRACER
G - GREEN

Fed. Project No. _____

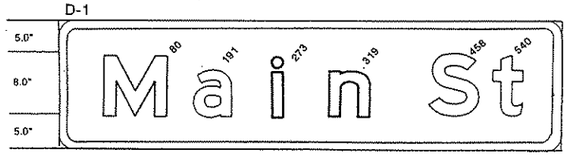
SIGN DETAILS

INSTALL TYPE "D" SIGNS (FURNISHED BY COUNTY)

SIGN PANEL	SIZE	NO. REQ.	NO. POSTS PER SIGN	POST SPACING	SQ.FT. PER SIGN	POLE NO.	a
D-1	66"x18"	1	2	42"	8.25	3	16'



D-1

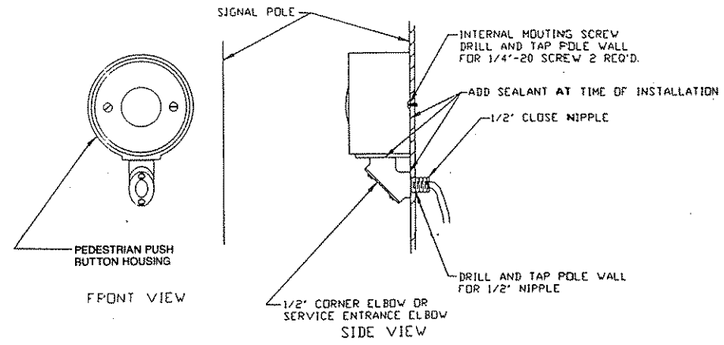


66" x 18", 3"R. 1.0"B.
LINE 1 49.2: 8"-6" E MOD.

NOTES:

1) COLOR- WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3) FOR STRUCTURAL DETAILS, TYPE D SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105B.
4) FOR TYPE D STRINGER AND PANEL JOINT DETAIL, SEE STANDARD MANUAL.
5) BRACKETING FOR COUNTY FURNISHED TYPE "D" SIGN PANEL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AND SHALL BE INCIDENTAL TO ITEM NO. 0565.604 FOR THIS SIGNAL SYSTEM.

PEDESTRIAN PUSH BUTTON DETAIL



NO.	BY	DATE	REVISIONS

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: 6/24/94 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITY OF BLAINE

TRAFFIC SIGNAL SYSTEM
DETAILS
MAIN STREET (CSAH 14) AT RADISSON ROAD (CO.RD.52)

FILE NO. ANOKC9404
DATE 6/24/94

S.A.P. _____ S.P. _____ C.P. 87-05-52

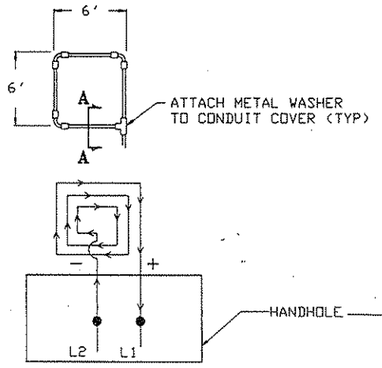
Sheet No. 24 of 37 Sheets

Fed. Project No. _____

BASE OVERLAY ORG. NO.

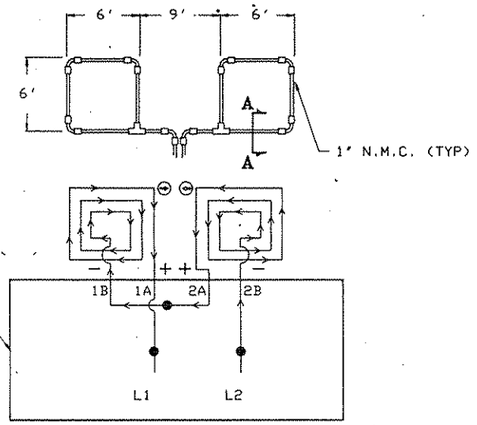
LOOP DETECTOR DETAIL 'A'

PLAN VIEW (NOT TO SCALE)
(LOOP PHASING FOR SINGLE CONNECTION)



LOOP DETECTOR DETAIL 'B'

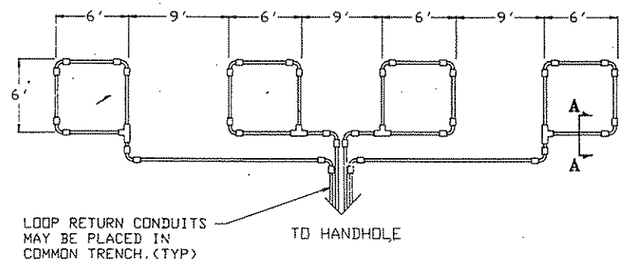
PLAN VIEW (NOT TO SCALE)
(LOOP PHASING FOR SERIES CONNECTION)

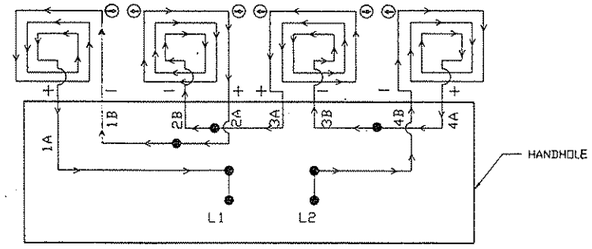


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:
L1 TO 1A, 1B TO 2A, AND 2B TO L2.

LOOP DETECTOR DETAIL 'C'

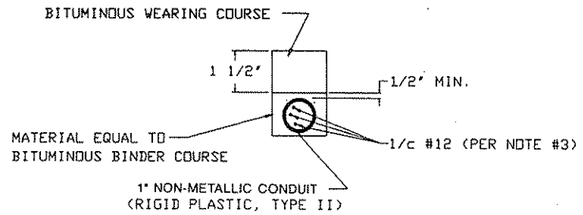
PLAN VIEW (NOT TO SCALE)
(LOOP PHASING FOR SERIES CONNECTION)



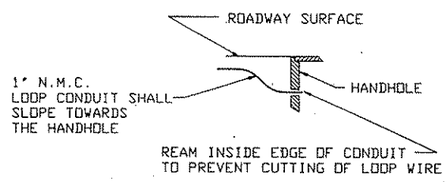


JP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS
L1 TO 1A, 1B TO 2A, 2B TO 3A, 3B TO 4A AND 4B TO L2.
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL
CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ETC.)

CROSS SECTION A-A



DRAINAGE DETAIL



LOOP DETECTOR WIRING

NOTES:

1) ALL CORNERS SHALL BE 90° CONDUIT BENDS
2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
3) LOOP DETECTOR WIRES SHALL BE # 12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
5) N.M.C. DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803).
6) LOOPS 6'x6' THRU 6'x 10' SHALL HAVE (4) TURNS.
7) LOOPS 6'x 10' THRU 6' x 14' SHALL HAVE (3) TURNS.
8) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.
9) A 1/2" CLOSED CELL FOAM BACKER ROD SHALL BE FURNISHED AND INSTALLED WITH THE LAST TURN OF WIRE IN THE 1" N.M.C. ASSEMBLY.

NO.	BY	DATE	REVISIONS

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: 6/24/94 Reg. No. 22457

ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITY OF BLAINE

TRAFFIC SIGNAL SYSTEM
LOOP DETECTOR DETAILS
MAIN STREET (CSAH 14) AT RADISSON ROAD (CO.RD.52)

FILE NO. ANOKC9404
DATE 6/24/94

S.A.P. _____ S.P. _____ C.P. 87-05-52

Sheet No. 25 of 37 Sheets

Fed. Proj. No.

911.8 479+25 910.31

RW RW

0 TEL

911.3 478+89 910.16

ENTRANCE

0 TEL

911.2 478+00 910.29

0 TEL

911.8 477+00 910.93

RW RW

0 TEL

912.2 476+50 912.15

10' 10'

NOTE: UTILITY ELEVATIONS ASSUMED, NOT ACTUAL.

911.8 481+50 910.81

RW RW

0 TEL

911.9 481+00 910.97

0 TEL

911.8 480+50 910.87

0 TEL

911.6 480+00 910.65

0 TEL

911.5 479+50 910.42

EXISTING GRADE PROFILE GRADE (GRADING GRADE)

RW RW

0 TEL

CROSS-SECTIONS

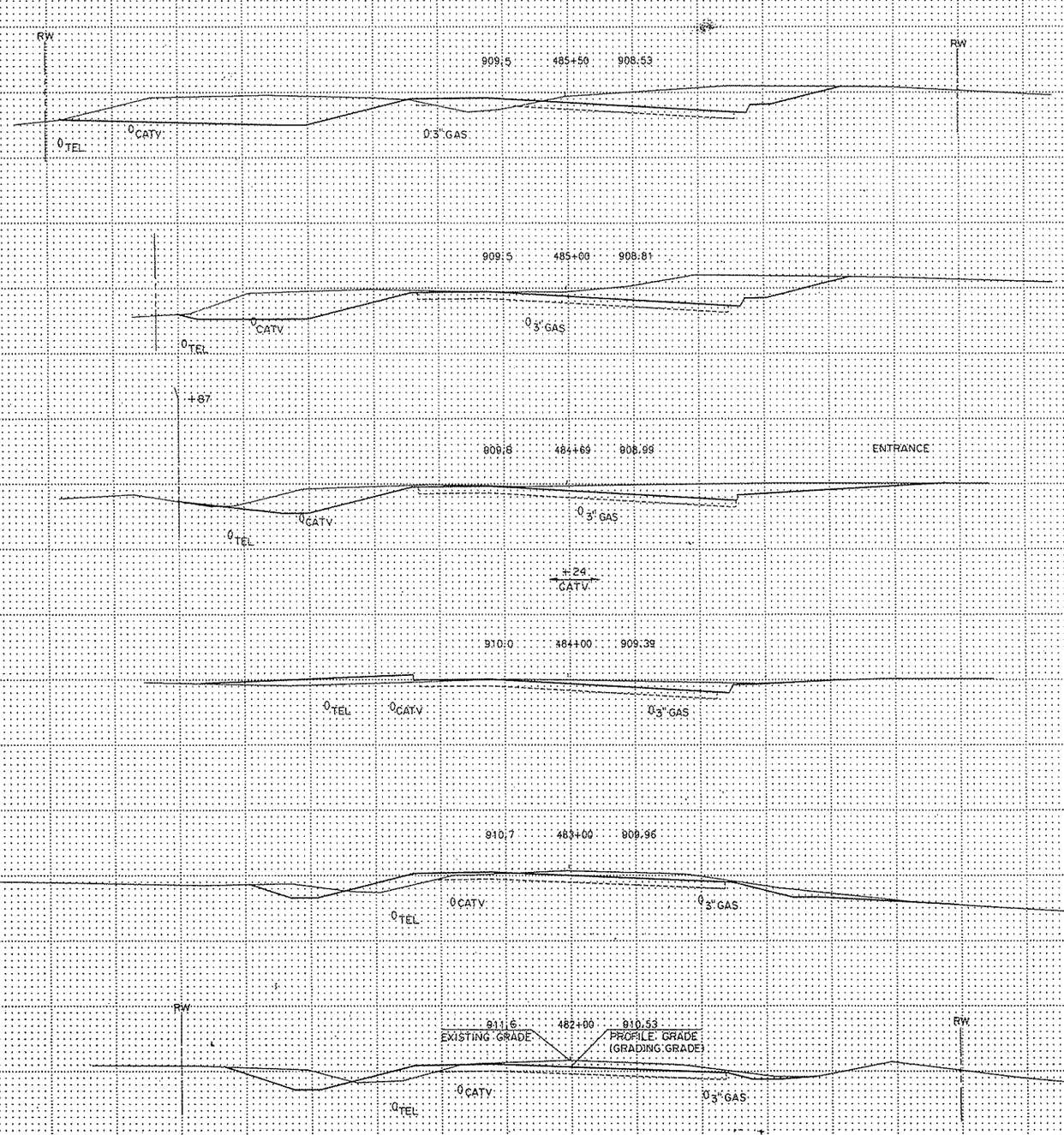
STA. 476+50 TO STA. 481+50

State Proj. No. 87-05-52

Sheet No. 26 of 37 Sheets

Copy Equipment Form #1H 853725

Fed. Proj. No.

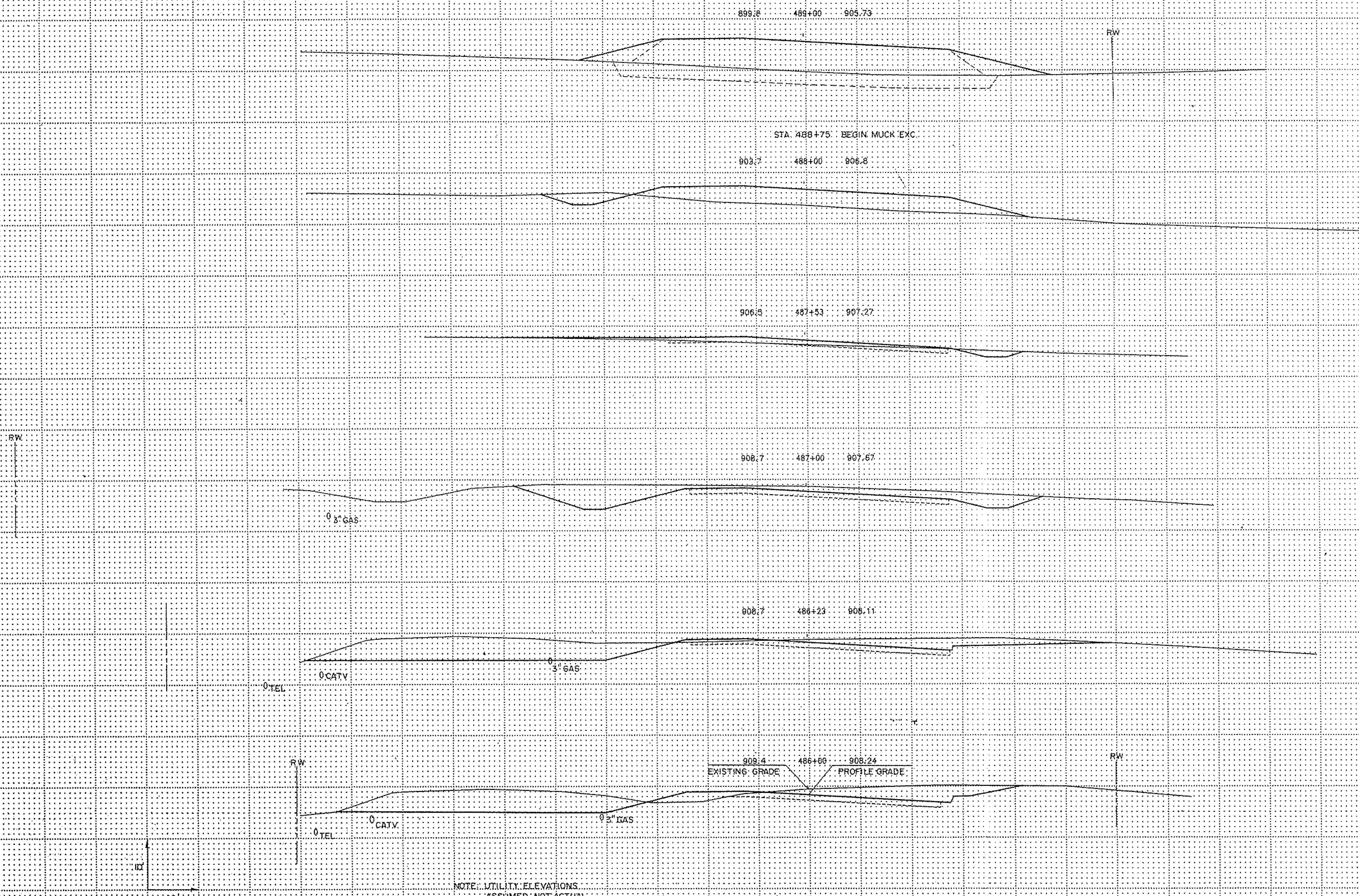


NOTE: UTILITY ELEVATIONS ASSUMED, NOT ACTUAL.

CROSS - SECTIONS
STA 482+00 TO STA 485+50

State Proj. No. C.P. 87-05-52 **Sheet No.** 27 **of** 37 **Sheets**

Fed. Proj. No.



NOTE: UTILITY ELEVATIONS ASSUMED, NOT ACTUAL.

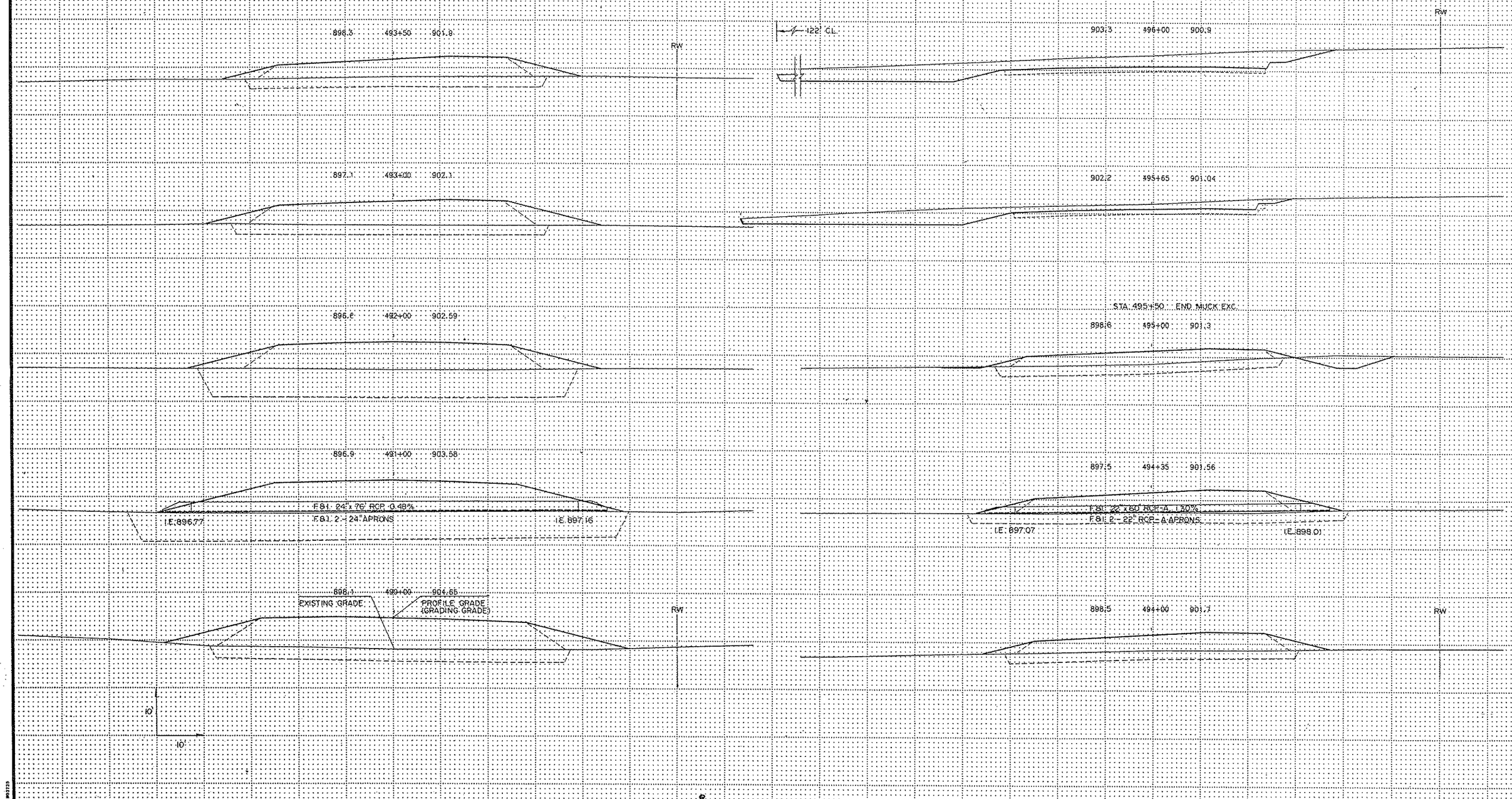
CROSS-SECTIONS

STA. 486+00 TO STA. 489+00

State Proj. No. C.P. 87-05-52

Sheet No. 28 of 37 Sheets

Fed. Proj. No.

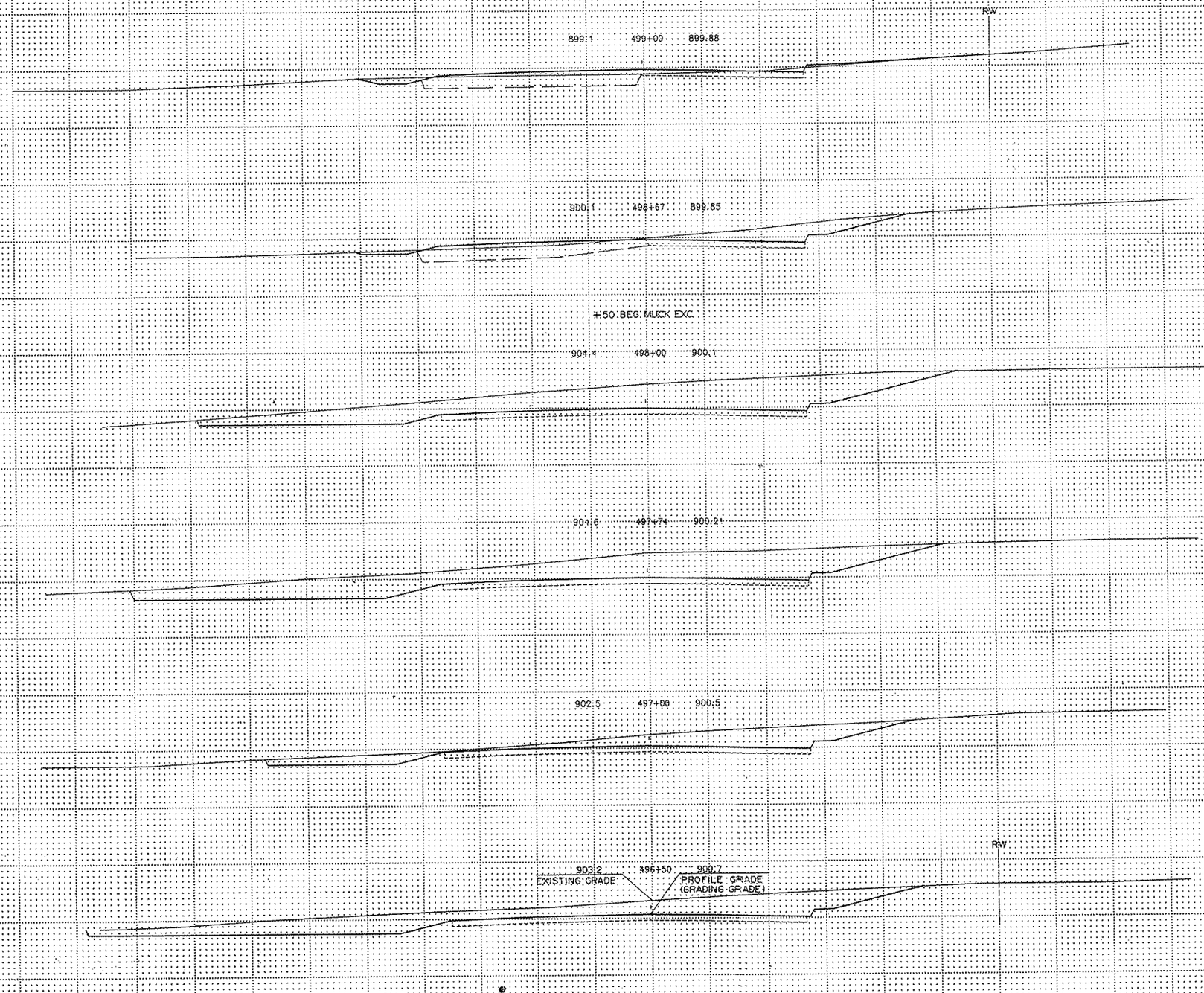


CROSS - SECTIONS
STA. 490+00 TO STA. 496+00

State Proj. No. C.P. 87-05-52

Sheet No. 29 **of** 37 **Sheets**

Fed. Proj. No.



CROSS-SECTIONS

STA. 496+50 TO STA. 499

State Proj. No. C.P. 87-05-52

Sheet No. 30 **of** 37 **Shee**

Fed. Project No. _____

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STAGE 1	QTY. STAGE 2	QTY. STAGE 3
FLASHER TYPE 'A'					
R11-2	48"x30"	ROAD CLOSED	5	5	7
TYPE III	8 FT.		5	5	5
TYPE III	8 FT.		8	8	6
FLASHER TYPE 'A'					
W20-3	48"x48"	ROAD CLOSED AHEAD			1
FLASHER TYPE 'A'					
W21-4	48"x48"	ROAD WORK AHEAD	7	7	4
FLASHER TYPE 'A'					
W21-X1	48"x48"	NO SHOULDER	1	AS REQUIRED	AS REQUIRED
G20-2	60"x24"	END CONSTRUCTION	3	3	2

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STAGE 1	QTY. STAGE 2	QTY. STAGE 3
FLASHER TYPE 'A'					
W8-1A	48"x48"	BUMP AHEAD		AS REQUIRED	AS REQUIRED
FLASHER TYPE 'A'					
W8-1B	48"x48"	BUMP		4	
FLASHER TYPE 'A'					
W8-1B	48"x48"	PAVEMENT ENDS		AS REQUIRED	AS REQUIRED
FLASHER TYPE 'A'					
W8-1B	48"x48"	LOOSE GRAVEL		AS REQUIRED	AS REQUIRED
FLASHER TYPE 'A'					
W8-1B	48"x48"	LOW SHOULDER		AS REQUIRED	AS REQUIRED
FLASHER TYPE 'A'					
W8-1B	48"x48"	DEAD END			1
REBOUNDABLE DRUM			8	53	25

STANDARD TRAFFIC CONTROL NOTES

1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2) ALL BARRICADES AND SIGNS SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B'.
6) ADDITIONS OR CHANGES TO THIS PLAN MADE BE MADE AS DETERMINED BY THE ENGINEER.

REVISIONS

DATE	BY	DATE	BY

CERTIFIED BY Douglas M. Fincham P.E. REG NO. 20235 9/22 19 94

S.P. _____ S.A.P. _____ C.P. 87-05-52

QUANTITY SHEET
TRAFFIC CONTROL