

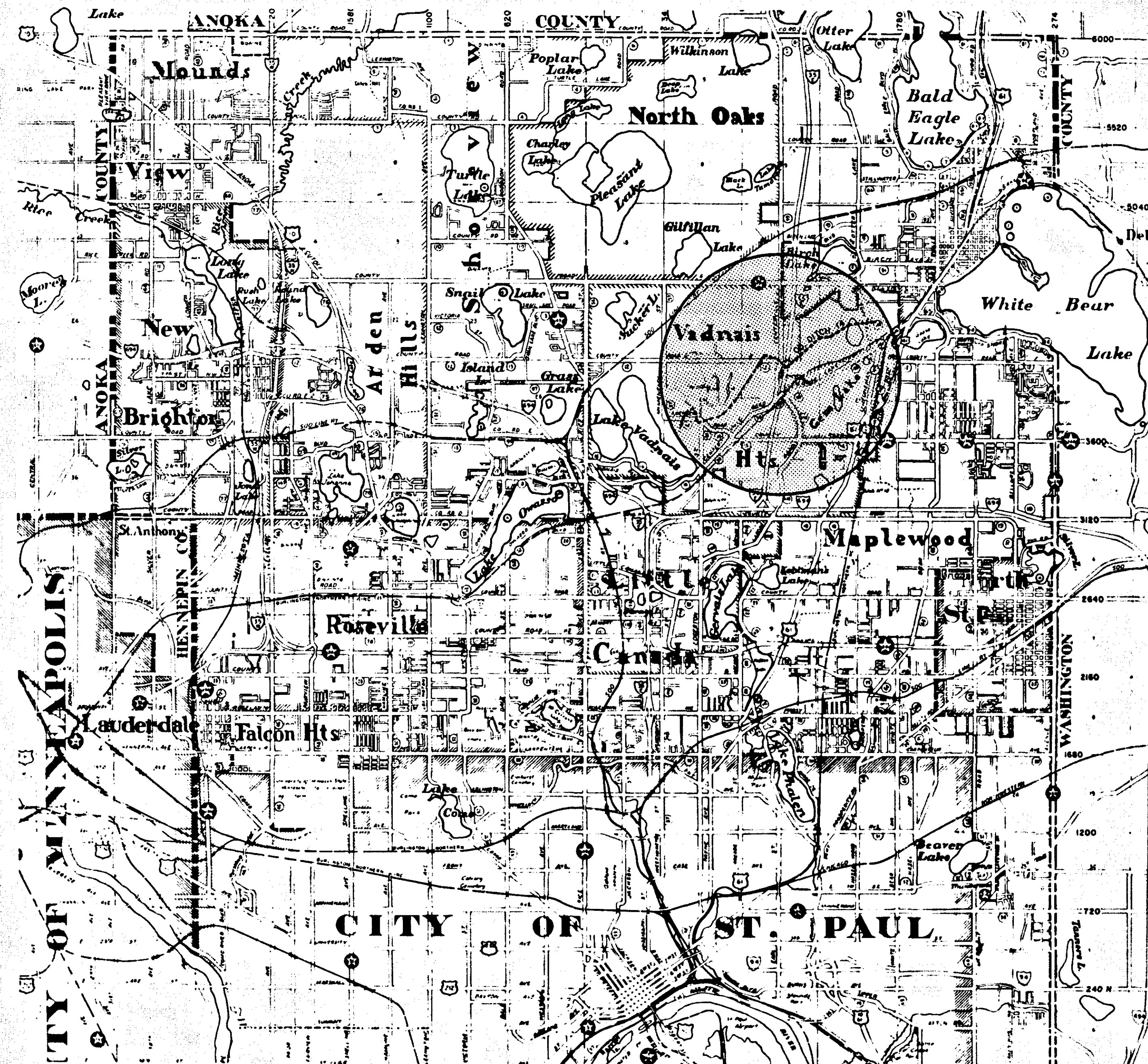
RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLANS FOR GRADING, EXCAVATION, CULVERT
INSTALLATION AND RESTORATION OF COUNTY DITCH 14

COUNTY DITCH NO. 14
IMPROVEMENT PROJECT

FROM : A POINT 350 FEET SOUTHWESTERLY OF THE WESTERLY
CROSSING OF COUNTY DITCH 14 AND KOEHLER ROAD IN
THE CITY OF VADNAIS HEIGHTS

TO : THE POINT OF INTERSECTION OF COUNTY DITCH 14 AND
OTTER LAKE ROAD IN THE TOWN OF WHITE BEAR

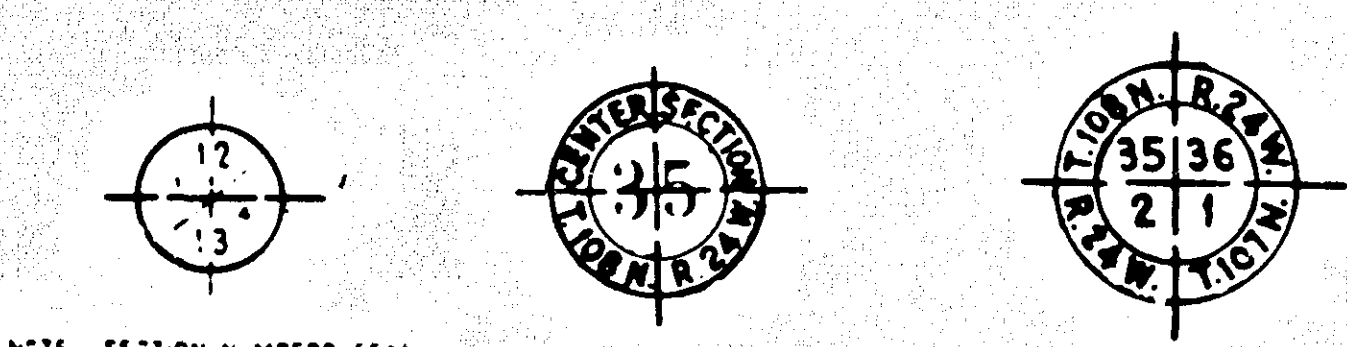


PLANS SYMBOLS

STATE LINE	SPRINGS
COUNTY LINE	MARSH
TOWNSHIP OR RANGE LINE	TIMBER
SECTION LINE	ORCHARD
QUARTER LINE	BRUSH
SIXTEENTH LINE	NURSERY
RIGHT OF WAY LINE	CATCH BASIN
PRESENT RIGHT OF WAY LINE	FIRE HYDRANT
CONTROL OF ACCESS LINE	CATTLE GUARD
PROPERTY LINE (Except Land Lines)	OVERPASS (Highway Over)
VACATED PLATTED PROPERTY	UNDERPASS (Highway Under)
CORPORATE OR CITY LIMITS	BRIDGE
TRUNK HIGHWAY CENTER LINE	BUILDING (One Story Frame)
RETAINING WALL	F FRAME C CONCRETE
RAILROAD	S STONE T TILE
RAILROAD RIGHT OF WAY LINE	B BRICK ST STUCCO
RIVER OR CREEK	IRON PIPE OR ROD
DRY RUN	MONUMENT (STONE, CONCRETE, OR METAL)
DRAINAGE DITCH	WOODEN HUB
DRAIN TILE	GRAVEL PIT
CULVERT	SAND PIT
DROP INLET	BORROW PIT
GUARD RAIL	ROCK QUARRY
BARBED WIRE FENCE	
WOVEN WIRE FENCE	
CORBIN LINK FENCE	
RAILROAD SNOW FENCE	
STONE WALL OR FENCE	
HEDGE	
RAILROAD CROSSING SIGN	
RAILROAD CROSSING BELL	
ELECTRIC WARNING SIGN	
CROSSING GATE	
MEANDER CORNER	

UTILITIES SYMBOLS

POWER POLE LINE	CONDUIT
TELEPHONE OR TELEGRAPH POLE LINE	TELEPHONE CABLE IN CONDUIT
JOINT TELEPHONE AND POWER OR POWER POLES OR TELEPHONE POLES	ELECTRIC CABLE IN CONDUIT
ANCHOR	TELEPHONE MANHOLE
STEEL TOWER	ELECTRIC MANHOLE
STREET LIGHT	BURIED TELEPHONE CABLE
PEDESTAL TELEPHONE CABLE TERMINAL	BURIED ELECTRIC CABLE
GAS MAIN	AERIAL TELEPHONE CABLE
WATER MAIN	SEWER (SANITARY OR STORM)
	SEWER MANHOLE



NOTE SECTION NUMBERS SEE FROM THE SCALE

PIT DATA

PIT NO. _____ Located in _____
Dead Maul _____

PIT NO. _____ Located in _____
Dead Maul _____

DESIGN SQUAD GET DATE 8/21/81
DRAWN BY PK DATE 8/21/81
CHECKED BY DBS DATE 8/24/81

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 9/29/81 REG. NO. 11659 ENGR. David J. Hecht

RECOMMENDED FOR APPROVAL PK DATE 5-12-81 RECOMMENDED FOR APPROVAL Keneth Elveth DATE 8-25-81
TRAFFIC ENGR. COUNTY ENGINEER
RECOMMENDED FOR APPROVAL DBS DATE 8-21-81 APPROVED Robert F. Smith DATE 8-25-81
ENV ENGR. CHAIRMAN OF THE RAMSEY COUNTY BOARD
RECOMMENDED FOR APPROVAL MSSX DATE 8-20-81 APPROVED _____ DATE _____
SEWER ENGR. MAYOR OF THE CITY OF GEM LAKE
RECOMMENDED FOR APPROVAL D.M. DATE 8-16-81 APPROVED Robert N. Hohmann DATE 8-6-81
CONST. ENGR. MAYOR OF THE CITY OF VADNAIS HEIGHTS
RECOMMENDED FOR APPROVAL LKF DATE 8-19-81 APPROVED _____ DATE _____
DESIGN ENGR. MAYOR OF THE CITY OF WHITE BEAR LAKE
RECOMMENDED FOR APPROVAL MDP DATE 8-20-81 APPROVED Richard Sand DATE 8-11-81
PROV ENGR. CHAIRMAN OF THE TOWNSHIP OF WHITE BEAR
APPROVED Walter L. Smith DATE 8-20-81 APPROVED _____ DATE _____
COORDINATING ENGR.

PLAN REVISIONS		
DATE	SHEET NO.	BY
4/16/81	2, 3, 5, 9, 11, 12, 13, 15, 19	DBS
		GET

THE 1978 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" SHALL GOVERN.

ENGINEERS ESTIMATE

STATEMENT OF ESTIMATED QUANTITIES					
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITIES	ESTIMATED UNIT COST	ESTIMATED ITEM COST
2021.501	MOBILIZATION	LUMP SUM	1	5520.00	5520.00
2101.502	CLEARING	TREE	835	20.00	16,700.00
2101.507	GRUBBING	TREE	835	20.00	16,700.00
2104.521	SALVAGE PLATE BEAM TRAFFIC BARRIER	L.F.	80	2.02	162.40
2105.505	MUCK EXCAVATION	C.Y.	3,022	5.00	15,110.00
2105.511	COMMON CHANNEL EXCAVATION	C.Y.	13,215	3.50	46,252.50
2105.523	COMMON BORROW (L.V.)	C.Y.	265	2.85	755.25
2505.525	TOPSOIL BORROW (L.V.)	C.Y.	100	7.70	770.00
2221.501	AGGREGATE SHOULDERING, CLASS 2	TON	27	5.00	135.00
2211.501	AGGREGATE BASE, CLASS 5	TON	353	5.00	1765.00
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	7.0	225.00	1575.00
2341.508	WEARING COURSE MIXTURE	TON	64	35.00	2240.00
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	203	1.10	223.30
2341.515	BINDER COURSE MIXTURE	TON	64	29.00	1856.00
2451.507	GRANULAR BEDDING	C.Y.	70	9.47	662.90
2501.511	42" R.C. PIPE CULVERT, CL II (0-10' DEPTH)	L.F.	70	50.00	3500.00
2501.511	54" R.C. PIPE CULVERT, CL V (10-15' DEPTH)	L.F.	59	110.00	6490.00
2501.511	54" R.C. PIPE CULVERT, CL V (15-20' DEPTH)	L.F.	92	150.00	13,800.00
2501.511	54" R.C. PIPE CULVERT, CL V (20-25' DEPTH)	L.F.	104	190.00	19,760.00
2501.511	54" R.C. PIPE CULVERT, CL V (25-30' DEPTH)	L.F.	54	230.00	12,420.00
2501.515	42" R.C. PIPE APRONS	EACH	2	730.00	1460.00
2501.521	73" SPAN R.C. PIPE ARCH CULVERT, CL II (0-10' DEPTH)	L.F.	35	150.00	5250.00
2501.525	73" SPAN R.C. PIPE ARCH APRONS	EACH	2	1386.00	2772.00
2501.511	54" R.C. PIPE CULVERT, CL II (0-10' DEPTH)	L.F.	68	85.00	5780.00
2501.515	54" R.C. PIPE APRONS	Ea.	6	1115.00	6690.00
2535.501	BITUMINOUS CURB	L.F.	54	2.50	135.00
554.603	INSTALL PLATE BEAM TRAFFIC BARRIER	L.F.	80	5.12	410.40
2575.501	ROADSIDE SEEDING	ACRE	8.3	220.00	1826.00
2575.502	SEEDING MIXTURE 5	LB.	420	2.88	1209.60
2575.511	MULCH MATERIAL, TYPE 5	TON	83	351.07	29128.81
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON	1.45	300.00	435.00
2815.505	Soil	Sq. Yd.	300	1.75	525.00
BY OTHERS					
2501.511	36" R.C. PIPE CULVERT, CL II (0-10' DEPTH)	L.F.	148	47.00	6,976.00
2501.515	36" R.C. PIPE APRONS	Ea.	4	490.00	1960.00
2511.501	RANDOM RIPRAP, CL A	C.Y.	40	25.00	1,000.00
			TOTAL =		\$ 205,539.00

STANDARD DETAIL PLATES	
0003 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 I	REINFORCED CONCRETE PIPE
3006 C	GASKET JOINT FOR R.C. PIPE
3014 H	REINFORCED CONCRETE PIPE ARCH DETAIL
3100 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 D	CONCRETE APRON FOR REINFORCED CONCRETE PIPE ARCH
3145 A	CONCRETE PIPE JOINT TIES
8000 H	STANDARD BARRICADES
9102 C	SEEDING AT PIPE CULVERT INVERTS

VOTE %

46.91%

14.21%

6.37%

32.51%

PONDING EASEMENTS (CITY OF WHITE BEAR LAKE)

TOTAL CONSTRUCTION COSTS

ENGINEERING COSTS

COST SHARE BREAKDOWN

CITY OF VADNAIS HEIGHTS - 33.17% X

TOWN OF WHITE BEAR - 10.78% X

CITY OF GEM LAKE - 5.64% X

CITY OF WHITE BEAR LAKE - 31.92% X

RAMSEY COUNTY R/W - 5.41% X

STATE R/W - 13.08% X

\$ 131,340.00

\$ 205,539.00

\$ 20,553.00

TOTAL PROJECT COSTS \$ 357,432.00

\$ 118,560.00

\$ 38,531.00

\$ 20,159.00

\$ 114,092.00

\$ 19,337.00

\$ 46,752.00

7/20/01
JST

STATEMENT OF ESTIMATED QUANTITIES				SHAFFER CONTR.		CROSSINGS INC.		PARK CONST.		W. J. EBERTZ		C.W. HOULE		C.S. McCROSSAN						
ITEM NO	ITEM	UNIT	ESTIMATED QUANTITIES	AVERAGE 3 LOWEST BIDDERS	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
2021.501	MOBILIZATION	LUMP SUM	1	11,916.67	10,000.00	10,000.00	3000.00	3000.00	22,750.00	22,750.00	12,000.00	12,000.00	12,525.00	12,525.00	9500.00	9500.00				
2101.502	CLEARING	TREE	835	1.36	25.00	20,875.00	40.00	33,400.00	45.00	37,575.00	45.00	37,575.00	35.00	29,225.00	55.00	45,925.00				
2101.507	GRUBBING	TREE	835	36.00	25.00	20,875.00	40.00	33,400.00	43.00	35,905.00	20.00	25,050.00	30.00	25,050.00	35.00	29,225.00				
2104.521	SALVAGE PLATE BEAM TRAFFIC BARRIER	L.F.	80	3.50	3.00	240.00	5.00	400.00	2.50	200.00	3.00	240.00	2.50	200.00	5.50	440.00				
2105.505	MUCK EXCAVATION	C.Y.	3,022	2.18	1.75	5288.50	2.80	8461.60	2.20	6644.00	4.60	13,901.20	3.20	9,660.00	7.80	23,813.36				
2105.511	COMMON CHANNEL EXCAVATION	C.Y.	13,215	1.67	1.75	23,126.25	1.30	17,179.50	1.80	23,787.00	3.40	44,931.00	2.25	29,733.75	7.80	104,134.20				
2105.523	COMMON BORROW (L.V.)	C.Y.	265	5.83	4.50	1192.50	3.00	795.00	4.00	1,060.00	3.80	1,007.00	6.20	1,530.00	4.00	1,060.00				
2505.525	TOPSOIL BORROW (L.V.)	C.Y.	100	5.81	7.00	700.00	6.00	600.00	4.40	442.00	6.50	650.00	7.00	700.00	6.00	600.00				
2221.501	AGGREGATE SHOULDERING, CLASS 2	TON	27	7.67	10.00	270.00	6.00	162.00	7.00	189.00	23.00	621.00	12.00	324.00	12.00	324.00				
2211.501	AGGREGATE BASE, CLASS 5	TON	353	6.67	6.00	2118.00	7.00	2471.00	7.00	2471.00	14.00	4942.00	7.00	2471.00	8.00	2824.00				
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	7.0	232.67	190.00	1330.00	300.00	2100.00	208.00	1456.00	220.00	1540.00	185.00	1295.00	200.00	1400.00				
2341.508	WEARING COURSE MIXTURE	TON	64	24.82	23.95	1532.80	30.00	1920.00	20.50	1312.00	4.00	254.00	40.00	2560.00	35.00	2240.00				
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	20.3	17.1	2.00	40.60	1.80	36.54	2.10	42.63	2.25	45.68	2.00	40.60	2.00	40.60				
2341.510	BINDER COURSE MIXTURE	TON	64	24.72	22.65	1449.60	30.00	1920.00	21.50	1376.00	4.00	254.00	4.00	2560.00	35.00	2240.00				
2451.507	GRANULAR BEDDING	C.Y.	70	9.00	9.00	630.00	11.00	770.00	6.30	483.00	14.00	980.00	12.00	840.00	15.00	1050.00				
2501.511	42" R.C. PIPE CULVERT, CL II (0-10' DEPTH)	L.F.	70	91.33	60.00	4200.00	98.00	6860.00	116.00	8120.00	95.00	6650.00	329.00	23030.00	80.00	5600.00				
2501.511	54" R.C. PIPE CULVERT, CL V (10'-15' DEPTH)	L.F.	59	757.33	145.00	8555.00	130.00	7670.00	197.00	11623.00	190.00	11210.00	245.00	14455.00	145.00	8555.00				
2501.511	54" R.C. PIPE CULVERT, CL V (15'-20' DEPTH)	L.F.	92	162.33	145.00	13340.00	140.00	12960.00	202.00	18584.00	225.00	20700.00	255.00	23460.00	160.00	14720.00				
2501.511	54" R.C. PIPE CULVERT, CL V (20'-25' DEPTH)	L.F.	104	166.67	145.00	15080.00	150.00	15600.00	205.00	21320.00	235.00	24680.00	265.00	27860.00	190.00	19760.00				
2501.511	54" R.C. PIPE CULVERT, CL V (25'-30' DEPTH)	L.F.	54	171.67	145.00	7830.00	160.00	8640.00	210.00	11340.00	352.00	19008.00	315.00	17010.00	220.00	11880.00				
2501.515	42" R.C. PIPE APRONS	EACH	2	628.33	650.00	1300.00	600.00	1200.00	635.00	1270.00	965.00	1930.00	1100.00	2200.00	1280.00	2560.00				
2501.521	73" SPAN R.C. PIPE ARCH CULVERT, CL II (0'-10' DEPTH)	L.F.	35	165.33	130.00	4550.00	150.00	5250.00	210.00	7350.00	242.00	8470.00	230.00	8050.00	280.00	7000.00				
2501.525	73" SPAN R.C. PIPE ARCH APRONS	EACH	2	1033.33	1100.00	2200.00	900.00	1800.00	1100.00	2200.00	1300.00	2600.00	1400.00	2800.00	2200.00	4400.00				
2501.511	54" R.C. PIPE CULVERT, CL V (0-10' DEPTH)	L.F.	68	154.33	145.00	9860.00	130.00	8940.00	194.00	13192.00	175.00	11900.00	225.00	15340.00	130.00	8940.00				
2501.515	54" R.C. PIPE APRONS	EA.	6	825.00	850.00	5100.00	800.00	4800.00	825.00	4950.00	1320.00	7920.00	1200.00	7200.00	1500.00	9000.00				
2535.501	BITUMINOUS CURB	L.F.	54	3.83	3.50	189.00	4.00	216.00	4.00	216.00	3.00	162.00	10.00	540.00	5.00	270.00				
554.603	INSTALL PLATE BEAM TRAFFIC BARRIER	L.F.	80	5.50	6.00	480.00	5.00	400.00	5.50	440.00	3.00	240.00	6.00	480.00	5.50	440.00				
2575.501	ROADSIDE SEEDING	ACRE	8.3	161.47	250.00	2075.00	120.00	996.00	114.40	949.52	350.00	2905.00	600.00	4980.00	120.00	996.00				
2575.502	SEEDING MIXTURE 5	LB.	420	1.68	1.50	630.00	1.60	672.00	1.93	810.60	1.80	420.00	2.00	840.00	2.05	861.00				
2575.511	MULCH MATERIAL, TYPE 5	TON	8.3	383.33	370.00	3071.00	380.00	3154.00	400.00	3320.00	200.00	1660.00	200.00	1600.00	425.00	3527.50				
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON	1.45	329.07	350.00	507.50	320.00	464.00	317.20	459.74	200.00	290.00	200.00	280.00	335.00	483.75				
2575.505	SOD	SQ. YD.	300	2.24	2.70	810.00	2.30	690.00	1.72	516.00	1.00	300.00	3.00	900.00	1.80	540.00				
				CONTRACTORS TOTAL		169,445.75		186,741.55		241,963.69		264,815.88		268,935.35		329,291.41				
												276,815.88				324,431.42				

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO	ITEM	UNIT	ESTIMATED QUANTITIES	FINAL ESTIMATED QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	1	
2101.502	CLEARING	TREE	835	
2101.507	GRUBBING	TREE	835	
2104.521	SALVAGE PLATE BEAM TRAFFIC BARRIER	L.F.	80	
2105.505	MUCK EXCAVATION	C.Y.	3,022	
2105.511	COMMON CHANNEL EXCAVATION	C.Y.	13,215	
2105.523	COMMON BORROW (L.V.)	C.Y.	265	
2505.525	TOPSOIL BORROW (L.V.)	C.Y.	100	
2221.501	AGGREGATE SHOULDERING, CLASS 2	TON	27	
2211.501	AGGREGATE BASE, CLASS 5	TON	353	
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	7.0	
2341.508	WEARING COURSE MIXTURE	TON	64	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	203	
2341.510	BINDER COURSE MIXTURE	TON	64	
2451.507	GRANULAR BEDDING	C.Y.	70	
2501.511	42" R.C. PIPE CULVERT, CL II (0-10' DEPTH)	L.F.	70	
2501.511	54" R.C. PIPE CULVERT, CL V (10'-15' DEPTH)	L.F.	59	
2501.511	54" R.C. PIPE CULVERT, CL V (15'-20' DEPTH)	L.F.	92	
2501.511	54" R.C. PIPE CULVERT, CL V (20'-25' DEPTH)	L.F.	104	
2501.511	54" R.C. PIPE CULVERT, CL V (25'-30' DEPTH)	L.F.	54	
2501.515	42" R.C. PIPE APRONS	EACH	2	
2501.521	73" SPAN R.C. PIPE ARCH CULVERT, CL II (0-10' DEPTH)	L.F.	35	
2501.525	73" SPAN R.C. PIPE ARCH APRONS	EACH	2	
2501.511	54" R.C. PIPE CULVERT, CL V (0-10' DEPTH)	L.F.	68	
2501.515	54" R.C. PIPE APRONS	EA.	6	
2535.501	BITUMINOUS CURB	L.F.	54	
554.603	INSTALL PLATE BEAM TRAFFIC BARRIER	L.F.	80	
2575.501	ROADSIDE SEEDING	ACRE	8.3	
2575.502	SEEDING MIXTURE 5	LB.	420	
2575.511	MULCH MATERIAL, TYPE 5	TON	8.3	
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON	1.45	
2575.505	SOD	SQ. YD.	300	

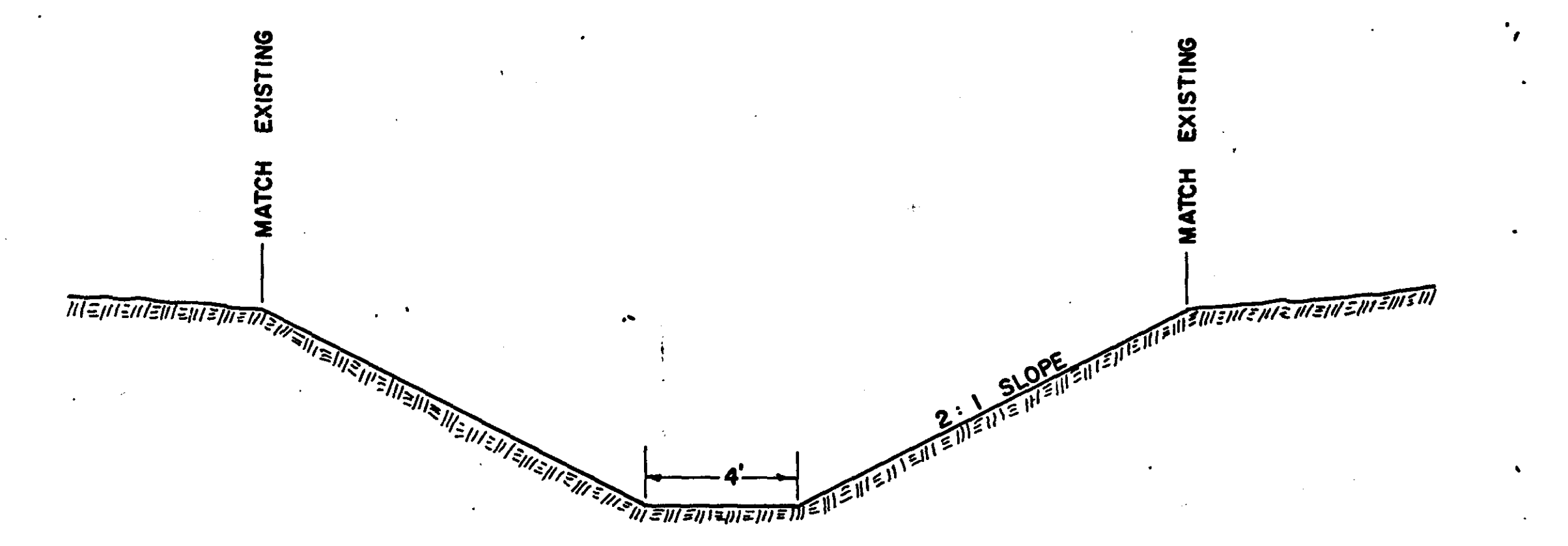
NOTE: ALL WORK DONE BY CONTRACTOR SHALL BE CONFINED WITHIN CONSTRUCTION LIMITS.

ALL EXCAVATED MATERIALS TO BE DEPOSITED AND GRADED ON ADJACENT SLOPE AREAS WITHIN CONSTRUCTION LIMITS.

NOTE: ALL CONCRETE APRONS SHALL HAVE A 50' TRANSITION FROM TYPICAL DITCH SECTION TO END OF APRON, WITH MAXIMUM 2.5:1 SIDE SLOPES AT END OF APRON.

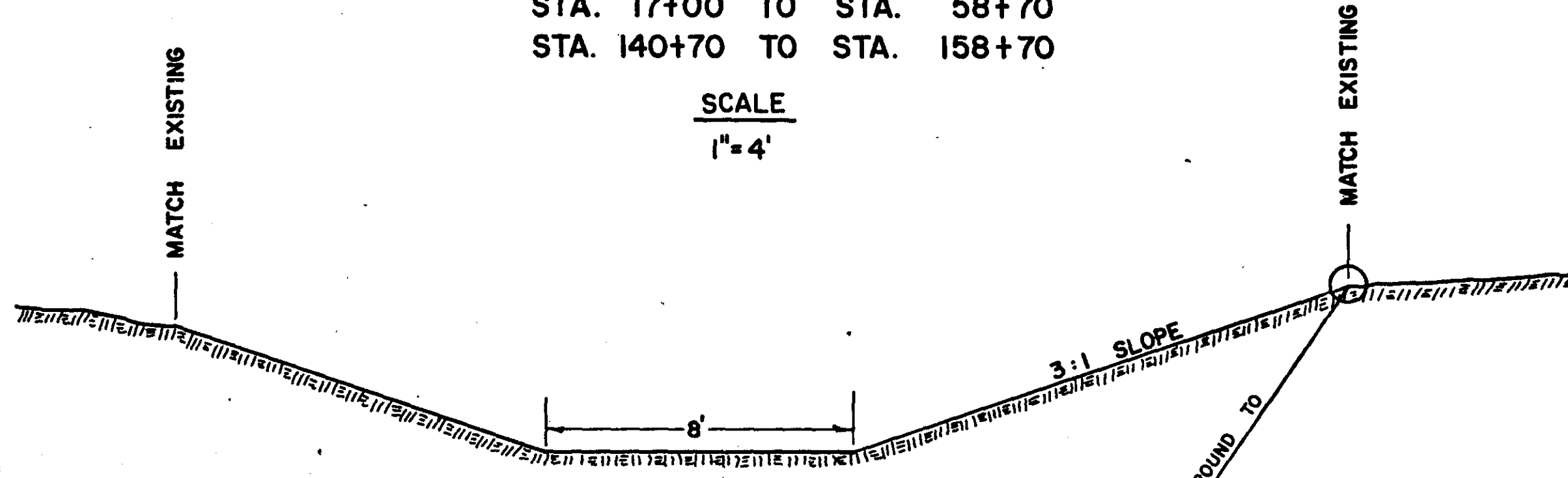
STANDARD DETAIL PLATES

ITEM NO	ITEM	ITEM NO	ITEM
0003 A	SPECIFICATION REFERENCE TO STANDARD PLATES		
3000 I	REINFORCED CONCRETE PIPE		
3006 C	GASKET JOINT FOR R.C. PIPE		
3014 H	REINFORCED CONCRETE PIPE ARCH DETAIL		
3100 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE		
3110 D	CONCRETE APRON FOR REINFORCED CONCRETE PIPE ARCH		
3145 A	CONCRETE PIPE JOINT TIES		
8000 H	STANDARD BARRICADES		
9102 C	SODDING AT PIPE CULVERT INVERTS		



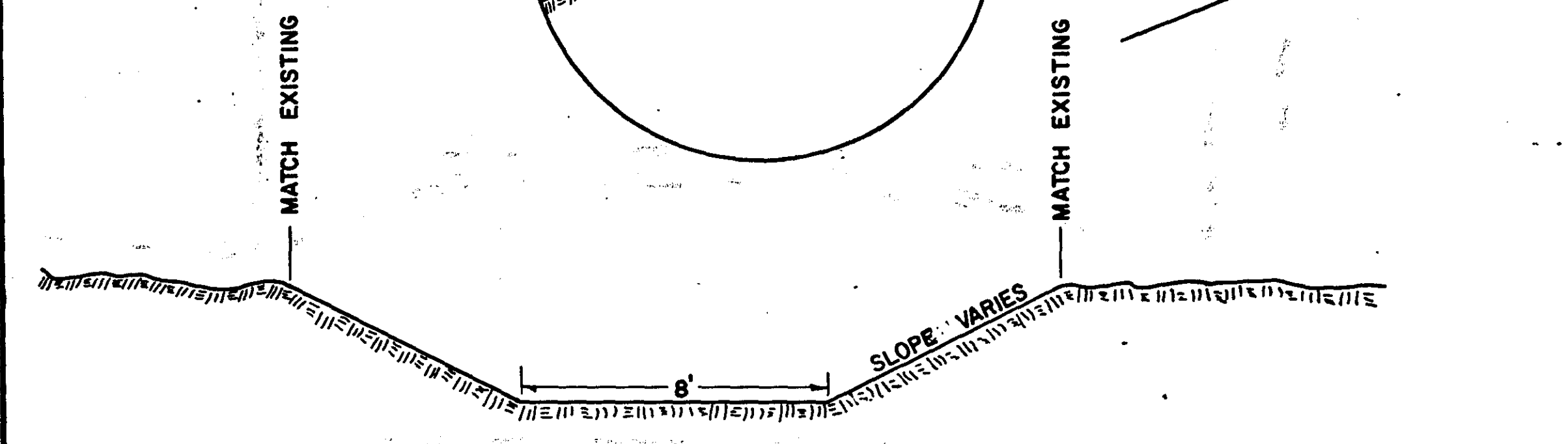
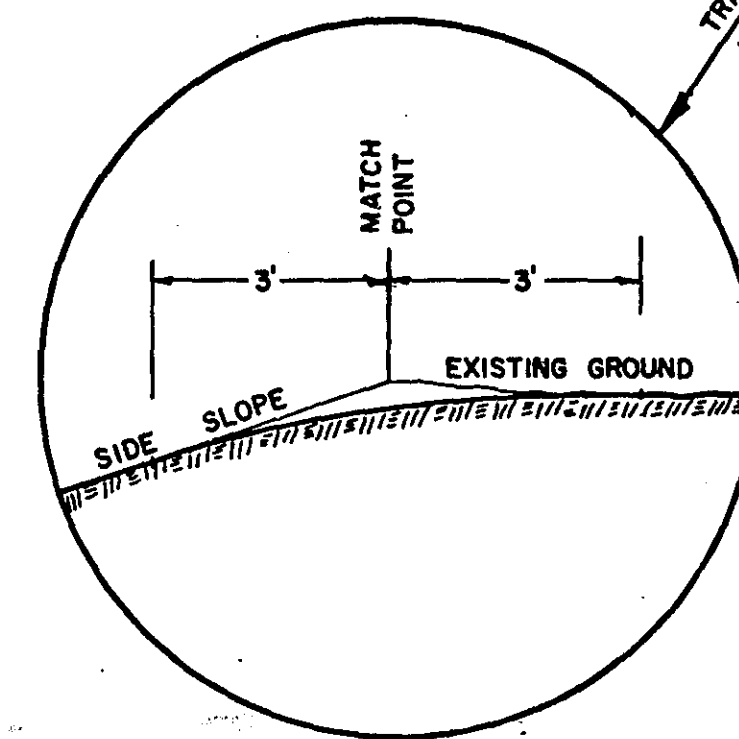
TYPICAL DITCH SECTION
STA. 17+00 TO STA. 58+70
STA. 140+70 TO STA. 158+70

SCALE
1" = 4'



TYPICAL DITCH SECTION
STA. 92+70 TO STA. 99+55

SCALE
1" = 4'

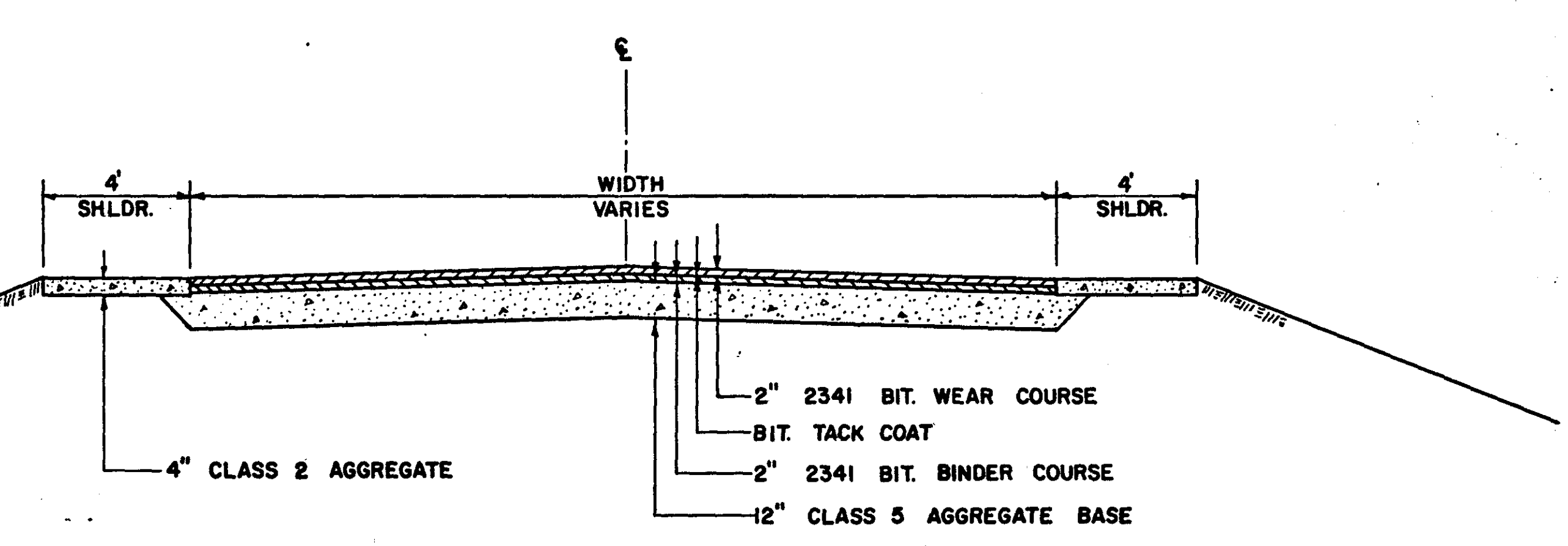


TYPICAL DITCH SECTION
THRU MARSH AREA

STA. 58+70 TO STA. 92+70
STA. 176+00 TO STA. 189+08

SCALE
1" = 4'

NOTE: ALL OPEN CUT SECTIONS ACROSS EXISTING ROADWAYS SHALL BE SAW-CUT.

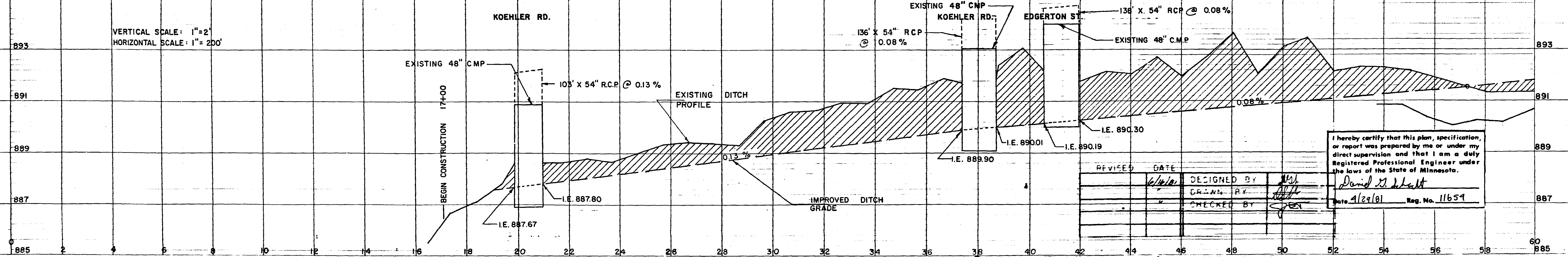
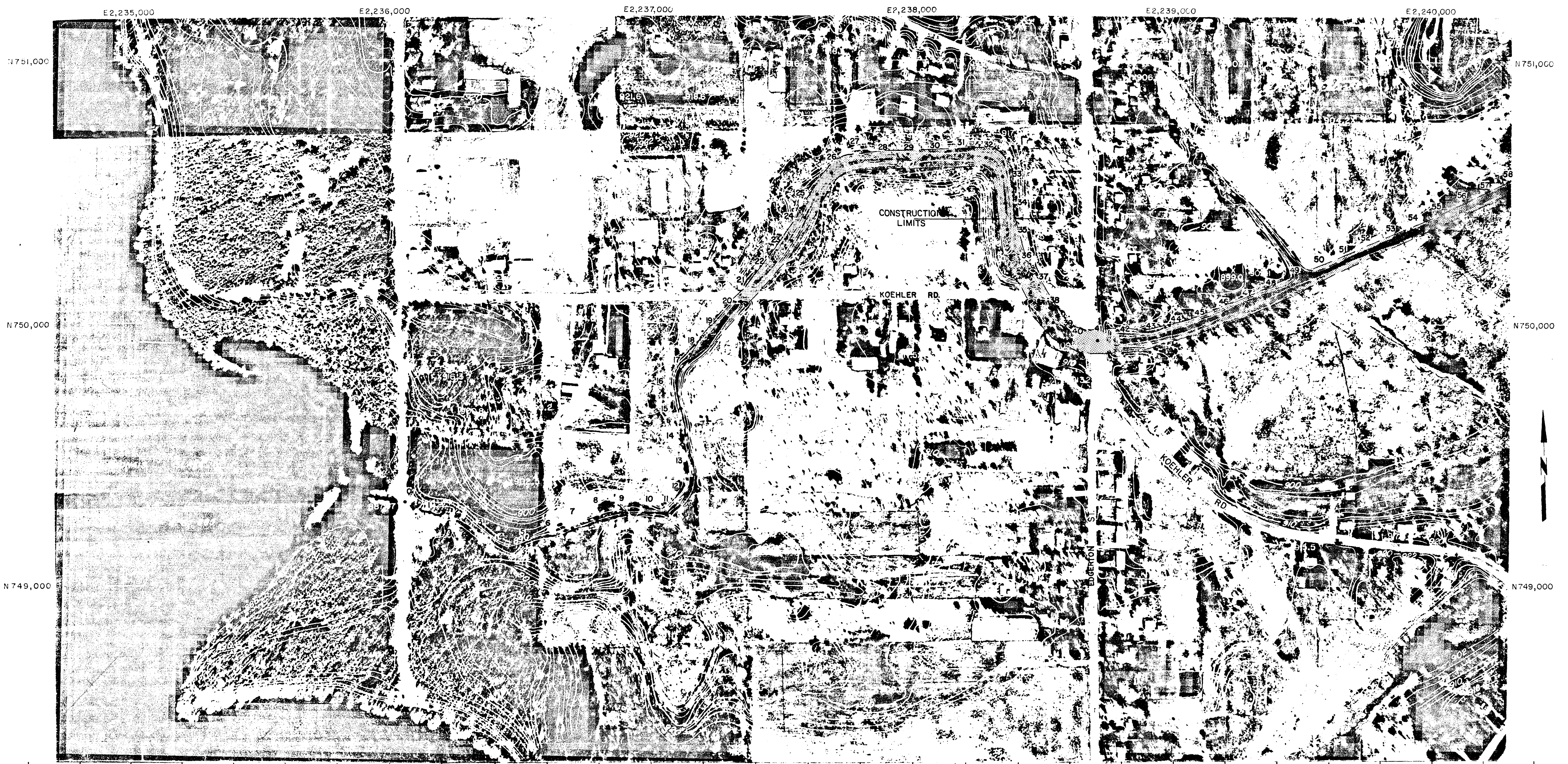
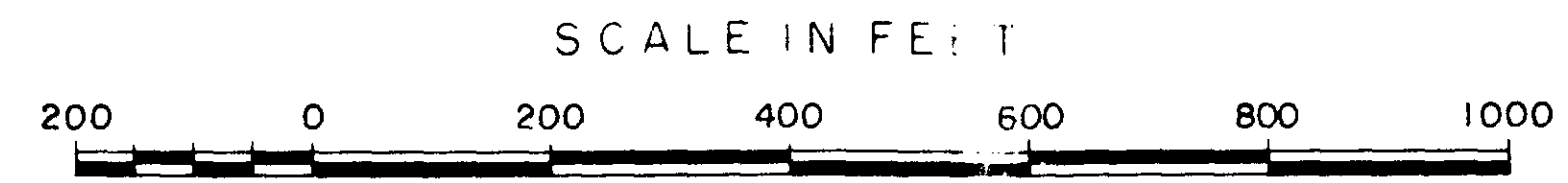


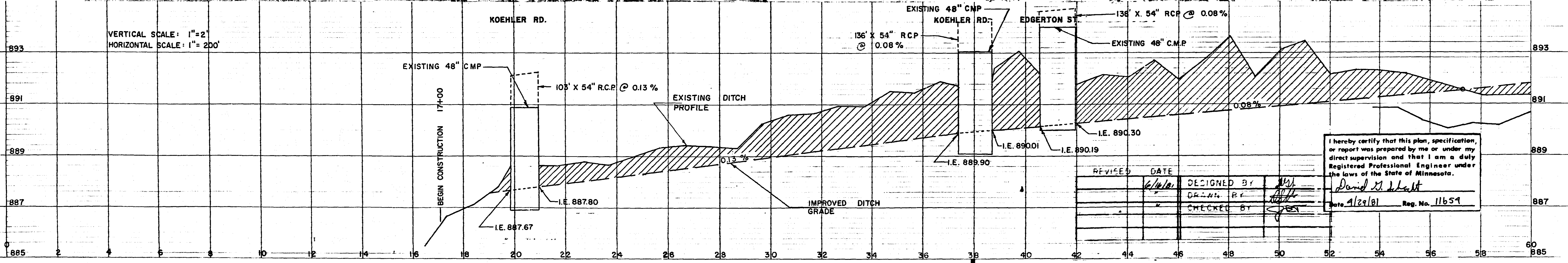
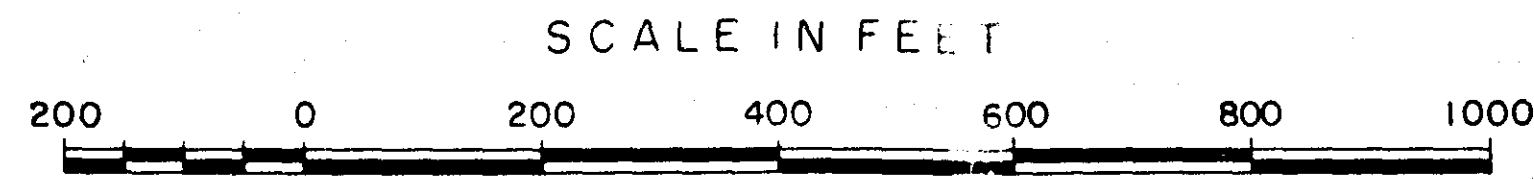
TYPICAL ROADWAY RESTORATION SECTION

SCALE
1" = 4'

REVISED	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
	6/1/81			
	"			
	"			

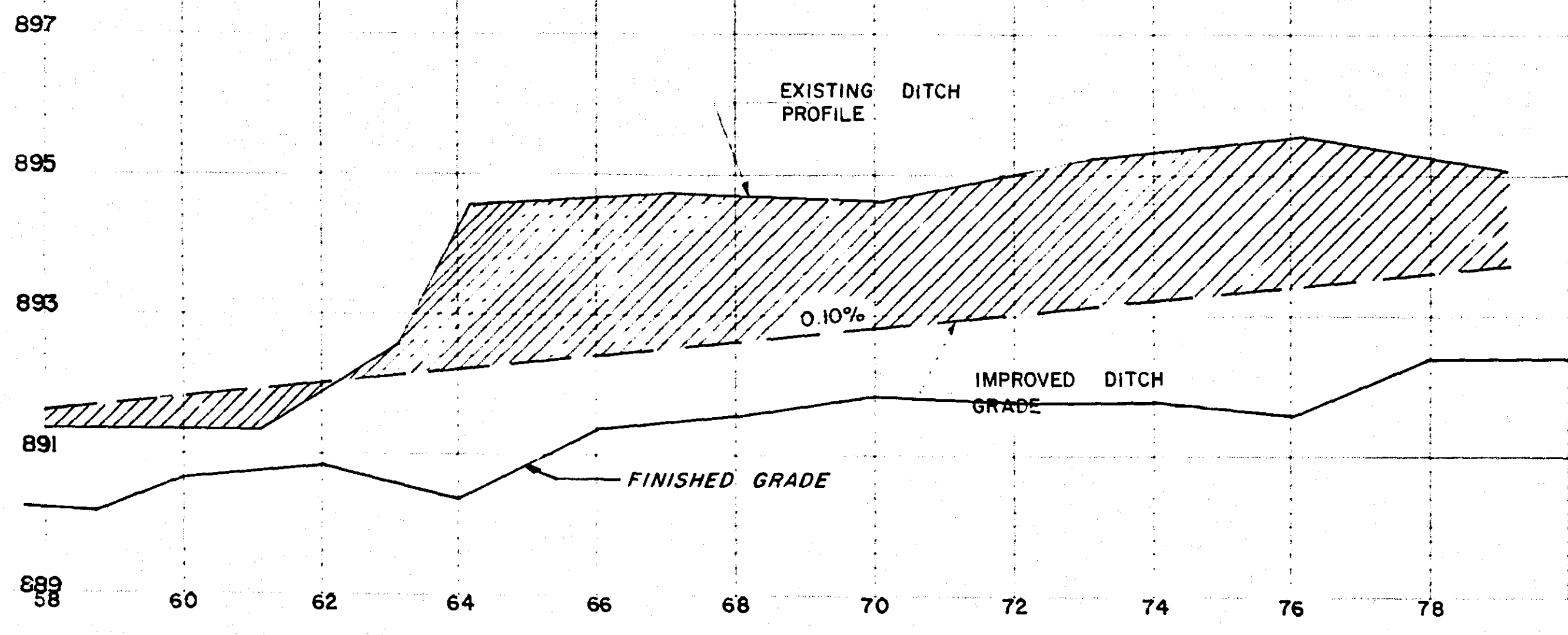
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date: 9/29/81 Reg. No. 11659





SCALE IN FEET
0 200 400 600 800 1000

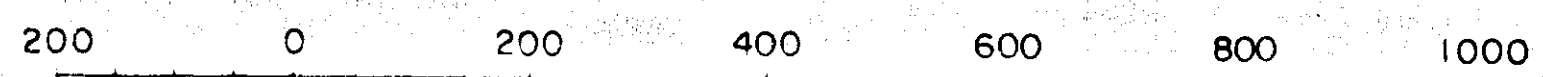
F 2,242.000 F 2,242.000 F 2,242.000



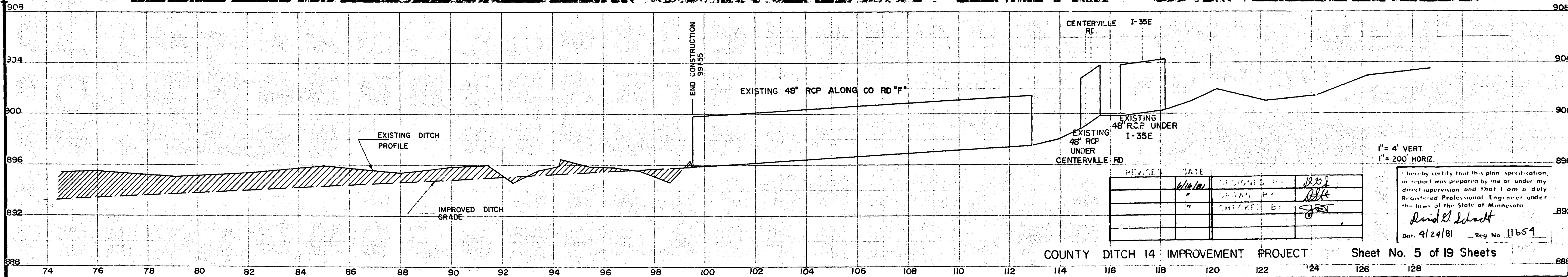
1" = 2' VERT
1" = 200' HORIZ.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David L. Scholtz
Date: 4/29/81 Reg. No. 11659

SCALE IN FEET



E 2,241,000 E 2,242,000 E 2,243,000 E 2,244,000 E 2,245,000

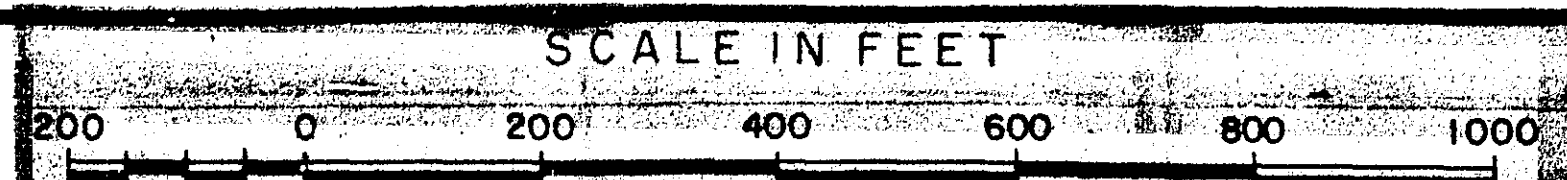


REVISION	DATE	BY	CHECKED
1	6/16/81	[Signature]	[Signature]
2	"	[Signature]	[Signature]
3	"	[Signature]	[Signature]

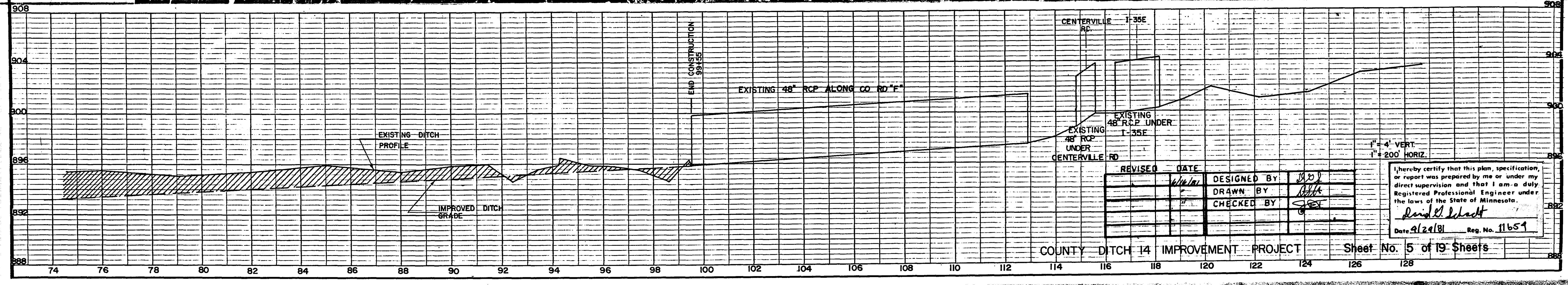
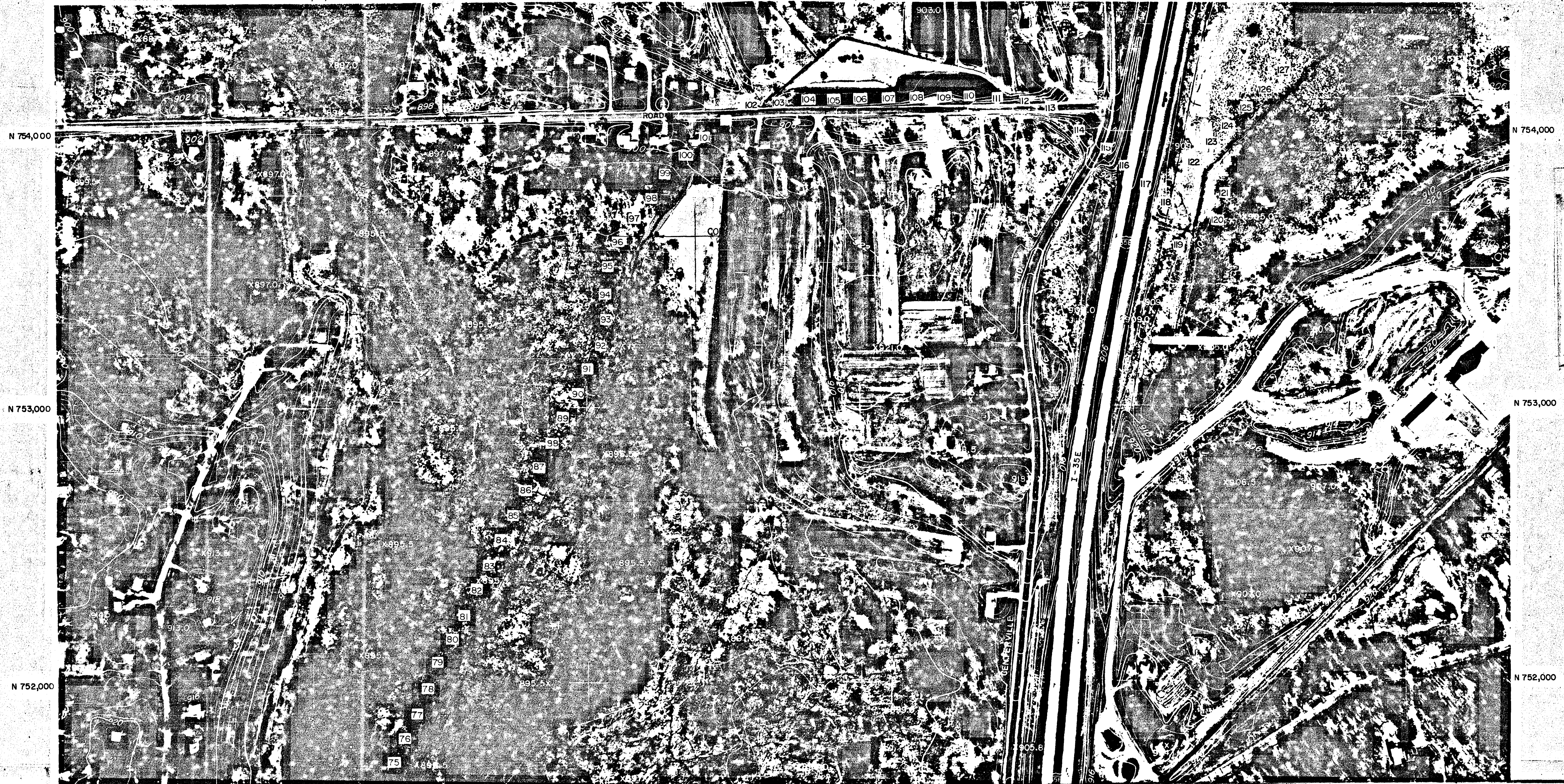
I" = 4' VERT.
 1" = 200' HORIZ.

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

David L. Schacht
 Date: 4/29/81 Reg. No. 11659

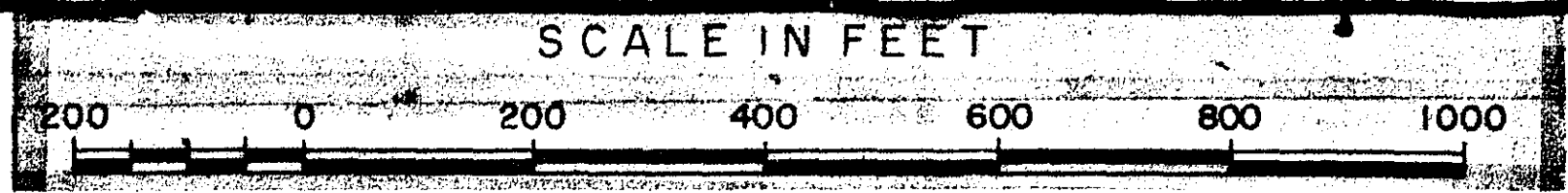


E 2,241,000 E 2,242,000 E 2,243,000 E 2,244,000 E 2,245,000



REVISED	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
	1/1/81	ASB	ASB	ASB

I, hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David L. Schmitt
 Date 9/29/81 Reg. No. 11659



E 2,241,000

E 2,242,000

E 2,243,000

E 2,244,000

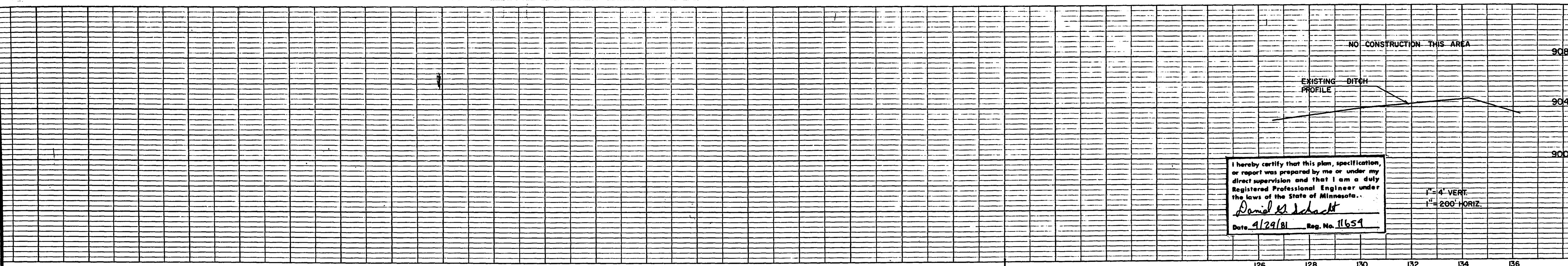
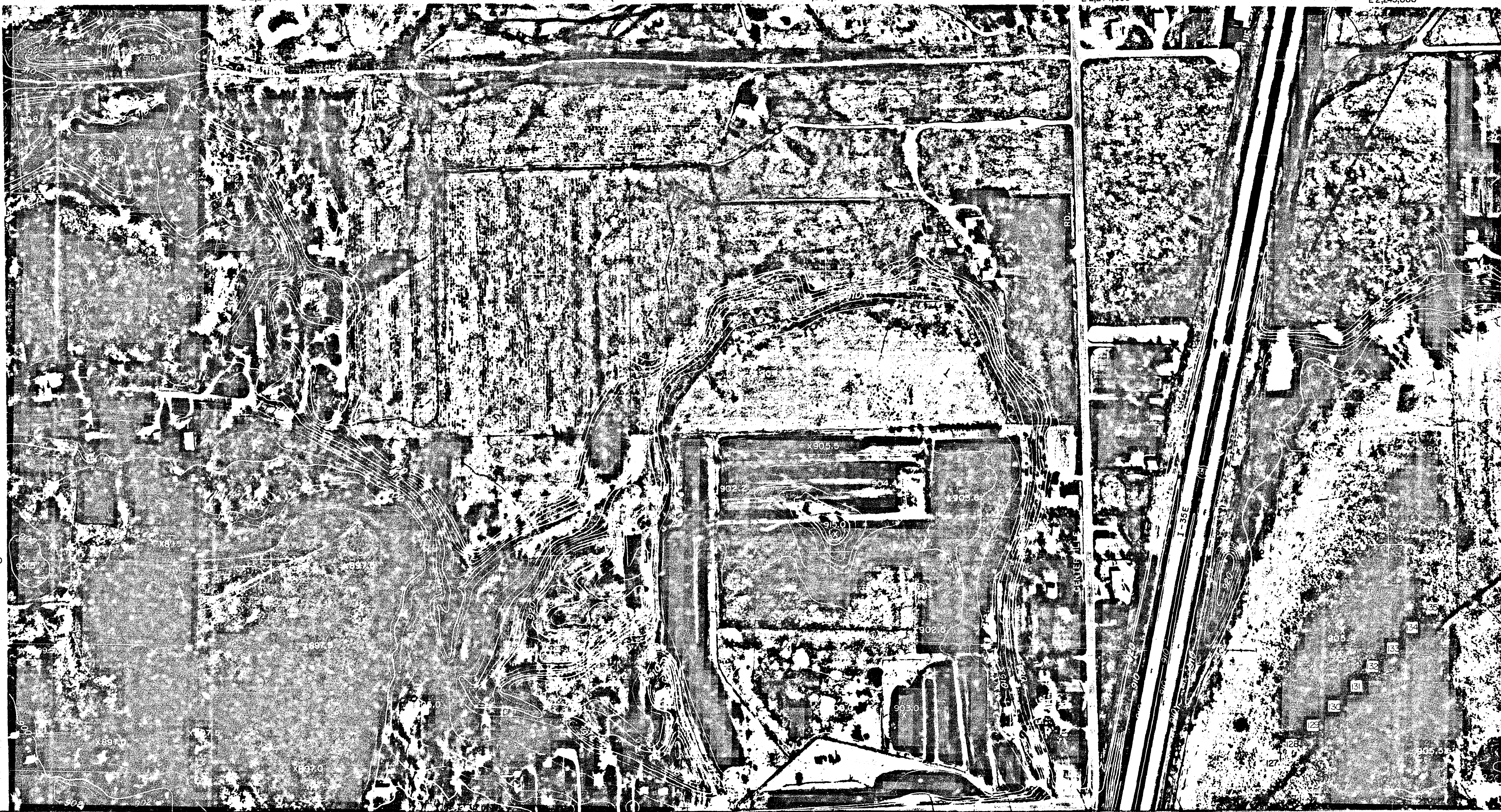
E 2,245,000

N 756,000

N 755,000

N 756,000

N 755,000



NO CONSTRUCTION THIS AREA

EXISTING DITCH PROFILE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Daniel J. Schacht
 Date 9/29/81 Reg. No. 11659

1" = 4' VERT.
 1" = 200' HORIZ.

126 128 130 132 134 136

SCALE IN FEET
200 0 200 400 600 800 1000

E 2,241,000

E 2,242,000

E 2,243,000

E 2,244,000

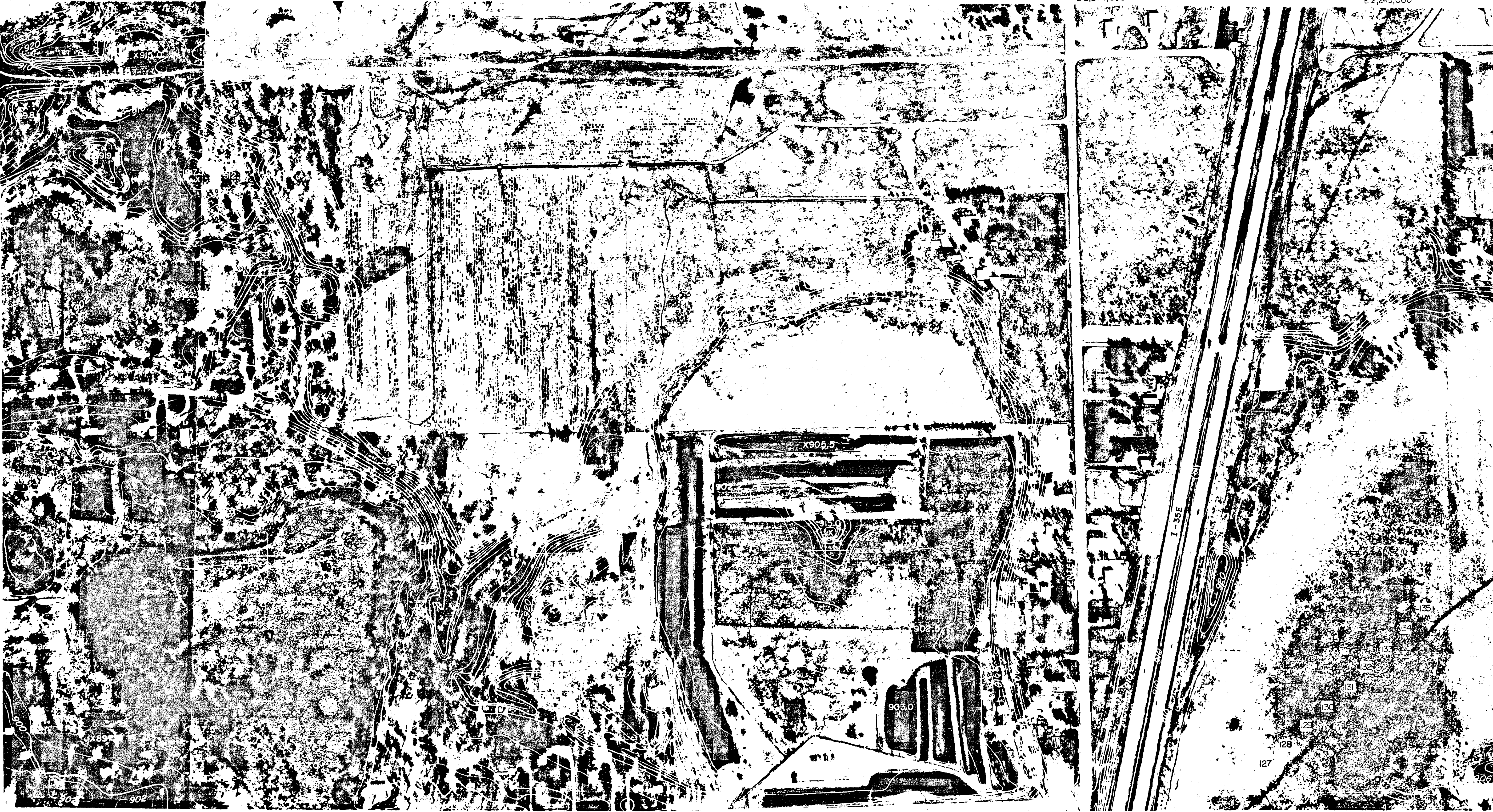
E 2,245,000

N 755,000

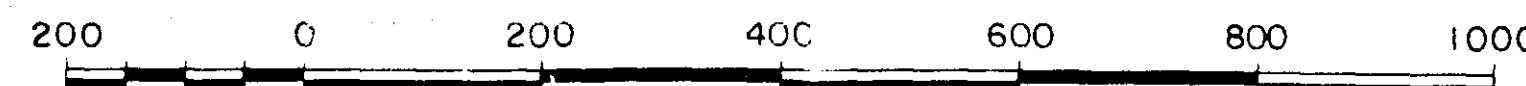
N 755,000

N 756,000

N 755,000



SCALE IN FEET



E 2,246,000

E 2,247,000

E 2,248,000

E 2,249,000

E 2,250,000

N 756,000

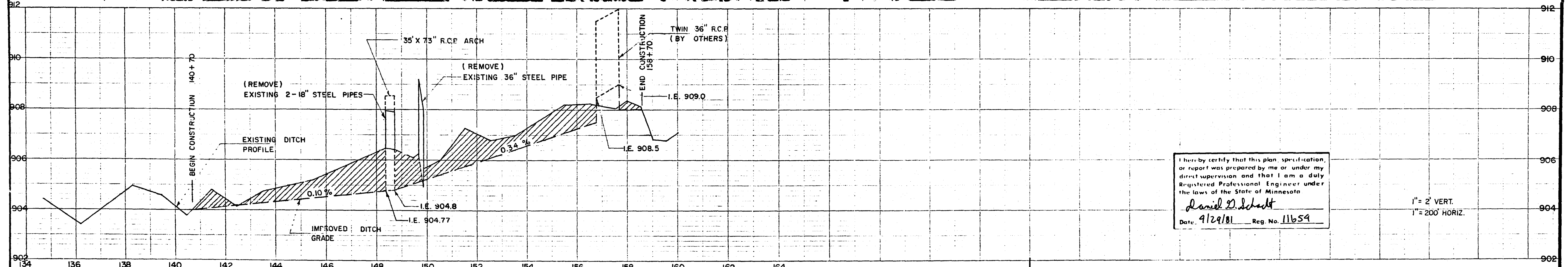
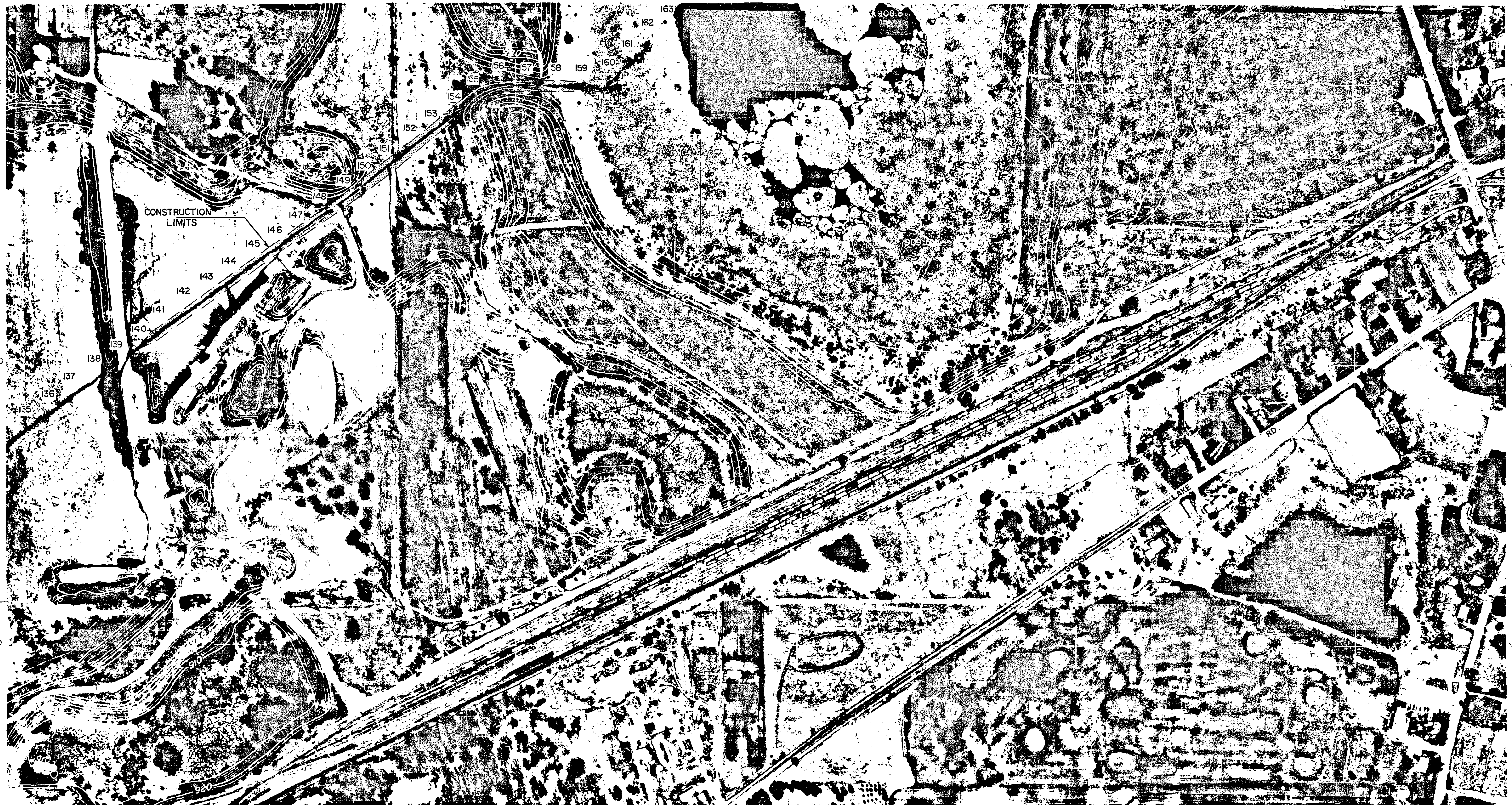
N 756,000

N 755,000

N 755,000

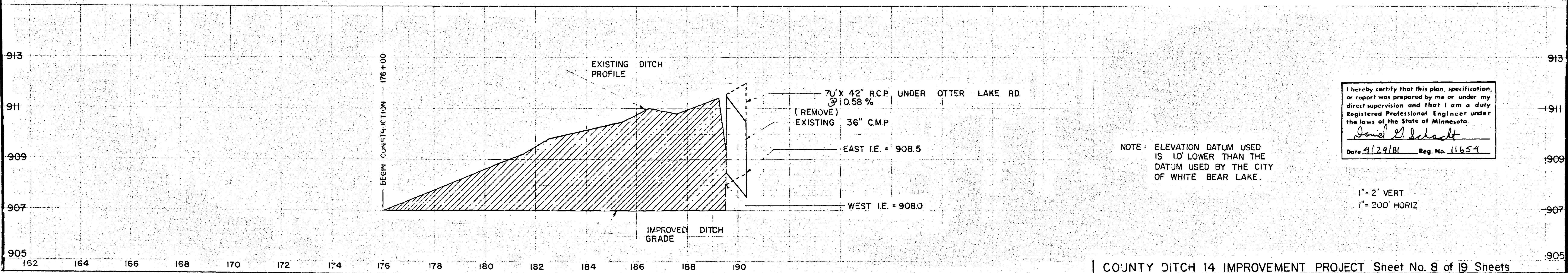
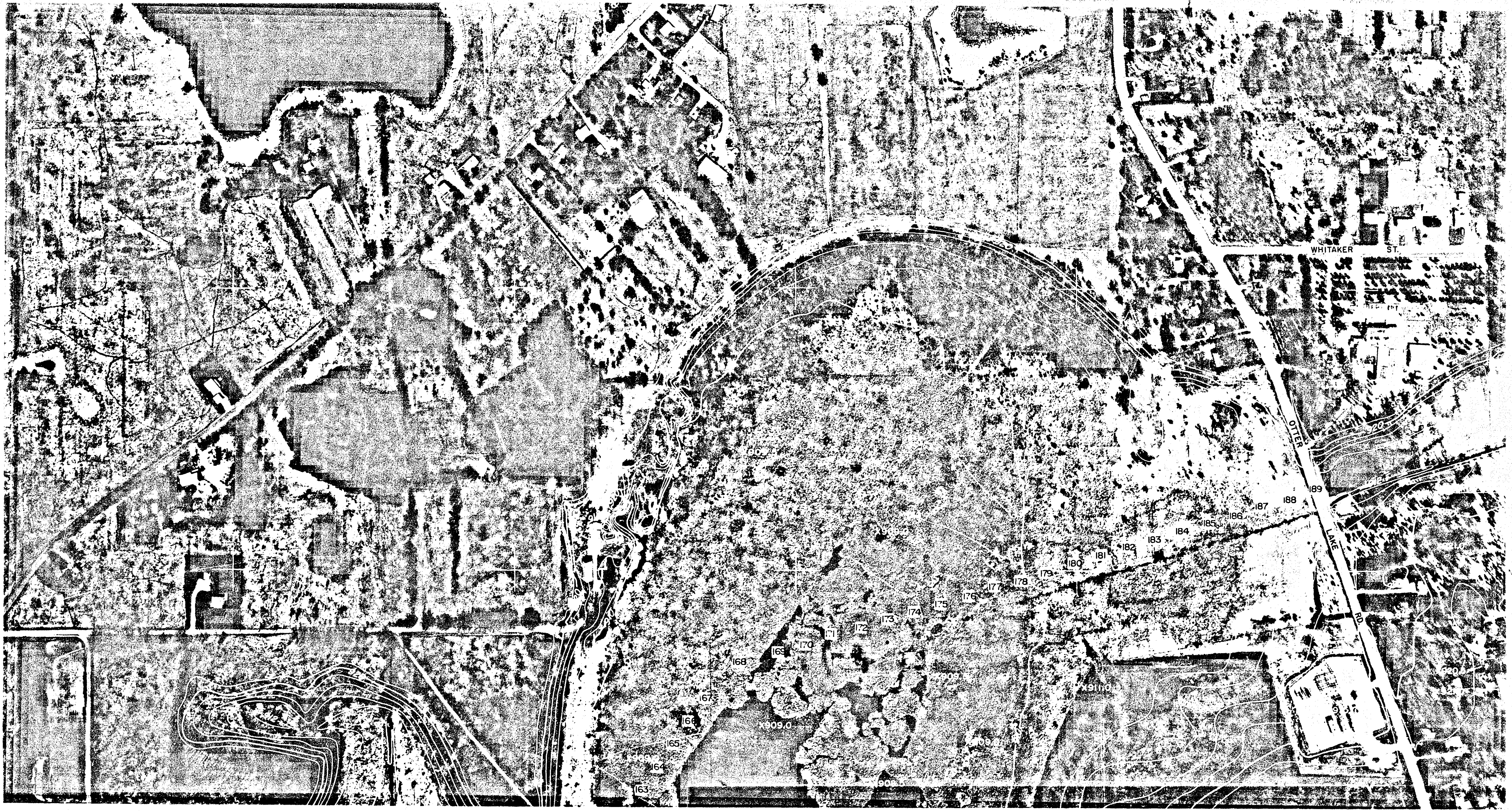
N 754,000

N 754,000



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota
Daniel D. Schmitt
Date: 9/29/81 Reg. No. 11659

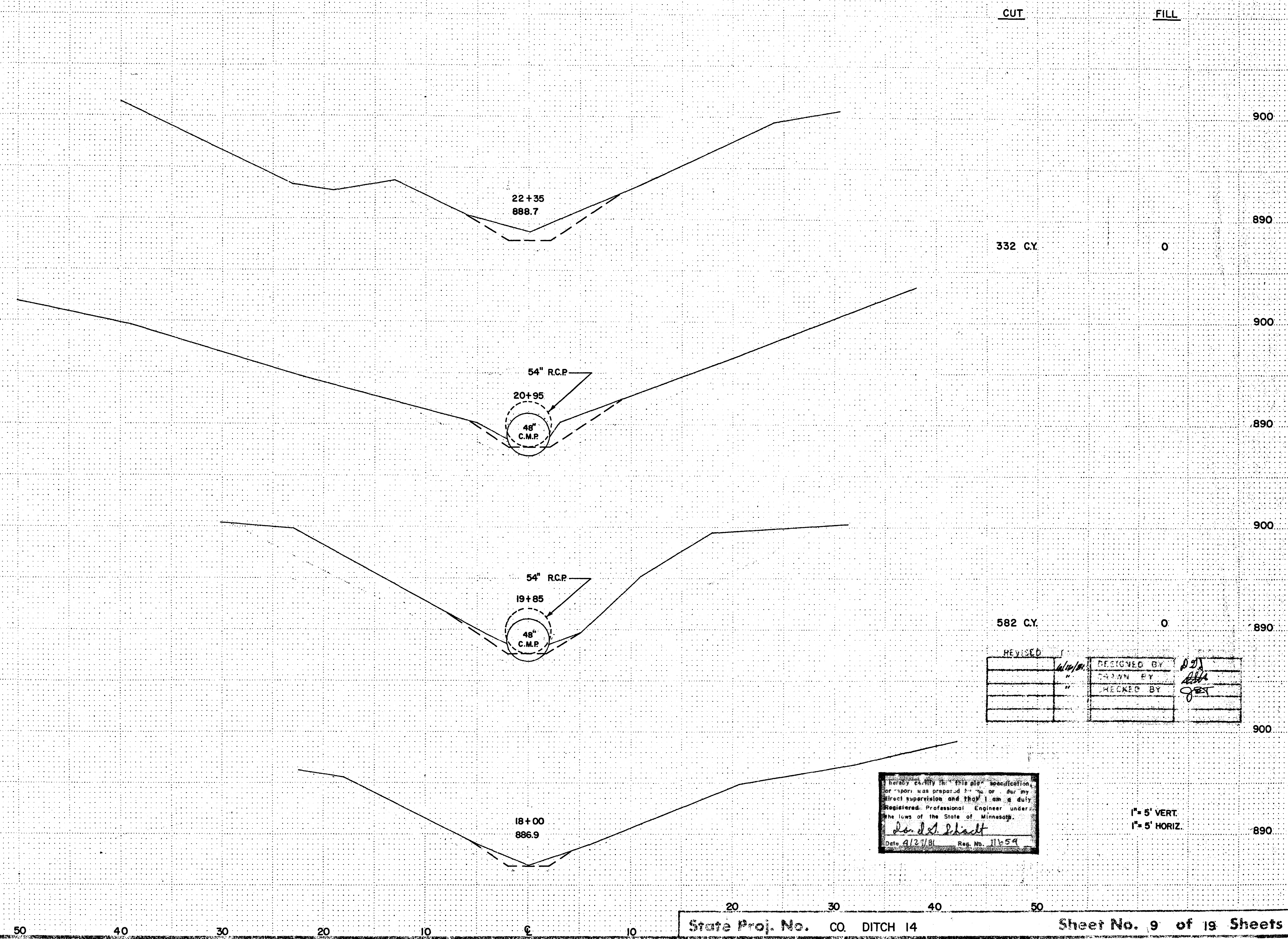
1" = 2' VERT.
1" = 200' HORIZ.



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.
Janet A. Schacht
 Date 9/29/81 Reg. No. 11654

NOTE: ELEVATION DATUM USED IS 10' LOWER THAN THE DATUM USED BY THE CITY OF WHITE BEAR LAKE.

1" = 2' VERT.
 1" = 200' HORIZ.



CUT FILL

22+35
888.7

332 CY 0

54" R.C.P.
20+95
48" C.M.P.

54" R.C.P.
19+85
48" C.M.P.

582 CY 0

DESIGNED BY	<i>[Signature]</i>
DRAWN BY	<i>[Signature]</i>
CHECKED BY	<i>[Signature]</i>

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.

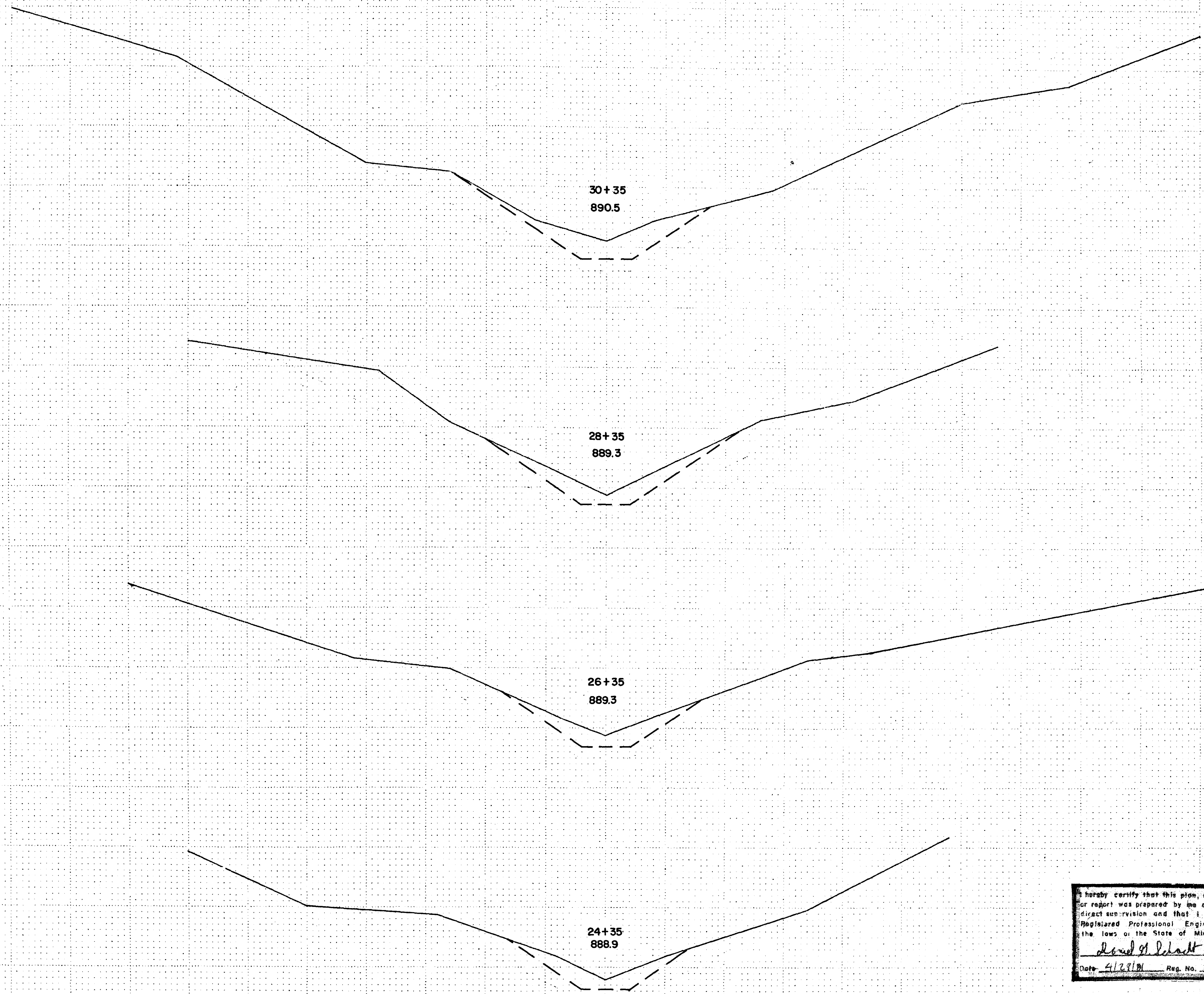
[Signature]
Date 4/2/81 Reg. No. 11659

1" = 5' VERT.
1" = 5' HORIZ.

Exp. Equipment Form 21

CUT

FILL



695 CY.

0 CY.

635 CY.

0 CY.

448 CY.

0 CY.

471 CY.

0 CY.

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

David G. Schmitt

Date 4/29/81 Reg. No. 11659

1"=5' VERT.
1"=5' HORIZ.

Draw. Equipment Form 21

Fed. Proj. No.

CUT FILL 910

900

54" R.C.P.

37+35

48" C.M.P.

497 C.Y. 0 C.Y.

890

910

900

36+35
891.7

956 C.Y. 0 C.Y.

890

799 C.Y. 0 C.Y. 900

34+35
891.3

REVISED	DATE	SIGNED BY
	4/15/64	[Signature]
		CHECKED BY [Signature]

890

755 C.Y. 0 C.Y. 900

32+35
890.8

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David M. O'Leary
 Date 4/29/64 Reg. No. 11659

1" = 5' VERT.
1" = 5' HORIZ.

890

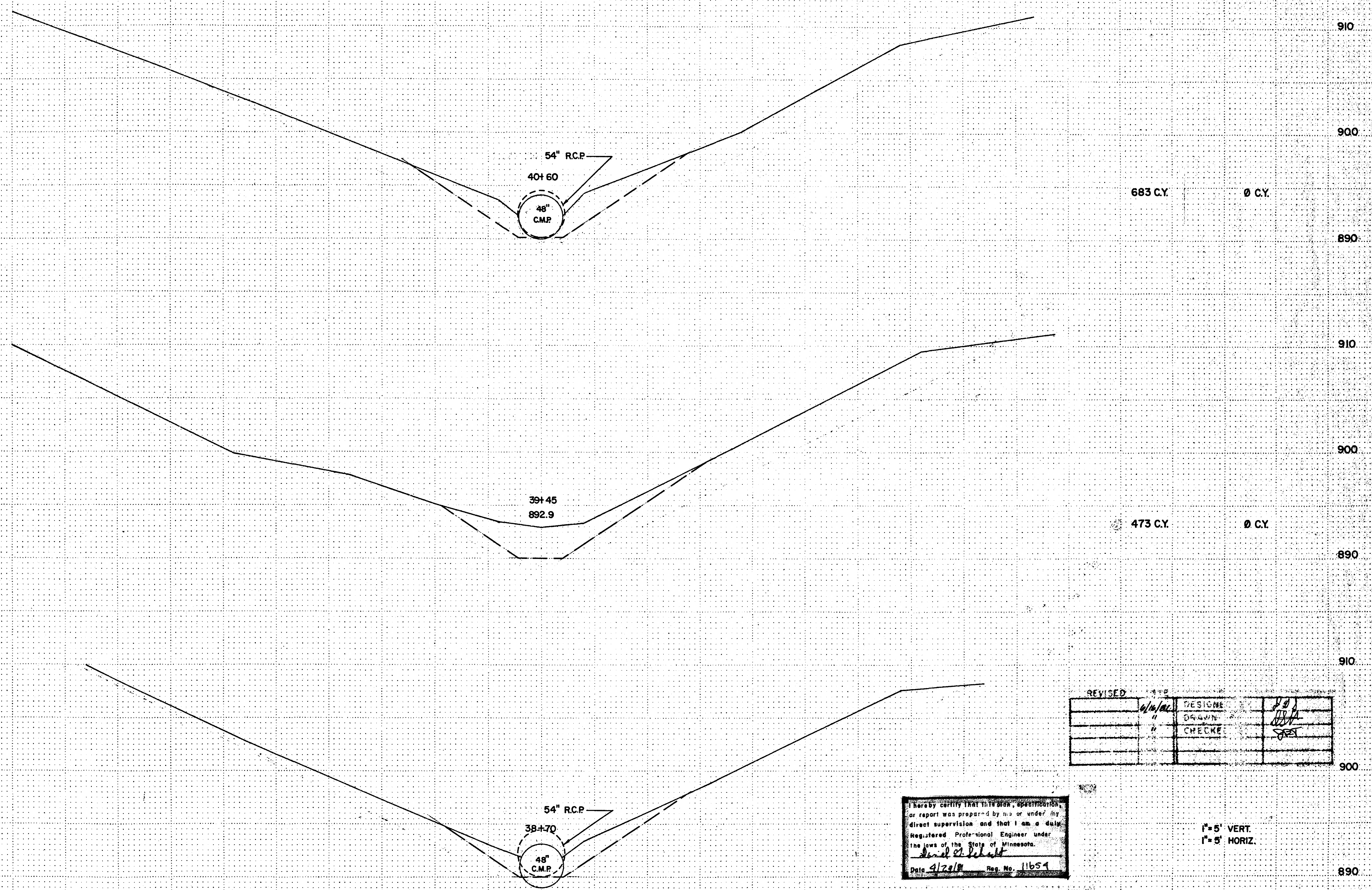
20 30 40 50

State Proj. No. 00. DITCH 14

Sheet No. 11 of 19 Sheets

Case Equipment Form #7

CUT FILL



REVISED	DATE	BY	DESIGNED	BY
	11/16/01		DESIGNED	BY
	"		CHECKED	BY
	"		CHECKED	BY

I hereby certify that this work, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David G. Schmitt
 Date 4/29/01 Reg. No. 11654

1" = 5' VERT.
 1" = 5' HORIZ.

Copy Equipment Form #1

Fed. Proj. No.

CUT FILL 900

562 C.Y. 0 C.Y. 890

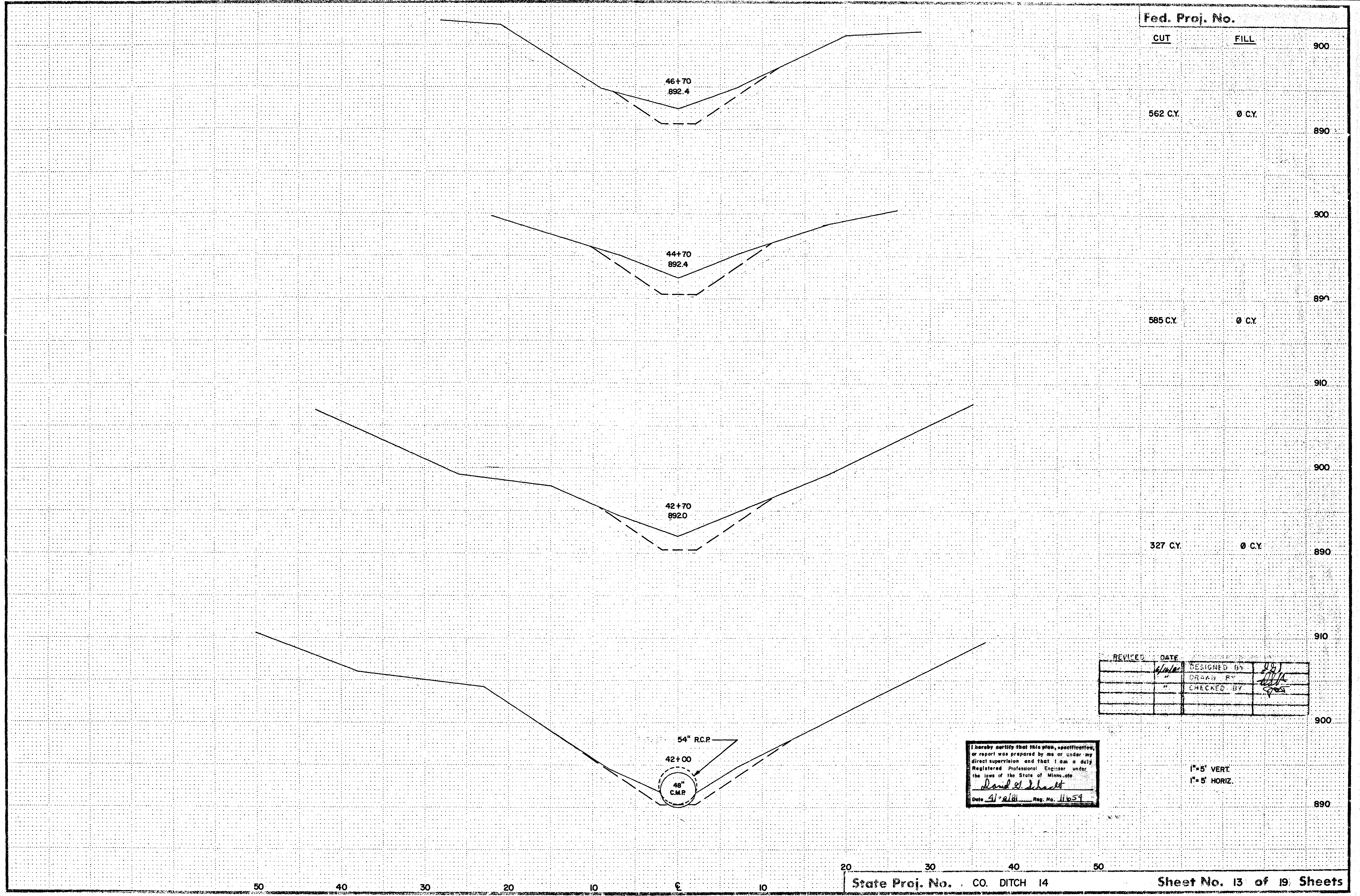
585 C.Y. 0 C.Y. 890

327 C.Y. 0 C.Y. 890

REVISED	DATE	DESIGNED BY	CHECKED BY
	4/1/81	[Signature]	[Signature]
	"	ORIGIN BY	[Signature]
	"	CHECKED BY	[Signature]

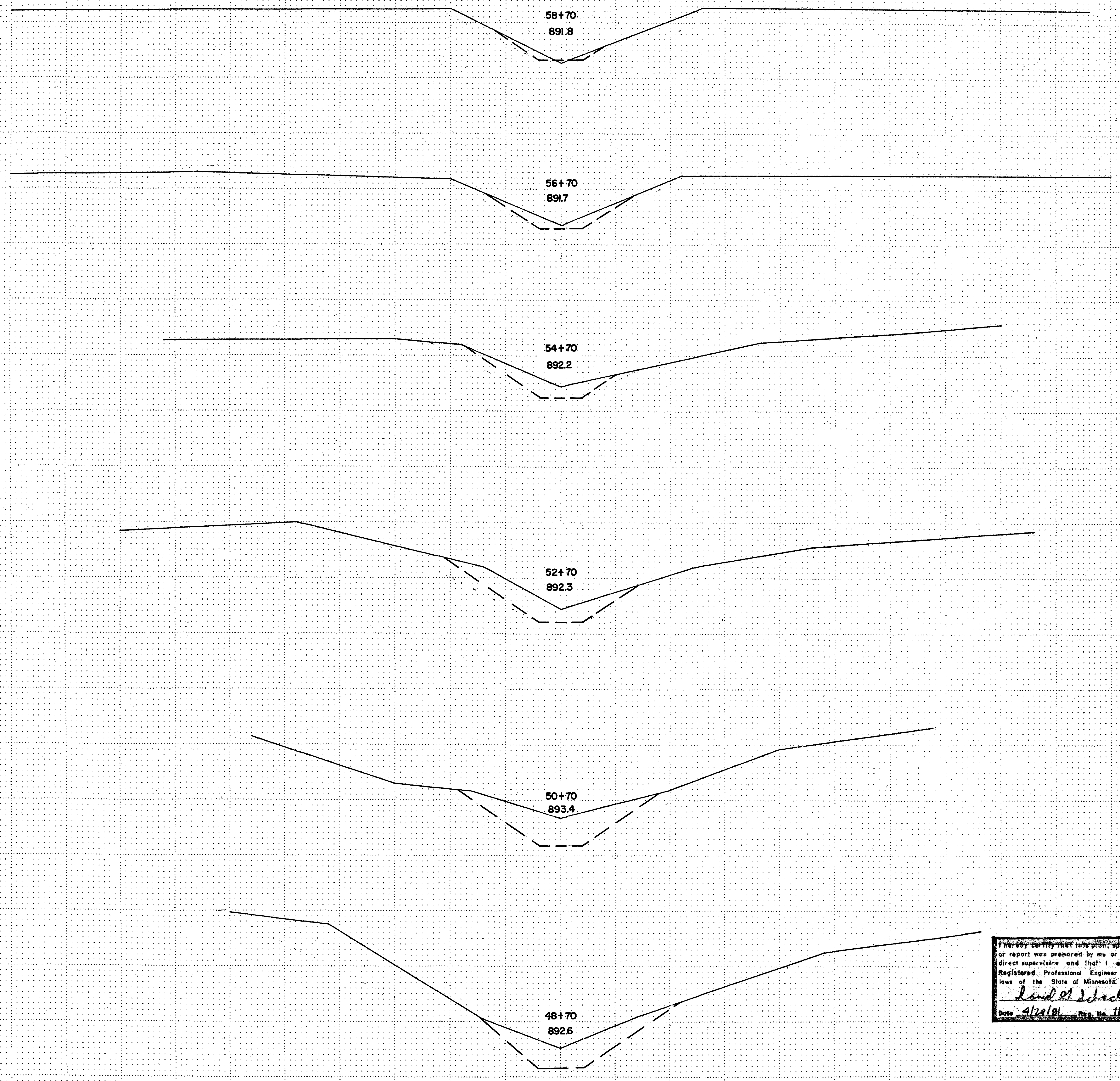
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David J. Schacht
 Date 4/1/81 Reg. No. 11659

1" = 5' VERT.
1" = 5' HORIZ.



City Engineer Form #1

Fed. Proj. No.



CUT	FILL	
		895
86 CY.	0 CY.	890
		895
139 CY.	0 CY.	890
		895
227 CY.	0 CY.	890
		900
333 CY.	0 CY.	890
		900
602 CY.	0 CY.	890
		900
722 CY.	0 CY.	890

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
David A. Schacht
 Date 4/22/01 Reg. No. 11659

1" = 5' VERT.
 1" = 5' HORIZ.

Copy Equipment Form #1

Fed. Proj. No.

CUT

FILL

900

123 CY

3 CY

890

900

182 CY

7 CY

890

900

150 CY

0 CY

890

900

77 CY

6 CY

890

900

1" = 5' VERT

1" = 5' HORIZ

890

99+55

48" R.C.P.

98+70

894.6

96+70

895.7

94+70

896.3

92+70

894.8

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.

Ronald W. J. Jacht

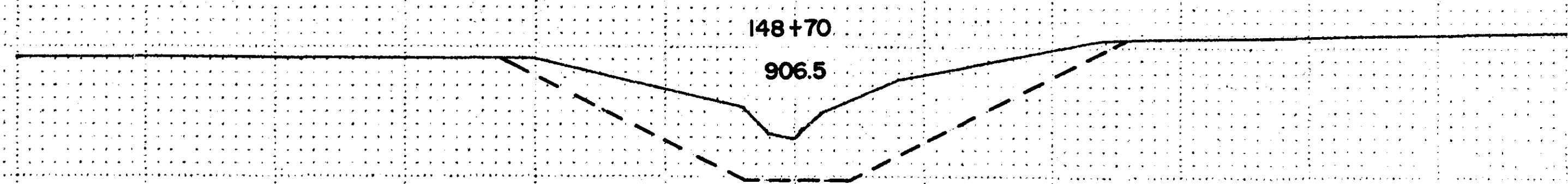
Date: 11/24/11 Reg. No. 11659

50 40 30 20 10 0 10 20 30 40 50

State Proj. No. CO. DITCH 14

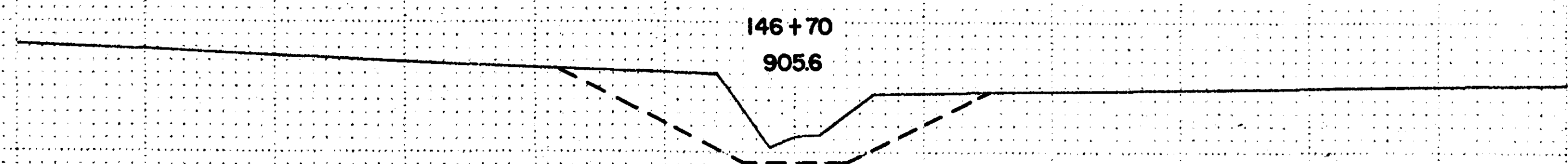
Sheet No. 15 of 19 Sheets

City Engineer Form #1



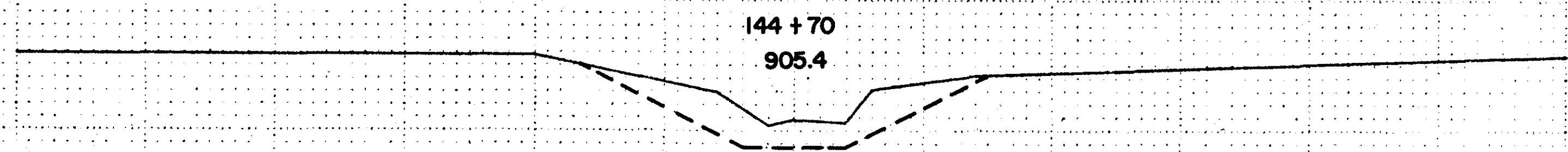
910

905



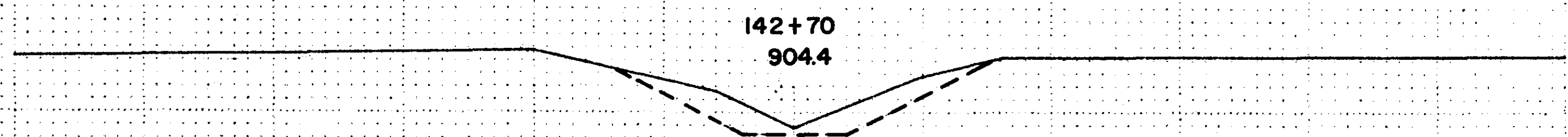
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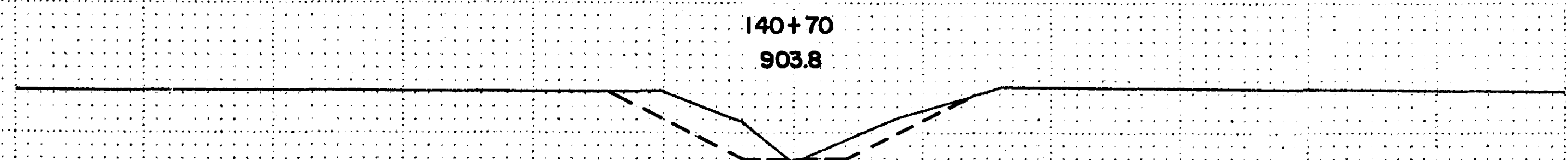
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905



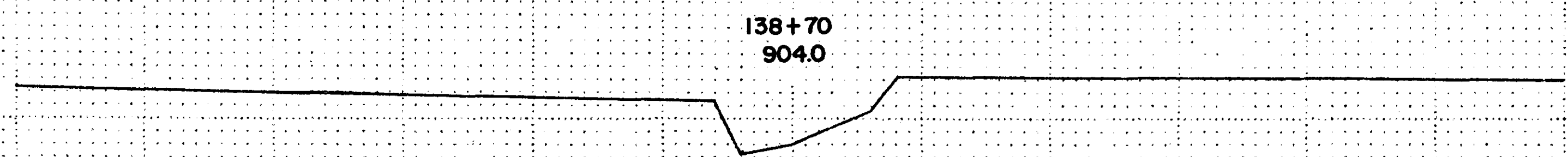
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905



910

905



910

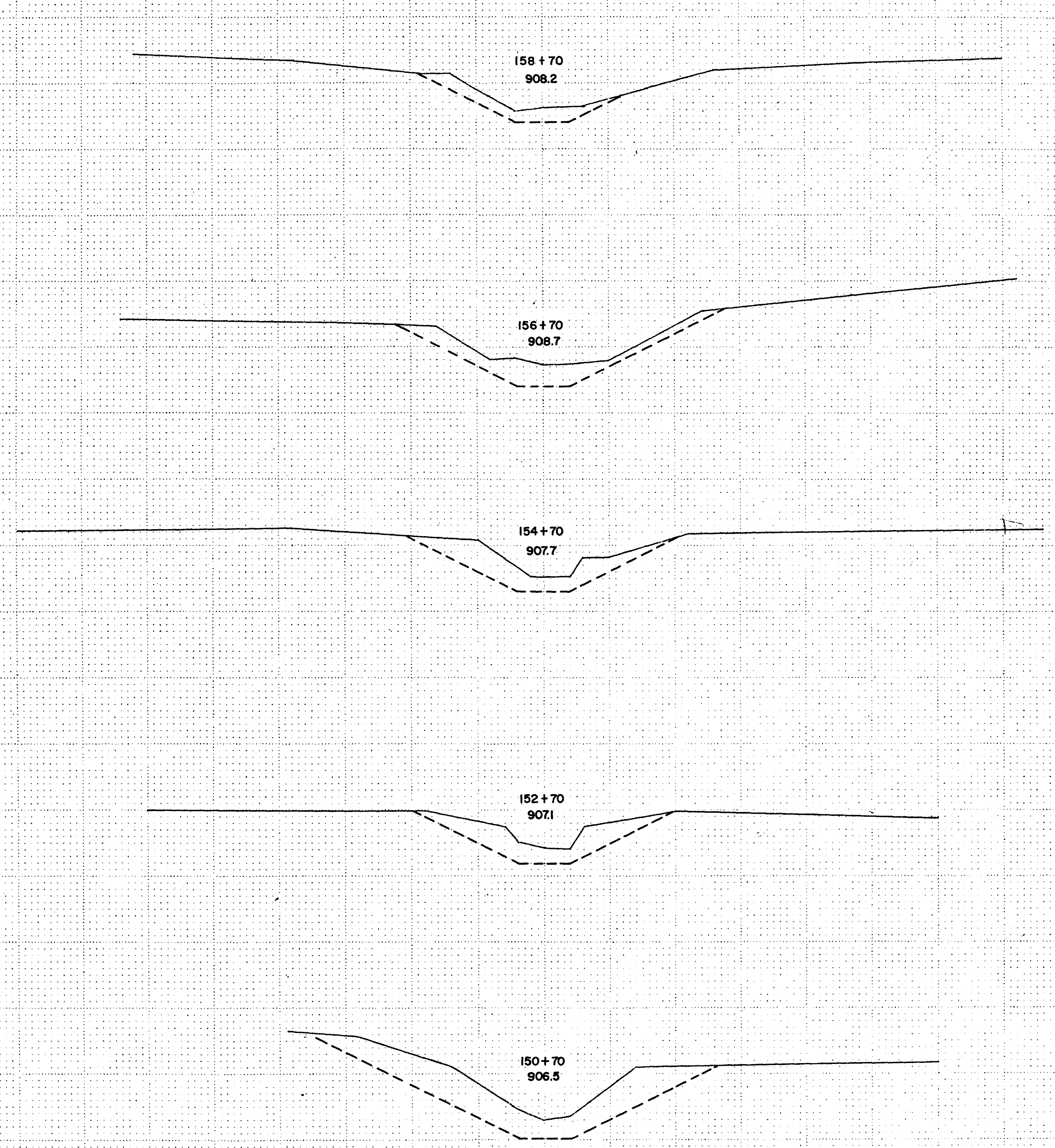
905

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 Colorado.

David B. Johnson
 D. B. Johnson, No. 11659

1"=5' VERT.
 1"=5' HORIZ.

Civil Engineering Form #1



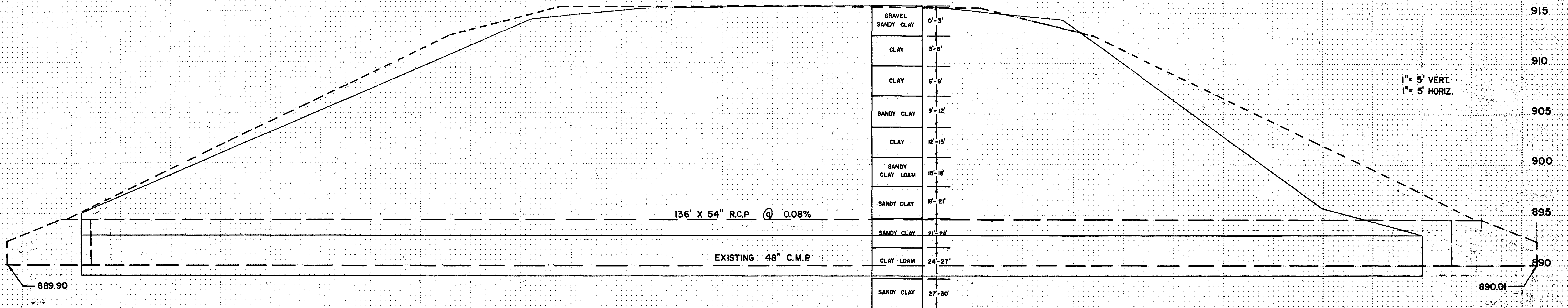
915
910
905
915
910
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910
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910
905
910
905

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.
David W. Schacht
Date: 5/16/1918

1" = 5' VERT.
1" = 5' HORIZ.

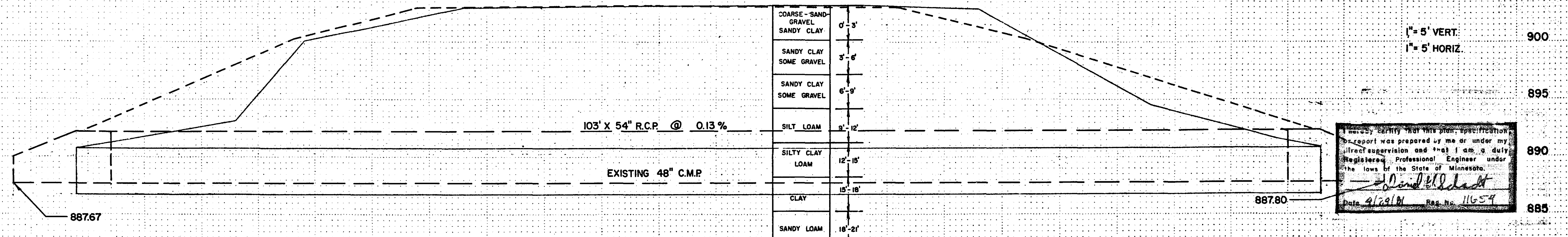
37+99 @ KOEHLER RD.

SOIL LOG



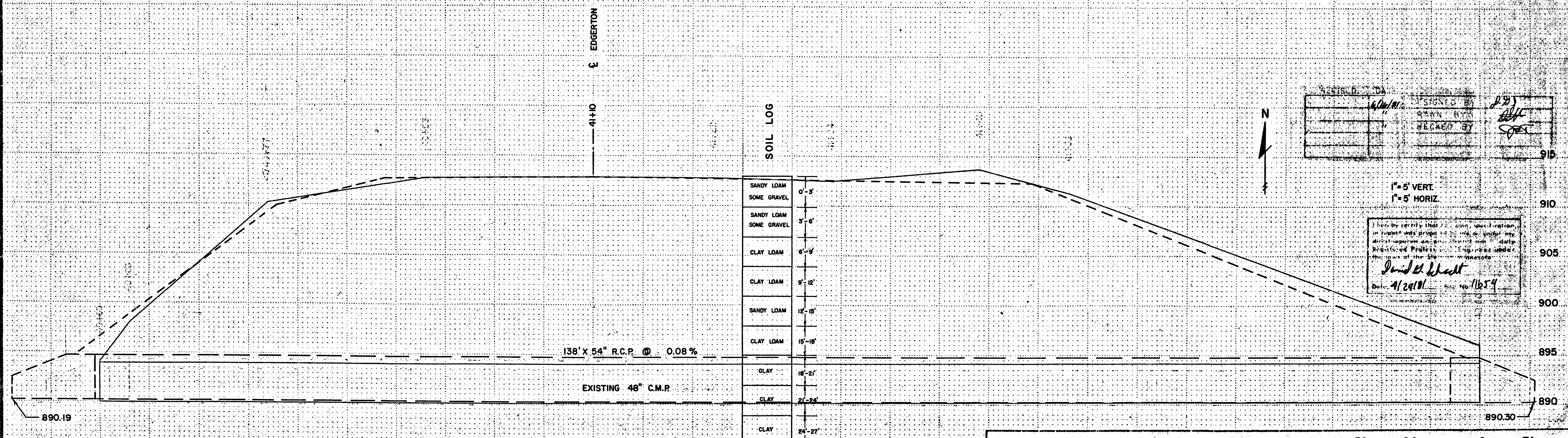
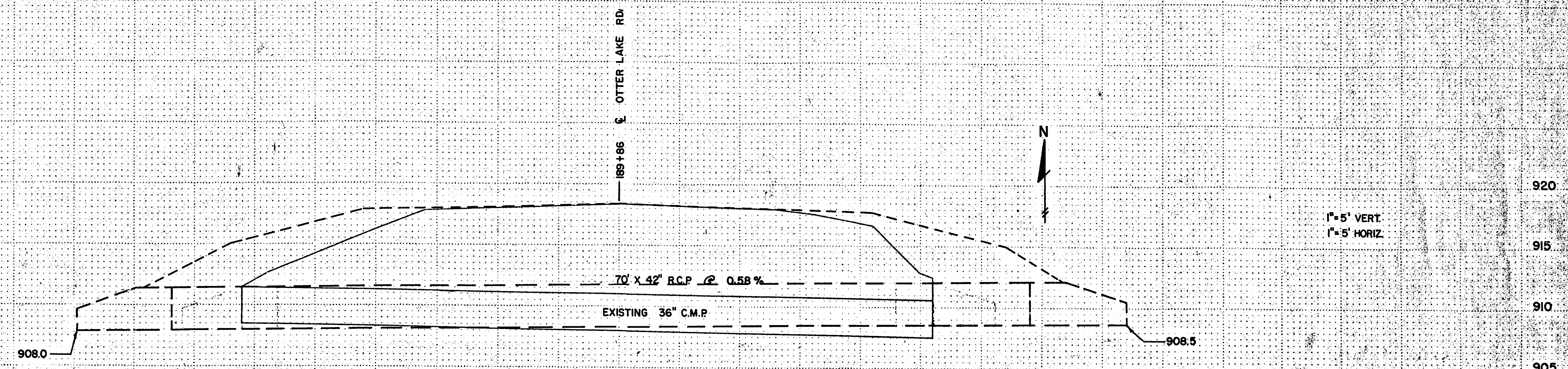
20+36 @ KOEHLER RD.

SOIL LOG



REVISED	0	DESIGNED BY	<i>[Signature]</i>
		DRAWN BY	<i>[Signature]</i>
		CHECKED BY	<i>[Signature]</i>

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.
[Signature]
 Date 4/29/11 Reg. No. 11659



SANDY LOAM	0'-3"
SOME GRAVEL	3'-6"
SANDY LOAM	6'-9"
SOME GRAVEL	9'-12"
CLAY LOAM	12'-15"
CLAY LOAM	15'-18"
SANDY LOAM	18'-21"
CLAY LOAM	21'-24"
CLAY	24'-27"

DESIGNED BY
CHECKED BY

I hereby certify that the design, specification or report was prepared by me or under my direct supervision and that I am duly Licensed Professional Engineer under the laws of the State of Minnesota.
David E. Schmitt
Date: 4/28/01 No. 11654