

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

### CONSTRUCTION PLAN FOR GRADING, DRAINAGE, AGGREGATE BASE, BITUMINOUS SURFACING

LOCATED ON CSAH 36 FROM 500' WEST OF SUNRISE ROAD TO 500' EAST OF SUNRISE ROAD

CO. PROJ. NO. 97-08-36

GROSS LENGTH 914.35 FEET 0.173 MILES  
 BRIDGES-LENGTH 0 FEET 0 MILES  
 EXCEPTIONS-LENGTH 0 FEET 0 MILES  
 NET LENGTH 914.35 FEET 0.173 MILES

MINN. PROJ. NO. \_\_\_\_\_  
 MINN. PROJ. NO. LOCAL FUNDS \_\_\_\_\_  
**GOVERNING SPECIFICATIONS**  
 THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

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THIS PLAN CONTAINS 16 SHEETS

### DESIGN DESIGNATION

ADT (1997)= 2,335  
 Proj. ADT (2017)= 3,970  
 Proj. HCADT (2017)= 298  
 Soil Factor 50%  
 10 TON DESIGN  
 Shoulder Width 8 FT.

Functional Classification COLLECTOR  
 No. of Traffic Lanes 2 No. of Parking Lanes 0  
 Design Speed 35 MPH  
 Based on Stopping Sight Distance  
 Height of eye 3.5' Height of object 0.5'  
 Design Speed not achieved at:  
 STA. TO STA. MPH  
 STA. TO STA. MPH  
 STA. TO STA. MPH

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 7-24-97 REG. NO. 20235 ENGR. *[Signature]* ASSISTANT COUNTY ENGINEER

DESIGN SQUAD B. LUIKART

Approved 7/24/97 *[Signature]* ANOKA COUNTY ENGINEER

COUNTY PROJ. NO. 97-08-36  
 STATE PROJ. NO. \_\_\_\_\_ SHEET NO. 1 OF 16 SHEETS

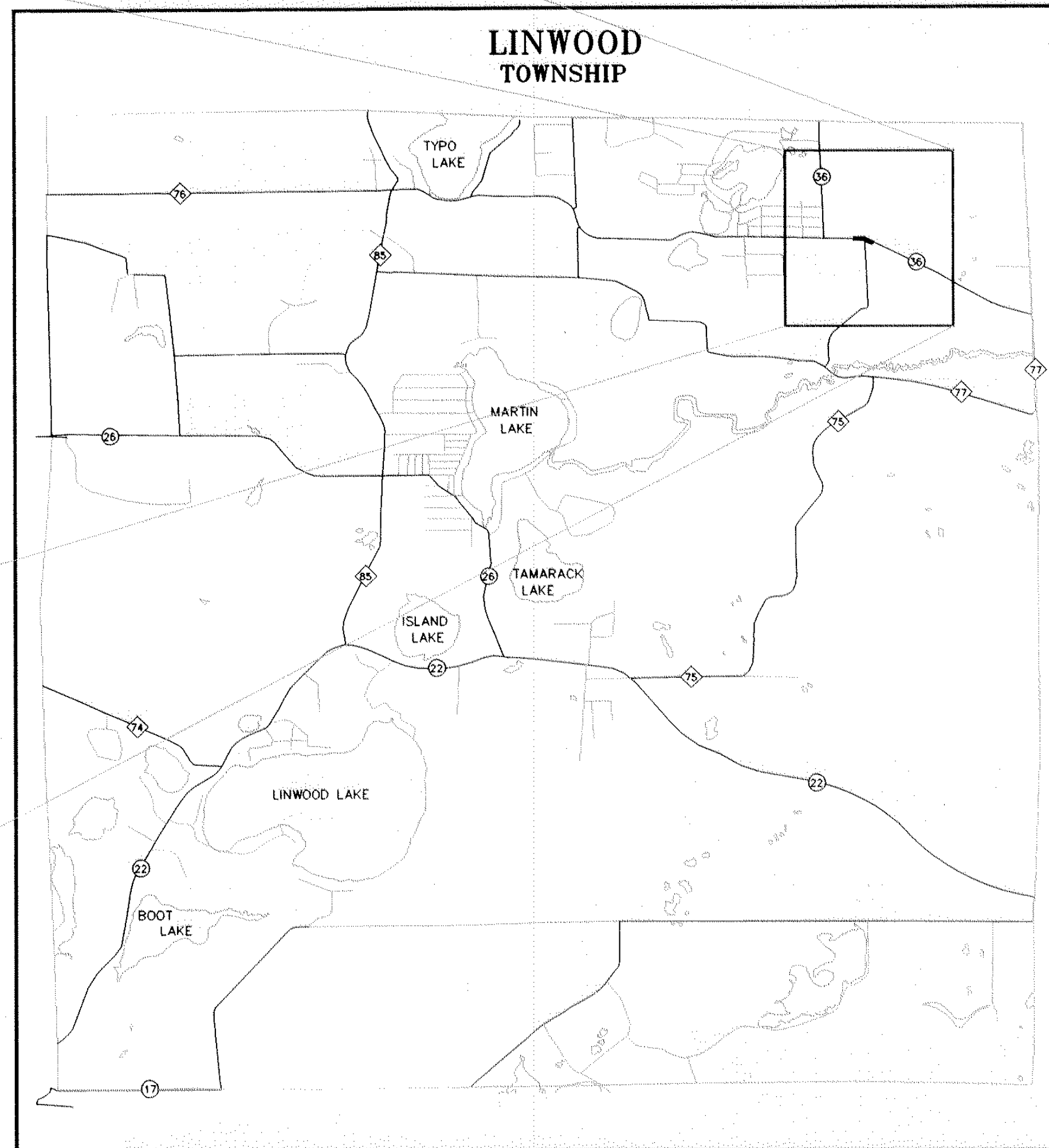
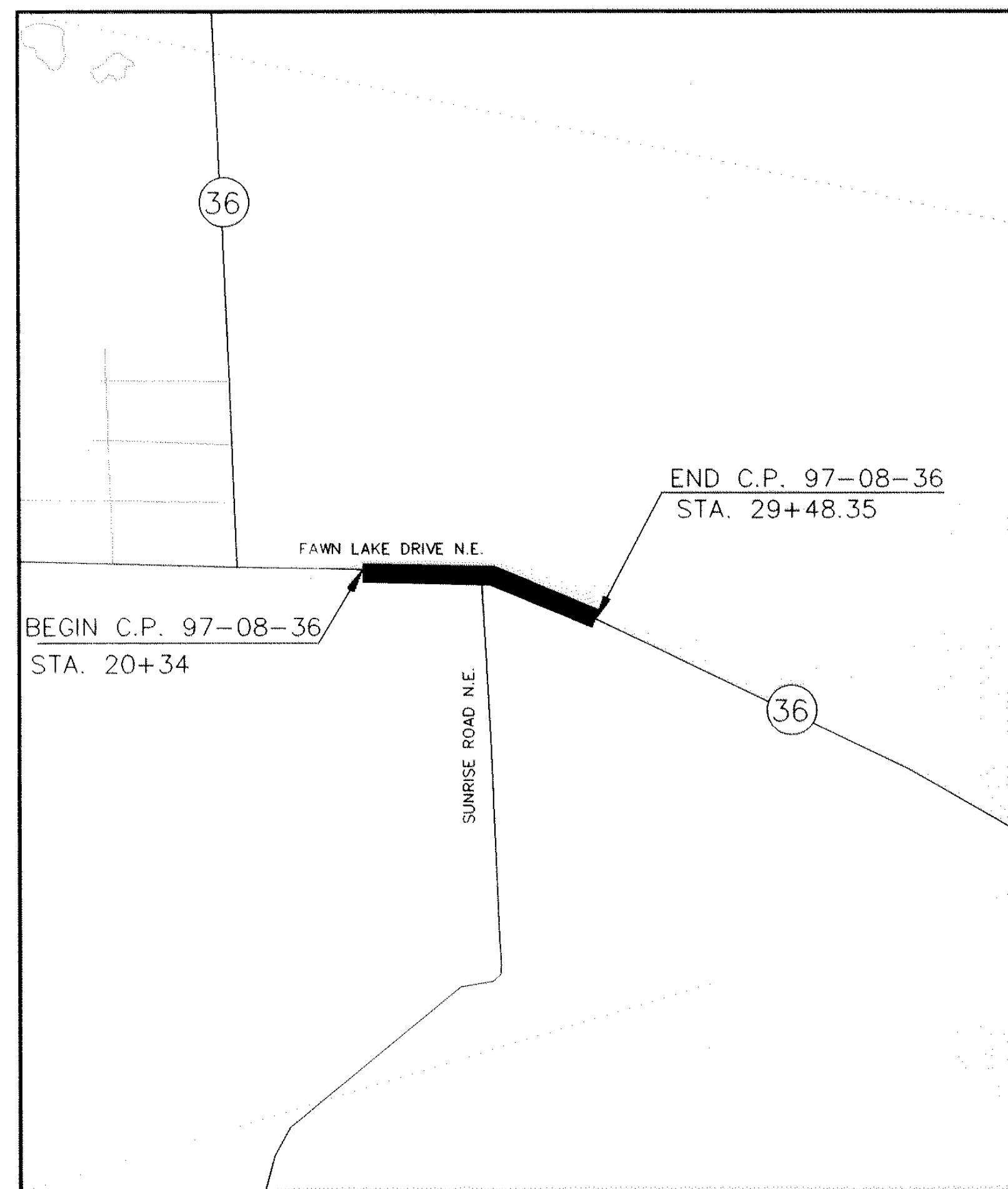
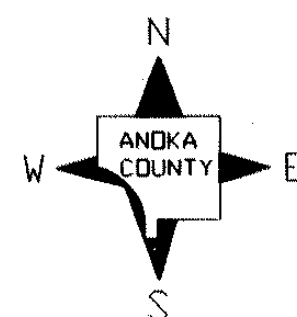
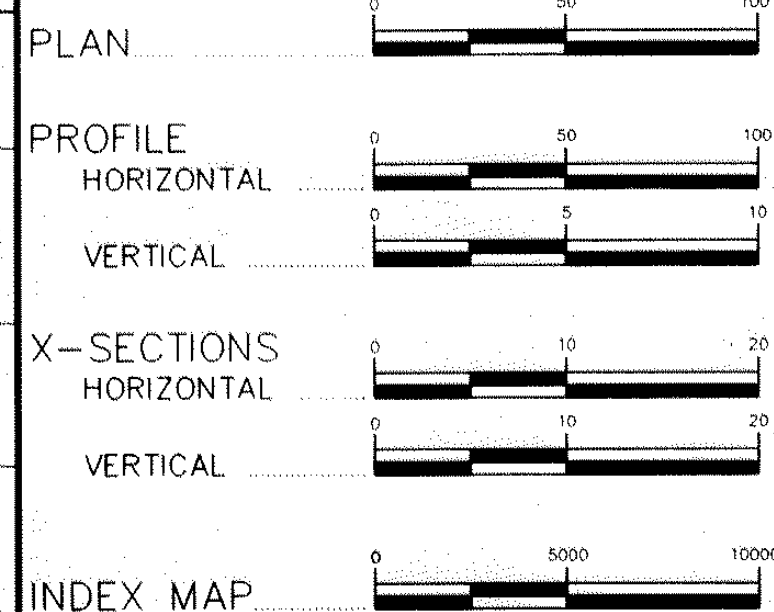
### PLAN SYMBOLS

- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- SLOPE EASEMENT
- PRESENT RIGHT OF WAY
- PROPERTY LINE
- CORPORATE OR CITY LIMITS
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY
- RIVER OR CREEK
- DRAINAGE DITCH
- CULVERT
- DROP INLET
- GAIRD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- STONE WALL OR FENCE
- HEDGE
- LOWLAND
- TIMBER
- ORCHARD
- BRUSH
- NURSERY
- CATTLE GAIRD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO
- RAILROAD CROSSING BELL
- RAILROAD CROSSING GATE
- MANHOLE
- CATCH BASIN
- FIRE HYDRANT
- CAST IRON MONUMENT
- IRON PIN
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY
- GEOTECHNICAL BORINGS

### UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE & POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN
- WATER MAIN
- 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

### SCALES



INDEX MAP

REVISIONS	DATE	BY

FILE NAME: S:\SDSK\PROJ\970836\DWG\197861.DWG MN. (06-25-97)

STATEMENT OF ESTIMATED QUANTITIES

CHART NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL	
					ESTIMATED	FINAL
D		2101.502	CLEARING	TREE	3	
C	①	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	437	
A		2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	1262	
		2104.523	SALVAGE SIGN TYPE C	EACH	3	
I		2105.501	COMMON EXCAVATION (P)	CU YD	1620	
		2105.505	MUCK EXCAVATION	CU YD	1678	
I		2105.522	SELECT GRANULAR BORROW (LV)	CU YD	1011	
	②	2130.501	WATER	M GAL	20	
E		2211.503	AGGREGATE BASE (CV) CLASS 5A	CU YD	272	
B		2232.501	MILL BITUMINOUS SURFACE (3")	SQ YD	206	
E		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	351	
E	③	2340.510	TYPE 31 LEVELING COURSE	TON	168	
F	③	2340.514	TYPE 31 BASE COURSE MIXTURE	TON	197	
E		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	211	
H		2535.301	BITUMINOUS CURB	LIN FT	207	
		2564.531	F & I SIGN PANELS TYPE C	SQ FT	6.25	
		0564.602	INSTALL SIGN TYPE C	EACH	3	
		0564.603	4" SOLID LINE WHITE - PAINT	LIN FT	1410	
		0564.603	4" BROKEN LINE WHITE - PAINT	LIN FT	70	
		0564.603	4" SOLID LINE YELLOW - PAINT	LIN FT	440	
		0564.603	4" DOUBLE SOLID LINE YELLOW - PAINT	LIN FT	450	
		0564.603	4" BROKEN LINE YELLOW - PAINT	LIN FT	110	
H		2573.502	SILT FENCE, TYPE PREASSEMBLED	LIN FT	650	
F		2575.501	SEEDING	ACRE	0.25	
F		2575.502	SEED MIXTURE 700	POUND	8.5	
F		2575.505	SODDING TYPE LAWN AND BOULEVARD	SQ YD	43	
F		2575.511	MULCH MATERIAL TYPE 1	TON	0.5	
F		2575.519	DISK ANCHORING	ACRE	0.25	
F		2575.532	COMMERCIAL FERT ANALYSIS 10-10-10	POUND	12.5	
		2580.501	TEMPORARY LANE MARKING	ROAD STA	10	

CHART	SHEET NO.	DESCRIPTION
A	3	SAWING BITUMINOUS PAVEMENT
B	3	MILL BITUMINOUS SURFACE
C	3	BITUMINOUS PAVEMENT REMOVAL
D	3	CLEARING & GRUBBING
E	3	BITUMINOUS AND AGGREGATE BASE SUMMARY
F	3	TURF ESTABLISHMENT
G	3	SILT FENCE
H	3	BITUMINOUS CURB
I	4	EARTHWORK SUMMARY

PLATE NO.	DESCRIPTION
7065 C	BITUMINOUS CURB
SEE SIGN AND STRIPING PLAN FOR ADDITIONAL PLATES	

2340.508	TYPE 41 PLANT MIXED WEARING COURSE: BIT. MIXTURE 110 LBS/SQ.YD. PER 1" THICKNESS
2340.510	TYPE 31 PLANT MIXED LEVELING AND BASE COURSE: BIT. MIXTURE 110 LBS/SQ.YD. PER 1" THICKNESS
2340.514	TYPE 31 PLANT MIXED LEVELING AND BASE COURSE: BIT. MIXTURE 110 LBS/SQ.YD. PER 1" THICKNESS
2357.502	BITUMINOUS MIXTURE FOR TACK COAT: 0.05 GALS PER SQ.YD. PER LAYER APPLIED
2575.532	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10: 500 LBS./ACRE ON ALL SEED AND SOD AREAS
2575.511	MULCH MATERIAL, TYPE 1: 2 TONS PER ACRE
2575.502	ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENT: +10% SEED MIXTURE NO. 700: 35 LBS. PER ACRE

- NOTES:
- ① INCLUDES ALL BITUMINOUS SURFACING REGARDLESS OF DEPTH AND EXISTING AGGREGATE BASE MATERIAL.
  - ② FOR DUST CONTROL AS DIRECTED BY ENGINEER.
  - ③ QUANTITY INCLUDES AN ADDITIONAL 1/4" TO THE DESIGNED THICKNESS.

REVISIONS	DATE	BY

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SAWING BITUMINOUS PAVEMENT (A)		
STATION - STATION	LOCATION	LIN. FT.
20+54 - 24+88	12' RIGHT OF ROAD CENTERLINE	438'
24+88 - 24+96	12' RT. TO 55' RT. OF CENTERLINE	43'
21+58 - 29+28	12' LEFT OF ROAD CENTERLINE	781'
TOTAL		1262

MILL BITUMINOUS SURFACE (B)			
STATION - STATION	LOC.	DESCRIPTION	SQ. YD.
20+34 - 20+54	CL	WEST LIMITS BUTT JT.	67
24+97 - 25+33	58' RT	SOUTH END SUNRISE BUTT JT.	73
29+28 - 29+48	CL	EAST LIMITS BOTT JT.	66
TOTAL			206

BITUMINOUS PAVEMENT REMOVAL (C)			
STATION - STATION	LOCATION	DESCRIPTION	SQ. YDS.
20+54 - 24+88	12' - 15' RT	REMOVAL OF ALL BITUMINOUS OUTSIDE OF 12' RT	176
21+58 - 29+28	12' - 15' LT	REMOVAL OF ALL BITUMINOUS OUTSIDE OF 12' LT	261
TOTAL			437

CLEARING AND GRUBBING (D)					
STATION - STATION	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
26+50	LEFT	3			

BITUMINOUS AND AGGREGATE BASE SUMMARY (E)															
STATION - STATION	TYPE 31 BASE			TYPE 31 LEVELING			TYPE 47 WEAR			TACK COAT	AGGREGATE BASE CLASS 5				
	DEPTH (IN)	AREA (SQ. YDS.)	WEIGHT (TON)	DEPTH (IN)	AREA (SQ. YDS.)	WEIGHT (TON)	DEPTH (IN)	AREA (SQ. YDS.)	WEIGHT (TON)	(GALLON)	DEPTH (IN)	AREA (SQ. YDS.)	WEIGHT (CU. YDS.)		
20+54 - 29+28	2 1/2"	1364	197												
21+34 - 29+30				5 3/4"	1061	168									
20+34 - 29+48							1 1/2"	4197	351						
20+54 - 29+28										211					
20+54 - 29+28											6"	1628	272		
TOTAL					1364	197		1061	168		4197	351	211	1628	272

TURF ESTABLISHMENT (F)							
STATION - STATION	LOCATION	SODDING	SEEDING	SEED	MULCH	FIBER	FERTILIZER
		SQ. YD.	ACRES	POUND	TON	SQ. YD.	POUND
21+00 - 29+28	15' - 40' LT		0.166	5.6			
20+50 - 24+50	18' - 26' RT		0.083	2.9			
24+50 - 24+88	26' - 50' RT	42					
TOTAL		42	.25	8.5	XX		XX

SILT FENCE (G)			
STATION - STATION	LOCATION	LIN. FT.	REMARKS
20+50 - 23+25	33' - 45' RT	300'	
26+50 - 30+00	33' - 45' LT	350'	
TOTAL		650'	

BITUMINOUS CURB CONSTRUCTION (H)			
STATION	LOCATION	REMARKS	LIN. FT.
23+00 - 24+96	RIGHT	SEE SHEET 9	207

REVISIONS	DATE	BY	DATE	BY

**TABULATION CHARTS**  
 SAWING BITUMINOUS PAVEMENT  
 MILL BITUMINOUS SURFACE  
 BITUMINOUS PAVEMENT REMOVAL  
 CLEARING AND GRUBBING  
 BITUMINOUS AND AGGREGATE BASE SUMMARY  
 TURF ESTABLISHMENT  
 SILT FENCE  
 BITUMINOUS CURB CONSTRUCTION

CERTIFIED BY *Douglas M. French*

P.E. REG NO. 20235 9/24 19 97

S.P. \_\_\_\_\_ S.A.P. \_\_\_\_\_ C.P. 97-08-36

Sheet No. 3 of 16 Sheets

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EARTHWORK SUMMARY ①

Fed. Project No. \_\_\_\_\_

EXCAVATION (EV)

EMBANKMENT (CV)

BALANCE

COMMON EXCAVATION	1620 CU YD	REGULAR	771 CU. YD. ①	GRANULAR	1940 CU. YD.
		SUBCUT	587 CU. YD.	TOPSOIL	137 CU. YD.
		TOPSOIL	262 CU. YD.		
MUCK EXCAVATION	1678 CU YD				

TOPSOIL

$$\text{TOPSOIL DRESSING (CV)} - [\text{TOPSOIL STRIPING (EV)} \times \text{SHRINKAGE FACTOR}] - [\text{SED. POND TOPSOIL STRIPING} \times \text{SHRINKAGE FACTOR}] = \text{EXCESS(-) OR SHORTAGE(+)}$$

$$137 \text{ CU YD} - 262 \text{ CU YD} \times 85\% = - 86 \text{ CU YD (EXCESS)}$$

GRANULAR

$$\text{GRANULAR (CV)} + \text{SUBCUT} - [\text{REGULAR EXCAVATION(EV)} \times \text{SHRINKAGE FACTOR}] - [\text{SUBCUT EXCAVATION} \times \text{SHRINKAGE FACTOR}] - [\text{SED. POND EXCAVATION} \times \text{SHRINKAGE FACTOR}] = \text{EXCESS (-) OR SHORTAGE (+)}$$

$$1940 \text{ CU YD} + 587 \text{ CU YD} - (771 \text{ CU YD} \times 85\%) - (587 \text{ CU YD} \times 85\%) - (289 \text{ CU YD} \times 115\%) = +1011 \text{ CU YD (SHORTAGE)}$$

MUCK EXCESS

$$[\text{MUCK EMBANKMENT (EV)} \times \text{SHRINKAGE FACTOR}] - \text{MUCK EXCAVATION (EV)} = \text{EXCESS(-) OR SHORTAGE(+)}$$

$$[289 \text{ CU YD} \times 115\%] - 1678 \text{ CU YD} = - 1346 \text{ CU YD (EXCESS)}$$

NOTE:

- ① EXCAVATION QUANTITIES ARE BASED ON ALL EXIST BITUMINOUS OR CONCRETE AND BASE MATERIAL (TOTAL BIT. OR CONCRETE & BASE THICKNESS OF 1.0 FT) HAVE BEEN REMOVED DURING REMOVAL OF THE EXISTING ROAD SURFACE. AND THEY ARE NOT INCLUDED IN THE EXCAVATION QUANTITIES.
- ② SELECT GRANULAR BORROW INCLUDES THE QUANTITY REQUIRED TO BACKFILL AT MUCK EXCAVATION (SEE CROSS SECTIONS ON SHEET 13, 14 15).

SOIL FACTORS:

- 1.) REGULAR GRADING AND TOPSOIL DRESSING (EV TO CV): 85% SHRINKAGE
- 2.) SUBCUT COMPACTION (EV TO CV): 90% SHRINKAGE

SOILS AND CONSTRUCTION NOTES

1. TOP OF PROFILE GRADE IS DEFINED AS THE TOP OF THE BITUMINOUS WEARING COURSE.
2. IN FILL AREAS, THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECTED GRADING MATERIAL.
3. SELECTED GRADING MATERIALS SHALL CONSIST OF SELECT GRANULAR MATERIALS.
4. GRANULAR MATERIAL, REGARDLESS OF SOURCE, SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2A.
5. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC 3149.2B.
6. COMPACTION OF THE GRADING PORTION OF THIS PROJECT SHALL BE BY THE "QUALITY COMPACTION METHOD" WITH THE EXCEPTION OF CULVERT AND STORM SEWER TRENCHES WHICH SHALL BE COMPACTED BY THE "SPECIFIED DENSITY METHOD".
7. TEST ROLLING WILL NOT BE REQUIRED.
8. BITUMINOUS AND/OR CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 WITH NO DIRECT COMPENSATION MADE THEREFORE.
9. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPEC. 2105.3D WITH NO DIRECT COMPENSATION MADE THEREFORE.
10. WHERE MATCHING INTO THE INPLACE ROADWAY AT THE ENDS OF CONSTRUCTION, CUT VERTICALLY TO THE TOP OF THE GRADING SUBGRADE AND THEN AT A 20:1 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
11. WHERE CONNECTING NEW SURFACING TO AN INPLACE PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING THE INPLACE PAVEMENT.
12. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES PRIOR TO PLACING BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING CONCRETE OR BITUMINOUS SURFACES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS PER SQUARE YARD BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY); ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
13. COMPACTION OF THE BITUMINOUS BASE, BINDER, AND WEAR SHALL BE BY THE "MODIFIED SPECIFIED DENSITY METHOD".
14. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE BY THE "SPECIFIED DENSITY METHOD".
15. IN AREAS TO BE DISTURBED BY CONSTRUCTION, STRIP AND RE-USE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING. REFER TO THE CROSS-SECTIONS FOR THE LIMITS OF TOPSOIL STRIPPING. GENERAL DEPTHS OF TOPSOIL LAYER ARE ASSUMED TO BE 4 INCHES.
16. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
17. PLACE A MINIMUM OF 6 INCHES TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. FERTILIZE WITH COMMERCIAL FERTILIZER, ANALYSIS 10-10-10, AT A RATE OF 450 POUNDS PER ACRE, OR EQUIVALENT.
18. ON ALL DISTURBED AREAS, USE MIXTURE 700 SEED WITH TYPE 1 MULCH, AND DISK ANCHORING, UNLESS SPECIFIED FOR SOD.
19. SOD ALL PERMANENT BOULEVARD AREAS, AND DISTURBED LAWNS.
20. ALL SOD UTILIZED WITHIN THE PROJECT LIMITS SHALL MEET THE REQUIREMENTS OF SPEC. 3878.2A (LAWN AND BOULEVARD SOD).
21. EXCESS TOPSOIL AND MUCK EXC. MAY BE USED IN EMBANKMENT CONSTRUCTION IN AREAS OUTSIDE OF A 1 1/2:1 SLOPE FROM THE GRADING SHOULDER P.I.
22. EXISTING STABILIZED SUBGRADE MUST BE PULVERIZED PRIOR TO USE AS EMBANKMENT MATERIAL.
23. GEOTEXTILE FABRIC SHALL BE UTILIZED, WHEN DIRECTED BY THE ENGINEER, IN AREAS WHERE THE SUBCUT AND SUBGRADE EXCAVATION OPERATIONS ENCOUNTER UNSUITABLE UNDERLYING SUBSOILS. THE FABRIC SHALL BE PLACED AND MEET THE REQUIREMENTS AS PROVIDED IN THE SPECIAL PROVISIONS.
24. EXCESS MUCK EXCAVATION TO BE DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE RIGHT-OF-WAY LIMITS AS APPROVED BY THE ENGINEER.
25. BITUMINOUS REMOVAL QUANTITY BASED ON 7" BITUMINOUS SURFACING AND STABILIZED BASE AND 6" AGGREGATE BASE. CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION OF ACTUAL PAVEMENT DEPTH.

EARTHWORK SUMMARY AND CONSTRUCTION NOTES

REVISIONS	DATE	BY

CERTIFIED BY *Ronald J. Bensch*

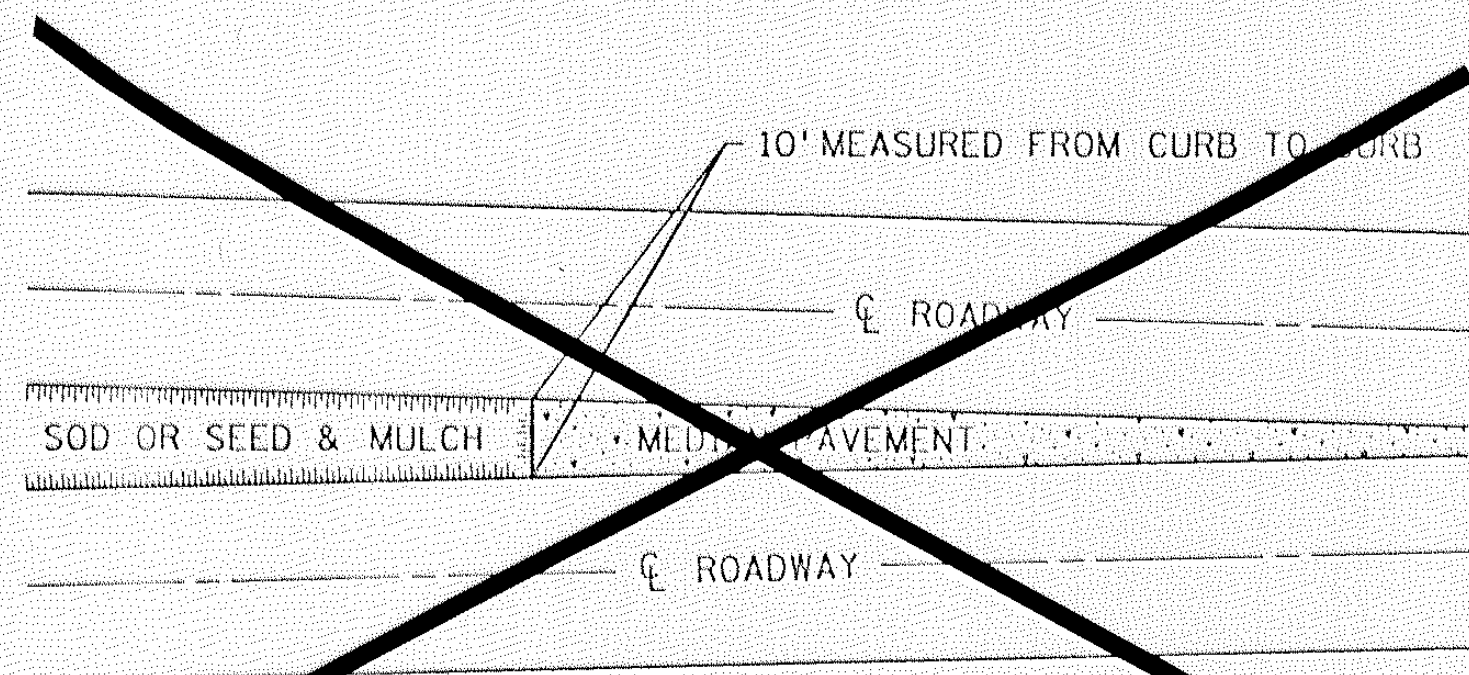
P.E. REG NO. 20235 1/24 19 97

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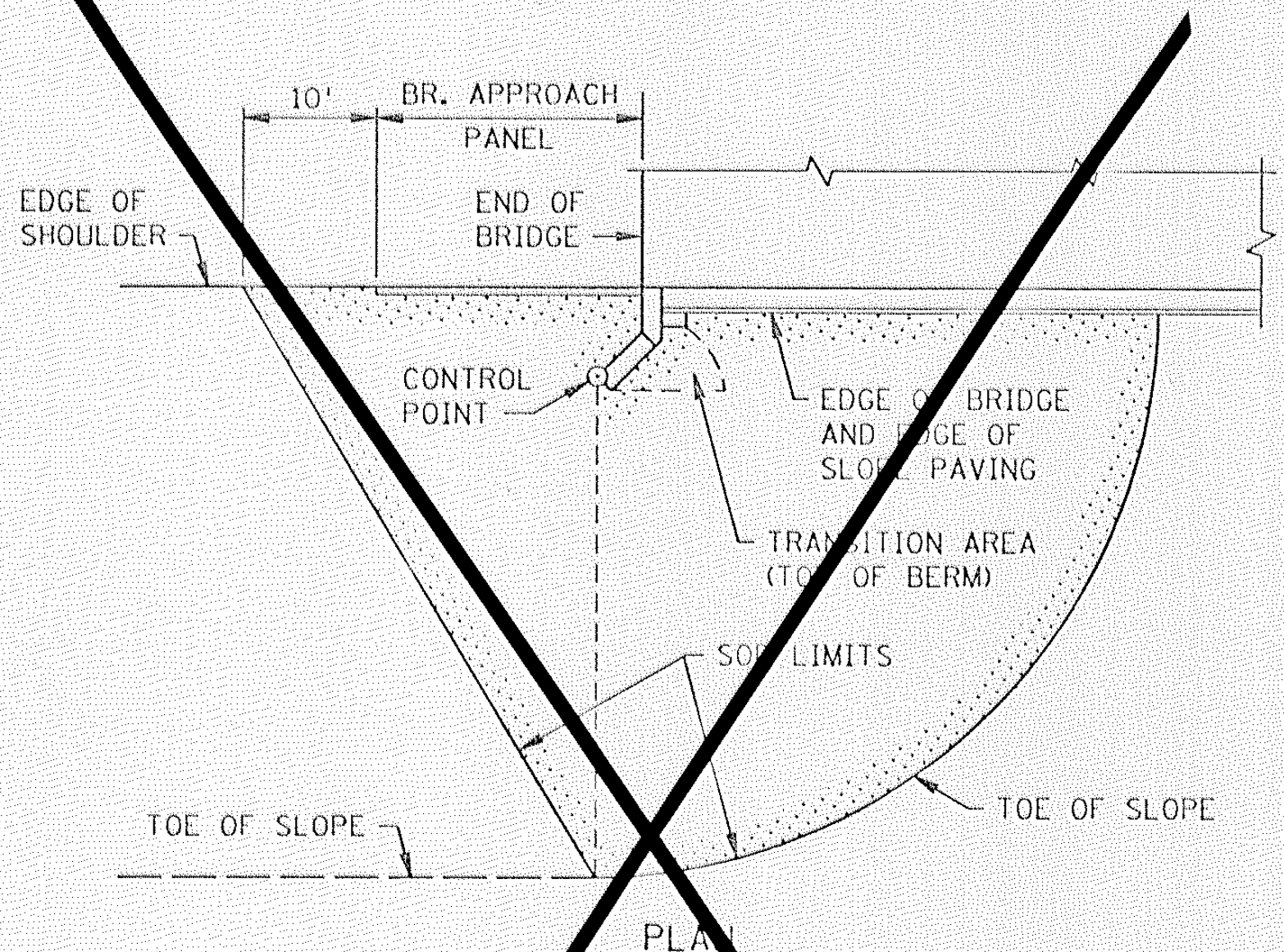
Sheet No. 4 of 16 Sheets

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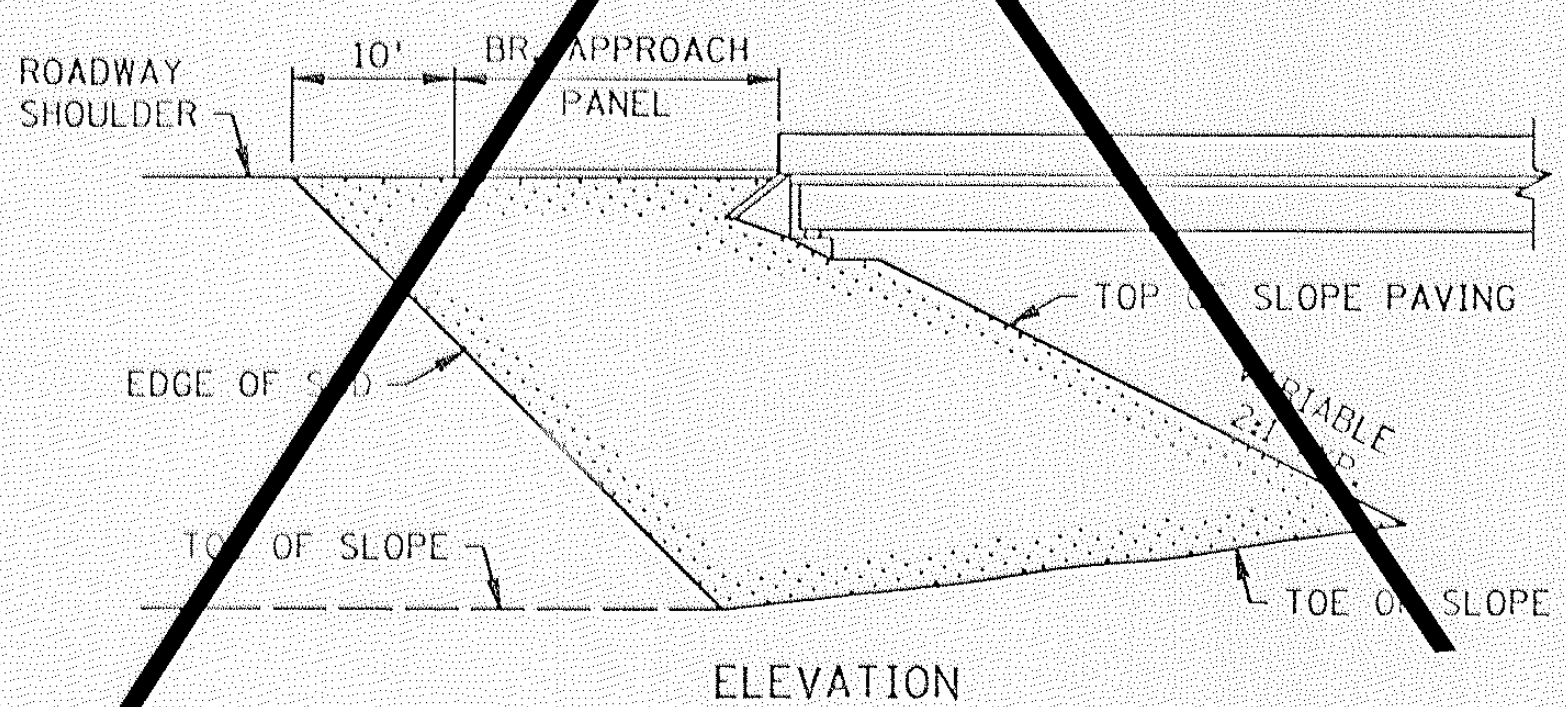




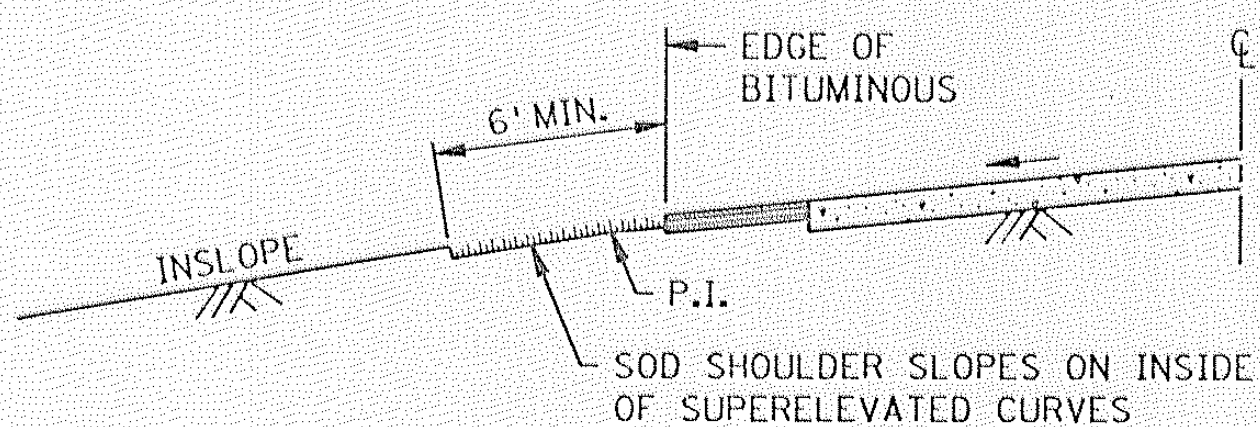
SODDING LIMITS AT GORE AREA



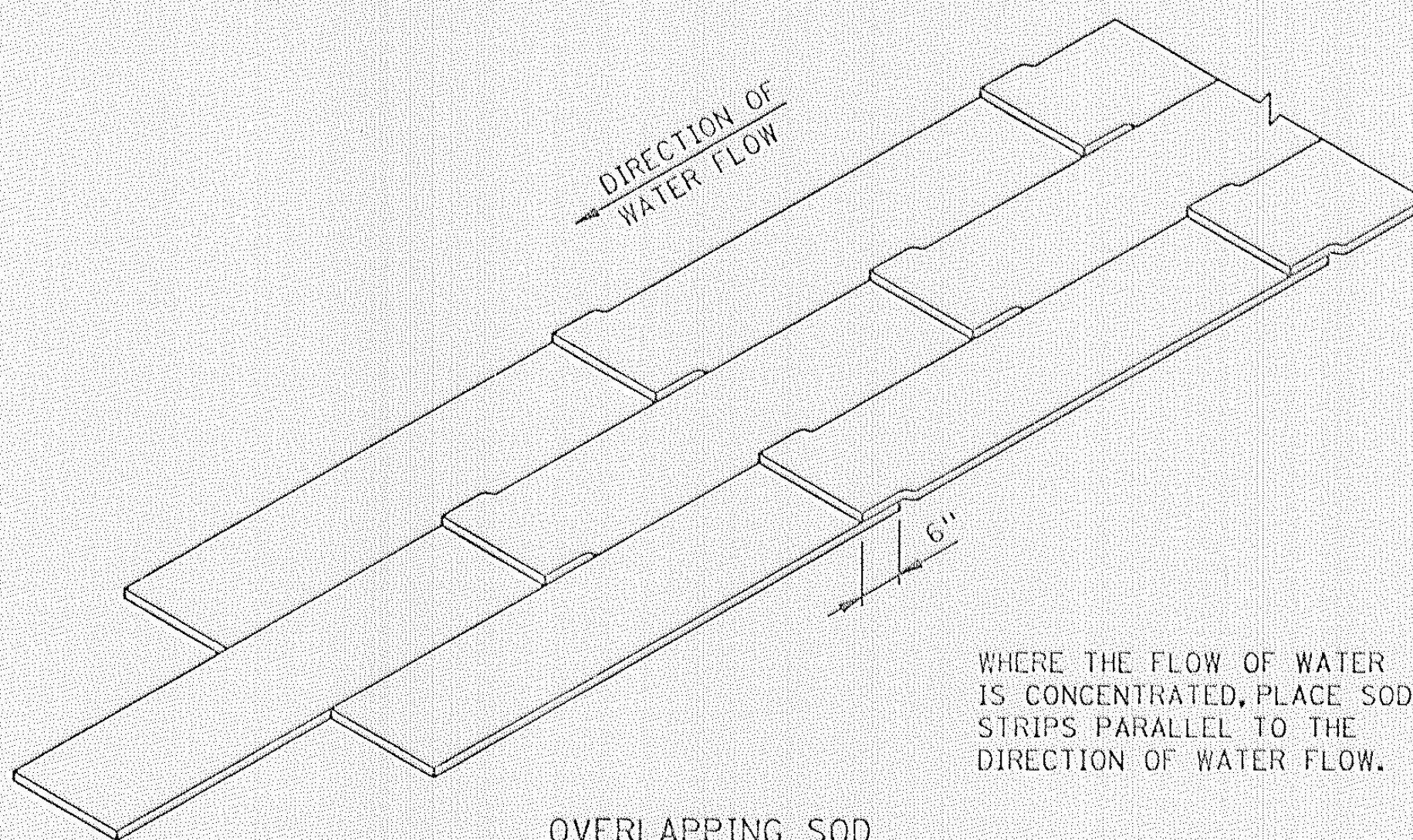
SODDING LIMITS AT BRIDGE APPROACH FILLS



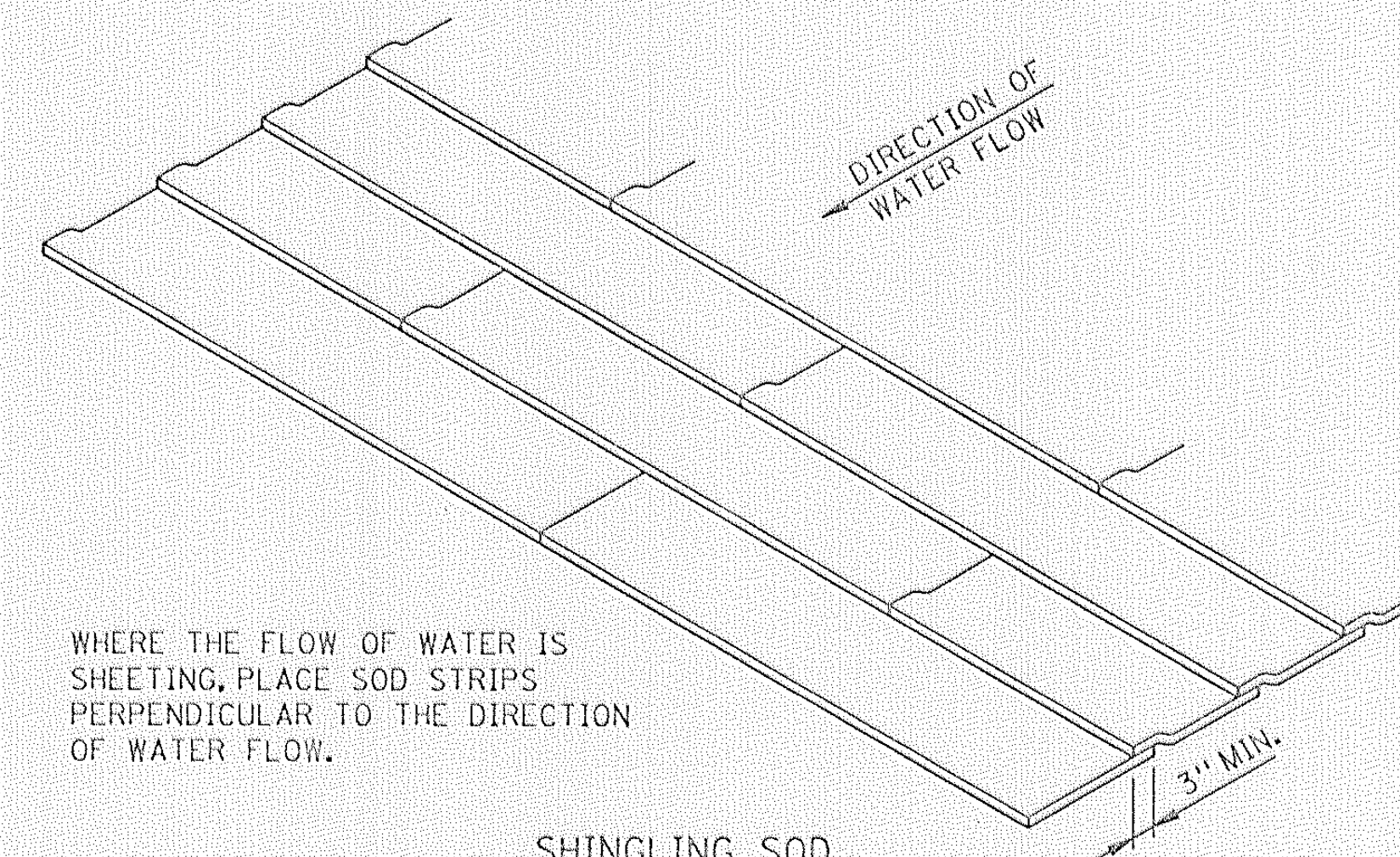
ELEVATION



SODDING INSLOPES OF SUPERELEVATED CURVES

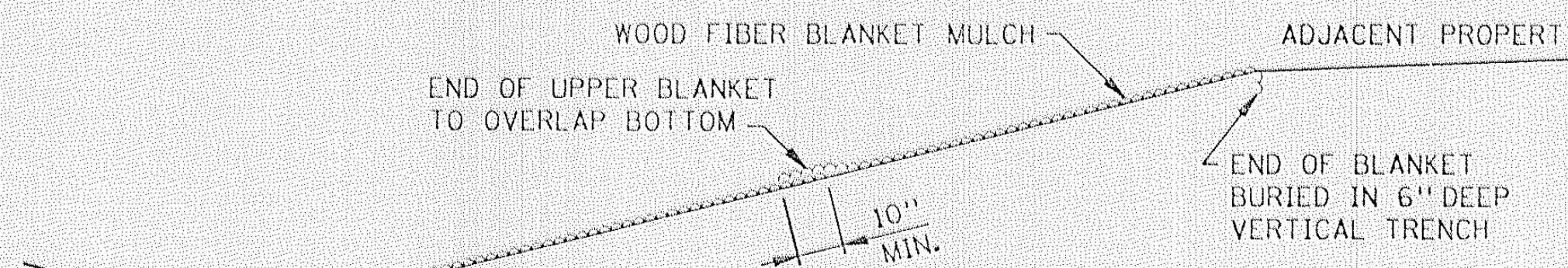


OVERLAPPING SOD

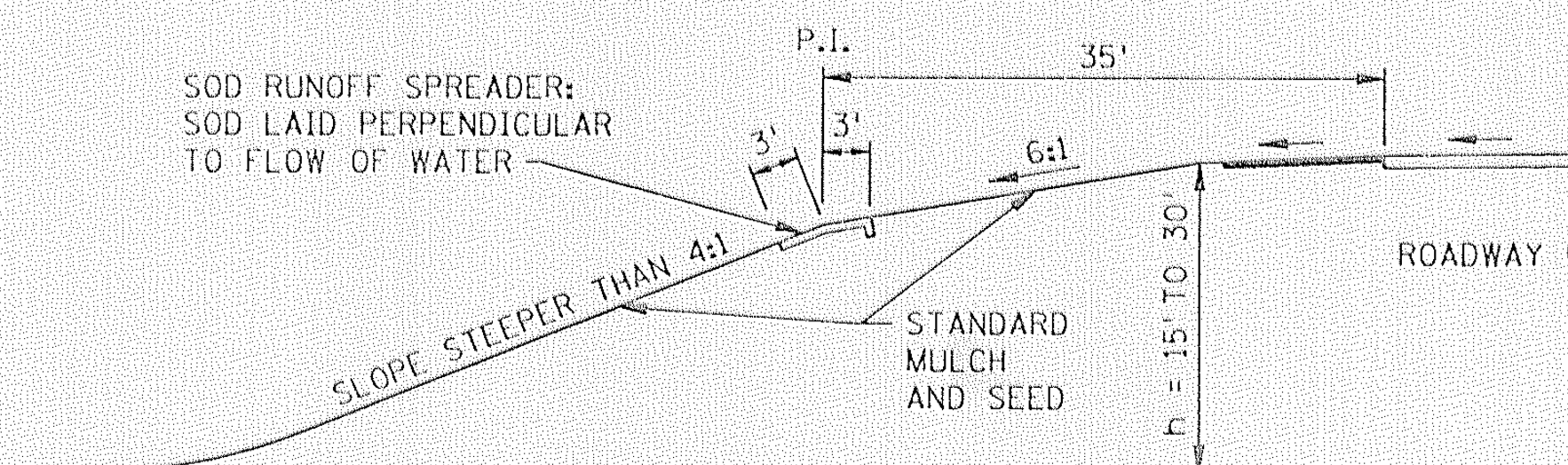


SHINGLING SOD

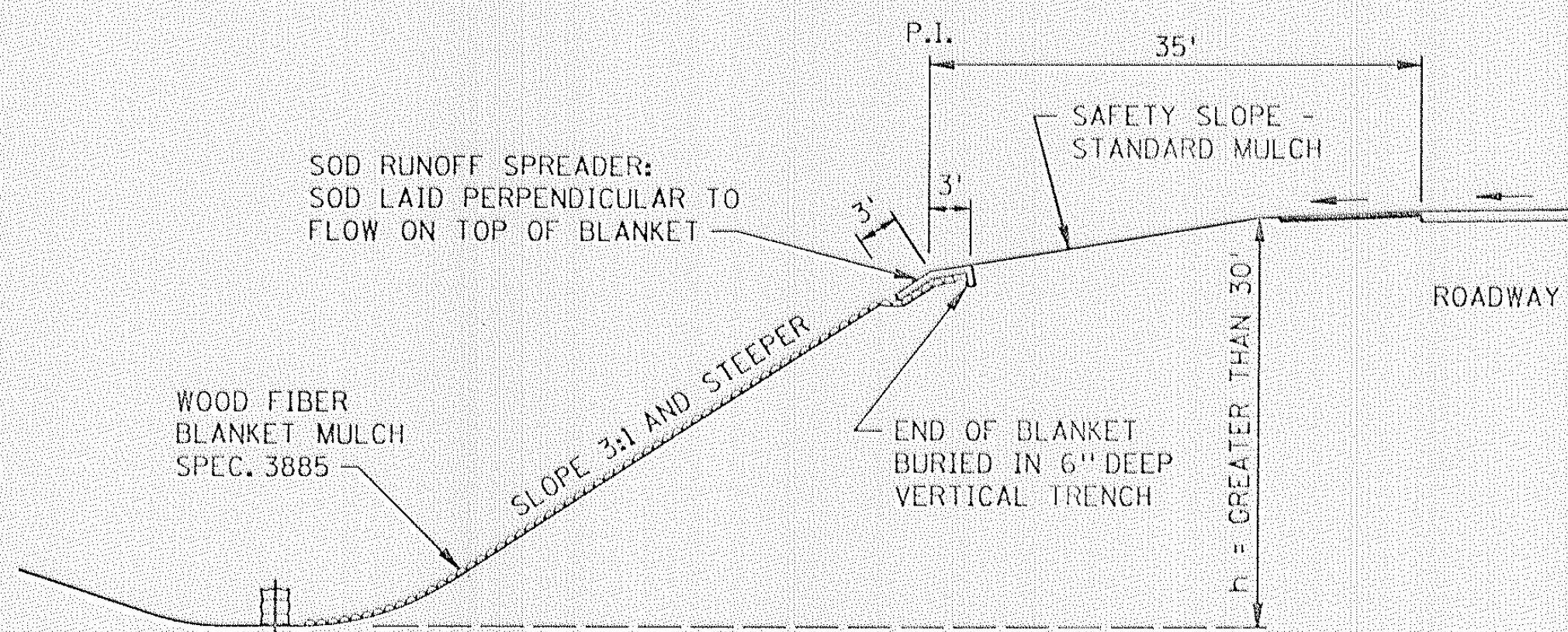
SPECIAL SOD PLACEMENT TECHNIQUES



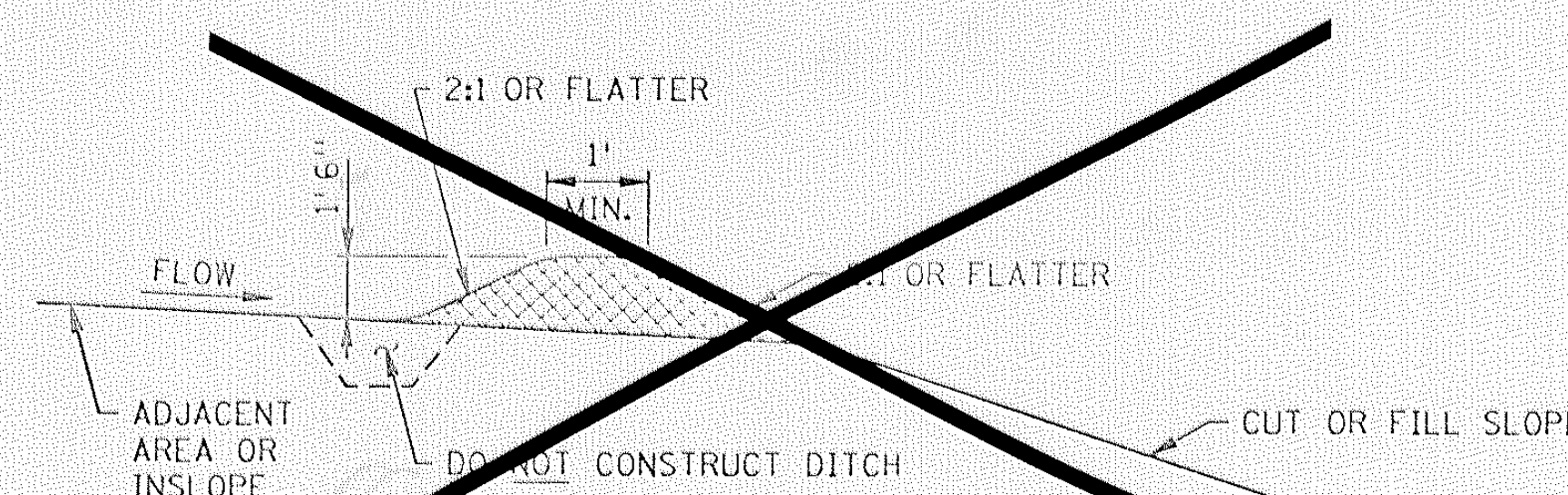
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE

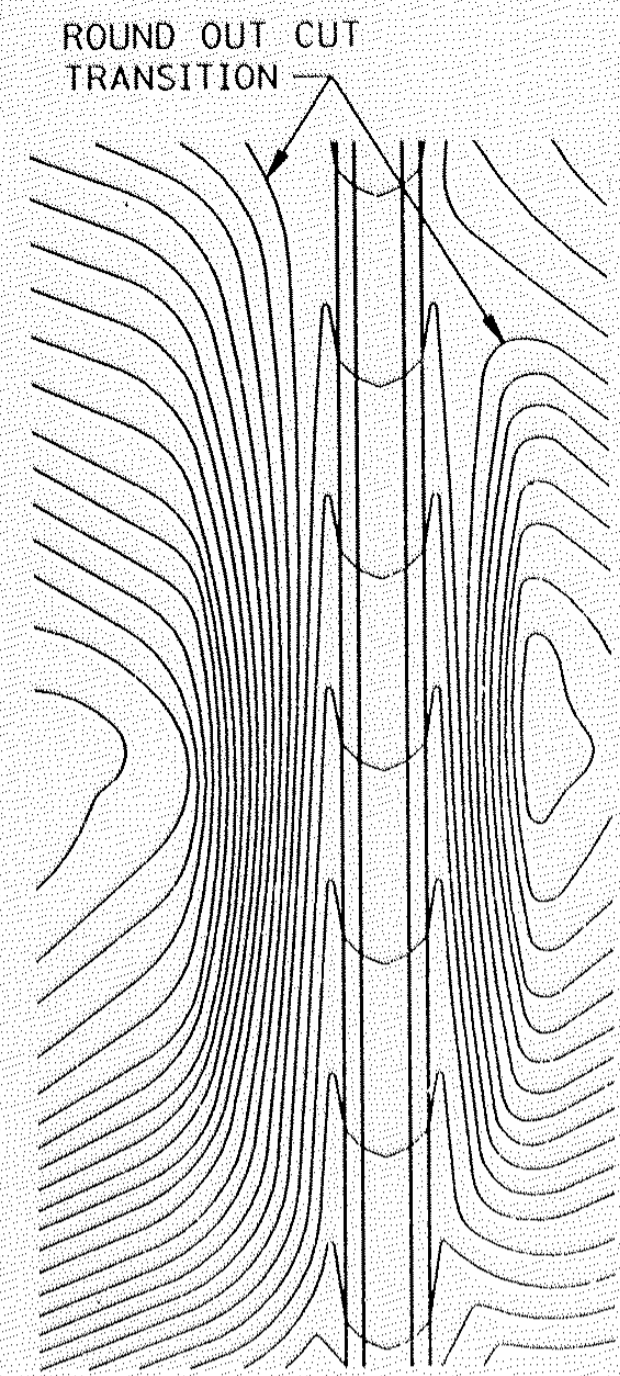
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STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
STATE PROJ. NO. C P 97-08-36	
SHEET NO. 5 OF 16 SHEETS	

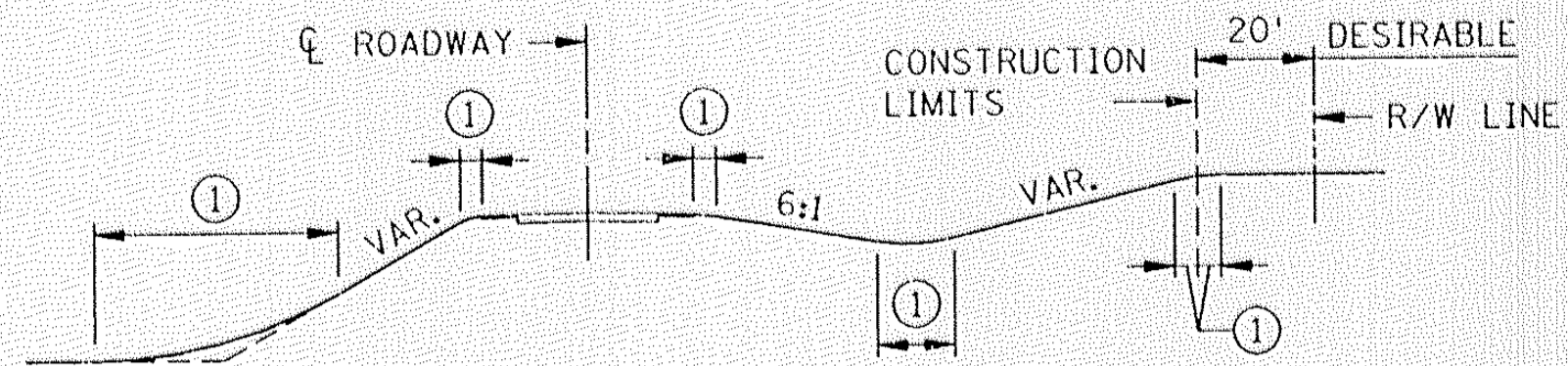




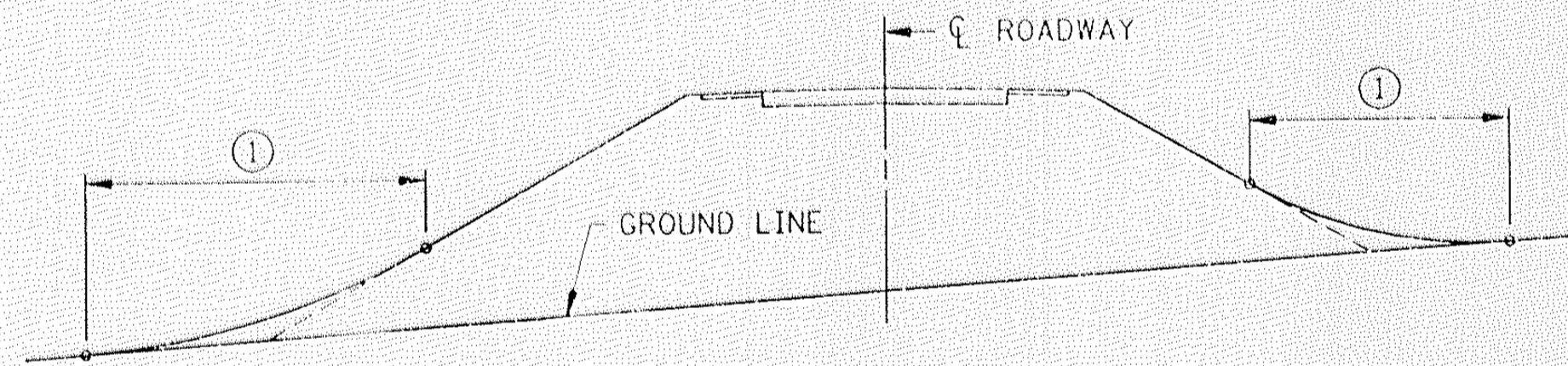




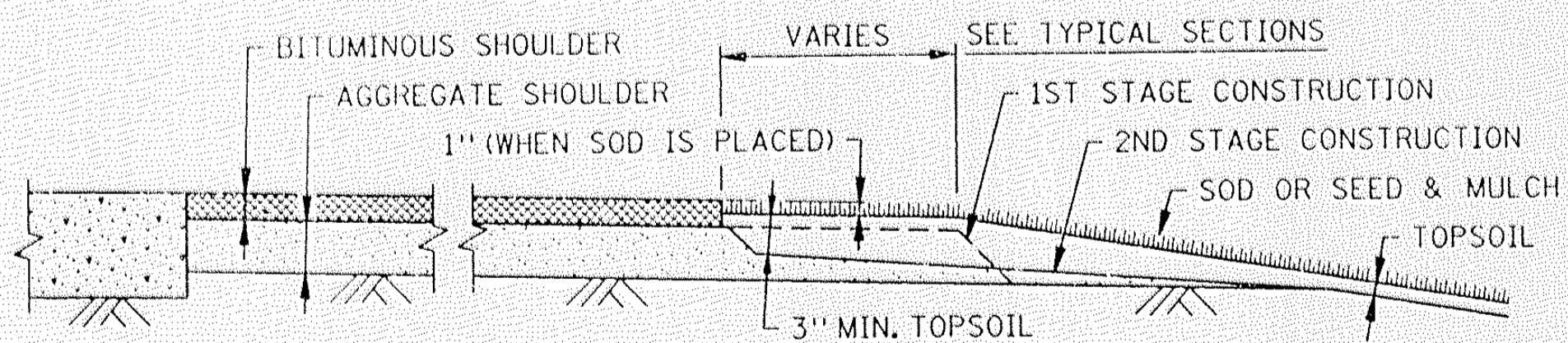
CONTOURING ROAD CUTS



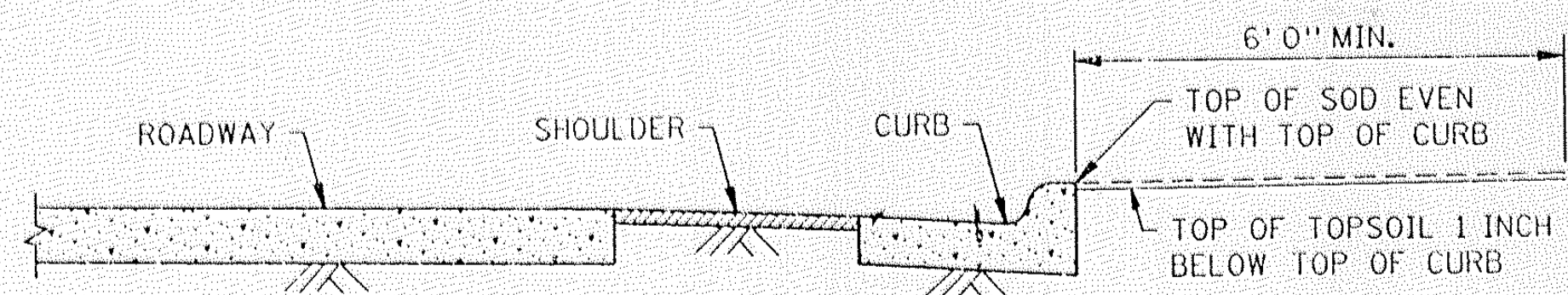
ROUNDING SHOULDERS AND BACKSLOPES



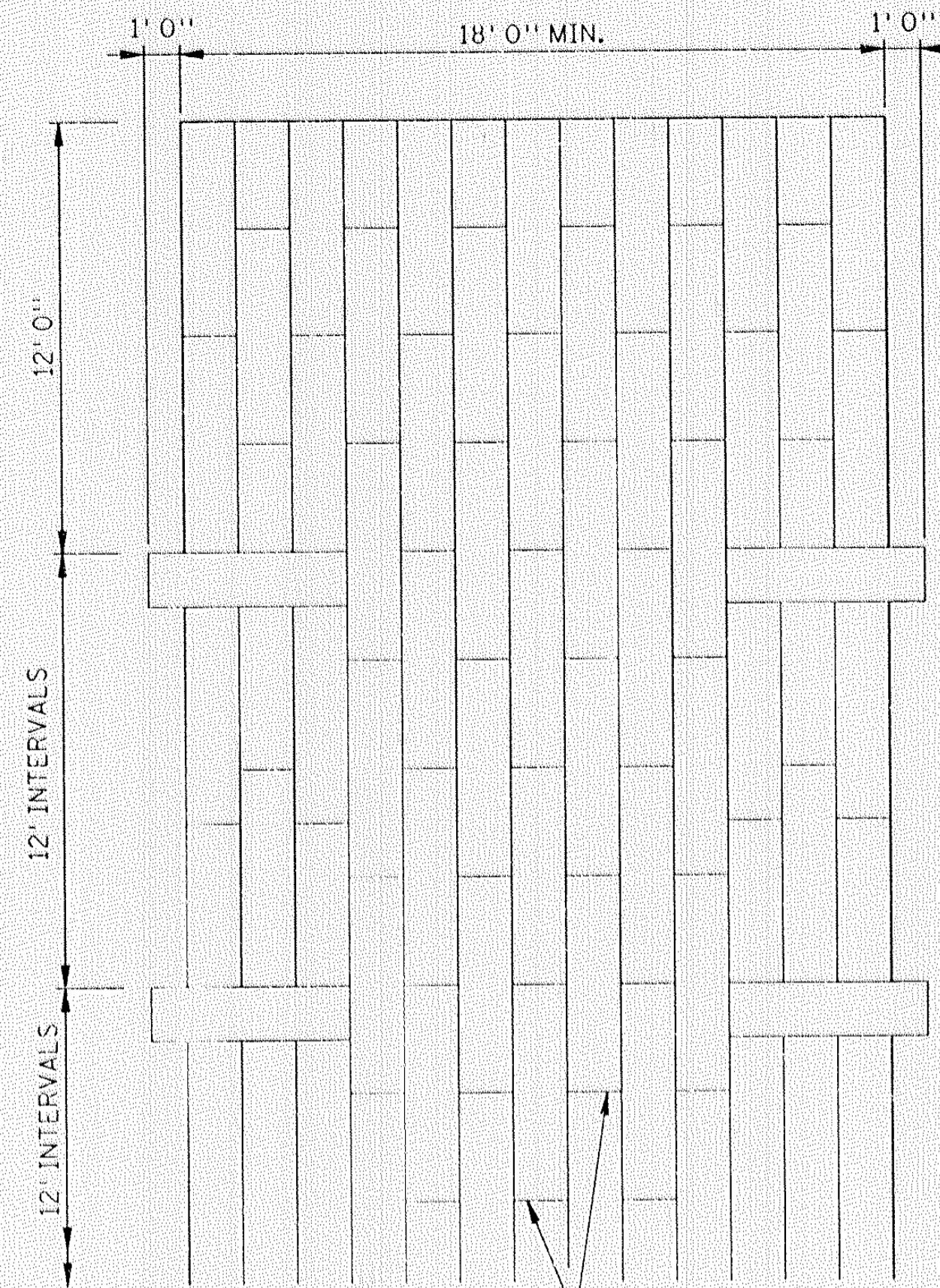
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



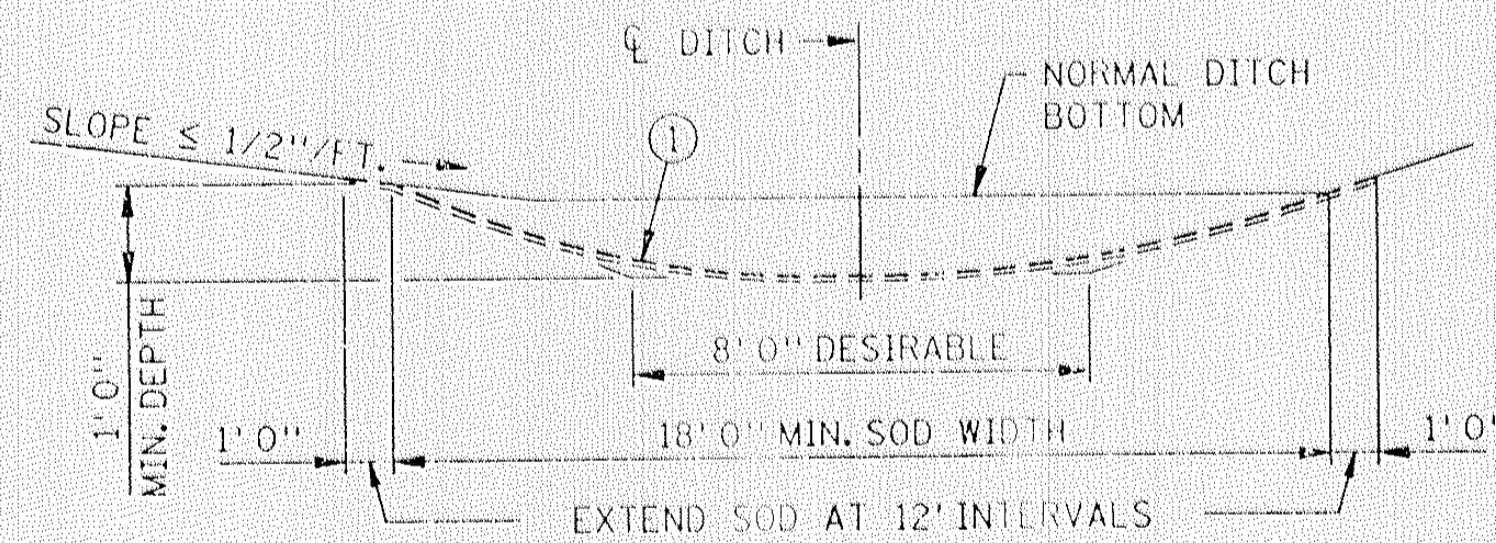
SHAPING AND TOPSOILING INSLOPES



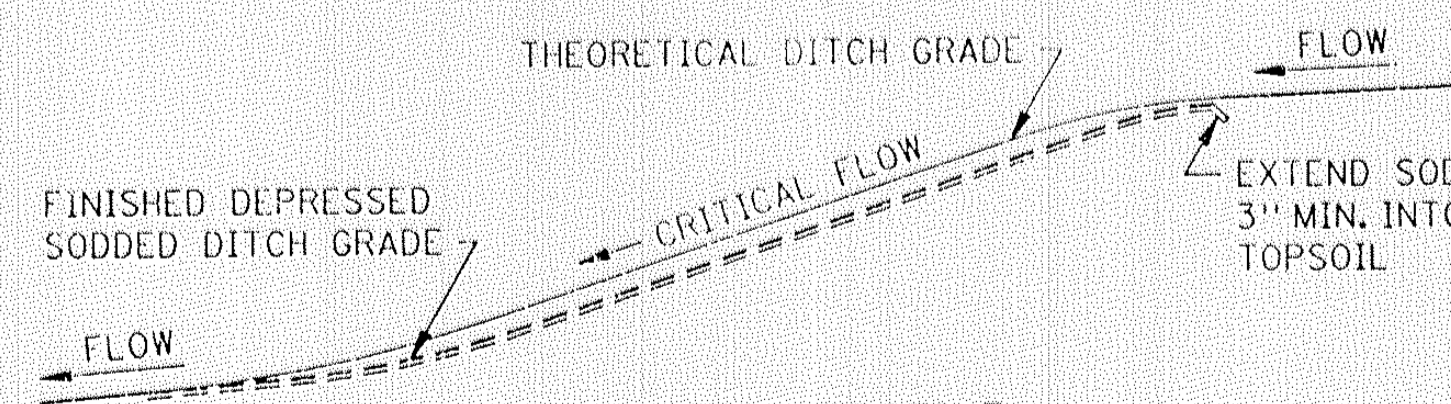
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



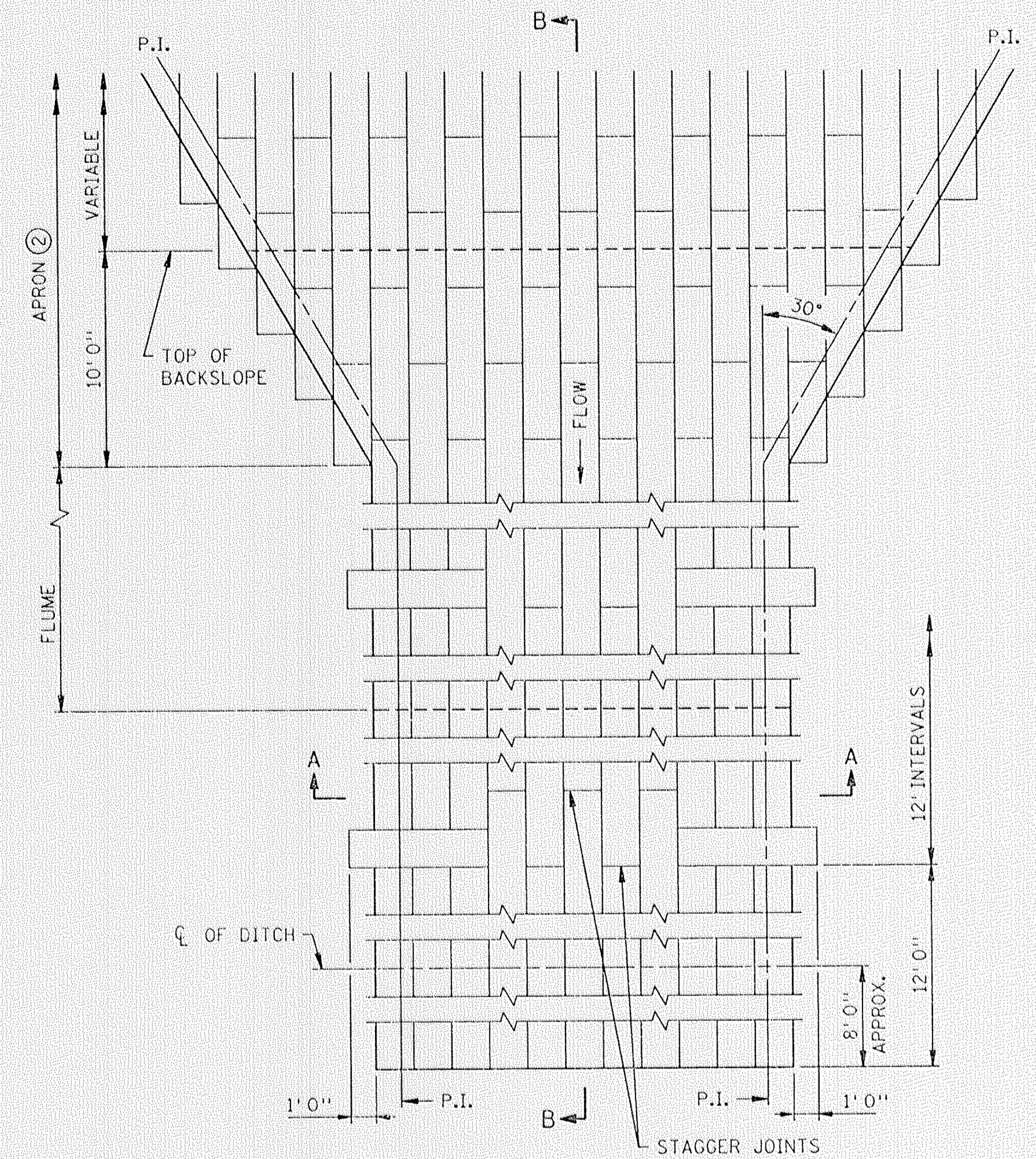
PLAN VIEW



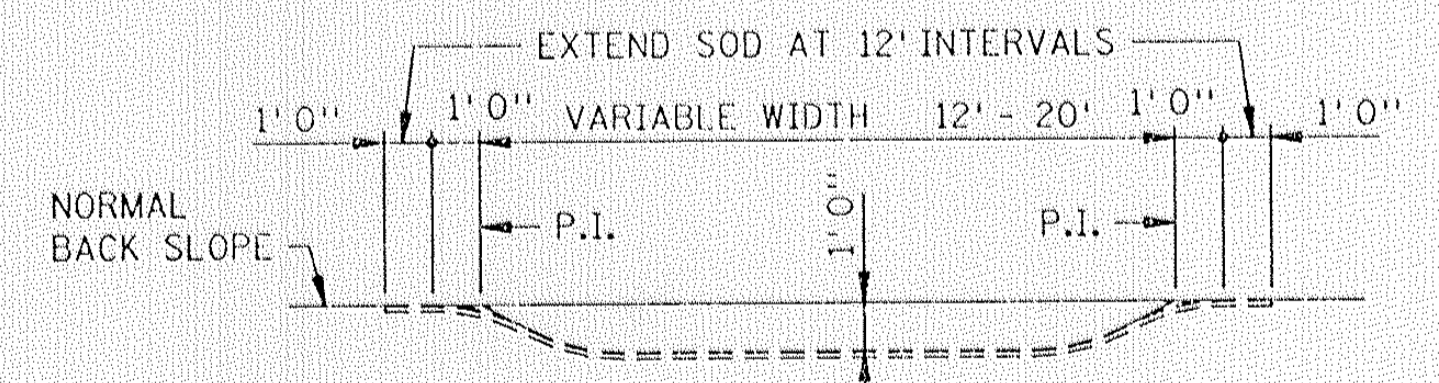
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



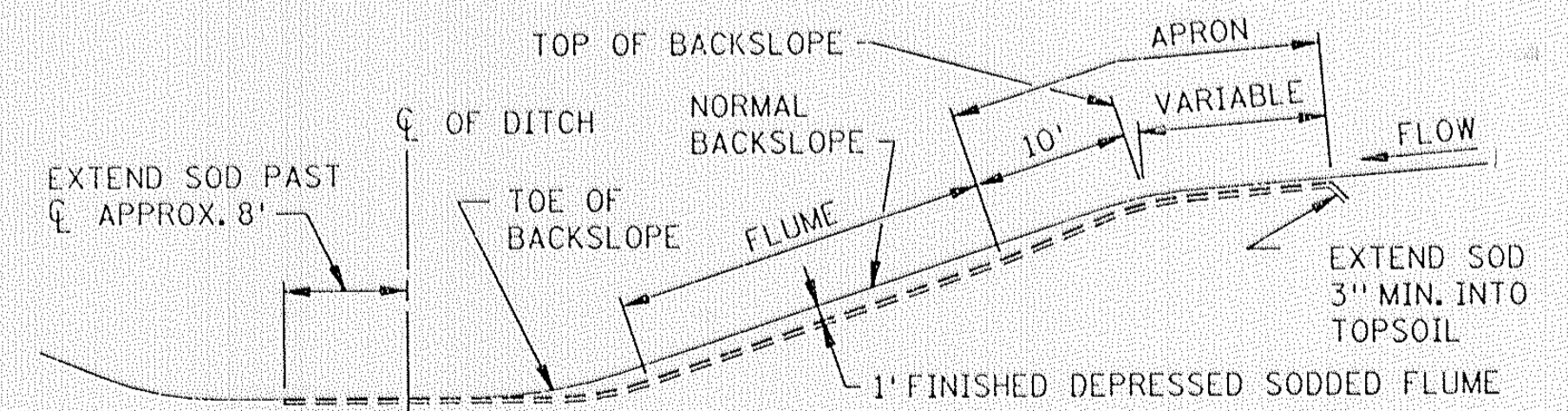
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B  
SODDED FLUME DETAILS

- NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① FOR ROUNDING, SEE ROAD DESIGN MANUAL.  
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

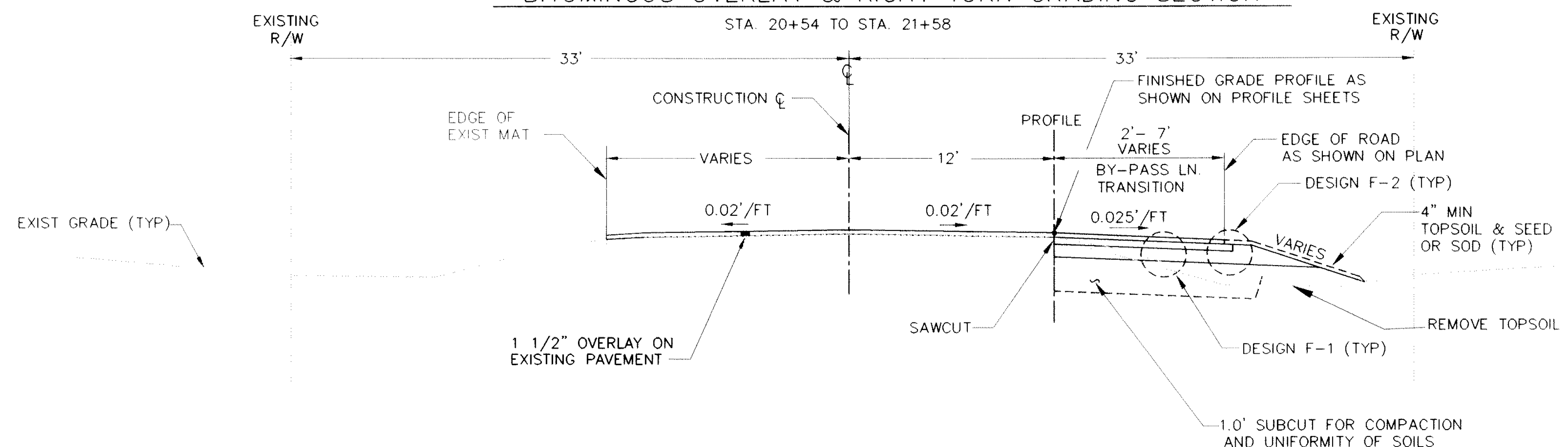
STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: DECEMBER 19, 1990	
STATE PROJ. NO. C.P. 97-08-36	SHEET NO. 7 OF 16 SHEETS

/AX780 05A3:[45,100] FILE NAME S404L90.SPN



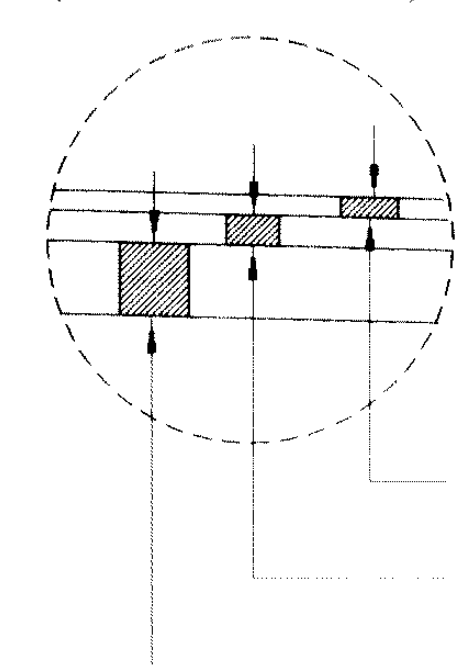
**BITUMINOUS OVERLAY & RIGHT TURN GRADING SECTION**

STA. 20+54 TO STA. 21+58



**DESIGN F-1**

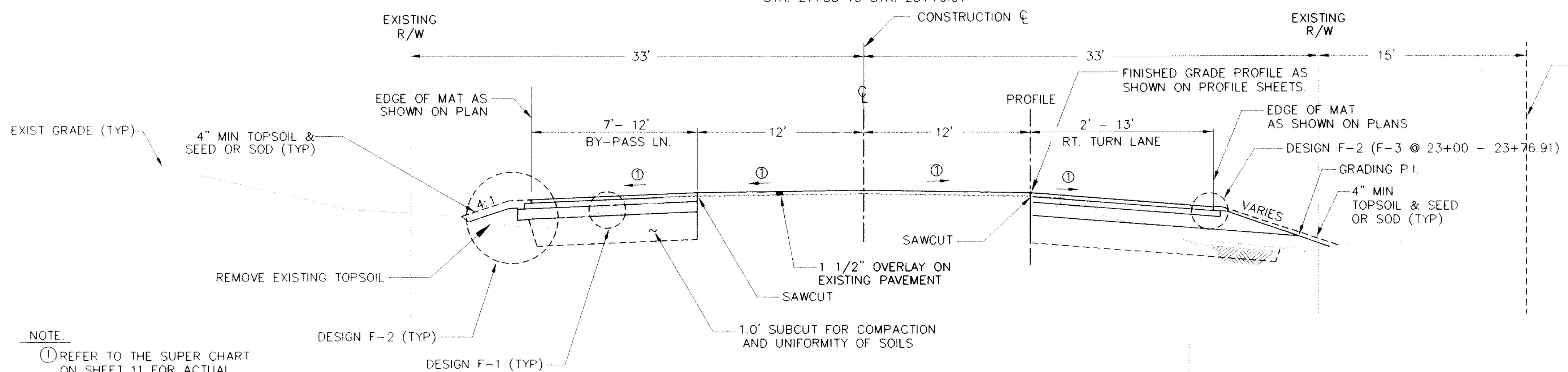
(ALL TRAVEL LANES)



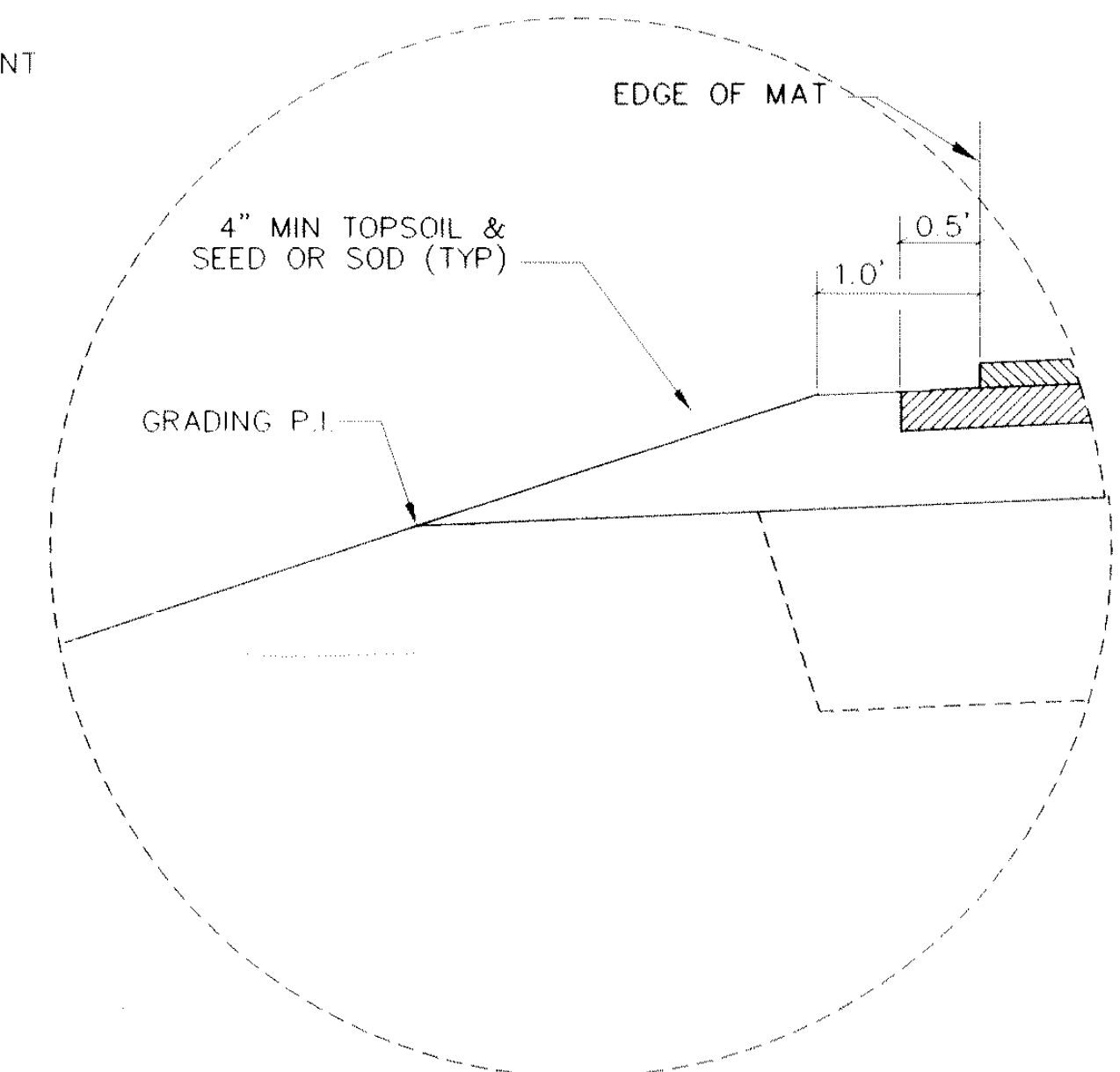
- 1 1/2" TYPE 41 WEARING COURSE—SPEC. 2340
- BITUMINOUS MIXTURE DESIGNATION: 41WEA50055Y
- 2 1/2" TYPE 31 BASE COURSE—SPEC. 2340
- BITUMINOUS MIXTURE DESIGNATION: 31BBB50000Y
- 6" AGGREGATE BASE CLASS 5A—SPEC. 2211
- TACK COAT—SPEC. 2357, TO BE APPLIED BETWEEN ALL BITUMINOUS LIFTS.

**BITUMINOUS OVERLAY & BYPASS & RT. TURN LANE GRADING SECTION LT. & RT.**

STA. 21+58 TO STA. 23+76.91



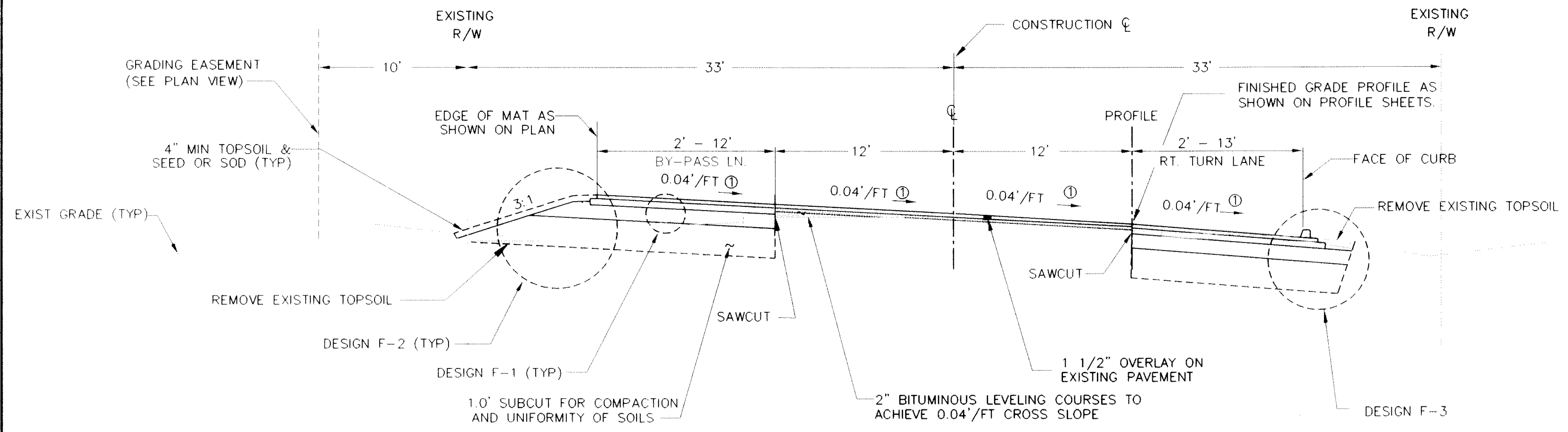
**DESIGN F-2**



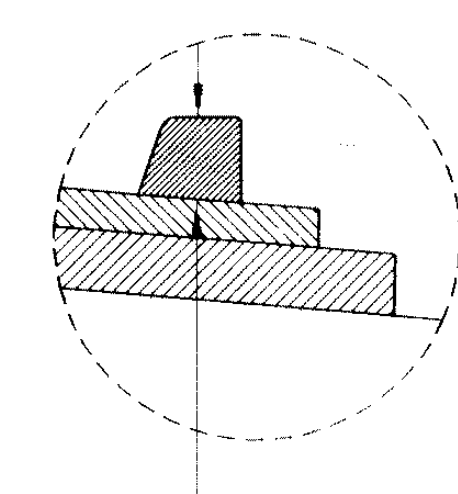
NOTE:  
 ① REFER TO THE SUPER CHART ON SHEET 11 FOR ACTUAL PAVEMENT CROSS SLOPE.

**BITUMINOUS OVERLAY & BYPASS & RT. TURN LANE GRADING SECTION LT. & RT.**

STA. 23+76.91 TO STA. 24+88.35



**DESIGN F-3**



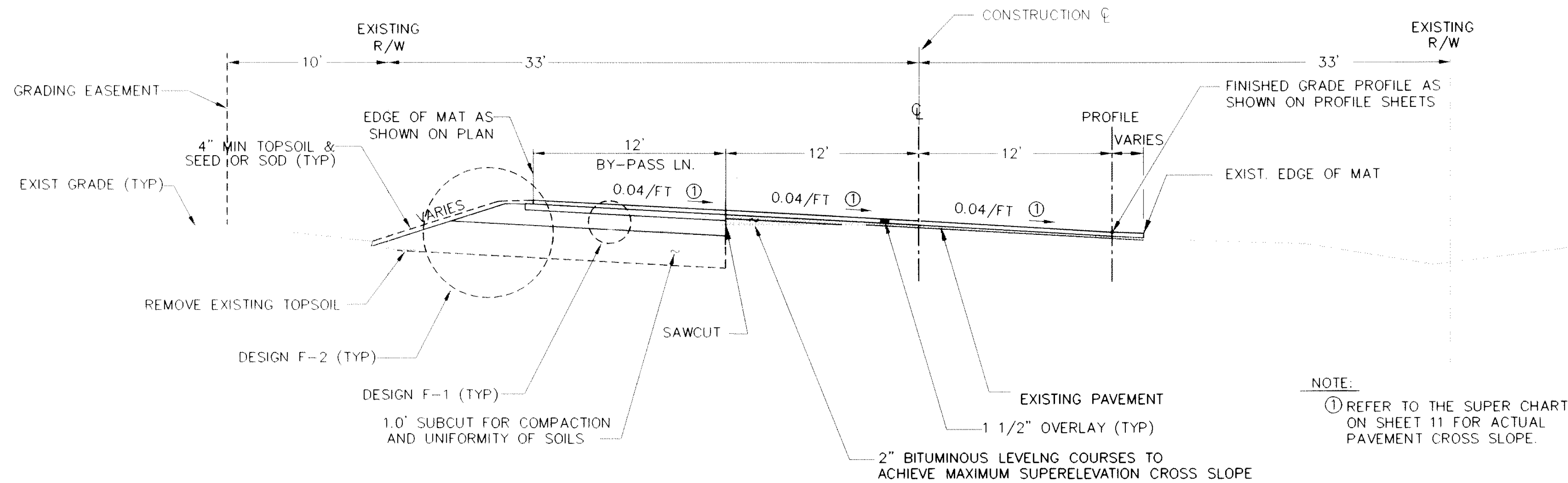
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REVISIONS	BY	DATE



**BITUMINOUS OVERLAY & BYPASS GRADING LT.**

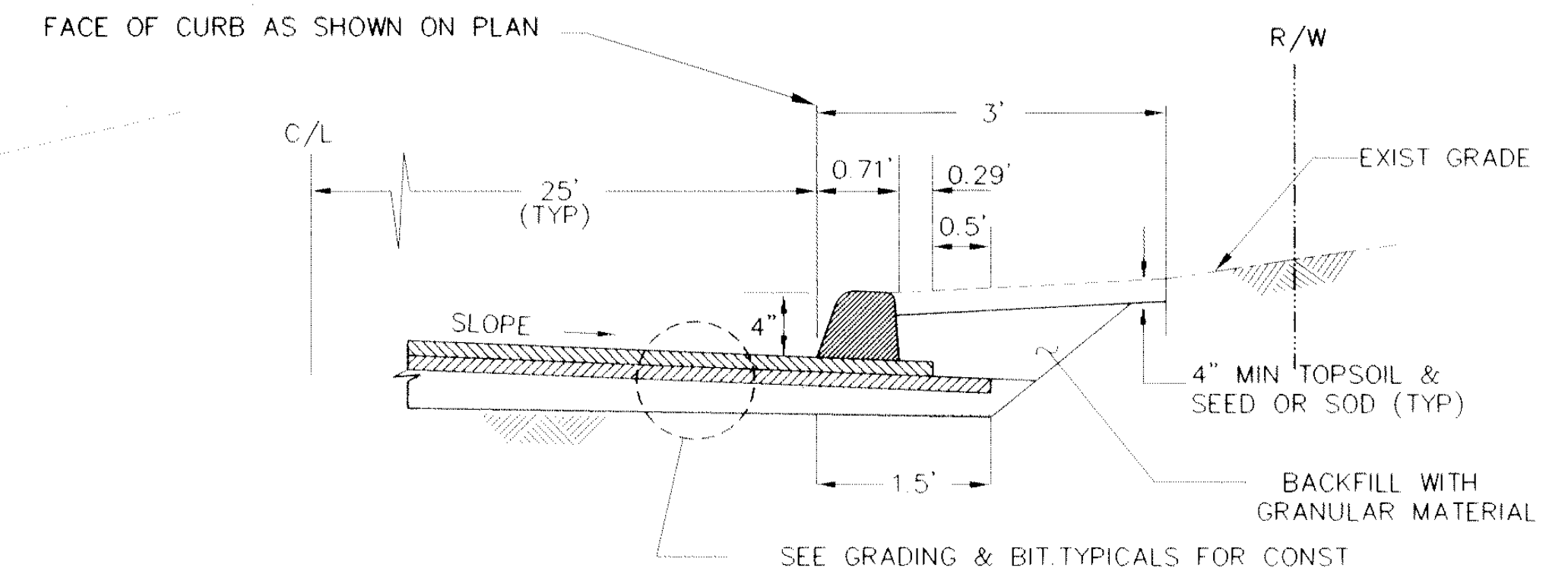
STA. 24+88 TO STA. 26+74.89



NOTE:  
 ① REFER TO THE SUPER CHART ON SHEET 11 FOR ACTUAL PAVEMENT CROSS SLOPE.

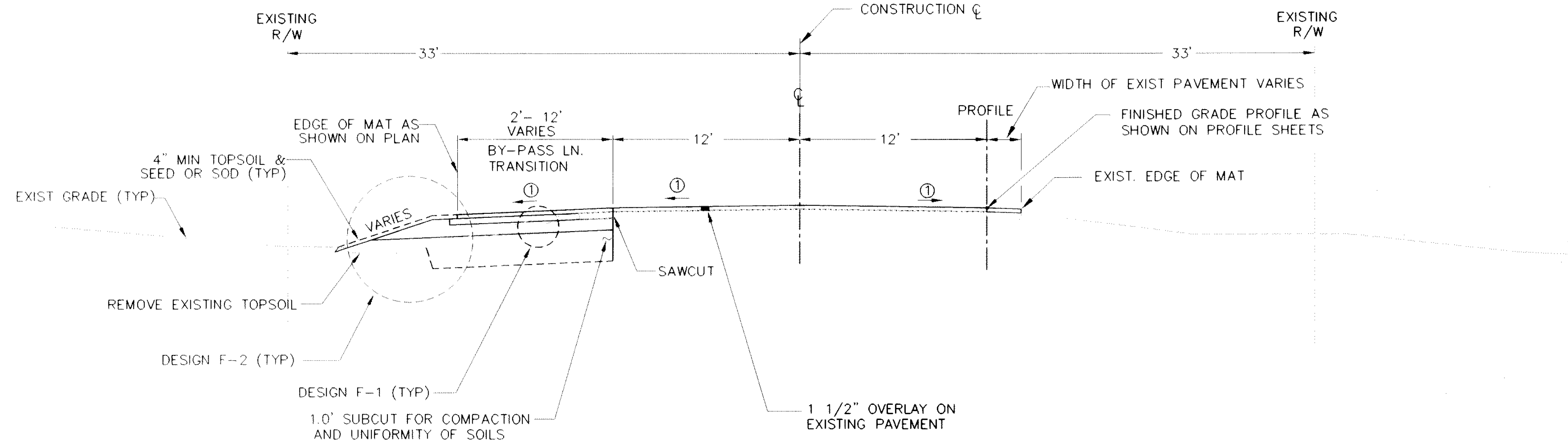
**BITUMINOUS CURB DETAIL**

STANDARD PLATE NO. 7065 C  
 STA 23+50 - 24+88 RT

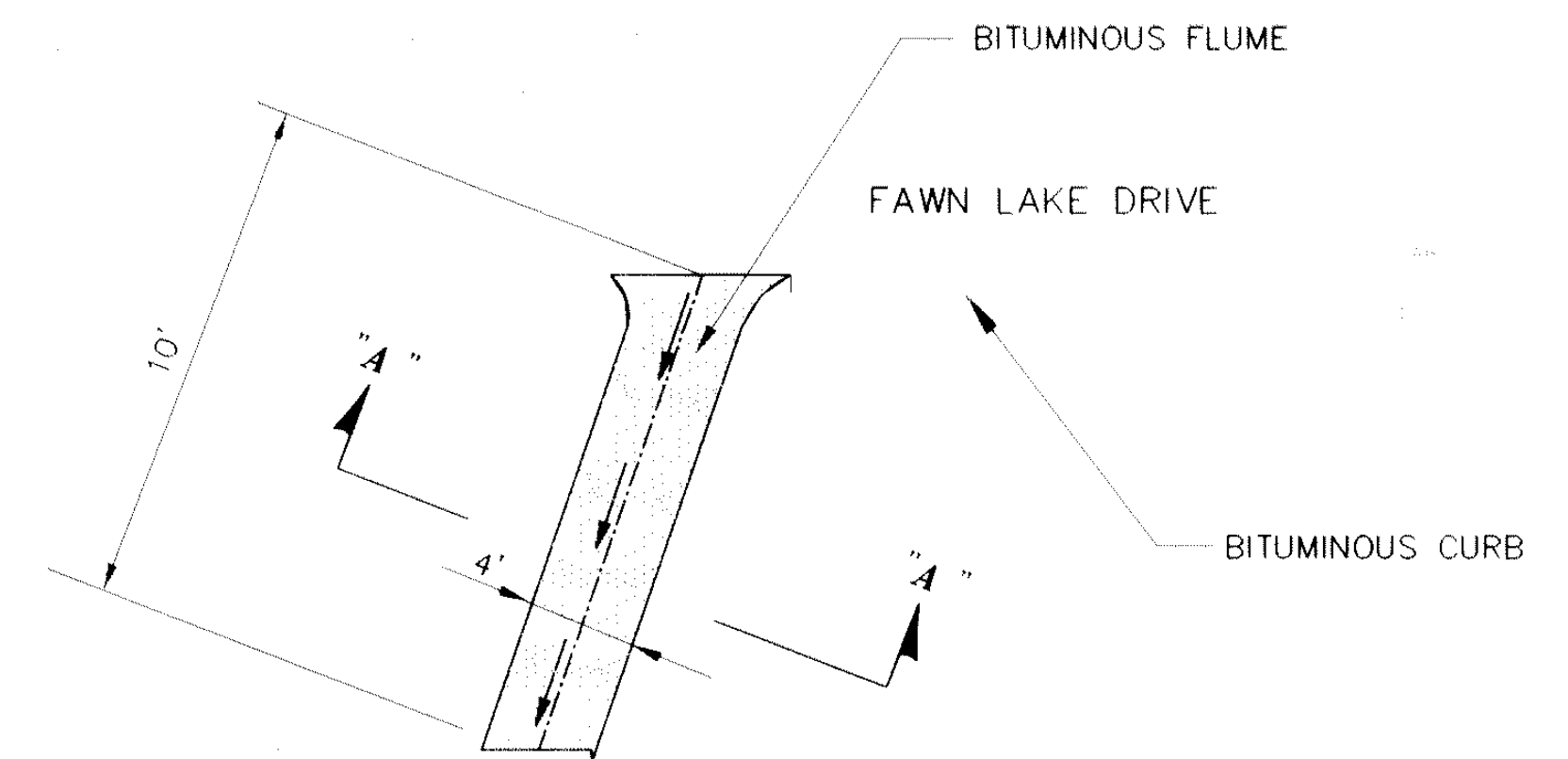


**BITUMINOUS OVERLAY & BYPASS GRADING SECTION LT.**

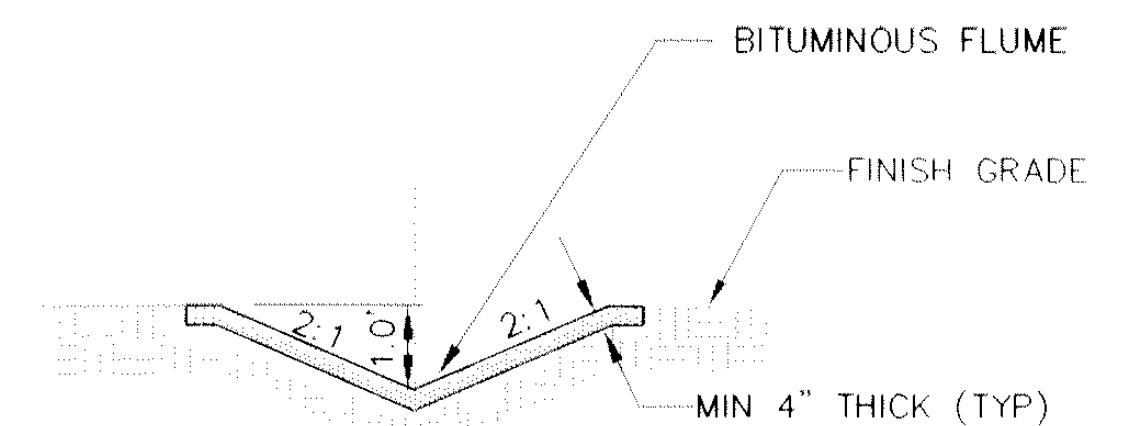
STA. 26+74.89 TO STA. 29+28.35



**BITUMINOUS FLUME DETAIL**



**SECTION "A"-"A"**

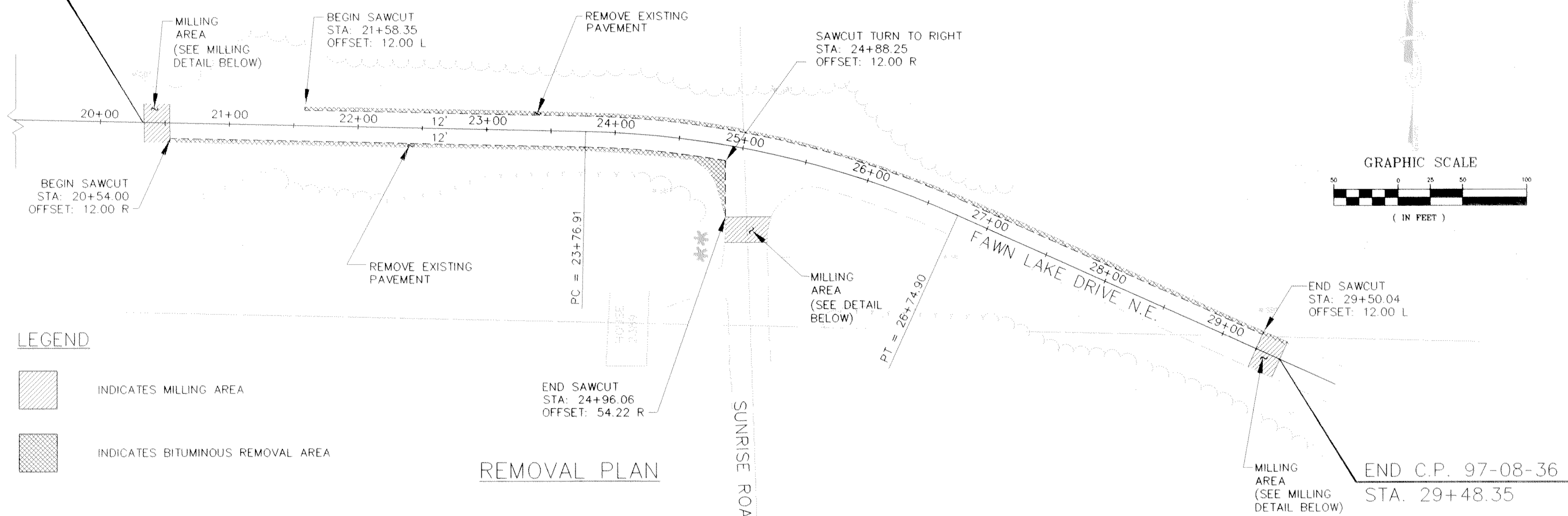


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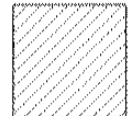
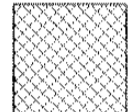
REVISIONS	DATE	BY

BM 11 ELEV. 906.28  
DBL. SPK. IN 20" OAK  
STA. 24+90 54' LT

BEGIN C.P. 97-08-36  
STA. 20+34

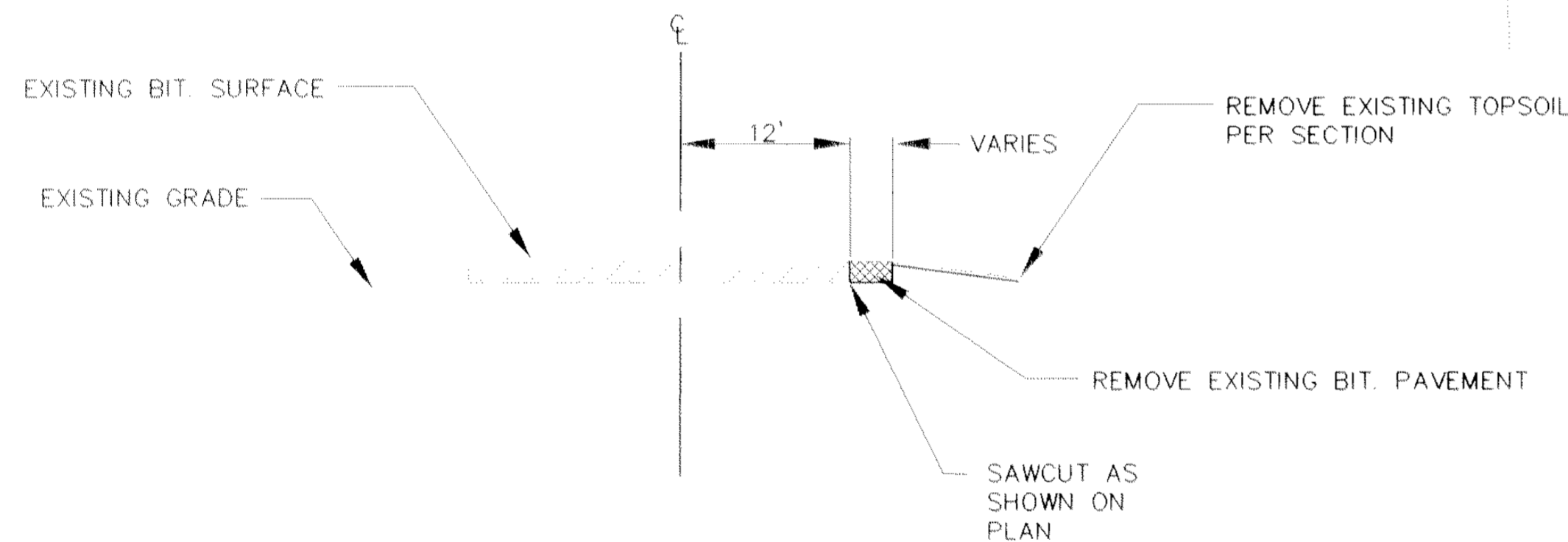


**LEGEND**

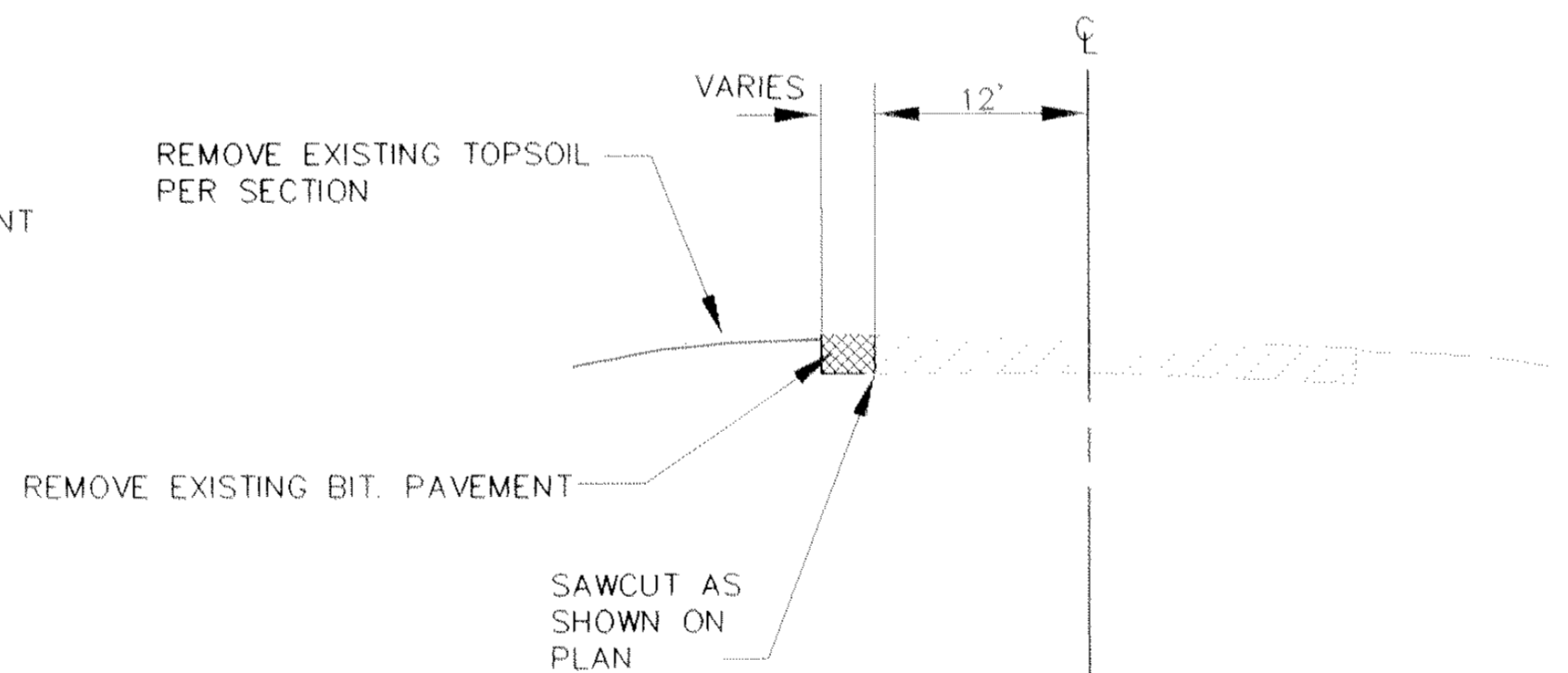
-  INDICATES MILLING AREA
-  INDICATES BITUMINOUS REMOVAL AREA

**REMOVAL PLAN**

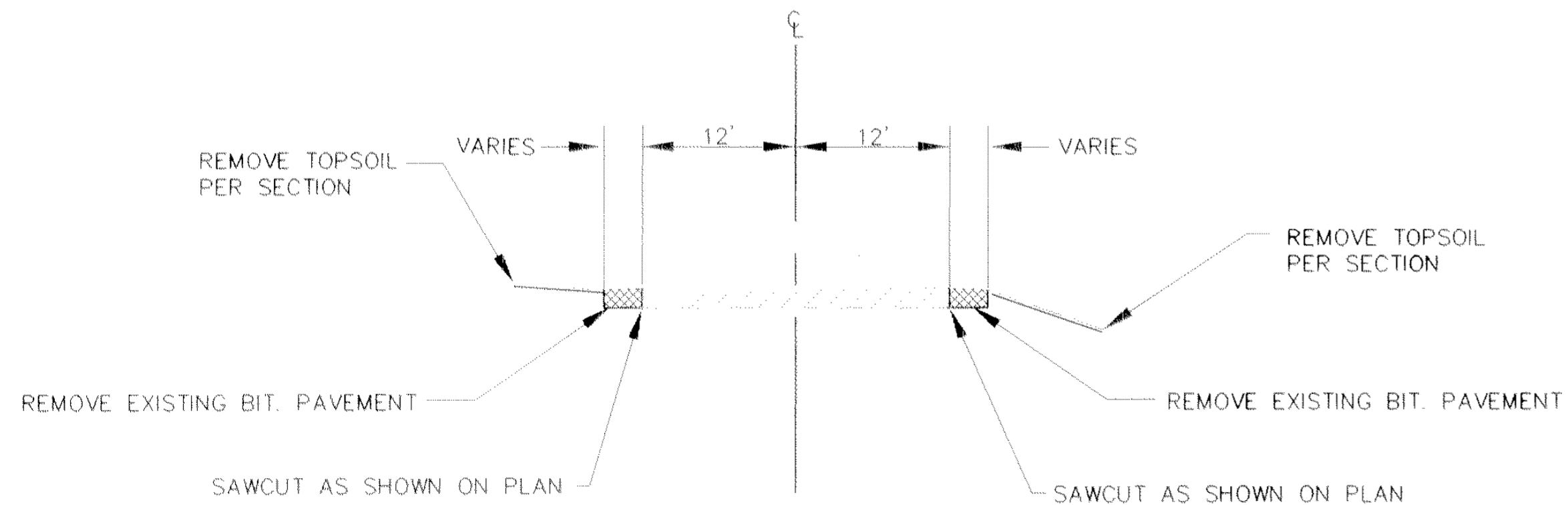
**PAVEMENT REMOVAL  
STA. 20+54 TO STA. 21+58**



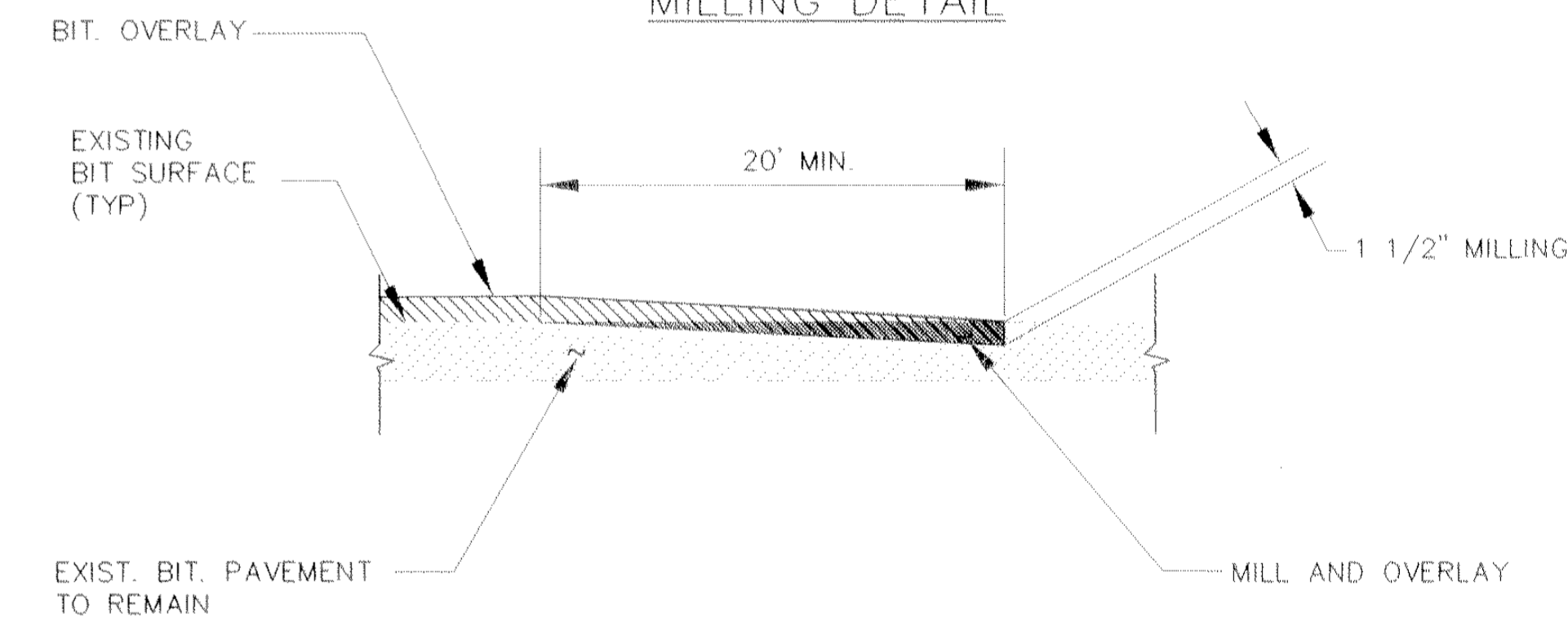
**PAVEMENT REMOVAL  
STA. 21+58 TO STA. 29+50**



**PAVEMENT REMOVAL  
STA. 21+58 TO STA. 24+88**



**MILLING DETAIL**



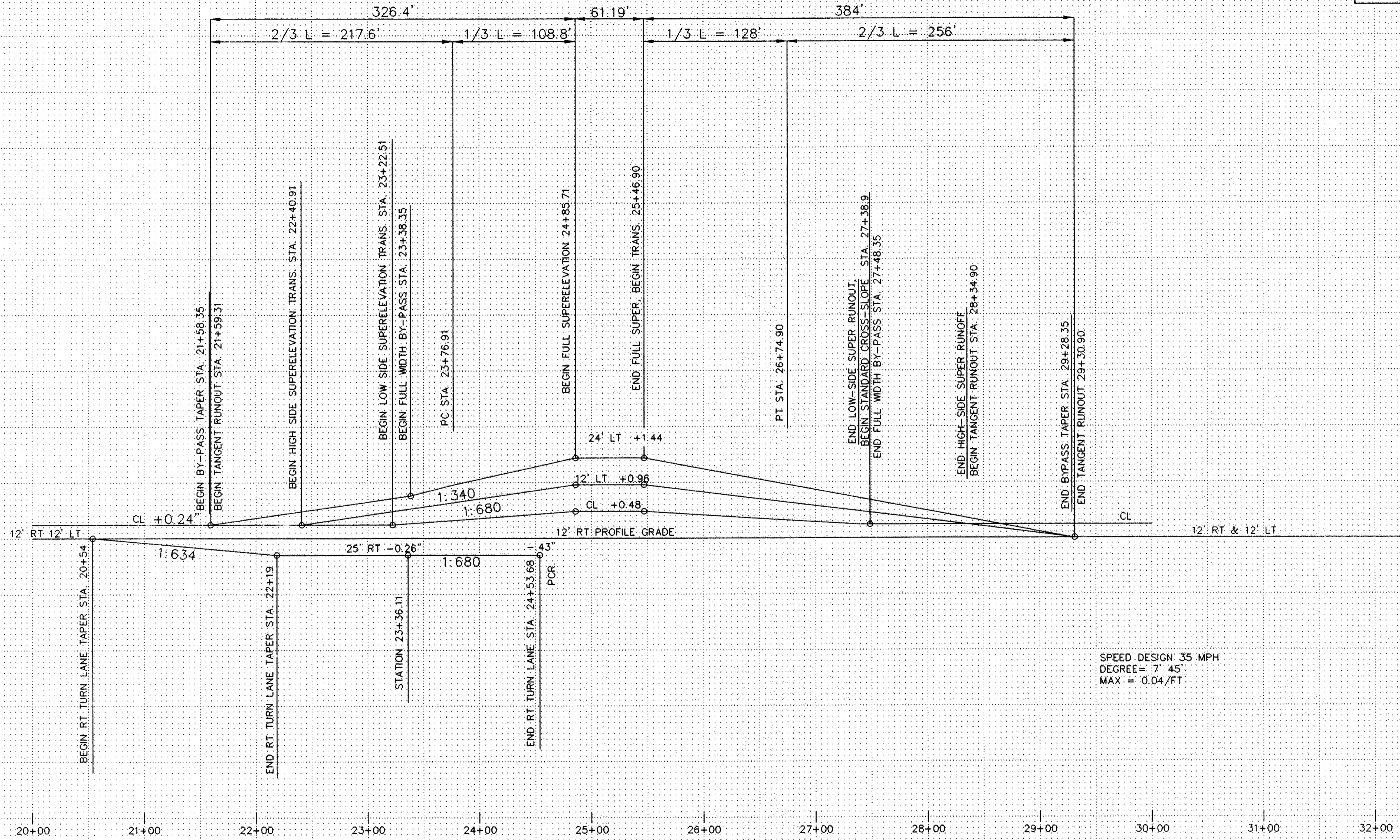
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REVISIONS	BY	DATE

CERTIFIED BY Douglas M. Finch P.E. REG. NO. 20235 1/24 19 97 S.P. \_\_\_\_\_ S.A.P. \_\_\_\_\_ C.P. 97-08-36

EXISTING CONDITION AND REMOVAL PLAN





SPEED DESIGN 35 MPH  
 DEGREE = 7° 45'  
 MAX = 0.04/FT

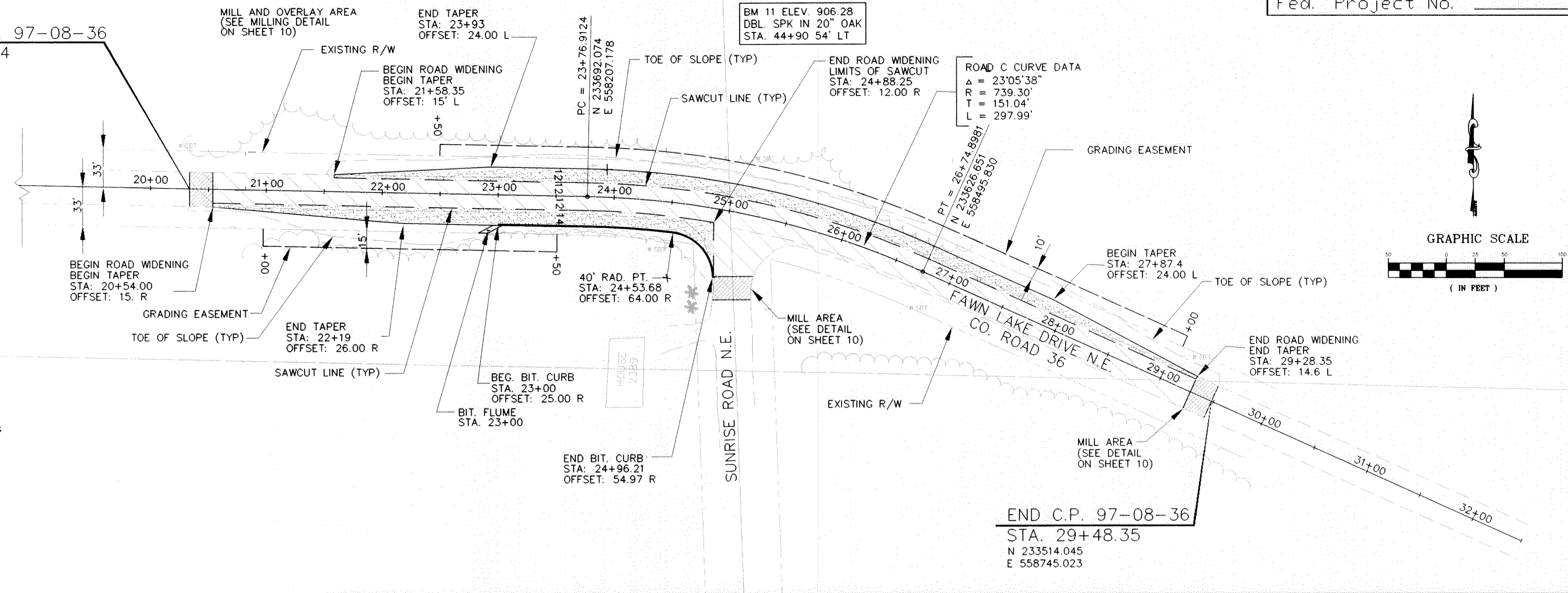
REVISIONS	BY	DATE	BY

SUPER ELEVATION CHART

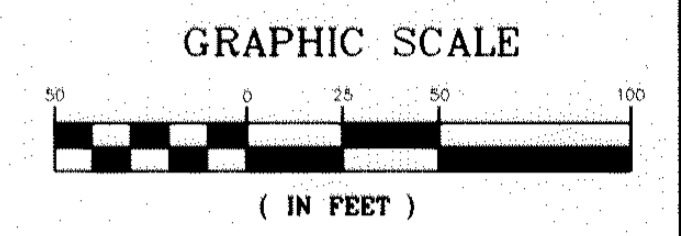
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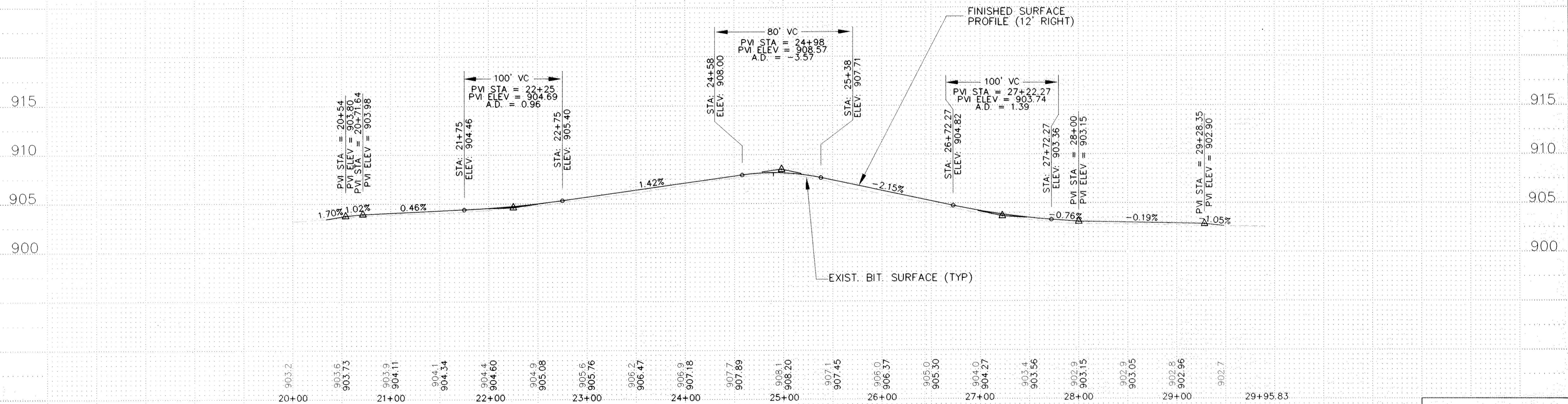
BEGIN C.P. 97-08-36  
 STA 20+34  
 N 233699.402  
 E 557864.011



- LEGEND**
- INDICATES PROPOSED ROAD WIDENING
  - INDICATES MILLING AREA
  - INDICATES 1 1/2" OVERLAY AREA

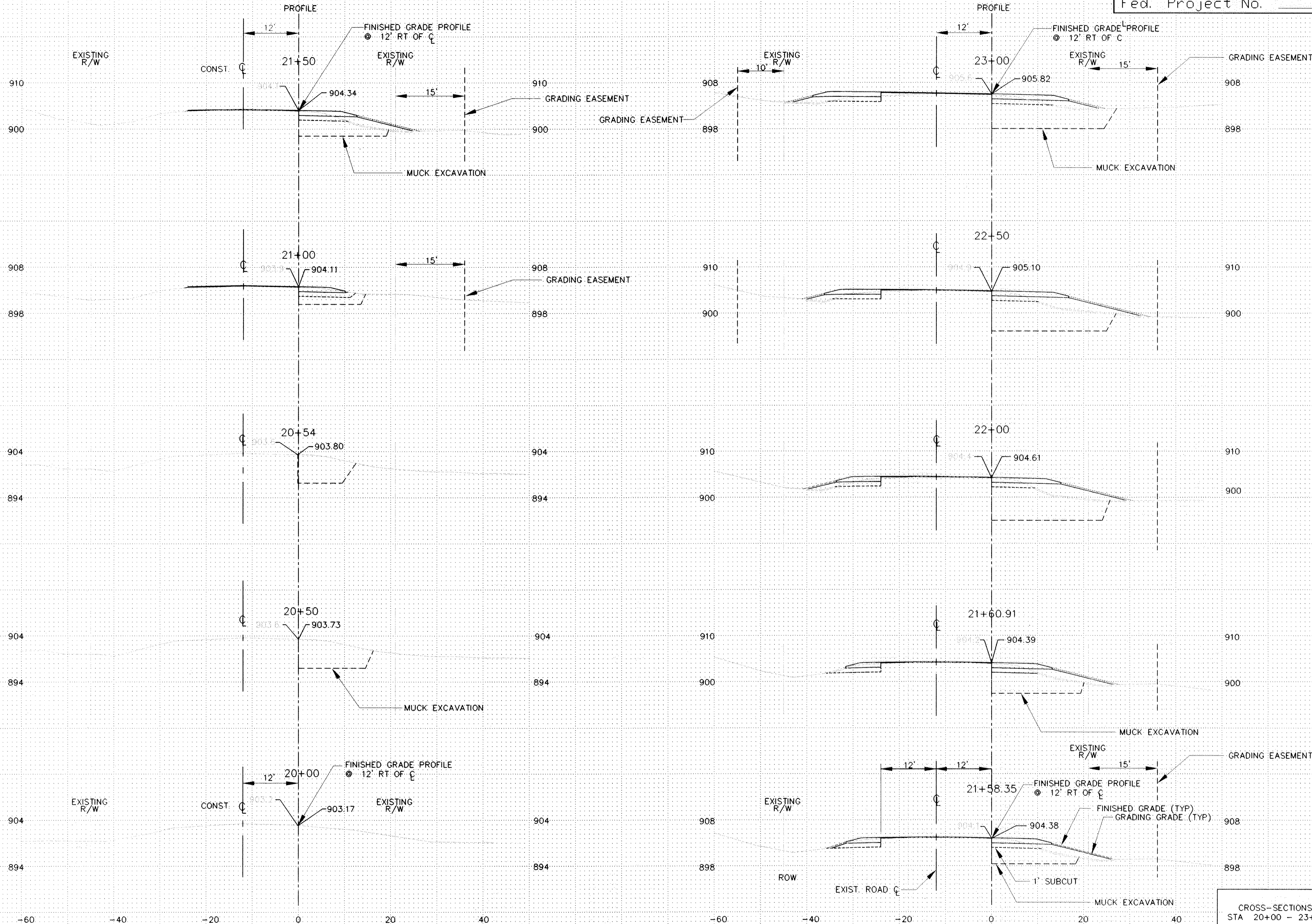


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REVISIONS	DATE	BY

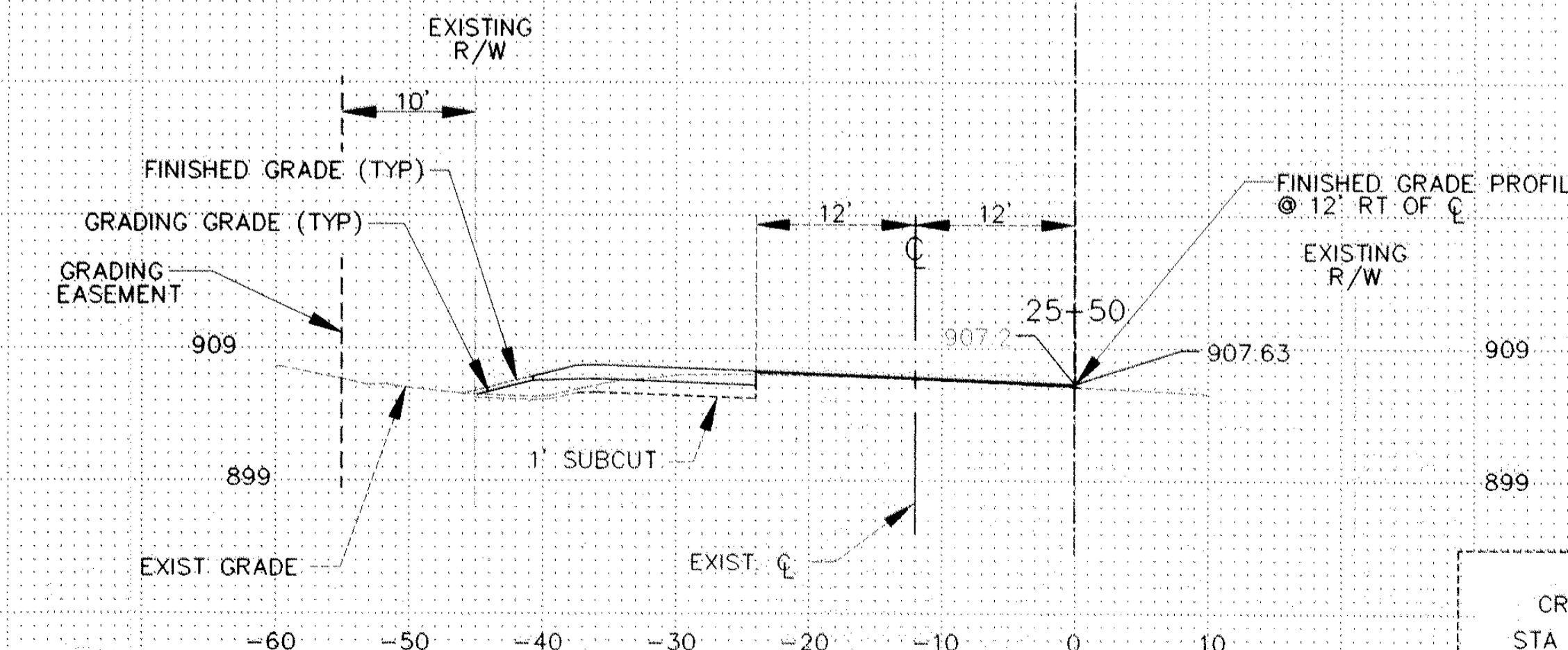
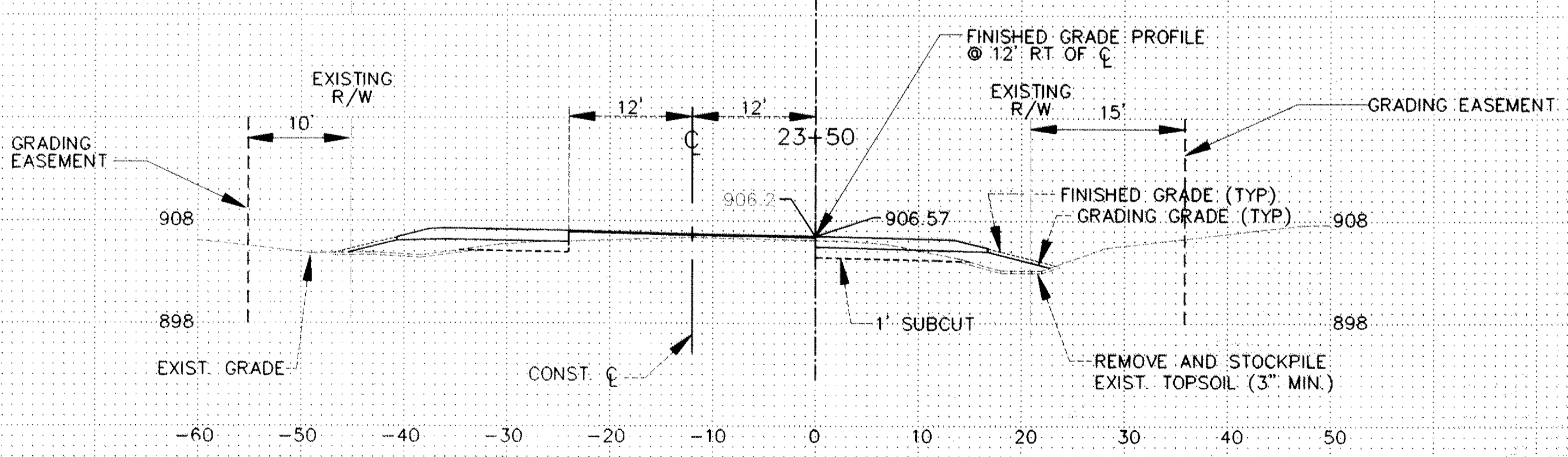
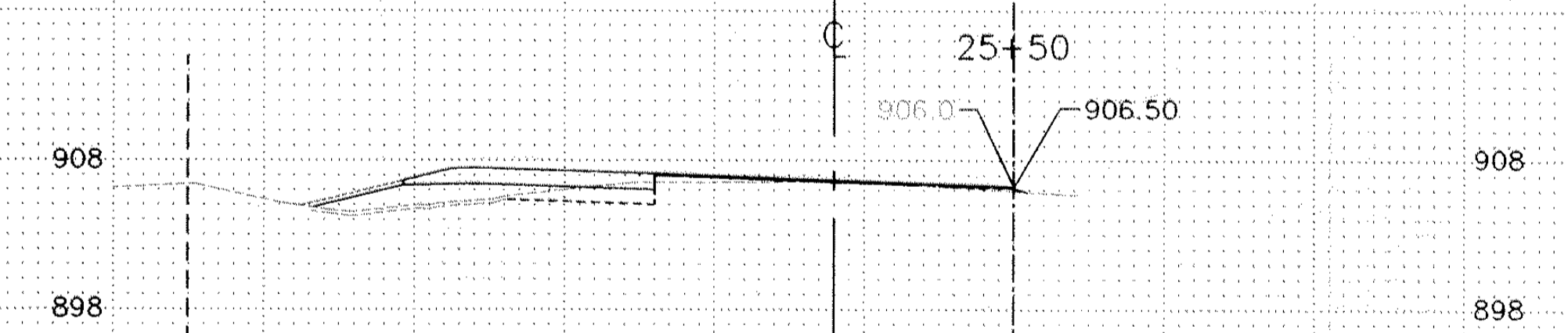
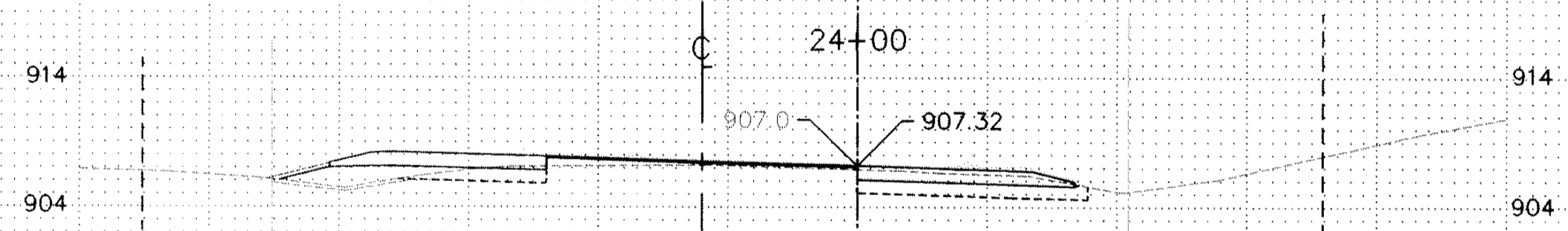
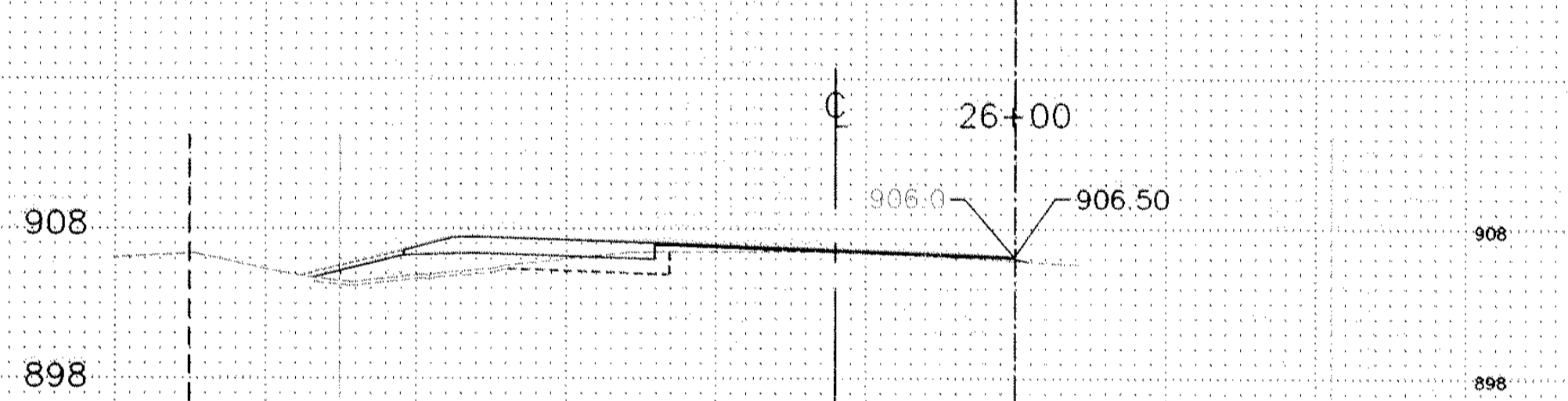
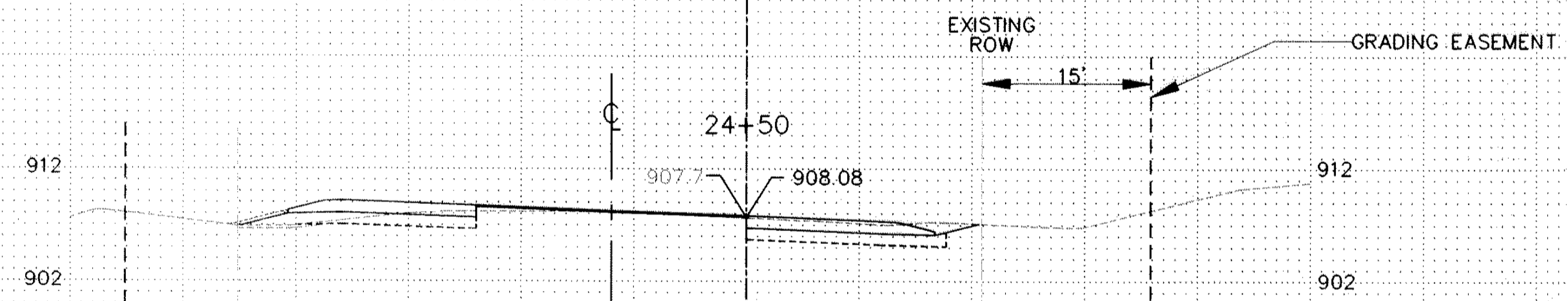
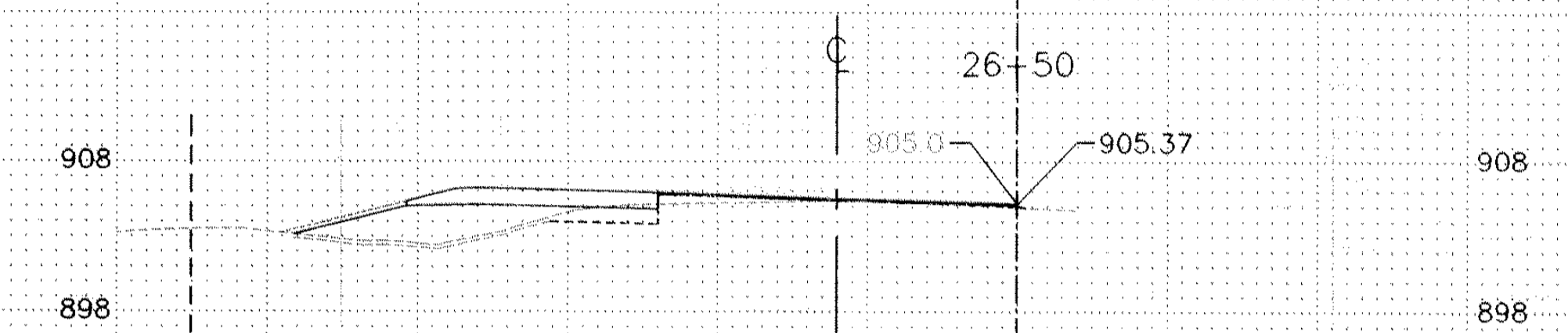
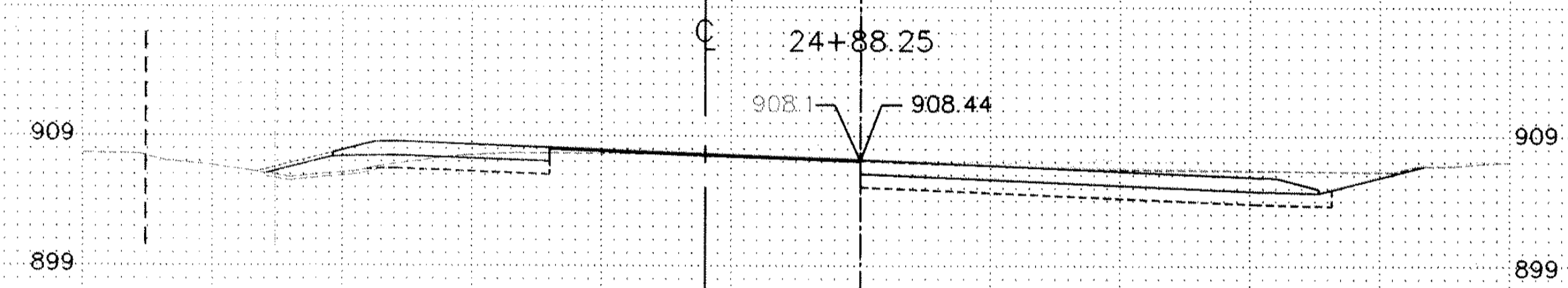
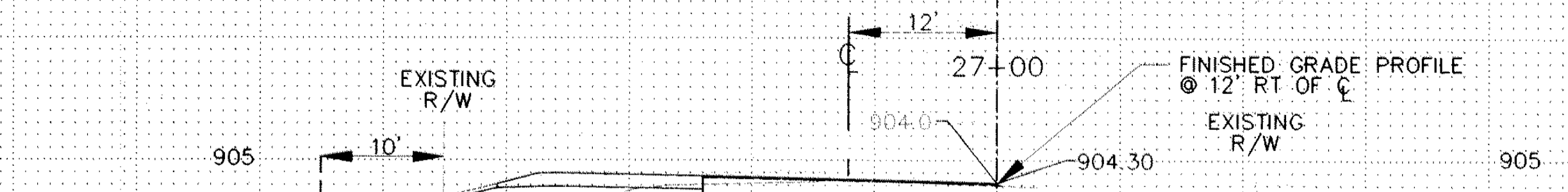
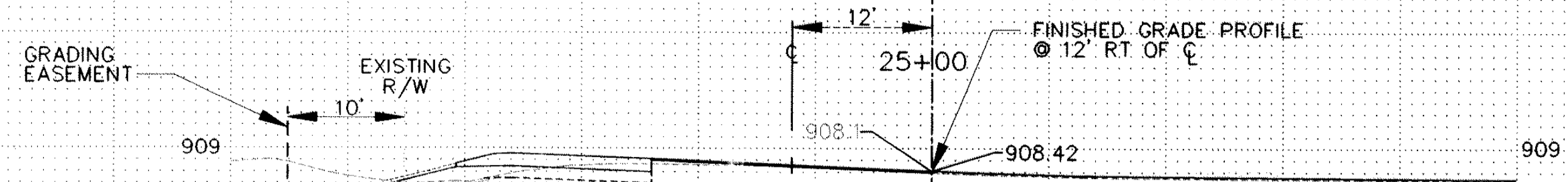




REVISIONS	BY	DATE

CROSS-SECTIONS  
STA 20+00 - 23+00





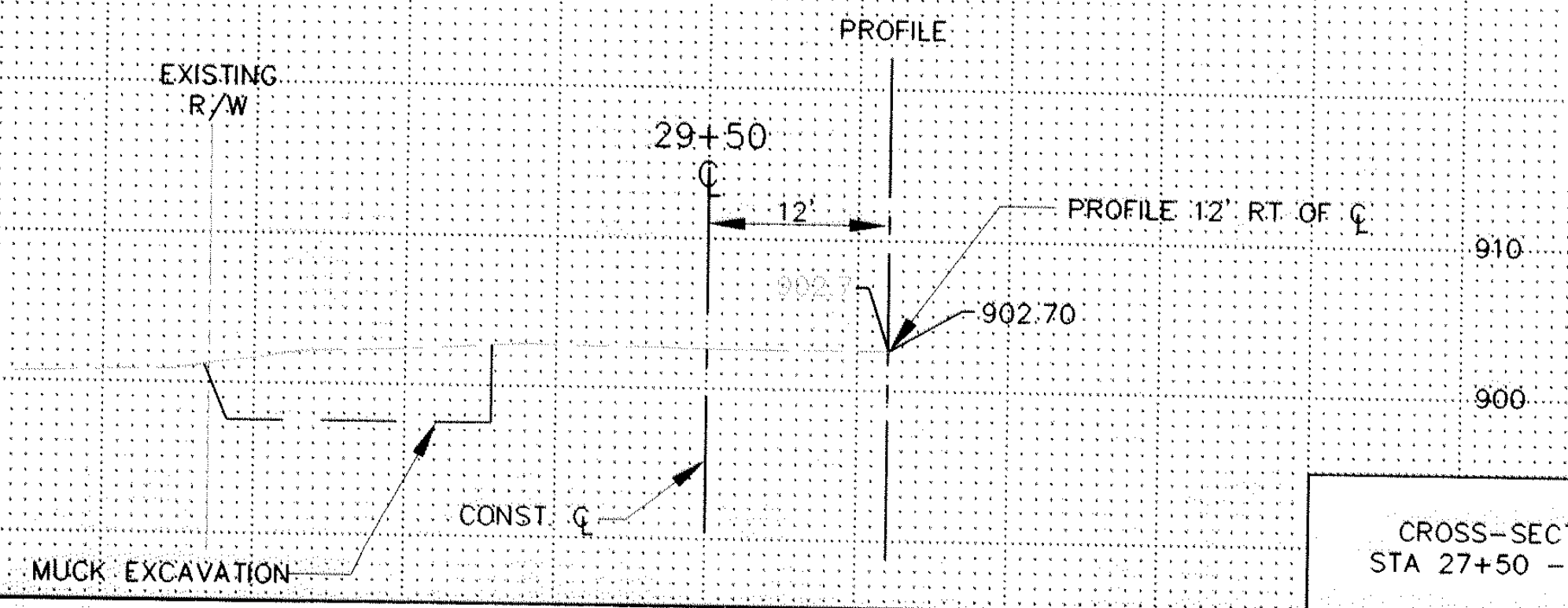
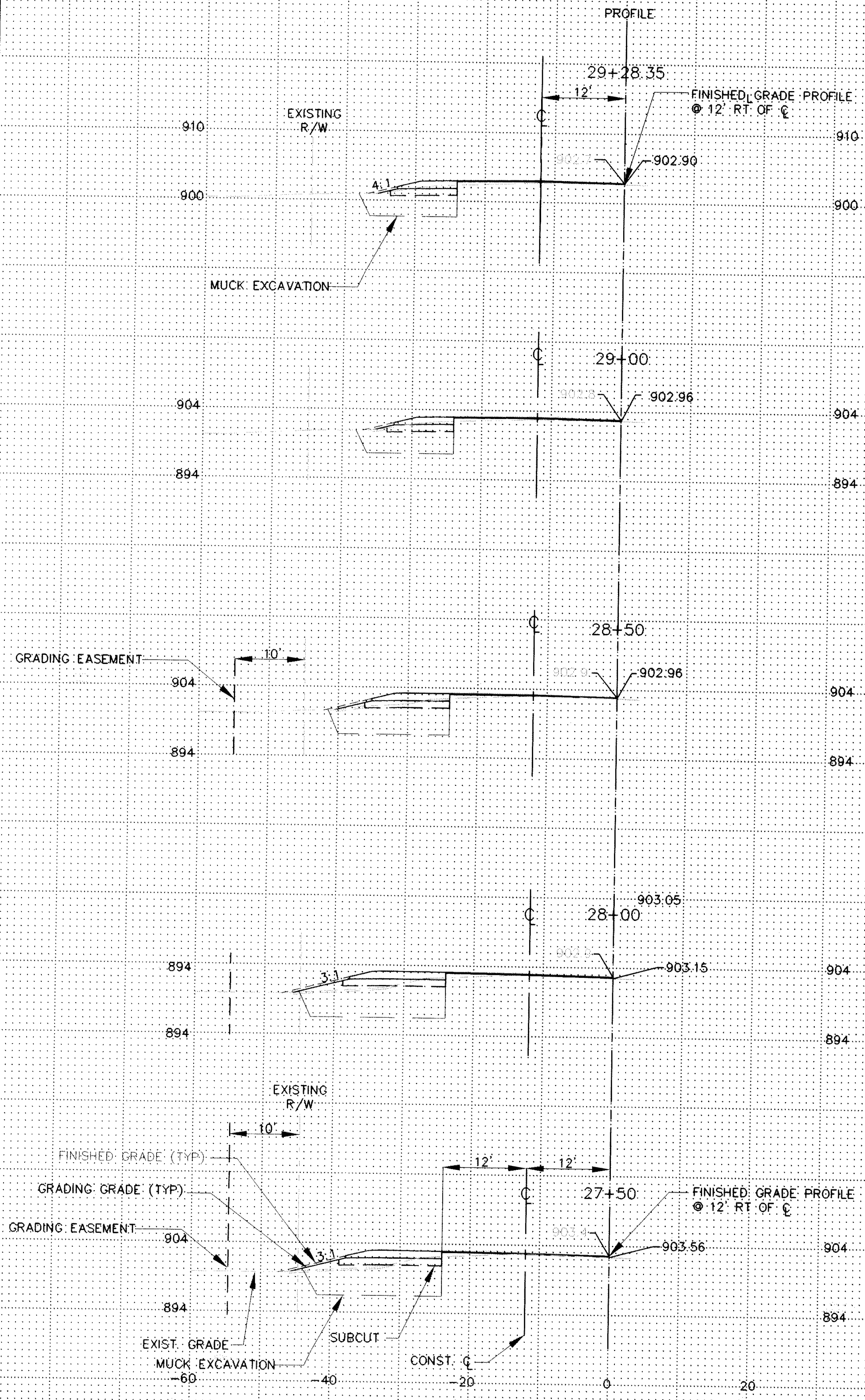
REVISIONS	BY	DATE

CERTIFIED BY *[Signature]* P. E. REG NO. 20235 7/24 19 97

S. P. \_\_\_\_\_ S. A. P. \_\_\_\_\_ C. P. 97-08-36 Sheet No. 14 of 16 Sheets

CROSS-SECTIONS  
STA 23+50 - 27+00





CROSS-SECTIONS  
STA 27+50 - 29+50

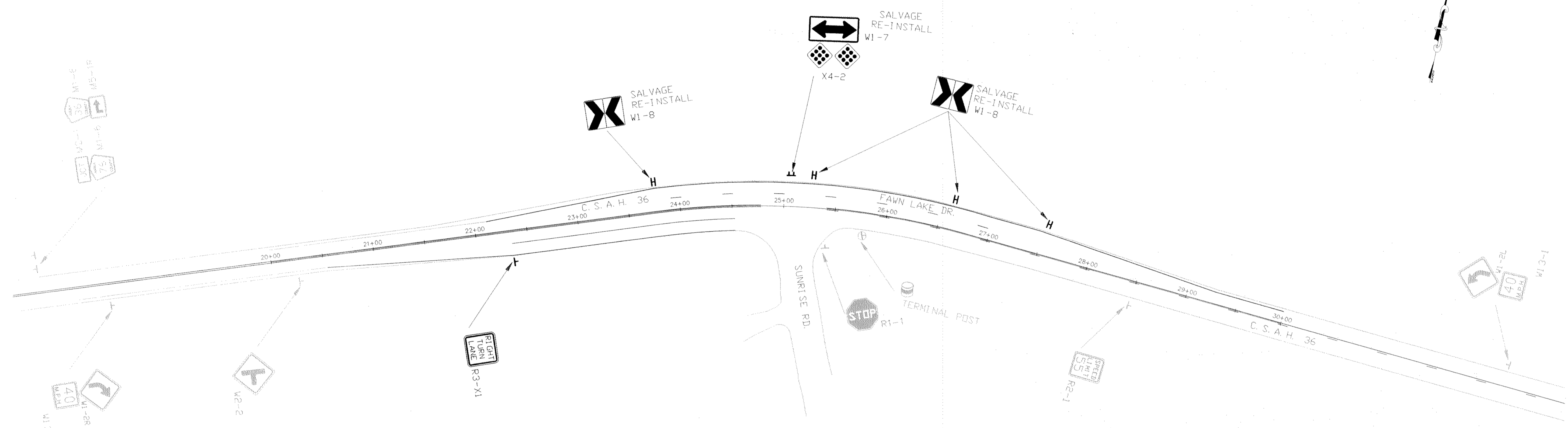
REVISIONS	DATE	BY

CERTIFIED BY *Douglas M. Smith* P. E. REG. NO. 20235 7/24 19 97

S. P. \_\_\_\_\_ S. A. P. \_\_\_\_\_ C. P. 97-08-36

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M.U.T.C.D. CODE	SIZE	INSERT	QTY
R3-X1	30" x 30"		1

REVISIONS	DATE	BY

CERTIFIED BY *Douglas W. Finch* P.E. REG. NO. 20235 9/24/97

S. P. \_\_\_\_\_ S. A. P. \_\_\_\_\_ C. P. 97-08-36 Sheet No. 16 of 16 Sheets

C.S.A.H. 36  
PERMANENT SIGN STRIPE