

**MINNESOTA DEPARTMENT OF TRANSPORTATION
COUNTY OF ANOKA
CITY OF LINO LAKES & CITY OF CIRCLE PINES
CONSTRUCTION PLAN FOR**

TRUNK HIGHWAY 49 & COUNTY STATE AID HIGHWAY 23 & COUNTY STATE AID HIGHWAY 10

LOCATED ON T.H. 49 (HODGSON ROAD) FROM 150' SOUTH OF BLUE HERON DRIVE TO CSAH 23 (LAKE DRIVE) AND
 LOCATED ON T.H. 49 (LAKE DRIVE) FROM CSAH 23 (LAKE DRIVE) TO 770' NORTHEAST OF SECOND AVE AND
 LOCATED ON CSAH 23 (LAKE DRIVE) FROM 1480' SOUTH WEST OF POINT CROSS DRIVE TO T.H. 49 (HODGSON ROAD) AND
 LOCATED ON CSAH 10 (NORTH ROAD) FROM T.H. 49 (LAKE DRIVE) TO LAKEVIEW DRIVE

T.H. 49 (HODGSON ROAD)		T.H. 49 (LAKE DRIVE)		C.S.A.H. 23 (LAKE DRIVE)		C.S.A.H. 10 (NORTH ROAD)	
STATE PROJ. NO.	0204-12	STATE PROJ. NO.	0204-12	STATE AID PROJ. NO.	02-623-07	STATE AID PROJ. NO.	02-610-09
GROSS LENGTH	1,900 FEET 0.36 MILES	GROSS LENGTH	2,309.03 FEET 0.44 MILES	GROSS LENGTH	2,731.96 FEET 0.52 MILES	GROSS LENGTH	1,132 FEET 0.21 MILES
BRIDGES-LENGTH	0 FEET 0 MILES	BRIDGES-LENGTH	0 FEET 0 MILES	BRIDGES-LENGTH	0 FEET 0 MILES	BRIDGES-LENGTH	0 FEET 0 MILES
EXCEPTIONS-LENGTH	0 FEET 0 MILES	EXCEPTIONS-LENGTH	0 FEET 0 MILES	EXCEPTIONS-LENGTH	0 FEET 0 MILES	EXCEPTIONS-LENGTH	0 FEET 0 MILES
DESIGN SPEED	45 MPH	DESIGN SPEED	50 MPH	DESIGN SPEED	50 MPH	DESIGN SPEED	35 MPH
R VALUE	70	R VALUE	(ASSUMED) 60	R VALUE	(ASSUMED) 60	R VALUE	70
ΣN18	2,664,867	ΣN18	2,333,722	ΣN18	3,492,251	ΣN18	662,900
PRESENT A.D.T. (1995)	8,500	PRESENT A.D.T. (1995)	6,300	PRESENT A.D.T. (1995)	13,800	PRESENT A.D.T. (1995)	900
20 YEAR PROJECTED A.D.T. (2015)	17,100	20 YEAR PROJECTED A.D.T. (2015)	17,200	20 YEAR PROJECTED A.D.T. (2015)	23,000	20 YEAR PROJECTED A.D.T. (2015)	5,200
% H.C.A.D.T.	4.1%	% H.C.A.D.T.	4.1%	% H.C.A.D.T.	4.1%	% H.C.A.D.T.	4.1%
FUNCTIONAL CLASSIFICATION	ARTERIAL (HIGH)	FUNCTIONAL CLASSIFICATION	ARTERIAL (HIGH)	FUNCTIONAL CLASSIFICATION	ARTERIAL (HIGH)	FUNCTIONAL CLASSIFICATION	COLLECTOR (LOW)
NO. TRAFFIC LANES	2	NO. TRAFFIC LANES	2	NO. TRAFFIC LANES	2	NO. TRAFFIC LANES	2
NO. PARKING LANES	0	NO. PARKING LANES	0	NO. PARKING LANES	0	NO. PARKING LANES	0

EXISTING	LEGEND	PROPOSED
	SANITARY SEWER AND MANHOLE	
	STORM SEWER AND MANHOLE	
	WATERMAIN, HYDRANT AND VALVE	
	CATCH BASIN	
	CULVERT	
	UNDERGROUND TELEPHONE CABLE OR CONDUIT	
	UNDERGROUND ELECTRIC CABLE OR CONDUIT	
	UNDERGROUND TV CABLE	
	GAS MAIN	
	TELEPHONE MANHOLE	
	TELEPHONE PEDESTAL	
	ELECTRIC MANHOLE	
	POWER POLE	
	DOWN GUY ANCHOR	
	STEEL LIGHT POLE	
	TRAFFIC SIGNAL, STANDARD	
	GAS VALVE	
	SOIL BORING	
	CONCRETE CURB AND GUTTER	
	CONCRETE PAVEMENT OR SIDEWALK	
	SIGN (HWY, PARK, STOP, ETC.)	
	DITCH	
	FENCE	
	TREE (DECIDUOUS)	
	TREE (CONIFEROUS)	
	BUSH-SHRUB	
	STUMP	
	WOODED AREA	
	BUILDING	
	FEED POINT PEDESTAL	
	HANDHOLE (PULLBOX)	
	UNDERGROUND CONDUCTOR	
	PERMANENT EASEMENT	
	TEMPORARY EASEMENT	
	CONSTRUCTION LIMITS	
	SILT FENCE	
	GUARD RAIL	

BEGIN S.A.P. 02-610-09
C.S.A.H. 10
STA. 100+00.00

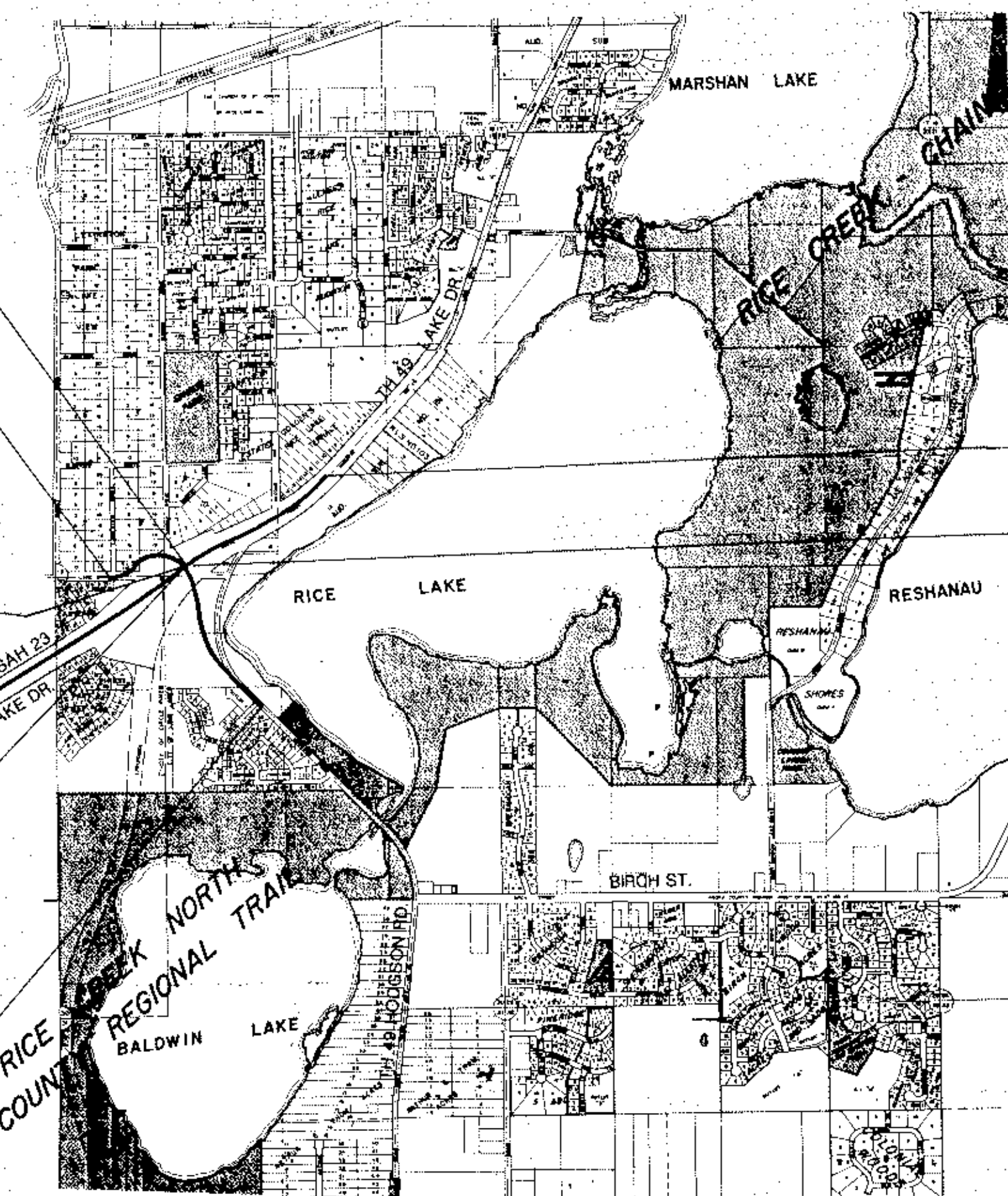
END S.A.P. 02-610-09
C.S.A.H. 10
STA. 111+32.00

END S.A.P. 02-623-07
C.S.A.H. 23
STA. 545+81.96

BEGIN S.A.P. 02-623-07
C.S.A.H. 23
STA. 518+50.00

END S.P. 0204-12
T.H. 49 (HODGSON ROAD)
STA. 100+00.00

BEGIN S.P. 0204-12
T.H. 49 (HODGSON ROAD)
STA. 81+00.00



END S.P. 0204-12
T.H. 49 (LAKE DRIVE)
STA. 568+90.99

BEGIN S.P. 0204-12
T.H. 49 (LAKE DRIVE)
STA. 545+81.96



AGREEMENT NO. 73174
CITY OF LINO LAKES
S.P. 0204-12 (T.H. 49-126)
STATE FUNDS
METRO DIVISION



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: 6/7-94 REG. NO. 19574

GOVERNING SPECIFICATIONS	
THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE MAY 2, 1994, SUPPLEMENTAL SPECIFICATION SHALL GOVERN	
SHEET NO.	INDEX DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3-4	ESTIMATED QUANTITIES
5-7	TYPICAL SECTIONS
8-9	CONSTRUCTION SEQUENCE
10-13	TRAFFIC CONTROL
14	DETAILS & STANDARD PLATES
15-18	TABULATIONS
19	STRUCTURE SCHEDULES
20	ALIGNMENT PLAN
21-23	SUPERELEVATION DIAGRAM
24-26	GRADING & EROSION CONTROL PLAN
27-28	REMOVALS
29-35	CONSTRUCTION PLAN & PROFILE
36-37	SIGNING & PAVEMENT MARKING
38-42	TRAFFIC SIGNAL SYSTEM
43-47	BOX CULVERT PLAN
48-55	HODGSON RD. (T.H. 49) CROSS SECTIONS
56-60	NORTH RD. (CSAH 10) CROSS SECTIONS
61-71	LAKE DRIVE (CSAH 23) CROSS SECTIONS
71-80	LAKE DRIVE (T.H. 49) CROSS SECTIONS

Approved: _____ 19 94
CITY OF LINO LAKES ENGINEER

Approved: _____ 19 94
CITY OF CIRCLE PINES

Recommended for Approval: *Donald H. Timmer* 8/4 94
ANOKA COUNTY DESIGN ENGINEER

Approved: *Paul K. Lund* 8/4 94
ANOKA COUNTY ENGINEER

Recommended for Approval: *C. A. Johnson* 2/1 95
FOR METRO DIVISION

Recommended for Approval: *Michael S. Plim* 4/1 95
STATE TRAFFIC ENGINEER

Recommended for Approval: *Robert H. Crawford* 5/1 95
STATE, PRE-LETTING ENGINEERING

Right of Way Approval: *J. Allen* 5-11 95
FOR STATE RIGHT OF WAY ENGINEER

Approved: *Henry R. ...* 5-11 95
STATE DESIGN ENGINEER

Recommended for Approval: *Mary A. Bieringer* 4/3 95
METRO-ASSISTANT DIVISION ENGINEER-STATE AID

Recommended for Approval: _____ 19 95

Approved: *Mark ...* 7-7 95
STATE AID ENGINEER

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

DATE _____ REG. NO. _____

SCALE 0 750 1500 3000

INDEX MAP

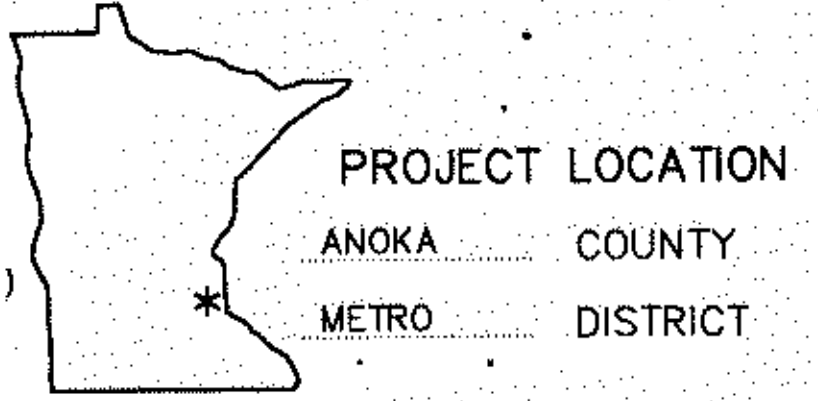
PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING APPENDIX B.

EXACT LOCATION OF UNDERGROUND ELECTRICAL, GAS, CABLE, & TELEPHONE FACILITIES IS UNKNOWN. CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL FOR LOCATIONS BEFORE COMMENCING EXCAVATION.

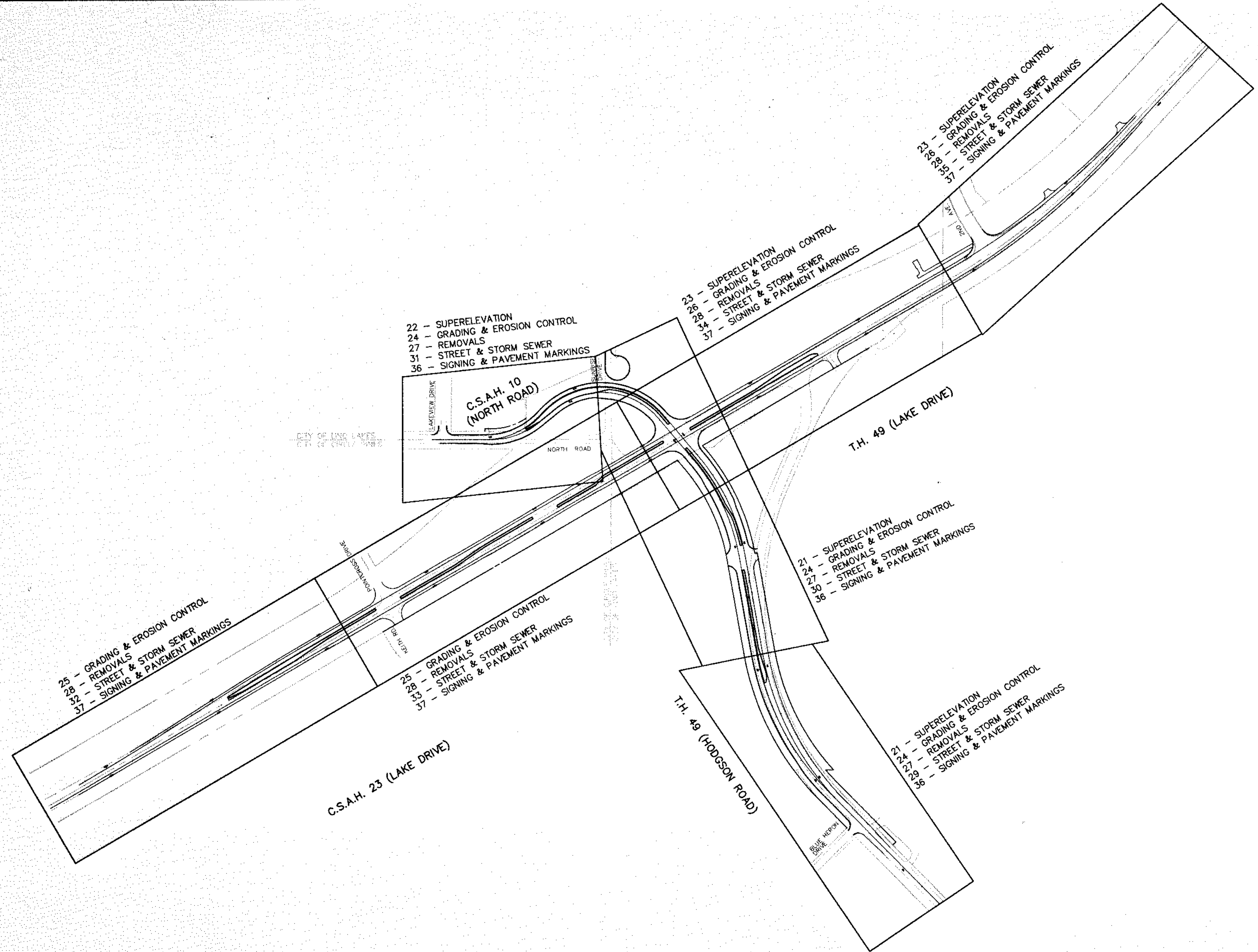
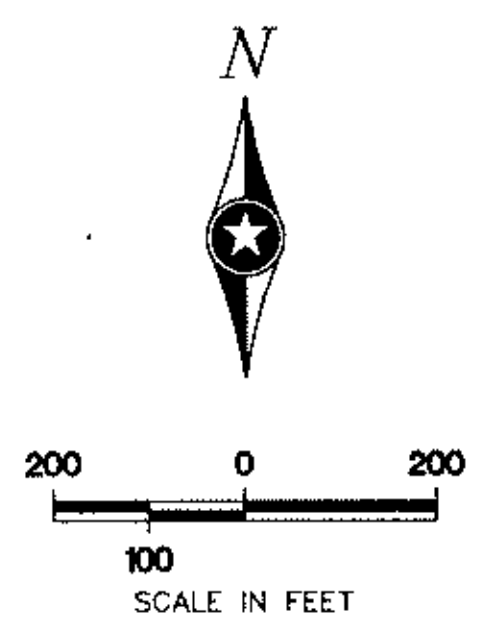
STOPPING SIGHT DISTANCE BASED ON
3.5' HEIGHT OF EYE
0.5' HEIGHT OF OBJECT

AGREEMENT NO. 73174
CITY OF LINO LAKES
S.P. 0204-12 (T.H. 49-126)
STATE FUNDS
METRO DISTRICT



STATE AID PROJ. NO. 02-623-07, 02-610-09
 STATE PROJ. NO. 0204-12
 Sheet No. 1 of 80 Sheets

BASE OVERLAY DRG. NO.



CITY OF LINO LAKES
CITY OF CHRYSLER

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Timothy C. Hanson
Date: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
T.H. 49, CSAH 23, & CSAH 10

GENERAL LAYOUT

FILE NO. LINOL1310.04	2
DATE 6-7-94	80

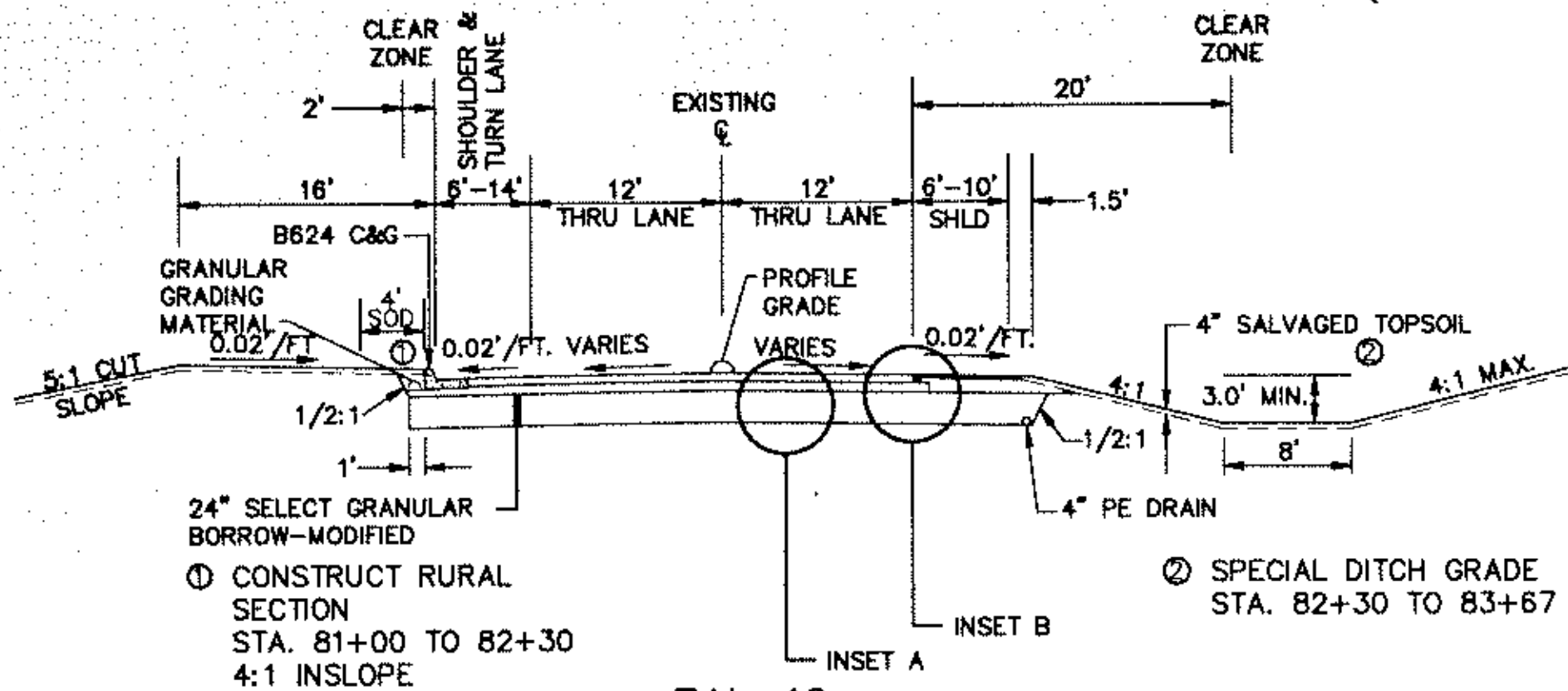
S:\M\CPUL\20\1\02\1310\131004.dwg 06-06-94 8:37 am

STATEMENT OF ESTIMATED QUANTITIES

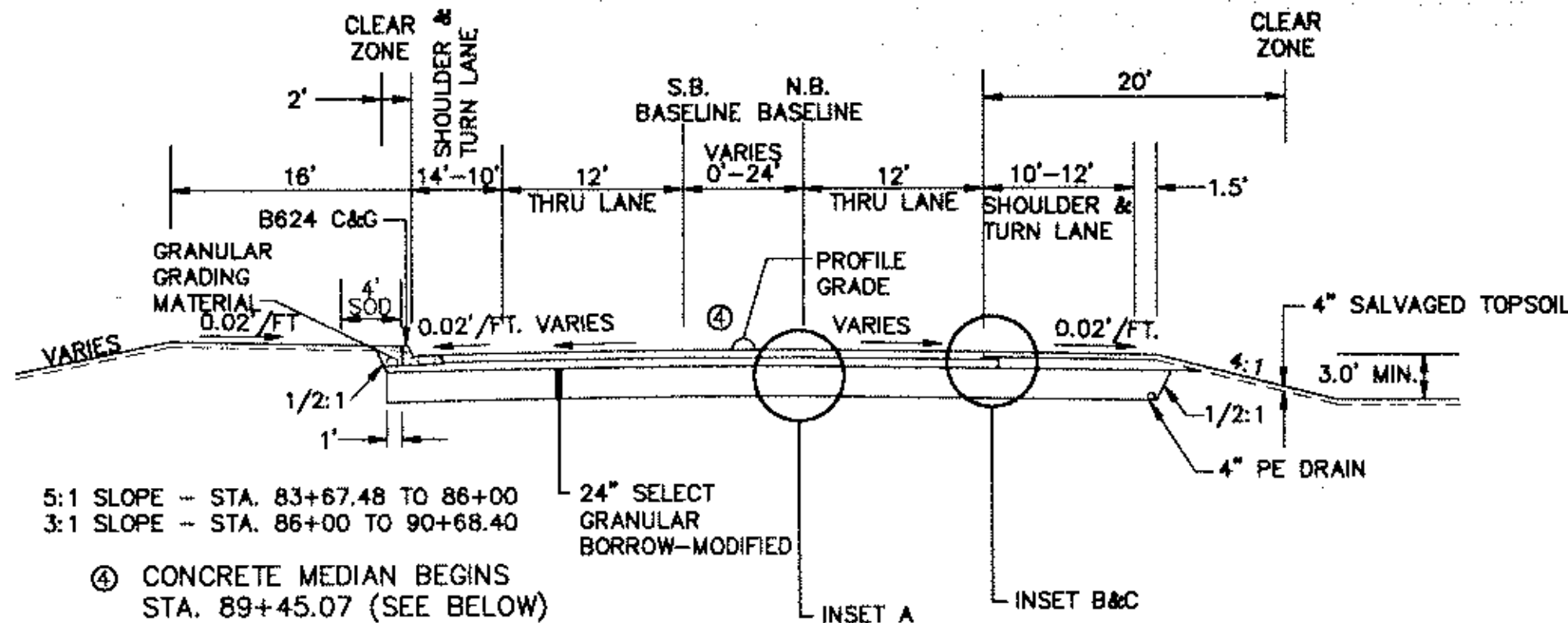
ITEM NO.	DESCRIPTION	UNIT	TOTAL EST. QTY.	S.P. 0204-12 HODGSON ROAD & LAKE DRIVE						S.A.P. 02-623-07 (Non-Part.)						S.A.P. 02-610-09						LINO LAKES		CIRCLE PINES	
				T.H. 49		T.H. 49		T.H. 49		MUNICIPAL ACCT.		REGULAR ACCT.		STORM SEWER		MUNICIPAL ACCT.		REGULAR ACCT.		STORM SEWER		EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.
				100% STATE		STATE 50% - CITY 50%		100% CITY		EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.				
				EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.													EST. QTY.	FINAL QTY.	EST. QTY.	FINAL QTY.
2021.501	Mobilization	L.S.	1	0.53				0.09	0.19	0.04		0.03	0.01		0.08		0.01	0.01			0.01				
2031.501	Field Office, Type D	EACH	1	0.53				0.09	0.19	0.04		0.03	0.01		0.08		0.01	0.01			0.01				
2101.501	Clearing	ACRE	5.85	4.7					0.5						0.65										
2101.502	Clearing	TREE	12	1											11										
2101.506	Grubbing	ACRE	5.85	4.7					0.5						0.65										
2101.507	Grubbing	TREE	12	1											11										
2102.502	Pavement Marking Removal ①	L.F.	12,000	6,700					4,700	600															
2104.501	Remove Guard Rail-Plate Beam ②	L.F.	160	160																					
2104.501	Remove Curb & Gutter	L.F.	740	710										30											
2104.501	Remove Pipe Culverts	L.F.	494	220					80	110					84										
2104.501	Remove Cable Guard Rail ②	L.F.	160	160																					
2104.505	Remove Bituminous Pavement	S.Y.	13,992	9,672					437					835	3,048										
2104.505	Remove Concrete Pavement	S.Y.	144	100					20					24											
2104.509	Remove Catch Basin	EACH	3											1	2										
2104.509	Remove Handhole	EACH	1	1																					
2104.511	Sawing Conc Pymt (Full depth)	L.F.	160	90					70																
2104.513	Sawing Bit Pymt (Full depth)	L.F.	209	43					80					16	46						24				
2104.523	Salvage Hyd. & Valve ③	EACH	3					2													1				
2104.523	Salvage Concrete Apron (36") ③	EACH	1	1																					
2104.523	Salvage Lighting Unit ④	EACH	2	2																					
2104.523	Salvage Casting ③	EACH	1											1											
2104.523	Salvage Sign, Type C ⑤	EACH	113	69					19						25										
0104.602	Relocate Mail Boxes	EACH	7	6																	1				
2105.501	Common Excavation	C.Y.	23,410	15,031					3,512	961					3,906										
2105.505	Muck Excavation	C.Y.	2,585	2,173					125						287										
2105.515	Unclassified Excavation	C.Y.	11,179	8,706					2,473																
2105.522	Select Granular Borrow-Mod. (CV)	C.Y.	13,671	9,002				③ 2,011		381				389	1,555						333				
2105.533	Salvage Aggregate in Stockpile	C.Y.	200	200																					
2105.533	Salvage Aggregate from Stockpile	C.Y.	200	200																					
2105.535	Salvaged Topsoil	C.Y.	6,756	4,004					1,778	278				84	612										
2105.543	Stabilizing Aggregate	TON	725	320					370	35															
2112.501	Subgrade Preparation	RD STA	40.8	18.8					20	2															
0123.601	Street Sweeper w/Pickup Broom ⑥	HOURL	50	30											10										
2130.501	Water ⑦	M (GAL.)	90	40					10	10				5	20										
2211.501	Aggregate Base Cl. 6	TON	4,215	3,821				③ 394																	
2211.501	Aggregate Base Cl. 5	TON	8,419	3,045				③ 615	22,364	② 304				117	1,614						360				
0231.601	Pavement Breaking (Rubble)(P)	RD STA	45.5	23.5					19.5	2.5															
2232.501	Mill Bit Surface (1-1/2" Min)	S.Y.	7,463						7,220	243															
2232.501	Mill Bit Surface (3-1/2" Depth)	S.Y.	550	85					384	81															
2232.501	Mill Bit Surface (3-1/2" Min)	S.Y.	8,620	6,536					1,400	684															
2232.502	Mill Conc Surface (1-1/2" Depth)	S.Y.	315	135					180																
2232.502	Mill Conc Surface (3-1/2" Depth)	S.Y.	610	200					330	80															
2340.508	Type 31, Wearing Course Mixture	TON	1,826	810				② 235	642	76											63				
2340.508	Type 41, Wearing Course Mixture	TON	2,032	1,152				③ 1,152	97					44	380						87				
2340.508	Type 47, Wearing Course Mixture	TON	2,395	1,102				③ 272	1,157	136															
2340.510	Type 31, Binder Course Mixture	TON	424											44	380										
2340.510	Type 41, Binder Course Mixture	TON	1,835	1,563				③ 272																	
2340.510	Type 47, Binder Course Mixture	TON	3,207	1,514																					
2340.512	Type 47, Leveling Course Mixture ⑧	TON	218	92					79	47															
2340.514	Type 31, Base Course Mixture	TON	5,111	2,950				③ 341	1,145	164				44	380						87				
2340.521	Irregular Width Paving	S.Y.	679						679																
2357.502	Bit Material for Tack Coat	GAL.	3,979	1,907				③ 377	1,075	110				48	414						48				
2411.501	Structure Concrete (3Y43)	C.Y.	6																						
2411.541	Reinforcement Bars	LB.	540																						
2412.511	5' x 7' Prec Conc Box Culv	L.F.	34																						
2412.512	5' x 7' Prec Conc Box Culv End Sec	EACH	2																						
0451.602	Crushed Rock Pipe Foundation ⑨	TON	360	150					60												70	10			
2501.515	12" RCP Apron, Cl. 5,	EACH	4						1																
2501.515	18" RCP Apron, Cl. 3,	EACH	11	7																					
2501.515	24" RCP Apron, Cl. 3,	EACH	4	2																					
2501.515	36" RCP Apron, Cl. 3,	EACH	1																						
2501.573	Install Concrete Apron (36")	EACH	1	1																					
2502.541	4" Perf. PE Pipe Drain	L.F.	② 1,265	② 865											300							100			
0502.601	Precast Conc Headwall	EACH	3	3																					
2503.541	12" RCP Sew, Des. 3006 Cl. V,	L.F.	297	③ 42				③ 62						③ 183							10				
2503.541	15" RCP Sew, Des. 3006 Cl. VI,	L.F.	278	136																	142				
2503.541	18" RCP Sew, Des. 3006 Cl. VII,	L.F.	408	216																					
2503.541	24" RCP Sew, Des. 3006 Cl. VIII,	L.F.	350	98																					
2503.541	36" RCP Sew, Des. 3006 Cl. IX,	L.F.	48	24				② 80	② 29												143	24			
0503.602	Connect to Existing Sanitary Sewer	EACH	1						1																
0503.603	8" PVC Pipe Sewer	L.F.	60						60																
0504.602	Adjust Valve Box	EACH	4						4																
0504.602	16" x 6" Pressure Tap & Valve	EACH	1																			1			
0504.602	16" x 8" Pressure Tap & Valve	EACH	1						1																

BASE OVERLAY (BEG. NO.)

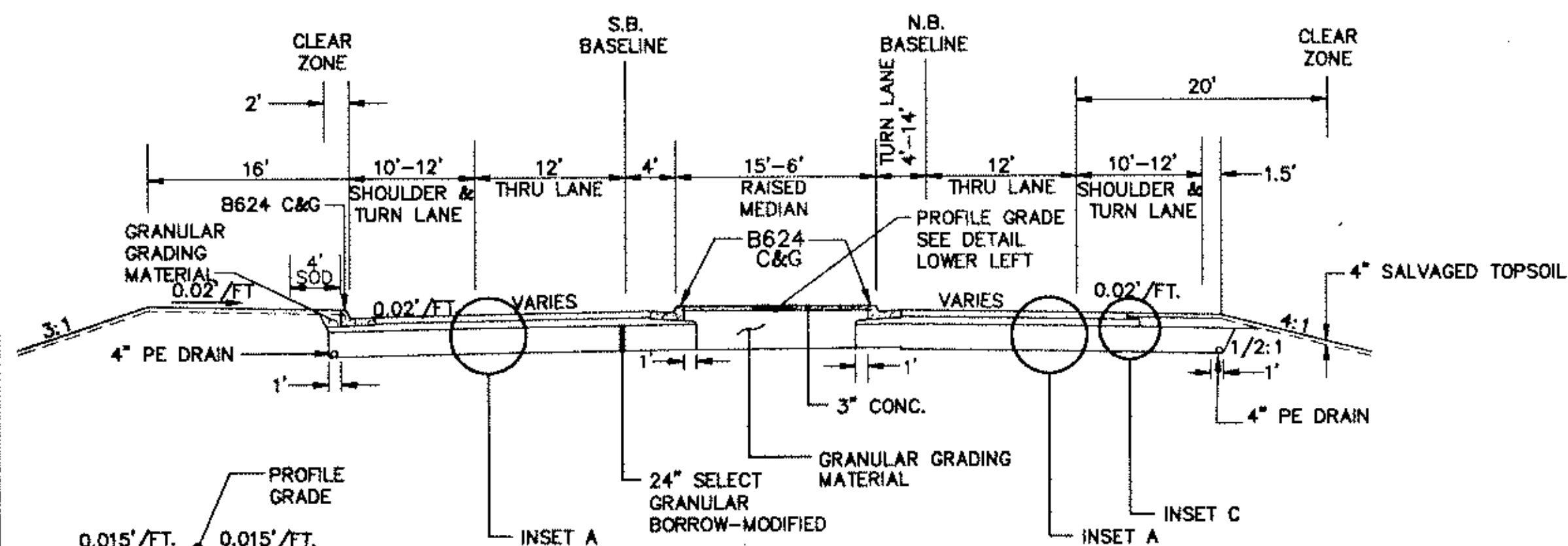
OBSTACLE FREE CLEAR ZONE: 2.0 FT. FROM FACE OF CURB
20 FT. RURAL SECTION
(HODGSON ROAD)



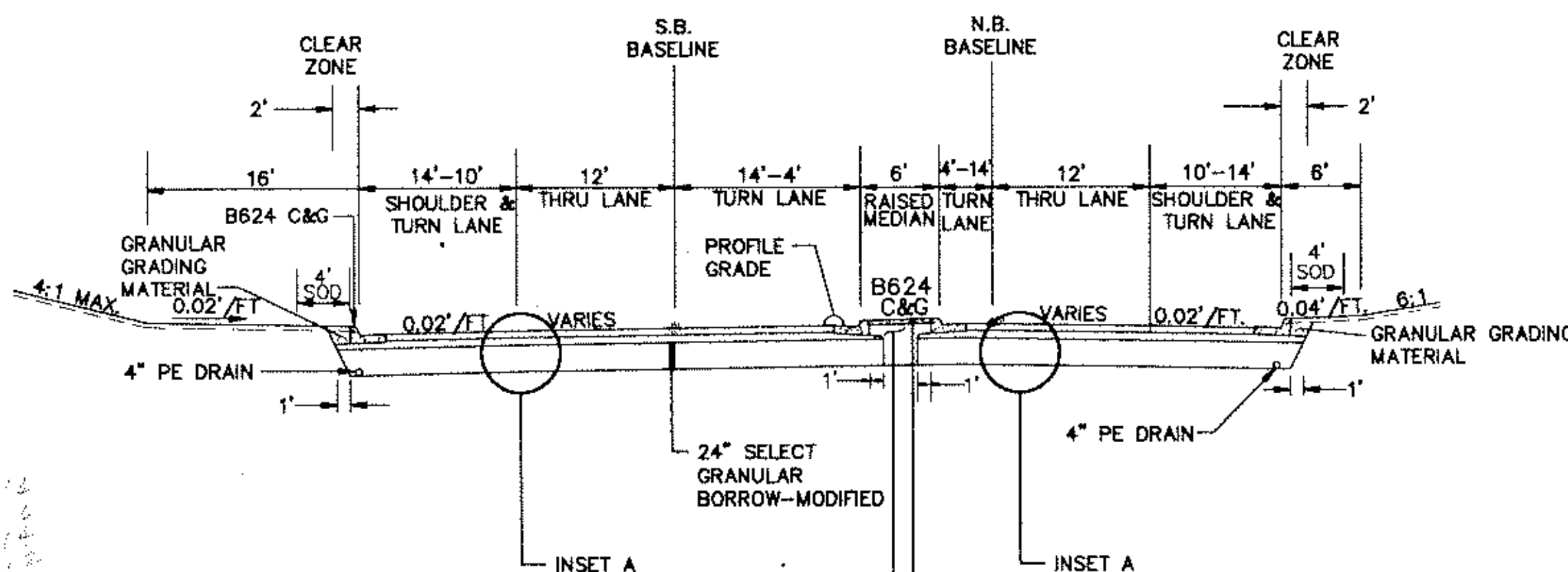
T.H. 49
(HODGSON ROAD)
STA. 81+00.00 TO STA. 83+67.48



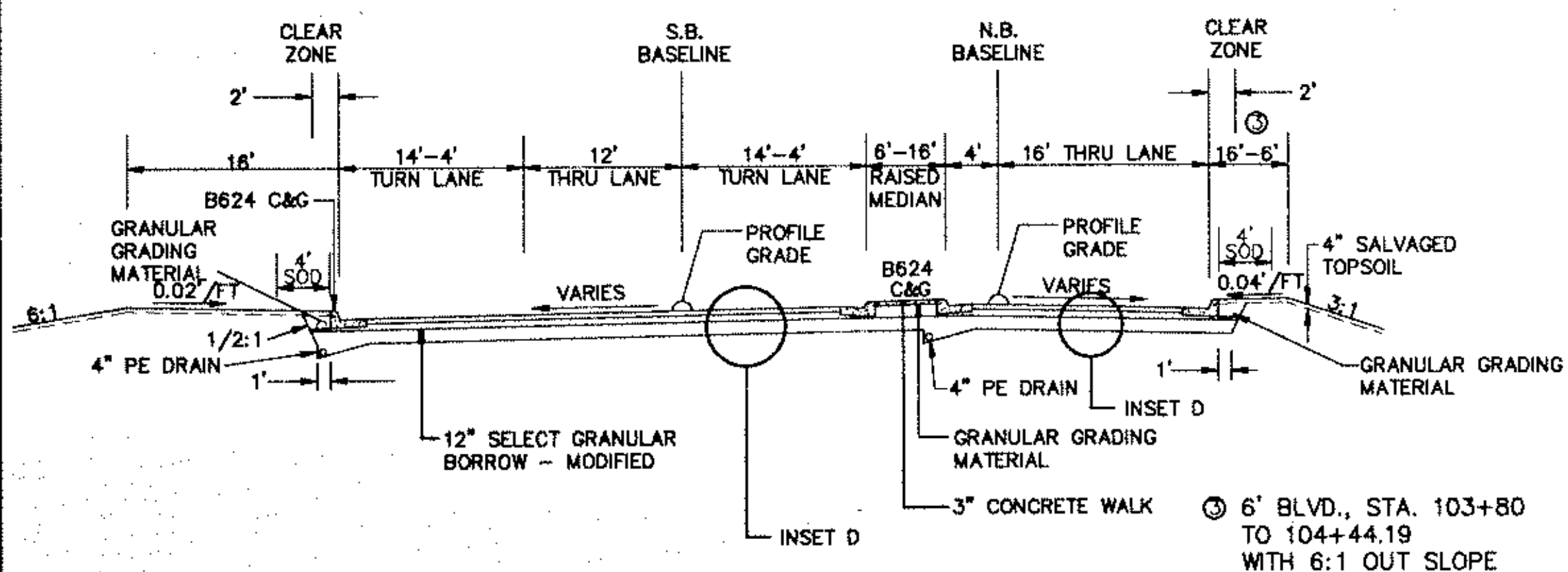
T.H. 49
(HODGSON ROAD)
STA. 83+67.48 TO STA. 90+68.40



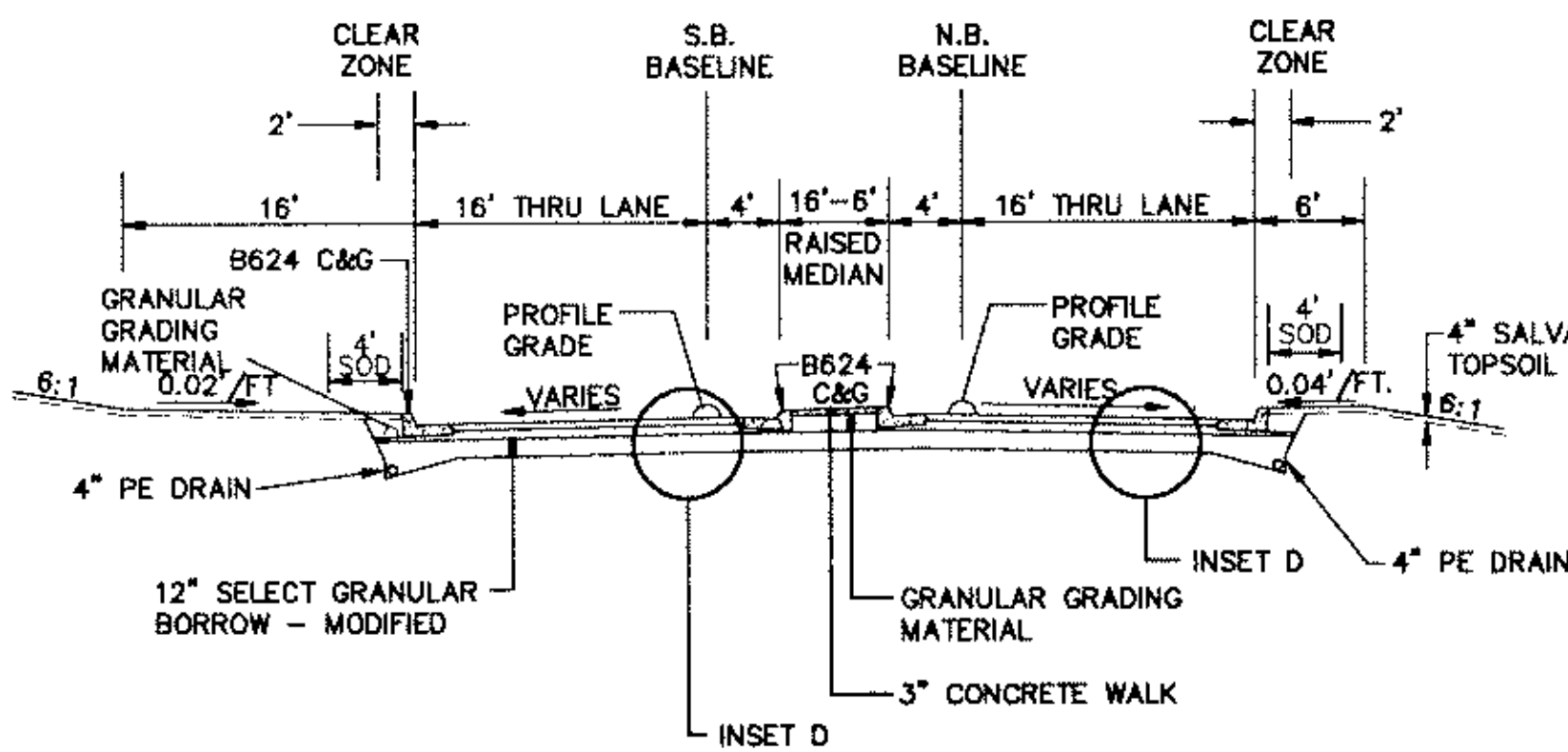
T.H. 49
(HODGSON ROAD)
STA. 90+68.40 TO STA. 94+00



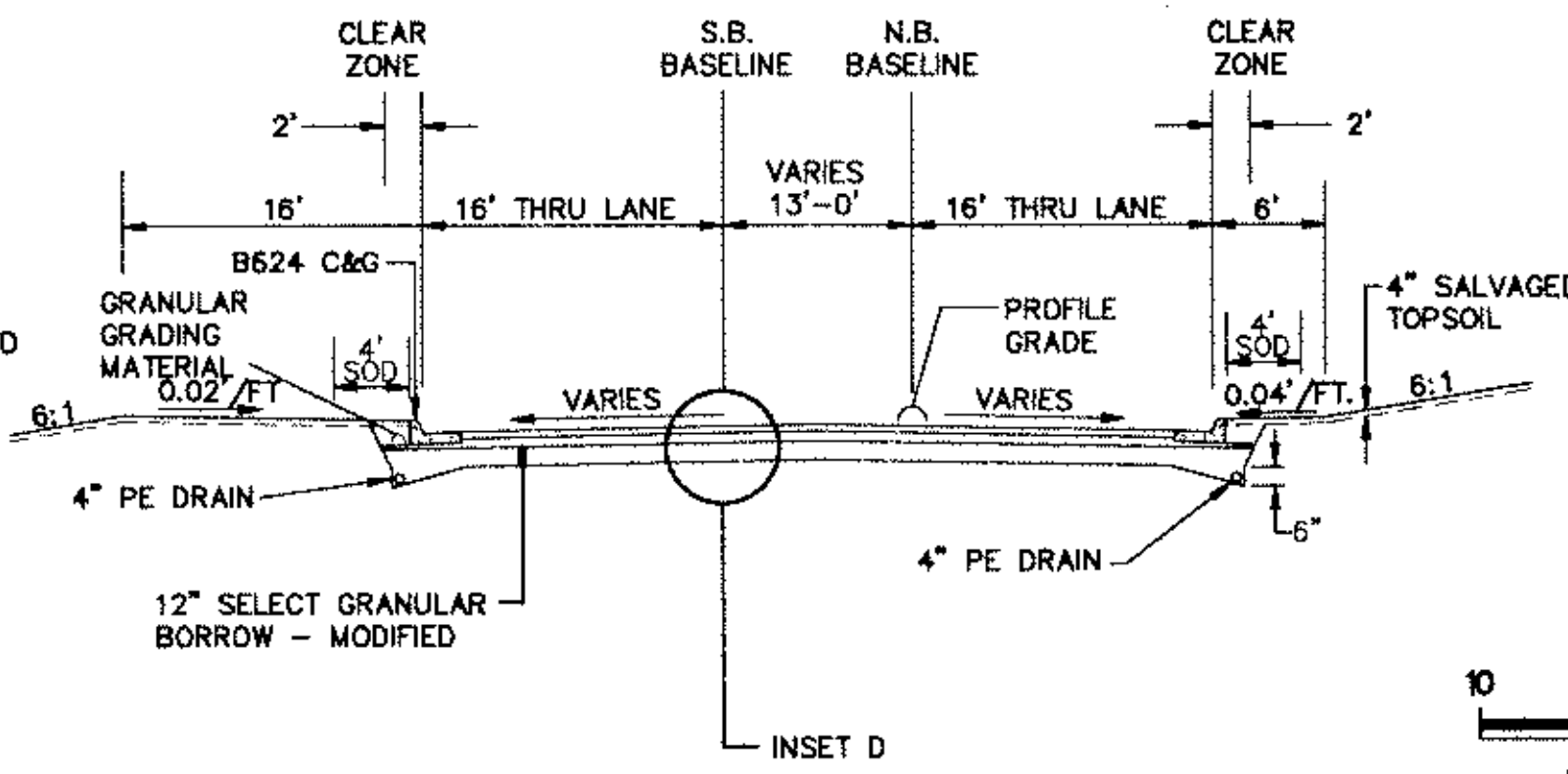
T.H. 49
(HODGSON ROAD)
STA. 94+00 TO STA. 99+04.46



C.S.A.H. 10
(NORTH ROAD)
N.B. STA. 101+29.79 TO N.B. STA. 104+44.19

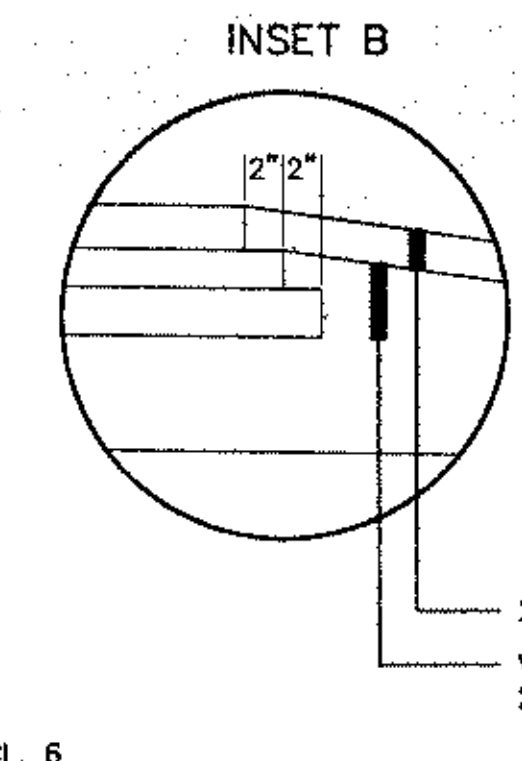
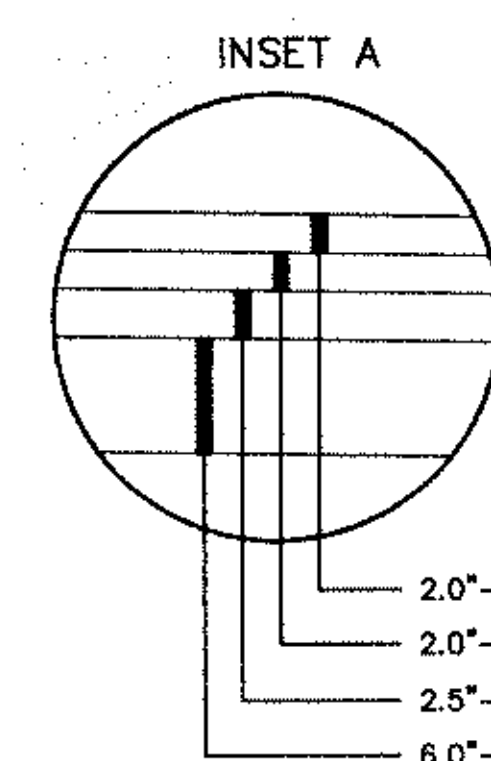


C.S.A.H. 10
(NORTH ROAD)
STA. 104+44.19 TO STA. 106+81.81

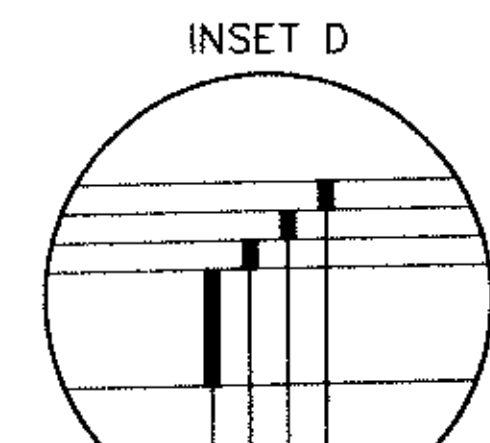
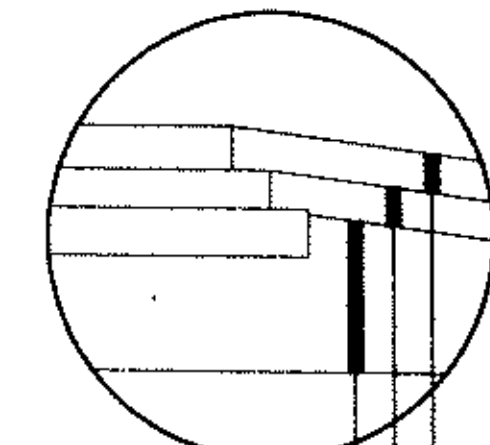


C.S.A.H. 10
(NORTH ROAD)
STA. 106+81.81 TO STA. 111+32.00

OBSTACLE FREE CLEAR ZONE: 2.0 FT. FROM FACE OF CURB
(NORTH ROAD)



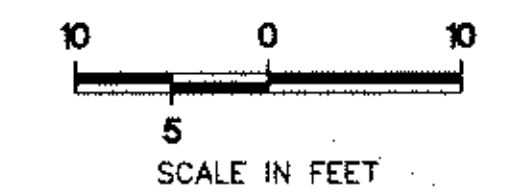
BEGIN STA. 89+45
INSET C & DRIVEWAY SECTION



2.0"-2340-41WEA50055Y
2.0"-2340-41BIB50055Y
2.5"-2340-31BBB50000Y
6.0"-2211 AGGREGATE BASE CL. 6

2.0"-2340-31WEA50000Y
2.0"-2340-41BIB50055Y
(BEGIN STA. 89+45)
VARIABLE DEPTH
2211 AGGREGATE BASE CL. 5

1.5"-2340-41WEA50055Y
1.5"-2340-31BIB50000Y
1.5"-2340-31BBB50000Y
6.0"-2211 AGGREGATE BASE CL. 5



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: 6-7-94 Reg. No. 19574



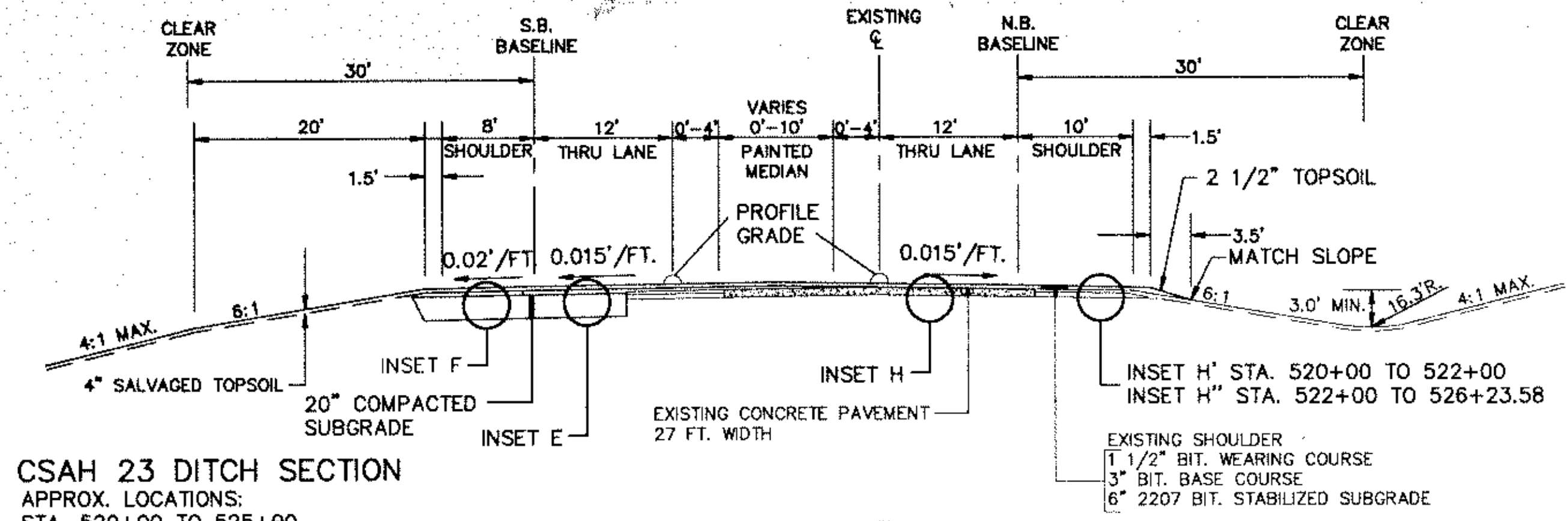
LINO LAKES, MINNESOTA
T.H. 49

TYPICAL SECTIONS

FILE NO. LINOL1310.04	5
DATE 6-7-94	80

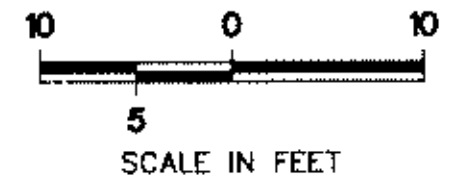
11-28-94 2:58 PM

BASE LAYER NO.

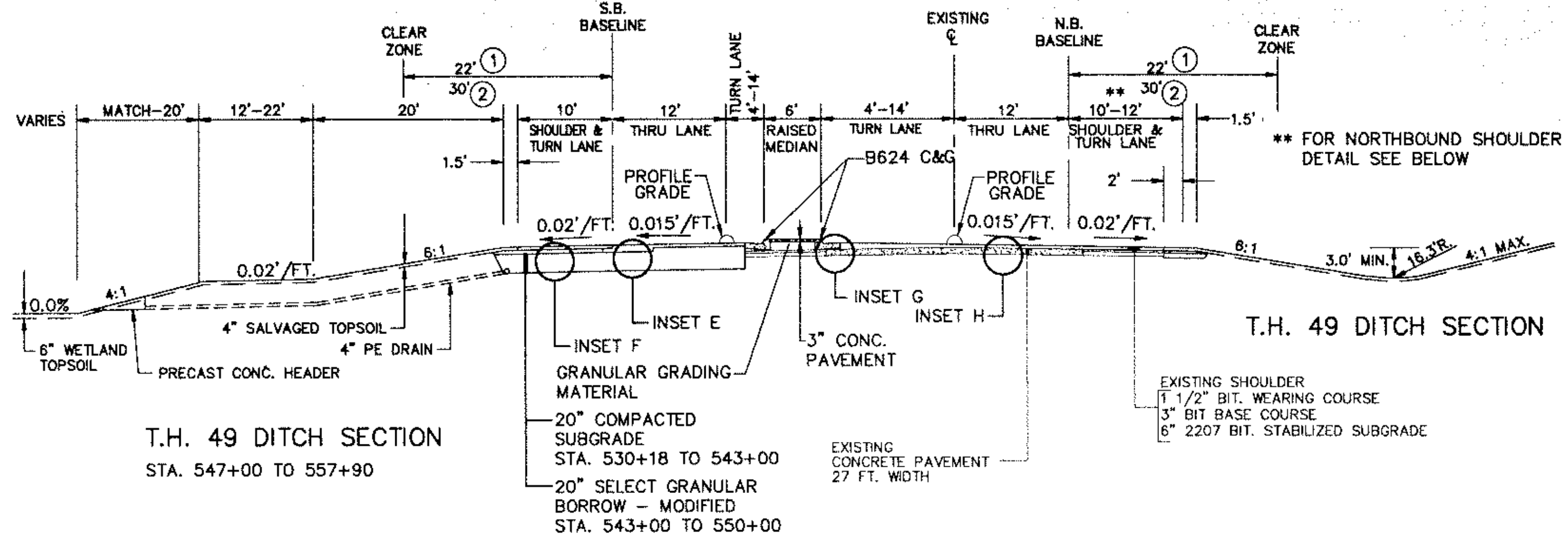


CSAH 23 DITCH SECTION
 APPROX. LOCATIONS:
 STA. 520+00 TO 525+00
 STA. 536+50 TO 538+30

C.S.A.H. 23 (LAKE DRIVE)
 STA. 520+00 TO STA. 525+58.58



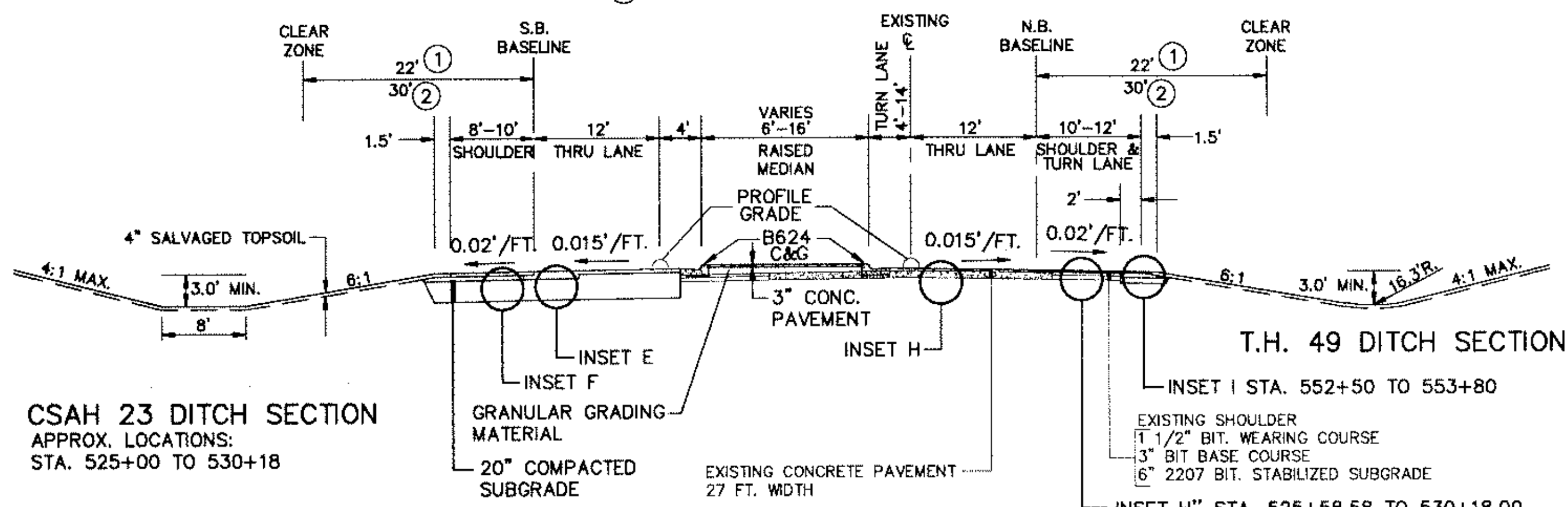
- ① OBSTACLE FREE CLEAR ZONE: 22 FEET ON T.H. 49
- ② OBSTACLE FREE CLEAR ZONE: 30 FEET ON C.S.A.H. 23



T.H. 49 DITCH SECTION
 STA. 547+00 TO 557+90

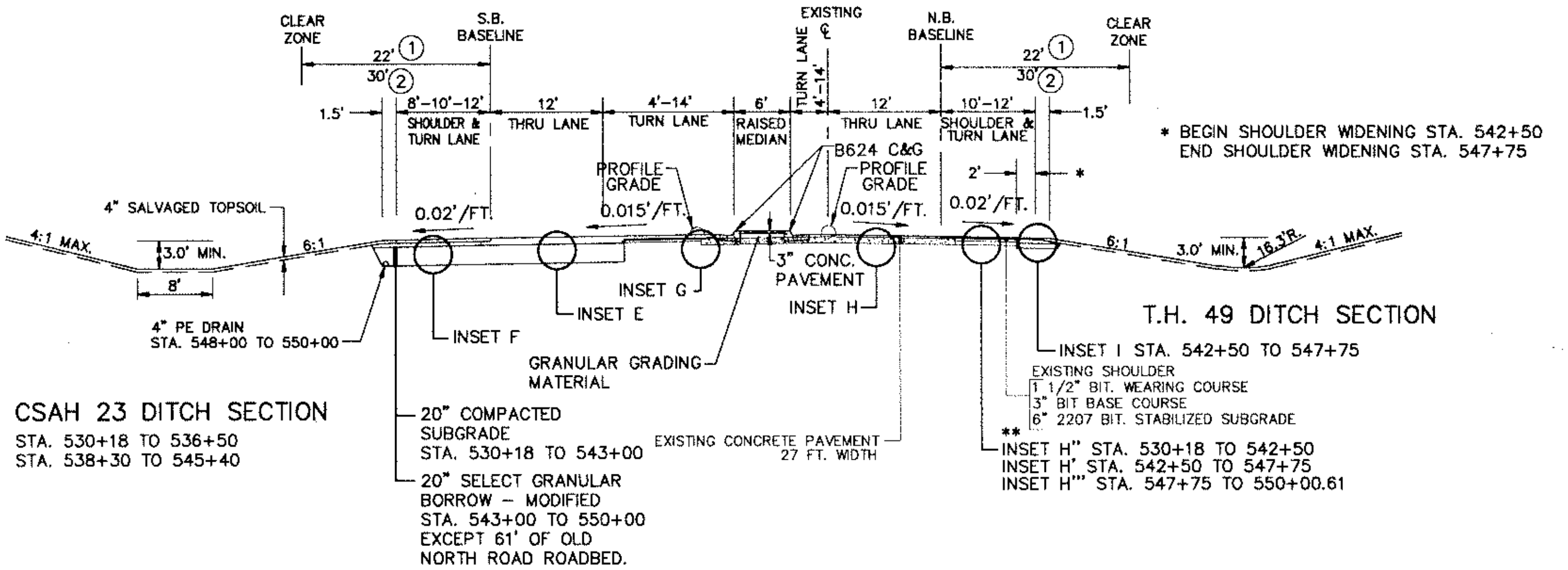
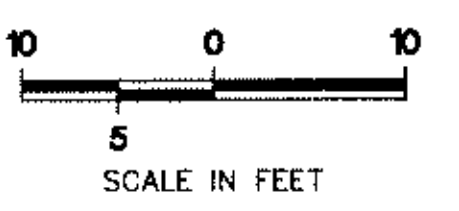
LAKE DRIVE (WITH N.B. LEFT TURN LANE)

- ① OBSTACLE FREE CLEAR ZONE: 22 FEET ON T.H. 49
- ② OBSTACLE FREE CLEAR ZONE: 30 FEET ON C.S.A.H. 23



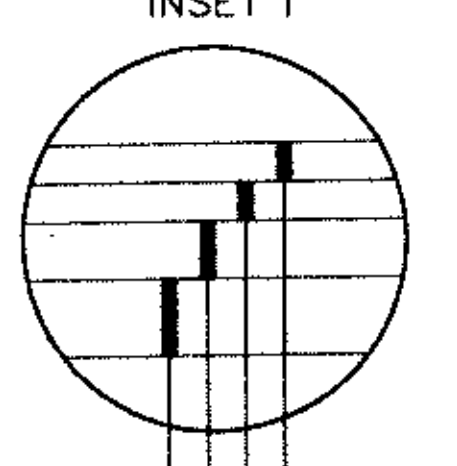
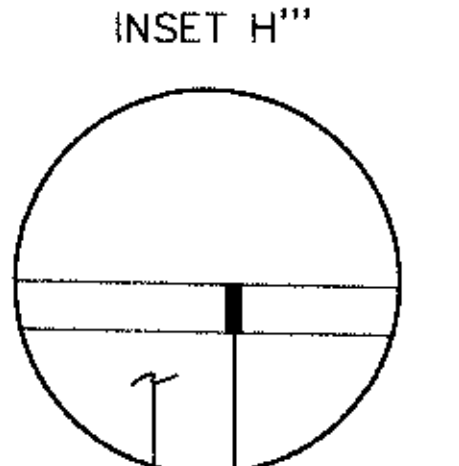
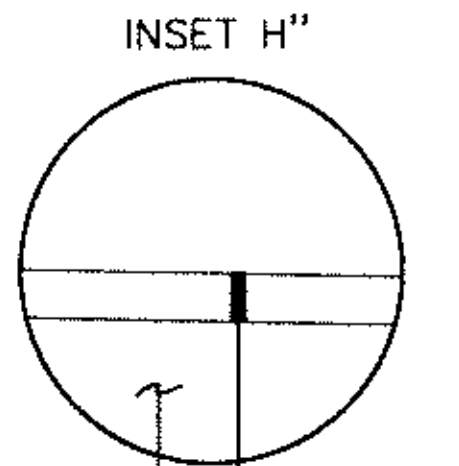
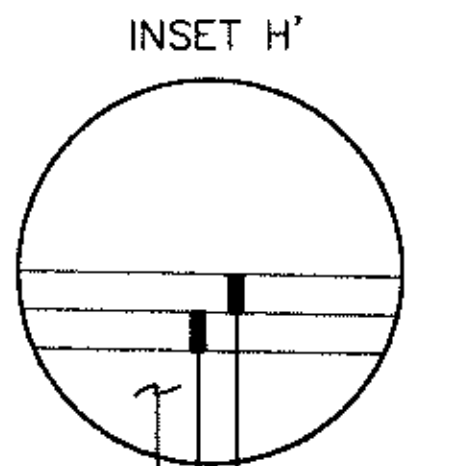
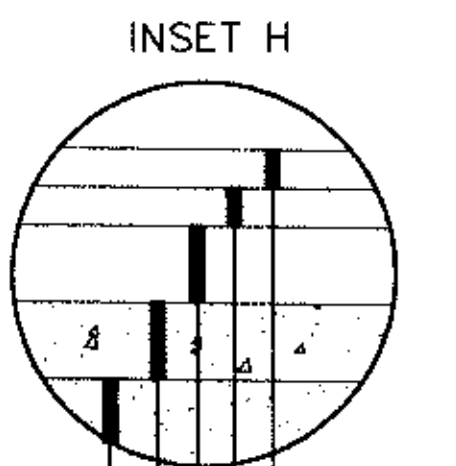
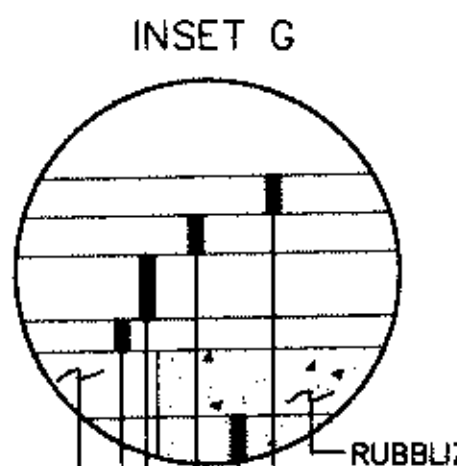
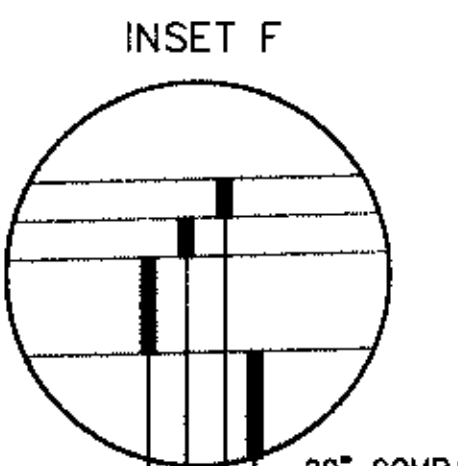
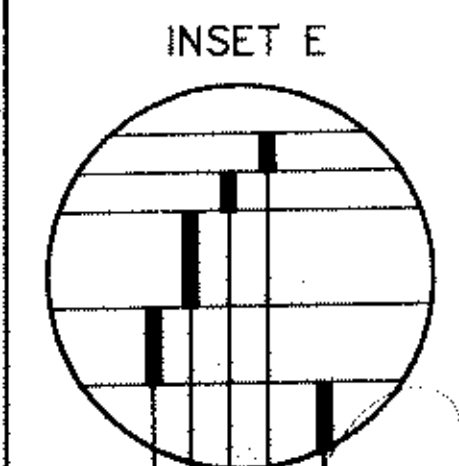
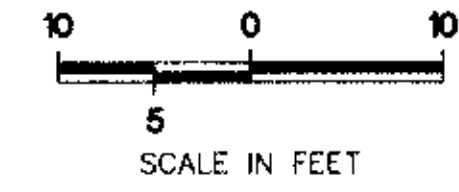
CSAH 23 DITCH SECTION
 APPROX. LOCATIONS:
 STA. 525+00 TO 530+18

C.S.A.H. 23 & T.H. 49 (LAKE DRIVE)
 STA. 525+58.58 TO STA. 530+18.00
 STA. 550+00.61 TO STA. 552+87.70



CSAH 23 DITCH SECTION
 STA. 530+18 TO 536+50
 STA. 538+30 TO 545+40

C.S.A.H. 23 & T.H. 49 LAKE DRIVE (WITH S.B. LEFT TURN LANE)
 STA. 530+18 TO STA. 550+00.61



20" COMPACTED SUBGRADE
 2.0"-2340-47WEA75070X
 2.0"-2340-47BIB50070X
 5.0"-2340-31BBB50000Y
 4.0"-2211 AGGREGATE BASE CL. 5

20" COMPACTED SUBGRADE
 2.0"-2340-31WEA50000Y
 2.0"-2340-47BIB50070X
 VARIABLE DEPTH
 2211 AGGREGATE BASE CL. 5

RUBBLIZE EXIST. CONCRETE PAVEMENT
 2.0"-2340-47WEA75070X
 18" COMPACTED SAND
 2.0"-2340-47BIB50070X
 VARIABLE DEPTH
 2340-47LVB50070X
 VARIABLE DEPTH
 2105-STABILIZING AGGREGATE
 EXIST. BIT. SHOULDER

2.0"-2340-47WEA75070X
 2.0"-2340-47BIB50070X
 VARIABLE DEPTH
 2105-STABILIZING AGGREGATE
 RUBBLIZE EXIST. CONCRETE PAVEMENT
 18" COMPACTED SAND

2.0"-2340-31WEA50000Y
 2.0"-2340-47BIB50070X
 EXIST. BIT. SHOULDER

2.5"-2340-31WEA50000Y
 EXISTING BIT. SHOULDER

1"-1 1/2"-2340
 31WEA50000Y
 EXISTING BIT. SHOULDER

2.0"-2340-31WEA50000Y
 2.0"-2340-47BIB50070X
 3.0"-2340-31BBB50000Y
 4"-2211 AGGREGATE BASE CL. 5

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: 6-1-94 Reg. No. 19574



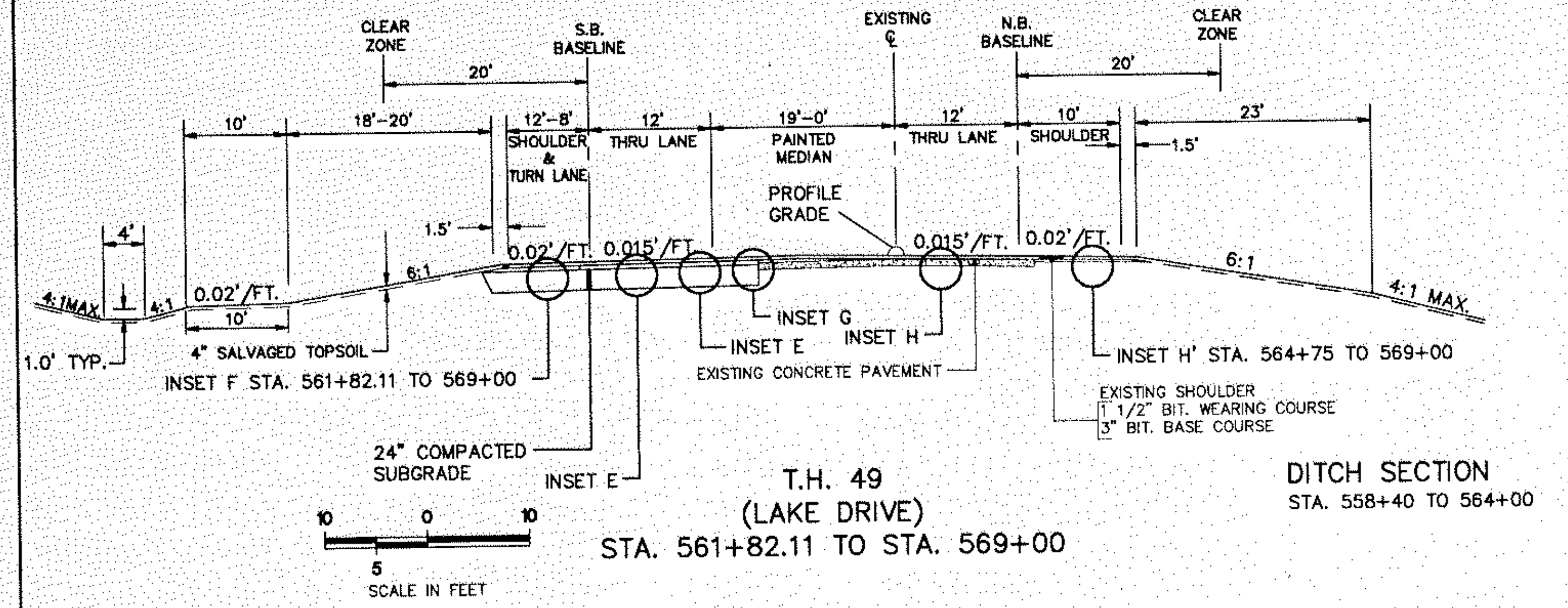
LINO LAKES, MINNESOTA
 C.S.A.H. 23 & T.H. 49

TYPICAL SECTIONS

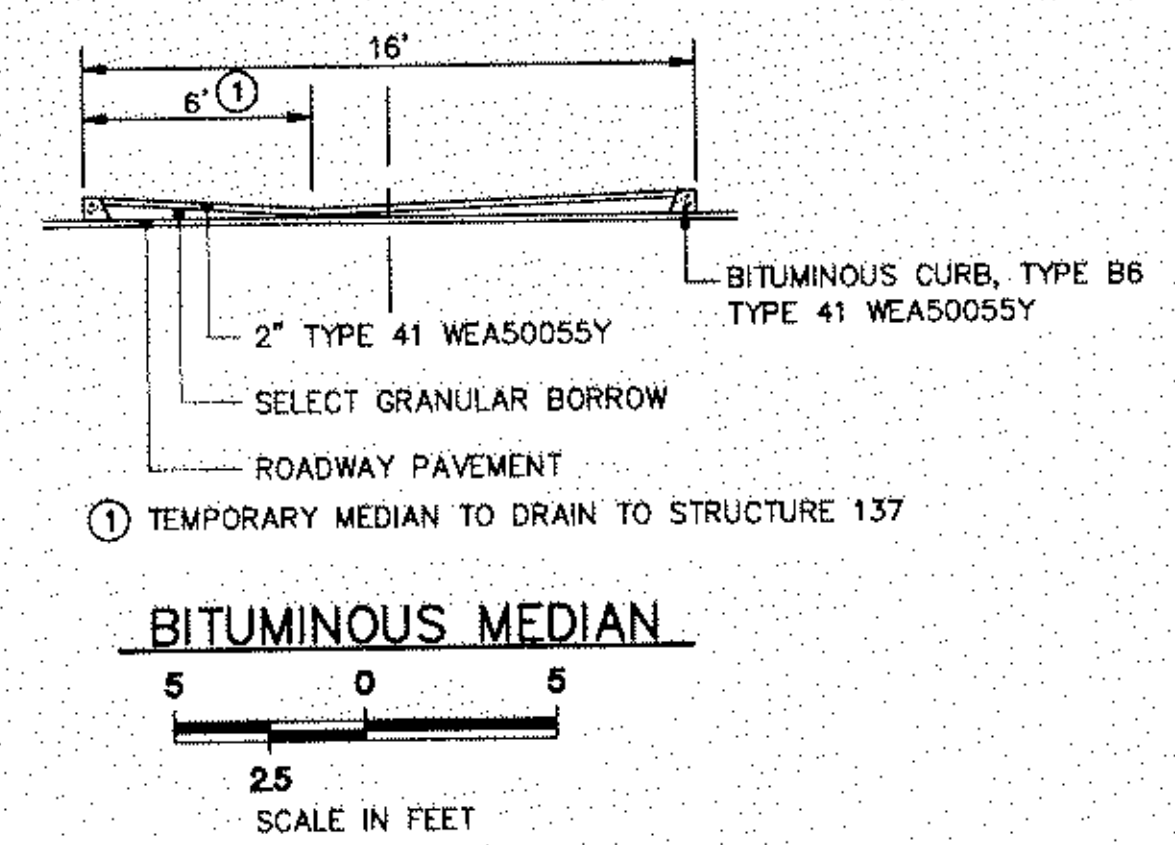
FILE NO.	6
DATE	6-7-94
NO.	80

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCH	7/27/94	REVISED CLEAR ZONES			

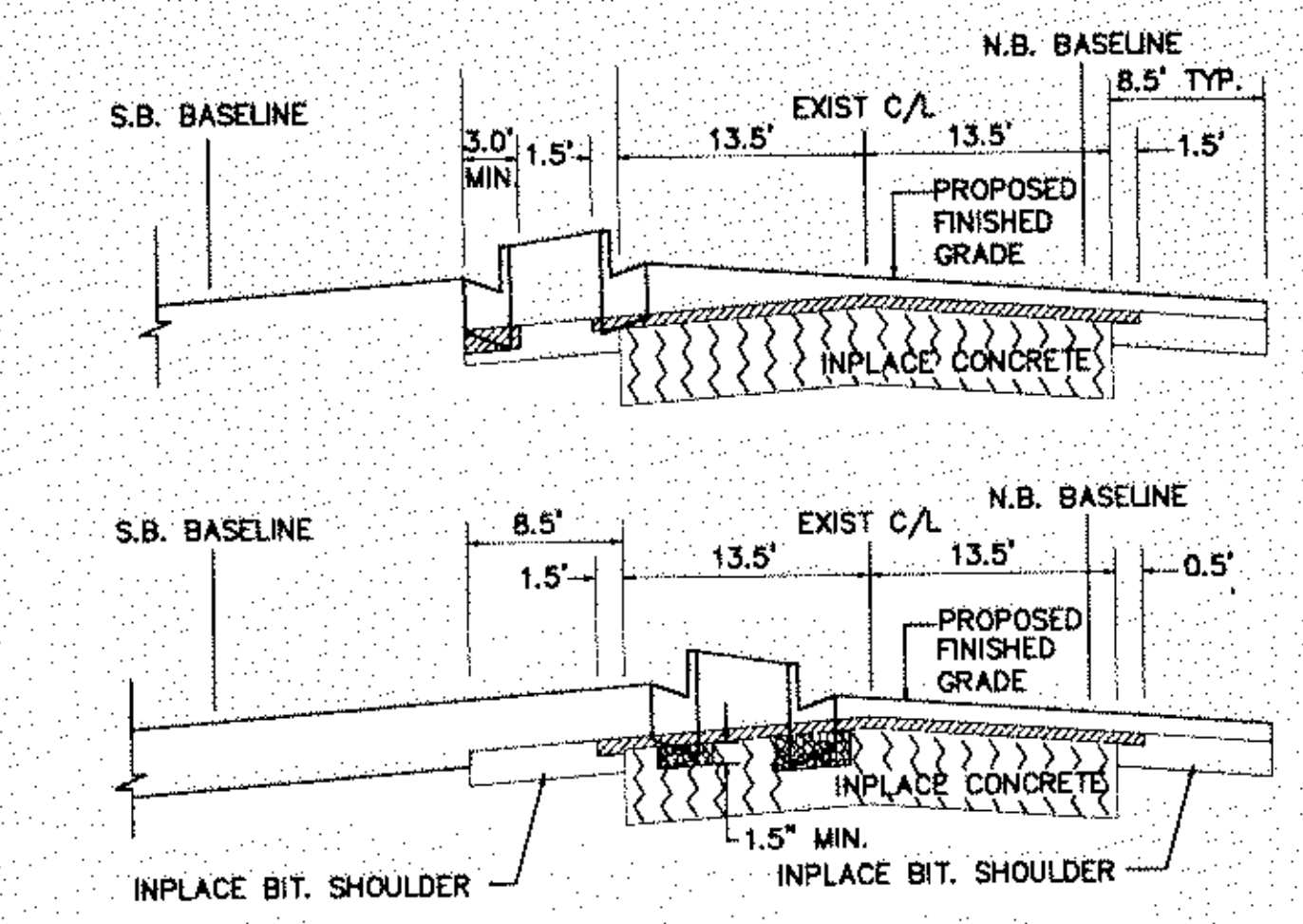
BASE OVERLAY Dwg. NO.



T.H. 49
(LAKE DRIVE)
STA. 561+82.11 TO STA. 569+00



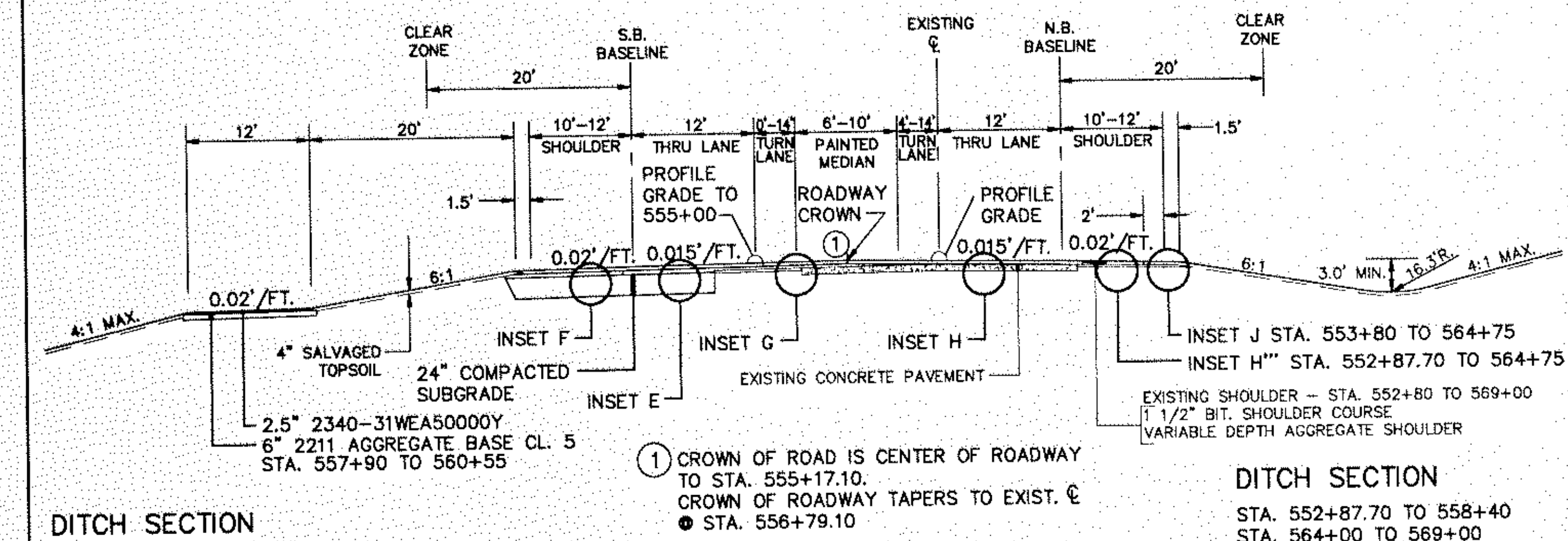
BITUMINOUS MEDIAN
SCALE IN FEET



LEGEND

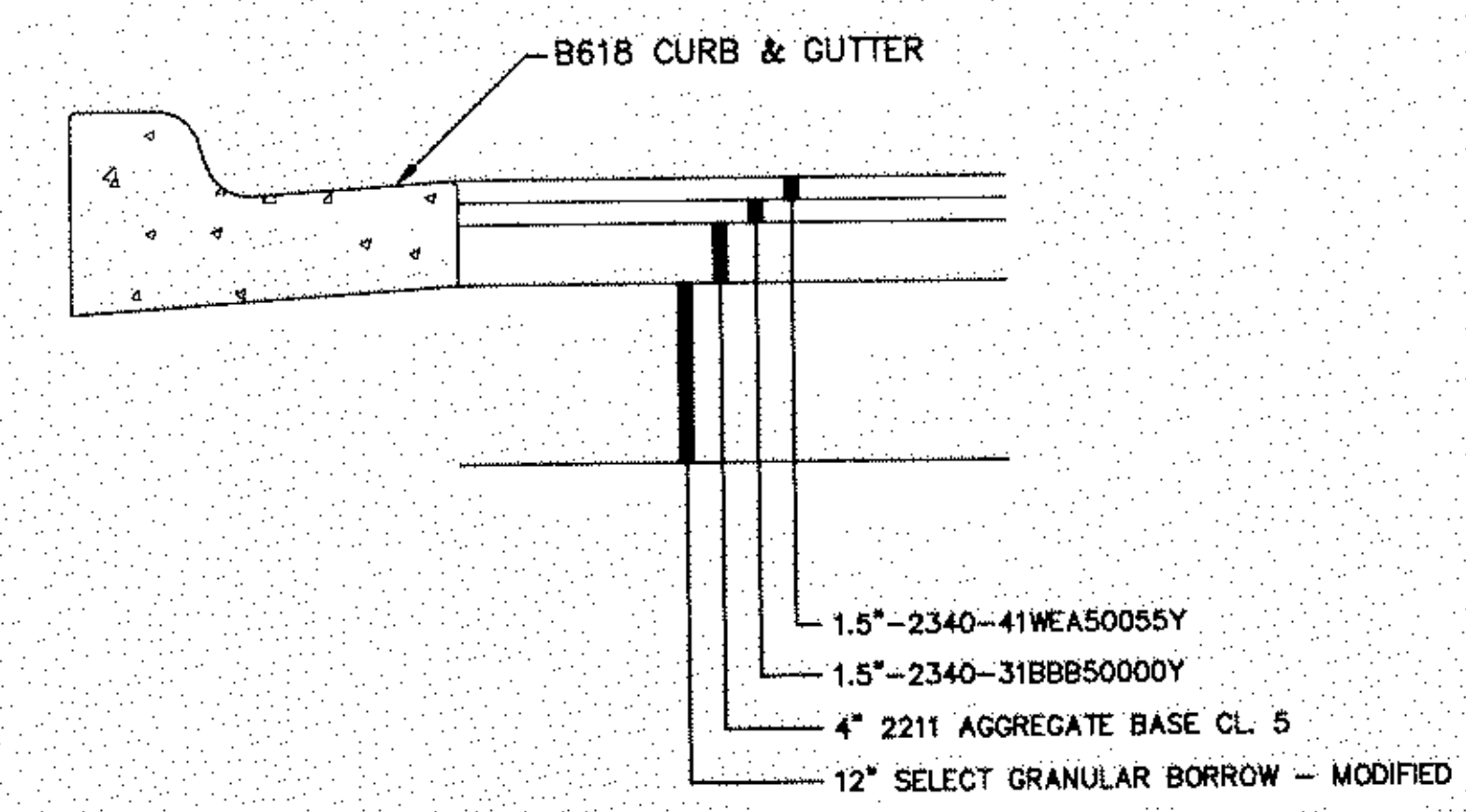
- BITUMINOUS MILLING
- CONCRETE PAVEMENT MILLING REMOVAL
- RUBBLIZE CONCRETE PAVEMENT

CONCRETE AND BITUMINOUS MILLING DETAILS (REMOVAL)

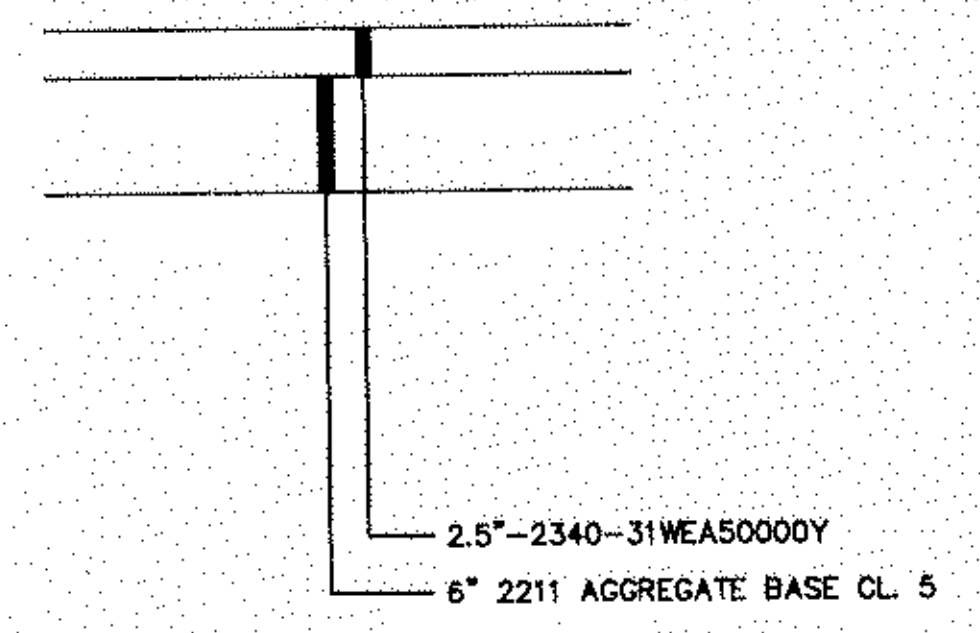


DITCH SECTION
STA. 557+90 TO STA. 560+55

T.H. 49
(LAKE DRIVE)
STA. 552+87.70 TO STA. 561+82.11

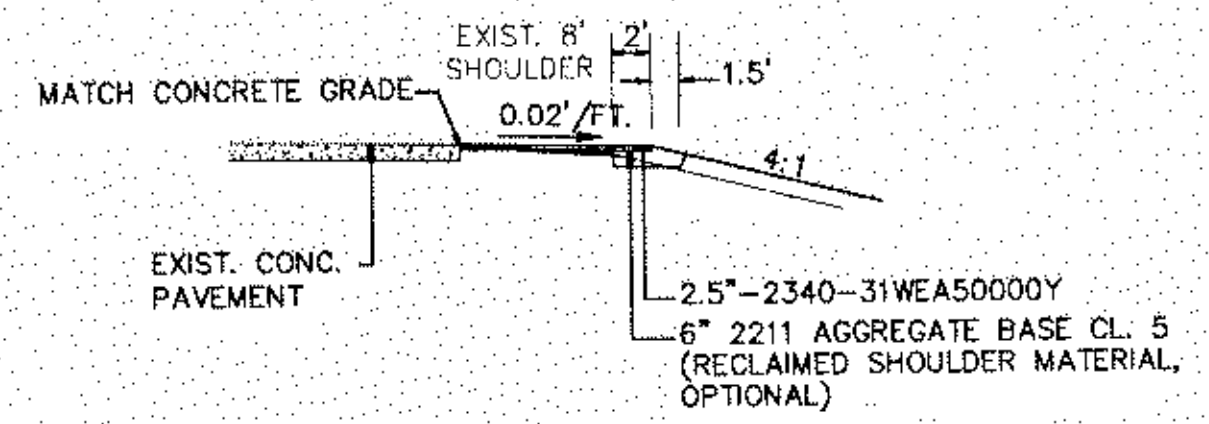
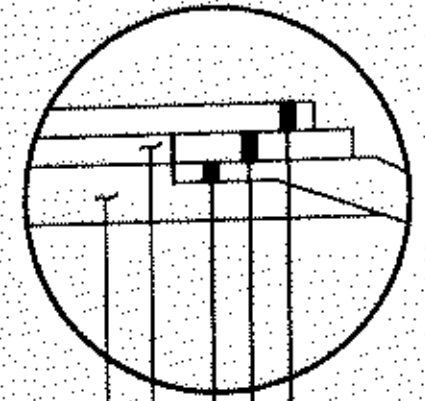


SUNRISE DRIVE CUL-DE-SAC



DRIVEWAYS AND LIFT STATION ACCESS

INSET J
STA. 553+80 TO STA. 564+75



WIDENING AND SHOULDER BYPASS CONSTRUCTION
STA. 564+00 TO STA. 574+00 N.B. LANE
STA. 569+00 TO STA. 574+00 S.B. LANE

S.W. (SPUR 20) (UNDISTURBED) 13106713 07-28-94 7:23 am

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCH	7/27/94	REVISED BIT. MEDIAN DETAIL			

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: 6-7-94 Reg. No. 19574

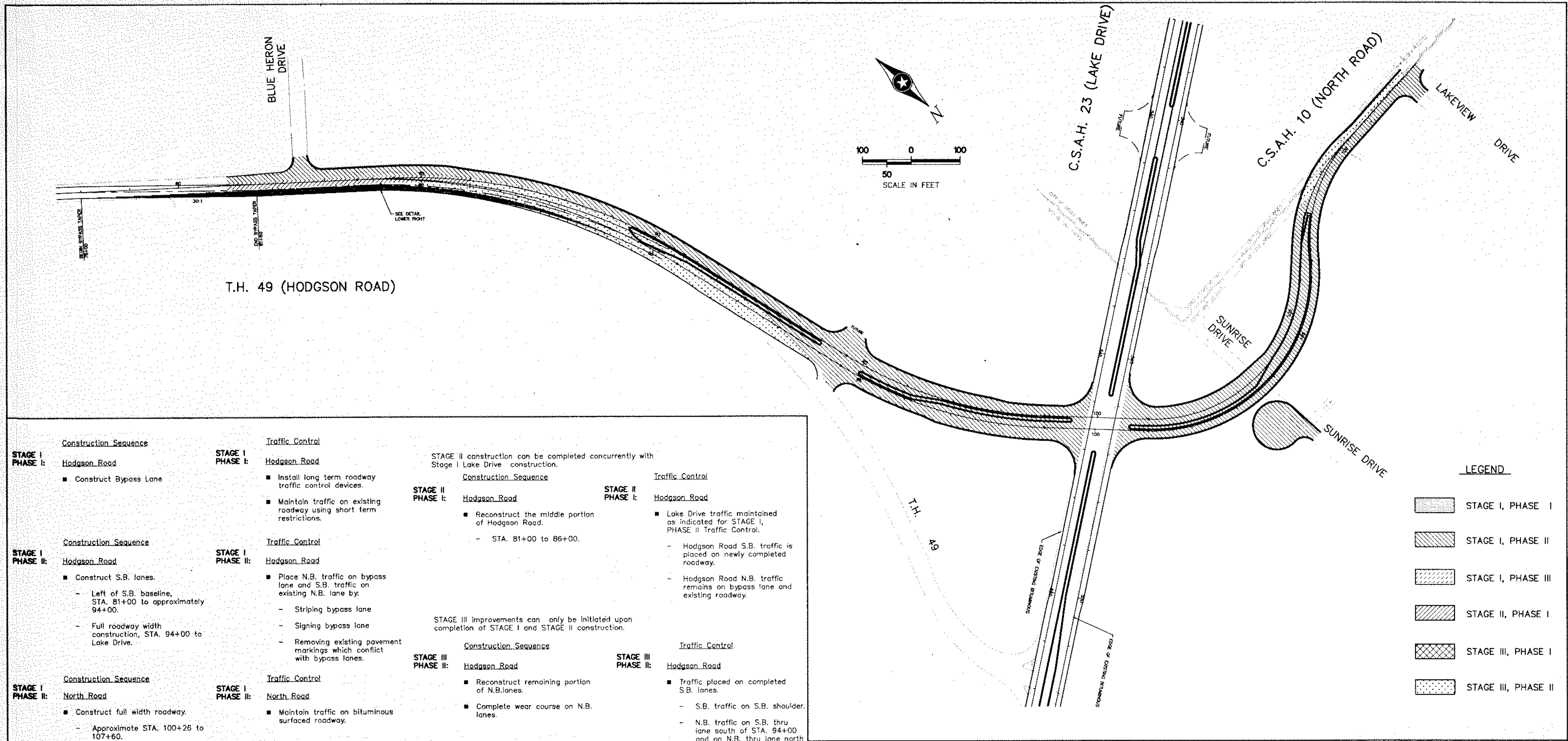


LINO LAKES, MINNESOTA
T.H. 49

TYPICAL SECTIONS

S.P. 0204-12

FILE NO. INOL1310.04	7
DATE 6-7-94	80



STAGE I PHASE I:	Construction Sequence	Traffic Control	STAGE II PHASE I:	Construction Sequence	Traffic Control
	Hodgson Road ■ Construct Bypass Lane	Hodgson Road ■ Install long term roadway traffic control devices. ■ Maintain traffic on existing roadway using short term restrictions.		Hodgson Road ■ Reconstruct the middle portion of Hodgson Road. - STA. 81+00 to 86+00.	Hodgson Road ■ Lake Drive traffic maintained as indicated for STAGE I, PHASE II Traffic Control. - Hodgson Road S.B. traffic is placed on newly completed roadway. - Hodgson Road N.B. traffic remains on bypass lane and existing roadway.
	Hodgson Road ■ Construct S.B. lanes. - Left of S.B. baseline, STA. 81+00 to approximately 94+00. - Full roadway width construction, STA. 94+00 to Lake Drive.	Hodgson Road ■ Place N.B. traffic on bypass lane and S.B. traffic on existing N.B. lane by: - Striping bypass lane - Signing bypass lane - Removing existing pavement markings which conflict with bypass lanes.			
	North Road ■ Construct full width roadway. - Approximate STA. 100+26 to 107+60. ■ Construct W.B. lane STA. - STA. 107+60 to 111+32.	North Road ■ Maintain traffic on bituminous surfaced roadway.			
	Sunrise Drive ■ Construct cul-de-sac.	Sunrise Drive ■ Close street at STA. 0+50, Sunrise Drive.			
		North Road ■ Place North Road traffic on the completed North Road.			

STAGE II construction can be completed concurrently with Stage I Lake Drive construction.

STAGE III improvements can only be initiated upon completion of STAGE I and STAGE II construction.

LEGEND

[Hatched pattern]	STAGE I, PHASE I
[Hatched pattern]	STAGE I, PHASE II
[Hatched pattern]	STAGE I, PHASE III
[Hatched pattern]	STAGE II, PHASE I
[Hatched pattern]	STAGE III, PHASE I
[Hatched pattern]	STAGE III, PHASE II

S:\M\CR\25\LINOL1310\1310CSST

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

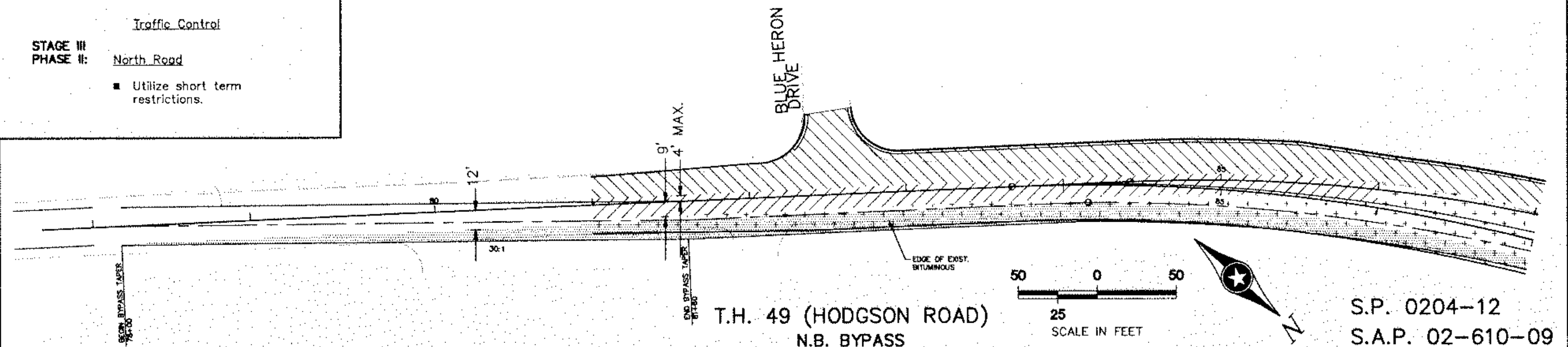
[Signature]
Date: 6-7-94 Reg. No. 19574



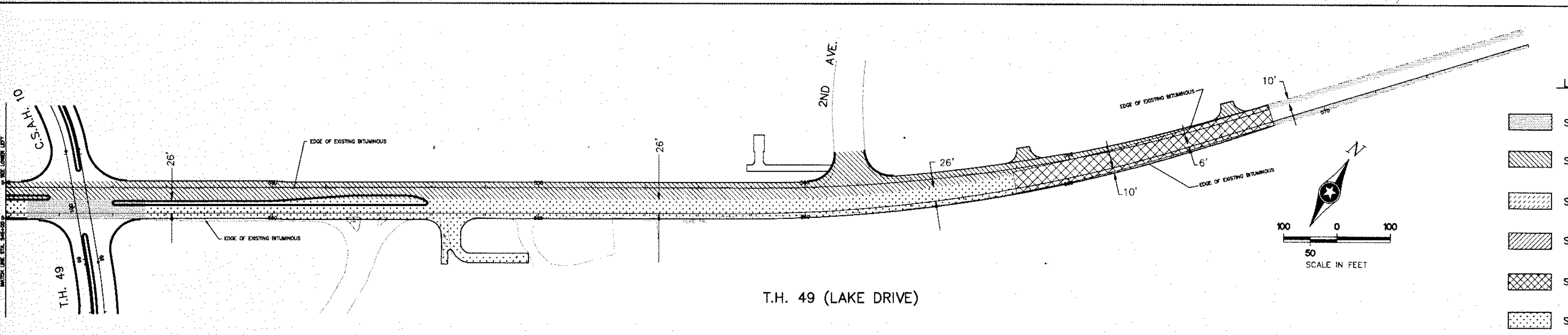
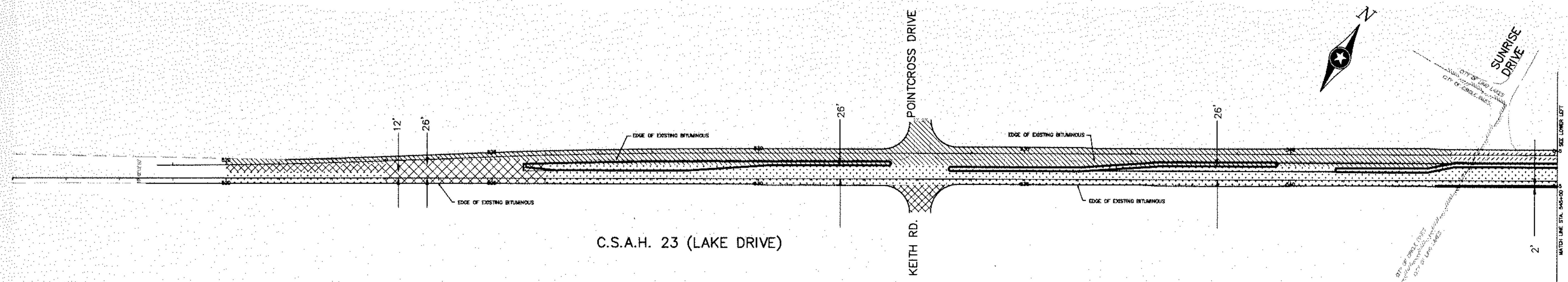
LINO LAKES, MINNESOTA
T.H. 49 & C.S.A.H. 10

CONSTRUCTION SEQUENCE

FILE NO. LINOL1310.04	8
DATE 6-7-94	80



BASE OVERLAY/DRC. NO.



LEGEND

[Pattern]	STAGE I, PHASE I
[Pattern]	STAGE I, PHASE II
[Pattern]	STAGE I, PHASE III
[Pattern]	STAGE II, PHASE I
[Pattern]	STAGE III, PHASE I
[Pattern]	STAGE III, PHASE II

STAGE I PHASE I: Lake Drive		STAGE I PHASE II: Lake Drive		STAGE I PHASE III: Lake Drive		STAGE III PHASE I: Lake Drive		STAGE III PHASE II: Lake Drive			
Construction Sequence		Traffic Control		Construction Sequence		Traffic Control		Construction Sequence			
<ul style="list-style-type: none"> Reconstruct roadway and widen N.B. lane, STA. 545+50 to 547+50. Mill bituminous pavement, STA. 545+50 to 547+50. Shatter Concrete Pavement and place bituminous binder on area matching existing pavement. Construct shoulder widening and shoulder bypass. STA. 564+75 to 574+00 N.B. lane STA. 567+00 to 574+00 S.B. lane (optional at this time). 		<ul style="list-style-type: none"> Maintain traffic on existing roadway using short term restrictions. 		<ul style="list-style-type: none"> Construct the S.B. lanes at old North Road intersection. 		<p>STAGE III improvements can only be initiated upon completion of STAGE I and STAGE II construction.</p>		<ul style="list-style-type: none"> Place North Road traffic on the completed North Road. 		<ul style="list-style-type: none"> Reconstruct N.B. lanes. Complete wear course on N.B. lanes. 	
<ul style="list-style-type: none"> Construct the S.B. thru lane and shoulder. STA. 520+00 to 567+00 except at existing North Road intersection. 		<ul style="list-style-type: none"> Maintain traffic on existing thru lanes, except from STA. 564+00 to 574+00 and STA. 516+00 to 527+00 where N.B. traffic uses N.B. shoulder and S.B. traffic uses N.B. lane. Maintain existing North Road and Lake Drive intersection. 		<ul style="list-style-type: none"> Reconstruct middle portion of roadway. STA. 523+00 to 526+00 STA. 564+00 to 569+00 		<ul style="list-style-type: none"> Traffic split S.B. traffic on the shoulder of S.B. lane. N.B. traffic placed on N.B. shoulder. Use short term restrictions as required. 		<ul style="list-style-type: none"> Complete wear course on S.B. lanes. 		<ul style="list-style-type: none"> Traffic placed on completed N.B. lanes. N.B. traffic on N.B. thru lane. S.B. traffic on S.B. shoulder, then S.B. thru. Utilize short term restrictions. 	

S.P. 0204-12
S.A.P. 02-623-07

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCH	7/27/94	REVISED STAGE IV, PHASE I, TRAFFIC CONTROL			

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: 6-7-94 Reg. No. 19574

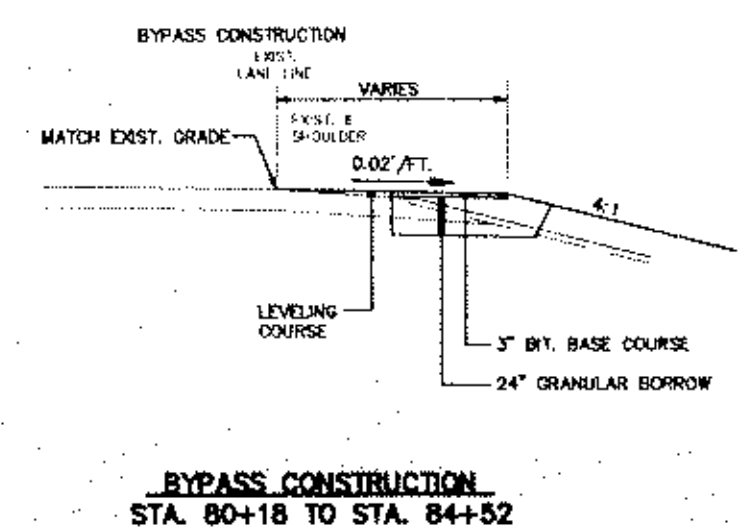
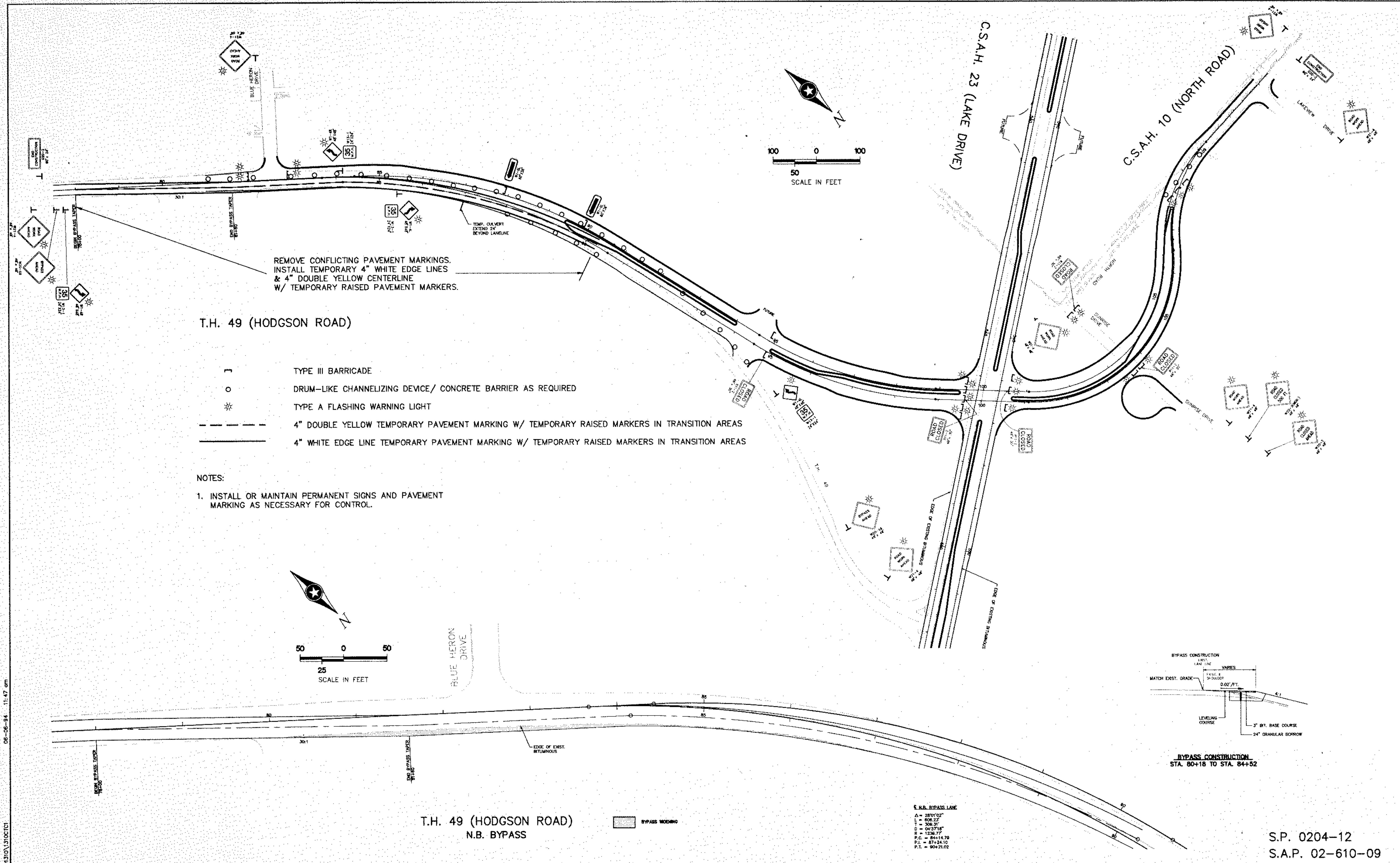


LINO LAKES, MINNESOTA
C.S.A.H. 23 & T.H. 49

CONSTRUCTION SEQUENCE

FILE NO.	LNOL1310.04	9
DATE	6-7-94	80

BASE OVERLAY DRG. NO.



E.N.B. BYPASS LANE
 Δ = 280°02'
 L = 608.27'
 T = 506.31'
 D = 543°7'18"
 R = 1236.77'
 P.C. = 84+14.79
 P.I. = 87+24.02
 P.T. = 90+21.02

T.H. 49 (HODGSON ROAD)
 N.B. BYPASS

S.P. 0204-12
 S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Thomas A. Schmeider
 Date: 6-7-94 Reg. No. 20943



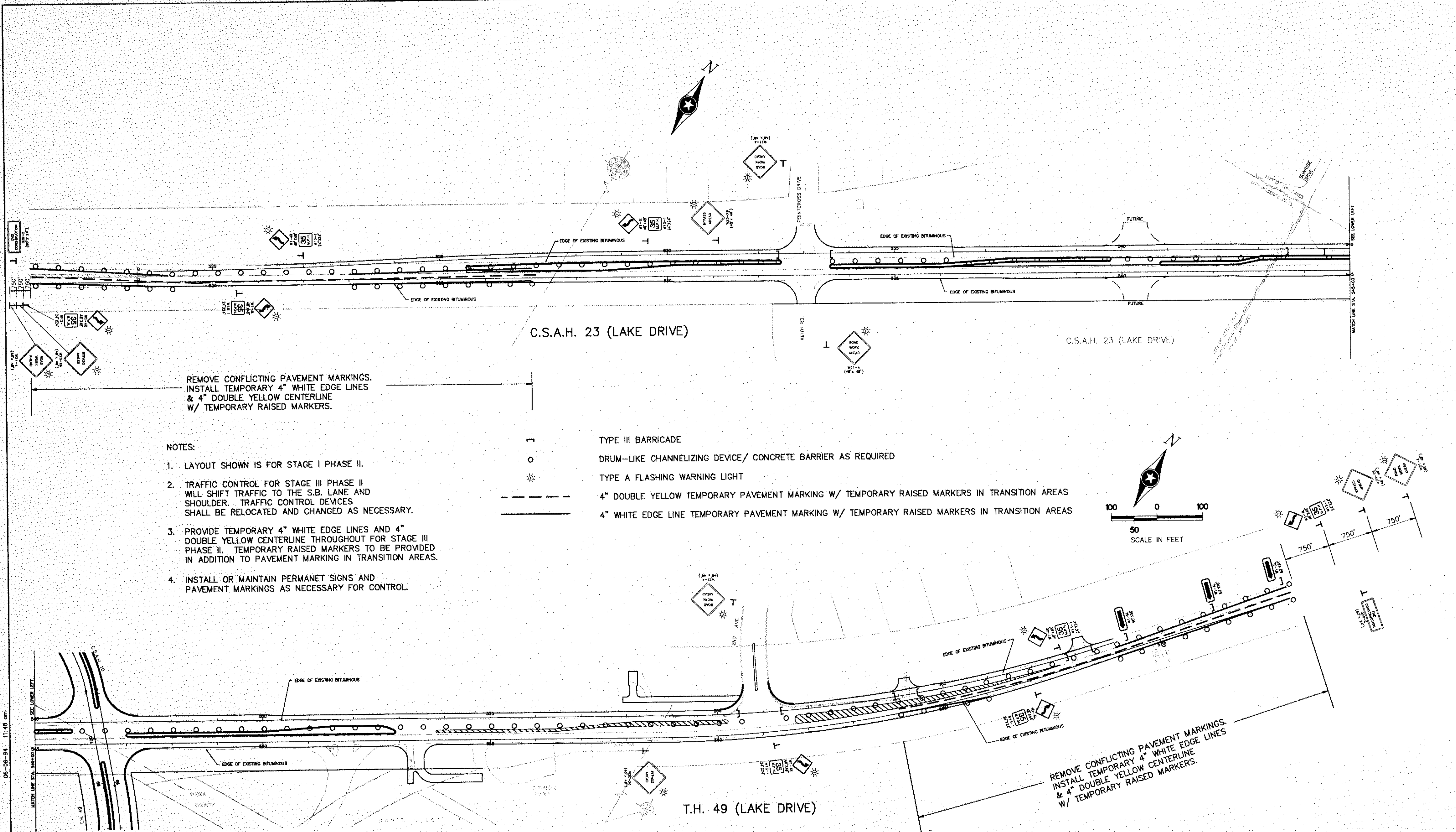
LINO LAKES, MINNESOTA
 T.H. 49 & C.S.A.H. 10

TRAFFIC CONTROL
 ADVANCE PROJECT WARNING
 STAGE I PHASE II

FILE NO. LINOL1310.04
 DATE 6-7-94
 10
 80

S:\M\CP120\LINOL1310\310CT1.DWG 06-08-94 11:47 am

BASE OVERLAY DRC NO.



S:\M\CP0120\LINO\1310\1310CTC2

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Thomas A. Schwerts
 Date: 6-7-94 Reg. No. 20943



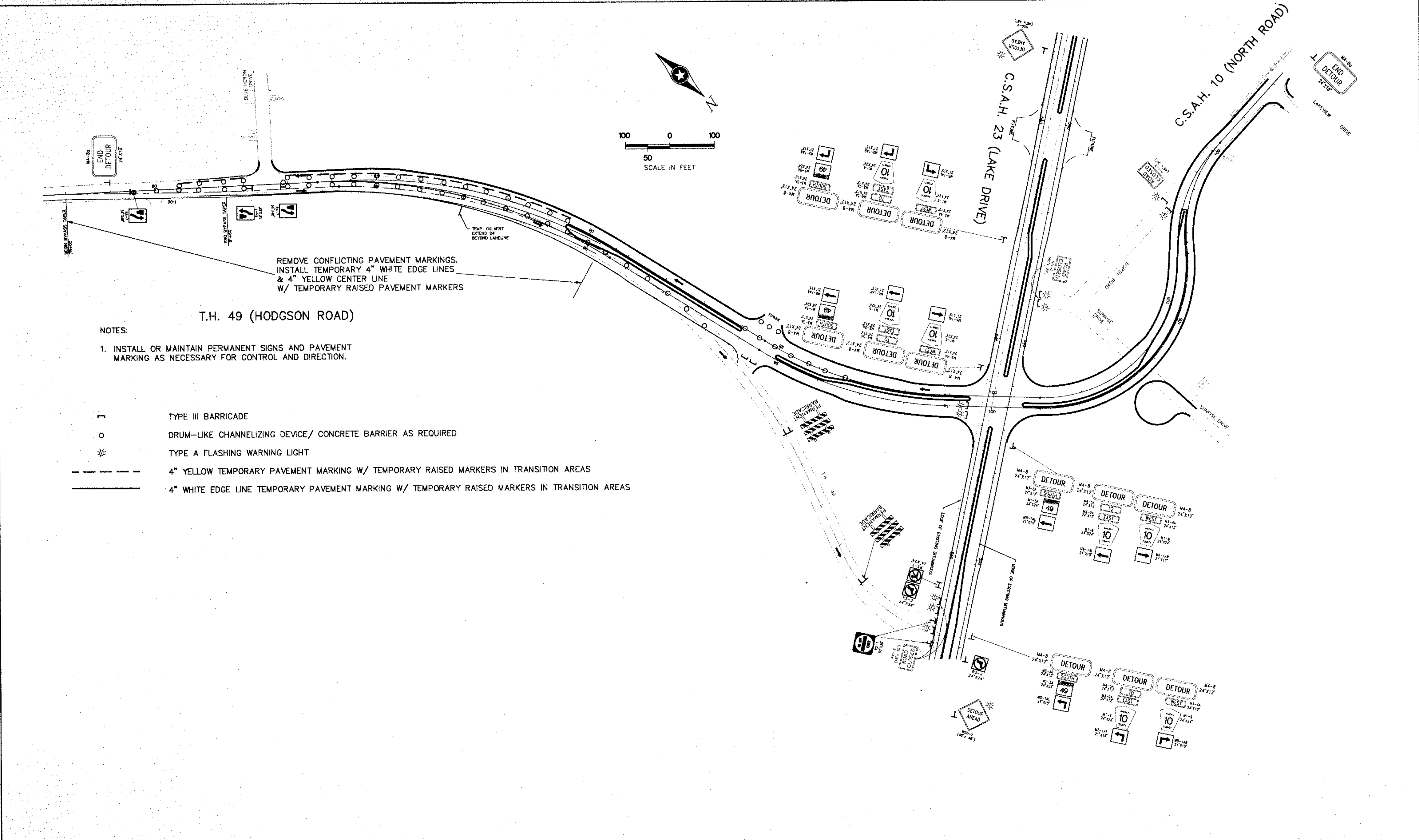
LINO LAKES, MINNESOTA
 C.S.A.H. 23 & T.H. 49

TRAFFIC CONTROL
 ADVANCE PROJECT WARNING
 STAGE I PHASE II
 STAGE III PHASE II

FILE NO. LINO1310.04	11
DATE 6-7-94	80

S.P. 0204-12
 S.A.P. 02-623-07

BASE OVERLAY DRG. NO.



T.H. 49 (HODGSON ROAD)

NOTES:

- 1. INSTALL OR MAINTAIN PERMANENT SIGNS AND PAVEMENT MARKING AS NECESSARY FOR CONTROL AND DIRECTION.

- T TYPE III BARRICADE
- O DRUM-LIKE CHANNELIZING DEVICE/ CONCRETE BARRIER AS REQUIRED
- * TYPE A FLASHING WARNING LIGHT
- 4" YELLOW TEMPORARY PAVEMENT MARKING W/ TEMPORARY RAISED MARKERS IN TRANSITION AREAS
- 4" WHITE EDGE LINE TEMPORARY PAVEMENT MARKING W/ TEMPORARY RAISED MARKERS IN TRANSITION AREAS

04-26-95 9:05 am

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S.P. 0204-12
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TAS	4/26/95	SIGN CHANGES			

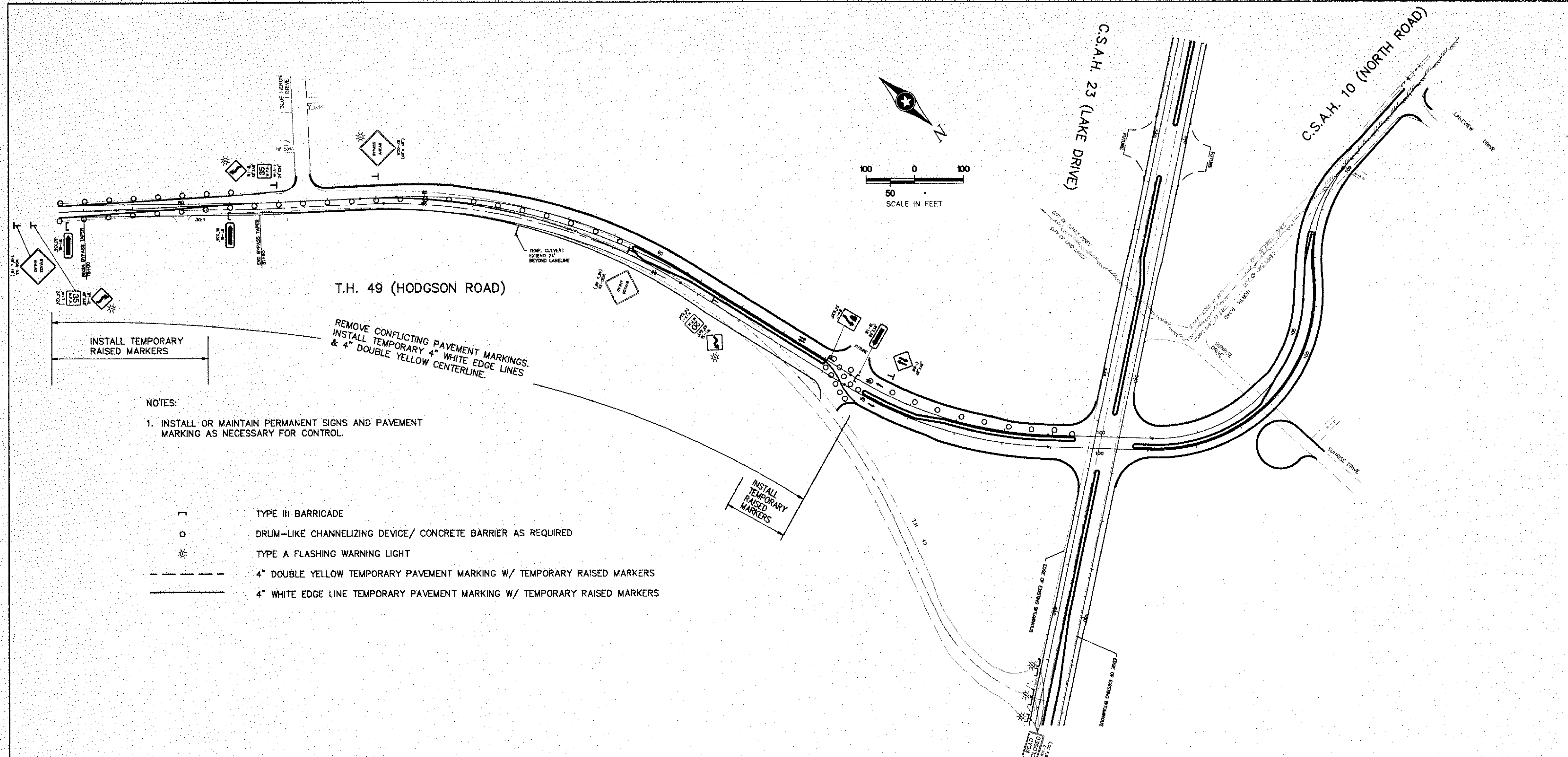
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Thomas A. Schweed
Date: 6-7-94 Reg. No. 20943



LINO LAKES, MINNESOTA
T.H. 49

TRAFFIC CONTROL
STAGE II PHASE I

FILE NO. LNQ1310.04	12
DATE 6-7-94	80



T.H. 49 (HODGSON ROAD)

C.S.A.H. 23 (LAKE DRIVE)

C.S.A.H. 10 (NORTH ROAD)

REMOVE CONFLICTING PAVEMENT MARKINGS.
INSTALL TEMPORARY 4" WHITE EDGE LINES
& 4" DOUBLE YELLOW CENTERLINE.

NOTES:

1. INSTALL OR MAINTAIN PERMANENT SIGNS AND PAVEMENT MARKING AS NECESSARY FOR CONTROL.

- TYPE III BARRICADE
- DRUM-LIKE CHANNELIZING DEVICE/ CONCRETE BARRIER AS REQUIRED
- ☆ TYPE A FLASHING WARNING LIGHT
- 4" DOUBLE YELLOW TEMPORARY PAVEMENT MARKING W/ TEMPORARY RAISED MARKERS
- 4" WHITE EDGE LINE TEMPORARY PAVEMENT MARKING W/ TEMPORARY RAISED MARKERS

11-29-94 10:49 am
S:\VAD\DRAWING\1013101310.DWG

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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Thomas G. Schweitzer
Date: 6-7-94 Reg. No. 20943



LINO LAKES, MINNESOTA
T.H. 49

TRAFFIC CONTROL
STAGE III PHASE II

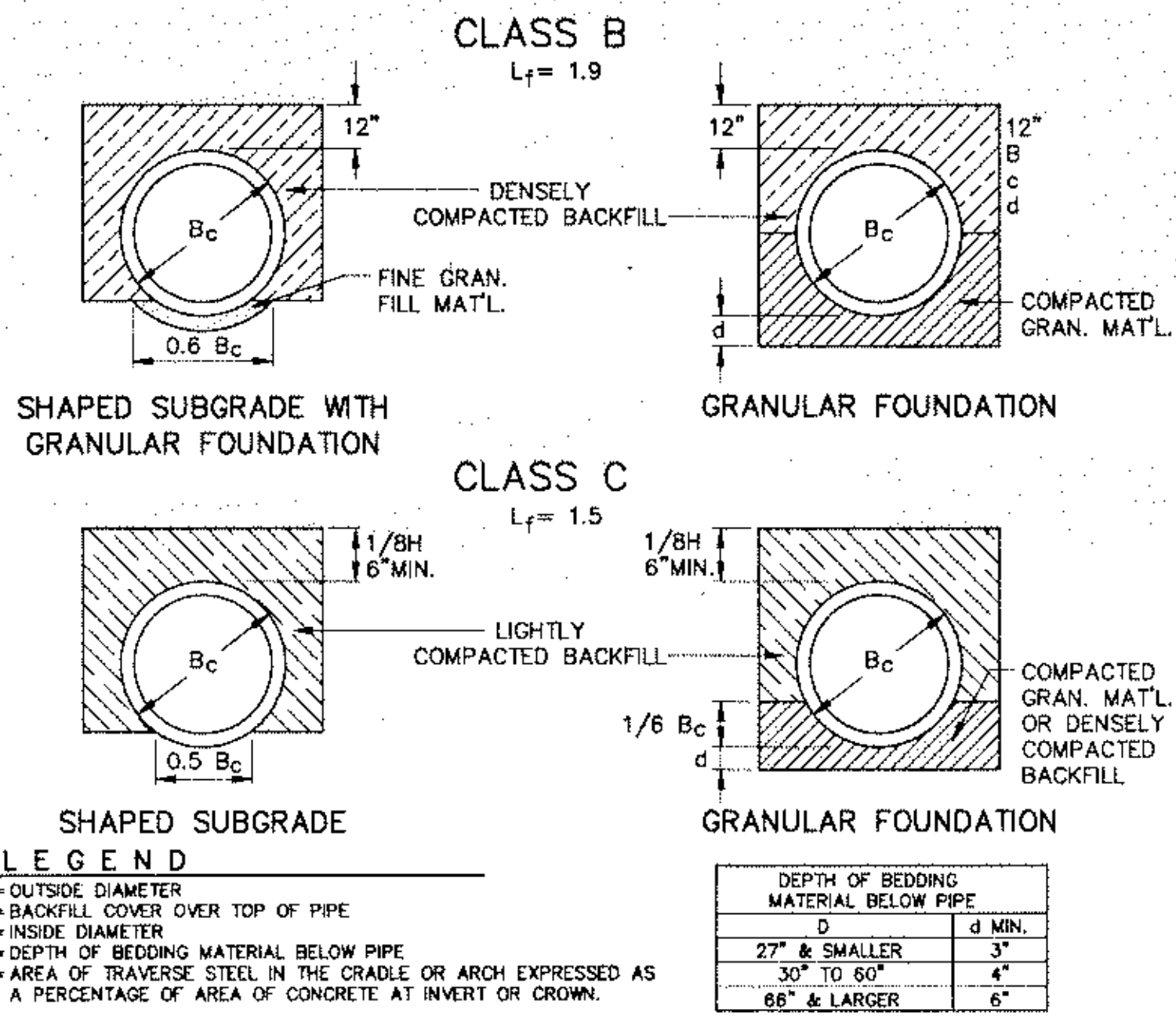
FILE NO. LINOL1310.04	13
DATE 6-7-94	80

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

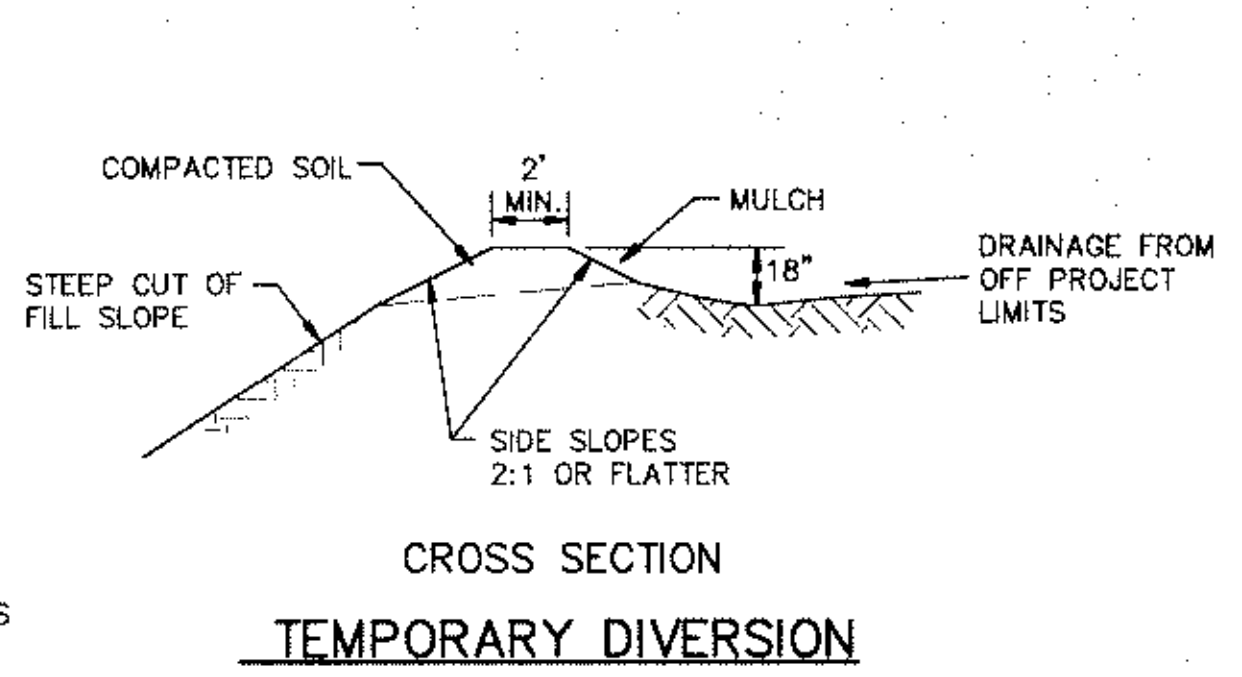
BASE OVERLAY CONC. NO.

- ① CATCH BASINS SHALL BE LOCATED 3 FEET BACK ON TANGENT FROM RADIUS POINTS UNLESS SHOWN OTHERWISE ON THE PLANS. TOP OF CASTING ELEVATIONS PROVIDE FOR 0.17 FOOT SUMP BELOW GUTTER GRADE.
- ② CURB ENDS SHALL TERMINATE WITH A TWO FOOT BEAVER TAIL SECTION.
- ③ TOP OF THE GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE SELECT GRANULAR BORROW - MODIFIED OR THE BOTTOM OF THE COMPACTED SUBGRADE.
- ④ SUITABLE GRADING MATERIAL SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL AND OTHER UNSUITABLE MATERIAL.
- ⑤ ALL PERMANENT SUBGRADE EMBANKMENT CONSTRUCTION SHALL BE CONSTRUCTED WITH SELECTED GRADING MATERIAL. NON GRANULAR SOILS MAY BE PLACED OUTSIDE THE SHOULDER P.I. OR 1.0' OUTSIDE THE BACK OF CURB, WHICHEVER APPLIES.
- ⑥ SELECT GRANULAR MATERIAL WHICH IS FURNISHED BY THE CONTRACTOR SHALL BE STABILIZED, IF NECESSARY. THIS WORK AND MATERIAL SHALL BE INCIDENTAL TO THE PROJECT.
- ⑦ COMPACTION OF THE EMBANKMENT MATERIAL SHALL BE BY THE SPECIFIED DENSITY METHOD.
- ⑧ AS A PRECAUTIONARY MEASURE FROM A SOILS STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING A 2:1 OR GREATER (FLATTER) SLOPE BETWEEN THE EDGE OF THE TRAFFIC LANE SURFACE AND THE BOTTOM OF THE EXCAVATION. IF IT BECOMES NECESSARY TO EXCAVATE WITHIN A 2:1 SLOPE FROM TRAFFIC, THE EXCAVATION SHALL BE BACKFILLED TO THE TOP OF GRADING SUBGRADE ELEVATION BEFORE THE END OF THAT DAYS WORK SHIFT. NO EXCAVATION WITHIN A 2:1 SLOPE OF TRAFFIC SHALL BE ALLOWED OVERNIGHT, AND IN NO CASE SHALL THE SLOPE BETWEEN THE EDGE OF TRAFFIC AND BOTTOM OF THE EXCAVATION BE STEEPER THAN A 1:1 SLOPE WHEN THE DIFFERENCE IN ELEVATION IS GREATER THAN 2 FEET, UNLESS SHEETING IS USED.

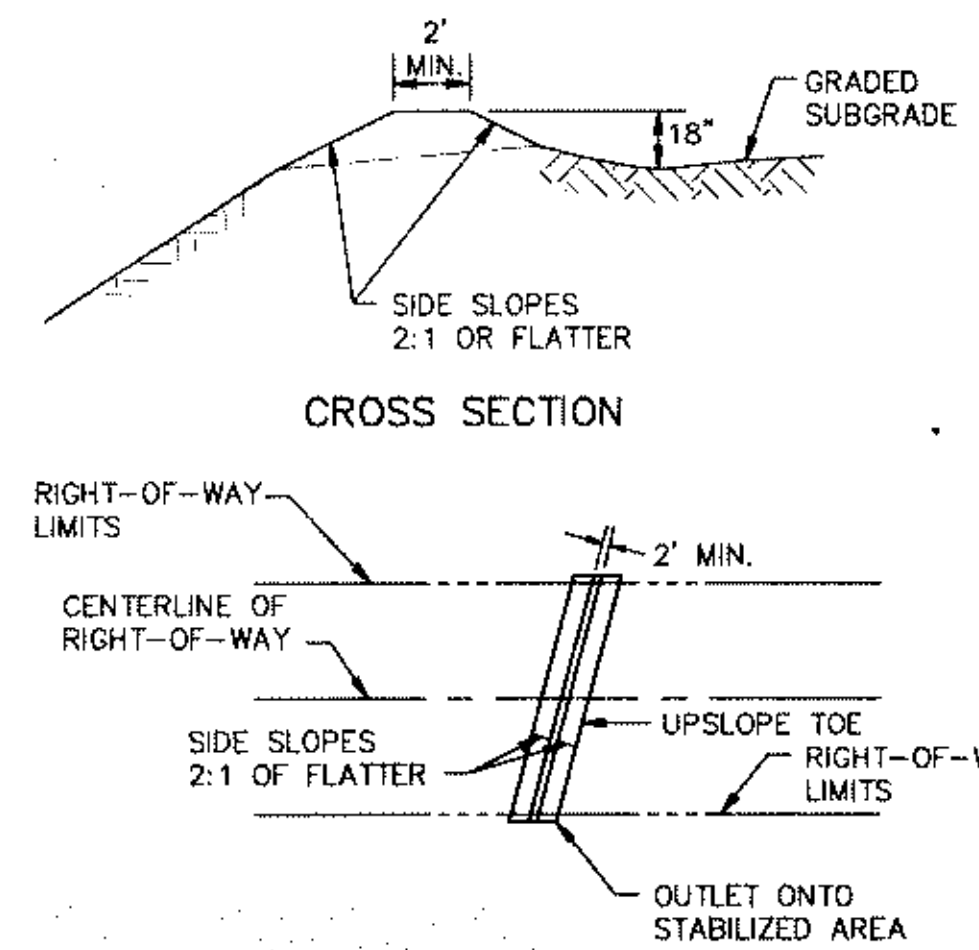
- ⑨ BITUMINOUS SURFACING REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
- ⑩ WITHIN THE UPPER 4.0' OF THE SUBGRADE, WHERE GRANULAR SOIL EMBANKMENT OR BACKFILL JOINS NON-GRANULAR EMBANKMENT OR BACKFILL SOILS, PROVIDE 20:1 LONGITUDINAL TRANSITION TAPERS BETWEEN THE CHANGE IN MATERIAL TO PREVENT AN ABRUPT SOILS DIFFERENTIAL. THE TAPER SHALL BE CONSTRUCTED SO THAT THE GRANULAR MATERIAL OVERLAYS THE NON-GRANULAR MATERIAL.
- ⑪ WHERE WIDENING ADJACENT TO THE INPLACE CONCRETE SURFACING, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 2:1 SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
- ⑫ USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF .03 TO .05 GAL/SQ. YD. BETWEEN BITUMINOUS LAYERS AND .07 TO .10 GAL/SQ. YD. ON CONCRETE OR MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPECIFICATION 2357.
- ⑬ COMPACTION OF ALL BITUMINOUS MIXTURES SHALL BE BY THE "ORDINARY COMPACTION METHOD".
- ⑭ COMPACTION OF THE CLASS 5 BASE OR CLASS 6 SHALL BE BY THE "ORDINARY COMPACTION METHOD".
- ⑮ STRIP AND REUSE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION.
- ⑯ ON PERMANENT SLOPES 3:1 OR FLATTER, USE MIXTURE 500 SEED AND TYPE 1 MULCH WITH DISK ANCHORING.
- ⑰ ON PERMANENT 3:1 SLOPES, USE WOOD FIBER BLANKET.



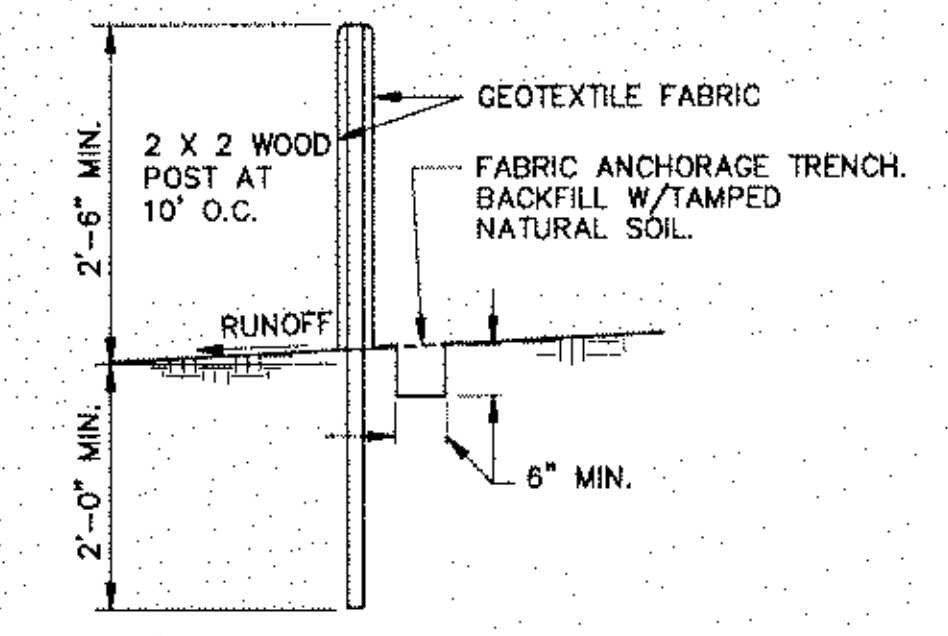
TRENCH BEDDING-CIRCULAR PIPE



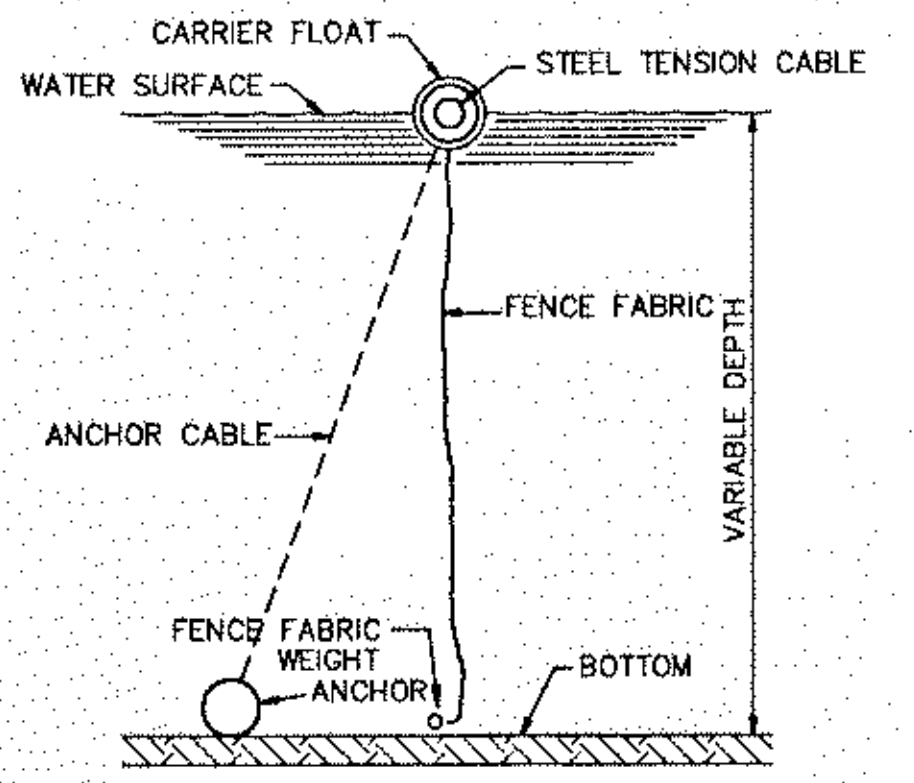
CROSS SECTION
TEMPORARY DIVERSION



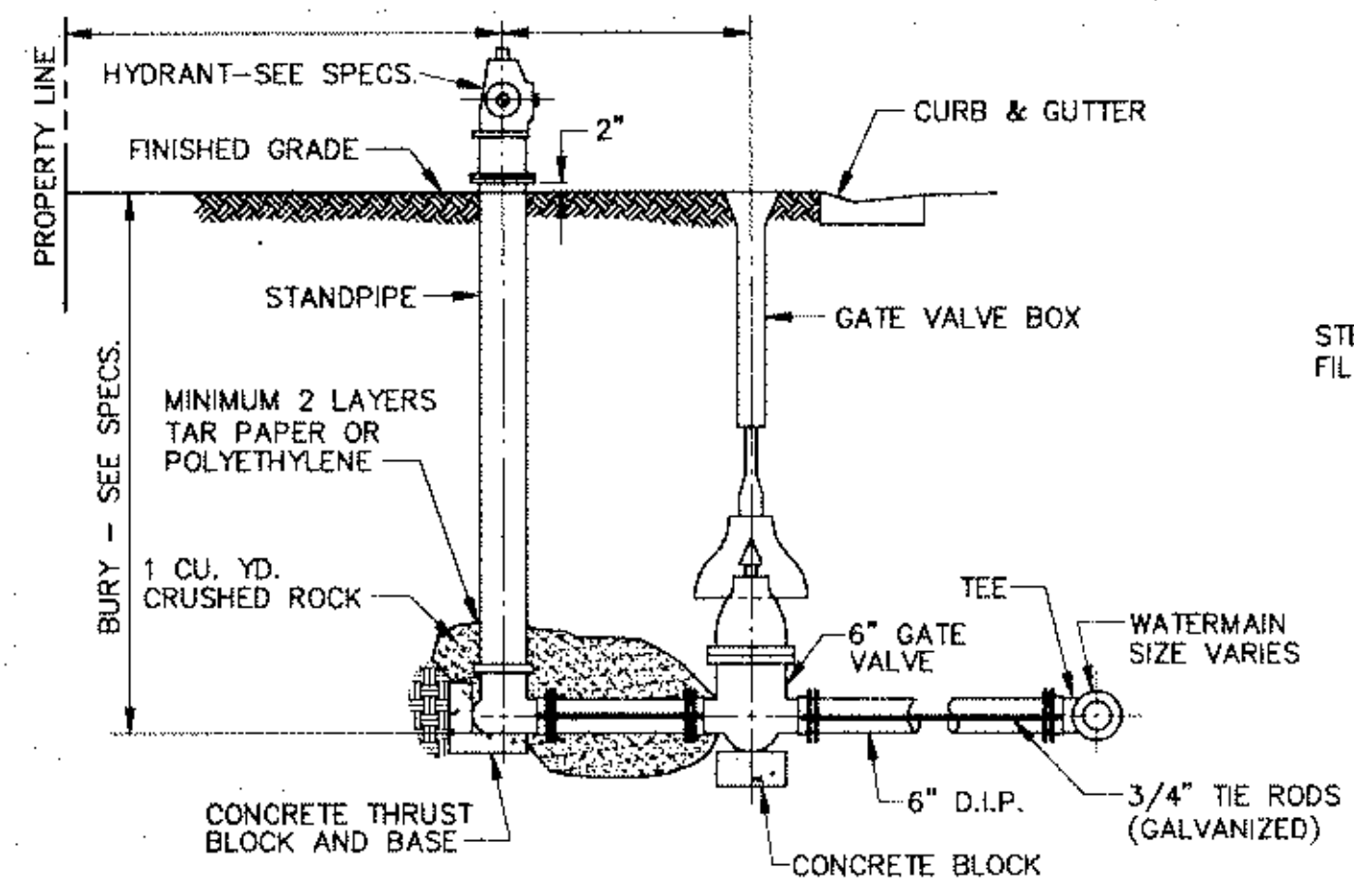
PLAN VIEW
RIGHT-OF-WAY DIVERSION



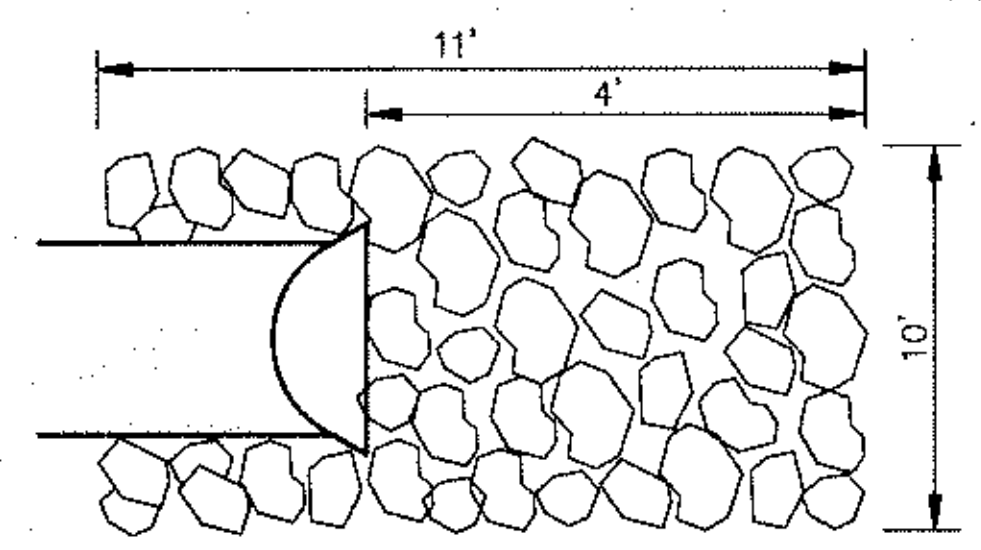
PREASSEMBLED SILT FENCE
NOT TO SCALE



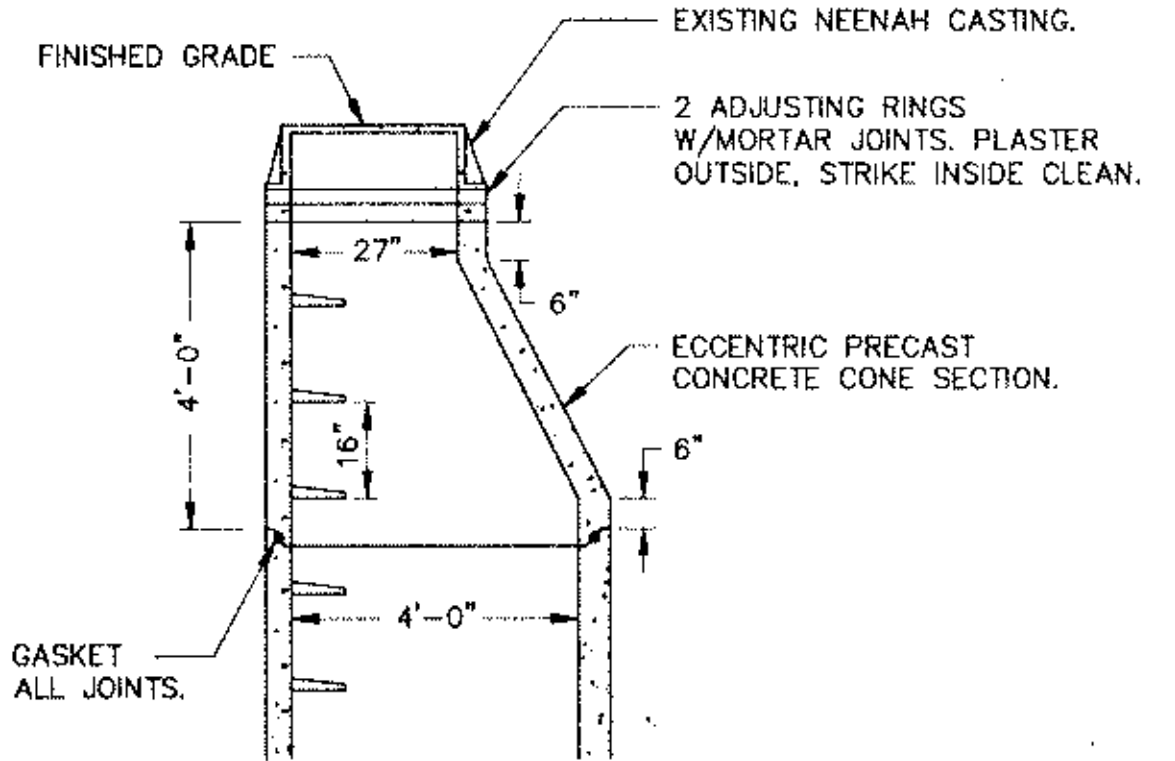
FLOATATION SILT CURTAIN
NOT TO SCALE



HYDRANT (& GATE VALVE) INSTALLATION



INLET RIPRAP DETAIL
SCALE IN FEET



SANITARY SEWER
MANHOLE RECONSTRUCTION
AND
FRAME & RING CASTING ADJUSTMENT

WETLAND CREATION CONSTRUCTION NOTES

1. SALVAGE ALL MUCK (WETLAND TOPSOIL) FOR PLACEMENT ON MITIGATION SITES.
2. EXCAVATE 0.5 FOOT BELOW PROPOSED FINISHED GRADE FOR MUCK PLACEMENT.
3. TOPSOIL REMOVED FROM THE WETLAND IMPACT AREA, STA. 101+00 TO 103+00 (40R) SHALL BE PLACED IN THE WETLAND CREATION AREA STA. 83+00 TO 85+00 (60L).
4. WETLAND CREATION AREAS SHALL BE GRADED LEAVING UNDULATING TERRAIN.
5. DISTURBED AREAS SHALL BE SEEDED USING SEED MIXTURE 800, ACCORDING TO SECTION 02930 OF THE SPECIFICATIONS.

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

11-28-94 4:04 pm

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED	
2	FWB	4/26/95	ADDED STANDARD PLATE 7113A				
1	TCH	7/27/94	ADDED SAN. MANHOLE RECONSTRUCTION DETAIL				

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: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA

DETAILS & STANDARD PLATES

FILE NO.	LINOL1310.04	14
DATE	6-7-94	80

EXISTING UTILITIES

STREET	STATION TO STATION	LOCATION	CONSTRUCTION LIMITS		ITEM IN PLACE	REMARKS	OWNERSHIP	STREET	STATION TO STATION	LOCATION	CONSTRUCTION LIMITS		ITEM IN PLACE	REMARKS	OWNERSHIP	STREET	STATION TO STATION	LOCATION	CONSTRUCTION LIMITS		ITEM IN PLACE	REMARKS	OWNERSHIP
			IN	OUT							IN	OUT							IN	OUT			
T.H. 49/HODGSON ROAD	81+00 - 91+00	13' LT - 25' LT	X		3" GAS	6	MGC	C.S.A.H. 23/LAKE DRIVE	518+50 - 531+00	33' LT - 45' LT	X		T-BUR	6	USW	T.H. 49/LAKE DRIVE	553+11 - 553+45	38' RT	X		15" CMP	2	MNDOT
	81+00 - 82+75	37' LT - 47' LT	X		T-BUR	6	USW		531+000 - 545+00	45' LT - 45' LT	X		T-BUR	6	USW		553+63	45' LT - 83' RT	X		T-BUR	6	USW
	81+47 - 82+19	29' LT - 30' LT	X		(2)UG ELEC	4	NSP		532+76	57' LT - 200' LT	X		T-BUR	6	USW		553+63 - 554+42	83' RT - 60' RT		X	T-BUR	1	USW
	81+47	2.9' LT	X		PP	1	NSP		532+77	48' LT - 100' RT	X		CATV-BUR	1	MER		553+82 - 557+70	22' RT - 28' RT		X	WM	1	CITY-LL
	82+19	30' LT - 170' LT	X		(2)UG ELEC	4	NSP		532+80 - 533+35	55' LT & 30' RT	X		18" CMP	2	MNDOT		553+82	32' RT		X	MH	4	CITY-LL
	82+23	46' LT - 175' LT	X	X	T-BUR	6	USW		532+82	140' LT - 100' RT	X		10" WM	1	CITY-CP		554+05	83' LT		X	PP&ANCHORS	1	NSP
	82+33 - 82+72	44' LT	X		2" GAS	1	CPG		533+08	200' LT - 100' RT	X		SAN SEWER	1	CITY-CP		554+22	50' RT		X	HYD.	1	CITY-LL
	82+33	44' LT - 175' LT	X	X	2" GAS	1	CPG		533+08	90' LT	X		SAN MH	4	CITY-CP		554+42 - 555+38	60' RT - 60' RT		X	T-BUR	1	USW
	82+52 - 90+50	46' LT - 53' LT	X		SAN SEWER	1	CITY-LL		533+26	48' LT - 200' LT	X		T-BUR	6	USW		554+50 - 556+60	63' RT - 19' RT	X		4" GAS	1	MGC
	82+60 - 90+50	41' LT - 42' LT	X		WM	1	CITY-LL		533+32	140' LT - 100' RT	X		2" GAS	4	CPG		554+50 - 555+00	30' RT	X		15" CMP	1	MNDOT
	82+72	44' LT - 175' LT	X	X	2" GAS	1	CPG		533+36	62' LT	X		PP	6	USW		555+36	87' LT	X		PP&ANCHORS	1	NSP
	82+94 - 90+50	23' LT - 31' LT	X		T-BUR	6	USW		534+25	150' LT	X	X	T-PEDS	1	USW		555+38	60' RT		X	PP	1	NSP
	83+27	30' LT	X		PP	1	NSP		534+75	48' LT	X		PP	6	USW		556+60 - 568+87	19' RT	X		4" GAS	1	NSP
	84+35	43' LT	X		MH	4	CITY-LL		536+50	48' LT	X		PP	6	USW		557+11	92' LT	X		PP	1	NSP
	84+82	26' LT	X		PP	1	NSP		537+00	60' LT - 20' RT	X		BOX CULVERT	7	MNDOT		557+32	50' RT		X	PP	1	NSP
	85+53	22' LT	X		HYD.	3	CITY-LL		538+25	47' LT	X		PP	6	USW		557+34	48' RT	X	X	HYD	1	CITY-LL
	86+21	50' LT	X		MH	4	CITY-LL		540+02	48' LT	X		PP	6	USW		557+70 - 558+80	28' RT - 154' LT	X		WM	1	CITY-LL
	86+50	25' LT	X		PP	6	NSP		541+78	47' LT	X		PP	6	USW		557+75	40' RT		X	MH	1	CITY-LL
	87+00 - 87+05	22' RT - 21' LT	X		24" RCP	2	MNDOT		542+00-544+00	190' LT - 137' LT	X		GAS	1	CPG		557+75 - 558+80	40' RT - 118' LT	X		SAN SEWER	1	CITY-LL
	88+05	25' LT	X		PP	6	NSP		542+63	54' LT - 26' RT	X		GAS SIGNS	6	CPG		558+07	95' LT	X		PP	1	NSP
	88+27	50' LT	X		MH	4	CITY-LL		543+37	47' LT	X		PP	6	NSP		558+30	94' LT	X		PP	6	NSP
	89+74	29' LT	X		PP	6	NSP		543+37	47' LT	X		LT ON PP	2	NSP		558+80	118' LT		X	MH	1	CITY-LL
	90+50 - 95+20	31' LT - 45' RT	X		T-BUR	6	USW		543+78	183' LT	X		PP & LT	2	NSP		559+00 - 565+65	45' LT - 28' LT	X		T-BUR	6	USW
	90+50 - 95+25	42' LT - 63' RT	X		WM	1	CITY-LL		544+78	30' RT - 200' LT	X		16" WM	1	CITY-LL		559+75	19' RT - 77' LT	X		3" GAS	6	MGC
	90+54	55' LT	X		MH	4	CITY-LL		544+78 - 547+17	30' RT - 32' RT	X		16" WM	1	CITY-LL		559+75 - 560+62	77' LT - 82' LT	X		2" GAS	1	MGC
	91+00 - 95+30	25' LT - 79' RT	X		3" GAS	6	MGC		544+87	42' RT	X		HYD.	4	CITY-LL		560+35	93' LT		X	PP	1	USW
91+46	25' LT	X		PP	6	NSP	544+95	90' LT	X		STORM MH	4	CITY-BL	561+46	87' LT		X	PP	1	USW			
93+18	5' LT	X		PP	6	NSP	545+00 - 559+00	45' LT	X		T-BUR	6	USW	562+70	73' LT	X		PP & TELE.	1	USW			
94+73	45' RT	X		PP	4	NSP	545+00-546+00	125' LT - 65' LT	X		FORCEMAIN	1	CITY-LL	564+14 - 564+44	45' LT - 43' LT	X		18" CMP	2	MNDOT			
95+44	10' RT	X	X	24" RCP	1	MNDOT	545+08	62' LT	X		STORM MH	4	CITY-BL	564+75	49' LT	X		PP	6	USW			
99+05 - 99+87	70' RT - 150' LT	X		STORM SWR	1	CITY-BL	545+08	20' RT	X		STORM MH	4	CITY-BL	564+75	49' LT	X		PP	6	USW			
99+87	50' LT	X		STORM MH	4	CITY-BL	545+23	54' LT	X		PP	6	NSP	564+75	30' RT	X		GUY POLE & ANCHOR	1	USW			
CSAH 10/NORTH ROAD	100+43	23' RT	X		PP	6	USW	545+35 - 547+10	46' RT - 49' RT	X		48" STORM	1	CITY-BL	565+65 - 568+87	28' LT - 37' LT	X		T-BUR	6	USW		
	103+32 - 103+62	76' LT - 150' RT	X		WM	1	CITY-LL	546+00 - 557+70	65' LT - 65' LT	X		FORCEMAIN	1	CITY-LL	566+81	58' LT	X		PP & TELE.	1	USW		
	105+55	15' LT	X		PP	6	NSP	546+70	67' LT	X		PP	6	USW	568+81	45' LT	X		PP & ANCHOR	1	USW		
	106+71 - 109+43	83' RT - 74' RT		X	UG ELEC	1	NSP	547+10 - 547+35	49' RT - 75' RT	X		48" STORM	1	CITY-BL									
	106+71	83' RT		X	PP	1	NSP	547+17 - 547+74	32' RT - 63' RT	X		16" WM	1	CITY-LL									
	106+71 - 107+63	83' RT - 21' LT	X		T-BUR	6	USW	548+11	70' LT	X		PP	1	USW									
	107+17 - 110+00	52' LT - 25' RT	X		FORCEMAIN	1	CITY-LL	550+10	74' LT	X		PP	1	USW									
	107+63	21' LT	X		PP	6	NSP	550+80	140' RT - 115' LT	X		SAN SEWER	1	CITY-LL									
	107+63 - 109+21	21' LT - 15' RT	X		T-BUR	6	USW	550+80	140' RT		X	MH	1	CITY-LL									
	107+70	38' LT	X		STORM MH	7	CITY-BL	550+80	115' LT		X	MH	1	CITY-LL									
	107+80 - 111+32	55' LT - 18' LT	X		4" GAS	1	CPG	551+16	56' LT	X		LTP	2	MNDOT									
	108+45	12' RT	X		PP	6	NSP	551+95 - 552+19	86' RT - 90' LT	X		STORM SEWER	1	MNDOT									
	109+21 - 111+32	15' RT - 25' RT	X		T-BUR	6	USW	551+95	86' RT		X	STORM MH	1	MNDOT									
	109+43 - 110+47	74' RT		X	UG ELEC	1	NSP	551+96	81' LT	X		PP	6	NSP									
	110+00 - 110+90	25' RT - 9' LT	X		FORCEMAIN	1	MWCC	552+00	81' LT	X		T-PED	4	USW									
	110+55	15' LT	X		CB	2	CITY-CP	552+00-552+57	110' RT - 30' RT	X		CATV-BUR	1	MER									
110+60	3' RT	X		STORM MH	4	CITY-BL	552+06	12' RT	X		HH	2	MNDOT										
110+65	27' RT	X		CB	2	CITY-LL	552+15	60' RT	X		LTP	2	MNDOT										
110+90	9' LT	X		MH	4	MWCC	552+19	90' LT	X		STORM INLET	7	MNDOT										
111+00	45' RT	X		CB	2	CITY-LL	552+22	82' RT		X	PP	1	NSP										
111+13	17' LT - 100' RT	X		4" GAS	1	CPG	552+56	84' LT	X		CATV PED	4	MER										
111+27	22' RT	X		PP & LT	6	NSP	552+57 - 558+33	83' LT - 92' LT	X		CATV-BUR	1	MER										
SUNRISE DRIVE	0+00 - 0+60	20' RT		X	GAS	1	CPG	552+57	30' RT - 83' LT	X		CATV-BUR	6	MER									
	0+00 - 1+26	20' LT	X		16" WM	1	CITY-LL	552+60	82' LT	X		CATV PED	4	MER									
	0+60	12' RT	X		GAS SIGN	6	CPG	552+91 - 553+82	76' RT - 22' RT	X		WM	1	CITY-LL									
	1+38	28' LT	X		HYD	3	CITY-LL	552+91 - 553+82	89' RT - 32' RT	X		SAN SEWER	1	CITY-LL									

OWNERSHIP CODE
 MGC MINNEAPOLIS GAS CO.
 USW U.S. WEST
 CPG CIRCLE PINES GAS
 NSP NORTHERN STATES POWER
 Mn/DOT MINNESOTA DEPARTMENT OF TRANSPORTATION
 MER MEREDETH CABLE TV
 LL LINO LAKES
 CP CIRCLE PINES
 BL BLAINE

REMARKS CODE
 1. LEAVE AS IS
 2. REMOVE
 3. RELOCATE
 4. ADJUST
 5. REMOVE BY OTHERS
 6. RELOCATE BY OTHERS
 7. RECONSTRUCT

S:\M\CPU20\JUN0310\TABLE-1 06-06-94 11:54 am

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: 6-18-94 Reg. No. 19574



LINO LAKES, MINNESOTA
 T.H. 49, CSAH 23, & CSAH 10

TABULATIONS

FILE NO.
 LINOL1310.04 15
 DATE
 6-7-94 80

S.P. 0204-12
 S.A.P. 02-623-07
 S.A.P. 02-610-09

EXISTING MANHOLES, HYDRANTS AND GATE VALVES

STREET	STATION	LOCATION	STRUCTURE	EX. ELEV.	PROP. ELEV.	PROPOSED ADJUSTMENTS
T.H. 49/HODGSON ROAD	82+33.65	59.48' LT.	GAS VALVE	889.29	SAME	NONE (PROTECT)
	82+52.01	47.44' LT.	SAN MH	889.40	889.20	ADJUST
	82+63.84	35.32' RT.	GV	885.08	886.5	ADJUST STANDPIPE & ADD NUT EXT.(1)
	82+67.90	33.39' RT.	HYD & GV	887.28(TNH)	888.0(TNH)	SALVAGE & RELOCATED HYD & GV
	82+72.43	55.31' LT.	GAS VALVE	889.83	SAME	NONE (PROTECT)
	82+75	42' LT.	GV	889.8	889.9	ADJUST
	84+34.73	43.48' LT.	SAN MH	889.82	890.6	RECONSTRUCT 6.5'
	85+51.89	24.53' LT.	HYD & GV	890.12(TNH)	N/A	SALVAGE HYD & GV, PLUG TEE
	86+17.33	50.28' LT.	SAN MH	887.07	891.7	RECONSTRUCT 10.3'
	88+26.01	51.12' LT.	SAN MH	885.51	892.4	RECONSTRUCT 12.6'
	90+52.31	53.46' LT.	SAN MH	888.75	891.6	RECONSTRUCT 8.4'
	90+70.61	41.68' LT.	GV	888.62	891.1	ADJUST STANDPIPE & ADD NUT EXT.(1)
	93+07.10	25.66' LT.	SAN MH	890.51	890.2	RECONSTRUCT 6.1'
	95+45.76	58.44' RT.	SAN MH	891.19	891.19	NONE
	CSAH 10/NORTH ROAD	107+67.17	39.15' LT.	STM MH	907.61	908.9
110+61.42		14.07' LT.	CB	908.34	N/A	REMOVE CB & LEAD
110+67.81		3.16' RT.	STM MH	908.86	908.91	RECONSTRUCT 7.4'
110+69.07		26.61' RT.	CB	907.37	N/A	REMOVE CB & LEAD
110+97.06		12.64' LT.	MH	909.02	908.96	ADJUST
110+98.10		8.77' LT.	MH	909.03	909.04	ADJUST
111+07.53		44.37' RT.	CB	907.92	N/A	REMOVE CB & LEAD
SUNRISE DRIVE	1+38	30' LT.	HYD & GV	900.92(TNH)	N/A	SALVAGE HYD & GV, PLUG TEE
CSAH 23/LAKE DRIVE	533+08	90' LT.	SAN MH			ADJUST
	544+85.37	42.63' RT.	HYD & GV	903.60	903.60	ADJUST VALVE
	544+93.68	91.44' LT.	STM MH	902.74	900.0	RECONSTRUCT 9.0'
	545+05.89	21.18' RT.	STM MH	901.24	901.2	ADJUST, CUT IN CB LEAD
T.H. 49/LAKE DRIVE	550+78	139' RT.	SAN MH	893.6	893.6	NONE
	550+79.98	115.68' LT.	SAN MH	888.39	ADJUST (ADD RINGS) AS DIRECTED BY ENGR.	
	550+87	152' RT.	GV	893	893	NONE
	551+81.43	133.96' RT.	STM MH	892.82	892.82	NONE
	551+88.63	142.03' RT.	HYD	895.22	895.22	NONE
	551+95.38	86.60' RT.	STM MH	894.60	894.4	ADJUST
	552+88.60	89.94' RT.	SAN MH	893.23	893.23	NONE
	553+75.00	108.64' LT.	SAN MH	892.51	892.51	NONE
	553+82	33' RT.	SAN MH		893.5	ADJUST
	554+42.66	49.56' RT.	HYD & GV	896.72(TNH)	896.72	NONE
	557+22.95	118.85' LT.	SAN MH	890.46	891.0	ADJUST
	557+32.17	48.13' RT.	HYD & GV	897.93	897.93	NONE
	557+50	30' RT.	GV			NONE
	557+72.91	39.66' RT.	SAN MH	895.03	895.03	NONE
	558+08.32	127.36' LT.	SAN MH	897.74	897.74	NONE
558+62.63	170.14' LT.	HYD & GV	894.19	894.19	NONE	
558+77.82	119.45' LT.	SAN MH	894.96	894.96	NONE	

(1) NUT EXTENSION MUST BE APPROVED BY THE OWNER.

BITUMINOUS SUMMARY

STREET	STATION	LOCATION	TYPE 31 BBB 50000Y TON	TYPE 31 BIB 50000Y TON	TYPE 41 BIB 50055Y TON	TYPE 47 BIB 50070X TON	TYPE 31 WEA 50000Y TON	TYPE 41 WEA 50055Y TON	TYPE 47 WEA 75070X TON	TYPE 47 LVB 50070X TON	IRREGULAR WIDTH PAVING S.Y.	BITUMINOUS MATERIAL FOR TACK COAT GAL.
T.H. 49/ HODGSON ROAD	81+00 - 100+77	ROADWAY & TURN LANES	1946	1563			125	1152				1291
	81+00 - 87+00	TEMP. BYPASS					155					
	84+00 - 94+50	N.B. WIDENING MEDIAN & LTL EXTRA WIDTH SHLDRS & ENT	341	272				272				113
							80					
T.H. 49/ LAKE DRIVE	545+77 - 569+00	ROADWAY & SHOULDERS	1004			1514	480		1102	92		880
	565+00 - 574+00	TEMP. BYPASS EXTRA WIDTH SHLDRS & ENT					50					
							155					
SUBTOTAL			3291	1835	1514	1045	1424	1102	92			2284
CSAH 23/ LAKE DRIVE	520+00 - 531+29	ROADWAY & SHOULDER	430			707	310		549	24		435
	531+29 - 543+34	ROADWAY & SHOULDER	715			781	332		608	55	679	640
	536+05 - 543+07	TEMP. MEDIAN PAVEMENT						97				
	543+34 - 545+77	ROADWAY & SHOULDER	164			205	76		136	47		110
SUBTOTAL									87			48
SUNRISE DRIVE	0+51 - 1+26	CUL-DE-SAC	87									
	557+90 - 560+55	LIFT STA. ACCESS					63					
CSAH 10/ NORTH ROAD	100+77 - 111+32	ROADWAY	380	380				380				414
	107+95 - 111+32	ROADWAY (MUNICIPAL)	44	44				44				48
SUBTOTAL			1820	424	0	1693	781	608	1293	126	679	1695
GRAND TOTAL			5111	424	1835	3207	1826	2032	2395	218	679	3979

① SHOULDER WIDENING
STA. 542+50 TO 547+75
STA. 552+50 TO 564+75

TURF ESTABLISHMENT

STREET	STATION	LOCATION	COMMERCIAL FERTILIZER 10-10-10 LB.	SOD SQ.YD.	SEEDING		SEED MIX		MULCH TYPE 1 TON	DISK ANCHORING ACRE	WOOD FIBER BLANKET SQ.YD.	NOTES
					ROADSIDE ACRE	WETLAND ACRE	500 LB.	800 LB.				
T.H. 49/ HODGSON RD.	81+00 - 90+50	LT.	170	900	0.80	0.71	40	29	3.0	0.80	0	
	81+00 - 90+50	RT.	65	1000	0.34	0.07	17	3	0.8	0.34	0	
	90+50 - 99+00	LT.	55	360	0.46	0	23	0	1.0	0.46	0	
	90+50 - 99+00	RT.	100	420	0.92	0	46	0	1.9	0.92	0	SEEDING AREA INCLUDES 0.50 ACRES FOR OLD ROAD BED
NORTH RD. & SUNRISE DR.	101+00 - 111+32	LT.	65	1010	0.44	0	22	0	0.9	0.44	0	
	101+00 - 111+32	RT.	65	810	0.41	0	20	0	0.4	0.19	1200	
	0+57 - 1+26			200	0.03		2					
CSAH 23/ LAKE DRIVE	518+50 - 531+00	LT.	90	1000	0.68	0	34	0	1.4	0.68	0	
	518+50 - 531+00	RT.	20	0	0.17	0	9	0	0.4	0.17	0	
T.H. 49/ LAKE DRIVE	531+00 - 545+00	LT.	230	2140	1.59	0.25	80	10	3.7	1.59	0	
	531+00 - 545+00	RT.	60	640	0.45	0	23	0	0.9	0.45	0	
	545+00 - 559+00	LT.	235	300	1.54	0.75	77	30	4.6	1.54	0	
	545+00 - 559+00	RT.	85	900	0.64	0	32	0	1.3	0.64	0	
T.H. 49/ LAKE DRIVE	559+00 - 568+87	LT.	90	1100	0.66	0	33	0	1.3	0.66	0	
	559+00 - 568+87	RT.	125	0	1.24	0	62	0	2.5	1.24	0	
TOTALS			1455	10,780	10.37	1.78	520	72	24.1	10.12	1200	

BASIS OF ESTIMATE QUANTITIES

COMMERCIAL FERTILIZER, 10-10-10 100 LB./ AC.
SEED MIXTURE, 500 50 LB./ AC.
SEED MIXTURE, 800 40 LB./ AC.
MULCH MATERIAL, TYPE 1 2 TON/ AC.

06-24-94 8:04 am S:\M\CPU120\UN0310\TABLE-2

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
2	FWB	5/23/96	ADJUSTED QUANTITIES			
1	FWB	4/26/95	ADJUSTED QUANTITIES			

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: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
T.H. 49, CSAH 23, & CSAH 10

TABULATIONS

FILE NO.
LINOL1310.04
DATE
6-7-94
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S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

MISCELLANEOUS REMOVAL SUMMARY

BY 3' WIDTH

STREET	LINE	STATION	LOCATION	REMOVE BIT. PAVEMENT	MILL BIT. PAVEMENT 1 1/2" MIN. (P)	MILL BIT. PAVEMENT 3 1/2" MIN. (P)(2)	MILL BIT. PAVEMENT 3 1/2" DEPTH (2)	MILL CONCRETE 1 1/2" DEPTH (2)	MILL CONCRETE 3 1/2" DEPTH (2)	PAVEMENT BREAKING (RUBBLIZE) (P)(2)	SAWING CONCRETE PAVEMENT FULL DEPTH	REMOVE CONCRETE PAVEMENT	REMOVE CURB AND GUTTER	REMOVE CATCH BASIN	REMOVE PIPE CULVERTS (ALL TYPES)	REMOVE HAND HOLE	REMOVE BOX CULVERT APRON OUTLET (1)	REMOVE CABLE GUARD RAIL	SALVAGE HYDRANT AND VALVE ASSEMBLY	SALVAGE LIGHTING UNIT	SALVAGE CONCRETE APRON	RELOCATE MAILBOX	SAW BIT. PAVEMENT FULL DEPTH	REMOVE GUARD RAIL-PLATE BEAM	SALVAGE CASTING	SALVAGE STABILIZING AGGREGATE		
				SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	RD. STA.	LIN. FT.	SQ. YD.	LIN. FT.	EACH	LIN. FT.	EACH	EACH	LIN. FT.	UNIT	EACH	EACH	EACH	LIN. FT.	LIN. FT.	EACH	C.Y.			
T.H. 49/HODGSON ROAD	1	81+00 - 99+00	LT & RT	7,901																								
	2	82+00	RT												45													
	3	82+35	LT										20															
	4	82+45	LT																									
	5	82+65	LT										20											28				
	6	82+67	RT																	1								
	7	85+50	LT																	1								
	8	87+00	LT & RT													50												
	9	96+60 - 97+60	320' RT																						160			
	10																											
CSAH 10/NORTH ROAD	11	101+00 - 111+32	LT & RT	3,883																								
	12	110+55	LT											1														
	13	110+55 - 110+60	LT												18													
	14	110+65	RT												1											1		
	15	110+60 - 110+65	RT													23												
	16	111+00	RT												1													
	17	110+65 - 111+00	RT													43												
	18	110+90	LT									24																
	19	110+00	RT										30												24			
	20	111+00 - 111+30	LT																									
	21	111+32	LT & RT																							38		
	22																											
SUNRISE DRIVE	23	0+51.10	LT & RT																									
	24	1+38	LT																	1								
	25	0+85	LT																			1						
	26																											
CSAH 23/ LAKE DRIVE	27	520+00 - 523+00	LT & RT			1,400																						
	28	523+00 - 545+77	LT & RT				465	180	410	22.8	70	20																
	29	523+00 - 544+15	LT & RT		7,463																							
	30	533+00	LT	252																								
	31	533+00	RT	185																								
	32	533+00	LT												60													
	33	533+00	RT												60													
	34	533+00	LT & RT																						80			
	35	537+00	LT																1									
	36	544+00	LT													70												
	37	544+15 - 545+77	LT & RT			684																						
T.H. 49/LAKE DRIVE	38	545+77 - 564+85	LT & RT			6,536																						
	39	545+77 - 568+50	LT & RT				85	135	200	23.7	90	45																
	40	551+00 - 555+00	LT & RT																								200	
	41	551+15	LT																		1							
	42	551+50	RT									40	90															
	43	552+05	RT									15	60															
	44	552+05	RT													1												
	45	552+15	RT																		1							
	46	552+15	LT																			1						
	47	553+20	LT & RT													45								1				
	48	553+25	RT	89																								
	49	553+25	RT																									
50	554+75	RT													50									15				
51	557+00 - 558+60	RT																										
52	558+90 - 560+45	LT											210															
53	561+20 - 563+90	LT											310															
54	561+82 - 574+00	LT	1,114																									
55	564+40	LT													30													
56	564+75 - 574+00	RT	568																									
57	569+65	RT																										
58	570+00	LT																										
59	571+00	LT & RT																										
TOTALS				13,992	7,463	8,620	550	315	610	46.5	160	144	740	3	494	1	1(1)	160	3	2	1	7	209	160	1	200		

NOTES: (1) REMOVAL OF BOX CULVERT END INCIDENTAL TO BOX CULVERT CONSTRUCTION.

(2) SEE SHEET NO. 28 FOR MILLING/ PULVERIZING LOCATIONS

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

11-23-94 8:45 am

C:\ACAD\DRAWING\1310\TABLE-3

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: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
T.H. 49, CSAH 23, & CSAH 10

TABULATIONS

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CONCRETE CURB & GUTTER AND 3" CONCRETE MEDIAN PAVING					
STREET	STATION	LOCATION	B624 (L.F.)	B618 (L.F.)	CONC. MEDIAN 3" (S.Y.)
T.H. 49/ HODGSON RD.	82+70 - 99+76	T.H. 49 - WEST CURB	1710		
	94+65 - 99+76	T.H. 49 - EAST CURB	560		
	89+35 - 93+93	T.H. 49 - MEDIAN	930		340
	94+93 - 99+49	T.H. 49 - MEDIAN	920		230
T.H. 49/ LAKE DR.	547+00 - 552+90	T.H. 49 - MEDIAN	1190		530
			5310		1100
CSAH 23/ LAKE DRIVE	525+60 - 532+48	C.S.A.H. 23 - MEDIAN	1380		680
	533+58 - 539+75	C.S.A.H. 23 - MEDIAN	1240		320
	540+85 - 545+80	C.S.A.H. 23 - MEDIAN	1000		260
SUNRISE DRIVE	0+51.10 - 1+26.1	SUNRISE DRIVE		350	
CSAH 10/ NORTH RD.	100+50 - 111+32	C.S.A.H. 10 - SOUTH CURB	1020		
	100+50 - 111+32	C.S.A.H. 10 - NORTH CURB	1100		
	100+70 - 106+82	C.S.A.H. 10 - MEDIAN	1250		680
			6990	350	1940
			12,300	350	3040

CLEARING AND GRUBBING					
STREET	STATION	LOCATION	CLEARING & GRUBBING		
			TREE	ACRE	
T.H. 49/ HODGSON ROAD	82+50 - 85+10	LT		0.40	
	82+80 - 88+20	RT		0.45	
	90+00	RT		0.05	
	94+30 - 99+20	RT & LT		2.10	
T.H. 49/ LAKE DRIVE	545+00 - 550+30	LT		0.75	
	559+40	LT	1		
	558+00 - 565+00	RT		0.80	
	561+40 - 563+00	LT		0.10	
	567+20 - 507+40	LT		0.05	
			1	4.70	
CSAH 23/ LAKE DRIVE	534+50 - 536+80	LT		0.50	
			0	0.50	
CSAH 10/ NORTH ROAD	101+30 - 103+40	RT & LT		0.65	
	104+20	LT	3		
	105+40	LT	2		
	106+30	LT	1		
	107+90 - 108+60	RT	5		
			11	0.65	
			12	5.85	

TYPE "C" AND STREET NAME SIGNS (F&D)					
MMUTCD CODE	QUANTITY	EST. PANEL		EST. NO. OF POSTS AND TYPE	SIGN LEGEND
		SIZE (IN)	AREA (FT ²)		
R1-1	6	30 X 30	6.25	2U	STOP
R2-1	1	24 X 30	5.00	2U	SPEED LIMIT 35
R2-1	5	24 X 30	5.00	2U	SPEED LIMIT 50
R2-1	1	24 X 30	5.00	2U	SPEED LIMIT 55
R3-X1	11	30 X 30	6.25	2U	RIGHT TURN LANE
R3-X2	8	30 X 30	6.25	2U	LEFT TURN LANE
R4-7	9	24 X 30	5.00	2U	KEEP RIGHT
R4-7	3	36 X 48	12.00	2U-1A	KEEP RIGHT
R5-1	12	30 X 30	6.25	2U	DO NOT ENTER
R6-1R	2	36 X 12	3.00		ONE WAY
R6-1L	2	36 X 12	3.00		ONE WAY
R8-3A	33	18 X 18	2.25	1U	NO PARKING
R11-2	2	48 X 30	10.00	2U-1A	ROAD CLOSED
W1-3L	2	30 X 30	6.25	2U	"S" CURVE
W1-4R	1	36 X 36	9.00	2U-1A	"S" CURVE
W3-3	4	36 X 36	9.00	2U-1A	SIGNAL
W6-1	3	36 X 36	9.00	2U-1A	BEGIN MEDIAN
W6-2	3	36 X 36	9.00	2U-1A	END MEDIAN
W6-3	3	30 X 30	6.25	2U	TWO WAY TRAFFIC
W13-1	2	24 X 24	4.00	2U	30 MPH
W14-1	1	30 X 30	6.25	2U	DEAD END
W14-3	3	36X48X48	5.56	2U	NO PASSING ZONE
M1-5A	4	24 X 24	4.00	2U	MINNESOTA 49
M1-6	4	24 X 24	4.00	2U	ANOKA COUNTY 23
M1-6	12	24 X 24	4.00	2U	ANOKA COUNTY 10
M2-1A	6	21 X 15	2.19	1U	JCT
M3-1A	1	24 X 12	2.00	1U	NORTH
M3-2A	4	24 X 12	2.00	1U	EAST
M3-3A	1	24 X 12	2.00	1U	SOUTH
M3-4A	5	24 X 12	2.00	1U	WEST
M4-5A	4	24 X 12	2.00	1U	TO
M6-1A	6	21 X 15	2.19	1U	→
M6-1AL	1	21 X 15	2.19	1U	→
M6-3A	2	21 X 15	2.19	1U	→
D7-X10	1	18 X 24	3.00	1U	CITY PARK →
X4-2	10	18 X 18	2.25	1U	◆
X4-4L	4	18 X 36	4.50	2U	◆
X4-11	3	18 X 18	2.25	1U	◆
VII A(Y)	2	9 X 6	0.80	1U	BLACK/ YELLOW
VII A(W)	2	9 X 6	0.80	1U	BLACK/ WHITE
PERMANENT BARRICADES	6	(3)(8X96)	16.00	(2)4"x4"x8" TREATED	▬▬▬▬▬▬
STREET NAME SIGNS	5	VARIES	VARIES	1 - ROUND	

TYPE "C" AND STREET NAME SIGNS - SALVAGE					
PLAN SYMBOL	MMUTCD CODE	QUANTITY	EST. PANEL SIZE (IN)	EST. NO. OF * POSTS & TYPE	SIGN LEGEND
A	W14-3	5	36X48X48	2U	NO PASSING ZONE
B	R8-3a	19	18X18	1U	NO PARKING
C	R1-1	7	30 X 30	1U	STOP SIGN
D	R1-1	6	48 X 48	2U	STOP SIGN
E	R1-2	1	36X36X36	1U	YIELD
F	M1-5A	2	24 X 24	1U	49
G	M3-3A	1	24 X 12	1U	SOUTH
H	M4-5A	2	24 X 12	1U	TO
I	M3-4A	4	24 X 12	1U	WEST
J	M1-6	6	24 X 24	1U	10
K	M6-1	4	21 X 15	1U	←
L	M3-2A	1	24 X 12	1U	EAST
M	M1-6	5	24 X 24	1U	23
N	M2-1	3	21 X 15	1U	JCT
O	R2-1	3	24 X 30	1U	SPEED LIMIT 50
P	W3-1	6	30 X 30	1U	STOP AHEAD
Q	R5-1	2	30 X 30	1U	DO NOT ENTER
R	R2-1	1	24 X 30	1U	SPEED LIMIT 35
S	R2-1	1	24 X 30	1U	SPEED LIMIT 30
T	M6-4	1	21 X 15	1U	↔
U	X4-2	2	18 X 18	1U	◆
V	W1-6	1	48 X 24	2U	→
W	R12-1	1	24 X 30	1U	LOAD LIMIT
X		1	24 X 18	1U	NO CROSSING
Y		6	VARIES	1 ROUND	STREET NAME SIGNS
Z	X4-4	3	12 X 36	1U	◆
AA	R3-X1	2	30 X 30	1U	RIGHT TURN LANE
BB	X4-6	7	8 X 24	1U	◆
CC	X4-5	2	6 X 12	1U	◆
DD	R2-1	1	24 X 30	1U	SPEED LIMIT 55
FF	M3-1A	1	24 X 12	1U	NORTH
GG	W6-1	1	36 X 36	2U	BEGIN MEDIAN
HH	R8-3a	2	18 X 18	1U	NO PARKING ANYTIME
II	W6-3	1	30 X 30	2U	TWO WAY TRAFFIC
JJ	W1-7	1	48 X 24	2U	↔
KK		1	18 X 24	1U	MINNESOTA CRIME WATCH
TOTAL		113			

* ESTIMATED POST CONFIGURATION IF NOT MOUNTED WITH A LARGER SIGN.

AGGREGATE SUMMARY					
STREET	STATION	LOCATION	AGGREGATE BASE CL. 5 TON	AGGREGATE BASE CL. 6 TON	SELECT GRANULAR BORROW C.Y.
T.H. 49/ HODGSON ROAD	81+00 - 100+77	ROADWAY & TURN LANES		③ 3821	8728
	81+00 - 94+70	N.B. SHOULDER (RURAL SECTION)	② 621		(INC. ABOVE)
	81+00 - 87+00	TEMP. BYPASS	② 202		
	84+00 - 94+50	N.B. WIDENING MEDIAN & LTL		③	1710
	81+00 - 94+50	EXTRA WIDTH SHOULDER	② 233		
T.H. 49/ LAKE DRIVE	82+00 - 98+13	S.B. WIDENING & LTL		③ 394	
	545+77 - 569+00	T.H. 49 - SHOULDER	② 2030		575
	565+00 - 574+00	T.H. 49 - BYPASS	② 192		
	545+77 - 569+00	EXTRA WIDTH SHOULDER	② 382		
				② 3660	4215
CSAH 23/ LAKE DRIVE	520+00 - 543+48	C.S.A.H. 23 - SHOULDER	② 2364		
	543+48 - 546+00	C.S.A.H. 23 - SHOULDER	② 260		
	543+34 - 545+77	C.S.A.H. 23 - TURN LANE	② 44		381
SUNRISE DRIVE	0+51.10 - 1+26.1	SUNRISE DRIVE		210	333
	557+90 - 560+55	LIFT STA. ACCESS		150	
CSAH 10/ NORTH ROAD	100+77 - 111+32	C.S.A.H. 10 - ROADWAY	② 1614		1944
	109+00 - 111+32	C.S.A.H. 10 - LEFT SIDE	② 117		
			② 4759		2658
			② 8419	4215	13,671

SALVAGE & REINSTALL TYPE "C" SIGNS			
QTY.	EXISTING SIGN	EST. SIZE(IN.)	REQ'D. POSTS
1	NO PARKING ON STREETS NOV. 1 - APR. 1 2 AM - 6 PM	30"x36"	2U-1A
1	ADOPT A HIGHWAY	60"x36"	2U-1A
8	NEW HIGHWAY	96"x8"	3U
1	ADOPT A HIGHWAY	80"x36"	2U-1A
1	CIRCLE PINES	114"x24"	2U-2A
1	LINO LAKES	114"x24"	2U-2A
1	SMILE 2 6	10"x27"	1U

SALVAGE & REINSTALL TYPE "D" SIGNS			
QTY.	EXISTING SIGN	EST. SIZE(IN.)	REQ'D. POSTS
1	LAKE DRIVE	96"x72"	2U-2A
1	49	48"x60"	2U-1A
1	49	48"x60"	2U-1A
1	49 49	84"x66"	2U-2A
1	49	48"x60"	2U-1A
1	LAKE DRIVE	96"x60"	2U-2A
1	49	48"x60"	2U-1A

S:\M\CSAH\23\UNDOT310\TABLE-4 07-27-94 11:45 am

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
3	FW	5/23/95	ADJUSTED QUANTITIES			
2	FW	4/26/95	REVISED QUANTITIES			
1	CH	7/27/94	REVISED QUANTITY AND TYPE OF SIGNS			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
 Date: 6-7-94 Reg. No. 19574



S.P. 0204-12
 S.A.P. 02-623-07
 S.A.P. 02-610-09
LINO LAKES, MINNESOTA
 T.H. 49, CSAH 23, & CSAH 10

TABULATIONS

FILE NO. LNOL1310.04
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BASE OVERLAY (DIRE. NO.)

C/L NB TH 49 67+35.04

TYPE	STATION	PT#	NORTH	EAST
POB	67+35.04	676	16378.295	19854.153
PC	83+67.48	748	17544.205	18711.556
DELTA	34D26'26.3"	RADIUS 1145.92	RP 749	NORTH 18346.266 EAST 19529.981
PT	90+56.30	750	18147.659	18401.408
PC	94+52.10	744	18537.476	18332.808
DELTA	30D02'14.0"	RADIUS 842.51	RP 681	NORTH 18391.454 EAST 17503.047
PT	98+93.79	745	18933.212	18148.278
END	99+98.86	751	19013.751	18080.655

SB C/L TH 49 67+35.04

TYPE	STATION	PT#	NORTH	EAST
POB	67+35.04	676	16378.295	19854.153
POL	83+67.48	748	17544.205	18711.556
PC	84+42.21	677	17597.574	18659.254
DELTA	34D26'26.3"	RADIUS 1041.74	RP 678	NORTH 18326.720 EAST 19403.277
PT	90+68.40	679	18146.168	18377.302
PC	94+61.50	680	18533.316	18309.171
DELTA	30D02'14.0"	RADIUS 818.51	RP 681	NORTH 18391.454 EAST 17503.047
PT	98+90.60	682	18917.780	18129.898
END	100+00.00	173	19001.559	18059.553

NB C/L CSAH 10 100+00

TYPE	STATION	PT#	NORTH	EAST
POB	100+00.00	751	19013.751	18080.655
PC	101+09.42	753	19097.552	18010.293
DELTA	96D13'25.5"	RADIUS 324.00	RP 652	NORTH 18889.211 EAST 17762.160
PT	106+53.56	760	19113.294	17528.146
PC	106+78.42	762	19095.343	17510.957
DELTA	46D20'12.3"	RADIUS 300.00	RP 763	NORTH 19302.829 EAST 17294.278
PT	109+21.03	764	19002.829	17293.780
END	117+51.51	1	19004.206	16463.297

SB REVISED C/L CSAH 10 100+00

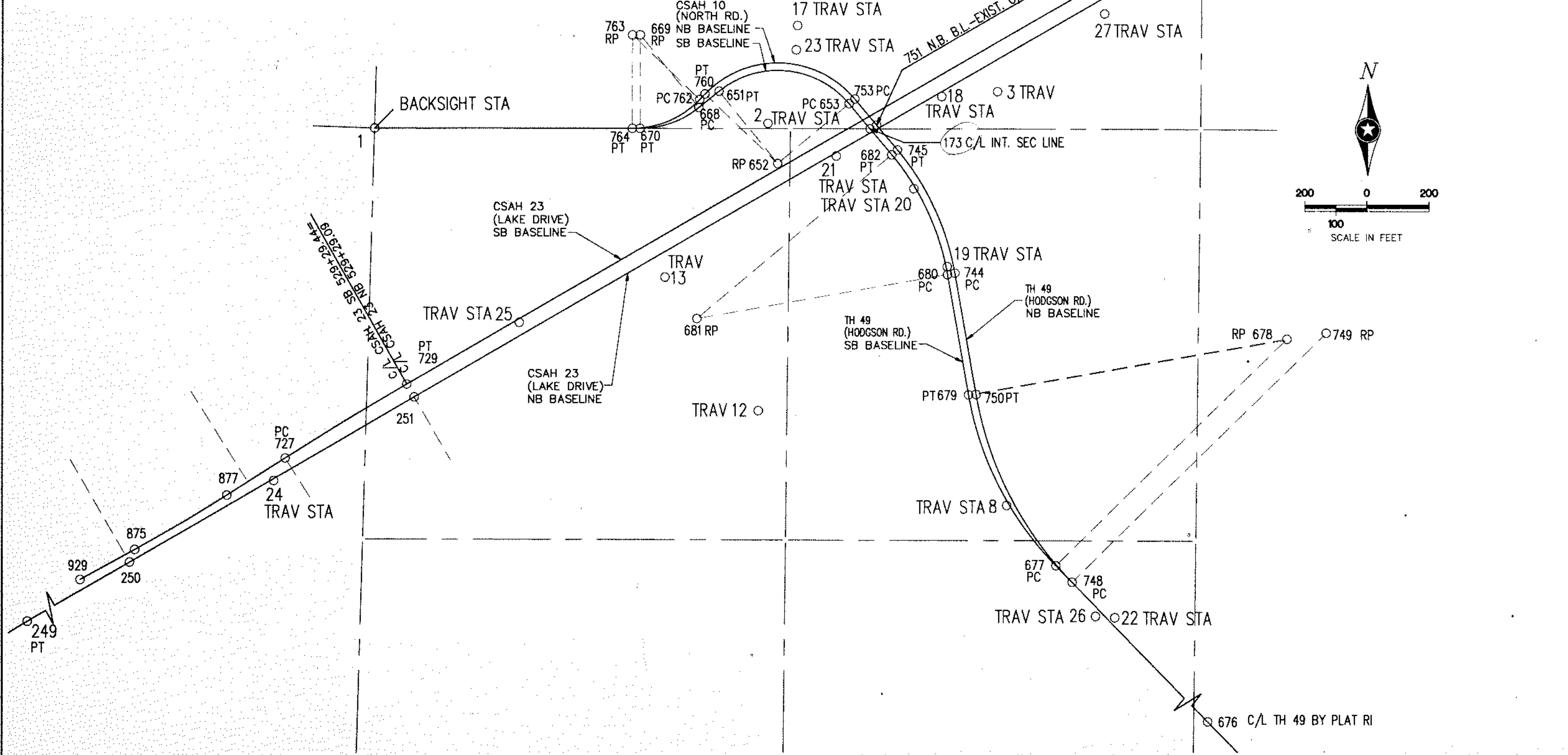
TYPE	STATION	PT#	NORTH	EAST
POB	100+00.00	173	19001.559	18059.553
PC	101+05.19	653	19082.119	17991.913
DELTA	89D00'00.0"	RADIUS 300.00	RP 652	NORTH 18889.211 EAST 17762.160
PT	105+71.19	651	19122.295	17573.291
PC	106+54.73	668	19069.702	17508.386
DELTA	39D06'48.8"	RADIUS 300.00	RP 669	NORTH 19302.787 EAST 17391.516
PT	108+59.53	670	19002.787	17319.019
END	117+15.25	1	19004.206	16463.297

B/L NB LAKE DR 465+08.94

TYPE	STATION	PT#	NORTH	EAST
PT	468+79.36	249	15113.432	11353.988
POL	518+70.91	250	17610.564	15676.012
POL	529+29.09	251	18139.943	16592.259
PC	558+75.90	253	19614.149	19143.807
DELTA	16D59'18.6"	RADIUS 2876.79	RP 166	NORTH 22105.069 EAST 17704.630
PT	567+28.88	254	20143.342	19808.802
POL	568+90.99	255	20261.912	19919.346
END	582+12.83	256	21228.745	20820.728

SB C/L LAKE DR 517+05.22

TYPE	STATION	PT#	NORTH	EAST
POB	517+05.22	929	17554.131	15517.332
PC	519+05.22	875	17650.702	15692.472
DELTA	30D26'11.0"	RADIUS 5729.58	RP 876	NORTH 22668.087 EAST 12925.901
PT	522+48.86	877	17825.553	15988.242
PC	524+71.32	727	17944.452	16176.259
DELTA	2D17'26.2"	RADIUS 11459.16	RP 728	NORTH 8259.385 EAST 22300.940
PT/END	529+29.44	729	18181.505	16568.246
DELTA	16D59'18.6"	RADIUS 3125.22	RP 734	NORTH 22380.688 EAST 17589.121
PT	529+29.09	729	18181.505	16568.246
POL	558+75.90	711	19655.710	19119.794
PC	559+13.77	733	19674.655	19152.583
DELTA	16D59'18.6"	RADIUS 3125.22	RP 736	NORTH 20249.549 EAST 19901.792
PT	568+40.41	735	20249.549	19875.007
END	568+79.69	736	20278.278	19901.792



	PT#	NORTH	EAST
BACKSIGHT STATION	1	19004.206	16463.297
TRAVERSE STATION	2	19019.181	17730.754
TRAVERSE STATION	3	19121.101	18469.495
TRAVERSE STATION	4	19861.496	19525.095
TRAVERSE STATION	8	17790.816	18500.567
TRAVERSE STATION	12	18095.418	17700.775
TRAVERSE STATION	13	18524.819	17399.747
TRAVERSE STATION	17	19333.341	17825.469
TRAVERSE STATION	18	19105.291	18290.204
TRAVERSE STATION	19	18558.475	18308.323
TRAVERSE STATION	20	18808.880	18200.910
TRAVERSE STATION	21	18913.662	17950.847
TRAVERSE STATION	22	17431.106	18849.896
TRAVERSE STATION	23	19255.206	17821.481
TRAVERSE STATION	24	17872.016	16139.224
TRAVERSE STATION	25	18379.138	16931.081
TRAVERSE STATION	26	17435.417	18787.606
TRAVERSE STATION	27	19371.136	18814.470

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Timothy C. Hansen
 Date: 6-7-94 Reg. No. 19574

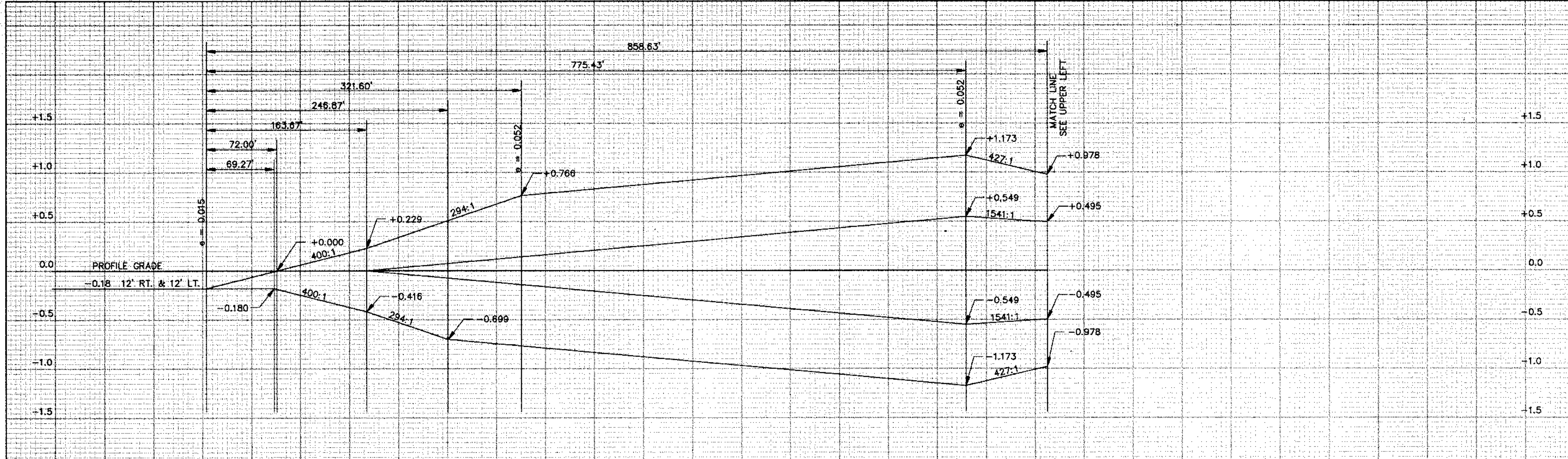


LINO LAKES, MINNESOTA
 T.H. 49, C.S.A.H. 23 & C.S.A.H. 10

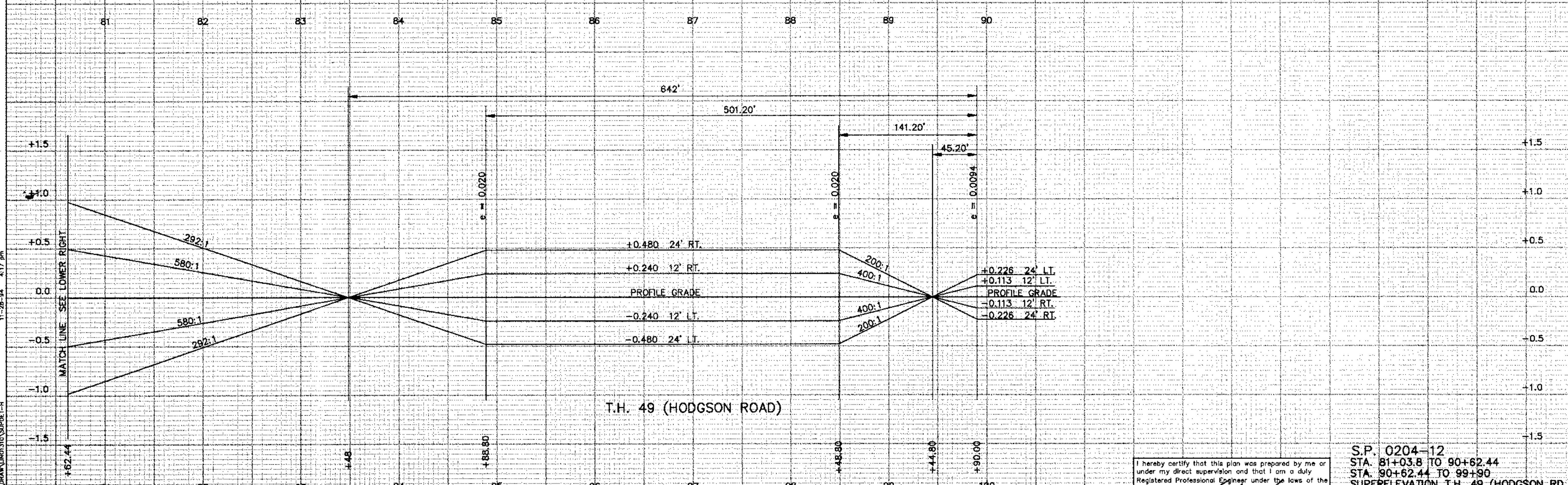
ALIGNMENT PLAN

S.P. 0204-12
 S.A.P. 02-623-07
 S.A.P. 02-610-09

FILE NO.	LINOL1310.04	20
DATE	6-7-94	80



T.H. 49 (HODGSON ROAD)

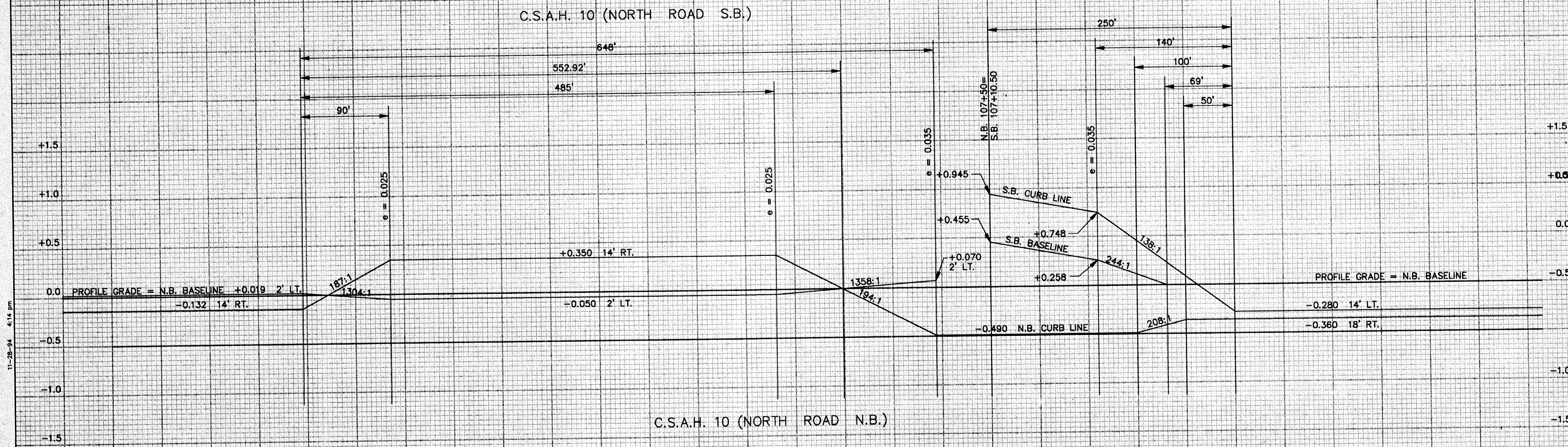
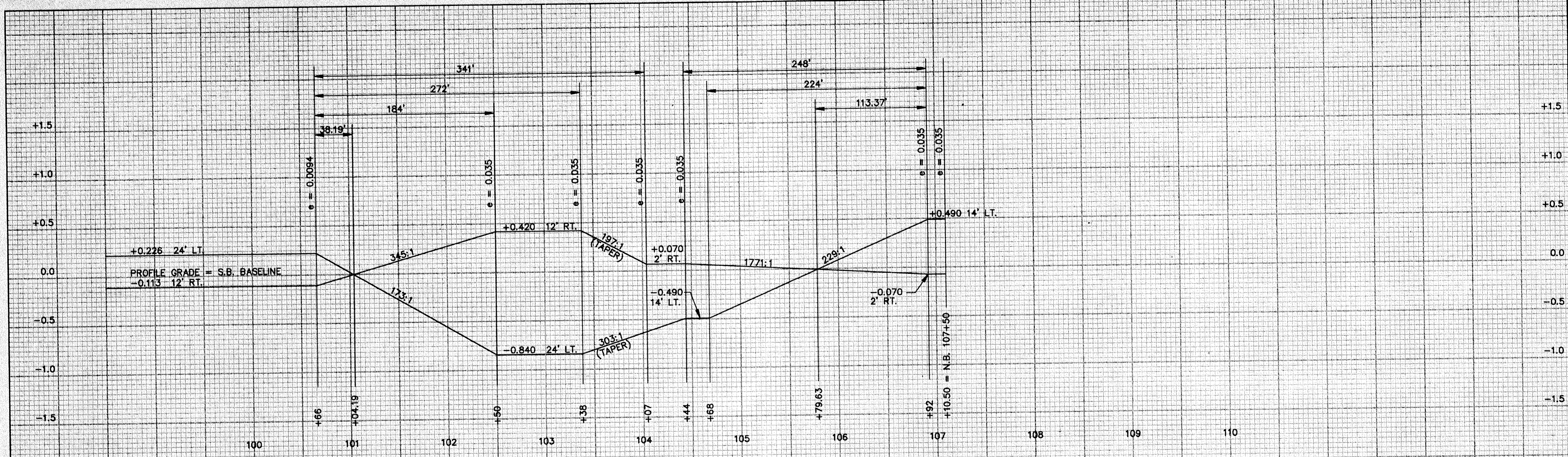


T.H. 49 (HODGSON ROAD)

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

Date: 6-7-94 Reg. No. 19574

S.P. 0204-12
STA. 81+03.8 TO 90+62.44
STA. 90+62.44 TO 99+90
SUPERELEVATION T.H. 49 (HODGSON RD.)



11-28-94 4:14 PM
C:\ACAD\DRAW\10\101310\SUPDET-N

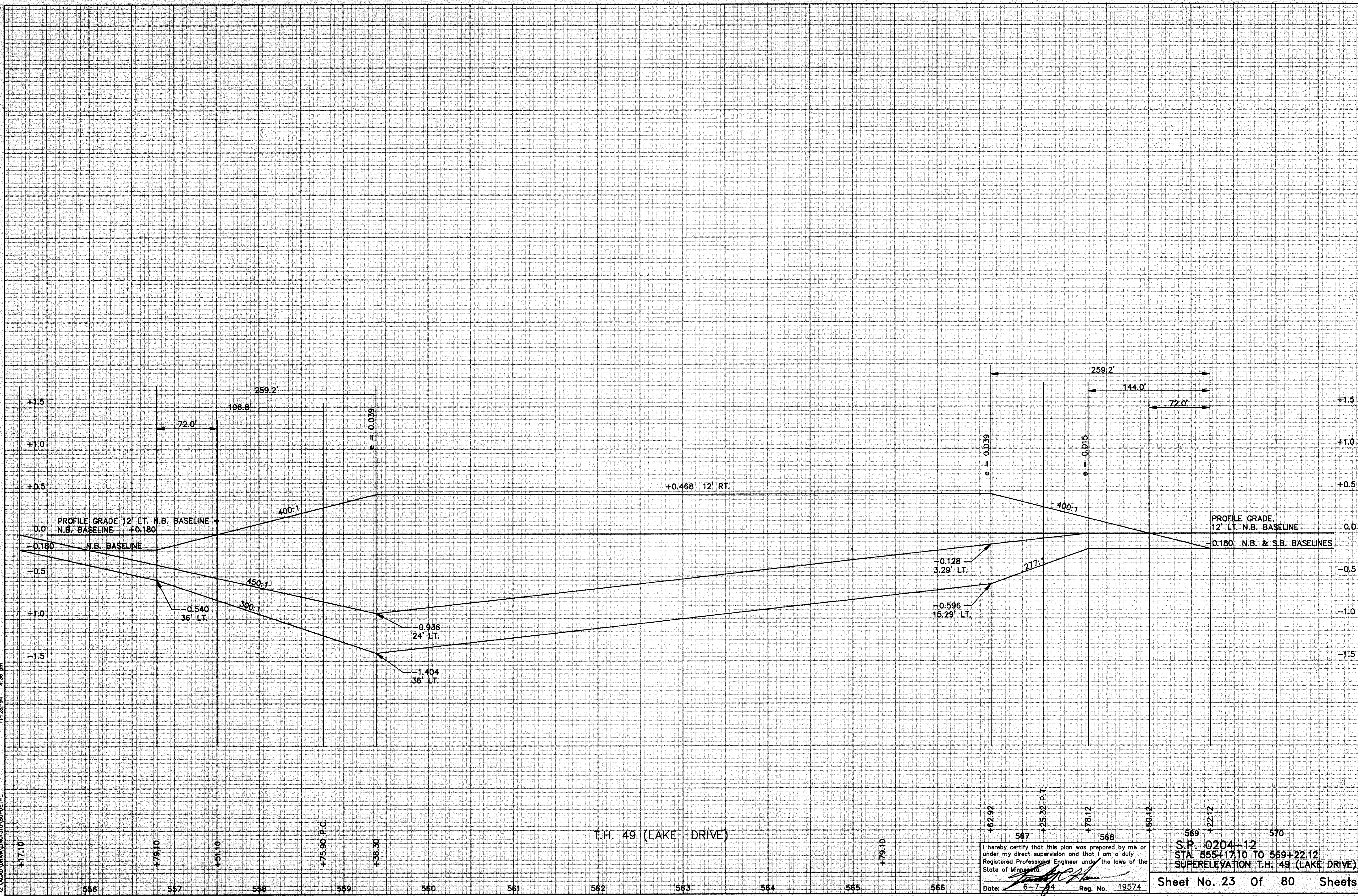
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date: 6-7-94 Reg. No. 19574

S.A.P. 02-610-09
SUPERELEVATION C.S.A.H. 10 (NORTH RD.)
Sheet No. 22 Of 80 Sheets

11-28-94 4:36 pm

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T.H. 49 (LAKE DRIVE)

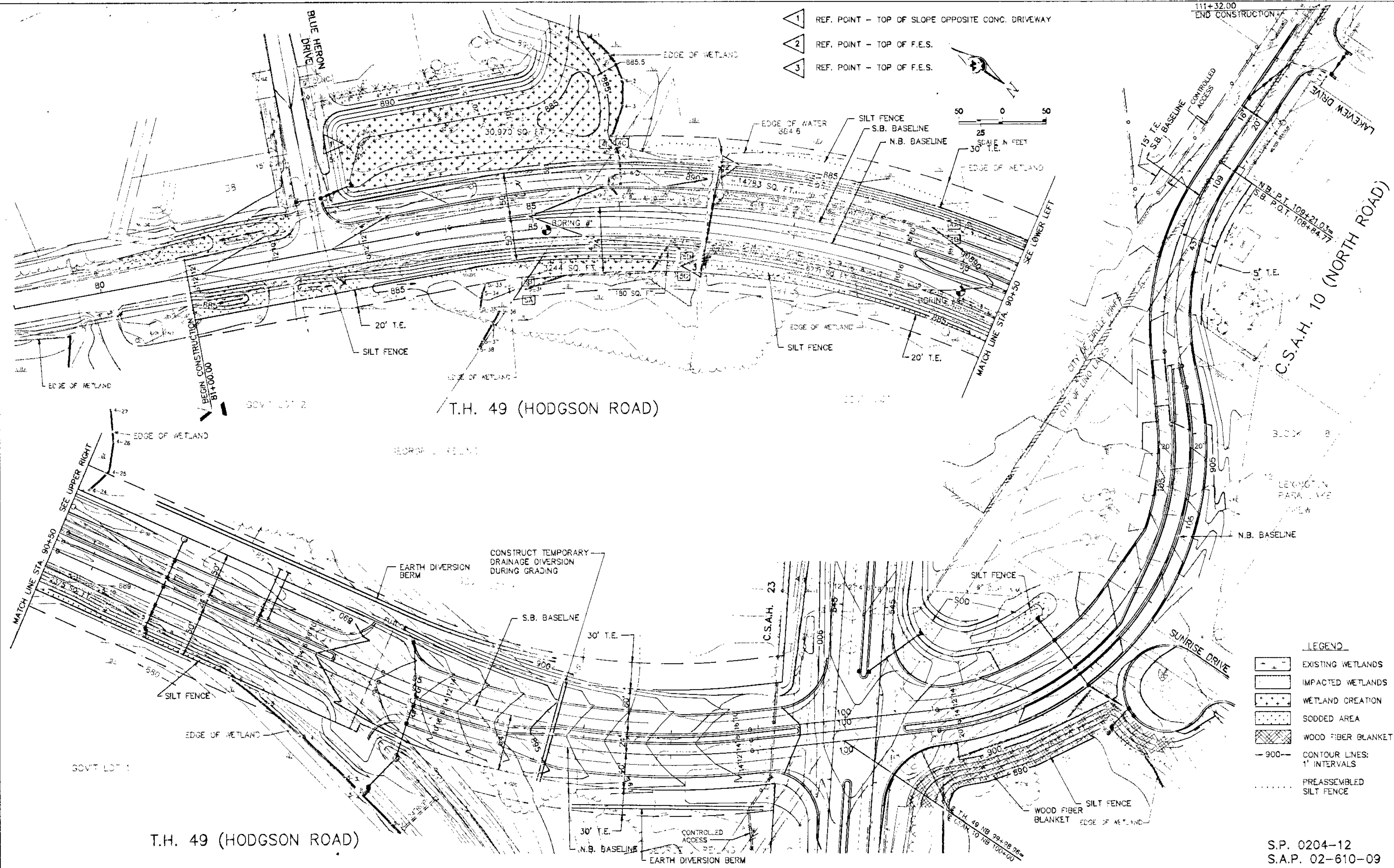
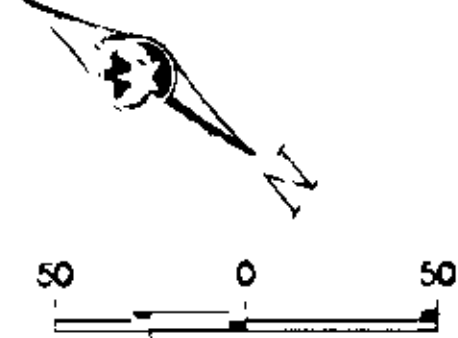
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date: 6-7-94 Reg. No. 19574

S.P. 0204-12
 STA. 555+17.10 TO 569+22.12
 SUPERELEVATION T.H. 49 (LAKE DRIVE)

BASE OVERLAY COR. NO.

- 1 REF. POINT - TOP OF SLOPE OPPOSITE CONC. DRIVEWAY
- 2 REF. POINT - TOP OF F.E.S.
- 3 REF. POINT - TOP OF F.E.S.



LEGEND

[Symbol]	EXISTING WETLANDS
[Symbol]	IMPACTED WETLANDS
[Symbol]	WETLAND CREATION
[Symbol]	SODDED AREA
[Symbol]	WOOD FIBER BLANKET
[Symbol]	CONTOUR LINES: 1' INTERVALS
[Symbol]	PREASSEMBLED SILT FENCE

T.H. 49 (HODGSON ROAD)

S.P. 0204-12
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITCM	DESIGN	CHECKED

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

Date: 6-7-94 Reg. No. 19574

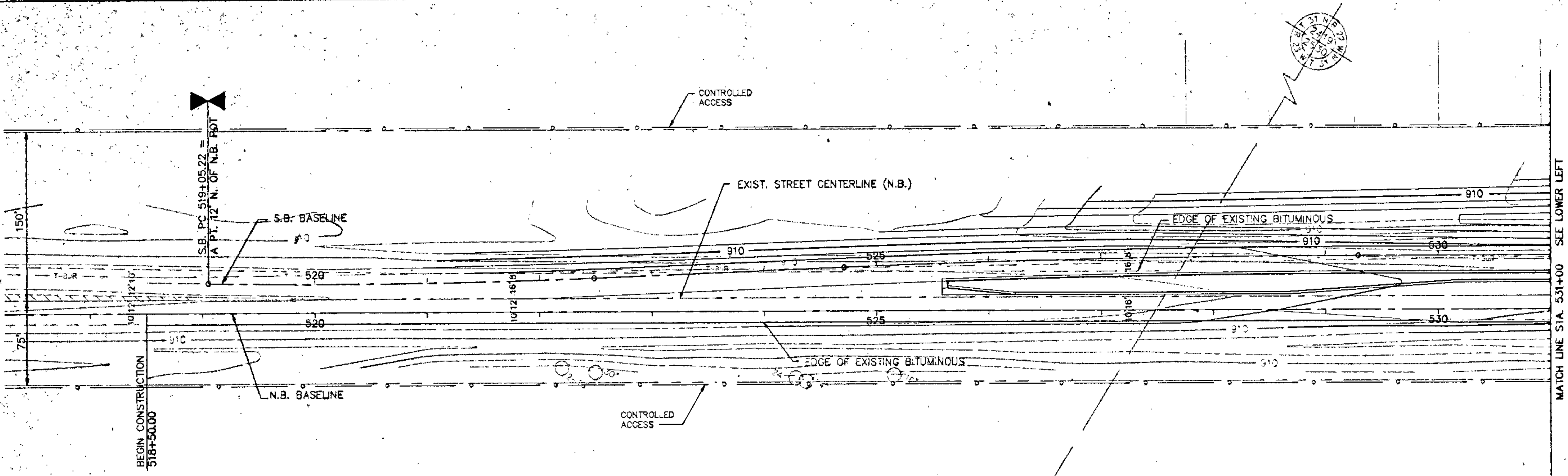


LINO LAKES, MINNESOTA
T.H. 49 & C.S.A.H. 10

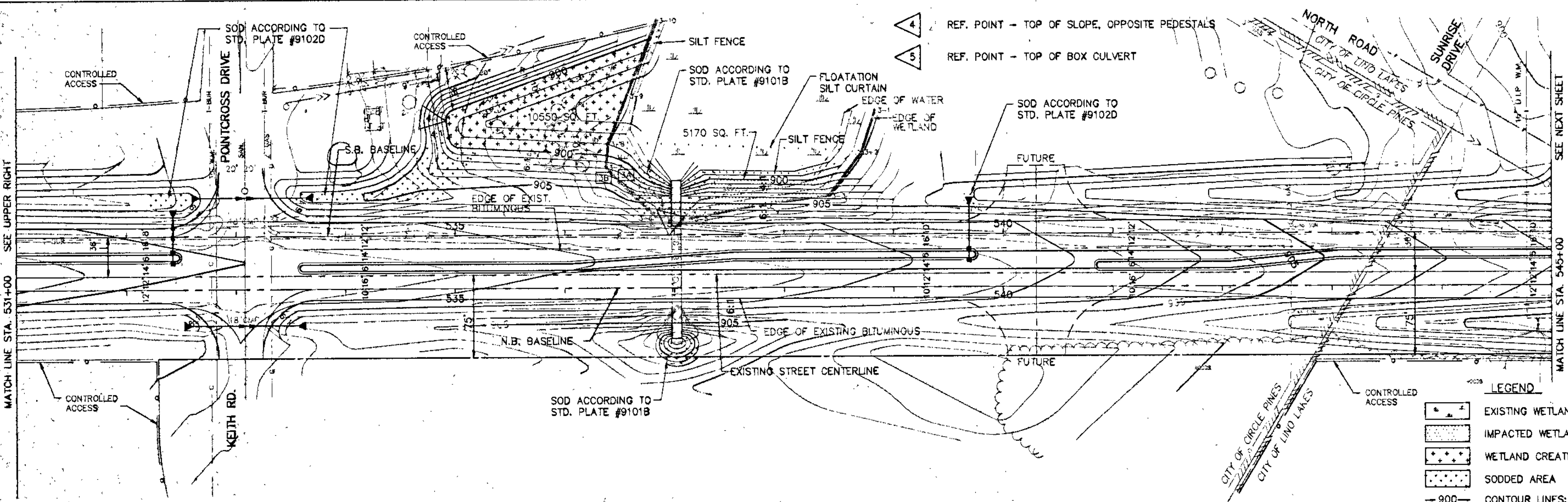
GRADING AND
EROSION CONTROL PLAN

FILE NO.	24
DATE	6-7-94
	80

BASE OVERLAY REG. NO.



C.S.A.H. 23 (LAKE DRIVE)



C.S.A.H. 23 (LAKE DRIVE)

07-27-84 8-47 am
 S:\PROJECTS\20\UNIVERSITY\310\13100682

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCH	7/27/84	EXTENDED EAST END BOX CULVERT			

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.

Richard C. Hansen
 Date: 8-1-84 Reg. No. 19574



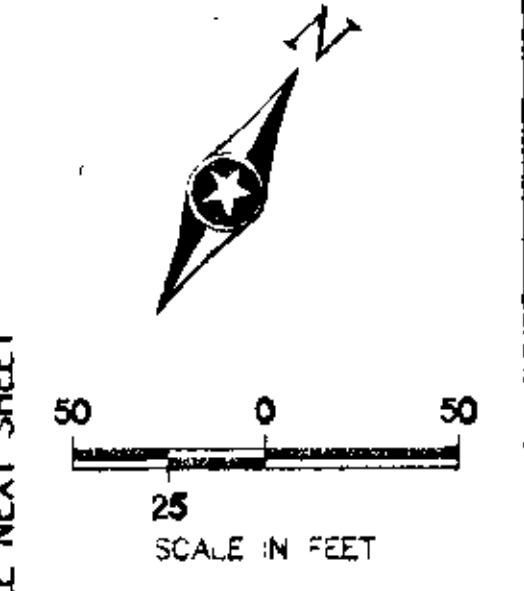
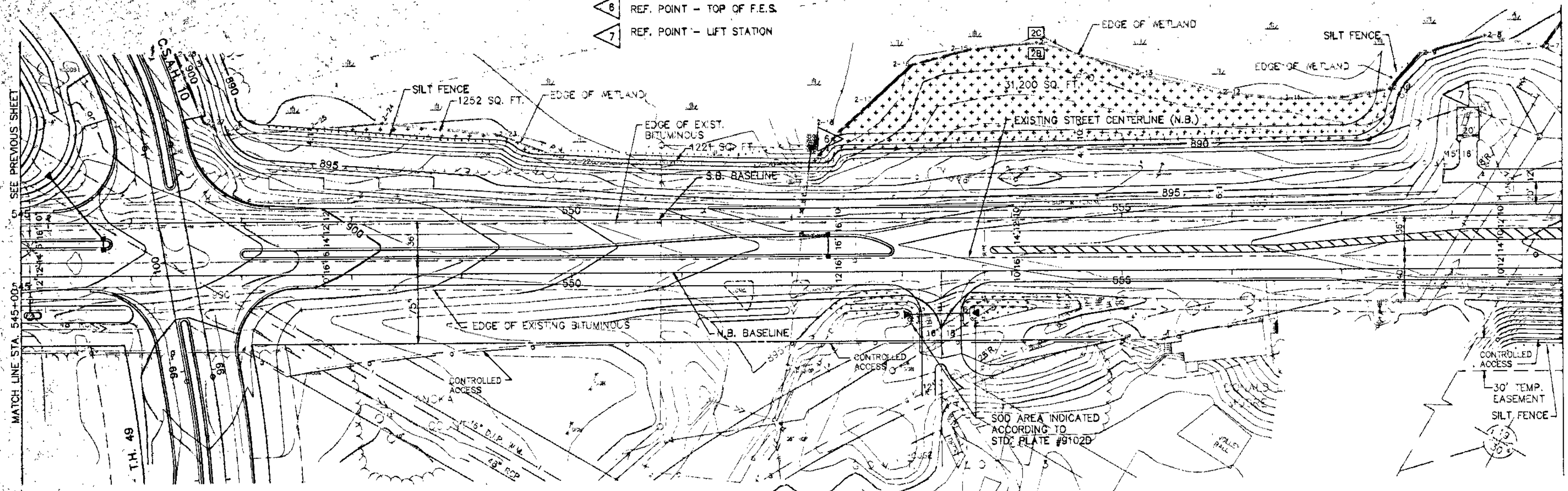
LINO LAKES, MINNESOTA
 C.S.A.H. 23

GRADING AND
 EROSION CONTROL PLAN

S.A.P. 02-623-07

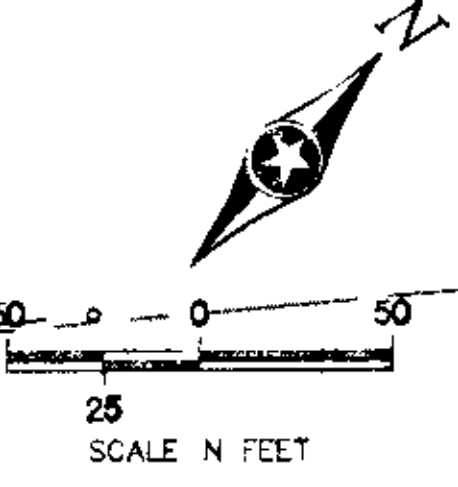
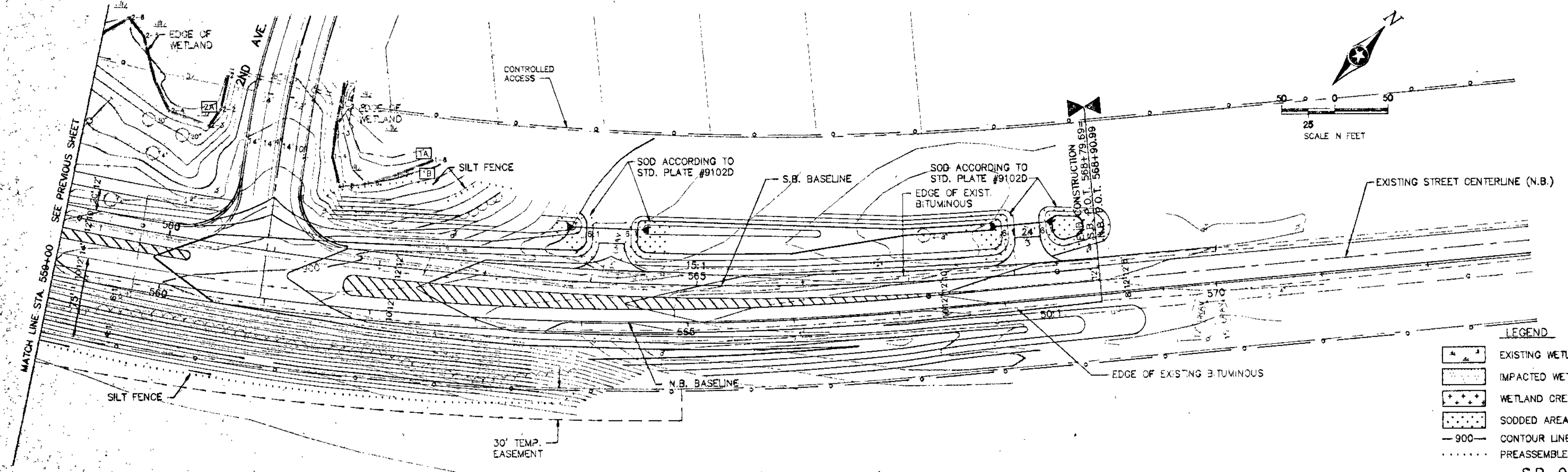
FILE NO. LINOL1310.04	25
DATE 6-7-94	80

6 REF. POINT - TOP OF F.E.S.
 7 REF. POINT - LIFT STATION



C.S.A.H. 23
(LAKE DRIVE)

T.H. 49 (LAKE DRIVE)



T.H. 49 (LAKE DRIVE)

LEGEND

	EXISTING WETLANDS
	IMPACTED WETLANDS
	WETLAND CREATION
	SODDED AREA
	CONTOUR LINES: 1' INTERVALS
	PREASSEMBLED SILT FENCE

S.P. 0204-12
 S.A.P. 02-623-07

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED	DATE

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Date: 6-7-94 Reg. No. 19574

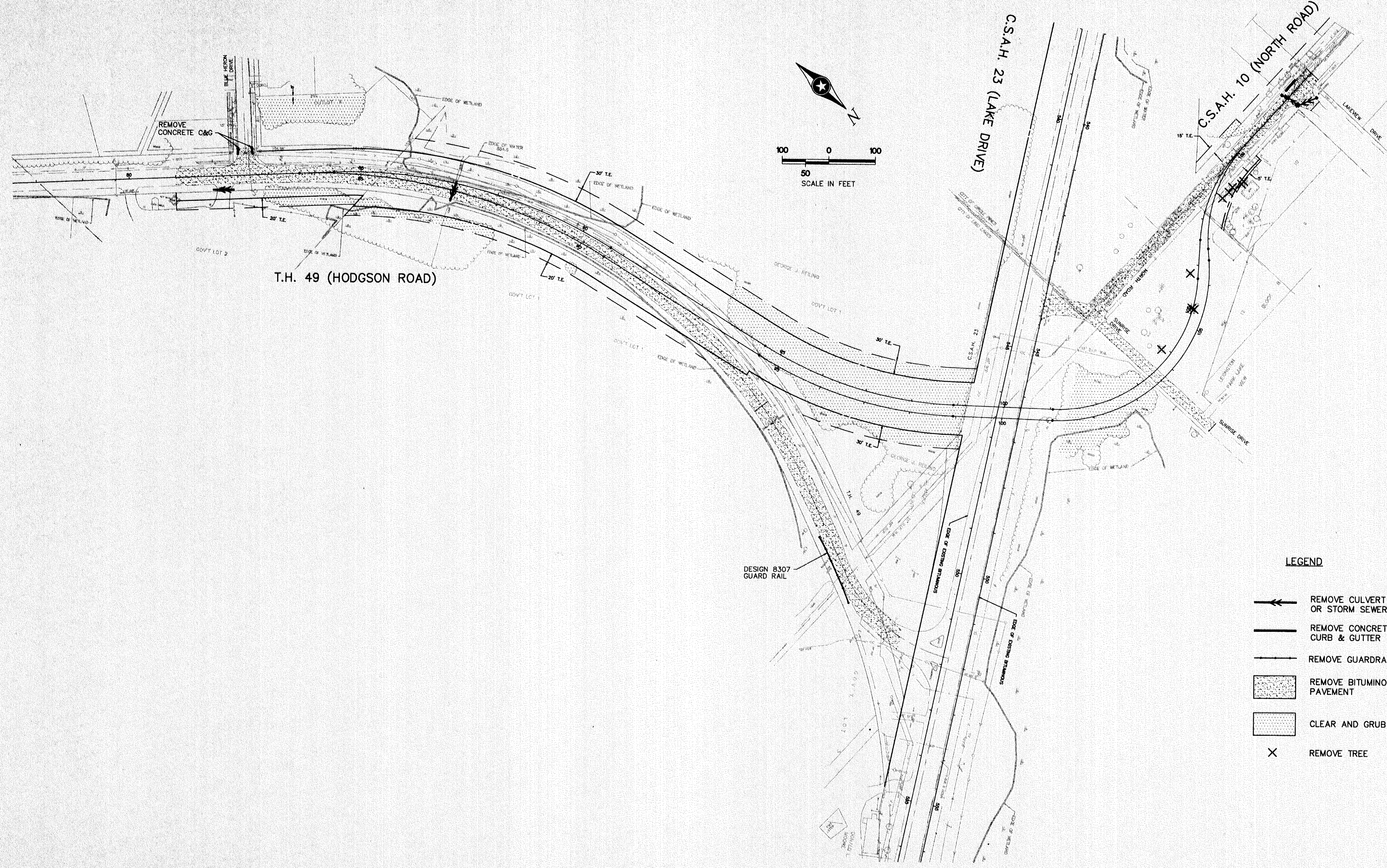


LINO LAKES, MINNESOTA
 C.S.A.H. 23 & T.H. 49





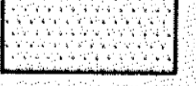

GRADING AND
 EROSION CONTROL PLAN

FILE NO. LINOL1310.04	26
DATE 6-7-94	80

BASE OVERLAY DRG. NO.



LEGEND

-  REMOVE CULVERT OR STORM SEWER PIPE
-  REMOVE CONCRETE CURB & GUTTER
-  REMOVE GUARDRAIL
-  REMOVE BITUMINOUS PAVEMENT
-  CLEAR AND GRUB
-  REMOVE TREE

06-06-94 1:10 pm

S:\M\CP\120\LIN\01310\31000RM1

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

George J. Reeling
 Date: 6-7-94 Reg. No. 19574



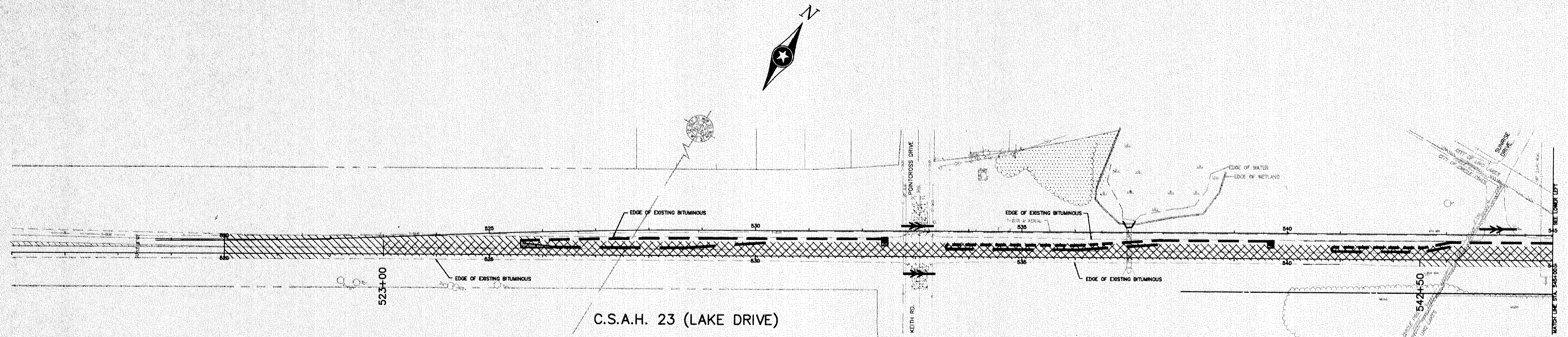
LINO LAKES, MINNESOTA
 T.H. 49 & C.S.A.H. 10

REMOVALS

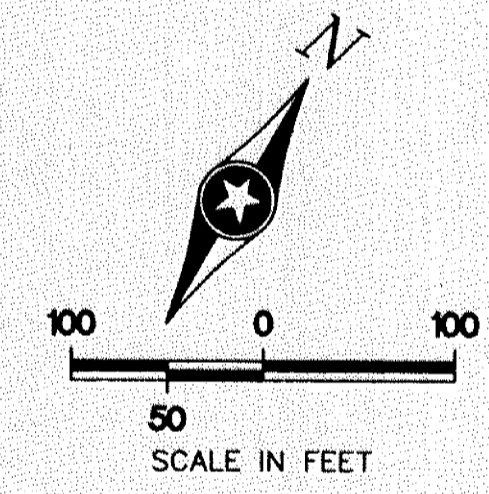
FILE NO. LIN01310.04	27
DATE 6-7-94	80

S.P. 0204-12
 S.A.P. 02-610-09

BASE OVERLAY DRG. NO.



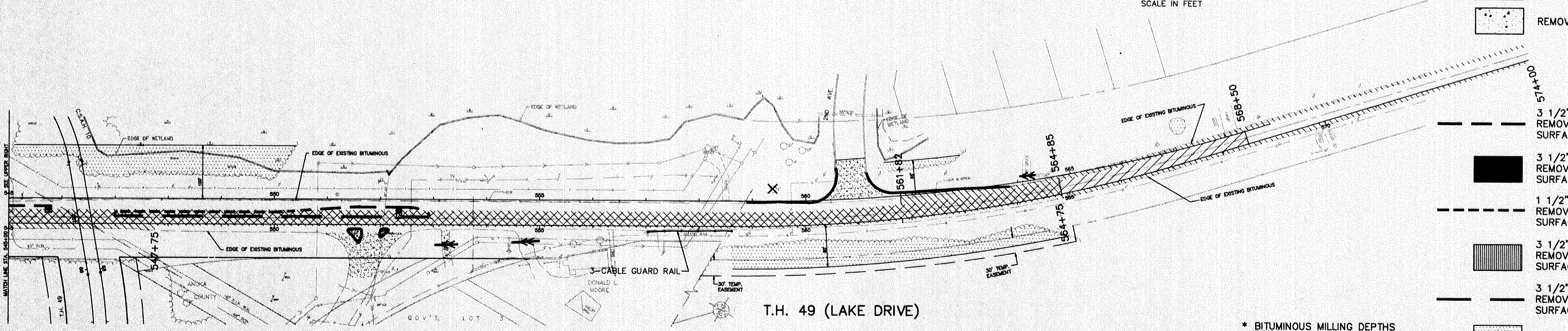
C.S.A.H. 23 (LAKE DRIVE)



LEGEND

- REMOVE APRON OR WING WALL
- REMOVE CULVERT OR STORM SEWER PIPE
- REMOVE CONCRETE CURB & GUTTER
- REMOVE GUARDRAIL
- PULVERIZE CONCRETE PAVEMENT
- MILL BITUMINOUS PAVEMENT *
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE
- 3 1/2" X 3' MILL OR REMOVAL OF BITUMINOUS SURFACE (MIN. DIMENSIONS)
- 3 1/2" DEPTH X 3' MILL OR REMOVAL OF BITUMINOUS SURFACE (MIN. DIMENSIONS)
- 1 1/2" X 3' MILL OR REMOVAL OF CONCRETE SURFACE (MIN. DIMENSIONS)
- 3 1/2" DEPTH X 3' MILL OR REMOVAL OF CONCRETE SURFACE (MIN. DIMENSIONS)
- 3 1/2" DEPTH X 3' MILL OR REMOVAL OF CONCRETE SURFACE (MIN. DIMENSIONS)
- CLEAR AND GRUB
- REMOVE TREE

* BITUMINOUS MILLING DEPTHS
 520+00 - 523+00 = 3 1/2" MIN.
 523+00 - 544+15 = 1 1/2" MIN.
 544+15 - 564+85 = 3 1/2" MIN.



T.H. 49 (LAKE DRIVE)

S:\MVA\PU20\LINOL1310\1310CRW2 06-08-94 1:13 pm

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

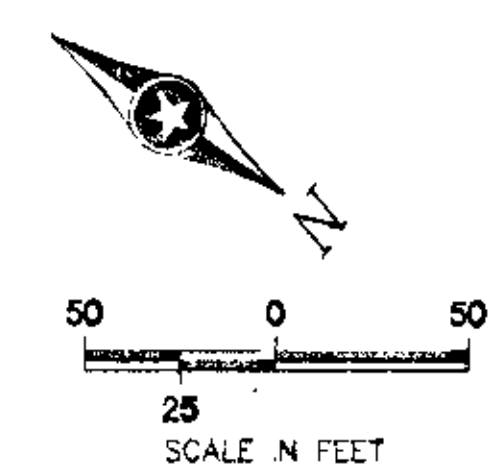
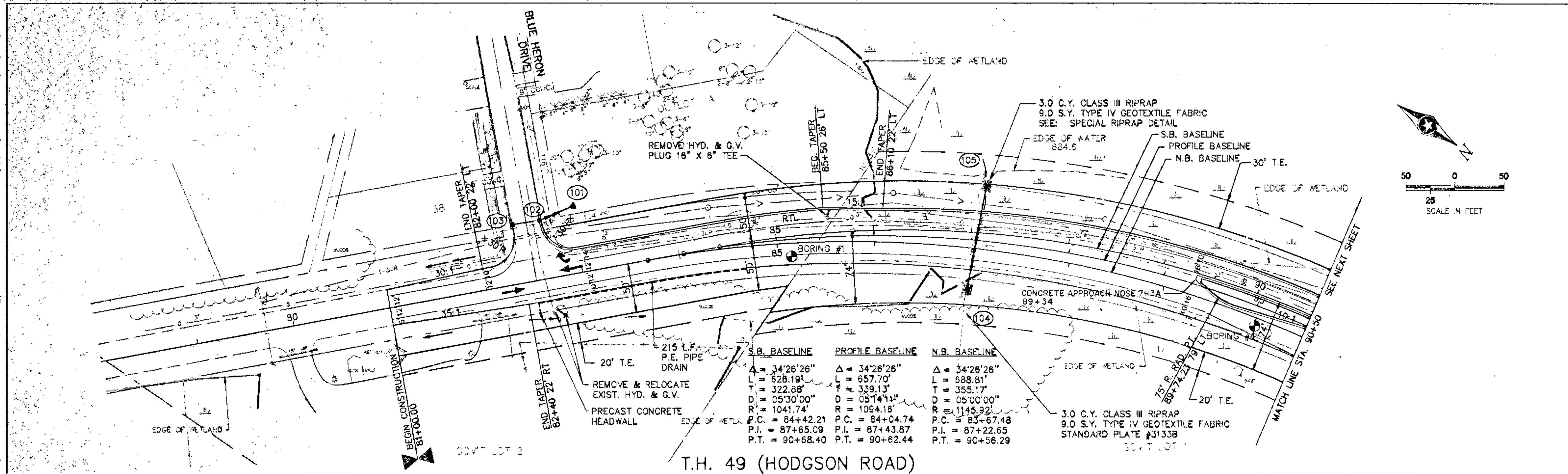
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Donald L. Moore
 Date: 6-7-94 Reg. No. 19574



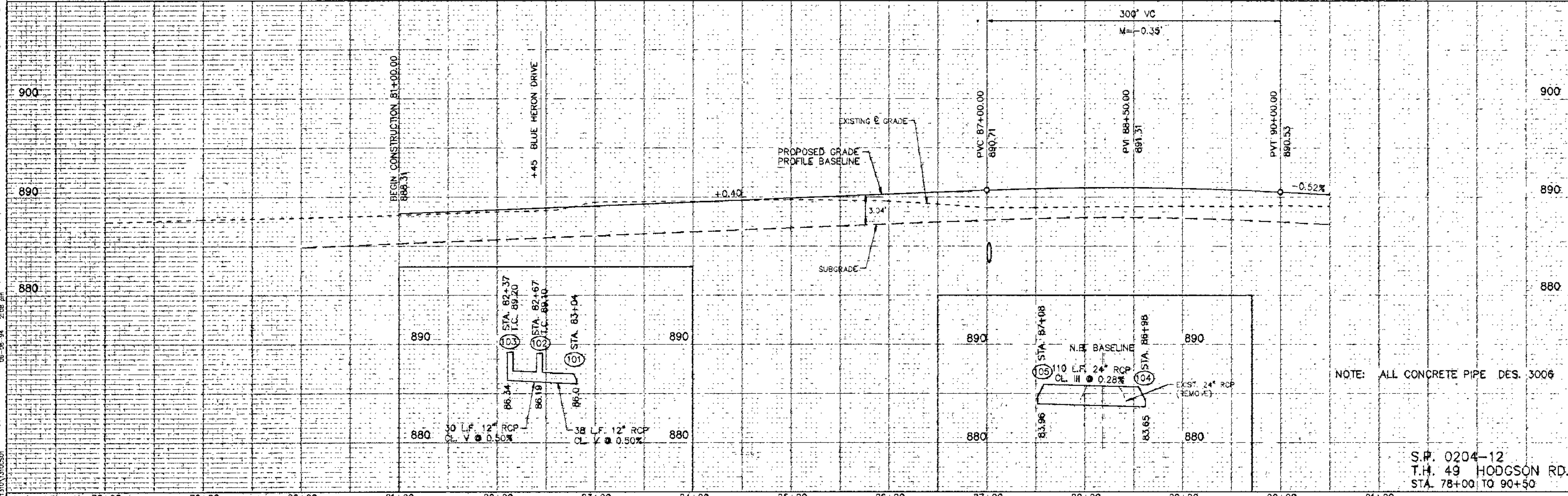
LINO LAKES, MINNESOTA
 C.S.A.H. 23 & T.H. 49

REMOVALS

FILE NO. LINOL1310.04	28
DATE 6-7-94	80



T.H. 49 (HODGSON ROAD)



NOTE: ALL CONCRETE PIPE DES. 3006

S.P. 0204-12
T.H. 49 HODGSON RD.
STA. 78+00 TO 90+50

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	FWB	4/26/95	CHANGED APPROACH NOSE			

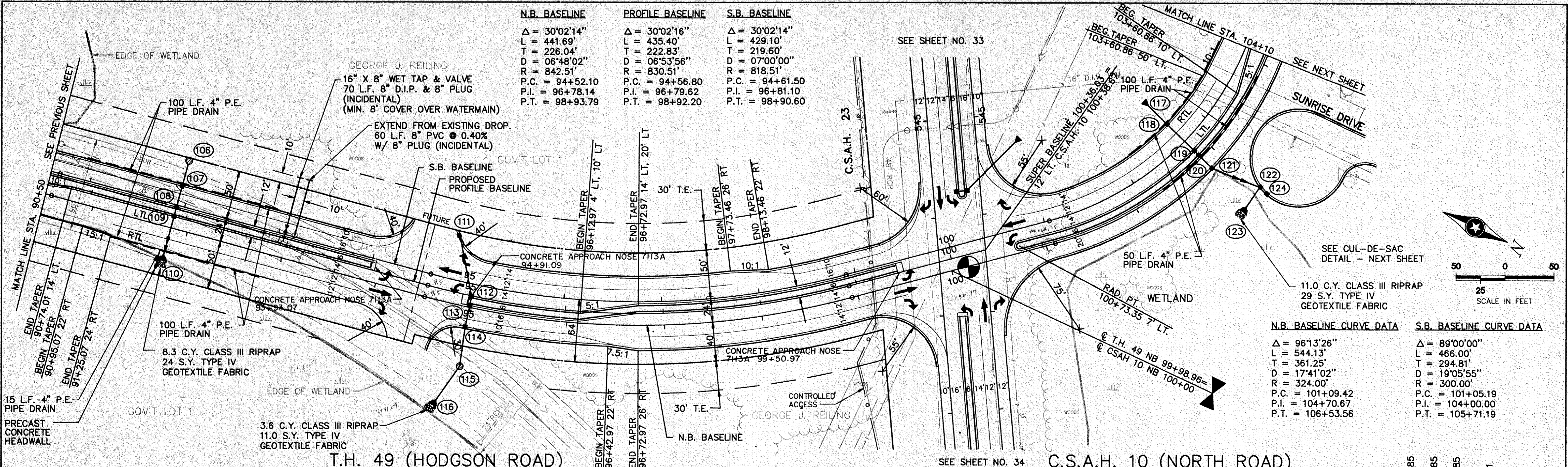
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
T.H. 49

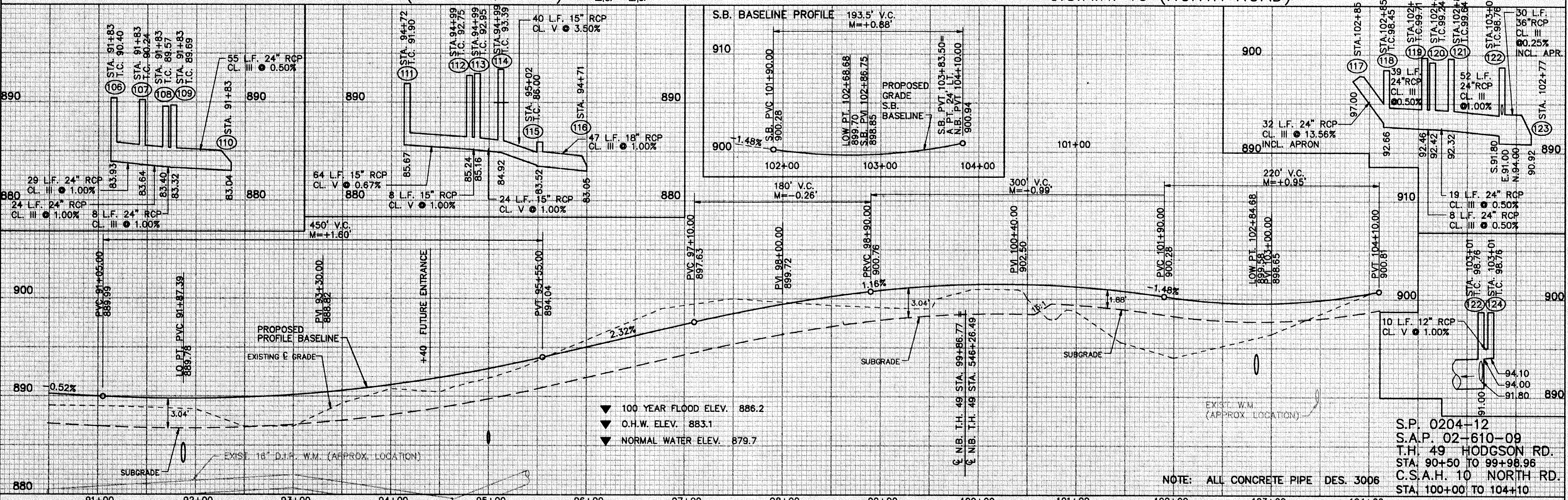
STREET AND STORM SEWER

FILE NO. LNOL1310.04	29
DATE 6-7-94	80



N.B. BASELINE	PROFILE BASELINE	S.B. BASELINE
Δ = 30'02"14"	Δ = 30'02"16"	Δ = 30'02"14"
L = 441.69'	L = 435.40'	L = 429.10'
T = 226.04'	T = 222.83'	T = 219.60'
D = 06'48"02"	D = 06'53"56"	D = 07'00"00"
R = 842.51'	R = 830.51'	R = 818.51'
P.C. = 94+52.10	P.C. = 94+56.80	P.C. = 94+61.50
P.I. = 96+78.14	P.I. = 96+79.62	P.I. = 96+81.10
P.T. = 98+93.79	P.T. = 98+92.20	P.T. = 98+90.60

N.B. BASELINE CURVE DATA	S.B. BASELINE CURVE DATA
Δ = 96'13"26"	Δ = 89'00"00"
L = 544.13'	L = 466.00'
T = 361.25'	T = 294.81'
D = 17'41"02"	D = 19'05"55"
R = 324.00'	R = 300.00'
P.C. = 101+09.42	P.C. = 101+05.19
P.I. = 104+70.67	P.I. = 104+00.00
P.T. = 106+53.56	P.T. = 105+71.19



- ▼ 100 YEAR FLOOD ELEV. 886.2
- ▼ O.H.W. ELEV. 883.1
- ▼ NORMAL WATER ELEV. 879.7

S.P. 0204-12
 S.A.P. 02-610-09
 T.H. 49 HODGSON RD.
 STA. 90+50 TO 99+98.96
 C.S.A.H. 10 NORTH RD.
 STA. 100+00 TO 104+10

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
2	FWB	4/26/95	CHANGED APPROACH NOSES			
1	TCH	7/27/94	REVISED PROPOSED SANITARY SEWER NOTE			

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
 Date: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
 T.H. 49 & C.S.A.H. 10

STREET AND STORM SEWER

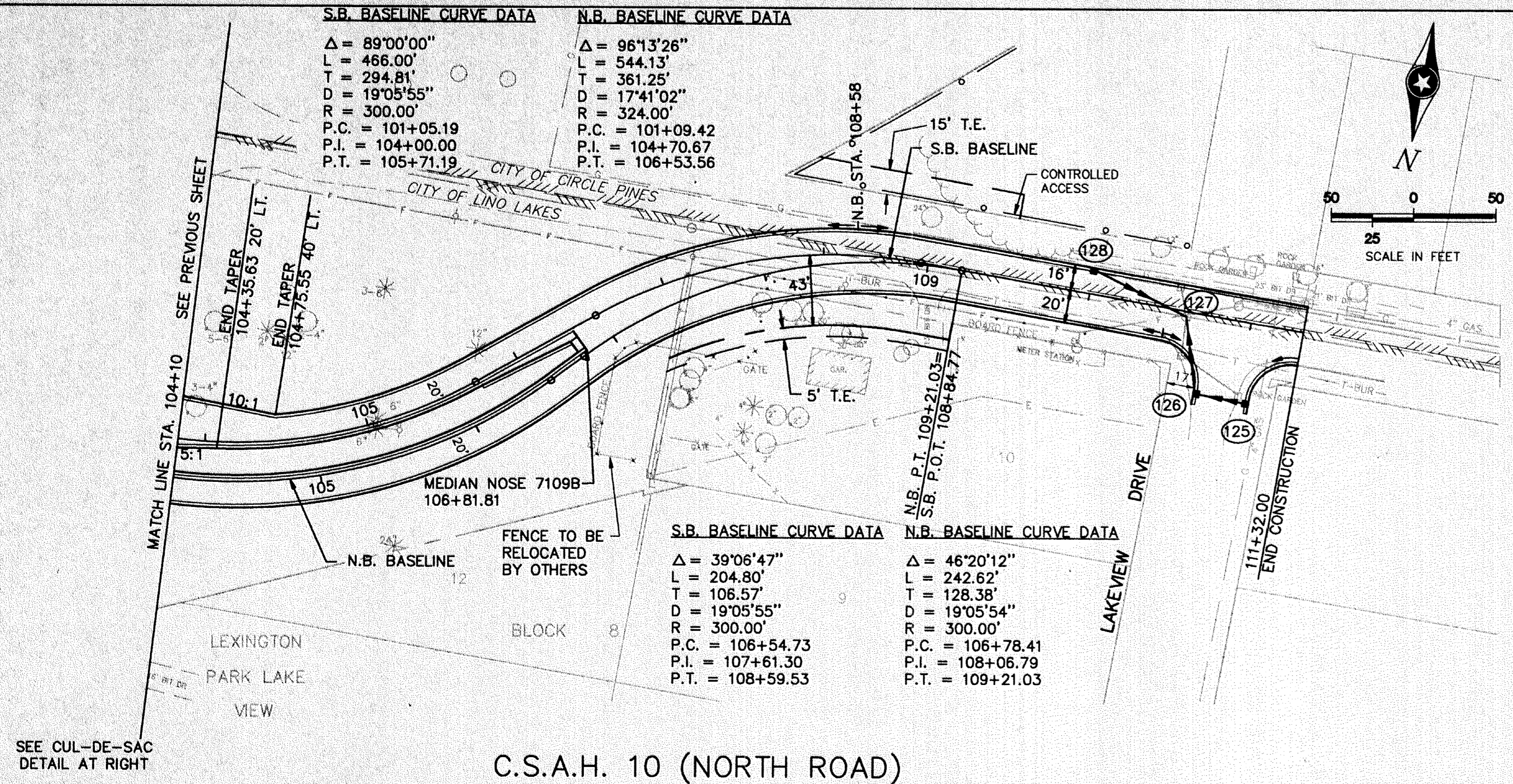
FILE NO. LINOL1310.04	30
DATE 6-7-94	80

S.B. BASELINE CURVE DATA
 $\Delta = 89^{\circ}00'00''$
 $L = 466.00'$
 $T = 294.81'$
 $D = 19^{\circ}05'55''$
 $R = 300.00'$
 $P.C. = 101+05.19$
 $P.I. = 104+00.00$
 $P.T. = 105+71.19$

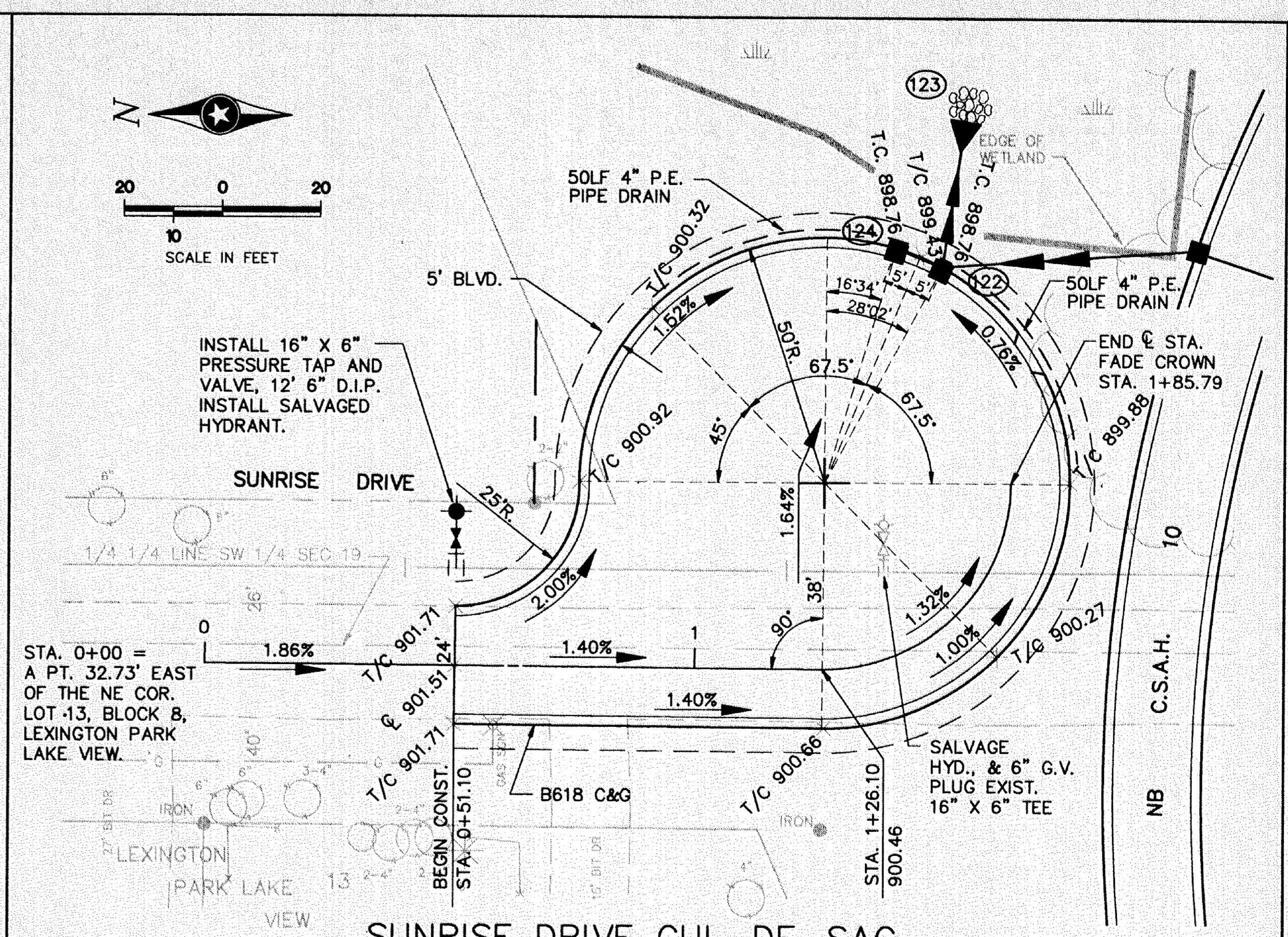
N.B. BASELINE CURVE DATA
 $\Delta = 96^{\circ}13'26''$
 $L = 544.13'$
 $T = 361.25'$
 $D = 17^{\circ}41'02''$
 $R = 324.00'$
 $P.C. = 101+09.42$
 $P.I. = 104+70.67$
 $P.T. = 106+53.56$

S.B. BASELINE CURVE DATA
 $\Delta = 39^{\circ}06'47''$
 $L = 204.80'$
 $T = 106.57'$
 $D = 19^{\circ}05'55''$
 $R = 300.00'$
 $P.C. = 106+54.73$
 $P.I. = 107+61.30$
 $P.T. = 108+59.53$

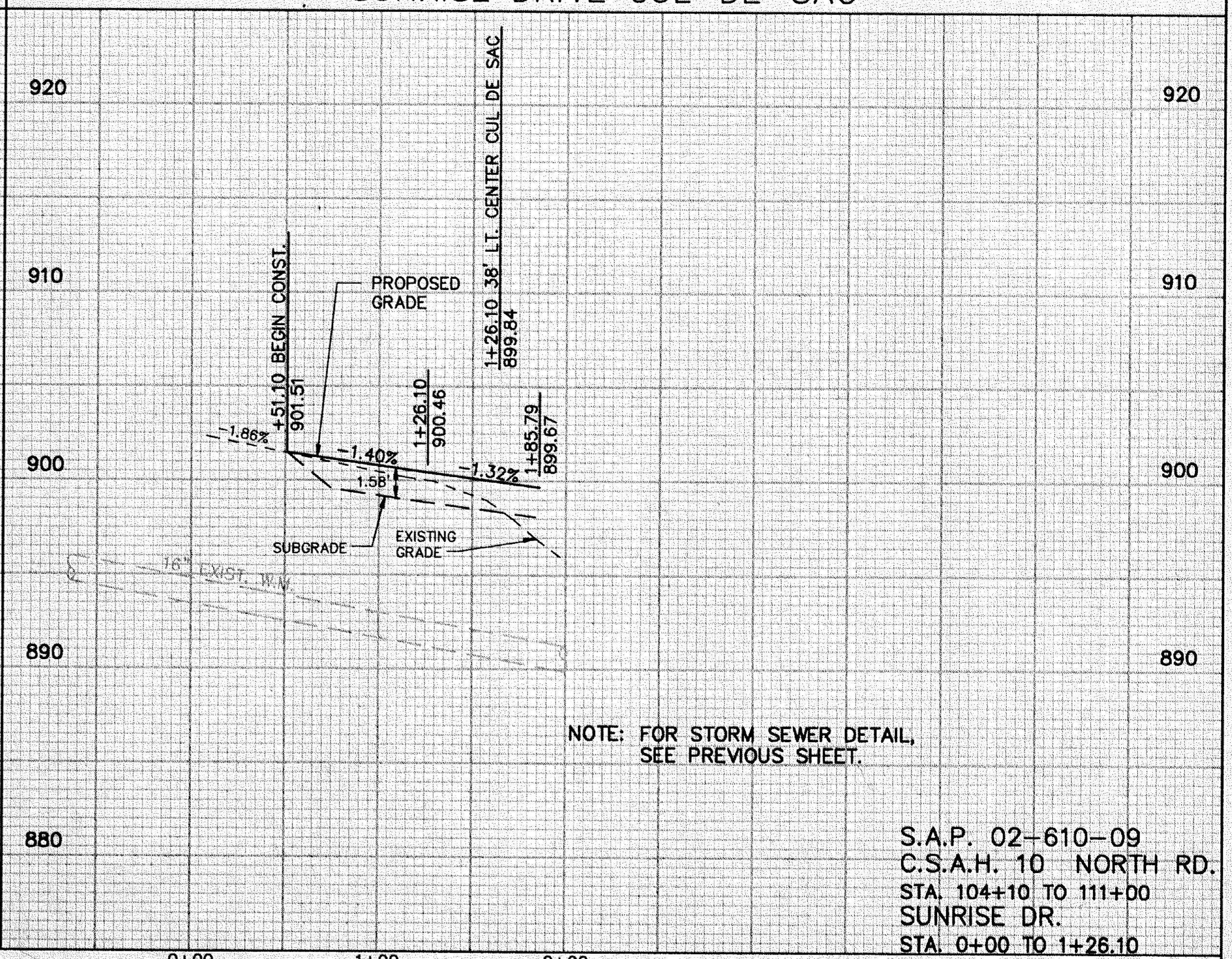
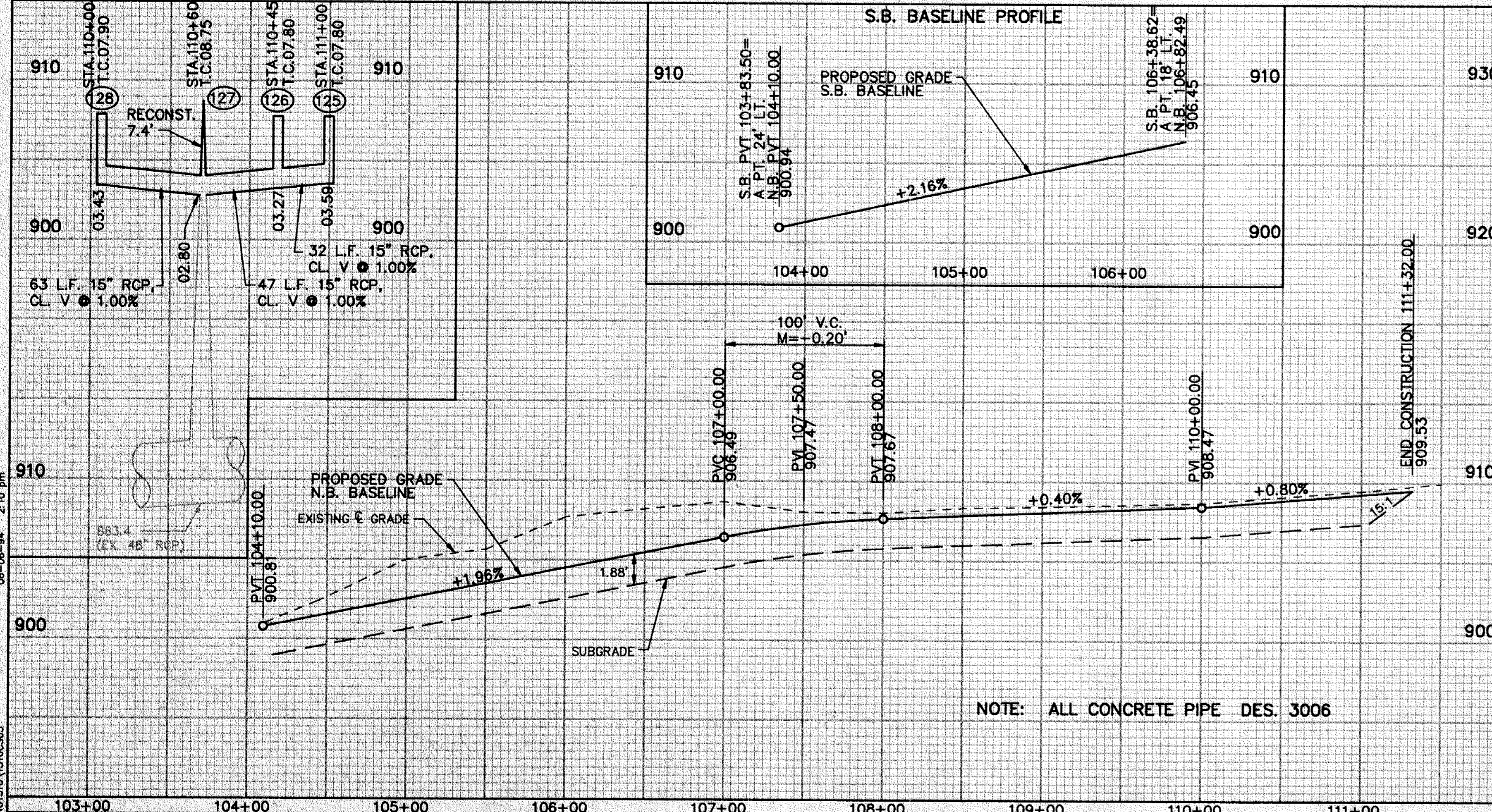
N.B. BASELINE CURVE DATA
 $\Delta = 46^{\circ}20'12''$
 $L = 242.62'$
 $T = 128.38'$
 $D = 19^{\circ}05'54''$
 $R = 300.00'$
 $P.C. = 106+78.41$
 $P.I. = 108+06.79$
 $P.T. = 109+21.03$



C.S.A.H. 10 (NORTH ROAD)



SUNRISE DRIVE CUL-DE-SAC



NOTE: ALL CONCRETE PIPE DES. 3006

NOTE: FOR STORM SEWER DETAIL, SEE PREVIOUS SHEET.

S.A.P. 02-610-09
 C.S.A.H. 10 NORTH RD.
 STA. 104+10 TO 111+00
 SUNRISE DR.
 STA. 0+00 TO 1+26.10

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
 Date: 6-7-94 Reg. No. 19574



LINO LAKES, MINNESOTA
 C.S.A.H. 10

STREET AND STORM SEWER

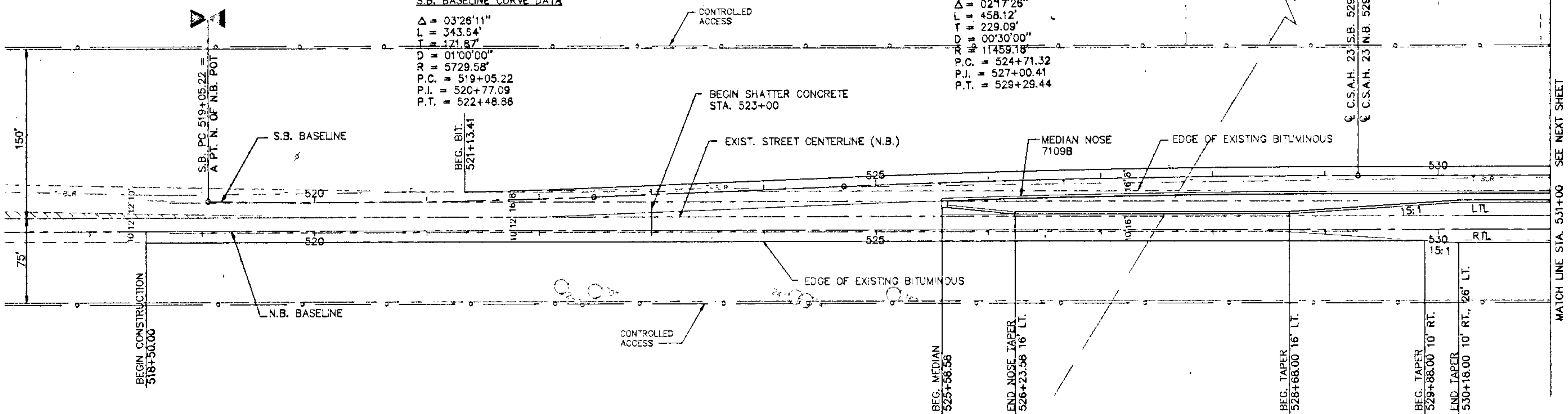
FILE NO.	LINOL1310.04	31
DATE	6-7-94	80

S.B. BASELINE CURVE DATA

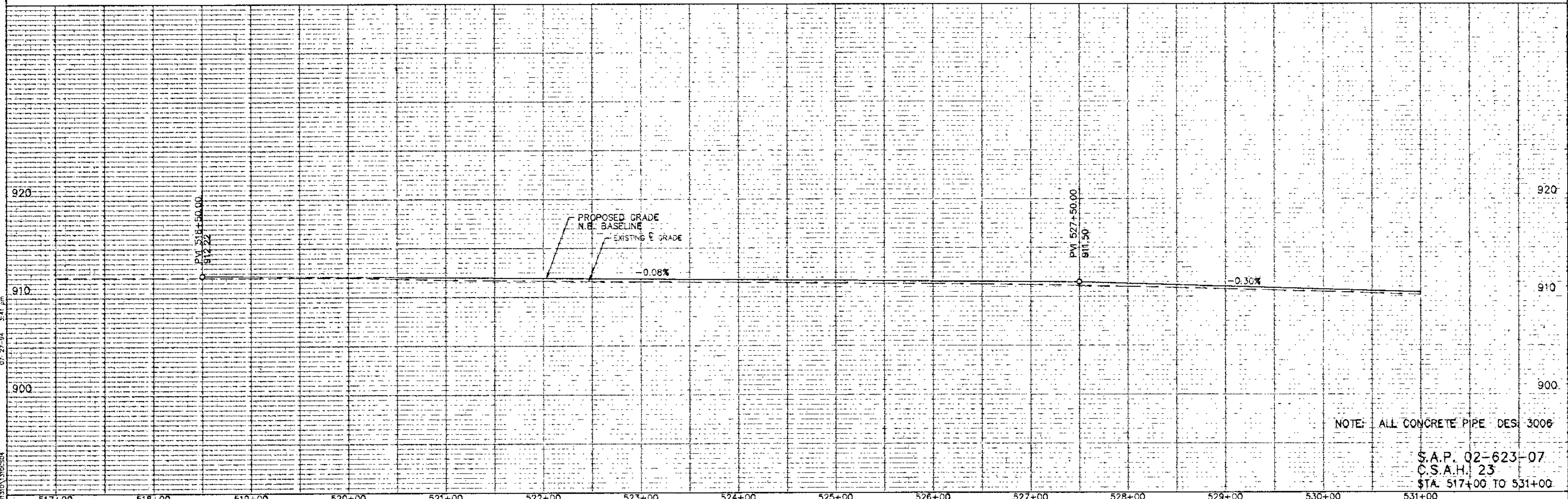
Δ = 03°26'11"
 L = 343.64'
 T = 121.87'
 D = 01'00'00"
 P.C. = 519+05.22
 P.T. = 520+77.09
 P.T. = 522+48.86

S.B. BASELINE CURVE DATA

Δ = 02°17'26"
 L = 458.12'
 T = 229.09'
 D = 00°30'00"
 P.C. = 524+71.32
 P.T. = 529+29.44



C.S.A.H. 23 (LAKE DRIVE)



NOTE: ALL CONCRETE PIPE DES. 3008

S.A.P. 02-623-07
 C.S.A.H. 23
 STA. 517+00 TO 531+00

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

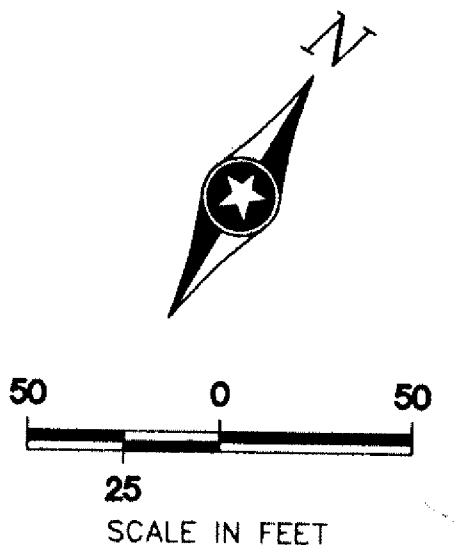
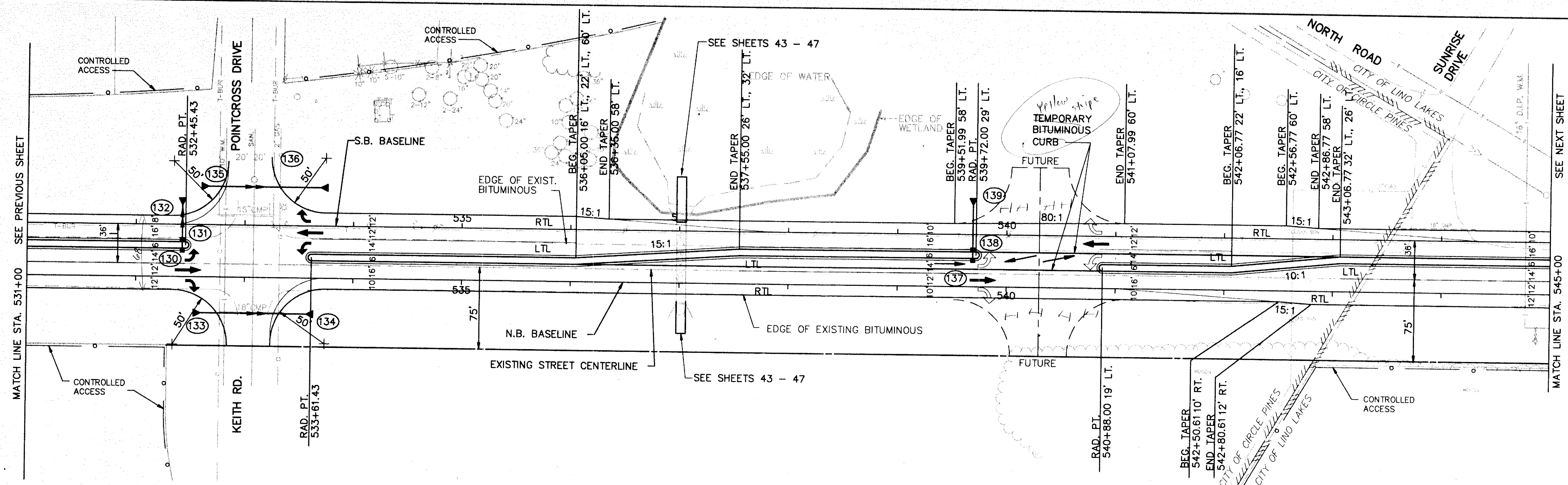
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
 Date: 6-7-94 Reg. No. 19574



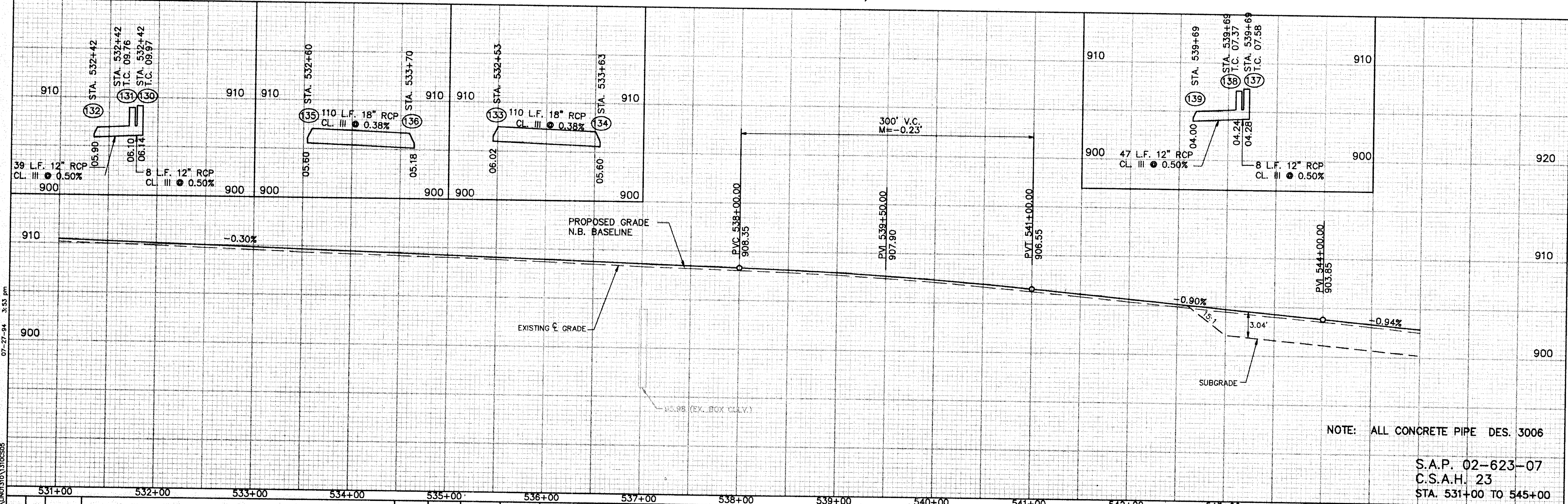
LINO LAKES, MINNESOTA
 C.S.A.H. 23

STREET AND STORM SEWER

FILE NO. LINOL1310.04	32
DATE 6-7-94	80



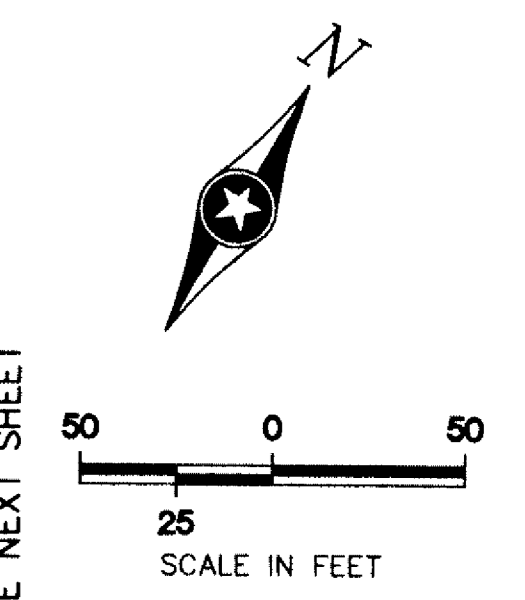
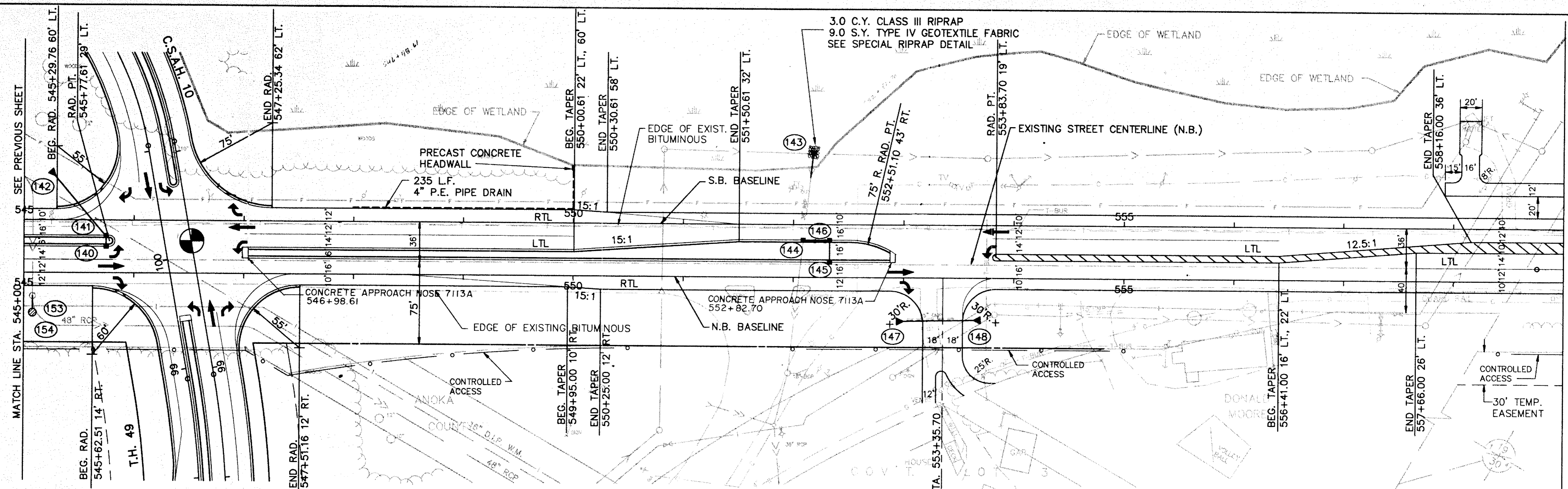
C.S.A.H. 23 (LAKE DRIVE)



NOTE: ALL CONCRETE PIPE DES. 3006

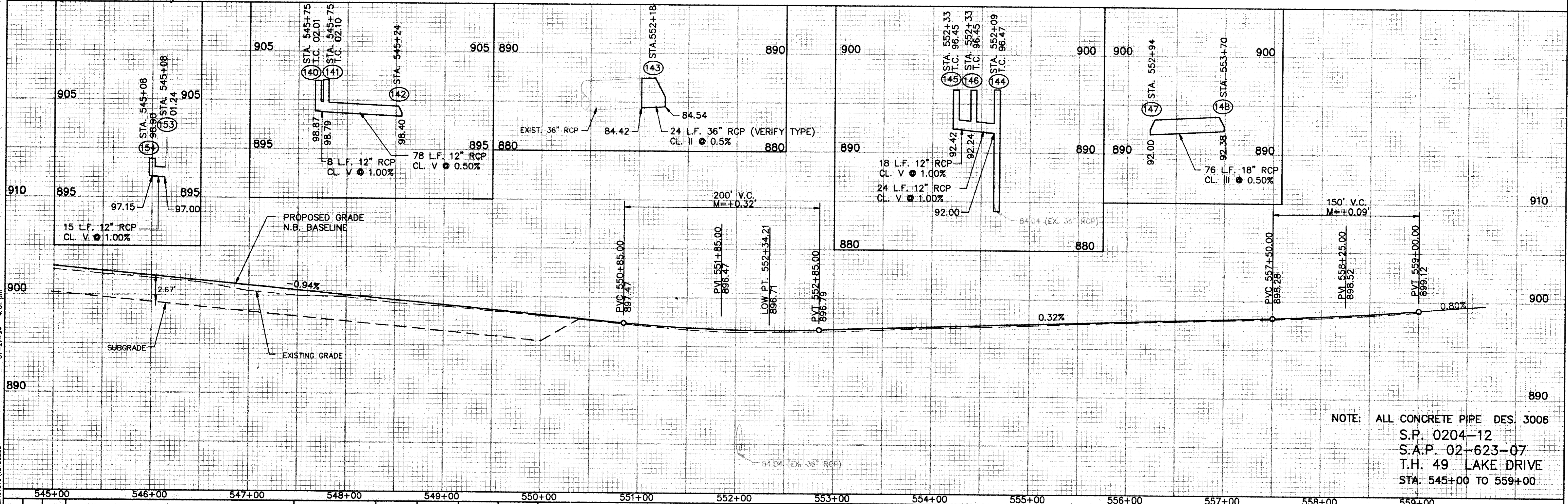
S.A.P. 02-623-07
C.S.A.H. 23
STA. 531+00 TO 545+00

NO.	BY	DATE	REVISIONS	DESIGN	CHECKED	Date: 6-7-94	Reg. No. 19574	<p>ESEH ENGINEERS ARCHITECTS PLANNERS</p>	<p>LINO LAKES, MINNESOTA C.S.A.H. 23</p>	<p>STREET AND STORM SEWER</p>	FILE NO.	33
1	TCH	7/27/94	EXTENDED E. END BOX CULVERT, CHANGED MED. TAPER & ADDED FLOW ARROWS								LINOL1310.04	



C.S.A.H. 23
(LAKE DRIVE)

T.H. 49 (LAKE DRIVE)



NOTE: ALL CONCRETE PIPE DES. 3006
S.P. 0204-12
S.A.P. 02-623-07
T.H. 49 LAKE DRIVE
STA. 545+00 TO 559+00

S:\MFCPU20\LINO\1310\1310C506 07-27-94 4:01 pm

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	FWB	4/26/96	CHANGED APPROACH NOSES			

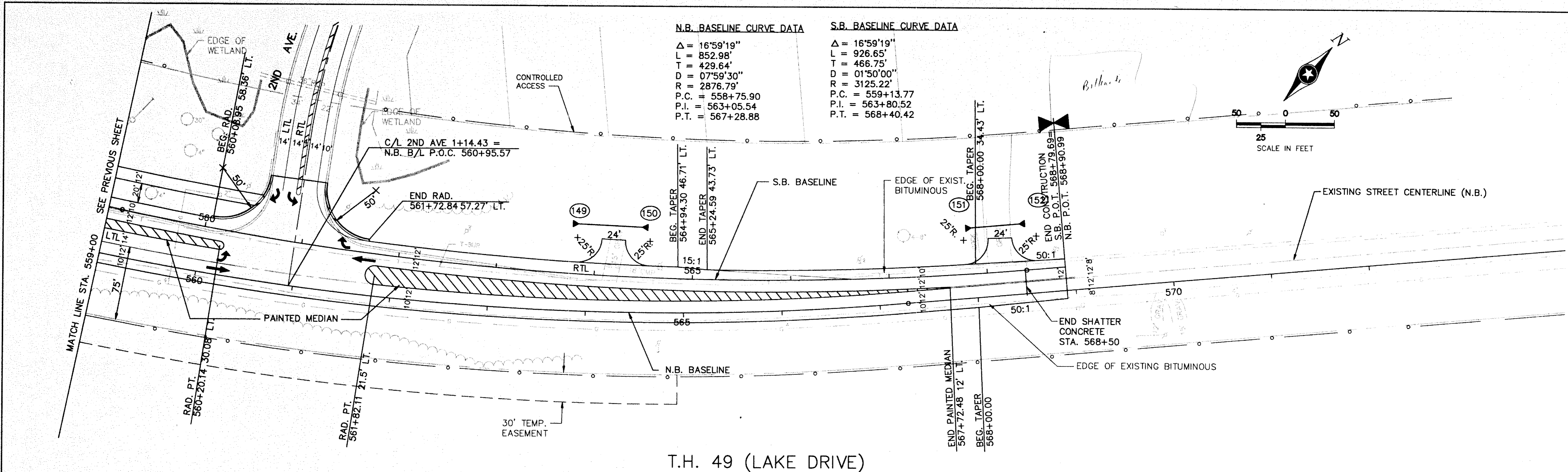
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 6-7-94 Reg. No. 19574



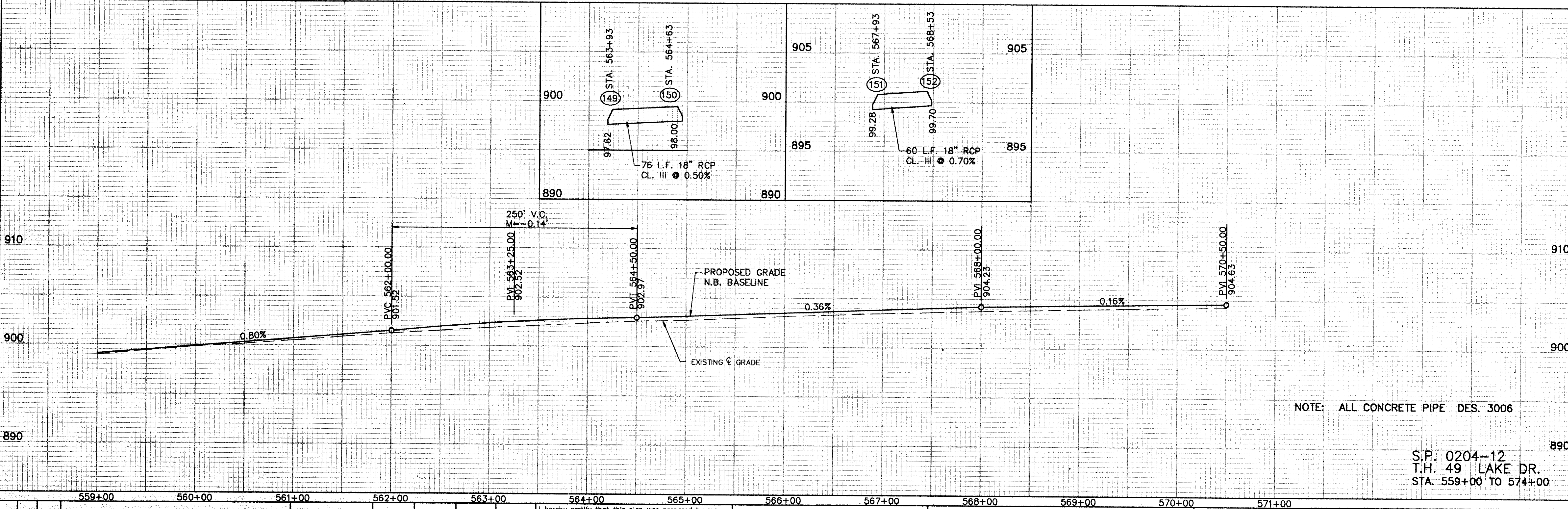
LINO LAKES, MINNESOTA
C.S.A.H. 23 & T.H. 49

STREET AND STORM SEWER

FILE NO. LINOL1310.04	34
DATE 6-7-94	80



T.H. 49 (LAKE DRIVE)



NOTE: ALL CONCRETE PIPE DES. 3006

S.P. 0204-12
T.H. 49 LAKE DR.
STA. 559+00 TO 574+00

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Timothy C. Hanson
Date: 6-7-94 Reg. No. 19574



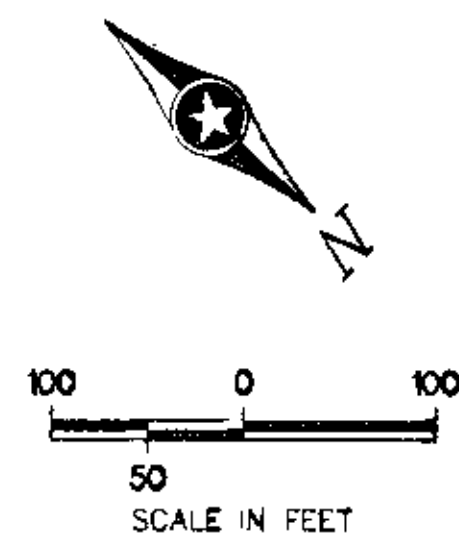
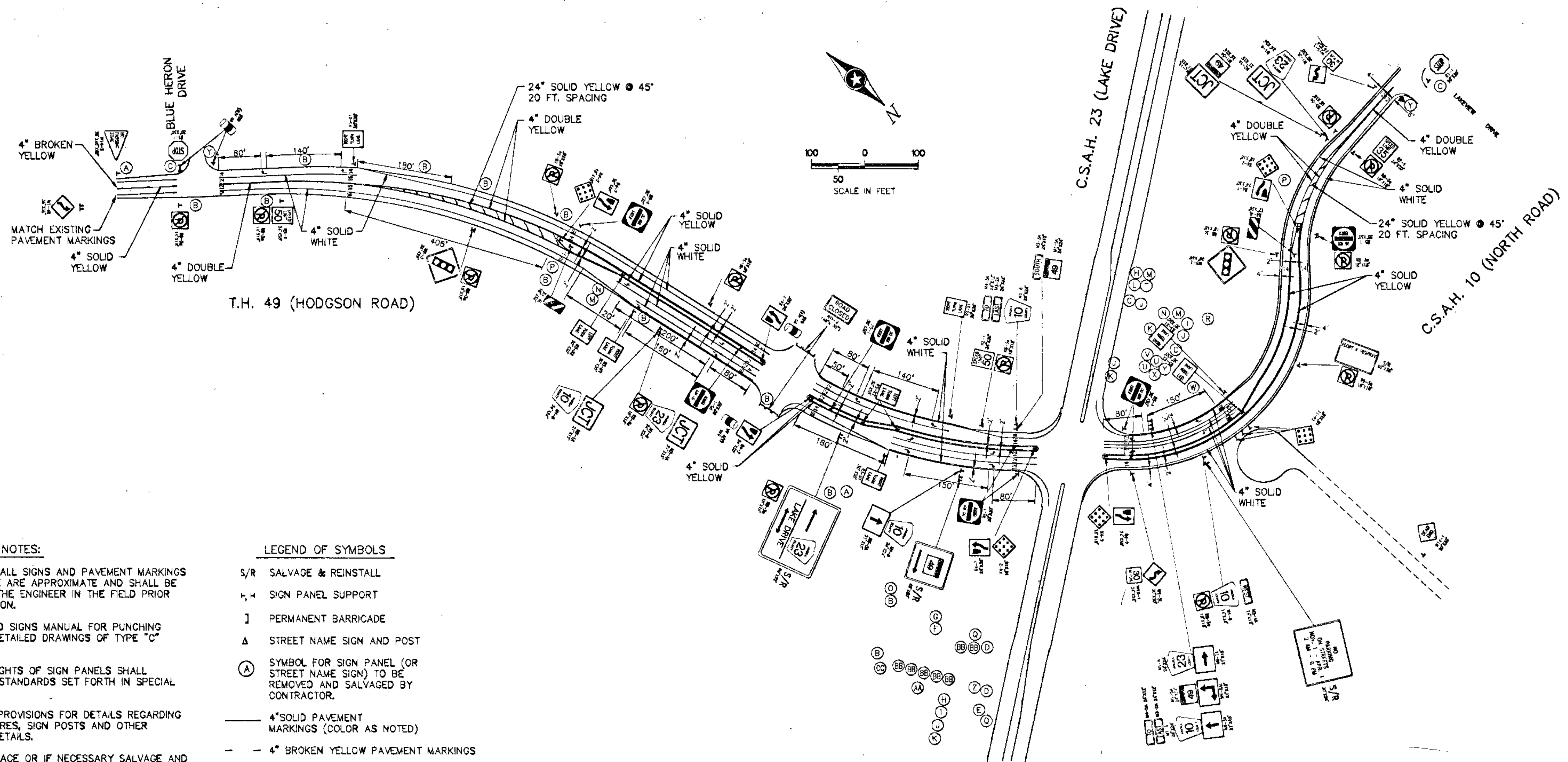
LINO LAKES, MINNESOTA
T.H. 49

STREET AND STORM SEWER

FILE NO. LINOL1310.04	35
DATE 6-7-94	80

S:\M\CP\20\LINOL1310\1310CS07 06-06-94 2:21 pm

BASE OVERLAY DRG. NO.



GENERAL NOTES:

- 1) LOCATION OF ALL SIGNS AND PAVEMENT MARKINGS SHOWN ABOVE ARE APPROXIMATE AND SHALL BE LOCATED BY THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.
- 2) SEE STANDARD SIGNS MANUAL FOR PUNCHING CODES AND DETAILED DRAWINGS OF TYPE "C" SIGN PANELS.
- 3) MOUNTING HEIGHTS OF SIGN PANELS SHALL CONFORM TO STANDARDS SET FORTH IN SPECIAL PROVISIONS.
- 4) SEE SPECIAL PROVISIONS FOR DETAILS REGARDING SIGN STRUCTURES, SIGN POSTS AND OTHER APPLICABLE DETAILS.
- 5) MAINTAIN IN PLACE OR IF NECESSARY SALVAGE AND REINSTALL ALL "MAN HOLE" AND "WATER VALVE" SIGNS.

LEGEND OF SYMBOLS

- S/R SALVAGE & REINSTALL
- P, X SIGN PANEL SUPPORT
-] PERMANENT BARRICADE
- Δ STREET NAME SIGN AND POST
- (A) SYMBOL FOR SIGN PANEL (OR STREET NAME SIGN) TO BE REMOVED AND SALVAGED BY CONTRACTOR.
- 4" SOLID PAVEMENT MARKINGS (COLOR AS NOTED)
- - - 4" BROKEN YELLOW PAVEMENT MARKINGS
- ▴ 4" SOLID DOUBLE YELLOW PAVEMENT MARKINGS, WITH 24" SOLID YELLOW TRANSVERSE LINES SPACED AT 20' (45')
- ↔ PAVEMENT MESSAGE (LEFT/ RIGHT TURN ARROW)

07-28-94 8-10 am

S.P. 0204-12
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCH	7/27/94	REVISED SIGNS & PAVEMENT MARKINGS			

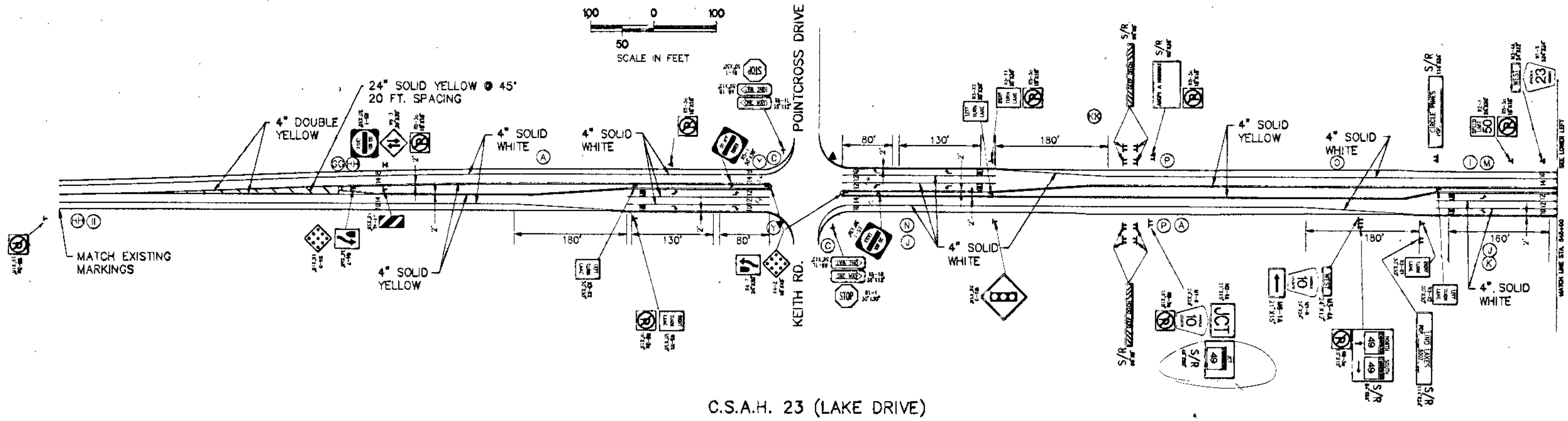
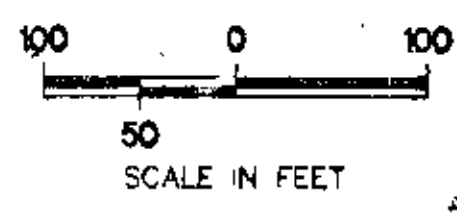
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
James J. Solweird
Date: 8-7-94 Reg. No. 20943



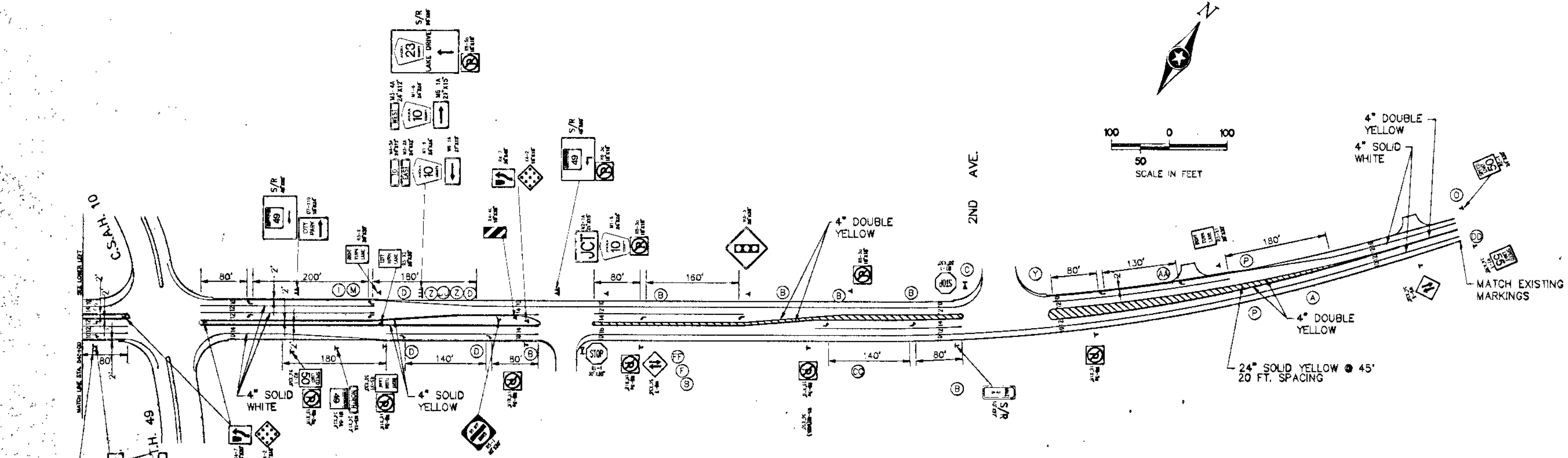
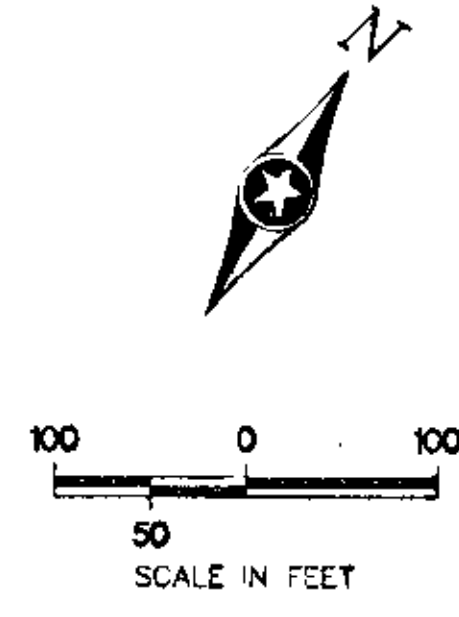
LINO LAKES, MINNESOTA
T.H. 49 & C.S.A.H. 10

SIGNING & PAVEMENT MARKING

FILE NO. LINOL1310.04	36
DATE 6-7-94	80



C.S.A.H. 23 (LAKE DRIVE)



T.H. 49 (LAKE DRIVE)

S:\MTC\2002\UNO310\13100552 07-28-94 8:49 am

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	TCB	7/27/94	REVISED SIGNS & PAVEMENT MARKINGS			

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.
Thomas R. Schwandt
 Date: 6-7-94 Reg. No. 20943



LINO LAKES, MINNESOTA
 C.S.A.H. 23 & T.H. 49

SIGNING & PAVEMENT MARKING

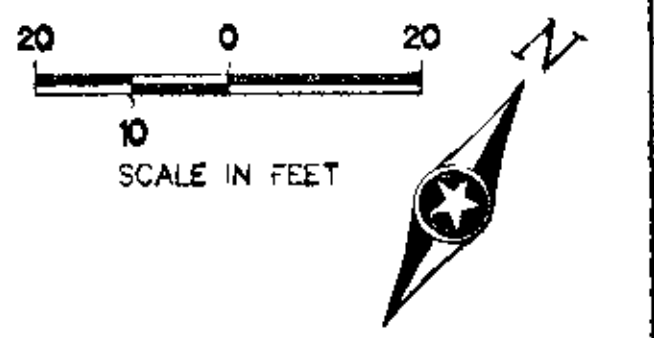
FILE NO. LINOL: 310.04	37
DATE 6-7-94	80

S.P. 0204-12
 S.A.P. 02-623-07

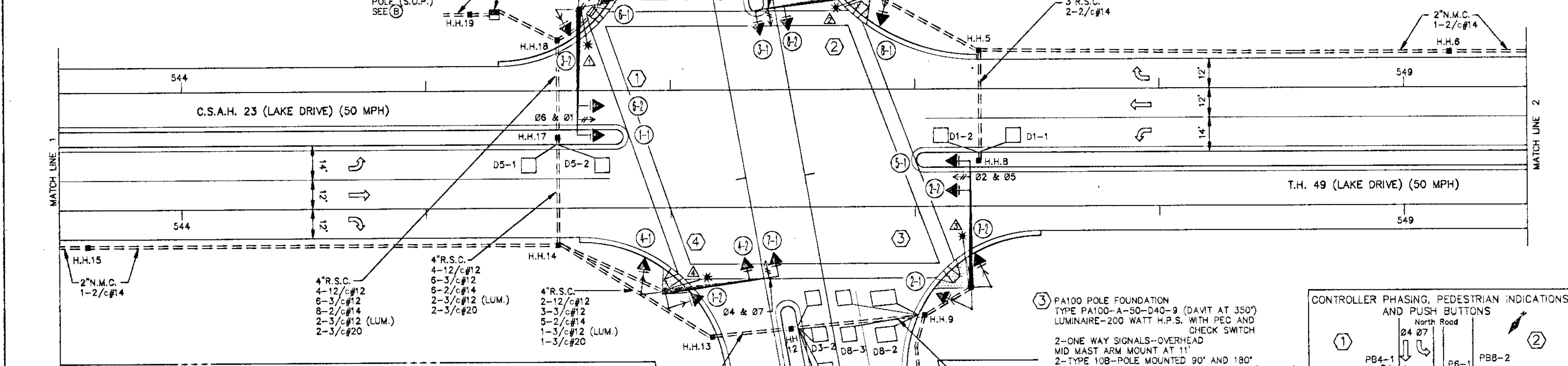
- NOTES:**
- 1) LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY Mn/DOT METRO TRAFFIC OFFICE PERSONNEL.
 - 2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
 - 3) EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION HAND/WALKING PERSON INDICATION. SEE SPECIAL PROVISIONS.
 - 4) ALL HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS, AND SHALL CONTAIN A DEPARTMENT FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
 - 5) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED FOR EVP APPROXIMATELY 6' FROM THE END OF EACH MAST ARM.
 - 6) SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
 - 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511).
 - 8) CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL CONSTRUCTION WITH ROAD CONSTRUCTION TO BE DONE AS PART OF THIS PROJECT.
 - 9) SEE SPECIAL PROVISIONS AND DETAILS REGARDING INSTALLATION OF CROSSWALKS (INCIDENTAL TO ITEM NO. 2565.511).
 - 10) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATION LENSES SHALL BE GLASS LENSES.

- ① PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350')
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD
MID MAST ARM MOUNT AT 11'
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL (108"x36")-OVERHEAD (D-1)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (Ø6 & Ø1)
EXTEND INTO H.H.1:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#12 (LUM.)
1-3/c#20
- ② PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350')
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD
MID MAST ARM MOUNT AT 11'
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL (66"x18")-OVERHEAD (D-2)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (Ø8 & Ø3)
EXTEND INTO H.H.4:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#12 (LUM.)
1-3/c#20

- Ⓐ EQUIPMENT PAD - SEE DETAILS
INSTALL CONTROLLER AND CABINET
(FURNISHED BY DEPARTMENT)
SERVICE EQUIPMENT (PAD MOUNTED)
- CABINET TO H.H.1:
4"R.S.C.
4-12/c#12
6-3/c#12
8-2/c#14
2-3/c#20
- CABINET TO H.H.18:
4"R.S.C.
4-12/c#12
6-3/c#12
8-2/c#14
2-3/c#20
- METER TO H.H.19:
2"R.S.C.
3-1/c#2
- LOAD CENTER TO CABINET:
1-1/4"R.S.C.
2-1/c#6
1-1/c#6 Br.Gr.
- LOAD CENTER TO H.H.18:
2"R.S.C.
4-3/c#12 (LUM.)
- STUB OUT 1-2"R.S.C.
AND 1-3"R.S.C. FROM
CABINET TO SOUTH
(THREAD AND CAP BOTH
ENDS - FOR FUTURE USE)
- Ⓑ INPLACE WOOD POLE (S.O.P.)
(TO BE RELOCATED BY NSP)
2"R.S.C. RISER AND WEATHERHEAD
3-1/c#2
EXTEND INTO H.H.19:
2"R.S.C. (FOR APPROXIMATELY 100')
3-1/c#2



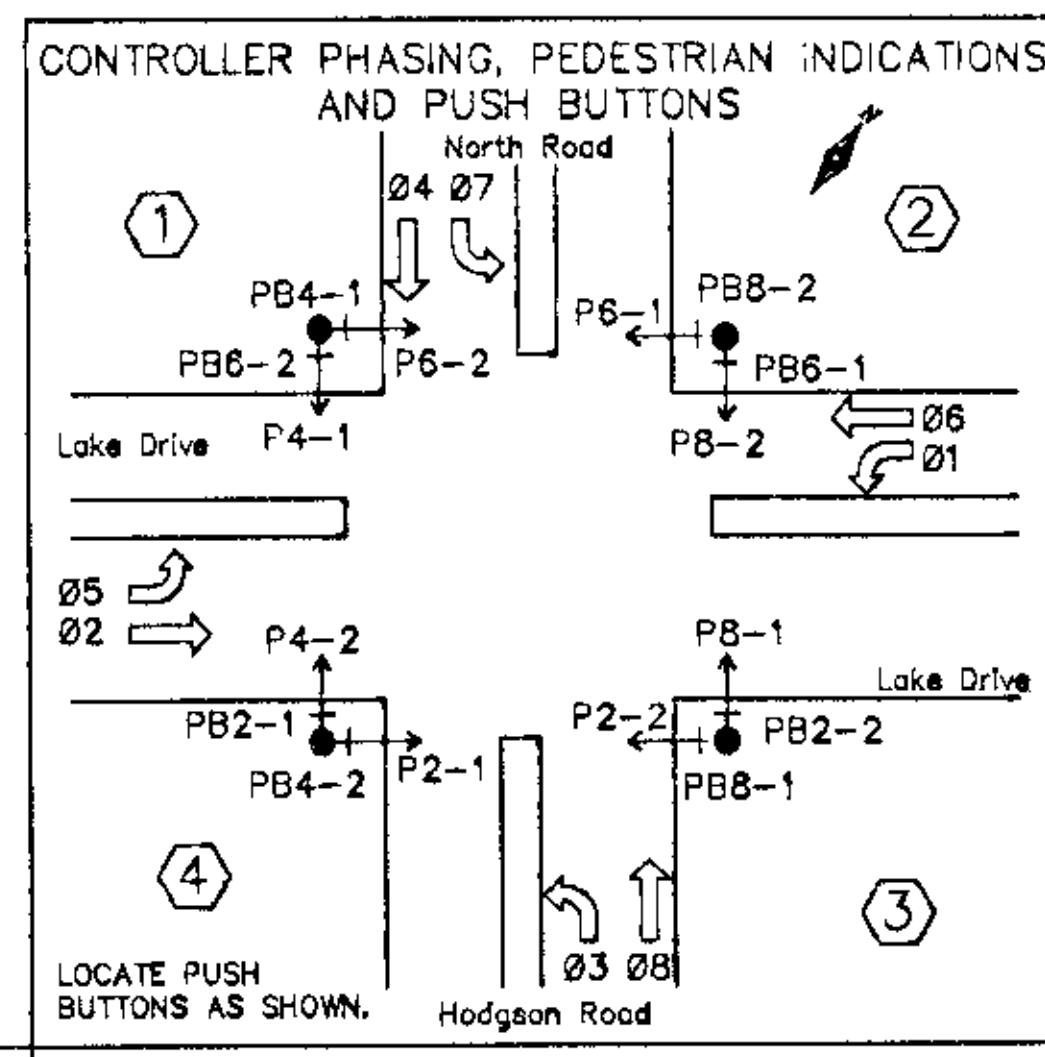
SIGNAL FACES						
SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12"					
	R	Y	G	R	Y	G
1-1, 1-2, 5-1, 5-2				←	←	←
2-1, 2-2	•	•	•			
3-1, 3-2, 7-1, 7-2				←	←	←
4-1, 4-2	•	•	•			
6-1, 6-2	•	•	•			
8-1, 8-2	•	•	•			



LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	10'	1
D2-1	6x6	400'	1
D3-1	2-6x6	20' & 50'	1
D3-2	2-6x6	5' & 35'	1
D4-1	6x6	120'	1
D4-2	6x10&6x8	5' & 20'	7
D4-3	2-6x6	5' & 20'	1
D5-1	6x6	40'	1
D5-2	6x6	10'	1
D6-1	6x6	400'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	5' & 35'	1
D8-1	6x6	300'	1
D8-2	6x10&6x8	5' & 20'	7
D8-3	2-6x6	5' & 20'	1

- ④ PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350')
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD
MID MAST ARM MOUNT AT 11'
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL (66"x18")-OVERHEAD (D-4)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (Ø4 & Ø7)
EXTEND INTO H.H.14:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#12 (LUM.)
1-3/c#20
- FUNCTIONS:
1) CALL AND EXTEND
7) DELAYED CALL-IMMEDIATE EXTEND

- ③ PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350')
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD
MID MAST ARM MOUNT AT 11'
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL (108"x36")-OVERHEAD (D-3)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (Ø2 & Ø5)
EXTEND INTO H.H.9:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#12 (LUM.)
1-3/c#20



NORMAL OPERATION IS 8 PHASE WITH:
- VEHICLE PHASES 2 AND 6 ON RECALL.
- PROTECTED LEFT TURNS ON PHASES 1,3,5 ON 7.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS
1	JMG/5/24		Per Mn/DOT Comments
2	JMG/3/25		Per Mn/DOT Review (State Aid)

NO.	BY	DATE	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
John M. Bay
Date: 3-16-34 Reg. No. 22457

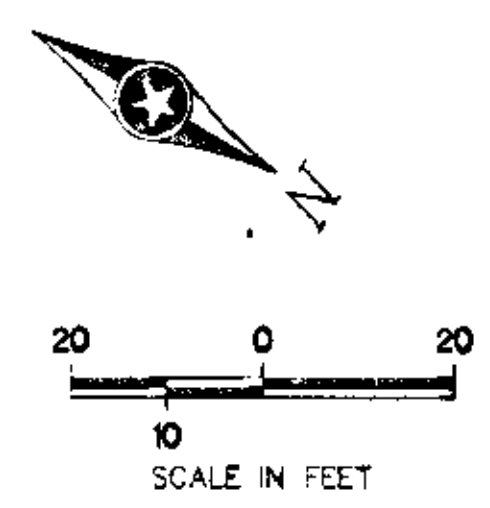
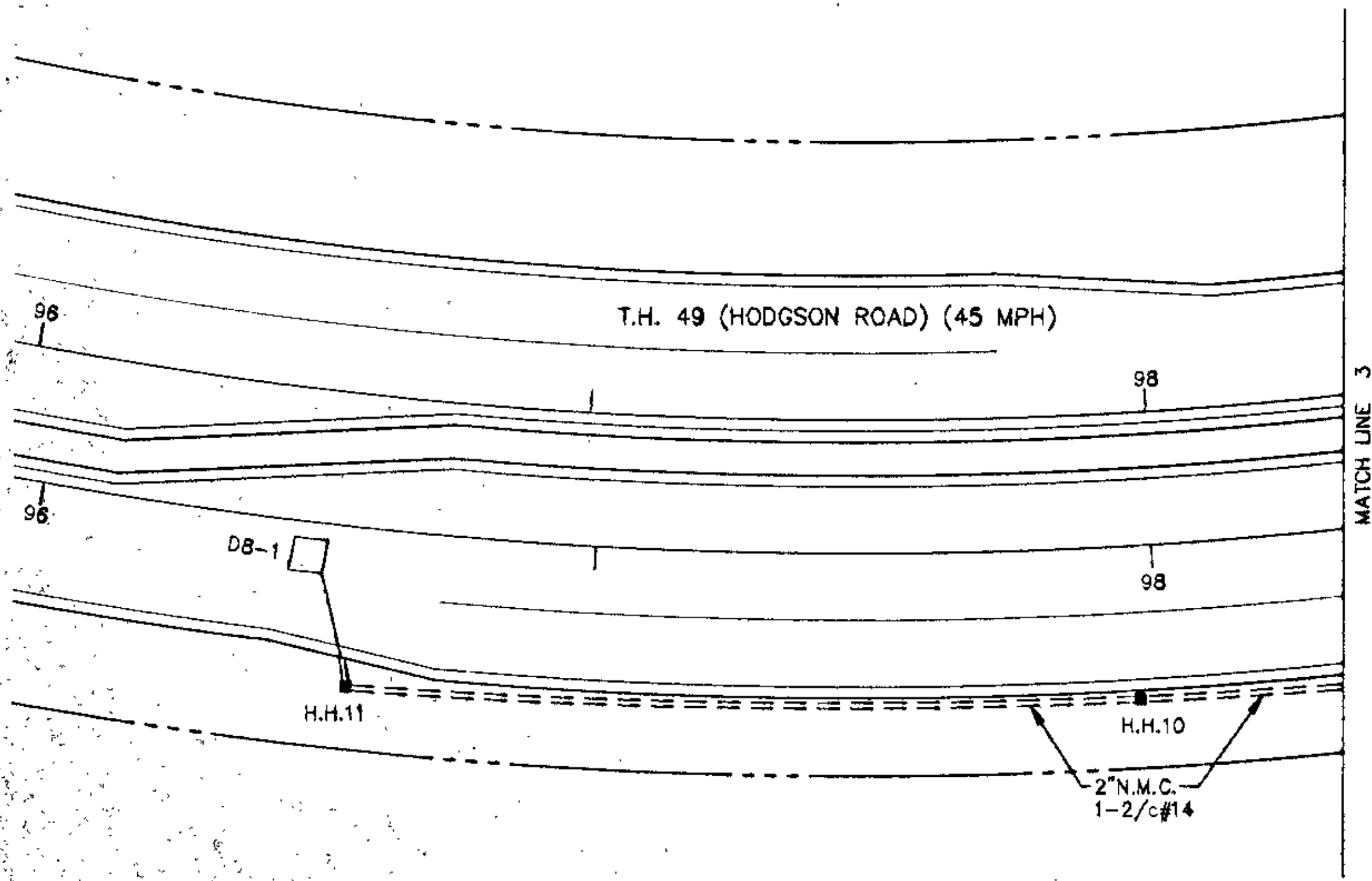
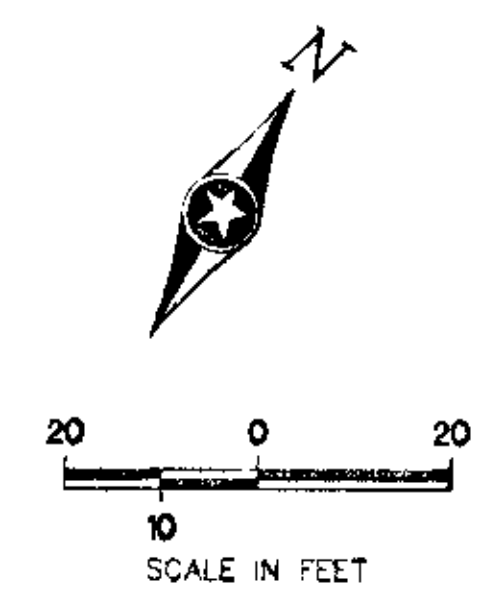
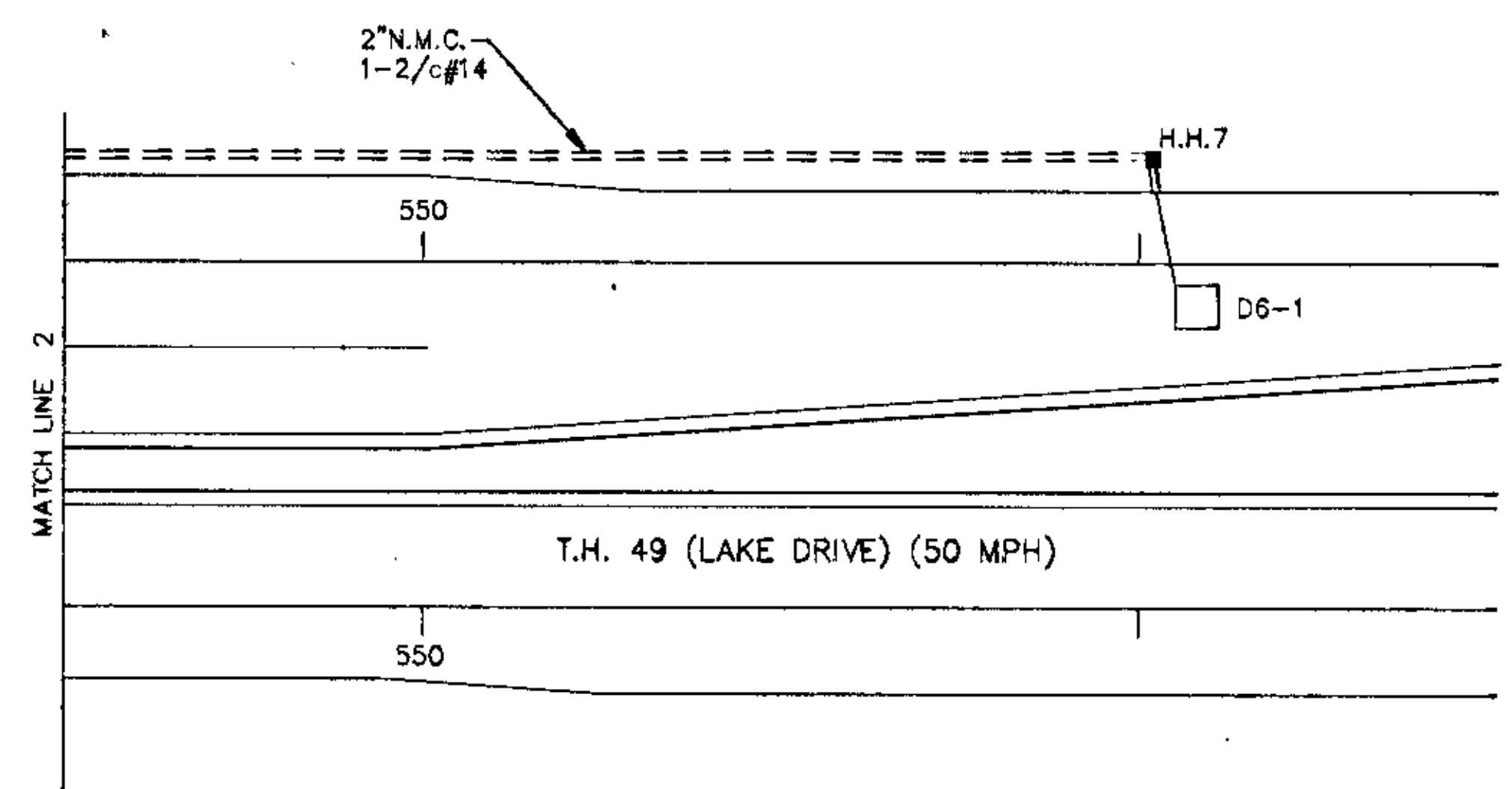
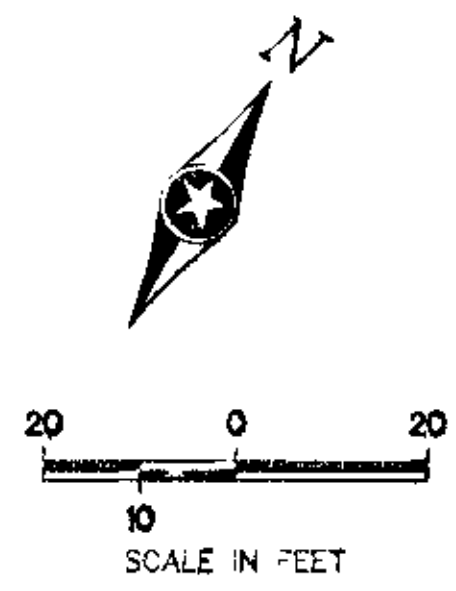
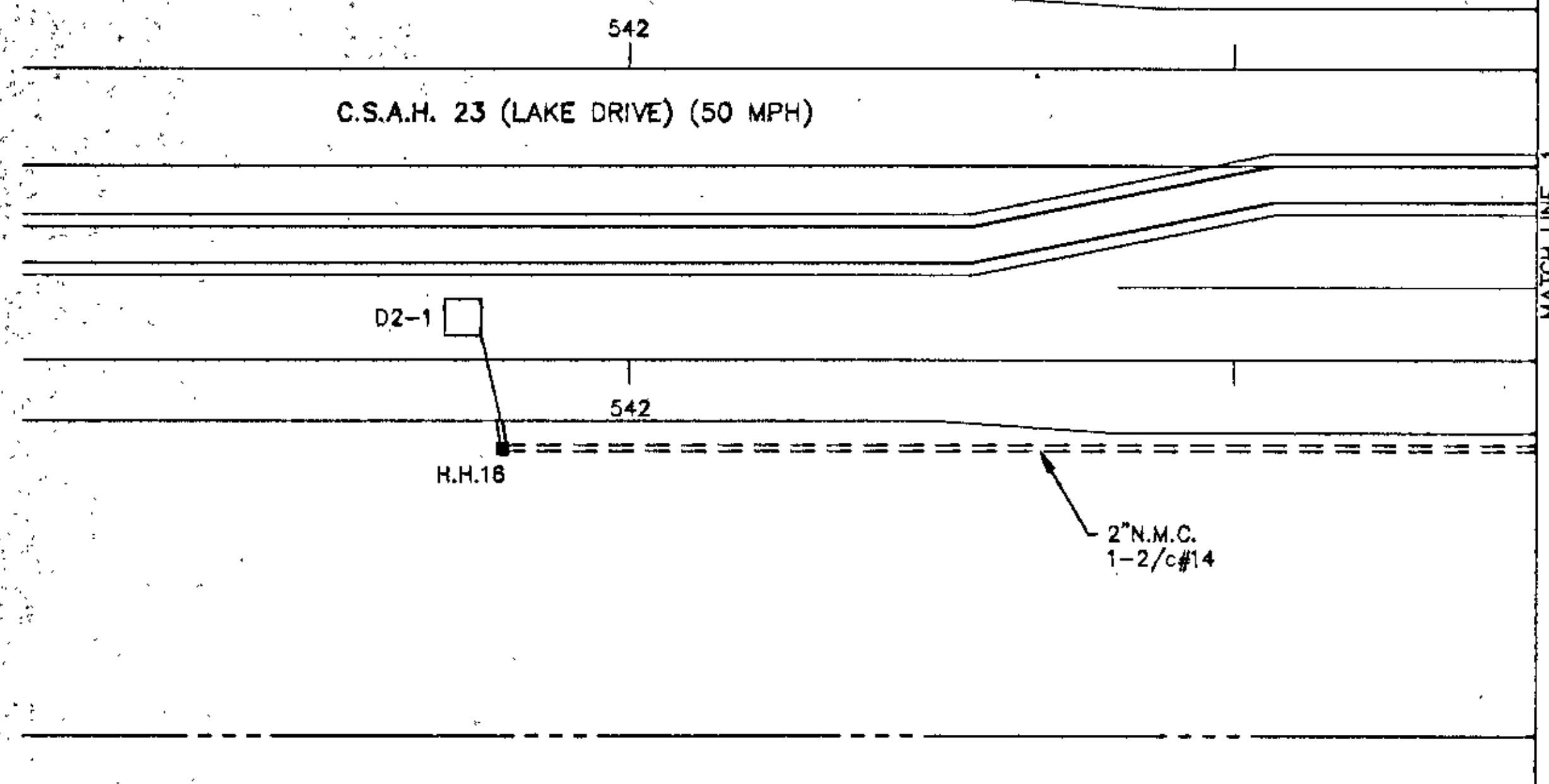


LINO LAKES, MINNESOTA
S.P. 0204-12

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
LAKE DRIVE AT HODGSON ROAD

FILE NO. LINOL13'0.04	38
DATE 6-7-94	80

BASE OVERLAY DRG. NO.



S:\M\0204\0204\03\10\13\DOTS2 08-06-94 2:27 PM

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED
1	JMG	5/24	Per Mn/DOT Comments			

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John M. [Signature]
 Date: 6-7-94 Reg. No. 22457



LINO LAKES, MINNESOTA
 S.P. 0204-12

TRAFFIC SIGNAL SYSTEM
 INTERSECTION LAYOUT
 LAKE DRIVE AT HODGSON ROAD

S.P. 0204-12
 S.A.P. 02-623-07

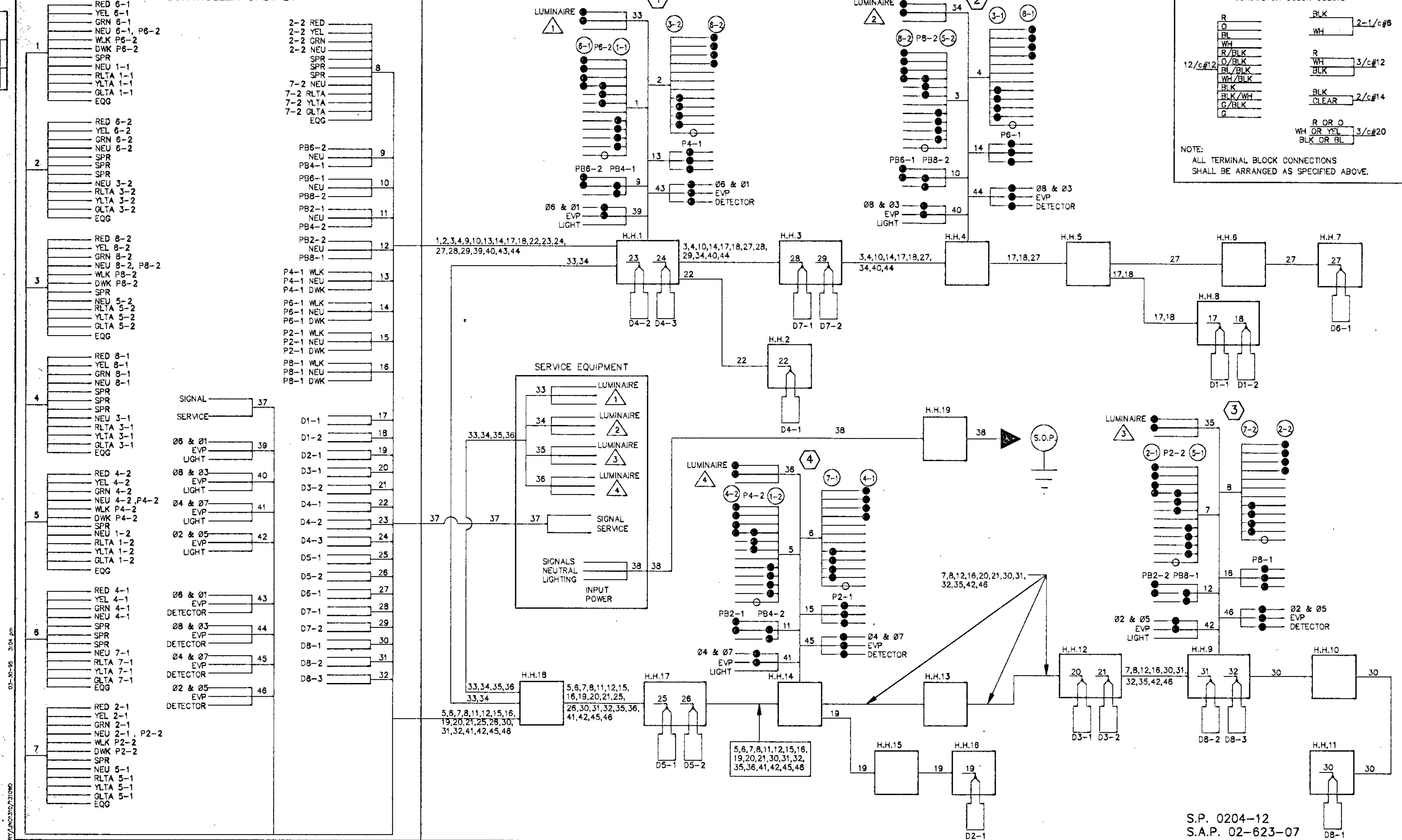
FILE NO.	LNOL310.04	39
DATE	6-7-94	80

CONTROLLER CABINET

CONDUCTOR COLOR CODING

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

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



02-30-94 3:04 pm
02-30-94 3:04 pm
02-30-94 3:04 pm

1	JMG	5/24	Per Mn/DOT Comments
2	JMG	3/29	Per Mn/DOT Review (State-Aid)

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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John M. Mas
Date: 3-16-94 Reg. No. 22457



LINO LAKES, MINNESOTA
S.P. 0204-12

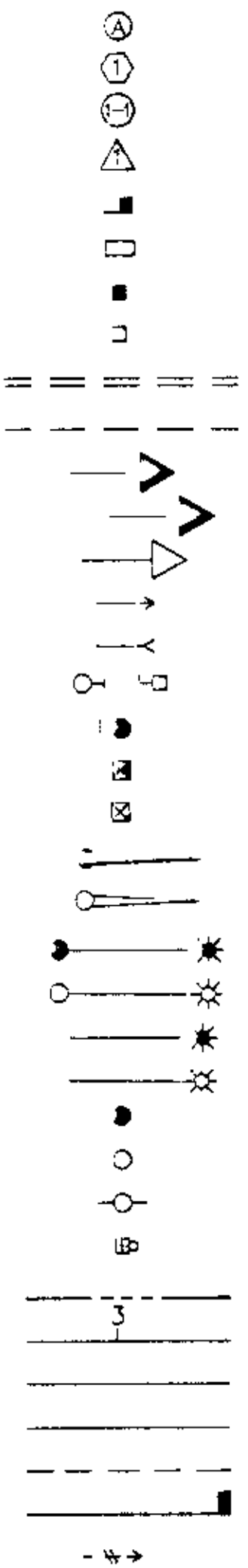
TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
LAKE DRIVE AT HODGSON ROAD

FILE NO.	40
DATE	3-16-94

S.P. 0204-12
S.A.P. 02-623-07

LEGEND OF SYMBOLS

- CONTROLLER AND SERVICE EQPT NO's. _____
- 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 _____



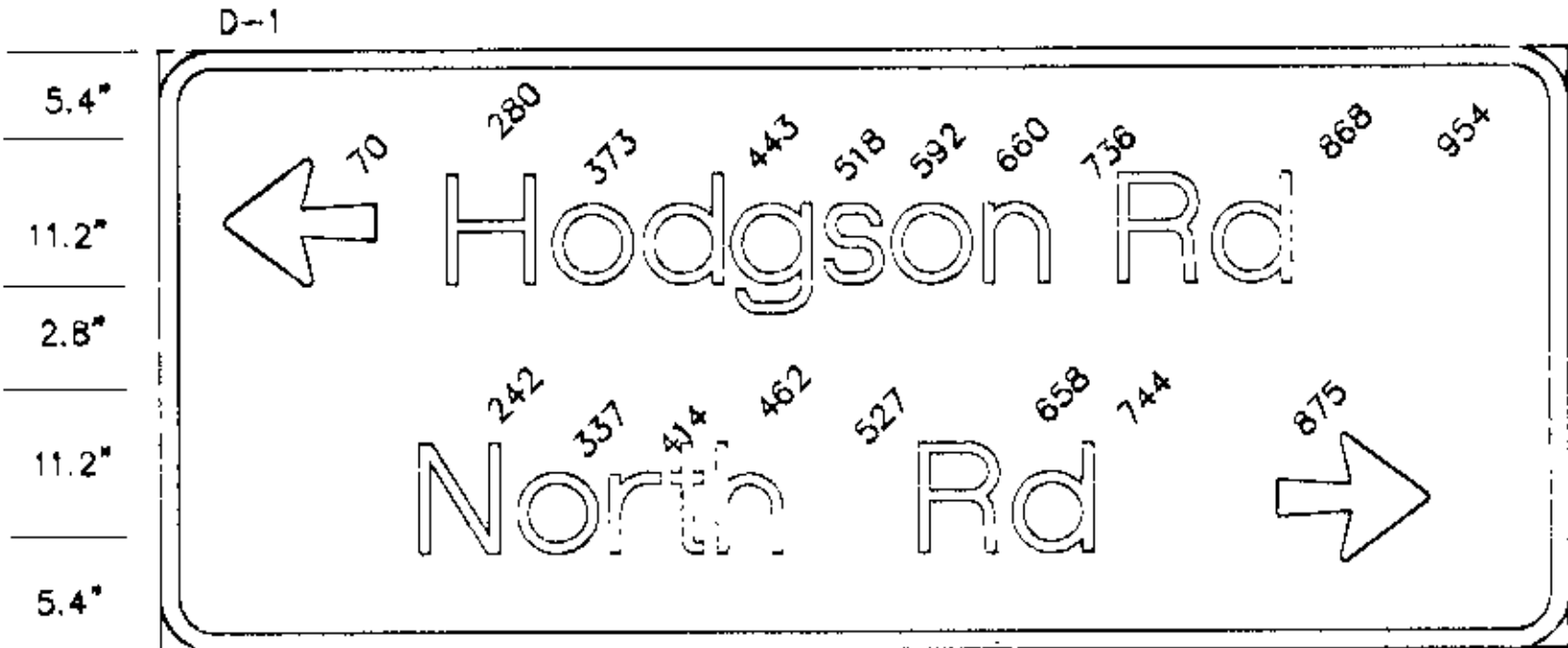
ABBREVIATIONS
EQUIPMENT AND INDICATIONS

- RED - RED
- YEL - YELLOW
- GRN - GREEN
- W/LK - WALK
- NEU - NEUTRAL
- DWK - DON'T WALK
- LUM - LUMINAIRE
- UNL - 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 (eg) - PEDESTRIAN INDICATION-PHASE "2"
- 2-1 (eg) - SIGNAL HEADS-PHASE "2"
- SPR - SPARE CONDUCTORS
- 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
- Gr. Gr. - BARE GROUND
- EQG - EQG CONNECTION
- SP - SPlice

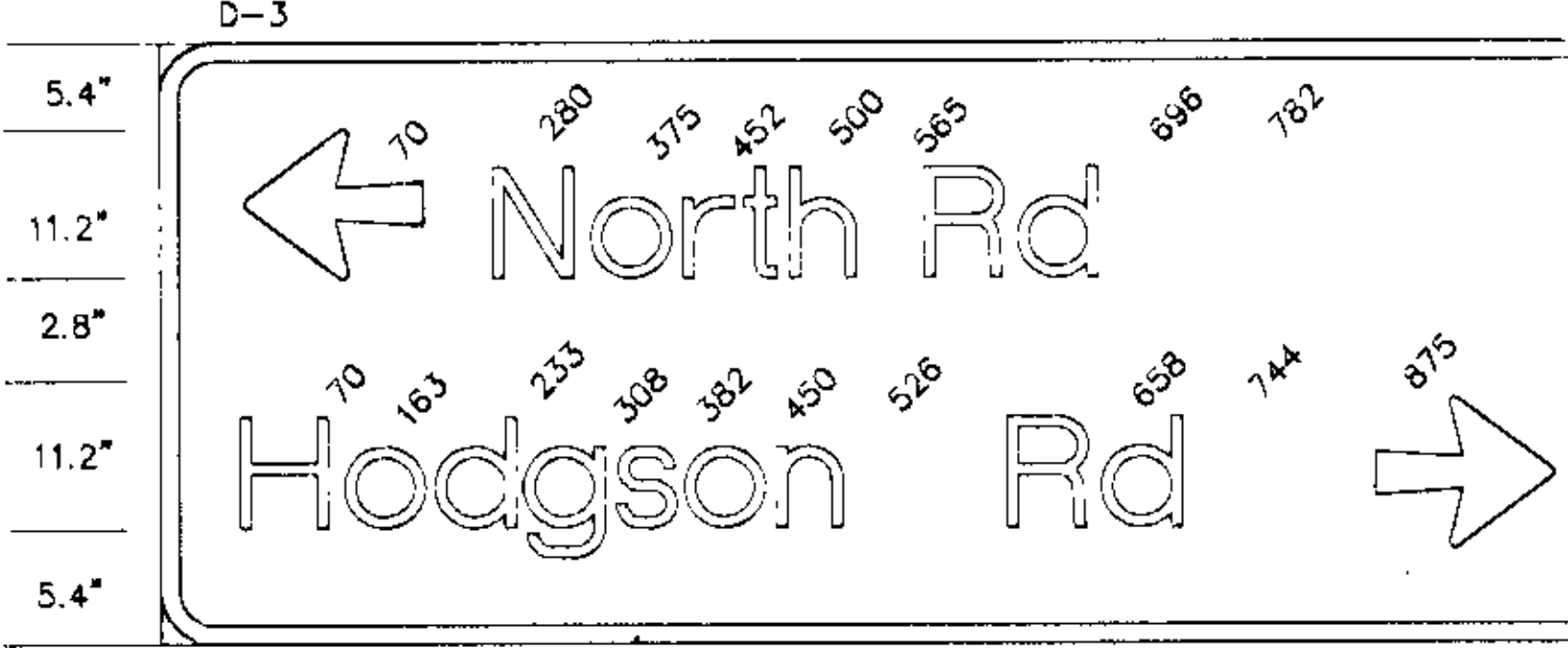
SIGN DETAILS

TYPE "D" SIGNS							
SIGN PANEL	SIZE	NO. REQ.	NO. POSTS PER SIGN	POST SPACING	SQ.FT. PER SIGN	POLE NO.	a
D-1	108"x36"	1	3	45"	27.00	1	20'
D-2	66"x18"	1	2	42"	8.25	2	20'
D-3	108"x36"	1	3	45"	27.00	3	20'
D-4	66"x18"	1	2	42"	8.25	4	20'

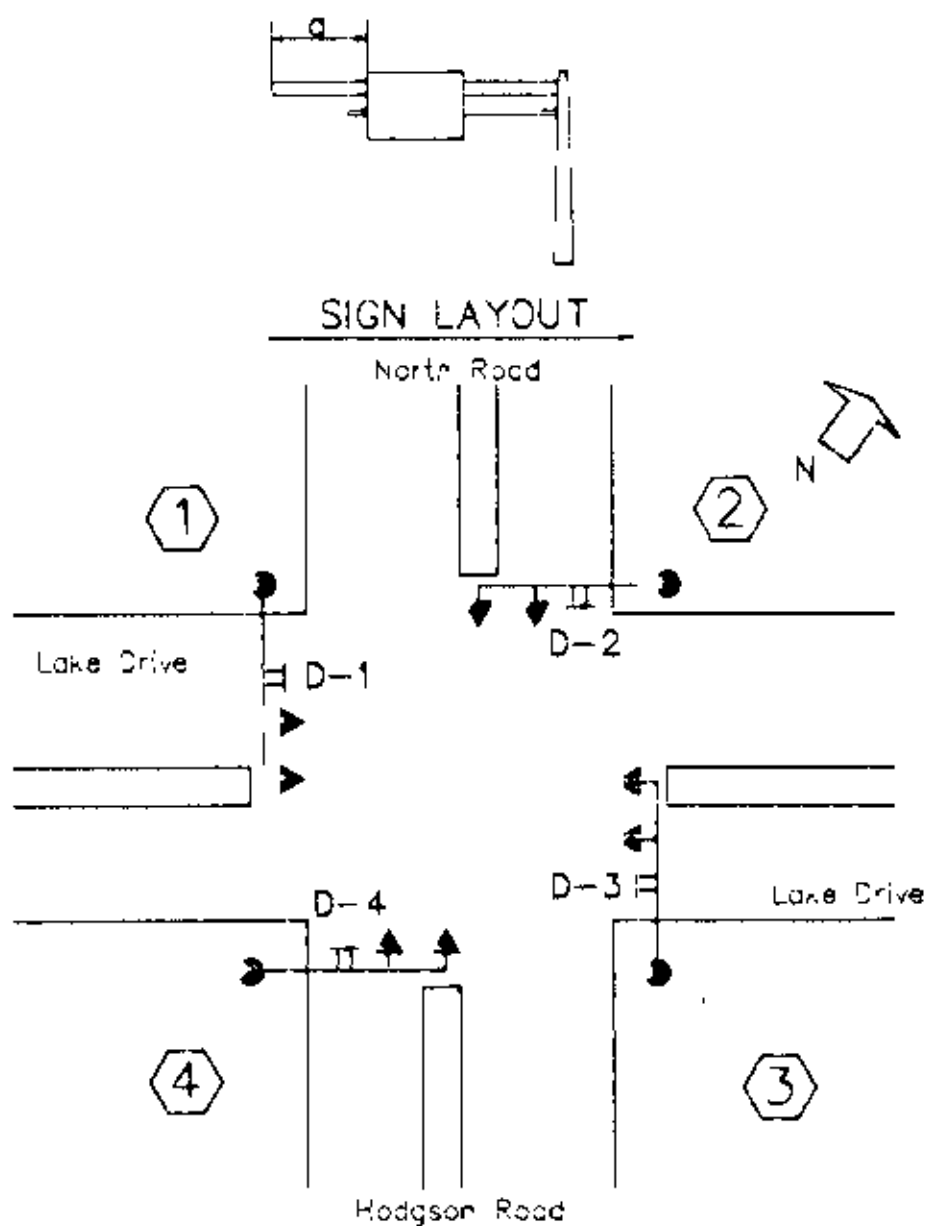
- NOTES:
- COLOR- WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
 - CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
 - FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A AND B.
 - FOR TYPE "D" STRINGER AND PANEL-JOINT DETAIL SEE STANDARD MANUAL.
 - SIGN PANELS TO BE FURNISHED AND INSTALLED INCIDENTAL TO ITEM NO.2565.511 FOR SIGNAL SYSTEM.
 - SEE STANDARD SIGNS MANUAL FOR ARROW DETAILS.



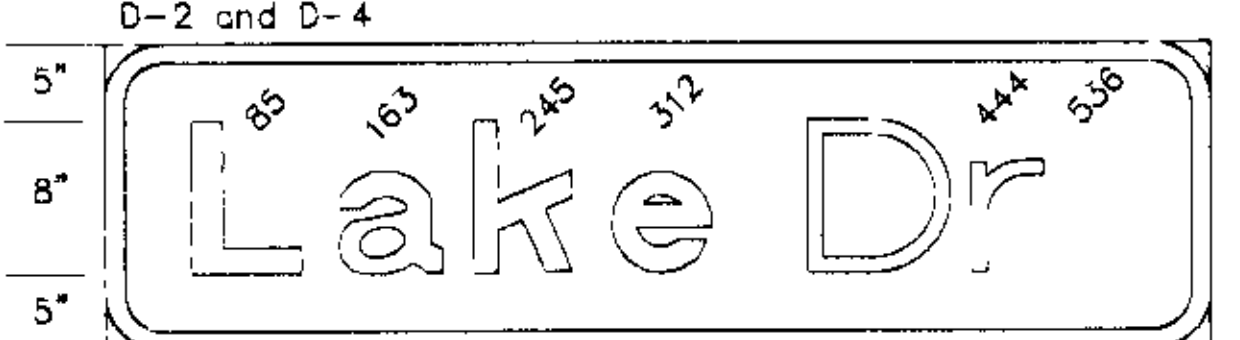
108"x36", 3"R. 1.0"B.
Line 1 93.5: 5-13 Arrow-180°, 8"-6"E Mod.
Line 2 76.3: 8"-6"E Mod., 5-13 Arrow-0°



108"x36", 3"R. 1.0"B.
Line 1 76.3: 5-13 Arrow-180°, 8"-6"E Mod.
Line 2 93.5: 8"-6"E Mod., 5-13 Arrow-0°



Note: DRAWING IS NOT TO SCALE.



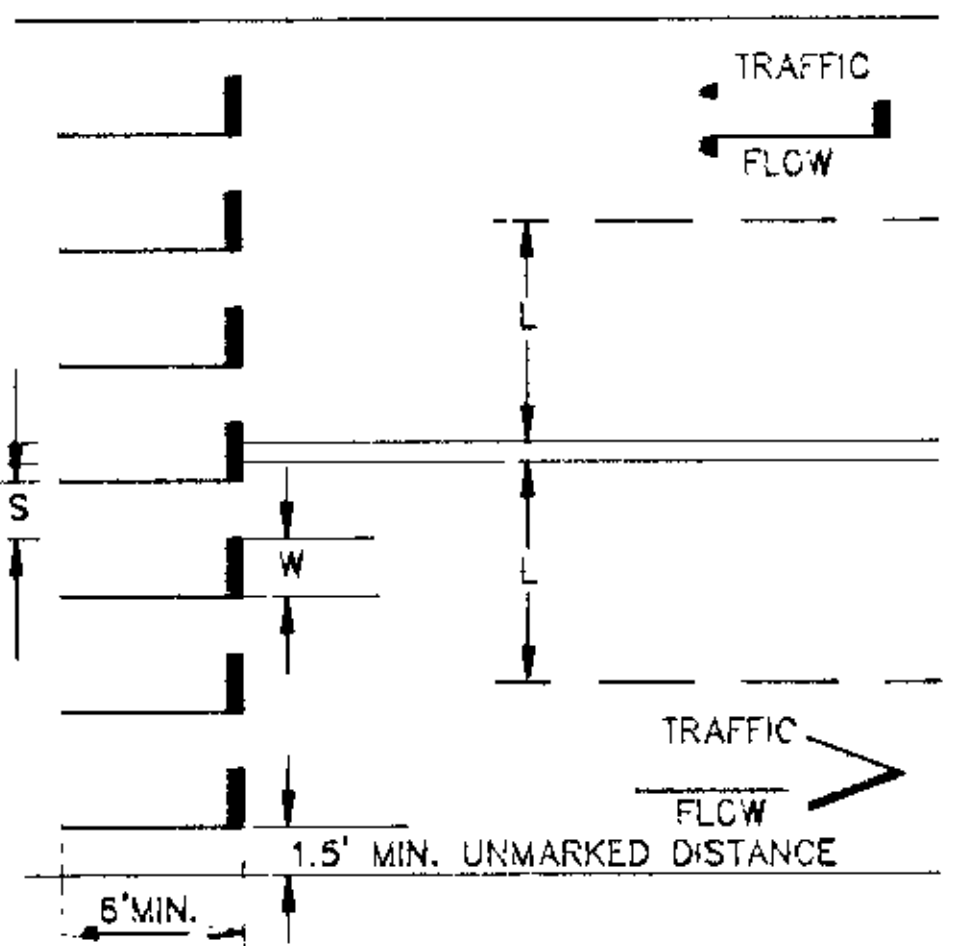
66"x18, 3"R 1.0"B.
Line 1 48.9: 8"-6"E Mod.

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

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 HANDHOLE
8118 C	SERVICE EQUIPMENT AND POLE
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 J	FA85 AND FA90 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	FA100 POLE FOUNDATION
* 8130 D	SAW CUT LOOP DETECTORS

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



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

- NOTES:
- TAPED AREAS TO BE CENTERED ON CENTER LINE AND LANE LINES.
 - ZEBRA CROSSWALKS REQUIRE REFLECTORIZED WHITE POLYMER PREFORMED TAPE.
 - A MINIMUM OF 1.5 FT. CLEAR DISTANCE MUST BE LEFT ADJACENT TO CURB. IF LAST TAPED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.

CROSSWALK DETAILS

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

NO.	BY	DATE	REVISIONS	ITCM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 6-7-84 Reg. No. 22457



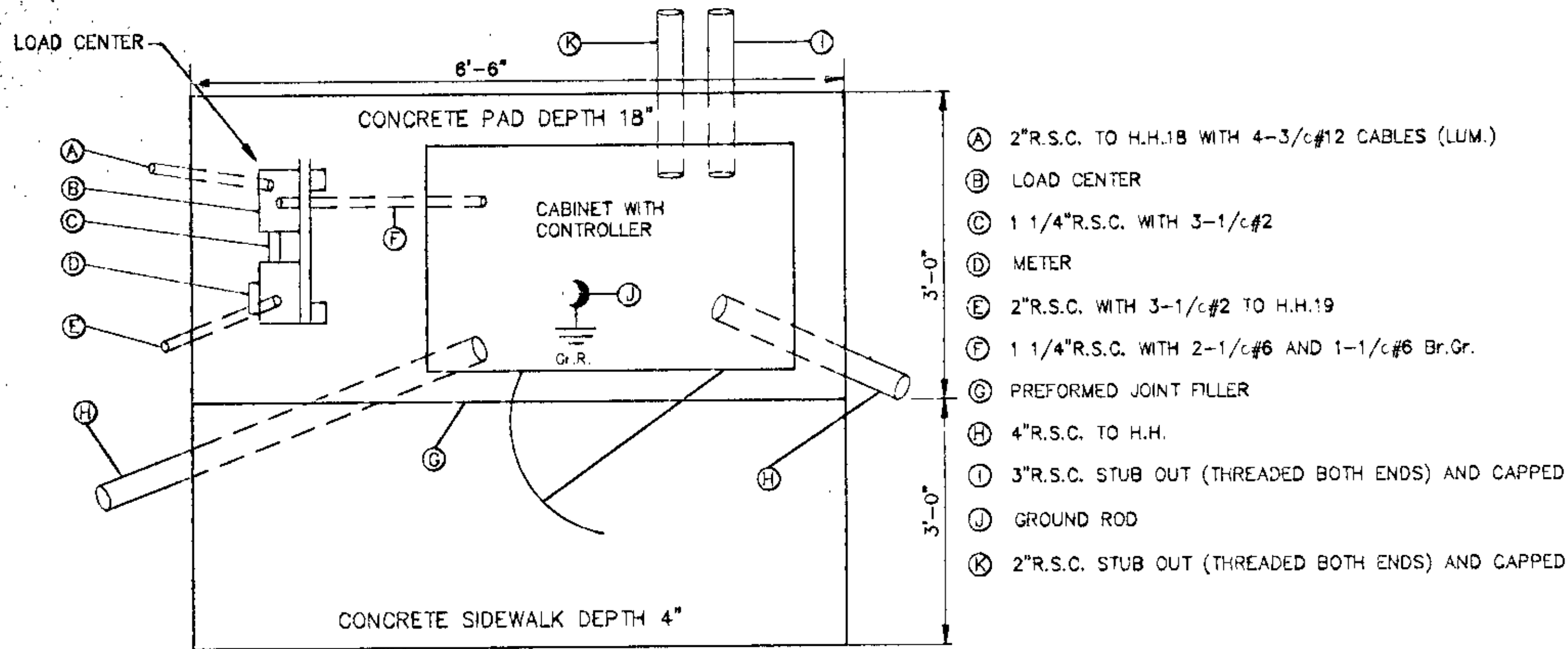
LINO LAKES, MINNESOTA
S.P. 0204-12

TRAFFIC SIGNAL SYSTEM
DETAILS
LAKE DRIVE AT HODGSON ROAD

FILE NO. _NOL1310.04	41
DATE 6-7-84	80

TYPICAL PAD WITH CABINET, CONTROLLER, SERVICE EQUIPMENT

SEE INTERSECTION LAYOUT FOR CONDUIT AND CABLE INFORMATION

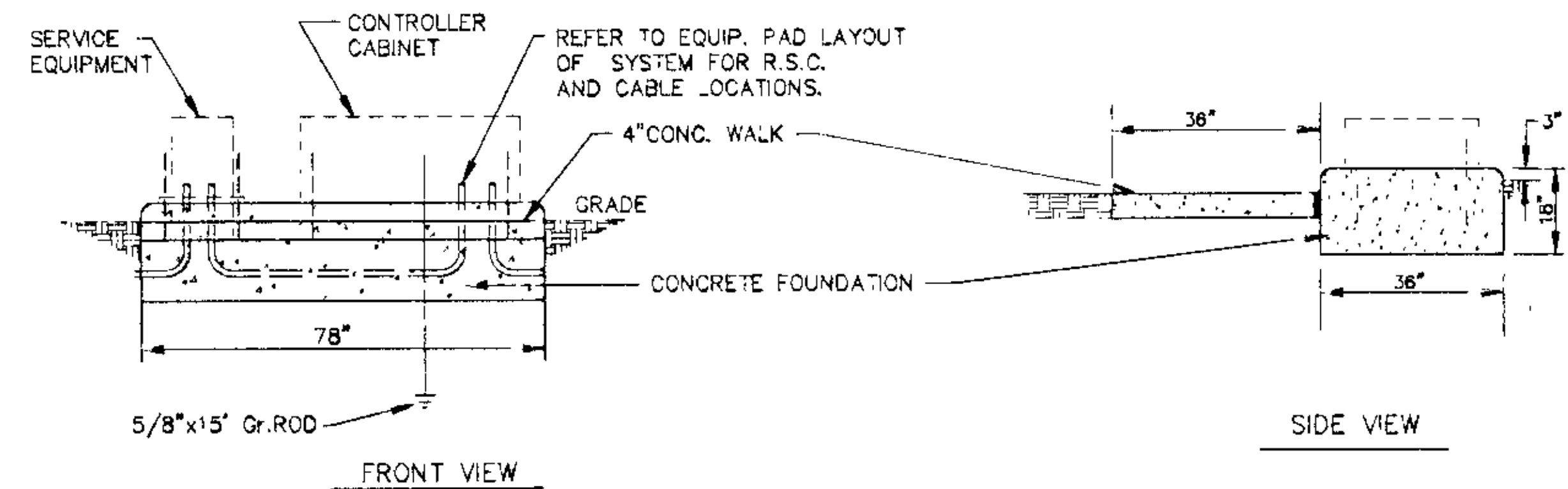


- Ⓐ 2" R.S.C. TO H.H. 18 WITH 4-3/c#12 CABLES (LUM.)
- Ⓑ LOAD CENTER
- Ⓒ 1 1/4" R.S.C. WITH 3-1/c#2
- Ⓓ METER
- Ⓔ 2" R.S.C. WITH 3-1/c#2 TO H.H. 19
- Ⓕ 1 1/4" R.S.C. WITH 2-1/c#6 AND 1-1/c#6 Br.Gr.
- Ⓖ PREFORMED JOINT FILLER
- Ⓗ 4" R.S.C. TO H.H.
- Ⓢ 3" R.S.C. STUB OUT (THREADED BOTH ENDS) AND CAPPED
- Ⓣ GROUND ROD
- Ⓚ 2" R.S.C. STUB OUT (THREADED BOTH ENDS) AND CAPPED

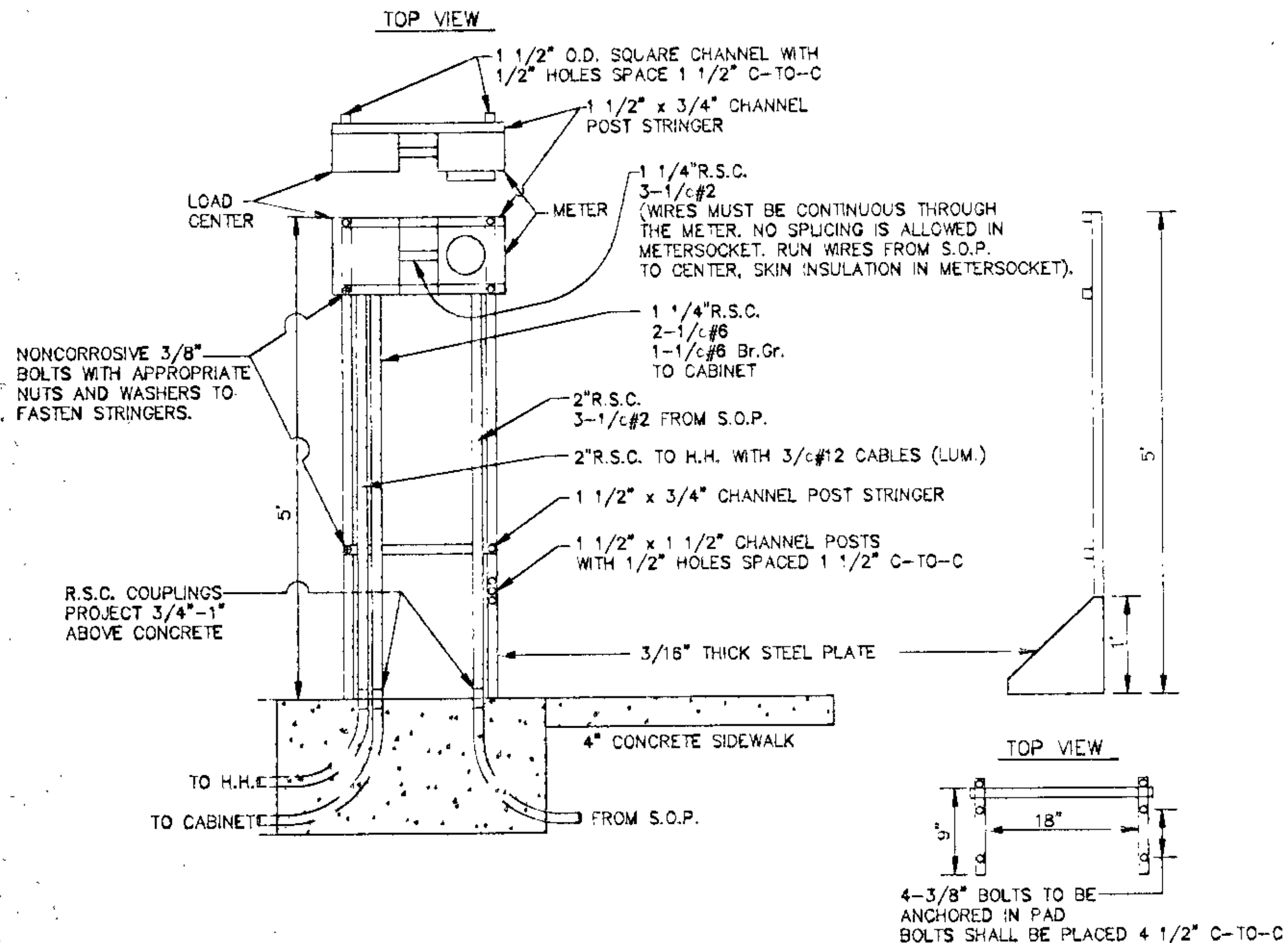
EQUIPMENT PAD FOUNDATION

NOTES:

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



MOUNTING BRACKET AND PAD MOUNTED SERVICE EQUIPMENT



4-3/8" BOLTS TO BE ANCHORED IN PAD BOLTS SHALL BE PLACED 4 1/2" C-TO-C

S.P. 0204-12
S.A.P. 02-623-07
S.A.P. 02-610-09

1	MC5/24	Per Mn/DOT Comments			
BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

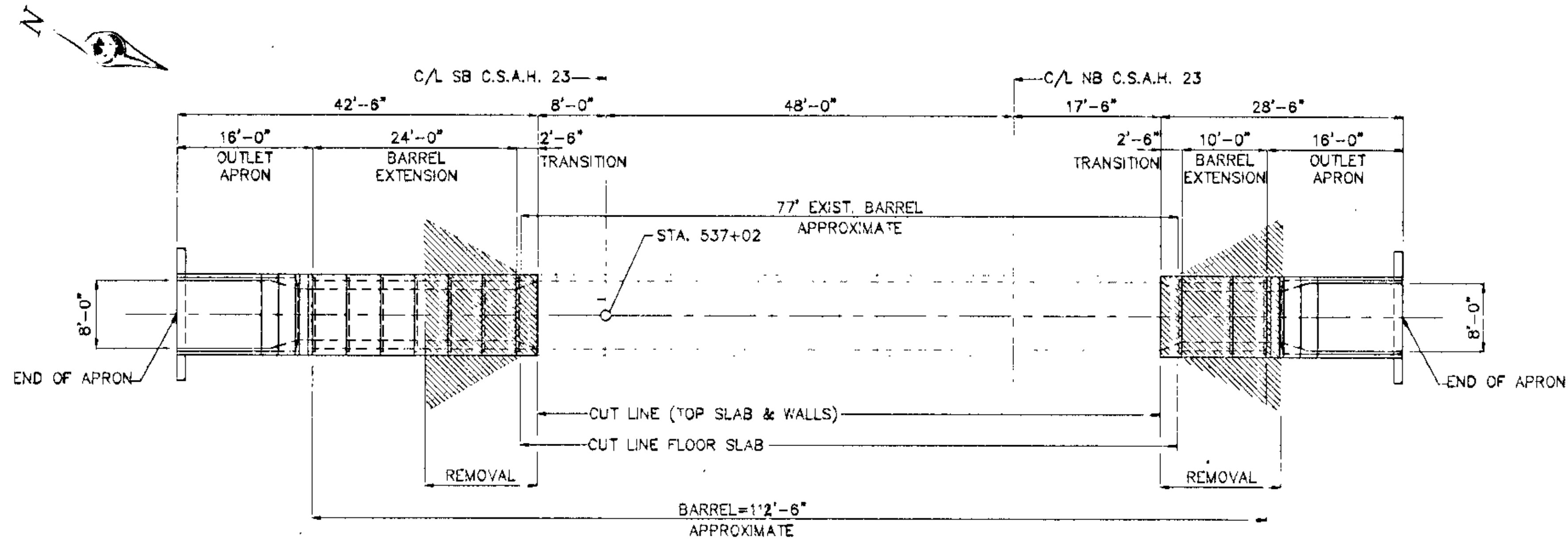
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
John M. Krug
Date: 6-7-94 Reg. No. 22457



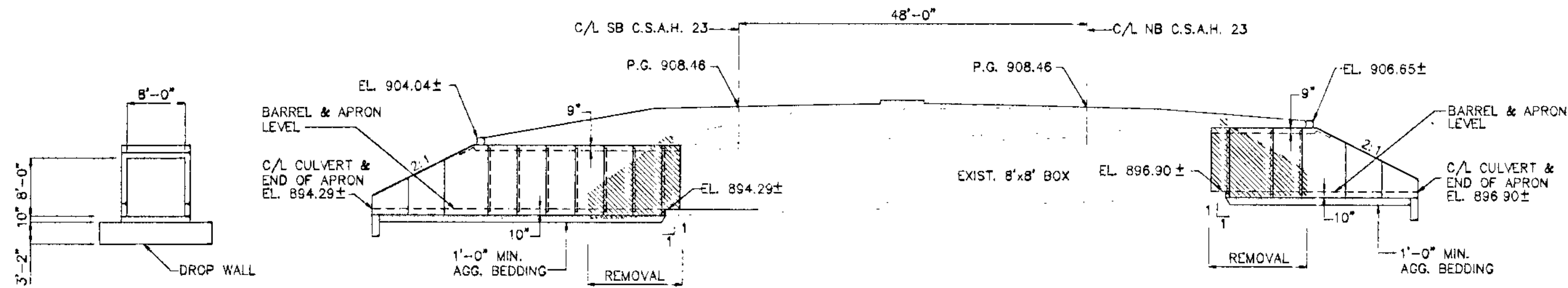
LINO LAKES, MINNESOTA
S.P. 0204-12

TRAFFIC SIGNAL SYSTEM
EQUIPMENT PAD DETAILS
LAKE DRIVE AT HODGSON ROAD

FILE NO. LINOL 310.04	42
DATE 6-7-94	80



PLAN



ELEVATION

END ELEVATION

FOR STRUCTURAL EXCAVATION AND BACKFILL SEE SPEC. 2451. STRUCTURE EXCAVATION, BACKFILLING AND REMOVAL OF EXISTING APRONS ARE INCIDENTAL TO OTHER ITEMS.

SCHEDULE OF QUANTITIES FOR ENTIRE BOX CULVERT			
ITEM NO.	ITEM	UNIT	QUANTITY
2411.501	STRUCTURE CONCRETE (3Y43)	CU. YD.	6
2411.541	REINFORCEMENT BARS	POUND	540
2412.511	8'x8' PRECAST CONC. BOX CULV.	LIN. FT.	34
2412.512	8'x8' PRECAST CONC. BOX CULV. END SECT.	EACH	2
2511.501	RANDOM RIPRAP CLASS III	CU. YD.	20
2511.515	GEOTEXTILE FILTER FABRIC, TYPE IV	SQ. YD.	68

Fed. Proj. No

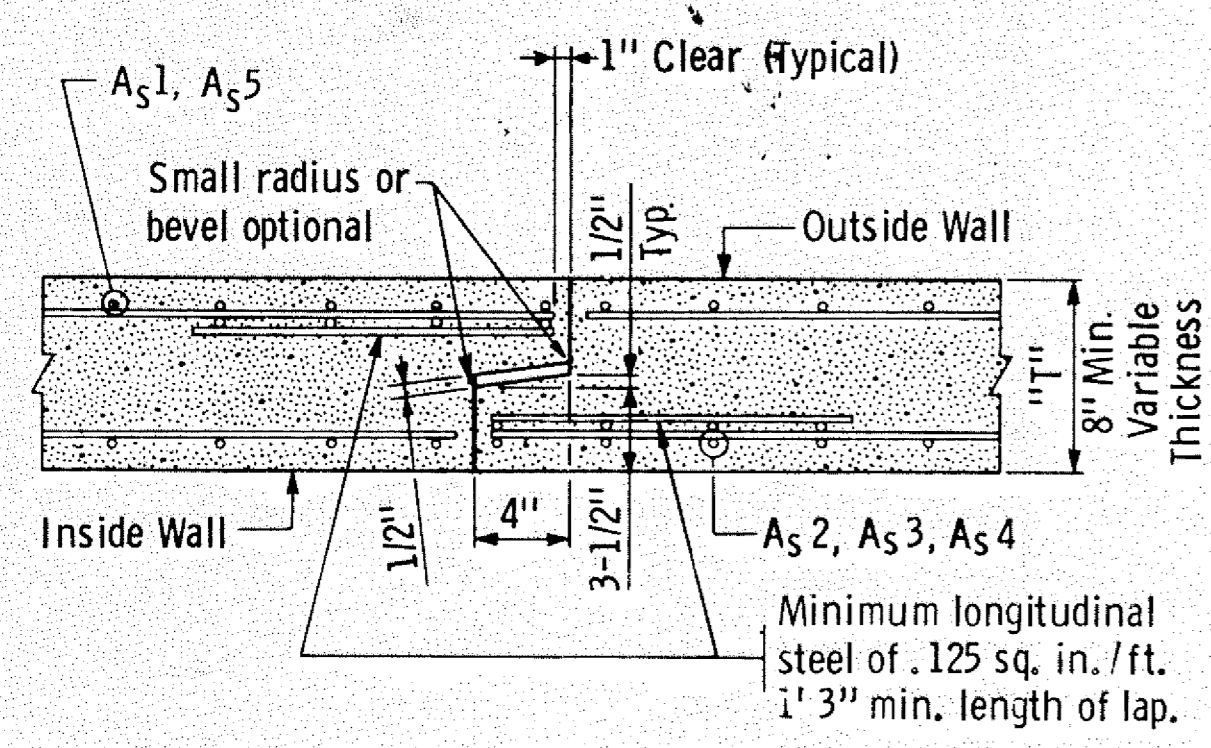
DESIGN DATA
 1989 AND CURRENT INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS. LOAD FACTOR DESIGN METHOD HS25 LOADING.
 INSIDE HEIGHT= 8.00 FT.
 INSIDE WIDTH= 8.00 FT.
 BARREL LENGTH= 102.00 FT.
 HEIGHT OF WINGWALL AT END= 1.75 FT.
 DEPTH OF CUTOFF WALL= 3.00 FT.
 SKEW ANGLE= 0.00 DEG.
 MAXIMUM DEPTH OF FILL= 5.50 FT.
 UNIT WEIGHT OF FILL= 130.00 LBS/CU. FT.
 ANGLE INTERNAL FRICTION= 30 DEG.
 MAXIMUM ALLOWABLE DESIGN STRESSES:
 C.I.P. REINFORCED CONCRETE:
 $f_c=4000$ P.S.I., $n=8$
 $f_y=60000$ P.S.I. REINFORCEMENT (GRADE 60)

LIST OF SHEETS	
NO.	DESCRIPTION
1	GENERAL PLAN & ELEVATION
2	P.C. CONCRETE BOX CULVERT BARREL DETAILS
3	P.C. CONCRETE END SECTIONS
4	C.I.P. CONCRETE TRANSITION DETAILS
5	EMBANKMENT PROTECTION FOR BOX CULVERTS

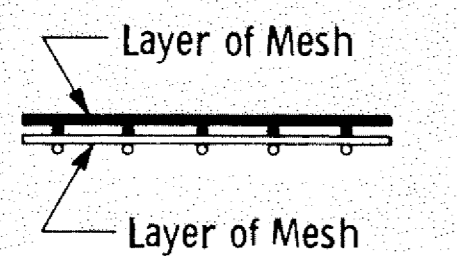
CONSTRUCTION NOTES
 THE 1988 EDITION OF THE MN/DOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION", AS AMENDED BY THE JANUARY 2, 1991, SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.
 DRAWINGS ARE NOT TO BE SCALED.
 CONCRETE SHALL BE MIX NO. 3Y43 UNLESS OTHERWISE NOTED.
 ALL EXPOSED CONCRETE EDGES SHALL BE FORMED WITH 1/2" OR 3/4" VEE UNLESS OTHERWISE NOTED.
 CONSTRUCTION TO BE IN ACCORDANCE WITH SPEC. 2411, EXCEPT AS NOTED.

MINNESOTA
 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.
 SIGNED: *[Signature]*
 DATE: 7/19/94 REG. NO. 17280
 SHEETS: 43 - 47

TRUNK HIGHWAY NO. C.S.A.H. 23
 MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 8 x 8 BOX CULVERT
 C.S.A.H. 23 OVER DITCH IN
 CIRCLE PINES
 STA. 537+02
 CONCRETE BOX CULVERT*
 IDENTIFICATION NO. 113
GENERAL PLAN AND ELEVATION
 SEC. 30 T. 31 N. R. 22 W.
 CIRCLE PINES CITY ANOKA COUNTY
 APPROVED: _____
 BRIDGE ENGINEER DIRECTOR DESIGN SERVICES
 DES. MW OR MW
 CHK. JU CHK. JU

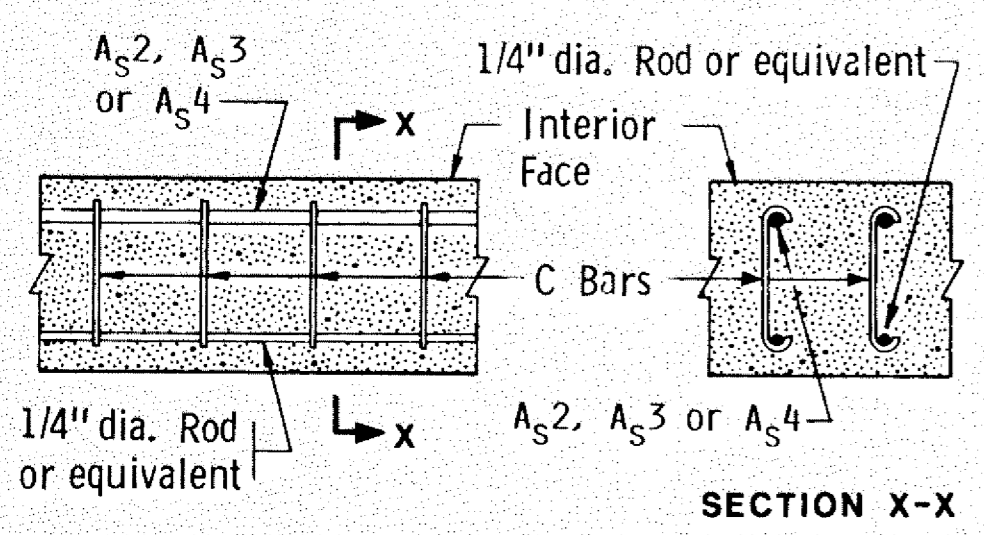


TONGUE AND GROOVE JOINT DETAIL



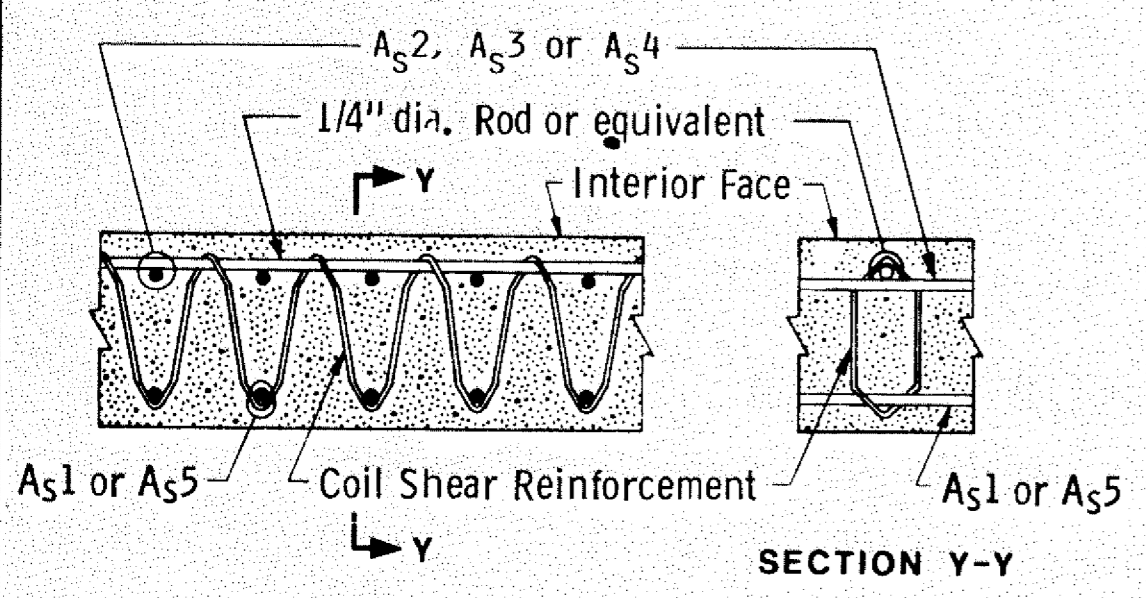
FABRIC LAYER DETAIL

When more than one layer of steel fabric is used to obtain the required reinforcement areas, the wires of the steel fabric shall be placed as shown

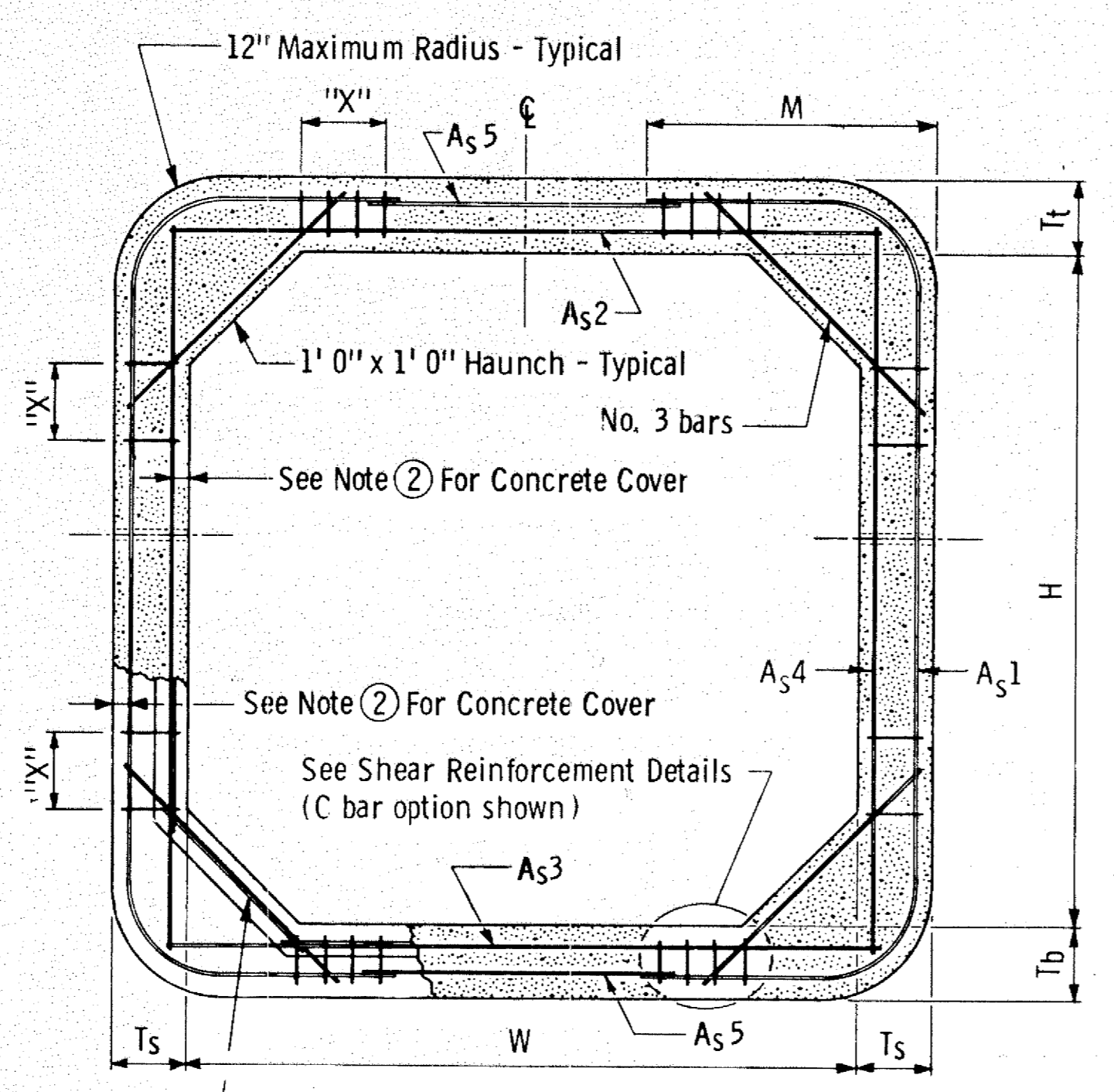


SHEAR REINFORCEMENT DETAIL C BAR OPTION

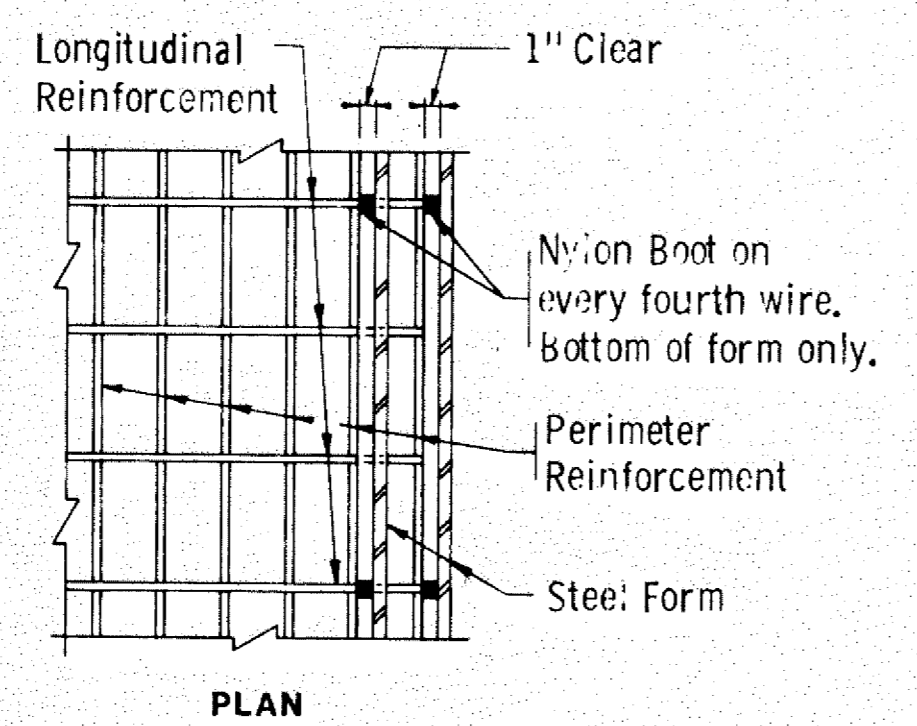
C Bars shall have 135° Min. and 180° Max. hooks



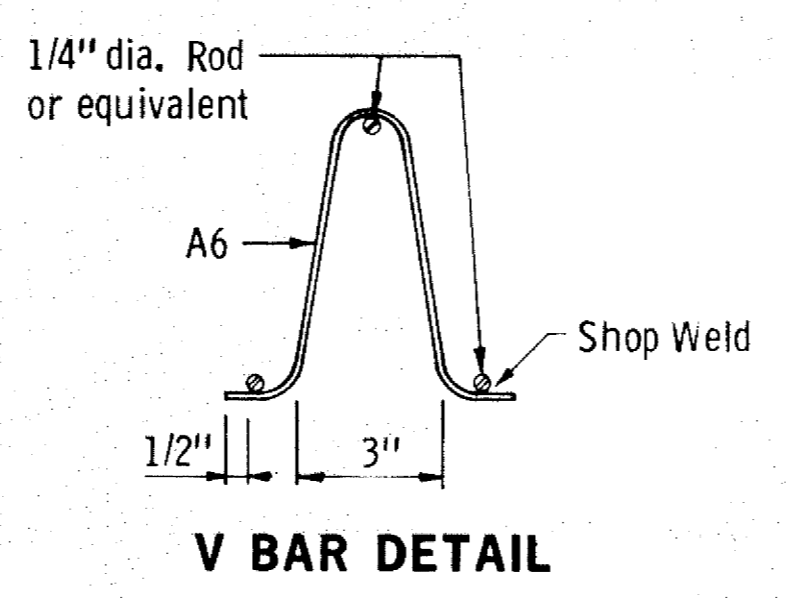
SHEAR REINFORCEMENT DETAIL COIL OPTION



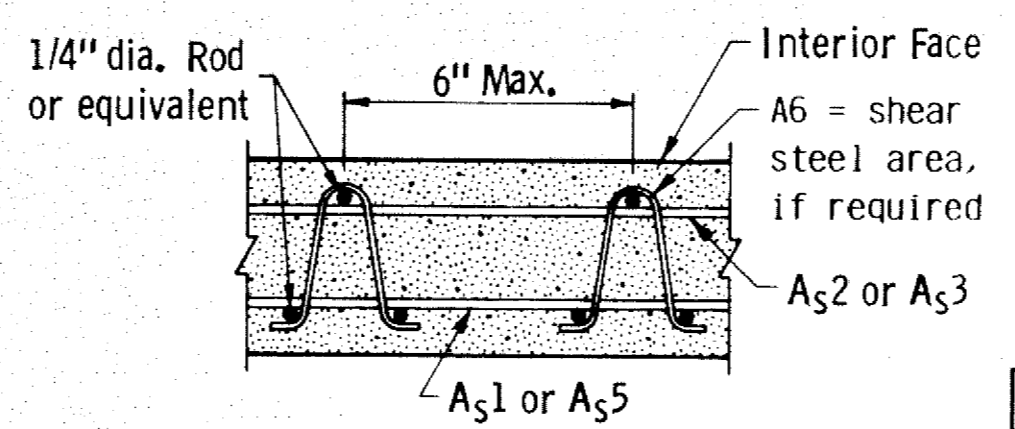
TRANSVERSE BARREL SECTION (Bar Reinforcement Option Shown)



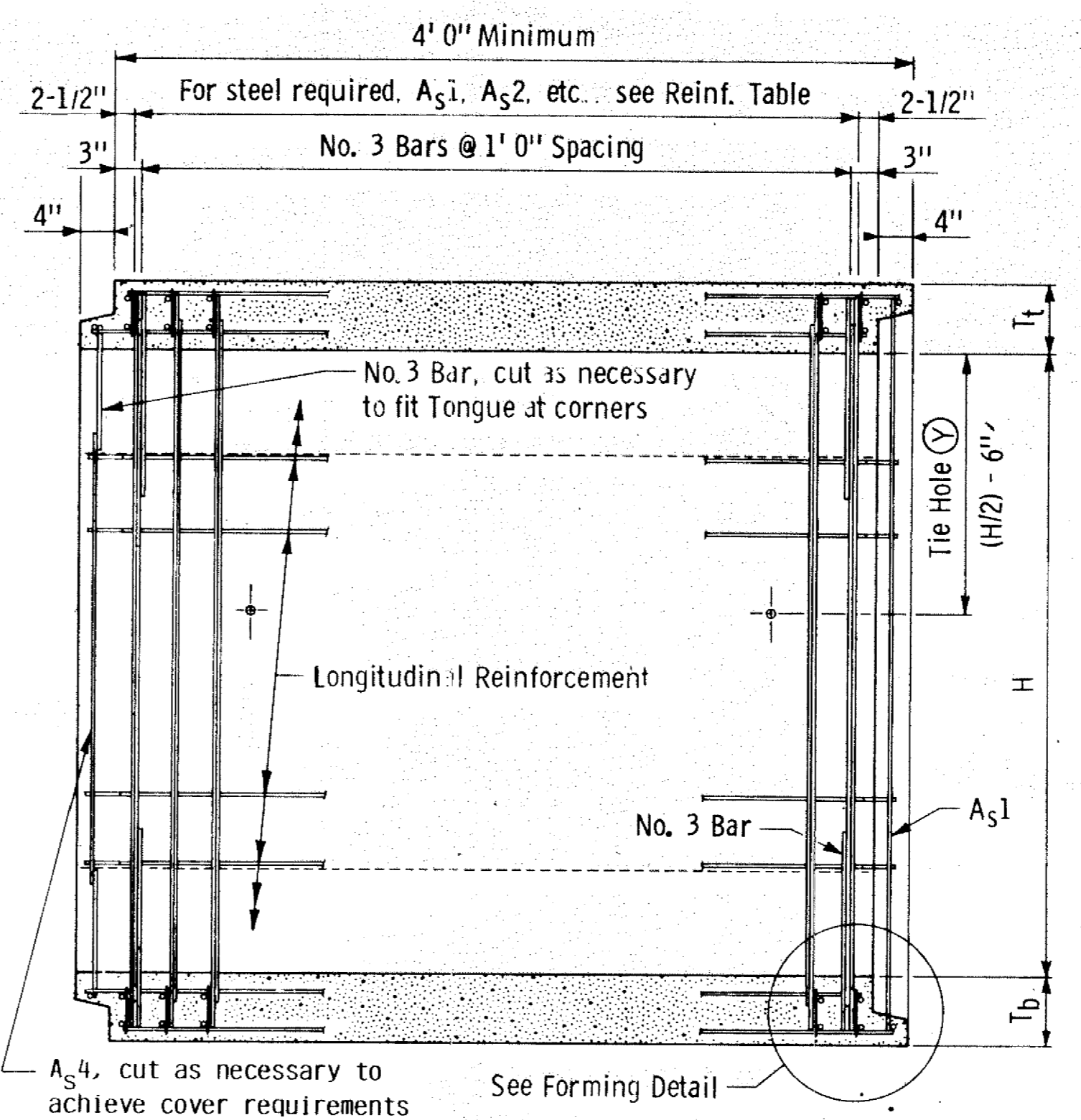
FORMING DETAIL



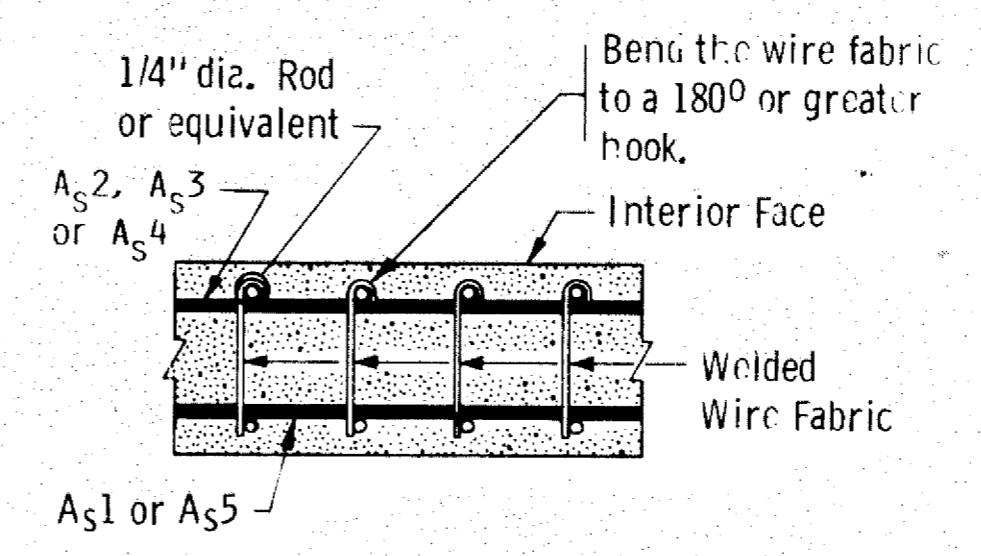
V BAR DETAIL



SHEAR REINFORCEMENT DETAIL V BAR OPTION



LONGITUDINAL BARREL SECTION (Bar Reinforcement Option Shown)



SHEAR REINFORCEMENT DETAIL J BAR OPTION

Reinforcement Δ	Height of Overfill \textcircled{F}									
	5'		5'		5'		5'		5'	
	*Area	Length	*Area	Length	*Area	Length	*Area	Length	*Area	Length
As1	.240	13'-4"								
As2	.324	8'-3"								
As3	.365	8'-3"								
As4	.192	8'-3"								
As5	.192	6'-0"								

* Square inches per lineal foot of barrel.
 Δ Areas shown are based on $F_y = 65,000$ P.S.I.
 Increase area 8% for $F_y = 60,000$ when reinforcement bars are used in part or total.

Dimensions	Height of Overfill \textcircled{F}			
	5'	5'	5'	5'
"W" (in Ft.)	8			
"H" (in Ft.)	8			
T_t (in inches)	9			
T_b (in inches)	10			
T_s (in inches)	8			
"M" (in inches)	2'-5"			
Weight (lbs./ft.)	3990			

NOTES:

- The steel fabric, shear reinforcement and reinforcement bars used shall conform to applicable requirements of AASHTO M 259.
- 1-1/2" min. and 2" max. concrete cover on all reinforcement, including the shear reinforcement, except for tongue and groove detail.
- One of the following combinations of steel reinforcement may be used:
 - 1 or 2 layers of mesh or
 - 1 layer of mesh and 1 layer of reinforcement bars or
 - 1 layer of reinforcement bars.
 The reinforcement shall be developed in accordance with applicable parts of sections 8.21 thru 8.33 of the AASHTO "Standard Specifications for Highway Bridges".
- Longitudinal reinforcement parallel to the axis of the culvert shall have a min. of 0.06 square inches per peripheral foot on all faces of the barrel, except in tongue and groove.
- The max. shear reinforcement spacing in the longitudinal direction shall be 6 inches.
- The transverse steel areas in each face shall be a minimum of 0.192 sq. in. per linear feet of barrel.
- The maximum size of reinforcement bars shall be No. 6. The maximum mesh size shall be 1/2" dia. per layer (maximum of 2 layers).
- The spacing center to center of the circumferential wires shall not be less than 2 inches nor more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches.
- Welding will not be allowed on reinforcement bars or steel fabric, except that the original welding required to manufacture wire fabric is acceptable.
- When reinforcement is cut, additional reinforcement shall be added on both sides of the cut member to replace or exceed the cut steel.
- Barrel sections which are cast with a draft in the forms shall be laid with the narrowest part of the section downstream.

BASIS OF DESIGN

- The design shall be in accordance with 1983 and Interim AASHTO Design Specifications.
- Live loads are based on HS²⁵ or Military Loading as designated in FHWA PPM 20-4 Section 4C.
- Maximum allowable Design Stresses
 - $F'_c = 5000$ P.S.I., $N = 6$
 - $F_y = 60,000$ P.S.I. reinforcement bars
 - $F_y = 65,000$ P.S.I. steel fabric
- Load factor design according to AASHTO standard specification Group X = 1.3
 - $[B_d + B_e(L+1) + B_e E_v + B_e E_L]$ shall be used where $B_d = 1.00$, $B_e = 1.00$, $B_L = 1.67$
 - E_v = Vertical earth pressure and E_L = Lateral earth pressure. The following values have been used for this structure:
 - Unit Soil Weight 130 lbs. per cu. ft.
 - Maximum lateral Pressure Coefficient 50% of soil weight
 - Minimum lateral Pressure Coefficient 25% of soil weight
- Concrete shall be Mix No. 3W36 with no calcium chloride allowed.
- Minimum overfill shall be two (2) feet, unless a reinforced concrete slab is placed over barrels.

Height of Overfill \textcircled{F}	Shear Reinforcement Requirements \diamond								
	Top of Culvert			Bottom of Culvert			Side of Culvert		
	**Area	Maximum Spacing	"X" (in inches)	**Area	Maximum Spacing	"X" (in inches)	**Area	Maximum Spacing	"X" (in inches)
	NONE REQUIRED								

\diamond When shear reinforcement is needed, a minimum shear steel of 0.06 sq. in. per sq. ft. shall be used.
 ** Square inches per linear foot of barrel.
 "X" = Distance from end of haunch.

BARREL DETAILS

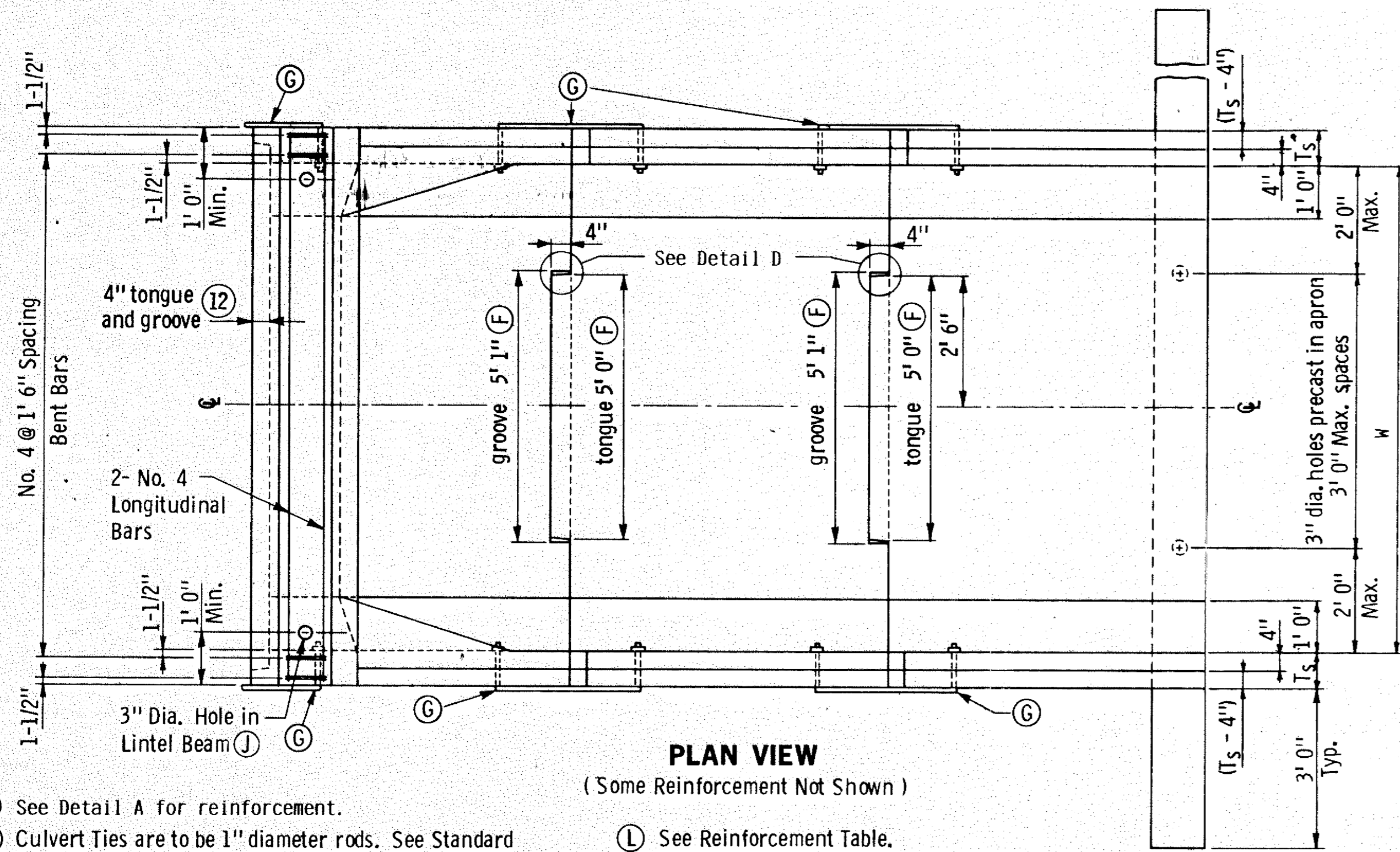
FIG. 5-397.701
 Approved: November 3, 1987

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.
 SIGNED: *[Signature]*
 DATE: 3/17/94 REG. NO. 17280
 SHTS 43-47

C.SAH.23 HIGHWAY NO. MINNESOTA DEPARTMENT OF TRANSPORTATION

Bridge No.
 IDENTIFICATION NO. 113
PRECAST CONCRETE BOX CULVERT
 SEC. 30 T. 31 N. R. 22 W.
 CIRCLE PINES TOWNSHIP ANOKA COUNTY
 APPROVED: _____
 BRIDGE ENGINEER

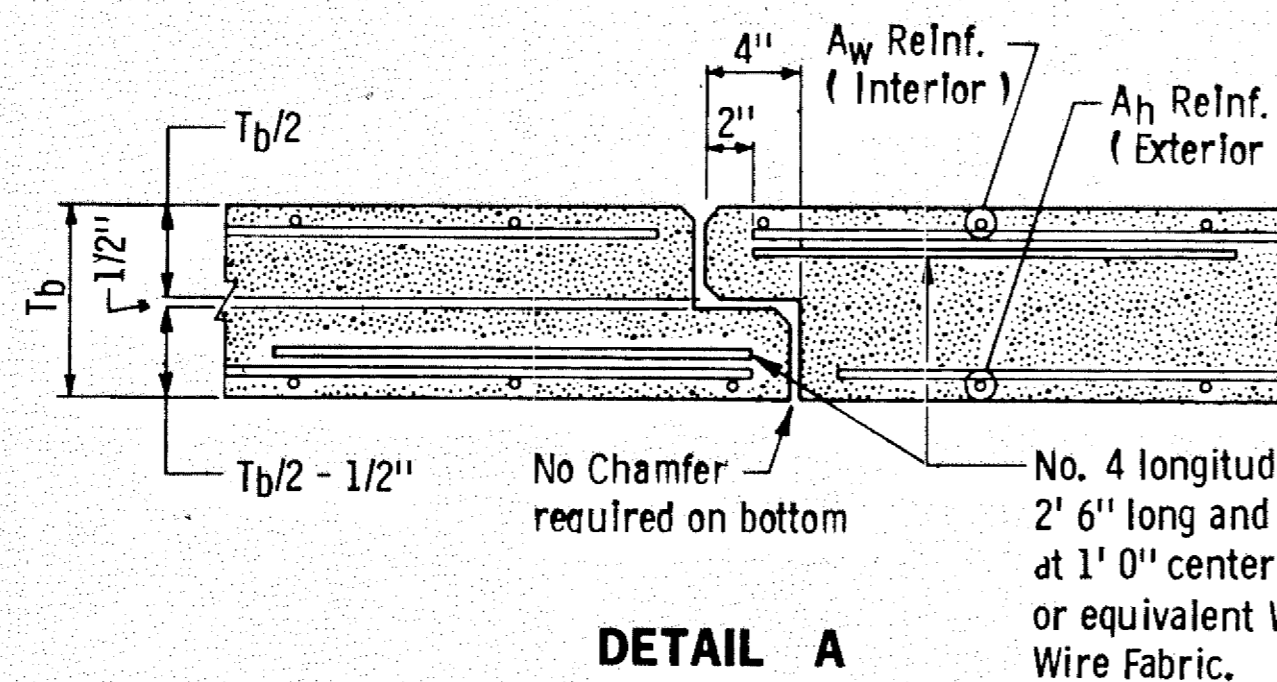
DES. Mn/DOT MW	DR. Mn/DOT MW
CHK. JJ	CHK. JJ



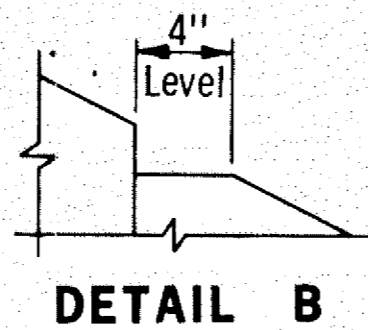
PLAN VIEW
(Some Reinforcement Not Shown)

- (E) See Detail A for reinforcement.
- (G) Culvert Ties are to be 1" diameter rods. See Standard Plate No. 3145 for connection details.
- (H) 2' 4" for the Tongue End (includes the 4" tongue).
- (J) Grout shall consist of 1 part cement and 2 parts sand. Use Type 1A air entrained Portland Cement. Grout mix shall have a maximum slump of 4".
- (K) 1" diameter by 1' 0" long steel dowel. 2" diameter hole in the top of the wingwall. Fill hole to top of Lintel Beam with an approved grout.

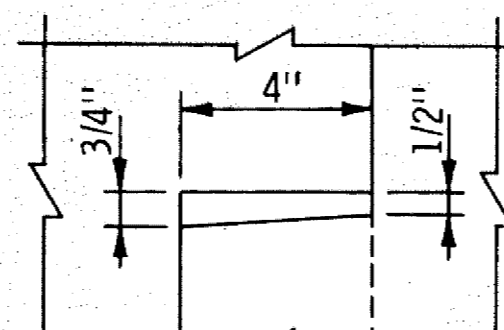
(L) See Reinforcement Table.



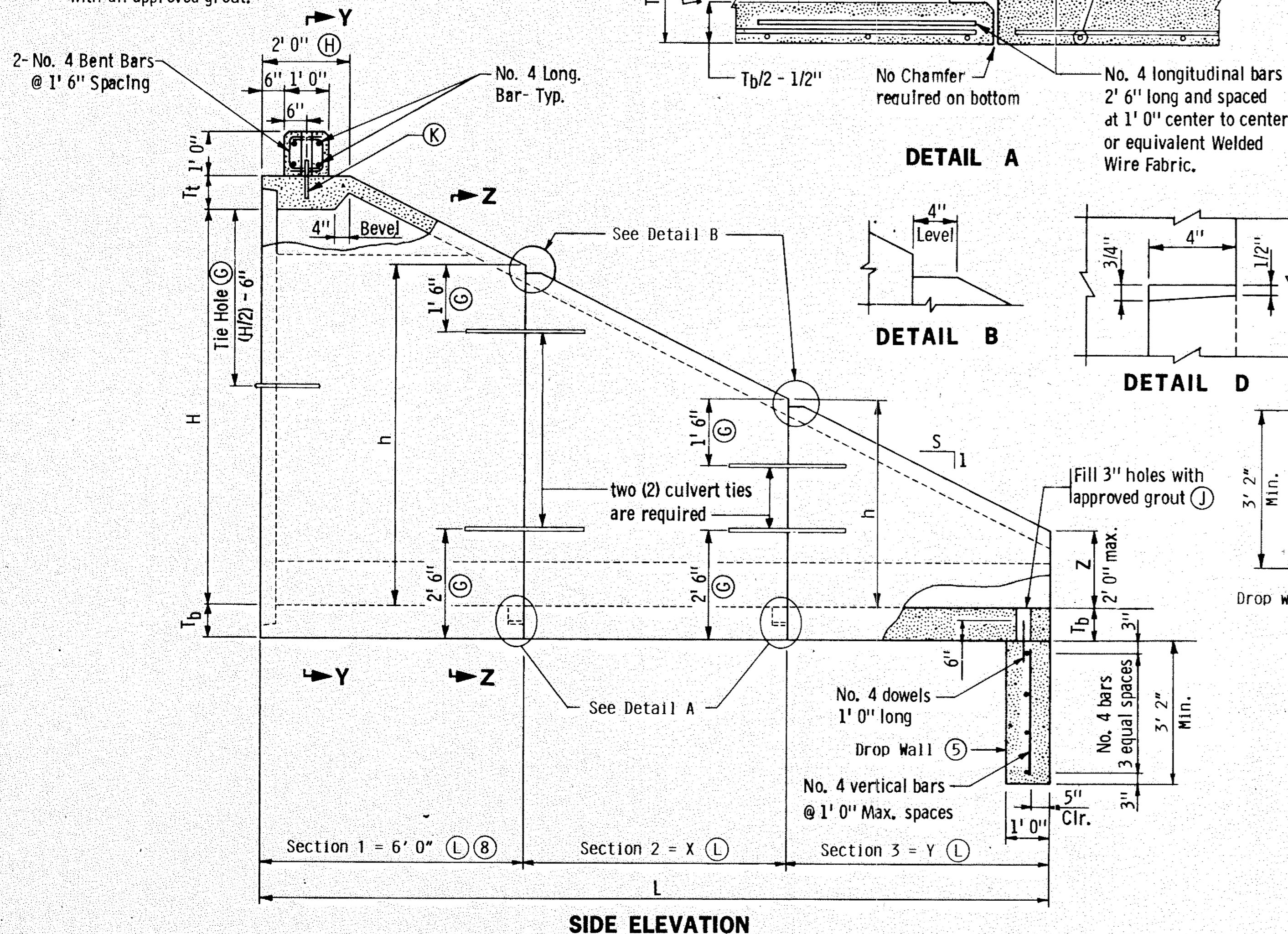
DETAIL A



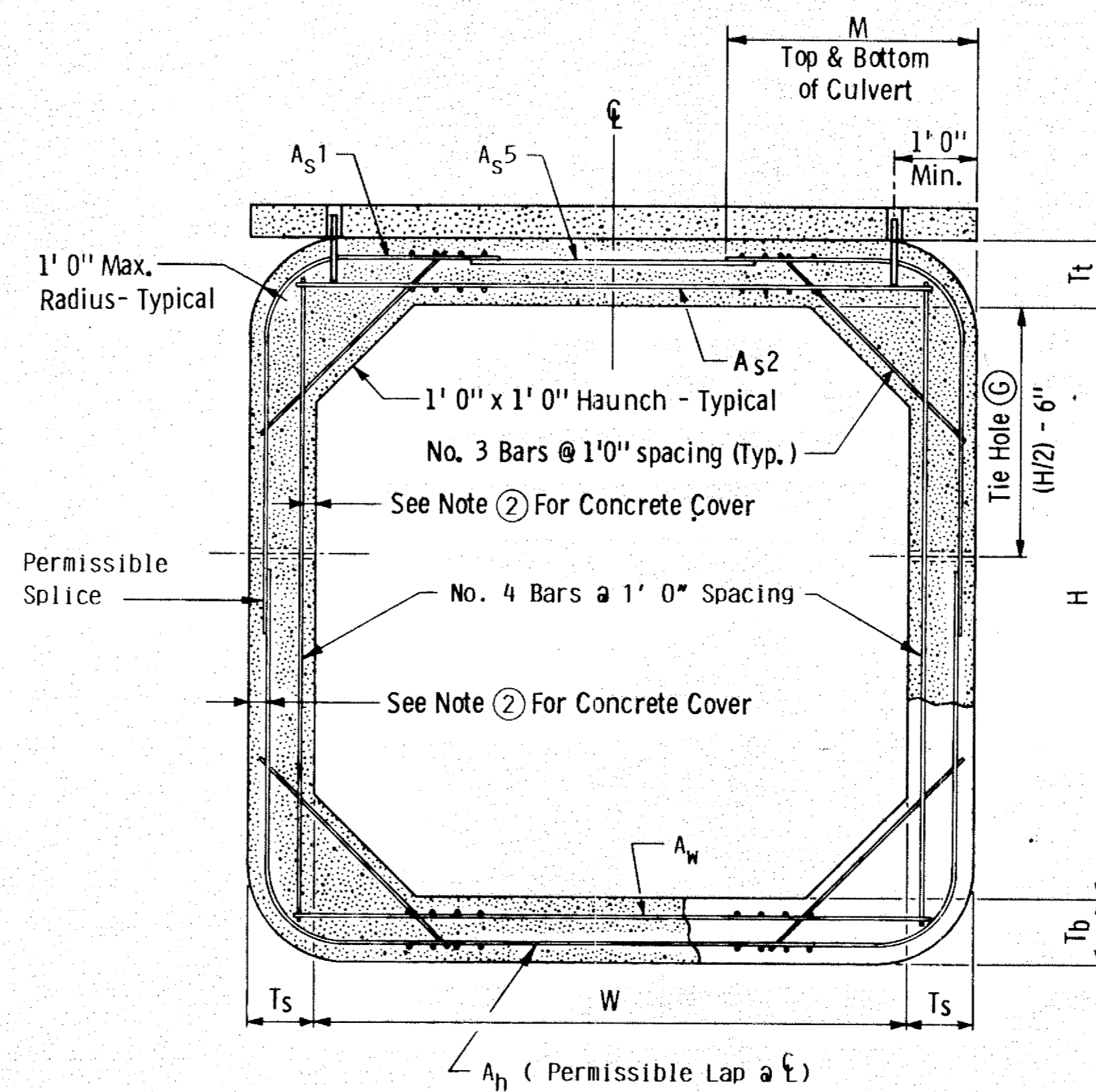
DETAIL B



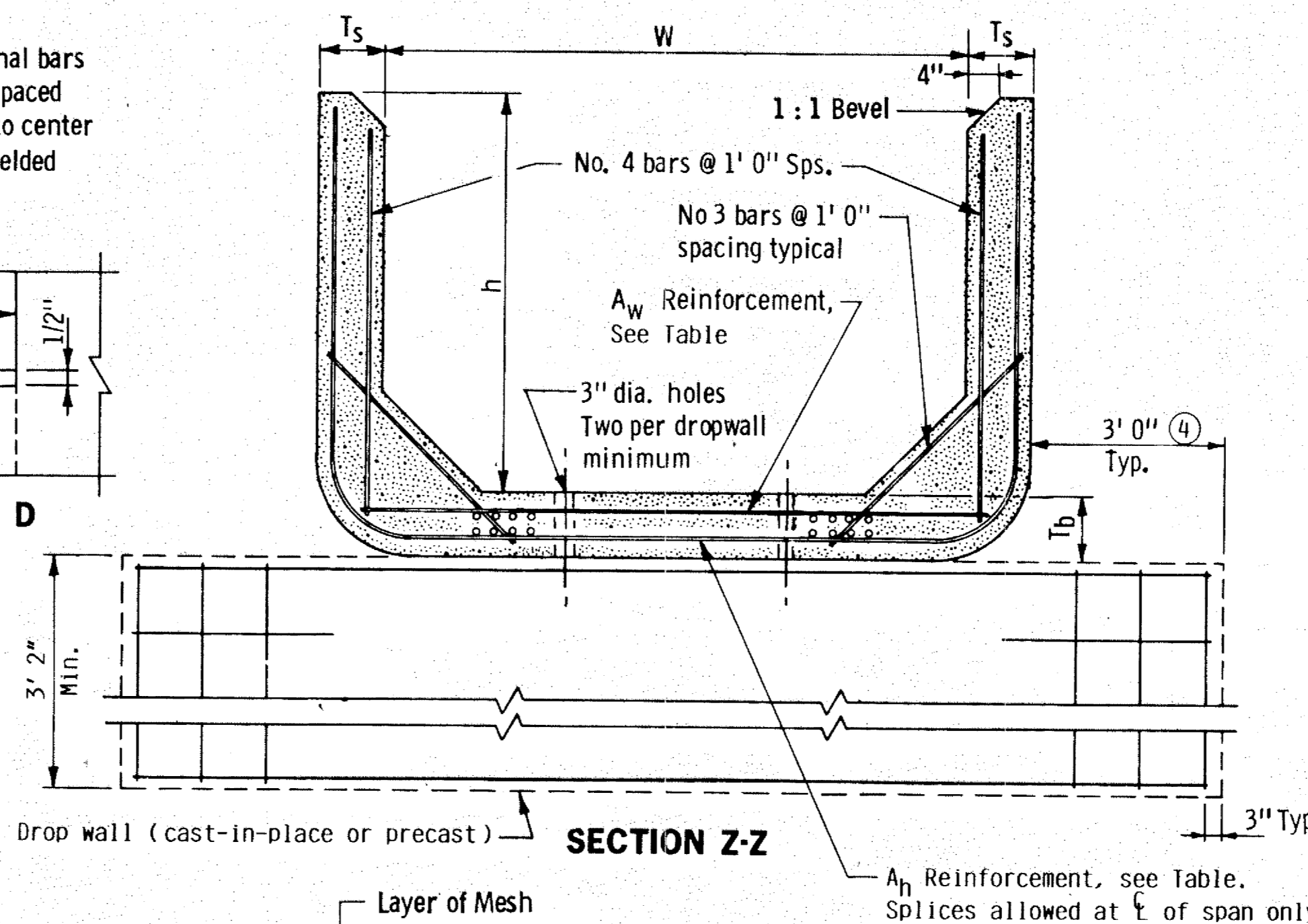
DETAIL D



SIDE ELEVATION



SECTION Y-Y



SECTION Z-Z

FABRIC LAYER DETAIL

When more than one layer of steel fabric is used to obtain the required reinforcement areas, the wire of the steel fabric shall be placed as shown in the Fabric Layer Detail.

NOTES:

- ① See "Precast Concrete Box Culvert" Standard Sheet No. 5-397.701, for dimensions and construction notes, except as noted.
2. 1-1/2" minimum and 2" maximum concrete cover on all reinforcement, including the shear reinforcement, except for tongue and groove detail.
3. Concrete shall be mix No. 3W46 with no calcium chloride allowed.
- ④ Locate dropwall joints between multiple boxes.
- ⑤ Furnishing and installation of drop wall to be included in price bid of end sections.
6. See standard sheet No. 5-397.711 for alternate dropwalls for box culverts.
7. Longitudinal reinforcement parallel to the axis of the culvert shall have a minimum of 0.06 square inches per peripheral foot on all faces of the barrel, except in the tongue and groove.
- ⑧ As an option, Type III (Fig. 5-397.710) end section with Intel beam may be substituted for Section 1.
9. Limits for excavation for drop wall to be approximately the same as drop wall dimensions.
10. Drop wall to be concrete mix no. 1A43 or 3Y43.
11. See embankment protection for box culverts, sheet 5.
- ⑫ Check location to determine whether a tongue or a groove is used.
13. Finish all edges of concrete with 1/2" chamfer unless otherwise noted.

WIDTH W	A _w (Interior)	HEIGHT h	A _h (Exterior)
8 ft. or less	No. 4 @ 1' 0"	8 ft. or less	No. 4 @ 1' 0"
10 ft.	No. 4 @ 1' 0"	10 ft.	No. 5 @ 8"
12 ft.	No. 4 @ 9"	12 ft.	No. 6 @ 6"
14 ft.	No. 4 @ 6-1/2"	14 ft.	No. 7 @ 5-1/2"
16 ft.	No. 5 @ 8"	16 ft.	No. 7 @ 5"
18 ft.	No. 5 @ 6"		
20 ft.	No. 6 @ 7"		

NOTE: h is the highest vertical dimension of each section shown.

WIDTH W	2 FT. FILL (Maximum)		
	A _{s1}	A _{s2}	A _{s5}
8 ft. or less	No. 5 @ 6"	No. 5 @ 7"	No. 5 @ 7"
10 ft.	No. 6 @ 6-1/2"	No. 6 @ 7-1/2"	No. 6 @ 7-1/2"
12 ft.	No. 6 @ 5"	No. 6 @ 6"	No. 6 @ 6"
14 ft.	No. 7 @ 5-1/2"	No. 7 @ 6-1/2"	No. 7 @ 6-1/2"
16 ft.	No. 8 @ 6"	No. 8 @ 7"	No. 8 @ 7"
18 ft.	No. 8 @ 5"	No. 8 @ 5-1/2"	No. 8 @ 5-1/2"
20 ft.	No. 9 @ 5"	No. 9 @ 6"	No. 9 @ 6"

Based on T_t = 9", and H = 12 ft. maximum.

Section	Weight
1	19 040 Lbs.
2	13 810 Lbs.
3	7240 lbs.

NO. 4 BENT BAR

Size	H=	W=	L	M	S	X	Y	Z	T _t	T _b	T _s	A _{s1}	A _{s2}	A _{s5}
			8'	8'	16'	2'-5"	2	6'	4'	1'-9"	9"	10"	8"	*

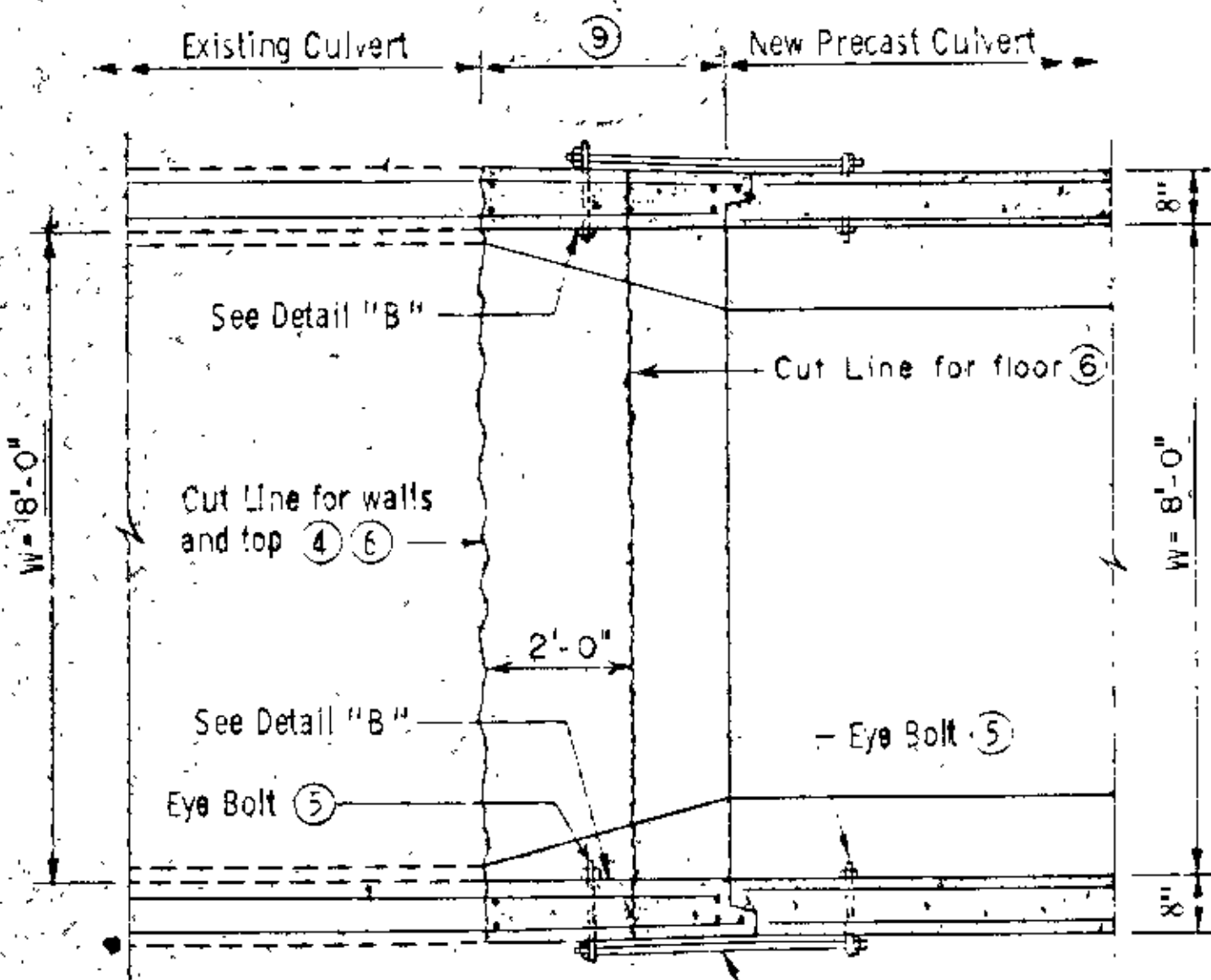
* See A_s Reinforcement Table.

S.A.P. 02-623-07

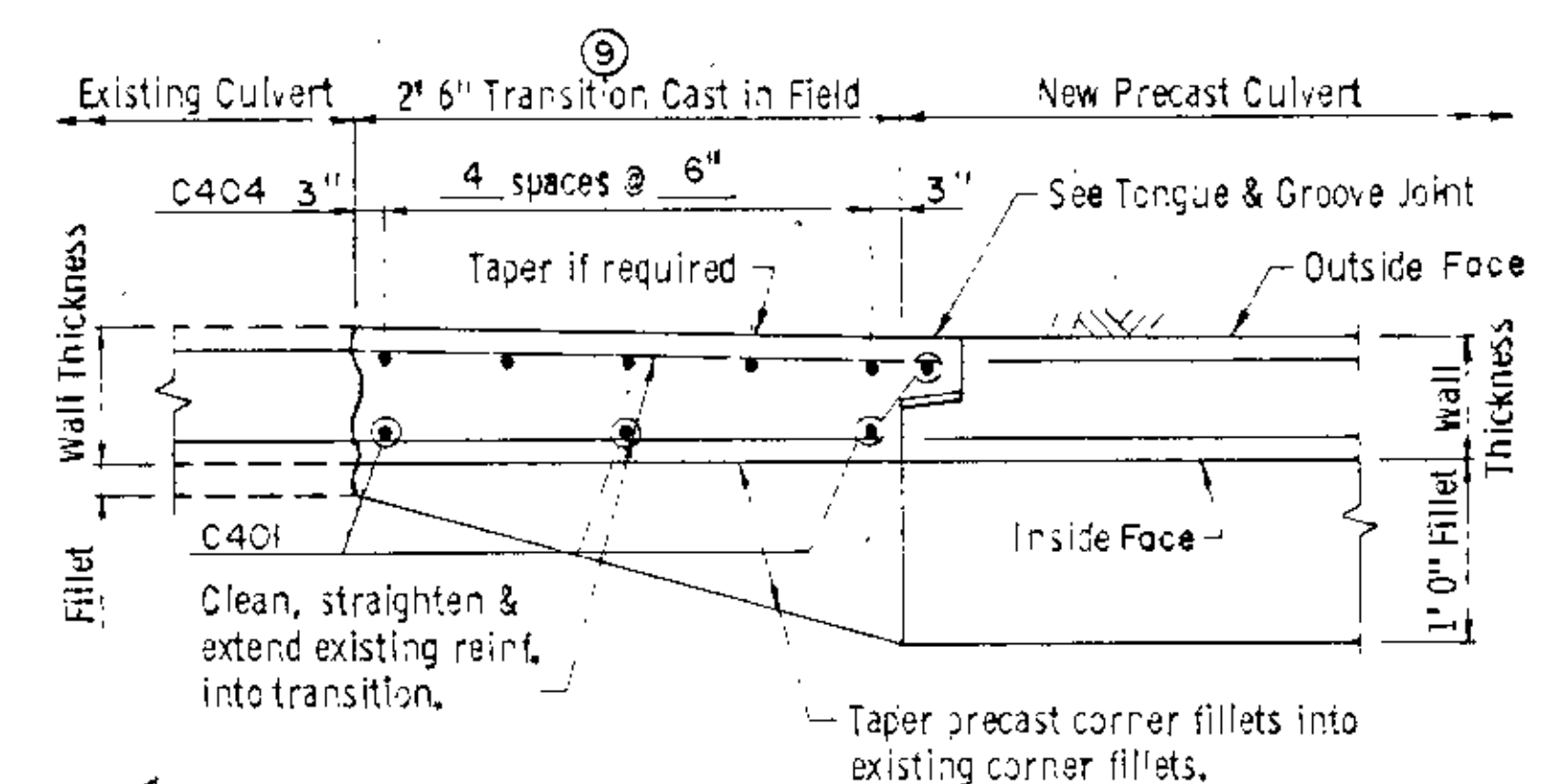
FIG. 5-397.702
Approved: November 3, 1987

PRECAST CONCRETE END SECTIONS
TYPE I - SINGLE OR MULTI-BARREL
FOR SKEWS UP TO 7-1/2°

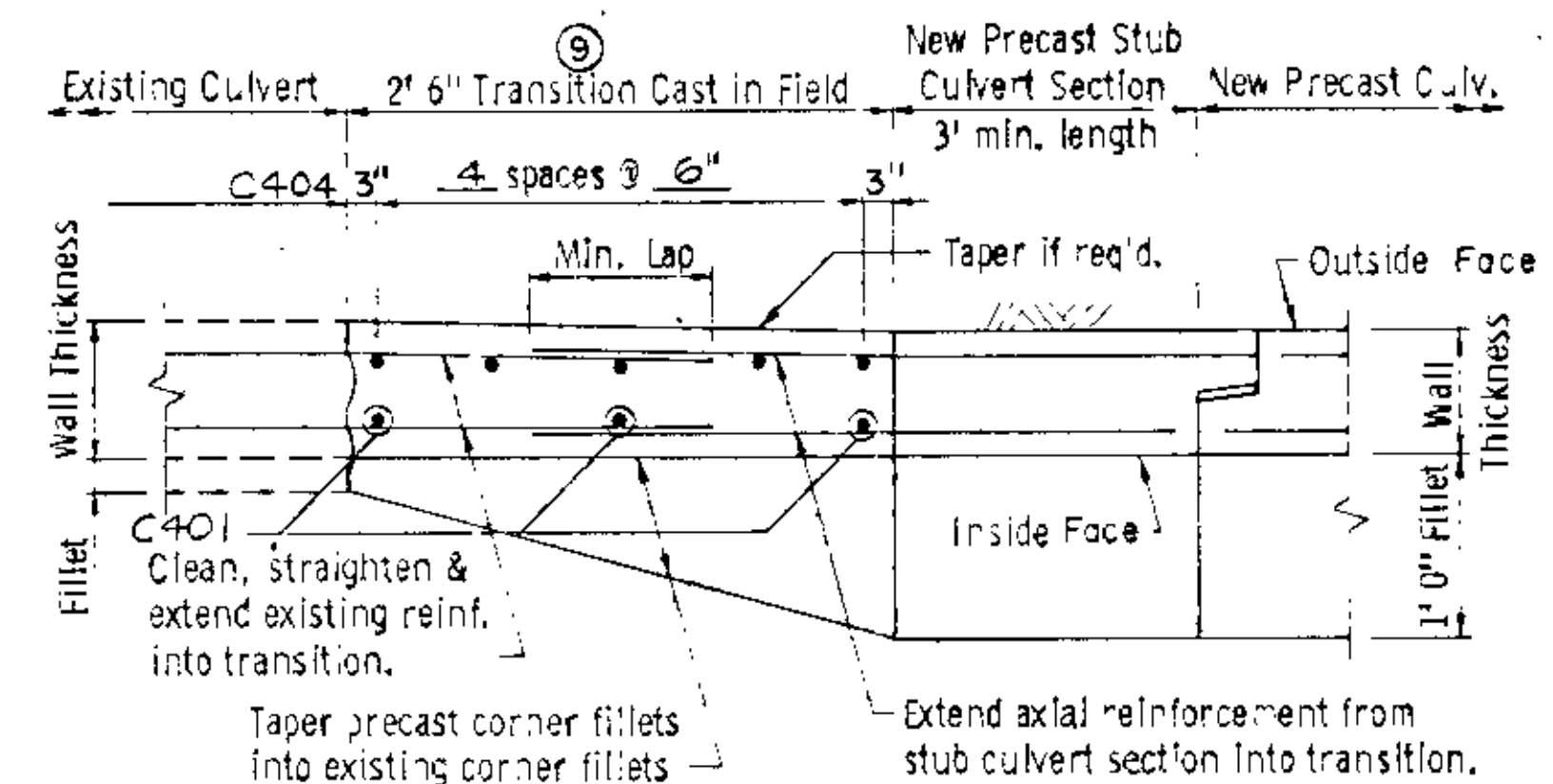
BES: Mn/DOT MW	DR: Mn/DOT MW	APPROVED:	Bridge No.
CHK: JJ	CHK: JJ		
Sheet No. 45 of 80 Sheets			



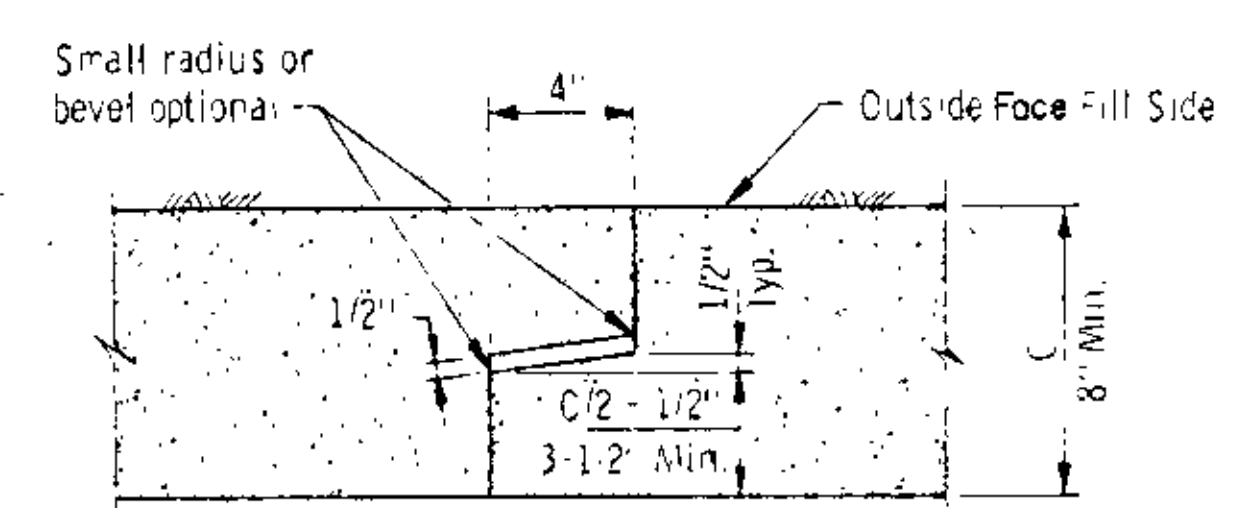
PLAN SECTION
(Alternate 1 Shown)



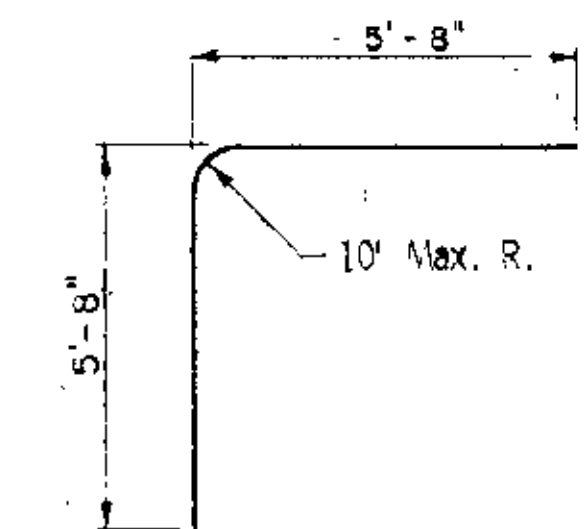
DETAIL B
ALTERNATE 1
(Culvert Tie Not Shown)



DETAIL B
ALTERNATE 2
(No Culvert Tie Required)



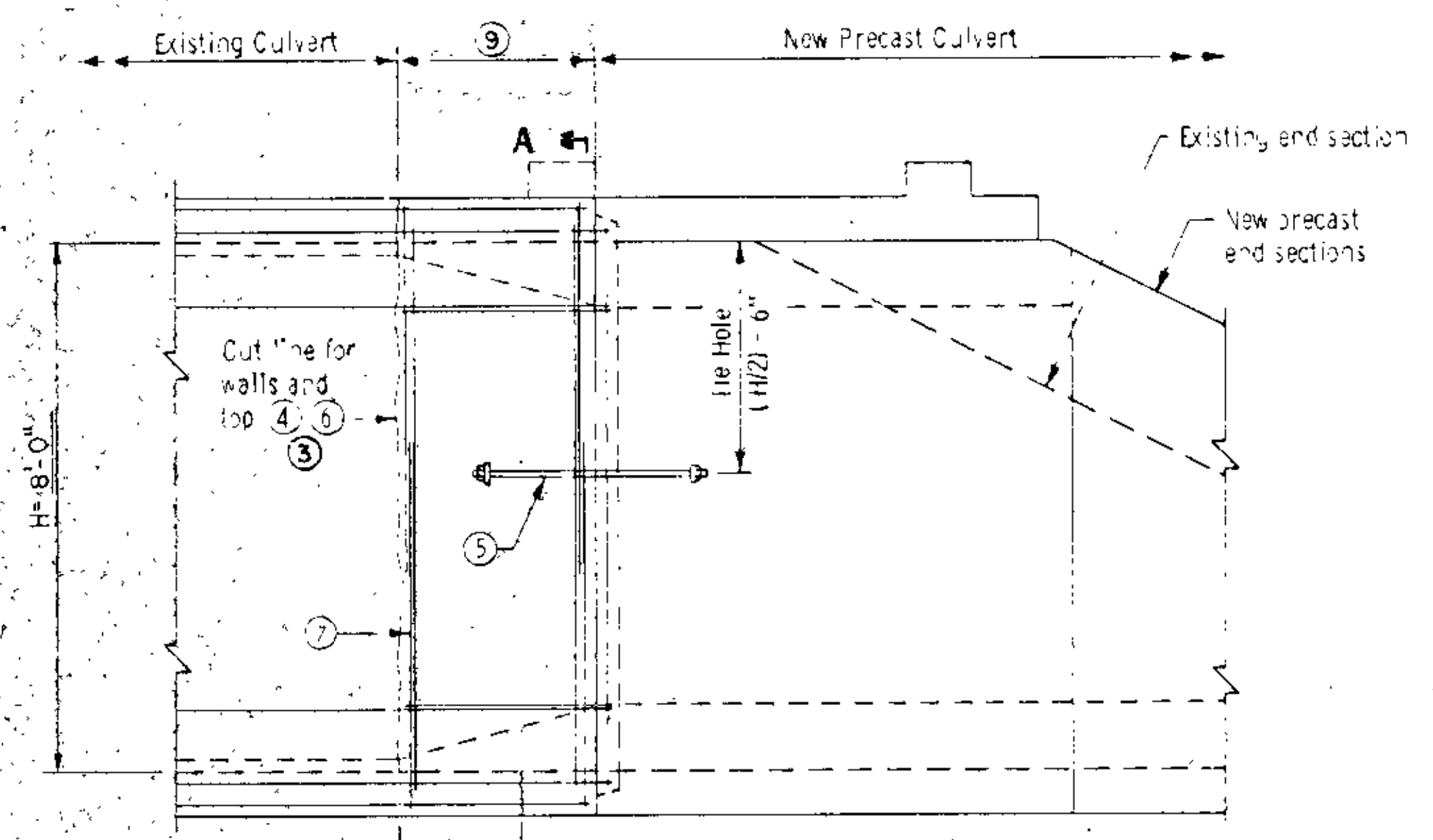
TONGUE AND GROOVE JOINT
Make dimension of tongue or groove on adjacent precast barrel sections so inside faces are flush.



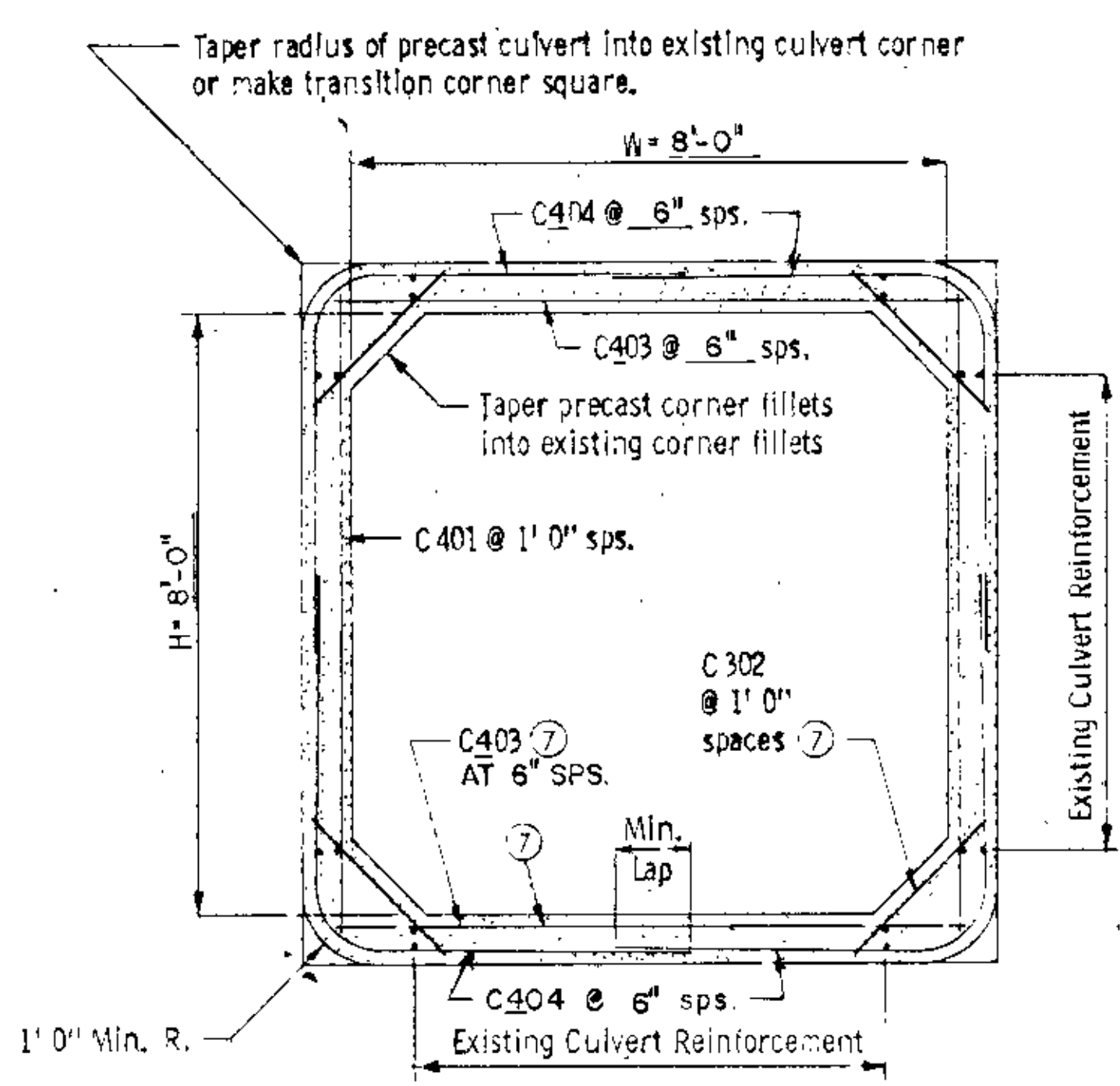
C404

TRANSITION QUANTITIES ②, ⑧	
Structure Conc. (3Y43)	2.6 Cu. Yd.
Reinforcement Bars	270 Pound

REINFORCEMENT FOR TRANSITION ⑧				
BAR	NO.	LENGTH	SHAPE	LOCATION
C401	8	8'-8"	Straight	Inside Vertical
C302	12	2'-9"	Straight	Inside Corners
C403	10	8'-8"	Straight	Inside Top & Bot.
C404	20	11'-4"	Bent	Outside Corners



SIDE ELEVATION
(Alternate 1 Shown)



SECTION A-A

NOTES:

- Any additional reinforcement shall be per Spec. 3301, Grade 60 or Spec. 3303.
- Construction shall start from the existing culvert and proceed outward in each direction.
- Top & bottom slabs & side walls may have to be tapered in the 2' 6" transition area to match precast culvert dimensions.
- All joints between barrel lengths to be sealed with mastic. See Special Provisions.
- No cutting will be permitted until the cutting limits have been outlined by the Contractor & approved by the Engineer. Removal and reconstruction shall conform to Spec. 2433, except as noted.
- Precast culverts to be constructed per Spec. 2411.
- 2" CONCRETE COVER ON ALL REINFORCEMENT.

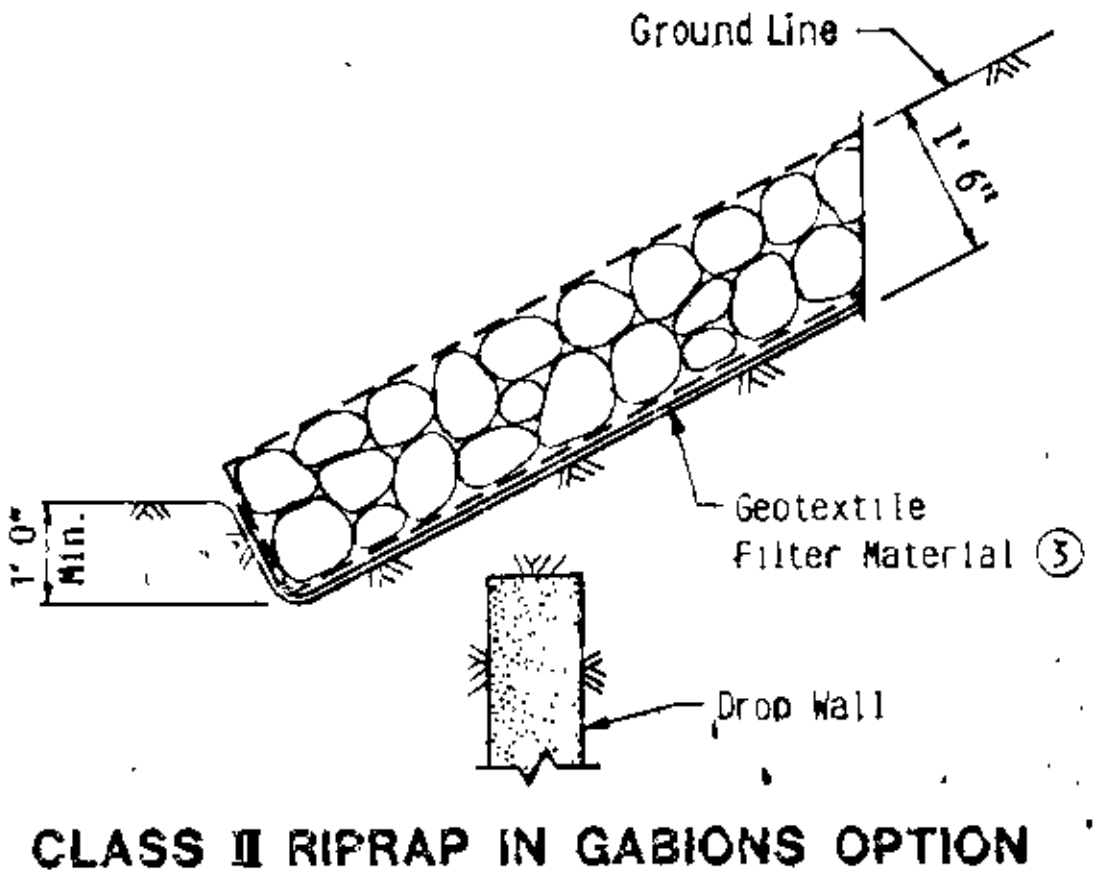
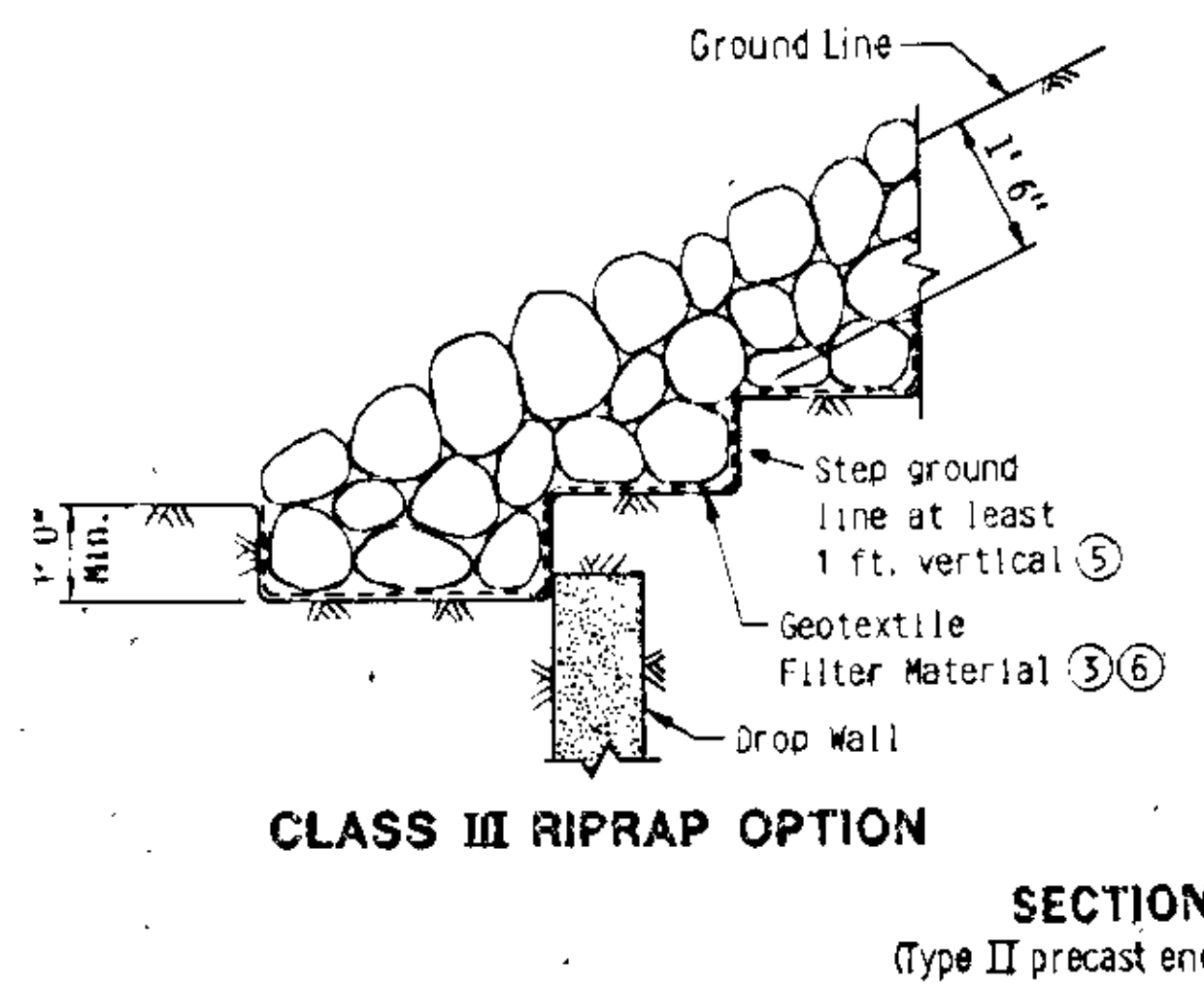
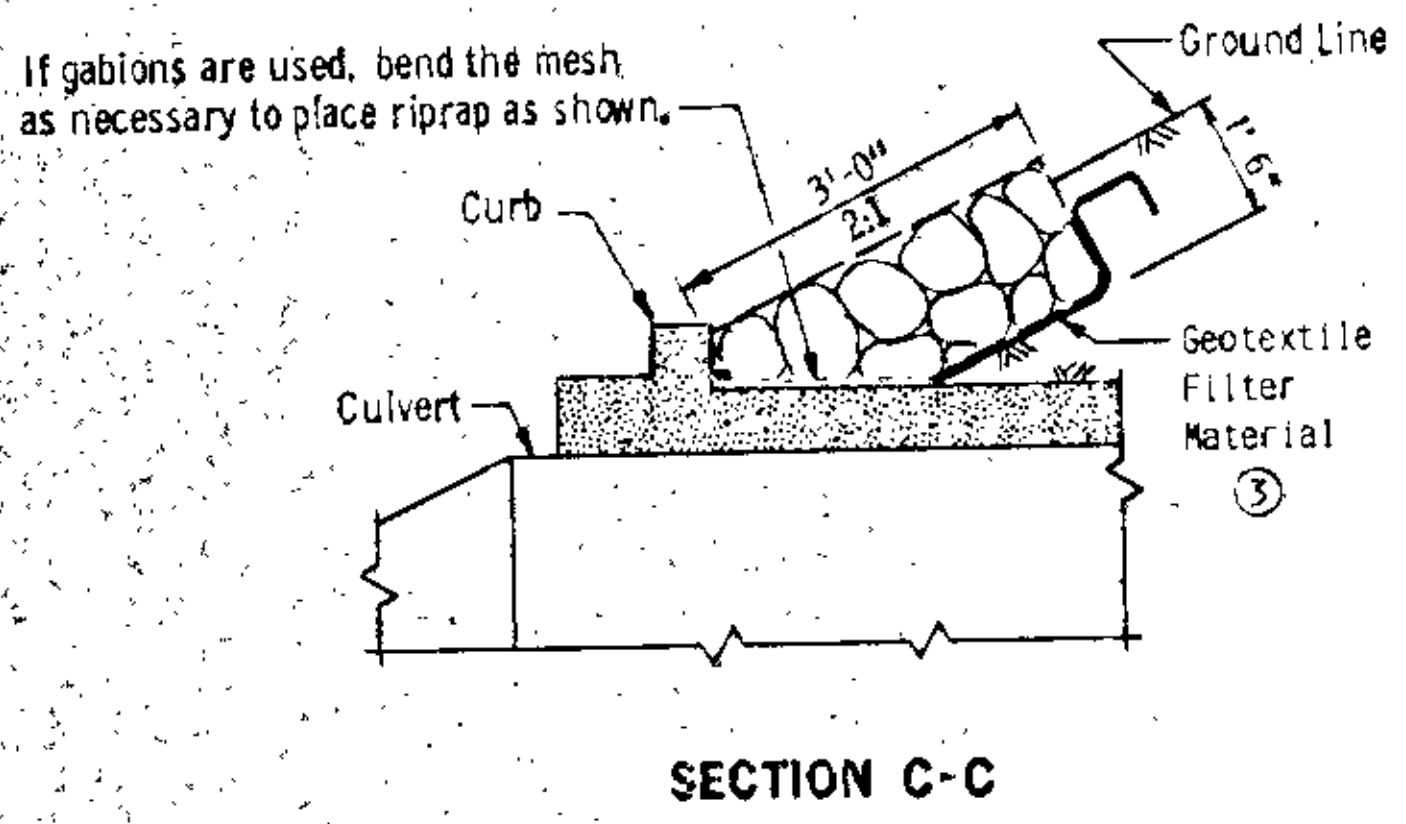
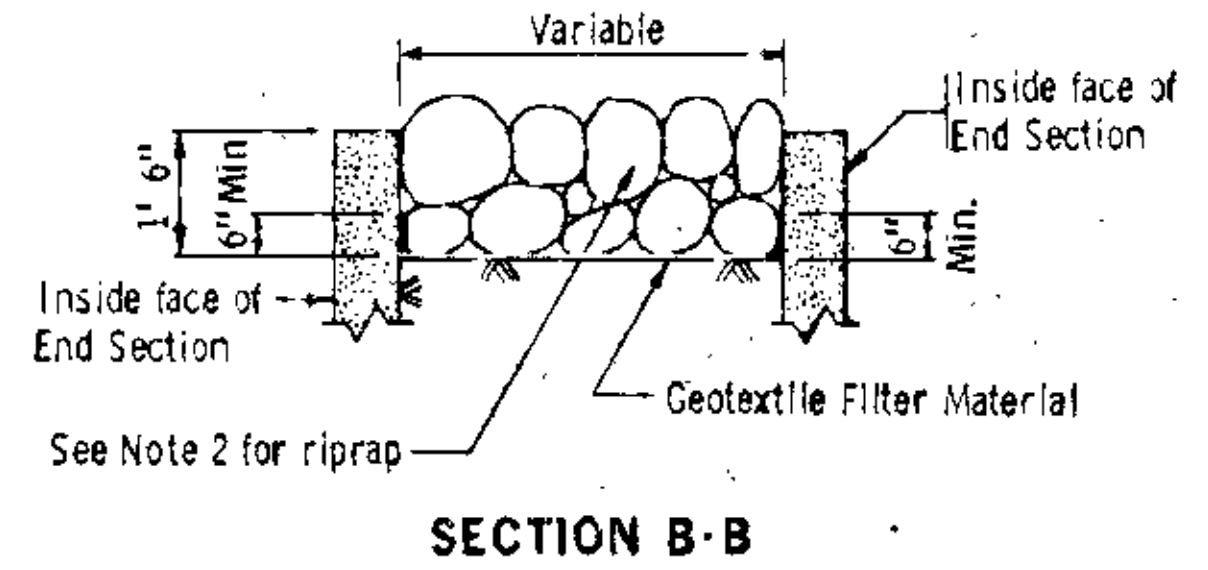
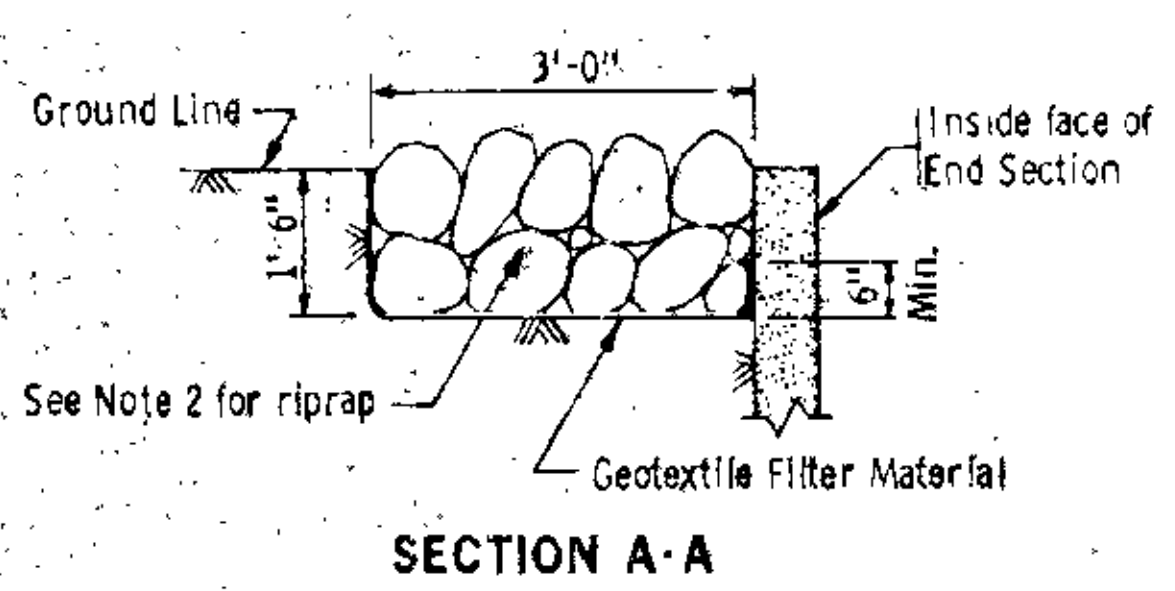
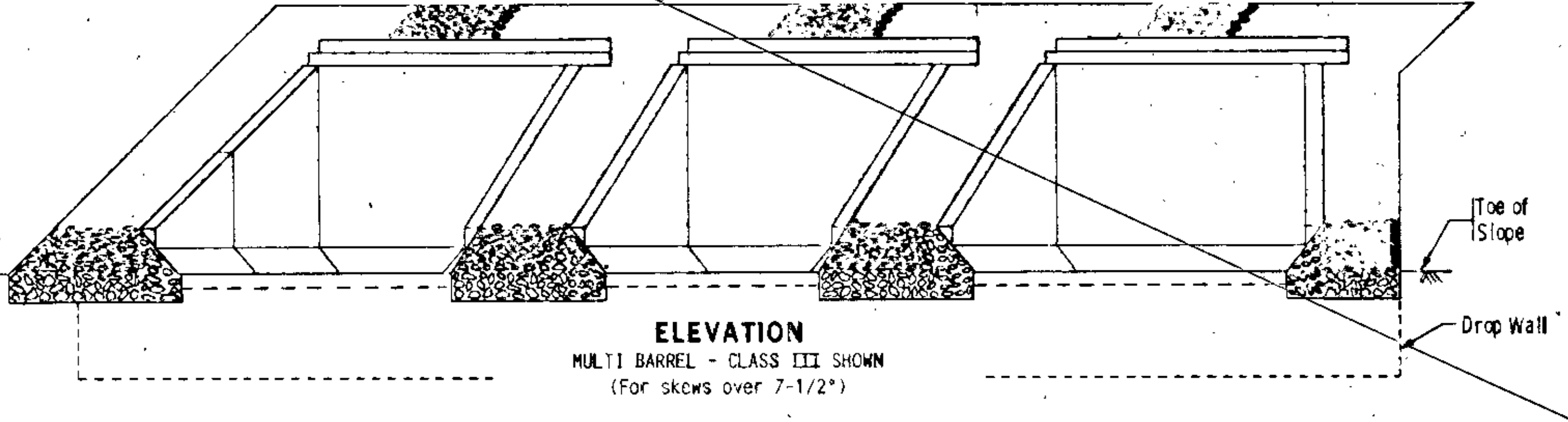
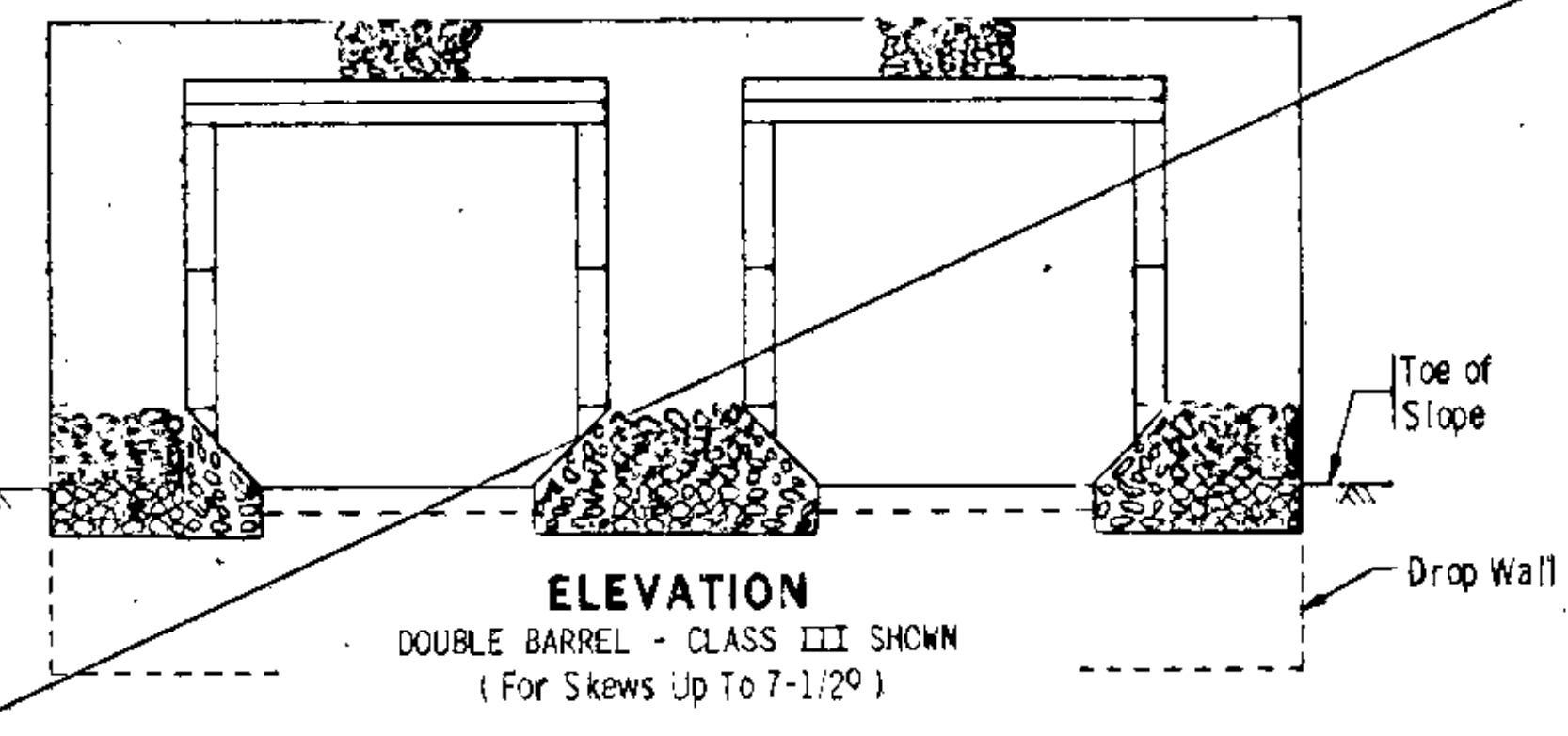
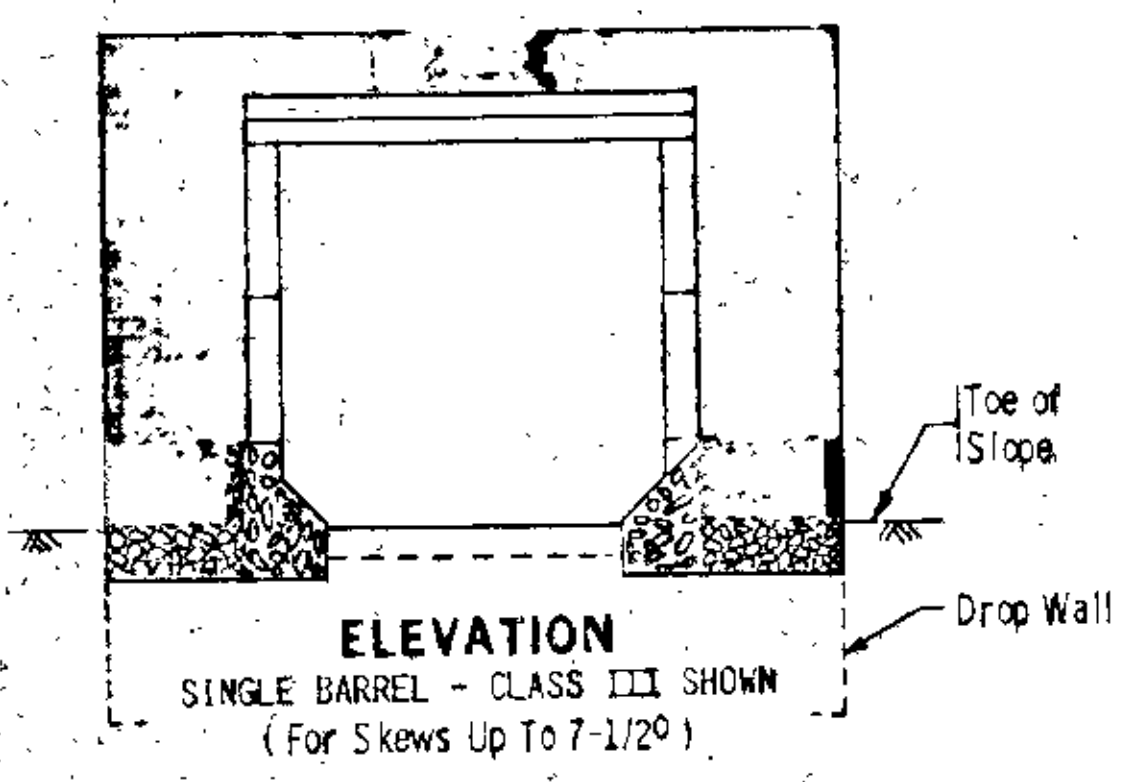
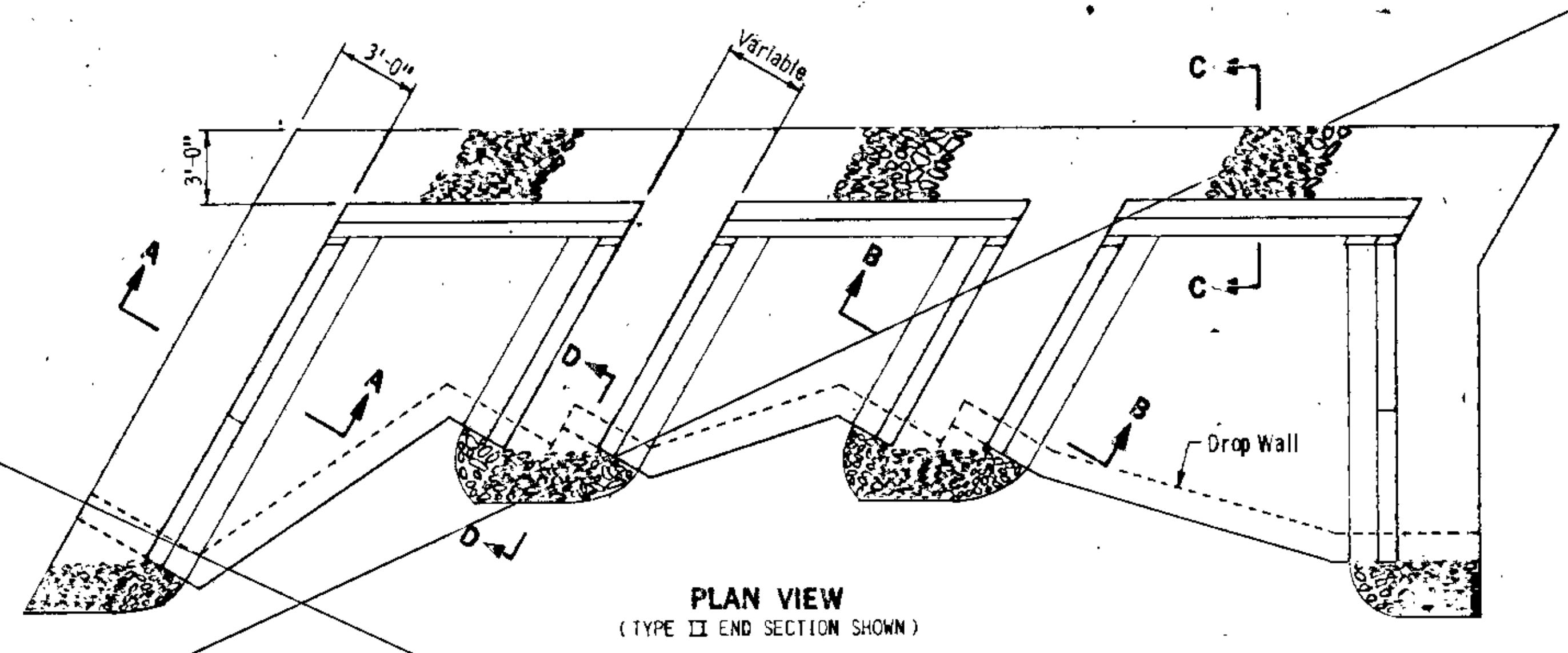
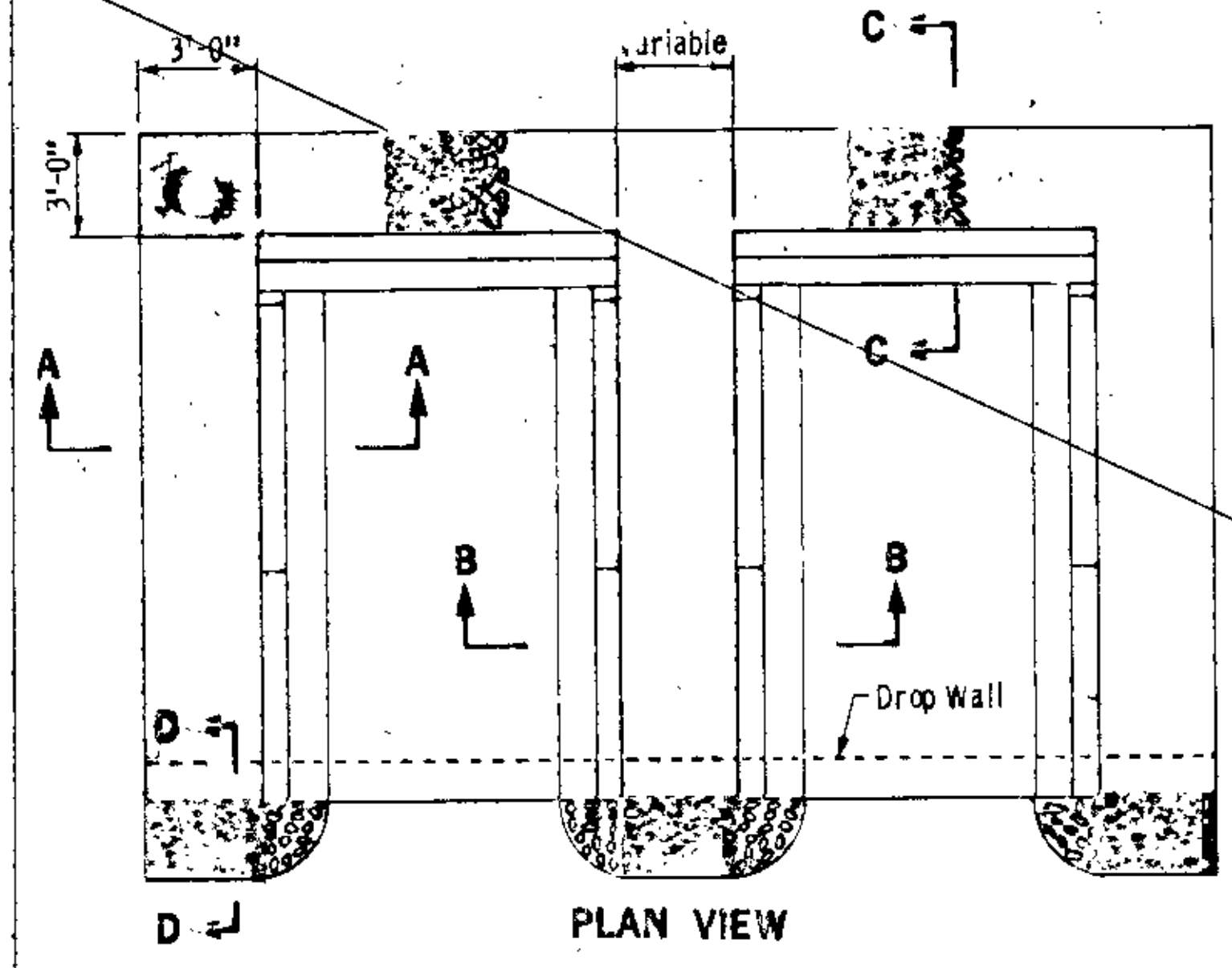
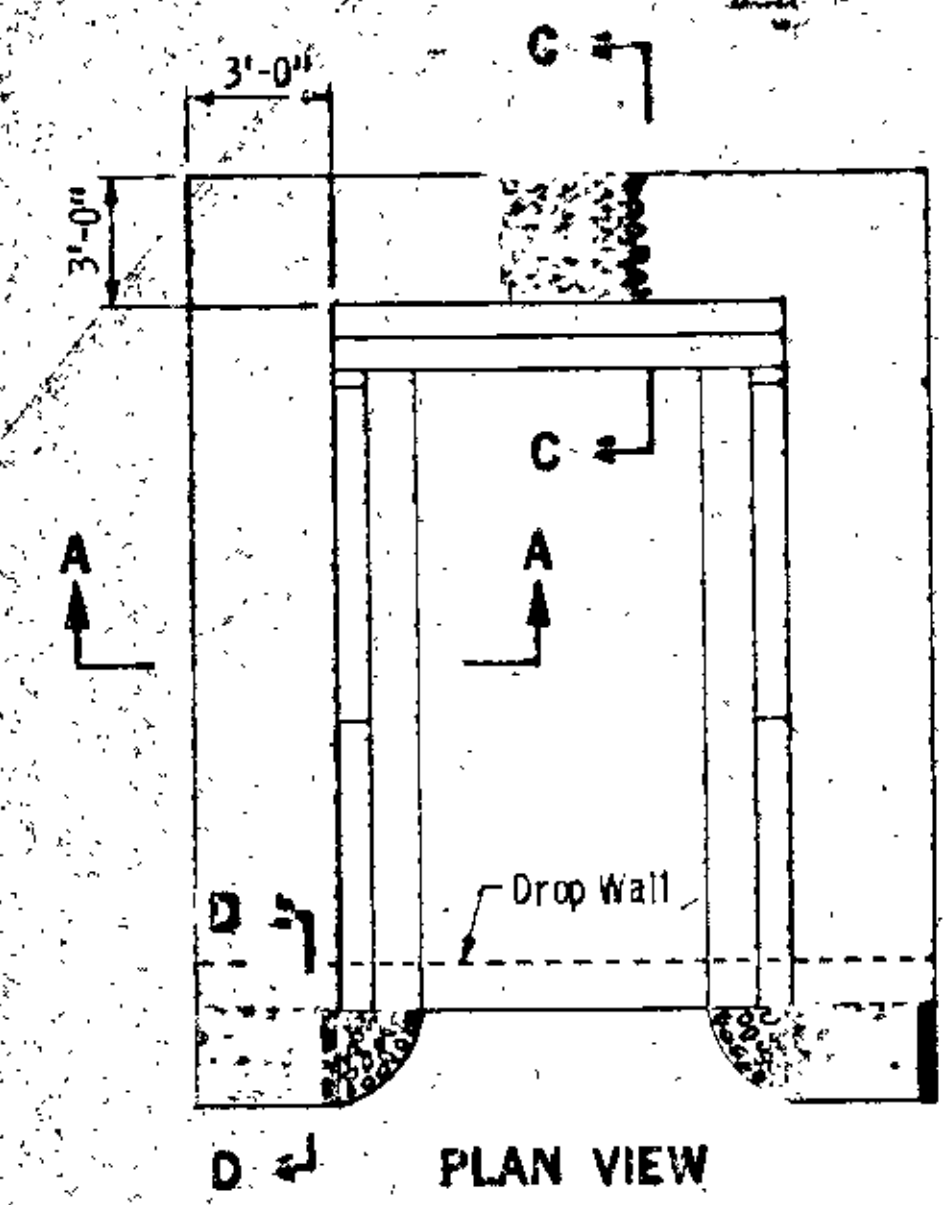
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS
- ③ CUT TO BE VERT.
- ④ Remove in place culvert wings as necessary to provide clearance for construction of side wall transition as directed by the Engineer.
- ⑤ Culvert ties are to be 1" dia. rods. See Standard Plate No. 3145 for connection details. Modify as required at 2' 6" transition. Alternate culvert ties may be used if approved by the Engineer. All holes in the barrel are to be approved by the Engineer.
- ⑥ Apply an approved epoxy bonding agent to all surfaces in contact with new concrete.
- ⑦ Cut bars as necessary in field.
- ⑧ Quantities are for one transition.
- ⑨ CAST-IN-PLACE TRANSITION. 2'-6" MIN.

TRANSITION FROM EXISTING SINGLE BARREL
CAST-IN-PLACE BOX CULVERT TO PRECAST EXTENSION
(MODIFIED)

STA. 537+02

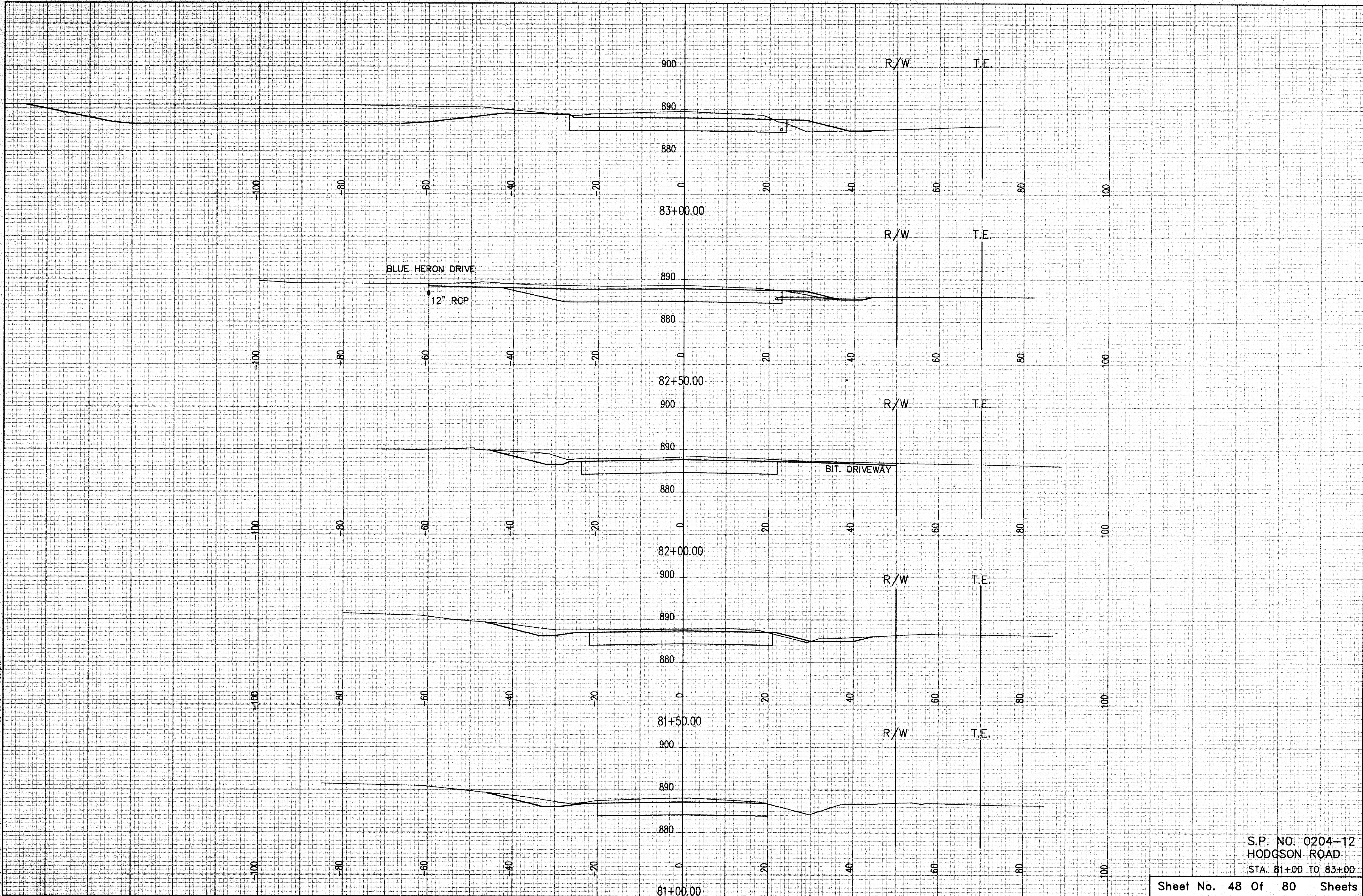
State Proj. No. S.A.P. 02-623-07

Sheet No. 46 of 80 Sheets



- NOTES:**
- See precast concrete end sections, Bridge Standard Plan Sheet 3.
 - Riprap work shall comply with Specs. 2511 and 3601. The contractor may use either Class III, with geotextile filter material, or Class II enclosed in gabions, with geotextile filter material. 4" to 8" dia. rocks may be used in gabions, if the mesh openings are 4" or less.
 - For type of geotextile filter material required, see Spec. 3733. Geotextile strips should be continuous without overlaps, except for the top strip, which should shingle vertical strips. The top edge should be buried to prevent undermining (Spec. 2511.3B).
 - Gabions shall be River Type, Code "D", 3 ft. wide x 1.5 ft. deep.
 - Slopes 2:1 to 2.99:1 must be stepped to minimize sliding potential.
 - If slopes are not stepped, Granular Filter should be used.

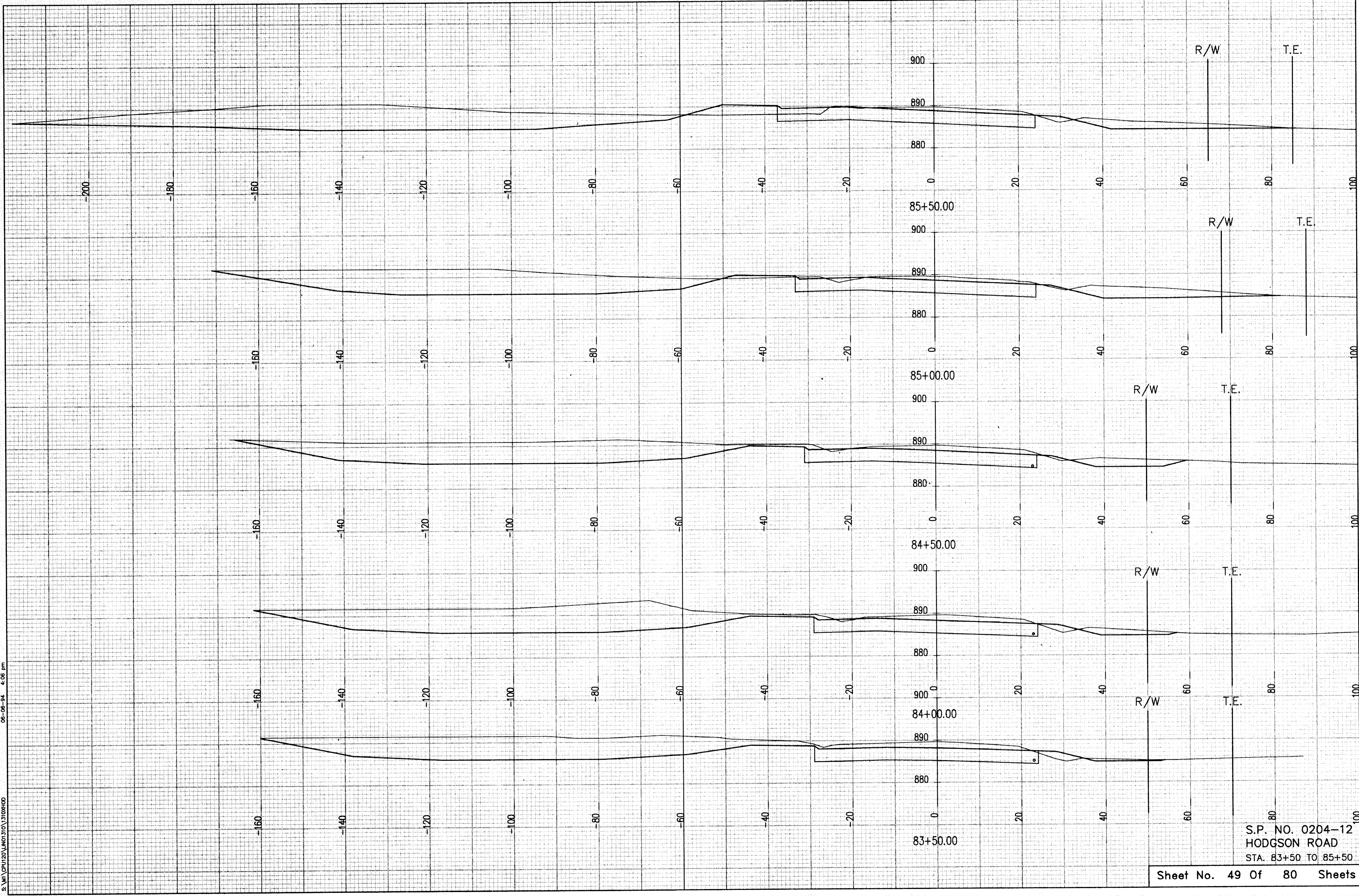
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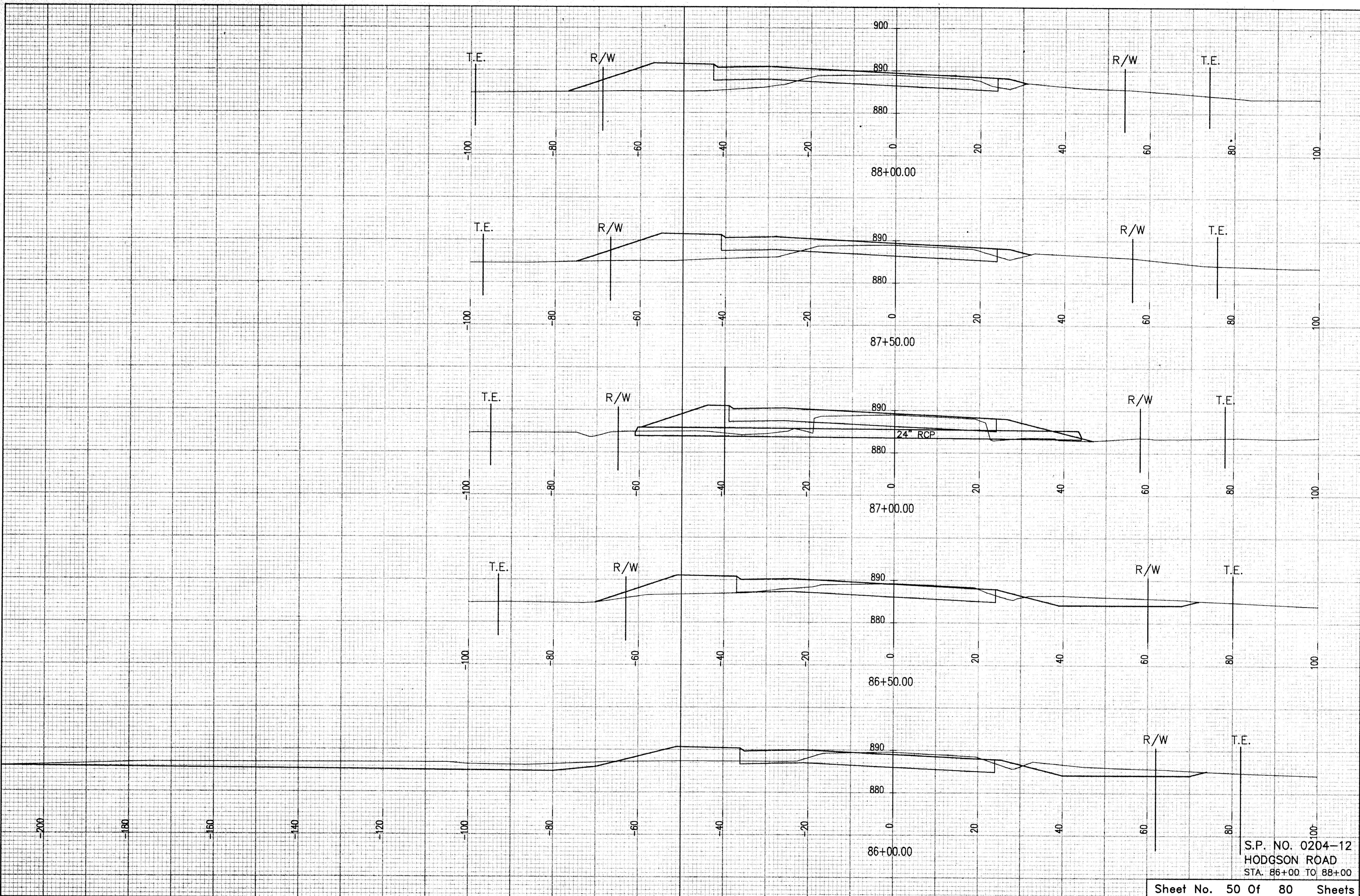
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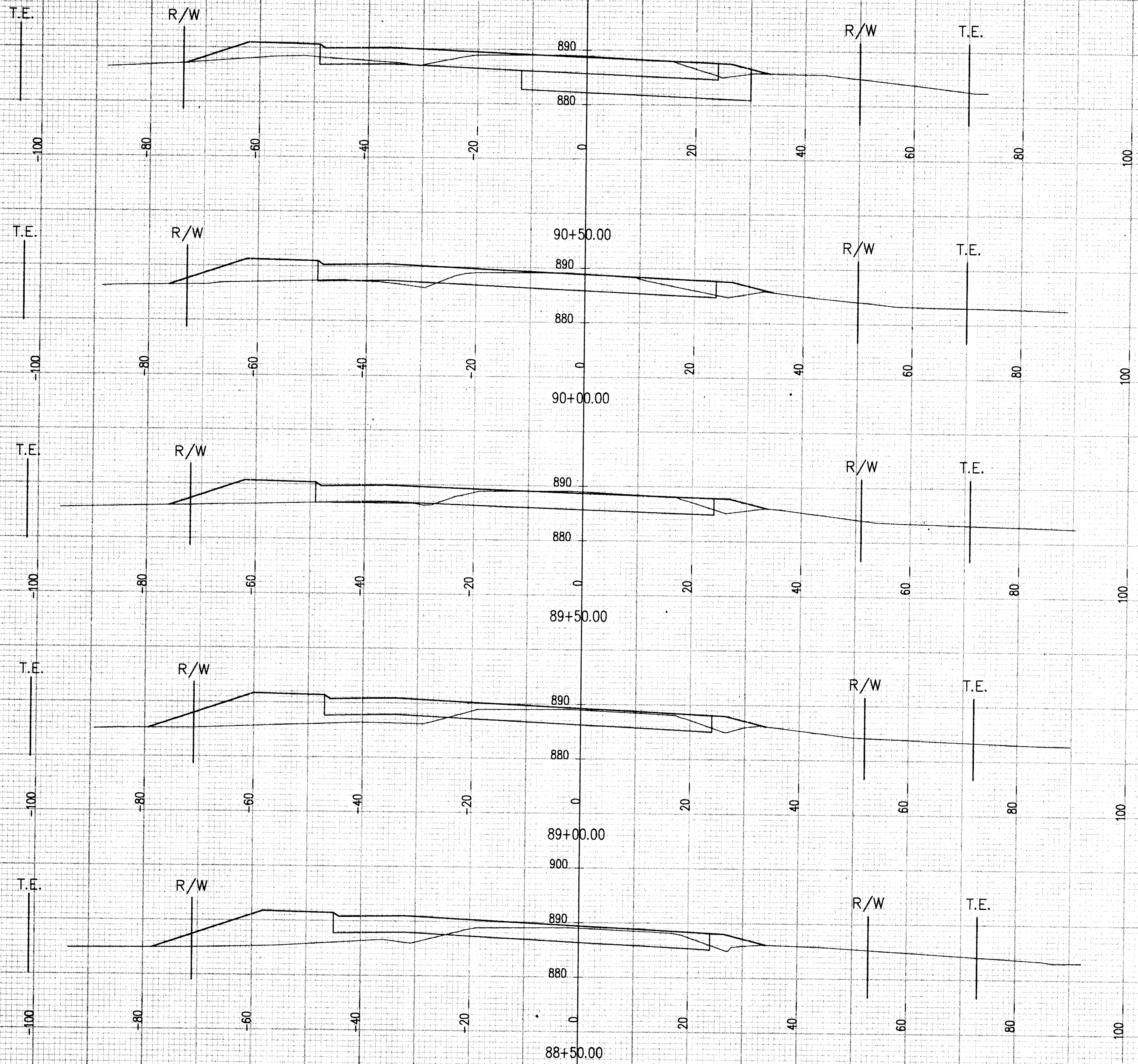
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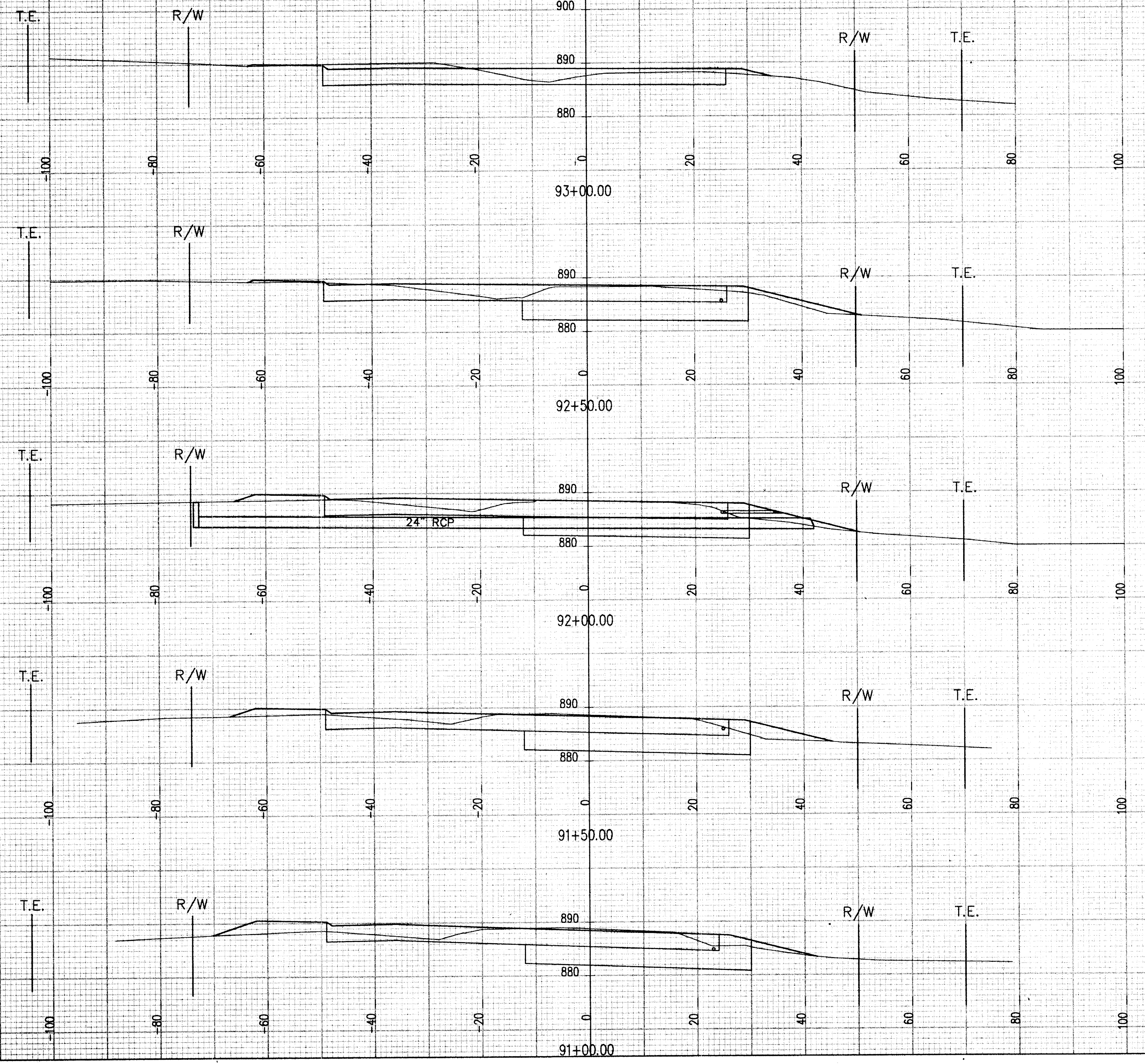
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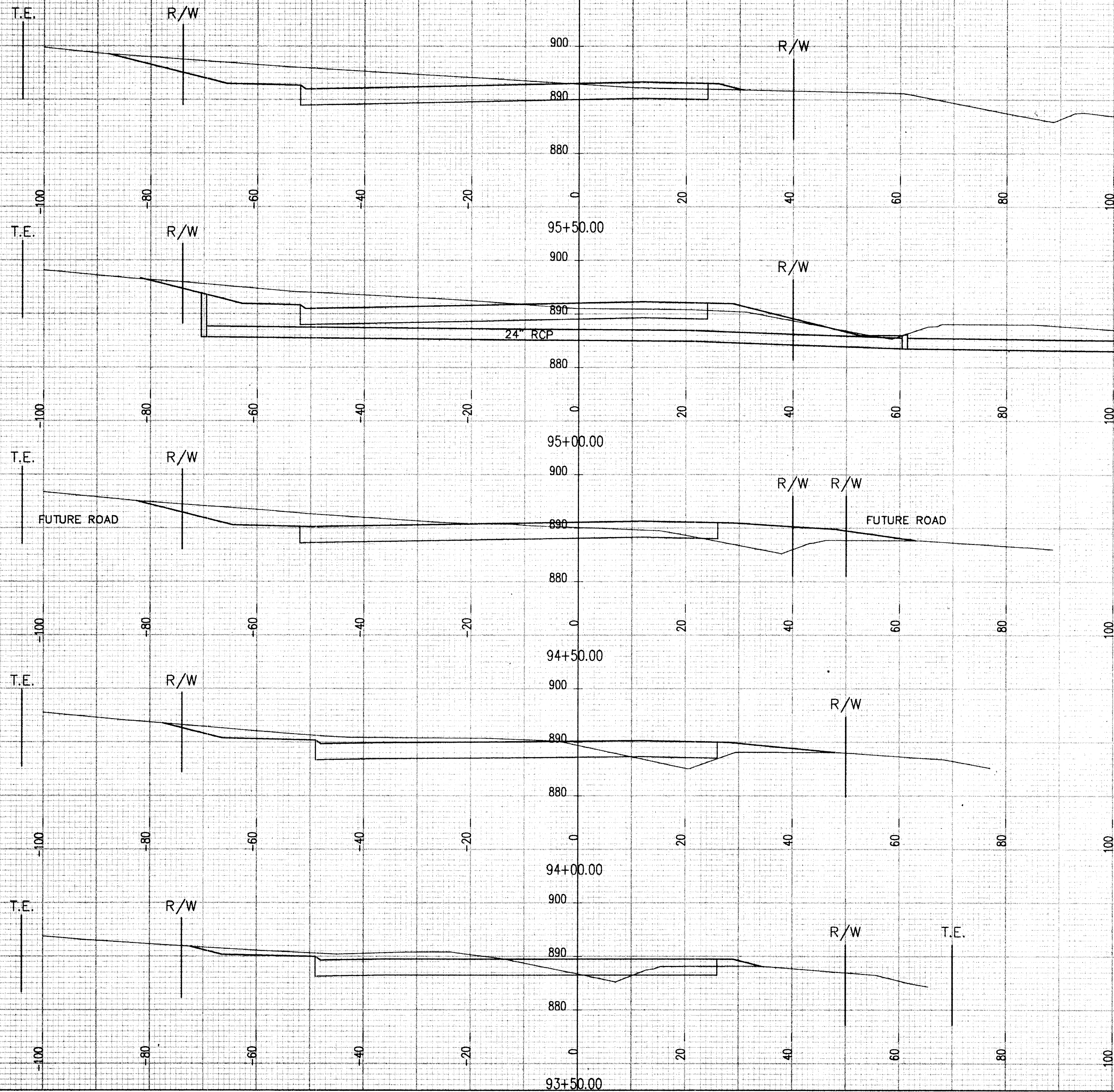
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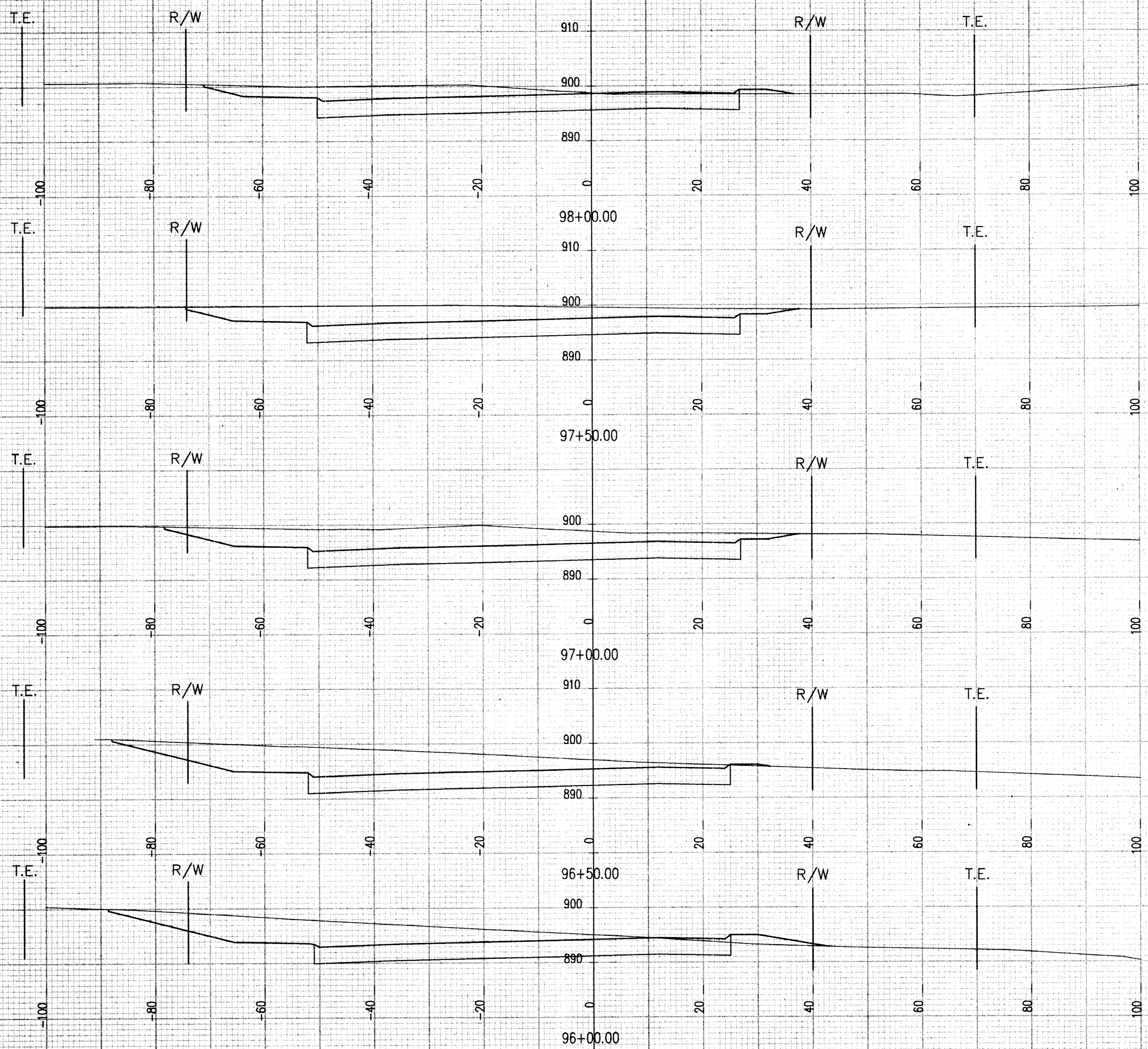
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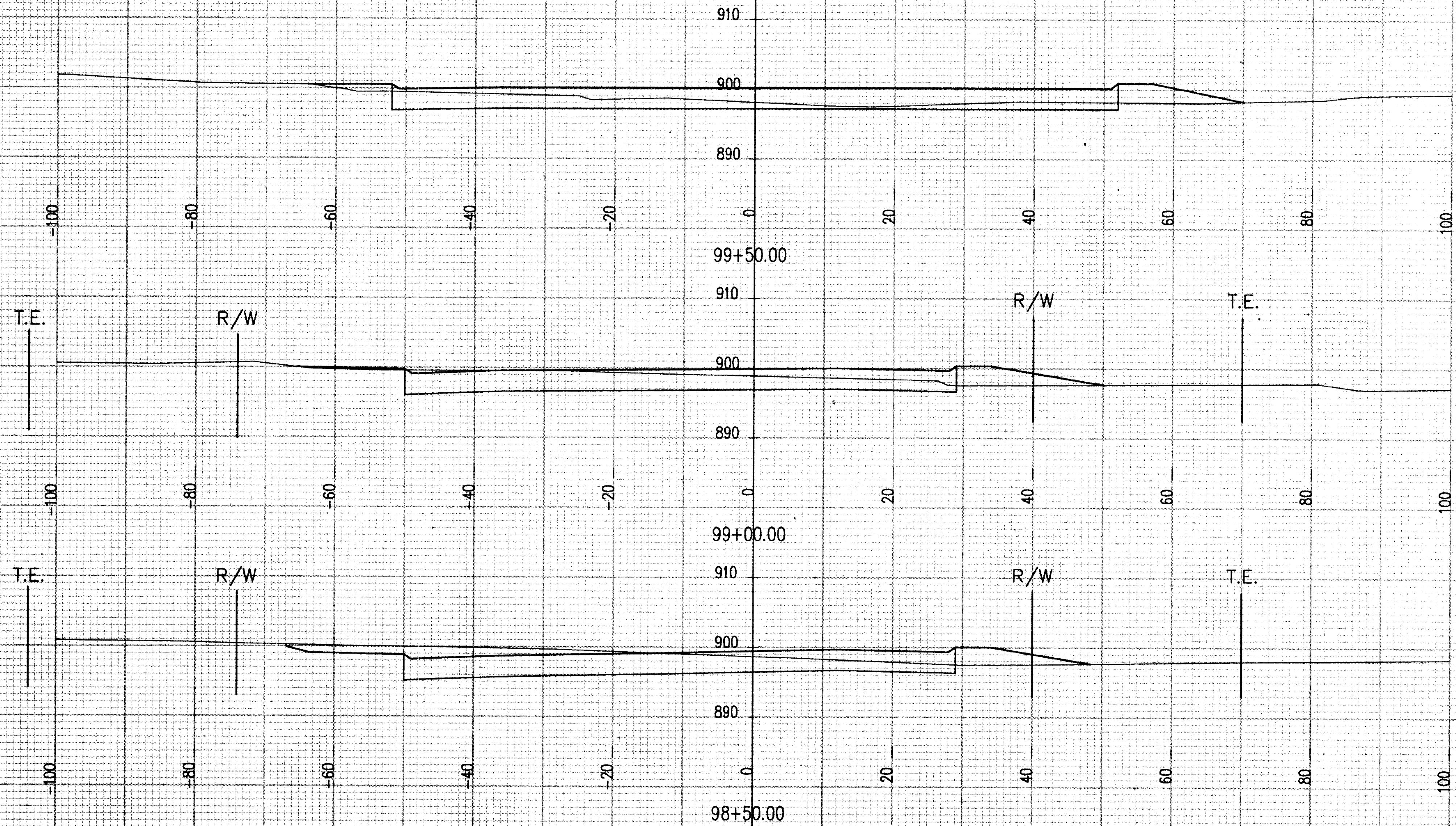
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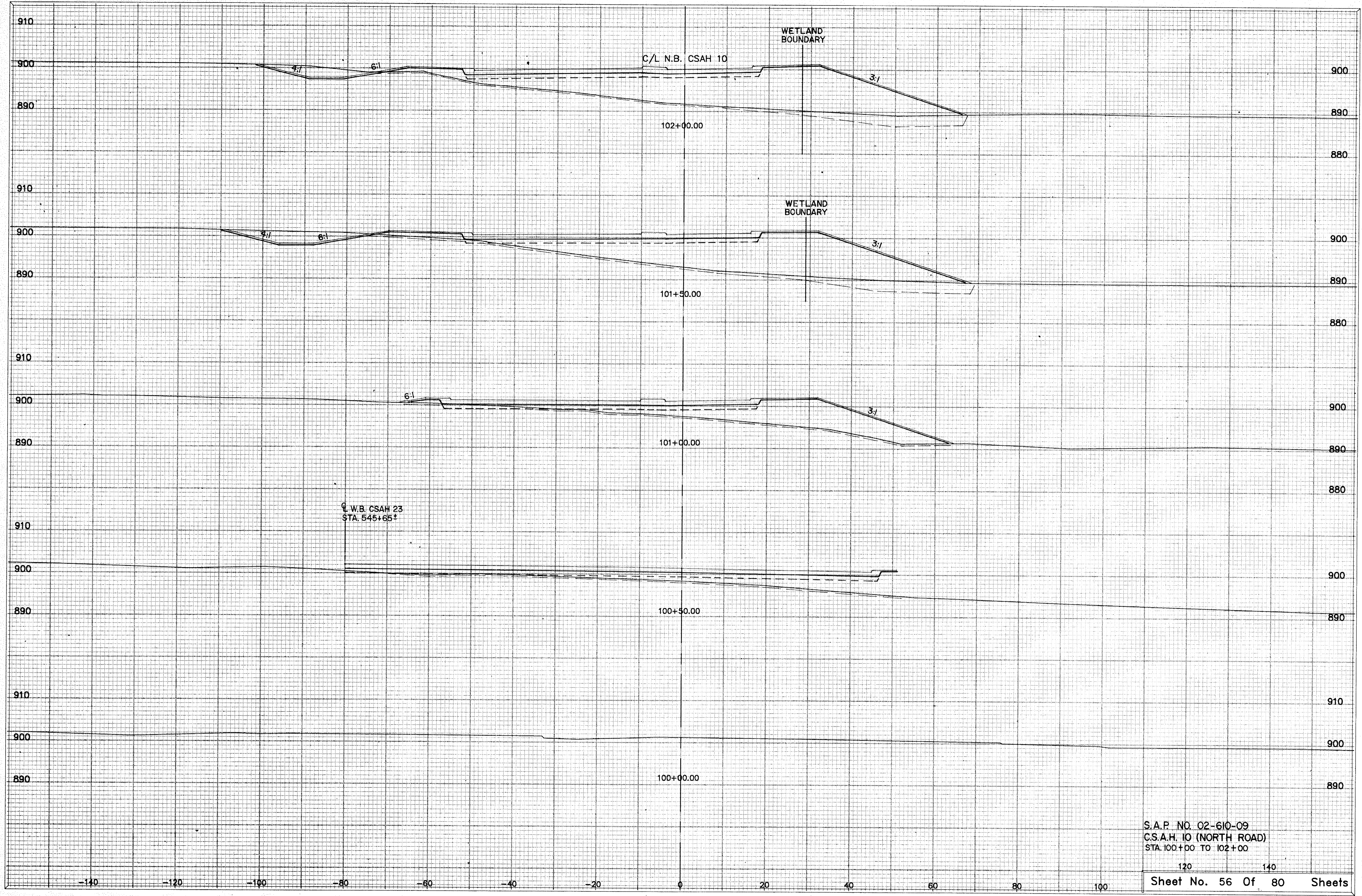
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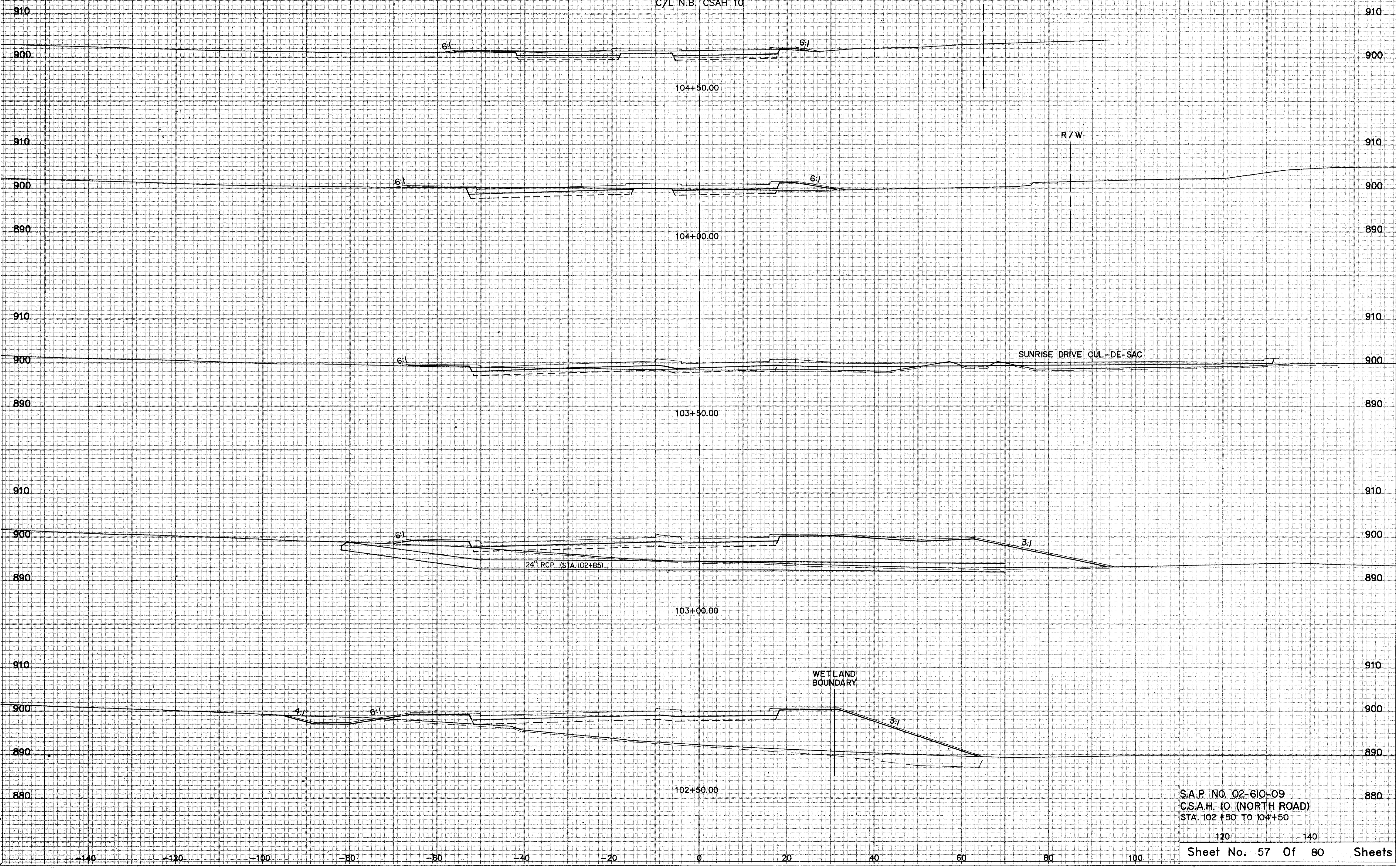
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 STA. 100+00 TO 102+00

C/L N.B. CSAH 10

R/W

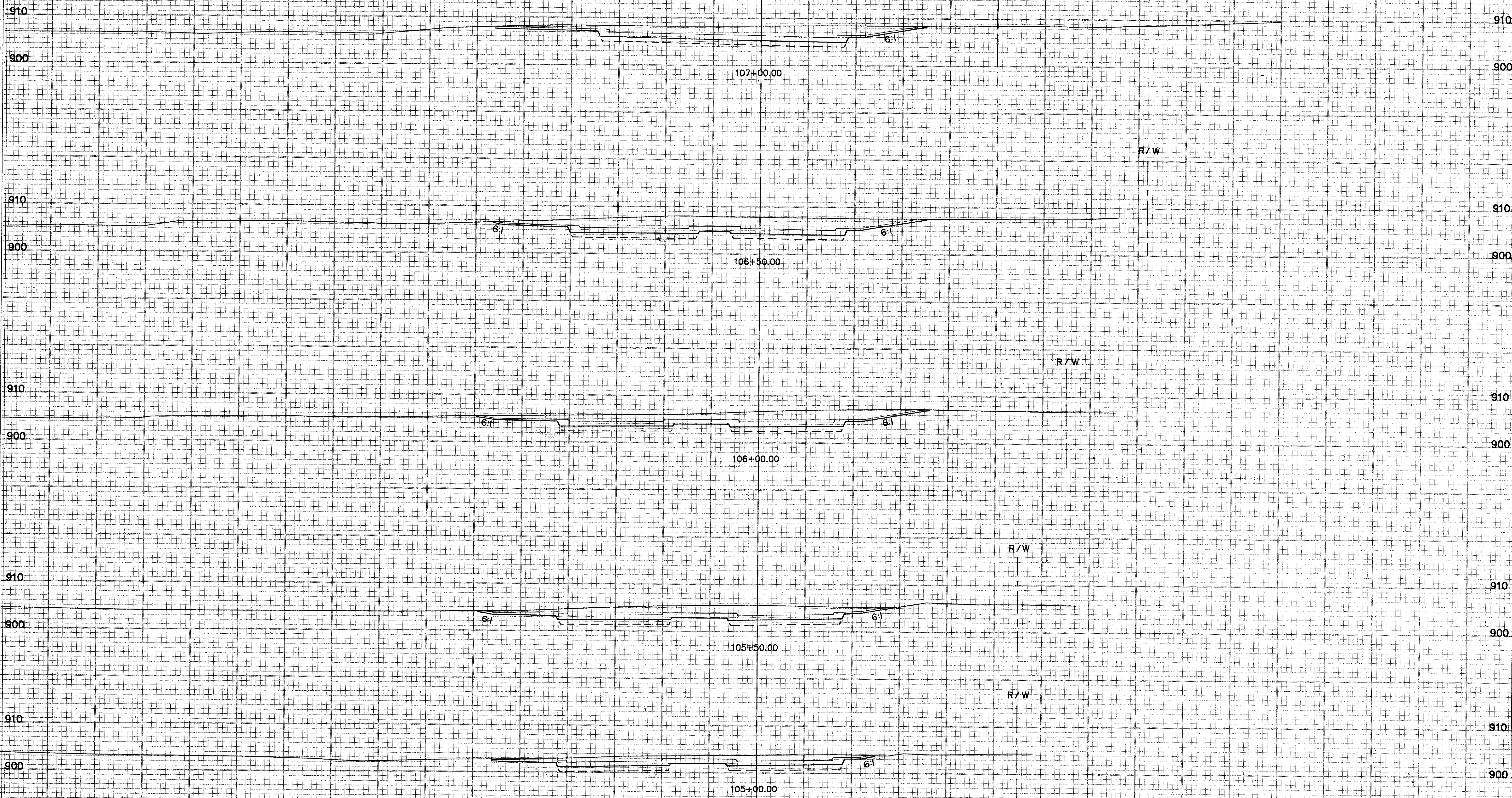


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 STA. 102+50 TO 104+50

120 140

C/L N.B. CSAH 10

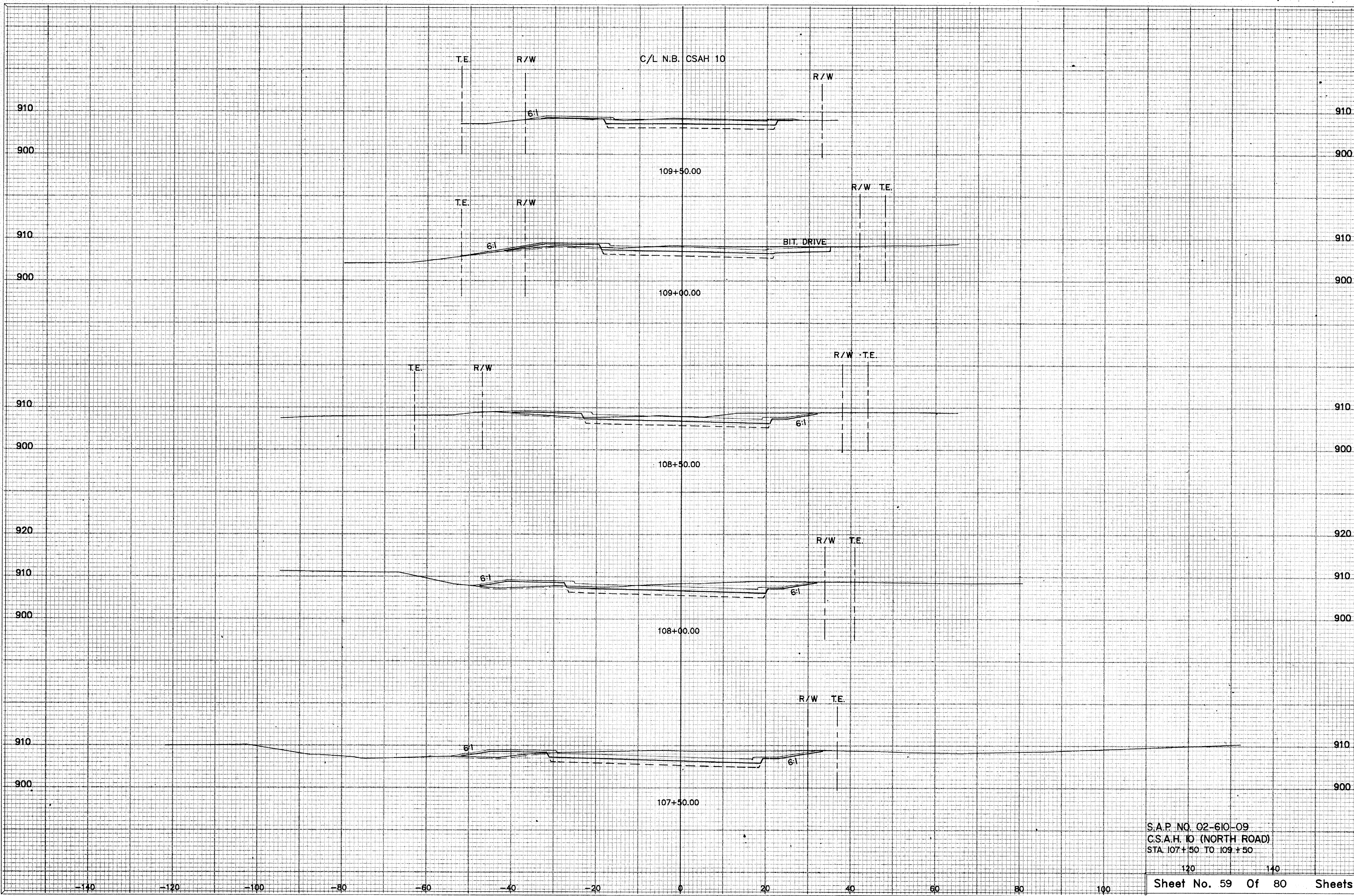
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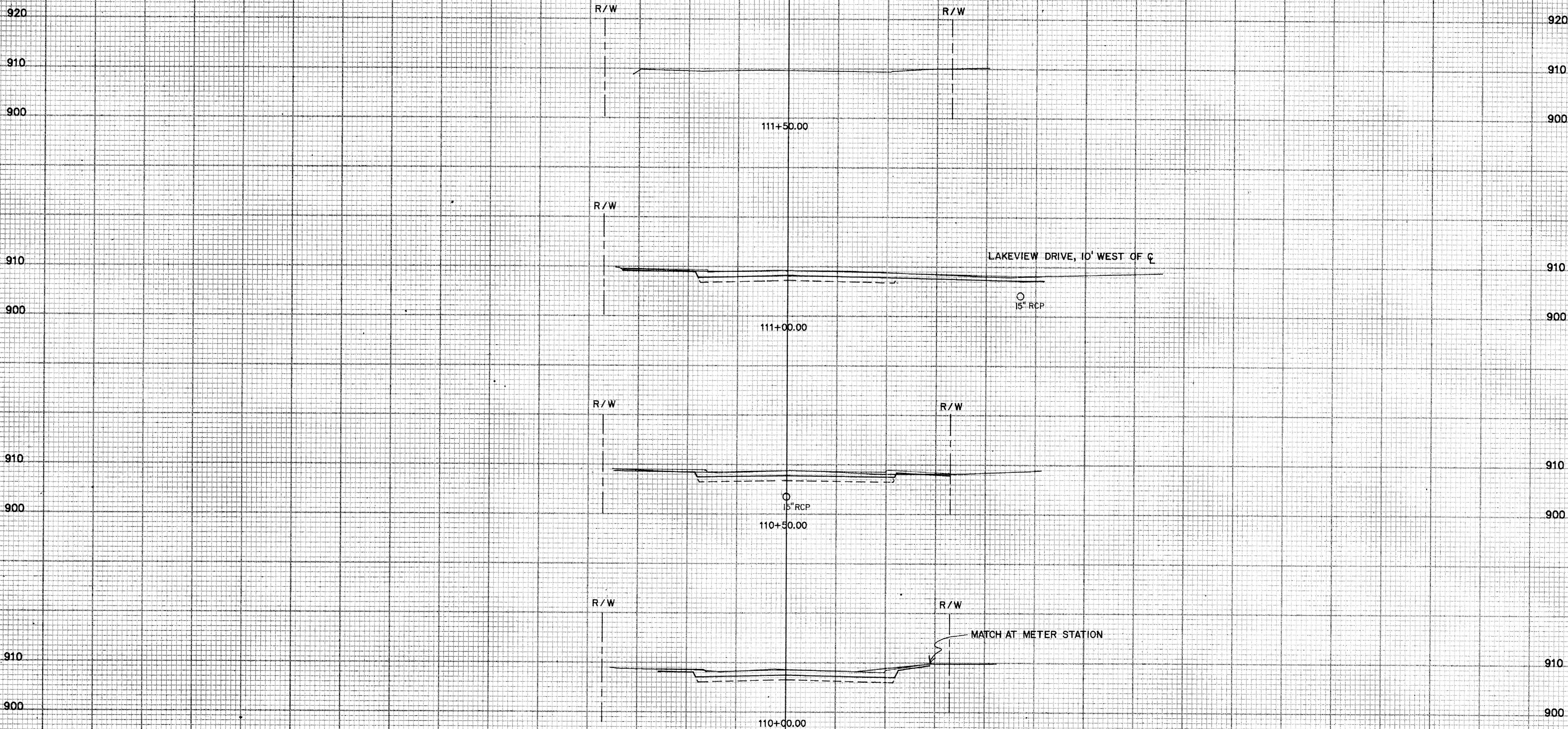
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C/L N.B. CSAH 10



S.A.P. NO. 02-610-09
C.S.A.H. 10 (NORTH ROAD)
STA 107+50 TO 109+50

C/L N.B. CSAH 10



S.A.P. NO. 02-610-09
C.S.A.H. 10 (NORTH ROAD)
STA. 110+00 TO 111+50

120 140

R/W @ 162'

N.B.
BASELINE

R/W

920

910

525+50.00

900

0

20

40

R/W

920

910

525+00.00

900

0

20

40

R/W

920

910

524+50.00

900

0

20

40

R/W

920

910

524+00.00

900

0

20

40

R/W

920

910

523+50.00

900

0

20

40

R/W

R/W @ 162'

R/W @ 162'

R/W @ 162'

R/W @ 162'

-80

-60

-40

-20

-80

-60

-40

-20

-80

-60

-40

-20

-80

-60

-40

-20

-80

-60

-40

-20

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LAKE DRIVE
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Sheet No. 62 Of 80 Sheets

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R/W @ 162'

R/W @ 162'

R/W @ 162'

R/W @ 162'

R/W @ 162'

N.B.
BASELINE

920

528+00.00

900

0

20

40

R/W

920

527+50.00

900

0

20

40

R/W

920

527+00.00

900

0

20

40

R/W

920

526+50.00

900

0

20

40

R/W

920

526+00.00

900

0

20

40

R/W

S.A.P. NO. 02-623-07

LAKE DRIVE

STA. 526+00 TO 528+00

Sheet No. 63 Of 80 Sheets

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R/W @ 162'

N.B.
BASELINE

R/W

910
530+50.00
900
0 20 40

-100 -80 -60 -40 -20

R/W @ 162'

R/W

920
910
530+00.00
900
0 20 40

-100 -80 -60 -40 -20

R/W @ 162'

R/W

920
910
529+50.00
900
0 20 40

-100 -80 -60 -40 -20

R/W @ 162'

R/W

920
910
529+00.00
900
0 20 40

-100 -80 -60 -40 -20

R/W @ 162'

R/W

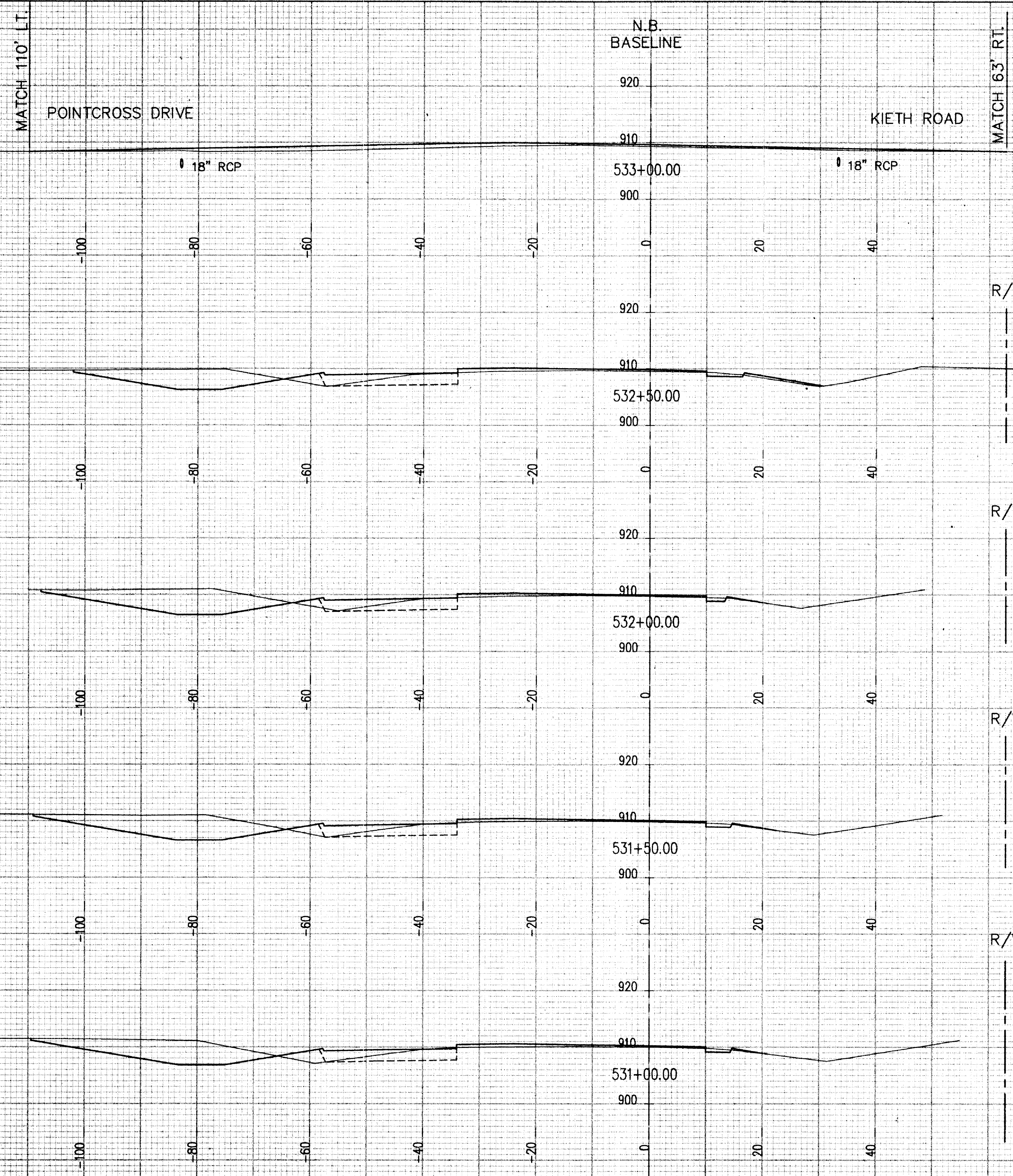
920
910
528+50.00
900
0 20 40

-100 -80 -60 -40 -20

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STA. 528+50 TO 530+50

Sheet No. 64 Of 80 Sheets

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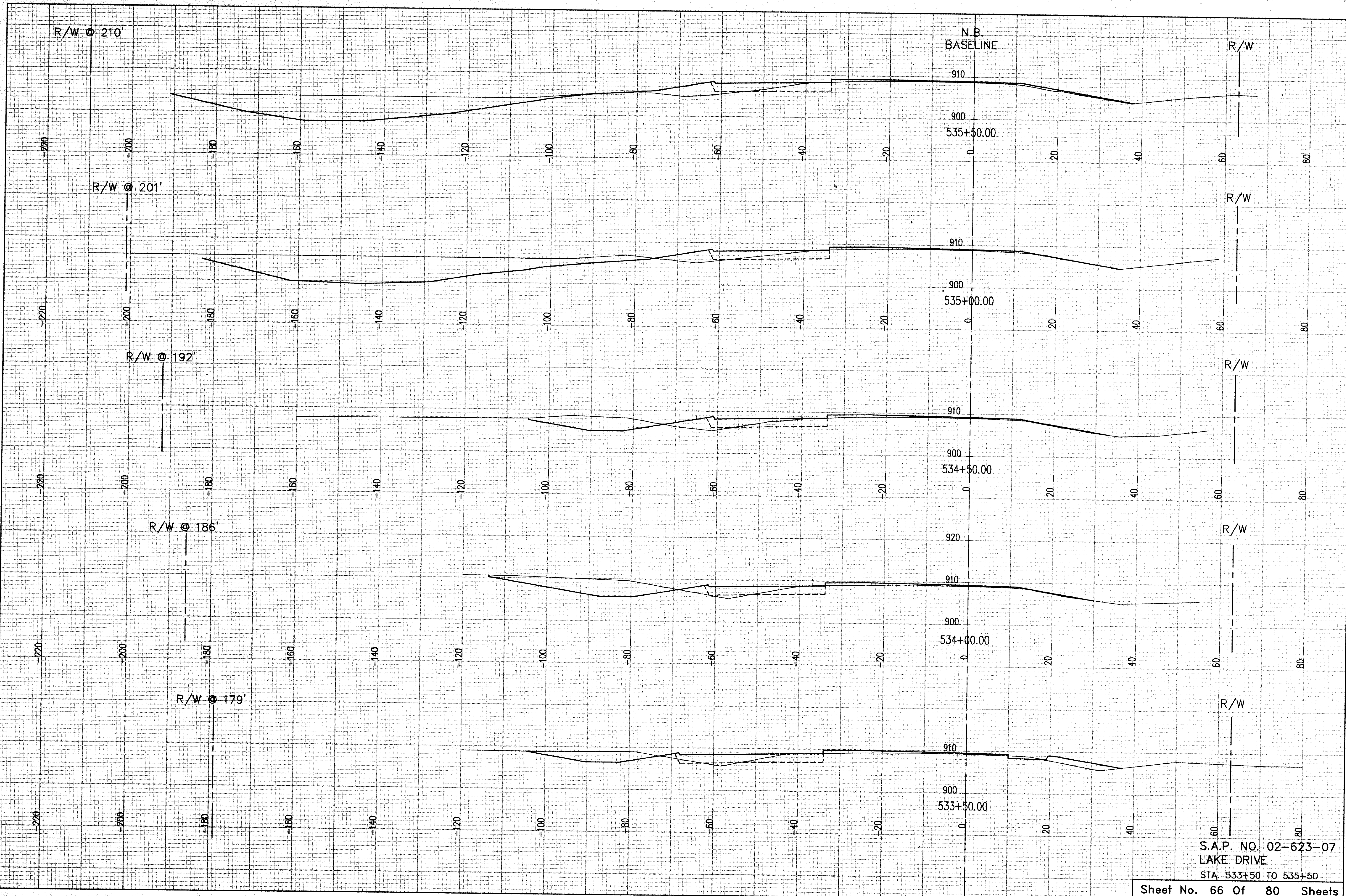
R/W @ 171'

R/W @ 167'

R/W @ 164'

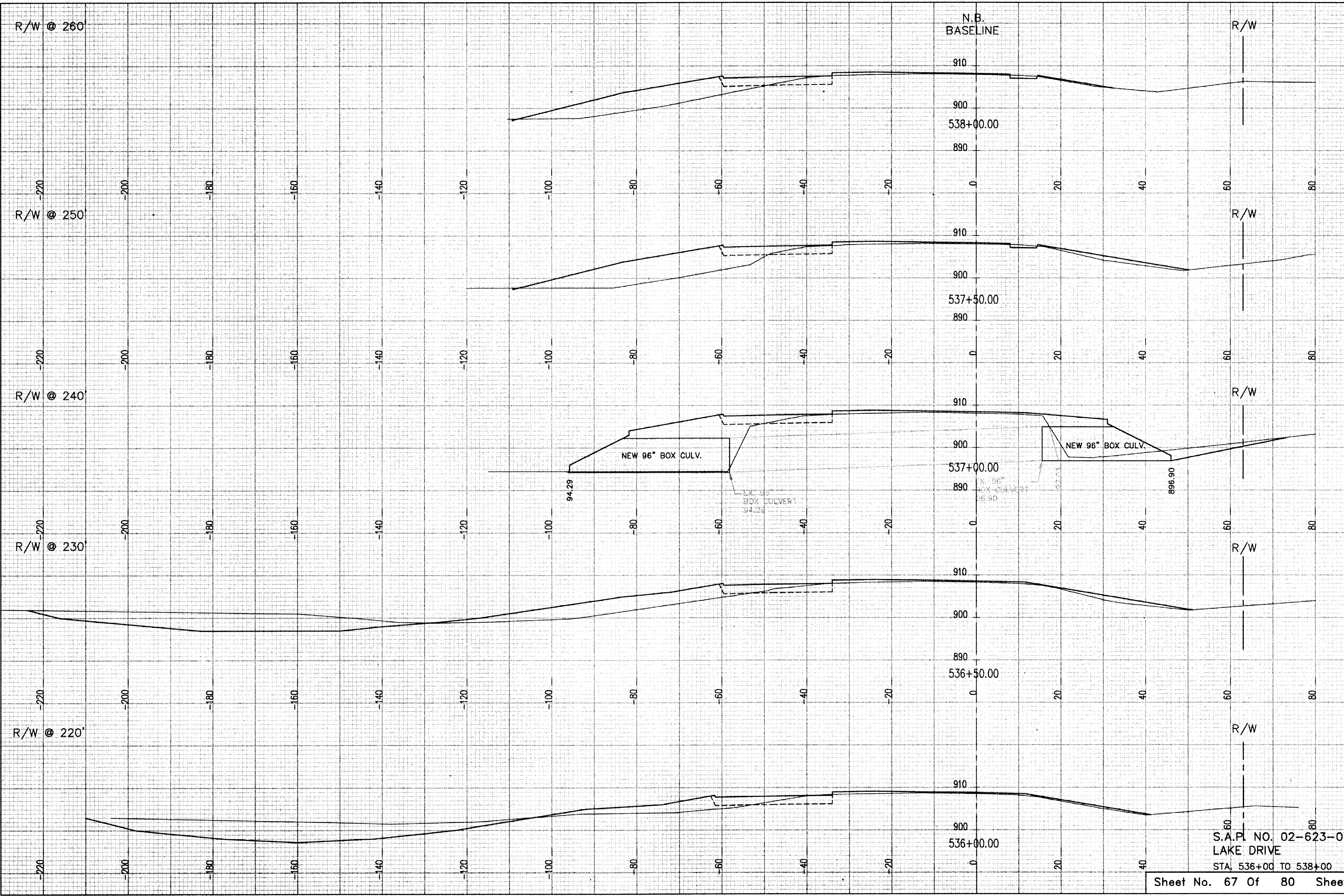
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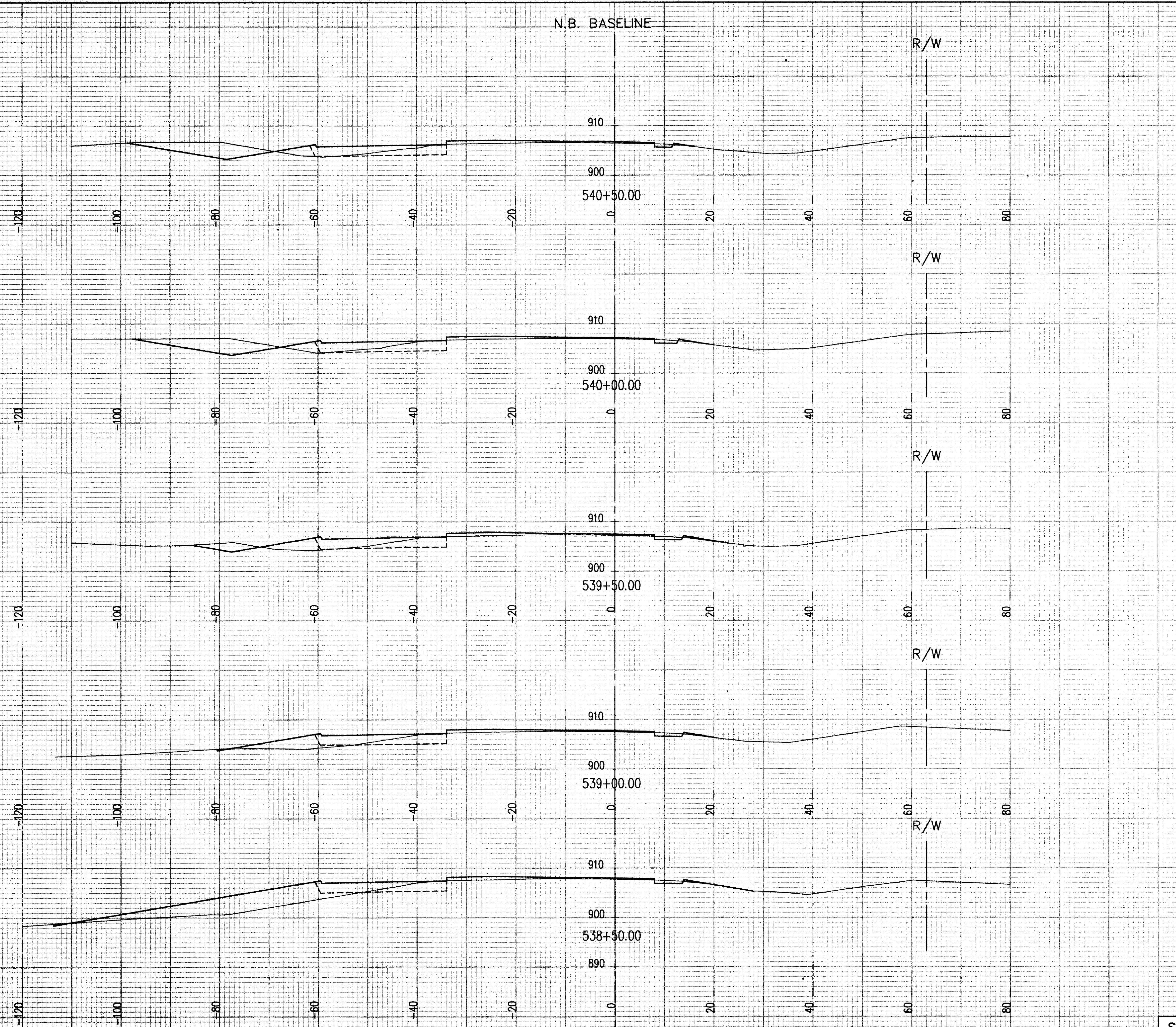
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R/W @ 297'

R/W @ 288'

R/W @ 278'

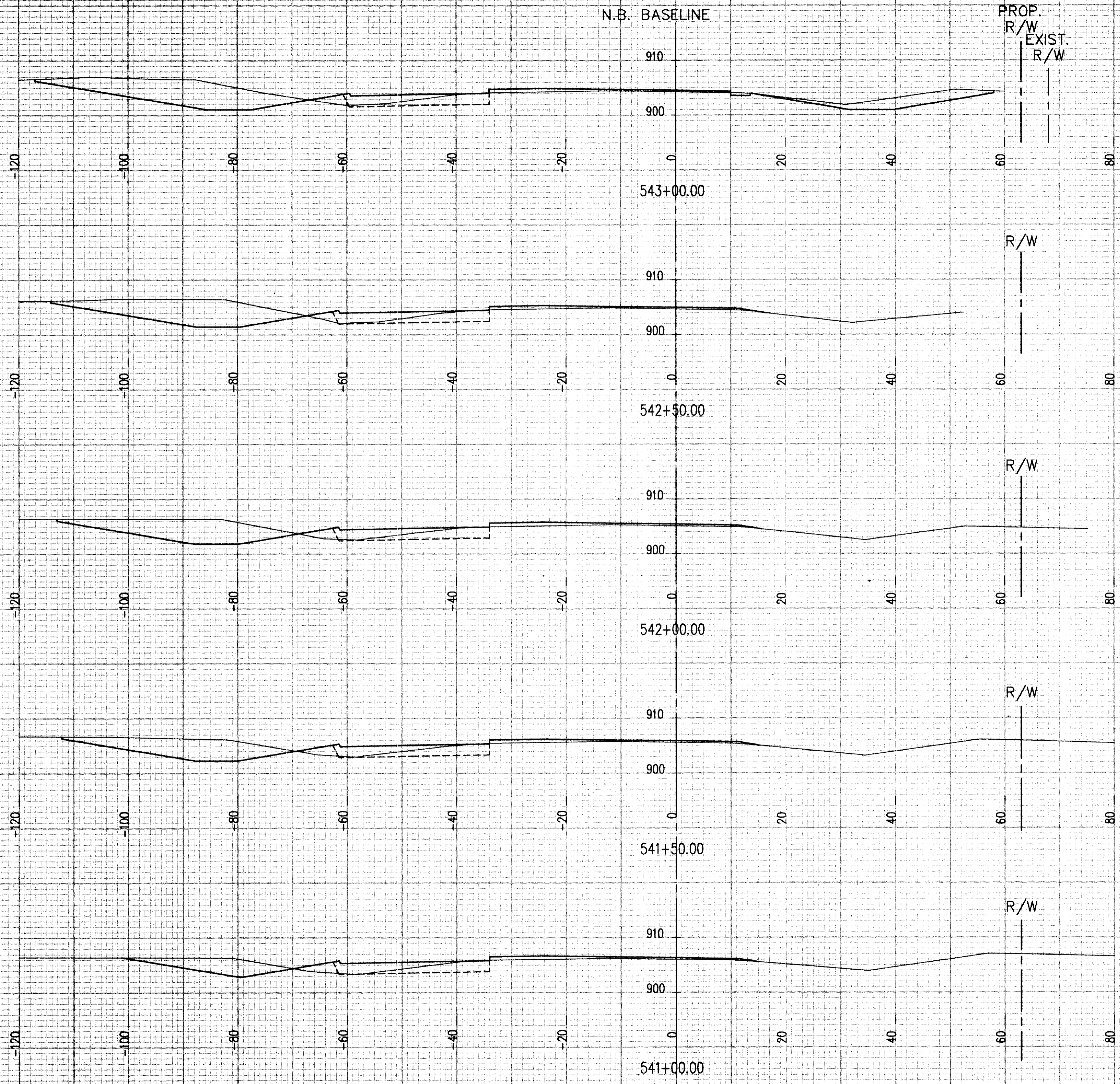
R/W @ 268'



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STA. 538+50 TO 540+50

N.B. BASELINE



PROP.
R/W
EXIST.
R/W

R/W

R/W

R/W

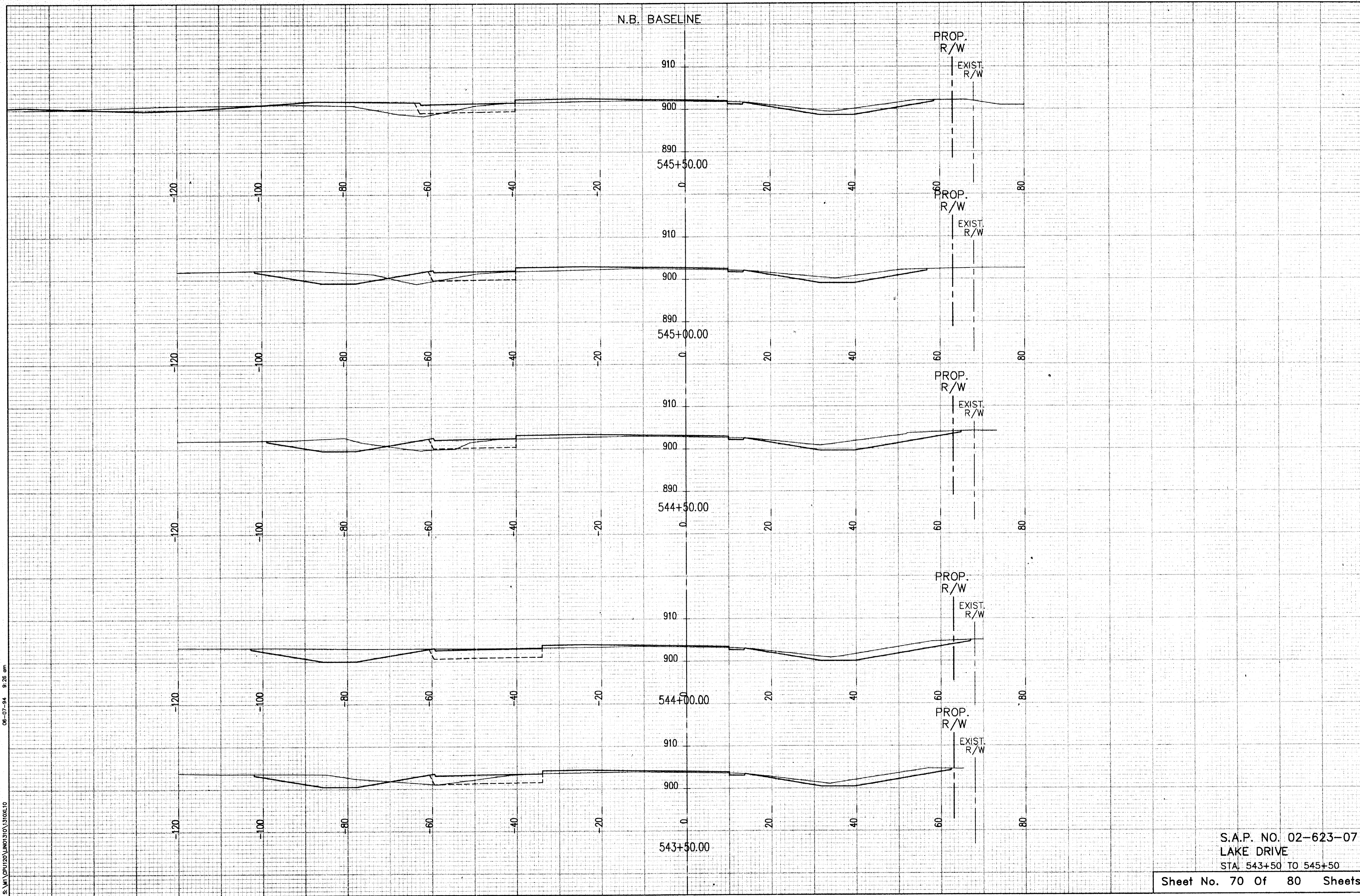
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Sheet No. 69 Of 80 Sheets

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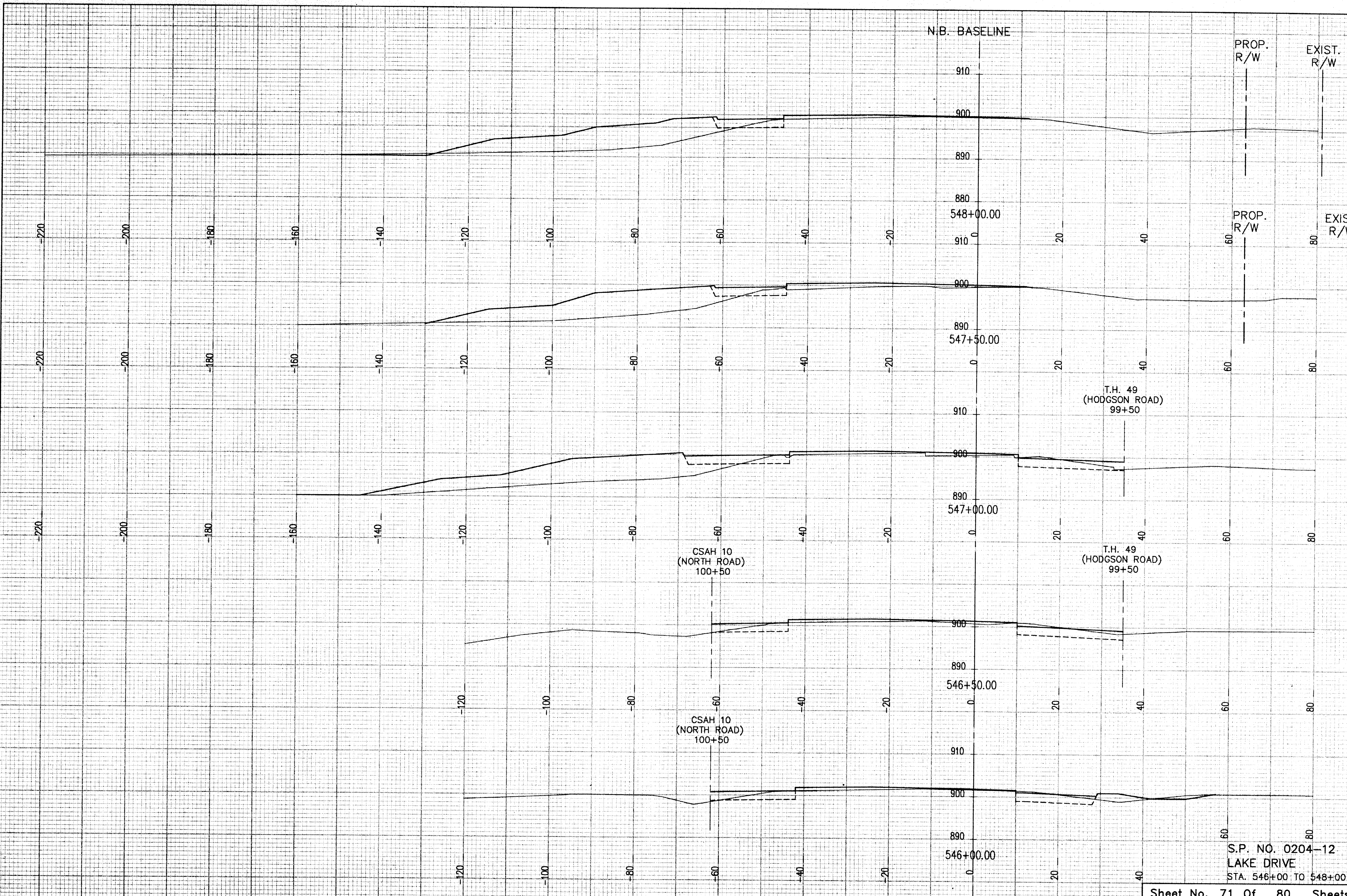


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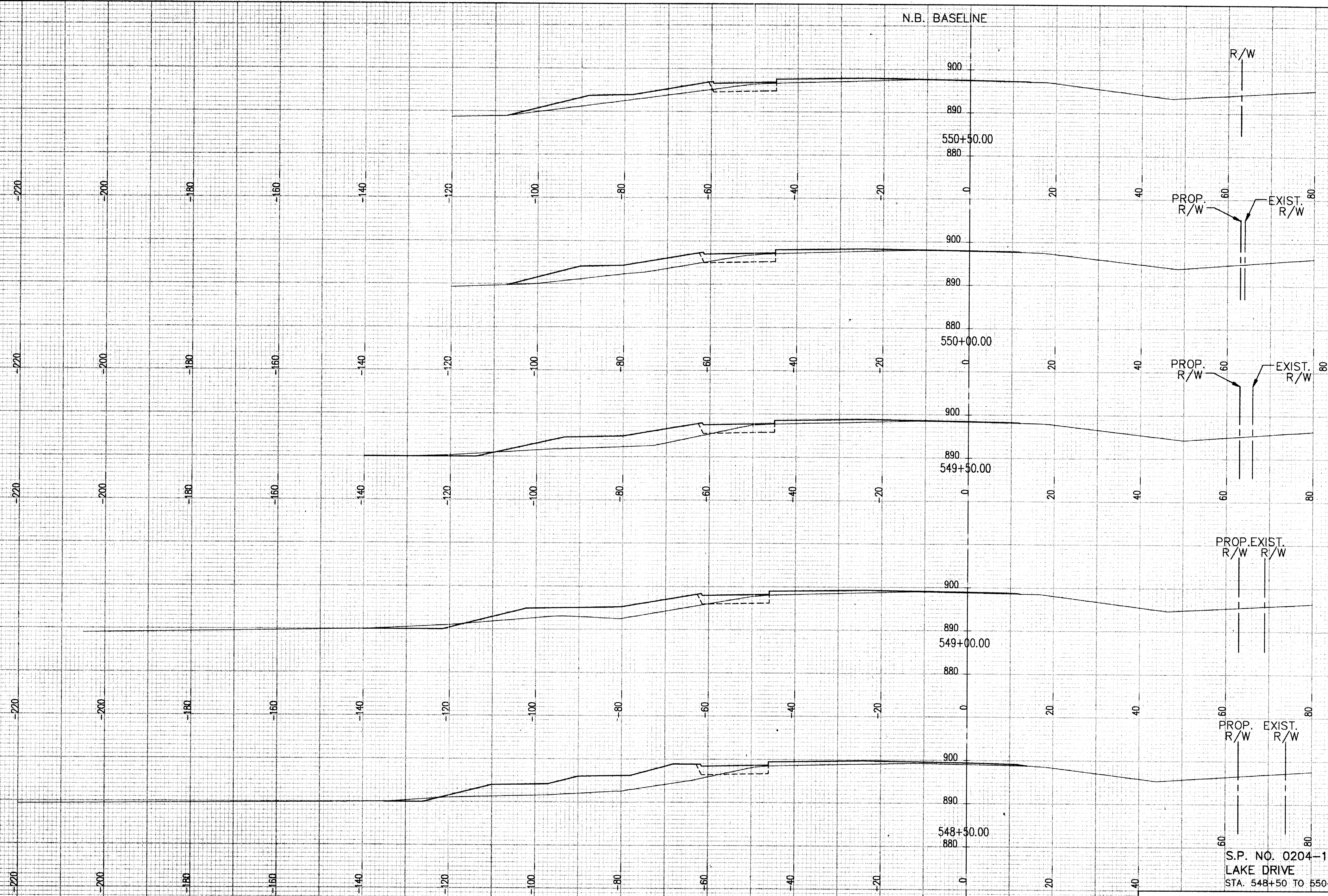
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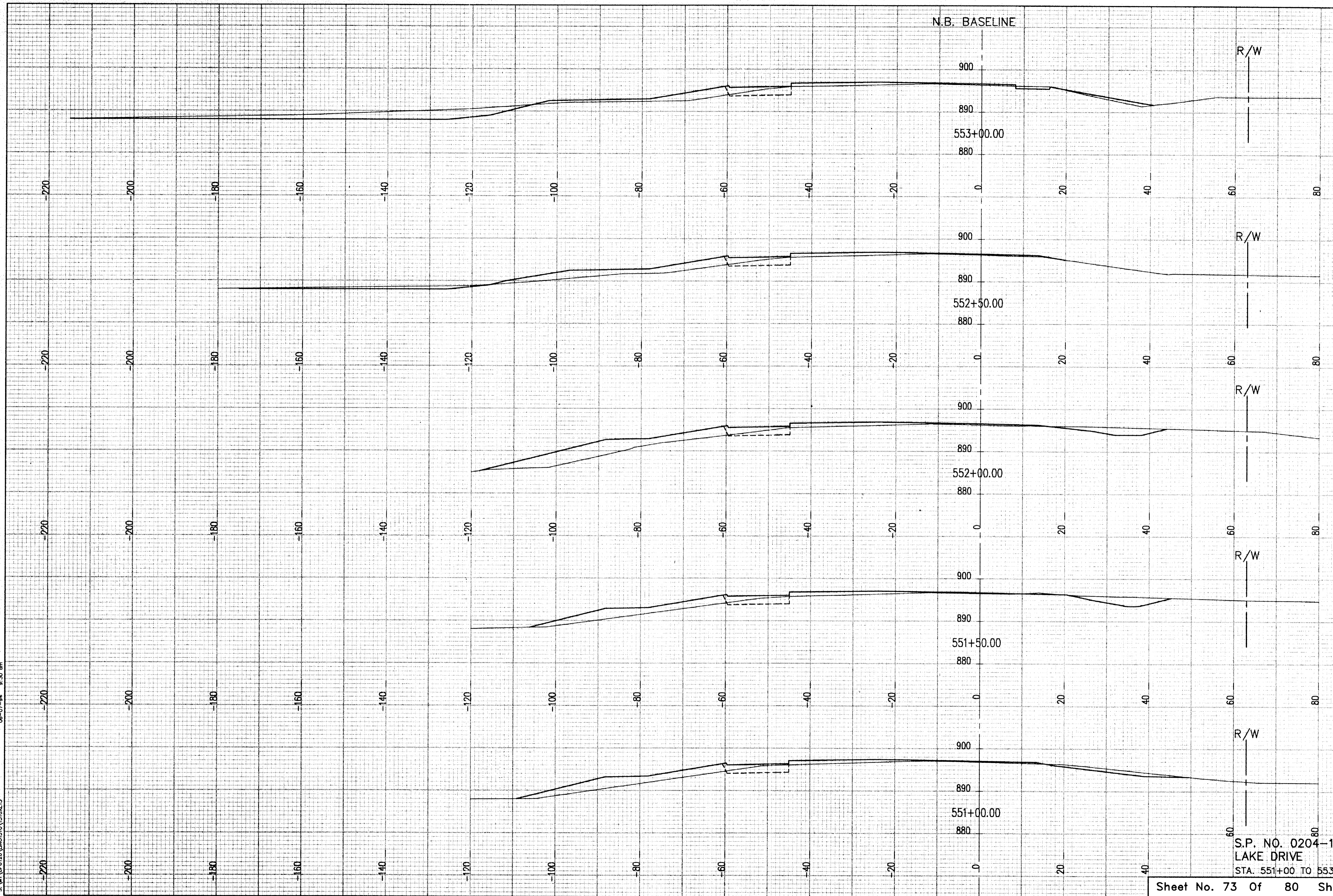
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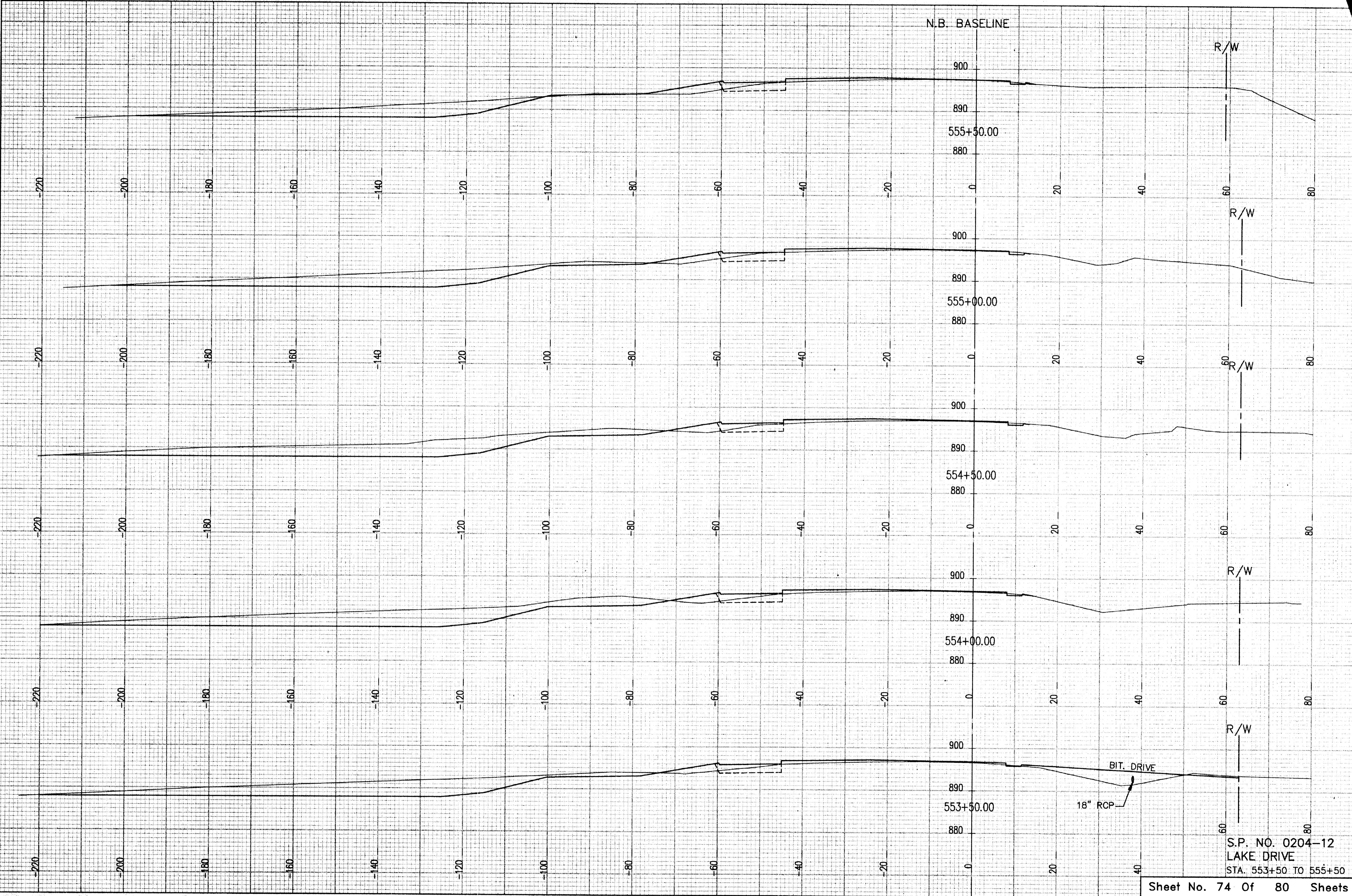
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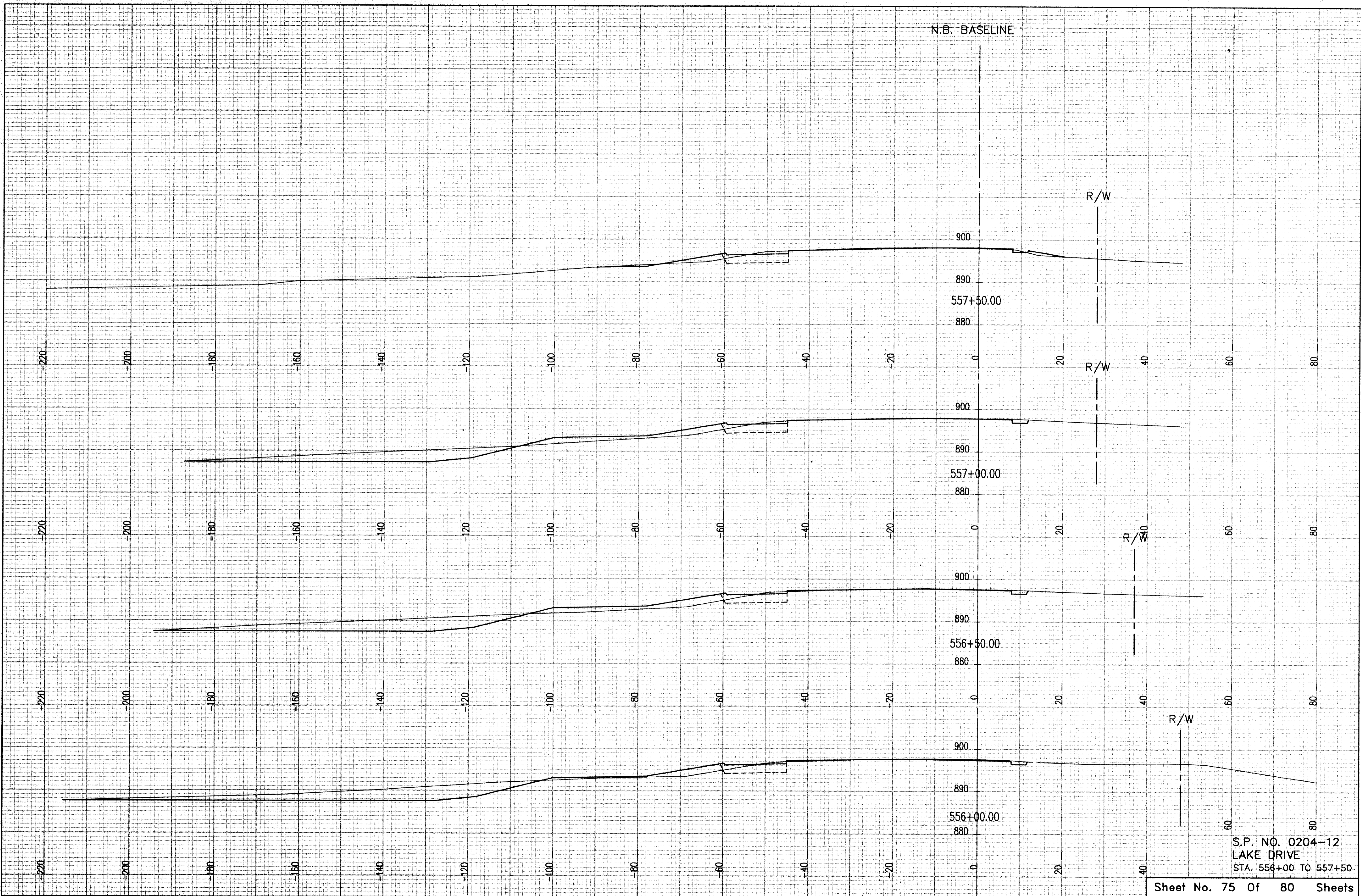


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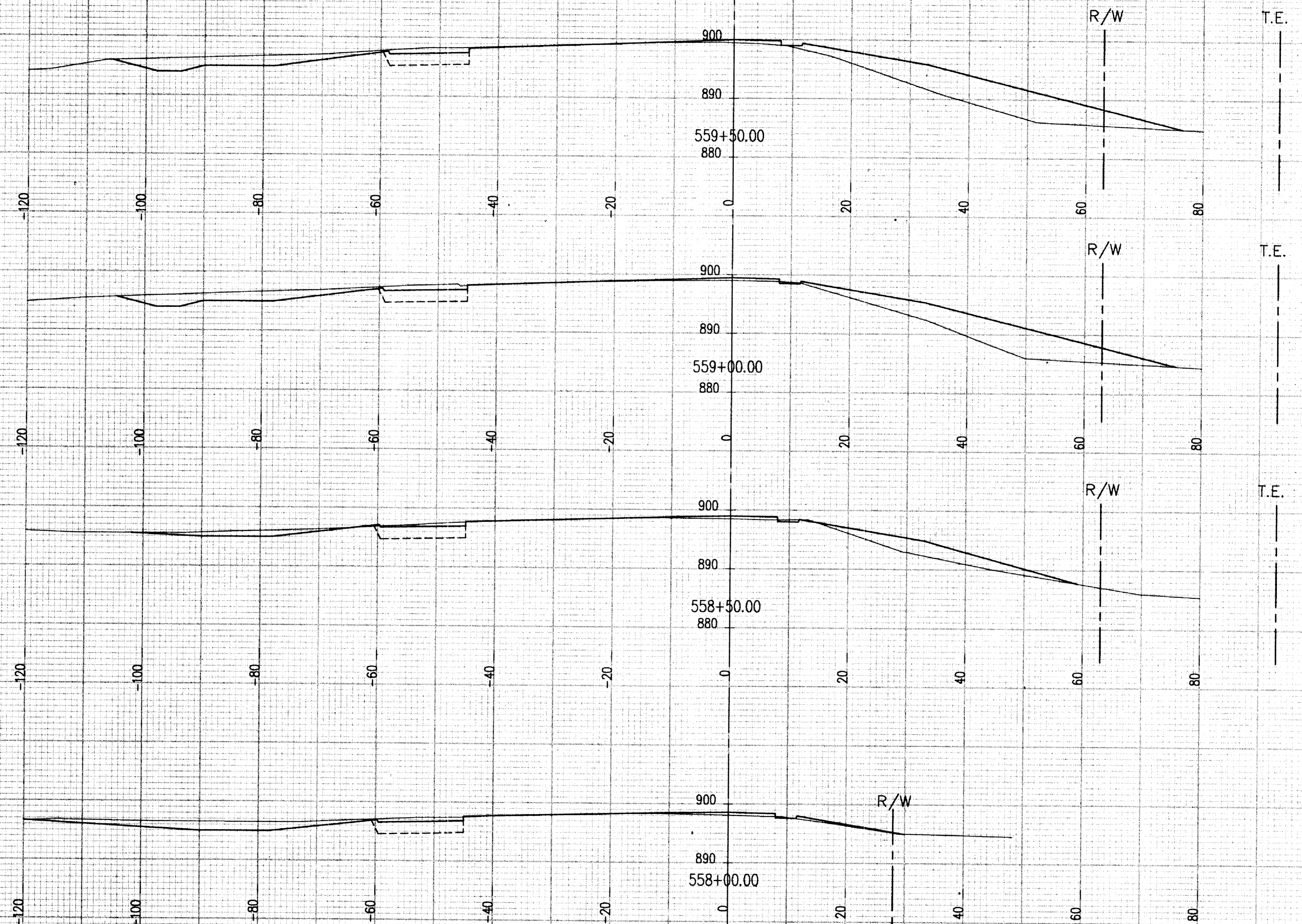
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N.B. BASELINE



S.P. NO. 0204-12
LAKE DRIVE
STA. 558+00 TO 559+50

N.B. BASELINE

910

562+00.00

910

561+50.00

910

561+00.00

910

560+50.00

910

560+00.00

910

-120

-100

-80

-60

-40

-20

-120

-100

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60

80

R/W

R/W

R/W

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R/W

T.E.

T.E.

T.E.

T.E.

T.E.

2ND AVENUE

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STA. 560+00 TO 562+00

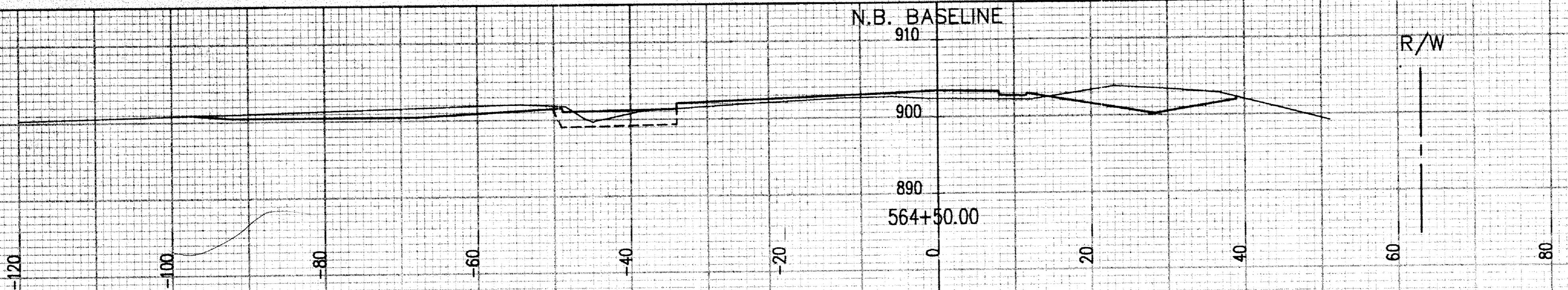
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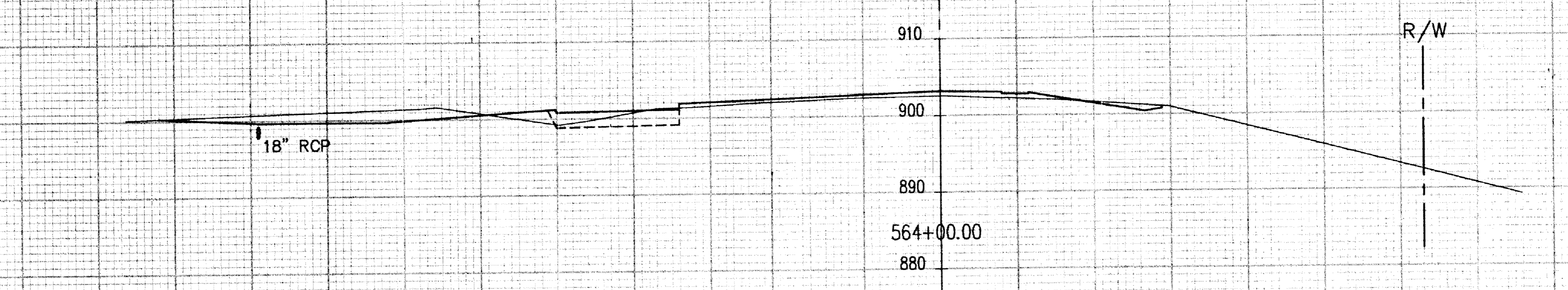
N.B. BASELINE
910

R/W @ 177'



564+50.00

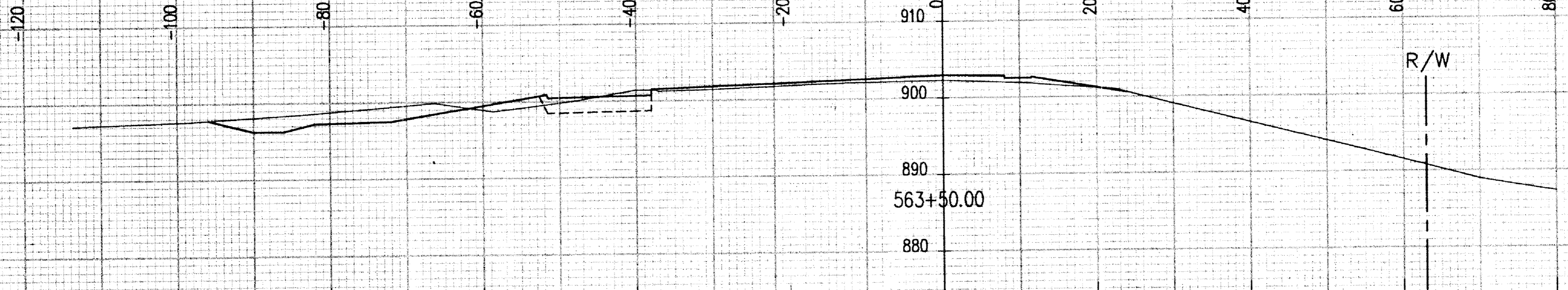
R/W @ 179'



564+00.00

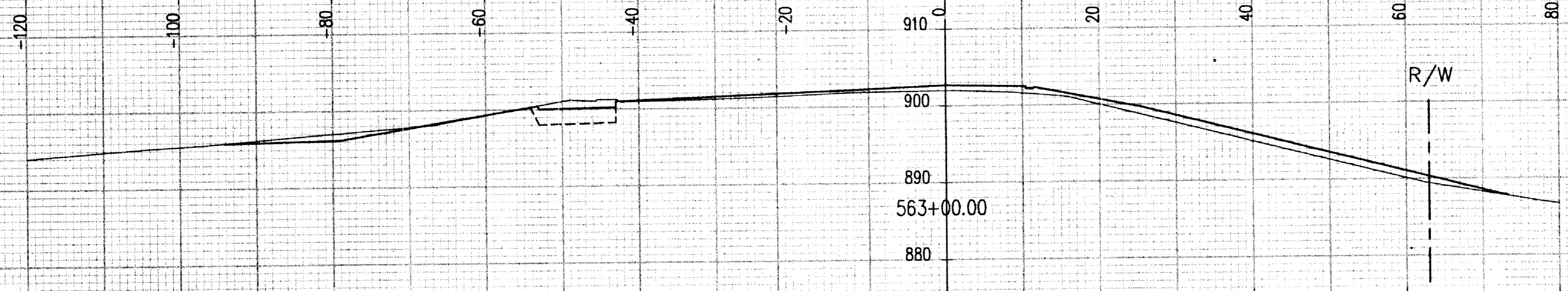
18" RCP

R/W @ 181'



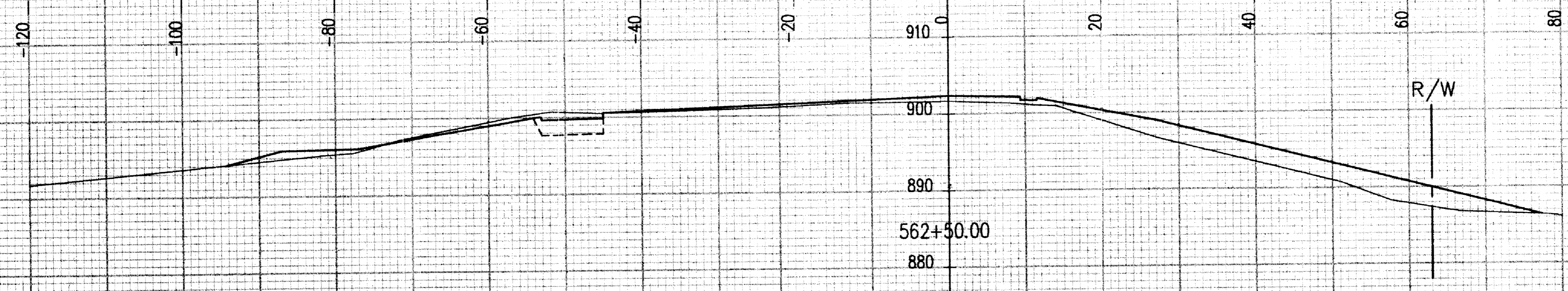
563+50.00

R/W @ 183'



563+00.00

R/W @ 185'



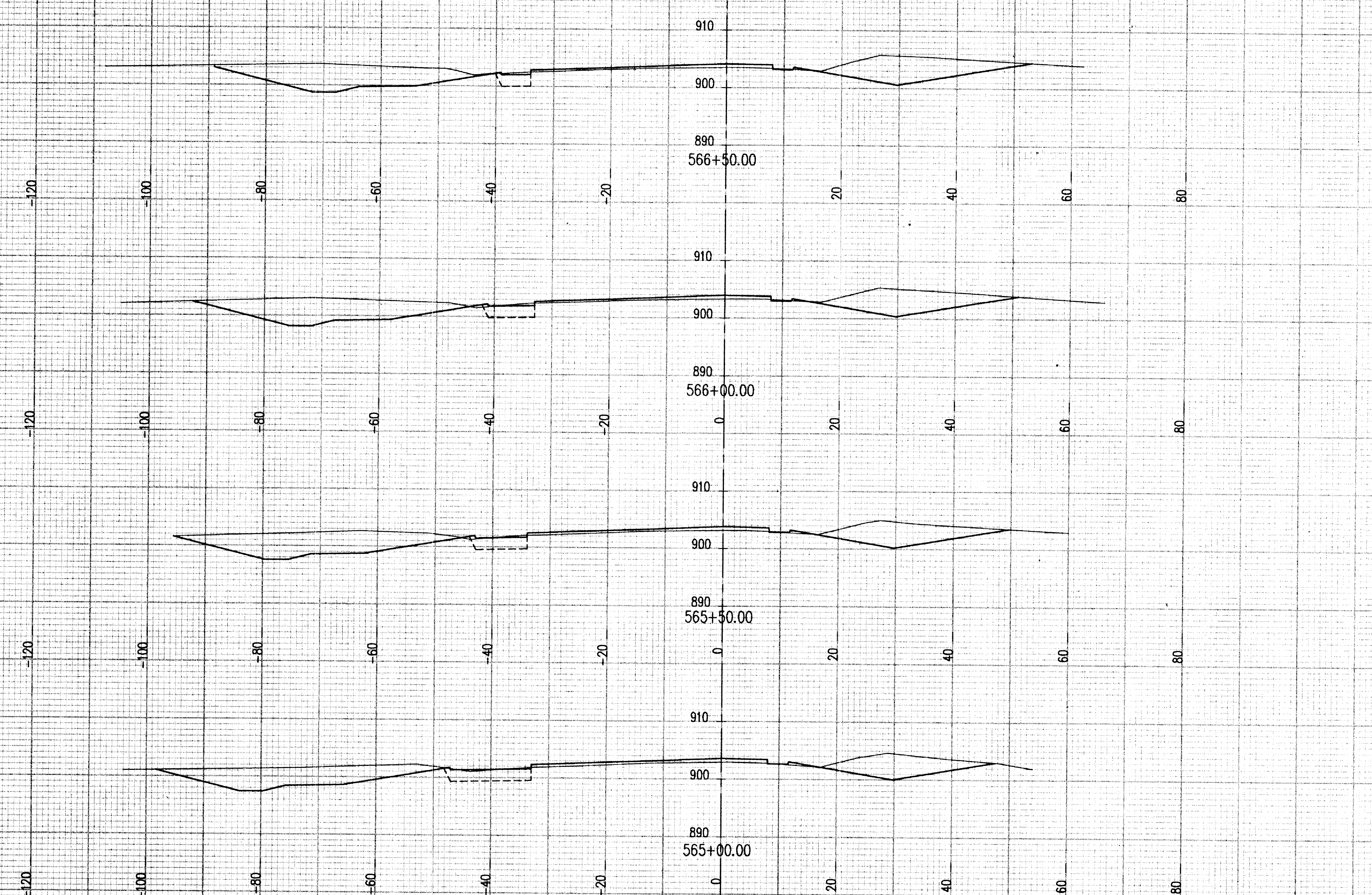
562+50.00

06-07-94 9:37 am
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S.P. NO. 0204-12
LAKE DRIVE
STA. 562+50 TO 564+50

Sheet No. 78 Of 80 Sheets

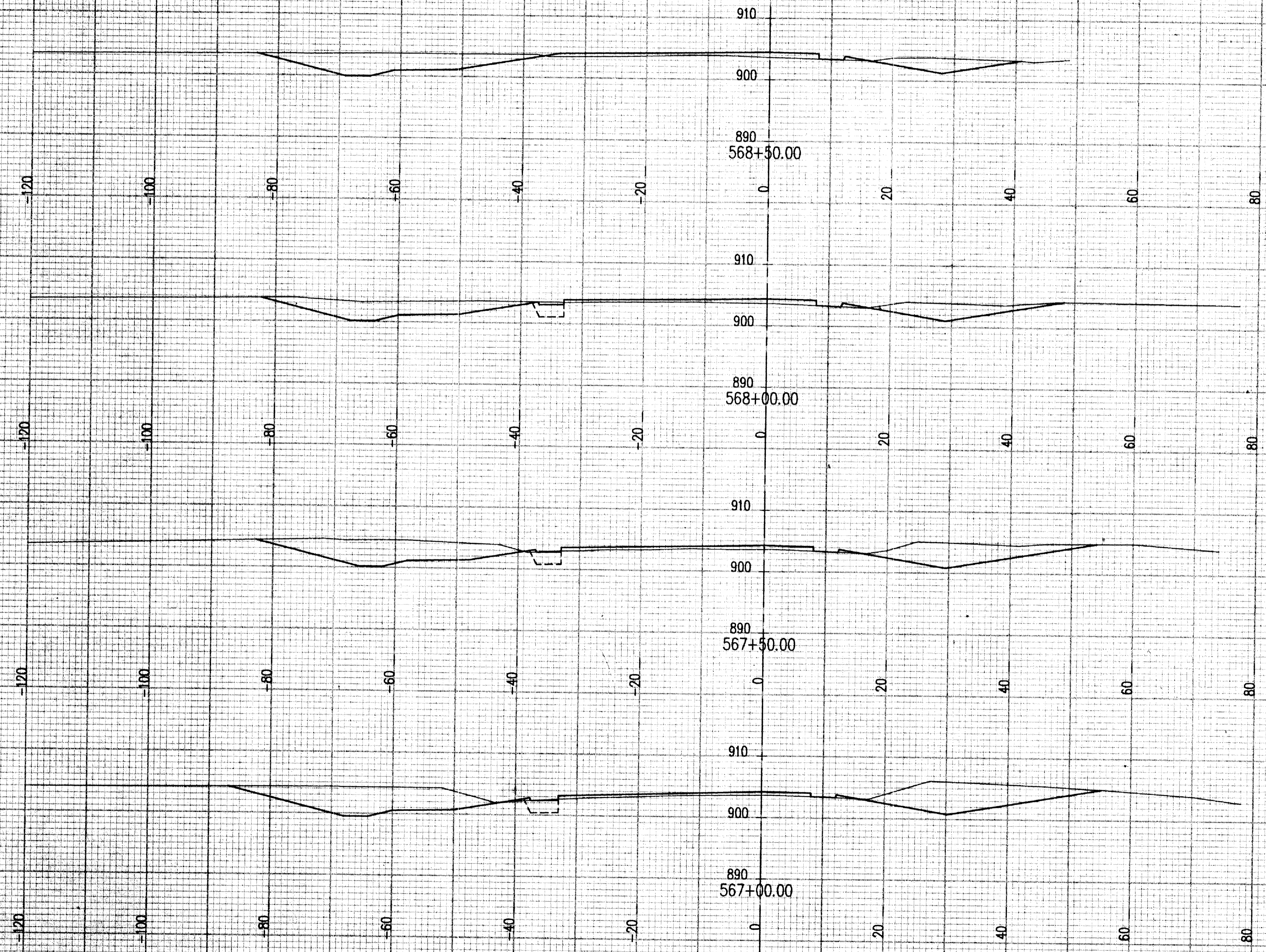
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STA. 565+00 TO 566+50

N.B. BASELINE



05-07-94 9:39 am

F:\MFCU\20\ANG\310\3100L20

S.P. NO. 0204-12
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STA. 567+00 TO 568+50