

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING RIGHT OF WAY LINE
PROPOSED RIGHT OF WAY LINE
PROPERTY LINE
CORPORATE OR CITY LIMITS
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OF CREEK
CULVERT
GUARDRAIL
WOOD FENCE
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
TIMBER WALL
STONE WALL
HEDGE
RAILROAD CROSSING SIGN
CROSSING GATE
MEANDER CORNER
SLOPE EASEMENT (CONST. LIMITS)

MARSH
DECIDUOUS TREE
CONIFEROUS TREE
BUSH OR SHRUB
WOODS
CATCH BASIN
BRIDGE
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE OR METAL)
WOODEN HUB

UTILITY SYMBOLS

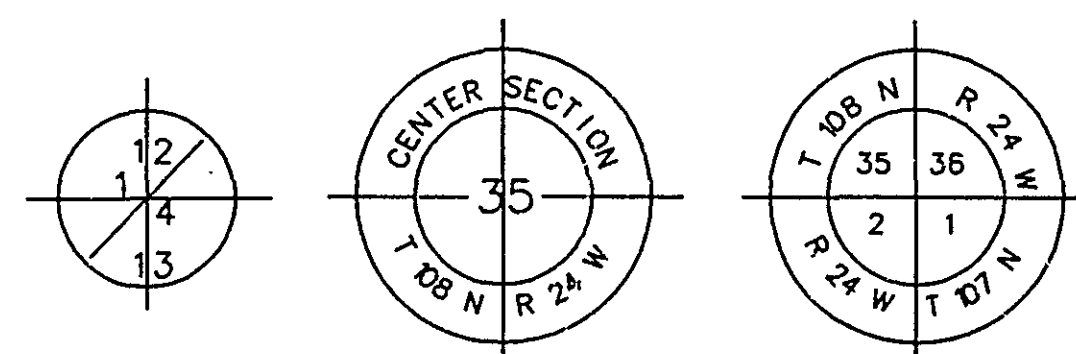
UTILITY POLE
GUY OR ANCHOR
STREET LIGHT
TELEPHONE PEDESTAL
GAS MAIN
WATER MAIN
TELEPHONE VAULT
ELECTRIC VAULT
TELEPHONE CABLE
ELECTRIC CABLE
STORM SEWER
SANITARY SEWER
SEWER MANHOLE
GATE VALVE
CONTROLLER CABINET
EXISTING HYDRANT
CABLE TELEVISION-BURIED
FIBER OPTIC CABLE
TRAFFIC SIGNAL LINE
TRAFFIC SIGNAL HAND HOLE

FOR PLANS AND UTILITIES SYMBOLS SEE
MN/DOT TECHNICAL MANUAL.

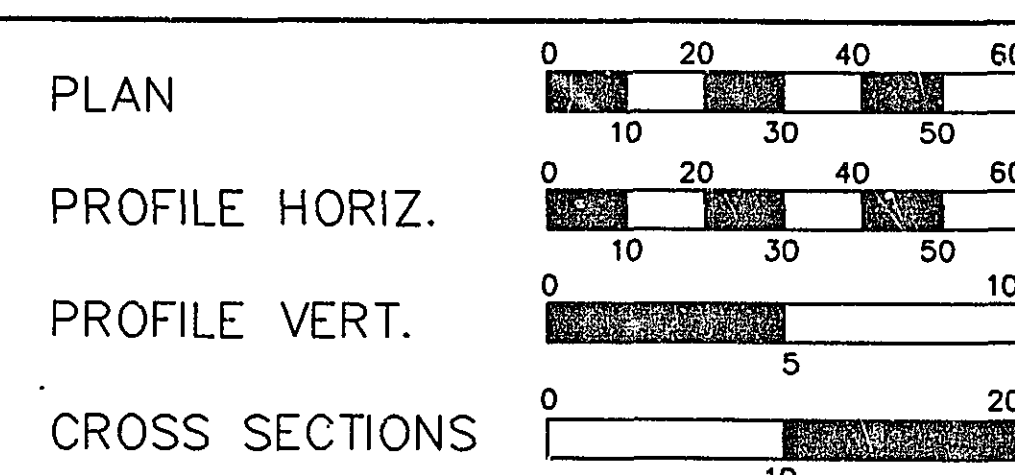
-GOVERNING SPECIFICATIONS-

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT
OF TRANSPORTATION "STANDARD SPECIFICATION
FOR CONSTRUCTION" AS AMENDED BY THE MAY
2, 1994 "SUPPLEMENTAL SPECIFICATIONS" SHALL
GOVERN.

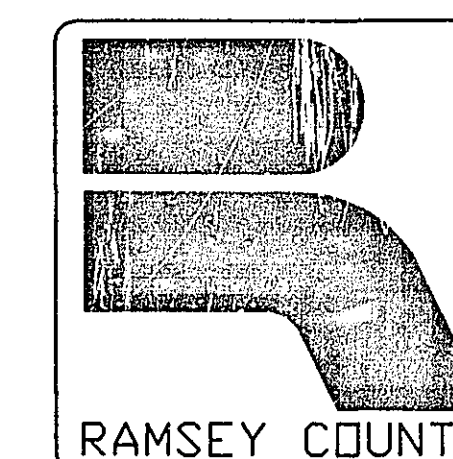
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL
CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL
FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS,
APRIL 1995.



SCALES IN FEET



GROSS LENGTH 3680 FEET 0.70 MILES
BRIDGE LENGTH 47 FEET 0.01 MILES
EXCEPTIONS -----
NET LENGTH 3680 FEET 0.70 MILES



RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE,
STORM SEWER, CONCRETE CURB & GUTTER, BITUMINOUS PATH,
AND BRIDGE NO. 62J05.

OLD HIGHWAY 8 (CSAH 77)
S.A.P. No. 62-677-21
S.A.P. No. 146-020-09

BETWEEN: MINNESOTA TRANSFER RAILROAD AND
COUNTY ROAD H (CSAH 9)
BEGINNING: AT A POINT 359.50 FEET SOUTH OF THE EAST
QUARTER CORNER, SEC17, T30N, R23W
ENDING: AT A POINT 1066.02 FEET EAST AND 36.12 FEET
NORTH OF THE NORTH QUARTER CORNER, SEC17,
T30N, R23W

INDEX

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4	TYPICAL SECTIONS
5	INDEX OF TABULATIONS; CONSTRUCTION NOTES; STANDARD PLATES; TABULATIONS
6	CLEAR AND GRUB AREAS & CHART
7	ALIGNMENT
8	MISCELLANEOUS DETAILS
9	EXISTING STRUCTURE CHART
10	PROPOSED STORM SEWER CHART
11-15A	BOX CULVERT PLAN
16	STORM POND LAYOUT
17-21	PLAN AND PROFILE OLD HIGHWAY 8
22	PLAN AND PROFILE COUNTY ROAD H
23	PLAN AND PROFILE PARK ENTRANCE
24-40	CROSS SECTIONS OLD HIGHWAY 8
41-42	CROSS SECTIONS PARK ENTRANCE
43	EARTHWORK SUMMARY
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53	EROSION CONTROL
54-55	CHANNEL CHANGE AND PATH GRADING
56	TOWNSEDGE TERRACE SIGN S.A.

THIS PLAN CONTAINS 56 SHEETS

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.

Kathy Jaschke REG. NO. 21864 DATE 11/15/96

RECOMMENDED FOR APPROVAL Paul H. H. DATE 11/18/96
COUNTY ENGINEER
APPROVED Sal Hingard DATE 12-10-96
CHAIR OF THE RAMSEY COUNTY BOARD
APPROVED Steven D. Campbell DATE 11/20/96
CITY OF MOUNDSVIEW
APPROVED Leslie Prosser DATE 11-19-96
CITY OF NEW BRIGHTON

MINNESOTA DEPARTMENT OF TRANSPORTATION

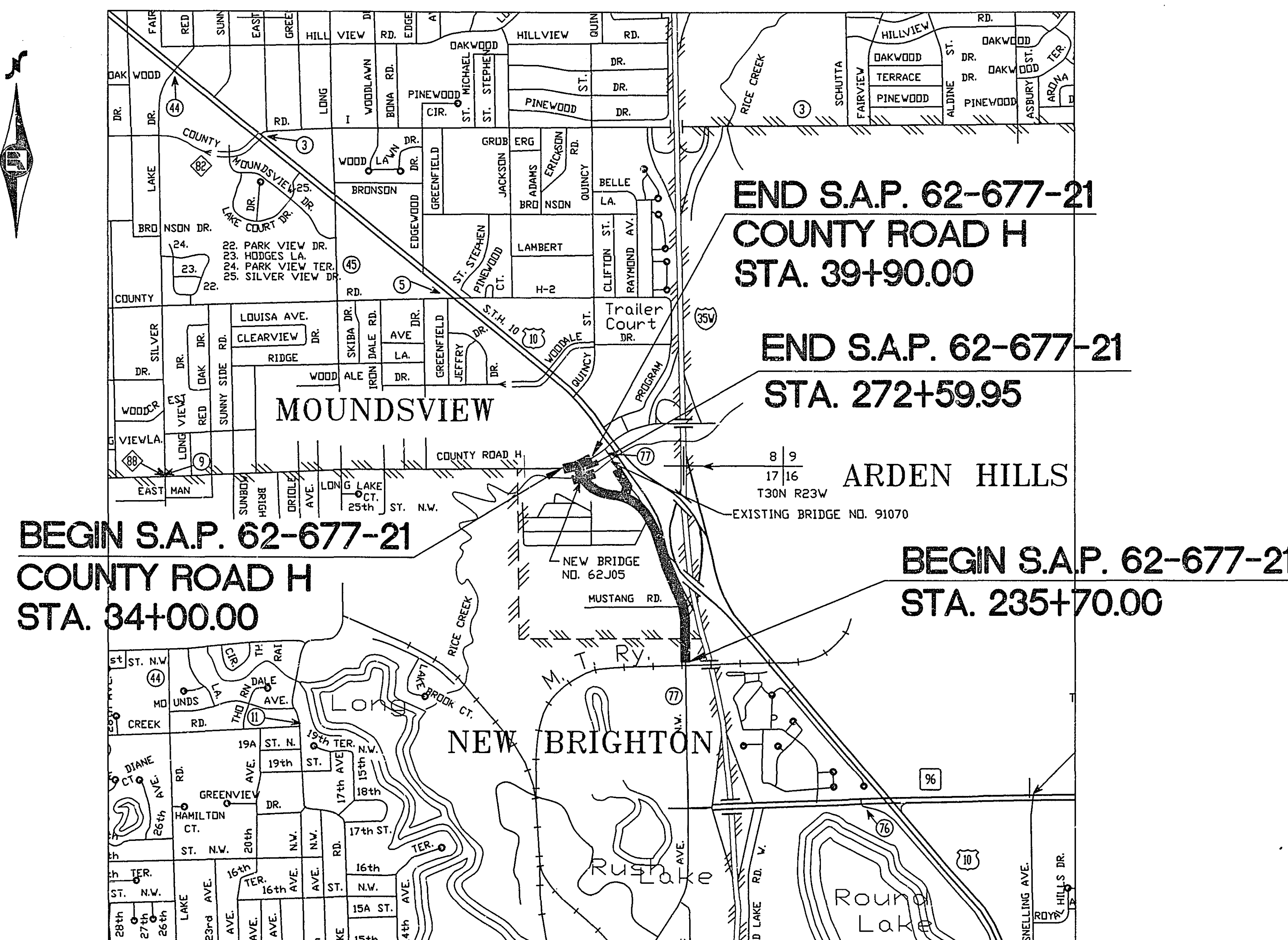
RECOMMENDED FOR APPROVAL _____ DATE _____
RECOMMENDED FOR APPROVAL Jim M. Goff DATE 11-22-96
ASSISTANT DIVISION ENGINEER - STATE AID
APPROVED Richard S. Hingard DATE 12-6-96
STATE AID ENGINEER

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: 8/8
DATE: 12-29-97

28-146

S.A.P. No. 62-677-21

Sheet No. 1 of 55 Sheets



DESIGN DESIGNATION

MINNESOTA TRANSFER RAILROAD TO COUNTY ROAD H

PRESENT ADT (1997) 8,100
PROJECTED ADT (2017) 13,800
FUNCTIONAL CLASS MINOR ARTERIAL
TRAFFIC LANES 4
PARKING LANES 0
DESIGN LOAD 10 TON
STABILOMETER "R" VALUE 70
DESIGN SPEED 40
N18 20 YEAR 3,689,000

BASED ON STOPPING DISTANCE
HEIGHT OF EYE: 3.50 FEET
HEIGHT OF OBJECT: 0.50 FEET

DESIGN SPEED NOT ACHIEVED AT: STA. 265+25.81
TO STA. 271+02.29 (35 MPH)

DRAWN BY S. BRITZ DATE 10/24/96

CHECKED BY B. JOHNSON DATE 10/24/96

PLAN REVISIONS		
DATE	SHEET NO. & DESCRIPTION	BY
10/24/96	MN/DOT REVIEW	SB
12/96	REVISED ALIGNMENT 7, 10, 16, 18-20, 22, 23, 34, 41	SB

X:\DWGS\OH-8\CHART 10/29/96

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-677-21 OLD HIGHWAY 8 (GROUP 1)		S.A.P. 62-677-21 COUNTY ROAD H (GROUP 2)		75% S.A.P. 146-020-09 25% S.A.P. 62-677-21 (GROUP 3)		100% S.A.P. 146-020-09 (GROUP 4)		100% RAMSEY COUNTY LOCAL (GROUP 5)		58.0% S.A.P. 62-677-21 42.0% MOUNDS VIEW STORM SEWER (GROUP 6)	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		2021.501	MOBILIZATION	LS	1		1											
	1	2031.501	FIELD OFFICE TYPE D	EACH	1		1											
A		2101.501	CLEARING	ACRE	4.81		4.21								0.60			
A		2101.502	CLEARING	TREE	30		30											
A		2101.506	GRUBBING	ACRE	4.81		4.21								0.60			
A		2101.507	GRUBBING	TREE	20		20											
	1	2103.501	BUILDING REMOVAL A	LS	1		1											
	1	2103.501	BUILDING REMOVAL B	LS	1		1											
B		2104.501	REMOVE SEWER PIPE (STORM)	LF	60				60									
B		2104.501	REMOVE METAL CULVERT	LF	485		401		84									
C		2104.501	REMOVE CURB & GUTTER	LF	354		354											
		2104.501	REMOVE CHAIN LINK FENCE	LF	80		80											
		2104.503	REMOVE CONCRETE SIDEWALK	SF	1760		1760											
F		2104.509	REMOVE DRAINAGE STRUCTURE	EACH	2				2									
		2104.509	REMOVE CONCRETE SPILLWAY	EACH	2		2											
D		2104.511	SAWING CONCRETE PAVEMENT	LF	24		24											
D		2104.513	SAWING BITUMINOUS PAVEMENT	LF	1686		262		1424									
		2104.521	SALVAGE GUARD RAIL - PLATE BEAM	LF	200		200											
		2104.521	SALVAGE CHAIN LINK FENCE	LF	450		450											
F		2104.523	SALVAGE CASTING	EACH	2		2											
		2104.523	SALVAGE TRAFFIC SIGNS	EACH	20		20											
		2104.523	SALVAGE COMMERCIAL SIGN	EACH	3		3											
		0104.602	RELOCATE COMMERCIAL SIGN	EACH	1		1											
		2105.501	COMMON EXCAVATION (P)	CY	22882		21961		921									
		2105.505	MUCK EXCAVATION (EV)	CY	8143		8143											
		2105.511	COMMON CHANNEL EXCAVATION (EV)	CY	3841		2841								1000			
		2105.515	UNCLASSIFIED EXCAVATION	CY	44230		44230											
		2105.521	GRANULAR BORROW (LV)	CY	32240		31346								894			
		2105.522	SELECT GRANULAR BORROW (LV)	CY	8106		8106											
	1	2105.523	COMMON BORROW (LV)	CY	3072		3072											
		2105.525	TOPSOIL BORROW (LV)	CY	1205		1205											
	3	0105.609	GEOTEXTILE FABRIC TYPE V	SY	1070		1070											
		0123.601	STREET SWEEPER (WITH PICKUP BROOM)	HOURL	20		20											
		0123.601	TRACTOR MOUNTED BACKHOE	HOURL	20		20											
		2130.501	WATER	(M)GAL	75		75											
		2211.503	AGG. BASE, CLASS 6 RECYCLED (CV)(P)	CY	5161		4395		218				347		201			
		2232.501	MILL BITUMINOUS SURFACE (3")	SY	2100				2100									
	2	2340.508	TYPE 31 WEARING COURSE MIXTURE	TON	563		317		30				216					
		2340.508	TYPE 47 WEARING COURSE MIXTURE	TON	2187		1917		270									
	5	2340.510	TYPE 31 BINDER COURSE MIXTURE	TON	363		117		30				216					
		2340.510	TYPE 47 BINDER COURSE MIXTURE	TON	2187		1917		270									
		2340.514	TYPE 31 BASE COURSE MIXTURE	TON	5069		5069											
		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	3440		3113		178				149					
		0411.603	CONCRETE BLOCK RETAINING WALL	SF	276				276									
		2412.511	12 X 8 PRECAST CONCRETE BOX CULVERT	LF	282		282											
		2412.512	12 X 8 PC CONC BOX CULVERT END SECTION	EACH	6		6											
	3	2451.509	AGGREGATE BEDDING (CV)	CY	480		480											
G		2501.515	15" RC PIPE APRON	EACH	6												6	
G		2501.515	18" RC PIPE APRON	EACH	1												1	
G		2501.515	21" RC PIPE APRON	EACH	1												1	
G		2501.515	24" RC PIPE APRON	EACH	1												1	
G		0501.602	TRASH GUARD FOR 15" RCP APRON	EACH	2												2	
G		0501.602	TRASH GUARD FOR 24" RCP APRON	EACH	1												1	
	4	2502.541	4" PERFORATED P.E. DRAIN PIPE	LF	1180				1180									

NOTES

1. SEE SPECIAL PROVISIONS

2. 200 TON WIDENING, PHASE1
216 TON BITUMINOUS PATH
147 TON ENTRANCES
3. SEE SHEET 11

4. SEE COUNTY ROAD H TYPICAL

5. 216 TON BITUMINOUS PATH
147 TON ENTRANCES

* SEE INDEX TO TABULATION CHARTS SHEET NO. 5

I HEREBY CERTIFY THAT THIS PLAN WAS
PREPARED BY ME OR UNDER MY DIRECT
SUPERVISION AND THAT I AM A DULY
REGISTERED PROFESSIONAL ENGINEER UNDER
LAWS OF THE STATE OF MINNESOTA.

Karlus J. Juchko

REG. NO. 32864 DATE 11/15/96

S.A.P. NO. 146-020-09

S.A.P. NO. 62-677-21

ESTIMATED QUANTITIES

SHEET 2 OF 55 SHEETS

28-146

X:\DWG\OH-8\CHART

STATEMENT OF ESTIMATED QUANTITIES																		
CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-677-21 OLD HIGHWAY 8 (GROUP 1)		S.A.P. 62-677-21 COUNTY ROAD H (GROUP 2)		75% S.A.P. 146-020-09 25% S.A.P. 62-677-21 (GROUP 3)		100% S.A.P. 146-020-09 (GROUP 4)		100% RAMSEY COUNTY LOCAL (GROUP 5)		58.0% S.A.P. 62-677-21 42.0% MOUNDS VIEW STORM SEWER (GROUP 6)	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
G		2503.541	15" RCP SEWER, DES. 3006, CL V	LF	1764												1764	
G		2503.541	18" RCP SEWER, DES. 3006, CL V	LF	836												836	
G		2503.541	21" RCP SEWER, DES. 3006, CL III	LF	55												55	
G		2503.541	24" RCP SEWER, DES. 3006, CL III	LF	144												144	
H		0504.602	ADJUST VALVE BOX	EACH	7		7											
H		0504.602	6" GATE VALVE & BOX	EACH	8		7		1									
H		0504.602	RELOCATE HYDRANT	EACH	8		7		1									
	1	0504.603	6" D.I.P. WATERMAIN CL 52	LF	120		120											
		0504.605	4" POLYSTYRENE INSULATION	SY	43		43											
G		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN A OR F	EACH	9												9	
G		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN C OR G	EACH	19												19	
G		2506.502	CONSTRUCT DRAINAGE STRUCTURE DES 60-4020	EACH	4												4	
		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	EACH	3												3	
F		2506.511	RECONSTRUCT SANITARY MANHOLES	LF	9.6		9.6											
F		2506.521	INSTALL CASTING	EACH	1		1											
F		2506.522	ADJUST FRAME & RING CASTING	EACH	2		2											
	3	2511.501	RANDOM RIPRAP CLASS III	CY	140		140											
G		2511.501	RANDOM RIPRAP CLASS IV	CY	332										311		21	
		2521.501	4" CONCRETE WALK	SF	1905		1905											
		2531.501	CONC. CURB & GUTTER, DES. B624	LF	7886		354		260		7272							
		0531.602	PEDESTRIAN CURB RAMP	EACH	14		10		4									
		0533.603	TEMP PORTABLE PRECAST CONC BAR TYPE III	LF	260		260											
		2535.501	BITUMINOUS CURB	LF	1005				1005									
I		2554.501	TRAFFIC BARRIER DESIGN A8307	LF	400		400											
I		2554.523	END TREATMENT - ECCENTRIC LOADER BCT	EACH	4		4											
		2557.501	WIRE FENCE DESIGN 48-9322	LF	125		125											
		0557.603	INSTALL CHAIN LINK FENCE	LF	450		450											
		0563.601	TRAFFIC CONTROL	LS	1		1											
		2564.531	F & I SIGN PANELS TYPE C	SF	118		94		24									
		0564.602	PAVEMENT MESSAGE (RR CROSSING) EPOXY	EACH	2		2											
		0564.602	RELOCATE STREET NAME SIGN	EACH	3		3											
		0564.603	4" SOLID LINE WHITE - EPOXY	LF	324		124		200									
		0564.603	4" SOLID LINE YELLOW - EPOXY	LF	9050		7650		1400									
		0564.603	4" BROKEN LINE WHITE - EPOXY	LF	1470		1035		435									
		2573.502	SILT FENCE, TYPE HEAVY DUTY	LF	4358		4358											
		2573.505	FLOTATION SILT CURTAIN	LF	200		100								100			
		0573.602	CURB INLET SEDIMENT TRAP	EACH	26		24		2									
E		2575.501	SEEDING	ACRE	2.3		2.3											
E		2575.502	SEED MIXTURE 150	POUND	35		35											
E		2575.502	SEED MIXTURE 250	POUND	80		80											
		2575.505	SODDING TYPE LAWN	SY	14455		13122		1333									
E		2575.511	MULCH MATERIAL TYPE 1	TON	4.6		4.6											
E		2575.519	DISC ANCHORING	ACRE	2.3		2.3											
		2575.532	COMMERCIAL FERTILIZER ANALYSIS 10-20-20	POUND	1045		949		96									
		SPEC	TIMBER BAFFLE	LF	56		56											

NOTES

1. SEE SPECIAL PROVISIONS

2. 200 TON WIDENING, PHASE1

216 TON BITUMINOUS PATH

30 TON ENTRANCE
3. SEE SHEETS 11 & 15A

4. SEE COUNTY ROAD H TYPICAL

5. 216 TON BITUMINOUS PATH

30 TON ENTRANCE

* SEE INDEX TO TABULATION CHARTS SHEET NO. 5

I HEREBY CERTIFY THAT THIS PLAN WAS
PREPARED BY ME OR UNDER MY DIRECT
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REGISTERED PROFESSIONAL ENGINEER UNDER
LAWS OF THE STATE OF MINNESOTA.

Kathy Janelle

REG. NO. 21864 DATE 11/15/96

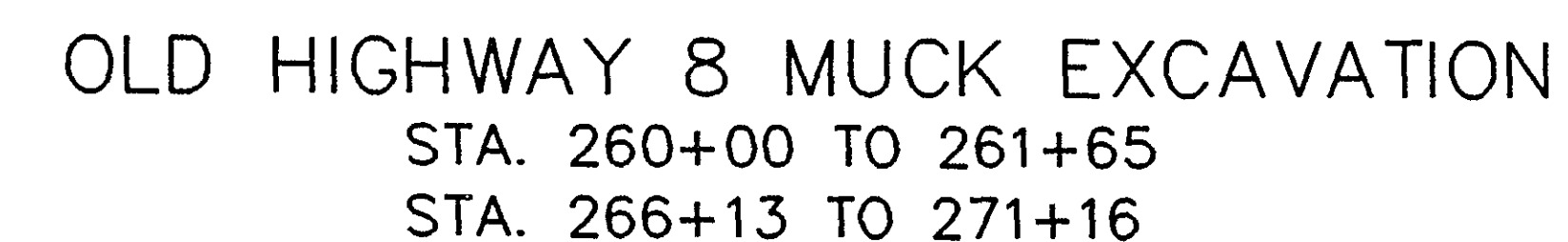
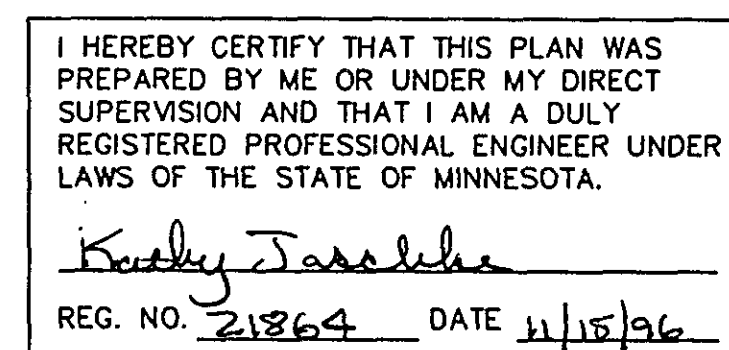
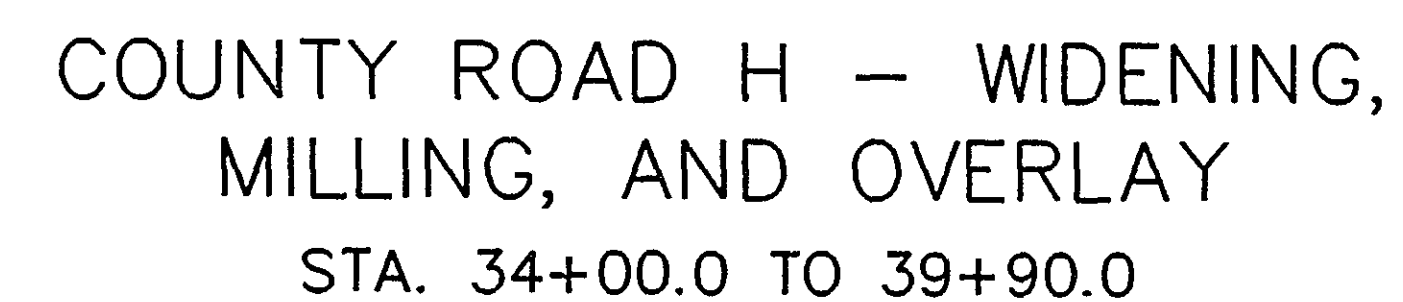
S.A.P. NO. 146-020-09

S.A.P. NO. 62-677-21

ESTIMATED QUANTITIES

SHEET 3 OF 55 SHEETS

28-146



TYPICAL SECTIONS
SLOPE ROUNDING DETAIL

X:\DWGS\04-8\CHART

BASIS FOR ESTIMATED QUANTITIES	
2211.501	- AGGREGATE BASE - 140 LBS. PER CU. FT.
2340.XXX	- BITUMINOUS MIXTURES - 110 LBS. PER SQ. YD.PER INCH THICKNESS
2357.502	- BITUMINOUS MATERIAL FOR TACK COAT ESTIMATED AT 0.05 GAL. PER SQ. YD. PER APPLICATION
2575.531	- FERTILIZER 350 LBS./ACRE

INDEX OF TABULATION CHARTS		
SHEET NO.	CHART	DESCRIPTION
6	A	CLEAR AND GRUB
5	B	REMOVE SEWER PIPE
5	C	REMOVE CURB AND GUTTER
5	D	SAWING PAVEMENT
5	E	TURF ESTABLISHMENT
9	F	EXISTING STRUCTURES
10	G	PROPOSED DRAINAGE
53	H	SILT FENCE

STANDARD DETAIL PLATES	
THE FOLLOWING STANDARD PLATES, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.	
PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR REINFORCED CONCRETE PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133 B	RIPRAP AT RCP OUTLETS
3145 E	CONCRETE PIPE TIES
4000 J	MANHOLE OR CATCH BASIN DESIGN A
4002 F	MANHOLE OR CATCH BASIN DESIGN C
4005 L	MANHOLE OR CATCH BASIN DESIGN F
4006 L	MANHOLE OR CATCH BASIN DESIGN G AND H
4010 H	CONCRETE SHORT CONE AND ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 G	MANHOLE OR CATCH BASIN COVER
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 E	COVER CASTING FOR MANHOLE
4129 G	CATCH BASIN FRAME CASTING
4140 D	SPECIAL GRATE CASTING FOR CATCH BASIN
4151 B	GRATE CASTING FOR CATCH BASIN
4160 D	CURB BOX CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7036 D	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
7065 C	BITUMINOUS CURB
7100 G	CONCRETE CURB & GUTTER
7111 J	INSTALLATION OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADE
8323 H	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER
9101 B	SHAPING AND SODDING OF SLOPES AT BOX CULVERT ENDS
9102 D	TURF ESTABLISHMENT AREAS
9322 J	CHAIN LINK FENCE

CONSTRUCTION NOTES	
UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.	
CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 72 HOURS IN ADVANCE OF DISRUPTION TO SANITARY SEWER AND WATERMAIN SERVICES.	
CONTRACTOR SHALL MINIMIZE INTERRUPTION OF SANITARY SEWER AND WATER SERVICE TO ADJACENT PROPERTIES. ANY PROPERTY OUT OF SERVICE LONGER THAN 8 HOURS MUST BE PROVIDED WITH TEMPORARY SERVICE.	
ANY DEWATERING AND OR ANY USE OF TRENCH BOX, SHEETING, SHORING OR OTHER METHODS OR MEANS OF CONSTRUCTION NECESSARY TO COMPLETE CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS OR SLOPE EASEMENTS SHOWN WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.	
PROVIDE FOR REMOVAL AND DISPOSAL (OUTSIDE THE CONSTRUCTION ZONE) OF ALL INPLACE STRUCTURES THAT WILL INTERFERE WITH CONSTRUCTION. DISPOSAL OF ITEMS REMOVED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.303.	
EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.303 AND 2105.3D	
SODDING QUANTITIES ALONG ROADWAY SLOPES ARE BASED ON SODDING LIMITS FROM THE BACK OF THE CURB TO THE CONSTRUCTION LIMITS.	
COMPACTION IN GRADING ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SPEC. 2105.3F2 "QUALITY COMPACTION METHOD".	
WHEN EXCAVATING ADJACENT TO INPLACE PAVEMENT, NO MATERIAL SHALL BE REMOVED FROM INSIDE AN APPROXIMATE 1/2:1 SLOPED LINE DRAWN DOWNWARD AND OUTWARD FROM THE BOTTOM OF THE INPLACE PAVEMENT.	
WHEN CONNECTION TO EXISTING BITUMINOUS PAVEMENT IS REQUIRED, THE EDGE OF EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE PRIOR TO CONSTRUCTING ASPHALT SURFACING.	
STABILIZING AGGREGATE SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACE STABILITY AS DETERMINED BY THE ENGINEER. THE MATERIAL SHALL SATISFY THE REQUIREMENTS OF SECTION 3149.2C AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 2105.3G OF THE STANDARD SPECIFICATIONS.	
USE TACK COAT BETWEEN ALL BITUMINOUS LIFTS.	
COMPACTION OF ALL BITUMINOUS ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "ORDINARY COMPACTION METHOD".	
WATER, GAS, ELECTRIC,TELEPHONE, SEWER, AND T.V. CABLE LINES SHOWN ON THE DRAWINGS AND CROSS-SECTIONS ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION, BUT MAY NOT REFLECT ACTUAL LOCATIONS OR ELEVATIONS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCITON WHICH MAY BE AFFECTED BY A UTILITY CONFLICT. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE OWNERS OF ALL KNOWN UTILITIES BEFORE STARTING ANY OPERATIONS AFFECTING THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES. THE CONTRACTORS ATTENTION IS DIRECTED TO SECTION 1507 IN THE STANDARD SPECIFICATIONS.	
THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BETWEEN CROSSING OF EXISTING MINOR WATER LINES AND PROPOSED STORM SEWER LINES. WHERE CONFLICTS OCCUR, THE WATER LINE SHALL BE RELOCATED WHERE DIRECTED BY THE ENGINEER. METHOD OF COMPENSATION IS COVERED UNDER THE SPECIAL PROVISIONS.	
ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.	
ALL EXISTING TRAFFIC SIGNS ON THE PROJECT WILL BE SALVAGED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.	
PEDESTRIAN CURB RAMPS SHALL BE INSTALLED IN ALL STREET RADII. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. RAMPS SHALL BE PER STANDARD PLATE 7036 AND AS MODIFIED BY THE DETAIL IN THIS PLAN.	

REMOVE PIPE CULVERTS			
STATION	LOCATION	C.M. PIPE CULVERT L.F.	R.C. PIPE CULVERT L.F.
OLD HIGHWAY 8			
STA. 241+50 LT. TO STA 242+20 LT.		70	
STA. 244+10 LT. TO STA 244+85 LT.		75	
STA. 249+24 LT. TO STA. 249+60 LT.		36	
STA. 254+65 LT. TO STA. 254+84 RT.		68	
STA. 255+70 LT. TO STA. 255+92 LT.		22	
STA. 256+00 LT. TO STA. 256+28 LT.		28	
STA. 258+42 LT. TO STA. 259+16 LT.		74	
STA. 261+20 RT. TO STA. 261+46 RT.		28	
COUNTY ROAD H			
STA. 37+40 LT. TO STA. 37+75 LT.		84	
STA. 37+40 LT. & RT.			
CB 27 TO CB 26			36
CB 26 TO APRON 25			24
TOTALS		485	60

REMOVE CURB AND GUTTER		
STATION	LOCATION	L.F.
236+50 (ENTRANCE)		64
239+15 (MATCH EXISTING)		
241+10 (MATCH EXISTING)		
241+40 (MUSTANG DRIVE)		150
258+60 (WINSOR WAY)		140
TOTALS		354

PLATE BEAM GUARDRAIL			
ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL LOCATIONS		DESIGN A LOCATIONS	DESIGN B LOCATIONS
STA 269+68 RIGHT 30.75' TO 270+05 RIGHT 26.75'		STA 270+05 TO 271+05 RIGHT 26.75'	STA 271+05 TO 272+05 RIGHT 26.75'
STA 269+68 LEFT 30.75' TO 270+05 LEFT 26.75'		STA 270+05 TO 271+30 LEFT 26.75'	STA 271+30 TO 272+05 LEFT 26.75'
STA 272+05 RIGHT 26.75' TO 272+42 RIGHT 32'			
STA 272+05 LEFT 26.75' TO 272+42 LEFT 32'			
TOTAL = 4 EACH		TOTAL = 225 LF	TOTAL = 175 LF

SAWCUT PAVEMENT				
STATION	LOCATION	BITUMINOUS L.F.	CONCRETE L.F.	REMARKS
OLD HIGHWAY 8				
STA. 235+70		48		BEGIN PROJECT
STA. 235+70	LT & RT	6	6	CURB AND GUTTER
STA. 236+35	LT	5	5	SIDEWALK
STA. 236+65	LT	16		ENTRANCE
STA. 239+15	LT	28		ENTRANCE
STA. 241+90	LT	30		ENTRANCE
STA. 244+50	LT	36		MUSTANG DRIVE
STA. 244+50	LT	5	5	CURB AND GUTTER
STA. 248+25	LT	22		ENTRANCE
STA. 249+45	LT	50		ENTRANCE
STA. 249+45	LT	32		ENTRANCE
STA. 258+50	LT	32		WINSOR WAY
STA. 258+60	LT	8	8	CURB AND WALK
COUNTY ROAD H				
STA 34+00 TO 39+90		590		RIGHT SIDE WIDENING
STA. 40+75 TO 41+55	RT	110		RIGHT SIDE WIDENING
STA. 34+00 TO 39+90	RT	590		LEFT SIDE WIDENING
STA. 7+00	LT	70		PARKING LOT
STA. 7+40	LT	64		STORM SEWER CROSSING
TOTALS		1686	24	

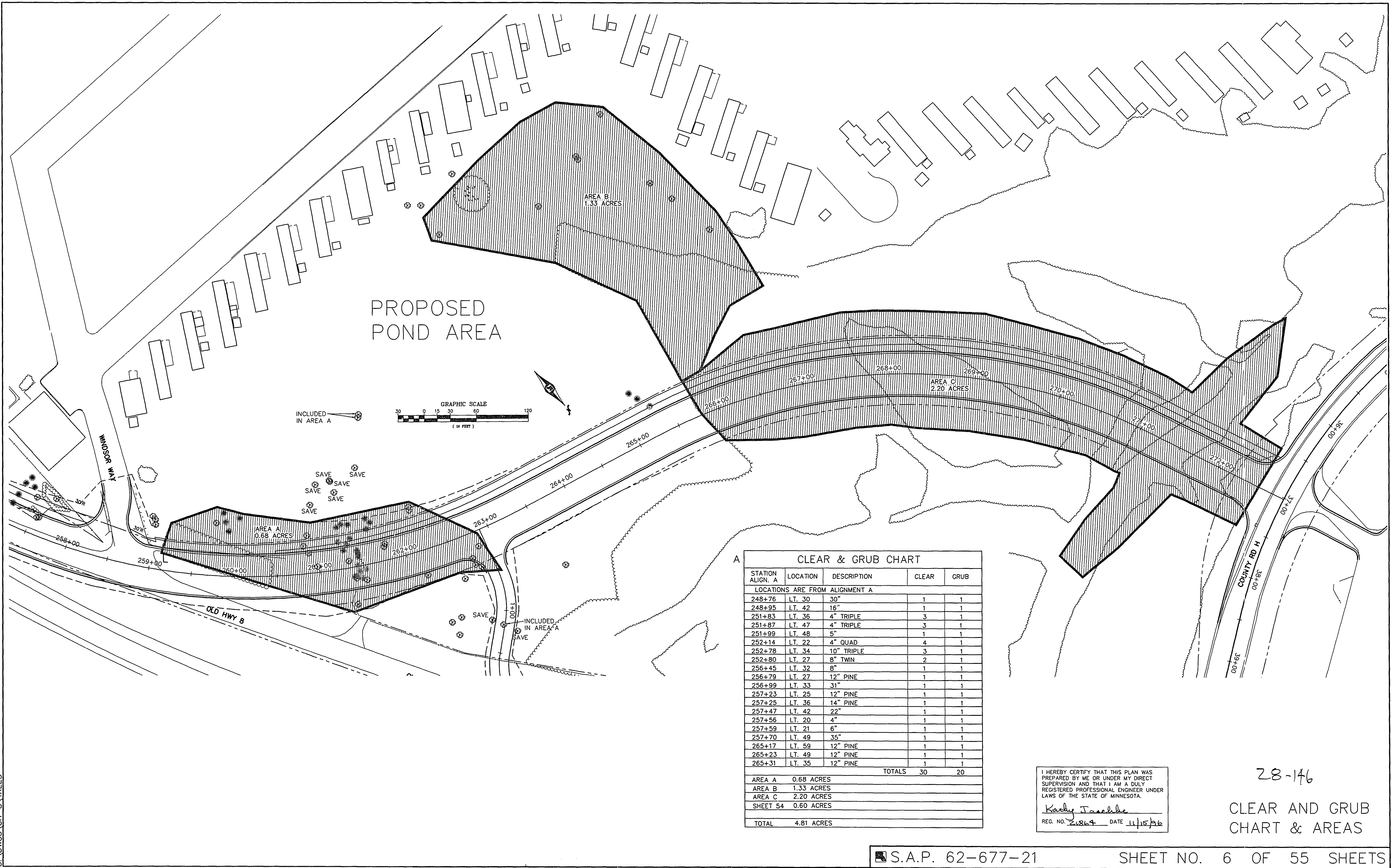
28-146

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 LAWS OF THE STATE OF MINNESOTA.
Kathie Jansche
REG. NO. 2864 DATE 11/15/76

S.A.P. NO. 62-677-21

INDEX OF TABULATIONS
CONSTRUCTION NOTES
STANDARD DETAIL PLATES
CHARTS
SHEET 5 OF 55 SHEETS

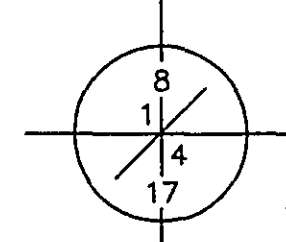
G:\DWGS\04-8 TREES



CLEAR & GRUB CHART				
STATION ALIGN. A	LOCATION	DESCRIPTION	CLEAR	GRUB
LOCATIONS ARE FROM ALIGNMENT A				
248+76	LT. 30	30"	1	1
248+95	LT. 42	16"	1	1
251+83	LT. 36	4" TRIPLE	3	1
251+87	LT. 47	4" TRIPLE	3	1
251+99	LT. 48	5"	1	1
252+14	LT. 22	4" QUAD	4	1
252+78	LT. 34	10" TRIPLE	3	1
252+80	LT. 27	8" TWIN	2	1
256+45	LT. 32	8"	1	1
256+79	LT. 27	12" PINE	1	1
256+99	LT. 33	31"	1	1
257+23	LT. 25	12" PINE	1	1
257+25	LT. 36	14" PINE	1	1
257+47	LT. 42	22"	1	1
257+56	LT. 20	4"	1	1
257+59	LT. 21	6"	1	1
257+70	LT. 49	35"	1	1
265+17	LT. 59	12" PINE	1	1
265+23	LT. 49	12" PINE	1	1
265+31	LT. 35	12" PINE	1	1
TOTALS			30	20
AREA A 0.68 ACRES				
AREA B 1.33 ACRES				
AREA C 2.20 ACRES				
SHEET 54 0.60 ACRES				
TOTAL 4.81 ACRES				

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 LAWS OF THE STATE OF MINNESOTA.
Kathy Tschelke
REG. NO. 21864 DATE 11/15/96

28-146
CLEAR AND GRUB
CHART & AREAS



NO. 104
CAST IRON
MONUMENT
N 210339.681
E 547727.672

COUNTY ROAD H

END PROJECT

ALIGNMENT A STA. 272+83.96 =
ALIGNMENT D STA. 37+01.60
N 210375.7999
E 548793.6871

D-1

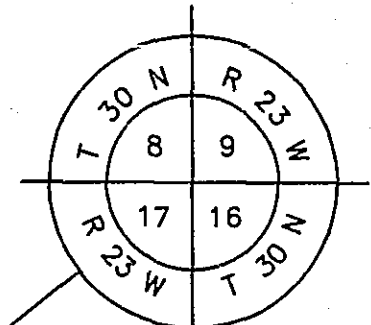
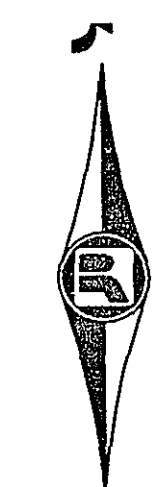
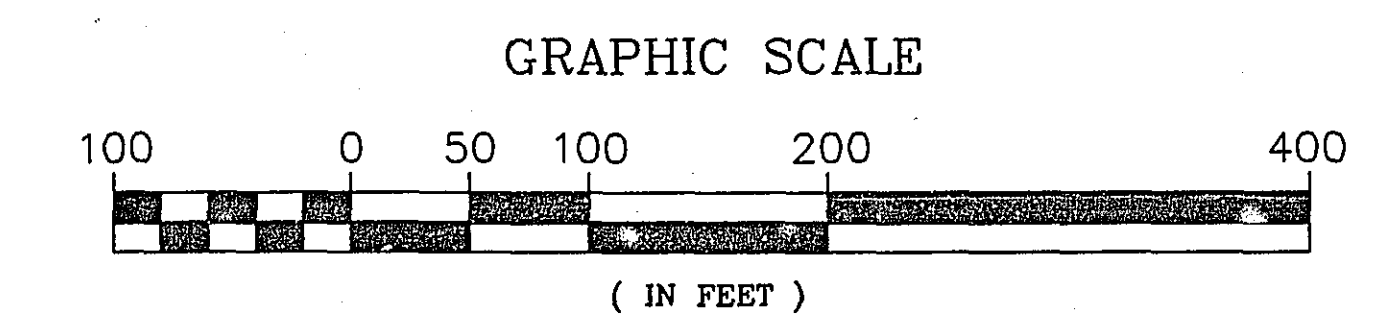
(D-1)

ALIGNMENT E
STA. 3+51.38
N 210231.3159
E 548679.198

ALIGNMENT E STA. 0+00
N 210273.4551
E 549028.0418

PT = 271+02.29
N 210207.2296
E 548861.4102

STA. 7+87.29
N 210444.6409
E 549307.2056



NO. 105
MISCELLANEOUS
MONUMENT
N 210338.307
E 550353.563

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA
A-1	2979.57'	199.92'	100.00'	199.89'	03°50'40"
A-2	1000.00'	307.33'	154.89'	306.12'	17°36'32"
A-3	1145.92'	212.78'	106.69'	212.47'	10°38'20"
A-4	670.00'	763.78'	429.44'	723.09'	65°18'56"
A-5	603.11'	576.48'	312.40'	554.79'	54°45'58"
B-1	65.00'	33.57'	17.17'	33.20'	29°35'19"
C-1	100.00'	56.58'	29.07'	55.83'	32°25'09"
C-2	75.00'	105.11'	63.26'	96.72'	80°17'51"
C-3	1152.42'	118.91'	59.51'	118.86'	05°54'43"
D-1	572.96'	351.17'	181.30'	345.70'	35°07'00"

ALIGNMENT A

ALIGNMENT C

PARK ENT.

MATCH LINE

ALIGNMENT A STA. 262+87.17 =
ALIGNMENT C STA. 0+00
N 209788.2932
E 549509.1908

PC = 1+51.58
N 209912.1607
E 549588.6555

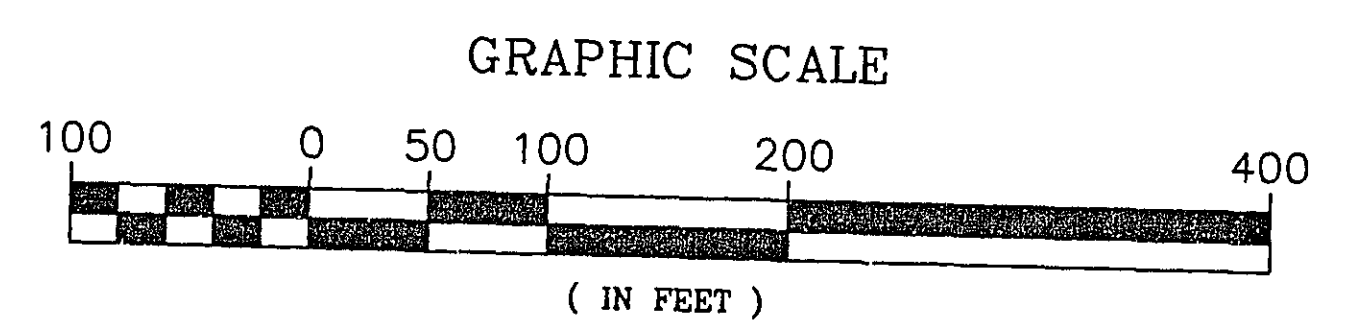
PT = 1+14.35
N 209888.7895
E 549559.6679

PC = 0+57.76
N 209843.0076
E 549527.7144

BEGIN PROJECT

ALIGNMENT A
STA. 234+00
N 207165.8297
E 550390.9148

NO. 130
CAST IRON
MONUMENT
N 207695.267
E 550381.575



ALIGNMENT A

WINSOR WAY

ALIGNMENT B

ALIGNMENT A STA. 258+42.75 =
ALIGNMENT B STA. 0+00
N 209521.4352
E 549854.3878

PT = 0+87.10
N 209467.3518
E 549787.469

PC = 0+53.53
N 209492.0539
E 549809.6442

EQUATION
PT = 263+49.82 BACK =
STA 263+54.00 AHEAD =
N 209805.5513
E 549448.9984

MATCH LINE

PARK ENT.

▲ RAMSEY COUNTY MONUMENTS 104, 105, AND 130 AS PUBLISHED IN THE "RAMSEY COUNTY PUBLIC WORKS LAND SURVEY DIVISION NORTH AMERICAN DATUM OF 1983 COORDINATES."

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REG. NO. _____ DATE _____

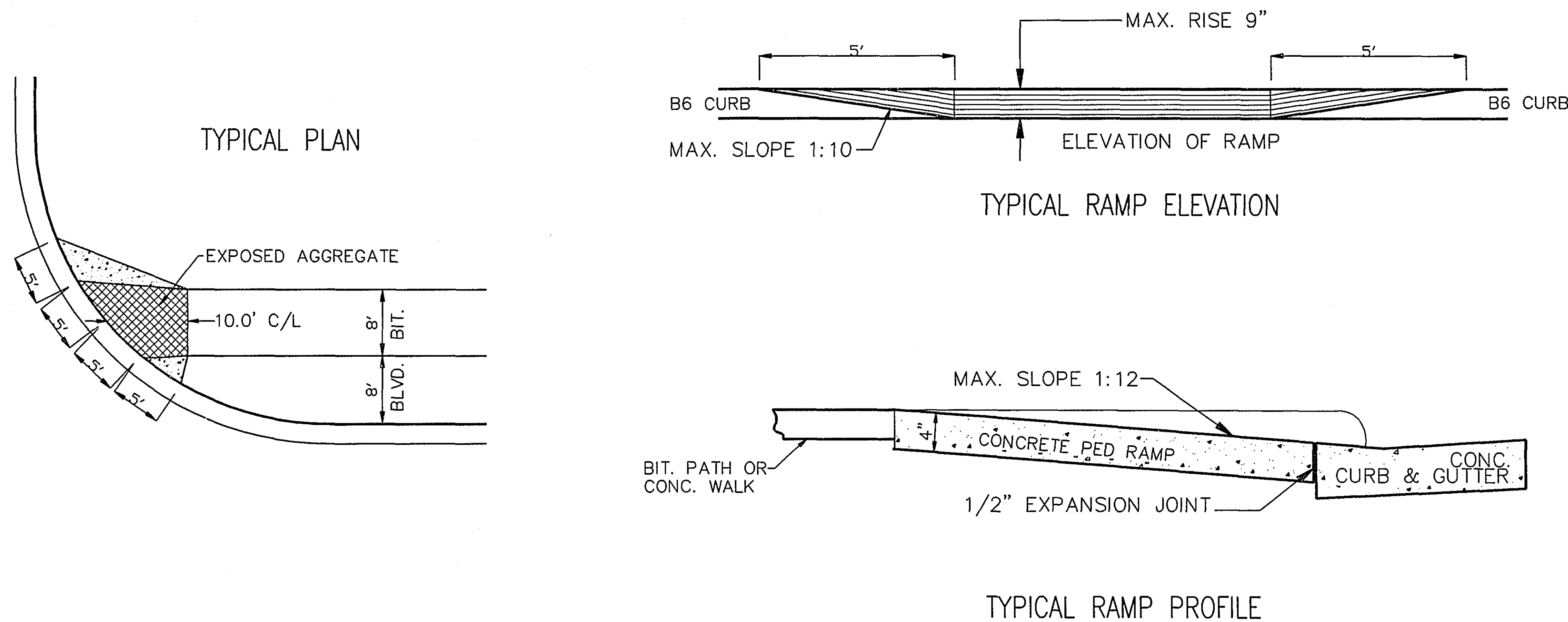
REVISED 12-96

S.A.P. 62-677-21

SHEET NO. 7 OF 55 SHEETS

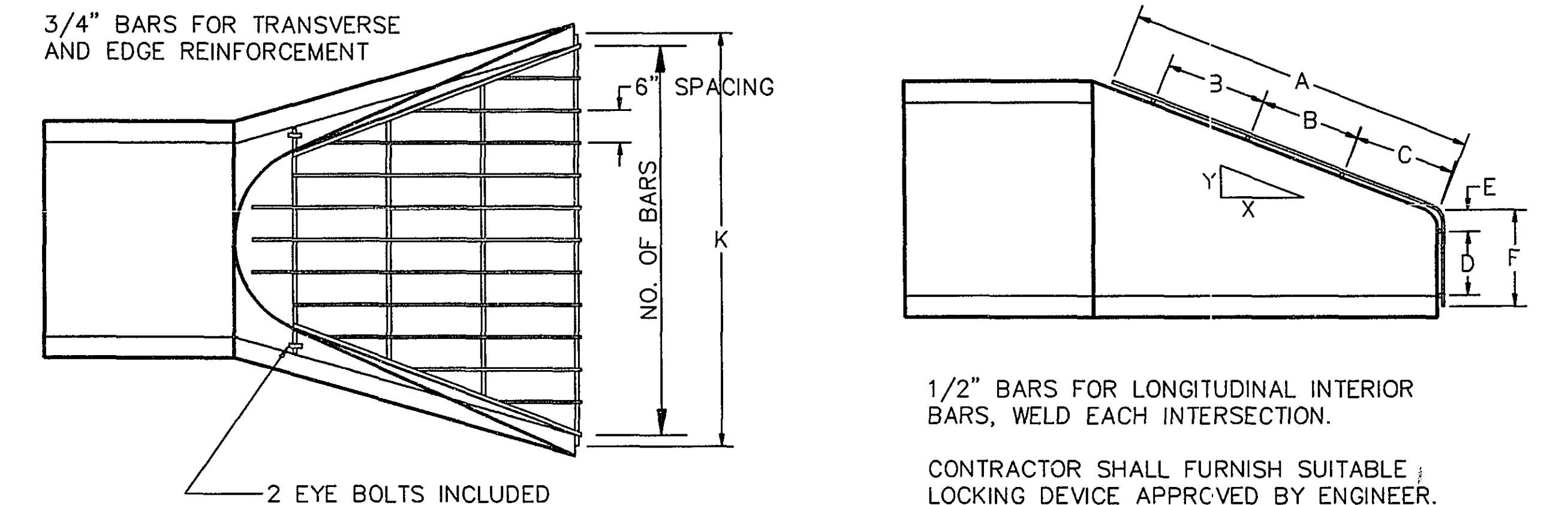
ALIGNMENT

28-146



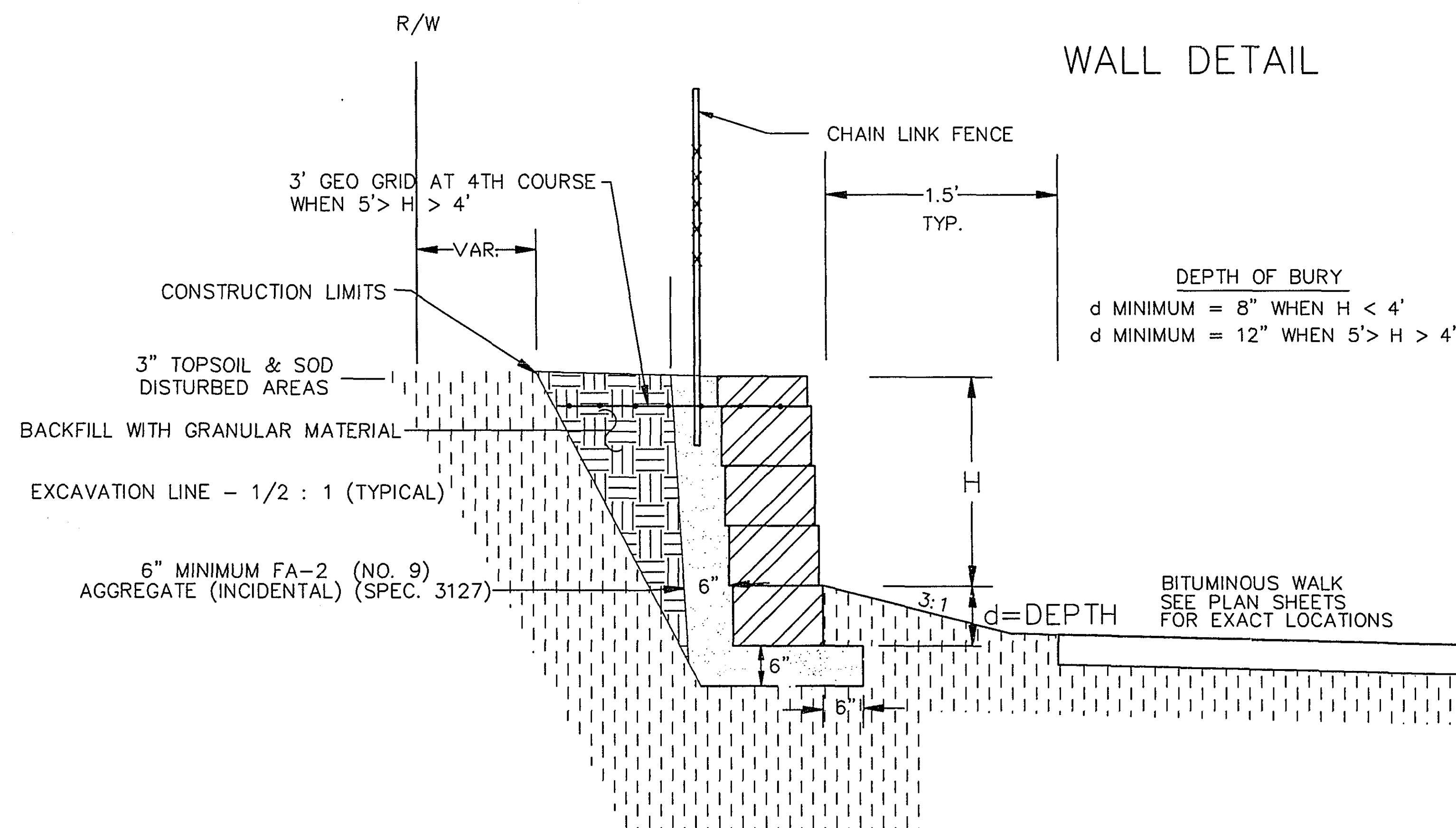
PEDESTRIAN RAMP DETAILS

TRASH GUARD (GALVANIZED) (FOR CONCRETE APRON)



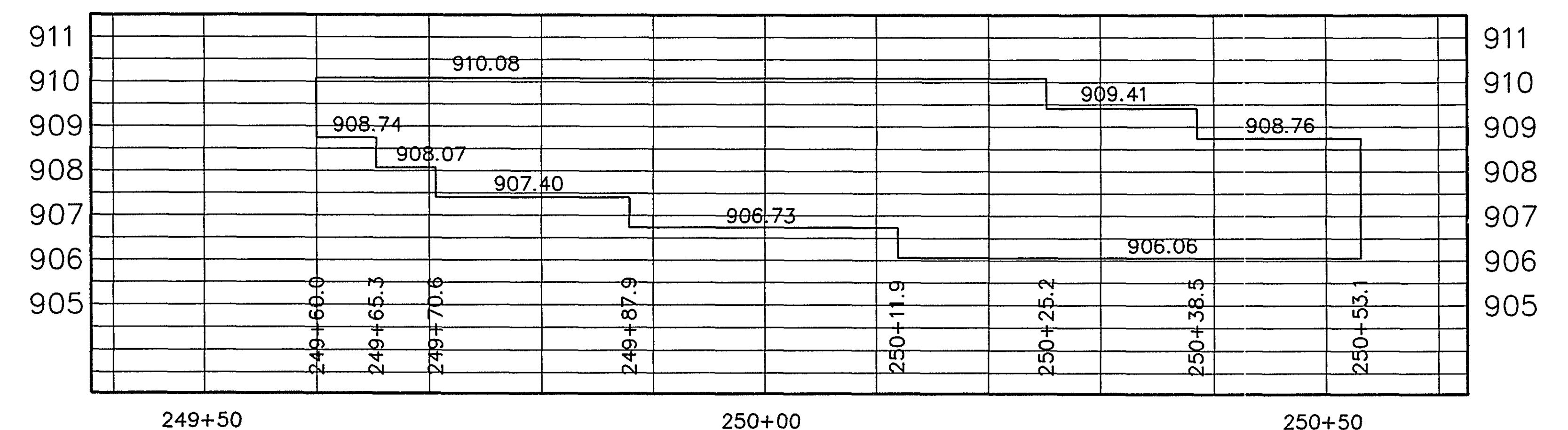
SIZE	NO. OF BARS	X-Y SLOPE	A	B	C	D	E	F	K
12"	5	3 to 1	24"	7"	6"	3"	1"	5"	26"
15"	6	3 to 1	24"	7"	6"	6"	2"	10"	34"
18"	7	3 to 1	24"	7"	6"	6"	3"	12"	40"
21"	8	3 to 1	36"	11"	10"	7"	3"	12"	50"
24"	9	3 to 1	44"	14"	12"	10"	4"	16"	52"
27"	10	3 to 1	50"	16"	14"	10"	4"	16"	58"
30"	11	3 to 1	56"	18"	16"	12"	4"	18"	64"
33"	11	3 to 1	60"	19"	18"	12"	4"	18"	70"
36"	13	3 to 1	64"	20"	20"	12"	4"	18"	76"
42"	15	3 to 1	68"	22"	20"	14"	8"	26"	88"
48"	16	3 to 1	76"	24"	24"	16"	10"	28"	92"
54"	17	2.4:1	76"	24"	24"	16"	12"	32"	96"

WALL DETAIL



- NOTES:**
- BLOCKS SHALL BE NOMINAL 8"H X 16"W X 12"D AND HAVE ROCK FACE (OR APPROVED EQUAL).
 - BLOCKS SHALL BE 50 LBS MINIMUM
 - CAP UNITS SHALL BE USED ON TOP COURSE OF WALL.
 - PLACE 3" TOPSOIL & SOD IN DISTURBED AREAS.
 - PAYMENT SHALL BE MADE BY SF OF EXPOSED FACE.

WALL PROFILE



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 LAWS OF THE STATE OF MINNESOTA.

Kathy J. J. J.

REG. NO. 24864 DATE 11/16/96

F

EXISTING UTILITY STRUCTURE CHART

[illegible]

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
LAWS OF THE STATE OF MINNESOTA.

Kathie Tarabochia

REG. NO. 21864 DATE 11/15/96

 S.A.P. NO. 62-677-21

EXISTING UTILITY STRUCTURE CHART

SHEET 9 OF 55 SHEETS

28-146

G

PROPOSED STORM SEWER STRUCTURE CHART

STATION	¢ OFFSET	NUMBER	TYPE	DESIGN	CONST. HEIGHT	CASTING ASSEMBLY	ELEVATION			F & I R.C. PIPE SEWER								DRAINS TO		REMARKS
							PROFILE	NEW GRATE OR RING	C.B./M.H. OR APRON INVERT	15"	18"	21"	24"	27"	30"	33"	PIPE CLASS	STRUCT. NO.	INVERT ELEVATION	
	238+09	LT. 51	101	S.D.	H	4.0	M-2	908.64	908.2	904.27	26						V	102R	903.89	FIELD VERIFY LOCATION AND ELEVATION
*	238+09	LT. 25	102R	C.B.	C OR G	4.3	B-2	908.64	908.04	903.89		133					V	102RA	902.10	
*	238+09	RT. 25	103R	C.B.	C OR G	4.0	B-2	908.64	908.04	904.14	50						V	102R	903.22	
	239+42	LT. 28.2±	102RA	C.B.	C OR G	??	B-2	909.26	909.12	903.22		223					V	200	902.10	
	241+65	LT. 28.4±	200R	C.B.	C OR G	??	B-2	908.72	906.5	902.10		235					V	106R	900.96	
*	244+00	LT. 29.6±	106R	C.B.	C OR G	??	B-2	907.55	907.20	900.96			150				V	113R	900.20	
*	244+00	RT. 25	107R	C.B.	C OR G	??	B-2	907.55	907.20	902.00	55						V	106R	901.45	
	244+18	RT. 29	108	M.H.	A OR F	6.7	A-7	907.46	907.54	900.93		37					V	109	900.50	
	244+18	RT. 67	109	M.H.	C OR G	2.6	A-7	907.46	903.0	900.50								EX PIPE	888.50	BUILD OVER EXISTING 21" CMP
	244+53	LT. 90	110	C.B.	C OR G	4.7	B-2	907.29	907.5	902.71	40						V	111	902.51	
	244+93	LT. 76	111	C.B.	C OR G	4.9	B-2	907.09	907.5	902.51	76						V	113	902.12	
*	245+50	LT. 25	113R	C.B.	C OR G	6.0	B-2	906.86	906.26	900.20		-50		180			V	201	899.30	
*	245+50	RT. 25	114R	C.B.	C OR G	4.1	B-2	906.86	906.26	902.12	50	134					V	113R	901.87	
	247+01	LT. 57	115	S.D.	H	3.7	M-2	907.56	906.5	902.90	39	155					V	201	901.87	FIELD VERIFY LOCATION AND ELEVATION
*	252+00	LT. 25	116R	C.B.	C OR G	6.0	B-2	903.57	902.97	896.94	287	286					V	120R	890.00	
	254+62	LT. 67	117	AP.	15"	-	-	898.72	-	888.00	42							120R	887.49	F & I TRASH GUARD
	254+59	RT. 50	118	S.D.	H	3.2	M-2	898.73	896.0	892.90	27						V	119	892.77	FIELD VERIFY LOCATION AND ELEVATION
	254+69	RT. 25	119	C.B.	A OR F	5.1	B-2	898.58	897.98	892.77	53						V	120R	892.50	
*	254+85	LT. 25	120R	C.B.	60-4020	10.1	B-2	898.27	897.67	887.49	292			292			V	121R	885.15	
*	257+86	LT. 25	121R	C.B.	60-4020	6.2	B-2	892.01	891.41	885.15		82		82			V	126R	884.49	
	257+86	RT. 25	122	C.B.	C OR G	4.8	B-2	892.01	891.41	886.50	50						V	121R	886.00	
	257+77	LT. 46	123	AP.	15"	-	-	892.20	-	888.50	17							121R	888.27	F & I TRASH GUARD
	258+24	LT. 63	124	C.B.	C OR G	4.2	B-2	891.21	890.3	886.00	31						V	125	885.69	
	258+58	LT. 70	125	C.B.	A OR F	4.4	B-2	890.50	890.2	885.69	27						V	126R	885.42	
*	258+70	LT. 45	126R	M.H.	60-4020	5.9	A-7	890.26	890.3	884.49		-55		55			III	127R	884.00	
*	259+25	LT. 80	127R	AP.	27"	-	-	889.11	-	884.0										F & I 5.6 CY CLASS IV RIPRAP
	260+56	RT. 25	128	C.B.	C OR G	3.0	B-2	887.20	886.60	883.54	50						V	129	883.29	
	260+56	LT. 25	129	C.B.	C OR G	3.2	B-2	887.20	886.60	883.29	51						V	130	883.00	
	260+27	LT. 76	130	AP.	15"	-	-	887.27	-	883.0										F & I 3.5 CY CLASS IV RIPRAP
	265+67	LT. 25	131	C.B.	C OR G	4.5	B-2	886.78	886.18	881.60	50						V	132	881.35	
	265+55	LT. 70	131A	A.P.	15"	-	-	886.94	-	884.0	40						V	131	881.60	
	265+67	RT. 25	132	C.B.	C OR G	4.7	B-2	886.78	886.18	881.35	143						V	133	879.54	
	267+18	RT. 30	133	M.H.	A OR F	5.6	A-7	884.89	885.01	879.54	145						V	135	877.73	
	268+71	LT. 25	134	C.B.	C OR G	5.2	B-2	882.97	883.09	877.80	50						V	135	877.55	
	268+71	RT. 25	135	C.B.	A OR F	10.0	B-2	882.97	883.09	872.99	32						V	136	872.80	
	268+72	RT. 63	136	AP.	15"	-	-	882.96	-	872.8										F & I 3.5 CY CLASS IV RIPRAP
	272+31	LT. 25	137	C.B.	A OR F	5.6	B-2	878.45	878.57	872.85	50						V	138	872.60	
	272+29	RT. 25	138	C.B.	C OR G	5.9	B-2	878.48	878.6	872.60	15						V	139	872.50	
	272+29	RT. 46	139	AP.	15"	-	-	878.48	-	872.5										F & I 3.5 CY CLASS IV RIPRAP
NEW	241+65	LT. 28.4±	200R	C.B.	C OR G	??	B-2	909.13	909.33	902.51		265					V	106R	901.19	
NEW	247+30	LT. 30	201	M.H.	A OR F	8.7	A-7	907.70	907.90	899.30			240				V	202	898.10	
NEW	249+70	LT. 30	202	M.H.	A OR F	10.1	A-7	907.84	908.04	898.10			232				V	116R	896.94	
COUNTY ROAD H STATIONING																				
	37+51	RT. 45	140	AP.	18"	-	-	878.58	-	872.5										F & I 4.4 CY CLASS IV RIPRAP
	37+56	RT. 23	141	C.B.	A OR F	5.2	B-2	878.60	878.02	872.73			17				III	140	872.50	
	37+53	LT. 23	142	C.B.	A OR F	4.6	B-2	878.59	878.01	873.30			13				III	143	873.17	
	37+41	LT. 18	143	M.H.	60-4020	5.2	A-7	878.55	878.23	873.17			44				III	141	872.73	BUILD OVER EX. 18" RCP
	37+70	LT. 97	144	AP.	24"	-	-	878.65	-	877.62			70				III	142	873.30	F & I TRASH GUARD

* REVISED STRUCTURES

BID TOTALS	1764	836	55	144	0
REVISED TOTALS	1088	826	200	1170	55
NET CHANGE	-676	-10	+145	+1026	+55

CASTING ASSEMBLIES

- A-7: RING CASTING MN/DOT 700-7: STANDARD PLATE 4101
COVER CASTING MN/DOT NO. 716: STANDARD PLATE 4110
- B-2: RING CASTING NO. 802A; MN/DOT STANDARD PLATE 4129
GRATE CASTING NO. 811; MN/DOT STANDARD PLATE 4151
CURB BOX NO. 823; MN/DOT STANDARD PLATE 4160
- M-2: RING CASTING NO. 700-7; MN/DOT STANDARD PLATE 4101
COVER CASTING NO 721; MN/DOT STANDARD PLATE 4140

STRUCTURES

- DESIGN W-4020 = MN/DOT STANDARD PLATE 4020
DESIGN H = MN/DOT STANDARD PLATE 4006L
DESIGN A OR F = MN/DOT STANDARD PLATE 4000 OR 4005
DESIGN C OR G = MN/DOT STANDARD PLATE 4002F OR 4006L

NOTES:

INCLUDE CASTING ASSEMBLY WITH EACH STRUCTURE PER SPEC. REFERENCE 2506.4A.
CONSTRUCTION HEIGHT IS PER SPEC. REFERENCE 2506.4A.

RIPRAP SHALL INCLUDE GRANULAR FILTER MATERIAL AND GEOTEXTILE FABRIC.

STORM SEWER REVISIONS 3-5-97

ITEM	BID	REVISED	CHANGE
15" RCP	1764	1088	-676
18" RCP	836	826	-10
21" RCP	55	200	+145
24" RCP	144	1170	+1026
27" RCP	0	55	+55
21" APRON	1	0	-1
27" APRON	0	1	+1
STRUCTURES			
A OR F	9	10	+1
C OR G	19	15	-4

28-146

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
LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

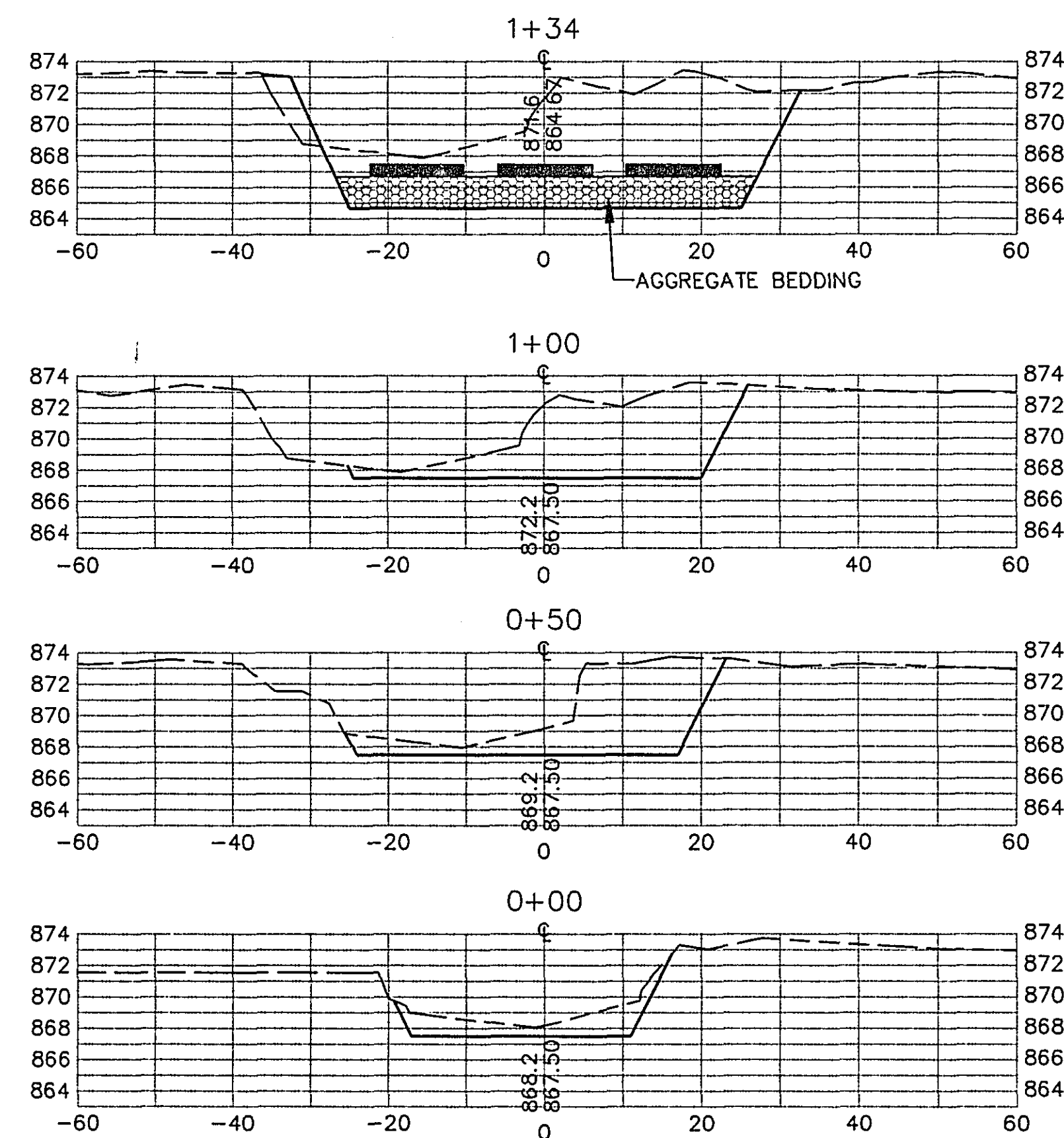
REVISED 5-8-97
REVISED 3-5-97

PROPOSED STORM SEWER

S.A.P. NO. 62-677-21

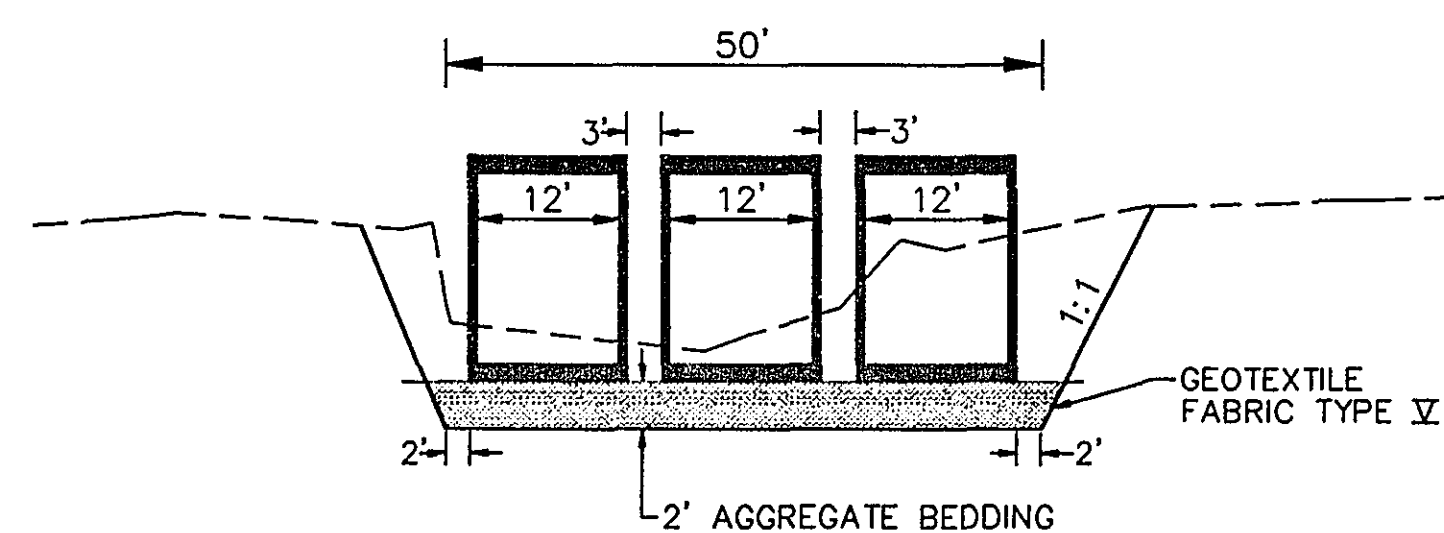
SHEET 10 OF 55 SHEETS

X:\DWG\04-8\CHARTREV 5/8/97



CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'



TYPICAL SECTION
3 - 12' X 8' BOX CULVERTS

HYDRAULIC DATA:

APPROXIMATE FLOWLINE ELEVATION 867.50

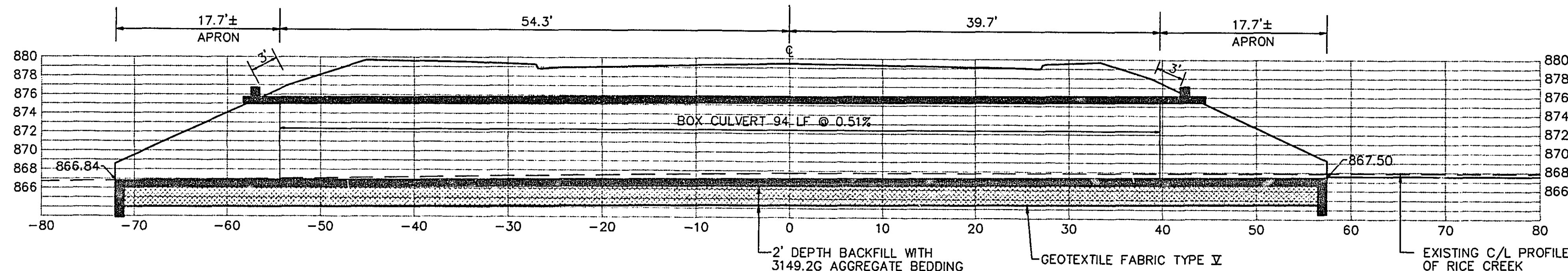
Q ₂	300	TW ₂	ELEVATION 871.99
Q ₅	416	TW ₅	ELEVATION 872.35
Q ₁₀	584	TW ₁₀	ELEVATION 872.78
Q ₂₅	807	TW ₂₅	ELEVATION 873.25
Q ₅₀	1029	TW ₅₀	ELEVATION 873.79
Q ₁₀₀	1211	TW ₁₀₀	ELEVATION 874.41

REASONS FOR SELECTING DESIGN FREQUENCY:
STAGE INCREASE DUE TO STRUCTURE ≤ 0.5'

TYPICAL SECTION—CENTER OF
BOX CULVERT ALONG SKEW

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 10'

BOX CULVERT 1 - ROAD C/L STA 271+32.76
BOX CULVERT 2 - ROAD C/L STA 271+49.67
BOX CULVERT 3 - ROAD C/L STA 271+66.57

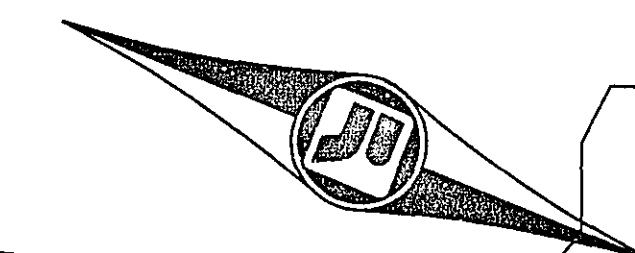
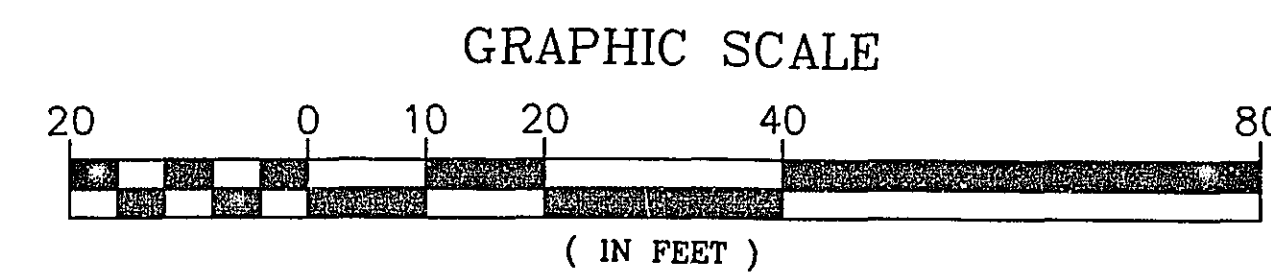


EARTHWORK

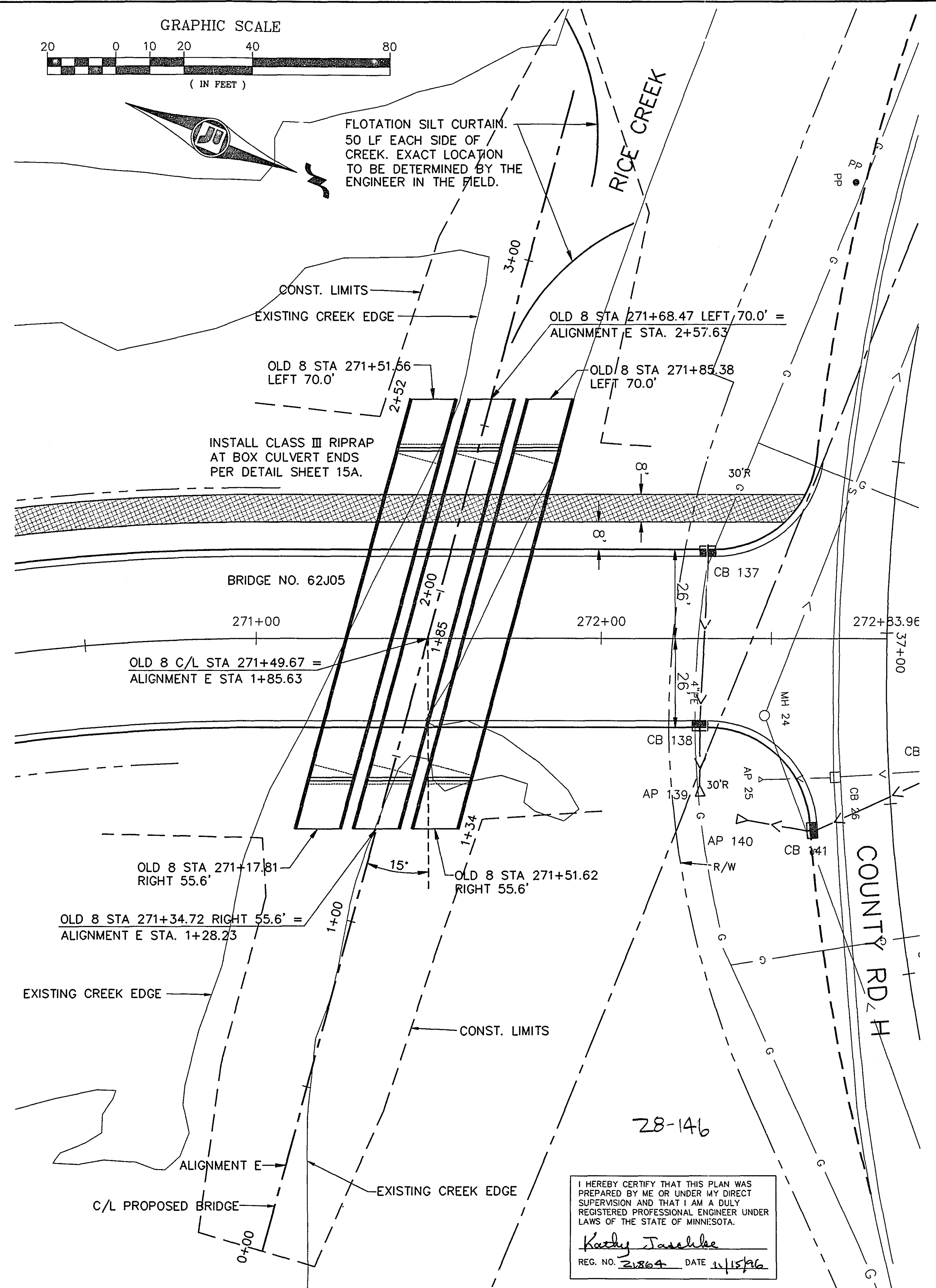
STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	38.73	0.00	151.84	0.00	151.84	0.00
0+50	125.26	0.00	318.49	0.00	470.34	0.00
1+00	218.71	0.00	317.28	7.66	787.62	7.66
1+34	333.98	13.35	678.48	13.35	1466.11	21.01
1+85	344.51	0.00	891.16	0.00	2357.26	21.01
2+52	373.74	0.00	431.71	0.00	2788.98	21.01
3+00	111.94	0.00	51.82	0.00	2840.80	21.01
3+25	0.00	0.00	0.00	0.00	2840.80	21.01

100 YEAR DESIGN FLOOD
1211 CFS
ELEV. = 874.41

500 YEAR DESIGN FLOOD
1840 CFS
ELEV. = 877.27



FLOTATION SILT CURTAIN.
50 LF EACH SIDE OF
CREEK. EXACT LOCATION
TO BE DETERMINED BY THE
ENGINEER IN THE FIELD.

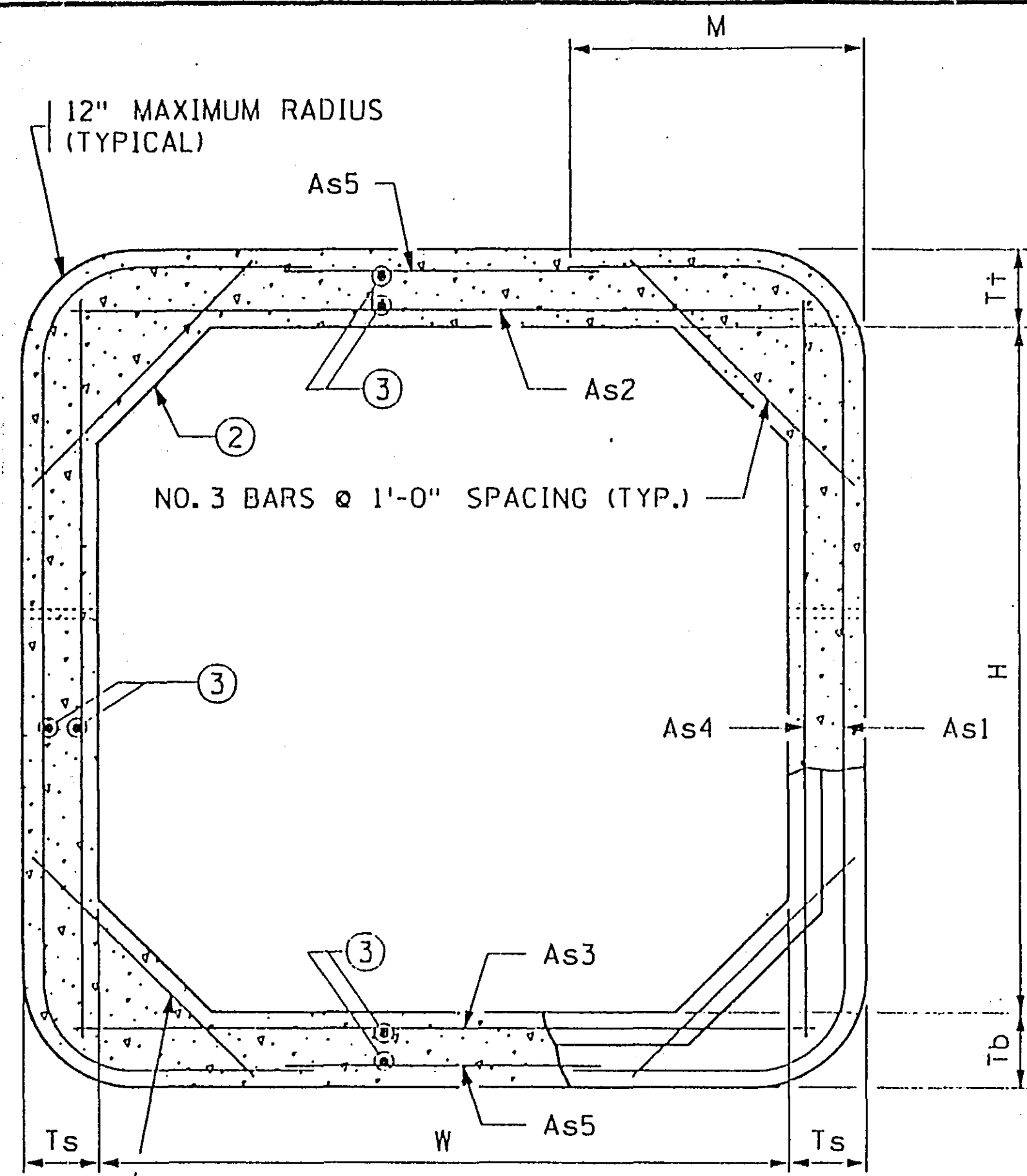


I HEREBY CERTIFY THAT THIS PLAN WAS
PREPARED BY ME OR UNDER MY DIRECT
SUPERVISION AND THAT I AM A DULY
REGISTERED PROFESSIONAL ENGINEER UNDER
LAWS OF THE STATE OF MINNESOTA.
Kathy Tashke
REG. NO. 21864 DATE 11/15/96

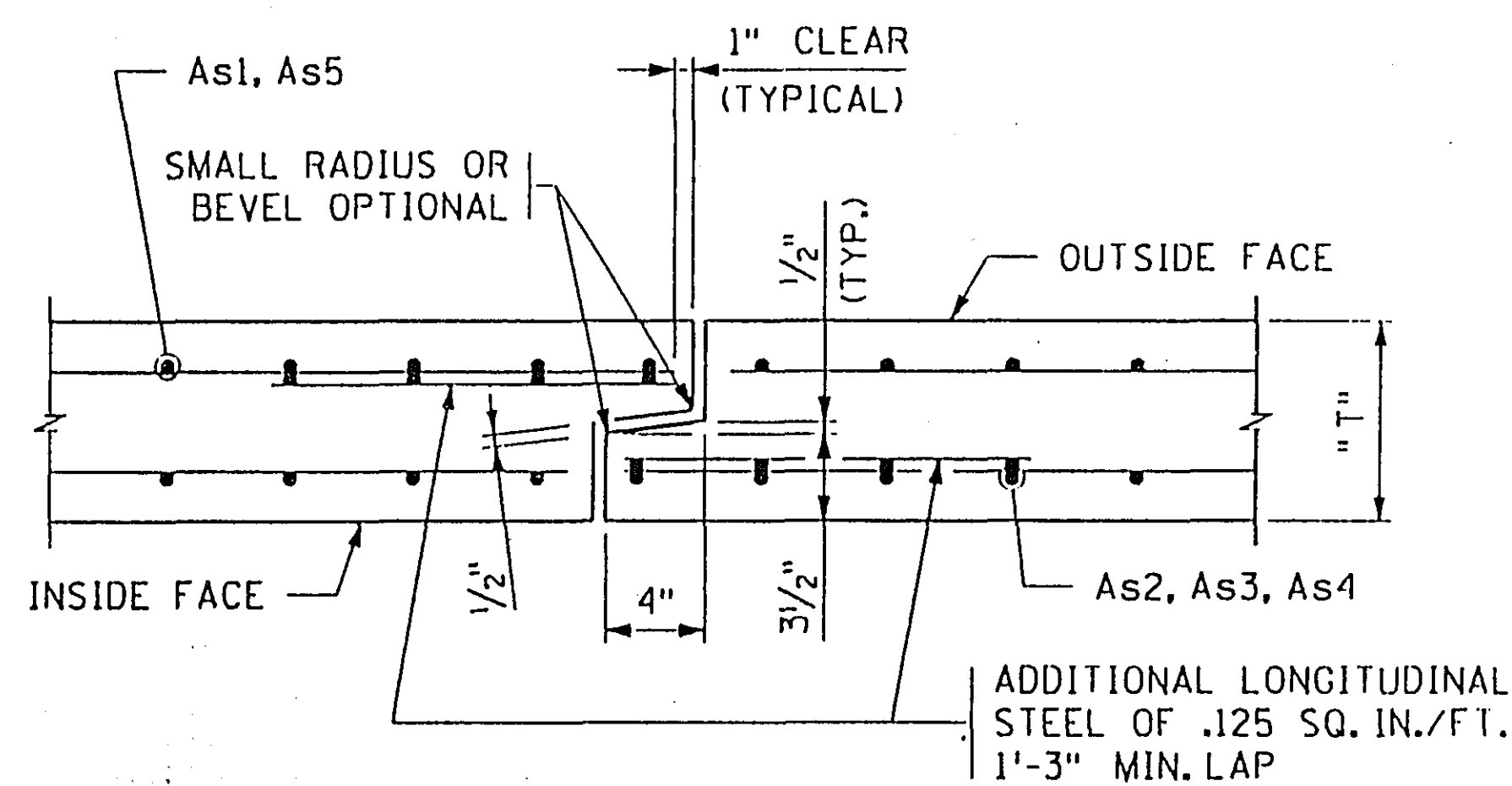
BOX CULVERT - BRIDGE NO. 62J05

S.A.P. 62-677-21

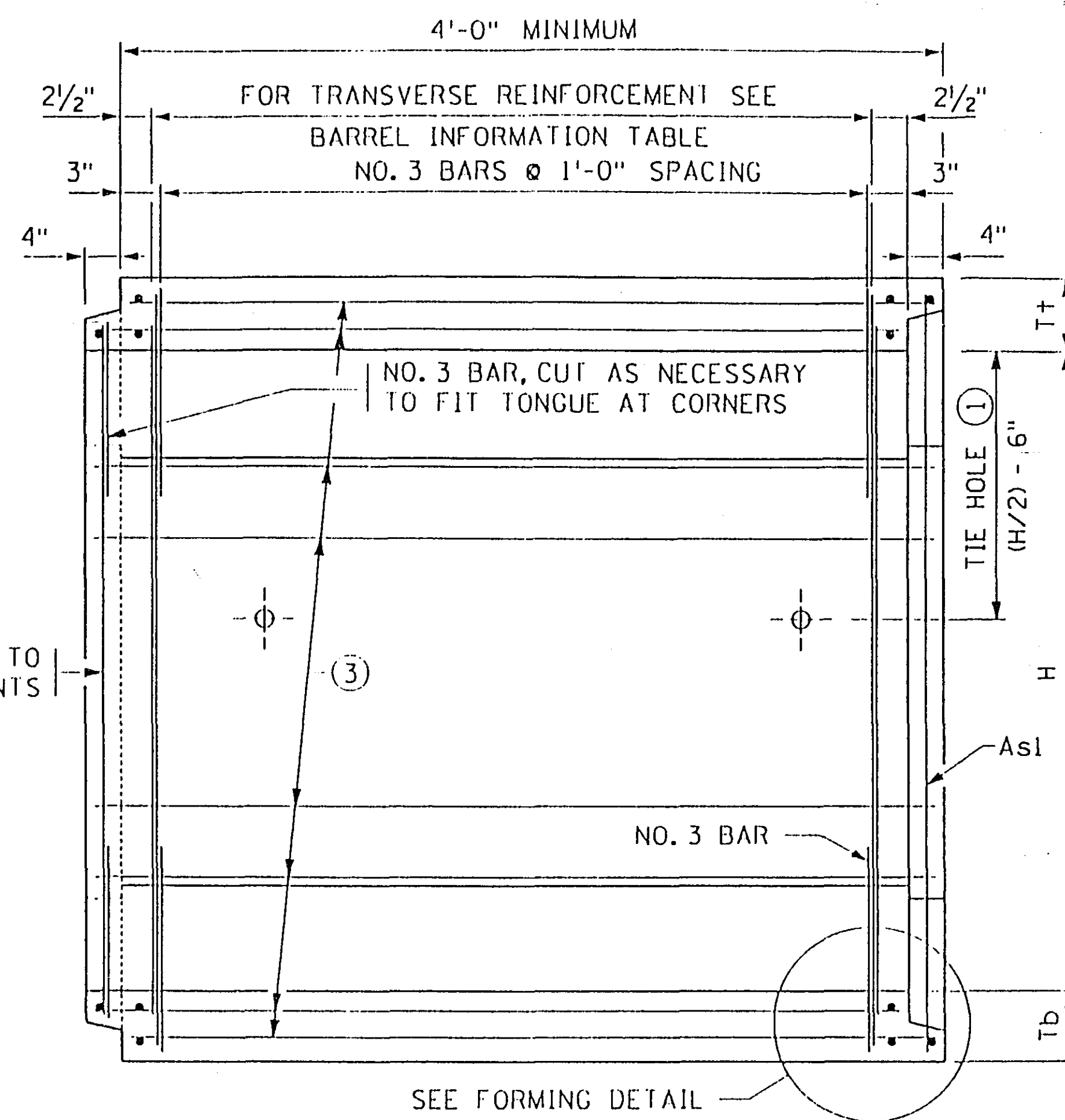
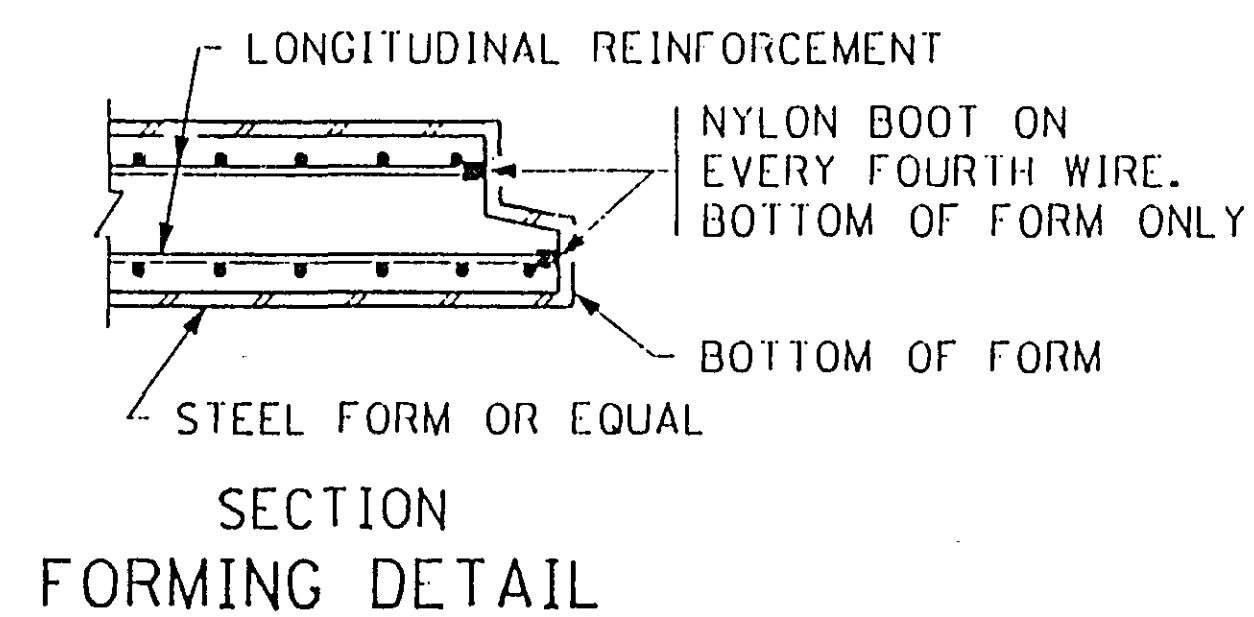
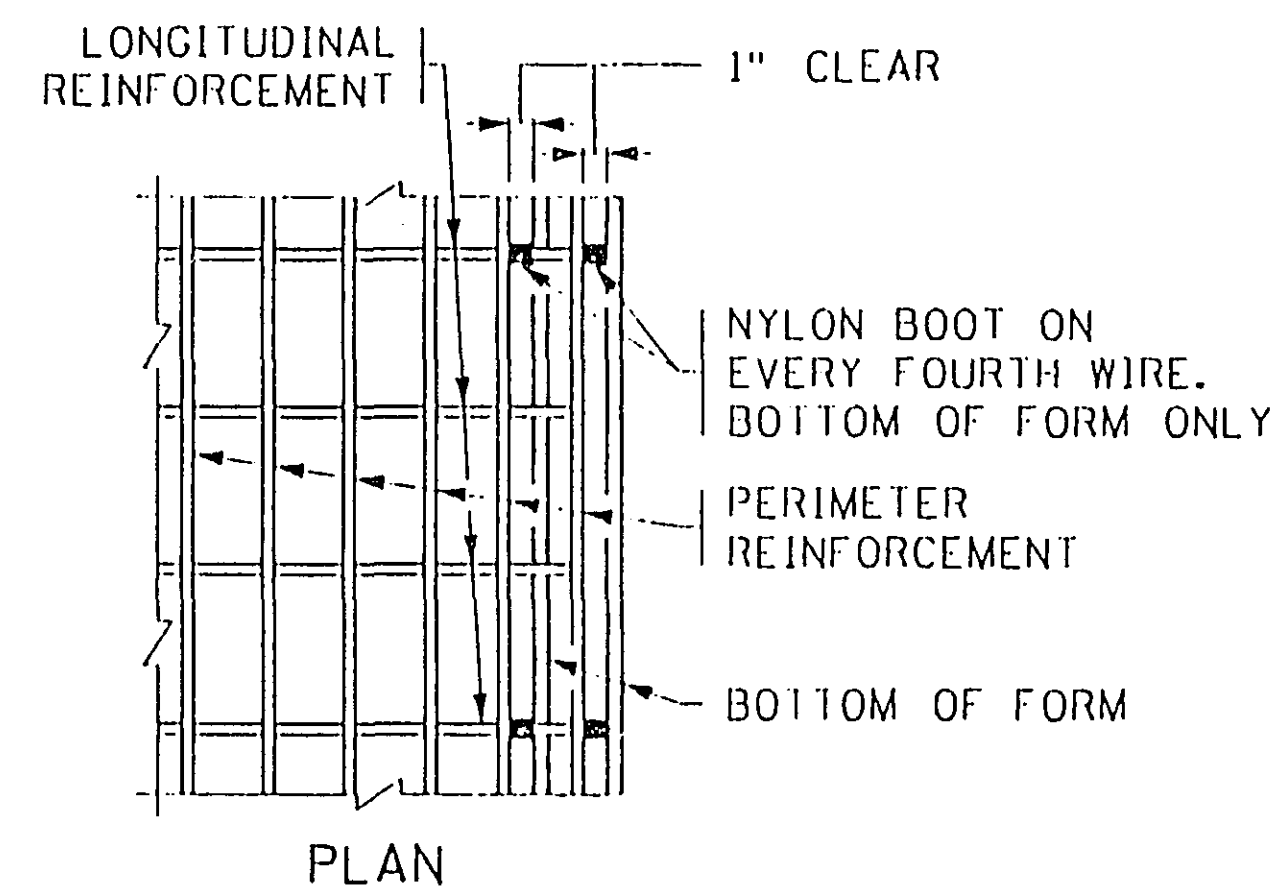
SHEET NO. 11 OF 55 SHEETS



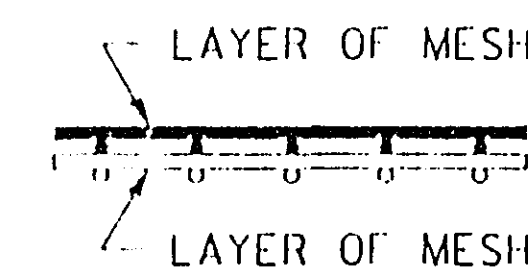
TRANSVERSE BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



TONGUE AND GROOVE JOINT DETAIL



LONGITUDINAL BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:

- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

- ① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.
- ② HAUNCH SIZE AS FOLLOWS:
6 AND 8 FT. WIDTHS - 6 TO 12 INCHES
10 FT. WIDTH - 10 TO 12 INCHES
12 FT. WIDTH - 12 INCHES
- ③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN. /FT.

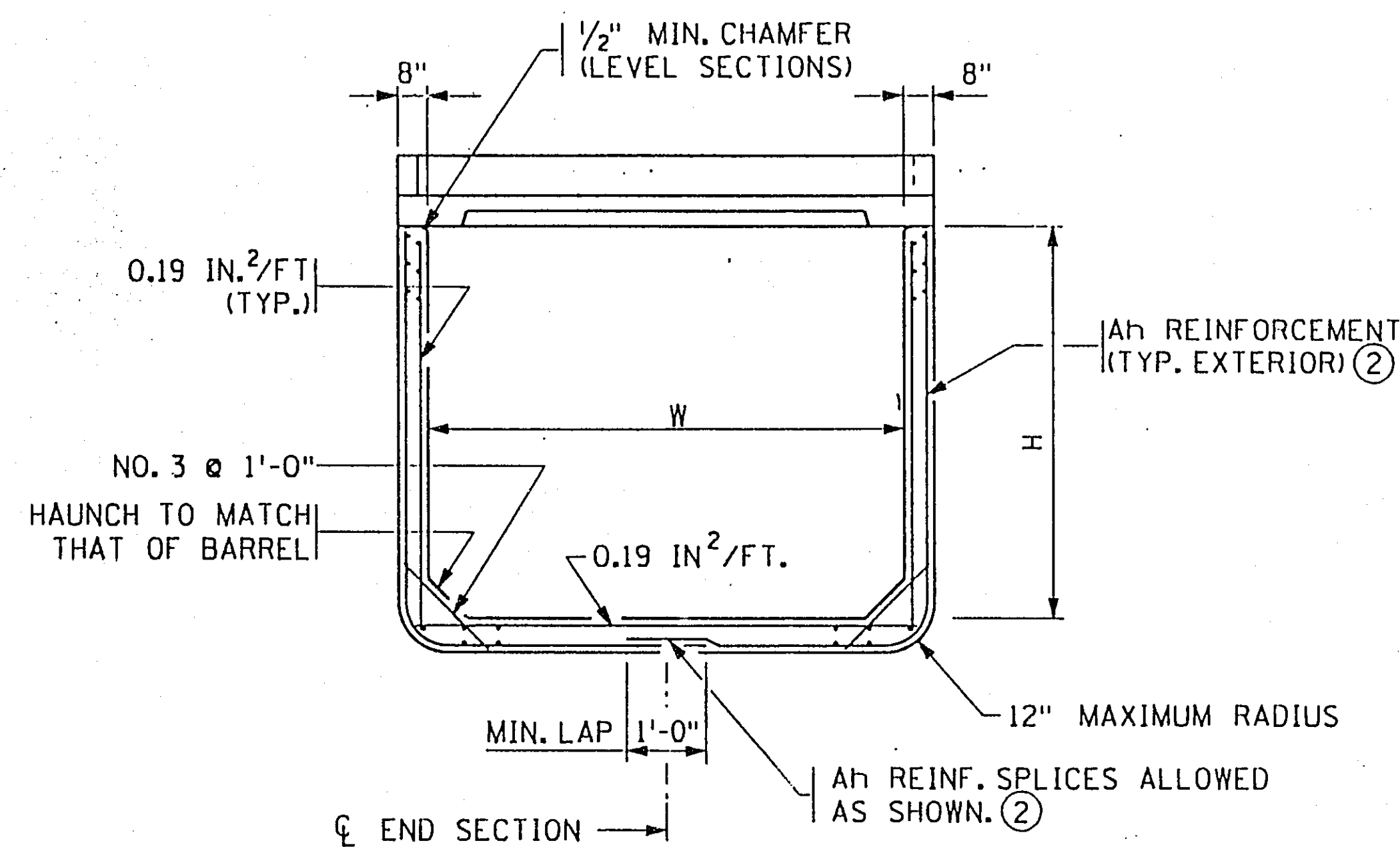
BARREL INFORMATION

BARREL INFORMATION																					
LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT										
											As1					As2		As3		As4	
					W (FT.)	H (FT.)	T+ (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN. ² /FT.)	LENGTH (FT.)	M (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)
	12' X 8'	2	5000	2 - 8	12	8	9	10	8	4930	0.74	14' - 7"	3' - 2"	1.11	12' - 8"	1.06	12' - 8"	0.20	8' - 8"	0.06	9' - 0"

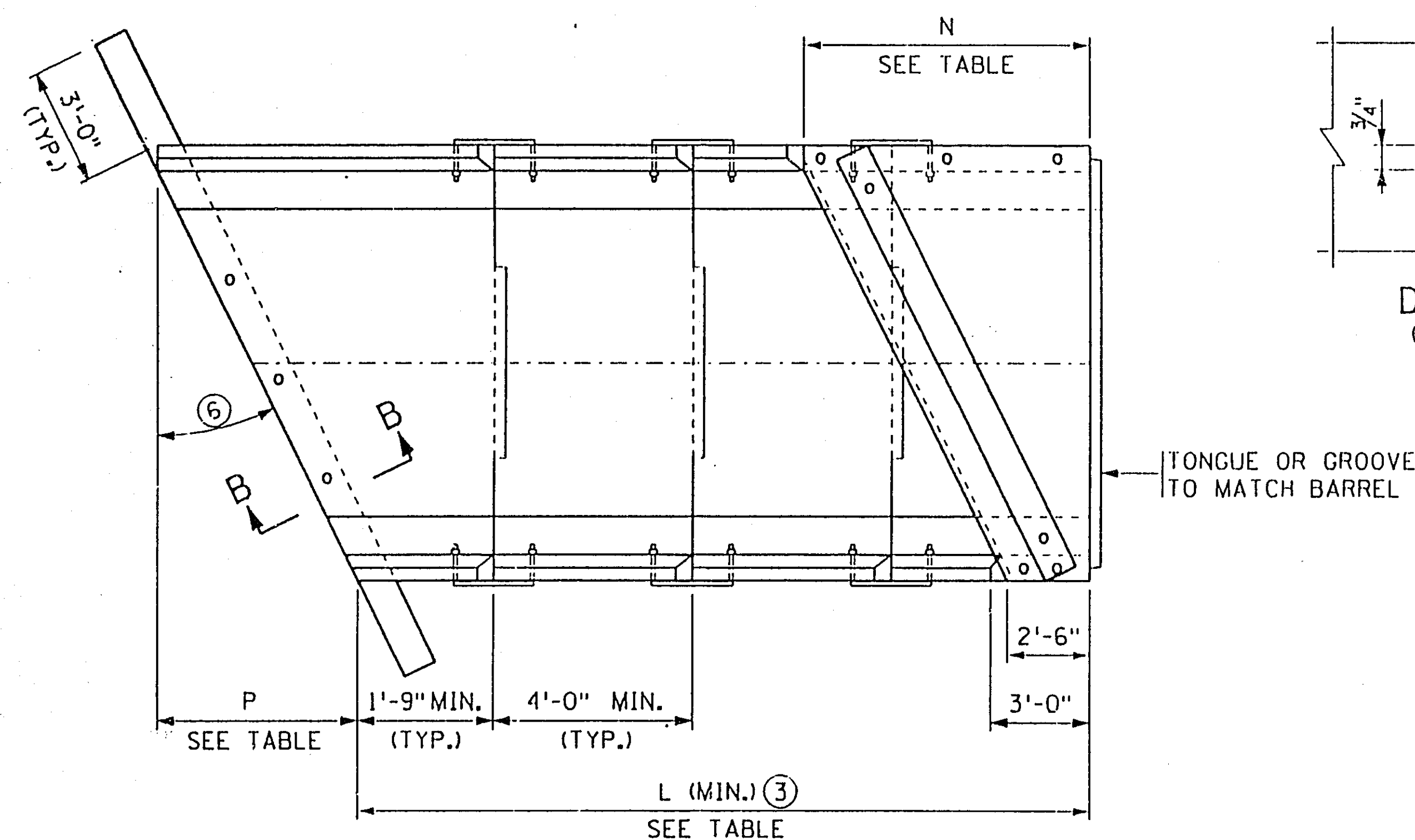
28-146

STANDARD SHEET NO. 5-297.420 (1 OF 2)	TITLE: BARREL DETAILS
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995	
STATE PROJ. NO. S.A.P. NO. 62-677-21 SHEET NO. 12 OF 55 SHEETS	

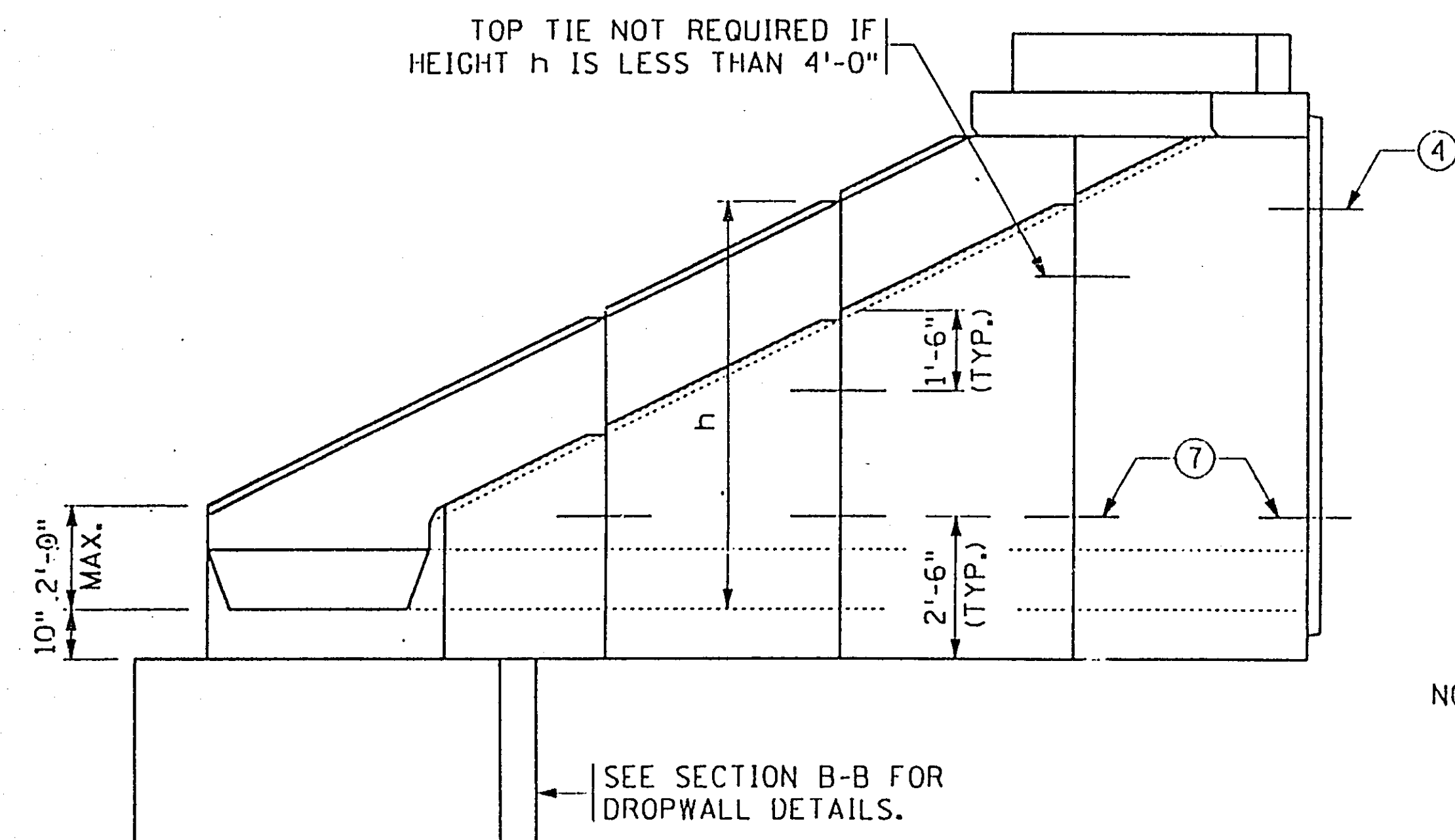
CERTIFIED BY _____ PROFESSIONAL ENGINEER	DES: _____	DR: _____	APPROVED: _____
REG. NO. _____ 19	CHK: _____	CHK: _____	



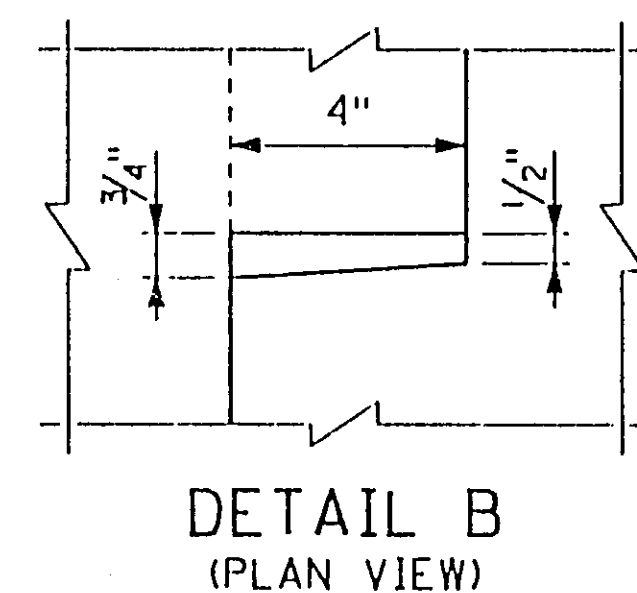
END VIEW



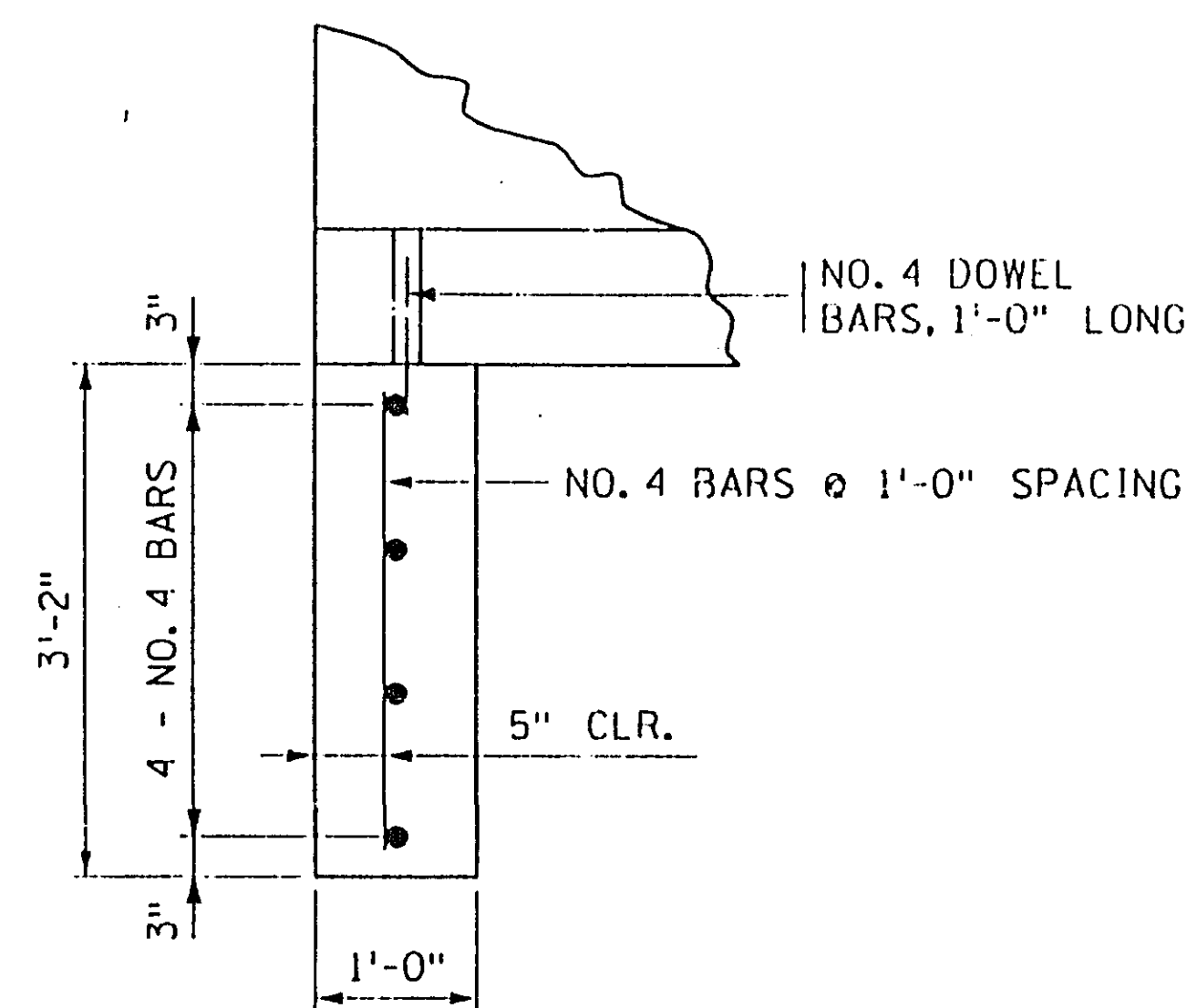
PLAN VIEW
SINGLE BARREL OPTION



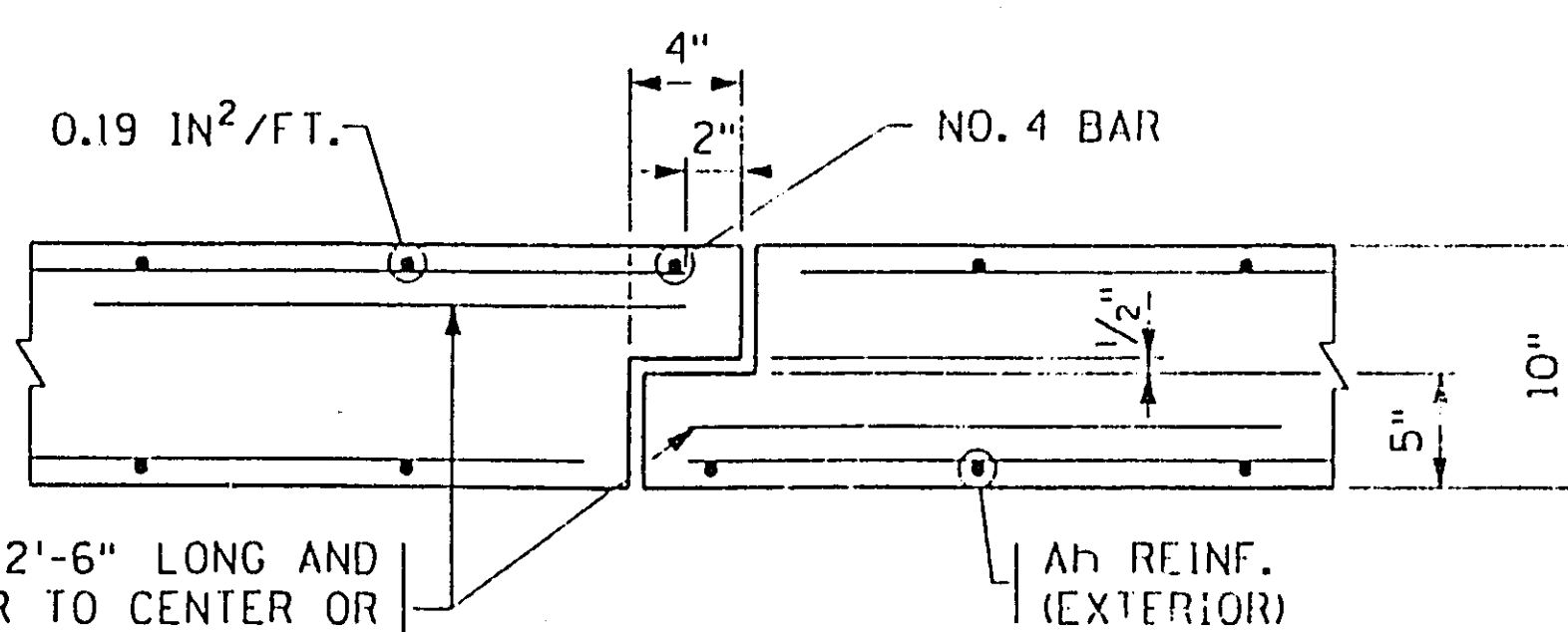
ELEVATION



DETAIL B
(PLAN VIEW)

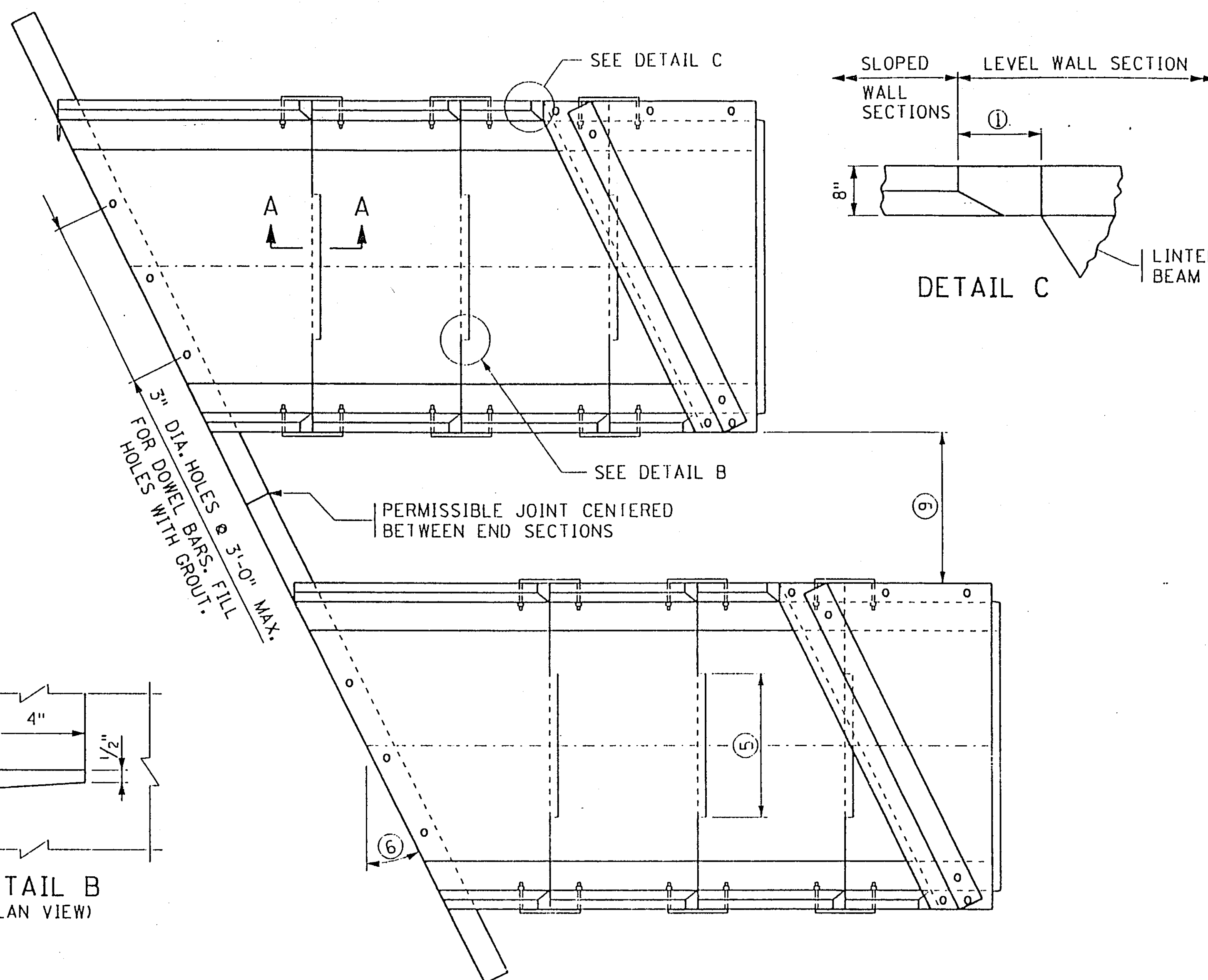


SECTION B-B

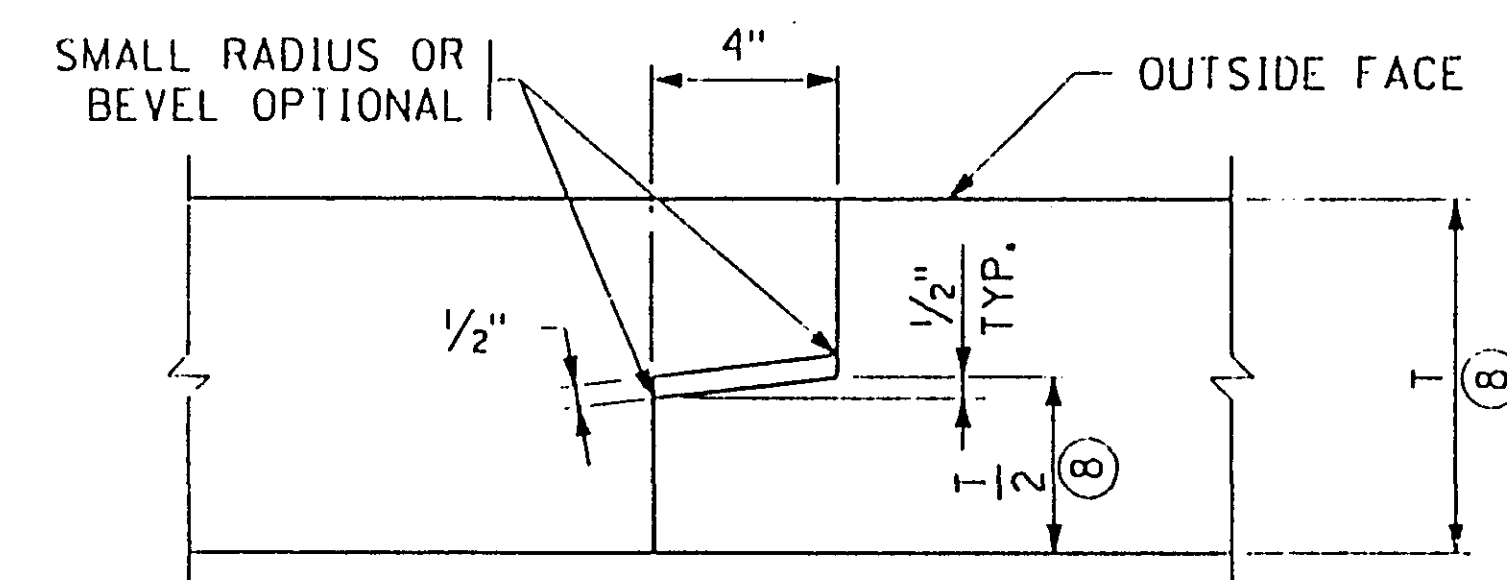


SECTION A-A

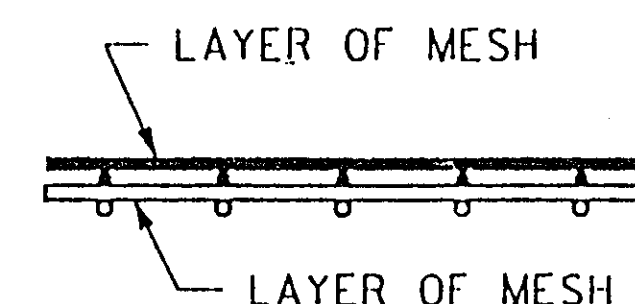
CERTIFIED BY	DESIGNED BY	DATE	APPROVED BY
REG. NO. 19	CHK.	CHK.	



PLAN VIEW
MULTI-BARREL OPTION



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH.



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

NOTES:

SEE 5-297.420, FOR DIMENSIONS AND CONSTRUCTION NOTES, EXCEPT AS NOTED.

FINISH ALL VERTICAL EDGES OF CONCRETE WITH 1/2" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE 5-297.425 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

- 1 8 1/8" @ 15"; 10 5/8" @ 30"; 1'-2" @ 45°
- 2 SEE 5-297.420 (2 OF 2) FOR REINFORCEMENT TABLES.
- 3 NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.
- 4 EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.
- 5 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE & GROOVE ON C OF EACH APRON JOINT.
- 6 FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.
- 7 PROVIDE EXTRA STRONG TIE @ BOTTOM CONNECTION BETWEEN BARREL & 1st APRON SEGMENT, AND 1st & 2nd APRON SEGMENTS; ONLY REQUIRED ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE 5-297.423 (2 OF 2) FOR DETAILS.
- 8 DIMENSION T IS EQUAL TO Tt, Tb OR Ts.
- 9 PROVIDE 2'-0" MIN. BETWEEN SEGMENTS.

LENGTH L

HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-6"	8'-6"	9'-0"
5	10'-0"	11'-0"	12'-0"
6	12'-0"	13'-6"	14'-6"
7	14'-0"	16'-0"	17'-6"
8	16'-0"	18'-0"	20'-6"
9	18'-6"	20'-6"	23'-6"
10	20'-6"	23'-0"	26'-0"
11	22'-6"	25'-6"	29'-0"
12	25'-0"	28'-0"	31'-6"

LENGTH P

WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	1'-9 3/8"	3'-10 1/4"	6'-8"
8	2'-3 3/8"	5'-0"	8'-8"
10	2'-10 1/4"	6'-1 1/8"	10'-8"
12	3'-4 3/4"	7'-3 3/4"	12'-8"

28-146

STANDARD SHEET NO. 5-297.423 (1 OF 2)	TITLE: PRECAST CONC. END SECTION TYPE III- SINGLE OR MULTI-BARREL FOR SKEWS 7 1/2° TO 45°
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995	
STATE PROJ. NO. S.A.P. NO. 62-677-21	SHEET NO. 13 OF 55 SHEETS

Ah REINFORCEMENT TABLE		
HEIGHT h (FT.)	Ah (IN ² /FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98

NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT TABLE		
WIDTH W	BOTTOM REINFORCEMENT	
	A1	A2
6'	NO. 4 @ 1'-6"	NO. 4 @ 1'-4"
8'	NO. 4 @ 1'-1"	NO. 4 @ 9"
10'	NO. 4 @ 9"	NO. 4 @ 6"
12'	NO. 5 @ 9"	NO. 5 @ 6"

LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 ³ / ₈ "	6'-4 ¹ / ₄ "	9'-2"
8	4'-9 ⁷ / ₈ "	7'-6"	11'-2"
10	5'-4 ¹ / ₄ "	8'-7 ¹ / ₈ "	13'-2"
12	5'-10 ³ / ₄ "	9'-9 ³ / ₄ "	15'-2"

NOTES:

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

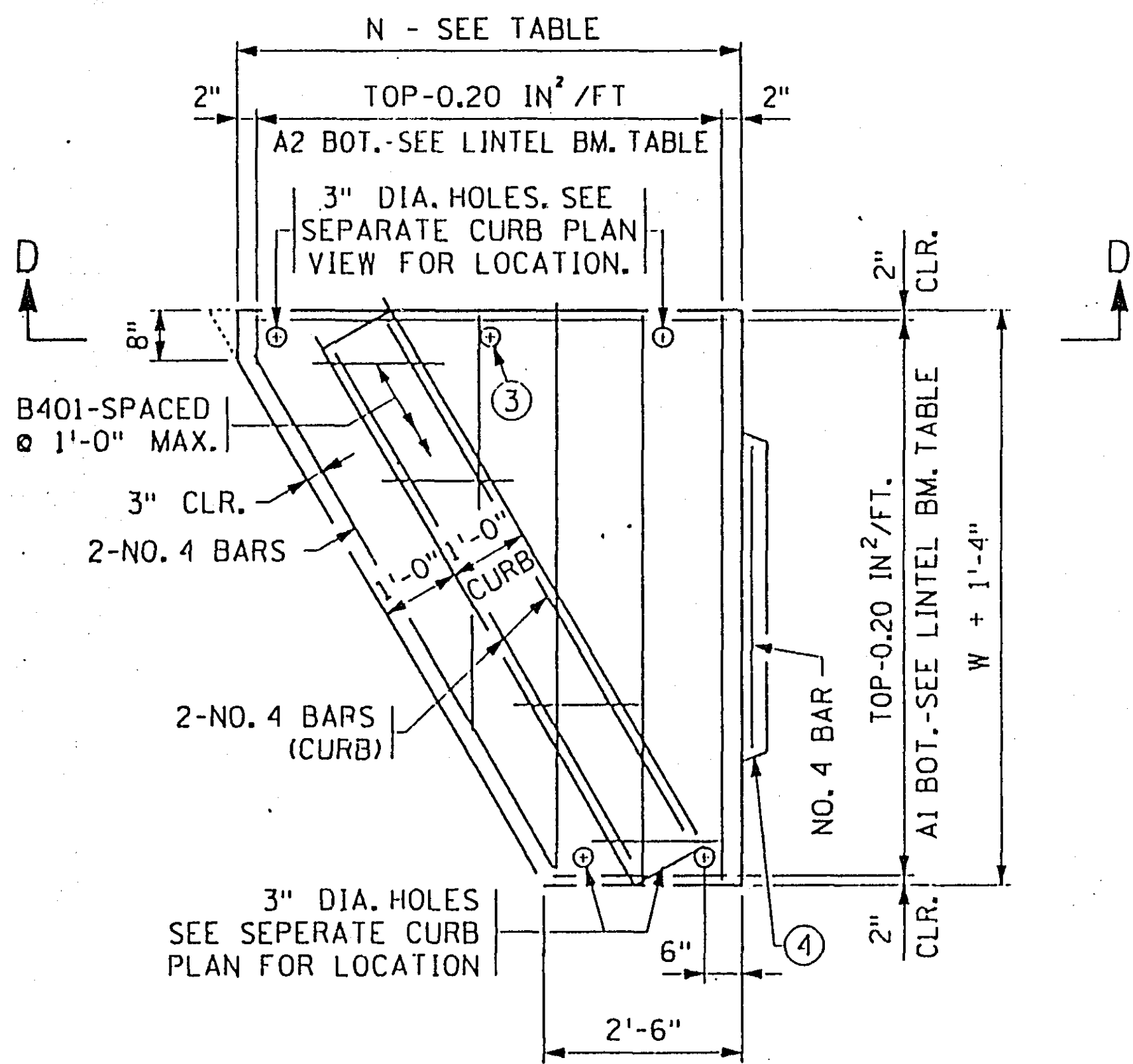
STRUCTURAL STEEL PER SPEC. 3306.

WELDING PER SPEC. 2471.

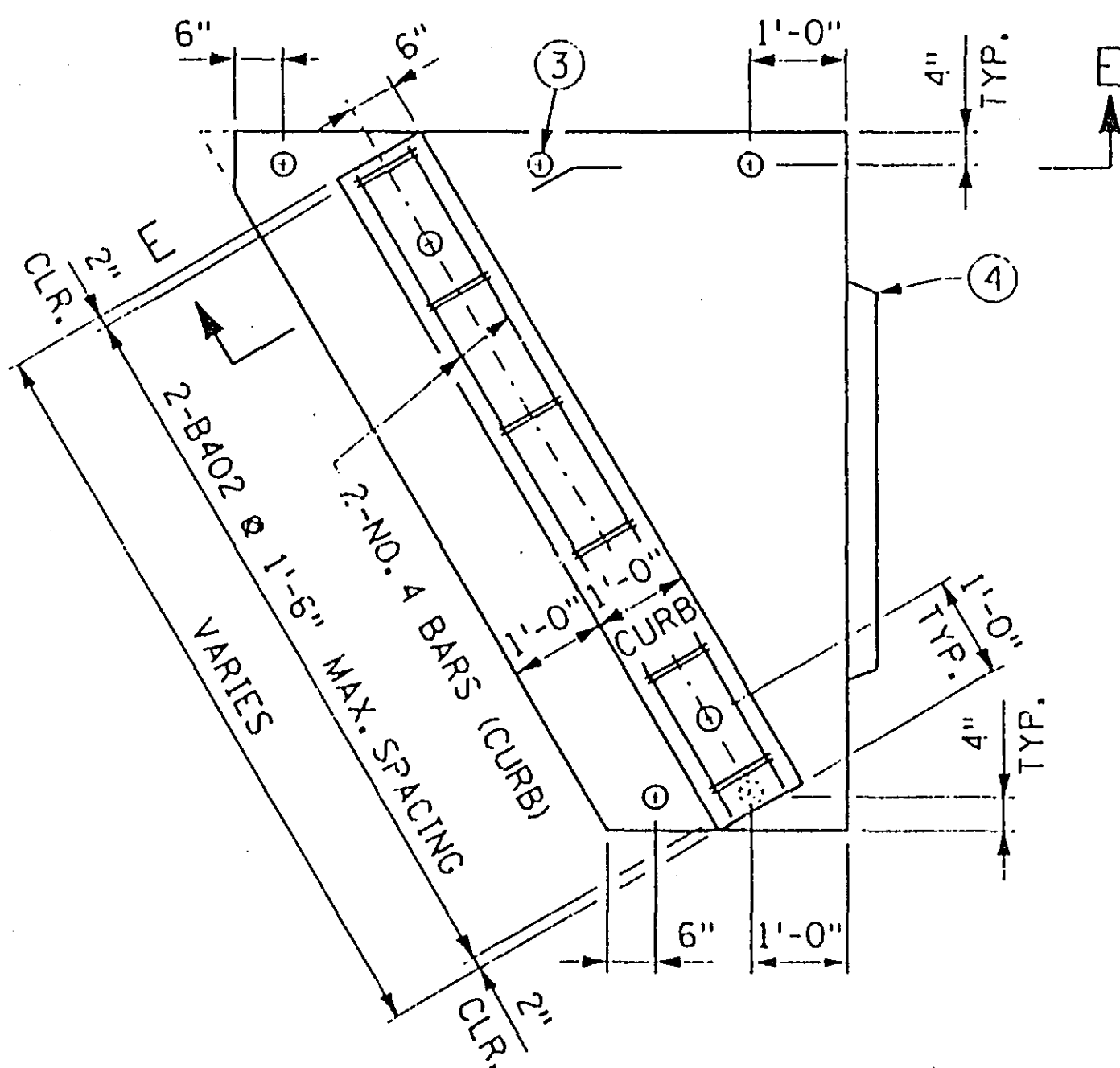
GALVANIZE STRUCTURAL STEEL PER SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.

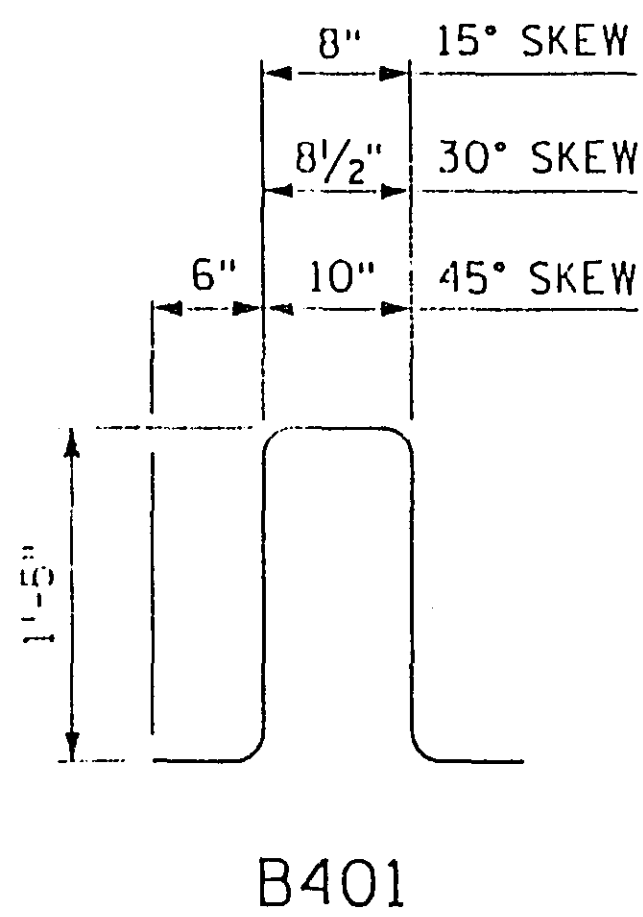
- NO. 8 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL BEAM. FILL HOLE WITH GROUT.
- NO. 8 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE LINTEL BEAM AND 3" DIA. HOLE IN THE CURB. FILL HOLE WITH GROUT.
- CAST AN ADDITIONAL 3" HOLE AT MIDPOINT OF BEAM WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.
- CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.
- FOR SKEW LENGTH UNDER 10' USE NO. 8 BARS. FOR SKEW LENGTH OF 10' TO 14' USE NO. 9 BARS. FOR SKEW LENGTH OVER 14' TO 18' USE NO. 10 BARS. FOR SKEW LENGTH OVER 18' TO 20' USE NO. 11 BARS, OR EQUAL. SKEW LENGTH IS DISTANCE ALONG LINTEL BEAM.



PLAN VIEW
(LINTEL BEAM WITH INTEGRAL CURB)

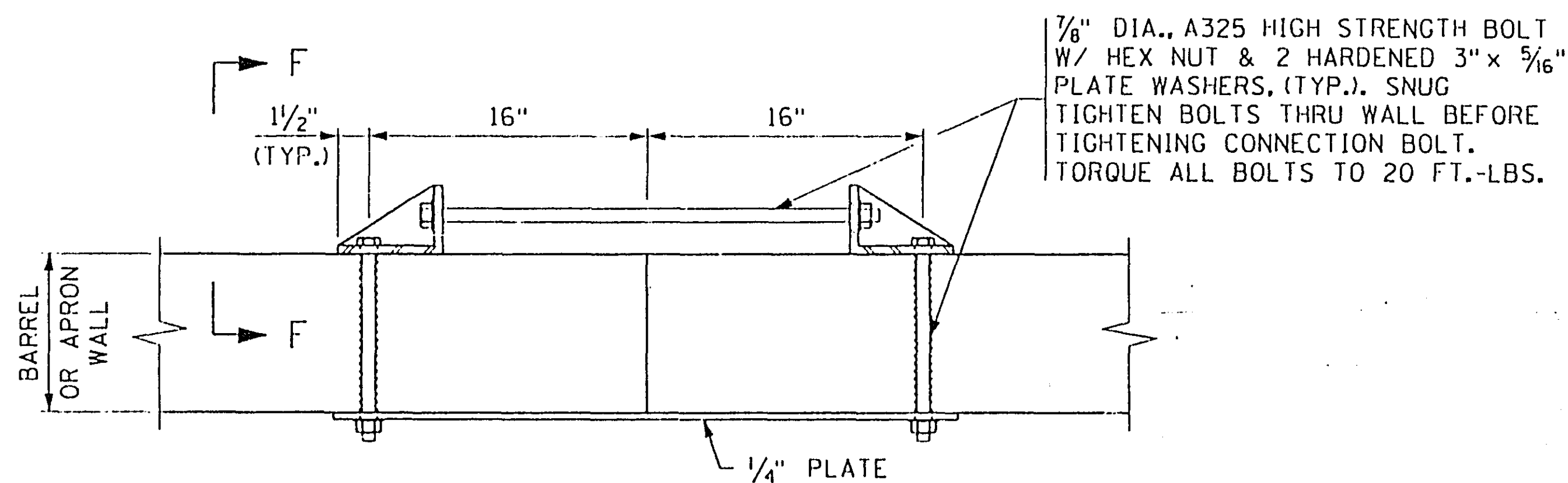


PLAN VIEW
(LINTEL BEAM WITH SEPARATE CURB)
SOME REINFORCEMENT NOT SHOWN

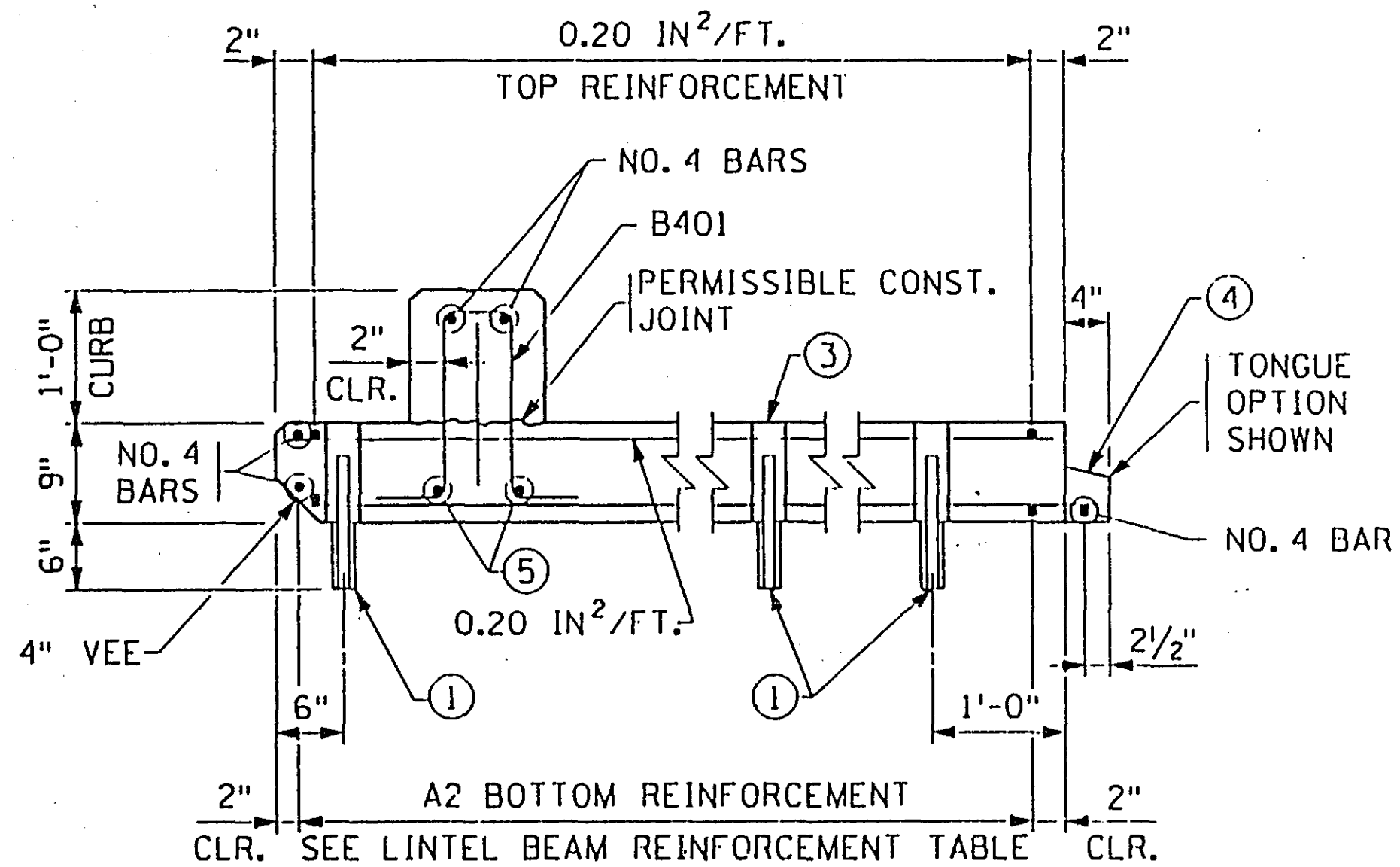


B401

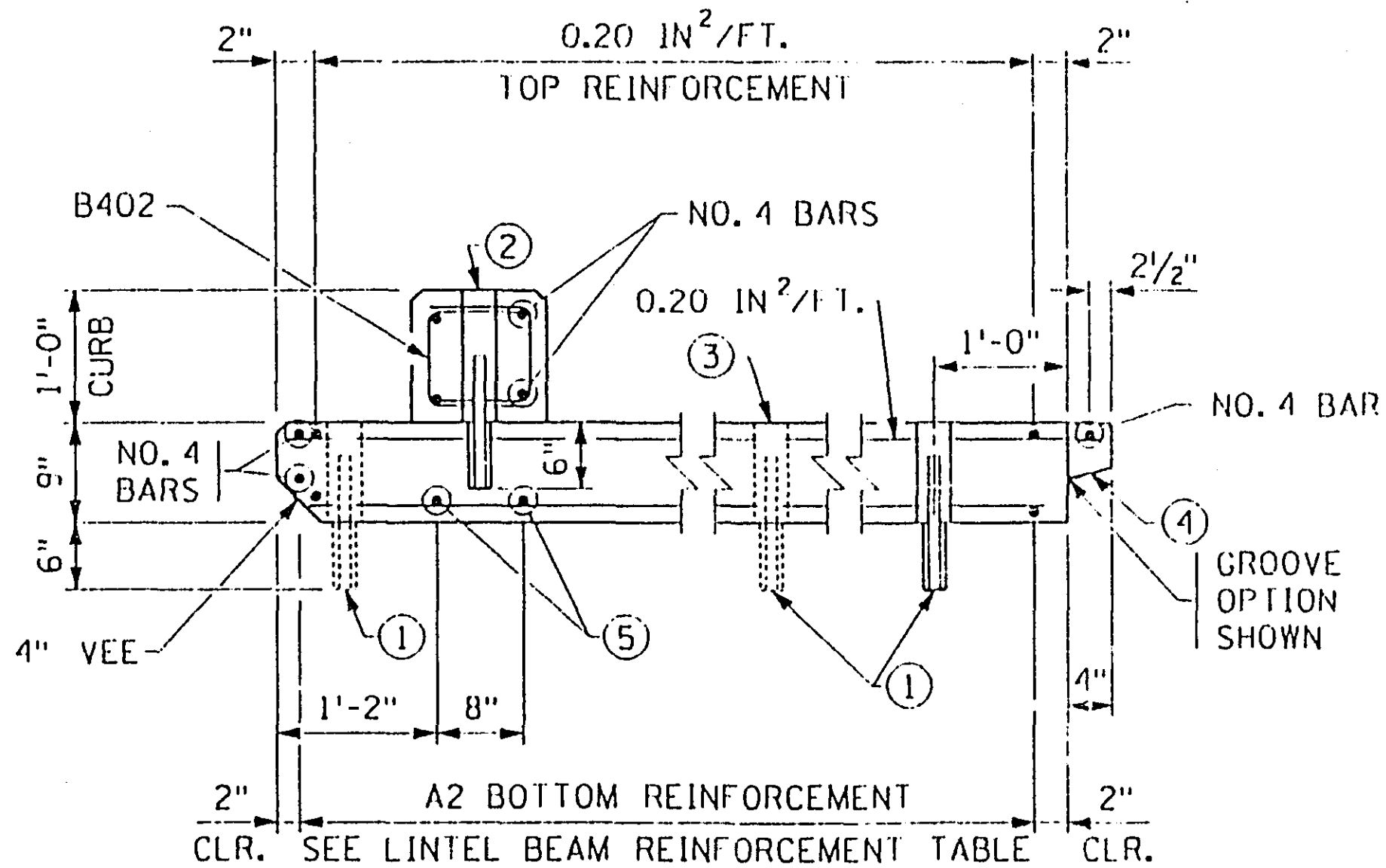
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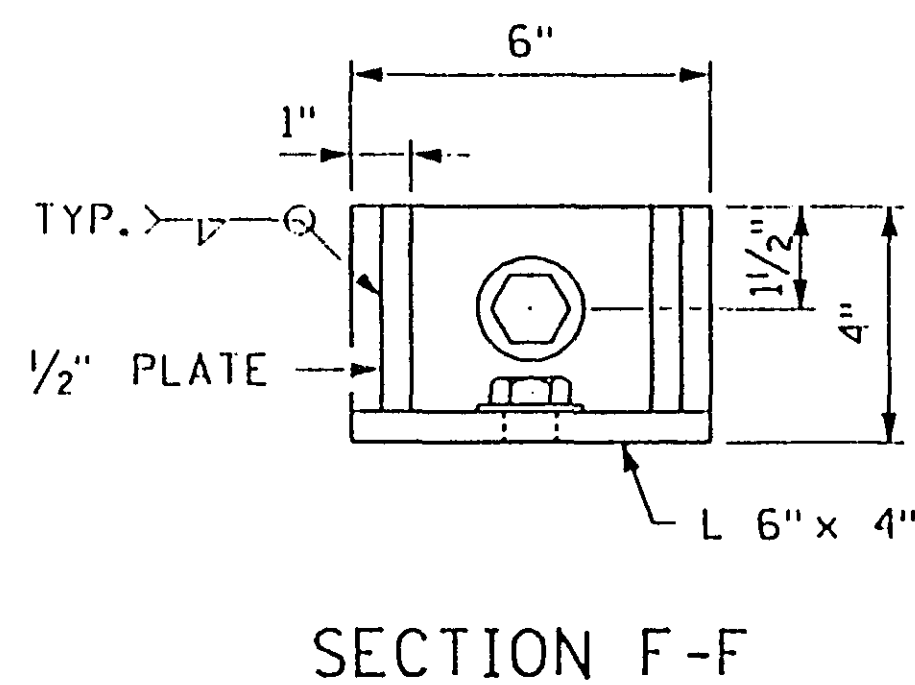
PLAN VIEW



SECTION D-D



SECTION E-E



SECTION F-F

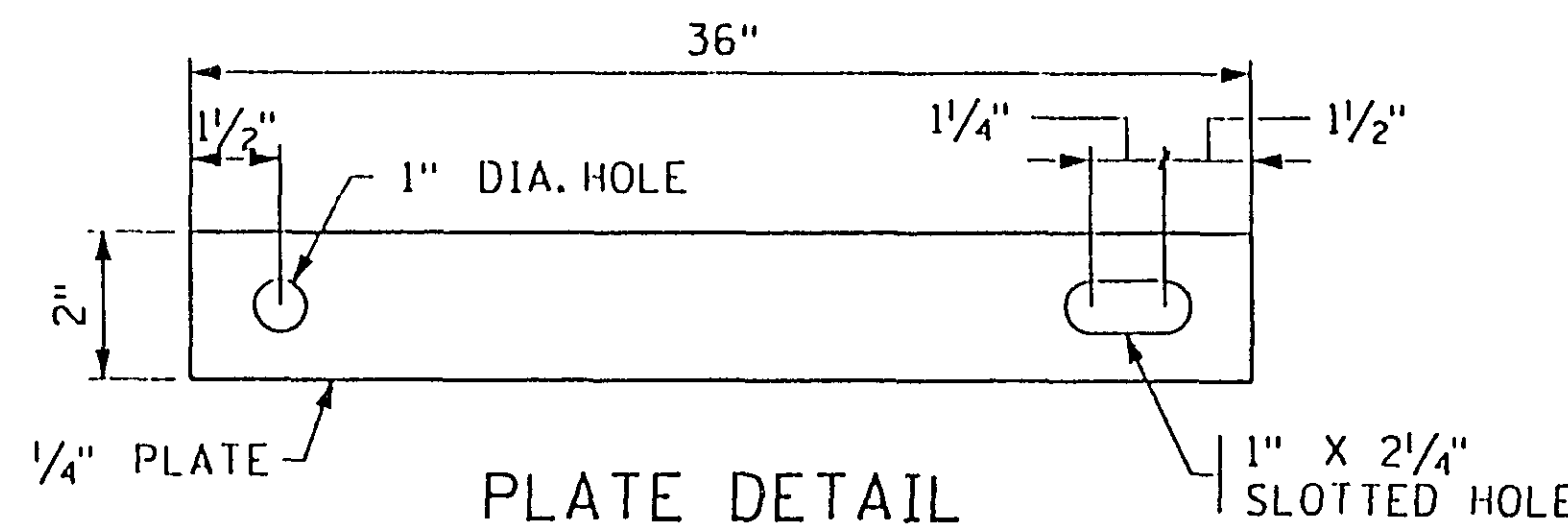
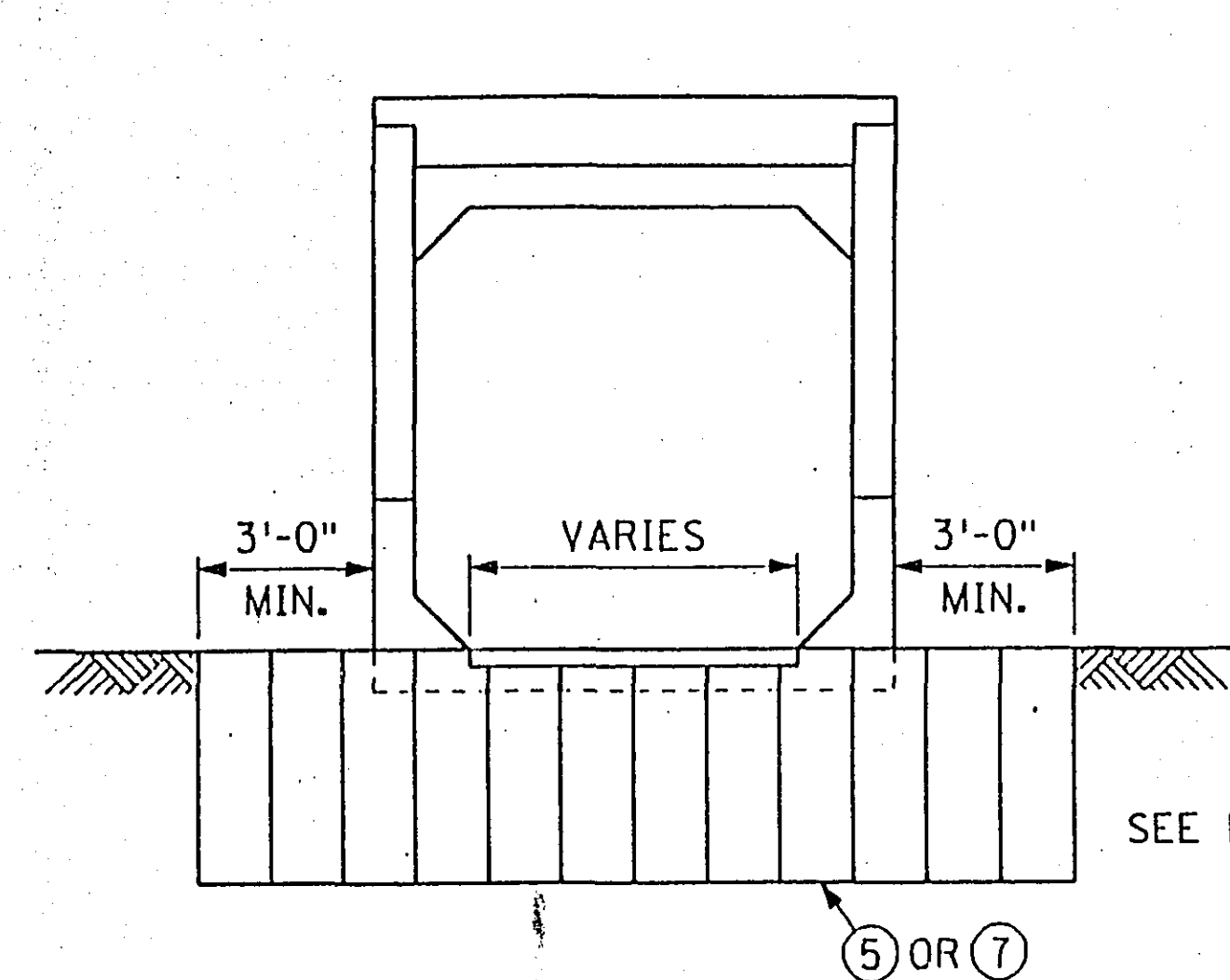


PLATE DETAIL

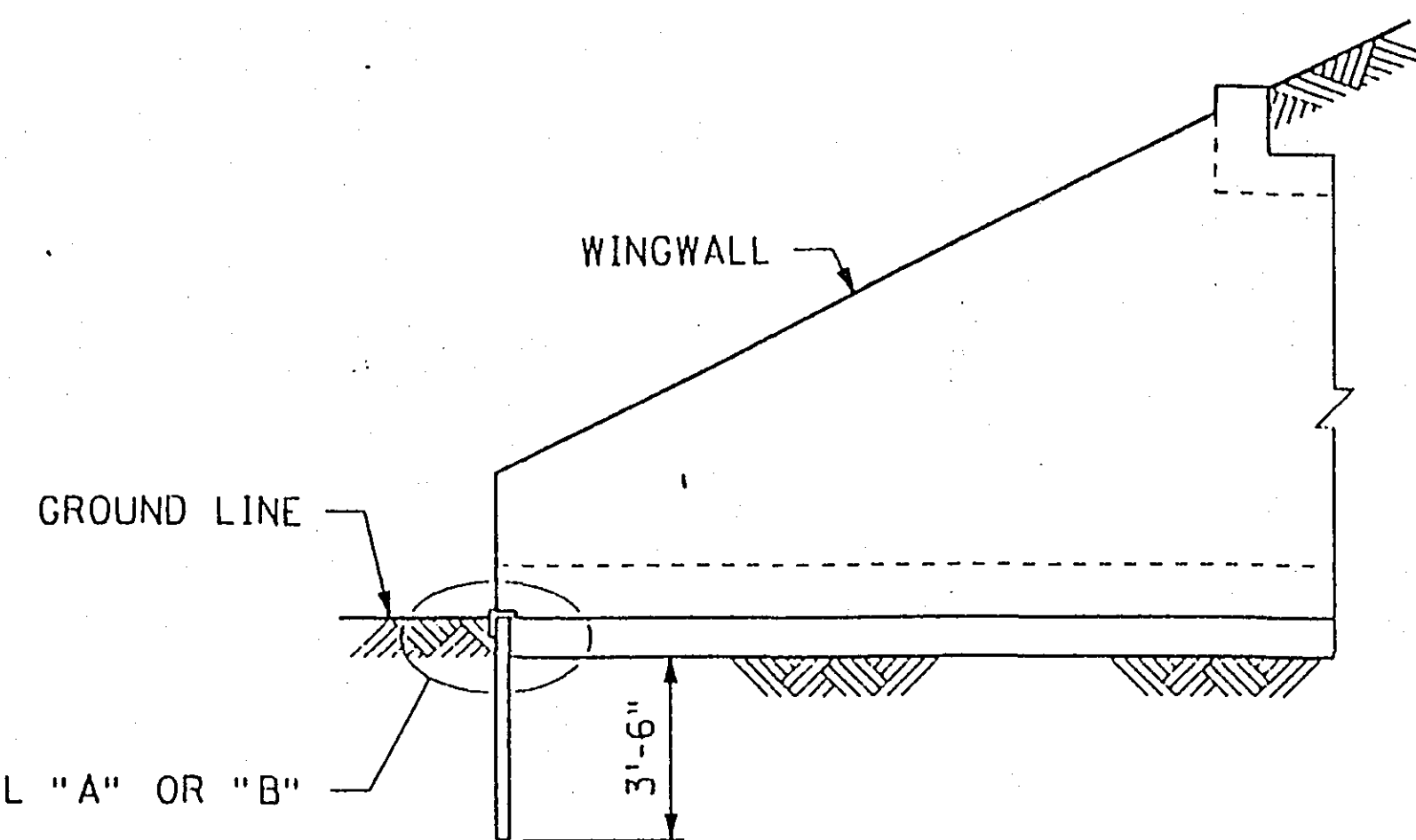
EXTRA STRONG CONNECTION DETAILS

28-146

CERTIFIED BY _____ PROFESSIONAL ENGINEER	DES: _____ CHK: _____	DR: _____ CHK: _____	APPROVED: _____	STANDARD SHEET NO. 5-297.423 (2 OF 2) STATE BRIDGE ENGINEER APPROVAL AUGUST 10, 1995	TITLE: PRECAST CONC. END SECTION TYPE III- SINGLE OR MULTI-BARREL FOR SKEWS 1/2° TO 45°
STATE PROJ. NO. <u>S.A.P. NO. 62-677-21</u> SHEET NO. <u>14</u> OF <u>55</u> SHEETS					

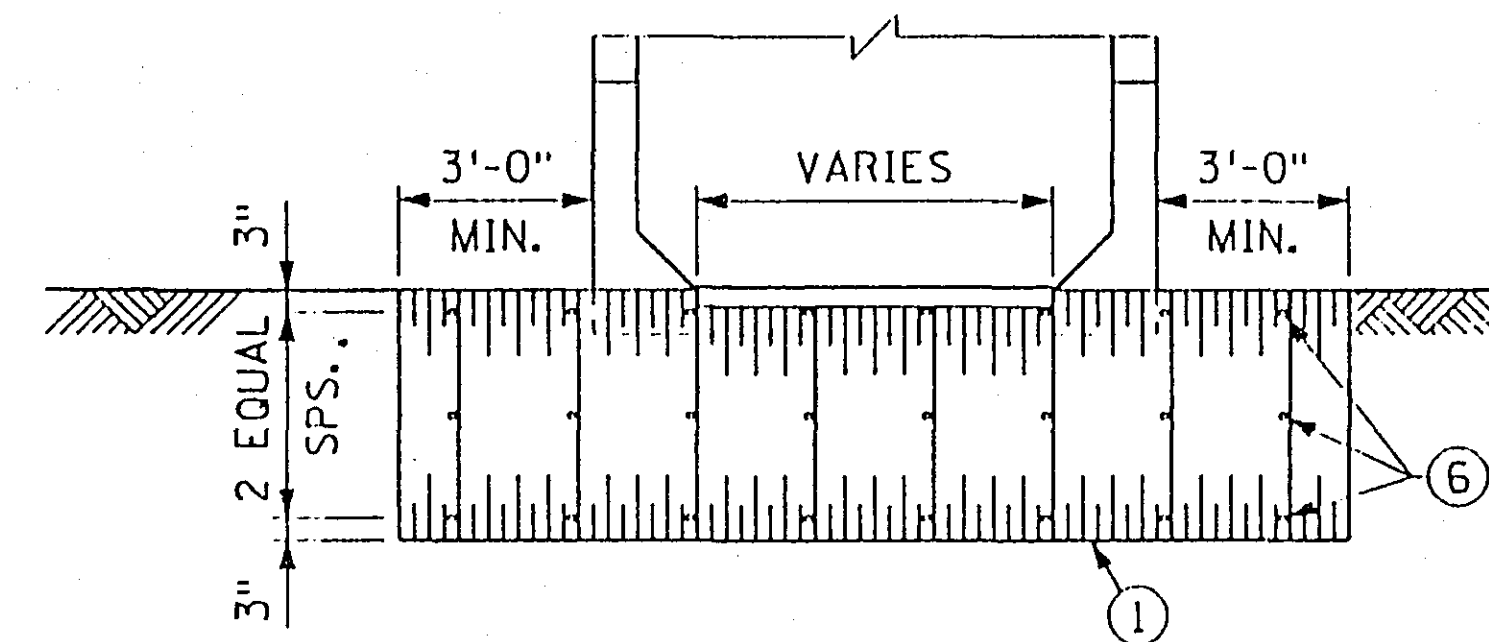


END VIEW

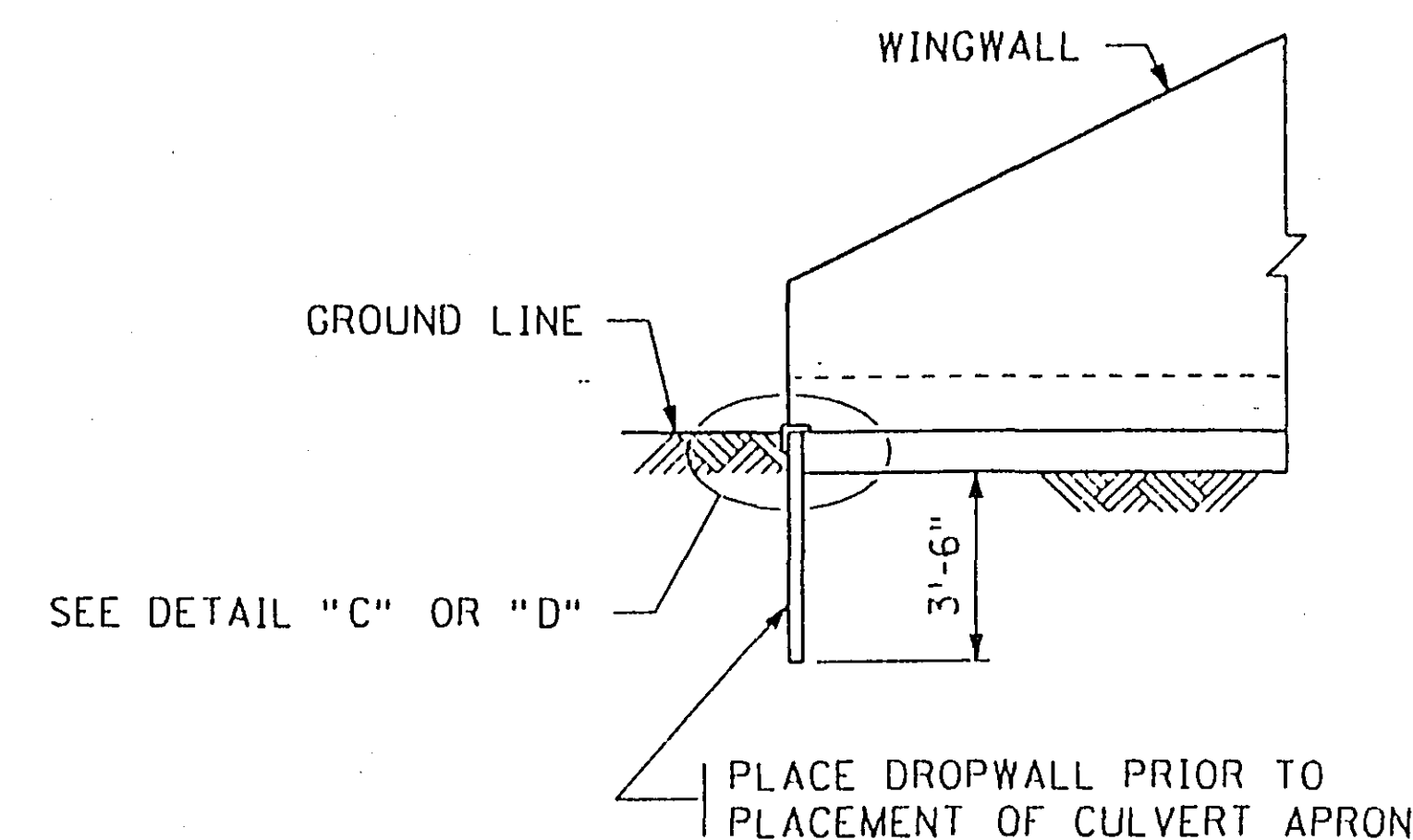


ELEVATION

ALTERNATES 1 & 2 (STEEL SHEET PILING)

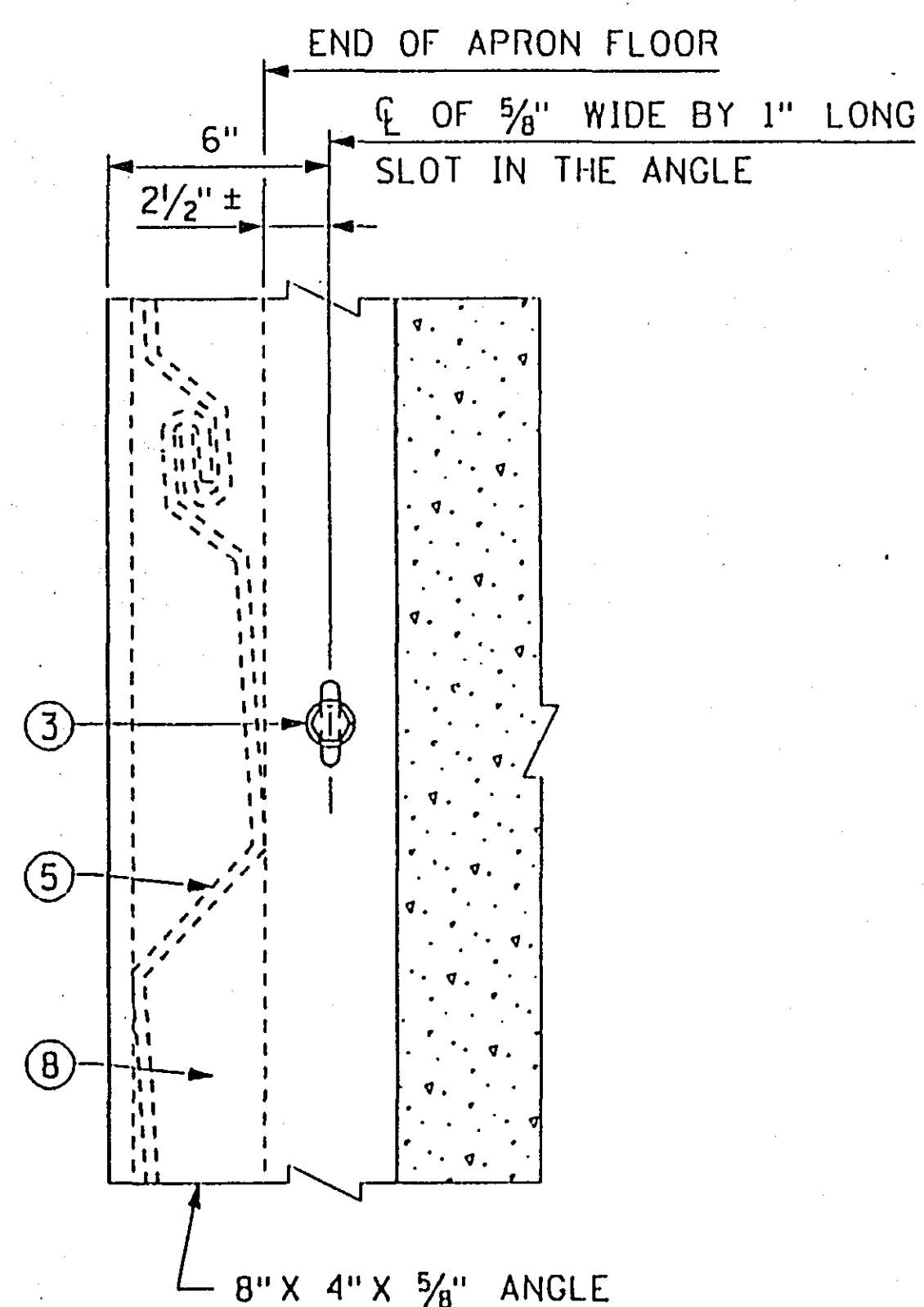


END VIEW

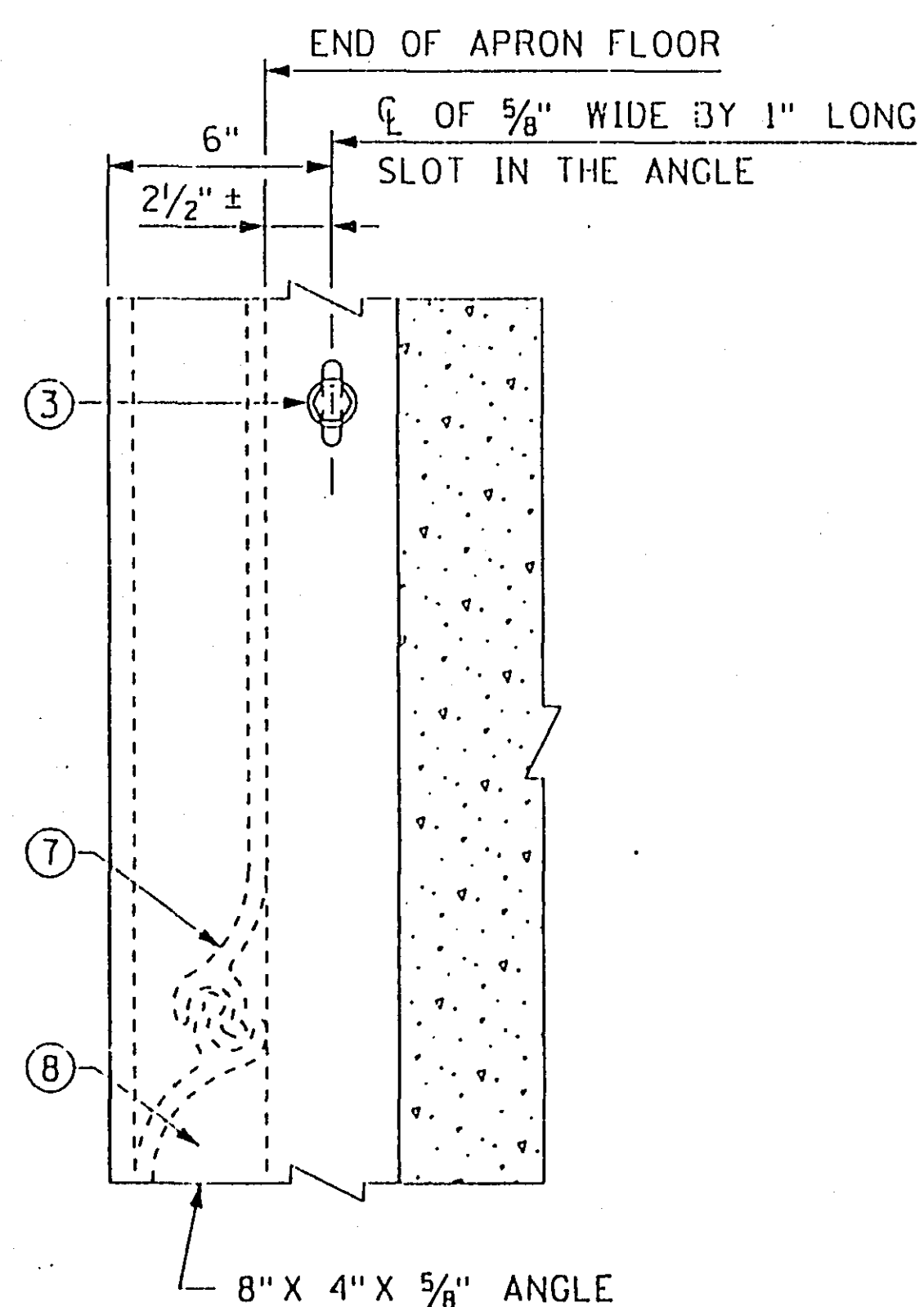


ELEVATION

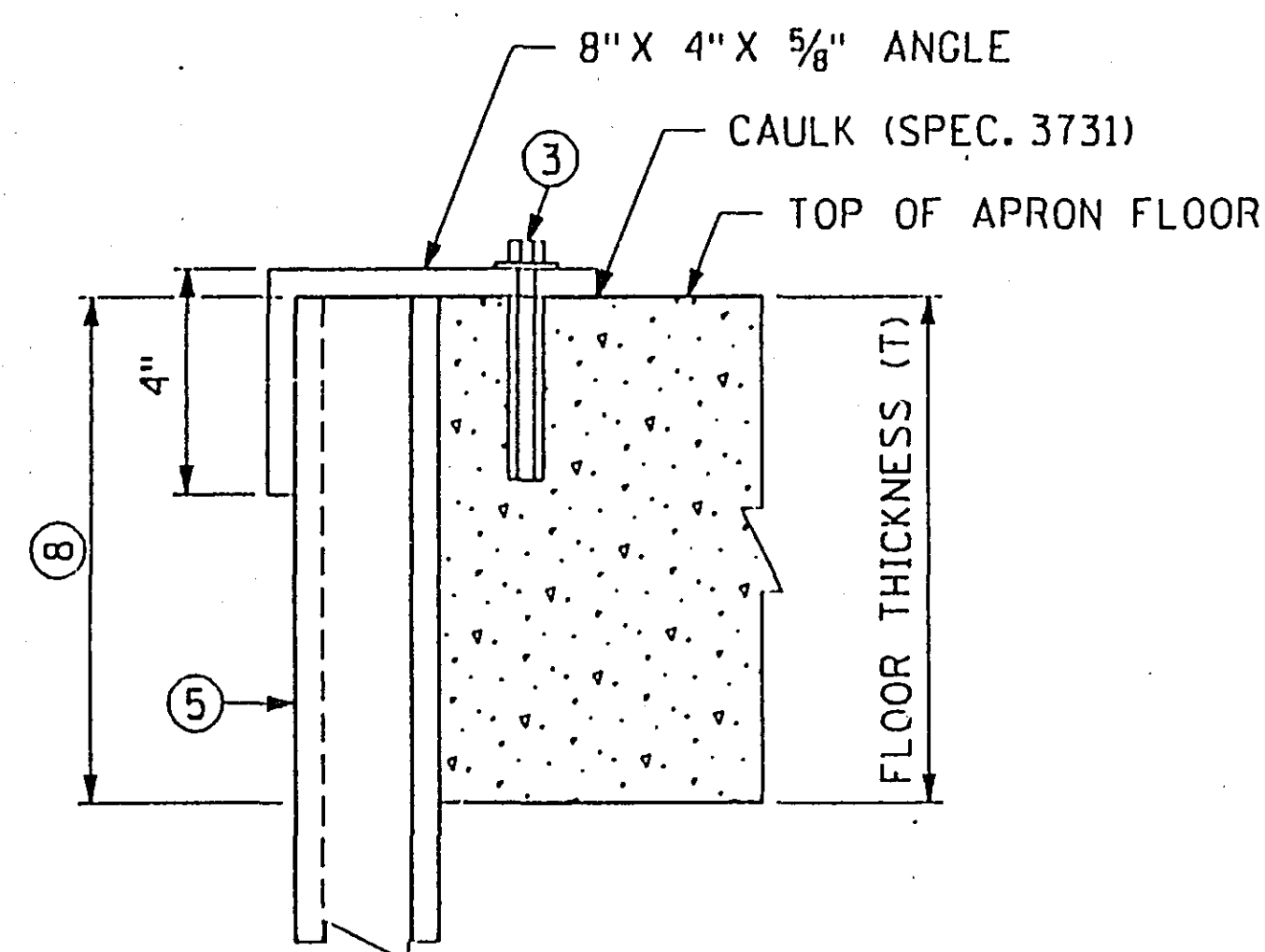
ALTERNATES 3 & 4 (GALVANIZED STEEL SHEETS)



PLAN

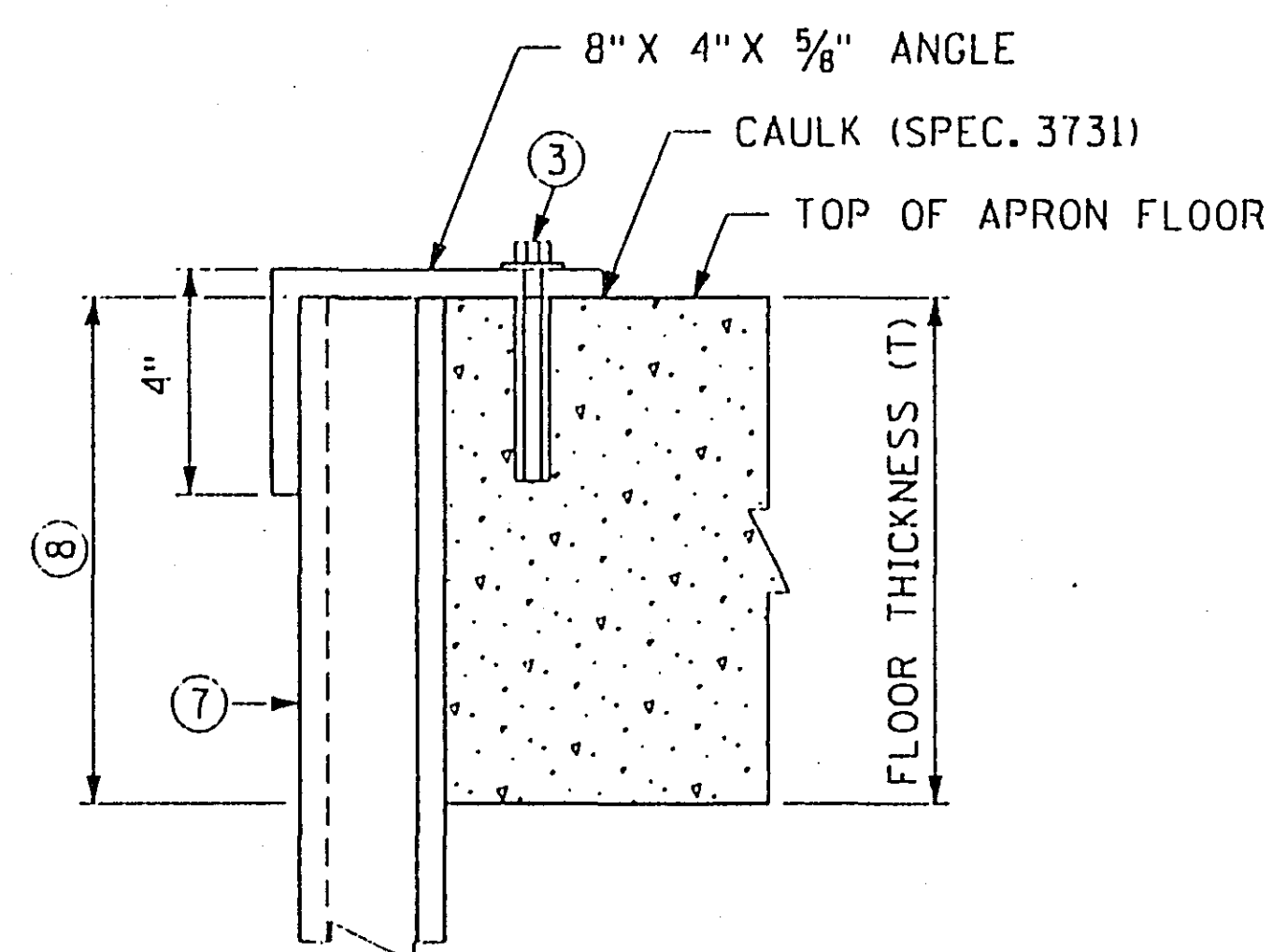


PLAN



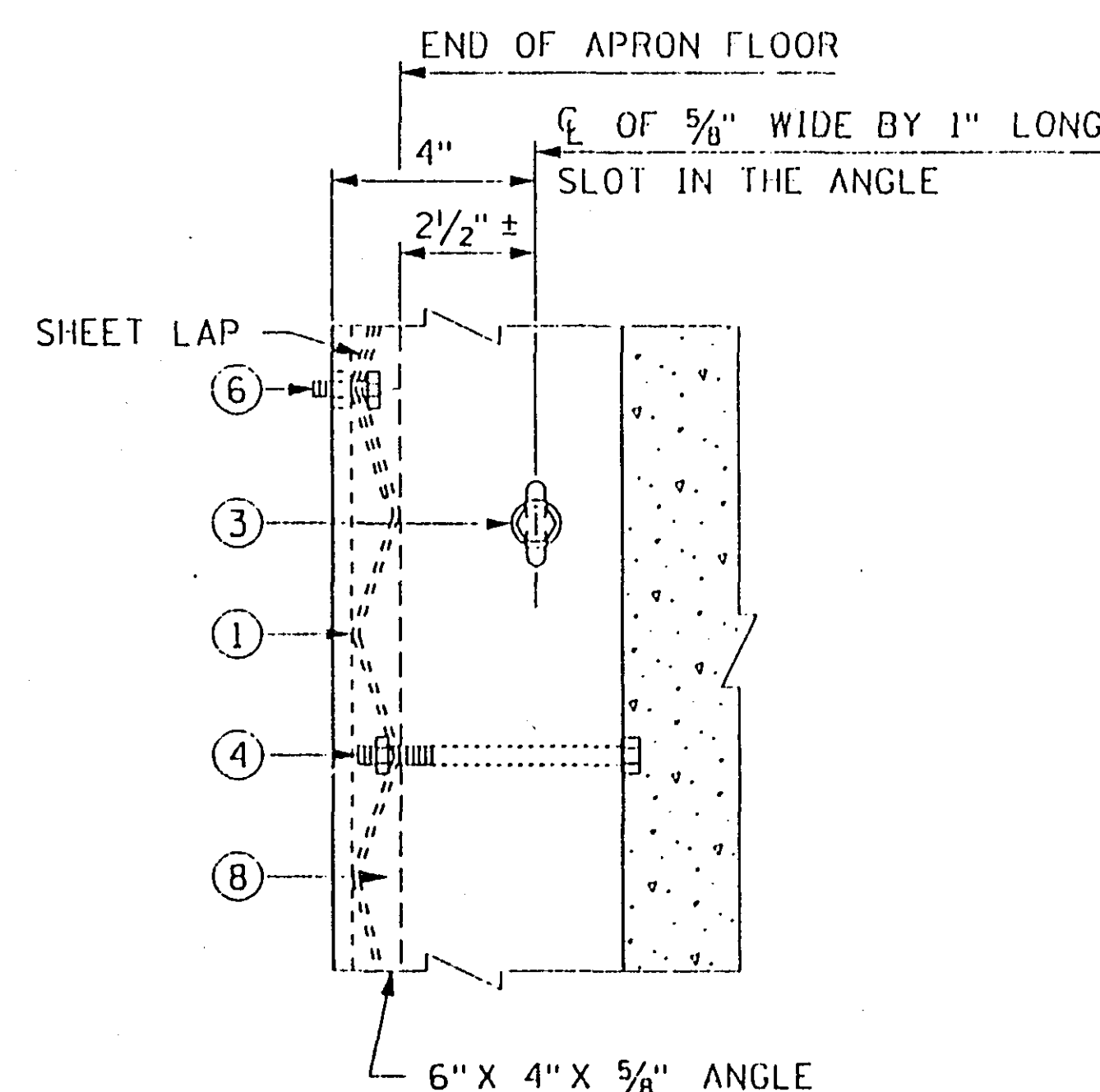
ELEVATION

DETAIL "A"
(STEEL SHEET PILING SHOWN)
ALTERNATE 1

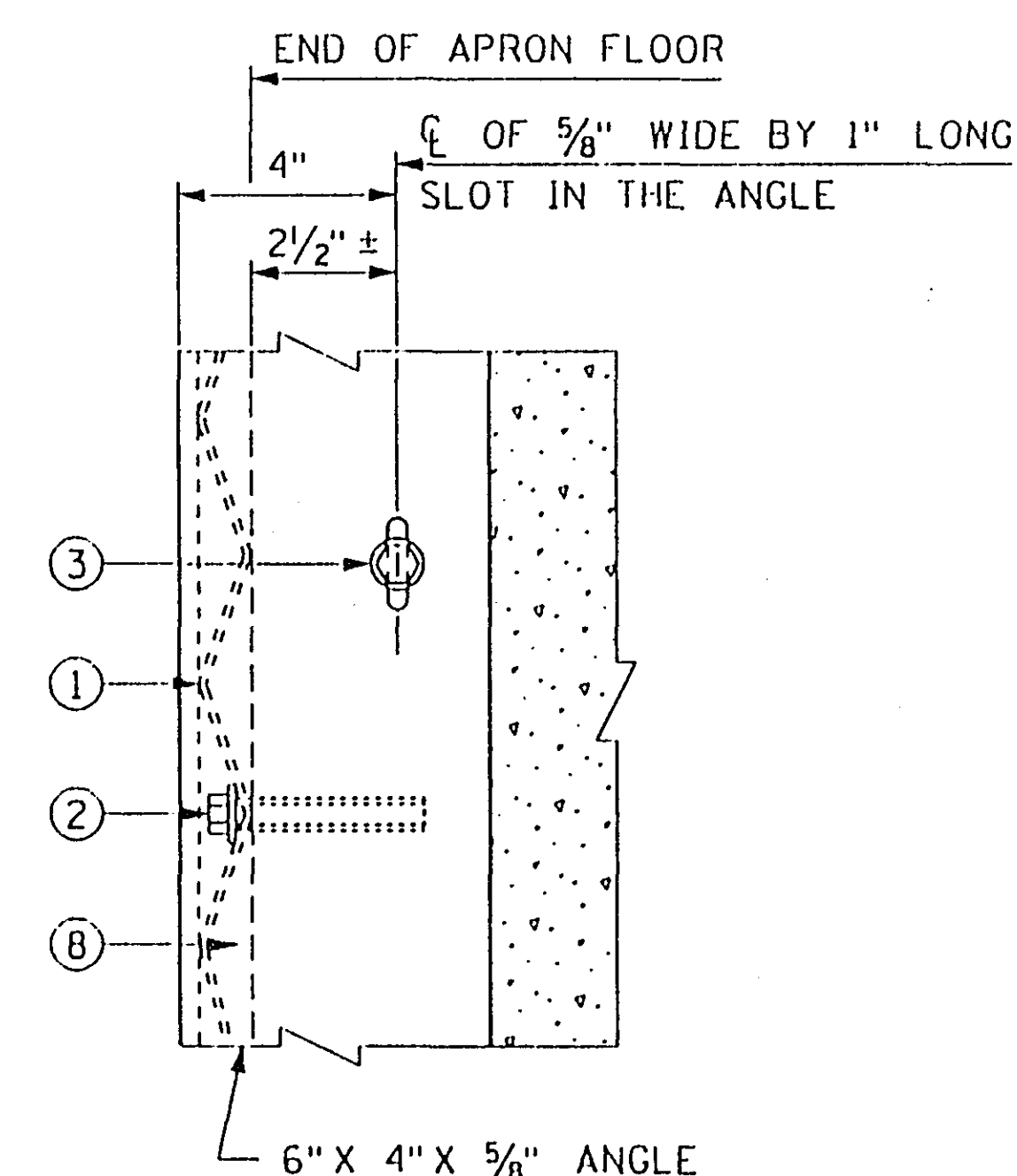


ELEVATION

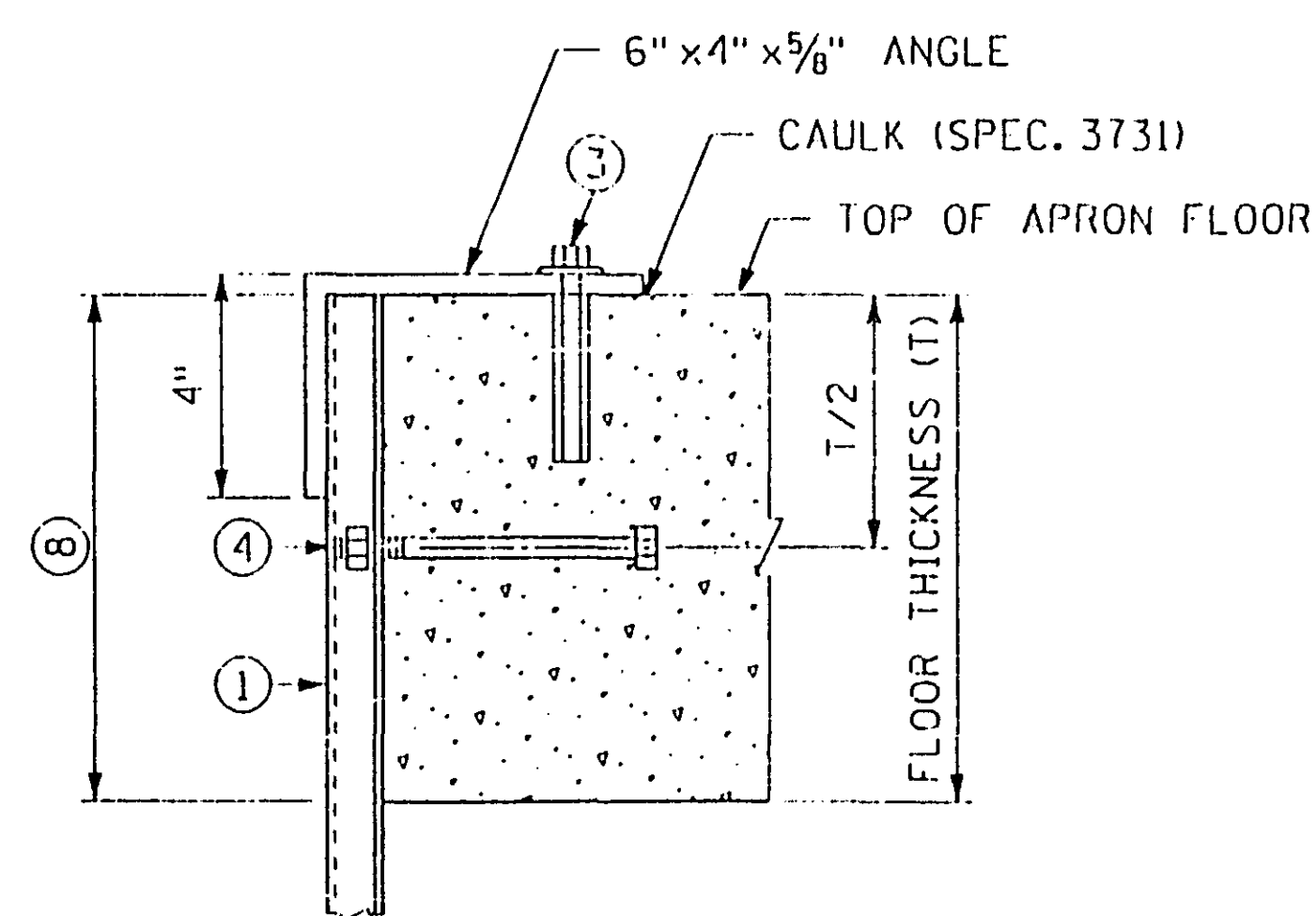
DETAIL "B"
(STEEL SHEET PILING SHOWN)
ALTERNATE 2



PLAN

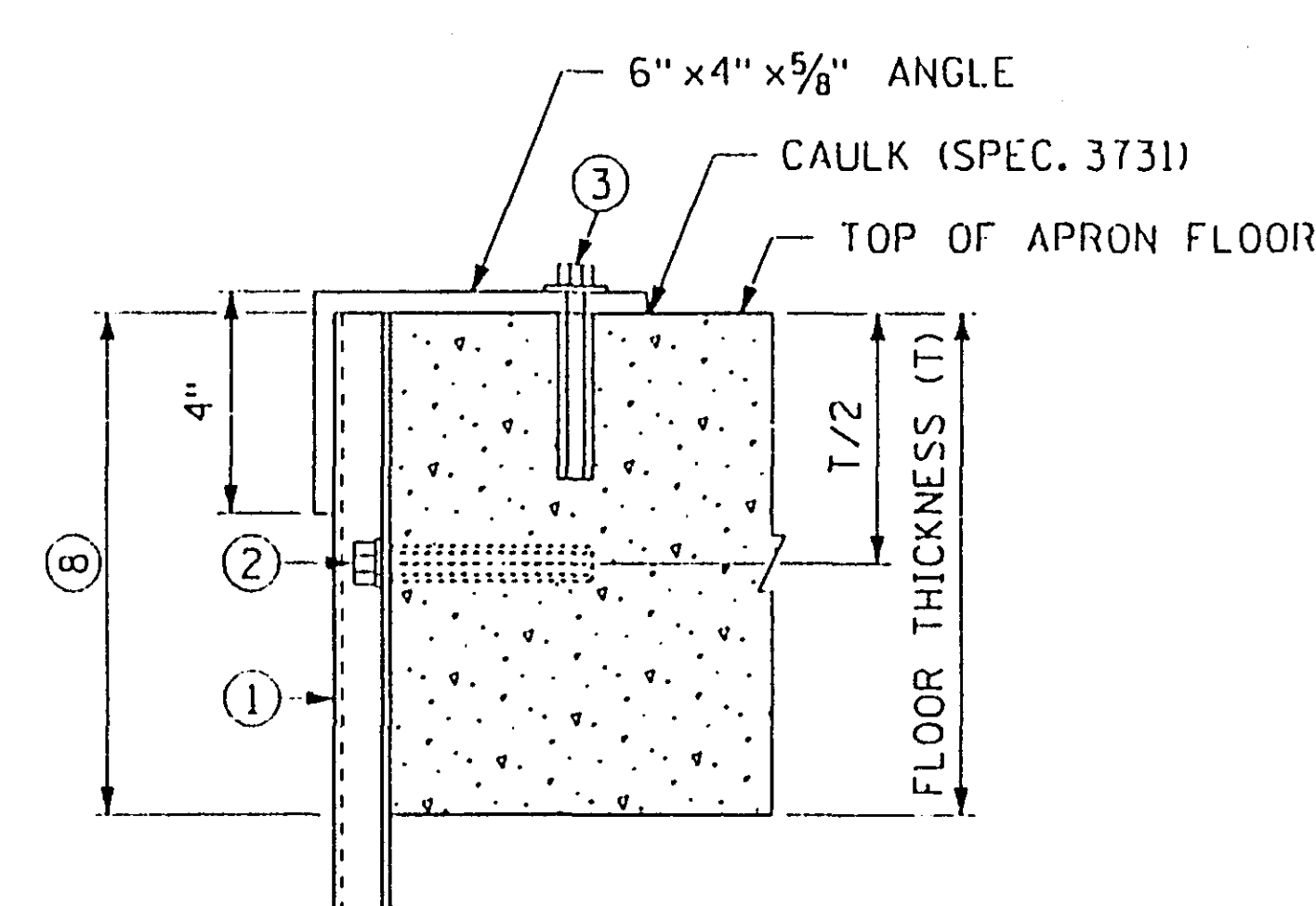


PLAN



ELEVATION

DETAIL "C"
ALTERNATE 3
(ON NEW CONSTRUCTION ONLY)



ELEVATION

DETAIL "D"
ALTERNATE 4
(ON NEW OR OLD CONSTRUCTION)

NOTES:

- 1 2 1/2" x 1/2" OR 2 3/4" x 1/2" CORRUGATED (12 GAUGE) OR HEAVIER GALVANIZED STEEL SHEETS.
- 2 FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIAMETER BY 4" LONG BOLTS AND APPROVED ANCHORAGES. (10" ± CENTER TO CENTER, TO THE NEAREST VALLEY)
- 3 FASTEN THE 8" x 4" x 5/8" OR 6" x 4" x 5/8" ANGLE WITH 3/8" DIAMETER 4" LONG BOLTS, 1" O.D. WASHER AND AN APPROVED ANCHORAGE. (2'-0" SPACING)
- 4 FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIAMETER 5" LONG BOLTS, NUT AND LOCK WASHER. (10" ± CENTER TO CENTER, TO THE NEAREST VALLEY)
- 5 (12 GAUGE) GALVANIZED CORRUGATED STEEL SHEET PILING, INTERLOCKING TYPE A.
- 6 3/8" DIA. x 1" LONG BOLT WITH NUT, TO LAP STEEL SHEETS.
- 7 STEEL SHEET PILING, SECTION NO. MP-112 OR EQUAL.
- 8 FILL THE VOIDS AS SHOWN, WITH CONCRETE OR CONCRETE GROUT, AS APPROVED BY THE ENGINEER.

GALVANIZE ALL FASTENERS AS PER SPEC. 3392.

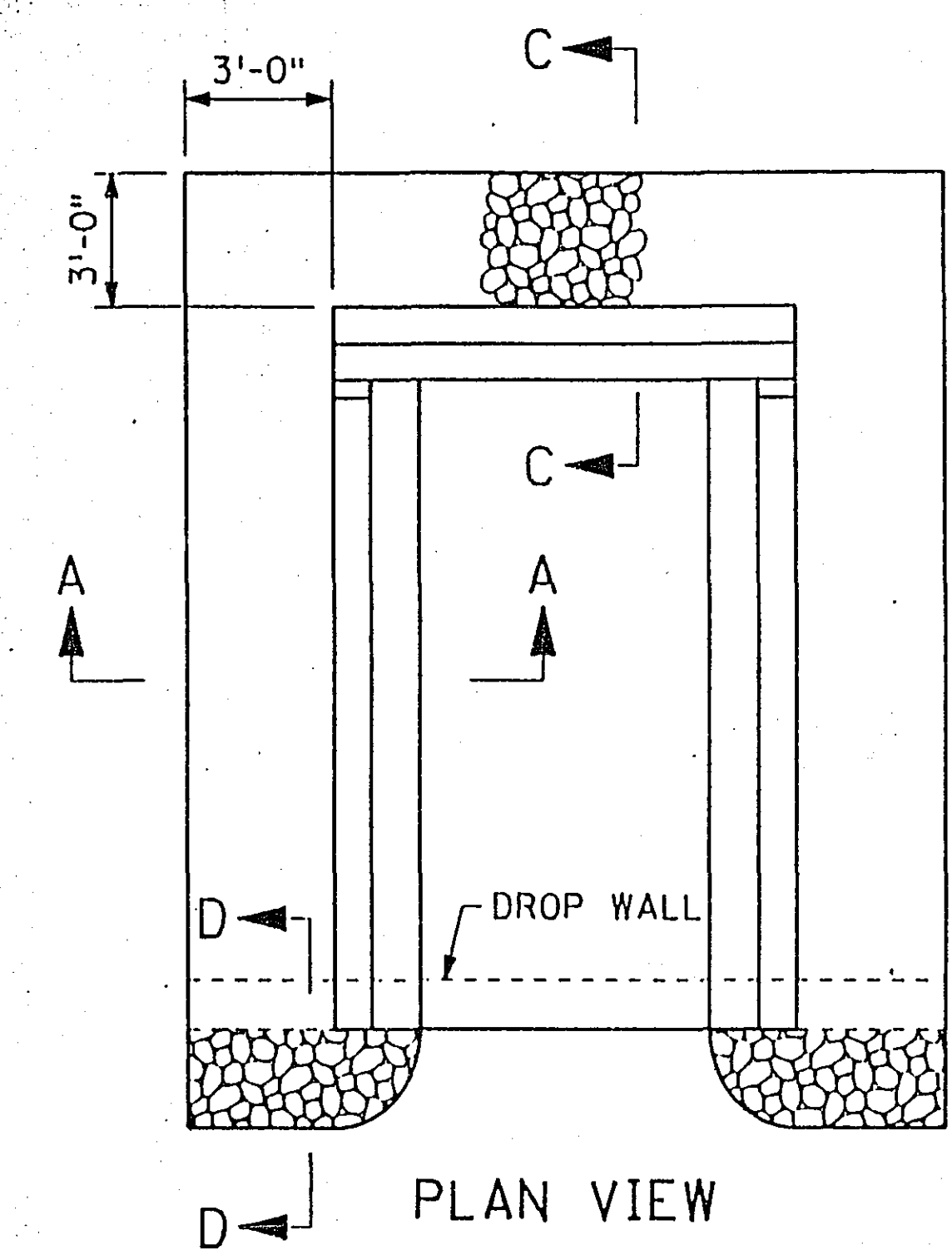
THE DISTRICT SOIL ENGINEER, BEFORE CULVERT PLANS ARE PREPARED, SHALL TAKE SAMPLES FROM THE DRAINAGE AREA FOR PH DETERMINATION. THE SOIL AND WATER SHOULD HAVE A PH OF 6.5 OR MORE IF SHEET STEEL IS USED.

28-146

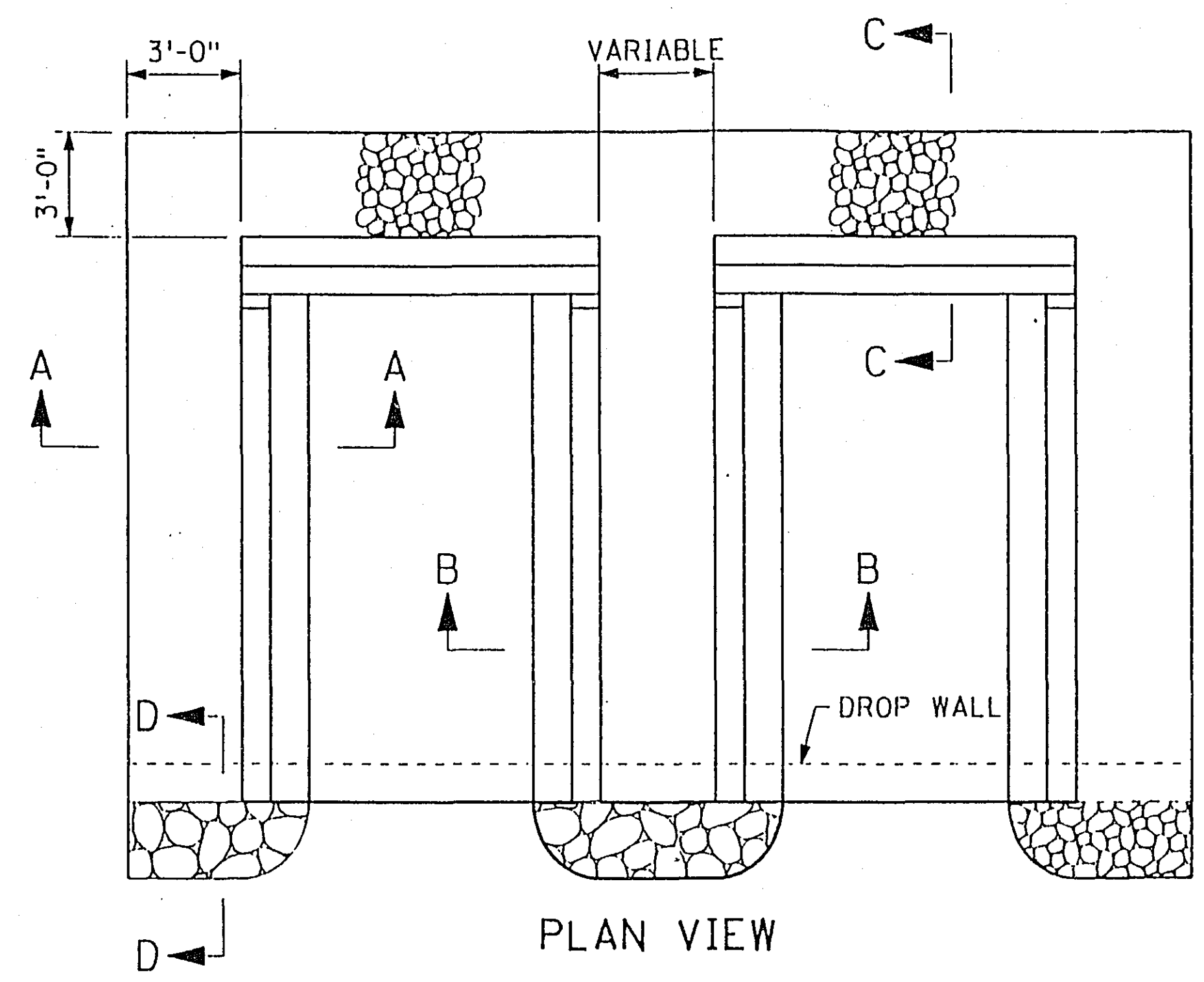
CERTIFIED BY _____ PROFESSIONAL ENGINEER	DES: _____	DR: _____	APPROVED: _____
REG. NO. _____ 19	CHK: _____	CHK: _____	

STANDARD SHEET NO. 5-297.424	TITLE: ALTERNATE DROPWALLS FOR BOX CULVERTS
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995	
STATE PROJ. NO. S.A.P. NO. 62-677-21 SHEET NO. 15 OF 55 SHEETS	

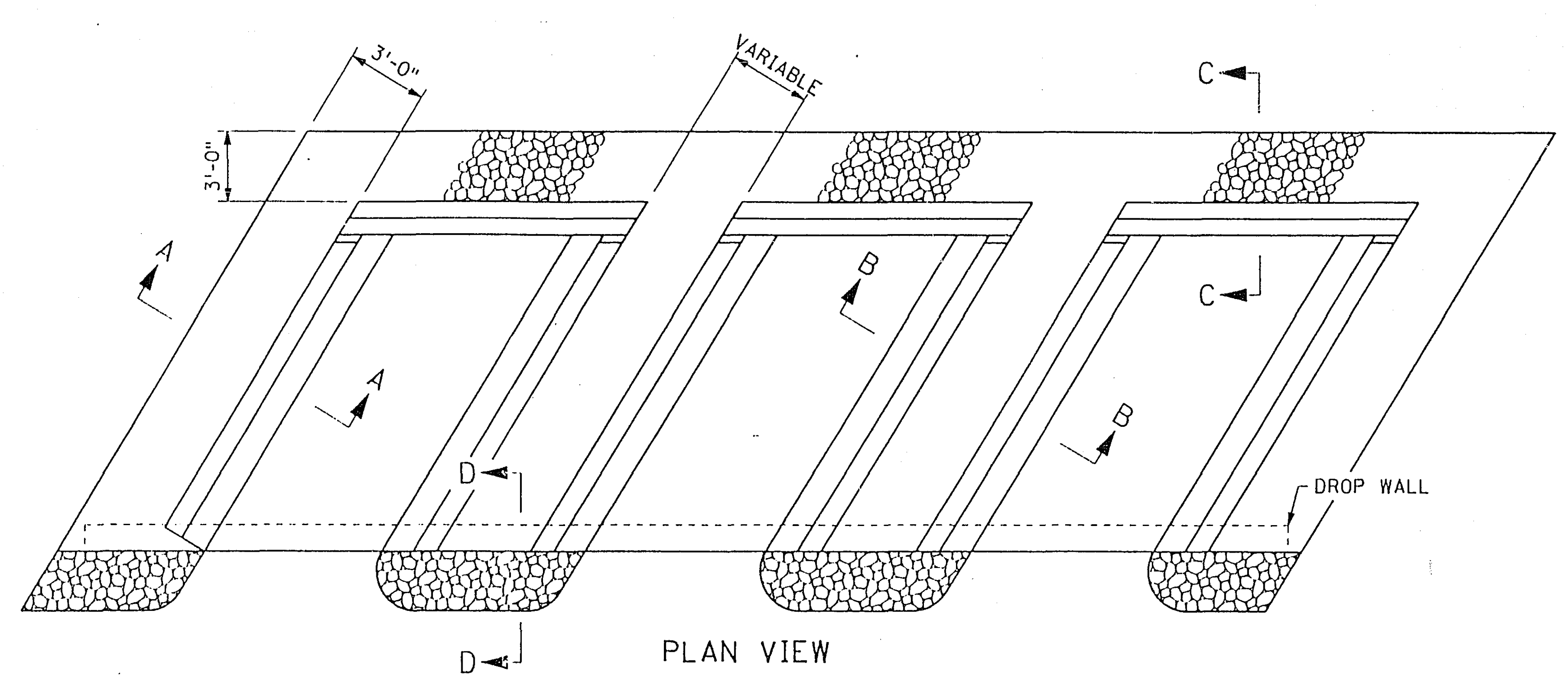
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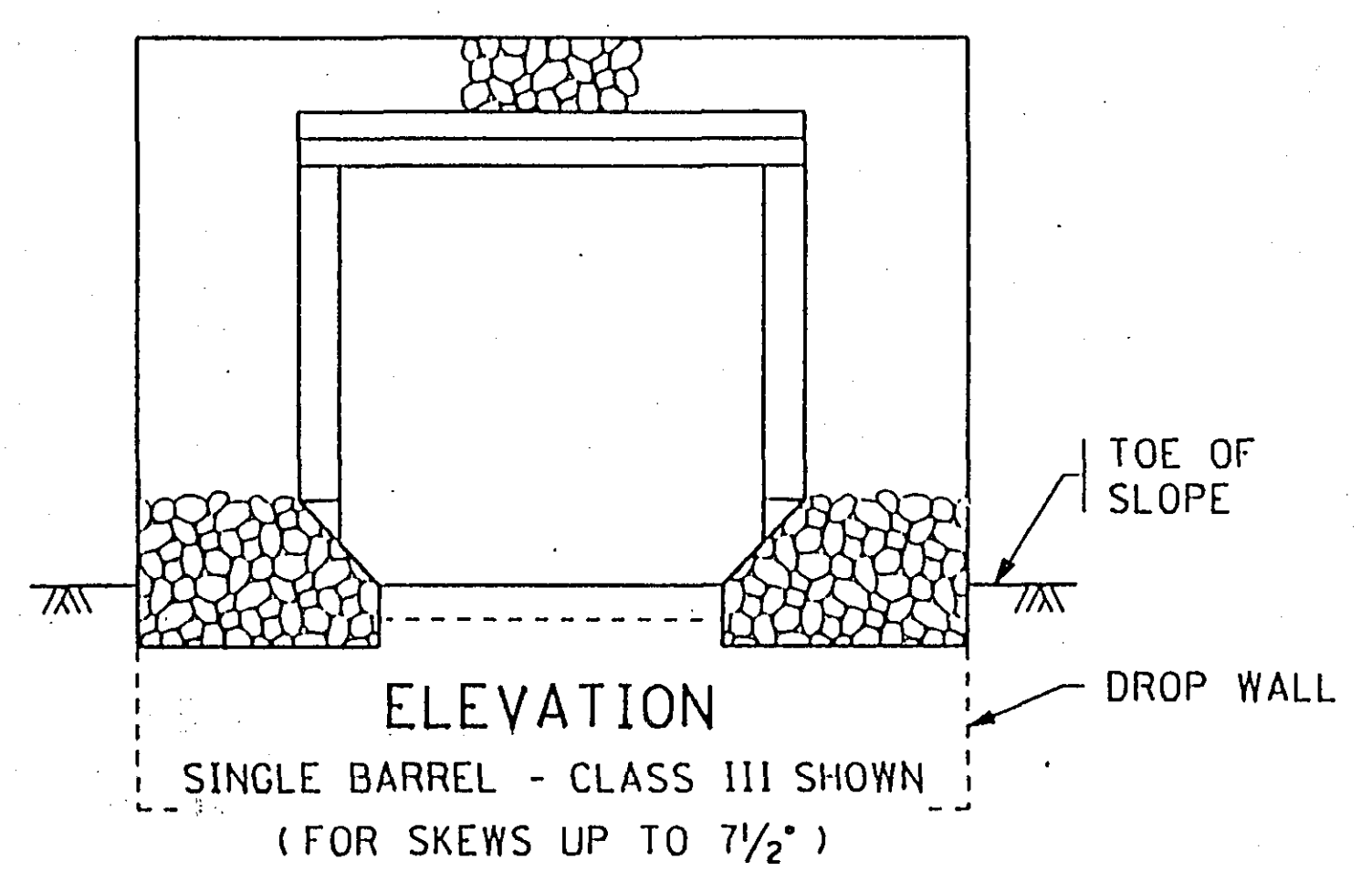
PLAN VIEW



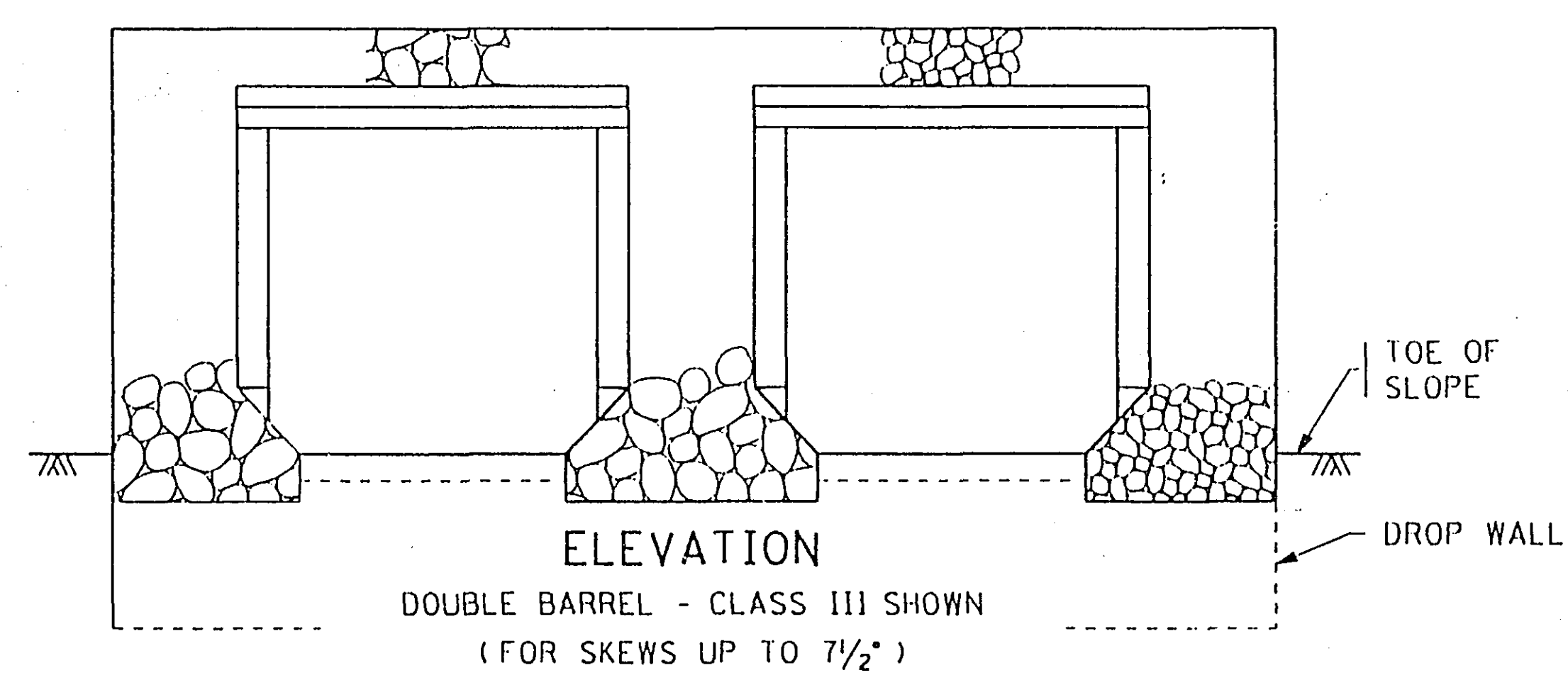
PLAN VIEW



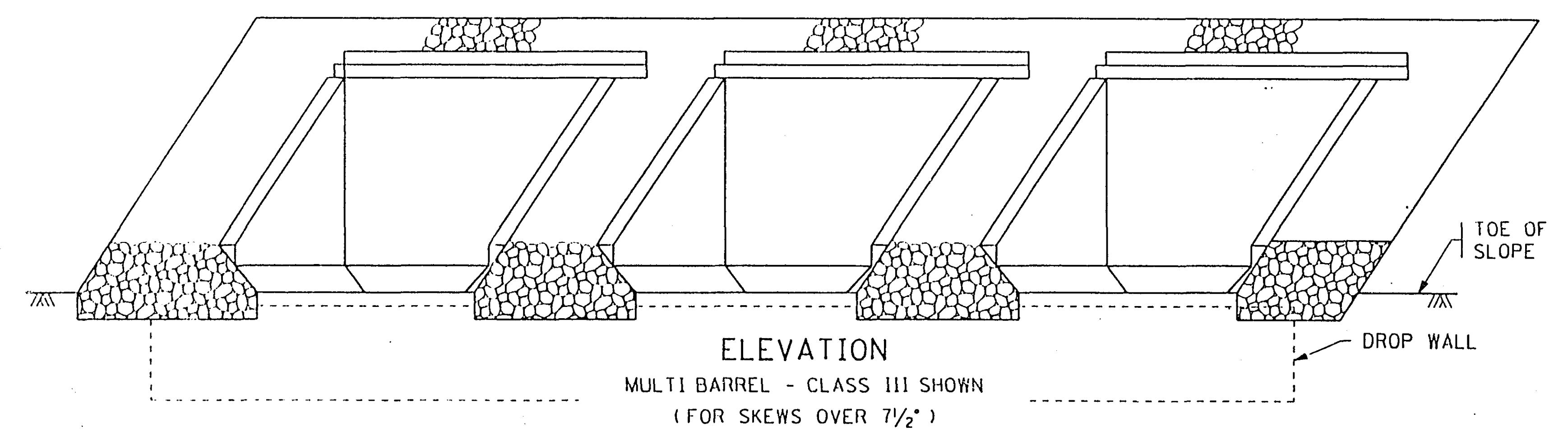
PLAN VIEW



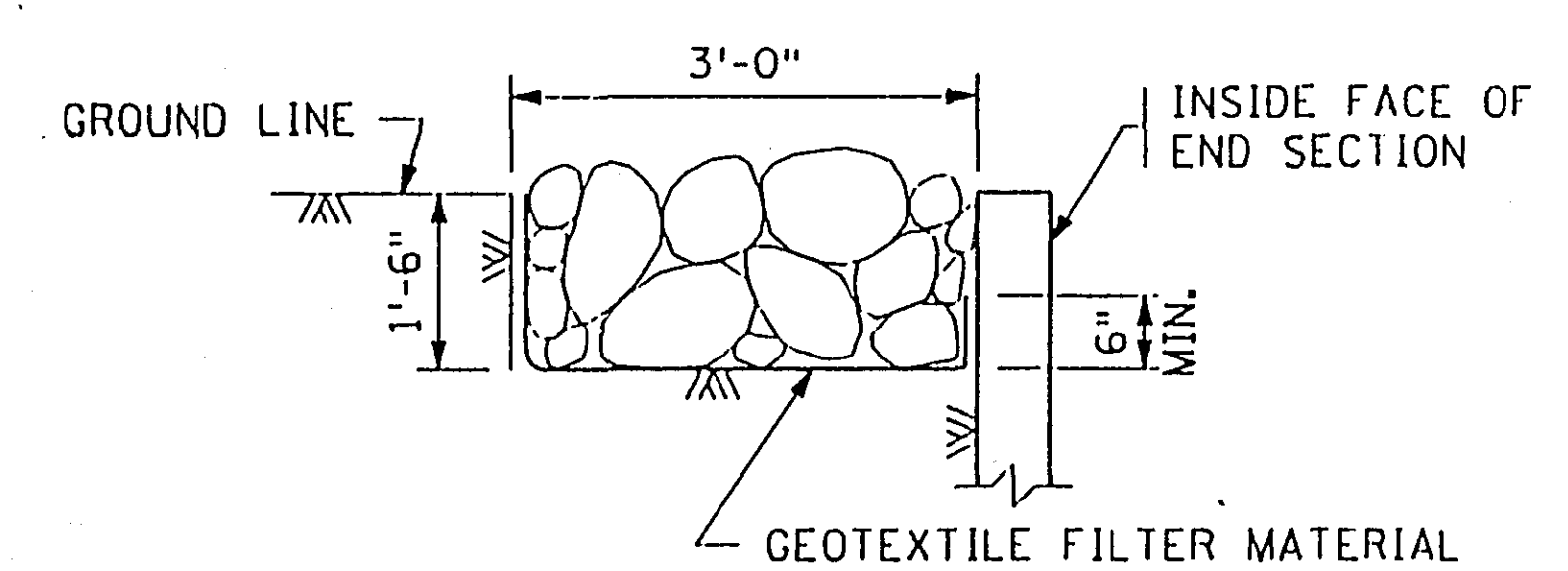
ELEVATION



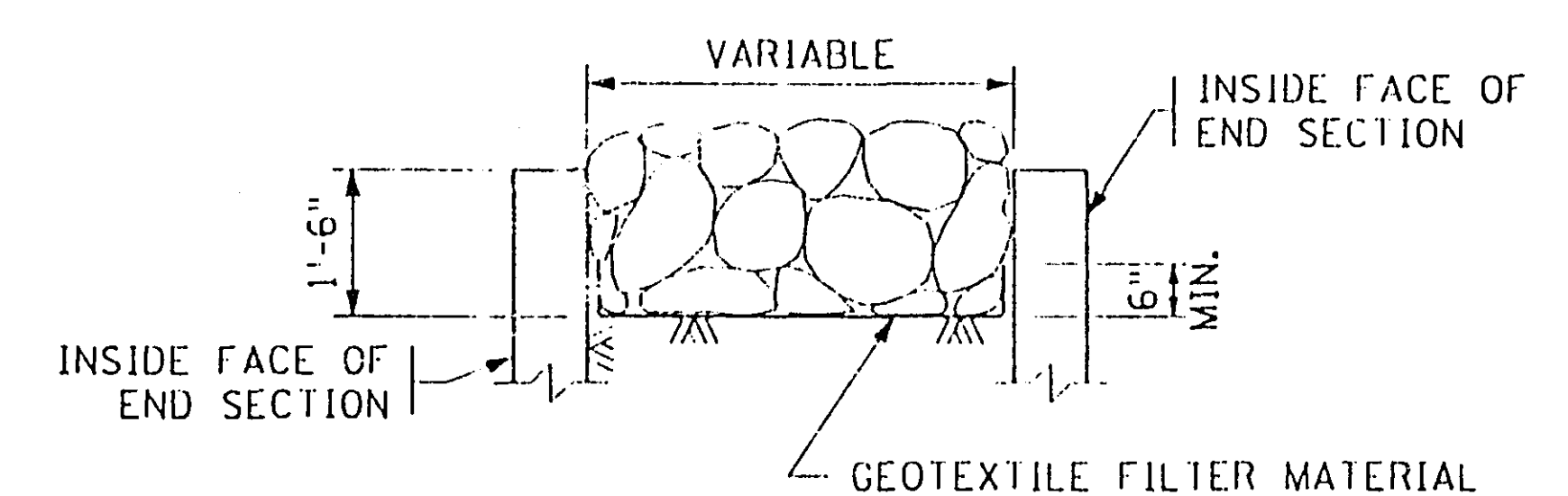
ELEVATION



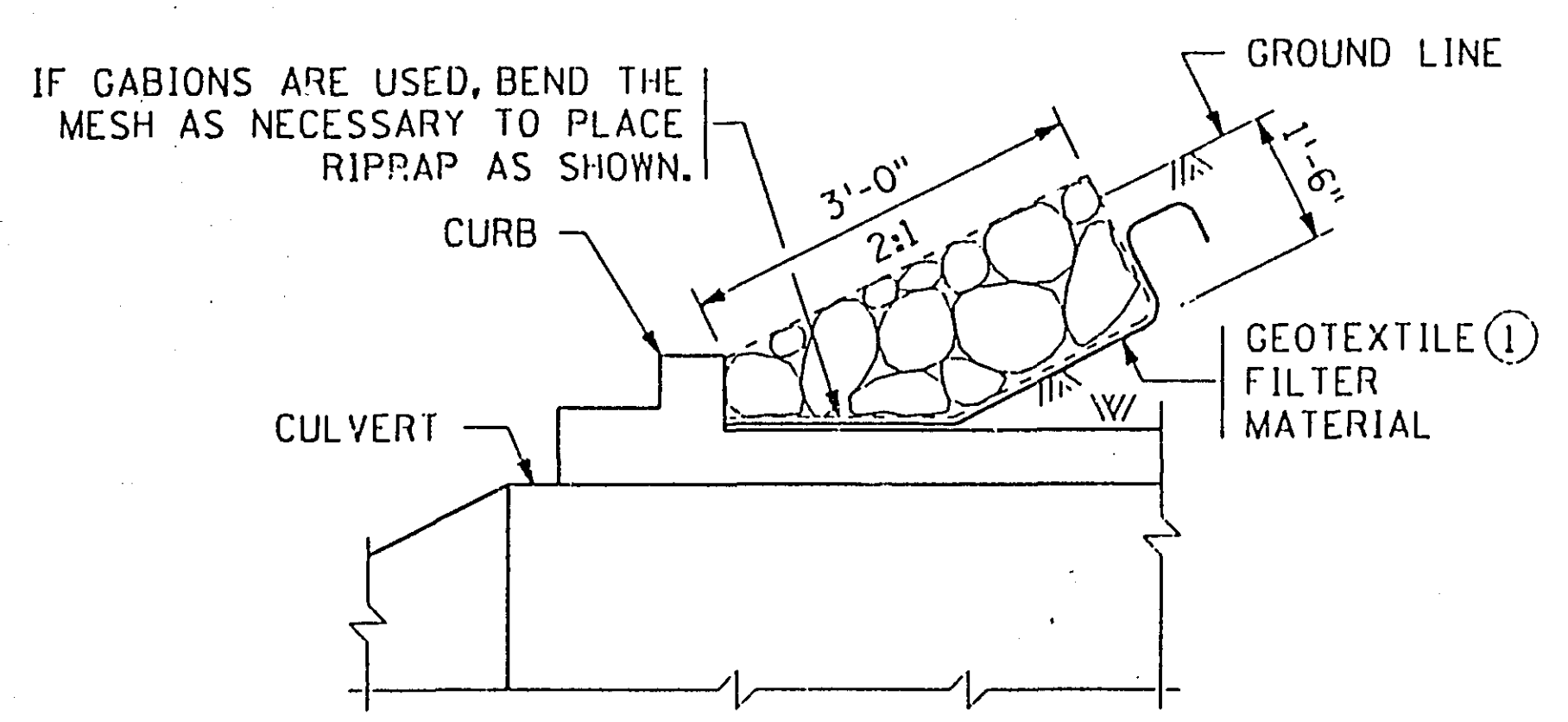
ELEVATION



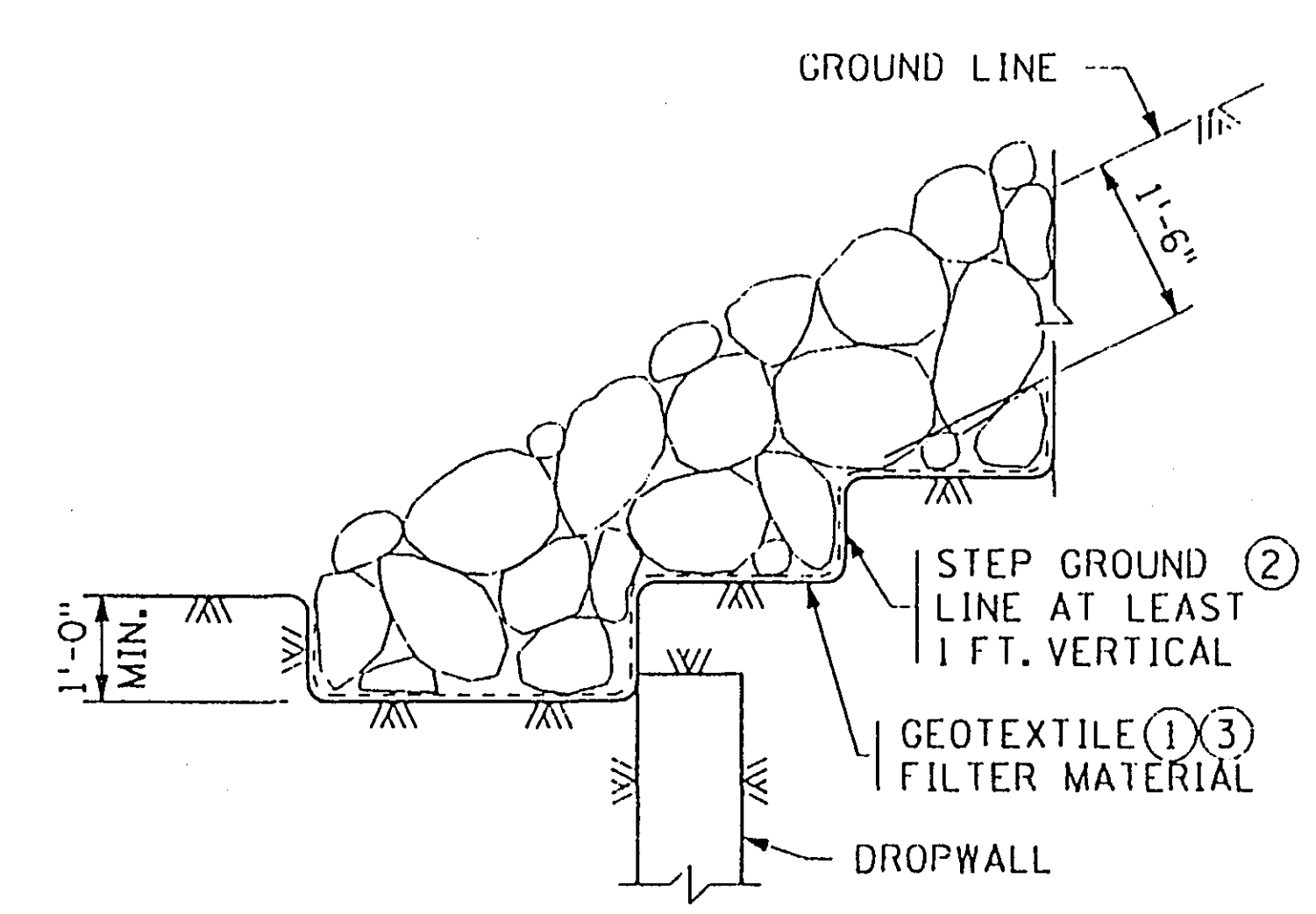
SECTION A-A



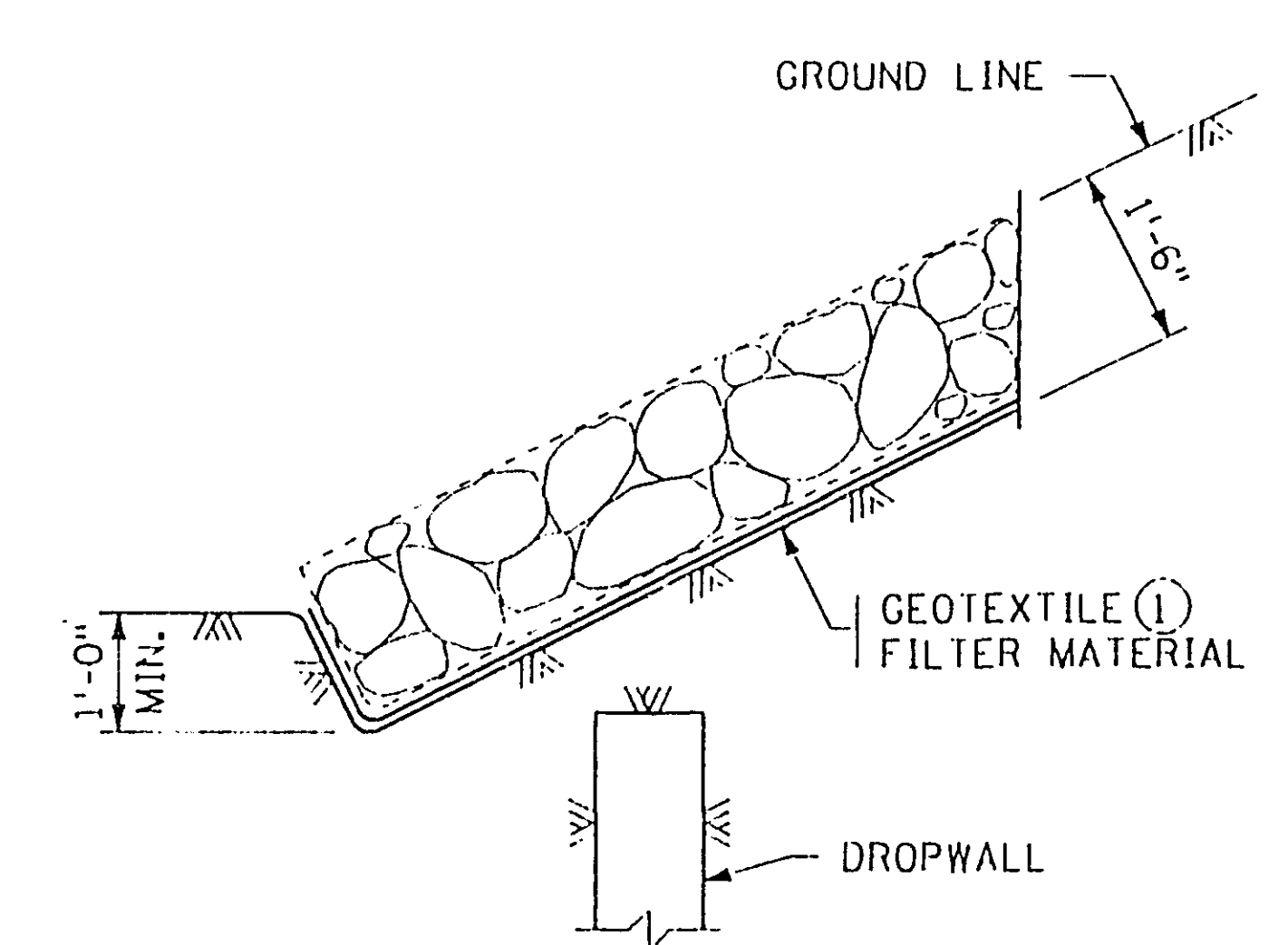
SECTION B-B



SECTION C-C



CLASS III RIPRAP OPTION

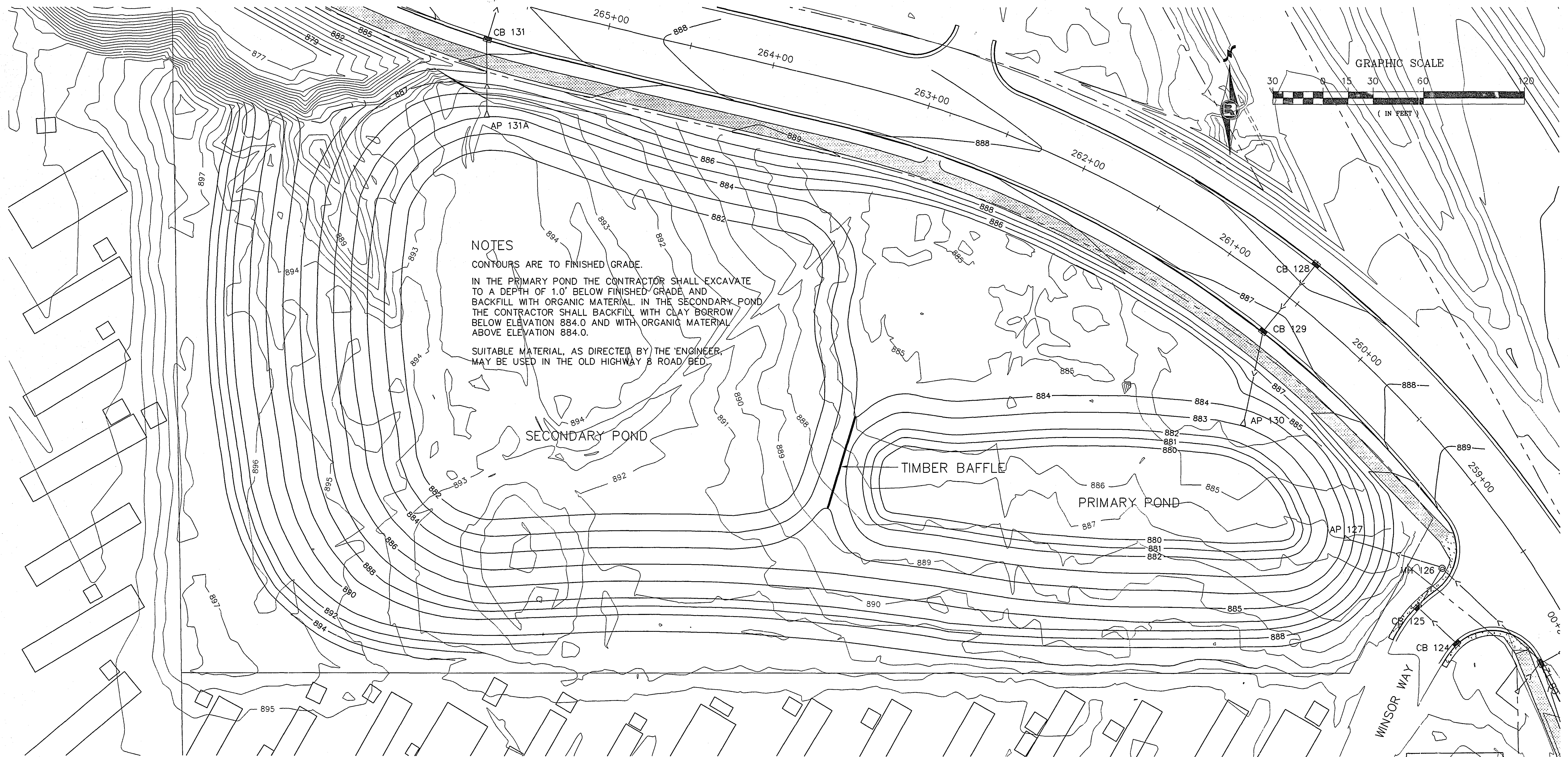


CLASS II RIPRAP IN GABIONS OPTION

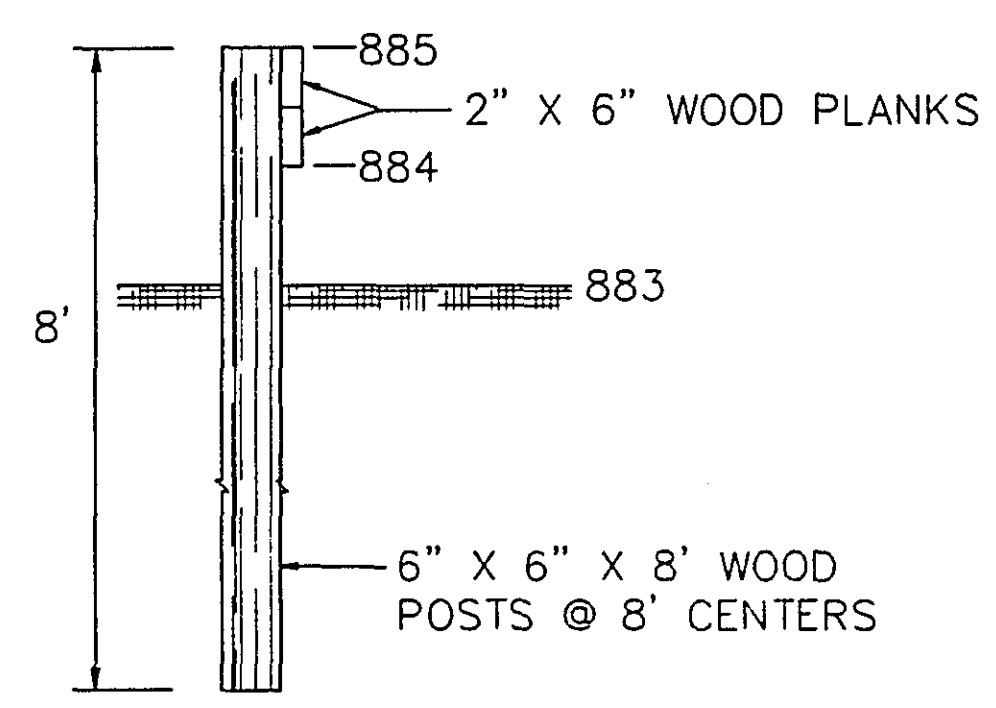
- NOTES:**
- 1. RIPRAP SHALL COMPLY WITH SPECS. 2511 AND 3601. THE CONTRACTOR MAY USE EITHER CLASS III, WITH GEOTEXTILE FILTER MATERIAL, OR CLASS II ENCLOSED IN GABIONS, WITH GEOTEXTILE FILTER MATERIAL. 4" TO 8" DIA. ROCK MAY BE USED IN GABIONS, IF THE MESH OPENINGS ARE 4" OR LESS. GABIONS SHALL BE RIVER TYPE, CODE "D", 3 FT. WIDE X 1.5 FT. DEEP.
 - 2. FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE SPEC. 3733. GEOTEXTILE STRIPS SHOULD BE CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. THE TOP EDGE SHOULD BE BURIED TO PREVENT UNDERMINING (SPEC. 2511.3B).
 - 3. SLOPES 2:1 TO 3:1 MUST BE STEPPED TO MINIMIZE SLIDING POTENTIAL.
 - 4. IF SLOPES ARE NOT STEPPED, GRANULAR FILTER SHOULD BE USED.

28-146

CERTIFIED BY _____ PROFESSIONAL ENGINEER				DES: _____	UR: _____	APPROVED: _____	STANDARD SHEET NO. 5-297.425	TITLE: EMBANKMENT PROTECTION FOR BOX CULVERTS
REG. NO. _____ 19				CHK: _____	CHK: _____		STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995	
STATE PROJ. NO. S.A.P. NO. 62-677-21								SHEET NO. 15A OF 55 SHEETS



NOTES
CONTOURS ARE TO FINISHED GRADE.
IN THE PRIMARY POND THE CONTRACTOR SHALL EXCAVATE TO A DEPTH OF 1.0' BELOW FINISHED GRADE AND BACKFILL WITH ORGANIC MATERIAL. IN THE SECONDARY POND THE CONTRACTOR SHALL BACKFILL WITH CLAY BORROW BELOW ELEVATION 884.0 AND WITH ORGANIC MATERIAL ABOVE ELEVATION 884.0.
SUITABLE MATERIAL, AS DIRECTED BY THE ENGINEER, MAY BE USED IN THE OLD HIGHWAY B ROAD BED.



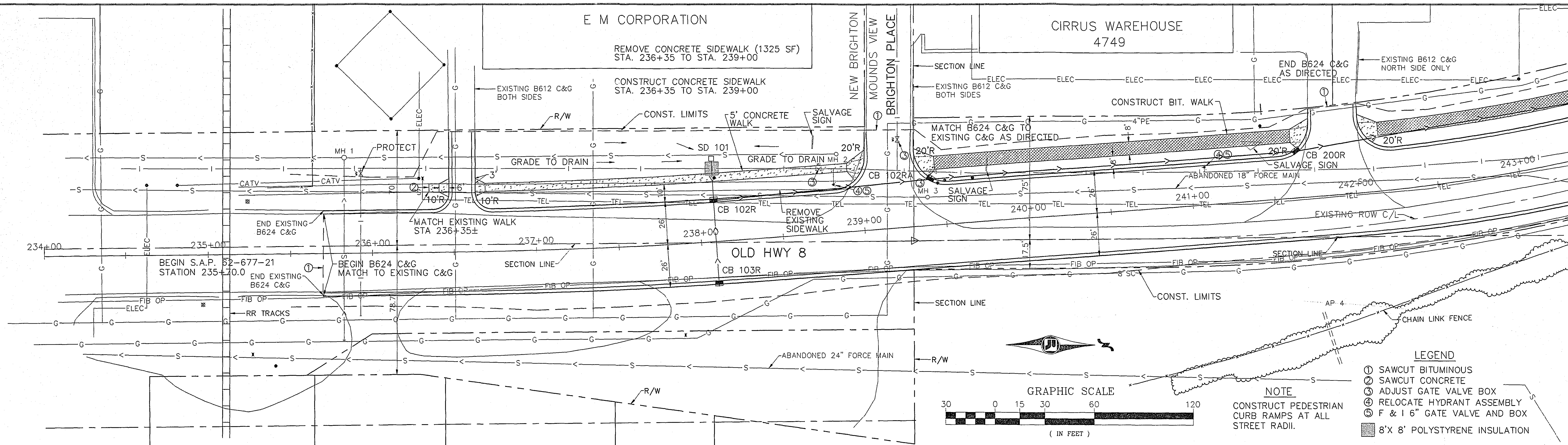
TIMBER BAFFLE DETAIL

NOTES
TIMBER BAFFLE SHALL BE 56 LF AND BE INSTALLED AT LOCATION AND ELEVATIONS SHOWN.
POSTS AND LUMBER SHALL BE S4S
fv ≥ 155 psi
fy ≥ 1000 psi
TREATMENT SHALL BE WATERBORNE TYPE PER MN/DOT SPEC 3491
2 - 3/8" DIAMETER BOLTS WITH 2 - M.I. WASHERS AND 1 NUT AT EACH INTERSECTION.

E	TURF ESTABLISHMENT		
	POND EL. 884.0 TO 885.5	POND EL. 885.5 TO 895.0	ROAD STA. 266+00 TO 271+00
SEEDING	0.7 AC.	1.0 AC.	0.6 AC.
SEED MIXTURE 150	35 LBS	-----	-----
SEED MIXTURE 250	-----	50 LBS	30 LBS
MULCH TYPE 1 (CLEAN STRAW)	1.4 TONS	2.0 TONS	1.2 TONS
DISC ANCHORING	0.7 AC.	1.0 AC.	0.6 AC.

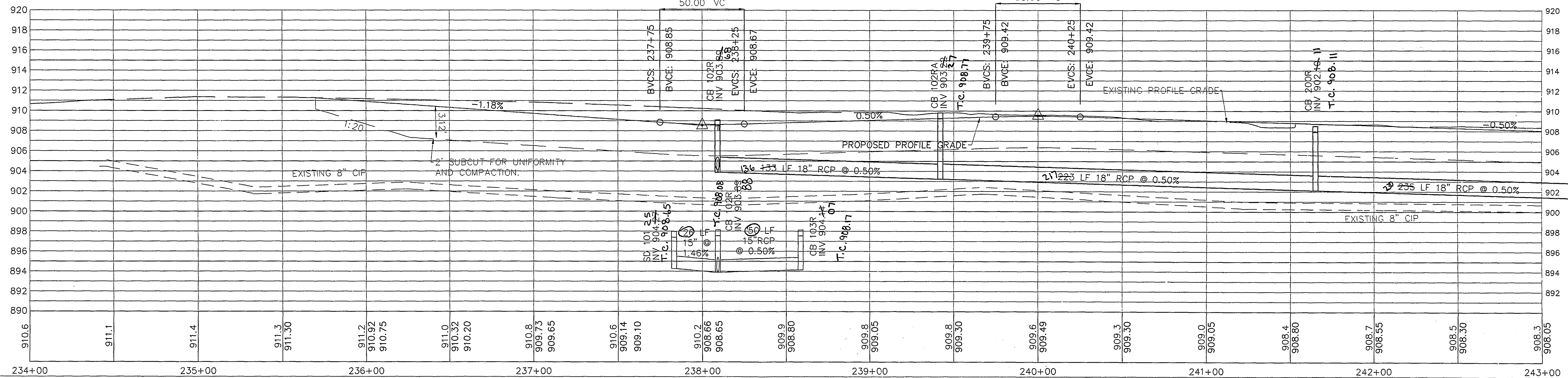
ZB-146

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 LAWS OF THE STATE OF MINNESOTA.
REG. NO. _____ DATE _____



LOW POINT ELEV = 908.64
LOW POINT STA = 238+10.14
PVI STA = 238+00
PVI ELEV = 908.55
A.D. = 1.68
K = 29.72
50.00' VC

HIGH POINT ELEV = 909.49
HIGH POINT STA = 240+00
PVI STA = 240+00
PVI ELEV = 909.55
A.D. = -1.00
K = 50.00
50.00' VC



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REG. NO. _____ DATE _____

REVISED 5-7-97

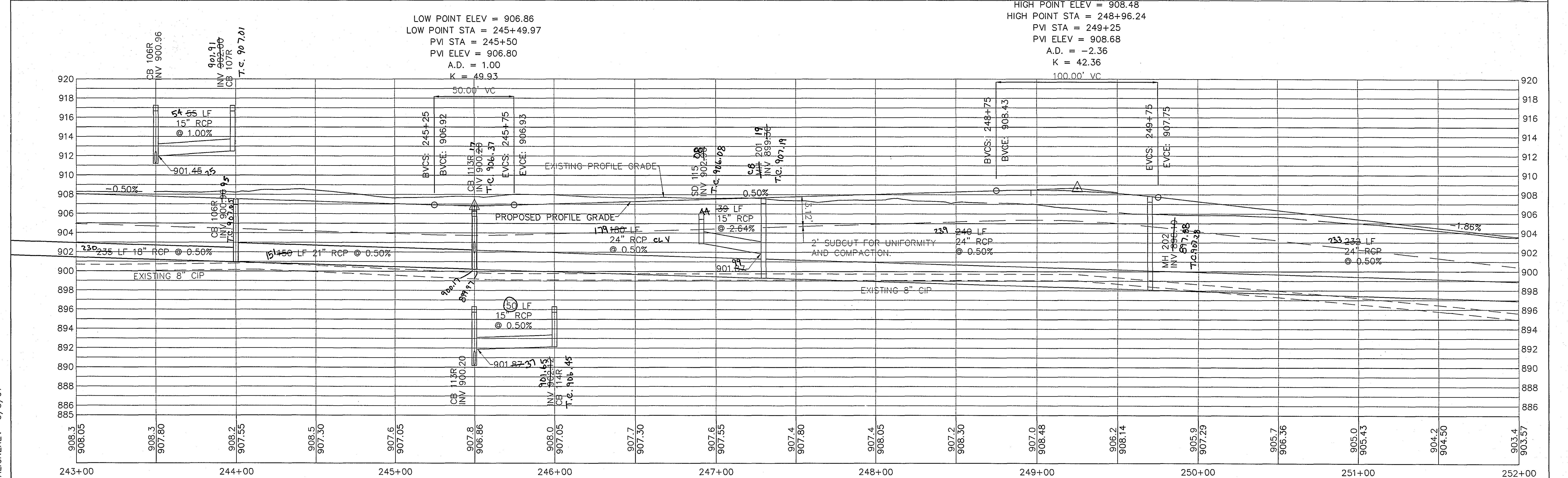
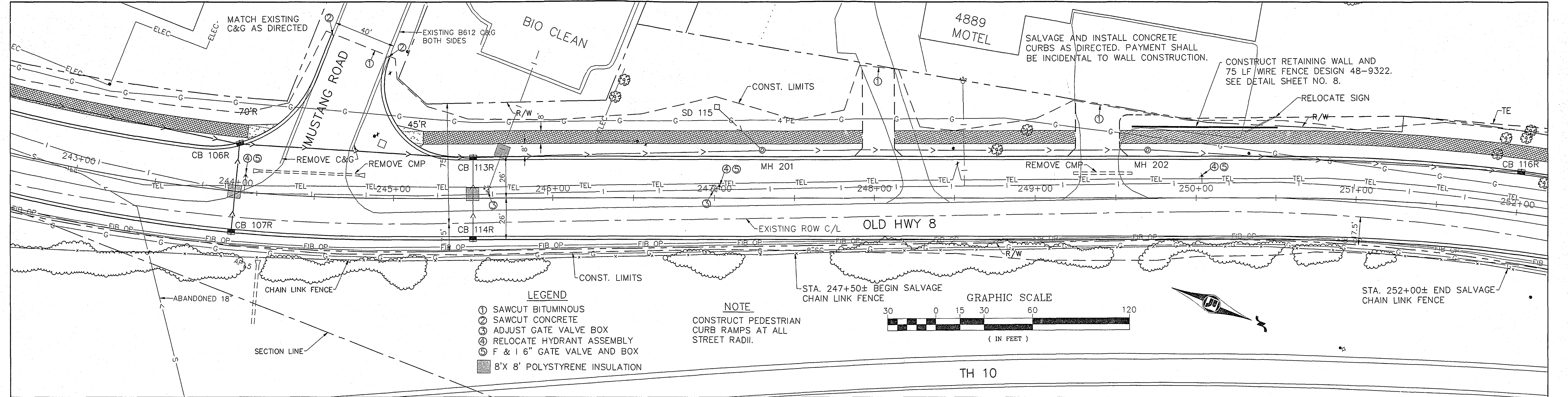
REVISED 3-5-97

ASBUILT 12-29-97

S.A.P. 62-677-21

28-146
PLAN & PROFILE
STA. 234+00 TO 243+00

SHEET NO. 17 OF 55 SHEETS



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 LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

REVISED 5-7-97
REVISED 3-5-97
REVISED 12-96

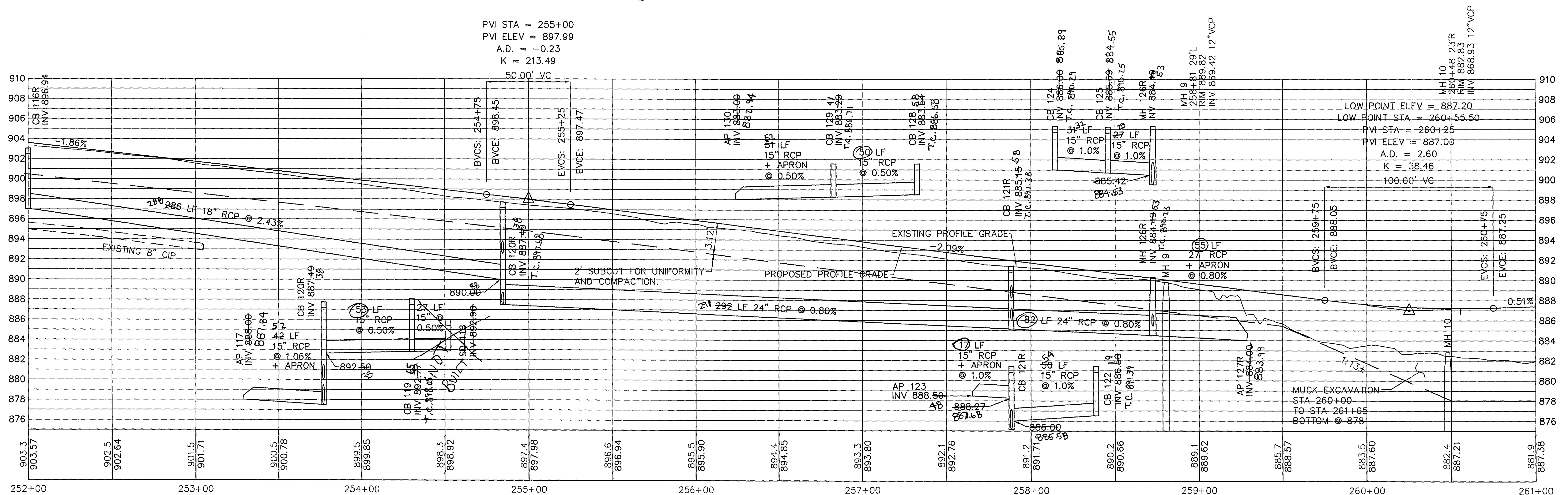
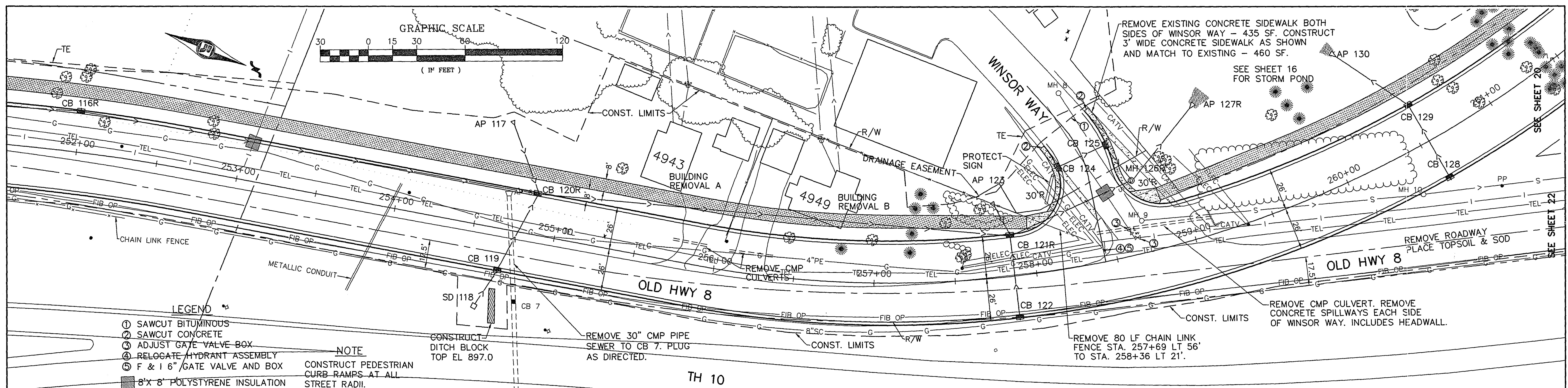
ASBUILT
12-29-97
SJB

28-146
PLAN & PROFILE
STA. 243+00 TO 252+00

S.A.P. 62-677-21

SHEET NO. 18 OF 55 SHEETS

E:\DWG\OH-8\CHALIGN2REV 5/8/97



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
LAWS OF THE STATE OF MINNESOTA.

REG. NO.	DATE
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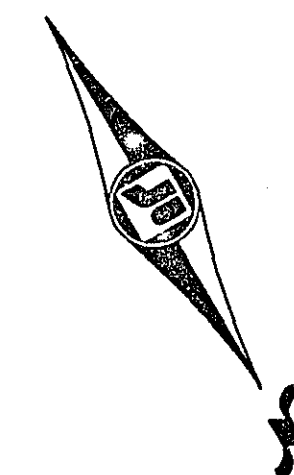
REVISED 12-96
REVISED 3-5-97

 S.A.P. 62-677-21

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: *SPZ*
DATE: 12-29-97

PLAN & PROFILE
STA. 252+00 TO 261+00

SHEET NO. 19 OF 55 SHEETS

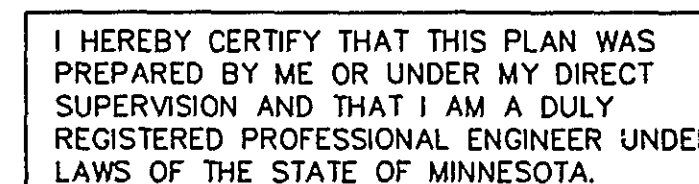


CONST. LIMITS

DEPRESS CURB FOR
BIT. PED RAMP
263+00

SEE SHEET 22

HIGH POINT ELEV = 888.79
 HIGH POINT STA = 263+89.32
 PVI STA = 264+00
 PVI ELEV = 888.88
 A.D. = -1.77
 K = 28.25
 50.00' VC



REG. NO.	DATE
----------	------

REVISED 12-96

ASBUILT
12-29-97
SJB

28-146
PLAN & PROFILE
STA. 261+00 TO 270+00

 S.A.P. 62-677-21

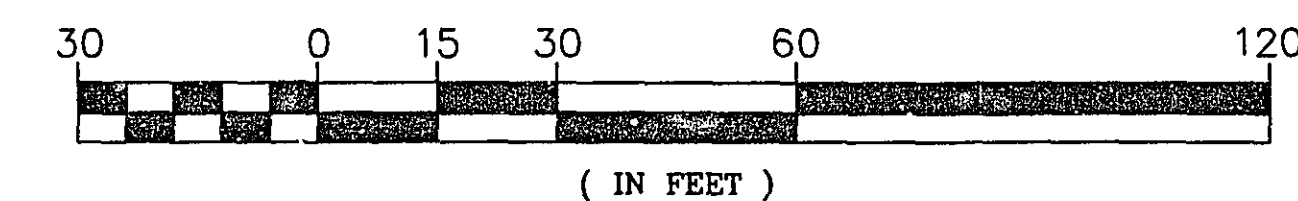
SHEET NO. 20 OF 55 SHEETS

CONST. LIMITS

CONSTRUCT WIRE FENCE DESIGN
48-9322 STA 271+05 TO 272+05
LEFT 43.5'.

NOTE
CONSTRUCT PEDESTRIAN
CURB RAMPS AT ALL
STREET RADII.

GRAPHIC SCALE



CONSTRUCT PLATE
BEAM GUARDRAIL-

CONST. LIMITS

RICE CREEK

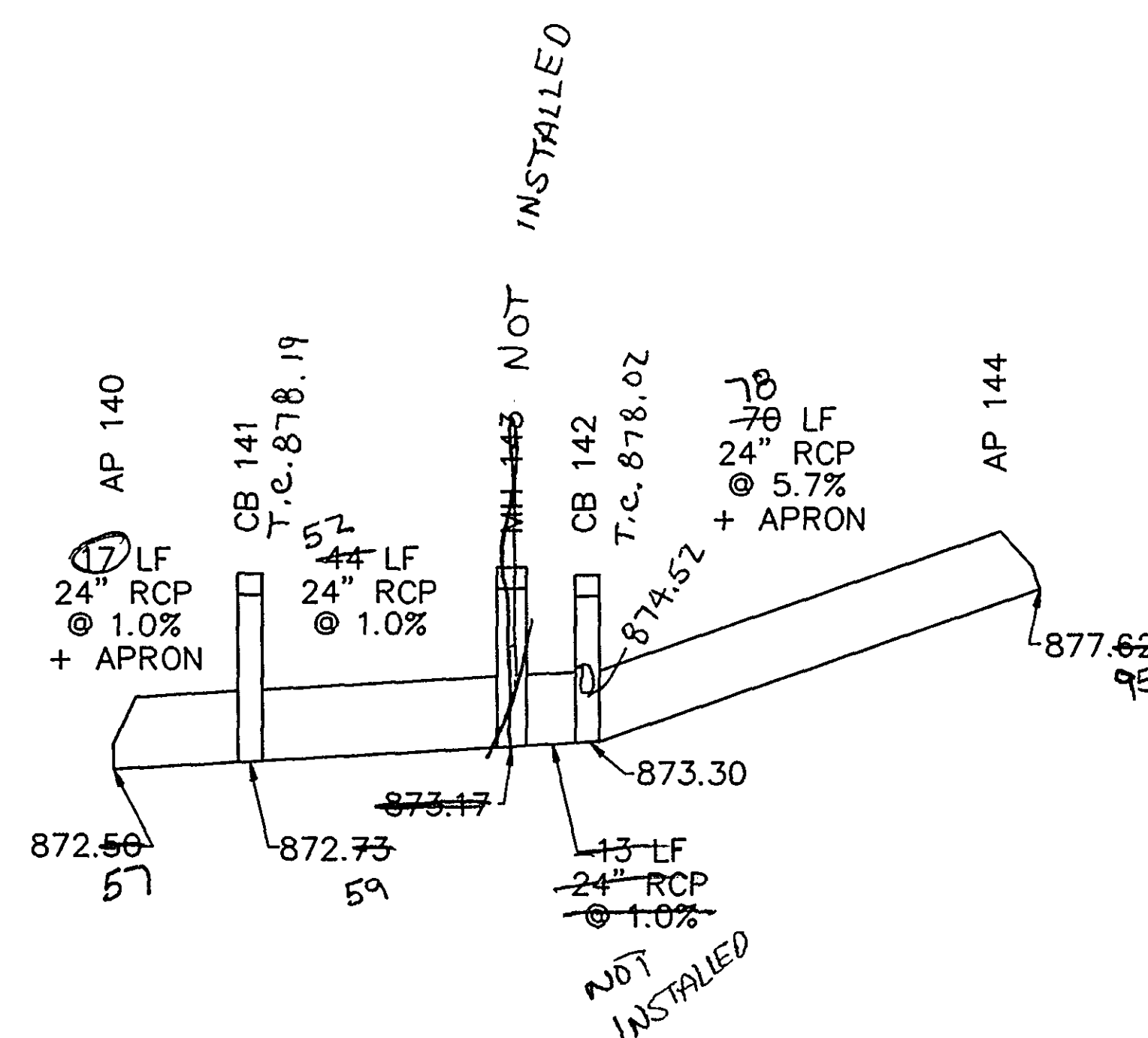
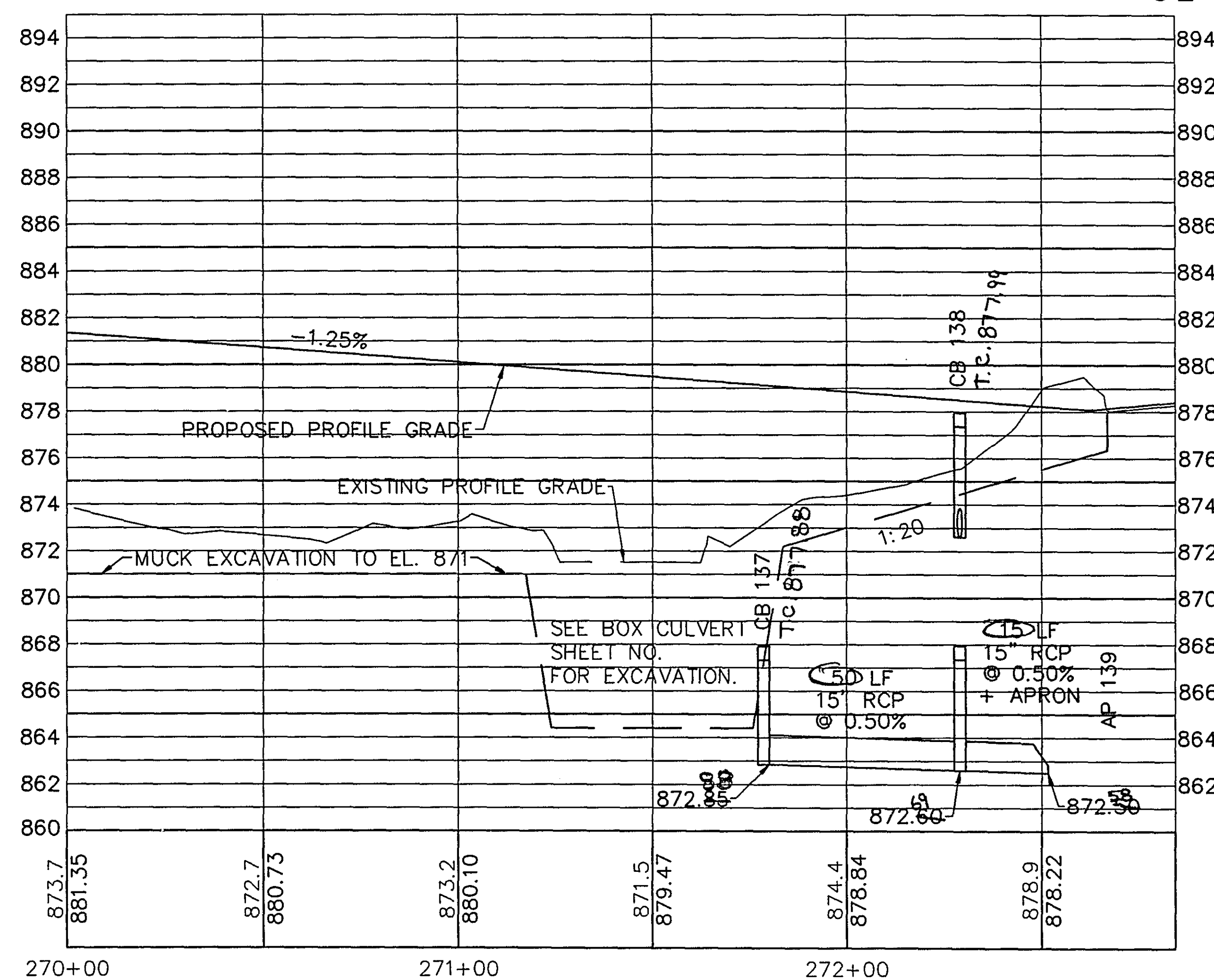
END S.A.P/ 62-677-21 OLD
HIGHWAY 8 STA. 272+59.95

—SECTION LINE

C/L COUNTY
ROAD H

SEE SHEET 23 FOR COUNTY
ROAD H CONSTRUCTION NOTES

SEE SHEETS 11-15 FOR BOX CULVERT DETAILS



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *218*
DATE: 12-29-97

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 LAWS OF THE STATE OF MINNESOTA.

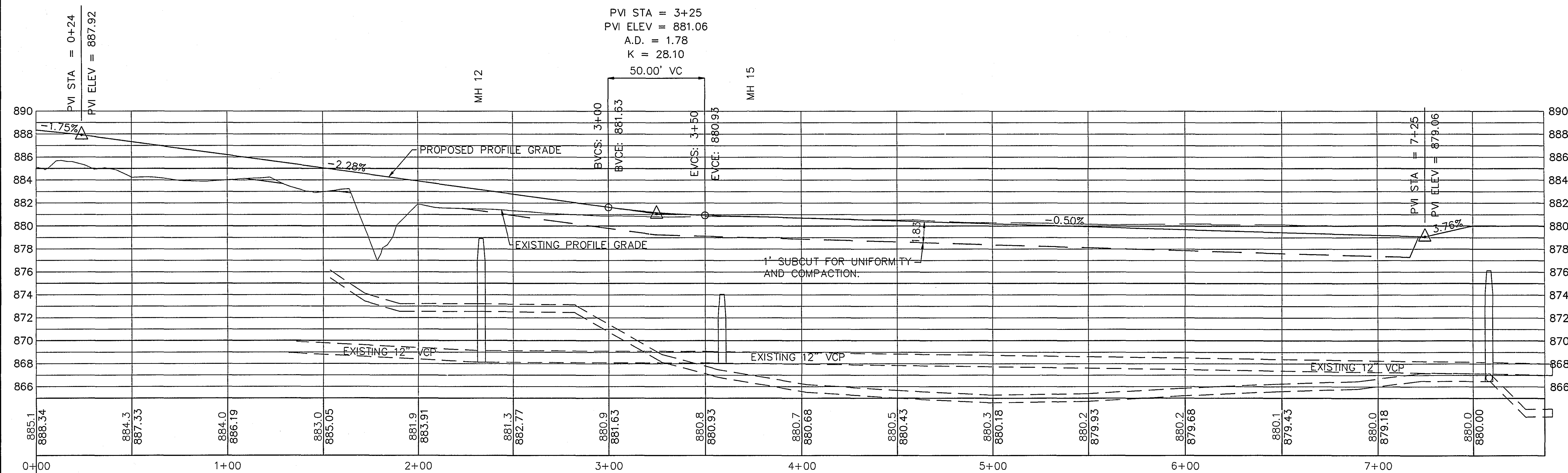
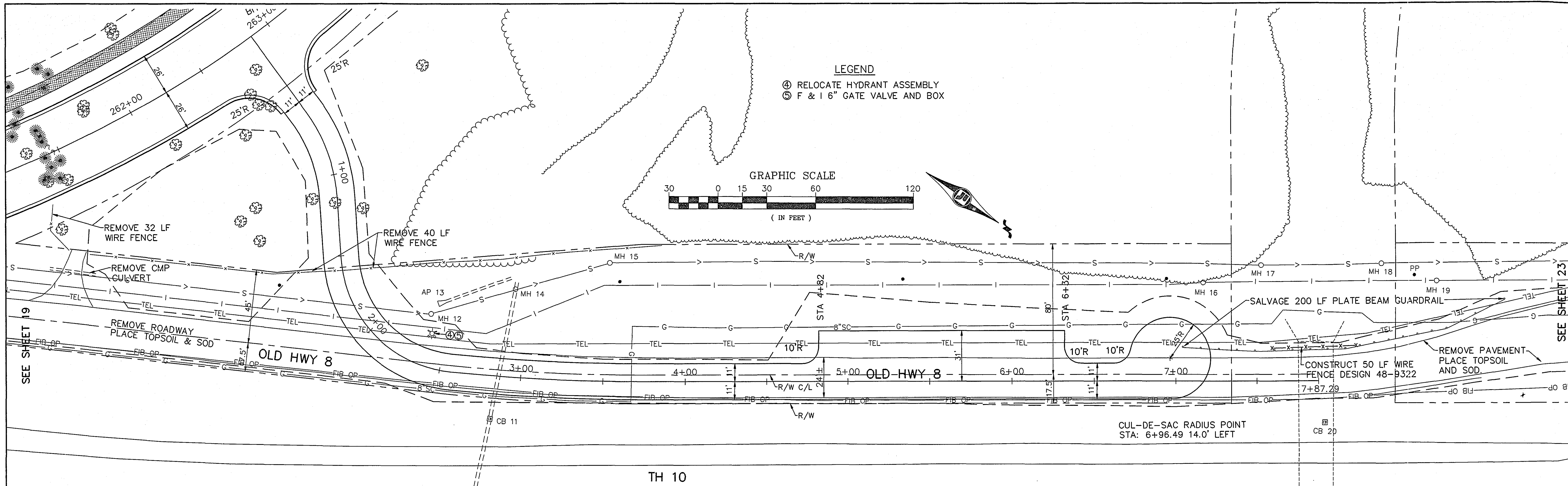
Kathy Tassile
REG. NO. 31864 DATE 11/15/96

28-146

PLAN & PROFILE
STA. 270+00 TO COUNTY ROAD H

 S.A.P. 62-677-21

SHEET NO. 21 OF 55 SHEETS



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 LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

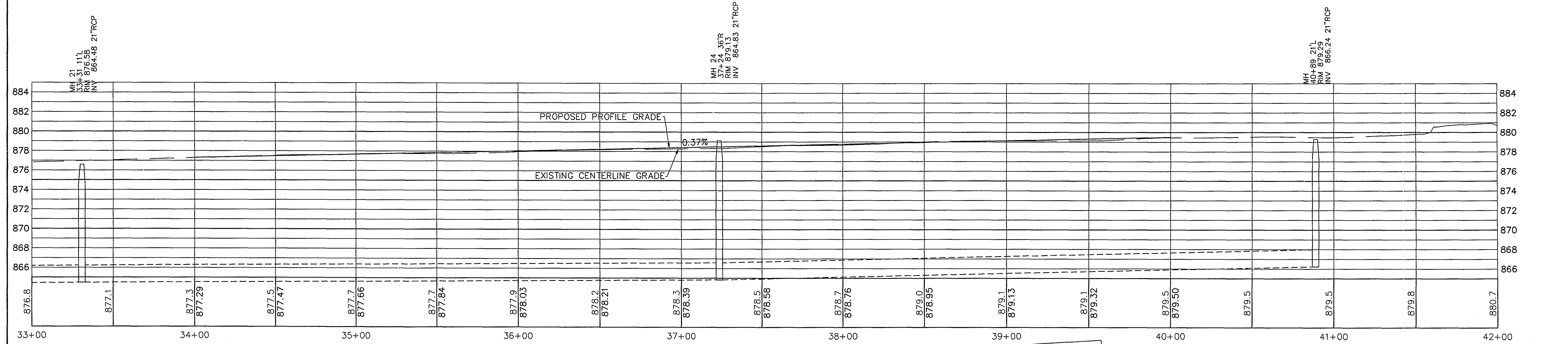
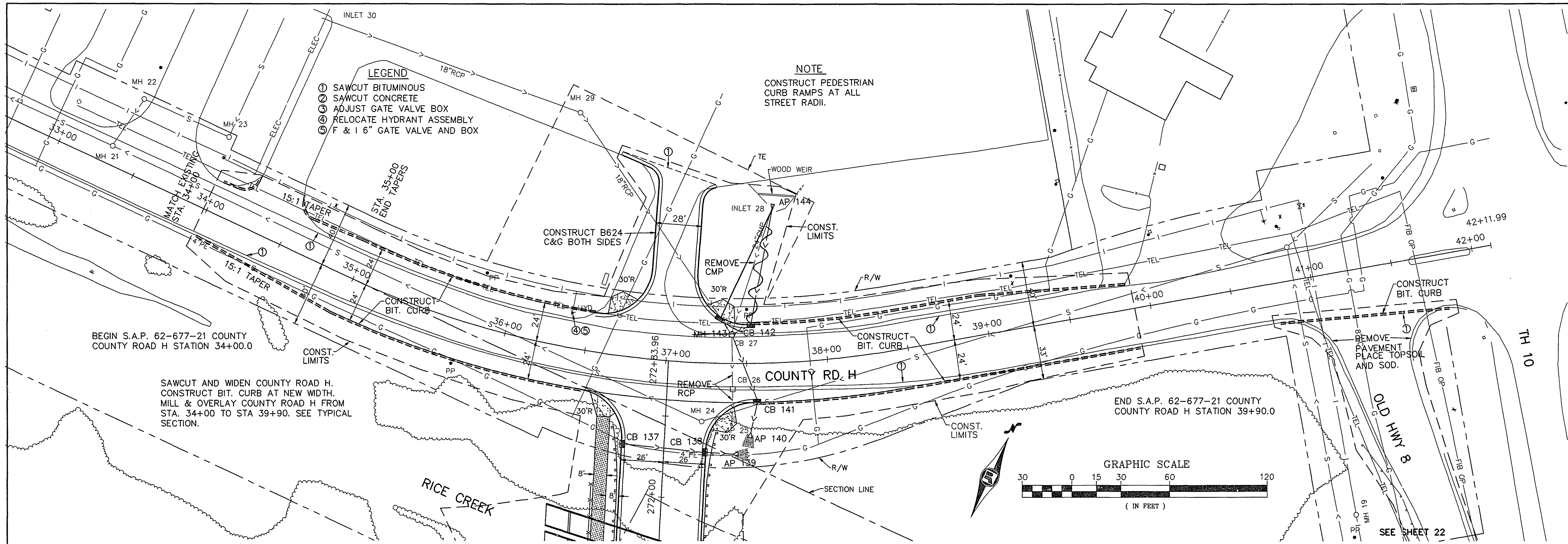
REVISED 12-96

S.A.P. 62-677-21

PLAN & PROFILE
PARK ENTRANCE

SHEET NO. 22 OF 55 SHEETS

28-146

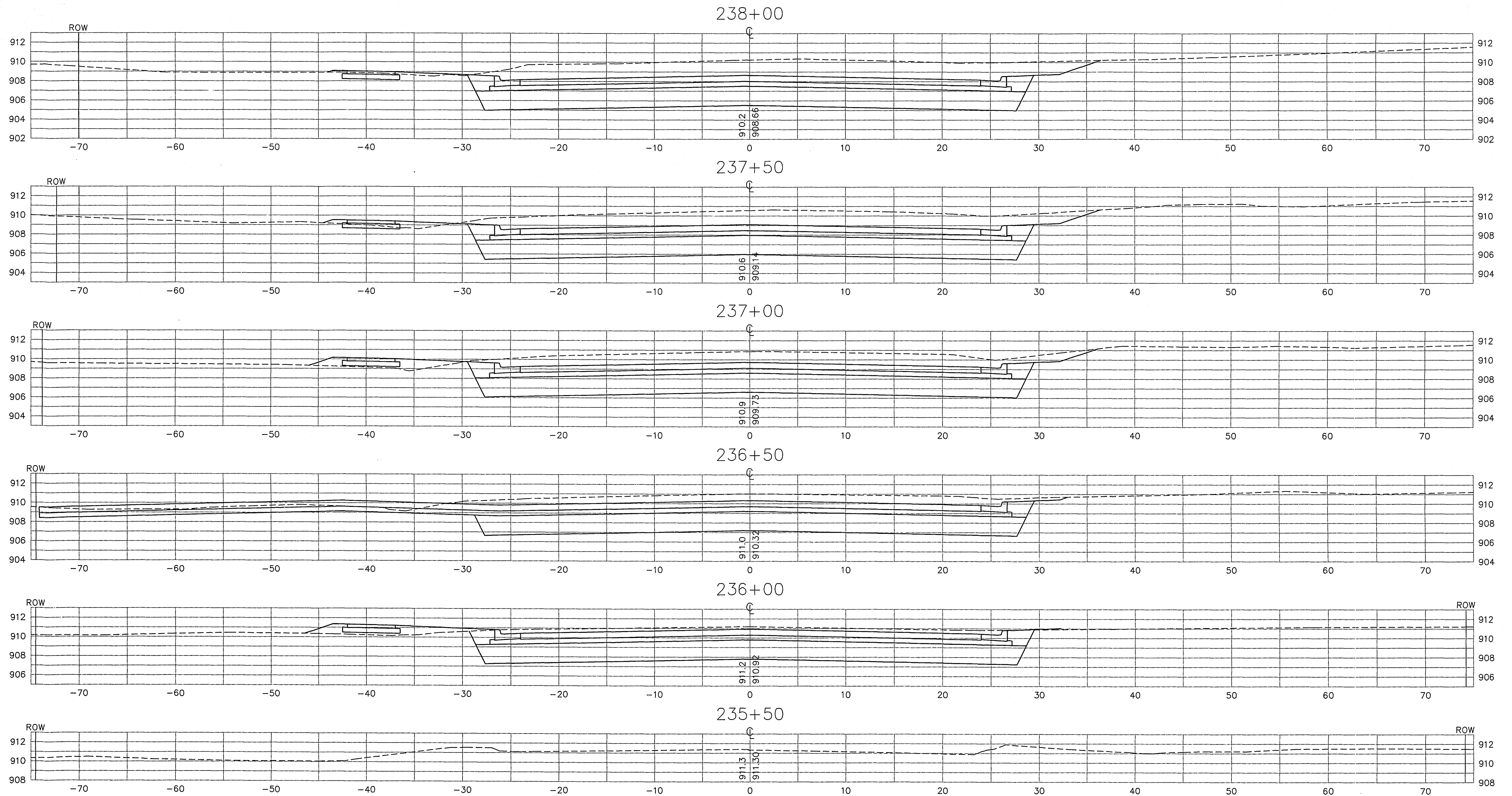


I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
Kazuy Tassaka
REG. NO. 21864 DATE 11/15/96

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: *SJB*
DATE: 12-29-97

28-146
PLAN & PROFILE
COUNTY ROAD H

C:\DWGS\04-8\XSECT1

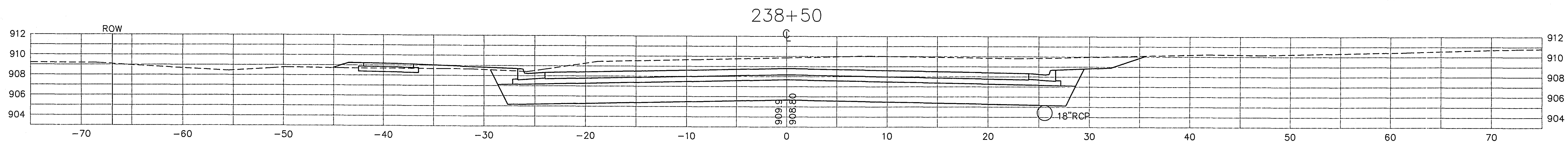
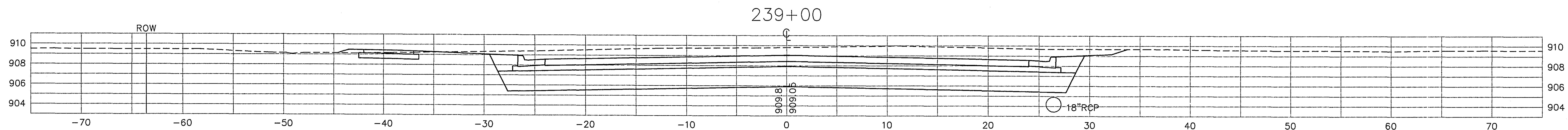
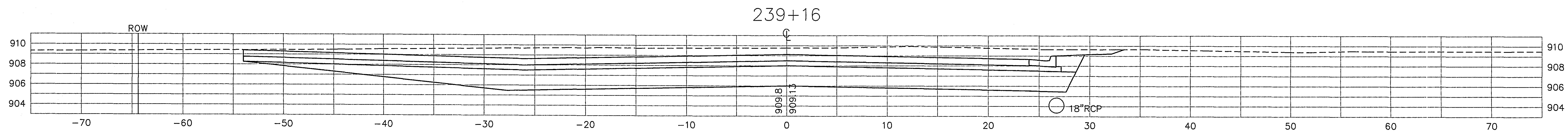
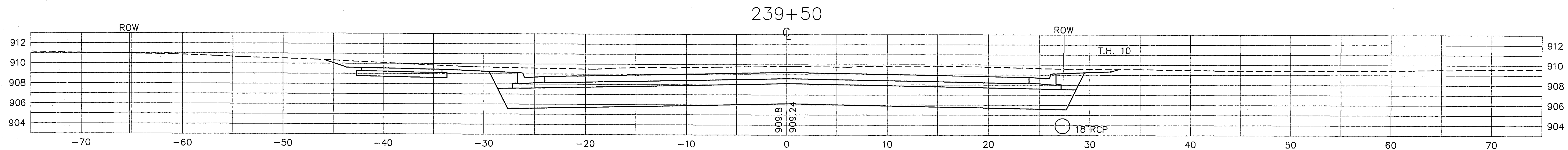
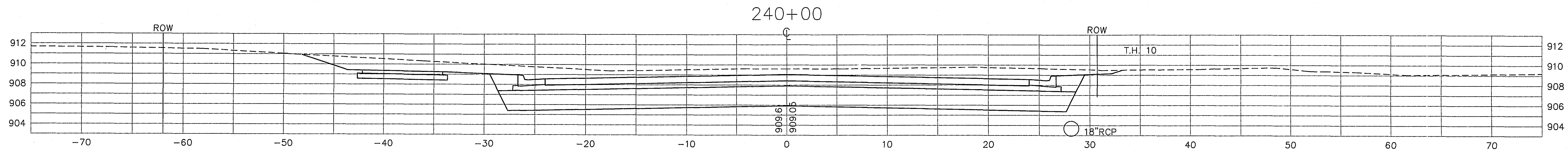
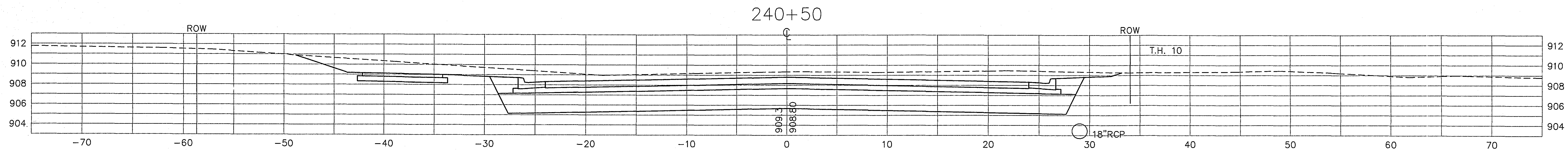


28-146

STA 235+50 TO STA 238+00

S.A.P. 62-677-21

SHEET NO. 24 OF 55 SHEETS

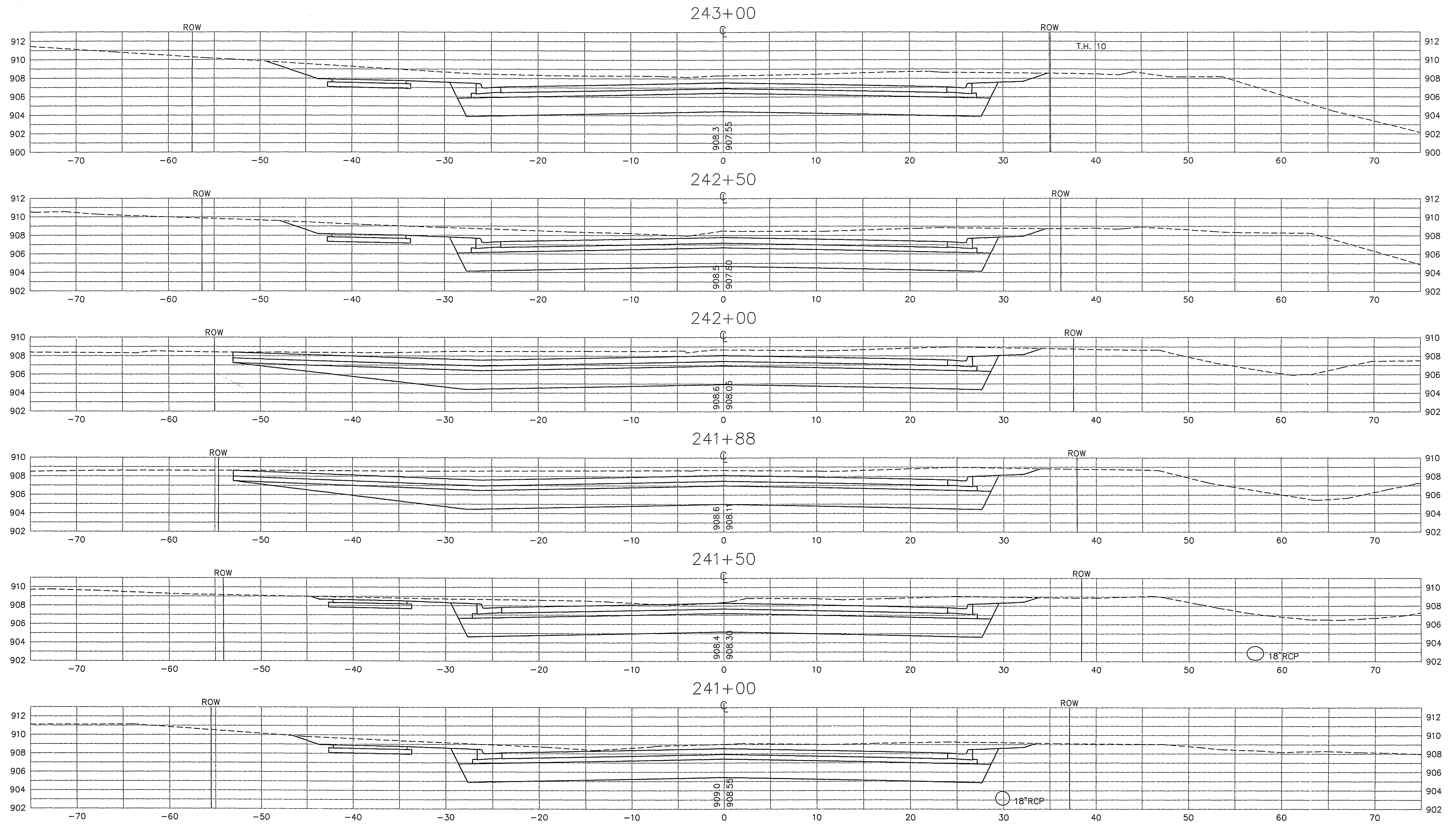


Z8-146

STA 238+50 TO STA 240+50

S.A.P. 62-677-21

SHEET NO. 25 OF 55 SHEETS

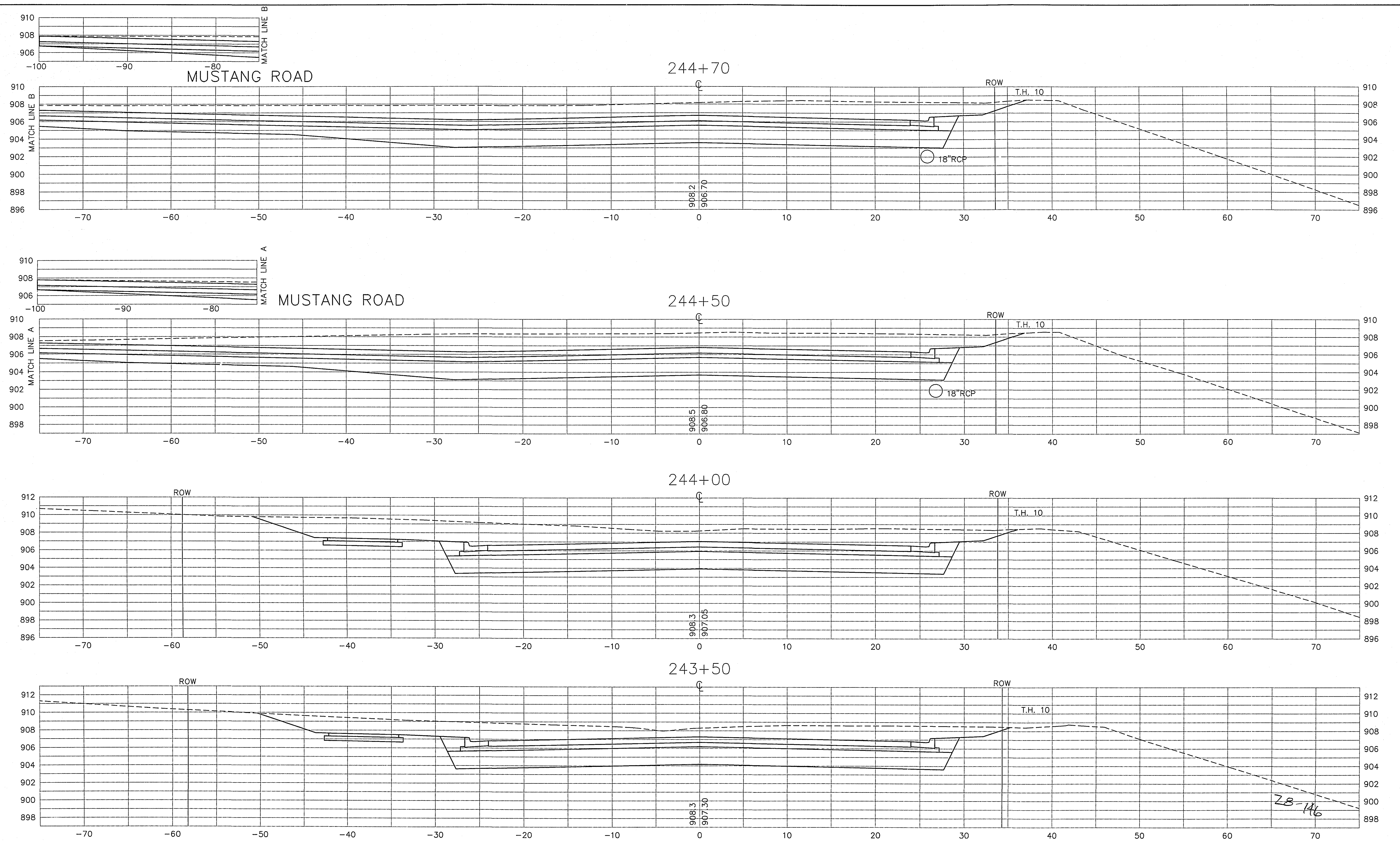


Z8-146

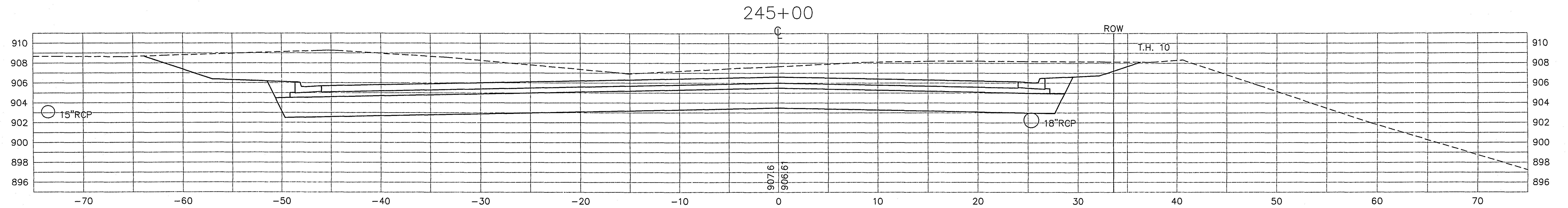
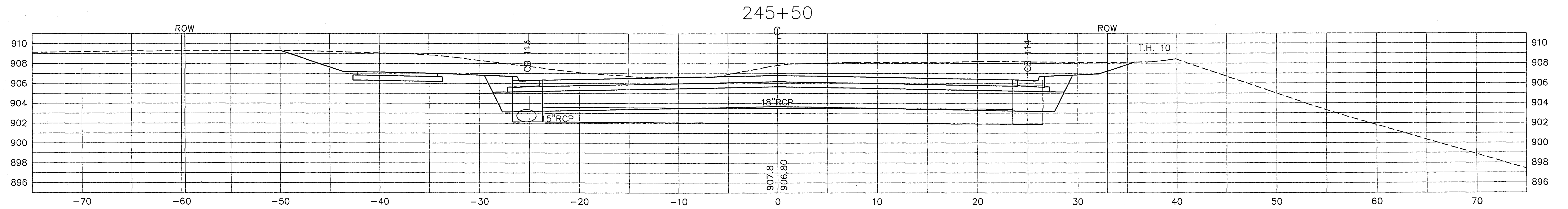
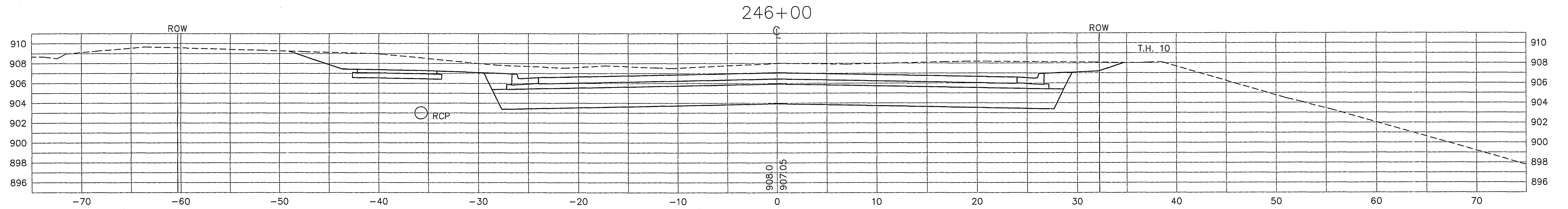
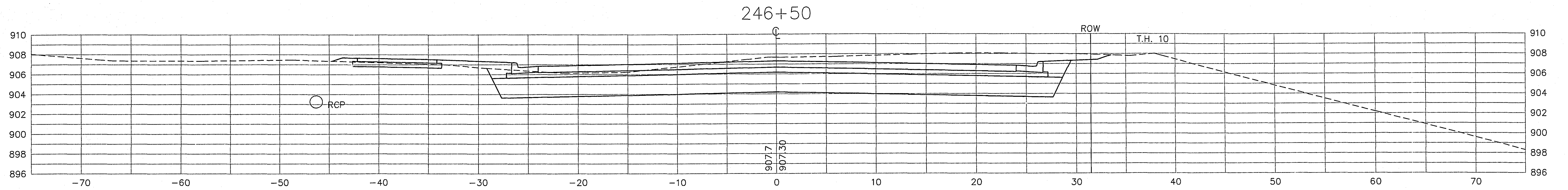
STA 241+00 TO STA 243+00

SHEET NO. 26 OF 55 SHEETS

S.A.P. 62-677-21



G:\DWG\04-8\XSECT1

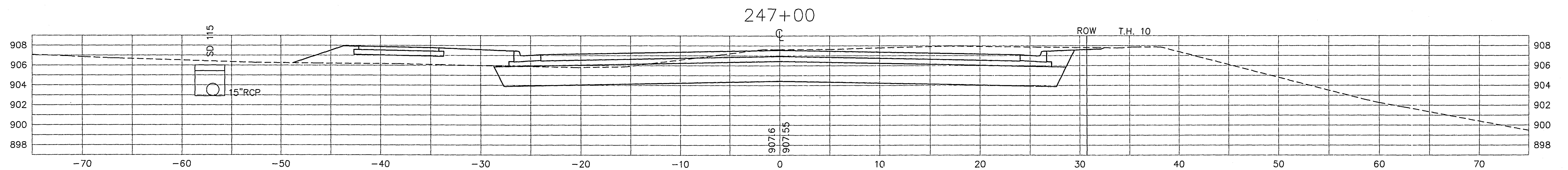
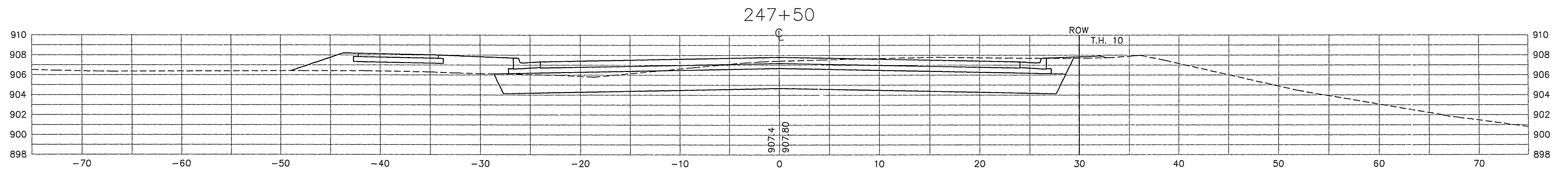
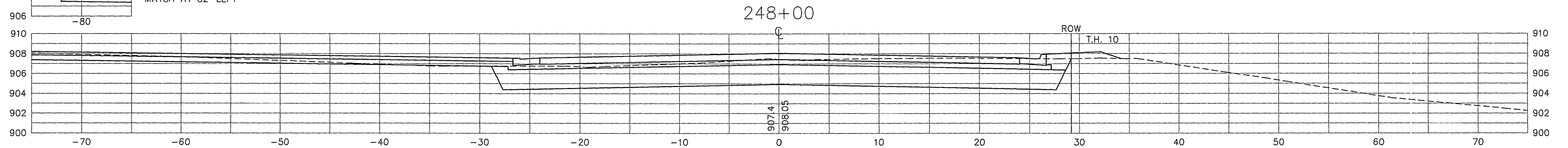
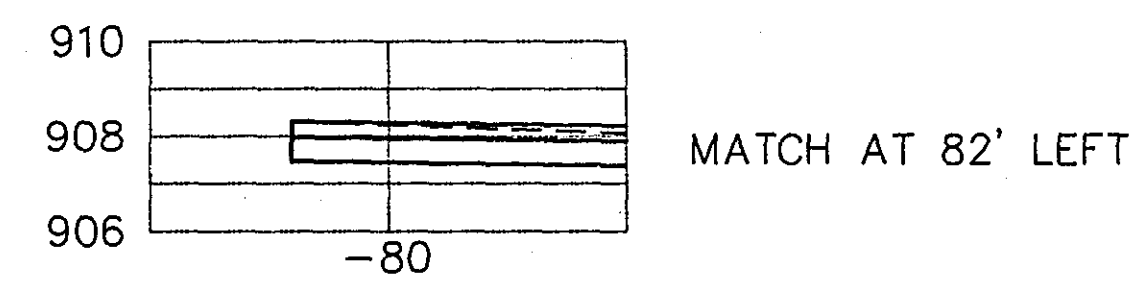
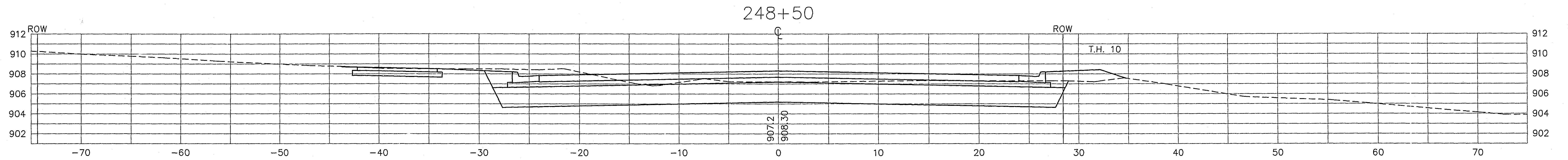
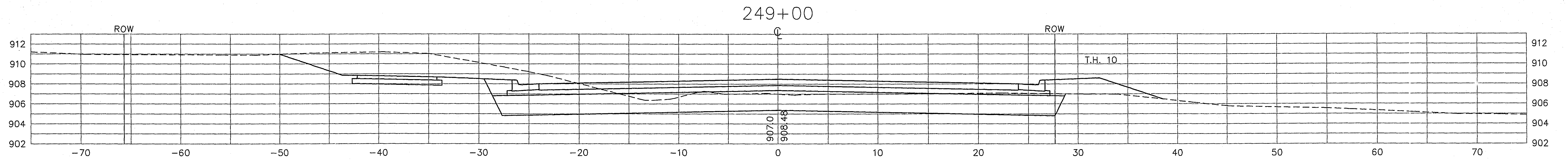


28-146

STA 245+00 TO STA 246+50

S.A.P. 62-677-21

SHEET NO. 28 OF 55 SHEETS

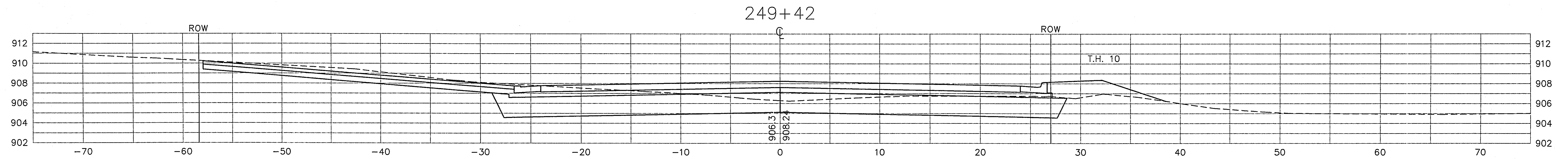
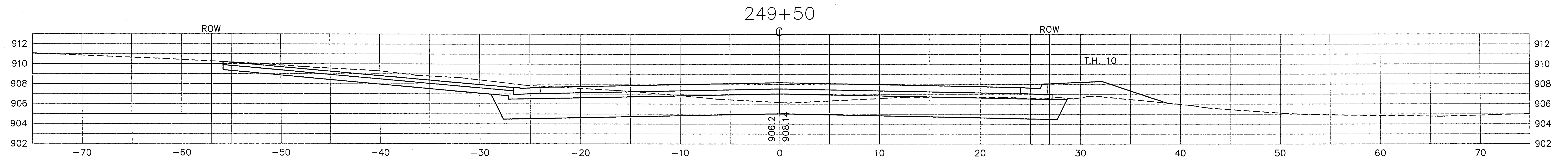
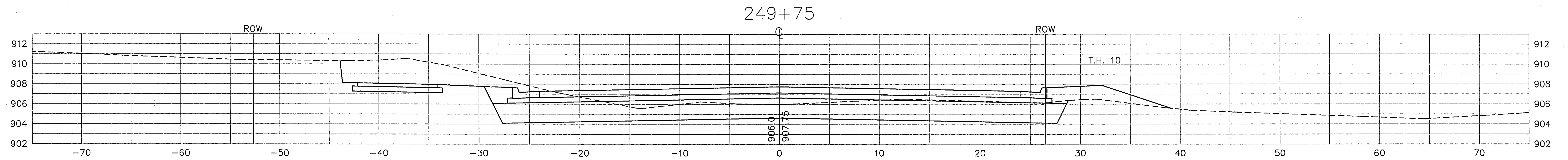
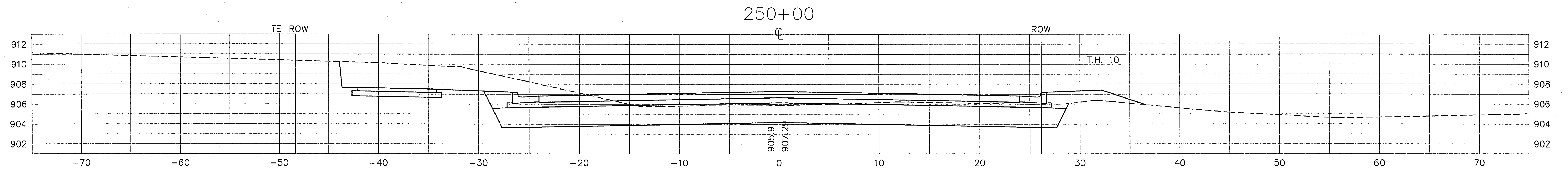
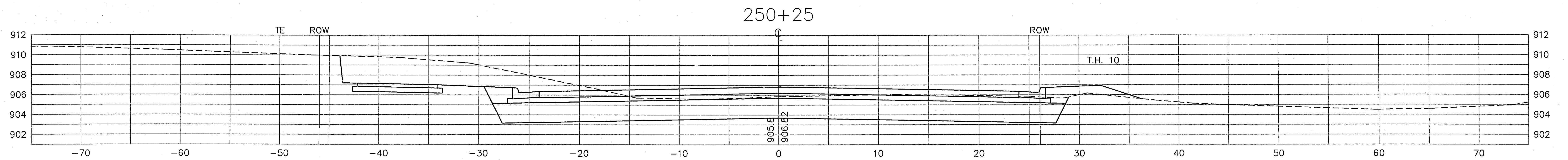


28-146

STA 247+00 TO STA 249+00

S.A.P. 62-677-21

SHEET NO. 29 OF 55 SHEETS

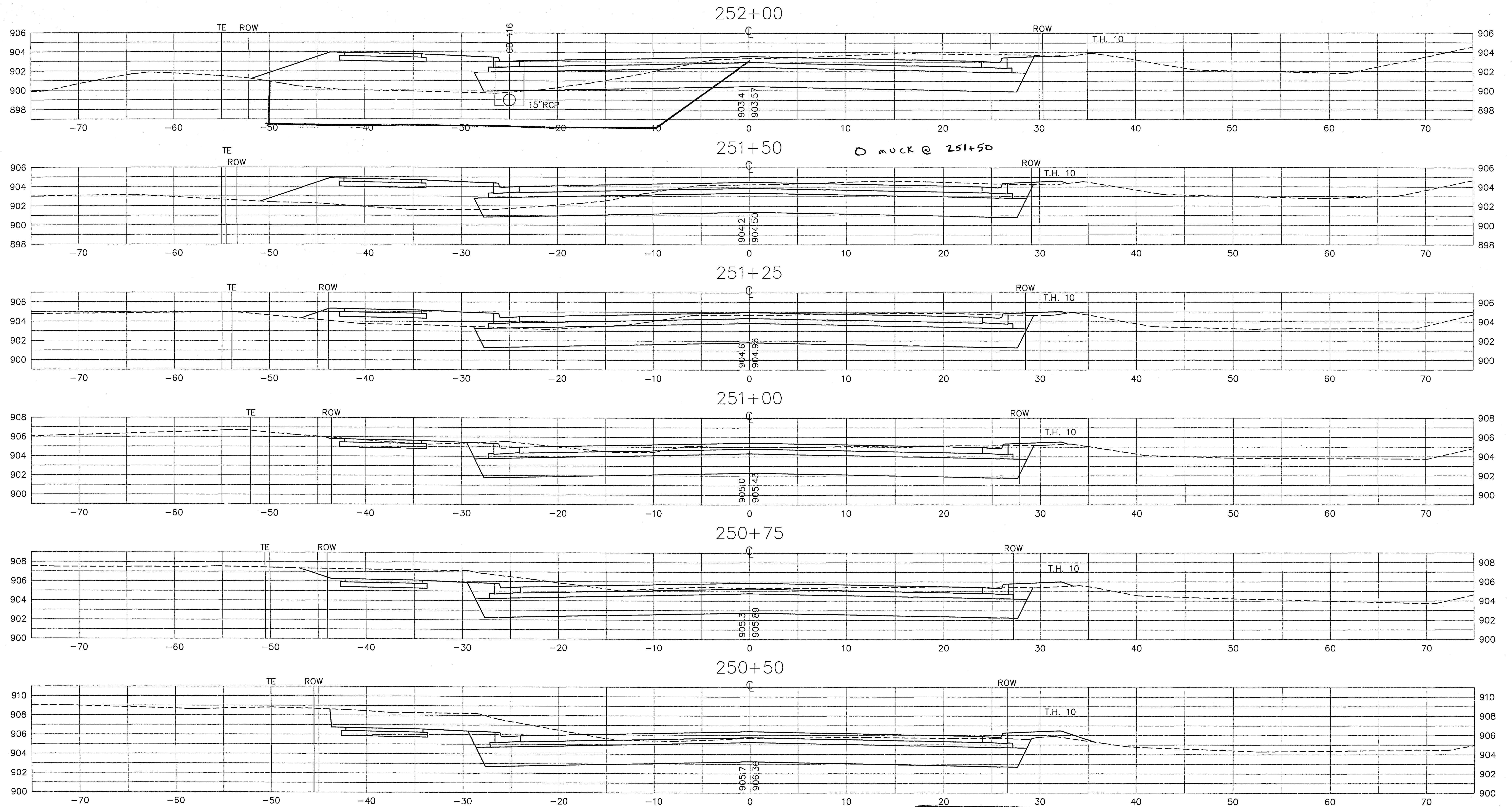


28-146

STA 249+42 TO STA 250+25

S.A.P. 62-677-21

SHEET NO. 30 OF 55 SHEETS



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *DJB*

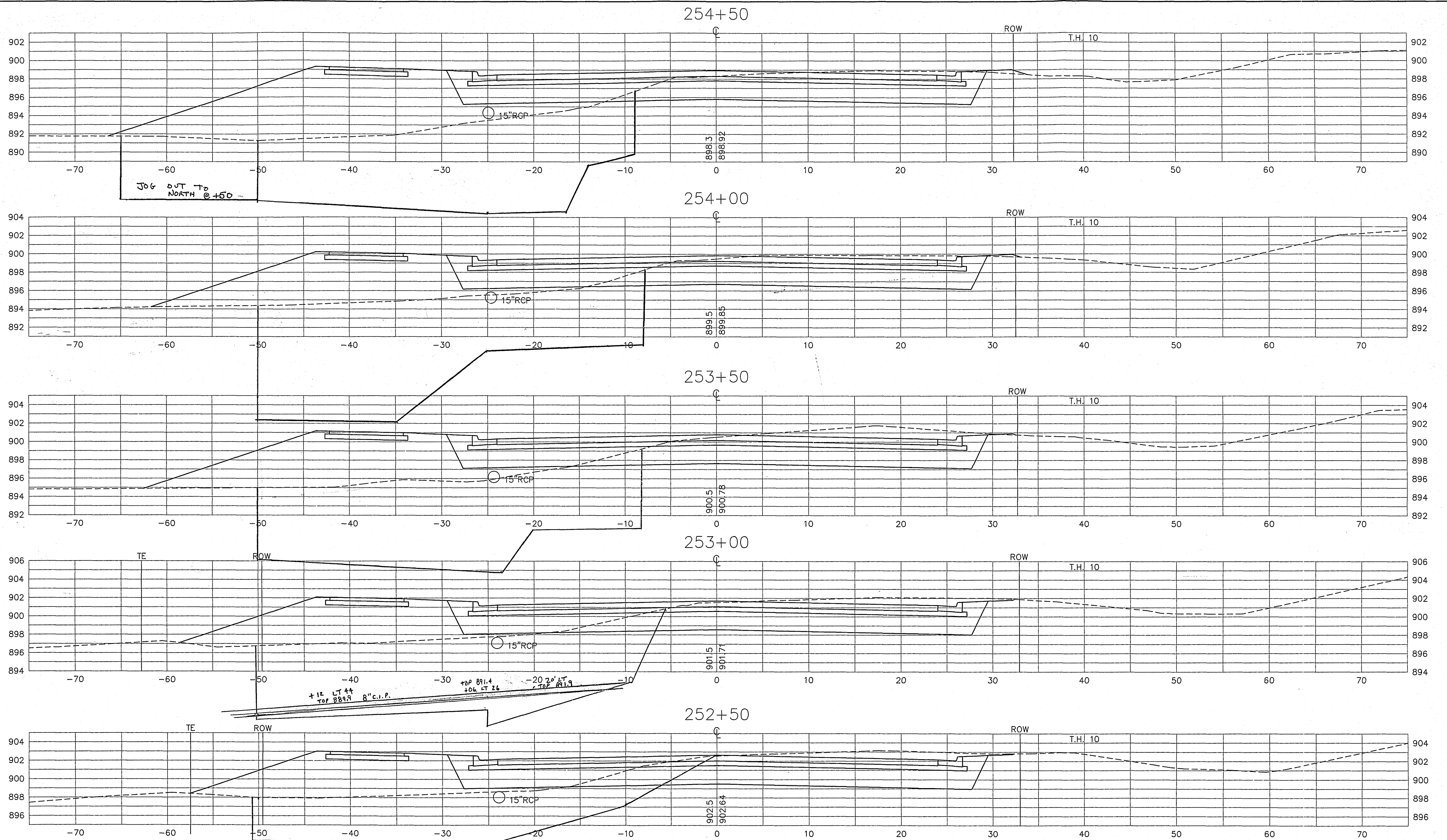
DATE: 12-29-97

S.A.P. 62-677-21

28-146

STA 250+50 TO STA 252+00

SHEET NO. 31 OF 55 SHEETS



ASBUILT
12-29-97
SJB

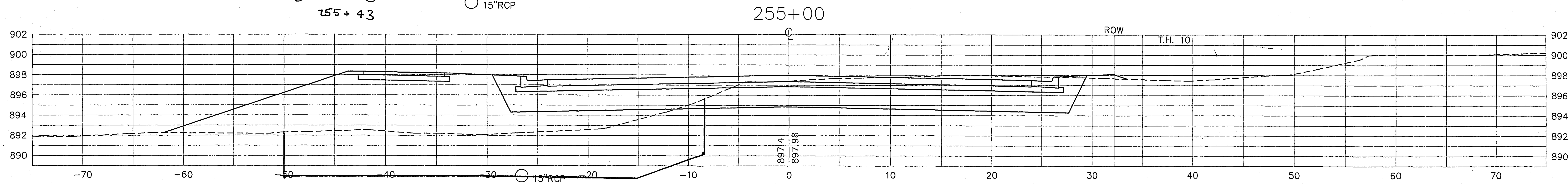
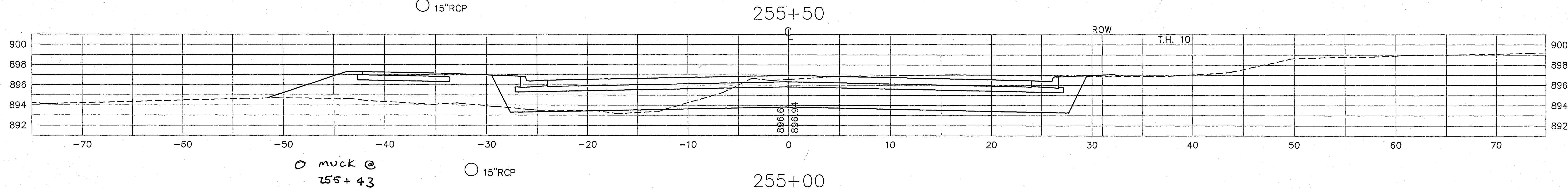
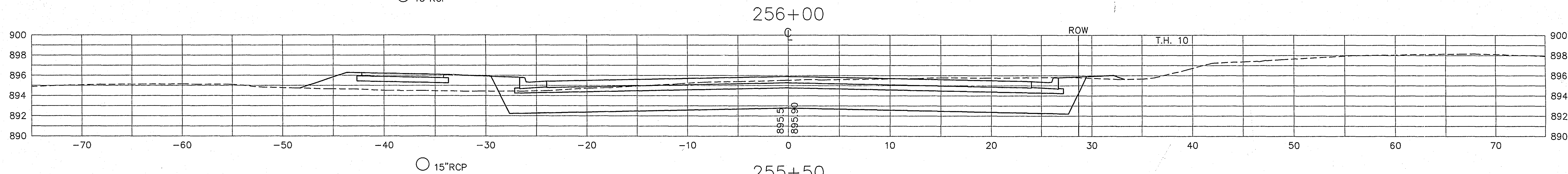
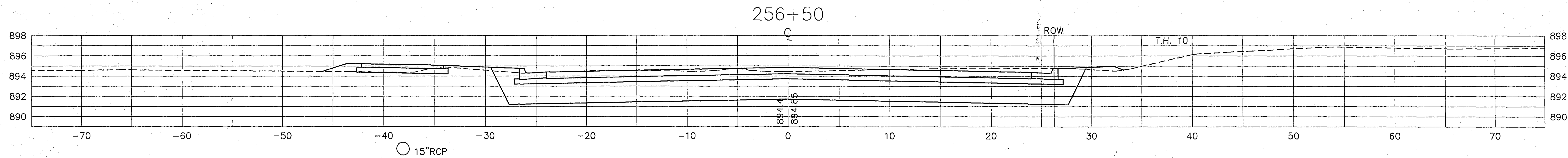
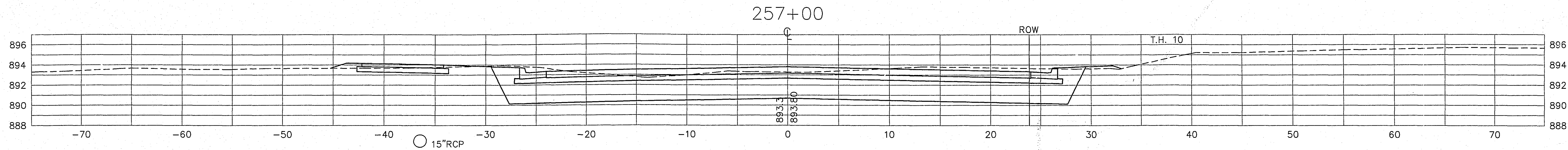
REVISED 12-96

S.A.P. 62-677-21

28-146

STA 252+50 TO STA 254+50

SHEET NO. 32 OF 55 SHEETS



ASBUILT
12-29-97
R/B

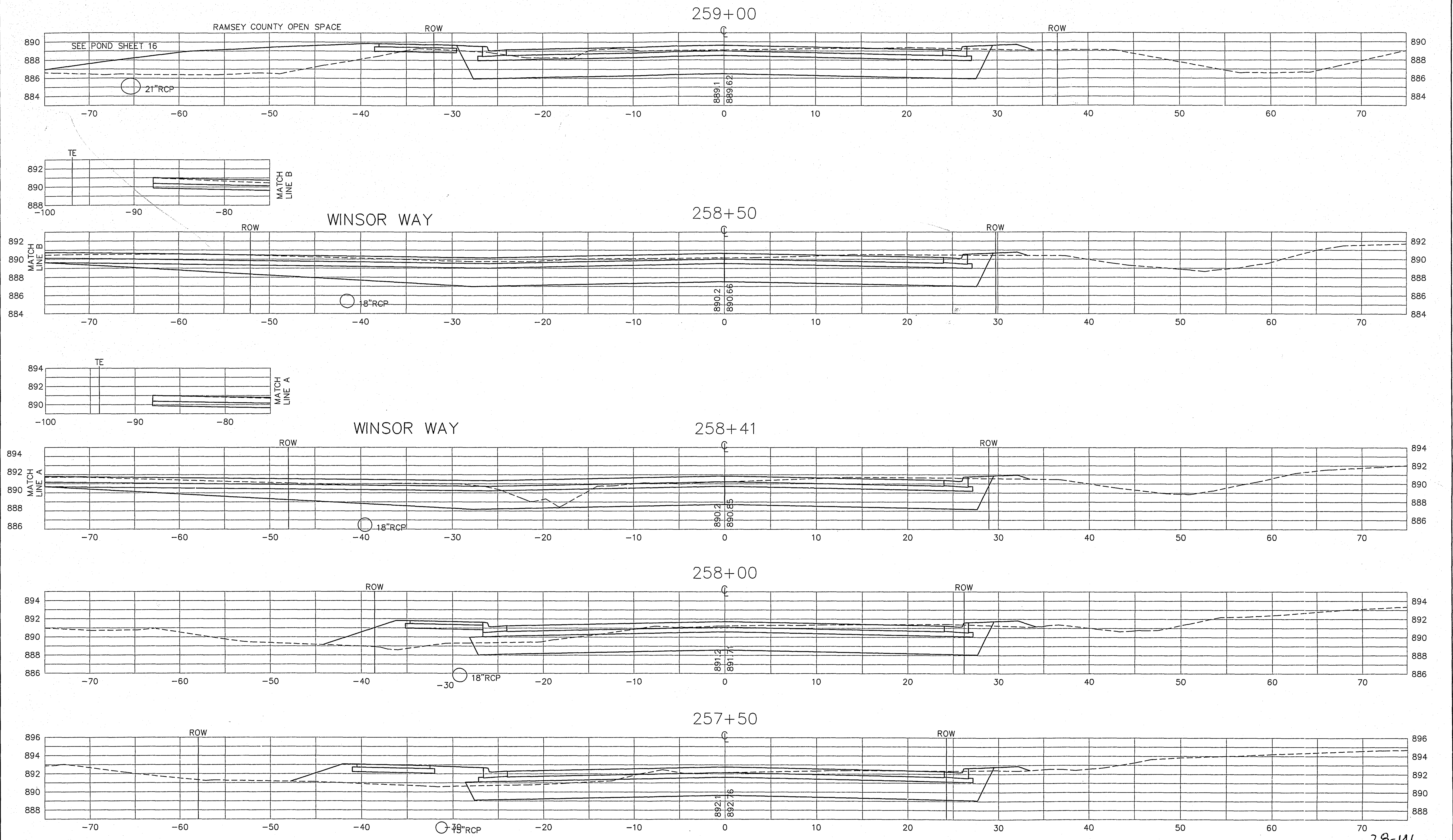
REVISED 12-96

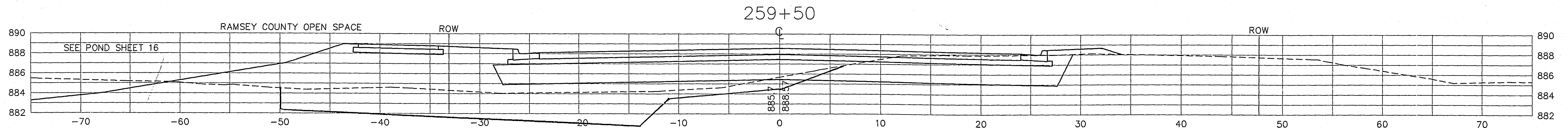
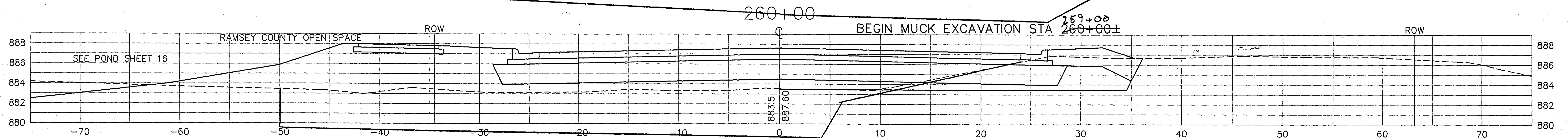
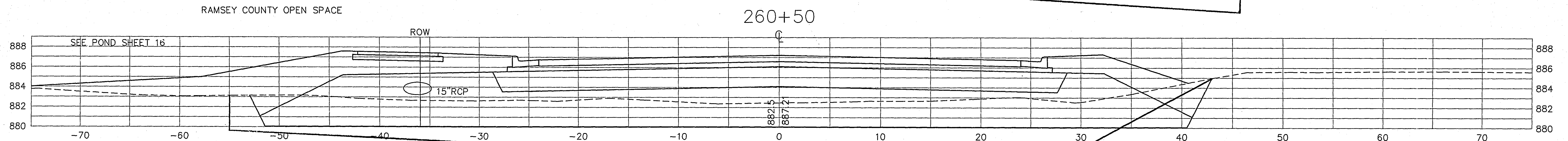
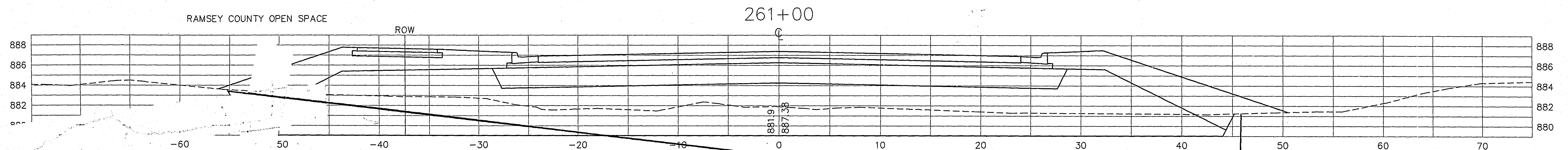
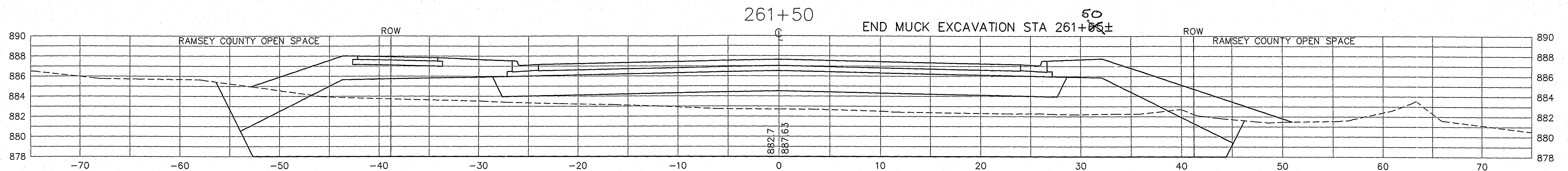
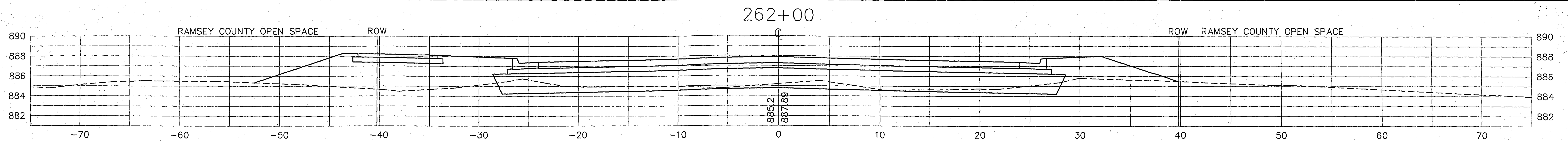
S.A.P. 62-677-21

28-146
STA 255+00 TO STA 257+00

SHEET NO. 33 OF 55 SHEETS

C:\DWG\04-8\XSECT1





BEGIN MUCK @ 259+00

○ MUCK @ 259+00

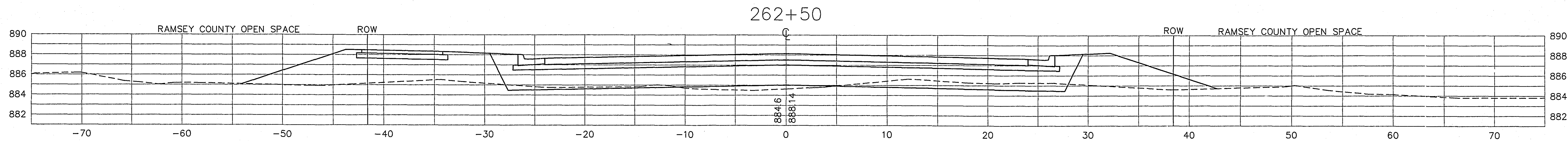
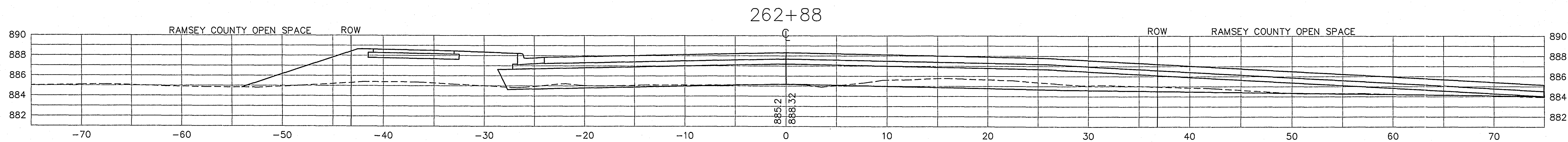
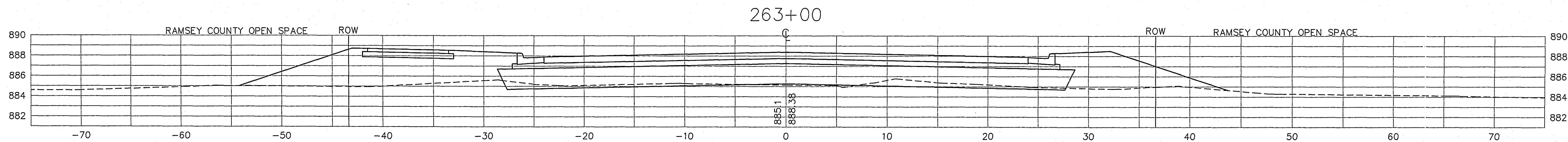
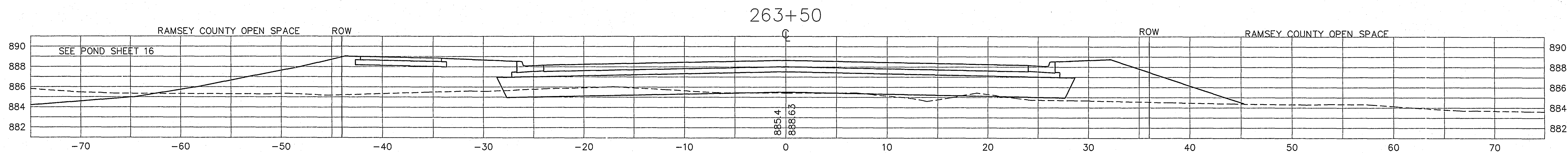
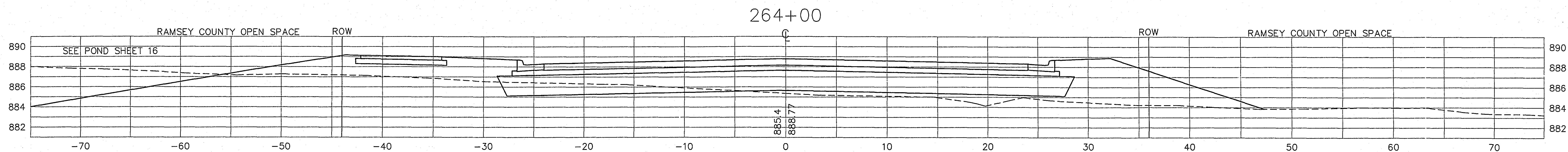
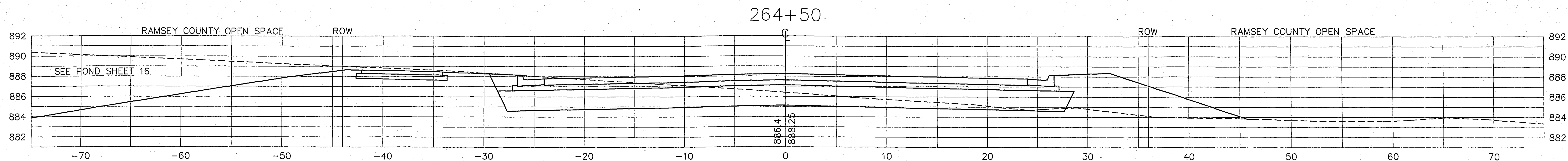
ASBULLT
12-29-97
R/B

REVISED 12-96

S.A.P. 62-677-21

28-146
STA 259+50 TO STA 262+00

SHEET NO. 35 OF 55 SHEETS



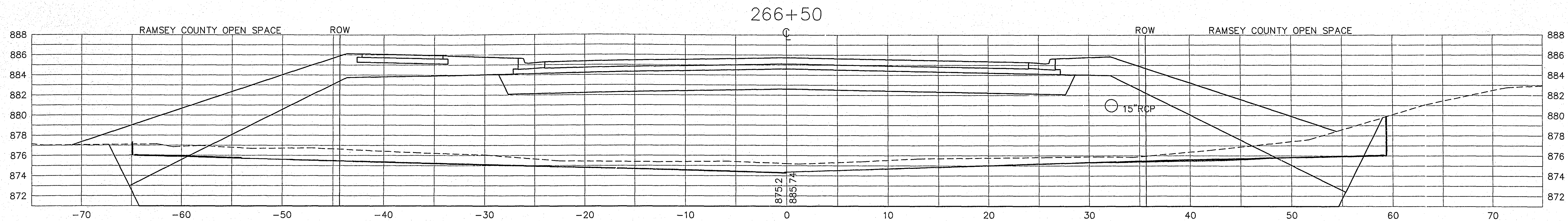
28-146

STA 262+50 TO STA 264+50

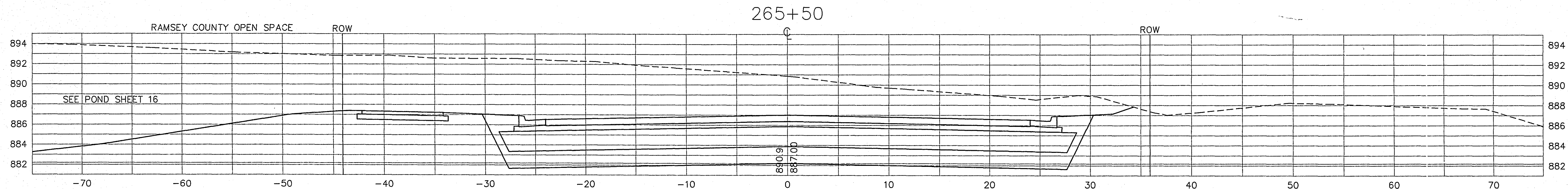
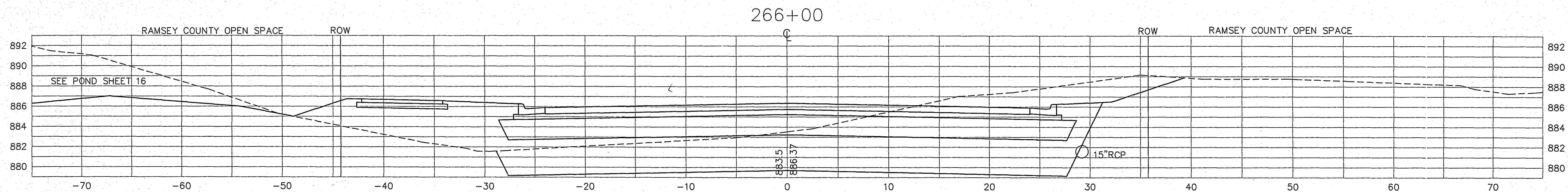
REVISED 12-96

S.A.P. 62-677-21

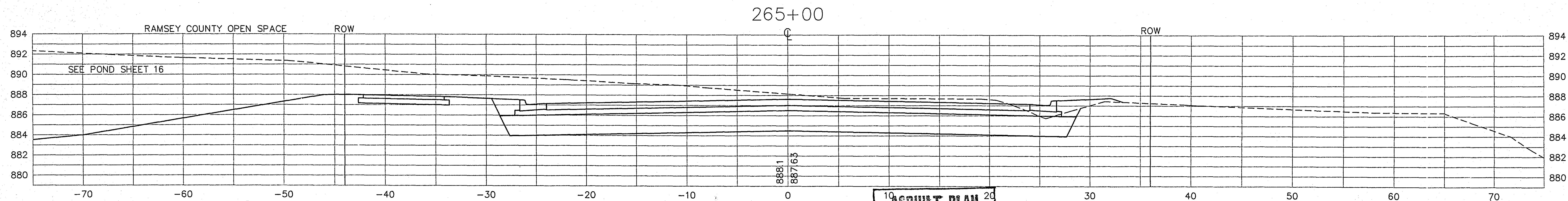
SHEET NO. 36 OF 55 SHEETS



BEGIN MUCK EXCAVATION STA 266+13±



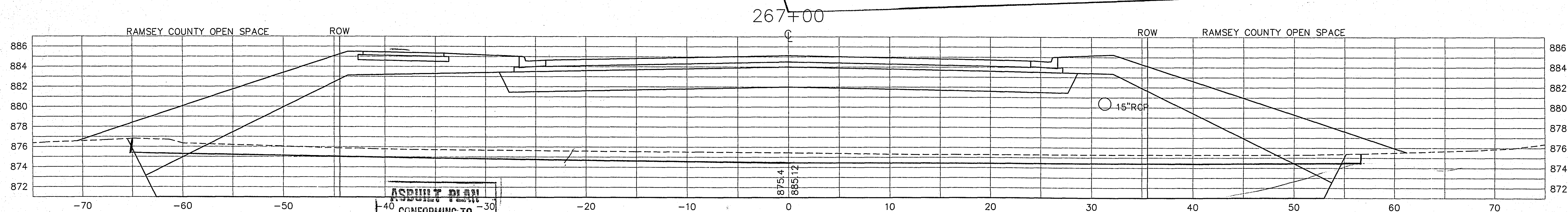
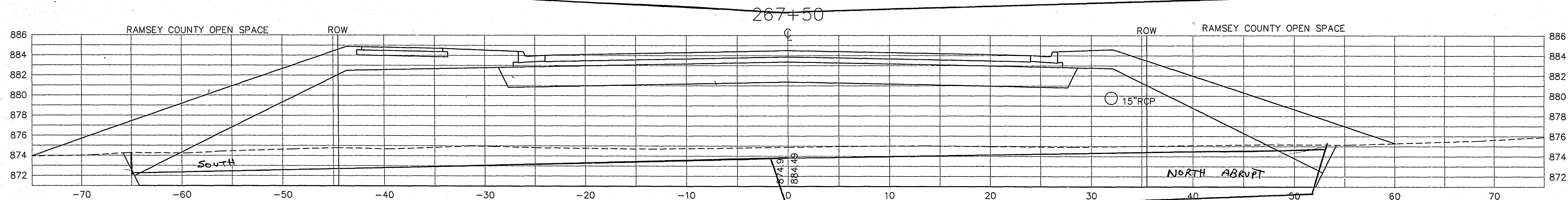
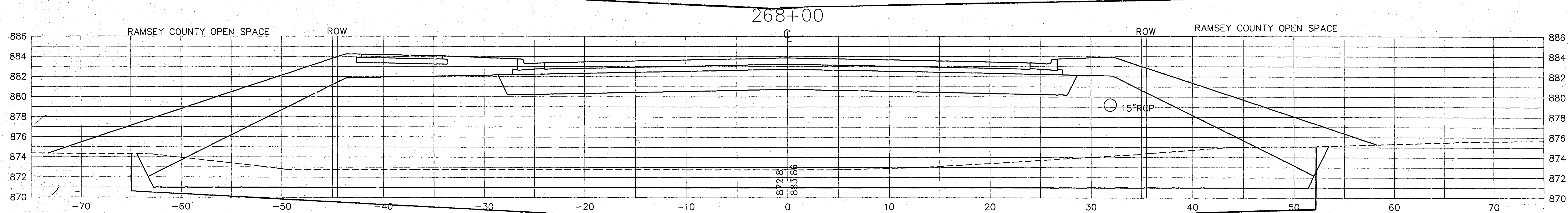
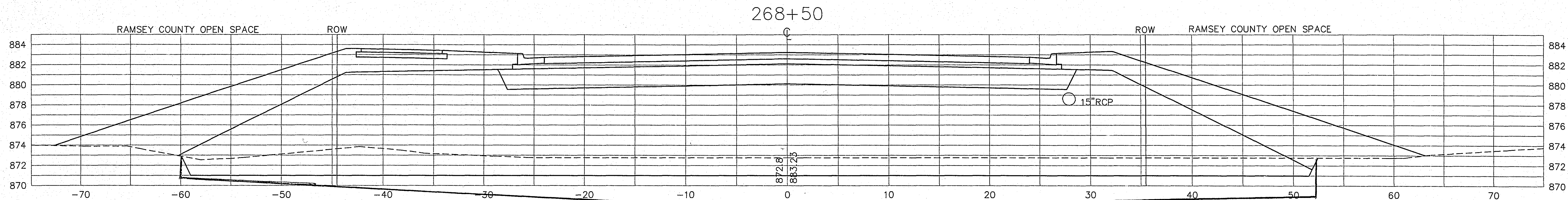
BEGIN 1:20 SUBCUT TAPER STA 265+05



10
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: *218*
DATE: 12-29-97

S.A.P. 62-677-21

28-146
STA 265+00 TO STA 266+50
SHEET NO. 37 OF 55 SHEETS



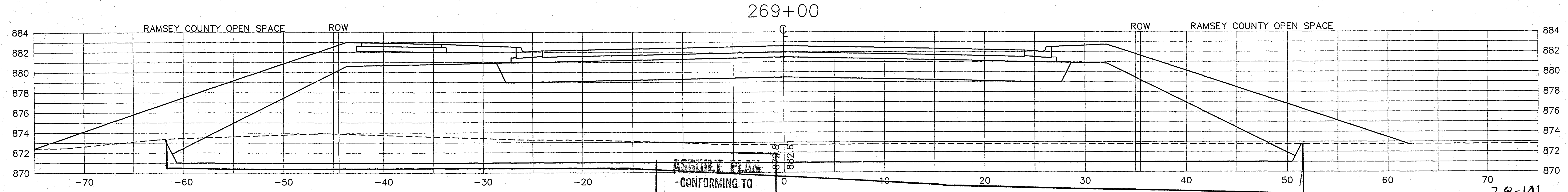
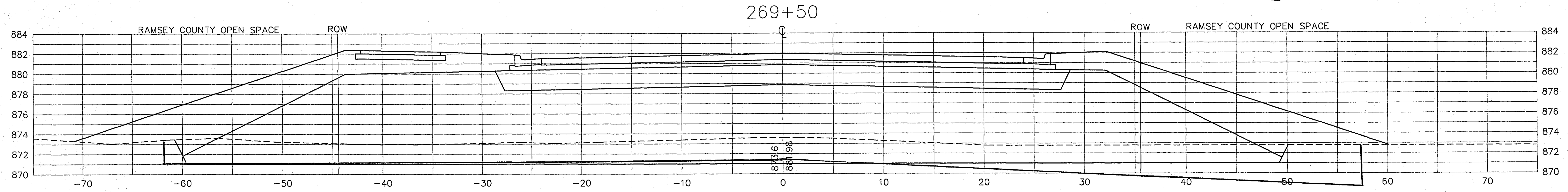
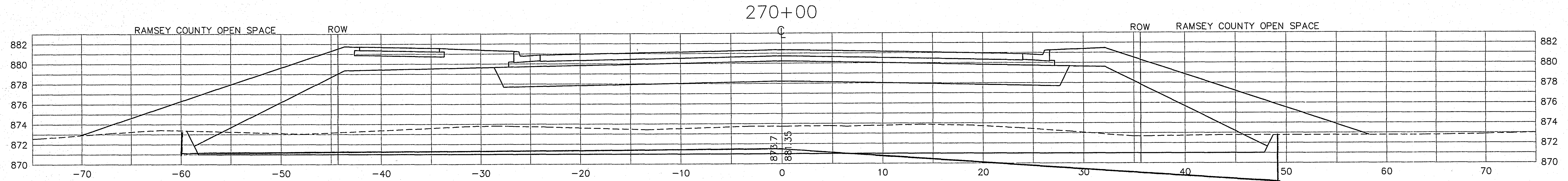
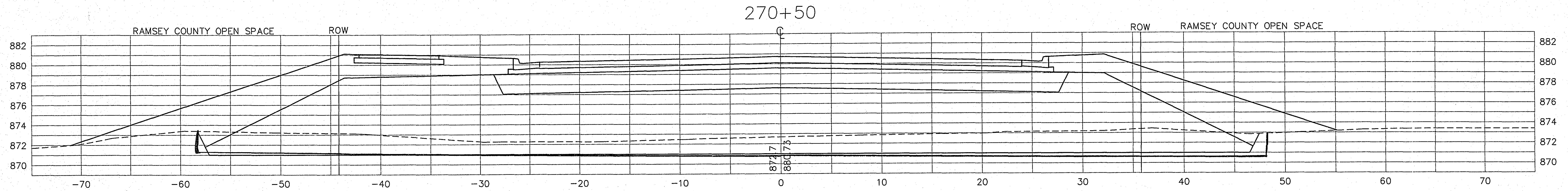
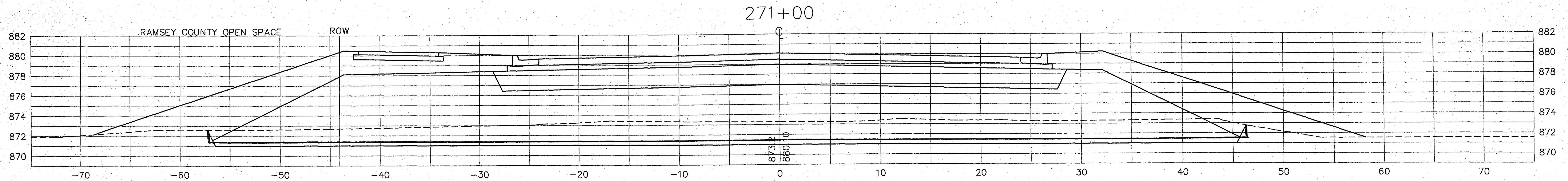
AS BUILT PLAN
 CONFORMING TO
 CONST. RECORDS
 DONE BY: *D/B*
 DATE: 12-29-97

S.A.P. 62-677-21

28-146
 STA 267+00 TO STA 268+50
 SHEET NO. 38 OF 55 SHEETS

G:\DWGS\04-8\XSECT1

END MUCK @ 271+20 ABRUPT CUT

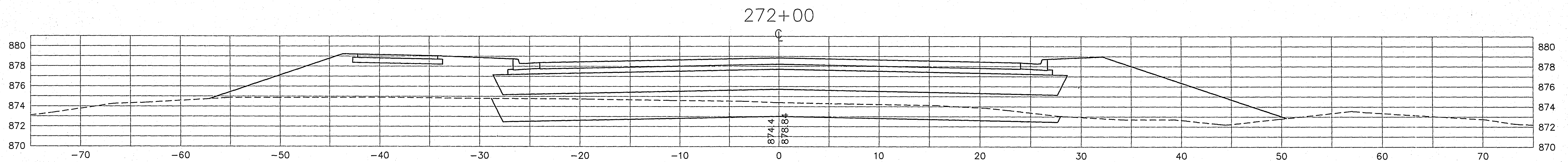
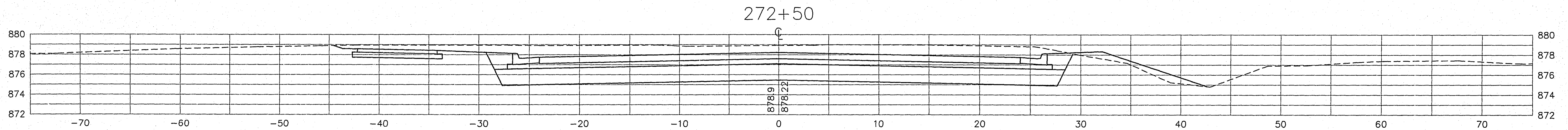


ASBUILT PLAN
-CONFORMING TO
CONST. RECORDS
DONE BY: *8/8*
DATE: 12-29-97

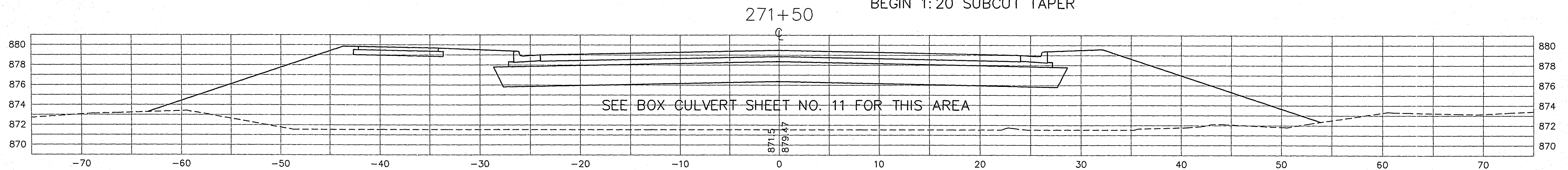
S.A.P. 62-677-21

28-146
STA 269+00 TO STA 271+00
SHEET NO. 39 OF 55 SHEETS

C:\DWG\OH-8\SECT1



END MUCK EXCAVATION STA 271+85±
BEGIN 1:20 SUBCUT TAPER

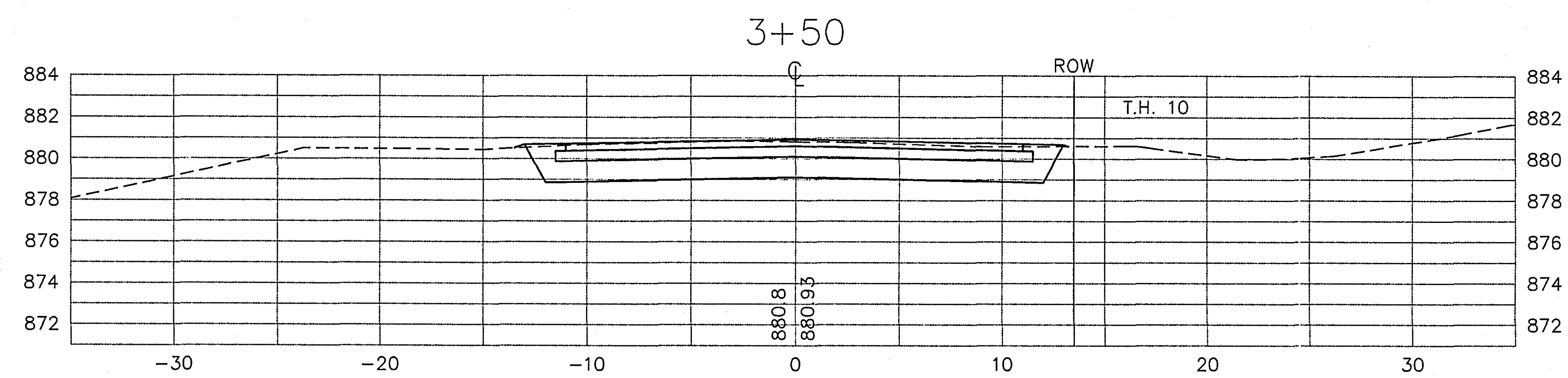
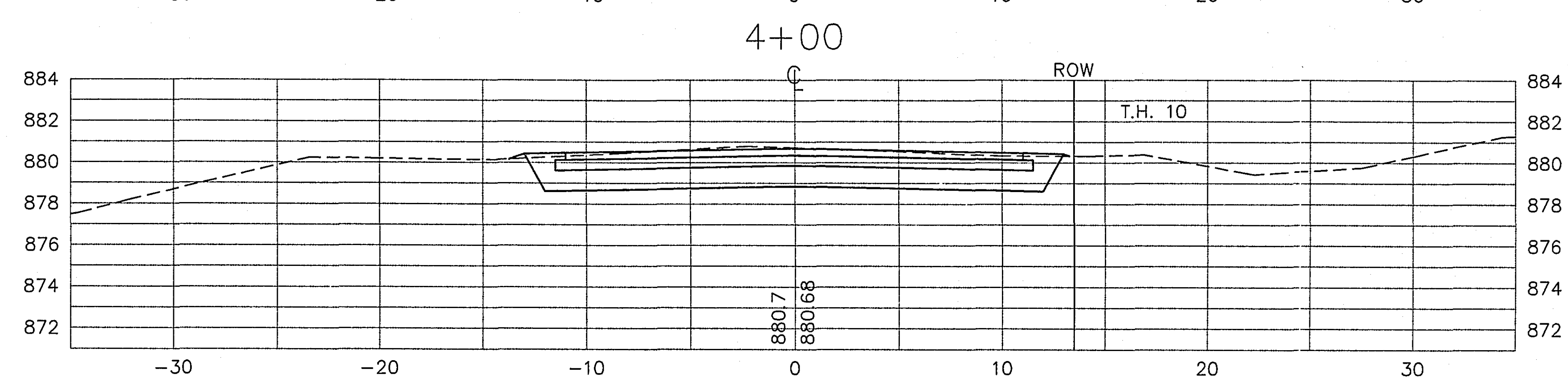
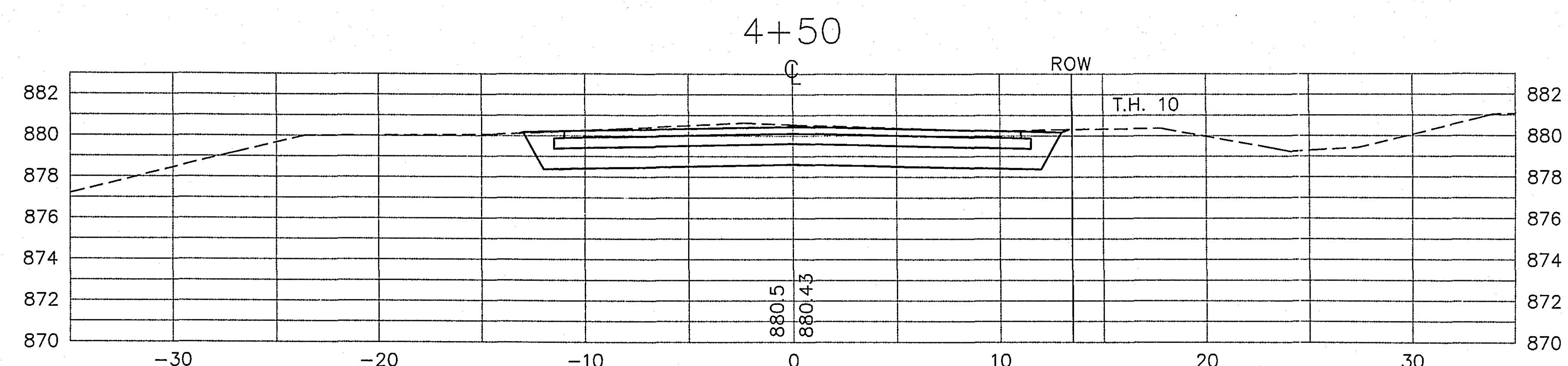
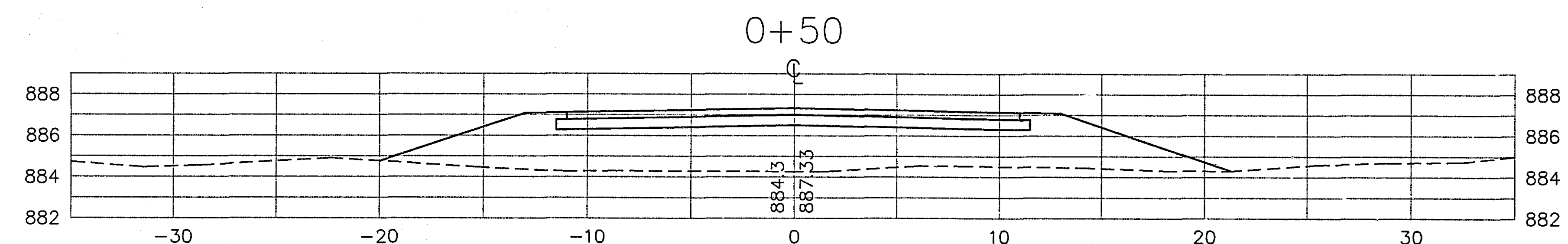
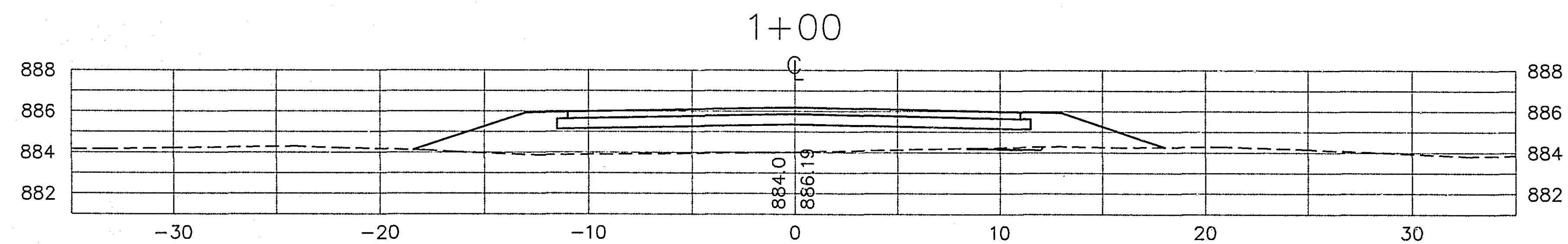
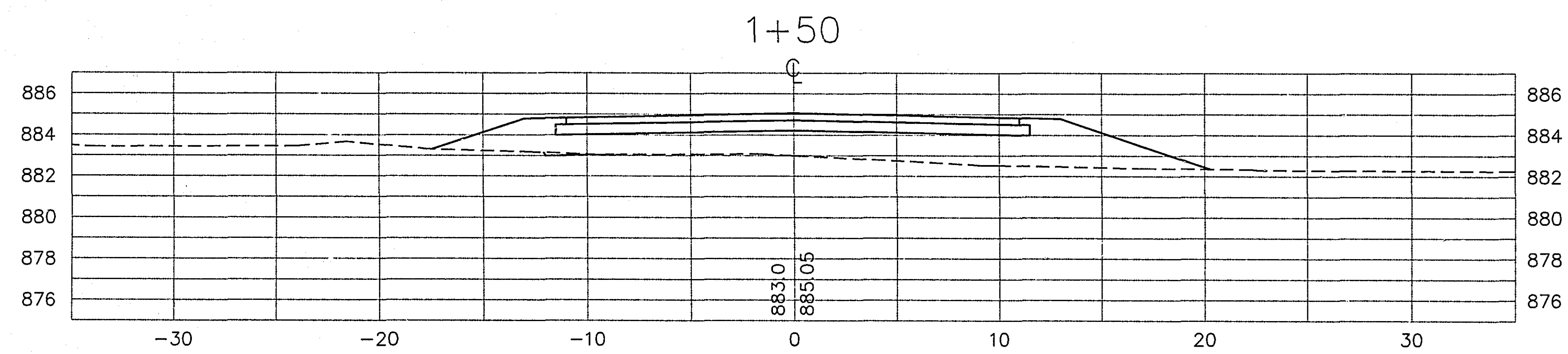
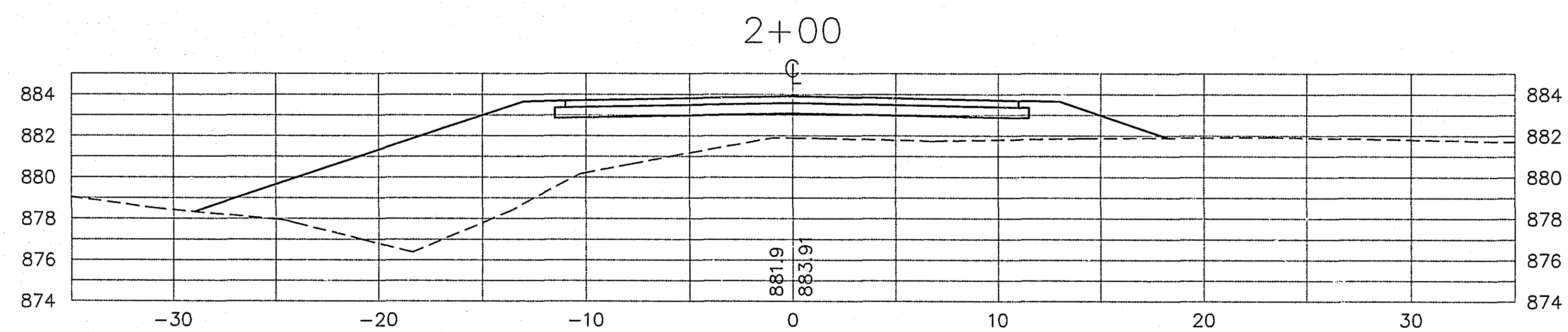
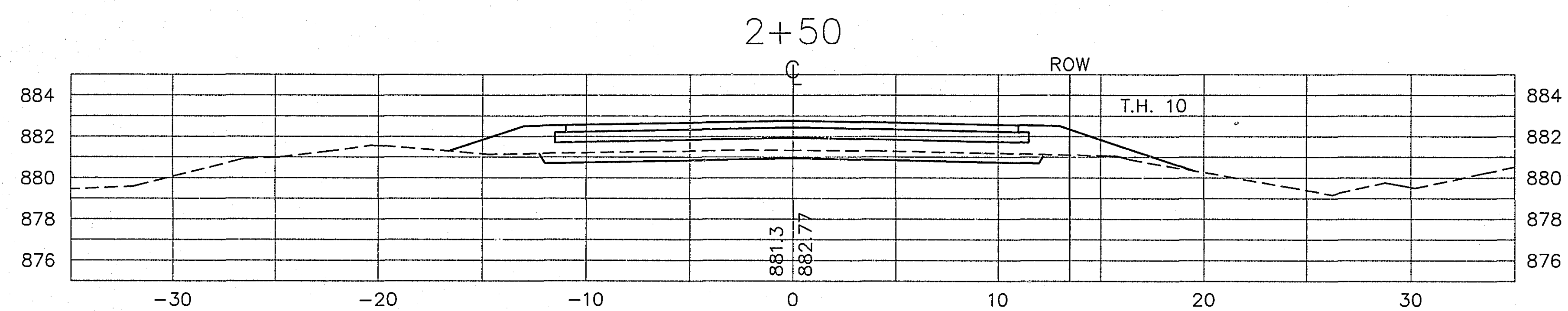
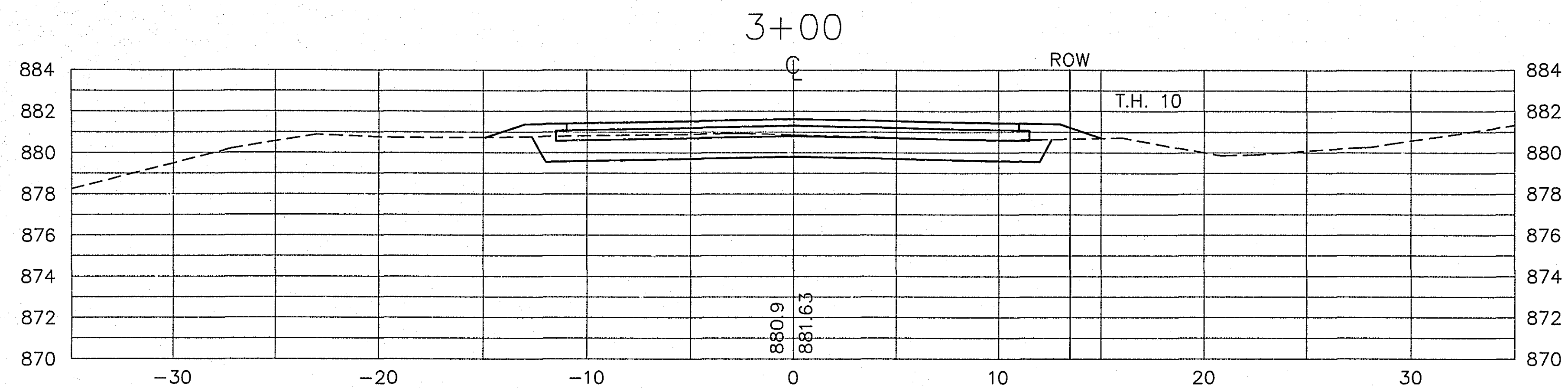


28-146

STA 271+50 TO STA 272+50

S.A.P. 62-677-21

SHEET NO. 40 OF 55 SHEETS



EARTHWORK

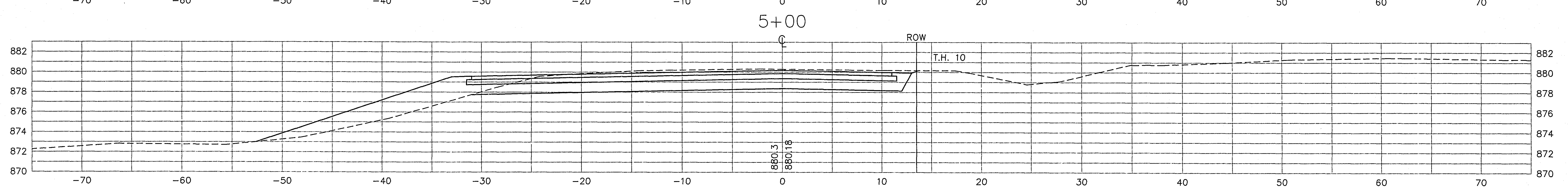
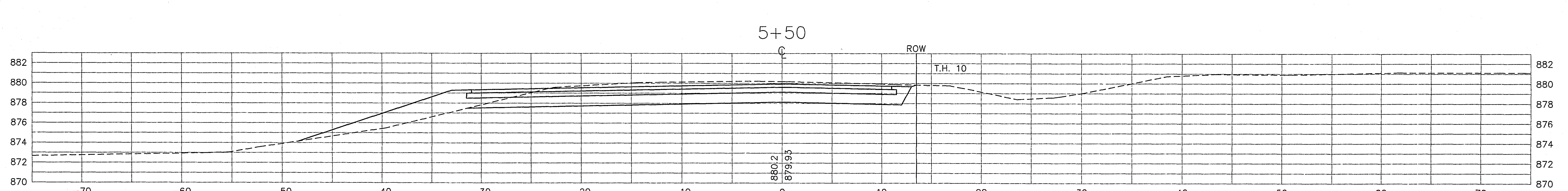
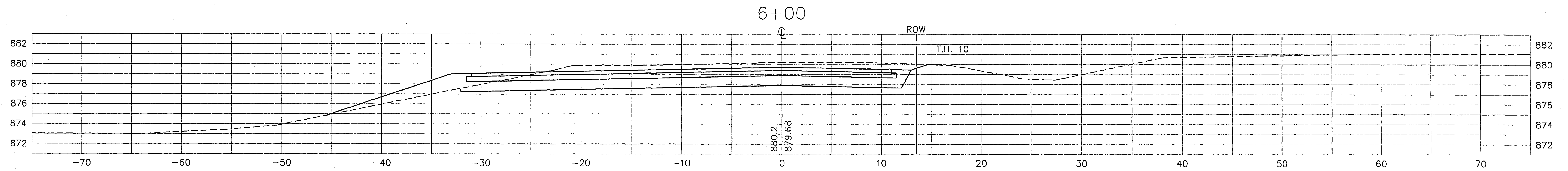
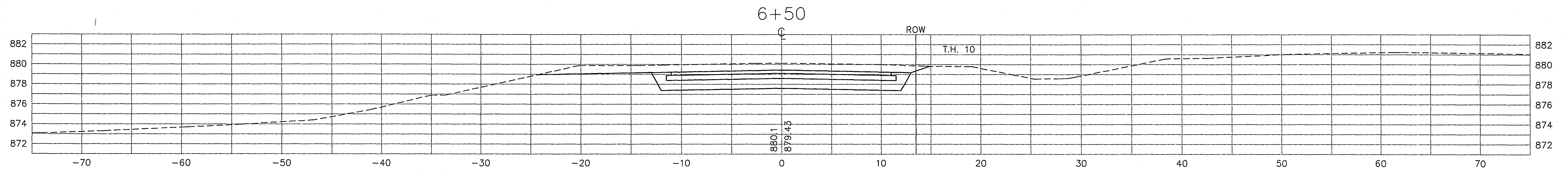
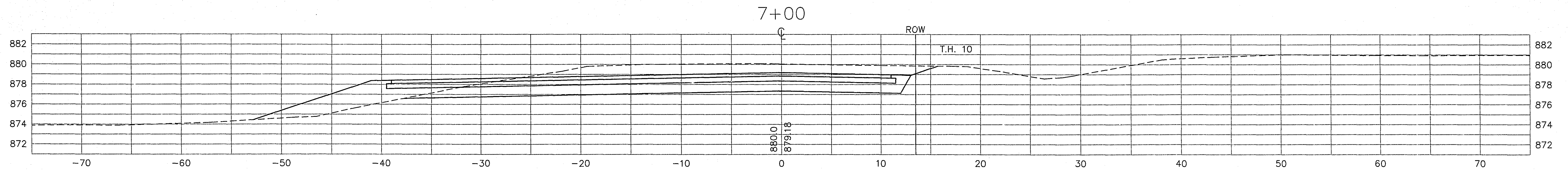
STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	0.00	0.00	0.00	45.15	0.00	45.15
0+50	0.00	48.76	0.24	61.32	0.24	106.48
1+00	0.27	16.73	0.47	33.68	0.71	140.15
1+50	0.23	19.64	0.20	86.48	0.91	226.63
2+00	0.00	78.84	9.97	73.98	10.88	300.62
2+50	10.79	7.45	35.26	8.35	46.14	308.97
3+00	27.31	1.56	65.41	1.49	111.56	310.46
3+50	43.36	0.05	81.49	0.15	193.05	310.60
4+00	44.66	0.11	85.22	0.11	278.27	310.71
4+50	47.38	0.01	116.82	29.35	395.10	340.05
5+00	78.79	31.69	149.58	48.55	544.68	388.60
5+50	82.76	20.74	164.30	29.42	708.98	418.02
6+00	94.68	11.03	154.63	10.22	863.61	428.24
6+50	72.33	0.00	175.50	17.43	1039.11	445.67
7+00	117.21	18.82	86.82	13.94	1125.93	459.61
7+40	0.00	0.00	0.00	0.00	1125.93	459.61

Revised 12-96

S.A.P. 62-677-21

28-146
PARK ROAD
CROSS SECTIONS

SHEET NO. 41 OF 55 SHEETS



28-146
PARK ROAD
CROSS SECTIONS

EARTHWORK SUMMARY

P LOCATION	EXCAVATION		EMBANKMENT			
	COMMON (E.V.) ①	MUCK (E.V.) ②	REGULAR (C.V.)	UNIFORMITY & COMPACTION (C.V.)	GRANULAR BORROW (C.V.)	SELECT GRANULAR BORROW (C.V.)
OLD HIGHWAY 8						
STA 235+70 TO 260+00	18042	—	2353	10088	848	—
STA 260+00 TO 261+65	—	2232	502	—	2723	836
STA 261+65 TO 266+13	2212	—	134	—	1567	1872
STA 266+13 TO 271+16	—	5911	3851	—	14909	2103
STA 271+16 TO 271+88	SEE CHANNEL EXCAVATION		112	—	404	301
STA 271+88 TO 272+58	407	—	21	—	446	292
OLD HIGHWAY 8 SUBTOTALS	20661	8143	6973	10088	20897	5404
COUNTY ROAD H						
STA 34+00 TO 39+90	921	—	408	350	—	—
PARK ROAD						
STA 0+50 TO 7+50	1300	—	924	600	—	—
PATH GRADING — SHEET 54					596	
TOTALS	22882 CY (E.V.)	8143 CY (E.V.)	8305 CY (C.V.)	11038 CY (C.V.)	21493 CY (C.V.)	5404 CY (C.V.)
			x 1.3 10797 CY (L.V.)	x 1.3 14349 CY (L.V.)	x 1.5 32240 CY (L.V.)	x 1.5 8106 CY (L.V.)

① QUANTITY INCLUDES ALL BITUMINOUS PAVEMENT REGARDLESS OF THICKNESS AND MATERIAL USED FOR UNIFORMITY AND COMPACTION.

STORM POND		
UNCLASSIFIED EXCAVATION (EV)	ORGANIC FILL ② MATERIAL (LV)	CLAY FILL ③ MATERIAL (LV)
44230 CY	5320 CY	3072 CY

NOTE: UNCLASSIFIED EXCAVATION INCLUDES EXTRA 1' SUBCUT FOR FILL MATERIAL BELOW CONTOURS SHOWN IN PLAN. SEE SPECIAL PROVISIONS. SEE SHEET 16.

- ② CONTRACTOR SHALL PLACE 1' OF DRIED ORGANIC MATERIAL IN PRIMARY POND AREA AND ABOVE ELEVATION 884.0 IN SECONDARY POND AREA. SEE SPECIAL PROVISIONS.
- ③ CONTRACTOR SHALL PLACE 1' OF CLAY FILL MATERIAL IN SECONDARY POND BELOW ELEVATION 884.0. PAYMENT SHALL BE MADE AS ITEM 2105.523 COMMON BORROW. SEE SPECIAL PROVISIONS.

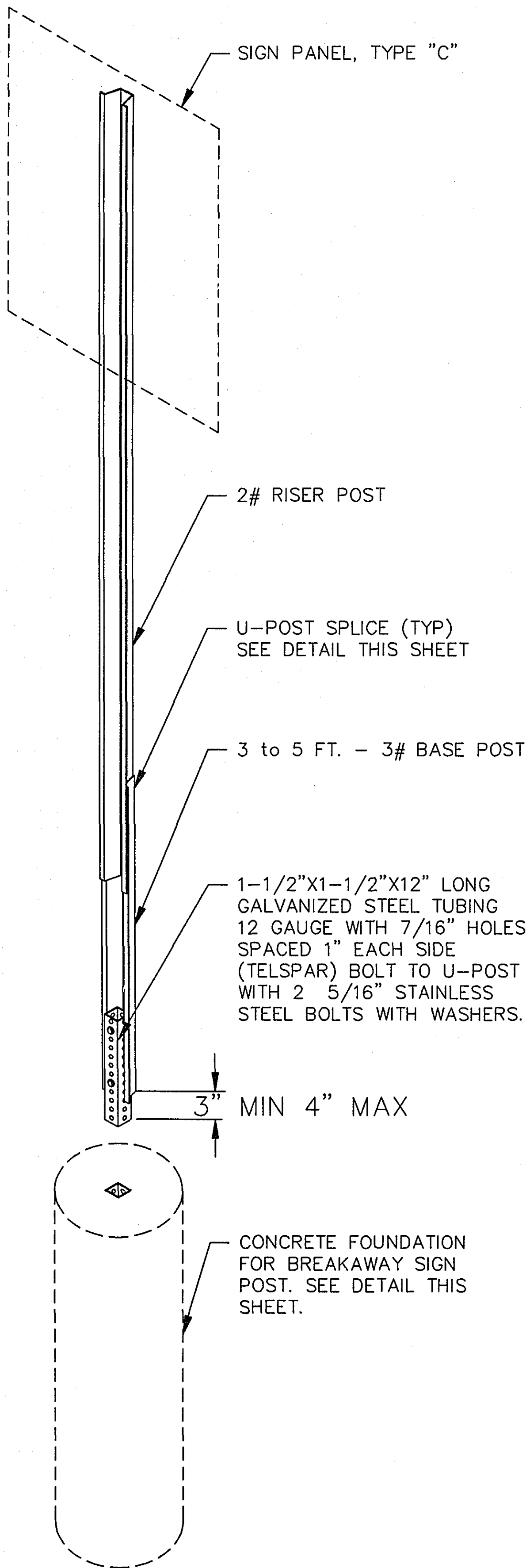
CHANNEL EXCAVATION	
AT BOX CULVERTS ALIGNMENT E STA 0+00 TO STA 3+25 SEE SHEET 11	2841 CY (EV)
CHANNEL RE—ALIGNMENT SEE SHEET 54	1000 CY (EV)
TOTAL	3841 CY (EV)

NOTE: CHANNEL EXCAVATION AT BOX CULVERTS SHALL INCLUDE EXCAVATION FOR BOX CULVERTS AND AGGREGATE BEDDING. SPECIFICATION REFERENCE 2105; 2451.

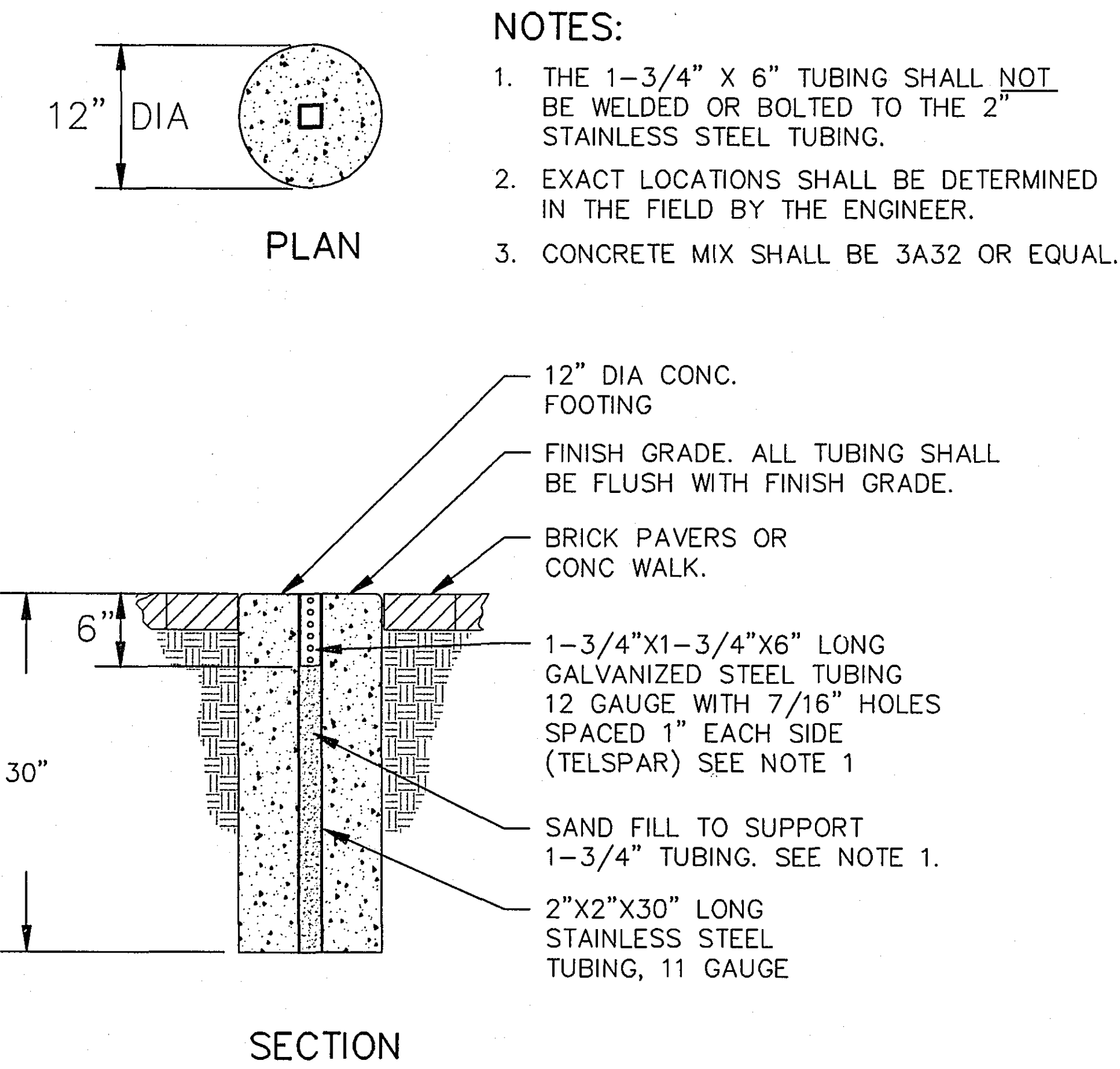
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
Kathy Jaselske
REG. NO. 21804 DATE 11/15/16

28-146

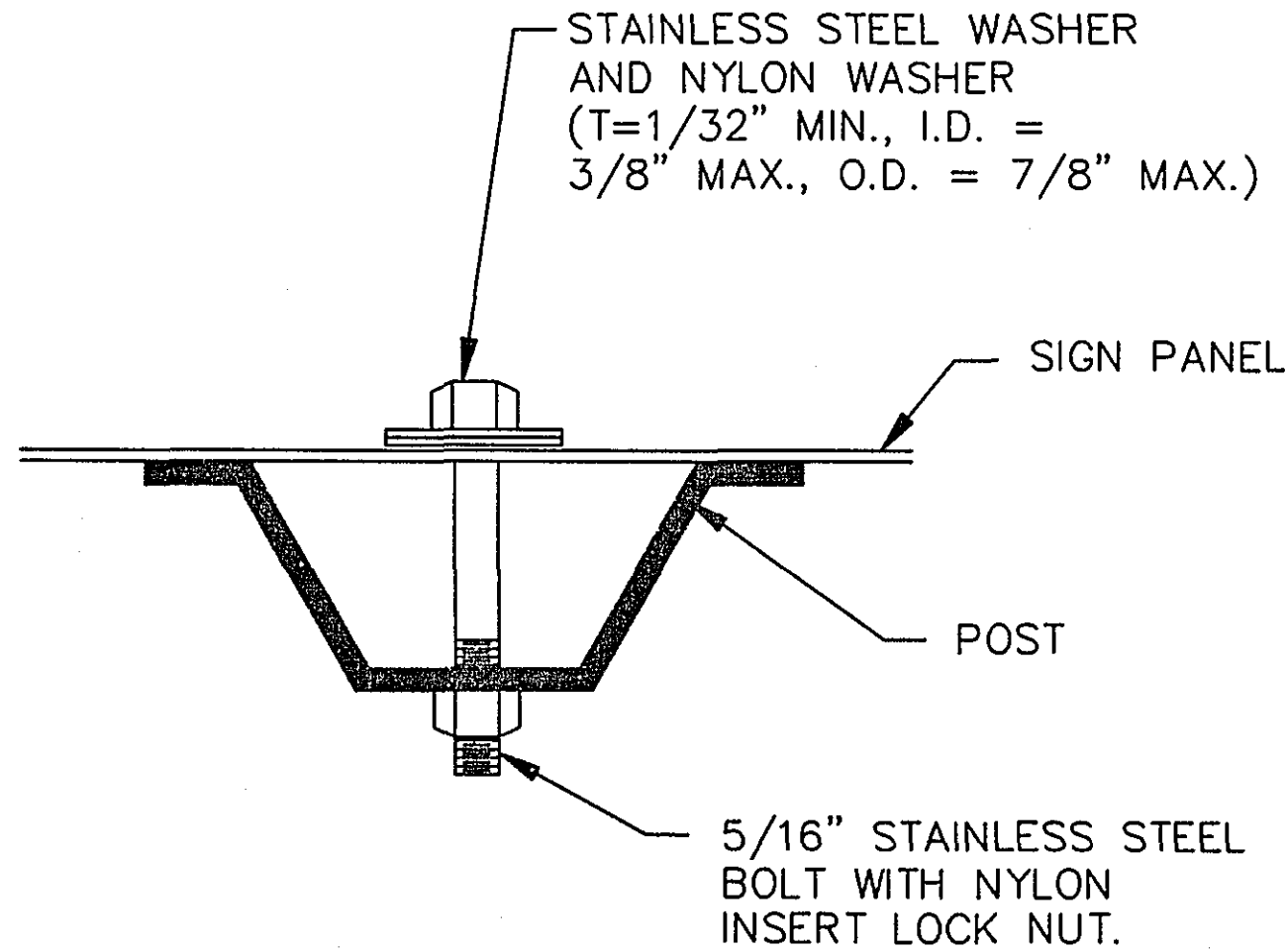
BREAKAWAY SIGN POST
FOR TYPE "C" SIGNS INSTALLED IN MEDIANS



BREAKAWAY SIGN POST FOUNDATION
FOR TYPE "C" SIGNS INSTALLED IN MEDIANS

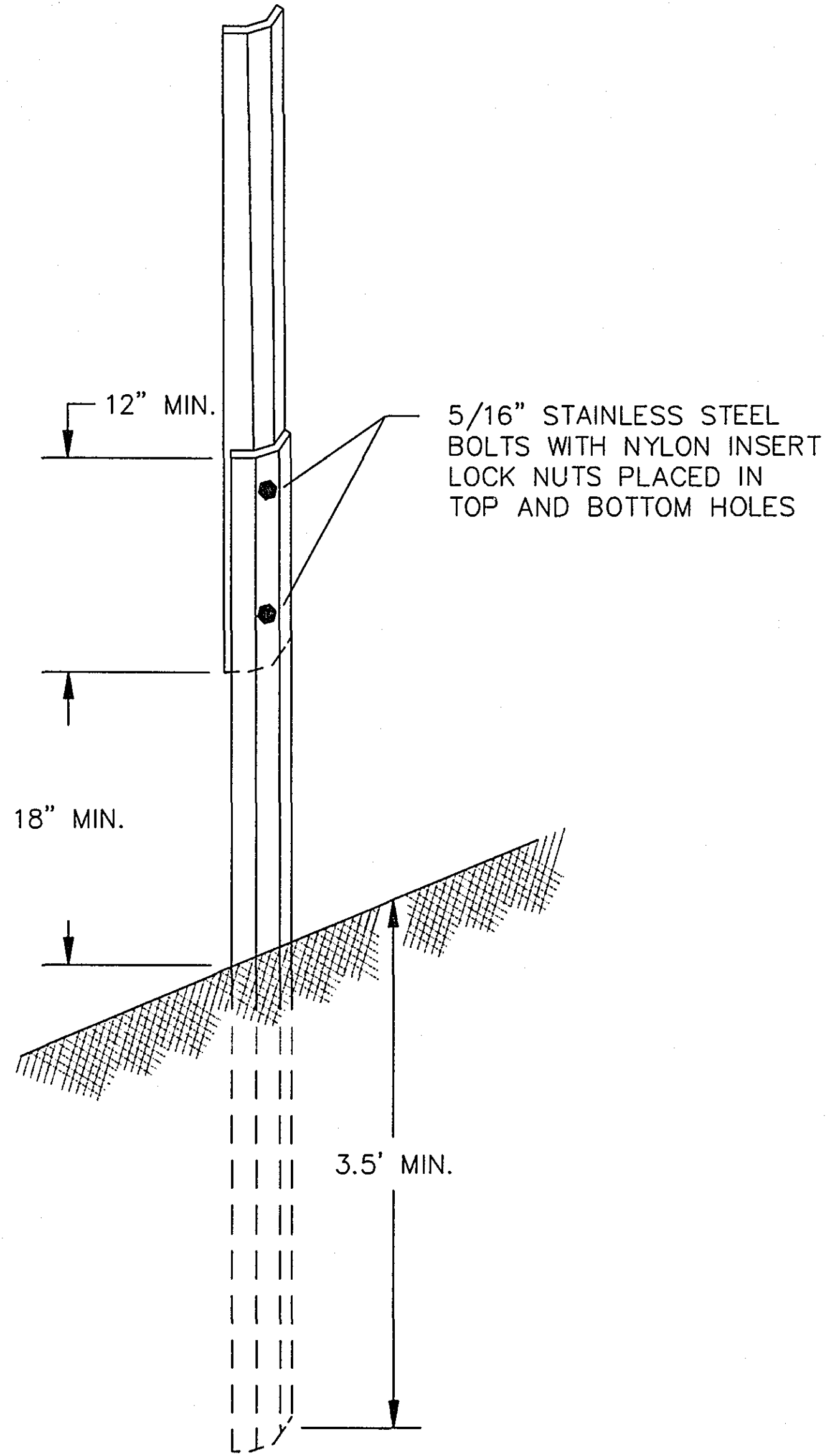


- NOTES:
1. THE 1-3/4" X 6" TUBING SHALL NOT BE WELDED OR BOLTED TO THE 2" STAINLESS STEEL TUBING.
 2. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 3. CONCRETE MIX SHALL BE 3A32 OR EQUAL.



"U" POST MOUNTING
TYPE "C" SIGNS

TYPE "C" POST



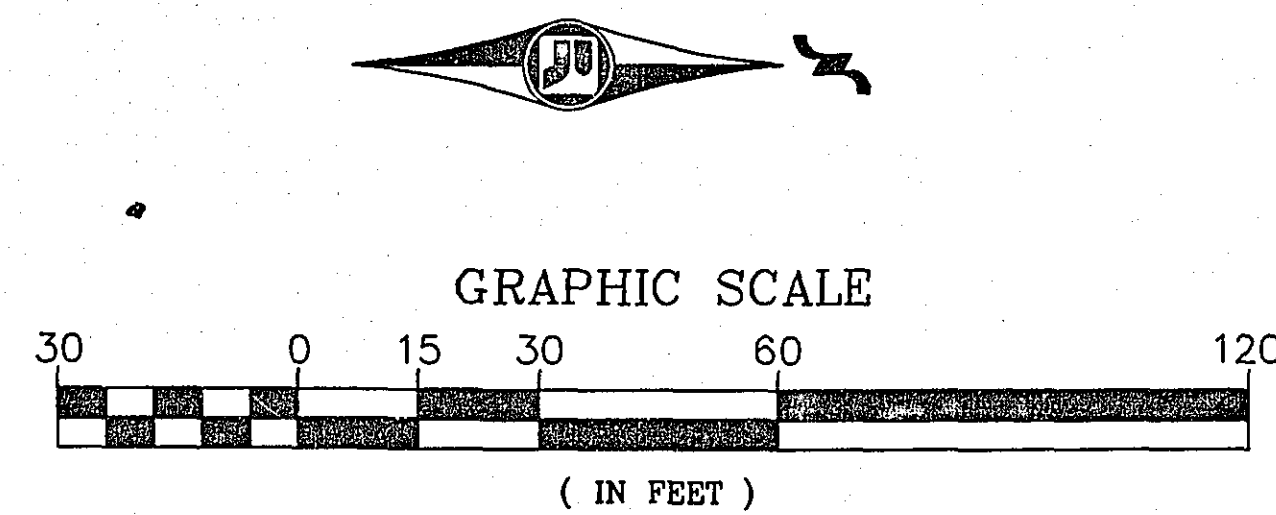
"U" POST SPLICE

- NOTES:
1. USE 3# RISER STUB POSTS, WITH 2# RISER POSTS, ALL SHALL CONFORM TO MN/DOT SPECIFICATION 3401.
 2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
 3. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7 FEET LONG.
 4. USE STAINLESS STEEL 5/16" BOLTS, WASHERS, AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL SIGNS.
 5. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.

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.
Kathy J. Jaskolski
Date 2/28/96 Reg. No. 1415/96

28-146

TYPE "C" SIGN POST DETAILS



E M CORPORATION

CIRRUS WAREHOUSE
4749

BRIGHTON PLACE

R8-3a
18"x18"

W10-1
36" DIA.

STOP
R1-1
30"x30"

R8-3a
18"x18"

R8-3a
18"x18"

R8-3a
18"x18"

- NOTES:
1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
 2. SKIP STRIPING CYCLE SHALL BE 2m STRIPE - 8m GAP.

234+00

235+00

236+00

237+00

238+00

239+00

240+00

241+00

242+00

243+00

OLD HWY 8

4" SOLID YELLOW

4" SKIP WHITE

SPEED
LIMIT
40

R2-1
24"x30"

R8-3a
18"x18"

STOP
R1-1
30"x30"

MUSTANG ROAD

R8-3a
18"x18"

4889
MOTEL

R8-3a
18"x18"

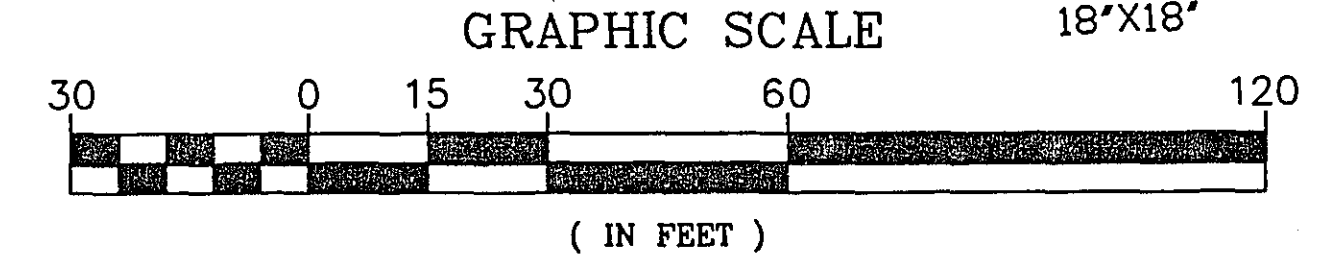
R8-3a
18"x18"

SPEED
LIMIT
40

R2-1
24"x30"

R8-3a
18"x18"

R8-3a
18"x18"



OLD HWY 8

I HEREBY CERTIFY THAT THIS PLAN WAS
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SUPERVISION AND THAT I AM A DULY
REGISTERED PROFESSIONAL ENGINEER UNDER
LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

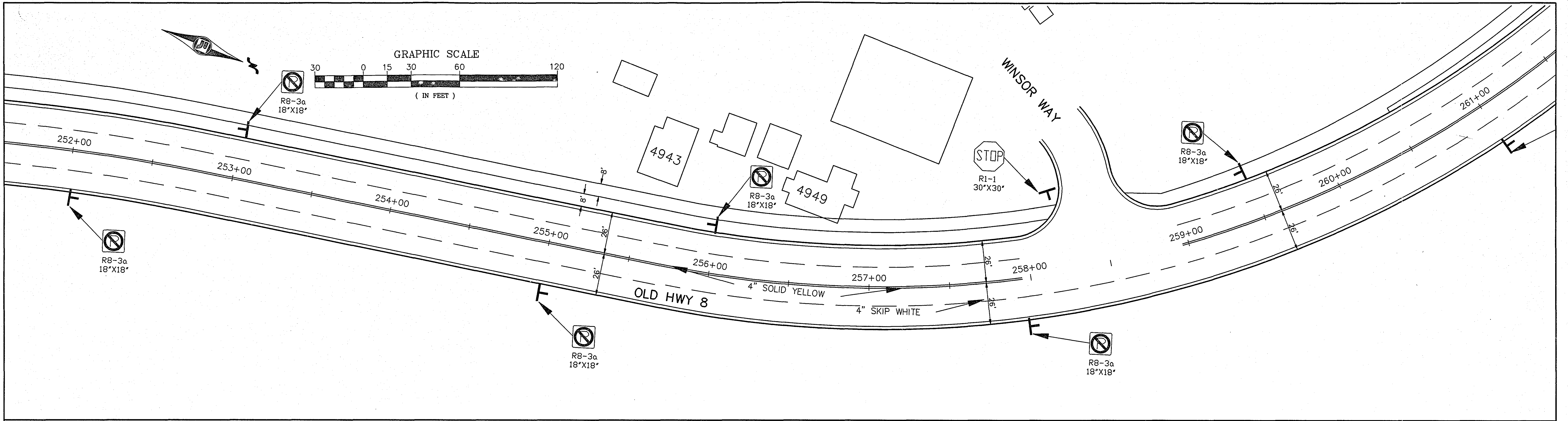
REVISED 12-96

PERMANENT SIGNING & STRIPING LAYOUT

S.A.P. 62-677-21

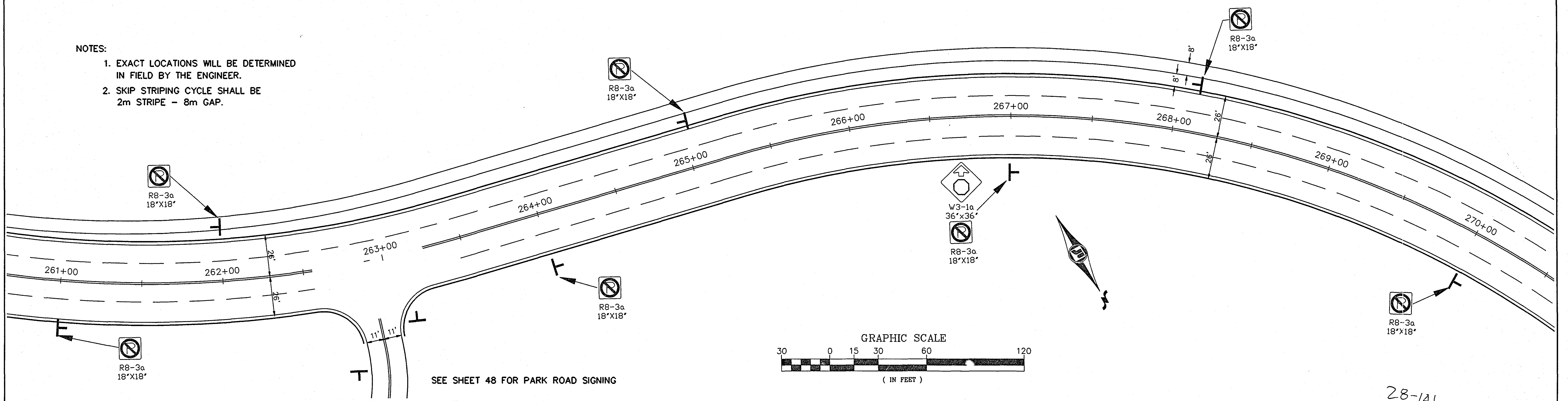
SHEET NO. 45 OF 55 SHEETS

28-146



NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
2. SKIP STRIPING CYCLE SHALL BE 2m STRIPE - 8m GAP.



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REG. NO. _____ DATE _____

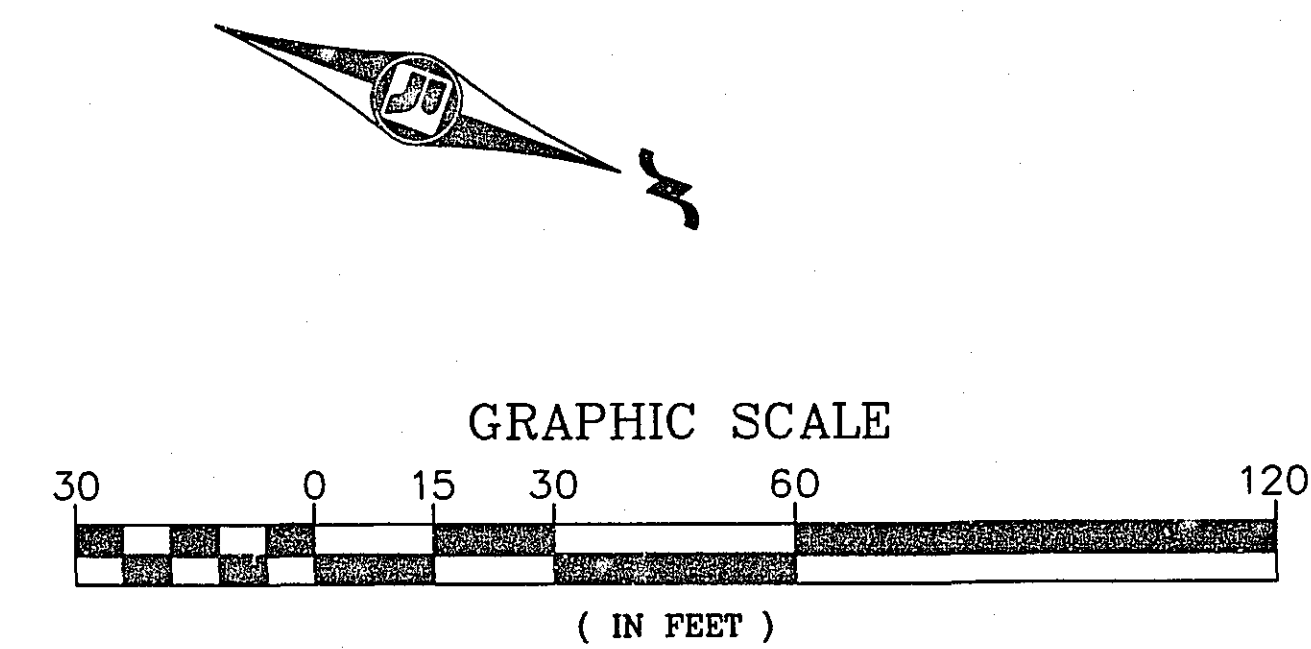
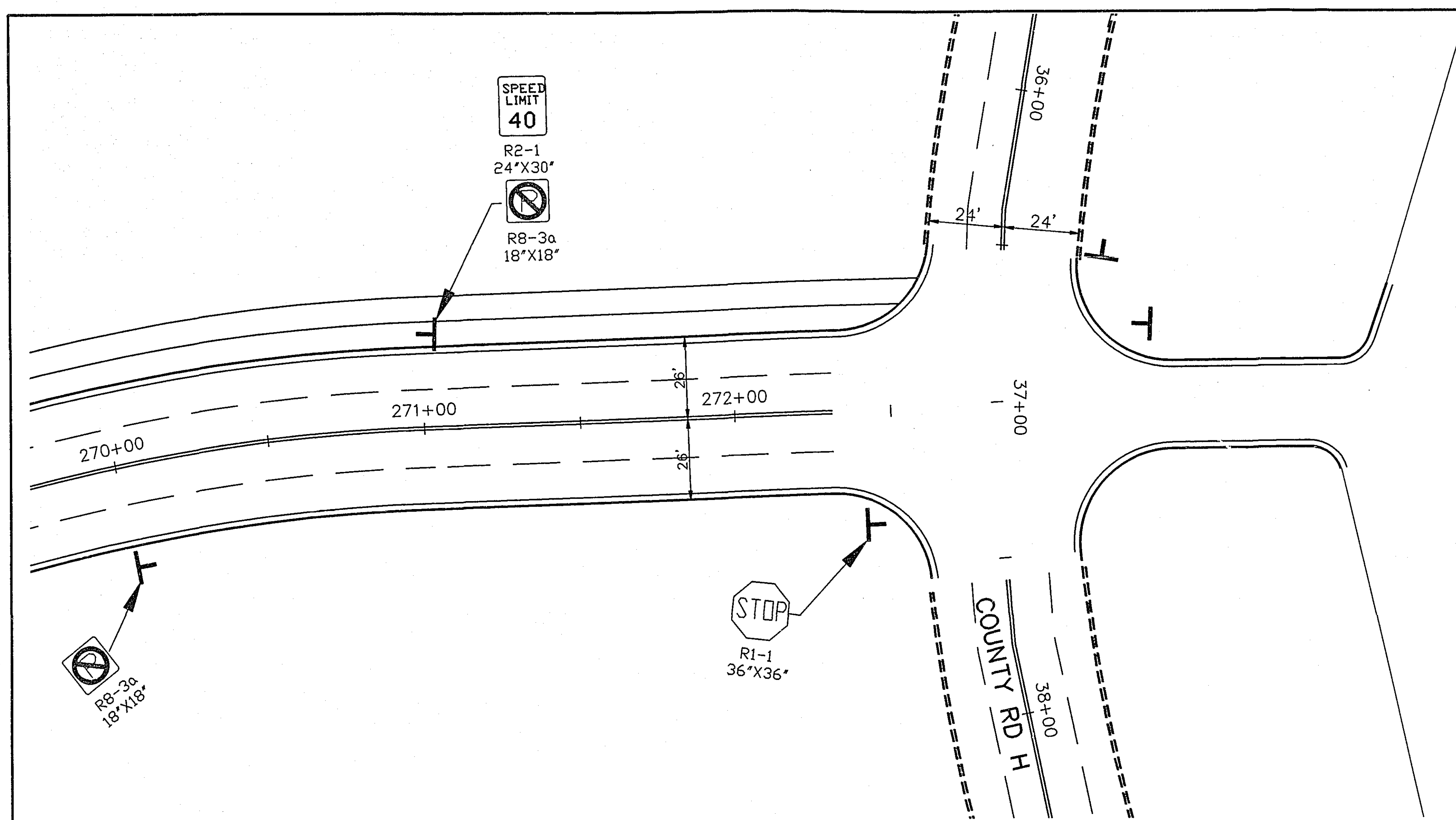
REVISED 12-96

PERMANENT SIGNING & STRIPING LAYOUT

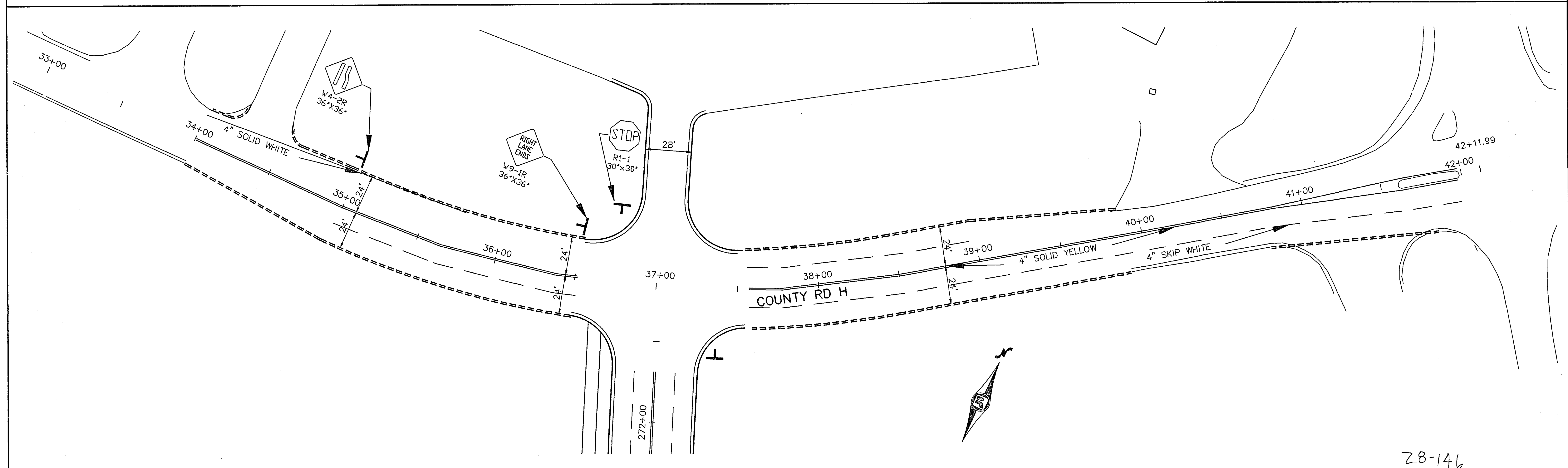
S.A.P. 62-677-21

SHEET NO. 46 OF 55 SHEETS

28-146



- NOTES:
1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
 2. SKIP STRIPING CYCLE SHALL BE 2m STRIPE - 8m GAP.



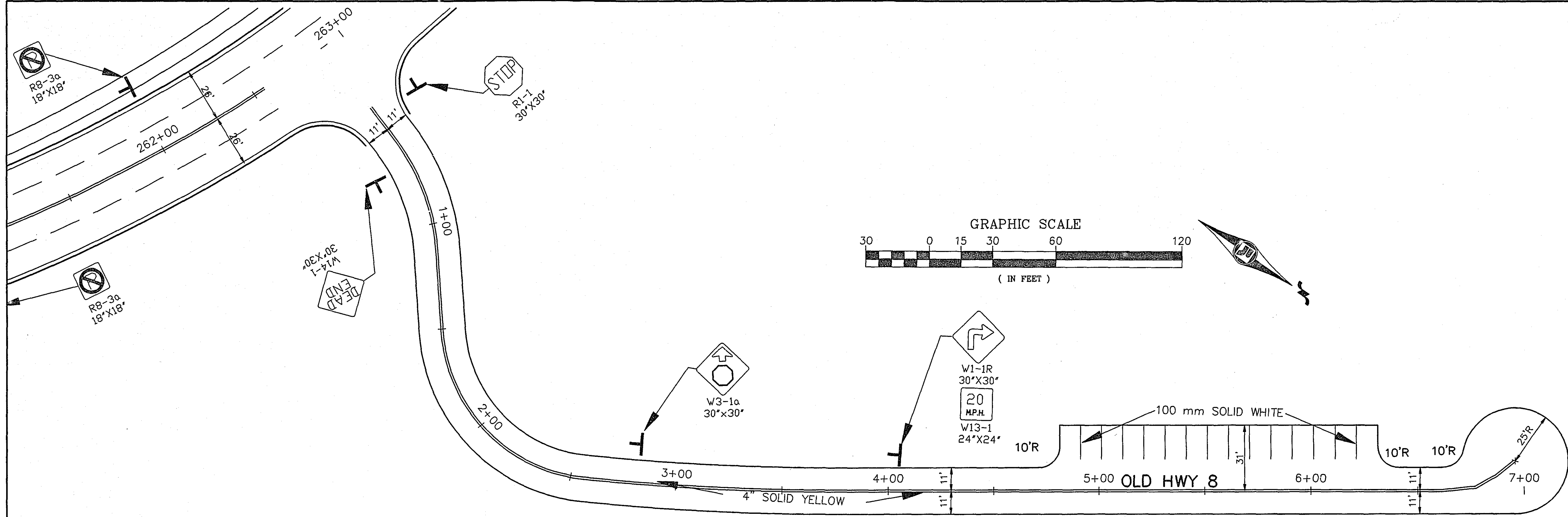
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

REVISED 12-96
S.A.P. 62-677-21

PERMANENT SIGNING & STRIPING LAYOUT
SHEET NO. 47 OF 55 SHEETS

ZB-146



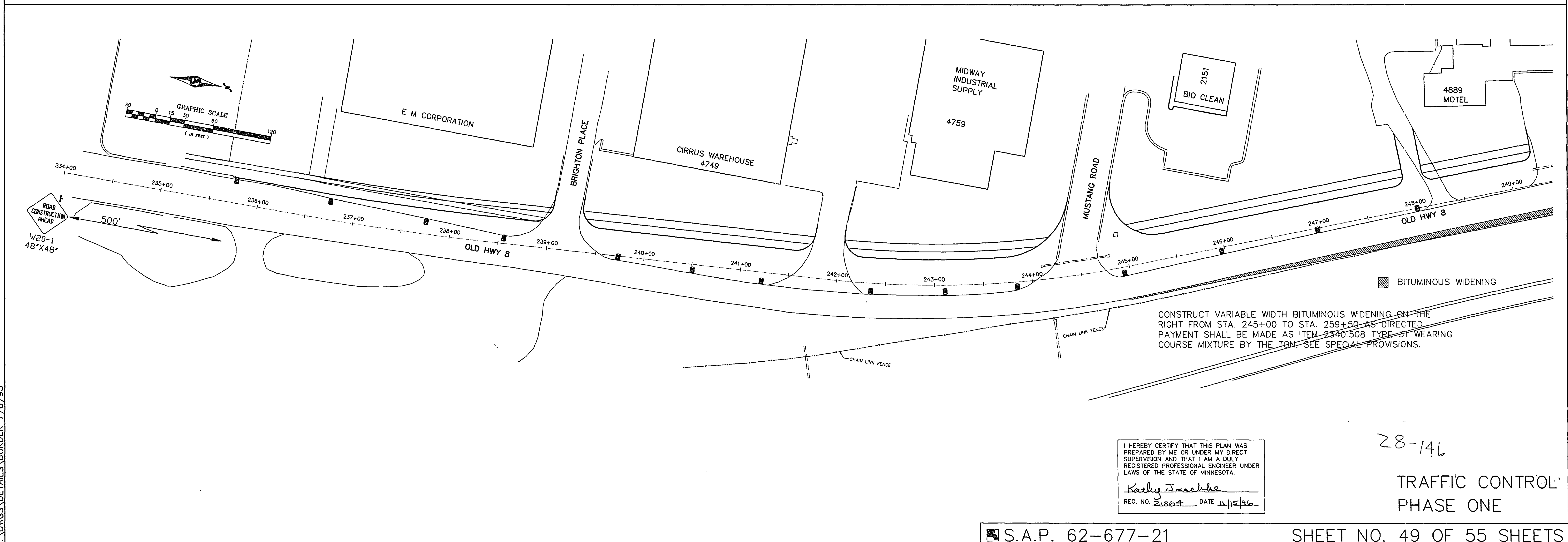
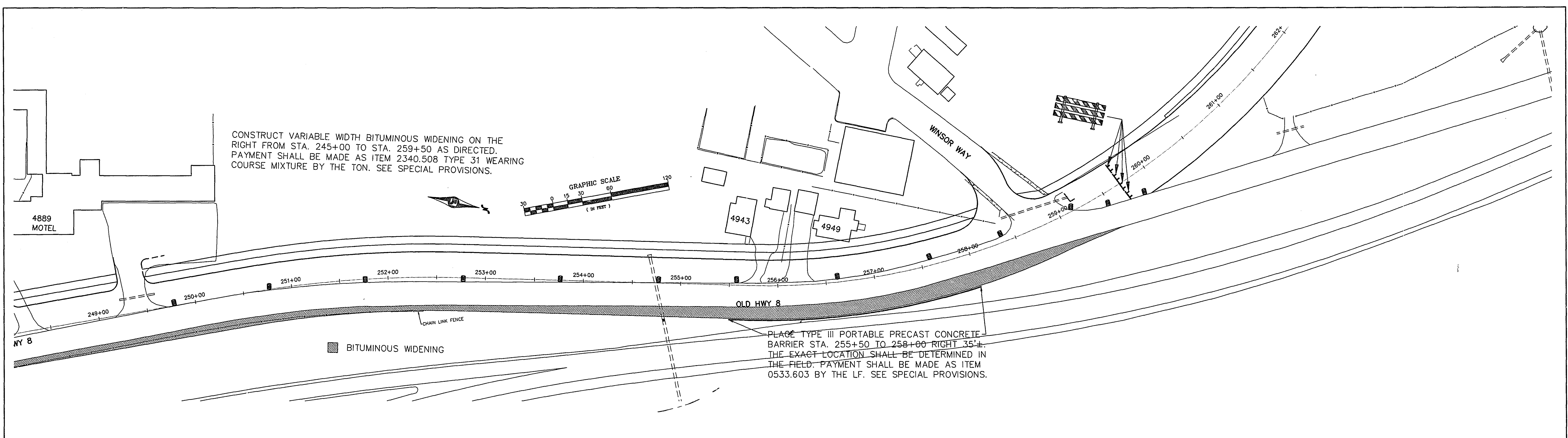
- NOTES:
1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
 2. SKIP STRIPING CYCLE SHALL BE 2m STRIPE - 8m GAP.

7+86.66

Z8-146

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 LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____



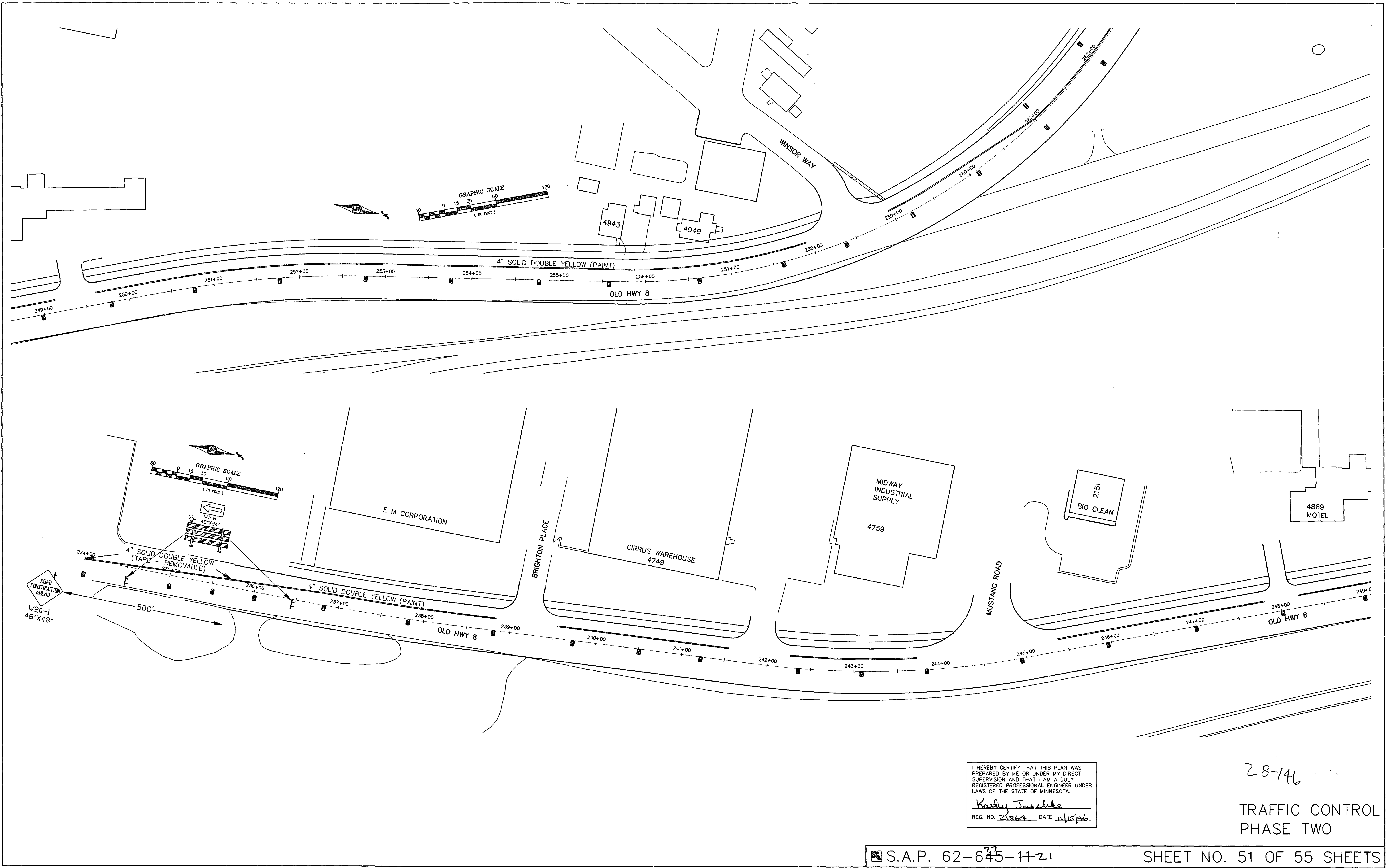
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

Kathy Jankha

REG. NO. 21864 DATE 11/5/16

28-146

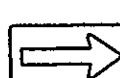
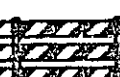
TRAFFIC CONTROL
PHASE ONE

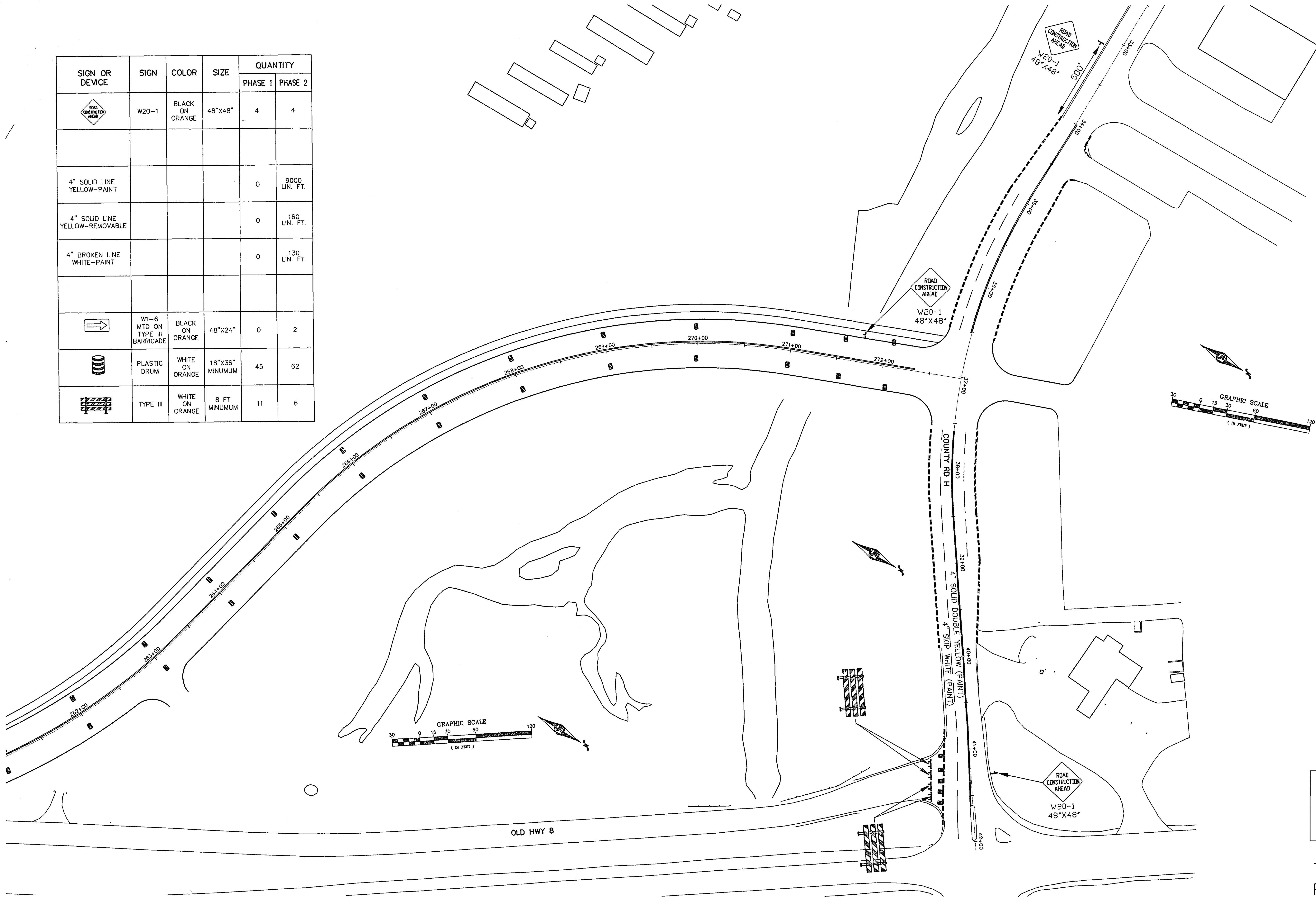


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LAWS OF THE STATE OF MINNESOTA.
Kathy Jassika
REG. NO. 21864 DATE 11/15/96

28-146

TRAFFIC CONTROL
PHASE TWO

SIGN OR DEVICE	SIGN	COLOR	SIZE	QUANTITY	
				PHASE 1	PHASE 2
	W20-1	BLACK ON ORANGE	48"X48"	4	4
4" SOLID LINE YELLOW-PAINT				0	9000 LIN. FT.
4" SOLID LINE YELLOW-REMOVABLE				0	160 LIN. FT.
4" BROKEN LINE WHITE-PAINT				0	130 LIN. FT.
	W1-6 MTD ON TYPE III BARRICADE	BLACK ON ORANGE	48"X24"	0	2
	PLASTIC DRUM	WHITE ON ORANGE	18"X36" MINIMUM	45	62
	TYPE III	WHITE ON ORANGE	8 FT MINIMUM	11	6

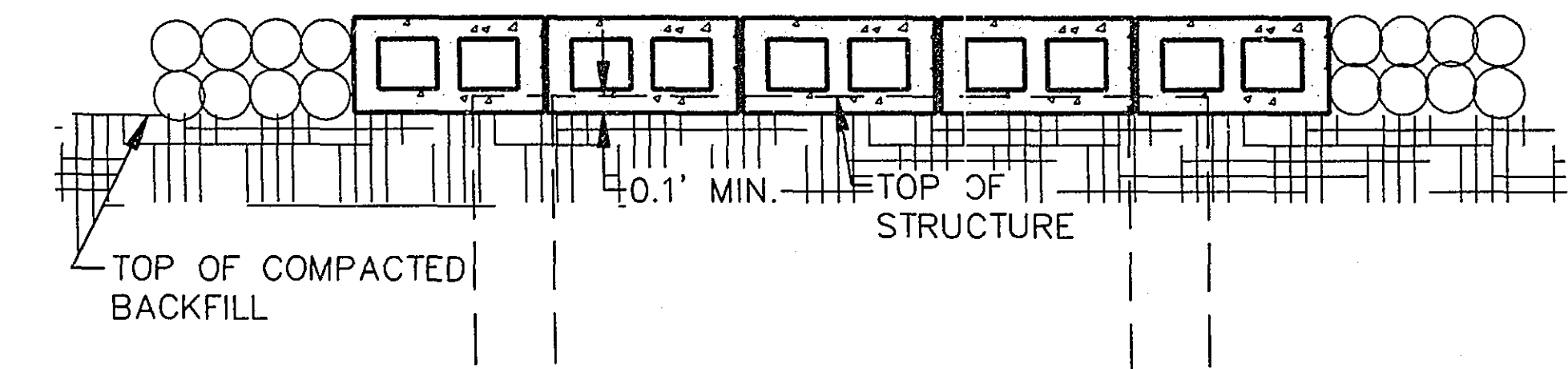
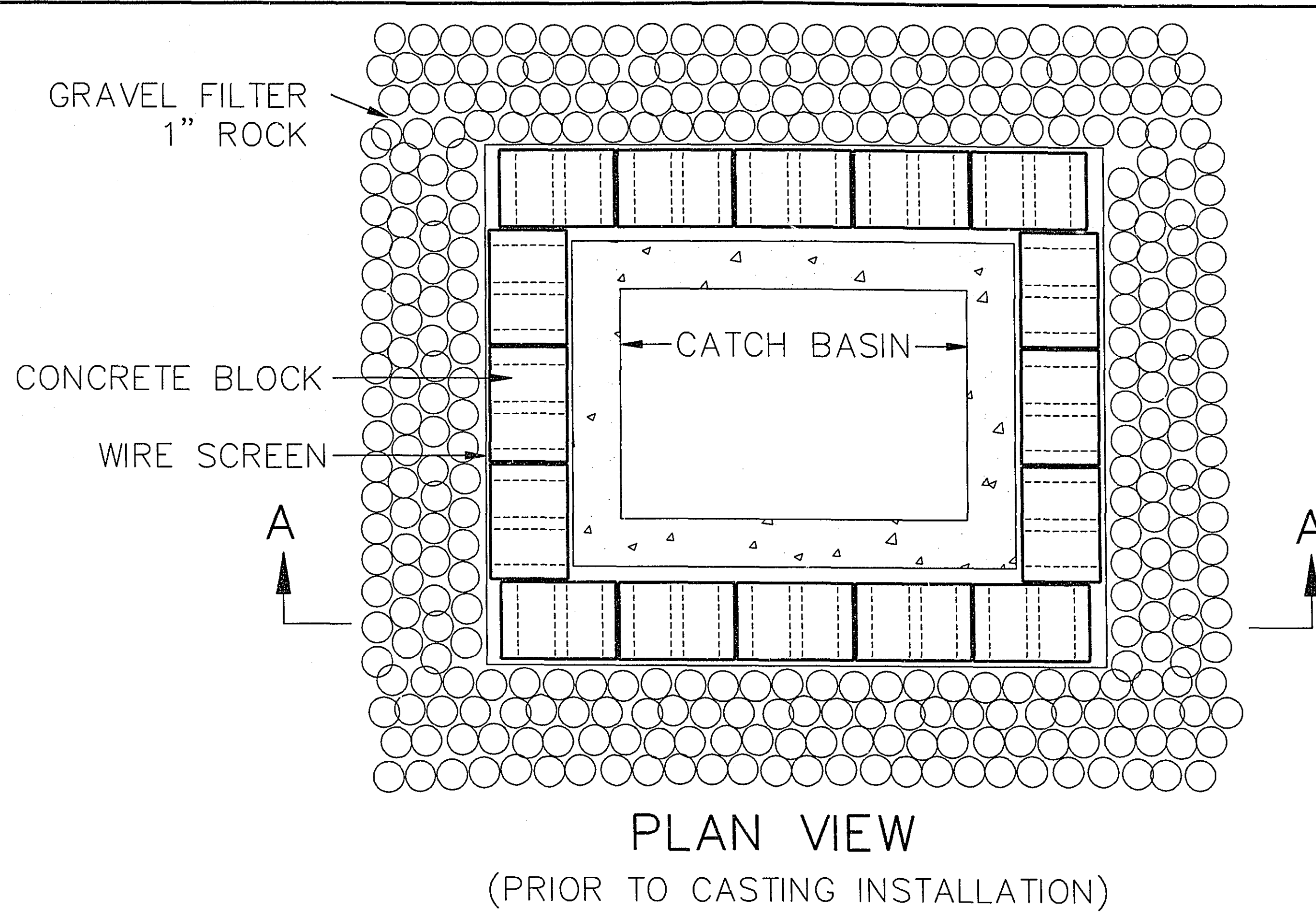
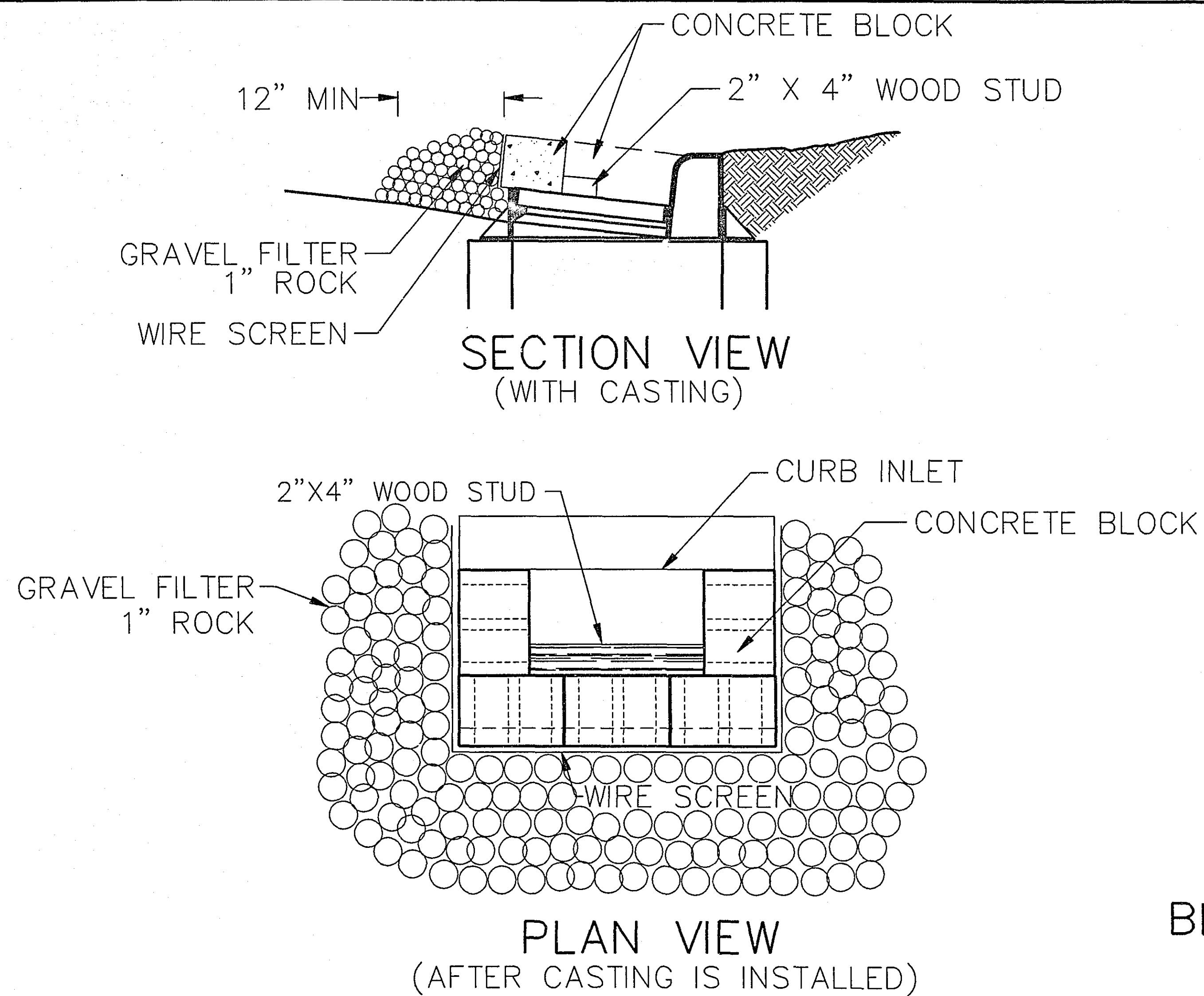


28-146

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 LAWS OF THE STATE OF MINNESOTA.

Kathy J. Janssen
REG. NO. 2064 DATE 10/15/96

TRAFFIC CONTROL
PHASE TWO

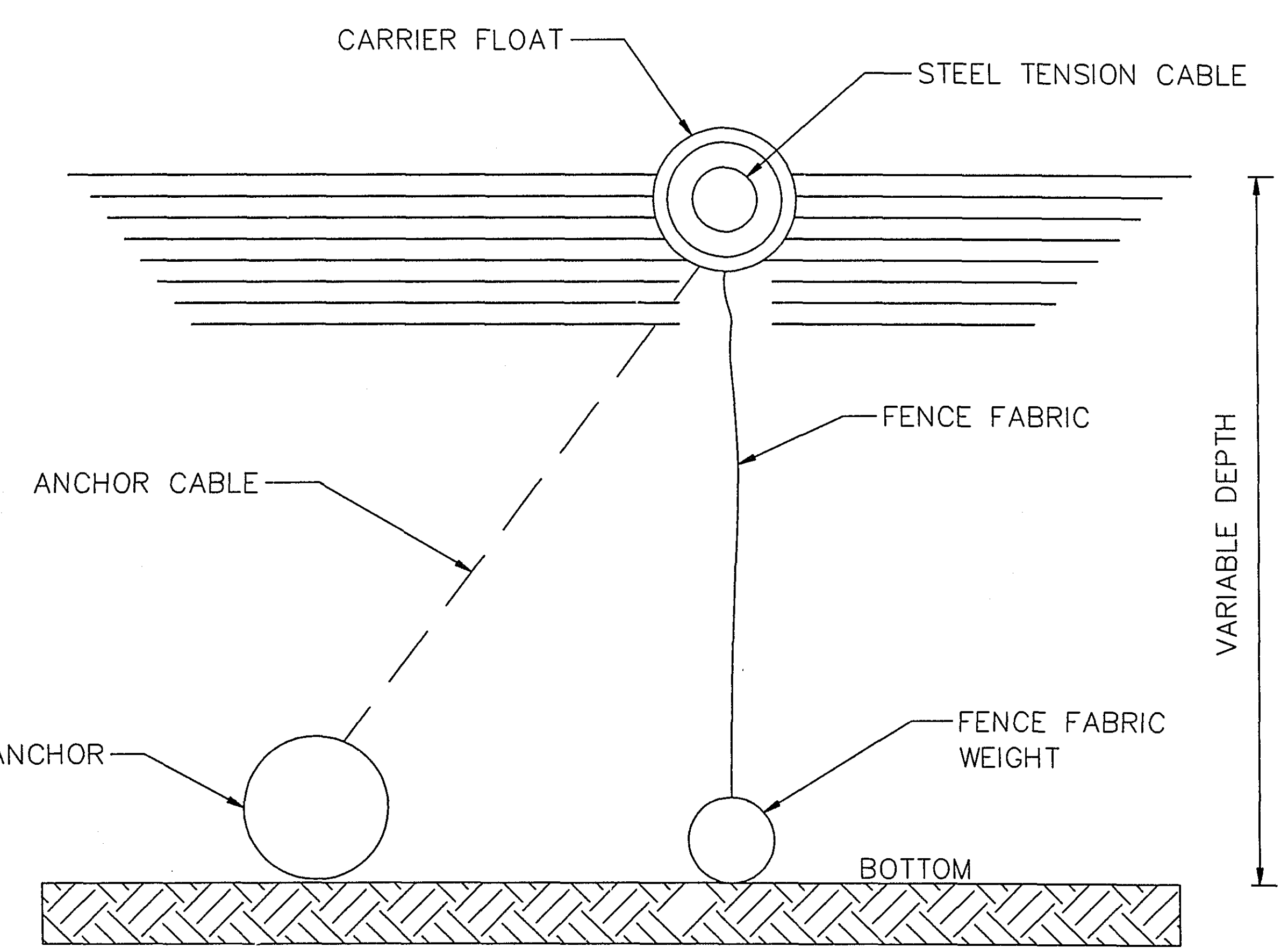


SECTION A-A

SEDIMENT FILTER LOCATIONS

CB 102	CB 120	CB 135
CB 103	CB 121	CB 137
CB 106	CB 122	CB 138
CB 107	CB 124	CB 139
CB 110	CB 125	CB 140
CB 111	CB 128	CB 142
CB 113	CB 129	
CB 114	CB 131	
CB 116	CB 132	
CB 119	CB 134	

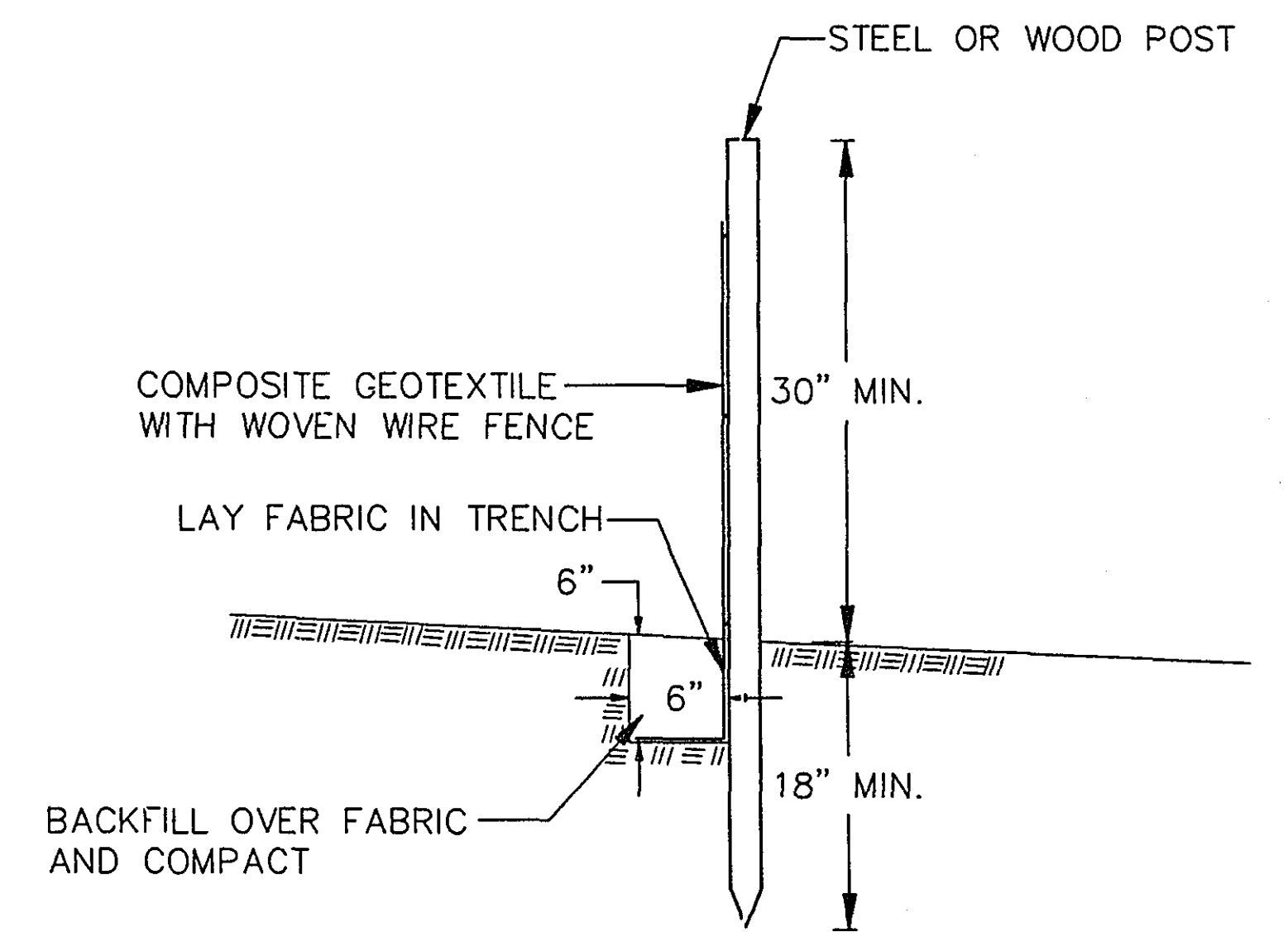
BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER
(SEE SPECIAL PROVISIONS)



FLOTATION SILT CURTAIN DETAIL

SILT FENCE CHART

H	LOCATION	LT/RT	LENGTH (FT)	REMARKS
	OLD HIGHWAY 8			
	241+88	RT	48	SD 105
	247+50 TO 250+75	RT	325	CONSTRUCTION LIMITS
	251+50 TO 256+00	LT	450	CNSTRUCTION LIMITS
	257+25 TO 258+25	LT	100	CONSTRUCTION LIMITS
	258+25 TO 268+75	LT	550	CONSTRUCTION LIMITS
	258+00 TO 259+50	RT	150	CONSTRUCTION LIMITS
	260+50 TO 264+25	RT	375	CONSTRUCTION LIMITS
	266+25 TO 272+50	LT	1250	CONSTRUCTION LIMITS
	PARK ENTRANCE			
	0+50 TO 4+00	LT & RT	700	
	POND			
	266+10	70' LT	110	
	BOX CULVERT			
		LT & RT	300	
	TOTAL		4358	

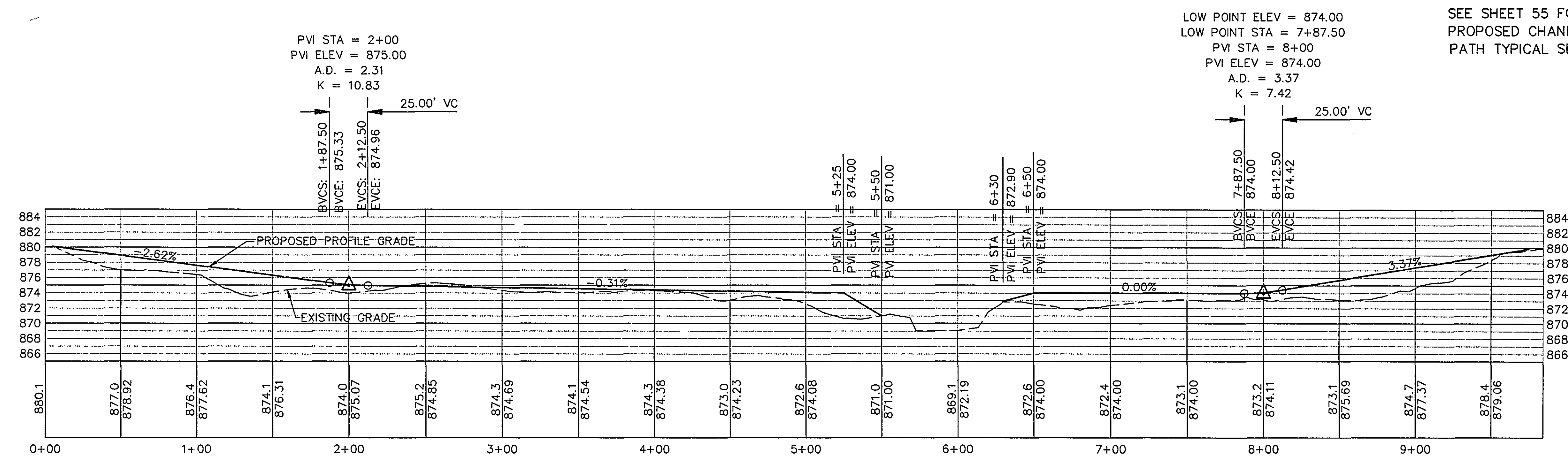
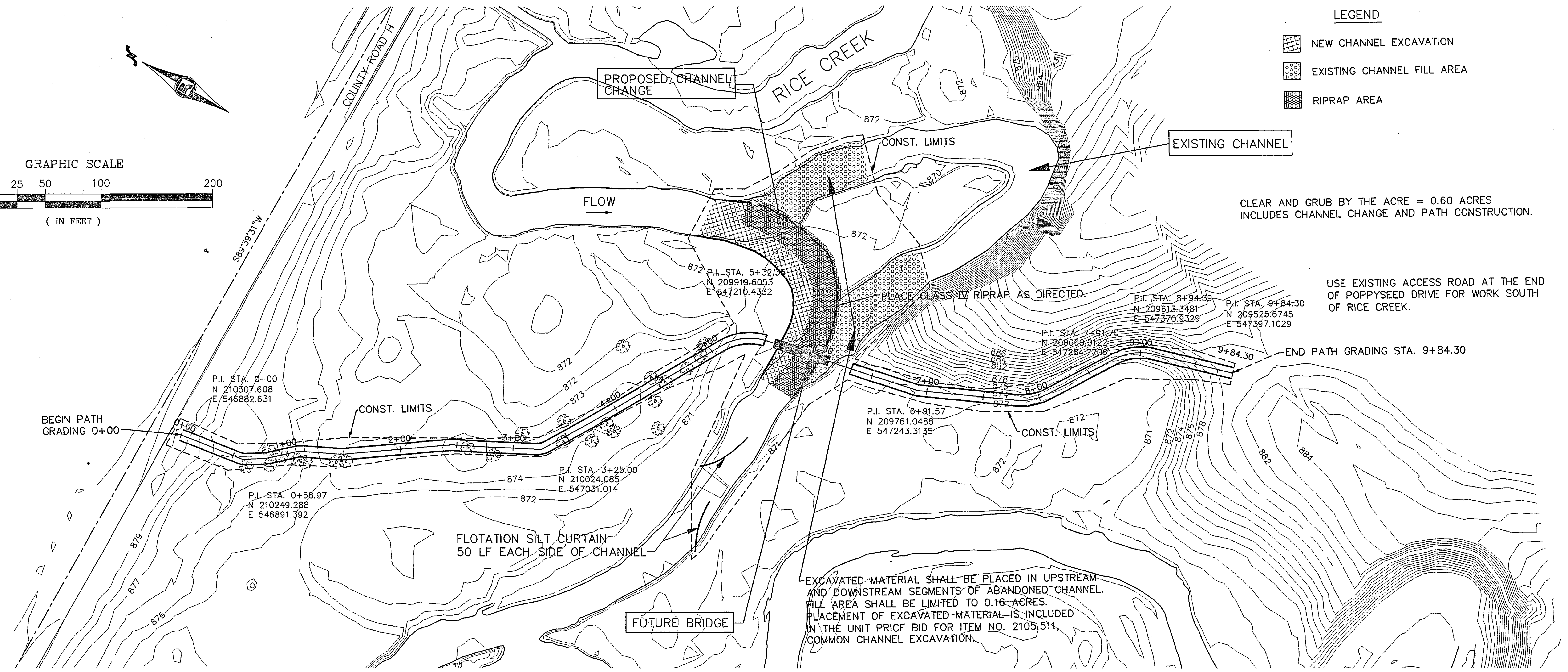
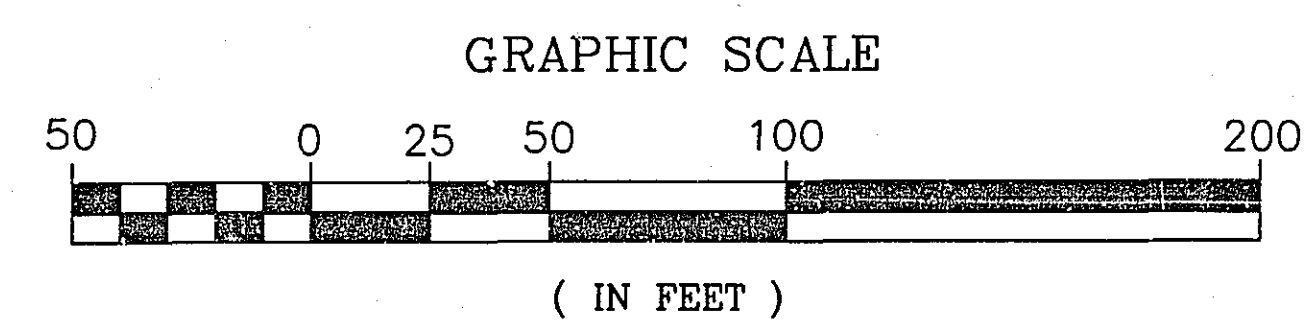


HEAVY DUTY SILT
FENCE DETAIL

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

Reedley J. Savolke
REG. NO. 21864 DATE 11/15/86

G:\DWG\OH-8\EROSION

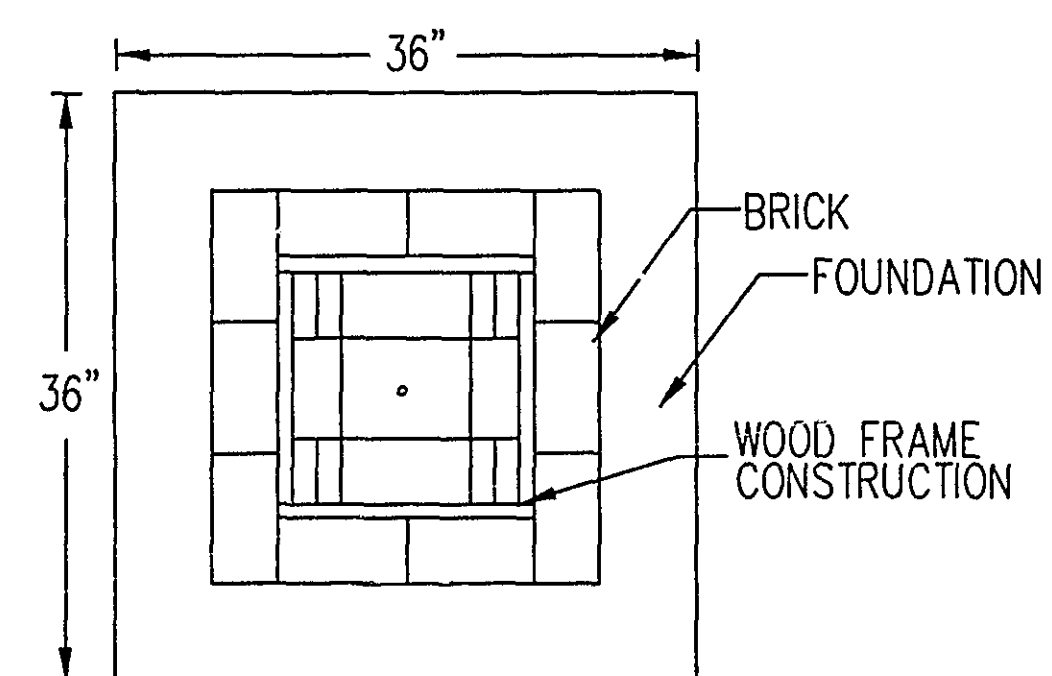
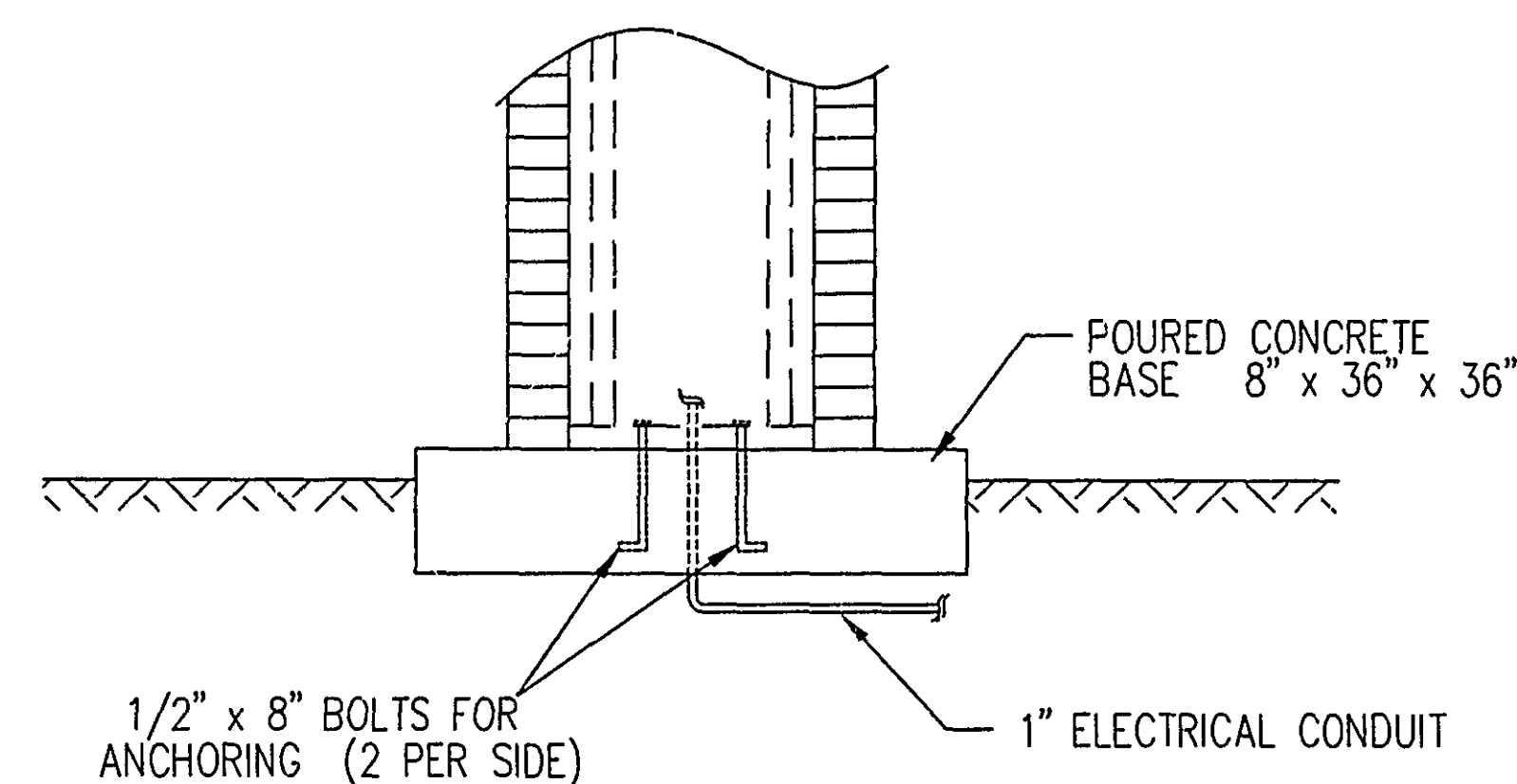
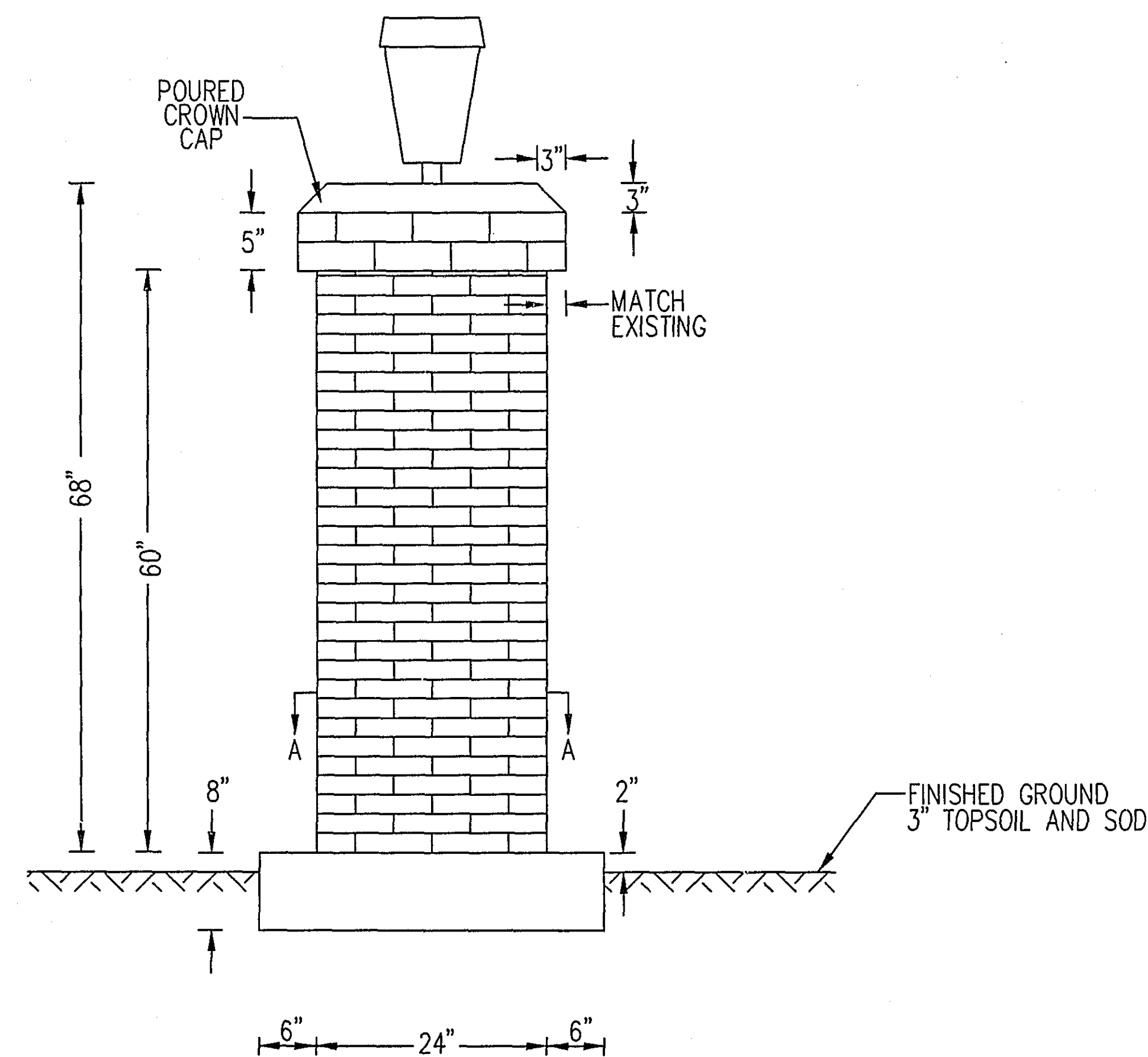


SEE SHEET 55 FOR PROPOSED CHANNEL AND PATH TYPICAL SECTIONS.

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 LAWS OF THE STATE OF MINNESOTA.

REG. NO. _____ DATE _____

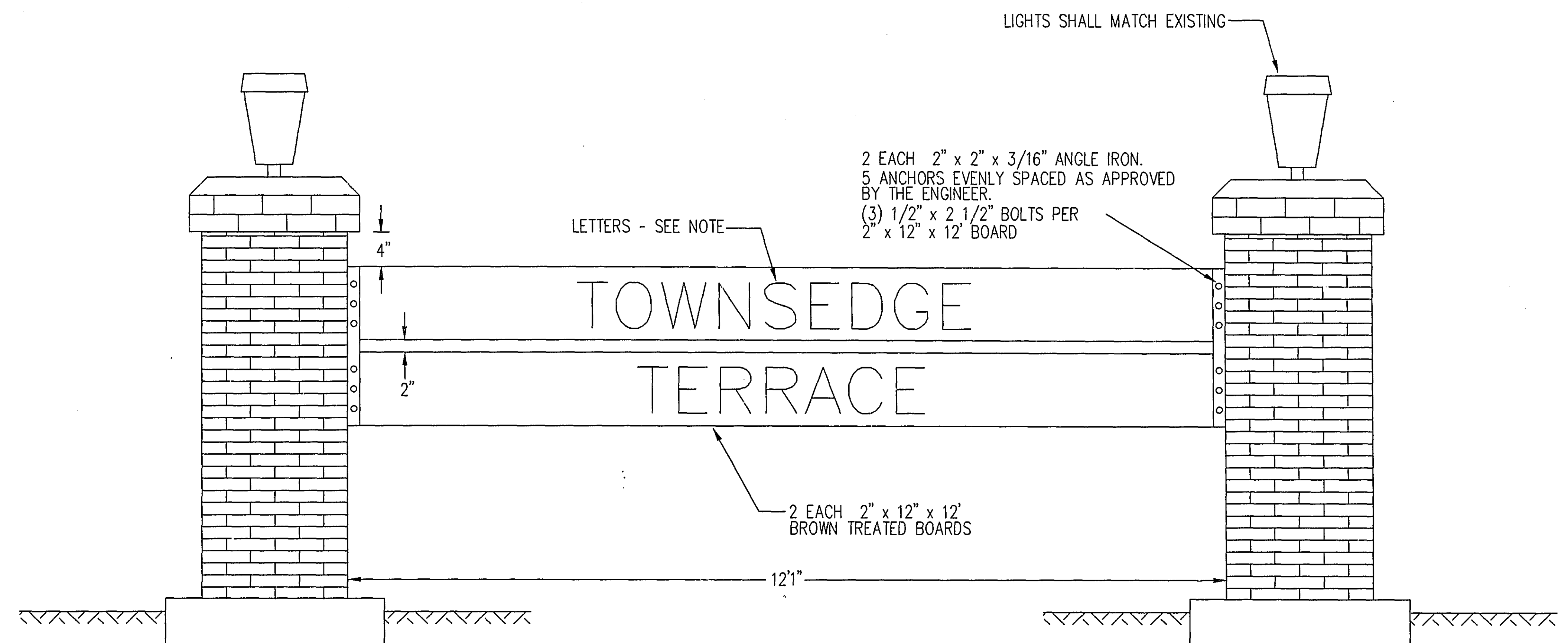
28-146
CHANNEL CHANGE AND
FUTURE PATH GRADING



SECTION A-A

NOTE:

WOOD FRAME CONSTRUCTION SHOWN. OTHER
CONSTRUCTION MATERIALS AND METHODS WHICH
MEET BUILDING CODE PROVISIONS WILL BE CONSIDERED.



PLAN VIEW

CONSTRUCTION NOTES:

- BRICK PILLARS SHALL BE CONSTRUCTED TO MATCH THE EXISTING BRICK PILLAR ON SITE. CONTRACTOR SHALL MATCH EXISTING BRICK IN COLOR, SIZE, AND TEXTURE.
- LIGHTING SHALL BE AS DETERMINED BY THE ENGINEER AND OWNER
- THE EXACT LOCATION OF SIGN SHALL BE DETERMINED BY THE ENGINEER AND THE OWNER AND STAKED IN THE FIELD.
- ELECTRICAL SERVICE TO THE LIGHTS SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CITY AND ELECTRICAL CODES. WIRES SHALL BE RUN IN CONDUIT.
- LETTERS SHALL BE FURNISHED BY OTHERS.
- WOOD FRAME SHALL BE 3/4" PLYWOOD AND 2" x 4" STUD FRAME. ANCHOR BOLTS SHALL BE SET IN THE CONCRETE BASE FOR ATTACHING SILL PLATE.
- LETTERS SHALL BE FURNISHED BY OTHERS.
- HARDWARE SHALL BE HOT DIPPED OR GALVANIZED PAINT. BOLTS CAN BE RUST RESISTANT STEEL.

28-146

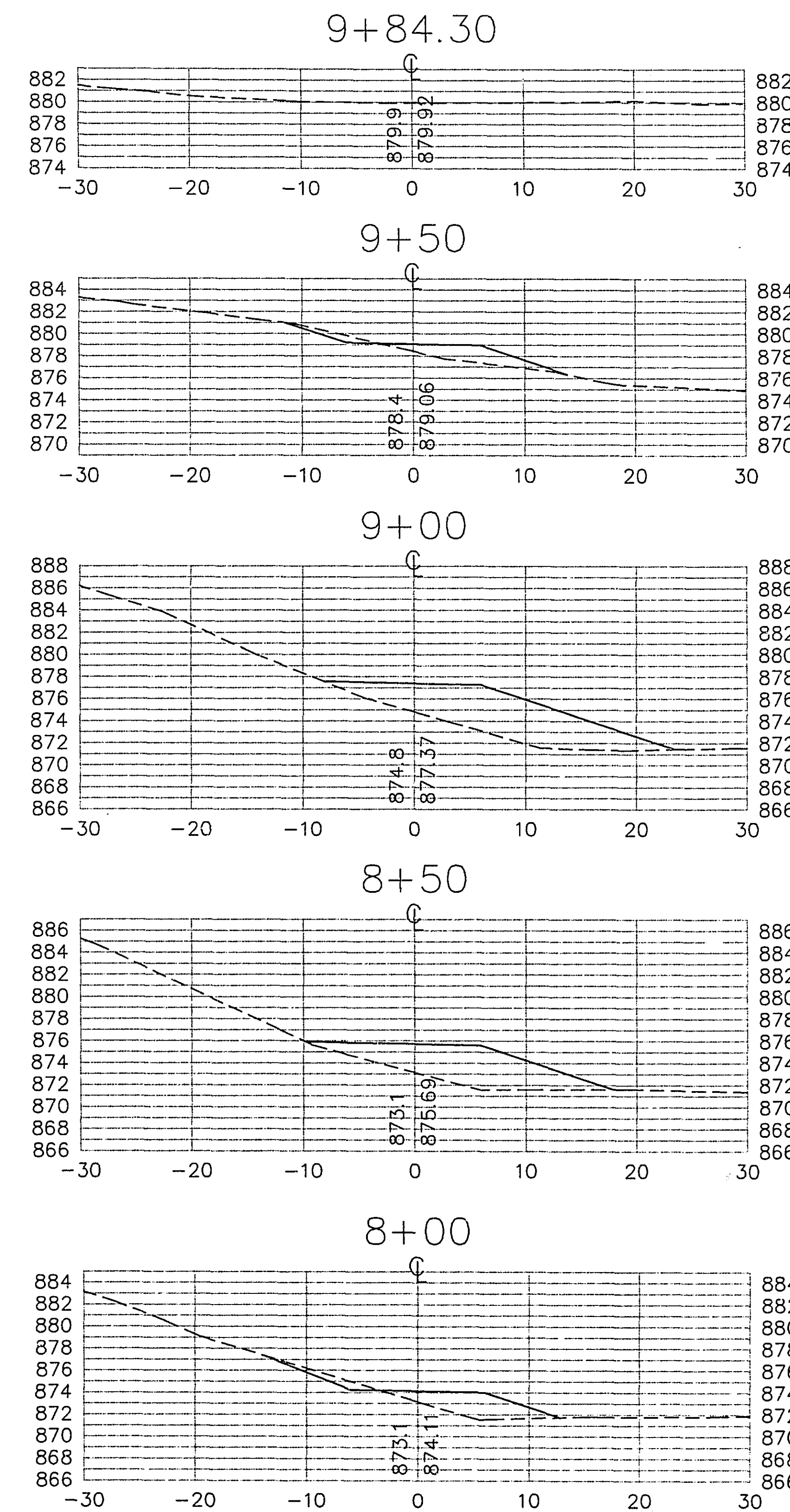
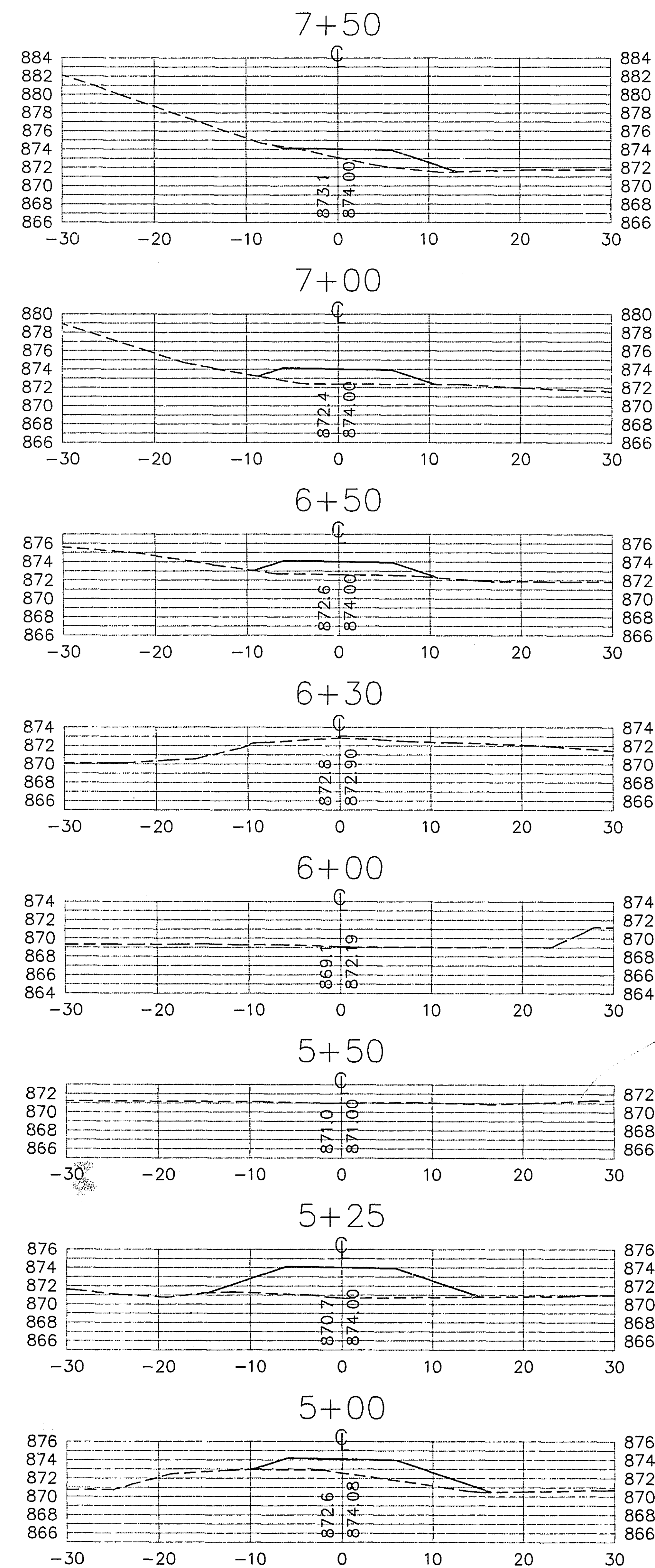
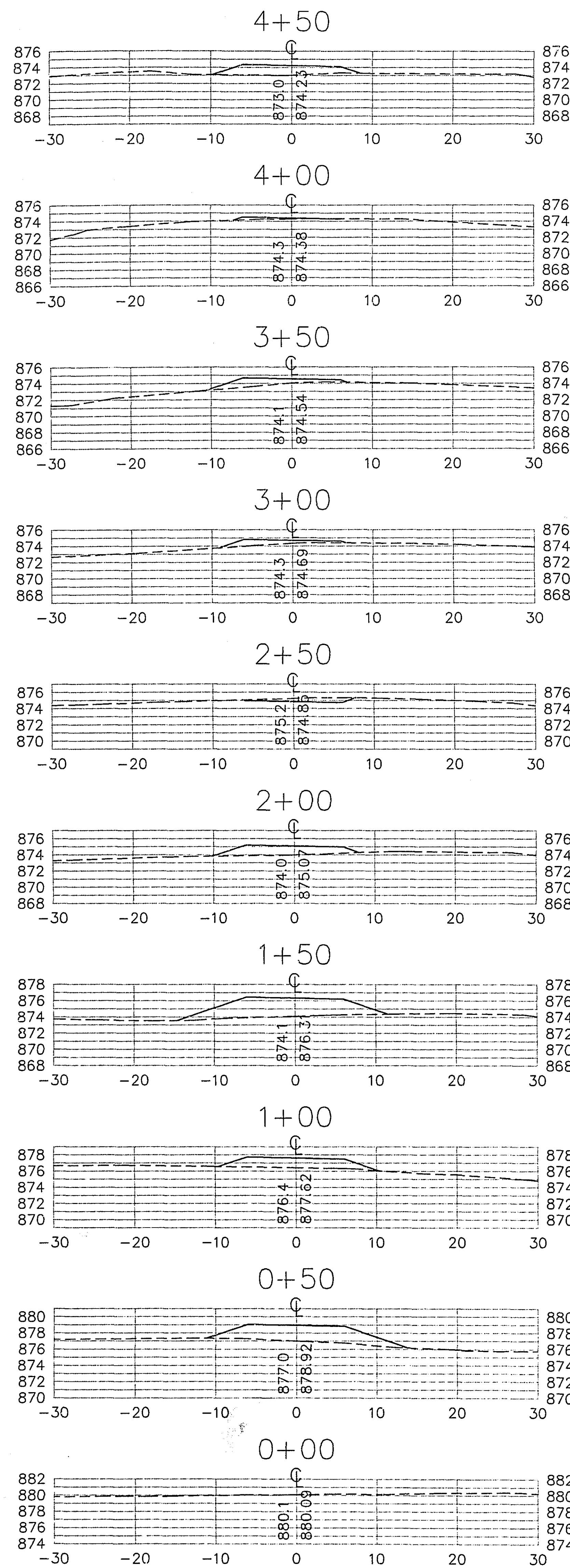
AUGUST 4, 1997
SUPPLEMENTAL AGREEMENT #

TOWNSEDGE TERRACE

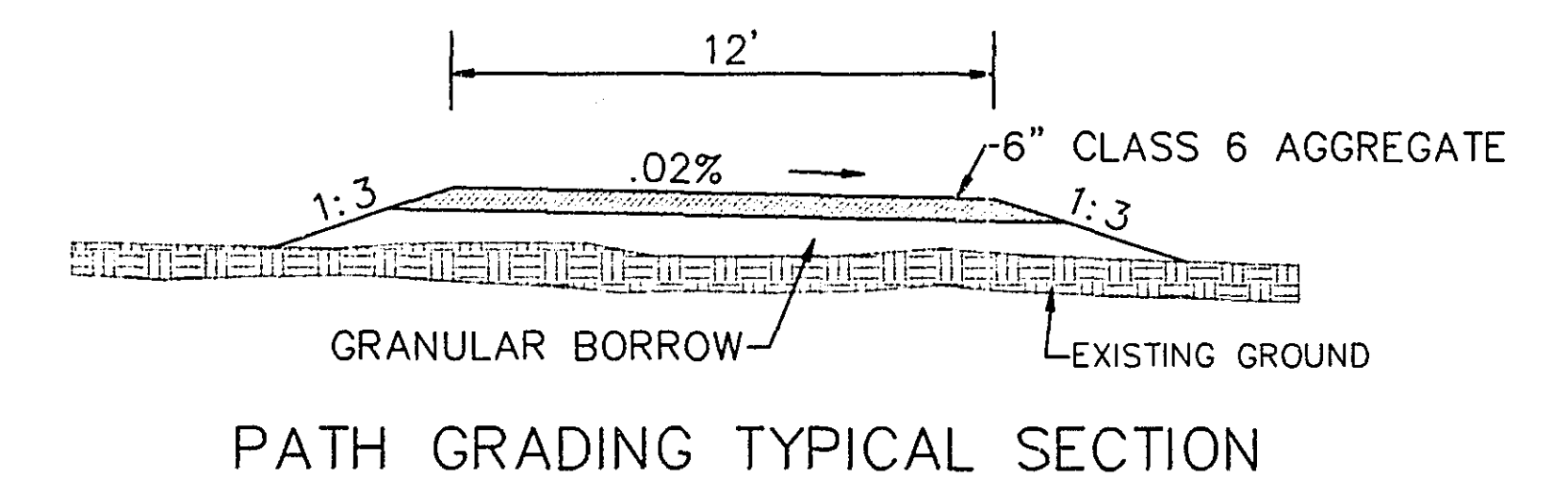
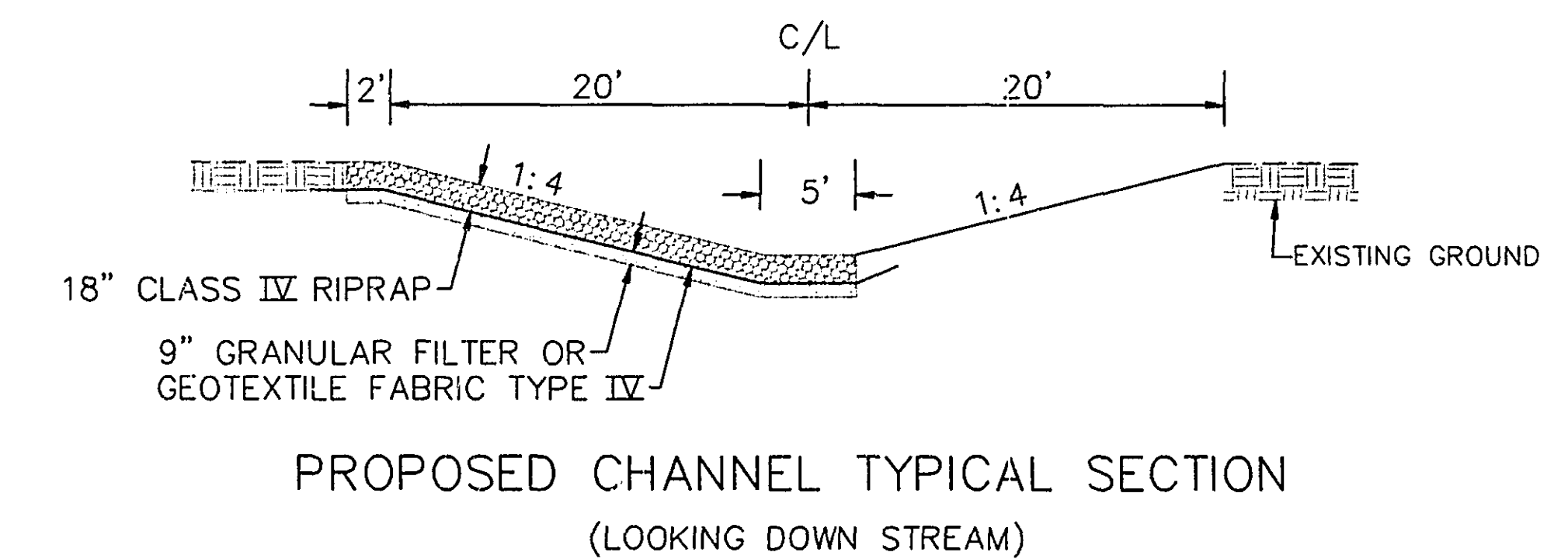
SHEET NO. 53 OF 55 SHEETS

S.A.P. 62-677-21





STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	0.00	0.00	0.00	33.19	0.00	33.19
0+50	0.00	35.84	0.00	50.86	0.00	84.04
1+00	0.00	19.09	0.00	57.29	0.00	141.34
1+50	0.00	42.79	0.00	54.71	0.00	196.04
2+00	0.00	16.29	4.66	15.09	4.66	211.13
2+50	5.03	0.00	4.66	5.97	9.31	217.11
3+00	0.00	6.45	0.00	12.77	9.31	229.88
3+50	0.00	9.68	0.03	10.45	9.34	240.33
4+00	0.03	1.61	0.03	17.06	9.37	257.39
4+50	0.00	16.81	0.00	47.15	9.37	304.54
5+00	0.00	34.11	0.00	44.44	9.37	348.98
5+25	0.00	65.72	0.00	30.30	9.37	379.28
5+50	0.00	0.00	0.00	0.00	9.37	379.28
6+00	0.00	0.00	0.00	0.00	9.37	379.28
6+30	0.00	0.00	0.00	8.31	9.37	387.59
6+50	0.00	22.45	0.00	43.30	9.37	430.90
7+00	0.00	24.32	0.19	39.07	9.56	469.96
7+50	0.20	17.87	3.73	35.76	13.29	505.73
8+00	3.83	20.75	3.54	71.79	16.83	577.51
8+50	0.00	56.78	0.00	124.81	16.83	702.32
9+00	0.00	78.01	2.60	85.38	19.43	787.70
9+50	2.81	14.20	1.79	9.02	21.22	796.72
9+84.30	0.00	0.00	0.00	0.00	21.22	796.72



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Kendy Jansche
REG. NO. 21864 DATE 4/15/26

S.A.P. 62-677-21

SHEET NO. 55 OF 55 SHEETS

28-146

RICE CREEK PATH GRADING
X-SECTIONS, EARTHWORK &
TYPICAL SECTIONS