RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, CONCRETE SURFACING, STORM SEWER, CONCRETE CURB & GUTTER, CONCRETE SIDEWALK, BITUMINOUS PATH, UTILITY IMPROVEMENTS, AND TRAFFIC SIGNAL IMPROVEMENTS.

COUNTY ROAD "G" (T.H. 96)
S.A.P. No. 62-696-02 C.T.B., S.A.P. 174-020-12

BETWEEN: OTTER LAKE ROAD AND T.H. 61
BEGINNING: AT A POINT 2475.85 FEET WEST OF THE SOUTHEAST CORNER, SEC15, T30N, R22W
ENDING: AT A POINT 2428.15 FEET EAST OF THE SOUTHWEST CORNER, SEC14, T30N, R22W

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

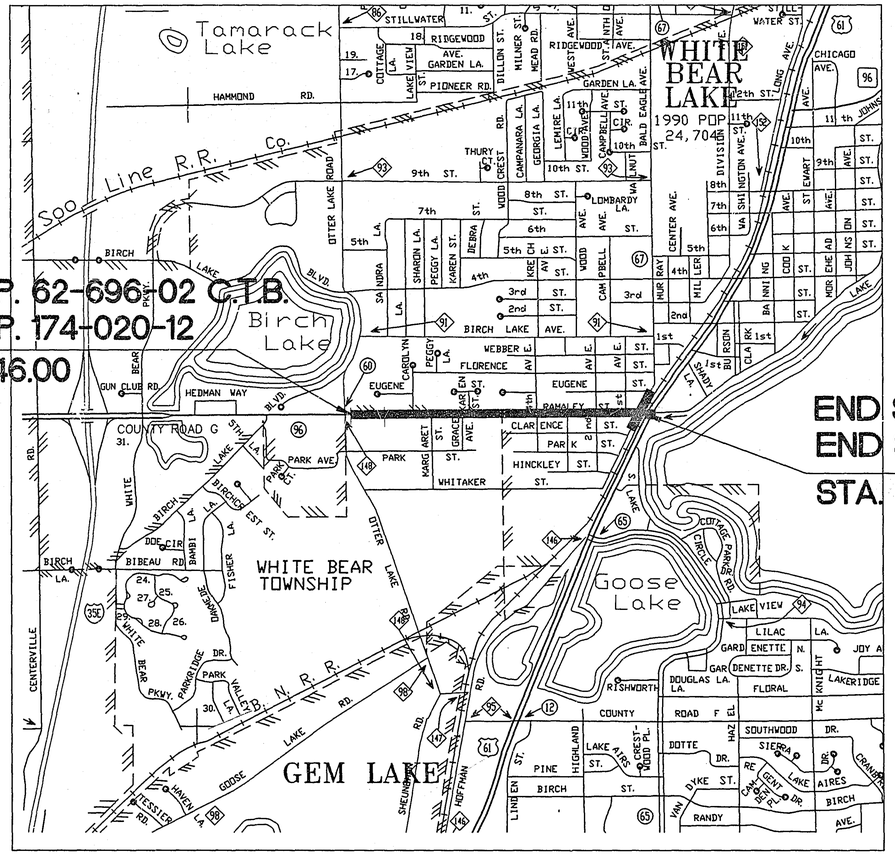
UTILITY SYMBOLS

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.

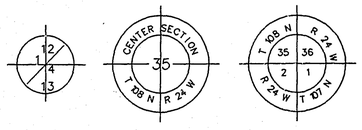
SCALES IN FEET

PLAN	0 20 40 60 / 10 30 50	GROSS LENGTH	5254 FEET 1.00 MILES
PROFILE HORIZ.	0 20 40 60 / 10 30 50	BRIDGE LENGTH	---- ----
PROFILE VERT.	0 10 / 5	EXCEPTIONS	---- ----
CROSS SECTIONS	0 20 / 10	NET LENGTH	5254 FEET 1.00 MILES



-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.



DESIGN DESIGNATION

OTTER LAKE ROAD TO T.H. 61

PRESENT ADT (1996)	17600
PROJECTED ADT (2016)	28300
FUNCTIONAL CLASS	HIGH DENSITY ARTERIAL
TRAFFIC LANES	2**
PARKING LANES	0
DESIGN LOAD	10 TON
STABILOMETER "R" VALUE	60
DESIGN SPEED	40
CESALS-35 YEAR CUMULATIVE	2524000

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

**Meets ultimate 4-lane width requirements per State Aid Rule 8820.9936. Capacity Analysis demonstrates Level of Service "D" or higher at current ADT. Will be restriped to 4-lane when capacity analysis indicates need.

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: P.K.
DATE: 12-17-96

INDEX

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1	TITLE SHEET
2-4	STATEMENT OF ESTIMATED QUANTITIES
5	INDEX OF TABULATIONS; CONSTRUCTION NOTES; STANDARD PLATES; QUANTITY NOTES
6	TYPICAL SECTIONS
7-10	TABULATIONS
11	EXISTING STRUCTURE CHART; SPECIAL STRUCTURE 1
12-13	PROPOSED STORM SEWER CHART
14	STORM SEWER DETAILS
15	ENTRANCE DETAILS AND CURB TRANSITIONS
16-17	TREE PLANTING DETAILS
18-21	CONCRETE PAVING DETAILS
22-24	CONCRETE PAVING LAYOUT
25	ALIGNMENT
26-32	CITY UTILITIES
33-38	PLAN AND PROFILE COUNTY ROAD G
39	PLAN AND PROFILE LINCOLN AVE. & BALD EAGLE AVE.
40-46	LATERAL STORM SEWER PROFILES
47-82	CROSS SECTIONS COUNTY ROAD G
83-84	CROSS SECTIONS LINCOLN AVE.
85-87	CROSS SECTIONS BALD EAGLE AVE.
88	EARTHWORK CHARTS AND SUMMARY
89-92	PERMANENT SIGNING AND STRIPING LAYOUT; SIGN DETAILS
93	TRAFFIC CONTROL PLAN
94-95	CITY UTILITY DETAILS
96	PEDESTRIAN CURB RAMP DETAILS
97-100	ADDENDUM NO. 1 TRAFFIC SIGNAL REVISION

THIS PLAN CONTAINS 100 SHEETS

DESIGN SQUAD B. J. -S. B. -T. L. -A. K. DATE 5/95
DRAWN BY S. B. -T. L. DATE 5/95
CHECKED BY B. J. DATE 8/95

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.
David L. Bhlle REG. NO. 14257 DATE 12-6-95

RAMSEY COUNTY

RECOMMENDED FOR APPROVAL RHV CONST. ENGR. DATE 12-6-95
RECOMMENDED FOR APPROVAL KMJ DESIGN ENGR. DATE 12-6-95
RECOMMENDED FOR APPROVAL TN ENVIRONMENTAL DATE 12-6-95
RECOMMENDED FOR APPROVAL MAINT. ENGR. DATE 12-6-95
RECOMMENDED FOR APPROVAL COORDINATNG ENGR. DATE
RECOMMENDED FOR APPROVAL R.O.W. ENGR. DATE 12-26-95
RECOMMENDED FOR APPROVAL TRAFFIC ENGR. DATE 12-6-95
RECOMMENDED PROJECT ENGINEER DATE 12/13/95

RECOMMENDED FOR APPROVAL COUNTY ENGINEER DATE 12/14/95
APPROVED CHAIR OF THE RAMSEY COUNTY BOARD DATE 1-9-96
APPROVED CITY OF WHITE BEAR LAKE DATE 12-13-95
APPROVED WHITE BEAR TOWNSHIP DATE 12-13-95

ADDENDUM NO. 1
RAMSEY COUNTY
METRO DIVISION TRAFFIC ENGINEER
METRO STATE AID ENGINEER 2-20-96
~~STATE AID ENGINEER~~

MINNESOTA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL STATE AID PLANS & SPEC. ENGR. DATE
RECOMMENDED OFR APPROVAL METRO-ASSISTANT DIVISION ENGINEER-STATE AID DATE 12/21/95
RECOMMENDED FOR APPROVAL DATE
APPROVED STATE AID ENGINEER DATE 1/5/96

PLAN REVISIONS

DATE	SHEET NO. & DESCRIPTION	BY
12/6/95	MN/DOT REVIEW	SB,JC,BJ
2/6/96	ADDENDUM NO. 1	RW,BE

S.A.P. No. 174-020-12 28-144
S.A.P. No. 62-696-02 C.T.B. Sheet No. 1 of 96 Sheets

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-02 RAMSEY COUNTY (GROUP 1)		40% M.S.A.P. 174-020-12 60% RAMSEY COUNTY LOCAL (GROUP 2)		100% CITY OF WHITE BEAR (GROUP 3)		40% WHITE BEAR TOWNSHIP 60% RAMSEY COUNTY LOCAL (GROUP 4)		100% WHITE BEAR TOWNSHIP (GROUP 5)		STORM SEWER (GROUP 6) 78.3% S.A.P. 62-696-02 C.T.B. 18.2% WHITE BEAR CITY 3.5% WHITE BEAR TOWNSHIP	
							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											
		2031.501	FIELD OFFICE, TYPE D	EACH	1		1											
G		2101.502	CLEARING	TREE	190		190											
G		2101.507	GRUBBING	TREE	137		137											
L	1	2104.501	REMOVE R.C.P. PIPE CULVERT	LF	16		16											
L	1	2104.501	REMOVE C.M.P. PIPE CULVERT	LF	2885		2885											
F	2	2104.501	REMOVE CONCRETE CURB & GUTTER	LF	394		394											
C		2104.503	REMOVE CONCRETE RETAINING WALL	SF	25		25											
F		2104.503	REMOVE CONCRETE SIDEWALK	SF	545		545											
F	3	2104.505	REMOVE CONCRETE PAVEMENT	SY	503		503											
T		2104.509	REMOVE MANHOLE	EACH	4		3										1	
O		2104.509	REMOVE 3/4" CORPORATION STOP	EACH	27		27											
D		2104.511	SAWING CONCRETE PAVEMENT	LF	192		192											
K		2104.513	SAWING BITUMINOUS PAVEMENT	LF	1090		1090											
	9	2104.521	SALVAGE RIGID STEEL CONDUIT	LF	180		180											
Q		2104.521	SALVAGE WOOD PRIVACY FENCE	LF	16		16											
Q		2104.521	SALVAGE CHAIN LINK FENCE	LF	160		160											
Q		2104.521	SALVAGE SPLIT RAIL FENCE	LF	60		60											
Q		2104.521	SALVAGE TIMBER WALL	LF	18		18											
T		2104.523	SALVAGE CASTING ASSEMBLY	EACH	4		3										1	
	7	2104.523	SALVAGE TRAFFIC SIGNS	EACH	120		120											
		2104.523	SALVAGE HANDHOLE	EACH	2		2											
		2105.501	COMMON EXCAVATION (P)	CY	71985		71985											
		2105.525	TOPSOIL BORROW (LV)	CY	1274		1274											
		0123.601	TRACTOR MOUNTED BACKHOE	HOUR	40		40											
	4	2130.501	WATER	(M)GAL	75		75											
E		2211.503	AGG. BASE, CLASS 6 RECYCLED (CV)(P)	CY	9406		8200		833				373					
B		2301.502	CONCRETE PAVEMENT STANDARD WIDTH 7"	SY	25586		25586											
B		2301.503	CONCRETE PAVEMENT IRREGULAR WIDTH 7"	SY	9113		9113											
		2301.513	STRUCTURAL CONCRETE - HIGH EARLY	CY	6747		6747											
		2301.529	REINFORCEMENT BAR (EPOXY COATED)	LB	16600		16600											
		2301.536	DOWEL BAR ASSEMBLIES	LF	19293		19293											
	7	0331.601	BITUMINOUS DRIVEWAY REPLACEMENT - PRIVATE	SY	500						250				250			
A		2340.508	TYPE 31 WEARING COURSE MIXTURE	TON	713		282		211				220					
A		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	561		561											
A		2340.510	TYPE 31 BINDER COURSE MIXTURE	TON	1374		943		211				220					
A		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	674		414		127				133					
		0412.602	RELOCATE MAILBOX	EACH	76		76											
	8	0412.604	BRICK PAVERS	SF	2050				2050									
U		2502.541	4" PERFORATED P.E. DRAIN PIPE	LF	3510		3510											
S		0501.602	TRASH GUARD FOR 15" RCP APRON	EACH	2												2	
S		2501.515	15" RC PIPE APRON	EACH	2												2	
S		2503.541	15" RCP SEWER, DES. 3006, CL V	LF	3433												3433	
S		2503.541	18" RCP SEWER, DES. 3006, CL V	LF	723												723	
S		2503.541	21" RCP SEWER, DES. 3006, CL III	LF	321												321	
S		2503.541	21" RCP SEWER, DES. 3006, CL IV	LF	207												207	
S		2503.541	24" RCP SEWER, DES. 3006, CL III	LF	347												347	
S		2503.541	24" RCP SEWER, DES. 3006, CL IV	LF	66												66	
S		2503.541	27" RCP SEWER, DES. 3006, CL III	LF	395												395	
S		2503.541	30" RCP SEWER, DES. 3006, CL III	LF	408												408	
S		2503.541	30" RCP SEWER, DES. 3006, CL IV	LF	70												70	
S		2503.541	33" RCP SEWER, DES. 3006, CL III	LF	470												470	
S		2503.541	33" RCP SEWER, DES. 3006, CL IV	LF	603												603	

* SEE QUANTITY NOTES AND 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

David L. Kroll

REG. NO. 14257 DATE 12-6-95

S.A.P. NO. 174-020-12

S.A.P. NO. 62-696-02 C.T.B.

28-144

ESTIMATED QUANTITIES

SHEET 2 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 12/14/95

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-02 RAMSEY COUNTY (GROUP 1)		40% M.S.A.P. 174-020-12 60% RAMSEY COUNTY LOCAL (GROUP 2)		100% CITY OF WHITE BEAR (GROUP 3)		40% WHITE BEAR TOWNSHIP 60% RAMSEY COUNTY LOCAL (GROUP 4)		100% WHITE BEAR TOWNSHIP (GROUP 5)		STORM SEWER (GROUP 6) 78.3% S.A.P. 62-696-02 C.T.B. 18.2% WHITE BEAR CITY 3.5% WHITE BEAR TOWNSHIP	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		0503.602	CONNECT TO EXISTING SANITARY SERVICE	EACH	23		23											
		0503.602	CONNECT TO EXISTING M.H. – SANITARY SEWER	EACH	1		1											
		0503.602	CONNECT TO EXISTING SANITARY SEWER MAIN	EACH	22		18				4							
		0503.603	8" PVC SANITARY SEWER SDR 26	LF	232		232											
		0503.603	4" PVC SANITARY SEWER, SCHEDULE 40	LF	1660		1535				125							
		0503.603	6" PVC SANITARY SEWER, SCHEDULE 40	LF	50		50											
R		0504.602	CONNECT TO EXISTING WATERMAIN	EACH	10		8				2							
J		0504.602	ADJUST VALVE BOX	EACH	29		29											
O		0504.602	ADJUST CURB STOP BOX	EACH	35		35											
		0504.602	1" CURB STOP AND BOX	EACH	40		40											
		0504.602	CONNECT TO EXISTING WATER SERVICE	EACH	36		36											
		0504.602	1" CORPORATION STOP	EACH	40		40											
I		0504.602	6" GATE VALVE & BOX	EACH	11						11							
I		0504.602	12" GATE VALVE & BOX	EACH	4		2				2							
J		0504.602	RELOCATE HYDRANT ASSEMBLY	EACH	14		14											
J		0504.602	ADJUST HYDRANT	EACH	3		3											
		0504.602	REPLACE EXISTING 6" GATE VALVE & BOX	EACH	1						1							
		0504.602	REPLACE EXISTING 12" GATE VALVE & BOX	EACH	1						1							
		0504.603	1" TYPE K WATER SERVICE	LF	1761		1761											
R		0504.603	6" D.I.P. WATERMAIN CL 52	LF	235		235											
R		0504.603	12" D.I.P. WATERMAIN CL 52	LF	1075		800				275							
N		0504.605	4" POLYSTYRENE INSULATION	SY	3488		3488											
	5	2506.502	CONSTRUCT MANHOLE DESIGN SPECIAL 1	EACH	1												1	
M		2506.502	CONSTRUCT MANHOLE DESIGN A OR F	EACH	1		1											
S		2506.502	CONSTRUCT MANHOLE, DES. 48-4020	EACH	21												21	
S		2506.502	CONSTRUCT MANHOLE, DES. 54-4020	EACH	8												8	
S		2506.502	CONSTRUCT MANHOLE, DES. 60-4020	EACH	1												1	
S		2506.502	CONSTRUCT CATCH BASIN, DES. SP-2	EACH	56												56	
S		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES. H	EACH	3												3	
T		2506.511	RECONSTRUCT MANHOLE, SANITARY SEWER	LF	124.1		124.1											
T		2506.521	INSTALL CASTING	EACH	20		19										1	
T		2506.522	ADJUST FRAME & RING CASTING	EACH	10		10											
B		2521.501	4" CONCRETE WALK	SF	24633		545		24088									
B		2531.501	CONC. CURB & GUTTER, DES. B624	LF	12130		12130											
B		2531.501	CONC. CURB & GUTTER, DES. B612	LF	620		620											
		2531.507	6" CONCRETE DRIVEWAY PAVEMENT-HIGH EARLY	SY	1336		1336											
	6,7	2531.507	6" CONCRETE DRIVEWAY PAVEMENT – PRIVATE	SY	160						80				80			
		0531.602	CONCRETE MEDIAN NOSE	EACH	2		2											
		0531.602	PEDESTRIAN CURB RAMP	EACH	25		25											
Q		0557.603	INSTALL WOOD PRIVACY FENCE	LF	16		16											
Q		0557.603	INSTALL CHAIN LINK FENCE	LF	160		160											
Q		0557.603	INSTALL SPLIT RAIL FENCE	LF	60		60											
		0563.601	TRAFFIC CONTROL	LS.	1		1											
		0564.602	PAVEMENT MESSAGE (LEFT ARROW) EPOXY	EACH	33		33											
		0564.602	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY	EACH	11		11											
		0564.602	PAVEMENT MESSAGE (RR CROSSING) EPOXY	EACH	1		1											

* SEE QUANTITY NOTES AND 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.
David L. Bhull
REG. NO. 14257 DATE 12-6-96

28-144

S.A.P. NO. 174-020-12 ESTIMATED QUANTITIES

S.A.P. NO. 62-696-02 C.T.B. SHEET 3 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 12/14/95

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	S.A.P. 62-696-02 RAMSEY COUNTY (GROUP 1)		40% M.S.A.P. 174-020-12 60% RAMSEY COUNTY LOCAL (GROUP 2)		100% CITY OF WHITE BEAR (GROUP 3)		40% WHITE BEAR TOWNSHIP 60% RAMSEY COUNTY LOCAL (GROUP 4)		100% WHITE BEAR TOWNSHIP (GROUP 5)		STORM SEWER (GROUP 6) 78.3% S.A.P. 62-696-02 C.T.B. 18.2% WHITE BEAR CITY 3.5% WHITE BEAR TOWNSHIP	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		0564.603	4" SOLID LINE WHITE--EPOXY	LF	8770		8770											
		0564.603	4" SOLID LINE YELLOW-EPOXY	LF	8710		8710											
		0564.603	4" BROKEN LINE WHITE-EPOXY	LF	90		90											
		0564.603	4" BROKEN LINE YELLOW-EPOXY	LF	1870		1870											
		0564.603	12" SOLID LINE WHITE-EPOXY	LF	200		200											
		0564.603	12" SOLID LINE YELLOW-EPOXY	LF	170		170											
		2564.531	F & I SIGN PANELS TYPE C	SF	332		332											
		0565.602	LOOP DETECTOR 6' X 6'	EACH	4		4											
		0565.602	HANDHOLE TYPE C	EACH	1		1											
	10	0565.603	1.25" RIGID STEEL CONDUIT	LF	180		180											
	6	2571.501	SPRUCE, COLORADO BLUE 5' HT B&B	TREE	123		123											
	6	2571.502	ASH, SUMMIT 3" CAL B&B	TREE	19		19											
	6	2571.502	HONEYLOCUST, IMPERIAL 3" CAL B&B	TREE	8		8											
	6	2571.502	LINDEN, GREENSPIRE 2.5" CAL B&B	TREE	23		23											
	6	2571.502	MAPLE, NORWAY 2.5" CAL B&B	TREE	23		23											
		2573.502	SILT FENCE, PREASSEMBLED	LF	1190		1190											
		2575.505	SODDING, LAWN & BOULEVARD	SY	11761		11761											
		2575.532	COMMERCIAL FERT., ANALYSIS 10-20-20	LB	850		850											
			ADDENDUM NO. 1				S.A.P. 62-696-02 RAMSEY COUNTY (GROUP 1)		75% SAP 62-696-02 25% CITY OF WHITE BEAR LAKE (GROUP 7)		50% SAP 62-696-02 50% CITY OF WHITE BEAR LAKE (GROUP 8)							
		0563.602	TYPE 3 BARRICADES	UN.DAY	30		30											
		0563.602	FLASHER TYPE A (LOW INTENSITY)	UN.DAY	90		90											
		0563.602	48X48 INCH SIGN WITH SUPPORTS	UN.DAY	70		70											
		0565.601	EMERGERCY VEHICLE PRE-EMPTION SYSTEM A	LS	1						1							
		0565.601	TRAFFIC CONTROL INTERCONNECTION (TIMING)	LS	1		1											
		0565.604	REVISE SIGNAL SYSTEM A	SIG.SYS	1				1									

REVISED 2-6-96 ADDENDUM NO. 1

* SEE QUANTITY NOTES AND 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.
David L. Rhull
REG. NO. 14257 DATE 2-8-96

S.A.P. NO. 174-020-12
S.A.P. NO. 62-696-02 C.T.B.

28-144
ESTIMATED QUANTITIES
SHEET 4 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 2-6-96

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

QUANTITY NOTES

1. SHALL INCLUDE APRONS
2. REMOVE TO NEAREST JOINT
3. ALL PAVEMENT REGARDLESS OF THICKNESS
4. FOR DUST CONTROL
5. SEE DETAIL SHEET NO. 11
6. LOCATIONS TO BE DETERMINED BY ENGINEER
7. SEE SPECIAL PROVISIONS
8. 30% S.A.P 62-696-02 C.T.B.; 70% LOCAL FUNDS WHITE BEAR LAKE
9. ITEM INCLUDES SALVAGING 2-2/C #14 CONTROL CABLE AS DIRECTED.
10. ITEM INCLUDES REINSTALLING 2-2/C #14 CONTROL CABLE AS DIRECTED.

INDEX OF TABULATION CHARTS

SHEET NO.	CHART	DESCRIPTION
7	A	BITUMINOUS QUANTITIES
7	B	CONCRETE QUANTITIES
7	C	MISCELLANEOUS REMOVALS
7	D	SAWCUT CONCRETE PAVEMENT
7	E	AGGREGATE BASE, CL.6
7	F	REMOVE CONC. PAVEMENT , C&G, SIDEWALK
8	G	CLEAR & GRUB
8	H	GAS GATE VALVES
8	I	FURNISH AND INSTALL GATE VALVE AND BOX
8	J	WATERMAIN – ADJUSTS AND RELOCATES
9	K	SAWCUT BITUMINOUS PAVEMENT
9	L	REMOVE PIPE CULVERT
9	M	4" PVC SAN. SERVICE/8" PVC SAN. MAIN
9	N	4" POLYSTYRENE INSULATION
10	O	WATER SERVICES
88	P	EARTHWORK SUMMARY
10	Q	SALVAGE & INSTALL
10	R	FURNISH AND INSTALL D.I.P. WATERMAIN
12-13	S	PROPOSED DRAINAGE CHART
11	T	EXISTING STRUCTURES
13	U	4" PERFORATED P.E. DRAIN PIPE

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.

NEW SANITARY SEWER AND WATER SERVICE LOCATIONS ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE CITY PRIOR TO CONSTRUCTION. SERVICE LOCATIONS MAY BE ADJUSTED AS REQUESTED BY THE CITY AND AS APPROVED BY THE ENGINEER.

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.

STANDARD DETAIL PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
1070 J	REINFORCED PANEL OVER CULVERTS
1103 J	TYPICAL DOWEL BAR ASSEMBLY
1141 D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
1150 P	CONSTRUCTION OF HEADER JOINTS
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR REINFORCED CONCRETE PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
4000 J	MANHOLE OR CATCH BASIN DESIGN A
4005 L	MANHOLE OR CATCH BASIN DESIGN F
4006 L	MANHOLE OR CATCH BASIN DESIGN G AND H
4010 G	CONCRETE SHORT CONE AND ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 G	MANHOLE OR CATCH BASIN FOR USE UNDER TRAFFIC LOADS
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 E	COVER CASTING FOR MANHOLE
4140 D	SPECIAL GRATE CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7000 E	INTEGRANT CURBS
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7036 D	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
7100 G	CONCRETE CURB & GUTTER
7109 C	MEDIAN NOSE AND ISLAND
7111 H	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
7112 B	INSTALLATION & REINFORCEMENT OF CATCH BASINS AND MANHOLES
7113 A	CONCRETE APPROACH NOSE DETAIL
8000 I	STANDARD BARRICADE
8117 F	PRECAST CONCRETE HANDHOLE
8130 D	SAW CUT LOOP DETECTORS
9102 D	TURF ESTABLISHMENT AREAS
9322 J	CHAIN LINK FENCE

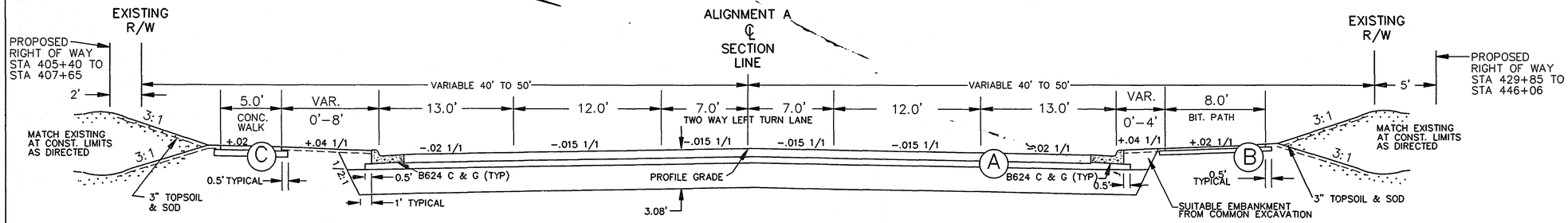
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Rholl
REG. NO. 14257 DATE 12-6-95

28-144

INDEX OF TABULATIONS
CONSTRUCTION NOTES
STANDARD DETAIL PLATES
QUANTITY NOTES

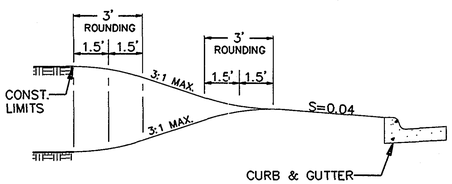
S.A.P. NO. 62-696-02 C.T.B.

X:\DWGS\TH96-2\CHART 12/14/95

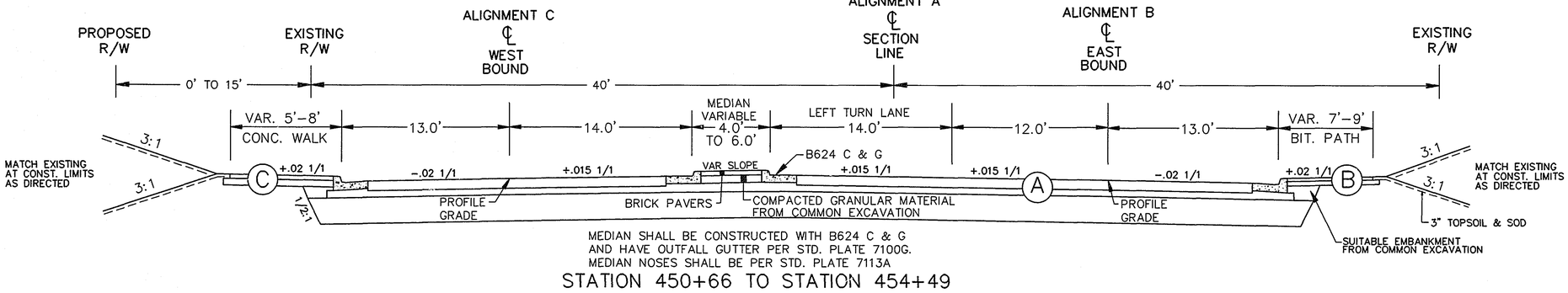


STATION 405+46 TO STATION 450+66

SLOPE ROUNDING DETAIL

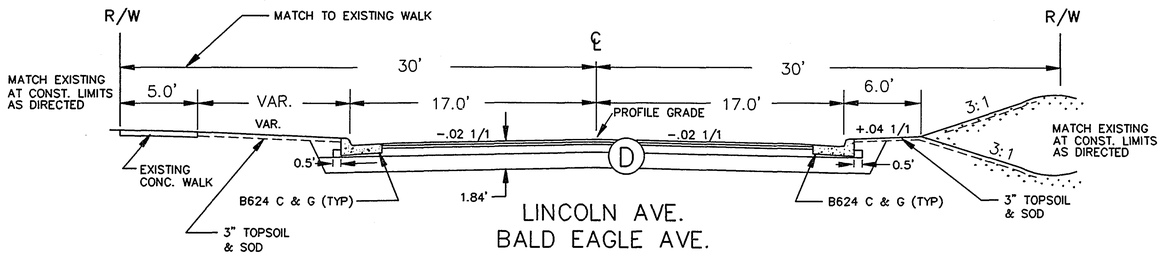


NOTE: 1.5' CLEAR ZONE REQUIRED FROM FACE OF CURB TO ANY FIXED OBJECT

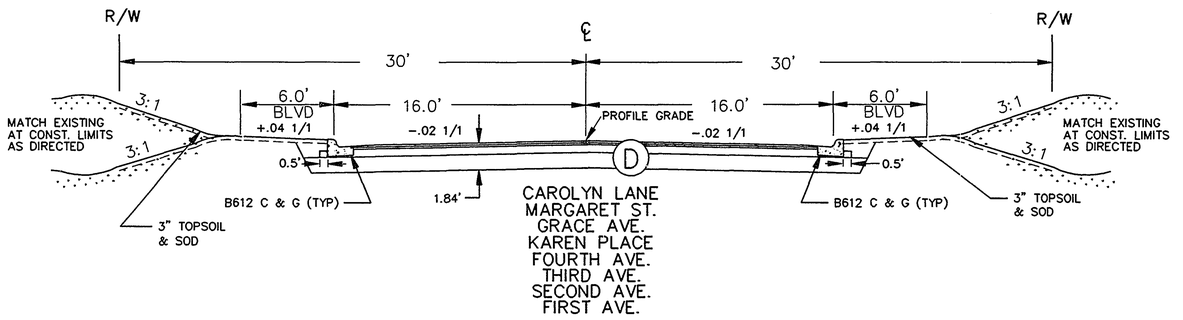


MEDIAN SHALL BE CONSTRUCTED WITH B624 C & G AND HAVE OUTFALL GUTTER PER STD. PLATE 7100G. MEDIAN NOSES SHALL BE PER STD. PLATE 7113A

STATION 450+66 TO STATION 454+49

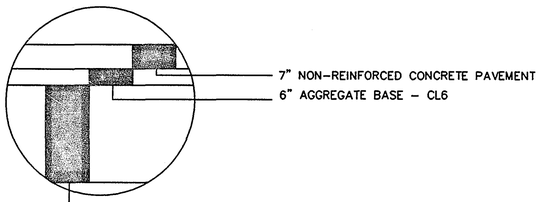


LINCOLN AVE.
BALD EAGLE AVE.

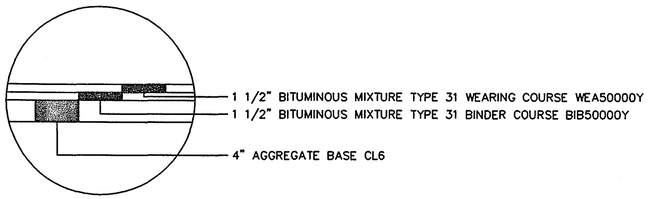


CAROLYN LANE
MARGARET ST.
GRACE AVE.
KAREN PLACE
FOURTH AVE.
THIRD AVE.
SECOND AVE.
FIRST AVE.

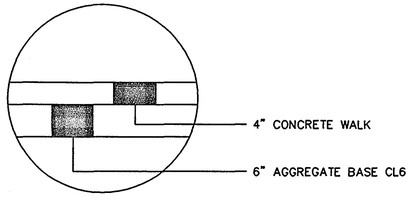
DETAIL A



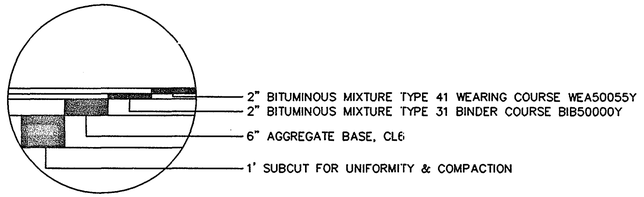
DETAIL B



DETAIL C



DETAIL D



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.
Daniel L. Kholl
REG. NO. 14257 DATE 12-6-95

28-144

TYPICAL SECTIONS

S.A.P. 62-696-02 C.T.B.

G:\DWGS\TH96-2\TYPICAL 11/24/95

A

BITUMINOUS QUANTITIES SUMMARY – TONS OF MIXTURE

	STATION TO STATION	LOCATION	SIDE STREETS 2" TYPE 31 BINDER	SIDE STREETS 2" TYPE 41 WEAR	BIKE PATH 1.5" TYPE 31 BINDER	BIKE PATH 1.5" TYPE 31 WEAR	ENTRANCES 2" TYPE 31 BINDER	ENTRANCES 2" TYPE 31 WEAR	BITUMINOUS TACK COAT
	405+46 TO 412+50	RT			61	61			37
	405+46 TO 412+50	LT & RT					40	40	18
	412+50 TO 421+50	RT			79	79			48
	412+50 TO 421+50	LT & RT					27	27	12
	CAROLYN ST.	LT	24	24					11
	MARGARET ST.	RT	24	24					11
	421+50 TO 430+50	RT			80	80			48
	421+50 TO 430+50	LT & RT					49	49	22
	GRACE AVE.	RT	24	24					11
	KAREN AVE.	LT	24	24					11
	430+50 TO 439+50	RT			75	75			45
	430+50 TO 439+50	LT & RT					68	68	31
	FOURTH AVE.	LT & RT	48	48					22
	439+50 TO 448+50	RT			81	81			49
	439+50 TO 448+50	LT & RT					65	65	30
	THIRD AVE.	RT	24	24					11
	SECOND AVE.	LT & RT	48	48					22
	448+50 TO 454+50	RT			55	55			33
	448+50 TO 454+50	LT & RT					33	33	15
①	454+50 TO 455+15	MAINLINE	166 ②	66					60
	FIRST AVE.	LT	24	24					11
	LINCOLN AVE.	RT	135	135					61
	BALD EAGLE AVE.	LT	120	120					55
	TOTALS		661	561	431	431	282	282	674

① TEMPORARY CONSTRUCTION TO MATCH R/R TRACKS ② 5" THICKNESS

B

CONCRETE QUANTITIES CHART

STATION TO STATION	LOCATION	CURB & GUTTER B612 L.F.	CURB & GUTTER B624 L.F.	SIDEWALK 4" S.F.	DRIVEWAY 6" S.Y.	MEDIAN NOSE -- EACH	PAVEMENT STANDARD WIDTH 7" S.Y.	PAVEMENT IRREGULAR WIDTH 7" S.Y.
405+46 TO 413+00	LT & RT		1510		304		3854	1592
	LT			3492				
413+00 TO 422+00	LT & RT		1812		110		4600	1692
	LT			4692				
CAROLYN ST.	LT	90						
MARGARET ST.	RT	70						
422+00 TO 431+00	LT & RT		1800		388		4600	1692
	LT			4200				
GRACE AVE.	RT	70						
KAREN AVE.	LT	90						
431+00 TO 440+00	LT & RT		1804		227		4600	1692
	LT			4164				
FOURTH AVE.	LT & RT	120						
440+00 TO 449+00	LT & RT		1804	3894	241		4600	1838
THIRD AVE.	RT	70						
SECOND AVE.	LT & RT	110						
449+00 TO 454+50	LT & RT		1876		66	2	3332	607
	LT			3876				
LINCOLN AVE.	LT & RT		834					
	LT			200				
BALD EAGLE AVE.	LT & RT		690					
	LT			115				
TOTALS		620	12,130	24,633	1,336	2	25,586	9,113

NOTE: 4" CONCRETE WALK QUANTITY INCLUDES 545 S.F. OF REPLACEMENT

C

MISCELLANEOUS REMOVALS

ITEM	STATION	LOCATION	QUANTITY
CONCRETE RET. WALL	STA. 440+45	LT. 40–46	25 S.F.

D

SAWCUT CONCRETE PAVEMENT

STATION	LOCATION	QUANTITY L.F.	REMARKS
STA. 408+45	LT	18	ENTRANCE
STA. 410+78	RT	12	ENTRANCE
STA. 411+45	RT	12	ENTRANCE
STA. 415+30	LT	16	ENTRANCE
STA. 423+45	LT	20	ENTRANCE
STA. 423+45	RT	16	ENTRANCE
STA. 424+15	LT	16	ENTRANCE
STA. 424+95	LT	20	ENTRANCE
STA. 436+35	RT	26	ENTRANCE
STA. 439+15	RT	14	ENTRANCE
STA. 440+00	LT	10	ENTRANCE
STA. 443+50	LT	12	ENTRANCE
TOTALS		192	

E

AGGREGATE BASE CLASS 6

LOCATION AREA	LOCATION	QUANTITY C.Y.
CONCRETE ROADWAY	LT & RT	6514
SIDE STREETS	LT & RT	938
ENTRANCES	LT & RT	648
5' CONCRETE WALK	LT	474
8' BITUMINOUS PATH		
CITY OF WHITE BEAR	RT	359
TWNSHP. OF WHITE BEAR	RT	373
TEMPORARY CONSTRUCTION		
454+50 TO 455+15	MAINLINE	100
TOTALS		9406

F

REMOVE CONCRETE PAVEMENT, C & G, SIDEWALK

STATION	LOCATION LT/RT	PAVEMENT S.Y.	CONCRETE C & G L.F.	SIDEWALK S.F.
STA. 405+46 TO 413+00	LT & RT	120		
CAROLYN ST.	LT	18	134	
STA. 413+00 TO 422+00	LT	47	40	
KAREN AVE.	LT	22	100	
GRACE AVE.	RT	18		
STA. 422+00 TO 431+00	LT	144		
FOURTH AVE.	LT		120	
FOURTH AVE.	RT	29		
STA. 431+00 TO 440+00	RT	30		10
STA. 440+00 TO 449+00	LT	75		80
STA. 440+00 TO 449+00	RT			45
LINCOLN AVE.	LT			100
BALD EAGLE AVE.	LT			310
TOTALS		503	394	545

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.
David J. Kroll
REG. NO. 14257 DATE 12-6-95

28-144
CHARTS

S.A.P. NO. 62–696–02 C.T.B. SHEET 7 OF 96 SHEETS

G:\DWGS\TH96-2\CHART 12/14/95

G1

CLEAR & GRUB CHART

STATION ALIGN. A	LOCATION	DESCRIPTION	CLEAR	GRUB
LOCATIONS ARE FROM ALIGNMENT A – SECTION LINE				
409+63	RT. 50	13" PINE	1	1
409+78	RT. 50	10" PINE	1	1
409+81	RT. 54	8" PINE	1	1
409+89	RT. 51	5" PINE	1	1
409+96	RT. 51	10" PINE	1	1
410+06	RT. 51	11" PINE	1	1
410+16	RT. 51	14" PINE	1	1
411+22	RT. 51	10" SPRUCE	1	1
411+24	RT. 29	12" OAK	1	1
412+24	RT. 49	8" SPRUCE	1	1
413+51	RT. 47	8" SPRUCE	1	1
413+91	RT. 46	16" WILLOW	1	1
414+75	RT. 47	8" SPRUCE	1	1
414+99	RT. 36	33" OAK	1	1
415+76	RT. 48	8" SPRUCE	1	1
416+49	RT. 33	24" RED OAK	1	1
416+77	RT. 44	4" POPLAR	1	1
417+22	LT. 55	18" TREE STUMP	0	1
417+26	RT. 45	4" OAK	1	1
417+33	RT. 49	16" OAK	1	1
417+37	RT. 48	6" POPLAR	1	1
418+04	LT. 46	10" PINE	1	1
418+27	LT. 47	12" WHITE PINE	1	1
418+50	LT. 46	14" WHITE PINE	1	1
419+93	LT. 34	5" PINE	1	1
421+76	RT. 39	6" SILVER MAPLE	4	1
423+25	RT. 44	11" SILVER MAPLE	4	1
424+51	LT. 41	9" ELM	1	1
424+62	LT. 44	9" ELM	1	1
424+76	LT. 45	8" TREE STUMP	0	1
427+70	LT. 45	6" SILVER MAPLE	4	1
427+81	LT. 45	6" SILVER MAPLE	4	1
427+89	LT. 45	6" SILVER MAPLE	4	1
428+76	LT. 58	9"/10" BOXELDER	2	1
430+57	RT. 48	12" TREE STUMP	0	1
430+59	LT. 41	11"/12" ELM	2	1
430+62	LT. 44	10" ELM	1	1
430+68	RT. 49	4" SPRUCE	1	1
430+79	RT. 48	5" SPRUCE	1	1
430+81	LT. 43	11" ELM	1	1
430+83	LT. 43	6" ELM	1	1
430+84	LT. 43	4" ELM	1	1
430+86	RT. 48	8" SPRUCE	1	1
430+87	LT. 43	5" ELM	1	1
430+94	RT. 47	5" SPRUCE	1	1
430+96	LT. 42	5" ELM	1	1
430+99	LT. 42	7" ELM	1	1
431+02	LT. 42	11" ELM	1	1
431+05	LT. 43	8"/8"/10" ELM	3	1
431+18	RT. 45	17" ASH	1	1
431+56	RT. 44	4" SPRUCE	1	1
431+60	RT. 46	5" SPRUCE	1	1
432+04	RT. 37	4" RUSSIAN OLIVE	1	1
432+14	RT. 38	5" RUSSIAN OLIVE	1	1
432+21	LT. 41	31" SILVER MAPLE	1	1
433+03	LT. 42	19"/22" WILLOW	2	1
433+30	RT. 39	6" APPLE	1	1
433+78	RT. 42	5"/3"/3"/3" CHERRY	4	1
433+84	LT. 40	12" SPRUCE	1	1
433+89	RT. 42	7" SPRUCE	1	1
433+94	RT. 40	10" SPRUCE	1	1
433+94	LT. 40	12" SPRUCE	1	1

G2

CLEAR & GRUB CHART

STATION ALIGN. A	LOCATION	DESCRIPTION	CLEAR	GRUB
LOCATIONS ARE FROM ALIGNMENT A – SECTION LINE				
434+00	RT. 41	10" SPRUCE	1	1
434+02	LT. 39	3"/7" SPRUCE	2	1
434+11	LT. 40	5"/10" SPRUCE	2	1
434+19	LT. 40	11" SPRUCE	1	1
434+34	RT. 43	11" PINE	1	1
435+85	LT. 45	10" ELM	1	1
436+41	RT. 50	6" ASH	1	1
436+49	LT. 40	4" ASH	1	1
437+00	LT. 39	12" SPRUCE	1	1
437+50	LT. 44	10" SPRUCE	1	1
437+91	RT. 43	15" SPRUCE	1	1
438+17	RT. 39	8" SPRUCE	1	1
438+66	RT. 45	4" CHERRY	1	1
438+80	LT. 41	19" SPRUCE	1	1
438+89	RT. 47	10" SPRUCE	1	1
438+91	LT. 44	15" SPRUCE	1	1
438+91	LT. 52	16" SPRUCE	1	1
439+02	RT. 42	4" CHERRY	1	1
439+19	LT. 45	7" HONEYSUCKLE	1	1
440+01	RT. 39	6" SILVER MAPLE	2	1
440+05	RT. 32	4" SPRUCE	1	1
440+06	RT. 41	4" SPRUCE	1	1
440+09	RT. 38	4" SPRUCE	1	1
440+25	RT. 37	4" SPRUCE	1	1
440+28	LT. 34	17" SILVER MAPLE	1	1
440+30	RT. 38	8" SILVER MAPLE	4	1
440+42	LT. 44	5"/7"/8"/8" BOXELDER	4	1
440+51	LT. 38	4" SPRUCE	1	1
440+60	LT. 38	4" SPRUCE	1	1
440+67	LT. 39	4" SPRUCE	1	1
440+73	LT. 38	6" SPRUCE	1	1
440+77	RT. 40	16" SILVER MAPLE	4	1
440+81	LT. 39	6" SPRUCE	1	1
440+86	LT. 38	6" SPRUCE	1	1
440+89	RT. 43	10" PINE	1	1
440+94	LT. 40	6" SPRUCE	1	1
440+99	LT. 44	6" SPRUCE	1	1
441+22	LT. 43	8" MAPLE	1	1
441+43	LT. 42	4" SPRUCE	1	1
441+49	LT. 37	4" SPRUCE	1	1
441+60	LT. 53	26" SILVER MAPLE	1	1
441+61	RT. 41	24" ASH	1	1
441+86	LT. 50	16" TREE STUMP	0	1
441+96	LT. 35	4" SPRUCE	1	1
441+97	RT. 34	4" PINE	1	1
442+01	LT. 41	6" SPRUCE	1	1
442+24	LT. 48	26" SILVER MAPLE	1	1
443+03	LT. 32	10" COTTONWOOD	1	1
443+05	RT. 55	45" COTTONWOOD	1	1
443+87	RT. 46	19" SPRUCE	1	1
444+10	RT. 42	6" CEDAR CLUMP	8	1
444+40	RT. 40	8" CEDAR CLUMP	5	1
444+65	RT. 38	6" CEDAR CLUMP	4	1
444+71	RT. 38	6" CEDAR CLUMP	3	1
444+77	RT. 39	6" CEDAR CLUMP	4	1
444+85	RT. 39	6" CEDAR CLUMP	3	1
444+90	RT. 41	9" CEDAR	1	1

G3

CLEAR & GRUB CHART

STATION ALIGN. A	LOCATION	DESCRIPTION	CLEAR	GRUB
LOCATIONS ARE FROM ALIGNMENT A – SECTION LINE				
445+06	RT. 41	31" BOXELDER	1	1
445+32	RT. 40	9" ASH	1	1
445+57	RT. 40	38" BOXELDER	1	1
445+86	RT. 43	15" ASH	1	1
445+97	RT. 41	13" ASH	1	1
448+62	LT. 42	12" TREE STUMP	0	1
449+30	LT. 32	8" SILVER MAPLE	4	1
449+36	LT. 30	6" TREE STUMP	0	1
450+47	RT. 42	11" SPRUCE	1	1
450+49	LT. 43	15" WALNUT	1	1
450+66	LT. 41	14" WALNUT	1	1
450+86	LT. 38	5" MULBERRY	2	1
450+87	LT. 38	34" WHITE POPPLE	1	1
452+73	LT. 42	8" ASH	1	1
453+02	LT. 41	16" LINDEN	1	1
453+32	LT. 42	11" ASH	1	1
453+48	RT. 91	18" ELM	1	1
453+63	LT. 44	10" LINDEN	1	1
TOTALS			190	137

H

GAS – GATE VALVES

STATION ALIGN. A	GATE VALVE	LOCATION	REMARKS
423+86	GATE VALVE	RT. 50	BY OTHERS
432+76	GATE VALVE	RT. 15	BY OTHERS
449+95	GATE VALVE	RT. 20	BY OTHERS
453+40	GATE VALVE	RT. 18	BY OTHERS
453+71	GATE VALVE	RT. 67	BY OTHERS
453+83	VENT	RT. 38	BY OTHERS
454+39	GATE VALVE	LT. 68	BY OTHERS
454+42	VENT	RT. 41	BY OTHERS
455+68	GATE VALVE	RT. 137	OK
455+75	GATE VALVE	RT.130	OK
455+85	GATE VALVE	RT. 100	OK
455+85	GATE VALVE	RT. 99	OK
455+86	GATE VALVE	RT. 97	OK
455+88	GATE VALVE	RT. 107	OK
455+88	GATE VALVE	RT. 102	OK
455+90	GATE VALVE	RT. 99	OK
455+96	GATE VALVE	RT. 94	OK
456+61	GATE VALVE	RT. 4	OK
456+62	GATE VALVE	RT. 4	OK
456+66	VENT	RT. 14	OK
456+71	GATE VALVE	RT. 5	OK

I

FURNISH & INSTALL GATE VALVE AND BOX

6" GATE VALVE AND BOX

STATION ALIGN. A	LOCATION	REMARKS	QUANTITY
STA. 407+23	LT. 64'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 411+85	LT. 38	INSTALL ON HYDRANT LEAD	1 EACH
STA. 415+91	LT. 46'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 421+01	LT. 38'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 426+11	LT. 36'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 430+65	LT. 34'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 435+89	LT. 40'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 440+97	LT. 5'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 443+90	RT. 4'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 446+03	LT. 6'±	INSTALL ON HYDRANT LEAD	1 EACH
STA. 451+11	LT. 30'±	INSTALL ON HYDRANT LEAD	1 EACH
		TOTAL	11 EACH

12" GATE VALVE AND BOX

STATION ALIGN. A	LOCATION	REMARKS	QUANTITY
STA. 405+60±	RT. 26'±	EXACT LOCATION IN FIELD	1 EACH
STA. 423+00	LT. 28'±	INSTALL ON 12" DIP MAIN	1 EACH
STA. 451+55±	LT. 26'±	EXACT LOCATION IN FIELD	1 EACH
STA. 454+30±	LT. 34'±		1 EACH
		TOTAL	4 EACH

J

WATERMAIN–ADJUSTS & RELOCATES

STATION ALIGN. A	HYDRANT OR GATE VALVE	LOCATION	ADJUST GATE VALVE	RELOCATE HYDRANT	ADJUST HYDRANT
407+23	HYDRANT	LT. 48		1	
407+47	HYDRANT	RT. 44		1	
407+47	GATE VALVE	RT. 41	1		
409+62	GATE VALVE	LT. 40	1		
411+85	HYDRANT	LT. 48			1
411+90	HYDRANT	RT. 46		1	
411+90	GATE VALVE	RT. 44	1		
415+73	GATE VALVE	LT. 38	1		
415+91	HYDRANT	LT. 44		1	
416+39	HYDRANT	RT. 46			1
416+40	GATE VALVE	RT. 43	1		
418+05	GATE VALVE	LT. 24	1		
418+49	GATE VALVE	RT. 24	1		
418+56	GATE VALVE	RT. 50	1		
418+85	GATE VALVE	LT. 35'	1		
419+67	GATE VALVE	LT. 35	1		
420+86	HYDRANT	RT. 46		1	
420+86	GATE VALVE	RT. 43	1		
421+01	HYDRANT	LT. 47		1	
421+07	GATE VALVE	LT. 36	1		
423+34	GATE VALVE	RT. 24	1		
423+39	HYDRANT	RT. 271	OK		
423+41	GATE VALVE	RT. 272	OK		
423+50	GATE VALVE	RT. 50	1		
425+00	GATE VALVE	LT. 36	1		
426+11	HYDRANT	LT. 47		1	
427+95	HYDRANT	RT. 46			1
427+95	GATE VALVE	RT. 42	1		
430+05	GATE VALVE	LT. 28	1		
430+07	GATE VALVE	RT. 50	1		
430+62	GATE VALVE	LT. 21	1		
430+65	HYDRANT	LT. 37		1	
435+86	GATE VALVE	LT. 23	1		
435+89	HYDRANT	LT. 38		1	
440+93	GATE VALVE	LT. 21	1		
440+97	HYDRANT	LT. 36		1	
443+80	GATE VALVE	LT. 21	1		
443+83	GATE VALVE	RT. 29	1		
443+90	HYDRANT	RT. 34		1	
446+03	HYDRANT	LT. 36		1	
451+11	HYDRANT	LT. 35		1	
451+53	GATE VALVE	LT. 27	1		
451+84	GATE VALVE	RT. 427	OK		
453+52	HYDRANT	RT. 603	OK		
454+32	GATE VALVE	LT. 46	1		
454+51	GATE VALVE	LT. 41	1		
455+07	GATE VALVE	LT. 125	1		
455+15	HYDRANT	LT. 120		1	
455+55	HYDRANT	LT. 348	OK		
455+75	GATE VALVE	LT. 338	1		
455+78	GATE VALVE	LT. 340	1		
456+80	GATE VALVE	LT. 36	OK		
456+84	GATE VALVE	LT. 37	OK		
459+90	HYDRANT	LT. 43	OK		
TOTAL ADJUST GATE VALVES			29	--	
TOTAL ADJUST HYDRANTS				--	3
TOTAL RELOCATE HYDRANTS			--	14	

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.

Daniel L. Kholl

REG. NO. 14251 DATE 12-6-95

28-144

CHARTS

X:\DWGS\TH-96-2\CHART 12/14/95

K

SAWCUT BITUMINOUS PAVEMENT

STATION	LOCATION	QUANTITY L.F.	REMARKS
STA. 405+60	LT	12	ENTRANCE
STA. 406+10	RT	22	ENTRANCE
STA. 406÷60	RT	26	ENTRANCE
STA. 407+00	LT	16	ENTRANCE
STA. 407+74	RT	12	ENTRANCE
STA. 409+35	RT	12	ENTRANCE
STA. 410+41	LT	14	ENTRANCE
STA. 410+48	RT	12	ENTRANCE
STA. 412+60	LT	12	ENTRANCE
STA. 413+17	RT	12	ENTRANCE
STA. 413+72	RT	12	ENTRANCE
STA. 415+55	LT	34	CAROLYN ST.
STA. 418+65	RT	32	MARGARET ST.
STA. 420+15	LT	30	ENTRANCE
STA. 421+92	RT	12	ENTRANCE
STA. 422+58	LT	12	ENTRANCE
STA. 423+28	LT	20	ENTRANCE
STA. 423+65	RT	22	KAREN AVE. (SO.)
STA. 425+10	LT	34	KAREN AVE. (NO.)
STA. 426+43	LT	24	ENTRANCE
STA. 427+10	RT	12	ENTRANCE
STA. 428+21	RT	22	ENTRANCE
STA. 431+32	LT	18	ENTRANCE
STA. 432+31	RT	14	ENTRANCE
STA. 432+78	LT	12	ENTRANCE
STA. 433+14	RT	22	ENTRANCE
STA. 436+14	LT & RT	54	FOURTH AVE.
STA. 437+15	LT	36	ENTRANCE
STA. 438+14	LT	22	ENTRANCE
STA. 438+43	RT	12	ENTRANCE
STA. 439+02	LT	12	ENTRANCE
STA. 441+20	LT	16	ENTRANCE
STA. 441+28	RT	16	THIRD AVE.
STA. 442+38	LT	12	ENTRANCE
STA. 442+57	RT	18	ENTRANCE
STA. 443+95	LT	14	ENTRANCE
STA. 444+00	RT	12	ENTRANCE
STA. 444+47	RT	12	ENTRANCE
STA. 446+34	LT & RT	58	SECOND AVE.
STA. 450+06	LT	12	ENTRANCE
STA. 451+40	RT	26	ENTRANCE
STA. 451+45	LT	30	FIRST AVE.
STA. 452+16	LT	12	ENTRANCE
STA. 452+40	LT	12	ALLEY
STA. 452+96	RT	32	ENTRANCE
STA. 453+40	RT	16	ENTRANCE
BALD EAGLE AVE.	LT	64	STREET
LINCOLN AVE.	LT	28	STREET
STA. 454+50	LT & RT	82	END PROJECT
TOTALS		1090	

L

REMOVE PIPE CULVERTS

STATION	LOCATION	C.M. PIPE CULVERT L.F.	R.C. PIPE CULVERT L.F.
405+60	LT	30	
406+50	RT	82	
407+00	LT	42	
407+28	RT	30	
407+48	LT	30	
408+45	LT	34	
409+40	RT	30	
410+40	LT	35	
410+65	RT	64	
411+45	RT	25	
411+62	LT	30	
412+40	LT	70	
413+21	RT	25	
413+72	LT & RT	58	
415+55	LT & RT	142	
417+08	LT	27	
418+65	RT	72	
418+80	LT	30	
419+90	LT	72	
421+05	RT	30	
421+92	RT	30	
422+56	LT	30	
423+42	LT	60	
423+60	RT	45	
424+15	LT	30	
425+10	LT	60	
426+20	LT	80	
426+91	RT	60	
427+45	LT	32	
428+72	LT & RT	72	
429+55	LT	30	
430+05	RT	14	
430+33	RT		16
430+42	LT	64	
431+31	LT & RT	72	
432+28	RT	42	
432+77	LT	37	
433+14	RT	35	
434+20	LT & RT	126	
436+14	LT & RT	110	
437+15	LT	30	
437+30	RT	32	
438+14	LT	32	
438+42	RT	30	
439+10	LT & RT	55	
439+93	LT & RT	72	
440+40	RT	32	
441+20	LT & RT	86	
442+08	RT	38	
442+50	LT & RT	102	
443+15	LT & RT	54	
443+50	LT	22	
443+94	LT & RT	68	
444+50	LT & RT	100	
445+25	LT & RT	31	
445+63	RT	28	
446+35	LT & RT	86	
TOTALS		2885	16

M

SANITARY SEWER SERVICE

STATION	LOCATION	HOUSE NO.	4' P.V.C.	CONNECT TO EXISTING MAIN	CONNECT TO EXISTING SERVICE	4" INSULATION
STA. 407+70	LT.	1581				136 S.F.
STA. 408+90	LT.	1603				160 S.F.
STA. 409+04	LT.	1607				160 S.F.
STA. 410+30	LT.	1611				160 S.F.
STA. 427+15	LT.	VAC LOT	20 L.F.	1 EACH		
STA. 429+15	LT.	VAC LOT	18 L.F.	1 EACH		
STA. 430+80	RT.	1788	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 431+60	LT.	1791				96 S.F.
STA. 432+55	LT.	1800	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 433+10	LT.	1809				96 S.F.
STA. 433+48	LT.	1811				128 S.F.
STA. 433+60	RT.	1810	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 433+95	LT.	1819				96 S.F.
STA. 434+25	RT.	1814	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 434+70	RT.	1818	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 435+15	RT.	LOT	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 435+60	RT.	1830	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 436+85	RT.	1838	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 436+90	LT.	1843				96 S.F.
STA. 437+75	RT.	1846	75 L.F.	1 EACH	1 EACH	
STA. 437+75	LT.	VAC LOT	12 L.F.	1 EACH		
STA. 438+05	RT.	1848	75 L.F.	1 EACH	1 EACH	
STA. 438+78	RT.	VAC LOT	75 L.F.	1 EACH	1 EACH	
STA. 439+30	RT.	1858	75 L.F.	1 EACH	1 EACH	
STA. 439+75	RT.	1864	75 L.F.	1 EACH	1 EACH	
STA. 440+15	RT.	1870	75 L.F.	1 EACH	1 EACH	
STA. 440+60	RT.	1874	75 L.F.	1 EACH	1 EACH	
STA. 441+75	RT.	1882	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 441+80	LT.	1885				96 S.F.
STA. 442+20	LT.	1889				96 S.F.
STA. 442+35	RT.	1886	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 442+70	RT.	1892	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 442+75	LT.	1893				96 S.F.
STA. 443+20	LT.	1897				96 S.F.
STA. 443+35	RT.	1900	75 L.F.	1 EACH	1 EACH	600 S.F.
STA. 443+55	LT.	1901				96 S.F.
STA. 444+20	LT.	1905	20 L.F.		1 EACH	
STA. 444+46	RT.	1910	80 L.F.		1 EACH	
STA. 444+95	RT.	1920	70 L.F.		1 EACH	
STA. 445+20	LT.	1915	15 L.F.		1 EACH	
STA. 447+25	LT.	1935				320 S.F.
STA. 447+60	LT.	1935				320 S.F.
STA. 448+10	LT.	1941				320 S.F.
STA. 448+60	LT.	1947				320 S.F.
STA. 449+05	LT.	1953				320 S.F.
STA. 450+00	LT.	1959				320 S.F.
STA. 450+65	RT.	1966				64 S.F.
STA. 451+05	RT.	1978				64 S.F.
STA. 456+69	LT.	4561				320 S.F.
SANITARY SERVICES FOR HOUSES 1904, 1915, 1931 AND 1935 VERIFY LOCATIONS WITH THE CITY						
TOTALS			1660 L.F.	22 EACH	23 EACH	11,176 S.F. = 1242 S.Y.

8" PVC SAN. SEWER MAIN

STATION	LOCATION	QUANTITY	CONNECT TO EXISTING MANHOLE
STA. 444+00	M.H. 64A TO M.H. 67	232 L.F. 8" P.V.C.	1 EACH

CONSTRUCT SANITARY MANHOLE

STATION	LOCATION	DESIGN	RIM	INVERT	REMARKS
STA. 444+00	LT. 25'	TYPE A OR F	929.79	923.0	F & I ECCENTRIC CONE
					INSTALL CASTING FROM MH 65

N

INSULATE SEWER AND WATER MAINS SEE CHART M FOR SERVICES

STATION	LOCATION FROM ALIGNMENT A	QUANTITY
SANITARY SEWER – MAIN		
STA. 407+75	LT. 30'	64 S.F.
STA. 408+60 TO 410+50	LT. 30'±	1480 S.F.
STA. 423+15	RT. 30'	64 S.F.
STA. 424+70	RT. 30'	64 S.F.
STA. 425+60	RT. 30'	64 S.F.
STA. 431+00 TO 434+00	LT. 30'±	2400 S.F.
STA. 436+50 TO 437+50	LT. 30'±	800 S.F.
STA. 441+25 TO 443+65	LT. 30'±	1920 S.F.
STA. 447+20 TO 448+50	C.L.	1040 S.F.
SUBTOTAL SANITARY MAIN		7,896 S.F. = 877 S.Y.
WATERMAIN		
STA. 407+00 TO 408+50	LT. 40±	1200 S.F.
STA. 419+50 TO 420+50	LT. 35 ±	800 S.F.
STA. 436+00 TO 438+50	LT. 22±	2000 S.F.
STA. 441+00 TO 443+75	LT 20'±	2200 S.F.
STA. 443+75	LT 20'± TO RT. 30±	400 S.F.
STA. 443+75 TO 446+45	RT. 30±	2160 S.F.
SUBTOTAL WATERMAIN		8760 S.F. = 973 S.Y.
4" INSULATION SUMMARY		
SANITARY MAIN		877 S.Y.
WATERMAIN		973 S.Y.
SANITARY SERVICE (CHART M)		1242 S.Y.
WATER SERVICE (CHART O)		396 S.Y.
PROJECT TOTAL		3488 S.Y.

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.

David L. Rhodes

REG. NO. 14257 DATE 12-6-95

28-144

CHARTS

S.A.P. NO. 62-696-02 C.T.B. SHEET 9 OF 96 SHEETS

G:\DWGS\TH96-2\CHART 12/14/95

O

WATER SERVICES

STATION	LOCATION	HOUSE #	ADJUST	1" TYPE K	CONNECT TO EXISTING SERVICE	1" CORPORATION STOP	1" CURB STOP & BOX	REMOVE CORP. STOP	4" INSULATION
STA. 405+61	RT.	1558	1	--	--	--	--	--	--
STA. 405+95	LT.	1561	1	--	--	--	--	--	--
STA. 406+38	LT.	1571	1	--	--	--	--	--	--
STA. 407+01	RT.	1566	--	25 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 407+64	LT.	1581	1	--	--	--	--	--	96 S.F.
STA. 407+87	RT.	1584	1	--	--	--	--	--	--
STA. 408+86	LT.	1603	1	--	--	--	--	--	96 S.F.
STA. 409+04	RT.	1592	1	--	--	--	--	--	--
STA. 409+27	LT.	1607	1	--	--	--	--	--	128 S.F.
STA. 409+69	RT.	1596	1	--	--	--	--	--	--
STA. 410+05	LT.	1611	1	--	--	--	--	--	128 S.F.
STA. 411+22	LT.	1617	O.K.	--	--	--	--	--	--
STA. 411+47	RT.	1614	1	--	--	--	--	--	--
STA. 412+60	RT.	1622	O.K.	--	--	--	--	--	--
STA. 412+68	LT.	1621	1	--	--	--	--	--	--
STA. 413+30	LT.	1629	O.K.	--	--	--	--	--	--
STA. 414+41	RT.	1630	O.K.	--	--	--	--	--	--
STA. 414+50	LT.	4571	O.K.	--	--	--	--	--	--
STA. 415+17	RT.	1636	1	--	--	--	--	--	--
STA. 416+16	RT.	1650	--	25 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 416+39	LT.	4584	O.K.	--	--	--	--	--	--
STA. 417+56	LT.	1663	1	--	--	--	--	--	--
STA. 419+67	LT.	1685	1	--	--	--	--	--	120 S.F.
STA. 421+52	RT.	1700	O.K.	--	--	--	--	--	--
STA. 422+11	LT.	1707	O.K.	--	--	--	--	--	64 S.F
STA. 422+72	RT.	1708	1	--	--	--	--	--	--
STA. 423+46	LT.	1721	--	20 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 425+62	LT.	1741	--	25 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 426+48	LT.	1743	--	30 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 427+10	LT.	VAC LOT	--	30 L.F.	--	1 EACH	1 EACH	--	--
STA. 427+42	LT.	1755	--	25 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 427+75	RT.	1754	O.K.	--	--	--	--	--	--
STA. 429+10	LT.	VAC LOT	--	30 L.F.	--	1 EACH	1 EACH	--	--
STA. 429+83	LT.	1775	--	30 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 430+76	LT.	1783	--	20 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 430+77	RT.	1788	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 431+57	LT.	1791	1	--	--	--	--	--	--
STA. 432+57	RT.	1800	--	68 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 433+13	LT.	1809	--	20 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 433+50	LT.	1811	--	20 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 433+54	RT.	1810	--	68 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 434+00	LT.	1819	--	20 L.F.	1 EACH	1 EACH	1 EACH	--	--
STA. 434+23	RT.	1814	--	68 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 434+57	LT.	1825	1	--	--	--	--	--	--
STA. 434+70	RT.	1818	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.

CHART O CONTINUED RIGHT →

CHART O CONTINUED WATER SERVICES

STATION	LOCATION	HOUSE #	ADJUST	1" TYPE K	CONNECT TO EXISTING SERVICE	1" CORPORATION STOP	1" CURB STOP & BOX	REMOVE CORP. STOP	4" INSULATION
STA. 435+12	RT.	1824	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F
STA. 435+36	LT.	1837	1	--	--	--	--	--	64 S.F
STA. 435+54	RT.	1830	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F
STA. 436+84	RT.	1838	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 436+87	LT.	1843	1	--	--	--	--	--	160 S.F.
STA. 437+70	LT	VAC LOT	--	20 L.F.	---	1 EACH	1 EACH	---	--
STA. 437+80	RT.	1846	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 438+06	RT.	1848	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 438+36	LT.	1859	1	--	--	--	--	--	160 S.F.
STA. 438+69	RT.	VAC LOT	--	65 L.F.	---	1 EACH	1 EACH	---	64 S.F.
STA. 439+05	LT.	1863	1	--	--	--	--	--	64 S.F.
STA. 439+27	RT.	1858	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 439+50	LT.	1869	1	--	--	--	--	--	64 S.F
STA. 439+72	RT.	1864	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 440+12	RT.	1870	--	68 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 440+55	LT.	1875	1	--	--	--	--	--	64 S.F.
STA. 440+58	RT.	1874	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 441+69	LT.	1885	1	--	--	--	--	--	192 S.F.
STA. 441+93	RT.	1882	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 442+15	LT.	1889	1	--	--	--	--	--	192 S.F.
STA. 442+38	RT.	1886	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 442+72	LT.	1893	1	--	--	--	--	--	240 S.F.
STA. 442+75	RT.	1892	---	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 443+30	LT.	1897	1	--	--	--	--	--	192 S.F.
STA. 443+45	RT.	1900	--	65 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 443+89	LT.	1901	--	20 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 444+05	RT.	1904	--	16 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 444+30	LT.	1905	--	20 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 445+14	RT.	1920	--	16 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	--
STA. 445+24	LT.	1915	--	20 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 445+95	LT.	1919	--	20 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 447+02	LT.	1931	1	--	--	--	--	--	--
STA. 447+35	LT.	1935	1	--	--	--	--	--	64 S.F.
STA. 447+89	LT.	1941	1	--	--	--	--	--	192 S.F.
STA. 448+32	LT.	1947	1	--	--	--	--	--	--
STA. 448+87	LT.	1953	1	--	--	--	--	--	--
STA. 449+82	LT.	1959	1	--	--	--	--	--	--
STA. 450+54	LT.	VAC LOT	1	--	--	--	--	--	64 S.F.
STA. 450+57	RT.	1966	--	62 L.F.	1 EACH	1 EACH	1 EACH	1 EACH	64 S.F.
STA. 451+20	RT. 15'	1978		--	--	--	--	--	64 S.F.
HOUSES 1904 AND 1910 VERIFY SERVICE LOCATIONS WITH CITY									
TOTALS			35	1761 L.F.	36 EACH	40 EACH	40 EACH	27 EACH	3560 S.F. =396 S.Y.

R

FURNISH AND INSTALL 12" D.I.P. WATERMAIN

STATION ALIGNMENT A	LOCATION	QUANTITY L.F.	CONNECT TO EXISTING MAIN
STA. 423+00 TO 430+10	LT. 22'	710 L.F.	2 EACH
STA. 430+10	LT. 50' TO RT. 40'	90 L.F.	2 EACH
STA. 451+55± TO 454+30±	LT. 26±' TO LT. 34±'	275 L.F.	2 EACH
SUBTOTAL 12" D.I.P.		1075 L.F.	6 EACH

FURNISH AND INSTALL 6" D.I.P. WATERMAIN

STA. 425+00	LT. 24' TO LT 84' (EXISTING D.I.P.)	60 L.F.	2 EACH
STA. 426+10	LT. HYDRANT (EXISTING D.I.P.)	25 L.F.	---
STA. 432+75 TO 434+25	LT. 24' (C.I.P. EXISTING)	150 L.F.	2 EACH
TOTAL	12" D.I.P.	1075 L.F.	6 EACH
TOTAL	6" D.I.P.	235 L.F.	4 EACH

EXACT LOCATION SHALL BE DIRECTED BY THE CITY OF WHITE BEAR LAKE
SEE SPECIAL PROVISIONS

Q

SALVAGE & INSTALL

ITEM	STATION	LOCATION	QUANTITY
6' WOOD PRIVACY	421+95	LT. 46	8 L.F.
SPLIT RAIL	431+79 TO 431+89	RT. 42	20 L.F.
SPLIT RAIL	432+74 TO 432+84	LT. 50	20 L.F.
SPLIT RAIL	433+24 TO 433+34	RT. 38-48	20 L.F.
4' WOOD PRIVACY	448+67	LT. 37	8 L.F.
3' C-L FENCE	449+14	LT. 37	20 L.F.
4' C-L FENCE	452+50 TO 453+65	LT. 45	140 L.F.
TOTALS			
WOOD PRIVACY			16 L.F.
SPLIT RAIL			60 L.F.
C-LINK			160 L.F.

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.
David L. Kluth
REG. NO. 14257 DATE 12-6-95

28-144 CHARTS

S.A.P. NO. 62-696-02 C.T.B. SHEET 10 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 12/14/95

EXISTING UTILITY STRUCTURE CHART

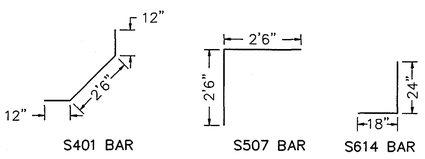
STATION	LOCATION SECTION LINE ALIGN A	NUMBER	TYPE	DESIGN	PROFILE	ELEVATION ORIGINAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B./M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONST. C.B./M.H. L.F.	INSTALL CASTING ASSEMBLY	EXISTING CASTING ASSEMBLY SIZE IN.	REMARKS
405+61	LT. 28	40	M.H.	SAN.	931.04	930.57	930.56	924.66	1			8	
405+68	RT. 28	41	M.H.	SAN.	931.08	930.60	930.60	922.95	1			7	
408+97	RT. 28	42	M.H.	SAN.	930.19	931.55	929.70	921.45		5.2	1	7	0.0' RINGS, 4' ECC. CONE, 3' SEC., 2' SEC.
409+64	LT. 29	43	M.H.	SAN.	929.84	932.14	929.34	923.04		5.6	1	11	1.4' RINGS, 4' ECC. CONE, 3' SEC.
412+03	RT. 28	44	M.H.	SAN.	931.04	930.71	930.56	920.36	1			7	
413+65	LT. 29	45	M.H.	SAN.	931.02	932.08	930.52	921.36		7.6	1	7	1.3' RINGS, 4' ECC. CONE, 4' SEC.
414+81	RT. 28	46	M.H.	SAN.	930.45	929.52	929.97	919.12	1			7	
417+04	LT. 29	47	M.H.	SAN.	929.36	930.67	928.86	920.00		7.7	1	9	1.5' RINGS, 4' ECC. CONE, 4' SEC.
418+65	RT. 29	48	M.H.	SAN.	928.57	931.00	928.07	917.55		5.3	1	7	1.2' RINGS, 4' ECC. CONE, 3' SEC.
420+16	LT. 29	49	M.H.	SAN.	928.88	930.60	928.38	918.80		8.1	1	9	1.5' RINGS, 5' ECC. CONE, 4' SEC.
421+30	RT. 28	50	M.H.	SAN.	929.19	927.23	928.71	918.73		6.4	1	7	0.9' RINGS, 4' ECC. CONE, 2' SEC., 1' SEC.
423+64	LT. 29	51	M.H.	SAN.	928.01	929.72	927.51	917.52		9.3	1	9	2.0' RINGS, 5' ECC. CONE, 4.5' SEC.
424+04	RT. 32	52	M.H.	SAN.	927.81	927.02	927.25	920.02	1			7	
425+12	LT. 28	53	M.H.	SAN.	927.69	930.29	927.21	916.79		5.4	1	9	0.5' RINGS, 4' ECC. CONE, 4' SEC., 4' SEC.
427+48	LT. 29	54	M.H.	SAN.	928.72	930.33	928.22	916.08		7.3	1	9	0.9' RINGS, 4.5' ECC. CONE, 4' SEC., 4' SEC.
427+90	RT. 29	55	M.H.	SAN.	928.53	926.84	928.03	921.44		3.1	1	7	1.4' RINGS, 0.5' TOP SLAB, 2.5' SEC.
430+18	LT. 35	56	M.H.	SAN.	928.90	929.67	928.94	906.71		7.3	1	7	0.0' RINGS, 4' ECC. CONE, 4' SEC., 5' SEC.
430+33	RT. 41	57	M.H.	STORM	929.03	929.21	929.33	915.06				7	REMOVE M.H.: SALVAGE CASTING, INSTALL ON MH NO. 309
430+57	LT. 31	58	M.H.	SAN.	929.23	930.72	928.69	923.02		5.0	1	7	0.0' RINGS, 4' CON. CONE, 3' SEC. – F & I ECC. CONE
432+73	LT. 31	59	M.H.	SAN.	928.44	929.85	927.90	922.10		5.4	1	7	0.3' RINGS, 4' ECC. CONE, 3' SEC.
436+15	LT. 30	60	M.H.	SAN.	928.51	929.65	927.99	921.25		5.5	1	9	1.2' RINGS, 4' ECC. CONE, 2' SEC.
438+24	LT. 30	61	M.H.	SAN.	929.11	930.25	928.59	920.49		7.3	1	7	1.0' RINGS, 5' ECC. CONE, 3' SEC.
441+23	LT. 31	62	M.H.	SAN.	929.23	929.94	928.69	919.69		7.6	1	9	0.8' RINGS, 4' ECC. CONE, 4' SEC.
443+64	LT. 30	63	M.H.	SAN.	929.91	930.87	929.41	923.17		5.8	1	7	0.3' RINGS, 5' ECC. CONE, 2' SEC.
444+02	LT. 30	64	M.H.	SAN.	930.10	931.18	929.58	925.68				11	REMOVE M.H.: SALVAGE CASTING
444+78	RT. 19	65	M.H.	SAN.	930.48	931.23	930.20	925.63				7	REMOVE M.H.: SALVAGE CASTING, INSTALL ON MH NO. 64A
444+81	LT. 29	66	M.H.	SAN.	930.50	930.31	930.00	925.31				9	REMOVE M.H.: SALVAGE CASTING
446+33	LT. 31	67	M.H.	SAN.	931.26	931.62	930.72	921.22		7.6	1	11	0.5' RINGS, 4' ECC. CONE, 4' SEC.
447+17	C.L.	68	M.H.	SAN.	931.80	932.78	931.78	926.58	1			11	
449+42	C.L.	69	M.H.	SAN.	933.52	934.38	933.50	925.98		1.6	1	11	1.0' RINGS, 0.5' TOP SLAB, BLOCK
451+41	LT. 1	70	M.H.	SAN.	936.05	935.92	936.01	925.55	1			11	
454+21	LT. 1	71	M.H.	SAN.	937.11	937.17	937.07	924.07	1			11	
454+60	LT. 89	72	M.H.	SAN.	---	935.82	935.8±		1				
454+81	LT. 88	73	VAULT	TELE	---	936.09	935.8±	927.57				16	ADJUST BY OTHERS, 1.0' BRICKS
454+85	LT. 96	74	VAULT	TELE	---	935.91	935.7±	927.37				16	ADJUST BY OTHERS, 1.0' BRICKS
BALD EAGLE AVENUE													
8+60	LT. 6	75	M.H.	SAN.	935.16	---	935.0±	---	1				
								TOTALS	10	124.1	20 ①		4 EACH REMOVE MANHOLE
													4 EACH SALVAGE CASTING
													① SEE CHART S MH 309 FOR ADDITIONAL INSTALL CASTING
													SEE CHART M MH 64A FOR ADDITIONAL INSTALL CASTING

BAR CHART

TYPE	LENGTH	SHAPE	LOCATION	REMARKS
S401	4'6"	BENT	WALL	
S402	12'8"	STRAIGHT	WALL	CUT AS REQUIRED
S403	9'8"	STRAIGHT	WALL	CUT AS REQUIRED
S404	10'8"	STRAIGHT	WALL	CUT AS REQUIRED
S505	12'2"	STRAIGHT	WALL	CUT AS REQUIRED
S506	9'2"	STRAIGHT	WALL	CUT AS REQUIRED
S507	5'0"	BENT	WALL	
S408	9'8"	STRAIGHT	TOP SLAB	CUT AS REQUIRED
S409	12'8"	STRAIGHT	TOP SLAB	CUT AS REQUIRED
S610	9'8"	STRAIGHT	TOP SLAB	CUT AS REQUIRED
S611	12'8"	STRAIGHT	TOP SLAB	CUT AS REQUIRED
S612	13'4"	STRAIGHT	BOTTOM SLAB	
S613	10'4"	STRAIGHT	BOTTOM SLAB	
S614	3'6"	BENT	WALL/SLAB	CAST IN PLACE OPTION
S615	2'11"	STRAIGHT	TOP SLAB	

NOTES

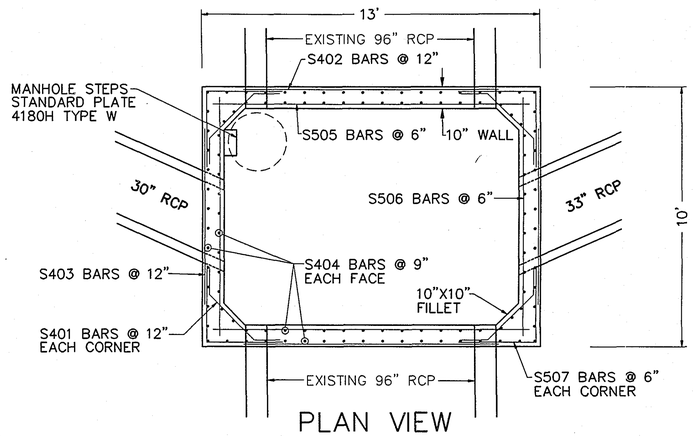
- CONCRETE MIX SHALL BE 3Y43.
- REINFORCEMENT SHALL BE GRADE 60.
- CONSTRUCT MANHOLE STEPS PER STANDARD PLATE 4180H.
- CUT BARS AS REQUIRED AT PIPE OPENINGS.
- FOR BAR CHART AND NUMBERING OF REINFORCING BARS, THE FIRST DIGIT OF THE BAR MARK INDICATE THE BAR SIZE. THE LAST TWO DIGITS ARE THE BAR'S UNIQUE SEQUENTIAL NUMBER IN THE BAR CHART.
- THE STRUCTURE PRICE SHALL INCLUDE ONE 48" DIAMETER BY 1.5' HIGH CONE SECTION AND ADJUSTING RINGS. SEE PROPOSED DRAINAGE CHART FOR ELEVATIONS AND CASTING INFORMATION.



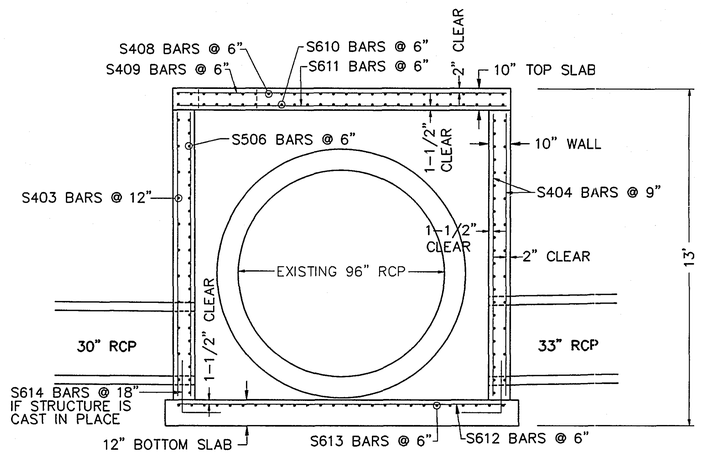
BAR DETAILS

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.
David L. Rholl
REG. NO. 14257 DATE 12-6-95

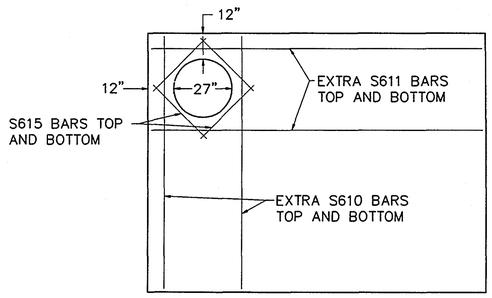
SPECIAL STRUCTURE 1



PLAN VIEW



FRONT VIEW



TOP SLAB – SUPPLEMENTAL REINFORCEMENT

28-144

SPECIAL STRUCTURE 1 DETAILS
EXISTING UTILITY STRUCTURE CHART

S.A.P. NO. 62-696-02 C.T.B. SHEET 11 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 12/14/95

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	
407+63	RT. 40.5	253	C.B.	SP-2	4.2	B	930.89	930.01	926.01	28							V	254	925.73	
407+68	RT. 13	254	M.H.	48-4020	5.3	A	930.86	930.64	925.46	101							V	257	924.95	
407+79	LT. 39	255	C.B.	SP-2	4.2	B	930.81	929.96	925.96	53							V	254	925.69	
408+69	RT. 40.5	256	C.B.	SP-2	4.2	B	930.34	929.46	925.46	28							V	257	925.18	
408+69	RT. 13	257	M.H.	48-4020	5.3	A	930.34	930.12	924.95	150							V	260	924.20	
408+69	LT. 31.5	258	C.B.	SP-2	4.2	B	930.34	929.66	925.66	45							V	257	925.21	
410+19	RT. 37.8	259	C.B.	SP-2	4.2	D	929.60	928.77	924.77	25							V	260	924.52	
410+19	RT. 13	260	M.H.	48-4020	5.3	A	929.60	929.38	924.20		105						V	264	923.68	
410+19	LT. 31.5	261	C.B.	SP-2	4.2	D	929.60	928.90	924.90	45							V	260	924.45	
410+58	LT. 48	262	S.D.	H	5.0	C	929.80	930.0	925.11	43							V	261	924.90	FIELD VERIFY LOCATION AND ELEVATION
411+24	RT. 35.5	263	C.B.	SP-2	4.2	B	930.37	929.59	925.59	23							V	264	925.37	
411+24	RT. 13	264	M.H.	48-4020	6.6	A	930.37	930.15	923.68		373						V	267	921.81	
411+24	LT. 31.5	265	C.B.	SP-2	4.2	B	930.37	929.67	925.67	45							V	264	925.22	
414+97	RT. 31.5	266	C.B.	SP-2	4.2	B	930.37	929.67	925.67	19							V	267	925.48	
414+97	RT. 13	267	M.H.	48-4020	8.5	A	930.37	930.15	921.81			73					III	271	921.44	
414+97	LT. 31.5	268	C.B.	SP-2	4.2	B	930.37	929.67	925.67	45							V	267	925.22	
415+39	LT. 55	269	C.B.	SP-2	4.2	B	930.15	929.8	925.80	31							V	270	925.49	
415+70	LT. 55	270	C.B.	SP-2	4.5	B	930.01	929.8	925.49	68							V	271	924.81	
415+70	RT. 13	271	M.H.	48-4020	8.5	A	930.01	929.79	921.44			248					III	273	920.20	
418+18	RT. 31.5	272	C.B.	SP-2	4.2	B	928.80	928.10	924.10	19							V	273	923.91	
418+18	RT. 13	273	M.H.	48-4020	8.5	A	928.80	928.58	920.20				62				III	277	919.89	
418+18	LT. 31.5	274	C.B.	SP-2	4.2	B	928.80	928.10	924.10	45							V	273	923.65	
418+49	RT. 64	275	C.B.	SP-2	4.2	B	928.64	928.8	924.80	31							V	276	924.49	
418+80	RT. 64	276	C.B.	SP-2	4.5	B	928.50	928.8	924.49	51							V	277	923.47	
418+80	RT. 13	277	M.H.	48-4020	8.5	A	928.50	928.28	919.89				30				III	279	919.74	
419+10	RT. 31.5	278	C.B.	SP-2	4.2	D	928.41	927.71	923.71	19							V	279	923.52	
419+10	RT. 13	279	M.H.	48-4020	8.6	B	928.41	928.19	919.74				255				III	281	918.72	
419+10	LT. 31.5	280	C.B.	SP-2	4.2	D	928.41	927.71	923.71	45							V	279	923.26	
419+81	LT. 31.5	280A	C.B.	SP-2	4.1	B	928.70	928.00	924.10	71							V	280	923.71	
421+65	RT. 13	281	M.H.	48-4020	10.3	A	929.02	928.80	918.72					151			III	284	918.12	
421+65	LT. 48	282	S.D.	H	4.2	C	929.02	929.0	925.00	61							V	281	924.39	FIELD VERIFY LOCATION AND ELEVATION
423+16	RT. 31.5	283	C.B.	SP-2	4.2	B	928.26	927.56	923.56	19							V	284	923.37	
423+16	RT. 13	284	M.H.	48-4020	10.0	A	928.26	928.04	918.12					62			III	288	917.87	
423+08	LT. 31.5	285	C.B.	SP-2	4.2	B	928.30	927.60	923.60	45							V	284	923.15	
423+41	RT. 134	286		15" APRON	–	–	928.13	----	928.3	64							V	287	924.50	
423+48	RT. 64	287	C.B.	SP-2	4.2	B	928.10	928.5	924.50	31							V	289	924.19	
423+78	RT. 13	288	M.H.	48-4020	10.0	A	927.94	927.72	917.87					92			III	292	917.50	
423+78	RT. 64	289	C.B.	SP-2	4.5	B	927.94	928.5	924.19	51							V	288	923.17	
423+81	RT. 134	290		15" APRON	–	–	927.92	----	927.7	64							V	289	924.19	
424+70	RT. 31.5	291	C.B.	SP-2	4.2	D	927.54	926.84	922.84	19							V	292	922.65	
424+70	RT. 13	292	M.H.	48-4020	9.9	A	927.54	927.32	917.50					56			III	296	917.28	
424+70	LT. 31.5	293	C.B.	SP-2	4.2	D	927.54	926.84	922.84	45							V	292	922.39	
424+94	LT. 56	294	C.B.	SP-2	3.7	B	927.60	927.5	924.00	32							V	295	923.84	
425+26	LT. 56	295	C.B.	SP-2	3.9	B	927.76	927.5	923.84	69							V	296	923.14	
425+26	RT. 13	296	M.H.	48-4020	10.4	A	927.76	927.54	917.28					34			III	298	917.14	
425+60	RT. 31.5	297	C.B.	SP-2	4.2	B	927.93	927.23	923.23	19							V	298	923.04	
425+60	RT. 13	298	M.H.	54-4020	10.7	A	927.93	927.71	917.14						285		III	301	916.00	
425+60	LT. 31.5	299	C.B.	SP-2	4.2	B	927.93	927.23	923.23	45							V	298	922.78	
428+45	RT. 31.5	300	C.B.	SP-2	4.2	B	928.25	927.55	923.55	19							V	301	923.37	
428+45	RT. 13	301	M.H.	54-4020	12.2	A	928.25	928.03	916.00						54		III	304	915.78	
428+45	LT. 31.5	302	C.B.	SP-2	4.2	B	928.25	927.55	923.55	45							V	301	923.10	
428+99	RT. 32.5	303	C.B.	SP-2	4.2	D	928.03	927.31	923.31	20							V	304	923.11	
428+99	RT. 13	304	M.H.	54-4020	12.2	A	928.03	927.81	915.78						69		III	307	915.50	
428+99	LT. 31.5	305	C.B.	SP-2	4.2	D	928.03	927.33	923.33	45							V	304	922.88	
429+68	RT. 31.5	306	C.B.	SP-2	4.2	B	928.48	927.78	923.78	19							V	307	923.59	
429+68	RT. 13	307	M.H.	54-4020	12.9	A	928.48	928.26	915.50						70		IV	309	915.06	
429+68	LT. 31.5	308	C.B.	SP-2	4.2	B	928.48	927.78	923.78	45							V	307	923.33	
430+33	RT. 42	309	M.H.	SPECIAL 1	14.2	–	929.03	929.17	915.06								V			BUILD OVER EXISTING 96" RCP, INSTALL CASTING FROM EXISTING MH NO. 57 ①

CASTING ASSEMBLIES

A = MH = RING CASTING MN/DOT 700-7, STD. PLATE 4101, : COVER CASTING MN/DOT NO. 716 STD. PLATE 4110
B = SP2 = NEEHAH 3067V OR EQUIVALENT
C = SD = RING CASTING MN/DOT 700-7, STD PLATE 4101, : COVER CASTING MN/DOT NO. 720 STD. PLATE 4140
D = SP2 = NEEHAH 3067C OR EQUIVALENT

STRUCTURES

DESIGN SP-2 = DETAIL SHEET 14
DESIGN W-4020 = MN/DOT STANDARD PLATE 4020, DETAIL SHEET 14
DESIGN H = MN/DOT STANDARD PLATE 4006
DESIGN A OR F = MN/DOT STANDARD PLATE 4000 OR 4005

NOTE:

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

① PAYMENT SHALL BE MADE AS ITEM 2506.521
INSTALL CASTINGS BY THE EACH.

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.
David L. Kroll
REG. NO. 14257 DATE 12-6-95

28-144

PROPOSED STORM SEWER

S.A.P. NO. 62-696-02 C.T.B. SHEET 12 OF 96 SHEETS

X:\DWGS\TH96-2\CHART 12/14/95

S

PROPOSED STORM SEWER STRUCTURE CHART

STATION	SECTION LINE ℄ OFFSET ALIGN A	NUMBER	TYPE	DESIGN	CONST. HEIGHT	CASTING ASSEMBLY	ELEVATION PROFILE	ELEVATION NEW GRATE OR RING	ELEVATION C.B./M.H. OR APRON INVERT	F & I R.C. PIPE SEWER 15"	18"	21"	24"	27"	30"	33"	PIPE CLASS	DRAINS TO STRUCT. NO.	DRAINS TO INVERT ELEVATION	REMARKS
431+00	RT. 13	310	M.H.	60-4020	14.1	A	929.42	929.20	915.20							73	IV	309	915.06	
432+97	RT. 31.5	311	C.B.	SP-2	4.2	D	928.38	927.68	923.68	19							V	312	923.49	
432+97	RT. 13	312	M.H.	54-4020	12.7	A	928.38	928.16	915.60							197	IV	310	915.20	
432+97	LT. 31.5	313	C.B.	SP-2	4.2	D	928.38	927.68	923.68	45							V	312	923.23	
436+00	LT. 64	314	C.B.	SP-2	4.2	B	928.59	928.4	924.40	31							V	315	924.09	
436+30	LT. 64	315	C.B.	SP-2	4.5	B	928.44	928.4	924.09	77							V	316	923.32	
436+30	RT. 13	316	M.H.	54-4020	12.1	A	928.44	928.22	916.27							333	IV	312	915.60	
436+73	RT. 31.5	317	C.B.	SP-2	4.2	D	928.28	927.58	923.58	19							V	318	923.39	
436+73	RT. 13	318	M.H.	54-4020	11.8	A	928.28	928.06	916.36							43	III	316	916.27	
436+73	LT. 31.5	319	C.B.	SP-2	4.2	D	928.28	927.58	923.58	45							V	318	923.13	
441+00	RT. 13	320	M.H.	54-4020	12.0	A	929.35	929.13	917.26							427	III	318	916.36	
441+12	RT. 64	321	C.B.	SP-2	4.5	B	929.29	928.7	924.39	53							V	320	923.87	
441+43	RT. 64	322	C.B.	SP-2	4.2	B	929.13	928.7	924.70	31							V	321	924.39	
441+21	LT. 44	323	S.D.	H	4.1	C	929.24	927.8	923.80	60							V	320	923.20	FIELD VERIFY LOCATION AND ELEVATION
441+66	RT. 13	324	M.H.	48-4020	11.2	A	929.04	928.82	917.72				66				IV	320	917.26	
441+75	RT. 31.5	325	C.B.	SP-2	4.2	D	929.03	928.33	924.33	20							V	324	924.12	
441+75	LT. 31.5	326	C.B.	SP-2	4.2	D	929.03	928.33	924.33	46							V	324	923.87	
443+73	RT. 31.5	327	C.B.	SP-2	4.2	B	929.96	929.26	925.26	19							V	328	925.07	
443+73	RT. 13	328	M.H.	48-4020	9.8	A	929.96	929.74	920.02			207					IV	324	917.72	
443+73	LT. 31.5	329	C.B.	SP-2	4.2	B	929.96	929.26	925.26	45							V	328	924.81	
446+18	RT. 13	330	M.H.	48-4020	8.3	A	931.18	930.96	922.75		245						V	328	920.02	
446+18	RT. 64	331	C.B.	SP-2	4.5	B	931.18	930.9	926.59	51							V	330	926.08	
446+48	RT. 64	332	C.B.	SP-2	4.2	B	931.33	930.9	926.90	31							V	331	926.59	
446+81	RT. 31.5	333	C.B.	SP-2	4.2	B	931.61	930.91	926.91	19							V	334	926.72	
446+81	RT. 13	334	M.H.	48-4020	5.4	A	931.61	931.39	926.12	63							V	330	922.75	
446+81	LT. 31.5	335	C.B.	SP-2	4.2	B	931.61	930.91	926.91	45							V	334	926.46	
448+26	RT. 31.5	336	C.B.	SP-2	4.2	B	933.06	932.36	928.36	19							V	337	928.17	
448+26	RT. 13	337	M.H.	48-4020	5.8	A	933.06	932.84	927.14	145							V	334	926.12	
* 450+34	RT. 52	338	C.B.	SP-2	4.2	B	934.24	933.82	929.51	19							V	339	929.32	
* 450+34	RT. 33.5	339	M.H.	48-4020	5.5	A	934.24	934.31	928.60	209							V	337	927.14	
* 450+36	LT. 12.5	340	C.B.	SP-2	4.2	B	934.26	933.84	929.54	46							V	339	929.08	
* 454+50	RT. 60.8	341	C.B.	SP-2	4.2	D	936.72	936.3	932.30	14							V	342	932.16	
* 454+50	RT. 47.2	342	M.H.	48-4020	5.3	A	936.72	936.68	931.51	415							V	339	928.60	
* 454+50	LT. 12.5	343	C.B.	SP-2	4.2	D	936.72	936.3	932.30	60							V	342	931.70	

* REFERENCED FROM ALIGNMENT C

CASTING ASSEMBLIES

A = MH = RING CASTING MN/DOT 700-7, STD. PLATE 4101, : COVER CASTING MN/DOT NO. 716 STD. PLATE 4110
B = SP2 = NEEHAH 3067V OR EQUIVALENT
C = SD = RING CASTING MN/DOT 700-7, STD PLATE 4101, : COVER CASTING MN/DOT NO. 720 STD. PLATE 4140
D = SP2 = NEEHAH 3067C OR EQUIVALENT

STRUCTURES

DESIGN SP-2 = DETAIL SHEET 14
DESIGN W-4020 = MN/DOT STANDARD PLATE 4020, DETAIL SHEET 14
DESIGN H = MN/DOT STANDARD PLATE 4006
DESIGN A OR F = MN/DOT STANDARD PLATE 4000 OR 4005

NOTE:

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

U

4" PERFORATED P.E. DRAIN PIPE

STATION RIGHT	L.F.	STATION LEFT	L.F.	
408+75 TO CB 259	145	408+75 TO CB 259	145	LOW POINT
CB 259 TO 411+15	100	CB 261 TO 411+15	100	
417+00 TO CB 272	120	417+00 TO CB 274	120	
418+75 TO CB 278	35	418+50 TO CB 280	60	LOW POINT
CB 278 TO 420+50	140	CB 280 TO 419+75	70	
----	--	CB 280A TO 420+50	70	
422+50 TO CB 283	70	422+50 TO CB 285	55	
423+25 TO CB 291	150	423+25 TO CB 293	150	LOW POINT
CB 291 TO 425+50	80	CB 293 TO 425+50	80	
428+00 TO CB 300	45	428+00 TO CB 302	45	
428+50 TO CB 303	50	428+50 TO CB 305	50	LOW POINT
CB 303 TO 429+65	65	CB 303 TO 429+65	65	
432+00 TO CB 311	100	432+00 TO CB 313	100	LOW POINT
CB 311 TO 433+95	100	CB 313 TO 433+95	100	
435+70 TO CB 317	100	435+70 TO CB 319	100	LOW POINT
CB 317 TO 437+75	100	CB 319 TO 437+75	100	
441+25 TO CB 325	50	441+25 TO CB 326	50	
CB 325 TO 442+25	50	CB 326 TO 442+25	50	
CB 327 TO 444+25	50	CB 329 TO 444+25	50	
CB 333 TO 447+30	50	CB 335 TO 447+30	50	
CB 338 TO 450+85	50	CB 340 TO 450+85	50	
454+00 TO CB 342	50	454+00 TO CB 343	50	LOW POINT
CB 342 TO 455+00	50	CB 343 TO 455+00	50	
SUBTOTALS	1750		1760	
TOTALS		3510 L.F.		

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.
David L. Bluhm
REG. NO. 14257 DATE 12-6-95

28-14A

PROPOSED STORM SEWER

S.A.P. NO. 62-696-02 C.T.B. SHEET 13 OF 96 SHEETS

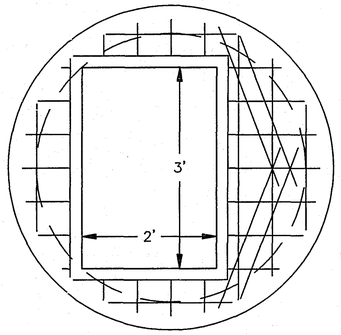
X:\DWGS\TH96-2\CHART 12/14/95

CATCH-BASIN DESIGN W-4020

ADD 2 BARS ON EACH SIDE 6' O.C. 5'6" LONG CUT TO SUIT ROUNDING

ADD 3 BARS ON EACH END 6" O.C. 4' LONG ADD 2 BARS ON EACH CORNER 3' O.C. 4' LONG CUT TO SUIT ROUNDING

CATCH BASIN SHALL BE PER MN/DOT STANDARD PLATE 4020



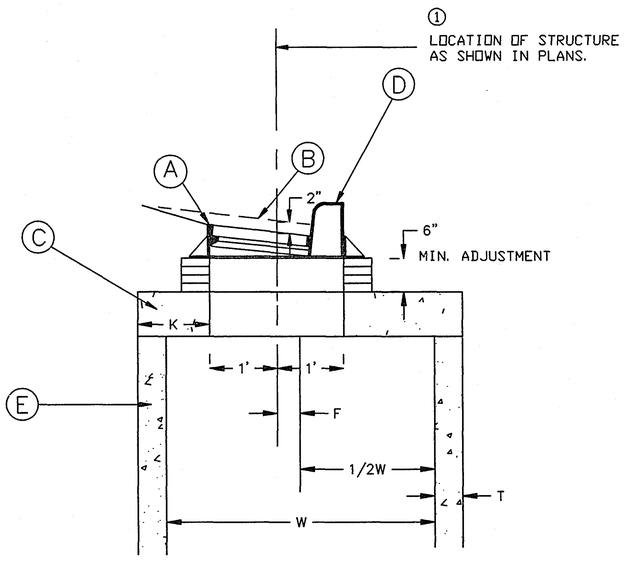
ALL BARS GRADE 60 NO. 4 6"O.C. EACH WAY

CONCRETE 5000 P.S.I.

CATCH BASIN COVER SLAB

STRUCTURE DIMENSION CHART

W	48"	54"	60"	72"
K	14"	14"	14"	13"
F	3"	7"	11"	18"



SECTIONAL VIEW CATCH BASIN

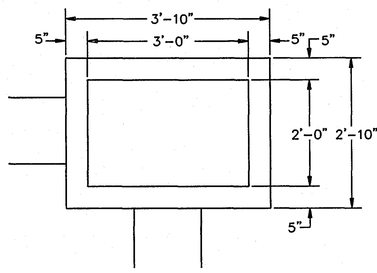
NOTES

- (A) ELEVATION OF STRUCTURE
- (B) NORMAL GUTTER GRADE
- (C) SEE COVER SLAB DETAIL ABOVE
- (D) CASTING ASSEMBLY - SEE DETAIL FOR DESIGN SP-2
- (E) CATCH BASIN - DESIGN 4020 SEE STD. PLATE NO. 4020

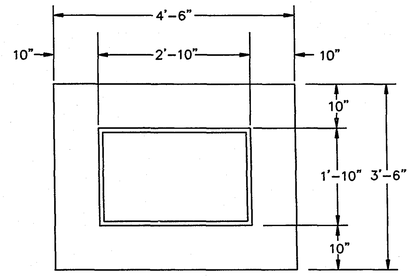
① CENTER OF STRUCTURE FOR STAKING PURPOSES SHALL BE LOCATION OF STRUCTURE AS SHOWN IN PLANS, PLUS DISTANCE F.

G:\DWGS\TH96-2\DETAILS 12/14/95

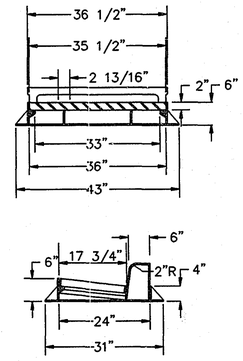
CATCH-BASIN DESIGN SP-2

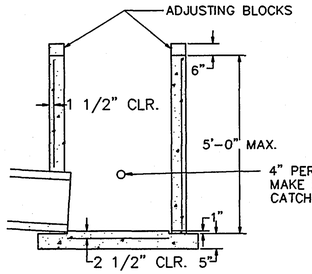


CATCH BASIN PLAN

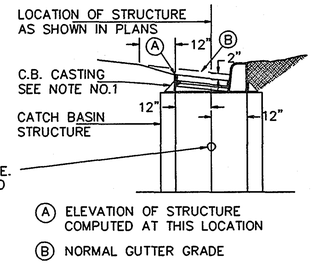


BASE SLAB PLAN





SECTIONAL VIEW CATCH BASIN & BASE SLAB



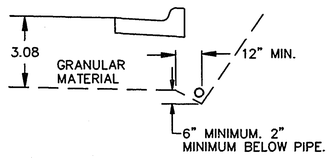
INSTALLATION DETAIL

NOTES

1. TO BE USED WITH NEENAH R-3067-V OR EQUIVALENT.
2. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.
3. ALTERNATE CAST-IN-PLACE BASE SLAB CAN BE USED.
4. INSTALL AS PER MN/DOT STANDARD PLATE NO. 7111
5. REINFORCING: SINGLE LINE STEEL WIRE FABRIC. W3.0 X W3.0 HAVING AN AREA OF NOT LESS THAN 0.21 SQ. IN. PER FOOT.
6. ALTERNATE CONSTRUCTION - THE CATCH BASIN MAY BE CONSTRUCTED OF BLOCKS OR BRICKS CONFORMING TO THE REQUIREMENTS OF MN/DOT SPEC. 2506 AND AS DIRECTED BY THE ENGINEER.
7. ADJUSTING RINGS SHALL BE LIMITED TO PROVIDE A MAXIMUM THICKNESS OF 6" INCLUDING MORTAR THICKNESS.

4" LONGITUDINAL P.E. PIPE DETAIL (SUBCUT DRAINAGE)

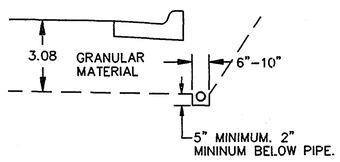
4" PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



OPTION NO. 1

2" MIN. GRANULAR AT ALL POINTS BELOW PIPE

4" PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



OPTION NO. 2

NOTE: PAYMENT SHALL INCLUDE ALL WORK AND MATERIALS REQUIRED TO CONNECT TO CATCH BASINS.

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.

David L. Rhull

REG. NO. 14257 DATE 12-6-95

28-144

STORM SEWER DETAILS

S.A.P. No. 62-696-02 C.T.B. Sheet No. 14 of 96 Sheets

RESIDENTIAL CONCRETE ENTRANCE DETAIL

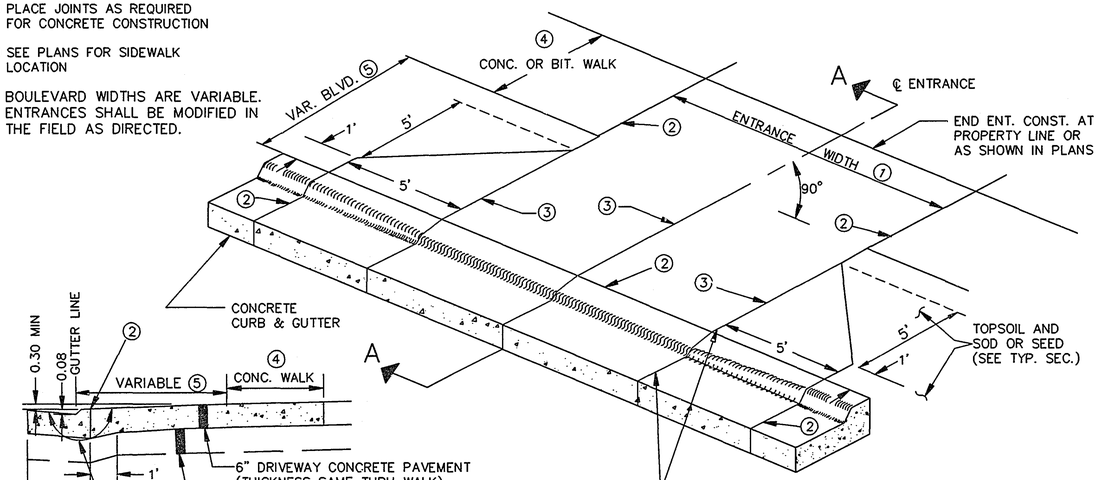
① ENTRANCE WIDTHS
RESIDENTIAL – 12' MIN.
– 26' MAX.

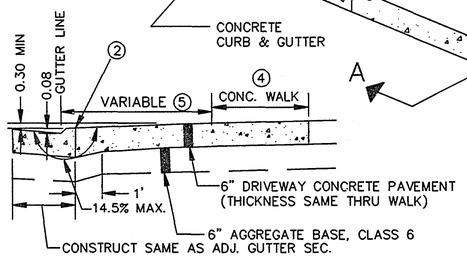
② 1/2" EXPANSION JOINT

③ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION

④ SEE PLANS FOR SIDEWALK LOCATION

⑤ BOULEVARD WIDTHS ARE VARIABLE. ENTRANCES SHALL BE MODIFIED IN THE FIELD AS DIRECTED.





SECTION A–A

BITUMINOUS ENTRANCE DETAIL – RIGHT SIDE*

① ENTRANCE WIDTHS
RESIDENTIAL – 12' MIN.
– 26' MAX.
COMMERCIAL – 32' MAX. AT 90°

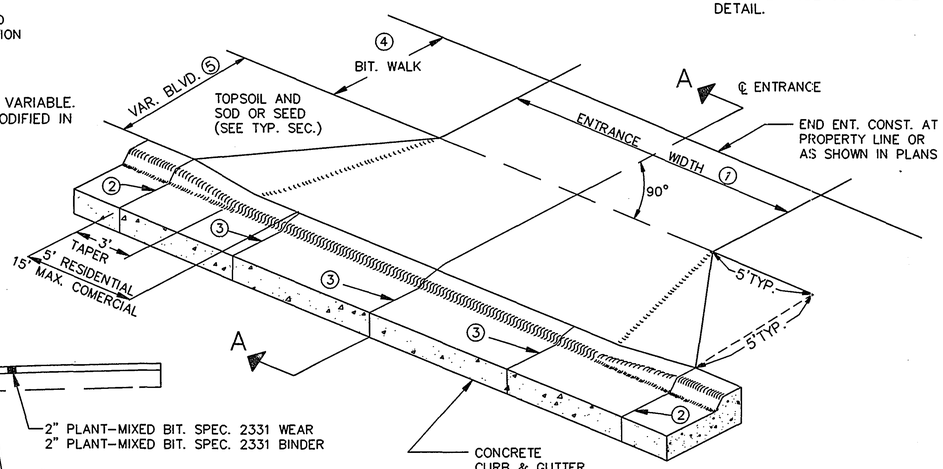
② 1/2" EXPANSION JOINT

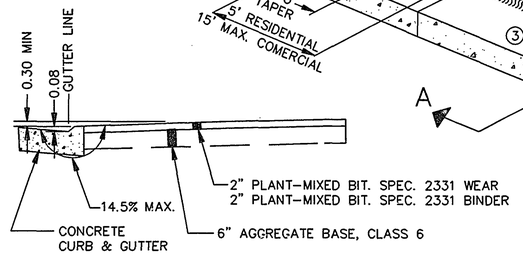
③ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION

④ SEE PLANS FOR BIT. WALK LOCATION

⑤ BOULEVARD WIDTHS ARE VARIABLE. ENTRANCES SHALL BE MODIFIED IN THE FIELD AS DIRECTED.

* BITUMINOUS ENTRANCES ON LEFT SIDE SHALL BE CONSTRUCTED AS CONCRETE FROM THE GUTTER TO THE BACK OF SIDEWALK. SEE CONCRETE ENTRANCE DETAIL.

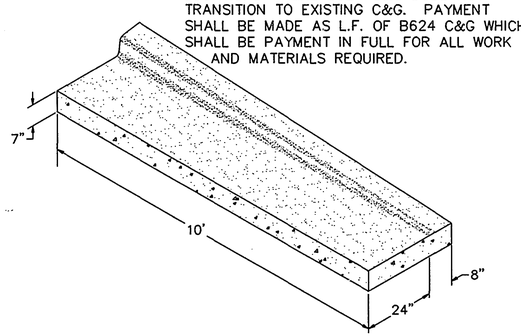




SECTION A–A

TRANSITION B624 VERTICAL TAPER

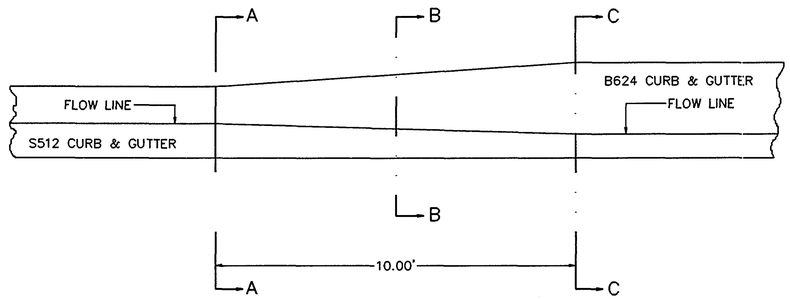
NOTE: VERTICAL TAPERS SHALL BE USED AT LOCATIONS WHERE B624 C&G DOES NOT TRANSITION TO EXISTING C&G. PAYMENT SHALL BE MADE AS L.F. OF B624 C&G WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED.

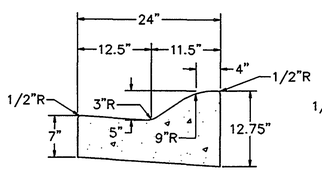


FOR OTHER DIMENSIONS SEE STD. PLATE NO. 7100

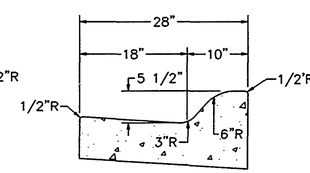
CURB TRANSITION – B624 C & G TO S512 C & G

NOTE: TRANSITIONS TO OTHER TYPE OF C&G SHALL BE DIRECTED IN THE FIELD.
PAYMENT SHALL BE MADE L.F. OF B624 C&G WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK REQUIRED.

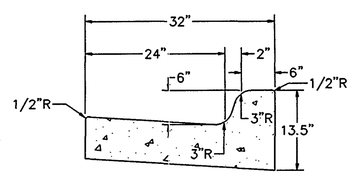




SECTION A–A



SECTION B–B



SECTION C–C

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.
David T. Rhell
REG. NO. 14251 DATE 12-6-95

28-144

DETAILS

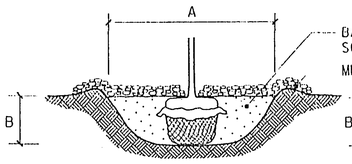
S.A.P. No. 62–696–02 C.T.B. Sheet No. 15 of 96 Sheets

G:\DWGS\TH96-2\DETAILS 12/14/95

PLANTING HOLE DIMENSIONS

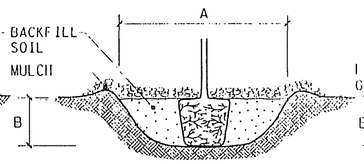
(MINIMUM WIDTH DOES NOT APPLY IN MASS PLANTING BEDS)

PLANT TYPE	PLANT SIZE (UP TO AND INCLUDING)	MINIMUM HOLE WIDTH (INCHES) A	APPROXIMATE HOLE DEPTH (INCHES) B
EVERGREEN TREES	3' B.B.	42	11
	4' B.B.	51	13
	5' B.B.	60	13
	6' B.B.	66	15
	7' B.B.	72	16
	8' B.B.	81	18
	9' B.B.	90	20
	10' B.B.	102	21
SHADE & FLOWERING TREES	1" B.R.	54	14
	1¼" B.R.	60	14
	1½" B.R.	66	15
	1¾" B.R.	72	16
	2" B.R.	84	19
	2" B.B.	72	16
	2½" B.B.	84	19
	3" B.B.	96	20
	3½" B.B.	114	23
	4" B.B.	126	25
EVERGREEN SHRUBS (UPRIGHT)	2' B.B.	36	9
	3' B.B.	48	12
	4' B.B.	63	14
EVERGREEN SHRUBS (SPREADING)	18" spread B.B.	30	8
	2' spread B.B.	36	9
	2½' spread B.B.	42	11
	3' spread B.B.	48	12
DECIDUOUS SHRUBS	18" B.R.	30	8
	2' B.R.	33	9
	3' B.R.	42	11
	4' B.R.	48	12
	5' B.R.	54	14
	6' B.R.	60	14
	18" B.B.	27	7
	2' B.B.	30	8
	3' B.B.	36	9
	4' B.B.	42	11
	5' B.B.	48	12
	6' B.B.	54	14
CONTAINER GROWN PLANTS	Cellpacks	6	2.5
	2.25" cont.	7	3
	3.5" cont.	10	3
	4.0" cont.	11	4
	4.5" cont.	13	4
	1 Quart cont.	15	5.5
	#1 cont.	18	6
	#2 cont.	23	7.5
	#3 cont.	29	8.5
	#5 cont.	30	11
	#7 cont.	37	11
	#10 cont.	44	14
	#15 cont.	45	15
	#20 cont.	60	17
	#25 cont.	72	16



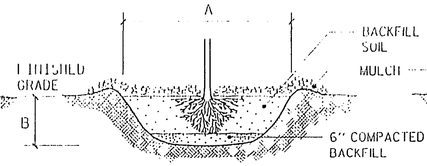
BALLED & BURLAPPED STOCK

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
3. SET PLANT ON UNDISTURBED NATIVE SOIL, OR THOROUGHLY COMPACTED BACKFILL SOIL AT THE SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY.
4. PLANT SHALL BE PLACED IN PLANTING HOLE WITH BURLAP AND WIRE BASKET, IF USED, INTACT. ONCE IN PLACE, THE PLANT SHALL BE BACKFILLED TO WITHIN 12" OF THE TOP OF THE ROOTBALL AND WATERED. THETOP LOOPS OF THE WIRE BASKETS SHALL BE REMOVED AND THE BURLAP SHALL BE FOLDED OR CUT BACK.
5. PLUMB AND BACKFILL WITH THE BACKFILL SOIL SPECIFIED.
6. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
7. WATER THOROUGHLY WITHIN 2 HOURS.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.
9. BIODEGRADABLE TWINE MAY BE LEFT ON AS SUPPORT BETWEEN THE ROOT BALL AND ROOT COLLAR UNTIL THE ENDOF THE PLANT ESTABLISHMENT PERIOD AT WHICH TIME IT MUST BE CUT AND TOTALLY REMOVED FROM THE ROOT COLLAR. THE TWINE MUST BE TIED OR RETIED TO MID-LEVEL LOOPS OR POINTS ON THE BASKET. USE OF NONBIODEGRADABLE TWINE SHALL NOT BE PERMITTED.



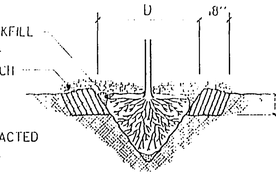
CONTAINER STOCK

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
3. REMOVE CONTAINER AND SCORE OR PRUNE OUTSIDE OF SOIL MASS TO REDIRECT CIRCLING FIBROUS ROOTS AS NECESSARY.
4. SET PLANT ON UNDISTURBED NATIVE SOIL, OR THOROUGHLY COMPACTED BACKFILL SOIL AT THE SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY.
5. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.



BARE ROOT STOCK

1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOM OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY ENGINEER.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT AT SAME DEPTH (IF PROPER) AS IT WAS GROWN IN THE NURSERY. PLUMB AND IMMEDIATELY BACKFILL WITH THE BACKFILL SOIL SPECIFIED.
5. APPLY WATER TO SETTLE PLANTS AND FILL VOIDS THEN CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.



MACHINE-TRANSPLANT STOCK (TREE SPADE)

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. SET PLANT ON UNDISTURBED NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
3. PLUMB AND BACKFILL WITH THE BACKFILL SOIL SPECIFIED, FILLING ALL VOIDS AND ACCOMPLISHING SETTLEMENT BY WATERING.
4. AFTER PLANTING, THE SOIL IMMEDIATELY ADJACENT TO THE SPADE MOVED SOIL, FOR A MINIMUM DISTANCE OF 18" SHALL BE TURNED OVER AND/OR ROTOTILLED TO A MINIMUM DEPTH OF 12".
5. CONSTRUCT 3" DEPTH WATERING BASIN.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING. UNLESS SOIL MOISTURE IS EXCESSIVE.

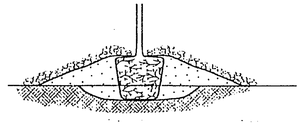
NOTES:

1. THE PLANTING DETAILS REPRESENT ADEQUATELY DRAINED SOIL CONDITIONS. THE CONTRACTOR SHOULD EXERCISE DISCRETION IN SETTING PLANTS 1"-3" HIGHER IN POORLY DRAINED SOILS.
2. ON 2:1 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.
3. ON WET, POORLY DRAINED SOILS, DO NOT CONSTRUCT WATERING BASIN.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE DRAINAGE IN HEAVY POORLY DRAINED OR IMPERVIOUS SOILS.
5. PLANTS SHOULD BE SET AT THE PROPER DEPTH WHEREBY THE BEGINNING TAPER OF THE ROOT FLARE IS AT THE SAME ELEVATION AS THE FINISHED SOIL GRADE. THIS SHOULD BE THE SAME DEPTH AS THE PLANTS WERE GROWN AT IN THE NURSERY. NOTE THAT THE ROOTS OF BALLED AND BURLAPPED PLANTS ARE UNACCEPTABLE WHEN THEY ARE COVERED BY MORE THAN 4" OF SOIL IN THE TOP OF THE BALL.
6. DELAY MULCH PLACEMENT IF NECESSARY TO ALLOW MORE TIME FOR EXCESS SOIL MOISTURE TO EVAPORATE FROM PLANTING AREAS BEFORE PLACING MULCH.

MINIMUM TREE SPADE SIZE REQUIREMENTS

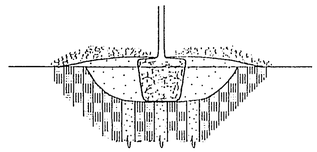
SPADE SIZE (DIAMETER) 'D'	OAK TREES (CALIPER)	DECIDUOUS TREES (CALIPER)	EVERGREEN TREES (HEIGHT)
42"	1.0" to 1.5"	2" to 3"	5' to 7'
60"	1.5" to 2.5"	3" to 4"	7' to 9'
78"	2.5" to 3.5"	4" to 6"	9' to 14'
85"	3.5" to 5.0"	6" to 8"	14' to 18'

PLANTING DETAILS FOR ISOLATED PLANTING LOCATIONS



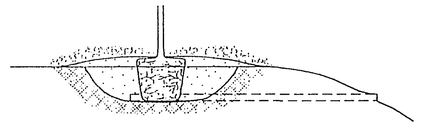
INSTALL MINI-BERM

1. EXCAVATE HOLE OR BED ¼ THE DEPTH OF THE ROOT MASS.
2. SET ROOT MASS IN HOLE.
3. CONSTRUCT BERM WITH SANDY LOAM TOPSOIL EXTENDING THE BERM BASE TO A WIDTH 3 TIMES THE HEIGHT OF THE BERM.
4. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.



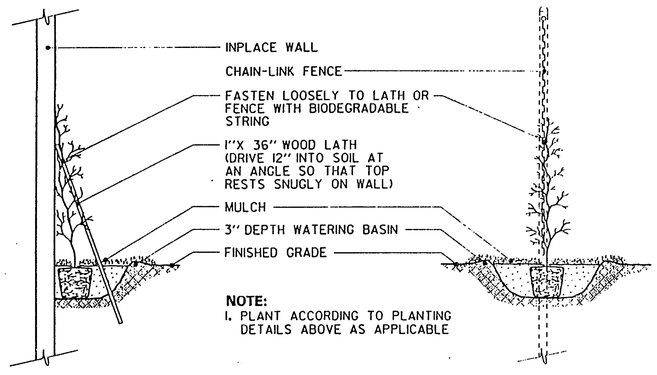
INSTALL GRANULAR FILTER

1. EXCAVATE HOLE OR BED TO ALLOW PLACING TOP OF ROOT MASS 1"-3" HIGHER THAN FINISHED GRADE.
2. AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAINED SUBSOIL.
3. BACKFILL AUGER HOLES WITH A THOROUGHLY INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
4. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.



INSTALL TILE DRAINAGE

1. EXCAVATE HOLE OR BED TO ALLOW PLACMENT OF THE TOP OF THE ROOT MASS 1"-3" HIGHER THAN FINISHED GRADE.
2. INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE AS APPROVED BY THE ENGINEER.
3. COMPLETE PLANTING ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE.

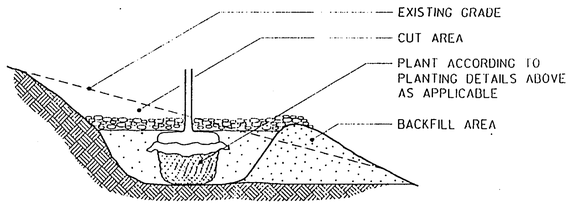


NOTE:
1. PLANT ACCORDING TO PLANTING DETAILS ABOVE AS APPLICABLE

VINE PLANTING DETAIL

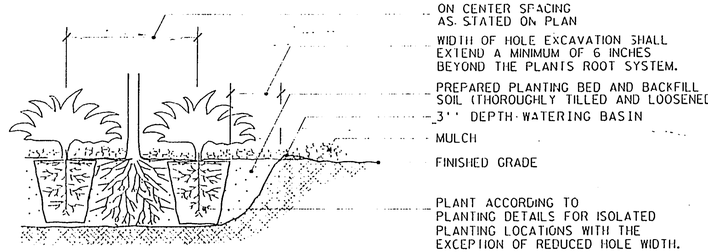
ALTERNATIVE PLANTING DETAILS IN POORLY DRAINED SOIL

(NEED AND ALTERNATIVE SELECTION SHALL BE DETERMINED BY CONTRACTOR SUBJECT TO APPROVAL BY THE ENGINEER.)



NOTE:
1. EXTENDED EXCAVATION AND BACKFILL SOIL TO A POINT DOWNSLOPE EQUAL TO OR LOWER IN ELEVATION THAN THE BOTTOM OF THE HOLE DIRECTLY BENEATH THE PLANT TO INSURE ADEQUATE DRAINAGE IN HEAVY SOILS. GRANULAR SOIL MUST BE ADDED AS BACKFILL IN AREAS OF POOR DRAINAGE.

PLANTING DETAIL FOR STEEP SLOPES



PLANTING DETAIL FOR MASS PLANTING BEDS

GENERAL NOTES

- SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS

PLANTING HOLE AND BED CULTIVATION: ALL ISOLATED TREE PLANTING LOCATIONS AND PLANTING BEDS SHALL BE CULTIVATED BY TILLING TO A MINIMUM DEPTH OF 10". SOIL AMENDMENTS SHALL BE APPLIED DURING CULTIVATION.

BACKFILL SOIL: USE CULTIVATED AND AMENDED SOIL EXCAVATED FROM PLANTING HOLES. REMOVE ALL DEBRIS INCLUDING ROCKS LARGER THAN 3" DIA.

FERTILIZER: ___ NONE
_X_ MN/DOT 3881

COMPOST: ___ NONE
_X_ MN/DOT 3890

MULCH MATERIAL: MN/DOT 3882 TYPE 6. UNLESS OTHERWISE SPECIFIED.

TREE STAKING: TREE STAKING (ALL SIZES) WILL NOT BE REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM OR AS REQUESTED BY THE ENGINEER.

TREE PAINTING: PAINT OAKS, LINDENS, LOCUSTS, MAPLES, CRABAPPLES, AND MOUNTAIN ASHES. ONLY UNDILUTED EXTERIOR WHITE LATEX BASE PAINT IS ACCEPTABLE.

RODENT PROTECTION PROVIDE ON ALL DECIDUOUS TREES AND PINE TREES UNLESS OTHERWISE SPECIFIED.

MASS PLANTINGS: PLANT SPACING OF 8' OR LESS SHALL BE MASS CULTIVATED BY TILLING. PLANT IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING QUANTITY USING TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5' RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8' RADIUS AROUND EACH EVERGREEN TREE. THIS RADIUS (CLEARANCE) SHALL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. PLANT SPACINGS OF 8' OR LESS SHALL BE MASS MULCHED.

PLANTING PLAN: RESPECT STATED DIMENSIONS BEFORE SCALING FROM PLAN.

WATERING GUIDELINES:

PLANT TYPE	AVERAGE AMOUNT OF WATER PER APPLICATION (GALLONS)
MACHINE TRANSPLANTED TREES (3" CALIPER+)	50-100
BALLED & BURLAPPED TREES	20±
BARE ROOT TREES	15±
BALLED & BURLAPPED SHRUBS	10±
BARE ROOT OR CONTAINER SHRUBS	7±
WOODY SEEDLINGS	4±
HERBACEOUS GROUNDCOVERS AND VINES	3±

1) THE WATERING GUIDELINES ASSUME A SOIL CONDITION WITH ADEQUATE BUT NOT EXCESSIVE OR POOR DRAINAGE. WATERING INTERVALS AND AMOUNT OF APPLICATION MUST BE VARIED CONSIDERING PREVAILING SOIL MOISTURE AND WEATHER CONDITIONS THROUGHOUT THE GROWING SEASON. ADEQUATE BUT NOT EXCESSIVE SOIL MOISTURE IN THE ROOT ZONE OF NEW PLANTINGS MUST BE MAINTAINED AT ALL TIMES THROUGHOUT THE GROWING SEASON FOR THE FIRST TWO YEARS FOLLOWING PLANTING. WATERING MAY BE REQUIRED WEEKLY OR INFREQUENTLY. THIS DETERMINATION SHALL BE MADE BY THE CONTRACTOR.

2) THE CONTRACTOR IS ADVISED THAT THE WATERING GUIDELINES ARE NOT REQUIREMENTS OF THE CONTRACT ALTHOUGH FAILURE TO CORRECT WATER DEFICITS BY SUPPLEMENTAL WATERING OR FAILURE TO COMPENSATE FOR EXCESSIVE SOIL MOISTURE AND DRAINAGE PROBLEMS MAY RESULT IN UNACCEPTABLE PLANTS LEADING TO REDUCED OR NO PAYMENT.

28-14A

STANDARD PLANTING DETAILS (A) — DATED MARCH 1, 1993

S.A.P. NO. 62-696-02 C.T.B. — SHEET NO 16 OF 96 SHEETS

ZONE 1 — BELOW -50 F
ZONE 2 — -50 to -40
ZONE 3 — -40 to -30
ZONE 4 — -30 to -20

STATE INSPECTED PLANTS GROWN WITHIN ZONES 1-4 AND THE ACCEPTABLE GROWING RANGE FOR A MINIMUM OF 2 YEARS MAY BE USED ON ALL PROJECTS UNLESS OTHERWISE SPECIFIED.

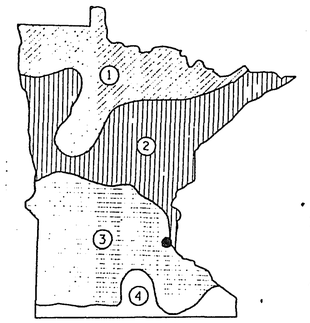
ZONE 5 — -20 to -10

STATE INSPECTED PLANTS GROWN WITHIN ZONE 5 AND THE ACCEPTABLE GROWING RANGE FOR A MINIMUM OF 2 YEARS ARE ALLOWED ONLY ON PROJECTS WITHIN ZONE 4 IN MINNESOTA. UNLESS CERTIFIED AS MINNESOTA ZONE HARDY IN ZONES 3 AND 2.

PLANT STOCK NOT GROWN WITHIN THE THE ACCEPETABLE ZONES AND GROWING RANGE FOR A MINIMUM OF 2 YEARS MAY BE ACCEPTED IF THE SEED SOURCE OR ROOT AND GRAFT STOCK IS CERTIFIED AND DOCUMENTED AS MIDWEST AND NORTHERN GROWN AND MINNESOTA ZONE HARDY.

ACCEPTABLE GROWING RANGE FOR MIDWEST AND NORTHERN GROWN PLANT STOCK

SOURCE: U.S.D.A. PLANT HARDINESS ZONE MAP

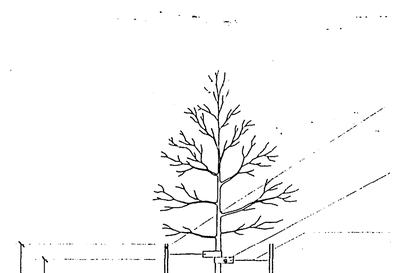


		SPRING			FALL	
		SEEDLING	DECIDUOUS	EVERGREEN	DECIDUOUS	EVERGREEN
1		APRIL 15 TO MAY 15	APRIL 21 TO JUNE 1	APRIL 21 TO JUNE 1	OCT. 1 TO NOV. 1	AUG. 25 TO SEPT. 15
2		APRIL 7 TO MAY 15	APRIL 14 TO JUNE 1	APRIL 14 TO MAY 24	OCT. 1 TO NOV. 6	AUG. 25 TO SEPT. 15
3		APRIL 1 TO MAY 15	APRIL 7 TO JUNE 1	APRIL 7 TO MAY 17	OCT. 10 TO NOV. 15	AUG. 25 TO SEPT. 15
4		APRIL 1 TO MAY 15	APRIL 1 TO MAY 25	APRIL 1 TO MAY 15	OCT. 15 TO NOV. 20	SEPT. 5 TO OCT. 1

● - INDICATES PROJECT LOCATION

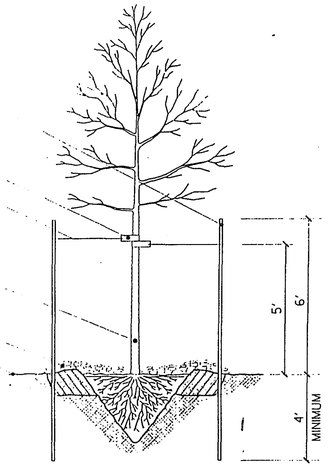
NOTES:
1. SEEDLING INCLUDES DECIDUOUS AND EVERGREEN STOCK.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING MAY NOT BE RECOMMENDED OR ALLOWED. SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS. THE FOLLOWING PLANTS ARE NOT RECOMMENDED FOR FALL INSTALLATION. HAWTHORNE, RUSSIAN OLIVE, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, SUMAC.

OPTIMUM PLANTING DATE ZONES IN MINNESOTA



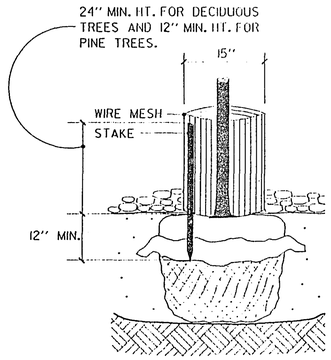
NOTES:
1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.

STANDARD TREE STAKING /GUYING AND PAINTING DETAIL



APPLICABLE TO DECIDUOUS TREES OVER 4" CALIPER AND EVERGREEN TREES OVER 10' IN HEIGHT ONLY WHEN NECESSARY OR SPECIFIED.

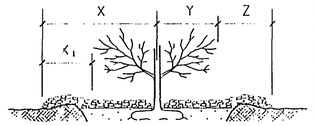
LARGE MACHINE - TRANSPLANT TREE STAKING /GUYING AND PAINTING DETAIL



USE ¼" GRID GALVANIZED AND WELDED WIRE MESH (HARDWARE CLOTH) TO FORM A DOUBLE LAYERED CYLINDER WITH A 2" OVERLAP OF THE CUT ENDS. IMBED A 1" X 1" WHITE OAK STAKE INTO THE GROUND AT A RADIUS POINT OF 7" FROM THE CENTER OF THE TREE STEM. SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKE USING GALVANIZED ⅛" DIAM. X ¾" LONG ROUND HEAD SCREWS WITH WASHERS SPACED APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP. THE LOWER EDGE OF THE MESH CYLINDER SHALL BE IMBEDDED 1" BELOW THE SURFACE OF THE SOIL. WITHOUT DISTURBING THE TREE ROOTS. CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. THE STAKE SHALL BE CUT OFF FLUSH WITH THE TOP OF THE CYLINDER. MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH.

NOTE:
THE BOTTOM WHORL OF BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HT. RODENT GUARDS ON PINE TREES.

RODENT PROTECTION DETAIL

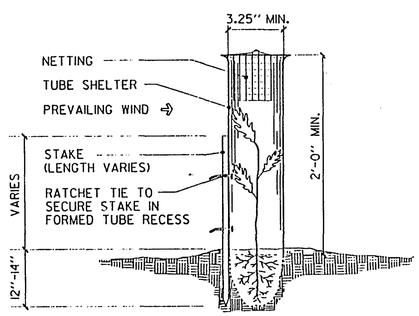


SUBSIDENCE OR DETERIORATION OF MULCH THROUGHOLT THE CONTRACT IS ACCEPTABLE TO THE EXTENT THAT THE MULCH DEPTH IS MAINTAINED AT A MINIMUM DEPTH OF 3 INCHES AT ALL TIMES AND UPON FINAL ACCEPTANCE. REPLACEMENT MULCH SHALL BE REQUIRED TO PROVIDE THE MINIMUM MULCH DEPTH SPECIFIED WHEN SUBSIDENCE OR LOSS IS EXCESSIVE OR WHEN THE CONTRACTOR'S OPERATIONS HAVE CONTAMINATED THE MULCH WITH SOIL.

TYPE OF PLANT	X CENTER OF PLANT TO MULCH LINE	X_1 EDGE OF BRANCHING TO MULCH LINE	Y DEPTH OF MULCH MIN.	Y MAX.	Z DEPTH OF MULCH MIN.	Z MAX.
EVERGREEN TREES	VARIES	3' MIN.	4"	6"	4"	6"
DECIDUOUS TREES	3' MIN.	N/A	4"	6"	4"	6"
EVERGREEN SHRUBS	VARIES	3' MIN.	3"	4"	4"	6"
DECIDUOUS SHRUBS	3' MIN.	N/A	4"	6"	4"	6"
VINES	2' MIN.	N/A	4"	6"	4"	6"
GROUNDCOVERS	VARIES	2' MIN.	3"	4"	3"	4"
MACHINE-TRANSPLANTED TREES	12" BEYOND EDGE OF HOLE		4"	6"	4"	6"

NOTE:
REMOVE MULCH PLACED TO A DEPTH GREATER THAN THAT SPECIFIED WHEN DIRECTED BY THE ENGINEER.

MULCH PLACEMENT DETAIL



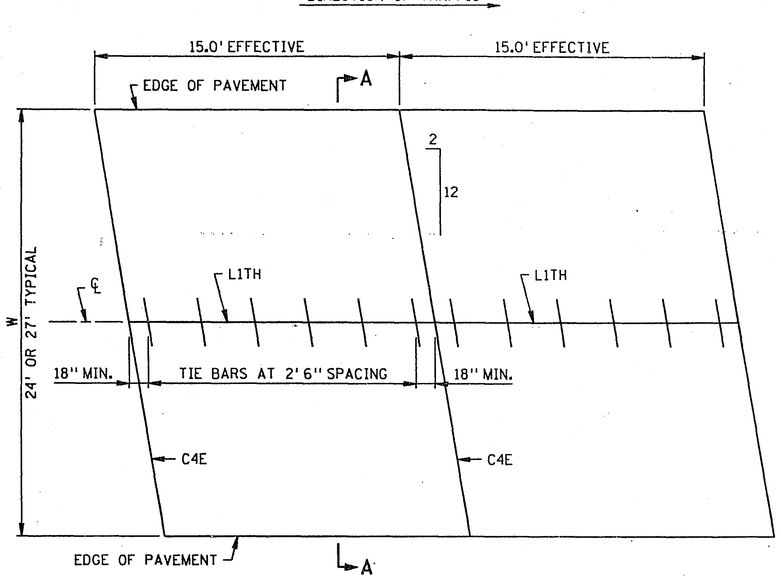
USE SEAMLESS, EXTRUDED, TWIN-WALL, RIGID AND SEMI TRANSLUCENT POLYPROPYLENE TUBES WITH A TOP RIM FLARED OUTWARD TO PREVENT ABRASION TO STEMS AND BRANCHES. THE SHELTERS WILL BE SECURED WITH NYLON RACHET-LOCKING TIES ATTACHED TO A 1" x 1" WHITE OAK STAKE IN A SECURE MANNER TO PREVENT DISLODGING OR TWISTING. THE THE BOTTOM OF THE TUBE WILL BE IMBEDDED A MINIMUM OF 1" BELOW THE SURFACE OF THE SOIL WITHOUT DISTURBING THE TREE ROOTS. A PLASTIC PHOTO DEGRADABLE NETTING COVER AND SLEEVE SHALL BE INSTALLED OVER THE TOP OF THE TUBE TO PREVENT ENTRAPMENT OF BIRDS.

SEEDLING TREE SHELTER DETAIL

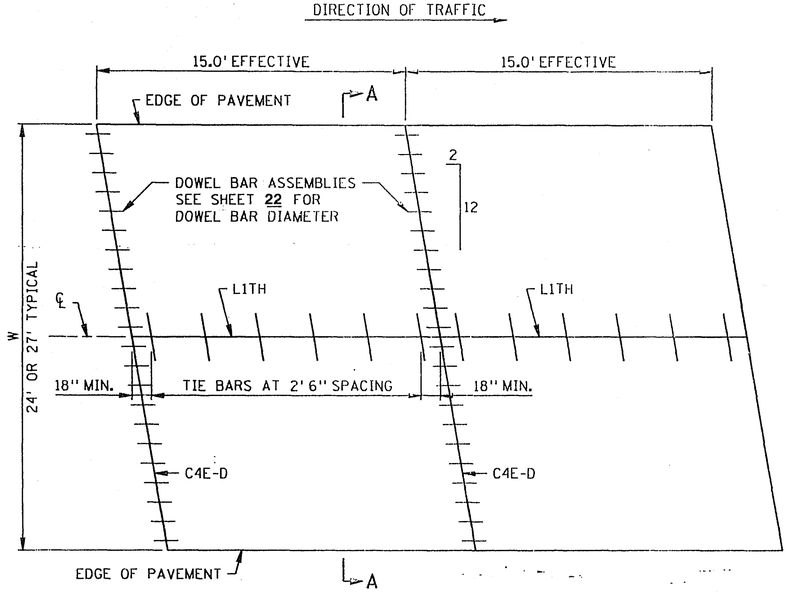
28-144

STANDARD PLANTING DETAILS (B) — DATED MARCH 1, 1993

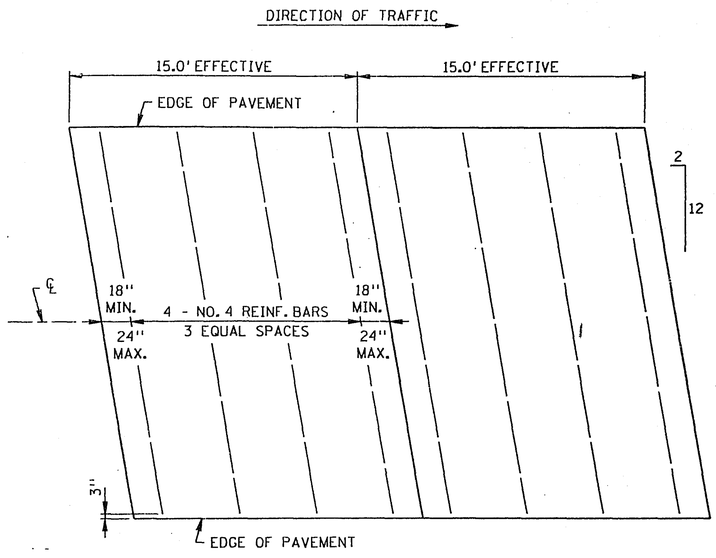
S. A. P. NO. 62 - 696 -02 C.T.B. — SHEET NO 17 OF 96 SHEETS



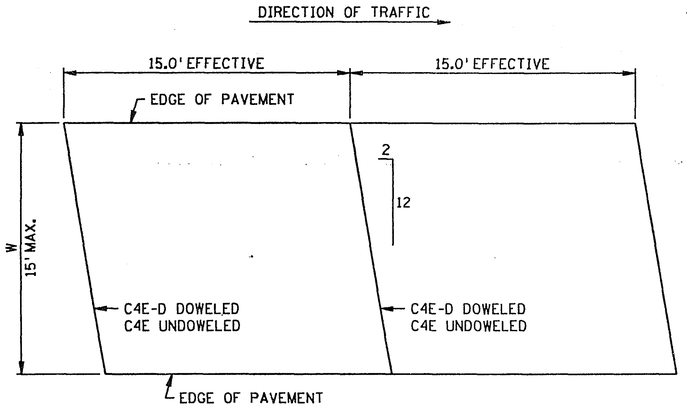
MAINLINE PAVEMENT
UNDOWELED



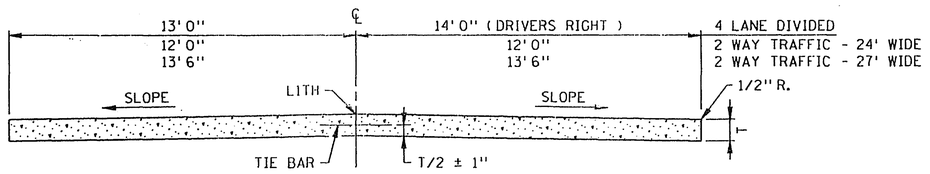
MAINLINE PAVEMENT
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A-A

GENERAL NOTES:

WHEN THE PAVEMENT WIDTH EXCEEDS 27 FT., THE LONGITUDINAL JOINT SHALL BE L1TH OR L2KTH AS DESIGNATED.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 18 IN. FROM AND PARALLEL TOTHE CONTRACTION JOINT.

15.0 FT. EFFECTIVE JOINT SPACING IS ACTUAL 13 FT., 16 FT., 14 FT., 17 FT. AND REPEAT JOINT SPACING.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

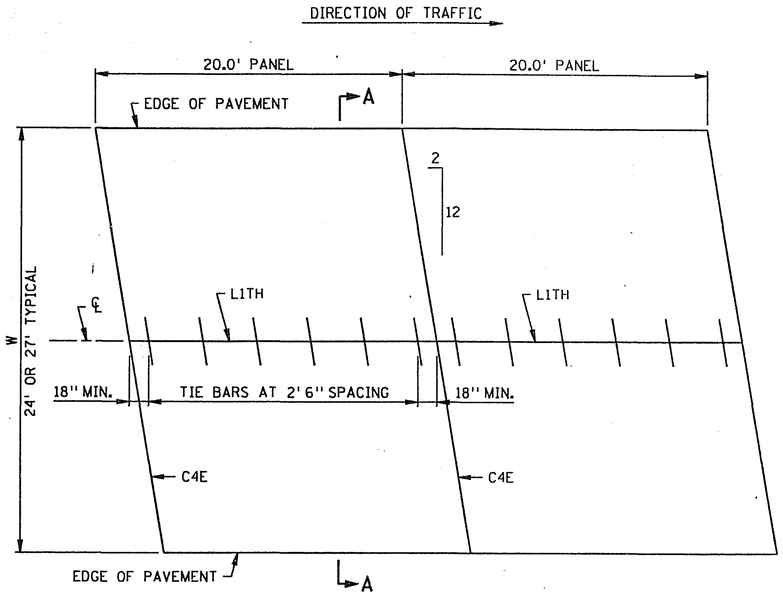
TIE BARS:
USE NO. 4 BARS 2'6" LONG, AT 2'6" SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE NO. 4 BARS IN PANELS WHERE PAVEMENT WIDTHS EXCEED 16 FT. WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 30 FT. PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1 IN.

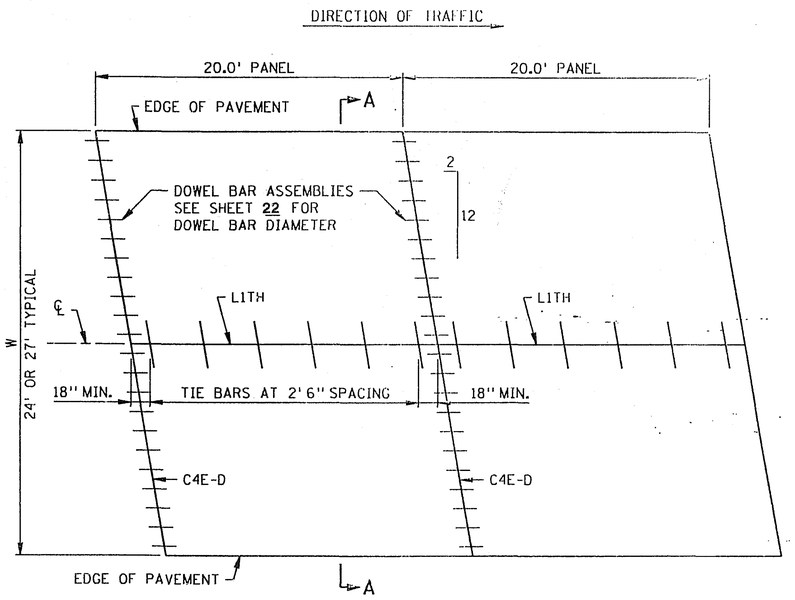
28-144

STANDARD SHEET NO. 5-297.217 (1 OF 2)	TITLE: NON-REINFORCED CONCRETE MAINLINE PAVEMENT WITH SKEWED JOINTS
STANDARD APPROVED: JANUARY 25, 1993	15.0 FT. EFFECTIVE PANELS (T = 10 IN. OR LESS)
S. A. P. NO. 62-696-02 C.T.B.	SHEET NO. 18 OF 96 SHEETS

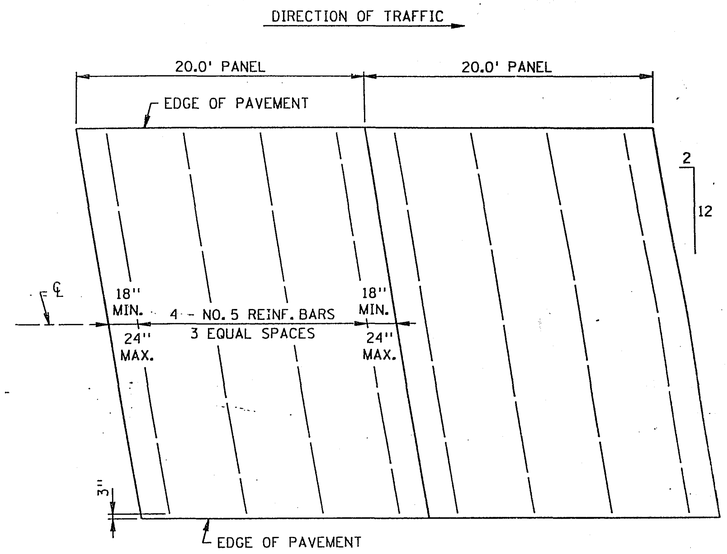
SERVER CA6451:/USR/STANDARDS FILE NAME S2171A93.SPN



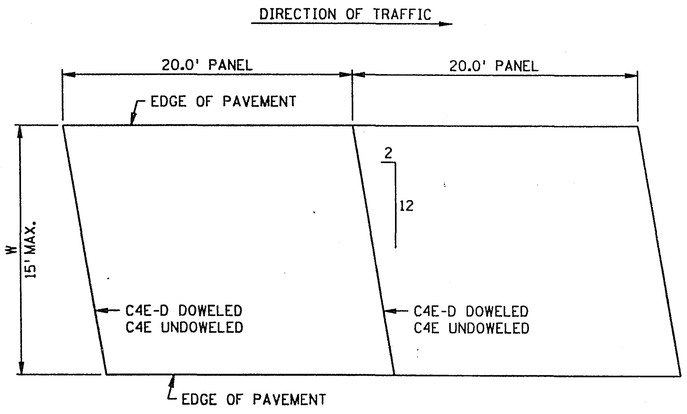
MAINLINE PAVEMENT
UNDOWELED



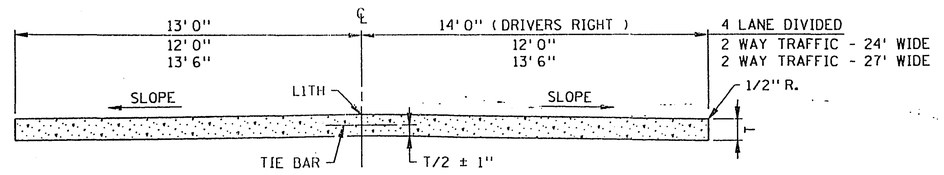
MAINLINE PAVEMENT
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A-A

GENERAL NOTES:

WHEN THE PAVEMENT WIDTH EXCEEDS 27 FT., THE LONGITUDINAL JOINT SHALL BE L1TH OR L2KTH AS DESIGNATED.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 18 IN. FROM AND PARALLEL TO THE CONTRACTION JOINT.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

TIE BARS:
USE NO. 5 BARS 3' 0" LONG, AT 2' 6" SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE NO. 5 BARS IN PANELS WHERE PAVEMENT WIDTHS EXCEED 16 FT. WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 30 FT. PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1 IN.

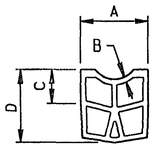
28-144

STANDARD SHEET NO. 5-297.217 (2 OF 2)	TITLE: NON-REINFORCED CONCRETE MAINLINE PAVEMENT WITH SKEWED JOINTS
STANDARD APPROVED: JANUARY 25, 1993	20.0 FT. PANELS (T = GREATER THAN 10 IN.)
S. A. P. NO. 62-696-02 C.T.B.	SHEET NO. 19 OF 96 SHEETS

SERVER CA64S1:/USR/STANDARDS FILE NAME S2172A93.SPN

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	13/16" USE IN ALL 3/8" JOINTS
A	0.80" +0.14" -0.05"
B	0.08" ± 0.02"
C	0.60" MIN.
D	0.80" MIN.
WEB AND WALL THICKNESS, UNLESS NOTED	0.03" MIN.



SPEC. REFERENCE 3721

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

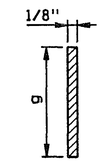
NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.

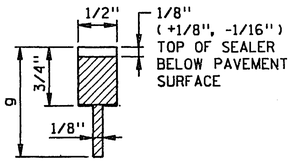
SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

CONTRACTION JOINT SEALER

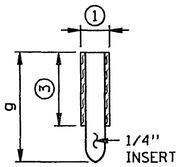
PREFORMED ELASTIC TYPE



DETAIL A
FORMED & SAWED



DETAIL B ②
SAWED



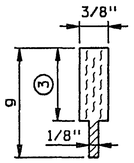
DETAIL C
FORMED
(INSERT TO BE REMOVED)

CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

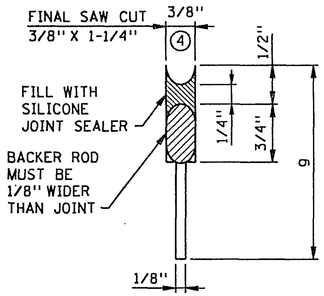
CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3723
C2X	C2X-D	B OR C	3723
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	SILICONE

CONTRACTION JOINT DEPTH & DOWEL BAR TABLE

PAVEMENT THICKNESS †	CONCRETE PAVEMENT JOINT DEPTH g ⑤	CONCRETE BASE JOINT DEPTH g	DOWEL BAR DIAMETER
6"	1-1/2"	1-1/4"	3/4"
6-1/2"	1-5/8"	1-1/4"	3/4"
7"	1-3/4"	1-1/2"	1"
7-1/2"	1-7/8"	1-1/2"	1"
8"	2"	1-1/2"	1"
8-1/2"	2-1/8"	1-1/2"	1"
9"	2-1/4"	1-1/2"	1-1/4"
9-1/2"	2-3/8"	2"	1-1/4"
10"	2-1/2"	2"	1-1/4"
10-1/2"	2-5/8"	—	1-1/4"
11"	2-3/4"	—	1-1/2"
11-1/2"	2-7/8"	—	1-1/2"
12"	3"	—	1-1/2"
12-1/2"	3-1/8"	—	1-1/2"
13"	3-1/4"	—	1-3/4"
13-1/2"	3-3/8"	—	1-3/4"
14"	3-1/2"	—	1-3/4"



DETAIL D
SAWED



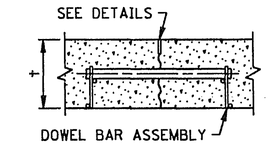
DETAIL E
SAWED

LEGEND

C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3723
3 = 3721
4 = SILICONE
LETTER = DETAIL
X = MORE THAN 1 DETAIL
-D = DOWEL BARS

EXAMPLE

C2B-D



SECTION AT JOINT

CONTRACTION JOINT NOTES:

IN CONCRETE BASE CONSTRUCTION THE CONTRACTION JOINTS SHALL BE SPACED AT 30 FT. INTERVALS AND AT RIGHT ANGLES TO THE LONGITUDINAL JOINTS, EXCEPT AS NOTED BELOW. WHERE THE CONCRETE BASE IS CONSTRUCTED ADJACENT TO EXISTING PAVEMENT OR BASE, THE CONTRACTION JOINTS IN THE NEW BASE SHALL MATCH THOSE IN THE EXISTING PAVEMENT OR BASE, EXCEPT THAT THE SPACING SHALL NOT BE LESS THAN 15 FT., NOR MORE THAN 30 FT.

JOINT WIDTH TOLERANCES: + 1/16 IN. AND - 1/32 IN.

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEET FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY, 1103; CONSTRUCTION OF HEADER JOINTS, 1150; AND CONCRETE PAVEMENT WITH SKEWED JOINTS, 5-297.215 - .219.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

NOTES:

① DESIGN C3X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 3/8" BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.

DESIGN C2X OR C2X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH WIDTH OF 1/2" FOR A DEPTH OF 3/4", + 1/8", - 1/16", BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT. THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.

② DESIGN C2B OR C2B-D - PRIOR TO SEALING JOINT (DETAIL B) WITH HOT POUR JOINT SEALER, A STRIP OF PAPER 1/2" WIDE SHALL BE PLACED ON THE BOTTOM OF THE 1/2" WIDE JOINT.

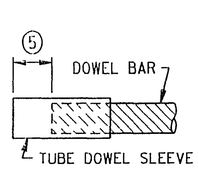
③ WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH.

④ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4".

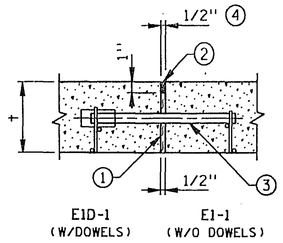
⑤ FOR UNBONDED OVERLAYS, THE JOINT DEPTH "G" SHALL BE T/3.

CONTRACTION JOINTS

DESIGN C

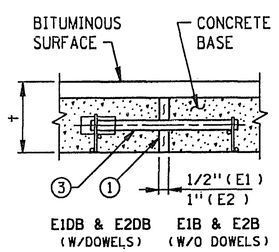


DOWEL BAR SLEEVE DETAIL



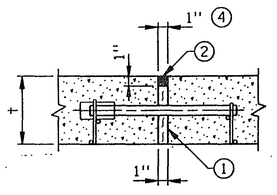
E1D-1 (W/DOWELS) E1-1 (W/O DOWELS)

DETAIL A



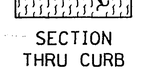
E1DB & E2DB (W/DOWELS) E1B & E2B (W/O DOWELS)

DETAIL B

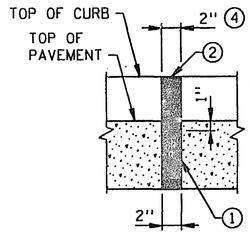


E2D-1 (W/DOWELS) E2-1 (W/O DOWELS)

DETAIL C

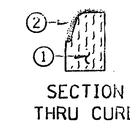


SECTION THRU CURB
E2-1

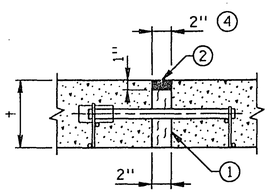


E4-1 (W/O DOWELS)

DETAIL D



SECTION THRU CURB
E4-1



E4D-1 (W/DOWELS)

DETAIL E

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	②
E1DB	E1B	B	UNSEALED
E2D-1	E2-1	C	②
E2DB	E2B	B	UNSEALED
	E4-1	D	②
E4D-1		E	②

LEGEND

E = EXPANSION JOINT
NO. = JOINT REFERENCE
-1 = HOT POURED SEAL ②
D = DOWEL BARS
B = CONCRETE BASE
S = CONCRETE SILL

EXAMPLE

E1D-1
HOT POURED SEAL ②
DOWEL BARS
JOINT REFERENCE
EXPANSION JOINT

NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 1/8 IN. BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE (0 IN.) ± 1/8 IN.

③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

④ JOINT WIDTH IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2 IN. INTERVALS (i.e. E1 = 1/2 IN., E2 = 1 IN., E3 = 1-1/2 IN., E4 = 2 IN., E8 = 4 IN.).

⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

EXPANSION JOINTS

DESIGN E

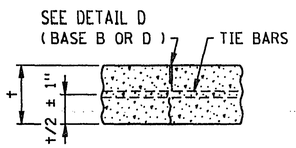
78-144

STANDARD SHEET NO. 5-297.221 (1 OF 2)
STANDARD APPROVED: JANUARY 25, 1993

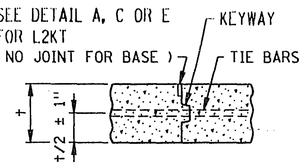
TITLE: PAVEMENT JOINTS
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

S.A.P. NO. 62-696-02 C.T.B. SHEET NO. 20 OF 96 SHEETS

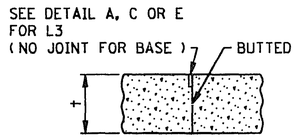
SERVER CA6451:/USR/STANDARDS FILE NAME S2211A93.SPN



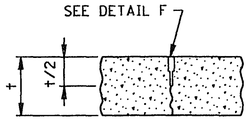
L1, L1T, L1B & L1TB



L2KT & L2KTB



L3 & L3B



L4

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3723
L1BU	L1TBU			A OR B	UNSEALED
		L2KTH		D OR E	3723
		L2KTS		C	SILICONE
			L3H	D OR E	3723
			L3S	C	SILICONE
L4S				F	SILICONE

LEGEND

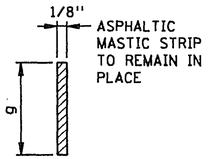
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
K = KEYWAY
T = TIE BARS
B = CONCRETE BASE
U = UNSEALED
H = HOT POUR
S = SILICONE

JOINT REFERENCE NUMBERS

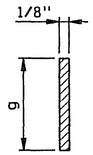
1 = SAWED TO A DEPTH OF t/3
2 = KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
4 = SAWED TO A DEPTH OF t/2

LONGITUDINAL JOINT DEPTH TABLE

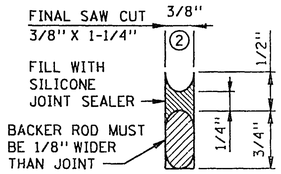
PAVEMENT THICKNESS t	CONCRETE PAVEMENT JOINT DEPTH g	CONCRETE BASE JOINT DEPTH g
6"	2"	2"
6-1/2"	2-1/8"	2"
7"	2-1/4"	2-1/4"
7-1/2"	2-1/2"	2-1/4"
8"	2-5/8"	2-1/2"
8-1/2"	2-7/8"	2-1/2"
9"	3"	2-3/4"
9-1/2"	3-1/4"	3"
10"	3-3/8"	
10-1/2"	3-1/2"	
11"	3-5/8"	
11-1/2"	3-7/8"	
12"	4"	
12-1/2"	4-1/8"	
13"	4-3/8"	
13-1/2"	4-1/2"	
14"	4-5/8"	



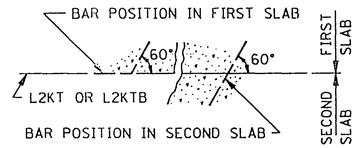
DETAIL A
(FORMED & UNSEALED)



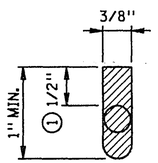
DETAIL B
(SAWED & SEALER, SPEC. 3723)
(BASE JOINTS UNSEALED)



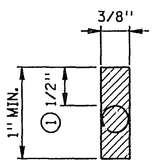
DETAIL C
(SAWED)



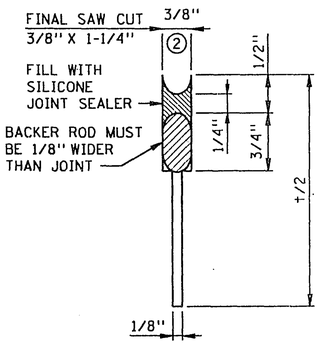
TIE BAR BENDING DETAIL



DETAIL D
(FORMED & SEALED SPEC. 3723)



DETAIL E
(SAWED & SEALER SPEC. 3723)



DETAIL F
(SAWED)

LONGITUDINAL JOINT NOTES:

TIE BARS FOR L1TB JOINTS SHALL BE THE SAME SIZE AND SPACING AS SHOWN ON STANDARD PLAN SHEETS 5-297.216 - .219.

EXCEPT WHEN NOTED OTHERWISE IN THE PLANS, THE TIE BAR SPACING FOR ALL L2KT AND L2KTB JOINTS SHALL BE 2'6" C. TO C. AND BENT 60° AS SHOWN.

TIE BARS IN THE L2KT AND L2KTB JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T OR L1TB JOINTS, WHEN TYING PAVEMENT TO PAVEMENT OR BASE TO BASE. TIE BARS IN THE L2KT OR L2KTB JOINTS SHALL BE NO. 4 X 2'6", WHEN TYING CURB & GUTTER TO PAVEMENT OR BASE.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED 30 FEET, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

SPEC. 3723 SEALER - TOP OF SEALER FLUSH TO - 3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

(1) THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENING, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.

(2) THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEETS FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY 1103, PAVEMENT KEYWAY 1141 AND CONCRETE PAVEMENT WITH SKEWED JOINTS 5-297.216 - .219.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

28-144

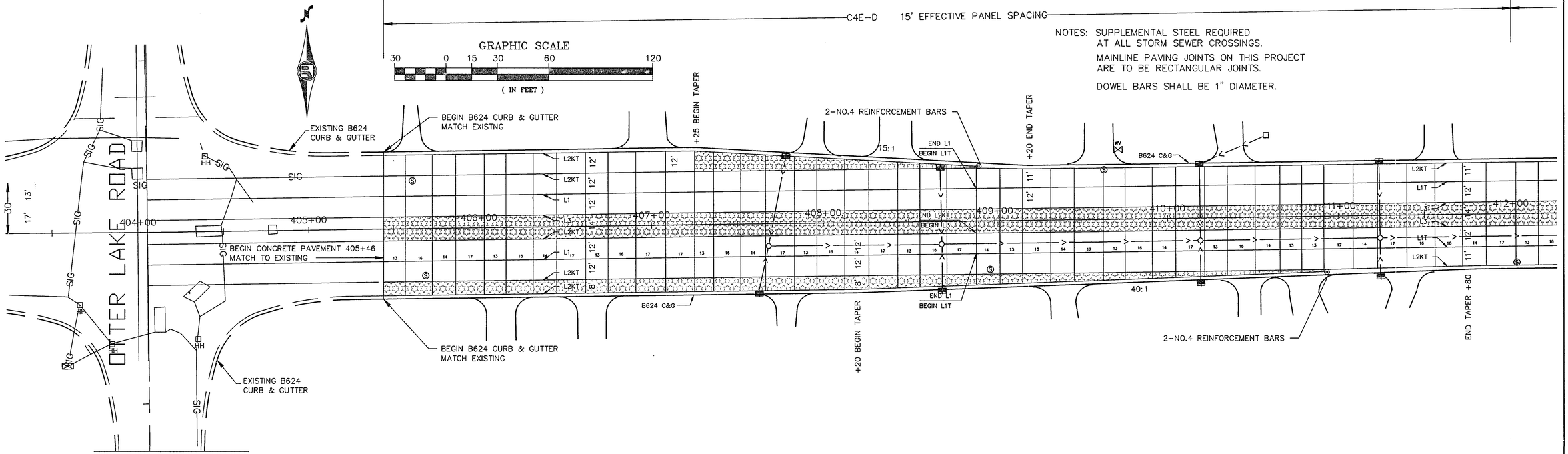
STANDARD SHEET NO. 5-297.221 (2 OF 2)	TITLE: PAVEMENT JOINTS LONGITUDINAL (DESIGN L)
STANDARD APPROVED: JANUARY 25, 1993	
S.A.P. NO. 62-696-02 C.T.B.	SHEET NO. 21 OF 96 SHEETS

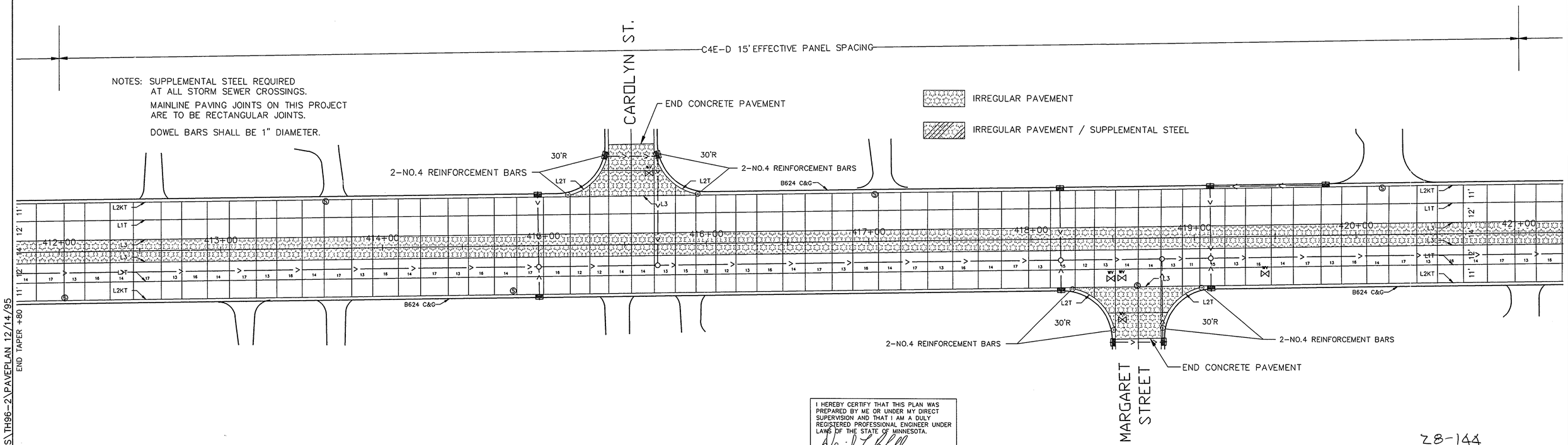
SERVER CA64S1:/USR/STANDARDS FILE NAME S2212A93.SPN

C4E-D 15' EFFECTIVE PANEL SPACING

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

NOTES: SUPPLEMENTAL STEEL REQUIRED AT ALL STORM SEWER CROSSINGS.
MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS.
DOWEL BARS SHALL BE 1" DIAMETER.





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.
David L. Bell
REG. NO. 14257 DATE 12-6-95

28-144

S.A.P. 62-696-02 C.T.B. SHEET NO. 22 OF 96 SHEETS

G:\DWGS\TH96-2\PAVEPLAN 12/14/95

NOTES: SUPPLEMENTAL STEEL REQUIRED AT ALL STORM SEWER CROSSINGS.

MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS.

DOWEL BARS SHALL BE 1" DIAMETER.

C4E-D 15' EFFECTIVE PANEL SPACING

KAREN AVE.

2-NO.4 REINFORCEMENT BARS

END CONCRETE PAVEMENT

30'R

L2T

L3

B624 C&G

L2KT

L1T

11'

12'

420+00 421+00 422+00 423+00 424+00 425+00 426+00 427+00 428+00 429+00 430+00

GRACE AVE.

AP 286

AP 290

20'R

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

N

NOTES: SUPPLEMENTAL STEEL REQUIRED AT ALL STORM SEWER CROSSINGS.

MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS.

DOWEL BARS SHALL BE 1" DIAMETER.

IRREGULAR PAVEMENT

IRREGULAR PAVEMENT / SUPPLEMENTAL STEEL

C4E-D 15' EFFECTIVE PANEL SPACING

FOURTH AVE.

MH 312

430+00 431+00 432+00 433+00 434+00 435+00 436+00 437+00 438+00 439+00

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. 14267 DATE 12-6-95

28-144

S.A.P. 62-696-02 C.T.B. SHEET NO. 23 OF 96 SHEETS

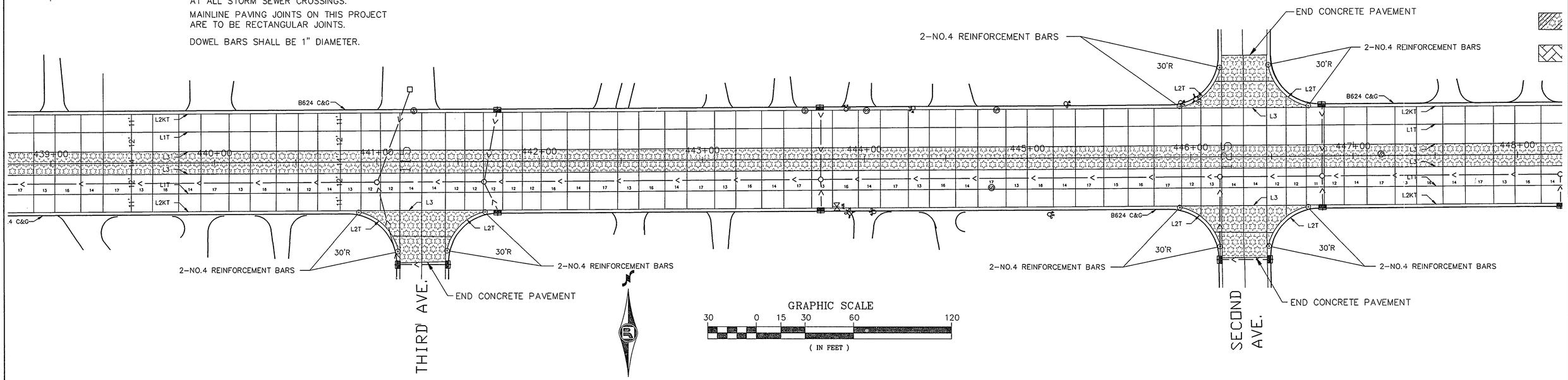
G:\DWGS\TH96-2\PAVEPLAN 12/14/95

C4E–D 15' EFFECTIVE PANEL SPACING

NOTES: SUPPLEMENTAL STEEL REQUIRED AT ALL STORM SEWER CROSSINGS.

MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS.

DOWEL BARS SHALL BE 1" DIAMETER.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

C4E–D 15' EFFECTIVE PANEL SPACING

IRREGULAR PAVEMENT

IRREGULAR PAVEMENT / SUPPLEMENTAL STEEL

MEDIAN – BRICK PAVERS

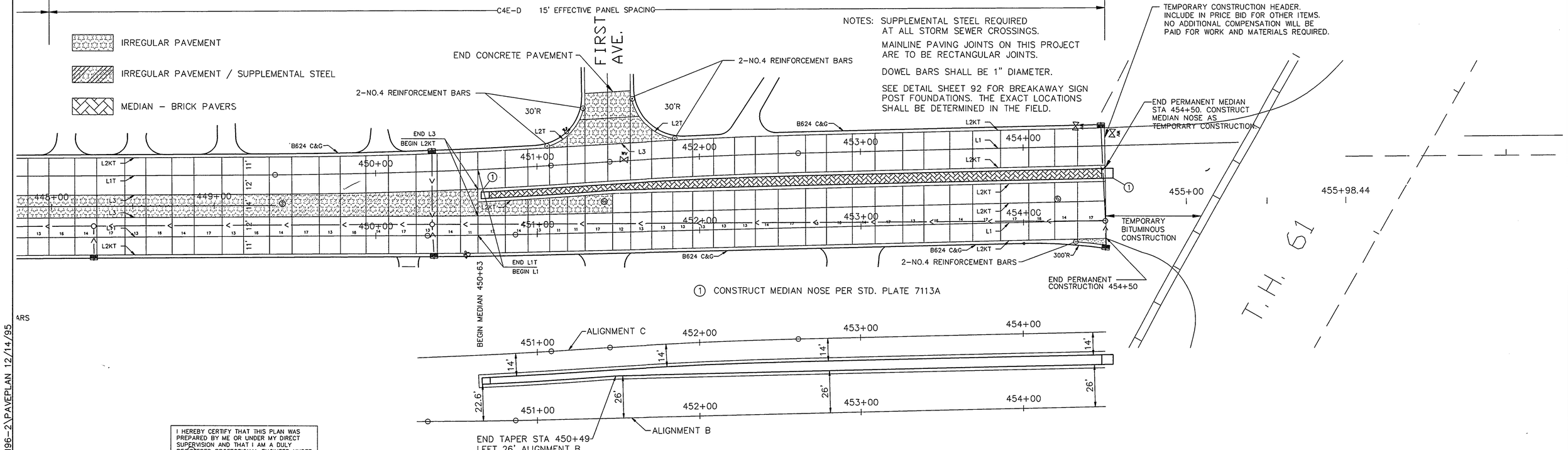
NOTES: SUPPLEMENTAL STEEL REQUIRED AT ALL STORM SEWER CROSSINGS.

MAINLINE PAVING JOINTS ON THIS PROJECT ARE TO BE RECTANGULAR JOINTS.

DOWEL BARS SHALL BE 1" DIAMETER.

SEE DETAIL SHEET 92 FOR BREAKAWAY SIGN POST FOUNDATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

TEMPORARY CONSTRUCTION HEADER. INCLUDE IN PRICE BID FOR OTHER ITEMS. NO ADDITIONAL COMPENSATION WILL BE PAID FOR WORK AND MATERIALS REQUIRED.



① CONSTRUCT MEDIAN NOSE PER STD. PLATE 7113A

END TAPER STA 450+49
LEFT 26' ALIGNMENT B

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.

David T. Rhell

REG. NO. 14157 DATE 12-6-95

G:\DWGS\TH196-2\PAVEPLAN 12/14/95

28-144

OTTER LAKE RD

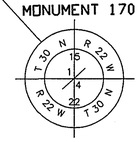
N 89°10'51" E

405+00

ALIGNMENT A = SECTION LINE

ALIGNMENT A
STA 404+05.525
N 259510.8510
E 949337.7210

MONUMENT 170



CAROLYN ST.

415+00

89° 52' 32"

ALIGNMENT A
STA: 415+54.92 =
C/L CAROLYN STREET
N 259527.2830
E 950486.9940

N 89°10'51" E
2616.118'

ALIGNMENT A
STA: 418+64.96 =
C/L MARGARET STREET
N 259531.7168
E 950797.0118

MARGARET ST.

90° 11' 43"

420+00

ALIGNMENT A
STA: 423+62.98 =
C/L GRACE AVENUE
N 259538.8370
E 951294.9751

GRACE AVE.

90° 16' 05"

425+00

KAREN AVE.

89° 57' 13"

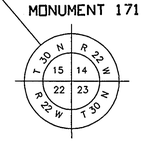
ALIGNMENT A
STA: 425+11.13 =
C/L KAREN AVENUE
N 259540.9540
E 951443.1150

N 89°10'51" E

430+00

STA: 430+21.643
N 259548.2541
E 951953.5714

MONUMENT 171



N 89°35'24" E

435+00

FOURTH AVE.

89° 18' 37"

ALIGNMENT A
STA: 436+13.92 =
C/L FOURTH AVENUE
N 259552.4917
E 952545.8350

90° 41' 23"

440+00

ALIGNMENT A
STA: 441+28.42 =
C/L THIRD AVENUE
N 259556.1729
E 953060.3251

THIRD AVE.

90° 23' 07"

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

ALIGNMENT A
STA: 446+32.91 =
C/L SECOND AVENUE
N 259559.7824
E 953564.7991

90° 18' 56"

445+00

N 89°35'24" E
2636.83'

SECOND AVE.

90° 12' 14"

ALIGNMENT A
STA: 449+37.77
OFFSET: 19.00 L =
ALIGNMENT C
STA: 449+37.77
OFFSET: 0

PC
N 259580.9631
E 953869.5162

CURVE LEFT
Δ = 03°25'11"
R = 2864.79'
T = 85.52'
L = 170.99'

ALIGNMENT C

PT = 451+08.76
N 259587.2060
E 954040.3663

FIRST AVE.

PC = 451+46.04
N 259589.6783
E 954077.5638

CURVE RIGHT
Δ = 02°19'53"
R = 2865.00'
T = 58.30'
L = 116.58'

PT = 452+62.62
N 259595.0413
E 954194.0126

ALIGNMENT C
STA: 454+49.44
OFFSET: 0.00 =
ALIGNMENT A
STA: 454+49.15
OFFSET: 34.22 L
N 259599.8377
E 954380.7758

BALD EAGLE AVE.

7+00

N 27°01'18" E

ALIGNMENT D

6+00

ALIGNMENT A
STA: 454+24.38 =
ALIGNMENT D
STA: 5+00.00
N 259565.4452
E 954356.2493

N 88°31'44" E
186.82'

ALIGNMENT A
STA: 450+32.08
OFFSET: 19.00 R =
ALIGNMENT B
STA: 450+32.08
OFFSET: 0

ALIGNMENT A

450+00

N 86°11'51" E
37.28'

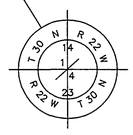
C/L FIRST AVENUE =
STA: 451+46.22

5+00

455+00

STA 456+58.469
N 259567.1200
E 954590.3300

MONUMENT 172



N 88°31'44" E
363.53'

ALIGNMENT B
STA: 454+50.07
OFFSET: 0.00 =
ALIGNMENT A
STA: 454+50.01
OFFSET: 11.78 R
N 259553.8529
E 954381.9568

PC = 450+32.08
N 259543.6388
E 953964.0955

PT = 450+86.54
N 259544.5198
E 954018.5433

ALIGNMENT B

CURVE LEFT
Δ = 01°05'18"
R = 2866.79'
T = 27.23'
L = 54.46'

LINCOLN AVE.

4+00

N 27°01'18" E

3+00

ALIGNMENT D

△ RAMSEY COUNTY MONUMENTS 170, 171, AND 172 AS PUBLISHED IN THE "RAMSEY COUNTY PUBLIC WORKS LAND SURVEY DIVISION NORTH AMERICAN DATUM OF 1983 COORDINATES."

NOTE: THE COORDINATES LISTED ARE PROJECT SPECIFIC. TO CONVERT TO MN/DOT STATE PLANE COORDINATES AS PUBLISHED:

X + 1924406.803
Y + 828011.804

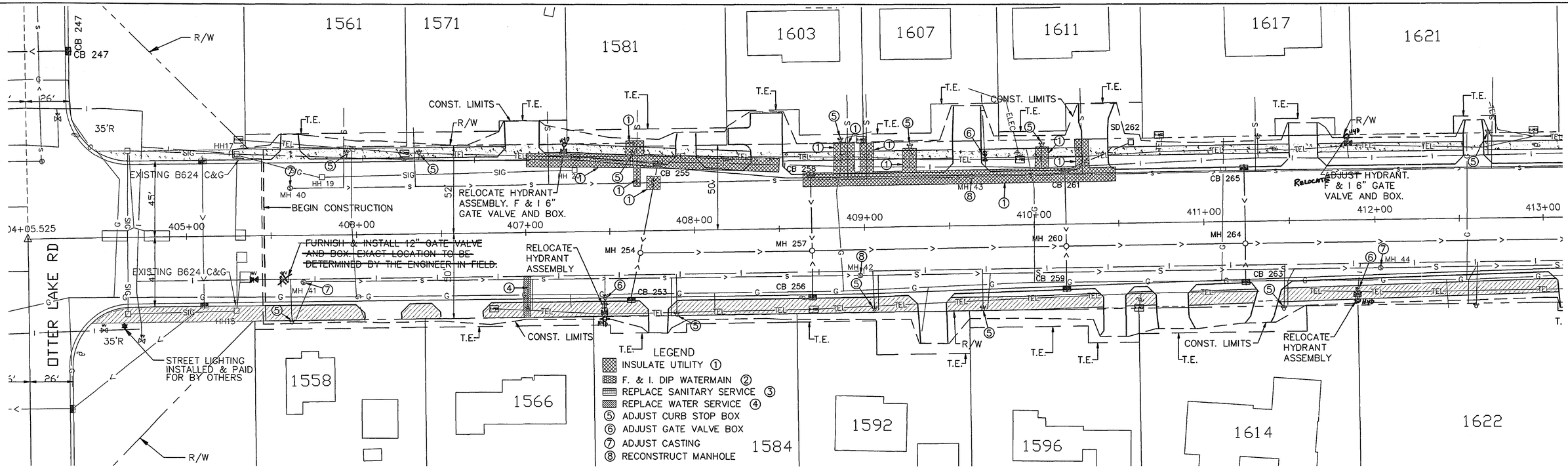
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

David L. Bladt

REG. NO. 14257 DATE 12-6-95

ALIGNMENT A = SECTION LINE
ALIGNMENT B = C/L EASTBOUND LANE
ALIGNMENT C = C/L WESTBOUND LANE
ALIGNMENT D = C/L LINCOLN/BALD EAGLE

28-144
ALIGNMENT



GRAPHIC SCALE

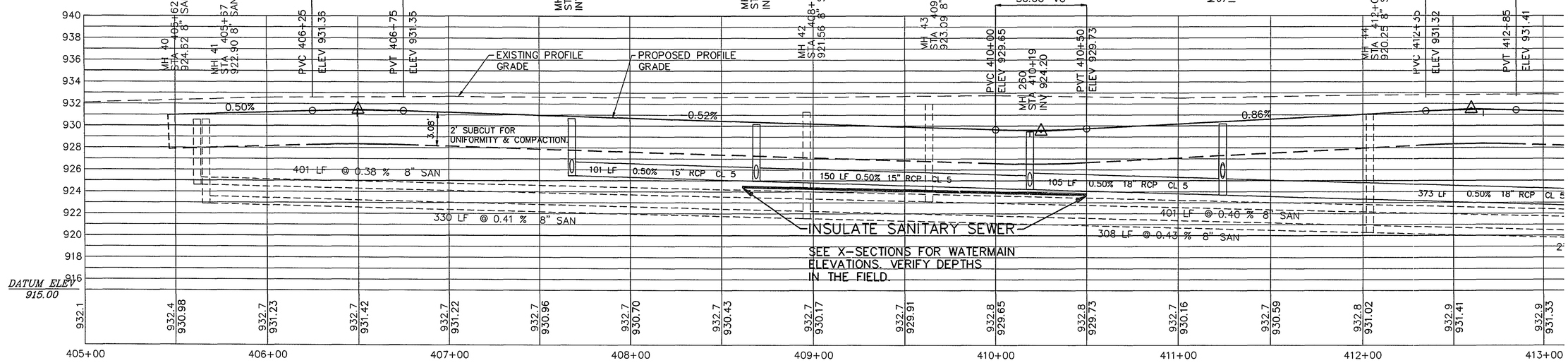
30 0 15 30 60

(IN FEET)

HIGH POINT ELEV = 931.42
HIGH POINT STA = 406+49.45
PVI STA = 406+50
PVI ELEV = 931.48
A.D. = -1.02
K = 48.89
50.00' VC

LOW POINT ELEV = 929.60
LOW POINT STA = 410+18.96
PVI STA = 410+25
PVI ELEV = 929.52
A.D. = 1.38
K = 36.28
50.00' VC

HIGH POINT ELEV = 931.45
HIGH POINT STA = 412+66.81
PVI STA = 412+60
PVI ELEV = 931.53
A.D. = -1.34
K = 37.19
50.00' VC



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

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.
Daniel D. Ruff
REG. NO. 14257 DATE 12-6-95

28-144

UTILITY PLAN

STA. 405+00 TO 413+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 26 OF 96 SHEETS

LEGEND
- INSULATE UTILITY (1)
- F. & I. DIP WATERMAIN (2)
- REPLACE SANITARY SERVICE (3)
- REPLACE WATER SERVICE (4)
- (5) ADJUST CURB STOP BOX
- (6) ADJUST GATE VALVE BOX
- (7) ADJUST CASTING
- (8) RECONSTRUCT MANHOLE

DECK
1629
4571
CAROLYN ST.
4584
1663
1685
1630
1636
1650
1700
MARGARET ST.
CATV
ELEC
TEL
T.E.
CONST. LIMITS
PROTECT FENCE
R/W
RELOCATE HYDRANT ASSEMBLY. F & I 6" GATE VALVE AND BOX.
ADJUST HYDRANT
RELOCATE HYDRANT ASSEMBLY
MH 45
MH 46
MH 47
MH 48
MH 49
MH 50
MH 267
MH 271
MH 273
MH 277
MH 279
MH 281
CB 266
CB 268
CB 269
CB 270
CB 272
CB 274
CB 275
CB 276
CB 278
CB 280
CB 280A
SD 282
413+00
414+00
415+00
416+00
417+00
418+00
419+00
420+00
421+00
422+00

31.45
+66.81
)
3

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

MH 45 STA 413+65 INV 921.49 8" SAN
MH 46 STA 414+82 INV 919.10 8" SAN
MH 267 STA 414+97 INV 921.81
MH 271 STA 415+70 INV 921.44
MH 47 STA 417+04 INV 919.99 8" SAN
MH 273 STA 418+18 INV 920.20
MH 48 STA 418+64 INV 917.48 8" SAN
MH 277 STA 418+80 INV 919.89
PVC 418+85 ELEV 928.47
PVT 419+35 ELEV 928.47
MH 279 STA 419+10 INV 919.74
MH 49 STA 420+17 INV 918.39 8" SAN
PVC 420+80 ELEV 929.20
PVT 421+30 ELEV 929.19
MH 50 STA 421+31 INV 918.66 8" SAN
MH 281 STA 423+16 INV 918.72

LOW POINT ELEV = 928.41
LOW POINT STA = 419+09.79
PVI STA = 419+10
PVI ELEV = 928.35
A.D. = 0.99
K = 50.68
50.00' VC

HIGH POINT ELEV = 929.26
HIGH POINT STA = 421+04.83
PVI STA = 421+05
PVI ELEV = 929.32
A.D. = -1.00
K = 49.92
50.00' VC

ELEV 931.41
EXISTING PROFILE GRADE
PROPOSED PROFILE GRADE
-0.49%
0.50%
3.08'
2' SUBCUT FOR UNIFORMITY & COMPACTION
RCP CL 5
278 LF @ 0.41 % 8" SAN
73 LF 0.51% 21" RCP CL 3
339 LF @ 0.44 % 8" SAN
382 LF @ 0.42 % 8" SAN
248 LF 0.50% 21" RCP CL 3
313 LF @ 0.51 % 8" SAN
62 LF 0.50% 24" RCP CL 3
30LF 0.50% 24 RCP CL 3
255 LF 0.40% 24" RCP CL 3
266 LF @ 0.44 % 8" SAN

932.9	932.7	932.6	932.4	932.2	932.3	932.3	932.3	932.2	932.2	932.1	932.0	931.9	931.9	931.9	931.8	931.7	931.7	931.6			
931.33	931.09	930.85	930.60	930.36	930.11	929.87	929.62	929.38	929.13	928.89	928.64	928.42	928.55	928.80	929.05	929.26	929.09	928.84			
413+00	414+00	415+00	416+00	417+00	418+00	419+00	420+00	421+00	422+00												

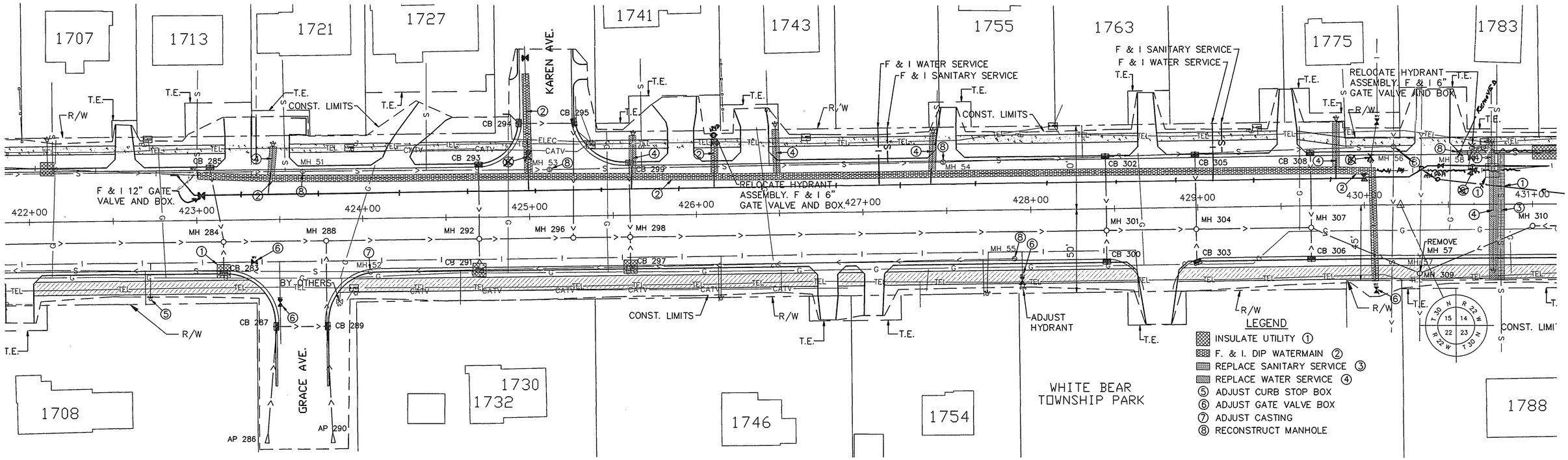
940 935 930 925 920 915 910

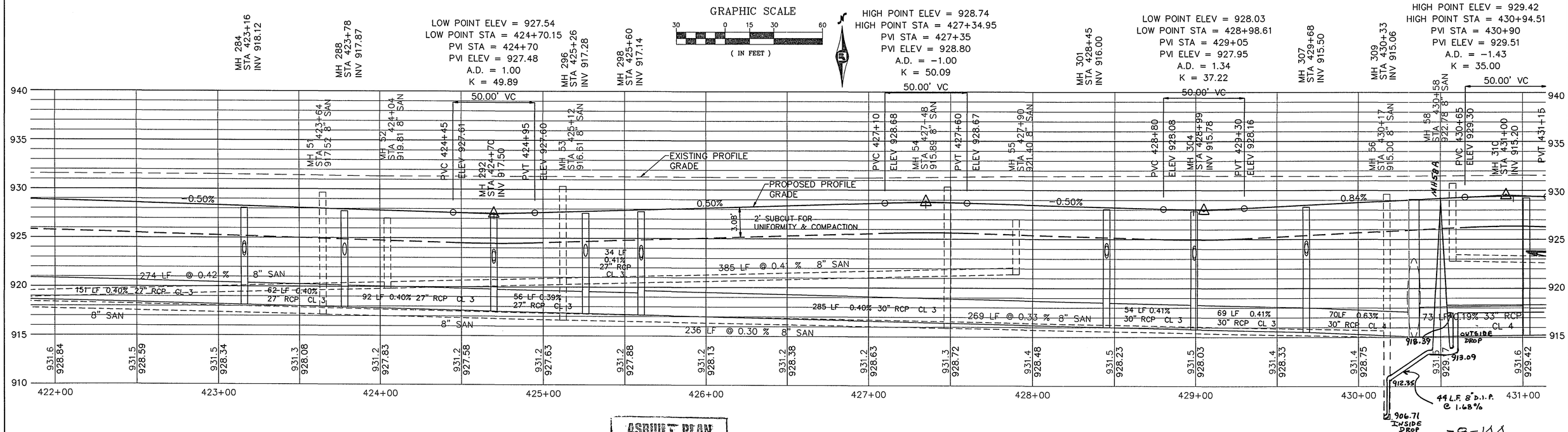
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/11/96

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.
David L. Krall
REG. NO. 14257 DATE 12-6-95

28-144

UTILITY PLAN
STA. 413+00 TO 422+00





ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.R.
DATE: 12/17/96

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.
David L. Hale
REG. NO. 14257 DATE 12-6-96

28-144

UTILITY PLAN
STA. 422+00 TO 431+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 28 OF 96 SHEETS

Ho. SERVICES (BOTH SAN. & WATER) FROM STA. 432+00 to STA. 496+00 REPLACED AND LOWERED.

RELOCATE HYDRANT ASSEMBLY. F & I 6" GATE VALVE AND BOX.

F & I WATER SERVICE

F & I SANITARY SERVICE

F & I SAN. SERVICE

VERIFY LOCATION

BY OTHERS

CONST. LIMITS

FOURTH AVE.

LEGEND
- INSULATE UTILITY (1)
- F. & I. DIP WATERMAIN (2)
- REPLACE SANITARY SERVICE (3)
- REPLACE WATER SERVICE (4)
- (5) ADJUST CURB STOP BOX
- (6) ADJUST GATE VALVE BOX
- (7) ADJUST CASTING
- (8) RECONSTRUCT MANHOLE

= 929.42
430+94.51
)+90
29.51
13
)
00' VC

LOW POINT ELEV = 928.38
LOW POINT STA = 432+96.97
PVI STA = 432+95
PVI ELEV = 928.31
A.D. = 1.09
K = 46.07
50.00' VC

HIGH POINT ELEV = 929.15
HIGH POINT STA = 434+75
PVI STA = 434+75
PVI ELEV = 929.21
A.D. = −1.00
K = 50.00
50.00' VC

LOW POINT ELEV = 928.28
LOW POINT STA = 436+72.59
PVI STA = 436+75
PVI ELEV = 928.21
A.D. = 1.11
K = 45.18
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

HIGH POINT ELEV = 929.93
HIGH POINT STA = 439+72.35
PVI STA = 439+70
PVI ELEV = 930.00
A.D. = −1.11
K = 45.08
50.00' VC

STA 431+00 INV 915.20
PVT 431+15 ELEV 929.36
MH 59A
215 LF @ 0.31 % 8" SAN
REMOVED
INSULATE SANITARY SEWER
169 LF 8" D.I.P. @ 0.47%
919.13
197 LF 0.20% 33" RCP CL 4
RCP
L 4
−0.59%
Removed MH 59 STA 432+72 922.11 8" SAN
PVC 432+70 ELEV 928.46
MH 312 STA 432+97 INV 915.60
PVT 433+20 ELEV 928.43
0.50%
PVC 434+50 ELEV 929.09
PVT 435+00 ELEV 929.09
342 LF @ 0.29 % 8" SAN
310 LF 8" PVC @ 0.30%
920.25
SEE X-SECTIONS FOR WATERMAIN ELEVATIONS. VERIFY DEPTHS IN THE FIELD.
333 LF 0.20% 33" RCP CL 4
MH 60 STA 436+15 921.12 8" SAN
MH 316 STA 436+30 INV 916.27
PVC 436+50 ELEV 928.34
MH 318 STA 436+73 INV 916.36
PVT 437+00 ELEV 928.36
0.50%
45 LF @ 0.21% 33" RCP CL 3
INSULATE SANITARY SEWER
EXISTING PROFILE GRADE
PROPOSED PROFILE GRADE
3.08'
2' SUBCUT FOR UNIFORMITY & COMPACTION.
0.61%
MH 61 STA 438+24 920.48 8" SAN
210 LF @ 0.31 % 8" SAN
427 LF 0.21% 33" RCP CL 3
PVC 439+45 ELEV 929.35
PVT 439+95 ELEV 929.87
300 LF @ 0.32 % 8" SAN

931.6 929.42 | 931.5 929.16 | 931.4 928.87 | 931.2 928.57 | 931.1 928.38 | 931.0 928.58 | 930.9 928.84 | 930.8 929.09 | 930.8 929.09 | 930.8 928.84 | 930.8 928.59 | 930.8 928.34 | 930.9 928.36 | 930.9 928.67 | 930.9 928.97 | 931.0 929.27 | 931.1 929.58 | 931.1 929.88 | 931.1 929.85

940 935 930 925 920 915 910

431+00 432+00 433+00 434+00 435+00 436+00 437+00 438+00 439+00 440+00

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

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.
David L. Ford
REG. NO. 14257 DATE 12-6-95

28-144

UTILITY PLAN
STA. 431+00 TO 440+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 29 OF 96 SHEETS

Ho. Services (both San & water) replaced and lowered Sta. 432+00 to Sta. 446+00.

1875 1885 1889 1893 1897 1901 1905 1915 1919 1931 1935 1941 1947 1953

1870 1874 1882 1886 1892 1900 1904 1910 1920

CONST. LIMITS
T.E.
R/W
RELOCATE HYDRANT ASSEMBLY. F & I 6" GATE VALVE AND BOX.
VERIFY SANITARY SERVICE LOCATION
SECOND AVE.
THIRD AVE.
PATIO
PROTECT FENCE
CONST. LIMITS WITHIN R/W
R/W CB 331
CB 332
CB 333
CB 336
CB 335
CB 325
CB 327
CB 329
CB 321
CB 322
SD 323
MH 62
MH 63
MH 64
MH 64A
MH 65
MH 66
MH 67
MH 68
MH 320
MH 324
MH 328
MH 330
MH 334
MH 337
440+00
441+00
442+00
443+00
444+00
445+00
446+00
447+00
448+00
449+00

LEGEND
- INSULATE UTILITY (1)
- F. & I. DIP WATERMAIN (2)
- REPLACE SANITARY SERVICE (3)
- REPLACE WATER SERVICE (4)
- (5) ADJUST CURB STOP BOX
- (6) ADJUST GATE VALVE BOX
- (7) ADJUST CASTING
- (8) RECONSTRUCT MANHOLE
- (9) REMOVE MANHOLE

: 929.93
-39+72.35
+70
0.00
1

LOW POINT ELEV = 929.03
LOW POINT STA = 441+75.09
PVI STA = 441+75
PVI ELEV = 928.97
A.D. = 1.00
K = 49.93
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

PVT 439+95 ELEV 929.87
MH 62 STA 441+24 9 9.53 8" SAN 922.00 8" SAN
MH 320 STA 441+00 INV 917.26
PVC 441+50 ELEV 929.10
MH 324 STA 441+66 INV 917.72
PVT 442+00 ELEV 929.09
MH 63 STA 443+64 922.90 8" SAN
MH 328 STA 443+73 INV 920.02
MH 64 444+01 925.41 8" SAN REMOVE
MH 66 444+81 924.47 8" SAN REMOVE
MH 330 STA 446+18 INV 922.75
MH 67 446+33 923.67 9" SAN
PVI STA = 446+58
PVI ELEV = 931.38
MH 334 STA 446+81 INV 926.12
MH 68 447+17 926.50 8" SAN
PVI STA = 448+48
PVI ELEV = 933.28
MH 337 STA 448+26 INV 927.14

EXISTING PROFILE GRADE (ALIG. A)
PROPOSED PROFILE GRADE (ALIG. A)
0.50%
1.00%
0.50%
3.08'
2' SUBCUT FOR UNIFORMITY & COMPACTION.
240 LF @ 0.38 % 8" SAN
INSULATE SANITARY SEWER
66 LF 0.70% 24" RCP CL 4
207 LF 1.11% 18" RCP CL 4
245 LF 1.11% 18" RCP CL 5
923.0±
EXISTING 8" SAN
REMOVE
REMOVE MH'S 64,65, & 66. SALVAGE CASTINGS. CONSTRUCT NEW SANITARY MANHOLE STA. 444+00 LT 25'±.
232 LF 8" PVC @ 0.6% ±
921.6±
921.22 EXISTING INVERT NORTH
63 LF 5.35% 15" RCP CL 5
145 LF 0.70% 15" RCP CL 5
209 LF
225 LF @ 0.36 % 8" SAN
INSULATE SANITARY SEWER
SEE X-SECTIONS FOR WATERMAIN ELEVATIONS. VERIFY DEPTHS IN THE FIELD.

940 935 930 925 920 915 910

931.1 929.85 | 931.2 929.60 | 931.3 929.35 | 931.4 929.10 | 931.6 929.09 | 931.7 929.34 | 931.8 929.59 | 931.9 929.84 | 932.1 930.09 | 932.1 930.34 | 932.1 930.59 | 932.2 930.84 | 932.4 931.09 | 932.5 931.34 | 932.7 931.80 | 932.9 932.30 | 933.2 932.80 | 933.5 933.29 | 933.9 933.54

440+00 441+00 442+00 443+00 444+00 445+00 446+00 447+00 448+00 449+00

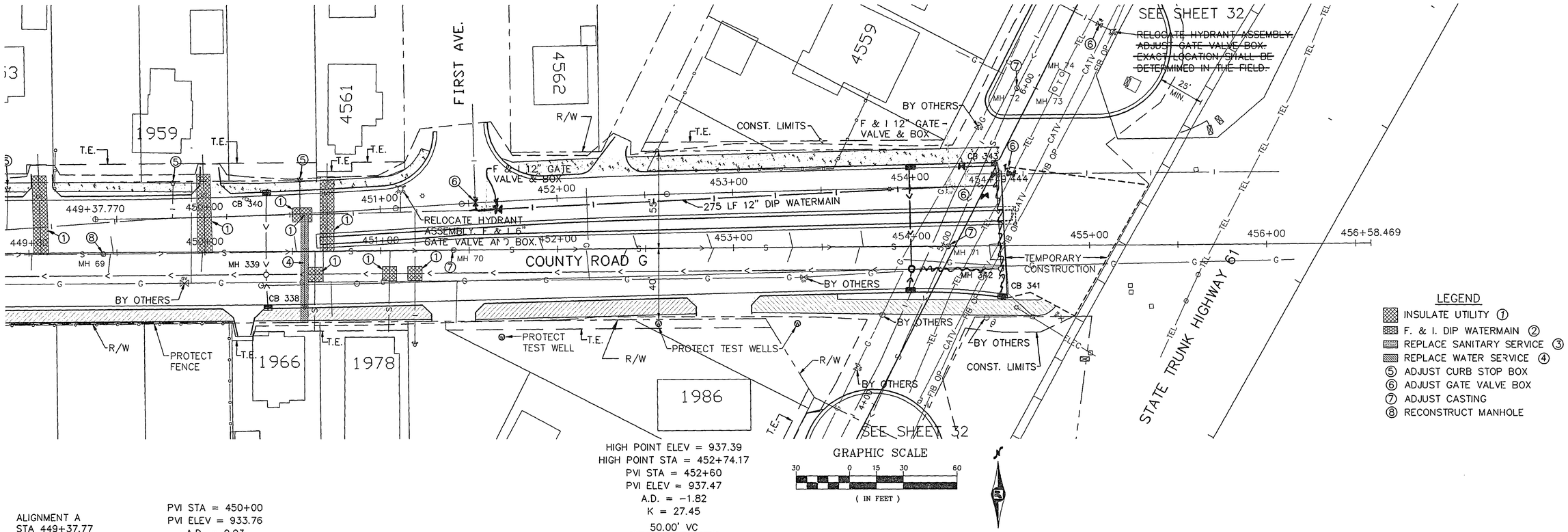
ALIGNMENT STA 449+ OFFSET: 1 ELEVATION
ALIGNMENT STA 449+ OFFSET: 0 ELEVATION
ALIGNMENT STA 449+3 ELEVATION

AS BUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

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.
David L. Ruff
REG. NO. 14257 DATE 12-6-95

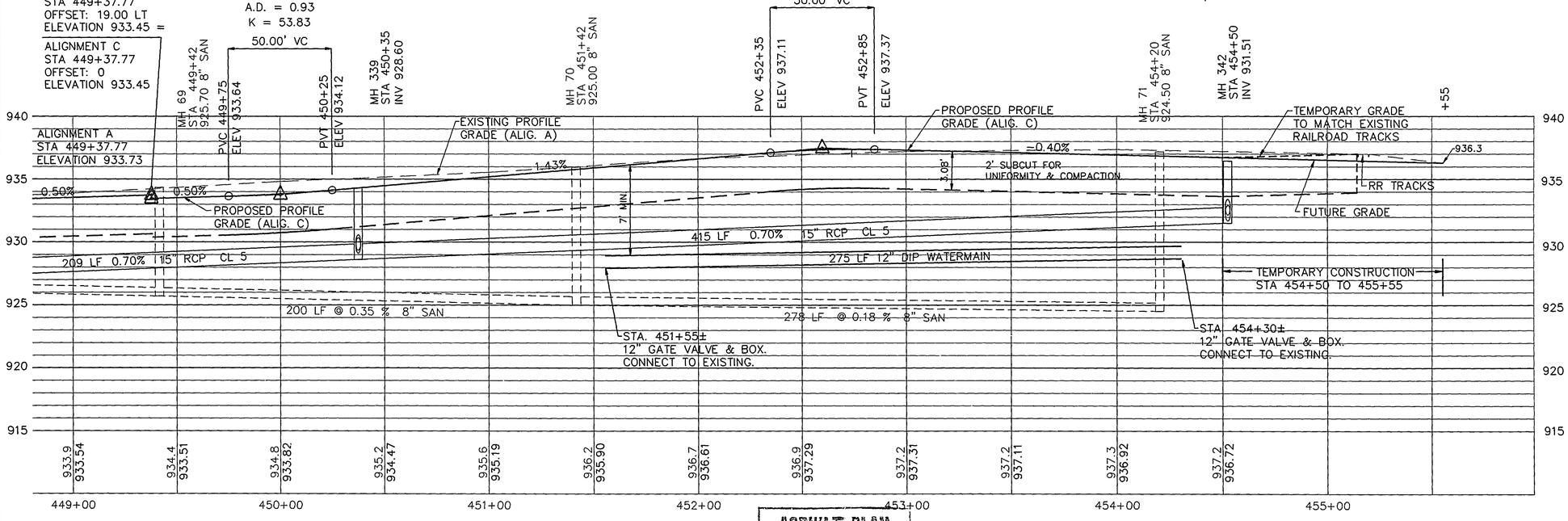
28-144
UTILITY PLAN
STA. 440+00 TO 449+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 30 OF 96 SHEETS



HIGH POINT ELEV = 937.39
HIGH POINT STA = 452+74.17
PVI STA = 452+60
PVI ELEV = 937.47
A.D. = −1.82
K = 27.45
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

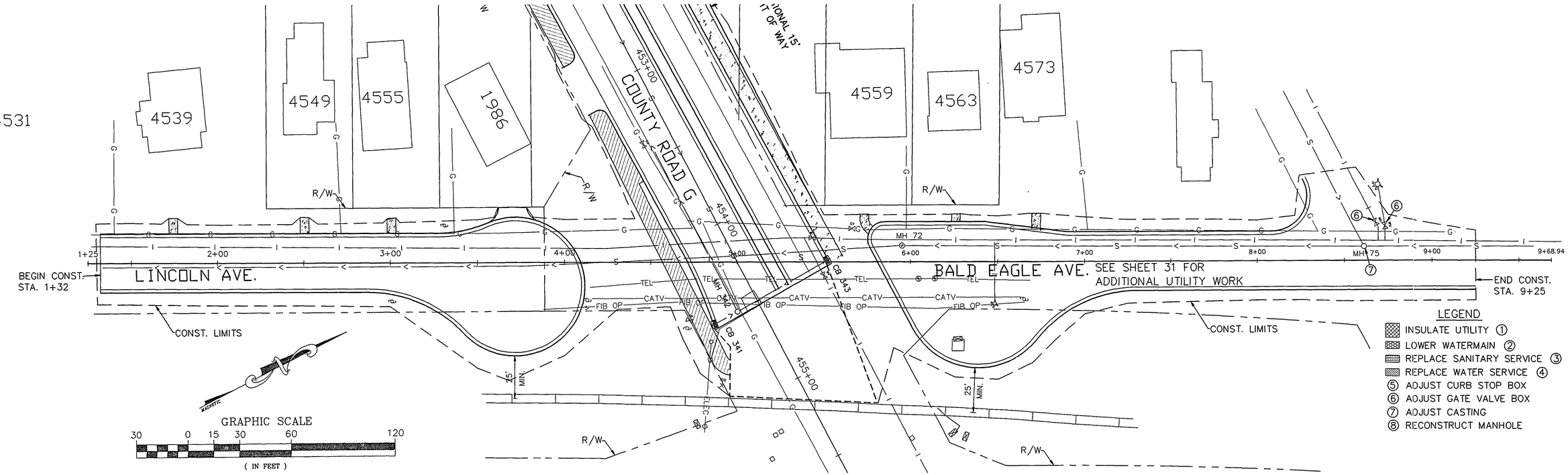
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

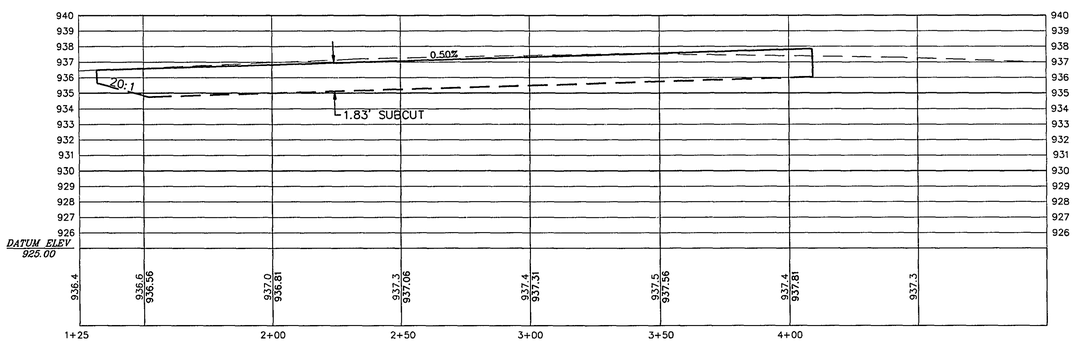
REG. NO. _____ DATE _____

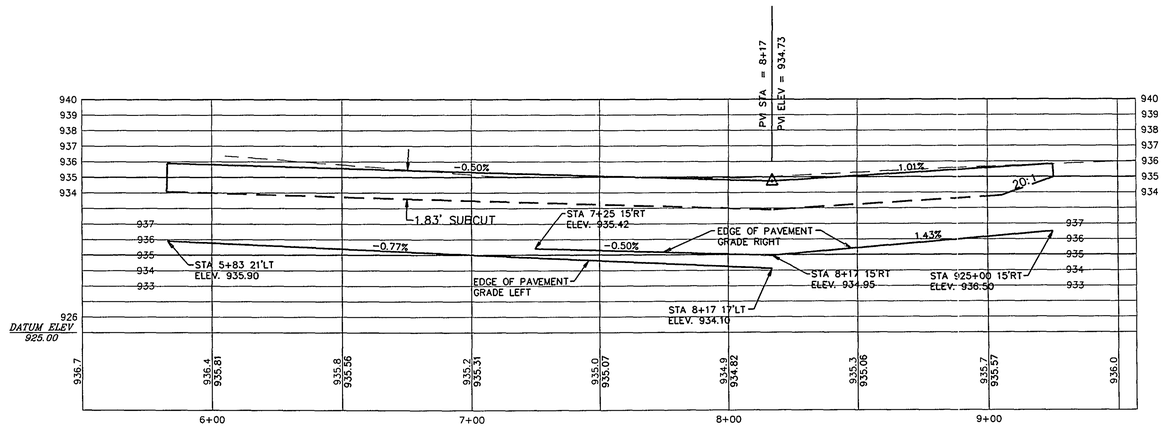
28-14A

UTILITY PLAN
STA. 449+00 TO 454+50

S.A.P. 62-696-02 C.T.B. SHEET NO. 31 OF 96 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.

Daniel L. Krall

REG. NO. 14257 DATE 12-6-95

28-144

UTILITY PLAN
LINCOLN AVENUE & BALD EAGLE AVENUE

SALVAGE 180 LF 1.25" RSC AND 2-2/C #14 CABLE BETWEEN HH'S 17-19-20. SALVAGE HH'S 19 AND 20. FURNISH AND INSTALL HH 18. FURNISH AND INSTALL 180 LF 1.25" RSC BETWEEN HH'S 17 AND 18. INSTALL 180 LF 2-2/C #14. FURNISH AND INSTALL 2 6'X6' LOOPS.

OTTER LAKE RD

STREET LIGHTING INSTALLED & PAID FOR BY OTHERS

MH 40 MATCH CONCRETE. BEGIN CONSTRUCTION STA 405+46

BEGIN TAPER STA 407+25

END TAPER STA 408+55

BEGIN TAPER STA 409+00

END TAPER STA 413+05

10:1 TAPER

45:1 TAPER

5' CONC. WALK

ALIGNMENT A/SECTION LINE

CONST. LIMITS

BIT. PATH

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

HIGH POINT ELEV = 931.42
HIGH POINT STA = 406+49.45
PVI STA = 406+50
PVI ELEV = 931.48
A.D. = -1.02
K = 48.89
50.00' VC

LOW POINT ELEV = 929.60
LOW POINT STA = 410+18.96
PVI STA = 410+25
PVI ELEV = 929.52
A.D. = 1.38
K = 36.28
50.00' VC

HIGH POINT ELEV = 931.45
HIGH POINT STA = 412+66.81
PVI STA = 412+60
PVI ELEV = 931.53
A.D. = -1.34
K = 37.19
50.00' VC

MH 40 STA 405+62 924.62 8" SAN
MH 41 STA 405+57 922.90 8" SAN
PVC 406+25 ELEV 931.36
PVT 406+75 ELEV 931.35
MH 254 STA 407+68 INV ~~925.46~~ 925.77 T.C. 930.67
MH 257 STA 408+69 INV ~~924.96~~ 924.87 T.C. 930.17
MH 42 STA 408+96 921.56 8" SAN
MH 43 STA 409+63 923.09 8" SAN
PVC 410+00 ELEV 929.65
MH 260 STA 410+19 INV ~~924.20~~ 923.95 T.C. 929.65
PVT 410+50 ELEV 929.73
MH 264 STA 411+24 INV ~~933.68~~ 923.36 T.C. 930.16
MH 44 STA 412+04 920.25 8" SAN
PVC 412+35 ELEV 931.32
PVT 412+85 ELEV 931.41

EXISTING PROFILE GRADE
PROPOSED PROFILE GRADE

0.50%
0.52%
0.86%

3.08'
2' SUBCUT FOR UNIFORMITY & COMPACTION.

401 LF @ 0.38 % 8" SAN
330 LF @ 0.41 % 8" SAN
~~102~~ 101 LF 0.50% 15" RCP CL 5
150 LF 0.50% 15" RCP CL 5
~~105~~ 105 LF 0.50% 18" RCP CL 5
401 LF @ 0.40 % 8" SAN
308 LF @ 0.43 % 8" SAN
~~376~~ 375 LF 0.50% 18" RCP CL 5

DATUM ELEV 915.00

932.1	932.4 930.98	932.7 931.23	932.7 931.42	932.7 931.22	932.7 930.96	932.7 930.70	932.7 930.43	932.7 930.17	932.7 929.91	932.8 929.65	932.8 929.73	932.7 930.16	932.7 930.59	932.8 931.02	932.9 931.41	932.9 931.33

405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00

940 938 936 934 932 930 928 926 924 922 920 918 916

940 935 930 925 920 915

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

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.
David L. Hull
REG. NO. 14757 DATE 12-6-95

28-144

PLAN & PROFILE
STA. 405+00 TO 413+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 33 OF 96 SHEETS

CAROLYN ST. – REMOVE 134 LF C&G. TRANSITION B624 C&G TO B612 C&G AT CATCH BASINS.

REMOVE 40 LF CONCRETE C&G. TRANSITION B624 C&G TO EXISTING CURB AS DIRECTED.

SALVAGE & INSTALL 8 LF WOOD FENCE

REMOVE CONCRETE PAVEMENT – 47 SY

MARGARET ST. – REMOVE 100 LF BIT CURB (INCIDENTAL TO COMMON EXCAVATION). TRANSITION B624 C&G TO B612 C&G AT CATCH BASINS. CONSTRUCT B612 C&G FROM CATCH BASINS TO EXISTING BIT CURB. TRANSITION AS DIRECTED.

END TAPER STA 413+05

31.45
+66.81

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

LOW POINT ELEV = 928.41
LOW POINT STA = 419+09.79
PVI STA = 419+10
PVI ELEV = 928.35
A.D. = 0.99
K = 50.68
50.00' VC

HIGH POINT ELEV = 929.26
HIGH POINT STA = 421+04.83
PVI STA = 421+05
PVI ELEV = 929.32
A.D. = −1.00
K = 49.92
50.00' VC

MH 45 STA 413+65 921.49 8" SAN
MH 46 STA 414+82 919.10 8" SAN
MH 267 STA 414+97 INV ~~921.81~~ 921.92 TC. 930.12
MH 271 STA 415+70 INV ~~921.44~~ 921.24 TC. 929.84
MH 47 STA 417+04 919.99 8" SAN
MH 273 STA 418+18 INV ~~928.20~~ 919.95 TC. 928.65
MH 48 STA 418+64 917.48 8" SAN
MH 277 STA 418+80 INV ~~919.89~~ 919.77 TC. ~~928.37~~ 928.21
PVC 419+85 ELEV 928.47
PVT 419+35 ELEV 928.47
MH 279 STA 419+10 INV ~~919.77~~ 919.61 TC. 928.21
MH 49 STA 420+17 918.39 8" SAN
PVC 420+80 ELEV 929.20
PVT 421+30 ELEV 929.19
MH 50 STA 421+3 918.66 8" SAN
MH 281 STA 423+16 INV ~~918.72~~ 918.53 TC. 928.93

ELEV 931.41

RCP CL 5
278 LF @ 0.41 % 8" SAN
~~75~~ 72 LF 0.51% 21" RCP CL 3
339 LF @ 0.44 % 8" SAN
382 LF @ 0.42 % 8" SAN
3.08'
2' SUBCUT FOR UNIFORMITY & COMPACTION.
EXISTING PROFILE GRADE
PROPOSED PROFILE GRADE
−0.49%
~~249~~ 248 LF 0.50% 21" RCP CL 3
62 LF 0.50% 24" RCP CL 3
313 LF @ 0.51 % 8" SAN
~~31.30~~ LF 0.50% 24" RCP CL 3
~~249~~ 253 LF 0.40% 24" RCP CL 3
266 LF @ 0.44 % 8" SAN
0.50%

940 935 930 925 920 915 910

932.9 931.33 | 932.7 931.09 | 932.6 930.85 | 932.4 930.60 | 932.2 930.36 | 932.3 930.11 | 932.3 929.87 | 932.3 929.62 | 932.2 929.38 | 932.2 929.13 | 932.1 928.89 | 932.0 928.64 | 931.9 928.42 | 931.9 928.55 | 931.9 928.80 | 931.8 929.05 | 931.7 929.26 | 931.7 929.09 | 931.6 928.84

413+00 414+00 415+00 416+00 417+00 418+00 419+00 420+00 421+00 422+00

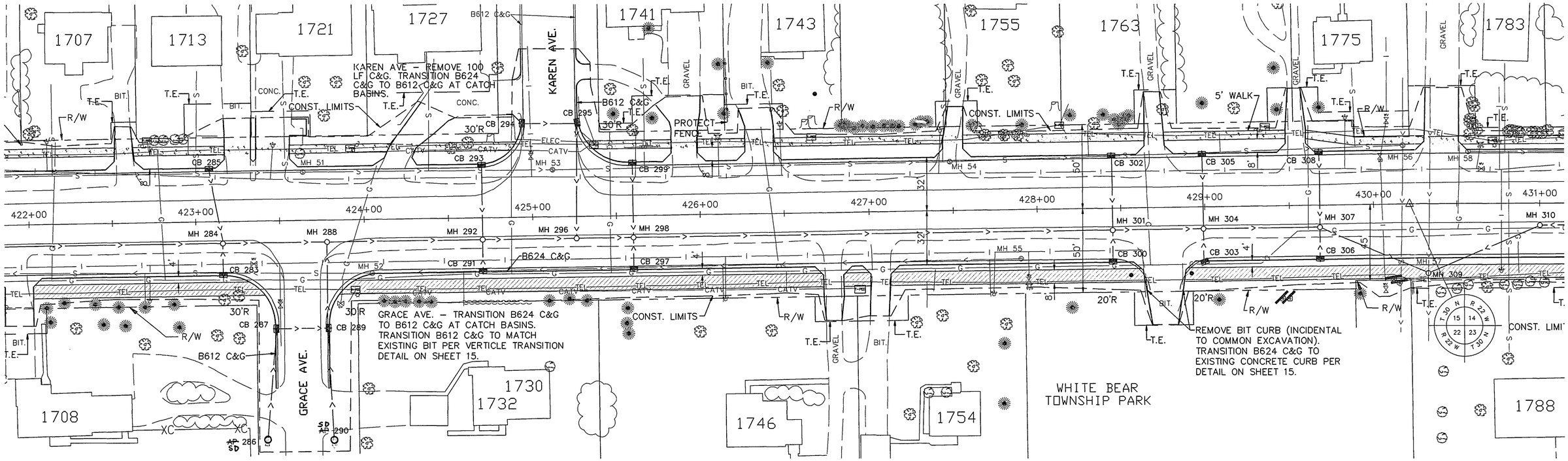
AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.L.
DATE: 12-17-96

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.
Daniel L. Hall
REG. NO. 14257 DATE 12-16-96

28-144

PLAN & PROFILE
STA. 413+00 TO 422+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 34 OF 96 SHEETS



MH 284 STA 423+16 INV ~~918.12~~ 917.96 T.C. 928.16

MH 288 STA 423+78 INV ~~917.87~~ 917.80 T.C. 927.80

LOW POINT ELEV = 927.54
LOW POINT STA = 424+70.15
PVI STA = 424+70
PVI ELEV = 927.48
A.D. = 1.00
K = 49.89

MH 296 STA 425+26 INV ~~917.20~~ 917.12 T.C. 927.62

MH 298 STA 425+60 INV ~~917.14~~ 917.13 T.C. 927.73

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

HIGH POINT ELEV = 928.74
HIGH POINT STA = 427+34.95
PVI STA = 427+35
PVI ELEV = 928.80
A.D. = -1.00
K = 50.09

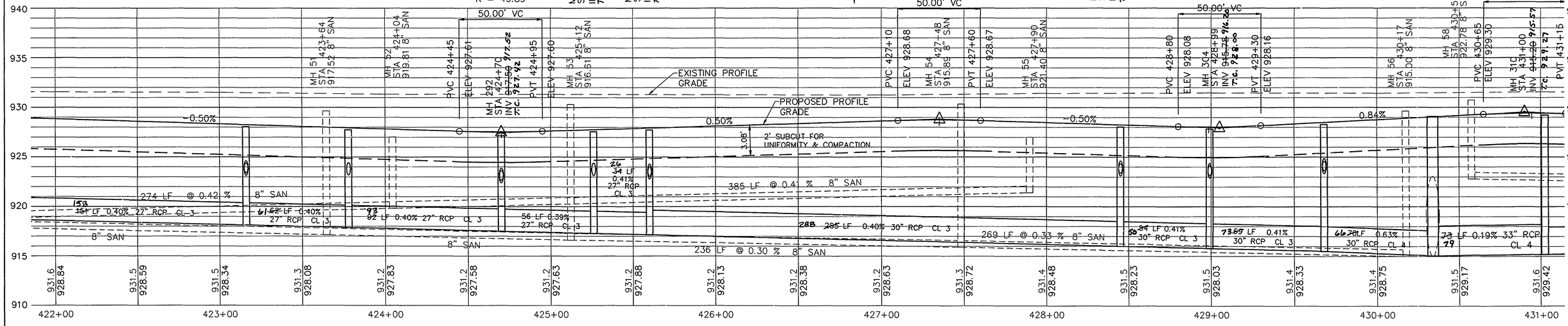
MH 301 STA 428+45 INV ~~916.99~~ 916.13 T.C. 928.13

LOW POINT ELEV = 928.03
LOW POINT STA = 428+98.61
PVI STA = 429+05
PVI ELEV = 927.95
A.D. = 1.34
K = 37.22

MH 307 STA 429+68 INV ~~915.68~~ 915.78 T.C. 928.38

MH 309 STA 430+33 INV ~~915.00~~ 915.25 T.C. 929.25

HIGH POINT ELEV = 929.42
HIGH POINT STA = 430+94.51
PVI STA = 430+90
PVI ELEV = 929.51
A.D. = -1.43
K = 35.00



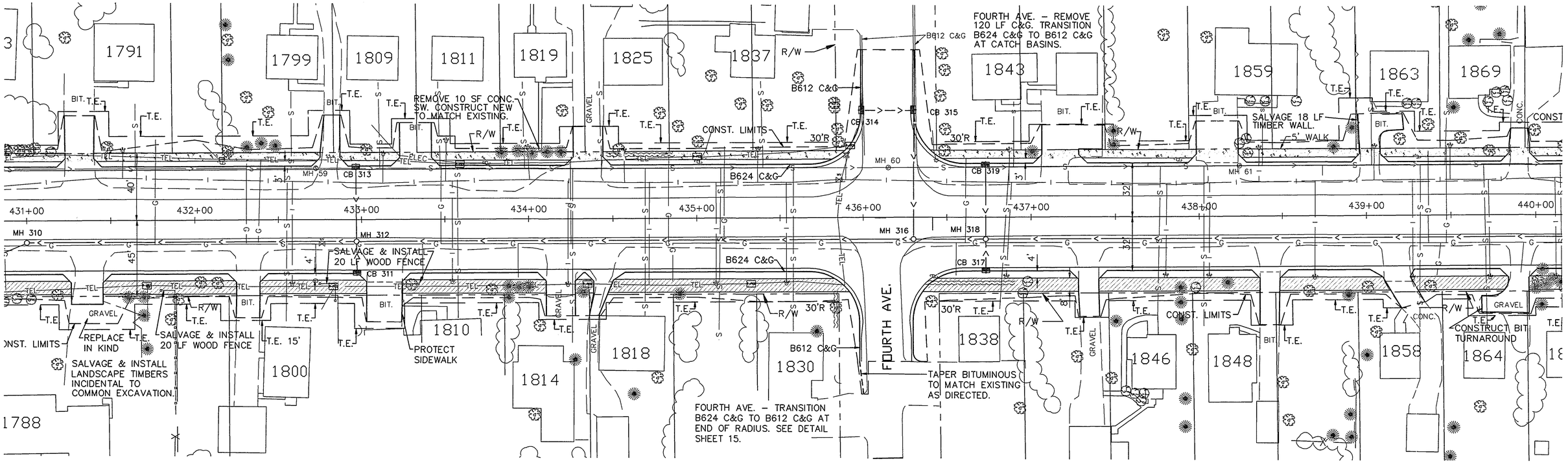
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: REZ
DATE: 12/17/96

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.
Daniel L. Ruff
REG. NO. 14257 DATE 12-6-96

28-144

PLAN & PROFILE
STA. 422+00 TO 431+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 35 OF 96 SHEETS



= 929.42
430+94.51
0+90
29.51
43
)

00' VC

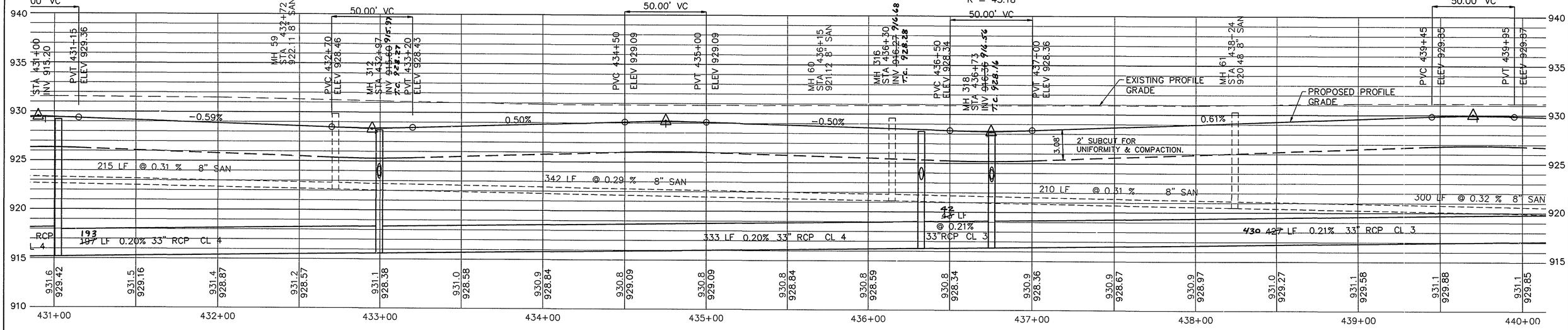
LOW POINT ELEV = 928.38
LOW POINT STA = 432+96.97
PVI STA = 432+95
PVI ELEV = 928.31
A.D. = 1.09
K = 46.07
50.00' VC

HIGH POINT ELEV = 929.15
HIGH POINT STA = 434+75
PVI STA = 434+75
PVI ELEV = 929.21
A.D. = −1.00
K = 50.00
50.00' VC

LOW POINT ELEV = 928.28
LOW POINT STA = 436+72.59
PVI STA = 436+75
PVI ELEV = 928.21
A.D. = 1.11
K = 45.18
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

HIGH POINT ELEV = 929.93
HIGH POINT STA = 439+72.35
PVI STA = 439+70
PVI ELEV = 930.00
A.D. = −1.11
K = 45.08
50.00' VC



ASBUILT PLANS
CONFORMING TO
CONST. RECORDS
DONE BY: RSL
DATE: 12/11/96

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. 14257 DATE 12-6-95

28-144

PLAN & PROFILE
STA. 431+00 TO 440+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 36 OF 96 SHEETS

1875 1885 1889 1893 1897 1901 1905 1915 1919 1931 1935 1941 1947 1953

CONST. LIMITS — T.E. — R/W — BIT. — SD 323 — MH 62 — CB 326 — MH 63 — MH 64 — CB 329 — MH 66 — B612 C&G — MH 67 — CB 335

SECOND AVE. — 32' — 30'R — BIT. CURB

MATCH B612 C&G TO BIT CURB AS DIRECTED.

SECOND AVE. – REMOVE BIT CURB (INCIDENTAL TO COMMON EXCAVATION). TRANSITION B624 C&G TO B612 C&G AT END OF RADIUS.

SALVAGE & INSTALL 8 LF WOOD FENCE

CONST. LIMITS WITHIN R/W

440+00 441+00 442+00 443+00 444+00 445+00 446+00 447+00 448+00 449+00

MH 320 MH 324 MH 328 MH 330 MH 334 MH 337 MH 65 MH 68

B624 C&G — CB 325 — CB 327 — CB 333 — CB 336

30'R — R/W — CB 321 — CB 322 — CB 331 — CB 332 — 32' — 40'

1870 1874 1882 1886 1892 1900 1904 1910 1920

THIRD AVE. — B612 C&G — PROTECT SW — PATIO — GRAVEL — CONC.

CONSTRUCT 10'X 14' BIT TURNAROUND

REMOVE 25 SF CONC SW. CONSTRUCT CONC SW.

REMOVE 20 SF CONC. SW. CONSTRUCT CONC. SW.

PROTECT FENCE

UNION CEMETERY

TAPER BITUMINOUS TO MATCH EXISTING AS DIRECTED.

THIRD AVE. – TRANSITION B624 C&G TO B612 C&G AT CATCH BASINS. END B612 WITH TRANSITION. SEE DETAIL SHEET 15.

SECOND AVE. – TRANSITION B624 C&G TO B612 C&G AT CATCH BASINS. END B612 C&G WITH TRANSITION PER DETAIL SHEET 15.

TAPER BITUMINOUS TO MATCH EXISTING AS DIRECTED.

: 929.93
-39+72.35
+70
0.00
1

LOW POINT ELEV = 929.03
LOW POINT STA = 441+75.09
PVI STA = 441+75
PVI ELEV = 928.97
A.D. = 1.00
K = 49.93
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

ALIGNMENT
STA 449+
OFFSET: 1
ELEVATION

ALIGNMENT
STA 449+
OFFSET: C
ELEVATION

ALIGNMENT
STA 449+3
ELEVATION

PVT 439+95 ELEV 929.87

MH 62 STA 441+24 919.53 8" SAN 922.00 8" SAN

MH 320 STA 441+00 INV ~~917.26~~ 917.67 T.C. 929.17

PVC 441+50 ELEV 929.10

MH 324 STA 441+66 INV ~~917.72~~ 917.78 T.C. ~~928.88~~ 928.98

PVT 442+00 ELEV 929.09

EXISTING PROFILE GRADE (ALIG. A)

PROPOSED PROFILE GRADE (ALIG. A)

MH 63 STA 443+64 922.90 8" SAN

MH 328 STA 443+73 INV ~~920.02~~ 919.82 T.C. 929.72

MH 64 STA 444+01 925.41 8" SAN

MH 66 STA 444+81 924.47 8" SAN

MH 330 STA 446+18 INV 922.76 T.C. 927.06

MH 67 STA 446+33 923.67 9" SAN

PVI STA = 446+58

PVI ELEV = 931.38

MH 334 STA 446+81 INV 926.42 T.C. ~~932.92~~ 932.82

MH 68 STA 447+17 926.50 8" SAN

MH 337 STA 448+26 INV 927.~~14.35~~ T.C. ~~932.85~~ 932.75

PVI STA = 448+48

PVI ELEV = 933.28

0.50% — 0.50% — 1.00% — 0.50%

3.08' — 2' SUBCUT FOR UNIFORMITY & COMPACTION.

EXISTING 8" SAN — EXISTING 8" SAN

240 LF @ 0.38 % 8" SAN

66 LF 0.70% 24" RCP CL 4

201 ~~207~~ LF 1.11% 18" RCP CL 4

~~245~~ 250 LF 1.11% 18" RCP CL 5

~~62~~ 53 LF 5.35% 15" RCP CL 5

145 LF 0.70% 15" RCP CL 5

225 LF @ 0.36 % 8" SAN

209 LF

940 935 930 925 920 915 910

931.1 929.85 — 931.2 929.60 — 931.3 929.35 — 931.4 929.10 — 931.6 929.09 — 931.7 929.34 — 931.8 929.59 — 931.9 929.84 — 932.1 930.09 — 932.1 930.34 — 932.1 930.59 — 932.2 930.84 — 932.4 931.09 — 932.5 931.34 — 932.7 931.80 — 932.9 932.30 — 933.2 932.80 — 933.5 933.29 — 933.9 933.54

440+00 441+00 442+00 443+00 444+00 445+00 446+00 447+00 448+00 449+00

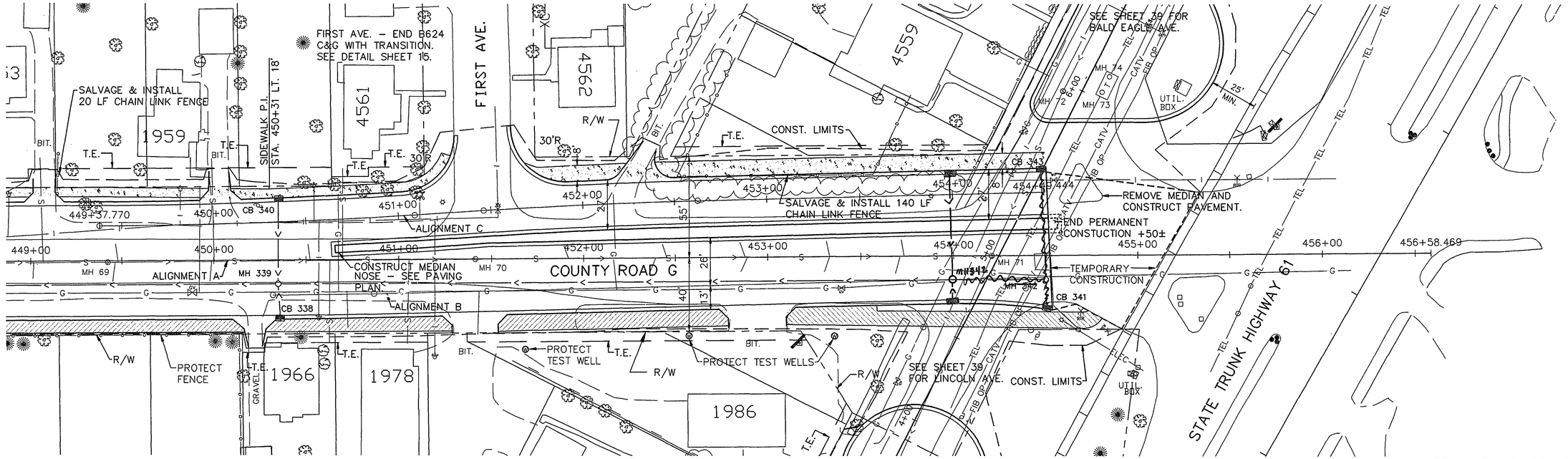
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: RSL
DATE: 12/19/96

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.
David L. Krull
REG. NO. 14251 DATE 12-6-95

28-144

PLAN & PROFILE
STA. 440+00 TO 449+00

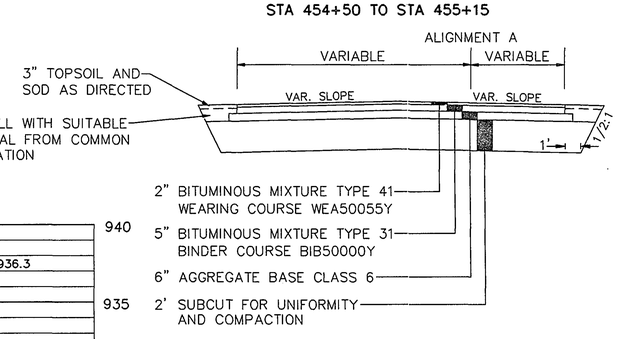
S.A.P. 62-696-02 C.T.B. SHEET NO. 37 OF 96 SHEETS

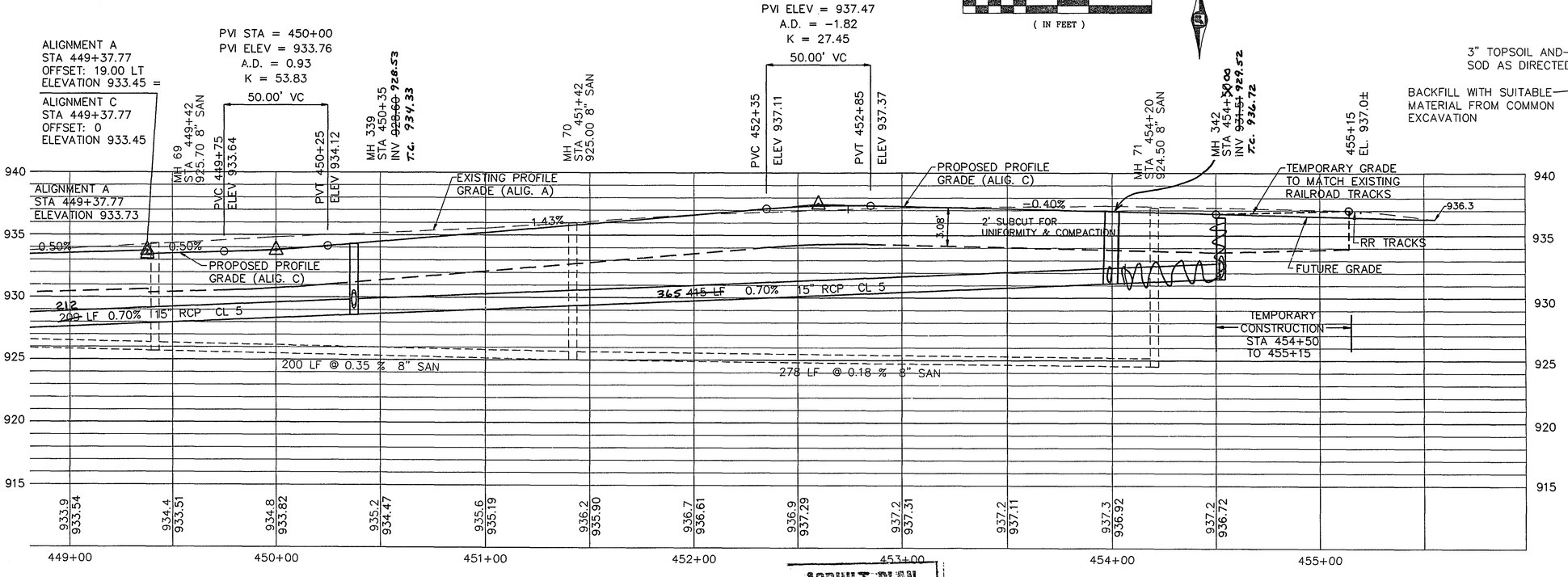


HIGH POINT ELEV = 937.39
HIGH POINT STA = 452+74.17
PVI STA = 452+60
PVI ELEV = 937.47
A.D. = −1.82
K = 27.45
50.00' VC

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)

TEMPORARY CONSTRUCTION TYPICAL SECTION
STA 454+50 TO STA 455+15





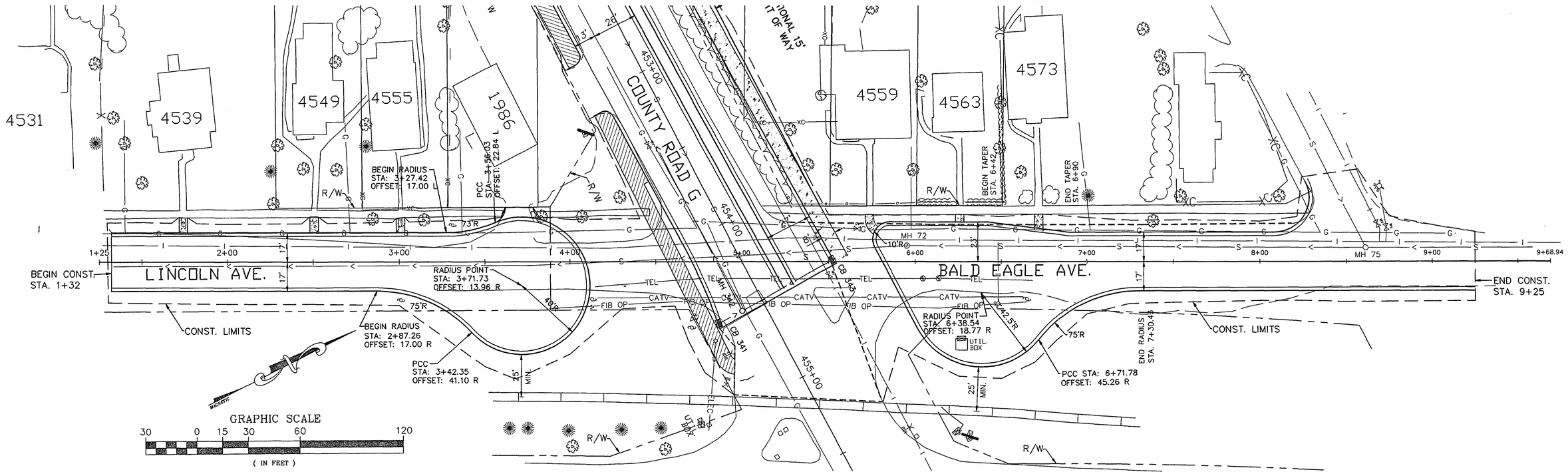
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: FSL
DATE: 12/17/96

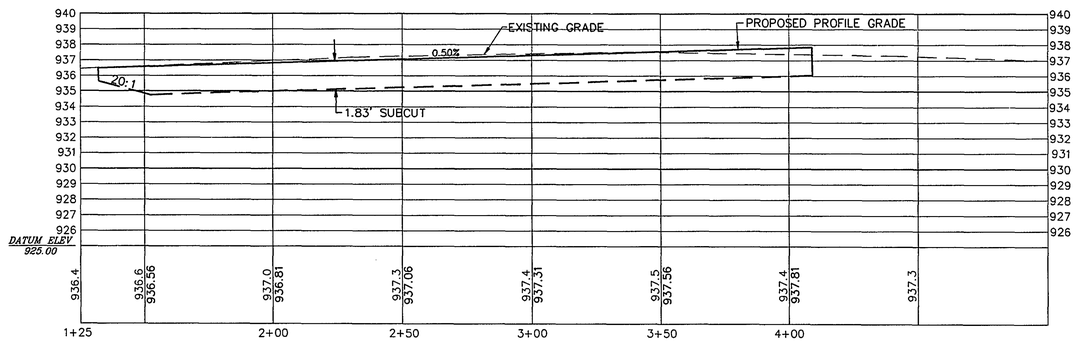
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David L. Krull
REG. NO. 14951 DATE. 12-6-95

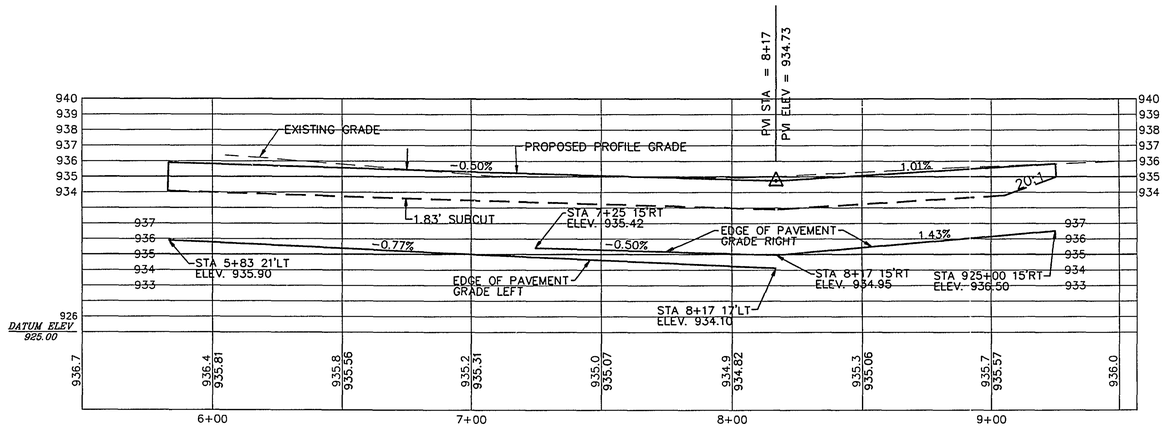
28-14A

PLAN & PROFILE
STA. 449+00 TO 454+50

S.A.P. 62-696-02 C.T.B. SHEET NO. 38 OF 96 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.

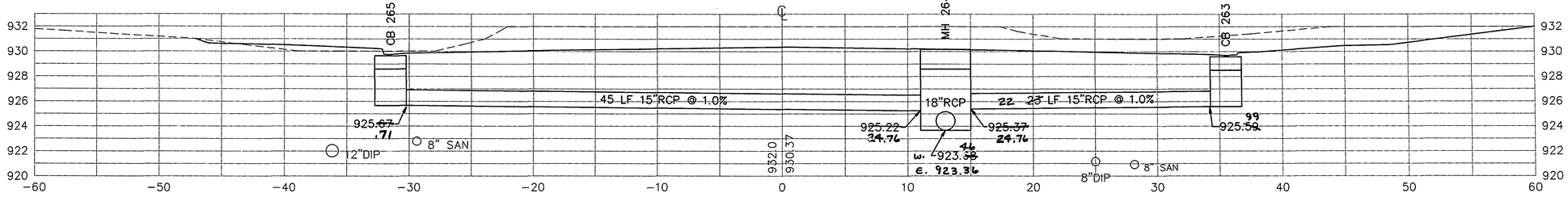
David L. Kral

REG. NO. 14257 DATE 12-6-95

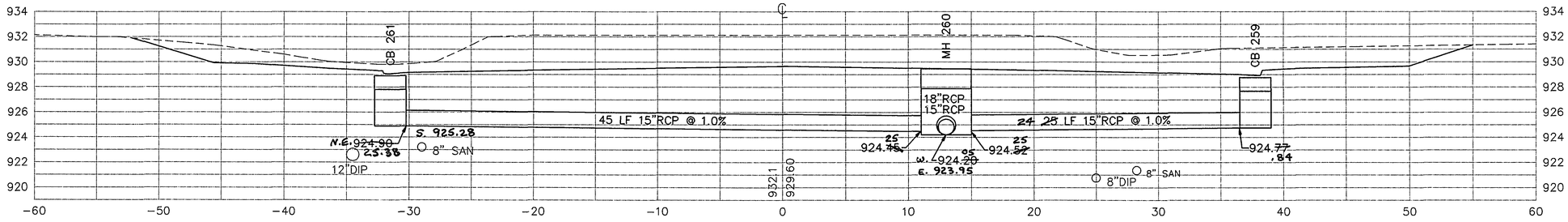
28-144

PLAN & PROFILE LINCOLN AVENUE & BALD EAGLE AVENUE

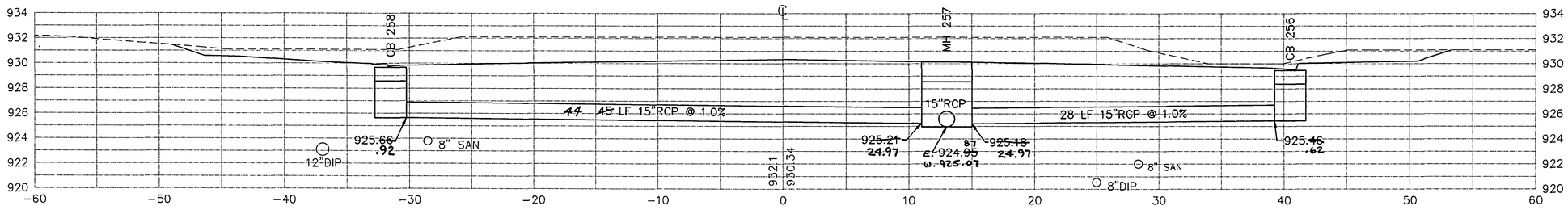
411+24



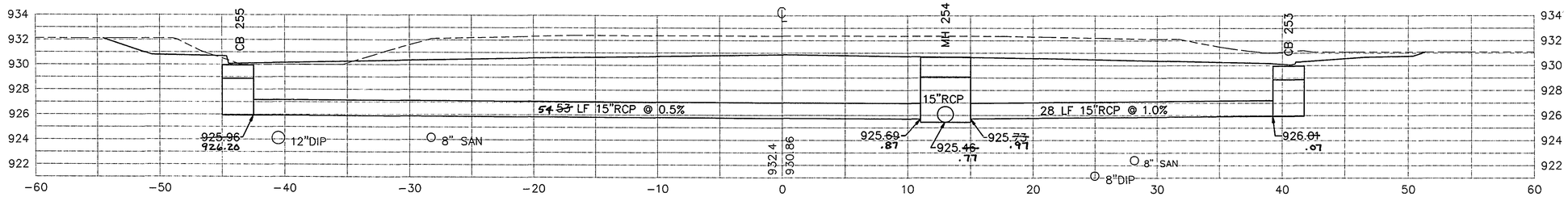
410+19



408+69



407+68



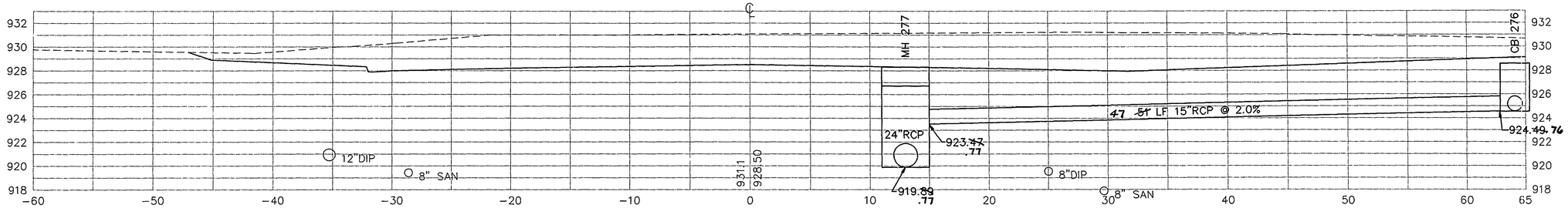
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: R.E.L.
DATE: 12/17/96

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.
David R. Ruff
REG. NO. 14257 DATE 12-6-96

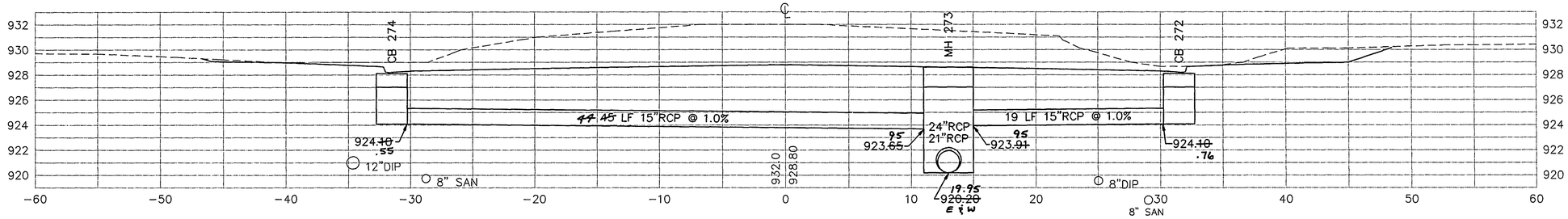
28-144

STORM SEWER PROFILES

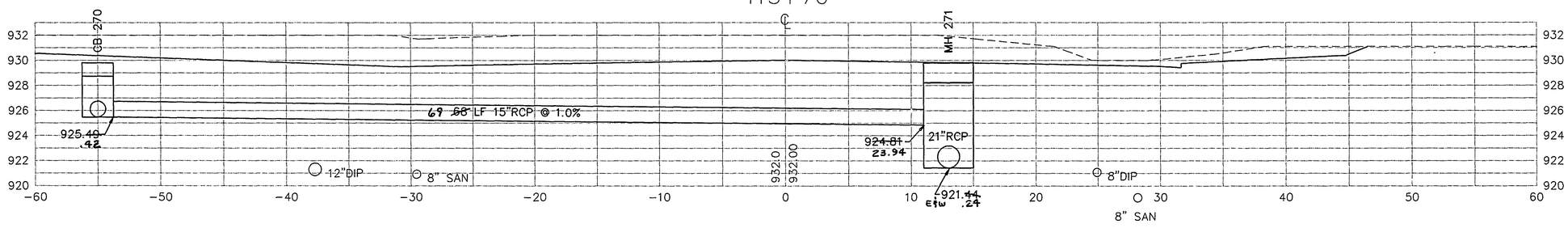
418+80



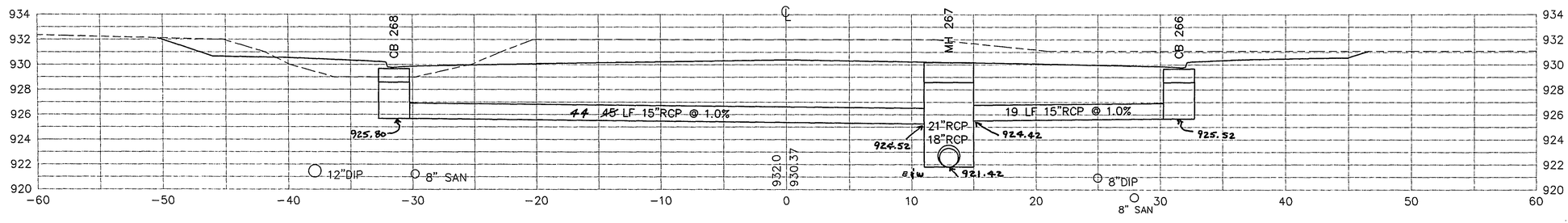
418+18



415+70



414+97

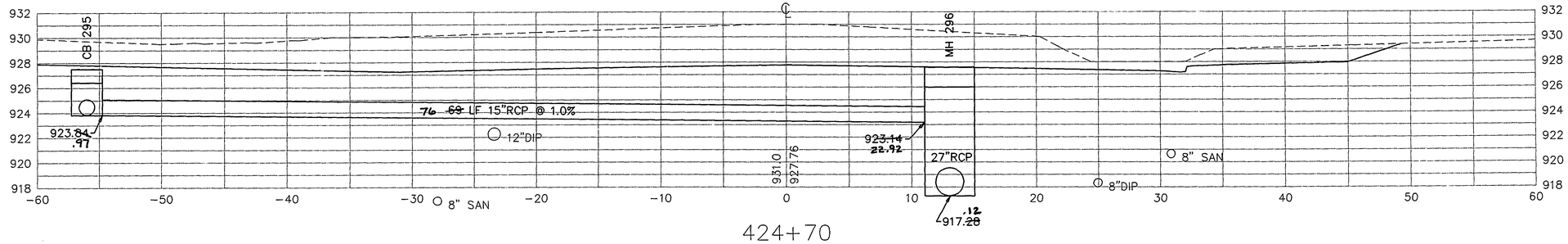


ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: REL
DATE: 12/17/96

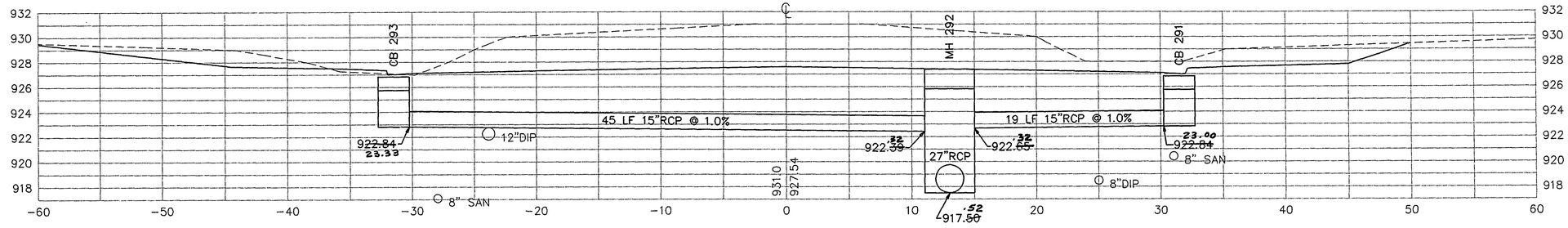
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David A. Rhett
REG. NO. 14257 DATE 12-6-95

28-144
STORM SEWER PROFILES

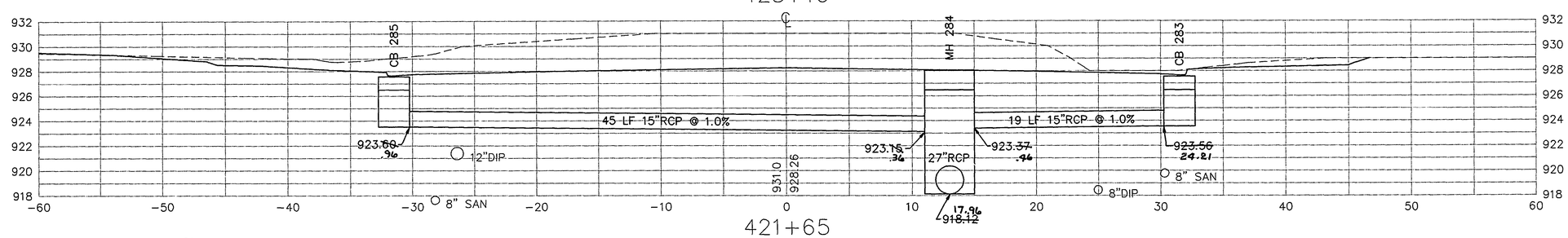
425+26



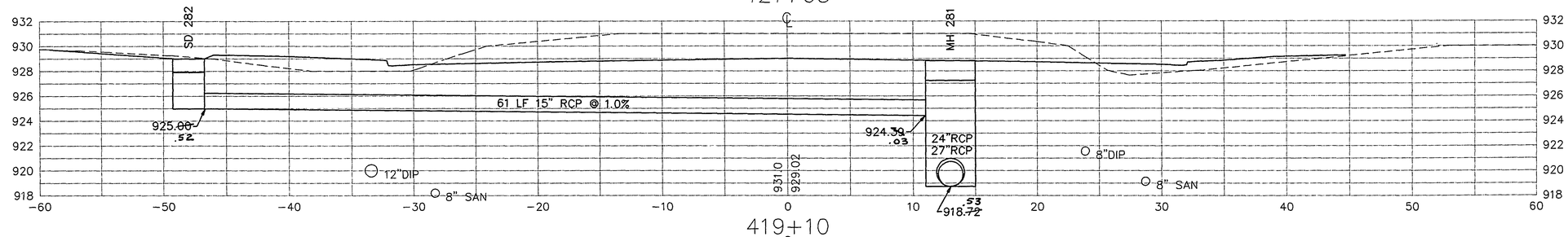
424+70



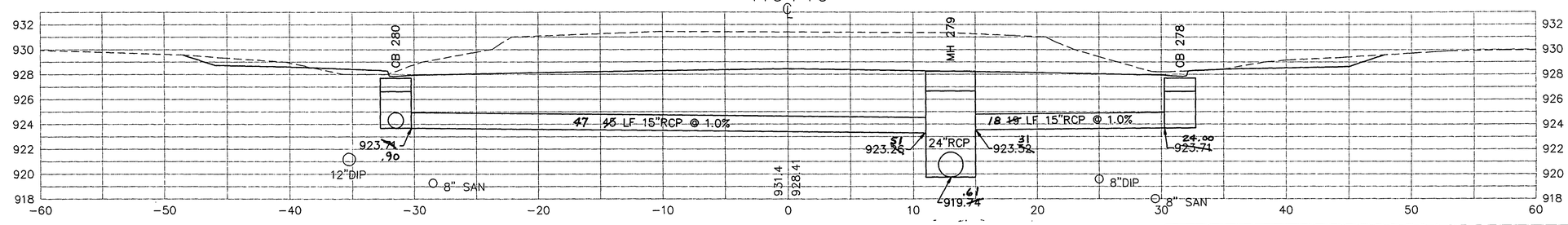
423+16



421+65



419+10



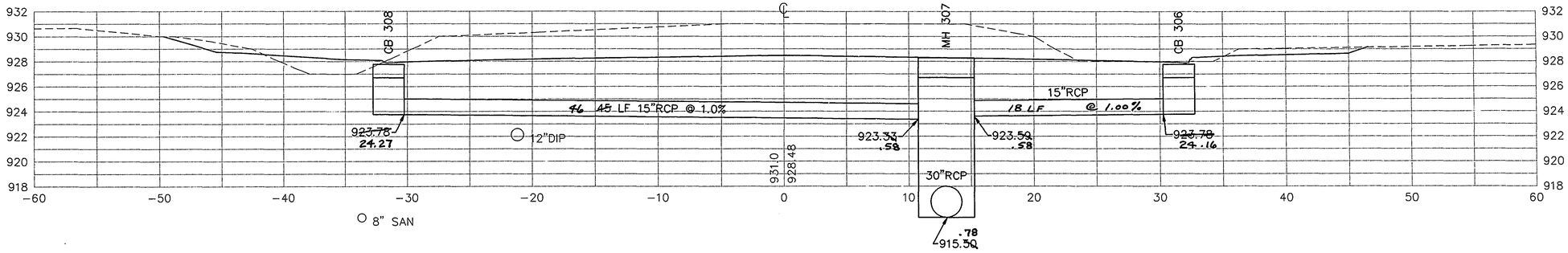
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: REL
DATE: 12-17-96

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.
David T. Krall
REG. NO. 14257 DATE 12-6-95

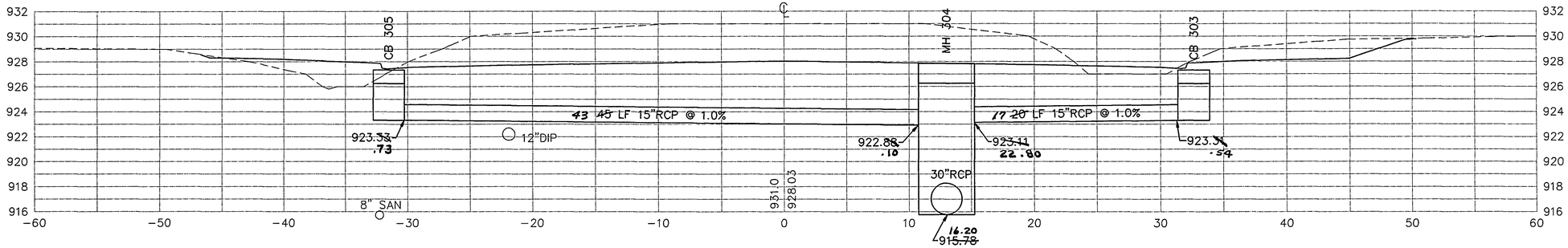
28-144

STORM SEWER PROFILES

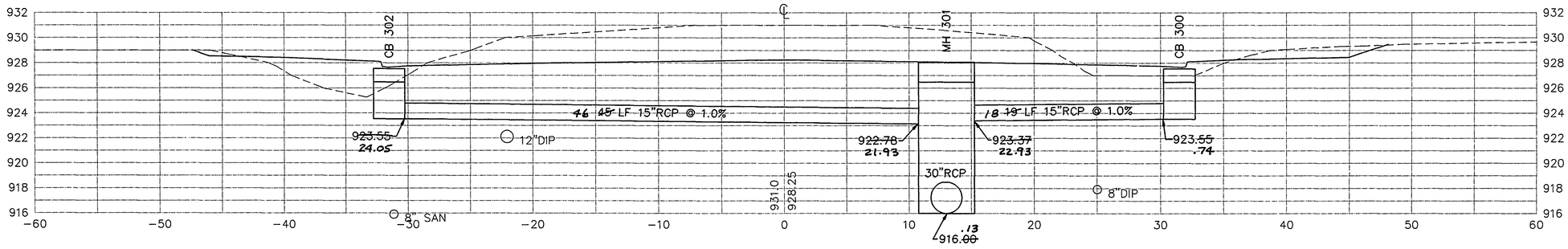
429+68



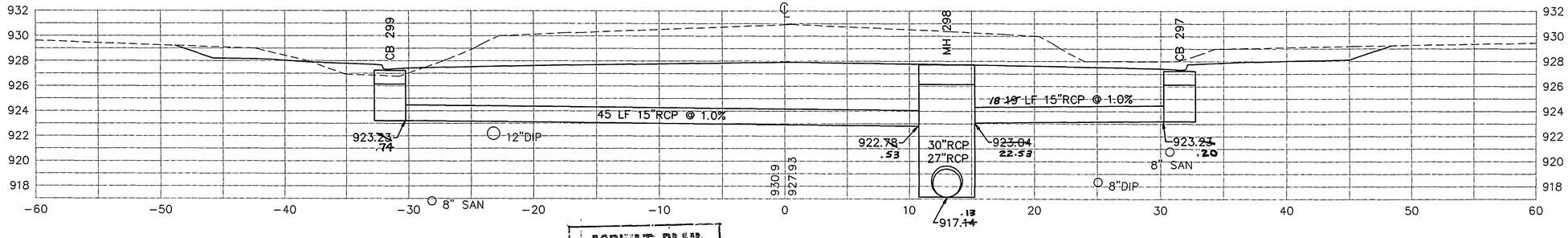
428+99



428+45



425+60



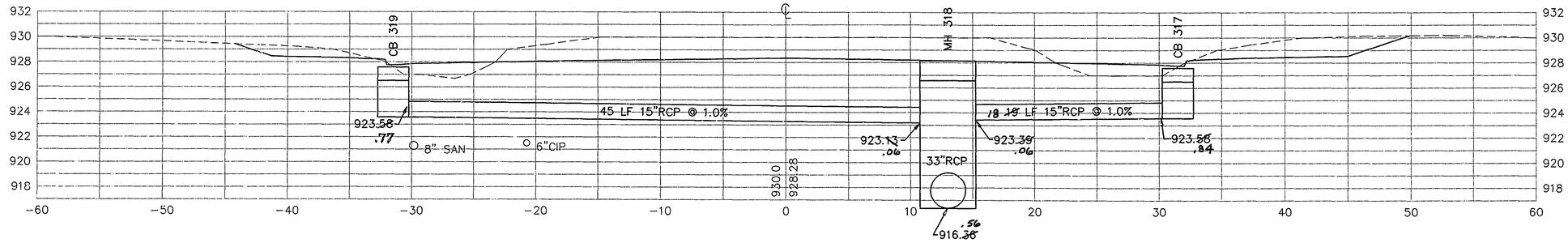
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: RSL
DATE 12/17/96

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.
David L. Krall
REG. NO. 14257 DATE 12-6-96

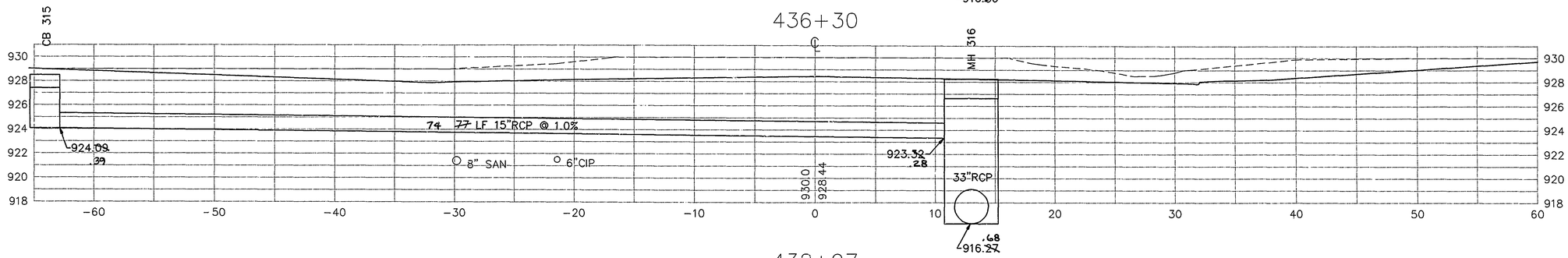
28-144

STORM SEWER PROFILES

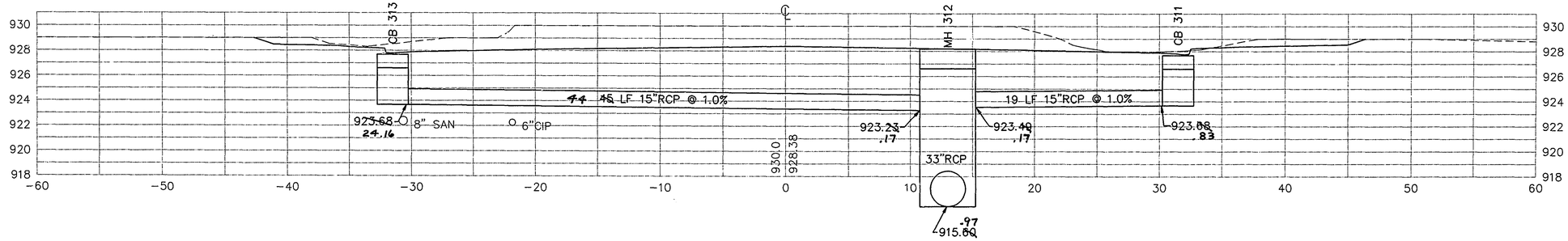
436+73



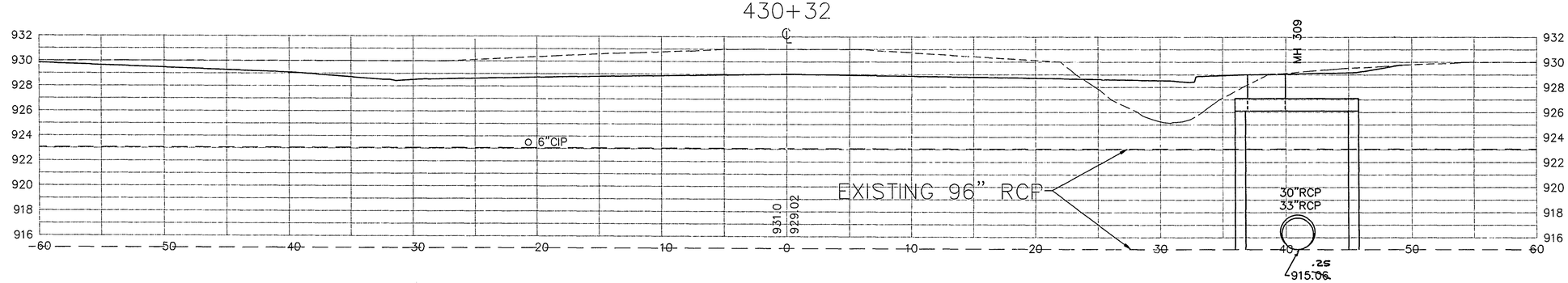
436+30



432+97



430+32



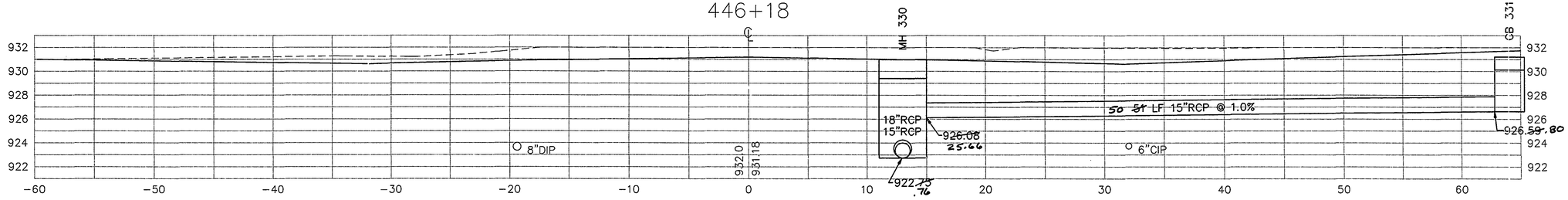
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: REL
DATE: 12/17/96

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.
David L. Rholl
REG. NO. 14257 DATE 12-6-95

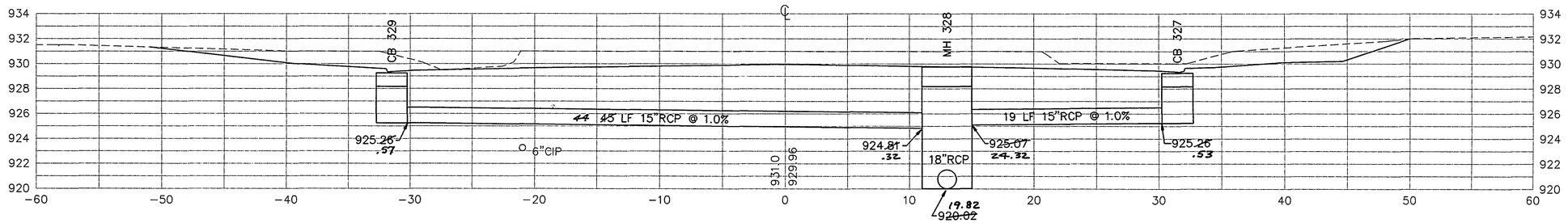
28-144

STORM SEWER PROFILES

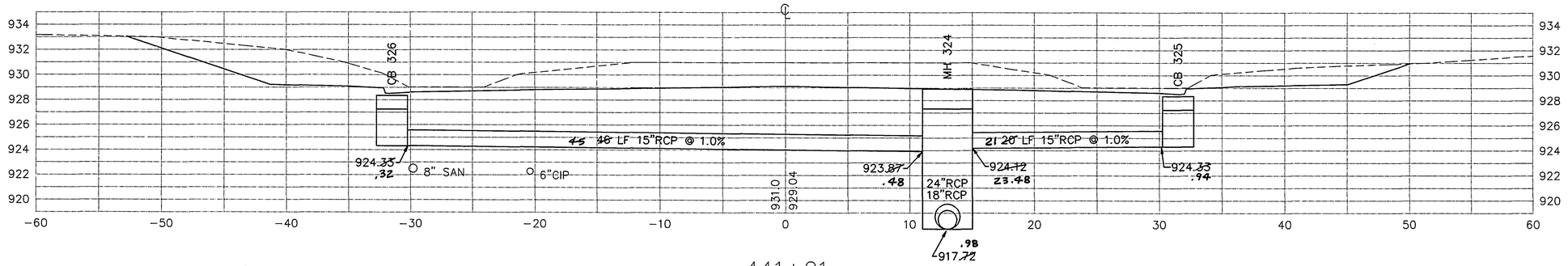
446+18



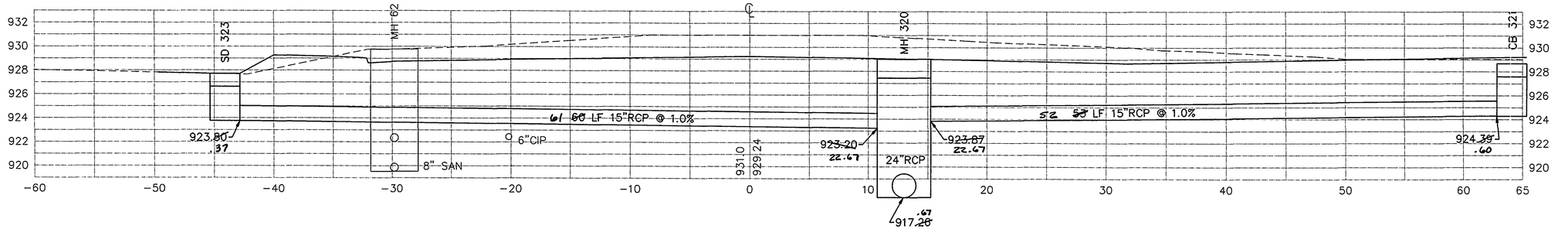
443+73



441+66



441+21

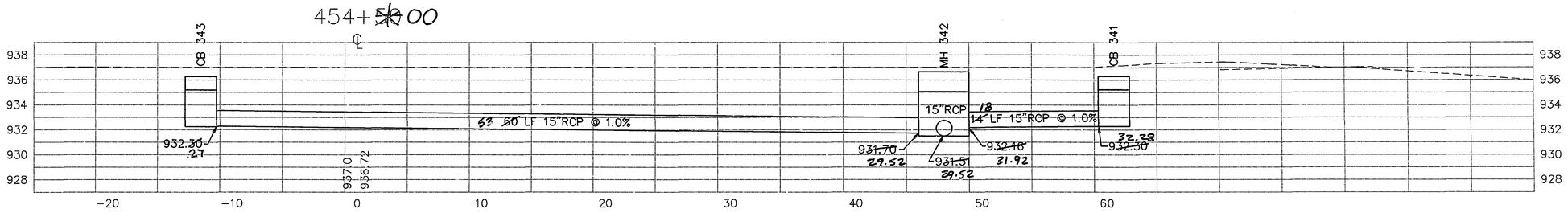


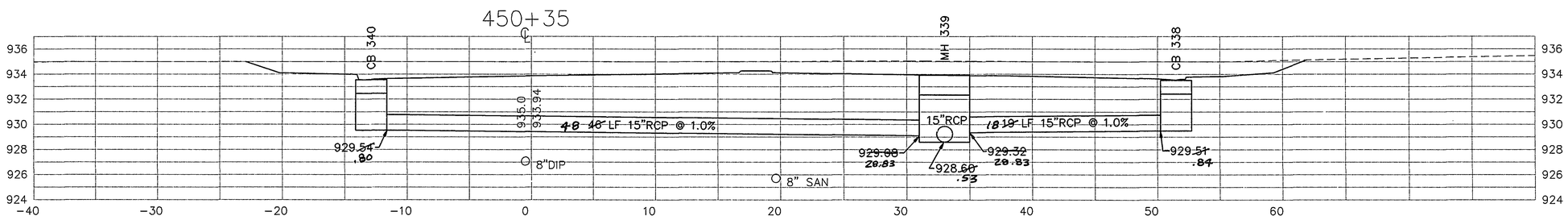
ASBUILT PLANS
CONFORMING TO
CONST. RECORDS
DONE BY: REL
DATE: 12/17/96

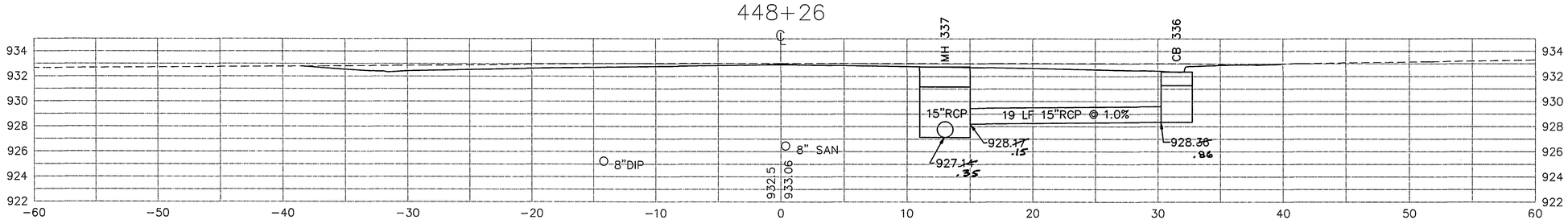
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
David R. Krall
REG. NO. 14257 DATE 12-6-95

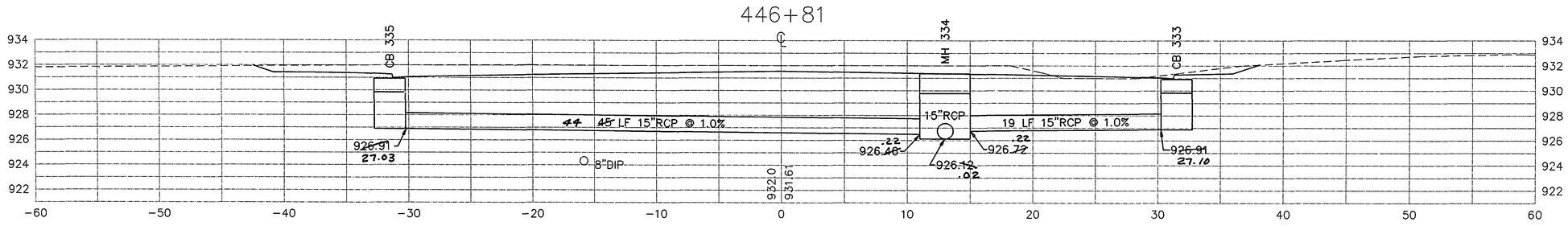
28-144

STORM SEWER PROFILES







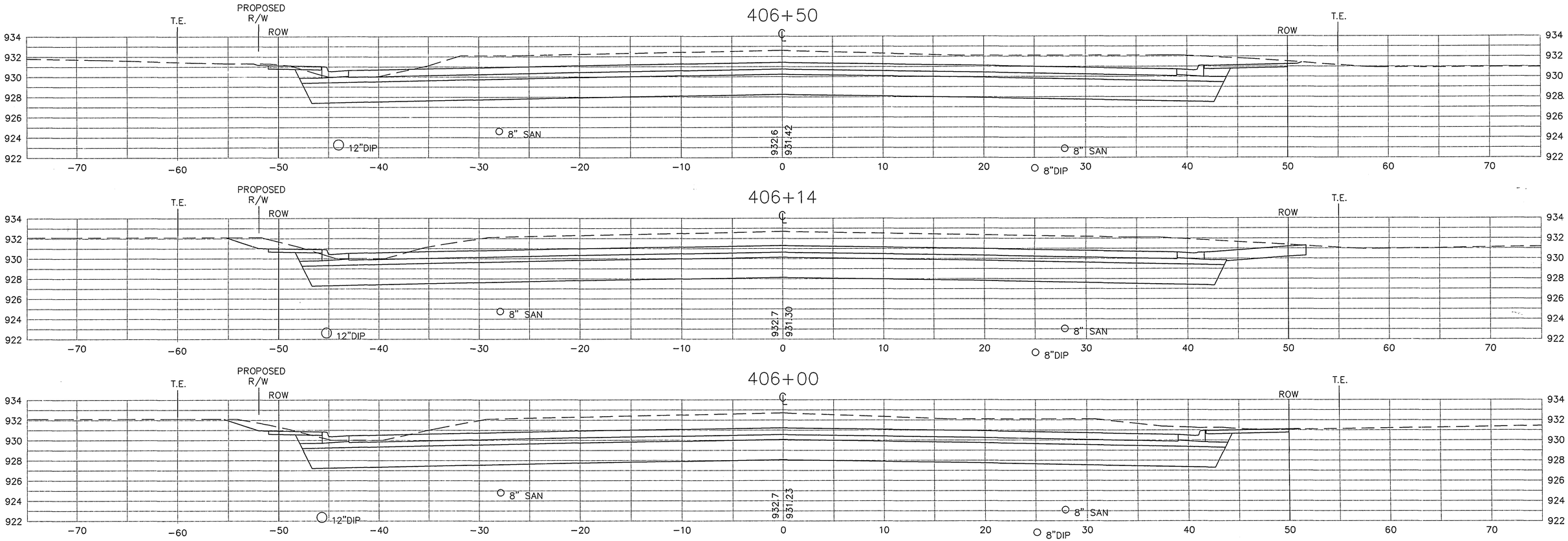


ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: KEL
DATE: 12/17/96

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.
David L. Krull
REG. NO. 14257 DATE 12-6-95

28-144

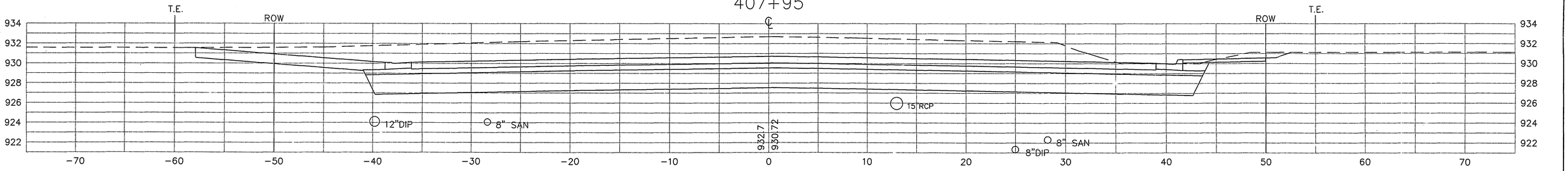
STORM SEWER PROFILES



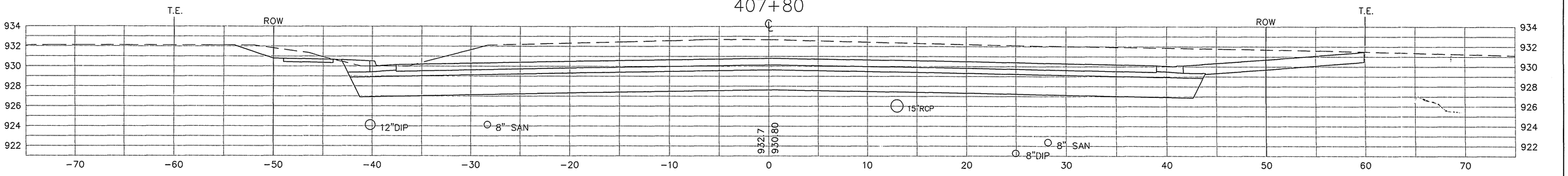
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 405+50 TO 406+50

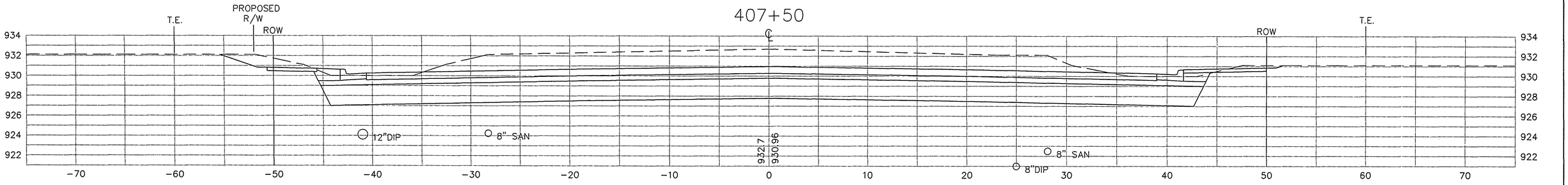
407+95



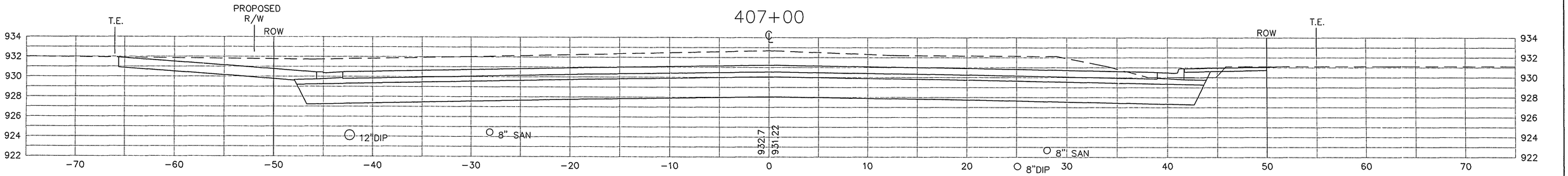
407+80



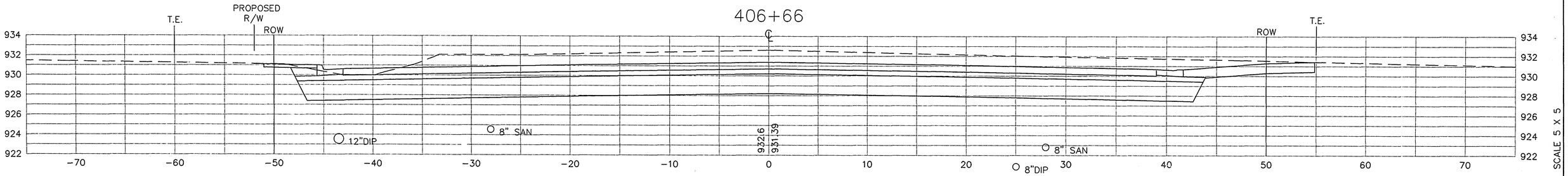
407+50



407+00

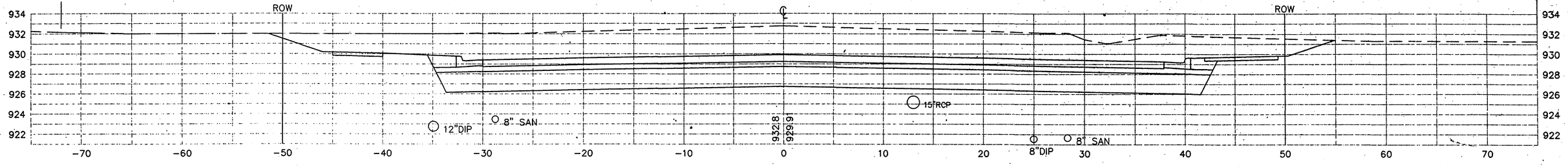


406+66

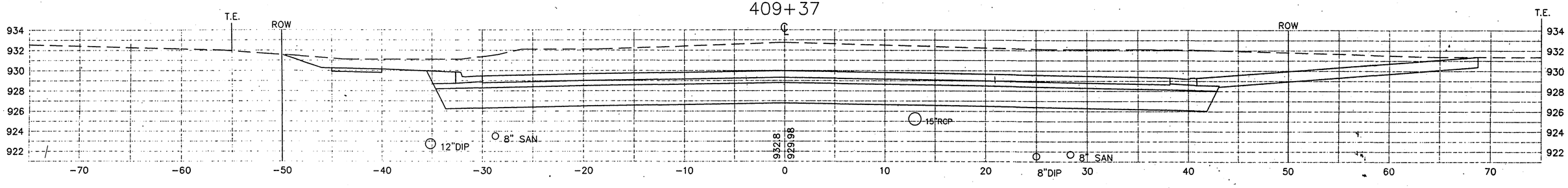


CROSS SECTIONS 28-144
STA. 406+66 TO 407+95

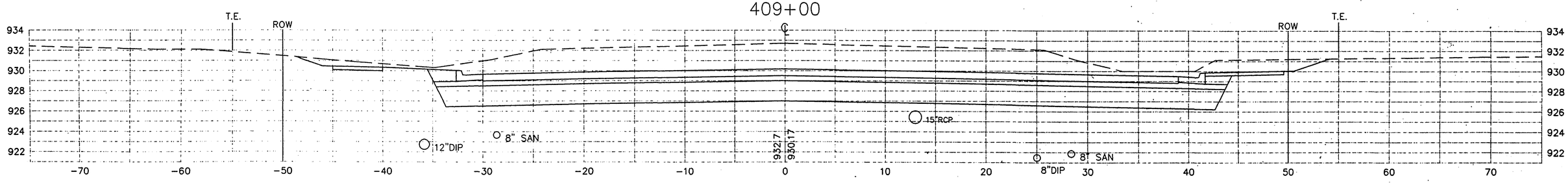
409+50



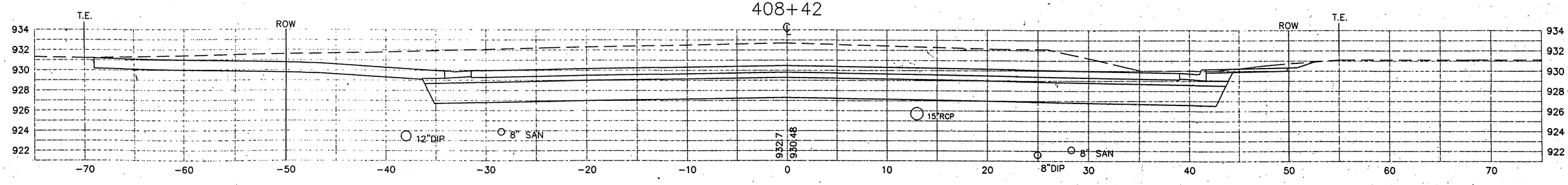
409+37



409+00



408+42

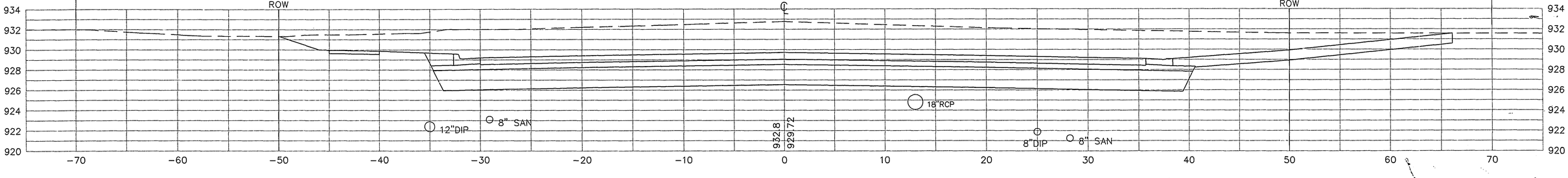


SCALE 5 X 5

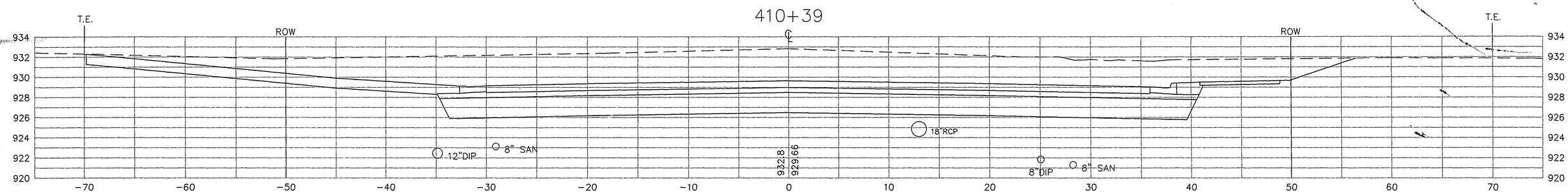
CROSS SECTIONS 28-144
STA. 408+42 TO 409+50

S.A.P. 62-696-02 C.T.B. SHEET NO. 49 OF 96 SHEETS

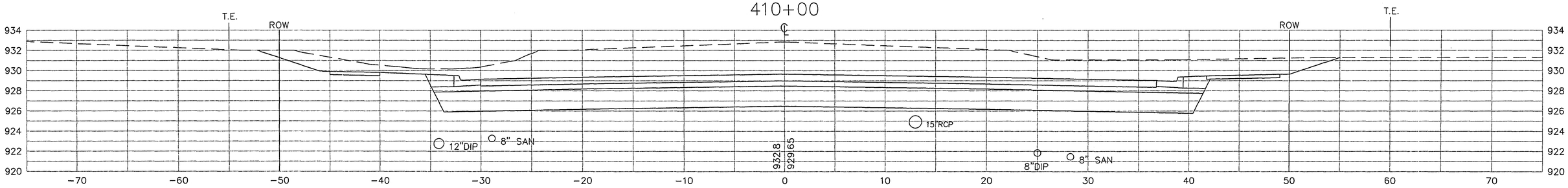
410+48



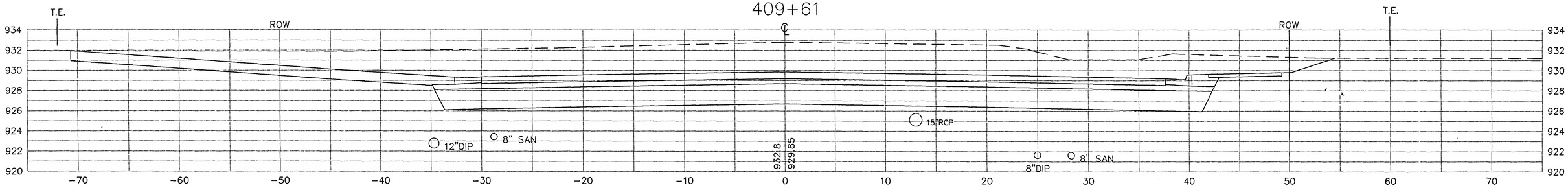
410+39



410+00



409+61

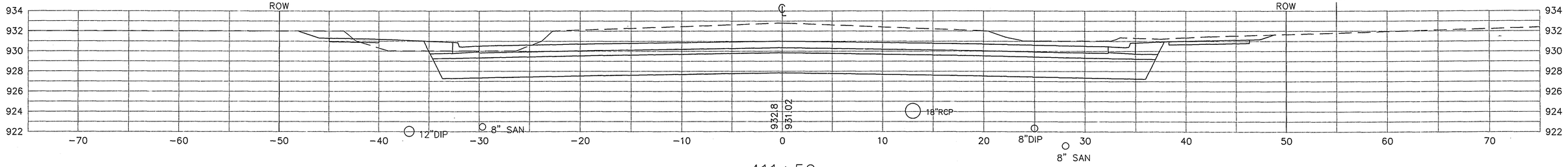


SCALE 5 X 5

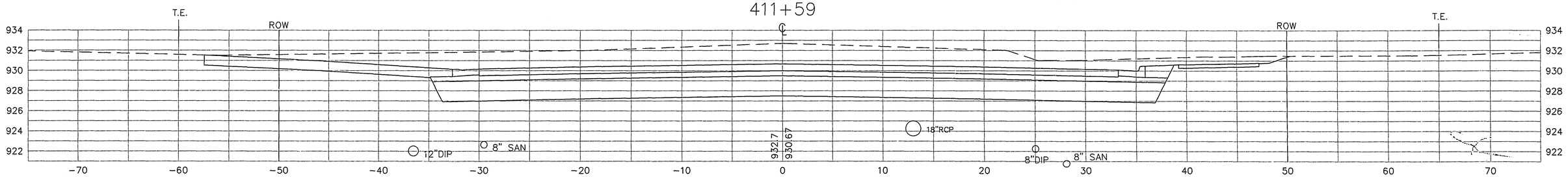
CROSS SECTIONS 28-14
STA. 409+61 TO 410+48

S.A.P. 62-696-02 C.T.B. SHEET NO. 50 OF 96 SHEETS

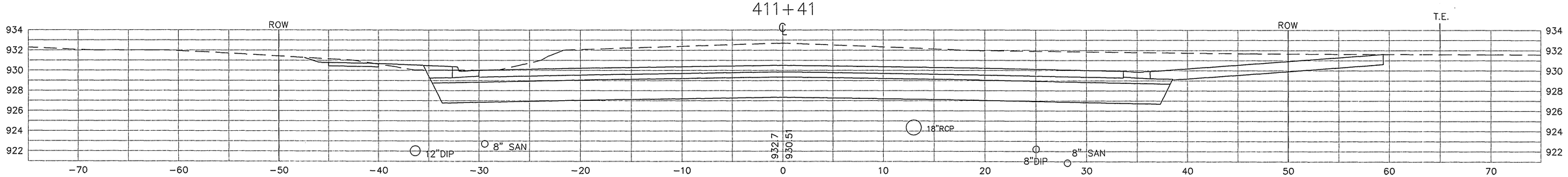
412+00



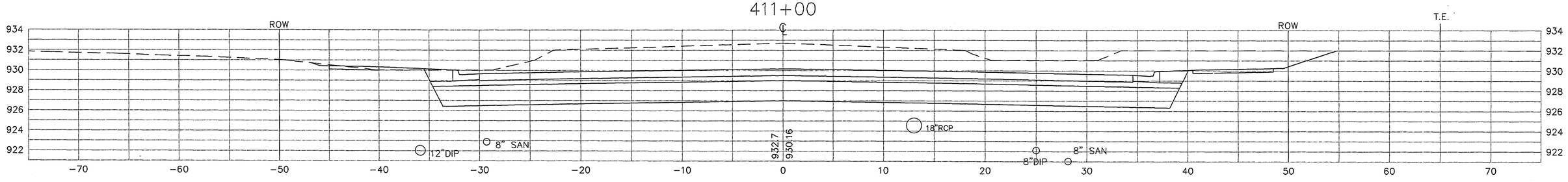
411+59



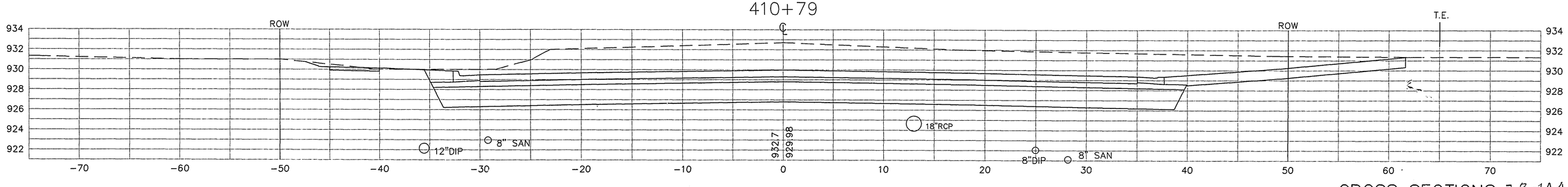
411+41



411+00



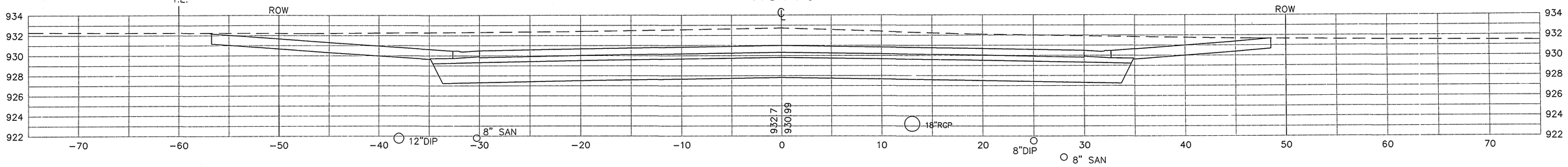
410+79



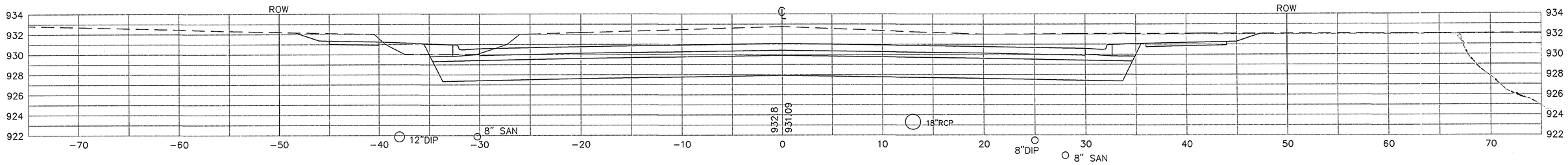
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 410+79 TO 412+00

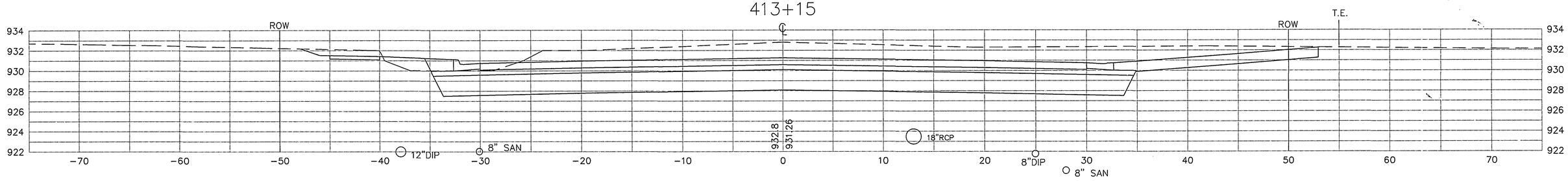
413+70



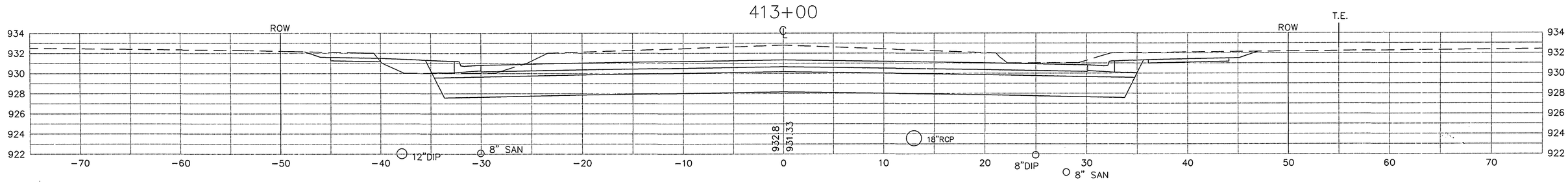
413+50



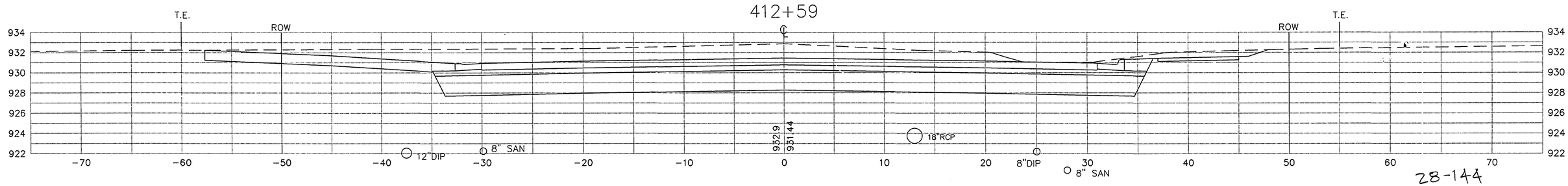
413+15



413+00



412+59



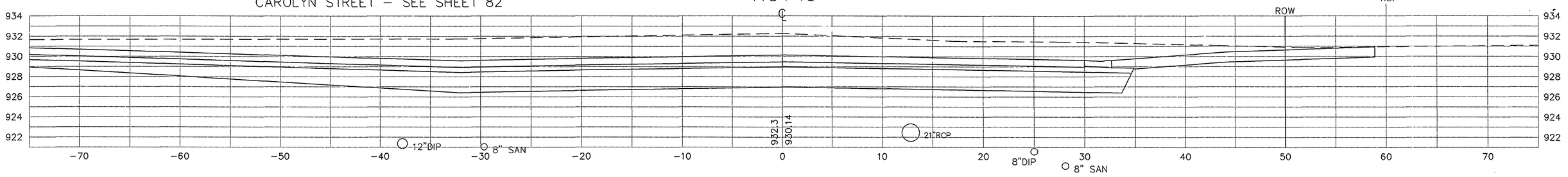
SCALE 5 X 5

28-144

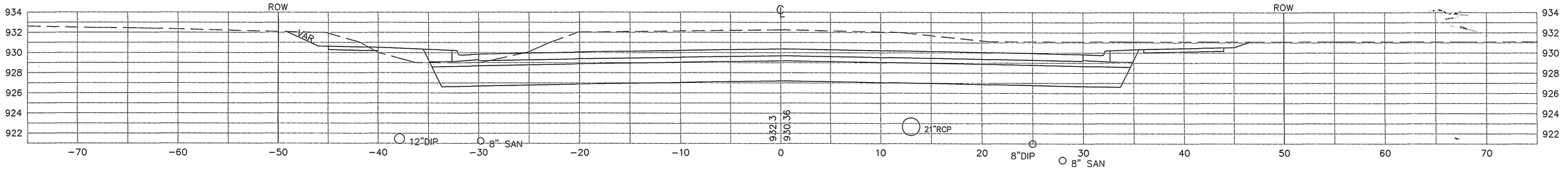
CROSS SECTIONS
STA. 412+59 TO 413+70

CAROLYN STREET – SEE SHEET 82

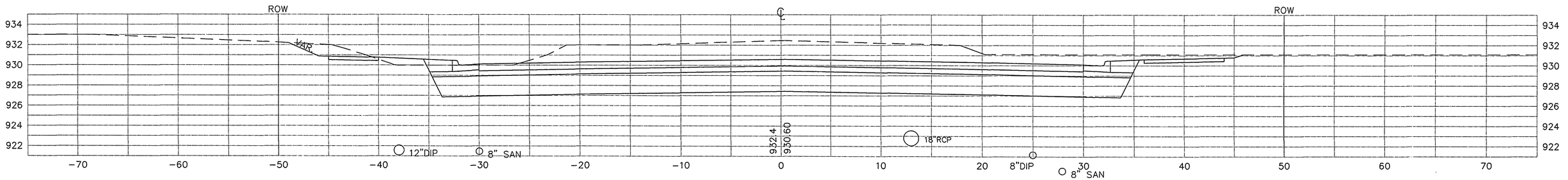
415+45



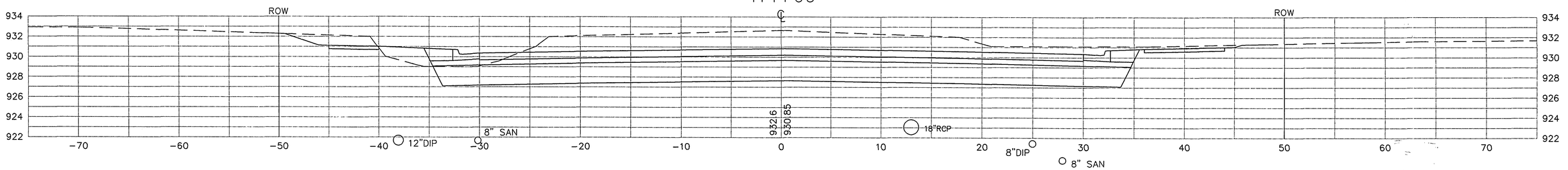
415+00



414+50



414+00

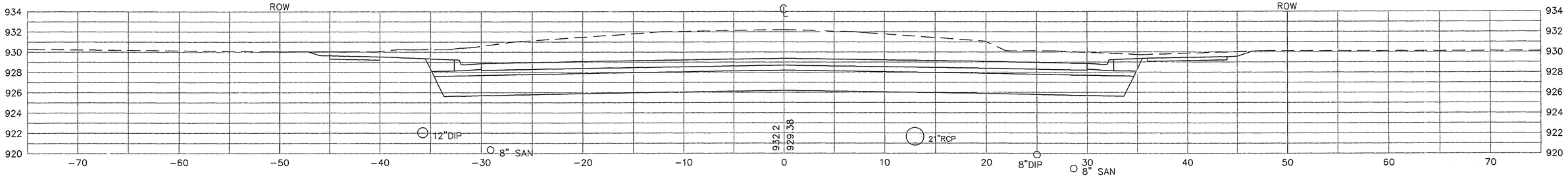


SCALE 5 X 5

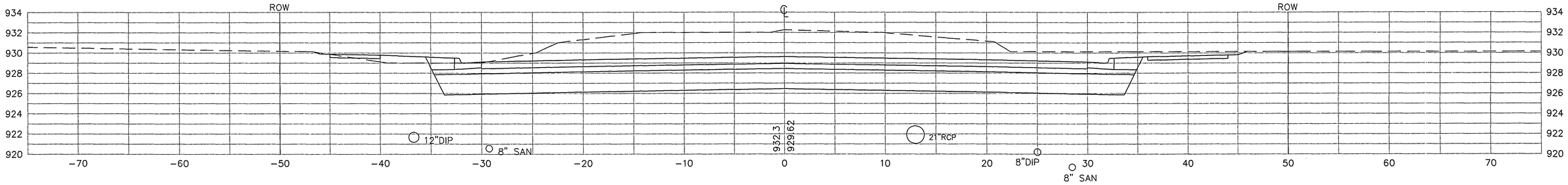
28-144

CROSS SECTIONS
STA. 414+00 TO 415+45

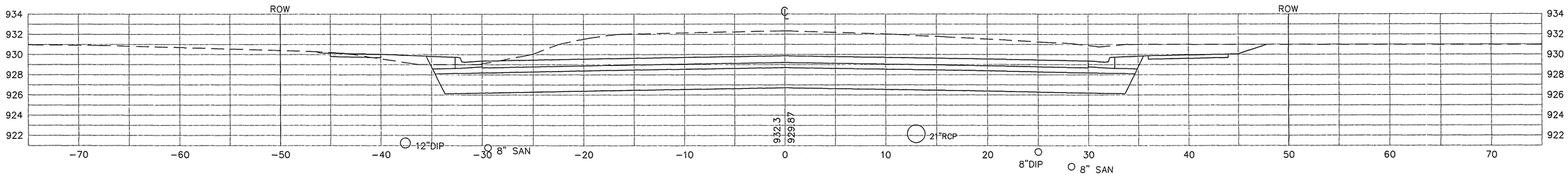
417+00



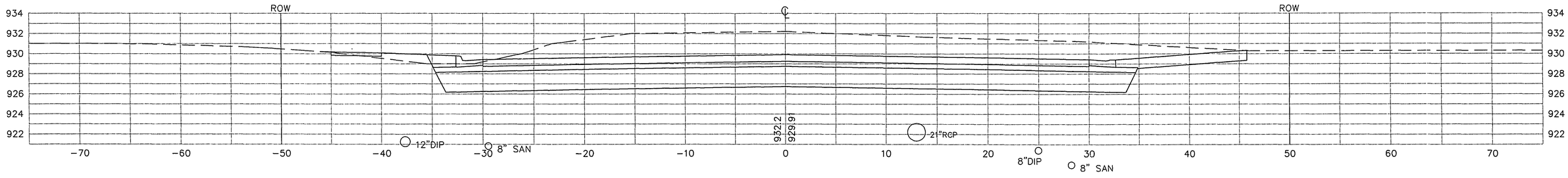
416+50



416+00



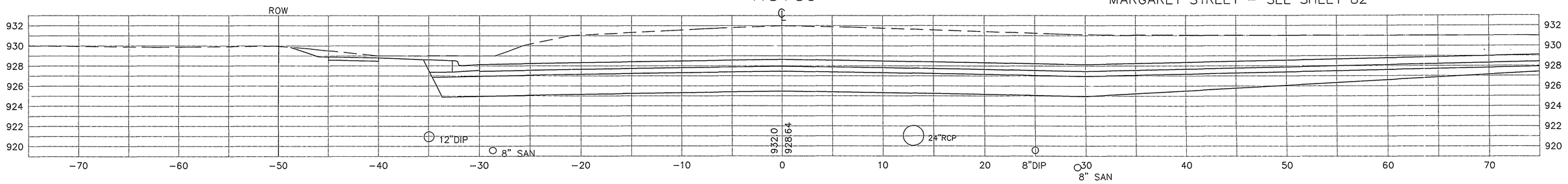
415+91



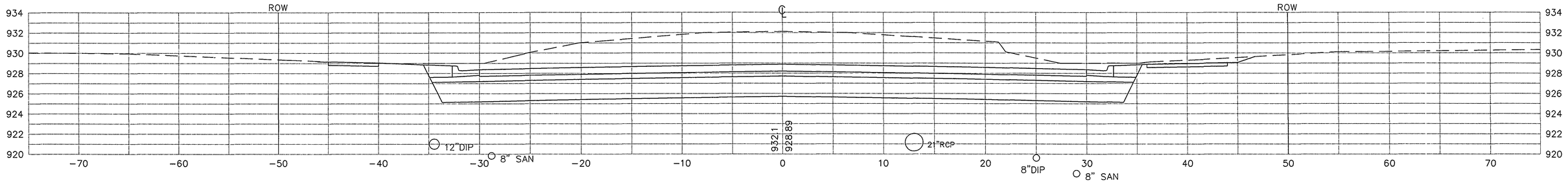
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 415+91 TO 417+00

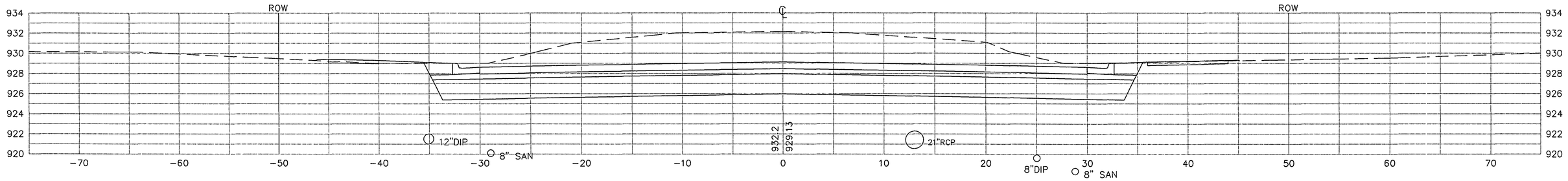
418+50



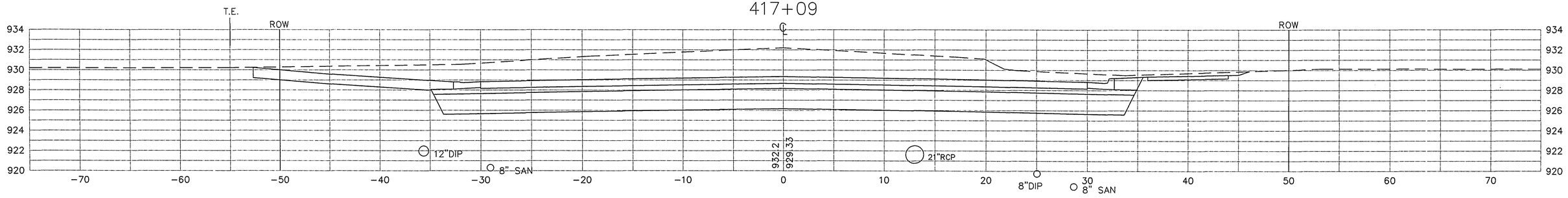
418+00



417+50



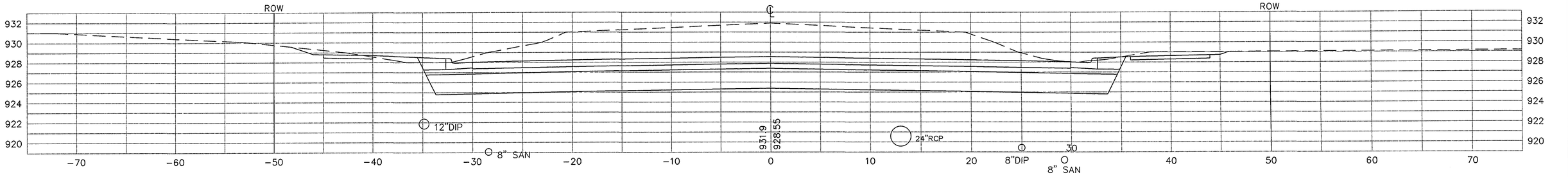
417+09



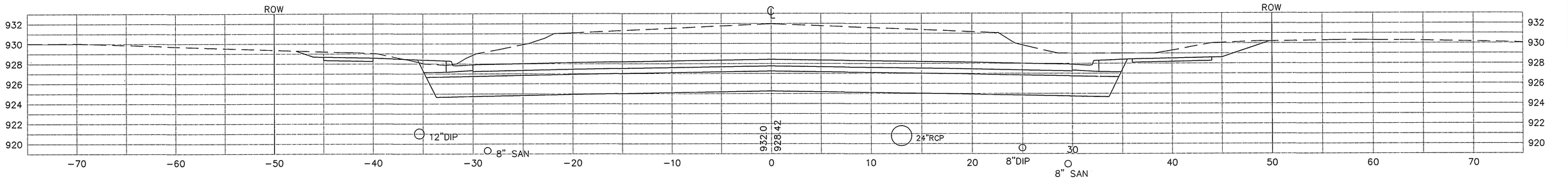
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 417+09 TO 418+50

419+50

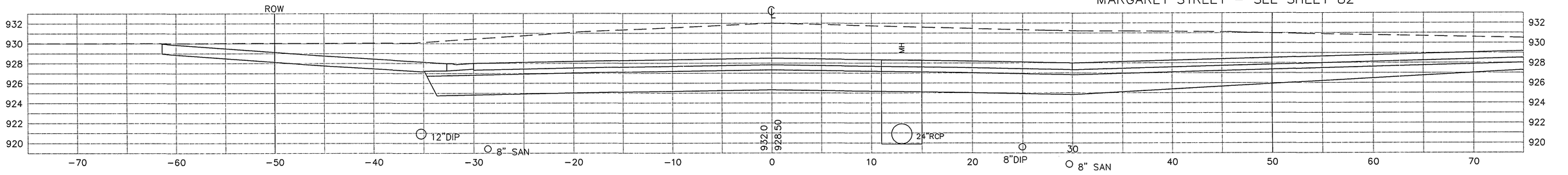


419+00



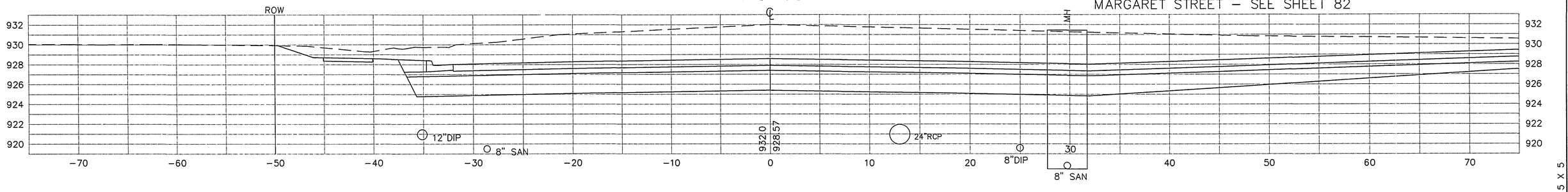
418+79

MARGARET STREET – SEE SHEET 82



418+65

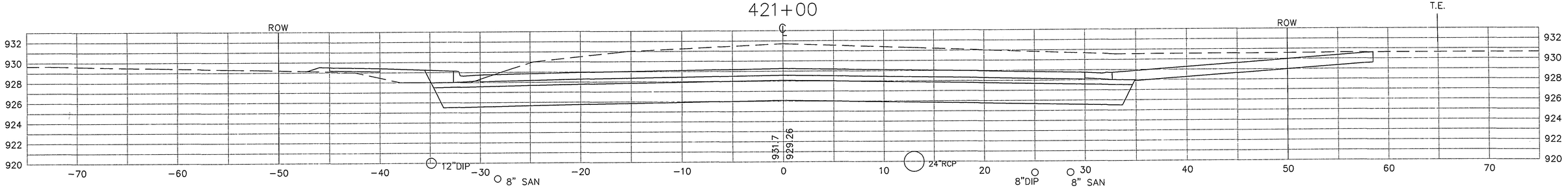
MARGARET STREET – SEE SHEET 82



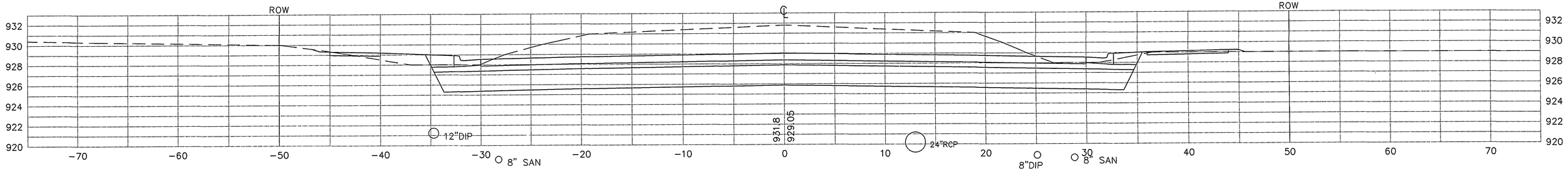
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 418+65 TO 419+50

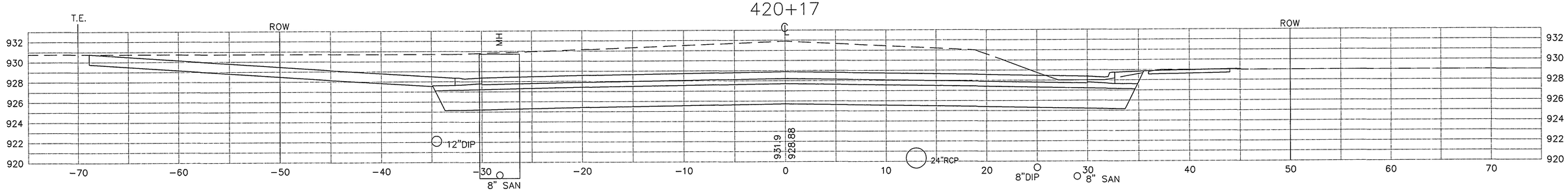
421+00



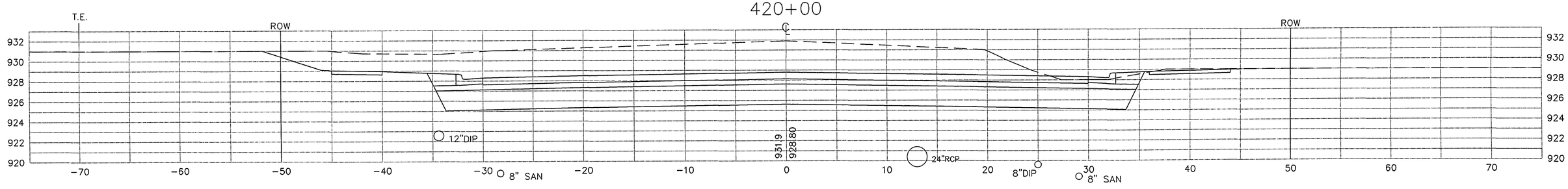
420+50



420+17



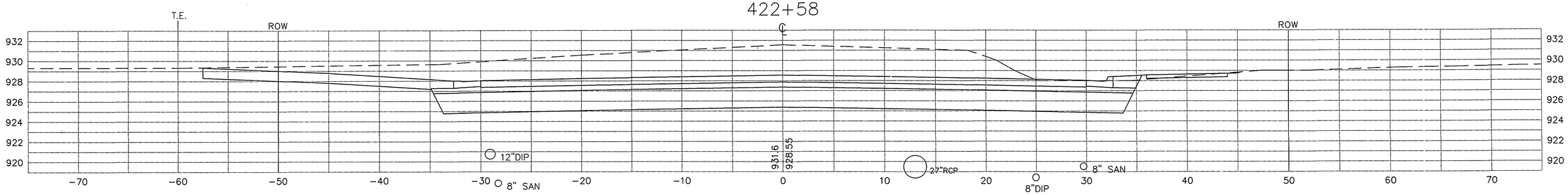
420+00



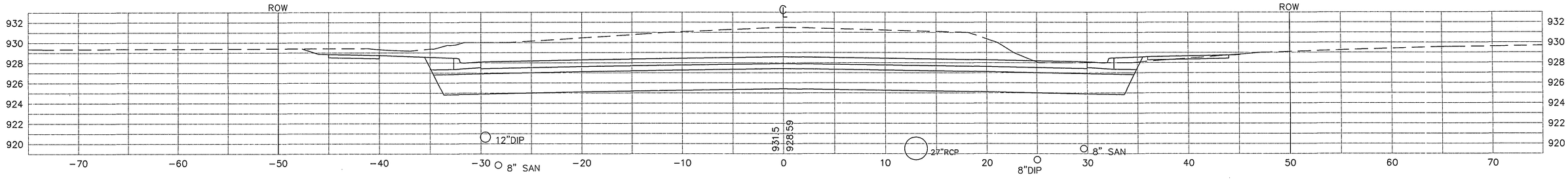
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 420+00 TO 421+00

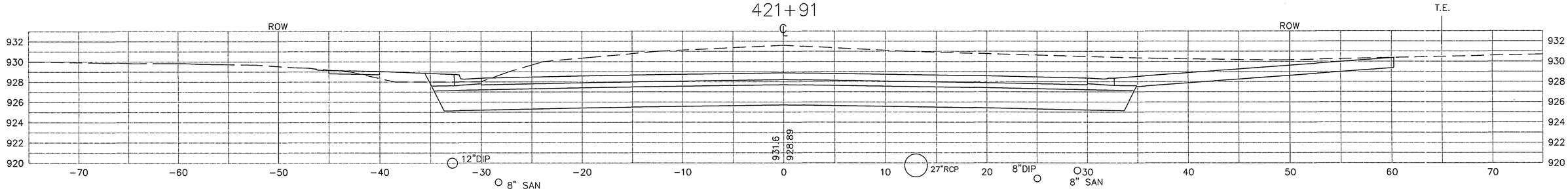
422+58



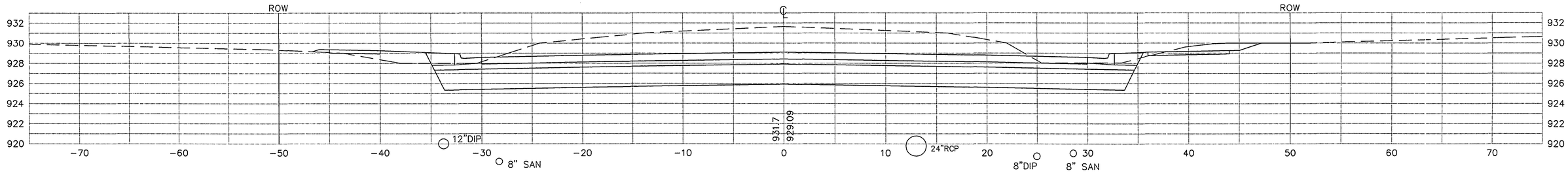
422+50



421+91



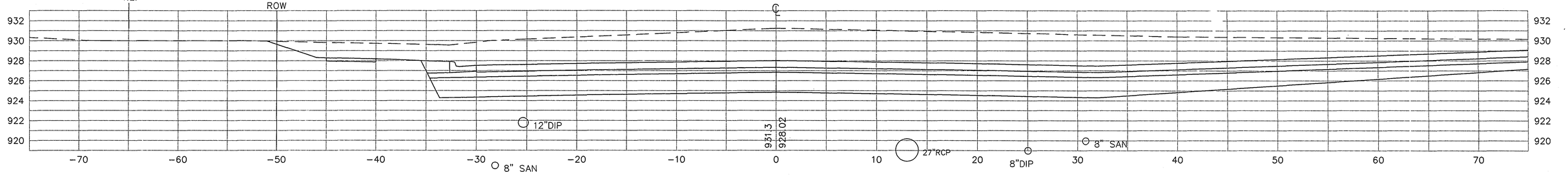
421+50



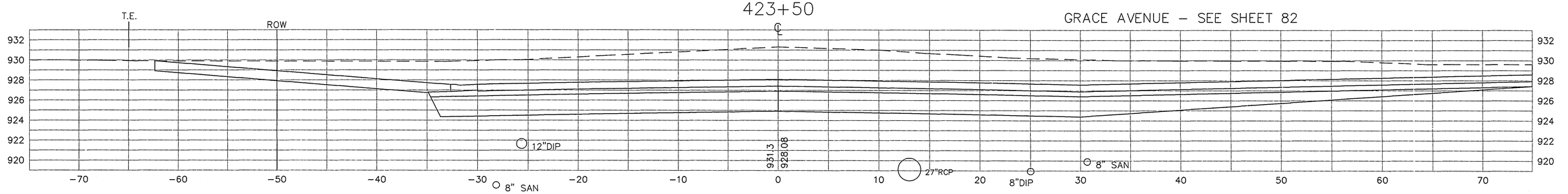
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 421+50 TO 422+58

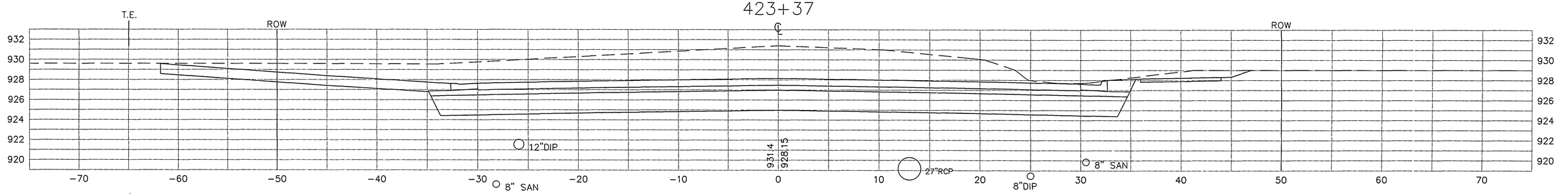
423+63



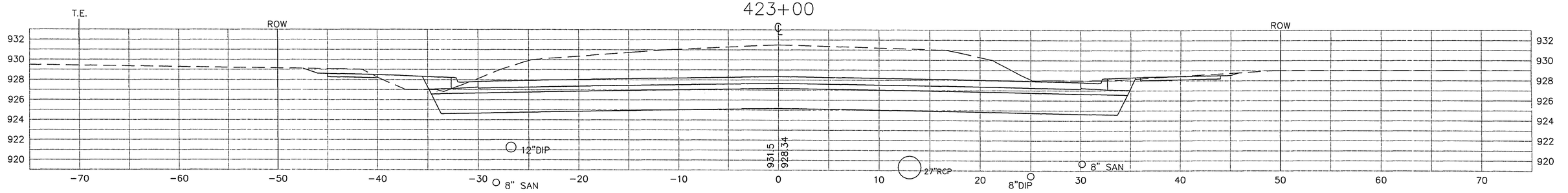
423+50



423+37



423+00

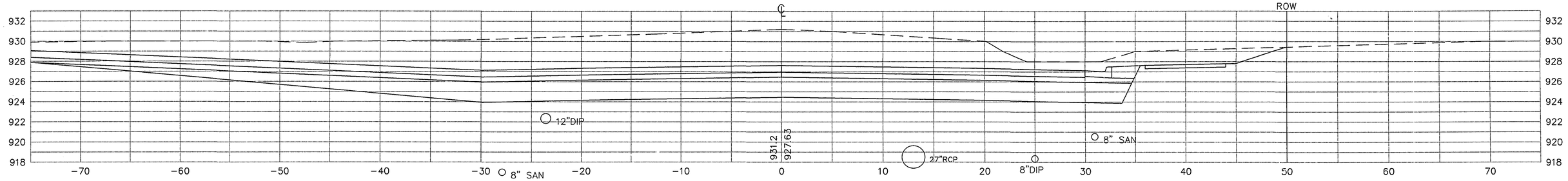


SCALE 5 X 5

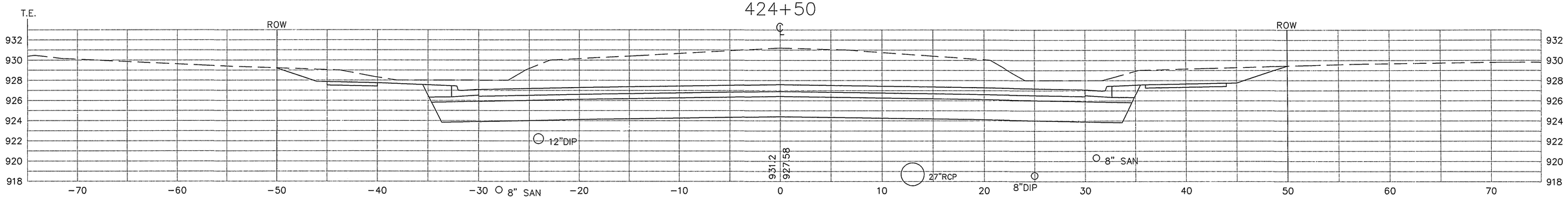
CROSS SECTIONS 28-144
STA. 423+00 TO 423+63

KAREN AVENUE – SEE SHEET 82

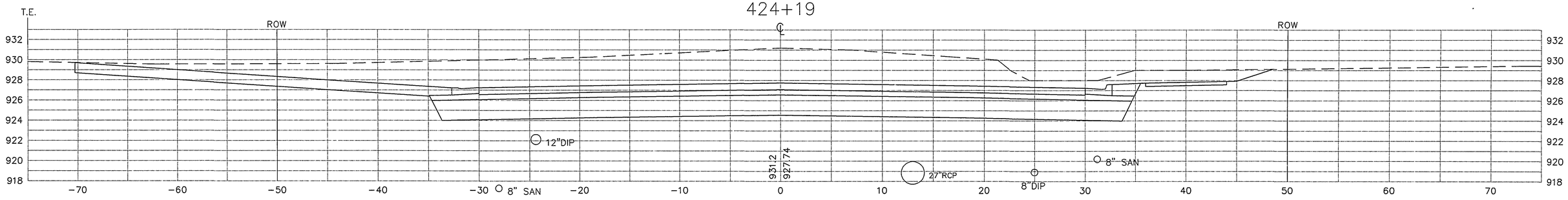
425+00



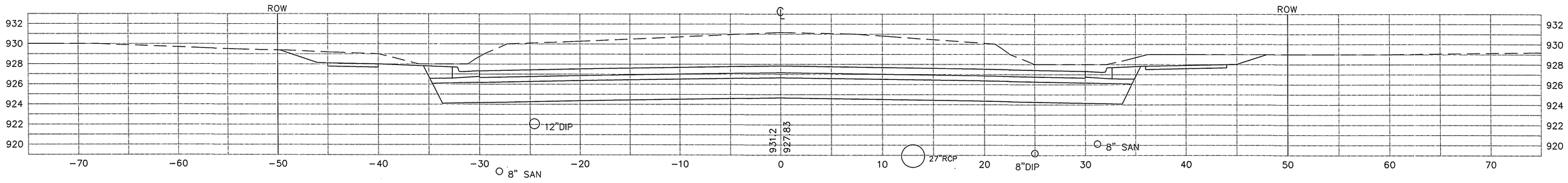
424+50



424+19



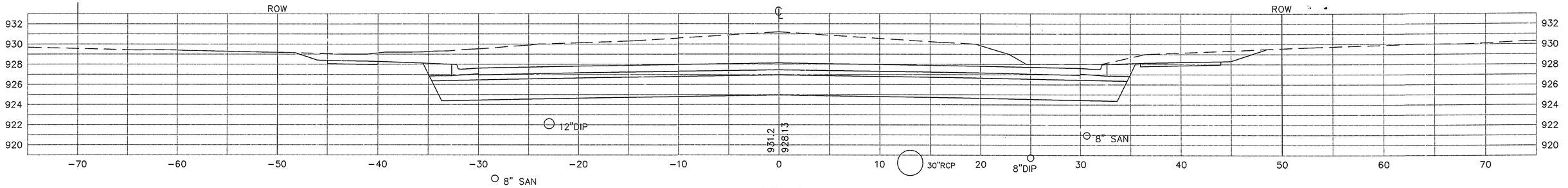
424+00



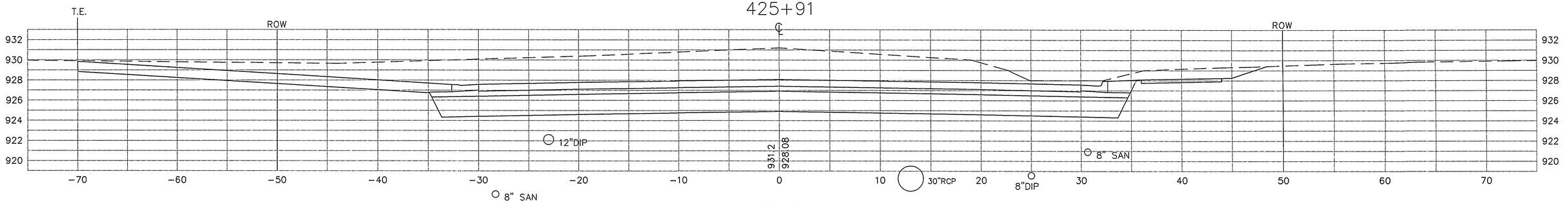
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 424+00 TO 425+00

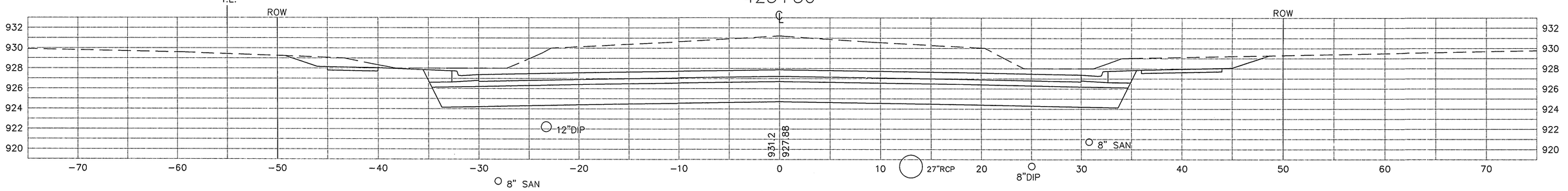
426+00



425+91

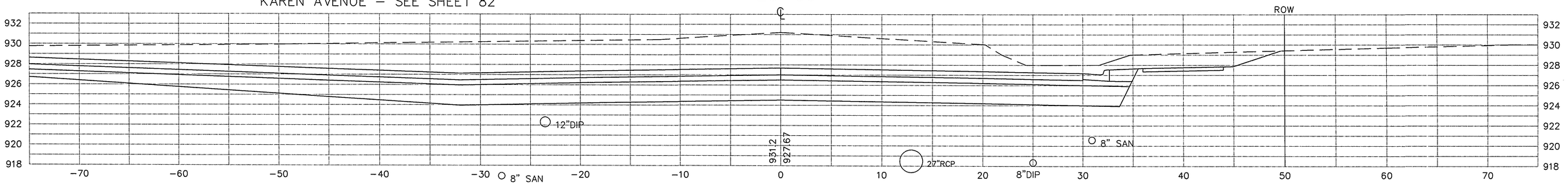


425+50



KAREN AVENUE – SEE SHEET 82

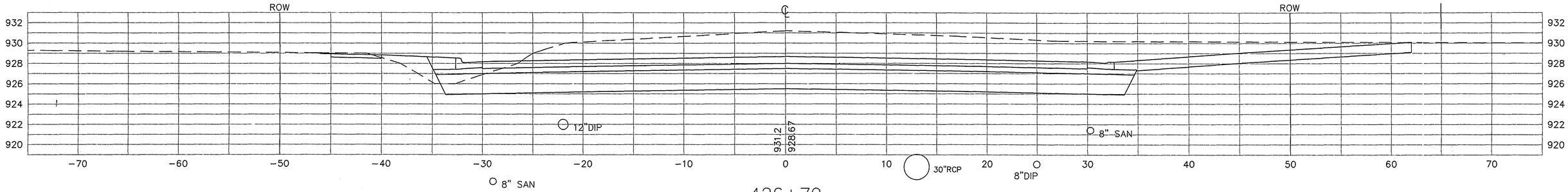
425+09



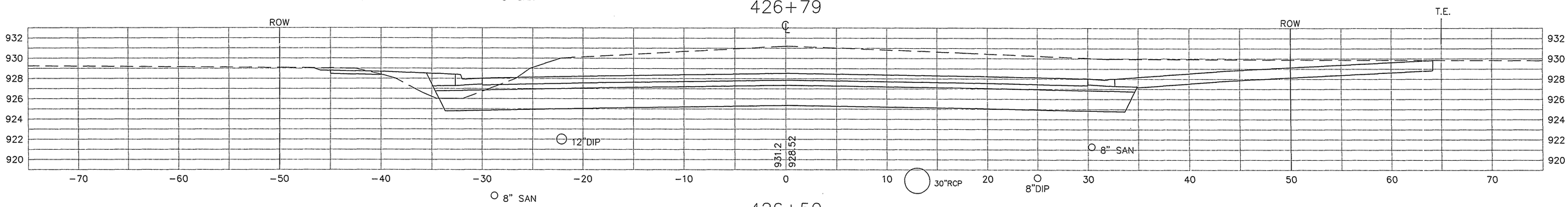
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 425+09 TO 426+00

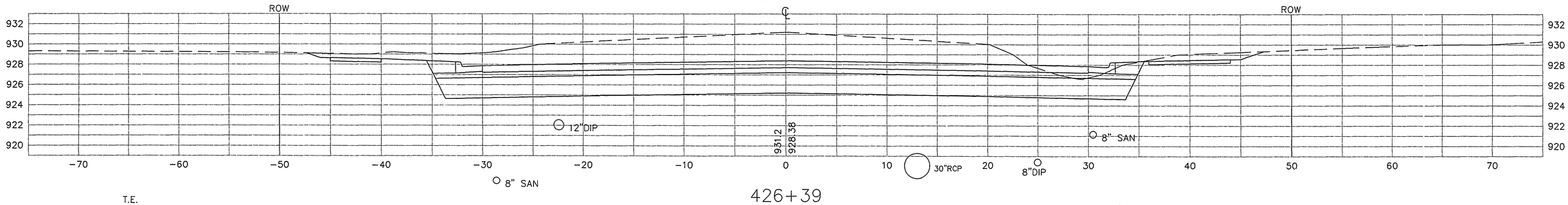
427+09



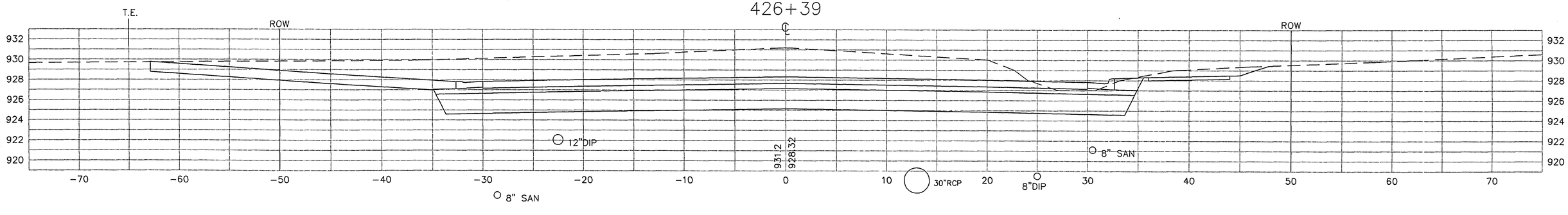
426+79



426+50



426+39

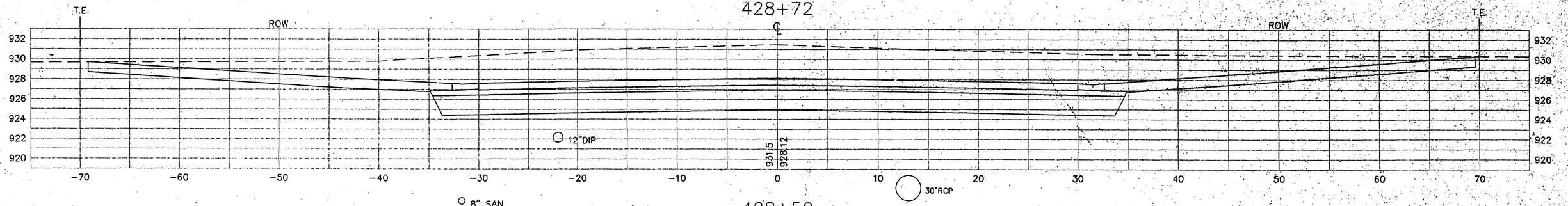


SCALE 5 X 5

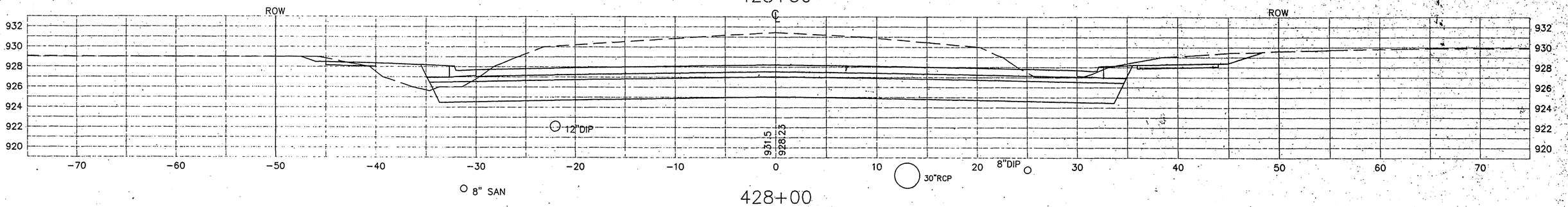
CROSS SECTIONS 28-144
STA. 426+39 TO 427+09

S.A.P. 62−696−02 C.T.B. SHEET NO. 62 OF 96 SHEETS

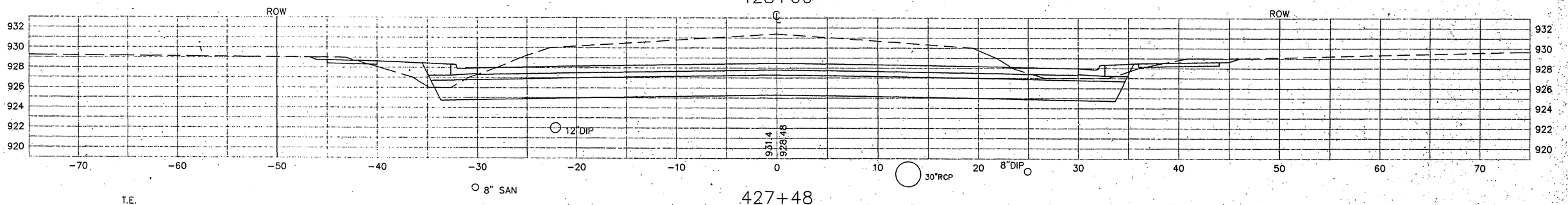
428+72



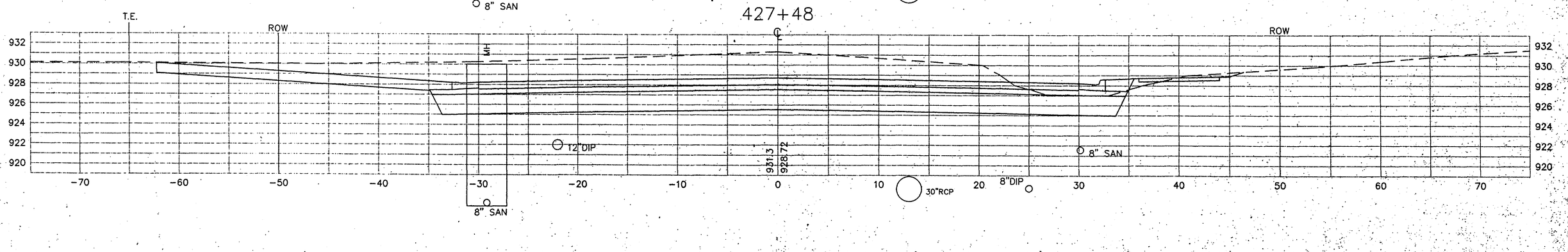
428+50



428+00



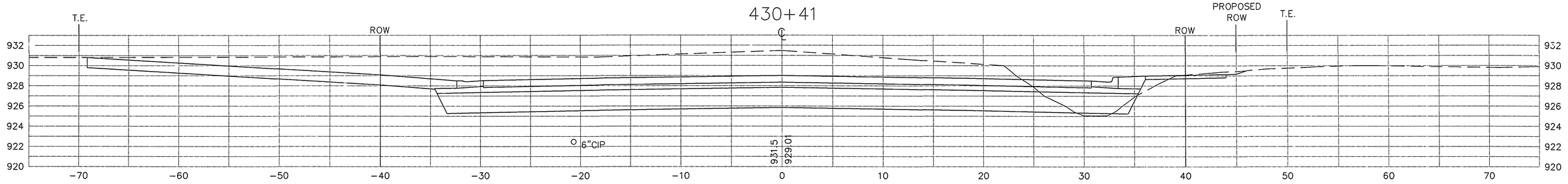
427+48

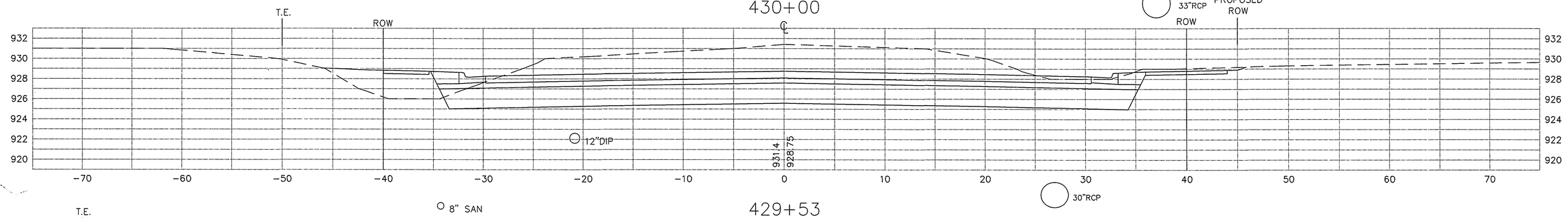


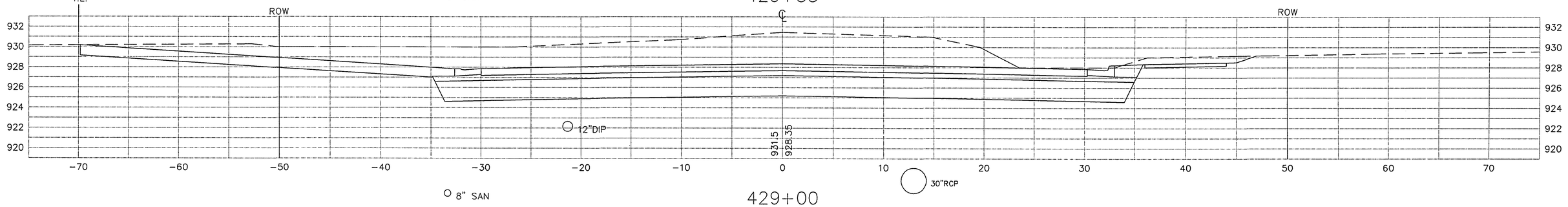
SCALE 5 X 5

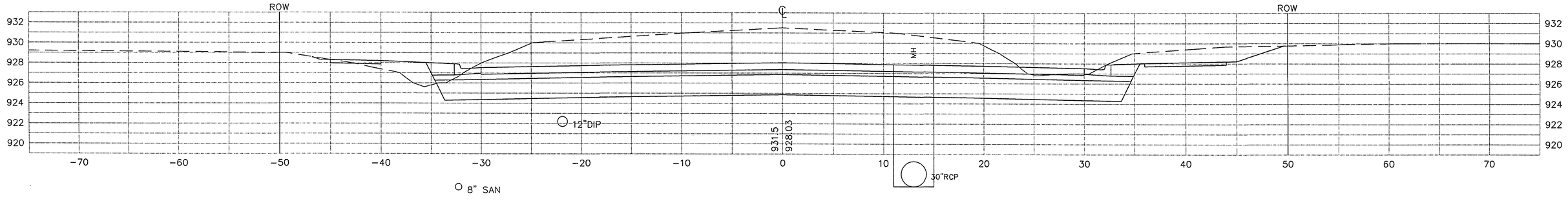
CROSS SECTIONS 28-144
STA. 427+48 TO 428+72

S.A.P. 62-696-02 C.T.B. SHEET NO. 63 OF 96 SHEETS



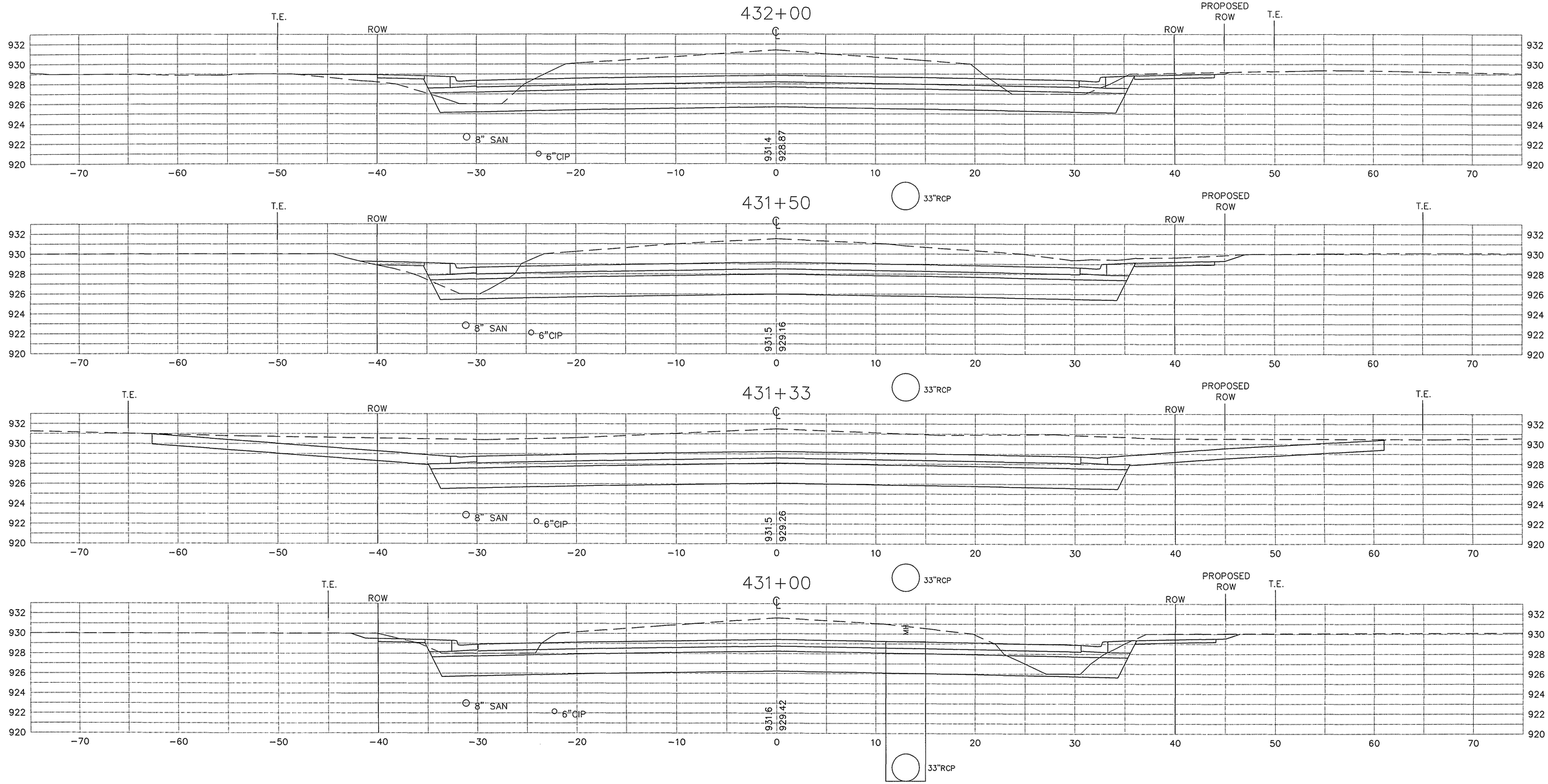






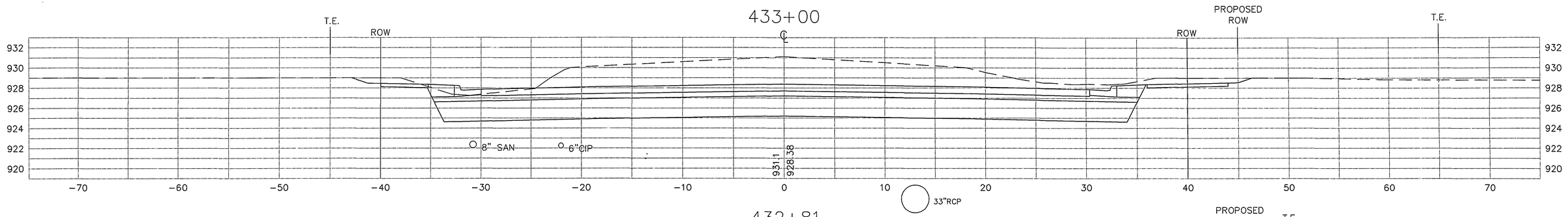
SCALE 5 X 5

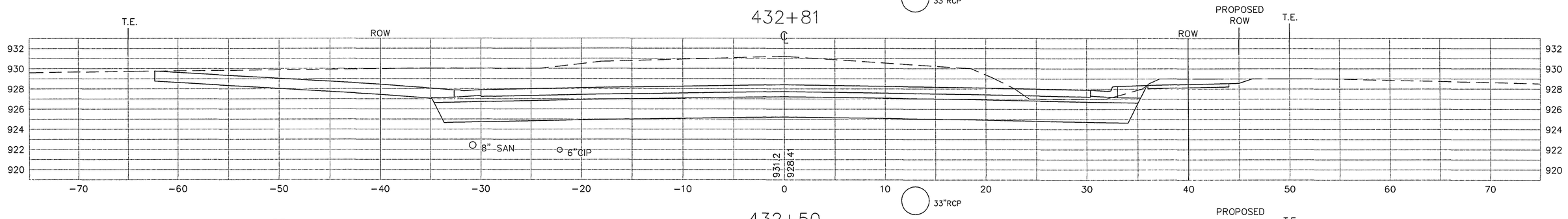
CROSS SECTIONS 28-~~144~~
STA. 429+00 TO 430+41

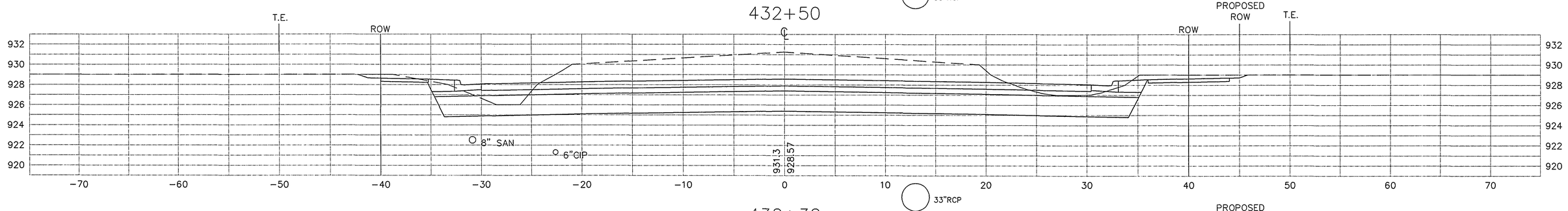


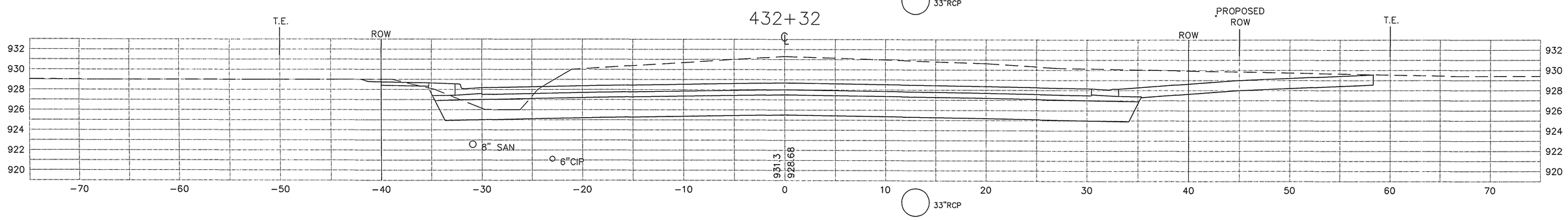
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 431+00 TO 432+00



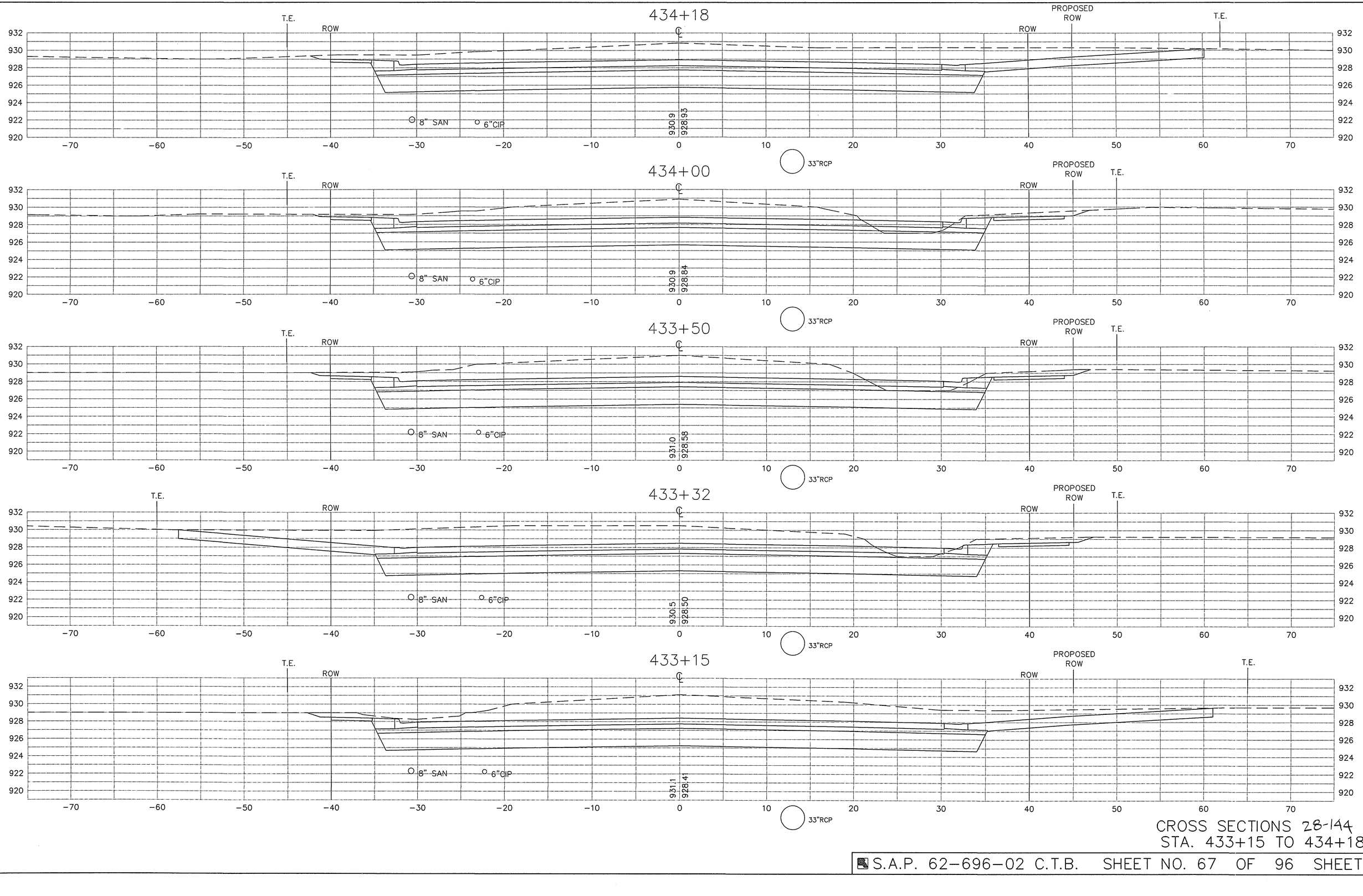






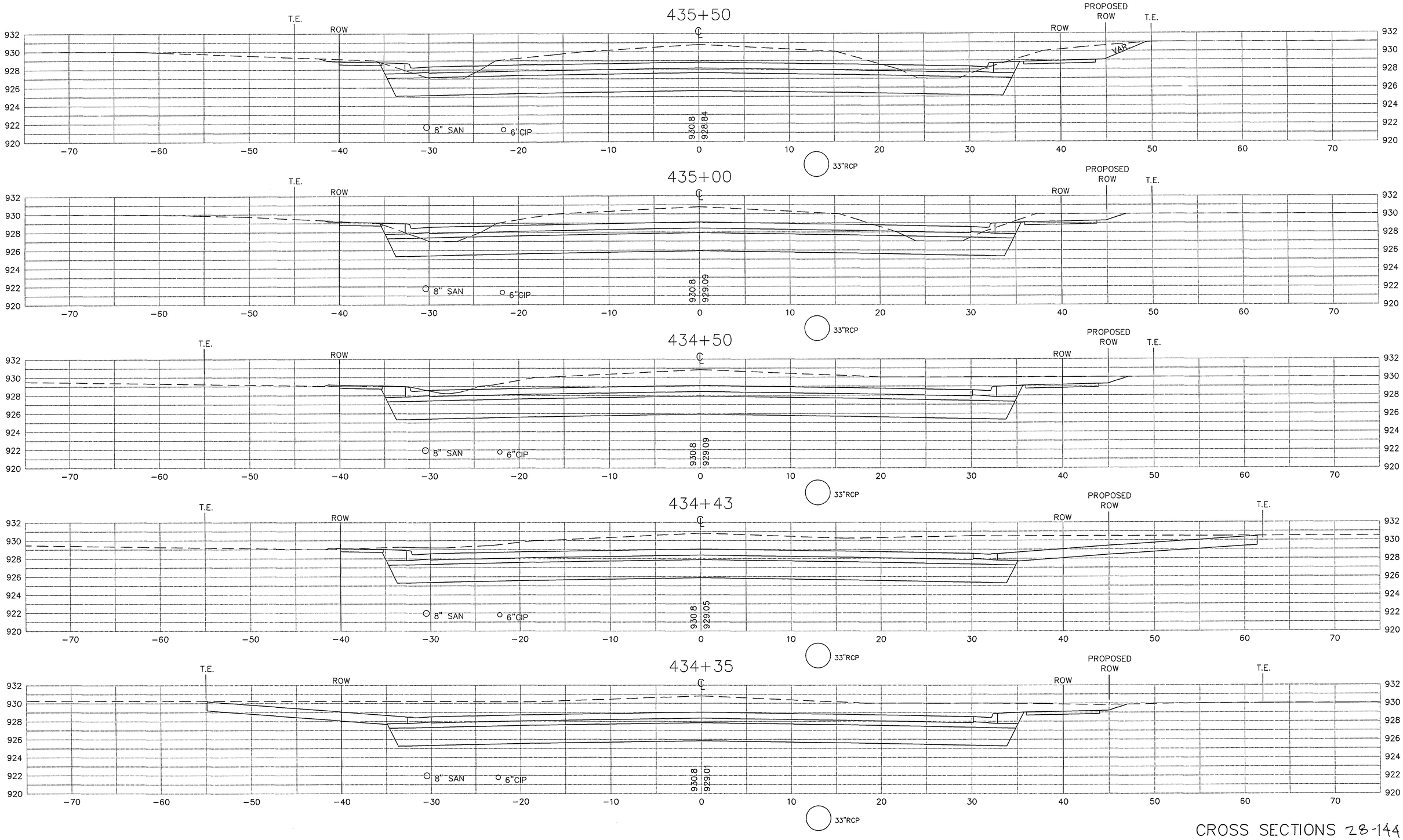
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 432+32 TO 433+00



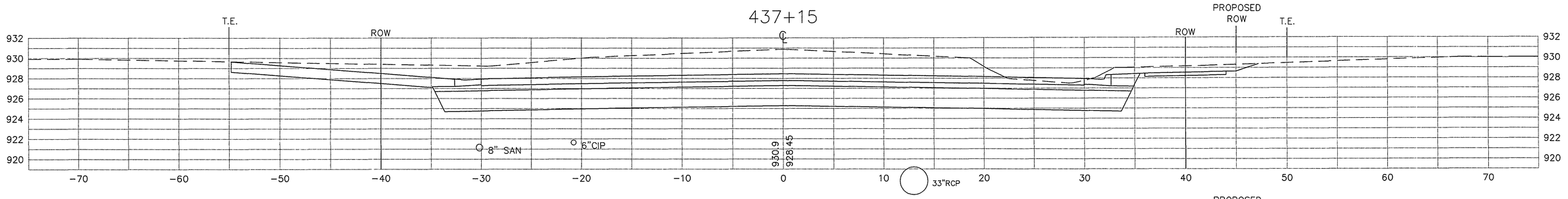
SCALE 5 X 5

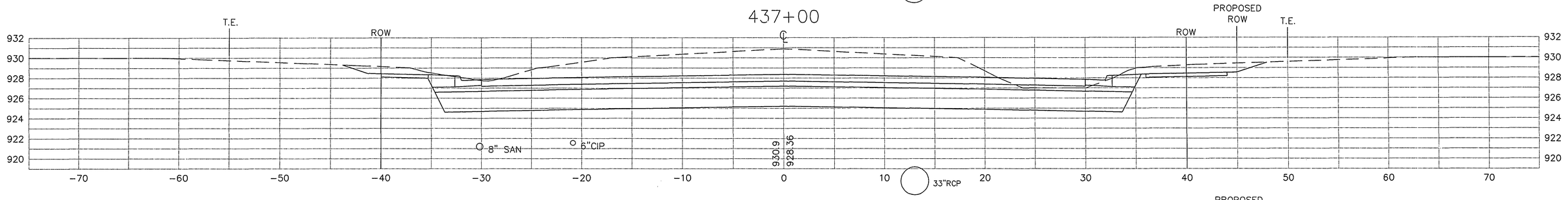
CROSS SECTIONS 28-144
STA. 433+15 TO 434+18

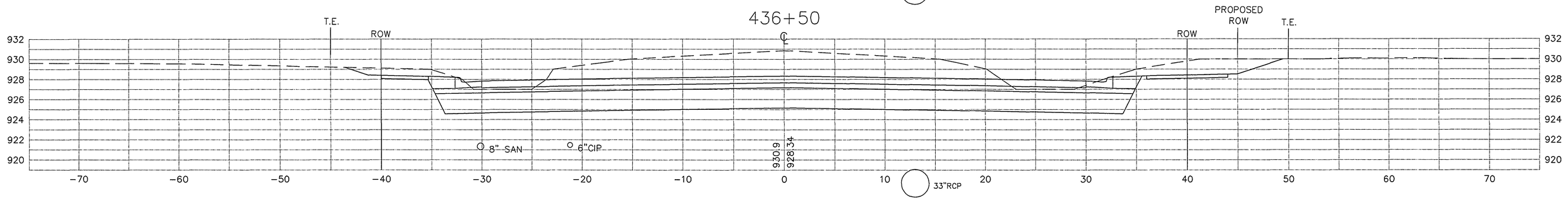


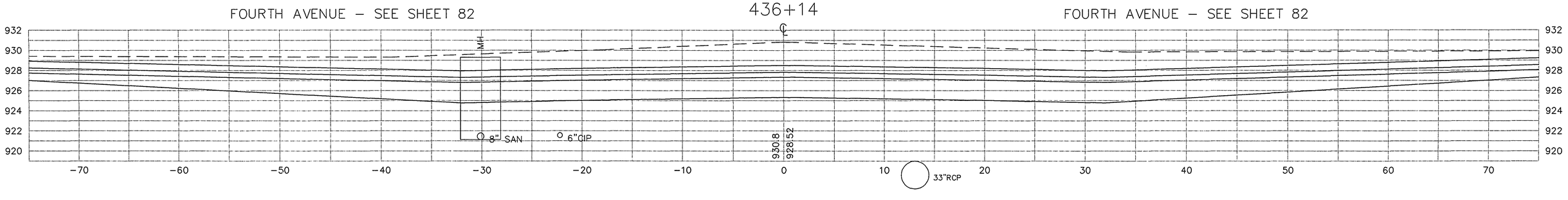
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 434+35 TO 435+50





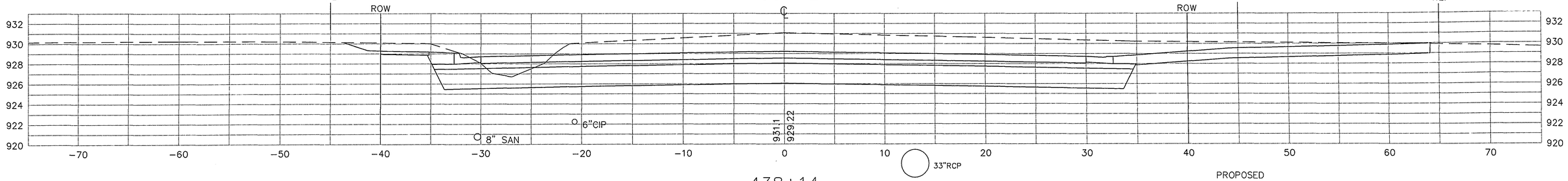




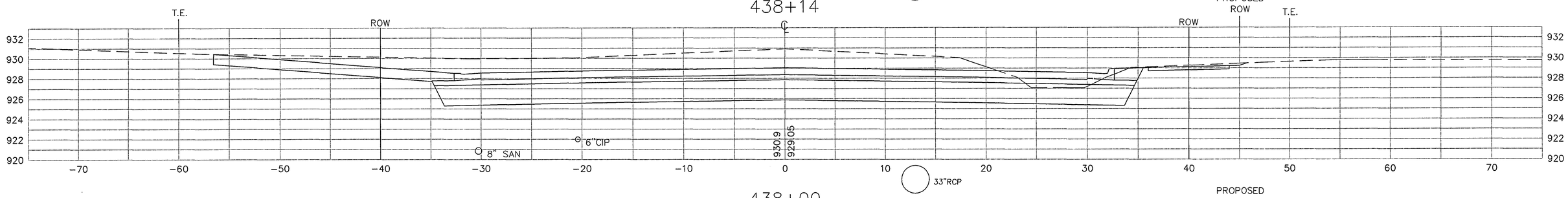
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 436+14 TO 437+15

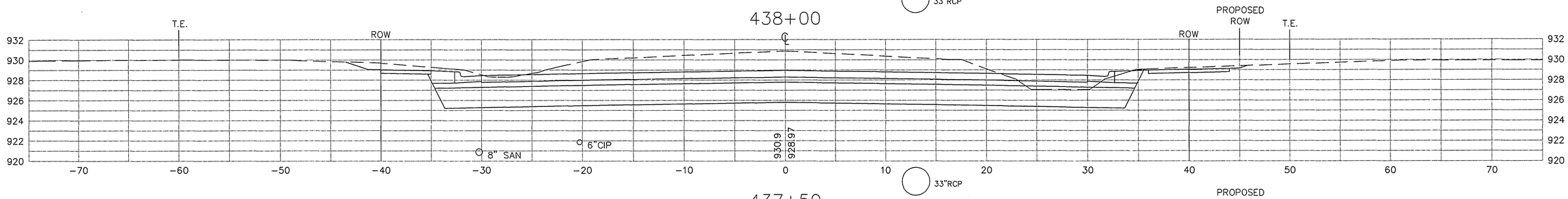
438+42



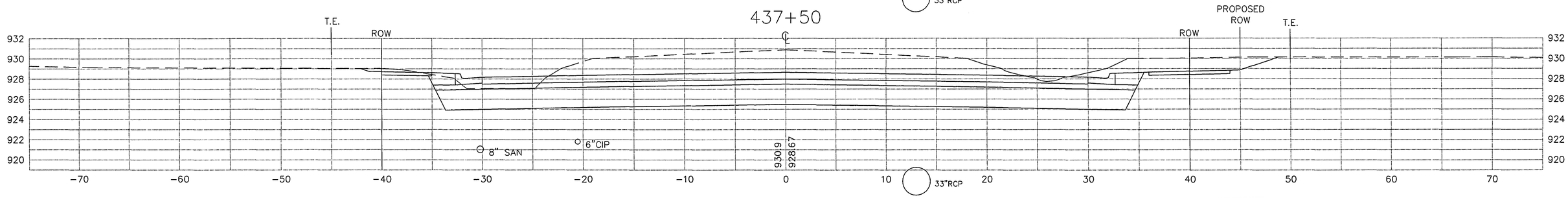
438+14



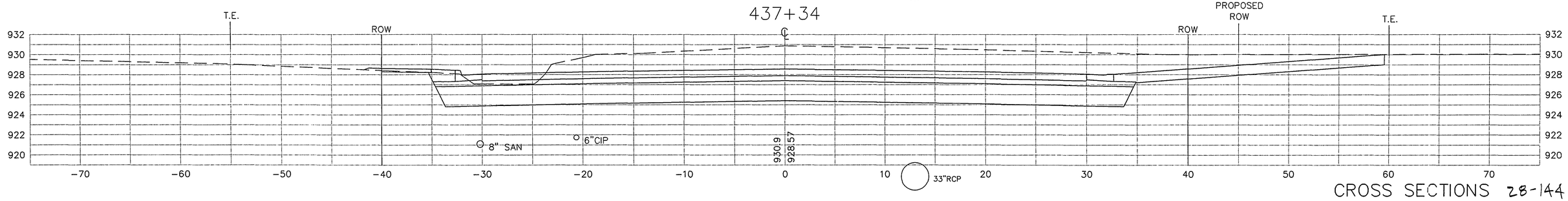
438+00



437+50



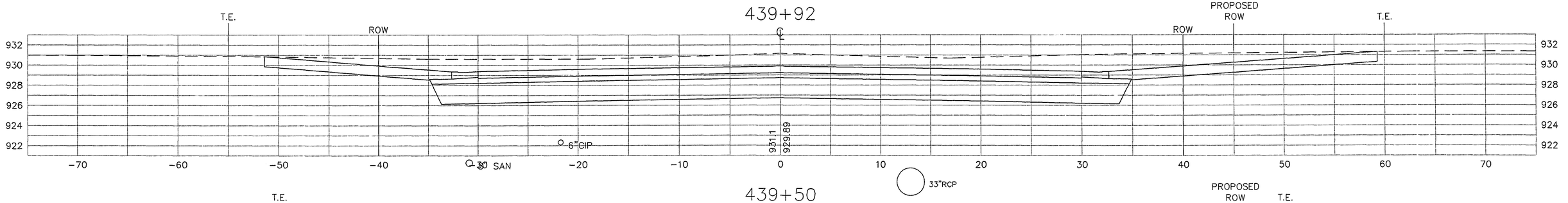
437+34



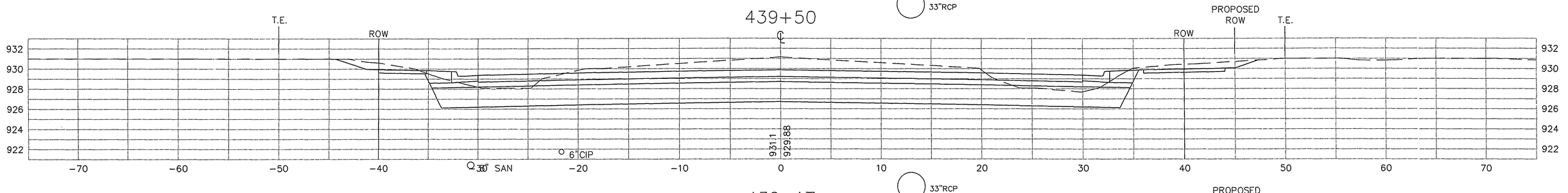
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 437+34 TO 438+42

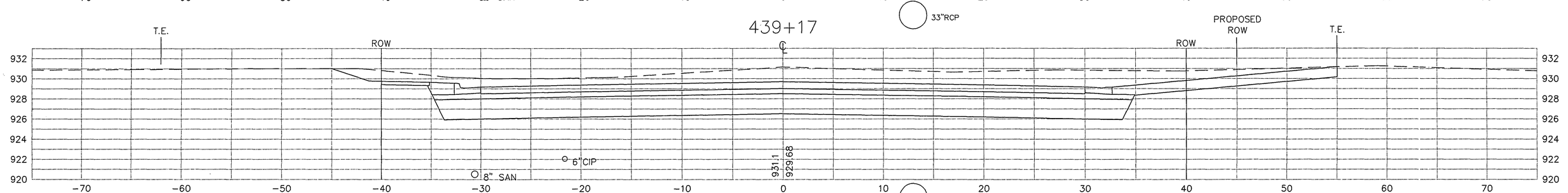
439+92



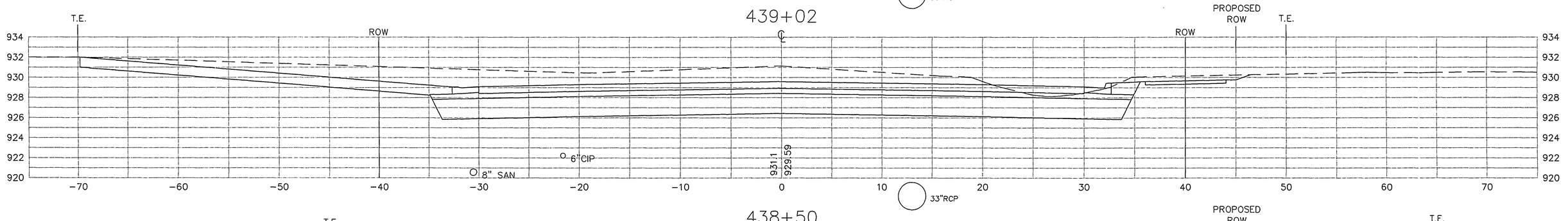
439+50



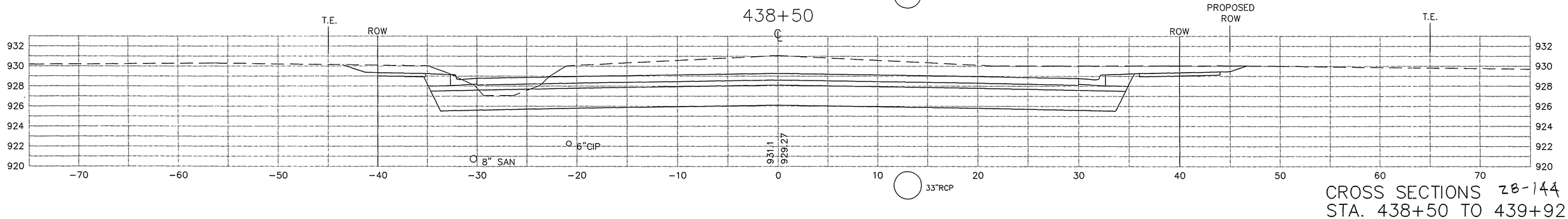
439+17



439+02



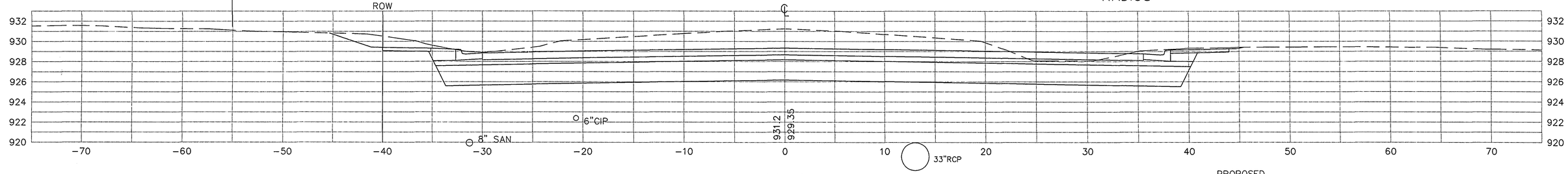
438+50



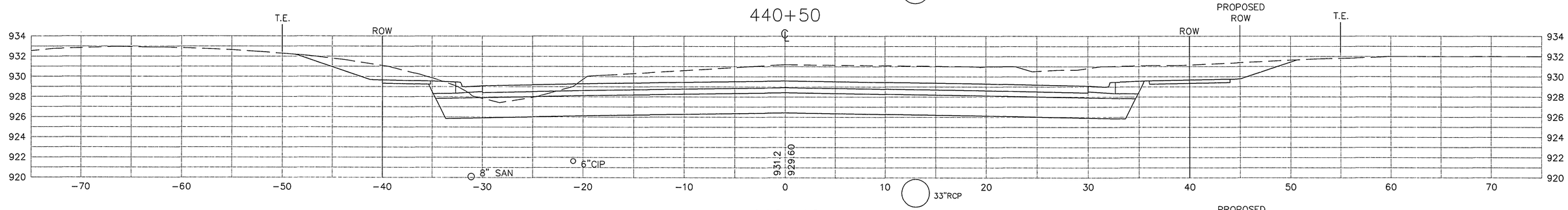
CROSS SECTIONS 28-144
STA. 438+50 TO 439+92

441+00

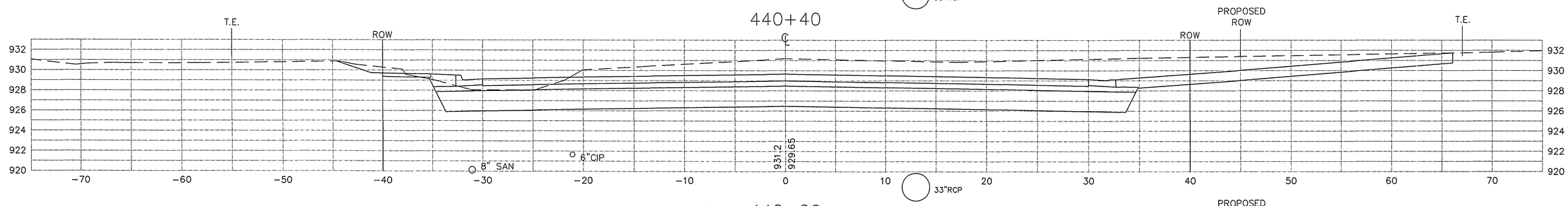
RADIUS



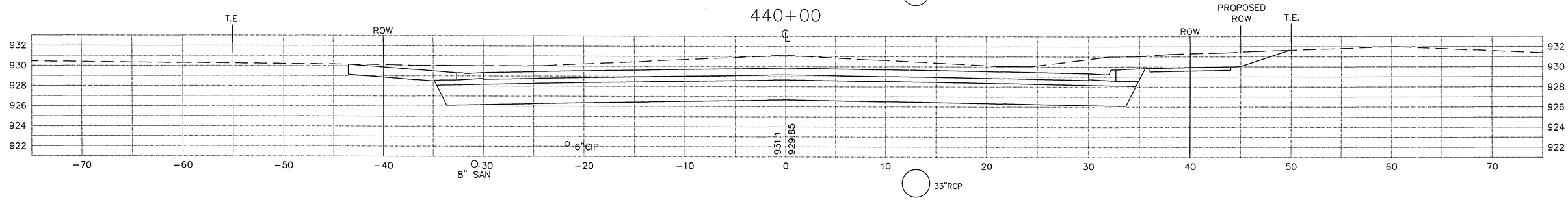
440+50



440+40



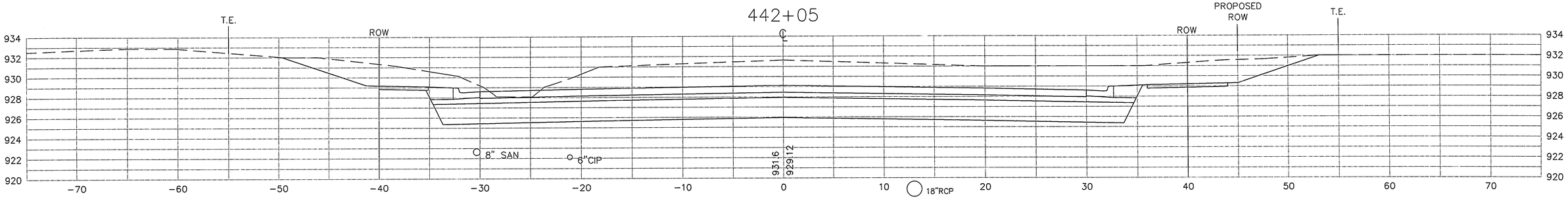
440+00



SCALE 5 X 5

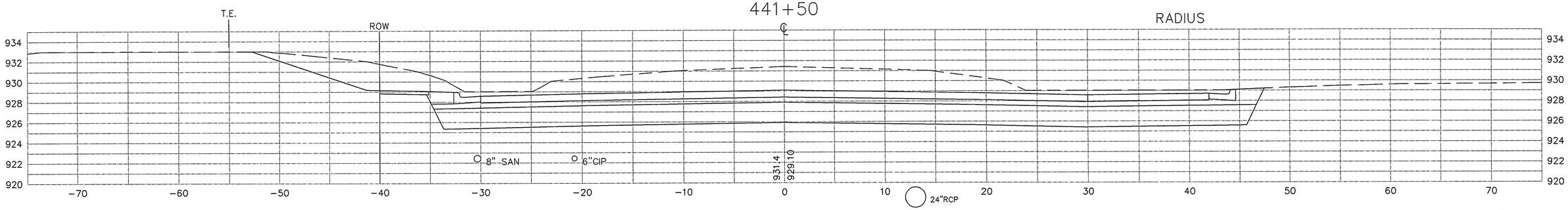
CROSS SECTIONS 28-144
STA. 440+00 TO 441+00

442+05



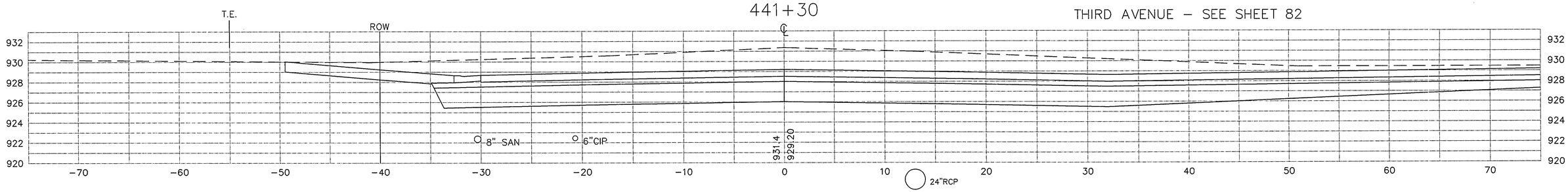
441+50

RADIUS



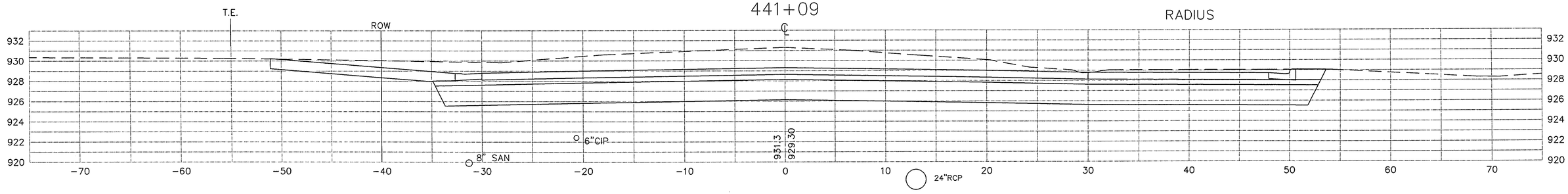
441+30

THIRD AVENUE – SEE SHEET 82



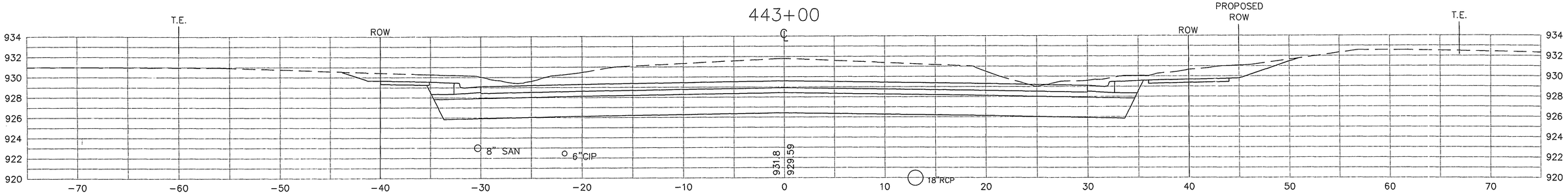
441+09

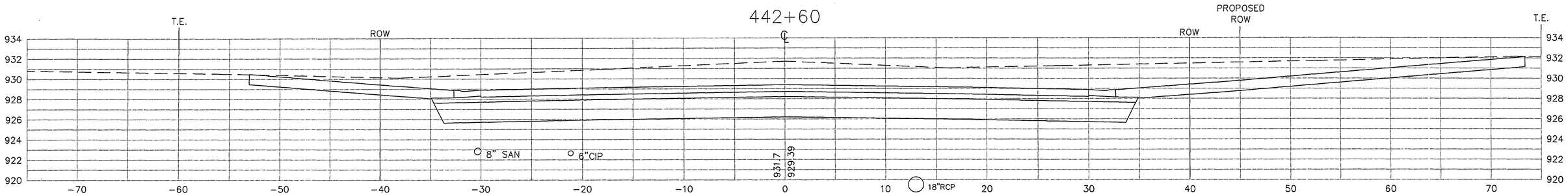
RADIUS

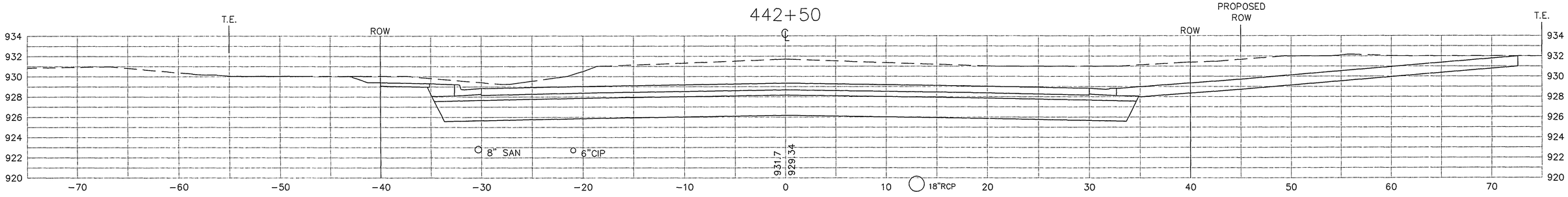


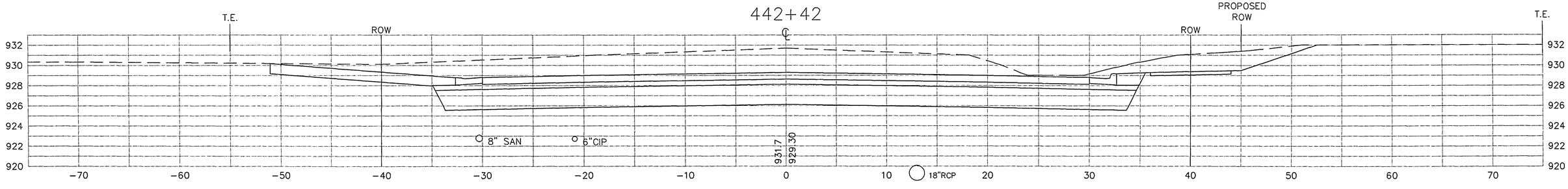
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 441+09 TO 442+05





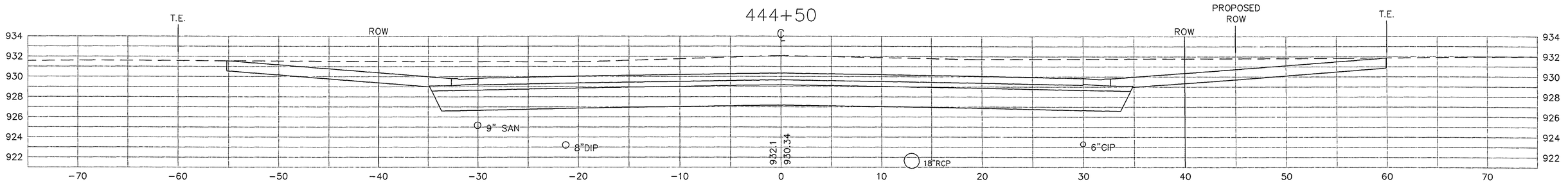


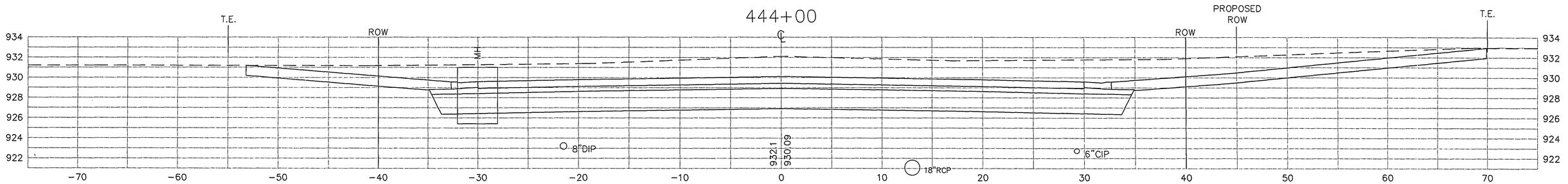


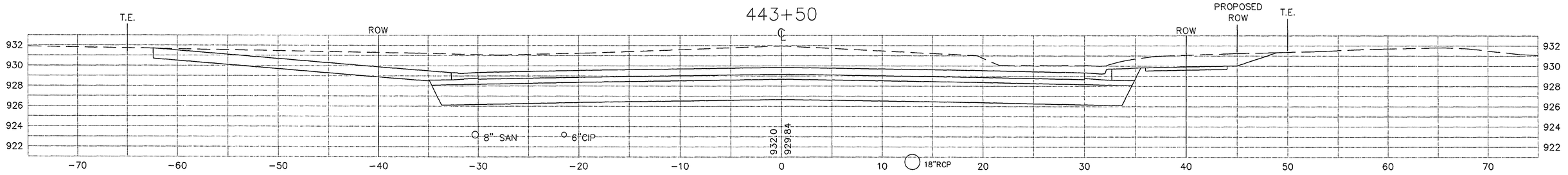
SCALE 5 X 5

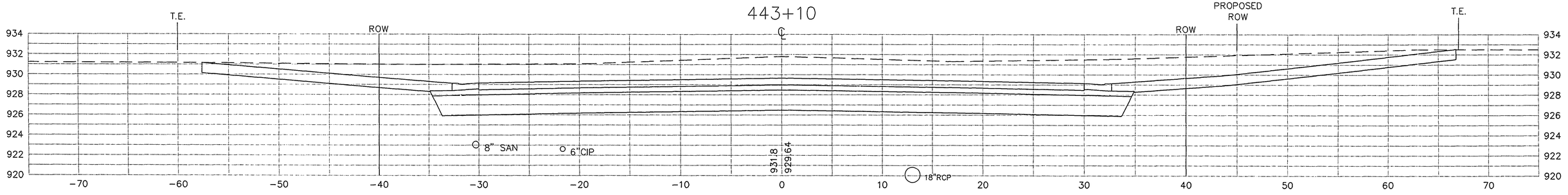
CROSS SECTIONS 28-144
STA. 442+42 TO 443+00

S.A.P. 62-696-02 C.T.B. SHEET NO. 74 OF 96 SHEETS



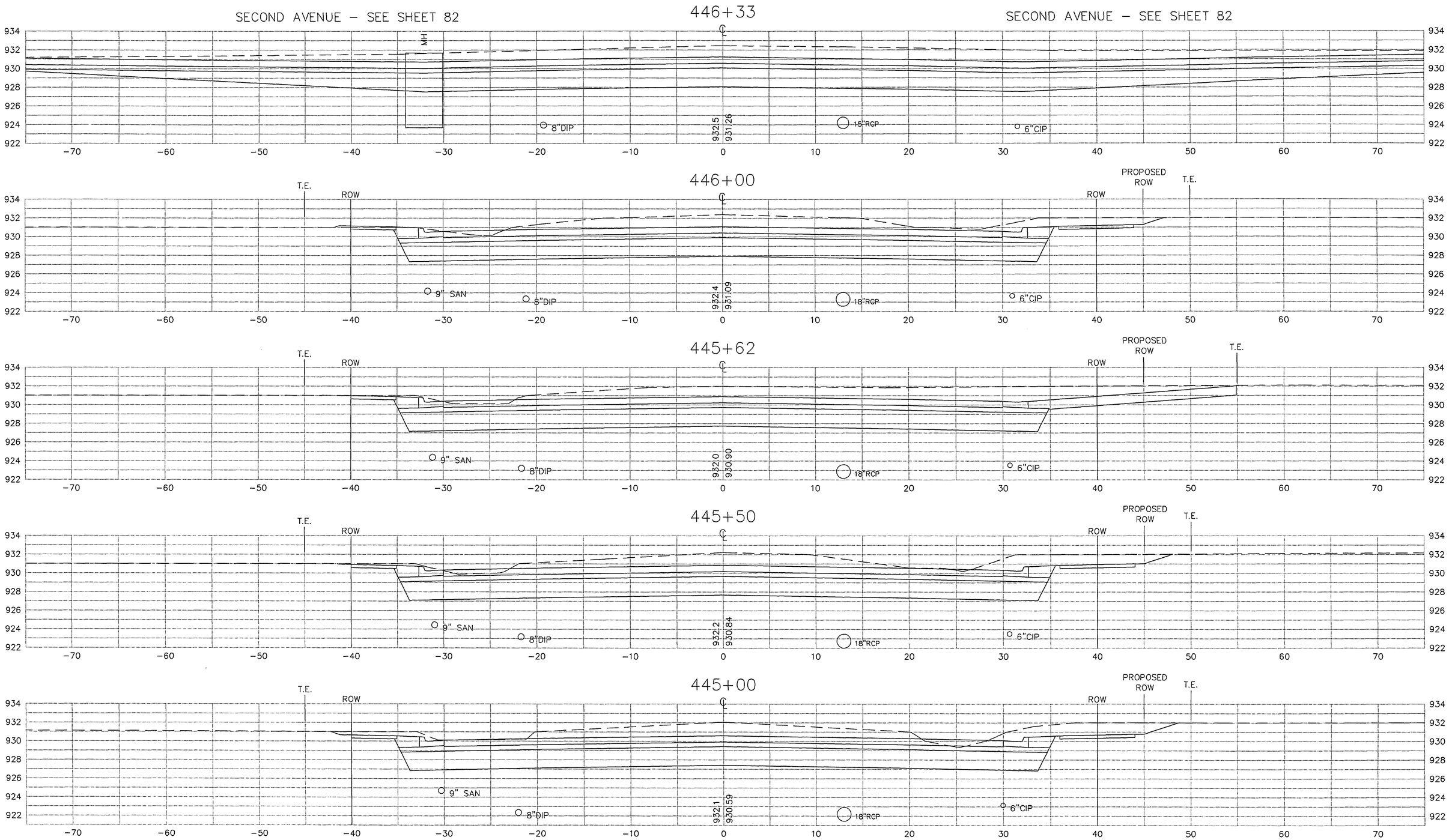






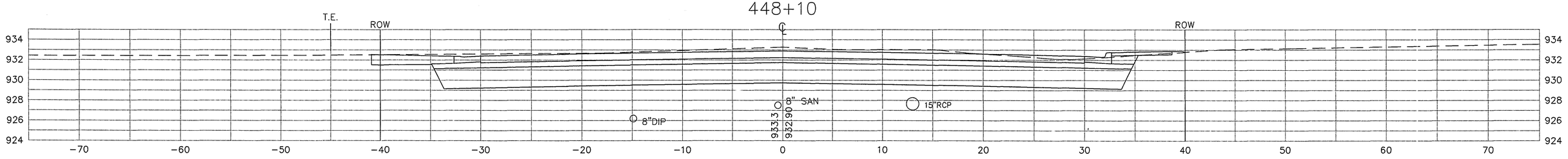
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 443+10 TO 444+50

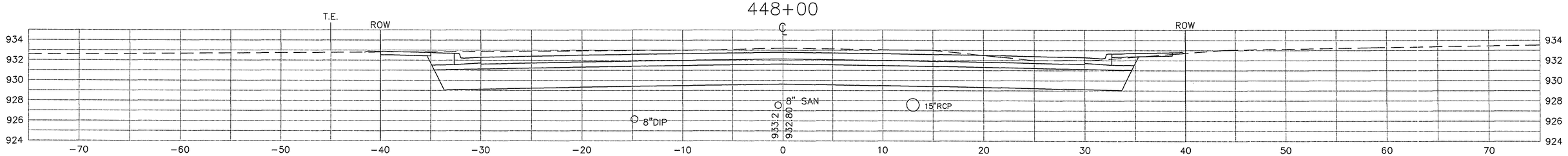


CROSS SECTIONS 28-144
STA. 445+00 TO 446+33

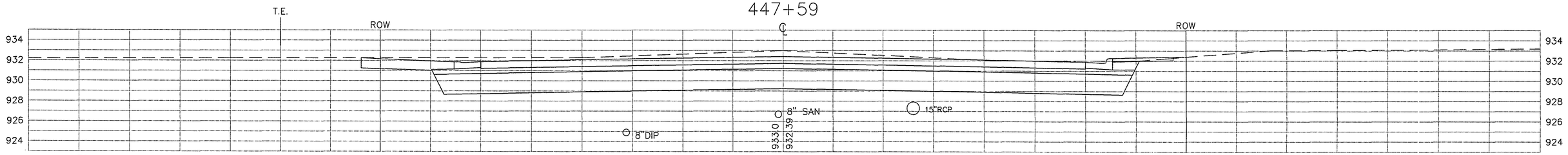
448+10



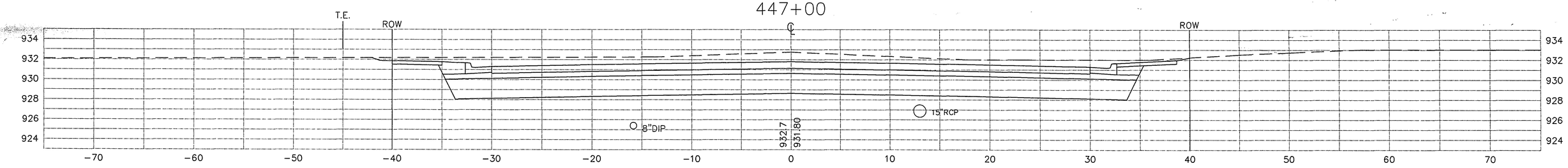
448+00



447+59



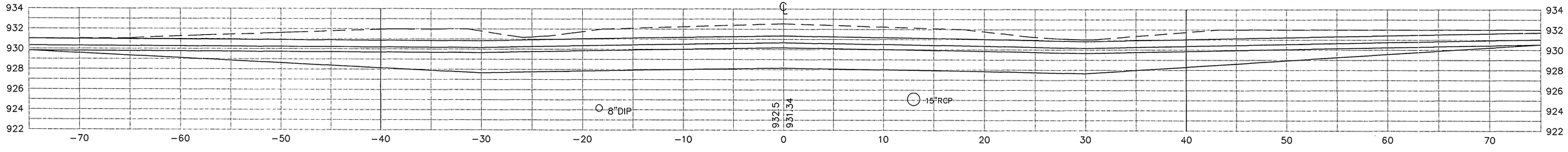
447+00



SECOND AVENUE – SEE SHEET 82

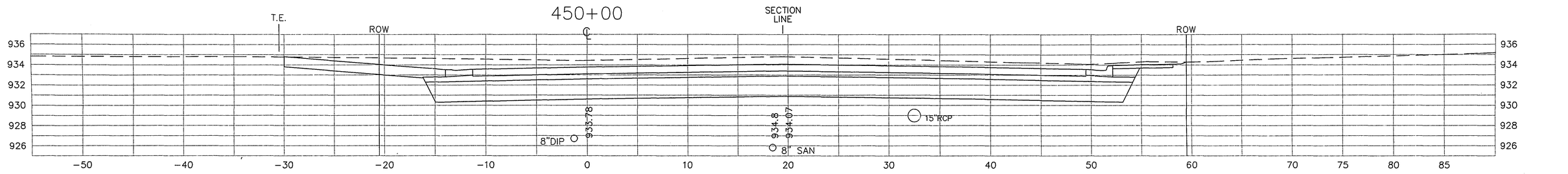
446+50

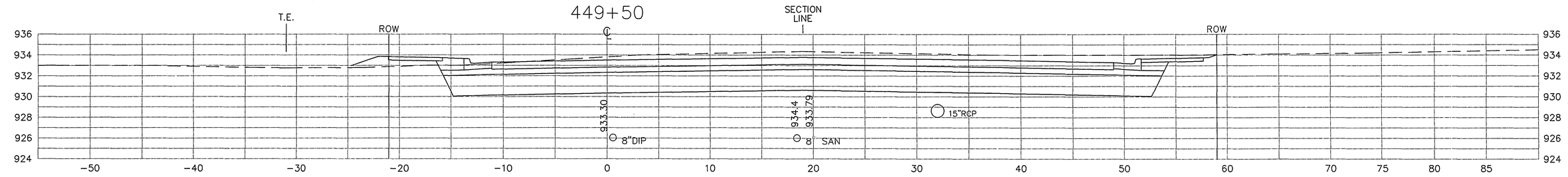
SECOND AVENUE – SEE SHEET 82

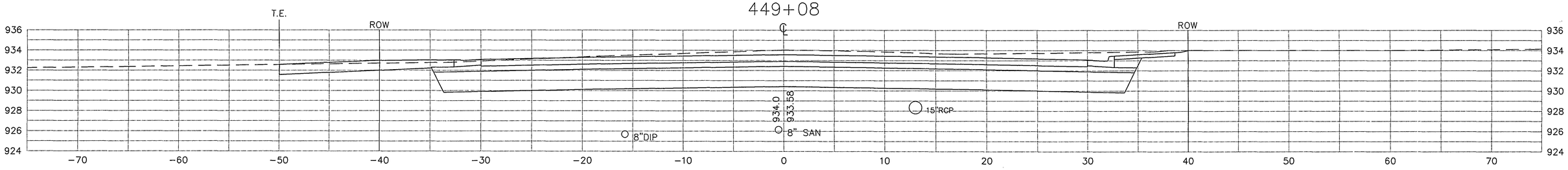


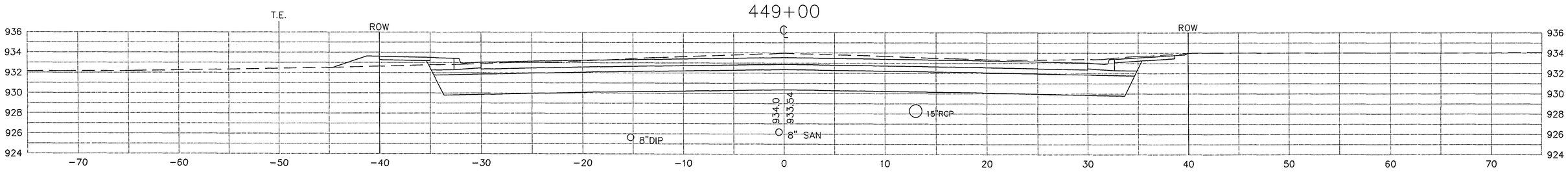
SCALE 5 X 5

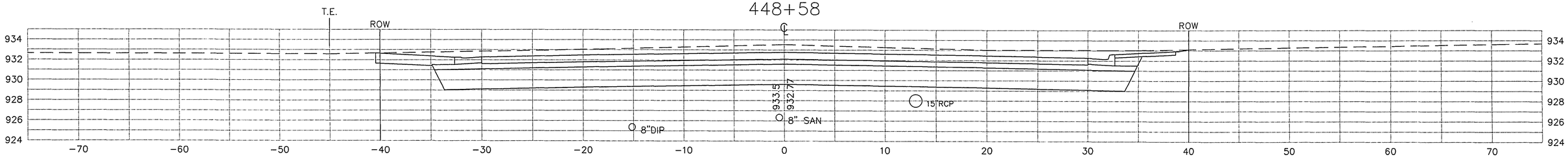
CROSS SECTIONS 28-144
STA. 446+50 TO 448+10





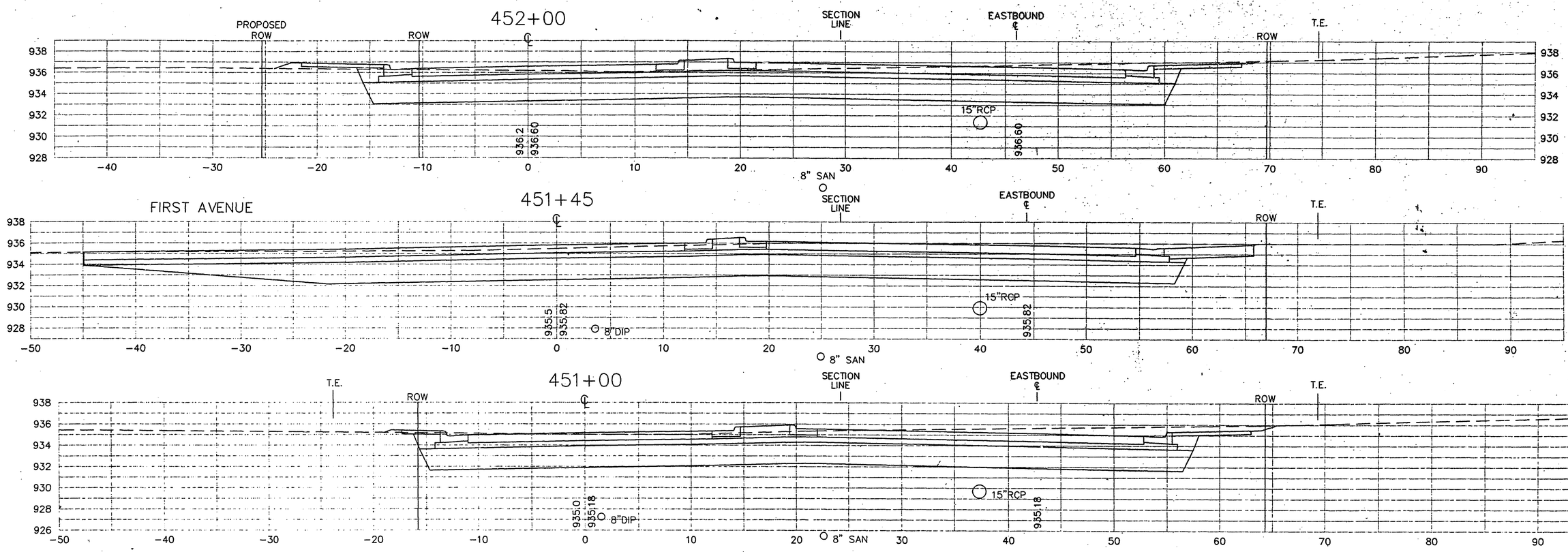


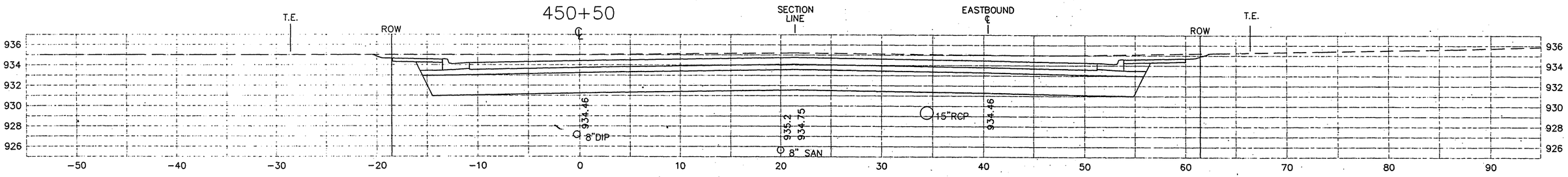


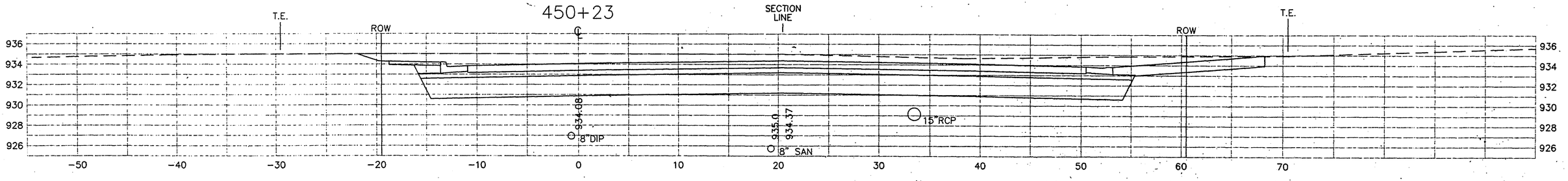


SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 448+58 TO 450+00

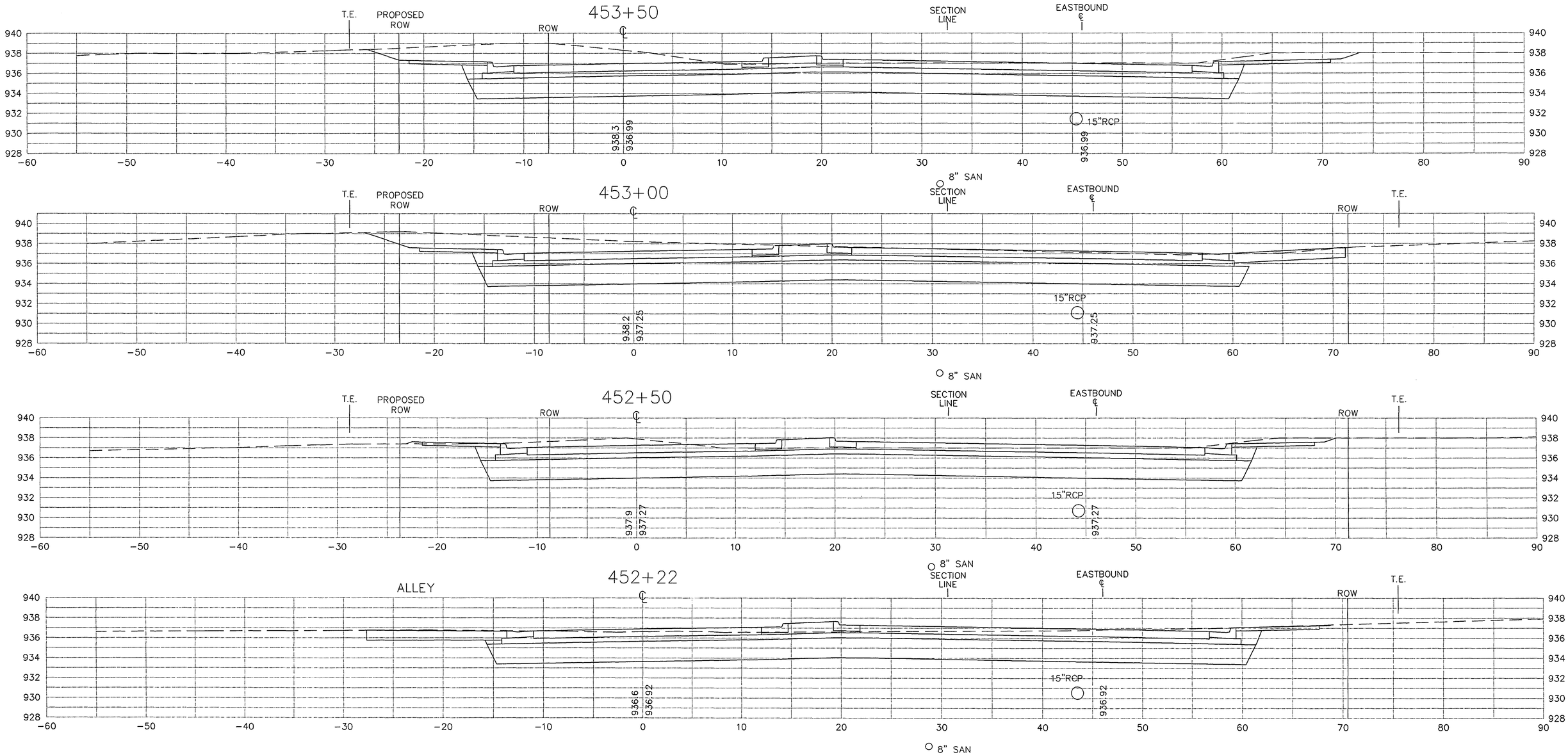






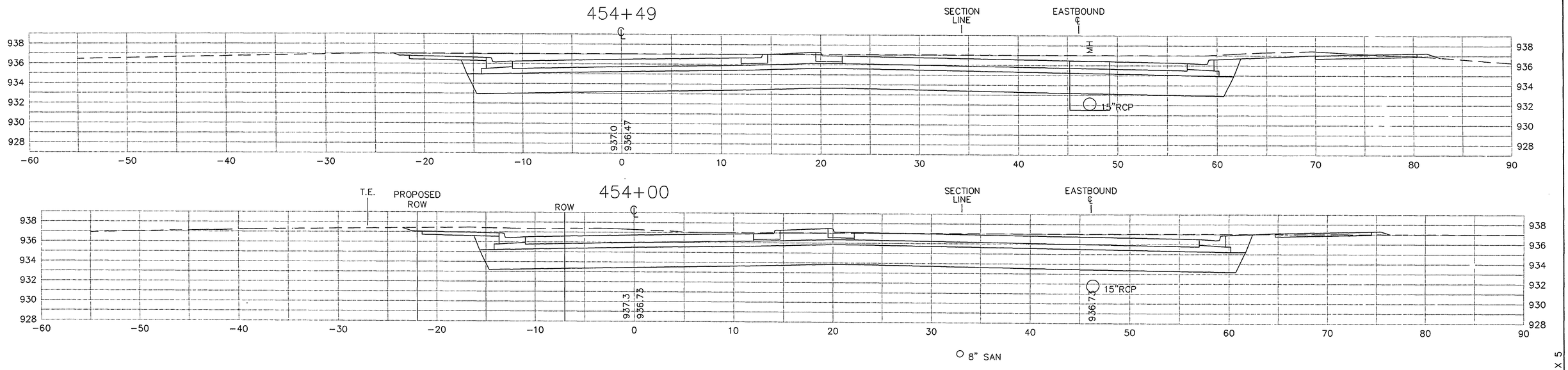
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 450+23 TO 452+00



SCALE 5 X 5

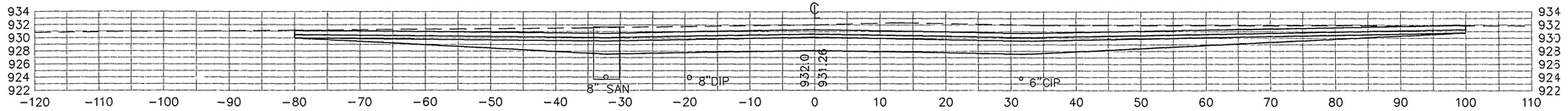
CROSS SECTIONS 28-144
STA. 452+22 TO 453+50



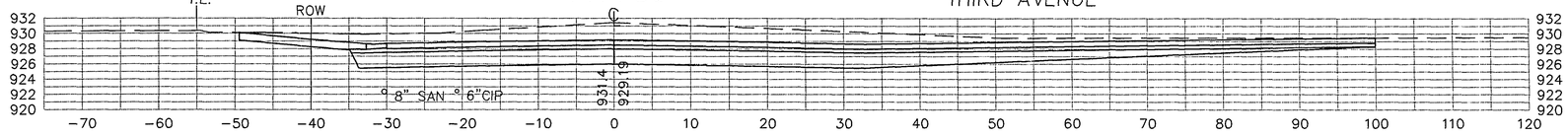
SCALE 5 X 5

CROSS SECTIONS 28-144
STA. 454+00 TO 454+49

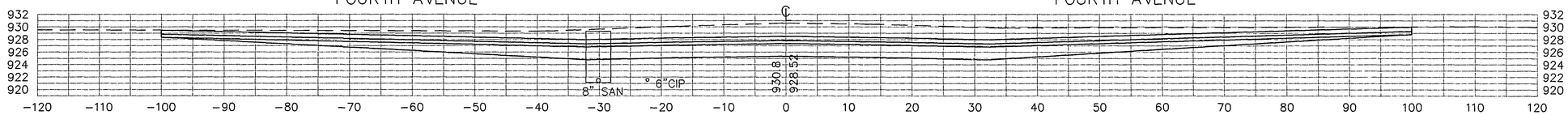
SECOND AVENUE — 446+33 — SECOND AVENUE



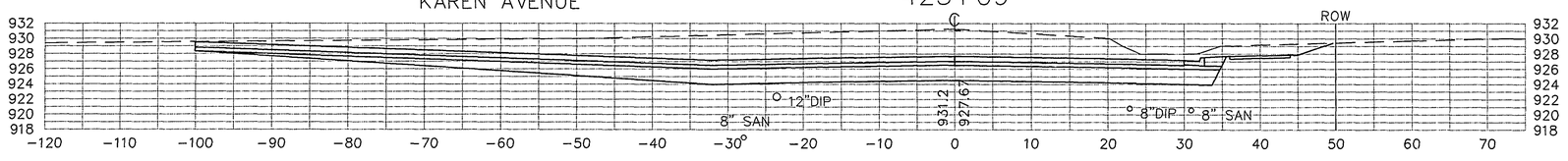
441+30 — THIRD AVENUE



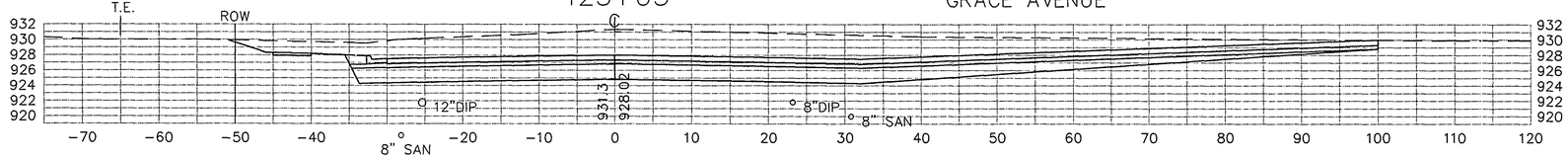
FOURTH AVENUE — 436+14 — FOURTH AVENUE



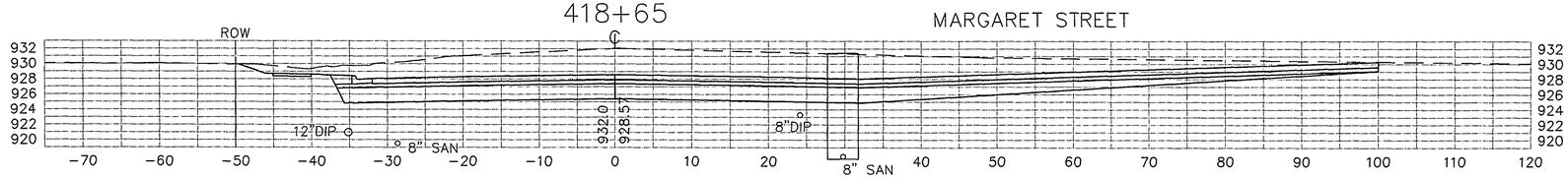
KAREN AVENUE — 425+09



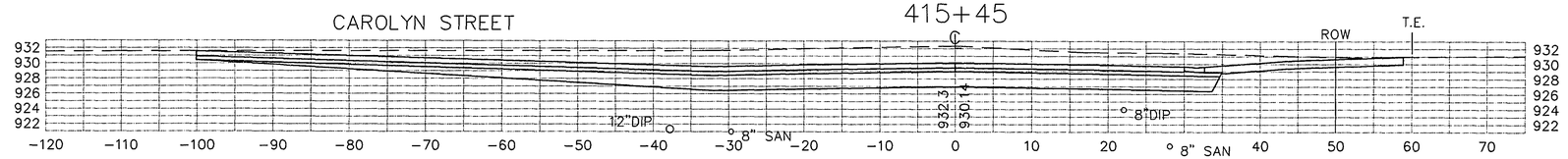
423+63 — GRACE AVENUE



418+65 — MARGARET STREET



CAROLYN STREET — 415+45



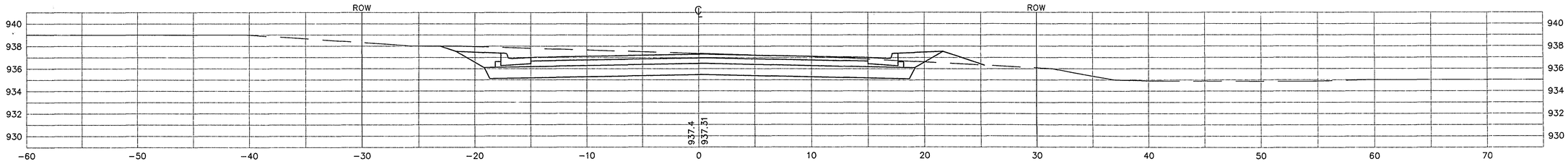
SCALE 10 X 10

28-144

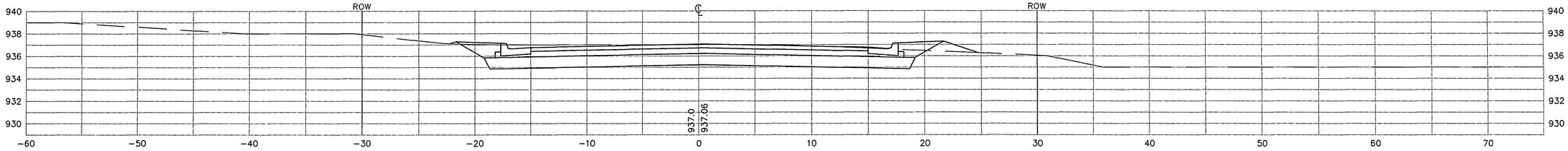
SIDESTREET CROSS SECTIONS

S.A.P. 62-696-02 C.T.B. SHEET NO. 82 OF 96 SHEETS

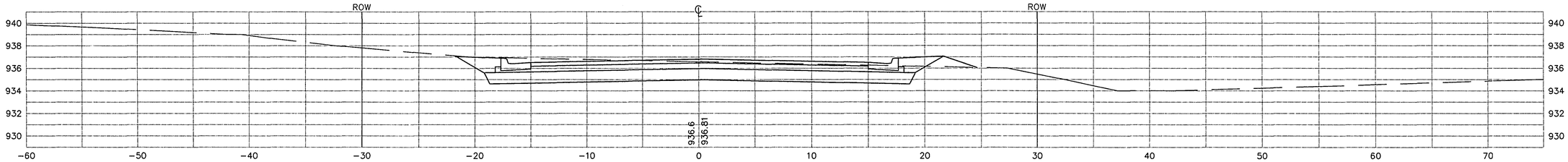
3+00



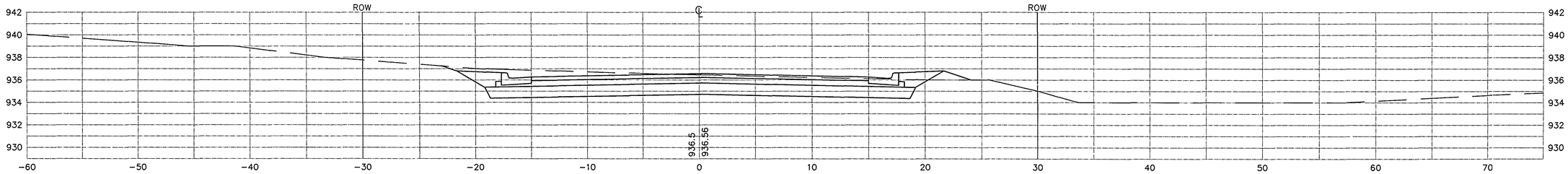
2+50



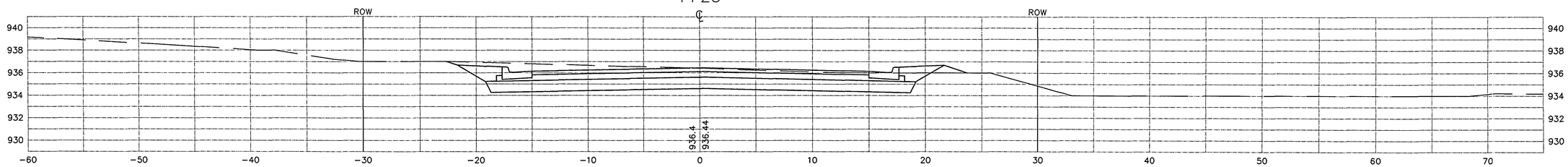
2+00



1+50



1+25

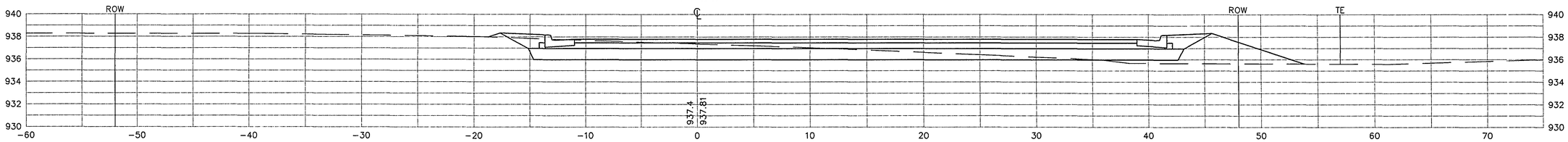


SCALE: 5' X 5'

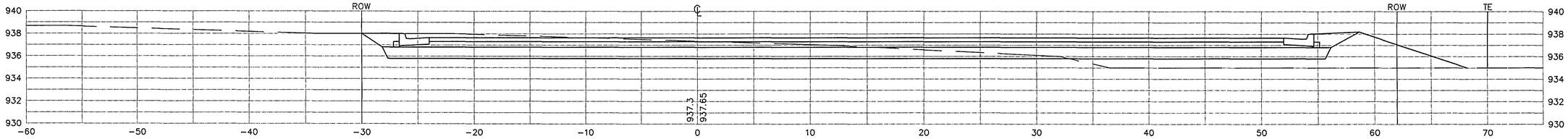
28-144

CROSS SECTIONS
LINCOLN AVENUE
STA. 1+25 TO 3+00

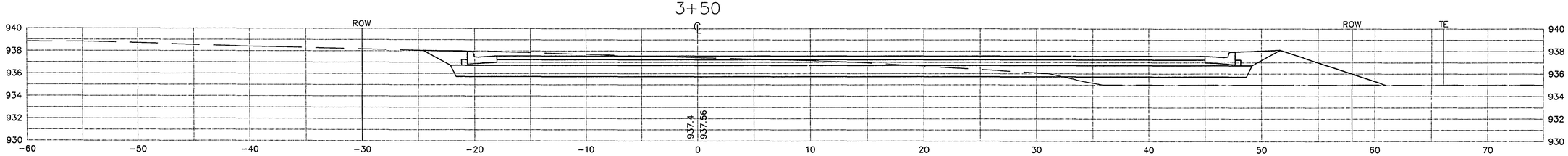
4+00



3+68



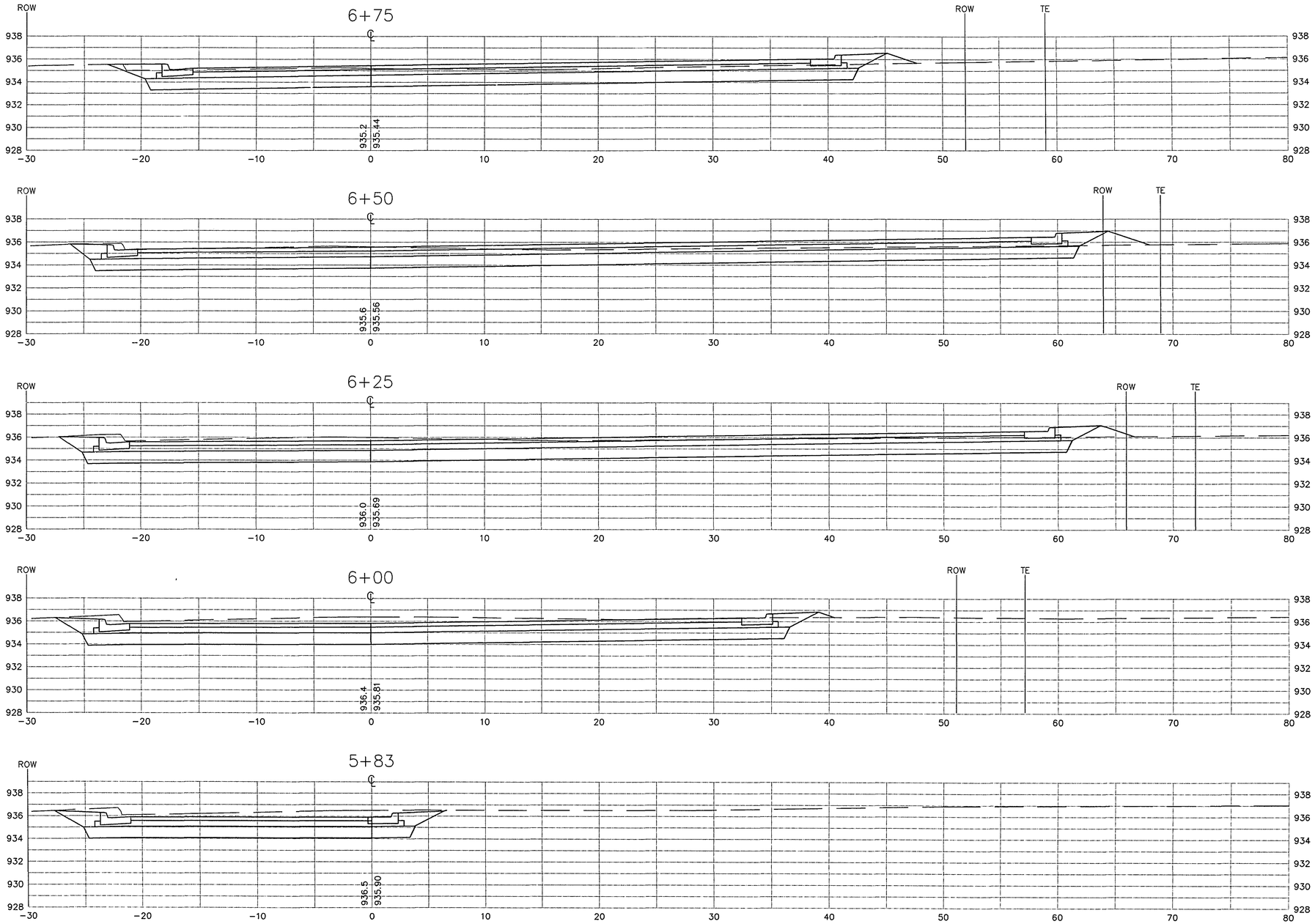
3+50



SCALE: 5' X 5'

28-144

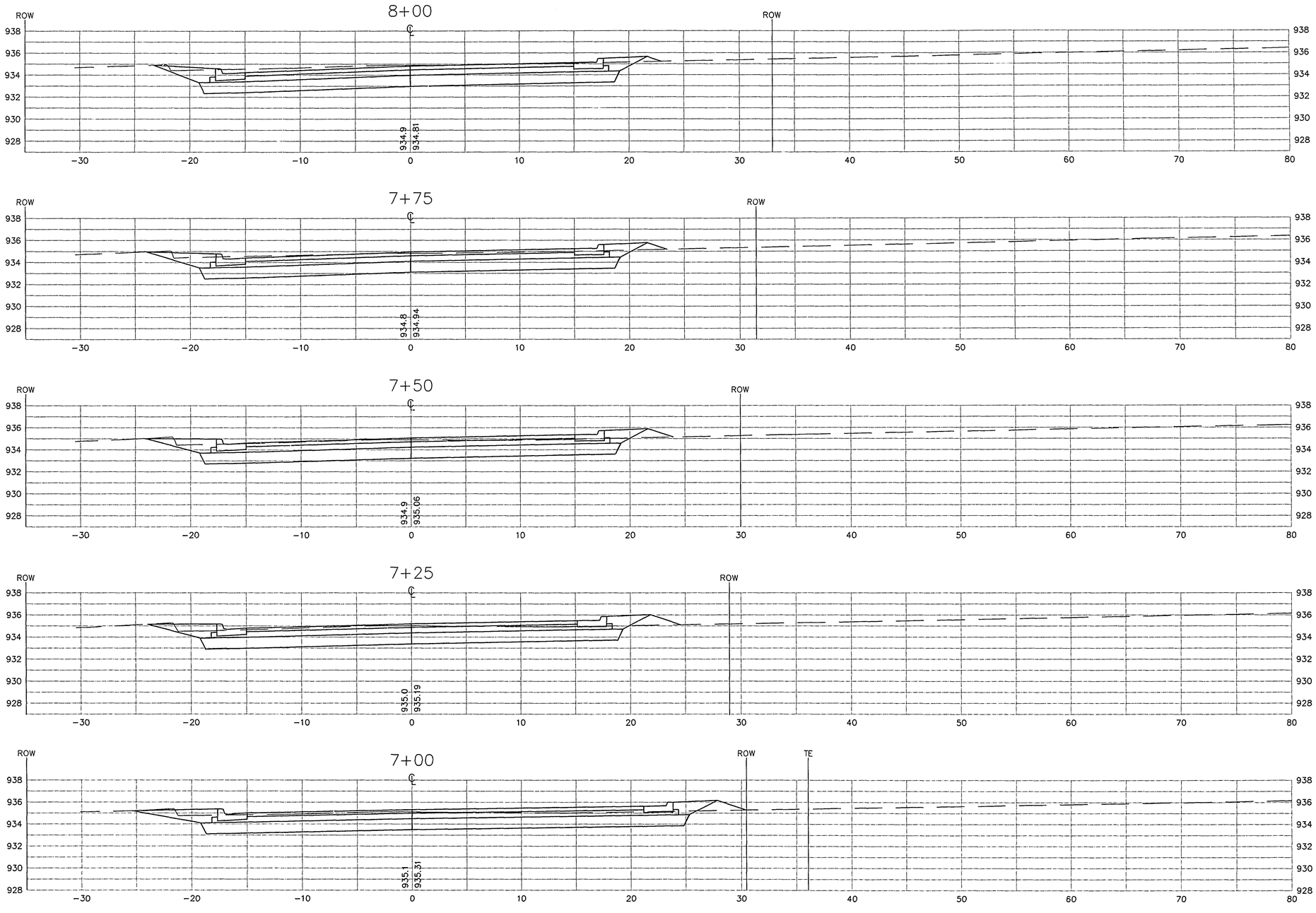
CROSS SECTIONS
LINCOLN AVENUE
STA. 3+50 TO 4+00



SCALE: 5' X 5'

28-144

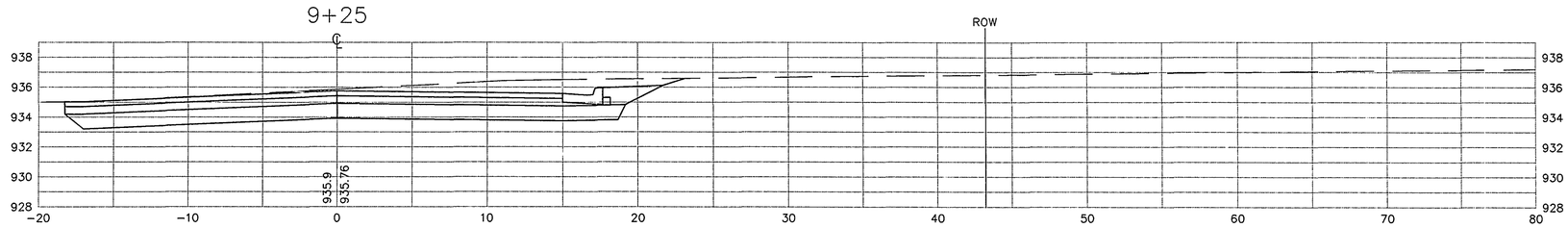
CROSS SECTIONS
BALD EAGLE AVENUE
STA. 5+83 TO 6+75

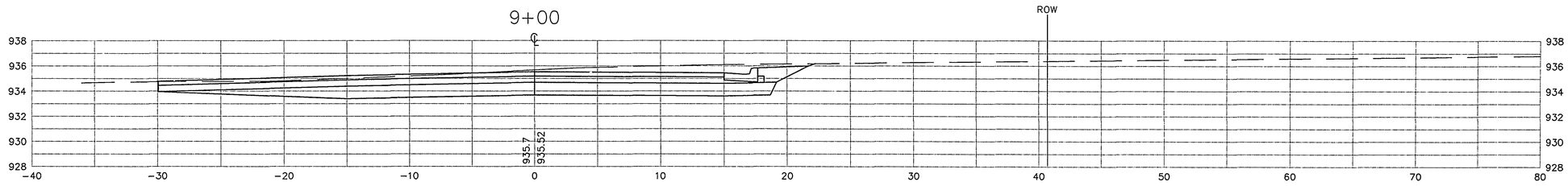


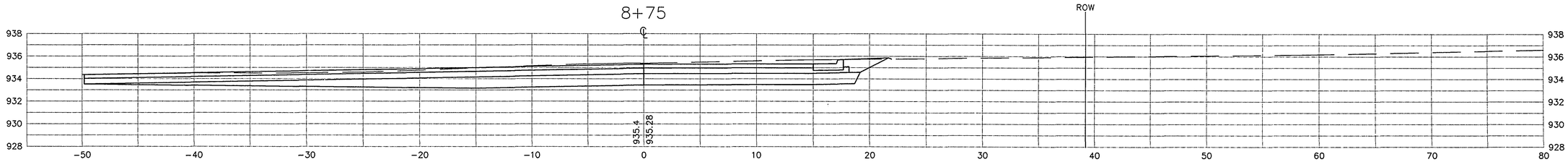
SCALE: 5' X 5'

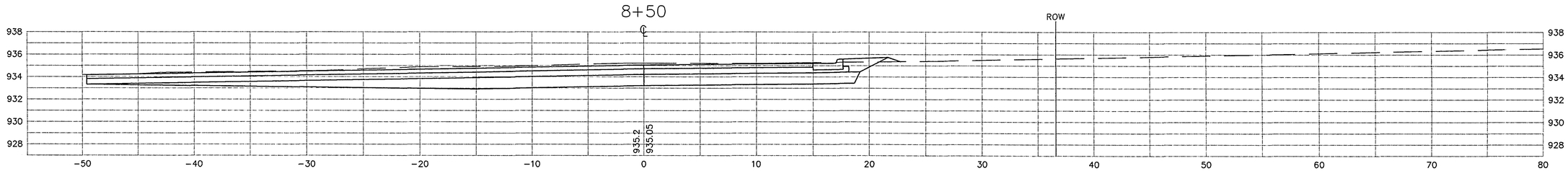
28-144

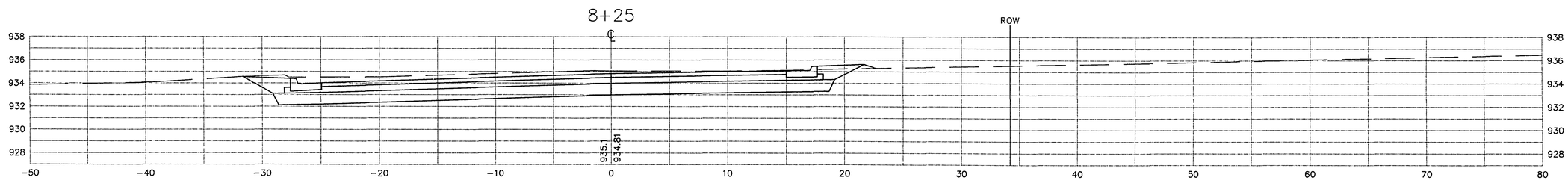
CROSS SECTIONS
BALD EAGLE AVENUE
STA. 7+00 TO 8+00











SCALE: 5' X 5'

28-144

CROSS SECTIONS
BALD EAGLE AVENUE
STA. 8+25 TO 9+25

STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
404+50	0.00	0.00	0.00	0.00	0.00	0.00
405+00	0.00	0.00	360.03	0.98	360.03	0.98
405+50	388.84	1.06	160.88	0.46	520.92	1.45
405+61	400.95	1.22	570.81	1.39	1091.72	2.84
406+00	389.40	0.71	206.43	0.28	1298.16	3.12
406+14	406.85	0.37	524.11	0.82	1822.26	3.94
406+50	379.31	0.86	228.04	0.49	2050.30	4.43
406+66	390.32	0.79	510.56	1.44	2560.87	5.87
407+00	420.57	1.49	749.73	2.29	3310.60	8.16
407+50	389.14	0.98	462.54	0.59	3773.14	8.74
407+80	443.44	0.07	244.72	0.29	4017.86	9.03
407+95	437.55	0.96	778.25	1.16	4796.11	10.19
408+42	456.61	0.37	941.67	0.40	5737.78	10.59
409+00	420.12	0.00	640.85	0.00	6378.63	10.59
409+37	515.17	0.00	243.36	0.00	6621.99	10.59
409+50	495.71	0.00	212.44	0.00	6834.43	10.59
409+61	547.18	0.00	733.90	0.00	7568.33	10.59
410+00	468.99	0.00	751.40	0.00	8319.73	10.59
410+39	571.41	0.00	183.92	0.00	8503.65	10.59
410+48	532.11	0.00	562.06	0.11	9065.71	10.70
410+79	446.96	0.19	330.11	0.44	9395.81	11.14
411+00	401.88	0.95	603.26	1.86	9999.07	13.00
411+41	392.65	1.50	262.75	0.50	10261.82	13.50
411+59	395.61	0.00	536.31	4.09	10798.13	17.60
412+00	310.74	5.39	711.20	5.89	11509.33	23.49
412+59	340.18	0.00	478.93	4.07	11988.25	27.56
413+00	290.60	5.36	173.35	2.70	12161.60	30.26
413+15	333.45	4.34	426.53	5.20	12588.13	35.46
413+50	324.63	3.68	266.16	1.36	12854.28	36.82
413+70	393.99	0.00	388.33	3.63	13242.61	40.45
414+00	305.00	6.54	579.23	8.57	13821.84	49.02
414+50	320.56	2.72	599.48	7.15	14421.32	56.17
415+00	326.88	5.00	772.75	4.17	15194.07	60.34
415+45	600.42	0.00	814.93	3.15	16009.01	63.49
415+91	356.23	3.70	119.18	1.18	16128.19	64.67
416+00	358.85	3.38	653.44	6.45	16781.63	71.12
416+50	346.87	3.59	677.99	3.32	17459.62	74.44
417+00	385.36	0.00	131.06	0.00	17590.67	74.44
417+09	400.98	0.00	577.96	0.89	18168.63	75.33
417+50	360.23	1.18	686.17	1.12	18854.80	76.46
418+00	380.83	0.03	771.57	0.03	19626.37	76.49
418+50	452.47	0.00	316.51	0.00	19942.88	76.49
418+65	686.96	0.00	715.83	0.11	20658.71	76.59
419+00	417.46	0.16	736.31	1.88	21395.02	78.48
419+50	377.76	1.87	728.49	1.79	22123.51	80.26
420+00	409.01	0.06	267.84	0.06	22391.35	80.32
420+17	441.79	0.13	470.75	3.33	22862.10	83.66
420+50	328.52	5.32	658.94	12.19	23521.03	95.84
421+00	383.13	7.84	650.28	13.55	24171.32	109.39
421+50	319.18	6.79	545.46	8.62	24716.77	118.01
421+91	399.23	4.56	838.07	5.48	25554.85	123.50
422+50	367.83	0.46	113.95	0.12	25668.80	123.62
422+58	401.34	0.35	595.17	4.24	26263.96	127.86
423+00	363.88	5.11	547.93	3.50	26811.90	131.36
423+37	435.81	0.00	253.33	0.00	27065.23	131.36
423+50	616.47	0.00	311.42	0.00	27376.65	131.36
423+63	677.12	0.00	747.10	0.00	28123.75	131.36
424+00	413.24	0.00	319.50	0.00	28443.25	131.36
424+19	494.82	0.00	528.25	0.00	28971.50	131.36
424+50	425.36	0.00	939.13	0.00	29910.63	131.36
425+00	588.91	0.00	208.59	0.00	30119.22	131.36
425+09	662.63	0.00	801.41	0.00	30920.63	131.36
425+50	392.89	0.00	648.77	0.00	31569.40	131.36
425+91	461.58	0.00	141.88	0.00	31711.27	131.36
426+00	389.67	0.00	584.47	0.00	32295.75	131.36
426+39	419.60	0.00	157.80	0.00	32453.54	131.36
426+50	355.03	0.00	404.23	3.30	32857.77	134.66
426+79	397.67	6.14	436.58	6.96	33294.35	141.62
427+09	388.18	6.38	556.62	5.49	33850.97	147.11
427+48	382.52	1.22	674.29	8.13	34525.26	155.24
428+00	317.70	7.23	617.69	15.74	35142.95	170.98
428+50	349.41	9.78	381.43	3.98	35524.38	174.96
428+72	586.82	0.00	500.07	4.53	36024.45	179.49
429+00	377.60	8.74	808.47	8.57	36832.92	188.07
429+53	446.13	0.00	668.16	19.23	37501.08	207.30
430+00	321.54	22.10	407.79	14.31	37908.87	221.61
430+31	388.80	2.83	835.92	3.94	38744.79	225.55
431+00	265.40	0.25	438.36	0.15	39183.15	225.70

STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
431+33	451.92	0.00	239.89	1.09	39423.04	226.79
431+50	310.09	3.46	542.72	9.97	39965.77	236.76
432+00	276.05	7.31	385.34	4.39	40351.11	241.15
432+32	374.20	0.10	225.86	0.05	40576.97	241.19
432+50	303.39	0.04	405.94	0.02	40982.91	241.22
432+81	403.73	0.00	261.01	0.02	41243.91	241.24
433+00	338.07	0.05	204.14	0.01	41448.05	241.25
433+15	396.83	0.00	243.66	0.00	41691.71	241.25
433+32	377.14	0.00	233.73	0.00	41925.45	241.25
433+50	324.07	0.00	580.26	0.00	42505.71	241.25
434+00	302.62	0.00	229.23	0.00	42734.94	241.25
434+18	385.08	0.00	239.15	0.00	42974.09	241.25
434+35	374.56	0.00	110.23	0.02	43084.32	241.27
434+43	369.52	0.15	88.57	0.04	43172.90	241.31
434+50	313.76	0.19	528.95	0.21	43701.85	241.52
435+00	257.50	0.04	498.67	0.04	44200.51	241.56
435+50	281.05	0.01	1151.26	0.01	45351.77	241.57
436+14	690.32	0.00	675.38	0.00	46027.15	241.57
436+50	322.76	0.00	598.91	0.00	46626.07	241.57
437+00	324.06	0.00	192.47	0.00	46818.54	241.57
437+15	368.83	0.00	262.96	0.13	47081.49	241.70
437+34	378.53	0.37	205.96	0.14	47287.45	241.84
437+50	316.58	0.08	558.36	0.08	47845.81	241.91
438+00	286.44	0.00	159.57	0.00	48005.37	241.91
438+14	329.03	0.00	354.76	0.00	48360.13	241.92
438+42	355.15	0.00	97.99	0.00	48458.13	241.92
438+50	306.28	0.00	621.58	0.00	49079.70	241.92
439+02	339.20	0.00	190.48	0.00	49270.18	241.92
439+17	346.52	0.00	357.28	0.04	49627.46	241.96
439+50	238.12	0.07	474.55	0.05	50102.01	242.01
439+92	372.01	0.00	101.51	0.00	50203.52	242.01
440+00	313.19	0.00	493.85	0.11	50697.37	242.12
440+40	353.50	0.15	125.78	0.03	50823.14	242.15
440+50	325.68	0.00	572.06	0.27	51395.20	242.42
441+00	292.14	0.29	104.06	0.23	51499.26	242.65
441+09	332.19	1.07	337.62	0.41	51836.87	243.06
441+30	535.96	0.00	330.86	0.10	52167.73	243.16
441+50	357.36	0.27	783.03	0.28	52950.76	243.44
442+05	411.43	0.00	551.23	0.00	53501.99	243.44
442+42	393.07	0.00	122.97	0.00	53624.96	243.44
442+50	436.94	0.00	166.53	0.00	53791.49	243.44
442+60	462.34	0.01	591.93	0.00	54383.43	243.45
443+00	336.77	0.00	150.93	0.00	54534.36	243.45
443+10	478.26	0.00	647.72	0.00	55182.07	243.45
443+50	396.16	0.00	795.05	0.00	55977.13	243.45
444+00	462.50	0.00	814.53	0.00	56791.66	243.46
444+50	417.19	0.00	657.20	0.00	57448.86	243.46
445+00	292.58	0.00	536.16	0.00	57985.02	243.46
445+50	286.48	0.00	135.05	0.00	58120.07	243.46
445+62	321.25	0.00	425.47	0.18	58545.54	243.63
446+00	283.35	0.25	532.18	0.16	59077.72	243.79
446+33	587.49	0.01	338.79	0.00	59416.51	243.80
446+50	488.66	0.00	709.58	0.00	60126.08	243.80
447+00	277.69	0.00	572.21	1.03	60698.29	244.82
447+59	246.03	0.94	368.97	1.67	61067.27	246.49
448+00	239.93	1.26	87.60	0.45	61154.87	246.94
448+10	233.12	1.19	412.21	1.83	61567.08	248.78
448+58	230.62	0.87	360.07	5.00	61927.15	253.78
449+00	232.33	5.56	71.32	0.82	61998.47	254.60
449+08	249.11	0.00	404.97	2.27	62403.45	256.88
449+50	271.57	2.92	541.48	2.71	62944.92	259.58
450+00	313.22	0.00	272.46	0.00	63217.38	259.59
450+23	326.47	0.00	310.61	0.00	63528.00	259.59
450+50	294.76	0.00	526.23	0.22	64054.23	259.80
451+00	273.58	0.24	223.86	0.09	64278.10	259.89
451+20	330.86	0.00	362.31	0.00	64640.41	259.89
451+50	321.30	0.00	311.02	0.78	64951.43	260.68
451+79	257.84	1.45	201.25	0.94	65152.68	261.62
452+00	259.67	0.97	212.06	0.40	65364.74	262.02
452+22	260.84	0.01	276.56	0.01	65641.29	262.02
452+50	272.52	0.00	533.86	0.00	66175.15	262.02
453+00	304.05	0.00	584.56	0.00	66759.71	262.02
453+50	327.27	0.00	577.82	0.42	67337.53	262.44
454+00	296.77	0.45	561.02	1.15	67898.54	263.59
454+50	309.13	0.79	286.23	0.73	68184.77	264.32
455+16	261.80	000	687.23	0.00	68872.00	264.32

BALD EAGLE AVENUE

STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
5+83	69.76	0.00	63.96	0.16	63.96	0.16
6+00	133.40	0.52	131.30	1.36	195.26	1.53
6+25	150.20	2.41	129.10	2.83	324.36	4.35
6+50	128.65	3.69	102.00	2.67	426.35	7.02
6+75	91.66	2.07	74.78	1.91	501.13	8.93
7+00	69.86	2.06	61.08	1.85	562.21	10.78
7+25	62.06	1.93	58.94	1.50	621.15	12.28
7+50	65.25	1.30	62.85	0.95	684.00	13.23
7+75	70.50	0.75	68.52	0.51	752.52	13.74
8+00	77.51	0.35	83.74	0.30	836.26	14.04
8+25	103.37	0.31	100.01	0.57	936.27	14.61
8+50	112.65	0.92	87.69	0.78	1023.96	15.39
8+75	76.77	0.77	68.87	0.65	1092.83	16.04
9+00	71.99	0.64	64.51	0.53	1157.34	16.57
9+25	67.36	0.51	0.00	0.00	1157.34	16.57

LINCOLN AVENUE

STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
1+25	78.39	1.08	71.74	1.20	71.74	1.20
1+50	76.57	1.51	135.59	3.34	207.33	4.54
2+00	69.87	2.10	132.59	3.91	339.91	8.45
2+50	73.33	2.12	144.00	4.50	483.91	12.95
3+00	82.19	2.74	150.12	31.81	634.03	44.76
3+50	79.93	31.61	55.00	23.62	689.03	68.38
3+68	85.07	39.25	80.80	34.34	769.84	102.72
4+00	51.29	18.69	0.00	0.00	769.84	102.72

EARTHWORK SUMMARY

LOCATION	EXCAVATION	EMBANKMENT		
	COMMON (B.M.) ②	REGULAR (C.V.)	U & C (C.V.)	CURB BACKFILL
COUNTY ROAD G				
STA 404+50 TO 455+15±	68872	264	26525	
BITUMINOUS PATH	712			
CONCRETE WALK	474			
① CURB BACKFILL				1180
LINCOLN AVENUE				
STA 1+25 TO 4+00	770	103	290	
① CURB BACKFILL				72
BALD EAGLE AVENUE				
STA 5+83 TO 9+25	1157	17	425	
① CURB BACKFILL				94
TOTALS	71985 CY (B.M.)	384 CY (C.V.)	27240 CY (C.V)	1346 CY (C.V.)

① FILL QUANTITIES IN EARTHWORK CHART DO NOT INCLUDE CURB BACKFILL (3.0 SF PER LF). CURB BACKFILL SHALL BE SUITABLE MATERIAL FROM COMMON EXCAVATION.

② QUANTITIES INCLUDE ALL BITUMINOUS PAVEMENT REGARDLESS OF THICKNESS.

COMMON EXCAVATION 71985 CY (B.M.) X 1.2 = 86382 CY (L.V.)

REGULAR EMBANKMENT 384 CY (C.V.)
CURB BACKFILL +1346 CY (C.V.)
1730 CY (C.V.) X 1.3 = −2249 CY (L.V.)
84133 CY (L.V.)

UNIFORMITY AND COMPACTION 27240 CY (C.V.) X 1.3 = −35412 CY (L.V.)
EXCESS COMMON EXCAVATION 48721 CY (L.V.)

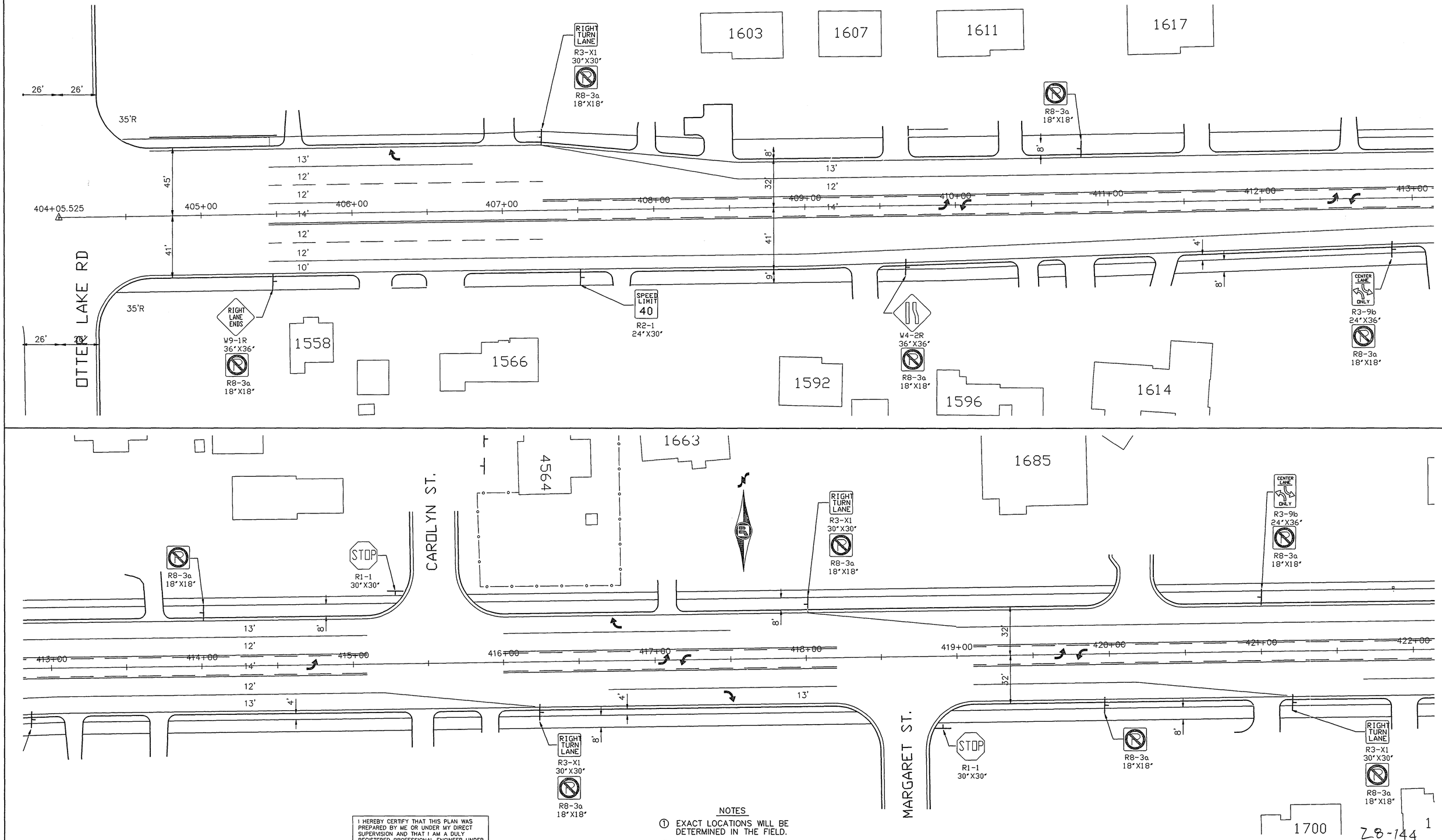
NOTE: EXCESS COMMON EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE OF THE LIMITS OF THE PROJECT AND EXISTING RIGHT OF WAY. SEE SPECIAL PROVISIONS SECTION 2105.

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 _____

28-144

EARTHWORK CHART



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REG. NO. _____ DATE _____

NOTES

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. SKIP RATIO IS 10' LINE 30' GAP.
3. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS.

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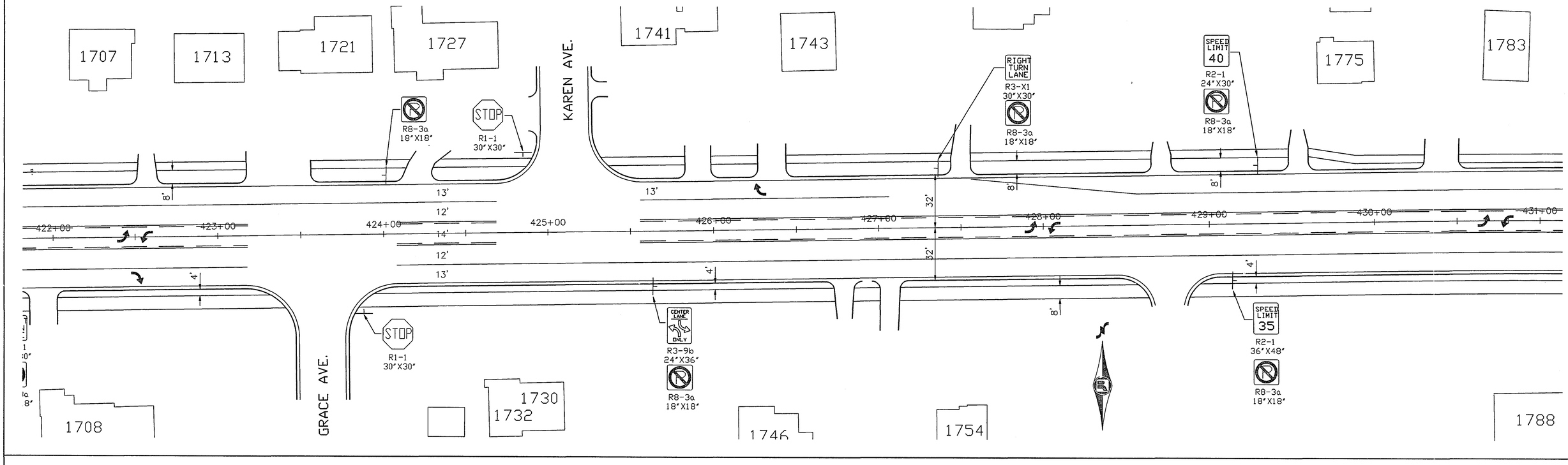
PERMANENT SIGNING & STRIPING LAYOUT

S.A.P. 62-696-02 C.T.B. SHEET NO. 89 OF 96 SHEETS



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REG. NO. _____ DATE _____

NOTES

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2. SKIP RATIO IS 10' LINE 30' GAP.
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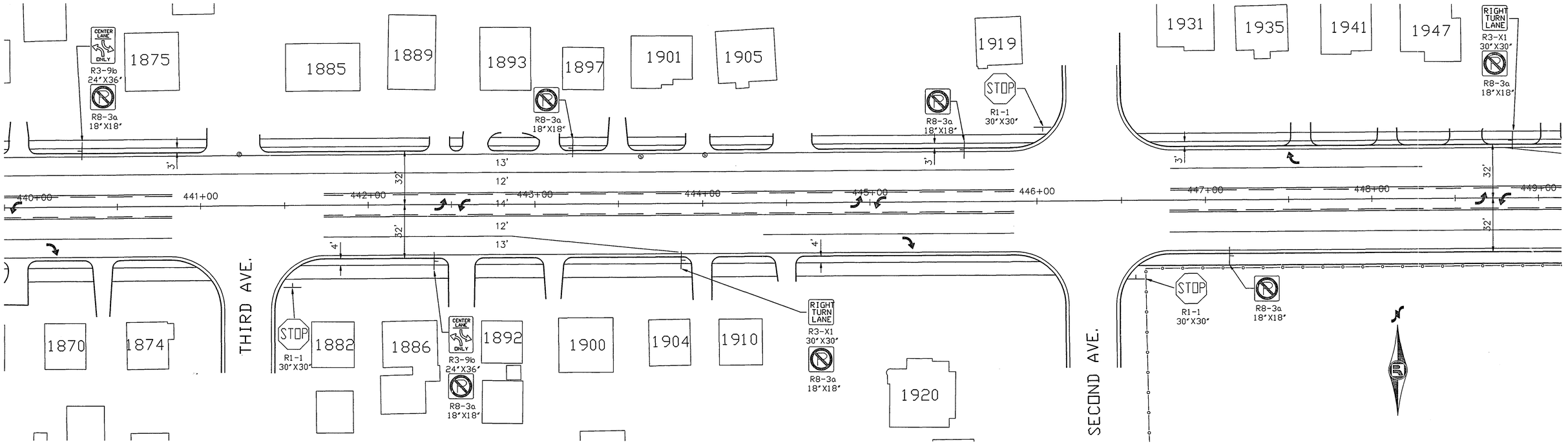
28-144

PERMANENT SIGNING & STRIPING LAYOUT

S.A.P. 62-696-02 C.T.B. SHEET NO. 90 OF 96 SHEETS



NOTES

1. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
2. SKIP RATIO IS 10' LINE 30' GAP.
3. ALL SIGNS INSTALLED IN MEDIANS AND SIDEWALKS SHALL HAVE BREAKAWAY POST & FOUNDATION – SEE SIGN DETAILS.

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.

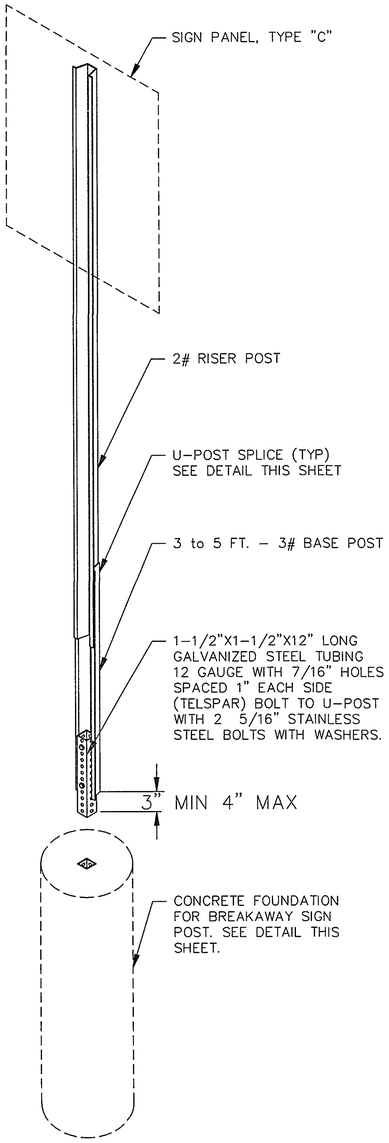
REG. NO. _____ DATE _____

28-144

PERMANENT SIGNING & STRIPING LAYOUT

S.A.P. 62-696-02 C.T.B. SHEET NO. 91 OF 96 SHEETS

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

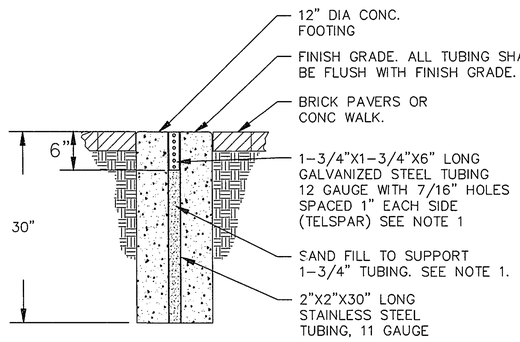


BREAKAWAY SIGN POST FOUNDATION
FOR TYPE "C" SIGNS INSTALLED IN MEDIANS

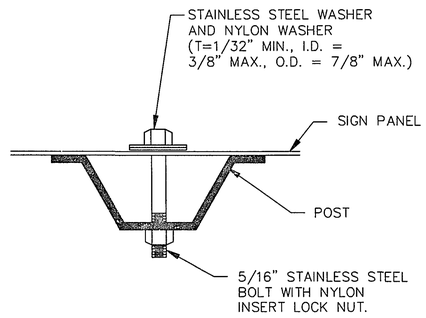
PLAN

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.

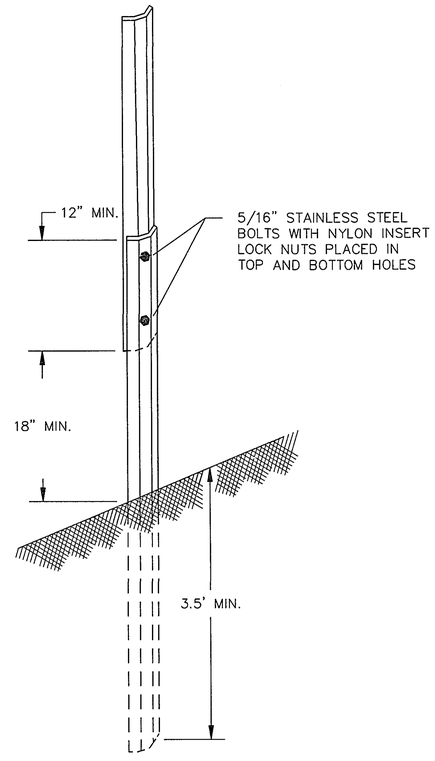


SECTION



"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.

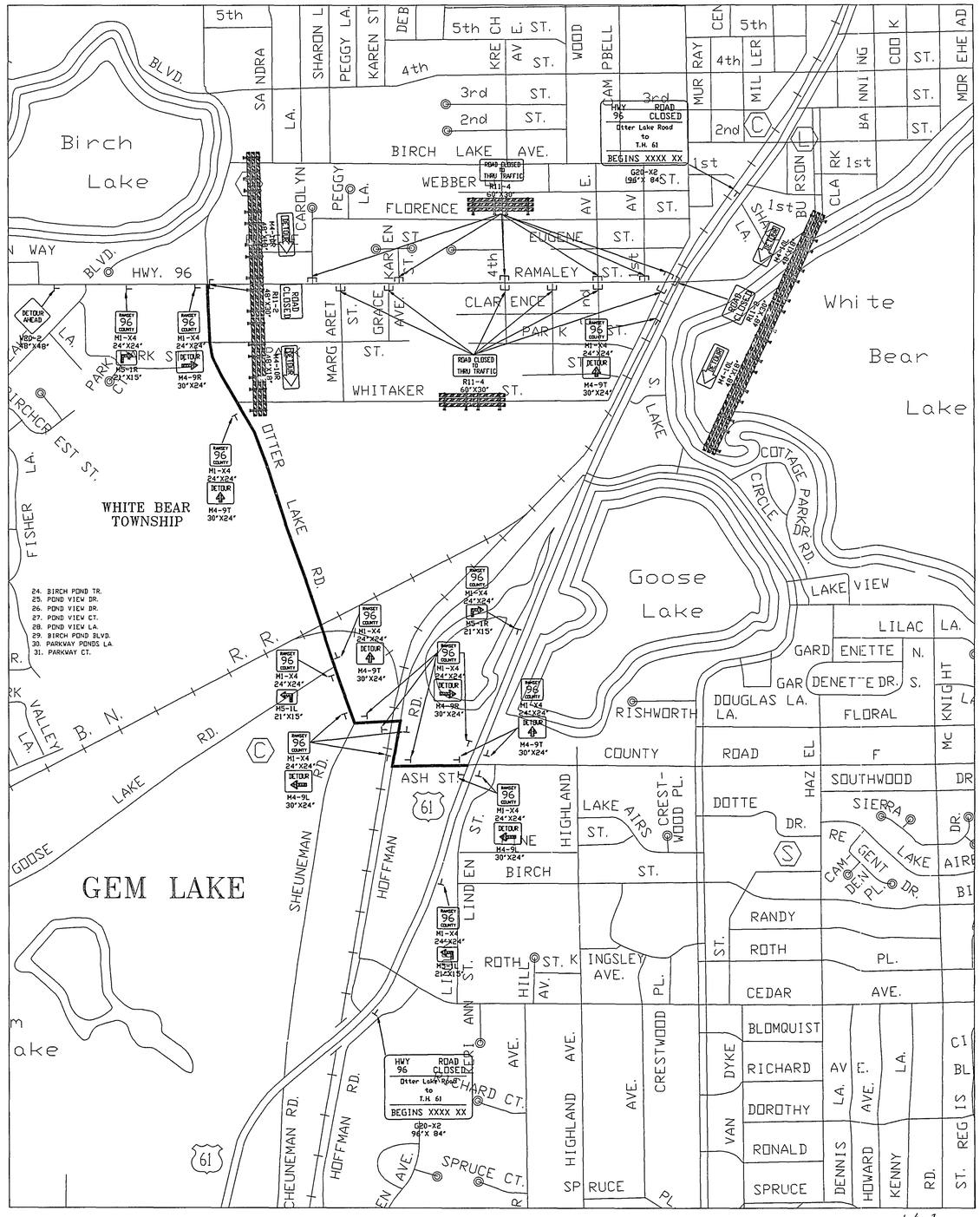
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date _____ Reg. No. _____

28-144
COUNTY ROAD G
OTTER LAKE ROAD TO TRUNK HIGHWAY 61
TYPE "C" SIGN POST DETAILS

G:\DWGS\TH96-2\SIGNDTLS

SIGN OR DEVICE	SIGN	COLOR	SIZE	QUANTITY
HWY 96 ROAD CLOSED Otter Lake Road to T.H. 61 BEGINS XXXX XX	G20-X2	BLACK ON ORANGE	96"X84"	2
RAMSEY 96 COUNTY	M1-X4	BLACK ON WHITE	24"X24"	19
DETOUR	M4-9 R,L,T	BLACK ON ORANGE	30"X24"	15
DETOUR	M4-10 R,L	BLACK ON ORANGE	48"X18"	4
	M5-1 R,L	BLACK ON WHITE	21"X15"	4
ROAD CLOSED	R11-2	BLACK ON WHITE	48"X30"	2
ROAD CLOSED TO THRU TRAFFIC	R11-4	BLACK ON WHITE	60"X30"	12
DETOUR AHEAD	W20-2	BLACK ON ORANGE	48"X48"	1
	TYPE III WITH FLASHERS	WHITE ON ORANGE	4 FT. MINIMUM	40



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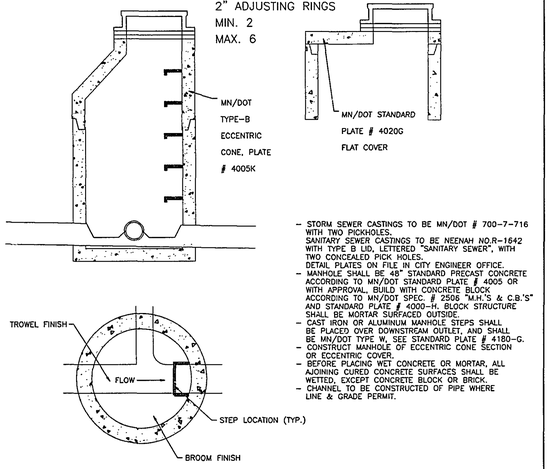
REG. NO. _____ DATE _____

28-144

TRAFFIC CONTROL PLAN

S.A.P. 62-696-02 C.T.B. SHEET NO. 93 OF 96 SHEETS

G:\DWGS\TH96-2\DETOUR2 11/07/95



STANDARD MANHOLE
STORM OR SANITARY

EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

STEP 1

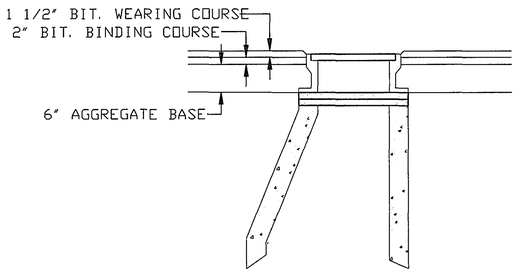
A) PLACE TEMPORARY STEEL COVER ON MANHOLE.
B) PLACE AGGREGATE BASE AND BINDER COURSE (ONLY IF 2 COURSES ARE TO BE PLACED) OVER MANHOLE LOCATIONS.

STEP 2

A) CUT 3'X3'(0.91MX0.91M) SQUARE HOLE AROUND MANHOLE.
B) PLACE AND ADJUST CASTING 1/4"(0.61cm) BELOW TOP OF WEARING COURSE (2 RINGS MINIMUM AND 6 RINGS MAXIMUM).
C) TACK BITUMINOUS SURFACES.

STEP 3

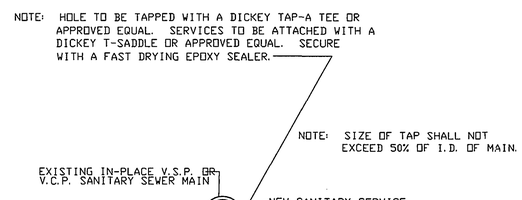
A) PAVE WEARING COURSE.



MANHOLE ADJUSTMENT
DETAIL

EFFECTIVE APRIL, 1994

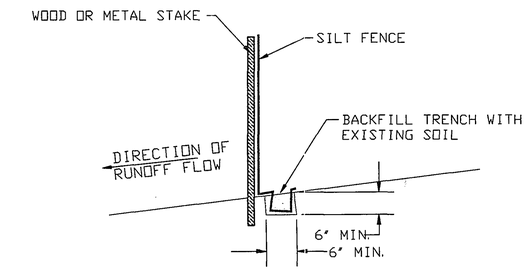
CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



SANITARY SEWER TAP
CLAY TILE

EFFECTIVE APRIL, 1994

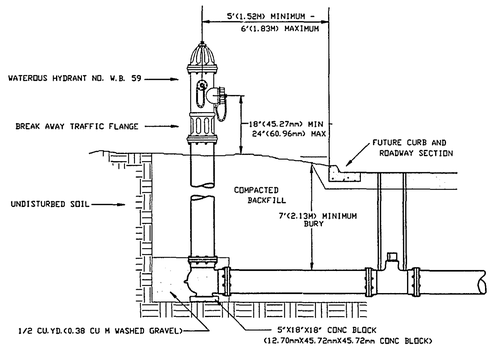
CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



SILT FENCE
TYPICAL INSTALLATION

EFFECTIVE APRIL, 1994

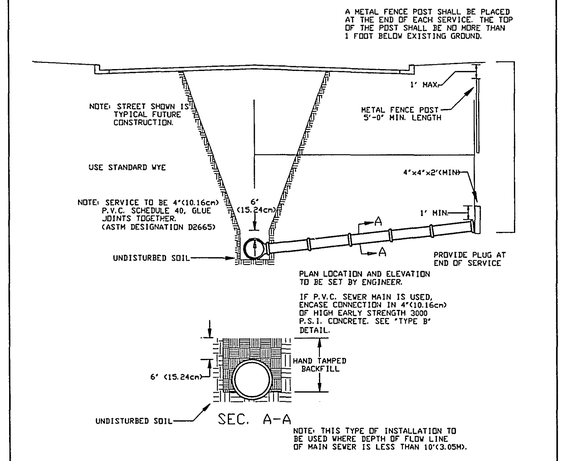
CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



FIRE HYDRANT DETAIL
TYPICAL INSTALLATION

EFFECTIVE APRIL, 1994

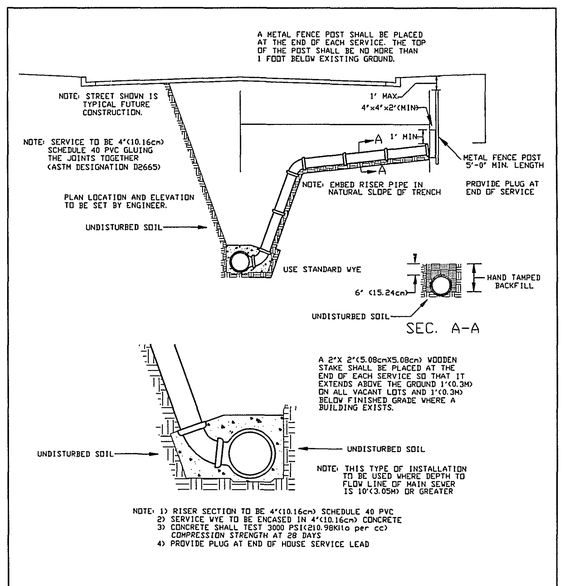
CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



SANITARY SEWER SERVICE
TYPE "A" CONNECTION

EFFECTIVE APRIL, 1994

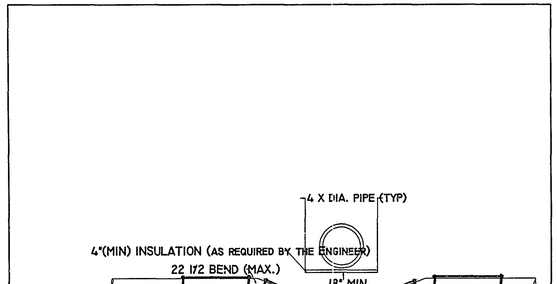
CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



SANITARY SEWER SERVICE
TYPE "B" CONNECTION

EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



EFFECTIVE APRIL, 1994

WATERMAIN ADJUSTMENT
TYPICAL

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

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 _____

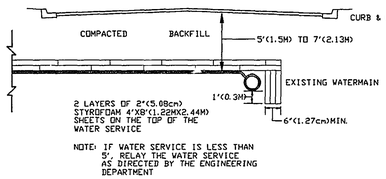
28-144

CITY UTILITY DETAILS

S.A.P. 62-696-02 C.T.B. SHEET NO. 94 OF 96 SHEETS

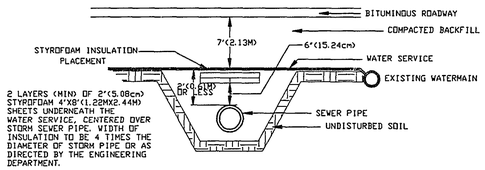
G:\DWGS\TH96-2\WBDETAIL 12/05/95

BASIC SERVICE



NOTE: IF WATER SERVICE IS LESS THAN 5', RELAY THE WATER SERVICE AS DIRECTED BY THE ENGINEERING DEPARTMENT

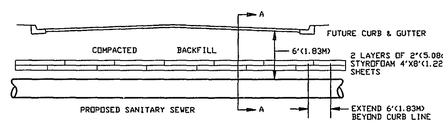
STORM SEWER CROSSING



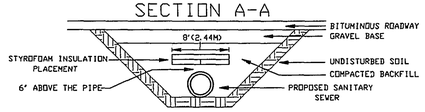
INSULATED WATER SERVICE

EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT



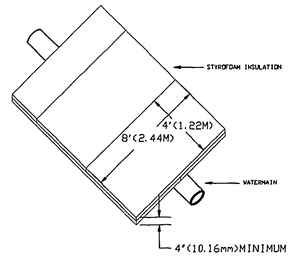
SECTION A-A



INSULATED SANITARY SEWER STANDARD DETAIL

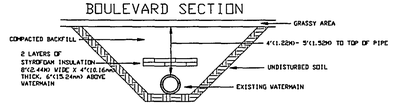
EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

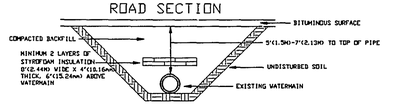


TYPICAL INSTALLATION

BOULEVARD SECTION



ROAD SECTION



INSULATED WATERMAIN STANDARD DETAIL

EFFECTIVE APRIL, 1994

CITY OF WHITE BEAR LAKE
ENGINEERING DEPARTMENT

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.

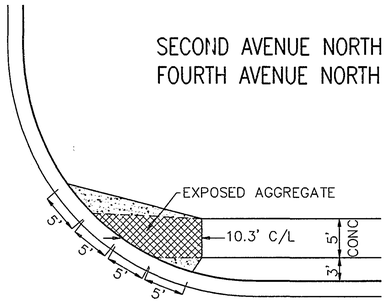
REG. NO. _____ DATE _____

28-144

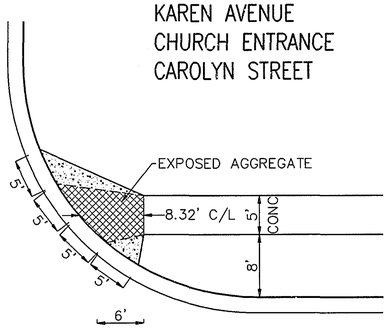
CITY UTILITY DETAILS

S.A.P. 62-696-02 C.T.B.

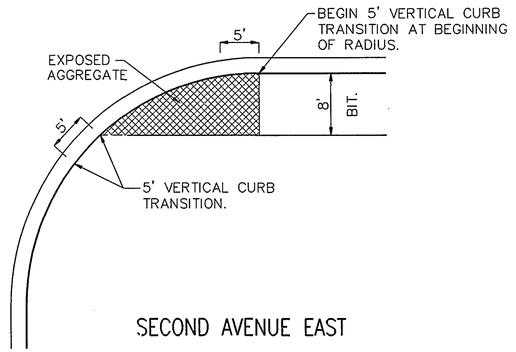
G:\DWGS\TH96-2\WBDETAIL 12/05/95



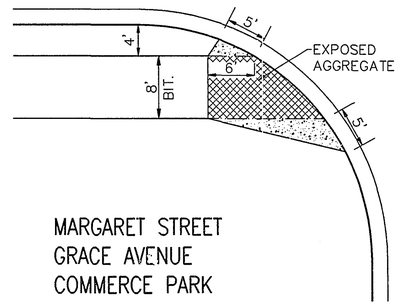
SECOND AVENUE NORTH
FOURTH AVENUE NORTH



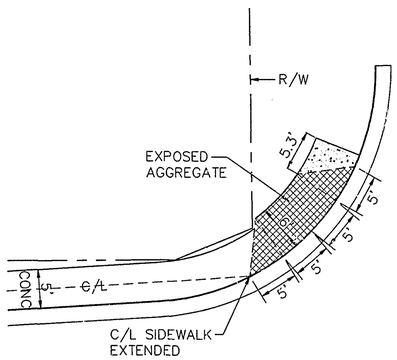
KAREN AVENUE
CHURCH ENTRANCE
CAROLYN STREET



SECOND AVENUE EAST

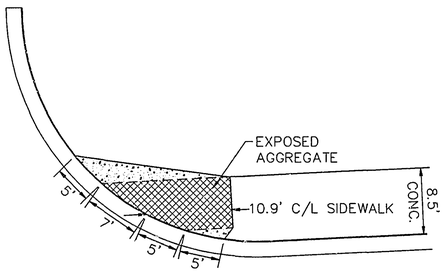


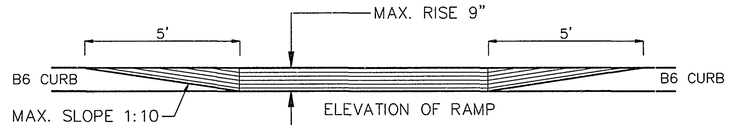
MARGARET STREET
GRACE AVENUE
COMMERCE PARK
FOURTH AVENUE SOUTH
THIRD AVENUE SOUTH
SECOND AVENUE WEST RADIUS



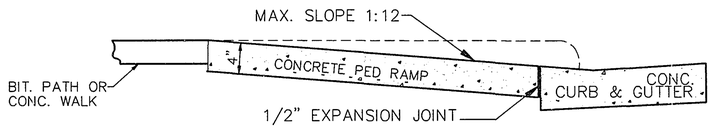
COUNTY ROAD G

FIRST AVENUE





TYPICAL RAMP ELEVATION



TYPICAL RAMP 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.

REG. NO. _____ DATE _____

28-144

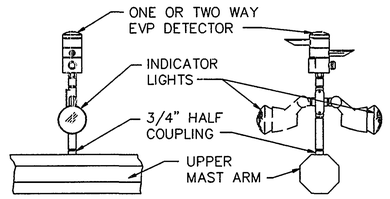
PEDESTRIAN RAMP DETAILS

S.A.P. 62-696-02 C.T.B. SHEET NO. 96 OF 96 SHEETS

ABBREVIATIONS

3-1 (e.g.)	-SIGNAL HEAD, PHASE "3", NO. "1"
BL	-BLUE
BLK	-BLACK
BLK/WH	-BLACK WITH WHITE TRACER
BL/BLK	-BLUE WITH WHITE TRACER
BR. GR.	-BARE GROUND
CH. SW.	-CHECK SWITCH
CLR	-CLEAR
D2-1 (e.g.)	-DETECTOR, PHASE "2", NO."1"
DNL	-DOWNLIGHT
DWK	-DON'T WALK
EQG	-EQUIPMENT GROUND
EVP	-EMERGENCY VEHICLE PRE-EMPTION
F&I	-FURNISH AND INSTALL
FL	-FLASH/FLASHING
G	-GREEN
GLTA	-GREEN LEFT TURN ARROW
GRN	-GREEN
GRTA	-GREEN RIGHT TURN ARROW
GR.R.	-GROUND ROD
GTHA	-GREEN THROUGH ARROW
G/BLK	-GREEN WITH BLACK TRACER
HPS	-HIGH PRESSURE SODIUM
H.H.	-HANDHOLE
IMC	-INTERMEDIATE METAL CONDUIT
J.B.	-JUNCTION BOX
LTA	-LEFT TURN ARROW
LUM	-LUMINAIRE
MV	-MERCURY VAPOR
NEU	-NEUTRAL
NMC	-NON-METALLIC CONDUIT
O	-ORANGE
O/BLK	-ORANGE WITH BLACK TRACER
P1-1 (e.g.)	-PEDESTRIAN INDICATION, PHASE "1", NO. "1"
PB	-PUSH BUTTON
PB2-1 (e.g.)	-PUSH BUTTON, PHASE "2", NO. "1"
PED	-PEDESTRIAN
P.E.C.	-PHOTOELECTRIC CELL
R	-RED
R&S	-REMOVE AND SALVAGE
RSC	-RIGID STEEL CONDUIT
RTA	-RIGHT TURN ARROW
R/BLK	-REN WITH BLACK TRACER
SPR	-SPARE
STA	-STATION
ST. LHT.	-STREET LIGHT
SW	-SWITCH
SWD	-SWITCHED
S.O.P.	-SOURCE OF POWER
TDW	-TELEPHONE DROP WIRE
WH	-WHITE
WH/BLK	-WHITE WITH BLACK TRACER
WLK	-WALK
YEL	-YELLOW
YLTA	-YELLOW LEFT TURN ARROW
YRTA	-YELLOW RIGHT TURN ARROW
YTHA	-YELLOW THROUGH ARROW

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



FRONT VIEW SIDE VIEW

EVP DETECTOR & LIGHT MOUNTING DETAIL ON MAST ARM

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

	PLATE NO.	DESCRIPTION
*	7065 C	BITUMINOUS CURB
*	8110 C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
*	8111 B	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
*	8112 C	PEDESTAL FOUNDATION
	8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
*	8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
	8117 F	PRECAST CONCRETE HANDHOLE
	8118 C	SERVICE EQUIPMENT & POLE, TRAFFIC CONTROL SIGNALS
	8119 C	GROUND MOUNTED CABINET FOUNDATION
	8120 J	POLE FOUNDATION (PA85 & PA90)
	8121 C	TRANSFORMER BASE WITH POLE BASE PLATE
	8222 C	PEDESTAL AND PEDESTAL BASE
	8123 C	POLE AND MAST ARM (LUMINAIRE AND TRAFFIC LIGHTS)
*	8124 D	MAST ARM SIGNAL HEAD MOUNTS
	8126 E	PA100 POLE FOUNDATION
*	8130 D	SAW CUT LOOP DETECTORS

* STANDARD PLATES APPLICABLE TO THIS PROJECT

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.
David E. Sohn
Date 2/7/96 Reg. No. 20452

28-144

DETAILS

ADDENDUM NO. 1

REVISED

SIGNAL INDICATION CHART								
FACE	PHASE	INDICATION SIZE					
		R	Y	G	⟪R	⟪Y	⟪G
1-1	1				12"	12"	12"
▶ 1-2	1				12"	12"	12"
▶ 2-1	2	12"	12"	12"			
2-2	2	12"	12"	12"			
▶ 2-3	2	12"	12"	12"			
▶ 6-1	6	12"	12"	12"			
6-2	6	12"	12"	12"			
▶ 6-3	6	12"	12"	12"			
▶ 7-1	7	12"	12"	12"			12"
▶ 7-2	7	12"				12"	12"
▶ 7-3	7	12"	12"	12"			12"
▶ 8-1	8	12"	12"	12"			12"
8-2	8	12"	12"	12"			
▶ 8-3	8	12"				12"	12"
8-4	8	8"	8"	8"			

REVISED

VEHICLE DETECTION			
NO.	SIZE	FUNCTION	LOCATION
D1-1	4-6'X6'	C&E	0'
D2-1	6'X6'	C&E	300'
D2-2	6'X6'	C&E	300'
D6-1	6'X6'	C&E	300'
D6-2	6'X6'	C&E	300'
D7-1	8'X8'	C&E	100'
D7-2	2-6'X15'	C&E	0'
▶ F&I D8-1	4-6'X6'	C&E	40'&60'
▶ F&I D8-2	2-6'X6'	C&E	0'

C&E =CALL & EXTEND
C =CALL ONLY
E =EXTEND ONLY
(TD) =TIME DELAYED

SIGNAL SYSTEM OPERATION

THE SIGNAL SYSTEM FLASH MODE IS ALL RED.

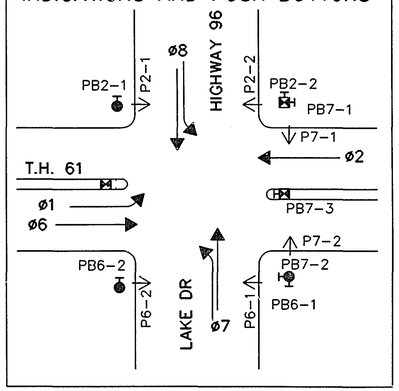
PHASE 1 IS A PROTECTED LEFT TURN

PHASES 1,2,6,7 AND 8 ARE LOCK DETECTION.

PHASES 2 AND 6 ARE ON VEHICLE RECALL.

REVISED

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



1 ▶ TYPE A-20-D40-9 WITH SWING AWAY HINGE, REVISE
▶ TO A-30-D40-9 WITH SWING AWAY HINGE
LUMINAIRE-200 WATT AT 350°
▶ OVERHEAD MOUNTED SIGN, R&S AND
▶ REINSTALL ON REVISED MAST ARM.
▶ ONE WAY SIGNAL - OVERHEAD, R&S AND REINSTALL
▶ INSTALL ONE WAY SIGNAL - OVERHEAD
▶ TYPE 20A - POLE MOUNTED 270°, REVISE TO TYPE 20B
▶ TYPE 10B - POLE MOUNTED 0°, REVISE LENSE AND TO TYPE 10A
▶ 1-PEDESTRIAN PUSH BUTTON, RELOCATE
▶ F&I ONE WAY EVP DETECTOR AND
▶ LIGHT OVERHEAD
EXTEND INTO H.H. 4
3" RSC
3-12/C #12
2-3/C #12
4-1/C #10
▶ F&I 2-3/C #12
▶ F&I 1-3/C #20

TYPE 12-40 ORNAMENTAL ST. LIGHT
EXTEND INTO H.H.17
2" RSC
2-1/C #10
2" RSC STUB OUT

S.O.P. - (35' WOOD POLE)
SERVICE EQUIPMENT
2-1.25" RSC RISER WITH WEATHER HEAD
EXTEND INTO H.H.17
1.25" RSC
2-1/C #6
4-1/C #10
1-3/C #12

3" RSC
1-3/C #12
1-2/C #14
2-1/C #10
2-1/C #6

3" RSC
4-12/C #12
1-3/C #12
6-2/C #14
2-1/C #10
▶ F&I 4-3/C #12
▶ F&I 4-3/C #20

2-3" RSC
5-12/C #12
3-3/C #12
▶ 9-2/C #14, R&S 1-2/C #14
2-1/C #10
▶ F&I 5-3/C #12
▶ F&I 4-3/C #20

2 ▶ TYPE 1C INPLACE, REVISE TO
▶ TYPE 2C
1-PEDESTRIAN PUSH BUTTON
▶ F&I 1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.5
3" RSC
▶ 2-12/C #12, R&S 1-12/C #12
▶ 2-3/C #12, R&S 1-3/C #12
▶ F&I 1-3/C #12

3 ▶ TYPE 1A INPLACE, RELOCATE
▶ POLE & FOUNDATION WITH
▶ 1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.9
▶ 3" RSC
▶ 1-12/C #12, R&S 1-12/C #12
▶ 1-3/C #12, R&S 1-3/C #12
▶ F&I 1-3/C #12

3" RSC
1-12/C #12
2-3/C #12
▶ 3-2/C #14, R&S 1-2/C #14
▶ F&I 1-3/C #12

RAILROAD CABINET
EXTEND INTO H.H.5
1.25" RSC
1-3/C #12

3" RSC
▶ 1-12/C #12, R&S 1-12/C #12
▶ 1-3/C #12, R&S 1-3/C #12
▶ 3-2/C #14, R&S 1-2/C #14
▶ F&I 1-3/C #12

3" RSC
▶ 1-12/C #12, R&S 1-12/C #12
▶ 1-3/C #12, R&S 1-3/C #12
▶ 1-2/C #14, R&S 1-2/C #14
▶ F&I 1-3/C #12

1.25" RSC
2-2/C #14

CONC. WALK SEE NOTE NO 14.

RECONSTRUCT MEDIAN, SEE NOTE NO 13.

CONC. WALK SEE NOTE NO 13

1.25" RSC
2-2/C #14

3" RSC
2-12/C #12
1-3/C #12
2-2/C #14
2-1/C #10
▶ F&I 1-3/C #12
▶ F&I 1-3/C #20

1.25" RSC
1-2/C #14

A CONTROLLER CABINET
EXTEND INTO H.H.1
1" RSC
3" RSC
1-3/C #12
1-2/C #14
2-1/C #6
EXTEND INTO H.H.2
2-3" RSC
5-12/C #12
3-3/C #12
▶ 9-2/C #14, R&S 1-2/C #14
▶ F&I 5-3/C #12
▶ F&I 4-3/C #20
BETWEEN H.H.1 & 2
3" RSC
2-1/C #10

3" RSC
3-12/C #12
1-3/C #12
5-2/C #14
2-1/C #10
▶ F&I 2-3/C #12
▶ F&I 3-3/C #20

3" RSC
3-12/C #12
1-3/C #12
4-2/C #14
2-1/C #10
▶ F&I 2-3/C #12
▶ F&I 3-3/C #20

3" RSC
3-12/C #12
1-3/C #12
2-2/C #14
2-1/C #10
▶ F&I 2-3/C #12
▶ F&I 3-3/C #20

4 ▶ TYPE A-20-D40-9 WITH HINGES, REVISE
▶ TO TYPE A-45-D40-9 WITH HINGES
LUMINAIRE-200 WATT AT 350°
▶ OVERHEAD MOUNTED SIGN, R&S AND
▶ REINSTALL ON REVISED MAST ARM.
▶ ONE WAY SIGNAL - OVERHEAD, R&S AND REINSTALL
▶ INSTALL 2-ONE WAY SIGNALS - OVERHEAD
▶ TYPE 20C - POLE MOUNTED 270°, REVISE TO 10B
▶ TYPE 10B - POLE MOUNTED 0°, REVISE LENSE
2-PEDESTRIAN PUSH BUTTONS
▶ F&I ONE WAY EVP DETECTOR AND
▶ LIGHT OVERHEAD
EXTEND INTO H.H. 10
3" RSC
2-12/C #12
2-3/C #12
2-1/C #10
▶ F&I 1-3/C #12
▶ F&I 1-3/C #20

5 TYPE A-20
▶ ONE WAY SIGNAL - OVERHEAD, REVISE
▶ TO A TWO WAY 4 SECTION
▶ TYPE 10C - POLE MOUNTED 270°, REVISE
▶ TO TYPE 10B
▶ 2-PEDESTRIAN PUSH BUTTONS, R&S ONE BUTTON
▶ F&I 2-ONE WAY EVP DETECTORS AND
▶ LIGHTS OVERHEAD
EXTEND INTO H.H. 12
3" RSC
3-12/C #12
2-3/C #12
▶ F&I 1-3/C #12
▶ F&I 2-3/C #20

6 POLE & FOUNDATION
▶ 1-PEDESTRIAN PUSH BUTTON,
▶ R&S BUTTON
EXTEND INTO H.H.9
3" RSC
4-12/C #12
2-3/C #12

SCALE IN FEET
0 10 20 30 40 50 100

NOTES:

1. POLE AND DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
2. MN/DOT SHALL FURNISH TO THE CONTRACTOR CONTROLLER CABINET WITH CONTROL EQUIPMENT, MAST ARMS, VEHICLE AND PEDESTRIAN INDICATIONS (SEE SPECIAL PROVISIONS).
3. A 3/4 INCH HALF COUPLING SHALL BE FURNISHED APPROXIMATLY 2 FT. AND 4 FT. FROM END OF THE MAST ARM ON EACH POLE PER MN/DOT 3831.2C.
4. ALL PEDESTRIAN INDICATIONS ARE 9"x9", REVISE TO SYMBOL MESSAGE, GLASS LENSES. MN/DOT WILL FURNISH & CONTRACTOR SHALL INSTALL.
5. ALL SIGNAL FACES SHALL HAVE BACK-GROUND SHIELDS EXCEPT SIGNAL FACES 7-2 AND 8-3.
6. REMOVE & SALVAGE INPLACE H.H. 9. F&I NEW H.H. 9 (PVC) WITH METAL COVER & RING AND EXTEND RSC AS SHOWN IN PLAN.
7. REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL DURING SIGNAL CONSTRUCTION
8. HANDHOLES 2 AND 3 ARE TWO HANDHOLES PLACE SIDE BY SIDE WITH RSC BETWEEN.
9. INPLACE PEDESTAL POLE 3 SHALL BE REMOVED AND SALVAGED AND BE REINSTALLED AT NEW LOCATION AS SHOWN IN THE PLANS.
10. WELD 3/4" HALF COUPLING TOP OF MAST ARMS ON POLES 1,4 AND 5 FOR EVP DETECTORS.
11. ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE USED INPLACE UNLESS OTHERWISE NOTED WITH A ▶ ▶ = WORK TO BE DONE THIS SHEET ONLY).

NOTES:

12. TEMPORARY ALL RED FLASHING OPERATION DURING REVISION WORK. SEE SPECIAL PROVISIONS.
13. MODIFY MEDIAN NOSE AT POLE NO 3
REMOVE:
450 SQ.FT.x 6"D. OF BIT., 110 L.F. OF CURB AND 10 C.Y. OF EXCESS MATERIAL.
CONSTRUCT:
450 SQ.FT. OF BIT., 50 L.F. OF BIT CURB AND 85 SQ. FT. OF CONCRETE WALK.
SEE SPECIAL PROVISIONS.
14. CONSTRUCT CONCRETE WALK AT POLE NO 2 152 SQ. FT. OF CONCRETE WALK.
15. A MID ARM MOUNT WILL BE PROVIDED ON
-POLE NO 1 AT 11 FT.
-POLE NO 4 AT 11 AND 23 FT.
16. F&I POST MOUNTED SIGN TYPE R9-3a 18" X 18". TOTAL QUANTITY, TWO. ONE SIGN AT POLE #1 AND ONE AT POLE # 5 FOR EAST-WEST CROSSING.
17. R&S ALL PED INSTRUCTION SIGNS AND F&I NEW SIGNS TYPE R10-4b, 9"X12" SYMBOL MESSAGE.

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.
Daniel E. Soler
Date 2/7/96 Reg. No. 20452

Z8-144

REVISED
INTERSECTION LAYOUT
T.H. 61 & HIGHWAY 96
SYSTEM A

ADDENDUM NO. 1

S.A.P. No. 62-696-02 CTB Sheet No. 98 of 100 Sheets

▲ CONTROLLER CABINET

		SIGNAL SERVICE	18
1	RED 2-1	8-1 RED	
	YEL 2-1	8-1 YEL	
	GRN 2-1	8-1 GRN/GLTA	
	NEU 2-1,2-2,2-3	8-2, 8-1 NEU	
	RED 2-2, 2-3	8-2 RED	
	YEL 2-2, 2-3	8-2 YEL	11
	GRN 2-2, 2-3	8-2 GRN	
	NEU 8-4	NEU	
	RED 8-4		
	YEL 8-4		
	GRN 8-4		
	EQG	EQG	
2	RED 7-1	P7-2 WLK	
	YEL 7-1	P7-2 DWK	
	GRN/GLTA 7-1		
	NEU 7-1,P7-1	P7-2,7-2,7-3 NEU	
	RED LTA 1-2	7-2,7-3 RED	
	YEL LTA 1-2	7-2,7-3 YLTA/YEL	12
	GRN LTA 1-2	7-2,7-3 GLTA/GRN	
	NEU 1-2	EVP,P6-1,P6-2 NEU	
	WLK P7-1	P6-1,P6-2 WLK	
	DWK P7-1	P6-1,P6-2 DWK	
		ø1&6 EVP LHT	
	EQG	EQG	
3	RED 6-1		
	YEL 6-1	PB7-1,PB7-3	
	GRN 6-1	NEU	13
	NEU 6-1,6-2,6-3	PB2-2	
	RED 6-2,6-3		
	YEL 6-2,6-3	PB2-1	
	GRN 6-2,6-3	NEU	14
	NEU 8-3	PB6-1,PB6-2	
	RED 8-3		
	YEL LTA 8-3	REC	19
	GRN LTA 8-3	NEU	
	EQG	ØNL	
		RAILROAD	
* 23	WLK P2-1	PRE-EMPTION	20
	NEU P2-1	CABLE	
	DWK P2-1		
* 24	PB7-2		
	NEU		
* 25	ø 2		
	NEU EVP LHT		
* 26	ø 7		
	NEU EVP LHT		
	ø 8		
* 27	EVP DETECTOR ø 2		
* 28	EVP DETECTOR ø 7		
* 29	EVP DETECTOR ø 8		
* 30	EVP DETECTOR ø 1&6		
* 31	WLK P7-1		
	NEU P7-1		
	DWK P7-1		

4	D6-1	D8-1	10
5	D6-2	D8-2	15
6	D2-1	D7-1	16
7	D2-2	D7-2	17
8	D1-1		
9	D5-1 R&S		

SOP

SIGNAL SERVICE 18 — 21 STREET LIGHT SERVICE 22 — GR. ROD

REC NEU ØNL 19

LUMINAIRE 22

INPLACE HH 17 — D8-1 — 10

10,18,19,21

INPLACE HH 1

10,18,19

21

INPLACE HH 2

1,2,3,4,5,6,7,8,9,11,12, 13,14,15,16,17,20, 23,24,25,26,27,28,29,30,31 * * * * * * * * *

INPLACE HH 3

1,2,3,4,5,6,7,8,9,11,12, 13,14,15,16,17,20,21, 23,24,25,26,27,28,29,30,31 * * * * * * * * *

TO HH 4 SEE SHEET

1,3,4,5,8,11,12,14,15, 16,17,21, 23,24,25,26,27,28,29,30 * * * * * * * *

②

P2-2 * 31

P7-1 (1-2) (7-1)

2

PB7-1 ▽ — 13 — * 13

INPLACE HH 5

2,6,7,9,13,20,31 *

INPLACE HH 6

2,6,7,9,13 *

2,9,13 *

6,7

INPLACE HH 7

6,7

INPLACE HH 8

6 7

D2-1 D2-2

20

INPLACE RAILROAD CABINET

RAILROAD 20 PRE-EMPTION CABLE

③

PB7-3 * 13

HH 9

CONDUCTOR COLOR CODING

12/C#12: R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, G/BLK, G

- BLK / WH → 2-1/C#6, 2-1/C#10
- R / WH / BLK → 3/C#12
- R OR O / WH OR YEL / BL OR BLK → 3/C#20
- BLK / CLEAR → 2/C#14

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

NOTES:

ALL CABLES ARE INPLACE UNLESS OTHERWISE INDICATED.

* DENOTES NEW CABLE

▲ DENOTES NEW CONNECTION

▽ RELABEL AS DIRECTED

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.

Daniel E. Sahr

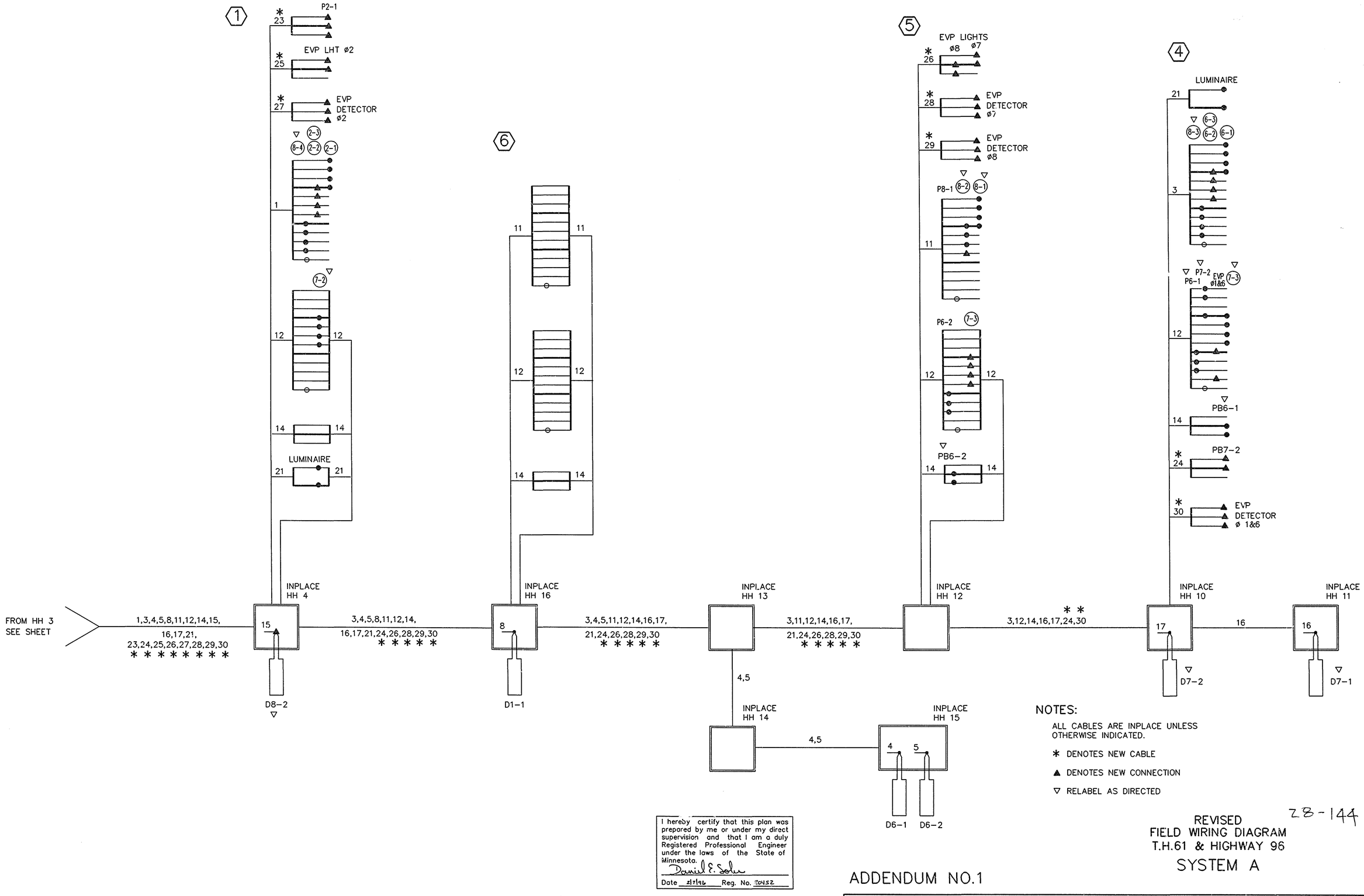
Date 2/7/96 Reg. No. 20452

REVISED
FIELD WIRING DIAGRAM
T.H.61 & HIGHWAY 96
SYSTEM A

28-144

ADDENDUM NO.1

S.A.P. No. 62-696-02 CTB — Sheet No. 99 of 100 Sheets



NOTES:

ALL CABLES ARE INPLACE UNLESS OTHERWISE INDICATED.

* DENOTES NEW CABLE

▲ DENOTES NEW CONNECTION

▽ RELABEL AS DIRECTED

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.

Daniel E. Soler

Date 2/7/96 Reg. No. 30452

28-144

REVISED
FIELD WIRING DIAGRAM
T.H.61 & HIGHWAY 96
SYSTEM A

ADDENDUM NO.1

S.A.P. No. 62-696-02 CTB Sheet No. 100 of 100 Sheets