

PLANS SYMBOLS

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

UTILITIES SYMBOLS

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

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS SURFACING AND CULVERT CONSTRUCTION

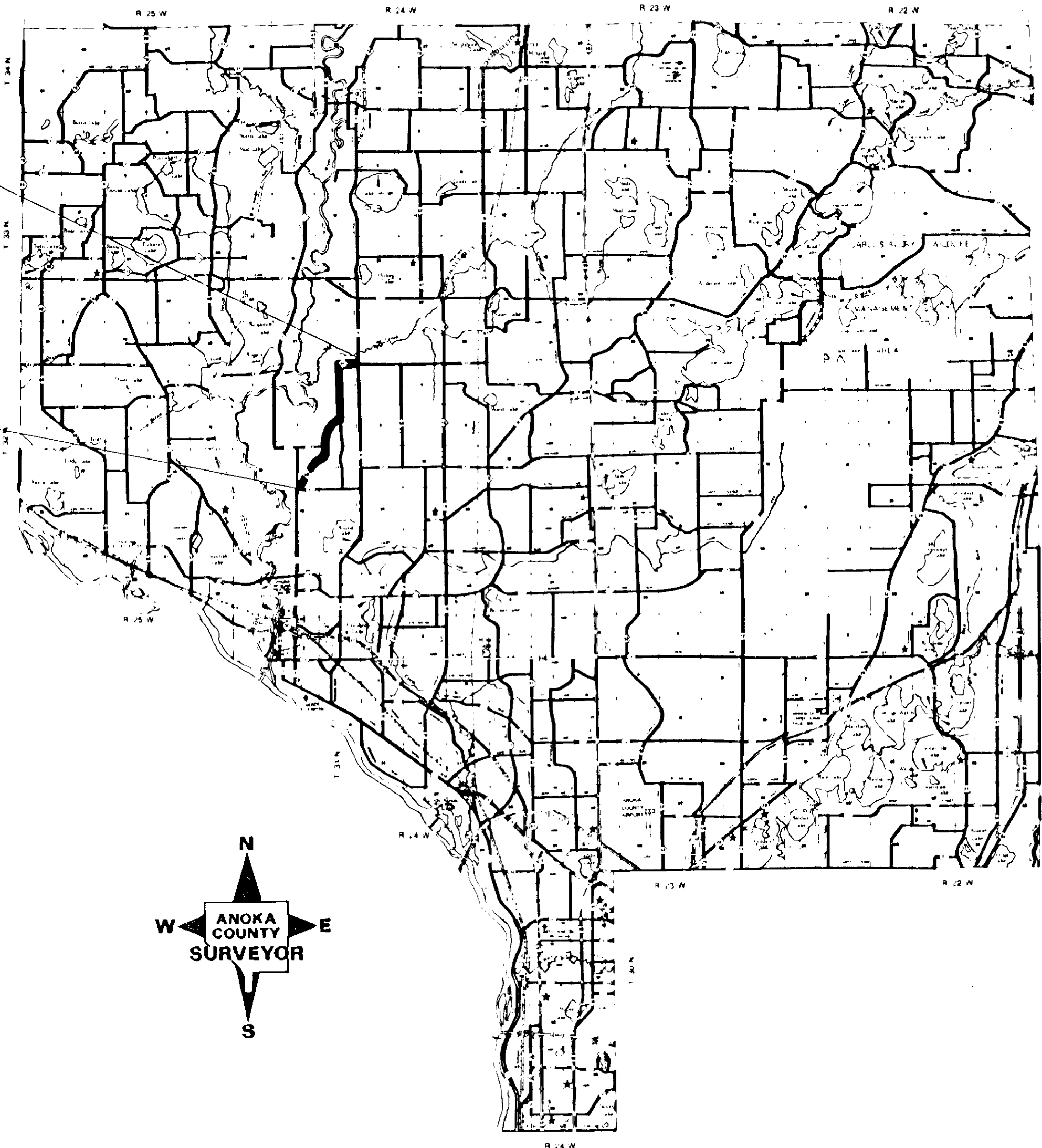
LOCATED ON C.R. 58 BETWEEN C.S.A.H. 7 AND C.S.A.H. 9 (Geographic Description)

COUNTY PROJ. NO. 91-02-58 STATE AID PROJ. NO.

GROSS LENGTH 1.9,276 FEET 3.651 MILES
 BRIDGES-LENGTH FEET MILES
 EXCEPTIONS-LENGTH FEET MILES
 NET LENGTH 1.9,276 FEET 3.651 MILES

END CP 91-02-58
STA. 288+16

BEGIN CP 91-02-58
STA. 95+40



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

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE JANUARY 2, 1991 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

SHEET NO.	INDEX	DESCRIPTION
1		TITLE SHEET
2		ESTIMATED QUANTITIES
3		TYPICAL SECTIONS
4		DRAINAGE & EROSION CONTROL
5		EARTHWORK SUMMARY
6-7		PLAN SHEETS
8		PROFILE SHEET
9		SUPERELEVATIONS
10-19		CROSS-SECTIONS
20-24		TRAFFIC CONTROL

THIS PLAN CONTAINS 24 SHEETS

DESIGN DESIGNATION

ΣN18₂₀ NA
 R Value NA
 ADT (1992) = 1,698
 Proj. ADT (2012) = 2,887
 Proj. HCADT (2012) = 216
 Soil Factor 50%
 9 Ton Design
 Shoulder Width 8 FT.

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 6/17/92 REG. NO. 20235 ENGR. Douglas M. Fincher

DESIGN SQUAD M. GABRICK

Recommended for Approval Michael Kelly June 17, 1992

Recommended for Approval Janet P. Pender June 17, 1992

Recommended for Approval Don S. Olson June 17, 1992

Approved 6/17/92 James E. Schwanz ANOKA COUNTY ENGINEER

Approved 7/21/92 James E. Schwanz CITY OF ANDOVER

SCALES

PLAN 50'
 PROFILE 50H, 5V
 INDEX MAP 24'
 GENERAL LAYOUT NA

REVISIONS		
DATE	SHEETS	BY
6-16-93	ALL	DWF

COUNTY PROJ. NO. 91-02-58
 STATE PROJ. NO. _____ SHEET NO. 1 OF 24 SHEETS

STATEMENT OF ESTIMATED QUANTITIES				
ITEM NO	ITEM	UNIT	EST. QUANTITY	FINAL QUANTITY
2021.501	MOBILIZATION	LUMP SUM	1	
2031.501	FIELD OFFICE, TYPE D	EACH	1	
2101.501	CLEARING	ACRE	0.15	
2101.502	CLEARING	TREE	9	
2101.506	GRUBBING	ACRE	0.15	
2101.507	GRUBBING	TREE	13	
2104.501	REMOVE CULVERT PIPE	LIN.FT.	110	
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ.YD.	5317	
2104.513	SAWING BITUMINOUS PAVEMENT	LIN.FT.	1247	
2104.521	SALVAGE FENCE	LIN.FT.	1320	
2105.501	COMMON EXCAVATION (P)	CU.YD.	18693	
2105.505	MUCK EXCAVATION	CU.YD.	3420	
2105.535	SALVAGE TOPSOIL (LV)	CU.YD.	1423	
2123.503	MOTOR GRADER	HR	5	
2130.501	WATER	M.GAL	50	
2211.503	AGG. BASE PLACED, CLASS 5A (P)	CU.YD.	1203	
2232.501	MILL BITUMINOUS SURFACE	SQ.YD.	140	
2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	5624	
2340.510	TYPE 31 BINDER COURSE MIXTURE	TON	690	
2340.514	TYPE 31 BASE COURSE MIXTURE	TON	520	
2340.601	2" THICK WEARING COURSE PLACED	SQ.YD.	183	
2357.502	BIT. MAT'L FOR TACK COAT	GAL.	2953	
2451.509	AGGREGATE BEDDING (LV)	CU.YD.	200	
2501.511	15" C.M.PIPE CULVERT	LIN.FT.	115	
2501.511	18" C.M.PIPE CULVERT	LIN.FT.	65	
2501.511	48" R.C.PIPE CULVERT	LIN.FT.	124	
2501.521	28" SPAN RC PIPE-ARCH CULVERT CLASS IV	LIN.FT.	83	
2501.515	15" C.M.PIPE APRONS	EACH	4	
2501.515	18" C.M.PIPE APRONS	EACH	2	
2501.515	48" R.C.PIPE APRONS	EACH	2	
2501.525	28" SPAN RC PIPE-ARCH APRON	EACH	2	
0557.603	INSTALL FENCE	LIN.FT.	1320	
0563.601	TRAFFIC CONTROL - DETOUR	LUMP SUM	1	
0563.601	TRAFFIC CONTROL STAGE 1	LUMP SUM	1	
0563.601	TRAFFIC CONTROL STAGE 2	LUMP SUM	1	
2573.501	BALE CHECK	EACH	47	
2573.502	SILT FENCE, HEAVY DUTY	LIN.FT.	1200	
2575.501	SEEDING (P)	ACRE	6.40	
2575.502	SEED, MIXTURE 600	LB.	181	
2575.502	SEED, MIXTURE 900	LB.	180	
2575.505	SODDING, TYPE EROSION CONTROL	SQ.YD.	800	
2575.511	MULCH MATERIAL TYPE-1	TON	12.3	
2575.519	DISC ANCHORING (P)	ACRE	6.40	
2575.523	WOOD FIBER BLANKETS, TYPE REGULAR	SQ.YD.	163	
2575.531	COMM. FERT. ANALY. 10-10-10	TON	1.60	
2580.501	TEMPORARY LANE MARKING	RD.STA.	222	

STANDARD PLATES	
PLATE NO.	DESCRIPTION
0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 L	REINFORCED CONCRETE PIPE
3014 J	REINFORCED CONCRETE PIPE ARCH DETAIL
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123 G	METAL APRON FOR C. S. PIPE
3145 E	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
9000 B	APPROACHES AND ENTRANCES
9102 C	SODDING AT PIPE CULVERT ENDS

BASIS OF PLANNED QUANTITIES	
2340	PLANT MIXED BASE AND BINDER COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
2340	PLANT MIXED SHOULDER COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
2340	PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
2357	BITUMINOUS MATERIAL FOR TACK 0.05 GALLON PER SQ.YD.
2575	MULCH MATERIAL TYPE 1, 2 TONS PER ACRE.
2575	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10 500 LBS./ACRE ON ALL SEED AND SOD AREAS.
2575	ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENT PLUS 10% SEED MIXTURE NO. 600, 75 LBS. PER ACRE. SEED MIXTURE NO. 900, 45 LBS. PER ACRE.

CLEARING AND GRUBBING					
STATION	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
99+51	42' RT	0		1	
211+80 TO 212+75	20 - 33' LT		0.05		0.05
213+00	31' LT	1		1	
217+04	30' LT	1		1	
218+26	30' RT	1		1	
218+57	35' RT	1		1	
218+68	33' RT	1		1	
218+73	58' RT	1		1	
218+61 TO 219+54	49 - 64' LT			0.10	0.10
220+38	22' RT	1		1	
221+19	27' RT	1		1	
221+22	18' RT	0		1	
221+31	19' RT	0		1	
221+44	19' RT	0		1	
221+18	36' LT	1		1	
TOTALS:		9	0.15	13	0.15

SAWING BITUMINOUS PAVEMENT				
STA. TO STA.	LOC	LENGTH	COMMENTS	
0+00 TO 6+84	RT	750	SAW ALONG SHLDR OF CSAH 7	
3+00	RT	80	TOM THUMB ENTRANCE	
90+93	C/L	24		
92+35	RT	24	KIDWA STREET	
94+95	C/L	85	SAW ALONG SHLD OF CSAH 7	
45+80	C/L	24		
49+00	C/L	24		
104+60	C/L	24		
212+75	LT	44	BITUMINOUS ENTRANCE	
215+00	LT	120	BITUMINOUS ENTRANCE	
219+22	C/L	24	CULVERT AT CD. DITCH 6	
219+94	C/L	24	CULVERT AT CD. DITCH 6	
TOTAL		1247		

BITUMINOUS AND AGGREGATE BASE SUMMARY													
STATION TO STATION	TYPE 31 BASE			TYPE 31 BINDER			TYPE 41 WEAR			TACK COAT	AGGREGATE BASE CLASS 5A		
	DEPTH (IN.)	AREA (SQ.YD.)	WEIGHT (TON)	DEPTH (IN.)	AREA (SQ.YD.)	WEIGHT (TON)	DEPTH (IN.)	AREA (SQ.YD.)	WEIGHT (TON)	(GAL.)	DEPTH (IN.)	AREA (SQ.FT.)	VOLUME (CU.YD.)
90+93	94+90	0.0	0	0	0	0	2.0	1473	182	0	4.0	13697	167
0+40	6+84	3.0	243	40	2.0	894	1.5	859	71	57	4.0	8694	107
95+40	104+60	3.0	2777	458	2.0	4542	1.5	4711	389	366	VAR	46271	679
45+00	45+80	0.0	0	0	0.0	0	2.0	601	66	0	4.0	5489	67
45+80	49+00	0.0	0	0	0.0	0	1.5	853	70	42	0.0	0	0
20+12	20+42	0.0	0	0	1.5	146	1.5	143	12	7	4.0	6476	78
49+00	51+12	0.0	0	0	1.5	773	1.5	750	62	39	4.0	6539	87
104+60	CSAH #9	0.0	0	0	0.0	0	1.5	48949	4772	2447	0.0	0	0
219+22	219+94	2.0	200	22	1.5	192			16	10	4.0	1872	23
TOTALS				520		690			5624	2968			1208

ENTRANCE CHART					
STA.	LOC	INPLACE ENTRANCE	NEW WIDTH	BITUMINOUS SQ YD	REMARKS
103+50	LT	14' CRUSHED AGGREGATE	14	34	PAVE 15' LENGTH, QUANTITY INCLUDES TWO 15' RADII
212+80	LT	14' BITUMINOUS ENTRANCE	14	44	PAVE TO 33' R/W, QUANTITY INCLUDES TWO 15' RADII
215+00	LT	DOUBLE-WIDE BITUMINOUS ENTRANCE	VAR	110	PAVE TO 33' R/W, MATCH EXISTING WIDTH
TOTAL:				188	

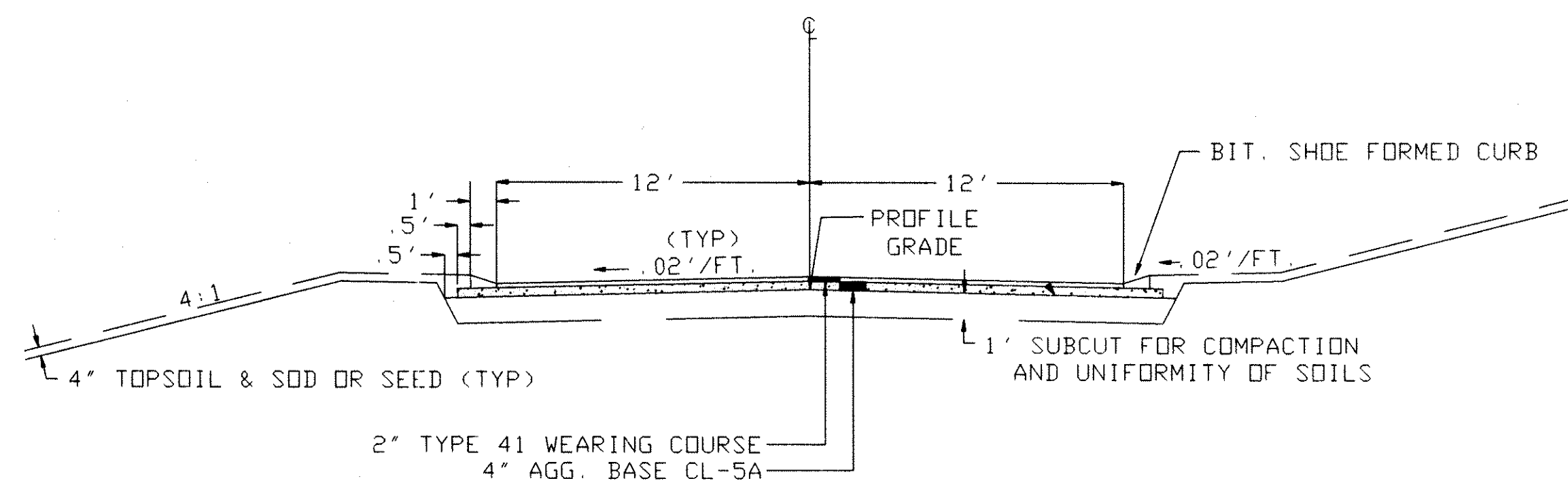
TURF ESTABLISHMENT						
STATION TO STATION	SEED AREA ACRES	SEED MIX #900	SEED MIX #600	FERTILIZER 10-10-10	MULCH TYPE 1	
L1 90+93	L1 94+90	0.30	0	23	150	0.6
L1 95+40	L1 104+60	1.85	83	0	925	3.7
L3 43+60	L3 51+12	2.00	0	150	1000	4.0
L4 20+12	L4 22+15	0.10	0	8	50	0.2
L2 0+40	L2 5+74	0.10	5	0	50	0.2
211+80	222+00	2.05	92	0	1025	4.1
TOTALS:		6.40	180	181	3200	12.8

- NOTES:
- REMOVAL TO INCLUDE EXISTING BITUMINOUS ROADWAY SURFACE REGARDLESS OF DEPTH, (AVERAGE 4" THICK) INCLUDES STREET APPROACHES AND RESIDENTIAL ENTRANCES.
 - MATERIAL TO BE SALVAGED FROM EXCESS MUCK EXCAVATION TO BE USED AS ADDITIONAL TOPSOIL DRESSING FOR L1, L2, L3, AND L4 CONSTRUCTION AS DIRECTED BY THE ENGINEER.
 - TO BE USED FOR SHAPING THE INPLACE AGGREGATE SHOULDERS PRIOR TO THE BITUMINOUS OVERLAY, AS DIRECTED BY THE ENGINEER.
 - TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
 - TO BE USED FOR TAPERING THE INPLACE BITUMINOUS SURFACE PRIOR TO THE BITUMINOUS OVERLAY AT CSAH #9, AT THE DIRECTION OF THE ENGINEER.
 - TO BE USED FOR RESIDENTIAL ENTRANCE CONSTRUCTION.
 - TO BE USED FOR AGGREGATE BEDDING THE NEW PIPE CULVERT CONSTRUCTION AT STATION 219+40 AS DIRECTED BY THE ENGINEER.
 - TO BE USED FOR EROSION CONTROL AT PIPE CULVERT ENDS AS SHOWN IN THE PLANS, DIMENSIONS AS PER STANDARD PLATE 9102C AND/OR AS DIRECTED BY THE ENGINEER.
 - FOR TEMPORARY EROSION CONTROL AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.
 - INCLUDES BITUMINOUS SHOULDER FORMED CURB.
 - INCLUDES 23 C.Y. AGGR. BASE CL. 5, 22 TON TYPE 31 BIT. BASE AND 16 TON TYPE 31 BIT BINDER FOR CULVERT REPLACEMENT AT COUNTY DITCH NO. 6.

REVISIONS			
DATE	BY	DATE	BY

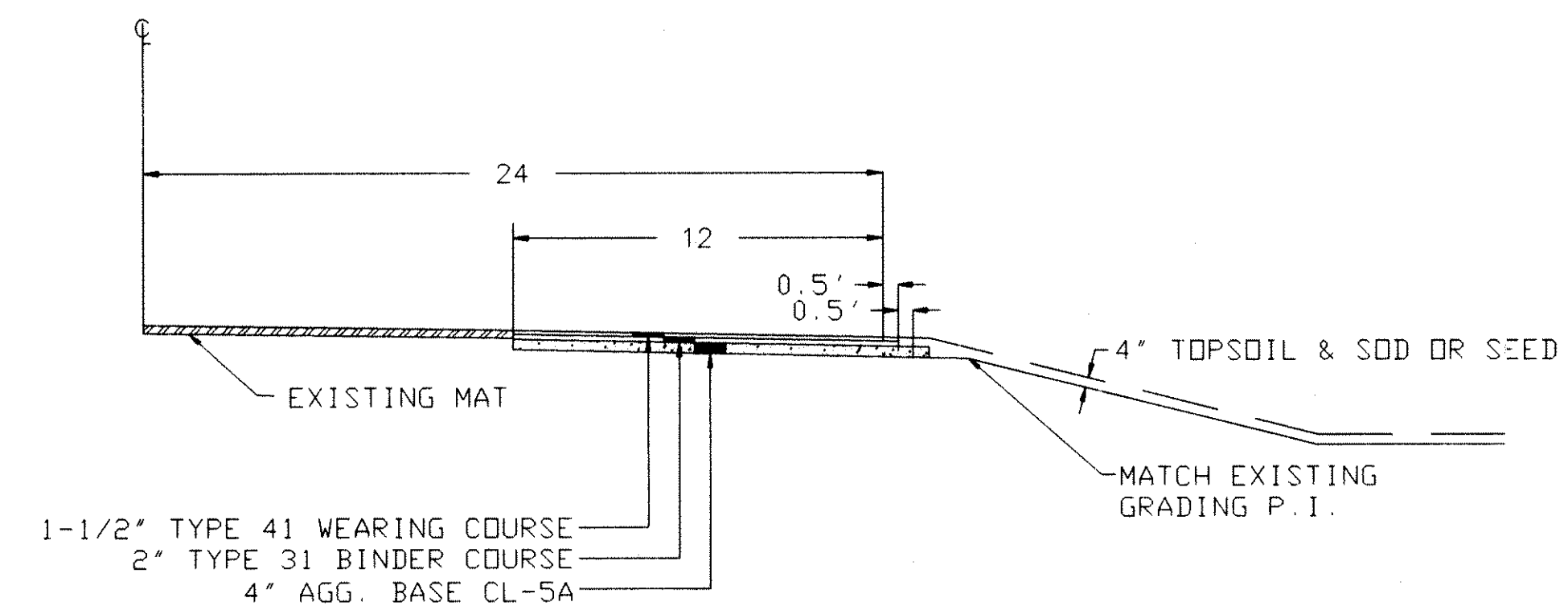
TYPICAL BASE & GRADING SECTION

L1 STA. 90+93 - 94+80
159TH AVENUE



TYPICAL BASE & GRADING SECTION

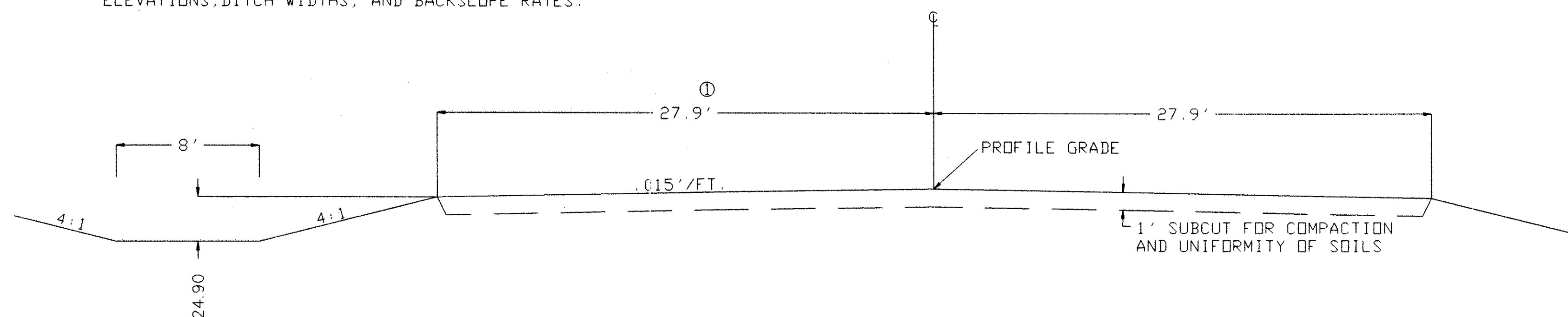
L2 STA 0+40 - 6+87
RIGHT TURN LANE - C.S.A.H. 7



GRADING SECTION

L1 STA 95+40 - 104+60
COUNTY ROAD 58

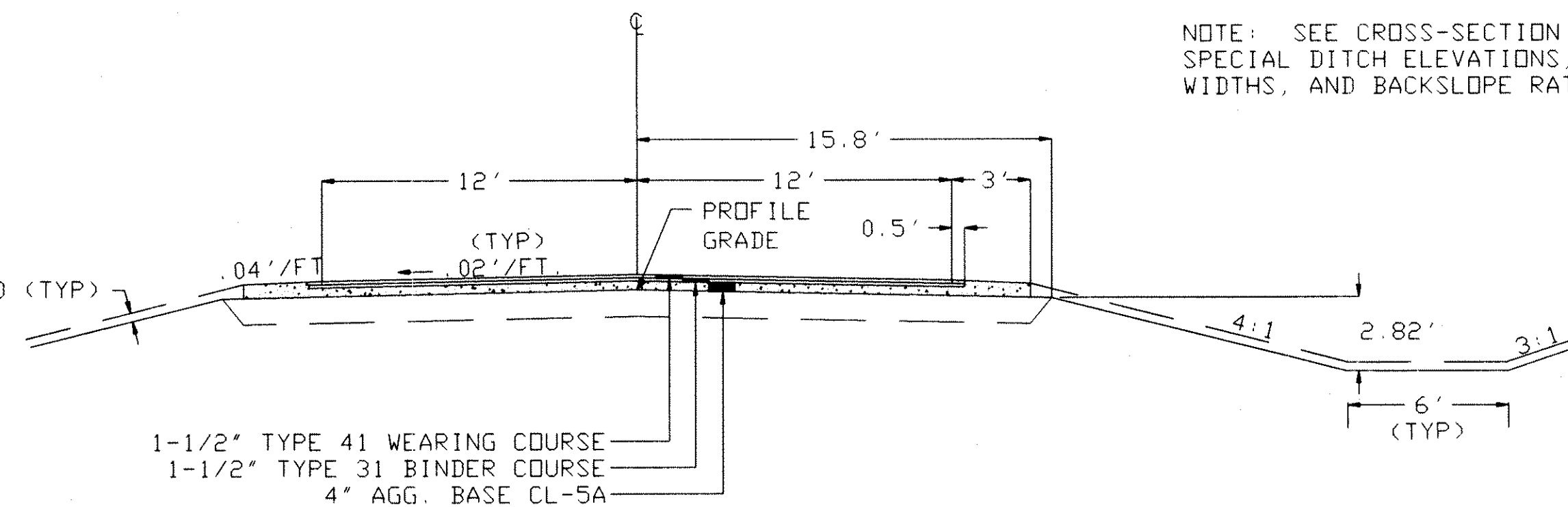
NOTE: SEE CROSS-SECTION FOR SPECIAL DITCH ELEVATIONS, DITCH WIDTHS, AND BACKSLOPE RATES.



TYPICAL BASE & GRADING SECTION

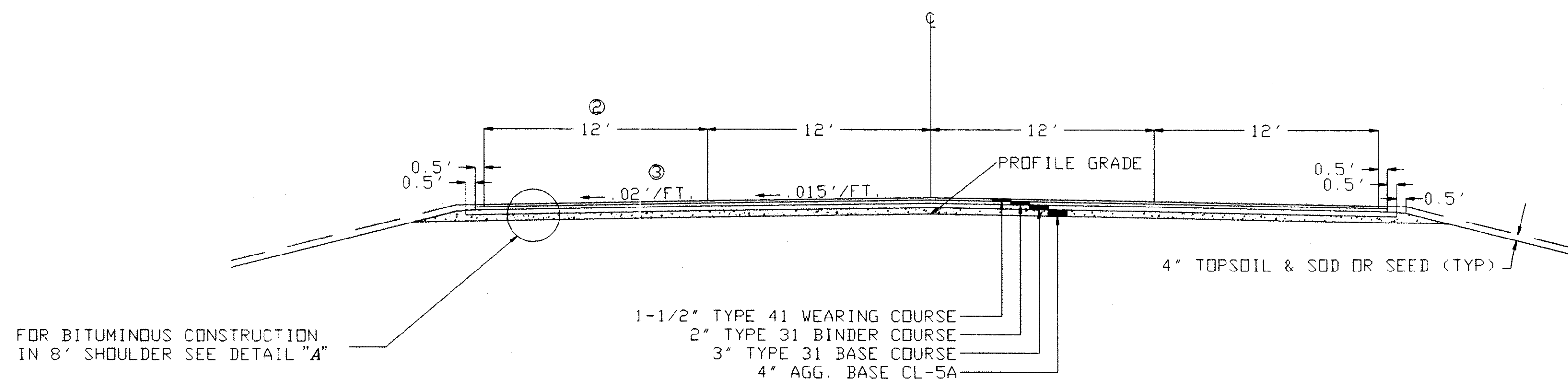
L3 STA. 49+00 - 51+12 (OLD CR 58)
L4 STA. 20+12 - 22+15 (FOX STREET)

NOTE: SEE CROSS-SECTION FOR SPECIAL DITCH ELEVATIONS, DITCH WIDTHS, AND BACKSLOPE RATES.



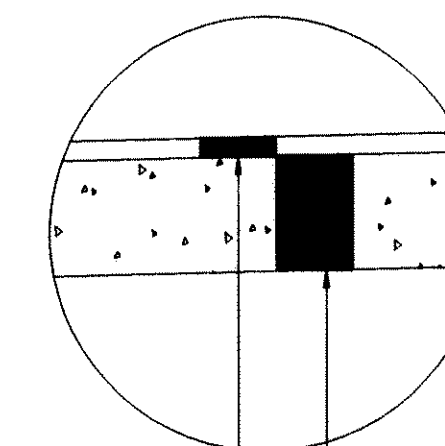
TYPICAL BASE & GRADING SECTION

L1 STA 95+40 - 104+60
COUNTY ROAD 58



FOR BITUMINOUS CONSTRUCTION IN 8' SHOULDER SEE DETAIL "A"

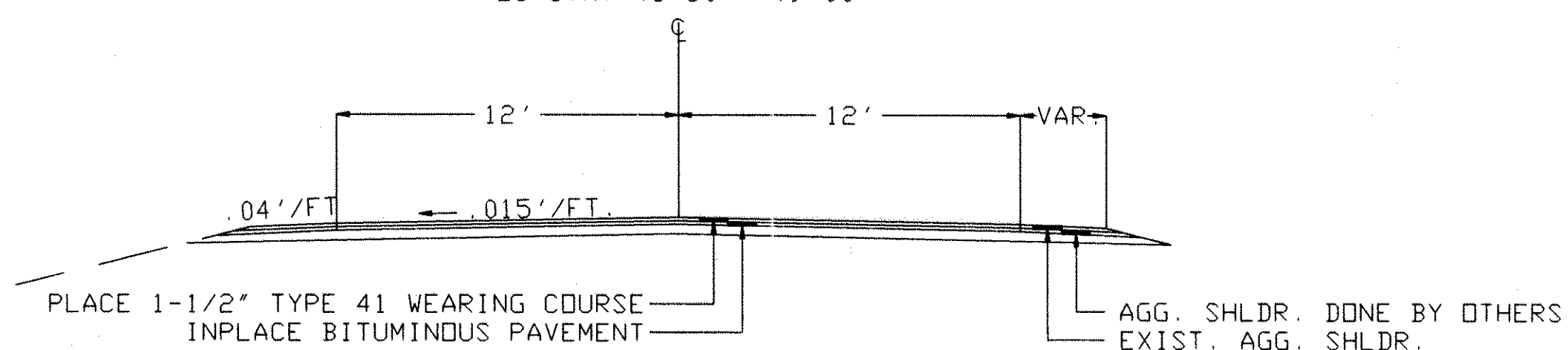
DETAIL "A"



- ① 22.8' WHEN FINISHED SHOULDER IS 8'
- ② 8' FROM STA. 100+20 - 104+60 LT..
- ③ .04'/FT. IN NORMAL SHOULDER.
- ④ L4 BITUMINOUS SECTION ENDS @ STA. 20+42

TYPICAL OVERLAY SECTION

L1 STA. 104+60 - C.S.A.H. 9
L3 STA. 45+80 - 49+00

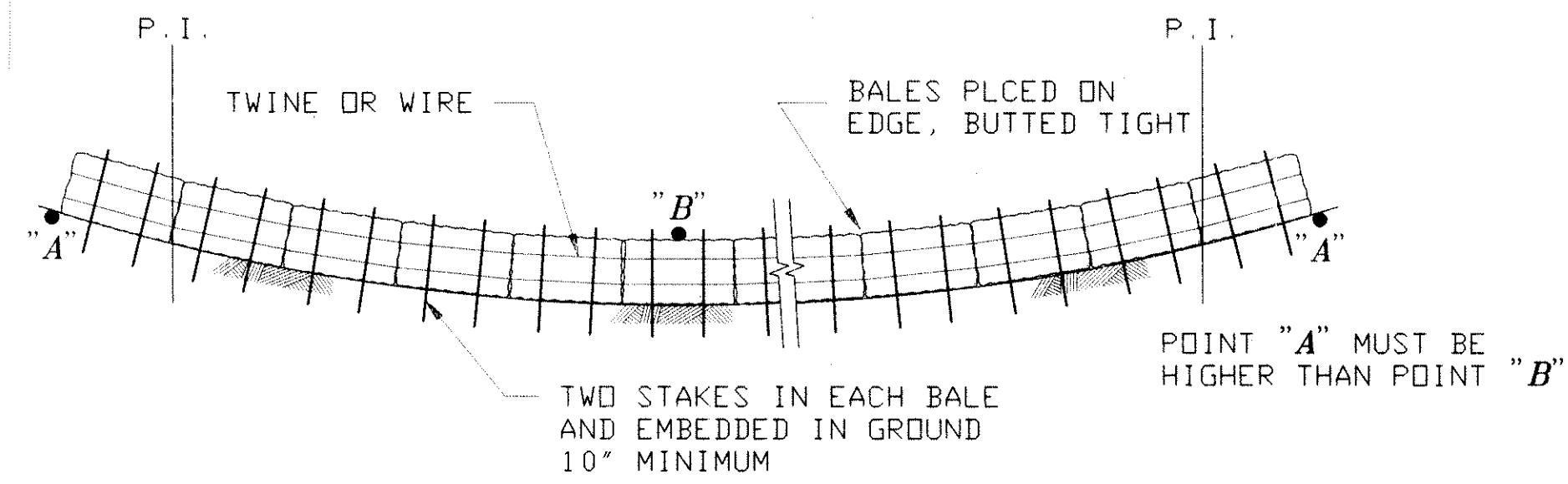


REVISIONS			
DATE	BY	DATE	BY

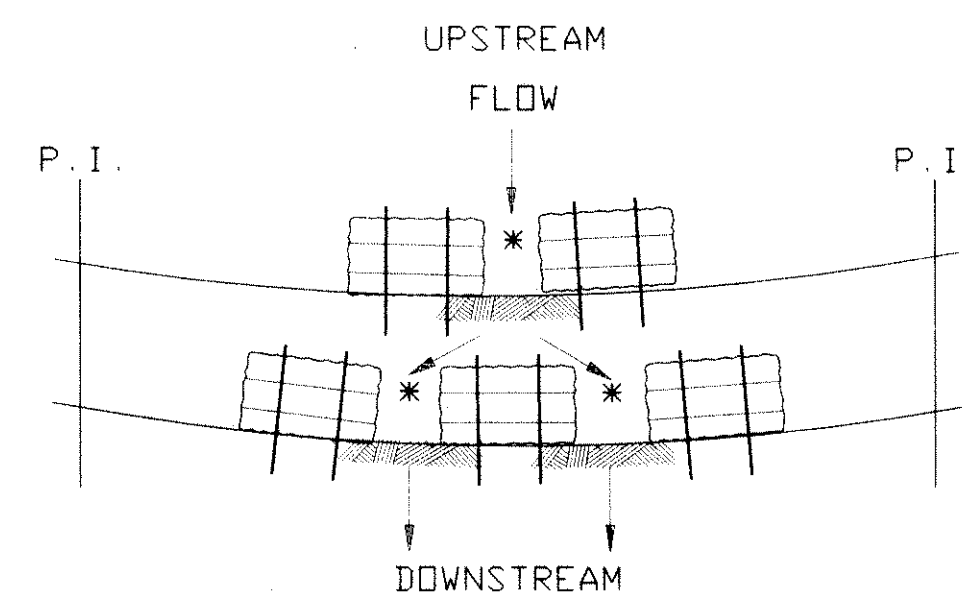
S.A.P. _____ S.P. _____ C.P. 91-02-58

TYPICAL SECTIONS

BALE HAY OR STRAW DITCH CHECK

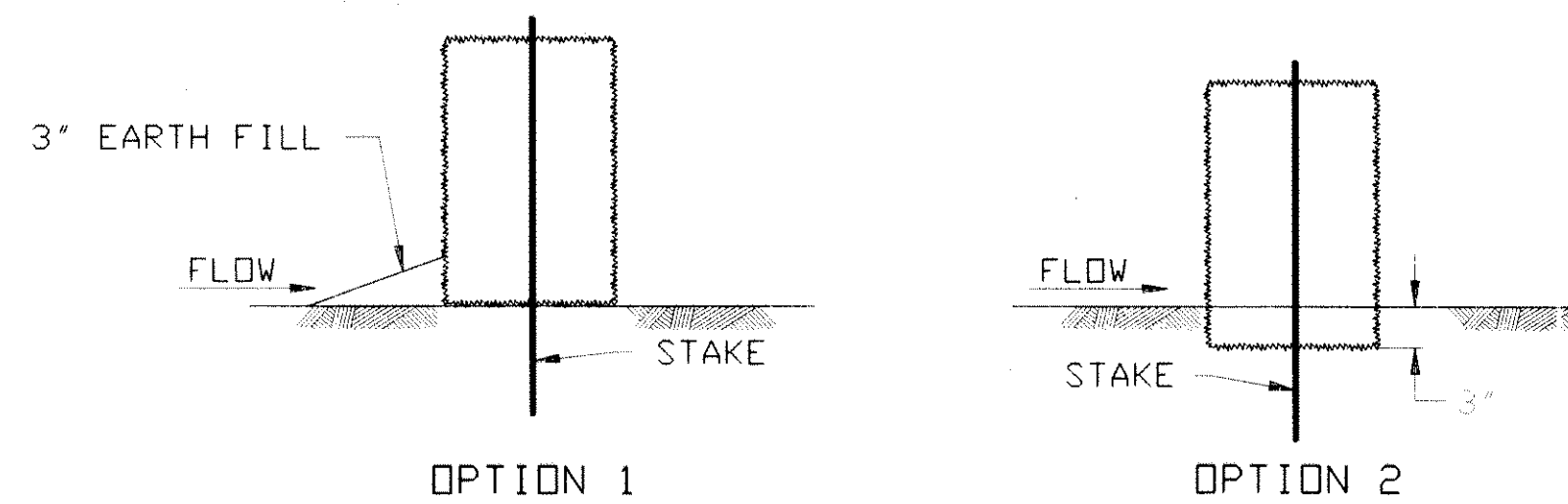


ALTERNATE BALE CHECK



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

DITCH CHECK SECTIONS

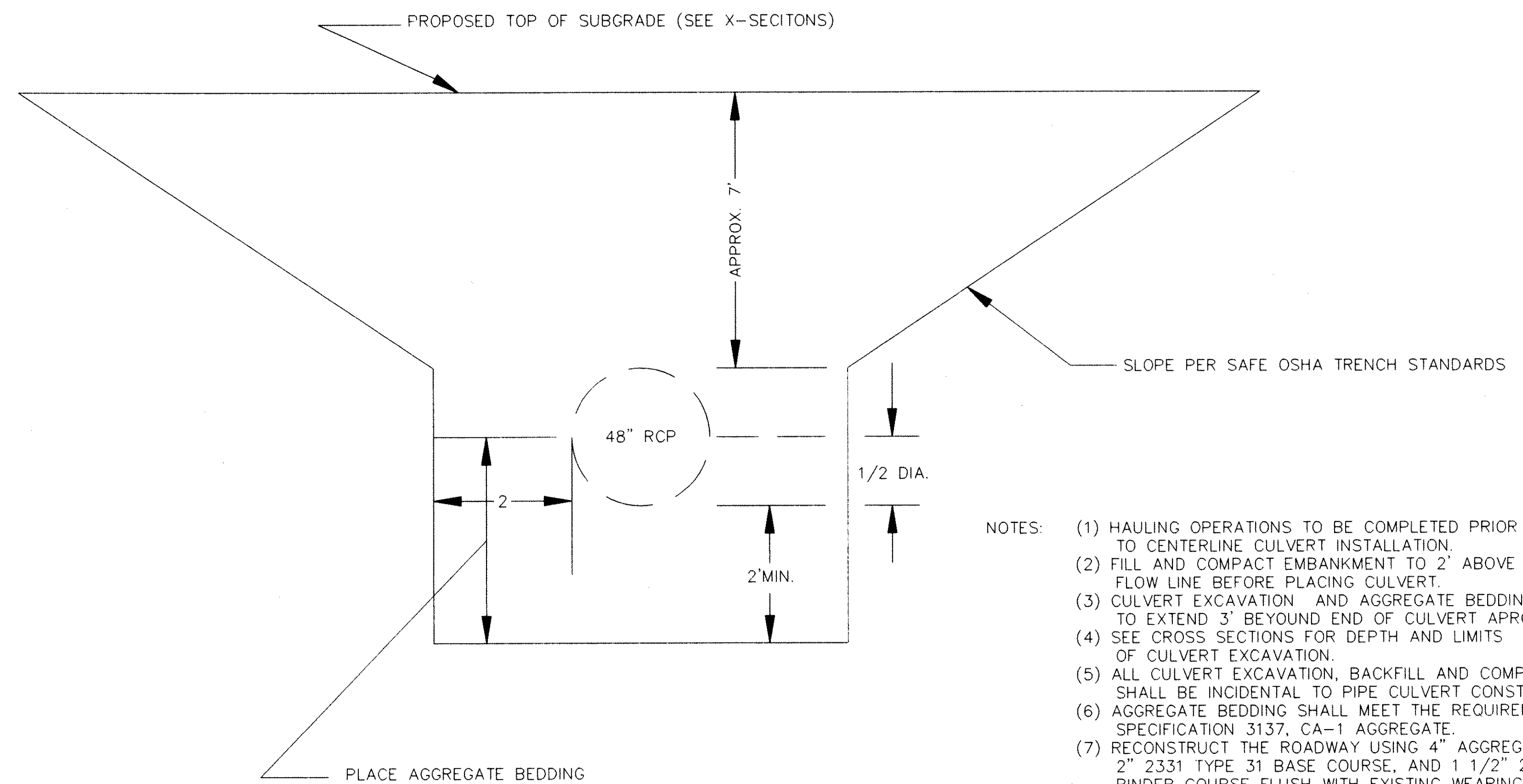


BALE CHECKS		
STATION	LOCATION	QUANTITY
50+00	LT	5
50+00	RT	5
94+75	RT	1
95+62	RT	1
100+50	LT	5
100+50	RT	5
101+00	LT	5
101+00	RT	5
103+00	LT	5
103+00	RT	5
217+25	LT	5
TOTAL:		47

DRAINAGE CHART

STATION	LOC	INPLACE	REMARKS	REMOVE PIPE CULV LIN FT	FIBER BLANKET CULV ENDS SQ YD	FURNISH AND INSTALL							
						15" CMP		18" CMP		28" SPAN RCP		48" RCP	
						LIN FT	APRON	LIN FT	APRON	LIN FT	APRON	LIN FT	APRON
94+75	C/L	---			22			66	2				
94+75	RT	50' X 18" CMP	REMOVE CULVERT	50						88	2		
95+62	C/L	---			28								
212+75	LT	---			16	50	2						
215+00	LT	---			16	66	2						
219+40	C/L	60' X 48" CMP	REMOVE CULVERT	60	81							124	2
TOTALS:				110	163	116	4	66	2	88	2	124	2

STATION 219+40



- NOTES:
- HAULING OPERATIONS TO BE COMPLETED PRIOR TO CENTERLINE CULVERT INSTALLATION.
 - FILL AND COMPACT EMBANKMENT TO 2' ABOVE FLOW LINE BEFORE PLACING CULVERT.
 - CULVERT EXCAVATION AND AGGREGATE BEDDING TO EXTEND 3' BEYOND END OF CULVERT APRON.
 - SEE CROSS SECTIONS FOR DEPTH AND LIMITS OF CULVERT EXCAVATION.
 - ALL CULVERT EXCAVATION, BACKFILL AND COMPACTION SHALL BE INCIDENTAL TO PIPE CULVERT CONSTRUCTION.
 - AGGREGATE BEDDING SHALL MEET THE REQUIREMENTS OF MNDOT SPECIFICATION 3137, CA-1 AGGREGATE.
 - RECONSTRUCT THE ROADWAY USING 4" AGGREGATE BASE CLASS 5, 2" 2331 TYPE 31 BASE COURSE, AND 1 1/2" 2331 TYPE 31 BINDER COURSE FLUSH WITH EXISTING WEARING SURFACE.
 - ALL CULVERT CONSTRUCTION TO BE COMPLETED PRIOR TO THE 1 1/2" BITUMINOUS OVERLAY CONSTRUCTION. BITUMINOUS OVERLAY SHALL BE PLACED OVER THE RECONSTRUCTION ROADWAY BITUMINOUS SECTION AND PAID FOR SEPARATELY.

REVISIONS			
DATE	BY	DATE	BY

OLD CR 58
L3 STA. 43+50 TO STA. 50+85

COMMON EXCAVATION	3209 CU YDS
REGULAR CUT	2996 CU YDS (1)
SUBCUT	509 CU YDS
EMBANKMENT	576 CU YDS
REGULAR TOPSOIL	111 CU YDS 465 CU YDS
EXCESS	1883 CU YDS (2) (3)

NOTES:
 (1) INCLUDES 296 CU YDS BITUMINOUS REMOVAL
 (2) EXCESS = COMMON EXCAVATION - (REG. EMB X 140%) - (SUBCUT X 120%) - (TOPSOIL X 120%)
 = 3209 - (111 X 1.40) - (509 X 1.20) - (465 X 1.20)
 = 1883 CU YDS
 (3) EXCESS MATERIAL TO BE USED AS EMBANKMENT MATERIAL FOR L4 CONSTRUCTION AND CULVERT CONSTRUCTION.

FOX STREET
L4 STA. 20+50 TO STA. 22+15

COMMON EXCAVATION	271 CU YDS
REGULAR CUT	161 CU YDS
SUBCUT	110 CU YDS
EMBANKMENT	230 CU YDS
REGULAR TOPSOIL	129 CU YDS 101 CU YDS
EMBANKMENT REQUIRED	163 CU YDS (1) (2)

NOTES:
 (1) EMBANKMENT REQUIRED = COMMON EXCAVATION - (REG. EMB X 140%) - (SUBCUT X 120%) - (TOPSOIL X 120%)
 = 271 - (129 X 1.40) - (110 X 1.20) - (101 X 1.20)
 = 163 CU YDS
 (2) EMBANKMENT MATERIAL TO COME FROM THE EXCESS FROM L3 CONSTRUCTION.

CULVERT AT COUNTY DITCH NO. 6
STA. 211+50 TO STA. 222+00

COMMON EXCAVATION	494 CU YDS
REGULAR CUT	494 CU YDS
SUBCUT	0 CU YDS
EMBANKMENT	5744 CU YDS
REGULAR TOPSOIL	5488 CU YDS 256 CU YDS
EMBANKMENT REQUIRED	7189 CU YDS (2) (3)

MUCK EXCAVATION 3420 CU YDS
 MUCK EMBANKMENT 1690 CU YDS
 EXCESS MUCK 1423 CU YDS (4) (5)

NOTES:
 (1) INCLUDES 0 CU YDS BITUMINOUS REMOVAL
 (2) EMBANKMENT REQUIRED = COMMON EXCAVATION - (REG. EMB X 140%)
 = 494 - (5488 X 1.40)
 = 7189 CU YDS
 (3) EMBANKMENT MATERIAL TO COME FROM EXCESS MATERIAL FROM L1, L2, AND L3 CONSTRUCTION.
 (4) EXCESS MUCK = MUCK EXCAVATION - MUCK FILL - (TOPSOIL X 120%)
 = 3420 - 1690 - (256 X 1.20)
 (5) EXCESS MUCK TO BE USED AS TOPSOIL FOR L1, L2, L3, AND L4 CONSTRUCTION AS DIRECTED BY THE ENGINEER.

159TH AVENUE
L1 STA. 90+93 TO STA. 94+93

COMMON EXCAVATION	1705 CU YDS
REGULAR CUT	1325 CU YDS (1)
SUBCUT	456 CU YDS
EMBANKMENT	289 CU YDS
REGULAR TOPSOIL	78 CU YDS 211 CU YDS
EXCESS	795 CU YDS (2) (3)

NOTES:
 (1) INCLUDES 77 CU YDS BITUMINOUS REMOVAL
 (2) EXCESS = COMMON EXCAVATION - (REG. EMB X 140%) - (SUBCUT X 120%) - (TOPSOIL X 120%)
 = 1705 - (78 X 1.40) - (456 X 1.20) - (211 X 1.20)
 = 795 CU YDS
 (3) EXCESS MATERIAL TO BE USED AS EMBANKMENT MATERIAL FOR CULVERT CONSTRUCTION.

CSAH 7
L2 STA. 0+40 TO STA. 5+50

COMMON EXCAVATION	154 CU YDS
REGULAR CUT	191 CU YDS (1)
SUBCUT	0 CU YDS
EMBANKMENT	50 CU YDS
REGULAR TOPSOIL	0 CU YDS 50 CU YDS
EXCESS	93 CU YDS (2) (3)

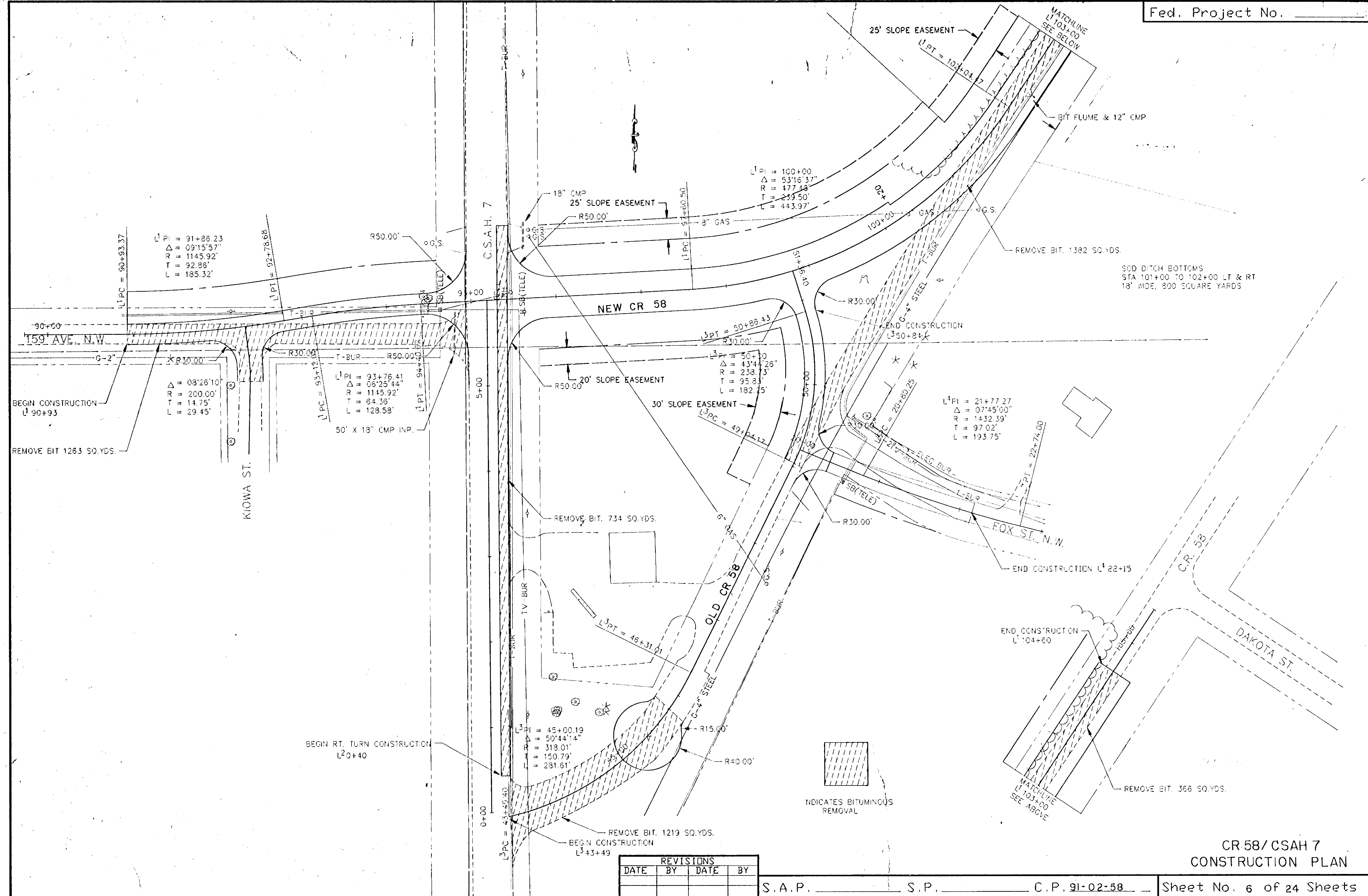
NOTES:
 (1) INCLUDES 38 CU YDS BITUMINOUS REMOVAL
 (2) EXCESS = COMMON EXCAVATION - (TOPSOIL X 120%)
 = 154 - (50 X 1.20)
 = 93 CU YDS
 (3) EXCESS MATERIAL TO BE USED AS EMBANKMENT MATERIAL FOR CULVERT CONSTRUCTION.

CR 58
L1 STA. 95+45 TO STA. 104+60

COMMON EXCAVATION	12865 CU YDS
REGULAR CUT	11752 CU YDS (1)
SUBCUT	1217 CU YDS
EMBANKMENT	5194 CU YDS
REGULAR TOPSOIL	4130 CU YDS 1064 CU YDS
EXCESS	4347 CU YDS (2) (3)

NOTES:
 (1) INCLUDES 104 CU YDS BITUMINOUS REMOVAL
 (2) EXCESS = COMMON EXCAVATION - (REG. EMB X 140%) - (SUBCUT X 120%) - (TOPSOIL X 120%)
 = 12865 - (4130 X 1.40) - (1217 X 1.20) - (1064 X 1.20)
 = 4347 CU YDS
 (3) EXCESS MATERIAL TO BE USED AS EMBANKMENT MATERIAL FOR CULVERT CONSTRUCTION.

REVISIONS			
DATE	BY	DATE	BY



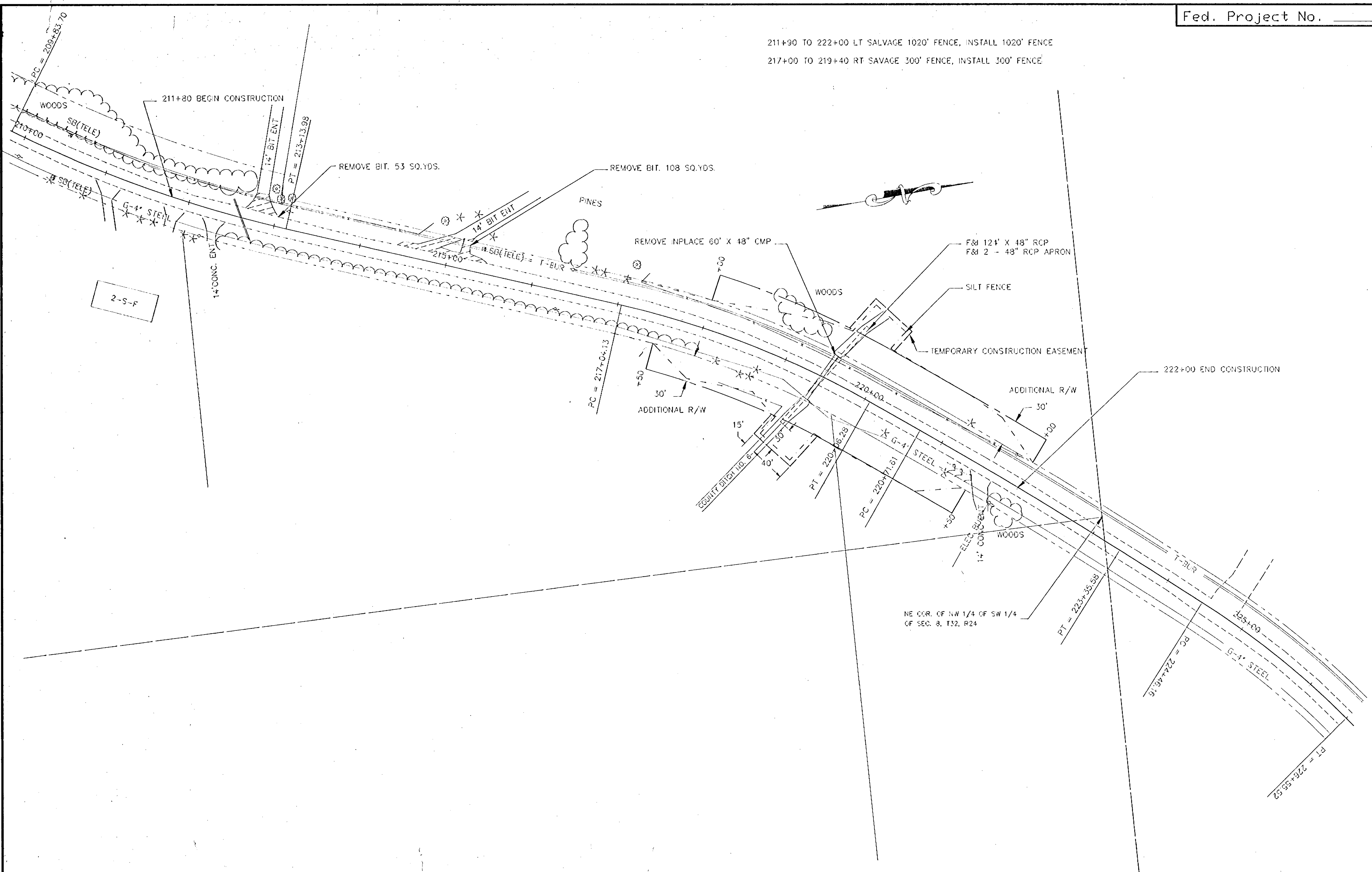
SOD DITCH BOTTOMS
 STA 101+00 TO 102+00 LT & RT
 18' WIDE, 800 SQUARE YARDS

INDICATES BITUMINOUS
 REMOVAL

REVISIONS			
DATE	BY	DATE	BY

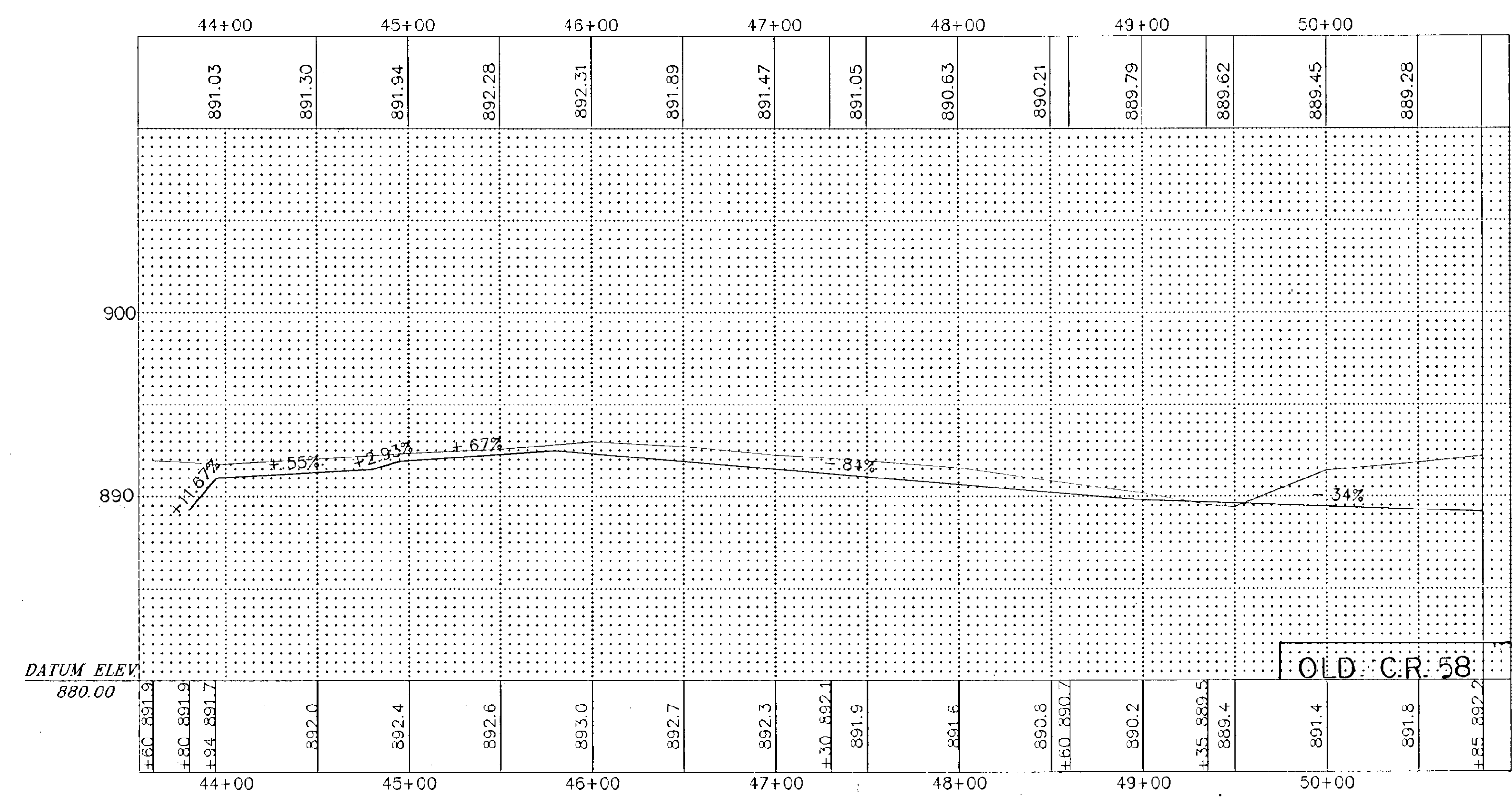
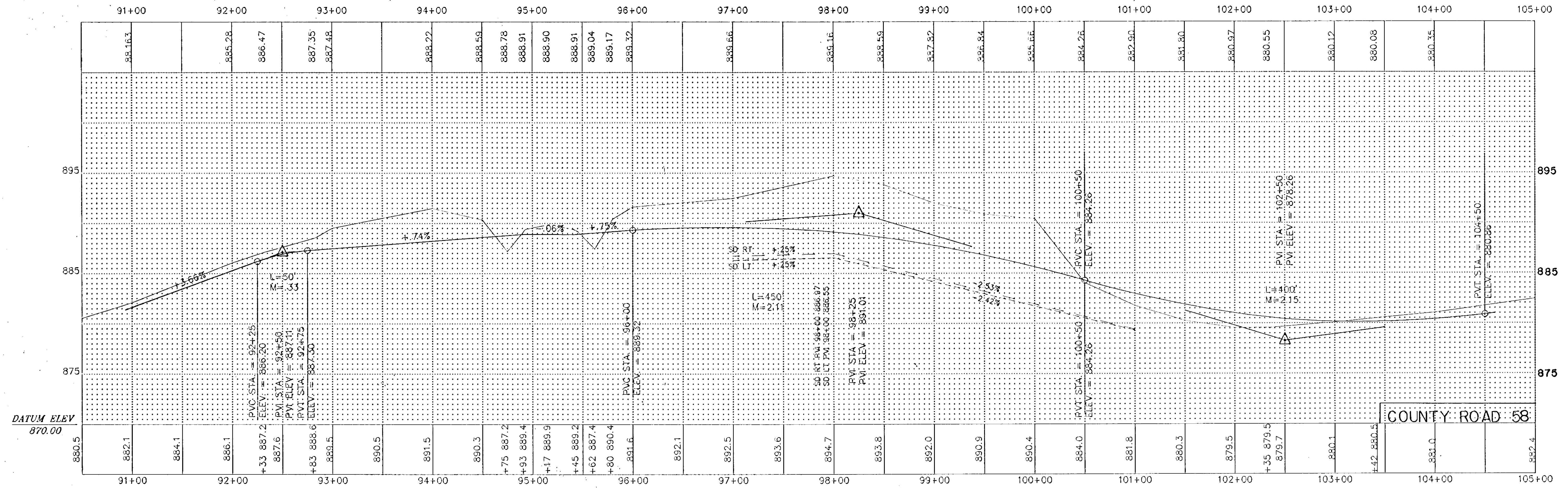
S.A.P. _____ S.P. _____ C.P. 91-02-58

211+90 TO 222+00 LT SALVAGE 1020' FENCE, INSTALL 1020' FENCE
 217+00 TO 219+40 RT SAVAGE 300' FENCE, INSTALL 300' FENCE



REVISIONS			
DATE	BY	DATE	BY

CR 58/CO. DITCH 6
 CONSTRUCTION PLAN

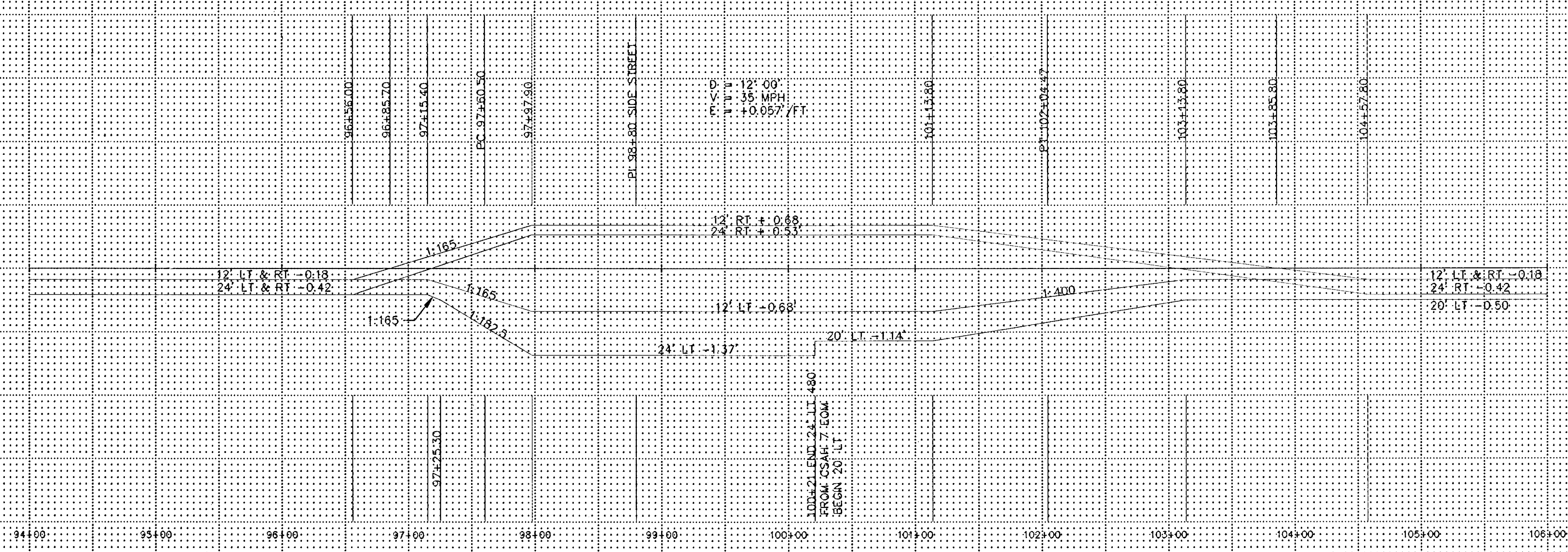


NOTE: FOR FOX STREET PROFILE, SEE SHEET 19.

REVISIONS			
DATE	BY	DATE	BY

PROFILE SHEET

SUPERELEVATION



REVISIONS			
DATE	BY	DATE	BY

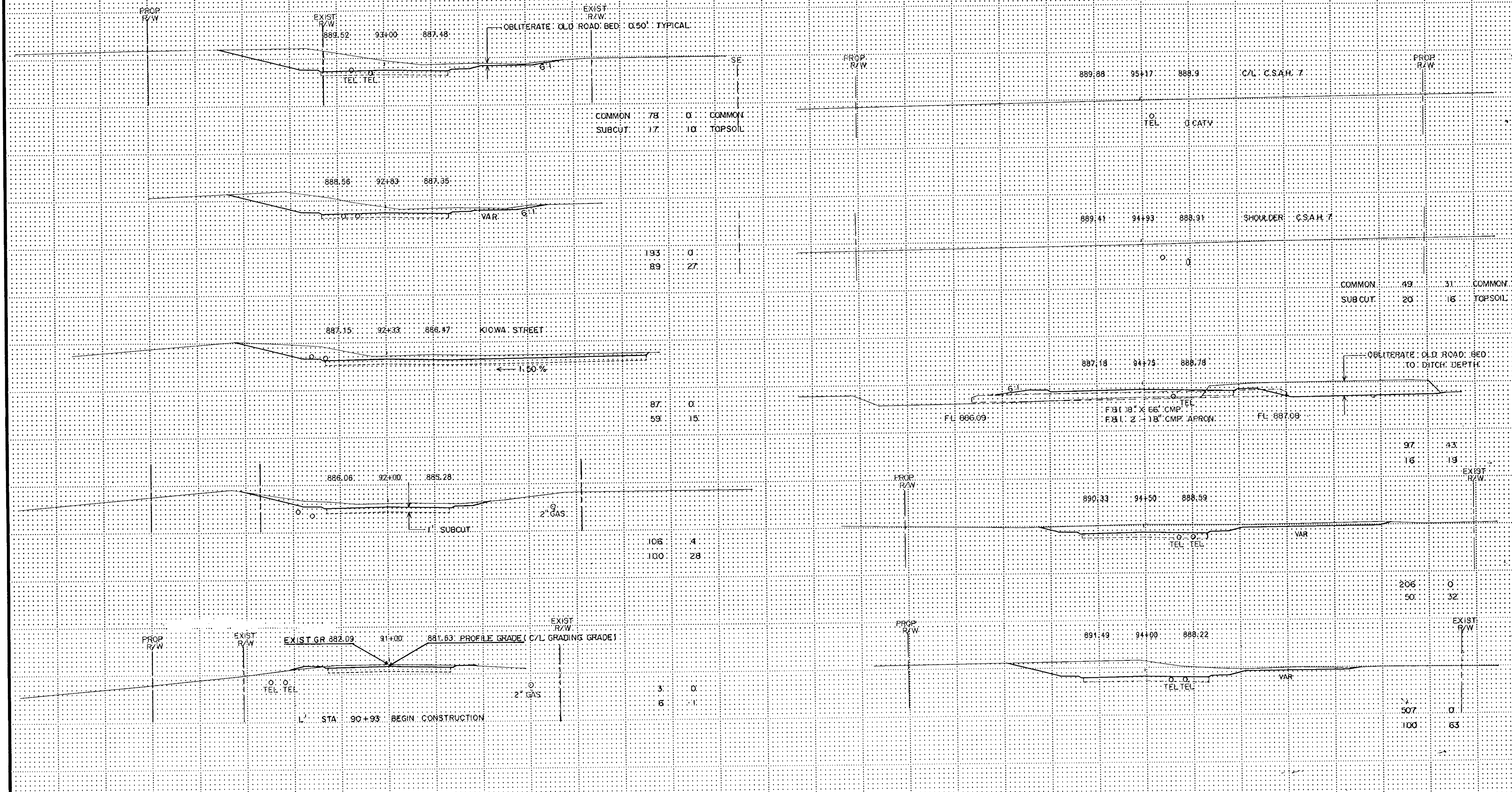
SUPERELEVATION CHART
CO. RD 58

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.



COMMON	78	0	COMMON
SUBCUT	17	10	TOPSOIL

193	0
89	27

87	0
59	15

106	4
100	28

3	0
5	1

COMMON	49	31	COMMON
SUBCUT	20	16	TOPSOIL

97	43
16	19

206	0
50	32

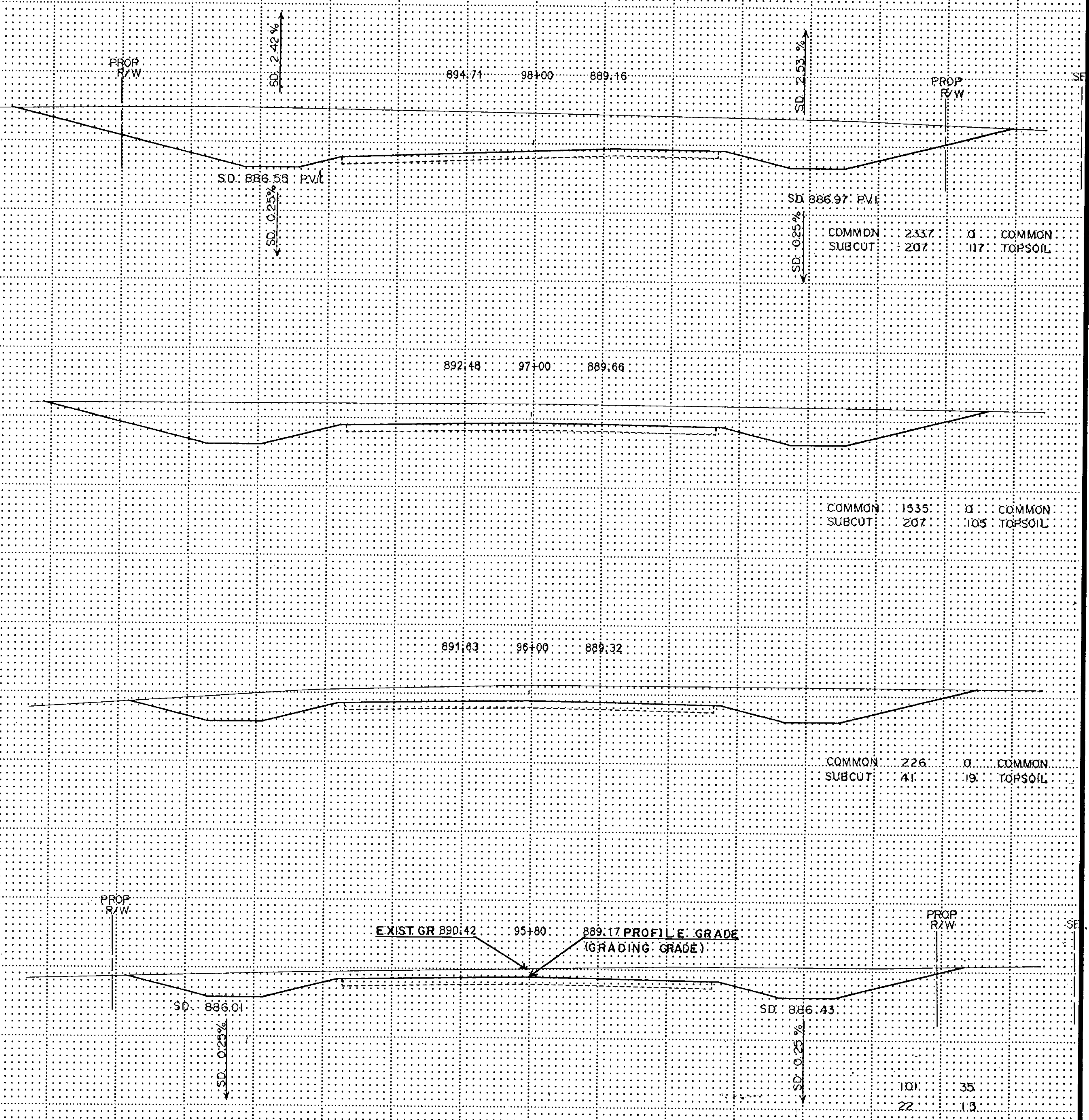
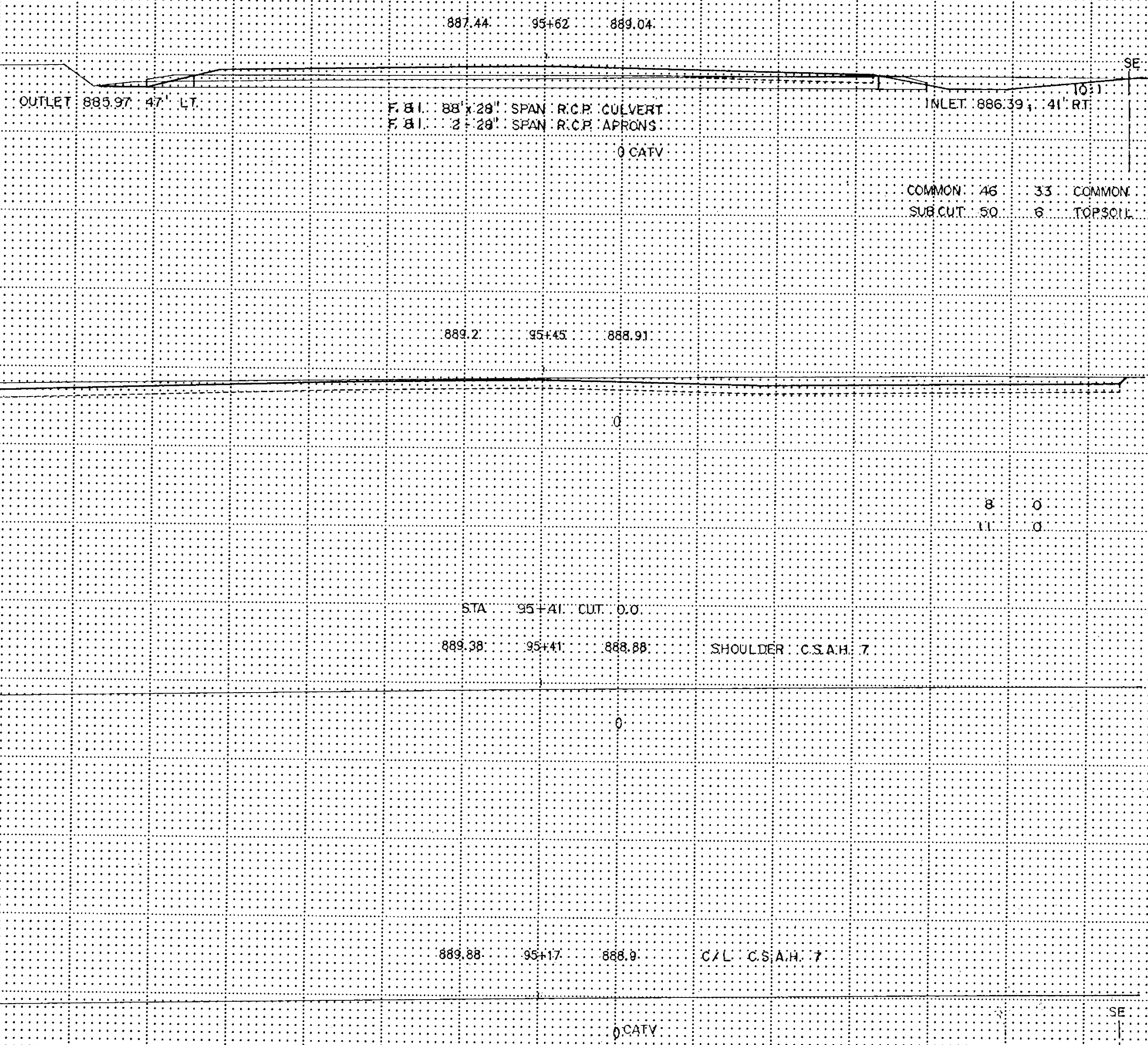
507	0
100	63

L: 159 AVENUE
 CROSS-SECTION
 STA 91+00 TO STA 95+17

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EXCAVATION EMBANKMENT
 SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.

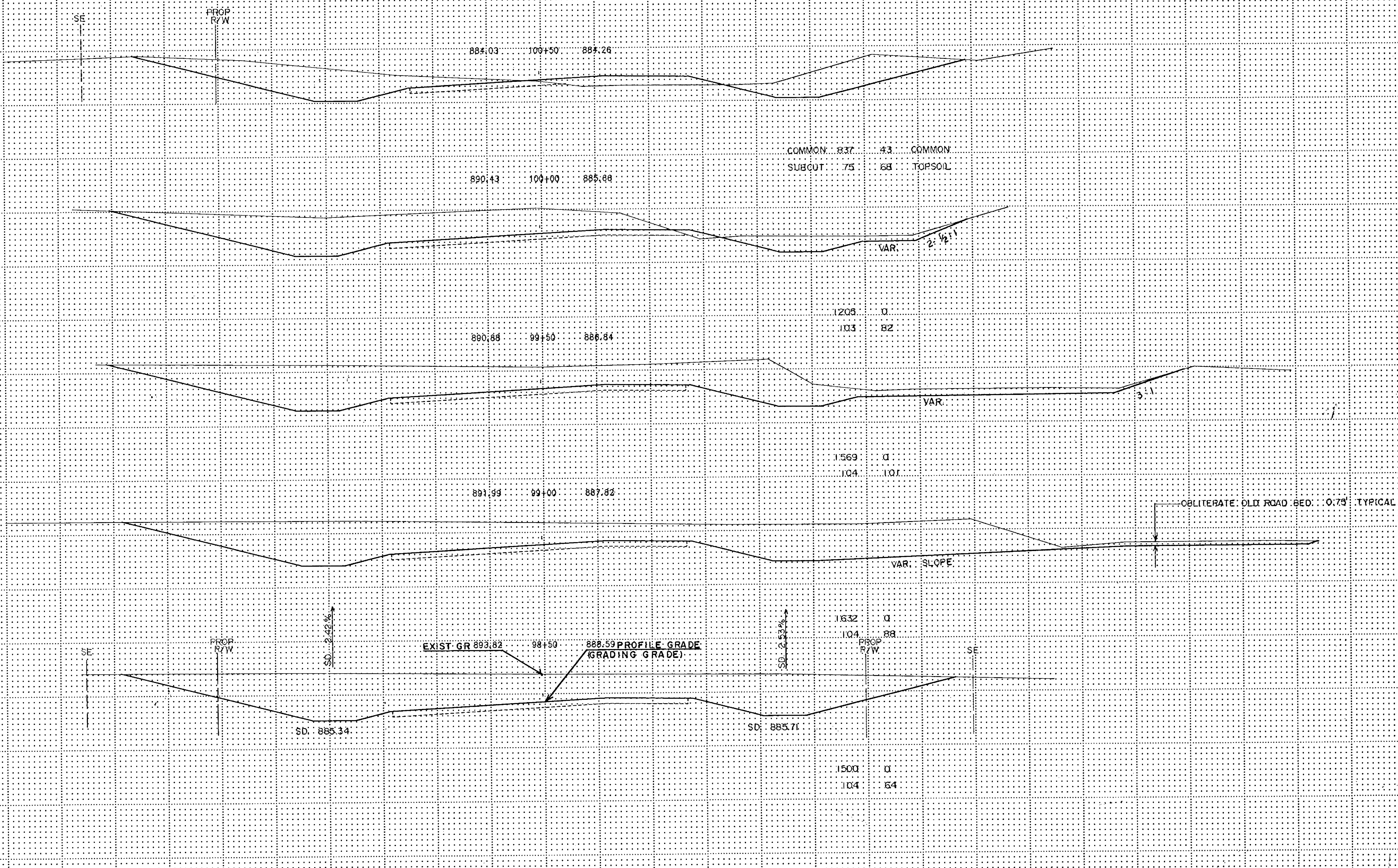
EXCAVATION EMBANKMENT
 SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.



L - CO RD 5B
 GROSS SECTIONS
 STA 95+17 TO STA 98+00

EXCAVATION EMBANKMENT

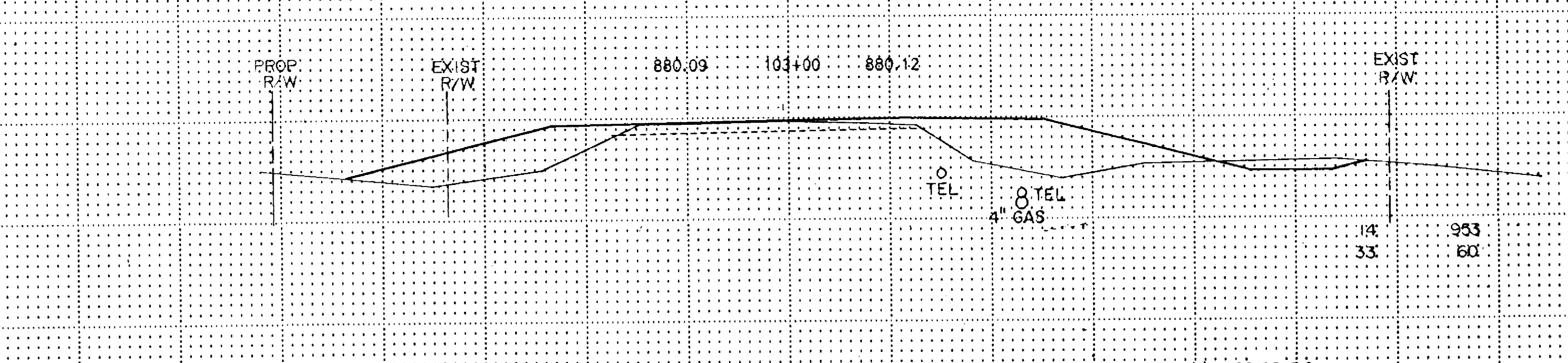
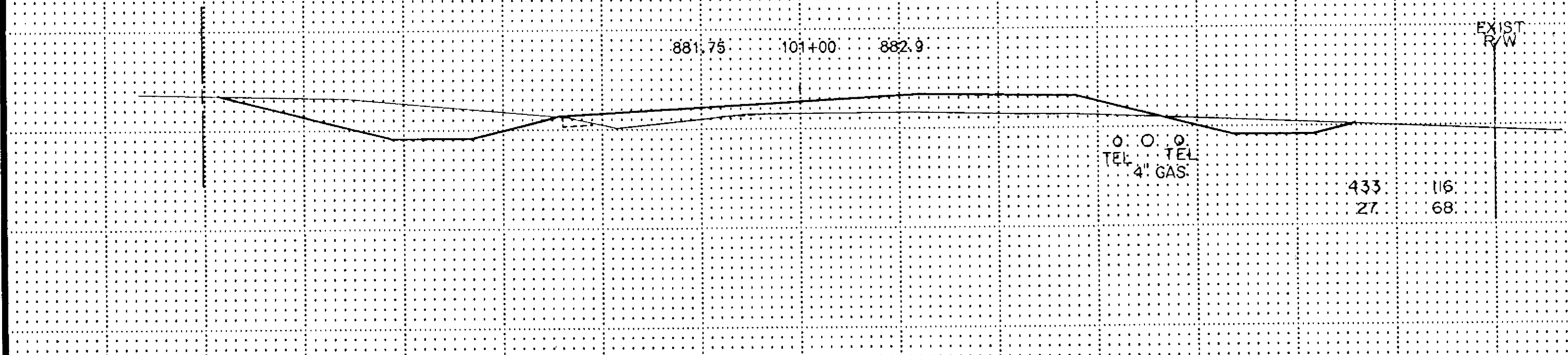
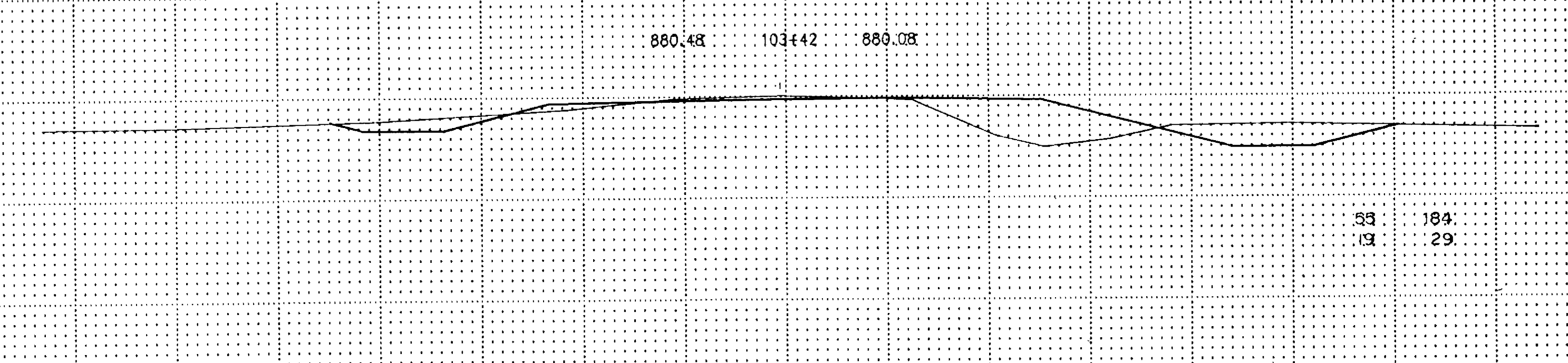
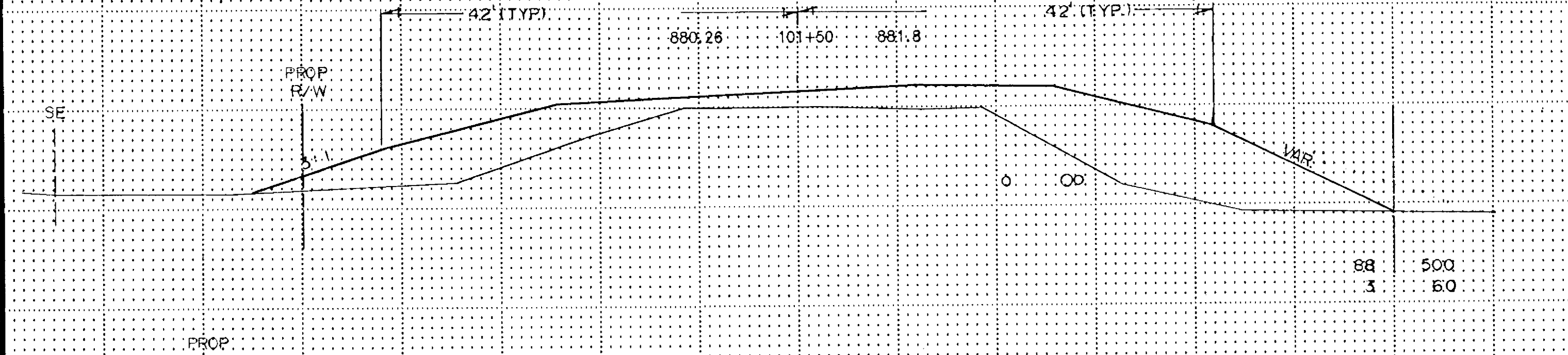
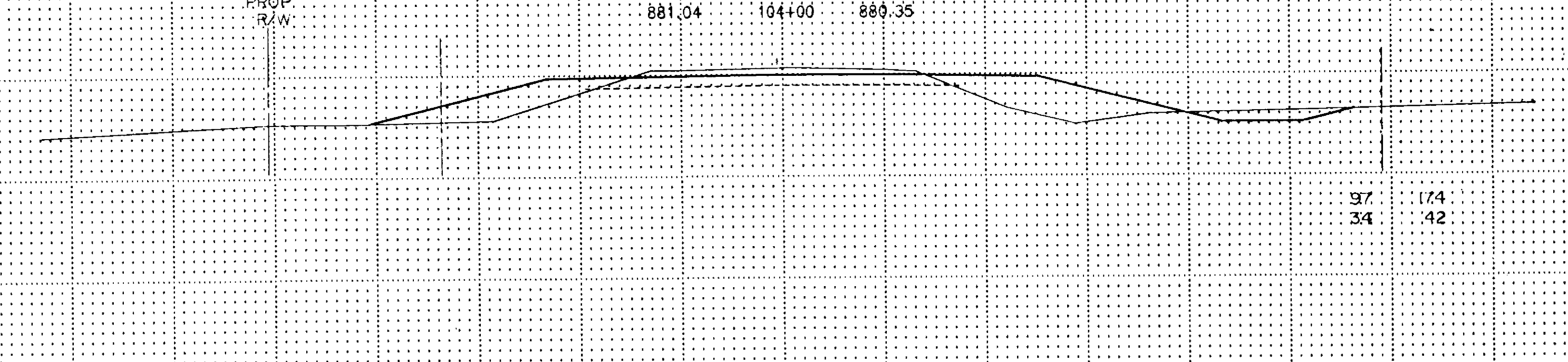
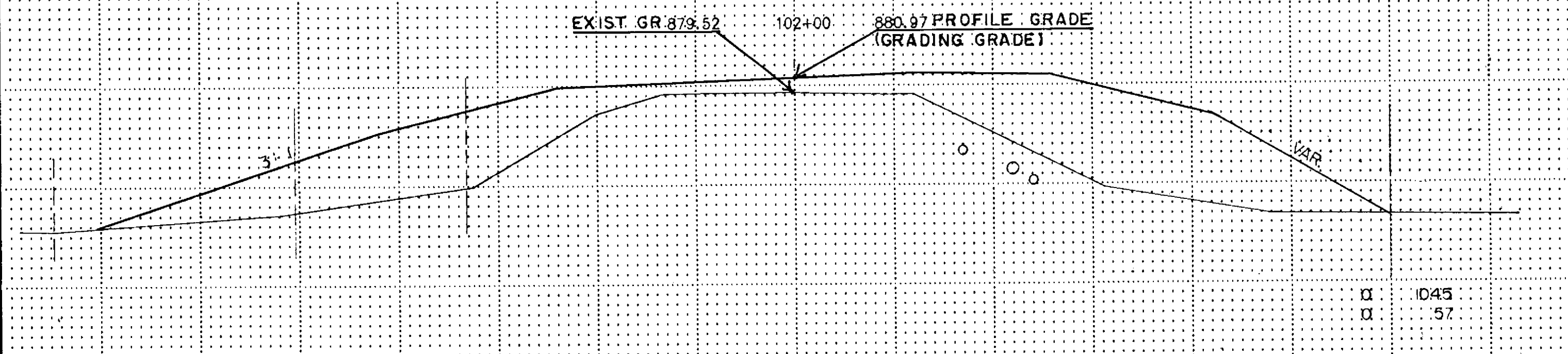
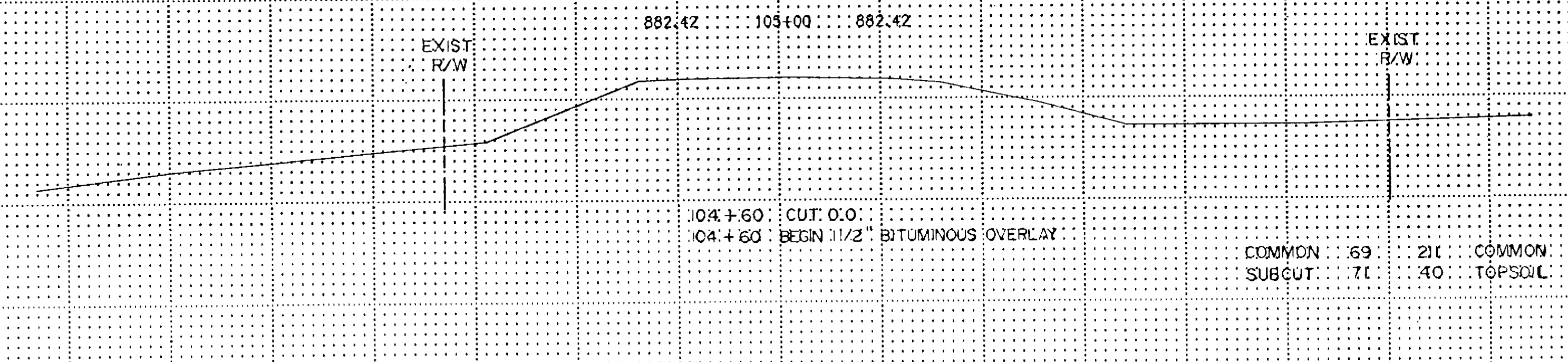
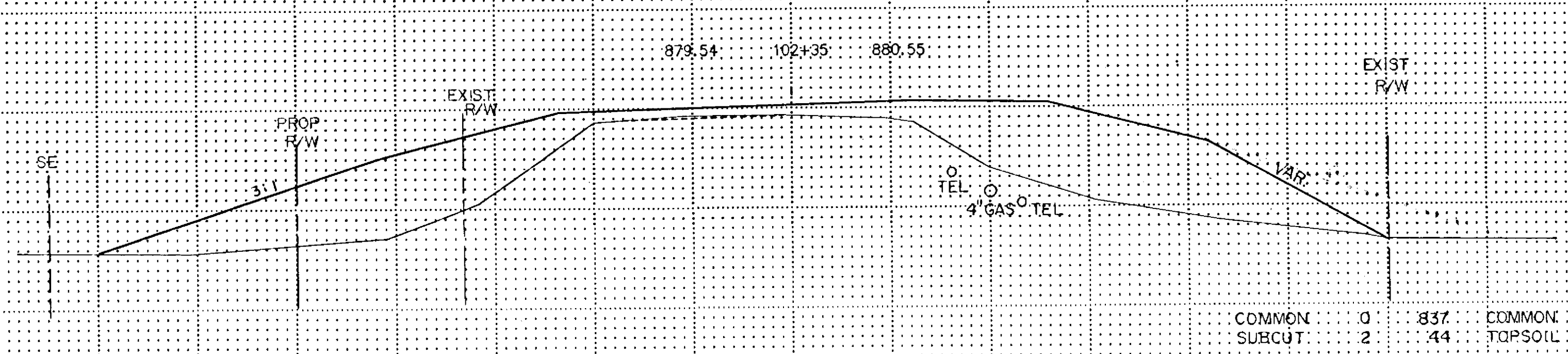
SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.



1" = 10' CO RD 58
CROSS-SECTIONS
STA 98+50 TO STA 100+50

EXCAVATION EMBANKMENT
SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS

EXCAVATION EMBANKMENT
SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS



L - CO RD 58
GROSS - SECTIONS
STA 101+00 TO STA 105+00

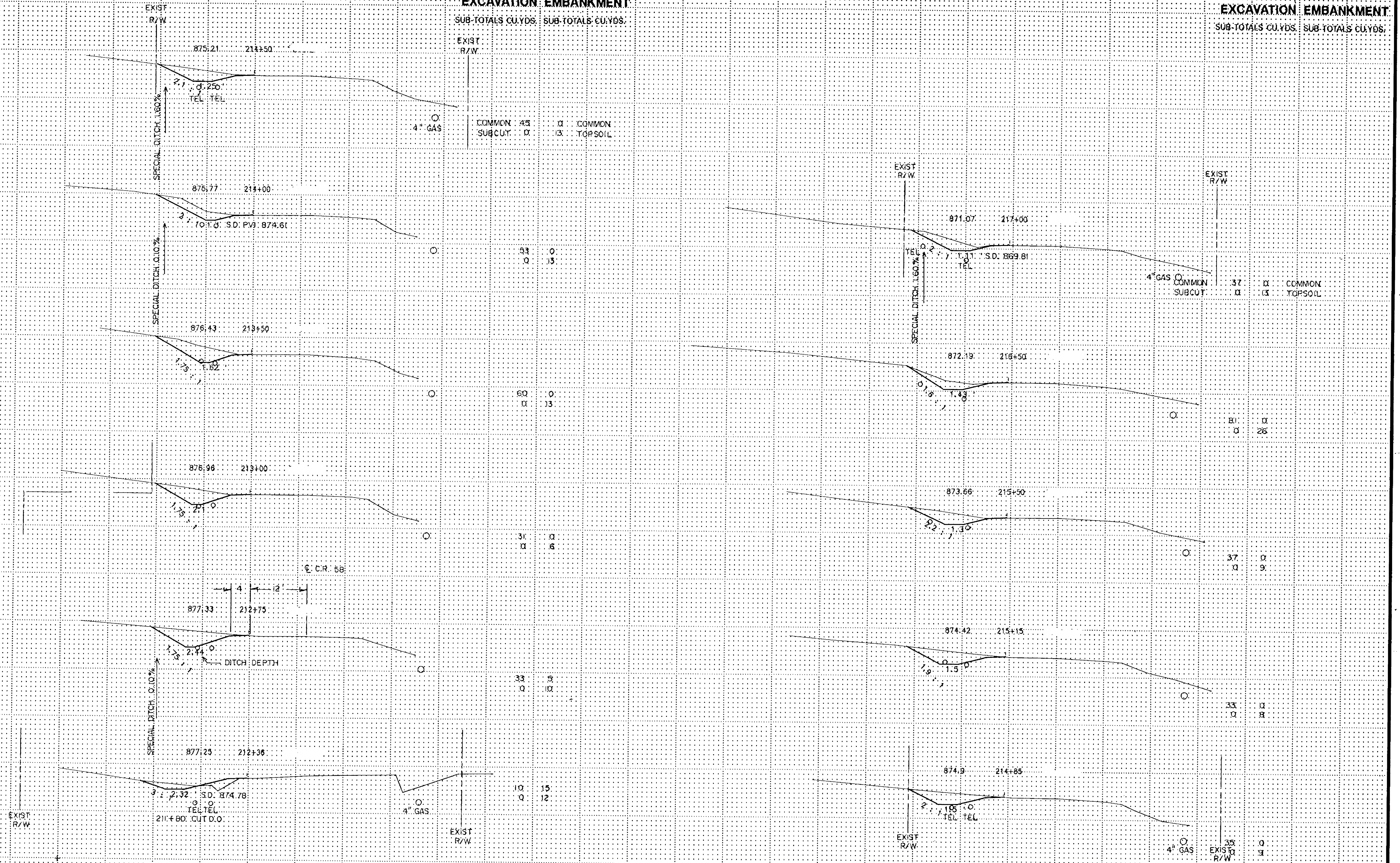
Copy Equipment Form #1 85445

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.



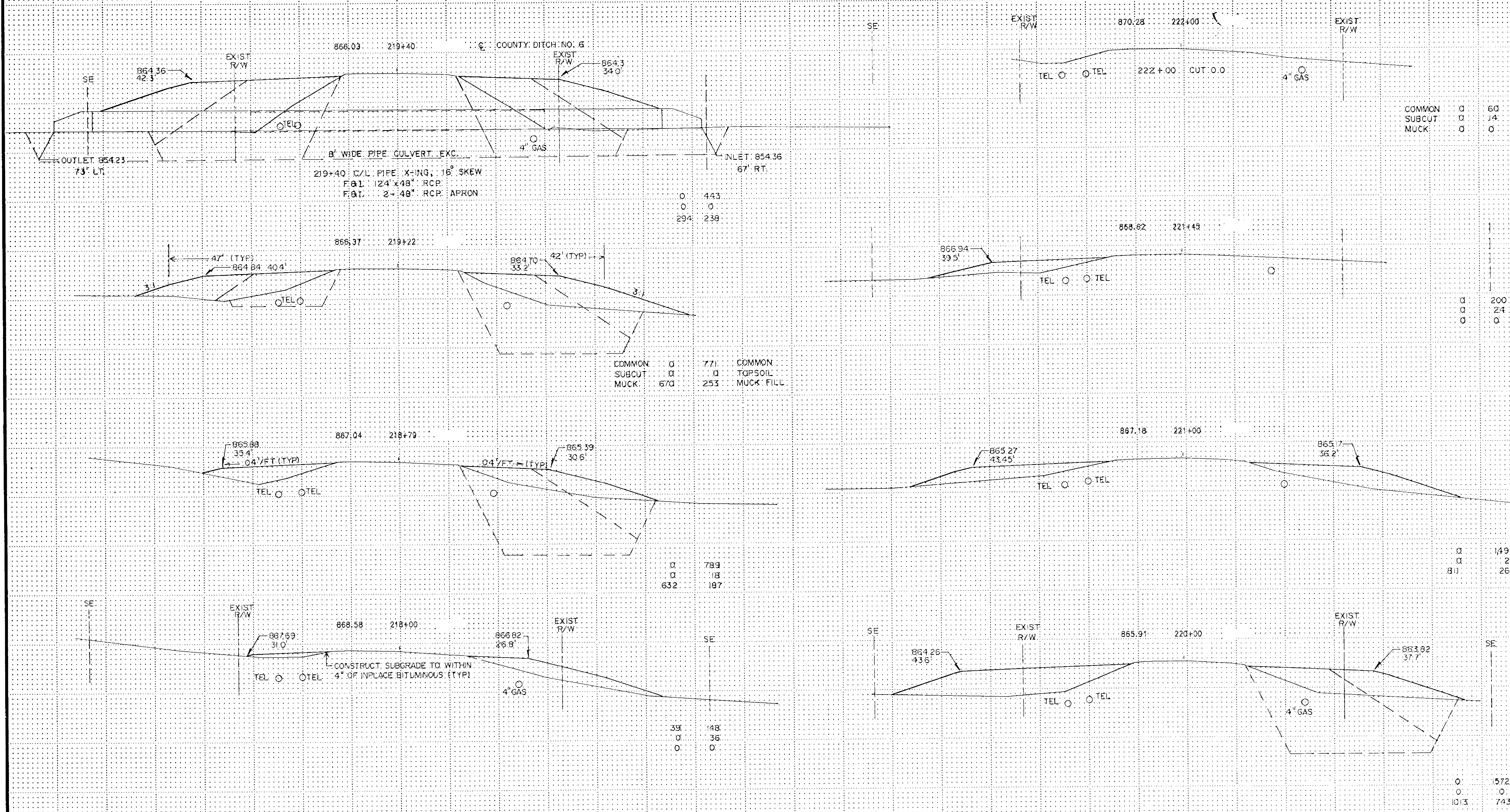
L = CORD 58 @ CO. DITCH 6
 CROSS - SECTION
 STA 212+56 TO STA 217+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS

SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS



COMMON	0	443
SUBCUT	0	0
MUCK	294	238

COMMON	0	771	COMMON	0	60
SUBCUT	0	0	TOPSOIL	0	14
MUCK	670	253	MUCK FILL	0	0

COMMON	0	789
SUBCUT	0	18
MUCK	632	187

COMMON	39	148
SUBCUT	0	36
MUCK	0	0

COMMON	0	60	COMMON	0	60
SUBCUT	0	14	TOPSOIL	0	14
MUCK	0	0	MUCK FILL	0	0

COMMON	0	200
SUBCUT	0	24
MUCK	0	0

COMMON	0	1491
SUBCUT	0	21
MUCK	811	269

COMMON	0	572
SUBCUT	0	0
MUCK	1013	743

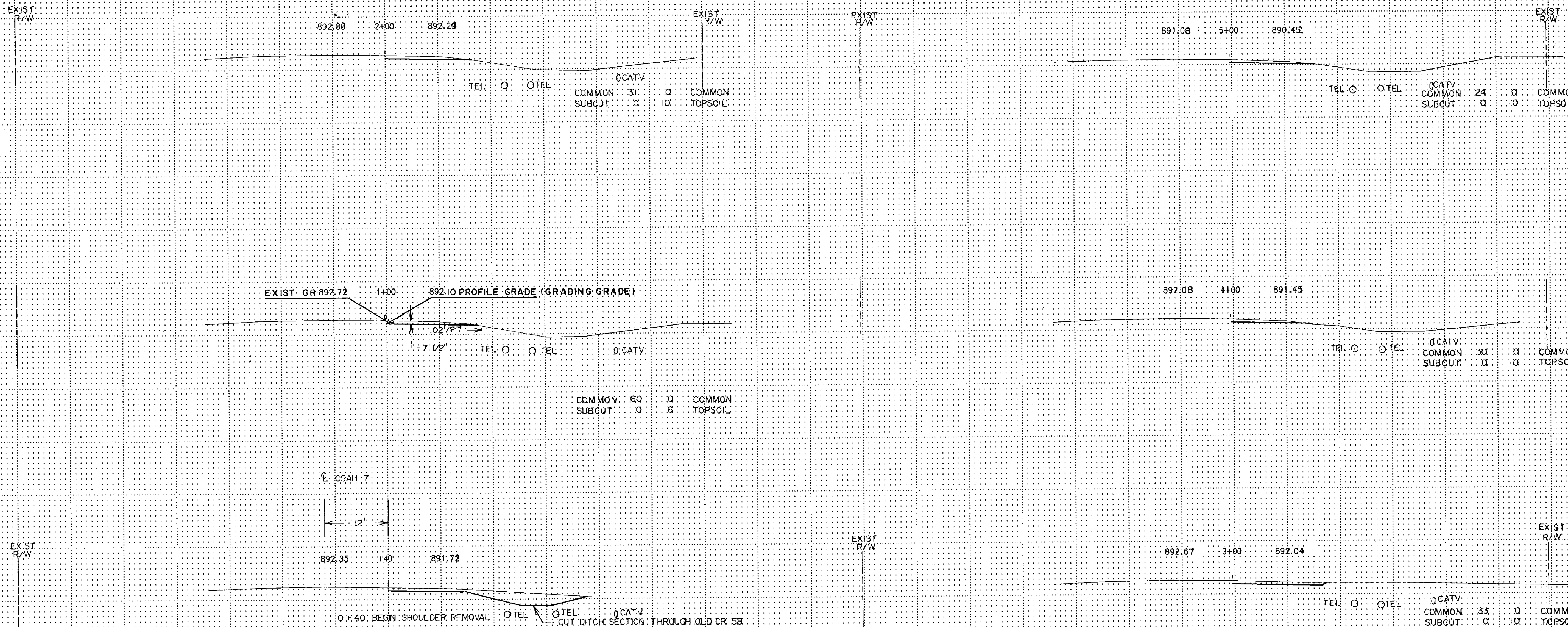
L- CORD 58 @ CO DITCH 6
 CROSS-SECTIONS
 STA: 218+00 TO STA 222+00

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.



12'-CSAH-7
 CROSS-SECTIONS:
 STA 0+40 TO STA 5+00

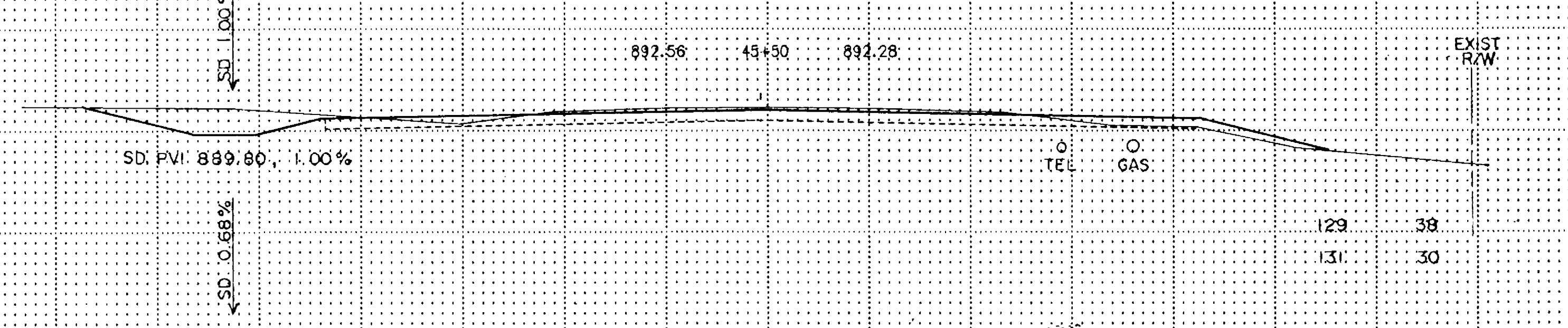
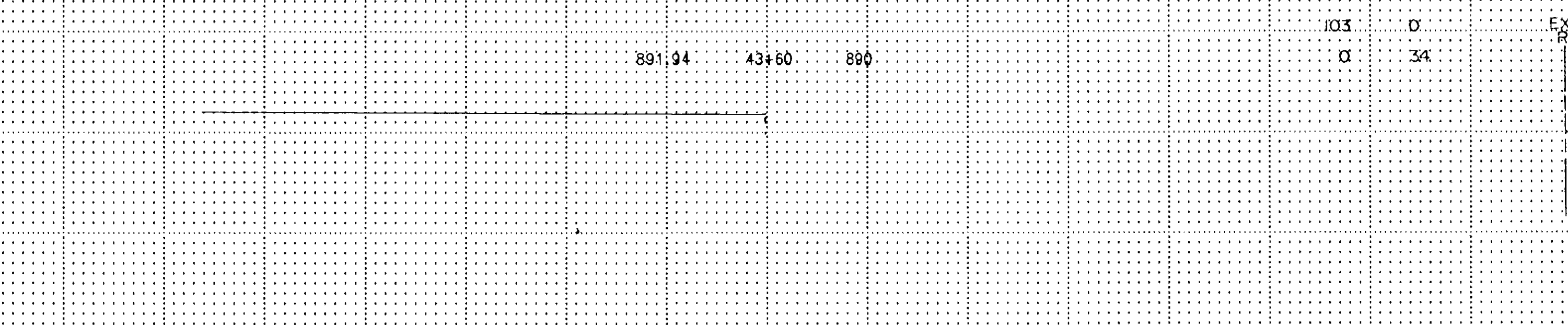
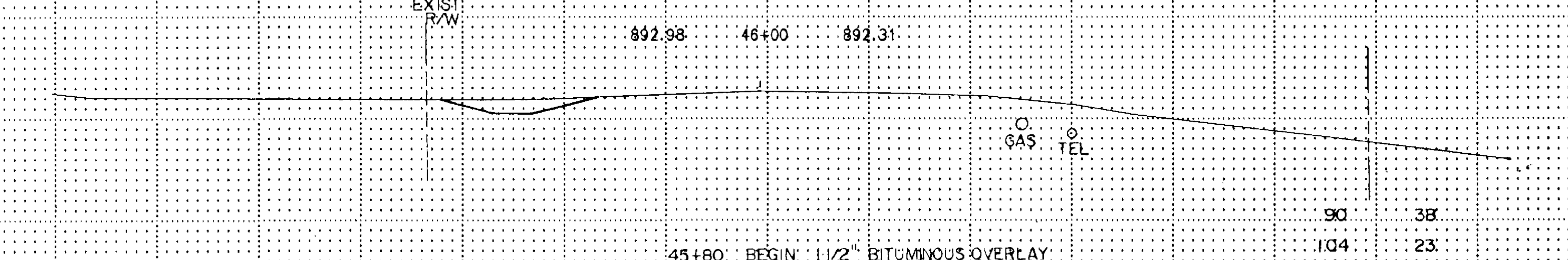
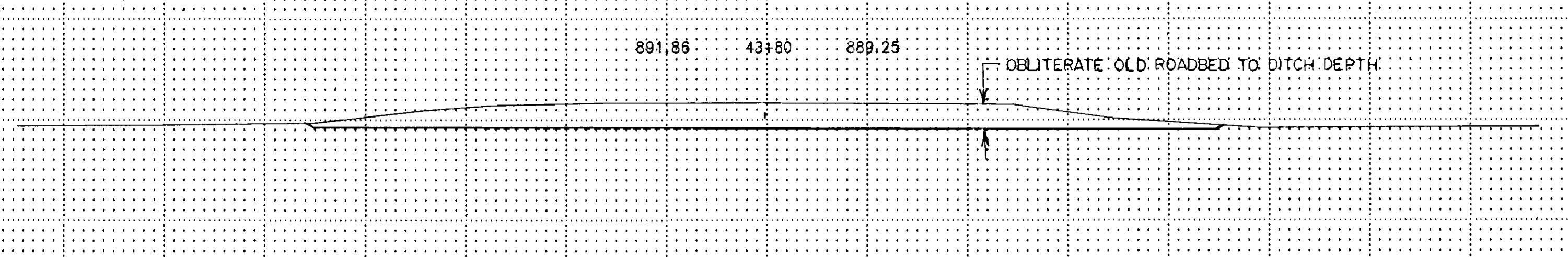
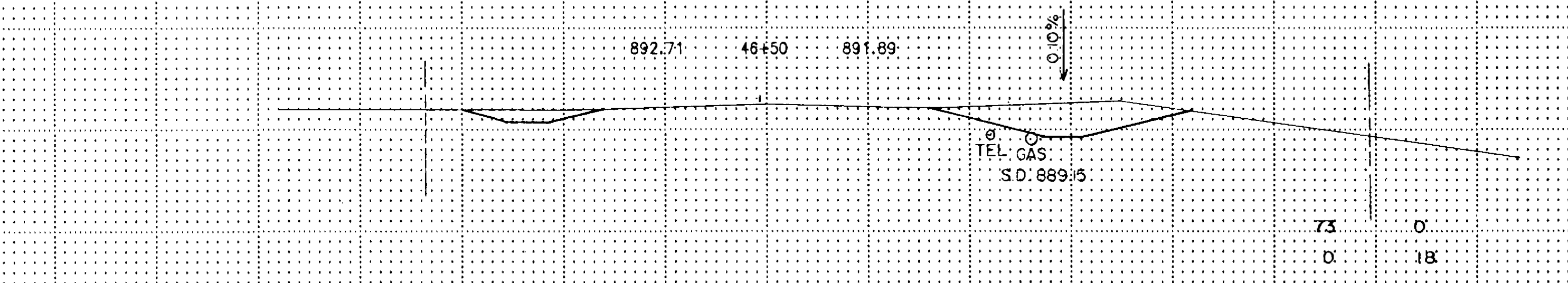
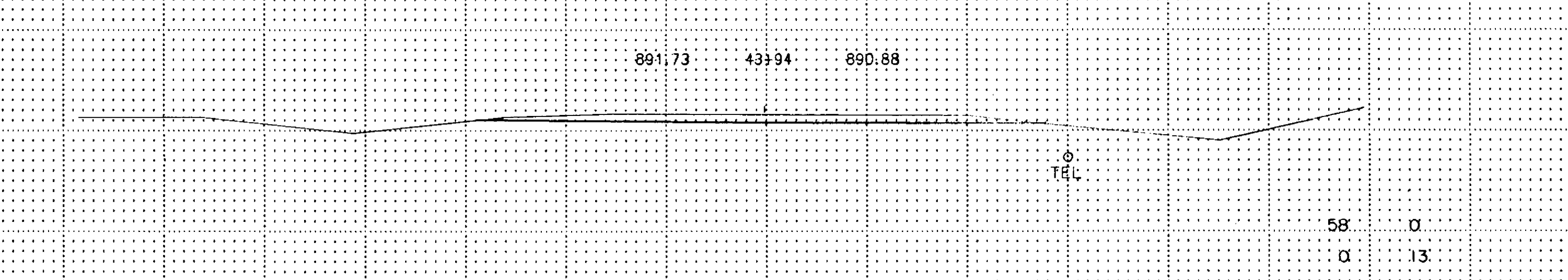
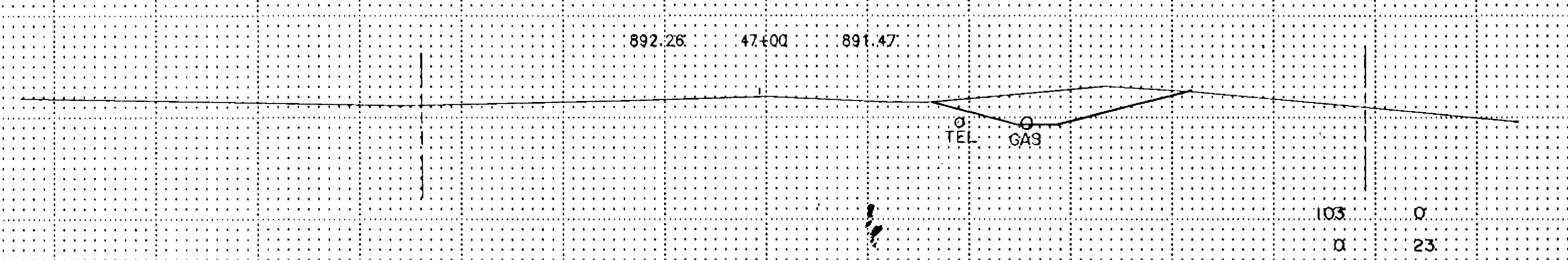
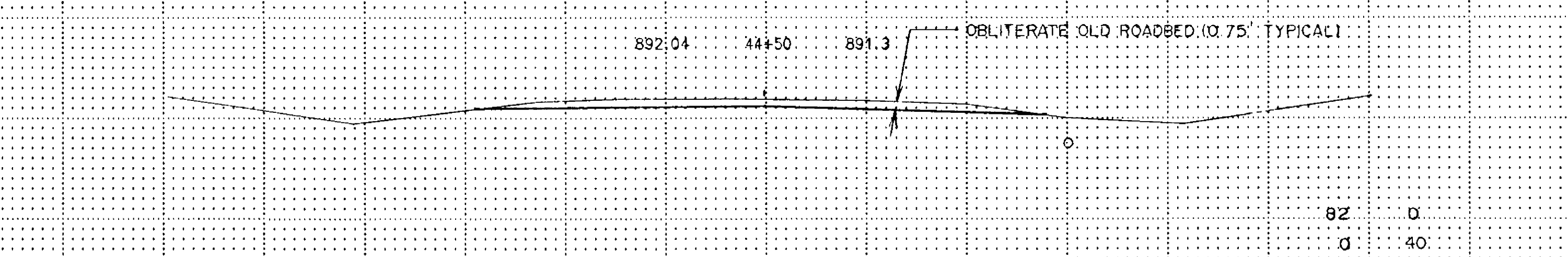
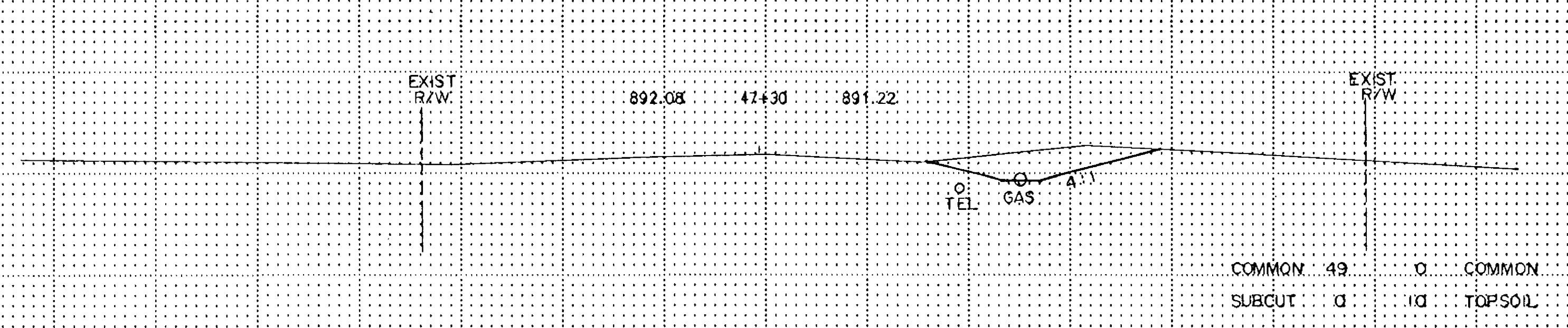
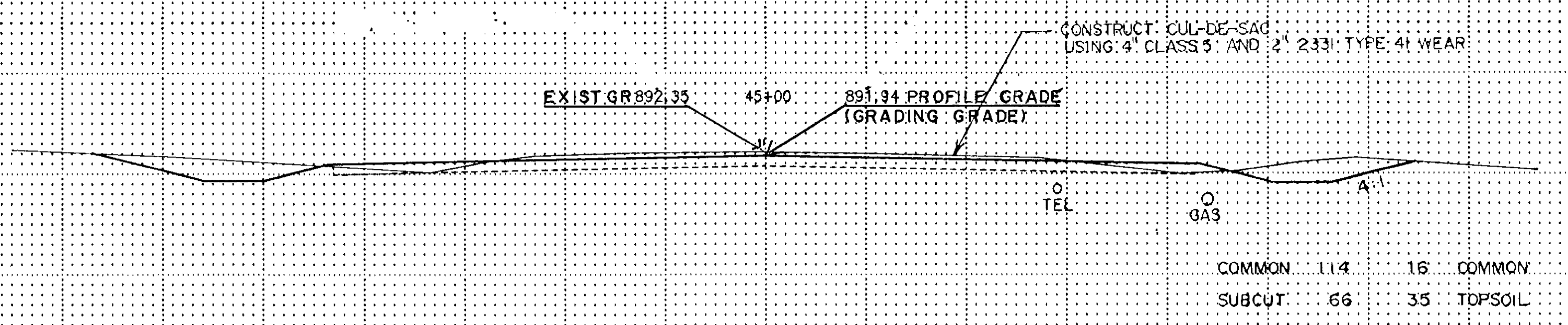
Capp/Equipment Form #1 856685

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS

EXCAVATION EMBANKMENT

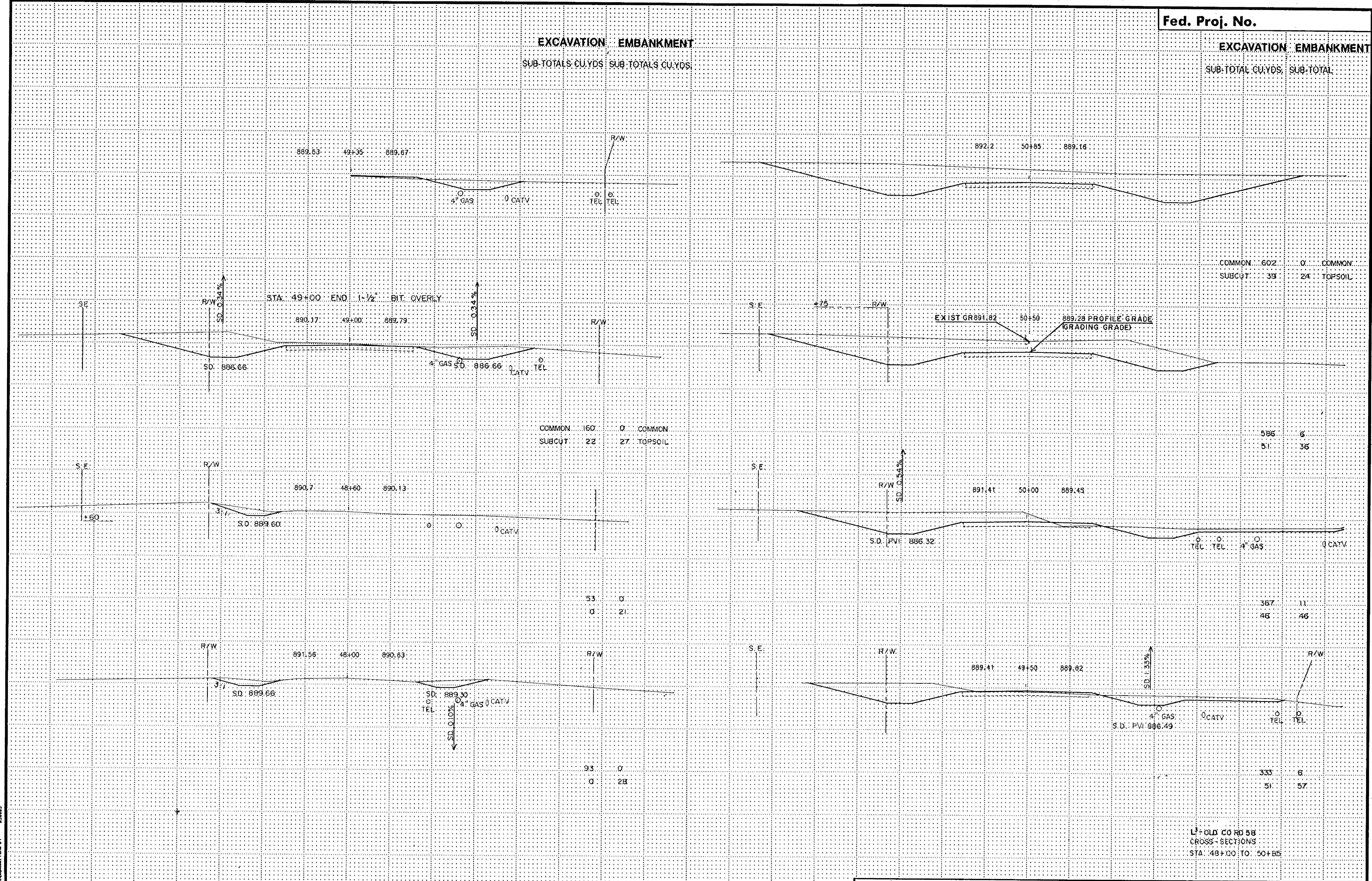
SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS



L5 - OLD C.O. RD. 58
CROSS-SECTION
STA. 43+60 TO 47+30

EXCAVATION EMBANKMENT
SUB-TOTALS CU.YDS SUB-TOTALS CU.YDS

EXCAVATION EMBANKMENT
SUB-TOTAL CU.YDS SUB-TOTAL



COMMON 602 0 COMMON
SUBCUT 39 24 TOPSOIL

COMMON 160 0 COMMON
SUBCUT 22 27 TOPSOIL

588 6
51 36

53 0
0 21

367 11
48 46

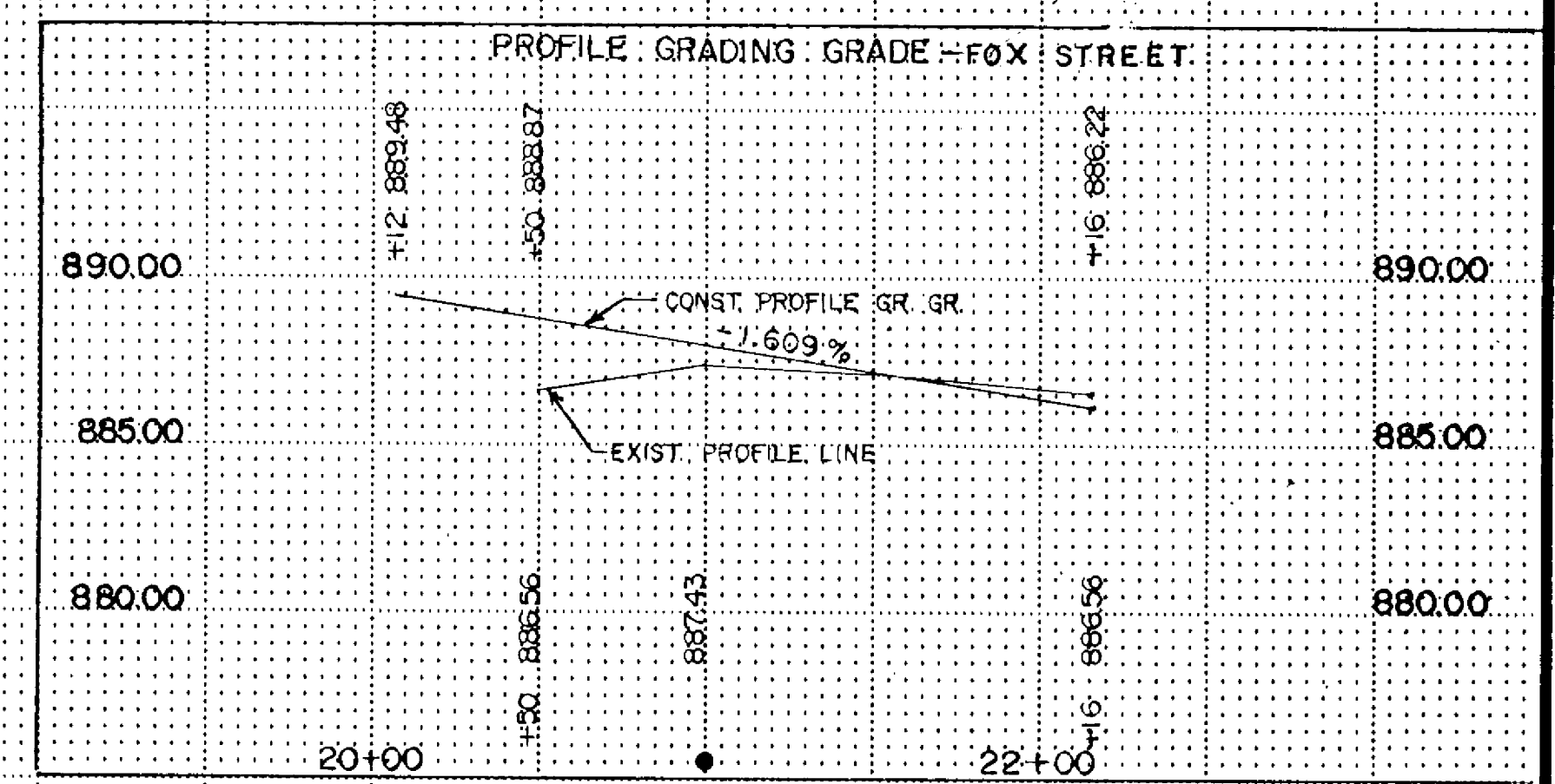
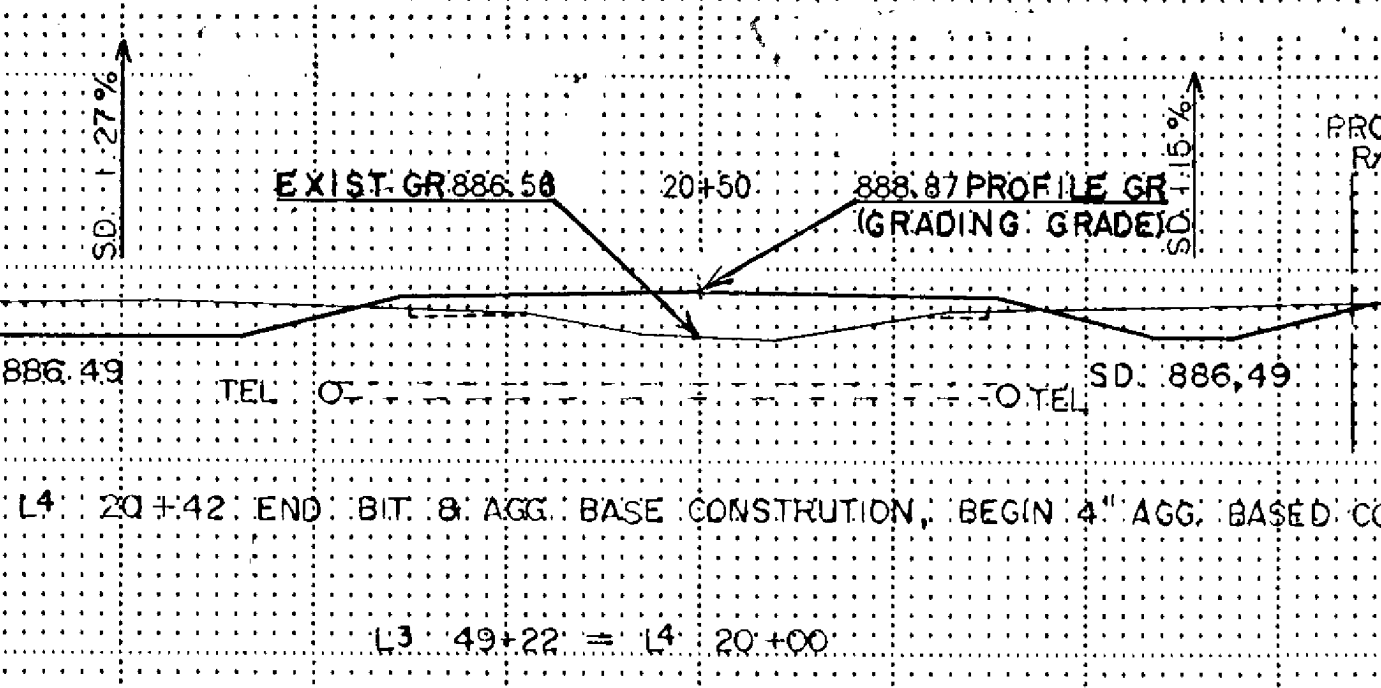
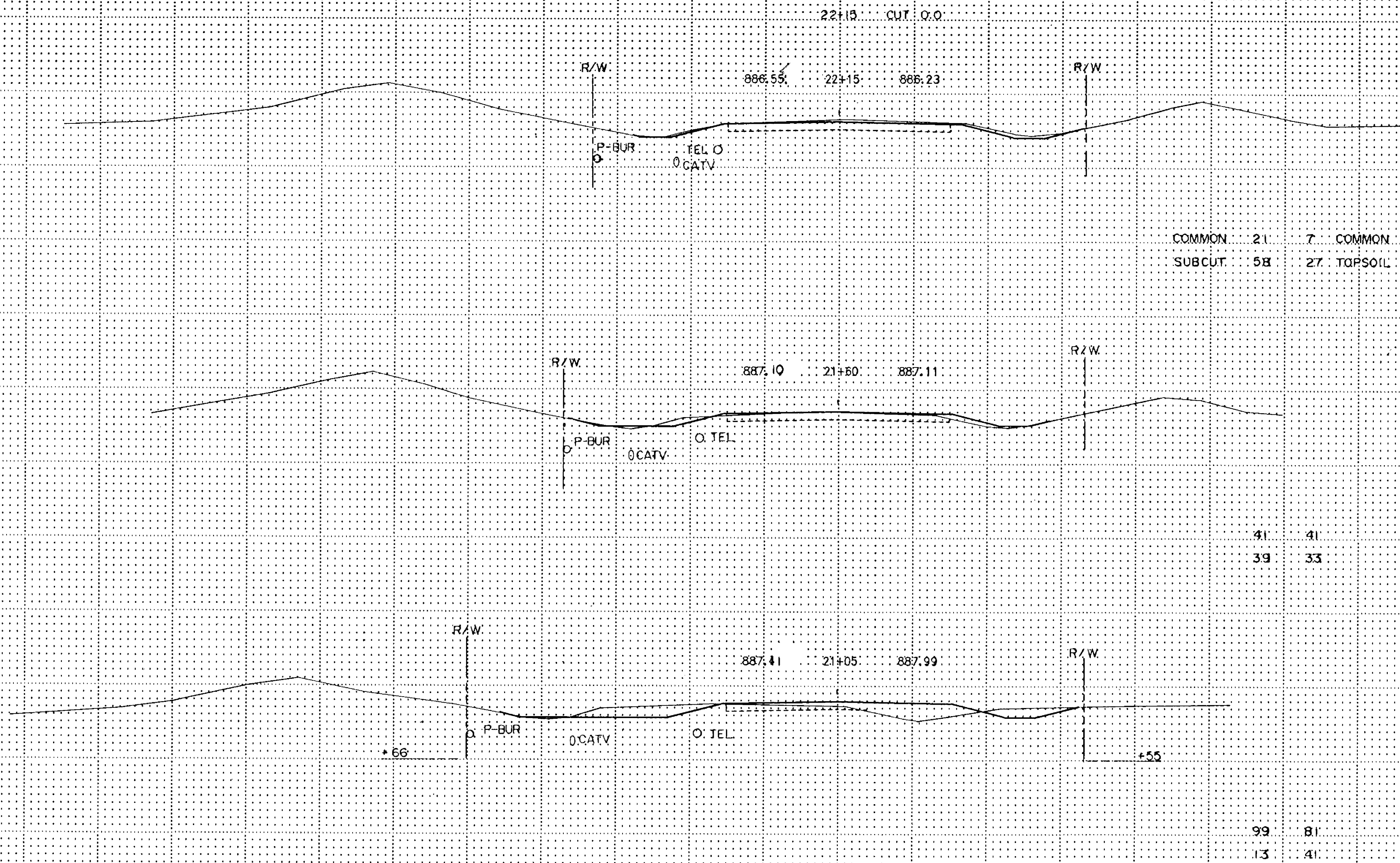
93 0
0 28

333 6
51 57

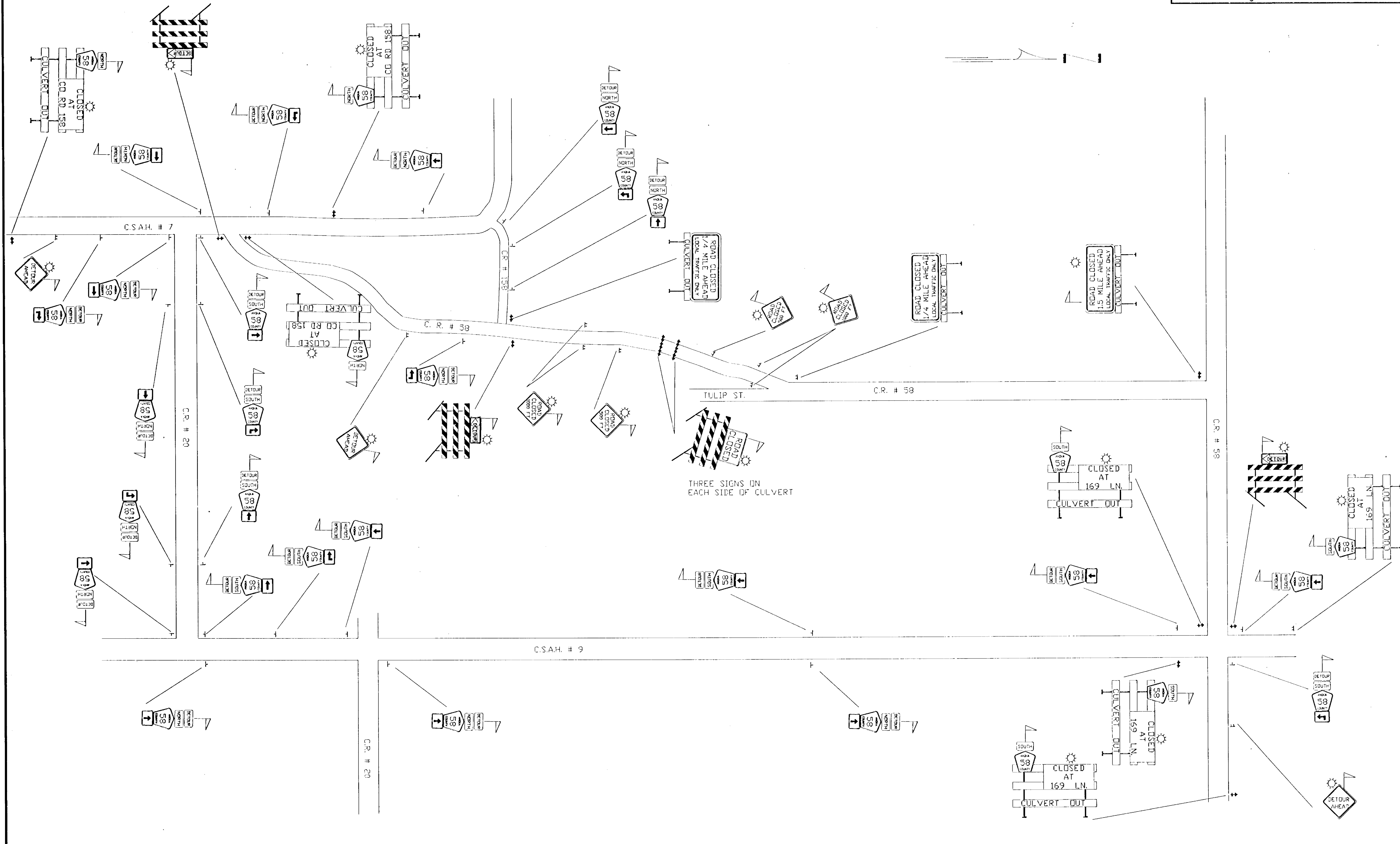
L- OLD CO RD 58
CROSS-SECTIONS
STA: 48+00 TO 50+85

Copy Equipment Form #1 M5685

EXCAVATION EMBANKMENT
 SUB-TOTALS CU.YDS. SUB-TOTALS CU.YDS.

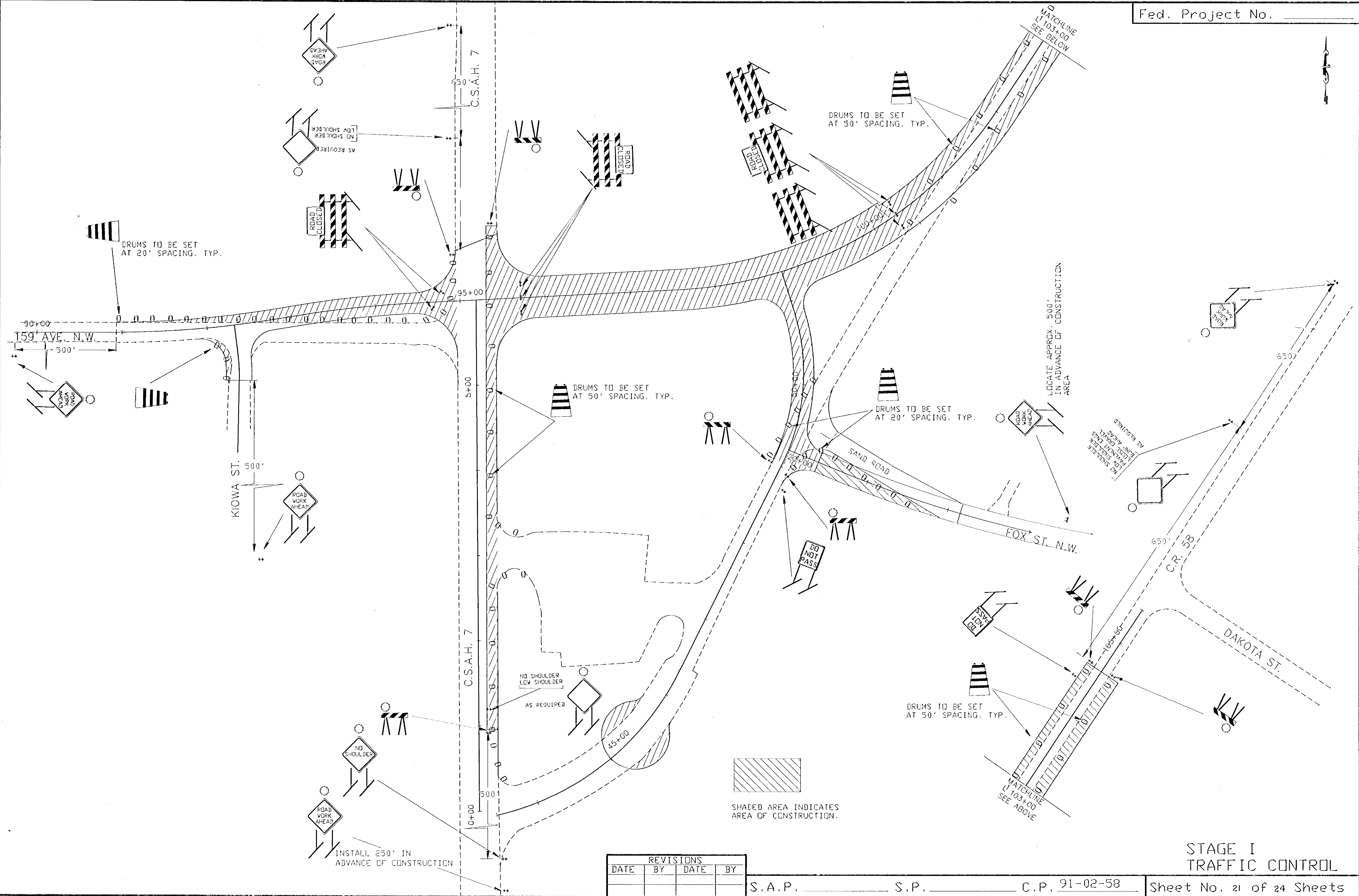


L⁴ - FOX STREET
 CROSS-SECTIONS
 STA 20+50 TO STA 22+15



REVISIONS			
DATE	BY	DATE	BY

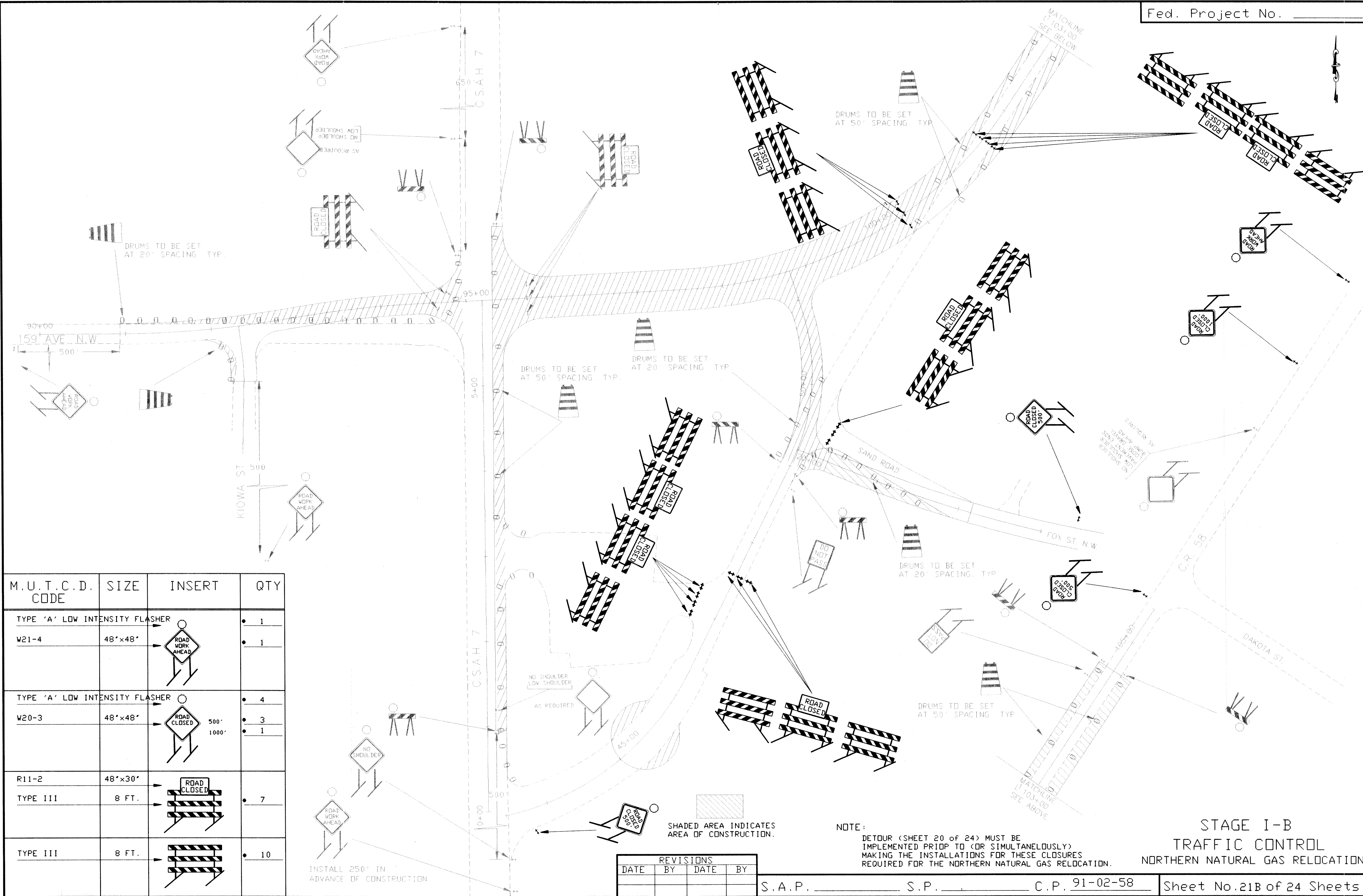
DETOUR
TRAFFIC CONTROL



SHADED AREA INDICATES AREA OF CONSTRUCTION.

REVISIONS			
DATE	BY	DATE	BY

S.A.P. _____ S.P. _____ C.P. 91-02-58



M.U.T.C.D. CODE	SIZE	INSERT	QTY
TYPE 'A' LOW INTENSITY FLASHER W21-4	48"x48"		• 1 • 1
TYPE 'A' LOW INTENSITY FLASHER W20-3	48"x48"		• 4 • 3 • 1
R11-2 TYPE III	48"x30" 8 FT.		• 7
TYPE III	8 FT.		• 10

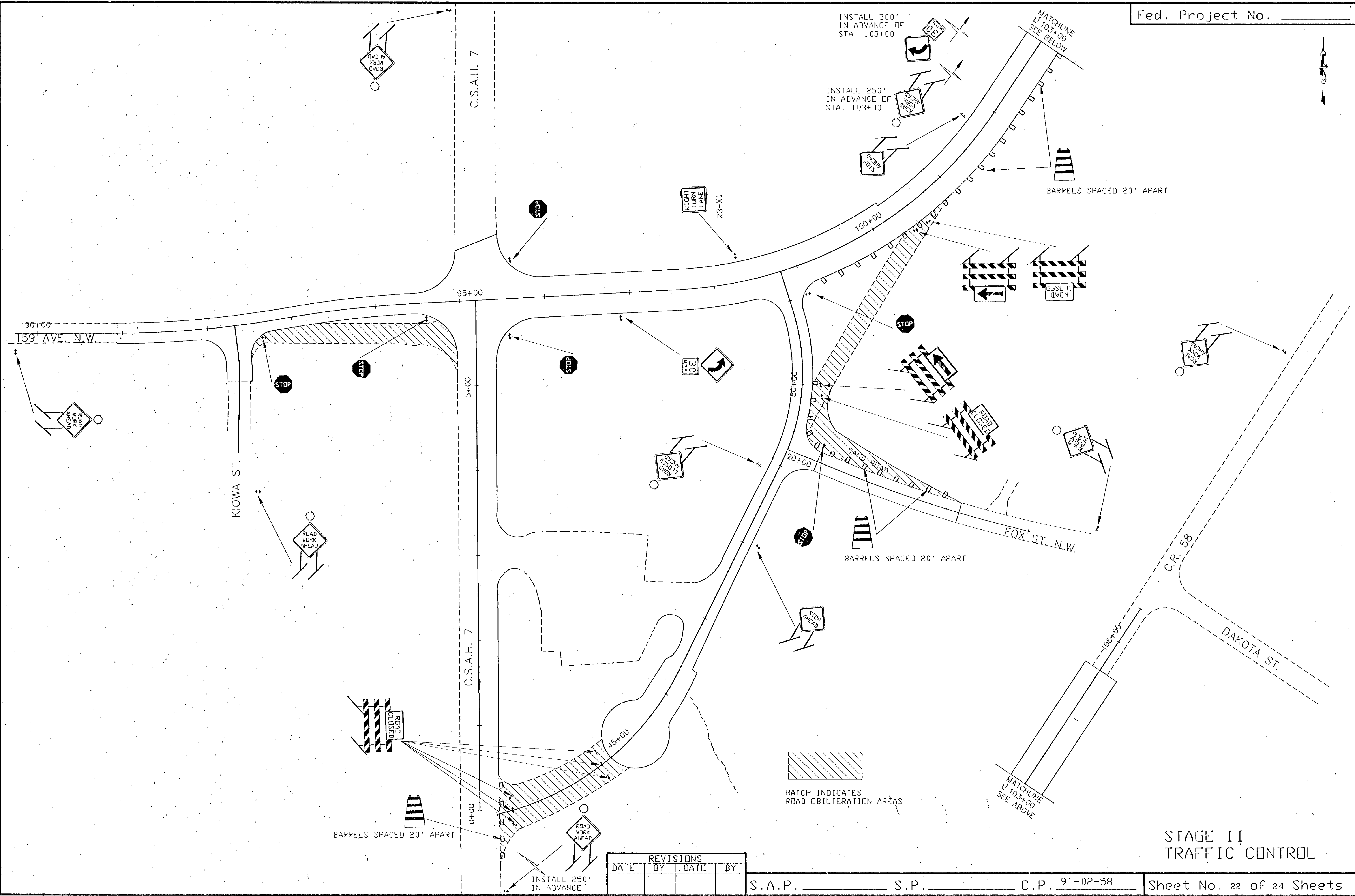
INSTALL 250' IN ADVANCE OF CONSTRUCTION

REVISIONS			
DATE	BY	DATE	BY

SHADED AREA INDICATES AREA OF CONSTRUCTION.

NOTE:
DETOUR (SHEET 20 OF 24) MUST BE IMPLEMENTED PRIOR TO (OR SIMULTANEOUSLY) MAKING THE INSTALLATIONS FOR THESE CLOSURES REQUIRED FOR THE NORTHERN NATURAL GAS RELOCATION.

STAGE I-B
TRAFFIC CONTROL
NORTHERN NATURAL GAS RELOCATION



REVISIONS			
DATE	BY	DATE	BY

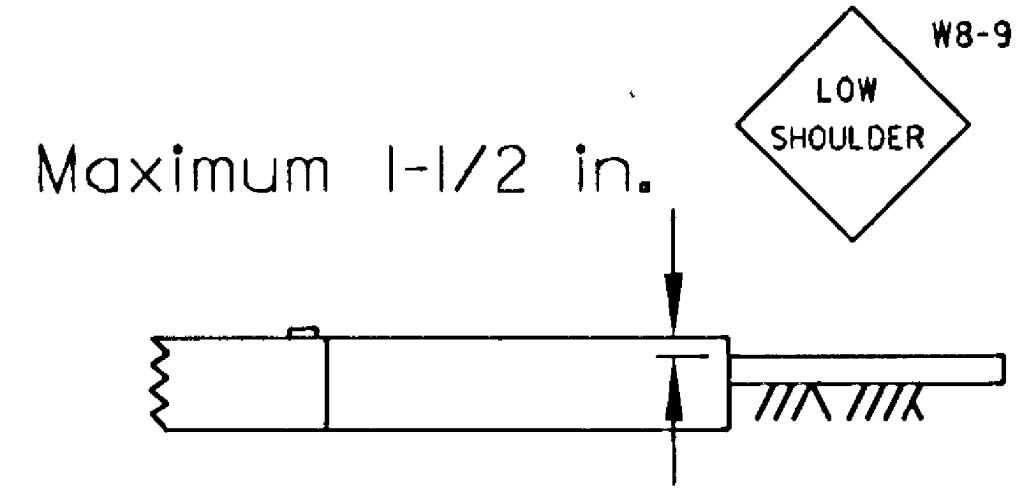
S.A.P. _____ S.P. _____ C.P. 91-02-58

M.U.T.C.D. CODE	SIZE	INSERT	PHASE I		PHASE II		DETOUR		M.U.T.C.D. CODE	SIZE	INSERT	PHASE I		PHASE II		DETOUR		M.U.T.C.D. CODE	SIZE	INSERT	DETOUR CODE
			POST	TELSPAR	POST	TELSPAR	POST	TELSPAR				POST	TELSPAR	POST	TELSPAR	POST	TELSPAR				
W20-3	48"x48"					1		2	W20-2	48"x48"							3	M4-8	24"x12"		• 1
								4										M3-1	24"x12"		• 4
																		M1-6	24"x24"		• 1
W3-1	48"x48"					2			R4-1	24"x30"			2								• 3
																					• 5
W1-2L	48"x48"					1			R3-X1	24"x30"					1			M4-8	24"x12"		• 2
																		M3-3	24"x12"		• 1
									R1-1	30"x30"					6			M1-6	24"x24"		• 2
W1-2R	48"x48"					1			REBOUNDABLE DRUM				80		40						• 5
									TYPE I				7					R3-11	60"x30"		• 2
W21-4	48"x48"			6		6			TYPE III	8 FT			2					R3-11	60"x30"		• 1
W21-X1	48"x48"			1		AS REQUIRED			R11-2	48"x30"			6		8		6	M3-1	24"x12"		• 3
									TYPE III	8 FT								M1-6	24"x24"		• 3
W8-9	48"x48"			AS REQUIRED		AS REQUIRED			TYPE III	8 FT					1			M3-3	24"x12"		• 4
									W1-6L	48"x30"								M1-6	24"x24"		• 4
W8-3	48"x48"			AS REQUIRED		AS REQUIRED			TYPE III	8 FT								TYPE III	8 FT		• 4
W8-7	48"x48"			AS REQUIRED		AS REQUIRED			M4-10L	48"x18"								TYPE III	8 FT		• 2
									M4-10R	48"x18"								TYPE III	8 FT		• 1
W8-1A	48"x48"			AS REQUIRED		AS REQUIRED															

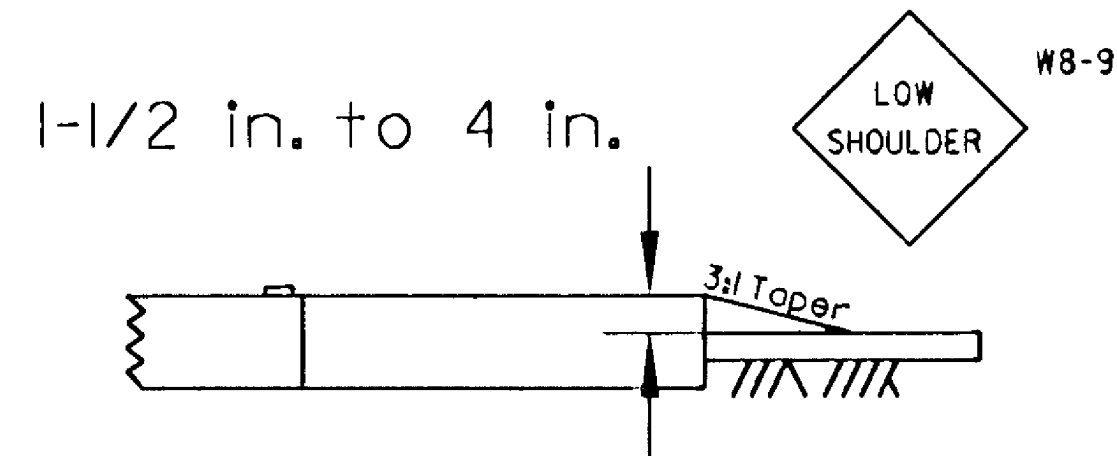
- STANDARD TRAFFIC CONTROL NOTES**
- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) ALL BARACIASES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
 - 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
 - 4) ALL BARRICADE MARKINGS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

REVISIONS			
DATE	BY	DATE	BY

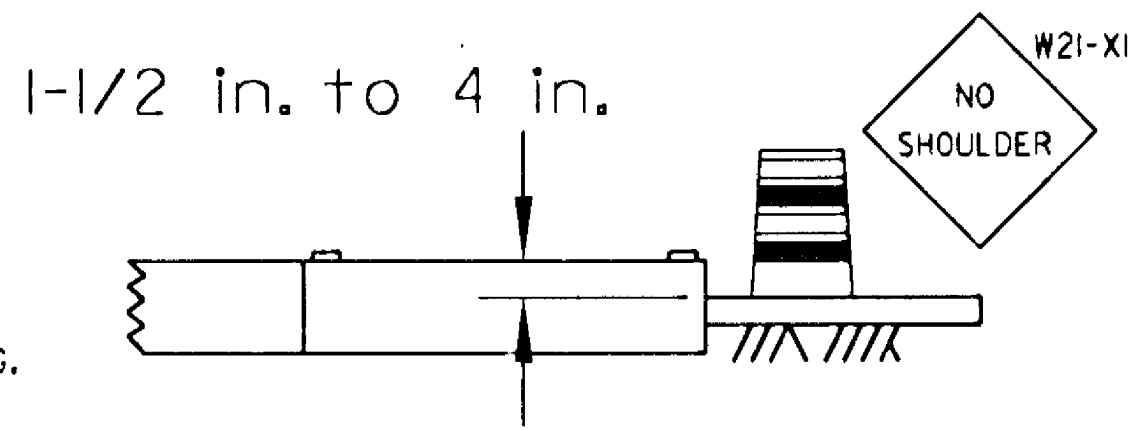
EDGE DROP OFF



EDGE DROP OFF - WITH TAPER

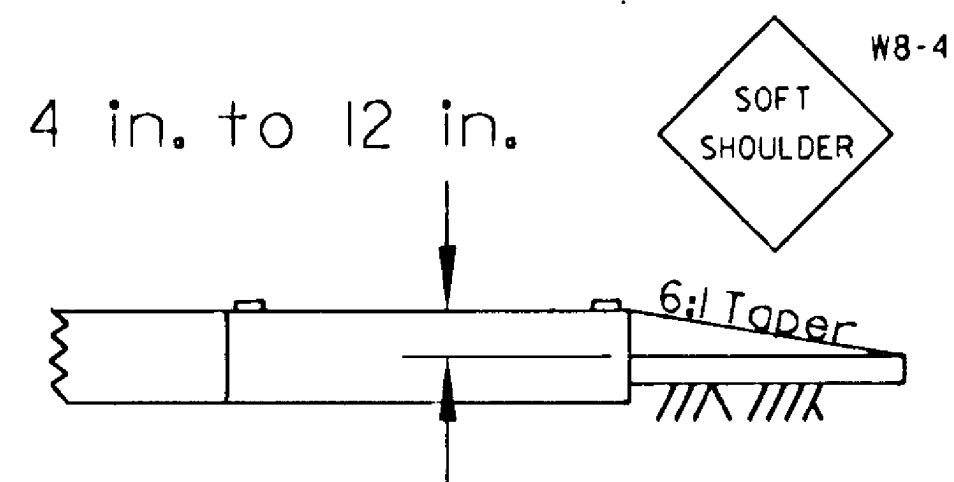


SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING.



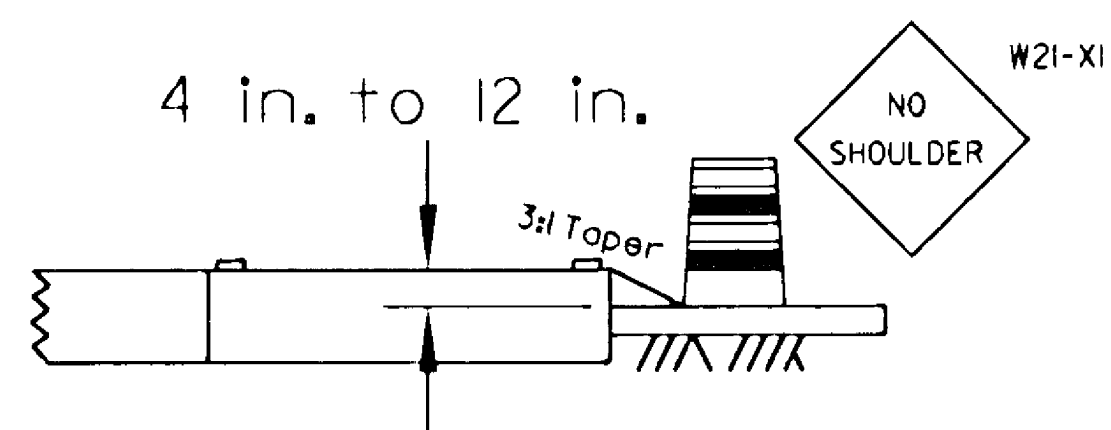
EDGE DROP-OFF WITH TAPER (SHOULDER - OPEN)

THIS CONDITION WILL NOT BE PERMITTED UNLESS THE 6:1 SLOPE IS COMPACTED SO THAT A VEHICLE MAY SAFELY DRIVE ONTO IT WITHOUT LOSING CONTROL AND IN THE OPINION OF THE ENGINEER THERE ARE NO OTHER HAZARDOUS CONDITIONS.

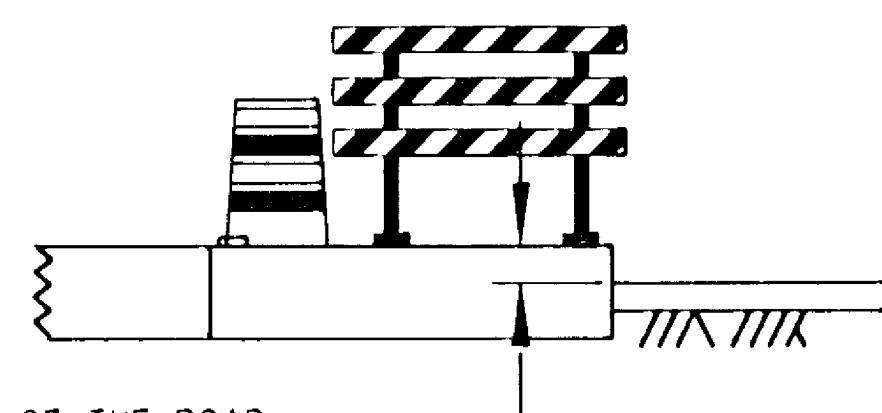


EDGE DROP-OFF WITH TAPER (SHOULDER - CLOSED)

SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING



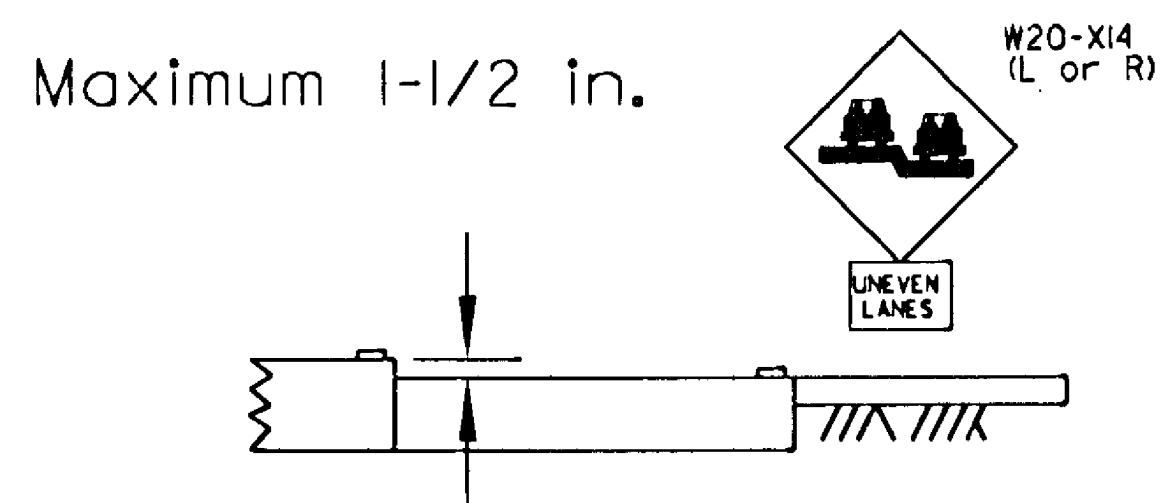
4 in. to 12 in.



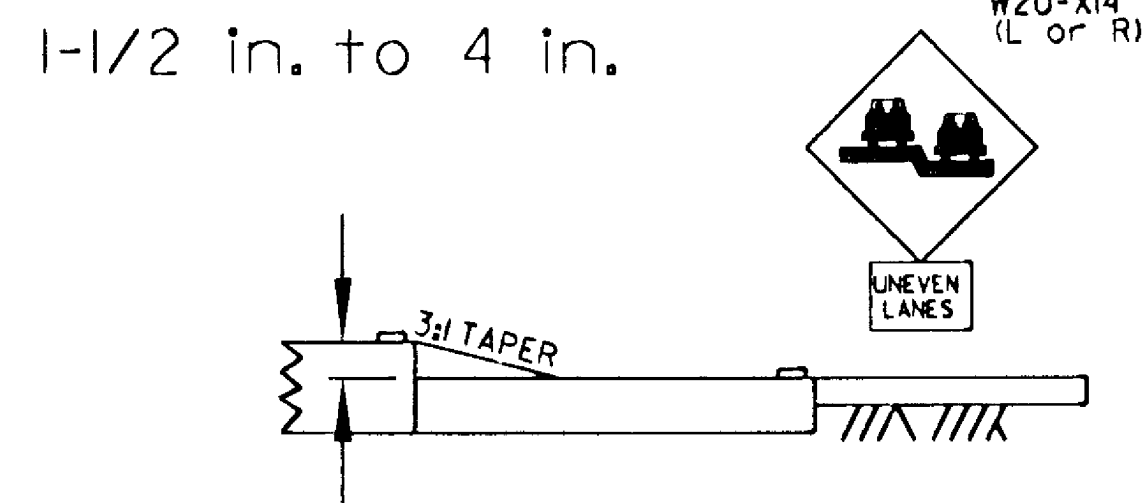
ADJACENT LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE LAYOUT SHOWN IN APPENDIX B, CHANNELIZING DEVICES TO BE AT A MAXIMUM OF 100 FT. SPACING AND TYPE III EVERY 1000 FT.

NOTE: SIGNS ARE REQUIRED ONLY ON THE SIDE OF THE ROAD THAT IS AFFECTED BY CONSTRUCTION (EXCEPT SIGNS THAT ARE FOR A LANE CLOSURE ON DIVIDED HIGHWAYS).

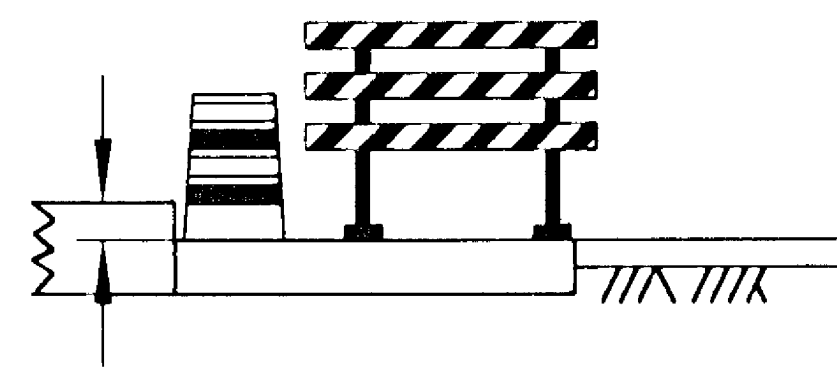
UNEVEN LANES



UNEVEN LANES - WITH TAPER



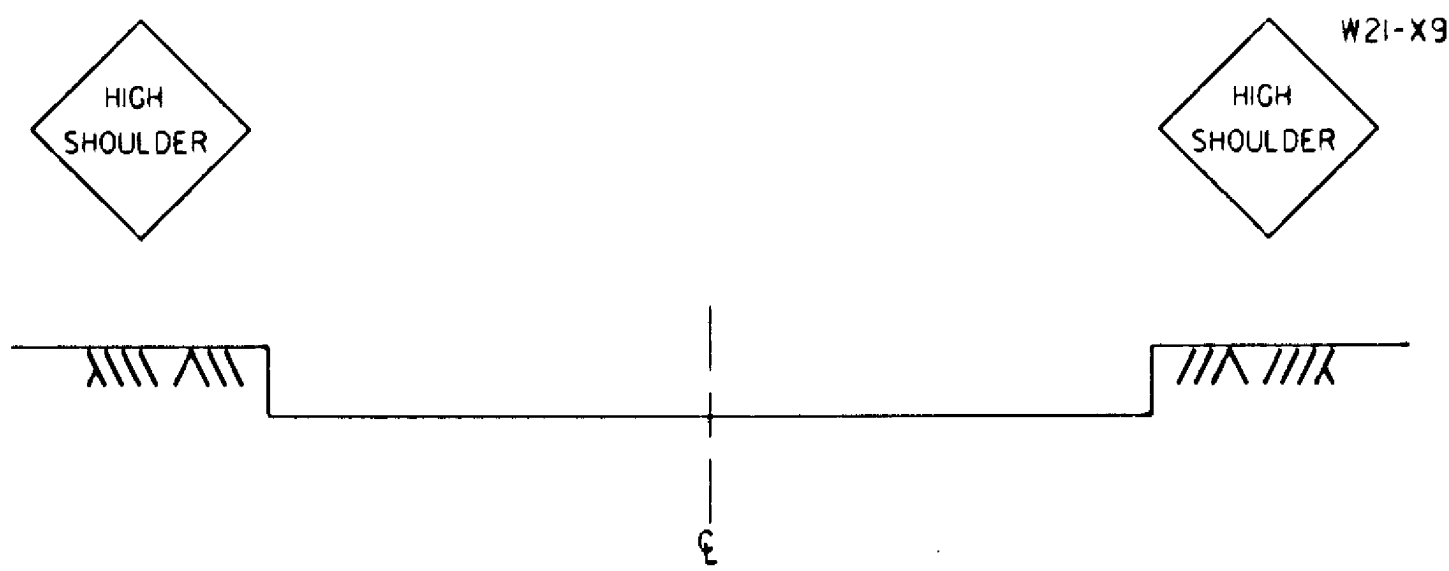
1-1/2 in. to 4 in.



LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE FROM APPENDIX B, CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING AND A TYPE III BARRICADE EVERY 1000 FT.

NOTE: FOR DIVIDED HIGHWAYS, USE SIGNS ON RIGHT AND LEFT SIDE. SIGN SEQUENCE SHOWN FOR ONE DIRECTION ONLY; OTHER DIRECTION SHALL BE IDENTICAL.

MILLED EDGE



NOTE: MILLED EDGES SHOULD BE TREATED WITH TAPERS, CHANNELIZERS, AND SIGNING AS SHOWN ON EDGE DROP-OFF DETAILS.

GUIDELINES

THESE GUIDELINES ARE INTENDED TO INCREASE TRAFFIC SAFETY USING TRAFFIC CONTROL DEVICES, SAFETY RELATED APPURTENANCES, AND CONSTRUCTION TECHNIQUES FOR UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS THAT OCCUR IN HIGHWAY WORK ZONES. THE BEST WAY TO INCREASE TRAFFIC SAFETY IS TO MAKE EVERY ATTEMPT TO MINIMIZE EXPOSURE TO UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS; HOWEVER, IT IS REALIZED THAT THIS IS OFTEN NOT POSSIBLE OR FEASIBLE. ONLY WHEN UNEVEN LANES, MILLED EDGES, OR EDGE DROP-OFFS ARE DEEMED NECESSARY, SHALL THE APPROPRIATE PORTION(S) OF THESE GUIDELINES BE APPLIED TO ENHANCE TRAFFIC SAFETY.

APPROPRIATE UNEVEN LANE WARNING SIGNS OR SHOULDER WARNING SIGNS SHALL BE REPEATED AFTER EACH INTERSECTION.

MAXIMUM WARNING SIGN SPACING SHALL BE:
 A - 1 MILE WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH AND
 B - 1/4 MILE WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

WHEN SPACE PERMITS, MINIMUM WARNING SIGN SIZE SHALL BE:
 A - 48 INCHES x 48 INCHES WHEN THE SPEED LIMIT IS GREATER THEN 30 MPH AND
 B - 36 INCHES x 36 INCHES WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

1. FOR DROP-OFFS OF 1-1/2 INCHES OR LESS, APPROPRIATE WARNING SIGNS SHALL BE PROVIDED.
2. FOR DROP-OFFS GREATER THAN 1-1/2 INCHES UP TO 4 INCHES:
 - A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED; OR
 - B - IF THE TAPER IS NOT PROVIDED, TRAFFIC SHALL NOT BE PERMITTED TO CROSS THE DROP-OFF AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND DEVICES.
3. FOR DROP-OFFS GREATER THAN 4 INCHES UP TO 12 INCHES:
 - A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 6:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED, (6:1 TAPER SHALL NOT BE USED AS A TRAFFIC CARRYING LANE);
 - B - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1, TRAFFIC SHALL NOT BE ALLOWED TO CROSS THE DROP-OFF, AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES; OR
 - C - IF A TAPER IS NOT PROVIDED, THE TRAFFIC OR AUXILIARY LANE ADJACENT TO THE DROP-OFF SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES OR A POSITIVE BARRIER, SUCH AS A PORTABLE PRECAST CONCRETE BARRIER, SHALL BE PROVIDED TO PREVENT TRAFFIC FROM CROSSING THE DROP-OFF.
4. FOR SHOULDER EDGE DROP-OFFS:
 - A - 0-2 FOOT SHOULDER WIDTH AND A 0-1/2 INCH DROP-OFF; USE GUIDELINES AS SHOWN
 - B - 2-8 FOOT SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; INSTALL EDGELINE OR USE GUIDELINES AS SHOWN
 - C - 8 FOOT OR GREATER SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; NO TRAFFIC CONTROL REQUIRED
 - D - GREATER THAN 2 FOOT SHOULDER WIDTH AND A 4-1/2 INCH DROP-OFF; USE GUIDELINES AS SHOWN
5. DROP-OFFS GREATER THAN 4 INCHES ADJACENT TO TRAFFIC CARRYING LANES ARE PERMITTED WITHOUT TAPERS OR POSITIVE BARRIERS FOR:
 - A - PROJECTS WITHIN URBAN AREA WHEN THE SPEED LIMIT IS 30 MPH OR LESS; OR
 - B - SHORT TERM (7 CALENDAR DAYS OR LESS) CONCRETE OR UTILITY REPAIR, LESS THAN 50 FEET IN LENGTH WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH.
6. AT NO TIME SHALL THERE BE MORE THAN ONE UNEVEN LANE CONDITION BETWEEN THE TRAFFIC CARRYING LANES WHICH INCLUDE AUXILIARY LANES, TURN LANES, AND RAMP ACCESS OR EGRESS AREAS. WEATHER PERMITTING, ALL EXPOSED UNEVEN LANES CONDITIONS WITHIN THE TRAFFIC CARRYING LANES SHALL BE "MATCHED" WITHIN 24 HOURS.
7. MILLING OPERATIONS SHALL BE REQUIRED TO COMPLETE THE FULL WIDTH OF THE SECTION UNDER CONSTRUCTION AT THE END OF EACH WORK PERIOD.

Traffic Control Treatment of Longitudinal Joints and Edge Drop-offs in Work Zones

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