

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	---
GRIP 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	---
TAMER	---
ORCHARD	---
BURSH	---
NURSERY	---
CATCH BASIN	---
FIRE HYDRANT	---
CATTLE GUARD	---
OVERPASS (Highway Over)	---
UNDERPASS (Highway Under)	---
DRENCH	---
BLUENING (Over Street Tunnel)	---
1 FRAME	C CONCRETE
5 STONE	1 TET
8 BRICK	ST STUCCO
IRON PIPE OR ROAD	---
MARKER (STONE CONCRETE OR METAL)	---
MARKER (HUB)	---
GRAVEL PIT	---
SAND PIT	---
SKIRTING PIT	---
ROCK 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	---
PEDESTAL (TELEPHONE CABLE TERMINAL)	---
GAS MAIN	---
WATER MAIN	---
CONDUIT	---
TELEPHONE CABLE IN CONDUIT	---
ELECTRIC CABLE IN CONDUIT	---
TELEPHONE MANHOLE	---
ELECTRIC MANHOLE	---
BURIED TELEPHONE CABLE	T-BUR
BURIED ELECTRIC CABLE	P-BUR
AERIAL TELEPHONE CABLE	T-AE
SEWER (SANITARY OR STORM)	---
SEWER MANHOLE	---

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)

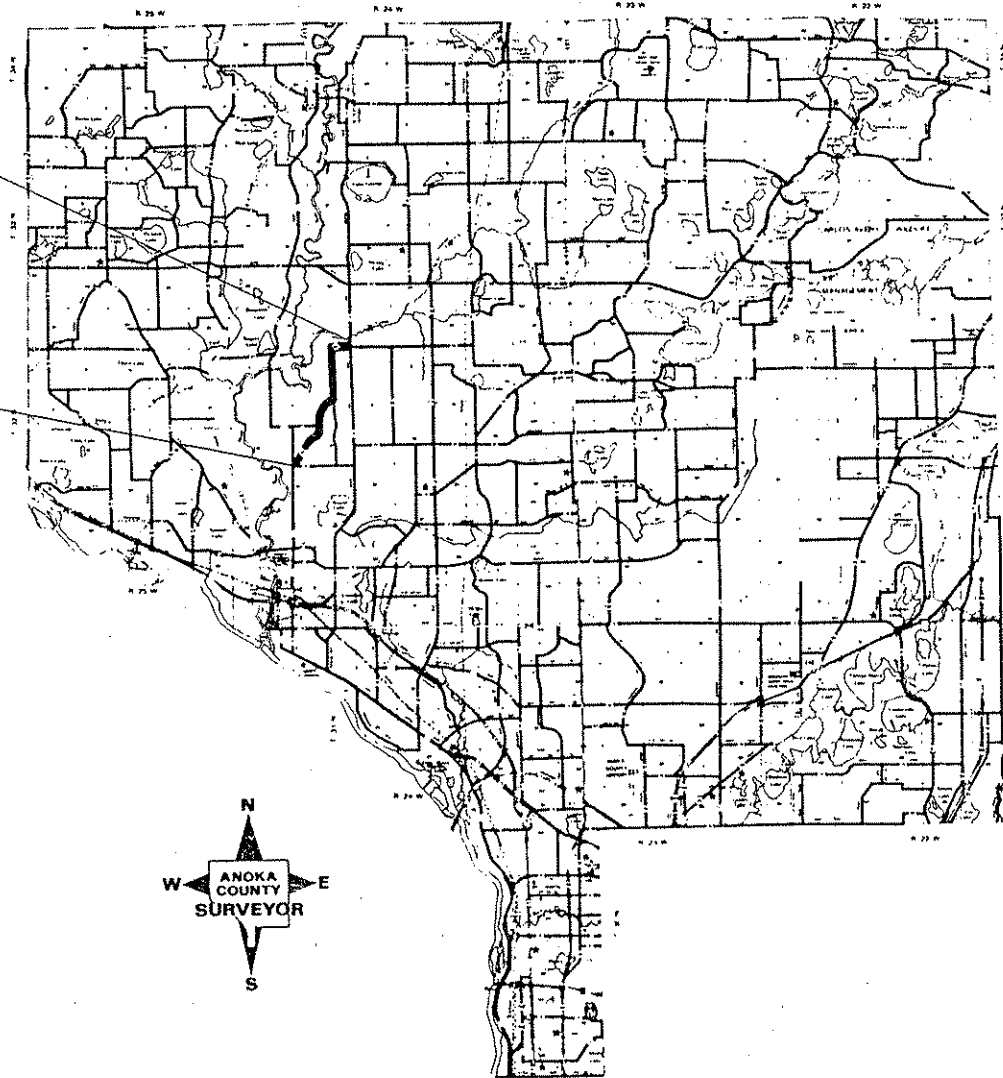
Co. Ditch No. 6

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

GROSS LENGTH	1,9,276 FEET	3.651 MILES	GROSS LENGTH	FEET	MILES
BRIDGES-LENGTH	FEET	MILES	BRIDGES-LENGTH	FEET	MILES
EXCEPTIONS-LENGTH	FEET	MILES	EXCEPTIONS-LENGTH	FEET	MILES
NET LENGTH	1,9,276 FEET	3.651 MILES	NET LENGTH	FEET	MILES

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

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



SCALES

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

MINN. PROJ. NO. [REDACTED]
MINN. PROJ. NO. [REDACTED]

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

EN18 20	NA
R Value	NA
ADT (1992)	1,698
Proj. ADT (2012)	2,387
Proj. HCADT (2012)	216
Soil Factor	50%
9	Ton Design
Shoulder Width	8 FT.

91-02-58

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. Fischer
 DESIGN SQUAD M. GABRICK
 Recommended for Approval Michael R. Kelly June 17, 1992
 Recommended for Approval Janet Penick June 17, 1992
 Recommended for Approval [Signature] June 17, 1992
 Approved 6/17/92 [Signature] ANOKA COUNTY ENGINEER
 Approved 7/21/92 James E. Schantz CITY OF ANOKA

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.	18698	
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.	1208	
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.	188	
2357.502	BIT. MAT'L FOR TACK COAT	GAL.	2958	
2451.509	AGGREGATE BEDDING (LV)	CU. YD.	200	
2501.511	15" C.M. PIPE CULVERT	LIN. FT.	116	
2501.511	18" C.M. PIPE CULVERT	LIN. FT.	66	
2501.511	48" R.C. PIPE CULVERT	LIN. FT.	124	
2501.521	28" SPAN RC PIPE-ARCH CULVERT CLASS IV	LIN. FT.	88	
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	12.8	
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	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			1	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	TDM THUMB ENTRANCE
90+93	C/L	24	
92+35	RT	24	KIDWA STREET
94+95	C/L	85	SAW ALONG SHLDR OF CSAH 7
45+80	C/L	24	
49+00	C/L	24	
104+60	C/L	24	
212+75		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 (GAL.)	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)		DEPTH (IN.)	AREA (SQ. FT.)	VOLUME (CU. YD.)
90+93	94+90	0.0	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	675
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
L1 95+40	L1 104+60	1.85	83	0	925
L3 43+60	L3 51+12	2.00	0	150	1000
L4 20+12	L4 22+15	0.10	0	8	50
L2 0+40	L2 5+74	0.10	5	0	50
211+80	222+00	2.05	92	0	1025
TOTALS:		6.40	180	181	3200

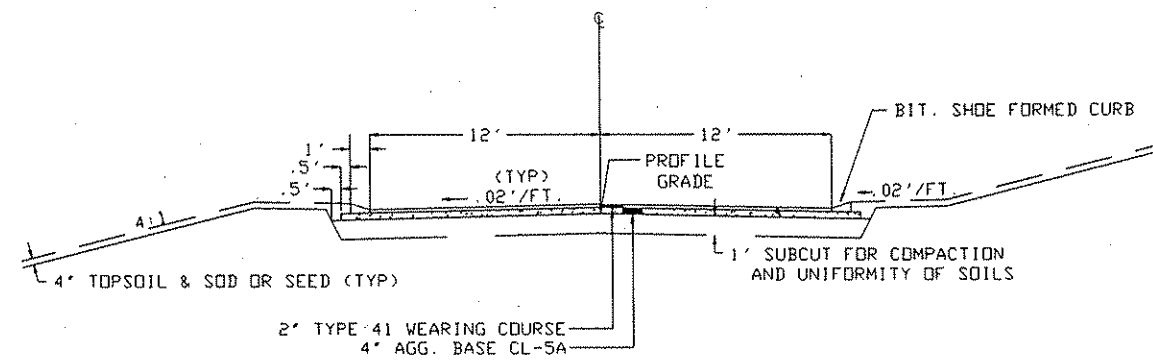
- NOTES:
- REMOVAL TO INCLUDE EXISTING BITUMINOUS ROADWAY SURFACE REGARDLESS OF DEPTH, (AVERAGE 4" THICK) INCLUDES STREET APPROACHES AND RESIDENTIAL ENTRANCES.
 - MATERIAL TO BE SALVAGED FROM EXCESS MUCK EXCAVATION TO BE USED AS ADDITIONAL TOPSOIL DRESSING FOR L1, L2, L3, AND L4 CONSTRUCTION AS DIRECTED 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

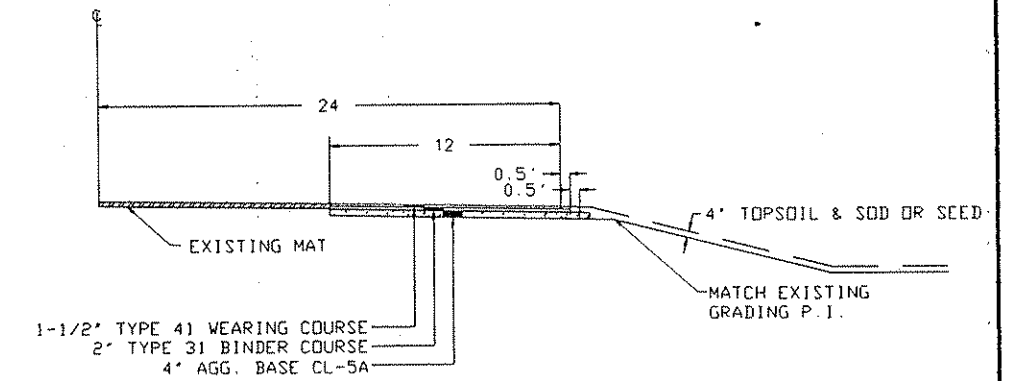
TYPICAL BASE & GRADING SECTION

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



TYPICAL BASE & GRADING SECTION

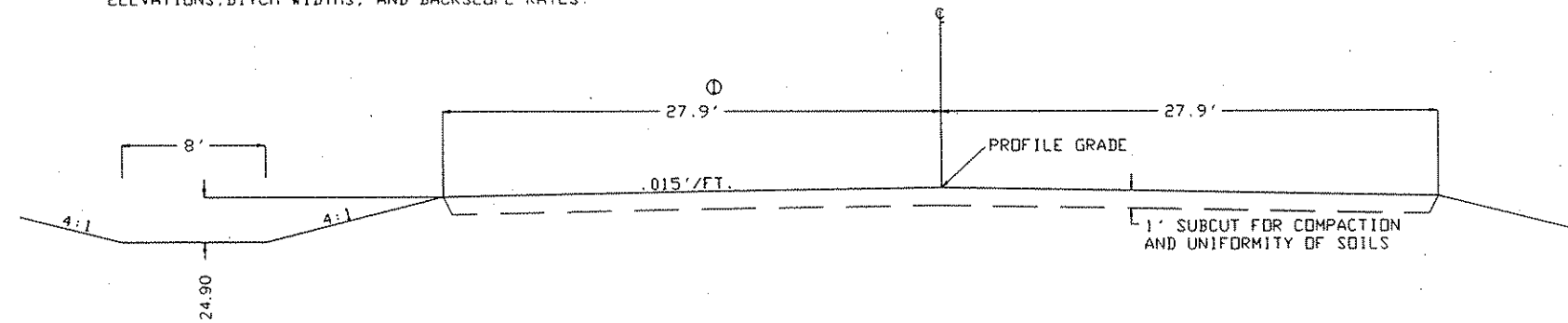
L2 STA 0+40 - 6+87
RIGHT TURN LANE - C.S.A.H. 7



GRADING SECTION

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

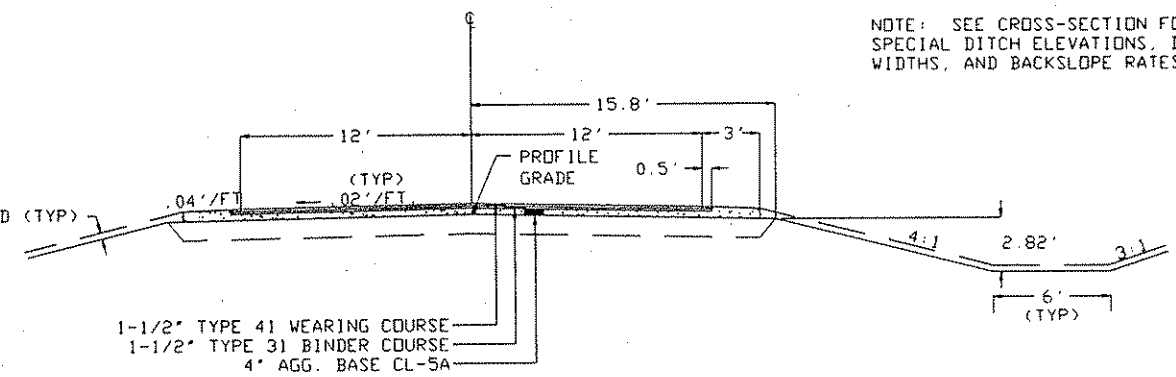
NOTE: SEE CROSS-SECTION FOR SPECIAL DITCH ELEVATIONS, DITCH WIDTHS, AND BACKSLOPE RATES.



TYPICAL BASE & GRADING SECTION

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

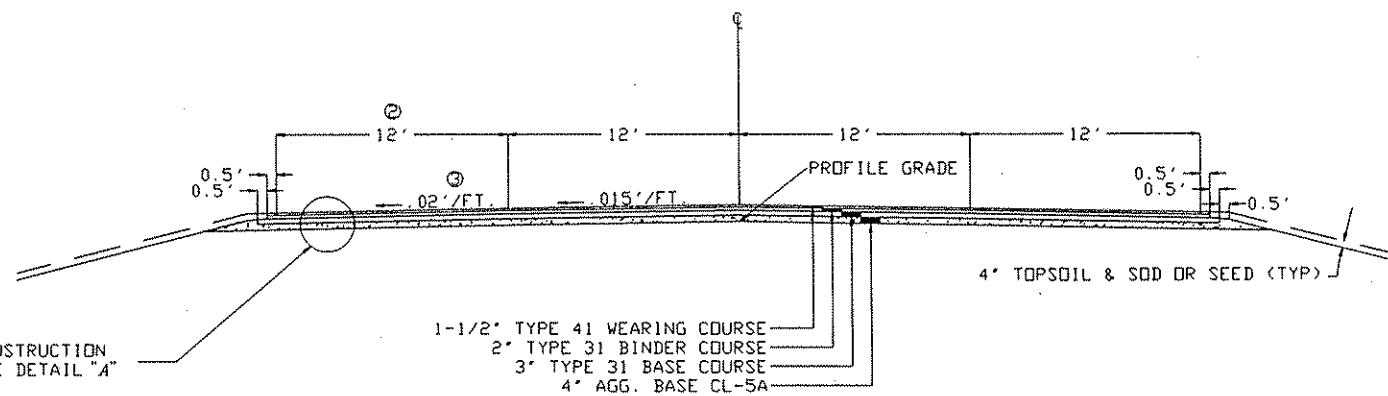
NOTE: SEE CROSS-SECTION FOR SPECIAL DITCH ELEVATIONS, DITCH WIDTHS, AND BACKSLOPE RATES.



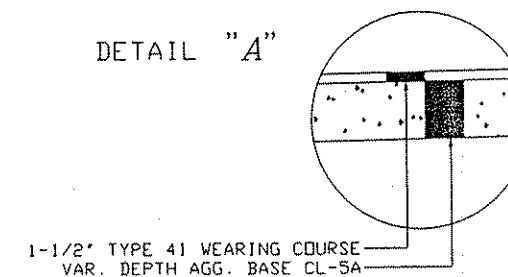
TYPICAL BASE & GRADING SECTION

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

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



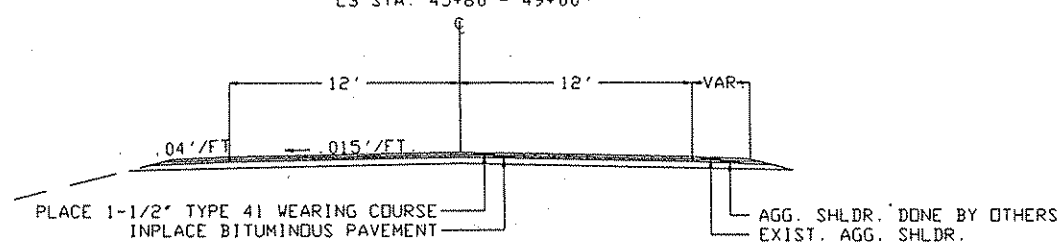
DETAIL "A"



- 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

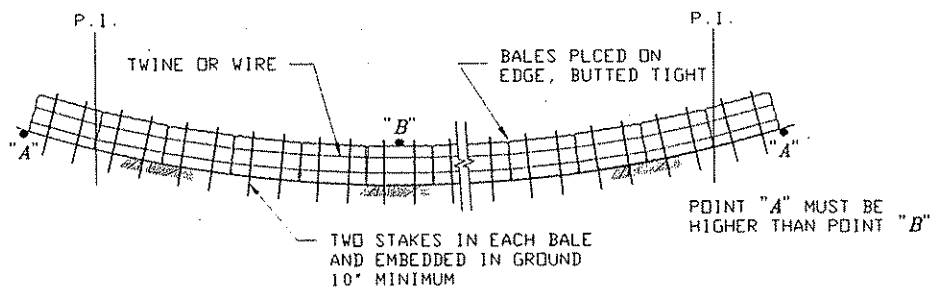
TYPICAL OVERLAY SECTION

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

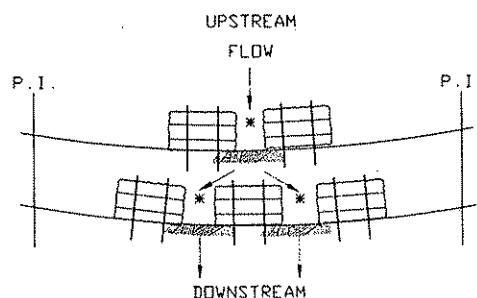


REVISIONS			
DATE	BY	DATE	BY

BALE HAY OR STRAW DITCH CHECK

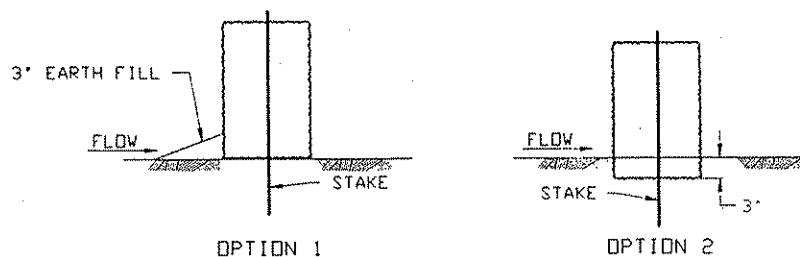


ALTERNATE BALE CHECK



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

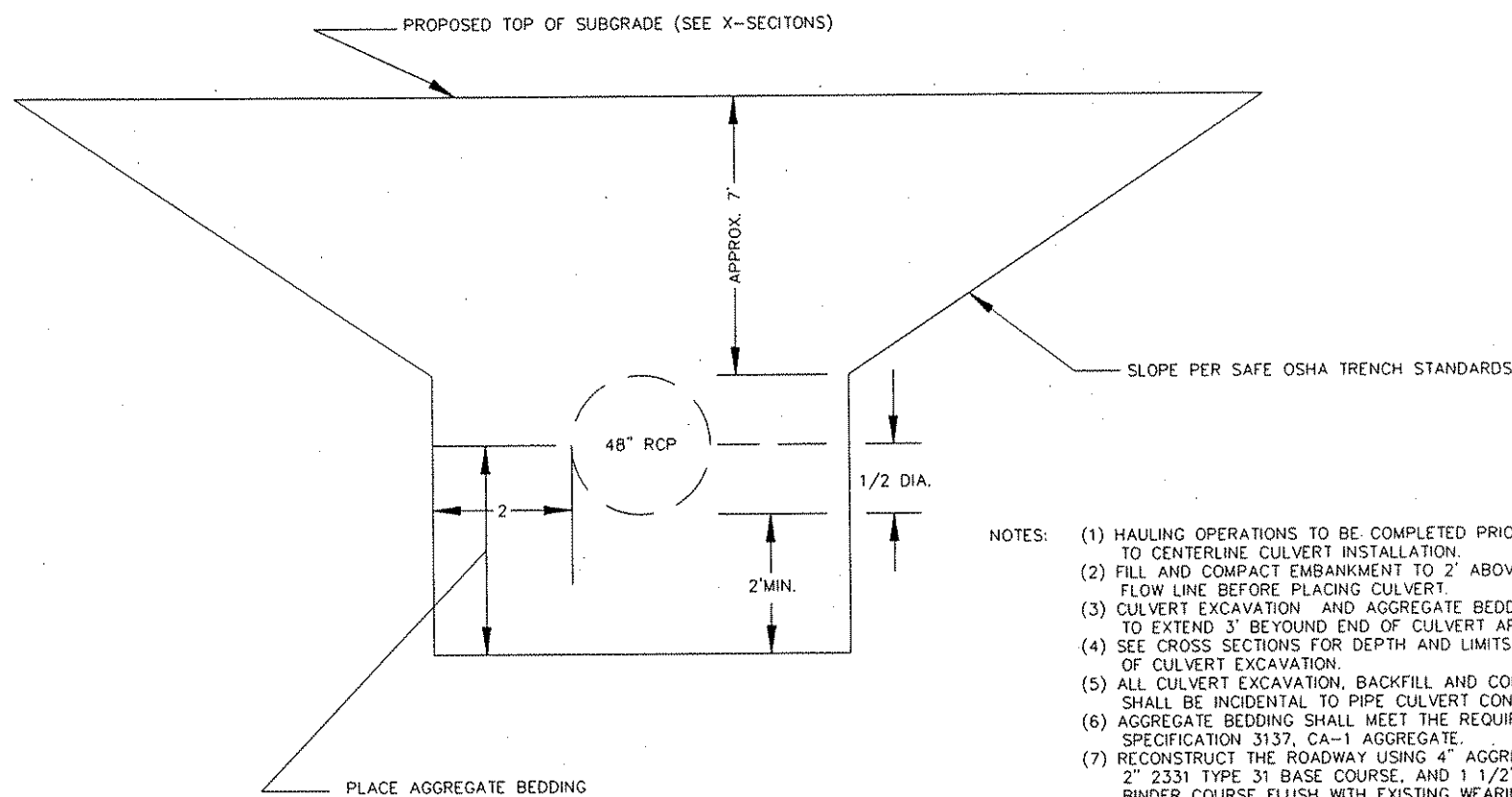


BALE CHECKS		
STATION	LOCATION	QUANTITY
50+00	LT	5
50+00	RT	5
94+75	RT	1
95+62	RT	1
100+50	LT	5
100+50	RT	5
101+00	LT	5
101+00	RT	5
103+00	LT	5
103+00	RT	5
217+25	LT	5
TOTAL:		47

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					124	2
219+40	C/L	60' X 48" CMP	REMOVE CULVERT	60	81								
TOTALS:				110	163	116	4	66	2	88	2	124	2

STATION 219+40



- NOTES:
- (1) HAULING OPERATIONS TO BE COMPLETED PRIOR TO CENTERLINE CULVERT INSTALLATION.
 - (2) FILL AND COMPACT EMBANKMENT TO 2' ABOVE FLOW LINE BEFORE PLACING CULVERT.
 - (3) CULVERT EXCAVATION AND AGGREGATE BEDDING TO EXTEND 3' BEYOND END OF CULVERT APRON.
 - (4) SEE CROSS SECTIONS FOR DEPTH AND LIMITS OF CULVERT EXCAVATION.
 - (5) ALL CULVERT EXCAVATION, BACKFILL AND COMPACTION SHALL BE INCIDENTAL TO PIPE CULVERT CONSTRUCTION.
 - (6) AGGREGATE BEDDING SHALL MEET THE REQUIREMENTS OF MNDOT SPECIFICATION 3137, CA-1 AGGREGATE.
 - (7) 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.
 - (8) 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)	

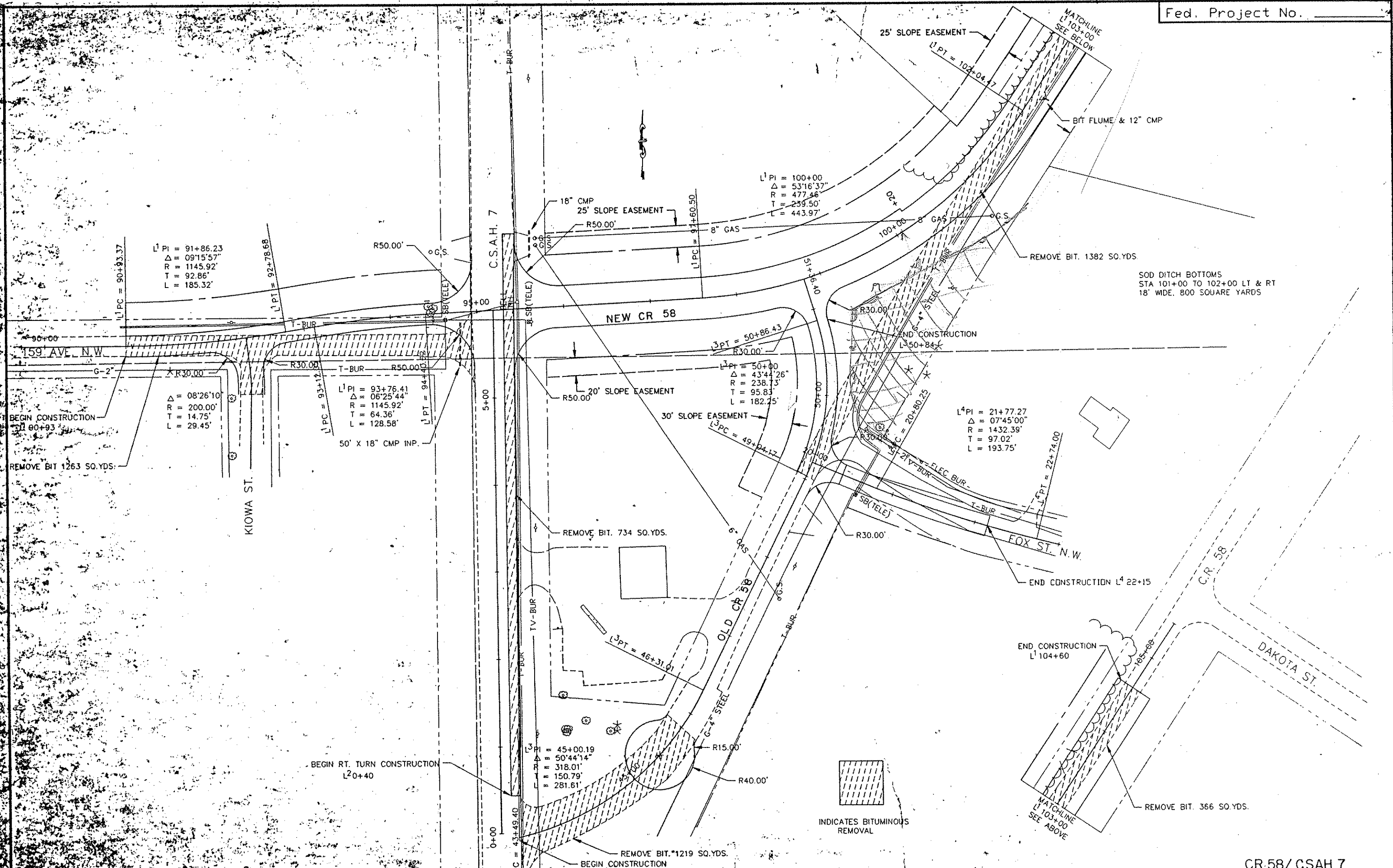
NOTES:
 (1) INCLUDES 38 CU YDS BITUMINOUS REMOVAL
 (2) EXCESS = COMMON EXCAVATION - (TOPSOIL X 120%)
 = 154 - (50 X 1.20)
 = 93 CU YDS
 (3) EXCESS MATERIAL TO BE USED AS EMBANKMENT MATERIAL FOR CULVERT CONSTRUCTION.

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.

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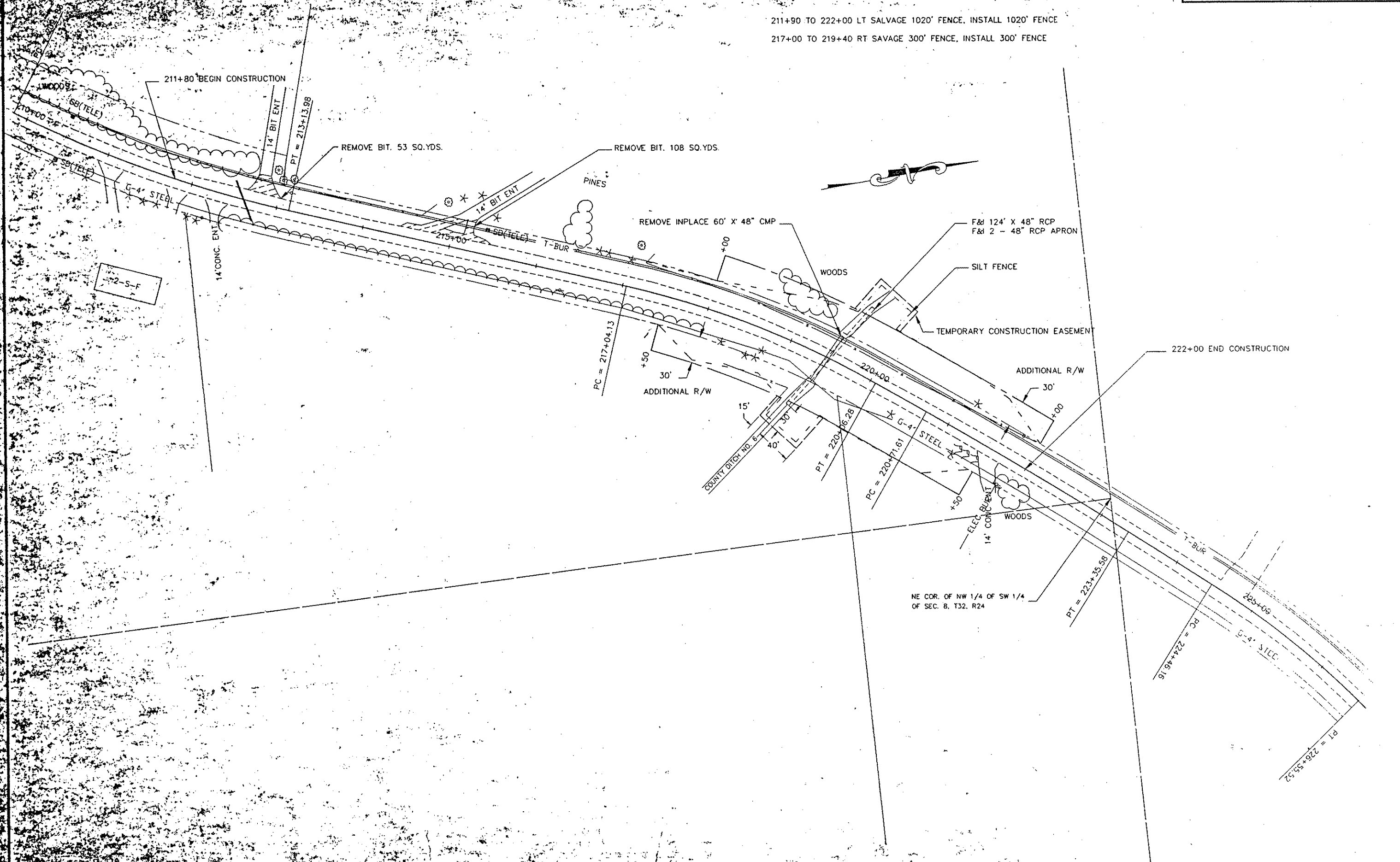
SOD DITCH BOTTOMS
STA 101+00 TO 102+00 LT & RT
18' WIDE, 800 SQUARE YARDS

INDICATES BITUMINOUS
REMOVAL

REVISIONS			
DATE	BY	DATE	BY

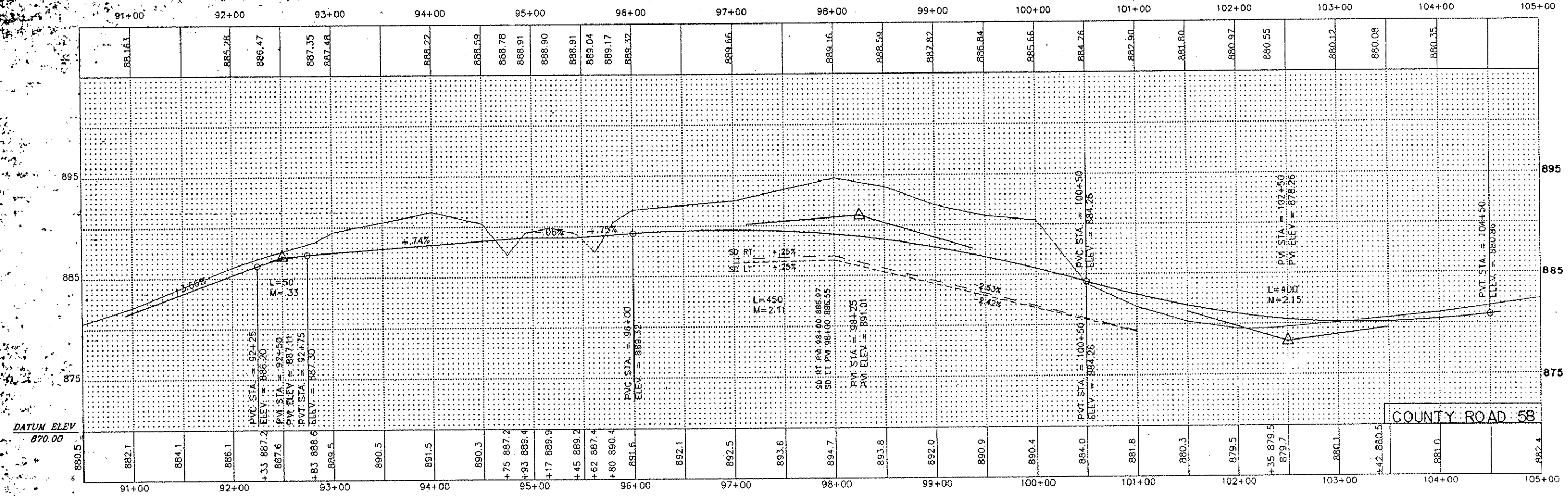
CR 58/CSAH 7
CONSTRUCTION PLAN

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



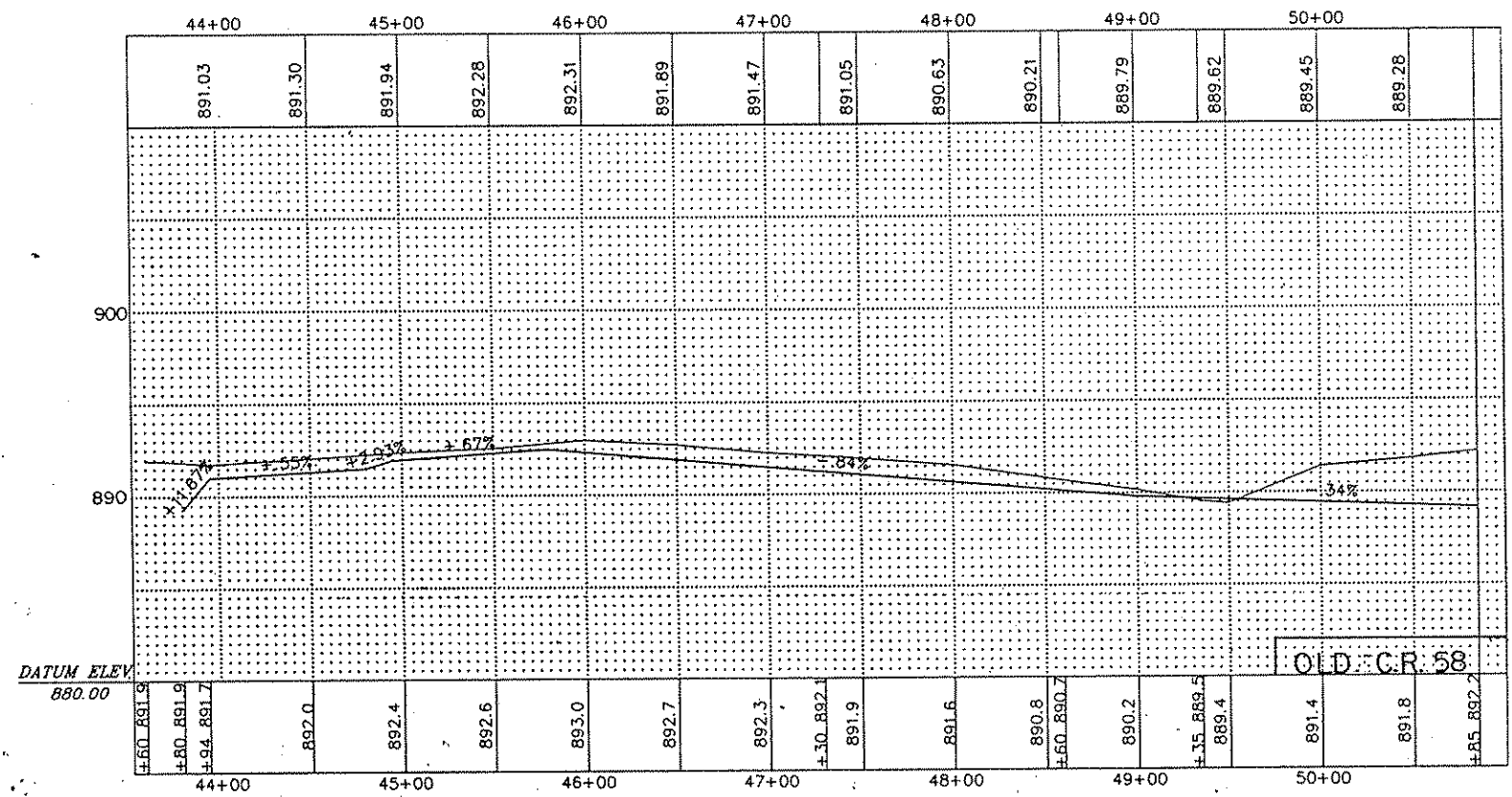
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DATE	BY	DATE	BY

CR 58/ CO. DITCH 6
 CONSTRUCTION PLAN



DATUM ELEV
870.00

COUNTY ROAD 58



DATUM ELEV
880.00

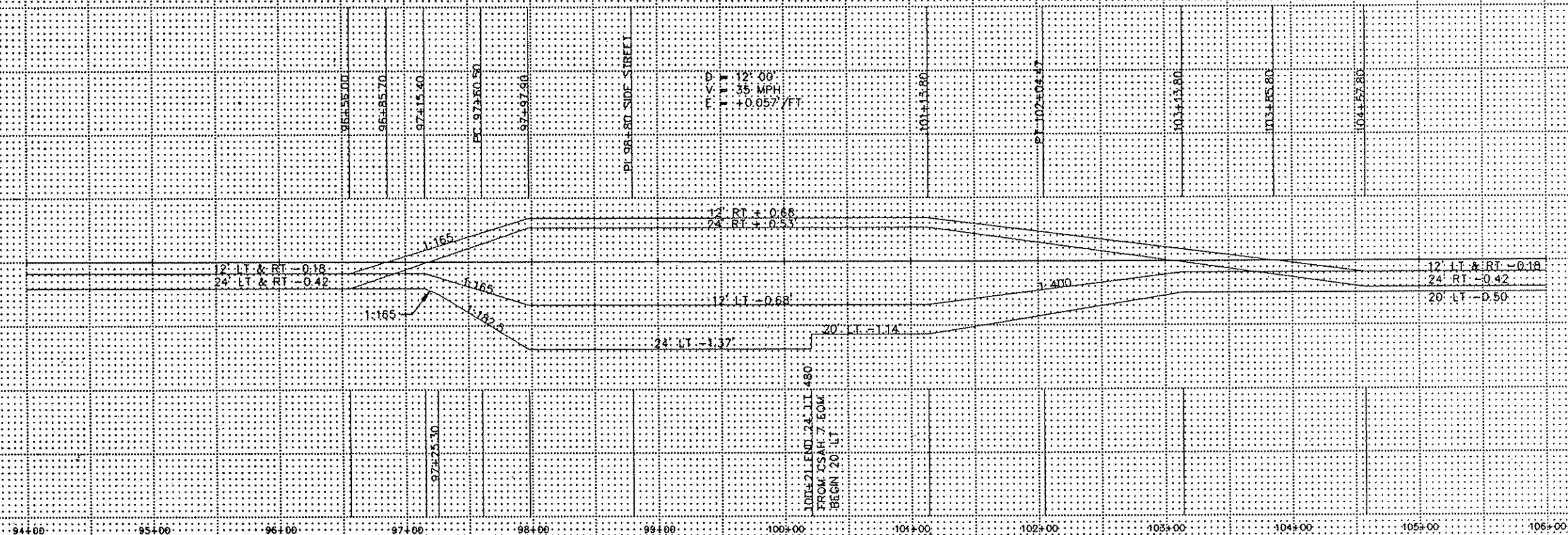
OLD C.R. 58

NOTE: FOR FOX STREET PROFILE,
SEE SHEET 19.

PROFILE SHEET

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DATE	BY	DATE	BY

SUPERELEVATION



V.S.D.
 12' 00"
 35 MPH
 +0.057/FT

104+21.60 - 24' LT - 1.80
 FROM CSAH 7' EOM
 BEGIN 20' LT

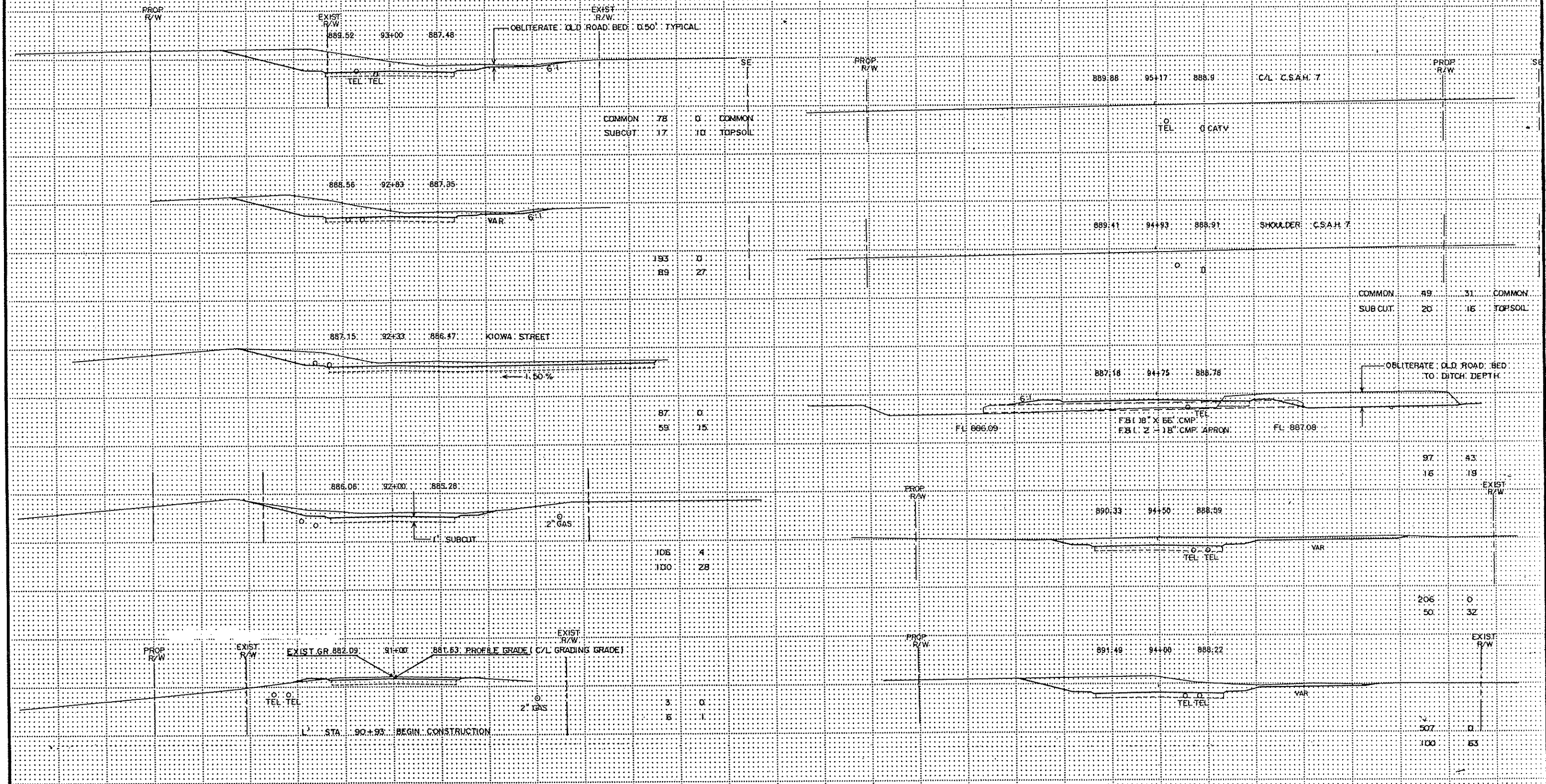
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DATE	BY	DATE	BY

EXCAVATION EMBANKMENT

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

EXCAVATION EMBANKMENT

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



L-15.9 AVENUE
CROSS-SECTION
STA 91+00 TO STA 95+17

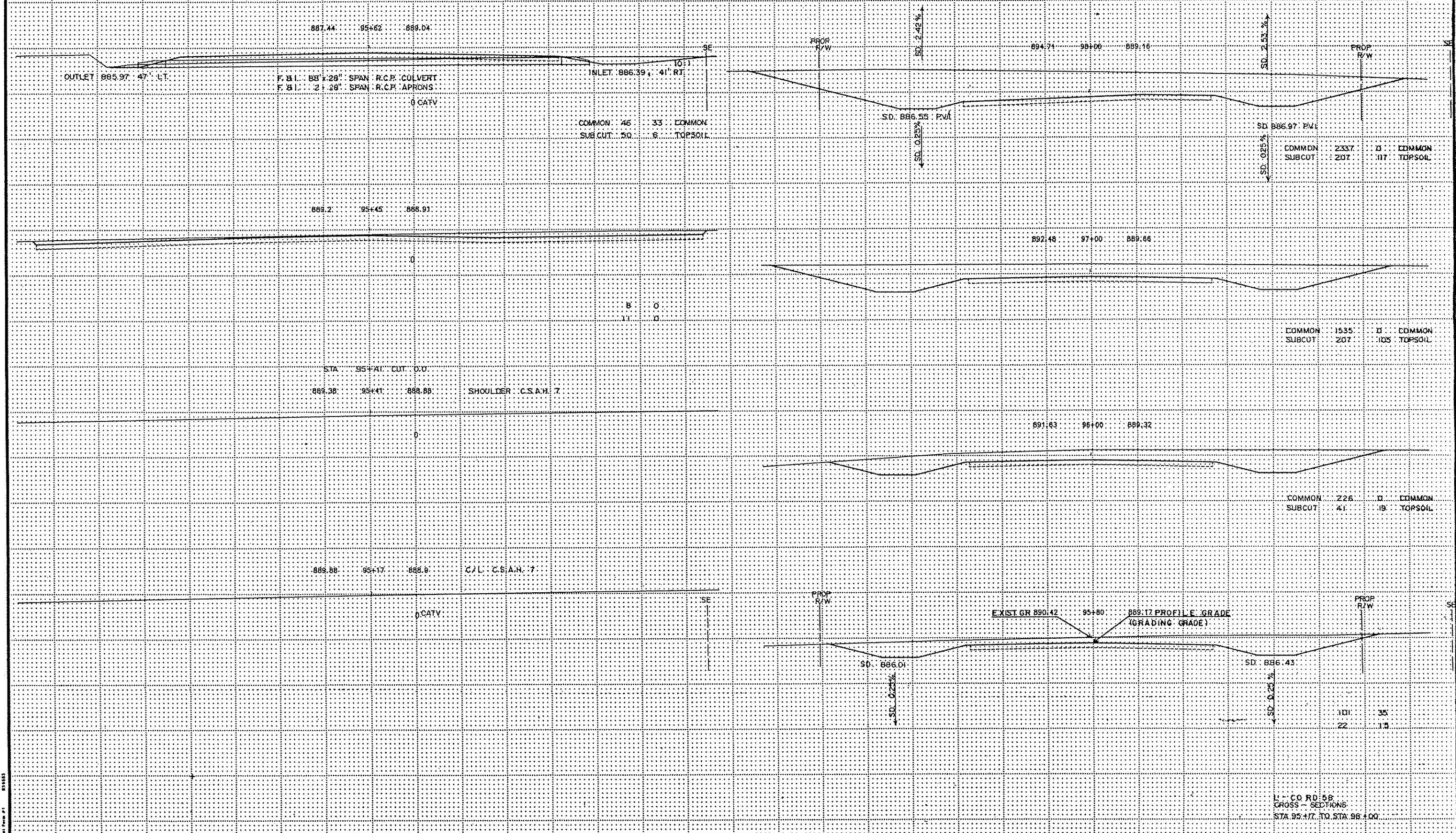
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EXCAVATION EMBANKMENT

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

EXCAVATION EMBANKMENT

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

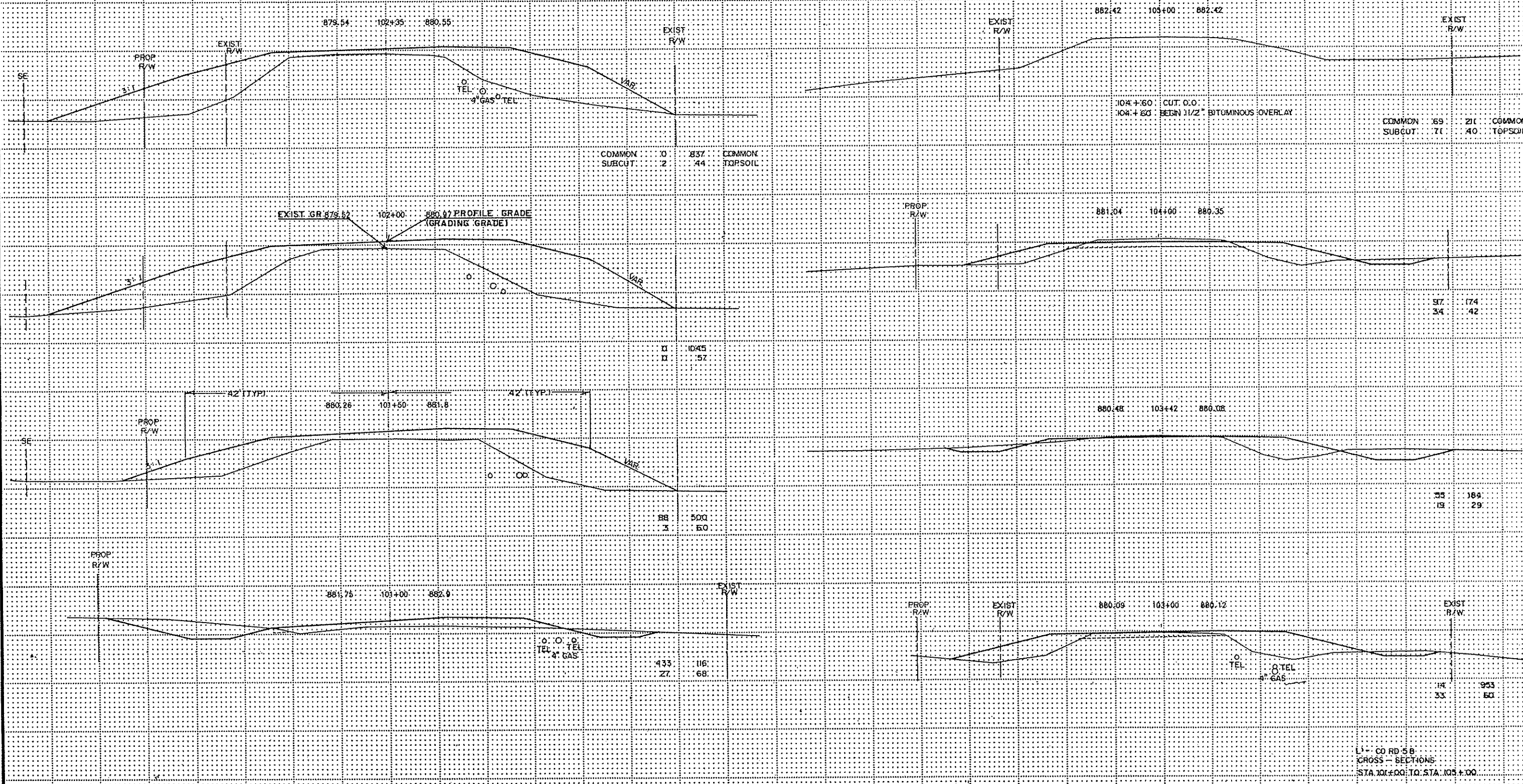


1" = 50' HORIZ. SCALE
1" = 5' VERT. SCALE
STA 95+17 TO STA 96+00

Vertical Embankment Form #1 815155

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

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



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

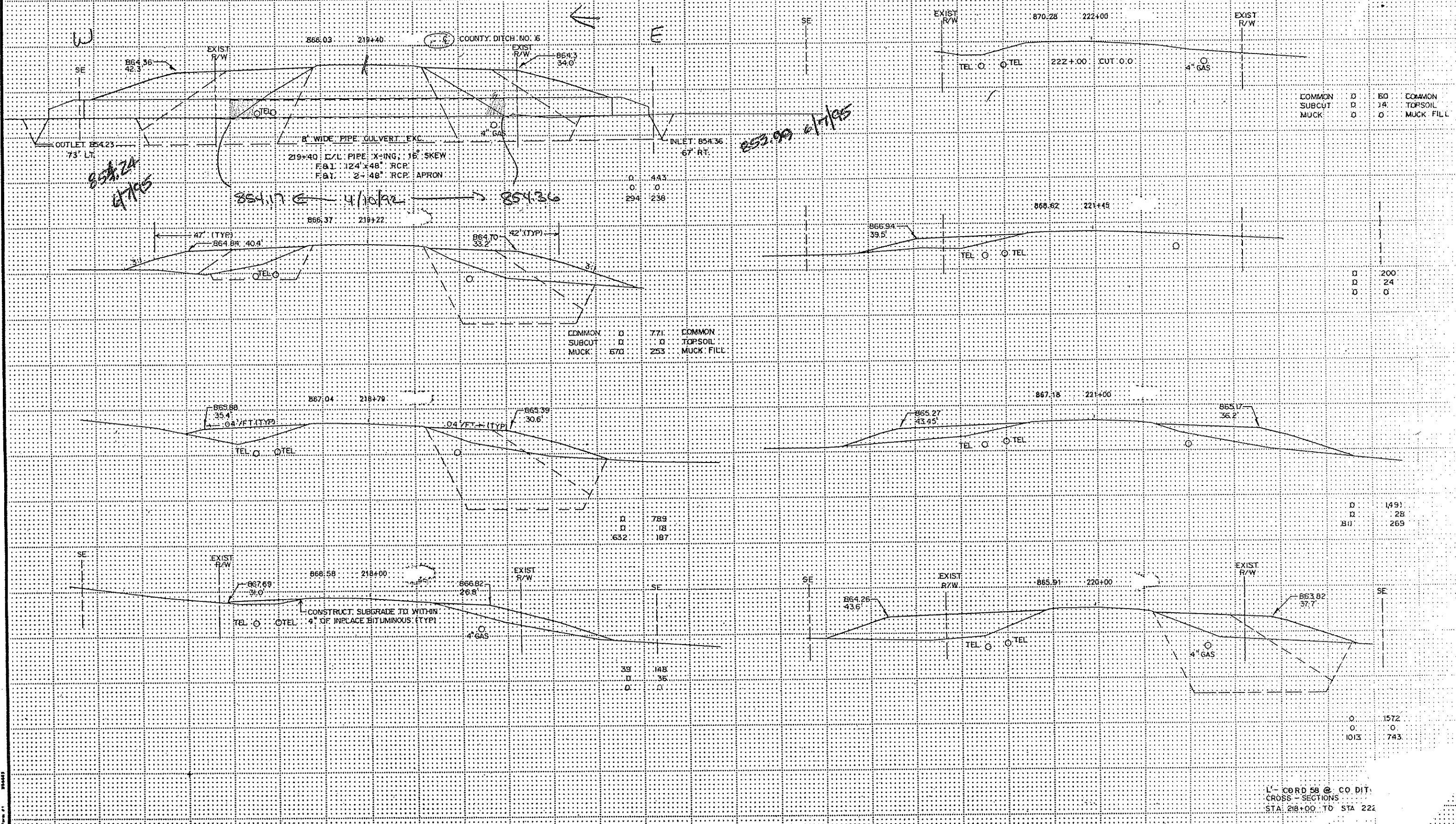
Copy Equipment Form #1 815583

STAGING
SEPT 93

E - 854.36
W - 854.03

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

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



854.24
4/7/95

853.99
4/7/95

854.17 ← 4/10/92 → 854.36

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

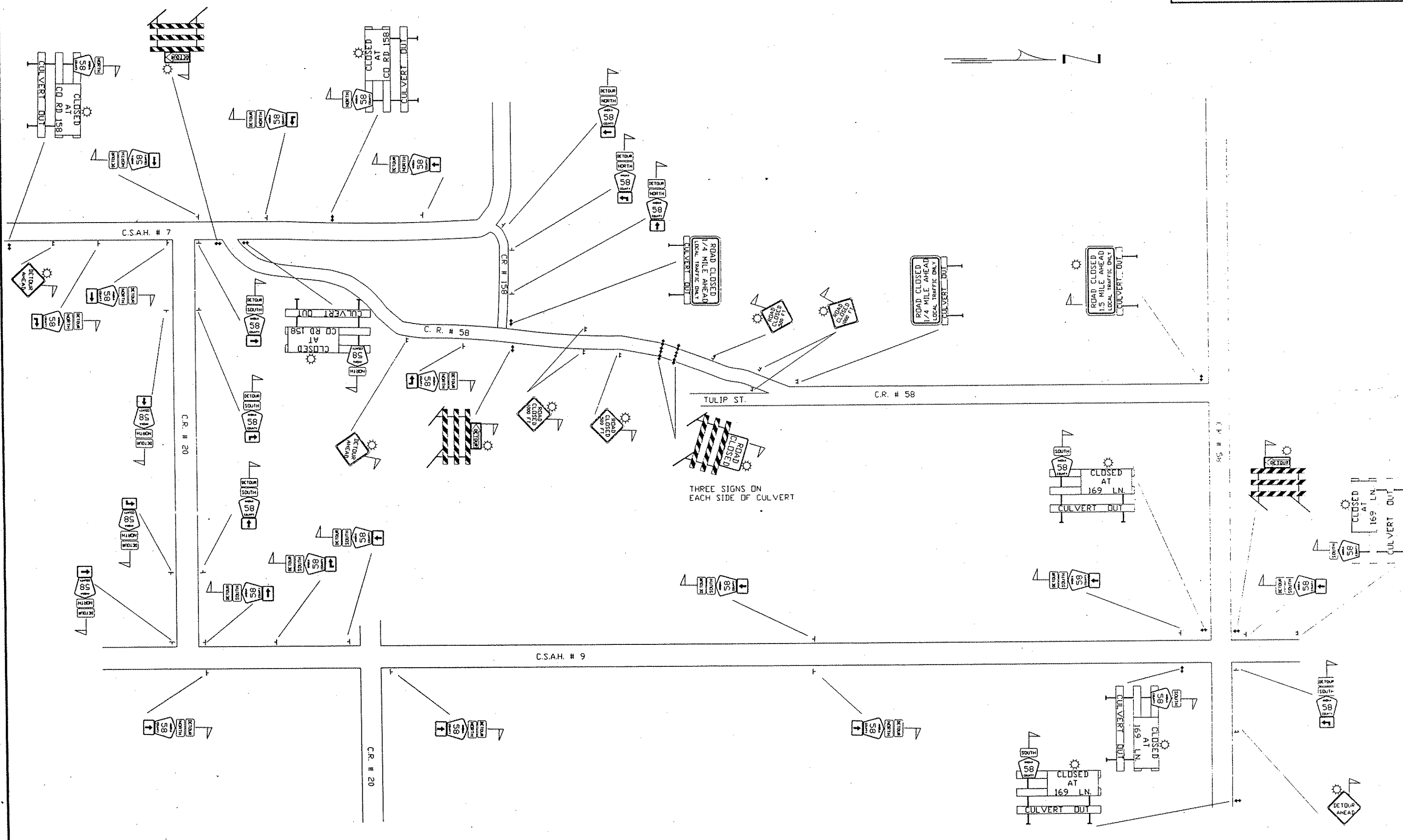
COMMON	0	50	COMMON
SUBCUT	0	14	TOPSOIL
MUCK	0	0	MUCK FILL

0	200
0	24
0	0

0	1491
0	28
0	269

0	1572
0	0
0	743

L - CORD 58 @ CO DIT
CROSS-SECTIONS
STA 218+00 TO STA 222



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DETOUR
TRAFFIC CONTROL

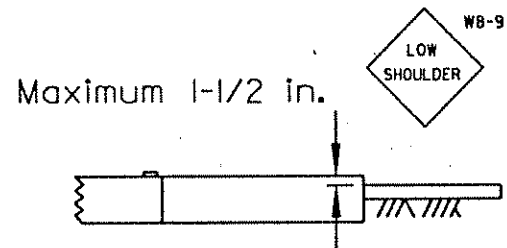
M.U.T.C.D. CODE	SIZE	INSERT	PHASE I		PHASE II		DETOUR		M.U.T.C.D. CODE	SIZE	INSERT	PHASE I		PHASE II		DETOUR		M.U.T.C.D. CODE	SIZE	INSERT	DETOUR CODE		
			POST	TELSPAR	POST	TELSPAR	POST	TELSPAR				POST	TELSPAR	POST	TELSPAR	POST	TELSPAR					POST	TELSPAR
W20-3	48'x48'					1		2	4	W20-2	48'x48'						3	M4-8	24'x12'		1 4 1 3 5		
W3-1	48'x48'					2				R4-1	24'x30'			2									
W11-2L	48'x48'					1				R3-X1	24'x30'					1				M4-8	24'x12'		2 1 2 5
W11-2R	48'x48'						1			R1-1	30'x30'					6				M3-3	24'x12'		2 1 2 5
W1-2R	48'x48'						1			REBOUNDABLE DRUM				80		40				R3-11	50'x30'		2
W2-1	48'x48'			6		6				TYPE I				7						R3-11	50'x30'		1
W2-1X1	48'x48'									TYPE III	8 FT			2						M3-1	24'x12'		3
W2-1X1	48'x48'			1					AS REQUIRED											M1-6	24'x24'		3
W2-1X1	48'x48'									TYPE III	8 FT					1				M1-6	24'x24'		3
W8-9	48'x48'								AS REQUIRED											M3-3	24'x12'		4
W8-9	48'x48'								AS REQUIRED														
W8-3	48'x48'								AS REQUIRED														
W8-3	48'x48'								AS REQUIRED														
W8-7	48'x48'								AS REQUIRED														
W8-7	48'x48'								AS REQUIRED														
W8-3	48'x48'								AS REQUIRED														
W8-3	48'x48'								AS REQUIRED														
W1-6L	48'x30'									W1-6L	48'x30'												
W1-6L	48'x30'									TYPE III	8 FT					1							
M4-10L	48'x18'									M4-10L	48'x18'											2	
M4-10L	48'x18'									TYPE III	8 FT												
M4-10R	48'x18'									M4-10R	48'x18'											1	
M4-10R	48'x18'									TYPE III	8 FT												

STANDARD TRAFFIC CONTROL NOTES

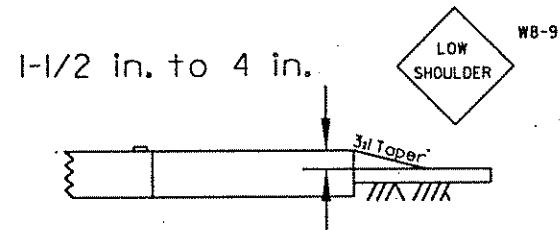
- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) ALL BARACIADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS
- 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES
- 4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE 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.

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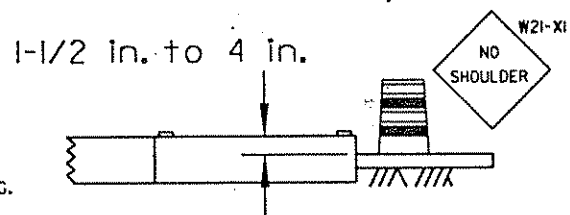
EDGE DROP OFF



EDGE DROP OFF - WITH TAPER

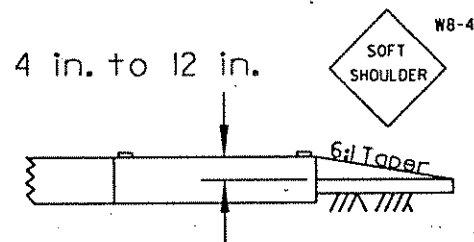


SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING.



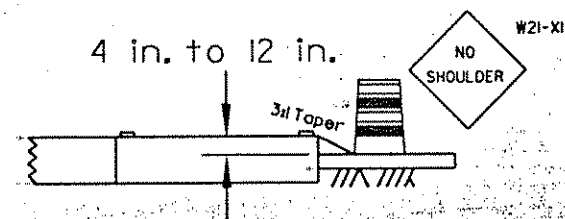
EDGE DROP-OFF WITH TAPER (SHOULDER - OPEN)

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.

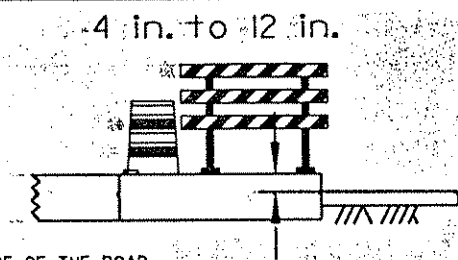


EDGE DROP-OFF WITH TAPER (SHOULDER - CLOSED)

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

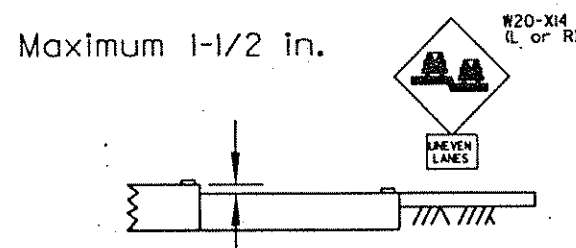


ADJACENT LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE LAYOUT SHOWN IN APPENDIX B. CHANNELIZING DEVICES TO BE AT A MAXIMUM OF 100 FT. SPACING AND TYPE III EVERY 1000 FT.

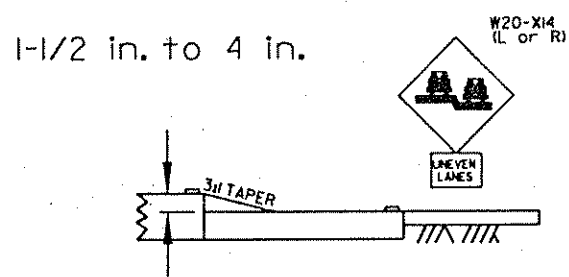


NOTE: SIGNS ARE REQUIRED ONLY ON THE SIDE OF THE ROAD THAT IS AFFECTED BY CONSTRUCTION (EXCEPT SIGNS THAT ARE FOR A LANE CLOSURE ON DIVIDED HIGHWAYS).

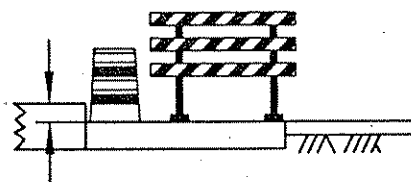
UNEVEN LANES



UNEVEN LANES - WITH TAPER



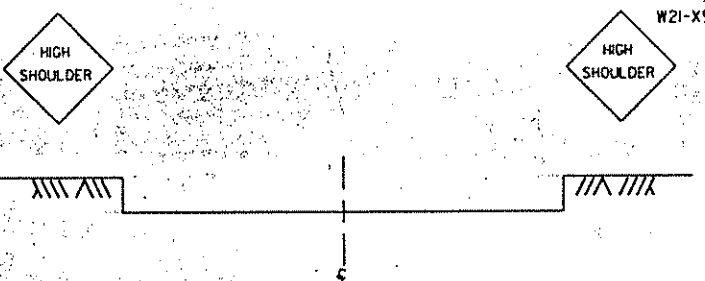
1-1/2 in. to 4 in.



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 0-12 INCH DROP-OFF; USE GUIDELINES AS SHOWN
 - B - 2-8 FOOT SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; INSTALL EDGLINE 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 4-12 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