

# MINNESOTA DEPARTMENT OF TRANSPORTATION CONSTRUCTION PLANS FOR BITUMINOUS SURFACING, DRAINAGE IMPROVEMENTS, SANITARY SEWER WATERMAIN AND MISCELLANEOUS CONSTRUCTION

LOCATED ON SUNWOOD DRIVE NW FROM CSAH 83 TO CO RD 56  
AND ON RHINESTONE STREET NW FROM SUNWOOD DR NW TO CO RD 116  
AND ON ANOKA COUNTY ROADS 56 AND 116 AND ANOKA C.S.A.H. 83  
CITY OF RAMSEY PROJECT NO. 03-29

## GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL APPLY.  
ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

## SHEET INDEX

THIS PLAN CONTAINS 166 SHEETS

### SUNWOOD DRIVE(S.A.P. 199-104-07) AND RHINESTONE STREET(S.A.P. 199-109-01) - 113 SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3-6	STATEMENT OF ESTIMATED QUANTITIES
7	CONSTRUCTION NOTES AND STANDARD PLATES
8-10	DRAINAGE TABULATIONS
11-12	TYPICAL SECTIONS
13-18	DETAIL SHEETS
19-25	SUNWOOD - STREET & STORM SEWER PLANS
26	ARMSTRONG - SAN. SEWER & WATERMAIN PLANS
27-33	SUNWOOD - SAN. SEWER & WATERMAIN PLANS
34	RAMSEY - SAN. SEWER & WATERMAIN PLANS
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80-113	SUNWOOD AND RHINESTONE CROSS SECTIONS

### BUNKER LAKE BOULEVARD - CO. RD. 116 (S.A.P. 199-109-01) - 21 SHEETS

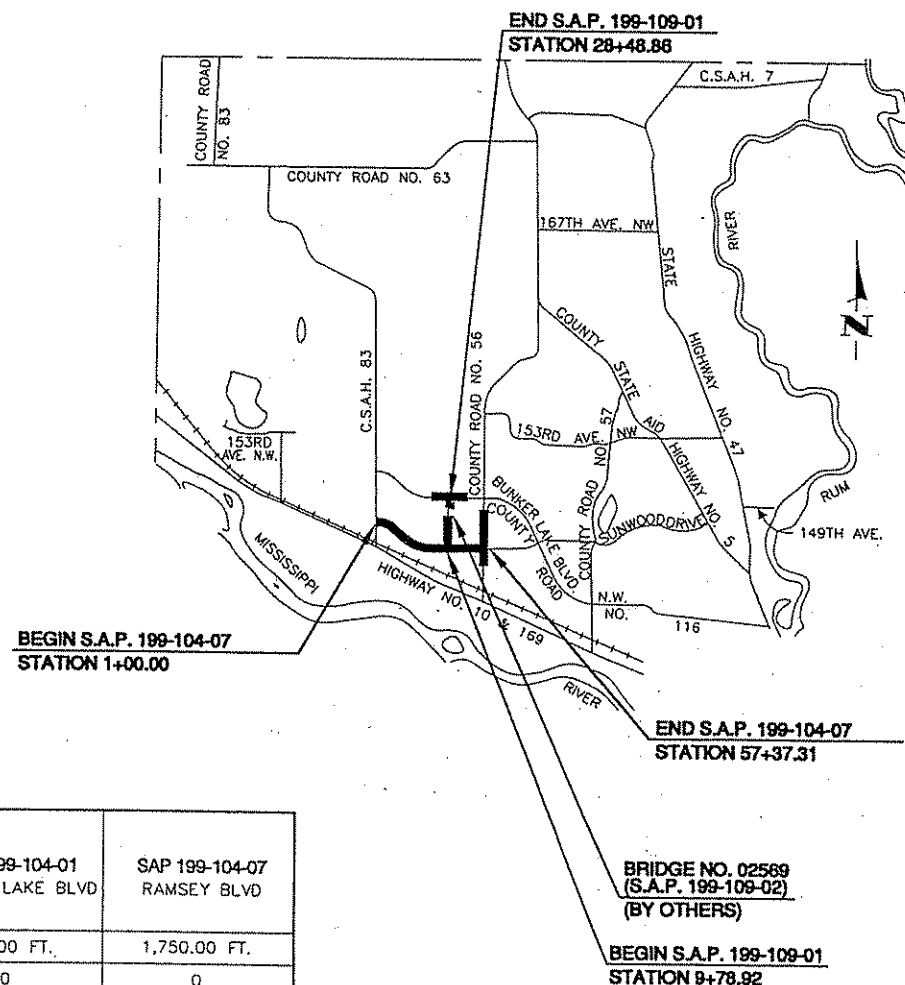
1B	TYPICAL SECTIONS
2B-9B	REMOVAL PLANS, STREET PLANS, AND STORM SEWER PLANS
10B	INTERSECTION DETAILS
11B-12B	TRAFFIC CONTROL PLANS
13B-15B	SIGNING AND STRIPING PLANS
16B-21B	CROSS SECTIONS

### RAMSEY BOULEVARD - CO. RD. 56 (S.A.P. 199-104-07) - 32 SHEETS

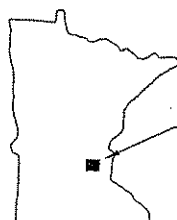
1R-2R	TYPICAL SECTIONS
3R-12R	REMOVAL PLANS, STREET PLANS, AND STORM SEWER PLANS
13R-14R	INTERSECTION DETAILS
15R-16R	TRAFFIC CONTROL PLANS
17R-19R	SIGNING AND STRIPING PLANS
20R-21R	SIGNAL PLANS
22R-32R	CROSS SECTIONS

### LEGEND

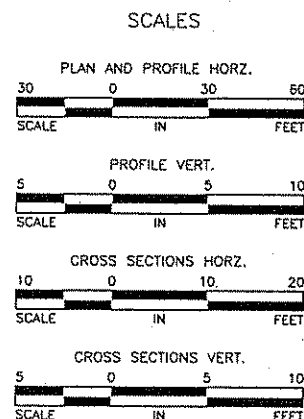
---	UNDERGROUND ELECTRIC LINES
---	OVERHEAD ELECTRIC LINES
- - -	EXISTING CONTOUR
←	EXISTING STORM SEWER
←	EXISTING SAN SEWER
—	EXISTING WATERMAIN
←	PROPOSED STORM SEWER
←	PROPOSED SAN SEWER
—	PROPOSED WATERMAIN
•••••	SILT FENCE
-W- W-	WETLAND BOUNDARY
⊙	CURB INLET
⊕	HYDRANT
⊗	WATER VALVE
⊙	SAN SEWER MANHOLE
⊙	STORM SEWER MANHOLE
⊗	DENOTES DETAIL
⊗	DENOTES SHEET DETAIL IS LOCATED ON



ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.



PROJECT LOCATION  
ANOKA COUNTY  
DIVISION: METRO



PROJECT NO.	SAP 199-104-07 SUNWOOD DRIVE NW	SAP 199-109-01 RHINESTONE ST NW	SAP 199-104-01 BUNKER LAKE BLVD	SAP 199-104-07 RAMSEY BLVD
<b>DESIGN DATA</b>				
GROSS LENGTH	5,611.60 FT.	2,532.90 FT.	800.00 FT.	1,750.00 FT.
BRIDGE LENGTH	0	137 FT.	0	0
EXCEPTION LENGTH	0	0	0	0
NET LENGTH	5,611.60 FT.	2,395.90 FT.	800.00 FT.	1,750.00 FT.
ADT (2004)	0	0	0	0
ADT (2024)	17,600	5,400	11,700	27,800
DESIGN SPEED	30 Miles/hr	30 Miles/hr	55 Miles/hr	55 Miles/hr
R-VALUE	70	70	70	70
ESAL	3,350,000	1,650,000	2,250,000	5,320,000
STRUCTURAL DESIGN	10 ton	10 ton	10 ton	10 ton
FUNCTIONAL CLASSIFICATION	LOCAL COLLECTOR	LOCAL COLLECTOR	COUNTY COLLECTOR	COUNTY COLLECTOR
NUMBER OF TRAFFIC LANES	2-4	2	2-4	2-4
NUMBER OF PARKING LANES	1	2	0	0
SHOULDER WIDTH	0 FT.	0 FT.	0 FT.	0 FT.
STOPPING SIGHT DISTANCE BASED ON:	3.5 FT. HEIGHT OF EYE 0.5 FT. HEIGHT OF OBJECT	3.5 FT. HEIGHT OF EYE 0.5 FT. HEIGHT OF OBJECT	3.5 FT. HEIGHT OF EYE 0.5 FT. HEIGHT OF OBJECT	3.5 FT. HEIGHT OF EYE 0.5 FT. HEIGHT OF OBJECT

**Hakanson Anderson Assoc., Inc.**  
Civil Engineers and Land Surveyors  
3601 Thurston Ave., Anoka, Minnesota 55303  
763-427-5860 FAX 763-427-0520

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
CITY OF RAMSEY ENGINEER

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
ANOKA COUNTY ENGINEER

\_\_\_\_\_  
METRO DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

\_\_\_\_\_  
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

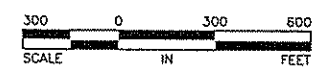
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Peter R. Raatikka* 11586 3/24/04  
PETER R. RAATIKKA, P.E. LIC. NO. DATE  
HAKANSON ANDERSON ASSOCIATES, INC. DESIGN ENGINEER

S.A.P. 199-104-07  
S.A.P. 199-109-01

SHEET 1 OF 166 SHEETS

CITY OF RAMSEY



LEGEND

- DENOTES EXISTING FEATURES
- DENOTES NEW CONSTRUCTION
- DENOTES PAVEMENT TO BE REMOVED

SHEET SEQUENCE

- = STREET/STORM SEWER PLAN SHEET NO.
- = SANITARY SEWER/WATERMAIN PLAN SHEET NO.

ARMSTRONG BLVD. (CO. RD. NO. 83)

END S.A.P. 199-109-01  
RHINESTONE STREET STA. 28+48.86

BUNKER LAKE BLVD. (CO. RD. NO. 116)

BEGIN S.A.P. 199-104-07  
SUNWOOD DRIVE STA. 1+00.00

END S.A.P. 199-104-07  
SUNWOOD DRIVE STA. 57+37.31

BEGIN S.A.P. 199-109-01  
RHINESTONE STREET STA. 9+78.92

CONTRACTOR FIELD OFFICE  
STAGING AREA

DATE	REVISION
2/24/04	▲ REVISED COUNTY ROAD GEOMETRICS
3/24/04	▲ ADDED COUNTY ROAD SHEET SHAPES & ARMSTRONG STA.

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

*Peter R. Raatikka*  
PETER R. RAATIKKA, P.E.  
Date: 1/26/04 Lic. No. 11586

DESIGNED BY:	JEJ
DRAWN BY:	RAA
CHECKED BY:	PRR
DATE:	10/15/03
PLC NO.:	RA3171



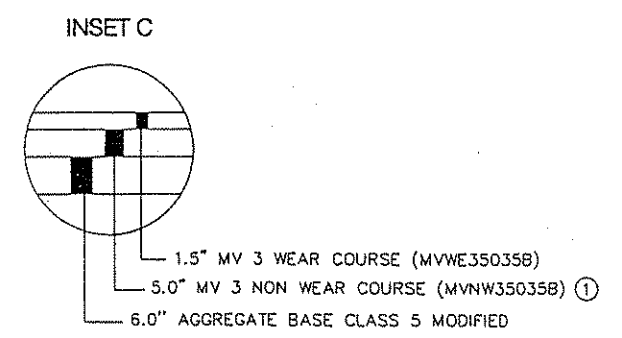
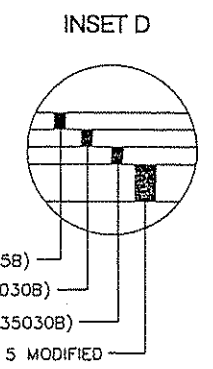
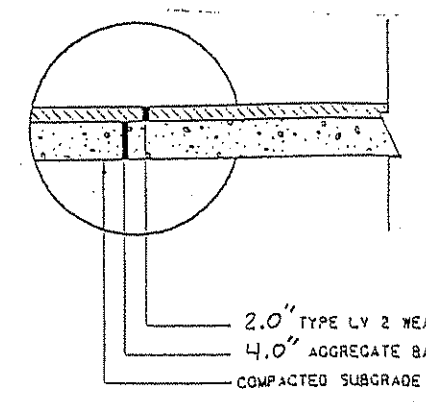
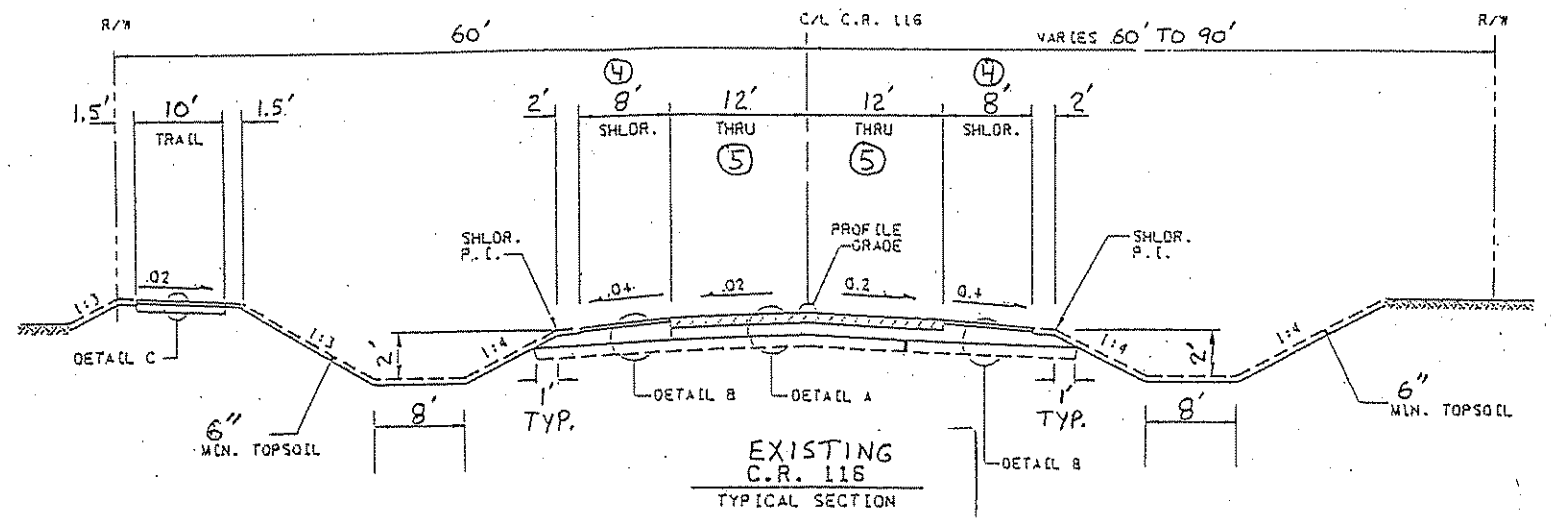
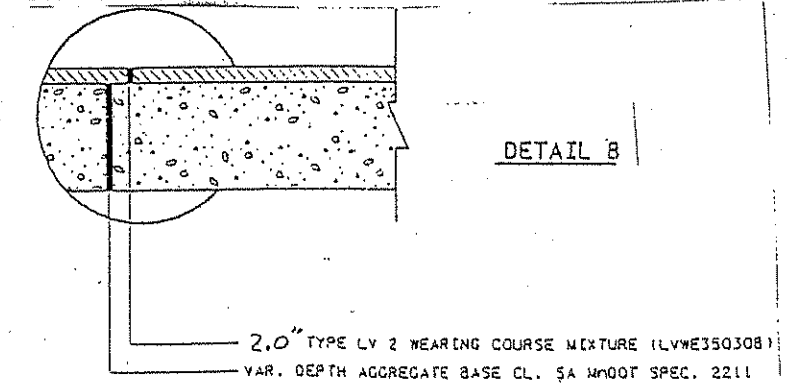
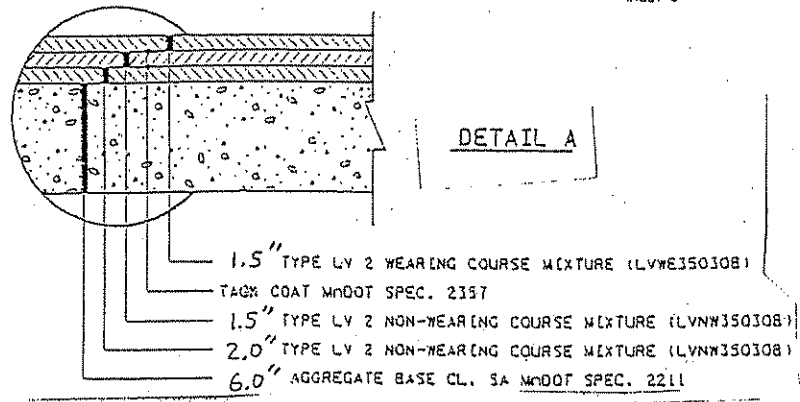
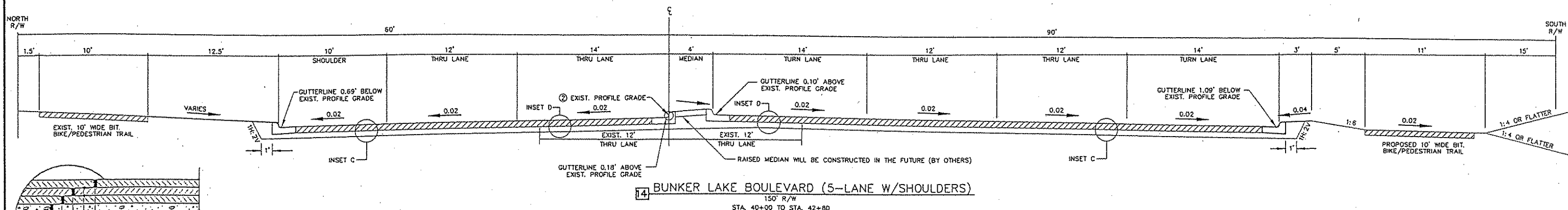
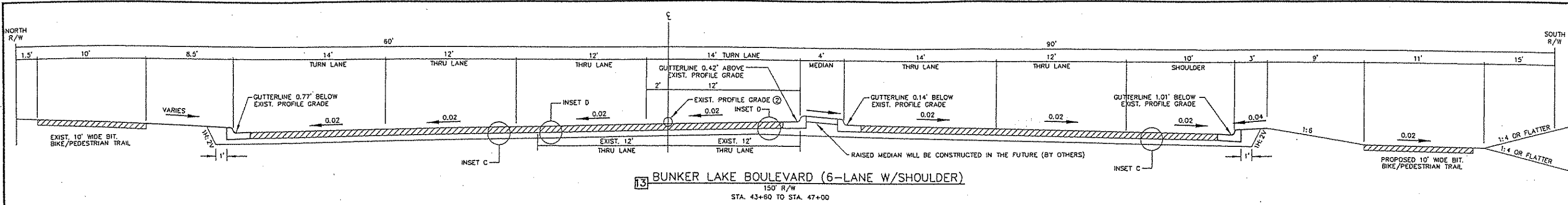
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S.A.P. 199-104-07  
S.A.P. 199-109-01

GENERAL LAYOUT

CITY OF RAMSEY, MINNESOTA

SHEET  
2  
OF  
166  
SHEETS



- NOTES:**
- PLACE IN 2 LIFTS (3.0" MAX. LIFT THICKNESS)
  - FINISHED CENTERLINE ELEVATION WILL BE 1.5" ABOVE EXISTING PROFILE GRADE DUE TO 1.5" BITUMINOUS OVERLAY (WEAR COURSE) OVER ENTIRE WIDTH.
  - ALL CROSS SLOPES ARE IN FT. PER FT.
  - EXIST. SHOULDERS (BITUMINOUS AND GRAVEL BASE) TO BE SALVAGED FOR PROPOSED PAVEMENT WIDENING.
  - PORTIONS OF THE EXIST. BITUMINOUS PAVEMENT WILL NEED TO BE SAW CUT(FULL-DEPTH) AND REMOVED TO FACILITATE MEDIAN CONSTRUCTION WITH B424 CONCRETE CURB & GUTTER - SEE STREET PLANS FOR MORE DETAILS.

DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date: 3/25/04 Lic. No. 11585

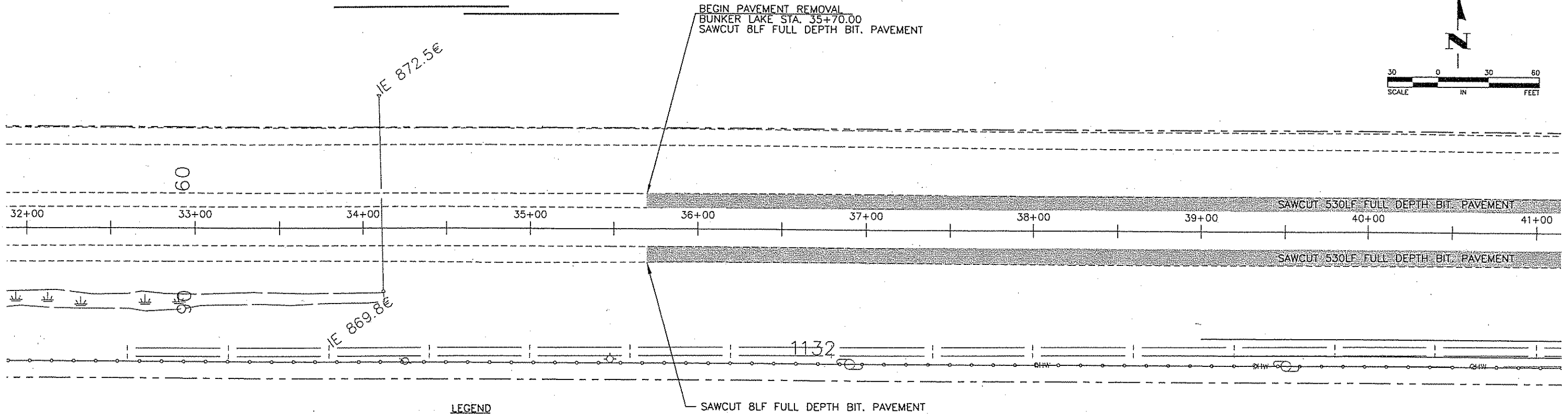
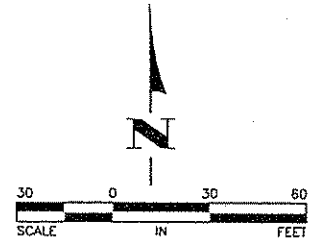
DESIGNED BY: JEJ	DATE: 02/05/04
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	

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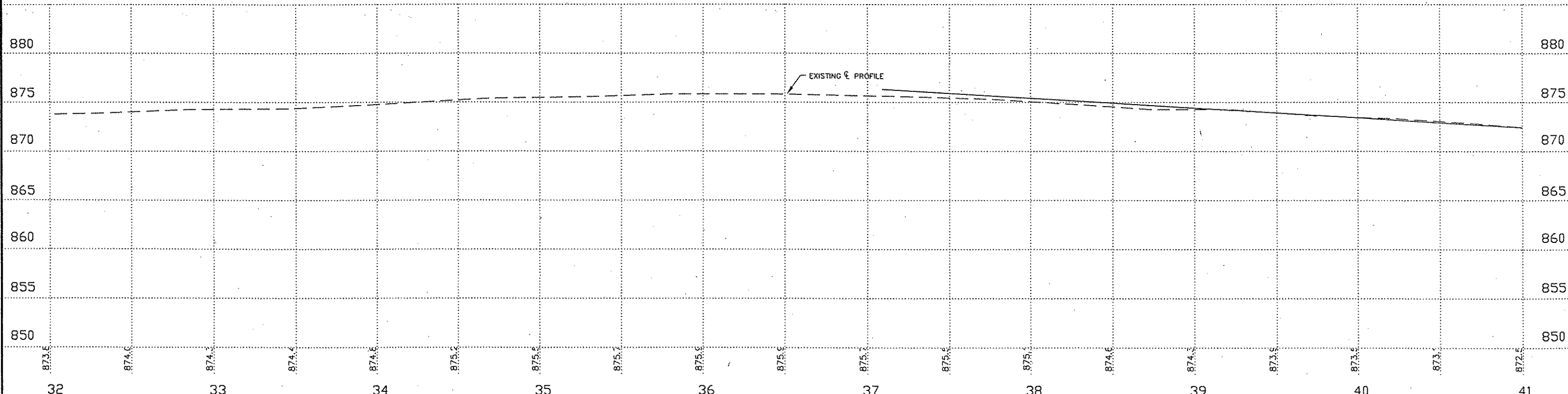
TYPICAL SECTIONS  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

# BUNKER LAKE BOULEVARD



**LEGEND**

	CONCRETE REMOVAL		REMOVE SANITARY SEWER		EXISTING SANITARY SEWER TO REMAIN
	BITUMINOUS REMOVAL		REMOVE STORM SEWER		EXISTING STORM SEWER TO REMAIN
	CURB REMOVAL		REMOVE WATER MAIN		EXISTING WATER MAIN TO REMAIN
			REMOVE WATER SERVICE		EXISTING FORCE MAIN TO REMAIN



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: J.E.J.	DATE: 01/29/04
DRAWN BY: RAA	FILE NO: RA3172
CHECKED BY: PRR	

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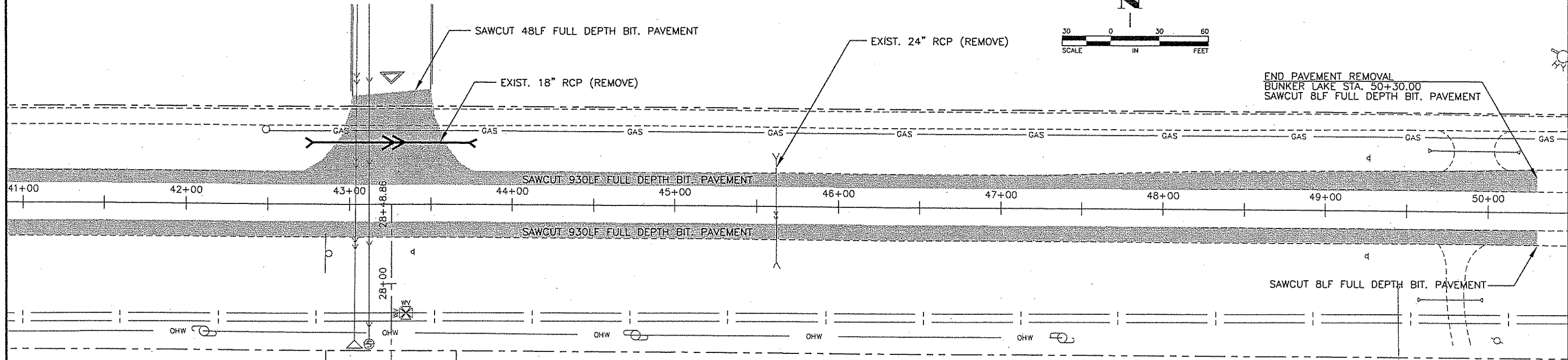
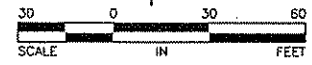
S.A.P. 199-109-01

EXISTING UTILITIES/REMOVALS

BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 2B OF 166 SHEETS

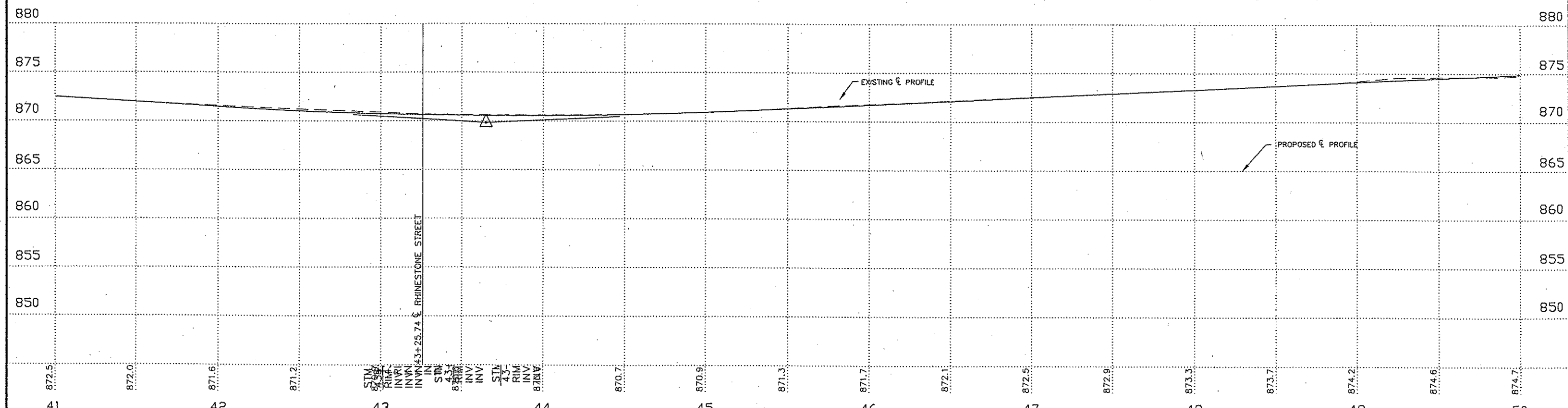
# BUNKER LAKE BOULEVARD



RHINESTONE STREET

**LEGEND**

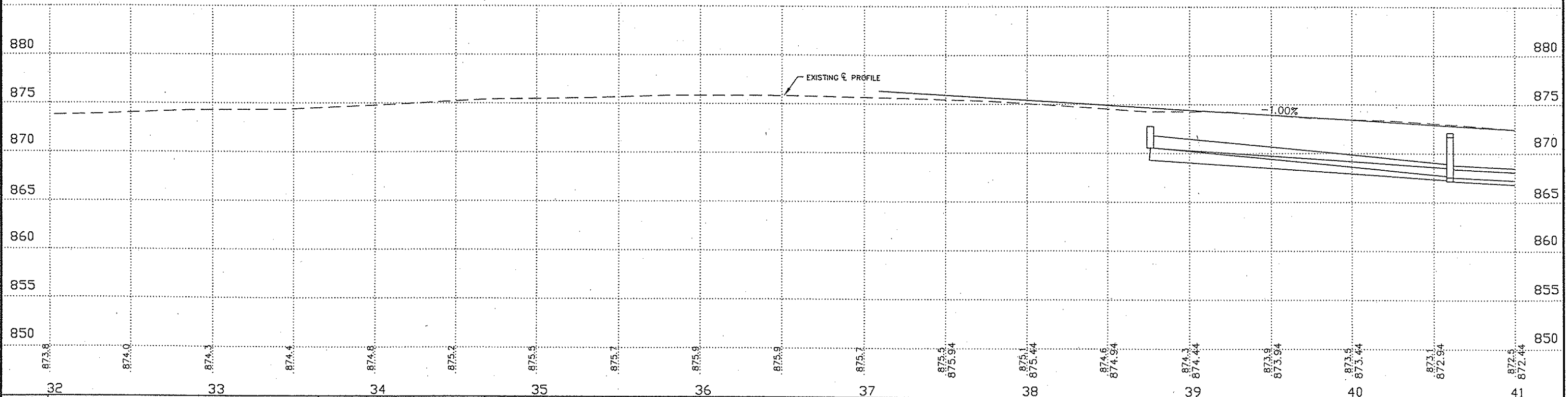
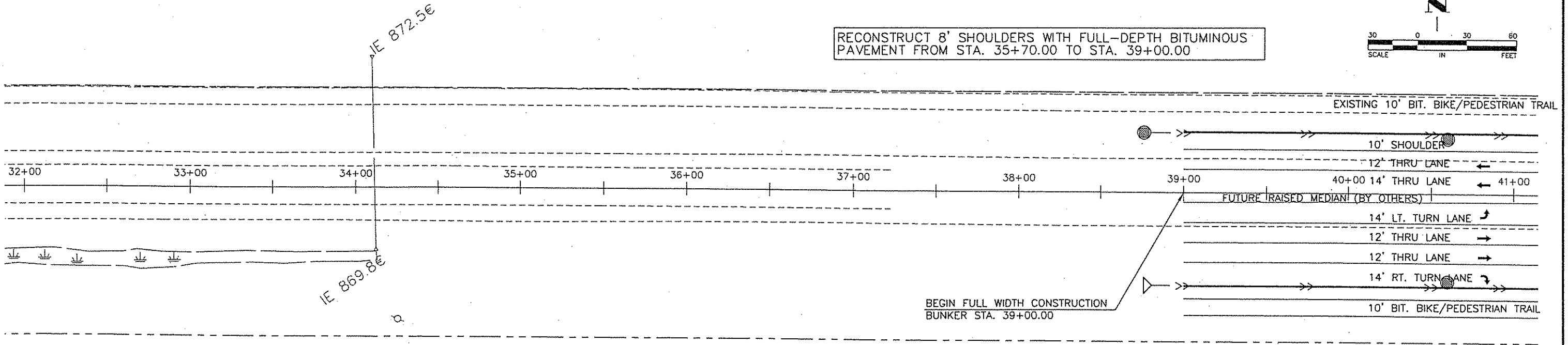
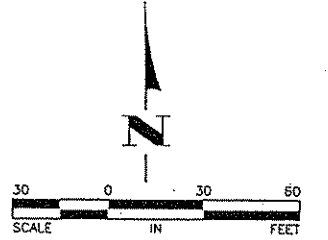
CONCRETE REMOVAL	REMOVE SANITARY SEWER	EXISTING SANITARY SEWER TO REMAIN
BITUMINOUS REMOVAL	REMOVE STORM SEWER	EXISTING STORM SEWER TO REMAIN
CURB REMOVAL	REMOVE WATER MAIN	EXISTING WATER MAIN TO REMAIN
	REMOVE WATER SERVICE	EXISTING FORCE MAIN TO REMAIN



DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	DESIGNED BY: JEJ	DRAWN BY: RAA	DATE: 01/29/04	 <b>Hakanson Anderson Assoc., Inc.</b> Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	S.A.P. 199-109-01	EXISTING UTILITIES/REMOVALS  BUNKER LAKE BOULEVARD CITY OF RAMSEY, MINNESOTA	SHEET 3B	OF 166 SHEETS
Mar 29, 2004 - 4:31pm K:\cadd_eng\land projects-2004\RA3172\dwg\RA3172-BUNKER-PP.dwg		PETER R. RAATIKKA, P.E. Date 3/24/04 Lic. No. 11586	CHECKED BY: PRR	FILE NO. RA3172	3B					

# BUNKER LAKE BOULEVARD

RECONSTRUCT 8' SHOULDERS WITH FULL-DEPTH BITUMINOUS PAVEMENT FROM STA. 35+70.00 TO STA. 39+00.00



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY:	JEJ
DRAWN BY:	RAA
CHECKED BY:	PRR
DATE:	01/29/04
FILE NO.:	RA3172



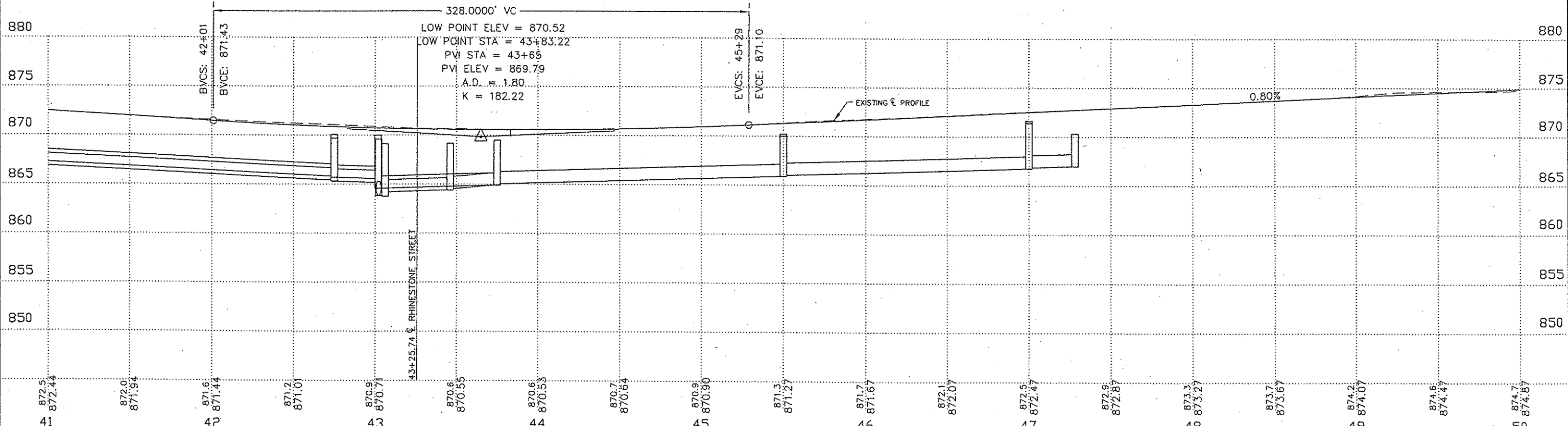
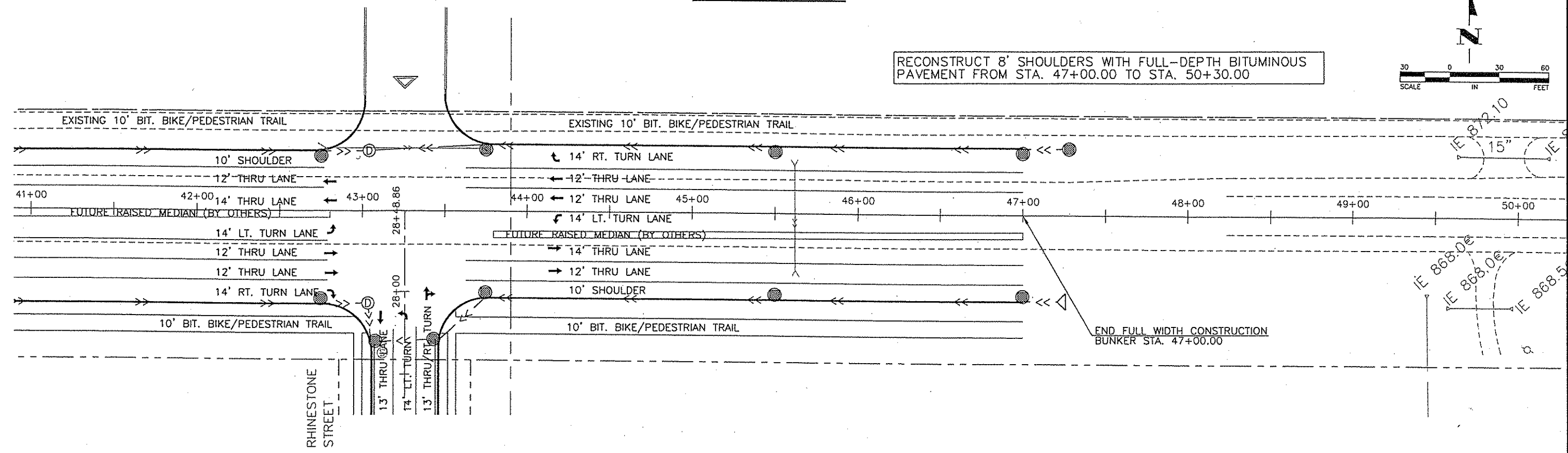
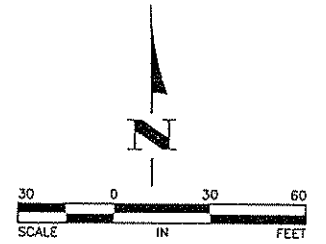
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S.A.P. 199-109-01

STREET PLAN	
BUNKER LAKE BOULEVARD	
CITY OF RAMSEY, MINNESOTA	
SHEET 4B	OF 166 SHEETS

# BUNKER LAKE BOULEVARD

RECONSTRUCT 8' SHOULDERS WITH FULL-DEPTH BITUMINOUS PAVEMENT FROM STA. 47+00.00 TO STA. 50+30.00



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ  
 DRAWN BY: RAA  
 CHECKED BY: PRR  
 DATE: 01/29/04  
 FILE NO.: RA3172



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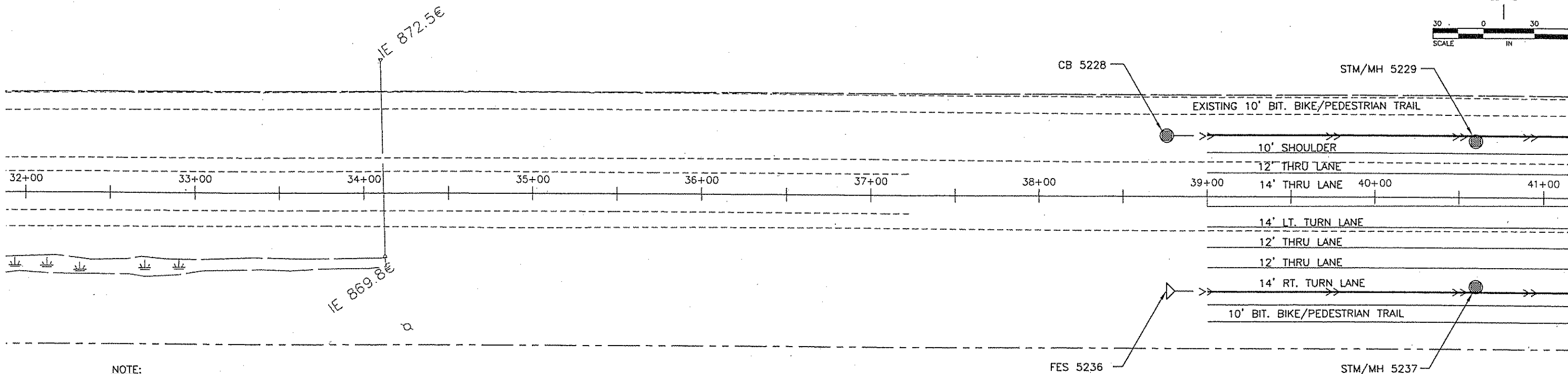
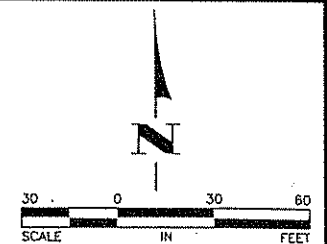
S.A.P. 199-109-01

STREET PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

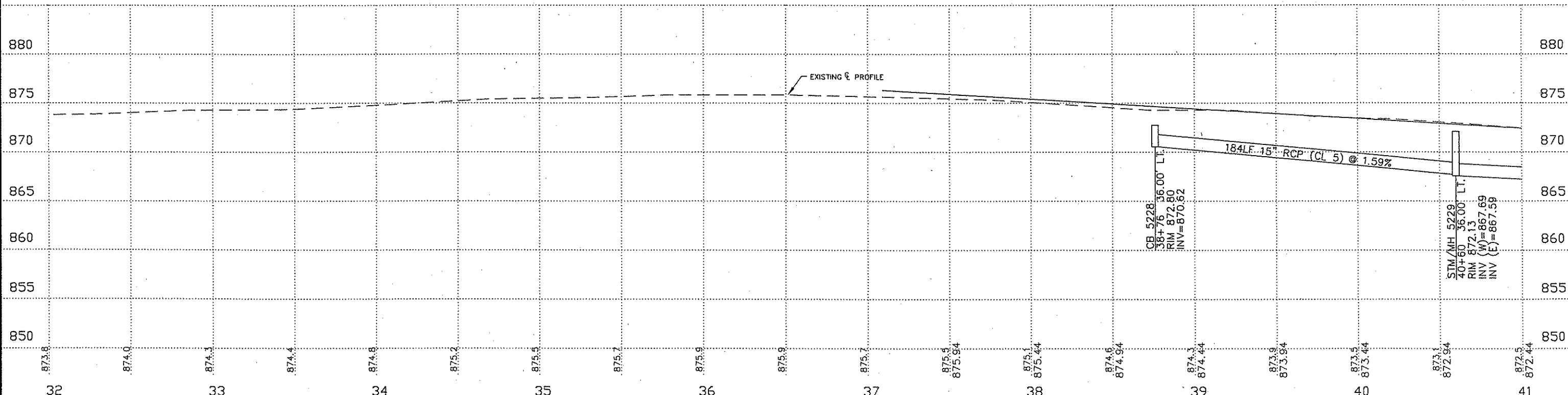
SHEET 5B OF 166 SHEETS



# BUNKER LAKE BOULEVARD



- NOTE:**
1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.
  2. FRAME AND CASTING FOR STORM MANHOLES SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4101D AND 4110F, RESPECTIVELY.



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 01/29/04
DRAWN BY: RAA	FILE NO. RAJ172
CHECKED BY: PRR	



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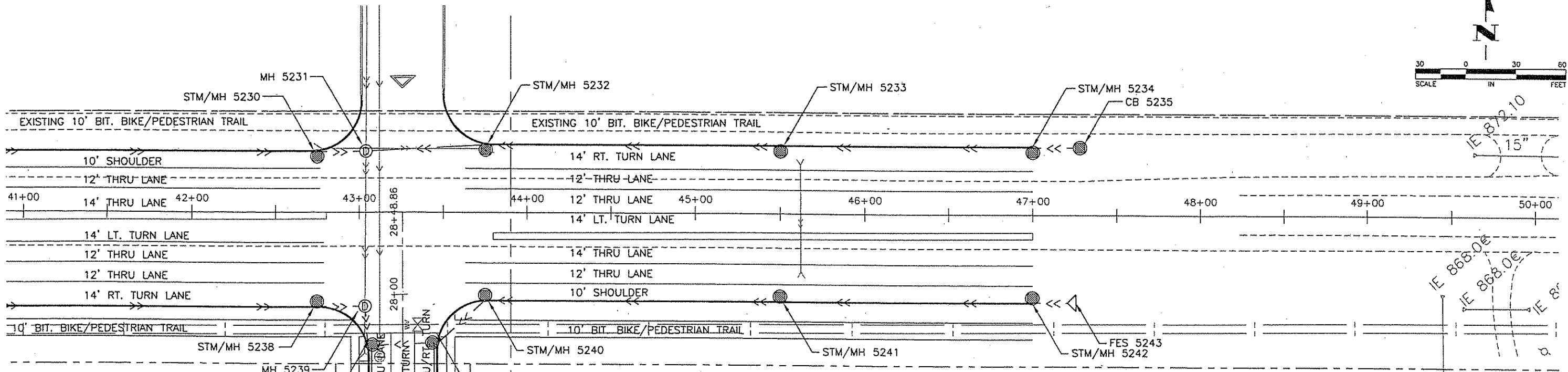
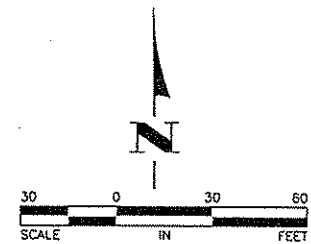
S.A.P. 199-109-01

(NORTH) STORM SEWER PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

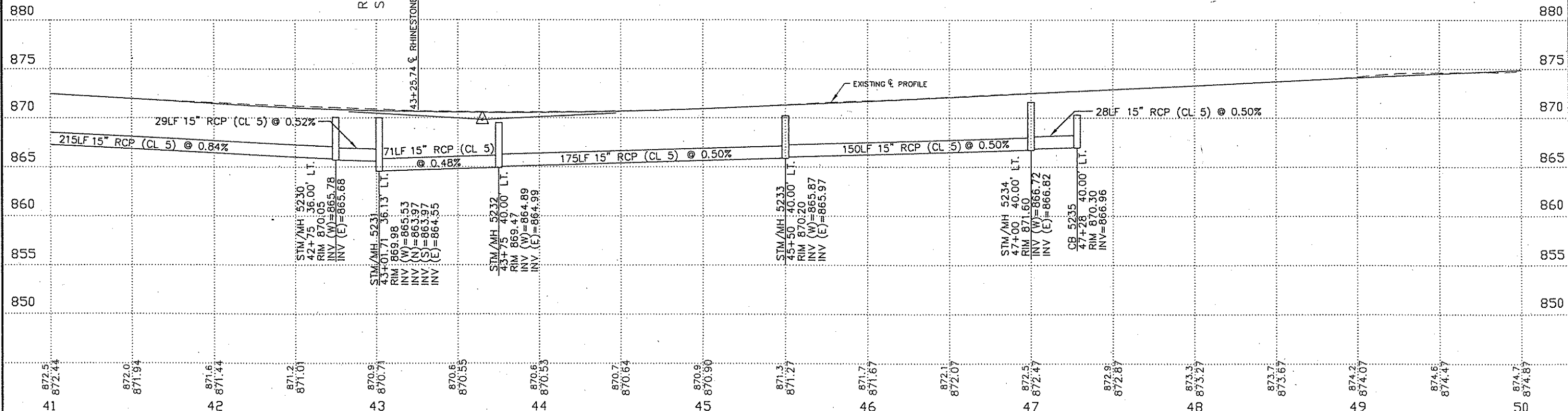
SHEET  
 6B  
 OF  
 166  
 SHEETS



# BUNKER LAKE BOULEVARD



- NOTE:**
1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.
  2. FRAME AND CASTING FOR STORM MANHOLES SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4101D AND 4110F, RESPECTIVELY.
  3. CONTRACTOR TO VERIFY LOCATION OF EXISTING 18" RCP STORM SEWER BEFORE COMMENCING DRAINAGE MH CONSTRUCTION.



DATE	REVISION

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

*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ  
 DRAWN BY: RAA  
 CHECKED BY: PRR  
 DATE: 01/29/04  
 FILE NO.: RA3172

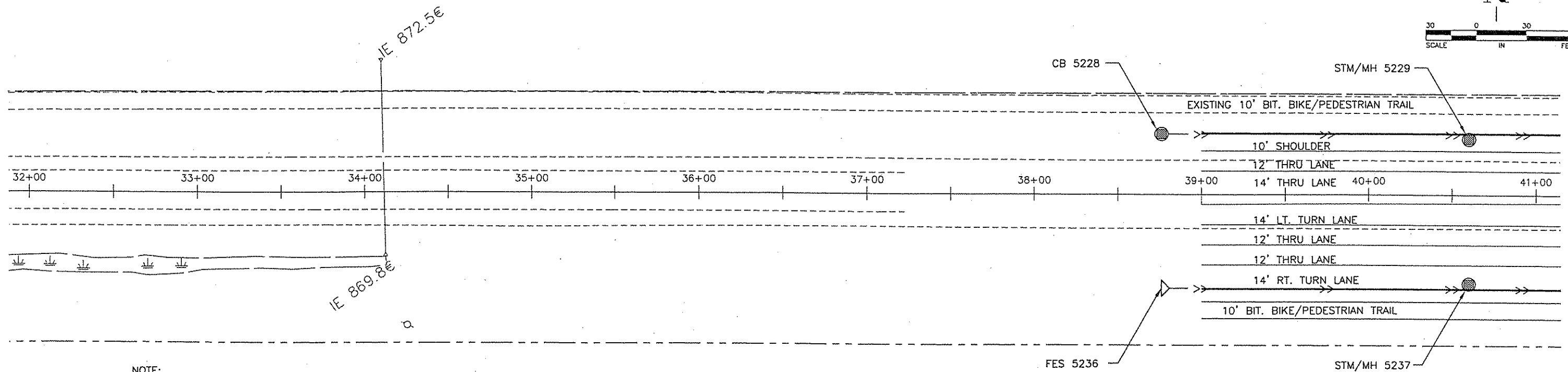
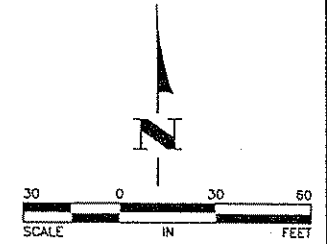
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S.A.P. 199-109-01

(NORTH) STORM SEWER PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

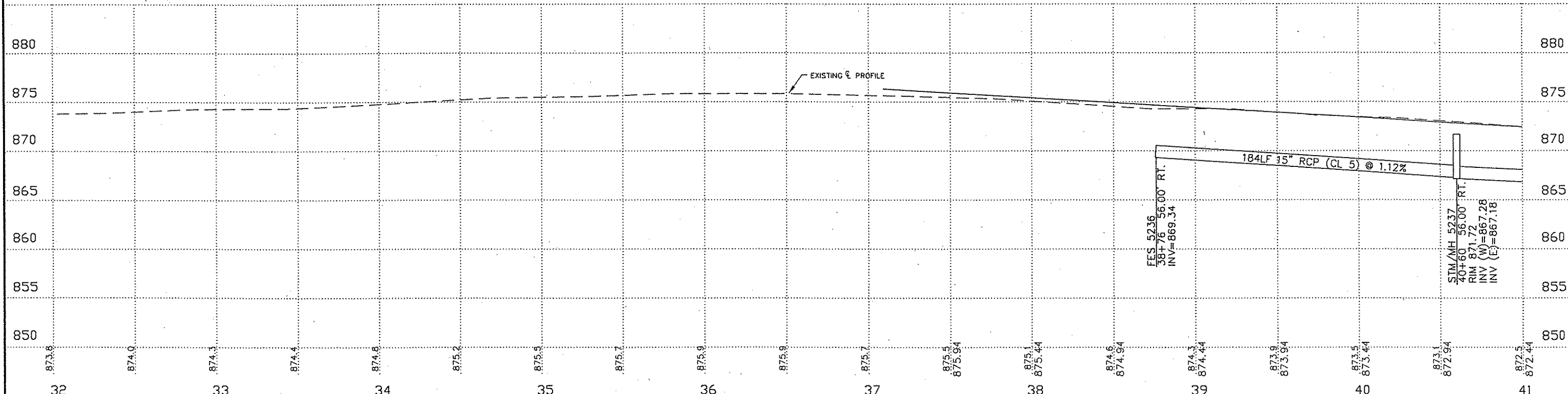
SHEET 7B OF 166 SHEETS

# BUNKER LAKE BOULEVARD



**NOTE:**

1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.
2. FRAME AND CASTING FOR STORM MANHOLES SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4101D AND 4110F, RESPECTIVELY.



DATE	REVISION

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

*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 01/29/04
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	

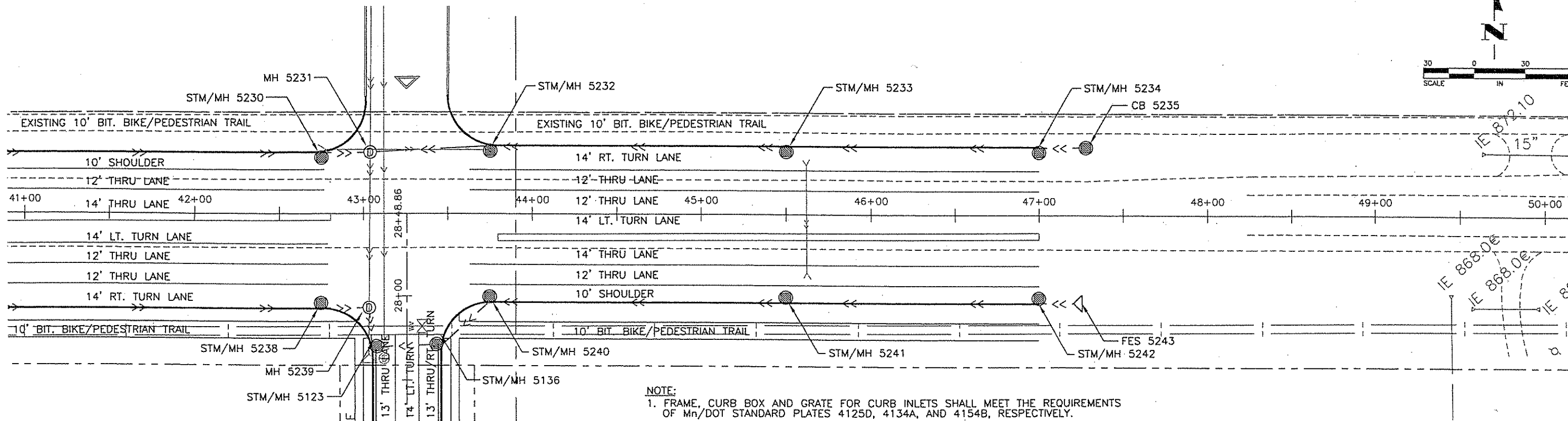
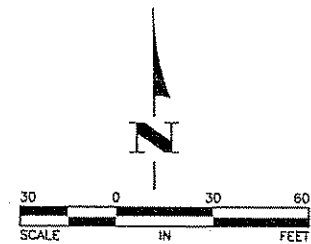
**Hakanson Anderson Assoc., Inc.**  
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 3601 Thurston Ave., Anoka, Minnesota 55303  
 763-427-5860 FAX 763-427-0520  
 www.hakanson-anderson.com

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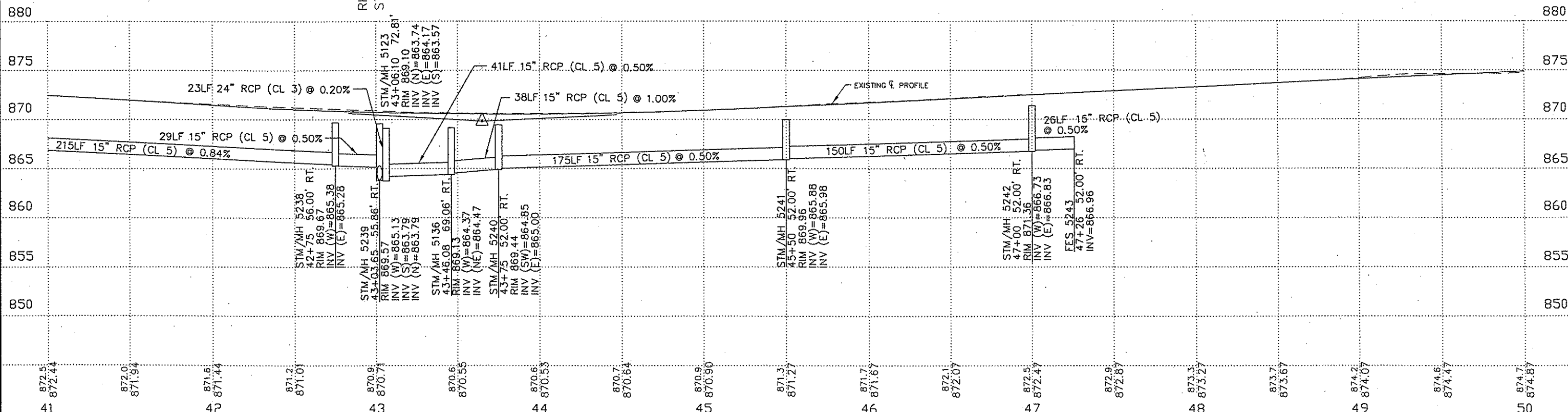
(SOUTH) STORM SEWER PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 8B OF 166 SHEETS

# BUNKER LAKE BOULEVARD



- NOTE:**
1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.
  2. FRAME AND CASTING FOR STORM MANHOLES SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4101D AND 4110F, RESPECTIVELY.
  3. CONTRACTOR TO VERIFY LOCATION OF EXISTING 18" RCP STORM SEWER BEFORE COMMENCING DRAINAGE MH CONSTRUCTION.



DATE	REVISION
41	872.5 872.44
42	872.0 871.94
43	871.6 871.44
44	871.2 871.01
45	870.9 870.71
46	870.6 870.55
47	871.3 871.27
48	871.7 871.67
49	872.1 872.07
50	872.5 872.47
	872.9 872.87
	873.3 873.27
	873.7 873.67
	874.2 874.07
	874.6 874.47
	874.7 874.67

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 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ  
 DRAWN BY: RAA  
 CHECKED BY: PRR  
 DATE: 01/29/04  
 FILE NO.: RA3172

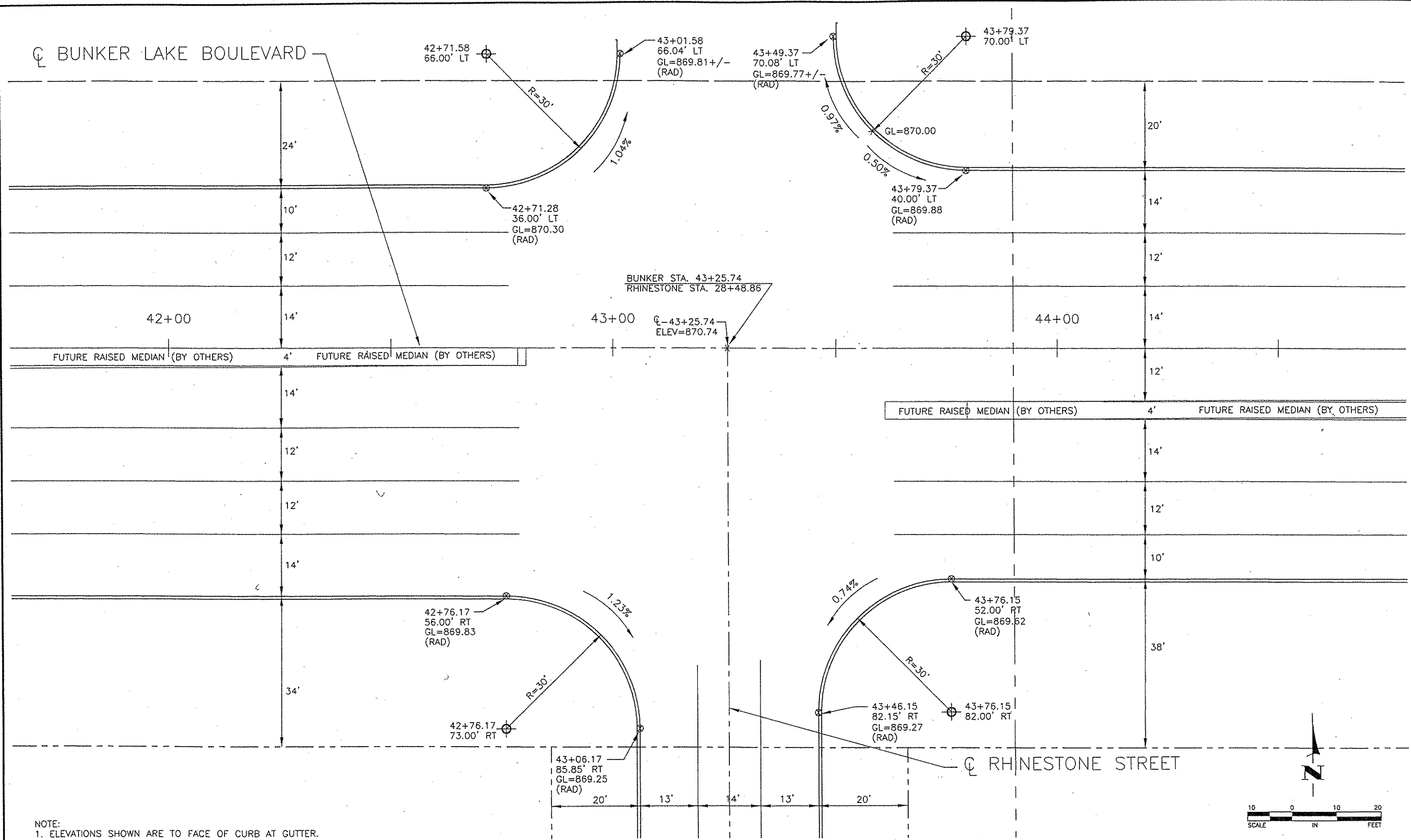
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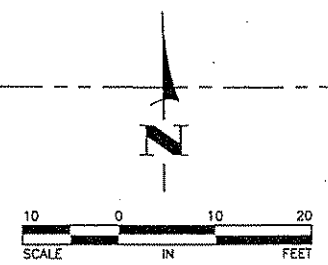
(SOUTH) STORM SEWER PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 9B OF 166 SHEETS

CL BUNKER LAKE BOULEVARD



NOTE:  
1. ELEVATIONS SHOWN ARE TO FACE OF CURB AT GUTTER.



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*Peter R. Raatikka*  
PETER R. RAATIKKA, P.E.  
Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: XXXX
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	

**Hakanson Anderson Assoc., Inc.**  
Civil Engineers and Land Surveyors  
3501 Thurston Ave., Anoka, Minnesota 55303  
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www.hakanson-anderson.com

S.A.P. 199-109-01

INTERSECTION DETAILS  
BUNKER LAKE BLVD (CO. RD. 116)  
AND RHINESTONE STREET NW  
CITY OF RAMSEY, MINNESOTA

SHEET 10B OF 166 SHEETS

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY		
			BUNKER LAKE BLVD		
W20-2	48" X 48"		1		
W20-3	48" X 48"		0		
W20-1	48" X 48"		1		
W20-100P	36" X 24"		1		
W20-100P	36" X 24"		0		
W20-100P	36" X 24"		0		
W20-100P	36" X 24"		0		
R11-4	60" X 30"		0		
TYPE III	8 FOOT		0		
TYPE III	8 FOOT		2		
M4-10	48" X 18"		2		
TYPE III	8 FOOT		2		
R11-2	48" X 30"		2		
TYPE III	8 FOOT		2		

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY		
			BUNKER LAKE BLVD		
G20-X2	96" X 84"		0		
G20-X2	96" X 84"		0		
G20-X2	96" X 84"		1		
M3-2	24" X 12"		12		
M3-3	24" X 12"		0		
M3-4	24" X 12"		6		
M4-8	24" X 12"		20		
M3-1	24" X 12"		0		
M1-6	24" X 24"		0		
M1-6	24" X 24"		0		
M1-6	24" X 24"		20		
M4-6	24" X 12"		2		
M5-1L	21" X 15"		4		
M5-1R	21" X 15"		2		
M6-1L	21" X 15"		3		
M6-1R	21" X 15"		2		
M6-3	21" X 15"		3		

NOTES:

1. ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS
2. ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES
3. ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY 2001
5. ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS APPROVED BY THE ENGINEER

DATE	REVISION

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

*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date: 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 3/24/04
DRAWN BY: DMS	FILE NO. RA3172
CHECKED BY: PRR	

**Hakanson Anderson Assoc., Inc.**  
 Civil Engineers and Land Surveyors  
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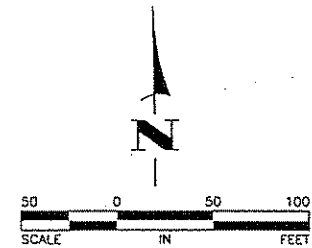
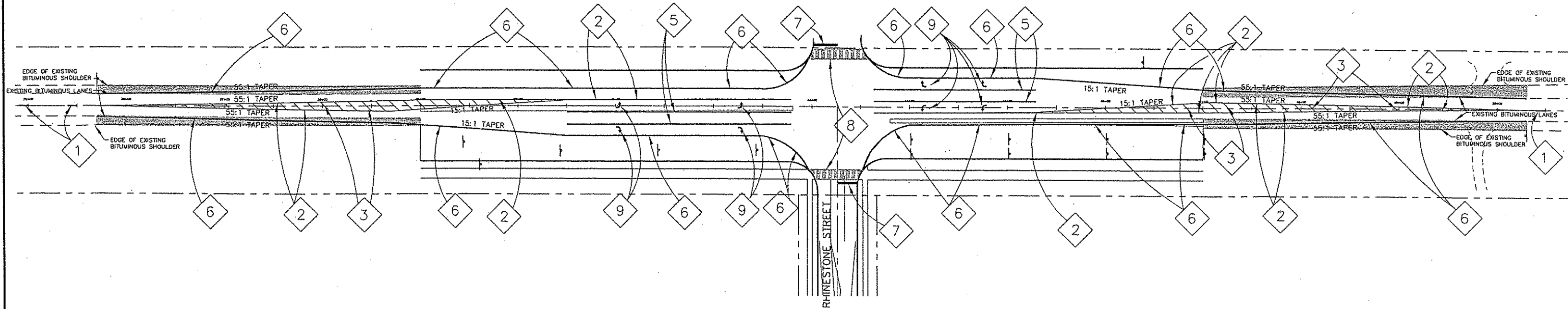
TRAFFIC CONTROL PLAN  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA







# BUNKER LAKE BOULEVARD



DATE	REVISION
Mar 29, 2004 - 4:35pm	
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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY:	JEJ	DATE:	2/18/04
DRAWN BY:	RAA	FILE NO.:	RA3172
CHECKED BY:	PRR		



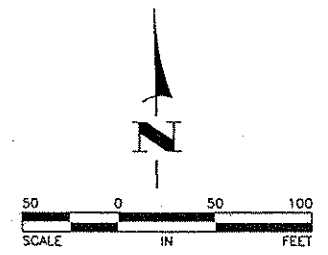
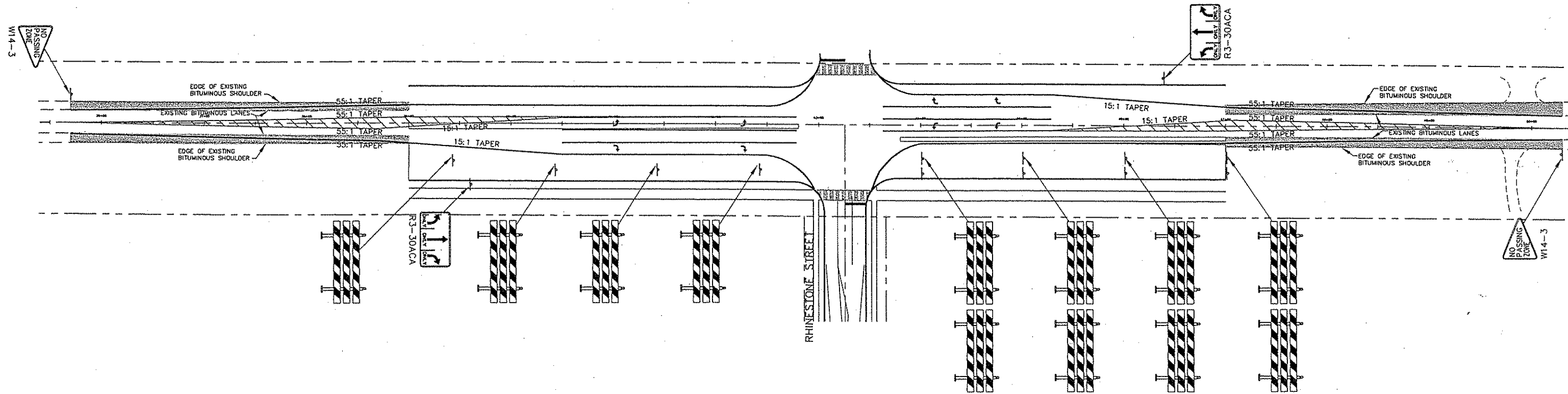
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PAVEMENT MARKING PLANS  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 14B OF 166  
 SHEETS

# BUNKER LAKE BOULEVARD



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*Peter R. Raatikka*  
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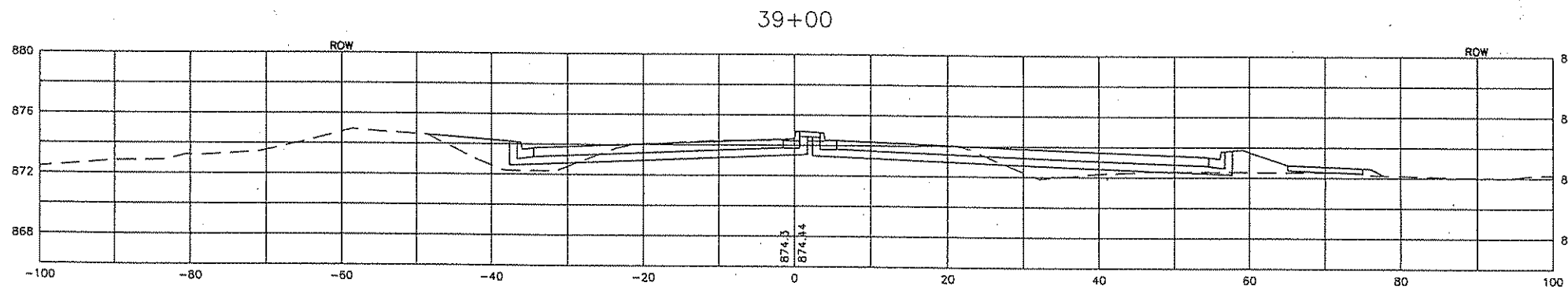
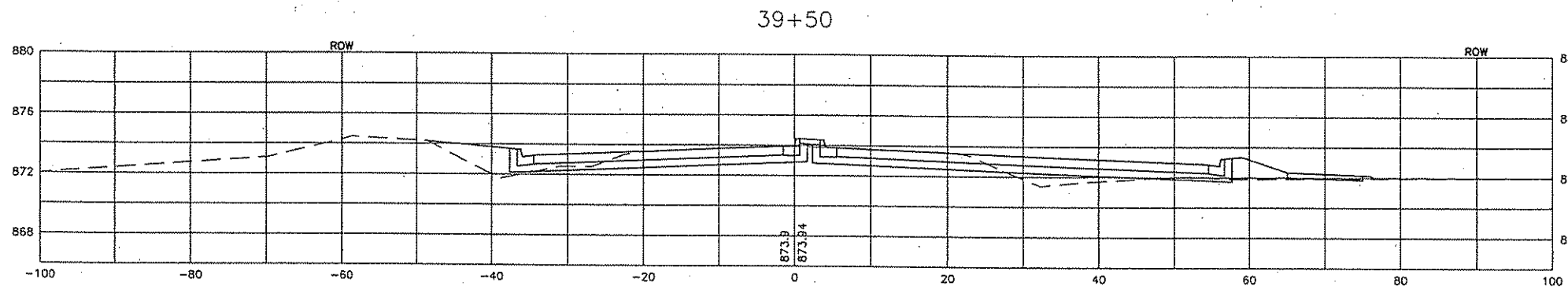
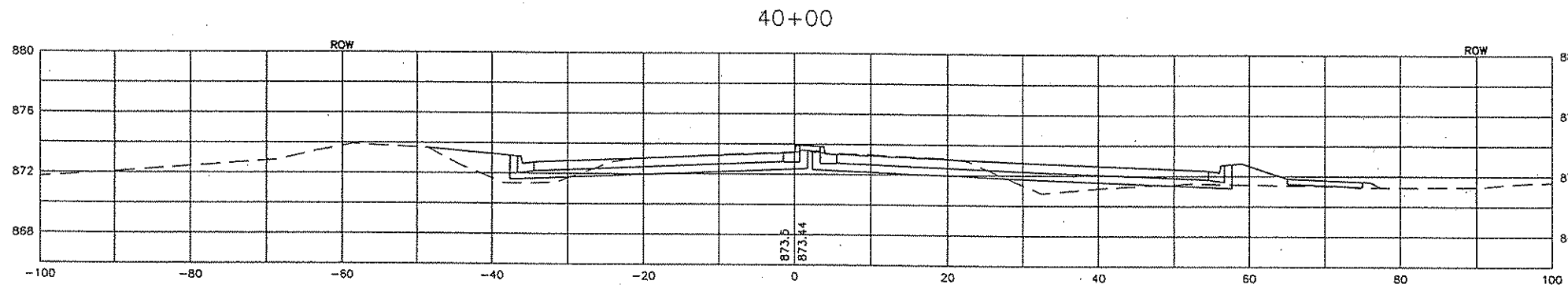
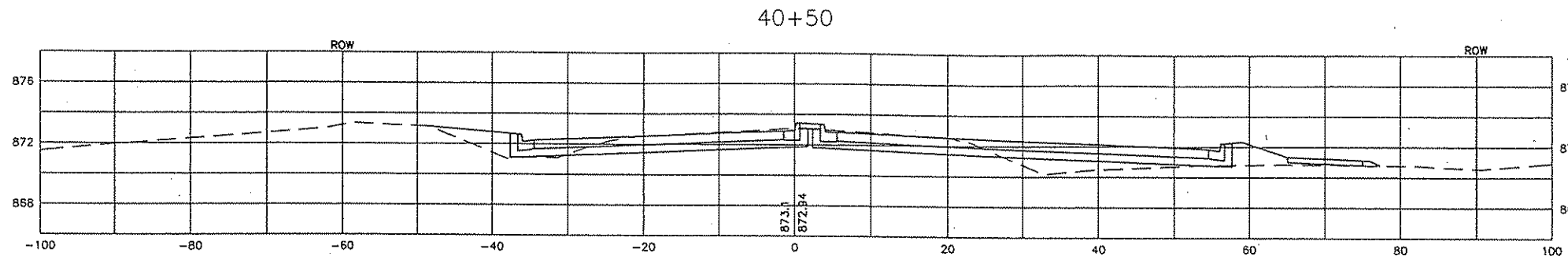
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SIGNING PLANS  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 15B OF 166  
 SHEETS



NOTE: RAISED MEDIAN WILL BE CONSTRUCTED IN THE FUTURE (BY OTHERS)

DATE	REVISION

DESIGNED BY: JEJ	DATE: 3/24/04
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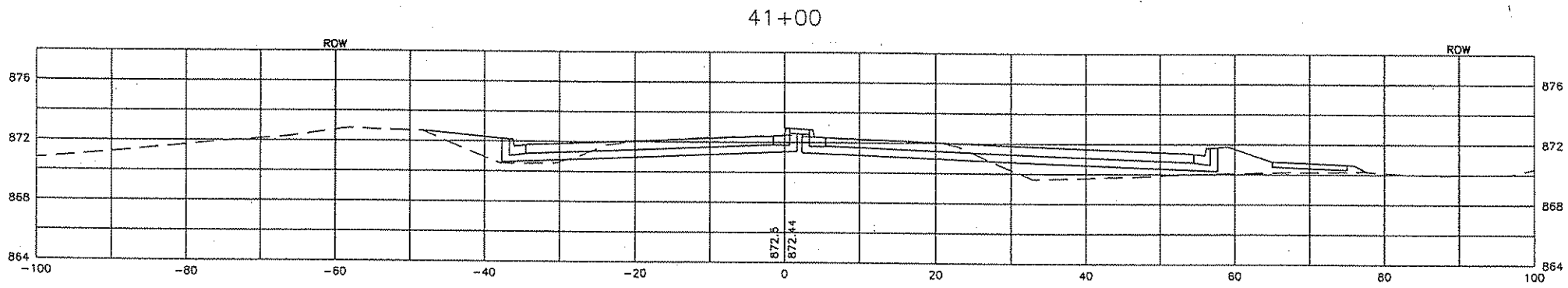
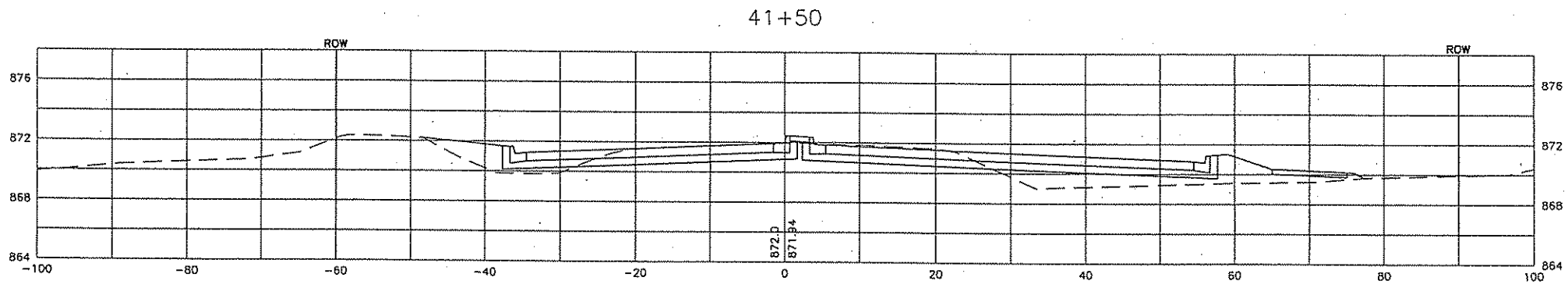
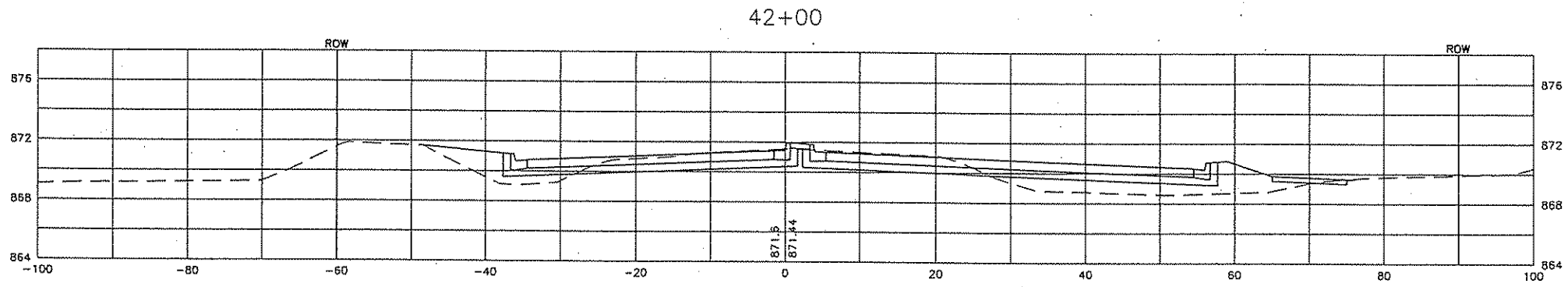
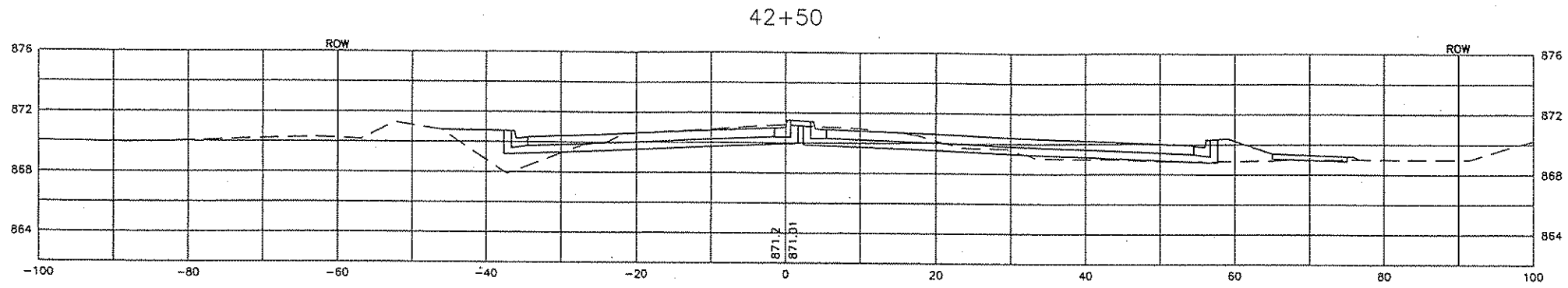
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CROSS SECTIONS  
BUNKER LAKE BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
16B  
OF  
166  
SHEETS

Mar 25, 2004 - 4:55pm  
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NOTE: RAISED MEDIAN WILL BE CONSTRUCTED IN THE FUTURE (BY OTHERS)

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DATE:  
3/24/04  
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RA3172

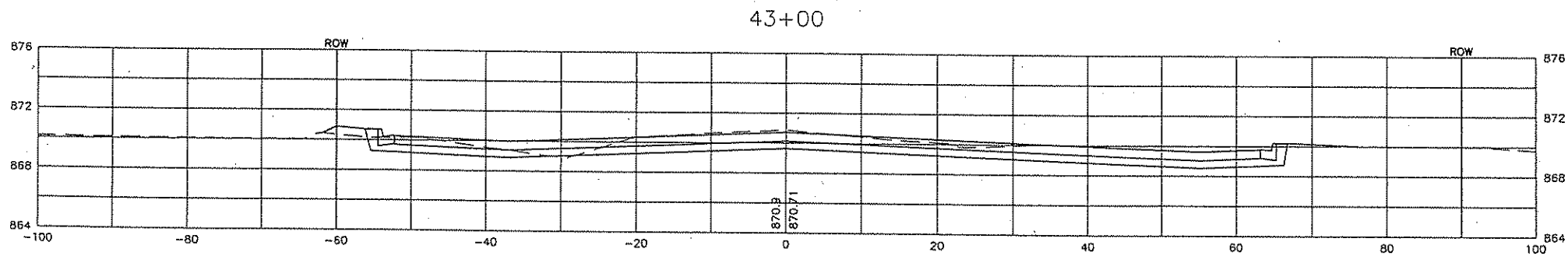
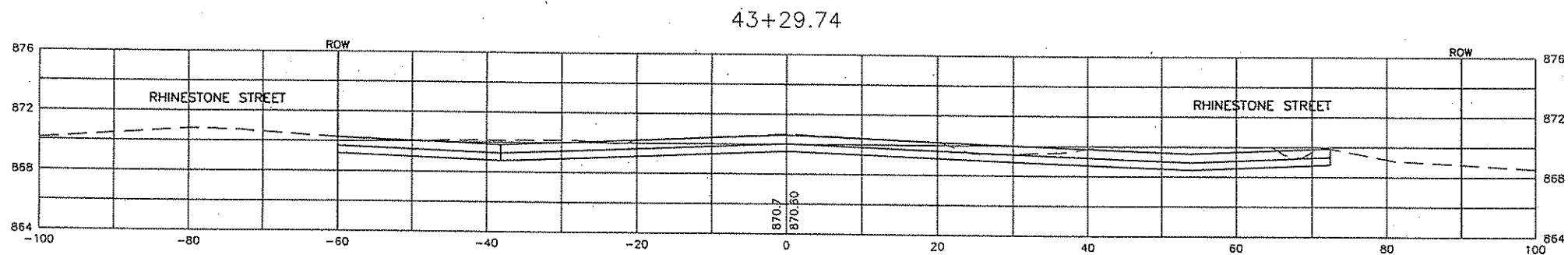
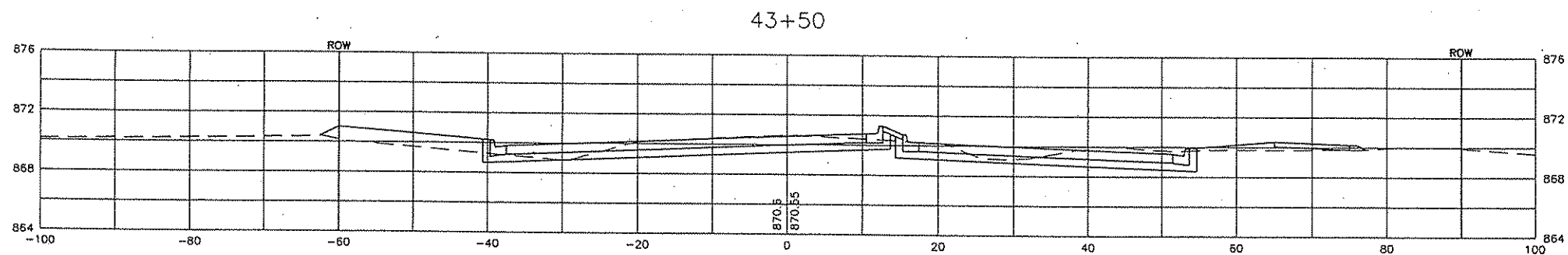
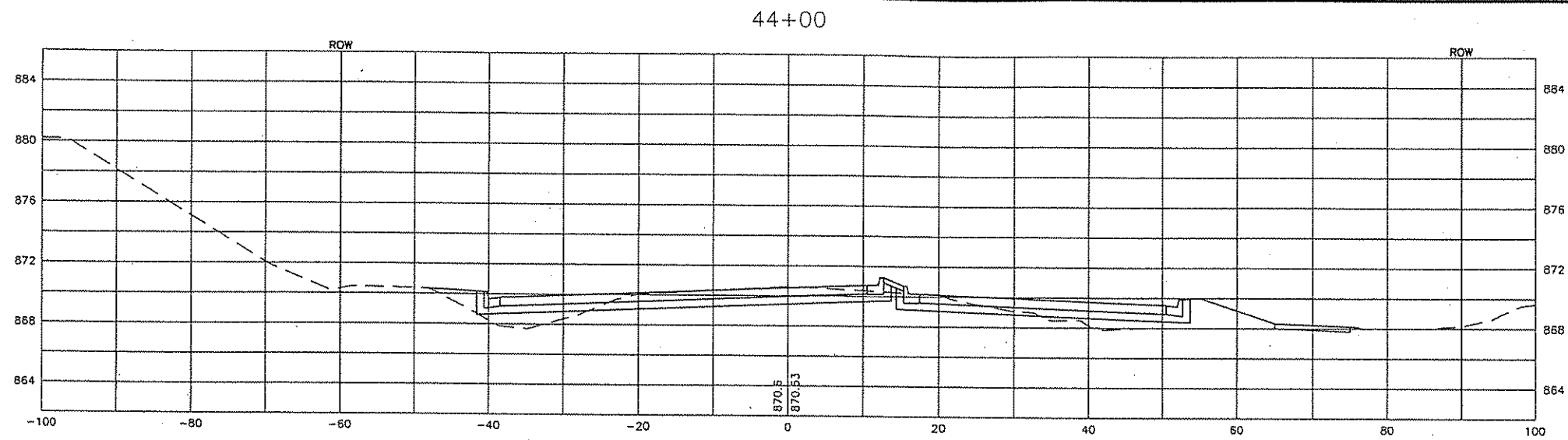


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CROSS SECTIONS  
BUNKER LAKE BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
17B  
OF  
166  
SHEETS



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3/24/04  
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RA3172

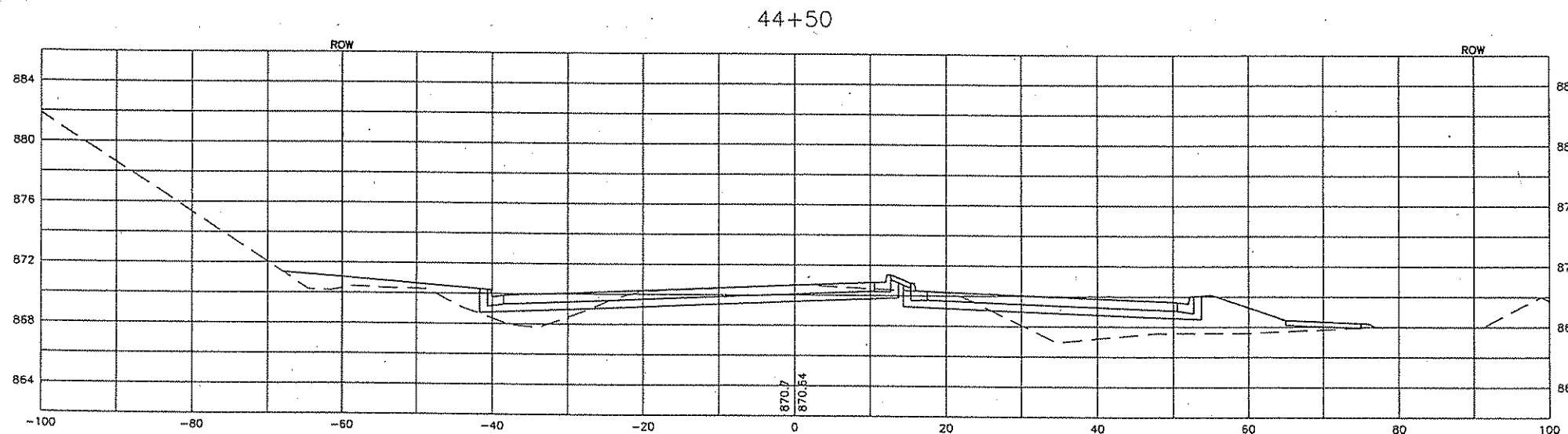
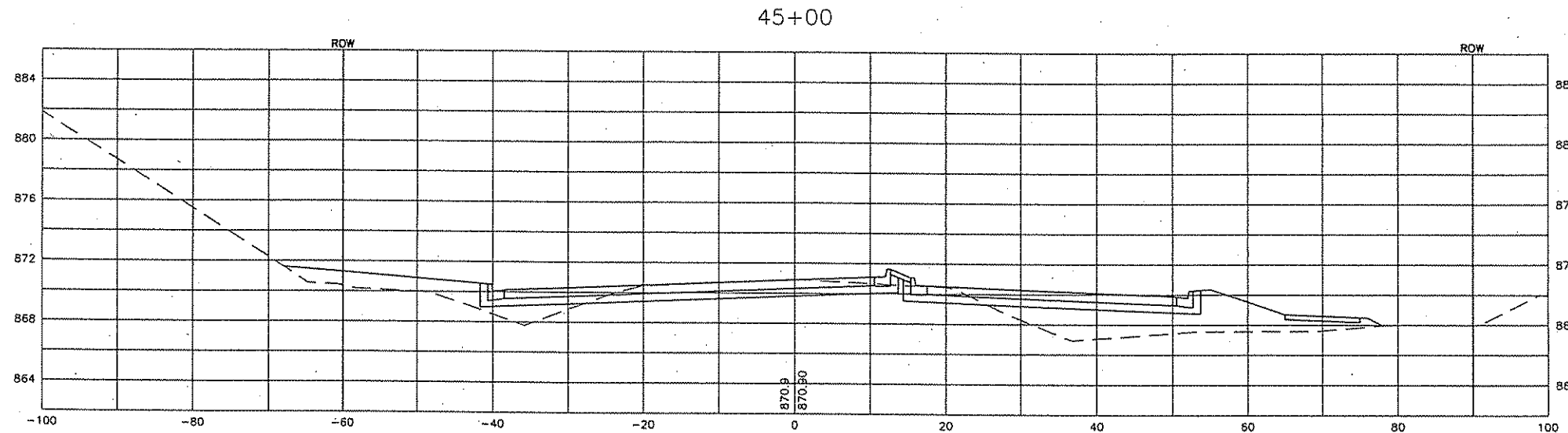


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S.A.P. 199-109-01

CROSS SECTIONS  
BUNKER LAKE BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
18B  
OF  
166  
SHEETS



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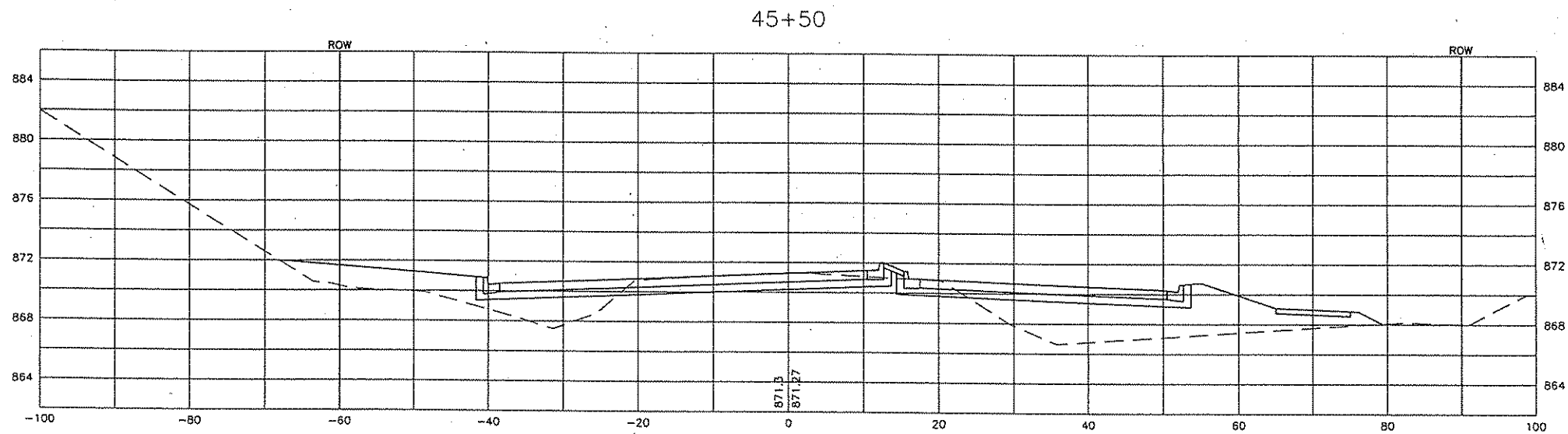
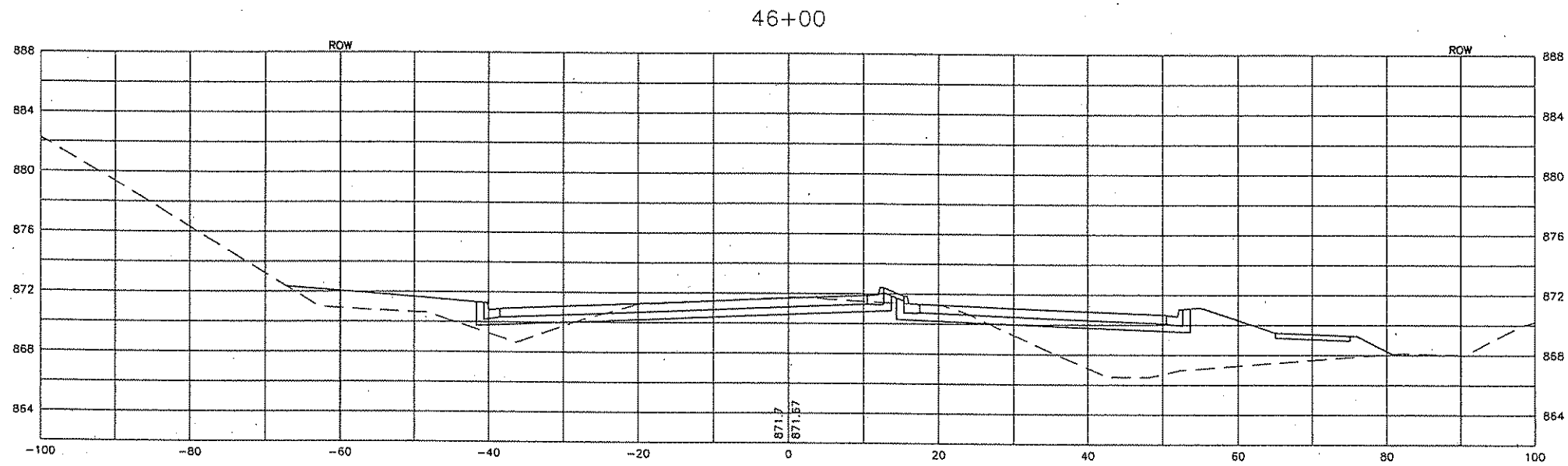


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CROSS SECTIONS  
BUNKER LAKE BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
19B  
OF  
166  
SHEETS



NOTE: RAISED MEDIAN WILL BE CONSTRUCTED IN THE FUTURE (BY OTHERS)

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DATE:  
3/24/04  
FILE NO.  
RA3172



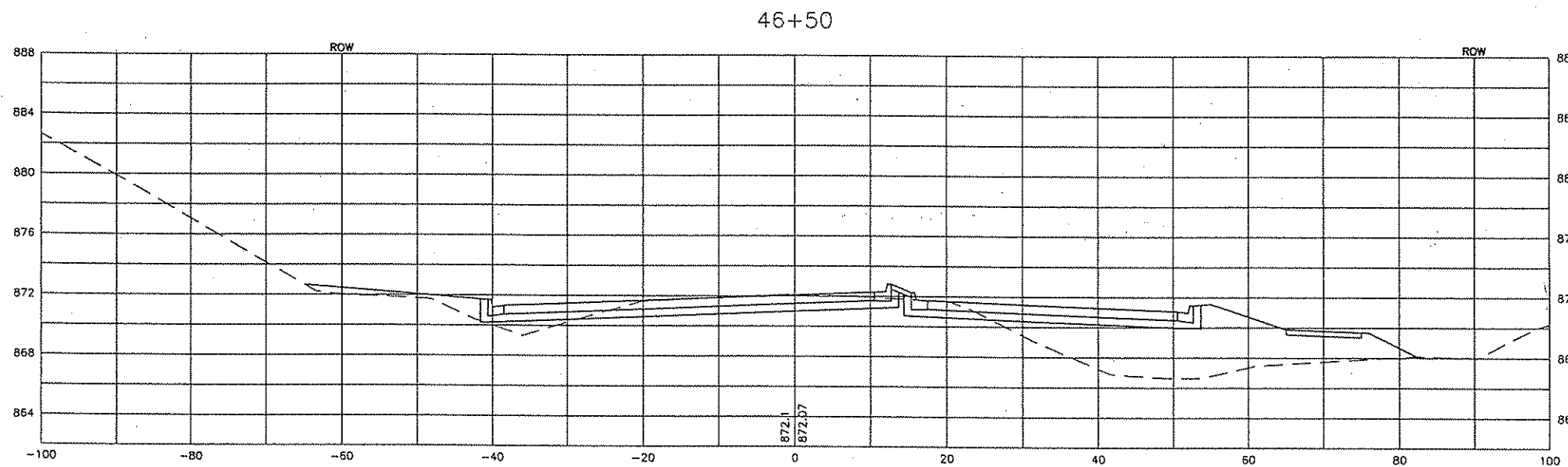
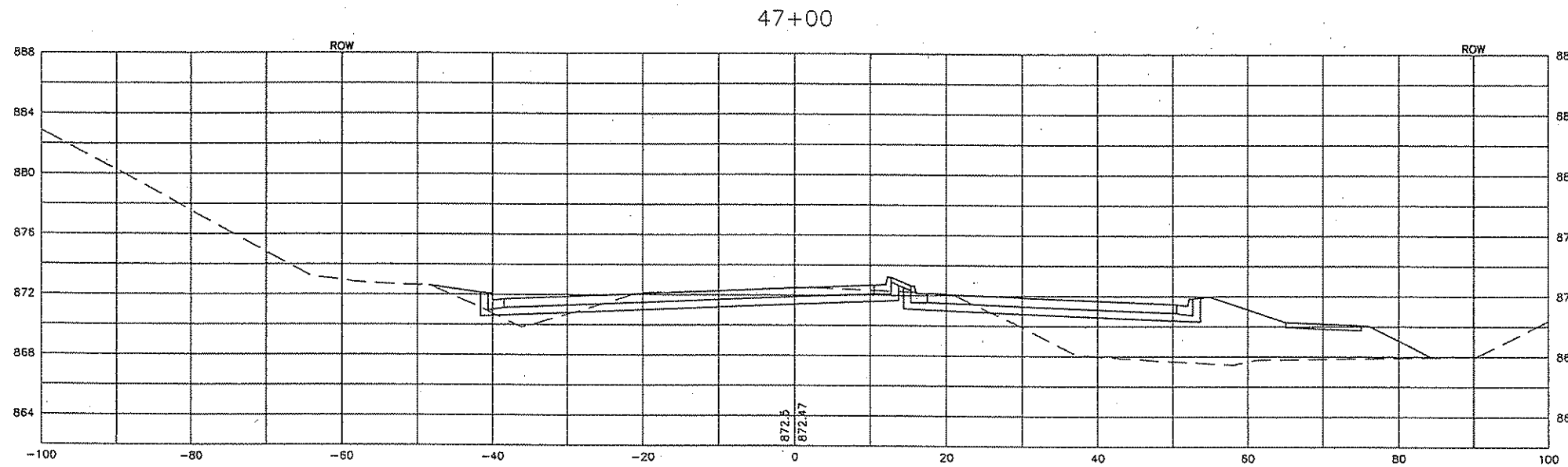
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CROSS SECTIONS  
BUNKER LAKE BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
20B  
OF  
166  
SHEETS





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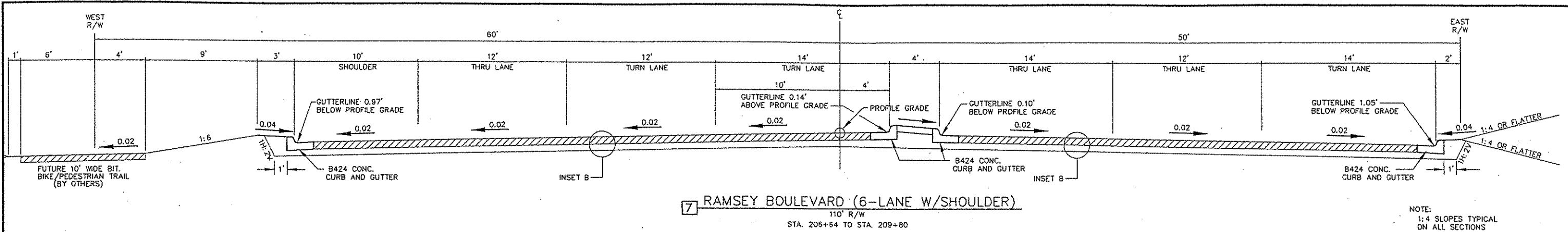


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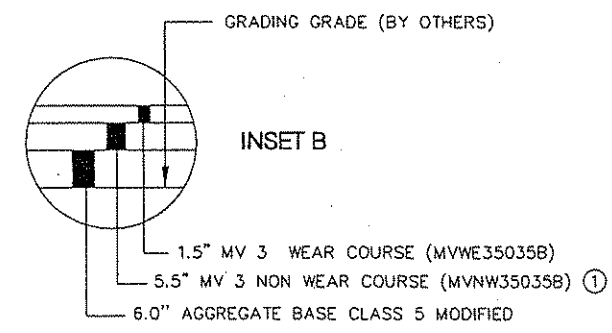
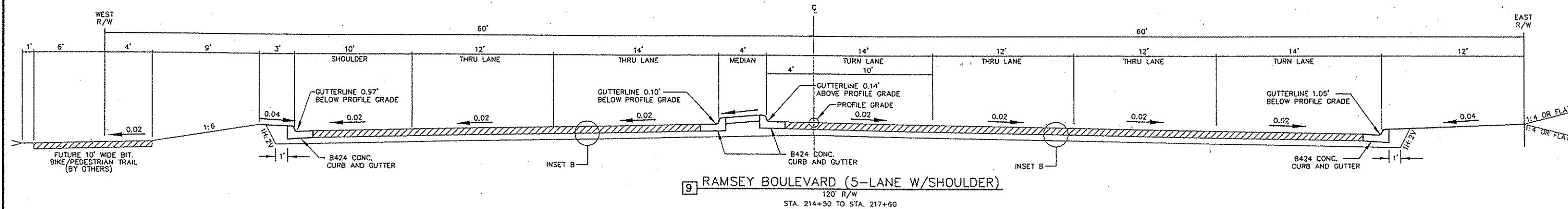
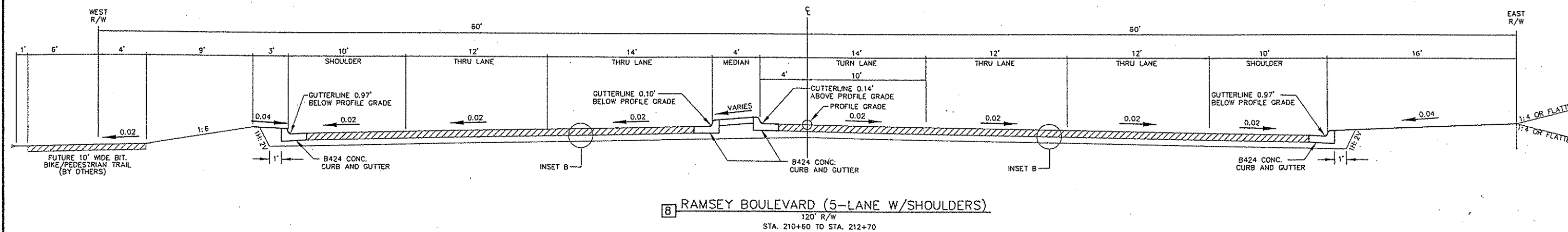
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CROSS SECTIONS  
 BUNKER LAKE BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 21B  
 OF  
 166  
 SHEETS



NOTE:  
1:4 SLOPES TYPICAL  
ON ALL SECTIONS



NOTES:  
① PLACE IN 2 LIFTS (3.0" MAX. LIFT THICKNESS)

DATE	REVISION
Mar 29, 2004 - 3:09pm	
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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Peter R. Raatikka*  
PETER R. RAATIKKA, P.E.  
Date 3/24/04 Lic. No. 11586

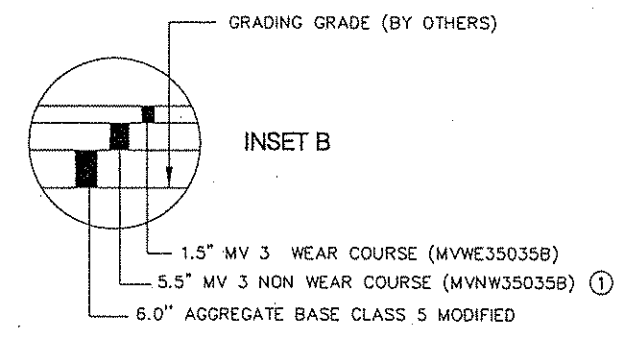
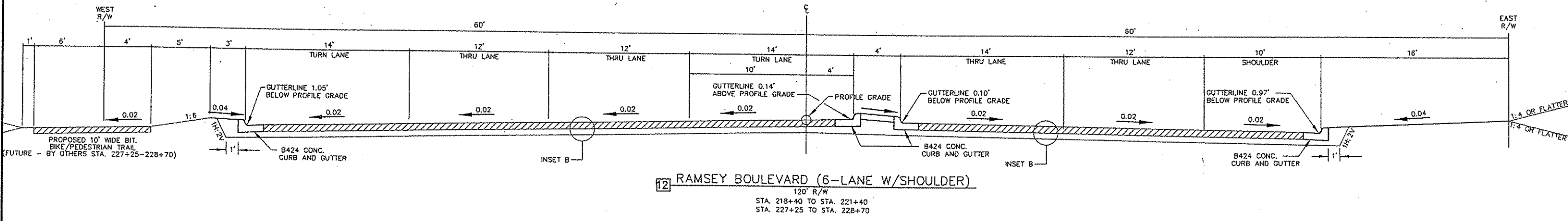
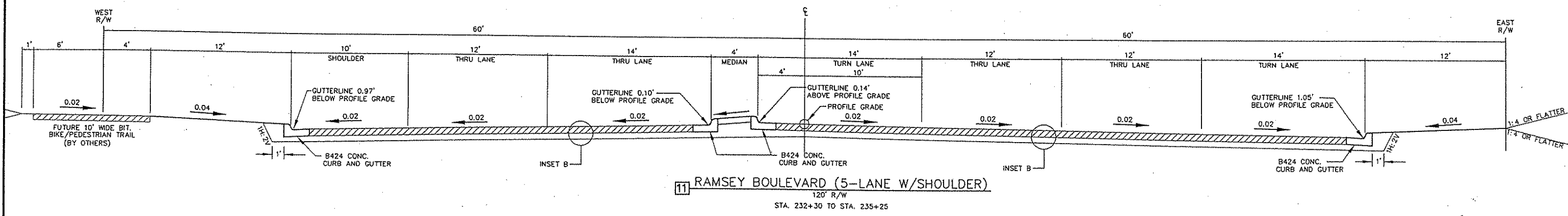
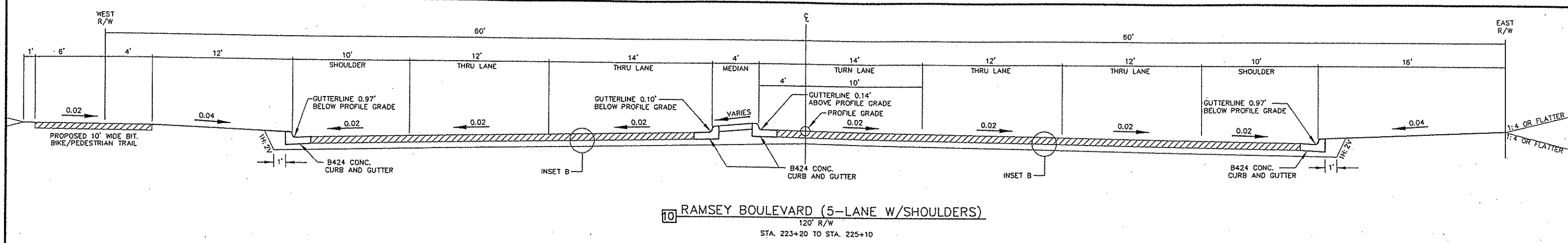
DESIGNED BY: JEJ	DATE: 02/11/04
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	

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S.A.P. 199-104-07

TYPICAL SECTIONS  
RAMSEY BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET  
1R  
OF  
166  
SHEETS

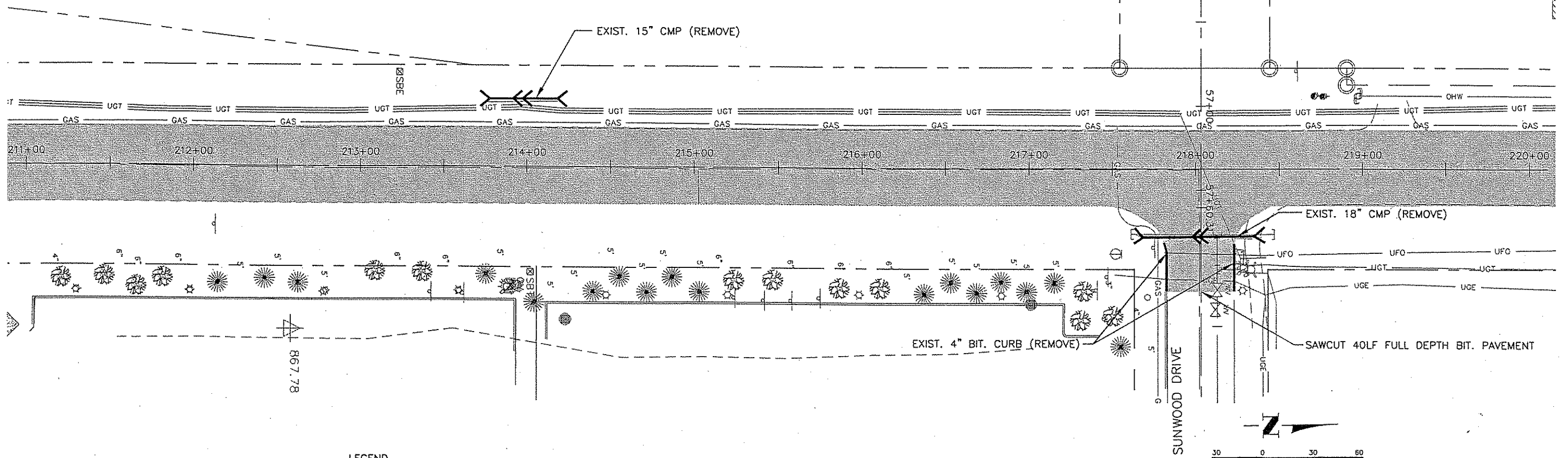


NOTES:  
 ① PLACE IN 2 LIFTS (3.0" MAX. LIFT THICKNESS)

DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  PETER R. RAATIKKA, P.E. Date 3/24/04 Lic. No. 11586	DESIGNED BY:	JEJ	<b>Hakanson Anderson Assoc., Inc.</b> Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	S.A.P. 199-104-07	TYPICAL SECTIONS RAMSEY BOULEVARD CITY OF RAMSEY, MINNESOTA	SHEET 2R OF 166 SHEETS
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			CHECKED BY:	PRR				
			DATE:	02/11/04				
				FILE NO.:	RA3172			

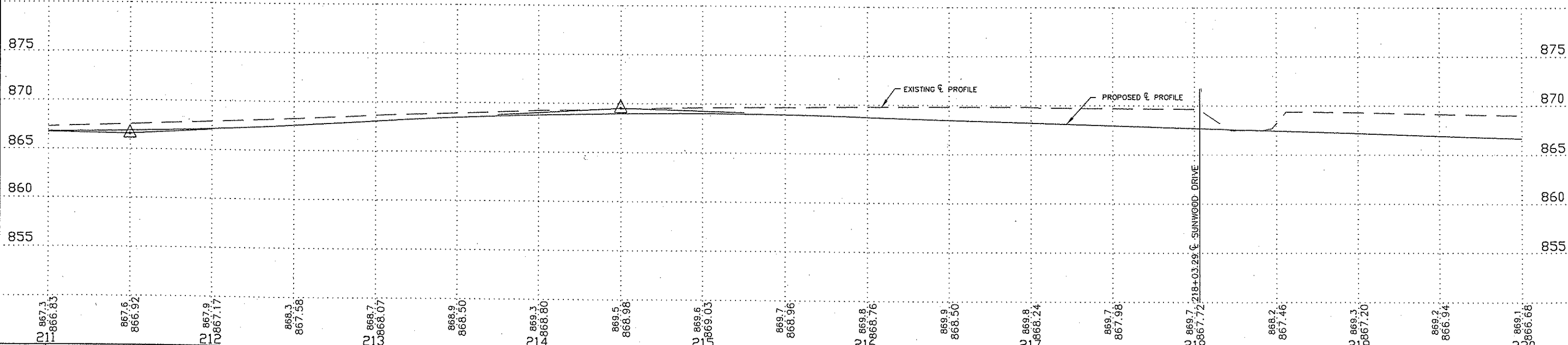
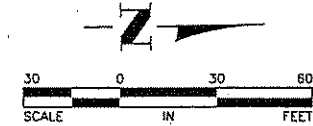


# RAMSEY BOULEVARD



### LEGEND

- |                    |                       |                                   |
|--------------------|-----------------------|-----------------------------------|
| CONCRETE REMOVAL   | REMOVE SANITARY SEWER | EXISTING SANITARY SEWER TO REMAIN |
| BITUMINOUS REMOVAL | REMOVE STORM SEWER    | EXISTING STORM SEWER TO REMAIN    |
| CURB REMOVAL       | REMOVE WATER MAIN     | EXISTING WATER MAIN TO REMAIN     |
|                    | REMOVE WATER SERVICE  | EXISTING FORCE MAIN TO REMAIN     |



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date: 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ  
 DRAWN BY: RAA  
 CHECKED BY: PRR  
 DATE: 01/29/04  
 FILE NO.: RA3172



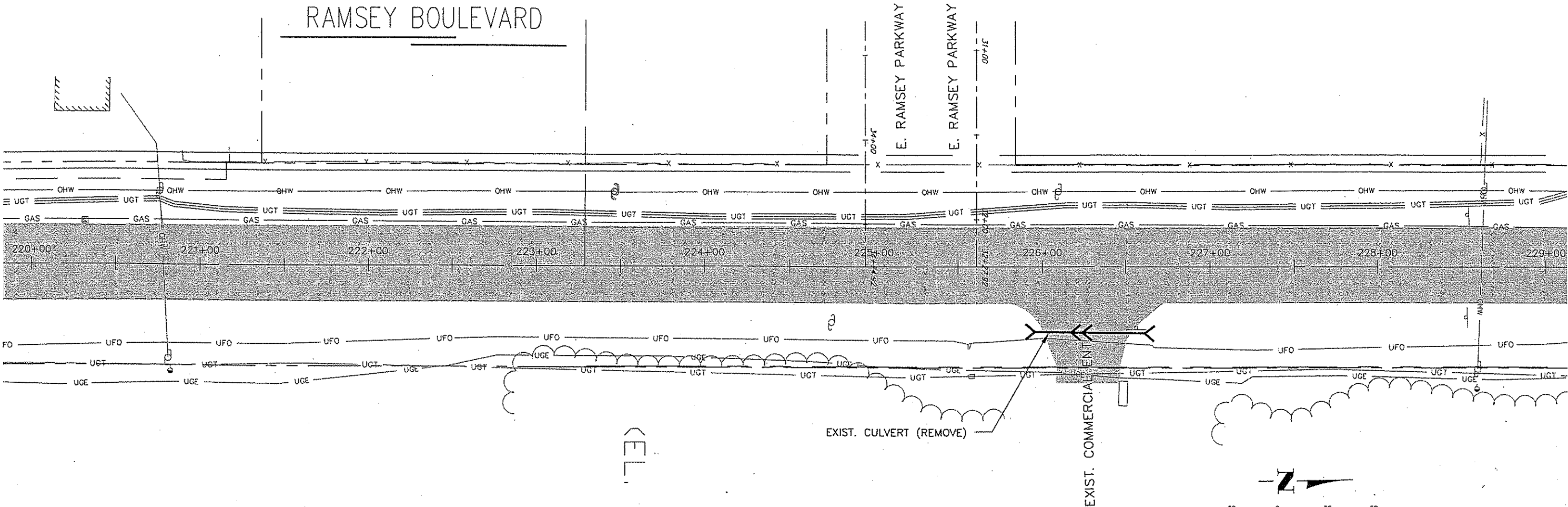
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 Civil Engineers and Land Surveyors  
 3601 Thurston Ave., Anoka, Minnesota 55303  
 763-427-5860 FAX 763-427-0520  
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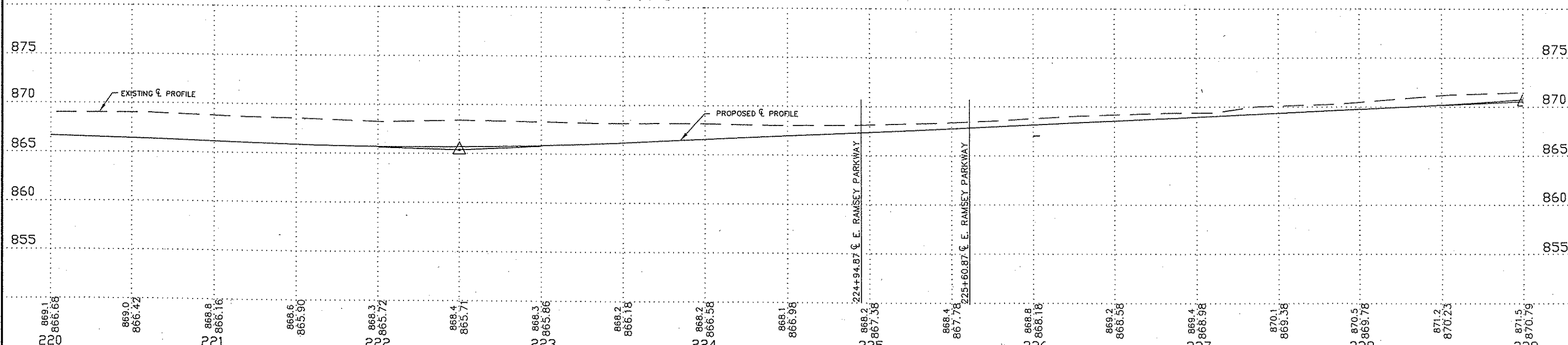
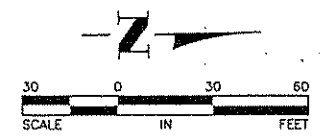
EXISTING UTILITIES/REMOVALS  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 4R OF 166 SHEETS

# RAMSEY BOULEVARD



- LEGEND**
- CONCRETE REMOVAL
  - BITUMINOUS REMOVAL
  - CURB REMOVAL
  - REMOVE SANITARY SEWER
  - REMOVE STORM SEWER
  - REMOVE WATER MAIN
  - REMOVE WATER SERVICE
  - EXISTING SANITARY SEWER TO REMAIN
  - EXISTING STORM SEWER TO REMAIN
  - EXISTING WATER MAIN TO REMAIN
  - EXISTING FORCE MAIN TO REMAIN

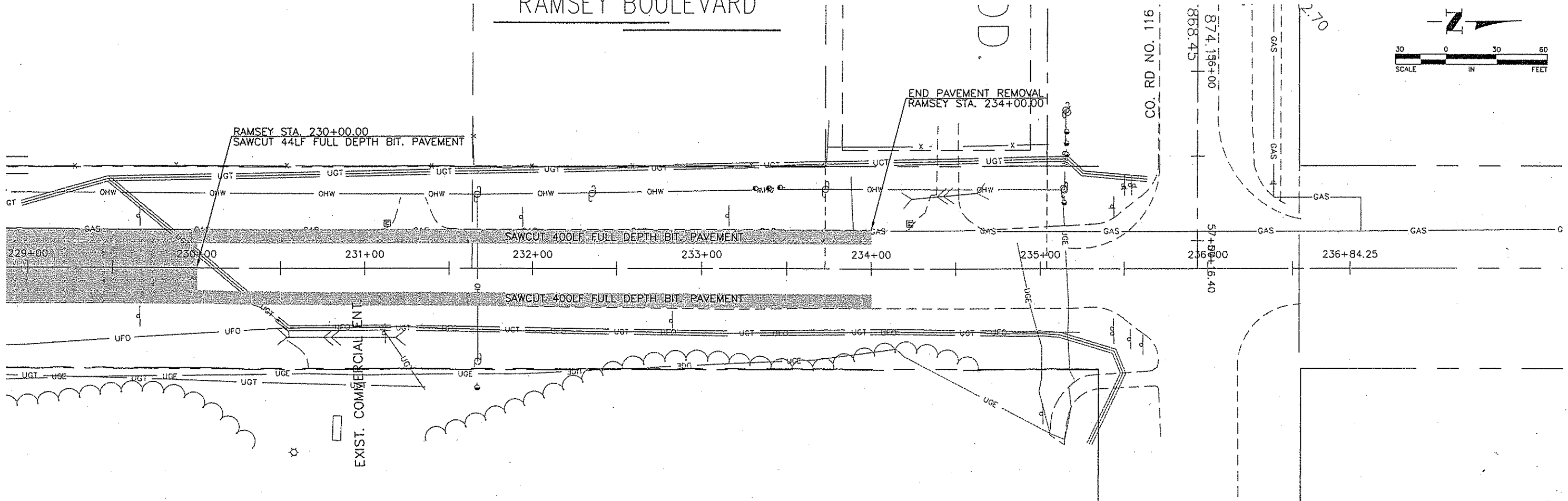
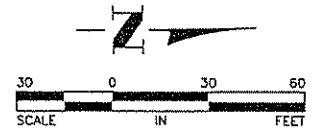


DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. <i>Peter R. Raatikka</i> PETER R. RAATIKKA, P.E. Date 3/24/04 Lic. No. 11586	DESIGNED BY: J.E.J.	DRAWN BY: RAA	CHECKED BY: PRR	DATE: 01/29/04	FILE NO. RA3172	<b>Hakanson Anderson Assoc., Inc.</b> Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	S.A.P. 199-104-07	EXISTING UTILITIES/REMOVALS  RAMSEY BOULEVARD CITY OF RAMSEY, MINNESOTA	SHEET 5R OF 166 SHEETS
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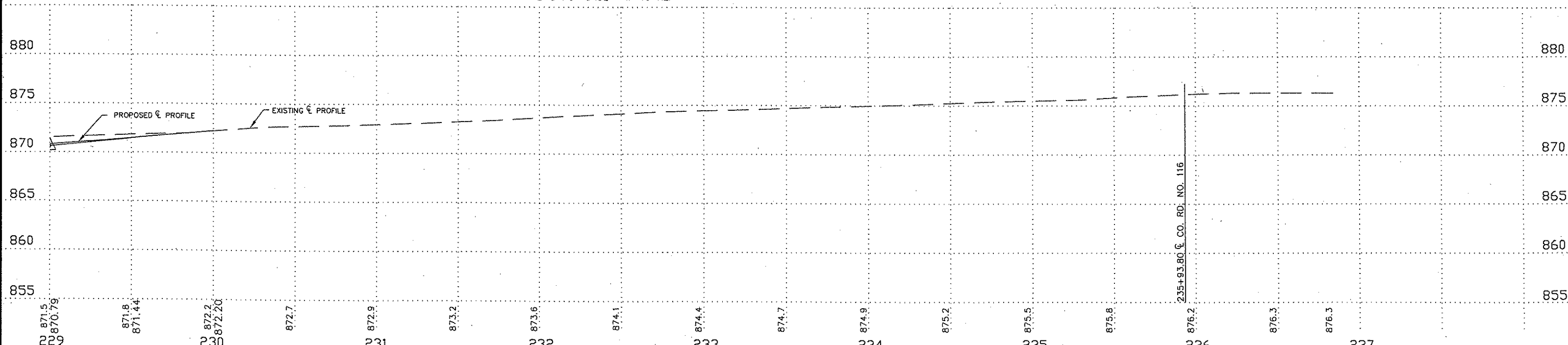


# RAMSEY BOULEVARD



### LEGEND

- CONCRETE REMOVAL
- BITUMINOUS REMOVAL
- CURB REMOVAL
- REMOVE SANITARY SEWER
- REMOVE STORM SEWER
- REMOVE WATER MAIN
- REMOVE WATER SERVICE
- EXISTING SANITARY SEWER TO REMAIN
- EXISTING STORM SEWER TO REMAIN
- EXISTING WATER MAIN TO REMAIN
- EXISTING FORCE MAIN TO REMAIN



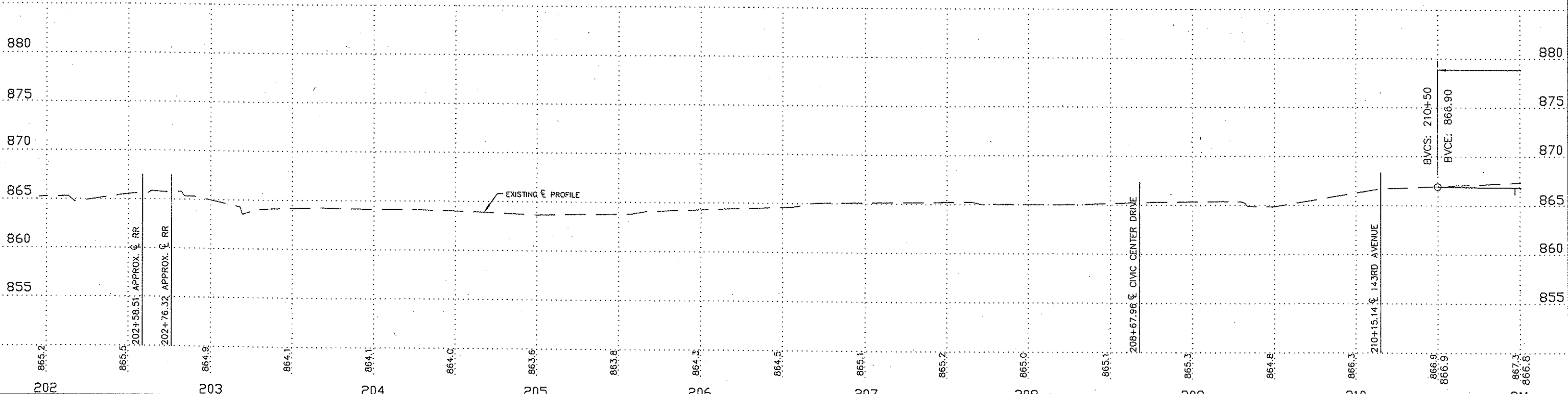
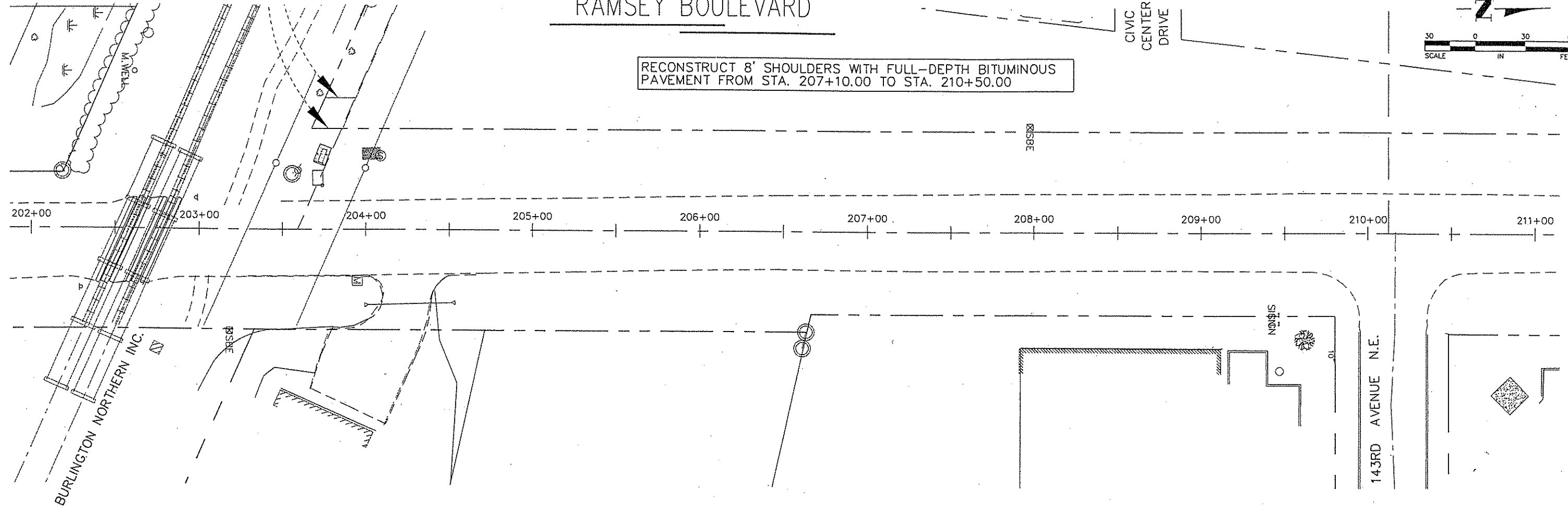
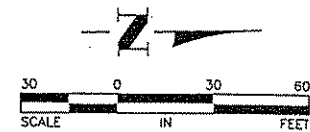
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# RAMSEY BOULEVARD

RECONSTRUCT 8' SHOULDERS WITH FULL-DEPTH BITUMINOUS PAVEMENT FROM STA. 207+10.00 TO STA. 210+50.00

CIVIC CENTER DRIVE



DATE	REVISION

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

*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11585

DESIGNED BY:	JEU
DRAWN BY:	RAA
CHECKED BY:	PRR
DATE:	01/29/04
FILE NO.:	RA3172



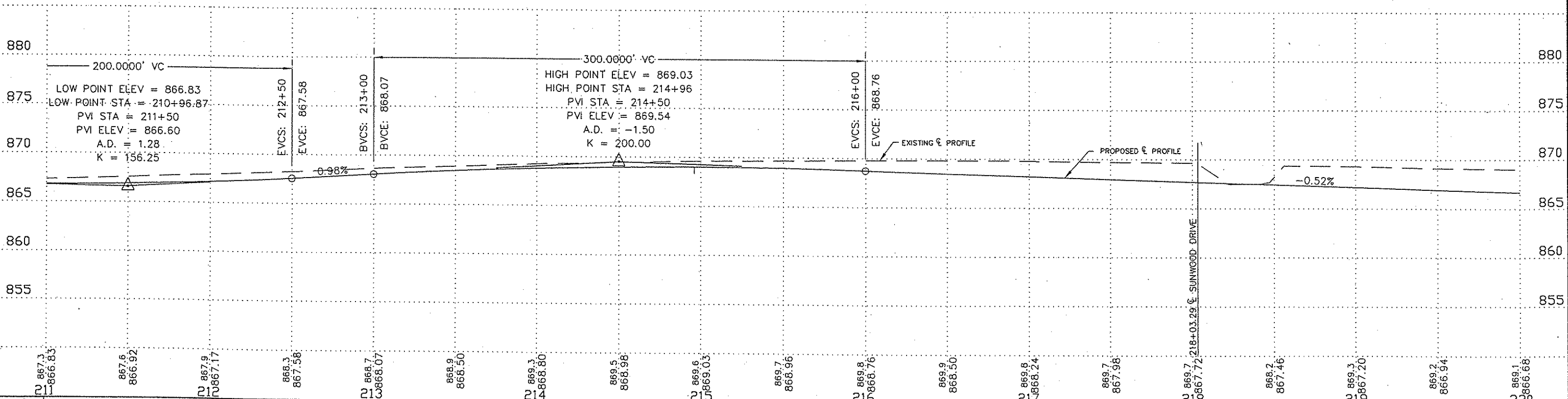
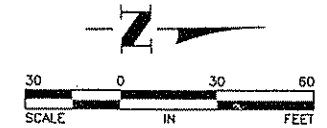
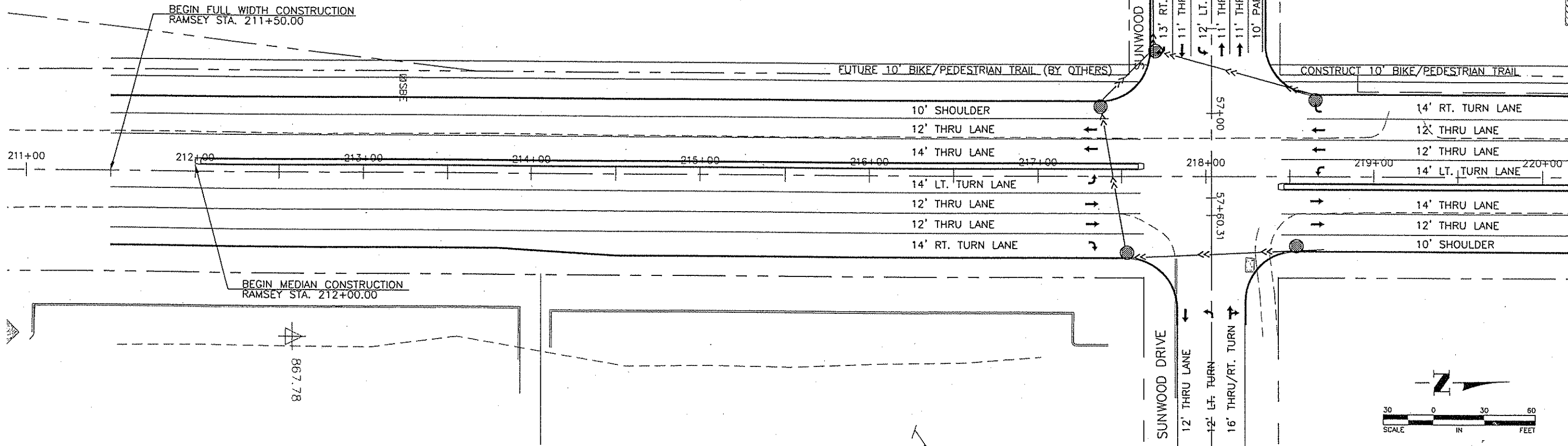
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S.A.P. 199-104-07

STREET PLAN  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 7R OF 166 SHEETS

# RAMSEY BOULEVARD



DATE	REVISION

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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEU	DATE: 01/29/04
DRAWN BY: RAA	FILE NO.:
CHECKED BY: PRR	RA3172

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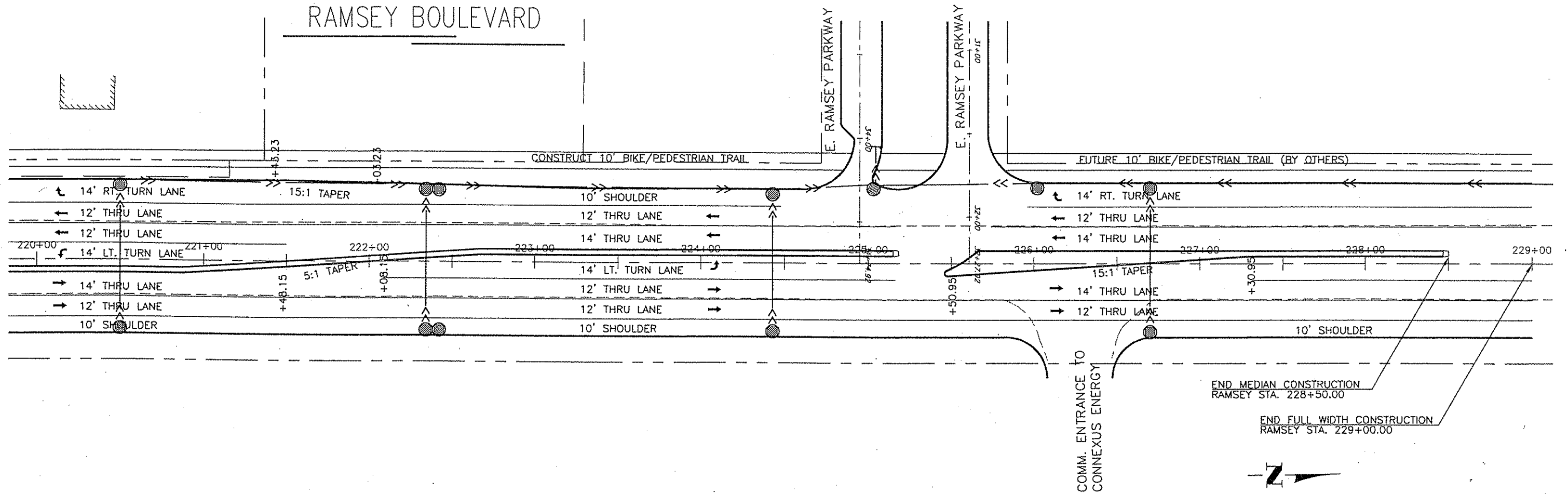
S.A.P. 199-104-07

STREET PLAN  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 8R  
 OF  
 166  
 SHEETS

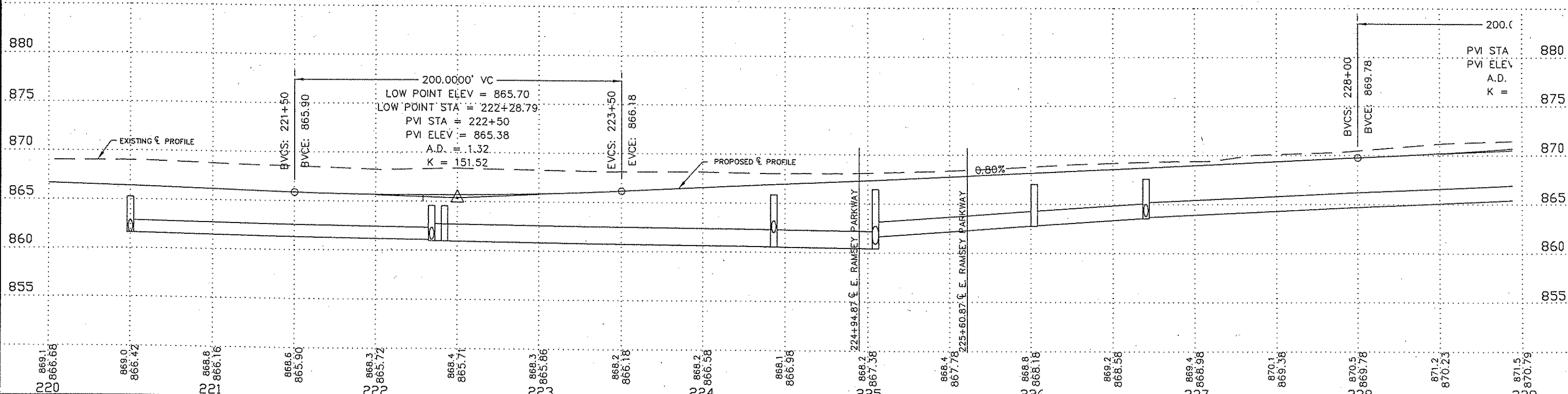
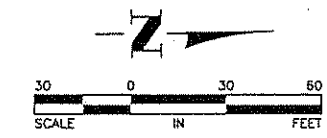
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# RAMSEY BOULEVARD



END MEDIAN CONSTRUCTION  
RAMSEY STA. 228+50.00

END FULL WIDTH CONSTRUCTION  
RAMSEY STA. 229+00.00



DATE	REVISION

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*Peter R. Raatikka*  
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 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ  
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 CHECKED BY: PRR  
 DATE: 01/29/04  
 FILE NO.: RA3172



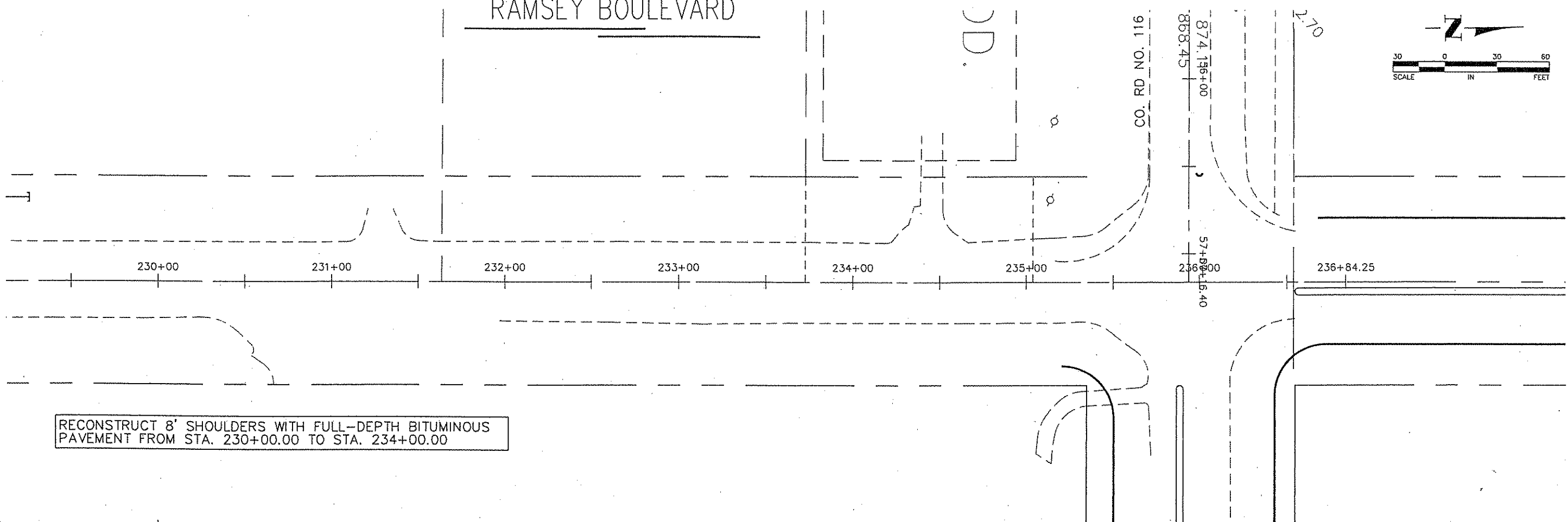
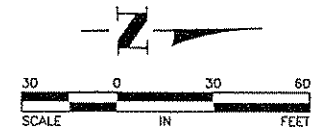
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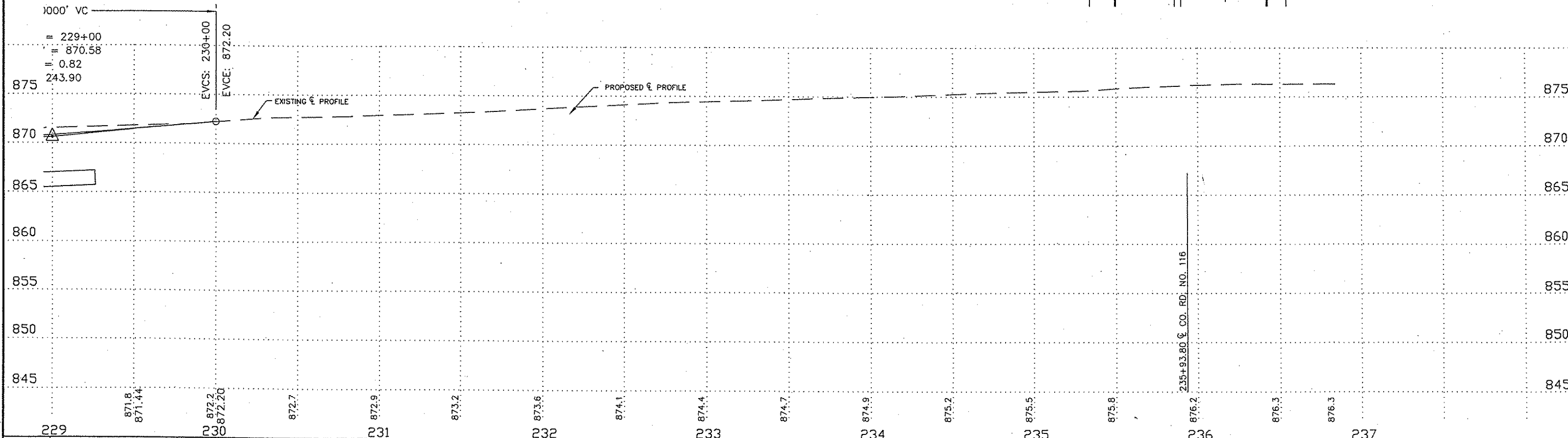
STREET PLAN  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 9R OF 166 SHEETS

# RAMSEY BOULEVARD



RECONSTRUCT 8' SHOULDERS WITH FULL-DEPTH BITUMINOUS PAVEMENT FROM STA. 230+00.00 TO STA. 234+00.00



DATE	REVISION
Mar 29, 2004	4:27pm
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*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 01/29/04
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	



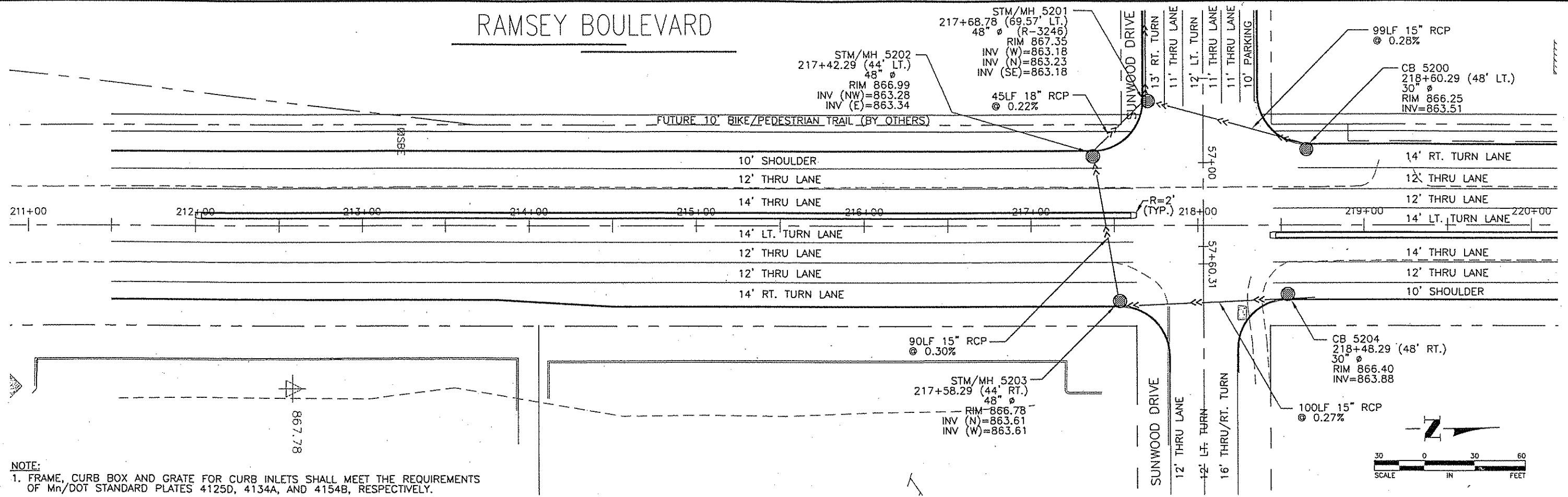
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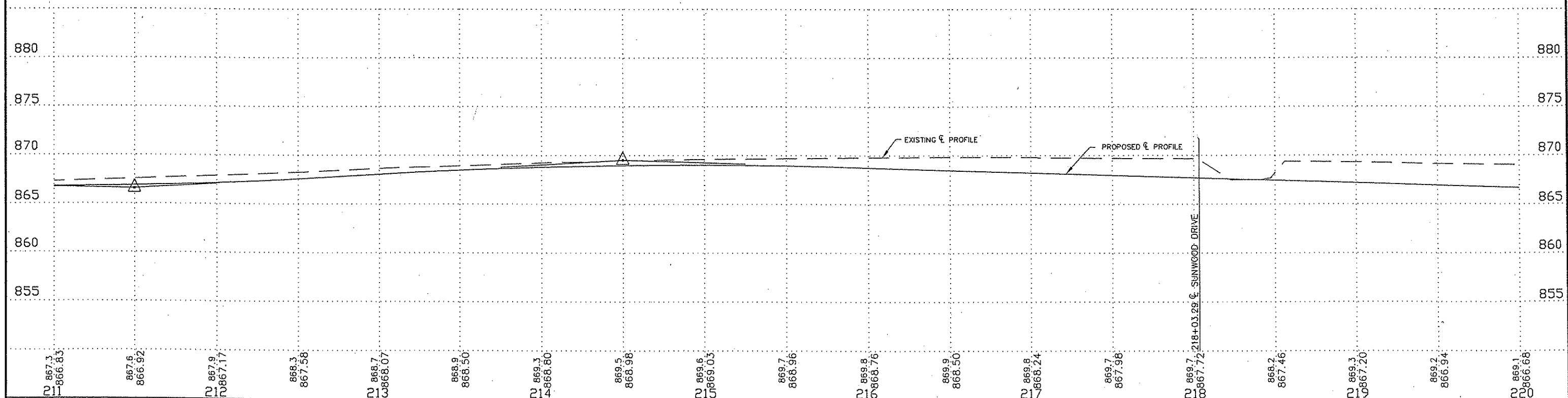
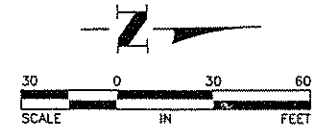
STREET PLAN  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 10R OF 166 SHEETS

# RAMSEY BOULEVARD



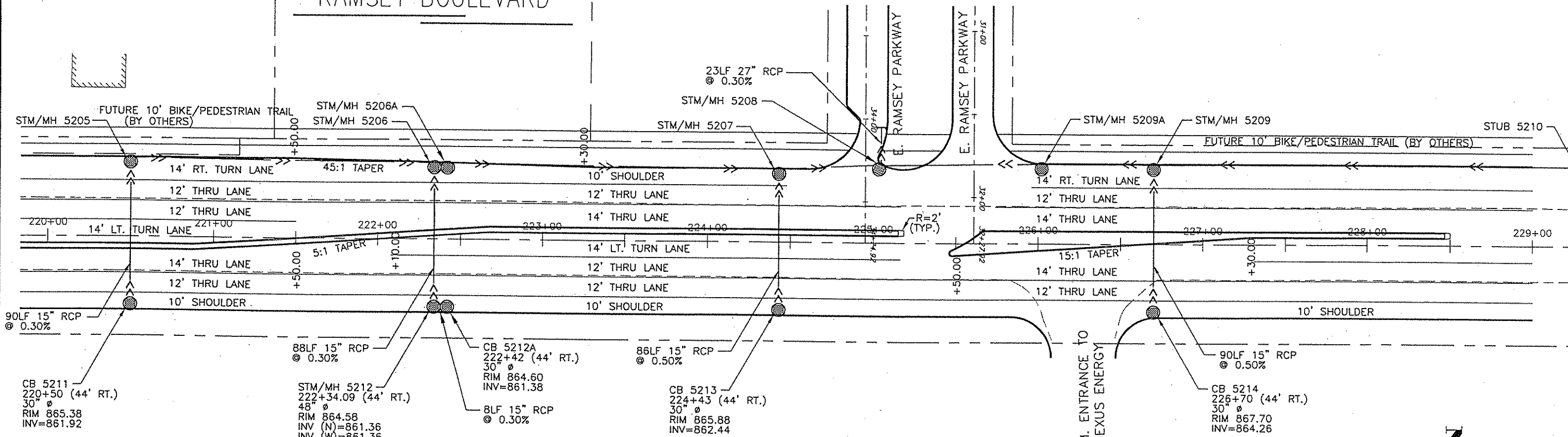
**NOTE:**  
 1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.



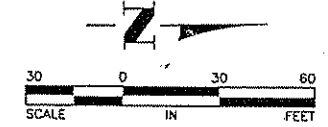
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			DRAWN BY: RAA					DATE: 01/29/04
			CHECKED BY: PRR					FILE NO. RA3172

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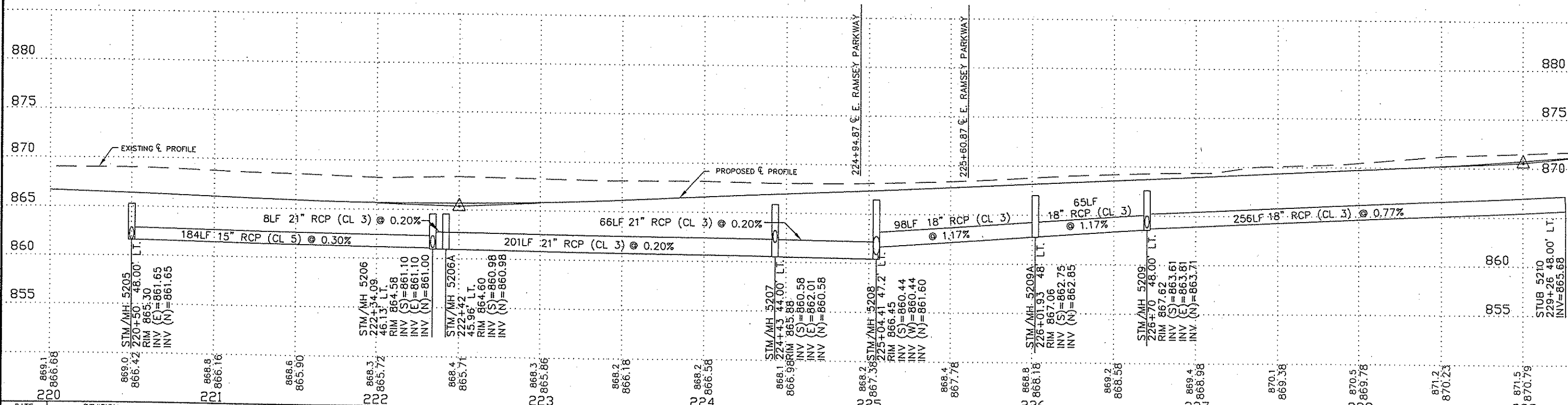
# RAMSEY BOULEVARD



COMM. ENTRANCE TO  
CONNEXUS ENERGY



**NOTE:**  
1. FRAME, CURB BOX AND GRATE FOR CURB INLETS SHALL MEET THE REQUIREMENTS OF Mn/DOT STANDARD PLATES 4125D, 4134A, AND 4154B, RESPECTIVELY.



DATE	REVISION
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221	
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PETER R. RAATIKKA, P.E.  
Date 3/24/04 Lic. No. 11586

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CHECKED BY: PRR  
DATE: 01/29/04  
FILE NO: RA3172



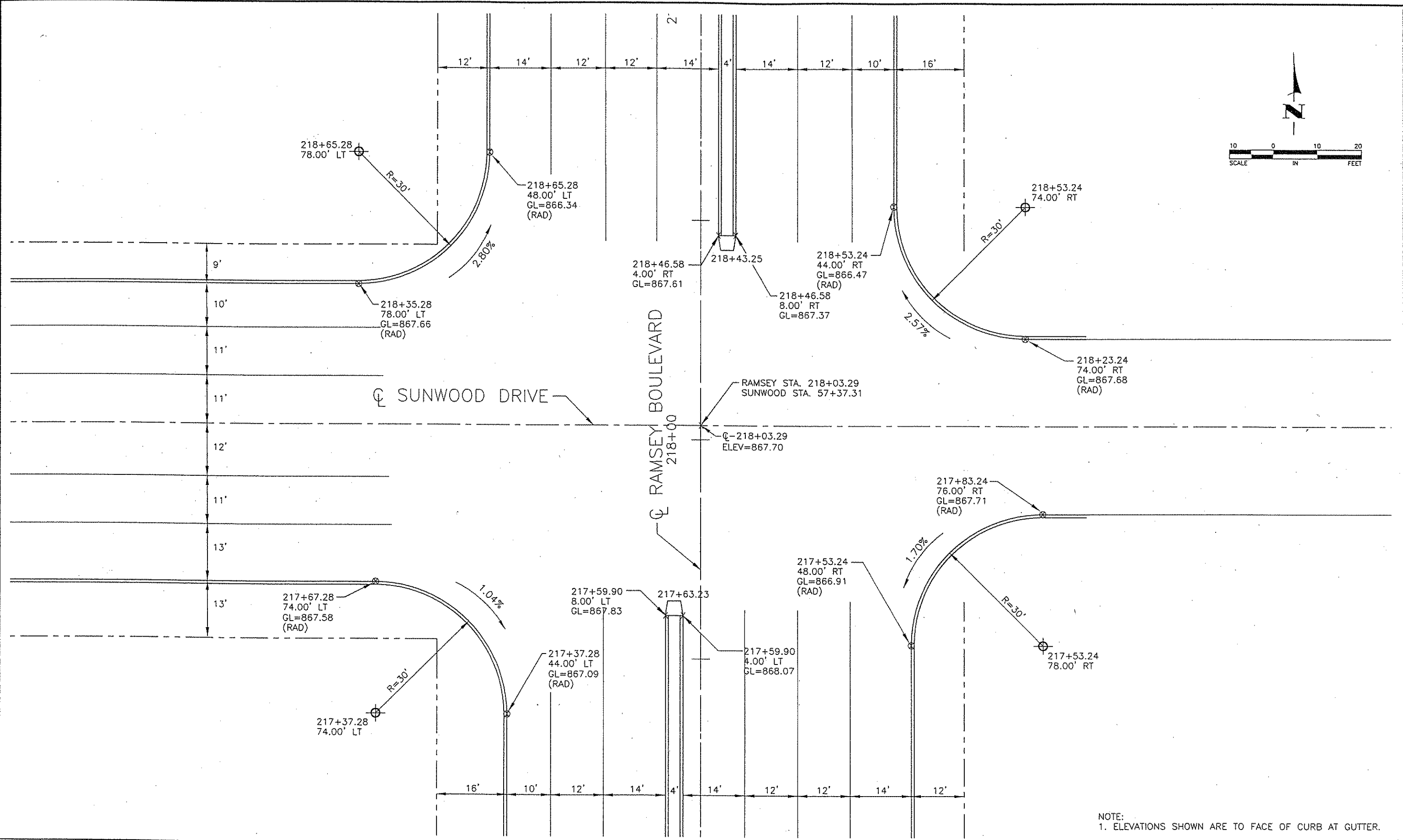
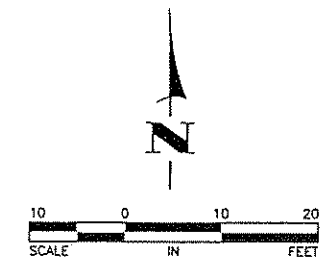
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**STORM SEWER PLAN**  
RAMSEY BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET 12R OF 166 SHEETS

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NOTE:  
1. ELEVATIONS SHOWN ARE TO FACE OF CURB AT GUTTER.

DATE	REVISION

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 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 3/24/04
DRAWN BY: RAA	FILE NO.:
CHECKED BY: PRR	RA3172



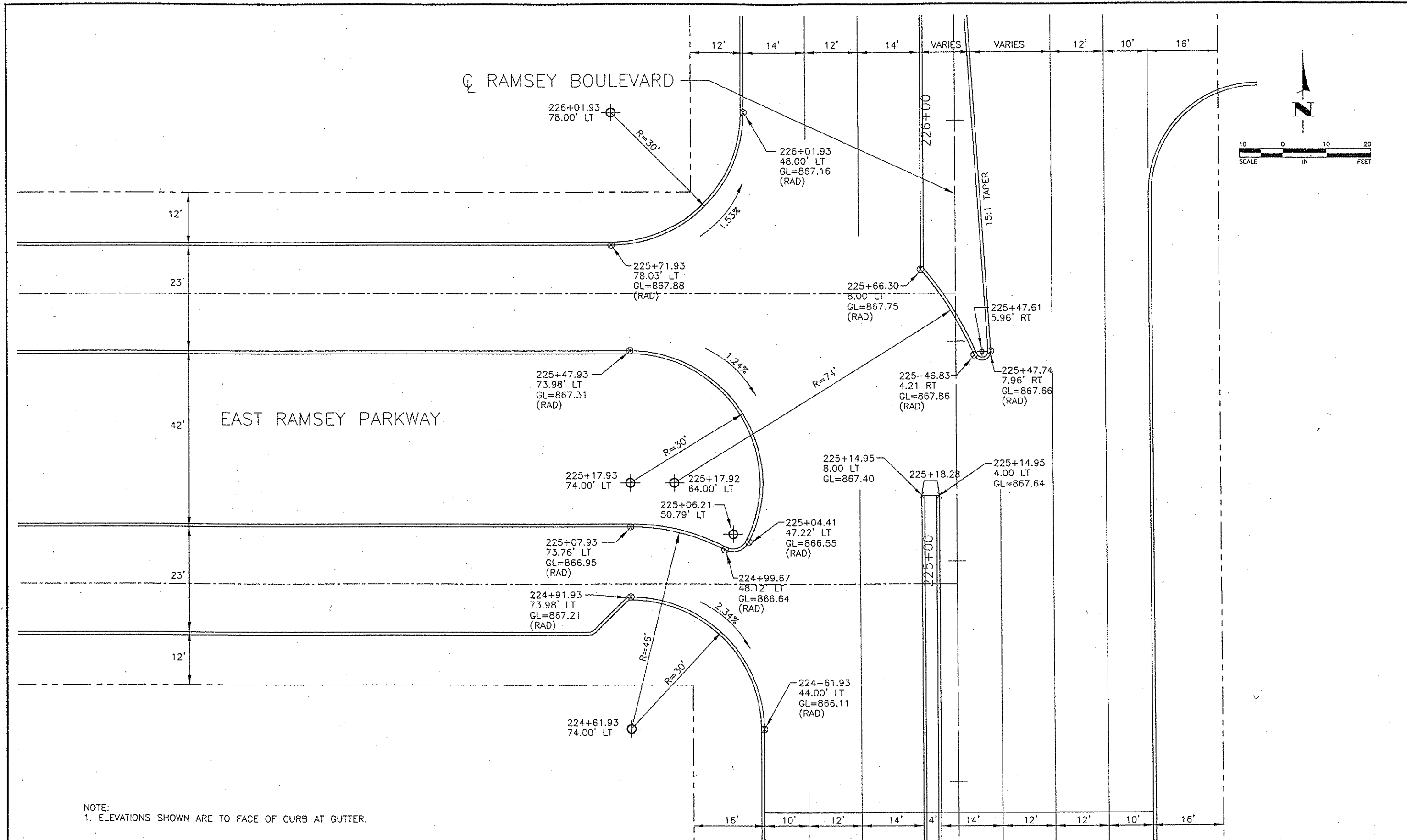
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INTERSECTION DETAILS  
 RAMSEY BOULEVARD AND  
 SUNWOOD DRIVE  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 13R  
 OF  
 166  
 SHEETS





NOTE:  
1. ELEVATIONS SHOWN ARE TO FACE OF CURB AT GUTTER.

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S.A.P. 199-104-07

INTERSECTION DETAILS  
RAMSEY BOULEVARD AND  
EAST RAMSEY PARKWAY  
CITY OF RAMSEY, MINNESOTA

SHEET  
14R  
OF  
166  
SHEETS

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY		
			RAMSEY BLVD		
W20-2	48" X 48"		1		
W20-3	48" X 48"		2		
W20-1	48" X 48"		1		
W20-100P	36" X 24"		1		
W20-100P	36" X 24"		0		
W20-100P	36" X 24"		1		
W20-100P	36" X 24"		1		
R11-4	60" X 30"				
TYPE III	8 FOOT		5		
TYPE III	8 FOOT		6		
M4-10	48" X 18"				
TYPE III	8 FOOT		1		
R11-2	48" X 30"				
TYPE III	8 FOOT		3		

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY		
			RAMSEY BLVD		
G20-X2	96" X 84"		2		
G20-X2	96" X 84"		0		
G20-X2	96" X 84"		0		
M3-2	24" X 12"		0		
M3-3	24" X 12"		6		
M3-4	24" X 12"		0		
M4-8	24" X 12"		24		
M3-1	24" X 12"		16		
M1-6	24" X 24"		24		
M1-6	24" X 24"		0		
M1-6	24" X 24"		0		
M4-6	24" X 12"		2		
M5-1L	21" X 15"		4		
M5-1R	21" X 15"		3		
M6-1L	21" X 15"		3		
M6-1R	21" X 15"		3		
M6-3	21" X 15"		5		

NOTES:

1. ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS
2. ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES
3. ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY 2001
5. ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS APPROVED BY THE ENGINEER

DATE	REVISION

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

*Peter R. Raatikka*  
 PETER R. RAATIKKA, P.E.  
 Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 3/24/04
DRAWN BY: DMS	FILE NO. RA3172
CHECKED BY: PRR	



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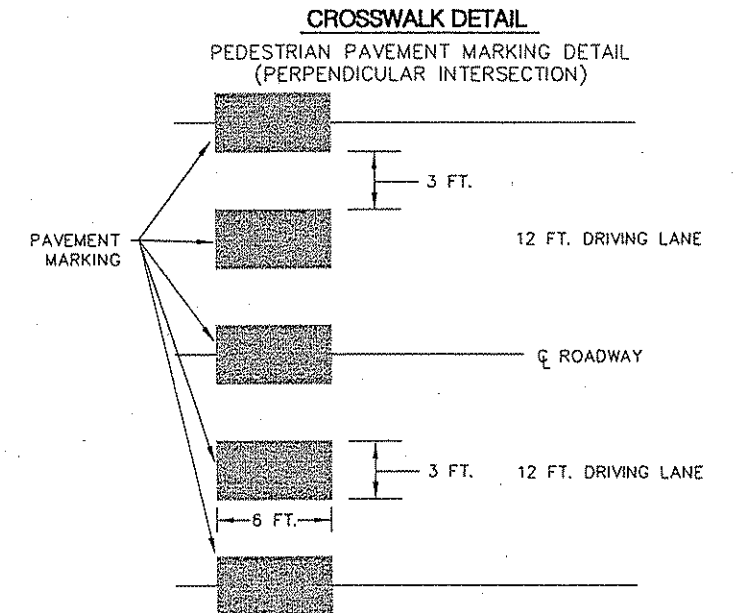
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TRAFFIC CONTROL PLAN  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET 15R OF 166 SHEETS

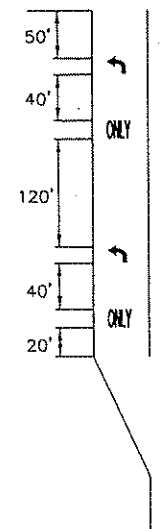


SIGN LEGEND	SIGN NO.	SIGN SIZE (INCHES)	SIGN MESSAGE	SIGN COLOR	REMARKS	ESTIMATED QUANTITY	
						RAMSEY BLVD.	
	R3-X1	30"x30"	RIGHT TURN LANE	BLACK ON WHITE		4	
	R3-X2	30"x30"	LEFT TURN LANE	BLACK ON WHITE		3	
	R4-7	24"x30"	"KEEP RIGHT" SYMBOL SIGN	BLACK ON WHITE		6	
	W4-2R	36"x36"	LANE REDUCTION TRANSITION	BLACK ON YELLOW		2	
	W6-2	36"x36"	DIVIDED HIGHWAY ENDS	BLACK ON YELLOW		2	
	W6-3	36"x36"	TWO WAY TRAFFIC	BLACK ON YELLOW		2	
	W9-1R	36"x36"	RIGHT LANE ENDS	BLACK ON YELLOW		2	
	W14-3	36"x48"x48"	NO PASSING ZONE	BLACK ON YELLOW		2	
	X4-2	18"x18"	HAZARD MARKER PLATE H-1	YELLOW ON YELLOW OR BLACK		2	
	TYPE III BARRICADE	60"x48"		BLACK ON ORANGE	SET IN PIPE SLEEVES 3" Ø X 24" LONG	15	
TOTAL						25	



- CROSSWALK AND STOP LINE MARKINGS SHALL BE EPOXY.
- CROSSWALK MARKINGS TO BE CENTERED AND ALIGNED ON CENTER LINE AND LANE LINES. MAKE ADJUSTMENTS IN MEDIAN AREA.
- FOR CROSSWALK MARKINGS, A MINIMUM OF 18" CLEAR DISTANCE MUST BE LEFT ADJACENT TO CURB.
- AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES
- REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.

PAVEMENT MARKING LEGEND	LINE TYPE	LINE WIDTH (INCHES)	LINE COMPOSITION AND COLOR	REMARKS
1	CENTER LINE	4"	SINGLE BROKEN (SKIP) YELLOW	10' STRIPE + 40' GAP
2	CENTER LINE FOR PAINTED MEDIAN	4"	DOUBLE SOLID YELLOW	6" SEPARATION BETWEEN LINES
3	PAINTED MEDIAN CROSS HATCHING	24"	SOLID YELLOW	45' DIAGONAL WITH 20' SPACING
4	LANE LINE	4"	SINGLE BROKEN (SKIP) WHITE	10' STRIPE + 40' GAP
5	LANE LINE	4"	SINGLE SOLID WHITE	
6	PAVEMENT EDGE LINE	4"	SINGLE SOLID WHITE	
7	STOP BAR	24"	SINGLE SOLID WHITE	
8	CROSSWALK MARKING	3'x6'	SOLID WHITE BLOCKS	3' SPACING BETWEEN BLOCKS
9	PAVEMENT ARROWS		SOLID WHITE ARROW	FOR AUXILIARY RIGHT & LEFT TURN LANES 7" HIGH
10	PAVEMENT MESSAGE		SOLID WHITE LETTERING	"ONLY" 8" HIGH
11	PAVEMENT MESSAGE	16"	SOLID WHITE LETTERING	"RR" 3'x6' "X" 8'x20'



- ARROWS - 7'-0" HIGH  
WORDS - 8'-0" HIGH
- INITIAL SPACING-50 FT. RECOMMENDED. RANGE OF 30-80 FT. DEPENDING ON APPROACH SPEED AND LENGTH OF TURN LANE.
  - MESSAGE SPACING-40 FT. RECOMMENDED. MINIMUM OF 25 FT. FOR SHORT TURN LANES.
  - INTERMEDIATE SPACING-RECOMMEND A MINIMUM OF 100 FT. AND A MAXIMUM OF 150 FT. DEPENDING ON APPROACH SPEED AND LENGTH OF TURN LANE.
  - FINAL SPACING-RECOMMEND 20 FT. OR AS CLOSE AS POSSIBLE WITH RESPECT TO THE SPACING CRITERIA LISTED ABOVE.
  - NUMBER OF MESSAGE UNITS-FOR TURN LANES LESS THAN 200 FT. IN LENGTH ONE SHOULD BE SUFFICIENT AND FOR TURN LANES GREATER THAN 200 FT. IN LENGTH TWO SHOULD BE SUFFICIENT. IN RURAL AREAS ONE MESSAGE UNIT MAY BE SUFFICIENT REGARDLESS OF THE LENGTH. IT IS RECOMMENDED THAT IN THIS CASE THE HEAD OF THE ARROW BE LOCATED AT OR NEAR THE MIDPOINT OF THE TURN LANE

DATE	REVISION

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*Peter R. Raatikka*  
PETER R. RAATIKKA, P.E.  
Date 3/24/04 Lic. No. 11586

DESIGNED BY: JEJ	DATE: 2/18/04
DRAWN BY: RAA	FILE NO. RA3172
CHECKED BY: PRR	

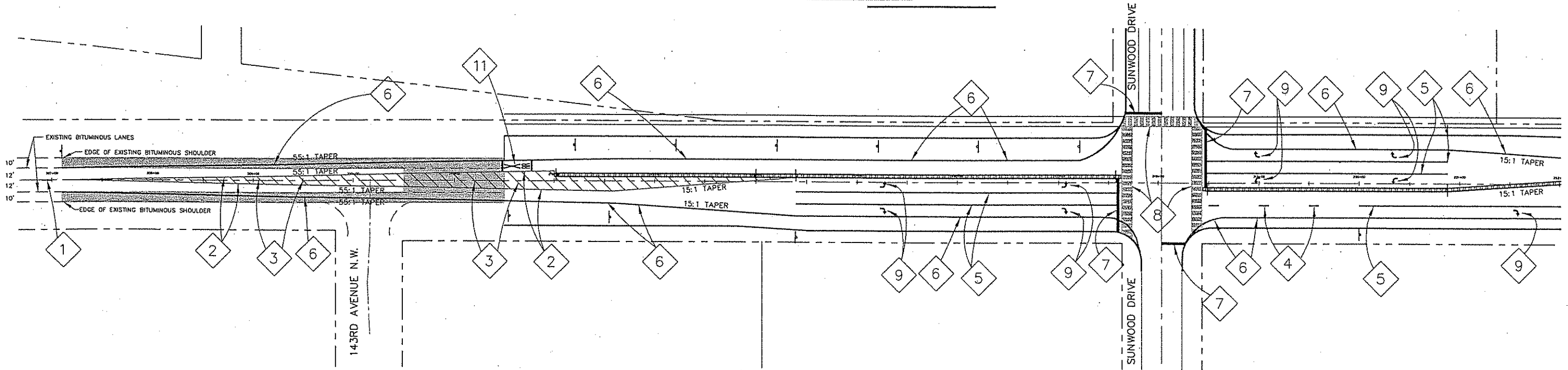
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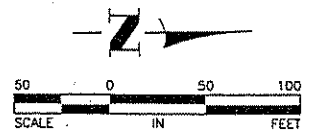
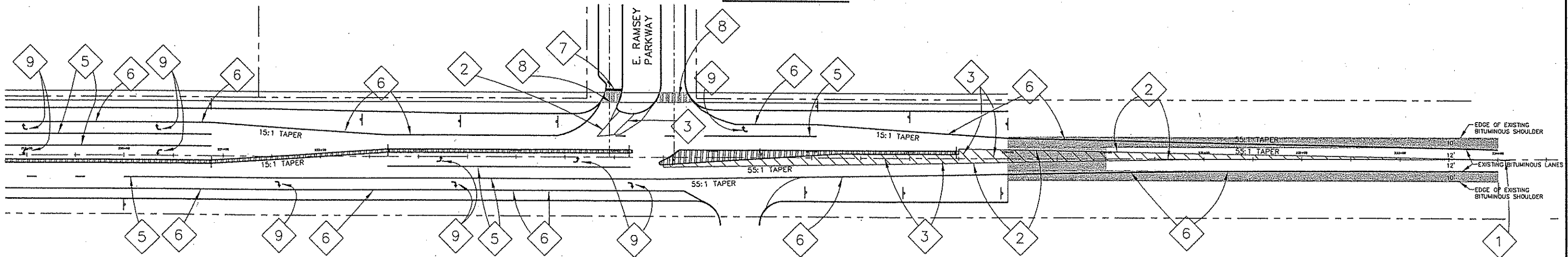
SIGNING AND STRIPING  
TABLES AND DETAILS  
RAMSEY BOULEVARD  
CITY OF RAMSEY, MINNESOTA

SHEET 17R OF 166 SHEETS

# RAMSEY BOULEVARD



# RAMSEY BOULEVARD



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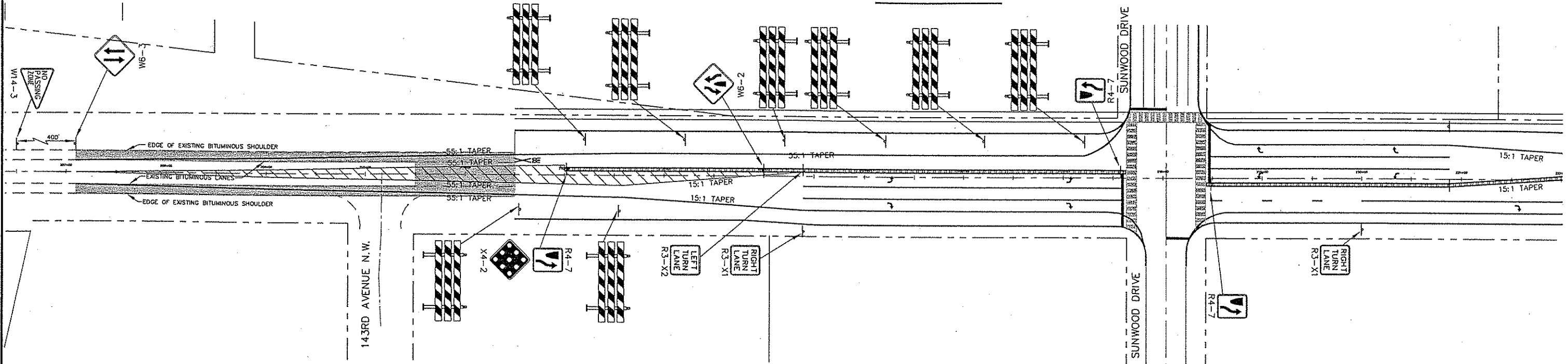
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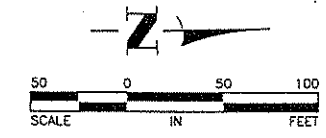
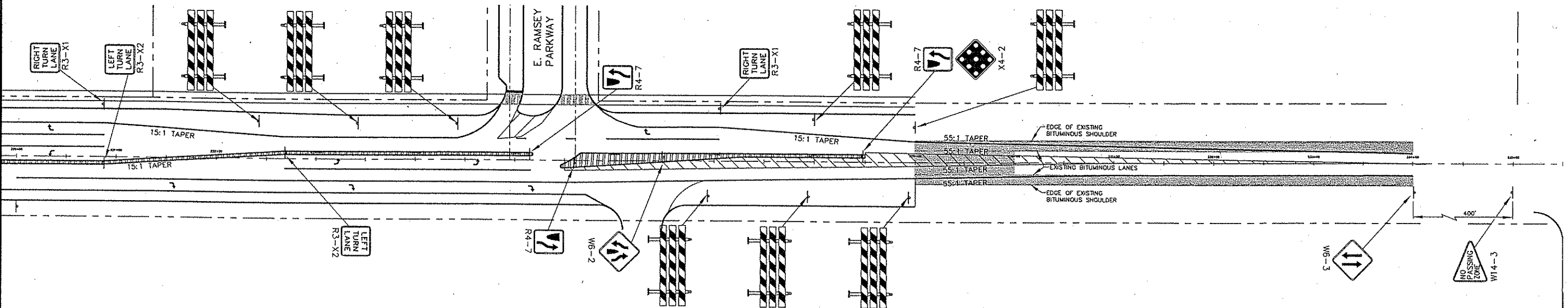
PAVEMENT MARKING PLANS  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
 18R  
 OF  
 166  
 SHEETS

# RAMSEY BOULEVARD



# RAMSEY BOULEVARD



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SIGNING PLANS  
 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

SHEET  
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 166 SHEETS



① PA 100 POLE FOUNDATION  
 TYPE PA100-A-40-D40-9 (DAVIT AT 350')  
 1-ONE WAY SIGNAL OVERHEAD AT 5' FROM  
 END OF MAST ARM  
 2-TYPE 10B POLE MOUNTED AT 90° AND 180°  
 ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT - PHASES 3 AND 8.  
 LUMINAIRE-250 W HPS  
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)  
 EXTEND TO HH 1:  
 3" RSC  
 2 - 12/C #12  
 5 - 3/C #12  
 1 - 3/C #20

③ PA 85 POLE FOUNDATION  
 TYPE PA85-A-25-D40-9 (DAVIT AT 350')  
 1-ONE WAY SIGNAL OVERHEAD AT 5' FROM  
 END OF MAST ARM  
 2-TYPE 10B POLE MOUNTED AT 90° AND 180°  
 ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT - PHASES 4 AND 7.  
 LUMINAIRE-250 W HPS  
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)  
 EXTEND TO HH 7:  
 3" RSC  
 2 - 12/C #12  
 5 - 3/C #12  
 1 - 3/C #20

Ⓐ CONTROLLER AND CABINET  
 (TO BE FURNISHED BY COUNTY).  
 SEE SHEET \_\_\_\_  
 EXTEND INTO HH 14:  
 METERED SIGNAL SERVICE  
 2" RSC  
 2-1/C #6  
 1-1/C #6 INS. GR.  
 EXTEND TO HH 1:  
 4" RSC  
 4-12/C #12  
 9-3/C #12  
 9-2/C #14  
 2-3/C #20  
 EXTEND TO HH 13:  
 4" RSC  
 4-12/C #12  
 9-3/C #12  
 11-2/C #14  
 2-3/C #20  
 3" RSC STUBBED OUT  
 (THEADED AND CAPPED  
 BOTH ENDS)

Ⓑ SIGNAL SERVICE CABINET - SEE SHEET \_\_\_\_  
 CABINET FOUNDATION  
 EXTEND INTO HH 14:  
 2" RSC  
 METERED SIGNAL SERVICE  
 3-1/C #6  
 UNMETERED STREET LIGHT SERVICE  
 4-3/C #12 (LUM)  
 EXTEND INTO HH 15:  
 2" RSC  
 3-1/C #2  
 Ⓒ SOP - PROPOSED TRANSFORMER  
 (BY CONNEXUS ENERGY)  
 EXTEND INTO HH 15:  
 2" RSC  
 3-1/C #2

② PA 100 POLE FOUNDATION  
 TYPE PA100-A-45-D40-9 (DAVIT AT 350')  
 2-ONE WAY SIGNALS OVERHEAD AT 5' AND 17'  
 FROM END OF MAST ARM  
 2-TYPE 10B POLE MOUNTED AT 90° AND 180°  
 ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT - PHASES 2 AND 5.  
 LUMINAIRE-250 W HPS  
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)  
 EXTEND TO HH 4:  
 3" RSC  
 2 - 12/C #12  
 6 - 3/C #12  
 1 - 3/C #20

④ PA 100 POLE FOUNDATION  
 TYPE PA100-A-50-D40-9 (DAVIT AT 350')  
 2-ONE WAY SIGNALS OVERHEAD AT 5' AND 17'  
 FROM END OF MAST ARM  
 2-TYPE 10B POLE MOUNTED AT 90° AND 180°  
 ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT - PHASES 1 AND 6.  
 LUMINAIRE-250 W HPS  
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)  
 EXTEND TO HH 11:  
 3" RSC  
 2 - 12/C #12  
 6 - 3/C #12  
 1 - 3/C #20

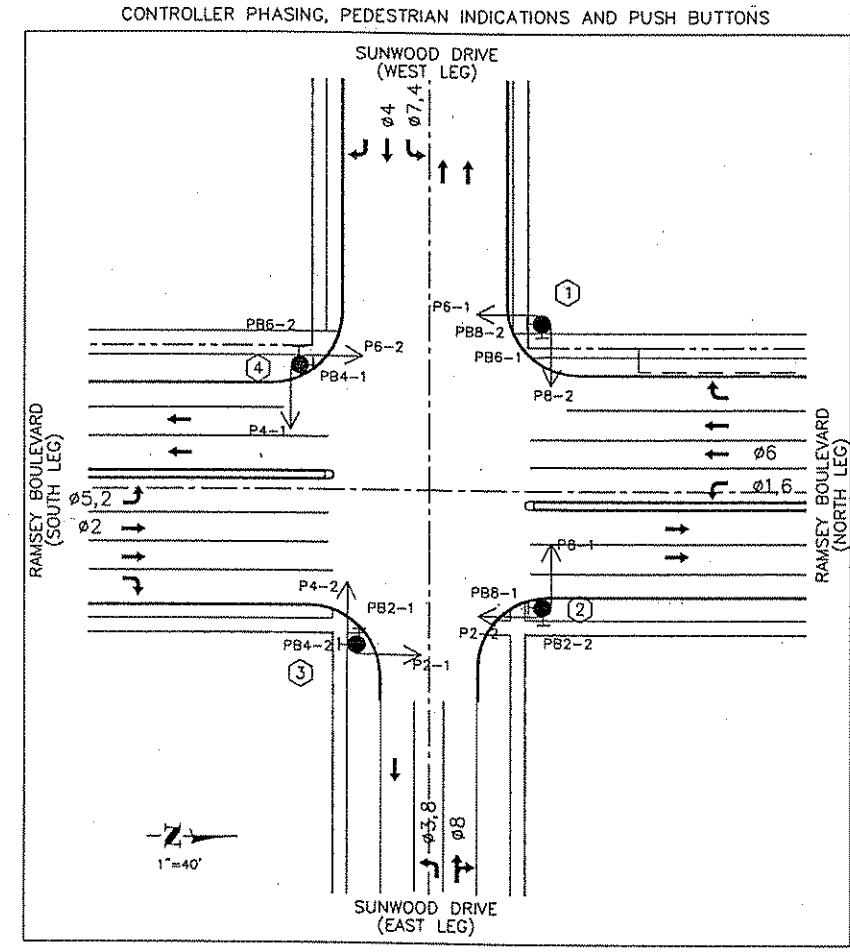
SIGNAL PHASES						
ALL INDICATIONS SHALL BE 12". ALL INDICATIONS SHALL BE LIGHT EMITTING DIODE (LED) TYPE						
FACE	R	Y	G	RLTA	YLTA	GLTA
2-1	•	•	•			
2-2	•	•	•			
2-3	•	•	•			
2-4	•	•	•			
4-1	•	•	•			
4-2	•	•	•			
4-3	•	•	•			
6-1	•	•	•			
6-2	•	•	•			
6-3	•	•	•			
6-4	•	•	•			
8-1	•	•	•			
8-2	•	•	•			
8-3	•	•	•			

NMC LOOP DETECTORS			
NUMBER	SIZE (FEET)	LOCATION	FUNCTION
*D1-1	6'X6'	40'	1
*D1-2	6'X6'	10'	1
*D2-1	6'X6'	475'	1
*D2-2	6'X6'	475'	1
*D3-1	2-6'X6'	20' & 50'	1
*D3-2	2-6'X6'	5' & 35'	1
*D4-1	6'X6'	120'	1
*D4-2	6'X6'	20'	7
*D4-3	6'X6'	20'	1
*D4-4	6'X6'	5'	7
*D4-5	6'X6'	5'	1
*D5-1	6'X6'	40'	1
*D5-2	6'X6'	10'	1
*D6-1	6'X6'	475'	1
*D6-2	6'X6'	475'	1
*D7-1	2-6'X6'	20' & 50'	1
*D7-2	2-6'X6'	5' & 35'	1
*D8-1	6'X6'	120'	3
*D8-2	6'X6'	20'	7
*D8-3	6'X6'	5'	7

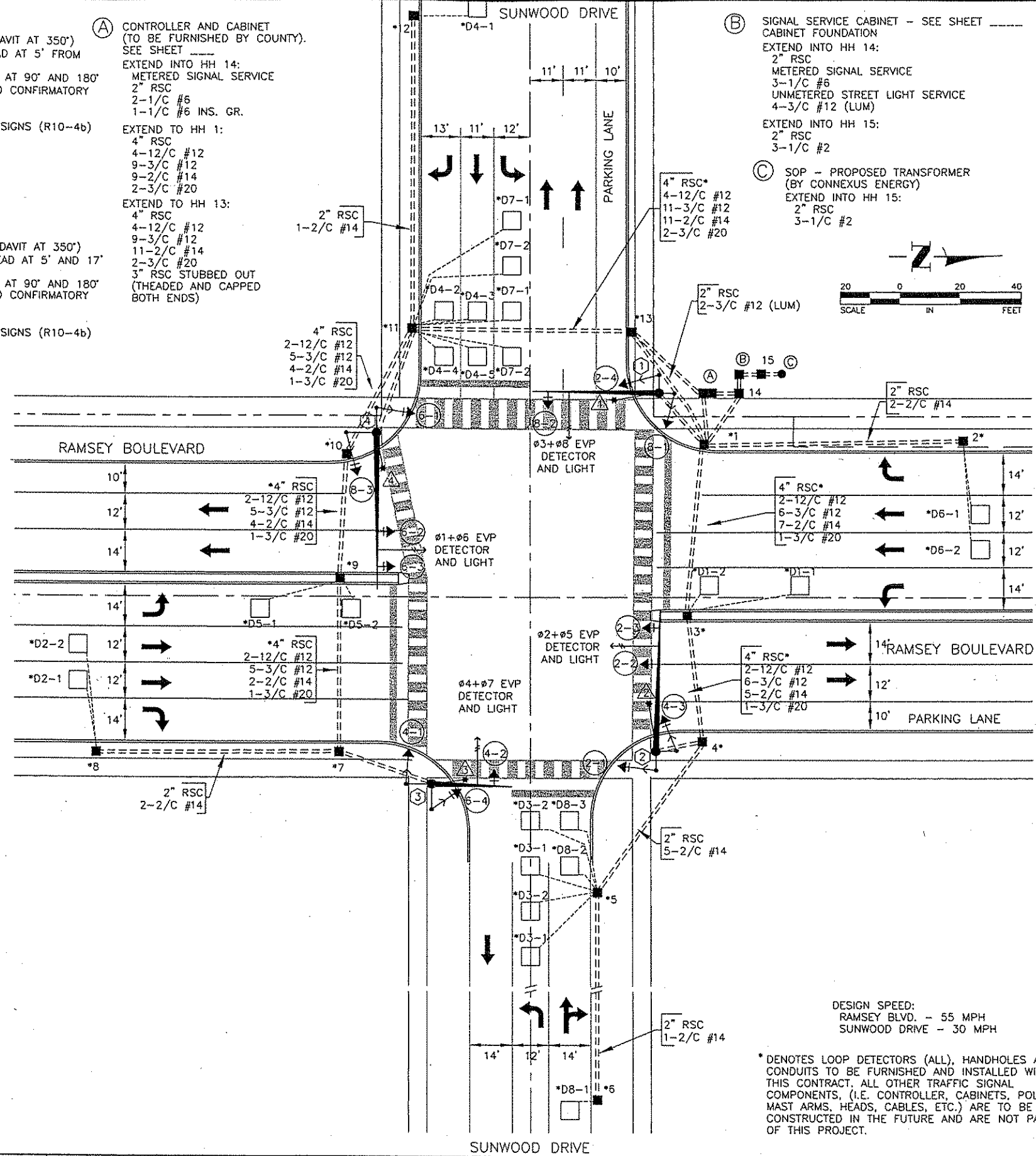
LOCATION = DISTANCE FROM STOP BAR  
 TO DETECTOR IN FEET.

LOOP DETECTOR FUNCTIONS  
 1=CALL AND EXTEND  
 3=EXTEND ONLY  
 7=DELAY CALL - IMMEDIATE EXTEND

- NOTES
- SEE SPECIAL PROVISIONS FOR PEDESTRIAN INDICATIONS, LED INDICATIONS, AND COUNTY FURNISHED MATERIALS.
  - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
  - LOCATIONS OF POLES, PEDESTALS, HANDHOLES AND LOOP DETECTORS SHALL BE DETERMINED BY TRAFFIC ENGINEERING PERSONNEL FROM ANOKA COUNTY HIGHWAY DEPARTMENT
  - FOR TYPE "D" SIGNS AND R6-1 SIGNS SEE SHEETS \_\_\_\_ AND \_\_\_\_ FOR PAVEMENT MARKINGS SEE SHEETS \_\_\_\_ AND \_\_\_\_
  - 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 11' FROM THE END OF MAST ARMS 1,2,3, AND 4.
  - ALL LOOP DETECTORS SHALL BE NON-METALLIC CONDUCT (NMC) TYPE. FOR NMC LOOP DETAILS SEE SHEET \_\_\_\_
  - FINISHED GROUNDLINE SHALL BE WITHIN 6" OF THE TOP OF THE CONCRETE SIGNAL POLE FOUNDATIONS. PROVIDE AND PLACE FILL AS NECESSARY.
  - ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS.



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE  
 SIGNAL SYSTEM OPERATION  
 -THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 -NORMAL OPERATION IS 8 PHASES WITH PHASES 1,3,5, AND 7 BEING PROTECTED LEFT TURN PHASES FOLLOWED BY PERMISSIVE LEFT TURNS.  
 -PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.



DESIGN SPEED:  
 RAMSEY BLVD. - 55 MPH  
 SUNWOOD DRIVE - 30 MPH

\* DENOTES LOOP DETECTORS (ALL), HANDHOLES AND CONDUITS TO BE FURNISHED AND INSTALLED WITH THIS CONTRACT. ALL OTHER TRAFFIC SIGNAL COMPONENTS, (I.E. CONTROLLER, CABINETS, POLES, MAST ARMS, HEADS, CABLES, ETC.) ARE TO BE CONSTRUCTED IN THE FUTURE AND ARE NOT PART OF THIS PROJECT.

DATE	REVISION
Mar 29, 2004	4:40pm
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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 JAMES E. JOHNSON  
 Date 3/24/04 Lic. No. 12651

DESIGNED BY: JEJ  
 DRAWN BY: DMS  
 CHECKED BY: PRR  
 DATE: 3/22/04  
 FILE NO.: RA3172

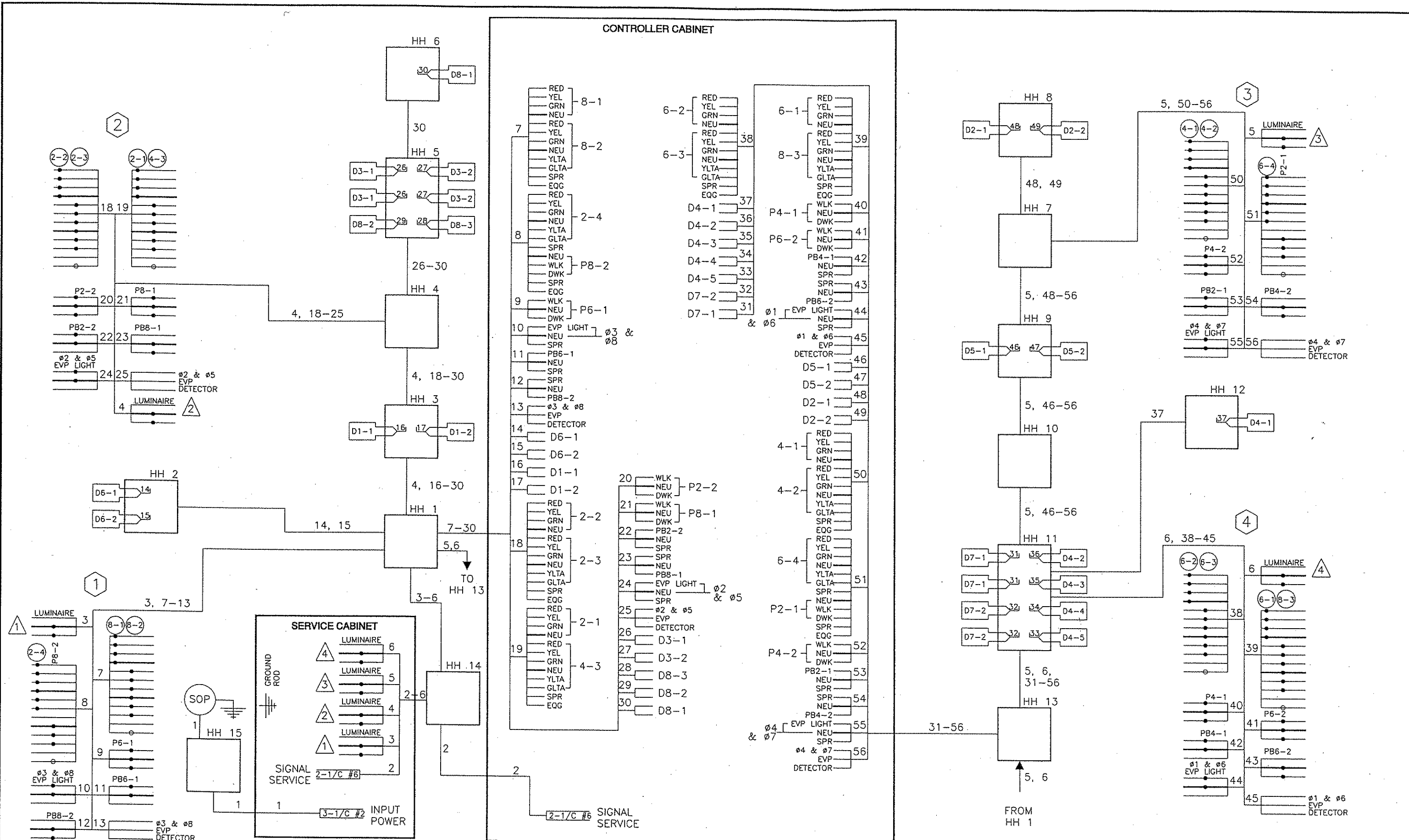


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INTERSECTION LAYOUT PLAN  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 RAMSEY BOULEVARD AND SUNWOOD DRIVE  
 CITY OF RAMSEY, MINNESOTA

SHEET 20R OF 166 SHEETS



DATE	REVISION

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*James E. Johnson*  
 JAMES E. JOHNSON  
 Date 3/24/04 Lic. No. 12651

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CHECKED BY: PRR	RA3172



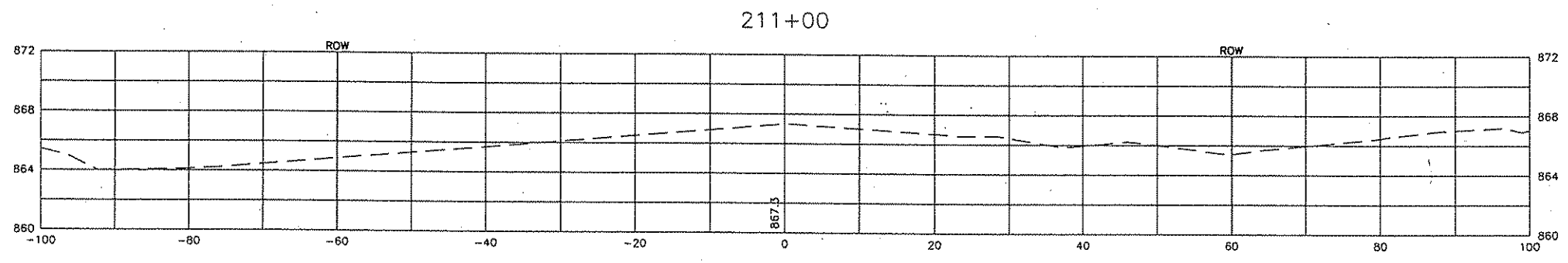
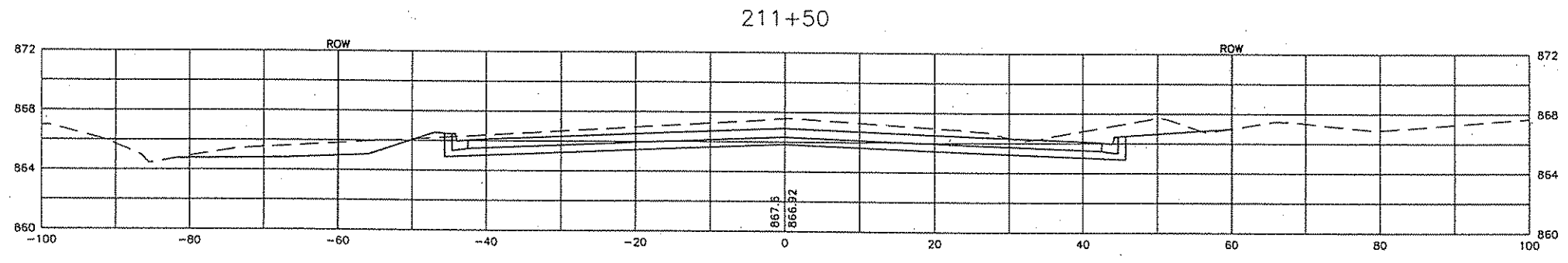
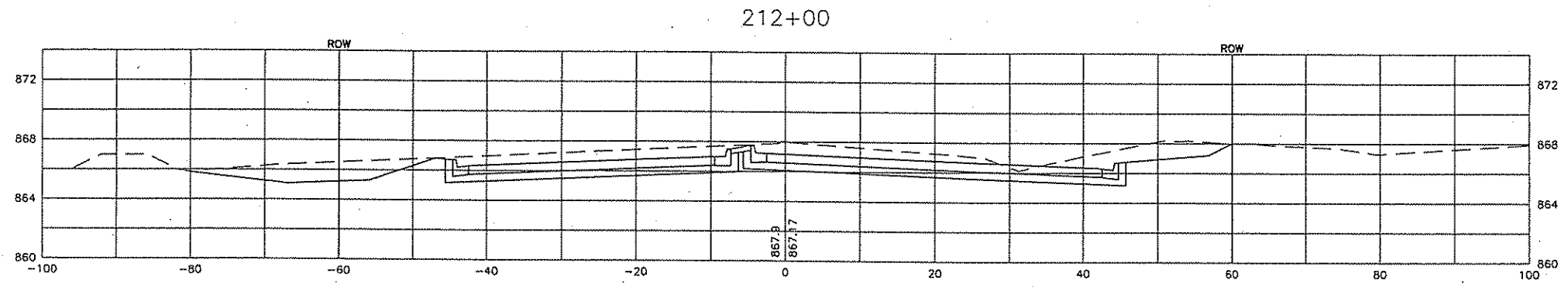
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FIELD WIRING DIAGRAM  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 RAMSEY BOULEVARD AND SUNWOOD DRIVE  
 CITY OF RAMSEY, MINNESOTA

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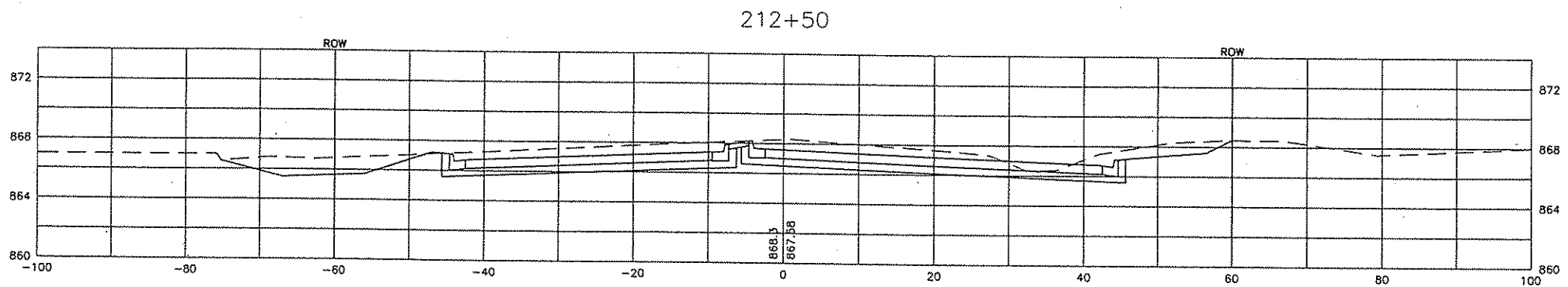
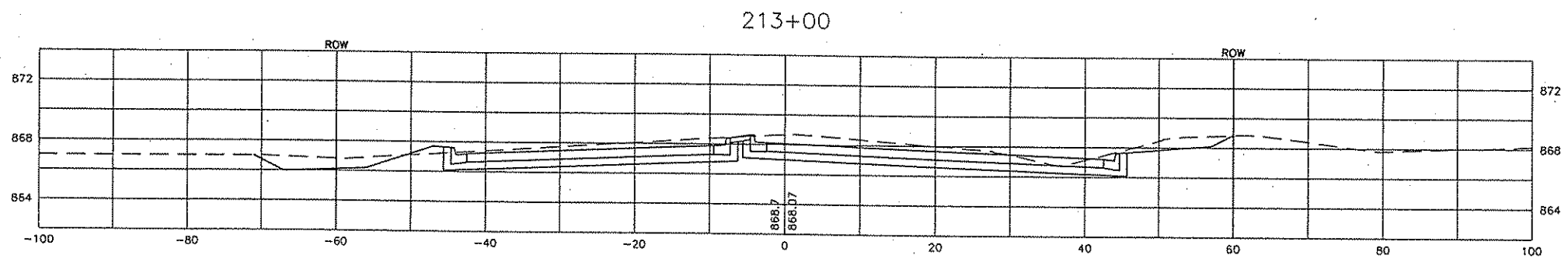
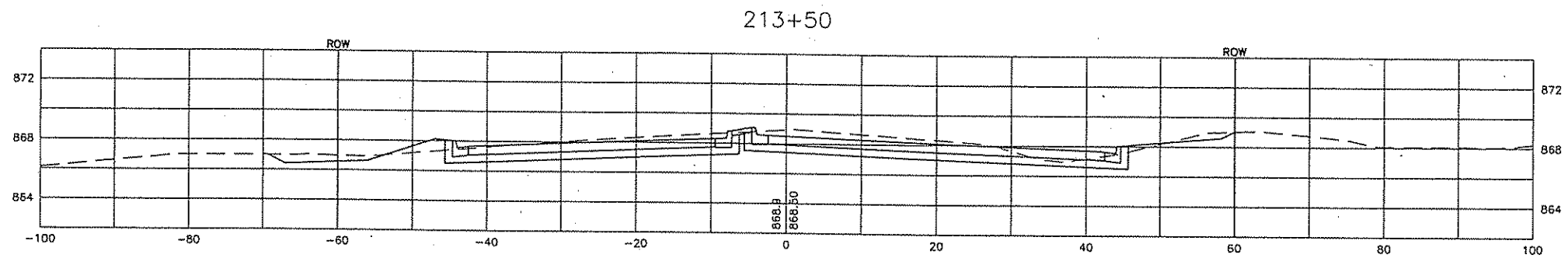
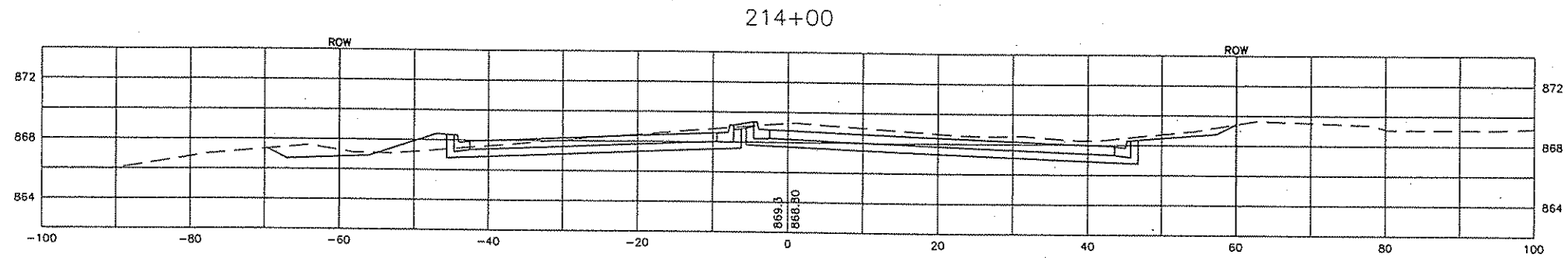
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 CITY OF RAMSEY, MINNESOTA

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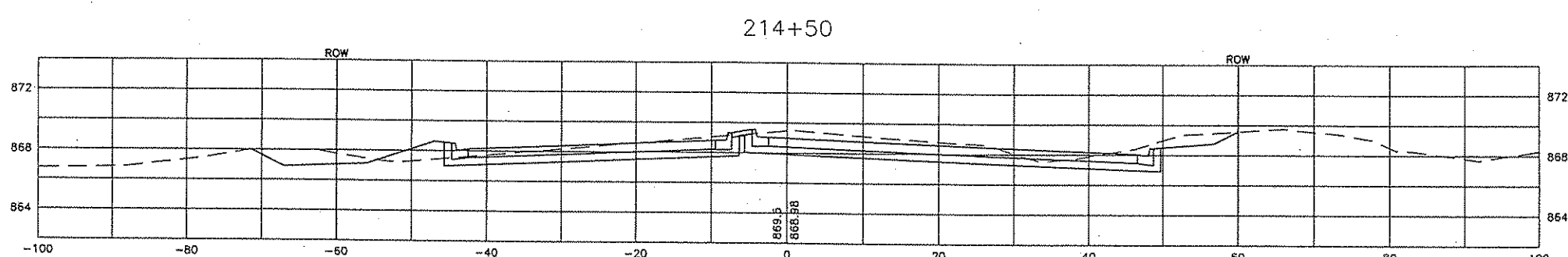
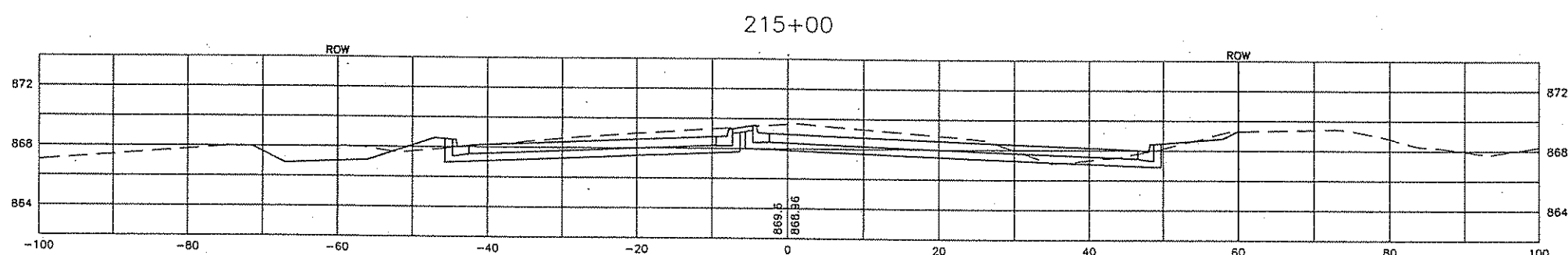
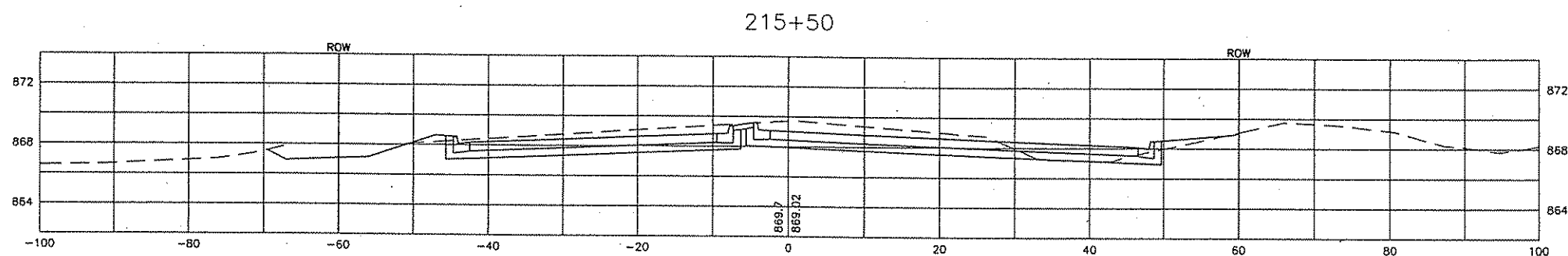
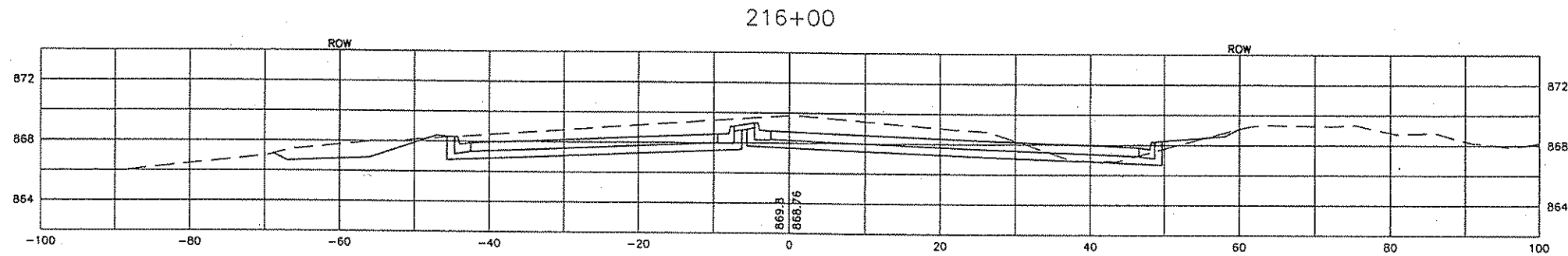


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 CITY OF RAMSEY, MINNESOTA

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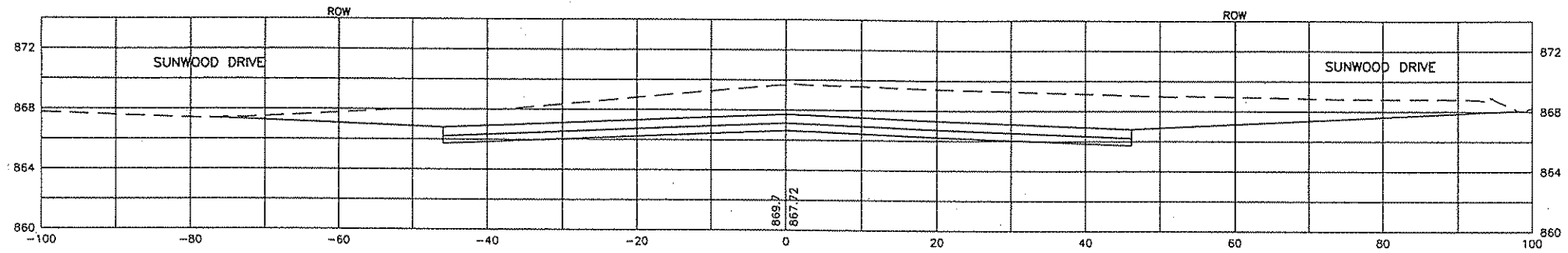
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 RAMSEY BOULEVARD  
 CITY OF RAMSEY, MINNESOTA

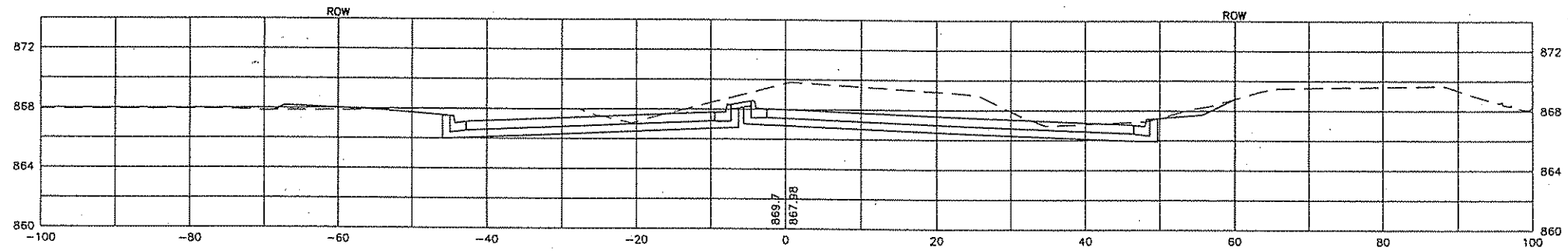
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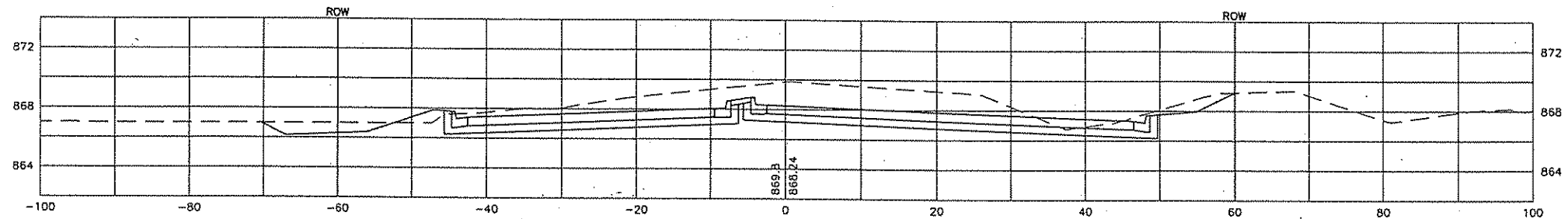
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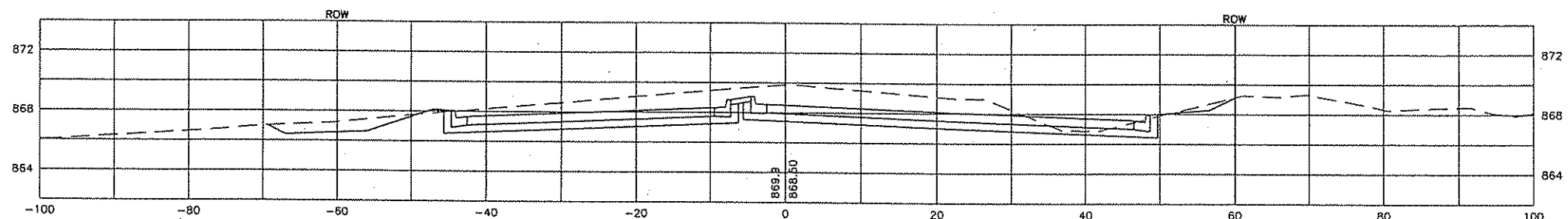
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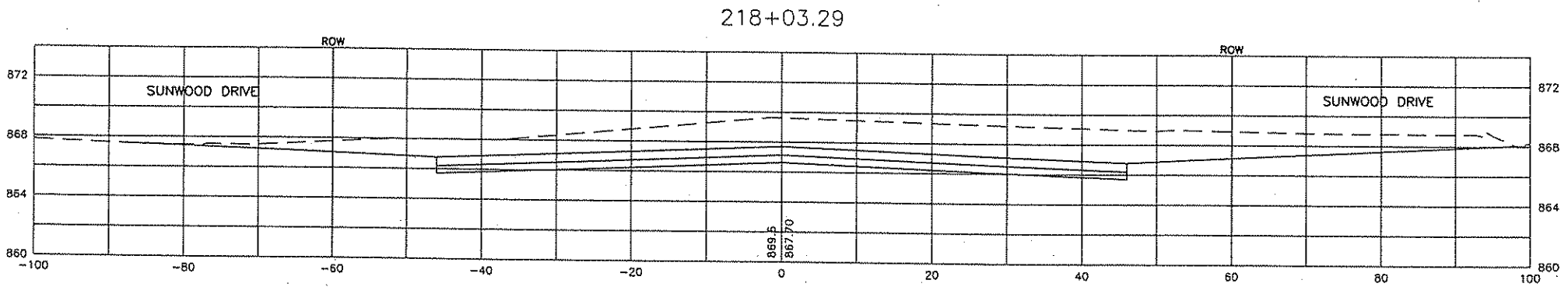
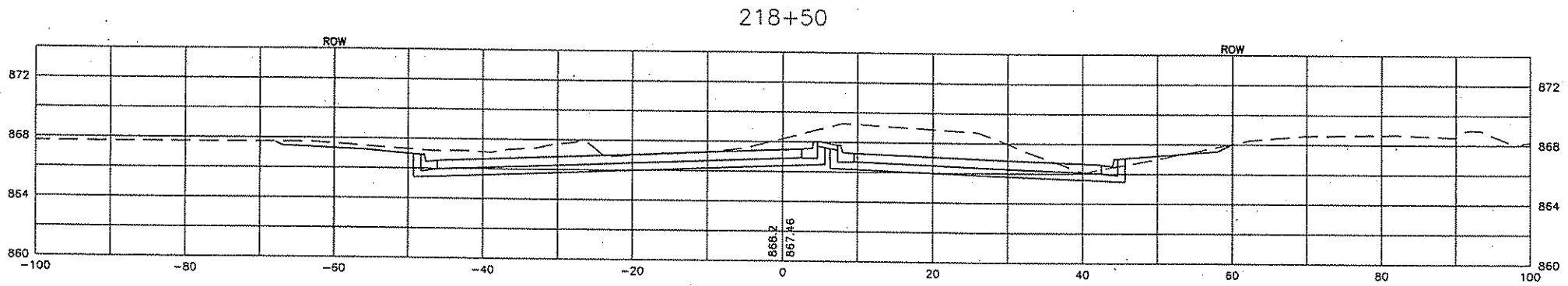
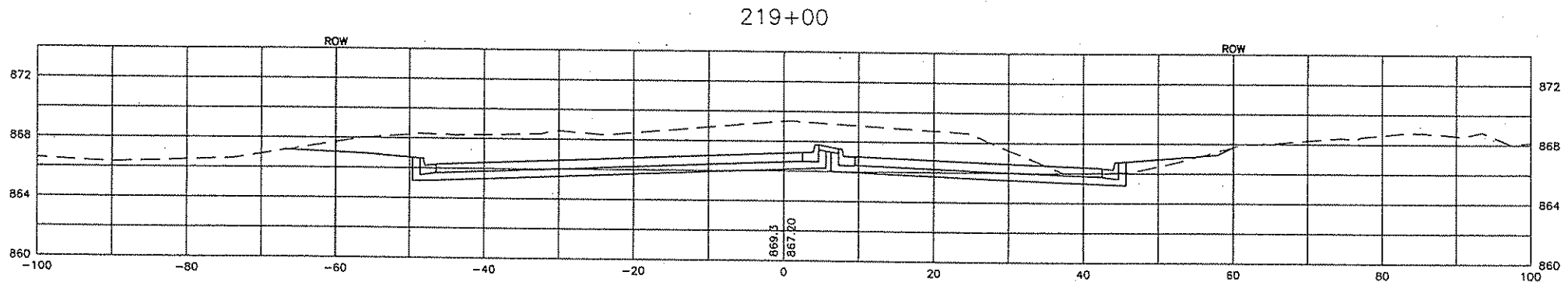
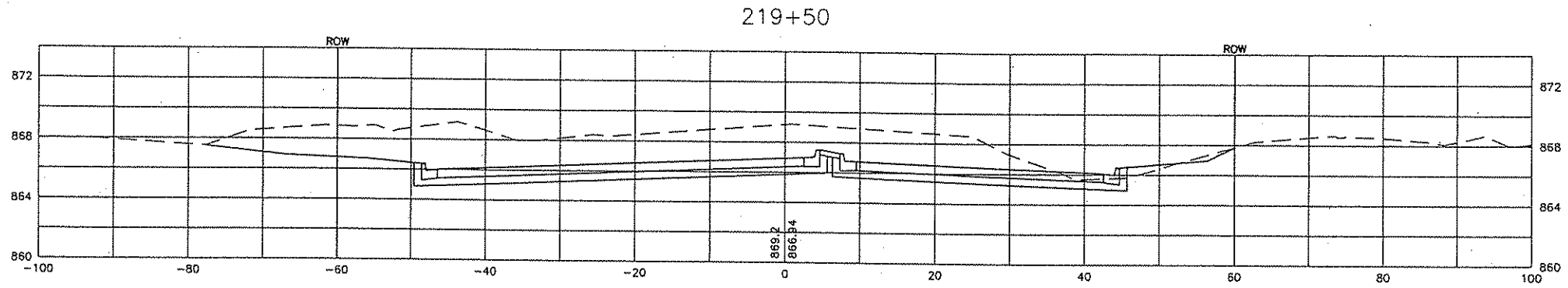


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 CITY OF RAMSEY, MINNESOTA

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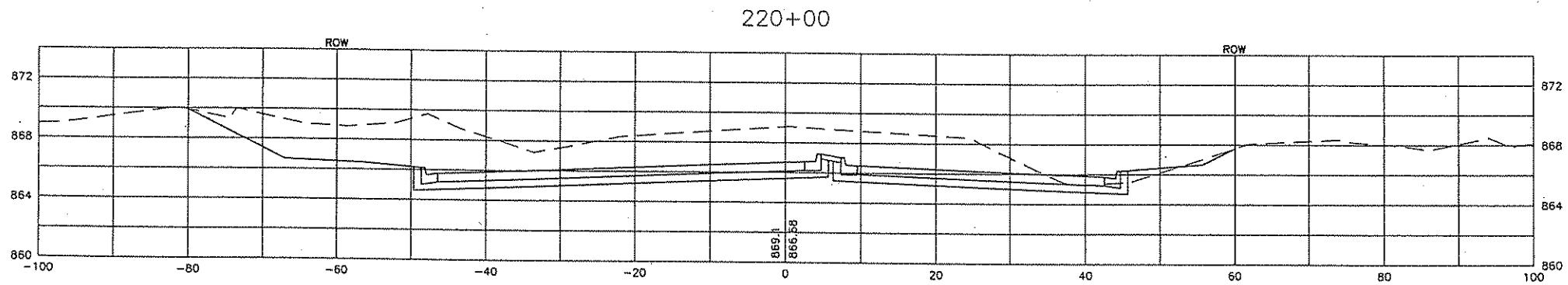
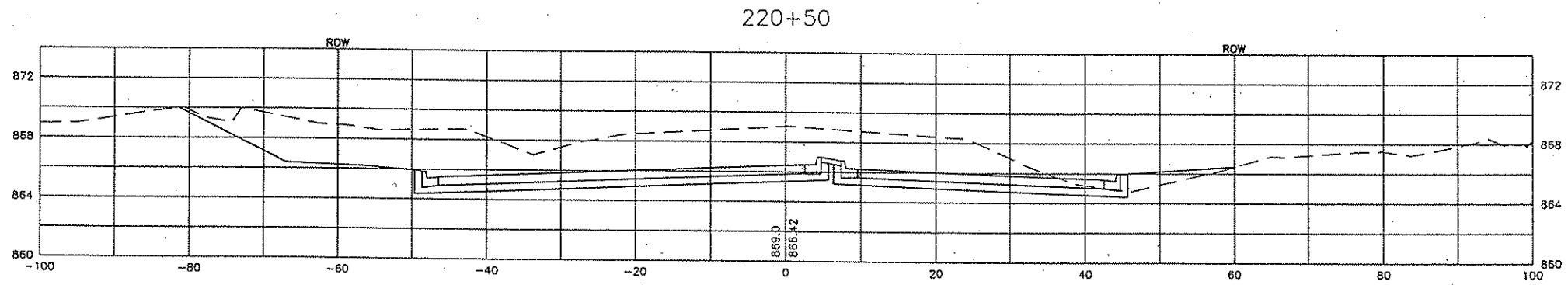
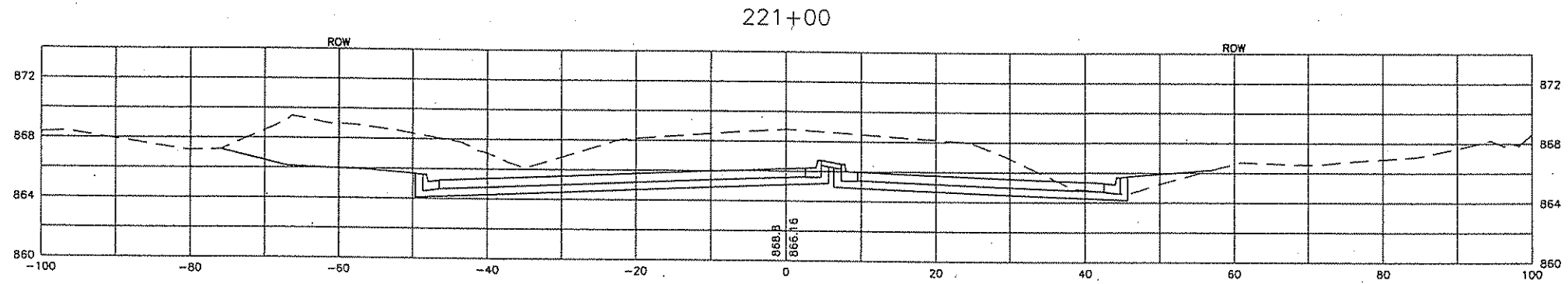
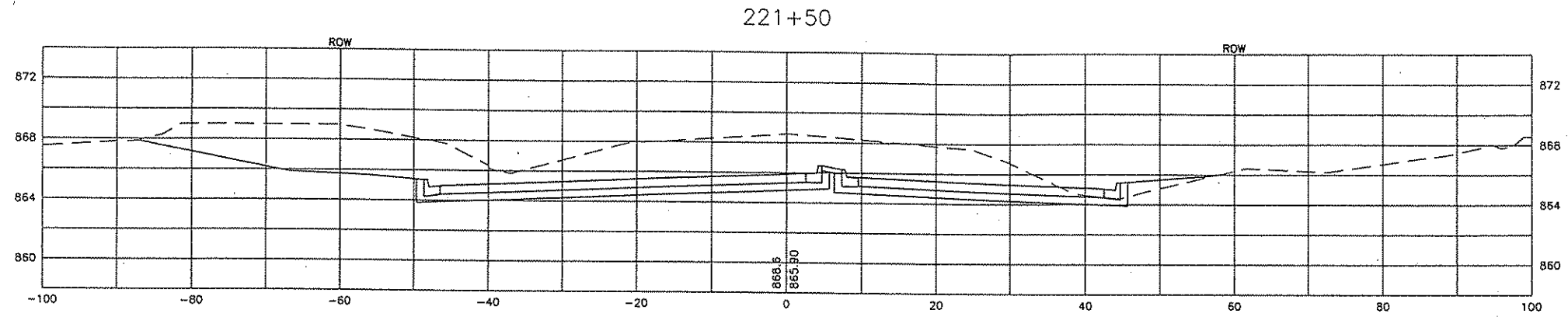


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 CITY OF RAMSEY, MINNESOTA

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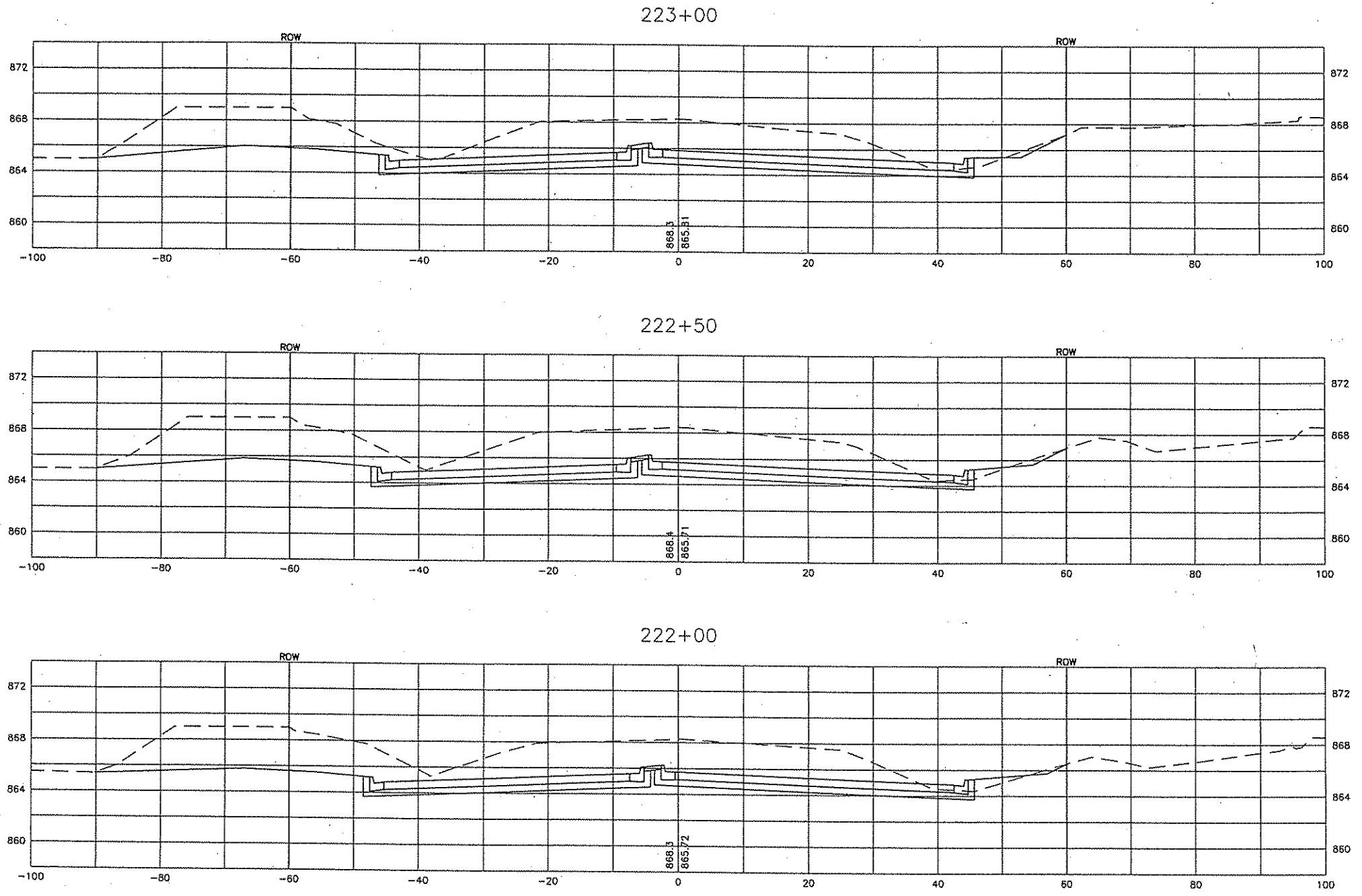


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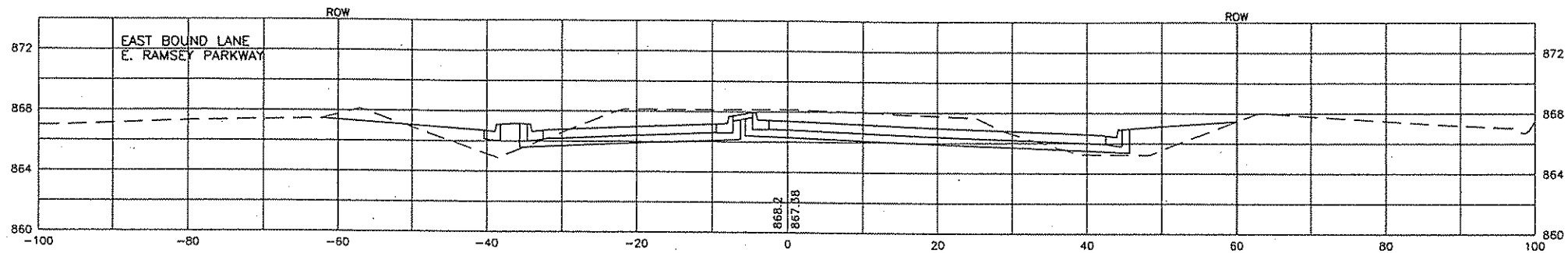
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 763-427-5860 FAX 763-427-0520  
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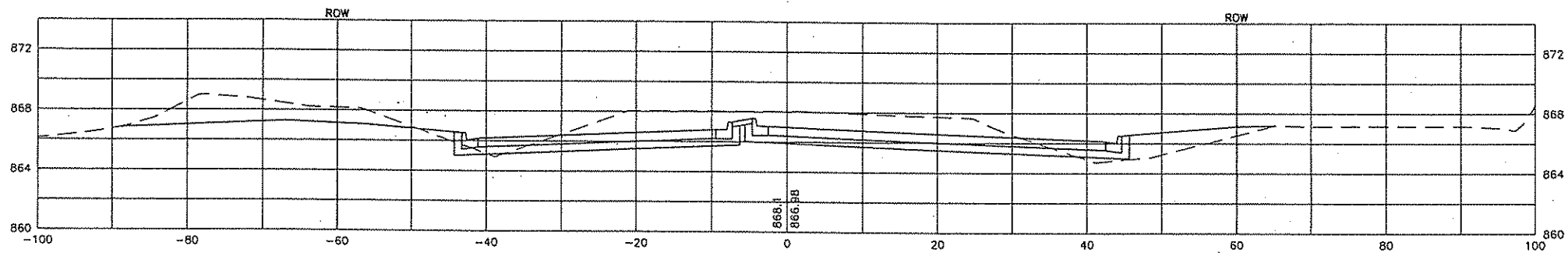
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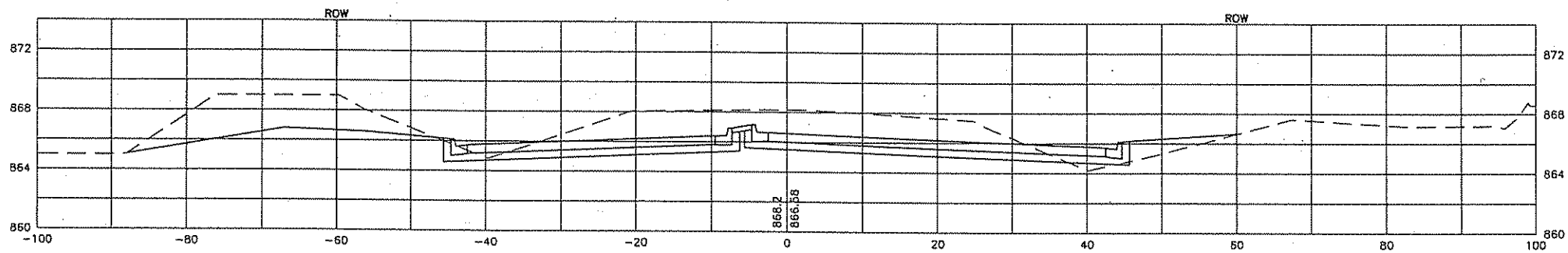
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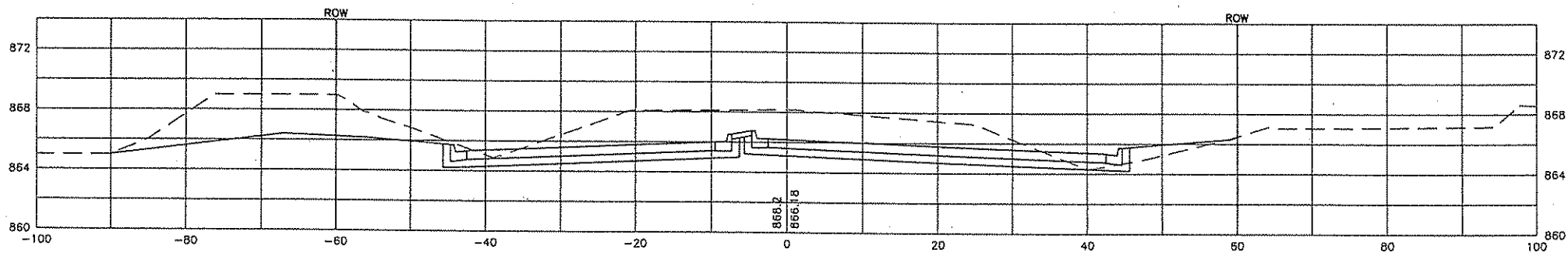
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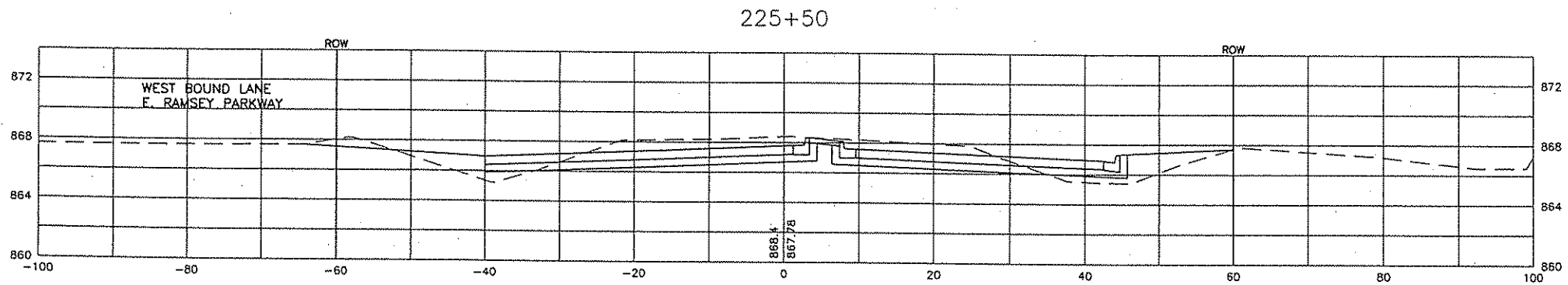
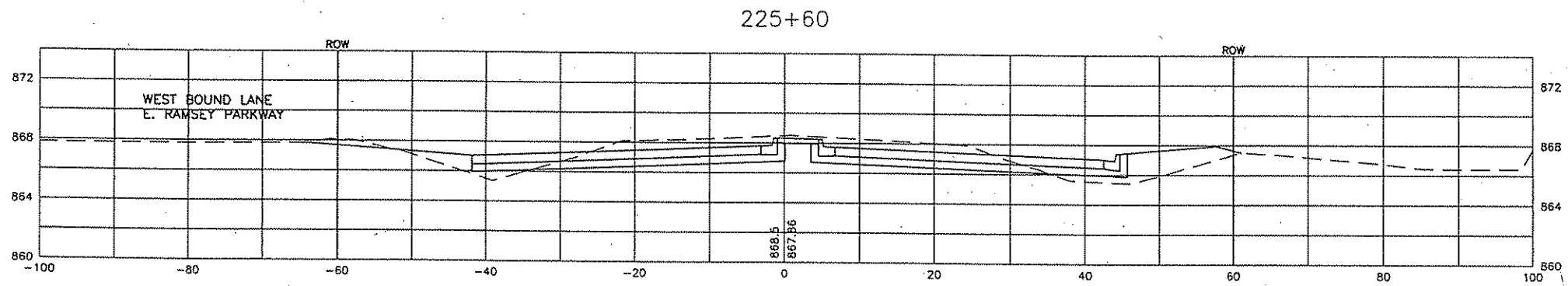
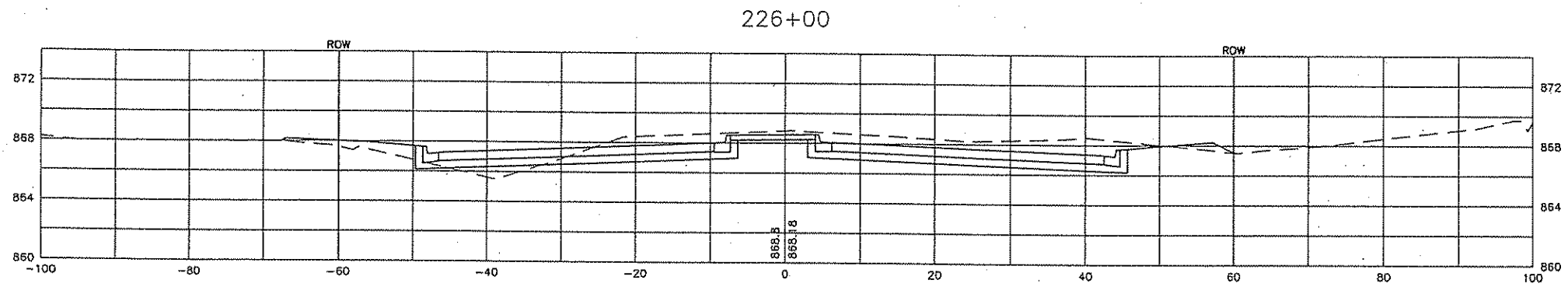
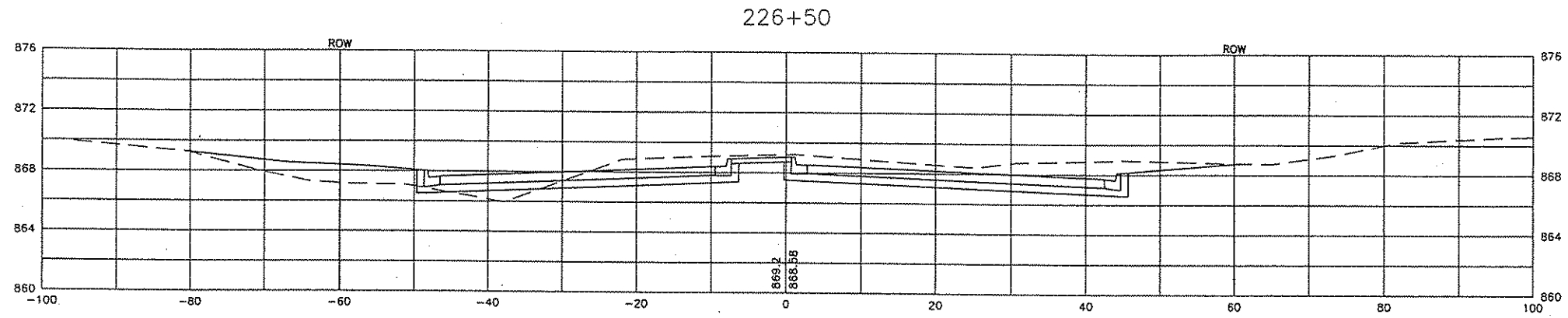
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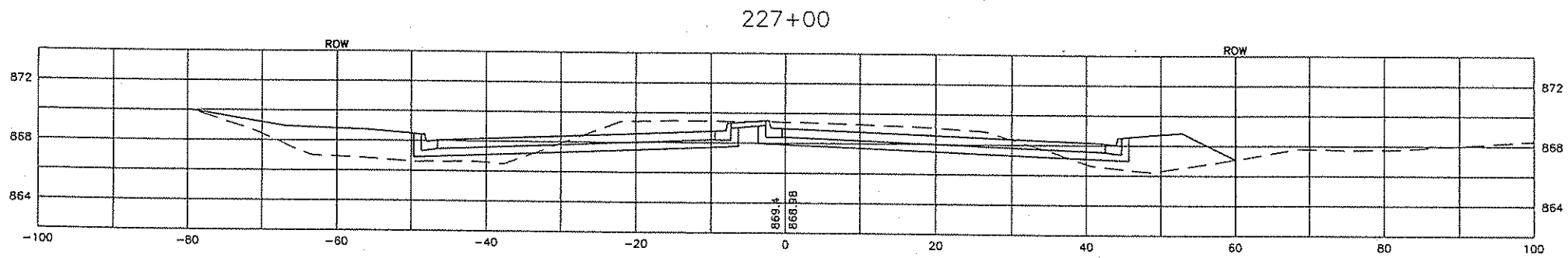
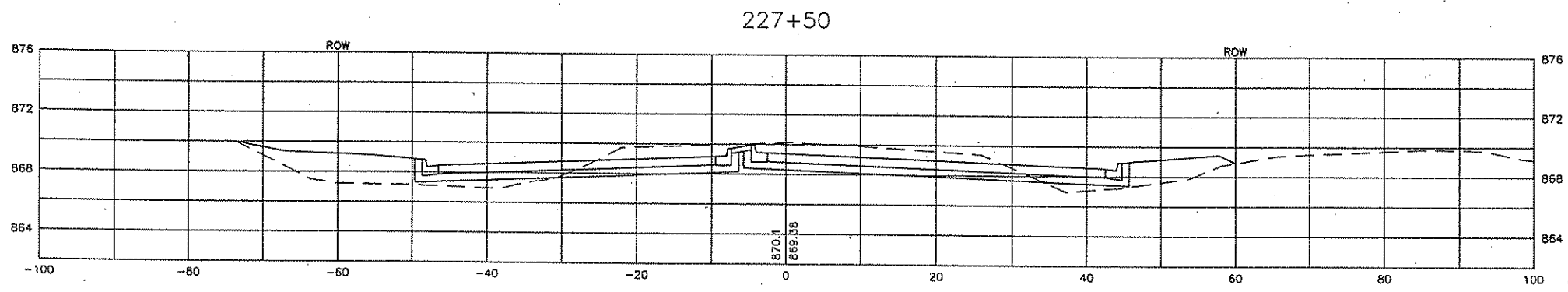
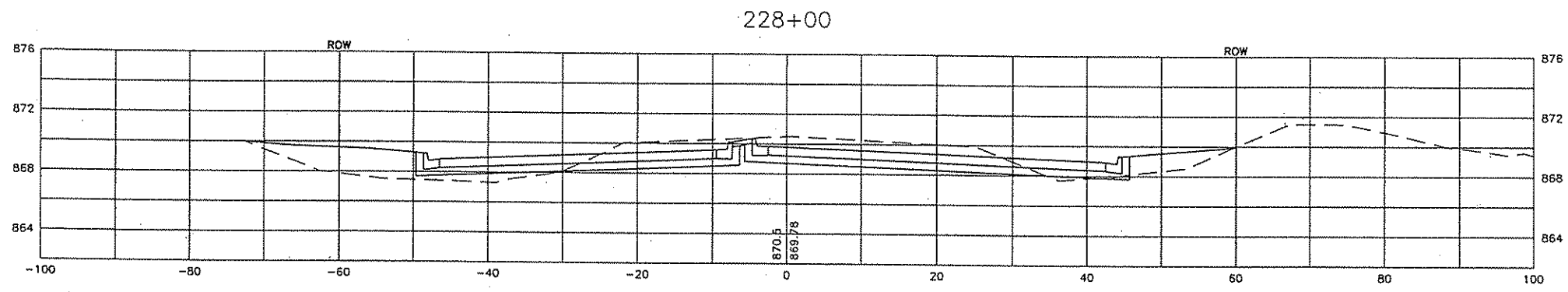
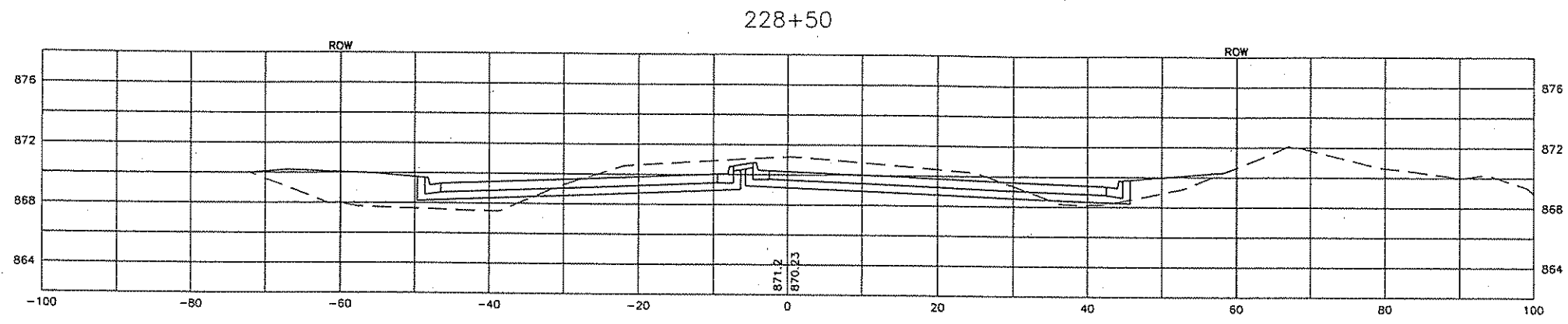


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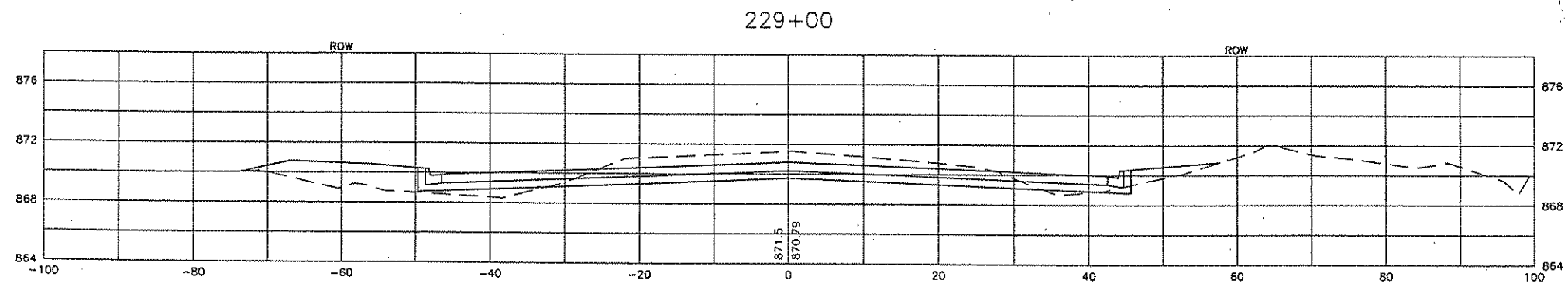
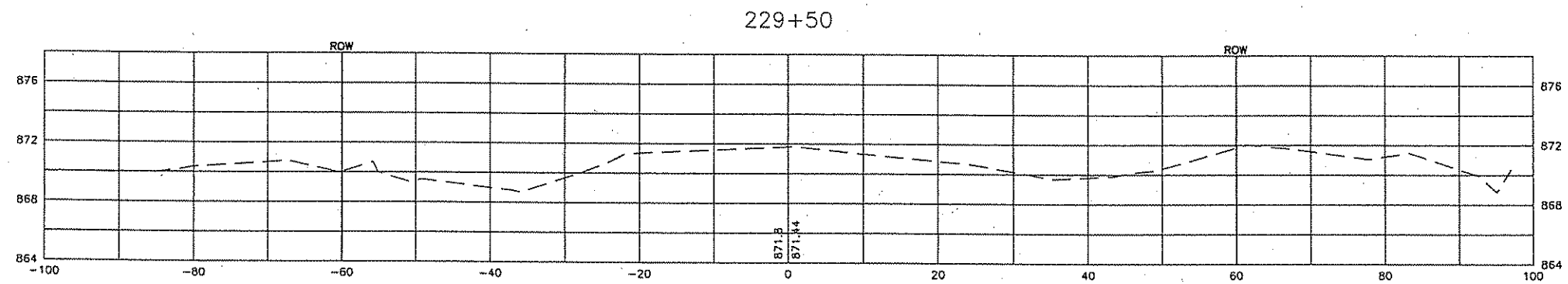
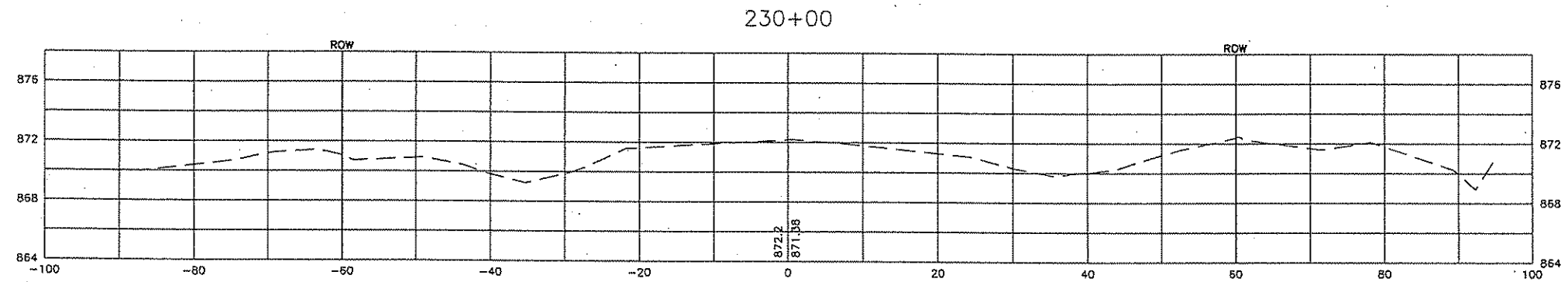


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