

98-58-153

GOVERNING SPECIFICATIONS

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

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

GOPHER STATE ONE CALL SYSTEM.....454-0002

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	ALIGNMENT SHEET
4	EROSION CONTROL DETAILS & GENERAL NOTES
5	DETAILS
6	TYPICAL SECTIONS
7-8	APOLLO DRIVE - STREET & STORM SEWER
9	LILAC DRIVE - STREET
10	SIGNING AND PAVEMENT MARKING
11-14	APOLLO DRIVE - CROSS SECTIONS
15	LILAC DRIVE - CROSS SECTIONS

THIS PLAN CONTAINS 15 SHEETS.

CSAH No. 12
 ANOKA COUNTY PROJECT CP98-58-153
 GROSS LENGTH 1625 FEET 0.31 MILES
 10 TON DESIGN
 DESIGN SPEED 45 MPH
 45 R VALUE
 PRESENT ADT. 2018
 20 YEAR PROJECTED ADT 2900
 2% H.C.A.D.T.
 FUNCTION CLASSIFICATION MINOR ARTERIAL EXPANDER
 No. TRAFFIC LANES 4
 No. PARKING LANES 0

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

APPROVED: *John M. Powell* 1/19/1999
 CITY ENGINEER OF LINO LAKES DATE

APPROVED: *Paul* 2/19/1999
 COUNTY ENGINEER DATE

LINO LAKES, 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.
 Date: 1/29/99 Reg. No. 24245

FILE NO.
 LINOL9808
 1
 15

CITY OF LINO LAKES, MINNESOTA

CONSTRUCTION PLANS

FOR

STREET AND STORM SEWER IMPROVEMENTS

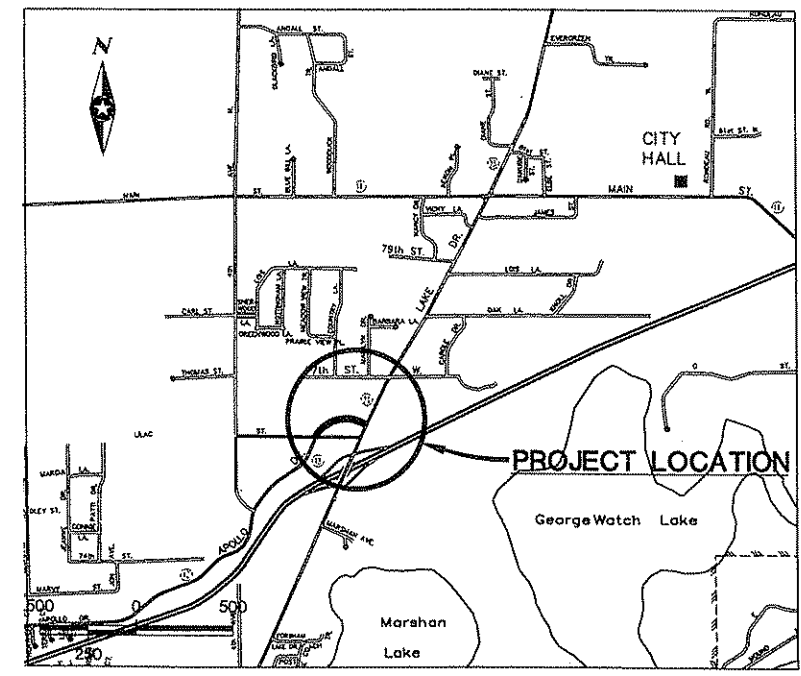
FROM: CSAH No. 153 (LILAC STREET) TO CSAH No. 23 (LAKE DRIVE)

APOLLO DRIVE

COUNTY STATE AID HIGHWAY No. 12

PHASE 3

1445.89'
 0.27 mi

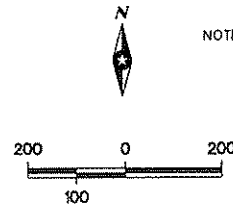


AGREEMENT No. 980539
 CITY OF LINO LAKES
 AND ANOKA COUNTY

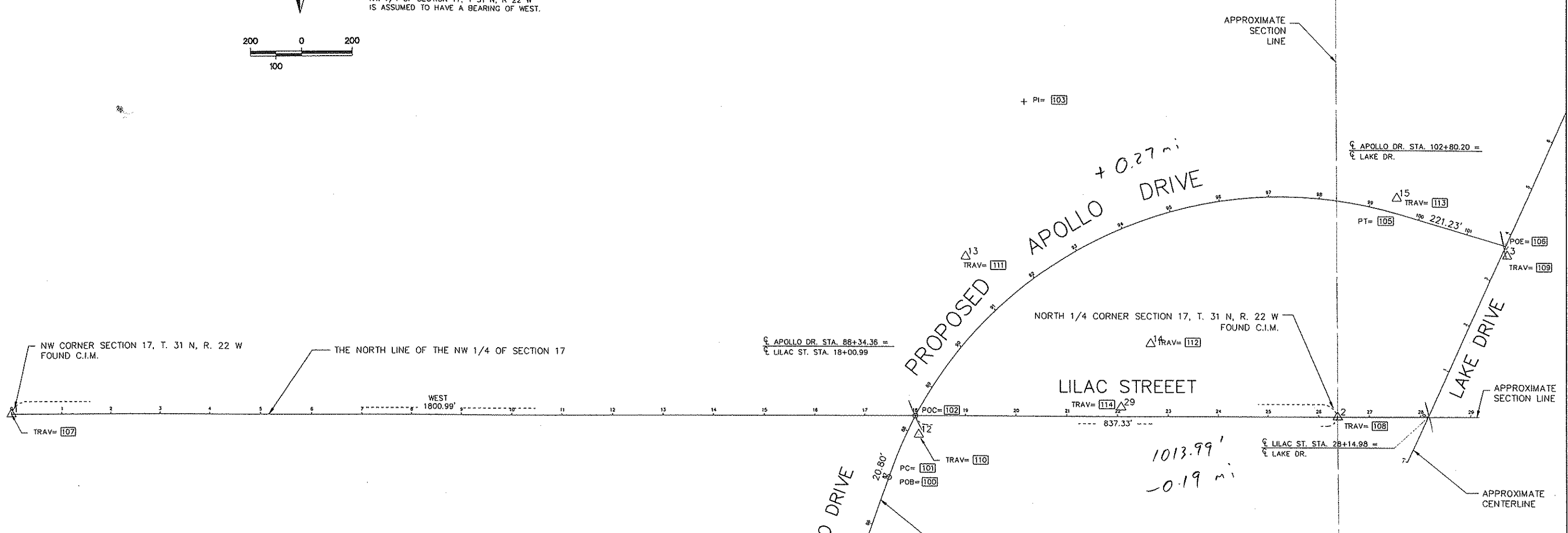
LEGEND

	STREET CENTERLINE
	SURVEY BASELINE
	COUNTY SECTION
	QUARTER SIXTEENTH
	CORPORATE LIMITS
EXISTING	
	RIGHT OF WAY
	PERMANENT EASEMENT
	PROPERTY LINE
	R.R. RIGHT OF WAY
	SANITARY SEWER AND MANHOLE
	FORCE MAIN
	SANITARY SEWER SERVICE
	WATERMAIN, HYDRANT AND VALVE
	WATER SERVICE AND CURB STOP BOX
	WATER VALVE MANHOLE
	STORM SEWER AND MANHOLE
	CATCH BASIN
	CULVERT
	BULKHEAD
	UNDERGROUND TELEPHONE CABLE OR CONDUIT
	UNDERGROUND ELECTRIC CABLE OR CONDUIT
	TELEPHONE MANHOLE
	TELEPHONE PEDESTAL
	CABLE TV PEDESTAL
	ELECTRIC MANHOLE
	POWER POLE
	DOWN GUY ANCHOR
	STEEL LIGHT POLE
	TRAFFIC SIGNAL, STANDARD
	GAS MAIN
	GAS VALVE
	SOIL BORING
	TRAVERSE POINT
	CONCRETE CURB AND GUTTER
	EXISTING PAVEMENT OR SIDEWALK
	SIGN (HWY, PARK, STOP, ETC.)
	STREET SIGN
	DITCH
	RAILROAD TRACKS
	FENCE
	TREE (DECIDUOUS)
	TREE (CONIFEROUS)
	BUSH-SHRUB
	WOODED AREA
	BUILDING
PROPOSED OR NEW CONSTRUCTION	
	NEW RIGHT OF WAY
	PERMANENT EASEMENT
	TEMPORARY EASEMENT
	SANITARY SEWER AND MANHOLE
	FORCE MAIN
	SANITARY SEWER SERVICE
	WATERMAIN, HYDRANT AND VALVE
	WATER SERVICE AND CURB STOP BOX
	WATER VALVE MANHOLE
	STORM SEWER WITH MANHOLE
	CATCH BASIN
	CULVERT
	BULKHEAD
	DRAIN PIPE
	DITCH
	CONCRETE CURB AND GUTTER
	SILTFENCE
	HAYBALES
	STEEL LIGHT POLE
	TRAFFIC SIGNAL, STANDARD
	SIGN (HWY, PARK, STOP, ETC.)
	STREET LIGHT FEED POINT
	STREET LIGHTING CABLE
	REMOVE TREE
	INSULATION

01-27-99 9:18 am 01-27-99 9:18 am



NOTE: FOR THE PURPOSE OF THIS SURVEY
THE NORTH LINE OF THE
NW 1/4 OF SECTION 17, T. 31 N, R. 22 W
IS ASSUMED TO HAVE A BEARING OF WEST.



ALIGNMENT TABULATION											
POINT ID	POINT	CURVE	STATION	C/L CURVE DATA				COORDINATES		BEARING	
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH	NORTHING		EASTING
APOLLO DRIVE											
100	POB		87+00.00						9876.59	11748.21	
101	PC		87+20.80						9896.15	11755.27	N09°48'37"E
102	POC		88+34.36						10000.00	11800.99	
103	PI		94+95.91	86°39'54"	7°00'00"	818.51'	772.20'	1238.07'	10622.67	12016.99	
104	RP								9619.09	12525.47	
105	PT		99+58.87						10404.10	12757.25	
106	POE		101+80.10						10341.45	12969.42	S73°33'00"E
TRAVERSE STATIONS											
POINT ID	POINT DESCRIPTION	COORDINATES									
		NORTHING	EASTING								
107	TRAVERSE PT. 1	10000.00	10000.00								
108	TRAVERSE PT. 2	10000.00	12637.78								
109	TRAVERSE PT. 3	10321.99	12972.36								
110	TRAVERSE PT. 12	9962.27	11807.53								
111	TRAVERSE PT. 13	10317.53	11900.87								
112	TRAVERSE PT. 14	10145.41	12265.61								
113	TRAVERSE PT. 15	10435.39	12753.92								
114	TRAVERSE PT. 29	10018.67	12207.40								

XREF: L:\PROJECTS\1000\1000.dwg
 01-27-99 9:33 am
 01-27-99 9:33 am
 01-27-99 9:33 am

DESIGN: _____
 DRAWING: _____
 CHECKED: _____

DESIGN TEAM: _____ NO. _____ BY _____ DATE _____

REVISIONS: _____ ITEM _____

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: January 29, 1999 Reg. No. 24245

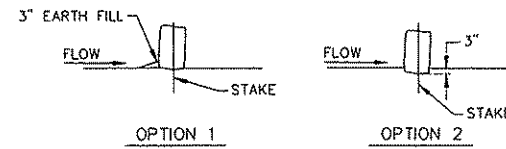
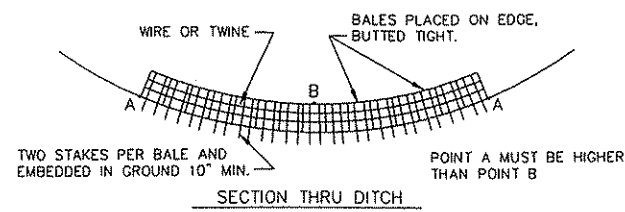


LINO LAKES, MINNESOTA

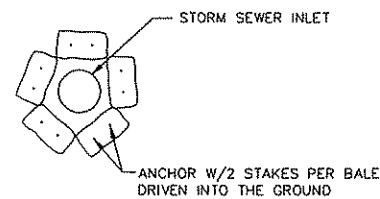
CSAH 12 / APOLLO DRIVE
ALIGNMENT SHEET

FILE NO. LINOL9808
DATE 1/29/99

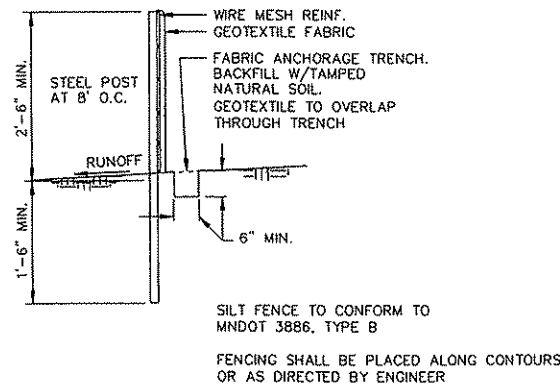
3
15



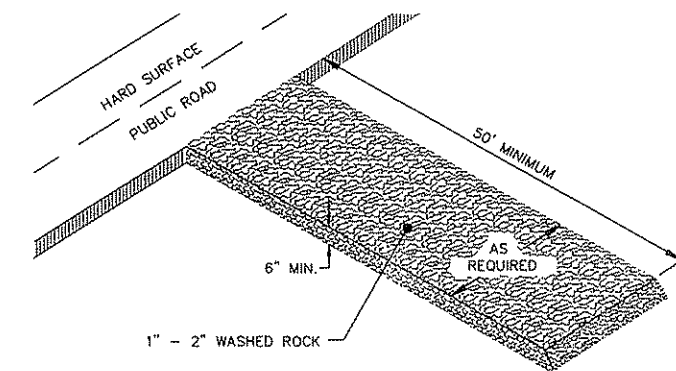
HAY OR STRAW BALE DITCH CHECK



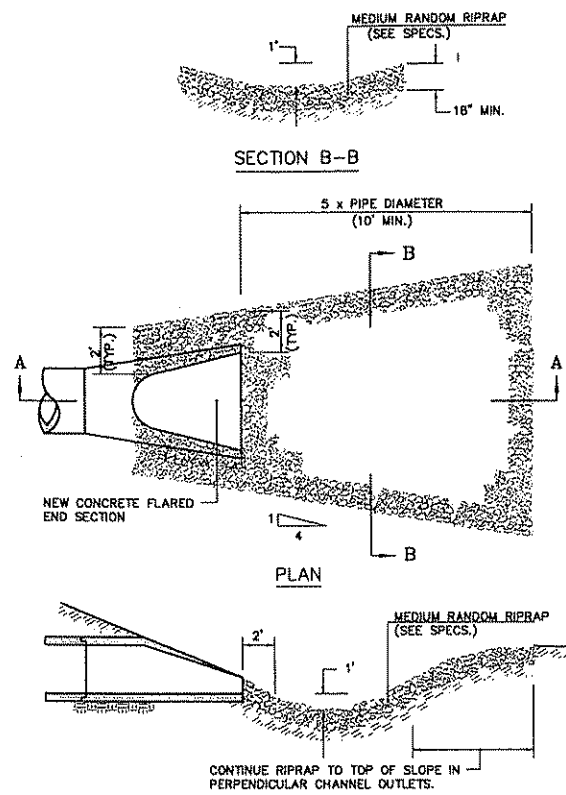
STORM SEWER INLET PROTECTION
EROSION CONTROL



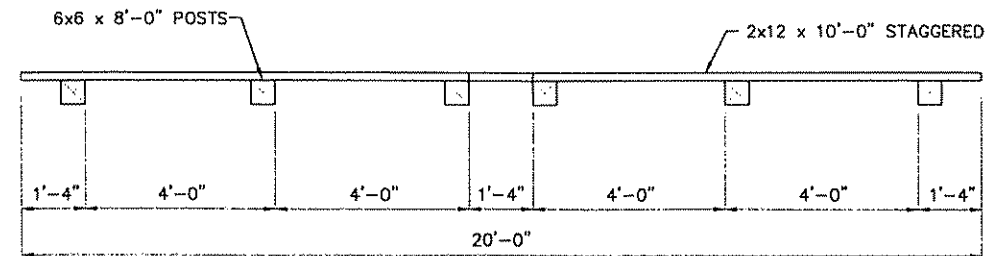
SILT FENCE-HEAVY DUTY



ROCK CONSTRUCTION ENTRANCE

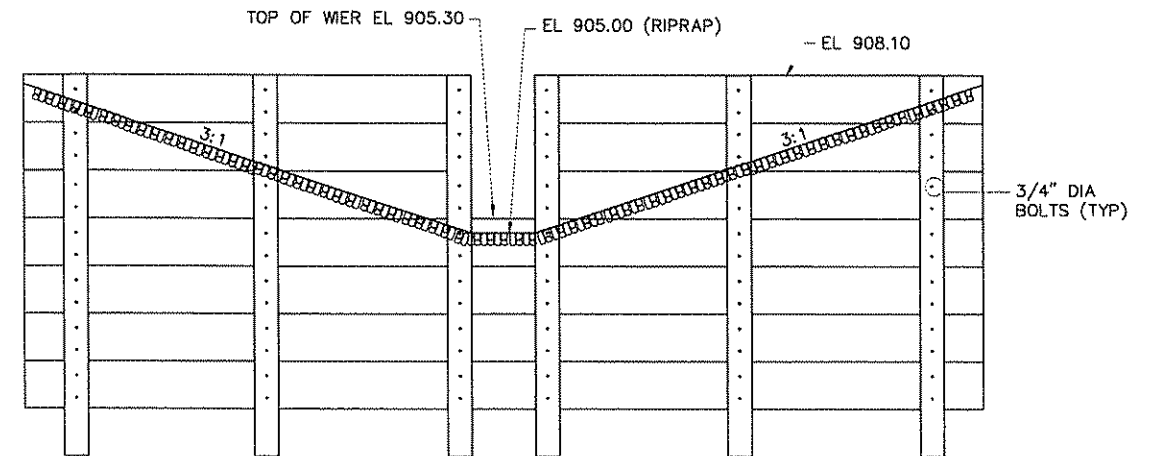


SECTION A-A
RIPRAP AND FLARED END SECTION DETAIL



PLAN VIEW

SOFTWOOD LUMBER:
SPRUCE PINE FIR, #2 GRADE, 19% MAX MOISTURE CONTENT.
WOOD PRESERVATIVE, PRESSURE TREATED:
AWPA TREATMENT C2 USING WATER BORNE PRESERVATIVE WITH 0.30% RETAINAGE.



ELEVATION

POND OUTLET STRUCTURE

STRUCTURE SCHEDULE - APOLLO DRIVE								
STRUCTURE #	STATION	OFFSET	NORTH	EAST	RIM ELEV.	DESCRIPTION	STRUCTURE TYPE	CASTING NOTES
100	85+08.89	24.51 RT	9688.47	11706.51	906.34	EXIST. CB		
101	88+17.40	34.79 RT	9969.36	11824.38	905.94	MANHOLE	LL406-B	R1642B W/INFI-SHIELD
102	88+76.73	74.35 LT	10074.93	11757.73	-	APRON		
103	89+40.69	78.22 LT	10135.70	11792.50	-	APRON		
104	89+55.31	23.09 LT	10117.68	11844.25	910.47	CATCH BASIN	LL406-D	R3250A W/INFI-SHIELD
105	89+55.25	22.59 RT	10087.31	11885.65	907.62	CATCH BASIN	LL406-E	R3250A W/INFI-SHIELD
105A	89+55.72	55.67 RT	10069.95	11910.12	-	APRON		
106	92+06.55	23.09 RT	10258.78	12057.07	909.54	CATCH BASIN	LL406-D	R3250A W/INFI-SHIELD
107	92+06.55	24.09 LT	10300.20	12026.74	912.45	CATCH BASIN	LL406-B	R3250A W/INFI-SHIELD
108	92+06.55	50.00 LT	10319.83	12012.37	-	PLUG		
109	92+06.55	50.00 RT	10239.15	12071.45	-	PLUG		
110	94+51.27	34.76 RT	10359.77	12269.24	909.75	MANHOLE	LL406-C	R1642B W/INFI-SHIELD
111	96+76.67	23.09 RT	10410.61	12479.77	907.77	CATCH BASIN	LL406-D	R3250A W/INFI-SHIELD
112	96+86.47	24.09 LT	10462.39	12486.91	910.67	CATCH BASIN	LL406-B	R3250A W/INFI-SHIELD
113	96+86.47	50.00 LT	10486.69	12485.80	-	PLUG		
114	96+76.67	50.00 RT	10386.32	12481.17	-	PLUG		
115	99+29.05	24.76 RT	10384.82	12721.54	910.49	CATCH BASIN	LL406-C	R3250A W/INFI-SHIELD
116	99+88	6.58 LT	10402.15	12787.10	913.11	CATCH BASIN	LL406-B	R3250A W/INFI-SHIELD
117	99+52.13	29.59 LT	10436.30	12759.46	913.49	CATCH BASIN	LL406-C	R3250A W/INFI-SHIELD
118	99+52.13	50.00 LT	10454.05	12764.55	-	EXIST. 15"RCP		
119	99+29.05	50.00 RT	10363.58	12716.10	-	PLUG		

01-27-99 8:25 am c:\p13\p13.dwg

D:\WORK\PROJECTS\12-APOLLO\12-APOLLO\EROSION\EROSION.DWG

DESIGN	LN				
DRAWING	TJM				
CHECKED					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	ITEM

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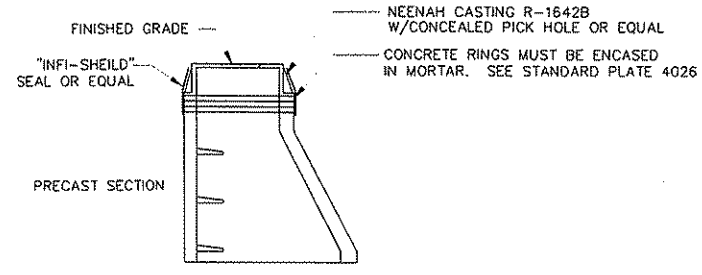


LINO LAKES, MINNESOTA

CSAH 12 / APOLLO DRIVE
EROSION CONTROL DETAILS

FILE NO.
LINOL9808
DATE
1/29/99

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15

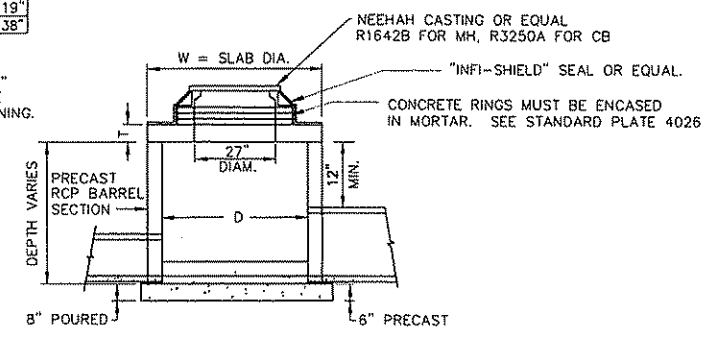
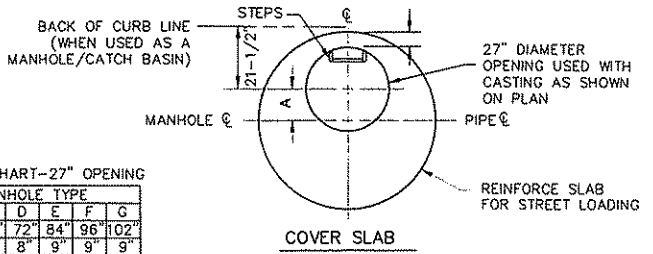


SECTION
STANDARD SANITARY MANHOLE ADJUSTMENT

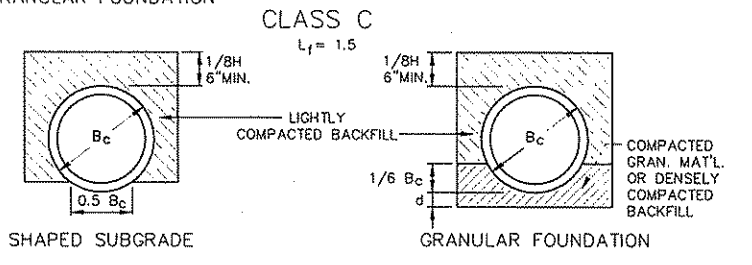
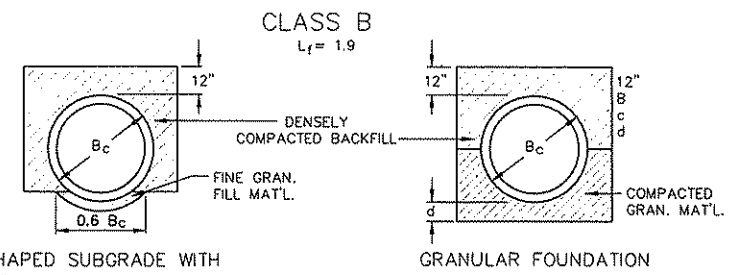
DIMENSION CHART-27" OPENING

DIM	MANHOLE TYPE						
	B	C	D	E	F	G	
P	48"	60"	72"	84"	96"	102"	
K	6"	7"	8"	9"	9"	9"	
T	6"	8"	8"	8"	8"	8"	
W	58"	72"	86"	100"	113"	119"	
A	9.5"	15.5"	21.5"	27.5"	34.5"	38"	

NOTE:
DIMENSION "A" IN ABOVE CHART IS BASED ON A 27" DIAM. OPENING. INCREASE "A" BY 1.5" FOR 24" OPENING.



CATCHBASIN/MANHOLE
LL406-TYPE B THROUGH G

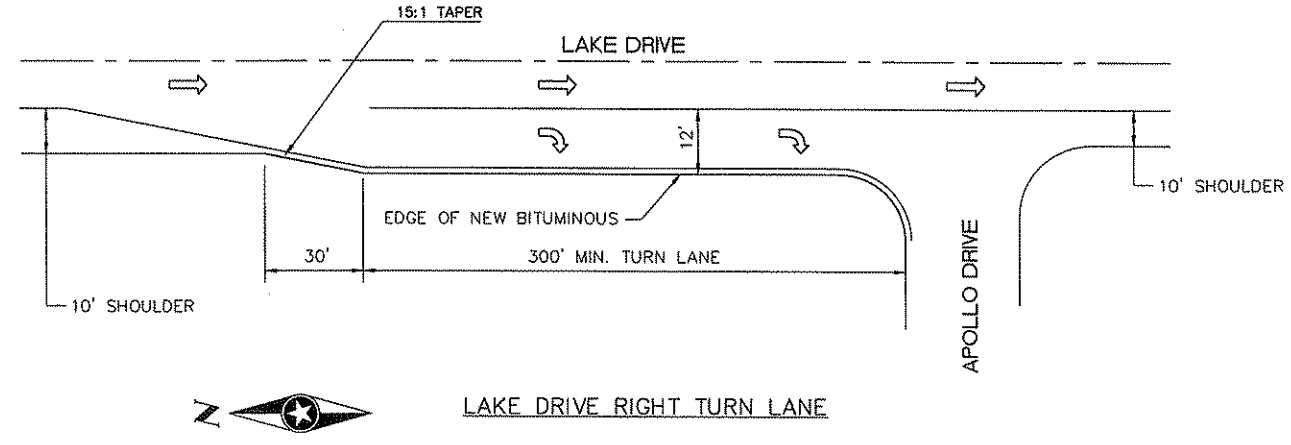


LEGEND
B_c = OUTSIDE DIAMETER
H = BACKFILL COVER OVER TOP OF PIPE
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE
A₃ = AREA OF TRAVERSE STEEL IN THE CRADLE OR ARCH EXPRESSED AS A PERCENTAGE OF AREA OF CONCRETE AT INVERT OR CROWN.

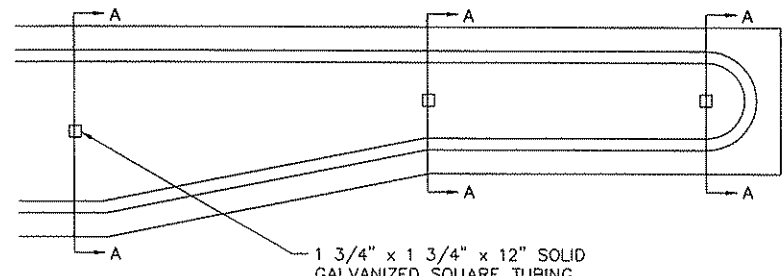
DEPTH OF BEDDING MATERIAL BELOW PIPE

D	d MIN.
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

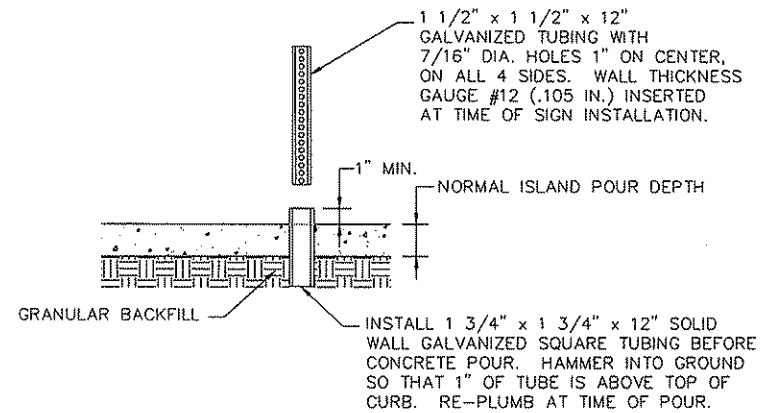
PIPE BEDDING



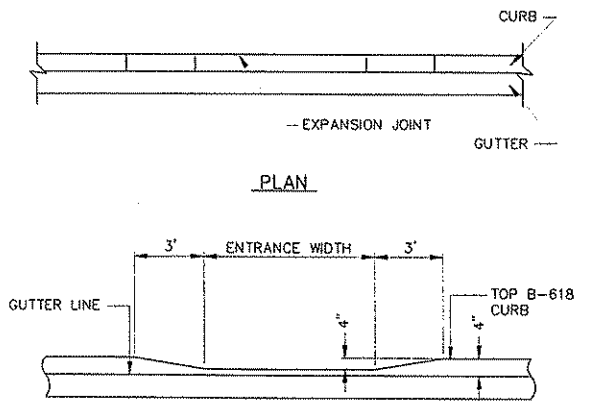
LAKE DRIVE RIGHT TURN LANE



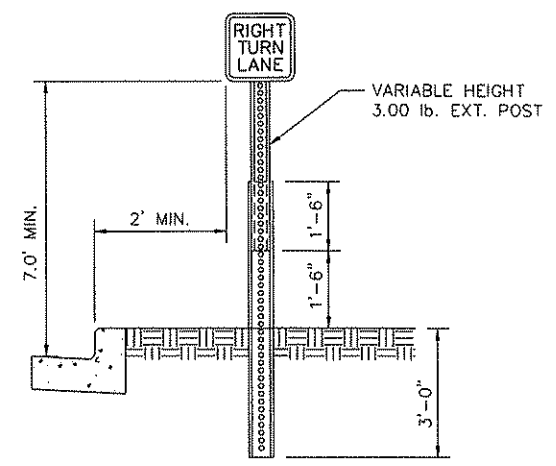
CENTER ISLAND DETAIL



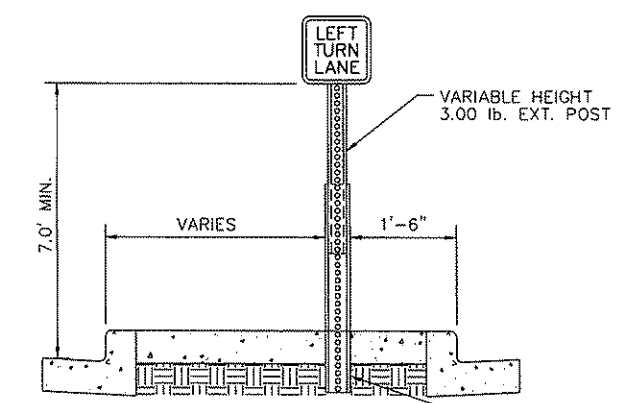
SECTION A-A



CURB DETAIL AT DRIVEWAYS



GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL

TELSPAR INSERT NOT TO BE INSERTED MORE THAN THREE MOUNTING HOLES DEEP INTO FOOTING, TYP. ON ALL SIGN INSTALLATIONS.

02-18-98 4:08 pm c:\p4-31p

DESIGN	LN				
DRAWING	TJM				
CHECKED					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	ITEM

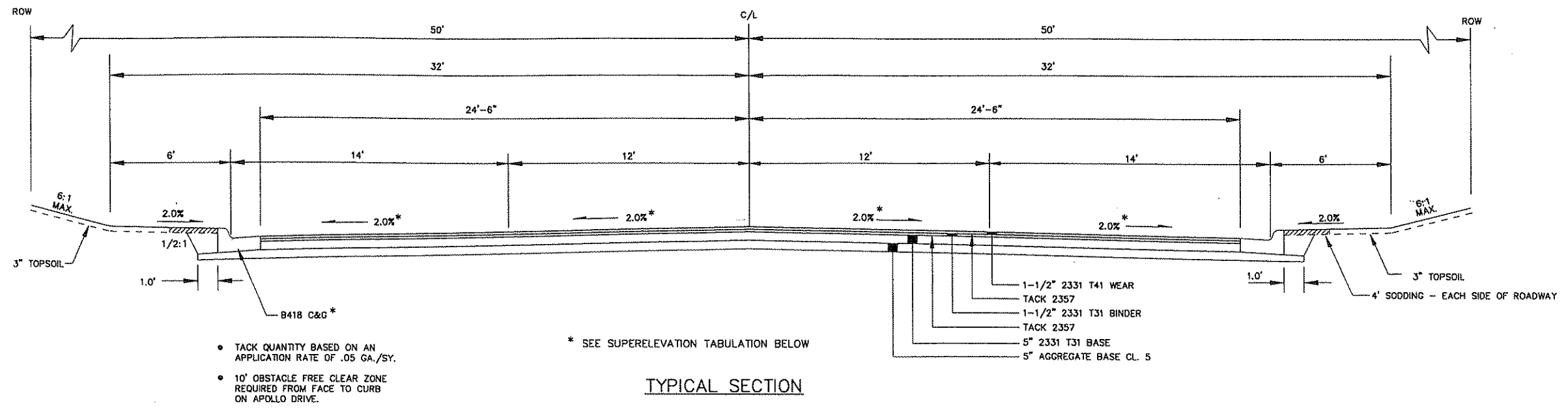
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: January 29, 1999 Reg. No. 24245



LINO LAKES, MINNESOTA

CSAH 12 / APOLLO DRIVE
DETAILS

FILE NO. LINL9808	5 15
DATE 1/29/99	



TYPICAL SECTION

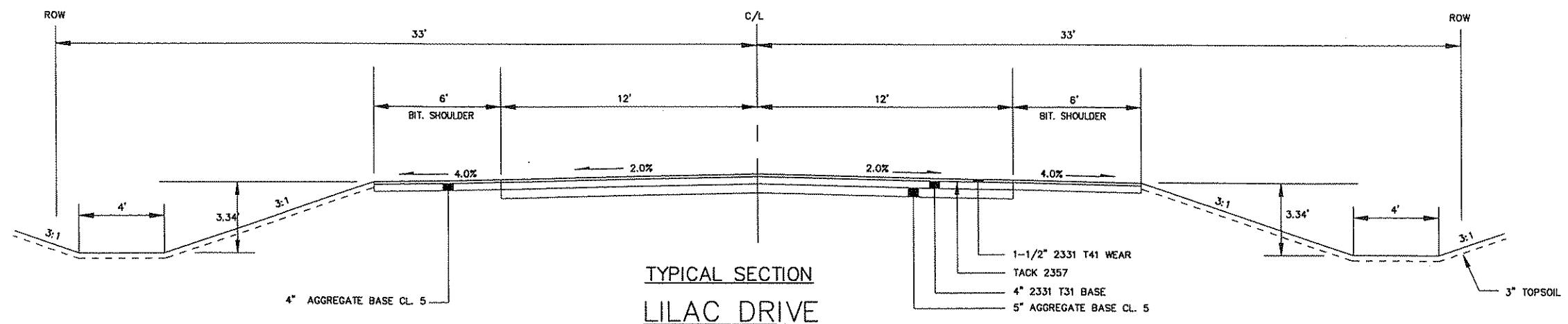
SUPERELEVATION - IN					SUPERELEVATION - OUT				
Station	12.5'	12'	12'	12.5'	Station	12.5'	12'	12'	12.5'
-0.012	+0.058	+0.058	-0.058	-0.058	-0.0625	-0.02	-0.02	-0.02	-0.02
-0.038	+0.032	+0.032	-0.032	-0.032	-0.0625	+0.00	+0.00	-0.02	-0.02
-0.046	+0.024	+0.024	-0.024	-0.024	-0.05	+0.02	+0.02	-0.02	-0.02
-0.05	+0.02	+0.02	-0.02	-0.02	-0.031	+0.039	+0.039	+0.039	+0.039
-0.0625	+0.00	+0.00	-0.02	-0.02	-0.012	+0.058	+0.058	-0.058	-0.058
-0.0625	-0.02	-0.02	-0.02	-0.02	-0.0625	-0.058	-0.058	-0.058	-0.058

1.5' GUTTER
 1.5' GUTTER
 PROFILE GRADE (HIP POINT)
 1:208.33 RATIO
 1:190 RATIO

SUPERELEVATION - IN

APOLLO DRIVE

SUPERELEVATION - OUT



TYPICAL SECTION
LILAC DRIVE

01-27-99 3:30 am
 01-27-99 3:30 am
 01-27-99 3:30 am

DESIGN	LN	
DRAWING	TJM	
CHECKED		
DESIGN TEAM	NO.	BY
		DATE
	REVISIONS	ITEM

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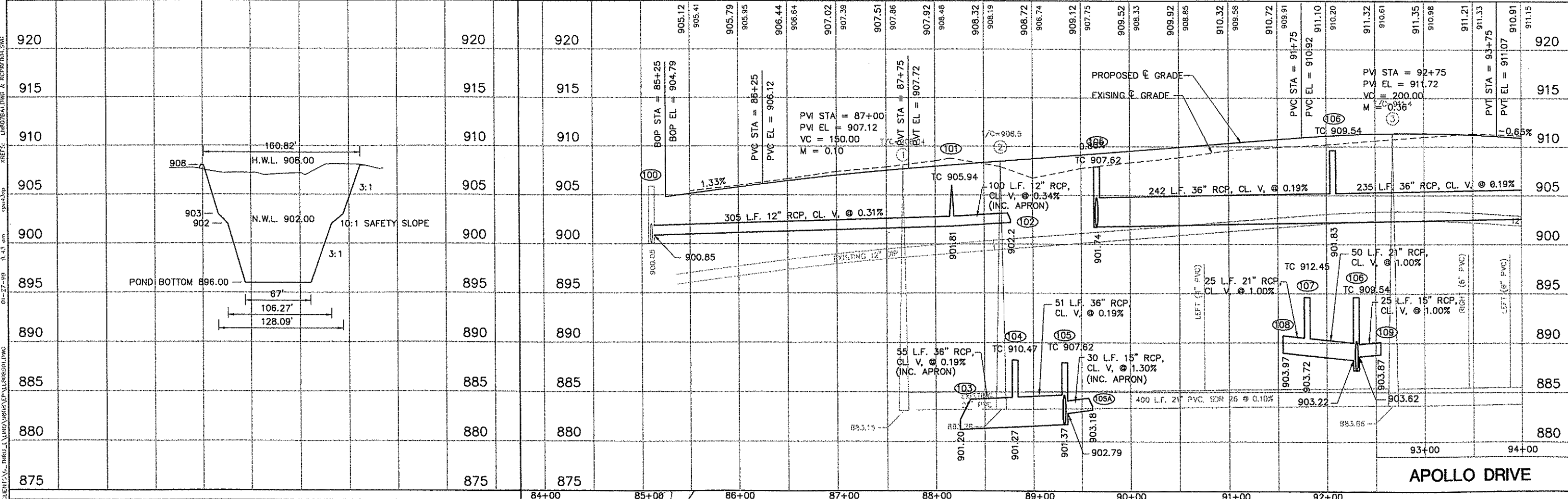
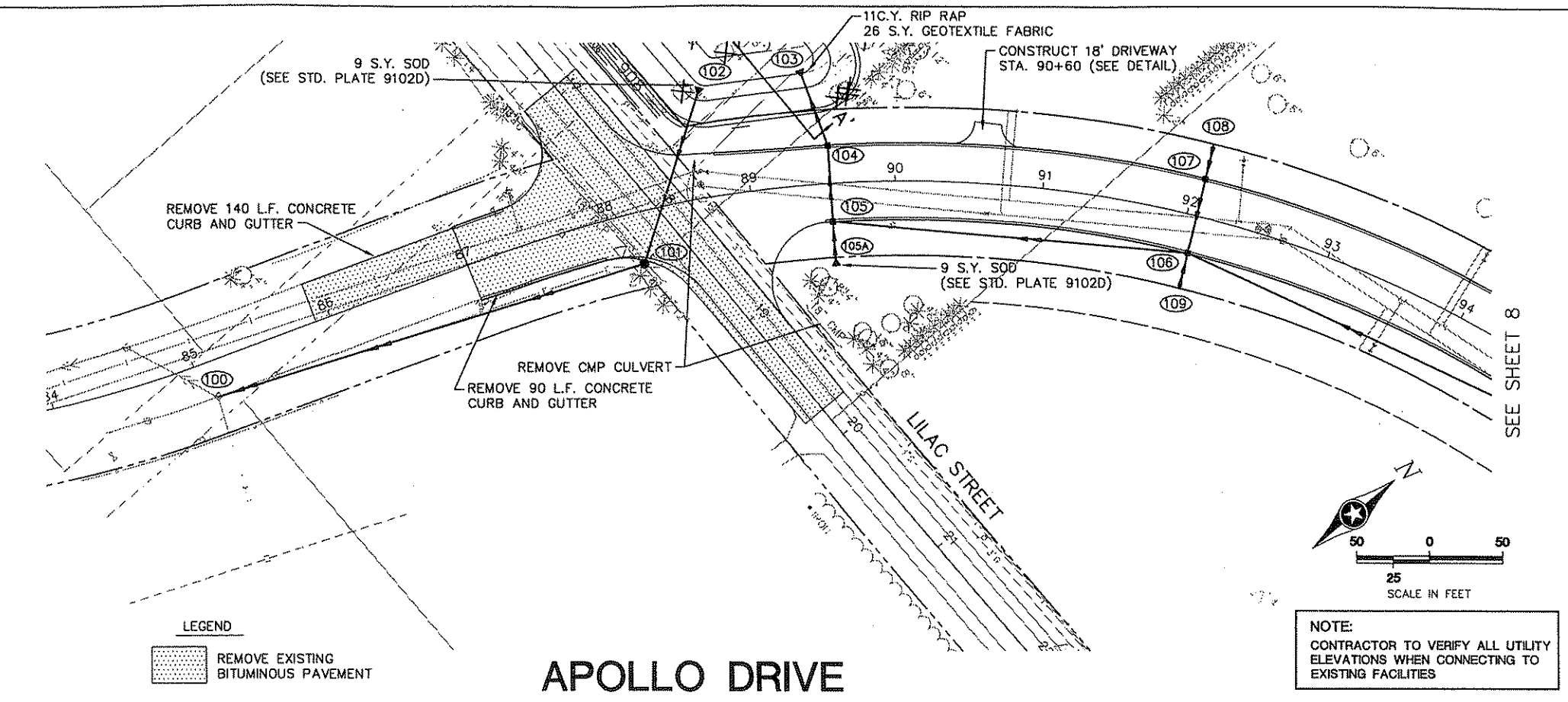
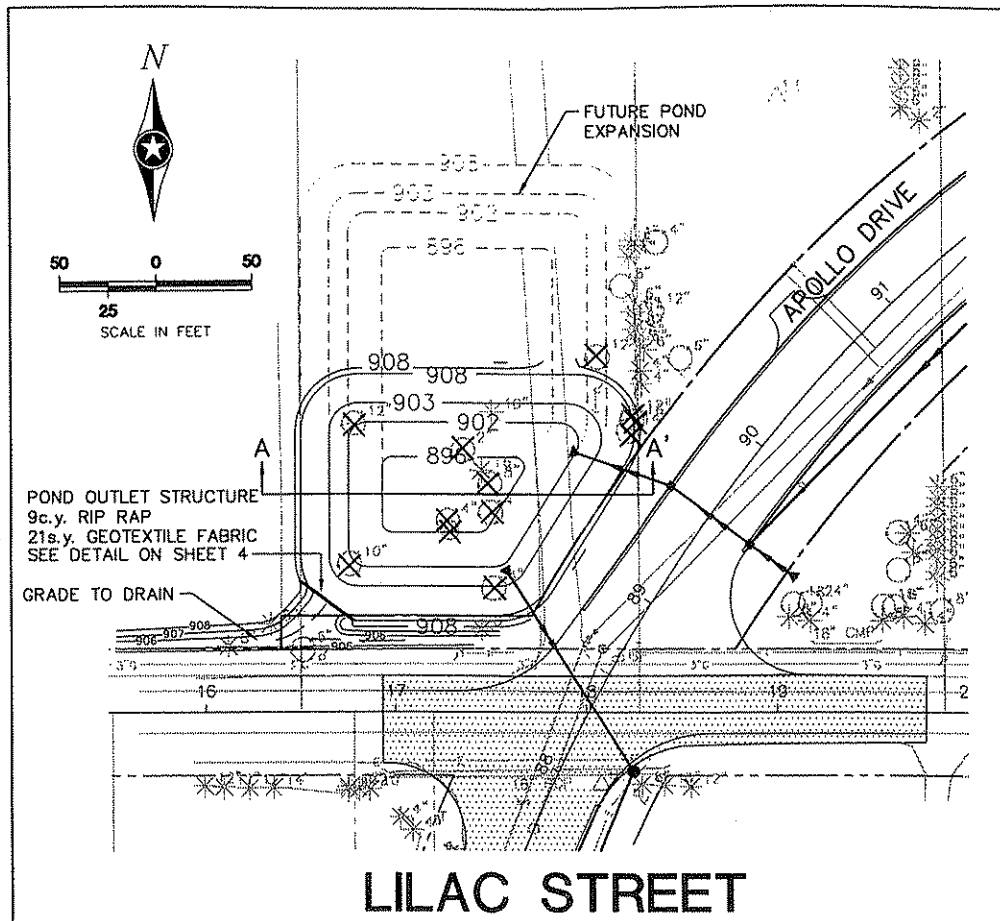


LINO LAKES, MINNESOTA

CSAH 12 / APOLLO DRIVE
TYPICAL SECTIONS

FILE NO.
LINO9808
 DATE
1/29/99

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15



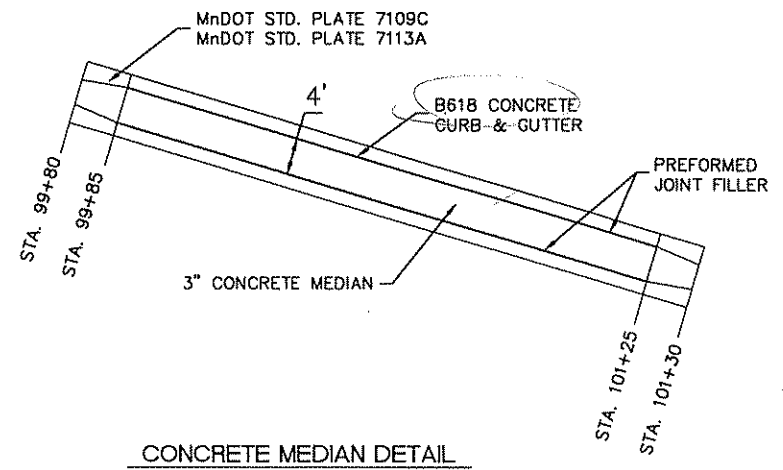
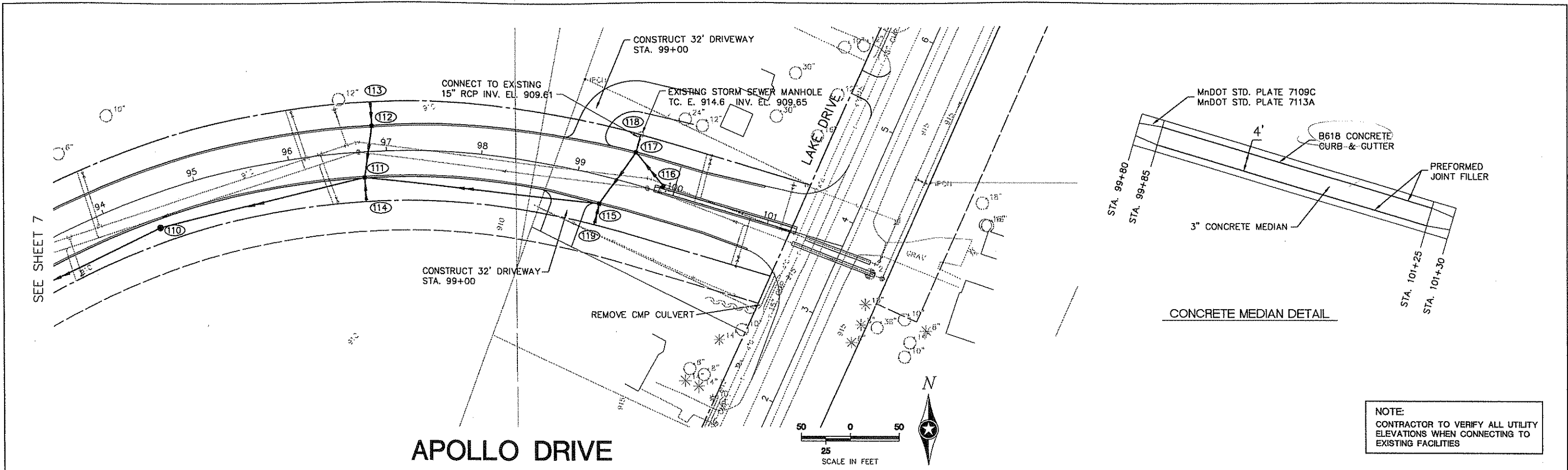
DATE: 1-27-99
 DESIGNED BY: J. VALENZUELA
 DRAWING NO.: LINO19808.01
 CHECKED BY: J. VALENZUELA
 SCALE: 1" = 25'

DESIGN				
DRAWING				
CHECKED				
DESIGN TEAM	NO.	BY	DATE	REVISIONS
ITEM		Date: January 29, 1999 Reg. No. 24245		

LINO LAKES MINNESOTA

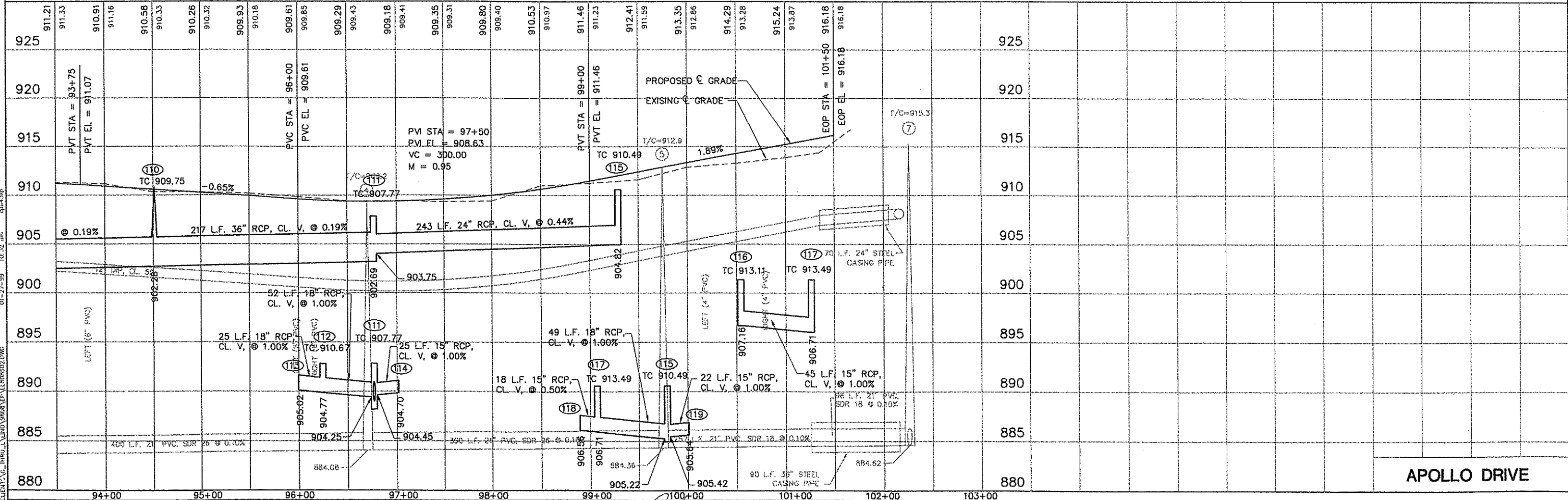
CSAH 12 / APOLLO DRIVE STREET & STORM SEWER

FILE NO. LINO19808.01 **7**
 DATE 1/29/99 **15**



NOTE:
CONTRACTOR TO VERIFY ALL UTILITY
ELEVATIONS WHEN CONNECTING TO
EXISTING FACILITIES

APOLLO DRIVE



DESIGN					
DRAWING					
CHECKED					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	ITEM

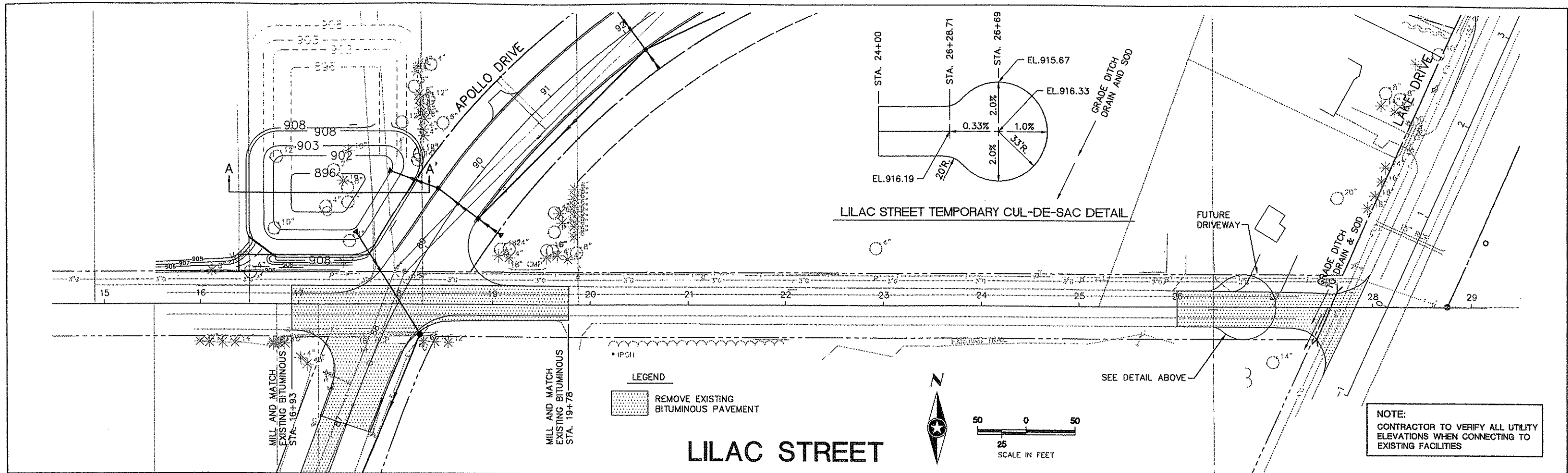
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LINO LAKES
MINNESOTA

CSAH 12 / APOLLO DRIVE
STREET & STORM SEWER

LINCL9808.01
DATE
1/29/99



925	908.77	908.89	908.11	908.03	909.62	909.10	908.31	908.19	907.12	908.32	908.44	908.41	909.40	909.57	909.71	909.82	910.14	910.58	911.17	911.84	912.45	913.20	913.98	914.62	915.30	915.87	916.10	916.23	916.20	915.64	916.18	915.08	0.00	925
920																																		920
915																																		915
910																																		910
905																																		905
900																																		900
895																																		895
890																																		890
885																																		885
880																																		880
	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	27+00	28+00	29+00	LILAC STREET																		

DESIGN					
DRAWING					
CHECKED					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	ITEM

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.

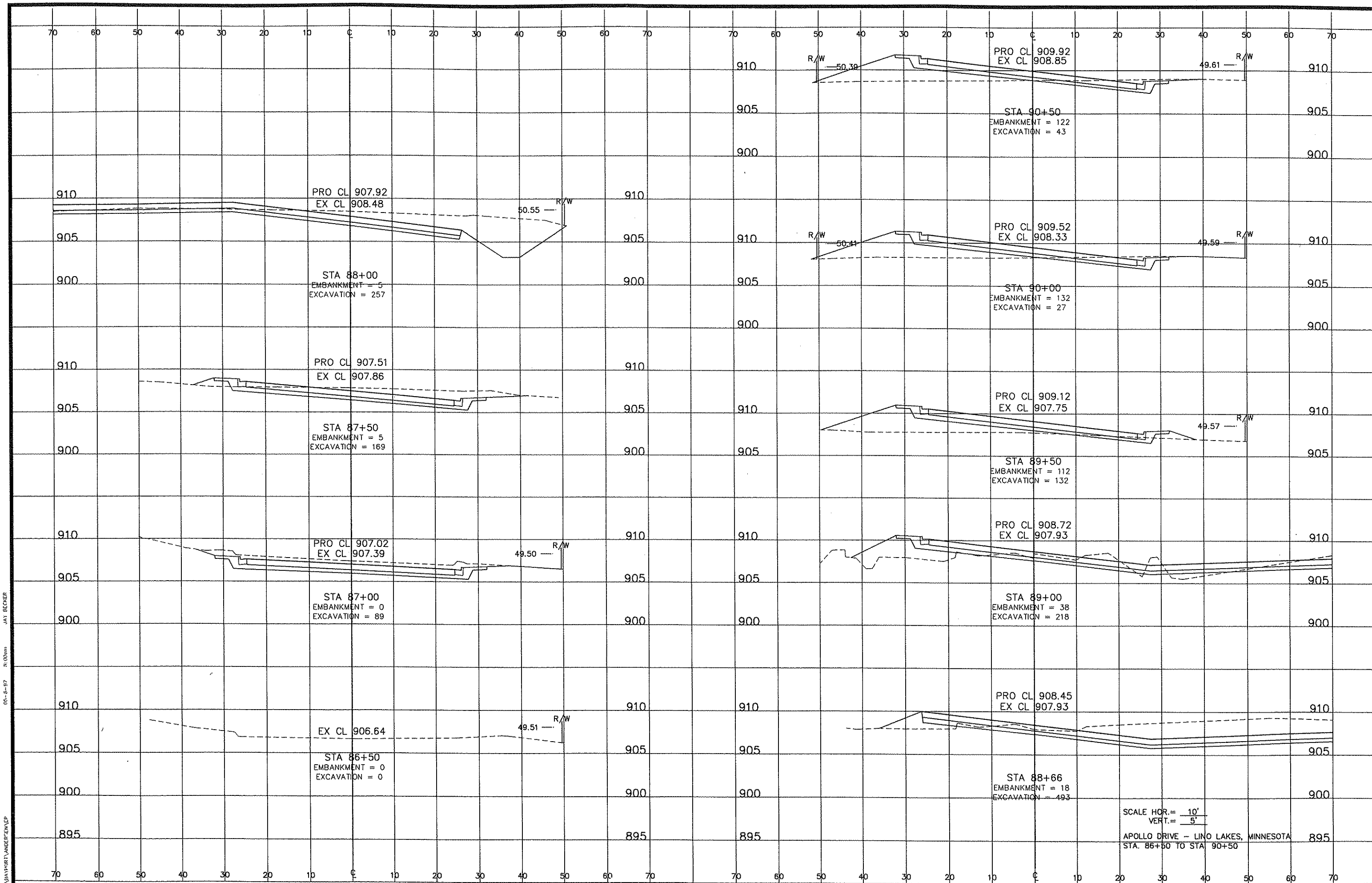
Date: January 29, 1999 Reg. No. 24245



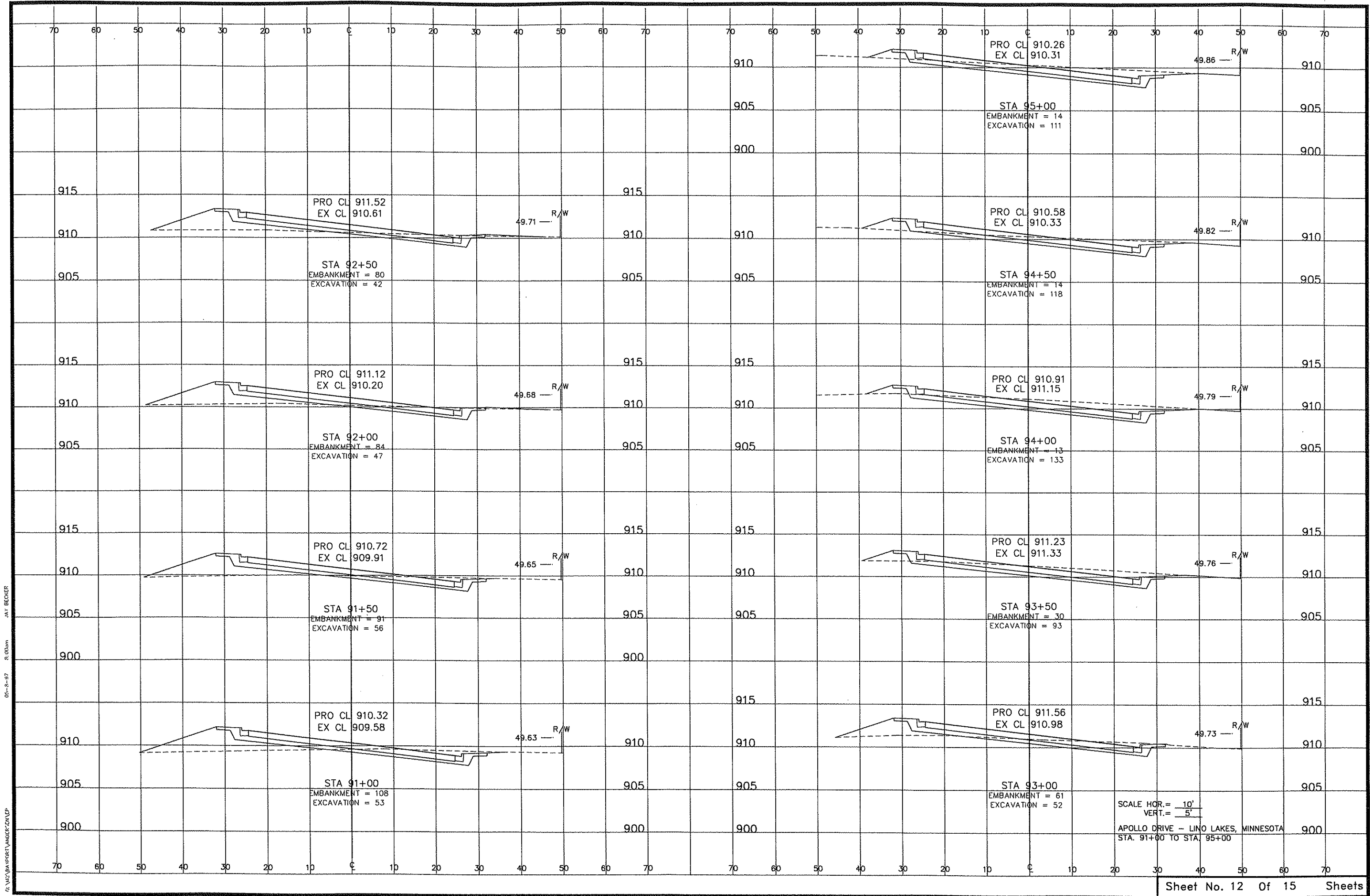
LINO LAKES MINNESOTA

LILAC STREET STREET CONSTRUCTION

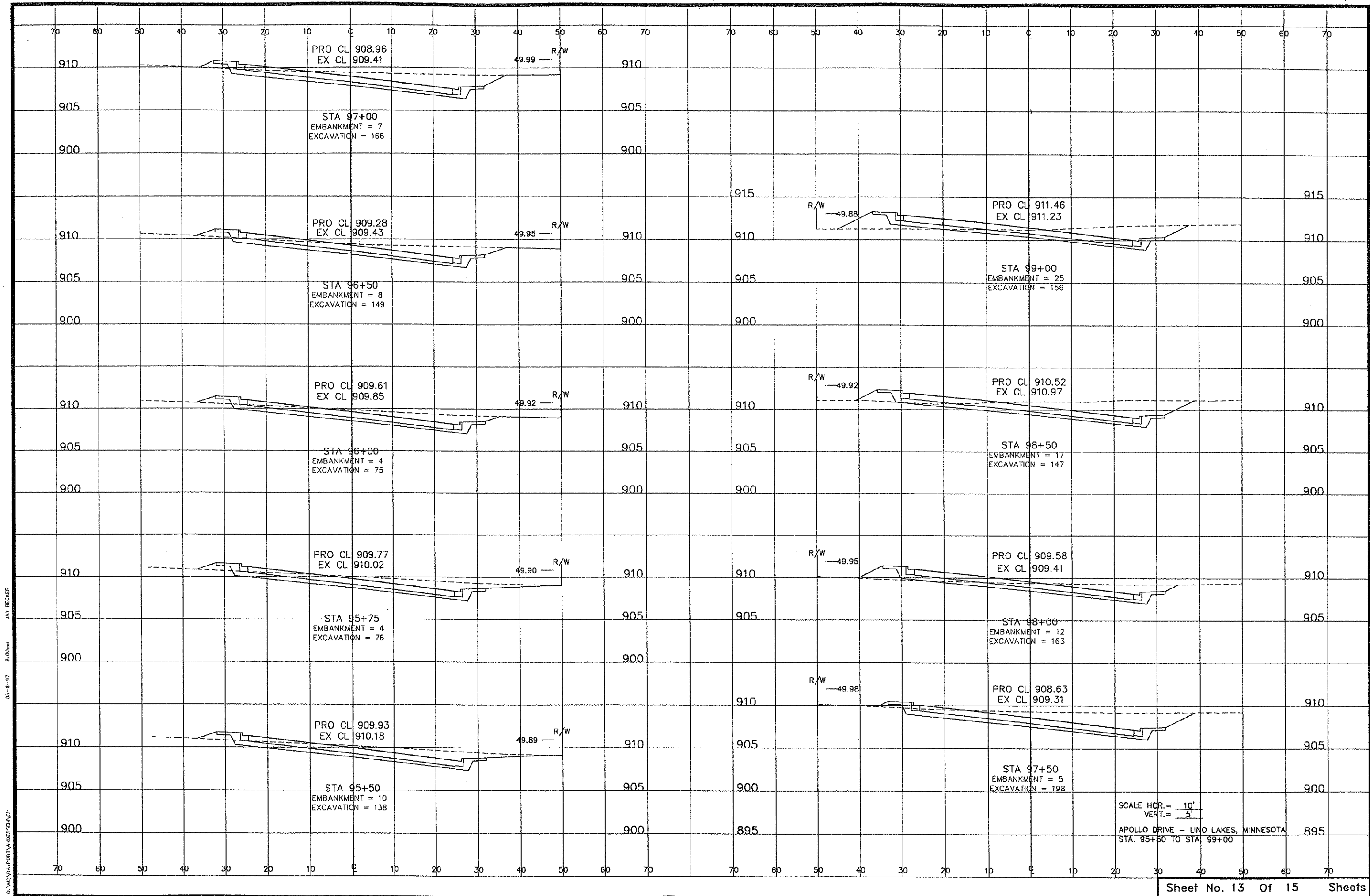
FILE NO.	LINOL9808.01	9 15
DATE	1/29/99	



05-8-87
 JAY BECKER
 05-8-87
 JAY BECKER



05-8-97 8:00am JAY BECKER
 G:\VIZ\BAP\PROJECT\ANDR\CON\LP



PRO CL 908.96
EX CL 909.41

STA 97+00
EMBANKMENT = 7
EXCAVATION = 166

PRO CL 909.28
EX CL 909.43

STA 96+50
EMBANKMENT = 8
EXCAVATION = 149

PRO CL 909.61
EX CL 909.85

STA 96+00
EMBANKMENT = 4
EXCAVATION = 75

PRO CL 909.77
EX CL 910.02

STA 95+75
EMBANKMENT = 4
EXCAVATION = 76

PRO CL 909.93
EX CL 910.18

STA 95+50
EMBANKMENT = 10
EXCAVATION = 138

PRO CL 911.46
EX CL 911.23

STA 99+00
EMBANKMENT = 25
EXCAVATION = 156

PRO CL 910.52
EX CL 910.97

STA 98+50
EMBANKMENT = 17
EXCAVATION = 147

PRO CL 909.58
EX CL 909.41

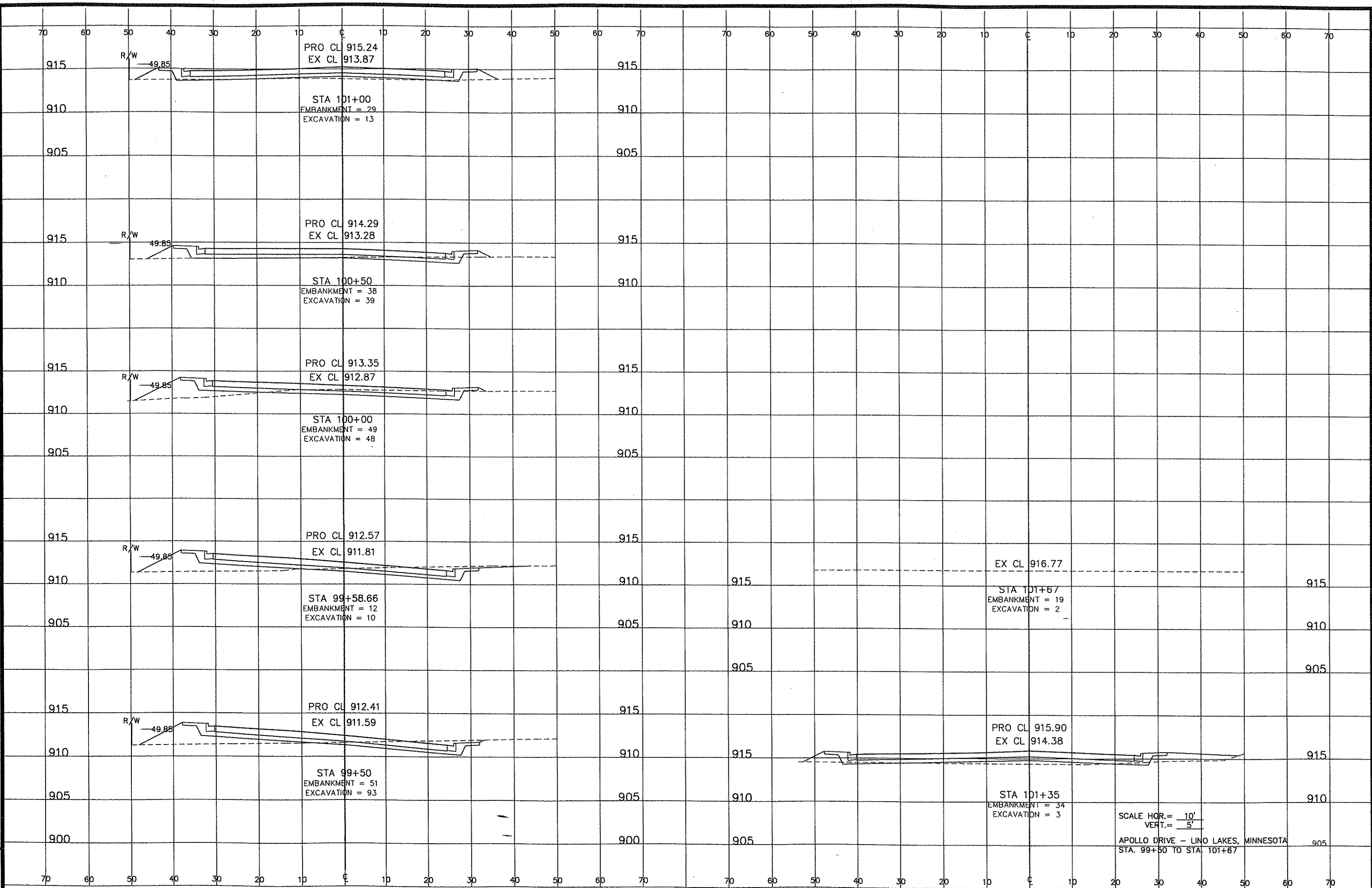
STA 98+00
EMBANKMENT = 12
EXCAVATION = 163

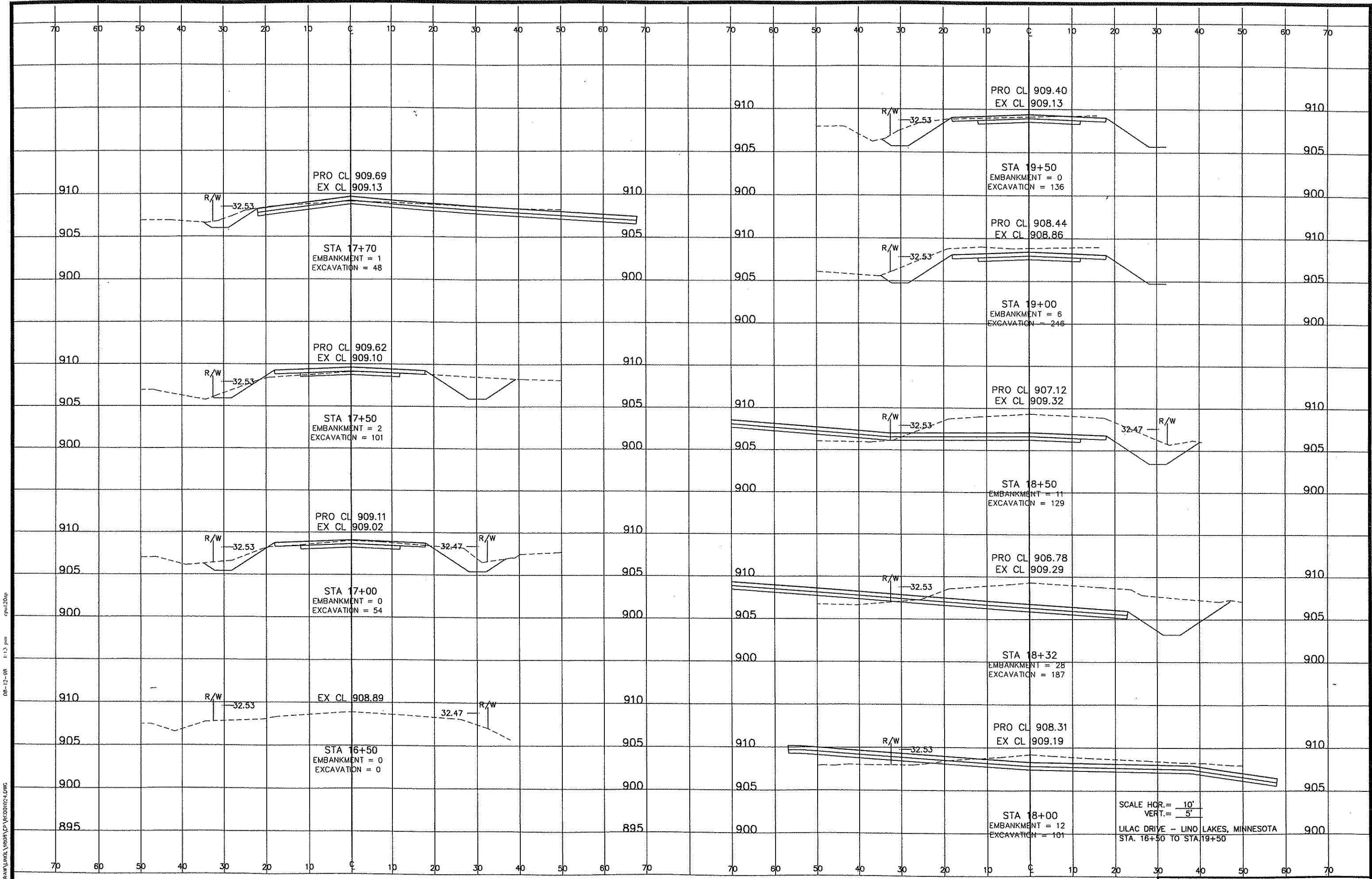
PRO CL 908.63
EX CL 909.31

STA 97+50
EMBANKMENT = 5
EXCAVATION = 198

SCALE HOR. = 10'
VERT. = 5'
APOLLO DRIVE - LINO LAKES, MINNESOTA
STA. 95+50 TO STA. 99+00

05-6-97 8:00am JAY BECKER
D:\VIZ\BA\106\1\106\REF-EM.VP





PRO CL 909.69
EX CL 909.13

STA 17+70
EMBANKMENT = 1
EXCAVATION = 48

PRO CL 909.62
EX CL 909.10

STA 17+50
EMBANKMENT = 2
EXCAVATION = 101

PRO CL 909.11
EX CL 909.02

STA 17+00
EMBANKMENT = 0
EXCAVATION = 54

EX CL 908.89

STA 16+50
EMBANKMENT = 0
EXCAVATION = 0

PRO CL 909.40
EX CL 909.13

STA 19+50
EMBANKMENT = 0
EXCAVATION = 136

PRO CL 908.44
EX CL 908.86

STA 19+00
EMBANKMENT = 6
EXCAVATION = 246

PRO CL 907.12
EX CL 909.32

STA 18+50
EMBANKMENT = 11
EXCAVATION = 129

PRO CL 906.78
EX CL 909.29

STA 18+32
EMBANKMENT = 28
EXCAVATION = 187

PRO CL 908.31
EX CL 909.19

STA 18+00
EMBANKMENT = 12
EXCAVATION = 101

SCALE HOR. = 10'
VERT. = 5'
LILAC DRIVE - LINO LAKES, MINNESOTA
STA. 16+50 TO STA. 19+50

08-12-98 1:13 pm c:\p120\p 120.dwg