

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## CITY OF RAMSEY

CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, BITUMINOUS PAVING, STORM SEWER, CONCRETE CURB & GUTTER, BITUMINOUS PATH, SIGNING & STRIPING, TRAFFIC CONTROL SIGNALS, AND APPURTENANT WORK

LOCATED ON CSAH 83 FROM A POINT 700 FEET NORTH OF TH 10 TO ALPINE DRIVE NW

LOCATED ON CSAH 116 FROM CSAH 83 TO A POINT 950 FEET EAST OF CSAH 83

LOCATED ON MSAS 121 FROM PUMA STREET TO CSAH 83

LOCATED ON PUMA STREET FROM MSAS 121 TO ALPINE DRIVE NW

S.A.P. 199-121-001 (MSAS 121) BUNKER LAKE BLVD.

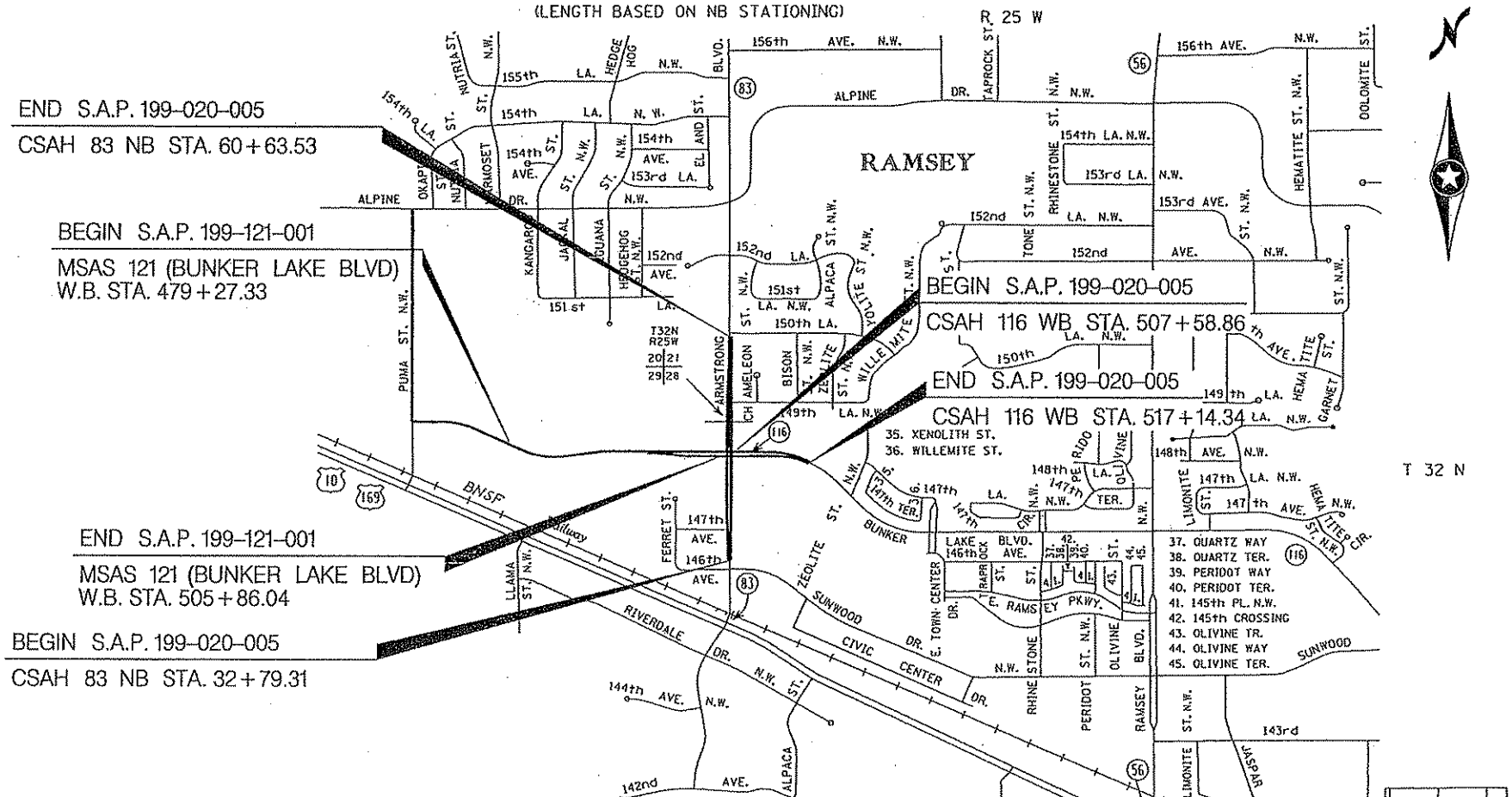
GROSS LENGTH 2658.71 FEET 0.504 MILES  
BRIDGES-LENGTH 0 FEET 0 MILES  
EXCEPTIONS-LENGTH 0 FEET 0 MILES  
NET LENGTH 2658.71 FEET 0.504 MILES

S.A.P. 199-020-005 (CSAH 83) ARMSTRONG BLVD.

GROSS LENGTH 2784.22 FEET 0.527 MILES  
BRIDGES-LENGTH 0 FEET 0 MILES  
EXCEPTIONS-LENGTH 0 FEET 0 MILES  
NET LENGTH 2784.22 FEET 0.527 MILES  
(LENGTH BASED ON NB STATIONING)

S.A.P. 199-020-005 (CSAH 116) BUNKER LAKE BLVD.

GROSS LENGTH 955.48 FEET 0.181 MILES  
BRIDGES-LENGTH 0 FEET 0 MILES  
EXCEPTIONS-LENGTH 0 FEET 0 MILES  
NET LENGTH 955.48 FEET 0.181 MILES



END S.A.P. 199-020-005

CSAH 83 NB STA. 60+63.53

BEGIN S.A.P. 199-121-001

MSAS 121 (BUNKER LAKE BLVD)  
W.B. STA. 479+27.33

END S.A.P. 199-121-001

MSAS 121 (BUNKER LAKE BLVD)  
W.B. STA. 505+86.04

BEGIN S.A.P. 199-020-005

CSAH 83 NB STA. 32+79.31

S.A.P. 199-020-005

CSAH 83 (ARMSTRONG BLVD.)

DESIGN DESIGNATION

|  |           |
|--|-----------|
| R VALUE                                      | 50        |
| ADT (CURRENT YEAR) 2011 =                    | 8000      |
| ADT (FUTURE YEAR) 2031 =                     | 23500     |
| D (DIRECTIONAL DISTR.) =                     | 50/50     |
| HADT (FUTURE YEAR) 2031 =                    | 3.9%      |
| ESALS  | 1,395,000 |
| DESIGN SPEED                                 | 55 MPH    |
| BASED ON STOPPING SIGHT DISTANCE             |           |
| HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 2.0'     |           |
| DESIGN SPEED NOT ACHIEVED AT:                | N/A       |
| FUNCTIONAL CLASSIFICATION "A" MINOR ARTERIAL |           |
| NO. OF TRAFFIC LANES                         | 4         |
| NO. OF PARKING LANES                         | 0         |
| SHOULDER WIDTH                               | 8'        |
| TON DESIGN                                   | 10        |

S.A.P. 199-020-005

CSAH 116 (BUNKER LAKE BLVD.)

DESIGN DESIGNATION

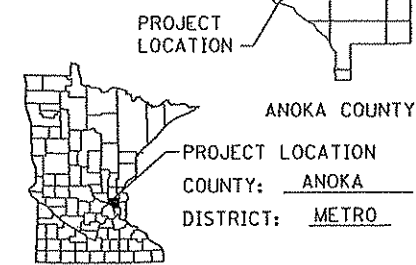
|  |           |
|--|-----------|
| R VALUE                                      | 50        |
| ADT (CURRENT YEAR) 2011 =                    | 3900      |
| ADT (FUTURE YEAR) 2031 =                     | 21900     |
| D (DIRECTIONAL DISTR.) =                     | 50/50     |
| HADT (FUTURE YEAR) 2031 =                    | 3.9%      |
| ESALS  | 1,133,000 |
| DESIGN SPEED                                 | 55 MPH    |
| BASED ON STOPPING SIGHT DISTANCE             |           |
| HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 2.0'     |           |
| DESIGN SPEED NOT ACHIEVED AT:                | N/A       |
| FUNCTIONAL CLASSIFICATION "A" MINOR ARTERIAL |           |
| NO. OF TRAFFIC LANES                         | 4         |
| NO. OF PARKING LANES                         | 0         |
| SHOULDER WIDTH                               | 8'        |
| TON DESIGN                                   | 10        |

S.A.P. 199-121-001

MSAS 121 (BUNKER LAKE BLVD.)

DESIGN DESIGNATION

|  |         |
|--|---------|
| R VALUE                                  | 50      |
| ADT (CURRENT YEAR) 2011 =                | 2300    |
| ADT (FUTURE YEAR) 2031 =                 | 8800    |
| D (DIRECTIONAL DISTR.) =                 | 50/50   |
| HADT (FUTURE YEAR) 2031 =                | 3.9%    |
| ESALS                                    | 489,000 |
| DESIGN SPEED                             | 40 MPH  |
| BASED ON STOPPING SIGHT DISTANCE         |         |
| HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 2.0' |         |
| DESIGN SPEED NOT ACHIEVED AT:            | N/A     |
| FUNCTIONAL CLASSIFICATION LOCAL STREET   |         |
| NO. OF TRAFFIC LANES                     | 2       |
| NO. OF PARKING LANES                     | 0       |
| SHOULDER WIDTH                           | 4'      |
| TON DESIGN                               | 10      |



| PLAN REVISIONS |           |             |
|----------------|-----------|-------------|
| DATE           | SHEET NO. | APPROVED BY |
|                |           |             |
|                |           |             |
|                |           |             |
|                |           |             |

S.A.P. 199-020-005, S.A.P. 199-121-001, C.P. 11-21 Sheet No. 1 of 249 Sheets

### GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION," SHALL GOVERN.  
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MAN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

UTILITY NOTE:  
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C12ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

### INDEX

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THIS PLAN CONTAINS 249 SHEETS

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITHIN THE CONSTRUCTION OF THIS PROJECT.

**WSB & Associates, Inc.**  
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Minneapolis, MN 55416  
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763-541-4800 Fax 763-541-1700  
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

SIGNATURE: *JuPe Hale* TYPED OR PRINTED NAME: JUPE HALE, PE  
DESIGN ENGINEER I HEREBY CERTIFY THAT THIS PLAN 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.  
DATE: 04/28/2011 LICENSE NUMBER 42064

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

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

DISTRICT STATE AID ENGINEER; REVIEW FOR COMPLIANCE WITH STATE AID RULES/POLICY

APPROVED FOR STATE AID FUNDING; STATE AID ENGINEER

DATE: 4/28/2011 9:56:19 AM  
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### PLAN SYMBOLS

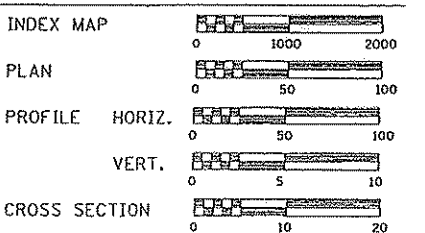
- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- TEMPORARY EASEMENT
- PRESENT RIGHT-OF-WAY
- CONTROL OF ACCESS LINE
- PROPERTY LINES (EXCEPT LAND LINES)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY
- RIVER OR CREEK
- DRY RUN
- DRAINAGE DITCH
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- SPRINGS
- MARSH
- TIMBER
- ORCHARD
- BRUSH
- NURSERY

- CATTLE GUARD
- OVERPASS (HIGHWAY OVER)
- UNDERPASS (HIGHWAY UNDER)
- BRIDGE
- BUILDING (ONE STORY FRAME)
- F - FRAME C - CONCRETE
- S - STONE T - TILE
- B - BRICK ST - STUCCO
- IRON ROD OR PIPE
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

### UTILITY SYMBOLS





- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- ANCHOR
- STREET LIGHT
- STREET LIGHT CONDUIT
- PEDESTAL (TELEPHONE CABLE TERMINAL)
- GAS MAIN
- WATER MAIN
- HYDRANT
- VALVE
- CATCH BASIN
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEVISION CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- BURIED TELEVISION CABLE
- TRAFFIC SIGNAL INTERCONNECT CABLE
- SEWER (STORM) MANHOLE
- SEWER (SANITARY) MANHOLE
- SEWER (STORM)
- SEWER (SANITARY)

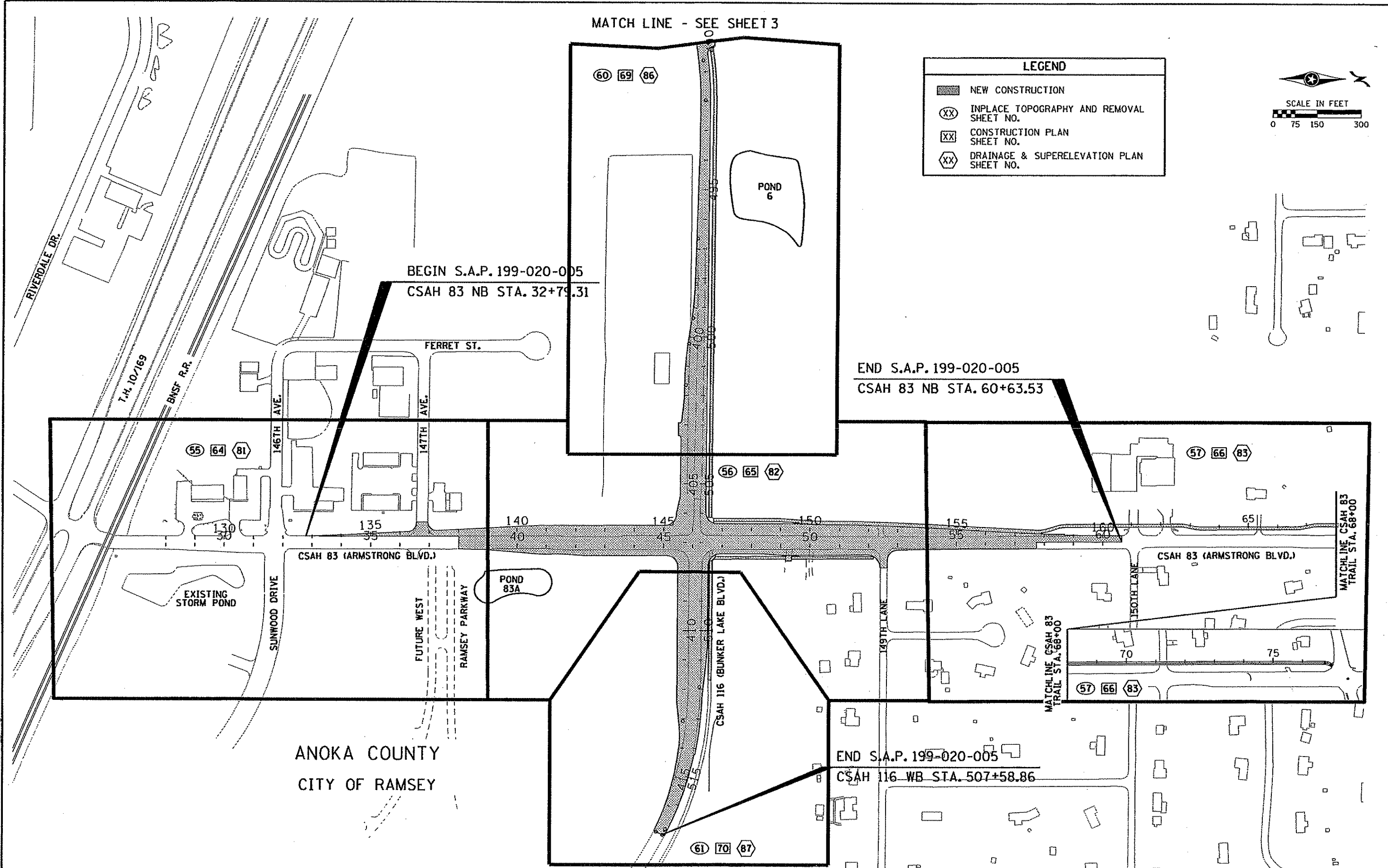
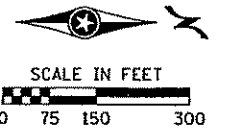
### SCALES



MATCH LINE - SEE SHEET 3

**LEGEND**

-  NEW CONSTRUCTION
-  INPLACE TOPOGRAPHY AND REMOVAL SHEET NO.
-  CONSTRUCTION PLAN SHEET NO.
-  DRAINAGE & SUPERELEVATION PLAN SHEET NO.



ANOKA COUNTY  
CITY OF RAMSEY

END S.A.P. 199-020-005  
CSAH 116 WB STA. 507+58.86

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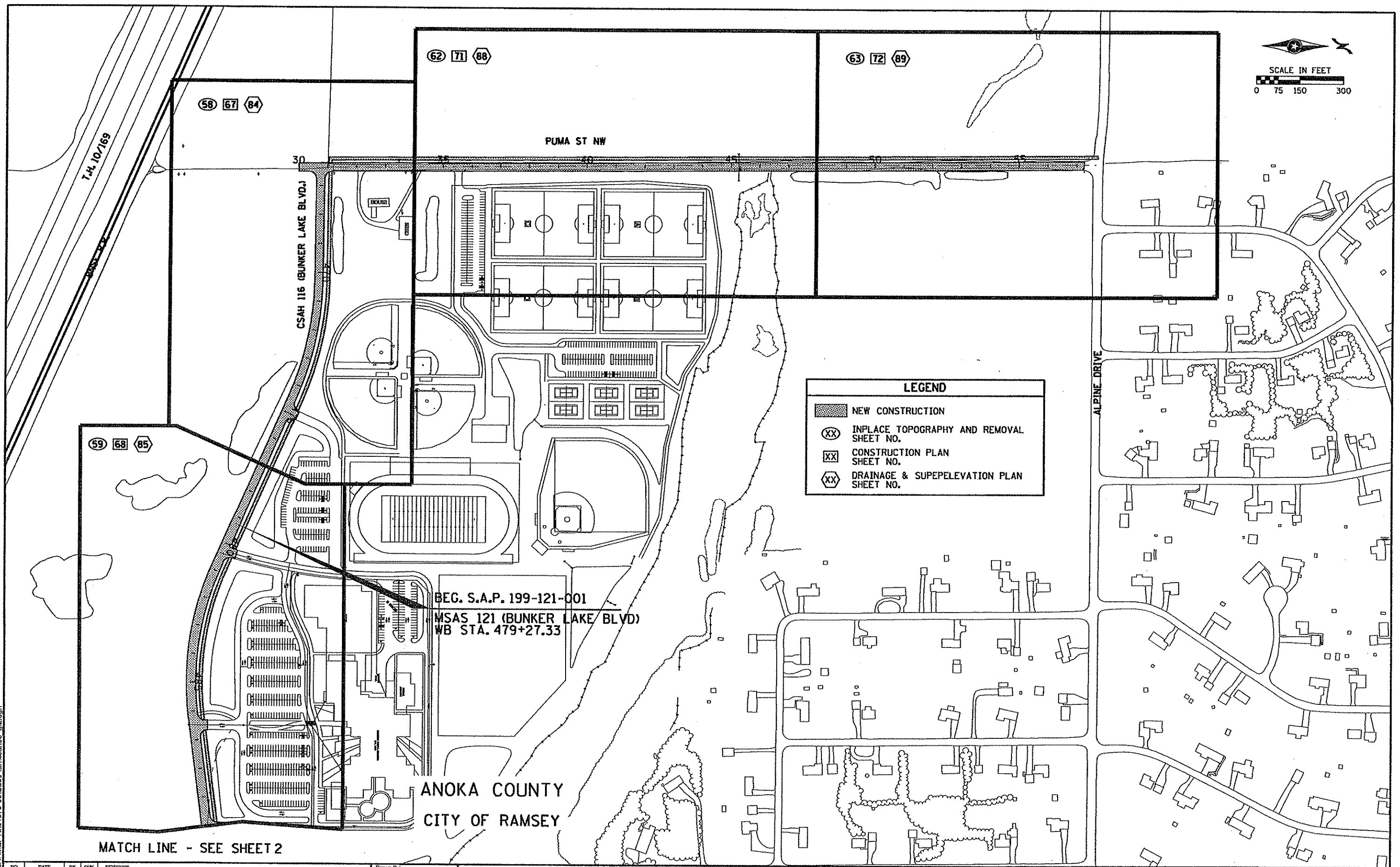
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A FLOWMAN  
Approved By: J HALE  
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Licensed Professional Engineer, Jipa Halo P.E.  
DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

GENERAL LAYOUT  
SHEET 1 OF 2 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
2  
OF  
249  
SHEETS



**LEGEND**

- NEW CONSTRUCTION
- INPLACE TOPOGRAPHY AND REMOVAL SHEET NO.
- CONSTRUCTION PLAN SHEET NO.
- DRAINAGE & SUPEPELEVATION PLAN SHEET NO.

BEG. S.A.P. 199-121-001  
 MSAS 121 (BUNKER LAKE BLVD)  
 WB STA. 479+27.33

ANOKA COUNTY  
 CITY OF RAMSEY

MATCH LINE - SEE SHEET 2

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|    |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, Japs Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

701 Xenia Avenue South, Suite 300  
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GENERAL LAYOUT  
 SHEET 2 OF 2 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 3  
 OF  
 249  
 SHEETS

ESTIMATED QUANTITIES

| TABLE | SHEET     | ITEM NUMBER | DESCRIPTION                            | NOTES | UNITS    | TOTAL  | ROADWAY CSAH 83/116<br>(Armstrong Boulevard/<br>Bunker Lake Boulevard) | ROADWAY MSAS 121<br>(Bunker Lake Blvd.<br>West Leg) | ROADWAY<br>Puma Street<br>Bunker Lake<br>Blvd. Connector | STORM SEWER<br>(CSAH 83/CSAH 116)        | STORM SEWER<br>(MSAS 121) | SANITARY SEWER<br>WATER MAIN |
|-------|-----------|-------------|--|-------|----------|--------|--|---|--|--|---------------------------|------------------------------|
|       |           |             |  |       |          |        | S.A.P. 199-020-005<br>100% PARTICIPATING                               | S.A.P. 199-121-001<br>NON-PARTICIPATING             | NON-PARTICIPATING  | S.A.P. 199-020-005<br>100% PARTICIPATING | NON-PARTICIPATING         | NON-PARTICIPATING            |
|       |           |             |  |       |          |        | ESTIMATED  | ESTIMATED   | ESTIMATED  | ESTIMATED                                | ESTIMATED                 | ESTIMATED                    |
|       |           | 2021.501    | MOBILIZATION                           |       | LUMP SUM | 1      | 0.45   | 0.15  | 0.08   | 0.10                                     | 0.04                      | 0.18                         |
|       |           | 2031.501    | FIELD OFFICE TYPE D                    |       | EACH     | 1      | 0.45   | 0.15  | 0.08   | 0.10                                     | 0.04                      | 0.18                         |
| D     | 12        | 2101.501    | CLEARING                               |       | ACRE     | 0.40   |  | 0.1   | 0.30   |  |                           |                              |
| D     | 12        | 2101.502    | CLEARING                               |       | TREE     | 127    | 51   | 76  |  |  |                           |                              |
| D     | 12        | 2101.506    | GRUBBING                               |       | ACRE     | 0.40   |  | 0.1   | 0.30   |  |                           |                              |
| D     | 12        | 2101.507    | GRUBBING                               |       | TREE     | 127    | 51   | 76  |  |  |                           |                              |
| D     | 12        | 2104.501    | REMOVE METAL CULVERT                   | 2     | LIN FT   | 532    | 305  | 132   | 95   |  |                           |                              |
| D     | 12        | 2104.501    | REMOVE SEWER PIPE (STORM)              |       | LIN FT   | 148    | 148  |   |  |  |                           |                              |
| J     | 18        | 2104.501    | REMOVE SEWER PIPE (SANITARY)           |       | LIN FT   | 6      |  |   |  |  |                           | 6                            |
| J     | 18        | 2104.501    | REMOVE STEEL CASING                    |       | LIN FT   | 10     |  |   |  |  |                           | 10                           |
| D     | 12        | 2104.505    | REMOVE BITUMINOUS PAVEMENT             |       | SQ YD    | 16300  | 16300  |   |  |  |                           |                              |
| D     | 12        | 2104.509    | REMOVE CONCRETE APRON                  |       | EACH     | 3      | 3  |   |  |  |                           |                              |
| D     | 12        | 2104.509    | REMOVE DRAINAGE STRUCTURE              |       | EACH     | 1      | 1  |   |  |  |                           |                              |
|       | 68 - 76   | 2104.509    | REMOVE SIGN TYPE C                     |       | EACH     | 34     | 33   | 1   |  |  |                           |                              |
| P     | 131       | 2104.509    | REMOVE SIGN TYPE SPECIAL               |       | EACH     | 1      | 1  |   |  |  |                           |                              |
| D     | 12        | 2104.513    | SAWING BIT PAVEMENT (FULL DEPTH)       |       | LIN FT   | 970    | 970  |   |  |  |                           |                              |
| D     | 12        | 2104.521    | SALVAGE FENCE                          | 6     | LIN FT   | 400    | 400  |   |  |  |                           |                              |
| D     | 12        | 2104.521    | SALVAGE METAL CULVERTS                 |       | LIN FT   | 72     | 72   |   |  |  |                           |                              |
| I     | 17        | 2104.523    | SALVAGE GATE VALVE                     |       | EACH     | 1      |  |   |  |  |                           | 1                            |
| I     | 17        | 2104.523    | SALVAGE HYDRANT                        |       | EACH     | 1      |  |   |  |  |                           | 1                            |
| D     | 12        | 2104.523    | SALVAGE METAL APRON                    |       | EACH     | 2      | 2  |   |  |  |                           |                              |
| Q     | 131       | 2104.523    | SALVAGE SIGN TYPE SPECIAL              |       | EACH     | 2      | 2  |   |  |  |                           |                              |
|       |           | 2105.601    | DEWATERING                             |       | LUMP SUM | 1      | 1  |   |  |  |                           |                              |
| F, G  | 14 - 15   | 2106.607    | EXCAVATION - COMMON                    | 3     | CU YD    | 34,767 | 20209  | 8006  | 6552   |  |                           |                              |
| F, G  | 14 - 15   | 2106.607    | COMMON EMBANKMENT (CV)                 | 3     | CU YD    | 36,135 | 29634  | 6339  | 162  |  |                           |                              |
|       |           | 2112.604    | SUBGRADE PREPARATION                   |       | SQ YD    | 44,810 | 27951  | 11639   | 5220   |  |                           |                              |
|       |           | 2123.610    | STREET SWEEPER (WITH PICKUP BROOM)     | 4     | HR       | 40     | 40   |   |  |  |                           |                              |
|       |           | 2130.501    | WATER                                  | 4     | MGAL     | 100    |  | 100   |  |  |                           |                              |
| B, L  | 10 , 43   | 2211.503    | AGGREGATE BASE (CV) CLASS 5 MODIFIED   |       | CU YD    | 13,806 | 8109   | 3477  | 2220   |  |                           |                              |
| B     | 10        | 2221.503    | AGGREGATE SHOULDERING (CV) CLASS 5 MOD |       | CU YD    | 760    | 179  | 136   | 445  |  |                           |                              |
| B     | 10        | 2360.501    | TYPE SP 12.5 WEARING COURSE MIX (4,C)  |       | TON      | 8,459  | 5276   | 1812  | 1371   |  |                           |                              |
| B, L  | 10 , 43   | 2360.502    | TYPE SP 12.5 NON WEAR COURSE MIX (4,B) |       | TON      | 4,841  | 3599   | 1242  |  |  |                           |                              |
| N     | 111       | 2501.511    | 15" CS PIPE CULVERT                    |       | LIN FT   | 80     |  | 80  |  |  |                           |                              |
| N     | 111       | 2501.511    | 15" RC PIPE CULVERT CLASS V            |       | LIN FT   | 196    | 96   |   | 100  |  |                           |                              |
| N     | 111       | 2501.511    | 18" RC PIPE CULVERT CLASS III          |       | LIN FT   | 103    | 103  |   |  |  |                           |                              |
| N     | 111       | 2501.511    | 21" RC PIPE CULVERT CLASS III          |       | LIN FT   | 155    | 155  |   |  |  |                           |                              |
| N     | 111       | 2501.511    | 24" RC PIPE CULVERT CLASS III          |       | LIN FT   | 188    | 188  |   |  |  |                           |                              |
| N     | 111       | 2501.515    | 15" RC PIPE APRON                      |       | EACH     | 3      | 1  |   | 2  |  |                           |                              |
| M     | 107 - 110 | 2501.515    | 18" RC PIPE APRON                      |       | EACH     | 3      |  |   | 3  |  |                           |                              |
| N     | 111       | 2501.515    | 21" RC PIPE APRON                      |       | EACH     | 2      | 2  |   |  |  |                           |                              |
| M, N  | 107 - 111 | 2501.515    | 24" RC PIPE APRON                      |       | EACH     | 4      | 2  |   | 2  |  |                           |                              |
| M     | 107 - 110 | 2501.515    | 36" RC PIPE APRON                      |       | EACH     | 2      |  |   | 2  |  |                           |                              |
| N     | 111       | 2501.521    | 44" SPAN RC PIPE-ARCH CULV CL IIA      |       | LIN FT   | 231    |  | 231   |  |  |                           |                              |
| M     | 107 - 110 | 2501.525    | 28" SPAN RC PIPE-ARCH APRON            |       | EACH     | 2      |  |   |  | 2  |                           |                              |
| M     | 107 - 110 | 2501.525    | 36" SPAN RC PIPE-ARCH APRON            |       | EACH     | 1      |  |   |  | 1  |                           |                              |
| N     | 111       | 2501.525    | 44" SPAN RC PIPE-ARCH APRON            |       | EACH     | 4      |  | 4   |  |  |                           |                              |
| N     | 111       | 2501.569    | 15" CS SAFETY APRON                    |       | EACH     | 2      |  | 2   |  |  |                           |                              |

NOTES

- WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN. IT SHALL MEAN NO DIRECT COMPENSATION WILL BE MADE.
  - REMOVAL OF METAL CULVERT SHALL INCLUDE THE REMOVAL OF METAL APRONS.
  - SEE EARTHWORK TABULATION FOR NOTES.
  - SHALL BE USED AT THE DISCRETION OF THE ENGINEER.
  - GRANULAR MATERIAL BELOW THE 4" CONCRETE WALK SHALL BE CONSIDERED INCIDENTAL.
  - WOOD FENCE ALONG CSAH 83 TRAIL.
  - FOR MAILBOX ON PUMA STREET.
- (P) SIGNIFIES PLAN QUANTITY.

BASIS FOR QUANTITIES

- UNIT WEIGHT OF BITUMINOUS MIX.....113 LBS/SY/IN
- TACK COAT  
- BETWEEN NEW LAYERS.....0.05 GAL/SY
- TURF ESTABLISHMENT  
- SEED MIXTURE 240.....75 LBS/ACRE  
- SEED MIXTURE 260.....100 LBS/ACRE  
- SEED MIXTURE 310.....82 LBS/ACRE  
- SEED MIXTURE 350.....84.5 LBS/ACRE  
- MULCH MATERIAL - TYPE 1.....2 TON/ACRE  
- FERTILIZER TYPE 3.....400 LBS/ACRE  
- FERTILIZER TYPE 4.....150 LBS/ACRE

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

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

Licensed Professional Engineer, June Hale P.E.  
DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



ESTIMATED QUANTITIES  
SHEET 1 OF 4 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
4  
OF  
249  
SHEETS

ESTIMATED QUANTITIES

| TABLE | SHEET     | ITEM NUMBER | DESCRIPTION  | NOTES | UNITS  | TOTAL | ROADWAY CSAH 83/116<br>(Armstrong Boulevard/<br>Bunker Lake Boulevard) | ROADWAY MSAS 121<br>(Bunker Lake Blvd.<br>West Leg) | ROADWAY<br>Puma Street<br>Bunker Lake<br>Blvd. Connector | STORM SEWER<br>(CSAH 83/CSAH 116)        | STORM SEWER<br>(MSAS 121) | SANITARY SEWER<br>WATER MAIN |
|-------|-----------|-------------|--|-------|--------|-------|--|---|--|--|---------------------------|------------------------------|
|       |           |             |  |       |        |       | S.A.P. 199-020-005<br>100% PARTICIPATING                               | S.A.P. 199-121-001<br>NON-PARTICIPATING             | NON-PARTICIPATING  | S.A.P. 199-020-005<br>100% PARTICIPATING | NON-PARTICIPATING         | NON-PARTICIPATING            |
|       |           |             |  |       |        |       | ESTIMATED  | ESTIMATED   | ESTIMATED  | ESTIMATED                                | ESTIMATED                 | ESTIMATED                    |
| M, N  | 107 - 111 | 2501.569    | 15" RC SAFETY APRON                                |       | EACH   | 5     |  | 1   |  |  |                           |                              |
| N     | 111       | 2501.569    | 18" RC SAFETY APRON                                |       | EACH   | 2     |  | 2   |  |  |                           |                              |
|       | 94        | 2501.571    | INSTALL METAL CULVERT                              |       | LIN FT | 72    |  | 72  |  |  |                           |                              |
|       | 94        | 2501.573    | INSTALL METAL APRON                                |       | EACH   | 2     |  | 2   |  |  |                           |                              |
| M     | 107 - 110 | 2501.602    | TRASH GUARD FOR 18" PIPE APRON                     |       | EACH   | 2     |  |   |  | 2  |                           |                              |
| M     | 107 - 110 | 2501.602    | TRASH GUARD FOR 24" PIPE APRON                     |       | EACH   | 1     |  |   |  | 1  |                           |                              |
| M     | 107 - 110 | 2501.602    | TRASH GUARD FOR 36" PIPE APRON                     |       | EACH   | 2     |  |   |  | 2  |                           |                              |
| M     | 107 - 110 | 2501.602    | TRASH GUARD FOR 28" SPAN PIPE APRON                |       | EACH   | 2     |  |   |  |  | 2                         |                              |
| M     | 107 - 110 | 2501.602    | TRASH GUARD FOR 36" SPAN PIPE APRON                |       | EACH   | 1     |  |   |  |  | 1                         |                              |
| N     | 111       | 2501.602    | TRASH GUARD FOR 44" SPAN PIPE APRON                |       | EACH   | 4     |  | 4   |  |  |                           |                              |
| M     | 107 - 110 | 2503.521    | 28" SPAN RC PIPE-ARCH SEWER CL IIA                 |       | LIN FT | 325   |  |   |  |  | 325                       |                              |
| M     | 107 - 110 | 2503.521    | 36" SPAN RC PIPE-ARCH SEWER CL IIA                 |       | LIN FT | 65    |  |   |  |  | 65                        |                              |
| M     | 107 - 110 | 2503.541    | 15" RC PIPE SEWER DES 3006 CL V                    |       | LIN FT | 2,912 |  |   |  | 1495                                     | 1417                      |                              |
| M     | 107 - 110 | 2503.541    | 18" RC PIPE SEWER DES 3006 CL III                  |       | LIN FT | 1,395 |  |   |  | 999                                      | 396                       |                              |
| M     | 107 - 110 | 2503.541    | 21" RC PIPE SEWER DES 3006 CL III                  |       | LIN FT | 921   |  |   |  | 502                                      | 419                       |                              |
| M     | 107 - 110 | 2503.541    | 24" RC PIPE SEWER DES 3006 CL III                  |       | LIN FT | 996   |  |   |  | 996                                      |                           |                              |
| M     | 107 - 110 | 2503.541    | 36" RC PIPE SEWER DES 3006 CL III                  |       | LIN FT | 710   |  |   |  | 710                                      |                           |                              |
| J     | 18        | 2503.602    | CONNECT TO EXISTING SANITARY SEWER                 |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| M     | 107 - 110 | 2503.602    | CONNECT TO EXISTING STORM SEWER                    |       | EACH   | 1     |  |   |  | 1  |                           |                              |
| M     | 107 - 110 | 2503.602    | CONNECT INTO EXISTING DRAINAGE STRUCTURE           |       | EACH   | 1     |  |   |  | 1  |                           |                              |
| J     | 18        | 2503.602    | 8" PIPE PLUG                                       |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| M     | 107 - 110 | 2503.602    | 15" PIPE PLUG                                      |       | EACH   | 7     |  |   |  |  | 7                         |                              |
| J     | 18        | 2503.602    | 18" PIPE PLUG                                      |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| J     | 18        | 2503.602    | 21" PIPE PLUG                                      |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| J     | 18        | 2503.603    | 8" PVC PIPE SEWER                                  |       | LIN FT | 65    |  |   |  |  |                           | 65                           |
| J     | 18        | 2503.603    | 18" PVC PIPE SEWER                                 |       | LIN FT | 2,724 |  |   |  |  |                           | 2724                         |
| J     | 18        | 2503.603    | 21" PVC PIPE SEWER                                 |       | LIN FT | 1,312 |  |   |  |  |                           | 1312                         |
| J     | 18        | 2503.603    | 24" PVC PIPE SEWER                                 |       | LIN FT | 1,431 |  |   |  |  |                           | 1431                         |
| I     | 17        | 2504.602    | CONNECT TO EXISTING WATER MAIN                     |       | EACH   | 2     |  |   |  |  |                           | 2                            |
| I     | 17        | 2504.602    | HYDRANT  |       | EACH   | 7     |  |   |  |  |                           | 7                            |
| I     | 17        | 2504.602    | INSTALL HYDRANT                                    | 20    | EACH   | 1     |  |   |  |  |                           | 1                            |
| I     | 17        | 2504.602    | INSTALL GATE VALVE                                 |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| I     | 17        | 2504.602    | ADJUST GATE VALVE & BOX                            |       | EACH   | 5     |  |   |  |  |                           | 5                            |
| I     | 17        | 2504.602    | 16" BUTTERFLY VALVE AND BOX                        |       | EACH   | 6     |  |   |  |  |                           | 6                            |
| I     | 17        | 2504.602    | 24" BUTTERFLY VALVE                                |       | EACH   | 1     |  |   |  |  |                           | 1                            |
| I     | 17        | 2504.602    | 6" GATE VALVE AND BOX                              |       | EACH   | 7     |  |   |  |  |                           | 7                            |
| I     | 17        | 2504.602    | 8" GATE VALVE AND BOX                              |       | EACH   | 2     |  |   |  |  |                           | 2                            |
| I     | 17        | 2504.603    | 6" WATERMAIN DUCTILE IRON CL 53                    |       | LIN FT | 135   |  |   |  |  |                           | 135                          |
| I     | 17        | 2504.603    | 8" WATERMAIN DUCTILE IRON CL 52                    |       | LIN FT | 169   |  |   |  |  |                           | 169                          |
| I     | 17        | 2504.603    | 16" WATERMAIN DUCTILE IRON CL 52                   |       | LIN FT | 2,768 |  |   |  |  |                           | 2768                         |
| I     | 17        | 2504.603    | 24" WATERMAIN DUCTILE IRON CL 52                   |       | LIN FT | 140   |  |   |  |  |                           | 140                          |
| I     | 17        | 2504.604    | 6" POLYSTYRENE INSULATION                          |       | SQ YD  | 11    |  |   |  |  |                           | 11                           |
| I     | 17        | 2504.608    | DUCTILE IRON FITTINGS                              |       | POUND  | 9,825 |  |   |  |  |                           | 9825                         |
| J     | 18        | 2506.501    | CONST DRAINAGE STRUCTURE DESIGN F                  |       | LIN FT | 214.4 |  |   |  |  |                           | 214.4                        |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DESIGN SD-48              |       | LIN FT | 91.1  |  |   |  | 64.4                                     | 26.7                      |                              |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DESIGN SD-60              |       | LIN FT | 4.0   |  |   |  |  | 4                         |                              |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DESIGN SD-72              |       | LIN FT | 7.8   |  |   |  |  | 7.8                       |                              |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DES 48-4020               |       | LIN FT | 128.7 |  |   |  | 124.2                                    | 4.5                       |                              |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DES 60-4020               |       | LIN FT | 31.3  |  |   |  | 31.3                                     |                           |                              |
| M     | 107 - 110 | 2506.501    | CONST DRAINAGE STRUCTURE DES 72-4020               |       | LIN FT | 4.9   |  |   |  | 4.9                                      |                           |                              |
| M     | 107 - 110 | 2506.502    | CONST DRAINAGE STRUCTURE DESIGN SPECIAL 1          |       | EACH   | 1     |  |   |  | 1  |                           |                              |
| M     | 107 - 110 | 2506.502    | CONST DRAINAGE STRUCTURE DESIGN SPEC 2 (2'x3' BOX) |       | EACH   | 11    |  |   |  | 5  | 6                         |                              |

NOTES

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  - REMOVAL OF METAL CULVERT SHALL INCLUDE THE REMOVAL OF METAL APRONS.
  - SEE EARTHWORK TABULATION FOR NOTES.
  - SHALL BE USED AT THE DISCRETION OF THE ENGINEER.
  - GRANULAR MATERIAL BELOW THE 4" CONCRETE WALK SHALL BE CONSIDERED INCIDENTAL.
  - WOOD FENCE ALONG CSAH 83 TRAIL.
  - FOR MAILBOX ON PUMA STREET.
- (P) SIGNIFIES PLAN QUANTITY.

BASIS FOR QUANTITIES

|                                    |               |
|------------------------------------|---------------|
| UNIT WEIGHT OF BITUMINOUS MIX..... | 113 LBS/SY/IN |
| TACK COAT                          |               |
| - BETWEEN NEW LAYERS.....          | 0.05 GAL/SY   |
| TURF ESTABLISHMENT                 |               |
| - SEED MIXTURE 240.....            | 75 LBS/ACRE   |
| - SEED MIXTURE 260.....            | 100 LBS/ACRE  |
| - SEED MIXTURE 310.....            | 82 LBS/ACRE   |
| - SEED MIXTURE 350.....            | 84.5 LBS/ACRE |
| - MULCH MATERIAL - TYPE 1.....     | 2 TON/ACRE    |
| - FERTILIZER TYPE 3.....           | 400 LBS/ACRE  |
| - FERTILIZER TYPE 4.....           | 150 LBS/ACRE  |

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, Puma Male P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**ESTIMATED QUANTITIES**  
 SHEET 2 OF 4 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 5 OF 249 SHEETS

ESTIMATED QUANTITIES

| TABLE | SHEET     | ITEM NUMBER | DESCRIPTION                              | NOTES | UNITS    | TOTAL   | ROADWAY CSAH 83/116<br>(Armstrong Boulevard/<br>Bunker Lake Boulevard) | ROADWAY MSAS 121<br>(Bunker Lake Blvd.<br>West Leg) | ROADWAY<br>Puma Street<br>Bunker Lake<br>Blvd. Connector | STORM SEWER<br>(CSAH 83/CSAH 116)        | STORM SEWER<br>(MSAS 121) | SANITARY SEWER<br>WATER MAIN |
|-------|-----------|-------------|--|-------|----------|---------|--|---|--|--|---------------------------|------------------------------|
|       |           |             |  |       |          |         | S.A.P. 199-020-005<br>100% PARTICIPATING                               | S.A.P. 199-121-001<br>NON-PARTICIPATING             | NON-PARTICIPATING  | S.A.P. 199-020-005<br>100% PARTICIPATING | NON-PARTICIPATING         | NON-PARTICIPATING            |
|       |           |             |  |       |          |         | ESTIMATED  | ESTIMATED   | ESTIMATED  | ESTIMATED                                | ESTIMATED                 | ESTIMATED                    |
| M, D  | 107 - 111 | 2506.516    | CASTING ASSEMBLY                         |       | EACH     | 73      |  |   |  | 56                                       | 17                        |                              |
| J     | 18        | 2506.516    | CASTING ASSEMBLY (SANITARY)              |       | EACH     | 18      |  |   |  |  |                           | 18                           |
| M, N  | 107 - 111 | 2511.501    | RANDOM RIPRAP CLASS II                   |       | CU YD    | 84.2    | 18   |   | 3  | 33.2                                     | 30                        |                              |
| M     | 107 - 110 | 2511.501    | RANDOM RIPRAP CLASS III                  |       | CU YD    | 6.3     |  |   |  | 6.3                                      |                           |                              |
| N     | 111       | 2511.501    | RANDOM RIPRAP CLASS IV                   |       | CU YD    | 6.0     | 6  |   |  |  |                           |                              |
| C     | 11        | 2521.501    | 4" CONCRETE WALK                         | 5     | SQ FT    | 26,523  | 17357  | 9166  |  |  |                           |                              |
| B     | 10        | 2521.511    | 2" BITUMINOUS WALK                       |       | SQ FT    | 104,909 | 2034   | 63589   | 39286  |  |                           |                              |
| C     | 11        | 2531.501    | CONCRETE CURB & GUTTER DESIGN B418       |       | LIN FT   | 2,477   | 2477   |   |  |  |                           |                              |
| C     | 11        | 2531.501    | CONCRETE CURB & GUTTER DESIGN B418 (MOD) |       | LIN FT   | 108     | 108  |   |  |  |                           |                              |
| C     | 11        | 2531.501    | CONCRETE CURB & GUTTER DESIGN B424       |       | LIN FT   | 4,008   | 4008   |   |  |  |                           |                              |
| C     | 11        | 2531.501    | CONCRETE CURB & GUTTER DESIGN B618       |       | LIN FT   | 4,146   | 616  | 3530  |  |  |                           |                              |
| C     | 11        | 2531.501    | CONCRETE CURB & GUTTER DESIGN B618 (MOD) |       | LIN FT   | 60      |  | 60  |  |  |                           |                              |
| C     | 11        | 2531.507    | 6" CONCRETE DRIVEWAY PAVEMENT HE         |       | SQ YD    | 24      | 24   |   |  |  |                           |                              |
| C     | 11        | 2531.602    | CONCRETE MEDIAN NOSE DESIGN 7109         |       | EACH     | 3       | 2  | 1   |  |  |                           |                              |
| C     | 11        | 2531.602    | CONC ENTRANCE NOSE DES 7113              |       | EACH     | 5       | 5  |   |  |  |                           |                              |
| C     | 11        | 2531.618    | TRUNCATED DOWNS                          |       | SQ FT    | 96      | 80   |   | 16   |  |                           |                              |
| L     | 43        | 2533.507    | PORTABLE PRECAST CONC BARRIER DES 8337   |       | LIN FT   | 2,705   | 2705   |   |  |  |                           |                              |
| L     | 43        | 2533.508    | RELOCATE PORT PRECAST CONC BAR DES 8337  |       | LIN FT   | 1,730   | 1730   |   |  |  |                           |                              |
|       |           | 2540.602    | PROTECT MAIL BOX                         | 7     | EACH     | 1       |  |   | 1  |  |                           |                              |
| L     | 43        | 2554.615    | IMPACT ATTENUATOR                        |       | ASSEMBLY | 6       | 6  |   |  |  |                           |                              |
| L     | 43        | 2554.615    | RELOCATE IMPACT ATTENUATOR               |       | ASSEMBLY | 4       | 4  |   |  |  |                           |                              |
| D     | 12        | 2557.603    | INSTALL WOODEN FENCE                     |       | LIN FT   | 400     | 400  |   |  |  |                           |                              |
|       |           | 2563.601    | TRAFFIC CONTROL                          |       | LUMP SUM | 1       | 0.45   | 0.15  | 0.08   | 0.10                                     | 0.04                      | 0.18                         |
| L     | 43        | 2563.602    | TUBE DELINEATOR                          |       | EACH     | 363     | 363  |   |  |  |                           |                              |
| R     | 131       | 2564.531    | SIGN PANELS TYPE C                       |       | SQ FT    | 433.2   | 370.8  | 62.4  |  |  |                           |                              |
| Q     | 131       | 2564.537    | INSTALL SIGN TYPE SPECIAL                |       | EACH     | 2       | 2  |   |  |  |                           |                              |
| S     | 131       | 2564.550    | DELINEATOR TYPE X4-13                    |       | EACH     | 3       | 2  | 1   |  |  |                           |                              |
| S     | 131       | 2564.552    | HAZARD MARKER X4-2                       |       | EACH     | 7       | 6  | 1   |  |  |                           |                              |
| S     | 131       | 2564.554    | SNOW PLOW MARKER X4-5                    |       | EACH     | 7       | 6  | 1   |  |  |                           |                              |
| U     | 150       | 2565.511    | TRAFFIC CONTROL SIGNAL SYSTEM            |       | SIG SYS  | 1       | 1  |   |  |  |                           |                              |
| U     | 150       | 2565.601    | EMERGENCY VEHICLE PREEMPTION SYSTEM      |       | LUMP SUM | 1       | 1  |   |  |  |                           |                              |
| E     | 13        | 2573.502    | SILT FENCE, TYPE MACHINE SLICED          |       | LIN FT   | 2,615   | 2455   |   | 160  |  |                           |                              |
| E     | 13        | 2573.530    | STORM DRAIN INLET PROTECTION             |       | EACH     | 64      |  |   | 47   | 17                                       |                           |                              |
| E     | 13        | 2573.540    | FILTER LOG TYPE WOOD FIBER BIOROLL       |       | LIN FT   | 654     | 270  | 276   | 108  |  |                           |                              |
| E     | 13        | 2573.602    | CULVERT PROTECTION                       |       | EACH     | 13      | 5  | 7   | 1  |  |                           |                              |
| E     | 13        | 2575.501    | SEEDING                                  |       | ACRE     | 15.5    | 5.5  | 4.0   | 6.0  |  |                           |                              |
| E     | 13        | 2575.502    | SEED MIXTURE 240                         |       | POUND    | 900     | 310  | 220   | 370  |  |                           |                              |
| E     | 13        | 2575.502    | SEED MIXTURE 260                         |       | POUND    | 470     | 110  | 160   | 200  |  |                           |                              |
| E     | 13        | 2575.502    | SEED MIXTURE 310                         |       | POUND    | 30      | 30   |   |  |  |                           |                              |
| E     | 13        | 2575.502    | SEED MIXTURE 350                         |       | POUND    | 50      | 50   |   |  |  |                           |                              |
| E     | 13        | 2575.511    | MULCH MATERIAL TYPE 1                    |       | TON      | 32      | 7  | 10  | 15   |  |                           |                              |
| E     | 13        | 2575.519    | DISK ANCHORING                           |       | ACRE     | 13.5    | 3.5  | 4.0   | 6.0  |  |                           |                              |
| E     | 13        | 2575.523    | EROSION CONTROL BLANKETS CATEGORY 3      |       | SQ YD    | 4,545.0 | 4210   |   | 335.0  |  |                           |                              |
| E     | 13        | 2575.532    | FERTILIZER TYPE 3                        |       | POUND    | 6,250   | 1920   | 1710  | 2620   |  |                           |                              |

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  - WOOD FENCE ALONG CSAH 83 TRAIL.
  - FOR MAILBOX ON PUMA STREET.
- (P) SIGNIFIES PLAN QUANTITY.

BASIS FOR QUANTITIES

- UNIT WEIGHT OF BITUMINOUS MIX.....113 LBS/SY/IN
- TACK COAT  
- BETWEEN NEW LAYERS.....0.05 GAL/SY
- TURF ESTABLISHMENT  
- SEED MIXTURE 240.....75 LBS/ACRE  
- SEED MIXTURE 260.....100 LBS/ACRE  
- SEED MIXTURE 310.....82 LBS/ACRE  
- SEED MIXTURE 350.....84.5 LBS/ACRE  
- MULCH MATERIAL - TYPE 1.....2 TON/ACRE  
- FERTILIZER TYPE 3 .....400 LBS/ACRE  
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Unassisted Professional Engineer, Japs Halo P.E.  
DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



|  |  |                                   |
|--|--|-----------------------------------|
| ESTIMATED QUANTITIES<br>SHEET 3 OF 4 SHEETS        |  | SHEET<br>6<br>OF<br>249<br>SHEETS |
| S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 |  |                                   |

ESTIMATED QUANTITIES

| TABLE | SHEET | ITEM NUMBER | DESCRIPTION                                   | NOTES | UNITS | TOTAL  |   |   |  |  |                                   |                           |                              |
|-------|-------|-------------|---|-------|-------|--|---|---|--|--|-----------------------------------|---------------------------|------------------------------|
|       |       |             |   |       |       | ROADWAY CSAH 83/116<br>(Armstrong Boulevard/<br>Bunker Lake Boulevard) |   | ROADWAY MSAS 121<br>(Bunker Lake Blvd.<br>West Leg) |  | ROADWAY<br>Puma Street<br>Bunker Lake<br>Blvd. Connector | STORM SEWER<br>(CSAH 83/CSAH 116) | STORM SEWER<br>(MSAS 121) | SANITARY SEWER<br>WATER MAIN |
|       |       |             |   |       |       | S.A.P. 199-020-005<br>100% PARTICIPATING                               | S.A.P. 199-121-001<br>NON-PARTICIPATING | NON-PARTICIPATING                                   | S.A.P. 199-020-005<br>100% PARTICIPATING | NON-PARTICIPATING  | NON-PARTICIPATING                 |                           |                              |
|       |       |             |   |       |       | ESTIMATED  | ESTIMATED                               | ESTIMATED   | ESTIMATED                                | ESTIMATED  | ESTIMATED                         |                           |                              |
| E     | 13    | 2575.532    | FERTILIZER TYPE 4                             |       | POUND | 100  | 100                                     |   |  |  |                                   |                           |                              |
| E     | 13    | 2575.570    | RAPID STABILIZATION METHOD 2                  |       | ACRE  | 2.5  | 2.5                                     |   |  |  |                                   |                           |                              |
| T     | 132   | 2582.501    | PAVT MSSG (LT ARROW) PREFORMED THERMOPLASTIC  |       | EACH  | 9  | 9                                       |   |  |  |                                   |                           |                              |
| T     | 132   | 2582.501    | PAVT MSSG (RT ARROW) PREFORMED THERMOPLASTIC  |       | EACH  | 9  | 9                                       |   |  |  |                                   |                           |                              |
| L     | 43    | 2582.502    | 4" SOLID LINE WHITE-PAINT                     |       | LN FT | 19,800   | 19800                                   |   |  |  |                                   |                           |                              |
| L     | 43    | 2582.502    | 4" DOUBLE SOLID LINE YELLOW-PAINT             |       | LN FT | 18,150   | 18150                                   |   |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 24" STOP LINE WHITE-PREFORMED THERMOPLASTIC   |       | LN FT | 240  | 240                                     |   |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 24" SOLID LINE YELLOW-PREFORMED THERMOPLASTIC |       | LN FT | 1,925  | 1725                                    | 200   |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 4" SOLID LINE WHITE-EPOXY                     |       | LN FT | 17,610   | 9980                                    | 5050  | 2580                                     |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 4" BROKEN LINE WHITE-EPOXY                    |       | LN FT | 550  | 500                                     | 50  |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 8" DOTTED LINE WHITE-EPOXY                    |       | LN FT | 120  | 120                                     |   |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 4" SOLID LINE YELLOW-EPOXY                    |       | LN FT | 5,270  | 4310                                    | 960   |  |  |                                   |                           |                              |
| T     | 132   | 2582.502    | 4" DOUBLE SOLID LINE YELLOW-EPOXY             |       | LN FT | 6,810  | 3160                                    | 2360  |  |  |                                   |                           |                              |
| T     | 132   | 2582.503    | CROSSWALK MARKING-PREFORMED THERMOPLASTIC     |       | SQ FT | 1,360  | 1288                                    |   | 72                                       |  |                                   |                           |                              |

NOTES

1. WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN. IT SHALL MEAN NO DIRECT COMPENSATION WILL BE MADE.
  2. REMOVAL OF METAL CULVERT SHALL INCLUDE THE REMOVAL OF METAL APRONS.
  3. SEE EARTHWORK TABULATION FOR NOTES.
  4. SHALL BE USED AT THE DISCRETION OF THE ENGINEER.
  5. GRANULAR MATERIAL BELOW THE 4" CONCRETE WALK SHALL BE CONSIDERED INCIDENTAL.
  6. WOOD FENCE ALONG CSAH 83 TRAIL.
  7. FOR MAILBOX ON PUMA STREET.
- (P) SIGNIFIES PLAN QUANTITY.

BASIS FOR QUANTITIES

- UNIT WEIGHT OF BITUMINOUS MIX.....113 LBS/SY/IN
- TACK COAT
- BETWEEN NEW LAYERS.....0.05 GAL/SY
- TURF ESTABLISHMENT
- SEED MIXTURE 240.....75 LBS/ACRE
- SEED MIXTURE 260.....100 LBS/ACRE
- SEED MIXTURE 310.....82 LBS/ACRE
- SEED MIXTURE 350.....84.5 LBS/ACRE
- MULCH MATERIAL - TYPE 1.....2 TON/ACRE
- FERTILIZER TYPE 3.....400 LBS/ACRE
- FERTILIZER TYPE 4.....150 LBS/ACRE

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jopo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



ESTIMATED QUANTITIES  
 SHEET 4 OF 4 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
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 SHEETS

INDEX OF TABULATIONS

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| 10        | B          | BITUMINOUS & AGGREGATE TABULATION               |
| 11        | C          | CONCRETE TABULATION                             |
| 12        | D          | MISCELLANEOUS REMOVAL TABULATION                |
| 13        | E          | TURF ESTABLISHMENT & EROSION CONTROL TABULATION |
| 14        | F          | EARTHWORK TABULATIONS                           |
| 15        | G          | EARTHWORK SUMMARY                               |
| 16        | H          | INPLACE UTILITY TABULATION                      |
| 17        | I          | WATERMAIN TABULATION                            |
| 18        | J          | SANITARY SEWER TABULATION                       |
| 43        | K          | TRAFFIC CONTROL DEVICES                         |
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| 107 - 110 | M          | STORM SEWER TABULATION                          |
| 111       | N          | CULVERT TABULATION                              |
| 111       | O          | CASTING TABULATION                              |
| 131       | P          | REMOVE SIGN TYPE SPECIAL                        |
| 131       | Q          | SALVAGE & INSTALL SIGN TYPE SPECIAL             |
| 131       | R          | SIGN PANELS TYPE C                              |
| 131       | S          | DELINEATORS & MARKERS                           |
| 132       | T          | PAVEMENT MARKING TABULATION                     |
| 150       | U          | SIGNAL - STATEMENT OF ESTIMATE QUANTITIES       |

THE FOLLOWING STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY ON THIS PROJECT.

MNDOT STANDARD PLATES

A

| PLATE No. | DESCRIPTION  |
|-----------|--|
| 3000L     | REINFORCED CONCRETE PIPE (5 SHEETS)  |
| 3006G     | GASKET JOINT FOR R.C. PIPE (2 SHEETS)  |
| 3014J     | REINFORCED CONCRETE PIPE ARCH (2 SHEETS)   |
| 3022C     | PRECAST CONCRETE SAFETY APRON (3 SHEETS)   |
| 3100G     | CONCRETE APRON FOR REINFORCED CONCRETE PIPE  |
| 3110G     | CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH   |
| 3133C     | RIPRAP AT RCP OUTLETS  |
| 3145F     | CONCRETE PIPE TIES   |
| 4010H     | CONCRETE SHORT CONE AND ADJUSTING RING (SECTIONAL CONCRETE)                              |
| 4011E     | PRECAST CONCRETE BASE  |
| 4020J     | MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)                |
| 4022A     | MANHOLE OR CATCH BASIN COVER (3 FT x 2 FT OPENING FOR USE WITH OR WITHOUT TRAFFIC LOADS) |
| 4024A     | 48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN-DESIGN SD                                     |
| 4026A     | CONCRETE ENCASED CONCRETE ADJUSTING RINGS  |
| 4101D     | RING CASTING FOR MANHOLE OR CATCH BASIN  |
| 4108F     | ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES  |
| 4110F     | COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO.s 715 AND 716      |
| 4180J     | MANHOLE OR CATCH BASIN STEP  |
| 7035M     | CONCRETE WALK AND CURB RETURNS AT ENTRANCES  |
| 7036G     | PEDESTRIAN CURB RAMP (PERPENDICULAR DESIGN)  |
| 7038A     | DETECTABLE WARNING SURFACE TRUNCATED DOMES   |
| 7100H     | CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)   |
| 7109C     | MEDIAN NOSE AND ISLAND (UNDIVIDED TO DIVIDED ROADWAY)                                    |
| 7111J     | INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)                          |
| 7113A     | CONCRETE APPROACH NOSE DETAIL  |
| 8000I     | STANDARD BARRICADES  |
| 8002G     | PERMANENT BARRICADE  |
| 8150C     | INSTALLATION OF CULVERT MARKERS  |
| 8337B     | TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE 'F') (2 SHEETS)                        |
| 9000D     | APPROACHES AND ENTRANCES   |
| 9102D     | TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)  |

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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, June Holo P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



INDEX OF TABULATION AND STANDARD PLATES  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 8 OF 249 SHEETS



1. GRADING GRADE IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE LAYER. GRADING ON MSAS 121 (BUNKER LAKE BLVD), BELOW THE GRADING GRADE, TO BE DONE BY OTHERS.
2. COMMON EMBANKMENT IS SELECT GRADING MATERIAL AND SHALL CONSIST OF ALL MINERAL SOILS ENCOUNTERED EXCEPT SILT, SILT LOAM, SILTY CLAY LOAM, TOPSOIL, ORGANIC SOILS, DEBRIS AND OTHER UNSTABLE MATERIAL. SILTY SOILS MAY BE USED IN LOWER PORTIONS OF ANY EMBANKMENT BELOW A DEPTH OF 6 FEET BENEATH PAVED SURFACES.
3. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B2.
4. AGGREGATE BASE (CV) CLASS 5 MODIFIED IS DEFINED AS AGGREGATE HAVING LESS THAN 10% BY WEIGHT PASSING THE NO. 200 SIEVE.
5. UNSUITABLE SOILS IS DEFINED AS SOILS WHICH DO NOT MEET OR ARE NOT MANUFACTURED TO MEET ANY OF THE ABOVE DEFINED CATEGORIES, AND ARE THEREFORE NOT REUSABLE. UNSUITABLE MATERIAL MAY NOT BE PLACED WITHIN A 1(V): 1.5(H) SLOPED DOWNWARD AND OUTWARD FROM THE GRADING EMBANKMENT PI OR ABOVE THE ELEVATION OF THE BOTTOM OF THE SELECT GRANULAR SUBGRADE CORRECTION MATERIAL.
6. SLOPE DRESSING ON THE PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
7. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.
8. OBTAIN COMPACTION ON THE GRADING PORTIONS OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS, MN/DOT SPECIFICATION 2105.3F1.
9. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE OBTAINED IN ACCORDANCE WITH THE "PENETRATION INDEX COMPACTION METHOD" REQUIREMENTS, MN/DOT SPECIFICATION 2211.3C3. THIS WOULD INCLUDE ANY AREAS WHERE CRUSHED CONCRETE OR SALVAGED ASPHALT MAY BE USED FOR AGGREGATE BASE.
10. OBTAIN COMPACTION ON GRADING PORTIONS OF TEMPORARY CONSTRUCTION IN ACCORDANCE WITH THE "QUALITY COMPACTION METHOD" REQUIREMENTS. TEMPORARY GRADING AND AGGREGATE BASE PORTIONS PLACED BY THE "QUALITY COMPACTION METHOD" SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.
11. TEST ROLLING WILL BE REQUIRED ON THIS PROJECT.
12. IN ANY PROPOSED WIDENING CONSTRUCTION, THE CONTRACTOR SHOULD STRIVE TO SUBSTANTIALLY MATCH THE SOILS INPLACE BELOW THE PROPOSED SUBCUT.
13. IN ANY CASE WHERE GRANULAR SOIL EMBANKMENTS OR BACKFILL JOINS PLASTIC SOIL EMBANKMENTS OR BACKFILL A 1(V):20(H) TAPER SHALL BE CONSTRUCTED SO THAT THE GRANULAR SOIL OVERLAYS THE PLASTIC SOIL.
14. AS A PRECAUTIONARY MEASURE FROM A SOILS STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY A 1 (V) : 2 (H) OR GREATER (FLATTER) SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION.
15. THE TOP OF BACKSLOPES AND THE TOE OF FILL SLOPES SHALL BE ROUNDED TO NATURALIZE THE CONSTRUCTION EVEN THOUGH THE CROSS SECTIONS DO NOT SHOW ANY SUCH ROUNDDING.

16. UNLESS OTHERWISE REQUIRED, ADD 1(V):20(H) TAPERS TO THE FULL DEPTH STATION LIMITS OF ALL EXCAVATION SUBGRADE. PROVIDE 1(V):20(H) TRANSITION TAPERS BETWEEN CHANGES IN EXCAVATION SUBGRADE DEPTHS LONGITUDINALLY.
17. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING, THEN AT A 1(V):0.5(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBCUT.
18. WHERE CONNECTING TO INPLACE ROADWAYS AT THE TERMINI OF THE PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER; THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED EXCAVATION SUBGRADE.
19. PROVIDE A SAWCUT TO ENSURE A UNIFORM JOINT WHERE PLACING NEW PAVEMENT NEXT TO INPLACE PAVEMENT.
20. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH SPECIFICATION 2357. FURNISHING & APPLYING THE TACK COAT WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE.
21. STRIP AND/OR SALVAGE TOPSOIL FOR THE GRADING AREAS AS SHOWN IN THE TYPICAL SECTIONS AND CROSS SECTIONS. TOPSOIL DEPTHS RANGE FROM 4 INCHES TO 1 FEET. SALVAGED TOPSOIL WILL BE USED LATER AS SLOPE DRESSING ON ALL DISTURBED AREAS. IF TOPSOIL BORROW IS REQUIRED, IT SHALL BE AN 'A' HORIZON SOIL ACCEPTABLE TO THE ENGINEER.
22. CONCRETE WASH OUT MATERIALS: REMOVE ALL EXISTING MATERIALS WHICH WERE THE RESULT OF THE CONCRETE PLANT OPERATIONS, IN AREAS OF ROADWAY EMBANKMENT CONSTRUCTION FROM THE TOE OF SLOPE TO THE TOE OF SLOPE.
23. THE ENGINEER SHALL SEE THAT THE TERMINI OF ALL PORTABLE CONCRETE MEDIAN BARRIER LOCATIONS FOR ONCOMING TRAFFIC ARE EITHER SET BACK AT LEAST 30' FROM THE EDGE OF TRAVELED LANE OR WHATEVER DISTANCE DEEMED APPROPRIATE FOR THE SITUATION OR PROTECTED BY EXISTING GUARDRAIL OR SOME OTHER ATTENUATION DEVICE.
24. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM SUITABLE GRADING MATERIAL MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER AND BE INCIDENTAL.
25. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
26. THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.
27. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OUTSIDE THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER, AND IN ACCORDANCE WITH SPEC. 2104.3C3.
28. SELECT GRANULAR MATERIAL TO BE IMPORTED FROM THE CITY OF RAMSEY SITE, EAST OF THIS PROJECT, UNLESS OTHERWISE APPROVED BY THE ENGINEER. CONTACT THE CITY OF RAMSEY FOR LOCATION.

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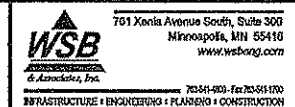
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minn.  
 License No. 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



SOIL AND CONSTRUCTION NOTES

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S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

BITUMINOUS AND AGGREGATE TABULATION

B

| STATION TO STATION  | TOTAL PAVEMENT AREA | TYPE SP 12.5 WEARING COURSE (SPWEB440C) (PG 58-34) | TYPE SP 12.5 NONWEAR COURSE (SPNWB430B) (PG 58-28) | 2' BITUMINOUS WALK | AGGREGATE BASE (CV) CLASS 5 MODIFIED | AGGREGATE SHOULDERING (CV) CLASS 5 MOD |
|---|---------------------|--|--|--------------------|--------------------------------------|--|
|   | SQ YD               | TON  | TON  | SQ FT              | CU YD                                | CU YD                                  |
| <b>CSAH 83 (ARMSTRONG BOULEVARD) (MAINLINE)</b>               |                     |  |  |                    |                                      |  |
| 32+79 TO 39+00  | 1812                | 323  | 222  |                    | 545                                  | 26                                     |
| 39+00 TO 54+00  | 16463               | 2930   | 1992   |                    | 4269                                 | 37                                     |
| 54+00 TO 60+63.53   | 3184                | 567  | 386  |                    | 887                                  | 28                                     |
| SUBTOTAL (CSAH 83 MAINLINE)                                   | 21459               | 3820   | 2600   |                    | 5701                                 | 91                                     |
| <b>CSAH 116 (BUNKER LAKE BOULEVARD EAST LEG) (MAINLINE)</b>   |                     |  |  |                    |                                      |  |
| 507+59 TO 508+00  | 559                 | 100  | 69   |                    | 144                                  | 2                                      |
| 508+00 TO 517+14  | 6148                | 1095   | 751  |                    | 1801                                 | 75                                     |
| SUBTOTAL (CSAH 116 MAINLINE)                                  | 6707                | 1195   | 820  |                    | 1945                                 | 77                                     |
| <b>MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG) (MAINLINE)</b>   |                     |  |  |                    |                                      |  |
| 479+27 TO 490+00  | 3701                | 659  | 452  |                    | 854                                  | 59                                     |
| 490+00 TO 504+00  | 6473                | 1153   | 790  |                    | 1415                                 | 77                                     |
| 504+00 TO 505+86 (100% PARTICIPATING)                         | 1465                | 261  | 179  |                    | 330                                  | 11                                     |
| SUBTOTAL (MSAS 121 MAINLINE)                                  | 11639               | 2073   | 1421   |                    | 2599                                 | 147                                    |
| <b>BUNKER LAKE BLVD. CONNECTOR AND PUMA STREET (MAINLINE)</b> |                     |  |  |                    |                                      |  |
| 466+37 TO 479+27 (BUNKER LAKE BLVD.)                          | 4104                | 487  |  |                    | 963                                  | 141                                    |
| 30+00 TO 34+00 (PUMA STREET)                                  | 1116                | 133  |  |                    | 66                                   | 44                                     |
| 34+00 TO 48+00 (PUMA STREET)                                  | 3730                | 443  |  |                    | 229                                  | 153                                    |
| 48+00 TO 57+77 (PUMA STREET)                                  | 2590                | 308  |  |                    | 160                                  | 107                                    |
| SUBTOTAL (BUNKER LAKE BLVD. CONNECTOR AND PUMA ST. MAINLINE)  | 5220                | 1371   |  |                    | 1418                                 | 445                                    |
| <b>CSAH 83 (ARMSTRONG BOULEVARD) (TRAIL)</b>                  |                     |  |  |                    |                                      |  |
| 46+75 TO 54+00  | 1413                |  |  | 12721              | 260                                  |  |
| 54+00 TO 77+00  | 2540                |  |  | 22864              | 466                                  |  |
| SUBTOTAL (CSAH 83 TRAIL)                                      | 3954                |  |  | 35585              | 726                                  |  |
| <b>CSAH 116 (BUNKER LAKE BOULEVARD) (TRAIL)</b>               |                     |  |  |                    |                                      |  |
| 507+62 TO 511+68  | 493                 |  |  | 4438               | 91                                   |  |
| <b>MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG) (TRAIL)</b>      |                     |  |  |                    |                                      |  |
| 479+27 TO 490+00  | 1080                |  |  | 9721               | 199                                  |  |
| 490+00 TO 504+00  | 1538                |  |  | 13845              | 283                                  |  |
| 504+00 TO 505+86 (100% PARTICIPATING)                         | 226                 |  |  | 2034               | 42                                   |  |
| SUBTOTAL (MSAS 121 TRAIL)                                     | 2844                |  |  | 25600              | 524                                  |  |
| <b>BUNKER LAKE BLVD. CONNECTOR AND PUMA STREET (TRAIL)</b>    |                     |  |  |                    |                                      |  |
| 466+37 TO 479+27 (BUNKER LAKE BLVD.)                          | 1389                |  |  | 12502              | 255                                  |  |
| 30+00 TO 34+00 (PUMA STREET)                                  | 343                 |  |  | 3086               | 63                                   |  |
| 34+00 TO 48+00 (PUMA STREET)                                  | 1552                |  |  | 13966              | 285                                  |  |
| 48+00 TO 57+77 (PUMA STREET)                                  | 1081                |  |  | 9732               | 199                                  |  |
| SUBTOTAL (BUNKER LAKE BLVD. CONNECTOR AND PUMA ST. TRAIL)     | 4365                |  |  | 39286              | 802                                  |  |
| <b>SUBTOTAL (S.A.P. 199-020-005) (100% PARTICIPATING)</b>     |                     |  |  |                    |                                      |  |
|   |                     | 5276   | 3599   | 6472               | 8109                                 | 179                                    |
| <b>SUBTOTAL (NON-PARTICIPATING)</b>                           |                     |  |  |                    |                                      |  |
|   |                     | 3183   | 1242   | 98437              | 5697                                 | 581                                    |
| <b>PROJECT TOTAL</b>  |                     |  |  |                    |                                      |  |
|   |                     | 8459   | 4841   | 104909             | 13806                                | 760                                    |

\* TACK COAT IS CONSIDERED INCIDENTAL, NO DIRECT COMPENSATION WILL BE MADE.

1. SP 12.5 WEARING COURSE (2,C) (SPWEB240C) SHALL BE USED FOR 2.5' BITUMINOUS WALK, PAID BY THE SQUARE FOOT.
2. THE CSAH 83 TRAIL FUNDING IS CONSIDERED NON-PARTICIPATING.

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 10  
 OF  
 249  
 SHEETS

## CONCRETE TABULATION

C

| STATION TO STATION                                   | CURB & GUTTER      |                    |                           |                    |                           | 4' CONCRETE WALK |                        | 6' CONCRETE DRWY PAVEMENT HE SQ YD | TRUNCATED DOMES SQ FT | MEDIAN NOSE DESIGN 7109 EACH | MEDIAN NOSE DESIGN 7113 EACH |
|--|--------------------|--------------------|---------------------------|--------------------|---------------------------|------------------|------------------------|------------------------------------|-----------------------|------------------------------|------------------------------|
|  | B424 CURB & GUTTER | B418 CURB & GUTTER | B418 (MOD.) CURB & GUTTER | B618 CURB & GUTTER | B618 (MOD.) CURB & GUTTER | MEDIAN SQ FT     | PEDESTRIAN RAMPS SQ FT |                                    |                       |                              |                              |
|  | LIN FT             | LIN FT             | LIN FT                    | LIN FT             | LIN FT                    |                  |                        |                                    |                       |                              |                              |
| CSAH 83 (ARMSTRONG BOULEVARD) (MAINLINE)             |                    |                    |                           |                    |                           |                  |                        |                                    |                       |                              |                              |
| 32+79 TO 39+00                                       |                    |                    |                           |                    |                           |                  |                        |                                    |                       |                              |                              |
| 39+00 TO 54+00                                       | 2396               | 1192               | 60                        |                    |                           | 5447             | 895                    | 24                                 | 64                    | 1                            | 3                            |
| 54+00 TO 60+63.53                                    | 472                |                    |                           |                    |                           |                  | 120                    |                                    | 16                    |                              |                              |
| SUBTOTAL (CSAH 83 MAINLINE)                          | 2868               | 1192               | 60                        |                    |                           | 5447             | 1015                   | 24                                 | 80                    | 1                            | 3                            |
| CSAH 116 (BUNKER LAKE BOULEVARD EAST LEG) (MAINLINE) |                    |                    |                           |                    |                           |                  |                        |                                    |                       |                              |                              |
| 507+59 TO 508+00                                     | 82                 | 82                 |                           |                    |                           | 160              |                        |                                    |                       |                              | 1                            |
| 508+00 TO 517+14                                     | 1058               | 1203               | 48                        |                    |                           | 7735             |                        |                                    |                       | 1                            |                              |
| SUBTOTAL (CSAH 116 MAINLINE)                         | 1140               | 1285               | 48                        |                    |                           | 7895             |                        |                                    |                       | 1                            | 1                            |
| MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG) (MAINLINE) |                    |                    |                           |                    |                           |                  |                        |                                    |                       |                              |                              |
| 466+37 TO 490+00                                     |                    |                    |                           | 1087               |                           |                  |                        |                                    | 16                    |                              |                              |
| 490+00 TO 504+00                                     |                    |                    |                           | 2443               | 60                        | 9166             |                        |                                    |                       | 1                            |                              |
| 504+00 TO 505+86 (100% PARTICIPATING)                |                    |                    |                           | 616                |                           | 3000             |                        |                                    |                       |                              | 1                            |
| SUBTOTAL (MSAS 121 MAINLINE)                         |                    |                    |                           | 4146               | 60                        | 12166            |                        |                                    | 16                    | 1                            | 1                            |
| SUBTOTAL (S.A.P. 199-020-005) (100% PARTICIPATING)   | 4008               | 2477               | 108                       | 616                |                           | 16342            | 1015                   | 24                                 | 80                    | 2                            | 5                            |
| SUBTOTAL (NON-PARTICIPATING)                         |                    |                    |                           | 3530               | 60                        | 9166             |                        |                                    | 16                    | 1                            |                              |
| PROJECT TOTAL  | 4008               | 2477               | 108                       | 4146               | 60                        | 25508            | 1015                   | 24                                 | 96                    | 3                            | 5                            |

**NOTES:**

1. THE AGGREGATE BASE/GRANULAR MATERIAL BELOW THE CONCRETE WALK IS CONSIDERED INCIDENTAL.

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| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | NO   | DATE | BY  | CHK       | REVISIONS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Drawn By: <b>C KOCHMAN</b><br>Designed By: <b>N HENTGES</b><br>Checked By: <b>A PLOWMAN</b><br>Approved By: <b>J HALE</b> | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, Jupo Hale P.E.<br>DATE: 04/28/11 LIC NO: 42064 | <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xcelin Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsbeng.com<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | <b>QUANTITY TABULATIONS</b><br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>11<br>OF<br>249<br>SHEETS |
|--|------|------|-----|-----------|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|---|---|------------------------------------|
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MISCELLANEOUS REMOVAL TABULATION

D

| STATION TO STATION                                  | REMOVE BITUMINOUS PAVEMENT (1) | CLEAR & GRUB | CLEAR & GRUB | SAWCUT BITUMINOUS PAVEMENT FULL DEPTH | REMOVE DRAINAGE STRUCTURE | REMOVE METAL CULVERT | REMOVE SEWER PIPE STORM | REMOVE CONCRETE APRON | SALVAGE METAL CULVERT | SALVAGE METAL APRON | SALVAGE & INSTALL WOOD FENCE |
|---|--------------------------------|--------------|--------------|---------------------------------------|---------------------------|----------------------|-------------------------|-----------------------|-----------------------|---------------------|------------------------------|
|   | SO YD                          | TREE         | ACRE         | LIN FT                                | EACH                      | LIN FT               | LIN FT                  | EACH                  | LIN FT                | EACH                | LIN FT                       |
| CSAH 83 (ARMSTRONG BOULEVARD)                       |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 32+79 TO 39+00                                      | 805                            |              |              | 570                                   |                           | 74                   |                         |                       | 72                    | 2                   |                              |
| 39+00 TO 54+00                                      | 7610                           | 51           |              | 40                                    |                           | 231                  | 75                      | 2                     |                       |                     |                              |
| 54+00 TO 60+63.53                                   | 2500                           |              |              | 360                                   |                           |                      |                         |                       |                       |                     |                              |
| SUBTOTAL (CSAH 83)                                  | 10915                          | 51           |              | 970                                   |                           | 305                  | 75                      | 2                     | 72                    | 2                   |                              |
| CSAH 116 (BUNKER LAKE BOULEVARD EAST LEG)           |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 507+59 TO 508+00                                    | 750                            |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 508+00 TO 517+14                                    | 4635                           |              |              |                                       | 1                         |                      | 73                      | 1                     |                       |                     |                              |
| SUBTOTAL (CSAH 116)                                 | 5385                           |              |              |                                       | 1                         |                      | 73                      | 1                     |                       |                     |                              |
| MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG)           |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 479+27 TO 490+00                                    |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 490+00 TO 504+00                                    |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 504+00 TO 505+86 (100% PARTICIPATING)               |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| SUBTOTAL (MSAS 121)                                 |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| CSAH 83 (ARMSTRONG BOULEVARD TRAIL)                 |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 60+63 TO 77+00                                      |                                | 76           | 0.10         |                                       |                           | 132                  |                         |                       |                       |                     | 400                          |
| BUNKER LAKE BLVD. CONNECTOR AND PUMA STREET         |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 466+37 TO 479+27 (BUNKER LAKE BLVD.)                |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 30+00 TO 34+00 (PUMA STREET)                        |                                |              |              |                                       |                           |                      |                         |                       |                       |                     |                              |
| 34+00 TO 48+00 (PUMA STREET)                        |                                |              | 0.05         |                                       |                           | 95                   |                         |                       |                       |                     |                              |
| 48+00 TO 57+77 (PUMA STREET)                        |                                |              | 0.25         |                                       |                           |                      |                         |                       |                       |                     |                              |
| SUBTOTAL (BUNKER LAKE BLVD. CONNECTOR AND PUMA ST.) |                                |              | 0.30         |                                       |                           | 95                   |                         |                       |                       |                     |                              |
| SUBTOTAL (S.A.P. 199-020-005) (100% PARTICIPATING)  | 16300                          | 51           |              | 970                                   | 1                         | 305                  | 148                     | 3                     | 72                    | 2                   |                              |
| SUBTOTAL (NON-PARTICIPATING)                        |                                | 76           | 0.40         |                                       |                           | 227                  |                         |                       |                       |                     | 400                          |
| PROJECT TOTAL                                       | 16300                          | 127          | 0.40         | 970                                   | 1                         | 532                  | 148                     | 3                     | 72                    | 2                   | 400                          |

NOTES:  
(1) SEE TYPICAL SECTIONS FOR ASSUMED DEPTHS.

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 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 & Associates, Inc.  
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 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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QUANTITY TABULATIONS

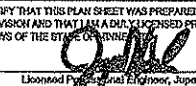

TURF ESTABLISHMENT AND EROSION CONTROL TABULATION

E

| STATION TO STATION   | SEEDING | SEED MIX 240<br>(75 LBS/AC) | SEED MIX 260<br>(100 LB/AC) | SEED MIX 310<br>(82 LBS/AC) | SEED MIX 350<br>(84.5 LBS/AC) | TYPE 1 MULCH<br>(2 TON/AC) | TYPE 3<br>FERTILIZER<br>(400 LBS/AC) | TYPE 4<br>FERTILIZER<br>(150 LBS/AC) | CATEGORY 3<br>BLANKET | DISK<br>ANCHORING | RAPID STABILIZATION<br>METHOD 2<br>(1) | FILTER LOG<br>TYPE WOOD<br>FIBER BIOROLL | STORM DRAIN<br>INLET<br>PROTECTION | CULVERT<br>PROTECTION | SILT FENCE<br>TYPE<br>MACHINE SLICED |
|--|---------|-----------------------------|-----------------------------|-----------------------------|-------------------------------|----------------------------|--------------------------------------|--------------------------------------|-----------------------|-------------------|--|--|------------------------------------|-----------------------|--------------------------------------|
|  | ACRE    | POUND                       | POUND                       | POUND                       | POUND                         | TON                        | POUND                                | POUND                                | SQ YD                 | ACRE              | ACRE                                   | LIN FT                                   | EACH                               | EACH                  | LIN FT                               |
| CSAH 83 (ARMSTRONG BOULEVARD) (MAINLINE)                     |         |                             |                             |                             |                               |                            |                                      |                                      |                       |                   |  |  |                                    |                       |                                      |
| 32+79 TO 39+00   | 1.0     | 80                          |                             | 10                          | 10                            | 1                          | 390                                  | 20                                   | 240                   | 0.5               | 0.5                                    | 78                                       |                                    | 2                     | 470                                  |
| 39+00 TO 54+00   | 2.0     | 120                         | 30                          | 20                          | 30                            | 2                          | 750                                  | 60                                   | 3245                  | 1.0               | 1.0                                    | 192                                      | 32                                 | 2                     | 1300                                 |
| 54+00 TO 60+63.53  | 1.0     | 40                          | 40                          |                             |                               | 2                          | 300                                  |                                      |                       | 1.0               |  |  | 2                                  | 1                     |                                      |
| SUBTOTAL (CSAH 83 MAINLINE)                                  | 4.0     | 240                         | 70                          | 30                          | 40                            | 5                          | 1440                                 | 80                                   | 3485                  | 2.5               | 1.5                                    | 270                                      | 34                                 | 5                     | 1770                                 |
| CSAH 116 (BUNKER LAKE BOULEVARD EAST LEG) (MAINLINE)         |         |                             |                             |                             |                               |                            |                                      |                                      |                       |                   |  |  |                                    |                       |                                      |
| 508+00 TO 517+14   | 1.0     | 60                          | 30                          |                             | 10                            | 1                          | 420                                  | 20                                   | 590                   | 0.5               | 1.0                                    |  | 7                                  |                       | 615                                  |
| MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG) (MAINLINE)         |         |                             |                             |                             |                               |                            |                                      |                                      |                       |                   |  |  |                                    |                       |                                      |
| 479+27 TO 490+00   | 1.5     | 110                         | 40                          |                             |                               | 4                          | 700                                  |                                      |                       | 1.5               |  | 132                                      | 6                                  | 3                     |                                      |
| 490+00 TO 504+00   | 2.0     | 110                         | 50                          |                             |                               | 4                          | 760                                  |                                      |                       | 2.0               |  | 144                                      | 11                                 | 1                     |                                      |
| 504+00 TO 505+86 (100% PARTICIPATING)                        | 0.5     | 10                          | 10                          |                             |                               | 1                          | 60                                   |                                      | 135                   | 0.5               |  |  | 8                                  |                       | 70                                   |
| SUBTOTAL (MSAS 121 MAINLINE)                                 | 4.0     | 230                         | 100                         |                             |                               | 9                          | 1520                                 |                                      | 135                   | 4.0               |  | 276                                      | 25                                 | 4                     | 70                                   |
| BUNKER LAKE BLVD. CONNECTOR AND PUMA STREET (MAINLINE)       |         |                             |                             |                             |                               |                            |                                      |                                      |                       |                   |  |  |                                    |                       |                                      |
| 466+37 TO 479+27 (BUNKER LAKE BLVD.)                         | 3.0     | 180                         | 90                          |                             |                               | 7                          | 1290                                 |                                      |                       | 3.0               |  | 108                                      |                                    |                       |                                      |
| 30+00 TO 34+00 (PUMA STREET)                                 | 0.5     | 20                          | 30                          |                             |                               | 1                          | 170                                  |                                      |                       | 0.5               |  |  |                                    |                       |                                      |
| 34+00 TO 48+00 (PUMA STREET)                                 | 1.5     | 90                          | 50                          |                             |                               | 4                          | 660                                  |                                      | 335                   | 1.5               |  |  |                                    | 1                     | 160                                  |
| 48+00 TO 57+77 (PUMA STREET)                                 | 1.0     | 80                          | 30                          |                             |                               | 3                          | 500                                  |                                      |                       | 1.0               |  |  |                                    |                       |                                      |
| SUBTOTAL (BUNKER LAKE BLVD. CONNECTOR AND PUMA ST. MAINLINE) | 6.0     | 370                         | 200                         |                             |                               | 15                         | 2620                                 |                                      | 335                   | 6.0               |  | 108                                      |                                    | 1                     | 160                                  |
| CSAH 83 (ARMSTRONG BOULEVARD) (TRAIL)                        |         |                             |                             |                             |                               |                            |                                      |                                      |                       |                   |  |  |                                    |                       |                                      |
| 60+63.53 TO 77+00  | 0.5     |                             | 70                          |                             |                               | 2                          | 250                                  |                                      |                       | 0.5               |  |  |                                    |                       |                                      |
| SUBTOTAL (S.A.P. 199-020-005) (100% PARTICIPATING)           | 5.5     | 310                         | 110                         | 30                          | 50                            | 7                          | 1920                                 | 100                                  | 4210                  | 3.5               | 2.5                                    | 270                                      | 49                                 | 5                     | 2455                                 |
| SUBTOTAL (NON-PARTICIPATING)                                 | 10.0    | 590                         | 360                         |                             |                               | 25                         | 4330                                 |                                      | 335                   | 10.0              |  | 384                                      | 17                                 | 5                     | 160                                  |
| PROJECT TOTAL  | 15.5    | 900                         | 470                         | 30                          | 50                            | 32                         | 6250                                 | 100                                  | 4545                  | 13.5              | 2.5                                    | 654                                      | 66                                 | 10                    | 2615                                 |

NOTES:  
 (1) INCLUDES TYPE 1 MULCH @ 1.5 TONS/ACRE AND TYPE 5 HYDRAULIC SOIL STABILIZER @ 750 LBS/ACRE

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| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| CSAH 83 NB+79.31      |                   |                   |                            |   |
| 33+00.00              | 29                | 27                |                            |   |
| 33+50.00              | 70                | 70                |                            |   |
| 34+00.00              | 76                | 77                |                            |   |
| 34+50.00              | 78                | 82                |                            |   |
| 35+00.00              | 92                | 93                |                            |   |
| 35+50.00              | 112               | 103               |                            |   |
| 36+00.00              | 127               | 107               |                            |   |
| 36+16.00              | 45                | 35                |                            |   |
| 36+50.00              | 64                | 47                |                            |   |
| 36+74.51              | 43                | 17                |                            |   |
| 37+00.00              | 46                | 15                |                            |   |
| 37+36.00              | 78                | 47                |                            |   |
| 37+50.00              | 46                | 32                |                            |   |
| 38+00.00              | 151               | 122               |                            |   |
| 38+50.00              | 217               | 277               |                            |   |
| 39+00.00              | 301               | 448               |                            |   |
| 39+50.00              | 303               | 462               |                            |   |
| 40+00.00              | 306               | 443               |                            |   |
| 40+50.00              | 363               | 417               |                            |   |
| 41+00.00              | 490               | 425               |                            |   |
| 41+50.00              | 529               | 420               |                            |   |
| 42+00.00              | 462               | 374               |                            |   |
| 42+50.00              | 394               | 363               |                            |   |
| 43+00.00              | 322               | 333               |                            |   |
| 43+50.00              | 287               | 289               |                            |   |
| 44+00.00              | 275               | 287               |                            |   |
| 44+50.00              | 269               | 331               |                            |   |
| 45+00.00              | 258               | 397               |                            |   |
| 45+50.00              | 197               | 343               |                            |   |
| 46+00.00              | 142               | 213               |                            |   |
| 46+50.00              | 138               | 167               |                            |   |
| 47+00.00              | 272               | 797               |                            |   |
| 47+35.00              | 292               | 1082              |                            |   |
| 47+50.00              | 128               | 500               |                            |   |
| 48+00.00              | 432               | 1669              |                            |   |
| 48+50.00              | 421               | 1556              |                            |   |
| 49+00.00              | 382               | 1357              |                            |   |
| 49+50.00              | 352               | 1164              |                            |   |
| 50+00.00              | 323               | 851               |                            |   |
| 50+50.00              | 314               | 686               |                            |   |
| 51+00.00              | 309               | 567               |                            |   |
| 51+50.00              | 289               | 394               |                            |   |
| 52+00.00              | 282               | 365               |                            |   |
| 52+50.00              | 297               | 222               |                            |   |
| 53+00.00              | 286               | 181               |                            |   |
| 53+50.00              | 254               | 281               |                            |   |
| 54+00.00              | 256               | 308               |                            |   |
| 54+50.00              | 249               | 310               |                            |   |
| 55+00.00              | 237               | 296               |                            |   |
| 55+16.59              | 79                | 97                |                            |   |
| 55+50.00              | 171               | 185               |                            |   |
| 56+00.00              | 297               | 254               |                            |   |
| 56+50.00              | 313               | 242               |                            |   |
| 57+00.00              | 296               | 234               |                            |   |
| 57+50.00              | 307               | 237               |                            |   |
| 57+74.72              | 154               | 114               |                            |   |
| 58+00.00              | 102               | 113               |                            |   |
| 58+50.00              | 116               | 238               |                            |   |
| 58+73.70              | 60                | 96                |                            |   |
| 59+00.00              | 68                | 81                |                            |   |
| 59+50.00              | 130               | 137               |                            |   |
| 60+00.00              | 134               | 132               |                            |   |
| 60+50.00              | 140               | 151               |                            |   |
| 60+63.50              | 37                | 43                |                            |   |
| TOTALS(CSAH 83):      | 14090             | 21802             |                            |   |

| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| MSAS 121              |                   |                   |                            |   |
| 466+78.36             |                   |                   |                            |   |
| 467+00.00             |                   |                   |                            |   |
| 467+50.00             |                   |                   |                            |   |
| 468+00.00             |                   |                   |                            |   |
| 468+50.00             |                   |                   |                            |   |
| 469+00.00             |                   |                   |                            |   |
| 469+50.00             |                   |                   |                            |   |
| 470+00.00             |                   |                   |                            |   |
| 470+50.00             |                   |                   |                            |   |
| 471+00.00             |                   |                   |                            |   |
| 471+50.00             |                   |                   |                            |   |
| 472+00.00             |                   |                   |                            |   |
| 472+50.00             |                   |                   |                            |   |
| 473+00.00             |                   |                   |                            |   |
| 473+50.00             |                   |                   |                            |   |
| 474+00.00             |                   |                   |                            |   |
| 474+50.00             |                   |                   |                            |   |
| 475+00.00             |                   |                   |                            |   |
| 475+50.00             |                   |                   |                            |   |
| 476+00.00             |                   |                   |                            |   |
| 476+50.00             |                   |                   |                            |   |
| 477+00.00             |                   |                   |                            |   |
| 477+50.00             |                   |                   |                            |   |
| 478+00.00             |                   |                   |                            |   |
| 478+50.00             |                   |                   |                            |   |
| 479+00.00             |                   |                   |                            |   |
| 479+50.00             |                   |                   |                            |   |
| 480+00.00             |                   |                   |                            |   |
| 480+50.00             |                   |                   |                            |   |
| 481+00.00             |                   |                   |                            |   |
| 481+50.00             |                   |                   |                            |   |
| 482+00.00             |                   |                   |                            |   |
| 482+50.00             |                   |                   |                            |   |
| 483+00.00             |                   |                   |                            |   |
| 483+50.00             |                   |                   |                            |   |
| 484+00.00             |                   |                   |                            |   |
| 484+50.00             |                   |                   |                            |   |
| 485+00.00             |                   |                   |                            |   |
| 485+50.00             |                   |                   |                            |   |
| 486+00.00             |                   |                   |                            |   |
| 486+50.00             |                   |                   |                            |   |
| 487+00.00             |                   |                   |                            |   |
| 487+50.00             |                   |                   |                            |   |
| 488+00.00             |                   |                   |                            |   |
| 488+50.00             |                   |                   |                            |   |
| 489+00.00             |                   |                   |                            |   |
| 489+50.00             |                   |                   |                            |   |
| 490+00.00             |                   |                   |                            |   |
| 490+50.00             |                   |                   |                            |   |
| 491+00.00             |                   |                   |                            |   |
| 491+50.00             |                   |                   |                            |   |
| 492+00.00             |                   |                   |                            |   |
| 492+50.00             |                   |                   |                            |   |
| 493+00.00             |                   |                   |                            |   |
| 493+50.00             |                   |                   |                            |   |
| 494+00.00             |                   |                   |                            |   |
| 494+50.00             |                   |                   |                            |   |

| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| MSAS 121 (CONT.)      |                   |                   |                            |   |
| 495+00.00             |                   |                   |                            |   |
| 495+50.00             |                   |                   |                            |   |
| 496+00.00             |                   |                   |                            |   |
| 496+50.00             |                   |                   |                            |   |
| 497+02.38             |                   |                   |                            |   |
| 497+52.40             |                   |                   |                            |   |
| 498+02.42             |                   |                   |                            |   |
| 498+53.23             |                   |                   |                            |   |
| 499+04.76             |                   |                   |                            |   |
| 499+56.29             |                   |                   |                            |   |
| 500+06.79             |                   |                   |                            |   |
| 500+55.94             |                   |                   |                            |   |
| 501+03.53             |                   |                   |                            |   |
| 501+50.82             |                   |                   |                            |   |
| 502+00.00             |                   |                   |                            |   |
| 502+50.00             |                   |                   |                            |   |
| 503+00.00             |                   |                   |                            |   |
| 503+50.00             |                   |                   |                            |   |
| 504+00.00             |                   |                   |                            |   |
| 504+50.00             |                   |                   |                            |   |
| 505+00.00             |                   |                   |                            |   |
| 505+38.90             |                   |                   |                            |   |
| 505+50.00             |                   |                   |                            |   |
| 505+55.00             |                   |                   |                            |   |
| 506+00.00             |                   |                   |                            |   |
| TOTALS(MSAS 121):     |                   |                   |                            |   |

| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| CSAH 116              |                   |                   |                            |   |
| 507+65.00             | 2                 | 6                 |                            |   |
| 507+85.00             | 81                | 214               |                            |   |
| 508+00.00             | 62                | 155               |                            |   |
| 508+33.00             | 146               | 338               |                            |   |
| 508+50.00             | 82                | 176               |                            |   |
| 509+00.00             | 267               | 501               |                            |   |
| 509+50.00             | 277               | 471               |                            |   |
| 510+00.00             | 267               | 466               |                            |   |
| 510+50.00             | 276               | 445               |                            |   |
| 511+00.00             | 283               | 401               |                            |   |
| 511+50.00             | 266               | 375               |                            |   |
| 512+00.00             | 256               | 340               |                            |   |
| 512+50.03             | 266               | 300               |                            |   |
| 513+00.18             | 253               | 300               |                            |   |
| 513+52.82             | 221               | 316               |                            |   |
| 514+05.56             | 186               | 294               |                            |   |
| 514+57.99             | 156               | 235               |                            |   |
| 515+10.14             | 114               | 180               |                            |   |
| 515+62.05             | 93                | 155               |                            |   |
| 516+13.76             | 98                | 137               |                            |   |
| 516+65.32             | 93                | 116               |                            |   |
| 517+10.60             | 81                | 87                |                            |   |
| TOTALS(CSAH 116):     | 3826              | 6009              |                            |   |

| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| PUMA STREET           |                   |                   |                            |   |
| 31+18.82              |                   |                   |                            |   |
| 31+50.00              | 130               | 64                |                            |   |
| 32+00.00              | 175               | 98                |                            |   |
| 32+50.00              | 163               | 110               |                            |   |
| 33+00.00              | 157               | 121               |                            |   |
| 33+50.00              | 157               | 118               |                            |   |
| 34+00.00              | 160               | 112               |                            |   |
| 34+50.00              | 190               | 102               |                            |   |
| 35+00.00              | 257               | 105               |                            |   |
| 35+50.00              | 264               | 119               |                            |   |
| 36+00.00              | 178               | 135               |                            |   |
| 36+50.00              | 119               | 153               |                            |   |
| 37+00.00              | 114               | 159               |                            |   |
| 37+50.00              | 124               | 134               |                            |   |
| 38+00.00              | 141               | 96                |                            |   |
| 38+50.00              | 140               | 91                |                            |   |
| 39+00.00              | 122               | 112               |                            |   |
| 39+50.00              | 113               | 136               |                            |   |
| 40+00.00              | 112               | 147               |                            |   |
| 40+50.00              | 108               | 158               |                            |   |
| 41+00.00              | 102               | 181               |                            |   |
| 41+50.00              | 99                | 189               |                            |   |
| 42+00.00              | 98                | 174               |                            |   |
| 42+50.00              | 106               | 151               |                            |   |
| 43+00.00              | 123               | 115               |                            |   |
| 43+50.00              | 136               | 84                |                            |   |
| 44+00.00              | 134               | 77                |                            |   |
| 44+50.00              | 115               | 85                |                            |   |
| 45+00.00              | 97                | 110               |                            |   |
| 45+50.00              | 86                | 137               |                            |   |
| 46+00.00              | 83                | 145               |                            |   |
| 46+50.00              | 87                | 142               |                            |   |
| 47+00.00              | 111               | 128               |                            |   |
| 47+50.00              | 142               | 110               |                            |   |
| 48+00.00              | 151               | 106               |                            |   |
| 48+50.00              | 141               | 116               |                            |   |
| 49+00.00              | 136               | 119               |                            |   |
| 49+50.00              | 153               | 104               |                            |   |
| 50+00.00              | 180               | 89                |                            |   |
| 50+50.00              | 179               | 85                |                            |   |
| 51+00.00              | 144               | 93                |                            |   |
| 51+50.00              | 110               | 110               |                            |   |
| 52+00.00              | 94                | 123               |                            |   |
| 52+50.00              | 88                | 150               |                            |   |
| 53+00.00              | 90                | 184               |                            |   |
| 53+50.00              | 98                | 183               |                            |   |
| 54+00.00              | 132               | 145               |                            |   |
| 54+50.00              | 246               | 109               |                            |   |
| 55+00.00              | 342               | 103               |                            |   |
| 55+50.00              | 294               | 114               |                            |   |
| 56+00.00              | 244               | 104               |                            |   |
| 56+50.00              | 280               | 84                |                            |   |
| 57+00.00              | 317               | 84                |                            |   |
| 57+22.51              | 143               | 39                |                            |   |
| TOTALS(Puma):         | 8006              | 6339              |                            |   |

| EARTHWORK TABULATIONS |                   |                   |                            | F |
|-----------------------|-------------------|-------------------|----------------------------|---|
| STATION               | EXCAVATION COMMON | COMMON EMBANKMENT | SELECT GRANULAR EMBANKMENT |   |
| CSAH 81 TRAIL         |                   |                   |                            |   |
| 60+67.04              |                   |                   |                            |   |
| 61+03.04              | 45                | 52                |                            |   |
| 61+53.04              | 52                | 63                |                            |   |
| 62+03.04              | 55                | 62                |                            |   |
| 62+53.04              | 61                | 35                |                            |   |
| 63+03.50              | 98                | 63                |                            |   |
| 63+53.92              | 121               | 95                |                            |   |
| 64+03.92              | 114               | 106               |                            |   |
| 64+53.92              | 107               | 99                |                            |   |
| 65+03.92              | 119               | 78                |                            |   |
| 65+53.92              | 112               | 54                |                            |   |
| 66+03.92              | 88                | 59                |                            |   |
| 66+53.92              | 62                | 53                |                            |   |
| 67+04.44              | 44                | 37                |                            |   |
| 67+54.79              | 44                | 36                |                            |   |
| 68+04.79              | 46                | 38                |                            |   |
| 68+54.79              | 60                | 49                |                            |   |
| 69+04.79              | 57                | 45                |                            |   |
| 69+54.79              | 45                | 42                |                            |   |
| 70+04.79              | 49                | 41                |                            |   |
| 70+54.79              | 88                | 32                |                            |   |
| 71+04.79              | 91                | 50                |                            |   |
| 71+54.79              | 59                | 77                |                            |   |
| 72+04.79              | 79                | 64                |                            |   |
| 72+54.79              | 67                | 35                |                            |   |
| 73+04.79              | 50                | 51                |                            |   |
| 73+54.79              | 54                | 64                |                            |   |
| 74+04.79              | 53                | 51                |                            |   |
| 74+54.79              | 56                | 40                |                            |   |
| 75+04.79              | 52                | 37                |                            |   |
| 75+54.79              | 43                | 34                |                            |   |
| 76+04.79              | 69                | 51                |                            |   |
| 76+54.79              | 94                | 79                |                            |   |
| 76+93.26              | 60                | 50                |                            |   |
| TOTALS(83 Trail):     | 2293              | 1823              |                            |   |

**NOTES:**

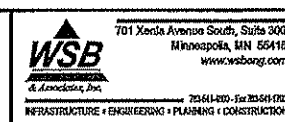
- TOPSOIL EXCAVATION IS INCLUDED IN COMMON EXCAVATION QUANTITIES
- COMMON EMBANKMENT QUANTITIES INCLUDES TOPSOIL

| NO | DATE | BY | CHK | REVISIONS |
|----|------|----|-----|-----------|
|    |      |    |     |           |
|    |      |    |     |           |
|    |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked by: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jopo Hale P.E.

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



EARTHWORK TABULATION  
 SUMMARY & SOILS/CONST NOTES  
 SHEET 1 OF 2 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 14  
 OF  
 249  
 SHEETS

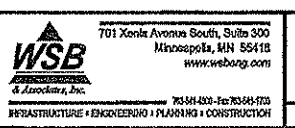
| EARTHWORK SUMMARY     |                        |                        |                      | G |
|-----------------------|------------------------|------------------------|----------------------|---|
| LOCATION              | EXCAVATION             | EMBANKMENT             |                      |   |
|                       | COMMON EXCAVATION (EV) | COMMON EMBANKMENT (CV) | SELECT GRANULAR (CV) |   |
|                       | CU YD                  | CU YD                  | CU YD                |   |
| CSAH 83               | 14090                  | 21802                  |                      |   |
| MSAS 121              |                        |                        |                      |   |
| CSAH 116              | 3826                   | 6009                   |                      |   |
| PUMA STREET           | 8006                   | 6339                   |                      |   |
| CSAH 83 TRAIL         | 2293                   | 1823                   |                      |   |
| POND 83A              | 6552                   | 162                    |                      |   |
| <b>PROJECT TOTALS</b> | <b>34767</b>           | <b>36135</b>           |                      |   |

DATE: 5/4/2011 10:38:47 AM  
 PATH & FILENAME: K:\1973-001\Card\Plan\csah83\_ew02.dgn

| NO | DATE | BY | CHK | REVISIONS |
|----|------|----|-----|-----------|
|    |      |    |     |           |
|    |      |    |     |           |
|    |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, State of Minn.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



EARTHWORK SUMMARY: SOIL & CONSTRUCTION NOTES  
 EARTHWORK TABULATION, SUMMARY  
 SHEET 2 OF 2 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 15 OF 249 SHEETS

| CENTERPOINT (GAS)        |                            |                   |      |             |                       | H |
|--------------------------|----------------------------|-------------------|------|-------------|-----------------------|---|
| Alignment                | Station to Station         | Offset            | Item | Owner       | Remarks               |   |
| Armstrong Blvd NW        | 132+79 (SB) to 139+00 (SB) | 29' LT to 8' LT   | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd NW        | 139+00 (SB) to 154+00 (SB) | 8' LT to 14' LT   | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd NW        | 152+78 (SB) to 152+78 (SB) | 11' LT to 122' RT | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd NW        | 154+00 (SB) to 160+09 (SB) | 14' LT to 33' LT  | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd NW        | 160+09 (SB) to 160+77 (SB) | 33' LT to 20' LT  | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 60+80 to 66+13             | 22' RT to 12' RT  | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 66+13 to 66+71             | 12' RT to 6' LT   | Gas  | Centerpoint | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 66+71 to 77+03             | 6' LT to 5' LT    | Gas  | Centerpoint | Relocate as necessary |   |

| CONNEXUS (POWER)  |                            |                   |            |          |                       | H |
|-------------------|----------------------------|-------------------|------------|----------|-----------------------|---|
| Alignment         | Station to Station         | Offset            | Item       | Owner    | Remarks               |   |
| Armstrong Blvd NW | 132+25 (SB) to 133+95 (SB) | 72' RT to 64' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 133+95 (SB)                | 64' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 133+95 (SB)                | 64' RT to 46' RT  | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 133+95 (SB) to 135+42 (SB) | 46' RT to 53' RT  | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 135+42 (SB)                | 53' RT to 38' LT  | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 133+95 (SB) to 136+25 (SB) | 64' RT to 74' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 136+25 (SB)                | 74' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 136+25 (SB) to 136+45 (SB) | 74' RT to 46' LT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 136+25 (SB) to 138+76 (SB) | 74' RT to 80' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 138+76 (SB)                | 80' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 138+76 (SB) to 138+84 (SB) | 80' RT to 26' LT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 138+84 (SB)                | 26' LT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 138+76 (SB) to 138+84 (SB) | 39' RT to 26' LT  | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 138+76 (SB) to 140+82 (SB) | 80' RT to 82' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 140+82 (SB)                | 82' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 140+82 (SB) to 142+86 (SB) | 82' RT to 83' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 142+86 (SB)                | 83' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 142+86 (SB) to 145+58 (SB) | 83' RT to 82' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 145+58 (SB)                | 82' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 145+58 (SB)                | 82' RT to 13' LT  | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 145+58 (SB) to 145+89 (SB) | 13' LT            | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 145+89 (SB)                | 13' LT to 262' LT | P-BUR      | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 145+58 (SB) to 147+93 (SB) | 82' LT            | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 147+93 (SB)                | 82' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 147+93 (SB) to 150+49 (SB) | 82' RT            | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 150+49 (SB)                | 82' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 150+49 (SB) to 152+84 (SB) | 82' RT to 78' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 152+84 (SB)                | 78' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 152+84 (SB) to 156+23 (SB) | 78' RT to 65' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 156+23 (SB)                | 65' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 156+23 (SB)                | 65' RT to 125' RT | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 156+23 (SB) to 159+08 (SB) | 65' RT to 57' RT  | OHP        | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 159+08 (SB)                | 57' RT            | Power Pole | Connexus | Relocate as necessary |   |
| Armstrong Blvd NW | 159+08 (SB) to 160+75 (SB) | 57' RT to 56' RT  | OHP        | Connexus | Relocate as necessary |   |

| COMCAST (TELEVISION)     |                            |                   |          |         |                       | H |
|--------------------------|----------------------------|-------------------|----------|---------|-----------------------|---|
| Alignment                | Station to Station         | Offset            | Item     | Owner   | Remarks               |   |
| Armstrong Blvd NW        | 138+00 (SB) to 145+58 (SB) | 85' RT to 81' RT  | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 145+58 (SB) to 146+77 (SB) | 81' RT to 87' RT  | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 146+77 (SB) to 150+49 (SB) | 87' RT to 82' RT  | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 150+49 (SB) to 152+84 (SB) | 82' RT to 78' RT  | OH-TV    | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 152+84 (SB)                | 78' RT to 106' RT | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 152+84 (SB) to 156+23 (SB) | 78' RT to 65' RT  | OH-TV    | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 156+23 (SB) to 159+08 (SB) | 65' RT to 57' RT  | OH-TV    | Comcast | Relocate as necessary |   |
| Armstrong Blvd NW        | 159+08 (SB) to 160+75 (SB) | 57' RT to 56' RT  | OH-TV    | Comcast | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 70+95 to 70+97             | 5' RT to 12' LT   | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 70+97                      | 9' LT             | Handhole | Comcast | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 70+97 to 71+55             | 9' LT to 10' LT   | TV-BUR   | Comcast | Relocate as necessary |   |
| Armstrong Blvd Bike Path | 71+55                      | 10' LT            | Handhole | Comcast | Relocate as necessary |   |

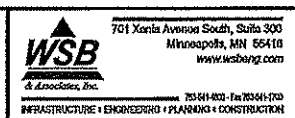
| QWEST (TELEPHONE)         |                            |                  |          |       |                       | H |
|---------------------------|----------------------------|------------------|----------|-------|-----------------------|---|
| Alignment                 | Station to Station         | Offset           | Item     | Owner | Remarks               |   |
| Armstrong Blvd NW         | 132+79 (SB) to 150+65 (SB) | 42' LT to 17' LT | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd NW         | 150+65 (SB) to 160+64 (SB) | 17' LT to 34' LT | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 60+67 to 66+18             | 8' RT to 3' RT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 66+18                      | 3' RT            | Handhole | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 66+18 to 66+65             | 3' RT to 11' LT  | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 66+65 to 70+45             | 11' LT to 2' RT  | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 70+45 to 70+90             | 2' RT to 7' LT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 70+90 to 70+91             | 7' LT to 12' LT  | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 70+90                      | 7' LT            | Handhole | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 70+90 to 70+93             | 7' LT to 9' RT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 70+90 to 71+55             | 7' LT to 4' LT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 71+55 to 71+80             | 4' LT to 6' RT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 71+80                      | 6' RT            | Handhole | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 71+80 to 76+55             | 6' RT            | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 76+55                      | 6' RT to 8' LT   | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 76+55                      | 6' RT            | Handhole | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 76+55 to 77+03             | 6' RT to 12' LT  | T-BUR    | Qwest | Relocate as necessary |   |
| Armstrong Blvd Bike Trail | 76+55 to 77+03             | 6' RT to 3' LT   | T-BUR    | Qwest | Relocate as necessary |   |
| Bunker Lake Blvd          | 407+48 to 407+61           | 21' RT to 15' RT | T-BUR    | Qwest | Relocate as necessary |   |
| Bunker Lake Blvd          | 407+61 to 411+99           | 15' RT           | T-BUR    | Qwest | Relocate as necessary |   |
| Bunker Lake Blvd          | 411+99 to 415+26           | 15' RT to 42' RT | T-BUR    | Qwest | Relocate as necessary |   |
| Bunker Lake Blvd          | 415+26                     | 42' RT           | Manhole  | Qwest | Relocate as necessary |   |
| Bunker Lake Blvd          | 415+26 to 416+95           | 42' RT           | T-BUR    | Qwest | Relocate as necessary |   |

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PRIVATE UTILITY TABULATION  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 16 OF 249 SHEETS



**WATERMAIN TABULATION**

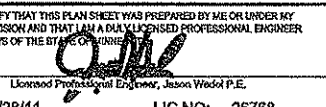
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| STATION TO STATION   | OFFSET      | SALVAGE GATE VALVE (1) | SALVAGE HYDRANT (1) | ADJUST GATE VALVE AND BOX | CONNECT TO EXISTING WATER MAIN | HYDRANT   | INSTALL HYDRANT | INSTALL GATE VALVE | 6" GATE VALVE AND BOX | 8" GATE VALVE AND BOX | 16" BUTTERFLY VALVE | 24" BUTTERFLY VALVE | 6" WATER MAIN DUCTILE IRON CL 53 | 8" WATER MAIN DUCTILE IRON CL 52 | 16" WATER MAIN DUCTILE IRON CL 52 | 24" WATER MAIN DUCTILE IRON CL 52 | DUCTILE IRON FITTINGS | 6" POLYSTYRENE INSULATION |            |
|----------------------|-------------|------------------------|---------------------|---------------------------|--------------------------------|-----------|-----------------|--------------------|-----------------------|-----------------------|---------------------|---------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------|---------------------------|------------|
|                      |             | 2104 EACH              | 2104 EACH           | 2504 EACH                 | 2504 EACH                      | 2504 EACH | 2504 EACH       | 2504 EACH          | 2504 EACH             | 2504 EACH             | 2504 EACH           | 2504 EACH           | 2504 EACH                        | 2504 LIN FT                      | 2504 LIN FT                       | 2504 LIN FT                       | 2504 LIN FT           | 2504 POUND                | 2504 SQ YD |
| <b>CSAH 83</b>       |             |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 45+00 TO 45+00       | 35'RT       |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 2.5                              |                                  |                                   |                                   | 343                   |                           |            |
| 45+00 TO 46+40       | 15'-35'RT   |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   | 140                               |                       |                           |            |
| 45+30 TO 45+30       | 35'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 450                   |                           |            |
| 46+20 TO 46+20       | 15'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 450                   |                           |            |
| 46+40 TO 46+40       | 15'RT       |                        |                     | 2                         | 2                              |           |                 |                    |                       |                       | 1                   | 1                   |                                  |                                  |                                   |                                   |                       |                           |            |
| 46+91 TO 46+91       | 21'RT       |                        |                     | 1                         |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 52+17 TO 52+17       | 35'-54'RT   | 1                      | 1                   |                           |                                |           | 1               | 1                  |                       |                       |                     |                     | 20                               |                                  |                                   |                                   | 37                    |                           |            |
| 52+25 TO 52+25       | 12'RT       |                        |                     | 1                         |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 52+51 TO 52+51       | 15'RT       |                        |                     | 1                         |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| <b>MSAS 121</b>      |             |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 480+00 TO 480+00     | 36'RT       |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 2.5                              |                                  |                                   |                                   | 172                   |                           |            |
| 480+00 TO 490+00     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  | 1000                              |                                   |                       |                           |            |
| 480+32 TO 480+32     | 42'LT-36'RT |                        |                     |                           |                                |           |                 |                    |                       | 1                     |                     |                     |                                  | 84                               |                                   |                                   | 284                   |                           |            |
| 482+30 TO 482+30     | 36' RT      |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 161                   |                           |            |
| 482+45 TO 482+45     | 36'RT-58'RT |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 22                               |                                  |                                   |                                   | 229                   |                           |            |
| 482+50 TO 482+50     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       | 1                   |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 484+30 TO 484+30     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 161                   |                           |            |
| 485+70 TO 485+70     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 161                   |                           |            |
| 487+25 TO 487+25     | 36'RT-58'RT |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 22                               |                                  |                                   |                                   | 229                   |                           |            |
| 487+30 TO 487+30     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 490+00 TO 504+00     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  | 1400                              |                                   |                       |                           |            |
| 490+08 TO 490+08     | 45'LT-36'RT |                        |                     |                           |                                |           |                 |                    |                       | 1                     |                     |                     |                                  | 81                               |                                   |                                   | 284                   |                           |            |
| 491+25 TO 491+25     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   | 161                   |                           |            |
| 492+25 TO 492+25     | 36'RT-58'RT |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 22                               |                                  |                                   |                                   | 229                   |                           |            |
| 492+30 TO 492+30     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 497+25 TO 497+25     | 36'RT-58'RT |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 22                               |                                  |                                   |                                   | 229                   |                           |            |
| 497+30 TO 497+30     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 502+25 TO 502+25     | 36'RT-58'RT |                        |                     |                           |                                | 1         |                 |                    | 1                     |                       |                     |                     | 22                               |                                  |                                   |                                   | 229                   |                           |            |
| 502+30 TO 502+30     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       |                           |            |
| 504+00 TO 507+30     | 15'LT-36'RT |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   | 368                               |                       | 11                        |            |
| 505+80 TO 505+80     | 36'RT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       | 206                       |            |
| 505+95 TO 505+95     | 0'RT        |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       | 808                       |            |
| 506+20 TO 506+20     | 15'LT       |                        |                     |                           |                                |           |                 |                    |                       |                       |                     |                     |                                  |                                  |                                   |                                   |                       | 206                       |            |
| <b>PROJECT TOTAL</b> |             | 1                      | 1                   | 5                         | 2                              | 7         | 1               | 1                  | 7                     | 2                     | 6                   | 1                   | 135                              | 165                              | 2768                              | 140                               | 5029                  | 11                        |            |

NOTES:  
 (1) REMOVAL OF DUCTILE IRON FITTINGS INCIDENTAL

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| Drawn By: <b>C KOCHMAN</b>    | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, Jason Wasel P.E.<br>DATE: 04/28/11 LIC NO: 26788 |
| Designed By: <b>N HENTGES</b> |  |
| Checked By: <b>A PLOWMAN</b>  |  |
| Approved By: <b>J HALE</b>    |  |

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|--|---|--|
| <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55418<br>www.wsb.org.com<br>763/414-0222 • Fax 763/414-1720<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | <b>PROPOSED UTILITY TABULATION</b><br>WATERMAIN TABULATION<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 |
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| SHEET<br>17<br>OF<br>249<br>SHEETS |
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SANITARY SEWER TABULATION

J

| STRUCTURE TO STRUCTURE | REMOVE SEWER PIPE (SANITARY) | REMOVE STEEL CASING | CONNECT TO EXISTING SANITARY SEWER | CONST DRAINAGE STRUCTURE DESIGN F (1) | CASTING ASSEMBLY (2) | 8" PIPE PLUG | 21" PIPE PLUG | 8" PVC PIPE SEWER - SDR 26 | 18" PVC PIPE SEWER - SDR 26 | 21" PVC PIPE SEWER - SDR 26 | 24" PVC PIPE SEWER - SDR 26 |
|------------------------|------------------------------|---------------------|------------------------------------|---------------------------------------|----------------------|--------------|---------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                        | 2104<br>LIN FT               | 2104<br>LIN FT      | 2503<br>EACH                       | 2506<br>LIN FT                        | 2506<br>EACH         | 2503<br>EACH | 2503<br>EACH  | 2503<br>LIN FT             | 2503<br>LIN FT              | 2503<br>LIN FT              | 2503<br>LIN FT              |
| CSAH 83                |                              |                     |                                    |                                       |                      |              |               |                            |                             |                             |                             |
| 6000 TO 6001           | 6                            | 10                  | 1                                  | 16.5                                  | 1                    |              |               |                            |                             |                             | 400                         |
| 6001 TO 6002           |                              |                     |                                    | 11                                    | 1                    |              |               |                            |                             |                             | 400                         |
| 6002 TO 6003           |                              |                     |                                    | 9.5                                   | 1                    |              |               |                            |                             |                             | 380                         |
| 6003 TO 6004           |                              |                     |                                    | 9.3                                   | 1                    |              |               |                            |                             |                             | 251                         |
| 6004 TO 6005           |                              |                     |                                    | 9.4                                   | 1                    |              |               |                            |                             | 300                         |                             |
| 6005 TO 6006           |                              |                     |                                    | 11.4                                  | 1                    |              |               |                            |                             | 400                         |                             |
| 6006 TO 6007           |                              |                     |                                    | 13.2                                  | 1                    |              |               |                            |                             | 400                         |                             |
| 6007 TO 6008           |                              |                     |                                    | 13.3                                  | 1                    |              |               |                            |                             | 188                         |                             |
| 6008 TO 6009           |                              |                     |                                    | 15.1                                  | 1                    |              |               |                            |                             | 24                          |                             |
| 6009 TO                |                              |                     |                                    |                                       |                      |              | 1             |                            |                             |                             |                             |
| MSAS 121               |                              |                     |                                    |                                       |                      |              |               |                            |                             |                             |                             |
| STUB TO 6010           |                              |                     |                                    |                                       |                      |              |               |                            | 20                          |                             |                             |
| 6010 TO 6011           |                              |                     |                                    | 15                                    | 1                    |              |               |                            | 309                         |                             |                             |
| 6011 TO 6012           |                              |                     |                                    | 13.8                                  | 1                    |              |               |                            | 198                         |                             |                             |
| 6012 TO 6013           |                              |                     |                                    | 13.1                                  | 1                    |              |               |                            | 218                         |                             |                             |
| STUB TO 6013           |                              |                     |                                    |                                       |                      | 1            |               | 65                         |                             |                             |                             |
| 6013 TO 6014           |                              |                     |                                    | 12.3                                  | 1                    |              |               |                            | 386                         |                             |                             |
| 6014 TO 6015           |                              |                     |                                    | 10.8                                  | 1                    |              |               |                            | 228                         |                             |                             |
| 6015 TO 6016           |                              |                     |                                    | 9.9                                   | 1                    |              |               |                            | 400                         |                             |                             |
| 6016 TO 6017           |                              |                     |                                    | 10.3                                  | 1                    |              |               |                            | 400                         |                             |                             |
| 6017 TO 6018           |                              |                     |                                    | 11                                    | 1                    |              |               |                            | 400                         |                             |                             |
| 6018 TO 6004           |                              |                     |                                    | 9.5                                   | 1                    |              |               |                            | 165                         |                             |                             |
| PROJECT TOTAL          | 6                            | 10                  | 1                                  | 214.4                                 | 18                   | 1            | 1             | 65                         | 2724                        | 1312                        | 1431                        |

NOTES:

- (1) CONST DRAINAGE STRUCTURES DESIGN F TO BE 48" DIAMETER.
- (2) EXTERNAL CHIMNEY SEALS FOR CASTINGS INCIDENTAL.

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*(Signature)*  
 Licensed Professional Engineer, Jason Wiedel P.E.  
 DATE: 04/28/11 LIC NO: 26788

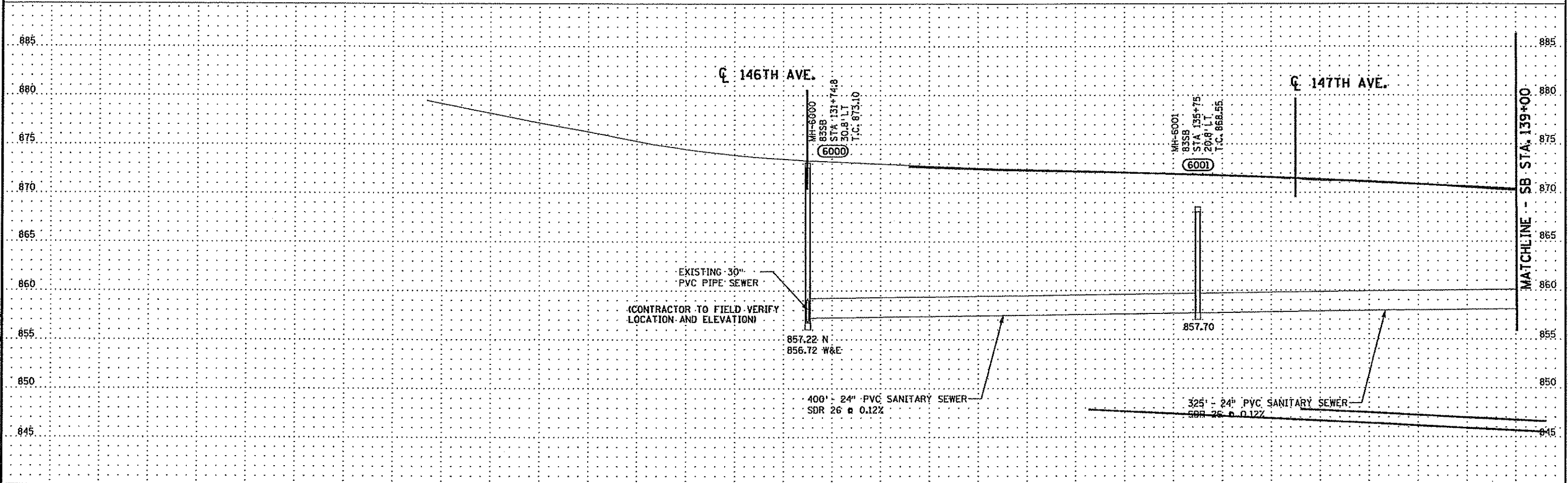
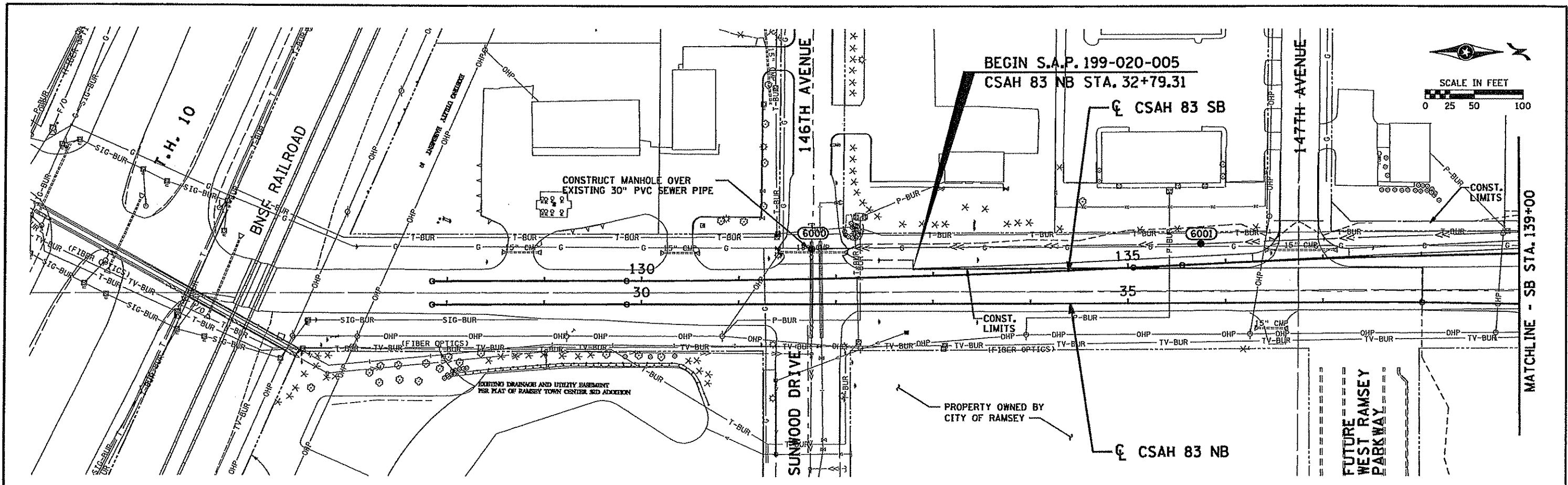
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PROPOSED UTILITY TABULATION  
 SANITARY SEWER TABULATION

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
 249  
 SHEETS



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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jason Wodol P.E.  
 DATE: 04/28/11 LIC NO: 26768

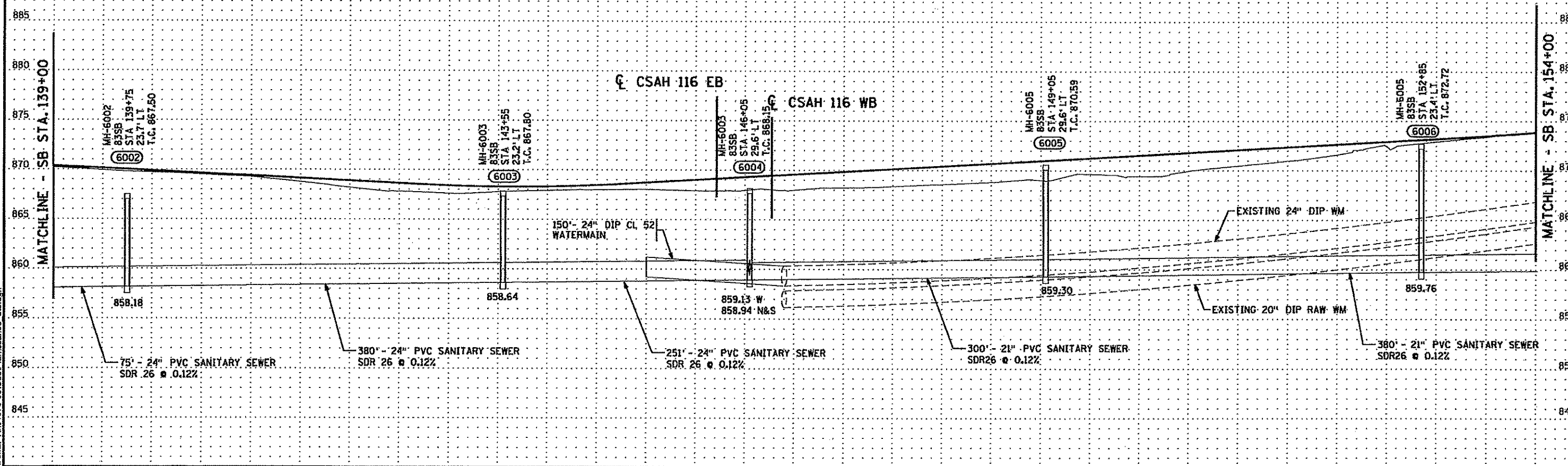
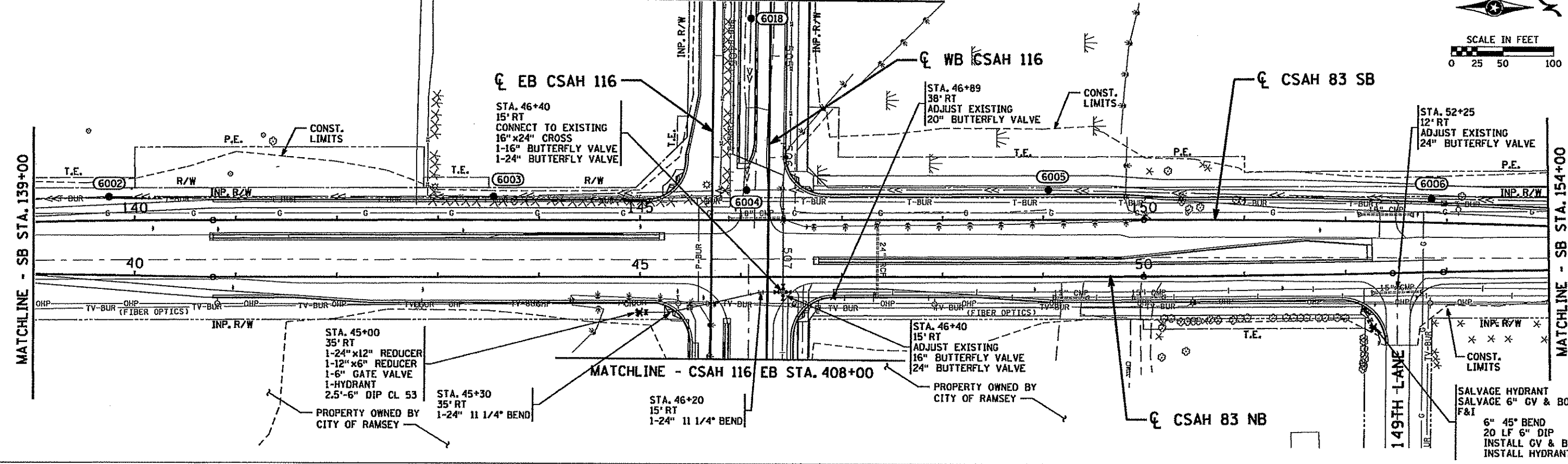
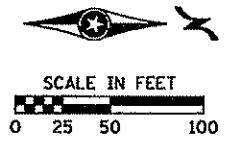
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 32+79.31 TO NB STA. 39+00  
 PROPOSED UTILITY PLAN  
 SHEET 1 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 19 OF 249 SHEETS

MSAS 121 EB STA. 404+00  
MATCHLINE - MSAS 121 WB STA. 504+00



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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

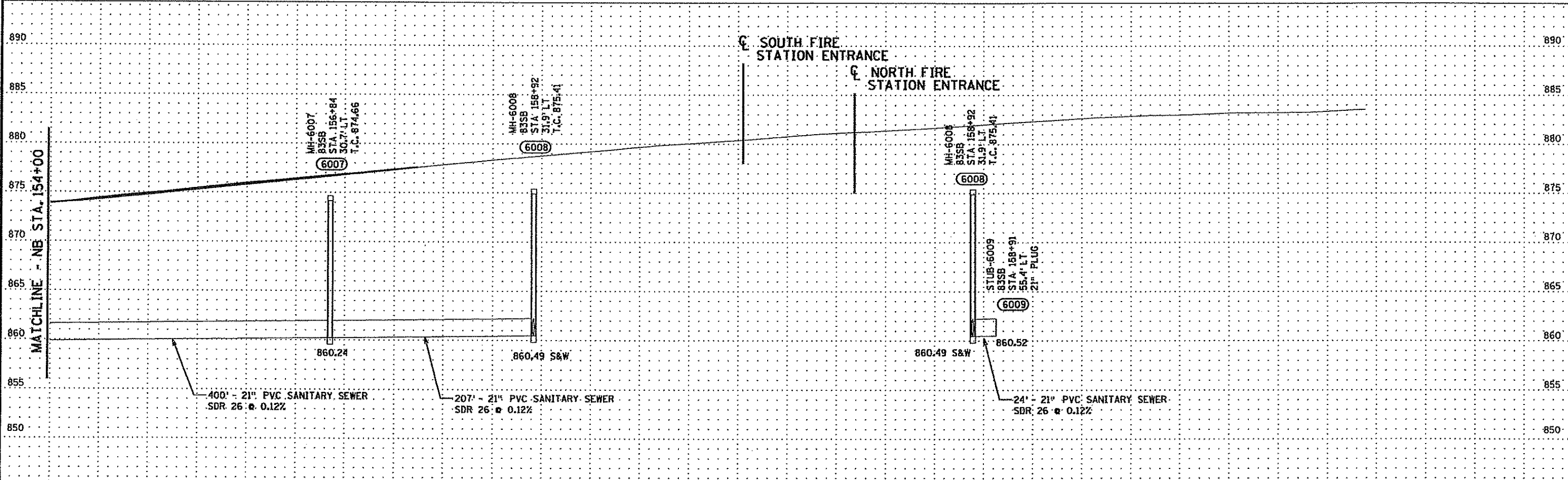
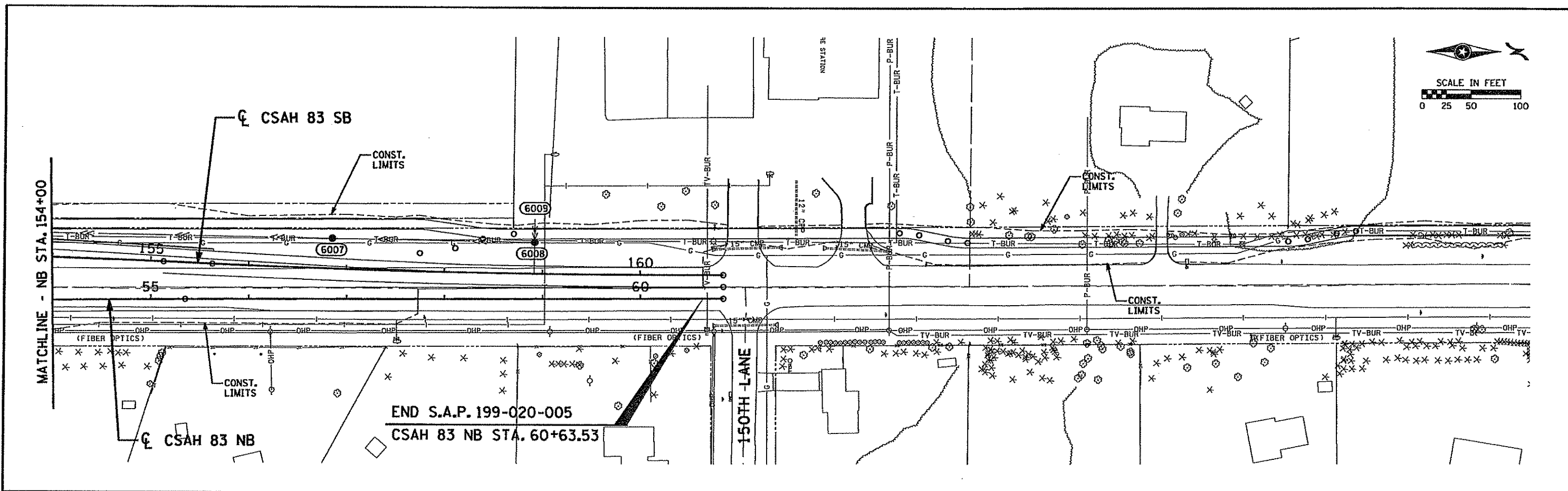
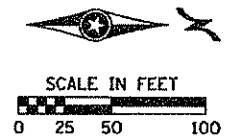
*(Signature)*  
Licensed Professional Engineer, Jason West P.E.  
DATE: 04/28/11 LIC NO: 26768

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 39+00 TO NB STA. 54+00  
PROPOSED UTILITY PLAN  
SHEET 2 OF 10 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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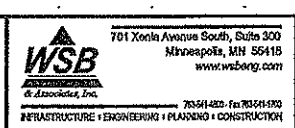


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jason Wofel P.E.  
 DATE: 04/28/11 LIC NO: 26768

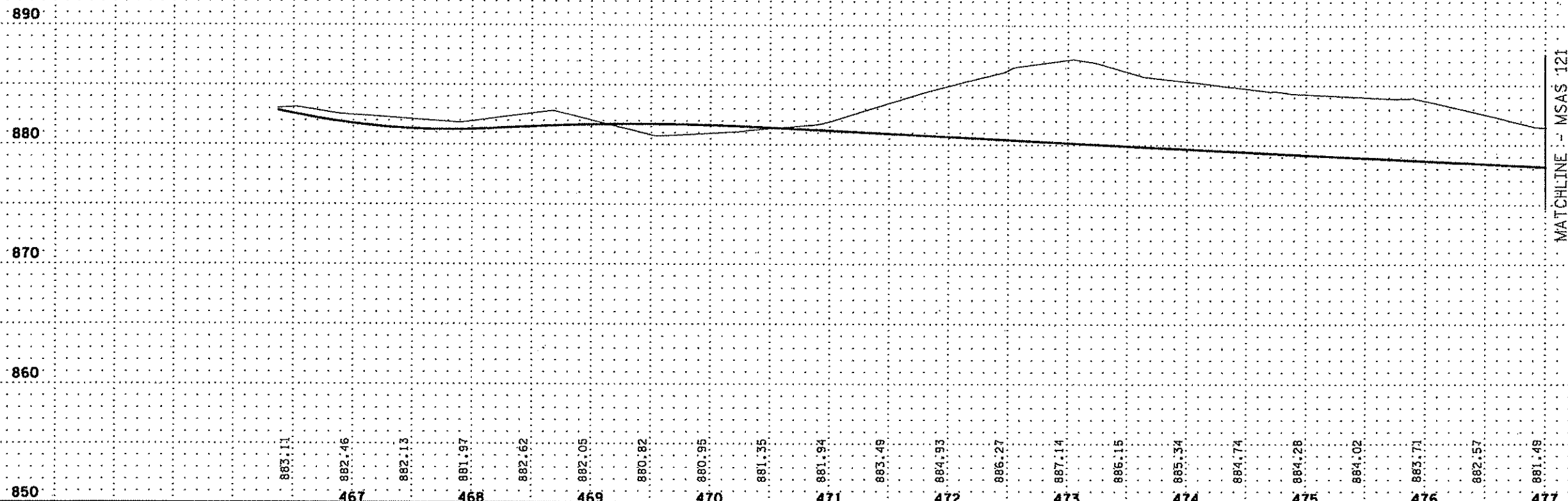
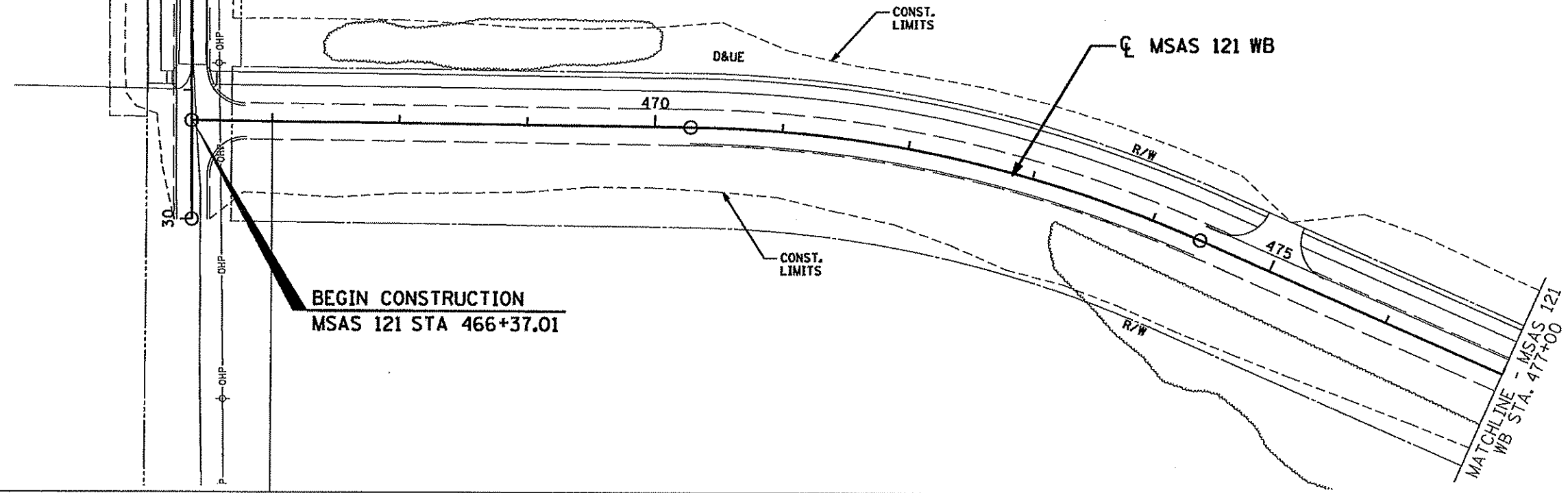
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 54+00 TO NB STA. 60+63.53  
 PROPOSED UTILITY PLAN  
 SHEET 3 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 21 OF 249 SHEETS

MATCHLINE - PUMA STREET STA. 32+00



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| 883.11 | 882.46 | 882.13 | 881.97 | 882.62 | 882.05 | 880.92 | 880.95 | 881.35 | 881.94 | 883.49 | 884.93 | 886.27 | 887.14 | 886.15 | 885.34 | 884.74 | 884.28 | 884.02 | 883.71 | 882.57 | 881.49 |  |
| 467    | 468    | 469    | 470    | 471    | 472    | 473    | 474    | 475    | 476    | 477    |        |        |        |        |        |        |        |        |        |        |        |  |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

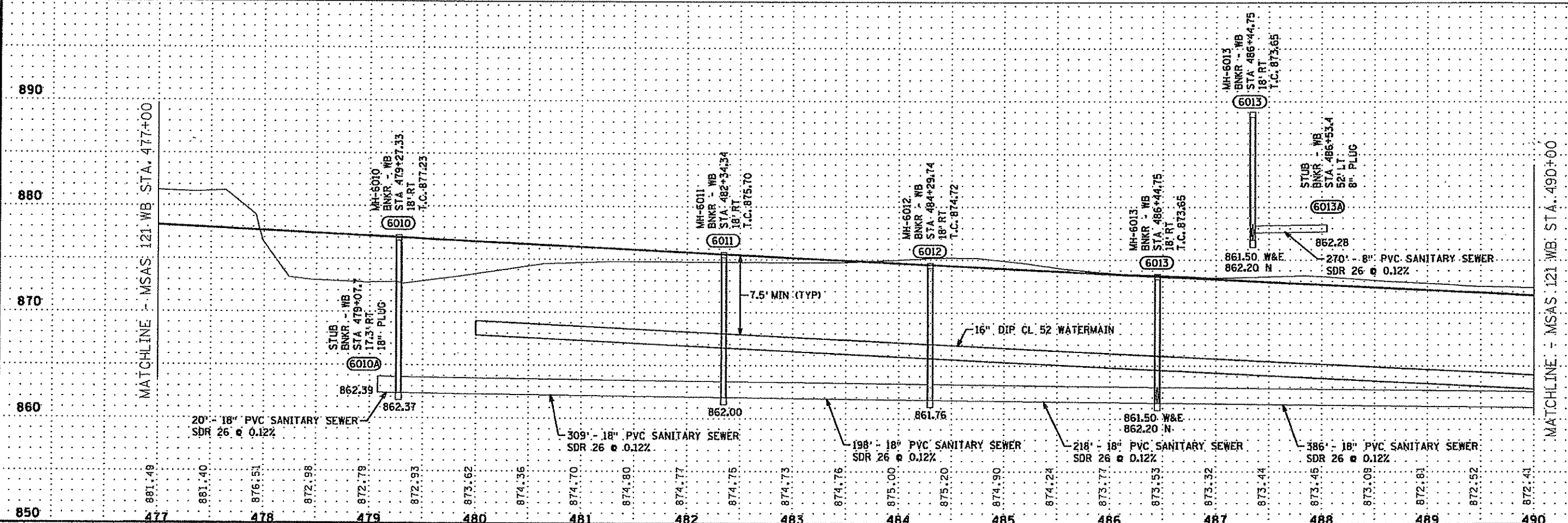
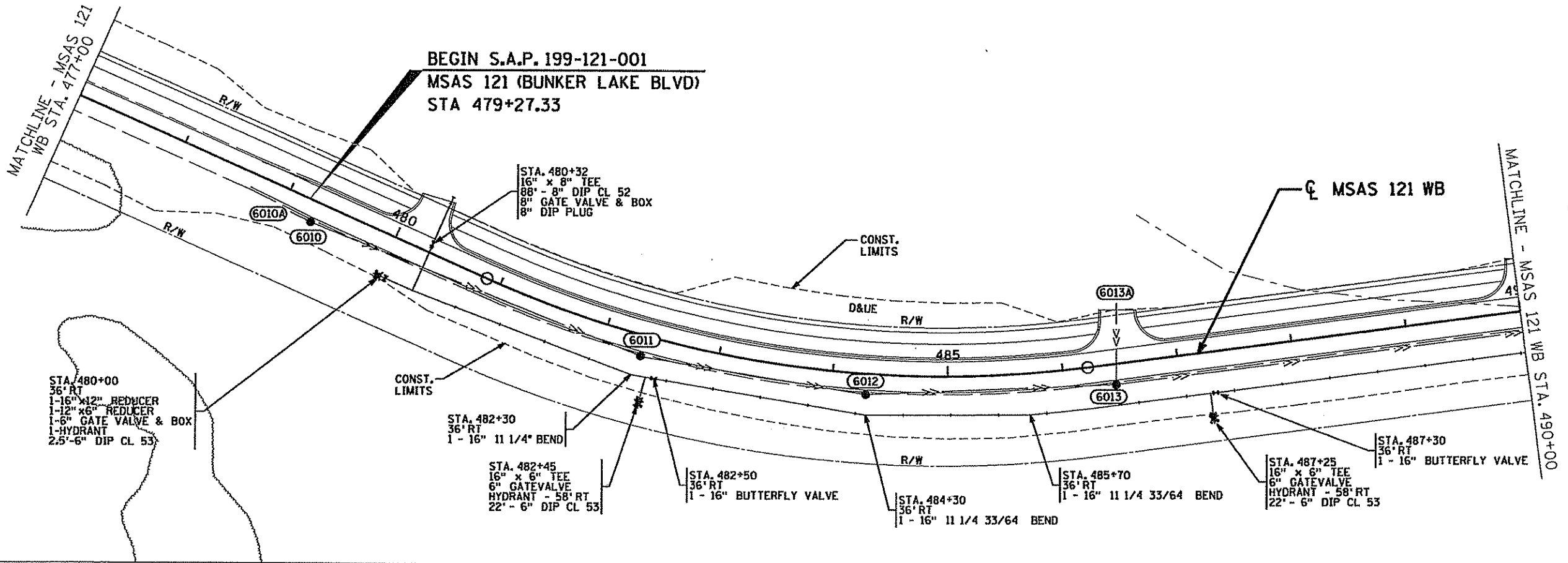
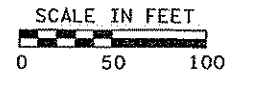
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, Jason Wisdel P.E.  
 DATE: 04/28/11 LIC NO: 26768

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 466+32.01 TO WB STA. 477+00  
**PROPOSED UTILITY PLAN**  
 SHEET 5 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 22 OF 249 SHEETS

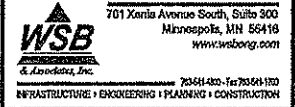


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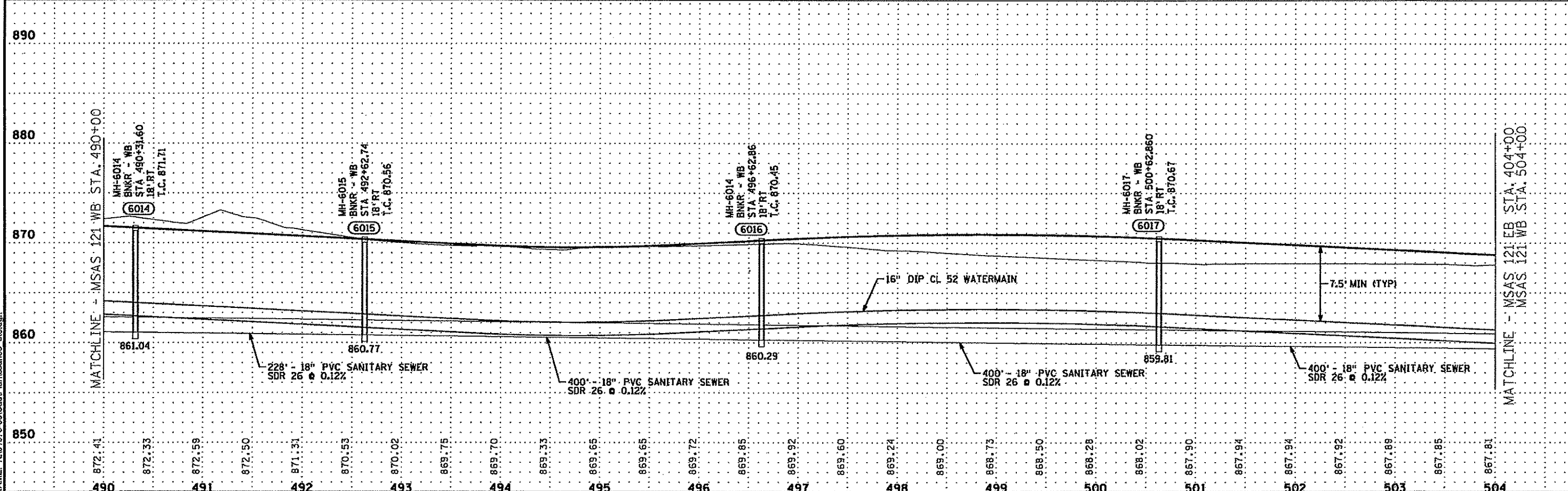
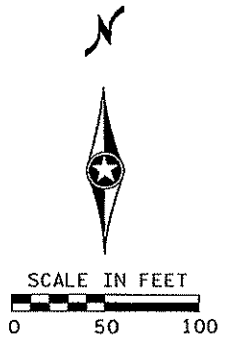
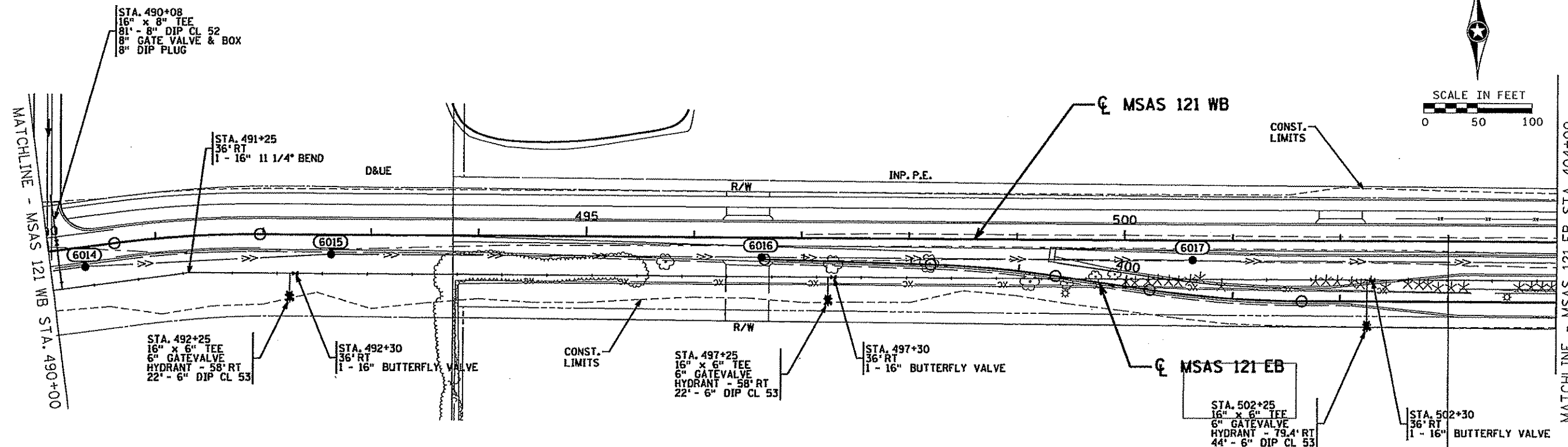
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jason Wudol P.E.  
 DATE: 04/28/11 LIC NO: 26768

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 477+00 TO WB STA. 490+00.00  
**PROPOSED UTILITY PLAN**  
 SHEET 6 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 23 OF 249 SHEETS



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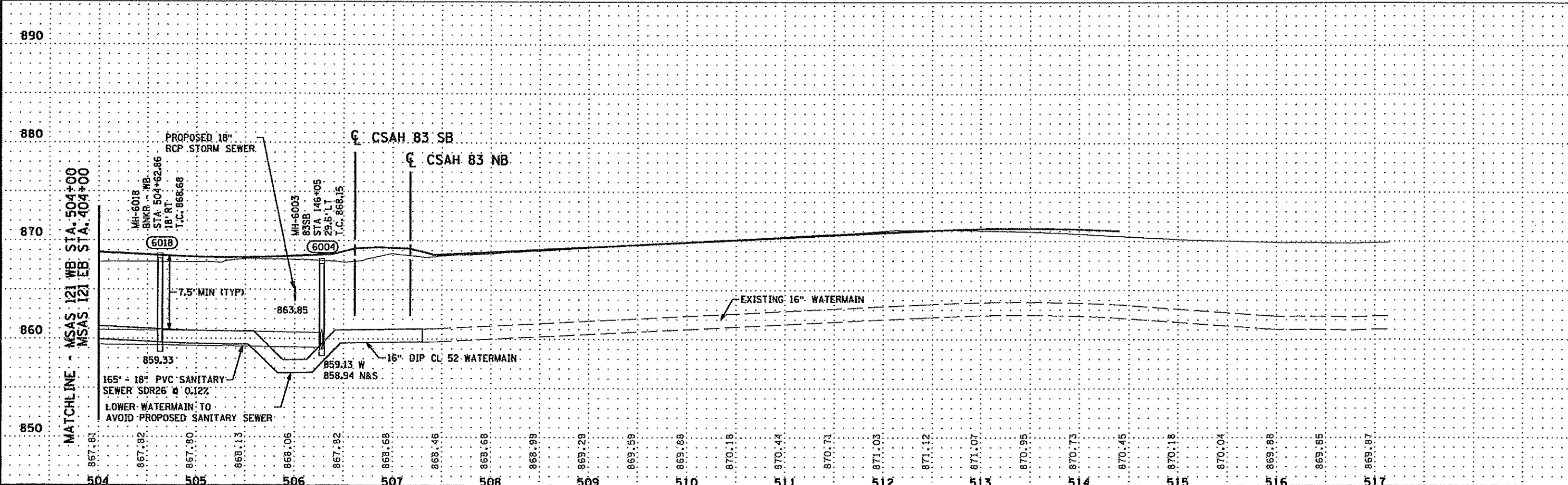
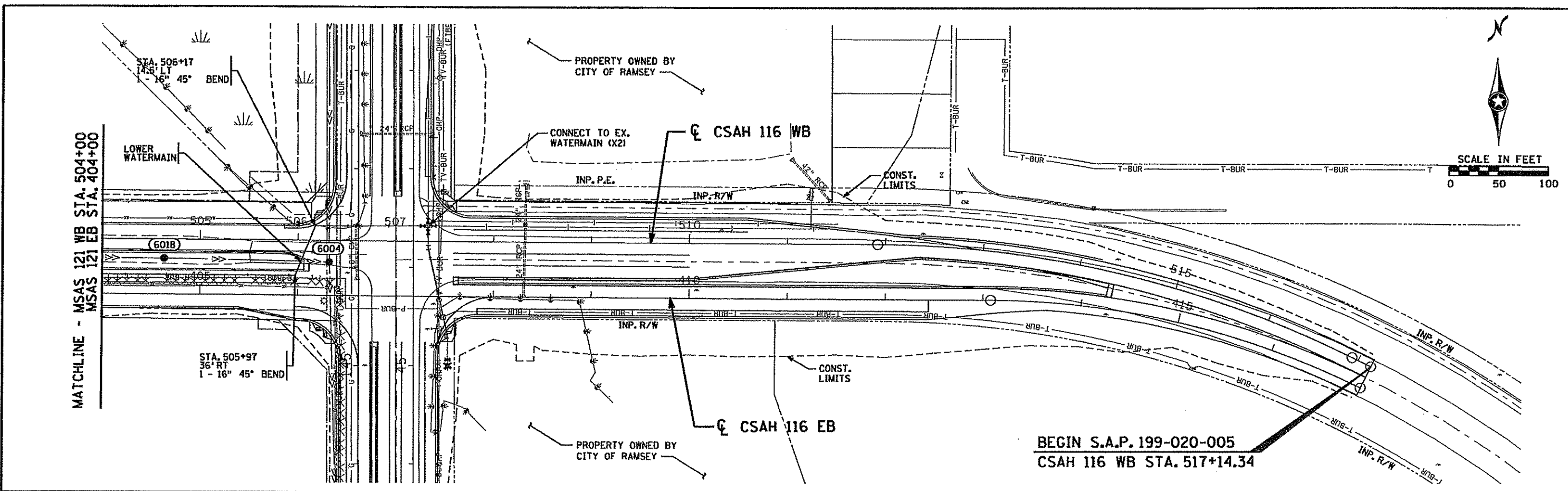
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| Drawn By: C KOCHMAN    | I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.<br><br>Licensed Professional Engineer, Jason Wedel P.E.<br>DATE: 04/28/11 LIC NO: 26768 |
| Designed By: N HENTGES |   |
| Checked By: A PLOWMAN  |   |
| Approved By: J HALE    |   |

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| <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>WSB & Associates, Inc.<br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsbeng.com | CSAH 116 WB STA. 490+00 TO WB STA. 504+00<br><b>PROPOSED UTILITY PLAN</b><br>SHEET 7 OF 9 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>24<br>OF<br>249<br>SHEETS |
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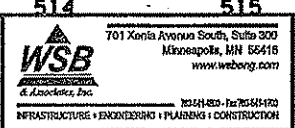


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License: Licensed Professional Engineer, Jason Wood P.E.  
 DATE: 04/28/11 LIC NO: 26768

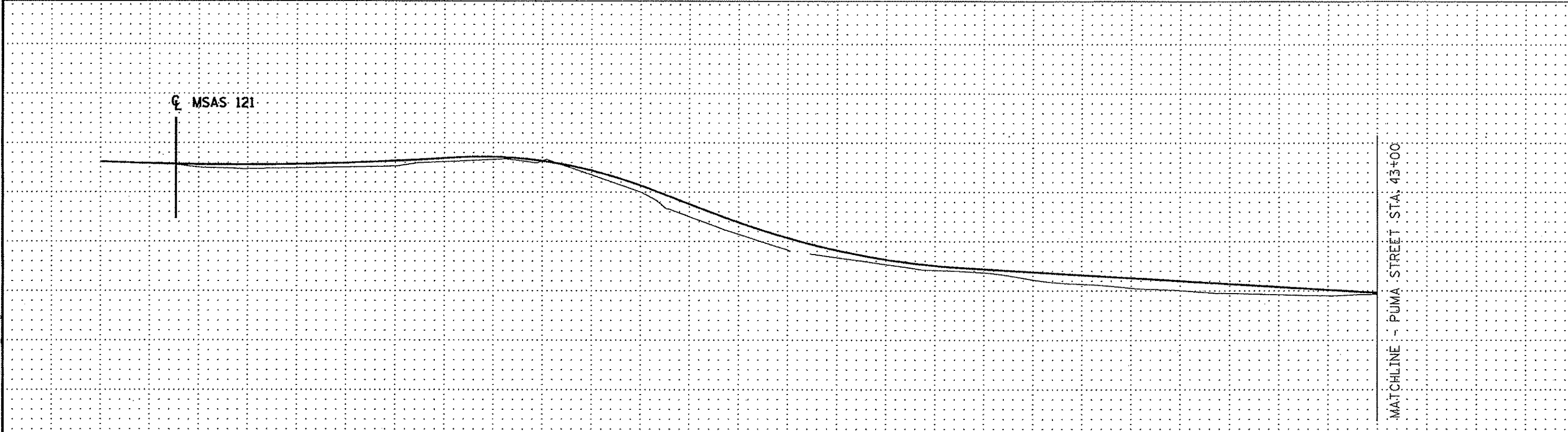
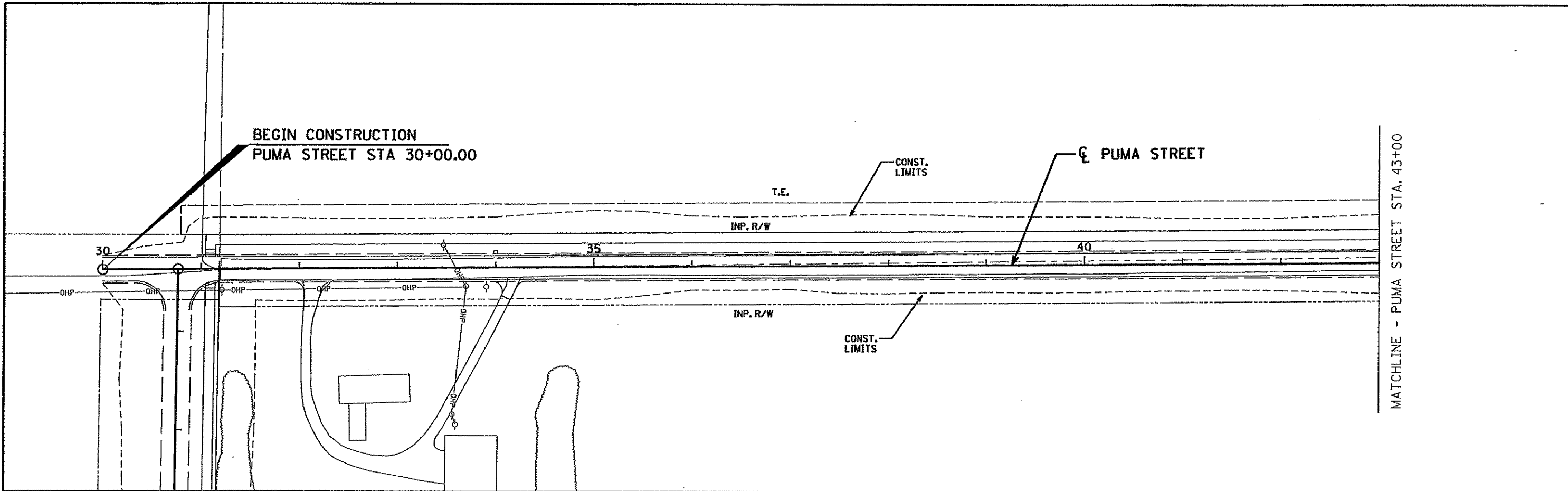
CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 EB STA. 405+00 TO STA. 417+00  
**PROPOSED UTILITY PLAN**  
 SHEET 4 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

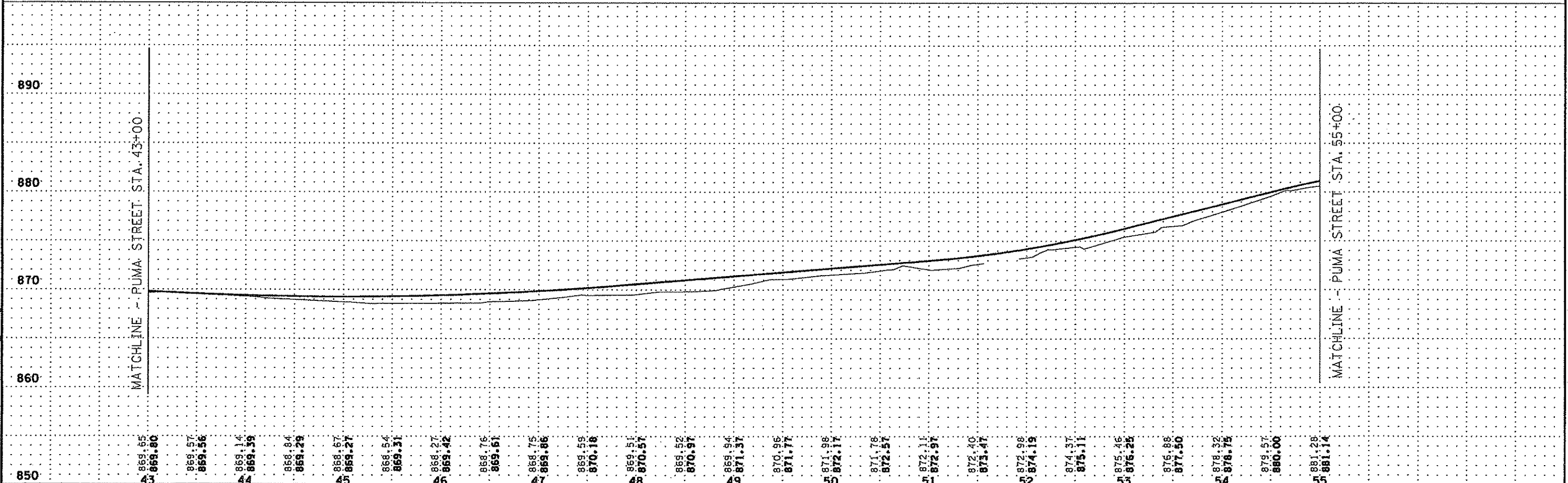
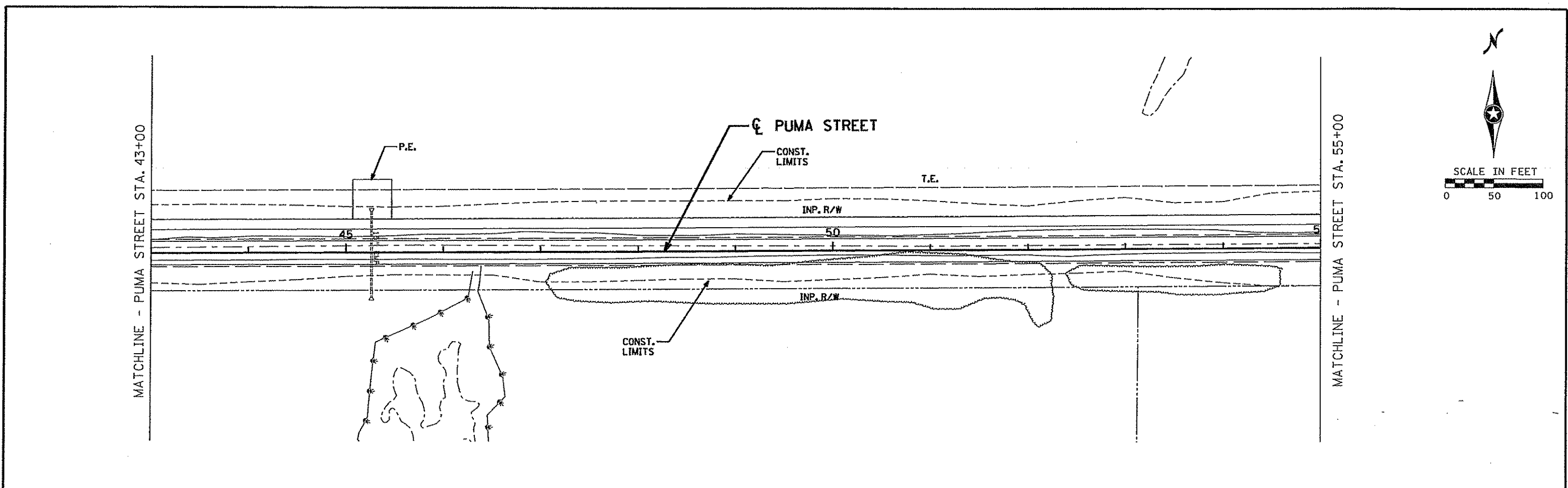
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| 883.30 | 883.05 | 882.81 | 882.57 | 882.32 | 882.08 | 881.84 | 881.60 | 881.36 | 881.12 | 880.88 | 880.64 | 880.40 | 880.16 | 879.92 | 879.68 | 879.44 | 879.20 | 878.96 | 878.72 | 878.48 | 878.24 | 878.00 | 877.76 | 877.52 | 877.28 | 877.04 | 876.80 | 876.56 | 876.32 | 876.08 | 875.84 | 875.60 | 875.36 | 875.12 | 874.88 | 874.64 | 874.40 | 874.16 | 873.92 | 873.68 | 873.44 | 873.20 | 872.96 | 872.72 | 872.48 | 872.24 | 872.00 | 871.76 | 871.52 | 871.28 | 871.04 | 870.80 | 870.56 | 870.32 | 870.08 | 869.84 | 869.60 | 869.36 | 869.12 | 868.88 | 868.64 | 868.40 | 868.16 | 867.92 | 867.68 | 867.44 | 867.20 | 866.96 | 866.72 | 866.48 | 866.24 | 866.00 | 865.76 | 865.52 | 865.28 | 865.04 | 864.80 | 864.56 | 864.32 | 864.08 | 863.84 | 863.60 | 863.36 | 863.12 | 862.88 | 862.64 | 862.40 | 862.16 | 861.92 | 861.68 | 861.44 | 861.20 | 860.96 | 860.72 | 860.48 | 860.24 | 860.00 | 859.76 | 859.52 | 859.28 | 859.04 | 858.80 | 858.56 | 858.32 | 858.08 | 857.84 | 857.60 | 857.36 | 857.12 | 856.88 | 856.64 | 856.40 | 856.16 | 855.92 | 855.68 | 855.44 | 855.20 | 854.96 | 854.72 | 854.48 | 854.24 | 854.00 | 853.76 | 853.52 | 853.28 | 853.04 | 852.80 | 852.56 | 852.32 | 852.08 | 851.84 | 851.60 | 851.36 | 851.12 | 850.88 | 850.64 | 850.40 | 850.16 | 849.92 | 849.68 | 849.44 | 849.20 | 848.96 | 848.72 | 848.48 | 848.24 | 848.00 | 847.76 | 847.52 | 847.28 | 847.04 | 846.80 | 846.56 | 846.32 | 846.08 | 845.84 | 845.60 | 845.36 | 845.12 | 844.88 | 844.64 | 844.40 | 844.16 | 843.92 | 843.68 | 843.44 | 843.20 | 842.96 | 842.72 | 842.48 | 842.24 | 842.00 | 841.76 | 841.52 | 841.28 | 841.04 | 840.80 | 840.56 | 840.32 | 840.08 | 839.84 | 839.60 | 839.36 | 839.12 | 838.88 | 838.64 | 838.40 | 838.16 | 837.92 | 837.68 | 837.44 | 837.20 | 836.96 | 836.72 | 836.48 | 836.24 | 836.00 | 835.76 | 835.52 | 835.28 | 835.04 | 834.80 | 834.56 | 834.32 | 834.08 | 833.84 | 833.60 | 833.36 | 833.12 | 832.88 | 832.64 | 832.40 | 832.16 | 831.92 | 831.68 | 831.44 | 831.20 | 830.96 | 830.72 | 830.48 | 830.24 | 830.00 | 829.76 | 829.52 | 829.28 | 829.04 | 828.80 | 828.56 | 828.32 | 828.08 | 827.84 | 827.60 | 827.36 | 827.12 | 826.88 | 826.64 | 826.40 | 826.16 | 825.92 | 825.68 | 825.44 | 825.20 | 824.96 | 824.72 | 824.48 | 824.24 | 824.00 | 823.76 | 823.52 | 823.28 | 823.04 | 822.80 | 822.56 | 822.32 | 822.08 | 821.84 | 821.60 | 821.36 | 821.12 | 820.88 | 820.64 | 820.40 | 820.16 | 819.92 | 819.68 | 819.44 | 819.20 | 818.96 | 818.72 | 818.48 | 818.24 | 818.00 | 817.76 | 817.52 | 817.28 | 817.04 | 816.80 | 816.56 | 816.32 | 816.08 | 815.84 | 815.60 | 815.36 | 815.12 | 814.88 | 814.64 | 814.40 | 814.16 | 813.92 | 813.68 | 813.44 | 813.20 | 812.96 | 812.72 | 812.48 | 812.24 | 812.00 | 811.76 | 811.52 | 811.28 | 811.04 | 810.80 | 810.56 | 810.32 | 810.08 | 809.84 | 809.60 | 809.36 | 809.12 | 808.88 | 808.64 | 808.40 | 808.16 | 807.92 | 807.68 | 807.44 | 807.20 | 806.96 | 806.72 | 806.48 | 806.24 | 806.00 | 805.76 | 805.52 | 805.28 | 805.04 | 804.80 | 804.56 | 804.32 | 804.08 | 803.84 | 803.60 | 803.36 | 803.12 | 802.88 | 802.64 | 802.40 | 802.16 | 801.92 | 801.68 | 801.44 | 801.20 | 800.96 | 800.72 | 800.48 | 800.24 | 800.00 | 799.76 | 799.52 | 799.28 | 799.04 | 798.80 | 798.56 | 798.32 | 798.08 | 797.84 | 797.60 | 797.36 | 797.12 | 796.88 | 796.64 | 796.40 | 796.16 | 795.92 | 795.68 | 795.44 | 795.20 | 794.96 | 794.72 | 794.48 | 794.24 | 794.00 | 793.76 | 793.52 | 793.28 | 793.04 | 792.80 | 792.56 | 792.32 | 792.08 | 791.84 | 791.60 | 791.36 | 791.12 | 790.88 | 790.64 | 790.40 | 790.16 | 789.92 | 789.68 | 789.44 | 789.20 | 788.96 | 788.72 | 788.48 | 788.24 | 788.00 | 787.76 | 787.52 | 787.28 | 787.04 | 786.80 | 786.56 | 786.32 | 786.08 | 785.84 | 785.60 | 785.36 | 785.12 | 784.88 | 784.64 | 784.40 | 784.16 | 783.92 | 783.68 | 783.44 | 783.20 | 782.96 | 782.72 | 782.48 | 782.24 | 782.00 | 781.76 | 781.52 | 781.28 | 781.04 | 780.80 | 780.56 | 780.32 | 780.08 | 779.84 | 779.60 | 779.36 | 779.12 | 778.88 | 778.64 | 778.40 | 778.16 | 777.92 | 777.68 | 777.44 | 777.20 | 776.96 | 776.72 | 776.48 | 776.24 | 776.00 | 775.76 | 775.52 | 775.28 | 775.04 | 774.80 | 774.56 | 774.32 | 774.08 | 773.84 | 773.60 | 773.36 | 773.12 | 772.88 | 772.64 | 772.40 | 772.16 | 771.92 | 771.68 | 771.44 | 771.20 | 770.96 | 770.72 | 770.48 | 770.24 | 770.00 | 769.76 | 769.52 | 769.28 | 769.04 | 768.80 | 768.56 | 768.32 | 768.08 | 767.84 | 767.60 | 767.36 | 767.12 | 766.88 | 766.64 | 766.40 | 766.16 | 765.92 | 765.68 | 765.44 | 765.20 | 764.96 | 764.72 | 764.48 | 764.24 | 764.00 | 763.76 | 763.52 | 763.28 | 763.04 | 762.80 | 762.56 | 762.32 | 762.08 | 761.84 | 761.60 | 761.36 | 761.12 | 760.88 | 760.64 | 760.40 | 760.16 | 759.92 | 759.68 | 759.44 | 759.20 | 758.96 | 758.72 | 758.48 | 758.24 | 758.00 | 757.76 | 757.52 | 757.28 | 757.04 | 756.80 | 756.56 | 756.32 | 756.08 | 755.84 | 755.60 | 755.36 | 755.12 | 754.88 | 754.64 | 754.40 | 754.16 | 753.92 | 753.68 | 753.44 | 753.20 | 752.96 | 752.72 | 752.48 | 752.24 | 752.00 | 751.76 | 751.52 | 751.28 | 751.04 | 750.80 | 750.56 | 750.32 | 750.08 | 749.84 | 749.60 | 749.36 | 749.12 | 748.88 | 748.64 | 748.40 | 748.16 | 747.92 | 747.68 | 747.44 | 747.20 | 746.96 | 746.72 | 746.48 | 746.24 | 746.00 | 745.76 | 745.52 | 745.28 | 745.04 | 744.80 | 744.56 | 744.32 | 744.08 | 743.84 | 743.60 | 743.36 | 743.12 | 742.88 | 742.64 | 742.40 | 742.16 | 741.92 | 741.68 | 741.44 | 741.20 | 740.96 | 740.72 | 740.48 | 740.24 | 740.00 | 739.76 | 739.52 | 739.28 | 739.04 | 738.80 | 738.56 | 738.32 | 738.08 | 737.84 | 737.60 | 737.36 | 737.12 | 736.88 | 736.64 | 736.40 | 736.16 | 735.92 | 735.68 | 735.44 | 735.20 | 734.96 | 734.72 | 734.48 | 734.24 | 734.00 | 733.76 | 733.52 | 733.28 | 733.04 | 732.80 | 732.56 | 732.32 | 732.08 | 731.84 | 731.60 | 731.36 | 731.12 | 730.88 | 730.64 | 730.40 | 730.16 | 729.92 | 729.68 | 729.44 | 729.20 | 728.96 | 728.72 | 728.48 | 728.24 | 728.00 | 727.76 | 727.52 | 727.28 | 727.04 | 726.80 | 726.56 | 726.32 | 726.08 | 725.84 | 725.60 | 725.36 | 725.12 | 724.88 | 724.64 | 724.40 | 724.16 | 723.92 | 723.68 | 723.44 | 723.20 | 722.96 | 722.72 | 722.48 | 722.24 | 722.00 | 721.76 | 721.52 | 721.28 | 721.04 | 720.80 | 720.56 | 720.32 | 720.08 | 719.84 | 719.60 | 719.36 | 719.12 | 718.88 | 718.64 | 718.40 | 718.16 | 717.92 | 717.68 | 717.44 | 717.20 | 716.96 | 716.72 | 716.48 | 716.24 | 716.00 | 715.76 | 715.52 | 715.28 | 715.04 | 714.80 | 714.56 | 714.32 | 714.08 | 713.84 | 713.60 | 713.36 | 713.12 | 712.88 | 712.64 | 712.40 | 712.16 | 711.92 | 711.68 | 711.44 | 711.20 | 710.96 | 710.72 | 710.48 | 710.24 | 710.00 | 709.76 | 709.52 | 709.28 | 709.04 | 708.80 | 708.56 | 708.32 | 708.08 | 707.84 | 707.60 | 707.36 | 707.12 | 706.88 | 706.64 | 706.40 | 706.16 | 705.92 | 705.68 | 705.44 | 705.20 | 704.96 | 704.72 | 704.48 | 704.24 | 704.00 | 703.76 | 703.52 | 703.28 | 703.04 | 702.80 | 702.56 | 702.32 | 702.08 | 701.84 | 701.60 | 701.36 | 701.12 | 700.88 | 700.64 | 700.40 | 700.16 | 699.92 | 699.68 | 699.44 | 699.20 | 698.96 | 698.72 | 698.48 | 698.24 | 698.00 | 697.76 | 697.52 | 697.28 | 697.04 | 696.80 | 696.56 | 696.32 | 696.08 | 695.84 | 695.60 | 695.36 | 695.12 | 694.88 | 694.64 | 694.40 | 694.16 | 693.92 | 693.68 | 693.44 | 693.20 | 692.96 | 692.72 | 692.48 | 692.24 | 692.00 | 691.76 | 691.52 | 691.28 | 691.04 | 690.80 | 690.56 | 690.32 | 690.08 | 689.84 | 689.60 | 689.36 | 689.12 | 688.88 | 688.64 | 688.40 | 688.16 | 687.92 | 687.68 | 687.44 | 687.20 | 686.96 | 686.72 | 686.48 | 686.24 | 686.00 | 685.76 | 685.52 | 685.28 | 685.04 | 684.80 | 684.56 | 684.32 | 684.08 | 683.84 | 683.60 | 683.36 | 683.12 | 682.88 | 682.64 | 682.40 | 682.16 | 681.92 | 681.68 | 681.44 | 681.20 | 680.96 | 680.72 | 680.48 | 680.24 | 680.00 | 679.76 | 679.52 | 679.28 | 679.04 | 678.80 | 678.56 | 678.32 | 678.08 | 677.84 | 677.60 | 677.36 | 677.12 | 676.88 | 676.64 | 676.40 | 676.16 | 675.92 | 675.68 | 675.44 | 675.20 | 674.96 | 674.72 | 674.48 | 674.24 | 674.00 | 673.76 | 673.52 | 673.28 | 673.04 | 672.80 | 672.56 | 672.32 | 672.08 | 671.84 | 671.60 | 671.36 | 671.12 | 670.88 | 670.64 | 670.40 | 670.16 | 669.92 | 669.68 | 669.44 | 669.20 | 668.96 | 668.72 | 668.48 | 668.24 | 668.00 | 667.76 | 667.52 | 667.28 | 667.04 | 666.80 | 666.56 | 666.32 | 666.08 | 665.84 | 665.60 | 665.36 | 665.12 | 664.88 | 664.64 | 664.40 | 664.16 | 663.92 | 663.68 | 663.44 | 663.20 | 662.96 | 662.72 | 662.48 | 662.24 | 662.00 | 661.76 | 661.52 | 661.28 | 661.04 | 660.80 | 660.56 | 660.32 | 660.08 | 659.84 | 659.60 | 659.36 | 659.12 | 658.88 | 658.64 | 658.40 | 658.16 | 657.92 | 657.68 | 657.44 | 657.20 | 656.96 | 656.72 | 656.48 | 656.24 | 656.00 | 655.76 | 655.52 | 655.28 | 655.04 | 654.80 | 654.56 | 654.32 | 654.08 | 653.84 | 653.60 | 653.36 | 653.12 | 652.88 | 652.64 | 652.40 | 652.16 | 651.92 | 651.68 | 651.44 | 651.20 | 650.96 | 650.72 | 650.48 | 650.24 | 650.00 | 649.76 | 649.52 | 649.28 | 649.04 | 648.80 | 648.56 | 648.32 | 648.08 | 647.84 | 647.60 | 647.36 | 647.12 | 646.88 | 646.64 | 646.40 | 646.16 | 645.92 | 645.68 | 645.44 | 645.20 | 644.96 | 644.72 | 644.48 | 644.24 | 644.00 | 643.76 | 643.52 | 643.28 | 643.04 | 642.80 |
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| NO | DATE | BY | CHK | REVISIONS        |
|----|------|----|-----|------------------|
| 3  |      |    |     | 869.85<br>869.80 |
| 4  |      |    |     | 869.57<br>869.56 |
| 4  |      |    |     | 869.14<br>869.59 |
| 5  |      |    |     | 868.84<br>869.29 |
| 5  |      |    |     | 868.67<br>869.27 |
| 6  |      |    |     | 868.54<br>869.31 |
| 6  |      |    |     | 868.27<br>869.42 |
| 7  |      |    |     | 868.76<br>869.61 |
| 7  |      |    |     | 868.75<br>869.66 |
| 8  |      |    |     | 869.59<br>870.18 |
| 8  |      |    |     | 869.51<br>870.57 |
| 9  |      |    |     | 869.52<br>870.97 |
| 9  |      |    |     | 869.94<br>871.37 |
| 10 |      |    |     | 870.96<br>871.77 |
| 10 |      |    |     | 871.96<br>872.17 |
| 11 |      |    |     | 871.78<br>872.57 |
| 11 |      |    |     | 872.11<br>872.97 |
| 12 |      |    |     | 872.40<br>873.47 |
| 12 |      |    |     | 872.98<br>874.19 |
| 13 |      |    |     | 874.37<br>875.11 |
| 13 |      |    |     | 875.46<br>876.25 |
| 14 |      |    |     | 876.88<br>877.50 |
| 14 |      |    |     | 878.32<br>878.75 |
| 15 |      |    |     | 879.57<br>880.00 |
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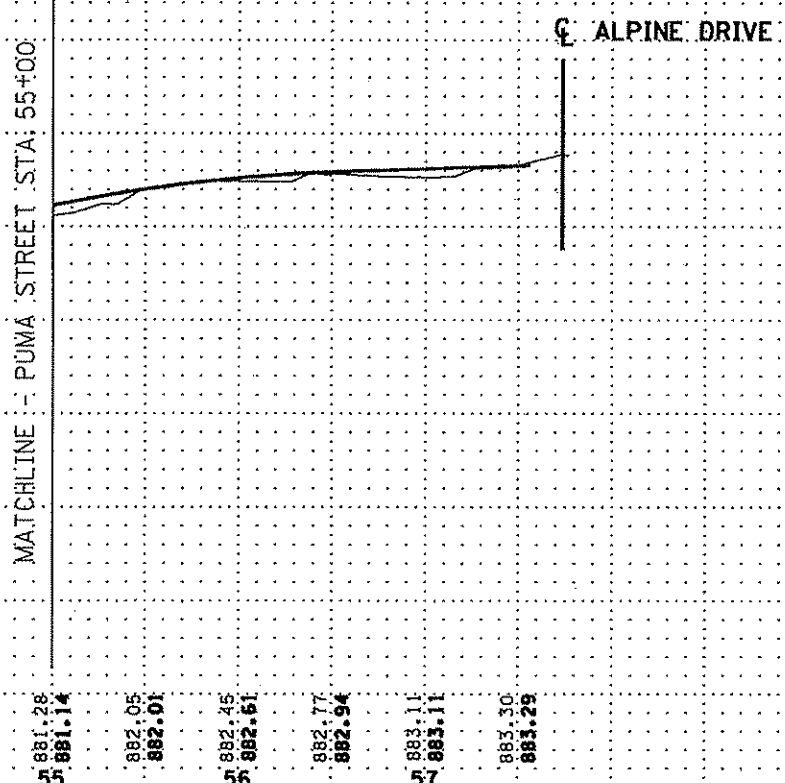
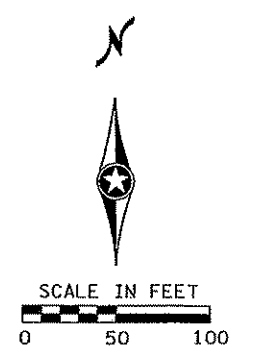
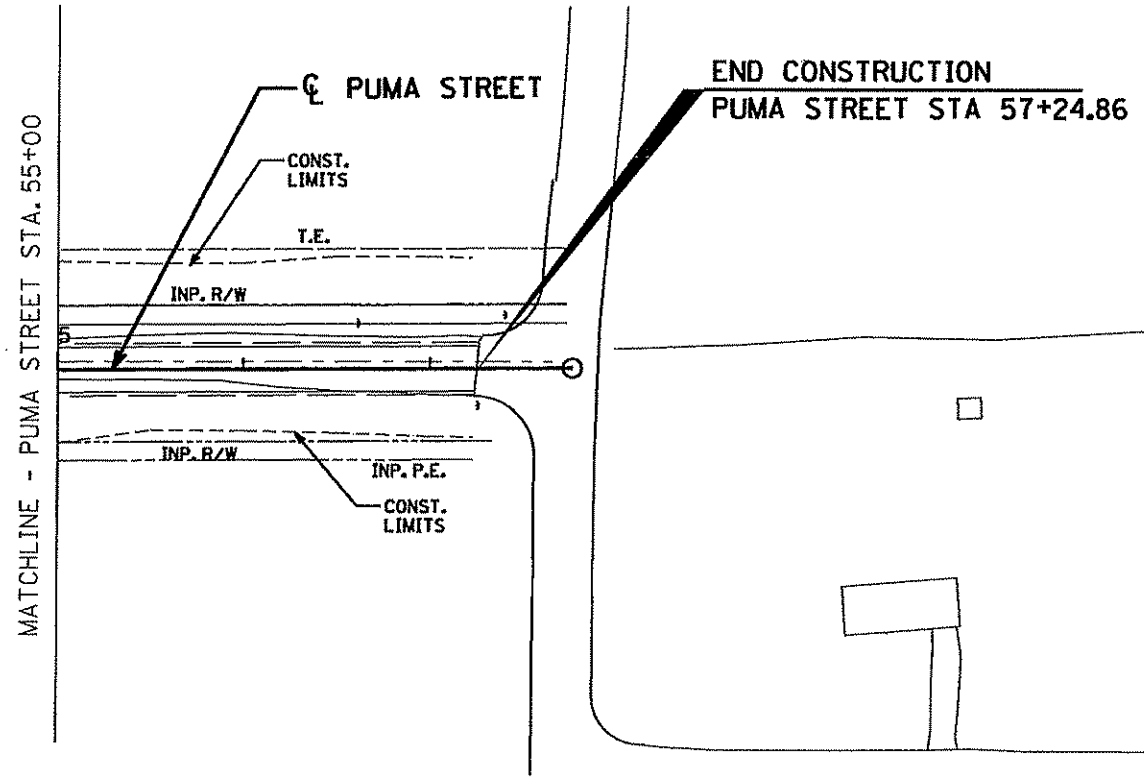
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jason Wodal P.E.  
 DATE: 04/28/11 LIC NO: 26768

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA ST NB STA. 43+00 TO STA. 55+00  
 PROPOSED UTILITY PLAN  
 SHEET 9 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 27 OF 249 SHEETS



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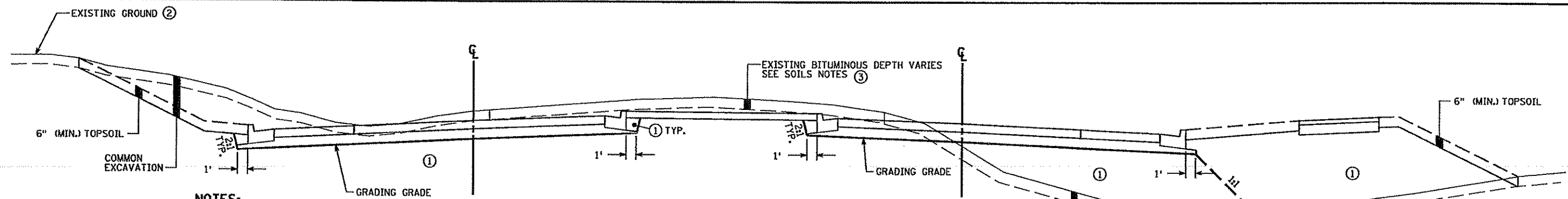
Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jason Wade P.E.  
 DATE: 04/28/11 LIC NO: 28768

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

701 Xenia Avenue South, Suite 300  
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**PUMA ST NB STA. 55+00 TO ALPINE DR**  
**PROPOSED UTILITY PLAN**  
 SHEET 10 OF 10 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

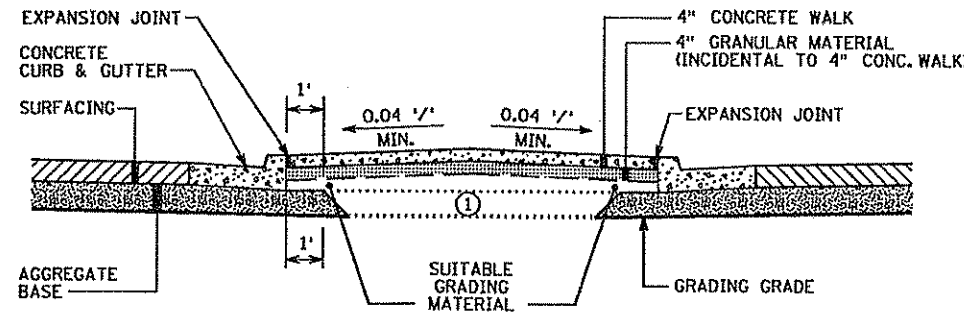
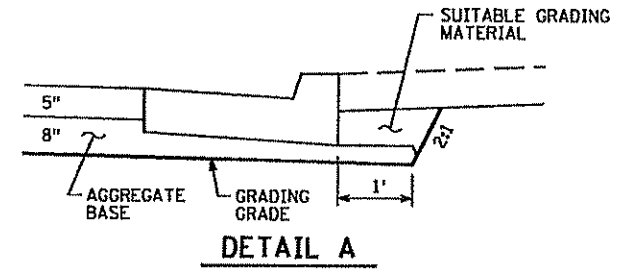
SHEET  
 28  
 OF  
 249  
 SHEETS



- NOTES:**
- BACKFILL WITH SUITABLE GRADING MATERIAL. (SEE TYPICAL SECTIONS FOR AREAS THAT REQUIRE SELECT GRANULAR BACKFILL)
  - SALVAGE THE INPLACE TOPSOIL. TOPSOIL QUANTITY IS INCLUDED IN COMMON EXCAVATION QUANTITIES. STOCKPILING INPLACE TOPSOIL AND PLACEMENT ON ALL SLOPES DISTURBED BY CONSTRUCTION SHALL BE INCIDENTAL.
  - REMOVE THE INPLACE BITUMINOUS WITHIN THE CONSTRUCTION LIMITS. QUANTITY IS INCLUDED IN COMMON EXCAVATION.
  - SUBGRADE PREPARATION SHALL INCLUDE SCARIFYING, MOISTURE TREATING AND RECOMPACTING THE TOP FOOT OF THE EXISTING SUBGRADE PRIOR TO PLACEMENT OF THE AGGREGATE BASE AND PAVEMENT SECTION (SEE THE CONSTRUCTION NOTES AND SPECIFICATIONS FOR FURTHER INFORMATION)

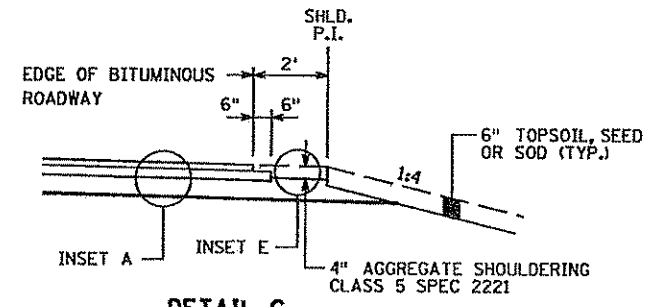
- GENERAL NOTES:**
- ALL EXCAVATED GRANULAR MATERIAL SHALL BE USED FOR BACKFILL ON THIS PROJECT AS DIRECTED BY THE ENGINEER.
  - THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS MATERIAL (INCIDENTAL). NO GRANULAR MATERIAL SHALL LEAVE THE PROJECT WITHOUT APPROVAL BY THE ENGINEER.

**TYPICAL EARTHWORK DETAIL**

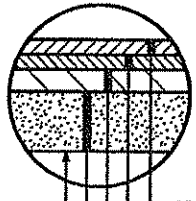


① GRADING GRADE AND AGGREGATE BASE TO BE CARRIED THROUGH ENTIRE WIDTH OF MEDIAN WHEN MEDIAN WIDTH IS LESS THAN 8' - MEASURED FROM FACE OF CURB TO FACE OF CURB.

**DETAIL B**  
CONCRETE MEDIAN

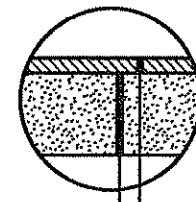


**DETAIL C**  
BITUMINOUS EDGE



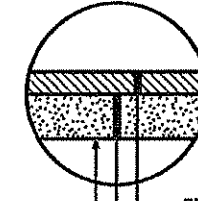
**INSET A**  
CSAH 83 / CSAH 116 (ARMSTRONG BLVD. / BUNKER LAKE BLVD. EAST LEG)

- SPEC 2360 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- SPEC 2360 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- SPEC 2360 2" TYPE SP 12.5 NON WEAR COURSE MIXTURE SPNWB430B
- SPEC 2211 8" AGGREGATE BASE CLASS 5 MODIFIED (SEE TABLE)
- GRADING GRADE / 1' SUBGRADE PREPARATION



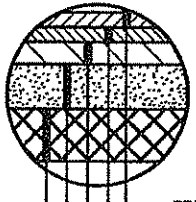
**INSET C**  
PUMA STREET

- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- 1' SUBGRADE PREPARATION (INCLUDE 6" AGG. BASE CL. 5 IN WIDENING AREAS)



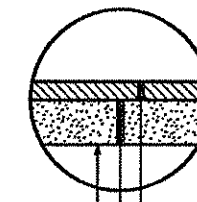
**INSET F**  
DRIVEWAYS, AND TEMPORARY PAVEMENT FOR STAGING

- SPEC 2350 3" TYPE SP 12.5 WEARING COURSE MIXTURE SPNWB430B
- SPEC 2211 6" AGGREGATE BASE CLASS 5
- GRADING GRADE / SUBGRADE PREPARATION



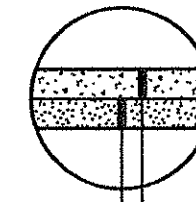
**INSET B**  
MSAS 121 (BUNKER LAKE BLVD. WEST LEG) STA. 479+27.33 TO STA. 505+85.86

- SPEC 2360 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- SPEC 2360 1.5" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPNWB430B
- SPEC 2211 6" AGGREGATE BASE CLASS 5 MODIFIED (SEE TABLE)
- 1' SUBGRADE PREPARATION (BY OTHERS)



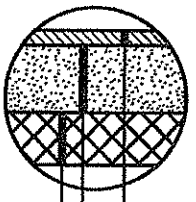
**INSET D**  
TRAIL

- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB240C (PAID FOR AS 2" BITUMINOUS WALK - 50 FT.)
- SPEC 2211 4" AGGREGATE BASE CLASS 5 MODIFIED (SEE TABLE)
- GRADING GRADE / SUBGRADE PREPARATION



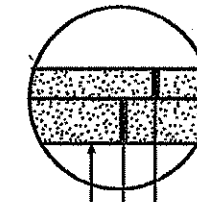
**INSET G**  
4" CONCRETE WALK

- 4" CONCRETE WALK
- 4" GRANULAR MATERIAL (INCIDENTAL TO 4" CONCRETE WALK)



**INSET BI**  
MSAS 121 (BUNKER LAKE BLVD. WEST LEG) STA. 466+37 TO STA. 479+27.33

- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440C
- SPEC 2211 6" AGGREGATE BASE CLASS 5 MODIFIED (SEE TABLE)
- 1' SUBGRADE PREPARATION (BY OTHERS)



**INSET E**  
SHOULDER

- 4" AGGREGATE SHOULDERING, CLASS 5 VAR. DEPTH AGGREGATE BASE, CLASS 5 (9" ON CSAH 83 & 116, 7" ON MSAS 121)
- GRADING GRADE / SUBGRADE PREPARATION

| TABLE MODIFIED CLASS 5 SPECIFICATIONS |          |
|---------------------------------------|----------|
| % PASSING                             |          |
| 1"                                    | 100      |
| 3/4"                                  | 90 - 100 |
| 3/8"                                  | 50 - 80  |
| No. 4                                 | 35 - 70  |
| No. 10                                | 20 - 60  |
| No. 40                                | 10 - 35  |
| No. 200                               | 5 - 10   |

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

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

*J. Hale*  
Licensed Professional Engineer, June Hale P.E.

DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION

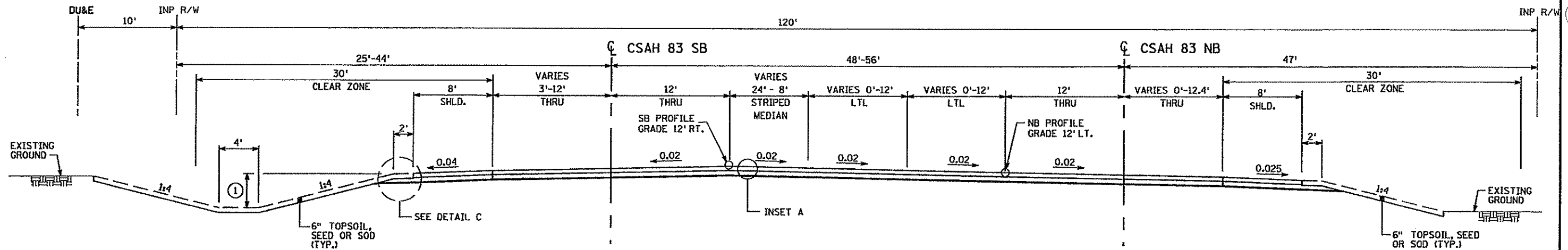
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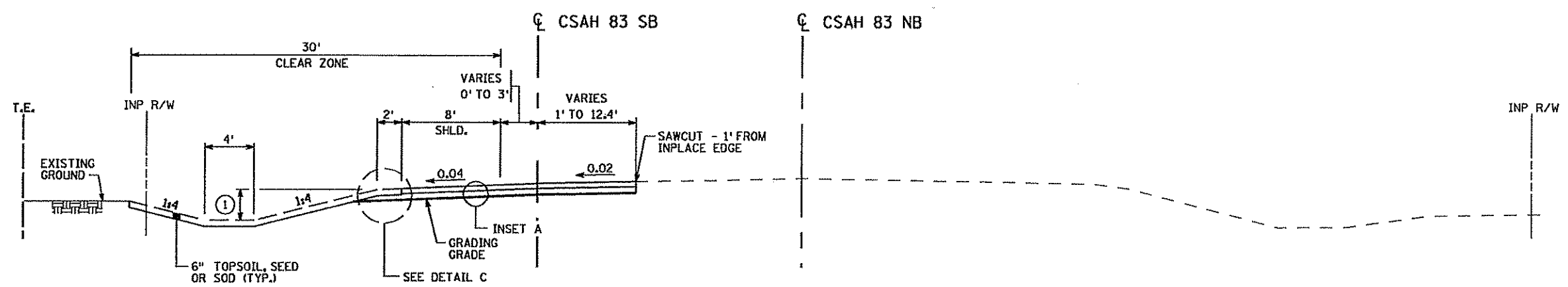
**INSETS & EARTHWORK DETAIL**  
**TYPICAL SECTIONS**  
SHEET 1 OF 8 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 29 OF 249 SHEETS



CSAH 83 NB STA. 38+00 TO STA. 40+78



CSAH 83 NB STA. 32+79 TO STA. 38+00

**GENERAL NOTES:**

- ALL STATIONS REFER TO CSAH 83 NB ALIGNMENT UNLESS OTHERWISE INDICATED.
- ALL CROSS SLOPES ARE EXPRESSED IN FT/FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

**SPECIFIC NOTES:**

- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.

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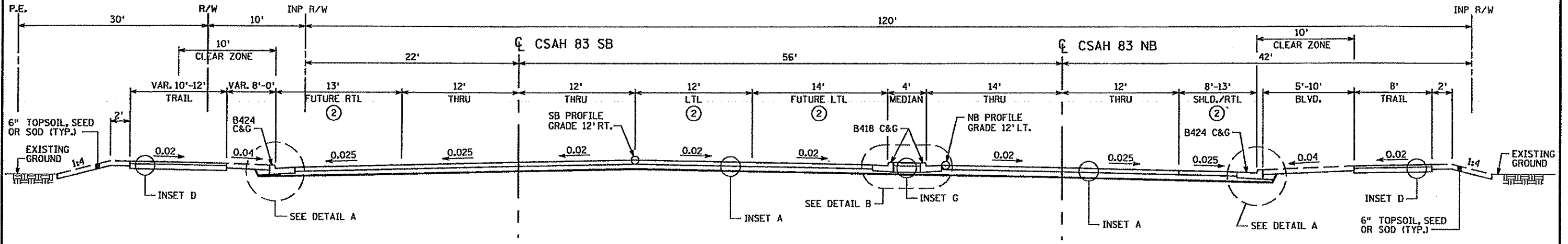
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

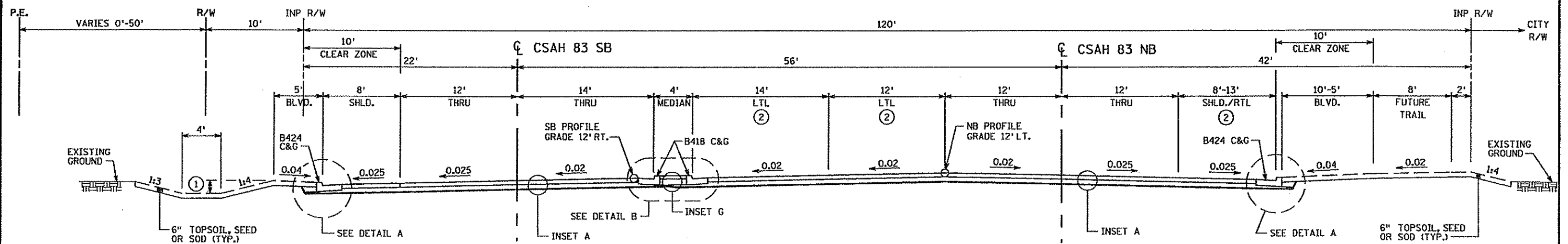
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 32+79 TO STA. 38+00  
 TYPICAL SECTIONS  
 SHEET 2 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21  
 SHEET 30 OF 249 SHEETS



CSAH 83 NB STA. 46+00 TO STA. 49+77



CSAH 83 NB STA. 40+78 TO STA. 46+00

- GENERAL NOTES:**
- ALL STATIONS REFER TO CSAH 83 NB ALIGNMENT UNLESS OTHERWISE INDICATED.
  - ALL CROSS SLOPES ARE EXPRESSED IN FT./FT.
  - NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
  - MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT./FT.
  - UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
  - UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

- SPECIFIC NOTES:**
- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.
  - ② FOR LIMITS OF TURN LANE CONSTRUCTION, SEE SHEET NO. 78

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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

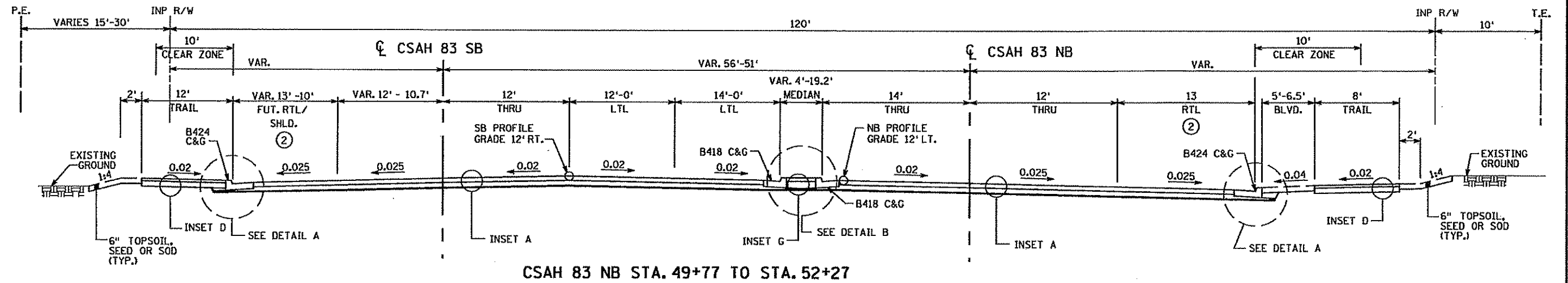
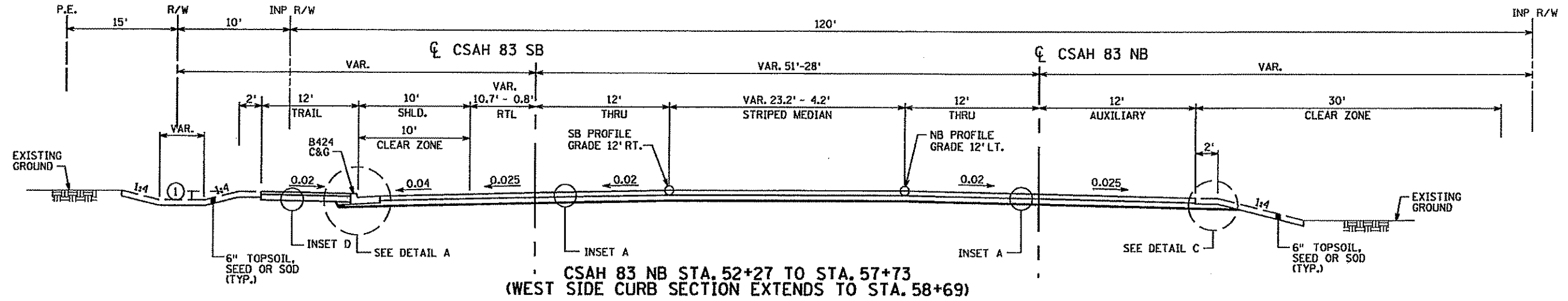
*[Signature]*  
 Licensed Professional Engineer, State of Minn.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 40+78 TO STA. 49+77  
**TYPICAL SECTIONS**  
 SHEET 3 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 31 OF 249 SHEETS



**GENERAL NOTES:**

- ALL STATIONS REFER TO CSAH 83 NB ALIGNMENT UNLESS OTHERWISE INDICATED.
- ALL CROSS SLOPES ARE EXPRESSED IN FT/FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

**SPECIFIC NOTES:**

- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.
- ② FOR LIMITS OF TURN LANE CONSTRUCTION, SEE SHEET NO. 78 - 79

DATE: 5/4/2011 10:59:49 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 License No. 42064  
 DATE: 04/28/11 LIC NO: 42064

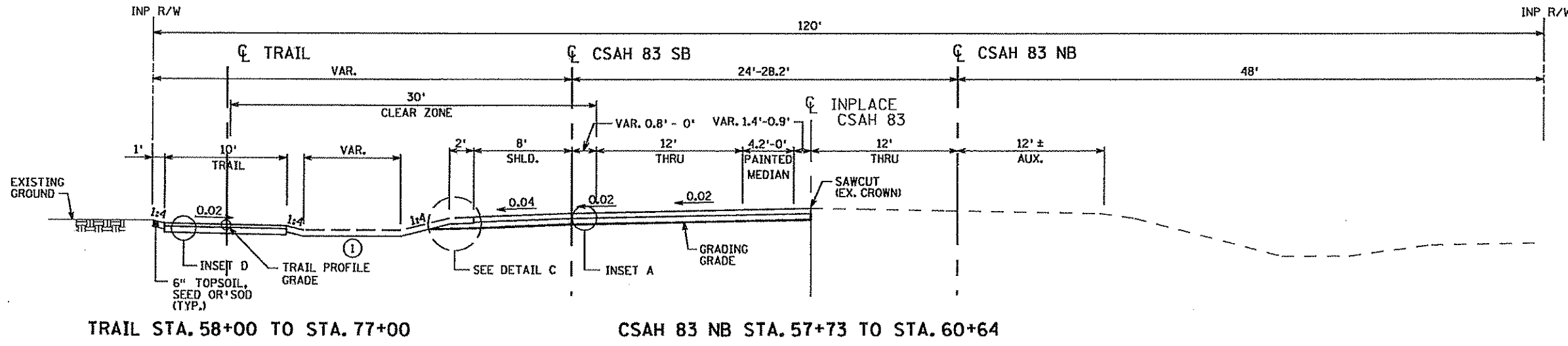
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 49+77 TO STA. 55+17  
**TYPICAL SECTIONS**  
 SHEET 4 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 32  
 OF  
 249  
 SHEETS





TRAIL STA. 58+00 TO STA. 77+00

CSAH 83 NB STA. 57+73 TO STA. 60+64

**GENERAL NOTES:**

- ALL STATIONS REFER TO CSAH 83 NB ALIGNMENT UNLESS OTHERWISE INDICATED.
- ALL CROSS SLOPES ARE EXPRESSED IN FT/FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

**SPECIFIC NOTES:**

- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.

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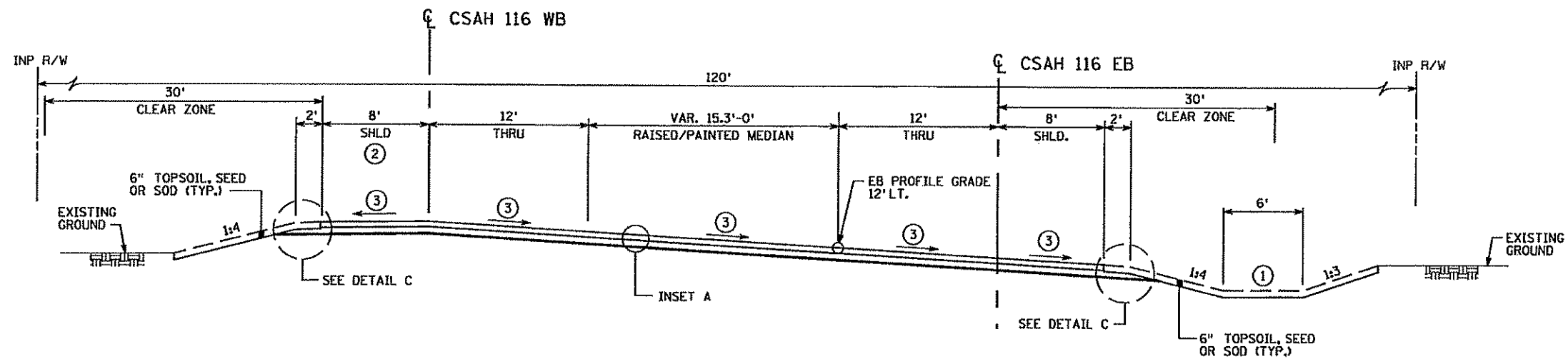
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupa Hala P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

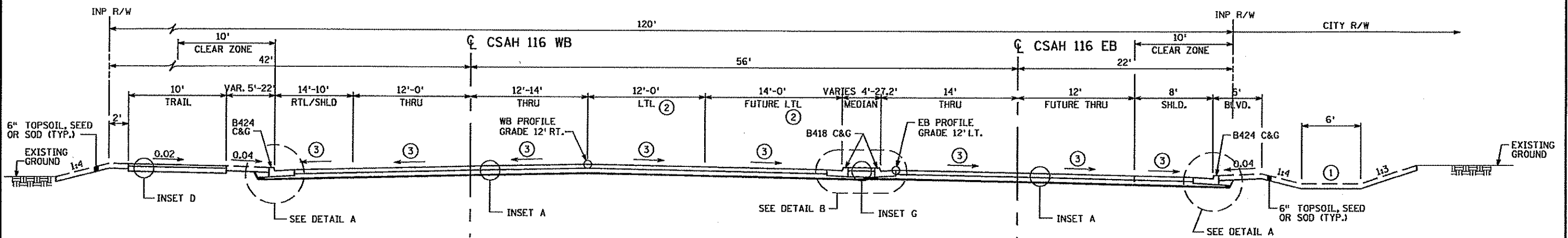


CSAH 83 NB STA. 55+17 TO STA. 60+64  
**TYPICAL SECTIONS**  
 SHEET 5 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 33 OF 249 SHEETS



CSAH 116 EB STA. 414+30 TO STA. 416+95



CSAH 116 EB STA. 407+00 TO STA. 414+30

**SPECIFIC NOTES:**

- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.
- ② FOR LIMITS OF TURN LANE CONSTRUCTION, SEE SHEET NO. 83
- ③ SEE DRAINAGE AND SUPERELEVATION SHEETS FOR ROADWAY CROSS SLOPES.

**GENERAL NOTES:**

- ALL STATIONS REFER TO CSAH 116 EB ALIGNMENT UNLESS OTHERWISE INDICATED.
- ALL CROSS SLOPES ARE EXPRESSED IN FT/FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

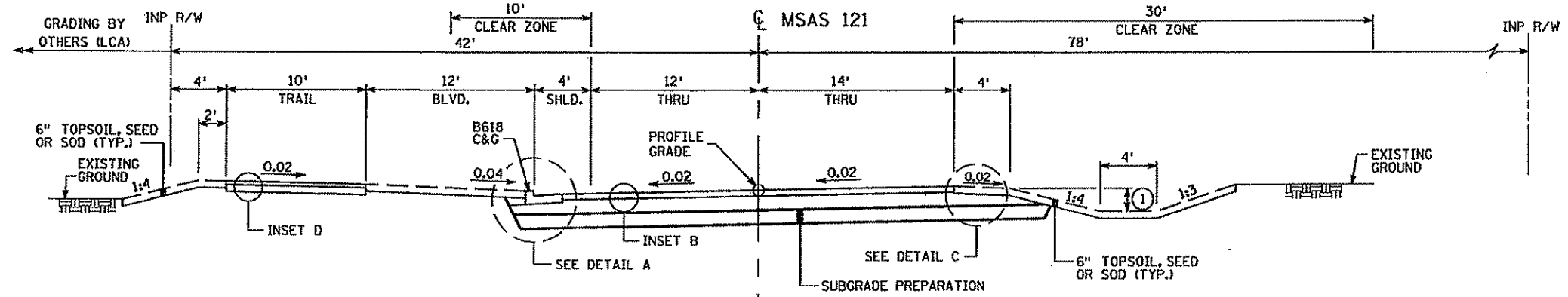
*[Signature]*  
 Licensed Professional Engineer, State of MN P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

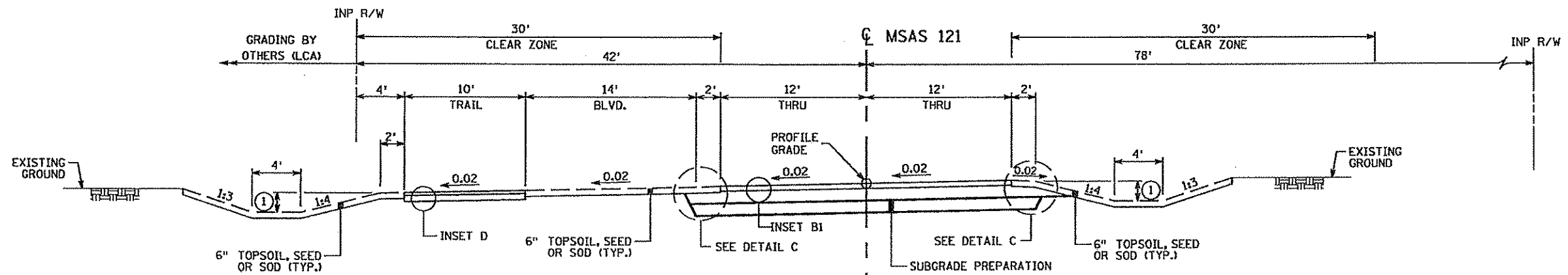
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 Minneapolis, MN 55410  
 www.wsb.org.com

CSAH 116  
**TYPICAL SECTIONS**  
 SHEET 6 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 34  
 OF  
 249  
 SHEETS



MSAS 121 STA. 479+27 TO STA. 493+46



MSAS 121 STA. 466+37 TO STA. 479+27

**GENERAL NOTES:**

- ALL CROSS SLOPES ARE EXPRESSED IN FT/FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

**SPECIFIC NOTES:**

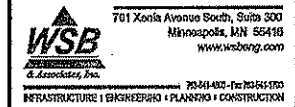
- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.

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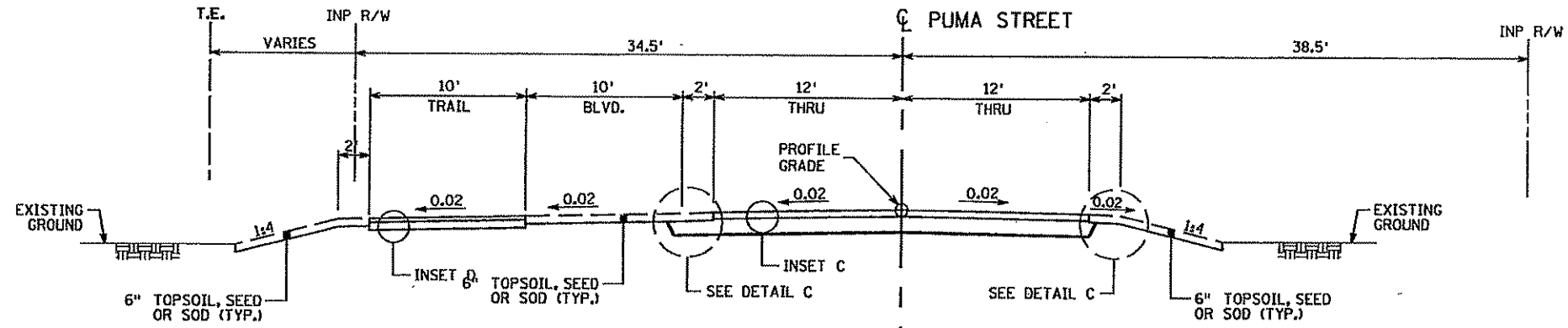
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupa Hala P.E.  
 DATE: 04/28/11 LIC NO: 42054

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

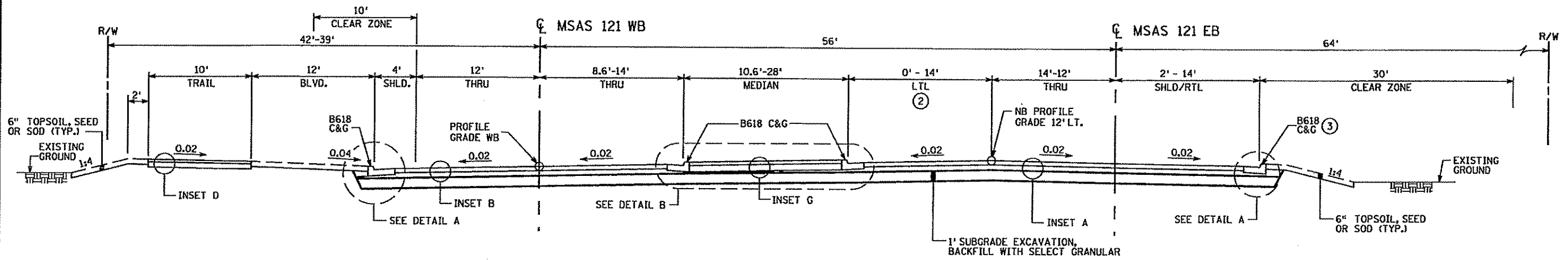


CSAH 38 NB STA. 40+78 TO STA. 49+77  
 TYPICAL SECTIONS  
 SHEET 7 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

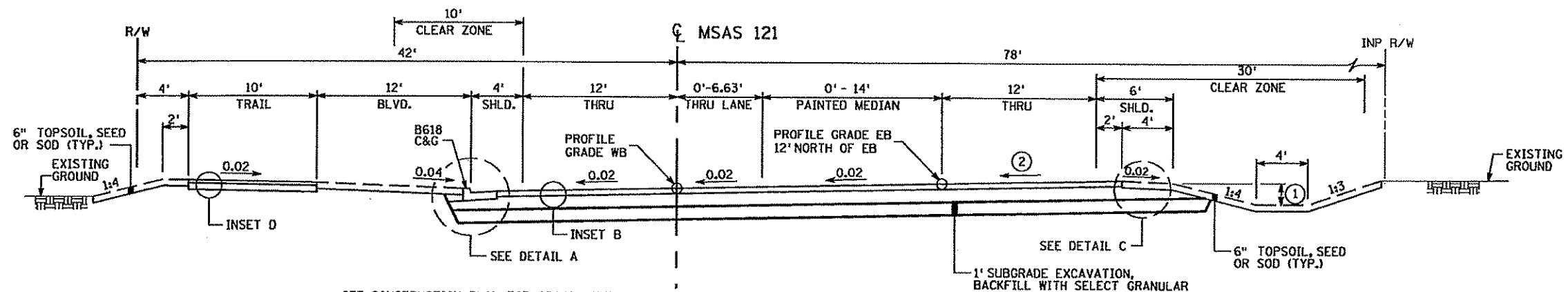
SHEET  
 35  
 OF  
 249  
 SHEETS



PUMA STREET STA. 30+00 TO STA. 57+73



MSAS 121 WB STA. 499+33 TO STA. 505+86



\* SEE CONSTRUCTION PLAN FOR CROWN LINE LOCATION NEAR SUPERELEVATION TRANSITION AREA.

MSAS 121 WB STA. 493+46 TO WB STA. 499+33

**GENERAL NOTES:**

- ALL CROSS SLOPES ARE EXPRESSED IN FT./FT.
- NORMAL CROSS SLOPES ARE SHOWN. FOR SUPERELEVATION TRANSITIONS, SEE DRAINAGE AND SUPERELEVATION PLANS.
- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT./FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

**SPECIFIC NOTES:**

- ① SEE ROADWAY PROFILES FOR SPECIAL DITCH GRADES.
- ② SEE DRAINAGE AND SUPERELEVATION SHEETS FOR ROADWAY CROSS SLOPES.
- ③ CURB & GUTTER BEGINS AT STA 403+11

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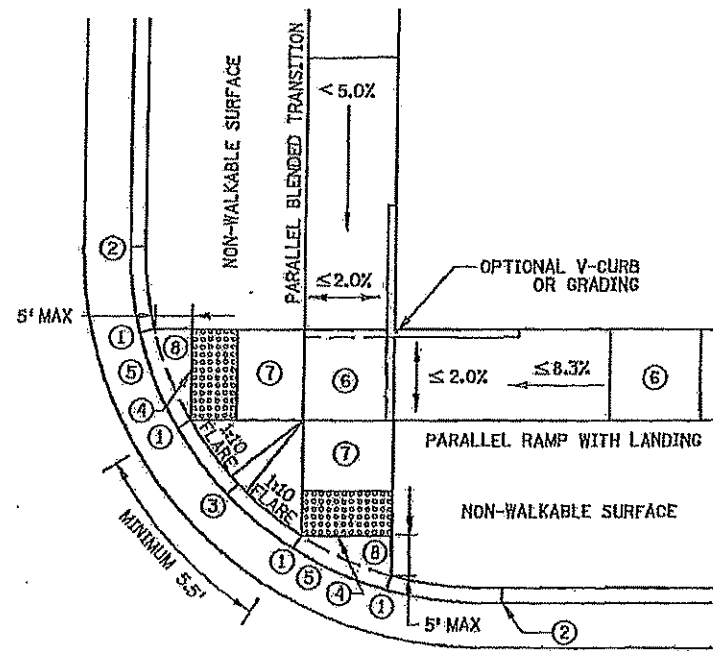
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
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 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

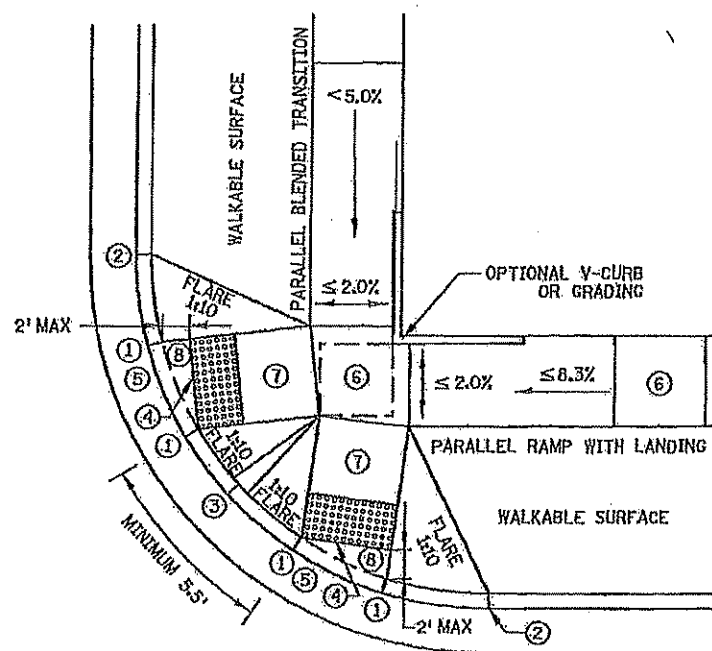


CSAH 38 NB STA. 40+78 TO STA. 49+77  
**TYPICAL SECTIONS**  
 SHEET 8 OF 8 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 36  
 OF  
 249  
 SHEETS



(ADJACENT TO NON-WALKABLE SURFACE)



(ADJACENT TO WALKABLE SURFACE)

**TWO WAY DIRECTIONAL RAMPS**

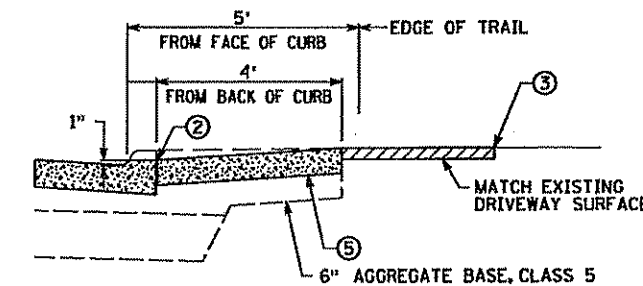
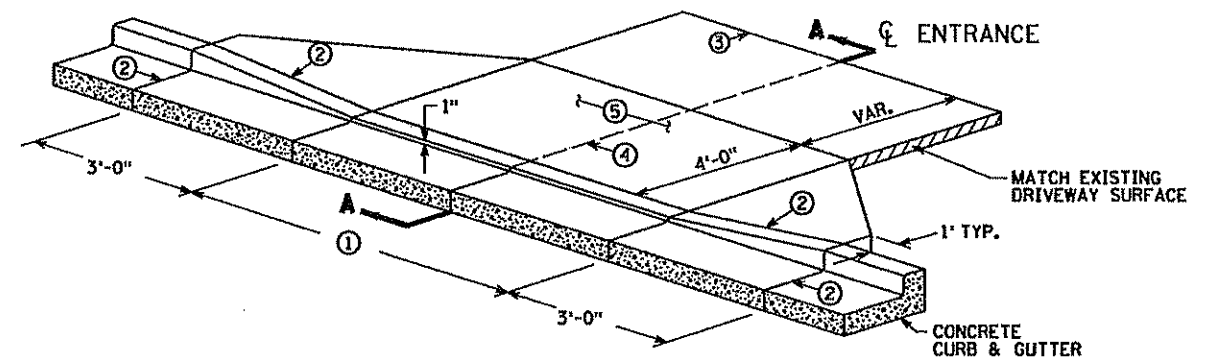
**NOTES:**

- SEE STANDARD PLATE 7038 FOR DETAILS ON DETECTABLE WARNING. JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS. SHOULD HAVE 5.5' MINIMUM SEPARATION BETWEEN THE RAMPS TO CONSTRUCT PROPERLY. LANDINGS SHALL BE LOCATED ANYTIME PEDESTRIANS CHANGE DIRECTIONS, AND AT THE TOP OF RAMPS WHICH HAVE RUNNING SLOPES GREATER THAN 5.0 PERCENT. CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY. TOP OF CURB SHALL MATCH PROPOSED WALK GRADE. DETECTABLE WARNING DEVICES SHALL MATCH SIDEWALK WIDTH UP TO THE NEAREST FOOT INCREMENT.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 3" MINIMUM CURB HEIGHT.

- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB, JOINT SHALL BE FREE OF DEBRIS.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS SEE SHEET NO. 4.
- ⑥ 4' BY 4' MINIMUM LANDING WITH MAXIMUM 2.0 PERCENT SLOPE IN ALL DIRECTIONS.
- ⑦ RUNNING SLOPE LESS THAN OR EQUAL TO 0.3 PERCENT & GROSS SLOPE LESS THAN OR EQUAL TO 2.0 PERCENT.
- ⑧ MAXIMUM 2.0 PERCENT SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE, SHOULD BE CONSTRUCTED WITH CURB AND GUTTER (WINONA CURB).
- ⑨ IF RAMP SLOPE IS LESS THAN 5.0 PERCENT NO LANDING IS REQUIRED.
- ⑩ FRONT OF TRUNCATED DOMES MUST BE 5' OR LESS FROM THE ROADWAY EDGE.
- ⑪ CONSIDER PAVING FOR MAINTENANCE PURPOSES.

**CURB RAMP DETAILS**

SEE CONSTRUCTION PLANS FOR LOCATIONS



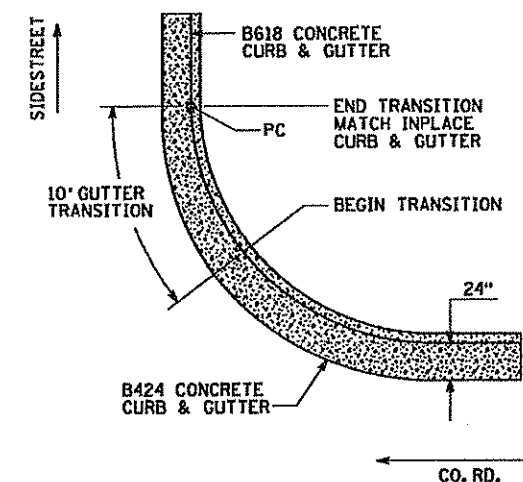
**SECTION A-A**

**NOTES:**

- ① EXACT WIDTH OF ENTRANCE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER (12' MIN.) OR AS SHOWN IN THE PLANS.
- ② 0.5" EXPANSION JOINT.
- ③ REPLACE DISTURBED DRIVEWAYS TO END OF CONSTRUCTION LIMITS. REPLACE WITH SURFACE IN KIND.
- ④ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION.
- ⑤ CONSTRUCT 6" CONCRETE DRIVE.

**CONCRETE APRON DETAIL**

SEE CONSTRUCTION PLANS FOR LOCATIONS



NOTE: TRANSITION PAID FOR AS B424 C&G

**STANDARD STREET RADII FOR CONCRETE CURB & GUTTER TRANSITION**

NO SCALE

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|------------------------|---|
| Drawn By: C KOCHMAN    | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, Jupo Hale P.E. |
| Designed By: N HENTGES |   |
| Checked By: A PLOWMAN  |   |
| Approved By: J HALE    |   |
| DATE: 04/28/11         | LIC NO: 42064   |

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
www.wsb.org  
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

**MISCELLANEOUS DETAILS**  
SHEET 1 OF 6 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 37 OF 249 SHEETS

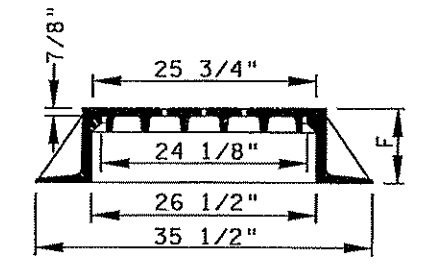
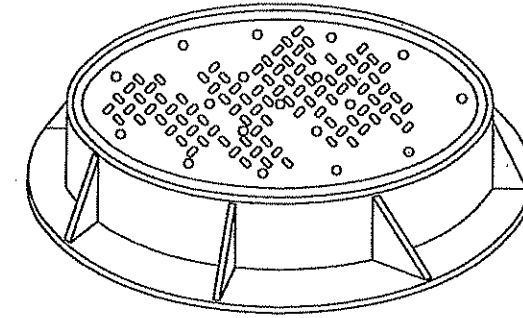
R-1733 Series  
Manhole Frames, Vented Lids

Heavy Duty

Specify:

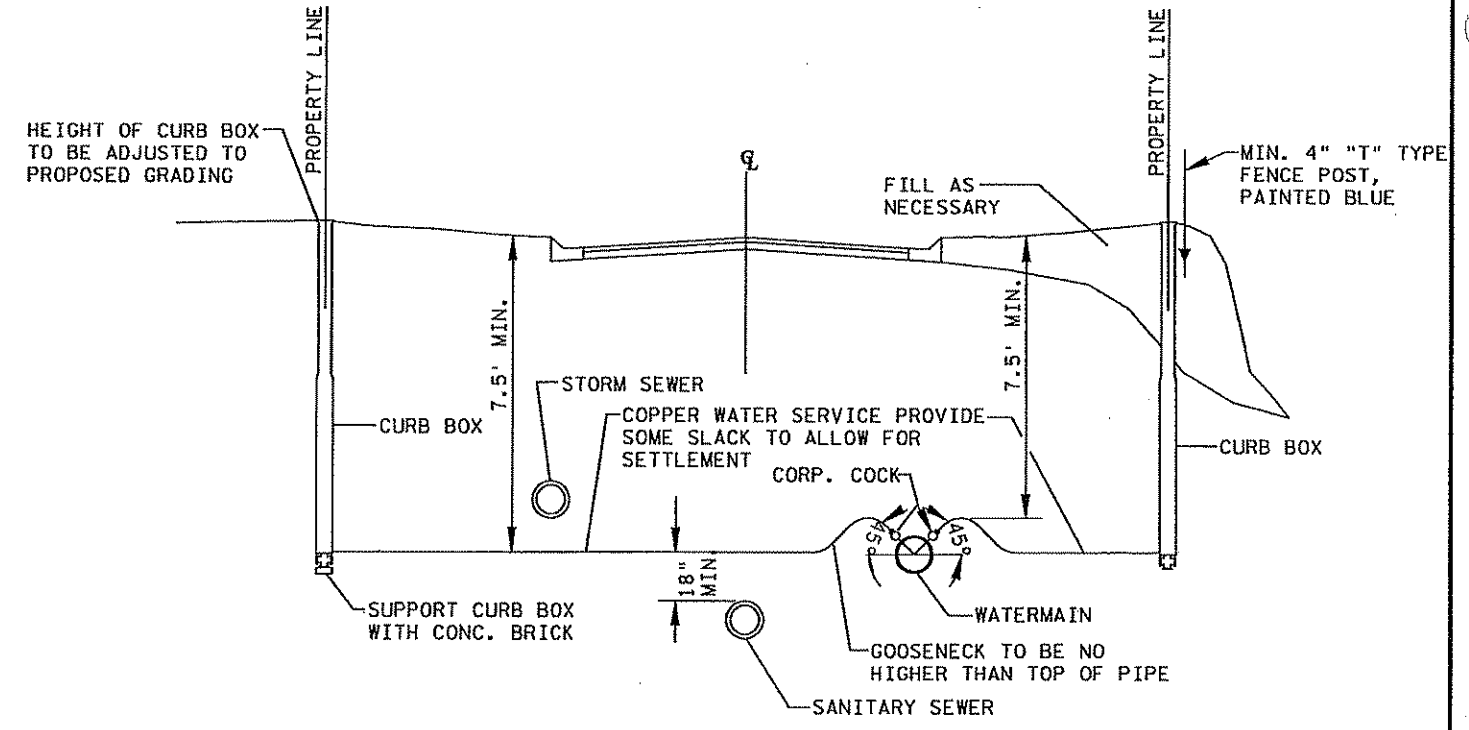
1. Catalog number.
2. Solid lid with two lift holes if required.

| Catalog No. | Height | Wt. Lbs. |
|-------------|--------|----------|
|             | F      |          |
| R-1733-1    | 4"     | 405      |
| R-1733      | 7"     | 425      |
| R-1733-A    | 8"     | 485      |
| R-1733-B    | 9"     | 490      |
| R-1733-C    | 10"    | 500      |



SANITARY SEWER CASTING

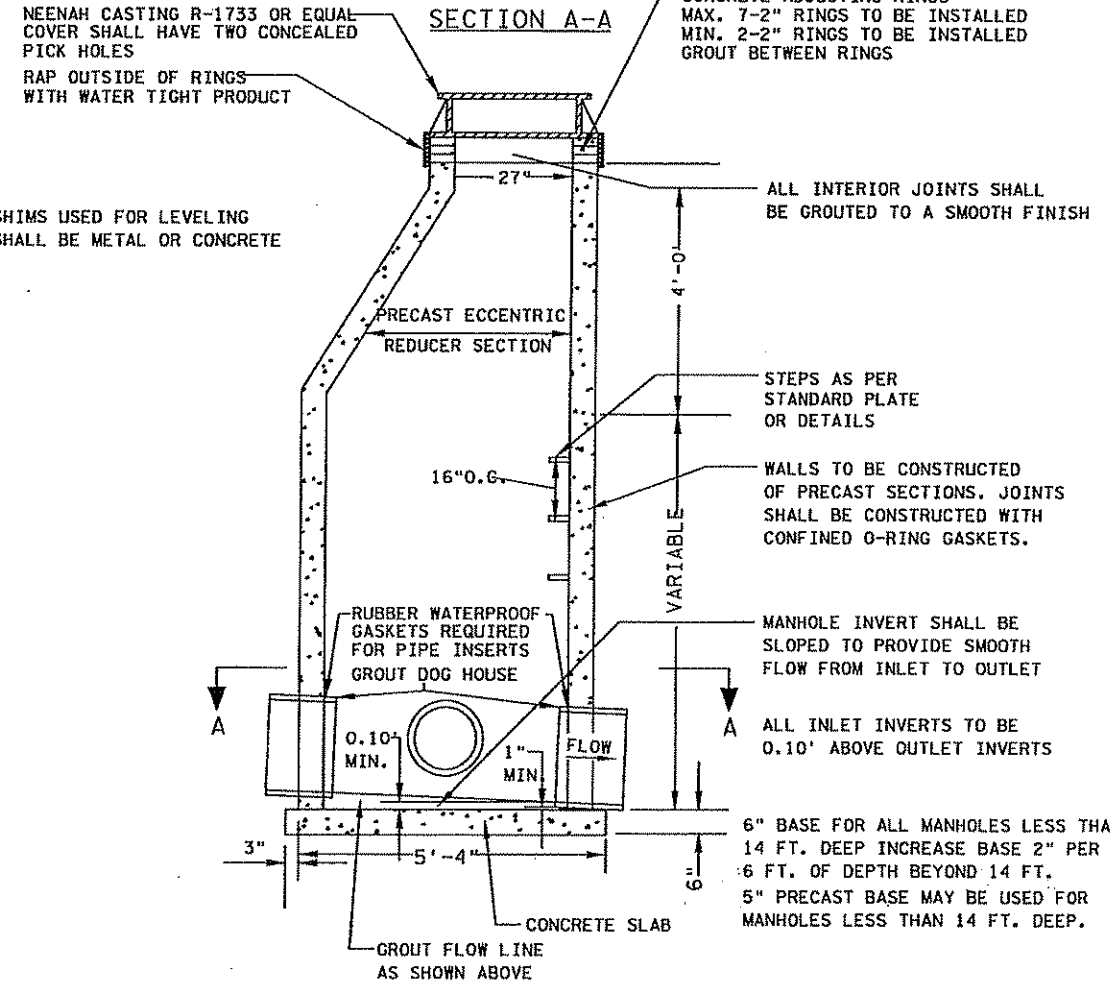
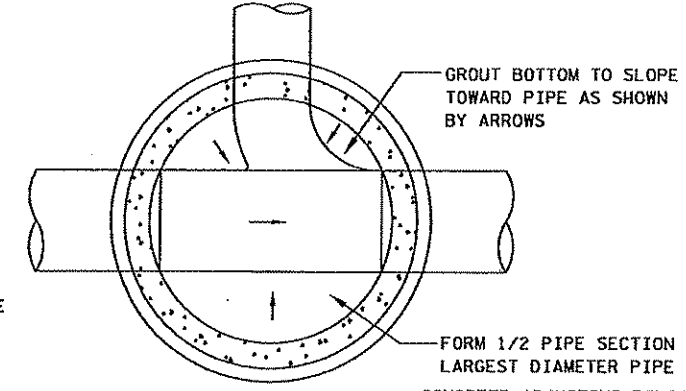
NO SCALE



WATER SERVICE

NO SCALE

A 5 FT GREEN CARSONITE MARKER SHALL BE INSTALLED NEXT TO ALL STRUCTURES NOT IN A PAVED SURFACE



- NOTES:
1. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
  2. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
  3. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS

MANHOLE

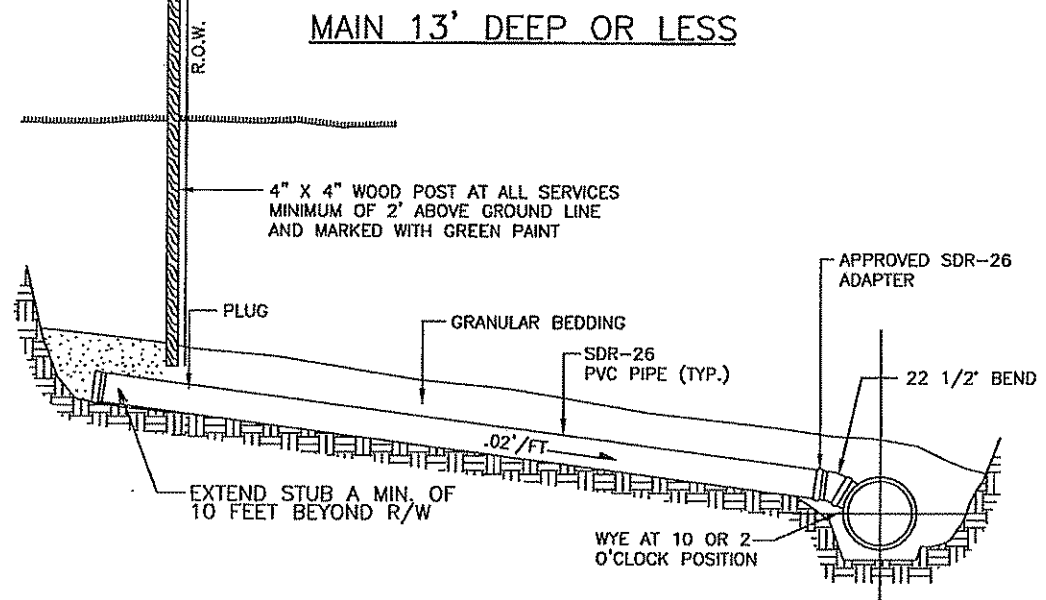
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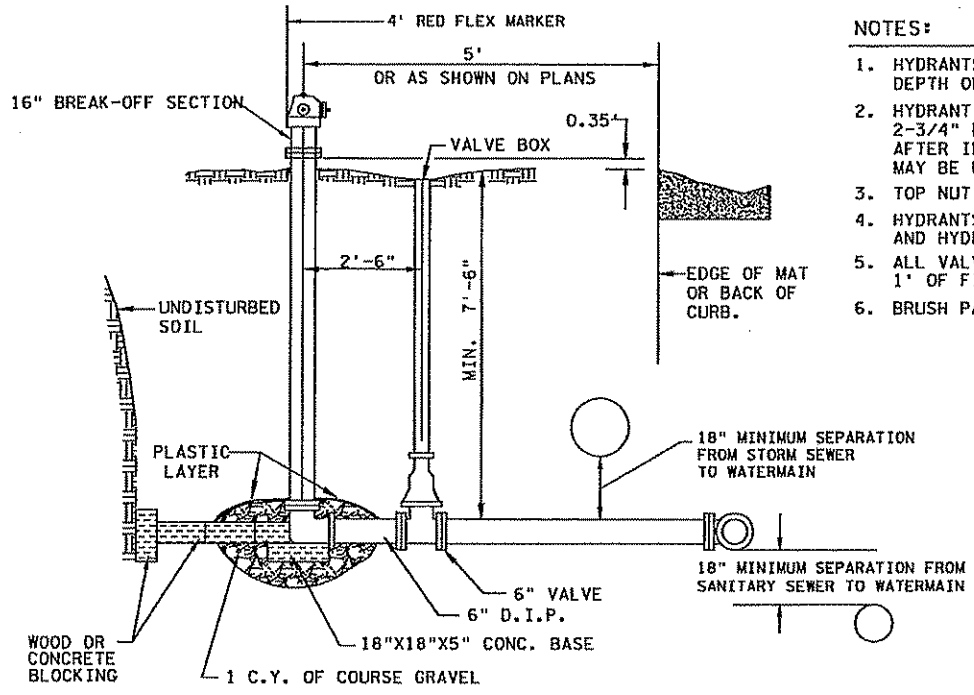
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| Designed By: N HENTGES |   |
| Checked By: A PLOWMAN  |   |
| Approved By: J HALE    |   |

|   |   |  |                                    |
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| CITY OF RAMSEY<br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsb.org.com<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | MISCELLANEOUS DETAILS<br>SHEET 2 OF 6 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>38<br>OF<br>249<br>SHEETS |
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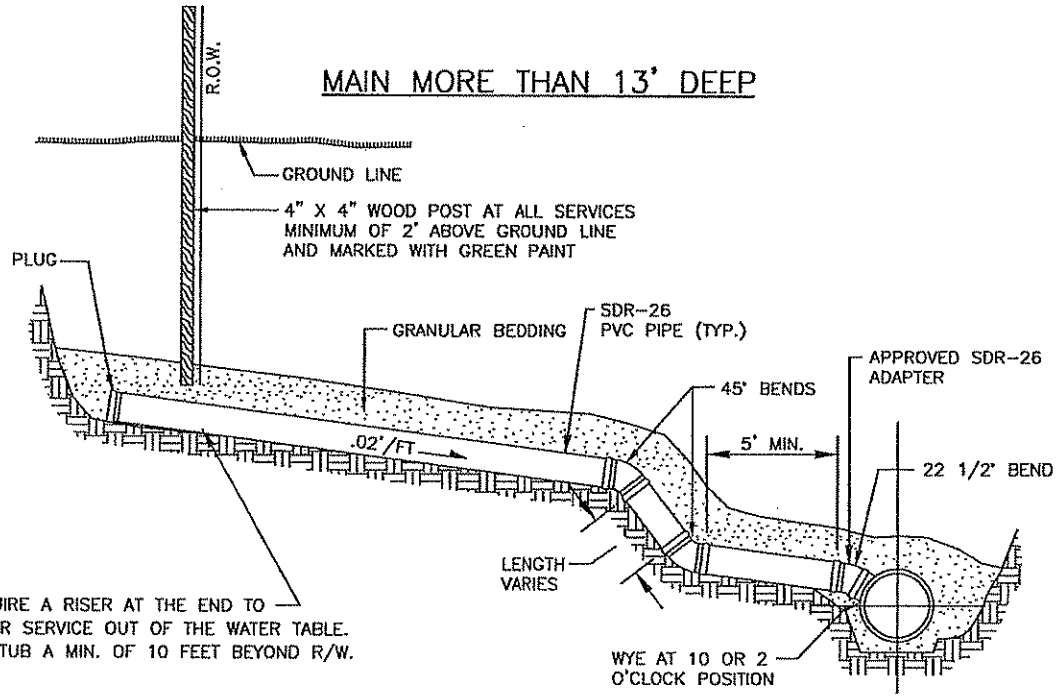
**MAIN 13' DEEP OR LESS**



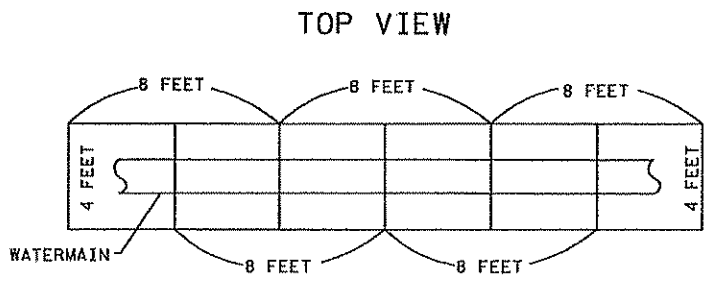
**NOTES:**

1. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANT EXTENSIONS MAY BE REQUIRED.
2. HYDRANT SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
3. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE
4. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW
5. ALL VALVE BOXES SHALL HAVE A VALVE NUT EXTENSION TO WITHIN 1' OF FINISHED GRADE
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE

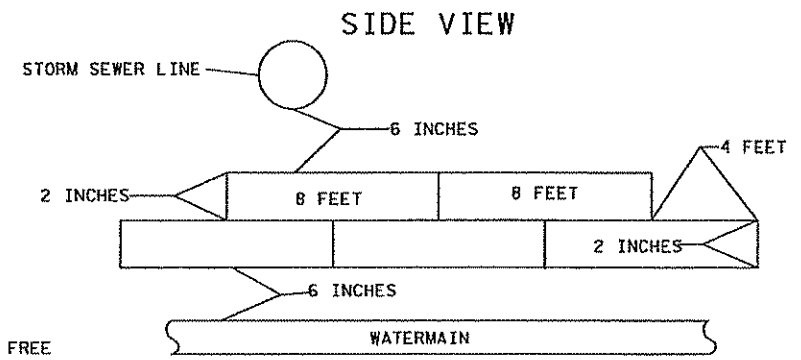
**HYDRANT**  
NO SCALE



**MAIN MORE THAN 13' DEEP**



**TOP VIEW**

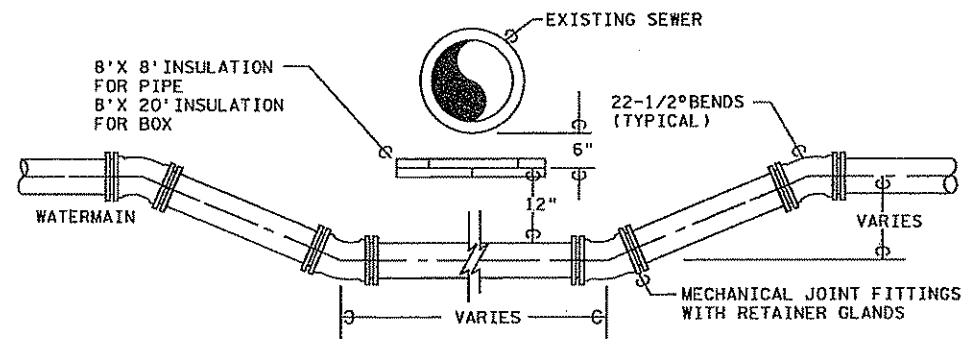


**SIDE VIEW**

- NOTES:**
- 1) SHEETS ARE 2 INCHES BY 4 FEET BY 8 FEET
  - 2) SURFACE PREPARATION SHALL BE SMOOTH AND ROCK FREE
  - 3) JOINTS WILL BE OVERLAPPED BY 4 FEET
  - 4) POLYSTYRENE INSULATION OR APPROVED EQUAL

**UTILITY INSULATION**

NO SCALE



**WATERMAIN INSULATION & LOWERING**

NO SCALE

**SANITARY SEWER SERVICE**

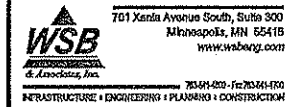
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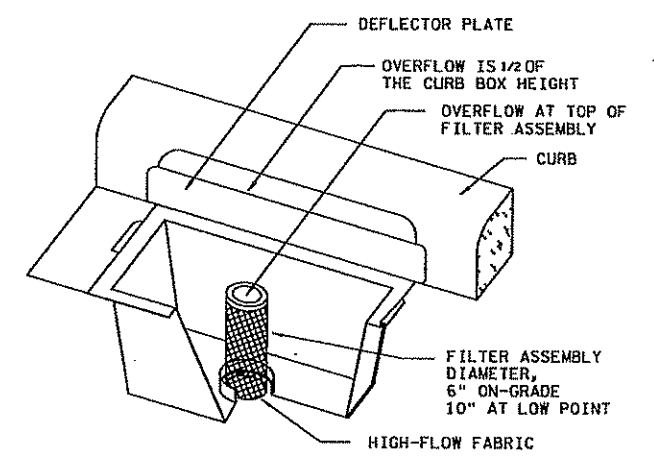
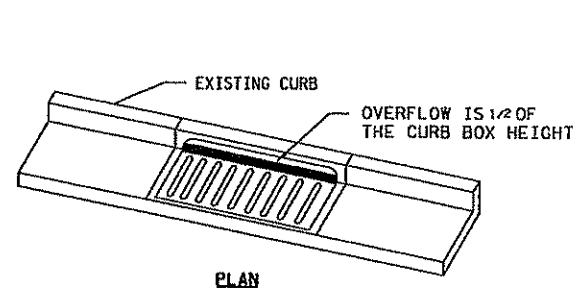
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 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

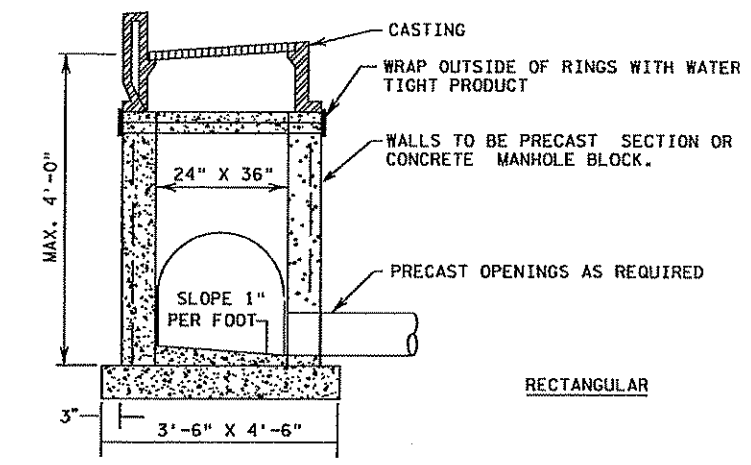


**MISCELLANEOUS DETAILS**  
 SHEET 3 OF 6 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

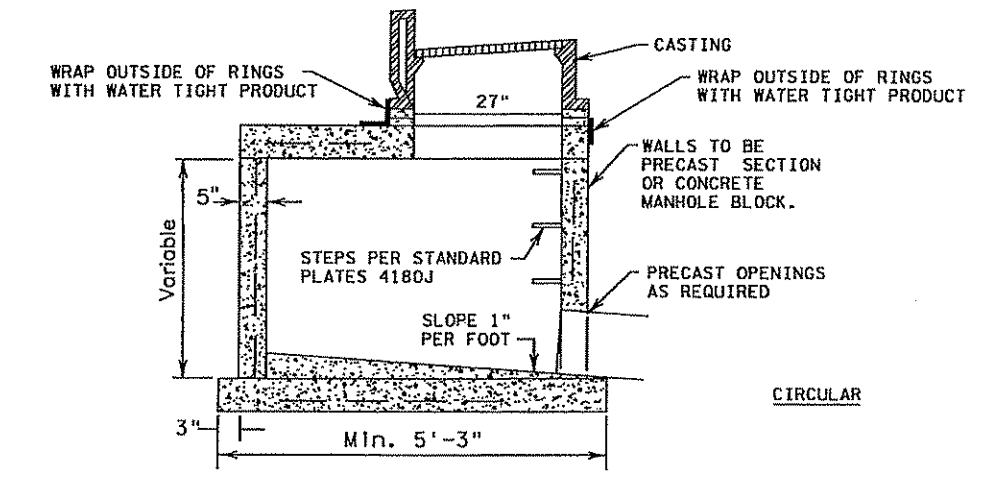
SHEET 39 OF 249 SHEETS



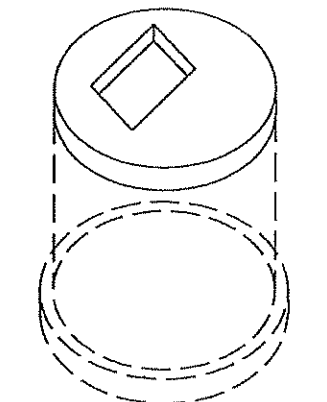
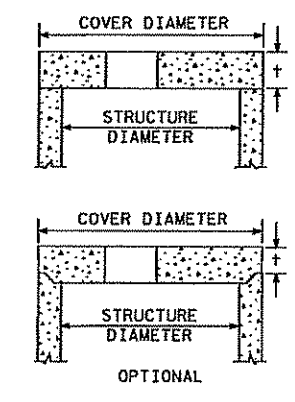
**STORM DRAIN INLET PROTECTION**  
NO SCALE



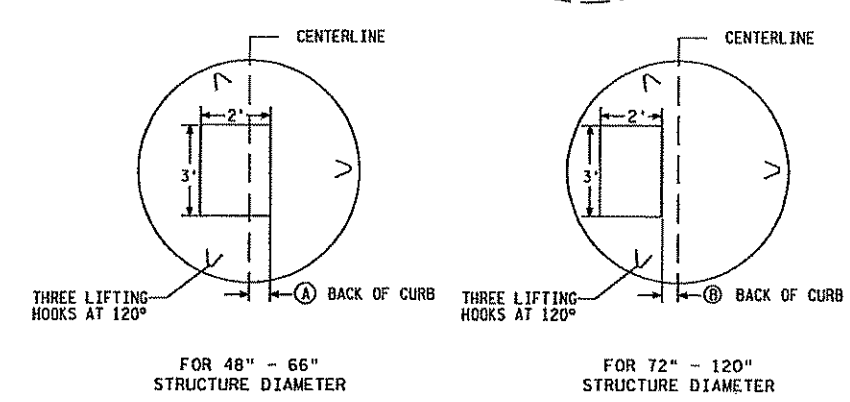
**RECTANGULAR**



**CIRCULAR**



| MANHOLE TOP SLAB WITH OFF-SET 2'X3' HOLE |                     |                |        |        |                       |
|--|---------------------|----------------|--------|--------|-----------------------|
| STRUCTURE DIAMETER (IN)                  | COVER DIAMETER (IN) | MINIMUM † (IN) | A (IN) | B (IN) | WEIGHT OF COVER (LBS) |
| 48                                       | 58                  | 6.0            | 9.0    |        | 930                   |
| 54                                       | 65                  | 8.0            | 6.0    |        | 1710                  |
| 60                                       | 72                  | 8.0            | 3.0    |        | 2230                  |
| 66                                       | 79                  | 8.0            | 0.0    |        | 2810                  |
| 72                                       | 86                  | 8.0            |        | 3.0    | 3440                  |
| 78                                       | 93                  | 8.0            |        | 6.0    | 4120                  |
| 84                                       | 100                 | 8.0            |        | 9.0    | 4860                  |
| 90                                       | 108                 | 8.0            |        | 12.0   | 5760                  |
| 96                                       | 114                 | 8.0            |        | 15.0   | 6490                  |
| 102                                      | 120                 | 8.0            |        | 18.0   | 7260                  |
| 108                                      | 126                 | 12.0           |        | 21.0   | 12100                 |
| 120                                      | 144                 | 12.0           |        | 24.0   | 16100                 |



**4022 TOP SLAB WITH RECTANGULAR OPENING**  
NO SCALE

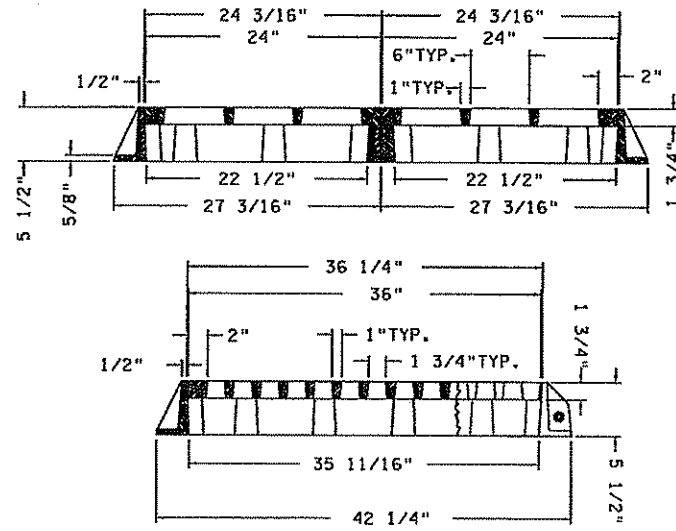
- NOTES:
1. MANHOLE INVERT SHALL SLOPED TO PROVIDE A SMOOTH FLOW FROM INLET TO OUTLET
  2. CONCRETE BASE SHALL BE 6" POURED IN PLACE OR 5" PRECAST SLAB.
  3. CONCRETE ADJUSTING RINGS TO BE INSTALLED MAX. 7-2" RINGS, MIN 2-2" RINGS
  4. GROUT BETWEEN RINGS
  5. SHIMS USED FOR LEVELING SHALL BE METAL OR CONCRETE
  6. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
  7. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
  8. STEPS ARE REQUIRED IF STRUCTURE FROM THE CASTING TO THE INVERT IS GREATER THAN 4 FEET
  9. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS

**DRAINAGE STRUCTURE TYPE SPECIAL 2**  
NO SCALE

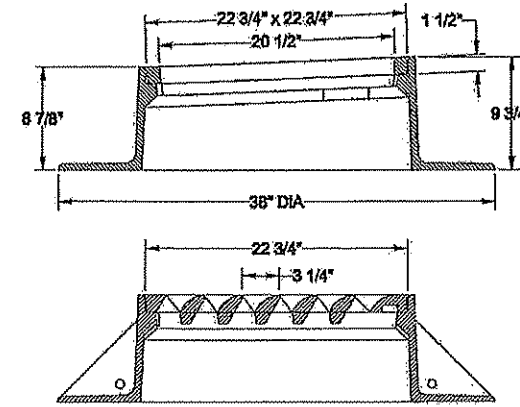
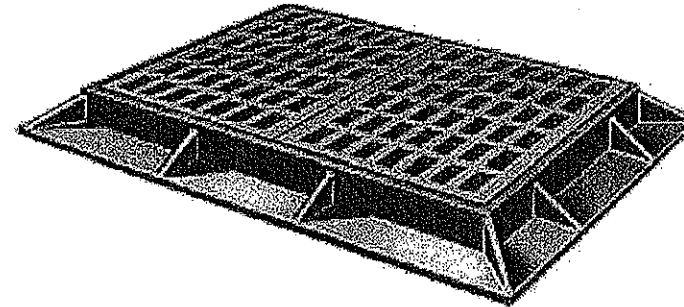
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|--|------|------|-----|-----------|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|---|------------------------------------|
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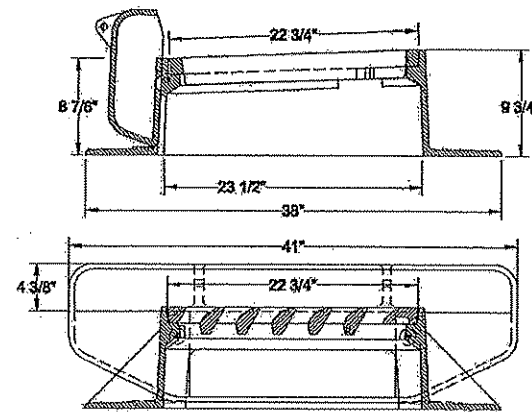
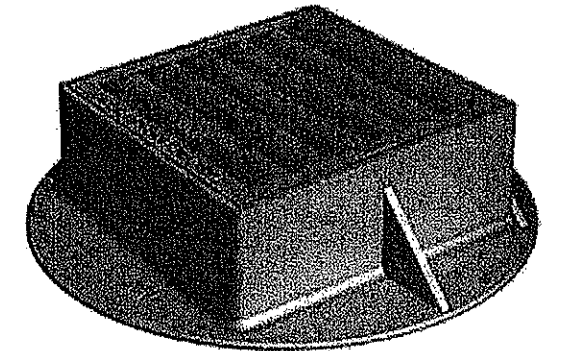




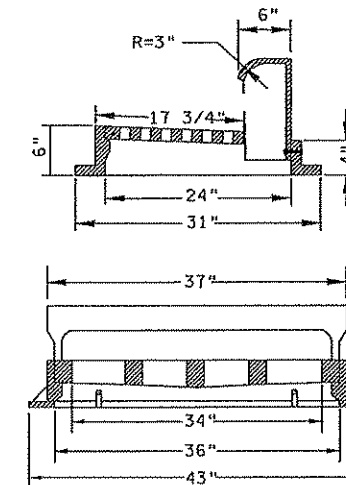
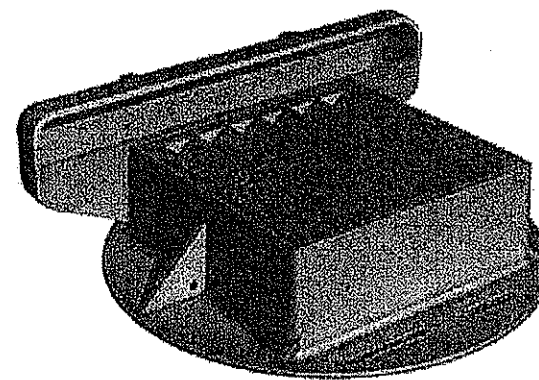
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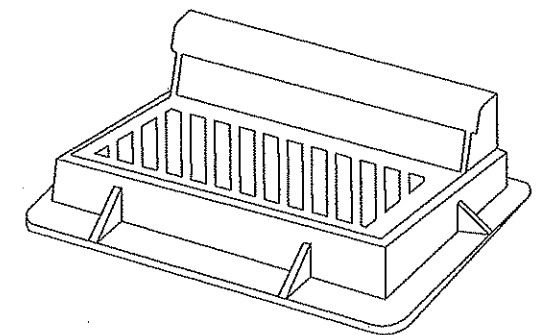
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**CASTING TYPE D**  
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**CASTING TYPE F**  
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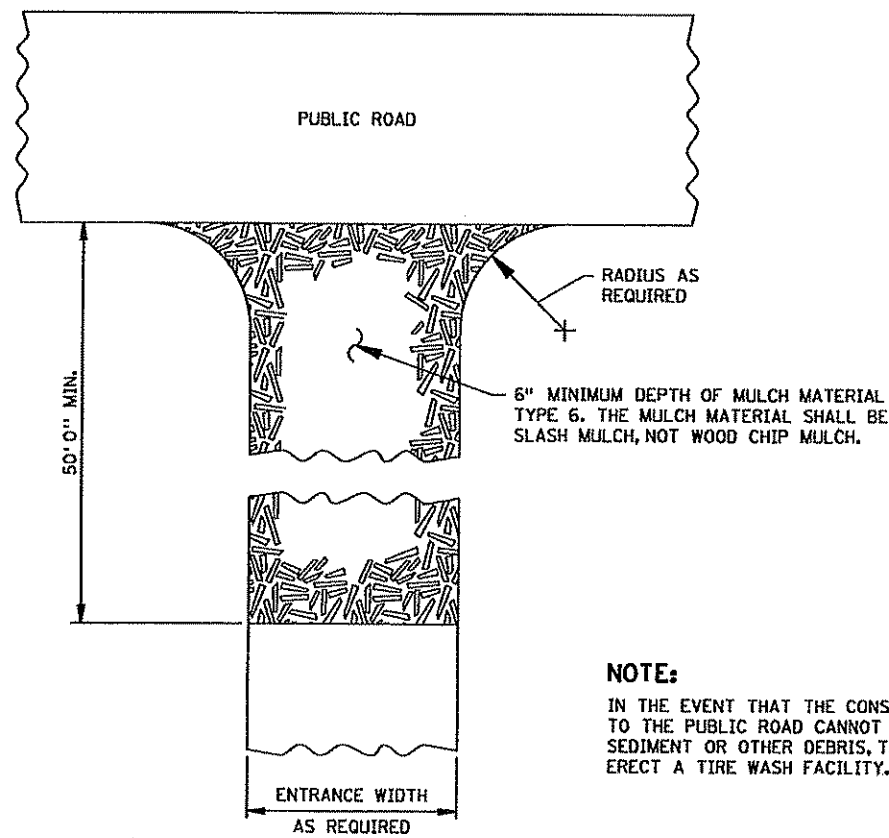
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| Designed By: N HENTGES |  |
| Checked By: A PLOWMAN  |  |
| Approved By: J HALE    |  |
| DATE: 04/28/11         | LIC NO: 42064  |

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



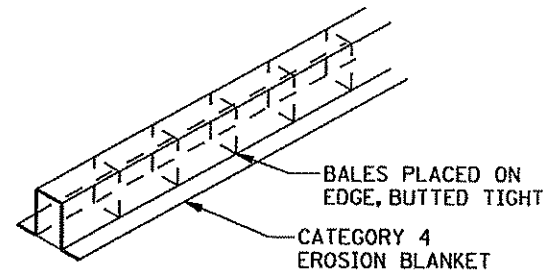
MISCELLANEOUS DETAILS  
SHEET 5 OF 6 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
41  
OF  
249  
SHEETS

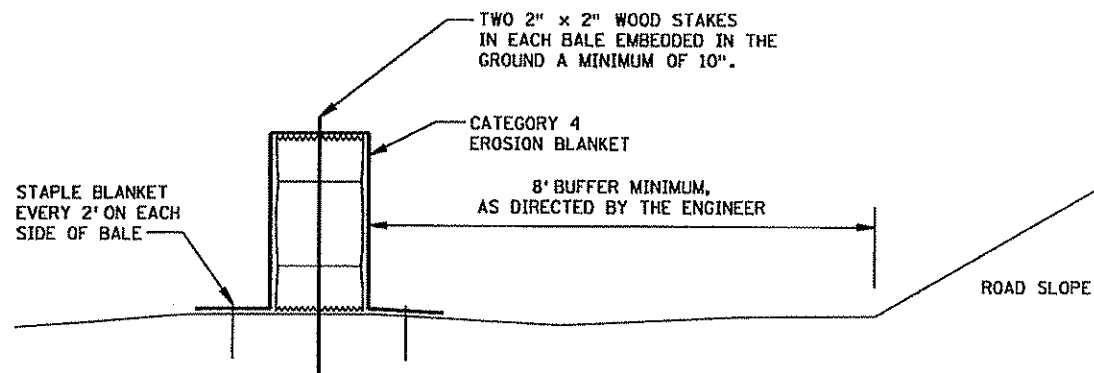


**CONSTRUCTION EXIT PAD**

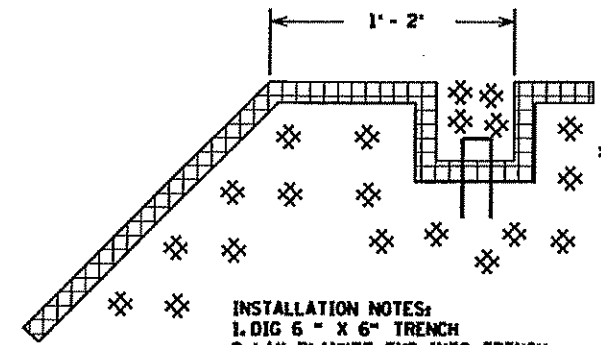
**NOTE:**  
 IN THE EVENT THAT THE CONSTRUCTION EXIT PAD TO THE PUBLIC ROAD CANNOT BE KEPT CLEAN OF SEDIMENT OR OTHER DEBRIS, THE CONTRACTOR MUST ERECT A TIRE WASH FACILITY.



**PERSPECTIVE**



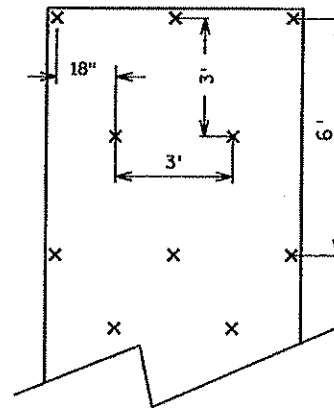
**SECTION BALE BARRIER**



- INSTALLATION NOTES:**
1. DIG 6" x 6" TRENCH
  2. LAY BLANKET END INTO TRENCH
  3. STAPLE BLANKET IN BOTTOM OF TRENCH EVERY 18".
  4. BACKFILL TRENCH WITH SOIL AND COMPACT.

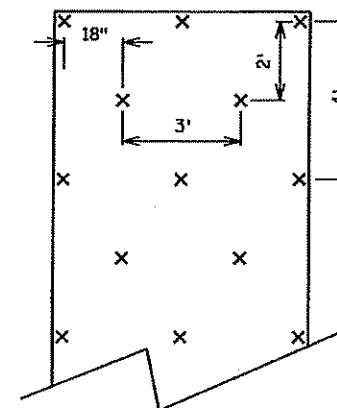
**CHECK TRENCH**

SLOPES FLATTER THAN 1:2  
 (1.2 STAPLES PER SQ. YD.)



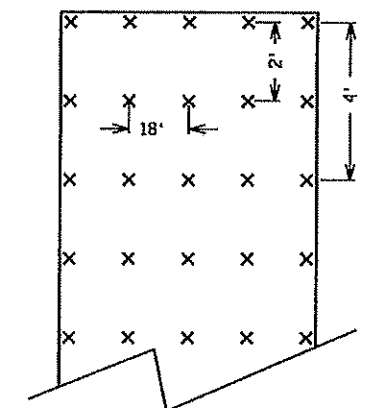
**STANDARD 6' BLANKET**

SLOPES 1:2 TO 1:1  
 (1.7 STAPLES PER SQ. YD.)



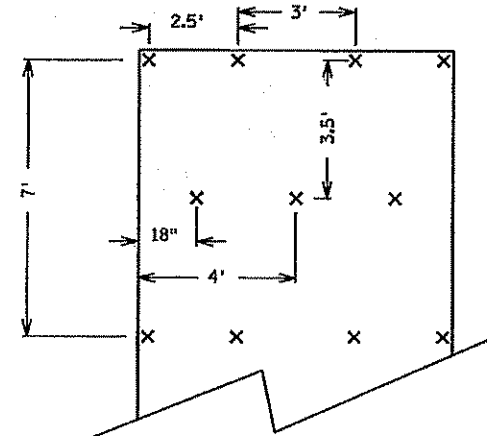
**STANDARD 6' BLANKET**

CHANNEL AND DITCH APPLICATIONS  
 (3.5 STAPLES PER SQ. YD.)



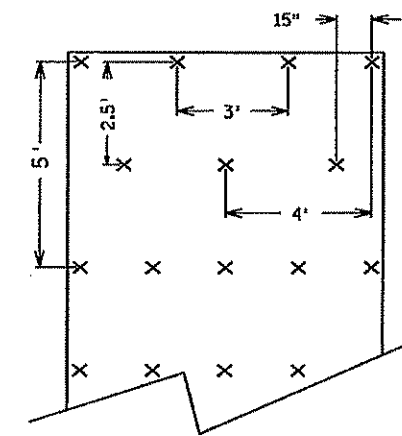
**STANDARD 6' BLANKET**

SLOPES FLATTER THAN 1:2  
 (1.2 STAPLES PER SQ. YD.)



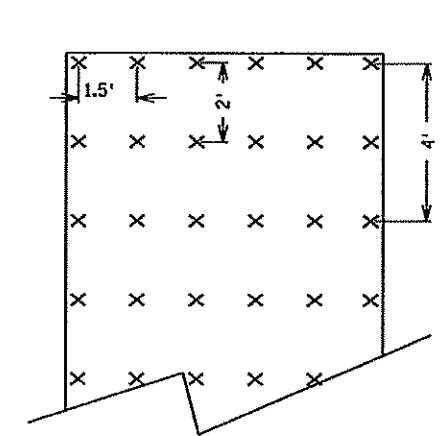
**STANDARD 8' BLANKET**

SLOPES 1:2 TO 1:1  
 (1.7 STAPLES PER SQ. YD.)



**STANDARD 8' BLANKET**

CHANNEL AND DITCH APPLICATIONS  
 (3.5 STAPLES PER SQ. YD.)



**STANDARD 8' BLANKET**

**BLANKET STAPLING PATTERN**

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

DATE: 04/28/11 LIC NO: 42084

THEBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minnesota

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 WSPROTECTIVE, INC.  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
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 763-440-7634

MISCELLANEOUS DETAILS  
 SHEET 6 OF 6 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 42 OF 249 SHEETS

| TRAFFIC CONTROL DEVICES |          |                        |           |         |          |         |         |                |                    |                       |           |         |          |         |         | K |
|-------------------------|----------|------------------------|-----------|---------|----------|---------|---------|----------------|--------------------|-----------------------|-----------|---------|----------|---------|---------|---|
| SIGN OR DEVICE          | SIGN NO. | COLOR                  | SIZE      | STAGE 1 | STAGE 1B | STAGE 2 | STAGE 3 | SIGN OR DEVICE | SIGN NO.           | COLOR                 | SIZE      | STAGE 1 | STAGE 1B | STAGE 2 | STAGE 3 |   |
|                         |          |                        |           | EACH    | EACH     | EACH    | EACH    |                |                    |                       |           | EACH    | EACH     | EACH    | EACH    |   |
|                         | G20-2A   | BLACK ON ORANGE        | 48" x 24" | 3       | 3        | 3       | 3       |                | W1-7               | BLACK ON ORANGE       | 48" x 24" | 0       | 1        | 0       | 0       |   |
|                         |          |                        |           |         |          |         |         |                | W3-1               | RED & BLACK ON YELLOW | 48" x 48" | 1       | 1        | 1       | 1       |   |
|                         | R1-1     | WHITE ON RED           | 30" x 30" | 2       | 2        | 1       | 0       |                | W6-3               | BLACK ON ORANGE       | 30" x 30" | 0       | 5        | 3       | 3       |   |
|                         | R3-1     | BLACK AND RED ON WHITE | 24" x 24" | 0       | 0        | 0       | 2       |                | W6-4               | BLACK ON ORANGE       | 12" x 18" | 0       | 2        | 2       | 2       |   |
|                         | R3-2     | BLACK AND RED ON WHITE | 24" x 24" | 0       | 0        | 0       | 2       |                | W20-1              | BLACK ON ORANGE       | 48" x 48" | 7       | 10       | 8       | 7       |   |
|                         | R9-9     | BLACK ON ORANGE        | 30" x 18" | 1       | 3        | 3       | 3       |                | W20-3              | BLACK ON ORANGE       | 48" x 48" | 0       | 0        | 0       | 1       |   |
|                         | R9-9     | BLACK ON ORANGE        | 30" x 18" | 4       | 0        | 0       | 0       |                | W20-3A             | BLACK ON ORANGE       | 48" x 48" | 1       | 0        | 0       | 0       |   |
|                         | R11-2    | BLACK ON WHITE         | 48" x 30" | 0       | 3        | 3       | 1       |                | TYPE III BARRICADE | ORANGE ON WHITE       | 8 FOOT    | 4       | 22       | 29      | 31      |   |
|                         | R11-4    | BLACK ON WHITE         | 60" x 30" | 0       | 0        | 0       | 1       |                | REFLECTOR DRUM     | ORANGE ON WHITE       |           | 30      | 71       | 77      | 33      |   |
|                         |          |                        |           |         |          |         |         |                | FLASHER            | AMBER                 |           | 0       | 6        | 0       | 5       |   |

**NOTE:**

- QUANTITIES SHOWN ON THIS TAB ARE FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE INCLUDED IN THE LUMP SUM BID FOR TRAFFIC CONTROL.

**GENERAL NOTES:**

- ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF LAYOUTS AS DEEMED NECESSARY BY THE ENGINEER.
- ALL DISTANCES ARE APPROXIMATE.
- BARRICADES ARE 8 FOOT TYPE III AND SHALL BE REFLECTORIZED ON BOTH SIDES.
- OBLITERATING ANY CONFLICTING PAVEMENT MARKINGS SHALL BE INCIDENTAL TO TEMPORARY STRIPING.
- ALL TRAFFIC CONTROL DEVICES ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATIONS SHALL BE COVERED, REMOVED, OR REVISED (INCIDENTAL TO TRAFFIC CONTROL).
- THE CONTRACTOR IS RESPONSIBLE FOR EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
- THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MN MUTCD INCLUDING THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- THE CONTRACTOR SHALL COORDINATE THE PERMANENT SIGNING SO THAT THE INSTALLATION OF THE PERMANENT SIGNS IS COMPLETED BEFORE THE ROADWAYS ARE OPEN TO TRAFFIC.
- IF THE CONTRACTOR DESIRES TO PERFORM WORK IN A SEQUENCE OTHER THAN SHOWN IN THE PLANS, THE CONTRACTOR SHALL SUBMIT THE PROPOSED CHANGES, IN WRITING, TO THE ENGINEER FOR APPROVAL AT LEAST 10 WORKING DAYS PRIOR TO THE COMMENCEMENT OF THE WORK. IF THE SEQUENCE OF CONSTRUCTION CHANGES ARE APPROVED AND THE CHANGES RESULT IN CHANGES TO THE TRAFFIC CONTROL, THE CONTRACTOR SHALL SUBMIT, IN WRITING, REVISED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL AT LEAST 14 DAYS PRIOR TO IMPLEMENTING THE TRAFFIC CONTROL.
- SEE SIGNING DETAIL SHEETS FOR TYPICAL ERECTION DETAILS (FOR SIGNS TYPES "C & D").
- ALL DRUMS, BARRICADES, AND SIGNS SHALL BE RETRO-REFLECTIVE.
- THE DEVICES IN THIS TRAFFIC CONTROL PLAN SHALL BE FURNISHED, INSTALLED AND MAINTAINED UNLESS OTHERWISE NOTED.

**SIGNING:**

- WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE MNMUTCD.
- ALL ORANGE SIGNS SHALL BE MADE OF DIAMOND GRADE ORANGE REFLECTIVE SHEETING OR AN APPROVED SUBSTITUTE.
- LONGITUDINAL DROP OFFS SHALL BE SIGNED AS SHOWN ON PAGES 6K-100 THROUGH 6K-102 OF THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
- REMOVAL OF EXISTING SIGNS SHALL BE COORDINATED WITH THE REMOVAL PLANS. ANY CONFLICTING SIGNS SHALL BE REMOVED.
- THE REMOVAL OF THE TEMPORARY SIGNS WILL BE COORDINATED TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR TEMPORARY SIGNING WILL BE PROVIDED UNTIL THE FINAL SIGNING IS INSTALLED.
- EXISTING SIGNS MAY BE RE-USED FOR CONSTRUCTION SIGNING.
- ALL SIGNING SHALL CONFORM TO SPEC 3352.2A2e.

| TRAFFIC CONTROL PAY ITEMS |   |                               |  |  |                       |                            |                     | L                           |
|---------------------------|---|-------------------------------|--|--|-----------------------|----------------------------|---------------------|-----------------------------|
| LOCATION                  | TYPE SP 12.5 NON WEAR COURSE (SPNWB430B) (PG 58-28) | AGGREGATE BASE (CV) CL 5 MOD. | PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337(1) | RELOCATE PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337 | IMPACT ATTENUATOR (2) | RELOCATE IMPACT ATTENUATOR | PAINT               |                             |
|                           |   |                               |  |  |                       |                            | 4" SOLID LINE WHITE | 4" DOUBLE SOLID LINE YELLOW |
|                           | TON   | CU YD                         | LIN FT   | LIN FT   | ASSEMBLY              | ASSEMBLY                   | LIN FT              | LIN FT                      |
| STAGE 1                   | 308   | 363                           |  |  |                       |                            |                     |                             |
| STAGE 1B                  | 195   | 230                           | 1789   |  | 4                     |                            | 8600                | 6400                        |
| STAGE 2                   | 340   | 402                           |  | 865  |                       | 2                          | 5300                | 5900                        |
| STAGE 3                   |   |                               | 916  | 865  | 2                     | 2                          | 5900                | 5850                        |
| TOTALS                    | 843   | 995                           | 2705   | 1730   | 6                     | 4                          | 19800               | 18150                       |

**NOTES:**

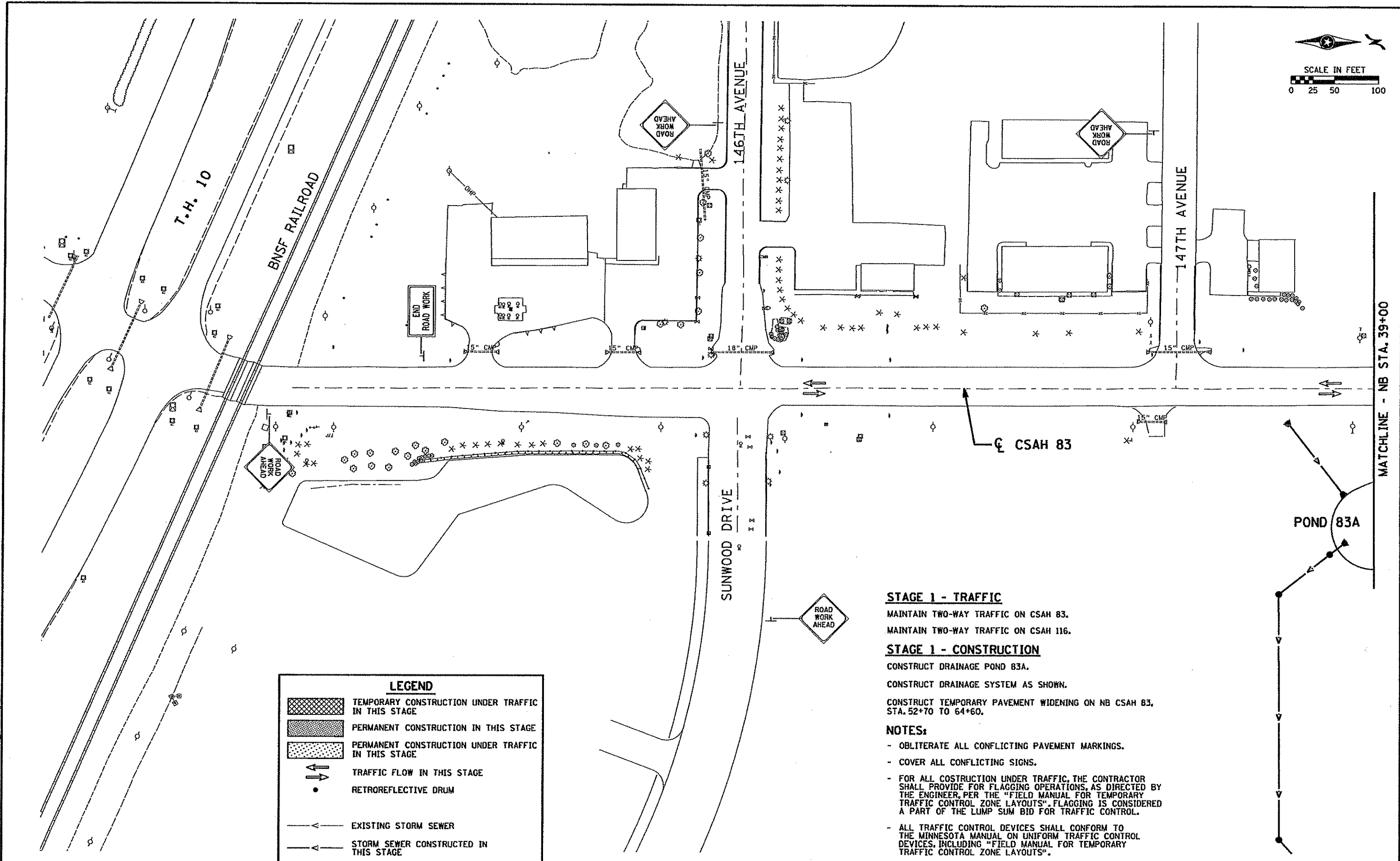
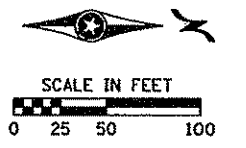
- TO REMAIN THE PROPERTY OF THE CONTRACTOR.
- 55 MPH

**GENERAL NOTES:**

- QUANTITIES ARE BASED ON STRIPING ALL NON-WEAR COURSES. TEMPORARY STRIPING MAY NOT BE NECESSARY IF CONTRACTOR PAVES WEAR COURSE PRIOR TO OPENING TO TRAFFIC.

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| LEGEND |  |
|--------|--|
|        | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | PERMANENT CONSTRUCTION IN THIS STAGE               |
|        | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | TRAFFIC FLOW IN THIS STAGE                         |
|        | RETROREFLECTIVE DRUM                               |
|        | EXISTING STORM SEWER                               |
|        | STORM SEWER CONSTRUCTED IN THIS STAGE              |

**STAGE 1 - TRAFFIC**

- MAINTAIN TWO-WAY TRAFFIC ON CSAH 83.
- MAINTAIN TWO-WAY TRAFFIC ON CSAH 116.

**STAGE 1 - CONSTRUCTION**

- CONSTRUCT DRAINAGE POND 83A.
- CONSTRUCT DRAINAGE SYSTEM AS SHOWN.
- CONSTRUCT TEMPORARY PAVEMENT WIDENING ON NB CSAH 83, STA. 52+70 TO 64+60.

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

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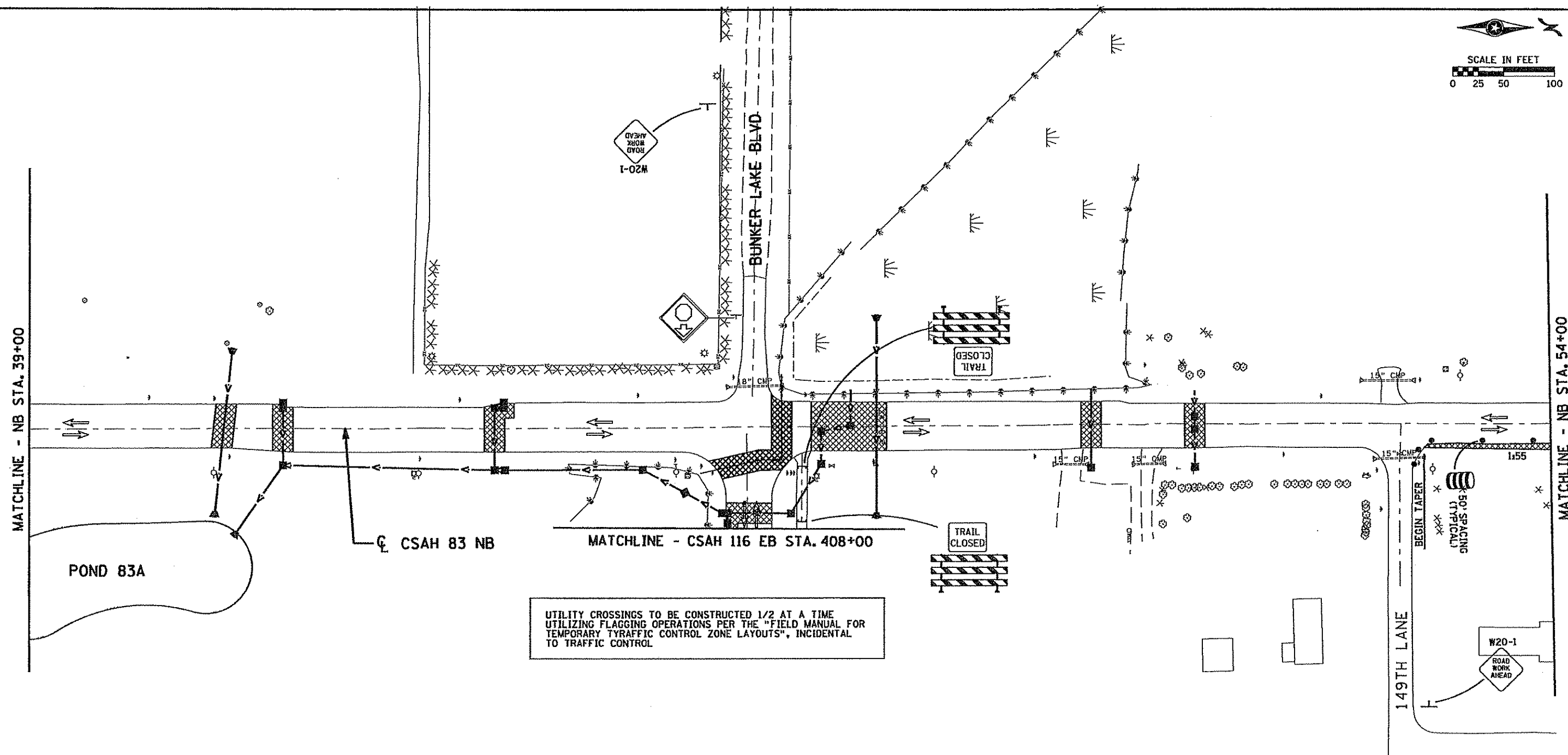
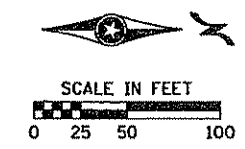
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STAGE 1  
 STAGING AND TRAFFIC CONTROL  
 SHEET 2 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 44  
 OF  
 249  
 SHEETS



UTILITY CROSSINGS TO BE CONSTRUCTED 1/2 AT A TIME UTILIZING FLAGGING OPERATIONS PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS", INCIDENTAL TO TRAFFIC CONTROL

| LEGEND |  |
|--------|--|
|        | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | PERMANENT CONSTRUCTION IN THIS STAGE               |
|        | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | TRAFFIC FLOW IN THIS STAGE                         |
|        | RETROREFLECTIVE DRUM                               |
|        | EXISTING STORM SEWER                               |
|        | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
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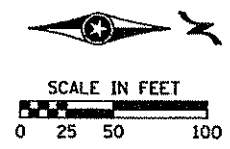
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 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 DATE: 04/28/11 LIC NO: 40945

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

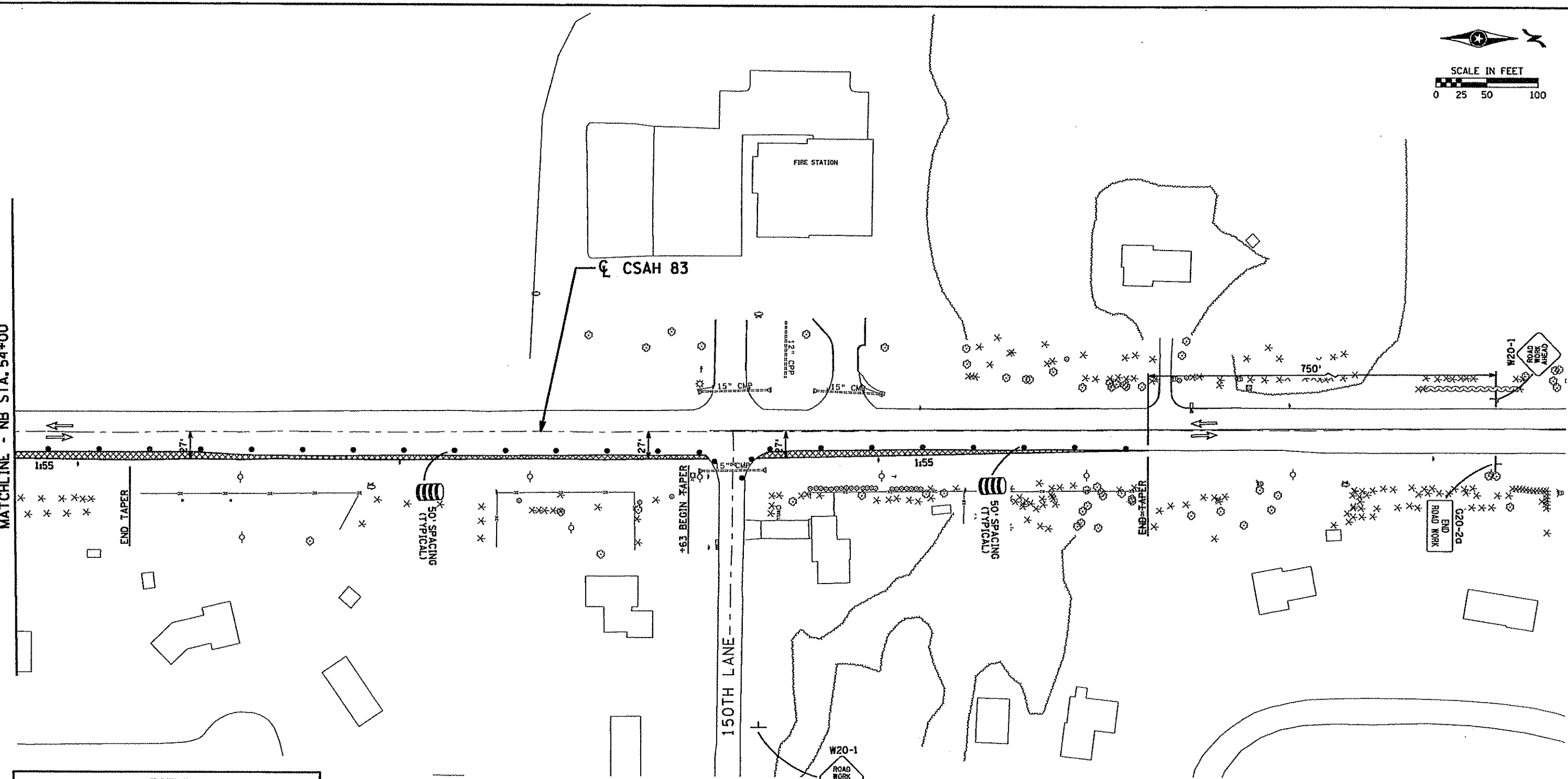


STAGE 1  
 STAGING AND TRAFFIC CONTROL  
 SHEET 3 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 45  
 OF  
 249  
 SHEETS



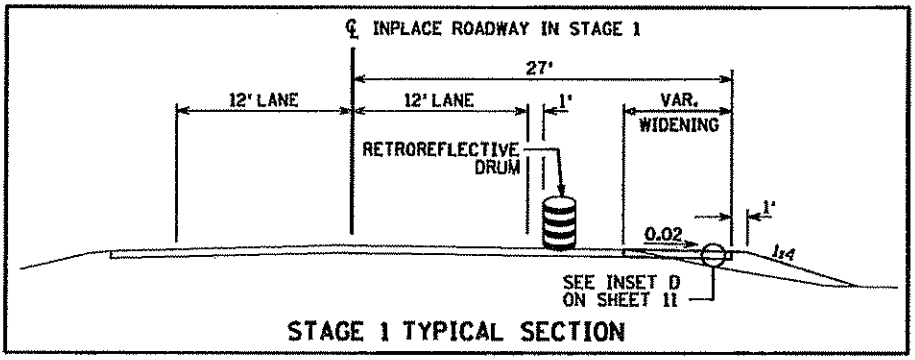
MATCHLINE - NB STA. 54+00



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".



DATE: 6/4/2011 10:27:36 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **M HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLIES WITH ALL THE REQUIREMENTS OF THE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*[Signature]*  
 License No. 40945

DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsbeng.com

763-541-4000 • Fax: 763-541-1700  
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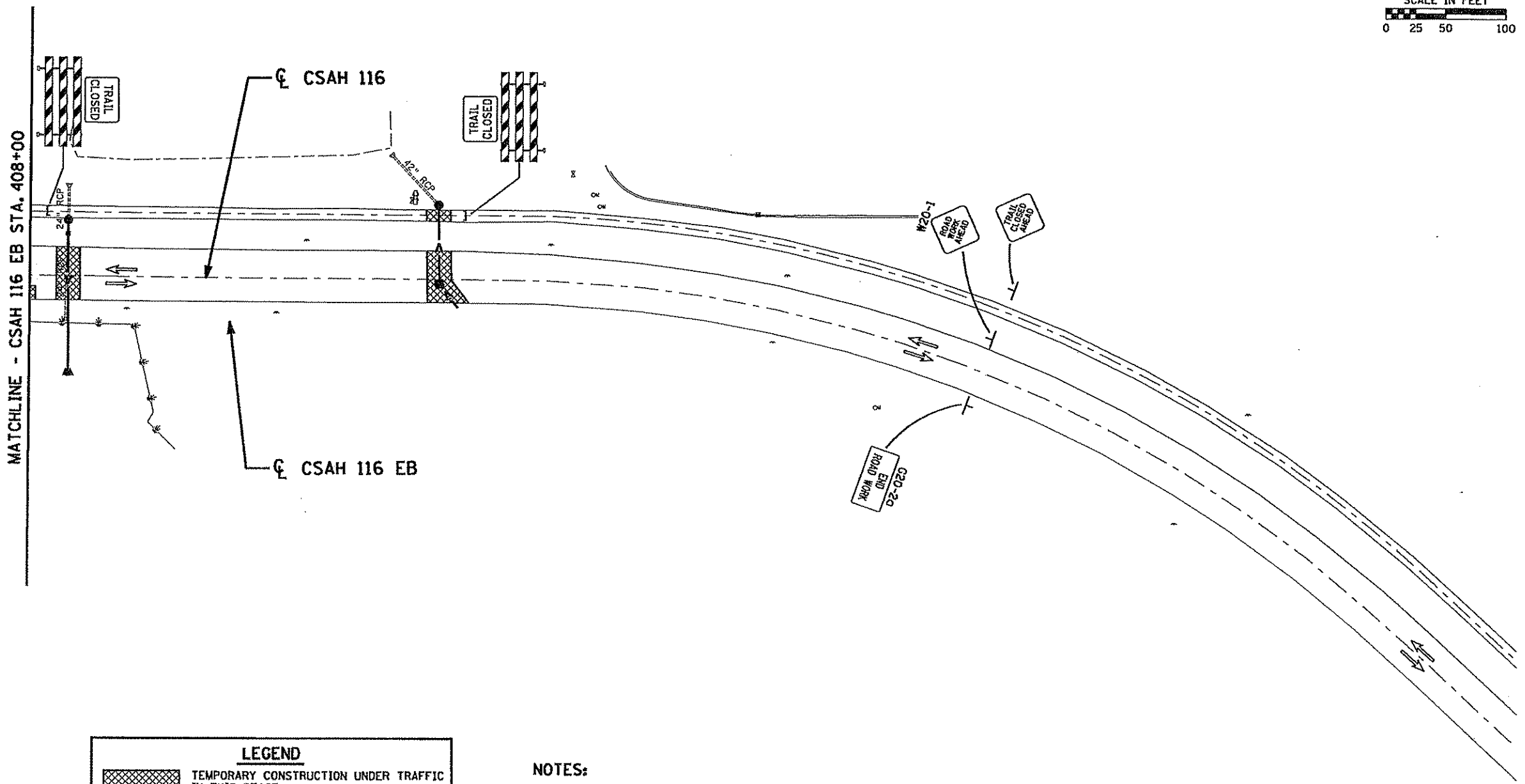
**STAGE 1**  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 4 OF 22 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 46 OF 249 SHEETS



SCALE IN FEET  
0 25 50 100



| LEGEND |  |
|--------|--|
|        | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | PERMANENT CONSTRUCTION IN THIS STAGE               |
|        | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | TRAFFIC FLOW IN THIS STAGE                         |
|        | RETROREFLECTIVE DRUM                               |
|        | EXISTING STORM SEWER                               |
|        | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

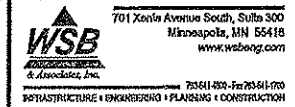
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE  
DATE: 04/28/11 LIC NO: 40945

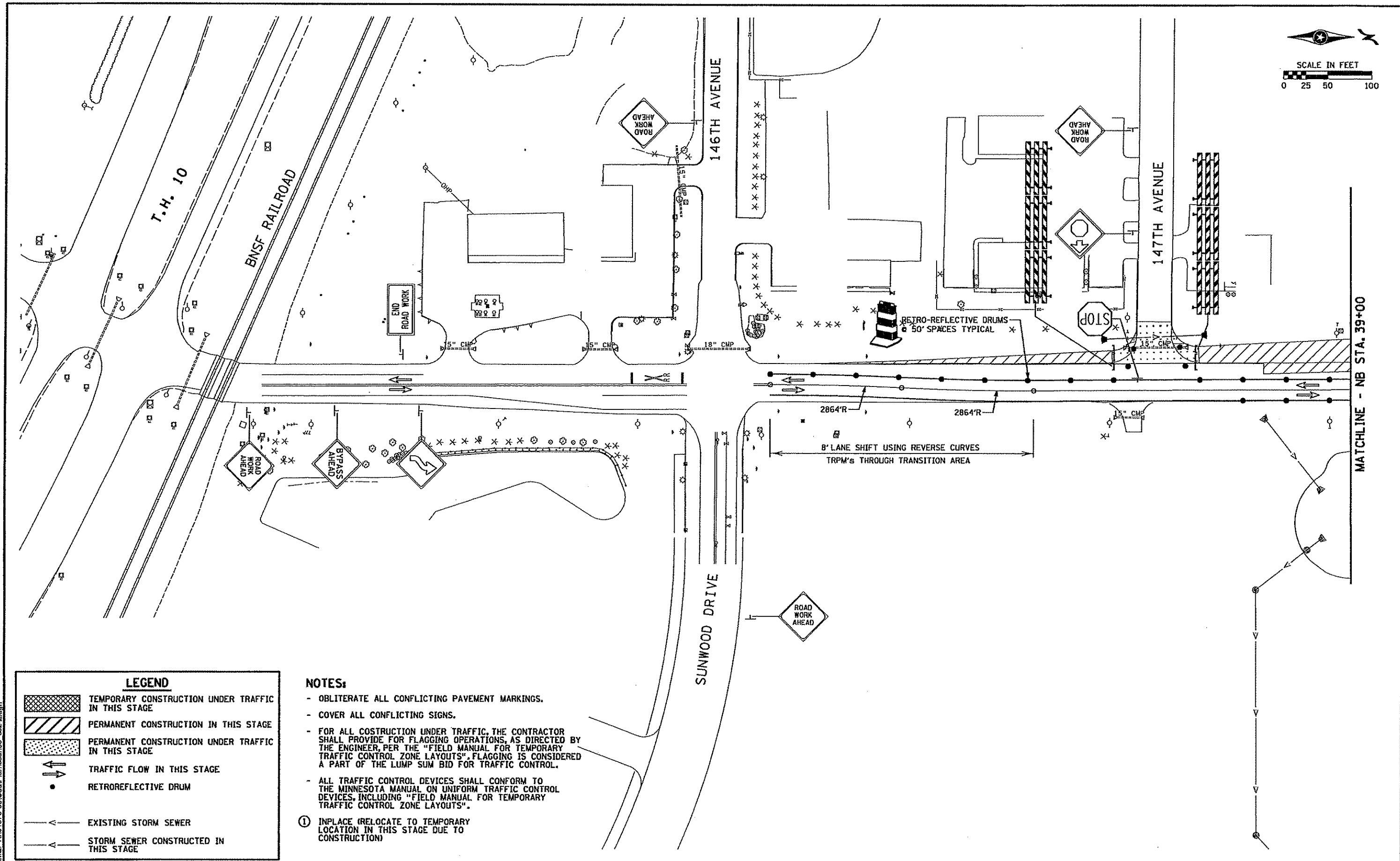
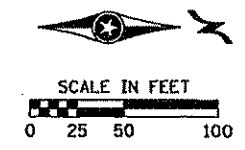
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



STAGE 1  
STAGING AND TRAFFIC CONTROL  
SHEET 5 OF 22 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 47 OF 249 SHEETS



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)

DATE: 5/4/2011 10:27:44 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*Am. Johnson*  
 Professional Engineer, State of Minnesota, P.E.  
 DATE: 04/28/11 LIC NO: 40945

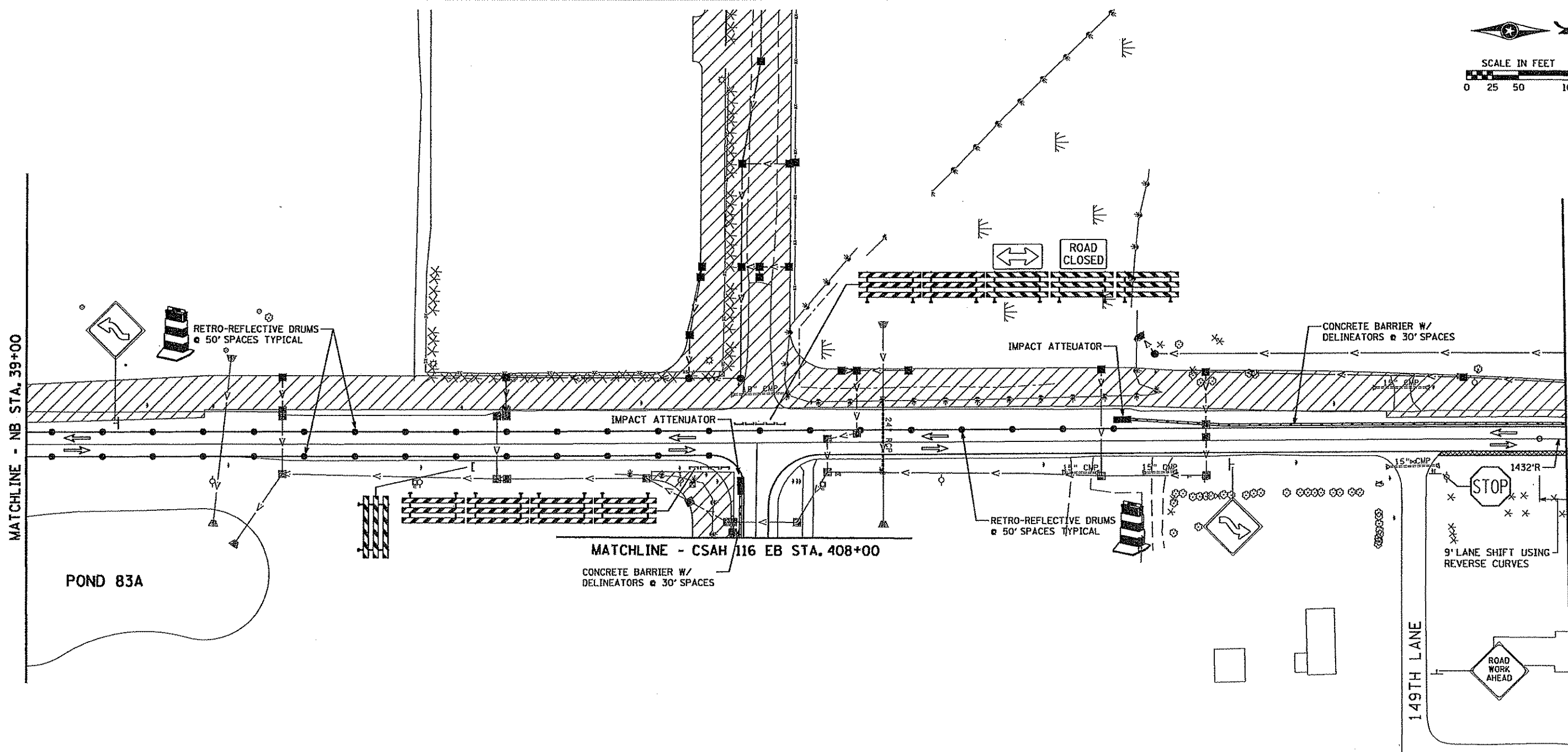
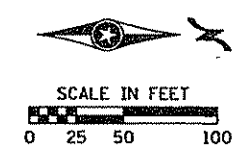
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



STAGE 1B  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 6 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 48 OF 249 SHEETS





**LEGEND**

|  |  |
|--|--|
|  | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | PERMANENT CONSTRUCTION IN THIS STAGE               |
|  | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | TRAFFIC FLOW IN THIS STAGE                         |
|  | RETROREFLECTIVE DRUM                               |
|  | EXISTING STORM SEWER                               |
|  | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)
  - ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:27:48 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 40945

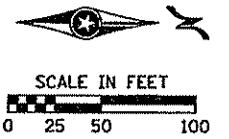
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

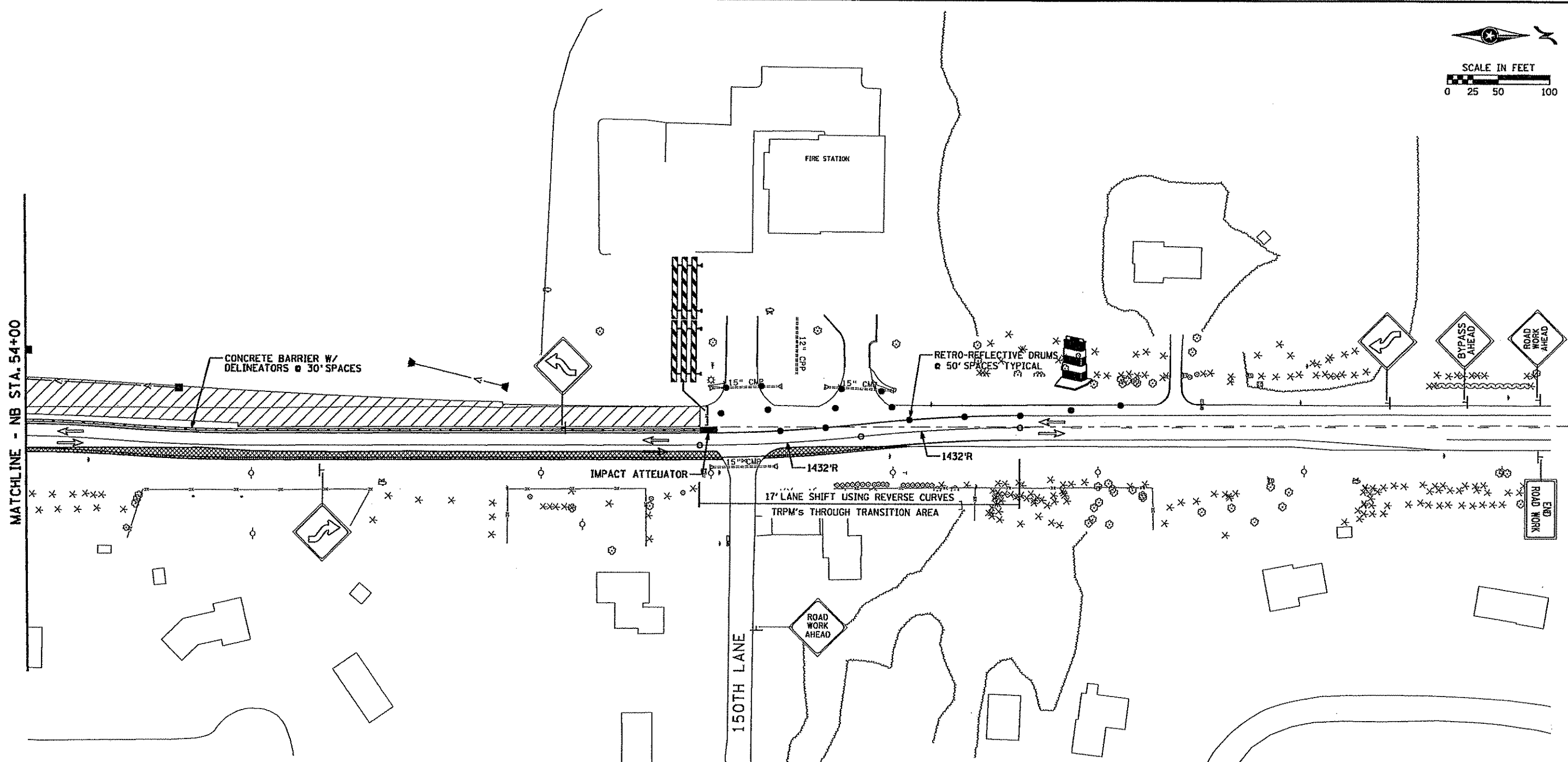
**WSB**  
 A. Associates, Inc.  
 701 Xerxes Avenue South, Suite 200  
 Minneapolis, MN 55418  
 www.wsb.org

STAGE 1B  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 7 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 49  
 OF  
 249  
 SHEETS



MATCHLINE - NB STA. 54+00



| LEGEND |  |
|--------|--|
|        | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | PERMANENT CONSTRUCTION IN THIS STAGE               |
|        | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|        | TRAFFIC FLOW IN THIS STAGE                         |
|        | RETROREFLECTIVE DRUM                               |
|        | EXISTING STORM SEWER                               |
|        | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:27:52 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 40945

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 & Associates, Inc.  
 701 Xenia Avenue South, Suite 500  
 Minneapolis, MN 55418  
 www.wsborg.com  
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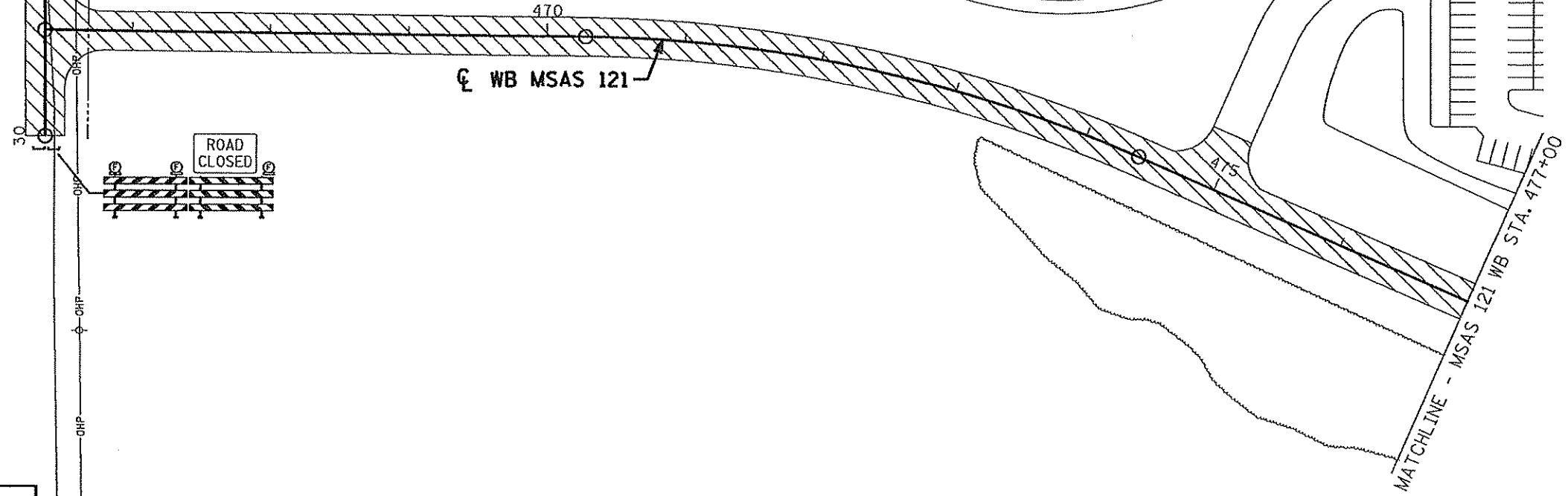
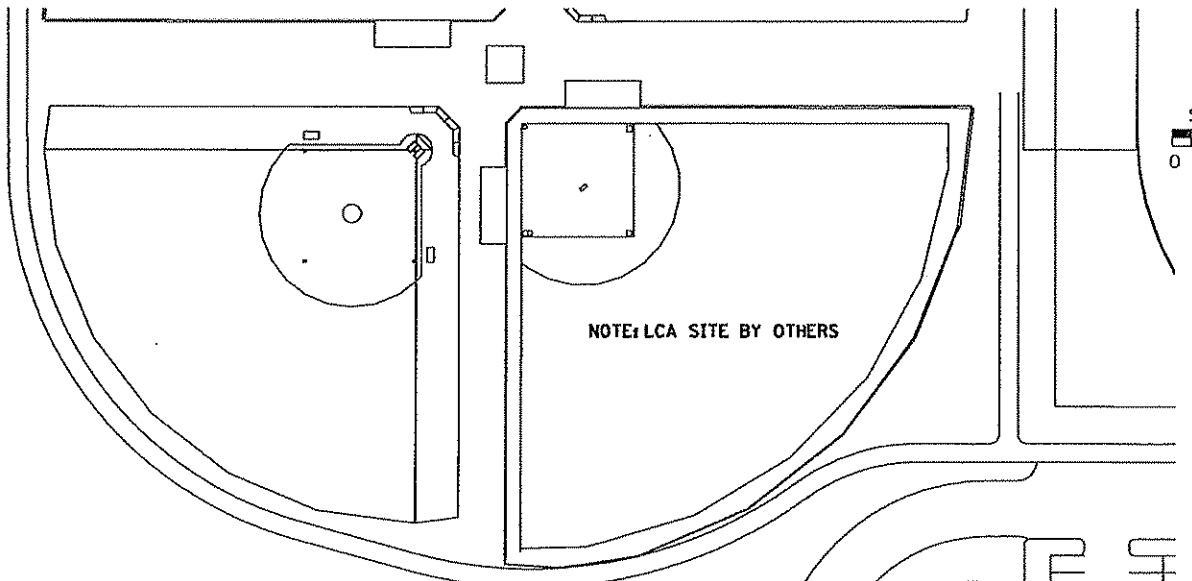
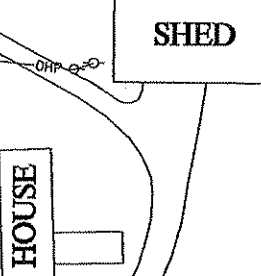
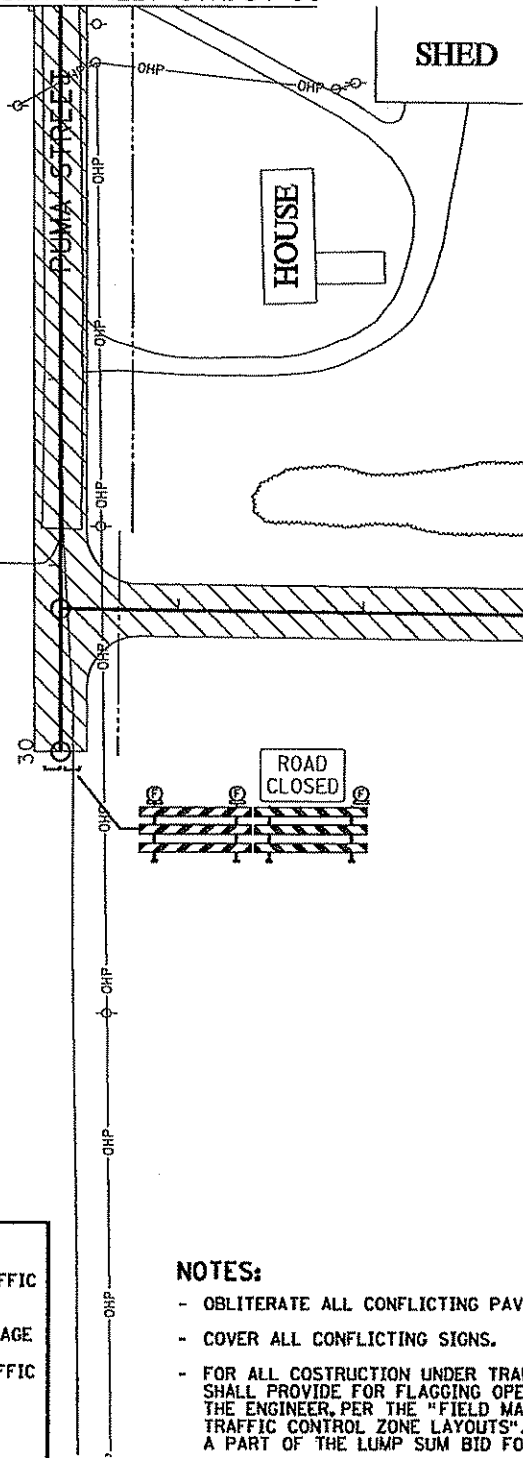
STAGE 1B  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 8 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 50  
 OF  
 249  
 SHEETS



SCALE IN FEET  
0 50 100

MATCHLINE - PUMA STREET STA. 34+00



**LEGEND**

|  |  |
|--|--|
|  | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | PERMANENT CONSTRUCTION IN THIS STAGE               |
|  | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | TRAFFIC FLOW IN THIS STAGE                         |
|  | RETROREFLECTIVE DRUM                               |
|  | EXISTING STORM SEWER                               |
|  | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- Ⓢ INPLACE (LEAVE AS IS)

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE  
DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
Licensed Professional Engineer, State of Minn.  
J. Hale P.E.

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

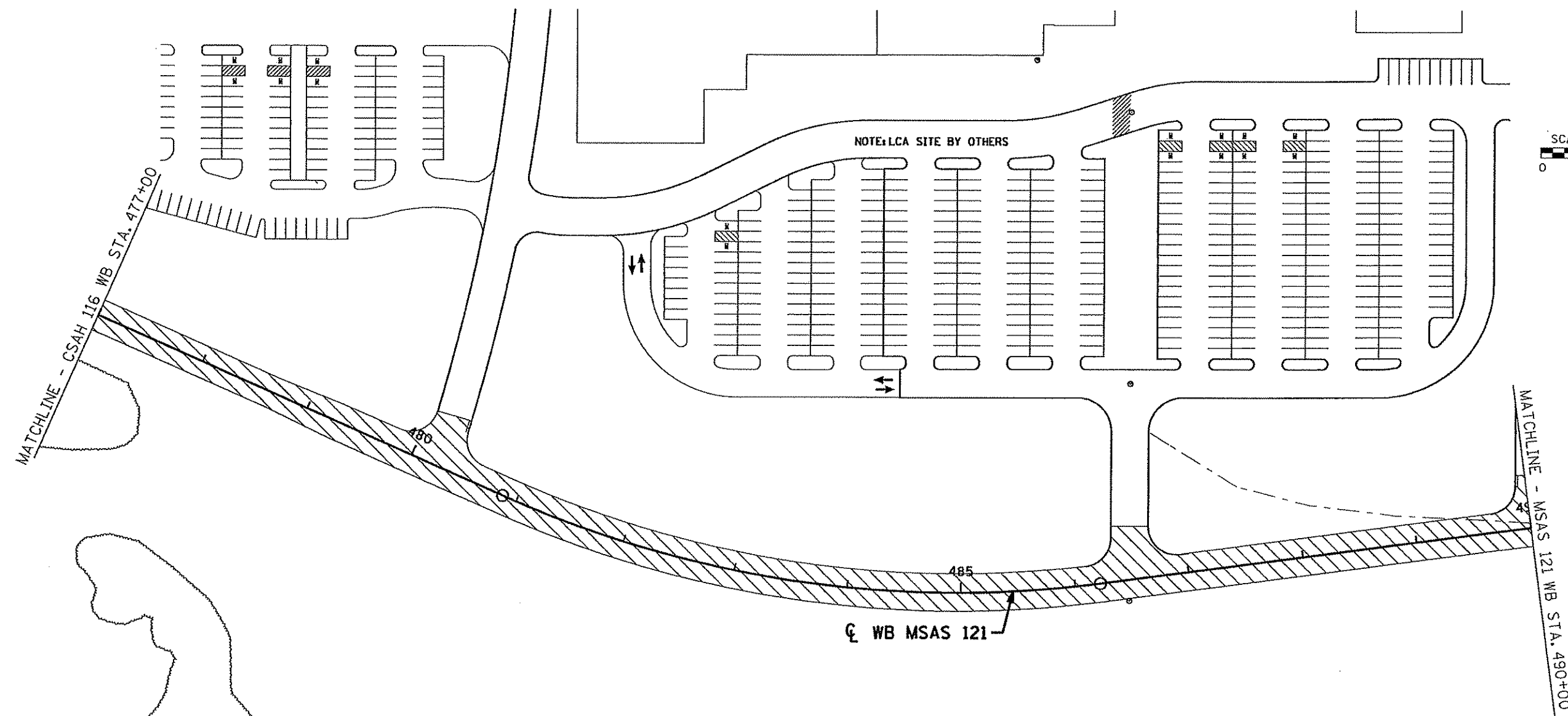


STAGE 1B  
STAGING AND TRAFFIC CONTROL  
SHEET 10 OF 22 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 51 OF 249 SHEETS



SCALE IN FEET  
0 50 100



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

**NOTES:**

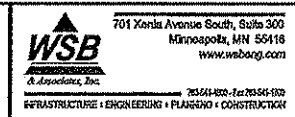
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
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- ② INPLACE (LEAVE AS IS)

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



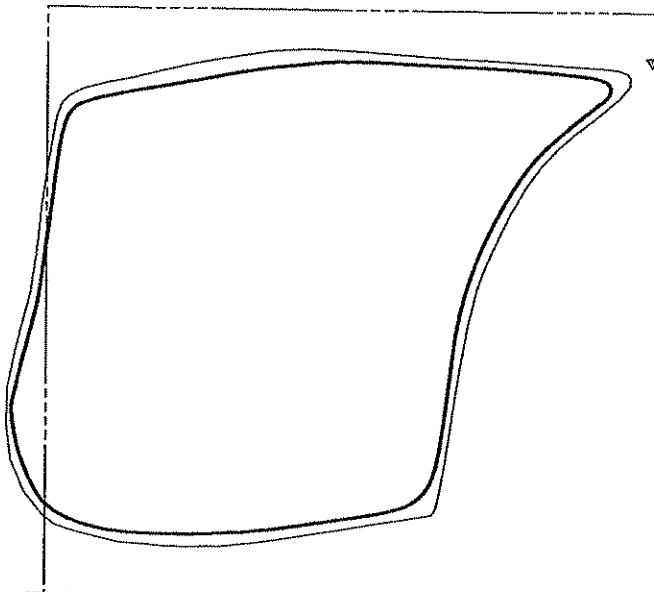
STAGE 1B  
 STAGING AND TRAFFIC CONTROL  
 SHEET 11 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 52  
 OF  
 249  
 SHEETS



SCALE IN FEET  
0 50 100

NOTE:  
LCA SITE BY OTHERS

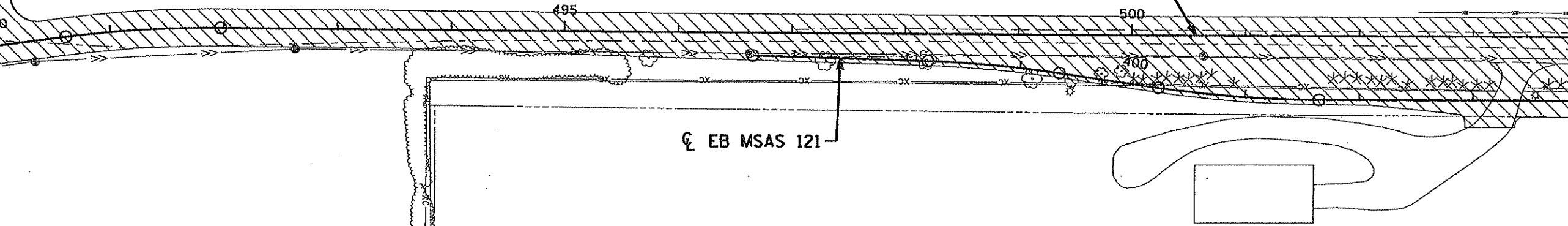


CITY RIGHT OF ENTRY  
ON LCA SITE

WB MSAS 121

EB MSAS 121

MATCHLINE -MSAS 121 EB STA. 404+00  
MSAS 121 WB STA. 504+00



LEGEND

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

NOTES:

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
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- ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:28:10 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 Licensed Professional Engineer, Jupa Hale P.E.

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

701 Xantia Avenue South, Suite 500  
 Minneapolis, MN 55416  
 www.wsb.org

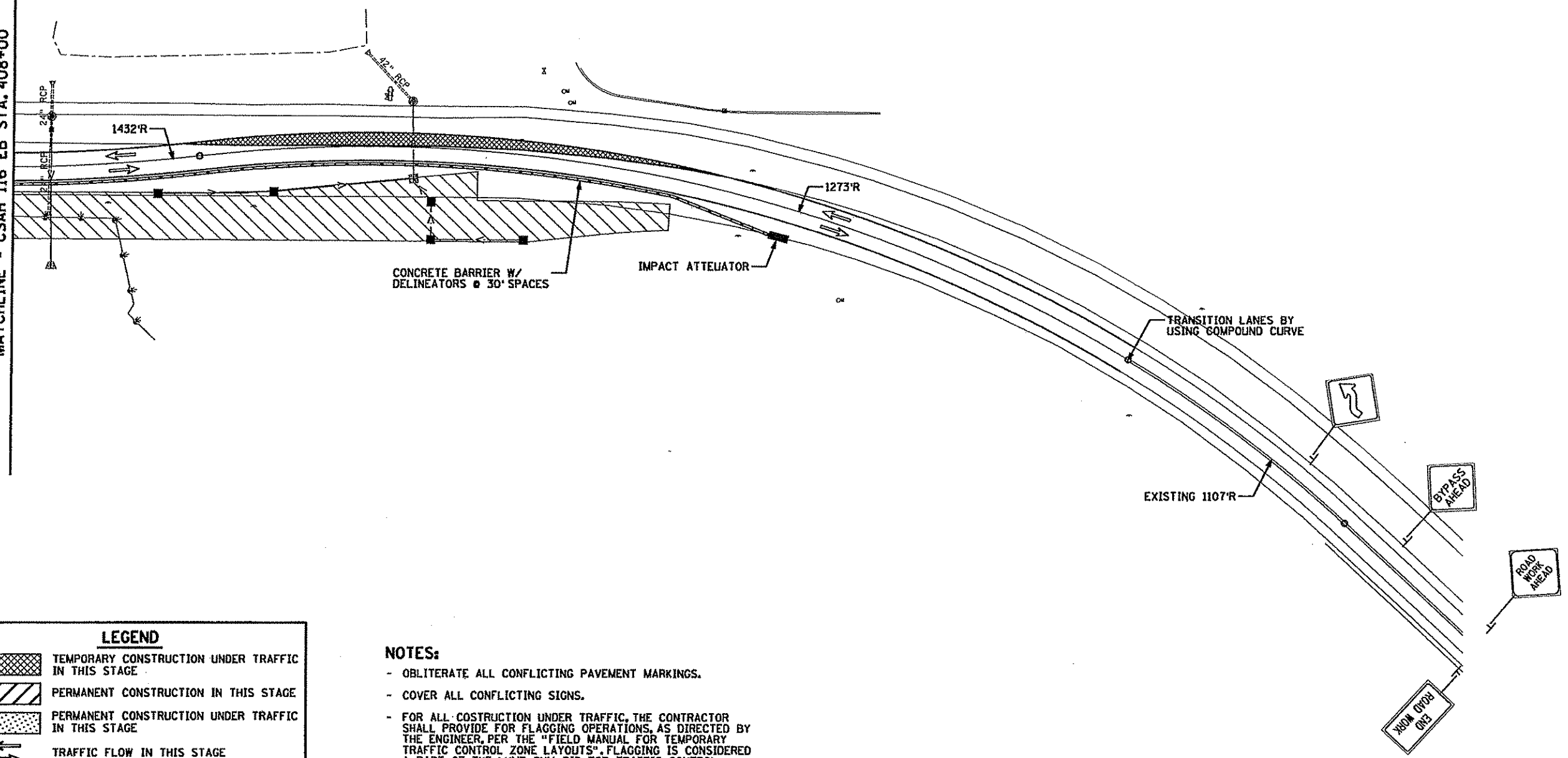
STAGE 1B  
 STAGING AND TRAFFIC CONTROL  
 SHEET 12 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 53  
 OF  
 249  
 SHEETS






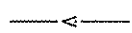
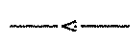


SCALE IN FEET  
0 25 50 100

MATCHLINE - CSAH 116 EB STA. 408+00



**LEGEND**

-  TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
-  PERMANENT CONSTRUCTION IN THIS STAGE
-  PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
-  TRAFFIC FLOW IN THIS STAGE
-  RETROREFLECTIVE DRUM
-  EXISTING STORM SEWER
-  STORM SEWER CONSTRUCTED IN THIS STAGE

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
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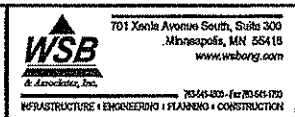
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 40945

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.








CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



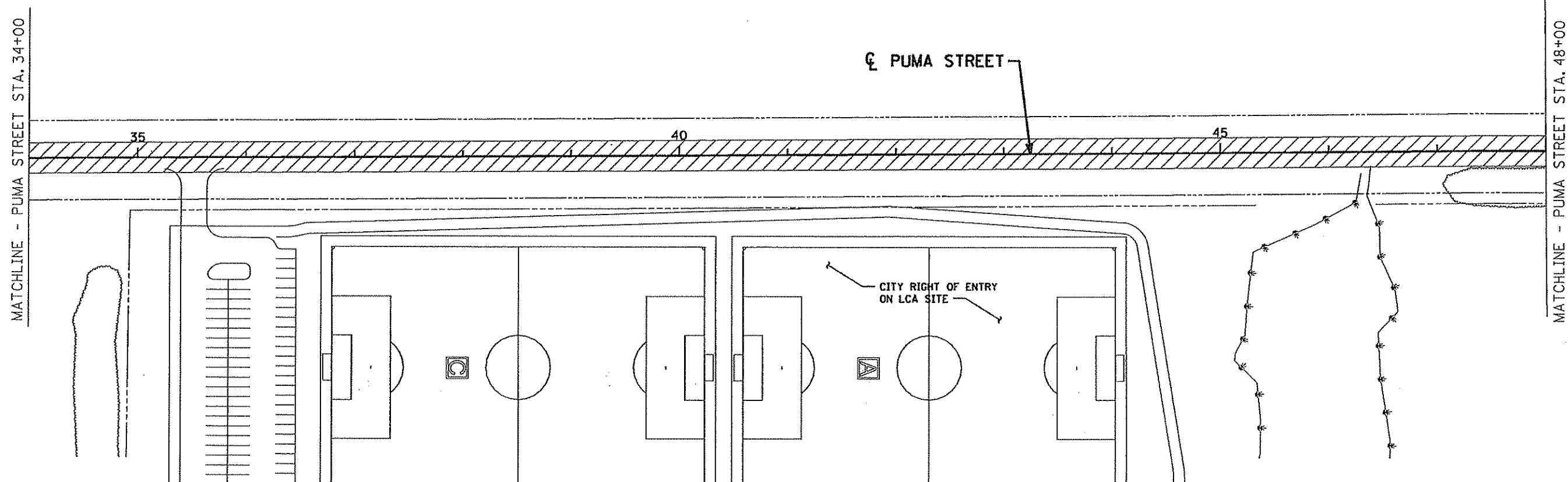
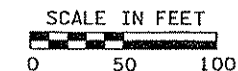
STAGE 1B  
 STAGING AND TRAFFIC CONTROL  
 SHEET 9 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 54  
 OF  
 249  
 SHEETS

**LEGEND**

-  TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
-  PERMANENT CONSTRUCTION IN THIS STAGE
-  PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
-  TRAFFIC FLOW IN THIS STAGE
-  RETROREFLECTIVE DRUM
-  EXISTING STORM SEWER
-  STORM SEWER CONSTRUCTED IN THIS STAGE

- NOTE:  
LCA SITE BY OTHERS
- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ② INPLACE (LEAVE AS IS)



DATE: 5/4/2011 10:28:14 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

(I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA)

*J. Hale*  
 Licensed Professional Engineer, Jupo Hale P.E.

DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 & Associates, Inc.

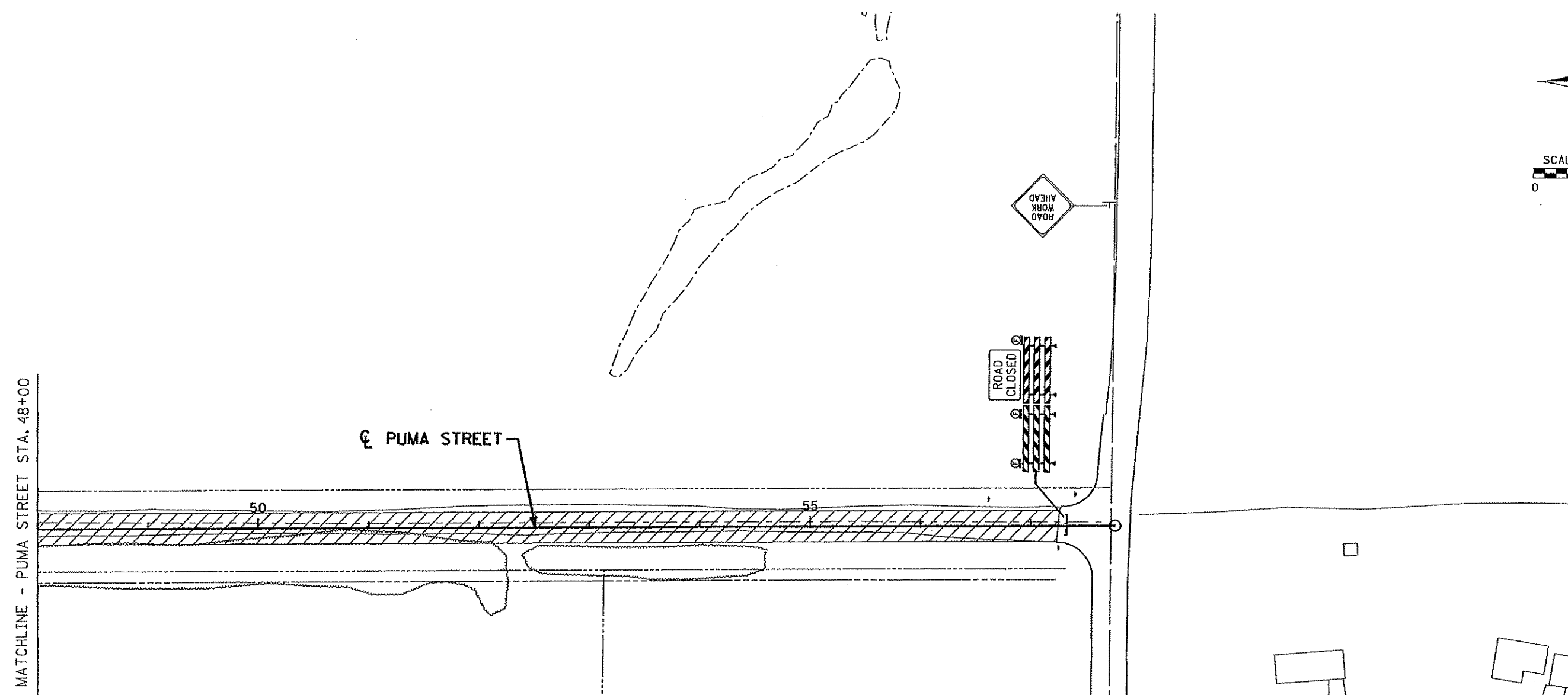
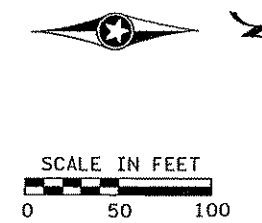
701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsbinc.com

952-441-8200 Fax 952-515-5700  
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STAGE 1B  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 13 OF 22 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 55  
 OF  
 249  
 SHEETS



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:25:18 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42084

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, Jopo Halo P.E.

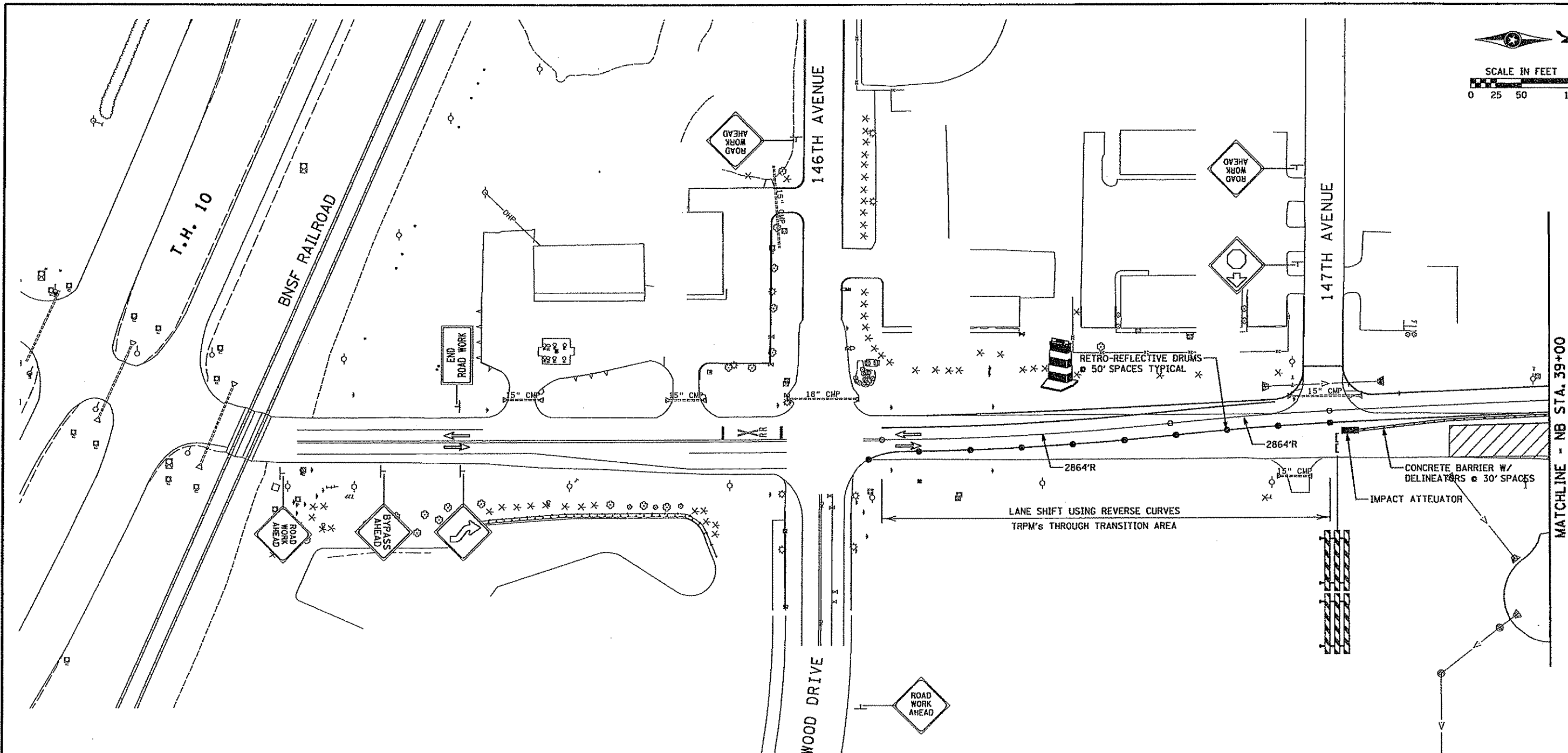
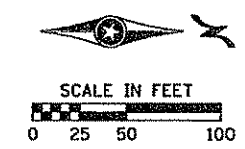
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

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STAGE 1B  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 14 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 56  
 OF  
 249  
 SHEETS





**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

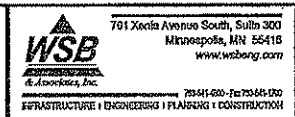
- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL COSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)

DATE: 5/4/2011 10:28:21 AM  
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| NO | DATE | BY  | CHK | REVISIONS |
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|    |      | JV  |     |           |
|    |      | JMW |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 DATE: 04/28/11 LIC NO: 40945

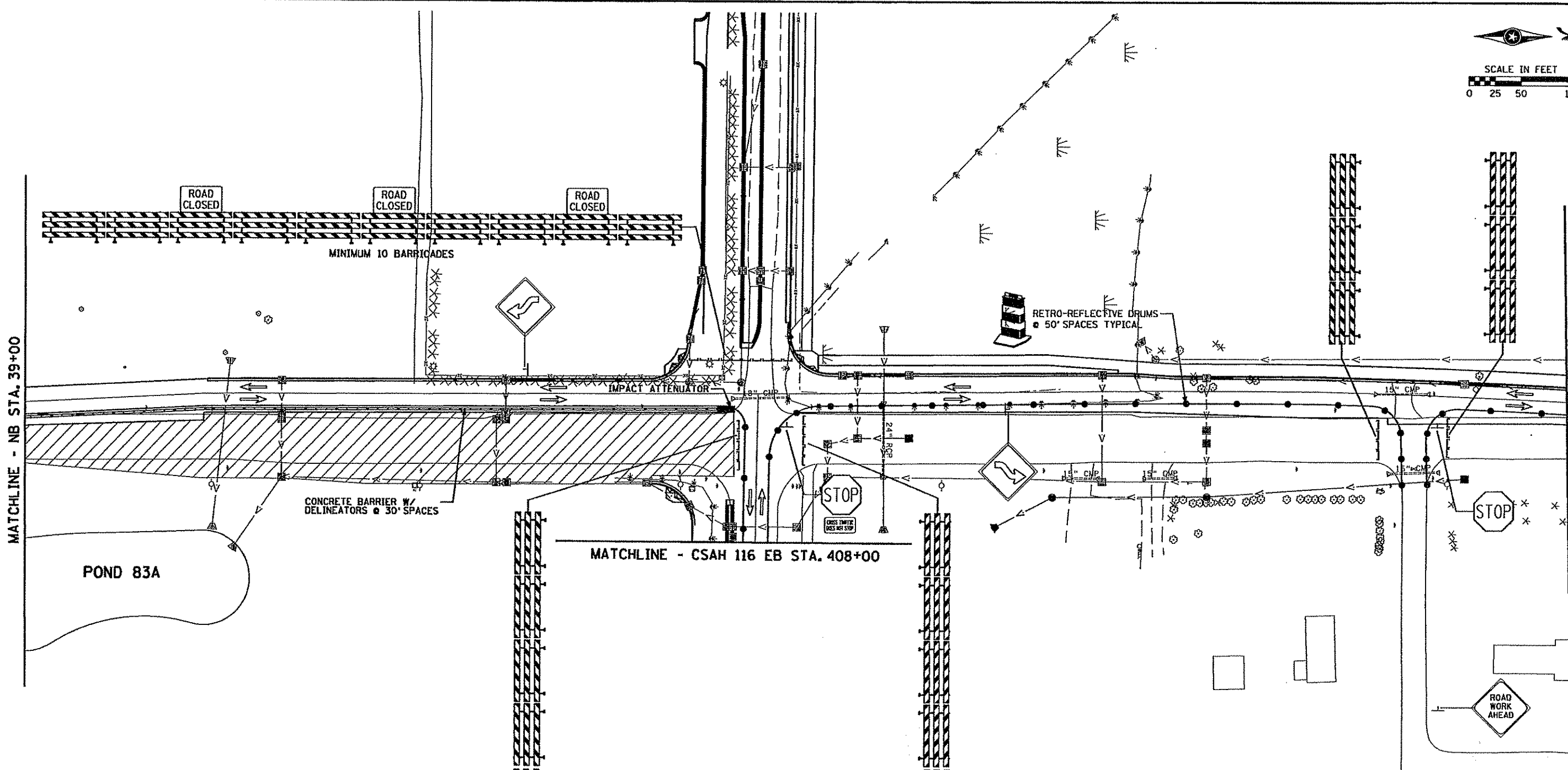
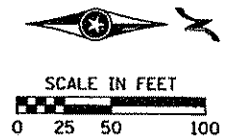
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**STAGE 2**  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 15 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 57 OF 249 SHEETS

MATCHLINE - NB STA. 39+00



**LEGEND**

|  |  |
|--|--|
|  | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | PERMANENT CONSTRUCTION IN THIS STAGE               |
|  | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | TRAFFIC FLOW IN THIS STAGE                         |
|  | RETROREFLECTIVE DRUM                               |
|  | EXISTING STORM SEWER                               |
|  | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)
  - ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:28:26 AM  
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| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

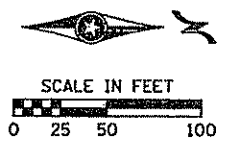
*[Signature]*  
L. J. HALE  
Professional Engineer, State of Minnesota, P.E.  
DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION

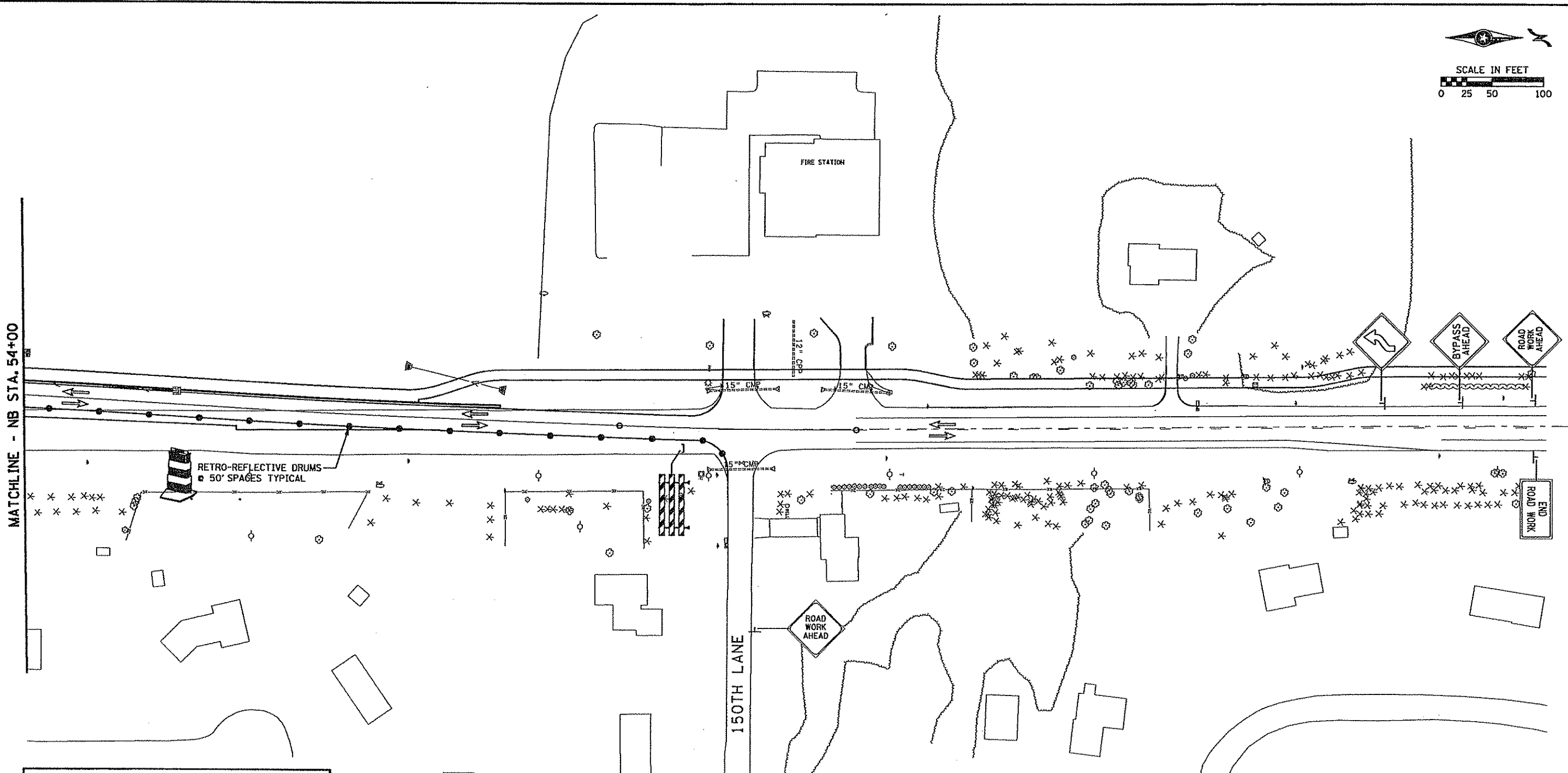
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STAGE 2  
**STAGING AND TRAFFIC CONTROL**  
SHEET 16 OF 22 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
58  
OF  
249  
SHEETS



MATCHLINE - NB STA. 54+00



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

**NOTES:**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ② INPLACE (LEAVE AS IS)

DATE: 5/4/2011 10:28:30 AM  
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| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 40945

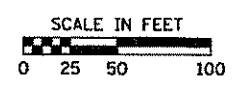
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 License Professional Engineer, State of Minnesota, P.E.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

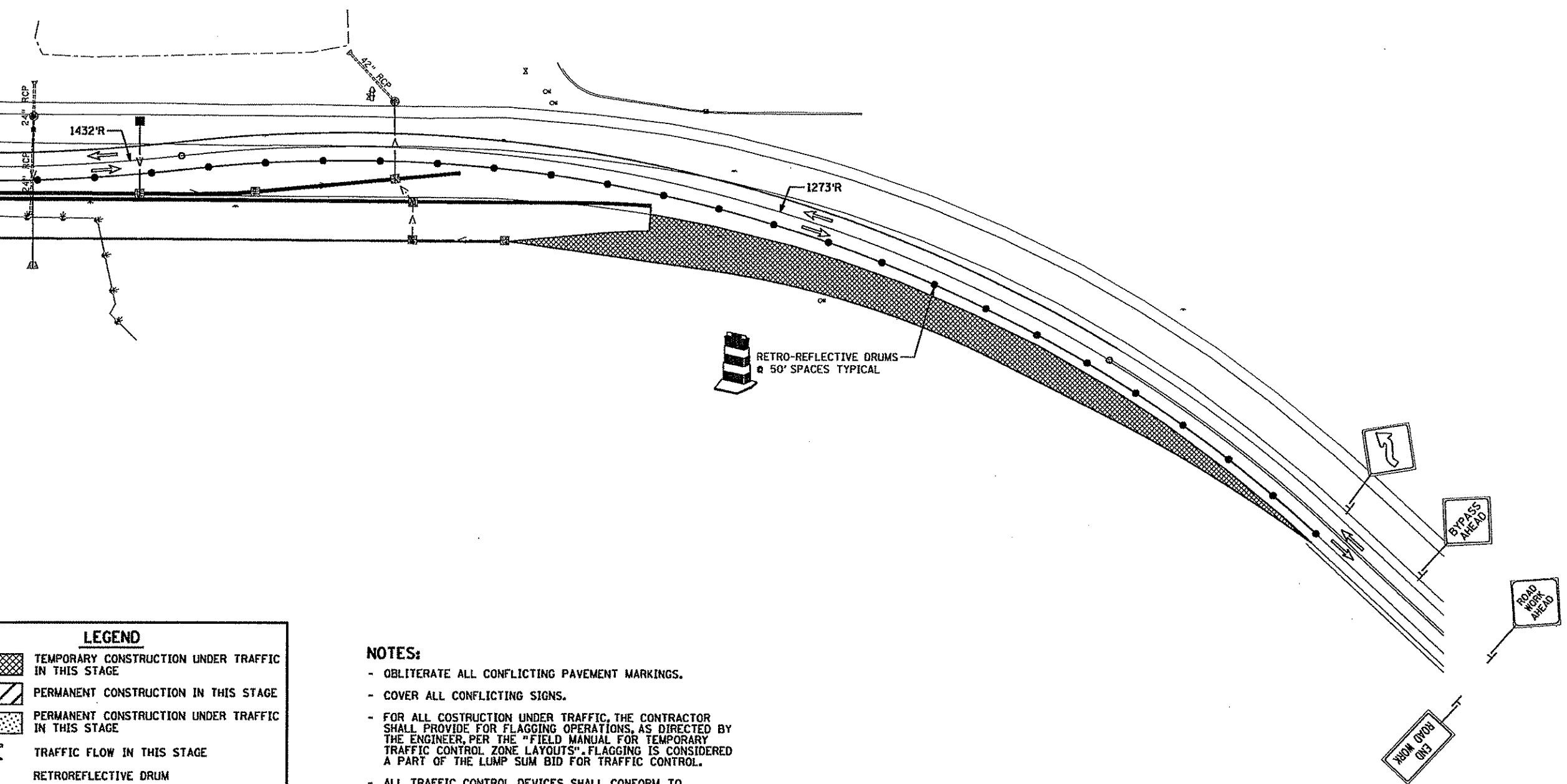


**STAGE 2**  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 17 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 59  
 OF  
 249  
 SHEETS



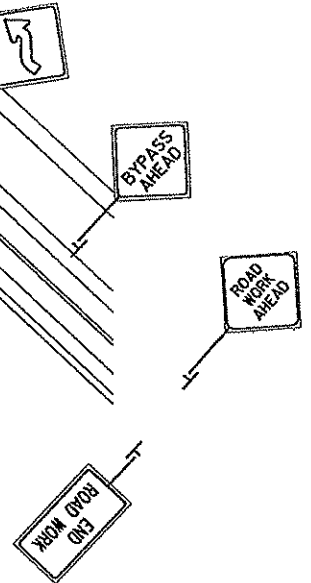
MATCHLINE - CSAH 116 EB STA. 408+00



RETRO-REFLECTIVE DRUMS  
@ 50' SPACES TYPICAL

| LEGEND |  |  |  |  |
|--------|--|--|--|--|
|        | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |  |  |  |
|        | PERMANENT CONSTRUCTION IN THIS STAGE               |  |  |  |
|        | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |  |  |  |
|        | TRAFFIC FLOW IN THIS STAGE                         |  |  |  |
|        | RETROREFLECTIVE DRUM                               |  |  |  |
|        | EXISTING STORM SEWER                               |  |  |  |
|        | STORM SEWER CONSTRUCTED IN THIS STAGE              |  |  |  |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".



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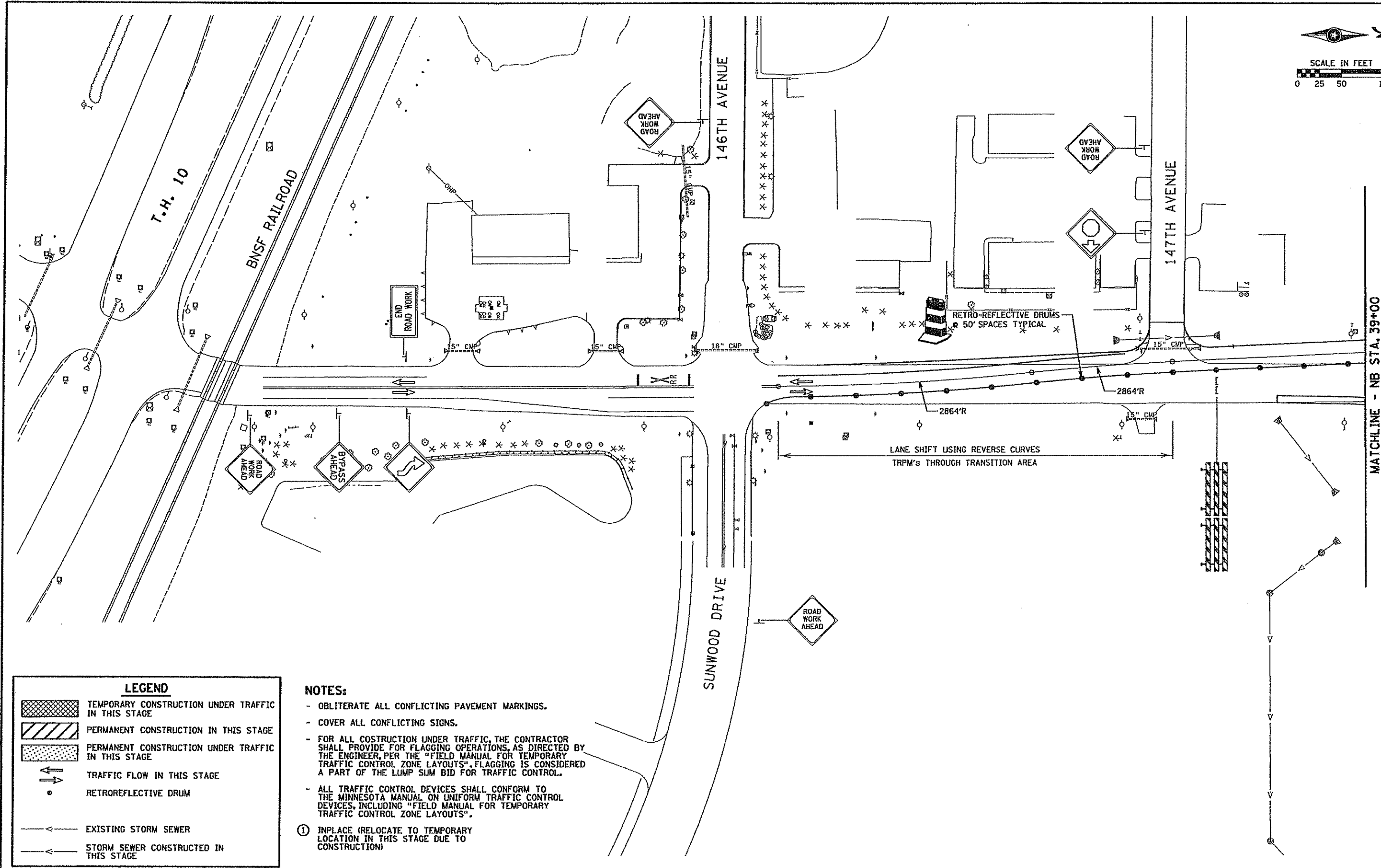
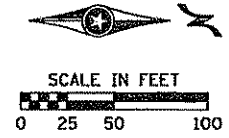
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 DATE: 04/29/11 LIC NO: 40945

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



STAGE 2  
 STAGING AND TRAFFIC CONTROL  
 SHEET 18 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 60  
 OF  
 249  
 SHEETS



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

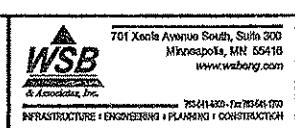
- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
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  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)

DATE: 5/4/2011 10:26:37 AM  
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|    |      | JMW |     |           |

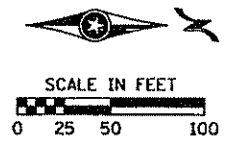
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



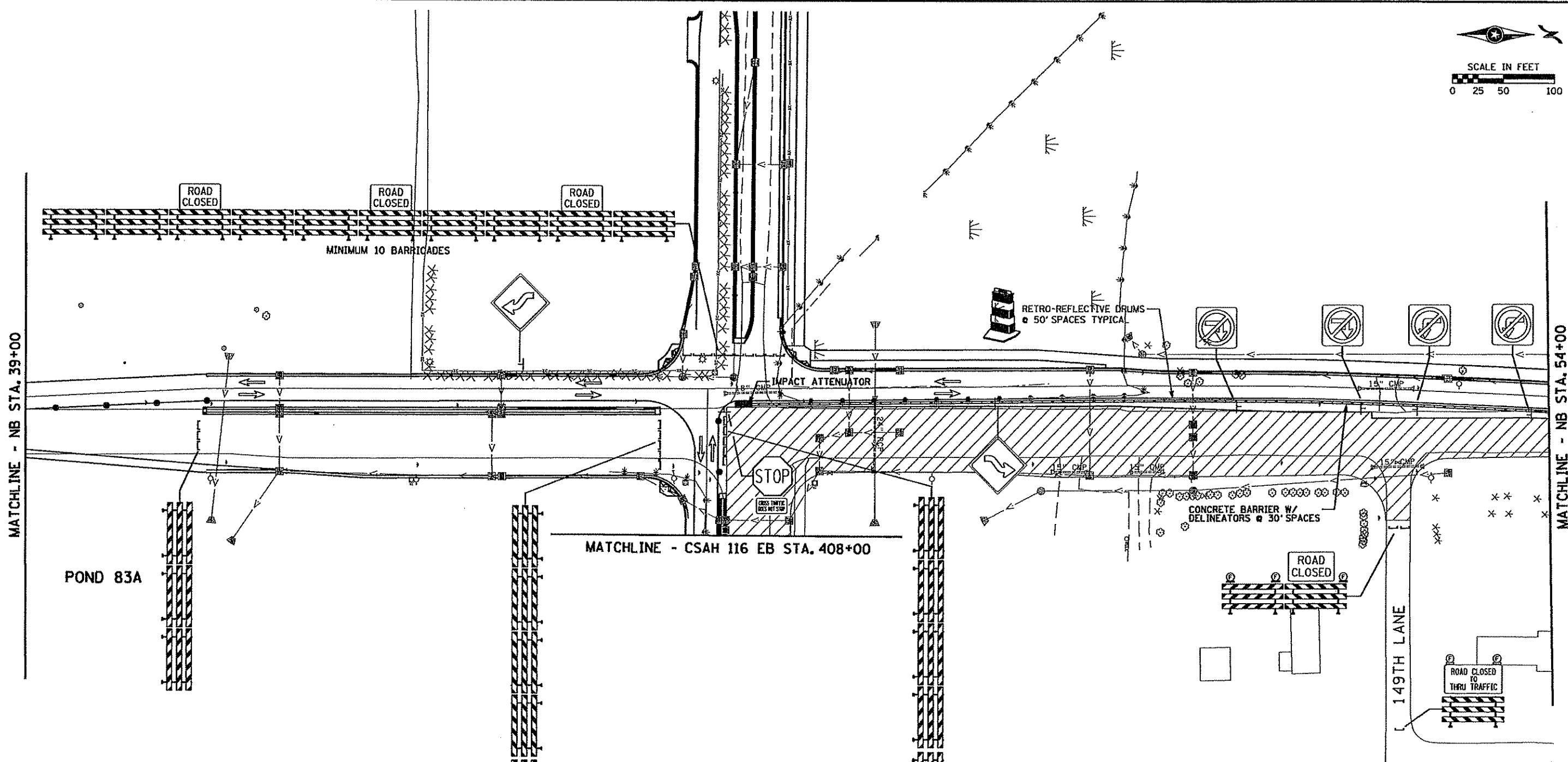
**STAGE 3**  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 19 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 61 OF 249 SHEETS



MATCHLINE - NB STA. 39+00

MATCHLINE - NB STA. 54+00



**LEGEND**

|  |  |
|--|--|
|  | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | PERMANENT CONSTRUCTION IN THIS STAGE               |
|  | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | TRAFFIC FLOW IN THIS STAGE                         |
|  | RETROREFLECTIVE DRUM                               |
|  | EXISTING STORM SEWER                               |
|  | STORM SEWER CONSTRUCTED IN THIS STAGE              |

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ① INPLACE (RELOCATE TO TEMPORARY LOCATION IN THIS STAGE DUE TO CONSTRUCTION)
- ② INPLACE (LEAVE AS IS)

POND 83A

MATCHLINE - CSAH 116 EB STA. 408+00

149TH LANE

DATE: 5/4/2011 10:28:42 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 License No. 40945  
 DATE: 04/28/11

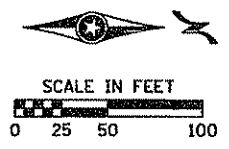
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsb.org.com

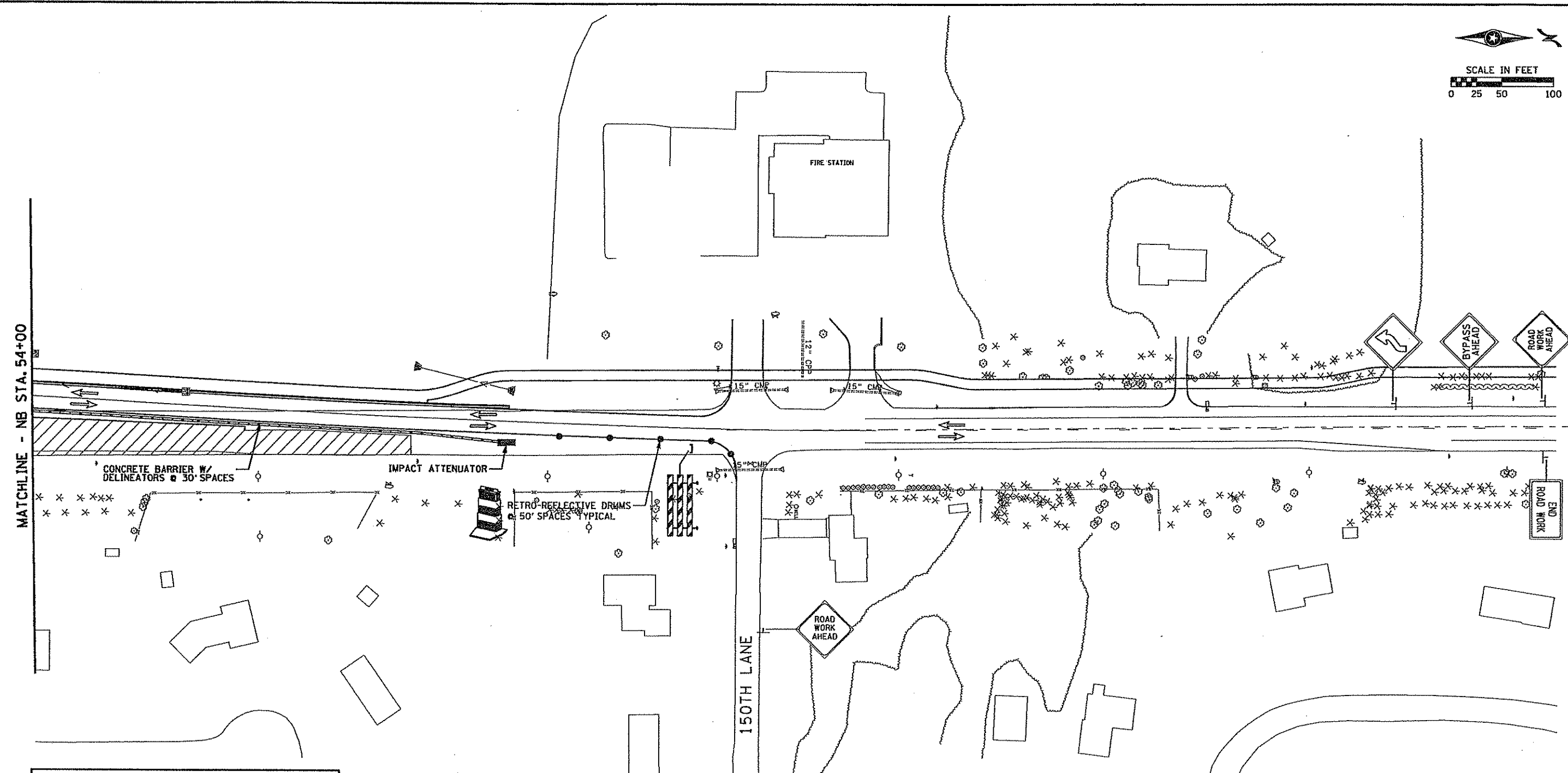
STAGE 3  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 20 OF 22 SHEETS

SHEET 62 OF 249 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21



MATCHLINE - NB STA. 54+00



**LEGEND**

|  |  |
|--|--|
|  | TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | PERMANENT CONSTRUCTION IN THIS STAGE               |
|  | PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE |
|  | TRAFFIC FLOW IN THIS STAGE                         |
|  | RETROREFLECTIVE DRUM                               |
|  | EXISTING STORM SEWER                               |
|  | STORM SEWER CONSTRUCTED IN THIS STAGE              |

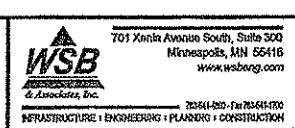
- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- ② INPLACE (LEAVE AS IS)

DATE: 04/28/11 10:26:45 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



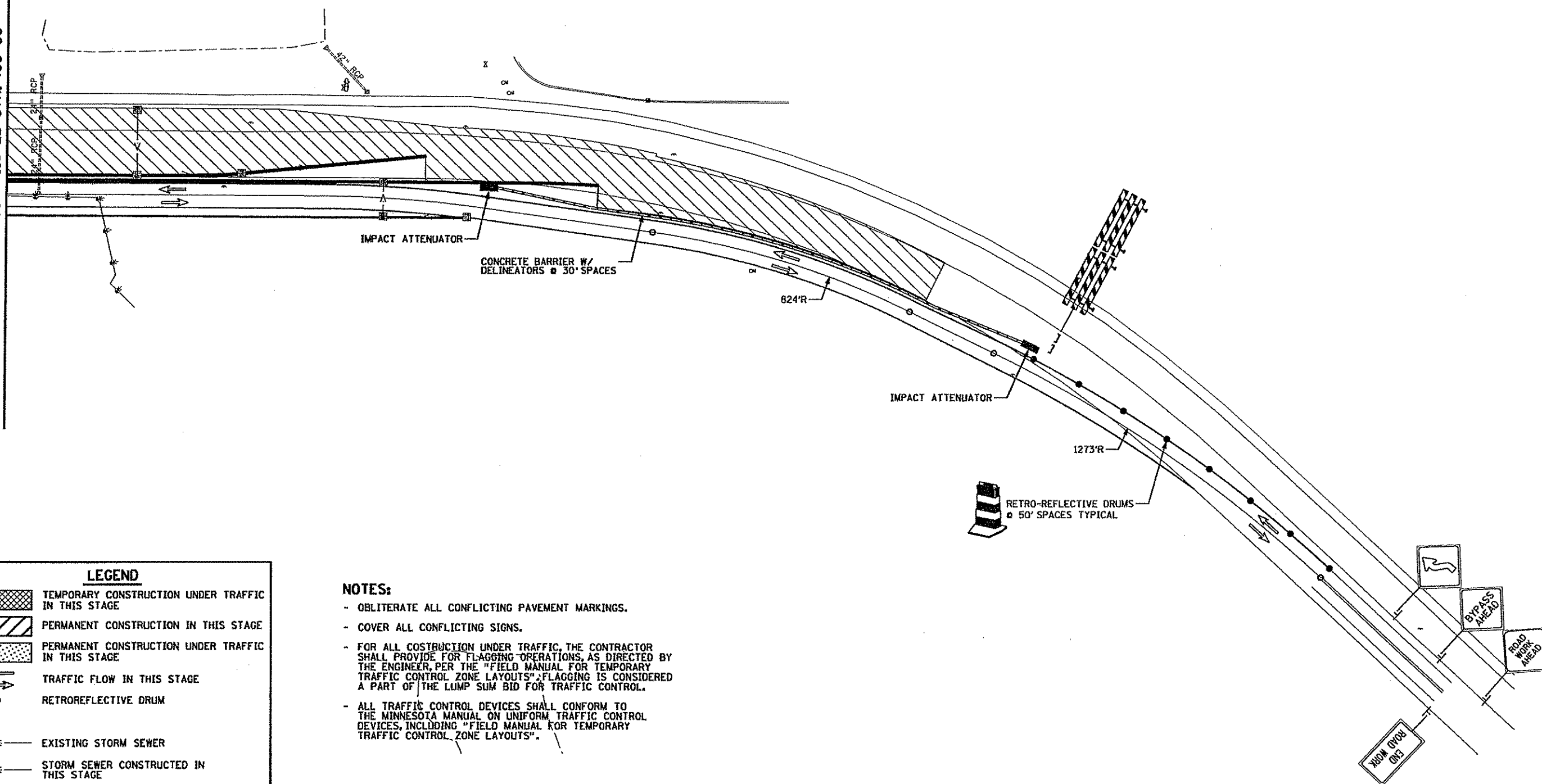
STAGE 3  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 21 OF 22 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 63  
 OF  
 249  
 SHEETS



SCALE IN FEET  
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MATCHLINE - CSAH 116 EB STA. 408+00



**LEGEND**

- TEMPORARY CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- PERMANENT CONSTRUCTION IN THIS STAGE
- PERMANENT CONSTRUCTION UNDER TRAFFIC IN THIS STAGE
- TRAFFIC FLOW IN THIS STAGE
- RETROREFLECTIVE DRUM
- EXISTING STORM SEWER
- STORM SEWER CONSTRUCTED IN THIS STAGE

- NOTES:**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
  - COVER ALL CONFLICTING SIGNS.
  - FOR ALL CONSTRUCTION UNDER TRAFFIC, THE CONTRACTOR SHALL PROVIDE FOR FLAGGING OPERATIONS, AS DIRECTED BY THE ENGINEER, PER THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". FLAGGING IS CONSIDERED A PART OF THE LUMP SUM BID FOR TRAFFIC CONTROL.
  - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 License No. 40945  
 DATE: 04/28/11

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

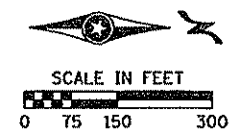
**WSB**  
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 Minneapolis, MN 55416  
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STAGE 3  
**STAGING AND TRAFFIC CONTROL**  
 SHEET 22 OF 22 SHEETS

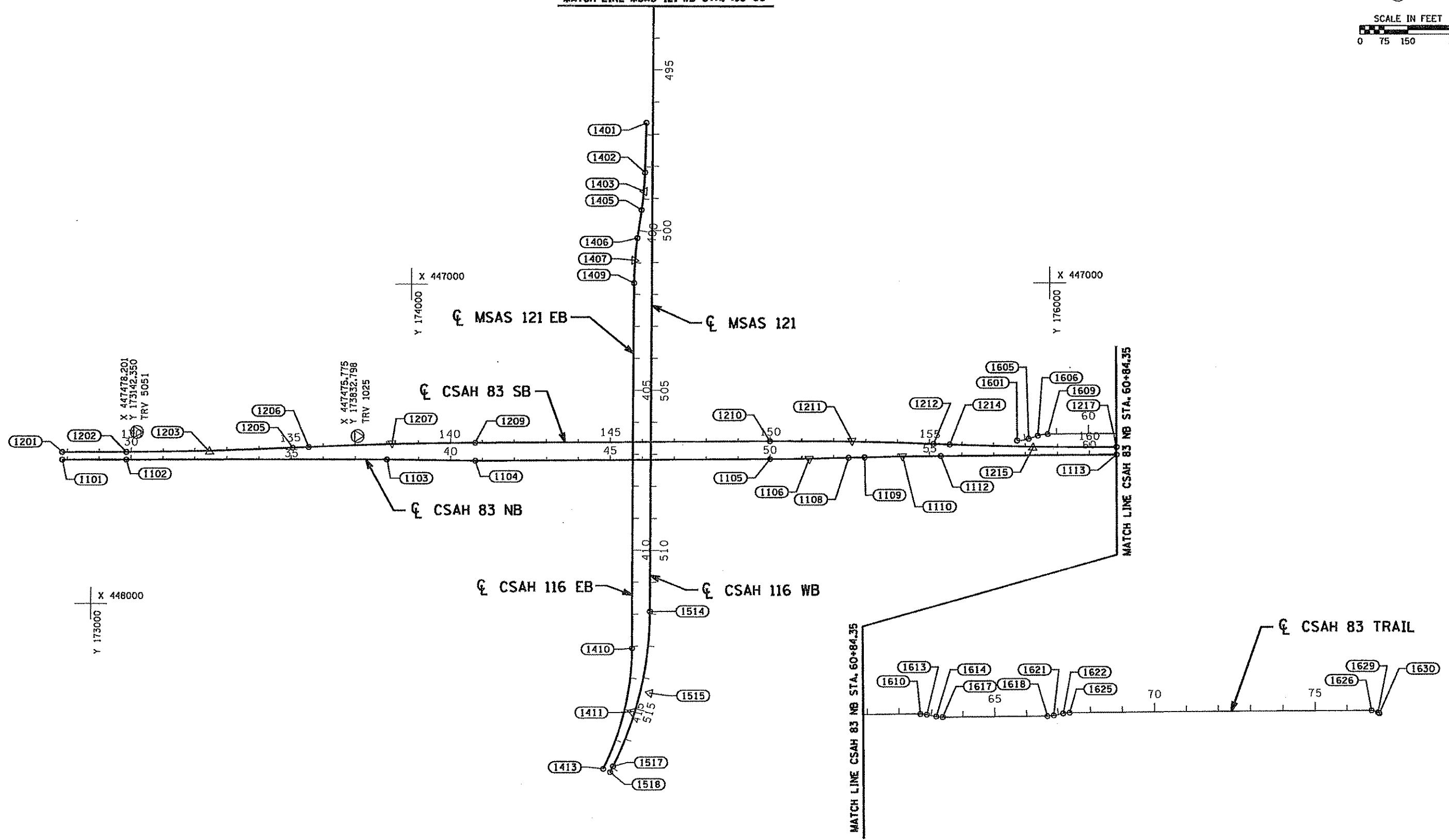
SHEET  
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S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21





MATCH LINE MSAS 121 WB STA. 493+00



**HORIZONTAL CONTROL**  
 THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (1996 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, MINNESOTA COUNTY COORDINATE, ANOKA COUNTY

**NOTES:**  
 1. ALIGNMENTS HAVE NOT BEEN DEFINED FOR DRAINAGE DITCHES. SEE TYPICAL SECTIONS, DRAINAGE PLANS, AND CONTOUR PLANS FOR LOCATIONS.

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jipe Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

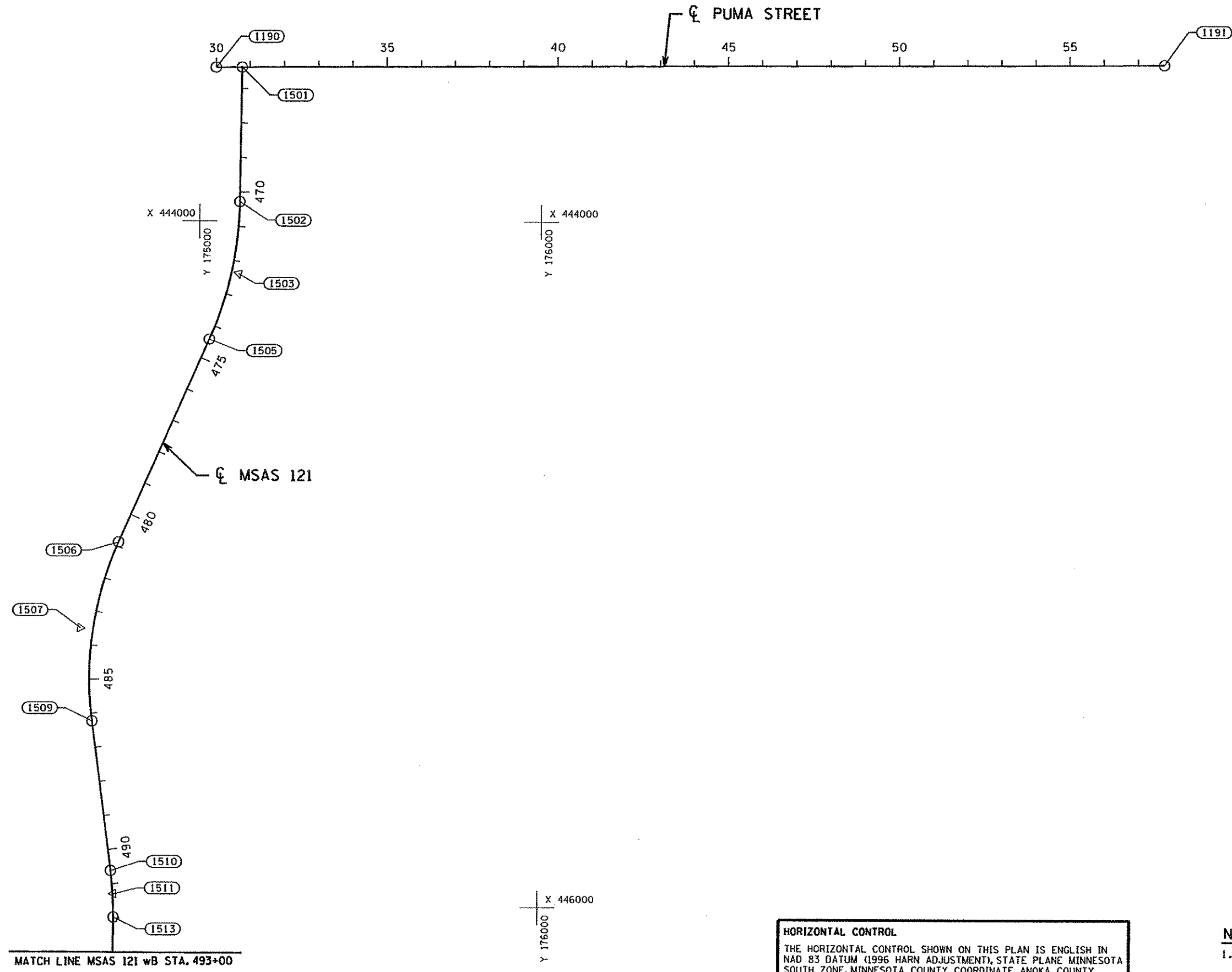
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**ALIGNMENT PLAN**  
 SHEET 1 OF 3 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 65 OF 249 SHEETS

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**HORIZONTAL CONTROL**  
 THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (1996 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, MINNESOTA COUNTY COORDINATE, ANOKA COUNTY

**NOTES:**  
 1. ALIGNMENTS HAVE NOT BEEN DEFINED FOR DRAINAGE DITCHES. SEE TYPICAL SECTIONS, DRAINAGE PLANS, AND CONTOUR PLANS FOR LOCATIONS.

| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Anoka, MN P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
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**ALIGNMENT PLAN**  
 SHEET 2 OF 3 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 66 OF 249 SHEETS

ALIGNMENT TABULATION

| POINT NUMBER                | POINT | STATION    | CIRCULAR CURVE DATA |               |             |          |          | COORDINATES |             | AZIMUTH         |
|-----------------------------|-------|------------|---------------------|---------------|-------------|----------|----------|-------------|-------------|-----------------|
|                             |       |            | DELTA               | DEGREE        | RADIUS      | TANGENT  | LENGTH   | X           | Y           |                 |
| <b>PUMA STREET</b>          |       |            |                     |               |             |          |          |             |             |                 |
| 1190                        | POT   | 30+00.000  |                     |               |             |          |          | 443,553.727 | 175,045.000 |                 |
| 1191                        | POT   | 57+76.654  |                     |               |             |          |          | 443,536.665 | 177,821.611 |                 |
| <b>MSAS 121/CSAH 116 EB</b> |       |            |                     |               |             |          |          |             |             |                 |
| 1401                        | POT   | 396+63.703 |                     |               |             |          |          | 446,498.482 | 174,736.563 | 91° 42' 43.73"  |
| 1402                        | PC    | 398+18.182 |                     |               |             |          |          | 446,652.892 | 174,731.947 |                 |
| 1403                        | PI    | 398+76.520 | 6° 40' 39.09" RT    | 5° 43' 46.48" | 1,000.000'  | 58.338'  | 116.545' | 446,711.204 | 174,730.204 | PI              |
| 1404                        | CC    |            |                     |               |             |          |          | 446,623.014 | 173,732.393 |                 |
| 1405                        | PT    | 399+34.727 |                     |               |             |          |          | 446,768.918 | 174,721.692 | 98° 23' 22.81"  |
| 1406                        | PC    | 400+23.038 |                     |               |             |          |          | 446,856.285 | 174,708.807 |                 |
| 1407                        | PI    | 400+93.926 | 8° 06' 34.64" LT    | 5° 43' 46.48" | 1,000.000'  | 70.888'  | 141.540' | 446,926.414 | 174,698.464 | PI              |
| 1408                        | CC    |            |                     |               |             |          |          | 447,002.189 | 175,698.106 |                 |
| 1409                        | PT    | 401+64.577 |                     |               |             |          |          | 446,997.301 | 174,698.118 | 90° 16' 48.17"  |
| 1410                        | PC    | 413+07.765 |                     |               |             |          |          | 448,140.476 | 174,692.530 |                 |
| 1411                        | PI    | 415+06.200 | 26° 18' 39.32" RT   | 6° 44' 55.03" | 849.000'    | 198.435' | 389.871' | 448,338.908 | 174,691.560 | PI              |
| 1412                        | CC    |            |                     |               |             |          |          | 448,136.326 | 173,843.540 |                 |
| 1413                        | PT    | 416+97.636 |                     |               |             |          |          | 448,516.354 | 174,602.737 | 116° 35' 27.49" |
| <b>MSAS 121/CSAH 116 WB</b> |       |            |                     |               |             |          |          |             |             |                 |
| 1501                        | POT   | 465+37.010 |                     |               |             |          |          | 443,553.227 | 175,121.555 | 90° 36' 11.43"  |
| 1502                        | PC    | 470+28.094 |                     |               |             |          |          | 443,944.290 | 175,117.438 |                 |
| 1503                        | PI    | 472+37.228 | 23° 13' 05.22" RT   | 5° 37' 41.77" | 1,018.000'  | 209.133' | 412.527' | 444,153.411 | 175,115.236 | PI              |
| 1504                        | CC    |            |                     |               |             |          |          | 443,933.573 | 174,099.494 |                 |
| 1505                        | PT    | 474+40.621 |                     |               |             |          |          | 444,344.728 | 175,030.770 | 113° 49' 16.66" |
| 1506                        | PC    | 480+87.303 |                     |               |             |          |          | 444,936.319 | 174,769.585 |                 |
| 1507                        | PI    | 483+61.473 | 31° 11' 56.48" LT   | 5° 50' 04.56" | 982.000'    | 274.170' | 534.724' | 445,187.132 | 174,658.852 | PI              |
| 1508                        | CC    |            |                     |               |             |          |          | 445,332.934 | 175,667.928 |                 |
| 1509                        | PT    | 486+22.027 |                     |               |             |          |          | 445,459.033 | 174,694.058 | 82° 37' 20.18"  |
| 1510                        | PC    | 490+61.029 |                     |               |             |          |          | 445,894.400 | 174,750.430 |                 |
| 1511                        | PI    | 491+29.160 | 7° 39' 28.00" RT    | 5° 37' 41.77" | 1,018.000'  | 68.131'  | 136.059' | 445,961.967 | 174,759.179 | PI              |
| 1512                        | CC    |            |                     |               |             |          |          | 446,025.122 | 173,740.858 |                 |
| 1513                        | PT    | 491+97.088 |                     |               |             |          |          | 446,030.097 | 174,758.846 | 90° 16' 48.18"  |
| 1514                        | PC    | 511+92.096 |                     |               |             |          |          | 448,025.082 | 174,749.095 |                 |
| 1515                        | PI    | 514+47.094 | 26° 18' 39.31" RT   | 5° 15' 06.03" | 1,091.000'  | 254.997' | 501.000' | 448,280.076 | 174,747.848 | PI              |
| 1516                        | CC    |            |                     |               |             |          |          | 448,019.749 | 173,658.108 |                 |
| 1517                        | PT    | 516+93.097 |                     |               |             |          |          | 448,508.101 | 174,633.707 | 116° 35' 27.49" |
| 1518                        | POT   | 517+14.340 |                     |               |             |          |          | 448,527.097 | 174,624.198 |                 |
| <b>CSAH 83 NB</b>           |       |            |                     |               |             |          |          |             |             |                 |
| 1101                        | POT   | 27+85.001  |                     |               |             |          |          | 447,551.096 | 172,909.838 |                 |
| 1102                        | POT   | 29+85.001  |                     |               |             |          |          | 447,550.384 | 173,109.837 |                 |
| 1103                        | POT   | 38+00.420  |                     |               |             |          |          | 447,548.445 | 173,925.254 |                 |
| 1104                        | POT   | 40+77.549  |                     |               |             |          |          | 447,552.497 | 174,202.353 |                 |
| 1105                        | PC    | 50+00.000  |                     |               |             |          |          | 447,549.215 | 175,124.798 | 359° 47' 46.17" |
| 1106                        | PI    | 51+23.377  | 1° 14' 01.47" LT    | 0° 30' 00.02" | 11,459.000' | 123.377' | 246.745' | 447,548.777 | 175,248.174 | PI              |
| 1107                        | CC    |            |                     |               |             |          |          | 436,090.288 | 175,084.030 |                 |
| 1108                        | PT    | 52+46.745  |                     |               |             |          |          | 447,545.681 | 175,371.512 | 358° 33' 44.71" |
| 1109                        | PC    | 52+96.745  |                     |               |             |          |          | 447,544.427 | 175,421.497 |                 |
| 1110                        | PI    | 54+15.984  | 1° 11' 32.51" RT    | 0° 30' 00.02" | 11,459.000' | 119.239' | 238.469' | 447,541.435 | 175,540.698 | PI              |
| 1111                        | CC    |            |                     |               |             |          |          | 458,999.820 | 175,708.979 |                 |
| 1112                        | PT    | 55+35.214  |                     |               |             |          |          | 447,540.925 | 175,659.936 | 359° 45' 17.22" |
| 1113                        | POT   | 66+18.314  |                     |               |             |          |          | 447,536.290 | 176,743.026 |                 |


ALIGNMENT TABULATION

| POINT NUMBER         | POINT | STATION    | CIRCULAR CURVE DATA |                 |             |          |          | COORDINATES |             | AZIMUTH         |
|----------------------|-------|------------|---------------------|-----------------|-------------|----------|----------|-------------|-------------|-----------------|
|                      |       |            | DELTA               | DEGREE          | RADIUS      | TANGENT  | LENGTH   | X           | Y           |                 |
| <b>CSAH 83 SB</b>    |       |            |                     |                 |             |          |          |             |             |                 |
| 1201                 | POT   | 127+84.625 |                     |                 |             |          |          | 447,527.096 | 172,909.753 | 359° 47' 46.17" |
| 1202                 | PC    | 129+84.625 |                     |                 |             |          |          | 447,526.384 | 173,109.752 |                 |
| 1203                 | PI    | 132+45.125 | 2° 36' 26.35" LT    | 0° 30' 01.91"   | 11,447.000' | 260.500' | 520.911' | 447,525.457 | 173,370.250 | PI              |
| 1204                 | CC    |            |                     |                 |             |          |          | 436,079.457 | 173,069.027 |                 |
| 1205                 | PT    | 135+05.536 |                     |                 |             |          |          | 447,512.681 | 173,630.437 | 357° 11' 19.83" |
| 1206                 | PC    | 135+55.536 |                     |                 |             |          |          | 447,510.229 | 173,680.377 |                 |
| 1207                 | PI    | 138+16.582 | 2° 36' 26.35" RT    | 0° 29' 58.14"   | 11,471.000' | 261.046' | 522.003' | 447,497.426 | 173,941.109 | PI              |
| 1208                 | CC    |            |                     |                 |             |          |          | 458,967.425 | 174,242.964 |                 |
| 1209                 | PT    | 140+77.538 |                     |                 |             |          |          | 447,496.498 | 174,202.154 | 359° 47' 46.17" |
| 1210                 | PC    | 149+99.969 |                     |                 |             |          |          | 447,493.216 | 175,124.578 |                 |
| 1211                 | PI    | 152+56.618 | 2° 33' 57.96" RT    | 0° 30' 00.02"   | 11,459.000' | 256.649' | 513.213' | 447,492.303 | 175,381.226 | PI              |
| 1212                 | CC    |            |                     |                 |             |          |          | 458,952.143 | 175,165.346 |                 |
| 1213                 | PT    | 155+13.182 |                     |                 |             |          |          | 447,502.881 | 175,637.657 | 2° 21' 44.13"   |
| 1214                 | PC    | 155+63.182 |                     |                 |             |          |          | 447,504.942 | 175,687.615 |                 |
| 1215                 | PI    | 158+23.971 | 2° 36' 26.91" LT    | 0° 30' 00.02"   | 11,459.000' | 260.789' | 521.488' | 447,515.691 | 175,948.182 | PI              |
| 1216                 | CC    |            |                     |                 |             |          |          | 436,055.680 | 176,159.926 |                 |
| 1217                 | PT    | 160+84.670 |                     |                 |             |          |          | 447,514.575 | 176,208.969 | 359° 45' 17.22" |
| <b>CSAH 83 TRAIL</b> |       |            |                     |                 |             |          |          |             |             |                 |
| 1601                 | PC    | 57+75.109  |                     |                 |             |          |          | 447,493.309 | 175,699.183 | 2° 20' 57.25"   |
| 1602                 | PI    | 57+93.541  | 20° 53' 13.51" LT   | 57° 17' 44.81"  | 100.000'    | 18.432'  | 36.455'  | 447,494.065 | 175,917.599 | PI              |
| 1603                 | CC    |            |                     |                 |             |          |          | 447,393.393 | 175,903.282 |                 |
| 1605                 | PT    | 58+11.564  |                     |                 |             |          |          | 447,488.205 | 175,935.075 | 341° 27' 43.74" |
| 1606                 | PC    | 58+41.564  |                     |                 |             |          |          | 447,478.667 | 175,963.518 |                 |
| 1607                 | PI    | 58+57.664  | 18° 17' 34.85" RT   | 57° 17' 44.81"  | 100.000'    | 16.101'  | 31.927'  | 447,473.548 | 175,978.784 | PI              |
| 1608                 | CC    |            |                     |                 |             |          |          | 447,573.476 | 175,995.311 |                 |
| 1609                 | PT    | 58+73.491  |                     |                 |             |          |          | 447,473.479 | 175,994.884 | 359° 45' 18.59" |
| 1610                 | PC    | 62+67.273  |                     |                 |             |          |          | 447,471.796 | 176,388.663 |                 |
| 1611                 | PI    | 62+77.346  | 11° 30' 11.62" RT   | 57° 17' 44.81"  | 100.000'    | 10.072'  | 20.077'  | 447,471.753 | 176,398.735 | PI              |
| 1612                 | CC    |            |                     |                 |             |          |          | 447,571.796 | 176,389.090 |                 |
| 1613                 | PT    | 62+87.350  |                     |                 |             |          |          | 447,473.720 | 176,408.614 | 11° 15' 30.22"  |
| 1614                 | PC    | 63+17.350  |                     |                 |             |          |          | 447,479.577 | 176,438.036 |                 |
| 1615                 | PI    | 63+27.423  | 11° 30' 11.62" LT   | 57° 17' 44.81"  | 100.000'    | 10.072'  | 20.077'  | 447,481.543 | 176,447.915 | PI              |
| 1616                 | CC    |            |                     |                 |             |          |          | 447,381.501 | 176,457.560 |                 |
| 1617                 | PT    | 63+37.427  |                     |                 |             |          |          | 447,481.500 | 176,457.987 | 359° 45' 18.59" |
| 1618                 | PC    | 66+64.777  |                     |                 |             |          |          | 447,480.102 | 176,785.334 |                 |
| 1619                 | PI    | 66+74.849  | 11° 30' 11.62" LT   | 57° 17' 44.81"  | 100.000'    | 10.072'  | 20.077'  | 447,480.058 | 176,795.406 | PI              |
| 1620                 | CC    |            |                     |                 |             |          |          | 447,380.102 | 176,784.906 |                 |
| 1621                 | PT    | 66+84.854  |                     |                 |             |          |          | 447,478.008 | 176,805.267 | 348° 15' 06.97" |
| 1622                 | PC    | 67+14.854  |                     |                 |             |          |          | 447,471.899 | 176,834.639 |                 |
| 1623                 | PI    | 67+24.926  | 11° 30' 11.62" RT   | 57° 17' 44.81"  | 100.000'    | 10.072'  | 20.077'  | 447,469.849 | 176,844.500 | PI              |
| 1624                 | CC    |            |                     |                 |             |          |          | 447,569.805 | 176,855.000 |                 |
| 1625                 | PT    | 67+34.931  |                     |                 |             |          |          | 447,469.806 | 176,854.572 | 359° 45' 18.59" |
| 1626                 | PC    | 76+76.700  |                     |                 |             |          |          | 447,465.781 | 177,796.333 |                 |
| 1627                 | PI    | 76+87.493  | 34° 16' 37.07" RT   | 163° 42' 08.02" | 35.000'     | 10.793'  | 20.939'  | 447,465.735 | 177,807.126 | PI              |
| 1628                 | CC    |            |                     |                 |             |          |          | 447,500.781 | 177,796.482 |                 |
| 1629                 | PT    | 76+97.638  |                     |                 |             |          |          | 447,471.776 | 177,816.070 | 34° 01' 55.66"  |
| 1630                 | POT   | 77+02.390  |                     |                 |             |          |          | 447,474.435 | 177,820.008 |                 |

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 Licensed Professional Engineer, State of Minnesota  
 DATE: 04/28/11 LIC NO: 42064

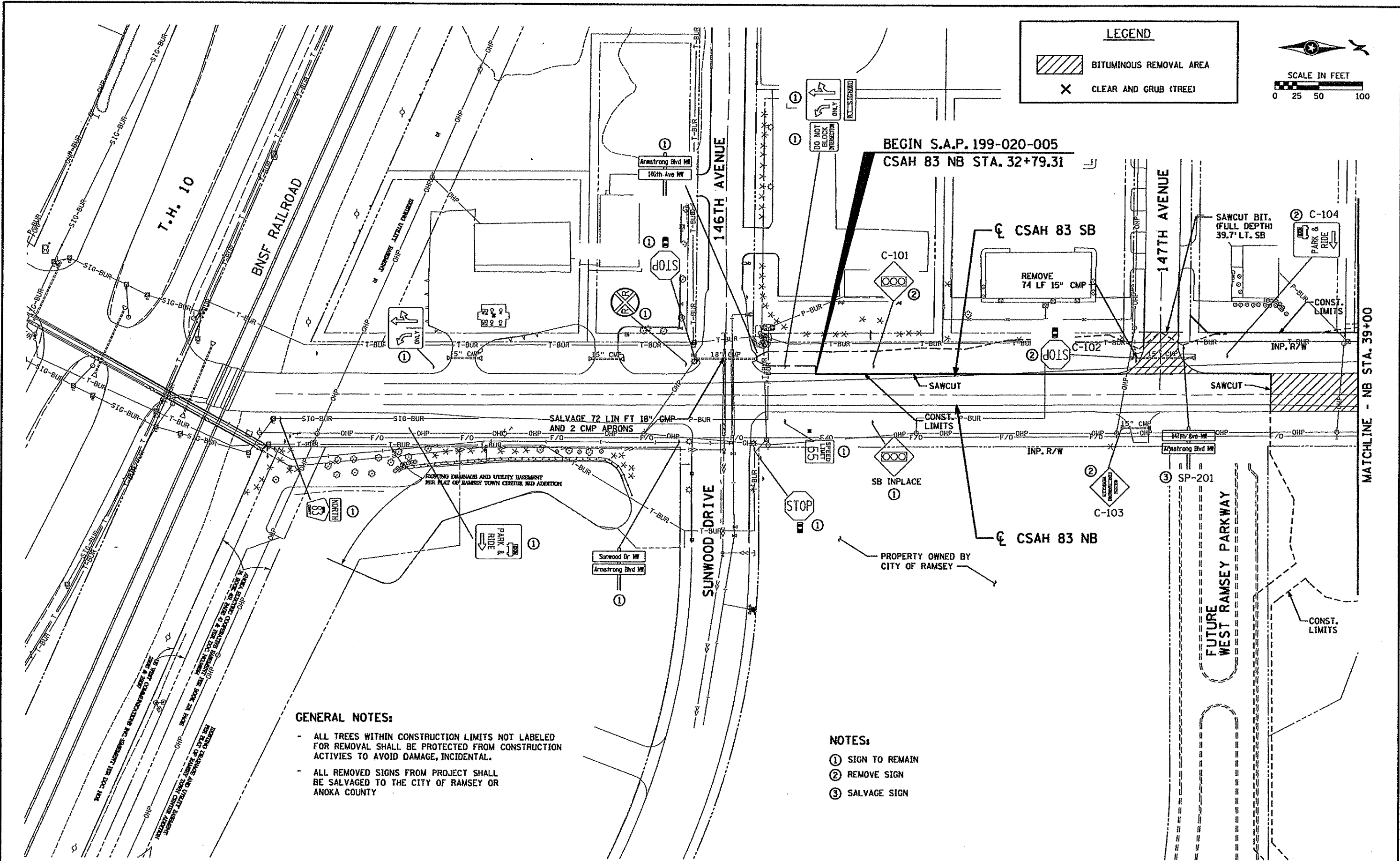
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



ARMSTRONG BLVD, CSAH 83 AND 146TH AVE  
 ALIGNMENT TABULATION  
 SHEET 3 OF 3 SHEETS  
 S.A.P. 189-020-005, S.A.P. 189-121-001; C.P. 11-21

SHEET 67 OF 249 SHEETS

DATE: 6/4/2011 10:53:05 AM  
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**LEGEND**

BITUMINOUS REMOVAL AREA

CLEAR AND GRUB (TREE)

SCALE IN FEET

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**GENERAL NOTES:**

- ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES TO AVOID DAMAGE, INCIDENTAL.
- ALL REMOVED SIGNS FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY OR ANOKA COUNTY

**NOTES:**

- ① SIGN TO REMAIN
- ② REMOVE SIGN
- ③ SALVAGE SIGN

| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: **C KOCHMAN**

Designed By: **N HENTGES**

Checked By: **A PLOWMAN**

Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Licensed Professional Engineer, State of Minnesota

DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**

**CSAH 83/116 & MSAS 121 CONSTRUCTION**

**WSB**

701 Xenia Avenue South, Suite 500  
 Minneapolis, MN 55415  
 www.wsb.org.com

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**INPLACE TOPOGRAPHY & REMOVAL PLAN**  
 SHEET 1 OF 9 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

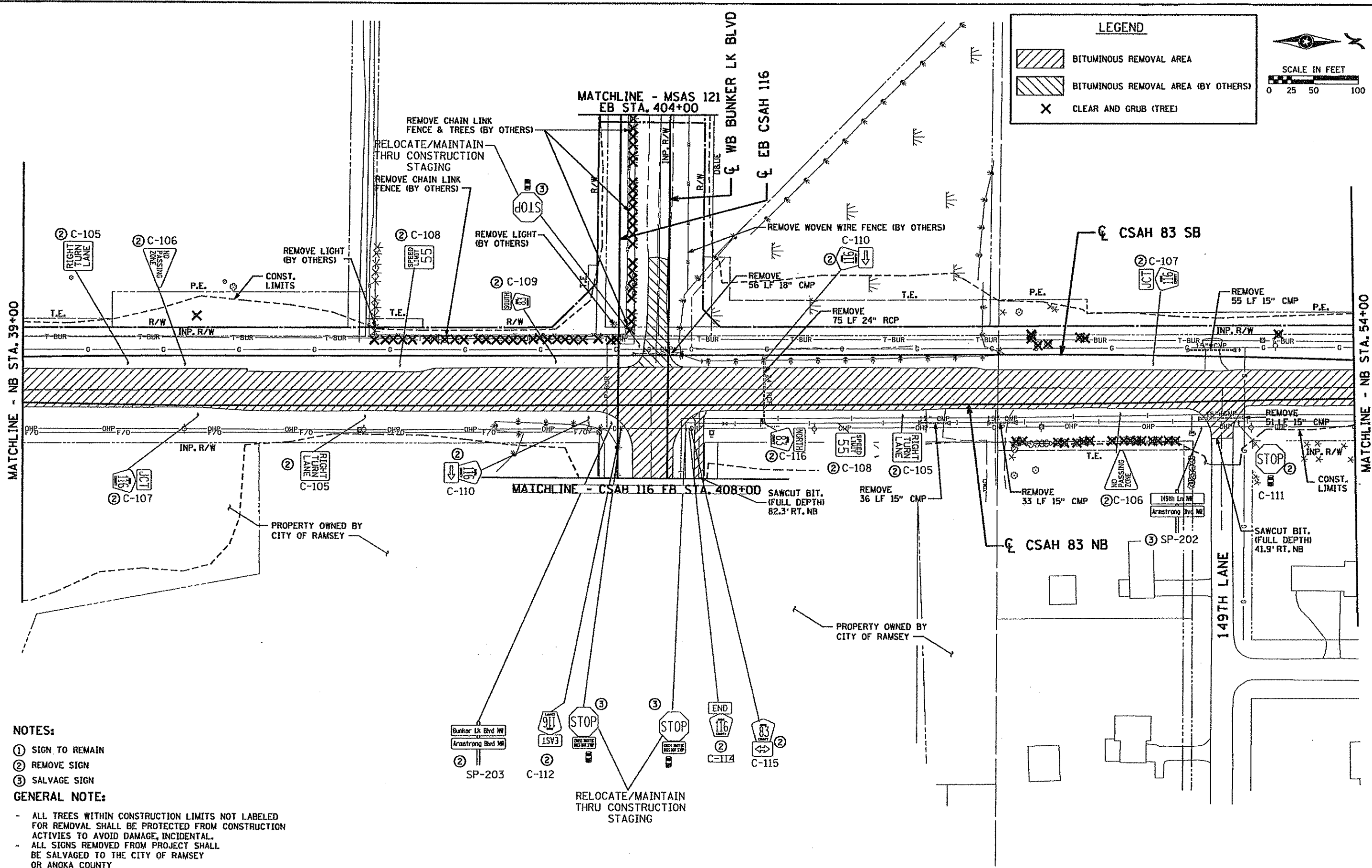
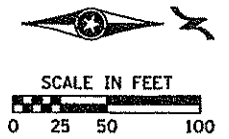
SHEET 68 OF 249 SHEETS

**LEGEND**

BITUMINOUS REMOVAL AREA

BITUMINOUS REMOVAL AREA (BY OTHERS)

CLEAR AND GRUB (TREE)



**NOTES:**

- ① SIGN TO REMAIN
- ② REMOVE SIGN
- ③ SALVAGE SIGN

**GENERAL NOTE:**

- ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES TO AVOID DAMAGE, INCIDENTAL.
- ALL SIGNS REMOVED FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY OR ANOKA COUNTY

DATE: 5/4/2011 10:53:10 AM  
PATH & FILENAME: K:\1979-00\Cad\Plant\esah83\_tp3.dgn

| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 701 Xroads Avenue South, Suite 500  
 Minneapolis, MN 55416  
 www.wsb.org

NB STA. 39+00 TO NB STA. 54+00  
**INPLACE TOPOGRAPHY & REMOVAL PLAN**  
 SHEET 2 OF 9 SHEETS

SHEET 69 OF 249 SHEETS




**NOTES:**


- ① SIGN TO REMAIN
- ② REMOVE SIGN
- ③ SALVAGE SIGN

**GENERAL NOTE:**

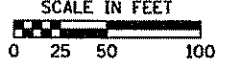
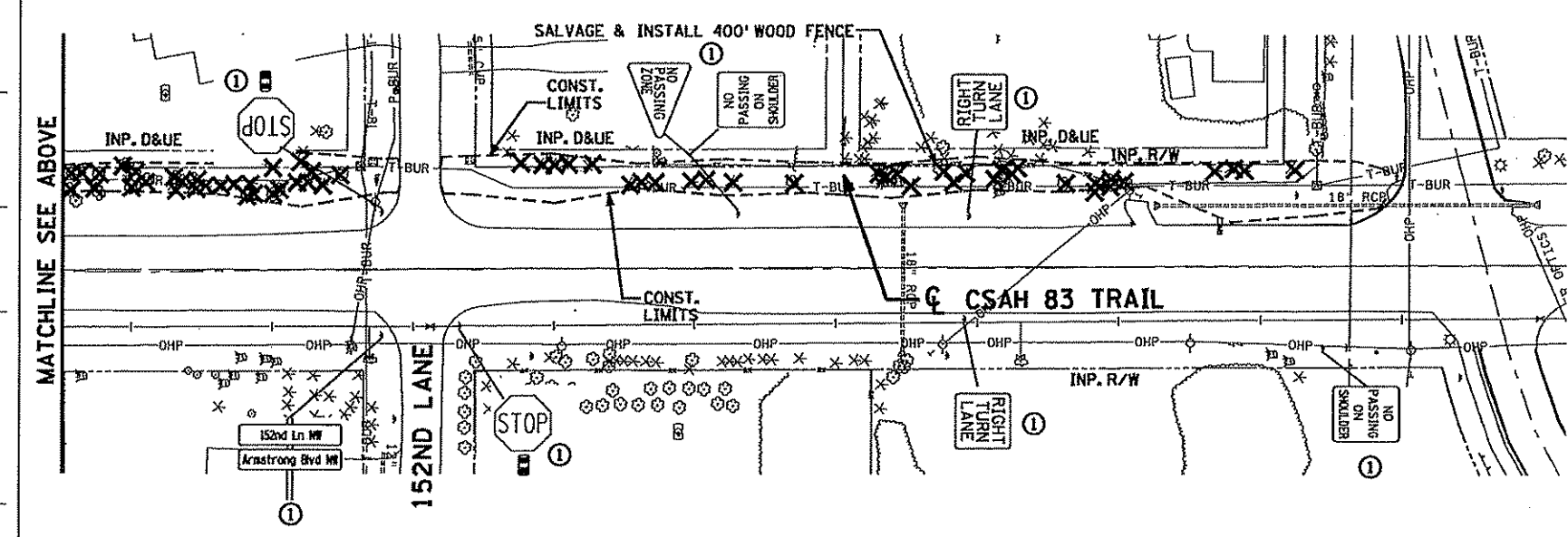
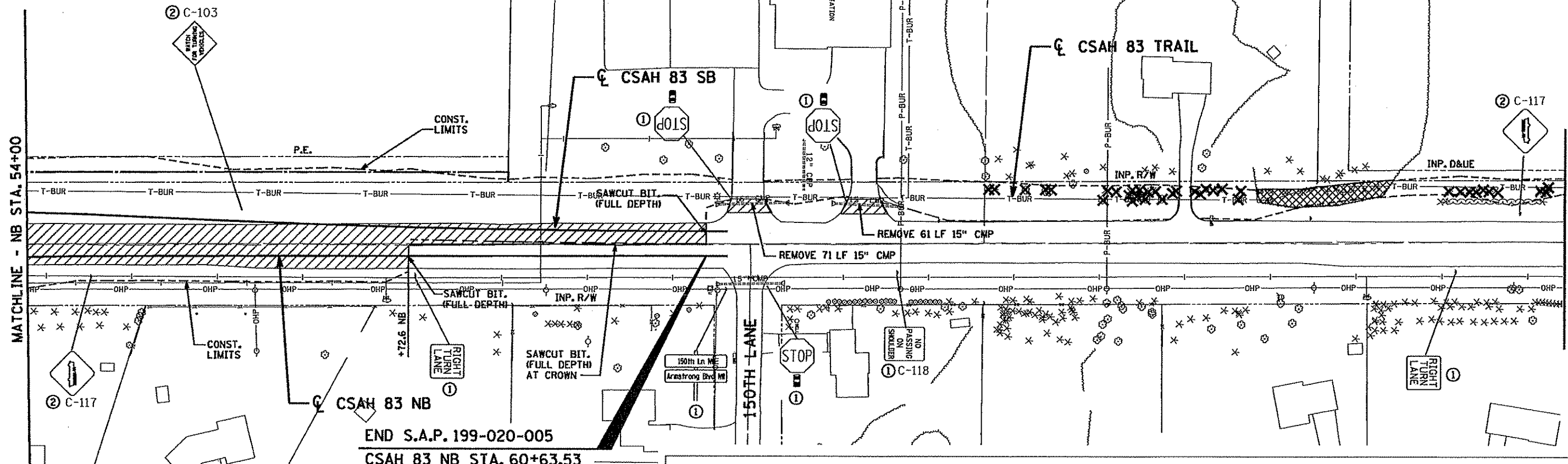
- ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES TO AVOID DAMAGE, INCIDENTAL.
- ALL SIGNS REMOVED FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY OR ANOKA COUNTY

**LEGEND**

-  BITUMINOUS REMOVAL AREA
-  CLEAR AND GRUB (TREE)
-  CLEAR AND GRUB (ACRE)



SCALE IN FEET

DATE: 5/4/2011 10:53:14 AM  
PATH & FILENAME: K:\101973-001\CadPlan\Csa83 tp4.dgn


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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

*[Signature]*  
 Licensed Professional Engineer, Jose Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsb.org.com

NB STA. 54+00 TO NB STA. 60+63.53  
**INPLACE TOPOGRAPHY & REMOVAL PLAN**  
 SHEET 3 OF 9 SHEETS

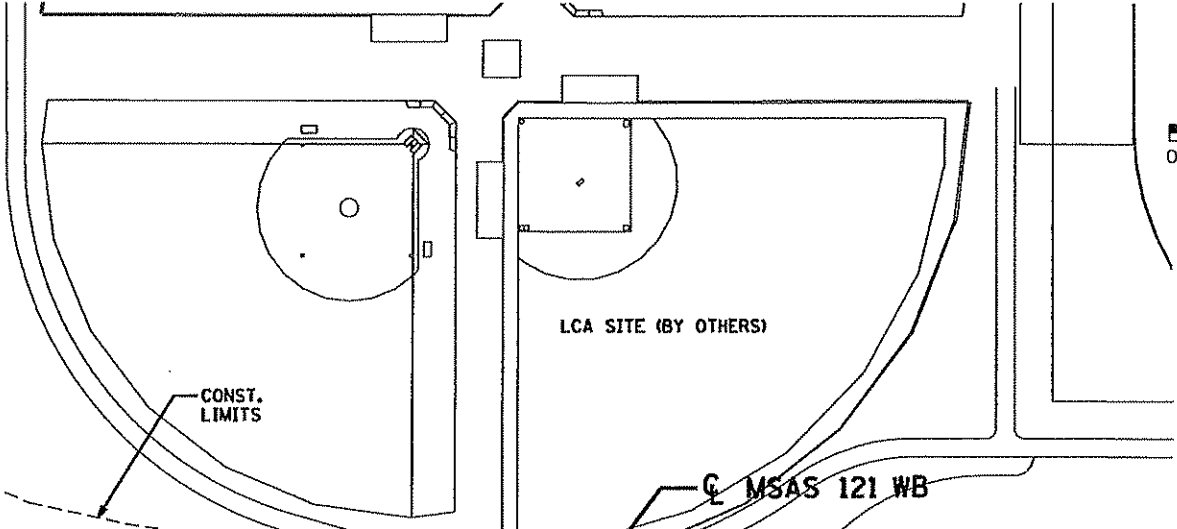
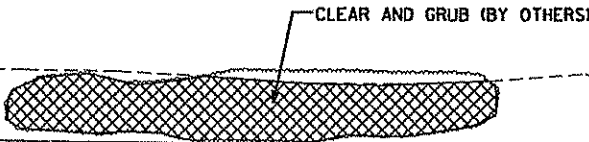
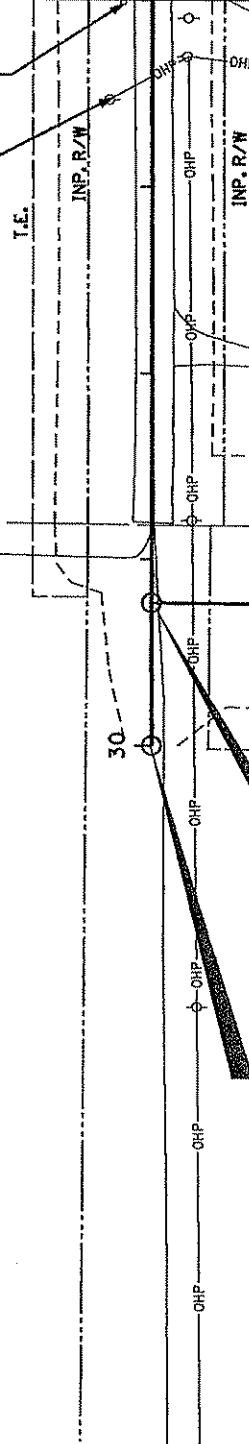
SHEET  
 70  
 OF  
 249  
 SHEETS



SCALE IN FEET  
0 50 100

MATCHLINE - PUMA STREET STA. 34+00

PROTECT MAILBOX  
WEATHER SIREN (PROTECT)



470

BEGIN CONSTRUCTION  
MSAS 121 STA 466+37.01

BEGIN CONSTRUCTION  
PUMA STREET STA 30+00.00

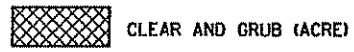
CONST. LIMITS

475

CLEAR AND GRUB (BY OTHERS)

MATCHLINE - MSAS 121 WB STA. 477+00

LEGEND



DATE: 5/4/2011 10:53:23 AM  
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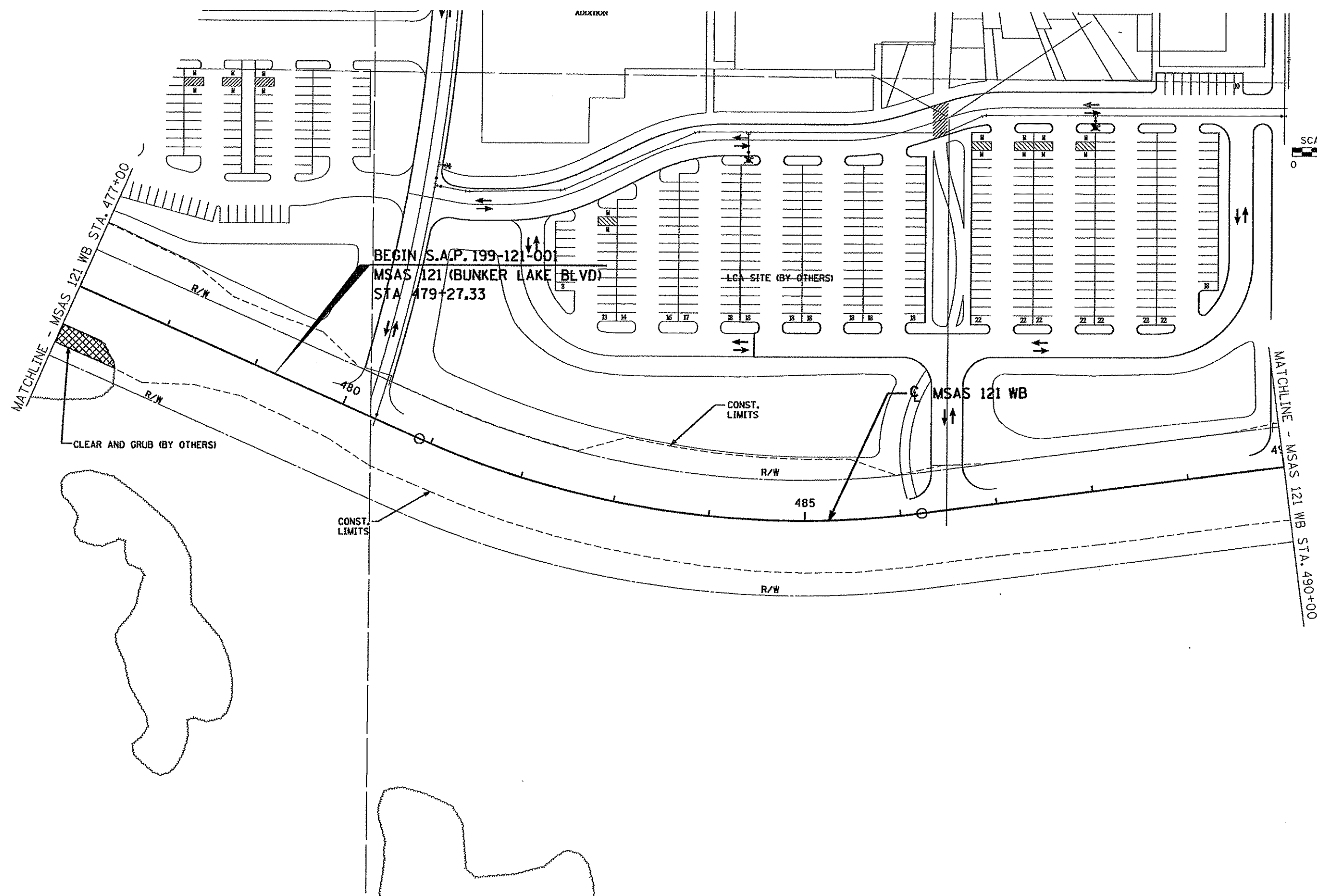
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



MSAS 121 WB STA. 466+32.01 TO WB STA. 477+00  
 INPLACE TOPOGRAPHY & REMOVAL PLAN  
 SHEET 5 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 71 OF 249 SHEETS



DATE: 5/4/2011 10:55:26 AM  
 PATH & FILENAME: K:\01973-00\Cadd\Plan\csah83\_t07.dgn

| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, State of Minn. P.E.

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 & Associates, Inc.  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55410  
 www.wsbang.com  
 763-441-4000 Fax 763-441-1100  
 #72/STRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

MSAS 121 WB STA. 477+00 TO WB STA. 490+00.00  
**INPLACE TOPOGRAPHY  
 & REMOVAL PLAN**  
 SHEET 6 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 72  
 OF  
 249  
 SHEETS

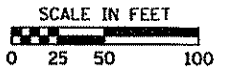




**LEGEND**

 BITUMINOUS REMOVAL AREA

 CLEAR AND GRUB (TREE)

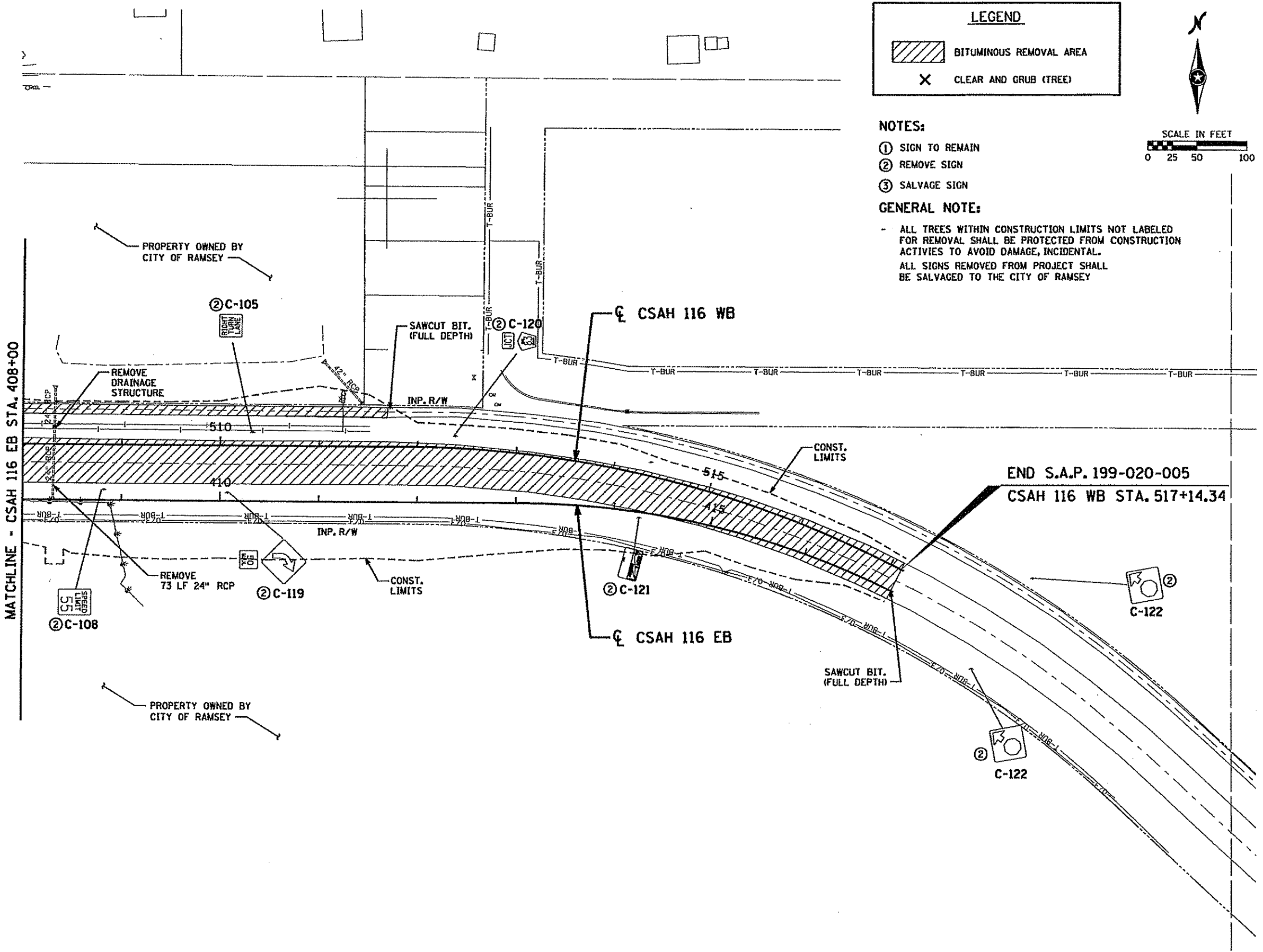


**NOTES:**

- ① SIGN TO REMAIN
- ② REMOVE SIGN
- ③ SALVAGE SIGN

**GENERAL NOTE:**

ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES TO AVOID DAMAGE, INCIDENTAL.  
ALL SIGNS REMOVED FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY



DATE: 5/4/2011 10:53:19 AM  
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Drawn By: C KOCHMAN  
 Design By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

DATE: 04/28/11 LICNO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbeng.com

CSAH 116 EB STA. 408+00 TO STA. 417+00  
**INPLACE TOPOGRAPHY & REMOVAL PLAN**  
 SHEET 4 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
74  
OF  
249  
SHEETS



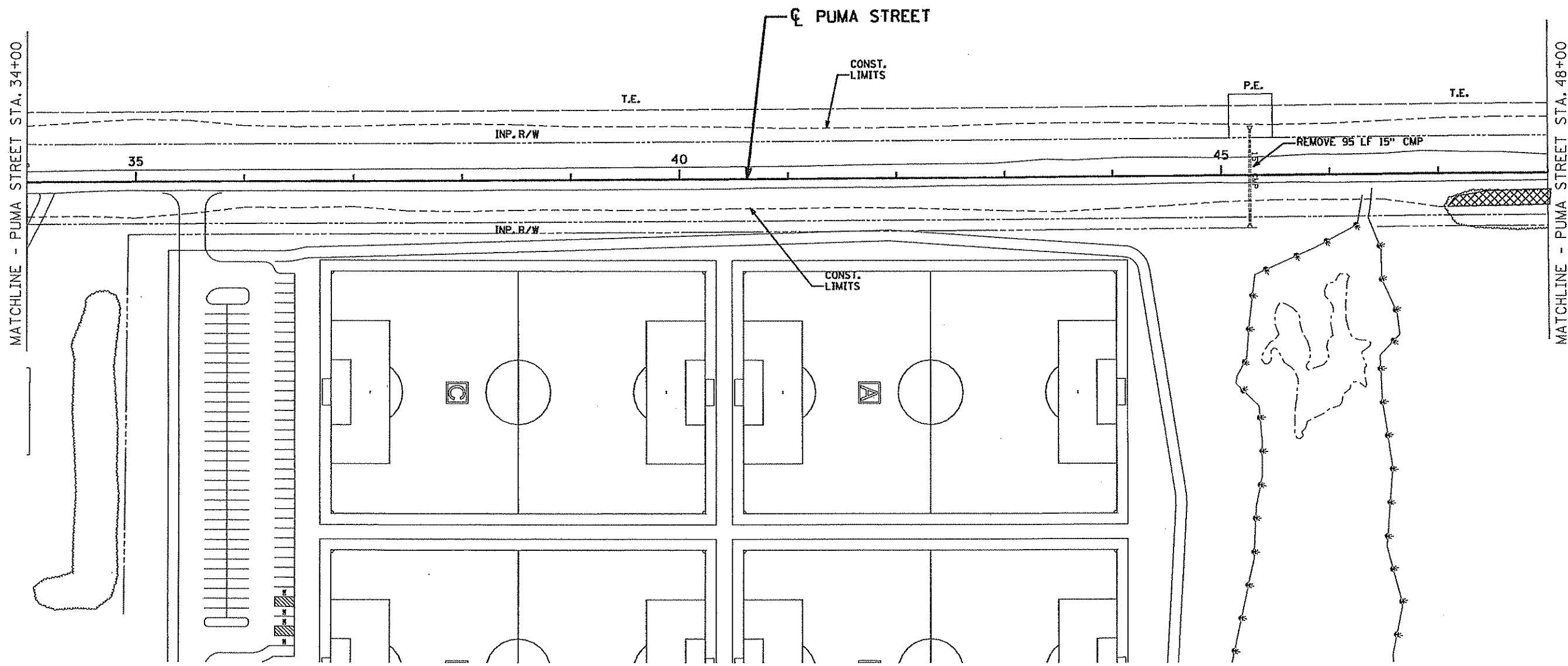
LEGEND

 CLEAR AND GRUB (ACRE)



GENERAL NOTE:

ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES TO AVOID DAMAGE, INCIDENTAL.  
ALL SIGNS REMOVED FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY




DATE: 5/4/2011 10:53:33 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION


  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbang.com  
 612-344-4300 • fax 612-344-1700  
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

PUMA ST NB STA. 34+00 TO NB STA. 48+00  
 INPLACE TOPOGRAPHY  
 & REMOVAL PLAN  
 SHEET 8 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 75 OF 249 SHEETS



**LEGEND**

 CLEAR AND GRUB (ACRE)

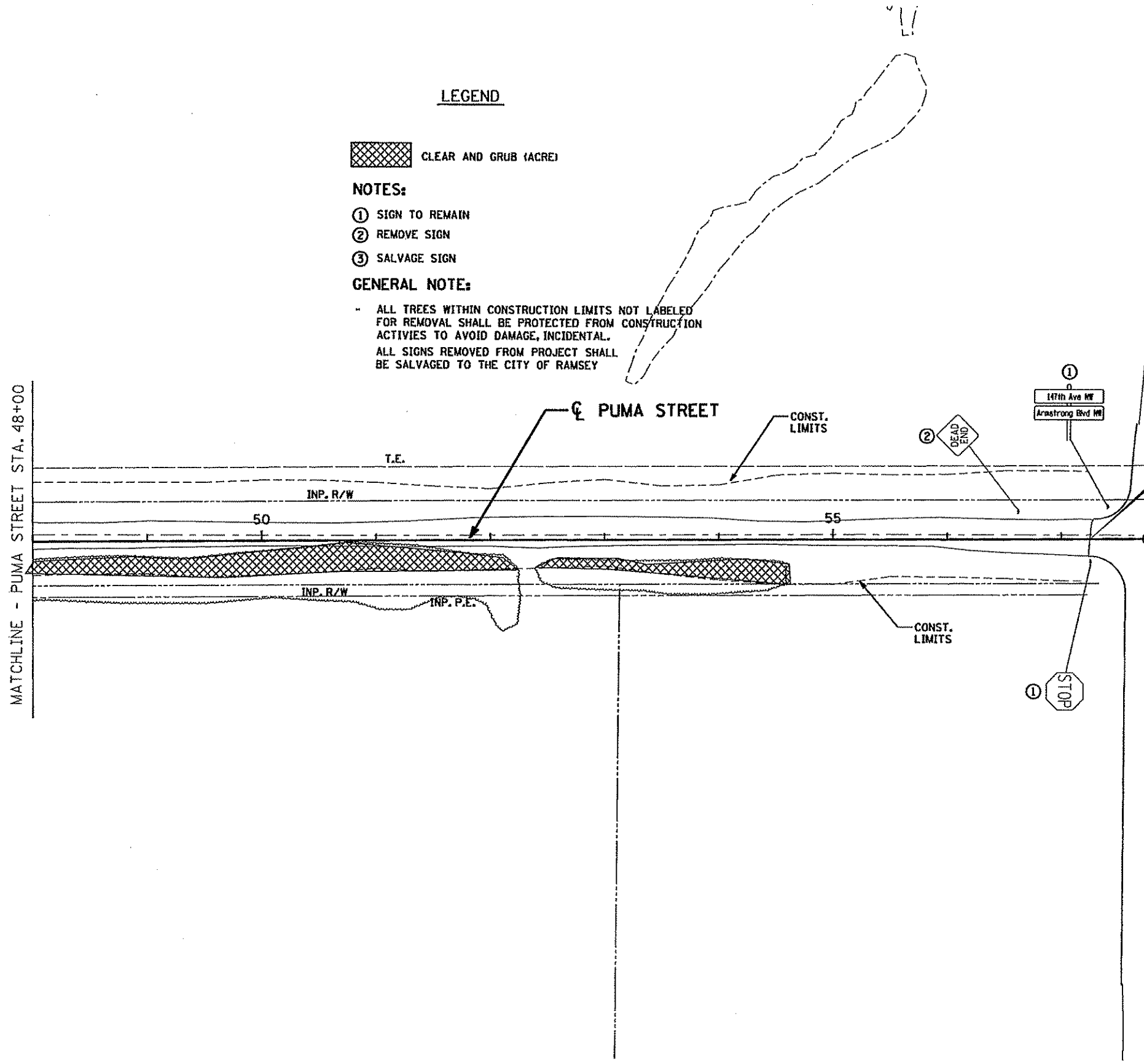
**NOTES:**

- ① SIGN TO REMAIN
- ② REMOVE SIGN
- ③ SALVAGE SIGN

**GENERAL NOTE:**

- ALL TREES WITHIN CONSTRUCTION LIMITS NOT LABELED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION ACTIVIES TO AVOID DAMAGE, INCIDENTAL.  
 ALL SIGNS REMOVED FROM PROJECT SHALL BE SALVAGED TO THE CITY OF RAMSEY

MATCHLINE - PUMA STREET STA. 48+00



**END CONSTRUCTION**  
PUMA STREET STA 57+24.86

DATE: 5/4/2011 10:55:37 AM  
PATH & FILENAME: K:\01973-00\Cad\Plan\Ceah83\_ip10.dgn

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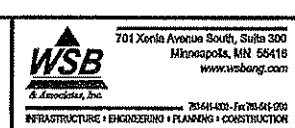
Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*(Signature)*  
 Licensed Professional Engineer, June 15th P.E.

DATE: 04/28/11 LIC NO: 42064

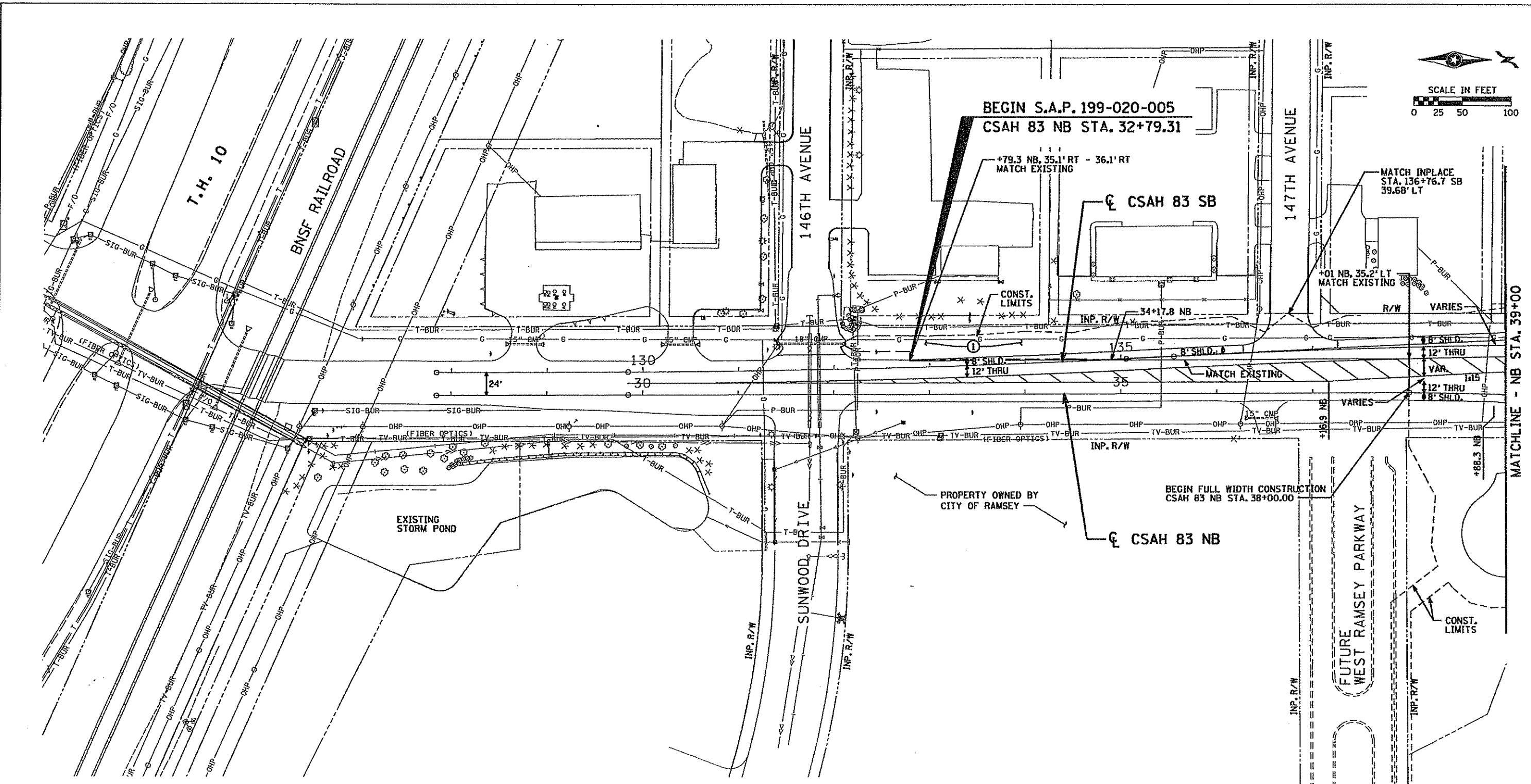
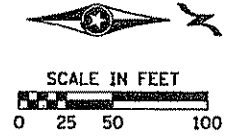
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA ST NB STA. 48+00 TO ALPINE DR  
 INPLACE TOPOGRAPHY  
 & REMOVAL PLAN  
 SHEET 9 OF 9 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 76 OF 249 SHEETS



**GENERAL NOTES:**

- ALL DIMENSIONS ARE TO FACE OF CURB, UNLESS OTHERWISE NOTED.

**NOTES:**

- ① REGRADE DITCH. SEE PROFILES FOR SPECIAL DITCH GRADES.

DATE: 5/4/2011 10:25:49 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A FLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 32+79.31 TO NB STA. 39+00  
**CONSTRUCTION PLAN**  
 SHEET 1 OF 9 SHEETS

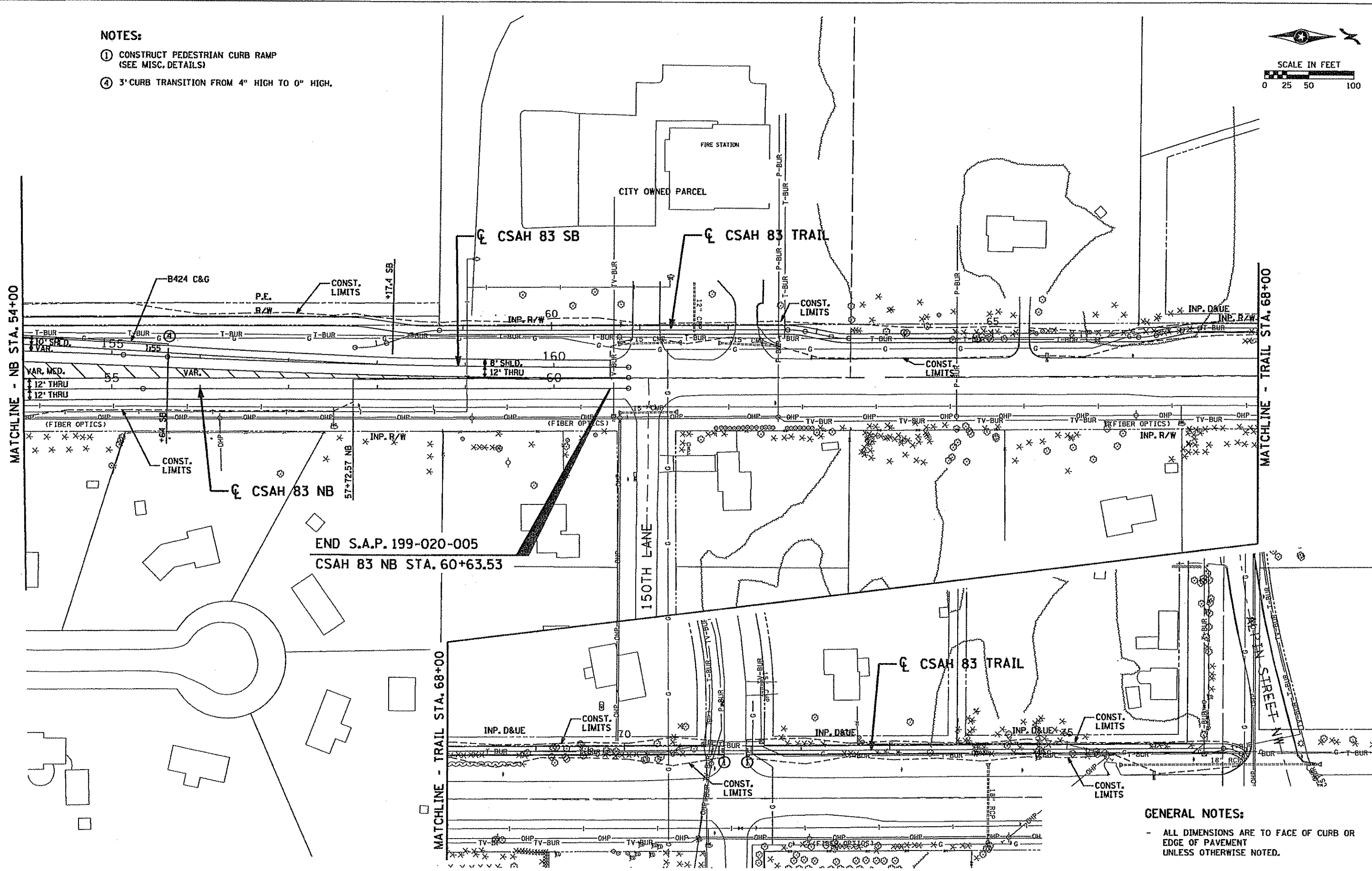
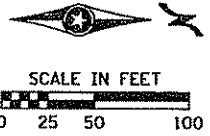
SHEET 77 OF 249 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21



**NOTES:**

- ① CONSTRUCT PEDESTRIAN CURB RAMP (SEE MISC. DETAILS)
- ④ 3' CURB TRANSITION FROM 4" HIGH TO 0" HIGH.



END S.A.P. 199-020-005  
CSAH 83 NB STA. 60+63.53

**GENERAL NOTES:**  
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

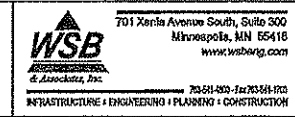
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|    |      |    | IJV |           |
|    |      |    | JMW |           |

Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE  
DATE: 04/28/11 LIC NO: 42084

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB STA. 54+00 TO NB STA. 60+63.53  
**CONSTRUCTION PLAN**  
SHEET 3 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

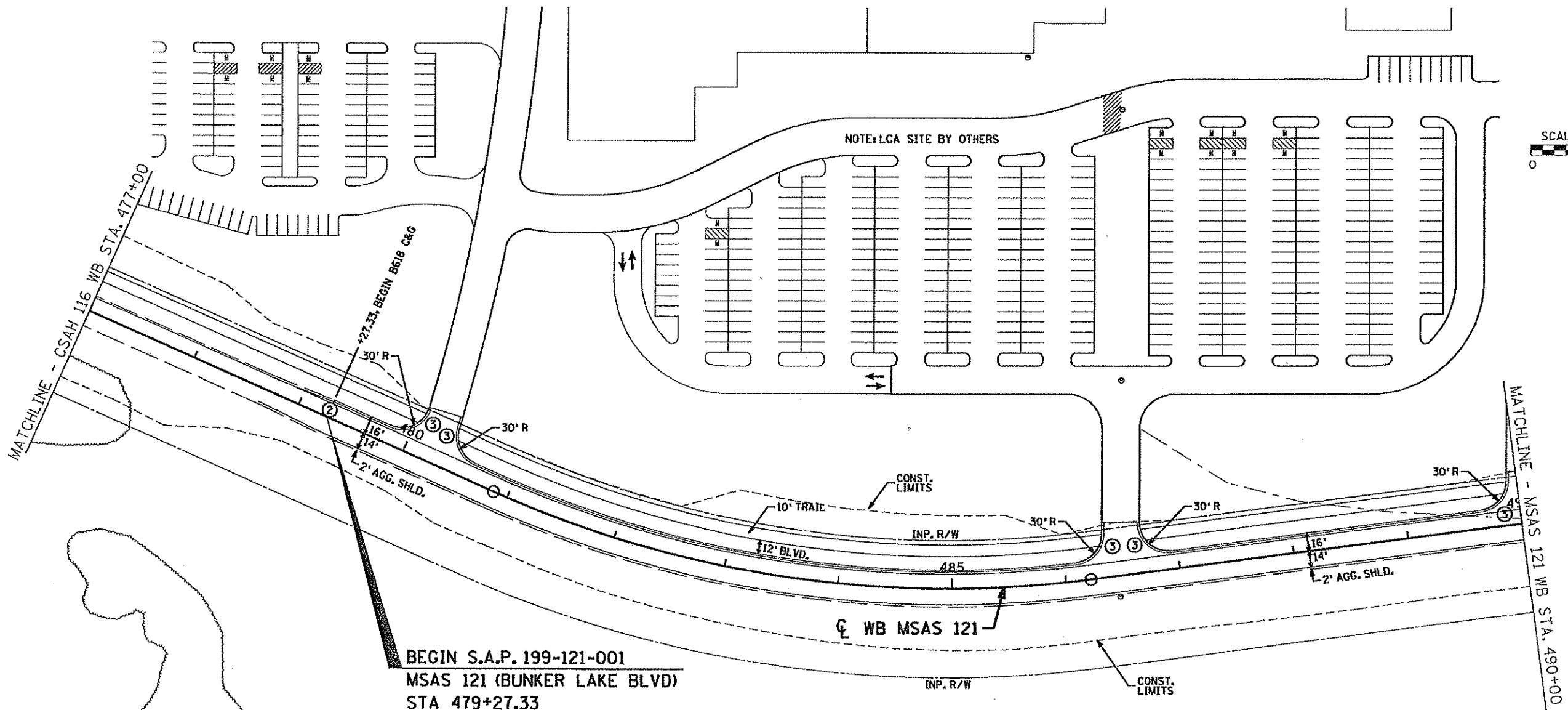
SHEET 79 OF 249 SHEETS







SCALE IN FEET  
0 50 100



**NOTES:**

- ① CONSTRUCT PEDESTRIAN CURB RAMP (SEE MISC. DETAILS)
- ② 5' CURB TRANSITION FROM 6" HIGH TO 0" HIGH.
- ③ DEPRESS CONCRETE CURB, NO TRUNCATED DOMES

**GENERAL NOTES:**

ALL DIMENSIONS ARE TO FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

DATE: 04/28/11 10:27:09 AM  
PATH & FILENAME: K:\01973-00\Cad\Plant\sssh83 cp7.dgn

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A FLOWMAN  
Approved By: J HALE  
I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

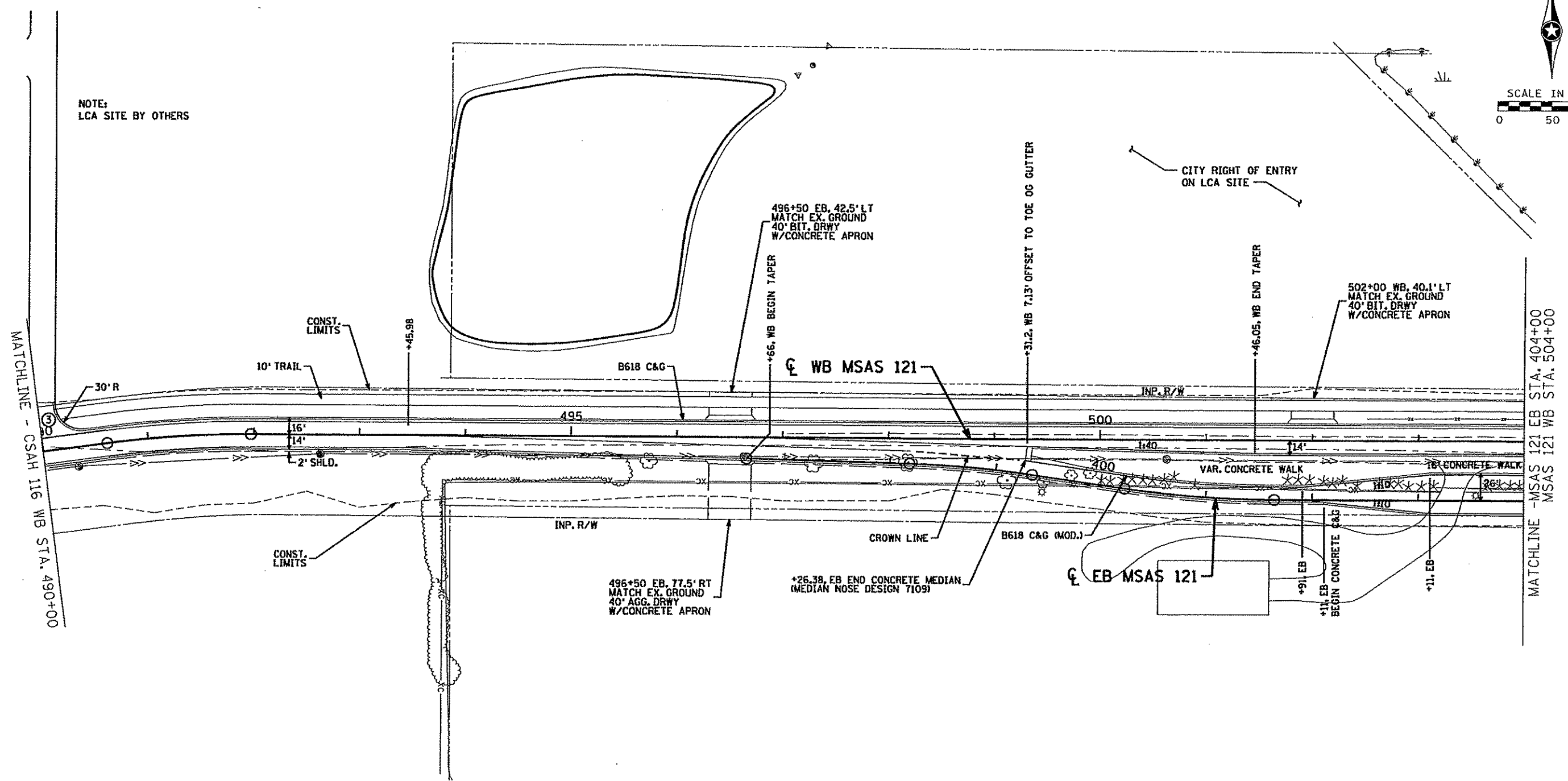


CSAH 116 WB STA. 477+00 TO WB STA. 490+00.00  
**CONSTRUCTION PLAN**  
SHEET 6 OF 9 SHEETS

SHEET 81 OF 249 SHEETS



NOTE:  
LCA SITE BY OTHERS



**NOTES:**

- ① CONSTRUCT PEDESTRIAN CURB RAMP (SEE MISC. DETAILS)
- ② 5' CURB TRANSITION FROM 6" HIGH TO 0" HIGH.
- ③ DEPRESS CONCRETE CURB, NO TRUNCATED DOMES

**GENERAL NOTES:**

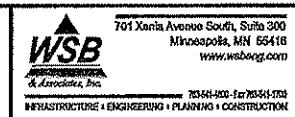
ALL DIMENSIONS ARE TO FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

DATE: 5/4/2011 10:27:13 AM  
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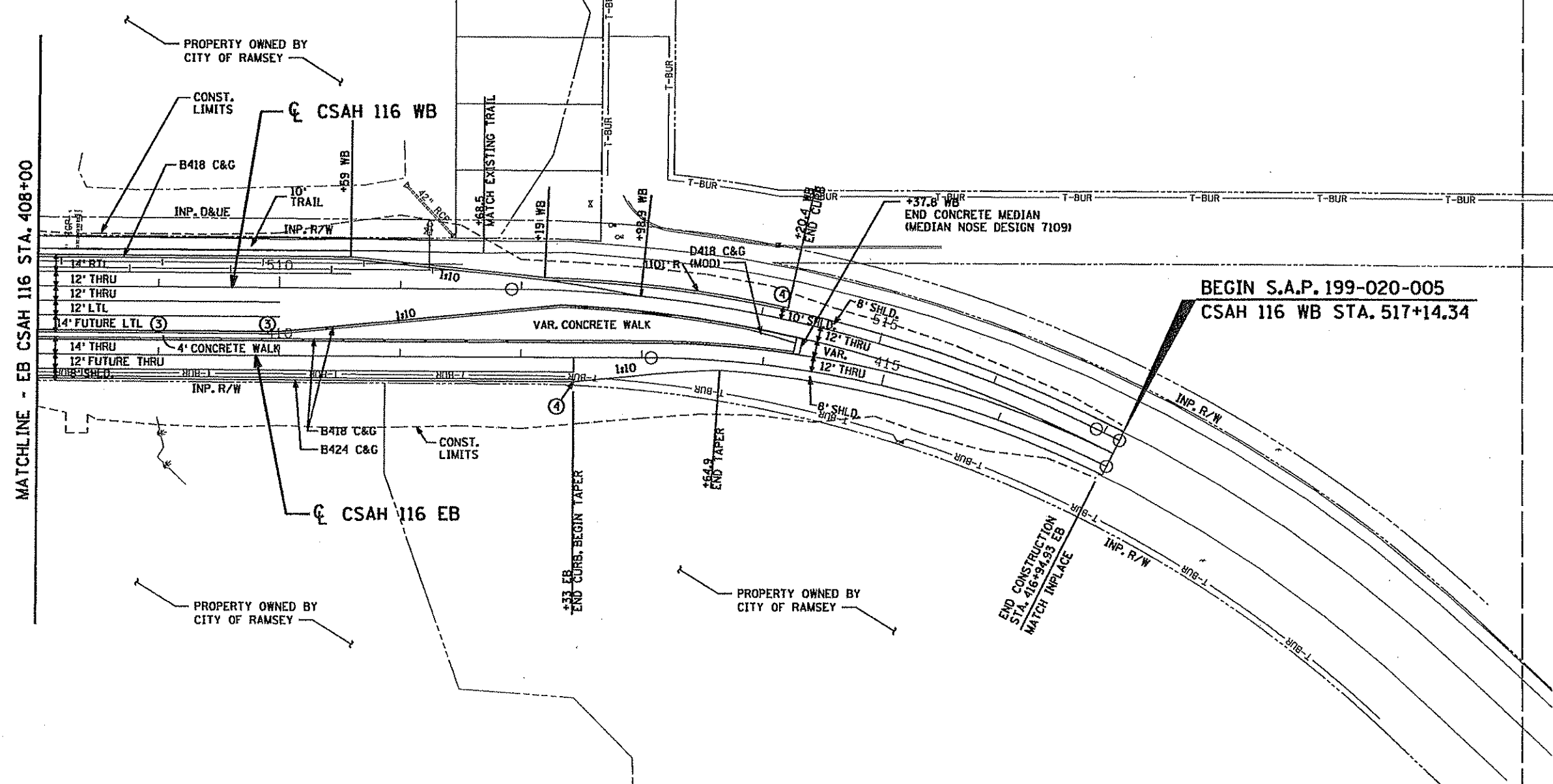
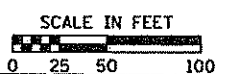
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 490+00 TO WB STA. 504+00  
**CONSTRUCTION PLAN**  
 SHEET 7 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
82  
OF  
249  
SHEETS



MATCHLINE - EB CSAH 116 STA. 408+00

BEGIN S.A.P. 199-020-005  
CSAH 116 WB STA. 517+14.34

**NOTES:**

- ③ PERMANENT BARRICADE, SEE STD. PLATE 8002G
- ④ 3' CURB TRANSITION FROM 4" HIGH TO 0" HIGH.

**GENERAL NOTES:**

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

DATE: 5/4/2011 10:27:01 AM  
PATH & FILENAME: K:\01973-00\Cad\Plan\csah83\_ops.dgn

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

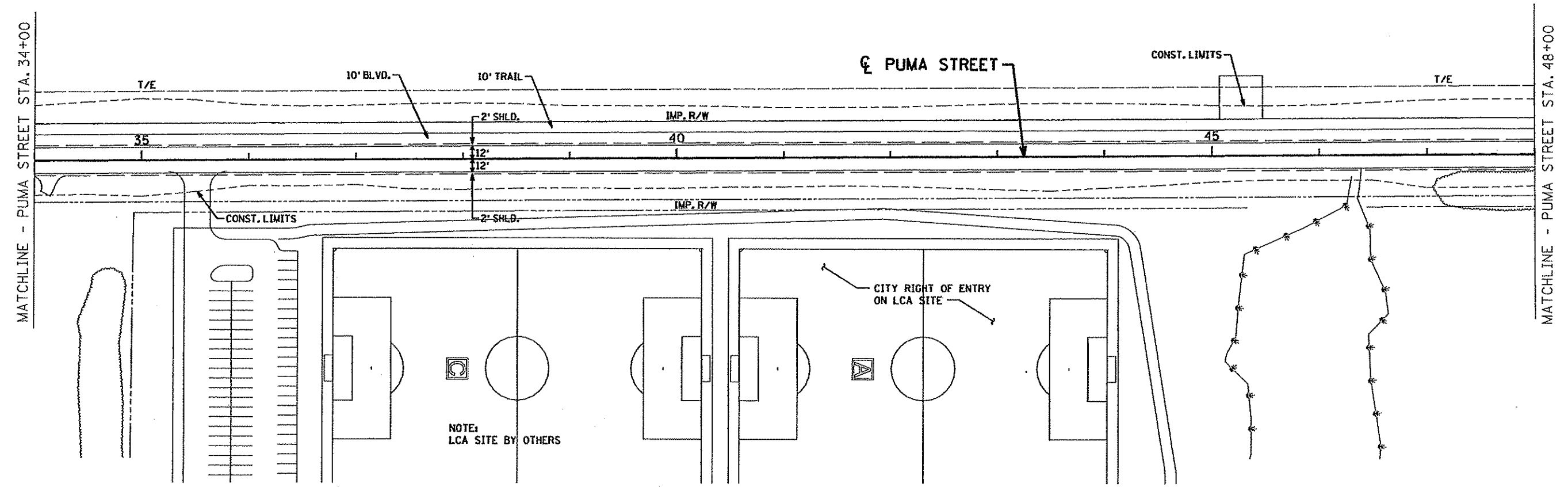
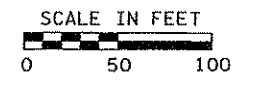
*[Signature]*  
 Licensed Professional Engineer, Jupa Hale P.E.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 EB STA. 408+00 TO STA. 417+00  
**CONSTRUCTION PLAN**  
 SHEET 4 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 189-121-001; C.P. 11-21

SHEET  
83  
OF  
249  
SHEETS



NOTE:  
LCA SITE BY OTHERS

CITY RIGHT OF ENTRY  
ON LCA SITE

**NOTES:**

- ① CONSTRUCT PEDESTRIAN CURB RAMP (SEE MISC. DETAILS)
- ② 5' CURB TRANSITION FROM 6" HIGH TO 0" HIGH.
- ③ DEPRESS CONCRETE CURB, NO TRUNCATED DOMES

**GENERAL NOTES:**

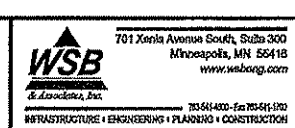
ALL DIMENSIONS ARE TO FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

DATE: 5/4/2011 10:27:18 AM  
PATH & FILENAME: K:\01979-00\Cad\Plan\csah83\_cp9.dgn

| NO | DATE | BY | CHK | REVISIONS |
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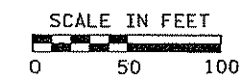
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June 14th P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



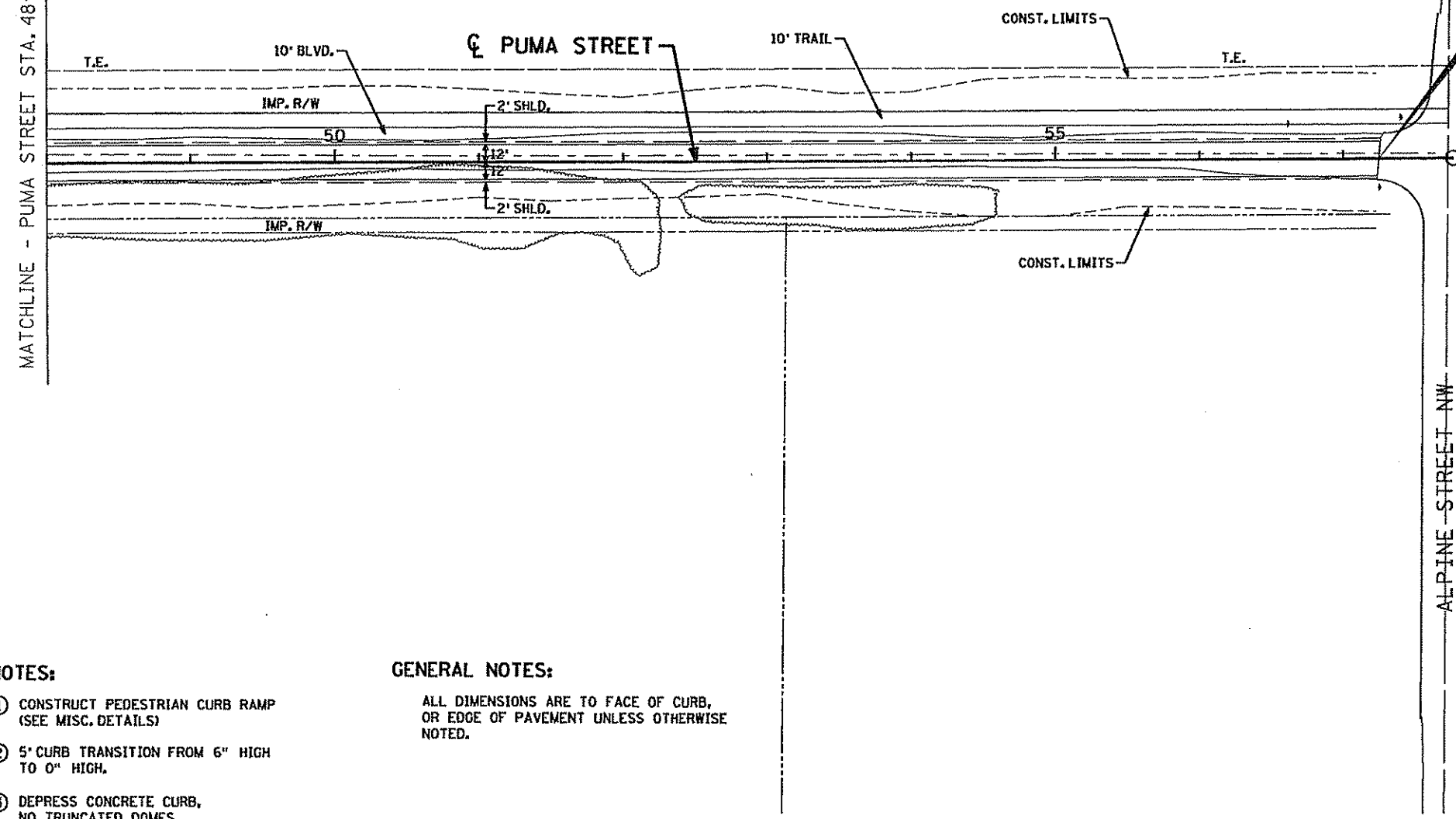
**PUMA ST NB STA. 34+00 TO NB STA. 48+00**  
**CONSTRUCTION PLAN**  
 SHEET 8 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
84  
OF  
249  
SHEETS

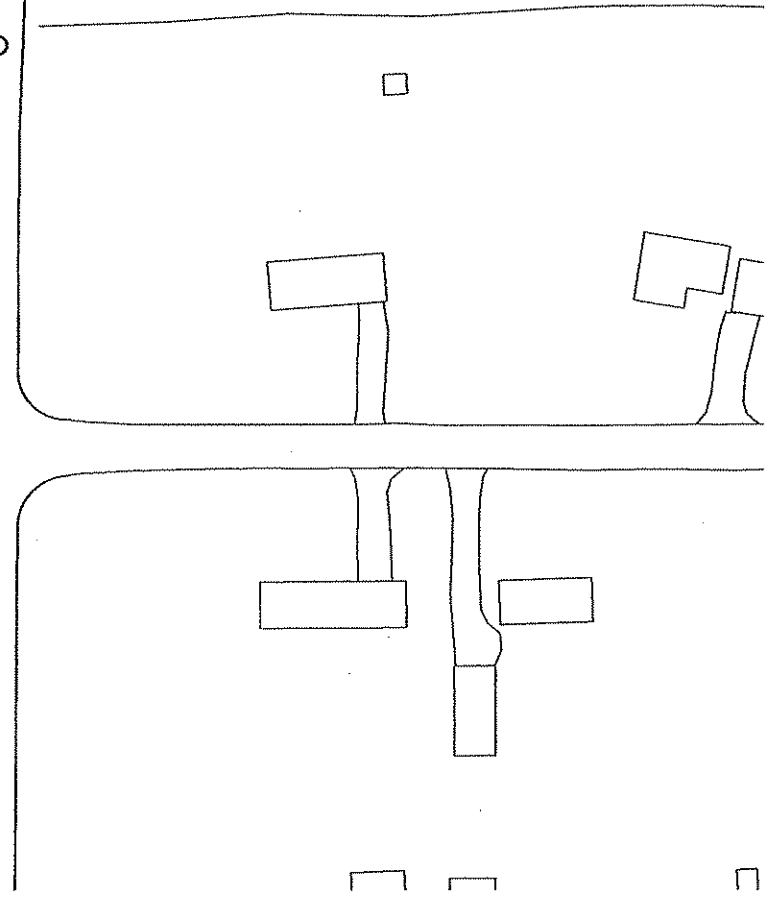


MATCHLINE - PUMA STREET STA. 48+00

END CONSTRUCTION  
PUMA STREET STA 57+24.86  
MATCH EXISTING BIT.



ALPINE STREET NW



**NOTES:**

- ① CONSTRUCT PEDESTRIAN CURB RAMP (SEE MISC. DETAILS)
- ② 5' CURB TRANSITION FROM 6" HIGH TO 0" HIGH.
- ③ DEPRESS CONCRETE CURB, NO TRUNCATED DOMES

**GENERAL NOTES:**

ALL DIMENSIONS ARE TO FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

DATE: 04/28/11 10:27:21 AM  
PATH & FILENAME: K:\01973-00\Cadd\Plan\csh83\_cp10.dgn

| NO | DATE | BY | CHK | REVISIONS |
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|    |      |    |     |           |

Drawn By: C KOCHMAN  
 Design By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, June Hale P.E.

DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

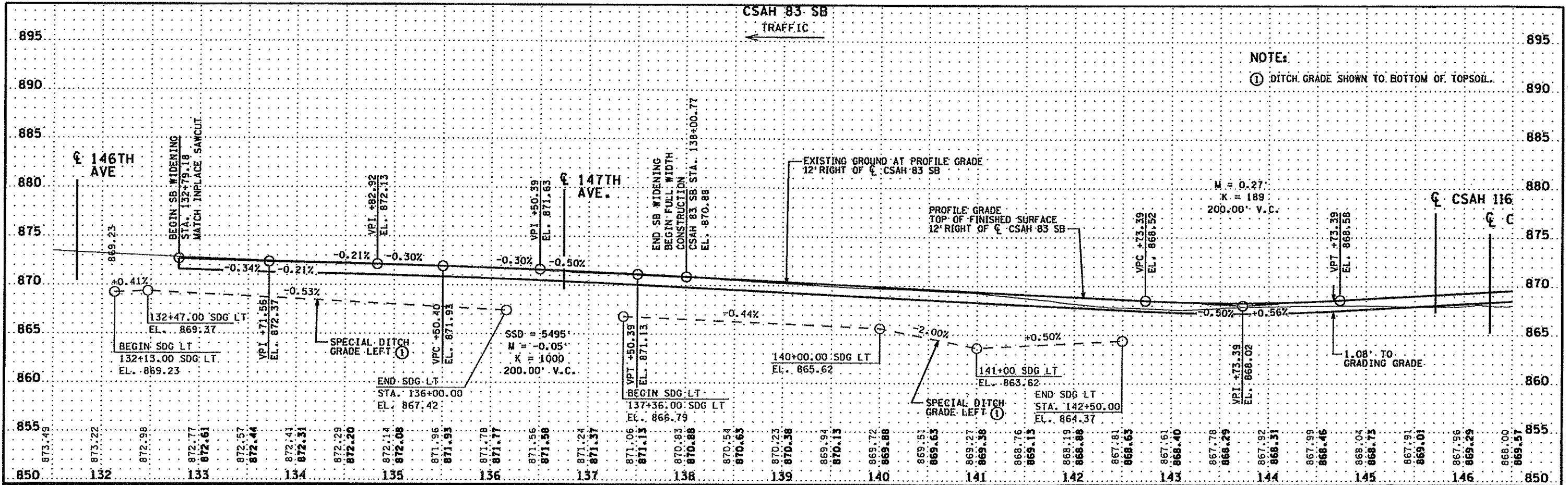


PUMA ST NB STA. 48+00 TO ALPINE DR  
**CONSTRUCTION PLAN**  
 SHEET 9 OF 9 SHEETS

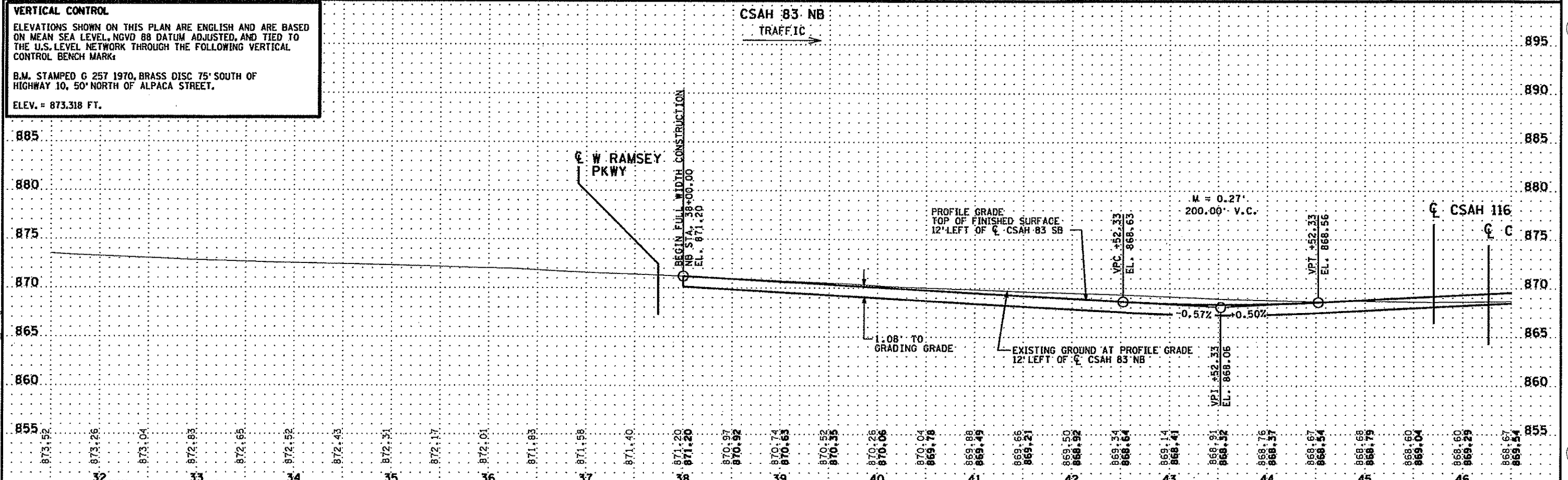
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 85 OF 249 SHEETS

DATE: 5/4/2011 10:45:53 AM  
 PATH & FILENAME: K:\01979-00\Cad\Plan\csah83 pr2.dgn



**VERTICAL CONTROL**  
 ELEVATIONS SHOWN ON THIS PLAN ARE ENGLISH AND ARE BASED ON MEAN SEA LEVEL, NGVD 88 DATUM ADJUSTED, AND TIED TO THE U.S. LEVEL NETWORK THROUGH THE FOLLOWING VERTICAL CONTROL BENCH MARK:  
 B.M. STAMPED G 257 1970, BRASS DISC 75' SOUTH OF HIGHWAY 10, 50' NORTH OF ALPACA STREET.  
 ELEV. = 873.318 FT.



| NO | DATE | BY | CHK | REVISIONS |
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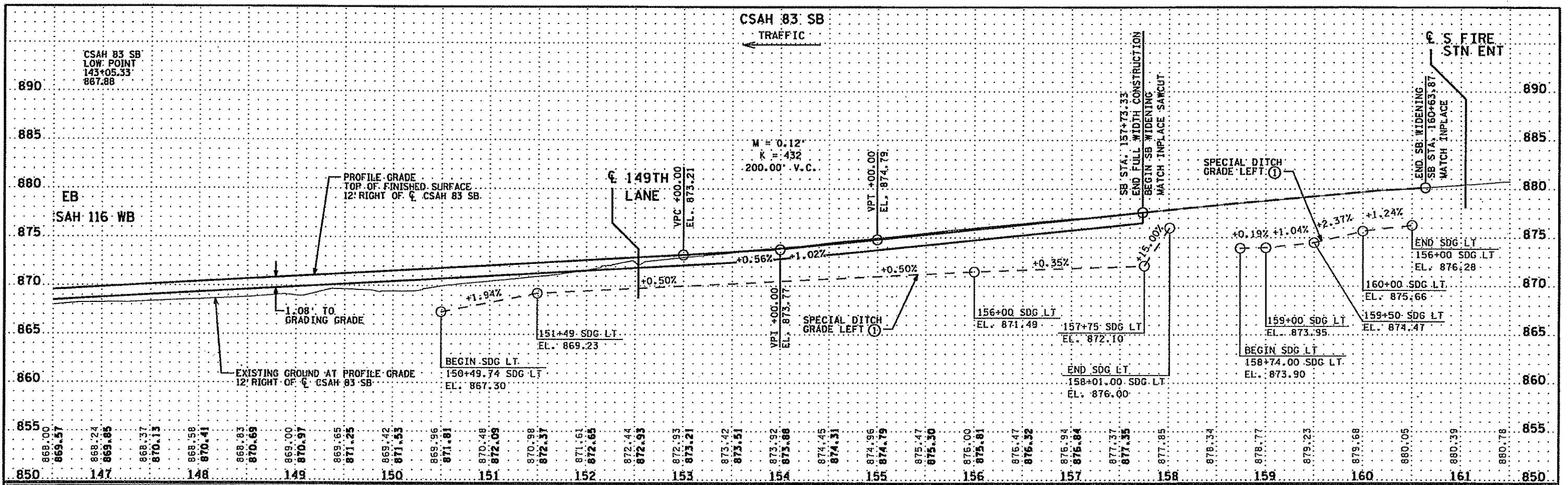
Drawn By: C KOCHMAN  
 Designed By: M HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jesse Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



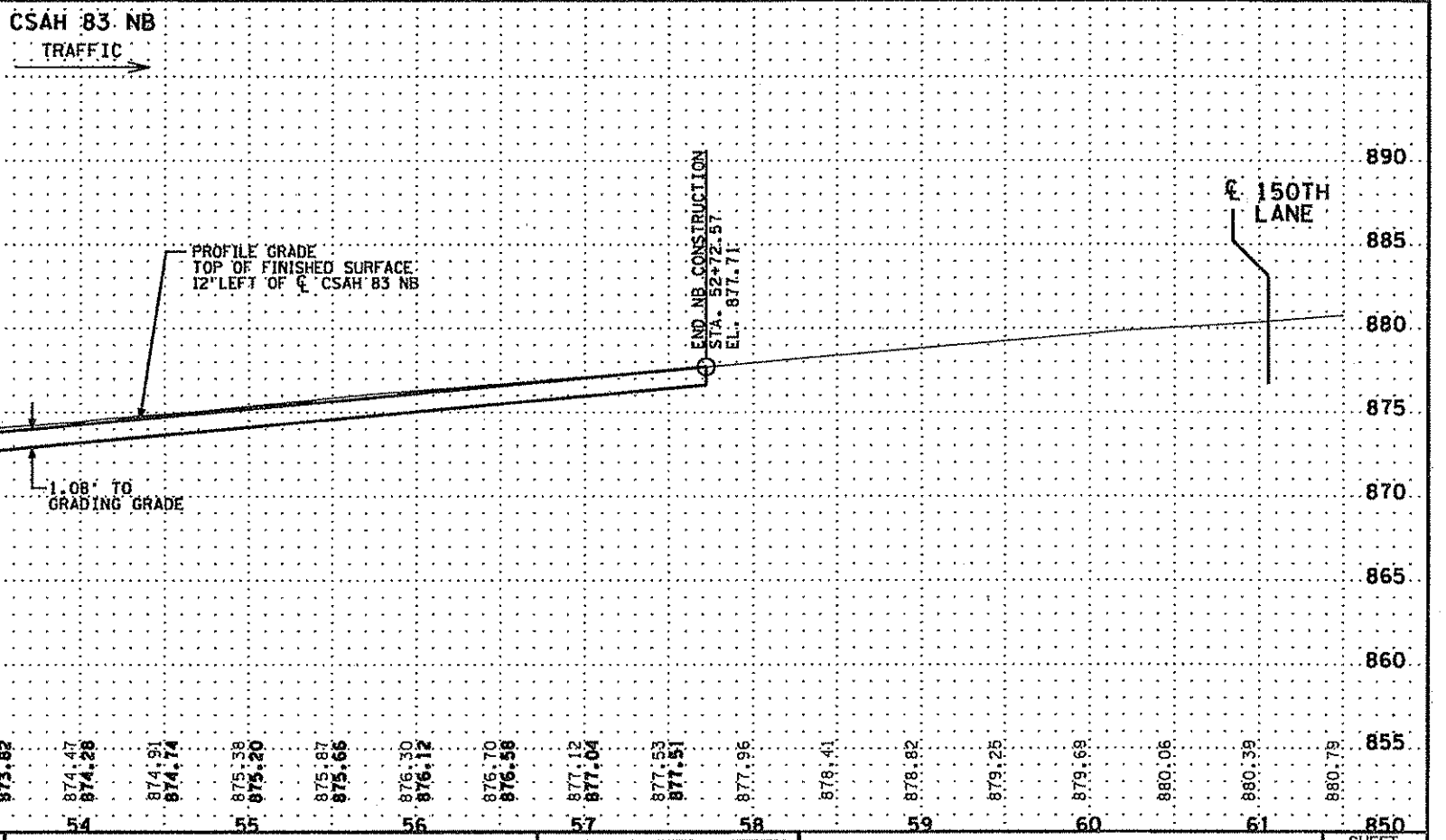
NB STA. 28+50 TO NB STA. 42+00  
**PROFILES**  
 SHEET 1 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 86 OF 249 SHEETS



**VERTICAL CONTROL**  
 ELEVATIONS SHOWN ON THIS PLAN ARE ENGLISH AND ARE BASED ON MEAN SEA LEVEL, NGVD 88 DATUM ADJUSTED, AND TIED TO THE U.S. LEVEL NETWORK THROUGH THE FOLLOWING VERTICAL CONTROL BENCH MARK:  
 B.M. STAMPED G 257 1970, BRASS DISC 75' SOUTH OF HIGHWAY 10, 50' NORTH OF ALPACA STREET.  
 ELEV. = 873.318 FT.

**NOTE:**  
 ① DITCH GRADE SHOWN TO BOTTOM OF TOPSOIL.



| NO | DATE | BY | CHK | REVISIONS |
|----|------|----|-----|-----------|
| 47 |      |    |     |           |
| 48 |      |    |     |           |
| 49 |      |    |     |           |
| 50 |      |    |     |           |
| 51 |      |    |     |           |
| 52 |      |    |     |           |
| 53 |      |    |     |           |
| 54 |      |    |     |           |
| 55 |      |    |     |           |
| 56 |      |    |     |           |
| 57 |      |    |     |           |
| 58 |      |    |     |           |
| 59 |      |    |     |           |
| 60 |      |    |     |           |
| 61 |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

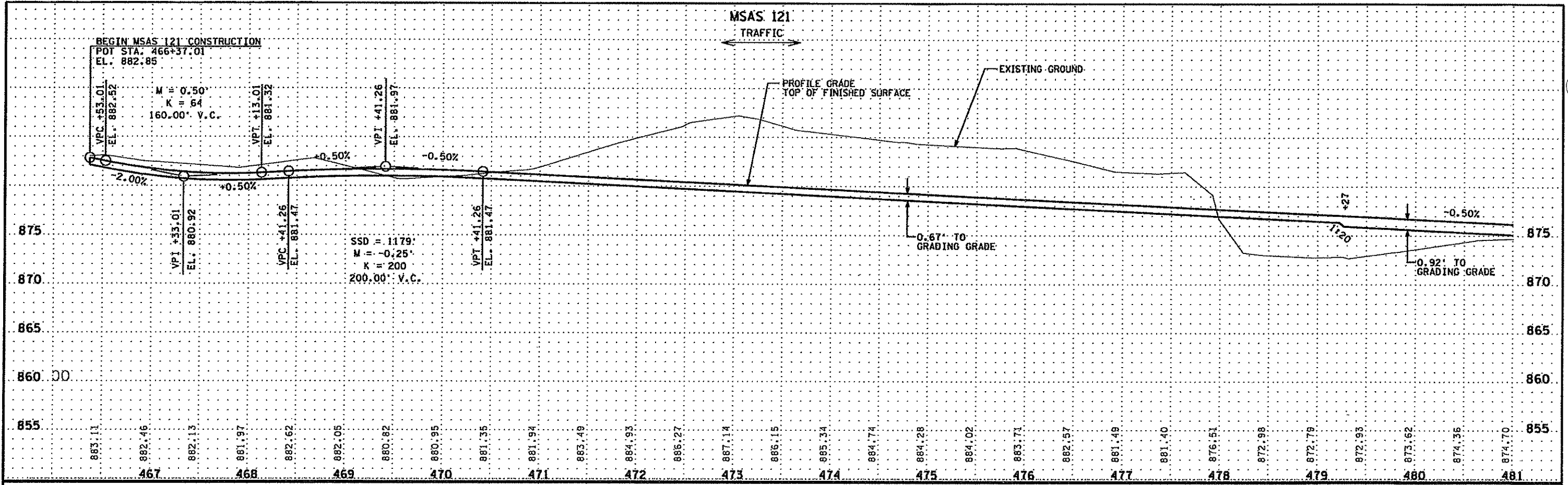


NB STA. 42+00 TO NB STA. 55+50  
**PROFILES**  
 SHEET 2 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

DATE: 5/4/2011 10:45:59 AM  
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SHEET 87 OF 249 SHEETS

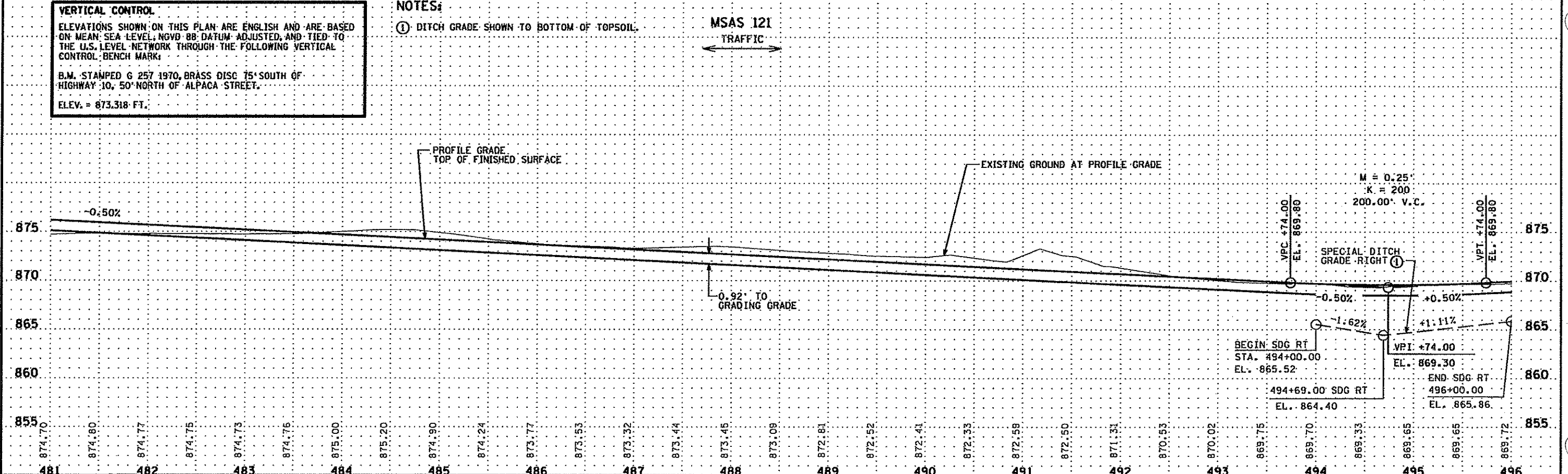
MSAS 121  
TRAFFIC



**VERTICAL CONTROL**  
 ELEVATIONS SHOWN ON THIS PLAN ARE ENGLISH AND ARE BASED ON MEAN SEA LEVEL, NGVD 88 DATUM ADJUSTED, AND TIED TO THE U.S. LEVEL NETWORK THROUGH THE FOLLOWING VERTICAL CONTROL BENCH MARK:  
 B.M. STAMPED G 257 1970, BRASS DISC 75" SOUTH OF HIGHWAY 10, 50" NORTH OF ALPACA STREET.  
 ELEV. = 873.318 FT.

**NOTES:**  
 ① DITCH GRADE SHOWN TO BOTTOM OF TOPSOIL.

MSAS 121  
TRAFFIC



DATE: 04/28/11 10:46:06 AM  
 PATH & FILENAME: K:\01973-00\Cad\Plan\csah83\_p15.dgn

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



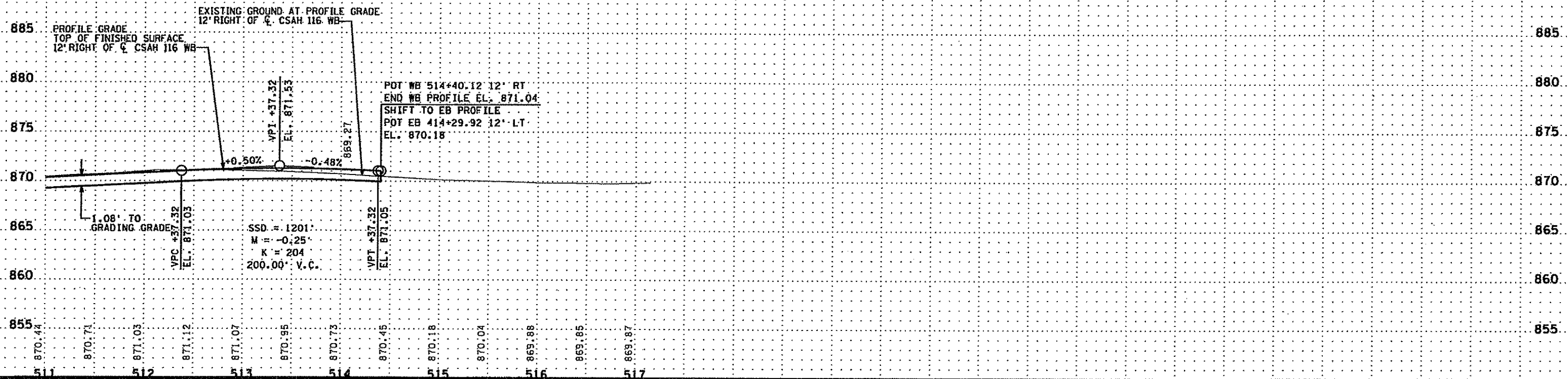
CSAH 116 WB STA. 466+50 TO STA. 490+00  
**PROFILES**  
 SHEET 3 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 88  
 OF  
 249  
 SHEETS





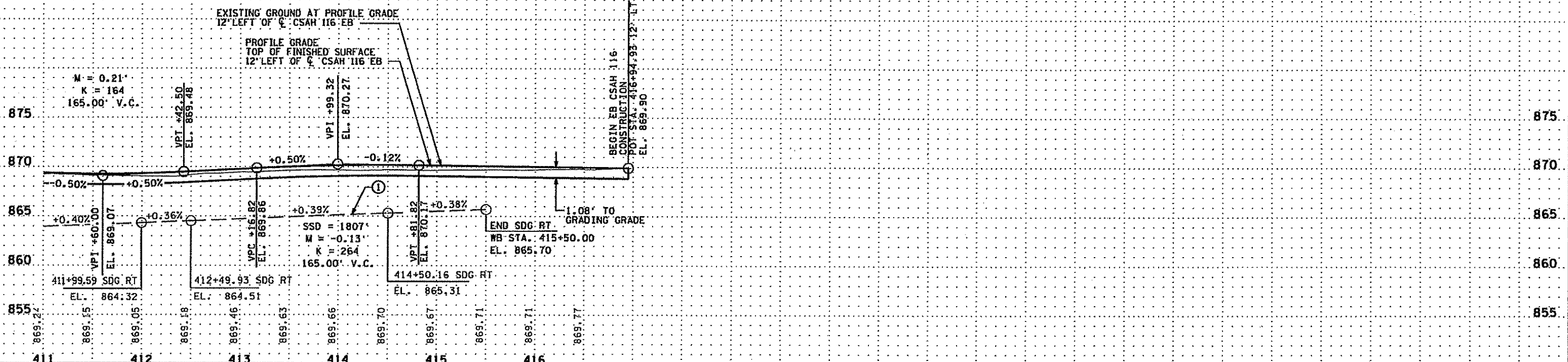
CSAH 116 WB  
TRAFFIC ←



**VERTICAL CONTROL**  
ELEVATIONS SHOWN ON THIS PLAN ARE ENGLISH AND ARE BASED ON MEAN SEA LEVEL, NGVD 88 DATUM ADJUSTED, AND TIED TO THE U.S. LEVEL NETWORK THROUGH THE FOLLOWING VERTICAL CONTROL BENCH MARK:  
B.M. STAMPED G 257 1970, BRASS DISC 75' SOUTH OF HIGHWAY 10, 50' NORTH OF ALPACA STREET.  
ELEV. = 873.318 FT.

**NOTE:**  
① DITCH GRADE SHOWN TO BOTTOM OF TOPSOIL.

CSAH 116 EB  
TRAFFIC →

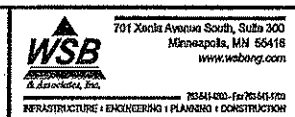


DATE: 5/4/2011 10:46:20 AM  
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE  
DATE: 04/28/11 LIC NO: 42084

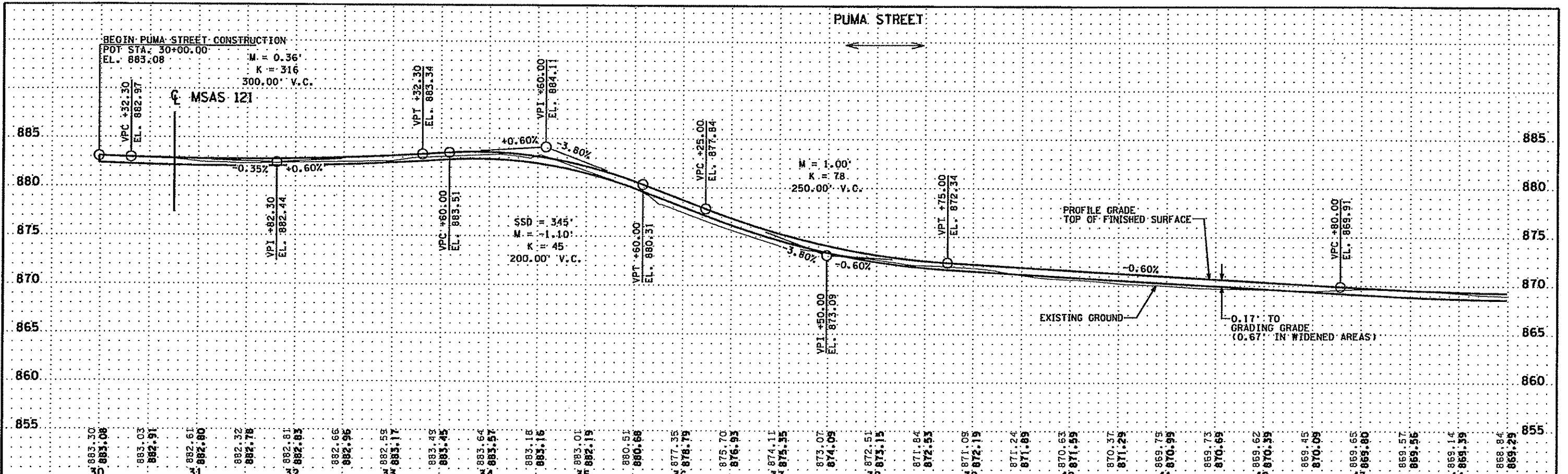
HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



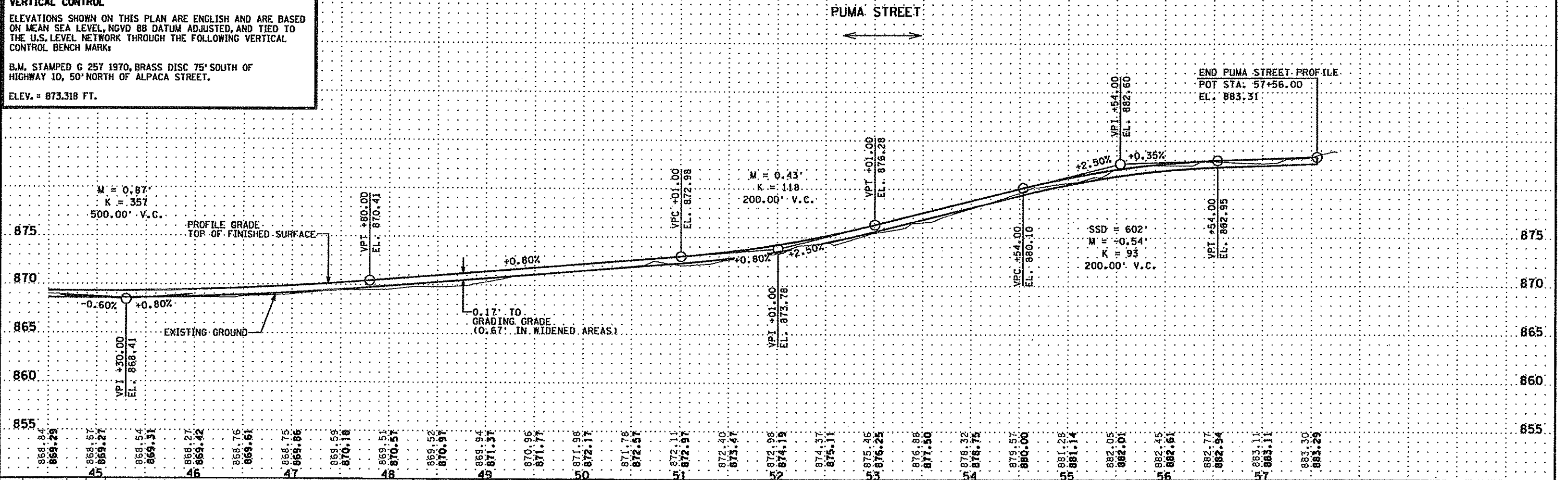
CSAH 116 WB, CSAH 116 EB  
**PROFILES**  
SHEET 5 OF 7 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
90  
OF  
249  
SHEETS

DATE: 5/4/2011 10:46:28 AM  
 PATH & FILENAME: K:\01973-00\Cadd\Plan\ssah83\_p8.dgn



**VERTICAL CONTROL**  
 ELEVATIONS SHOWN ON THIS PLAN ARE ENGLISH AND ARE BASED ON MEAN SEA LEVEL, NGVD 88 DATUM ADJUSTED, AND TIED TO THE U.S. LEVEL NETWORK THROUGH THE FOLLOWING VERTICAL CONTROL BENCH MARK:  
 B.M. STAMPED G 257 1970, BRASS DISC 75' SOUTH OF HIGHWAY 10, 50' NORTH OF ALPACA STREET.  
 ELEV. = 873.318 FT.



| NO | DATE | BY | CHK | REVISIONS |
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| 45 |      |    |     |           |
| 46 |      |    |     |           |
| 47 |      |    |     |           |
| 48 |      |    |     |           |
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| 55 |      |    |     |           |
| 56 |      |    |     |           |
| 57 |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 License No. 42004  
 DATE: 04/28/11

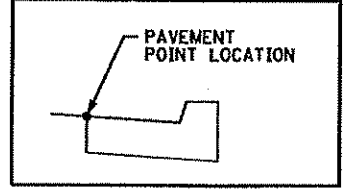
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



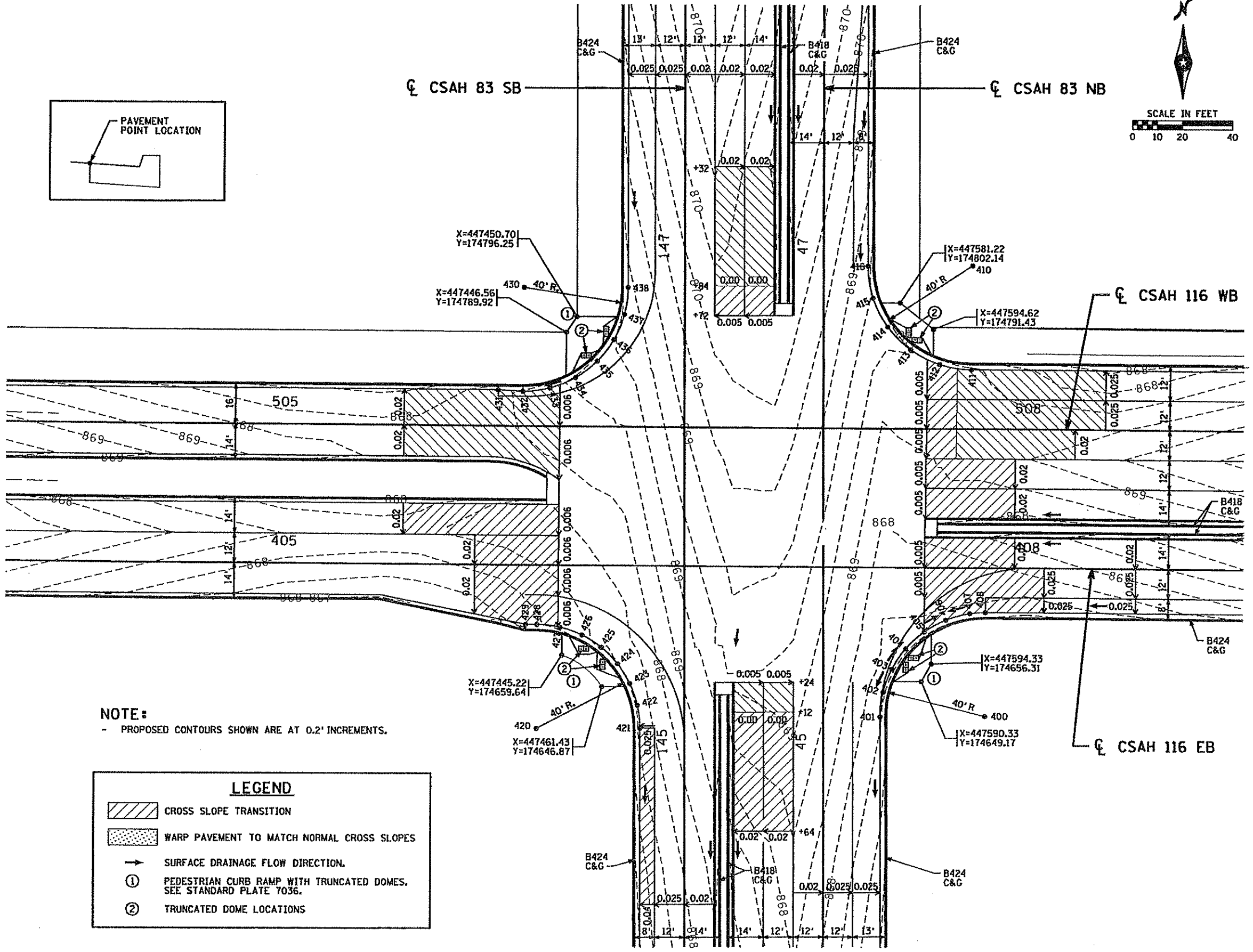
PUMA STREET STA. 30+00 TO STA. 56+50  
**PROFILES**  
 SHEET 6 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 91  
 OF  
 249  
 SHEETS





| PAVEMENT POINTS |           |           |        |       |
|-----------------|-----------|-----------|--------|-------|
| NO.             | X         | Y         | ELEV.  | DESC. |
| 400             | 447615.96 | 174635.09 | 866.03 |       |
| 401             | 447573.96 | 174634.94 | 868.02 |       |
| 402             | 447575.11 | 174644.85 | 868.04 |       |
| 403             | 447578.56 | 174654.21 | 868.06 |       |
| 404             | 447584.13 | 174662.49 | 868.07 |       |
| 405             | 447591.49 | 174669.23 | 868.09 |       |
| 406             | 447600.23 | 174674.04 | 868.11 |       |
| 407             | 447609.86 | 174676.65 | 868.12 |       |
| 408             | 447616.16 | 174677.09 | 868.13 |       |
| 410             | 447610.31 | 174817.12 | 866.47 |       |
| 411             | 447610.11 | 174775.12 | 868.64 |       |
| 412             | 447597.20 | 174777.22 | 868.72 |       |
| 413             | 447585.57 | 174783.18 | 868.81 |       |
| 414             | 447576.34 | 174792.43 | 868.89 |       |
| 415             | 447570.39 | 174804.07 | 868.98 |       |
| 416             | 447568.31 | 174816.97 | 869.06 |       |
| 420             | 447434.98 | 174629.98 | 867.80 |       |
| 421             | 447476.97 | 174630.13 | 868.05 |       |
| 422             | 447475.90 | 174639.42 | 868.03 |       |
| 423             | 447472.79 | 174648.24 | 868.01 |       |
| 424             | 447467.81 | 174656.16 | 867.99 |       |
| 425             | 447461.20 | 174662.78 | 868.05 |       |
| 426             | 447453.29 | 174667.77 | 867.95 |       |
| 427             | 447444.47 | 174670.89 | 867.86 |       |
| 428             | 447435.18 | 174671.98 | 867.77 |       |
| 429             | 447430.50 | 174672.00 | 867.68 |       |
| 430             | 447429.34 | 174808.01 | 866.06 |       |
| 431             | 447419.11 | 174766.56 | 868.31 |       |
| 432             | 447429.14 | 174766.01 | 868.42 |       |
| 433             | 447440.07 | 174767.40 | 868.54 |       |
| 434             | 447450.27 | 174771.59 | 868.63 |       |
| 435             | 447459.02 | 174778.29 | 868.70 |       |
| 436             | 447465.73 | 174787.03 | 868.78 |       |
| 437             | 447469.93 | 174797.22 | 868.86 |       |
| 438             | 447471.34 | 174808.16 | 868.93 |       |



**NOTE:**  
 - PROPOSED CONTOURS SHOWN ARE AT 0.2' INCREMENTS.

**LEGEND**

- CROSS SLOPE TRANSITION
- WARP PAVEMENT TO MATCH NORMAL CROSS SLOPES
- SURFACE DRAINAGE FLOW DIRECTION.
- PEDESTRIAN CURB RAMP WITH TRUNCATED DOMES. SEE STANDARD PLATE 7036.
- TRUNCATED DOME LOCATIONS

DATE: 5/4/2011 10:45:49 AM  
 PATH & FILENAME: K:\01973-00\Cadd\Plan\csah1163\_in4.dgn

| NO. | DATE | BY | CHK | REVISIONS |
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

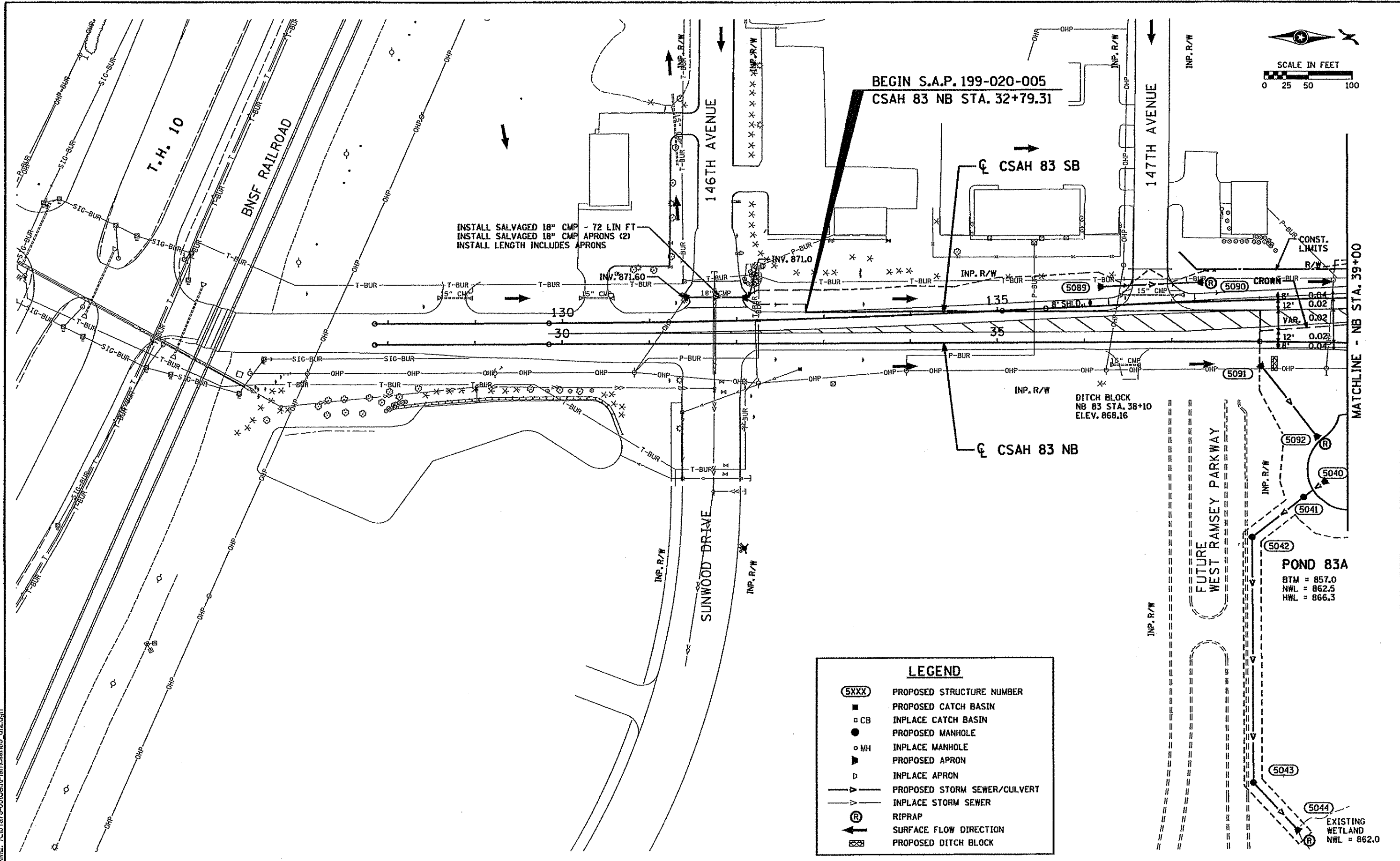
701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsbeng.com

**CSAH 83 / CSAH 116**  
**INTERSECTION DETAIL**

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 93  
 OF  
 249  
 SHEETS

DATE: 5/4/2011 10:29:33 AM  
 PATH & FILENAME: K:\01972-00\Cadd\Plan\csah83\_dr2.dgn



| NO | DATE | BY | CHK | REVISIONS |
|----|------|----|-----|-----------|
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

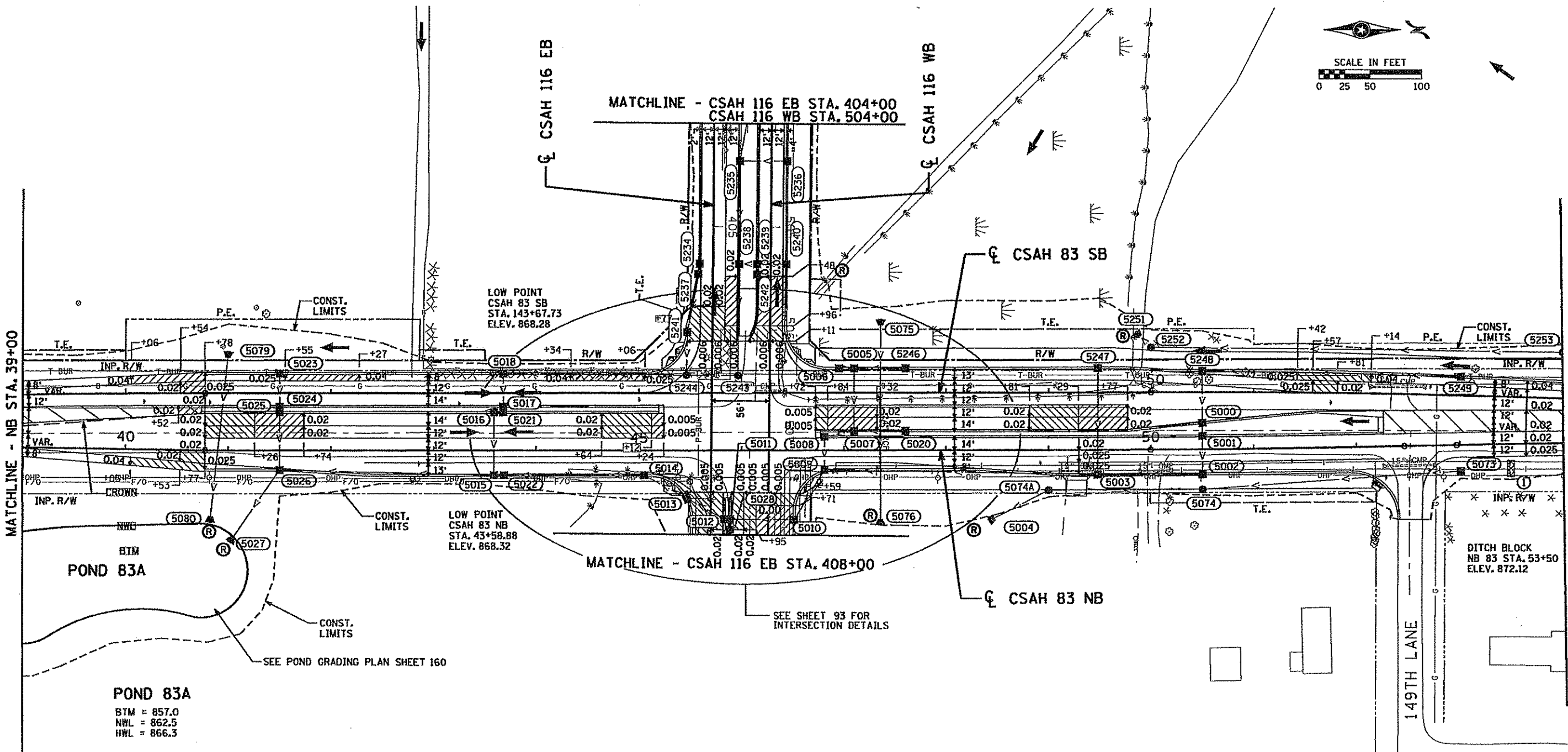
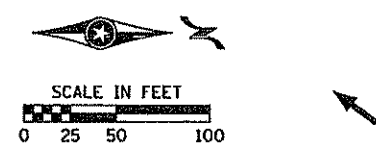
*[Signature]*  
 Licensed Professional Engineer, June Hala P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 A. Anderson, Inc.  
 701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbeng.com  
 763-441-4000 Fax 763-441-1700  
 RESTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

NB STA. 32+79.31 TO NB STA. 39+00  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 1 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 94  
 OF  
 249  
 SHEETS



**POND 83A**  
 BTM = 857.0  
 NWL = 862.5  
 HWL = 866.3

**LEGEND**

- (5XXX) PROPOSED STRUCTURE NUMBER
- PROPOSED CATCH BASIN
- CB INPLACE CATCH BASIN
- PROPOSED MANHOLE
- MH INPLACE MANHOLE
- ▼ PROPOSED APRON
- ▽ INPLACE APRON
- ▼— PROPOSED STORM SEWER/CULVERT
- ▽— INPLACE STORM SEWER
- ⊙ RIPRAP
- SURFACE FLOW DIRECTION
- ▨ PROPOSED DITCH BLOCK

**NOTES:**  
 ① SEE SHEET 40 FOR DITCH BLOCK DETAIL. DITCH BLOCK INCIDENTAL.

DATE: 5/4/2011 10:29:37 AM  
 PATH & FILENAME: K:\01973-00\Cadd\Plan\csah83\_dr3.dgn

| NO | DATE | BY | CHK | REVISIONS |
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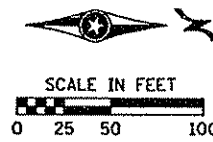
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June Holo P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

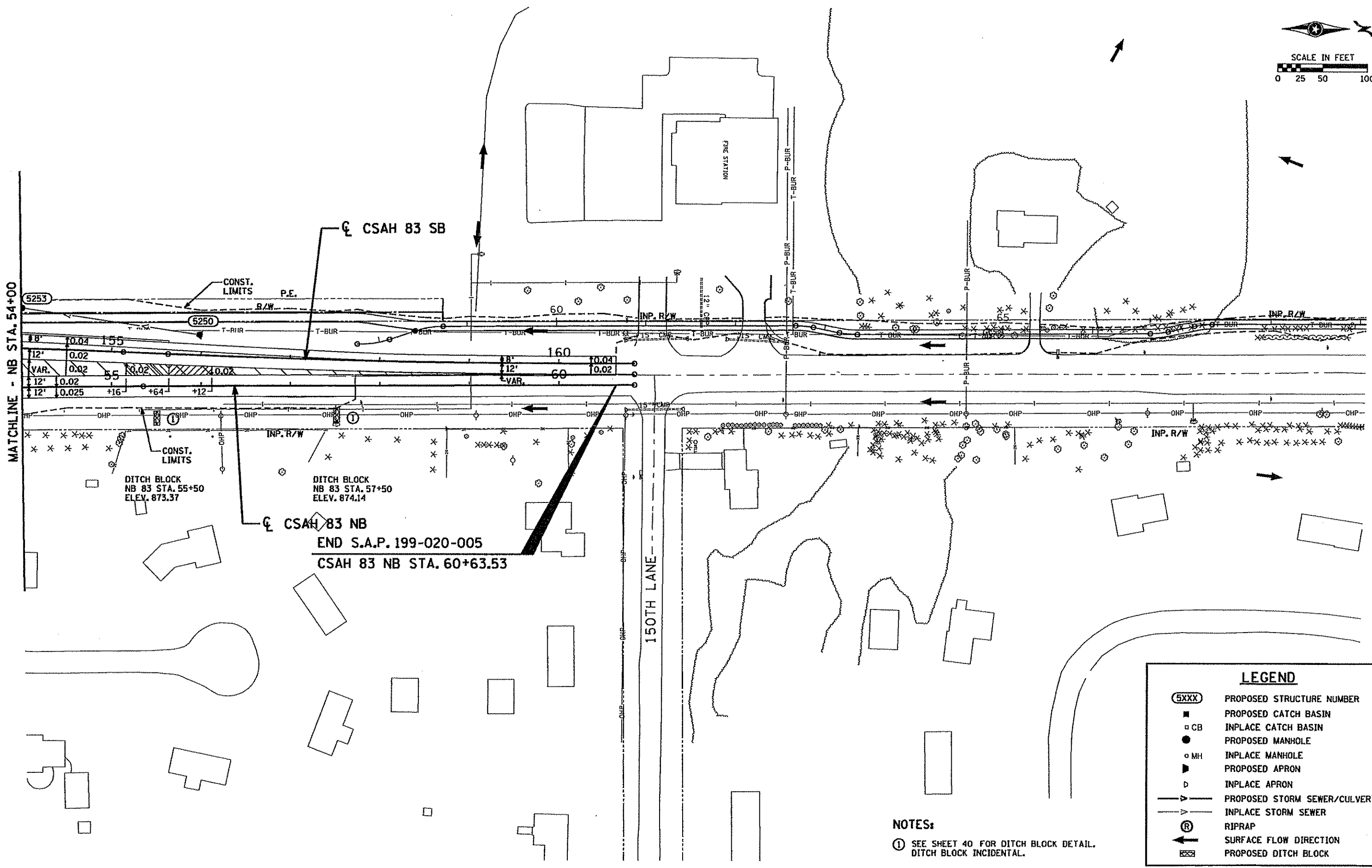


NB STA. 39+00 TO NB STA. 54+00  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 2 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 95  
 OF  
 249  
 SHEETS



MATCHLINE - NB STA. 54+00



**LEGEND**

- 5XXX PROPOSED STRUCTURE NUMBER
- PROPOSED CATCH BASIN
- CB INPLACE CATCH BASIN
- PROPOSED MANHOLE
- MH INPLACE MANHOLE
- ▲ PROPOSED APRON
- ▷ INPLACE APRON
- ▽ — PROPOSED STORM SEWER/CULVERT
- ▽ — INPLACE STORM SEWER
- ⊙ RIPRAP
- ← SURFACE FLOW DIRECTION
- ▨ PROPOSED DITCH BLOCK

**NOTES:**  
 ① SEE SHEET 40 FOR DITCH BLOCK DETAIL. DITCH BLOCK INCIDENTAL.

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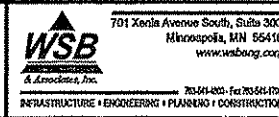
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, Jugo Hale P.E.

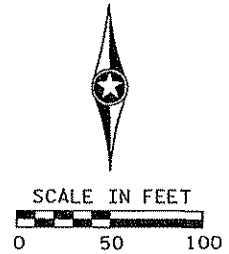
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



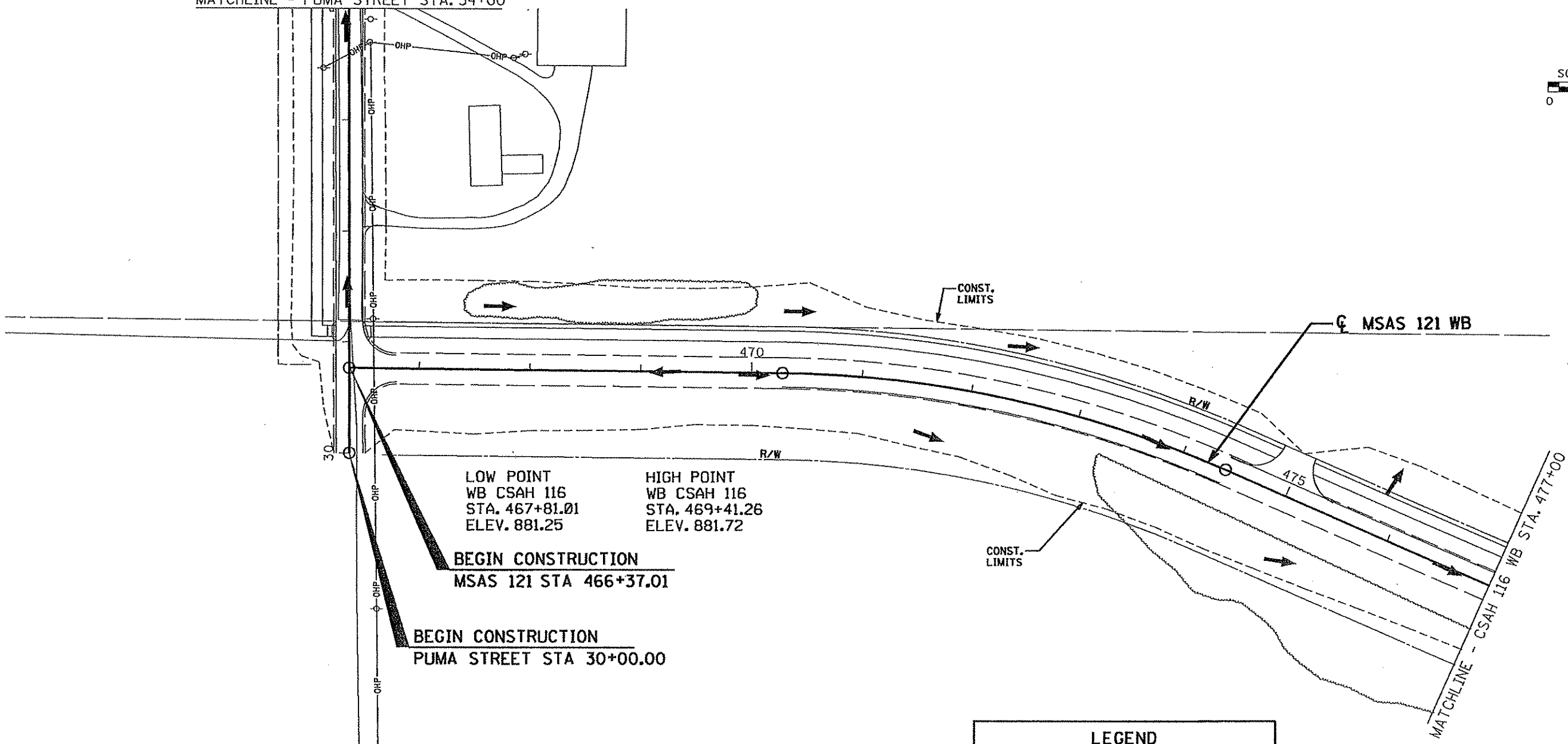
NB STA. 54+00 TO NB STA. 60+63.53  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 3 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 96 OF 249 SHEETS





MATCHLINE - PUMA STREET STA. 34+00



LOW POINT  
WB CSAH 116  
STA. 467+81.01  
ELEV. 881.25

HIGH POINT  
WB CSAH 116  
STA. 469+41.26  
ELEV. 881.72

**BEGIN CONSTRUCTION**  
MSAS 121 STA 466+37.01

**BEGIN CONSTRUCTION**  
PUMA STREET STA 30+00.00

| LEGEND |                              |
|--------|------------------------------|
| (5XXX) | PROPOSED STRUCTURE NUMBER    |
| ■      | PROPOSED CATCH BASIN         |
| □ CB   | INPLACE CATCH BASIN          |
| ●      | PROPOSED MANHOLE             |
| ○ MH   | INPLACE MANHOLE              |
| ▶      | PROPOSED APRON               |
| ▷      | INPLACE APRON                |
| —▶     | PROPOSED STORM SEWER/CULVERT |
| —▷     | INPLACE STORM SEWER          |
| ⊙      | RIPRAP                       |
| ←      | SURFACE FLOW DIRECTION       |
| ▨      | PROPOSED DITCH BLOCK         |

DATE: 5/4/2011 10:35:41 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

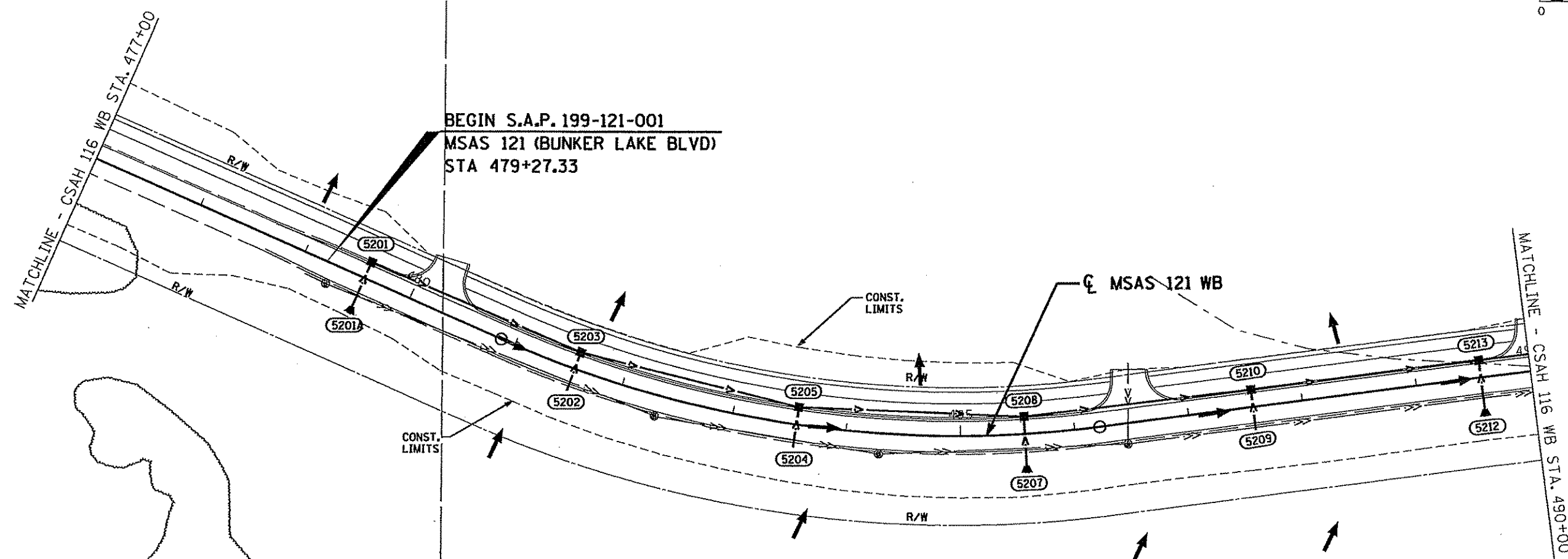
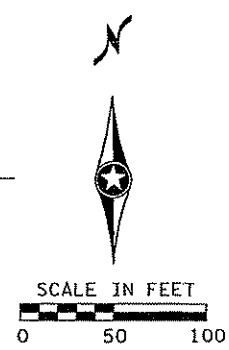
*J. Hale*  
 Licensed Professional Engineer, Jupa Hills P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 466+32.01 TO WB STA. 477+00  
**DRAINAGE & SUPERELEVATION PLAN**  
SHEET 5 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 97 OF 249 SHEETS



BEGIN S.A.P. 199-121-001  
 MSAS 121 (BUNKER LAKE BLVD)  
 STA 479+27.33

MATCHLINE - CSAH 116 WB STA. 477+00

MATCHLINE - CSAH 116 WB STA. 490+00

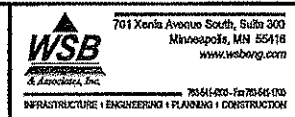
| LEGEND |                              |
|--------|------------------------------|
| (5XXX) | PROPOSED STRUCTURE NUMBER    |
| ■      | PROPOSED CATCH BASIN         |
| □ CB   | INPLACE CATCH BASIN          |
| ●      | PROPOSED MANHOLE             |
| ○ MH   | INPLACE MANHOLE              |
| ▼      | PROPOSED APRON               |
| ▷      | INPLACE APRON                |
| — V —  | PROPOSED STORM SEWER/CULVERT |
| — V —  | INPLACE STORM SEWER          |
| ⊙      | RIPRAP                       |
| ↑      | SURFACE FLOW DIRECTION       |
| ▨      | PROPOSED DITCH BLOCK         |

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



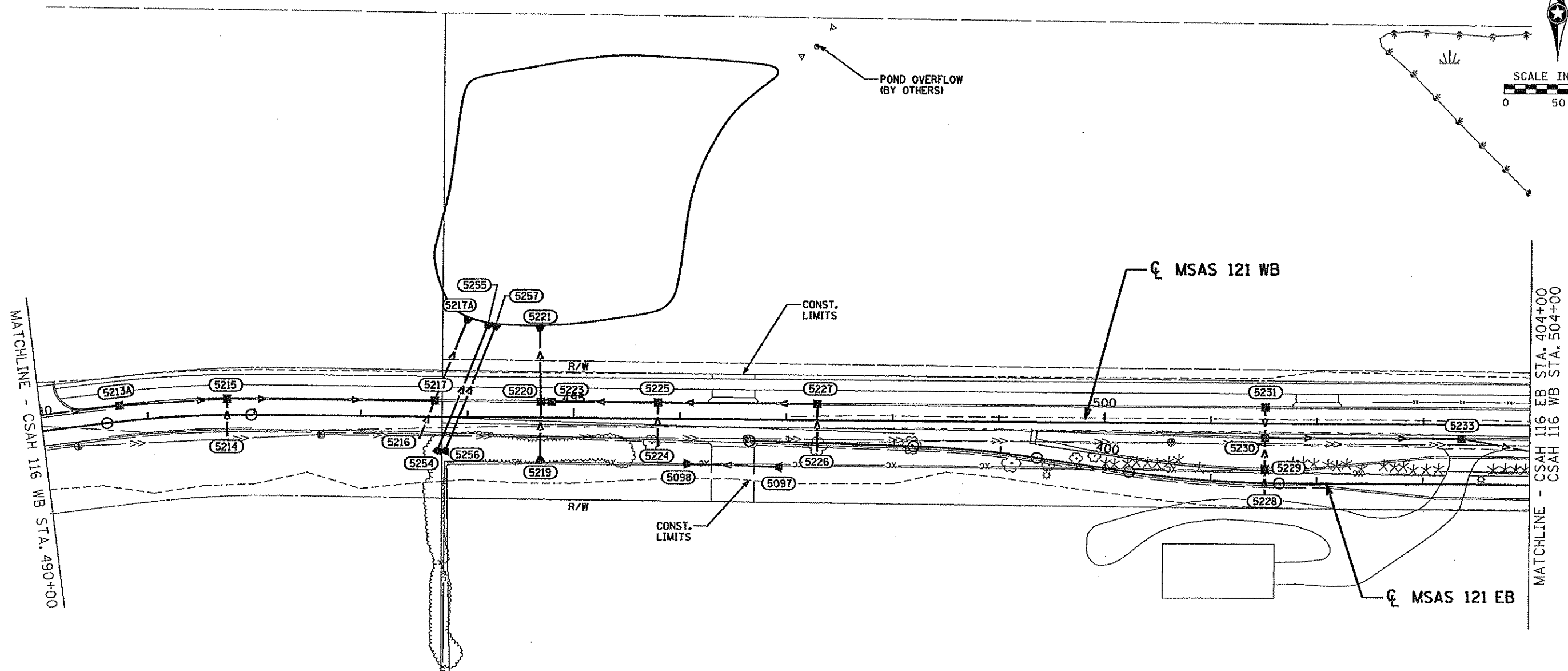
CSAH 116 WB STA. 477+00 TO WB STA. 490+00.00  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 6 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 98 OF 249 SHEETS



SCALE IN FEET  
0 50 100

POND OVERFLOW  
(BY OTHERS)



MATCHLINE - CSAH 116 WB STA. 490+00

MATCHLINE - CSAH 116 EB STA. 404+00  
CSAH 116 WB STA. 504+00

**LEGEND**

- (SXXX) PROPOSED STRUCTURE NUMBER
- PROPOSED CATCH BASIN
- CB INPLACE CATCH BASIN
- PROPOSED MANHOLE
- MH INPLACE MANHOLE
- ▽ PROPOSED APRON
- ▽ INPLACE APRON
- ▽ — PROPOSED STORM SEWER/CULVERT
- ▽ — INPLACE STORM SEWER
- ⊙ RIPRAP
- ↑ SURFACE FLOW DIRECTION
- ▨ PROPOSED DITCH BLOCK

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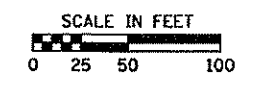
Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A FLOWMAN  
Approved By: J HALE  
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Licensed Professional Engineer, Jope Huls P.E.  
DATE: 04/28/11 LIC NO: 42054

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

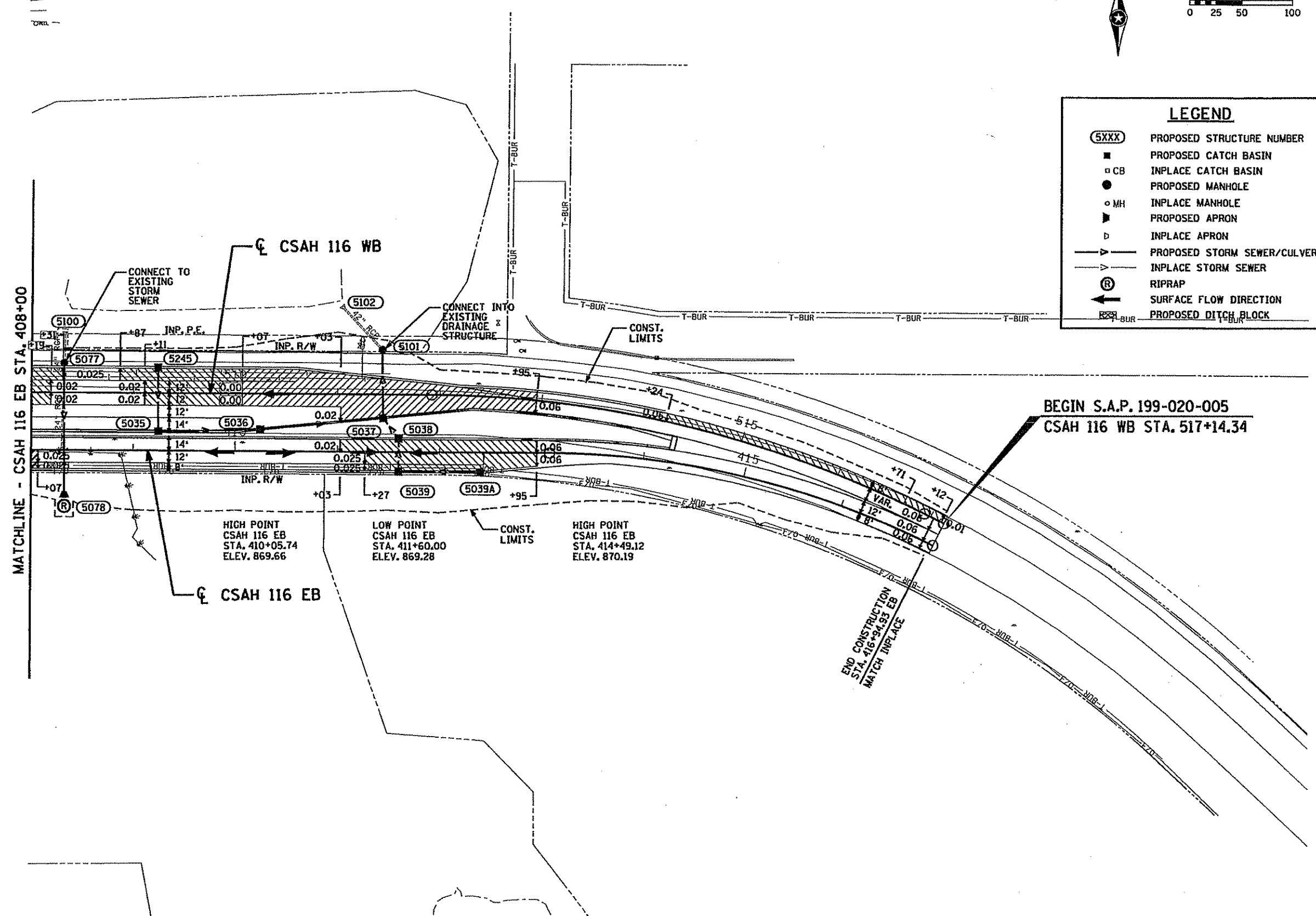


CSAH 116 WB STA. 490+00 TO WB STA. 504+00  
**DRAINAGE & SUPERELEVATION PLAN**  
SHEET 7 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 99 OF 249 SHEETS



| LEGEND  |                              |
|---------|------------------------------|
| (5XXX)  | PROPOSED STRUCTURE NUMBER    |
| ■       | PROPOSED CATCH BASIN         |
| □ CB    | INPLACE CATCH BASIN          |
| ●       | PROPOSED MANHOLE             |
| ○ MH    | INPLACE MANHOLE              |
| ▼       | PROPOSED APRON               |
| ▷       | INPLACE APRON                |
| —▼—     | PROPOSED STORM SEWER/CULVERT |
| —▷—     | INPLACE STORM SEWER          |
| ⊙       | RIPRAP                       |
| ←       | SURFACE FLOW DIRECTION       |
| —T-BUR— | PROPOSED DITCH BLOCK         |



BEGIN S.A.P. 199-020-005  
CSAH 116 WB STA. 517+14.34

MATCHLINE - CSAH 116 EB STA. 408+00

END CONSTRUCTION  
STA. 416+94.93 EB  
MATCH INPLACE

HIGH POINT  
CSAH 116 EB  
STA. 410+05.74  
ELEV. 869.66

LOW POINT  
CSAH 116 EB  
STA. 411+60.00  
ELEV. 869.28

HIGH POINT  
CSAH 116 EB  
STA. 414+49.12  
ELEV. 870.19

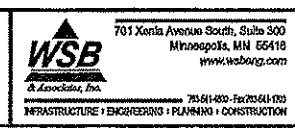
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

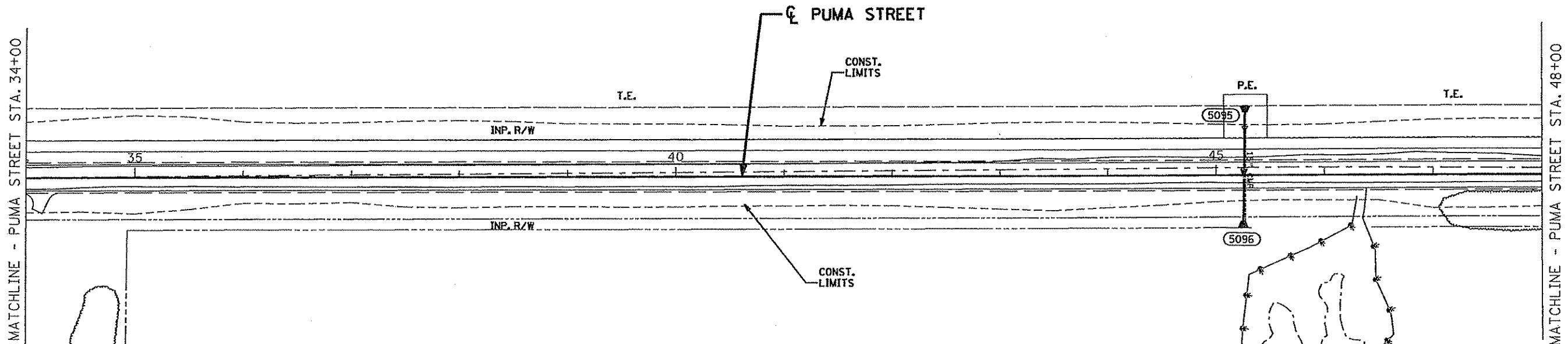
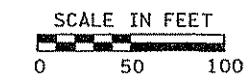
DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 EB STA. 408+00 TO STA. 417+00  
DRAINAGE & SUPERELEVATION PLAN  
SHEET 4 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 100 OF 249 SHEETS



| LEGEND |                              |
|--------|------------------------------|
| (5XXX) | PROPOSED STRUCTURE NUMBER    |
| ■      | PROPOSED CATCH BASIN         |
| □ CB   | INPLACE CATCH BASIN          |
| ●      | PROPOSED MANHOLE             |
| ○ MH   | INPLACE MANHOLE              |
| ▼      | PROPOSED APRON               |
| ▽      | INPLACE APRON                |
| — V —  | PROPOSED STORM SEWER/CULVERT |
| — V —  | INPLACE STORM SEWER          |
| Ⓜ      | RIPRAP                       |
| ↑      | SURFACE FLOW DIRECTION       |
| ⊠      | PROPOSED DITCH BLOCK         |

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| NO | DATE | BY | CHK | REVISIONS |
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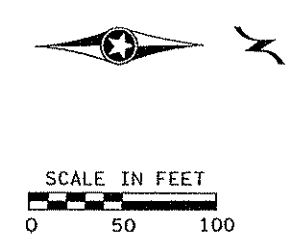
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 License No. 42064  
 DATE: 04/28/11

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 201 Xocla Avenue South, Suite 300  
 Nikosopka, MN 55418  
 www.wsb.org

PUMA ST NB STA. 34+00 TO NB STA. 48+00  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 8 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 101 OF 249 SHEETS



**END CONSTRUCTION**  
**PUMA STREET STA 57+24.86**

MATCHLINE - PUMA STREET STA. 48+00

☉ PUMA STREET  
 CONST. LIMITS

T.E.

INP. R/W

INP. R/W

INP. P.E.

CONST. LIMITS

| LEGEND |                              |
|--------|------------------------------|
| (5XXX) | PROPOSED STRUCTURE NUMBER    |
| ■      | PROPOSED CATCH BASIN         |
| □ CB   | INPLACE CATCH BASIN          |
| ●      | PROPOSED MANHOLE             |
| ○ MH   | INPLACE MANHOLE              |
| ▴      | PROPOSED APRON               |
| D      | INPLACE APRON                |
| — V —  | PROPOSED STORM SEWER/CULVERT |
| — V —  | INPLACE STORM SEWER          |
| Ⓡ      | RIPRAP                       |
| ←      | SURFACE FLOW DIRECTION       |
| ▨      | PROPOSED DITCH BLOCK         |

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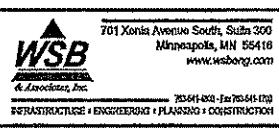
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42084

HEREBY CERTIFY THAT THIS PLAN SHEET 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.

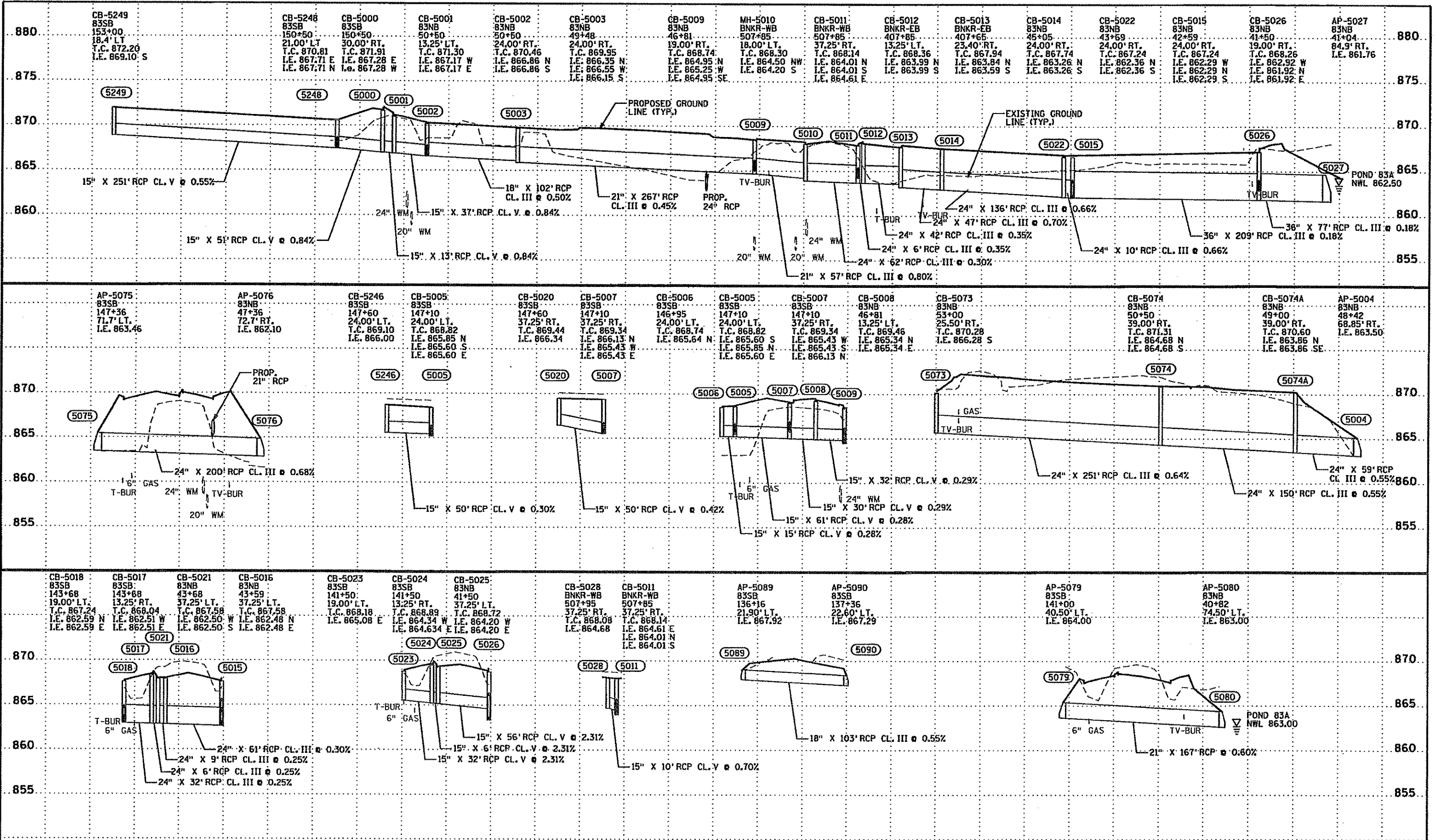
*J. Hale*  
 Licensed Professional Engineer, Jupo Hale P.E.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA ST NB STA. 48+00 TO ALPINE DR  
**DRAINAGE & SUPERELEVATION PLAN**  
 SHEET 9 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 102 OF 249 SHEETS



|   |   |   |  |  |   |  |   |  |  |  |  |  |   |   |   |
|---|---|---|--|--|---|--|---|--|--|--|--|--|---|---|---|
| CB-5249<br>83SB<br>153+00<br>18.4' LT<br>T.C. 872.20<br>I.E. 869.10 S | CB-5248<br>83SB<br>150+50<br>21.00' LT<br>T.C. 870.81<br>I.E. 867.71 E<br>I.E. 867.71 N | CB-5000<br>83SB<br>150+50<br>30.00' RT<br>T.C. 871.91<br>I.E. 867.28 E<br>I.E. 867.28 W | CB-5001<br>83NB<br>50+50<br>13.25' LT<br>T.C. 871.30<br>I.E. 867.17 W<br>I.E. 867.17 E | CB-5002<br>83NB<br>50+50<br>24.00' RT<br>T.C. 870.46<br>I.E. 866.86 N<br>I.E. 866.86 S | CB-5003<br>83NB<br>49+48<br>24.00' RT<br>T.C. 869.95<br>I.E. 866.35 N<br>I.E. 866.55 W<br>I.E. 866.15 S | CB-5009<br>83NB<br>46+81<br>19.00' RT<br>T.C. 868.74<br>I.E. 864.95 N<br>I.E. 865.25 W<br>I.E. 864.95 SE | MH-5010<br>BNKR-WB<br>507+85<br>18.00' LT<br>T.C. 868.30<br>I.E. 864.50 NW<br>I.E. 864.20 S | CB-5011<br>BNKR-WB<br>507+85<br>37.25' RT<br>T.C. 868.14<br>I.E. 864.01 N<br>I.E. 864.61 E | CB-5012<br>BNKR-EB<br>407+85<br>13.25' LT<br>T.C. 868.36<br>I.E. 863.99 N<br>I.E. 863.99 S | CB-5013<br>BNKR-EB<br>407+65<br>23.40' RT<br>T.C. 867.94<br>I.E. 863.84 N<br>I.E. 863.59 S | CB-5014<br>83NB<br>45+05<br>24.00' RT<br>T.C. 867.74<br>I.E. 863.26 N<br>I.E. 863.26 S | CB-5022<br>83NB<br>43+69<br>24.00' RT<br>T.C. 867.24<br>I.E. 862.36 N<br>I.E. 862.36 S | CB-5015<br>83NB<br>42+59<br>24.00' RT<br>T.C. 867.24<br>I.E. 862.29 W<br>I.E. 862.29 N<br>I.E. 862.29 S | CB-5026<br>83NB<br>41+50<br>19.00' RT<br>T.C. 868.26<br>I.E. 862.92 W<br>I.E. 861.92 N<br>I.E. 861.92 E | AP-5027<br>83NB<br>41+04<br>84.9' RT<br>I.E. 861.76 |
|---|---|---|--|--|---|--|---|--|--|--|--|--|---|---|---|

|  |   |  |  |  |  |  |  |  |  |   |  |  |  |
|--|---|--|--|--|--|--|--|--|--|---|--|--|--|
| AP-5075<br>83SB<br>147+36<br>71.7' LT<br>I.E. 863.46 | AP-5076<br>83NB<br>47+36<br>72.7' RT<br>I.E. 862.10 | CB-5246<br>83SB<br>147+60<br>24.00' LT<br>T.C. 869.10<br>I.E. 866.00 | CB-5005<br>83SB<br>147+10<br>24.00' LT<br>T.C. 868.82<br>I.E. 865.85 N<br>I.E. 865.60 S<br>I.E. 865.60 E | CB-5020<br>83SB<br>147+60<br>37.25' RT<br>T.C. 869.44<br>I.E. 866.34 | CB-5007<br>83SB<br>147+10<br>37.25' RT<br>T.C. 869.34<br>I.E. 865.13 N<br>I.E. 865.43 W<br>I.E. 865.43 E | CB-5006<br>83SB<br>146+95<br>24.00' LT<br>T.C. 868.74<br>I.E. 865.64 N<br>I.E. 865.85 N<br>I.E. 865.60 E | CB-5005<br>83SB<br>147+10<br>24.00' LT<br>T.C. 868.82<br>I.E. 865.60 S<br>I.E. 865.85 N<br>I.E. 865.60 E | CB-5007<br>83SB<br>147+10<br>37.25' RT<br>T.C. 869.34<br>I.E. 865.43 W<br>I.E. 865.43 S<br>I.E. 866.13 N | CB-5008<br>83NB<br>46+81<br>46+81<br>T.C. 869.46<br>I.E. 865.34 N<br>I.E. 865.34 E | CB-5073<br>83NB<br>53+00<br>39.00' RT<br>T.C. 870.28<br>I.E. 866.28 S | CB-5074<br>83NB<br>50+50<br>39.00' RT<br>T.C. 871.31<br>I.E. 864.68 N<br>I.E. 864.68 S | CB-5074A<br>83NB<br>49+00<br>39.00' RT<br>T.C. 870.60<br>I.E. 863.86 N<br>I.E. 863.86 SE | AP-5004<br>83NB<br>48+42<br>68.85' RT<br>I.E. 863.50 |
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|   |   |  |  |  |  |   |   |   |   |   |   |  |
|---|---|--|--|--|--|---|---|---|---|---|---|--|
| CB-5018<br>83SB<br>143+68<br>19.00' LT<br>T.C. 867.24<br>I.E. 862.59 N<br>I.E. 862.59 E | CB-5017<br>83SB<br>143+68<br>13.25' RT<br>T.C. 868.04<br>I.E. 862.51 W<br>I.E. 862.51 E | CB-5021<br>83NB<br>43+68<br>37.25' LT<br>T.C. 867.58<br>I.E. 862.50 W<br>I.E. 862.50 S | CB-5016<br>83NB<br>43+59<br>37.25' LT<br>T.C. 867.58<br>I.E. 862.48 N<br>I.E. 862.48 E | CB-5023<br>83SB<br>141+50<br>19.00' LT<br>T.C. 868.18<br>I.E. 865.08 E | CB-5024<br>83SB<br>141+50<br>13.25' RT<br>T.C. 868.89<br>I.E. 864.34 W<br>I.E. 864.634 E | CB-5025<br>83NB<br>41+50<br>37.25' LT<br>T.C. 868.72<br>I.E. 864.20 W | CB-5028<br>BNKR-WB<br>507+95<br>37.25' RT<br>T.C. 868.08<br>I.E. 864.68 | CB-5011<br>BNKR-WB<br>507+85<br>37.25' RT<br>T.C. 868.14<br>I.E. 864.61 E<br>I.E. 864.01 N<br>I.E. 864.01 S | AP-5089<br>83SB<br>136+16<br>21.90' LT<br>I.E. 867.92 | AP-5090<br>83SB<br>137+36<br>22.60' LT<br>I.E. 867.29 | AP-5079<br>83SB<br>141+00<br>40.50' LT<br>I.E. 864.00 | AP-5080<br>83NB<br>40+82<br>74.50' LT<br>I.E. 863.00 |
|---|---|--|--|--|--|---|---|---|---|---|---|--|

NOTE:  
PIPE LENGTHS IN PROFILES DO NOT  
INCLUDE APRON LENGTH.

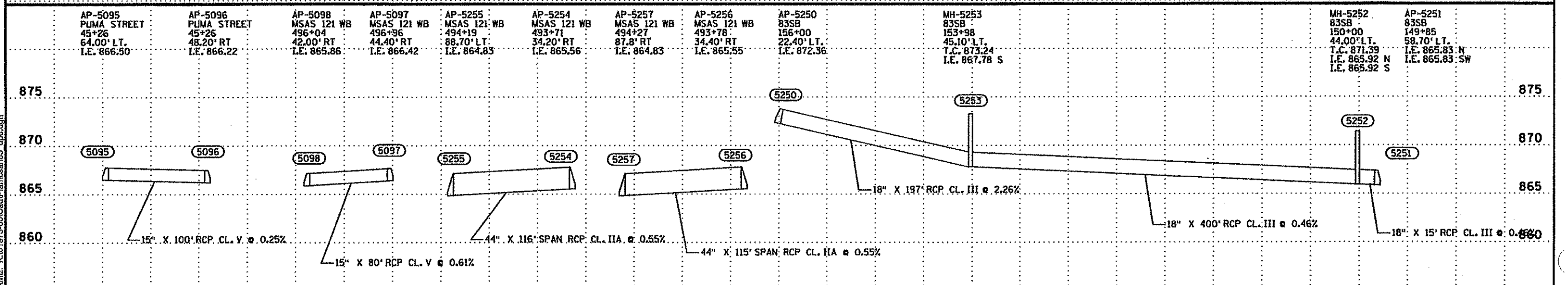
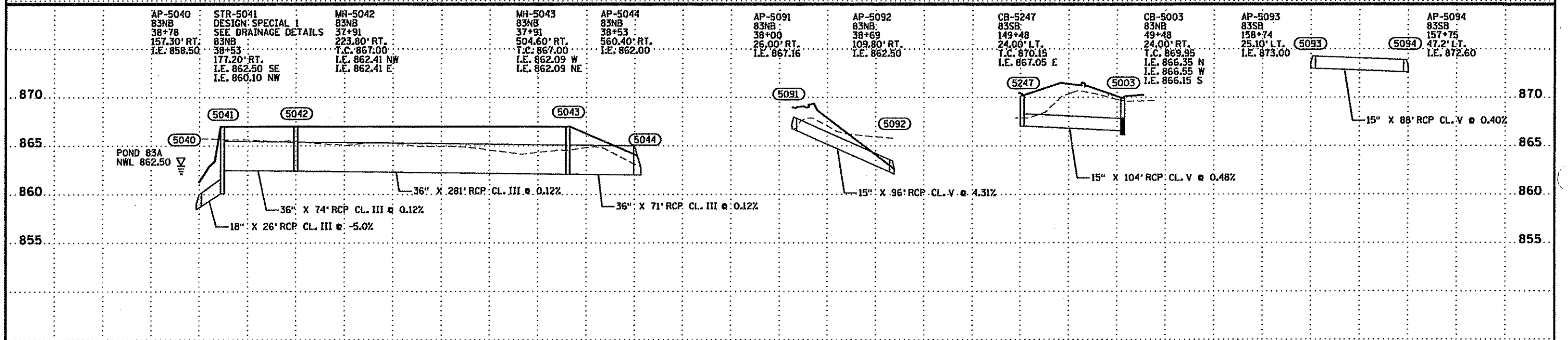
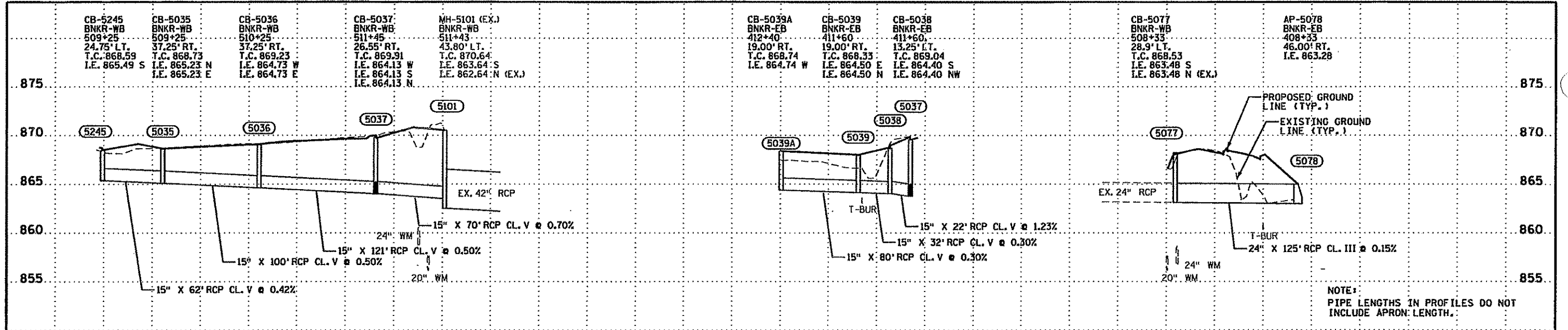
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| Drawn By: C KOCHMAN    | I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.<br> |
| Designed By: N HENTGES |  |
| Checked By: A PLOWMAN  |  |
| Approved By: J HALE    |  |
| DATE: 04/28/11         | LIC NO: 42084  |

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| <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55415<br>www.wsbeng.com<br><small>76441-200-1x70-41-100<br/>REINFRASTRUCTURE   ENGINEERING   PLANNING   CONSTRUCTION</small> | <b>DRAINAGE PROFILES</b><br>SHEET 1 OF 4 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>103<br>OF<br>249<br>SHEETS |
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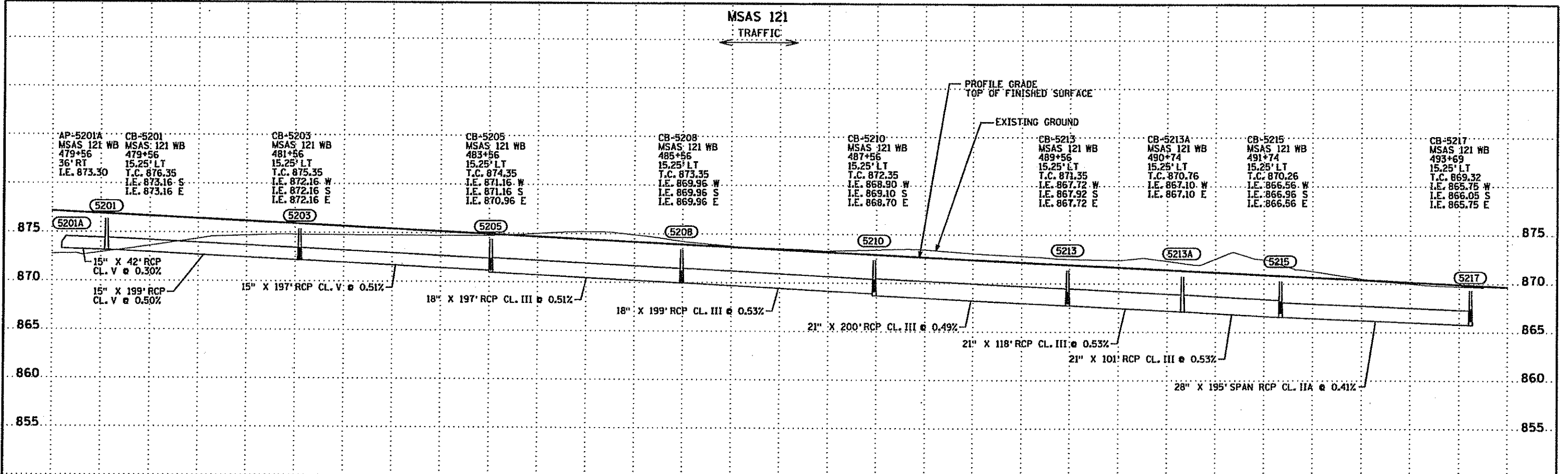
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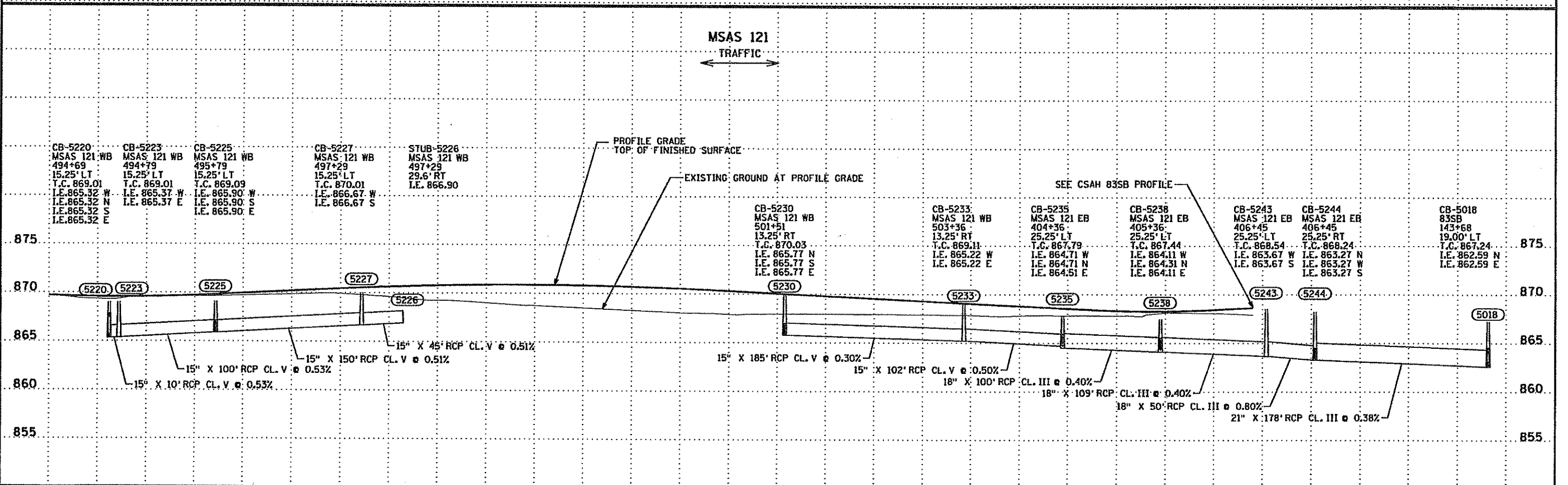
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| Drawn By: C KOCHMAN<br>Designed By: N HENTGES<br>Checked By: A FLOWMAN<br>Approved By: J HALE | I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.<br>Licensed Professional Engineer, Jupa Hala P.E.<br>DATE: 04/28/11 LIC NO: 42064 | <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | 701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsbang.com<br>763.443.7474<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | <b>DRAINAGE PROFILES</b><br>SHEET 2 OF 4 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>104<br>OF<br>249<br>SHEETS |
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MSAS 121  
TRAFFIC



MSAS 121  
TRAFFIC



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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

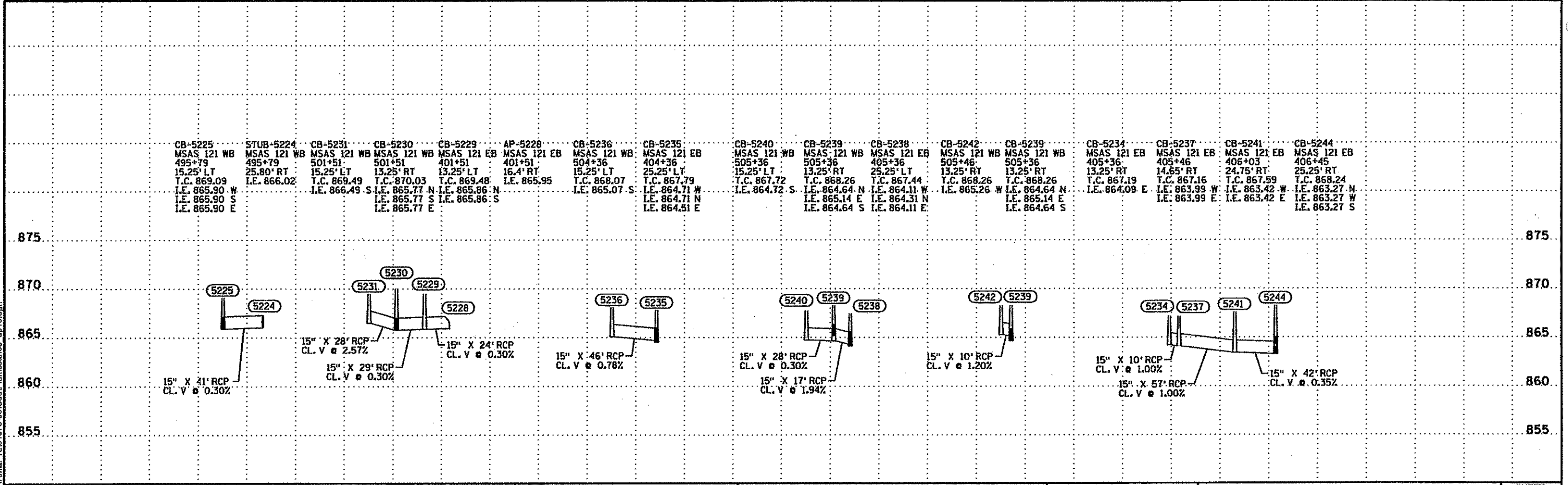
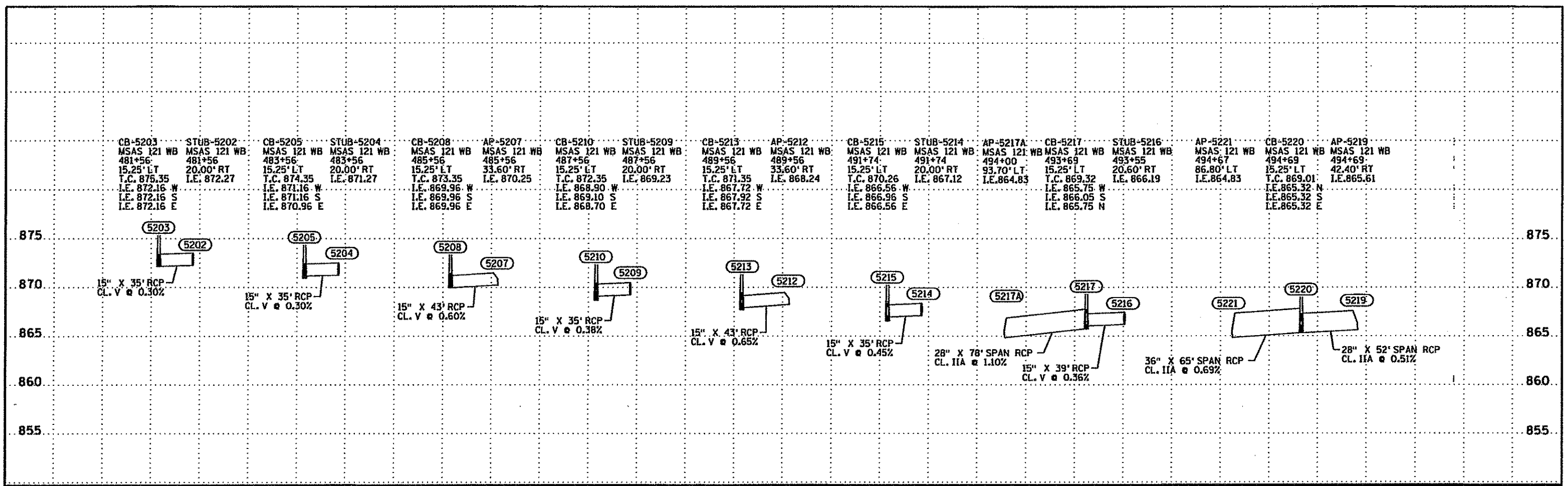


DRAINAGE PROFILES  
 SHEET 3 OF 4 SHEETS

S.A.P. 189-020-005, S.A.P. 189-121-001; C.P. 11-21

SHEET  
 105  
 OF  
 249  
 SHEETS

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| <table border="1"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | NO   | DATE | BY  | CHK       | REVISIONS |  |  |  |  |  | Drawn By: C KOCHMAN<br>Designed By: N HENTGES<br>Checked By: A PLOWMAN<br>Approved By: J HALE | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, June Hala P.E.<br>DATE: 04/28/11 LIC NO: 42084 | <b>CITY OF RAMSEY</b><br><b>CSAH 83/116 &amp; MSAS 121 CONSTRUCTION</b> | <br>701 Xerxes Avenue South, Suite 300<br>Minneapolis, MN 55418<br>www.wsbgroup.com<br>763-441-4000 Fax 763-441-7700<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | <b>DRAINAGE PROFILES</b><br>SHEET 4 OF 4 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>106<br>OF<br>249<br>SHEETS |
|--|------|------|-----|-----------|-----------|--|--|--|--|--|---|---|---|--|---|-------------------------------------|
| NO   | DATE | BY   | CHK | REVISIONS |           |  |  |  |  |  |   |   |   |  |   |                                     |
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STORM SEWER TABULATION

M

| STRUCTURE LOCATION (1) |             |         |           |      | STRUCTURE PAY HEIGHT (3), (4), (11) |                         |        |        |        |         |         | (5)     | CONNECT TO EXISTING STORM SEWER EACH | CONNECT TO EXISTING DRAINAGE STRUCTURE EACH | (2) TOP CASTING ELEV FINISHED | (2) OUTLET ELEVATION BOTTOM | 15" CONCRETE PIPE PLUG | CIRCULAR PIPE (7), (8) |              |                |                |                |                |        |
|------------------------|-------------|---------|-----------|------|-------------------------------------|-------------------------|--------|--------|--------|---------|---------|---------|--------------------------------------|---|-------------------------------|-----------------------------|------------------------|------------------------|--------------|----------------|----------------|----------------|----------------|--------|
| STRUCT. NO.            | ALIGNMENT   | STATION | OFFSET FT | SIDE | SPECIAL 1                           | SPECIAL 2 (2' X 3' BOX) | SD-48  | SD-60  | SD-72  | 48-4020 | 60-4020 | 72-4020 | STEPS REQUIRED                       |   |                               |                             |                        |                        | 15" RCP CL V | 18" RCP CL III | 21" RCP CL III | 24" RCP CL III | 36" RCP CL III |        |
|                        |             |         |           |      | EACH                                | EACH                    | LIN FT | LIN FT | LIN FT | LIN FT  | LIN FT  | LIN FT  |                                      |   |                               |                             |                        |                        | LIN FT       | LIN FT         | LIN FT         | LIN FT         | LIN FT         | LIN FT |
| 5000                   | CSAH 83 SB  | 150+50  | 30        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | C                      | 871.91                 | 867.28       |                |                |                |                |        |
| 5001                   | CSAH 83 NB  | 50+50   | 13.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | C                      | 871.30                 | 867.17       |                |                |                |                |        |
| 5002                   | CSAH 83 NB  | 50+50   | 24        | RT   |                                     |                         | 3.5    |        |        |         |         |         |                                      |   |                               |                             | E                      | 870.46                 | 866.86       |                |                |                |                |        |
| 5003                   | CSAH 83 NB  | 49+48   | 24        | RT   |                                     |                         | 3.7    |        |        |         |         |         |                                      |   |                               |                             | E                      | 869.95                 | 866.15       |                |                |                |                |        |
| 5004                   | CSAH 83 NB  | 48+42   | 68.8      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5005                   | CSAH 83 SB  | 147+10  | 24        | LT   |                                     |                         | 3.1    |        |        |         |         |         |                                      |   |                               |                             | E                      | 868.82                 | 865.60       |                |                |                |                |        |
| 5006                   | CSAH 83 SB  | 146+95  | 24        | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                               |                             | E                      | 868.74                 | 865.64       |                |                |                |                |        |
| 5007                   | CSAH 83 SB  | 147+10  | 37.25     | RT   |                                     |                         | 4.1    |        |        |         |         |         |                                      |   |                               |                             | C                      | 869.34                 | 865.43       |                |                |                |                |        |
| 5008                   | CSAH 83 NB  | 46+81   | 13.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | C                      | 869.46                 | 865.34       |                |                |                |                |        |
| 5009                   | CSAH 83 NB  | 46+81   | 19        | RT   |                                     |                         | 3.7    |        |        |         |         |         |                                      |   |                               |                             | E                      | 868.74                 | 864.95       |                |                |                |                |        |
| 5010                   | CSAH 116 WB | 507+85  | 25        | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | D                      | 868.30                 | 864.20       |                |                |                |                |        |
| 5011                   | CSAH 116 WB | 507+85  | 37.25     | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | C                      | 868.14                 | 864.01       |                |                |                |                |        |
| 5012                   | CSAH 116 EB | 407+85  | 13.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | C                      | 868.36                 | 863.99       |                |                |                |                |        |
| 5013                   | CSAH 116 EB | 407+65  | 23.4      | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | E                      | 867.94                 | 863.59       |                |                |                |                |        |
| 5014                   | CSAH 83 NB  | 45+05   | 24        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | E                      | 867.74                 | 863.26       |                |                |                |                |        |
| 5015                   | CSAH 83 NB  | 43+59   | 24        | RT   |                                     |                         |        |        |        |         |         | 4.9     | Y                                    |   |                               |                             | D                      | 867.24                 | 862.29       |                |                |                |                |        |
| 5016                   | CSAH 83 NB  | 43+59   | 37.25     | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 867.58                 | 862.47       |                |                |                |                |        |
| 5017                   | CSAH 83 SB  | 143+68  | 13.25     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 868.04                 | 862.51       |                |                |                |                |        |
| 5018                   | CSAH 83 SB  | 143+68  | 19        | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | D                      | 867.24                 | 862.59       |                |                |                |                |        |
| 5020                   | CSAH 83 SB  | 147+60  | 37.25     | RT   |                                     |                         | 3.3    |        |        |         |         |         |                                      |   |                               |                             | C                      | 869.44                 | 866.34       |                |                |                |                |        |
| 5021                   | CSAH 83 NB  | 43+68   | 37.25     | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 867.58                 | 862.50       |                |                |                |                |        |
| 5022                   | CSAH 83 NB  | 43+69   | 24        | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | D                      | 867.24                 | 862.36       |                |                |                |                |        |
| 5023                   | CSAH 83 SB  | 141+50  | 19        | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | E                      | 868.18                 | 865.08       |                |                |                |                |        |
| 5024                   | CSAH 83 SB  | 141+50  | 13.25     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 868.89                 | 864.34       |                |                |                |                |        |
| 5025                   | CSAH 83 NB  | 41+50   | 37.25     | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 868.72                 | 864.20       |                |                |                |                |        |
| 5026                   | CSAH 83 NB  | 41+50   | 19        | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | E                      | 868.26                 | 861.91       |                |                |                |                |        |
| 5027                   | CSAH 83 NB  | 41+04   | 84.9      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 77     |
| 5028                   | CSAH 116 WB | 507+95  | 37.25     | RT   |                                     |                         | 3.6    |        |        |         |         |         |                                      |   |                               |                             | C                      | 868.08                 | 864.68       |                |                |                |                |        |
| 5035                   | CSAH 116 WB | 509+25  | 37.25     | RT   |                                     |                         | 3.7    |        |        |         |         |         |                                      |   |                               |                             | C                      | 868.73                 | 865.23       |                |                |                |                |        |
| 5036                   | CSAH 116 WB | 510+25  | 34.79     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 869.28                 | 864.73       |                |                |                |                |        |
| 5037                   | CSAH 116 WB | 511+45  | 22.79     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 870.02                 | 864.13       |                |                |                |                |        |
| 5038                   | CSAH 116 EB | 411+60  | 13.25     | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | C                      | 869.04                 | 864.40       |                |                |                |                |        |
| 5039                   | CSAH 116 EB | 411+60  | 19        | RT   |                                     |                         | 3.7    |        |        |         |         |         |                                      |   |                               |                             | D                      | 868.33                 | 864.50       |                |                |                |                |        |
| 5039A                  | CSAH 116 EB | 412+40  | 19        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | E                      | 868.74                 | 864.74       |                |                |                |                |        |
| 5040                   | CSAH 83 NB  | 38+78   | 157.3     | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5041                   | CSAH 83 NB  | 38+53   | 177.2     | RT   | 1                                   |                         |        |        |        |         |         |         |                                      |   |                               |                             | SPECIAL                | 865.88                 | 862.50       |                |                |                |                | 74     |
| 5042                   | CSAH 83 NB  | 37+91   | 223.8     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | A-7D                   | 867.00                 | 862.41       |                |                |                |                | 281    |
| 5043                   | CSAH 83 NB  | 37+91   | 504.6     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | A-7D                   | 867.00                 | 862.09       |                |                |                |                | 69     |
| 5044                   | CSAH 83 NB  | 38+53   | 560.4     | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5073                   | CSAH 83 NB  | 53+00   | 25.5      | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | M-11                   | 870.28                 | 866.28       |                |                |                |                | 251    |
| 5074                   | CSAH 83 NB  | 50+50   | 39        | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | A-7D                   | 871.31                 | 864.68       |                |                |                |                | 150    |
| 5074A                  | CSAH 83 NB  | 49+00   | 39        | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | A-7D                   | 870.60                 | 863.86       |                |                |                |                | 59     |
| 5077                   | CSAH 116 WB | 508+33  | 28.9      | LT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                               |                             | A-7D                   | 868.53                 | 863.48       |                |                |                |                | 125    |
| 5078                   | CSAH 116 EB | 408+33  | 46        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5100                   | CSAH 116 WB | 508+33  | 59.1      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5101                   | CSAH 116 WB | 511+43  | 43.8      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5102                   | CSAH 116 WB | 511+03  | 86.2      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5201                   | MSAS 121 WB | 479+56  | 15.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             | F                      | 876.35                 | 873.16       |                |                |                |                | 199    |
| 5201A                  | MSAS 121 WB | 479+56  | 36        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 42     |
| 5202                   | MSAS 121 WB | 481+56  | 20        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 35     |
| 5203                   | MSAS 121 WB | 481+56  | 15.25     | LT   |                                     |                         | 3.5    |        |        |         |         |         |                                      |   |                               |                             | F                      | 875.35                 | 872.16       |                |                |                |                | 197    |
| 5204                   | MSAS 121 WB | 483+56  | 20        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 35     |
| 5205                   | MSAS 121 WB | 483+56  | 15.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                |        |
| 5207                   | MSAS 121 WB | 485+56  | 33.6      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 197    |
| 5208                   | MSAS 121 WB | 485+56  | 15.25     | LT   |                                     |                         | 3.7    |        |        |         |         |         |                                      |   |                               |                             | F                      | 873.35                 | 870.25       |                |                |                |                | 43     |
| 5209                   | MSAS 121 WB | 487+56  | 20        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 199    |
| 5210                   | MSAS 121 WB | 487+56  | 15.25     | LT   |                                     |                         | 3.9    |        |        |         |         |         |                                      |   |                               |                             | F                      | 872.35                 | 869.23       |                |                |                |                | 35     |
| 5212                   | MSAS 121 WB | 489+56  | 33.6      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 200    |
| 5213                   | MSAS 121 WB | 489+56  | 15.25     | LT   |                                     |                         | 3.9    |        |        |         |         |         |                                      |   |                               |                             | F                      | 871.35                 | 868.24       |                |                |                |                | 43     |
| 5213A                  | MSAS 121 WB | 490+74  | 15.25     | LT   |                                     |                         | 3.9    |        |        |         |         |         |                                      |   |                               |                             | F                      | 870.76                 | 867.10       |                |                |                |                | 118    |
| 5214                   | MSAS 121 WB | 491+74  | 20        | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 101    |
|                        |             |         |           |      |                                     |                         |        |        |        |         |         |         |                                      |   |                               |                             |                        |                        |              |                |                |                |                | 35     |

- NOTES:  
 (1) STATION AND OFFSETS ARE GIVEN TO CENTER OF GRATE OR END OF APRON. INVERT ELEVATIONS ARE GIVEN AT CENTER OF STRUCTURE OR END OF APRON.  
 (2) TOP OF CASTING ELEVATIONS ARE TO CENTER OF GRATE  
 (3) PAY HEIGHTS ARE FROM BOTTOM OF STRUCTURE TO INVERT PLUS 0.7'  
 (4) TYPE SD AND 4020 STRUCTURES WITH TYPE C, D, OR E CASTINGS REQUIRE 4022 TOP SLABS.  
 (5) IF STEPS ARE REQUIRED, STRUCTURE TO INCLUDE MANHOLE STEPS 16" ON CENTER. SEE MN/DOT STANDARD PLATE 4180.  
 (6) POND OUTLET CONTROL STRUCTURE. SEE SHEET 112 FOR DETAIL.  
 (7) CLASS C BEDDING TO BE USED FOR RC PIPE UNLESS OTHERWISE NOTED.  
 (8) LENGTH GIVEN TO CENTER OF STRUCTURE OR END OF BARREL. (DOES NOT INCLUDE APRON LENGTH).  
 (9) GRANULAR FILTER BLANKET OR GEOTEXTILE FILTER MATERIAL REQUIRED SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3133.  
 (10) TIE LAST THREE JOINTS AT APRON END. FURNISHING AND INSTALLING PIPE TIES SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3145.  
 (11) SEE SHEET 41 FOR TOP SLAB DETAIL FOR SD AND 4020 STRUCTURES THAT USE TYPE C, D, OR E CASTINGS.  
 (12) CLASS II RIPRAP FOR POND 83A EMERGENCY SPILLWAY. SEE SHEET 160 FOR DETAIL.  
 (13) SEE MNDOT STANDARD PLATE 3022 FOR 15" RC SAFETY APRON DETAILS.

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

HEREBY CERTIFY THAT THIS PLAN SHEET 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.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
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 www.wsbcorp.com

**DRAINAGE TABULATION**  
 SHEET 1 OF 5 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 107 OF 249 SHEETS

STORM SEWER TABULATION

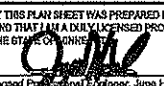
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| STRUCT. NO. | ARCH PIPE (7), (8)         |                            | CIRCULAR PIPE APRONS (13) |            |                  |            |                  |            |                  |            | ARCH PIPE APRONS       |            |                        |  | DRAINS TO |                  |                  | RIPRAP (9)  |              | NOTES   |
|-------------|----------------------------|----------------------------|---------------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------------|------------|------------------------|--|-----------|------------------|------------------|-------------|--------------|---------|
|             | 28" SPAN RCP CL IIA LIN FT | 36" SPAN RCP CL IIA LIN FT | 15" RCP                   |            | 18" RCP          |            | 24" RCP          |            | 36" RCP          |            | 28" SPAN ARCH DES 3110 |            | 36" SPAN ARCH DES 3110 |  | STRUCT NO | PIPE GRADE FT/FT | INVERT ELEVATION | CL II CU YD | CL III CU YD |         |
|             |                            |                            | SAFETY APRON EACH         | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH       | APRON EACH | TRASH GUARD EACH       |  |           |                  |                  |             |              |         |
| 5000        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5001      | 0.008            | 867.17           |             |              |         |
| 5001        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5002      | 0.008            | 866.86           |             |              |         |
| 5002        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5003      | 0.005            | 866.35           |             |              |         |
| 5003        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5009      | 0.004            | 864.95           |             |              |         |
| 5004        |                            |                            |                           |            |                  |            |                  | 1          | 1                |            |                        |            |                        |  |           |                  |                  | 6.0         |              | (10)    |
| 5005        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5007      | 0.003            | 865.43           |             |              |         |
| 5006        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5005      | 0.003            | 865.60           |             |              |         |
| 5007        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5008      | 0.003            | 865.34           |             |              |         |
| 5008        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5009      | 0.003            | 865.25           |             |              |         |
| 5009        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5010      | 0.008            | 864.50           |             |              |         |
| 5010        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5011      | 0.003            | 864.01           |             |              |         |
| 5011        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5012      | 0.004            | 863.99           |             |              |         |
| 5012        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5013      | 0.004            | 863.84           |             |              |         |
| 5013        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5014      | 0.007            | 863.26           |             |              |         |
| 5014        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5022      | 0.007            | 862.36           |             |              |         |
| 5015        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5026      | 0.002            | 861.91           |             |              |         |
| 5016        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5015      | 0.003            | 862.29           |             |              |         |
| 5017        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5021      | 0.003            | 862.50           |             |              |         |
| 5018        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5017      | 0.003            | 862.51           |             |              |         |
| 5020        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5007      | 0.004            | 866.13           |             |              |         |
| 5021        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5016      | 0.003            | 862.47           |             |              |         |
| 5022        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5015      | 0.007            | 862.29           |             |              |         |
| 5023        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5024      | 0.023            | 864.34           |             |              |         |
| 5024        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5025      | 0.023            | 864.20           |             |              |         |
| 5025        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5026      | 0.023            | 862.91           |             |              |         |
| 5026        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5027      | 0.002            | 861.76           |             |              |         |
| 5027        |                            |                            |                           |            |                  |            |                  |            |                  | 1          | 1                      |            |                        |  |           |                  |                  | 10.0        |              | (10)    |
| 5028        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5011      | 0.007            | 864.61           |             |              |         |
| 5035        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5036      | 0.005            | 864.73           |             |              |         |
| 5036        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5037      | 0.005            | 864.13           |             |              |         |
| 5037        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5101      | 0.007            | 863.64           |             |              |         |
| 5038        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5037      | 0.012            | 864.13           |             |              |         |
| 5039        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5038      | 0.003            | 864.40           |             |              |         |
| 5039A       |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5039      | 0.003            | 864.50           |             |              |         |
| 5040        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5041      | -0.050           | 860.10           |             |              | (10)    |
| 5041        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5042      | 0.001            | 862.41           | 4.2         | 6.3          | (6)(12) |
| 5042        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5043      | 0.001            | 862.09           |             |              |         |
| 5043        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5044      | 0.001            | 862.00           |             |              |         |
| 5044        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  |           |                  |                  | 6.0         |              | (10)    |
| 5073        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5074      | 0.00637          | 864.68           |             |              |         |
| 5074        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5074A     | 0.0055           | 863.86           |             |              |         |
| 5074A       |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5004      | 0.0055           | 863.50           |             |              |         |
| 5077        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5078      | 0.0015           | 863.28           |             |              |         |
| 5078        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  |           |                  |                  | 6.0         |              | (10)    |
| 5100        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5077      | 0.0014           | 863.48           |             |              |         |
| 5101        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5102      |                  | 862.64           |             |              |         |
| 5102        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  |           |                  |                  |             |              |         |
| 5201        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5203      | 0.005            | 872.16           |             |              |         |
| 5201A       |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5201      | 0.00304          | 873.16           |             |              | (10)    |
| 5202        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5203      | 0.003            | 872.16           |             |              |         |
| 5203        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5205      | 0.00508          | 871.16           |             |              |         |
| 5204        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5205      | 0.003            | 871.16           |             |              |         |
| 5205        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5208      | 0.00508          | 869.96           |             |              |         |
| 5207        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5208      | 0.006            | 869.96           |             |              | (10)    |
| 5208        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5210      | 0.00534          | 868.90           |             |              |         |
| 5209        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5210      | 0.00379          | 869.10           |             |              |         |
| 5210        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5213      | 0.00488          | 867.72           |             |              |         |
| 5212        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5213      | 0.0065           | 867.92           |             |              | (10)    |
| 5213        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5213A     | 0.0053           | 867.10           |             |              |         |
| 5213A       |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5215      | 0.0053           | 866.56           |             |              |         |
| 5214        |                            |                            |                           |            |                  |            |                  |            |                  |            |                        |            |                        |  | 5215      | 0.00455          | 866.96           |             |              |         |

- NOTES:
- (1) STATION AND OFFSETS ARE GIVEN TO CENTER OF GRATE OR END OF APRON. INVERT ELEVATIONS ARE GIVEN AT CENTER OF STRUCTURE OR END OF APRON.
  - (2) TOP OF CASTING ELEVATIONS ARE TO CENTER OF GRATE
  - (3) PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT PLUS 0.7'
  - (4) TYPE SD AND 4020 STRUCTURES WITH TYPE C, D, OR E CASTINGS REQUIRE 4022 TOP SLABS.
  - (5) IF STEPS ARE REQUIRED, STRUCTURE TO INCLUDE MANHOLE STEPS 16" ON CENTER. SEE MN/DOT STANDARD PLATE 4180.
  - (6) POND OUTLET CONTROL STRUCTURE. SEE SHEET 112 FOR DETAIL.
  - (7) CLASS C BEDDING TO BE USED FOR RC PIPE UNLESS OTHERWISE NOTED.
  - (8) LENGTH GIVEN TO CENTER OF STRUCTURE OR END OF BARREL. (DOES NOT INCLUDE APRON LENGTH).
  - (9) GRANULAR FILTER BLANKET OR GEOTEXTILE FILTER MATERIAL REQUIRED SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3133.
  - (10) TIE LAST THREE JOINTS AT APRON END. FURNISHING AND INSTALLING PIPE TIES SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3145.
  - (11) SEE SHEET 41 FOR TOP SLAB DETAIL FOR SD AND 4020 STRUCTURES THAT USE TYPE C, D, OR E CASTINGS.
  - (12) CLASS II RIPRAP FOR POND 83A EMERGENCY SPILLWAY. SEE SHEET 160 FOR DETAIL.
  - (13) SEE MNDOT STANDARD PLATE 3022 FOR 15" RC SAFETY APRON DETAILS.

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| Drawn By: C KOCHMAN    | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, State of Minn. P.E. |
| Designed By: N HENTGES |   |
| Checked By: A PLOWMAN  |   |
| Approved By: J HALE    |   |

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| CITY OF RAMSEY<br>CSAH 83/116 & MSAS 121 CONSTRUCTION |  701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55418<br>www.wsbong.com<br>TEL: 612-718-1100<br>FAX: 612-718-1101 |
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| DRAINAGE TABULATION<br>SHEET 2 OF 5 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 |
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| SHEET<br>108<br>OF<br>249<br>SHEETS |
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STORM SEWER TABULATION

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| STRUCTURE LOCATION (1) |             |         |           |      | STRUCTURE PAY HEIGHT (3), (4), (11) |                         |        |        |        |         |         | (5)     | CONNECT TO EXISTING STORM SEWER EACH | CONNECT TO EXISTING DRAINAGE STRUCTURE EACH | CASTING ASSEMBLY | (2) TOP CASTING ELEV FINISHED | OUTLET ELEVATION BOTTOM | 15' CONCRETE PIPE PLUG | CIRCULAR PIPE (7), (8) |         |         |         |         |         |  |
|------------------------|-------------|---------|-----------|------|-------------------------------------|-------------------------|--------|--------|--------|---------|---------|---------|--------------------------------------|---|------------------|-------------------------------|-------------------------|------------------------|------------------------|---------|---------|---------|---------|---------|--|
| STRUCT. NO.            | ALIGNMENT   | STATION | OFFSET FT | SIDE | SPECIAL 1                           | SPECIAL 2 (2' X 3' BOX) | SD-48  | SD-60  | SD-72  | 48-4020 | 60-4020 | 72-4020 | STEPS REQUIRED                       |   |                  |                               |                         |                        |                        | 15" RCP | 18" RCP | 21" RCP | 24" RCP | 36" RCP |  |
|                        |             |         |           |      | EACH                                | EACH                    | LIN FT | LIN FT | LIN FT | LIN FT  | LIN FT  | LIN FT  |                                      |   |                  |                               |                         |                        |                        | CL V    | CL III  | CL III  | CL III  | CL III  |  |
| 5215                   | MSAS 121 WB | 491+74  | 15.25     | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  | F                             | 870.26                  | 866.56                 |                        |         |         |         |         |         |  |
| 5216                   | MSAS 121 WB | 493+55  | 20.6      | RT   |                                     |                         |        | 4.0    |        |         |         |         |                                      |   |                  |                               |                         | 866.19                 | 1                      | 39      |         |         |         |         |  |
| 5217                   | MSAS 121 WB | 493+69  | 15.25     | LT   |                                     |                         |        |        | 3.8    |         |         |         |                                      |   |                  | F                             | 869.32                  | 865.75                 |                        |         |         |         |         |         |  |
| 5217A                  | MSAS 121 WB | 494+00  | 93.7      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 864.83                 |                        |         |         |         |         |         |  |
| 5219                   | MSAS 121 WB | 494+69  | 42.4      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 865.61                 |                        |         |         |         |         |         |  |
| 5220                   | MSAS 121 WB | 494+69  | 15.25     | LT   |                                     |                         |        |        | 4.0    |         |         |         |                                      |   |                  | F                             | 869.01                  | 865.32                 |                        |         |         |         |         |         |  |
| 5221                   | MSAS 121 WB | 494+67  | 86.8      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 864.83                 |                        |         |         |         |         |         |  |
| 5223                   | MSAS 121 WB | 494+79  | 15.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | F                             | 869.01                  | 865.37                 |                        | 10      |         |         |         |         |  |
| 5224                   | MSAS 121 WB | 495+79  | 25.8      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 866.02                 | 1                      | 41      |         |         |         |         |  |
| 5225                   | MSAS 121 WB | 495+79  | 15.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | F                             | 869.09                  | 865.90                 |                        | 100     |         |         |         |         |  |
| 5226                   | MSAS 121 WB | 497+29  | 29.6      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 866.90                 | 1                      | 45      |         |         |         |         |  |
| 5227                   | MSAS 121 WB | 497+29  | 15.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | F                             | 870.01                  | 866.67                 |                        | 150     |         |         |         |         |  |
| 5228                   | MSAS 121 EB | 401+51  | 16.4      | RT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 865.95                 |                        | 24      |         |         |         |         |  |
| 5229                   | MSAS 121 EB | 401+51  | 13.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | C                             | 869.48                  | 865.86                 |                        | 29      |         |         |         |         |  |
| 5230                   | MSAS 121 WB | 501+51  | 13.25     | RT   |                                     |                         |        |        |        |         |         |         | Y                                    |   |                  | C                             | 870.03                  | 865.77                 |                        | 185     |         |         |         |         |  |
| 5231                   | MSAS 121 WB | 501+51  | 15.25     | LT   |                                     | 1                       |        |        |        | 4.5     |         |         |                                      |   |                  | E                             | 869.49                  | 866.49                 |                        | 28      |         |         |         |         |  |
| 5233                   | MSAS 121 WB | 503+36  | 13.25     | RT   |                                     |                         | 4.1    |        |        |         |         |         |                                      |   |                  | C                             | 869.11                  | 865.21                 |                        | 102     |         |         |         |         |  |
| 5234                   | MSAS 121 EB | 405+36  | 13.25     | RT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | D                             | 867.19                  | 864.09                 |                        | 10      |         |         |         |         |  |
| 5235                   | MSAS 121 EB | 404+36  | 25.25     | LT   |                                     |                         | 3.5    |        |        |         |         |         |                                      |   |                  | C                             | 867.79                  | 864.50                 |                        |         | 100     |         |         |         |  |
| 5236                   | MSAS 121 WB | 504+36  | 15.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | E                             | 868.07                  | 865.07                 |                        | 46      |         |         |         |         |  |
| 5237                   | MSAS 121 EB | 405+46  | 14.65     | RT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | D                             | 867.16                  | 863.99                 |                        | 57      |         |         |         |         |  |
| 5238                   | MSAS 121 EB | 405+36  | 25.25     | LT   |                                     |                         | 3.6    |        |        |         |         |         |                                      |   |                  | C                             | 867.44                  | 864.10                 |                        |         | 109     |         |         |         |  |
| 5239                   | MSAS 121 WB | 505+36  | 13.25     | RT   |                                     |                         | 3.9    |        |        |         |         |         |                                      |   |                  | C                             | 868.26                  | 864.64                 |                        | 17      |         |         |         |         |  |
| 5240                   | MSAS 121 WB | 505+36  | 15.25     | LT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | E                             | 867.72                  | 864.72                 |                        | 28      |         |         |         |         |  |
| 5241                   | MSAS 121 EB | 406+03  | 24.75     | RT   |                                     |                         |        |        |        | 4.1     |         |         |                                      |   |                  | E                             | 867.59                  | 863.42                 |                        | 42      |         |         |         |         |  |
| 5242                   | MSAS 121 WB | 505+46  | 13.25     | RT   |                                     | 1                       |        |        |        |         |         |         |                                      |   |                  | C                             | 868.26                  | 865.26                 |                        | 10      |         |         |         |         |  |
| 5243                   | MSAS 121 EB | 406+45  | 25.25     | LT   |                                     |                         |        |        |        | 5.0     |         |         | Y                                    |   |                  | A-7D                          | 868.54                  | 863.67                 |                        |         | 50      |         |         |         |  |
| 5244                   | MSAS 121 EB | 406+45  | 25.25     | RT   |                                     |                         |        |        |        | 5.1     |         |         | Y                                    |   |                  | A-7D                          | 868.24                  | 863.27                 |                        |         |         | 178     |         |         |  |
| 5245                   | CSAH 116 WB | 509+25  | 24.75     | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                  | E                             | 868.59                  | 865.49                 |                        | 62      |         |         |         |         |  |
| 5246                   | CSAH 83 SB  | 147+60  | 24        | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                  | E                             | 869.10                  | 866.00                 |                        | 50      |         |         |         |         |  |
| 5247                   | CSAH 83 SB  | 149+48  | 24        | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                  | E                             | 870.15                  | 867.05                 |                        | 104     |         |         |         |         |  |
| 5248                   | CSAH 83 SB  | 150+50  | 21        | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                  | E                             | 870.81                  | 867.71                 |                        | 51      |         |         |         |         |  |
| 5249                   | CSAH 83 SB  | 153+00  | 18.4      | LT   |                                     |                         | 3.0    |        |        |         |         |         |                                      |   |                  | E                             | 872.20                  | 869.10                 |                        | 251     |         |         |         |         |  |
| 5250                   | CSAH 83 SB  | 156+00  | 22.4      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 872.36                 |                        |         |         | 197     |         |         |  |
| 5251                   | CSAH 83 SB  | 149+85  | 58.7      | LT   |                                     |                         |        |        |        |         |         |         |                                      |   |                  |                               |                         | 865.83                 |                        |         |         |         |         |         |  |
| 5252                   | CSAH 83 SB  | 150+00  | 44        | LT   |                                     |                         |        |        |        | 5.6     |         |         | Y                                    |   |                  | A-7D                          | 871.39                  | 865.92                 |                        |         | 15      |         |         |         |  |
| 5253                   | CSAH 83 SB  | 153+98  | 45.1      | LT   |                                     |                         |        |        |        | 5.6     |         |         |                                      |   |                  | A-7D                          | 873.24                  | 867.78                 |                        |         | 400     |         |         |         |  |
| TOTALS                 |             |         |           |      | 1                                   | 11                      | 91.1   | 4.0    | 7.8    | 128.7   | 31.3    | 4.9     |                                      |   | 1                | 1                             |                         |                        | 7                      | 2912    | 1395    | 921     | 996     | 710     |  |

NOTES:

- (1) STATION AND OFFSETS ARE GIVEN TO CENTER OF GRATE OR END OF APRON. INVERT ELEVATIONS ARE GIVEN AT CENTER OF STRUCTURE OR END OF APRON.
- (2) TOP OF CASTING ELEVATIONS ARE TO CENTER OF GRATE
- (3) PAY HEIGHTS ARE FROM BOTTOM OF STRUCTURE TO INVERT PLUS 0.7'
- (4) TYPE SD AND 4020 STRUCTURES WITH TYPE C, D, OR E CASTINGS REQUIRE 4022 TOP SLABS.
- (5) IF STEPS ARE REQUIRED, STRUCTURE TO INCLUDE MANHOLE STEPS 16" ON CENTER. SEE MN/DOT STANDARD PLATE 4180.
- (6) POND OUTLET CONTROL STRUCTURE. SEE SHEET 112 FOR DETAIL.
- (7) CLASS C BEDDING TO BE USED FOR RC PIPE UNLESS OTHERWISE NOTED.
- (8) LENGTH GIVEN TO CENTER OF STRUCTURE OR END OF BARREL. (DOES NOT INCLUDE APRON LENGTH).
- (9) GRANULAR FILTER BLANKET OR GEOTEXTILE FILTER MATERIAL REQUIRED SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3133.
- (10) TIE LAST THREE JOINTS AT APRON END. FURNISHING AND INSTALLING PIPE TIES SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3145.
- (11) SEE SHEET 41 FOR TOP SLAB DETAIL FOR SD AND 4020 STRUCTURES THAT USE TYPE C, D, OR E CASTINGS.
- (12) CLASS II RIPRAP FOR POND 83A EMERGENCY SPILLWAY. SEE SHEET 160 FOR DETAIL.
- (13) SEE MNDOT STANDARD PLATE 3022 FOR 15" RC SAFETY APRON DETAILS.

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, June Hahn P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



DRAINAGE TABULATION  
 SHEET 3 OF 5 SHEETS

SHEET  
 109  
 OF  
 249  
 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

# STORM SEWER TABULATION

M

| STRUCT. NO.   | ARCH PIPE (7), (8)   |                      | CIRCULAR PIPE APRONS (13) |            |                  |            |                  |            |                  |            | ARCH PIPE APRONS       |            |                        |       | DRAINS TO |                  |                  | RIPRAP (9) |         | NOTES |
|---------------|----------------------|----------------------|---------------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------------|------------|------------------------|-------|-----------|------------------|------------------|------------|---------|-------|
|               | 28" SPAN RCP CL. IIA | 36" SPAN RCP CL. IIA | 15" RCP                   |            | 18" RCP          |            | 24" RCP          |            | 36" RCP          |            | 28" SPAN ARCH DES 3110 |            | 36" SPAN ARCH DES 3110 |       | STRUCT NO | PIPE GRADE FT/FT | INVERT ELEVATION | CL. II     | CL. III |       |
|               | LN FT                | LN FT                | SAFETY APRON EACH         | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH | APRON EACH | TRASH GUARD EACH       | APRON EACH | TRASH GUARD EACH       | CU YD |           |                  |                  | CU YD      |         |       |
| 5215          | 195                  |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5217      | 0.00414          | 865.75           |            |         |       |
| 5216          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5217      | 0.00364          | 866.05           |            |         |       |
| 5217          | 78                   |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5217A     | 0.01095          | 864.83           |            |         |       |
| 5218          |                      |                      |                           |            |                  |            |                  |            |                  |            | 1                      | 1          |                        |       |           |                  |                  |            |         | (10)  |
| 5219          | 52                   |                      |                           |            |                  |            |                  |            |                  |            | 1                      | 1          |                        |       | 5220      | 0.00505          | 865.32           |            |         | (10)  |
| 5220          |                      | 65                   |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5221      | 0.0069           | 864.83           |            |         | (10)  |
| 5221          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            | 1                      | 1     |           |                  |                  | 10.0       |         |       |
| 5223          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5220      | 0.00527          | 865.32           |            |         |       |
| 5224          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5225      | 0.003            | 865.90           |            |         |       |
| 5225          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5223      | 0.00527          | 865.37           |            |         |       |
| 5226          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5227      | 0.00514          | 866.67           |            |         |       |
| 5227          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5225      | 0.00514          | 865.90           |            |         |       |
| 5228          |                      |                      | 1                         |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5229      | 0.003            | 865.86           |            |         |       |
| 5229          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5230      | 0.003            | 865.77           |            |         |       |
| 5230          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5233      | 0.003            | 865.21           |            |         |       |
| 5231          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5230      | 0.02571          | 865.77           |            |         |       |
| 5233          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5235      | 0.005            | 864.70           |            |         |       |
| 5234          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5237      | 0.01             | 863.99           |            |         |       |
| 5235          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5238      | 0.004            | 864.10           |            |         |       |
| 5236          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5235      | 0.00783          | 864.71           |            |         |       |
| 5237          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5241-     | 0.01             | 863.42           |            |         |       |
| 5238          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5243      | 0.004            | 863.67           |            |         |       |
| 5239          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5238      | 0.01941          | 864.31           |            |         |       |
| 5240          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5239      | 0.003            | 864.64           |            |         |       |
| 5241          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5244      | 0.0035           | 863.27           |            |         |       |
| 5242          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5239      | 0.012            | 865.14           |            |         |       |
| 5243          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5244      | 0.008            | 863.27           |            |         |       |
| 5244          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5018      | 0.0038           | 862.59           |            |         |       |
| 5245          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5035      | 0.00415          | 865.23           |            |         |       |
| 5246          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5005      | 0.003            | 865.85           |            |         |       |
| 5247          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5003      | 0.00481          | 866.55           |            |         |       |
| 5248          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5000      | 0.0084           | 867.28           |            |         |       |
| 5249          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5248      | 0.00554          | 867.71           |            |         |       |
| 5250          |                      |                      |                           | 1          | 1                |            |                  |            |                  |            |                        |            |                        |       | 5253      | 0.02256          | 867.78           |            |         |       |
| 5251          |                      |                      |                           | 1          |                  |            |                  |            |                  |            |                        |            |                        |       |           |                  |                  | 4.0        |         |       |
| 5252          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5251      | 0.00464          | 865.83           |            |         |       |
| 5253          |                      |                      |                           |            |                  |            |                  |            |                  |            |                        |            |                        |       | 5252      | 0.00464          | 865.92           |            |         |       |
| <b>TOTALS</b> | 325                  | 65                   | 4                         | 3          | 2                | 2          | 1                | 2          | 2                | 2          | 2                      | 1          | 1                      |       |           |                  |                  | 46.2       | 6.3     |       |

- NOTES:**
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  - (13) SEE MNDOT STANDARD PLATE 3022 FOR 15" RC SAFETY APRON DETAILS.

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|--|------|------|-----|-----------|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|---|---|-------------------------------------|
| NO   | DATE | BY   | CHK | REVISIONS |           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |  |   |   |                                     |
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|  |      |      |     |           |           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |  |   |   |                                     |
|  |      |      |     |           |           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |  |   |   |                                     |

### CULVERT TABULATION

N

| APRON LOCATION (1) |             |         |           |      | CIRCULAR PIPE CULVERTS (2), (3) |         |              |                |                | ARCH PIPE (2) (3) | CIRCULAR PIPE APRONS      |                     |               |                      |                      |               | ARCHED PIPE APRONS |             | DRAINS TO              |             |           | RIPRAP (4)       |                  | NOTES |       |       |
|--------------------|-------------|---------|-----------|------|---------------------------------|---------|--------------|----------------|----------------|-------------------|---------------------------|---------------------|---------------|----------------------|----------------------|---------------|--------------------|-------------|------------------------|-------------|-----------|------------------|------------------|-------|-------|-------|
| STRUCT. NO.        | ALIGNMENT   | STATION | OFFSET FT | SIDE | OUTLET ELEVATION BOTTOM         | 15" CSP | 15" RCP CL V | 18" RCP CL III | 21" RCP CL III | 24" RCP CL III    | 44" SPAN RCP CL IIA<br>FT | 15" CS SAFETY APRON | 15" RCP APRON | 15" RCP SAFETY APRON | 18" RCP SAFETY APRON | 21" RCP APRON | 24" RCP            |             | 44" SPAN ARCH DES 3110 |             | STRUCT NO | PIPE GRADE FT/FT | INVERT ELEVATION |       | CL II | CL IV |
|                    |             |         |           |      |                                 | LN FT   | LN FT        | LN FT          | LN FT          | LN FT             |                           | EACH                | EACH          | EACH                 | EACH                 | EACH          | APRON              | TRASH GUARD | APRON                  | TRASH GUARD |           |                  |                  |       | CU YD | CU YD |
| 5075               | CSAH 83 SB  | 147+36  | 71.7      | LT   | 863.46                          |         |              |                |                | 188               |                           |                     |               |                      |                      |               | 1                  | 1           |                        |             | 5076      | 0.007            | 862.10           | 6.0   |       | (5)   |
| 5076               | CSAH 83 NB  | 47+36   | 72.7      | RT   | 862.10                          |         |              |                |                |                   |                           |                     |               |                      |                      |               | 1                  | 1           |                        |             |           |                  |                  |       |       |       |
| 5079               | CSAH 83 SB  | 141+00  | 40.5      | LT   | 864.00                          |         |              |                | 155            |                   |                           |                     |               |                      |                      | 1             |                    |             |                        |             | 5080      | 0.006            | 863.00           | 5.0   |       | (5)   |
| 5080               | CSAH 83 NB  | 40+82   | 74.5      | RT   | 863.00                          |         |              |                |                |                   |                           |                     |               |                      |                      | 1             |                    |             |                        |             |           |                  |                  |       |       |       |
| 5089               | CSAH 83 SB  | 136+16  | 21.9      | LT   | 867.92                          |         |              | 103            |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             | 5090      | 0.006            | 867.29           | 4.0   |       | (5)   |
| 5090               | CSAH 83 SB  | 137+36  | 22.6      | LT   | 867.29                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       |       |
| 5091               | CSAH 83 NB  | 38+00   | 26        | RT   | 867.16                          |         | 96           |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             | 5092      | 0.043            | 862.50           |       | 6.0   | (5)   |
| 5092               | CSAH 83 NB  | 38+69   | 109.8     | RT   | 862.50                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       |       |
| 5095               | PUMA STREET | 45+26   | 64        | LT   | 866.50                          |         | 100          |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             | 5096      | 0.0025           | 866.22           | 3.0   |       | (5)   |
| 5096               | PUMA STREET | 45+26   | 48.2      | RT   | 866.22                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       |       |
| 5097               | MSAS 121 WB | 496+96  | 44.4      | RT   | 866.42                          | 88      |              |                |                |                   |                           | 1                   |               |                      |                      |               |                    |             |                        |             | 5098      | 0.0061           | 865.86           |       |       |       |
| 5098               | MSAS 121 WB | 496+04  | 42        | RT   | 865.86                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       |       |
| 5254               | MSAS 121 WB | 493+71  | 34.2      | RT   | 865.56                          |         |              |                |                |                   | 116                       |                     |               |                      |                      |               |                    |             |                        |             | 5255      | 0.0055           | 864.83           |       |       |       |
| 5255               | MSAS 121 WB | 494+19  | 88.7      | LT   | 864.83                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       | (5)   |
| 5256               | MSAS 121 WB | 493+78  | 34.4      | RT   | 865.55                          |         |              |                |                |                   | 115                       |                     |               |                      |                      |               |                    |             |                        |             | 5257      | 0.0055           | 864.83           | 10.0  |       | (5)   |
| 5257               | MSAS 121 WB | 494+27  | 87.8      | LT   | 864.83                          |         |              |                |                |                   |                           |                     |               |                      |                      |               |                    |             |                        |             |           |                  |                  |       |       | (5)   |
| <b>TOTALS</b>      |             |         |           |      |                                 | 88      | 196          | 103            | 155            | 188               | 231                       | 2                   | 3             | 1                    | 2                    | 2             | 2                  | 2           | 4                      | 4           |           |                  |                  | 38.0  | 6.0   |       |

- NOTES:  
 (1) STATION AND OFFSETS ARE GIVEN TO END OF APRON. INVERT ELEVATIONS ARE GIVEN AT END OF APRON.  
 (2) CLASS C BEDDING TO BE USED FOR RC PIPE UNLESS OTHERWISE NOTED.  
 (3) LENGTH GIVEN TO END OF BARREL. (DOES NOT INCLUDE APRON LENGTH).  
 (4) GRANULAR FILTER BLANKET OR GEOTEXTILE FILTER MATERIAL REQUIRED SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3133.  
 (5) TIE ALL JOINTS. FURNISHING AND INSTALLING PIPE TIES SHALL BE INCIDENTAL. SEE MN/DOT STANDARD PLATE 3145.  
 (6) SEE MN/DOT STANDARD PLATE 3022 FOR RCP SAFETY APRON.

### CASTING TABULATION

0

| ASSEMBLY     | RING OR FRAME  | COVER OR GRATE | CURB BOX | STANDARD PLATE NUMBER | USE | TOTAL     |
|--------------|--|----------------|----------|-----------------------|-----|-----------|
| SPECIAL (1)  | INCLUDED IN PAY ITEM FOR DRAINAGE STRUCTURE DESIGN SPECIAL 1 |                |          |                       |     | 1         |
| C            | SEE CASTING ASSEMBLY TYPE 'C' DETAIL - SHEET 109             |                |          |                       |     | 24        |
| D            | SEE CASTING ASSEMBLY TYPE 'D' DETAIL - SHEET 109             |                |          |                       |     | 7         |
| E            | SEE CASTING ASSEMBLY TYPE 'E' DETAIL - SHEET 109             |                |          |                       |     | 19        |
| F            | SEE CASTING ASSEMBLY TYPE 'E' DETAIL - SHEET 109             |                |          |                       |     | 13        |
| M-11         | ROUND CONC   | 731            |          | 4143<br>4143          |     | 1         |
| A-7D         | 700-7  | 716            |          | 4101<br>4110          |     | 9         |
| <b>TOTAL</b> |  |                |          |                       |     | <b>73</b> |

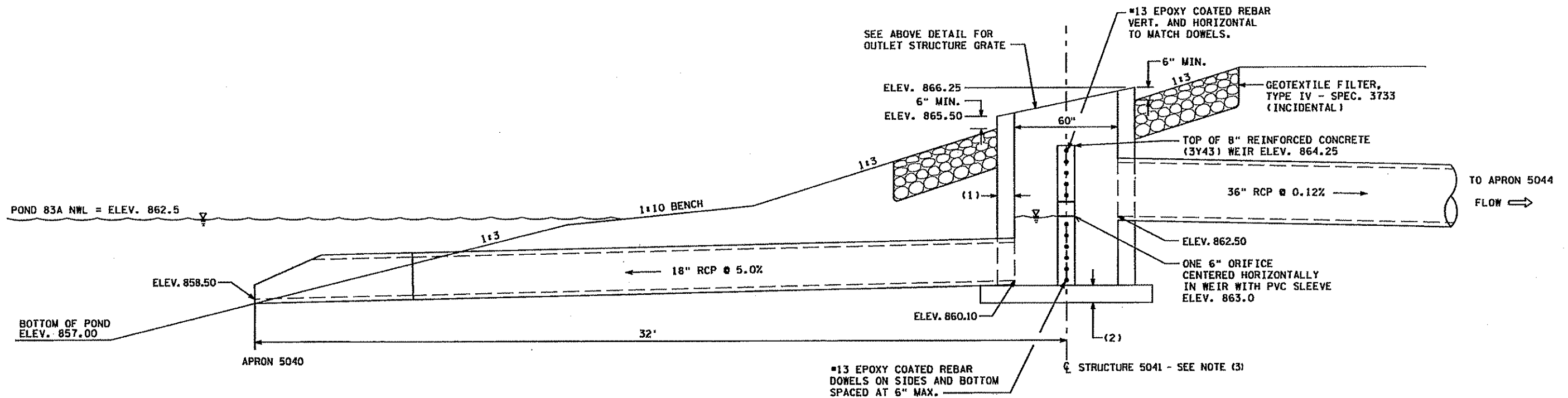
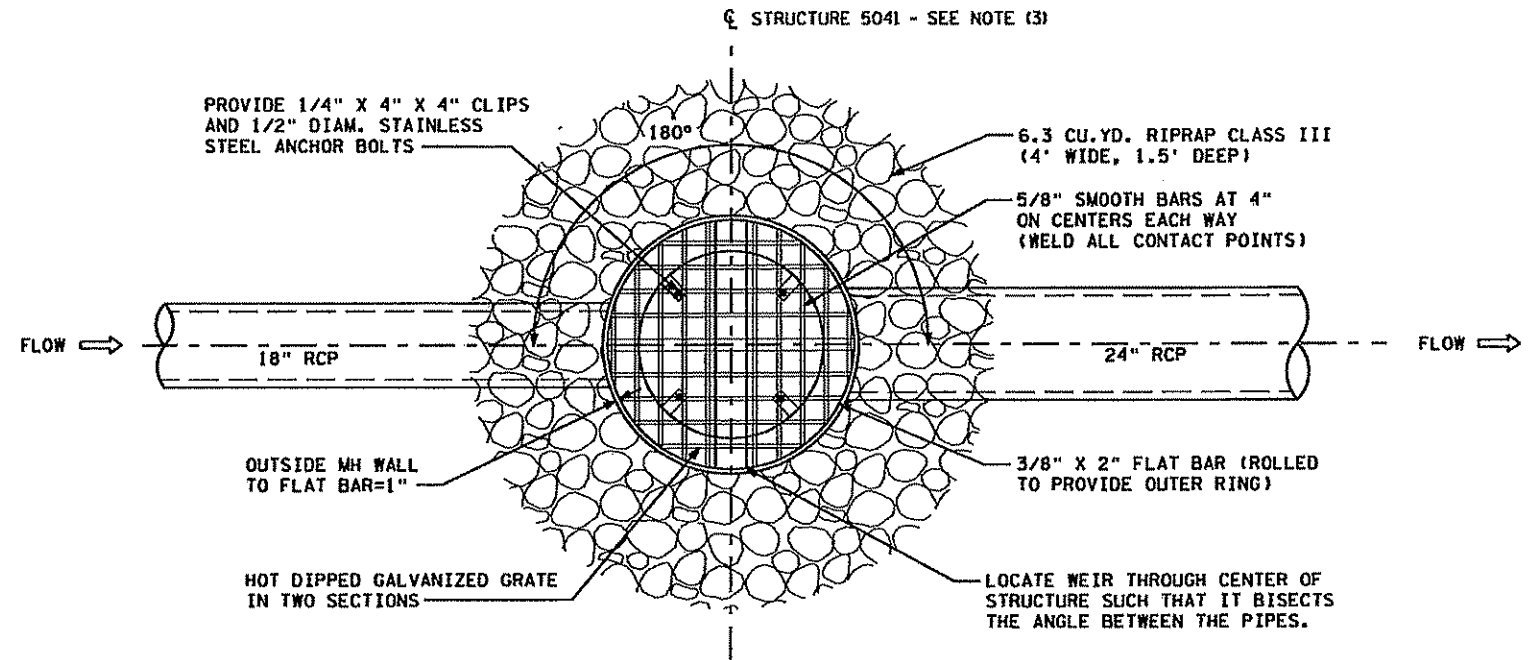
- NOTES:  
 (1) SPECIAL CASTING IS INCLUDED IN THE CONST DRAINAGE STRUCTURE DESIGN SPECIAL 1 PAY ITEM

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| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>NO</th><th>DATE</th><th>BY</th><th>CRK</th><th>REVISIONS</th></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> | NO   | DATE | BY  | CRK       | REVISIONS |  |  |  |  |  | Drawn By: <b>C KOCHMAN</b><br>Designed By: <b>N HENTGES</b><br>Checked By: <b>A PLOWMAN</b><br>Approved By: <b>J HALE</b> | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, Jupo Hala P.E.<br>DATE: 04/28/11 LIC NO: 42064 | <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55418<br>www.wsb.org<br>WSB<br>Infrastructure • Engineering • Planning • Construction | <b>DRAINAGE TABULATIONS</b><br>SHEET 5 OF 5 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>111<br>OF<br>249<br>SHEETS |
|--|------|------|-----|-----------|-----------|--|--|--|--|--|---|---|--|--|--|-------------------------------------|
| NO   | DATE | BY   | CRK | REVISIONS |           |  |  |  |  |  |   |   |  |  |  |                                     |
|  |      |      |     |           |           |  |  |  |  |  |   |   |  |  |  |                                     |

**NOTES:**

- (1) 8" CAST IN PLACE CONCRETE MIX NO. 3Y43. WALL CONSTRUCTION MAY BE CLASS II PRECAST RC PIPE. SEE STD. PLATE 3000.
  - (2) 8" POURED CONCRETE BASE REINFORCEMENT IS 0.12 IN<sup>2</sup>/FT IN EACH DIRECTION. FOR ALTERNATE CONCRETE BASE SEE STANDARD PLATE 4011.
  - (3) PAID FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1. PAY ITEM CONSISTS OF CONCRETE STRUCTURE AND BASE, GRATE, STEPS, AND ALL HARDWARE REQUIRED FOR A COMPLETE INSTALLATION. PAY ITEM DOES NOT INCLUDE INLET AND OUTLET PIPE, APRONS, OR RIPRAP.
1. CONCRETE WEIR MUST BE CONSTRUCTED CONCURRENT WITH THE CONSTRUCTION OF THE OUTLET STRUCTURE.
  2. RIPRAP PLACED AROUND THE PERIMETER OF GRATE MUST BE FLUSH WITH FINISHED SOIL GRADE AS SHOWN IN DETAIL.
  3. SEE DRAINAGE PROFILES AND TABULATIONS FOR STRUCTURE LOCATIONS AND PIPE INFORMATION.



**DRAINAGE STRUCTURE DESIGN SPECIAL 1 - OUTLET STRUCTURE 5041**

NO SCALE

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|---------------------------------|--|
| Drawn By<br><b>C KOCHMAN</b>    | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, State of Minn. P.E.<br>DATE: 04/28/11 LIC NO: 42084 |
| Designed By<br><b>N HENTGES</b> |  |
| Checked By<br><b>A PLOWMAN</b>  |  |
| Approved By<br><b>J HALE</b>    |  |

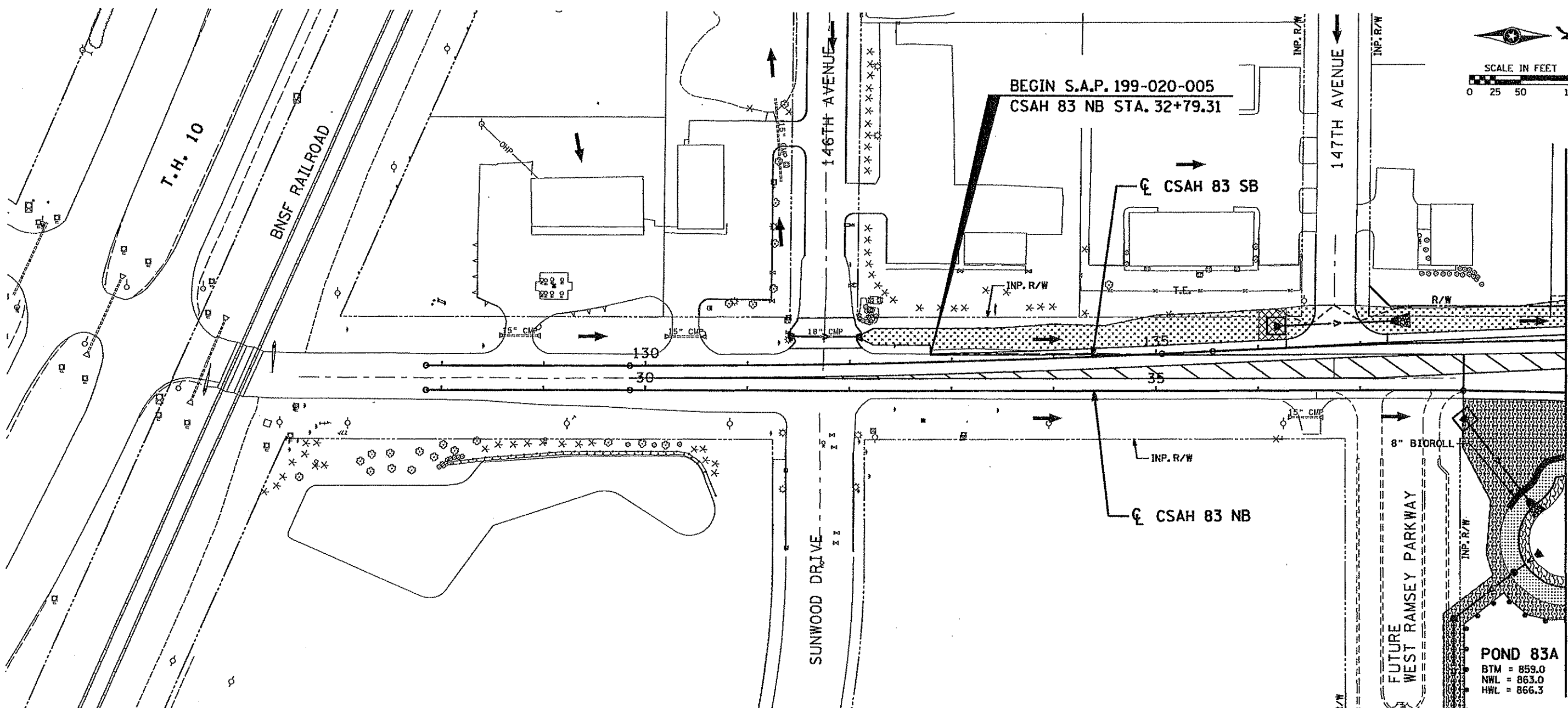
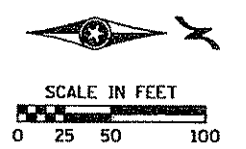
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**DRAINAGE STRUCTURE DESIGN SPECIAL 1**  
**DRAINAGE DETAILS**  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

|        |     |
|--------|-----|
| SHEET  | 112 |
| OF     | 249 |
| SHEETS |     |





| LEGEND |  |
|--------|--|
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)   |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
|        | SEED MIXTURE 260 @ 100 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 350 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)  |
|        | SEED MIXTURE 350 @ 84.5 LBS / AC<br>17-10-7 TYPE 4 FERTILIZER @ 120 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER<br>@ 750 LBS / AC) |
|        | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)   |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS/AC)        |
|        | SILT FENCE (MACHINE SLICED)  |
|        | 8" BIOROLL   |
|        | INLET PROTECTION   |
|        | CULVERT PROTECTION<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)  |
|        | SURFACE FLOW DIRECTION   |
|        | RIPRAP<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)  |

- NOTES**
- 1) SILT FENCE AND INLET PROTECTION SHALL BE INSTALLED PRIOR TO DISTURBING UPGRADIENT SOILS.
  - 2) CONTRACTOR SHALL STABILIZE EXPOSED SOILS WITHIN 14 DAYS (OR SOONER AS DIRECTED BY THE ENGINEER).
  - 3) CONTRACTOR TO PLACE ROCK-CONSTRUCTION ENTRANCE (OR EQUIVALENT) AT ALL VEHICLE ACCESS POINTS OF THE PROJECT.

**POND 83A**  
 BTM = 859.0  
 NWL = 863.0  
 HWL = 866.3

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

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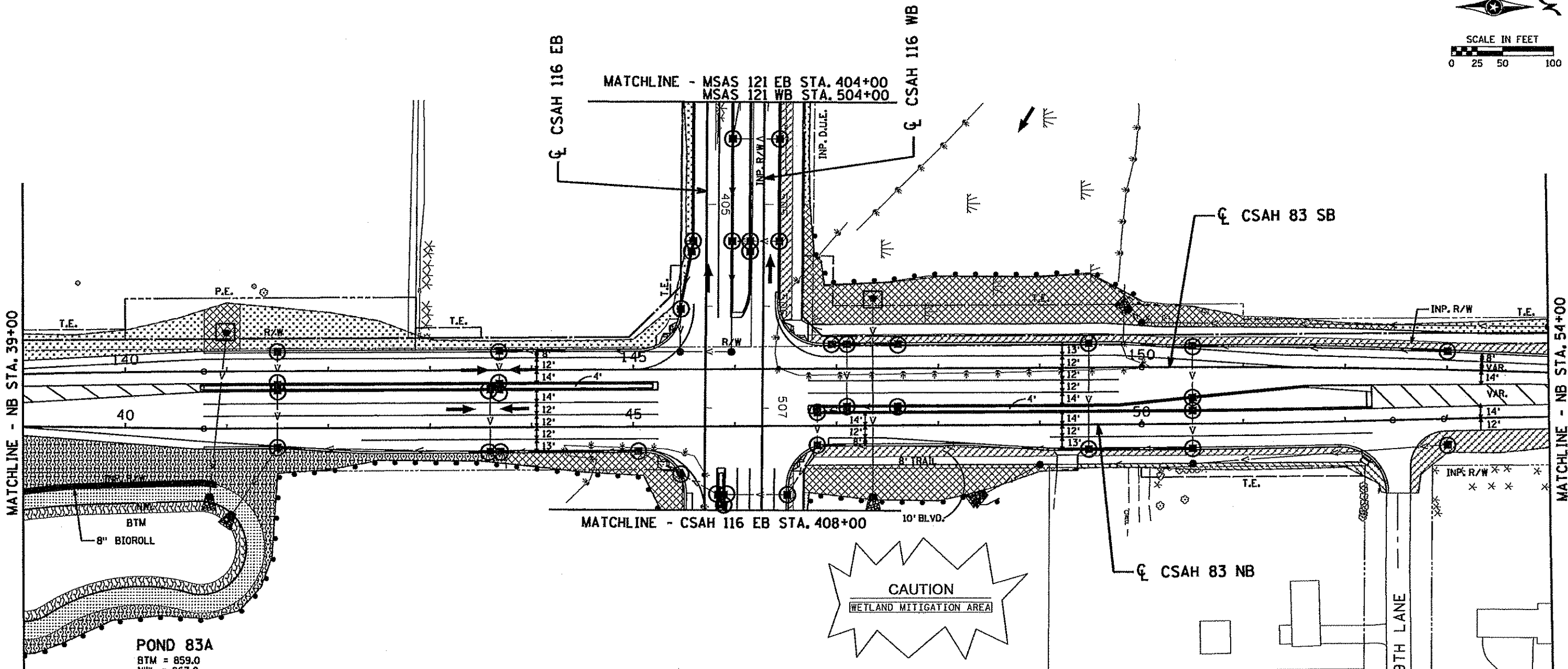
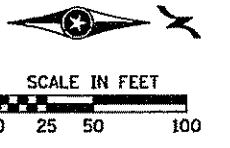
*[Signature]*  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO.: 42064

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 CSAH 83/116 & MSAS 121 CONSTRUCTION

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NB STA. 32+79.31 TO NB STA. 39+00  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 1 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 113  
 OF  
 249  
 SHEETS



**POND 83A**  
 BTM = 859.0  
 NWL = 863.0  
 HWL = 866.3

**CAUTION**  
 WETLAND MITIGATION AREA

| LEGEND |   |
|--------|---|
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)  |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)   |
|        | SEED MIXTURE 260 @ 100 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 350 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)   |
|        | SEED MIXTURE 350 @ 84.5 LBS / AC<br>17-10-7 TYPE 4 FERTILIZER @ 120 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLOGIC SOILS STABILIZER @ 750 LBS / AC) |
|        | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLOGIC SOILS STABILIZER @ 750 LBS / AC)   |
|        | SILT FENCE (MACHINE SLICED)   |
|        | 8" BIOROLL  |
|        | INLET PROTECTION  |
|        | CULVERT PROTECTION<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |
|        | SURFACE FLOW DIRECTION  |
|        | RIPRAP<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |

- NOTES**
- 1) SILT FENCE AND INLET PROTECTION SHALL BE INSTALLED PRIOR TO DISTURBING UPGRADIENT SOILS.
  - 2) CONTRACTOR SHALL STABILIZE EXPOSED SOILS WITHIN 14 DAYS (OR SOONER AS DIRECTED BY THE ENGINEER).
  - 3) CONTRACTOR TO PLACE ROCK-CONSTRUCTION ENTRANCE (OR EQUIVALENT) AT ALL VEHICLE ACCESS POINTS OF THE PROJECT.

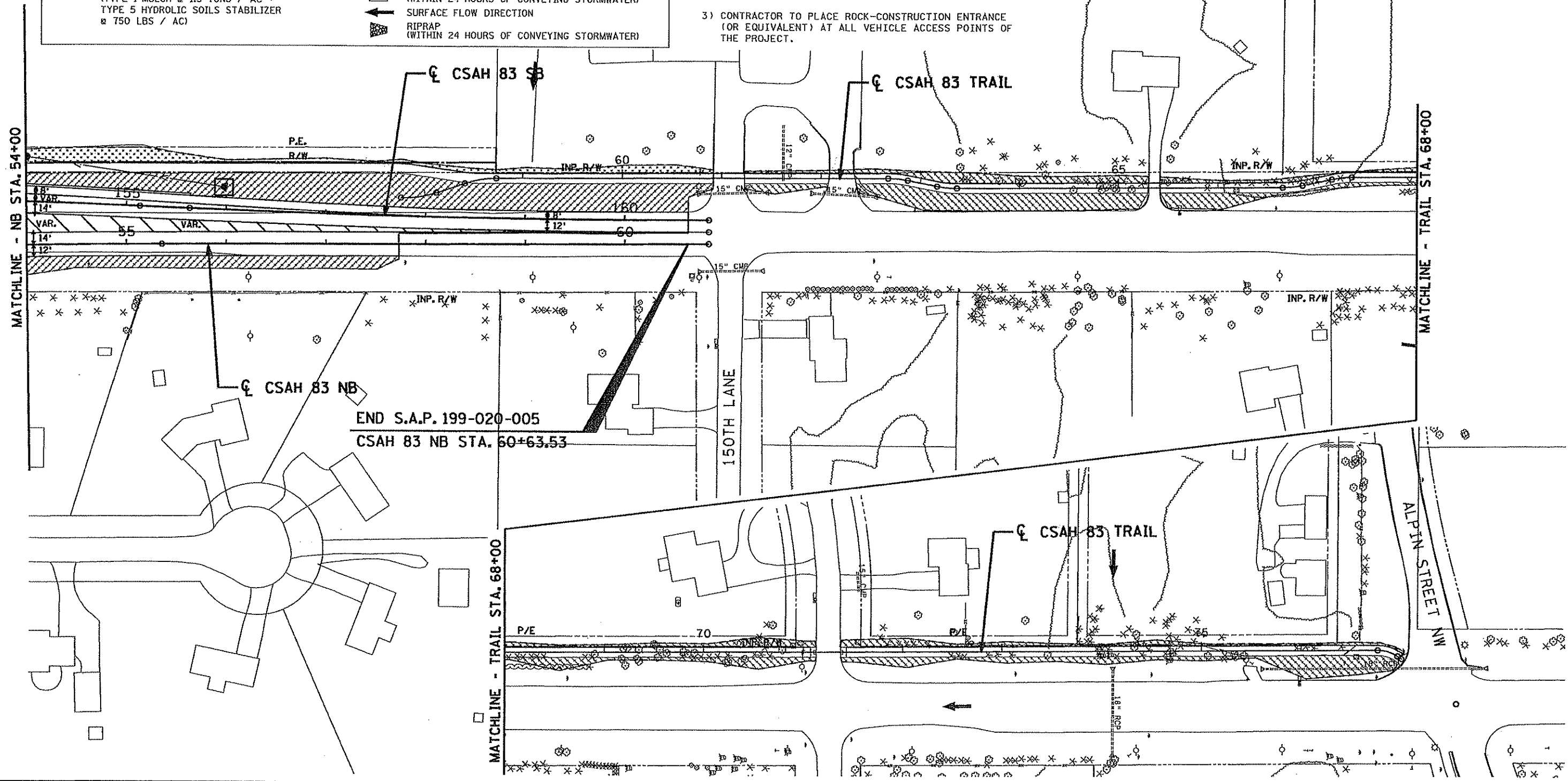
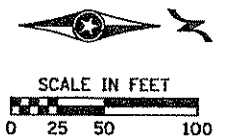
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**LEGEND**

- |  |   |  |   |
|--|---|--|---|
|  | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)  |  | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
|  | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)                 |  | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS/AC) |
|  | SEED MIXTURE 260 @ 100 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 350 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED) |  | 8" BIOROLL  |
|  | INLET PROTECTION  |  | CULVERT PROTECTION<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |
|  | SURFACE FLOW DIRECTION  |  | RIPRAP<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |

**NOTES**

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A FLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

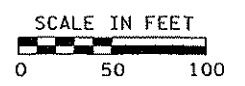
*(Signature)*  
 Licensed Professional Engineer, Alpa Halo P.E.  
 DATE: 04/28/11 LIC NO: 42084

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NB STA. 54+00 TO NB STA. 60+63.53  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 3 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 115 OF 249 SHEETS



MATCHLINE - PUMA STREET STA. 34+00

SHED

HOUSE

MSAS 121 WB

MATCHLINE - MSAS 121 WB STA. 477+00

BEGIN CONSTRUCTION  
MSAS 121 STA 466+37.01

BEGIN CONSTRUCTION  
PUMA STREET STA 30+00.00

| LEGEND |   |
|--------|---|
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)  |
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|        | SEED MIXTURE 350 @ 84.5 LBS / AC<br>17-10-7 TYPE 4 FERTILIZER @ 120 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS / AC) |
|        | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS / AC)   |
|        | 8" BIOROLL  |
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Drawn By: C KOCHMAN  
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Checked By: A PLOWMAN  
Approved By: J HALE

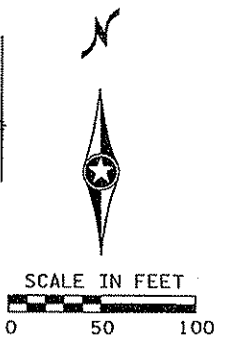
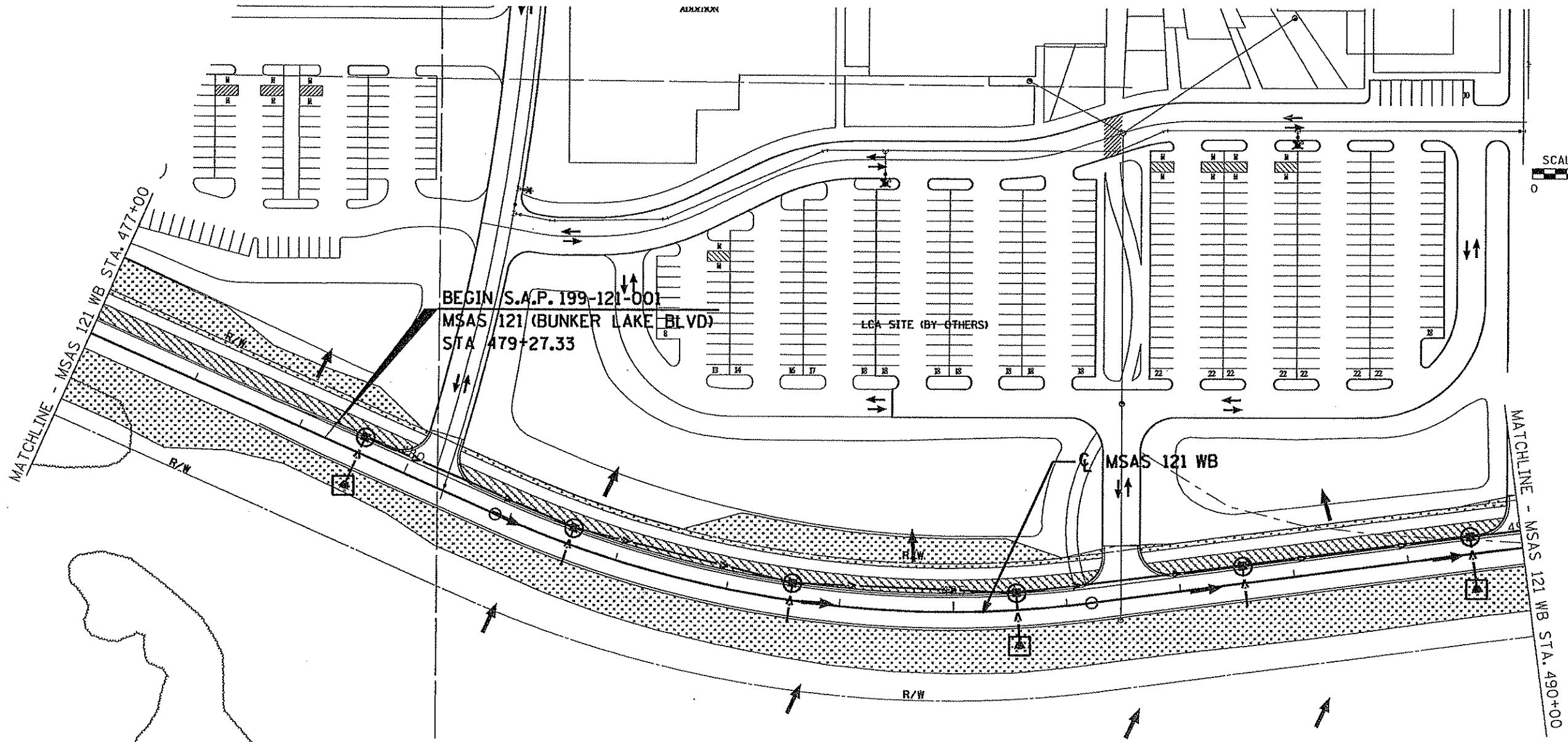
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*[Signature]*  
Licensed Professional Engineer, June Hale P.E.  
DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 466+32.01 TO WB STA. 477+00  
EROSION CONTROL & TURF ESTABLISHMENT PLAN  
SHEET 5 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 116 OF 249 SHEETS



| LEGEND |   |
|--------|---|
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)  |
|        | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)   |
|        | SEED MIXTURE 260 @ 100 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 350 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)   |
|        | SEED MIXTURE 350 @ 84.5 LBS / AC<br>17-10-7 TYPE 4 FERTILIZER @ 120 LBS / AC<br>RAPID STABILIZATION METHOD 2<br>(TYPE 1 MULCH @ 1.5 TONS / AC +<br>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS / AC) |
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|        | SILT FENCE (MACHINE SLICED)   |
|        | 8" BIOROLL  |
|        | INLET PROTECTION  |
|        | CULVERT PROTECTION<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |
|        | SURFACE FLOW DIRECTION  |
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Drawn By: **G KOCHMAN**  
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 Checked By: **A FLOWMAN**  
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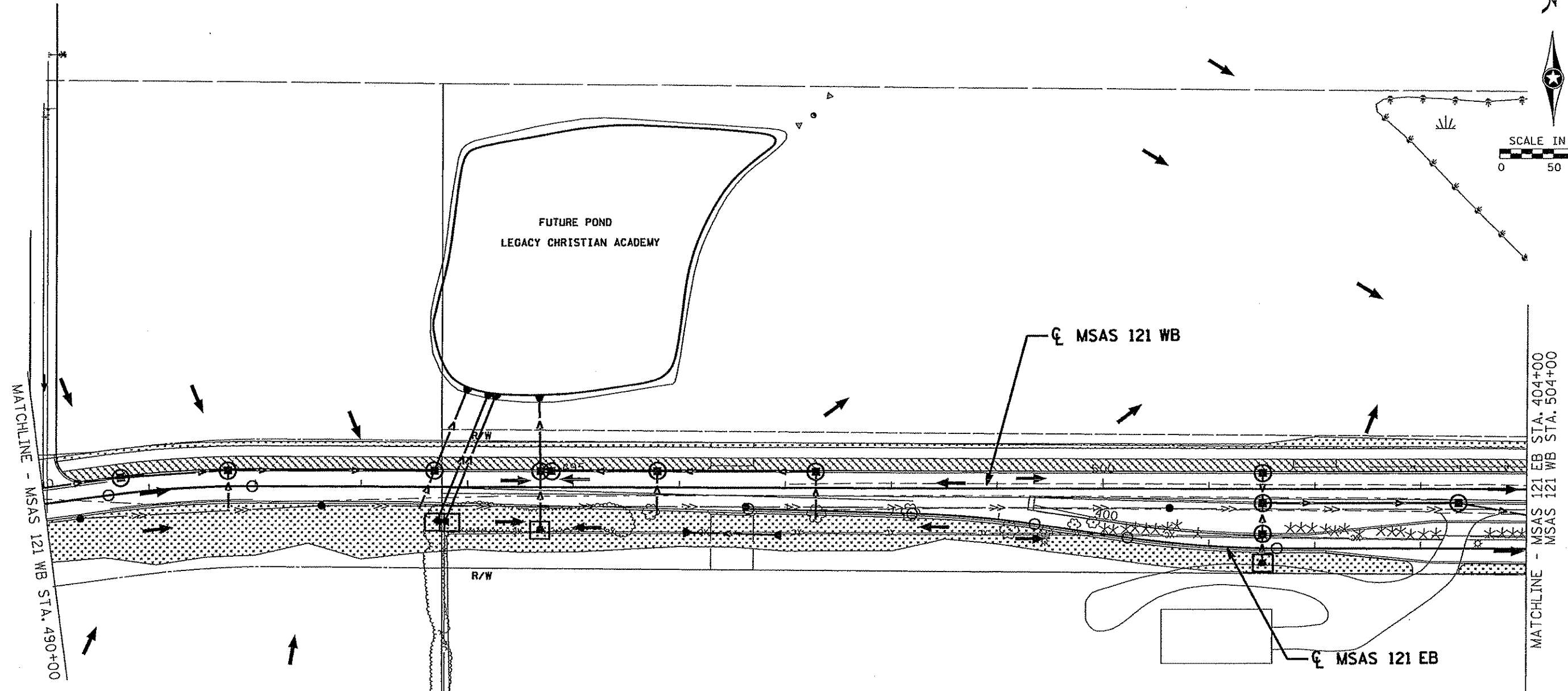
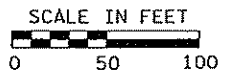
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 Licensed Professional Engineer, State of Minn. P.E.  
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CSAH 116 WB STA. 477+00 TO WB STA. 490+00.00  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 6 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 117 OF 249 SHEETS



**LEGEND**

|  |   |
|--|---|
| SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)   | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
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|  | INLET PROTECTION  |
|  | CULVERT PROTECTION<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |
|  | SURFACE FLOW DIRECTION  |
|  | RIPRAP<br>(WITHIN 24 HOURS OF CONVEYING STORMWATER)   |

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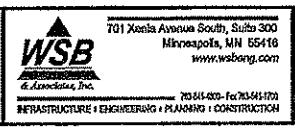
Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minn. P.E.

DATE: 04/28/11 LIC NO: 42064

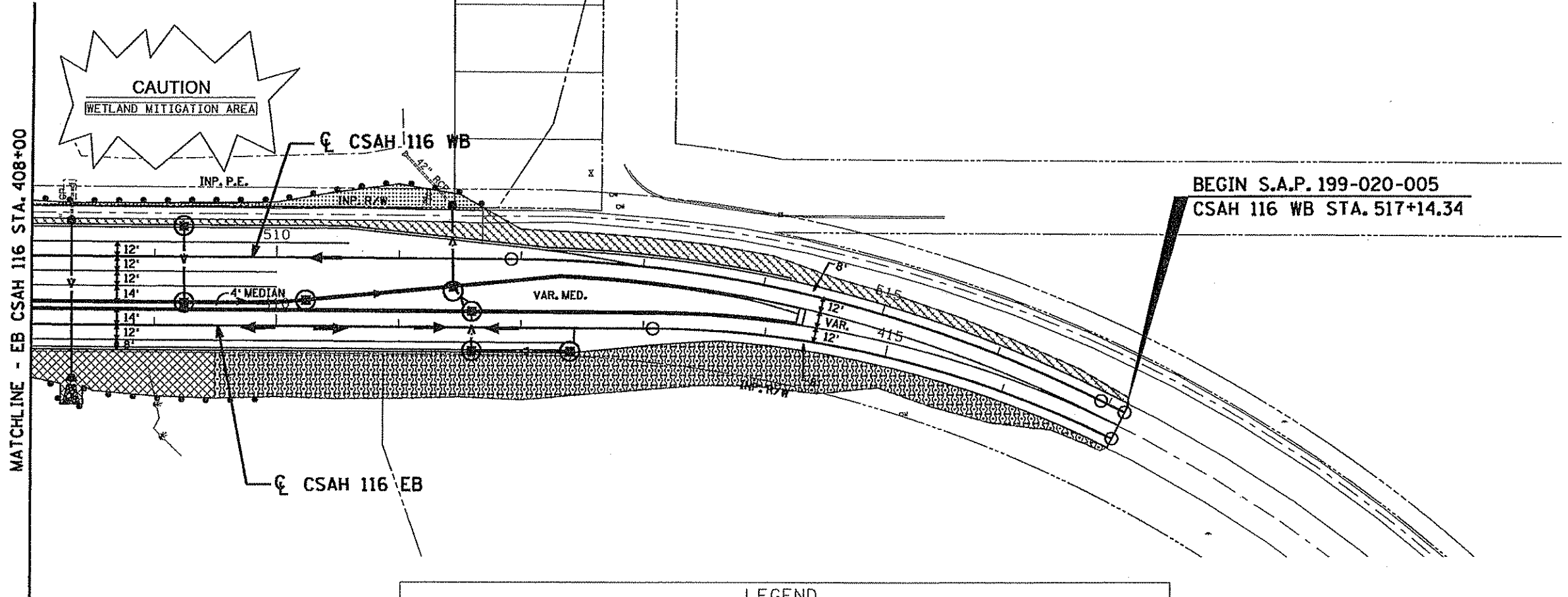
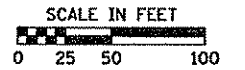
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 490+00 TO WB STA. 504+00  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 7 OF 9 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
118  
OF  
249  
SHEETS



| LEGEND |   |
|--------|---|
|        | SEED MIXTURE 240 @ 75 LBS / AC  |
|        | 22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC  |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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

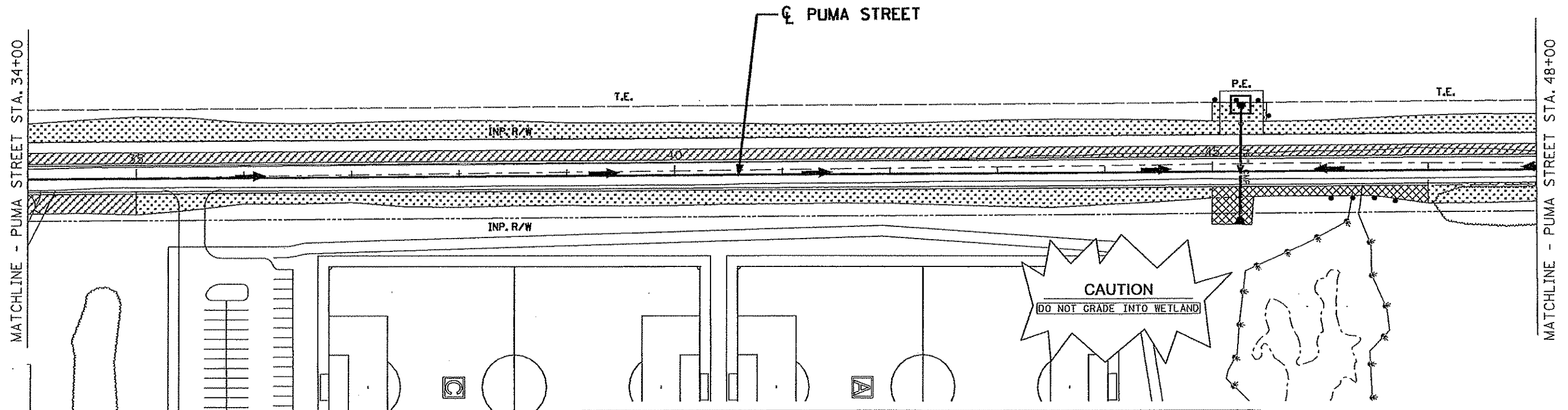
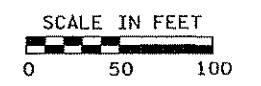
*J. Hale*  
 Licensed Professional Engineer, Jupo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 EB STA. 408+00 TO STA. 417+00  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 4 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 119 OF 249 SHEETS



**LEGEND**

|  |   |
|--|---|
| <p> SEED MIXTURE 240 @ 75 LBS / AC<br/>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br/>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)</p> <p> SEED MIXTURE 240 @ 75 LBS / AC<br/>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br/>CAT. 3 BLANKET (WOOD FIBER)</p> <p> SEED MIXTURE 260 @ 100 LBS / AC<br/>22-5-10 TYPE 3 FERTILIZER @ 350 LBS / AC<br/>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)</p> <p> SEED MIXTURE 350 @ 84.5 LBS / AC<br/>17-10-7 TYPE 4 FERTILIZER @ 120 LBS / AC<br/>RAPID STABILIZATION METHOD 2<br/>(TYPE 1 MULCH @ 1.5 TONS / AC +<br/>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS / AC)</p> | <p> SEED MIXTURE 310 @ 82 LBS / AC<br/>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br/>CAT. 3 BLANKET (WOOD FIBER)</p> <p> SEED MIXTURE 240 @ 75 LBS / AC<br/>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br/>RAPID STABILIZATION METHOD 2<br/>(TYPE 1 MULCH @ 1.5 TONS / AC +<br/>TYPE 5 HYDROLIC SOILS STABILIZER @ 750 LBS / AC)</p> <p> SILT FENCE (MACHINE SLICED)</p> <p> 8" BIOROLL</p> <p> INLET PROTECTION</p> <p> CULVERT PROTECTION<br/>(WITHIN 24 HOURS OF CONVEYING STORMWATER)</p> <p> SURFACE FLOW DIRECTION</p> <p> RIPRAP<br/>(WITHIN 24 HOURS OF CONVEYING STORMWATER)</p> |
|--|---|

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

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*(Signature)*  
 Licensed Professional Engineer, James Hale P.E.

DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

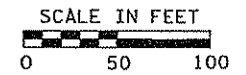


**PUMA ST NB STA. 34+00 TO NB STA. 48+00**  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 8 OF 9 SHEETS

SHEET  
120  
OF  
249  
SHEETS

S.A.P. 109-020-005, S.A.P. 109-121-001; C.P. 11-21





MATCHLINE - PUMA STREET STA. 48+00

☉ PUMA STREET

END CONSTRUCTION  
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










T.E.

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### LEGEND

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|---|--|---|---|
|  | SEED MIXTURE 240 @ 75 LBS / AC<br>22-5-10 TYPE 3 FERTILIZER @ 400 LBS / AC<br>TYPE 1 MULCH @ 2 TONS / AC (DISC ANCHORED)   |  | SEED MIXTURE 310 @ 82 LBS / AC<br>17-10-07 TYPE 4 FERTILIZER @ 120 LBS / AC<br>CAT. 3 BLANKET (WOOD FIBER)  |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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 Licensed Professional Engineer, Jupa Hala P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

  
 701 Xanta Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsb.org.com  
 763.442.1470  
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

PUMA ST NB STA. 48+00 TO ALPINE DR  
**EROSION CONTROL & TURF ESTABLISHMENT PLAN**  
 SHEET 9 OF 9 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 121 OF 249 SHEETS

**LOCATION OF SWPPP COMPONENTS: NPDES - CSW PERMIT**

| DESCRIPTION                                       | TITLE                                       | LOCATION                    |
|---|---|-----------------------------|
| SURFACE WATER FLOW DIRECTION/DRAINAGE AREAS       | EROSION CONTROL & TURF ESTABLISHMENT        | 100 - 108                   |
| RECEIVING WATERS                                  | PROJECT MANUAL                              | PROJECT MANUAL              |
| TEMP/PERM. EROSION & SEDIMENT CONTROL PLAN        | EROSION CONTROL & TURF ESTABLISHMENT        | 100 - 108                   |
| TEMP/PERM. EROSION & SEDIMENT CONTROL BMP DETAILS | EROSION CONTROL DETAILS                     | 111 - 117                   |
| PERM. STORMWATER MANAGEMENT FACILITIES            | DRAINAGE & SUPERELEVATION PLAN              | 81 - 89                     |
| CONSTRUCTION LIMITS                               | CONSTRUCTION PLANS                          | 64 - 72                     |
| EXISTING AND FINAL GRADES                         | CONSTRUCTION PLANS/ PROFILES/CROSS SECTIONS | 64 - 72, 73 - 79, 147 - 236 |
| SWPPP EST. QUANTITIES                             | ESTIMATED QUANTITIES                        | 4 - 6                       |
| SWPPP SPECIFICATIONS                              | SWPPP NOTES                                 | 110                         |

**PROJECT DESCRIPTION & SEQUENCING DATES**

This project consists of street & utility reconstruction of Armstrong Blvd. (CSAH 83) and Bunker Lake Blvd. (CSAH 116) from Sunwood Dr. to 150<sup>th</sup> Lane NW within the City of Ramsey. Project commencement date = June 10, 2011 Final completion date = November 30, 2011

**IMPERVIOUS SURFACE AND DISTURBED AREA CALCULATIONS**

Total Area to be disturbed = 27.45 Acres  
Impervious area: Pre-Construction = 4.75 Acres/Post-Const. = 13.78 Acres  
Net increase in impervious area = 9.03 Acres

**RECEIVING WATERS**

Stormwater from this project will be conveyed through the storm sewer system into a new stormwater pond 83A (east of CSAH 83, north of 147<sup>th</sup> Ave.). Portions of MSAS 121 are conveyed to a future stormwater pond on the Legacy Christian Academy site. Rural sections of CSAH 83 south of 150<sup>th</sup> St. NW drain into the adjacent ditches, then southeast into the wetland mitigation area (located to project limits, NE of CSAH 83/116 intersection).

**ENVIRONMENTALLY SENSITIVE AREAS**

No environmentally sensitive areas, threatened/endangered/special concern species are known to exist within or adjacent to the project limits. There are no known hazardous materials or wastes within the project limits. A portion of two wetlands will be filled as a result of this project.

**APPENDIX A. SPECIAL OR IMPAIRED WATERS**

No special or impaired waters are located within one mile of, and downstream of any project discharge points.

**NPDES OBLIGATIONS OF RESPONSIBLE PARTIES:**

Construction and implementation of this SWPPP shall be governed by the Mn/DOT spec. book, special provisions, amendments, NPDES Construction Stormwater Permit, project plans, specifications and detail plates.

The City of Ramsey (Permitted Owner), and the Contractor (Site Operator), are jointly responsible for full implementation of the SWPPP and all requirements of the NPDES Permit Construction Stormwater General Permit. The Contractor is responsible for installations, inspections, maintenance and repairs of all erosion prevention and sediment control BMP's before, during, and after active construction. The City of Ramsey is responsible for the long-term operation and maintenance of all permanent stormwater management systems. The contractor is liable until final stabilization of all disturbed areas been achieved, all synthetic BMP's (if applicable) have been removed, and the Permit Modification form has been submitted to the MPCA, pursuant to Part II.B.5, Part II.C, and Part IV.G.6 of the NPDES Permit Construction Stormwater General Permit.

**CONTRACTOR**

To Be Determined. NPDES Transfer Form shall be submitted to the MPCA within 7 days of awarding contractor.

**PROJECT OWNER & LONG TERM MAINTENANCE OF PERMANENT STORMWATER MANAGEMENT FACILITIES**

City of Ramsey (Tim Himmer, City Engineer)  
7550 Sunwood Dr. NW, Ramsey, MN 55303  
Phone No. 763-433-9893 thimmer@ci.ramsey.mn.us

MPCA INSPECTOR: Shawn Nelson (651-757-2604)

24-HOUR EMERGENCY STATE DUTY OFFICER: 1-800-422-0798

**SEQUENCE OF CONSTRUCTION/TIMING OF BMP INSTALLATION:**

No construction operations, including removals, that require erosion & sediment control per the SWPPP can commence until the Contractor's erosion control supervisor certifies the proper installation of BMP's and a chain of responsibility for SWPPP implementation is created for all operators on the site. Perimeter sediment controls (silt fence, inlet protection, construction entrances, etc.) shall be installed prior to the start of construction. These practices shall remain in place until final stabilization is achieved.

Contractor shall implement the necessary on-site BMP's in accordance with the NPDES permit requirements to prevent nuisance conditions (Mn Rules 7050.2010) from any discharges under coverage of the NPDES permit. In some cases, multiple or redundant applications of some BMP's may be needed to meet these requirements.

**INSPECTION AND RECORD KEEPING**

1. The contractor/site operator must inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.

2. All inspections and maintenance conducted must be recorded in writing and retained with the SWPPP in accordance with Part III.D of the NPDES construction permit. Amendments to the SWPPP will be made by the project engineer or the contractor after written approval by the project engineer. Records of each inspection and maintenance activity shall include:

- Date and time of inspections;
- Name of person(s) conducting inspections;
- Findings of inspections, including recommendations for corrective actions;
- Corrective actions taken (including dates, times, and party completing maintenance activities);
- Date and amount of all rainfall events greater than 1/2 inch (0.5 inches) in 24 hours;
- Documentation of changes made to the SWPPP

3. The SWPPP shall be amended to include additional or modified BMPs, designed to correct identified problems or address situations under Part III.A.5 of the NPDES permit.

4. The SWPPP (original or copies), all changes to the SWPPP, project manual, and inspections/maintenance records must be kept at the site during construction by the contractor/site operator who has operational control of that portion of the site. The SWPPP can be kept in either the field office or on site vehicle during normal working hours.

**EROSION CONTROL PRACTICES**

All exposed soil areas shall be stabilized within 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must have silt fence or other effective perimeter sediment controls, and cannot be placed in surface waters, curb and gutters, conduits, or ditches, unless there is a bypass in place to prevent stormwater run-on into the stockpile (Part IV.C.5).

3:1 slopes (or steeper) must be less than 75 feet in length. Slopes greater than 75 feet must have graded in phases or broken with silt fence, biorolls, or other appropriate perimeter control BMP(s) within 7 days of exposing soils.

**Erosion Control Blankets/Mats:** Contractor shall verify during regular inspections that no gullies, rills, or scour holes have formed under erosion control blankets and mats, and correct all eroded areas within 7 days. All repairs must be completed within 24 hours of discovery, or as soon as field conditions allow access.

**Temporary/Permanent Drainage Ditches & Swales:** The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a surface water.

Temporary or permanent ditches or swales that are being used as a temporary sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes etc.) do not need to be stabilized. These areas must be stabilized within 24 hours after no longer being used as a sediment containment system.

**Storm Sewer Outlets:** Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after hydraulic connection to a surface water.

**SEDIMENT CONTROL PRACTICES**

The contractor/site operator are responsible for the installation, operation, and continued maintenance of all temporary and permanent water quality management BMP's, as well as all erosion prevention and sediment control BMP's, for the duration of the construction work at the site, until final stabilization is achieved. All BMP's must be adequately designed, installed, and maintained to prevent erosion from a minimum 0.5-inch total rainfall event within 24 hours.

All nonfunctional BMP's must be repaired, replaced, or supplemented with functional BMP's within 24 hours after discovery, or as soon as field conditions allow access unless another time frame is specified in the SWPPP. All eroded material that leaves the site shall be collected by the contractor and returned to the site at the contractor's expense and incidental to the project cost.

**Down gradient systems:** If the down gradient treatment system is overloaded, additional up gradient sediment control practices or redundant BMP's must be installed to eliminate the overloading, and the SWPPP must be amended to identify these additional practices.

**Silt fences:** Silt fences shall be placement, as close as possible to follow a single contour elevation. All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the fence. All repairs must be completed within 24 hours of discovery, or as soon as field conditions allow access.

**Temporary and Permanent Sedimentation Basins:** Where ten (10) or more acres of disturbed soil drain to a common location, a temporary (or permanent) sediment basin must be provided prior to runoff leaving the construction site or entering surface waters. All temporary basins shall be designed and constructed to the minimum standards specified in Part III.B of the NPDES construction permit.

**Temporary and Permanent Sedimentation Basin Maintenance:** Basins must be drained and sediment removed when the depth of collected sediment in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access (Part IV.E.4.b).

**Temporary soil stockpiles:** Silt fence or other effective sediment controls must be implemented, and piles cannot be placed in surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the stormwater.

**Construction Site Entrance/Vehicle Tracking:** Contractor must minimize sediment from the construction site (or onto streets within the site) by implementing BMP's such as stone pads, concrete or steel wash racks, or equivalent systems. Street sweeping must be used daily during construction operations if such BMP's are not adequate to prevent sediment from being tracked onto the street. Street Sweeper must be either on site at all times or available within 3 hours of notice of need. Tracked sediment must be removed from all paved surfaces, within 24 hours of discovery, or if applicable, within a shorter time to comply with Part IV.C.6 of the NPDES construction permit. Multiple street sweepings at the contractor's expense may be required on all entry/exit points to the site at the discretion of the Project Owner.

**Surface Waters:** including off-site and downstream drainage ditches, catch basins, and conveyance systems, must be inspected for evidence of erosion and sediment deposition. The removal and stabilization of exposed soils must take place within seven (7) days of discovery unless precluded by legal, regulatory,

take place within seven (7) calendar days of obtaining access. The Permittees are responsible for contacting all local, regional, state and federal agencies and receiving any applicable permits, prior to conducting any work (Part IV.E.4.c).

**Inlet Protection:** All storm drain inlets (including down gradient, off-site) must be protected by appropriate BMP's during construction until all sources with potential for discharging to the inlet have been stabilized. Silt fence is not an acceptable catch basin inlet protection BMP.

**DEWATERING AND BASIN DRAINING**

Dewatering or basin draining is not anticipated during construction of this project. In the event dewatering or basin draining is required, the contractor shall submit a dewatering plan to the Project Engineer for approval prior to undertaking these activities. Dewatering plan must include BMP's to prevent sediment transport, erosion, and adverse impacts to downstream receiving waters. If an approved TMDL Waste Load Allocation is established for construction activities on a receiving waterbody, the contractor must implement all necessary BMP's to meet the assigned WLA. The dewatering plan and DNR appropriations permit will become part of the SWPPP.

**POLLUTION PREVENTION MANAGEMENT MEASURES**

- Solid Waste:** (sediment, asphalt, concrete millings, construction, and demolition debris) and other wastes must be disposed of properly and shall comply with MPCA disposal requirements.
- Hazardous Material:** (e.g. gas, oil, antifreeze, paint, cleaning solvents curing compounds, fertilizers, etc.) must be properly stored, with secondary spill containment. Restricted access must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA regulations.
- Trucks and other Construction Equipment:** External washing, engine degreasing, or other maintenance involving hazardous liquids or lubricants is prohibited on site.
- Concrete Washout Onsite:** Contractors/site operator must submit a concrete washout plan to the project engineer for approval. Slurry must be contained in a leak-proof containment facility or impervious liner. The approved plan will be incorporated into the SWPPP. Refer to SWPPP specifications for design details.
- Burning:** Burning of garbage, construction debris, trees, brush, or other vegetative material is not allowed on site.

**FINAL STABILIZATION**

Final Stabilization is achieved when the following three parameters are completed, prior to submission of the NOT to MPCA.

- 70% Vegetative Cover:** All soil disturbing activities at the site have been completed and all exposed soils are stabilized by a uniform, live perennial vegetative cover with a density of 70% over the entire project surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.
- Final Clean out of Permanent Stormwater Management Systems & Conveyance Systems:** All sediment must be removed from permanent stormwater management systems, conveyance systems, and ditches must be stabilized with permanent cover.
- Removal of all Temporary BMP's:** Prior to submission of the NOT, all temporary synthetic and structural erosion prevention and sediment control BMP's (such as silt fence) must be removed on the portions of the site for which the Permittee is responsible. BMP's designed to decompose on site (such as some compost logs) may be left in place.

**PAYMENT TO CONTRACTOR**

Payment for construction practices and materials associated with the maintenance or repair of BMP's designated in the original tabulated quantities of this project SWPPP are incidental costs to the contractor for this project. Contractor recommendations for additional or revised BMP's needed to comply with NPDES permit requirements and/or to prevent nuisance conditions shall be submitted to the project engineer for approval. All eroded material that leaves the site shall be collected by the contractor and returned to the site at the contractor's expense and incidental to the project cost.

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|--------------|-----------|
| Drawn By:    | C KOCHMAN |
| Designed By: | N HENTGES |
| Checked By:  | A PLOWMAN |
| Approved By: | J HALE    |

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION

DATE: 04/28/11 LIC NO: 42064

**WSB**  
A Associated, Inc.  
701 Xenia Avenue South, Suite 200  
Minneapolis, MN 55419  
www.wsbang.com  
2541-420 / 763-561-770  
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

**SWPPP NOTES**

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

|        |     |
|--------|-----|
| SHEET  | 122 |
| OF     | 249 |
| SHEETS |     |

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SPECIFICATIONS**

**INSPECTION, RECORD KEEPING, & SWPPP AMENDMENTS (CONTINUED)**

The contractor/site operator must assign a trained individual(s) (pursuant to Part III.A.1-2) to oversee the implementation, maintenance, and repair of BMPs. This individual(s) shall also perform inspections, revise/amend the SWPPP (document in SWPPP as necessary), and be available for an onsite inspection within 72 hours upon request by the permitted owner (or its designee), local government units, or MPCA (Part III.A.2.a.ii).

The SWPPP shall be amended to include additional requirements, such as additional or modified BMPs, designed to correct problems identified or address situations whenever (Part III.A.5):

- a. There is a change in design, construction, operation, maintenance, weather or seasonal conditions that has a significant effect on the discharge of pollutants to surface waters or underground waters;
- b. Inspections or investigations by site operators, local, state or federal officials indicate the SWPPP is not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or underground waters or that the discharges are causing water quality standard degradation (e.g. nuisance conditions as defined in Minn. R. 7050.0210, subp. 2); or
- c. The SWPPP is not achieving the general objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of this permit.
- d. The MPCA notifies the Permittee(s) in writing that the project's stormwater discharges may contribute to non-attainment of any applicable water quality standards, impaired waters standards, and/or TMDL Waste Load Allocations. In response, the Permittee(s) must develop a supplemental BMP action plan or appropriate SWPPP amendments describing SWPPP modifications to address the identified concerns and submit information requested by MPCA, which may include an individual permit application. If MPCA's written notification requires a response, failure to respond within the specified timeframe constitutes a permit violation.

**INSPECTION AND ENTRY (Part V.H)**

The Permittee(s) must comply with the provisions of 40 CFR 122.41(i), Minn. Stat. ch. 115.04 and Minn. Stat. ch. 115B.17. The contractor/site operator shall allow representatives of the MPCA or any member, employee or agent thereof, when authorized by it, upon presentation of credentials, to enter upon any property, public or private, for the purpose of obtaining information or examination of records or conducting surveys or investigations.

**INSPECTIONS (Part IV.E)**

1. Where parts of the construction site have permanent cover, but work remains on other parts of the site, inspections of the areas with permanent cover may be reduced to once per month. Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, the site must be inspected for a period of twelve (12) months (the inspections may be ceased during frozen ground conditions). Following the twelfth month of permanent cover and no construction activity, inspections may be terminated until construction activity is once again initiated or sooner if notified in writing by the MPCA. Where work has been suspended due to frozen ground conditions, the required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or prior to resuming construction, whichever comes first.

**MAINTENANCE (Part IV.E)**

The contractor/site operator are responsible until another contractor/site operator has assumed control (see change of permit coverage) over all areas of the site that have not been stabilized or the site has undergone Final Stabilization, and a NOT has been submitted to the MPCA (Part IV.E.4.e).

**RECORD RETENTION (Part III.D)**

All owner(s) must keep the SWPPP, along with the following additional records, on file for three (3) years after submittal of the NOT (this does not include records of other permits required for the project after submittal of the NOT).

1. Records of all inspection and maintenance conducted during construction.
2. All permanent operation and maintenance agreements that have been implemented, including all
3. Right of way, contracts, covenants and other binding requirements regarding perpetual maintenance; and
4. All required calculations for design of the temporary and Permanent Stormwater Management Systems.

The Permittee(s) must implement the entire SWPPP and the requirements of this NPDES permit (Part IV.A). The BMPs identified in the SWPPP and in this permit must be selected, installed, and maintained in an appropriate and functional manner that is in accordance with relevant manufacturer specifications and accepted engineering practices.

**SEDIMENT CONTROL PRACTICES (Part IV.C)**

Temporary or permanent drainage ditches and sediment basins that are designed as part of a sediment containment system (e.g., ditches with rock check dams) require sediment control practices only as appropriate for site conditions (Part IV.C.1.a).

**Short-term activities:** The timing of the installation of sediment control practices may be adjusted to accommodate short-term activities such as clearing or grubbing, or passage of vehicles. Any short-term activity must be completed as quickly as possible and the sediment control practices must be installed immediately after the activity is completed. However, sediment control practices must be installed before the next forecasted precipitation event (30% or greater) even if the activity is not complete (Part IV.C.3).

**Inlet Protection:** Inlet protection may be removed for a particular inlet if a specific safety concern (street flooding/freezing) has been identified and the Permittee(s) have received written correspondence from the jurisdictional authority (e.g. city/county/township/MnDOT engineer) verifying the need for removal. Written correspondence must be documented in the SWPPP and available within 72 hours upon request. Permission to remove inlet protection based on a specific safety concern must still be obtained from the local jurisdictional authority within 30 days of removal (Part IV.C.4).

**DEWATERING AND BASIN DRAINING (Part IV.D)**

Dewatering or basin draining that may have turbid or sediment laden discharge water must be discharged to a temporary or permanent sedimentation basin (and/or other appropriate BMP) on the project site whenever possible. Discharge from the temporary or permanent sedimentation basin must be visually checked to ensure adequate treatment is obtained in the basin and that nuisance conditions (see Minn. R. 7050.0210, subp. 2), impacts to wetlands, and erosion in receiving channels or on downslope properties will not result from the discharge. The discharge must be dispersed over natural rock riprap, sand bags, plastic sheeting, or other accepted energy dissipation measures. Adequate sedimentation control measures are required for discharge water that contains suspended solids (Part IV.D.1).

**POLLUTION PREVENTION MANAGEMENT MEASURES (Part IV.F)**

**Concrete washout onsite:** All liquid and solid wastes generated by concrete washout/stucco operations must be contained in a leak-proof containment facility, impermeable liner or hauled immediately off site. A two (2) foot compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner, with prior approval from project engineer. All liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities (Part IV.F.4). The contractor/site operator must submit a concrete washout plan to the project engineer for all on site containment facilities or impermeable liners. The approved plan will be incorporated into the SWPPP.

**ADDITIONAL BMPs FOR SPECIAL OR IMPAIRED WATERS DURING CONSTRUCTION ACTIVITY (APPENDIX A)**

All requirements in Appendix A are in addition to BMPs already specified in the permit. Where provisions of Appendix A conflict with requirements elsewhere in the permit, the provisions in Appendix A take precedence. All BMPs used to comply with this Appendix must be documented in the SWPPP for the project (Appendix A.A).

**C.1.a Exposed Soils:** Contractor shall stabilize all exposed soil areas within (7) days after the construction activity in that portion of the site has temporarily or permanently ceased (Appendix A.C.1.a).

**C.1.a Temporary basin:** Contractor shall adhere to the requirements described in Part III.B. 1-5 of the NPDES construction permit for common drainage locations that serve an area with five (5) or more acres disturbed.

**C.2 Post construction:** The water quality volume that must be treated by the project's permanent stormwater management system described in Part III.C. shall be one (1) inch of runoff from the new impervious surfaces created by the project. Where site conditions allow, at least 1/2 inch of the water quality volume must be infiltrated. See Part III.C.2 for more information on infiltration design and appropriate site conditions. If it is determined that site conditions are not appropriate for infiltration (e.g. lack of 3 ft. of separation to seasonally saturated ground water, proximity to bedrock, contaminated soils) the reasons should be documented in the SWPPP for the project. Infiltration is not required in Hydrologic Soil Group D soils.

**C.3 Buffer zone:** An undisturbed buffer zone of not less than 100 linear feet from the special water (not including tributaries) shall be maintained at all times. Exceptions from this requirement for areas, such as water crossings, limited water access and restoration of the buffer are allowed if the Permittee fully documents in the SWPPP the circumstances and reasons that the buffer encroachment is necessary. Replacement of existing impervious surface within the buffer is allowed under this permit. All potential water quality, scenic and other environmental impacts of these exceptions must be minimized by the use of additional or redundant BMPs and documented in the SWPPP for the project.

**C.4 Enhanced runoff controls:** The Permanent Stormwater Management System must be designed such that the pre- and post-project runoff rate and volume from the 1 and 2-year 24-hour precipitation events remain the same or are reduced.

**C.5 Temperature Controls:** The Permanent Stormwater Management System must be design such that the discharge from the project will minimize any increase in the temperature of trout stream receiving waters resulting from the 1-and 2-year 24-hour precipitation events. This includes all tributaries of designated trout streams within


the section that the trout stream is located. Projects that discharge to trout streams must minimize the impact using one or more of the following measures, in order of preference:

- a. Minimize new impervious surfaces.
- b. Minimize the discharge from the connected impervious surfaces by discharging to vegetated areas, or grass swales, and through the use of other non-structural controls.
- c. Infiltration or evapo-transpiration of runoff in excess of pre-project conditions (up to the 2-year 24-hour precipitation event).

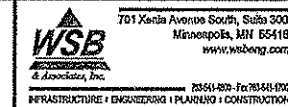
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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
Licensure: Professional Engineer, June Hale P.E.  
DATE: 04/28/11 LIC NO: 42064

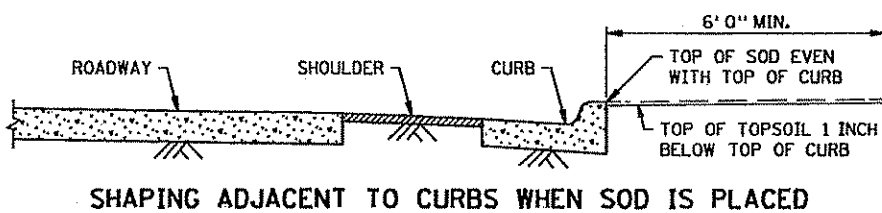
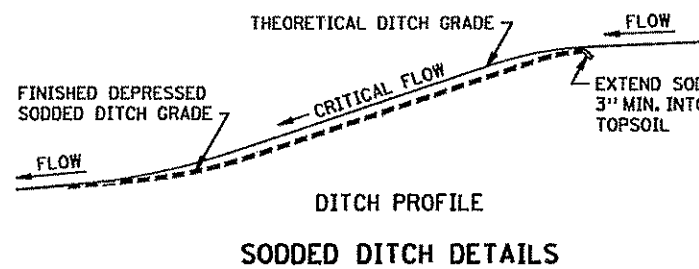
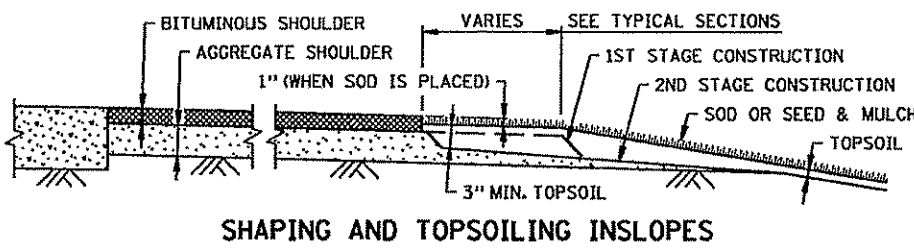
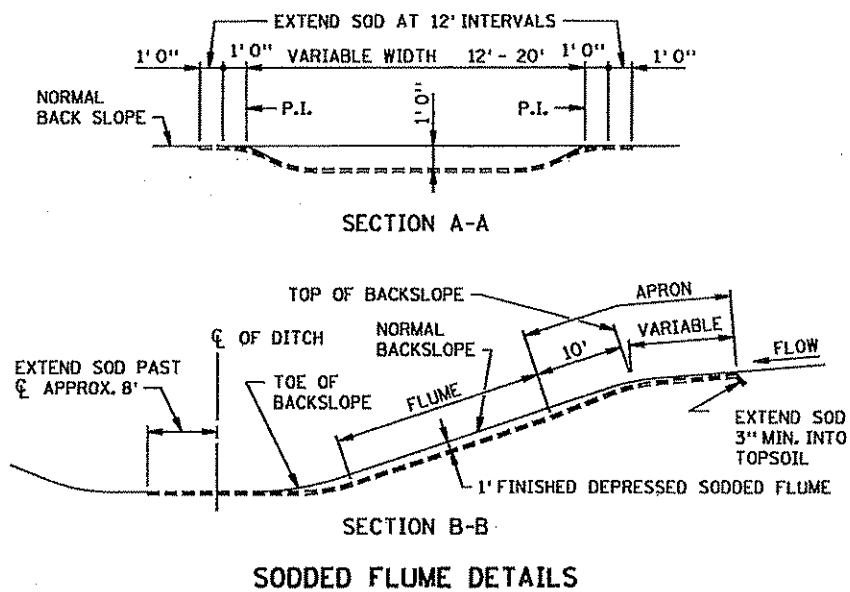
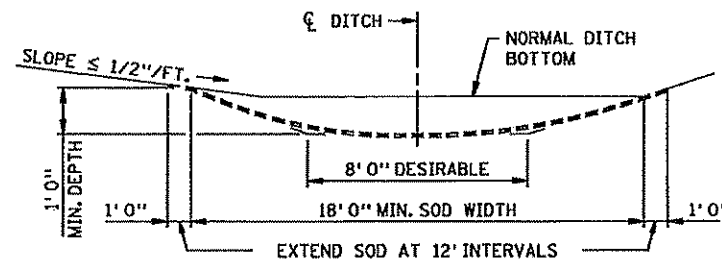
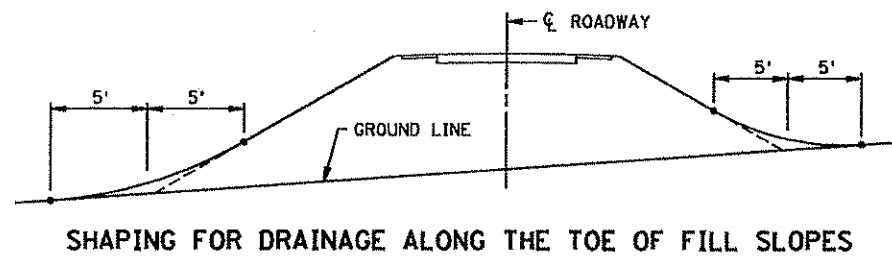
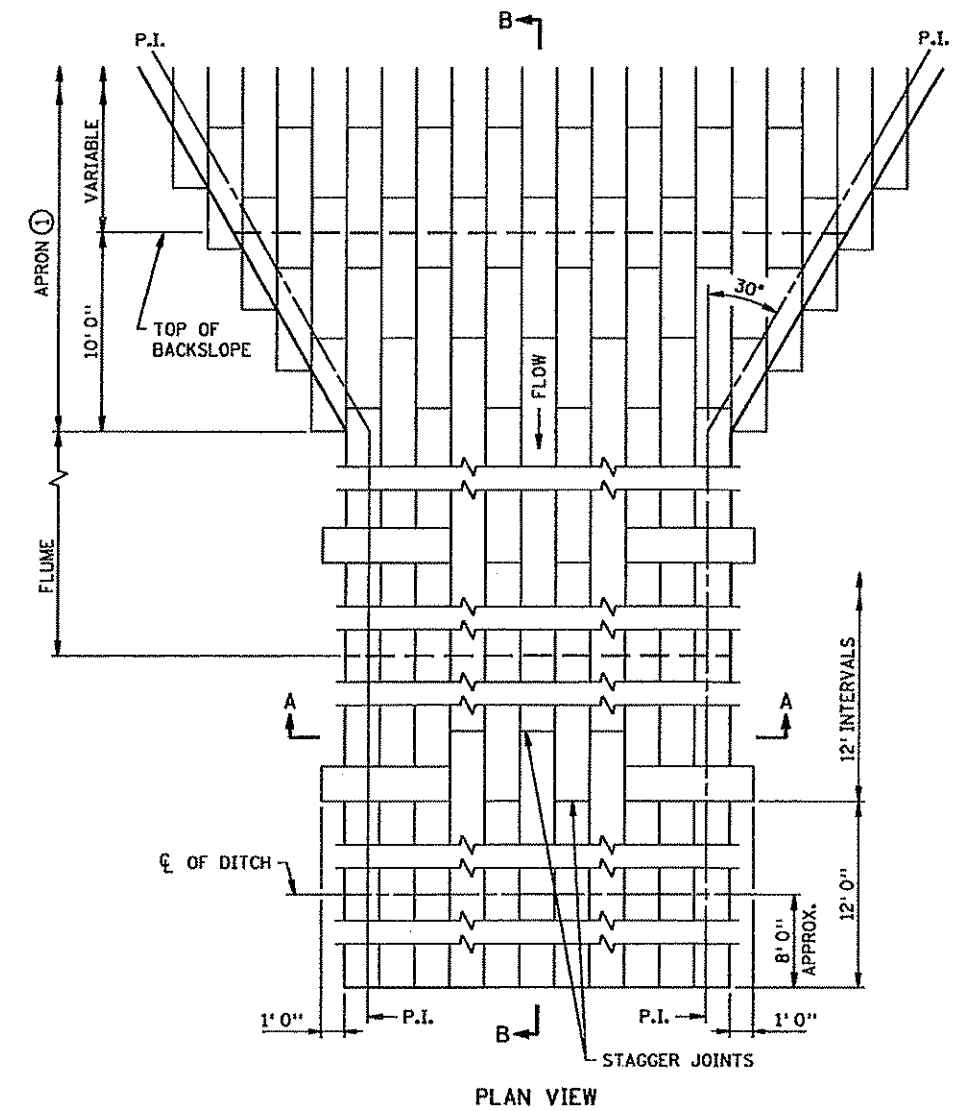
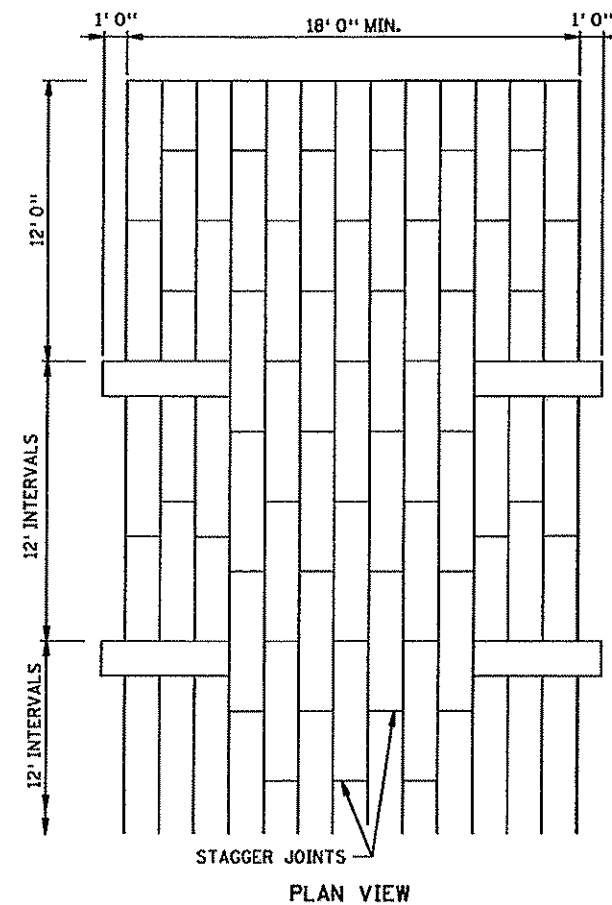
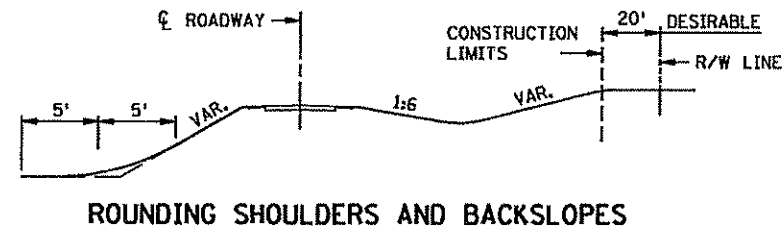
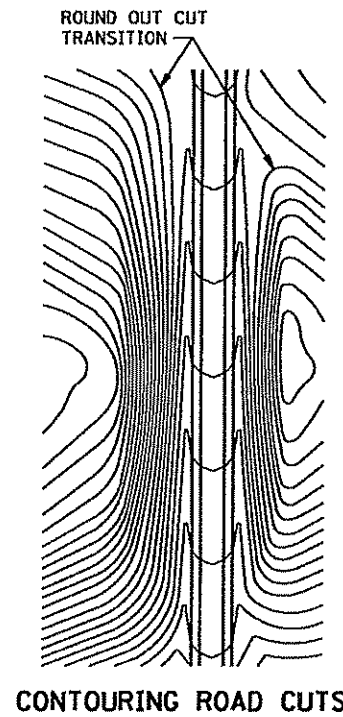
CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



**SWPPP NOTES**

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

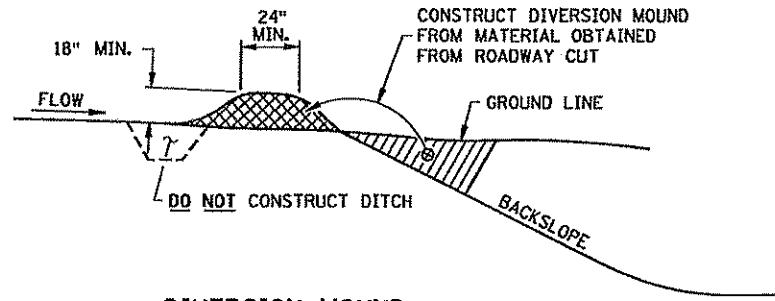
SHEET 123 OF 249 SHEETS



**NOTES:**  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

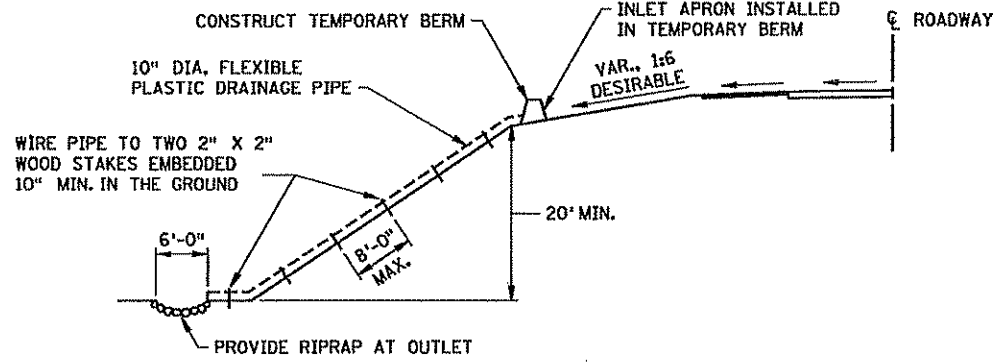
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| STANDARD APPROVED:<br>NOVEMBER 20, 2002 |  |
| S.A.P. 199-020-005                      | SHEET NO. 124 OF 249 SHEETS  |

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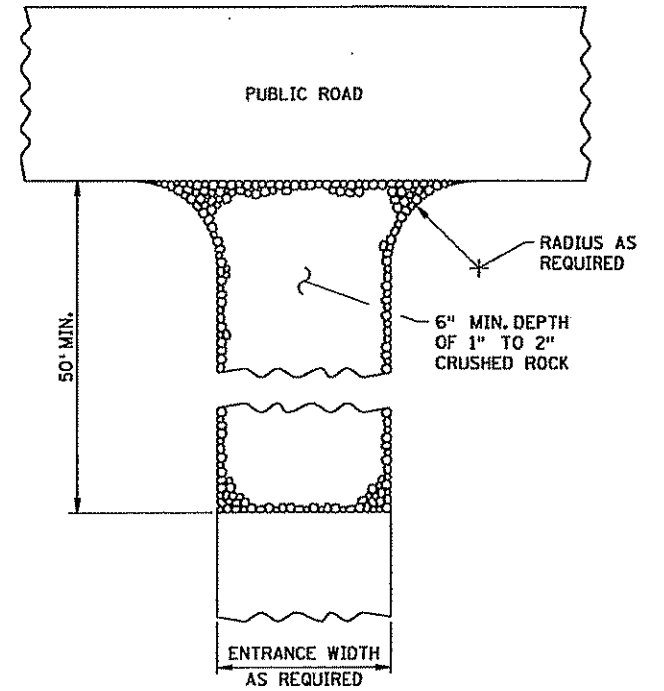
**DIVERSION MOUND**

DESIGN GUIDELINES:  
 STORM FREQUENCY: 10 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 5 ACRES  
 MAXIMUM DIVERSION: GRADE 5%

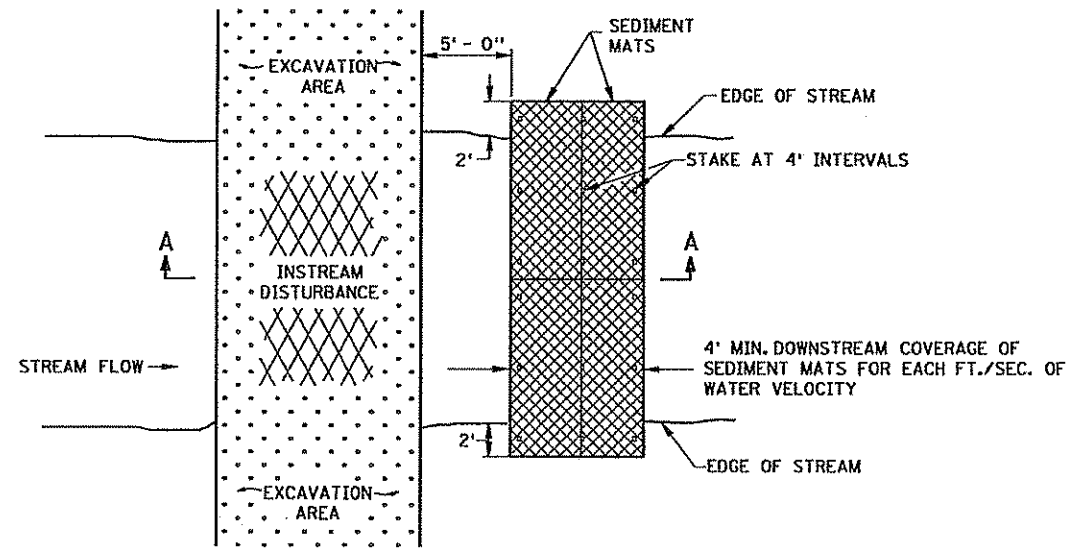


**TEMPORARY DOWN DRAIN ON FILL SLOPE**

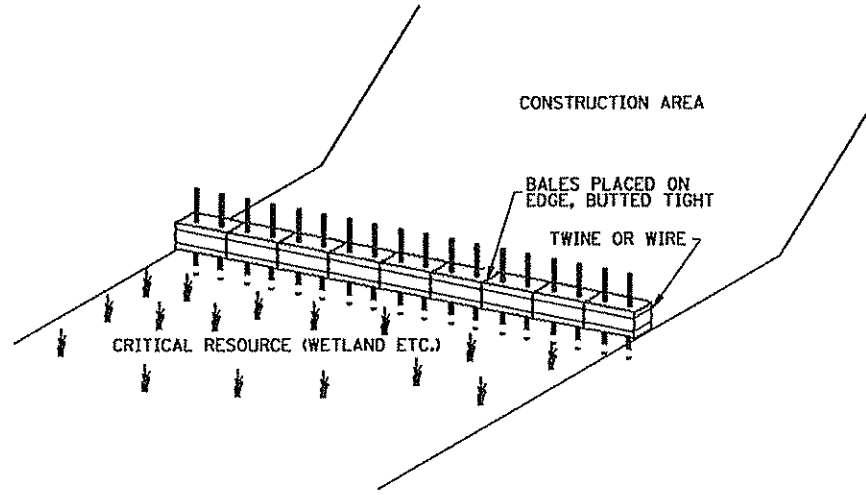
DESIGN GUIDELINES:  
 STORM FREQUENCY: 2 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 3 ACRES



**ROCK CONSTRUCTION ENTRANCE ①**

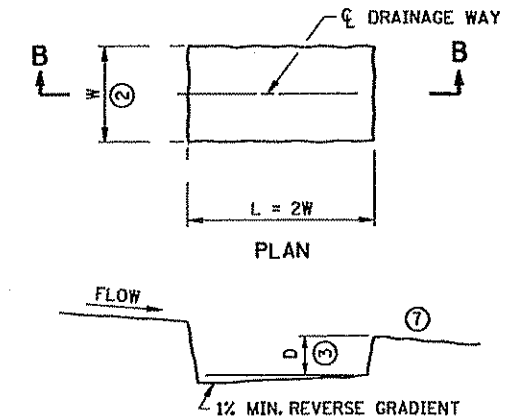


**PLAN VIEW**

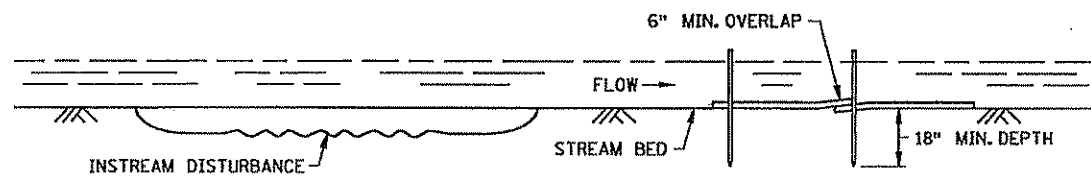


**BALE BARRIERS**

TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS



**SECTION B-B  
 SEDIMENT TRAP DETAIL**

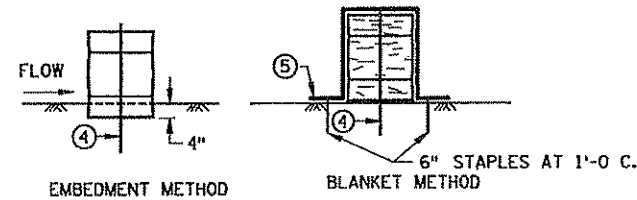


**SECTION A-A**

**SEDIMENT MAT ⑥**

TYPICAL STREAM BED INSTALLATION

DESIGN GUIDELINES:  
 MAXIMUM FLOW VELOCITY: 5 FT./SEC.  
 MAXIMUM FLOW DEPTH: 2 FT.



**BALE BARRIER DETAIL**

APPROX. BALE SIZE: 14" X 18" X 36" LONG

**NOTES:**

- SEE SPECS. 2573, 3892, & 3894.
- ① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.
- ② W = 10 FT. MIN., 20 FT. MAX.
- ③ D = 2 FT.
- ④ TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE EMBEDDED 10 INCHES MINIMUM IN THE GROUND.
- ⑤ PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, OVER THE BALE INSTEAD OF TRENCHING.
- ⑥ THIS DETAIL MAY NOT BE ACCEPTABLE FOR WORK ON PUBLIC WATERS, SEE GENERAL PUBLIC WATERS PERMIT (GP) 2004-0001.
- ⑦ LOCATION OF DOWNSTREAM TEMPORARY SEDIMENT CONTROL DEVICE.

STANDARD SHEET NO.  
 5-297.405 (2 of 4)  
 STANDARD APPROVED:  
 SEPTEMBER 27, 2006

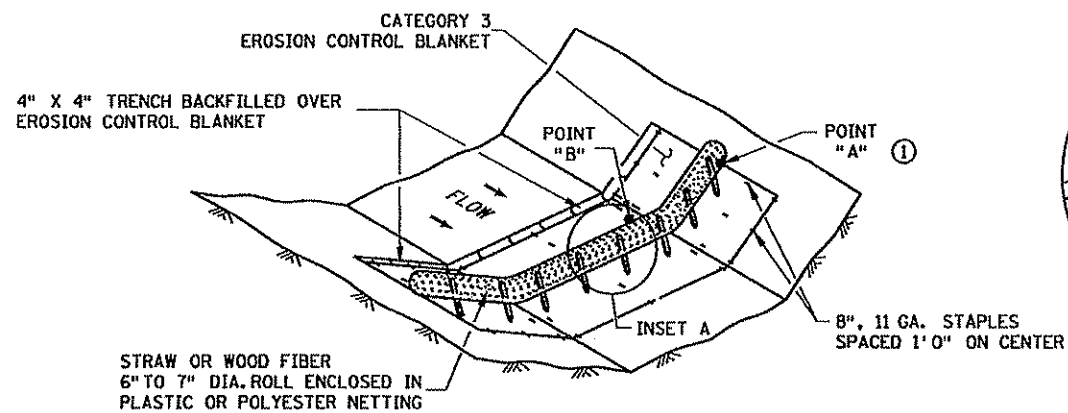
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**TEMPORARY SEDIMENT CONTROL  
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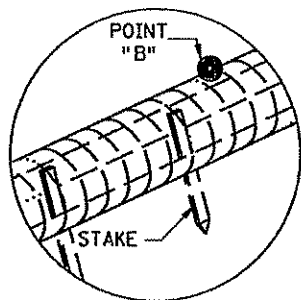
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SHEET NO. 125 OF 249 SHEETS

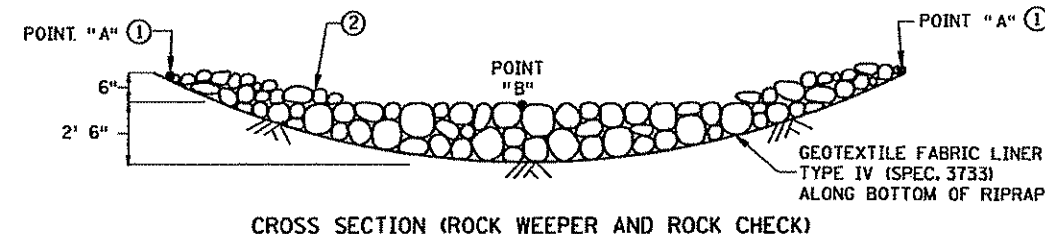
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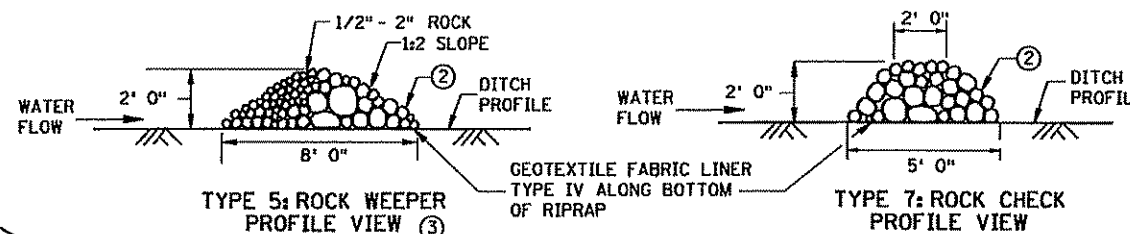
**TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK**



**INSET A**

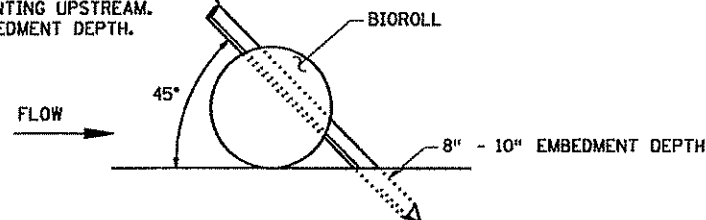


**CROSS SECTION (ROCK WEEPER AND ROCK CHECK)**

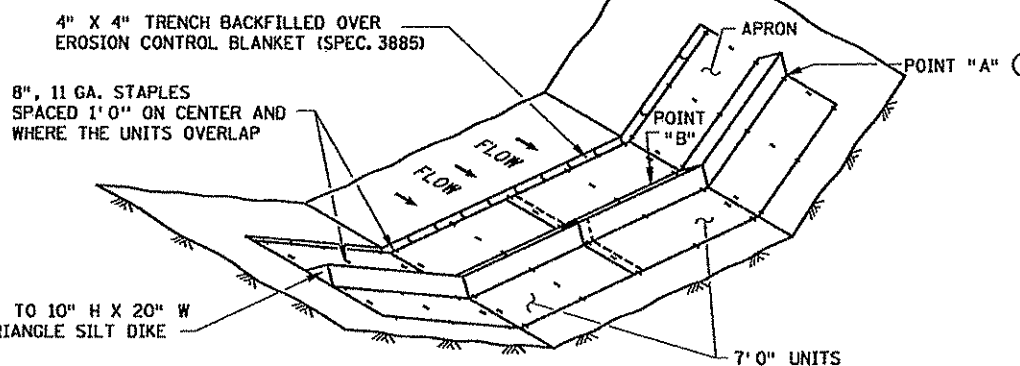


**TYPE 5: ROCK WEEPER AND TYPE 7: ROCK CHECK DITCH CHECKS**  
USE ON ROUGH GRADED AREAS

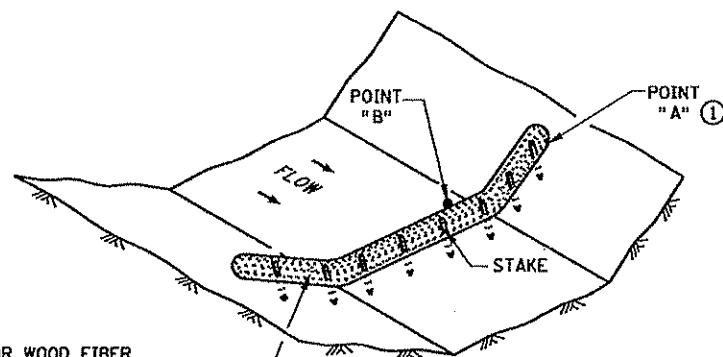
1" X 2" X 18" LONG WOODEN STAKES AT 1' 0" SPACING MAXIMUM. STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE BIOROLL AT AN ANGLE OF 45 DEGREES WITH THE TOP OF THE STAKE POINTING UPSTREAM. PROVIDE 8" TO 10" OF EMBEDMENT DEPTH.



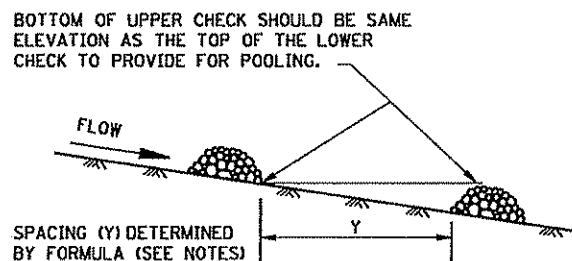
**BIOROLL STAKING DETAIL**



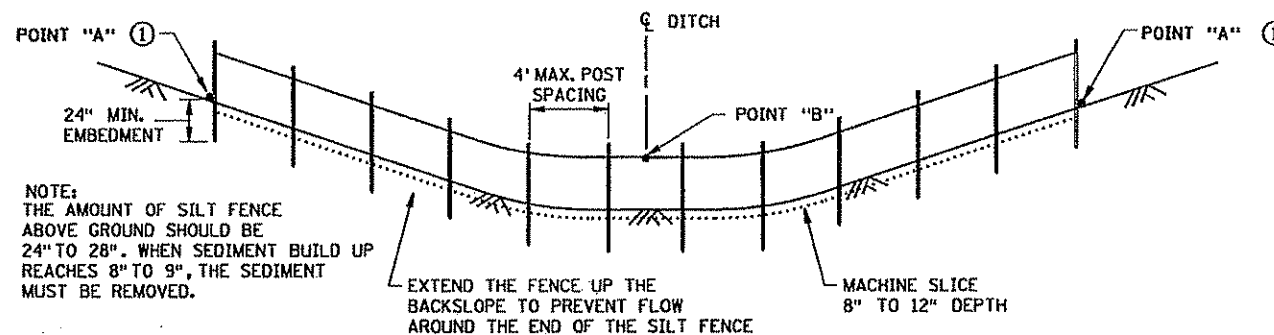
**TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK**



**TYPE 2: BIOROLL DITCH CHECK**  
USE ON ROUGH GRADED AREAS



**DITCH CHECK SPACING** ④



**TYPE 1: SLICED IN SILT FENCE DITCH CHECK**

**NOTES:**

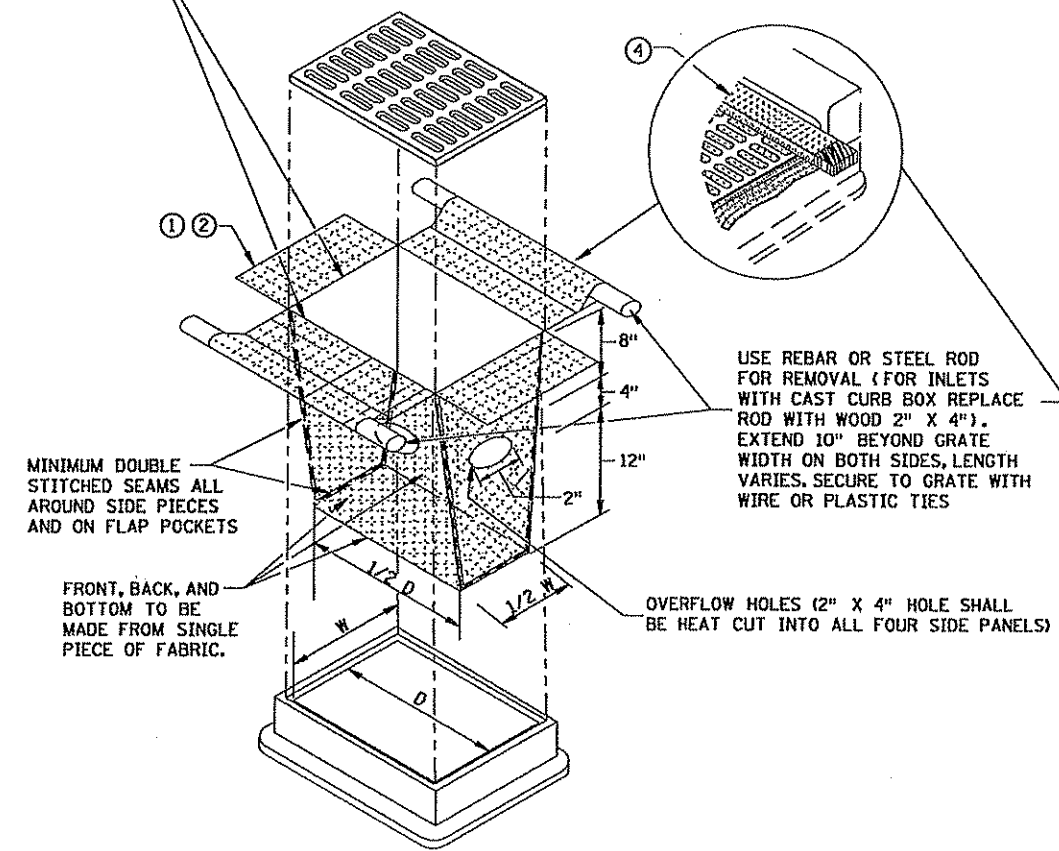
- SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.
- APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:  
APPROXIMATE SPACING OF DITCH CHECKS (FT.) =  $Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$
- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).
- ③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.
- ④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

| GENERAL DESIGN GUIDELINES |                |                |                 |                 |                |                |
|---------------------------|----------------|----------------|-----------------|-----------------|----------------|----------------|
| DITCH CHECK TYPE          | SILT FENCE     | BIOROLL        | BIOROLL BLANKET | TRIANGULAR DIKE | ROCK WEEPER    | ROCK CHECK     |
| STORM FREQUENCY:          | 2 YR. - 24 HR. | 2 YR. - 24 HR. | 2 YR. - 24 HR.  | 2 YR. - 24 HR.  | 5 YR. - 24 HR. | 5 YR. - 24 HR. |
| MAX. FLOW VELOCITY:       | < 1 FT./SECOND | 1.5 FT./SECOND | 4.5 FT./SECOND  | 1.5 FT./SECOND  | 12 FT./SECOND  | 12 FT./SECOND  |
| MAX. DITCH GRADE:         | 0% - 0.5%      | 1.5% - 3%      | 1.5% - 3%       | 1.5% - 2.0%     | 3% - 5%        | 3% - 5%        |
| MAX. DRAINAGE AREA:       | 1 ACRE         | 2 ACRE         | 2 ACRE          | 4 ACRE          | 4+ ACRE        | 4+ ACRE        |

|  |   |
|--|---|
| STANDARD SHEET NO.<br>5-297.405 (3 OF 4) | <b>TEMPORARY SEDIMENT CONTROL<br/>DITCH CHECK/BARRIER</b> |
| STANDARD APPROVED:<br>SEPTEMBER 27, 2006 |   |
| <b>S.A.P. 199-020-005</b>                | <b>SHEET NO. 126 OF 249 SHEETS</b>                        |

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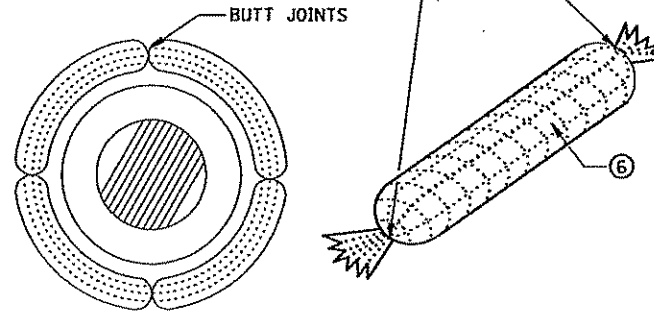
INLET SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH FLAP POCKET



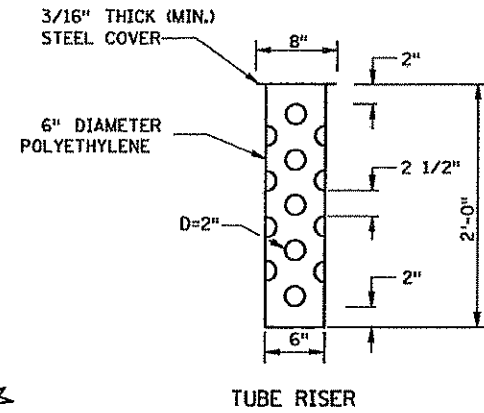
**FILTER BAG INSERT ③**

CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX

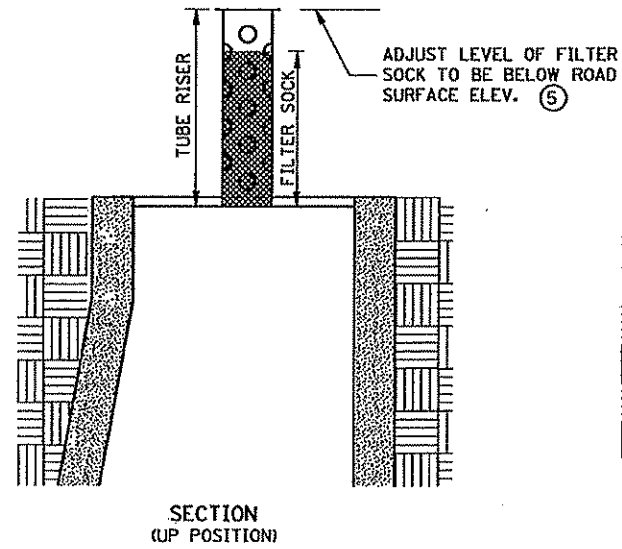
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI. ZIP TIE.



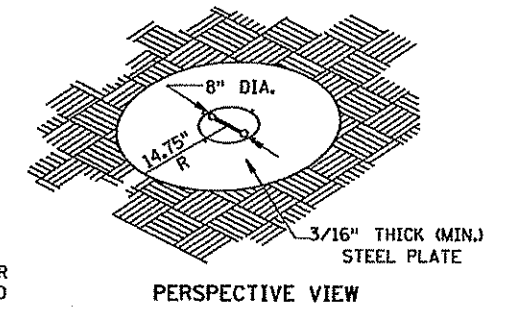
**ROCK LOG/COMPOST LOG**



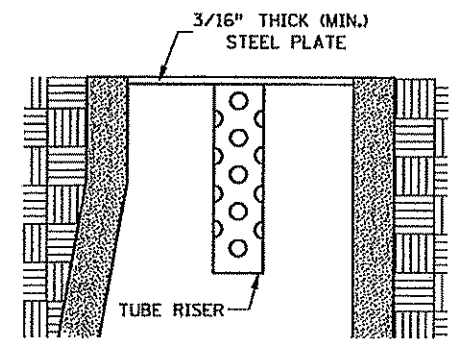
**TUBE RISER**



**SECTION (UP POSITION)**

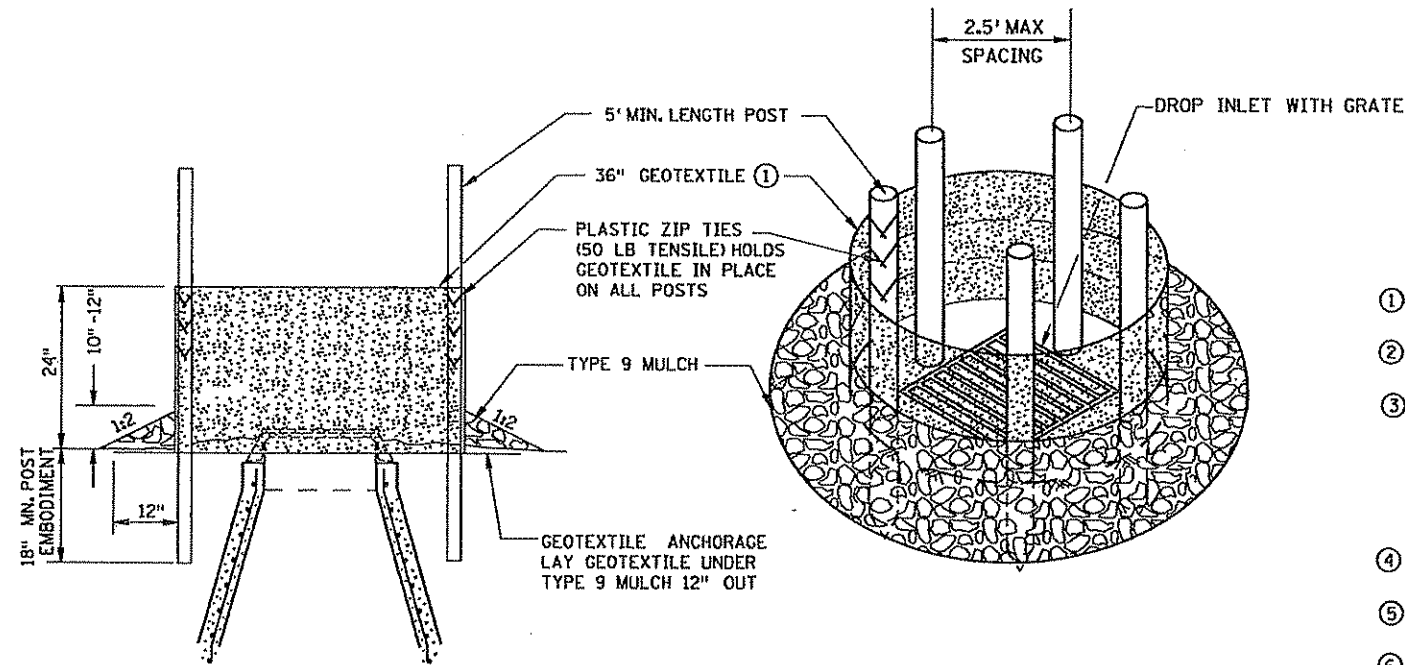


**PERSPECTIVE VIEW**



**SECTION (DOWN POSITION)**

**POP-UP HEAD**



**SILT FENCE RING AND ROCK FILTER BERM**

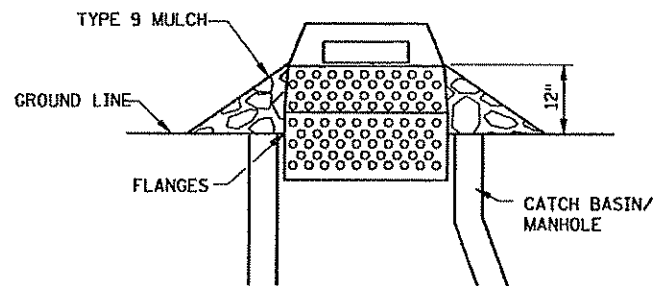
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

**NOTES:**

SEE SPECS. 2573, 3137, 3886 & 3891.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES: DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.



**SEDIMENT CONTROL INLET HAT**

NOTE: THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.

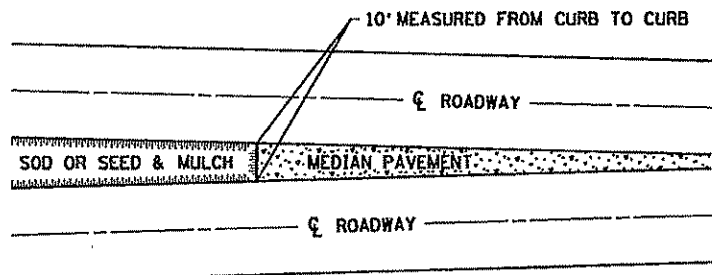
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STANDARD SHEET NO. 297.405 (4 OF 4)  
 STANDARD APPROVED: SEPTEMBER 27, 2006

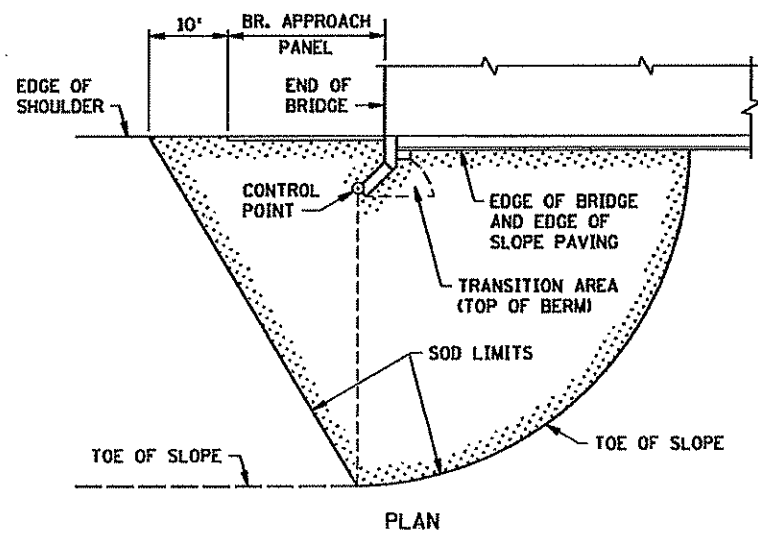
TITLE: TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION

S.A.P. 199-020-005

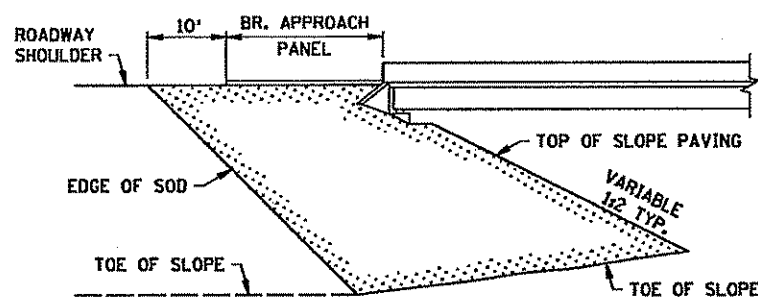
SHEET NO. 127 OF 249 SHEETS



SODDING LIMITS AT GORE AREA

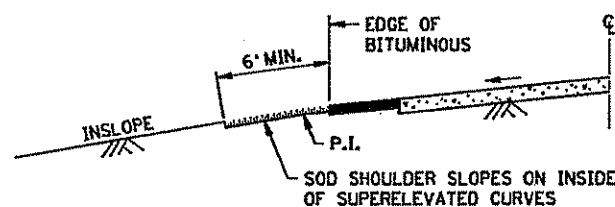


PLAN

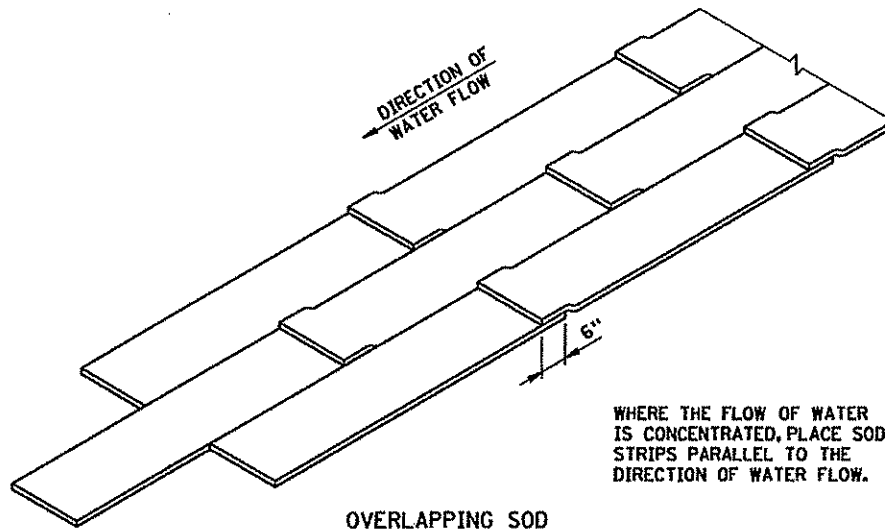


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

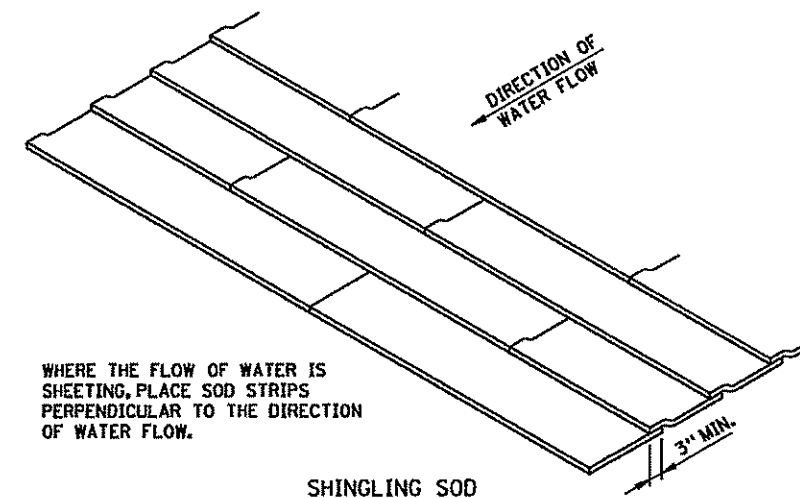


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

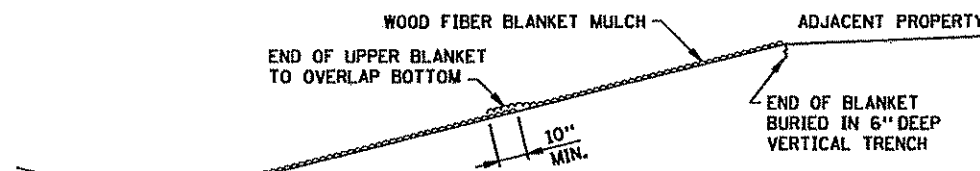
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



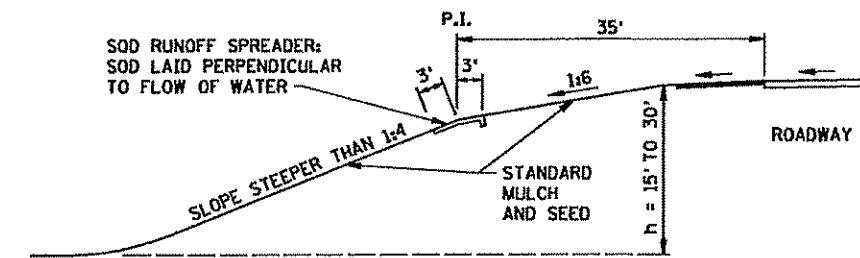
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

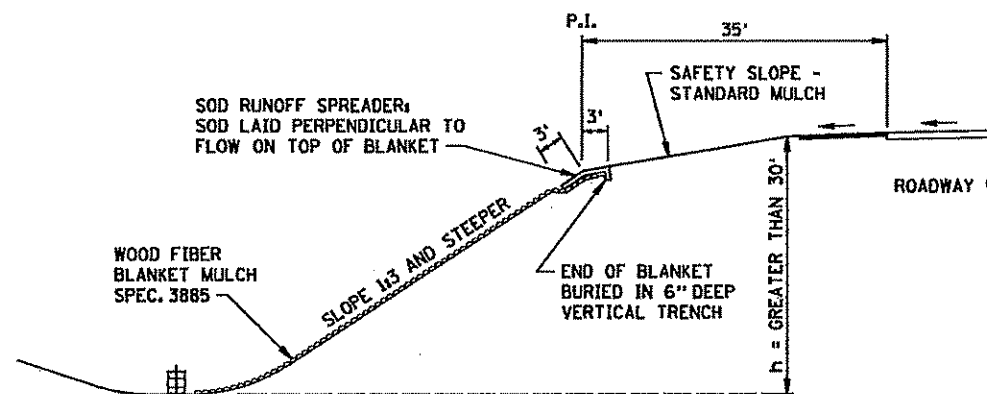
SPECIAL SOD PLACEMENT TECHNIQUES



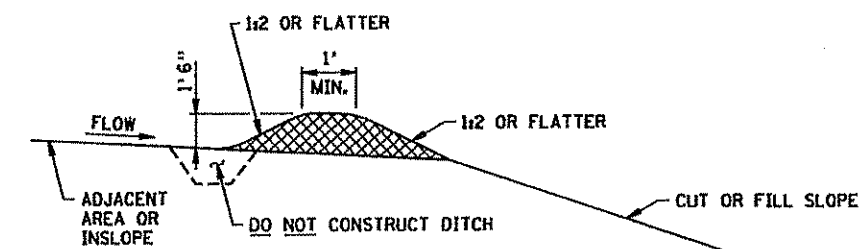
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

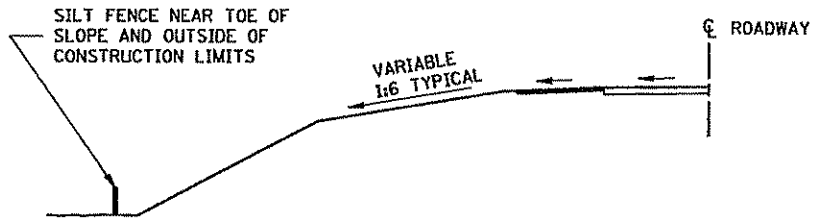


PERMANENT SLOPE PROTECTION DIKE

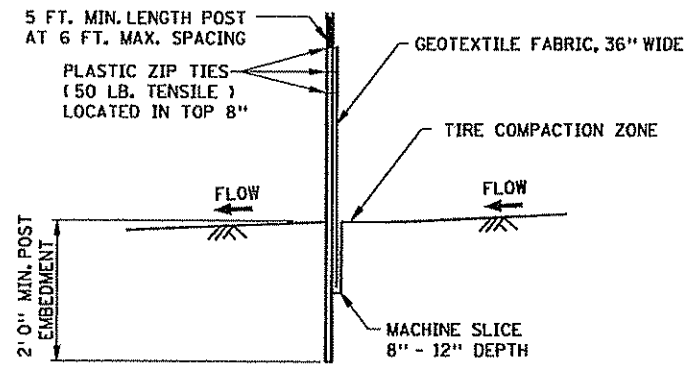
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|  |   |
|--|---|
| STANDARD SHEET NO.<br>5-297.406        | TITLE<br><b>PERMANENT EROSION CONTROL</b><br>ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS |
| STANDARD APPROVED:<br>JANUARY 31, 1985 |   |
| REVISION DATE<br>10-26-2000            | S.A.P. 199-020-005  |
| SHEET NO. 128 OF 249 SHEETS            |   |

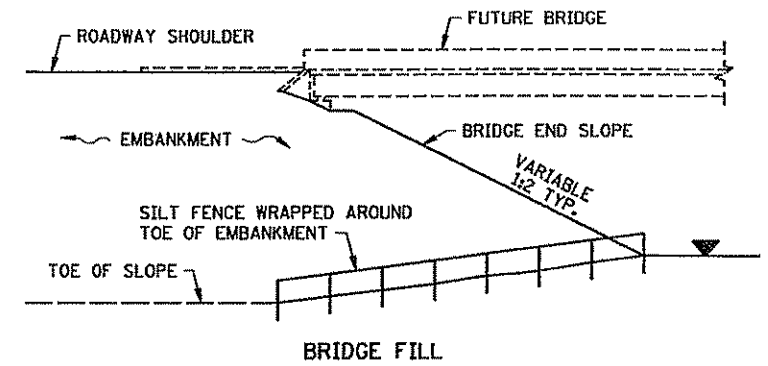




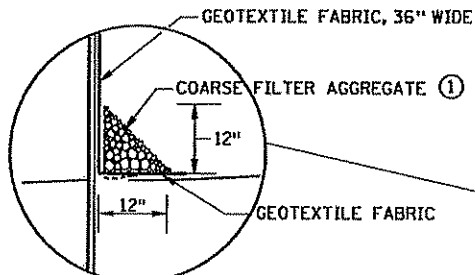
**LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT**



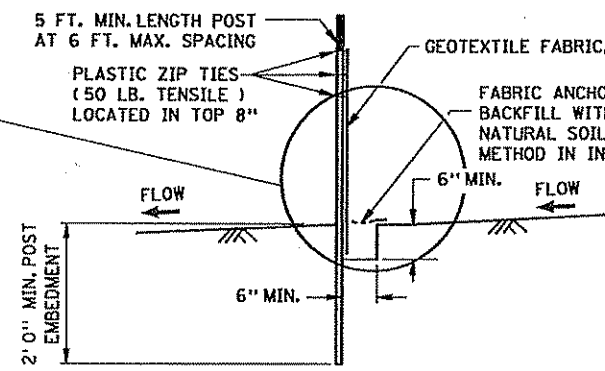
**SILT FENCE, MACHINE SLICED**  
 DESIGN GUIDELINES:  
 TO PROTECT AREAS FROM SHEET FLOW.  
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.



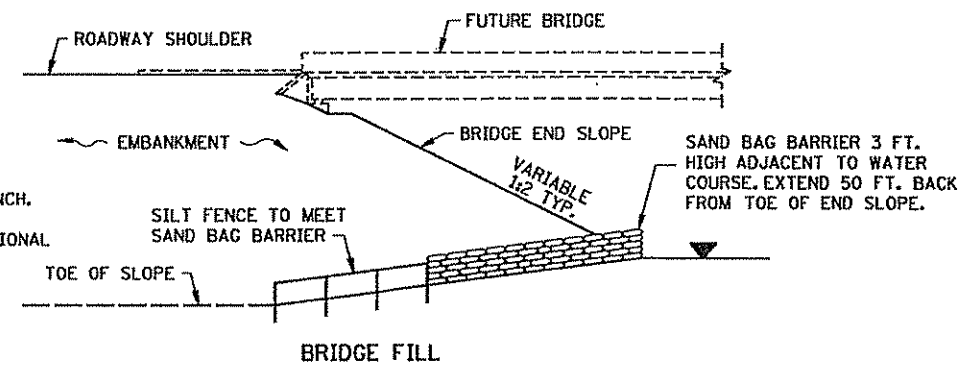
**DESIGN GUIDELINES:**  
 WATER COURSE FLOW VELOCITY: STAGNANT  
 CONTRIBUTING SLOPE AREA: 1/2 ACRE



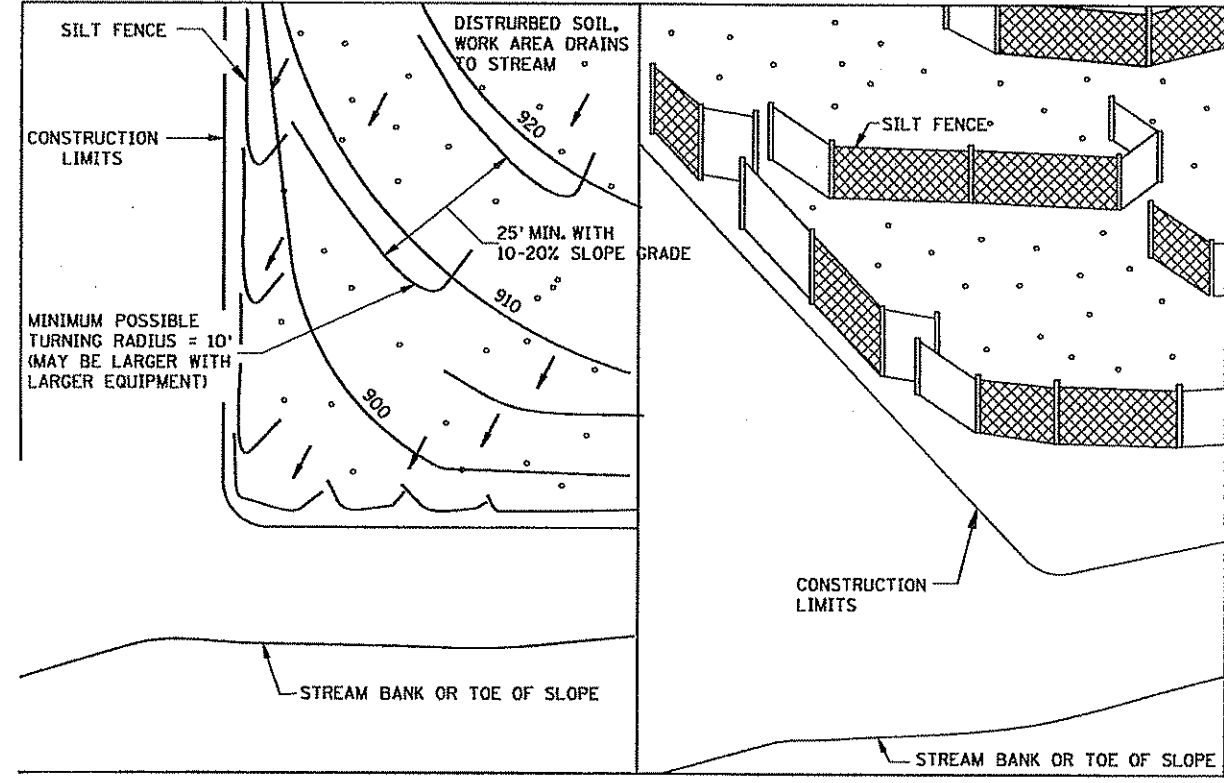
**OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY**



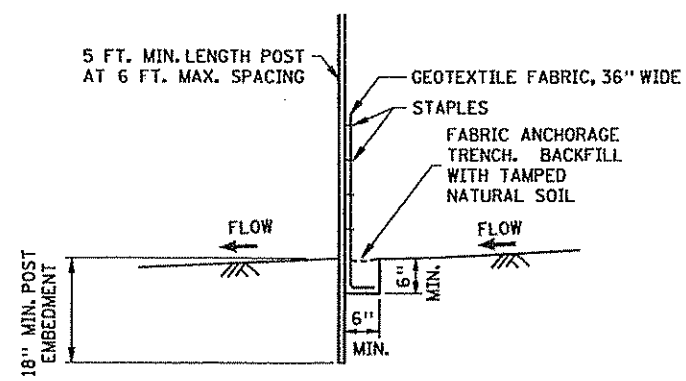
**SILT FENCE, HEAVY DUTY (HAND INSTALLED)**  
 DESIGN GUIDELINES:  
 TO PROTECT AREAS FROM SHEET FLOW.  
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.



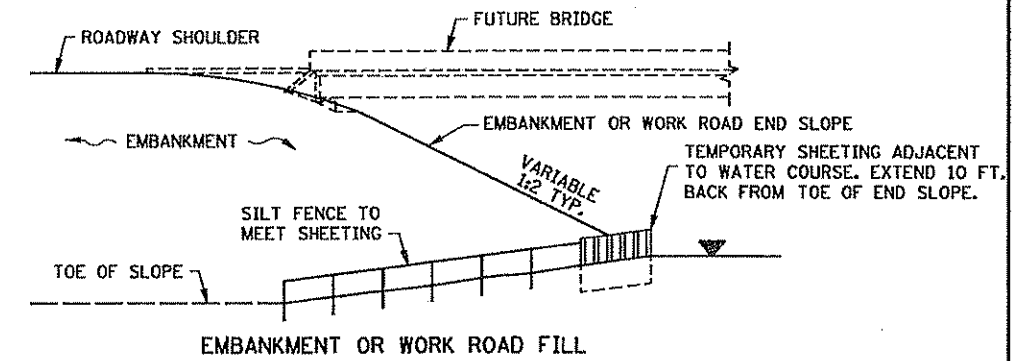
**DESIGN GUIDELINES:**  
 WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.  
 CONTRIBUTING SLOPE AREA: 1 ACRE



**SILT FENCE, J-HOOK INSTALLATION**



**SILT FENCE, PREASSEMBLED**  
 DESIGN GUIDELINES:  
 TO PROTECT AREAS FROM SHEET FLOW.  
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.

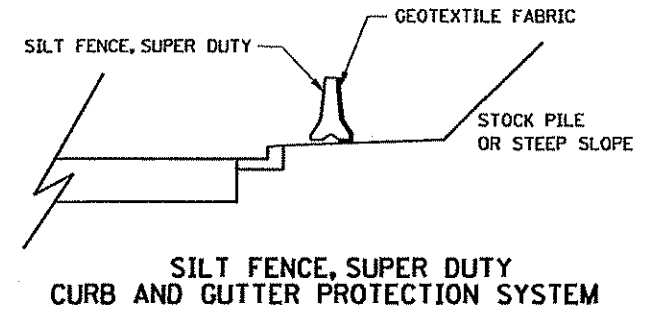
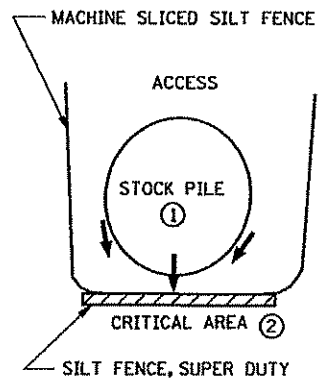
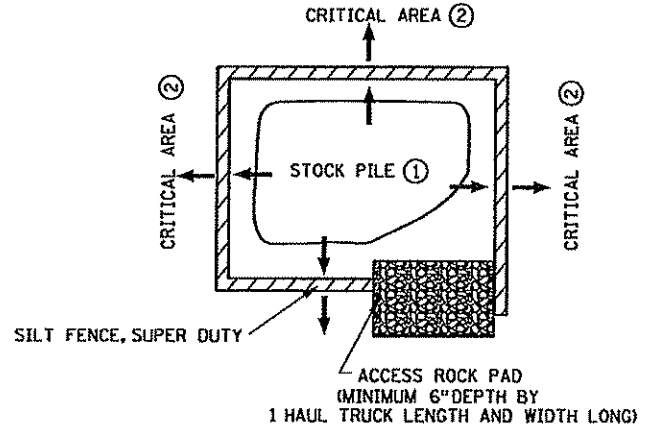
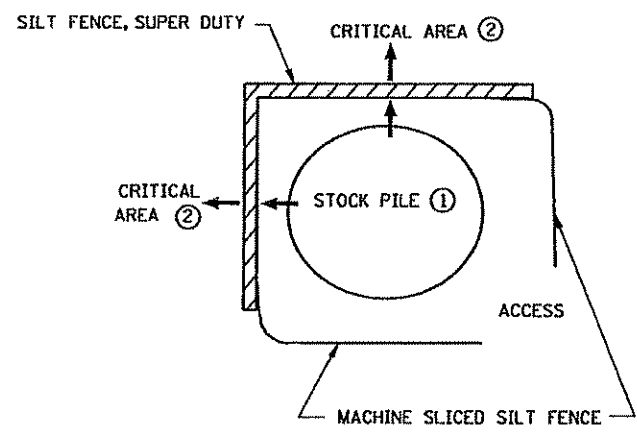


**DESIGN GUIDELINES:**  
 WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.  
 CONTRIBUTING SLOPE AREA: 3 ACRES

**NOTES:**  
 SEE SPECS. 2573, 3149 & 3886.  
 ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

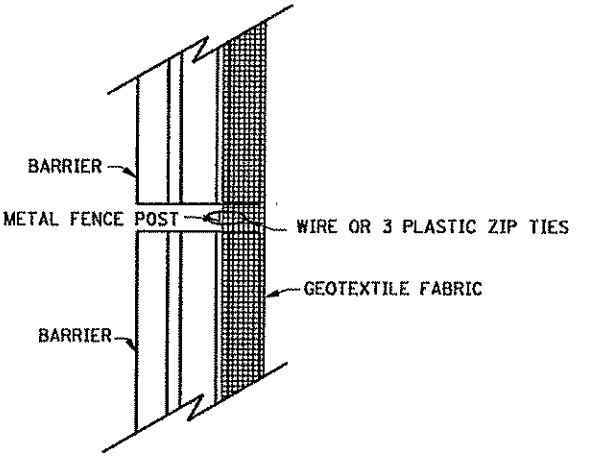
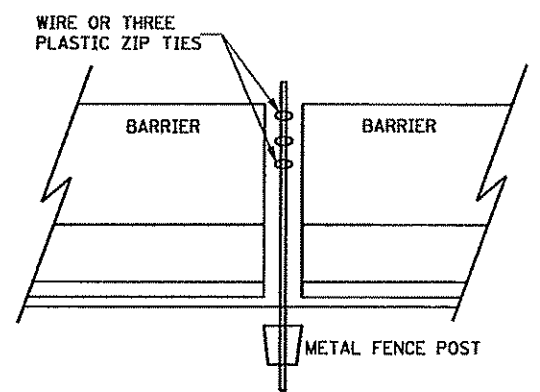
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|  |  |
|--|--|
| STANDARD SHEET NO.<br>5-297.408 (1 OF 2) | TITLE:<br>TEMPORARY SEDIMENT CONTROL<br>SILT FENCE |
| STANDARD APPROVED:<br>SEPTEMBER 27, 2006 |  |
| S.A.P. 199-020-005                       | SHEET NO. 129 OF 249 SHEETS                        |



**SILT FENCE, SUPER DUTY STOCK PILE CONTAINMENT**

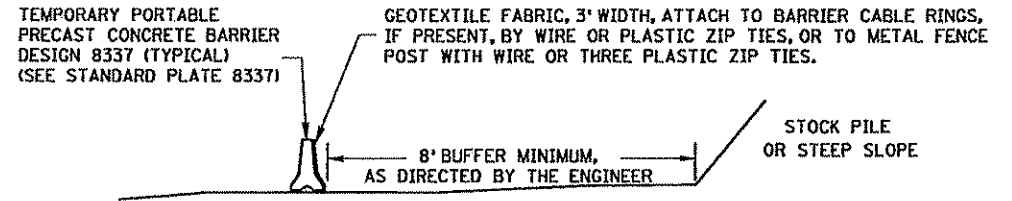
**SILT FENCE, SUPER DUTY CURB AND GUTTER PROTECTION SYSTEM**



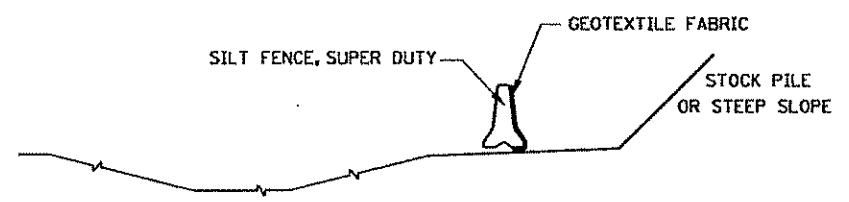
**SIDE VIEW**

**TOP VIEW**

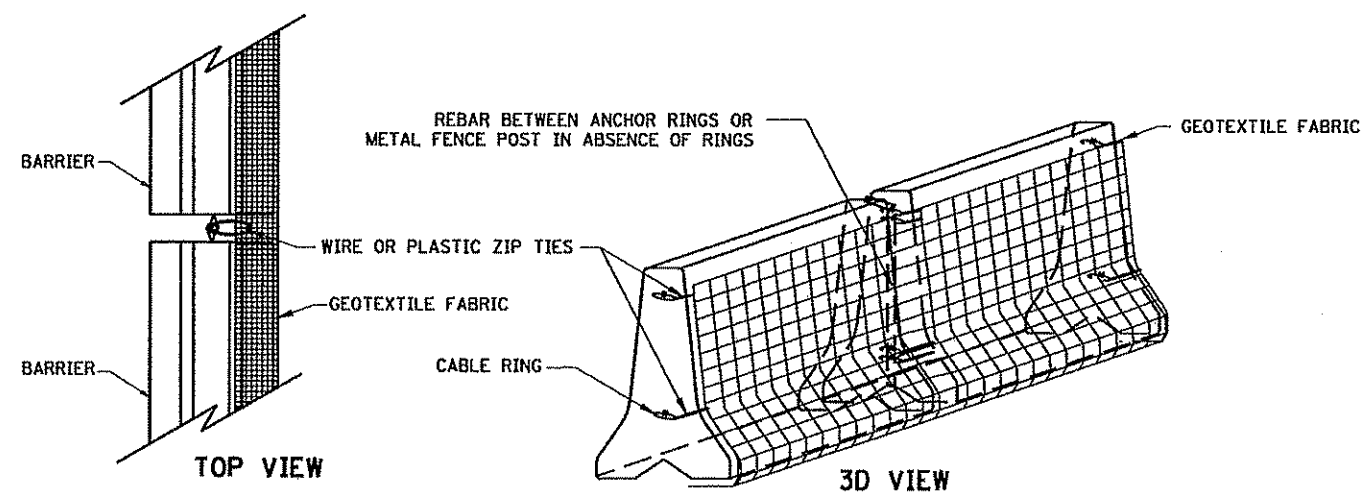
**BARRIER WITHOUT CABLE RINGS**



**SILT FENCE, SUPER DUTY STOCKPILE SEDIMENT CONTROL**



**SILT FENCE, SUPER DUTY DITCH PROTECTION SYSTEM**



**TOP VIEW**

**3D VIEW**

**BARRIER WITH CABLE RINGS SILT FENCE, SUPER DUTY**

**NOTES:**

- SEE SPECS. 2533, 2573 & 3886.
- PLACE SUPER DUTY SILT FENCE ALONG A CONSTANT ELEVATION. SUPER DUTY SILT FENCE CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.
- ① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, THE SUPER DUTY SILT FENCE IS TO BE USED AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

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|--|--|
| STANDARD SHEET NO.<br>5-297.408 (2 of 2) | TITLE<br>TEMPORARY SEDIMENT CONTROL<br>SUPER DUTY SILT FENCE |
| STANDARD APPROVED:<br>SEPTEMBER 27, 2006 |  |
| S.A.P. 199-020-005                       | SHEET NO. 130 OF 249 SHEETS                                  |

| REMOVE SIGN TYPE SPECIAL |          |  | P     |
|--------------------------|----------|--|-------|
| SIGN NO.                 | QUANTITY | LEGEND                                   | NOTES |
| SP-203                   | 1        | BUNKER LAKE BLVD NW<br>ARMSTRONG BLVD NW |       |
| TOTAL                    | 1        |  |       |

| SALVAGE & INSTALL SIGN TYPE SPECIAL |          |                                      |                   | Q     |
|-------------------------------------|----------|--------------------------------------|-------------------|-------|
| SIGN NO.                            | QUANTITY | LEGEND                               | MTG. HT. (FT) (1) | NOTES |
| SP-201                              | 1        | 147TH AVENUE NW<br>ARMSTRONG BLVD NW | 7                 |       |
| SP-202                              | 1        | 149TH LN NW<br>ARMSTRONG BLVD NW     | 7                 |       |
| TOTAL                               | 2        |                                      |                   |       |

NOTES:  
(1) MOUNTING HEIGHT IS MINIMUM.

| DELINEATORS & MARKERS           |          |                         |       | S |
|---------------------------------|----------|-------------------------|-------|---|
| TYPE                            | QUANTITY | LOCATION                | NOTES |   |
| X4-2 HAZARD MARKER              | 7        | MOUNT BELOW C-4         | (1)   |   |
| X4-5 SNOW PLOW MARKER           | 7        | SEE SIGNING PLAN SHEETS | (2)   |   |
| X4-13 CYLINDER STYLE DELINEATOR | 3        | MOUNT BELOW C-3         |       |   |
| TOTAL                           | 17       |                         |       |   |

GENERAL NOTES:  
1. FOR DELINEATOR AND MARKER PLACEMENT SEE SHEET 148 .



NOTES:  
(1) SEE STANDARD SIGNS MANUAL FOR HAZARD MARKER (X4-2). (BLACK BACKGROUND)  
(2) SEE STANDARD SIGNS MANUAL FOR SNOW PLOW MARKER (X4-5).

| SIGN PANELS TYPE C |          |            |                    |              |                           |                    |                      |                            |                   |   | R      |
|--------------------|----------|------------|--------------------|--------------|---------------------------|--------------------|----------------------|----------------------------|-------------------|---|--------|
| SIGN NO.           | QUANTITY | POSTS      |                    |              | MOUNTING HEIGHT (FT.) (1) | PANEL SIZE (IN.)   | PANEL AREA (SQ. FT.) | TOTAL PANEL AREA (SQ. FT.) | SIGN CODE #       | PANEL LEGEND                                | NOTE   |
|                    |          | NO. & TYPE | KNEE BRACES QUANT. | LENGTH (FT.) |                           |                    |                      |                            |                   |   |        |
| C-1                | 4        | 2U         | 1                  | 13.5         | 7                         | 36 X 36            | 9.0                  | 36.0                       | W6-1              | DIVIDED HIGHWAY                             |        |
| C-2                | 3        | 2U         | 1                  | 13.5         | 7                         | 36 X 36            | 9.0                  | 27.0                       | W3-3              | SIGNAL AHEAD                                |        |
| C-3                | 3        | 2U         |                    | 13.0         | 7                         | 30 X 30            | 6.3                  | 18.9                       | R1-1              | STOP  |        |
| C-4                | 7        | 2U         |                    | 13.5         | 7                         | 30 X 36            | 7.5                  | 52.5                       | R4-7              | KEEP RIGHT                                  | (2)    |
| C-6                | 2        | 2U         |                    | 14.0         | 7                         | 21 X 15<br>24 X 24 | 4.0<br>2.2           | 8.0<br>4.4                 | M2-1<br>M1-6      | JCT<br>COUNTY ROAD MARKER (116)             |        |
| C-7                | 3        | 2U         |                    | 13.0         | 7                         | 30 X 30            | 6.3                  | 18.9                       | R3-7L             | LEFT LANE MUST TURN LEFT                    | (2)    |
| C-8                | 7        | 2U         |                    | 13.0         | 7                         | 30 X 30            | 6.3                  | 44.1                       | R3-7R             | RIGHT LANE MUST TURN RIGHT                  |        |
| C-9                | 1        | 2U         |                    | 13.5         | 7                         | 24 X 12<br>24 X 24 | 2.0<br>4.0           | 2.0<br>4.0                 | M3-3m<br>M1-6     | SOUTH<br>COUNTY ROAD MARKER (83)            |        |
| C-10               | 1        | 2U         |                    | 14.0         | 7                         | 24 X 24<br>21 X 15 | 4.0<br>2.2           | 4.0<br>2.2                 | M1-6<br>M6-1R     | COUNTY ROAD MARKER (116)<br>RIGHT ARROW     |        |
| C-11               | 4        | 2U         |                    | 13.0         | 7                         | 30 X 30            | 6.3                  | 25.2                       | R5-1              | DO NOT ENTER                                | (2)    |
| C-12               | 1        | 2U         |                    | 13.0         | 7                         | 24 X 30            | 5.0                  | 5.0                        | R2-1              | SPEED LIMIT 40                              |        |
| C-13               | 1        | 2U         |                    | 13.5         | 7                         | 24 X 12<br>24 X 24 | 2.0<br>4.0           | 2.0<br>4.0                 | M4-6<br>M1-6      | END<br>COUNTY ROAD MARKER (116)             |        |
| C-14               | 2        | 2U         |                    | 14.0         | 7                         | 24 X 24<br>21 X 15 | 4.0<br>2.2           | 8.0<br>4.4                 | M1-6<br>M6-4      | COUNTY ROAD MARKER (83)<br>DUAL ARROW       |        |
| C-15               | 1        | 2U         |                    | 14.0         | 7                         | 24 X 24<br>21 X 15 | 4.0<br>2.2           | 4.0<br>2.2                 | M1-6<br>M6-1L     | COUNTY ROAD MARKER (116)<br>LEFT ARROW      |        |
| C-16               | 1        | 2U         |                    | 13.5         | 7                         | 24 X 12<br>24 X 24 | 2.0<br>4.0           | 2.0<br>4.0                 | M3-1m<br>M1-6     | NORTH<br>COUNTY ROAD MARKER (83)            |        |
| C-17               | 1        | 2U         | 1                  | 15.5         | 7                         | 36 X 36<br>30 X 24 | 9.0<br>5.0           | 9.0<br>5.0                 | W9-1R<br>W20-100p | RIGHT LANE ENDS<br>DISTANCE LEGEND 800 FEET |        |
| C-18               | 1        | 2U         |                    | 13.0         | 7                         | 24 X 30            | 5.0                  | 5.0                        | R2-1              | SPEED LIMIT 30                              |        |
| C-22               | 2        | 2U         |                    | 13.0         | 7                         | 30 X 30            | 6.3                  | 12.6                       | W11-8             | FIRE STATION                                |        |
| C-23               | 1        | 2U         | 1                  | 15.5         | 7                         | 24 X 24<br>30 X 36 | 4.0<br>7.5           | 4.0<br>7.5                 | R3-4<br>R4-7      | NO U TURN<br>KEEP RIGHT                     | (2)(3) |
| C-24               | 3        | 2U         | 1                  | 13.5         | 7                         | 36 X 36            | 9.0                  | 27.0                       | R6-1R             | TWO WAY TRAFFIC                             |        |
| C-25               | 1        | 2U         | 1                  | 14.5         | 7                         | 48 X 60 X 60       | 10.0                 | 10.0                       | W14-3             | NO PASSING ZONE                             |        |
| C-26               | 1        | 2U         |                    | 13.5         | 7                         | 24 X 12<br>24 X 24 | 2.0<br>4.0           | 2.0<br>4.0                 | M3-2m<br>M1-6     | EAST<br>COUNTY ROAD MARKER (116)            |        |
| C-27               | 3        | 2U         |                    | 13.0         | 7                         | 24 X 30            | 5.0                  | 15.0                       | R2-1              | SPEED LIMIT 55                              |        |
| C-28               | 1        | 2U         |                    | 14.5         | 7                         | 30 X 30<br>18 X 18 | 6.3<br>2.3           | 6.3<br>2.3                 | W1-2R<br>W13-1    | CURVE RIGHT<br>ADVISORY SPEED 50 MPH        |        |
| C-29               | 1        | 2U         |                    | 14.0         | 7                         | 21 X 15<br>24 X 24 | 2.2<br>4.0           | 2.2<br>4.0                 | M2-1<br>M1-6      | JCT<br>COUNTY ROAD MARKER (83)              |        |
| C-30               | 1        | 2U         | 1                  | 13.0         | 7                         | 36 X 30            | 7.5                  | 7.5                        | R3-30AB           | LEFT ONLY, LEFT ONLY                        |        |
| C-31               | 1        | 2U         | 1                  | 13.5         | 7                         | 36 X 36            | 9.0                  | 9.0                        | W9-1L             | LEFT LANE ENDS                              |        |
| C-32               | 2        | 2U         | 1                  | 13.5         | 7                         | 36 X 36            | 9.0                  | 18.0                       | W4-2R             | TRANSITION RIGHT                            |        |
| TOTAL              | 60       |            |                    |              |                           |                    |                      | 433.2                      |                   |   |        |

NOTES:  
(1) MOUNTING HEIGHT MINIMUM. SEE SHEET 145 FOR TYPICAL MOUNTING.  
(2) MOUNT IN CONCRETE. SEE SHEET 147 .  
(3) MOUNTED BACK TO BACK.

GENERAL NOTES:  
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.  
2. SEE SHEETS 144 - 146 FOR STRUCTURAL DETAILS.  
3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.  
4. FOR PUNCHING AND MOUNTING DETAILS SEE SHEET 146 .

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|--|------|------|-----|-----------|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|---|---|--|-------------------------------------|
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## STRIPING TABULATION

T

| STATION TO STATION  | EPOXY          |                 |                 |                 |                        | PREFORMED THERMOPLASTIC |                  | PAVEMENT MESSAGES (PREFORMED THERMOPLASTIC) |            |             |
|---|----------------|-----------------|-----------------|-----------------|------------------------|-------------------------|------------------|---|------------|-------------|
|   | 4" SOLID WHITE | 4" BROKEN WHITE | 8" DOTTED WHITE | 4" SOLID YELLOW | 4" DOUBLE SOLID YELLOW | 24" STOP WHITE          | 24" SOLID YELLOW | CROSSWALK MARKING                           | LEFT ARROW | RIGHT ARROW |
|   | LIN FT         | LIN FT          | LIN FT          | LIN FT          | LIN FT                 | LIN FT                  | LIN FT           | SO FT                                       | EACH       | EACH        |
| <b>CSAH 83 (ARMSTRONG BOULEVARD) (MAINLINE)</b>               |                |                 |                 |                 |                        |                         |                  |   |            |             |
| 32+79 TO 39+00  | 1360           |                 |                 |                 | 1320                   |                         | 420              |   |            |             |
| 39+00 TO 54+00  | 2800           | 200             | 40              | 2000            | 720                    | 120                     | 675              | 648   | 6          | 4           |
| 54+00 TO 60+63.53   | 2650           | 200             | 80              | 520             | 1000                   |                         | 600              |   |            | 2           |
| SUBTOTAL (CSAH 83 MAINLINE)                                   | 6810           | 400             | 120             | 2520            | 3040                   | 120                     | 1695             | 648   | 6          | 6           |
| <b>CSAH 116 (BUNKER LAKE BOULEVARD EAST LEG) (MAINLINE)</b>   |                |                 |                 |                 |                        |                         |                  |   |            |             |
| 507+59 TO 508+00  | 120            | 10              |                 | 40              |                        | 60                      |                  | 330   |            |             |
| 508+00 TO 517+14  | 2200           | 50              |                 | 1300            | 120                    |                         | 30               |   | 2          | 2           |
| SUBTOTAL (CSAH 116 MAINLINE)                                  | 2320           | 60              |                 | 1340            | 120                    | 60                      | 30               | 330   | 2          | 2           |
| <b>MSAS 121 (BUNKER LAKE BOULEVARD WEST LEG) (MAINLINE)</b>   |                |                 |                 |                 |                        |                         |                  |   |            |             |
| 479+27 TO 490+00  | 2150           |                 |                 |                 | 1100                   |                         |                  |   |            |             |
| 490+00 TO 504+00  | 2900           | 50              |                 | 960             | 1260                   |                         | 200              |   |            |             |
| 504+00 TO 505+86 (100% PARTICIPATING)                         | 850            | 40              |                 | 450             |                        | 60                      |                  | 310   | 1          | 1           |
| SUBTOTAL (MSAS 121 MAINLINE)                                  | 5900           | 90              |                 | 1410            | 2360                   | 60                      | 200              | 310   | 1          | 1           |
| <b>BUNKER LAKE BLVD. CONNECTOR AND PUMA STREET (MAINLINE)</b> |                |                 |                 |                 |                        |                         |                  |   |            |             |
| 466+37 TO 479+27 (BUNKER LAKE BLVD.)                          | 2580           |                 |                 |                 | 1290                   |                         |                  | 72  |            |             |
| SUBTOTAL (S.A.P. 199-020-005) (100% PARTICIPATING)            | 9980           | 500             | 120             | 4310            | 3160                   | 240                     | 1725             | 1288  | 9          | 9           |
| SUBTOTAL (NON-PARTICIPATING)                                  | 7630           | 50              |                 | 960             | 3650                   |                         | 200              | 72  |            |             |
| <b>PROJECT TOTAL</b>  | <b>17610</b>   | <b>550</b>      | <b>120</b>      | <b>5270</b>     | <b>6810</b>            | <b>240</b>              | <b>1925</b>      | <b>1360</b>                                 | <b>9</b>   | <b>9</b>    |


**GENERAL NOTES:**

- ALL BROKEN AND DOTTED LINES ARE PAID FOR BY THE ACTUAL LENGTH OF LINE AND WILL NOT INCLUDE THE GAP BETWEEN THE LINES.  
3' LINE WITH 12' GAPS FOR DOTTED LINES. 10' LINE WITH 40' GAP FOR BROKEN LINES.

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 License No. 40945  
 DATE: 04/28/11

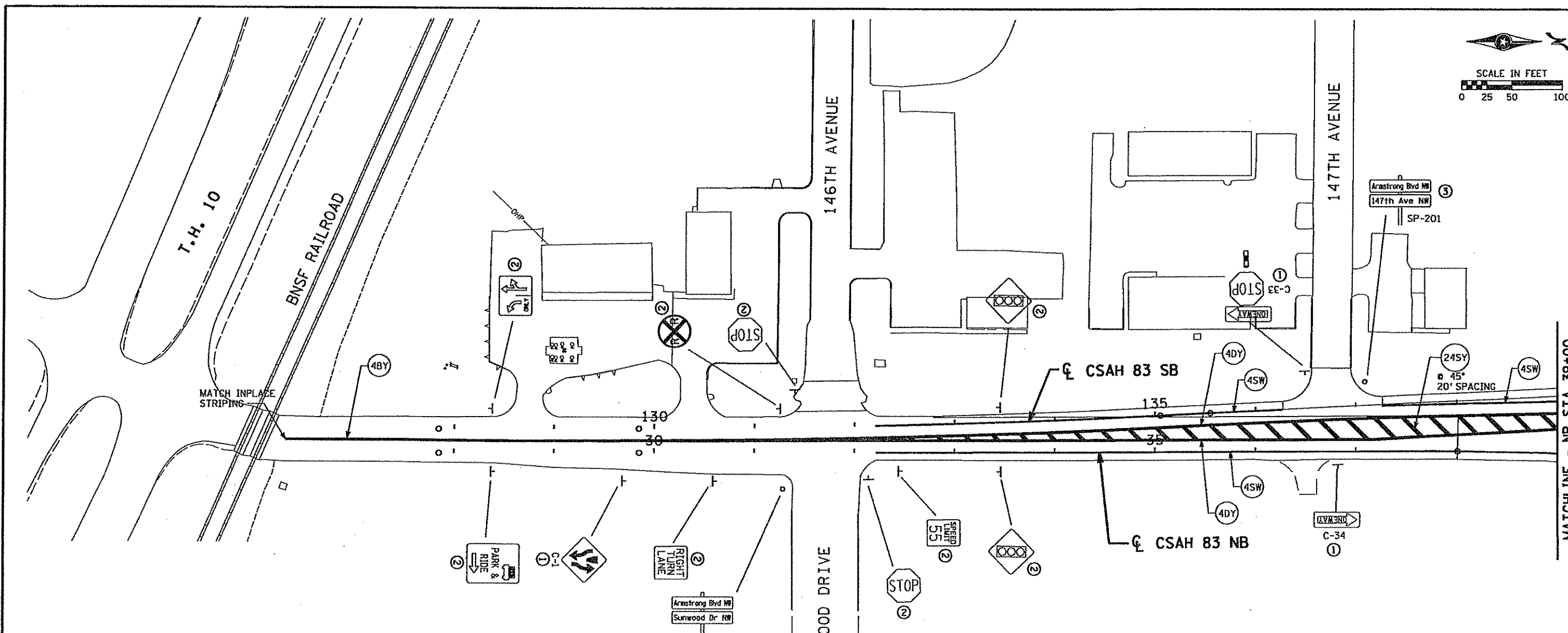
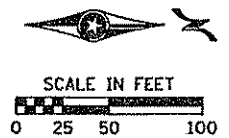
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**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**SIGNING & STRIPING TABULATIONS**

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
132  
OF  
249  
SHEETS



**SYMBOLS & MATERIALS LEGEND**

PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC  
 CROSSWALK BLOCK WHITE PREFORM THERMOPLASTIC  
 24" SOLID WHITE STOP BAR - PREFORM THERMOPLASTIC

**STRIPING KEY**

CIRCLE - EPOXY    SQUARE - PREFORM THERMOPLASTIC  
 TRIANGLE - PAINT  
 PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

**MESSAGE KEY**

1ST DIGIT: WIDTH 4" OR 8"  
 2ND DIGIT: PATTERN (S - SOLID, B - BROKEN, D - DOUBLE)  
 3RD DIGIT: COLOR (W - WHITE, Y - YELLOW, B - BLACK)

EXAMPLE: (4SW) = 4" SOLID LINE WHITE  
 NOTE: ALL 4" OR 8" STRIPING TO BE EPOXY. ALL 24" WHITE OR YELLOW TO BE PREFORMED THERMOPLASTIC.

**NOTES:**

① FURNISH AND INSTALL  
 ② INPLACE TO REMAIN  
 ③ INSTALL

C-XXX "C TYPE SIGN  
 X-XXX "SPECIAL" SIGN

NOTE:  
 LOCATIONS OF NO PASSING ZONE ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

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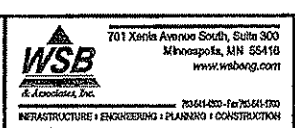
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 Design By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

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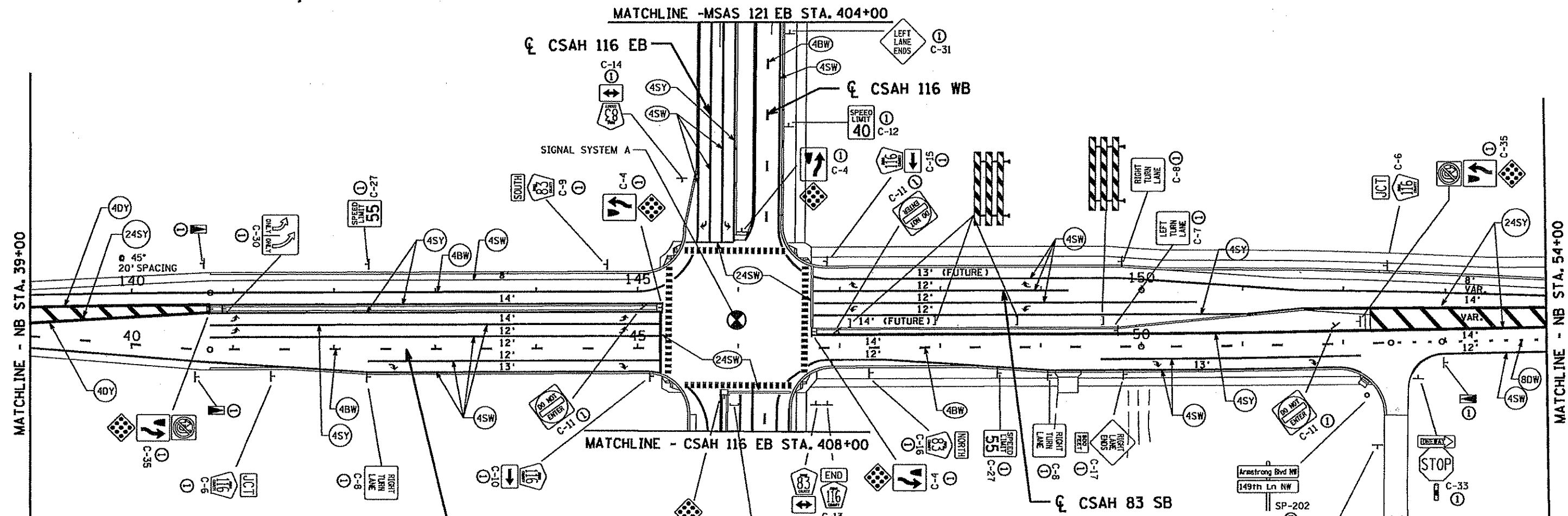
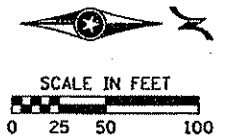
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 CSAH 83/116 & MSAS 121 CONSTRUCTION



NB STA. 32+79.31 TO NB STA. 39+00  
**SIGNING & STRIPING PLAN**  
 SHEET 1 OF 9 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 133  
 OF  
 249  
 SHEETS



**SYMBOLS & MATERIALS LEGEND**

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EXAMPLE: 4SW = 4" SOLID LINE WHITE

NOTE: ALL 4" OR 8" STRIPING TO BE EPOXY. ALL 24" WHITE OR YELLOW TO BE PREFORMED THERMOPLASTIC.

**NOTES:**

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 ② INPLACE TO REMAIN  
 ③ INSTALL

C-XXX "C TYPE SIGN  
 X-XXX "SPECIAL" SIGN

NOTE: LOCATIONS OF NO PASSING ZONE ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

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 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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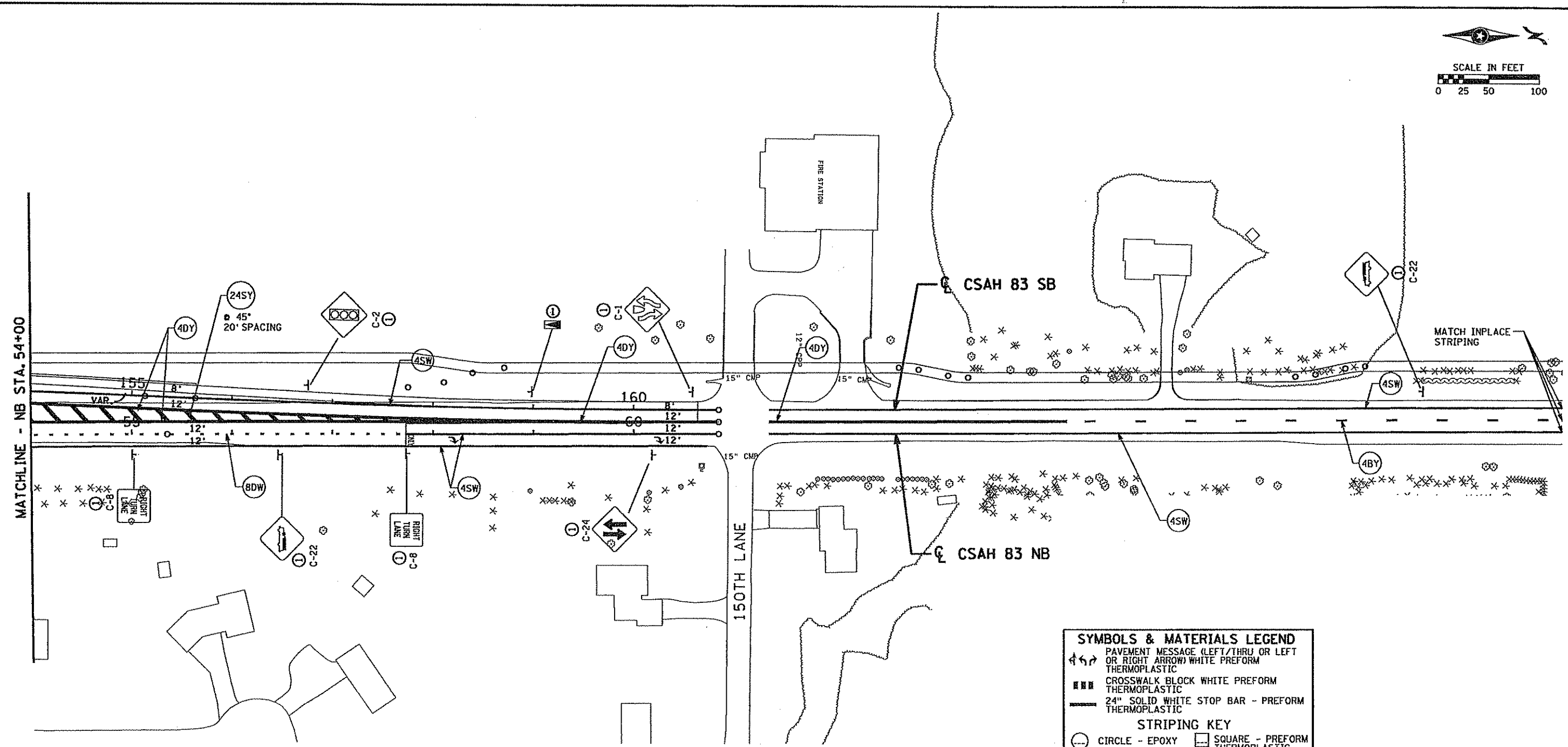
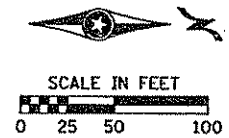
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NB STA. 39+00 TO NB STA. 54+00  
**SIGNING & STRIPING PLAN**  
 SHEET 2 OF 9 SHEETS

SHEET  
 134  
 OF  
 249  
 SHEETS



**SYMBOLS & MATERIALS LEGEND**

◄ ◄ ◄ PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC

▤▤▤ CROSSWALK BLOCK WHITE PREFORM THERMOPLASTIC

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Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

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*[Signature]*  
Professional Engineer, South Dakota P.E.

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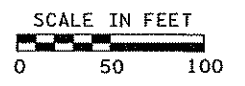
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**SIGNING & STRIPING PLAN**  
SHEET 3 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

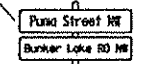
SHEET  
135  
OF  
249  
SHEETS



MATCHLINE - PUMA STREET STA. 34+00

☉ PUMA STREET

☉ MSAS 121 WB



① SP-101

**SYMBOLS & MATERIALS LEGEND**

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- ③ INSTALL

C-XXX "C TYPE SIGN  
X-XXX "SPECIAL" SIGN

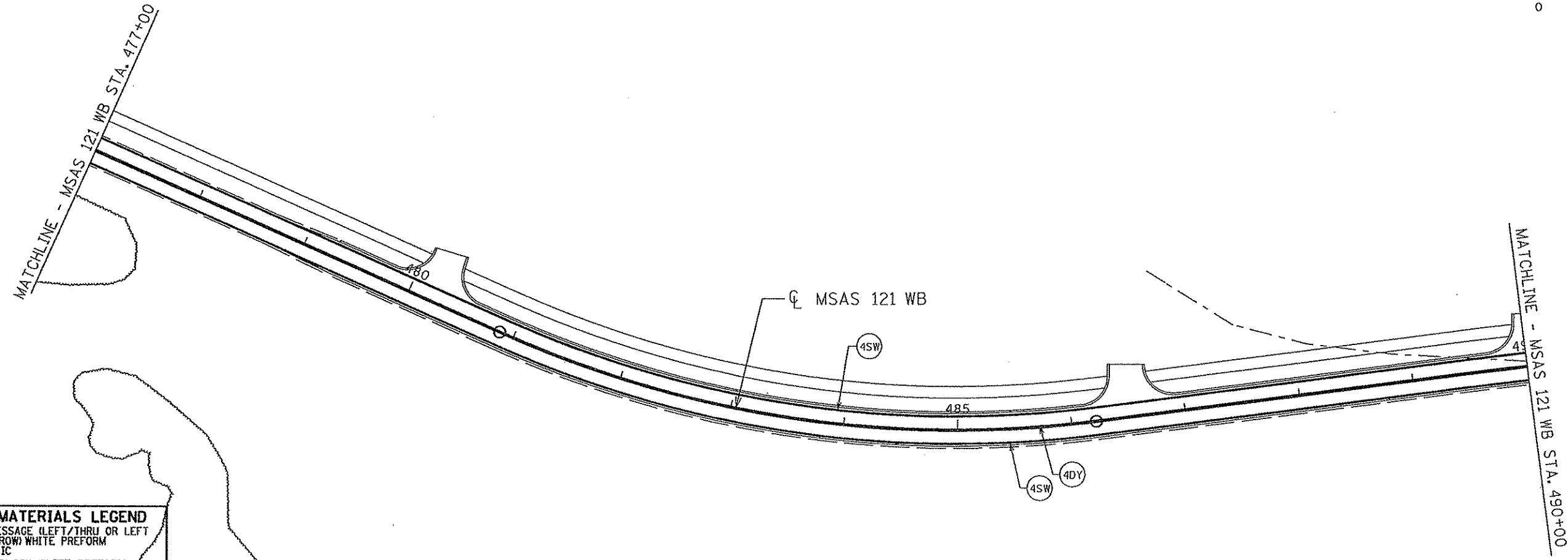
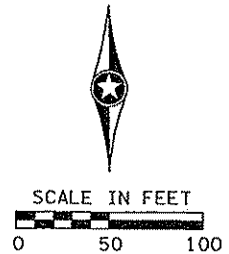
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MATCHLINE - MSAS 121 WB STA. 477+00

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**SYMBOLS & MATERIALS LEGEND**

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TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

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- NOTES:**
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  - INSTALL
- C-XXX "C TYPE SIGN  
X-XXX "SPECIAL" SIGN
- NOTE: LOCATIONS OF NO PASSING ZONE ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

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Designed By: **N HENTGES**  
Checked By: **A PLOWMAN**  
Approved By: **J HALE**

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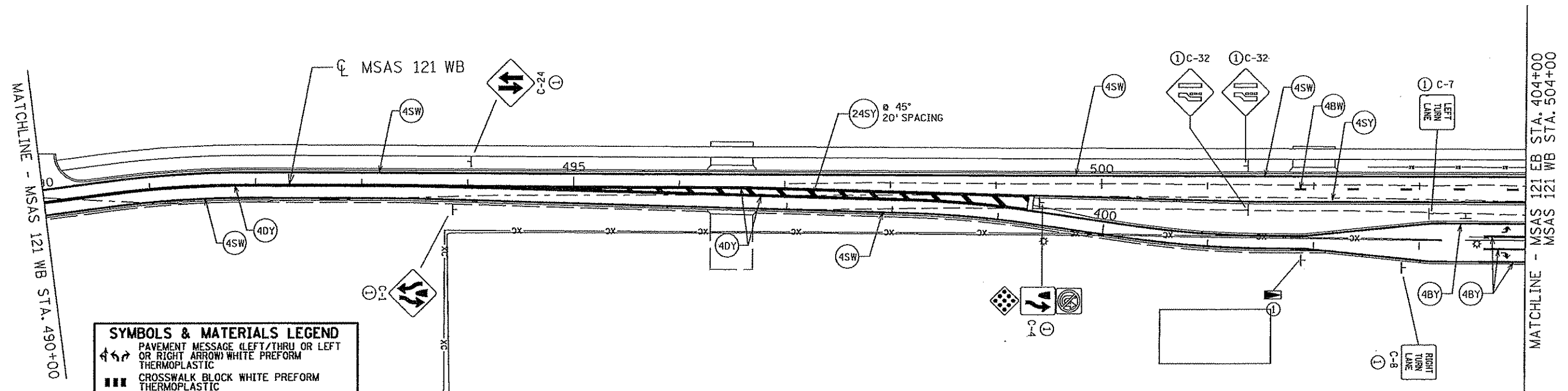
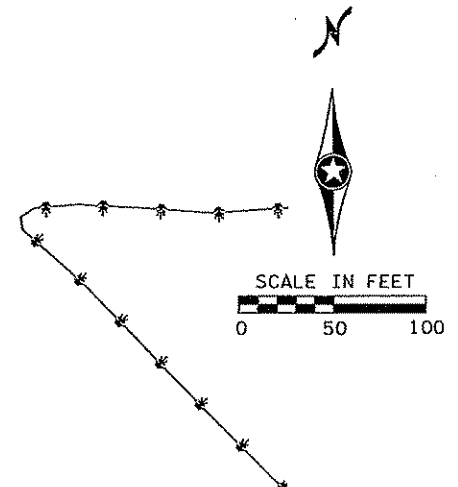
*J. Hale*  
Licensed Professional Engineer, State of Minnesota  
DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 116 WB STA. 477+00 TO WB STA. 490+00.00  
**SIGNING & STRIPING PLAN**  
SHEET 6 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 137 OF 249 SHEETS



**SYMBOLS & MATERIALS LEGEND**

PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC  
 CROSSWALK BLOCK WHITE PREFORM THERMOPLASTIC  
 24" SOLID WHITE STOP BAR - PREFORM THERMOPLASTIC

**STRIPING KEY**

CIRCLE - EPOXY    SQUARE - PREFORM THERMOPLASTIC  
 TRIANGLE - PAINT  
 PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

**MESSAGE KEY**

1ST DIGIT WIDTH: 4" OR 8"  
 2ND DIGIT PATTERN: S - SOLID, B - BROKEN, D - DOUBLE  
 3RD DIGIT COLOR: W - WHITE, Y - YELLOW, B - BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE  
 NOTE: ALL 4" OR 8" STRIPING TO BE EPOXY. ALL 24" WHITE OR YELLOW TO BE PREFORMED THERMOPLASTIC.

**NOTES:**

- ① FURNISH AND INSTALL
- ② INPLACE TO REMAIN
- ③ INSTALL

C-XXX "C TYPE SIGN  
X-XXX "SPECIAL" SIGN

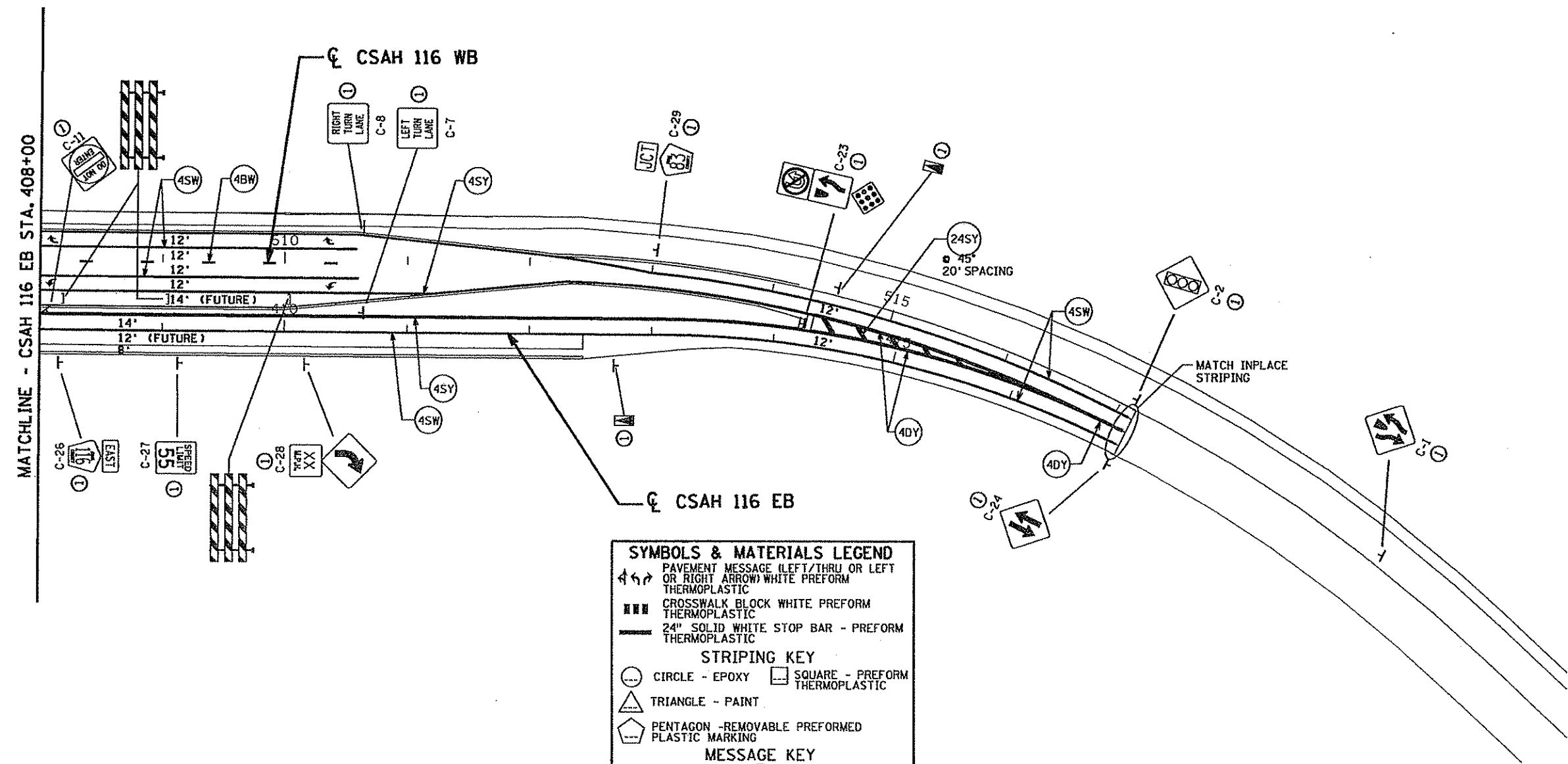
NOTE: LOCATIONS OF NO PASSING ZONE ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

DATE: 5/4/2011 10:49:20 AM  
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| <table border="1"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> |      |    |     | NO        | DATE | BY | CHK | REVISIONS |  |  |  |  |  | Drawn By: C KOCHMAN<br>Designed By: N HENTGES<br>Checked By: A PLOWMAN<br>Approved By: J HALE | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Licensed Professional Engineer, Jupo Hale P.E.<br>DATE: 04/28/11 LIC NO: 42084 | <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xocla Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsb.org.com<br>763.545.4000 Fax 763.545.4700<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | CSAH 116 WB STA. 490+00 TO WB STA. 504+00<br><b>SIGNING &amp; STRIPING PLAN</b><br>SHEET 7 OF 9 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET 138<br>OF 249<br>SHEETS |
|--|------|----|-----|-----------|------|----|-----|-----------|--|--|--|--|--|---|---|--|--|--|-------------------------------|
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SCALE IN FEET  
0 25 50 100



**SYMBOLS & MATERIALS LEGEND**

◀▶ PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC

▨▨▨ CROSSWALK BLOCK WHITE PREFORM THERMOPLASTIC

— 24" SOLID WHITE STOP BAR - PREFORM THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY    ◻ SQUARE - PREFORM THERMOPLASTIC

△ TRIANGLE - PAINT

◡ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

**MESSAGE KEY**

1ST DIGIT WIDTH  
4" OR 8"

2ND DIGIT PATTERN  
S - SOLID  
B - BROKEN  
D - DOUBLE

3RD DIGIT COLOR  
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EXAMPLE: 4SW = 4" SOLID LINE WHITE

NOTE: ALL 4" OR 8" STRIPING TO BE EPOXY.  
ALL 24" WHITE OR YELLOW TO BE PREFORMED THERMOPLASTIC.

- NOTES:**
- ① FURNISH AND INSTALL
  - ② INPLACE TO REMAIN
  - ③ INSTALL
- C-XXX "C TYPE SIGN  
X-XXX "SPECIAL" SIGN

NOTE:  
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|    |      |    |     |           |

Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

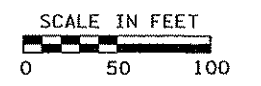
*[Signature]*  
Professional Engineer, State of Minnesota, P.E.  
DATE: 04/28/11 LIC NO: 40945

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



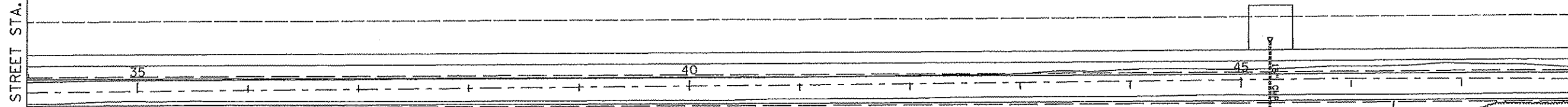
CSAH 116 EB STA. 408+00 TO STA. 417+00  
SIGNING & STRIPING PLAN  
SHEET 4 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 139 OF 249 SHEETS



MATCHLINE - PUMA STREET STA. 34+00

MATCHLINE - PUMA STREET STA. 48+00



**SYMBOLS & MATERIALS LEGEND**

PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC

CROSSWALK BLOCK WHITE PREFORM THERMOPLASTIC

24" SOLID WHITE STOP BAR - PREFORM THERMOPLASTIC

**STRIPING KEY**

CIRCLE - EPOXY      SQUARE - PREFORM THERMOPLASTIC

TRIANGLE - PAINT

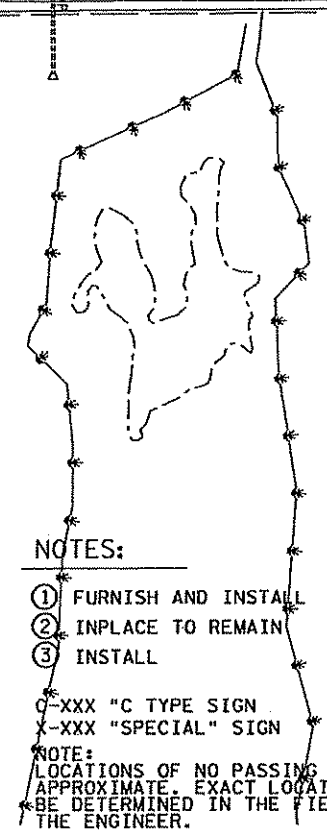
PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

**MESSAGE KEY**

1ST DIGIT WIDTH 4" OR 8"      2ND DIGIT PATTERN S - SOLID B - BROKEN D - DOUBLE      3RD DIGIT COLOR W - WHITE Y - YELLOW B - BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE

NOTE: ALL 4" OR 8" STRIPING TO BE EPOXY. ALL 24" WHITE OR YELLOW TO BE PREFORMED THERMOPLASTIC.



**NOTES:**

① FURNISH AND INSTALL

② INPLACE TO REMAIN

③ INSTALL

C-XXX "C" TYPE SIGN

X-XXX "SPECIAL" SIGN

NOTE: LOCATIONS OF NO PASSING ZONE ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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*[Signature]*  
 Licensed Professional Engineer, Jupa Hale P.E.

DATE: 04/28/11 LIC NO: 42084

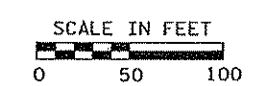
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA ST NB STA. 34+00 TO NB STA. 48+00  
**SIGNING & STRIPING PLAN**  
 SHEET 8 OF 9 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 140 OF 249 SHEETS



MATCHLINE - PUMA STREET STA. 48+00

**SYMBOLS & MATERIALS LEGEND**

PAVEMENT MESSAGE (LEFT/THRU OR LEFT OR RIGHT ARROW) WHITE PREFORM THERMOPLASTIC

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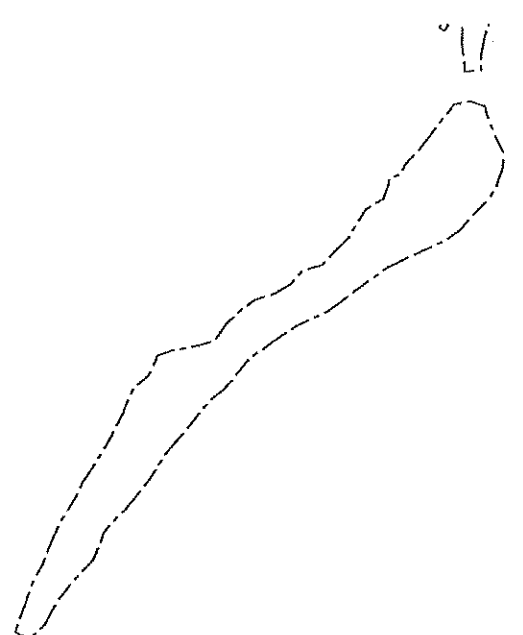
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**NOTES:**

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C-XXX "C TYPE SIGN  
X-XXX "SPECIAL" SIGN

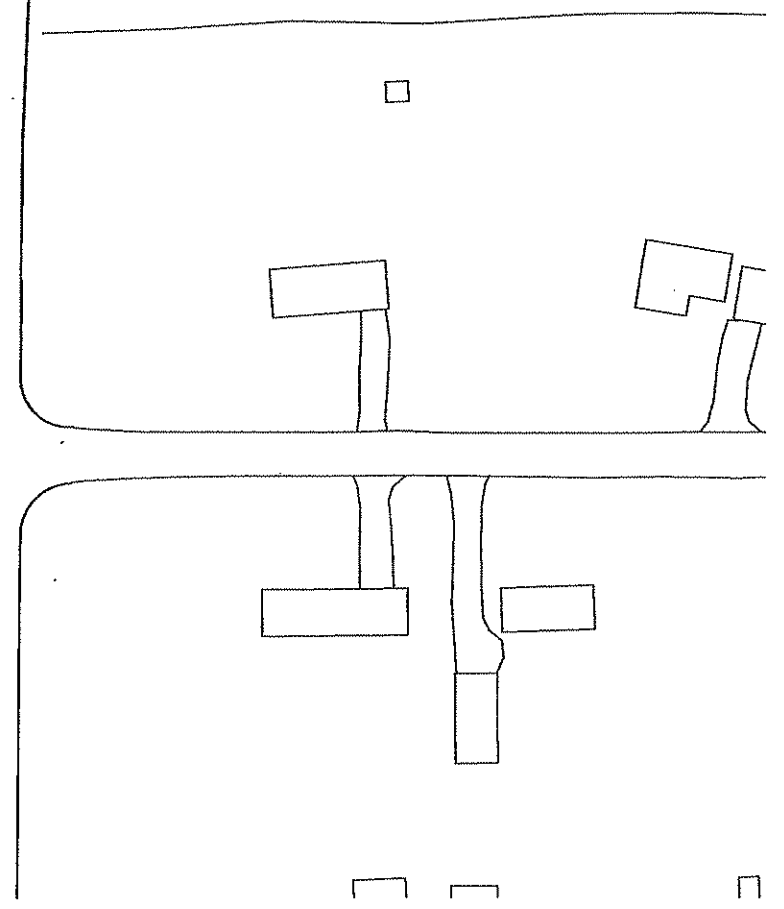
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Puma Street NW  
Alpine Dr

②

② STOP



DATE: 6/4/2011 10:49:28 AM  
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|    |      |    |     |           |

Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A FLOWMAN  
Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
Licensed Professional Engineer, Jupo Hiale P.E.

DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
www.wsborg.com  
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PUMA ST NB STA. 48+00 TO ALPINE DR  
**SIGNING & STRIPING PLAN**  
SHEET 9 OF 9 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 141 OF 249 SHEETS

**GENERAL REQUIREMENTS**

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD SPOTTING, LOCATION AND INSPECTION. THE ENGINEER WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. BROKEN LINE INTERVALS WILL NOT BE MARKED. LONGITUDINAL JOINTS, PAVEMENT EDGES, AND EXISTING MARKINGS SHALL SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4" OVER OR UNDER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 6" FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 2". MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINT. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

**EPOXY**

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NONMETALLIC), OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4 INCHES WIDE AND 15 MIL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF (1) GAL OF COMPONENTS FOR 320 FT OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50°F OR GREATER.

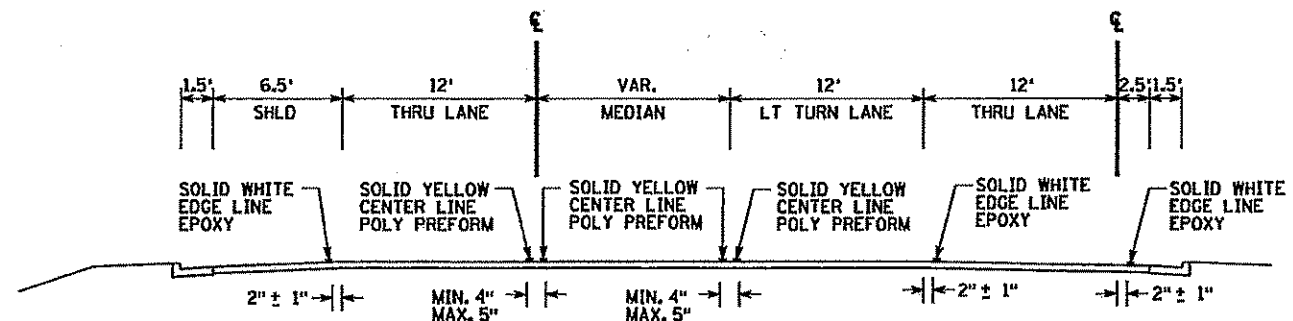
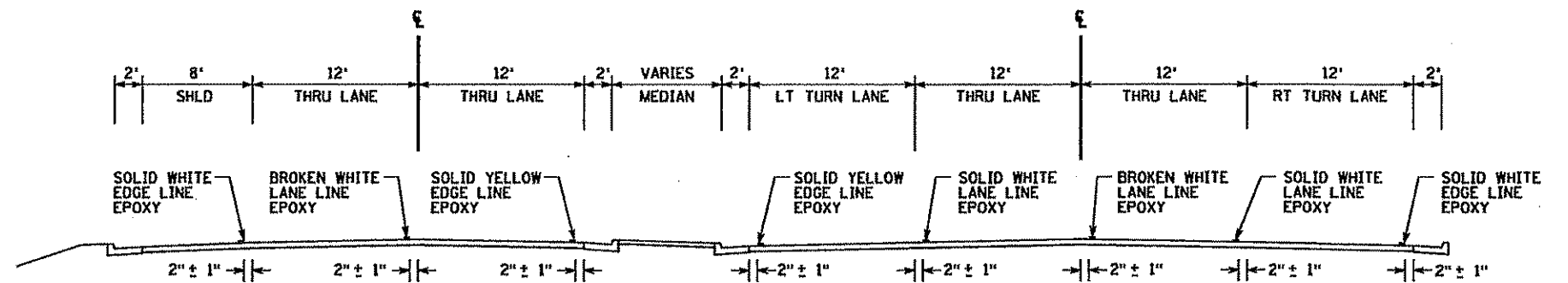
PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY MARKINGS.

**PREFORM THERMOPLASTIC APPLICATION**

SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING INSTALLATION PROCEDURES FOR PREFORM THERMOPLASTIC PAVEMENT MARKINGS.

**HEAT FUSED THERMOPLASTIC**

1. THE INSTALLERS OF THIS MATERIAL MUST CARRY A CARD CERTIFYING THAT THEY HAVE ATTENDED A TRAINING SESSION THAT ADDRESSES SURFACE PREPARATIONS AND ALL APPLICATION REQUIREMENTS AND TECHNIQUES NECESSARY FOR SUCCESSFUL APPLICATION.
2. ALL MARKINGS SHALL BE OF THE "INLAY" METHOD UNLESS THE "OVERLAY" PROCEDURE IS SPECIFIED.



**TYPICAL STRIPING DETAILS**

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|                        |   |
|------------------------|---|
| Drawn By: C KOCHMAN    | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>J. H. Hales<br>Professional Engineer, State of Minnesota, P.E. |
| Designed By: N HENTGES |   |
| Checked By: A PLOWMAN  |   |
| Approved By: J HALE    |   |

DATE: 04/28/11 LIC NO: 40945

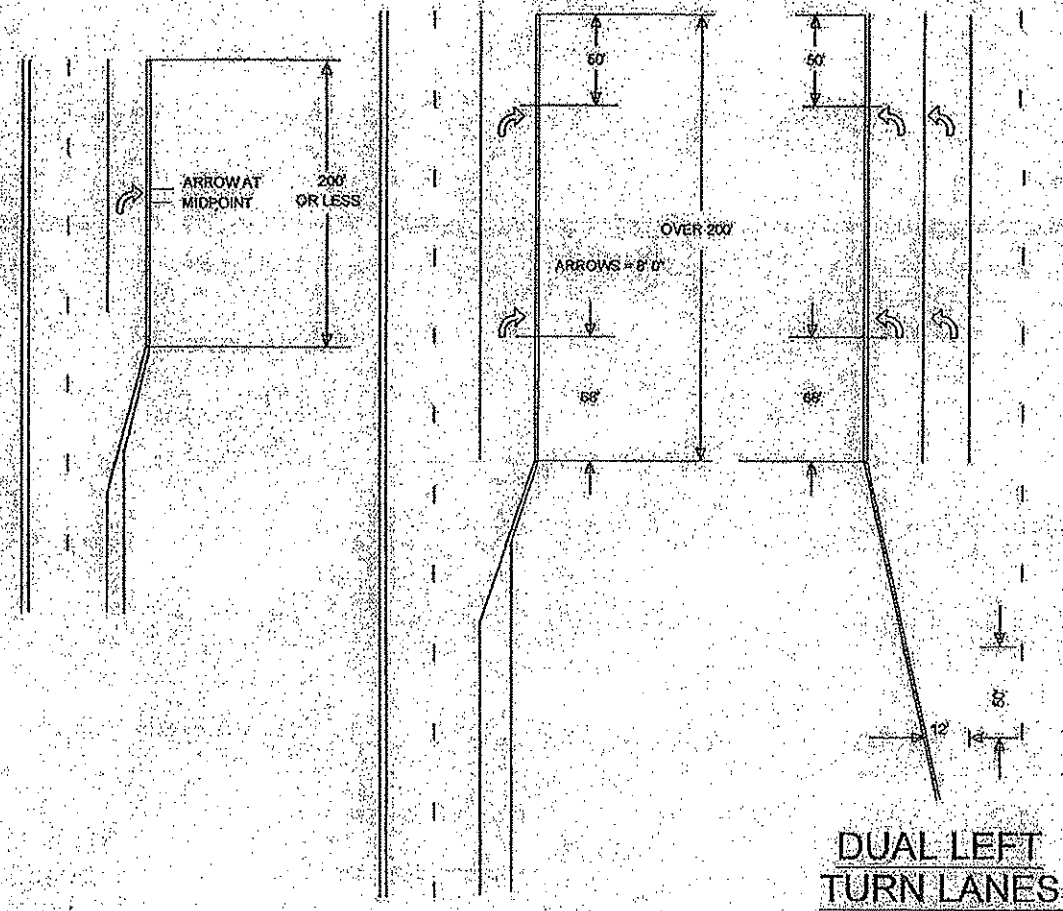
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**STRIPING DETAILS**  
**SIGNING & STRIPING DETAILS**  
 SHEET 1 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

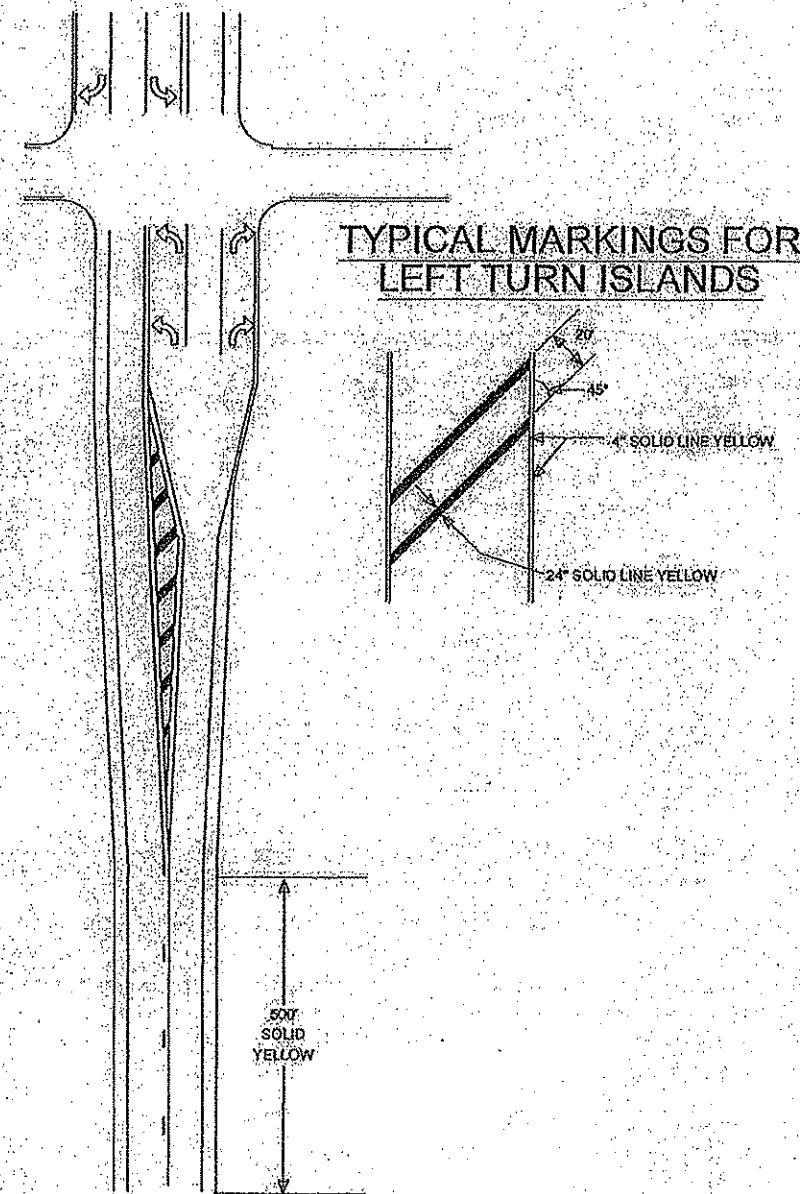
SHEET  
 142  
 OF  
 249  
 SHEETS

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**DUAL LEFT  
TURN LANES**

**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



DATE: 5/4/2011 10:49:34 AM  
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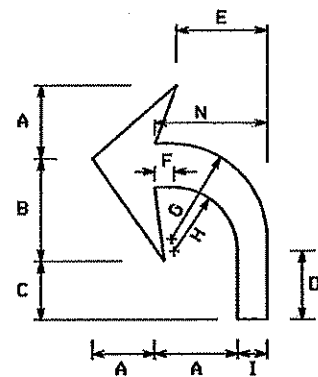
Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*[Signature]*  
 License No. 40945  
 DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 & Associates, Inc.  
 701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsb.org  
 763-41-220 Fax 763-41-570  
 INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

**STRIPING DETAILS  
 SIGNING & STRIPING DETAILS**  
 SHEET 2 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

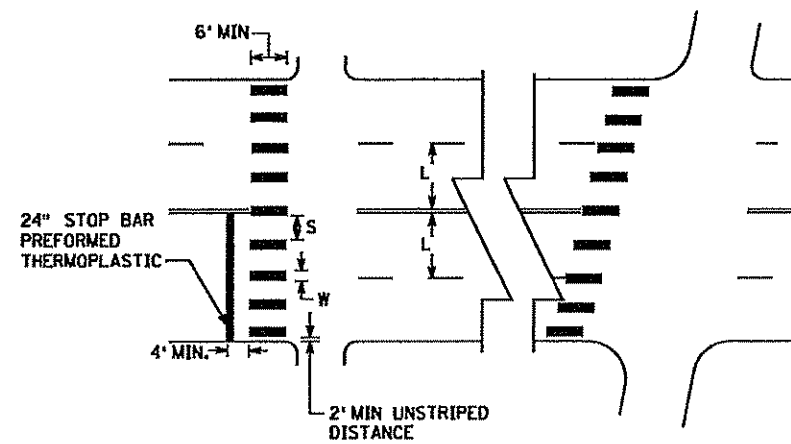
SHEET  
 143  
 OF  
 249  
 SHEETS



SIZE 6' X 8'

| DIMENSION TABLE |         |
|-----------------|---------|
| A               | 2'- 6"  |
| B               | 3'- 6"  |
| C               | 2'- 0"  |
| D               | 2'- 6"  |
| E               | 3'- 1"  |
| F               | 0'- 8"  |
| G               | 3'- 3"  |
| H               | 2'- 2"  |
| I               | 1'- 0"  |
| J               | 1'- 0"  |
| K               | 1'- 3"  |
| L               | 5'- 0"  |
| M               | 7'- 8"  |
| N               | 3'- 10" |
| P               | 4'- 6"  |

| (L)<br>WIDTH OF<br>INSIDE LANE | (W)<br>WIDTH OF<br>PAINTED AREA | (S)<br>WIDTH OF<br>SPACE |
|--------------------------------|---------------------------------|--------------------------|
| 9'                             | 2.0'                            | 2.5'                     |
| 10'                            | 2.5'                            | 2.5'                     |
| 11'                            | 2.5'                            | 3.0'                     |
| 12'                            | 3.0'                            | 3.0'                     |
| 13'                            | 3.0'                            | 3.5'                     |

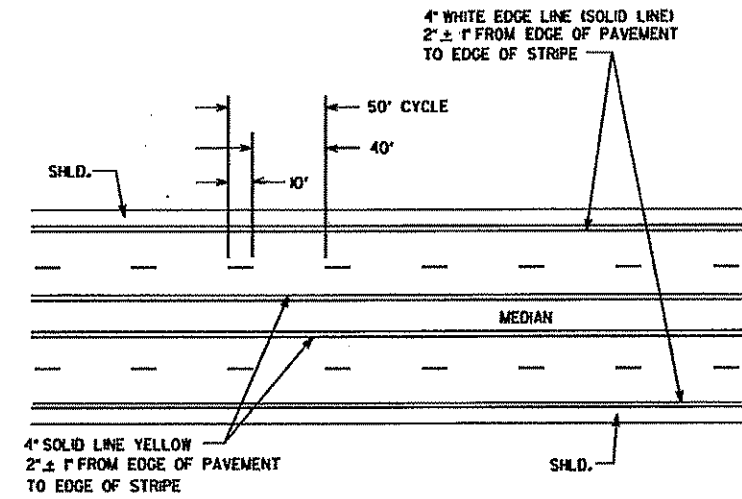


**NOTES:**

1. THERMOPLASTIC AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 2' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
4. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.

**MARKINGS FOR PEDESTRIAN CROSSINGS**


(POLY-PREFORM)



**TYPICAL FOUR-LANE DIVIDED LANE MARKINGS**

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| Checked By: A PLOWMAN  |  |
| Approved By: J HALE    |  |
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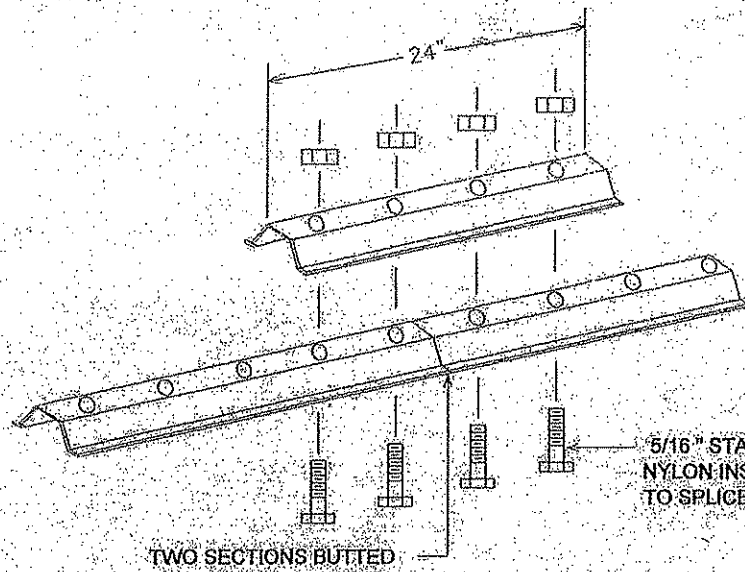
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 A Associated, Inc.  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbeng.com  
 765-414-1000 Fax 765-443-1700  
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STRIPING DETAILS  
 SIGNING & STRIPING DETAILS  
 SHEET 2 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 144  
 OF  
 249  
 SHEETS



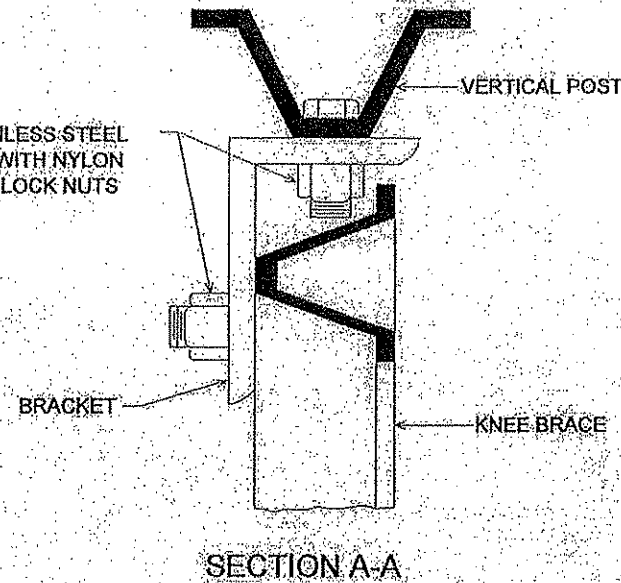


LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)

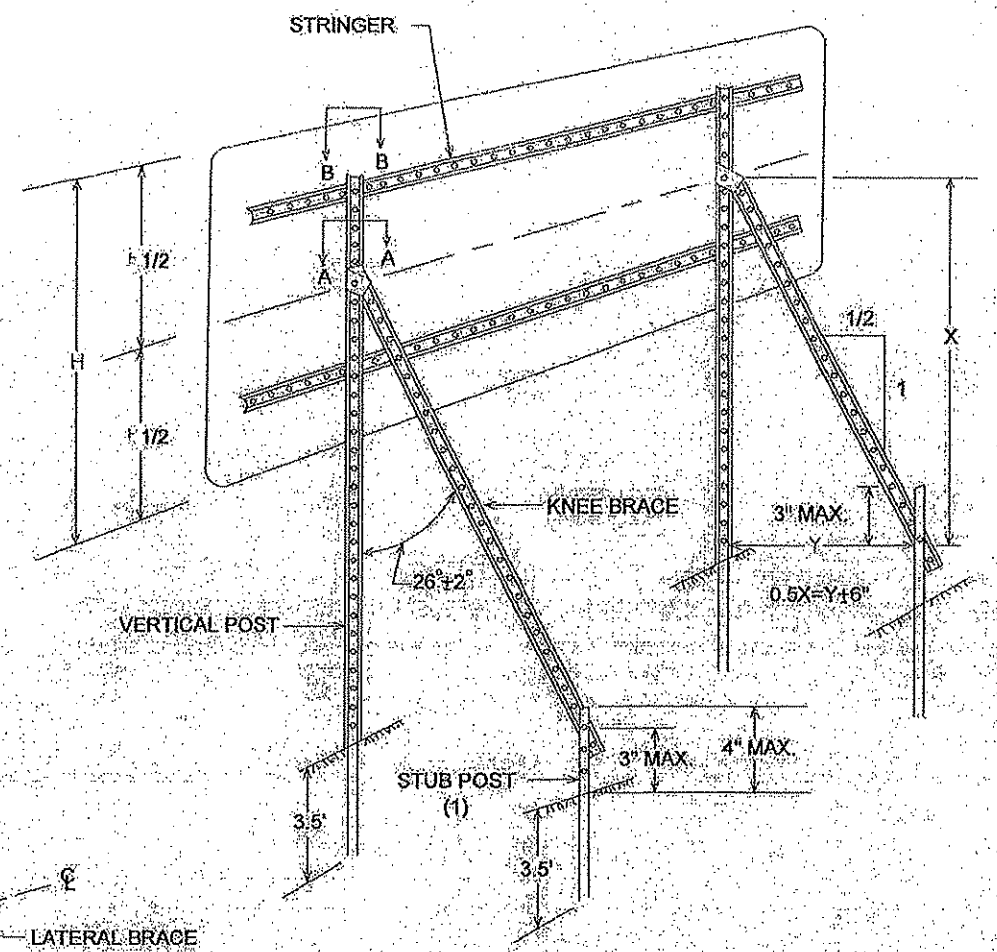
5/16" STAINLESS STEEL BOLTS WITH NYLON INSERT LOCK NUTS

5/16" STAINLESS STEEL BOLTS WITH NYLON INSERT LOCK NUTS AS CLOSE TO SPLICE & OUTSIDE HOLES

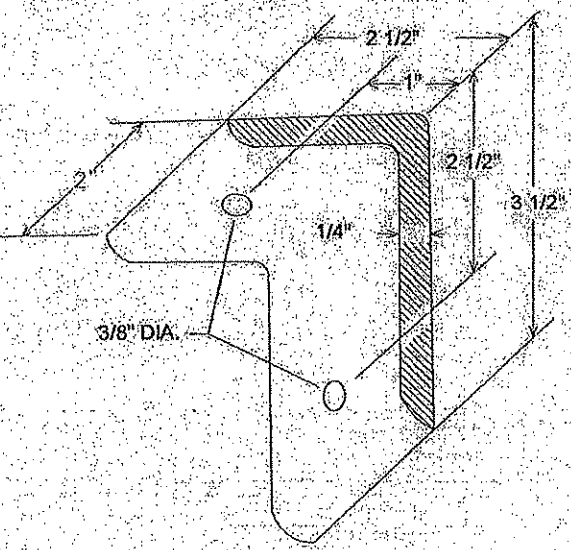
TWO SECTIONS BUTTED



SECTION A-A

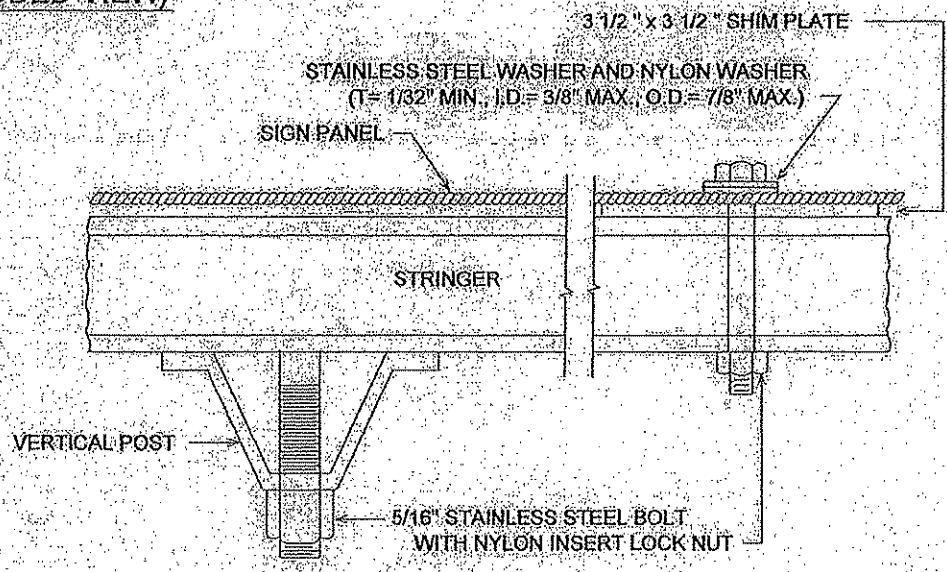


TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS

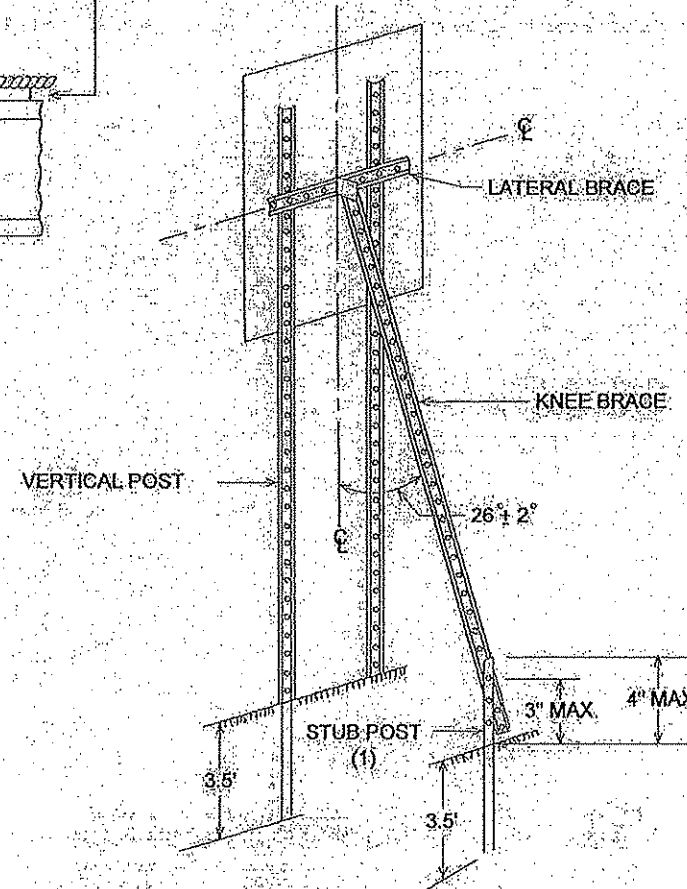


A-FRAME BRACKET

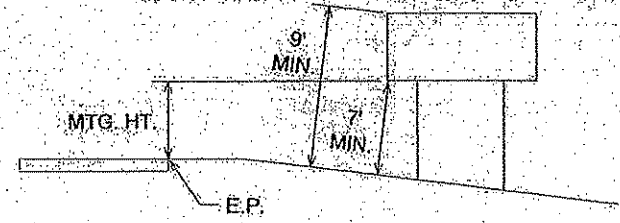
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SECTION B-B



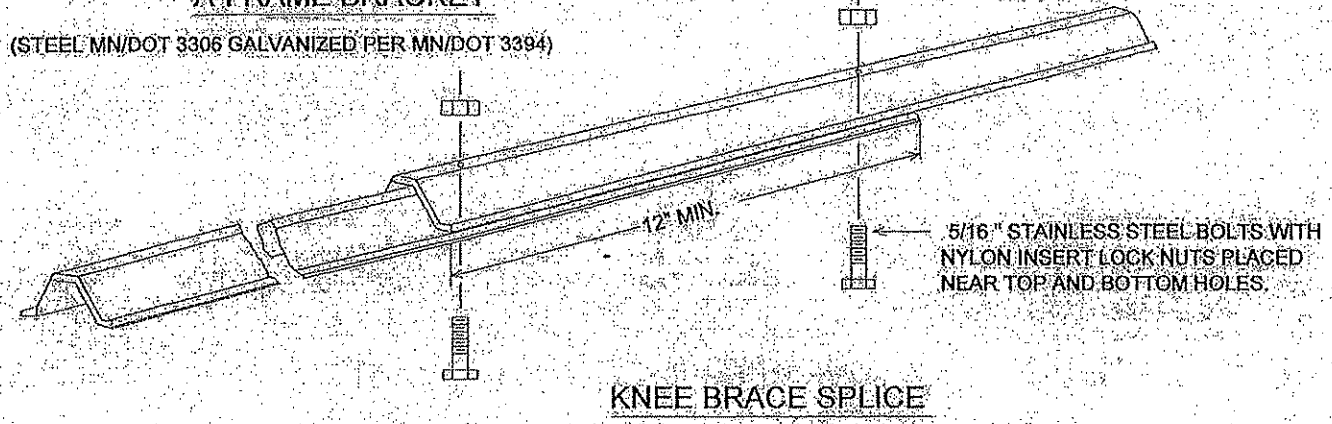
TYPICAL "A-FRAME" INSTALLATION  
TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST

TYPE C & D SIGN  
STRUCTURAL DETAILS



KNEE BRACE SPLICE

5/16" STAINLESS STEEL BOLTS WITH NYLON INSERT LOCK NUTS PLACED NEAR TOP AND BOTTOM HOLES

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE  
DATE: 04/28/11 LIC NO: 40845

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

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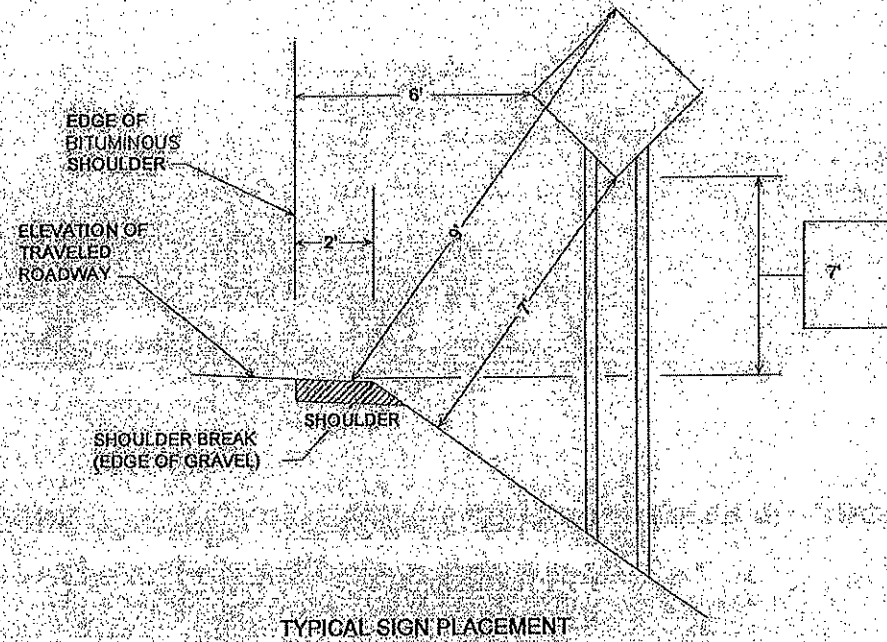
STRIPING DETAILS  
SIGNING & STRIPING DETAILS  
SHEET 2 OF 7 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

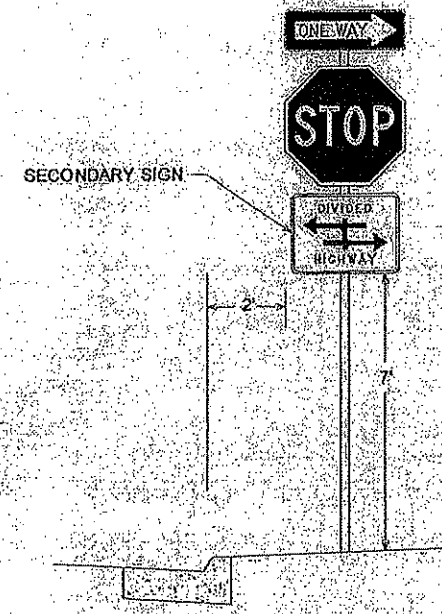
SHEET  
145  
OF  
249  
SHEETS

RURAL

URBAN



2' NARROW BOULEVARD (< 8' WIDE)  
6' WIDE BOULEVARD



NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 40945

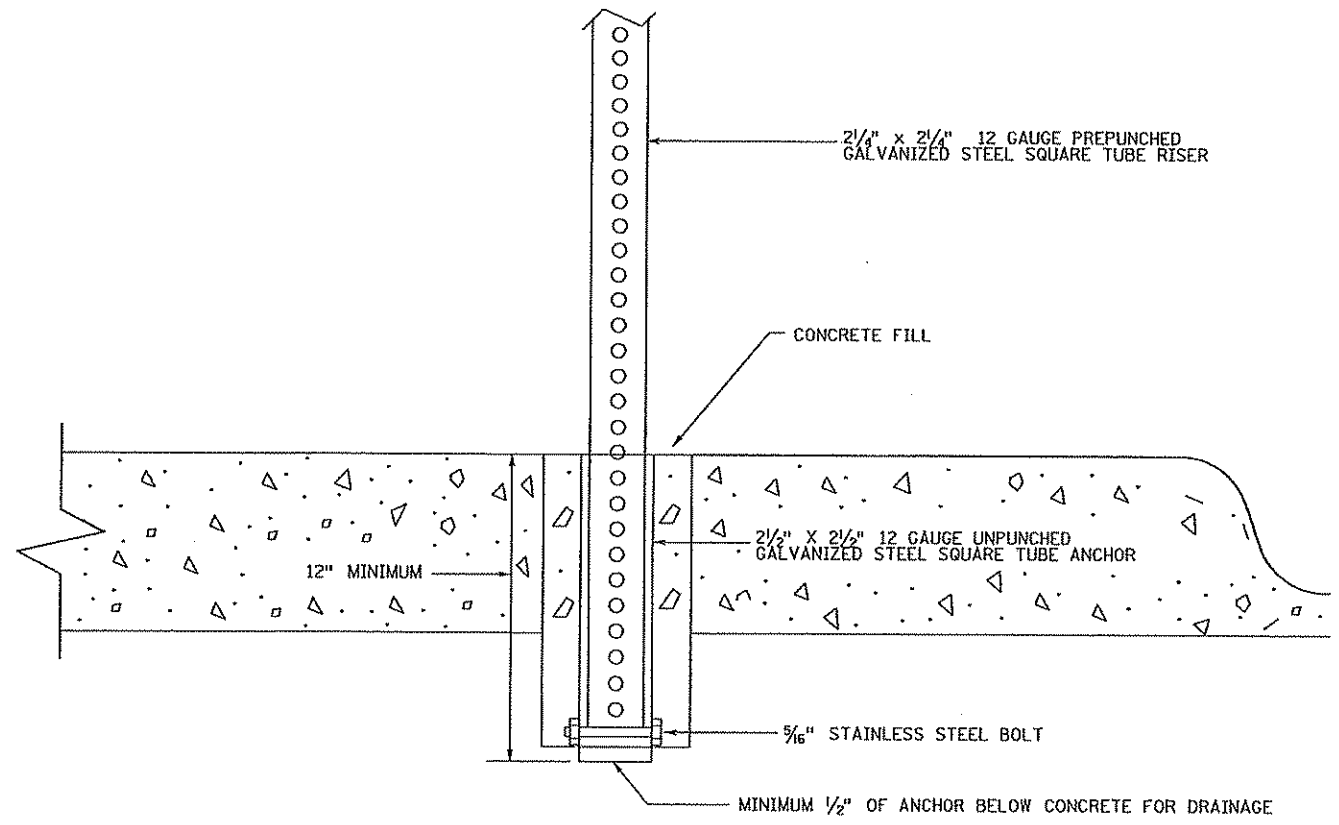
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STRIPING DETAILS  
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 SHEET 2 OF 7 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 146  
 OF  
 249  
 SHEETS



- NOTES:
1. DRILL AN 8" DIAMETER HOLE THE FULL DEPTH OF THE ANCHOR.
  2. DRILL 3/8" HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A 3/16" STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED SQUARE TUBE ANCHOR) WILL REST ON BOLT.
  3. INSERT THE ANCHOR IN THE HOLE.
  4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.

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|    |      |    |     |           |

Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of Minnesota  
 DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

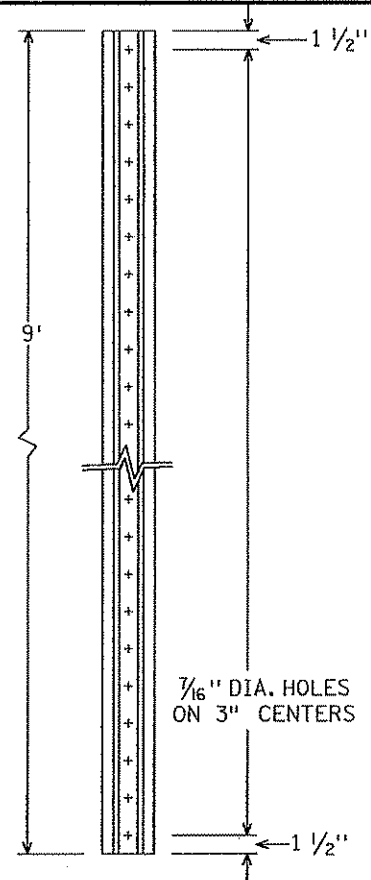
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STRIPING DETAILS  
**SIGNING & STRIPING DETAILS**  
 SHEET 6 OF 7 SHEETS

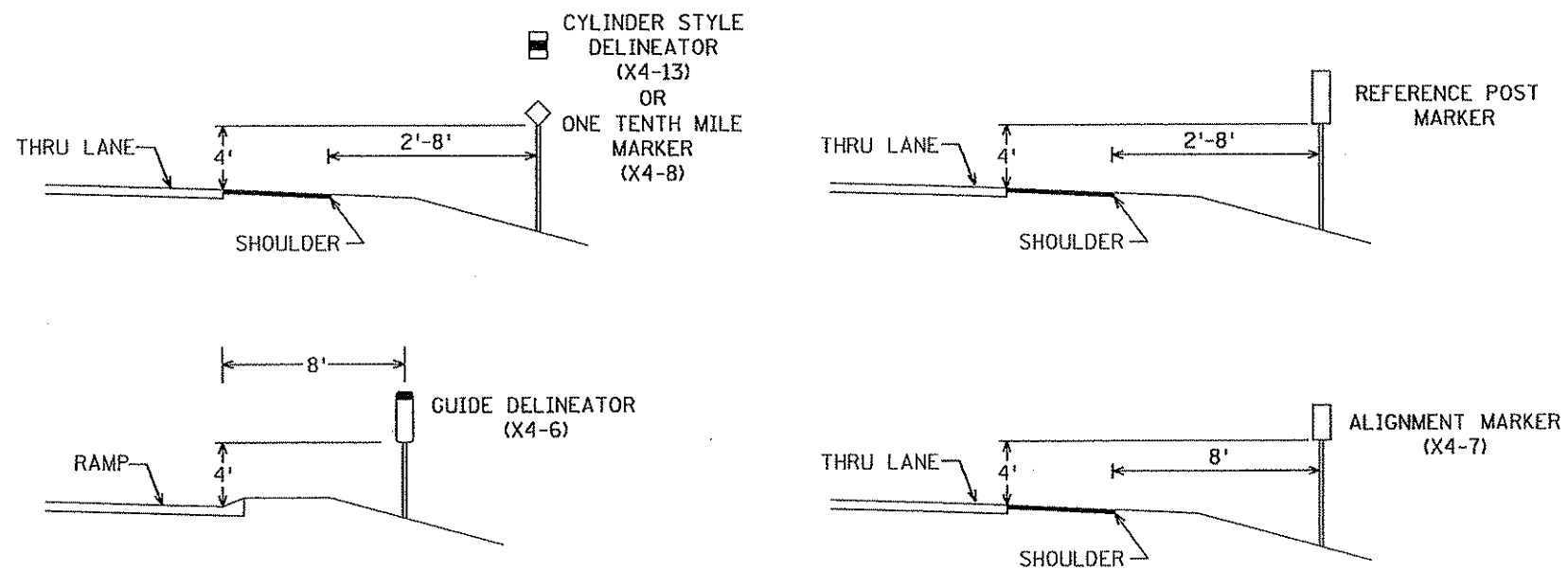
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SHEET  
 147  
 OF  
 249  
 SHEETS



MN/DOT 3401  
NORMAL WEIGHT = 2 LB./FT.

DELINEATOR POST



TYPICAL PLACEMENT

DELINEATORS AND MARKERS

DATE: 6/4/2011 10:51:20 AM  
PATH & FILENAME: K:\01973-00\Cad\Plan\csah83\_ssd7.dgn

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Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

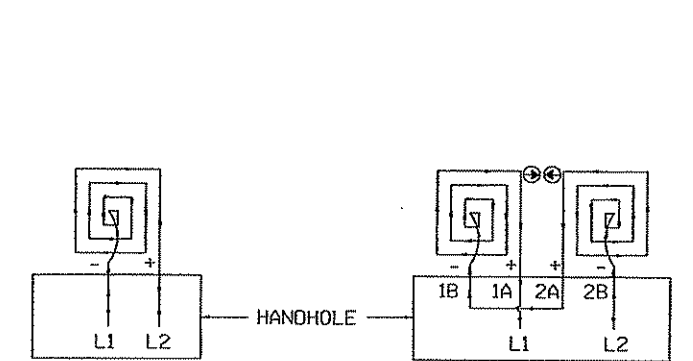
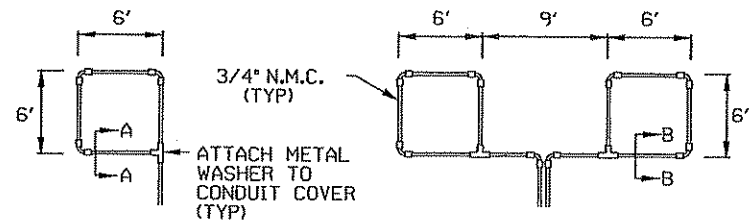
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*A. Plowman*  
Professional Engineer, State of Minnesota  
DATE: 04/28/11 LIC NO: 40945

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STRIPING DETAILS  
SIGNING & STRIPING DETAILS  
SHEET 7 OF 7 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
148  
OF  
249  
SHEETS

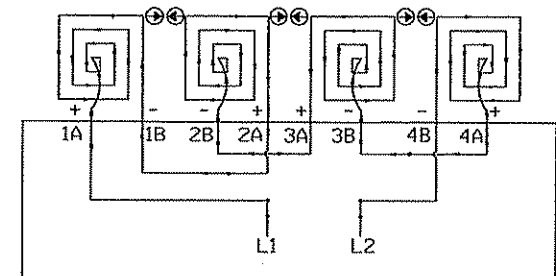
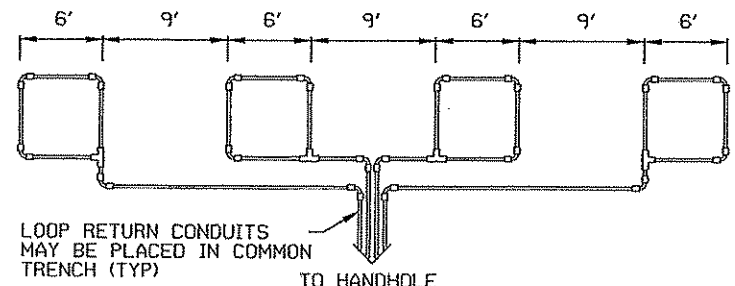


LOOP DETECTOR  
DETAIL 'A'  
(LOOP PHASING FOR  
SINGLE CONNECTION)

LOOP CONNECTIONS SHALL BE  
LABELED AND SPLICED IN THE  
HANDHOLE AS FOLLOWS:

L1 TO 1A  
1B TO 2A  
2B TO L2

LOOP DETECTOR  
DETAIL 'B'  
(LOOP PHASING FOR  
SERIES CONNECTION)

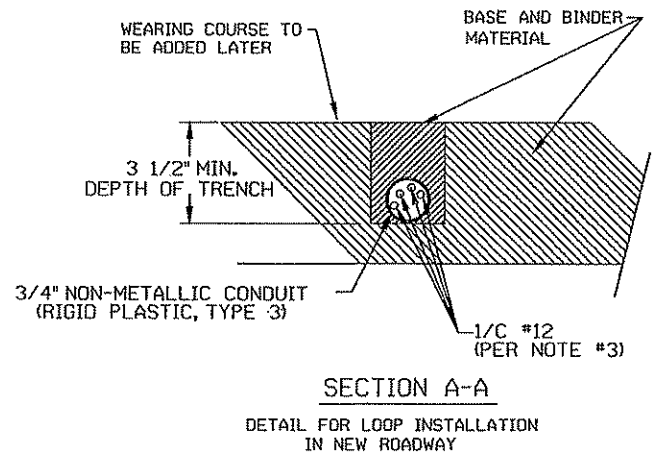


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED  
IN THE HANDHOLE AS FOLLOWS:

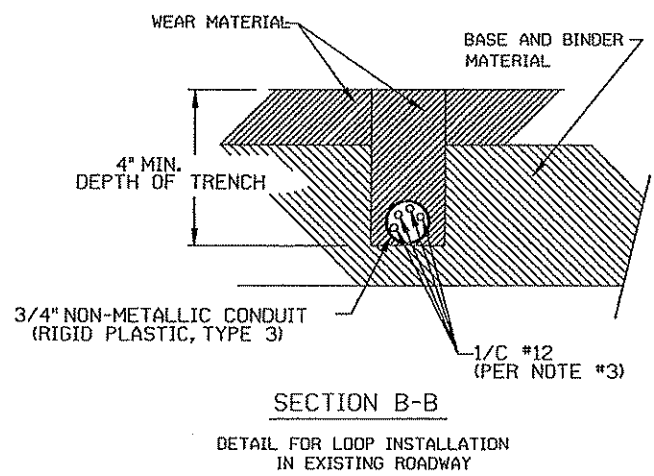
L1 TO 1A      3B TO 4A  
1B TO 2A      4B TO L2  
2B TO 3A

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE.  
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE  
(1A, 1B, ECT)

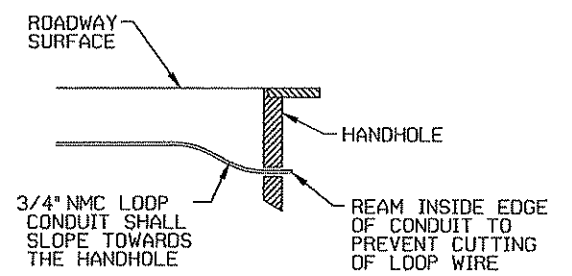
LOOP DETECTOR  
DETAIL 'C'  
(LOOP PHASING FOR  
SERIES CONNECTION)



SECTION A-A  
DETAIL FOR LOOP INSTALLATION  
IN NEW ROADWAY



SECTION B-B  
DETAIL FOR LOOP INSTALLATION  
IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

LEGEND OF SYMBOLS

|   |      |
|---|------|
| CONTROLLER AND SERVICE EQUIP. NO's          | (A)  |
| SIGNAL BASE NO.                             | (1)  |
| SIGNAL FACE NO.                             | (2)  |
| LUMINAIRE NO.                               | (3)  |
| CONTROLLER AND CABINET                      | (4)  |
| CONTROLLER AND CABINET - IN PLACE           | (5)  |
| HANDHOLE                                    | (6)  |
| HANDHOLE - IN PLACE                         | (7)  |
| RIGID STEEL CONDUIT (RSC)                   | (8)  |
| RIGID STEEL CONDUIT (RSC) - IN PLACE        | (9)  |
| SIGNAL FACE WITH BACKGROUND SHIELD          | (10) |
| SIGNAL FACE W/D BACKGROUND SHIELD           | (11) |
| SIGNAL FACE - IN PLACE                      | (12) |
| PEDESTRIAN INDICATORS                       | (13) |
| PEDESTRIAN INDICATORS - IN PLACE            | (14) |
| PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE | (15) |
| PEDESTRIAN PUSH BUTTON STATION              | (16) |
| TRAFFIC SIGNAL PEDESTAL                     | (17) |
| TRAFFIC SIGNAL PEDESTAL - IN PLACE          | (18) |
| TRAFFIC SIGNAL POLE AND MAST ARM            | (19) |
| TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE | (20) |
| STREET LIGHT POLE AND LUMINAIRE             | (21) |
| STREET LIGHT POLE AND LUMINAIRE - IN PLACE  | (22) |
| MAST ARM AND LUMINAIRE                      | (23) |
| MAST ARM AND LUMINAIRE - IN PLACE           | (24) |
| WOOD POLE                                   | (25) |
| WOOD POLE - IN PLACE                        | (26) |
| SOURCE OF POWER                             | (27) |
| RAILROAD SIGNAL - IN PLACE                  | (28) |
| RIGHT OF WAY LINE                           | (29) |
| CENTERLINE                                  | (30) |
| EDGE OF ROADWAY                             | (31) |
| SHOULDERLINE                                | (32) |
| CURB LINE                                   | (33) |
| STOP BAR                                    | (34) |
| EMERGENCY VEHICLE PREEMPTION DETECTOR       | (35) |

ABBREVIATIONS

|          |                                 |           |                                    |
|----------|---------------------------------|-----------|------------------------------------|
| 3-(1EG)  | SIGNAL HEAD PHASE '3' - NO. '1' | P2-(1EG)  | PED INDICATION PHASE '2' - NO. '1' |
| BR. GR.  | BARE GROUND                     | PB        | PUSH BUTTON                        |
| CH. SW.  | CHECK SWITCH                    | PB2-(1EG) | PUSH BUTTON PHASE '2' - NO. '1'    |
| CLR      | CLEAR                           | PEC       | PHOTOELECTRIC CELL                 |
| D2-(1EG) | DETECTOR PHASE '2' - NO. '1'    | PED       | PEDESTRIAN                         |
| DWK      | DON'T WALK                      | R         | RED                                |
| EGG      | EQUIPMENT GROUND                | R&S       | REMOVE AND SALVAGE                 |
| EVP      | EMERGENCY VEHICLE PRE-EMPTION   | RLTA      | RED LEFT TURN ARROW                |
| F&I      | FURNISH AND INSTALL             | RRTA      | RED RIGHT TURN ARROW               |
| FL       | FLASH/FLASHING                  | RSC       | RIGID STEEL CONDUIT                |
| G        | GREEN                           | SOP       | SOURCE OF POWER                    |
| GLTA     | GREEN LEFT TURN ARROW           | SPR       | SPARE                              |
| GRN      | GREEN                           | ST. LHT   | STREET LIGHT                       |
| GR. R    | GROUND ROD                      | STA       | STATION                            |
| GRTA     | GREEN RIGHT TURN ARROW          | SW        | SWITCH                             |
| GTHA     | GREEN THRU ARROW                | SWD       | SWITCHED                           |
| HH       | HANDHOLE                        | S&R       | SALVAGE AND REINSTALL              |
| HPS      | HIGH PRESSURE SODIUM            | TDW       | TELEPHONE DROP WIRE                |
| JB       | JUNCTION BOX                    | WLK       | WALK                               |
| LUM      | LUMINAIRE                       | YEL       | YELLOW                             |
| NEU      | NEUTRAL                         | YLTA      | YELLOW LEFT TURN ARROW             |
| NMC      | NONMETALLIC CONDUIT             | YRTA      | YELLOW RIGHT TURN ARROW            |
|          |                                 | YTHA      | YELLOW THRU ARROW                  |

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

| PLATE NO. | DESCRIPTION   |
|-----------|---|
| 8110 E    | TRAFFIC SIGNAL BRACKETING - POLE MOUNTED                              |
| 8111 E    | TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED (3 SHEETS)               |
| 8112 F    | PEDESTAL FOUNDATION - TRAFFIC CONTROL SIGNALS                         |
| 8114 A    | PVC HANDHOLE/PULLBOX - NO VEHICLE LOAD (2 SHEETS)                     |
| 8118 D    | SERVICE EQUIPMENT AND POLE - TRAFFIC CONTROL SIGNALS                  |
| 8119 C    | GROUND MOUNTED CABINET FOUNDATION                                     |
| 8120 N    | PA85 POLE FOUNDATION  |
| 8121 F    | TRANSFORMER BASE AND POLE BASE PLATE - (2 SHEETS)                     |
| 8122 E    | PEDESTAL AND PEDESTAL BASE  |
| 8123 F    | POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (2 SHEETS) |
| 8126 I    | PA90 AND PA100 POLE FOUNDATION  |
| 8132 A    | PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - (3 SHEETS)                |

\* - APPLIES TO THIS PROJECT

CONDUCTOR COLOR CODE

|        |                          |
|--------|--------------------------|
| R      | RED                      |
| O      | ORANGE                   |
| BL     | BLUE                     |
| WH     | WHITE                    |
| R/BLK  | RED WITH BLACK TRACER    |
| O/BLK  | ORANGE WITH BLACK TRACER |
| BL/BLK | BLUE WITH BLACK TRACER   |
| WH/BLK | WHITE WITH BLACK TRACER  |
| BLK    | BLACK                    |
| BLK/WH | BLACK WITH WHITE TRACER  |
| G/BLK  | GREEN WITH BLACK TRACER  |
| G      | GREEN                    |

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Drawn By: M SCHWARTZ  
Checked By: S DELMORE  
Approved By: S DELMORE  
DATE: 04/28/11 LIC NO: 40845

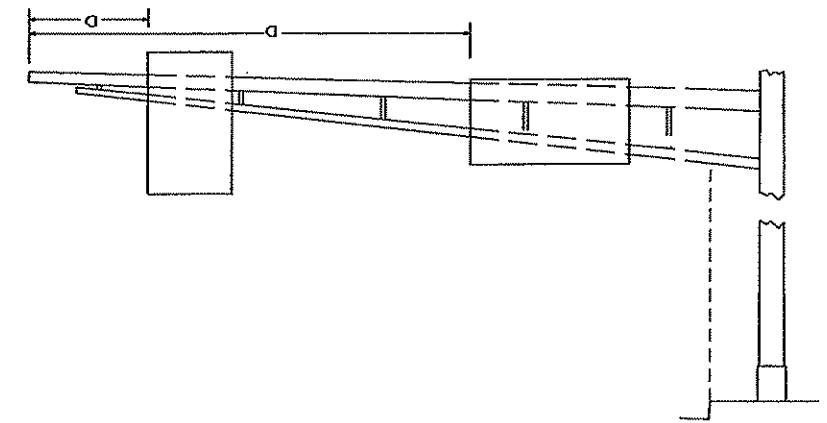
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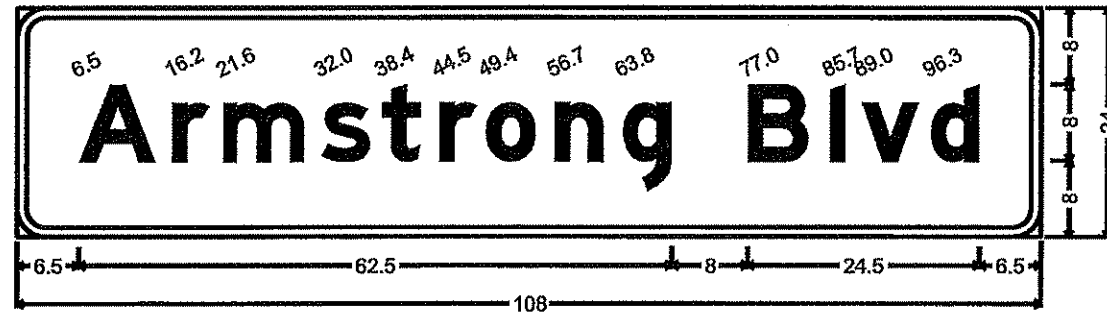
DETAILS AND STANDARD PLATES  
SIGNAL PLAN  
SHEET 1 OF 11 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
149  
OF  
249  
SHEETS

TYPE "D" SIGN DETAILS

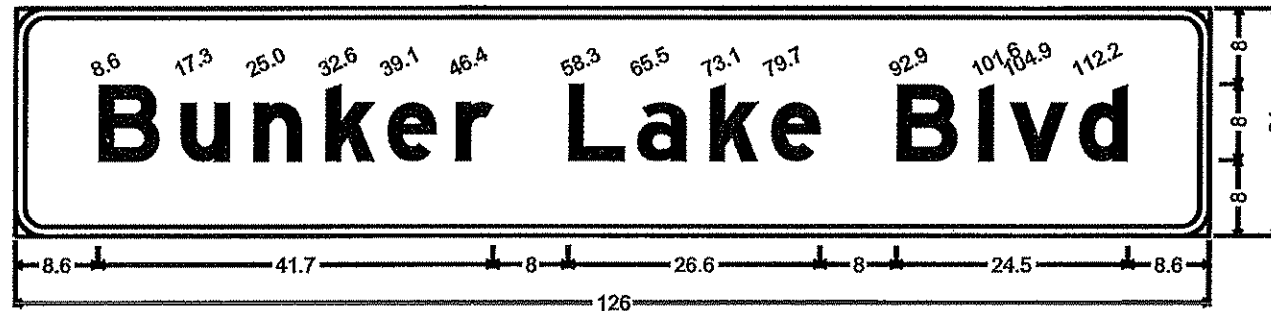


D-1



3.0" Radius, 1.0" Border, White on Green;  
[Armstrong Blvd] E Mod 80% spacing;

D-2



3.0" Radius, 1.0" Border, White on Green;  
[Bunker Lake Blvd] E Mod 80% spacing;

MAST ARM MOUNTED SIGNS

| SIGN PANEL OR SIGN NO. | SIGNAL SYSTEM | POLE NO.   | a (FEET) | SIZE (INCHES) | MOUNTING BRACKET |             | AREA/SIGN (SQ. FT.) | NO. REQ. |
|------------------------|---------------|------------|----------|---------------|------------------|-------------|---------------------|----------|
|                        |               |            |          |               | NUMBER           | SPACING (1) |                     |          |
| D-1                    | A             | 1          | 15       | 108 X 24      | 2                |             | 18.00               | 1        |
| D-1                    | A             | 3          | 34       | 108 X 24      | 2                |             | 18.00               | 1        |
| D-2                    | A             | 2          | 34       | 120 X 24      | 2                |             | 20.00               | 1        |
| D-2                    | A             | 4          | 34       | 120 X 24      | 2                |             | 20.00               | 1        |
| R6-1L                  | A             | 1, 2, 3, 4 | -        | 36 X 12       |                  |             | 3.00                | 4        |
| R6-1R                  | A             | 1, 2, 3, 4 | -        | 36 X 12       |                  |             | 3.00                | 4        |

STATEMENT OF ESTIMATED QUANTITIES

| ITEM NO. | DESCRIPTION                             | LOCATION                         | UNIT     | QTY |
|----------|---|----------------------------------|----------|-----|
| 2565     | TRAFFIC CONTROL SIGNAL SYSTEM "A"       | BUNKER LK RD & ARMSTRONG BLVD NW | SIG SYS  | 1   |
| 2565     | EMERGENCY VEHICLE PREEMPTION SYSTEM "A" | BUNKER LK RD & ARMSTRONG BLVD NW | LUMP SUM | 1   |

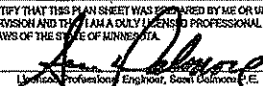

SPECIFIC NOTE:

(1) SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE 7/06/07) FOR BRACKET SPACING REQUIREMENTS.

GENERAL NOTES:

- CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
- TYPE D SIGN PANELS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS SEE STANDARD SIGNS MANUAL, PAGE 105A.
- FOR TYPE "D" STRINGER AND PANEL JOINT DETAILS SEE STANDARD SIGNS MANUAL, PAGE 105.
- THE MAST ARM MOUNTED SIGNS ARE INCIDENTAL.

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| NO | DATE | BY | CHK | REVISIONS | Drawn By: <b>M SCHWARTZ</b><br>M SCHWARTZ<br>Checked By: <b>S DELMORE</b><br>S DELMORE<br>Approved By: <b>S DELMORE</b> | I HEREBY CERTIFY THAT THIS PLAN SHEET 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.<br><br>Scott Delmore, P.E.<br>DATE: 04/28/11 LIC NO: 40945 | <b>CITY OF RAMSEY</b><br>CSAH 83/116 & MSAS 121 CONSTRUCTION | <br>701 Xenia Avenue South, Suite 300<br>Minneapolis, MN 55416<br>www.wsb.org.com<br>764-6110 • Fax 764-6170<br>INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION | DETAILS AND STANDARD PLATES<br><b>SIGNAL PLAN</b><br>SHEET 2 OF 11 SHEETS<br>S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21 | SHEET<br>150<br>OF<br>249<br>SHEETS |
|----|------|----|-----|-----------|---|---|--|---|---|-------------------------------------|

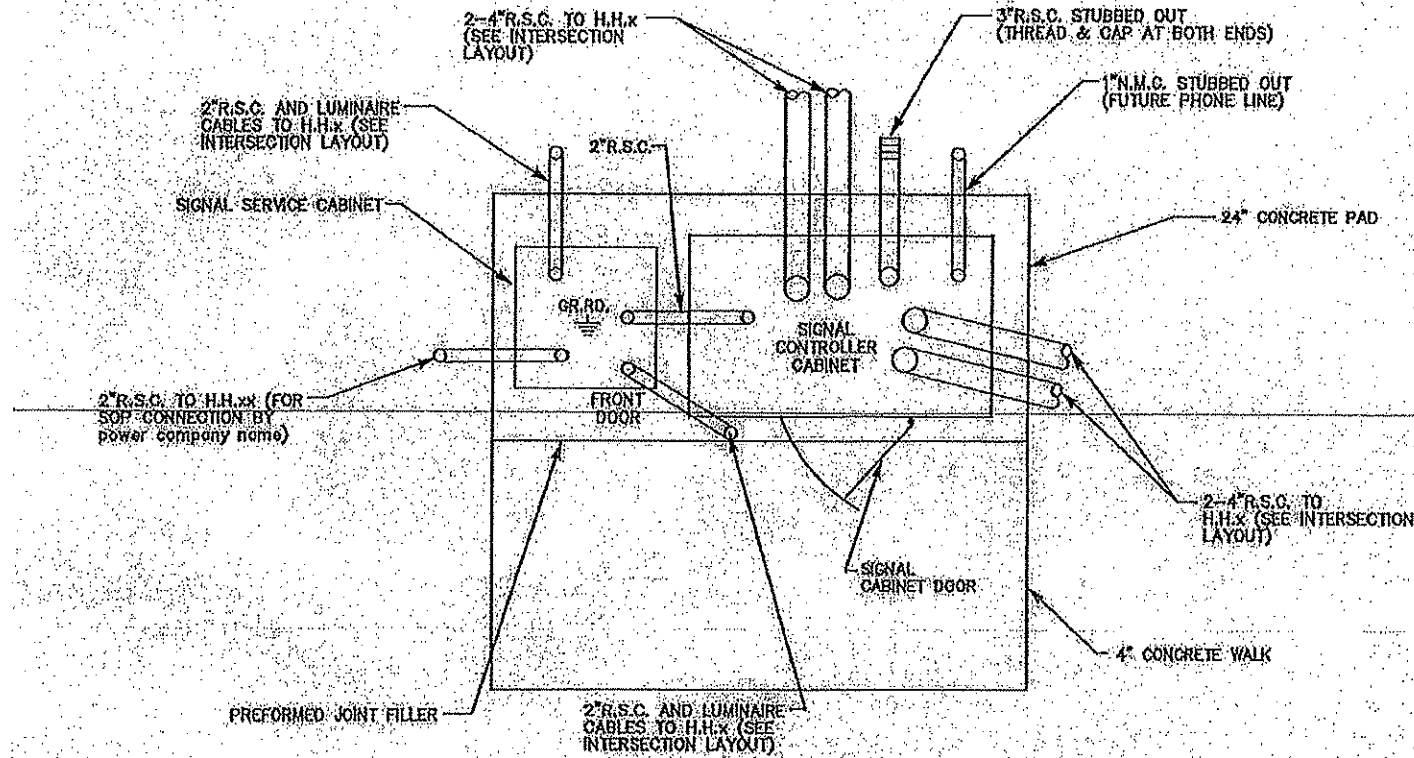
# TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

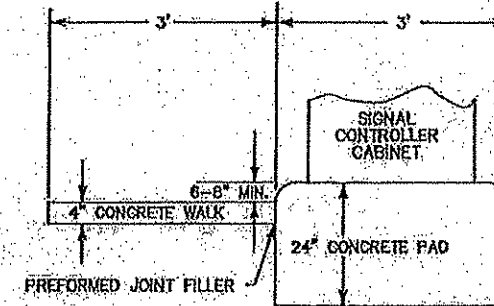
NEED PLAN VIEW FOR EACH  
NEW SIGNAL LOCATION

## PLAN VIEW

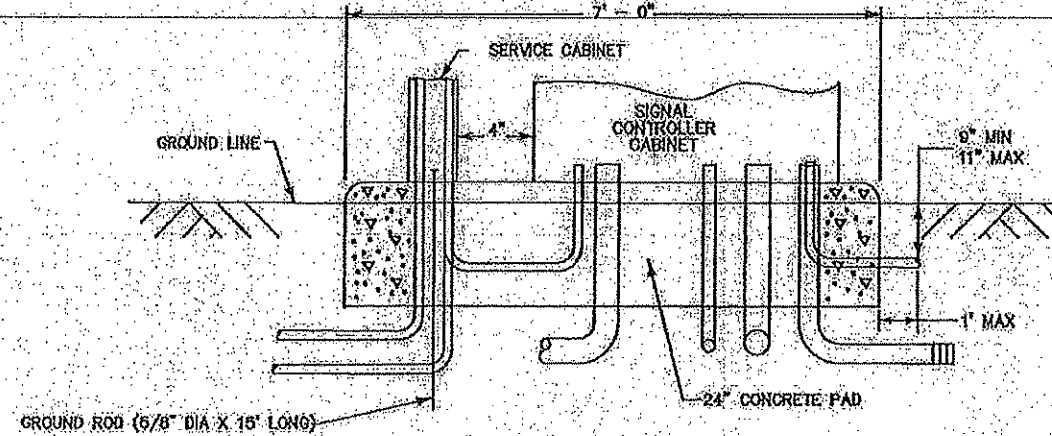
Intersection name here



## SIDE VIEW



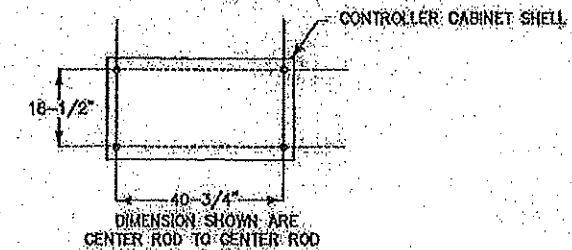
## FRONT VIEW



## NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLERS AND CABINETS SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF EACH EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR EACH EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN EACH PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATIONS AS SHOWN.

## CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



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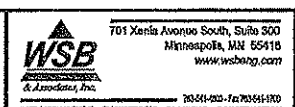
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| Drawn By:    | M SCHWARTZ |
| Checked By:  | S DELMORE  |
| Approved By: | S DELMORE  |

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

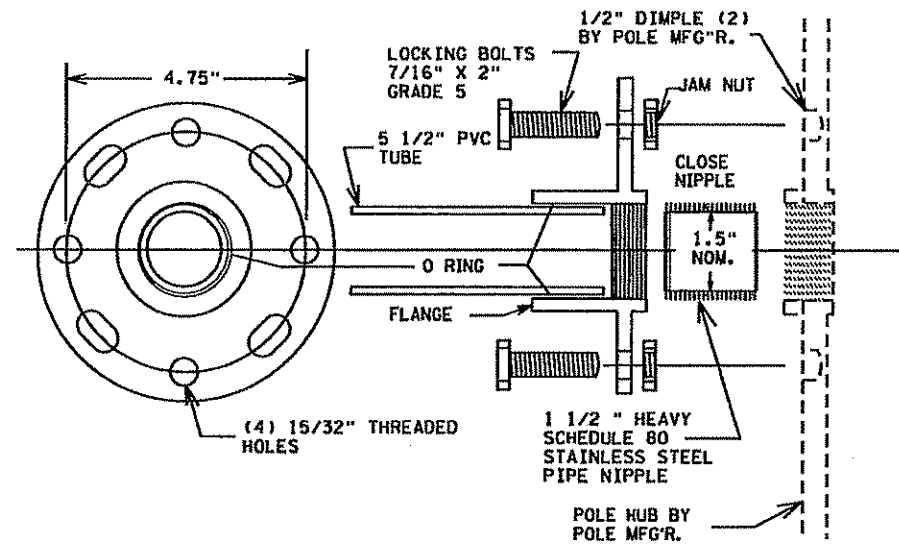
*S. Delmore*  
S. Delmore  
Professional Engineer, State of Minnesota  
DATE: 04/28/11 LIC. NO.: 40945

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

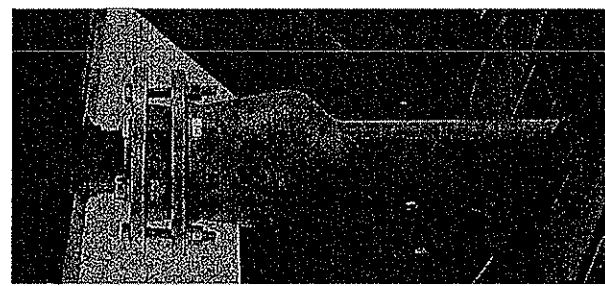


EQUIPMENT PAD LAYOUT  
SIGNAL PLAN  
SHEET 3 OF 11 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

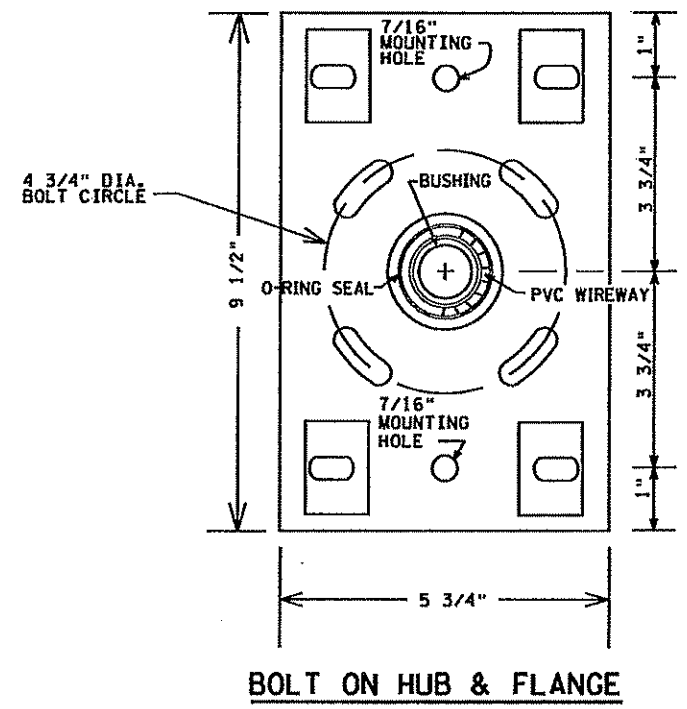
SHEET  
151  
OF  
249  
SHEETS



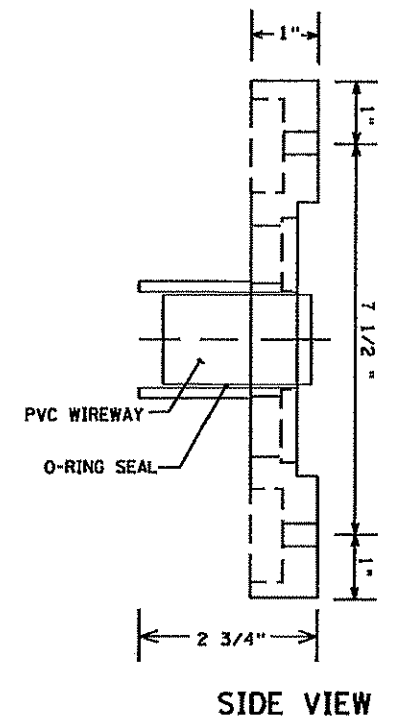
**THREADED HUB AND FLANGE POLE ADAPTOR**



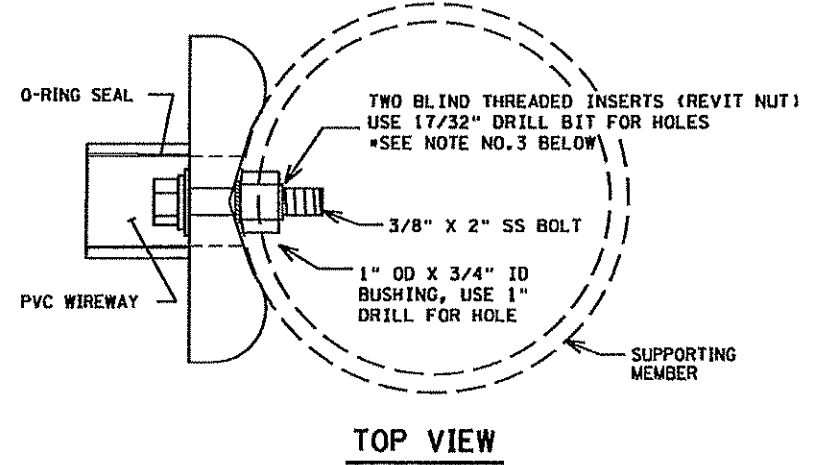
- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
  3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.



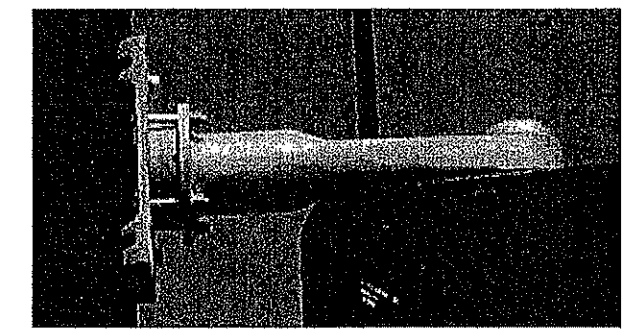
**BOLT ON HUB & FLANGE**



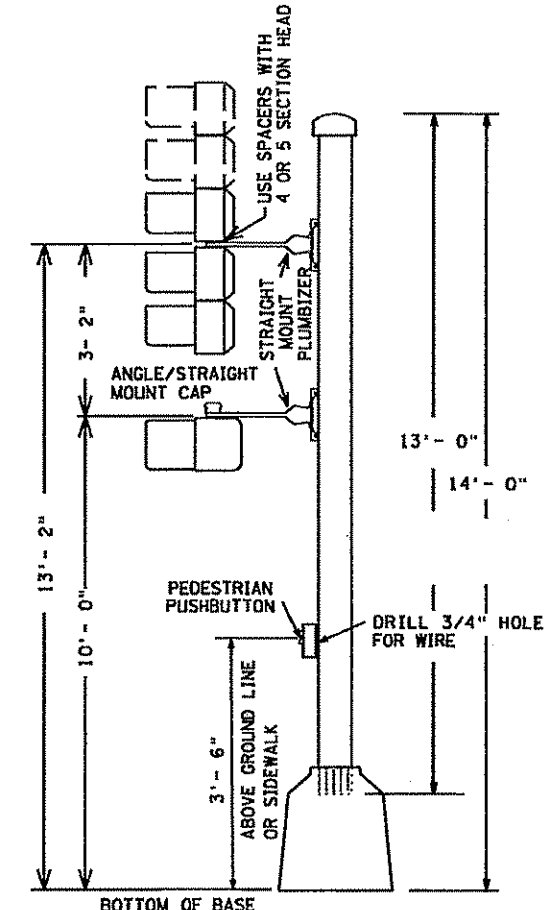
**SIDE VIEW**



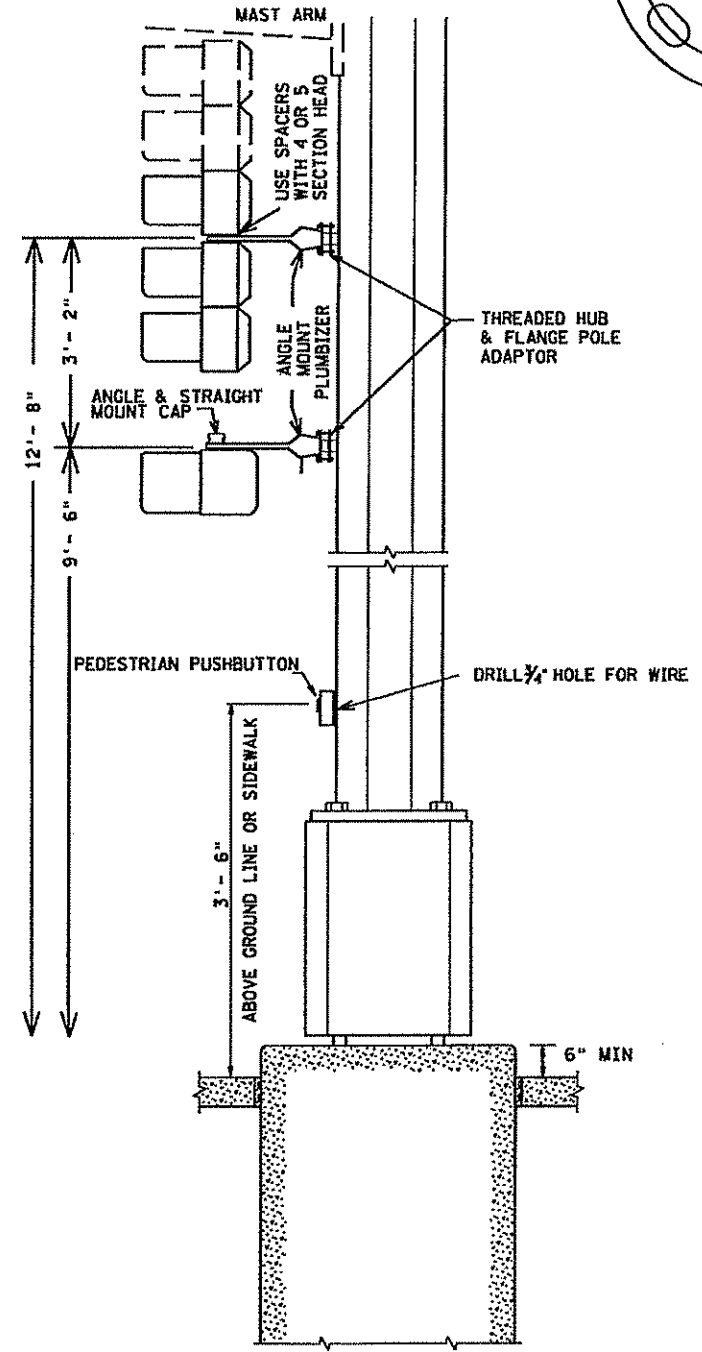
**TOP VIEW**



- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
  3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
  4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



**TYPICAL PEDESTAL MOUNTING**  
NOT TO SCALE



**TYPICAL SIGNAL POLE MOUNTING**  
NOT TO SCALE

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| 1  |      | M SCHWARTZ |     |           |
| 2  |      | M SCHWARTZ |     |           |
| 3  |      | S DELMORE  |     |           |
| 4  |      | S DELMORE  |     |           |

Drawn By: M SCHWARTZ  
Checked By: S DELMORE  
Approved By: S DELMORE  
DATE: 04/28/11 LIC NO: 40945

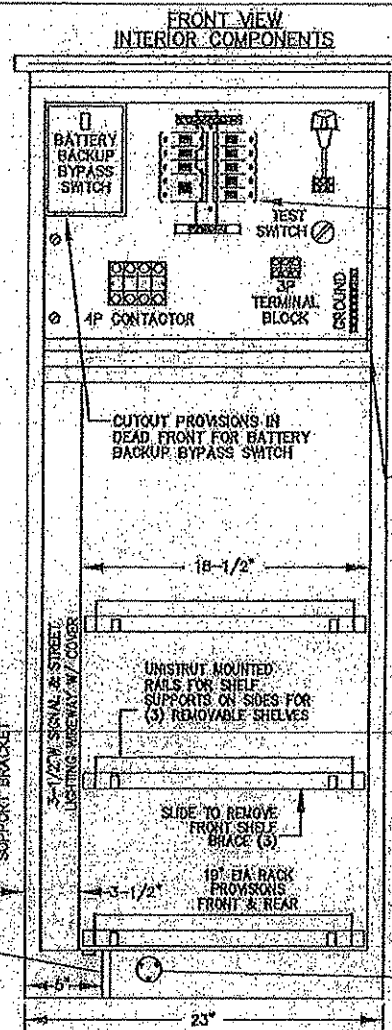
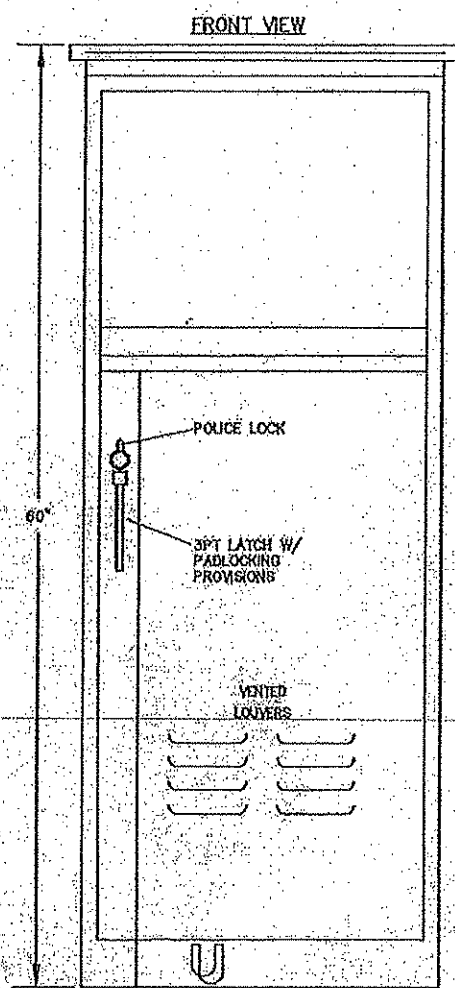
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POLE AND PEDESTAL MOUNTING DETAILS  
**SIGNAL PLAN**  
SHEET 4 OF 11 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

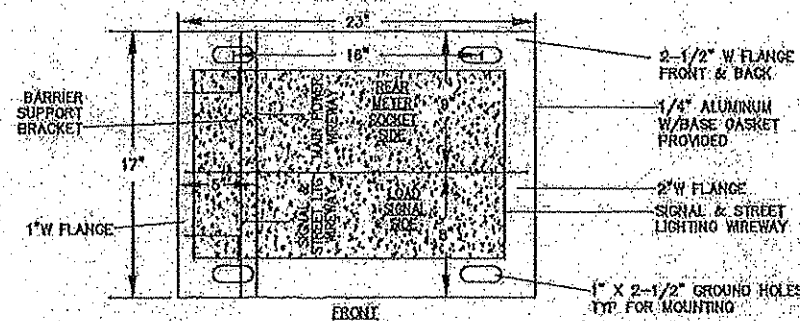
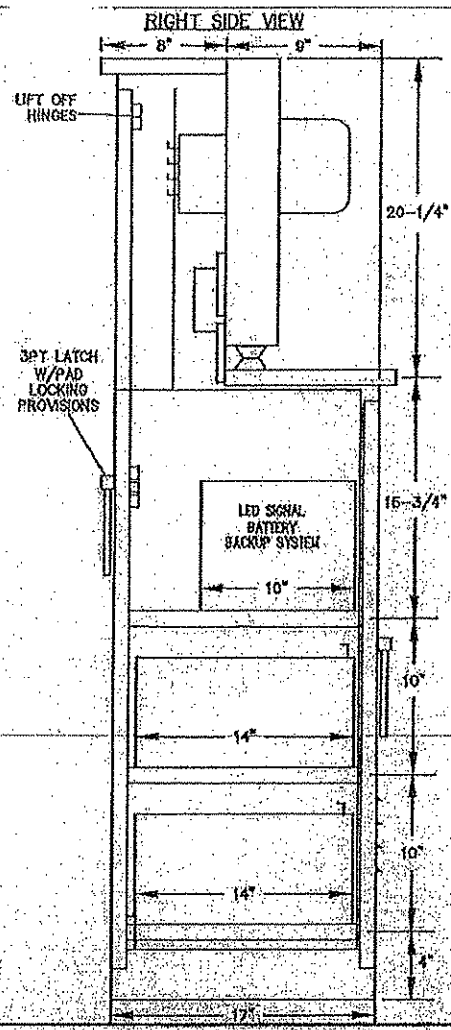
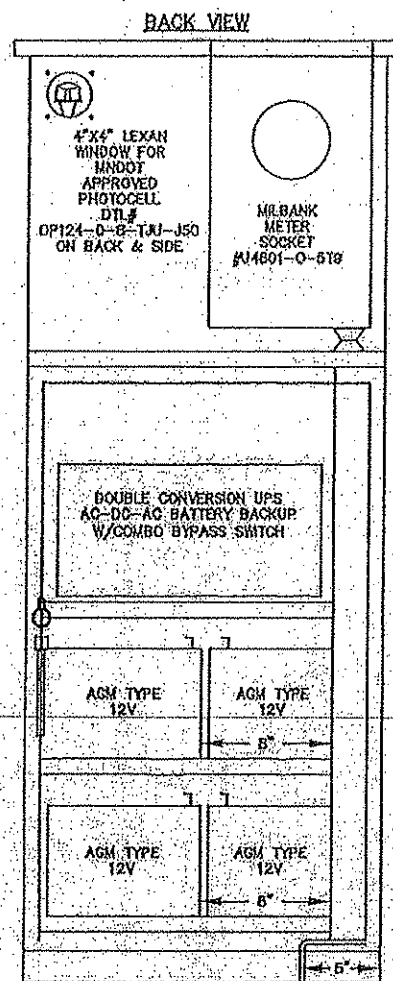
SHEET  
152  
OF  
249  
SHEETS





LOAD CENTER  
CIRCUIT  
BREAKERS  
TYPE "D" TYPE  
1-100A/2P  
SERVICE  
DISCONNECT  
1-30A/1P  
EMERGENCY  
POWER  
1-15/1P  
PHOTOCELL  
4-15A/1P  
LUMINAIRES  
1-30A/1P  
SIGNAL SVC  
1 SPARE

INTERIOR  
COMPONENTS  
BEHIND HINGED  
DEAD FRONT  
W/ (2)-1/4  
TURN LATCHES

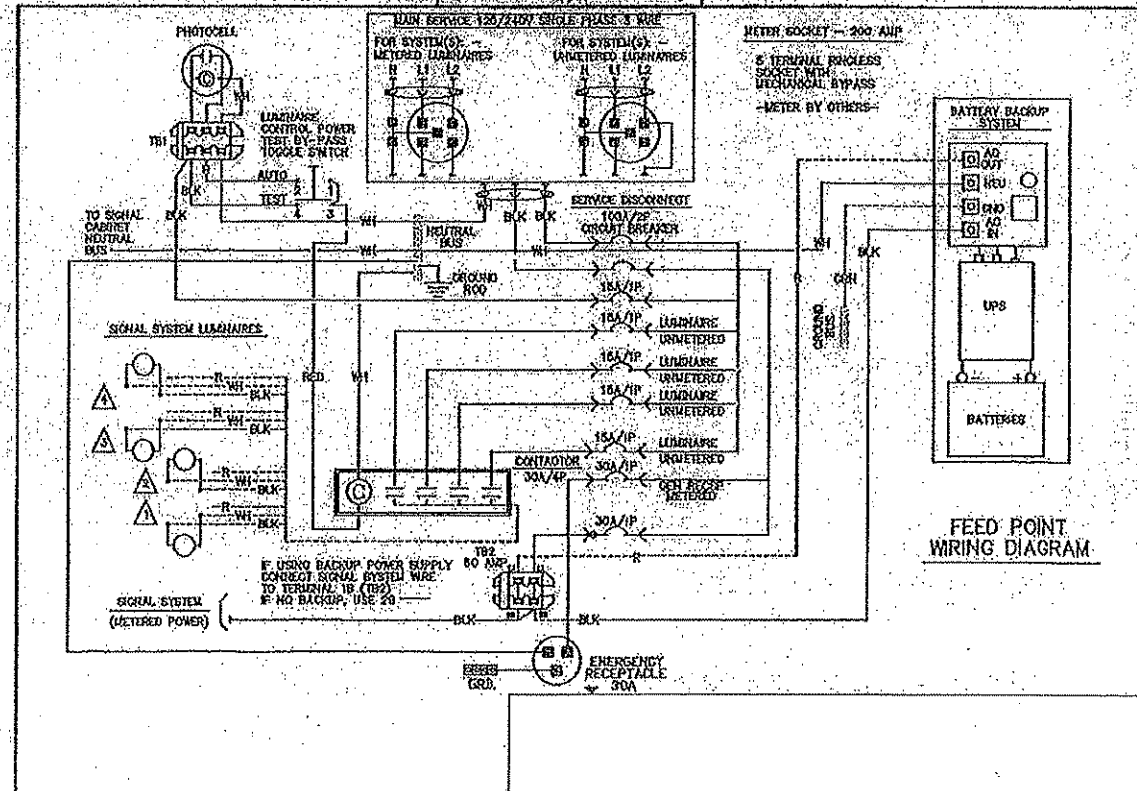


2-1/2" W FLANGE  
FRONT & BACK  
1/4" ALUMINUM  
W/BASE GASKET  
PROVIDED  
2" W FLANGE  
SIGNAL & STREET  
LIGHTING WIREWAY  
1" X 2-1/2" GROUND HOLES  
TYP FOR MOUNTING

**CABINET CONSTRUCTION**

-NEMA 3R  
-1/8" ALUMINUM 5052-H32  
-ANODIZED 30 MINUTE CLEAR  
-NEOPRENE GASKETED DOORS  
-NON-CORRODING HARDWARE  
-ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



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Checked By: S DELMORE  
Approved By: S DELMORE  
DATE: 04/28/11 LIC NO: 40945

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
*[Signature]*  
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SERVICE CABINET DETAILS  
SIGNAL PLAN  
SHEET 5 OF 11 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
153  
OF  
249  
SHEETS

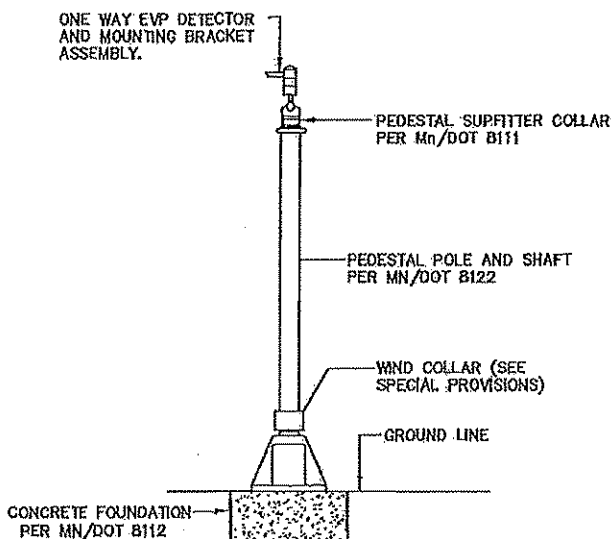
### CONDUCTOR COLOR CODE

|        |                          |
|--------|--------------------------|
| R      | RED                      |
| O      | ORANGE                   |
| BL     | BLUE                     |
| WH     | WHITE                    |
| R/BLK  | RED WITH BLACK TRACER    |
| O/BLK  | ORANGE WITH BLACK TRACER |
| BL/BLK | BLUE WITH BLACK TRACER   |
| WH/BLK | WHITE WITH BLACK TRACER  |
| BLK    | BLACK                    |
| BLK/WH | BLACK WITH WHITE TRACER  |
| G/BLK  | GREEN WITH BLACK TRACER  |
| G      | GREEN                    |

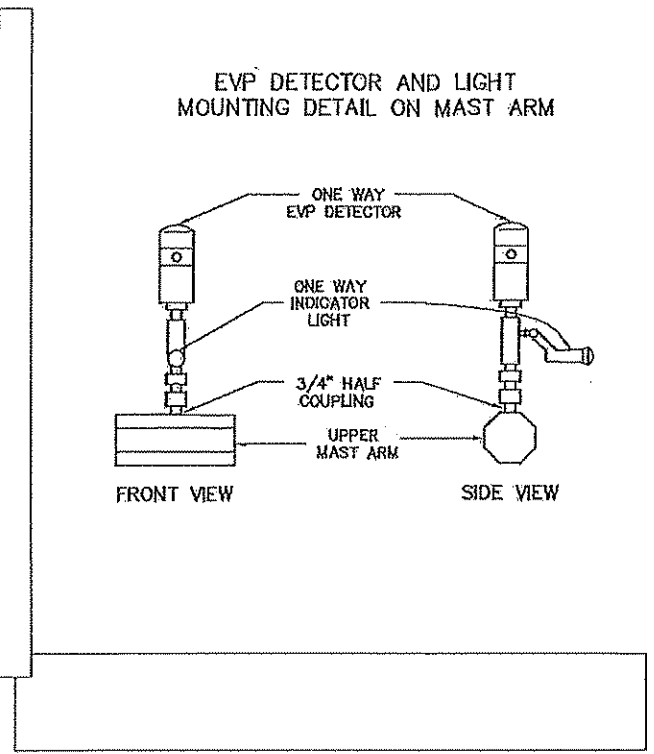
| CONDUCTOR COLOR CODE (14 GAUGE) |                |           |                     |
|---------------------------------|----------------|-----------|---------------------|
| TO SIGNAL CABINET               |                | TO DEVICE |                     |
| 1/C#6 G                         | R              | R         | RED 4 & 5           |
| 6PR#19                          | O              | O         | YEL SECTION         |
| 6/C#14                          | BL             | BL        | GRN SIGNAL          |
| 3-1/C#2                         | WH             | WH        | NEU YLTA INDICATION |
| BLK                             | BLK/R          | BLK/R     | BLK                 |
| BLK                             | BLK            | BLK       | DLTA                |
| 3-1/C#6                         | WH             | WH        |                     |
| G                               |                |           |                     |
|                                 | SIGNAL SERVICE |           |                     |
| R                               | R              | R         | RED/DWK 3 SECTION   |
| O                               | O              | O         | YEL/BLK & PED       |
| BL                              | BLK/R          | BLK/R     | GRN/SPR INDICATION  |
| WH                              | BLK            | BLK       | WH                  |
| BL/BLK                          | WH             | WH        |                     |
| O/BLK                           | 4/C#14         | 4/C#14    | RED/DWK 3 SECTION   |
| BL/BLK                          | BLK            | BLK       | YEL/BLK & PED       |
| BLK                             | WH             | WH        | GRN/SPR INDICATION  |
| BLK/WH                          | 3/C#14         | 3/C#14    | BLK                 |
| G/BLK                           | G              | G         | EVP LIGHT           |
| G                               | WH OR CLR      | WH OR CLR | LUM/FLASHER         |
|                                 | 2/C#14         | 2/C#14    | BLK                 |
|                                 | BLK            | BLK       | EVP LIGHT           |
|                                 | WH OR CLR      | WH OR CLR | LUM/FLASHER         |
|                                 | 3/C#20         | R OR O    | PED PUSH BUTTON     |
|                                 | WH OR YEL      | WH OR YEL | (if Required)       |
|                                 | BLK OR BL      | BLK OR BL |                     |

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

### PEDESTAL POLE MOUNTED EVP DETECTOR DETAIL



### EVP DETECTOR AND LIGHT MOUNTING DETAIL ON MAST ARM



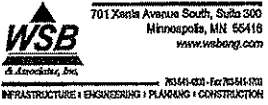
### NOTES:

1. PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. THE BUTTON ARROW DIRECTION MUST POINT TO THE DIRECTION OF THE APPROPRIATE CROSSING. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
2. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
3. BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST.
4. MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
5. APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
6. THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MN/DOT SIGNING QUALIFIED PRODUCTS LIST (OPL) FOR APPROVED SIGN SHEETING.
7. ANTI-SEIZE COMPOUND MUST BE USED ON THE MOUNTING BOLTS WHEN THE PEDESTRIAN SIGN IS INSTALLED.

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| Drawn By: <b>M SCHWARTZ</b>   | I HEREBY CERTIFY THAT THIS PLAN SHEET 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. |
| Checked By: <b>S DELMORE</b>  |   |
| Approved By: <b>S DELMORE</b> |   |
| DATE: <b>04/28/11</b>         |   |
| LIC NO: <b>40945</b>          |   |

CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION

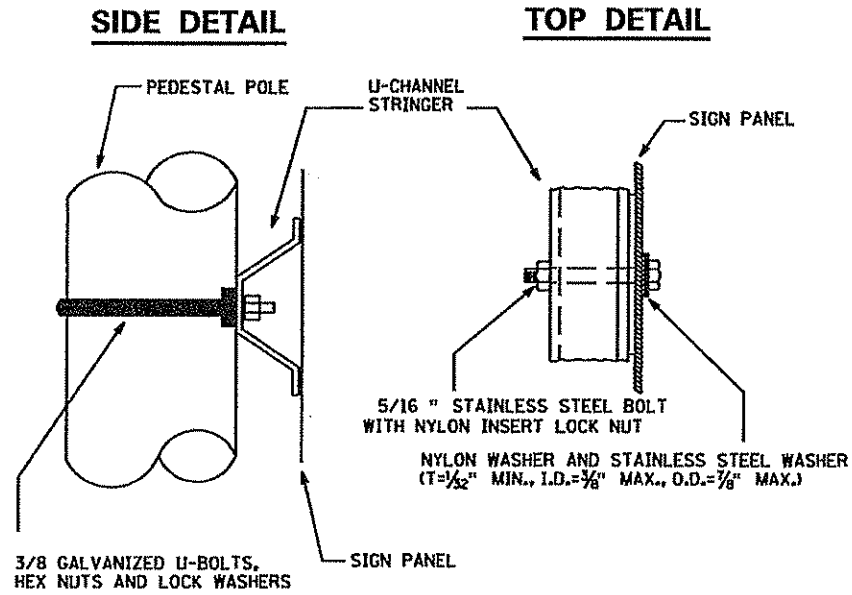


EVP DETECTOR DETAILS, CONDUCTOR COLOR CODE  
DETAILS, PUSH BUTTON STATION DETAILS  
**SIGNAL PLAN**  
SHEET 6 OF 11 SHEETS

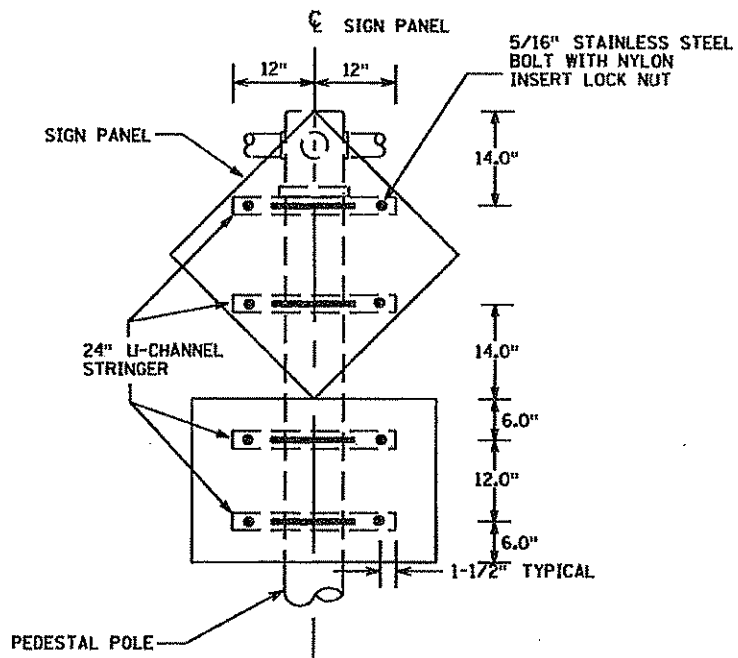
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 154 OF 249 SHEETS

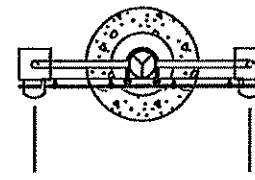
# EVP FLASHER SIGN MOUNTING ATTACHMENT DETAILS



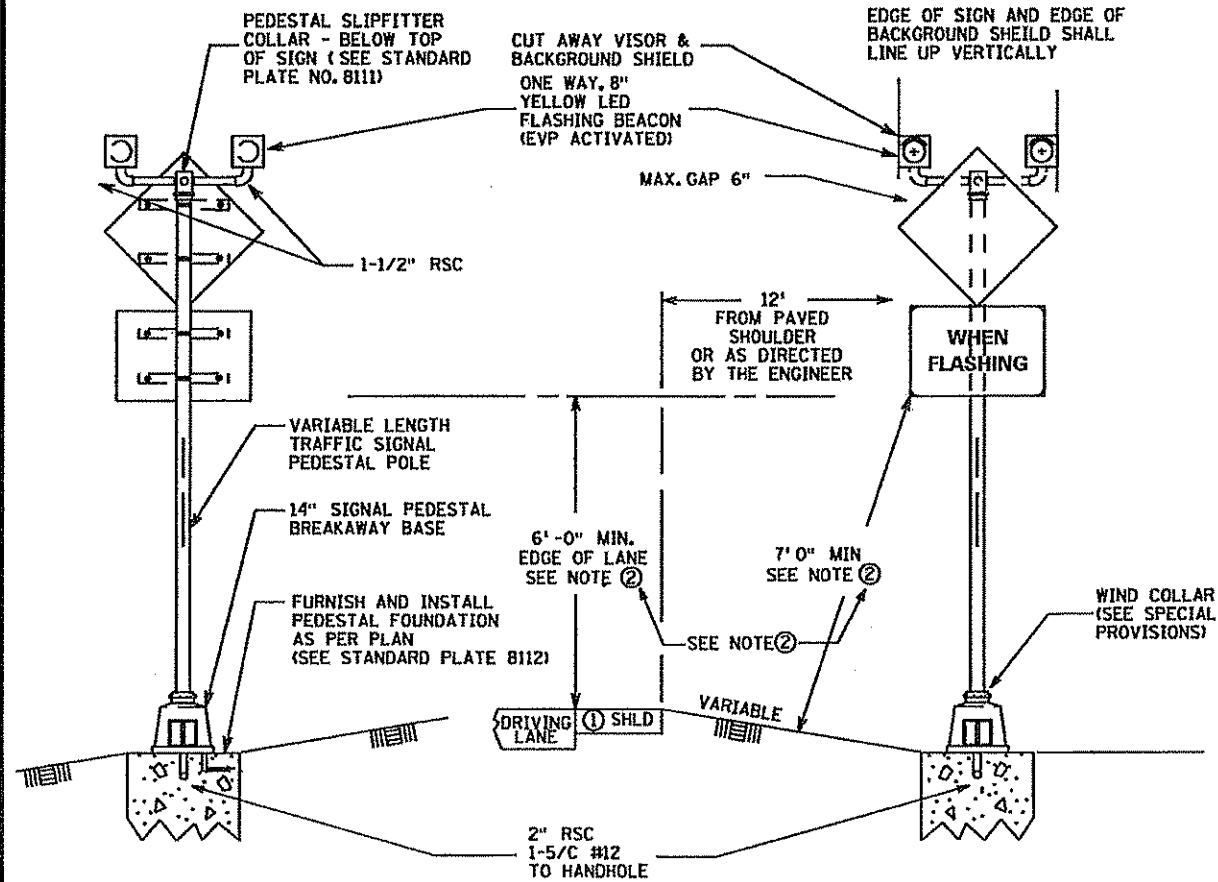
## FRONT DETAIL



## TOP VIEW

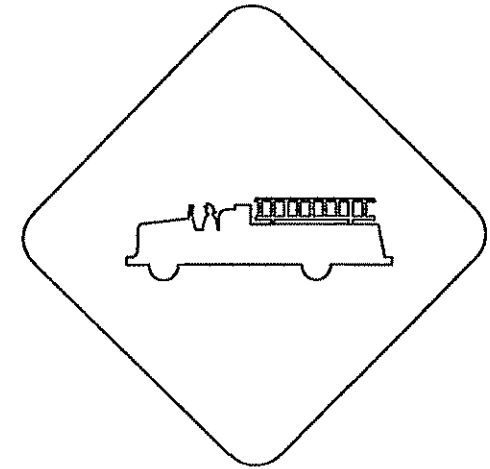


## FRONT VIEW

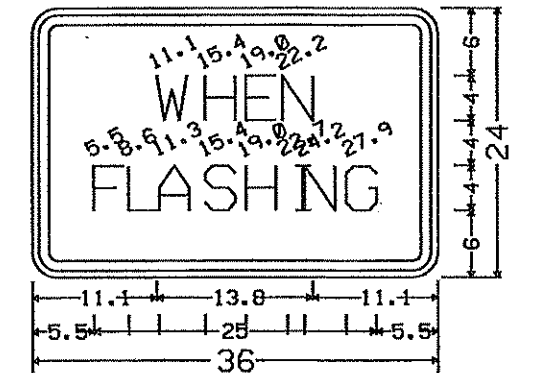


- NOTES:**
- ① WITHOUT PAVED SHOULDER, EDGE OF SIGN SHALL BE 12'-0" FROM EDGE OF DRIVING LANE.
  - ② CONTRACTOR SHALL MEET BOTH MINIMUM REQUIRED MOUNTING HEIGHTS WITH THE SHORTEST PEDESTAL POLE POSSIBLE OR AS DIRECTED BY THE ENGINEER.

# W11-8 SIGN PANEL DETAIL



# W3-X2 SIGN PANEL DETAIL



2.3" RADIUS, 0.9" BORDER, BLACK ON YELLOW; [WHEN] D; [FLASHING] D;

## NOTES:

- TYPE "D" SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24 INCH MAXIMUM INTERVALS IN ACCORDANCE WITH TYPE "D" STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
- USE STAINLESS STEEL 5/16 INCH BOLTS, WASHERS, AND NYLON INSERT LOCK NUTS AS SHOWN.
- STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.

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| Checked By:  | M SCHWARTZ |   |
|              | S DELMORE  |   |
| Approved By: | S DELMORE  |   |
| DATE:        | 04/28/11   | LIC NO: 40945   |

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

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EVP FLASHER DETAILS  
 SIGNAL PLAN  
 SHEET 7 OF 11 SHEETS

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 155  
 OF  
 249  
 SHEETS

**NOTES:**

- SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS, COUNTDOWN PEDESTRIAN INDICATIONS, LED INDICATIONS, AND PAINTING OF SIGNAL SYSTEM.
- THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE F&I 6" FROM THE END OF MAST ARM.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION.
- THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
- SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL).
- EACH PEDESTRIAN INDICATION SHALL BE LED, ONE SECTION "FILLED" HAND/WALKING PERSON INDICATION.
- ALL POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS. SEE DETAILS AND SPECIAL PROVISIONS.
- LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLPE) IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- ALL VEHICLES AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELD, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- (EVP) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- DISTANCE OFF SHOULDER OR CURB FOR EVP CONDUIT SHALL BE 1-2 FEET.
- COIL AN ADDITIONAL 15' OF CABLE FOR DETECTORS D4-1 AND D4-2 FOR FUTURE EXTENSION OF HH 8 (TO THE SOUTH).

**(A) EQUIPMENT PAD FOUNDATION - SEE DETAIL CONTROLLER AND CABINET (COUNTY FURNISHED) BETWEEN CONTROLLER CABINET AND SERVICE CABINET: METERED SIGNAL SERVICE**

2" RSC  
2-1/c#6  
1-1/c#6 INS. GRD.  
4" RSC INTO HH 1:  
4-12/c#14  
4-4/c#14  
2-3/c#14 (EVP)  
2-3/c#14 (EVP)  
17-3/c#14  
2-3/c#20 (EVP)  
3" RSC STUBBED OUT (THREAD AND CAP FOR FUTURE USE)  
2" RSC STUBBED OUT (THREAD AND CAP FOR FUTURE USE)  
1" NMC STUBBED OUT AND CAP FOR FUTURE TELEPHONE LINE)

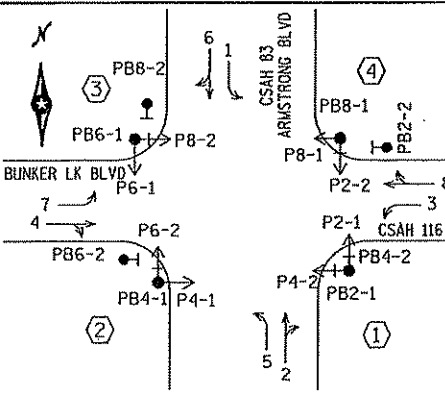
4" RSC INTO HH 19:  
4-12/c#14  
4-4/c#14  
2-3/c#14 (EVP)  
3-3/c#20 (EVP)  
2-5/c#14 (EVP)  
17-2/c#14

**SIGNAL SERVICE CABINET (SAME FOUNDATION AS CONTROLLER CABINET)**

2" RSC INTO HH 1:  
UNMETERED STREET LIGHT SERVICE  
4-3/c#14 (LUM)  
2" RSC STUB OUT TO HH 20:  
3-1/c#2  
(FOR POWER BY CONNEXUS)

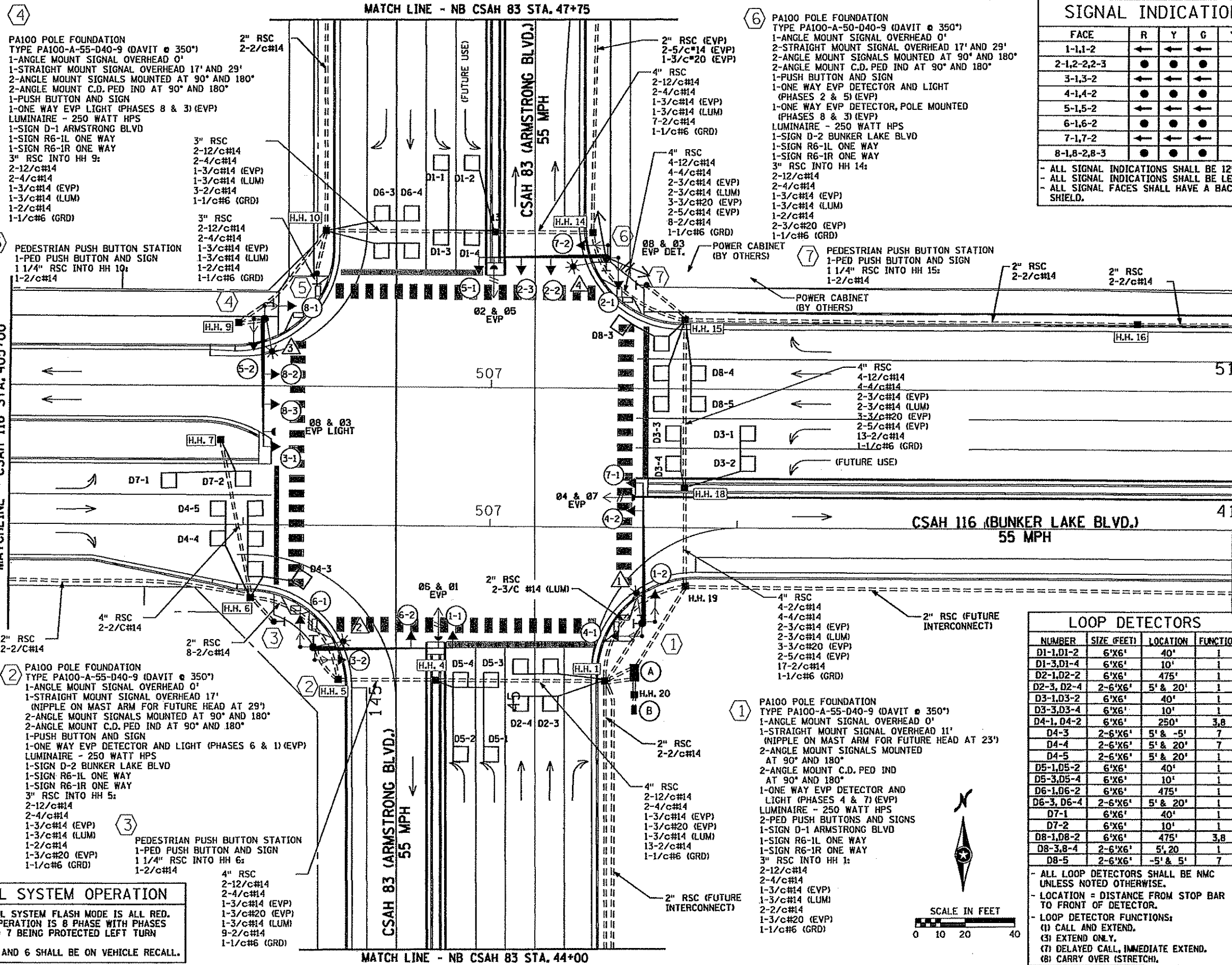
**(B) SOP-TRANSFORMER (POWER BY CONNEXUS)**

**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE WITH PHASES 1, 3, 5 AND 7 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.



**SIGNAL INDICATIONS**

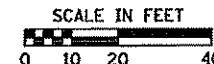
| FACE        | R | Y | G | Y | G |
|-------------|---|---|---|---|---|
| 1-1,1-2     | ← | ← | ← |   |   |
| 2-1,2-2,2-3 | ● | ● | ● |   |   |
| 3-1,3-2     | ← | ← | ← |   |   |
| 4-1,4-2     | ● | ● | ● |   |   |
| 5-1,5-2     | ← | ← | ← |   |   |
| 6-1,6-2     | ● | ● | ● |   |   |
| 7-1,7-2     | ← | ← | ← |   |   |
| 8-1,8-2,8-3 | ● | ● | ● |   |   |

- ALL SIGNAL INDICATIONS SHALL BE 12".  
- ALL SIGNAL INDICATIONS SHALL BE LED.  
- ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD.

**LOOP DETECTORS**

| NUMBER     | SIZE (FEET) | LOCATION | FUNCTION |
|------------|-------------|----------|----------|
| D1-1,D1-2  | 6'x6'       | 40'      | 1        |
| D1-3,D1-4  | 6'x6'       | 10'      | 1        |
| D2-1,D2-2  | 6'x6'       | 475'     | 1        |
| D2-3, D2-4 | 2-6'x6'     | 5' & 20' | 1        |
| D3-1,D3-2  | 6'x6'       | 40'      | 1        |
| D3-3,D3-4  | 6'x6'       | 10'      | 1        |
| D4-1, D4-2 | 6'x6'       | 250'     | 3,8      |
| D4-3       | 2-6'x6'     | 5' & -5' | 7        |
| D4-4       | 2-6'x6'     | 5' & 20' | 7        |
| D4-5       | 2-6'x6'     | 5' & 20' | 1        |
| D5-1,D5-2  | 6'x6'       | 40'      | 1        |
| D5-3,D5-4  | 6'x6'       | 10'      | 1        |
| D6-1,D6-2  | 6'x6'       | 475'     | 1        |
| D6-3, D6-4 | 2-6'x6'     | 5' & 20' | 1        |
| D7-1       | 6'x6'       | 40'      | 1        |
| D7-2       | 6'x6'       | 10'      | 1        |
| D8-1,D8-2  | 6'x6'       | 475'     | 3,8      |
| D8-3,8-4   | 2-6'x6'     | 5', 20'  | 1        |
| D8-5       | 2-6'x6'     | -5' & 5' | 7        |

- ALL LOOP DETECTORS SHALL BE NMC UNLESS NOTED OTHERWISE.
- LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.
- LOOP DETECTOR FUNCTIONS:  
(1) CALL AND EXTEND.  
(3) EXTEND ONLY.  
(7) DELAYED CALL, IMMEDIATE EXTEND.  
(8) CARRY OVER (STRETCH).



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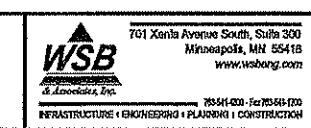
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Drawn By: M SCHWARTZ  
M SCHWARTZ  
M SCHWARTZ  
Checked By: S DELMORE  
Approved By: S DELMORE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*S. Delmore*  
S. Delmore, Professional Engineer, State of Minnesota, P.E.  
DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
CSAH 83/116 & MSAS 121 CONSTRUCTION



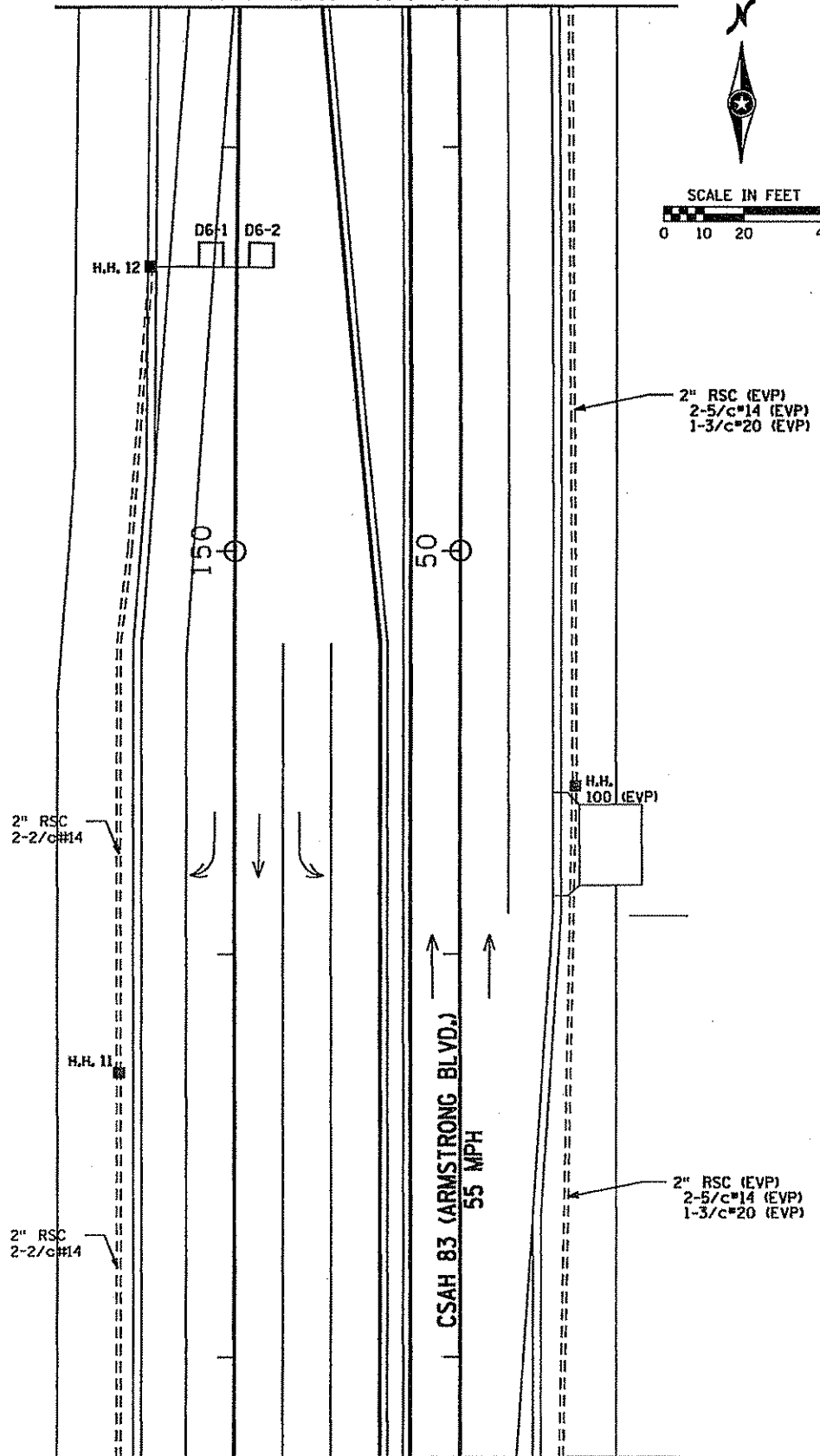
TRAFFIC CONTROL SIGNAL SYSTEM INTERSECTION LAYOUT  
CSAH 83 (ARMSTRONG BLVD) AND CSAH 116 (BUNKER LK BLVD)  
**SIGNAL PLAN**  
SHEET 8 OF 11 SHEETS  
S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 156 OF 249 SHEETS

MATCH LINE - NB CSAH 83 STA. 51+35



SCALE IN FEET  
0 10 20 40



MATCH LINE - NB CSAH 83 STA. 47+75

MATCH LINE - NB CSAH 83 STA. 44+00

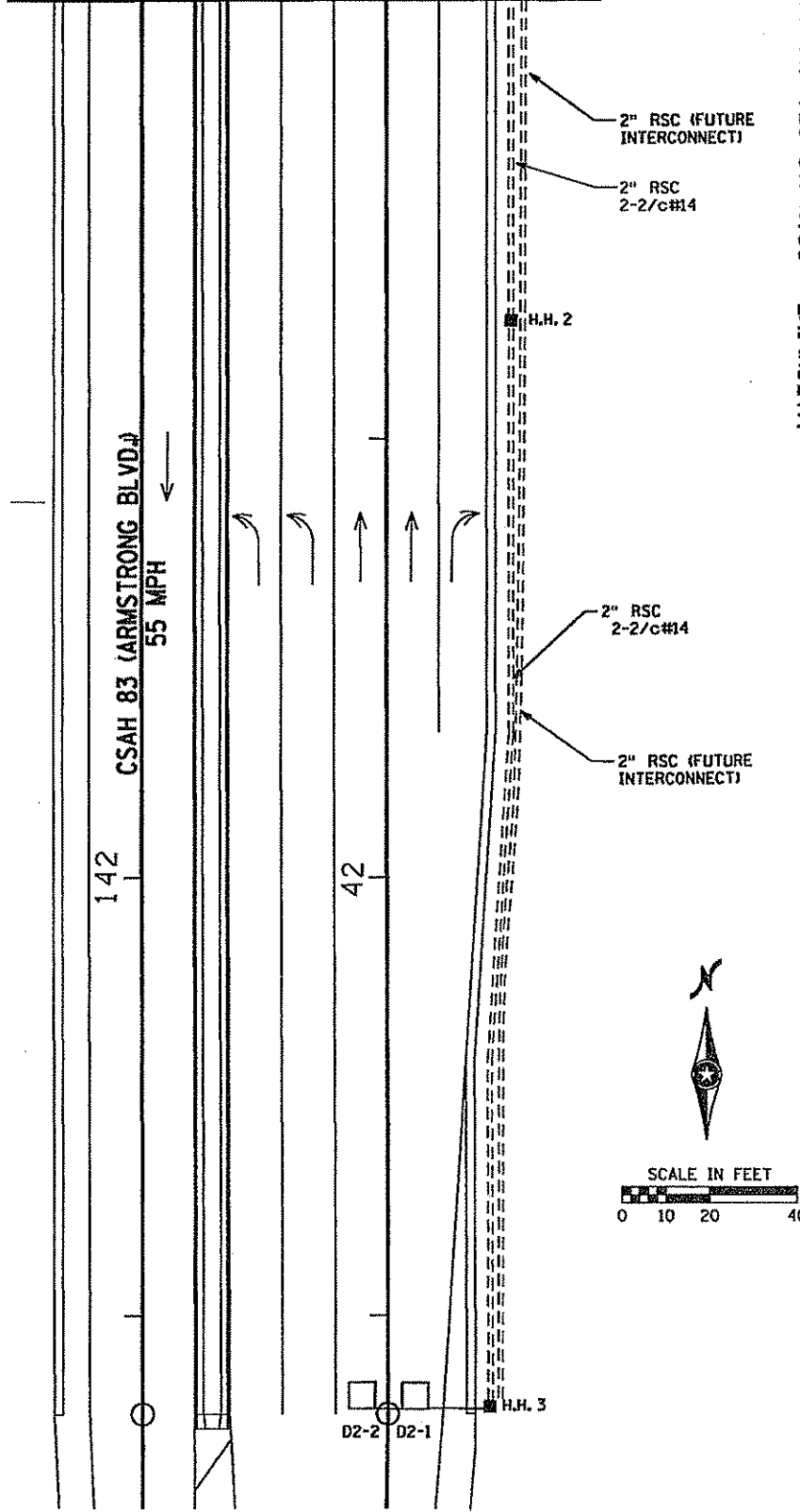
CSAH 83 (ARMSTRONG BLVD.)  
55 MPH

142

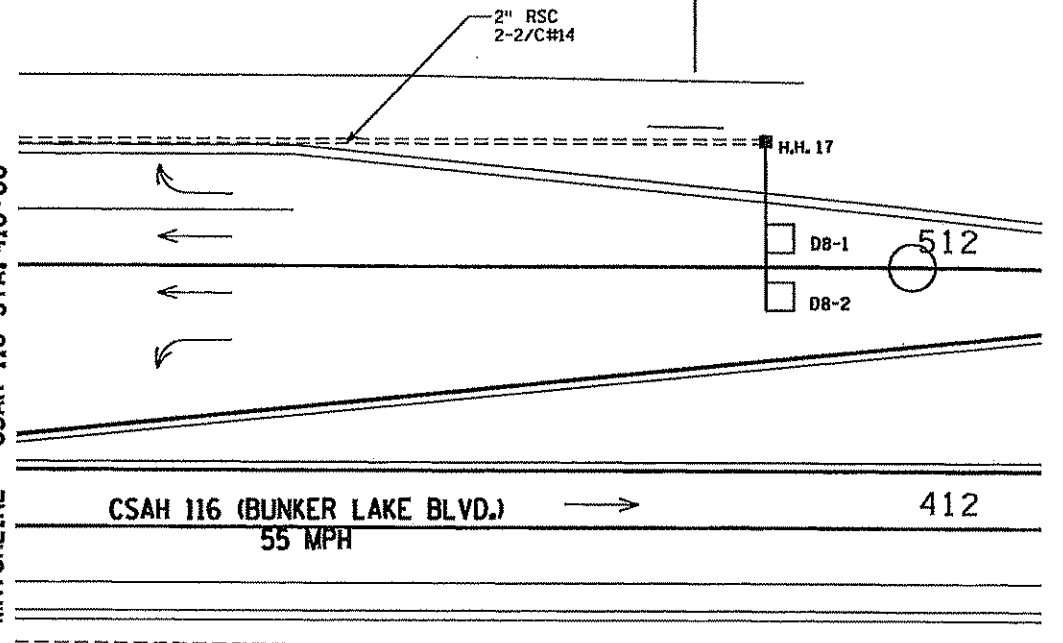
42



SCALE IN FEET  
0 10 20 40



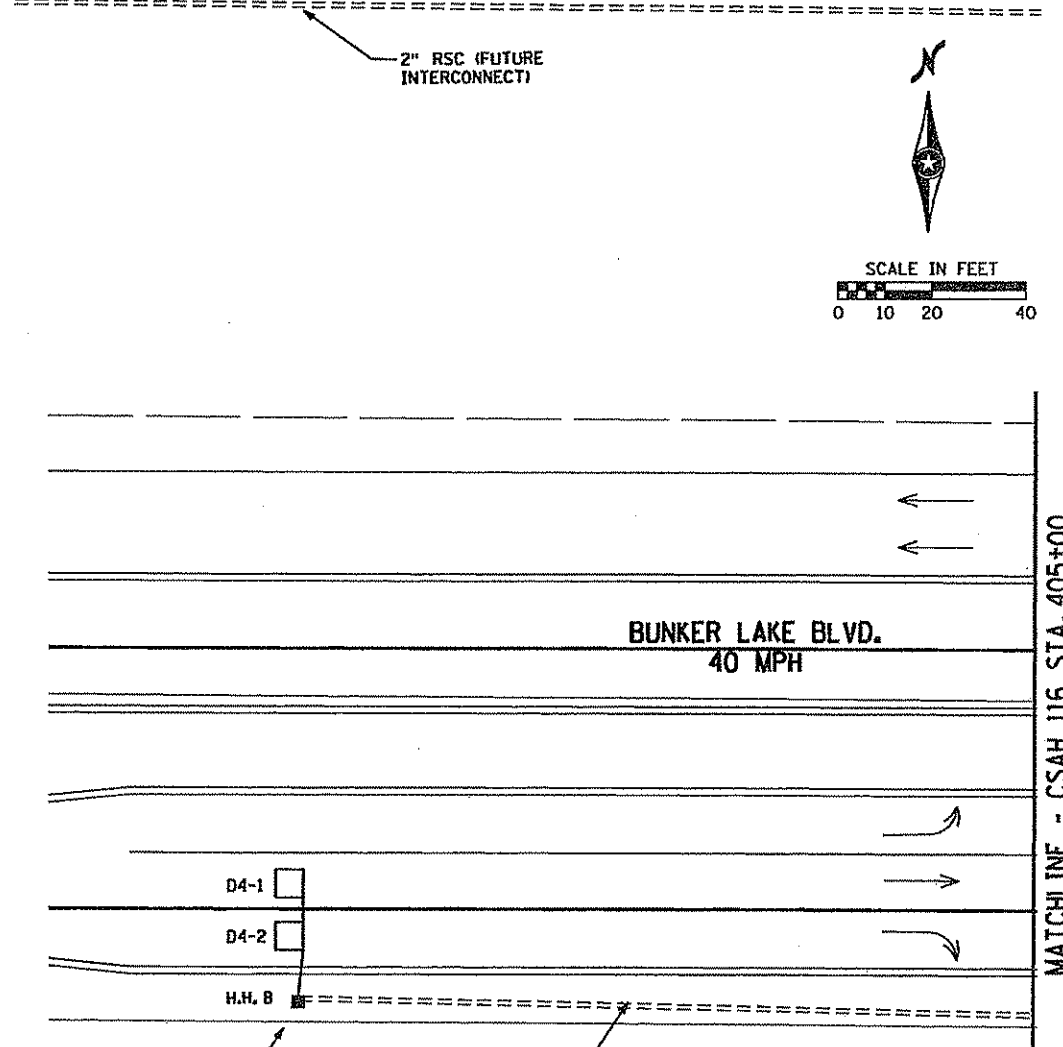
MATCHLINE - CSAH 116 STA. 410+00



CSAH 116 (BUNKER LAKE BLVD.)  
55 MPH

412

SCALE IN FEET  
0 10 20 40



BUNKER LAKE BLVD.  
40 MPH

MATCHLINE - CSAH 116 STA. 405+00

DETECTORS D4-1, D4-2  
COIL 15' EXTRA  
CABLE FOR FUTURE  
HANDHOLE PLACEMENT

2" RSC  
2-2/c#14

SCALE IN FEET  
0 10 20 40



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|    |      |    |     |           |

Drawn By: M SCHWARTZ  
 M SCHWARTZ  
 Checked By: S DELMORE  
 Approved By: S DELMORE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
*S. Delmore*  
 Licensed Professional Engineer, State of Minnesota P.E.  
 DATE: 04/28/11 LIC NO: 40945

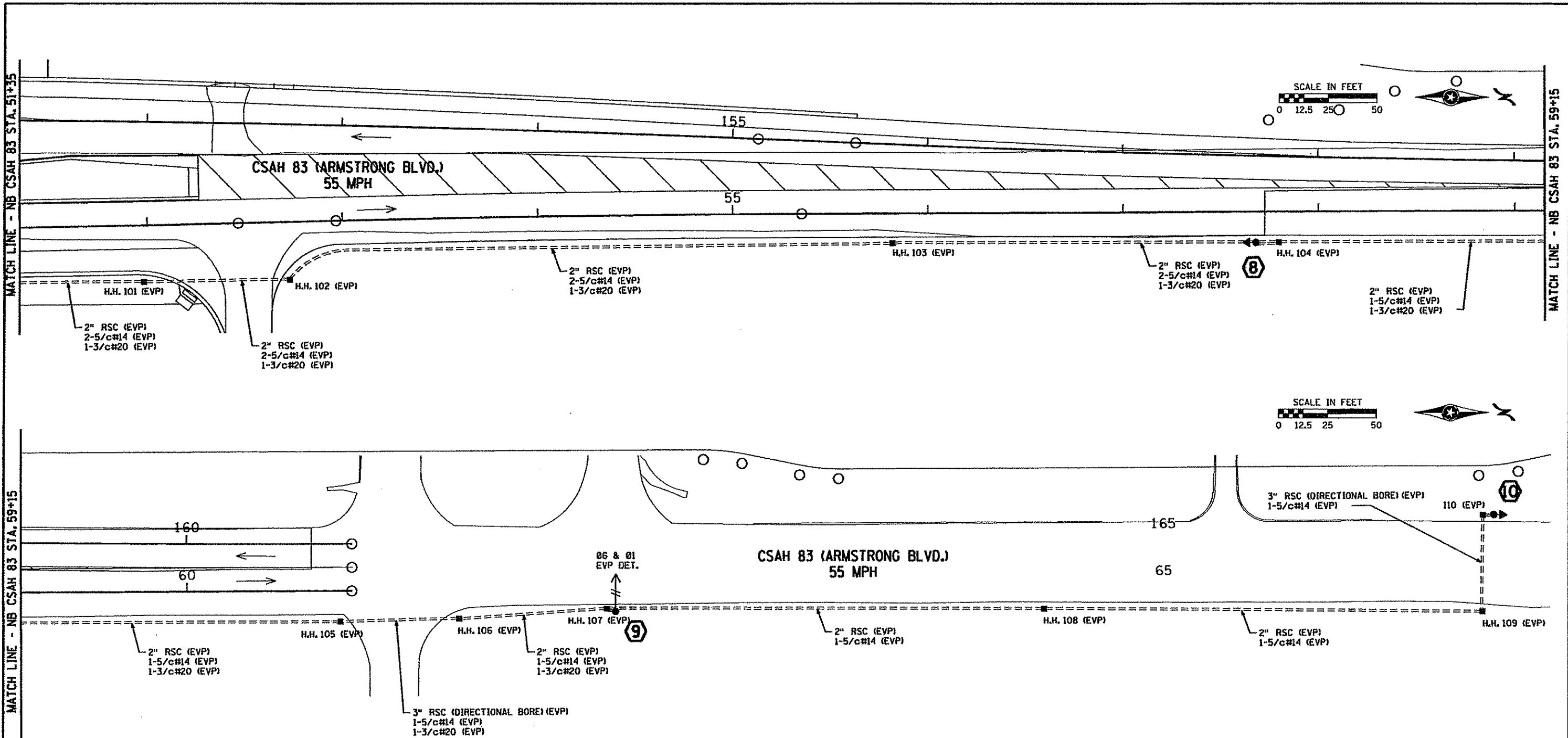
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

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TRAFFIC CONTROL SIGNAL SYSTEM MATCH LINE  
 CSAH 83 (ARMSTRONG BLVD) AND CSAH 116 (BUNKER LK BLVD)  
**SIGNAL PLAN**  
 SHEET 9 OF 11 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 157  
 OF  
 249  
 SHEETS

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**8**

PEDESTAL FOUNDATION (EVP)  
 PEDESTAL POLE (INCLUDES BASE) (EVP)  
 WIND COLLAR FOR PEDESTAL POLE (EVP)  
 2-ONE WAY 8" YELLOW SIGNAL INDICATION  
 (PHASES 6 & 1 EVP ACTIVATED) (EVP)  
 1- W11-8 SIGN PANEL (EVP)  
 1- W3-X2 SIGN PANEL (EVP)  
 2" RSC INTO HH 104 (EVP)  
 1-5/c#14 (EVP)  
 SEE DETAILS AND SPECIAL PROVISIONS

**9**

PEDESTAL FOUNDATION (EVP)  
 10' PEDESTAL POLE (INCLUDES BASE) (EVP)  
 WIND COLLAR FOR PEDESTAL POLE (EVP)  
 ONE WAY DETECTOR - MOUNT ON TOP OF PEDESTAL POLE  
 (PHASES 6 & 1) (EVP)  
 2" RSC INTO HH 107 (EVP)  
 1-3/c#20 (EVP)

**10**

PEDESTAL FOUNDATION (EVP)  
 PEDESTAL POLE (INCLUDES BASE) (EVP)  
 WIND COLLAR FOR PEDESTAL POLE (EVP)  
 2-ONE WAY 8" YELLOW SIGNAL INDICATION  
 (PHASES 6 & 1 EVP ACTIVATED) (EVP)  
 1- W11-8 SIGN PANEL (EVP)  
 1- W3-X2 SIGN PANEL (EVP)  
 2" RSC INTO HH 110 (EVP)  
 1-5/c#14 (EVP)  
 SEE DETAILS AND SPECIAL PROVISIONS

| NO | DATE | BY | CHK | REVISIONS |
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|    |      |    |     |           |
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Drawn By: M SCHWARTZ  
 M SCHWARTZ  
 M SCHWARTZ  
 Checked By: S DELMORE  
 S DELMORE  
 Approved By: S DELMORE  
 S DELMORE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*S. Delmore*  
 S. Delmore, Professional Engineer, 6061 Delmore P.E.  
 DATE: 04/28/11 LIC NO: 40945

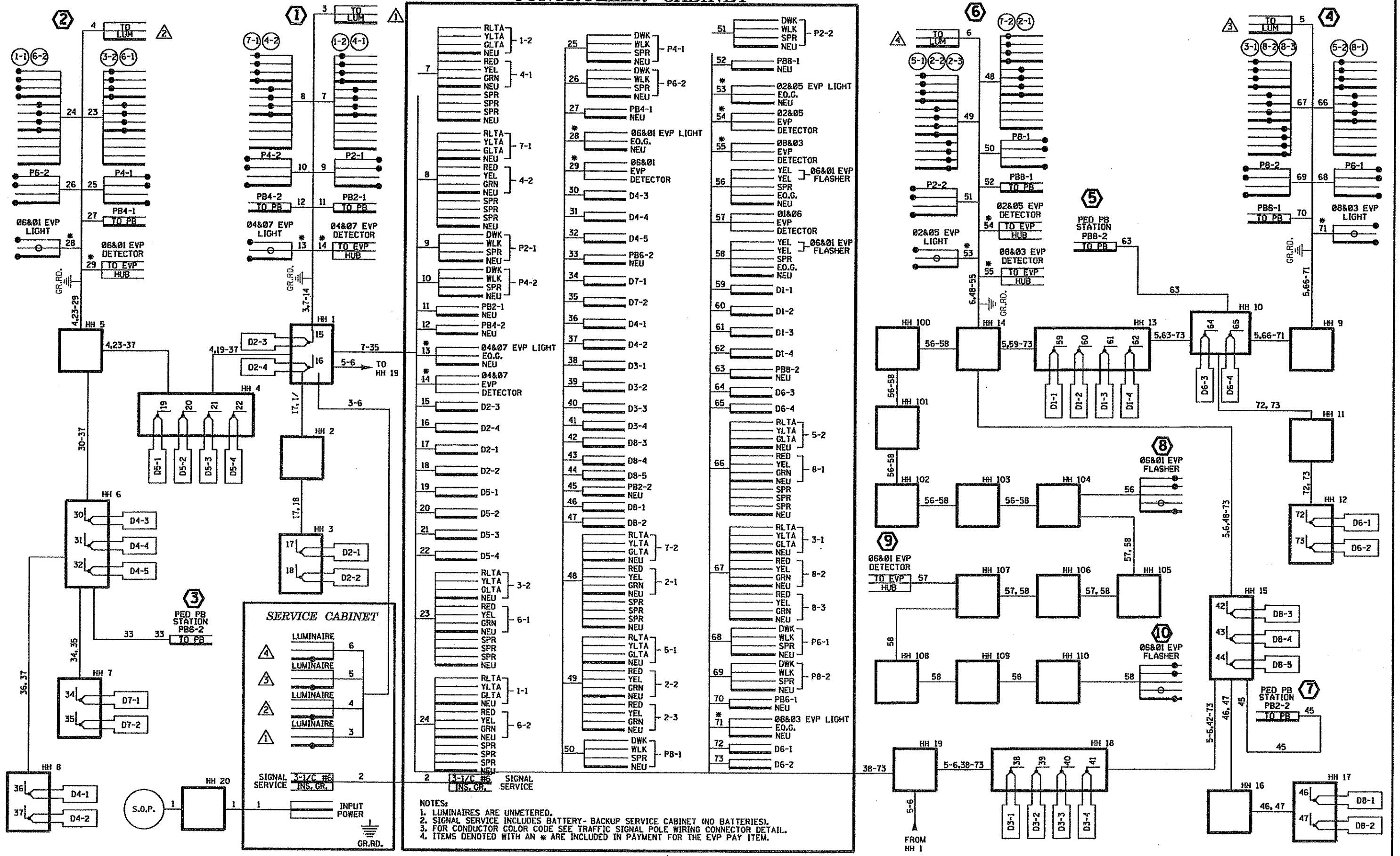
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

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 Minneapolis, MN 55416  
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TRAFFIC CONTROL SIGNAL SYSTEM MATCH LINE  
 CSAH 83 (ARMSTRONG BLVD) AND CSAH 116 (BUNKER LK BLVD)  
**SIGNAL PLAN**  
 SHEET 10 OF 11 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 158  
 OF  
 249  
 SHEETS

# CONTROLLER CABINET



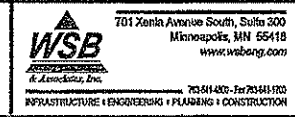
**NOTES:**  
 1. LUMINAIRES ARE UNMETERED.  
 2. SIGNAL SERVICE INCLUDES BATTERY-BACKUP SERVICE CABINET (NO BATTERIES).  
 3. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.  
 4. ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP PAY ITEM.

DATE: 5/4/2011 10:48:25 AM  
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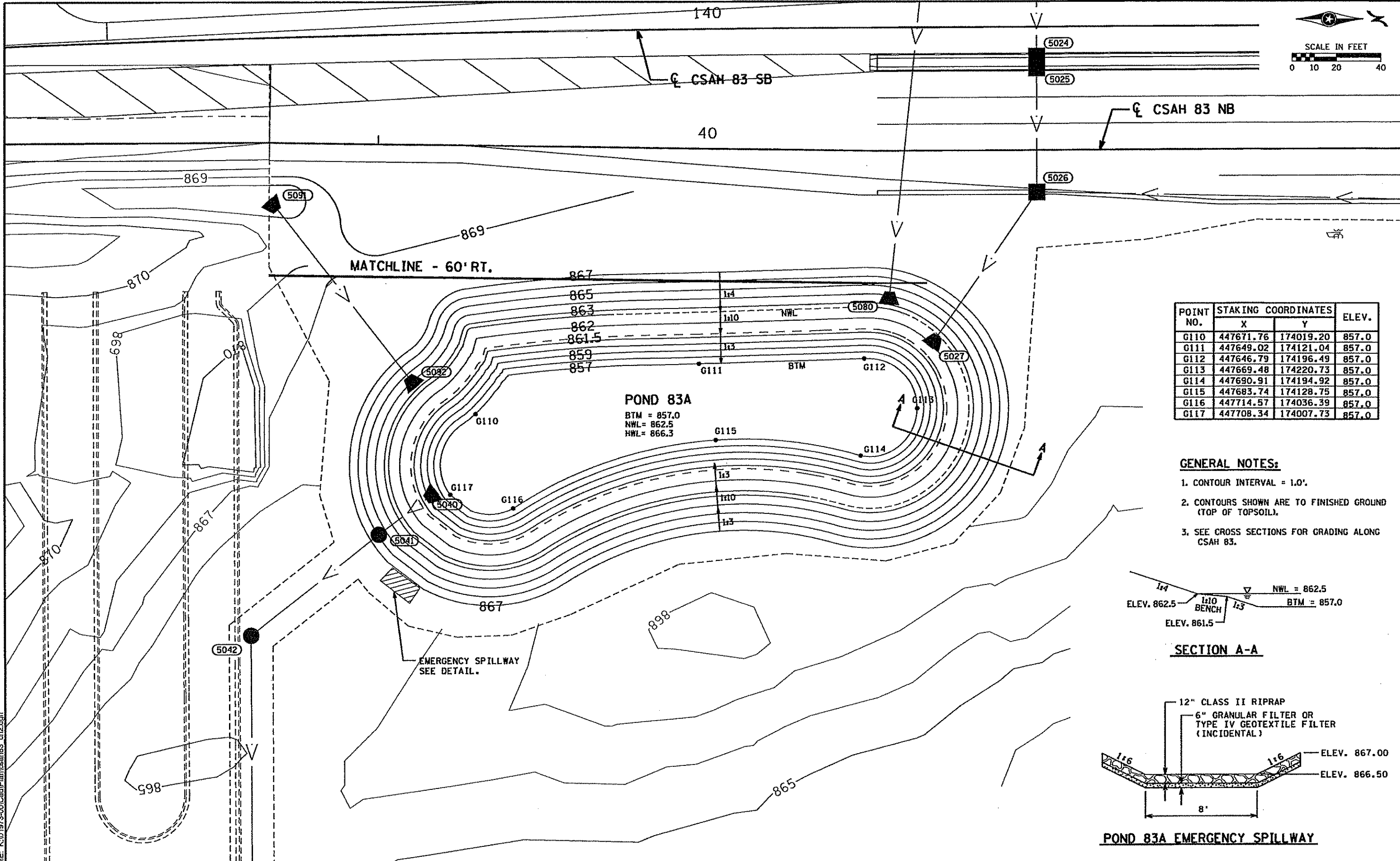
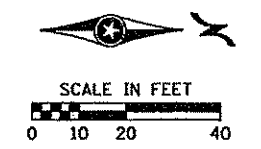
Drawn By: **M SCHWARTZ**  
 M SCHWARTZ  
 Checked By: **S DELMORE**  
 S DELMORE  
 Approved By: **S DELMORE**  
 S DELMORE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*S. Delmore*  
 S. Delmore, Professional Engineer, No. 40945  
 DATE: 04/28/11 LIC NO: 40945

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



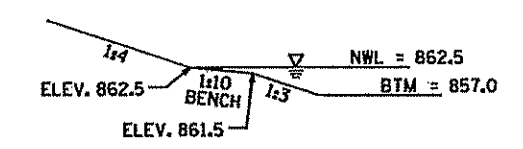
**TRAFFIC CONTROL SIGNAL SYSTEM WIRING DIAGRAM**  
 CSAH 83 (ARMSTRONG BLVD) AND CSAH 116 (BUNKER LK RD)  
**SIGNAL PLAN**  
 SHEET 11 OF 11 SHEETS  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 159  
 OF  
 249  
 SHEETS

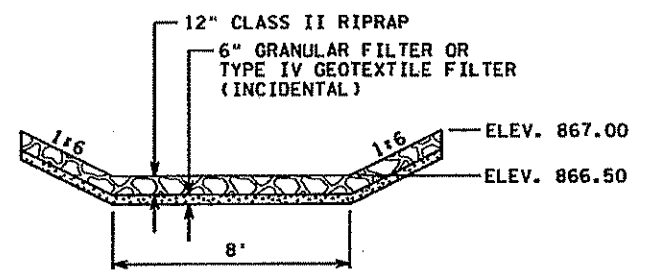


| POINT NO. | STAKING COORDINATES |           | ELEV. |
|-----------|---------------------|-----------|-------|
|           | X                   | Y         |       |
| G110      | 447671.76           | 174019.20 | 857.0 |
| G111      | 447649.02           | 174121.04 | 857.0 |
| G112      | 447646.79           | 174196.49 | 857.0 |
| G113      | 447669.48           | 174220.73 | 857.0 |
| G114      | 447690.91           | 174194.92 | 857.0 |
| G115      | 447683.74           | 174128.75 | 857.0 |
| G116      | 447714.57           | 174036.39 | 857.0 |
| G117      | 447708.34           | 174007.73 | 857.0 |

- GENERAL NOTES:**
1. CONTOUR INTERVAL = 1.0'.
  2. CONTOURS SHOWN ARE TO FINISHED GROUND (TOP OF TOPSOIL).
  3. SEE CROSS SECTIONS FOR GRADING ALONG CSAH 83.



**SECTION A-A**



**POND 33A EMERGENCY SPILLWAY**

DATE: 5/4/2011 10:26:46 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A FLOWMAN**  
 Approved By: **J HALE**

HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42054

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

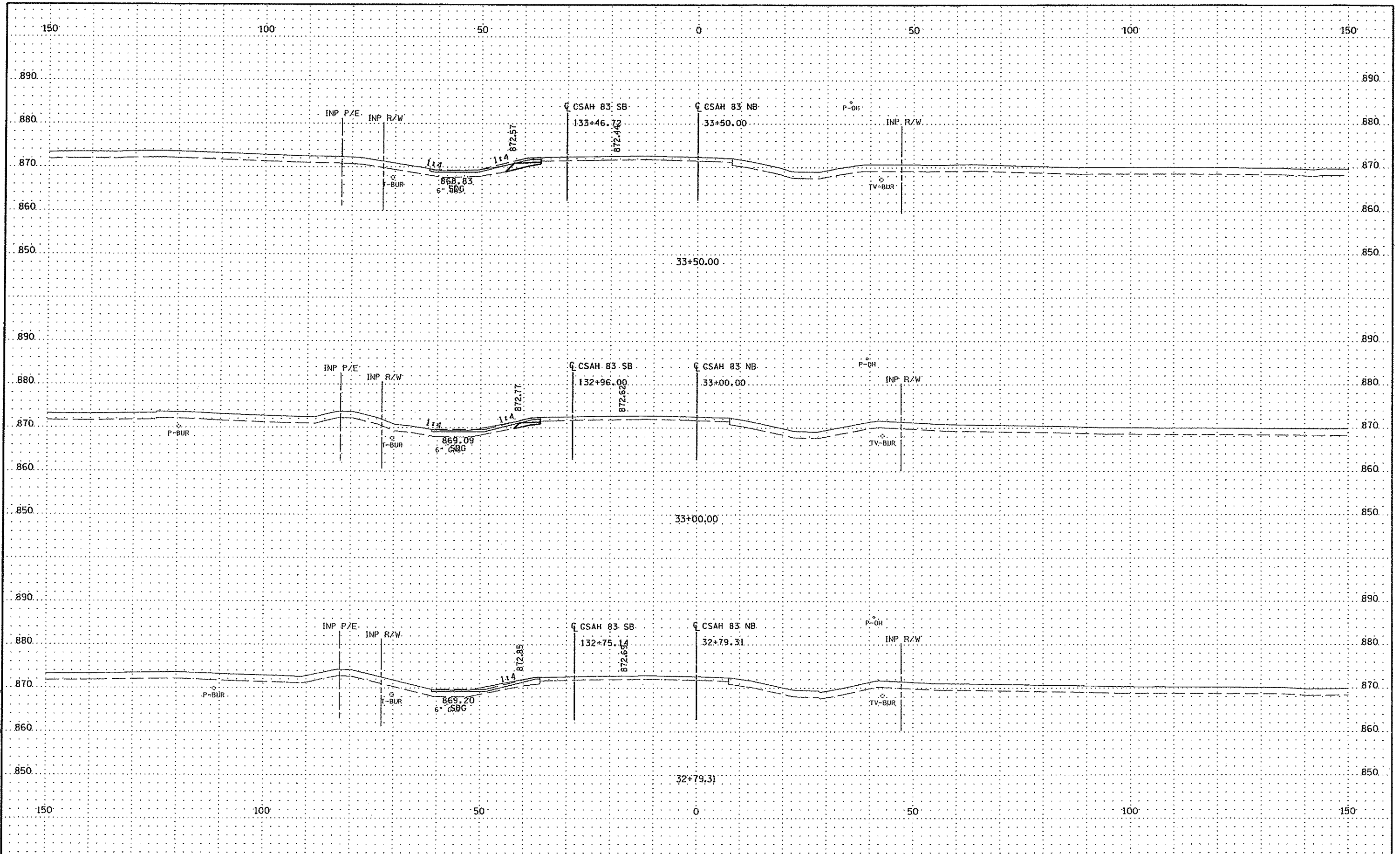


**POND 33A**  
**CONTOUR PLAN**

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 160  
 OF  
 249  
 SHEETS



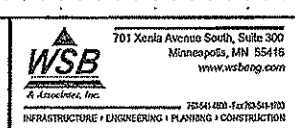


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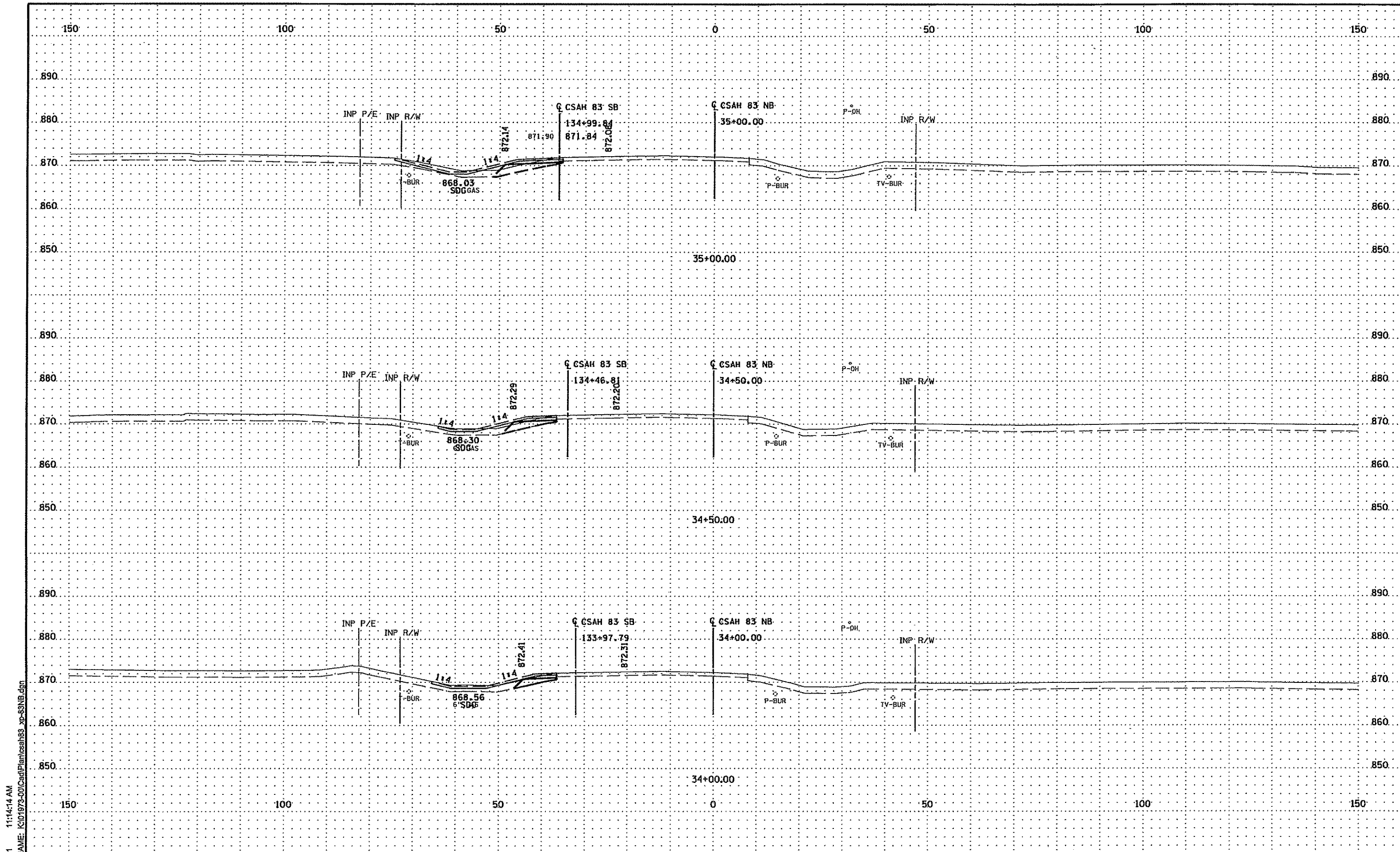
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jugo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
**CROSS SECTIONS**  
 STA. 32+79.31 TO STA. 33+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 161  
 OF  
 249  
 SHEETS



DATE: 6/4/2011 11:14:14 AM  
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|    |      |    |     |           |

Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

License No. 42084  
 Date: 04/28/11

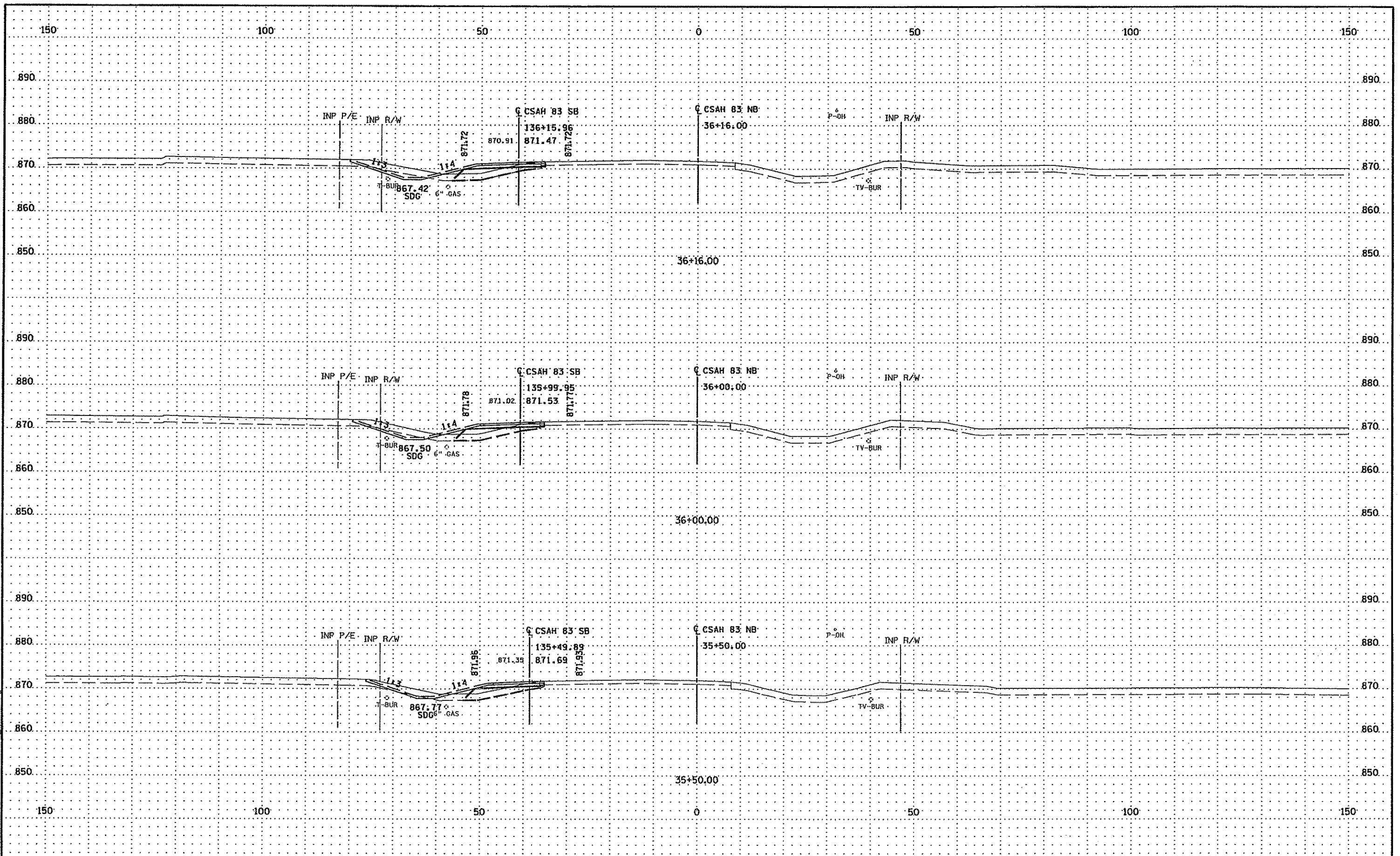
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 34+00.00 TO STA. 35+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
 249  
 SHEETS

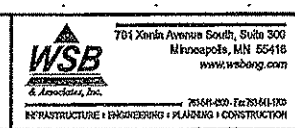


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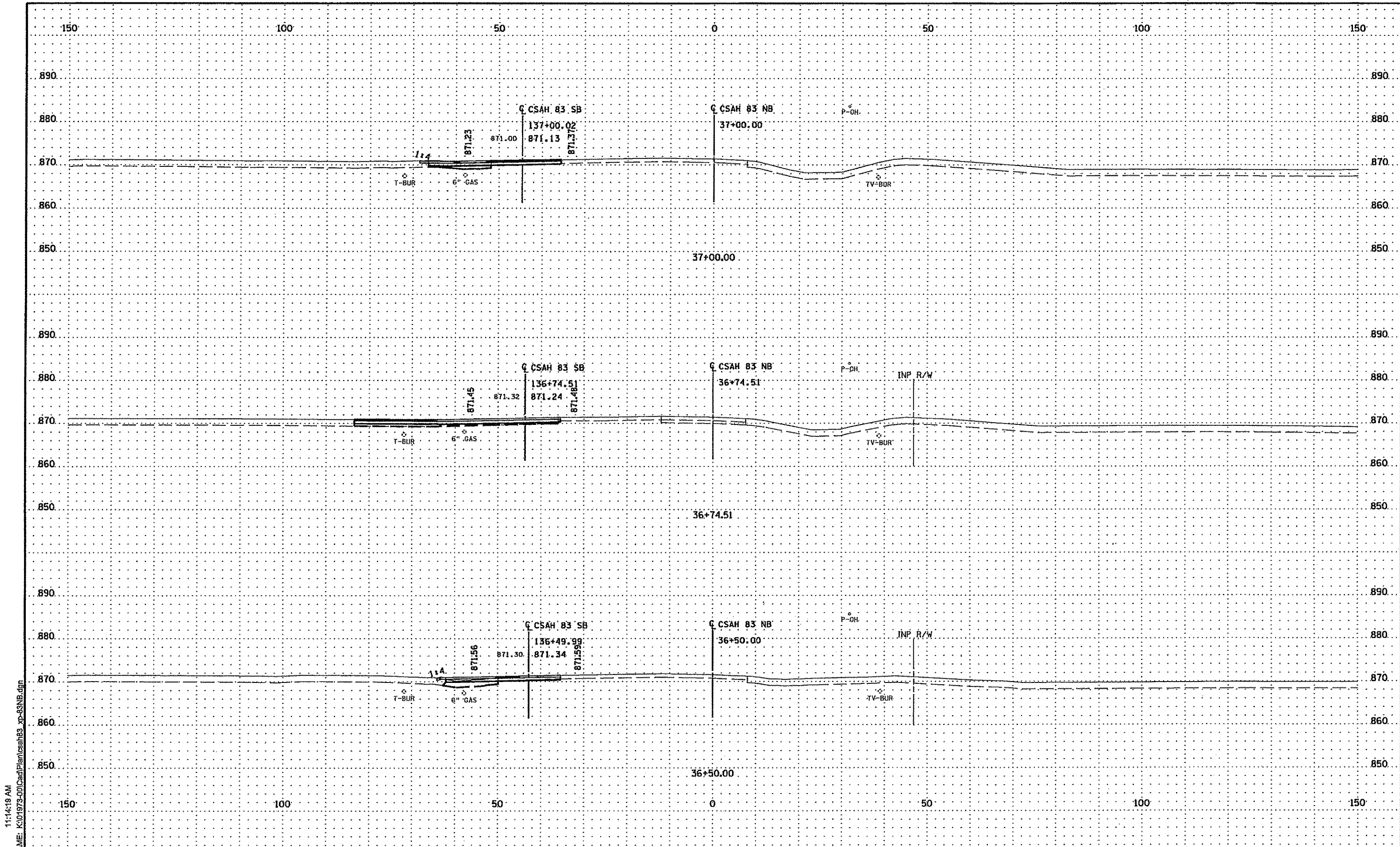
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I hereby certify that this plan sheet was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Licensed Professional Engineer, Jopo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
 CROSS SECTIONS  
 STA. 35+50.00 TO STA. 36+16.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 163  
 OF  
 249  
 SHEETS



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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

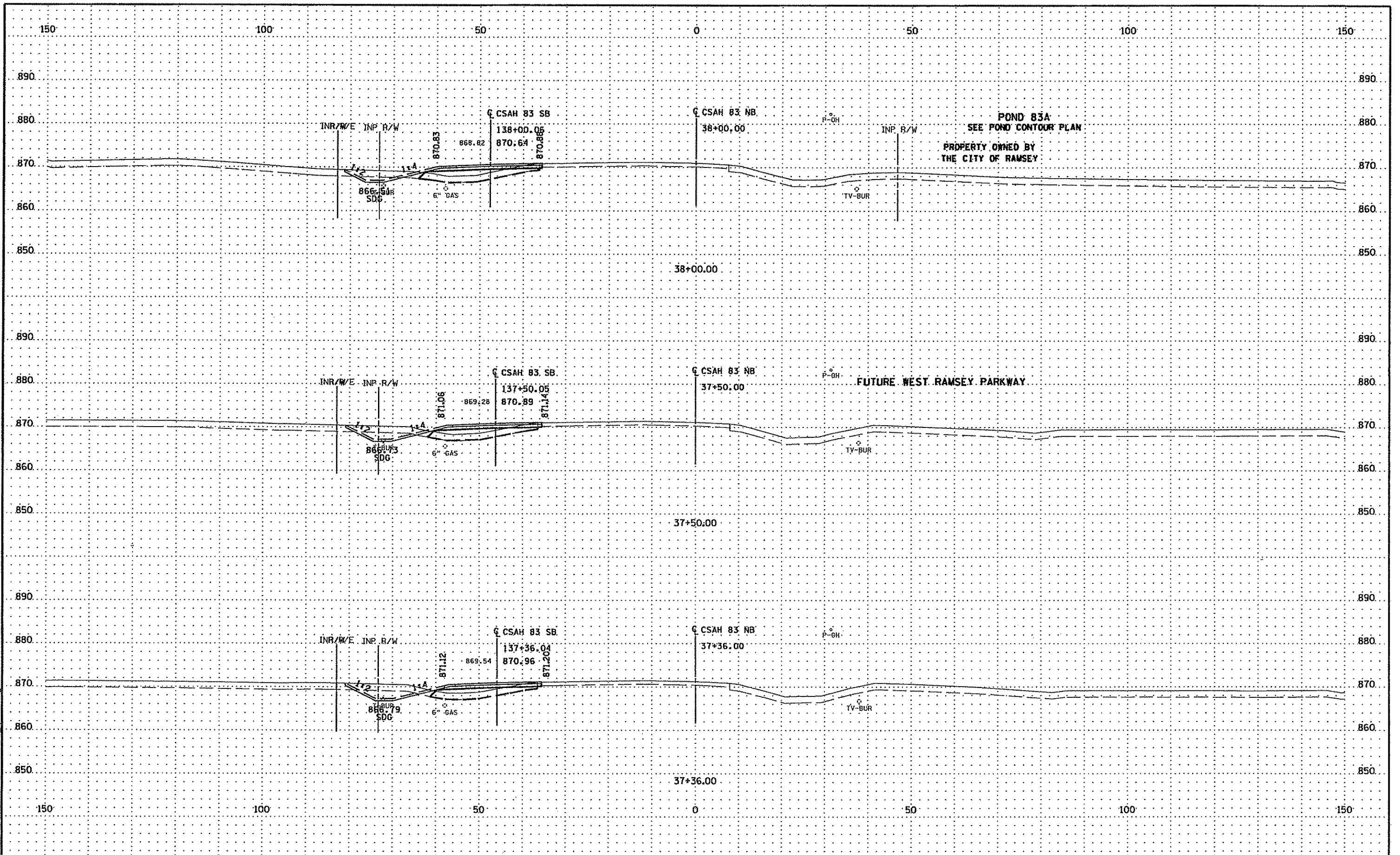
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Inge Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

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 & Associates, Inc.  
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CSAH 83 NB  
 CROSS SECTIONS  
 STA. 36+50.00 TO STA. 37+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 164  
 OF  
 249  
 SHEETS



DATE: 6/4/2011 11:14:23 AM  
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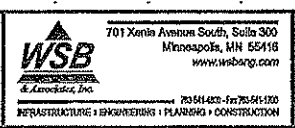
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|    |      |    |     |           |

Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

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

*[Signature]*  
 Licensed Professional Engineer, Jipa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

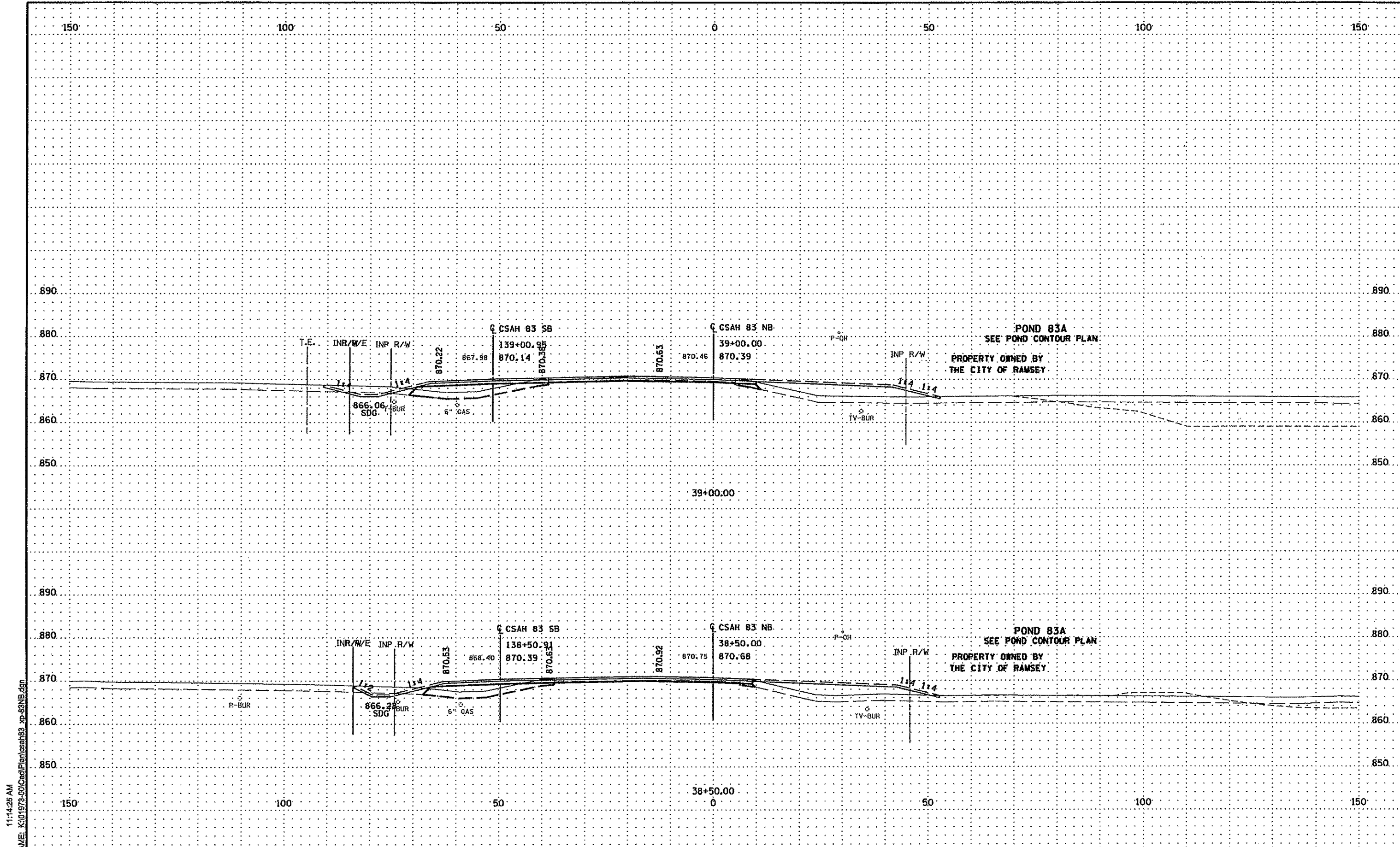
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 37+36.00 TO STA. 38+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 165  
 OF  
 249  
 SHEETS



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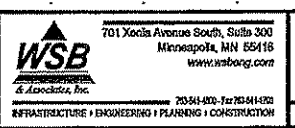
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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*(Signature)*  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

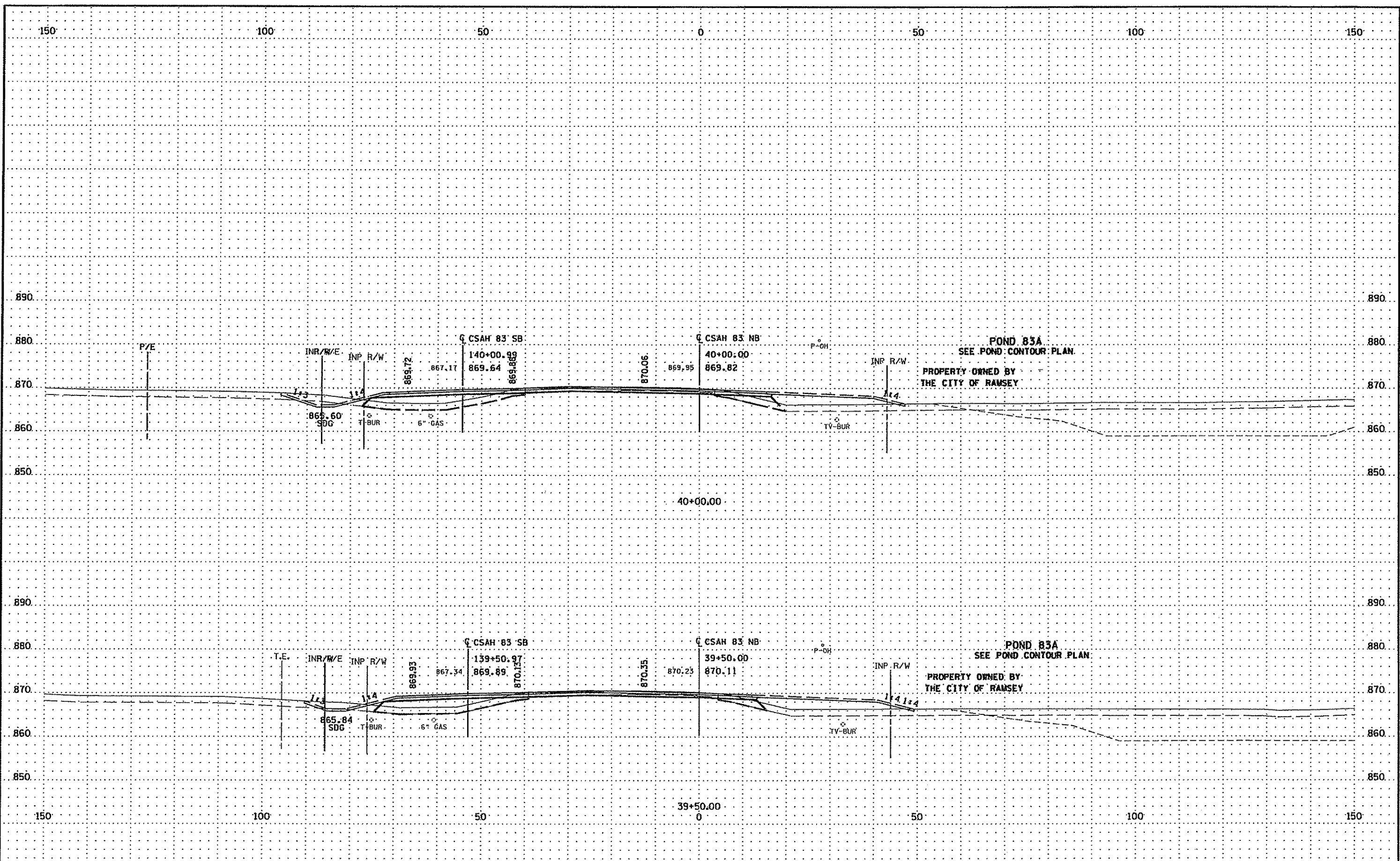
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 38+50.00 TO STA. 39+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 166  
 OF  
 249  
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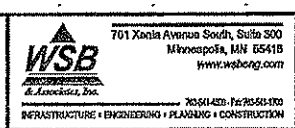
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

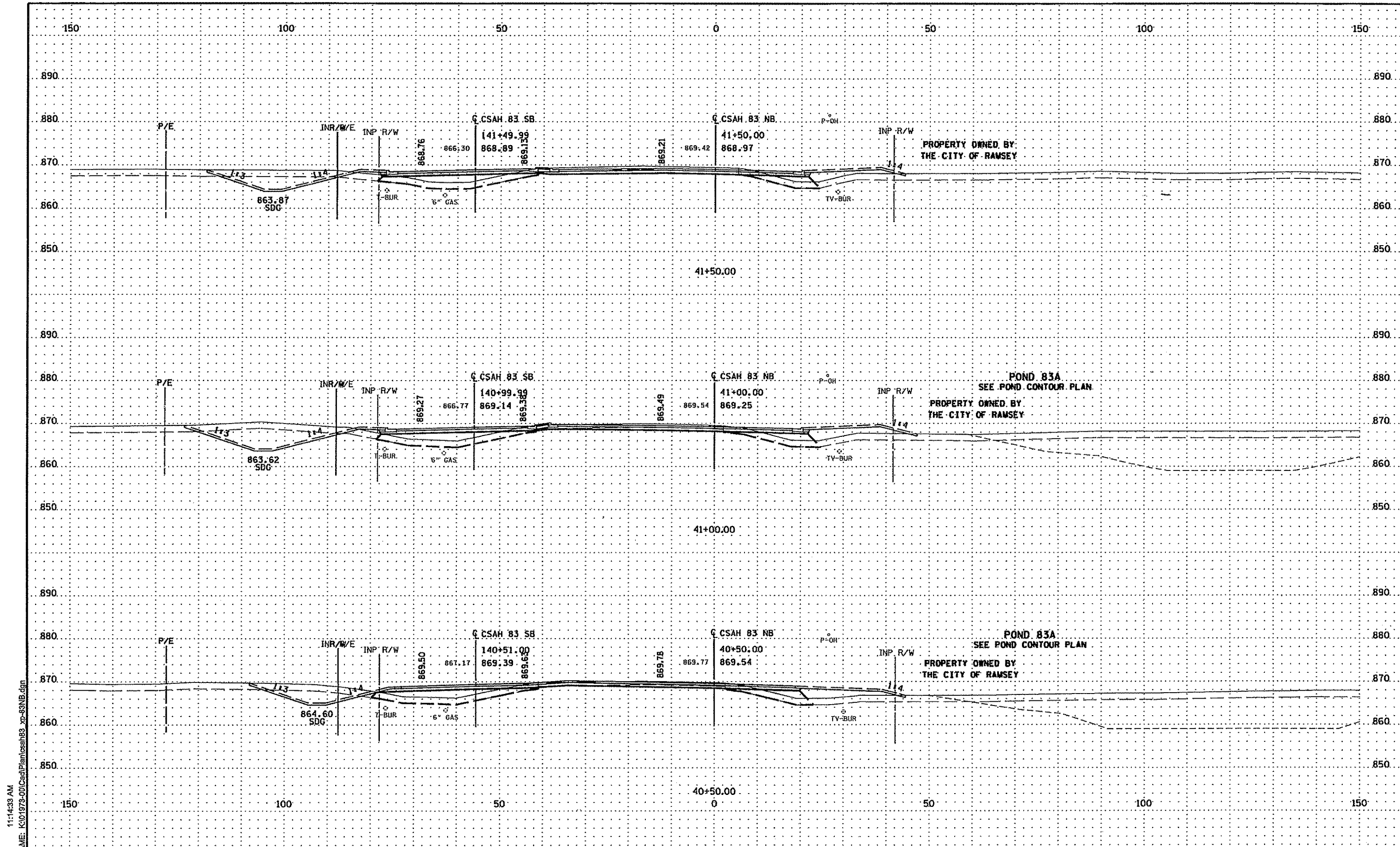
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
**CROSS SECTIONS**  
 STA. 39+50.00 TO STA. 40+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 167  
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 249  
 SHEETS



DATE: 5/4/2011 11:14:33 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Licensed Professional Engineer, State P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**

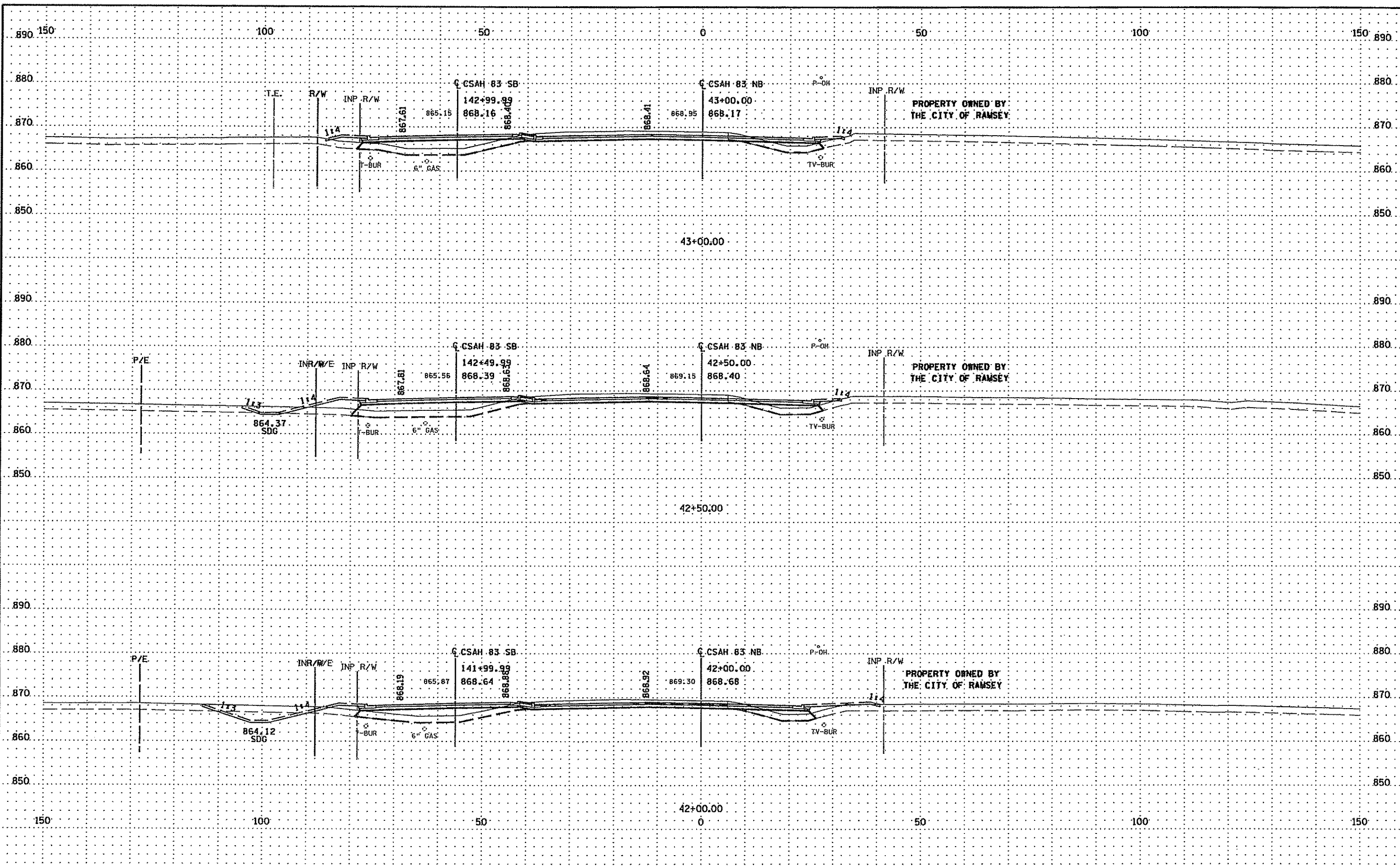


**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 40+50.00 TO STA. 41+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
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 SHEETS





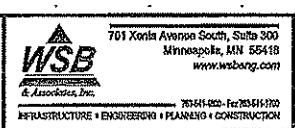
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

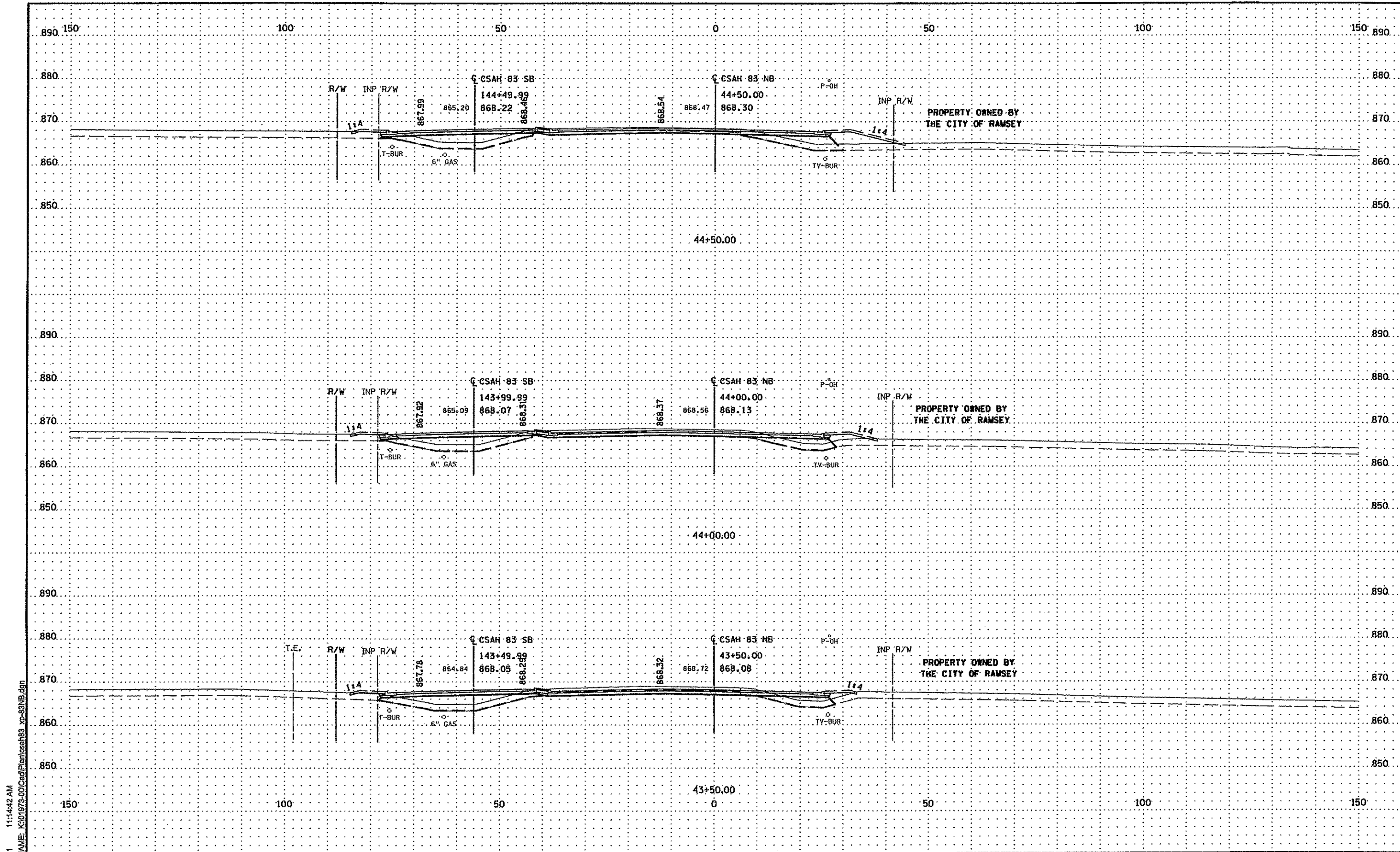
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALIFIED LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
**CROSS SECTIONS**  
 STA. 42+00.00 TO STA. 43+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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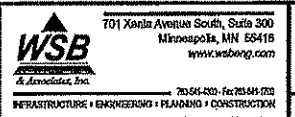
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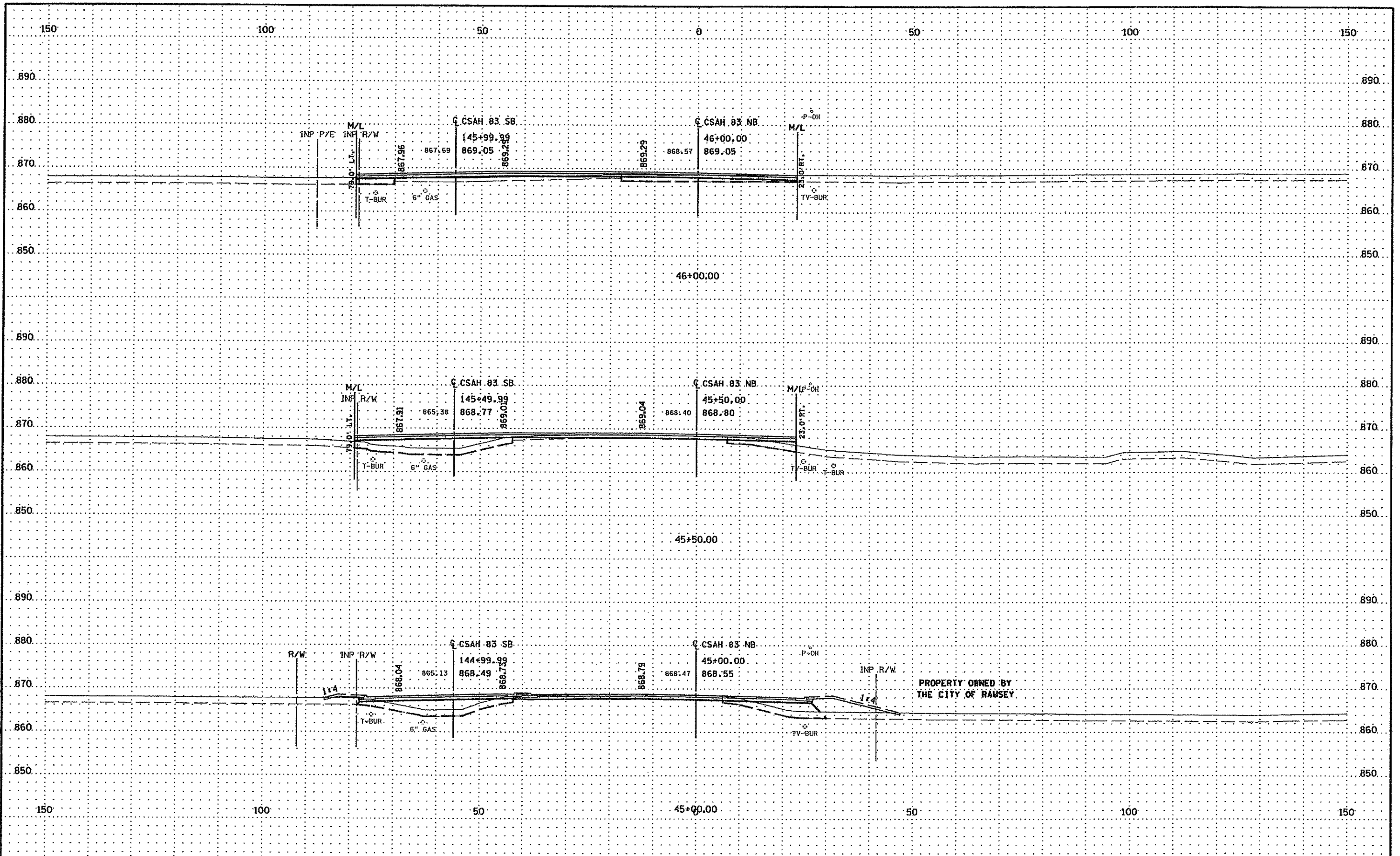
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
**CROSS SECTIONS**  
 STA. 43+50.00 TO STA. 44+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21



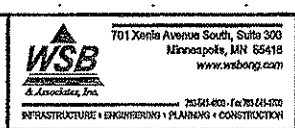
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

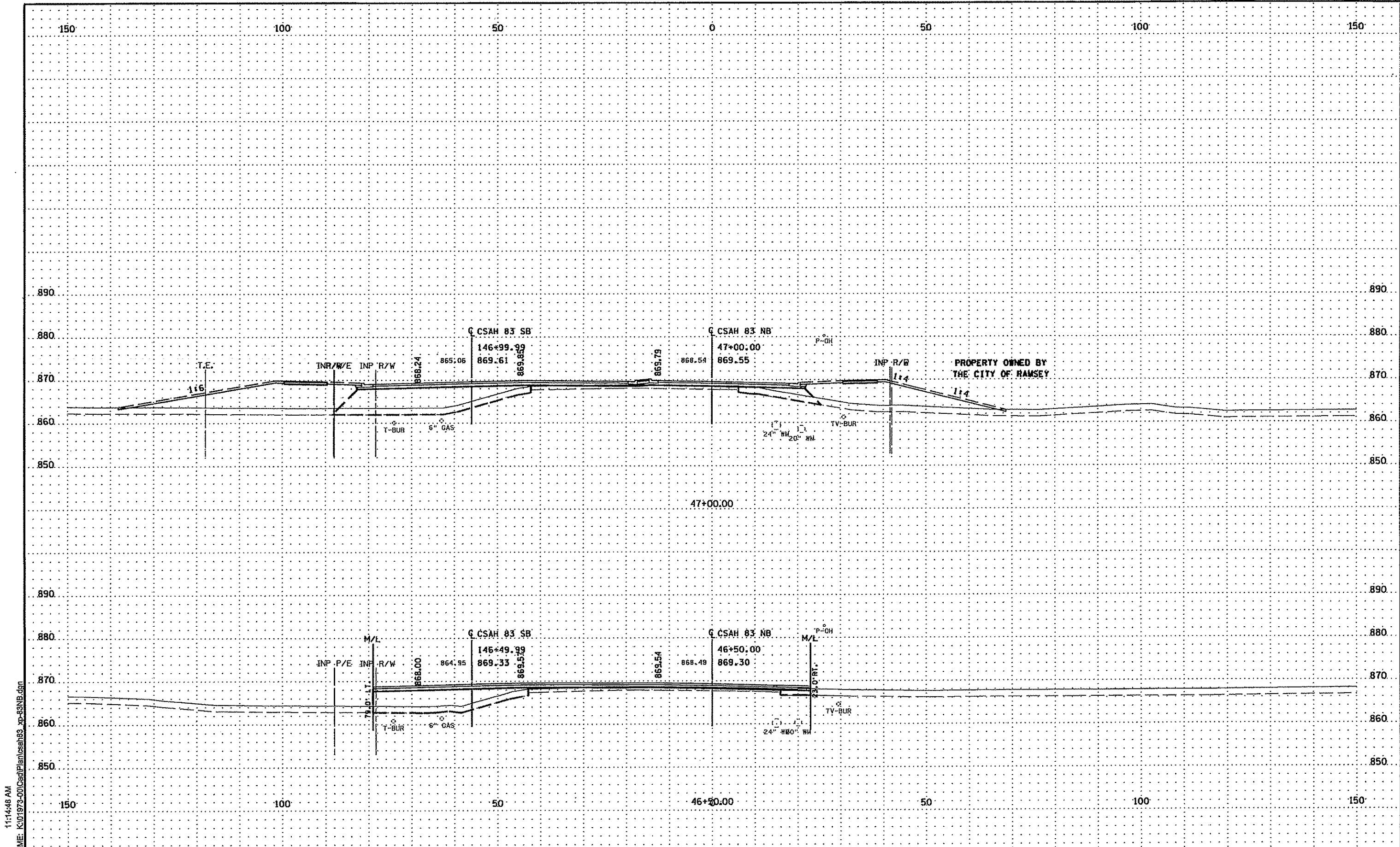
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupp Hale P.E.

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 45+00.00 TO STA. 46+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 171  
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 249  
 SHEETS



DATE: 5/4/2011 11:14:46 AM  
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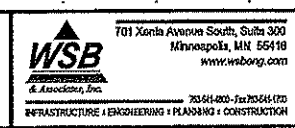
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

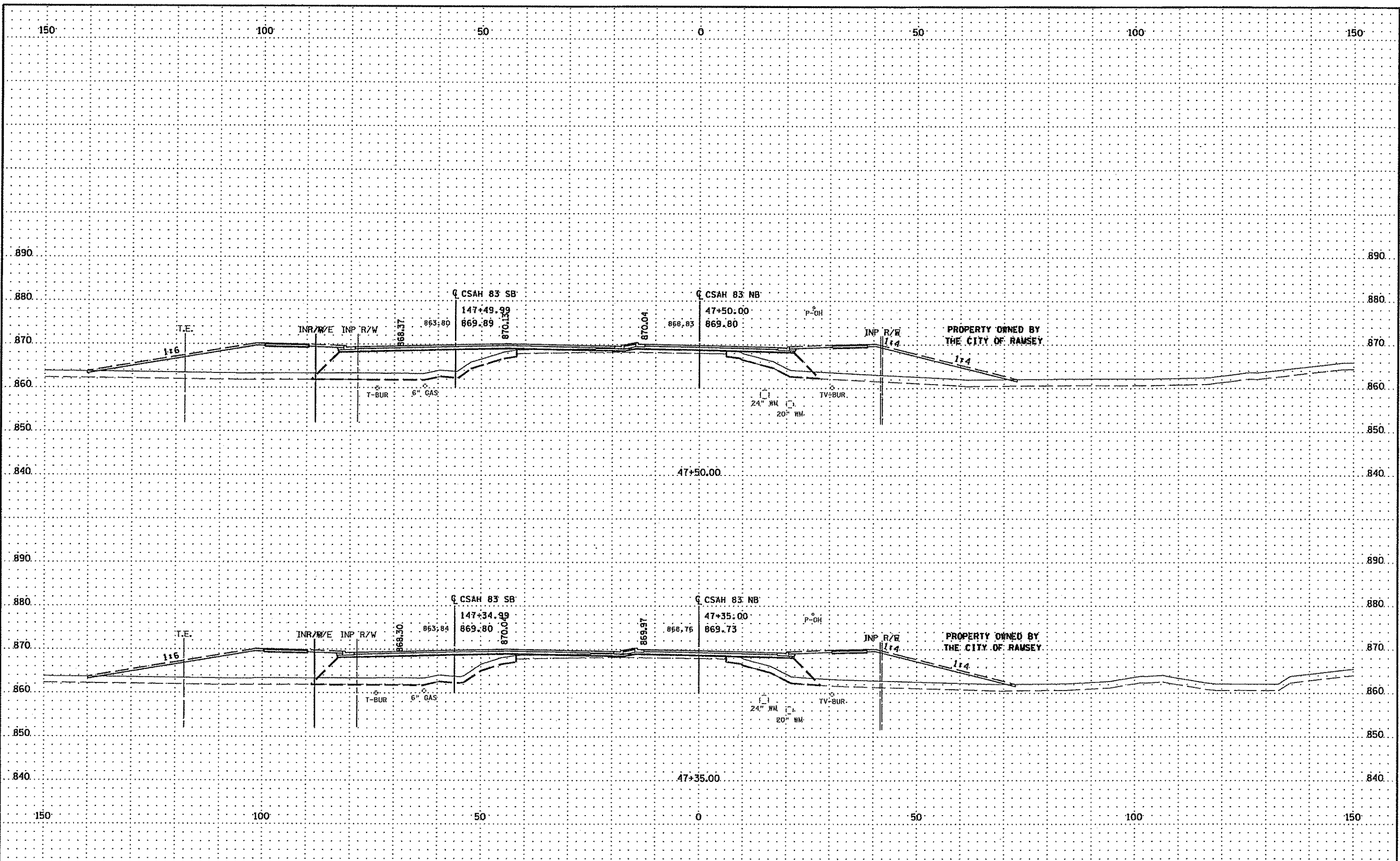
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 46+50.00 TO STA. 47+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 249  
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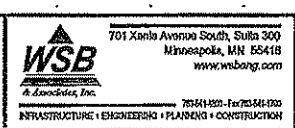


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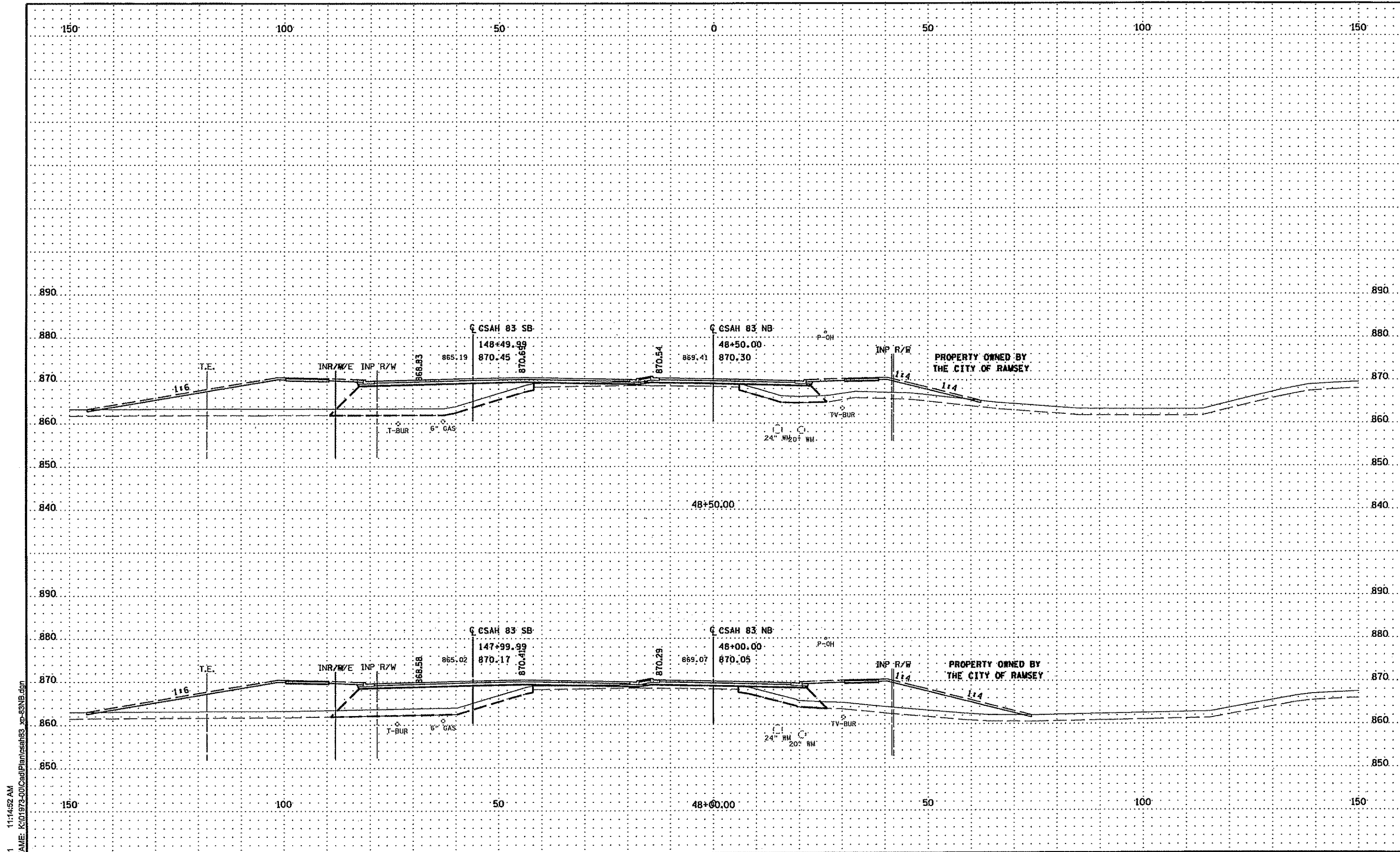
Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A FLOWMAN**  
 Approved By: **J HALE**  
 License No: 42064  
 DATE: 04/28/11

HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
**CROSS SECTIONS**  
 STA. 47+35.00 TO STA. 47+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 249  
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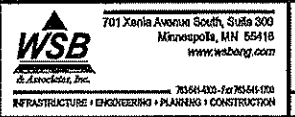
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

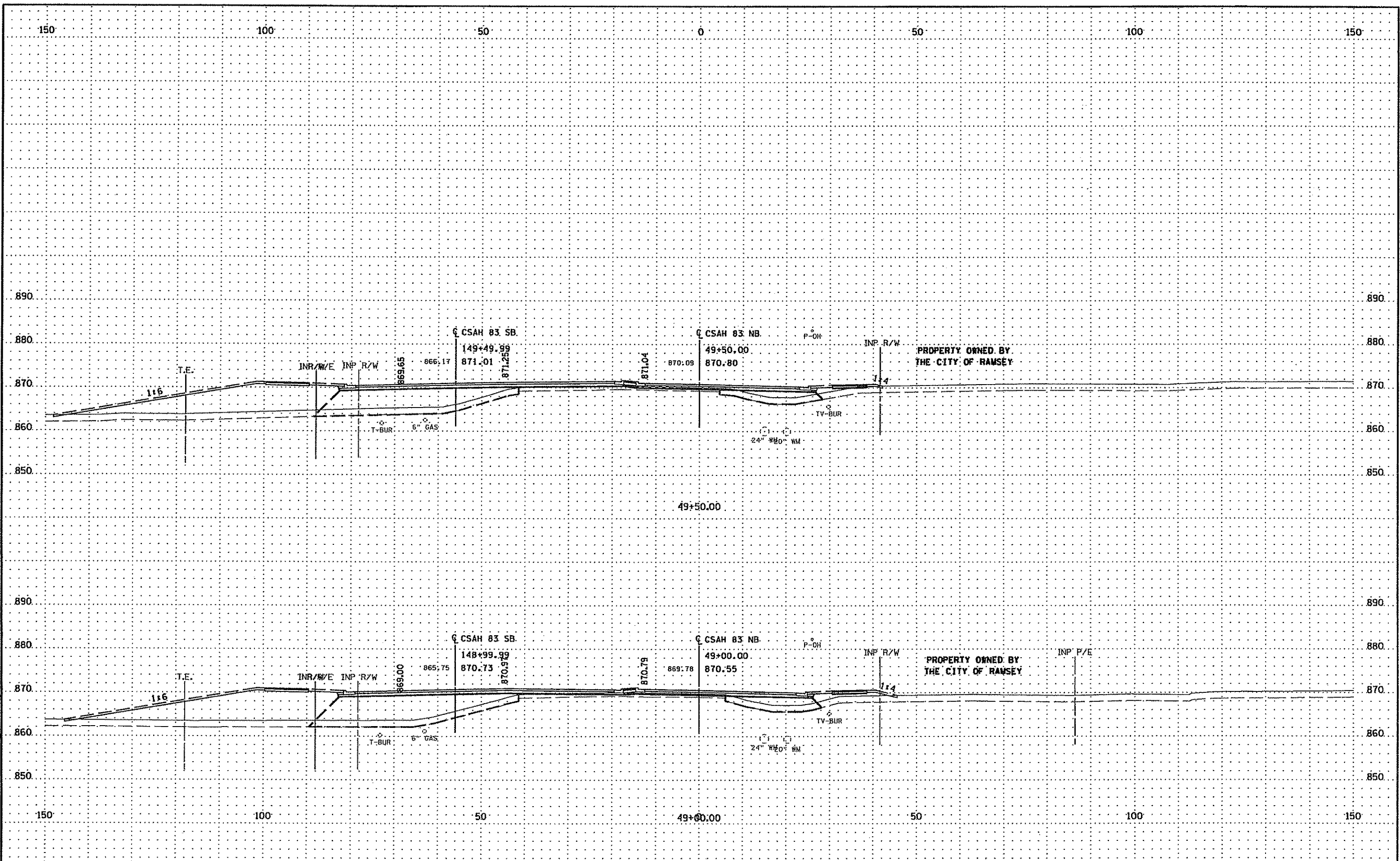
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 48+00.00 TO STA. 48+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 SHEETS



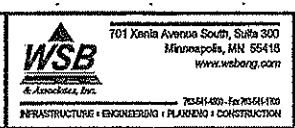
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| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

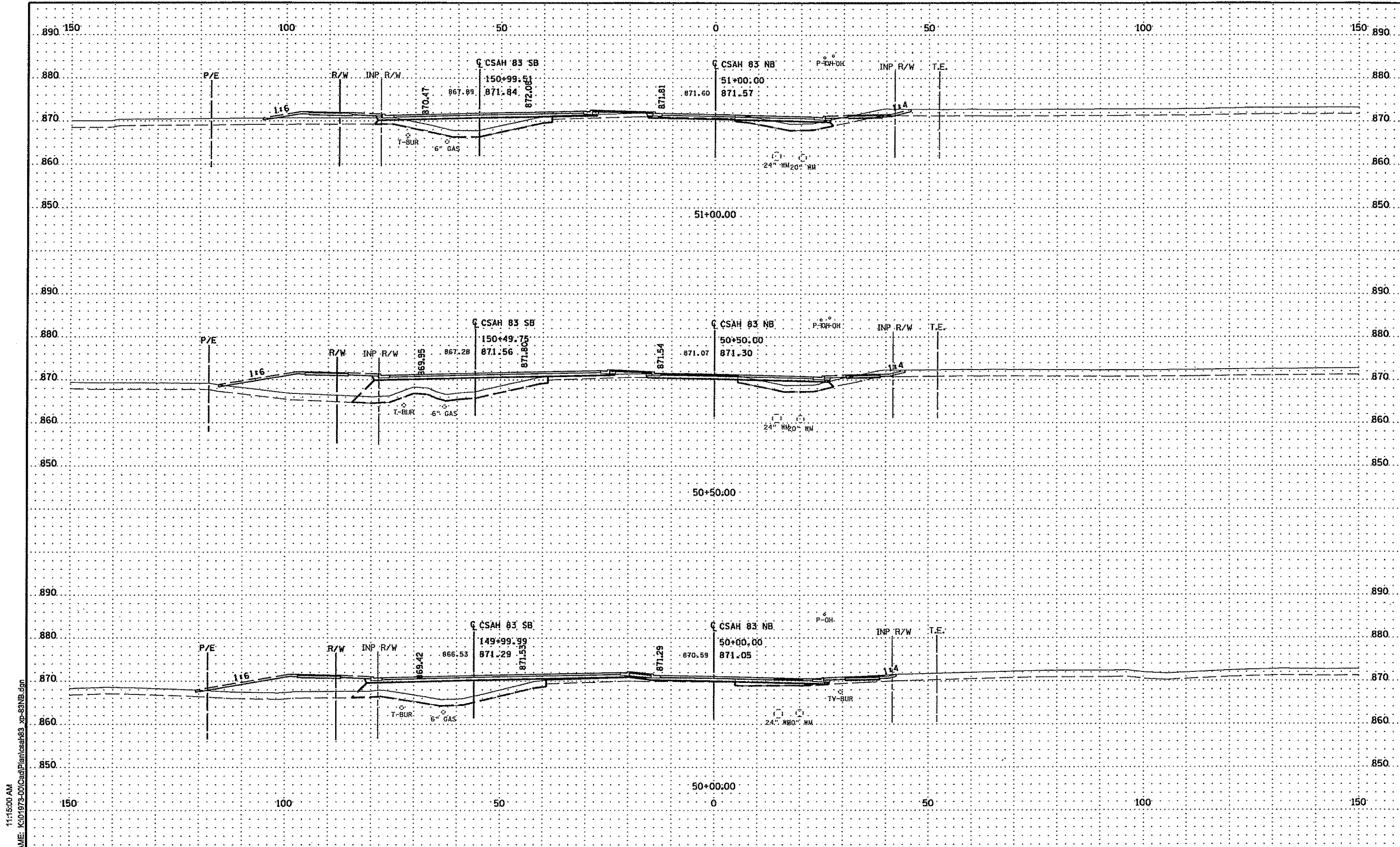
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 49+00.00 TO STA. 49+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:15:00 AM  
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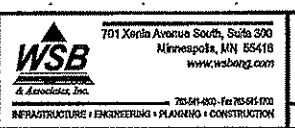
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, State of MN  
 DATE: 04/28/11 LIC NO: 42064

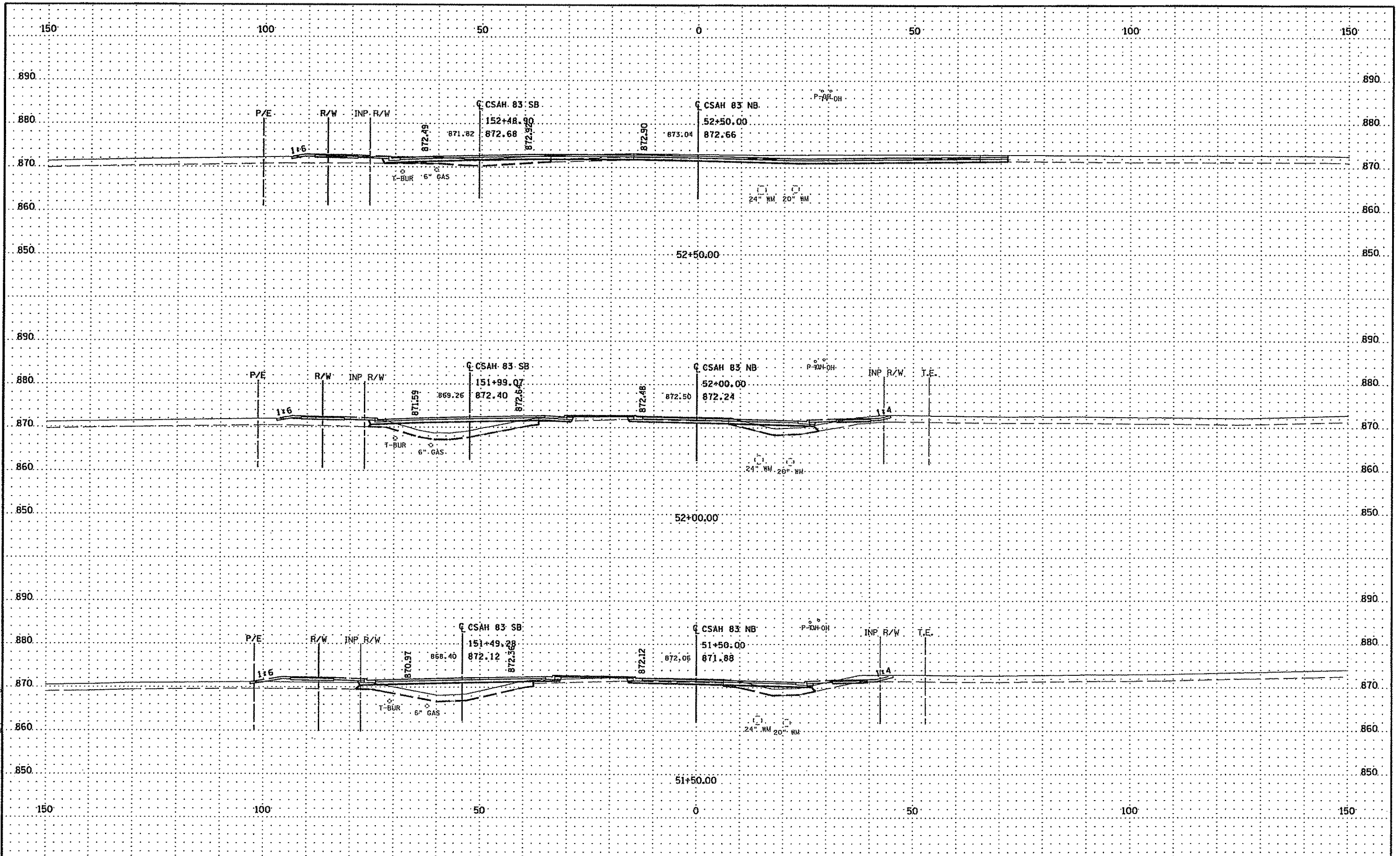
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
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S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

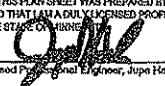





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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

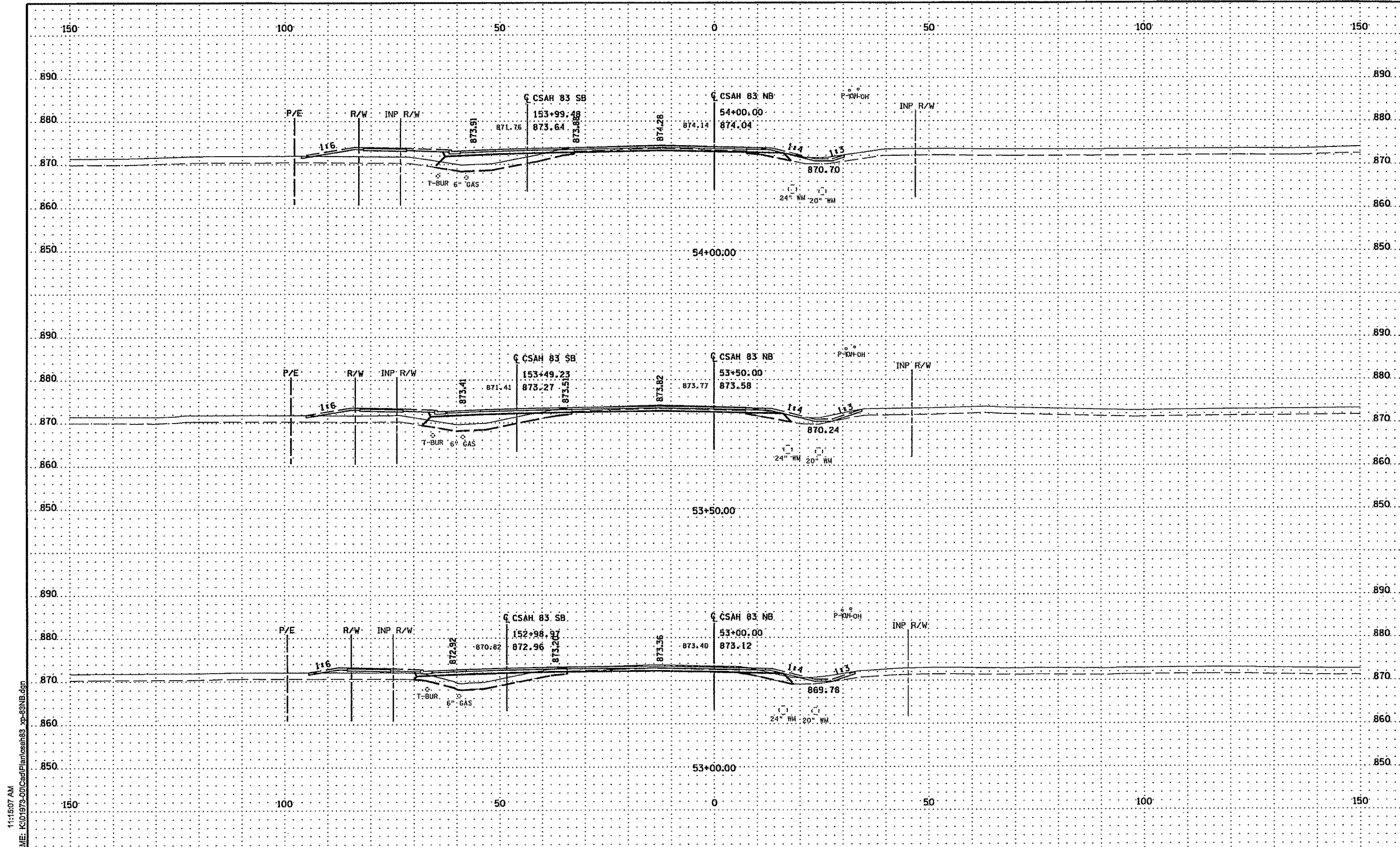
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**

  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsbeng.com  
 763-611-8300 Fax 763-611-8300  
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 51+50.00 TO STA. 52+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 177  
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 249  
 SHEETS

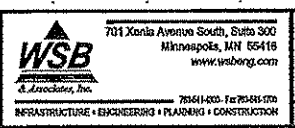


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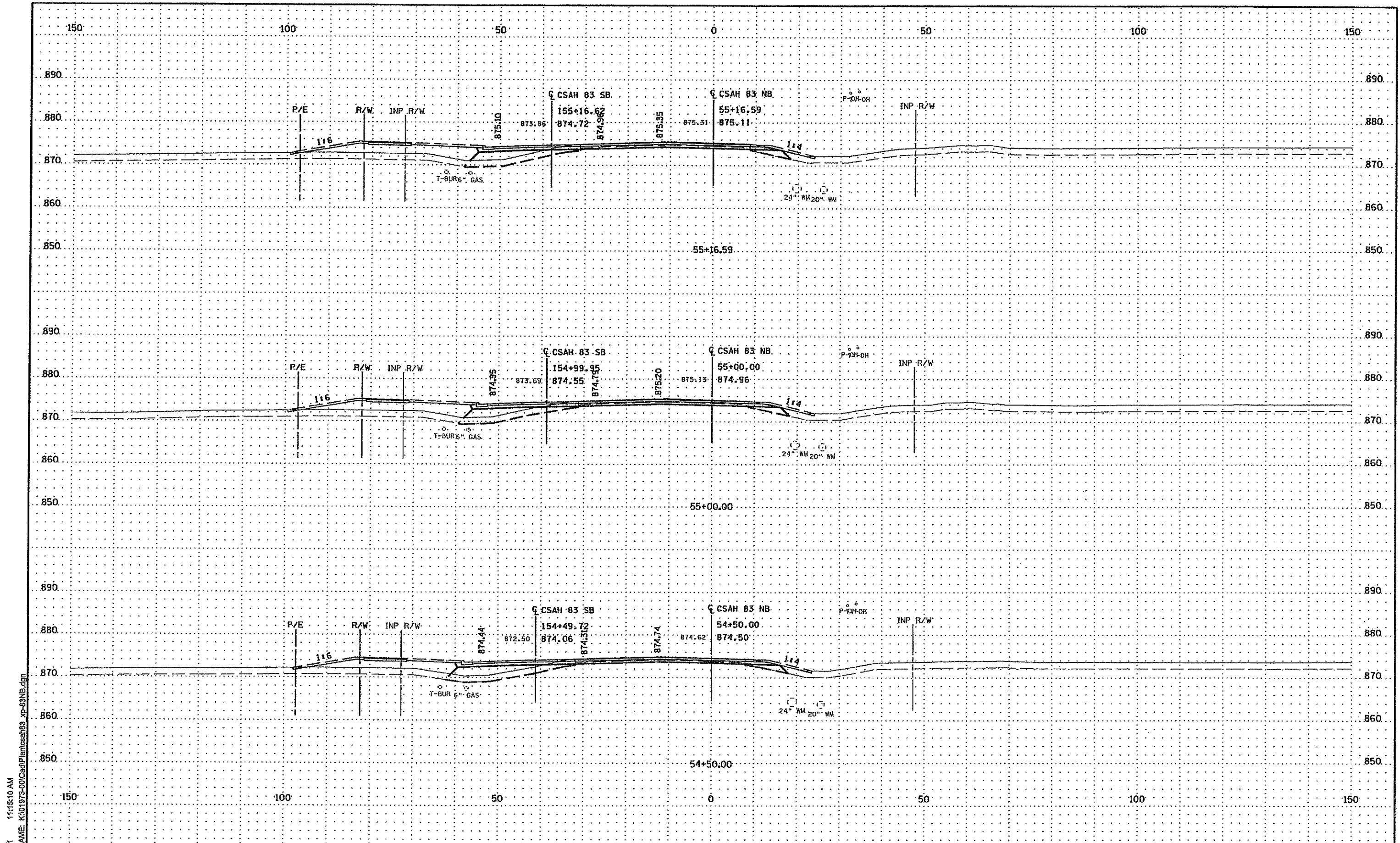
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, State of Minnesota  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
 CROSS SECTIONS  
 STA. 53+00.00 TO STA. 54+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 178  
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 249  
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DATE: 5/4/2011 11:15:10 AM  
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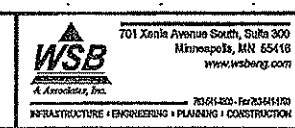
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, Jupo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42064

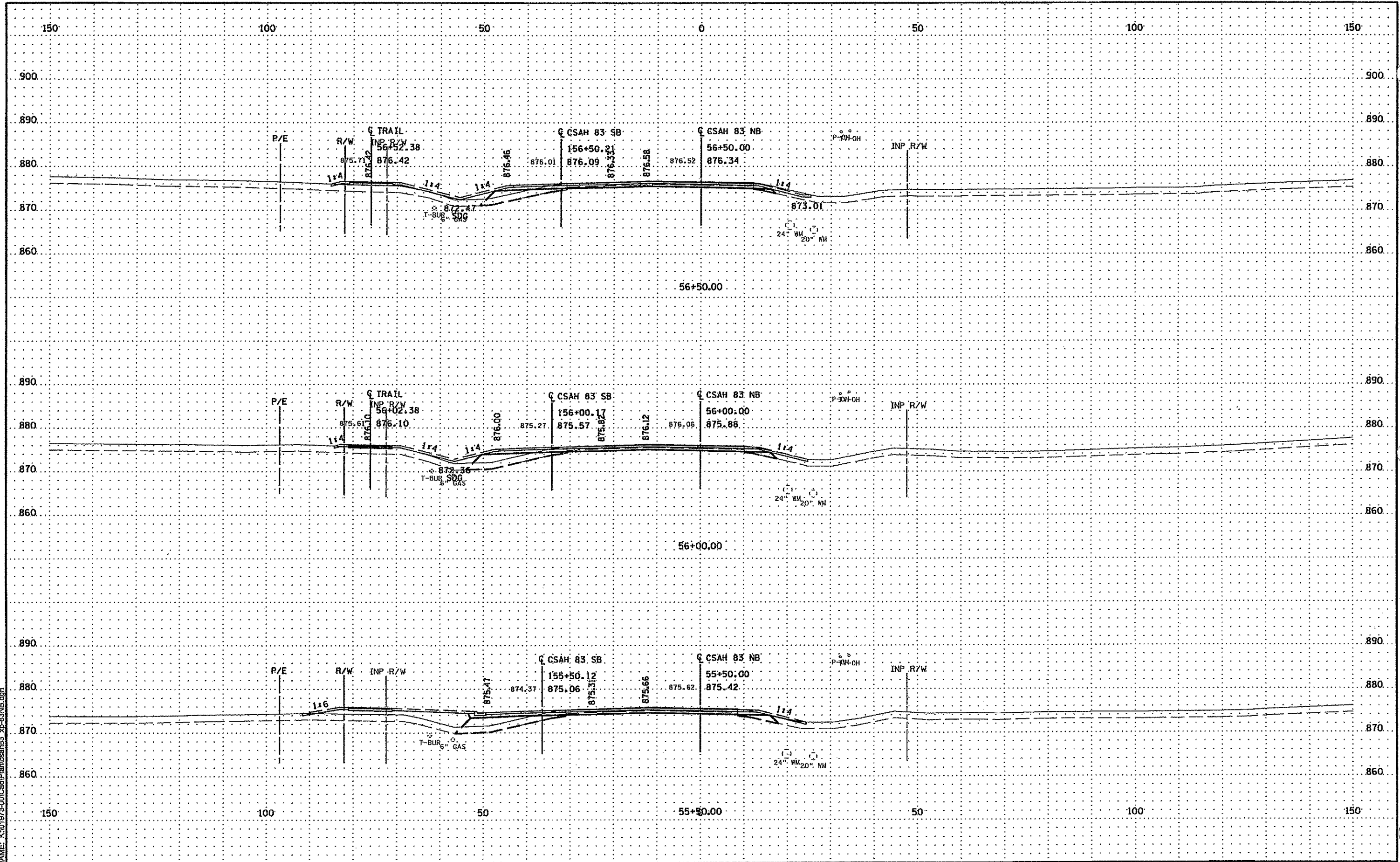
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 54+50.00 TO STA. 55+16.59

S.A.P. 199-020-005, S.A.P. 199-121-001; G.P. 11-21

SHEET 179 OF 249 SHEETS



DATE: 5/4/2011 11:15:14 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

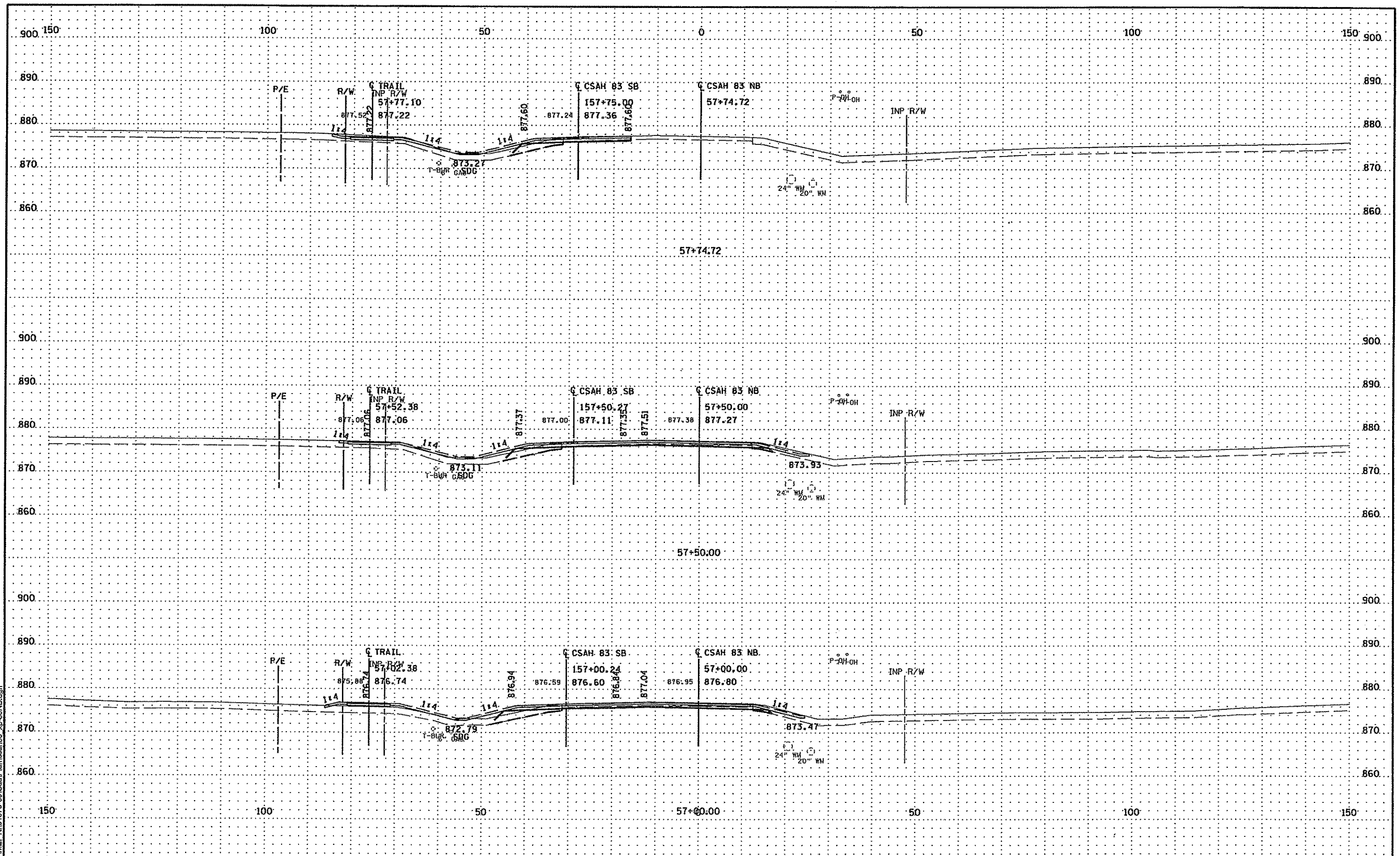
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
 CROSS SECTIONS  
 STA. 55+50.00 TO STA. 56+50.00  
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SHEET  
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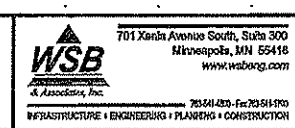


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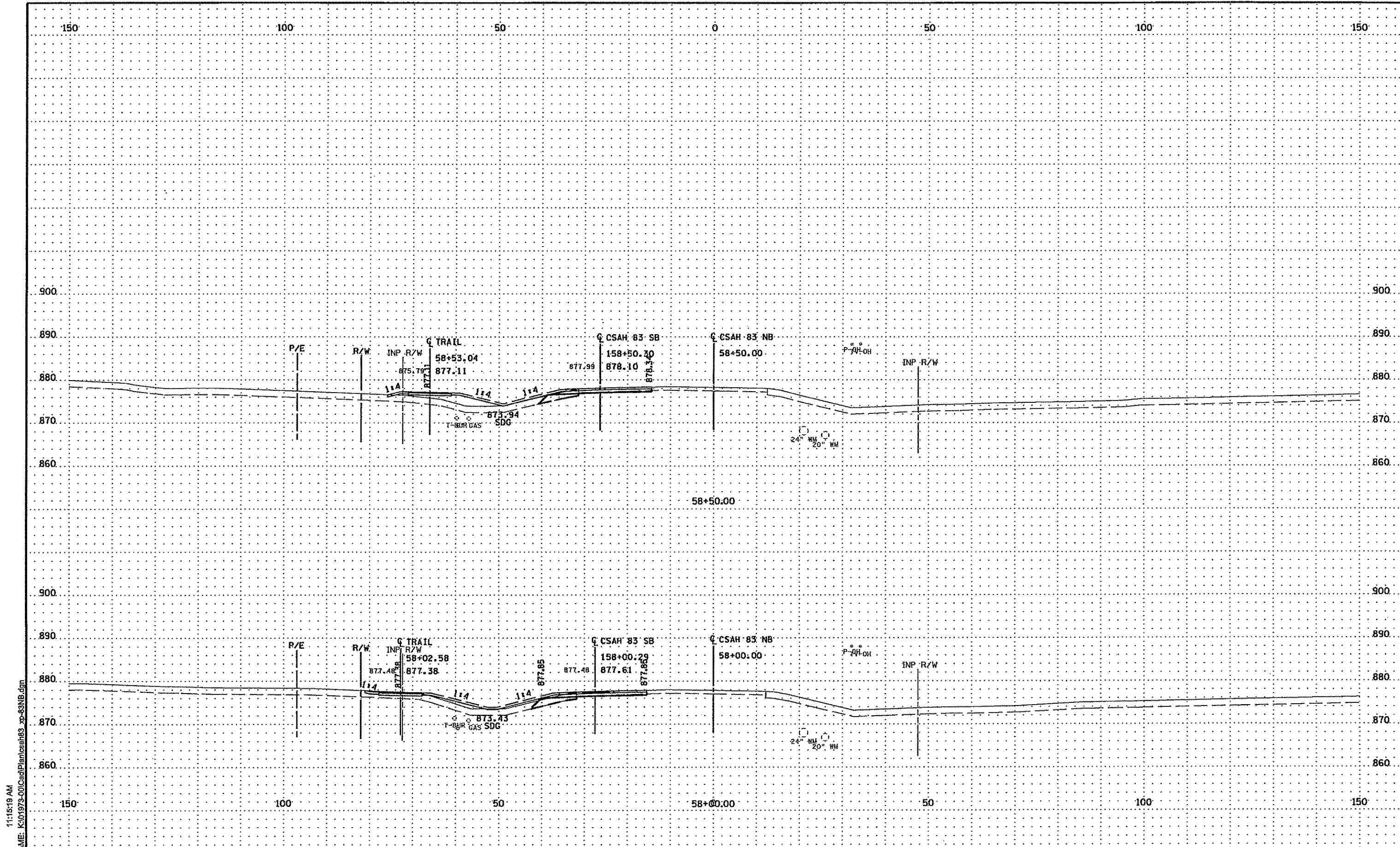
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License: Licensed Professional Engineer, Jose Holo P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 NB  
 CROSS SECTIONS  
 STA. 57+00.00 TO STA. 57+74.72  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 181  
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 249  
 SHEETS



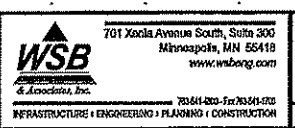
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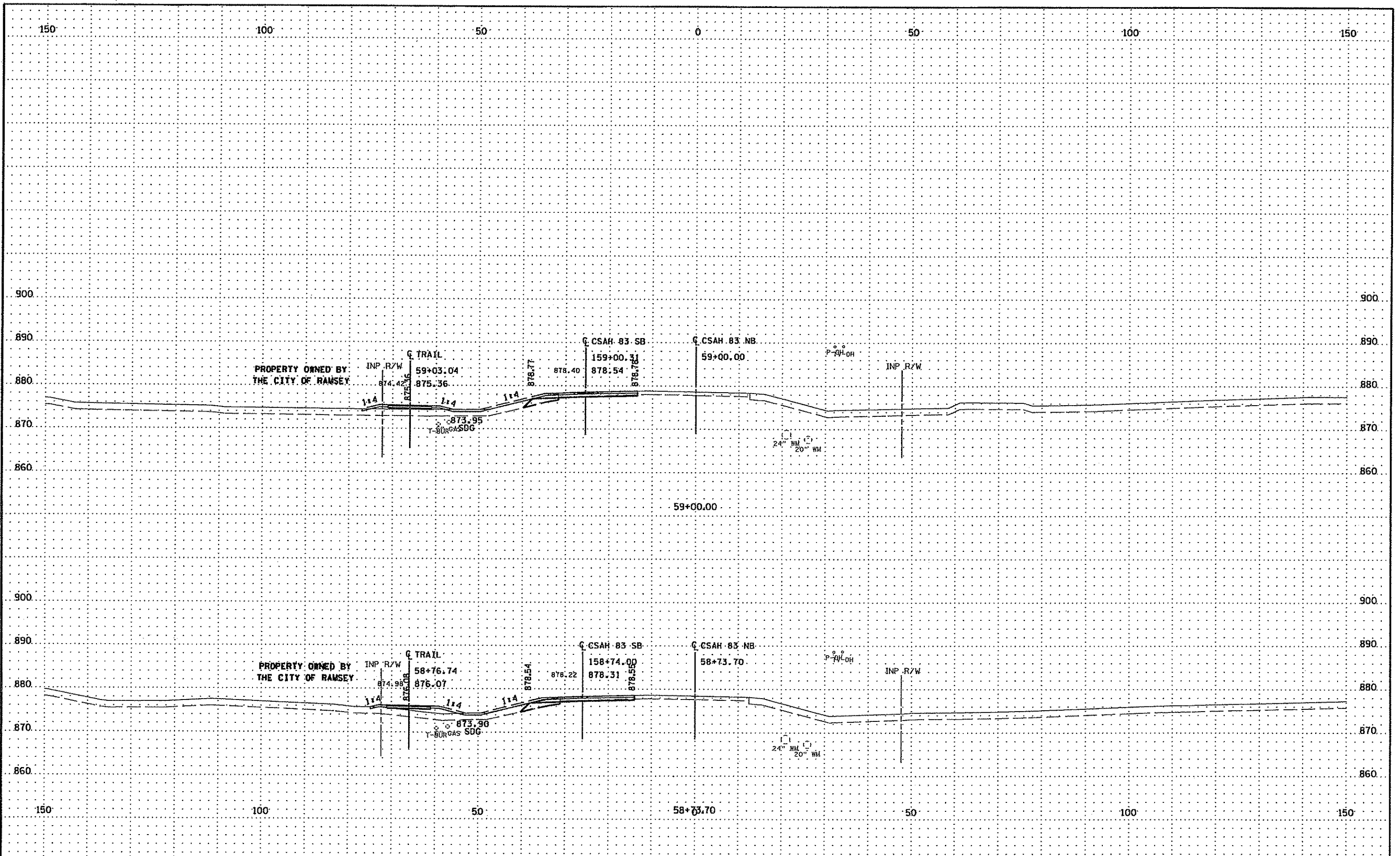
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Super High P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**




**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 58+00.00 TO STA. 58+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21



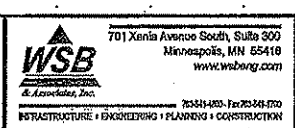
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

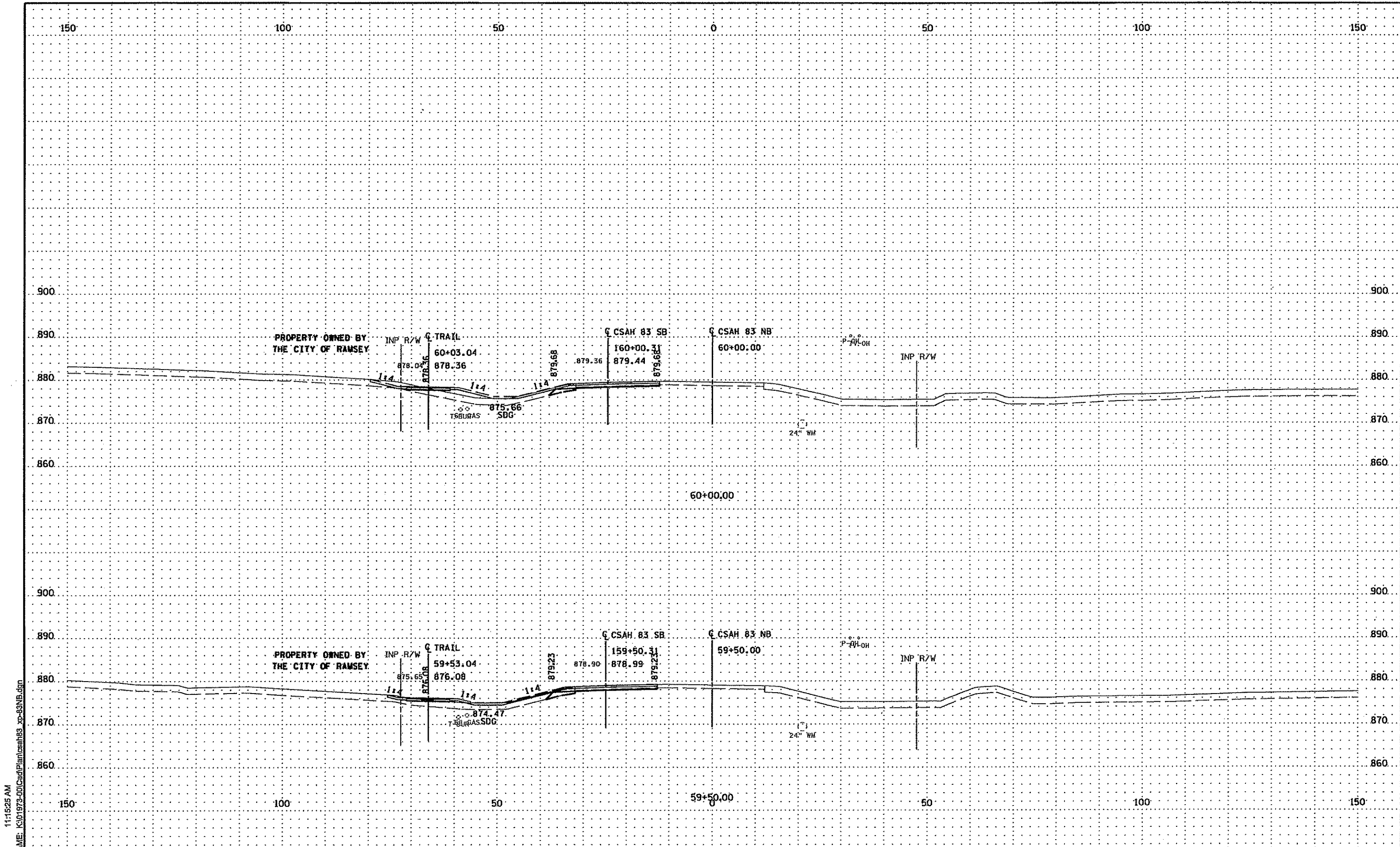
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY  
 DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER  
 UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 58+73.70 TO STA. 59+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 183  
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 249  
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DATE: 5/4/2011 11:15:25 AM  
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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A FLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

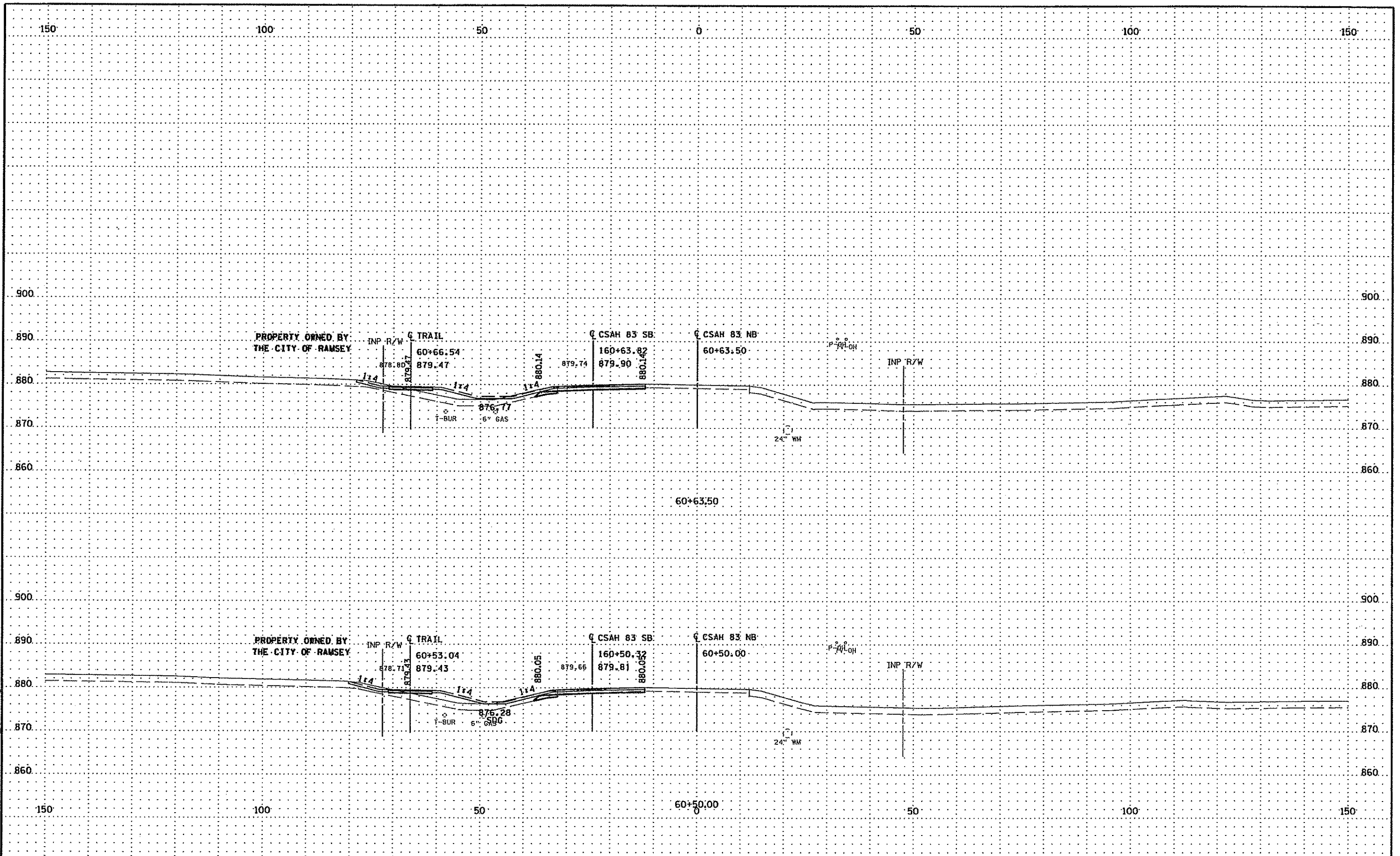
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**CSAH 83 NB**  
**CROSS SECTIONS**  
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 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:15:27 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

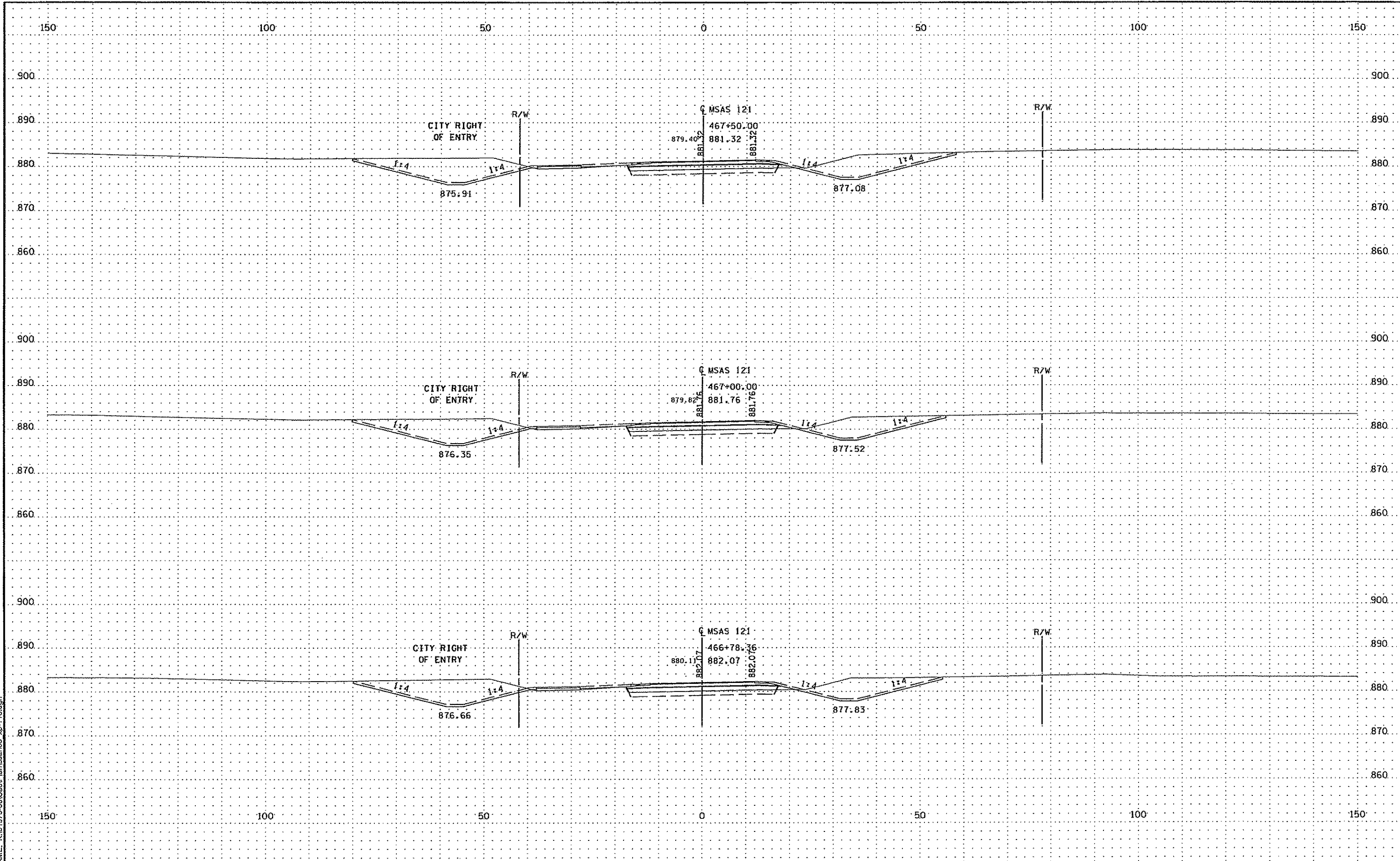
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, Jose Hilo P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 www.wsb.org.com  
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

**CSAH 83 NB**  
**CROSS SECTIONS**  
 STA. 60+50.00 TO STA. 60+63.50  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:14 AM  
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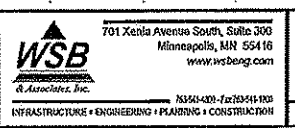
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Licensed Professional Engineer, June 1986 P.E.

DATE: 04/28/11 LIC NO: 42084

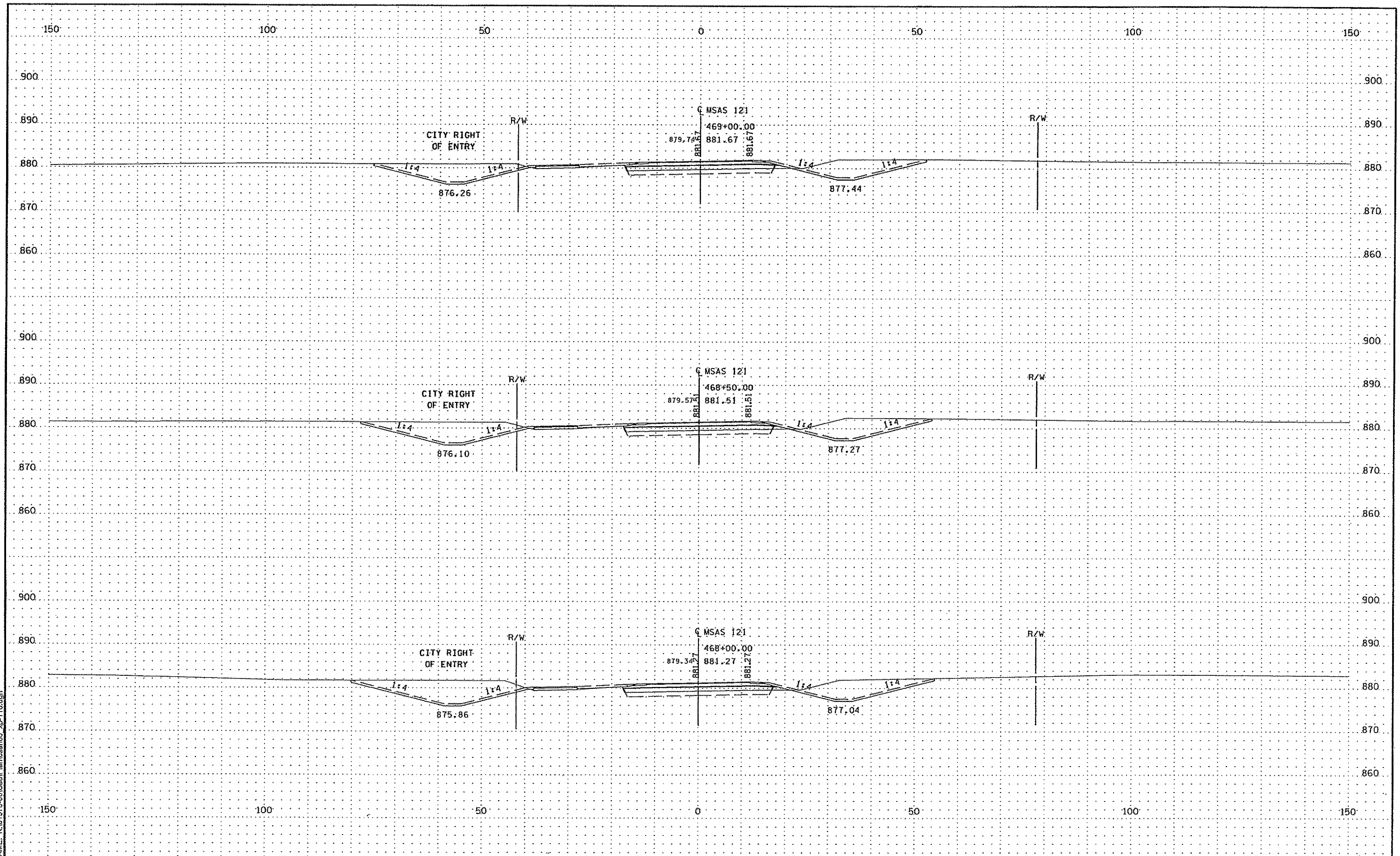
**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**



**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 466+78.36 TO STA. 467+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
 249  
 SHEETS

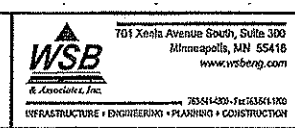


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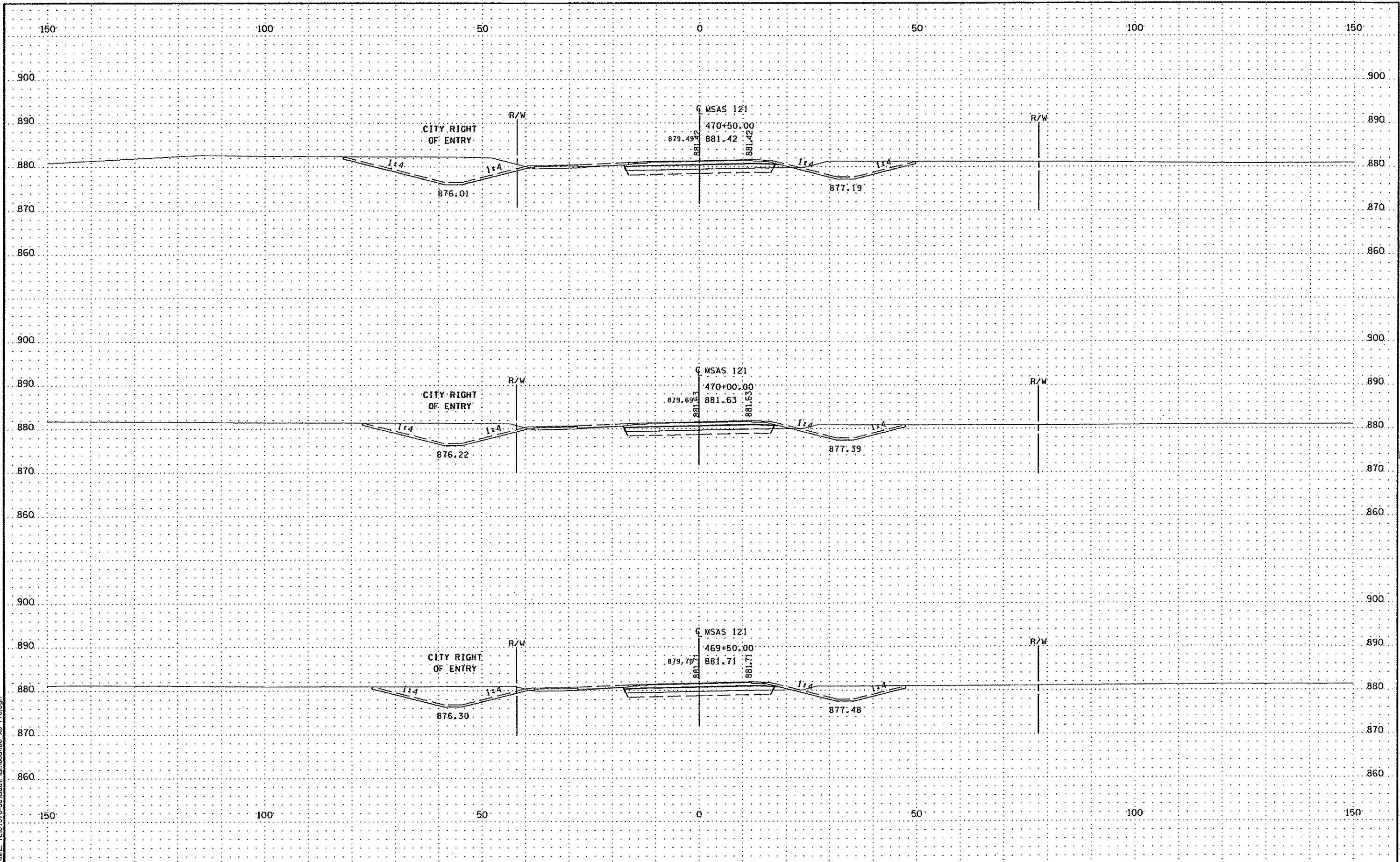
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Hato P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 468+00.00 TO STA. 469+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 OF  
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 SHEETS



DATE: 5/4/2011 11:22:16 AM  
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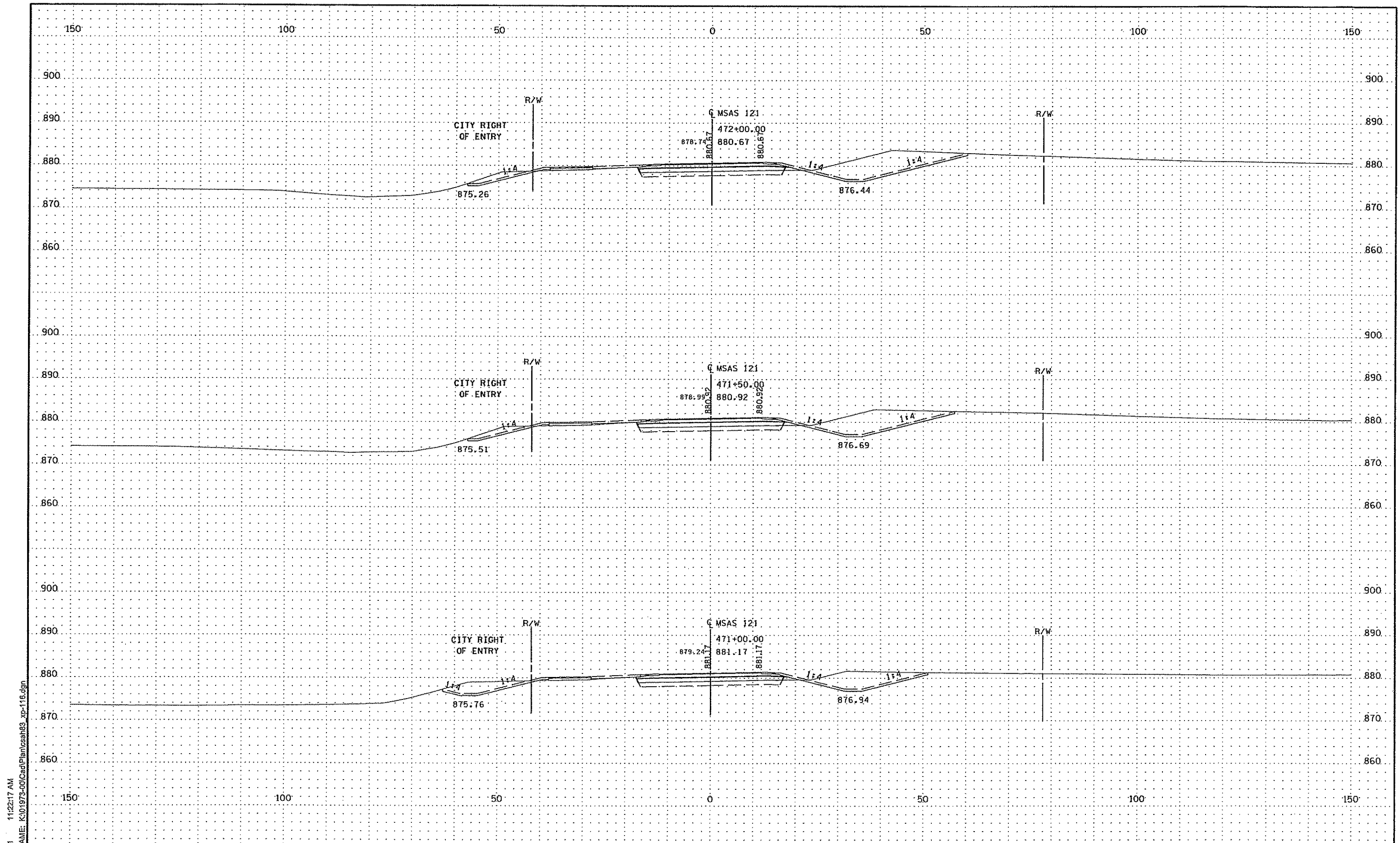
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 469+50.00 TO STA. 470+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:17 AM  
 PATH & FILENAME: K:\01973-00\CadPlan\csah83\_xp-116.dgn

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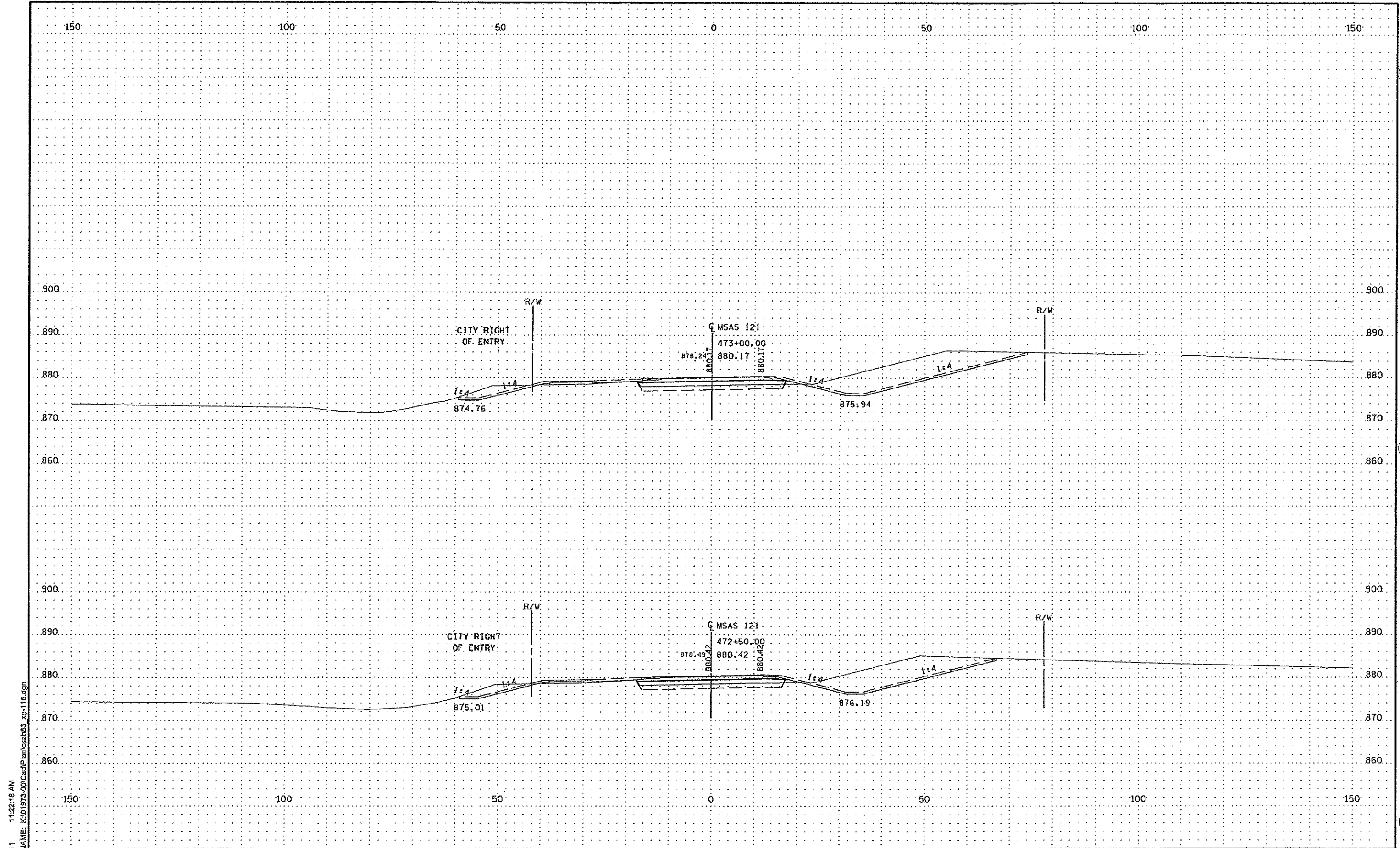
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jose Hala P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 Architects, Inc.  
 701 Xesta Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbeng.com  
 763-614-2900 Fax 763-544-1700  
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BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 471+00.00 TO STA. 472+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:18 AM  
 PATH & FILENAME: K:\01973-00\Cad\Plan\csah83\_xp-116.dgn

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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

Licensed Professional Engineer, Jupo Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
**CSAH 83/116 & MSAS 121 CONSTRUCTION**

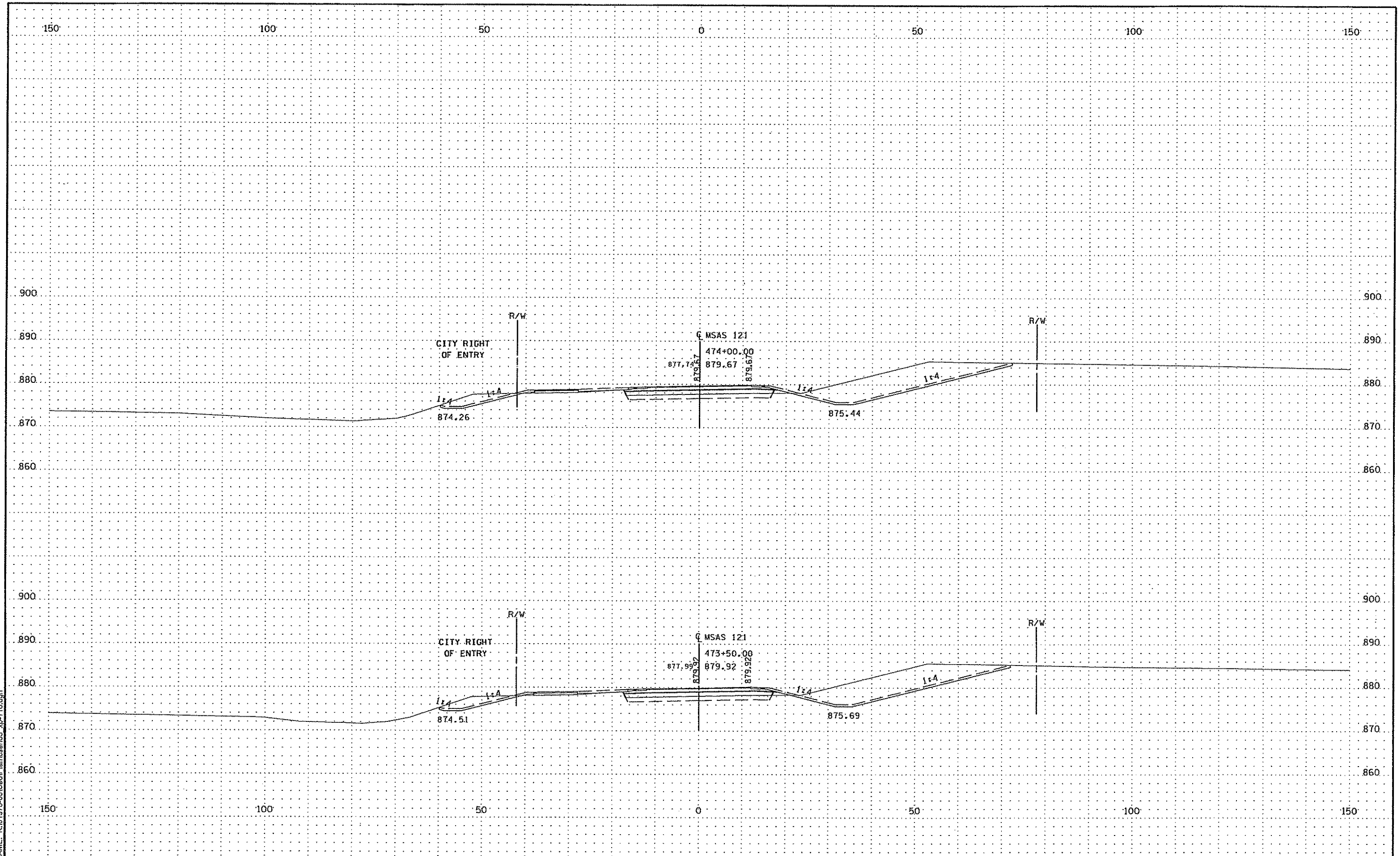


**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 472+50.00 TO STA. 473+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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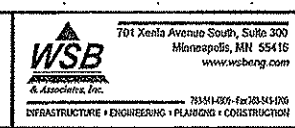
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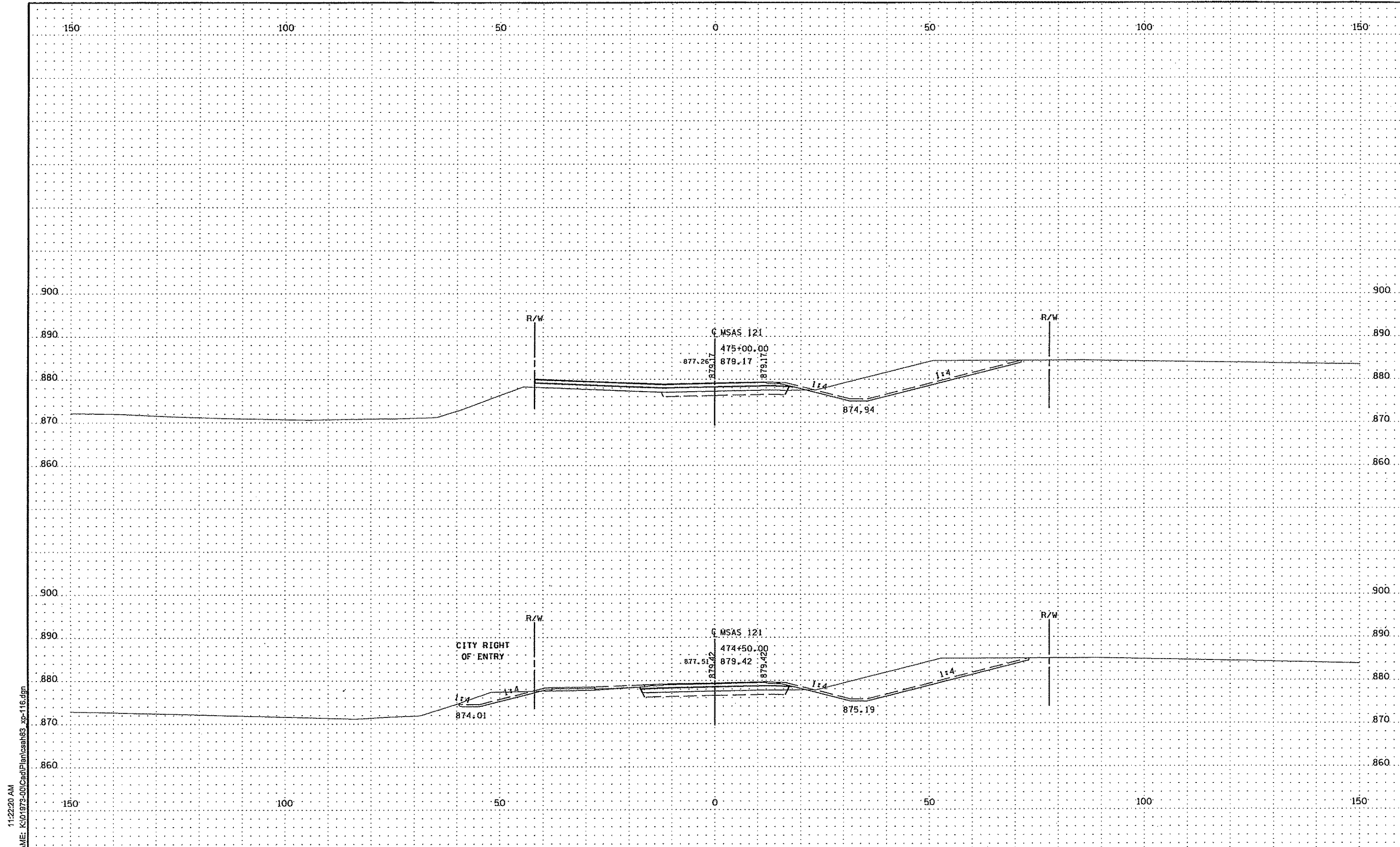
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Hein P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 473+50.00 TO STA. 474+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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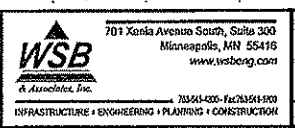


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Japs Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

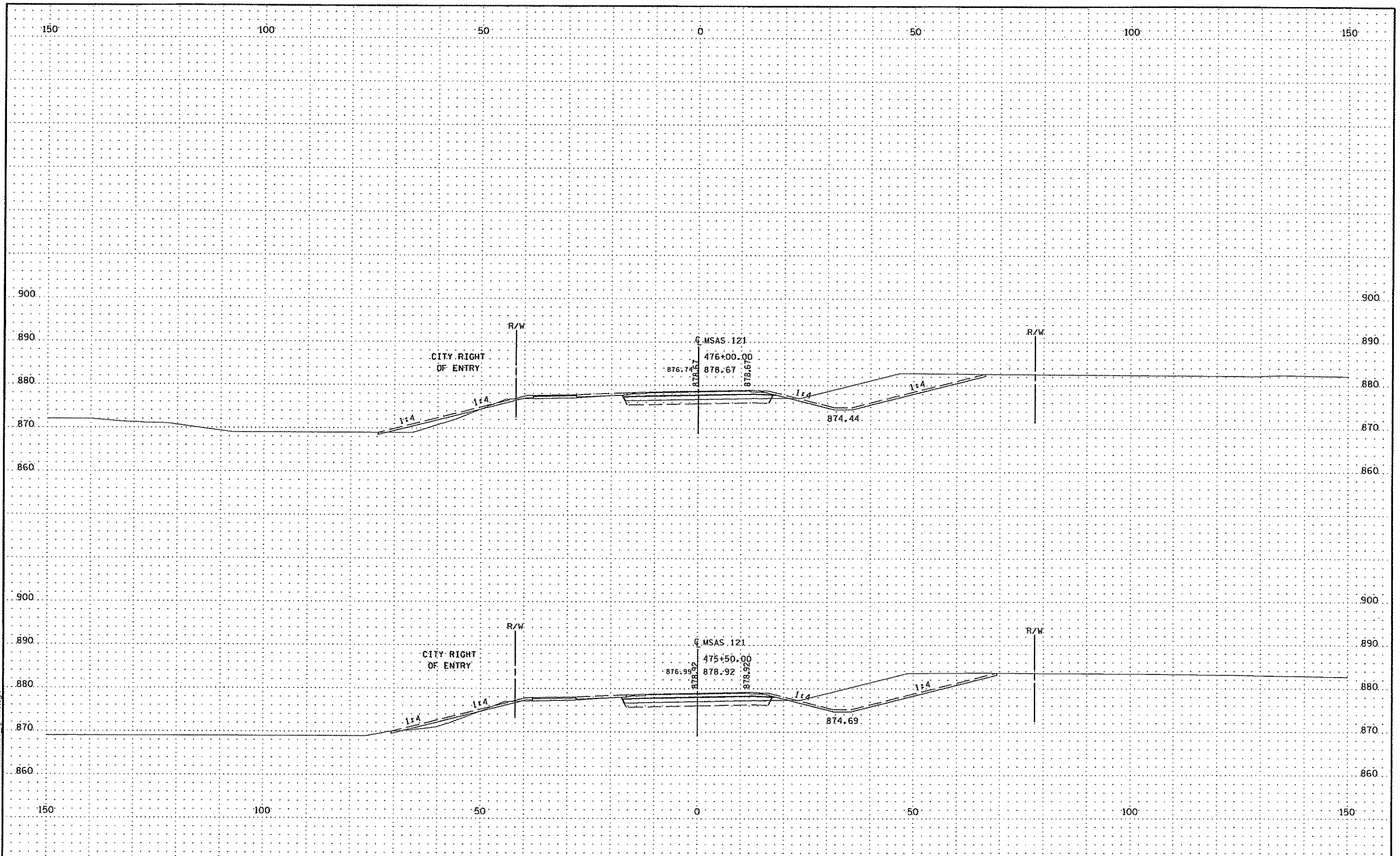


BUNKER LAKE BLVD / MSAS 121  
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DATE: 5/4/2011 11:22:21 AM  
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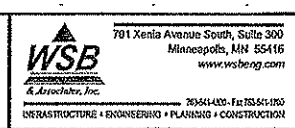


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

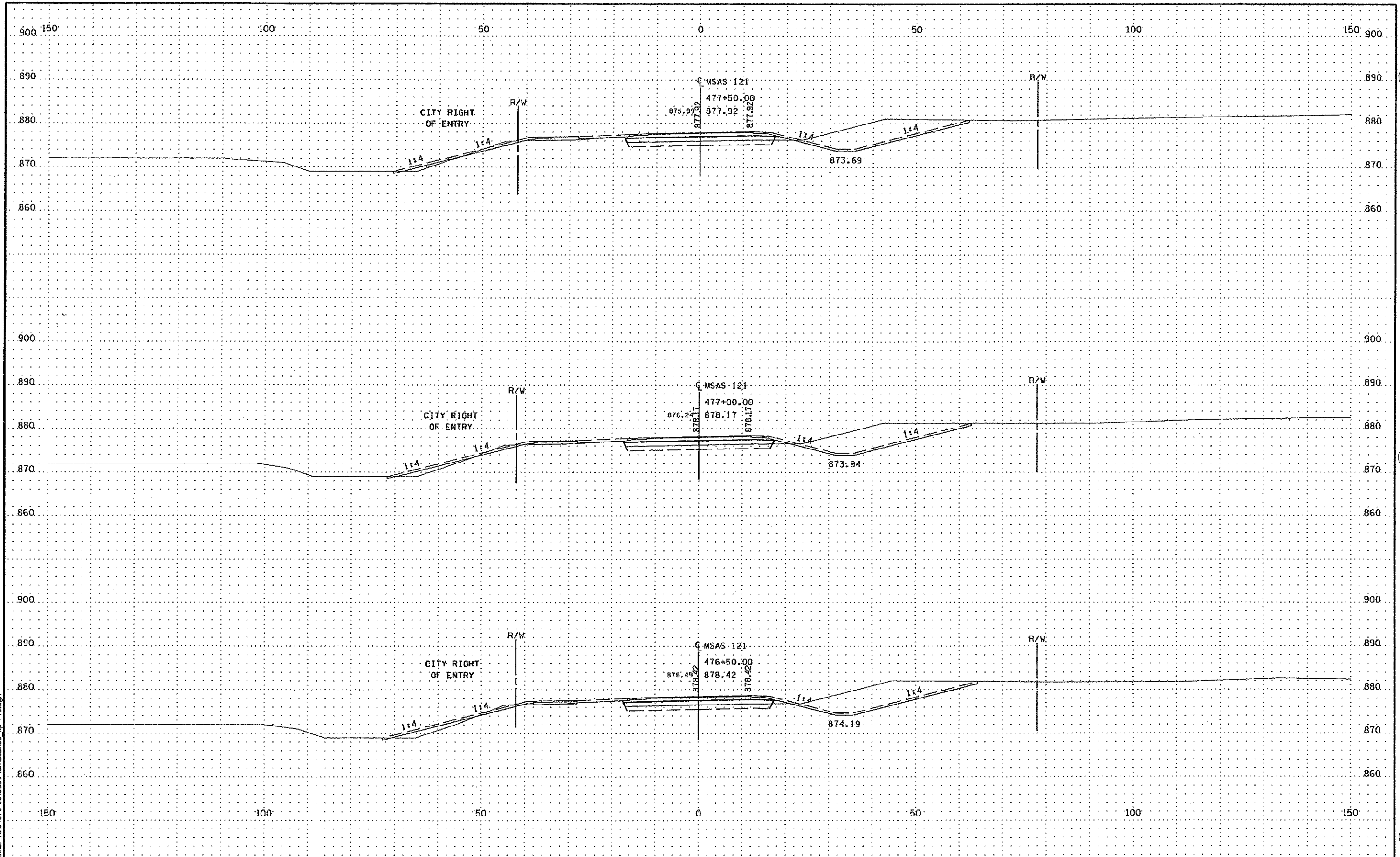
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 475+50.00 TO STA. 476+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:23 AM  
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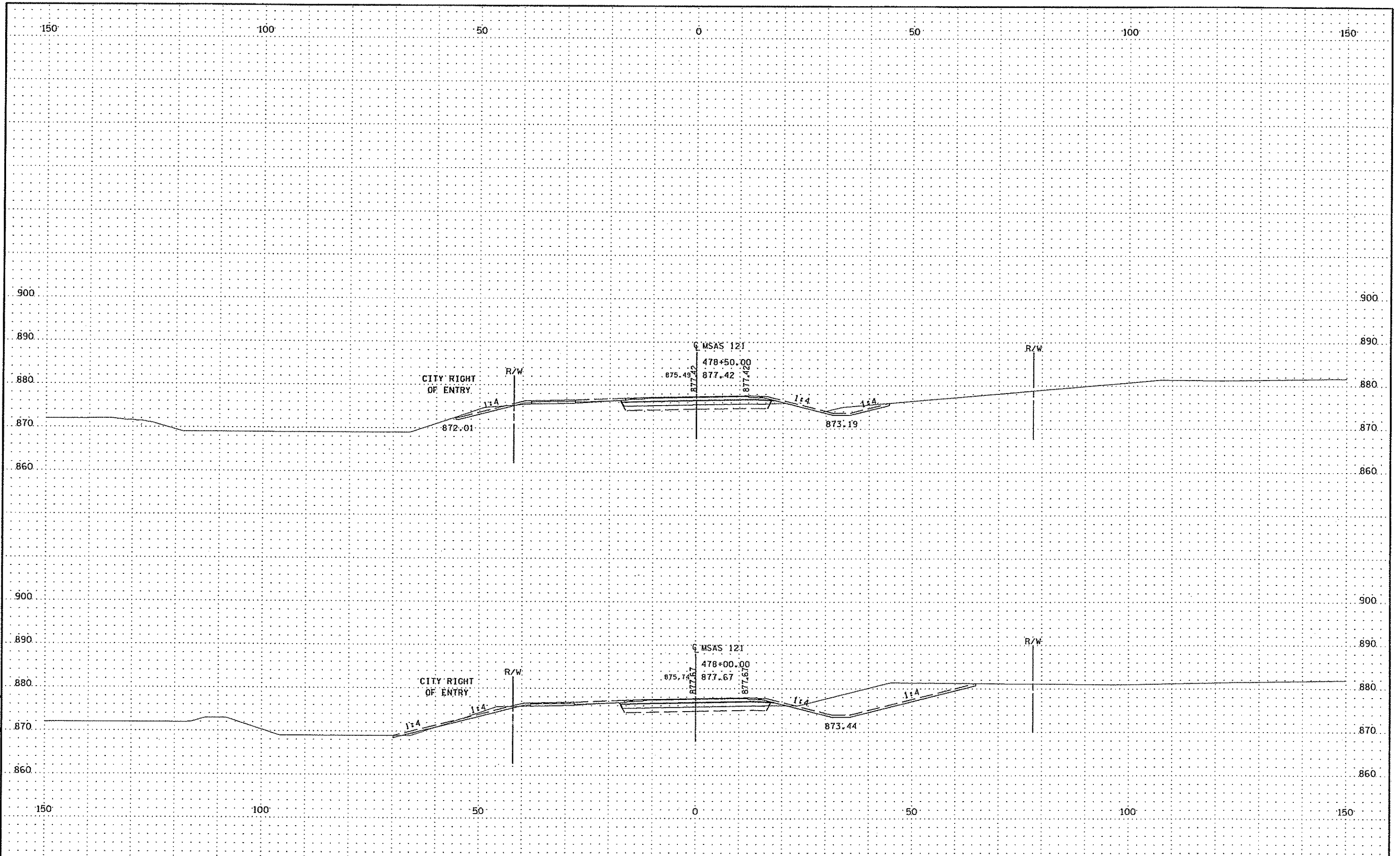
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 476+50.00 TO STA. 477+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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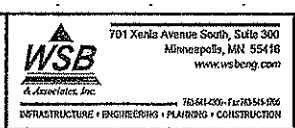
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

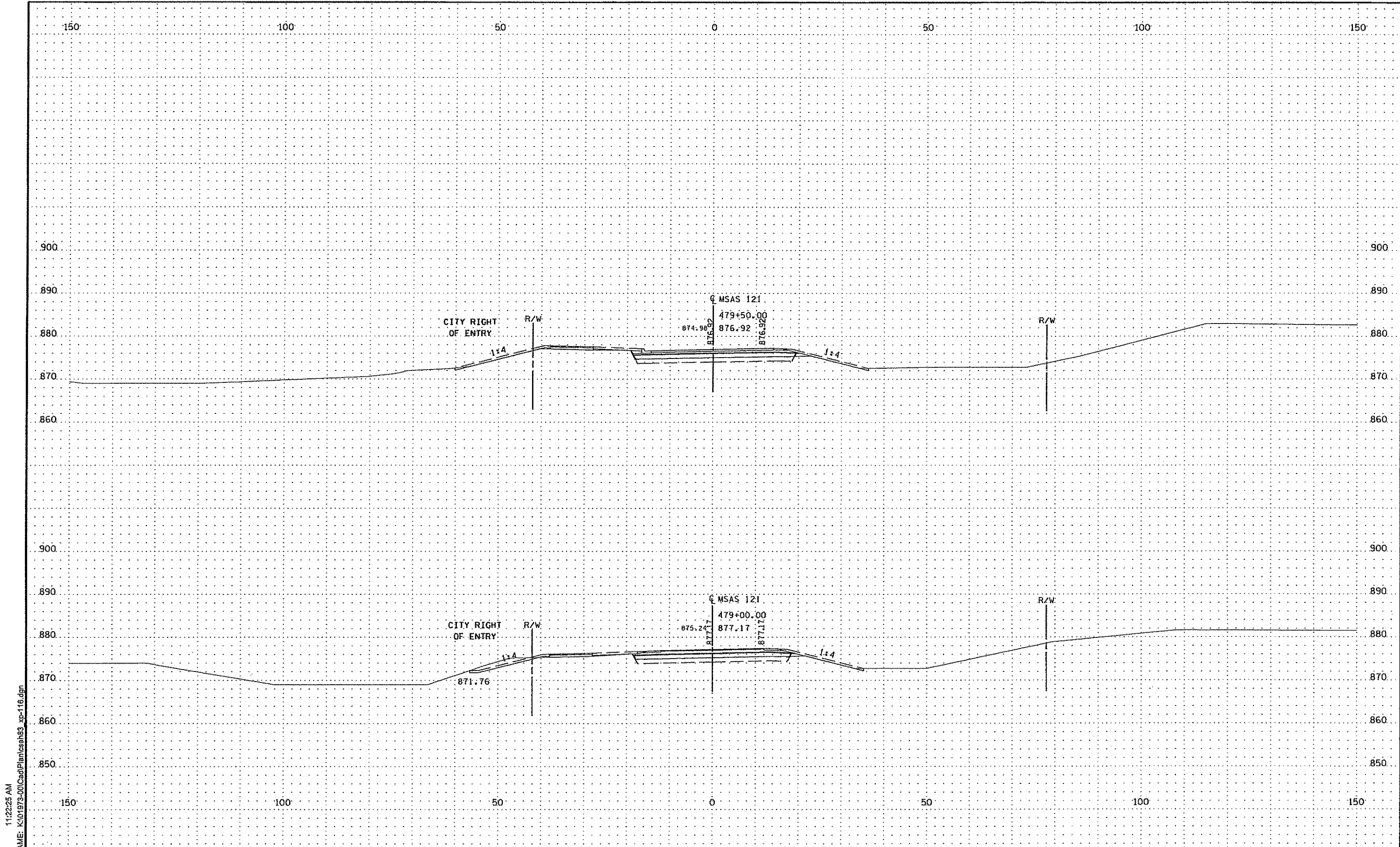
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 478+00.00 TO STA. 478+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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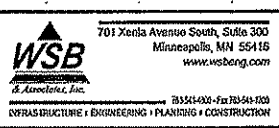
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License: Licensed Professional Engineer, Jago Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

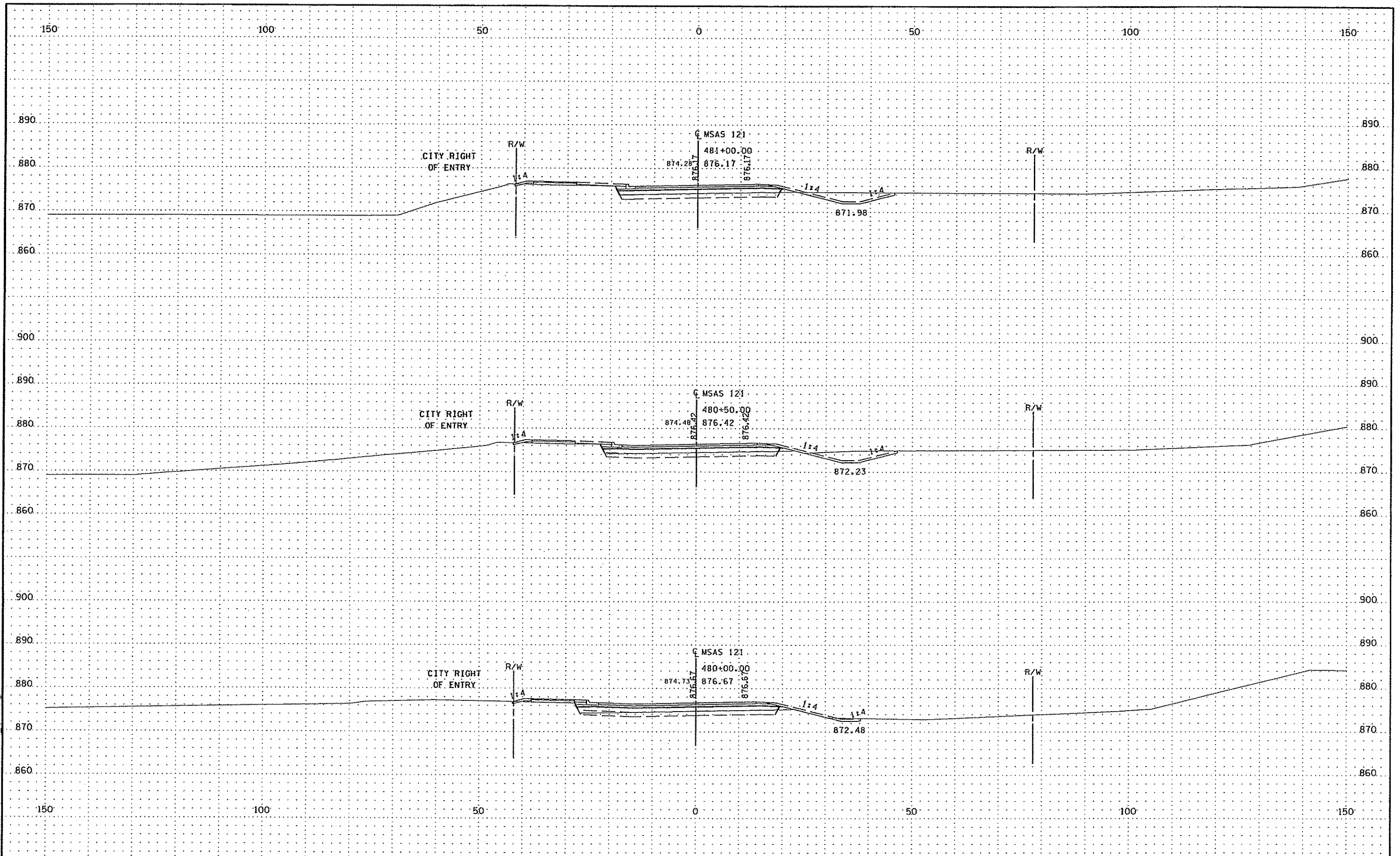
THEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 479+00.00 TO STA. 479+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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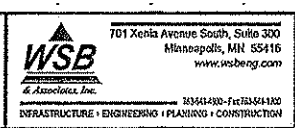


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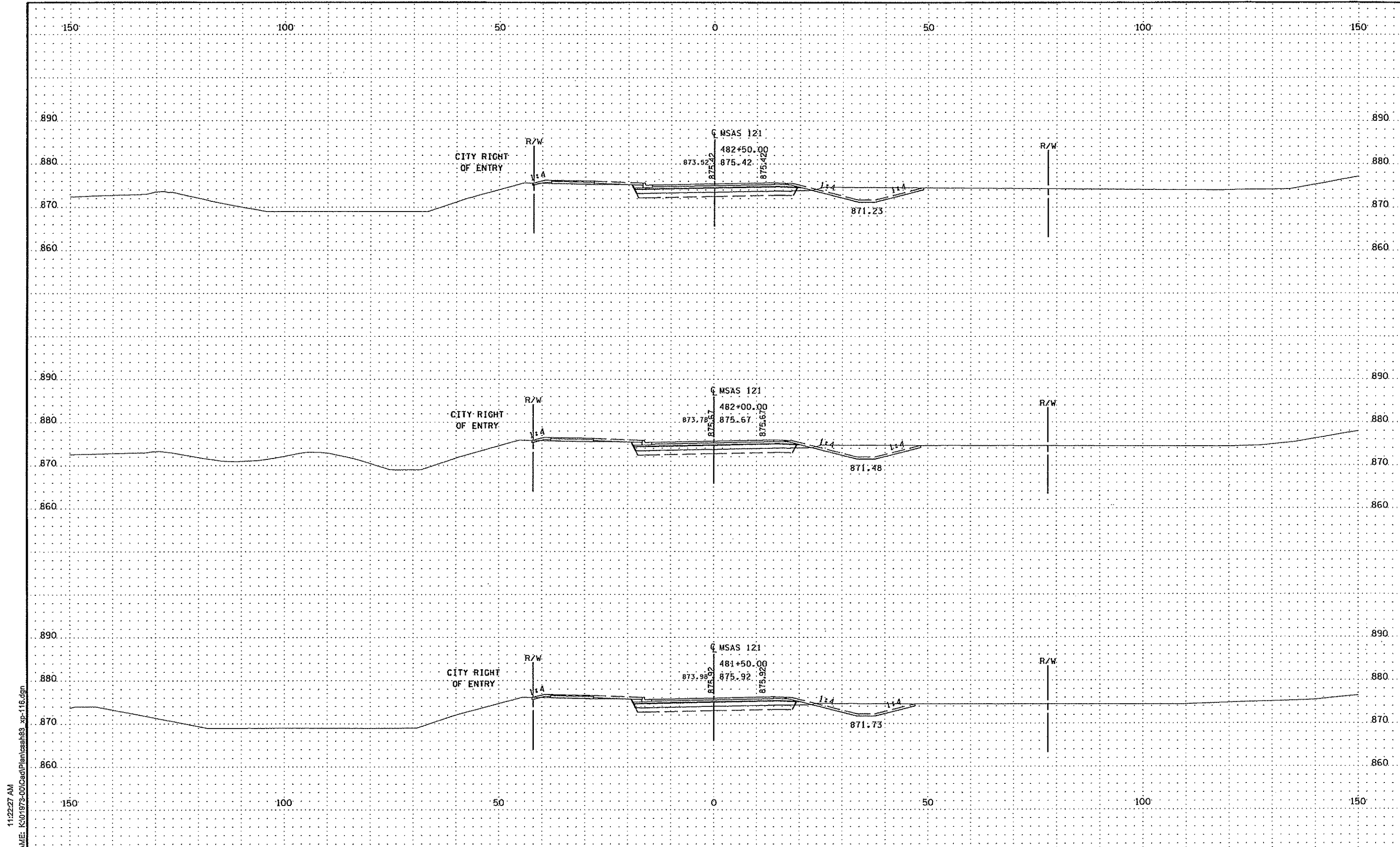
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 J. Hale  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 480+00.00 TO STA. 481+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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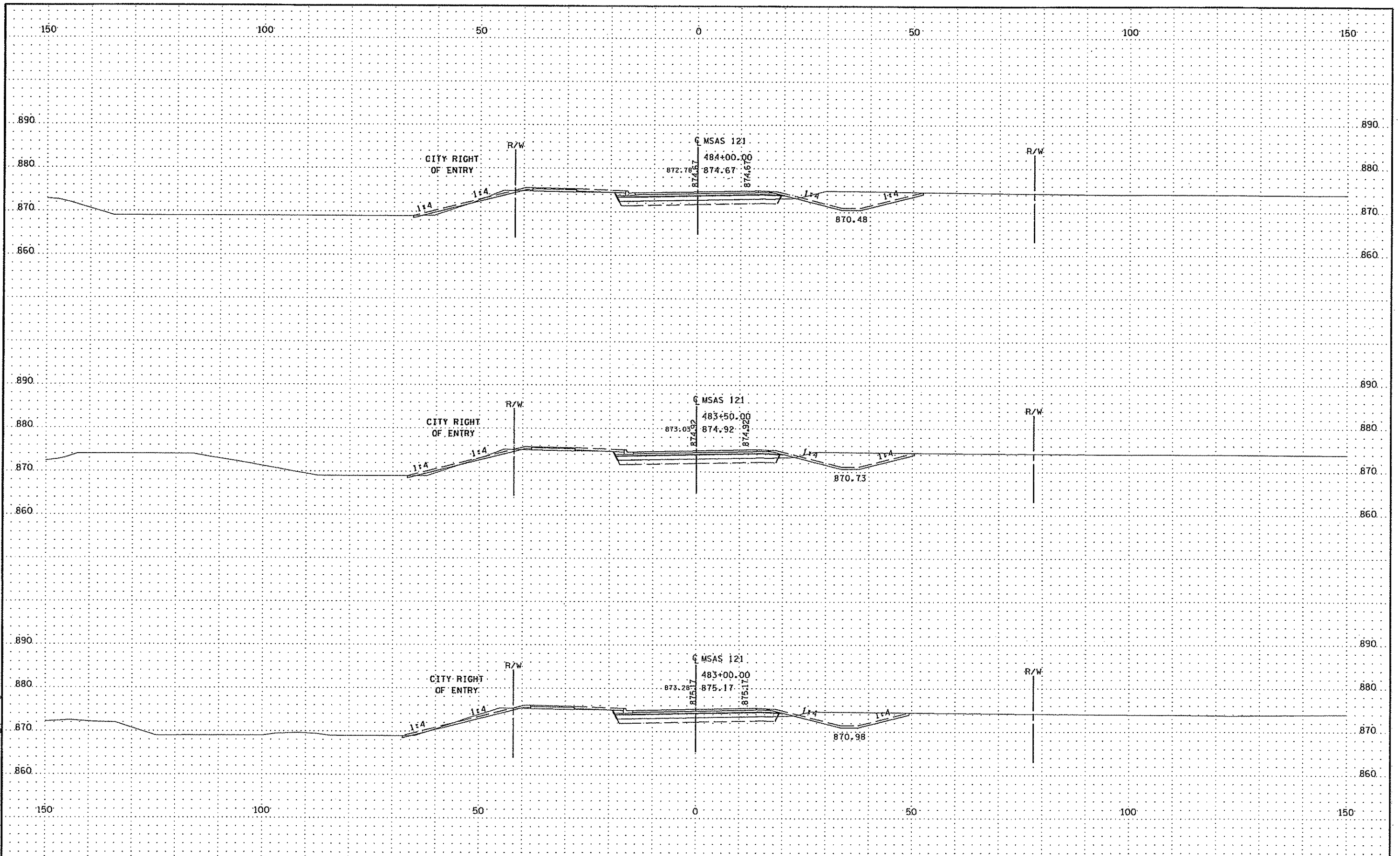
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

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 CROSS SECTIONS  
 STA. 481+50.00 TO STA. 482+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:28 AM  
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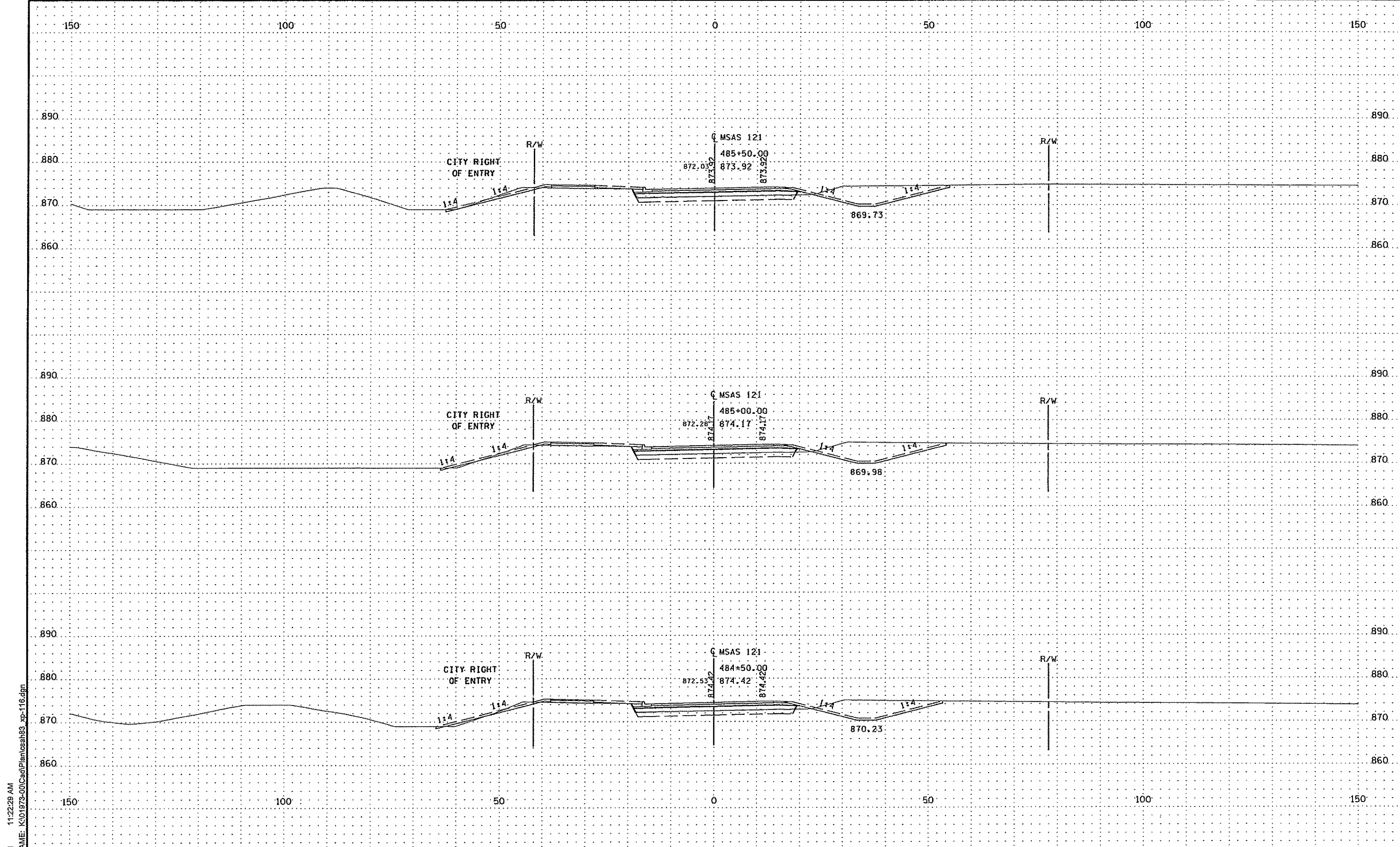
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupo Halo P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 483+00.00 TO STA. 484+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:29 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jupo Hala P.E.  
 DATE: 04/28/11 LIC NO: 42084

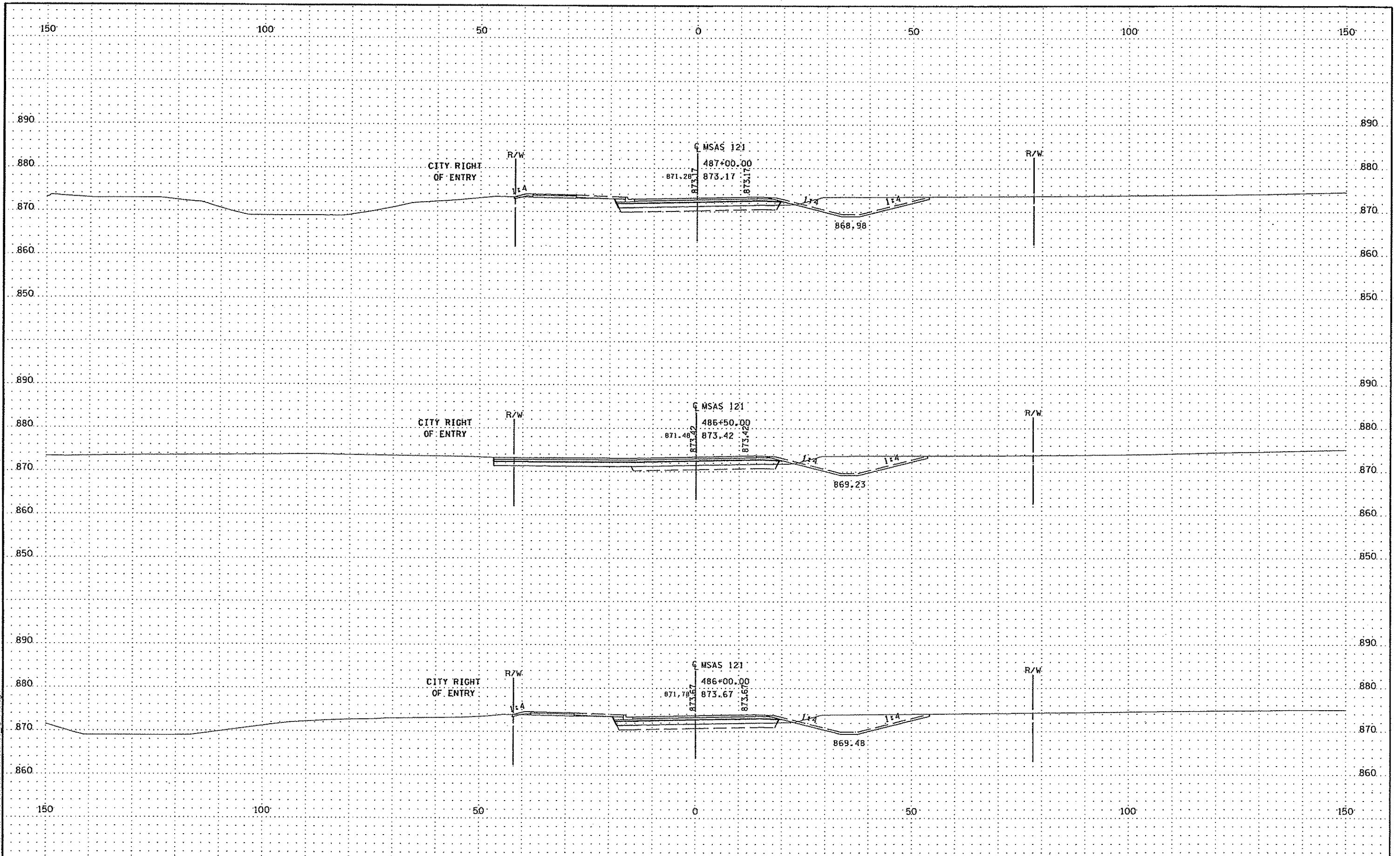
CITY OF RAMSEY  
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BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 484+50.00 TO STA. 485+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21


SHEET  
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DATE: 5/4/2011 11:22:31 AM  
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| NO | DATE | BY | CHK | REVISIONS |
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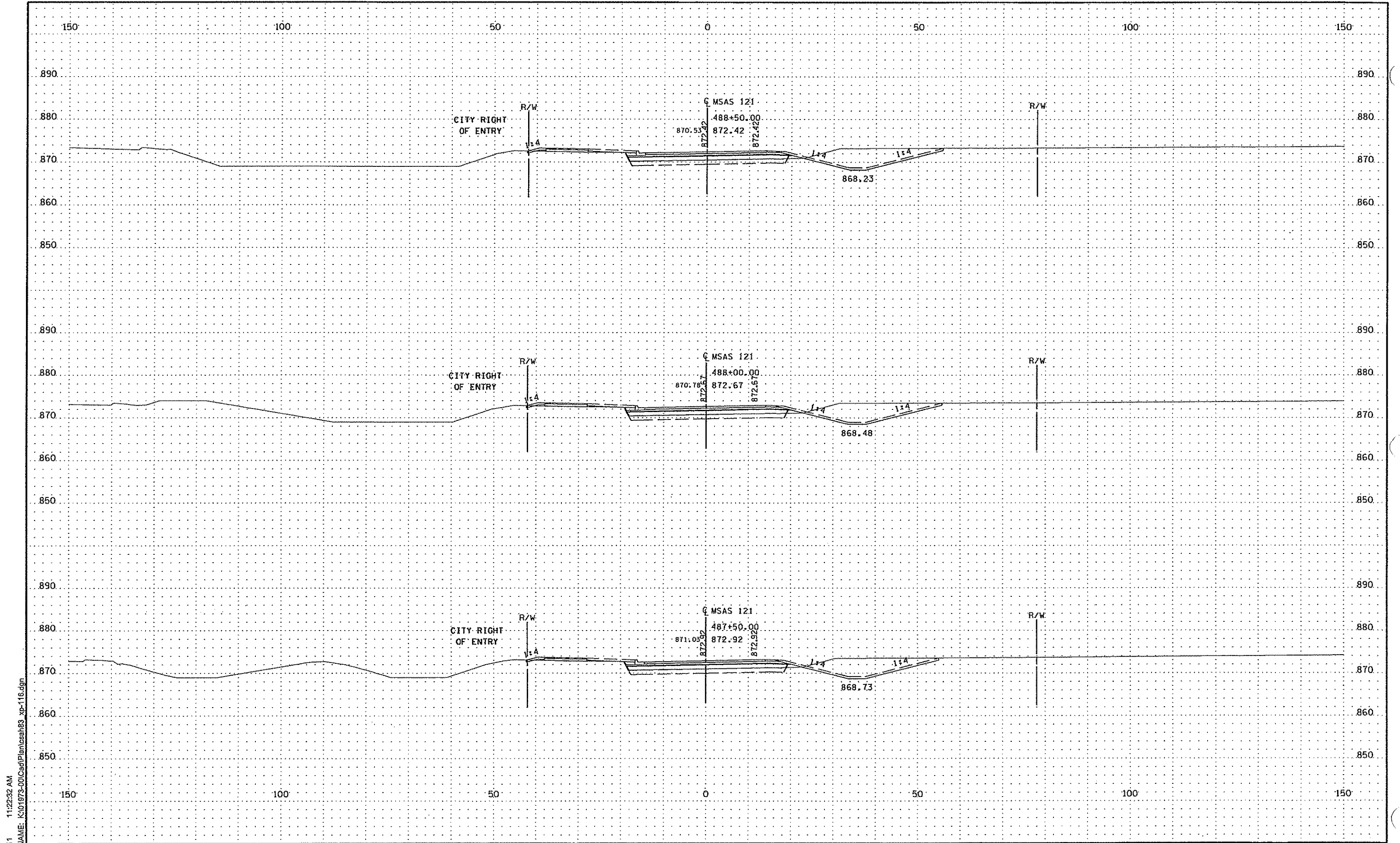
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.

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 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:32 AM  
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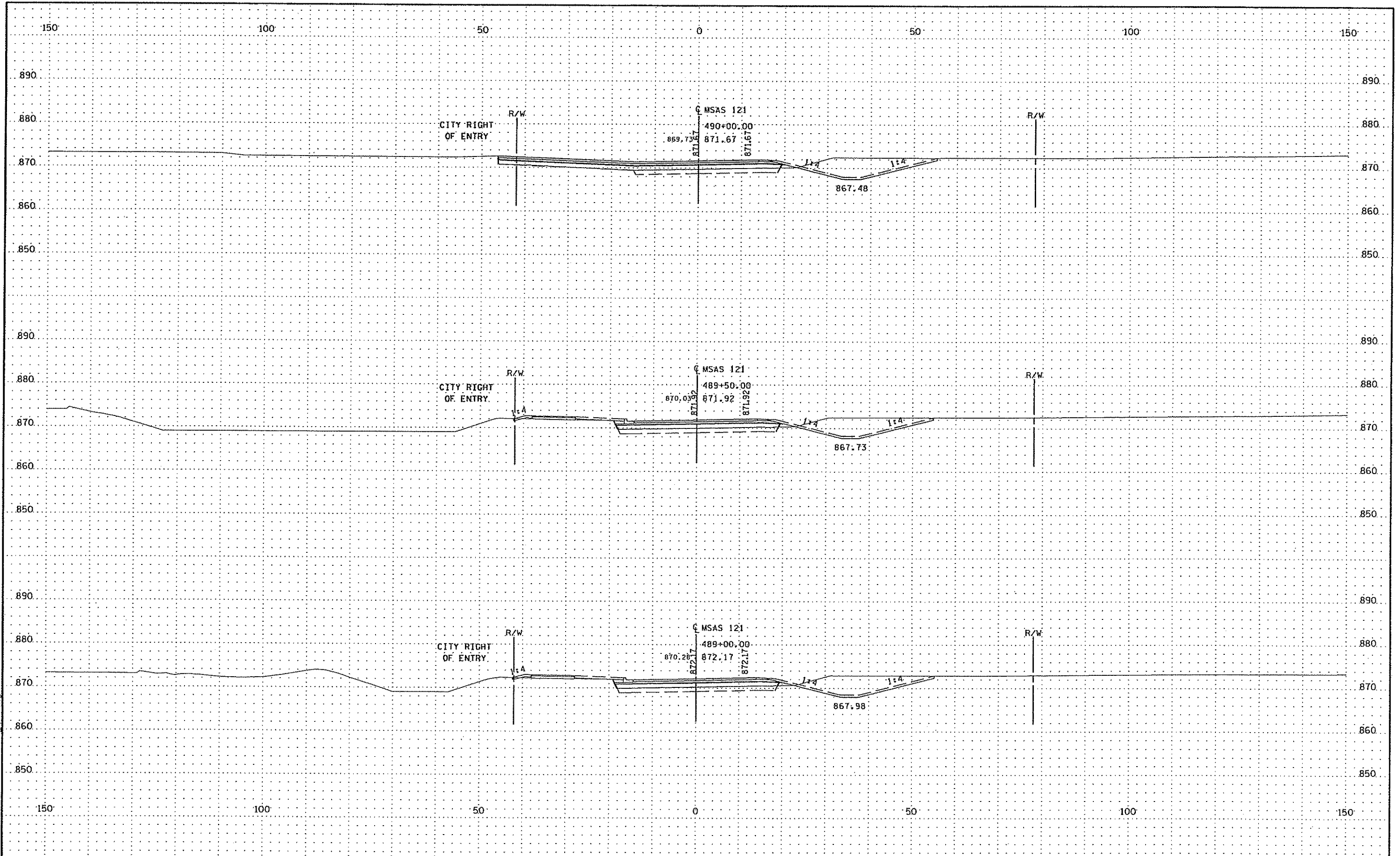
Drawn By: C KOCHMAN  
 Design By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

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 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 202  
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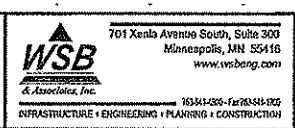


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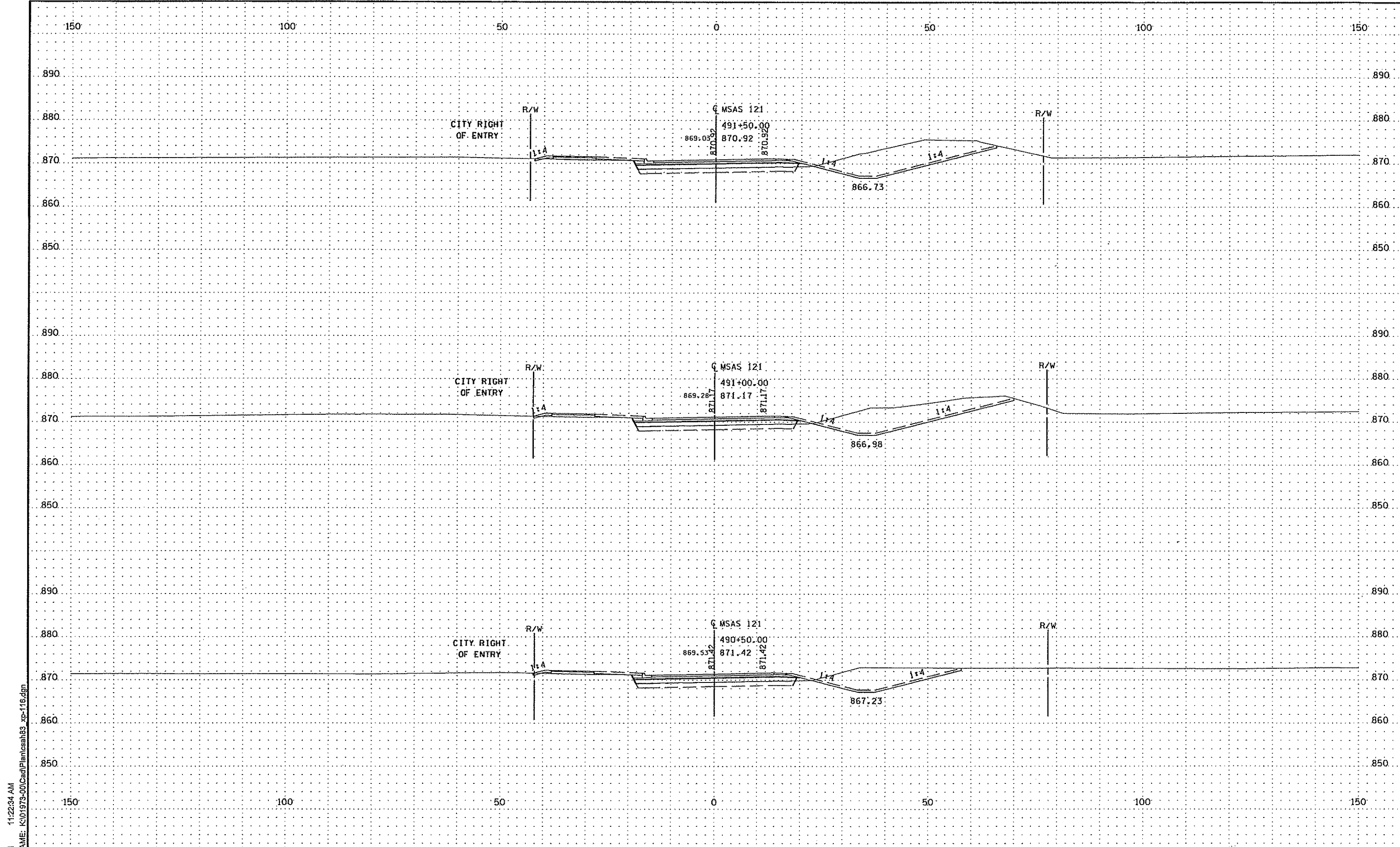
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*J. Hale*  
 Licensed Professional Engineer, J. Hale P.E.

**CITY OF RAMSEY**  
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**BUNKER LAKE BLVD / MSAS 121**  
**CROSS SECTIONS**  
 STA. 489+00.00 TO STA. 490+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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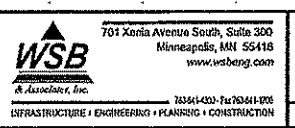


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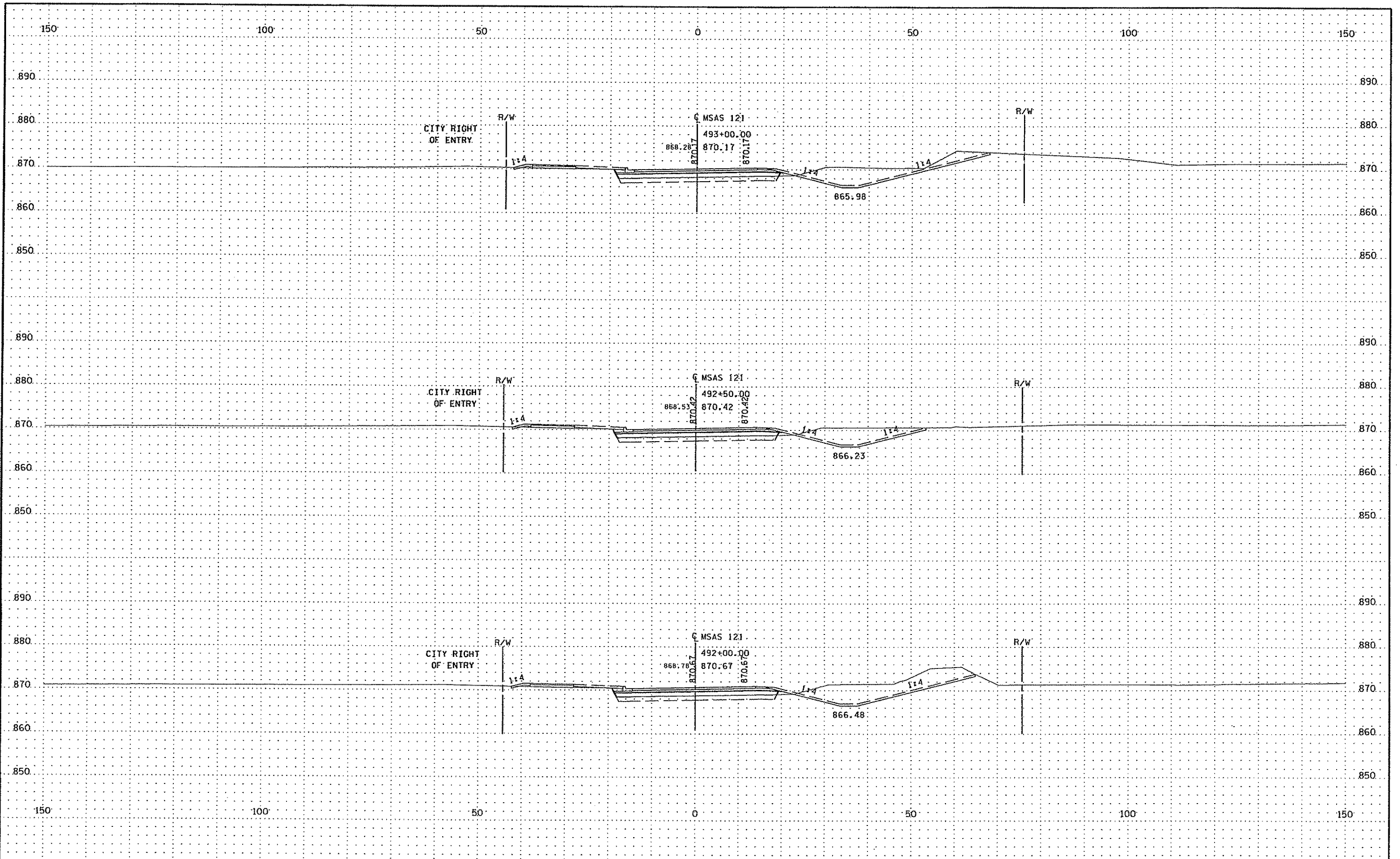
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 490+50.00 TO STA. 491+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:35 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

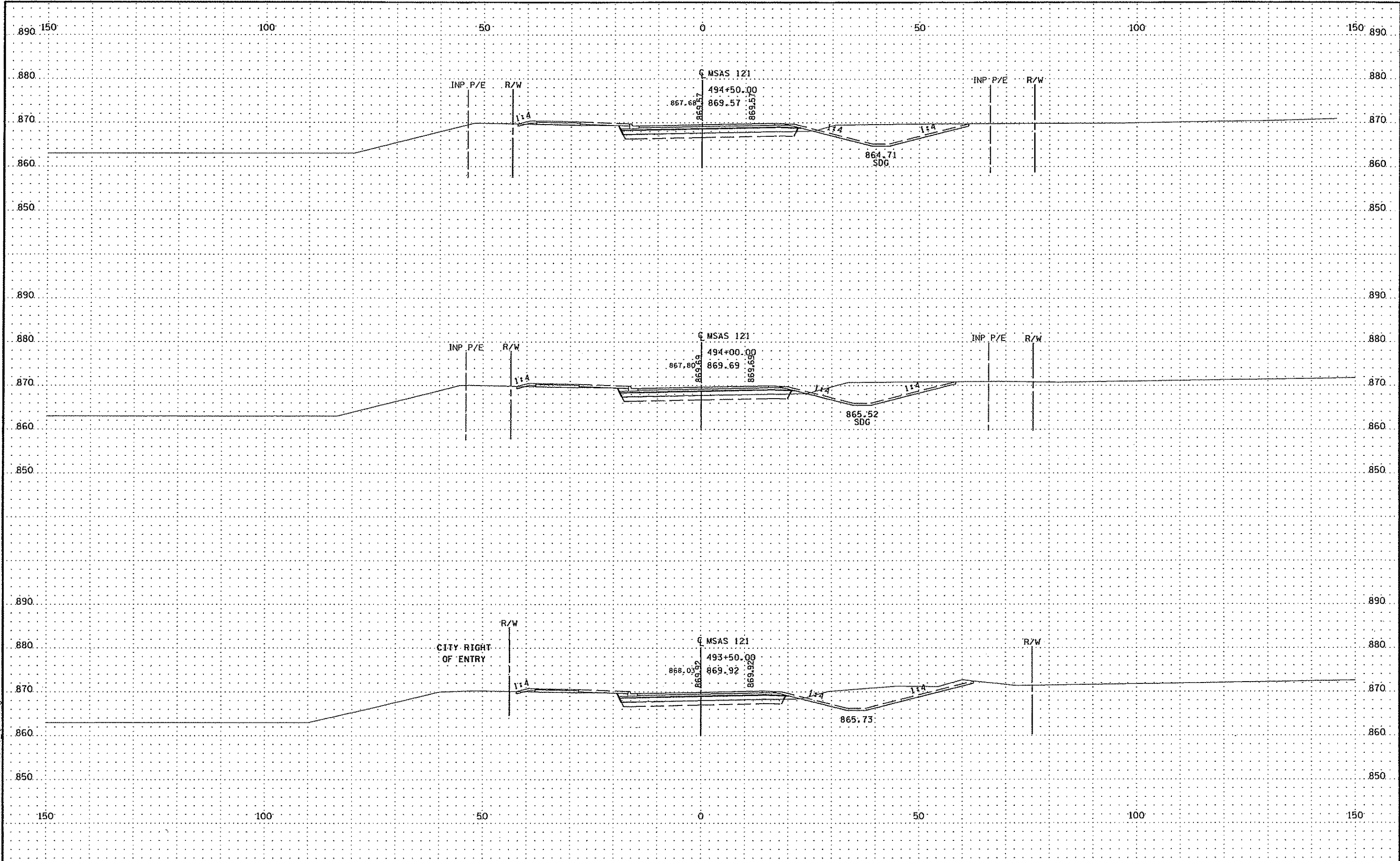
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 492+00.00 TO STA. 493+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:36 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jape Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

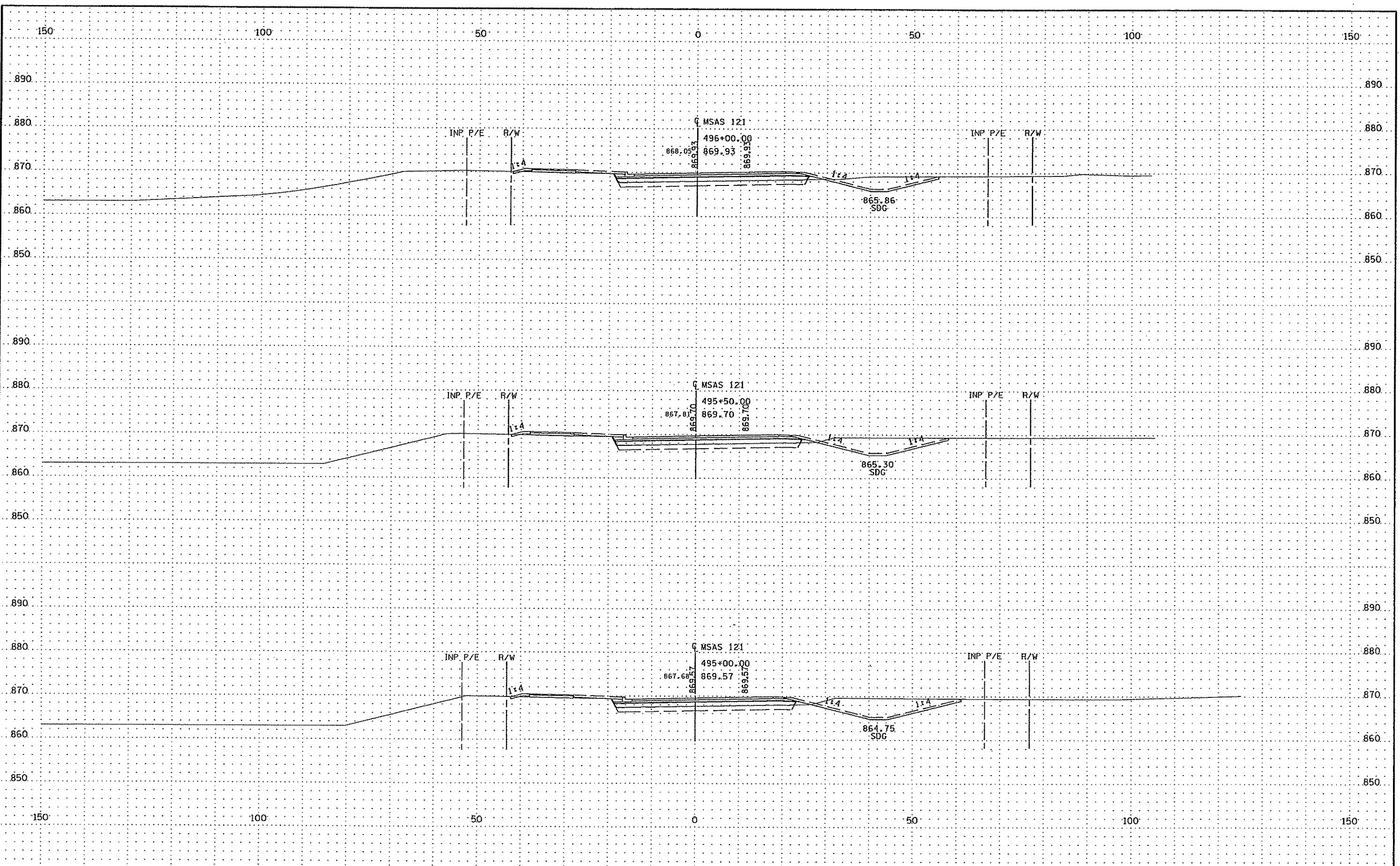
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
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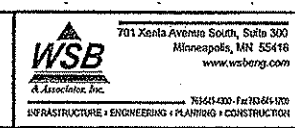
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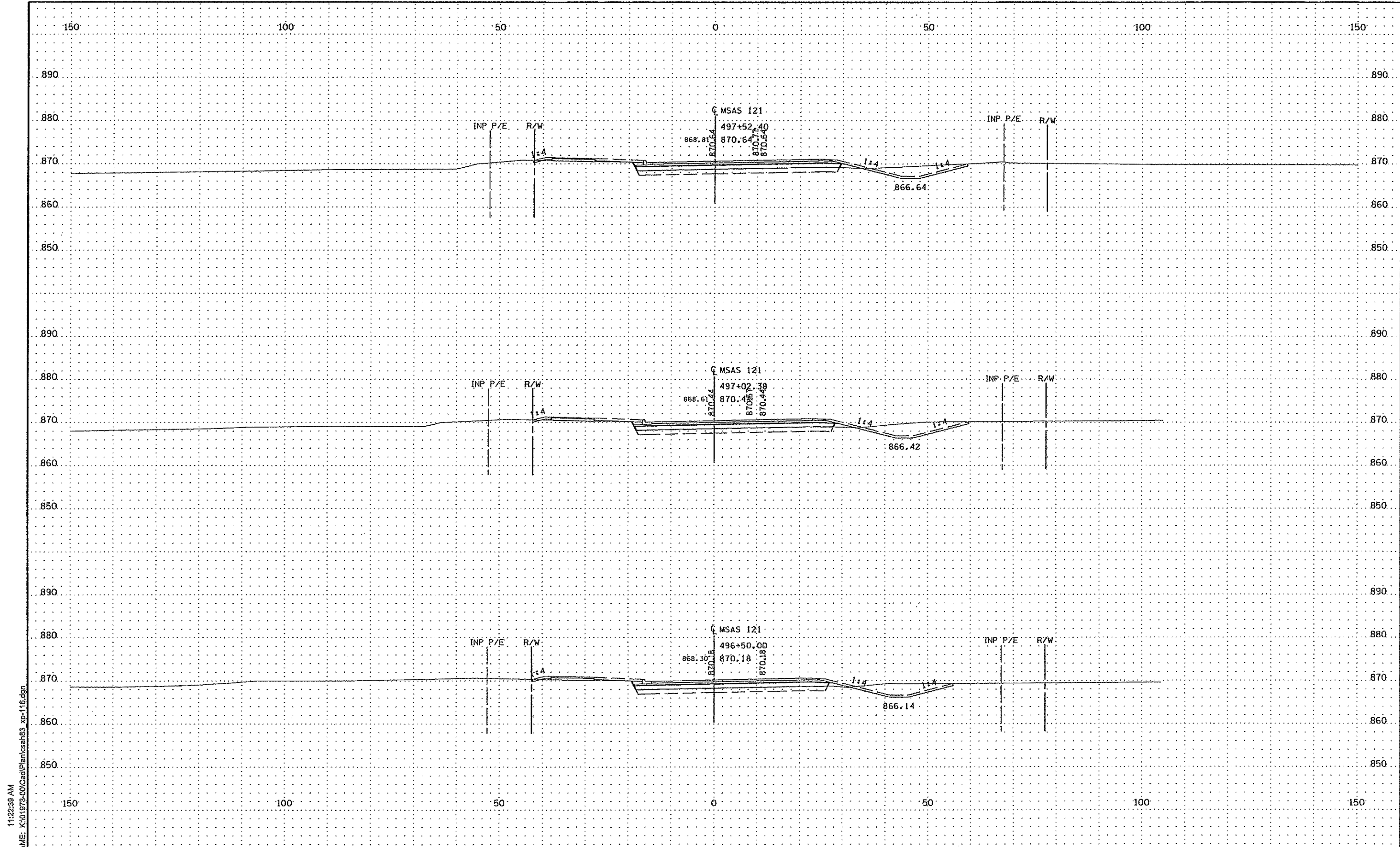
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, State No. 42064  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
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BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 495+00.00 TO STA. 496+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21  
 SHEET 207 OF 249 SHEETS

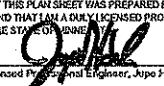


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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

  
 Licensed Professional Engineer, State of Minnesota  
 DATE: 04/28/11 LIC NO: 42064

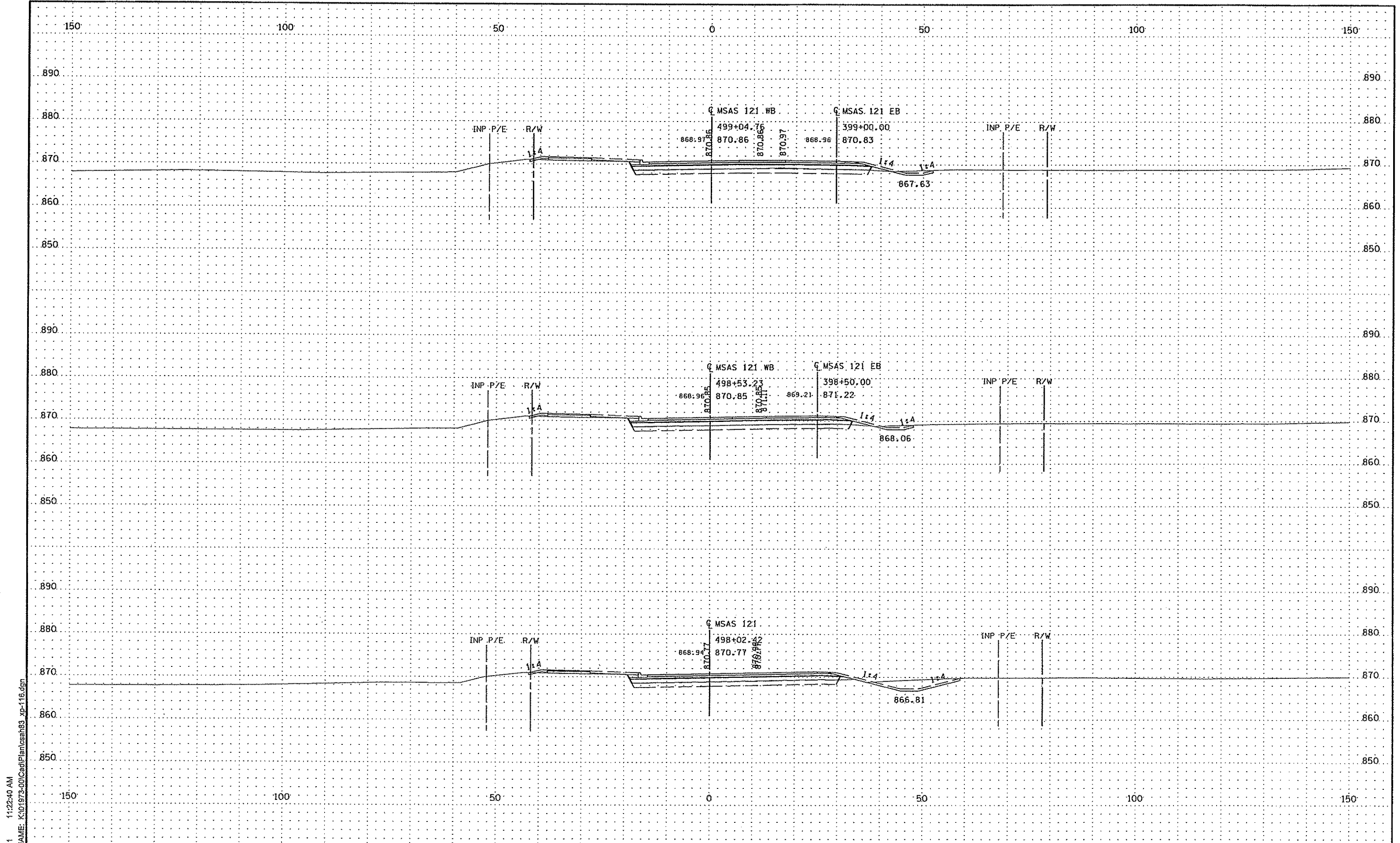
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 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 208  
 OF  
 249  
 SHEETS





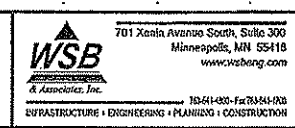
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

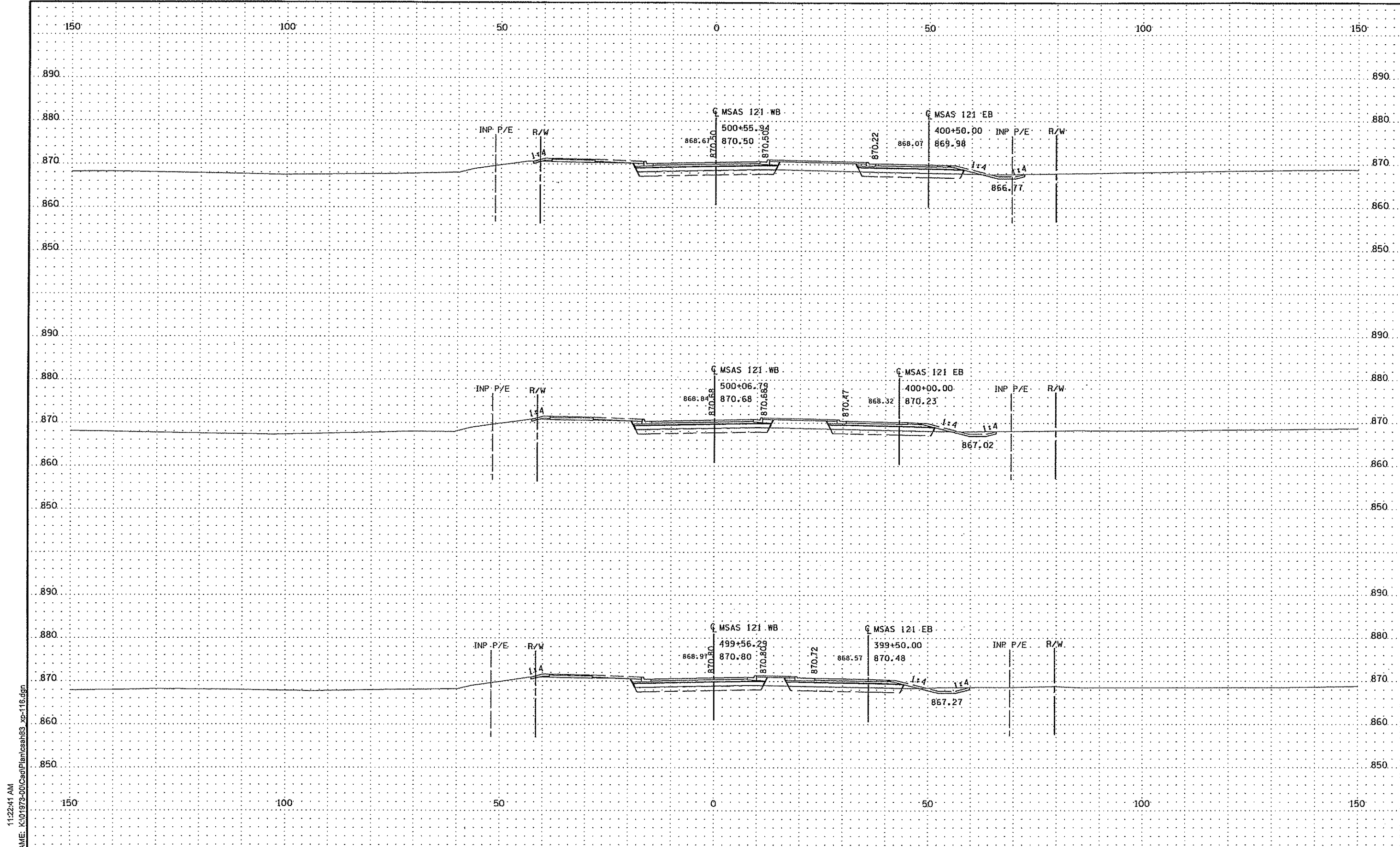
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CITY OF RAMSEY  
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BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 498+02.42 TO STA. 499+04.76  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:41 AM  
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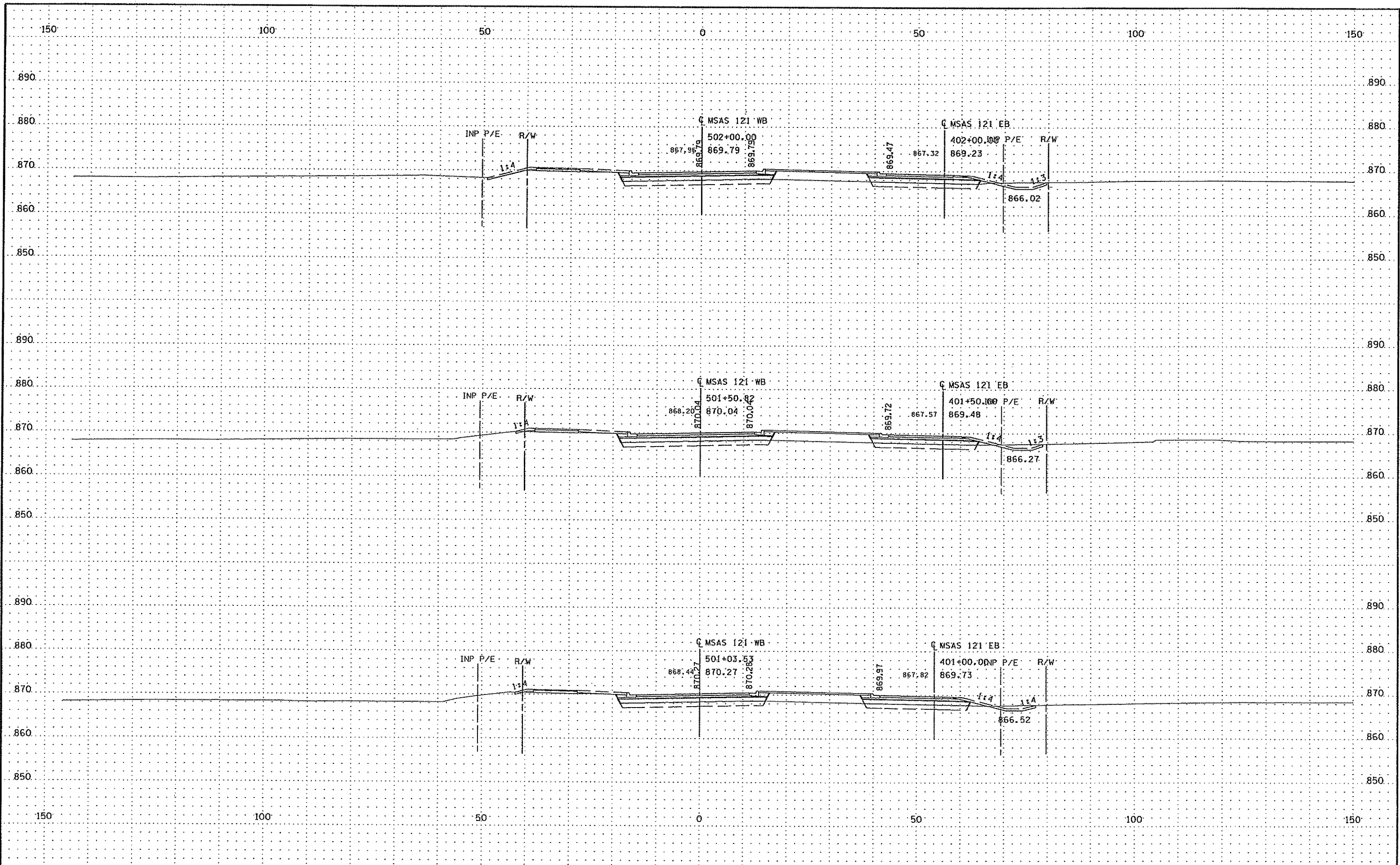
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License: Licensed Professional Engineer, Jupo Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 499+56.29 TO STA. 500+55.94  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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 SHEETS



DATE: 5/4/2011 11:22:43 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

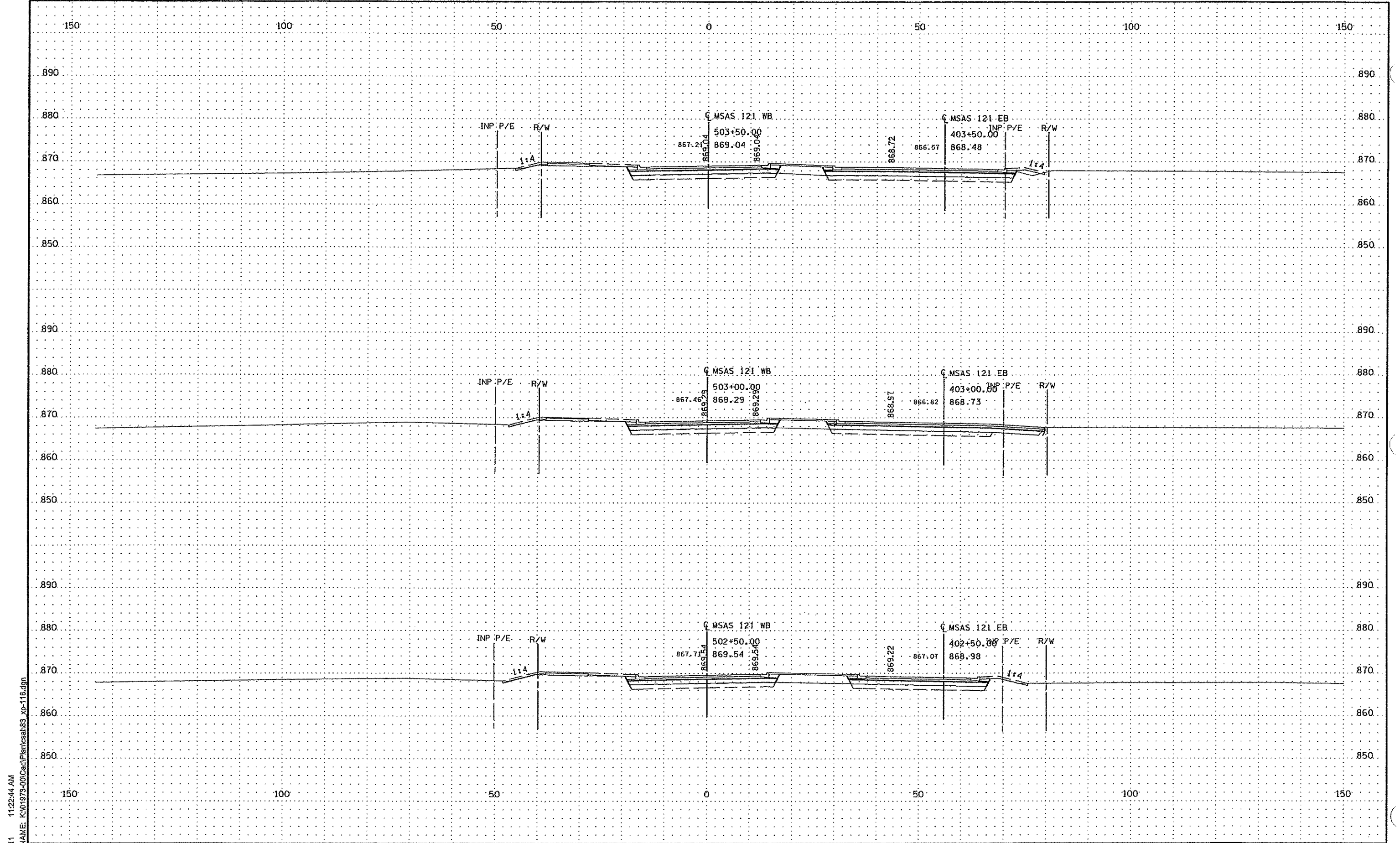
*J. Hale*  
 Licensed Professional Engineer, June Hills P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 501+03.53 TO STA. 502+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:44 AM  
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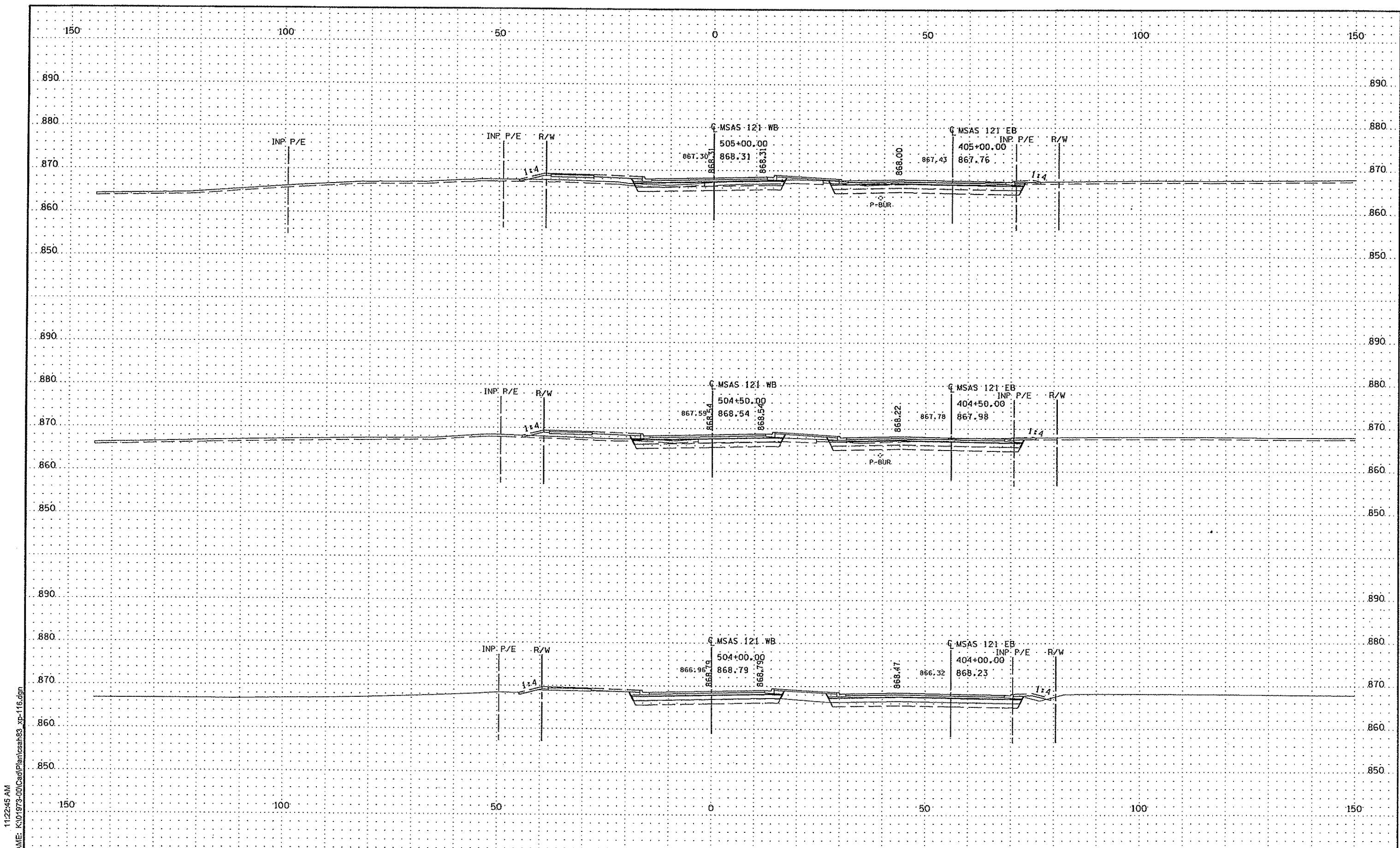
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Type: Public Works  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
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SHEET  
 212  
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 SHEETS



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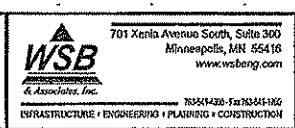
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

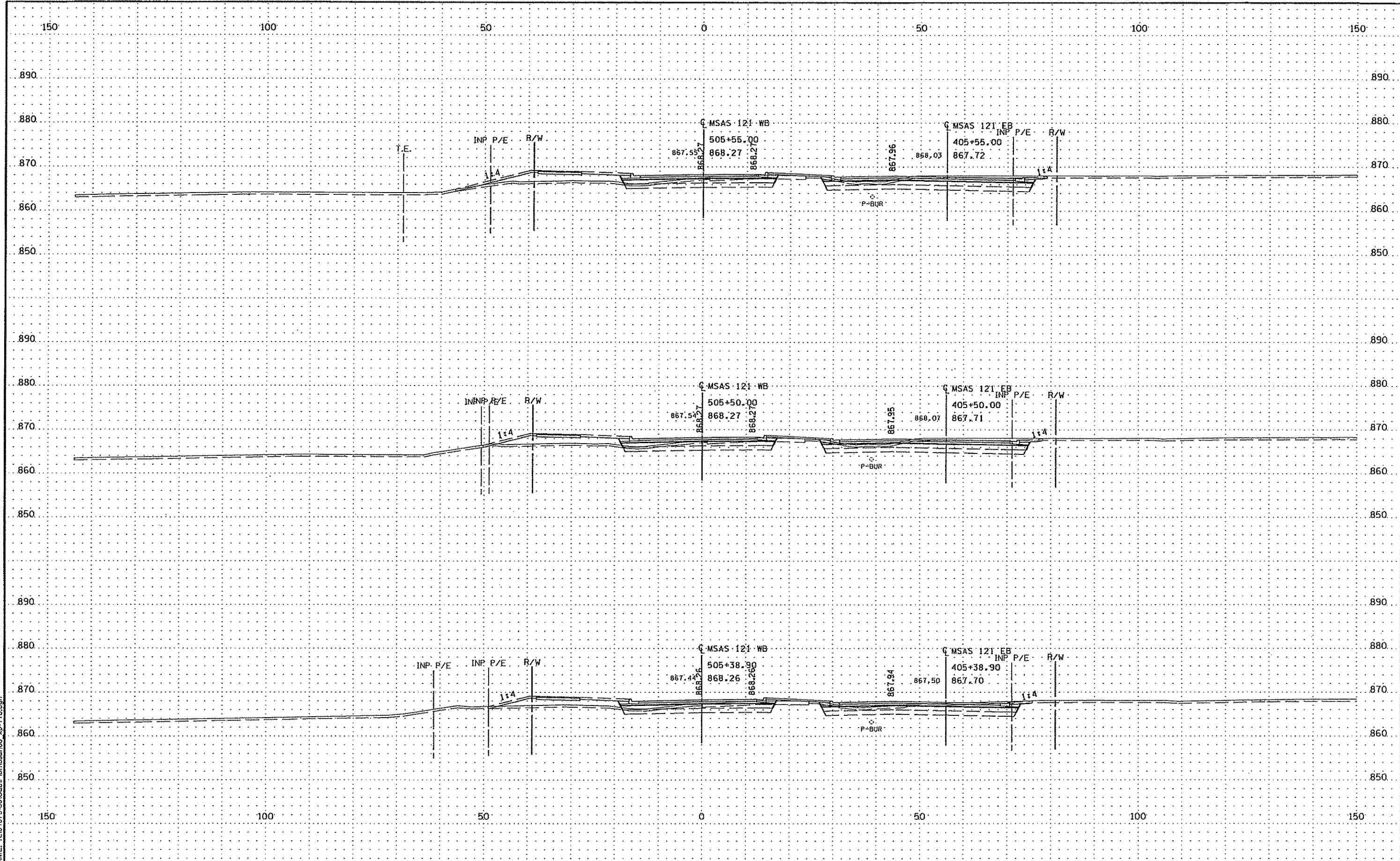
*J. Hale*  
 Licensed Professional Engineer, June Hales P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / MSAS 121  
 CROSS SECTIONS  
 STA. 504+00.00 TO STA. 505+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 213  
 OF  
 249  
 SHEETS

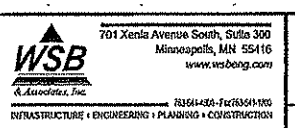


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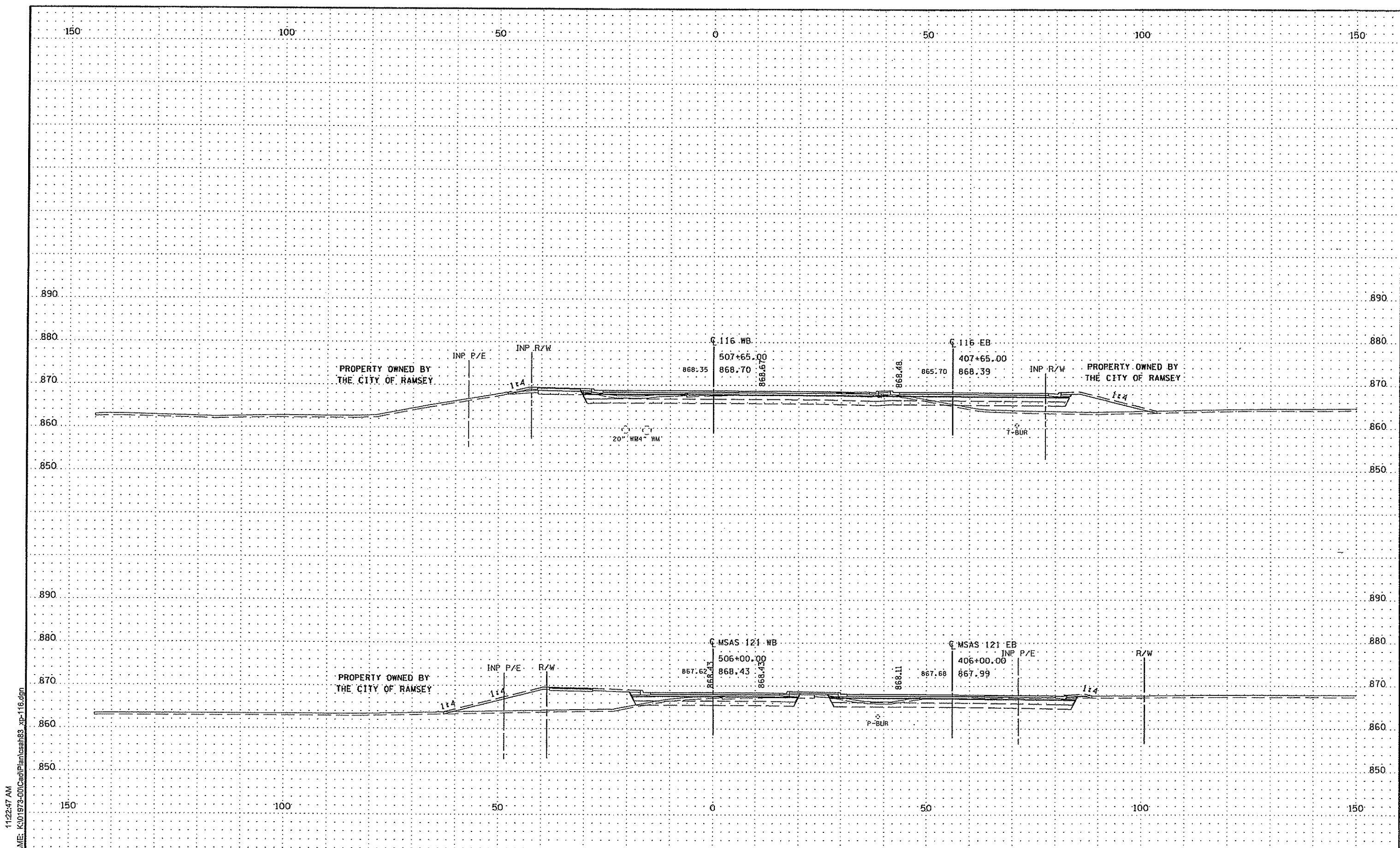
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License: Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



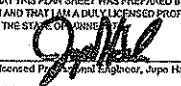
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**CROSS SECTIONS**  
 STA. 505+38.90 TO STA. 505+55.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 Licensed Professional Engineer, Jupo Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

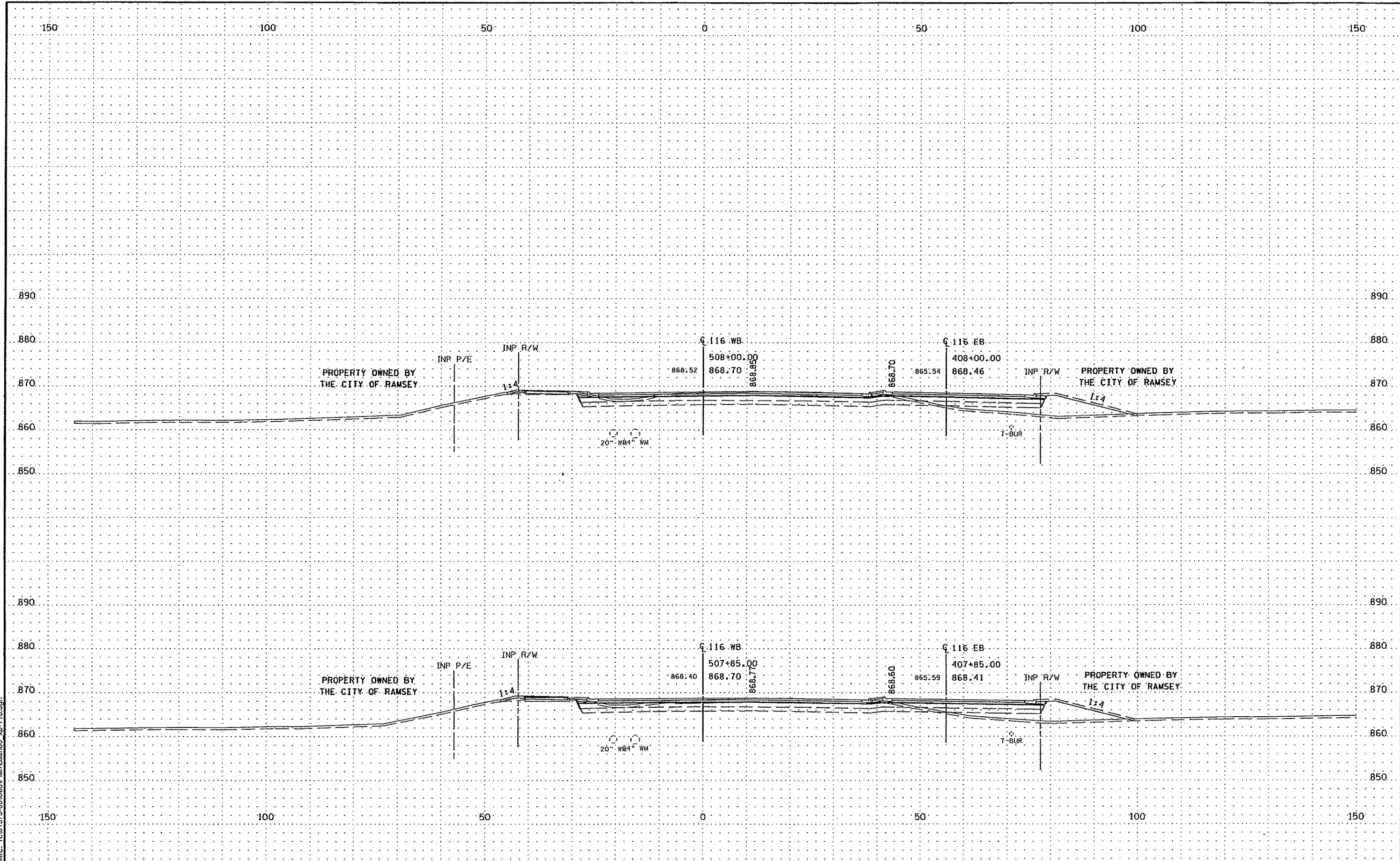
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**CROSS SECTIONS**  
 STA. 506+00.00 TO STA. 507+65.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 215  
 OF  
 249  
 SHEETS

DATE: 5/4/2011 11:22:47 AM  
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DATE: 5/4/2011 11:22:49 AM  
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Drawn By: C KOCHMAN  
 Designed By: M HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 License No. 42064  
 DATE: 04/28/11

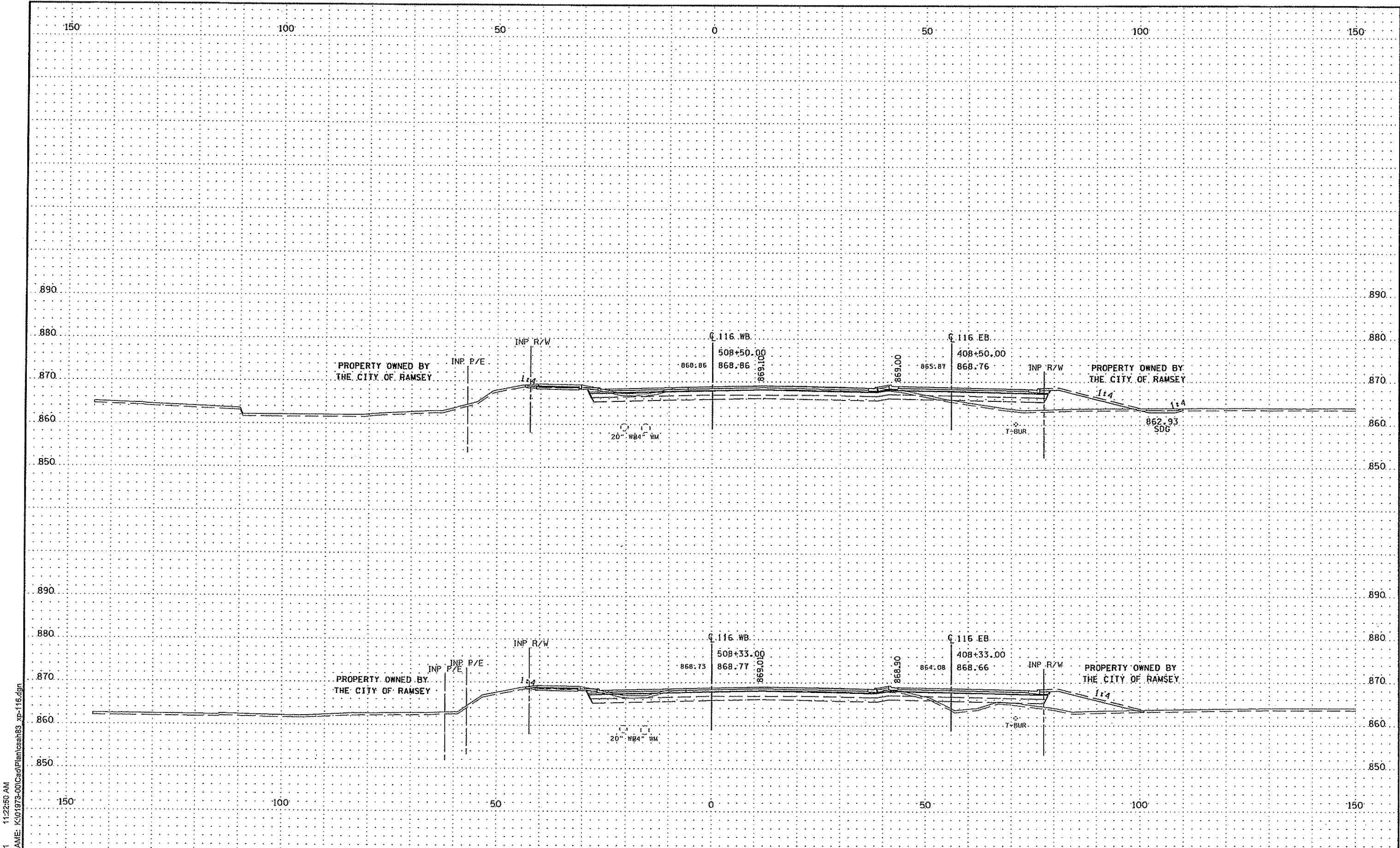
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**CROSS SECTIONS**  
 STA. 507+85.00 TO STA. 508+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:22:50 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

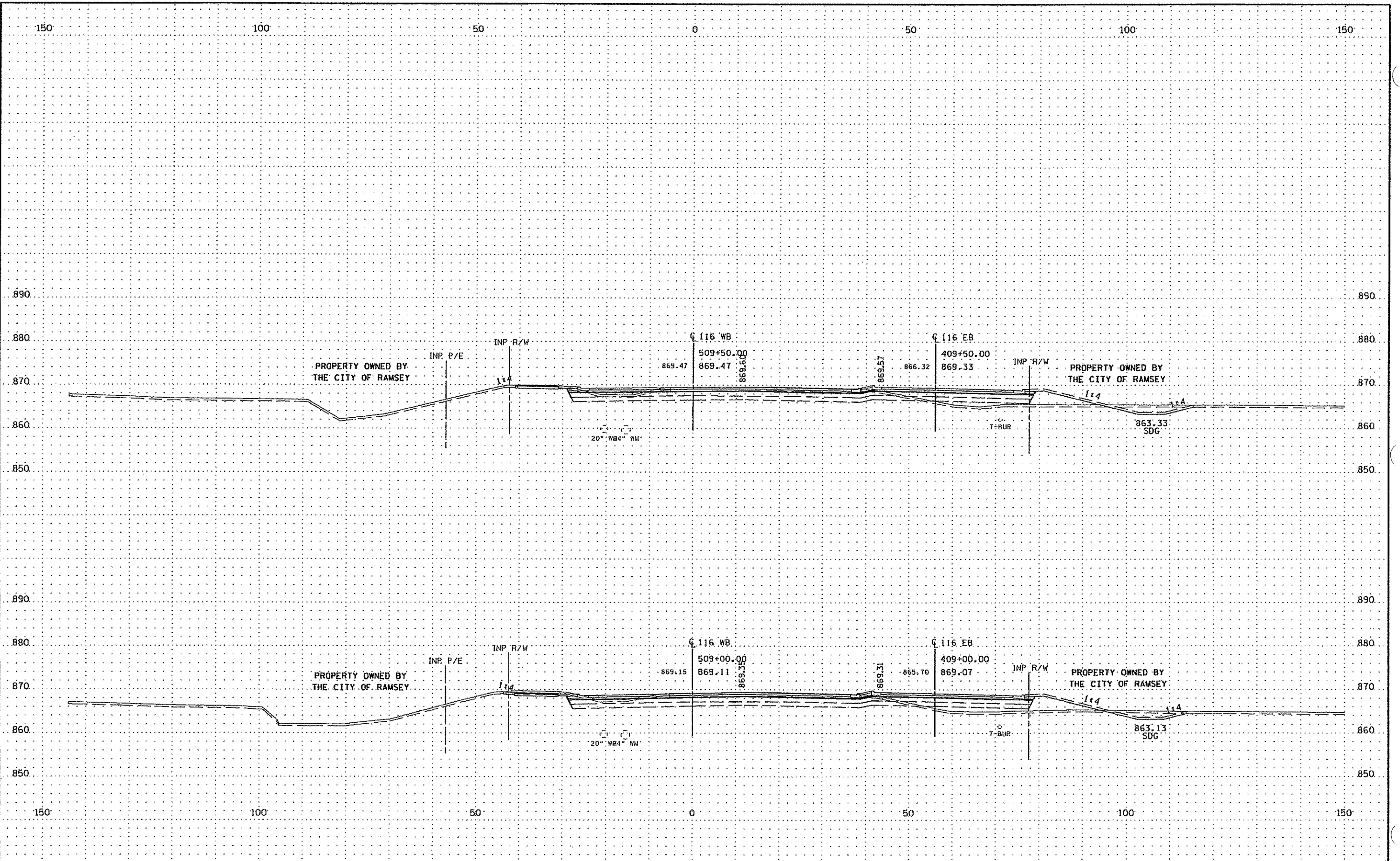
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / CSAH 116  
 CROSS SECTIONS  
 STA. 508+33.00 TO STA. 508+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 217 OF 249 SHEETS

DATE: 5/4/2011 11:22:51 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

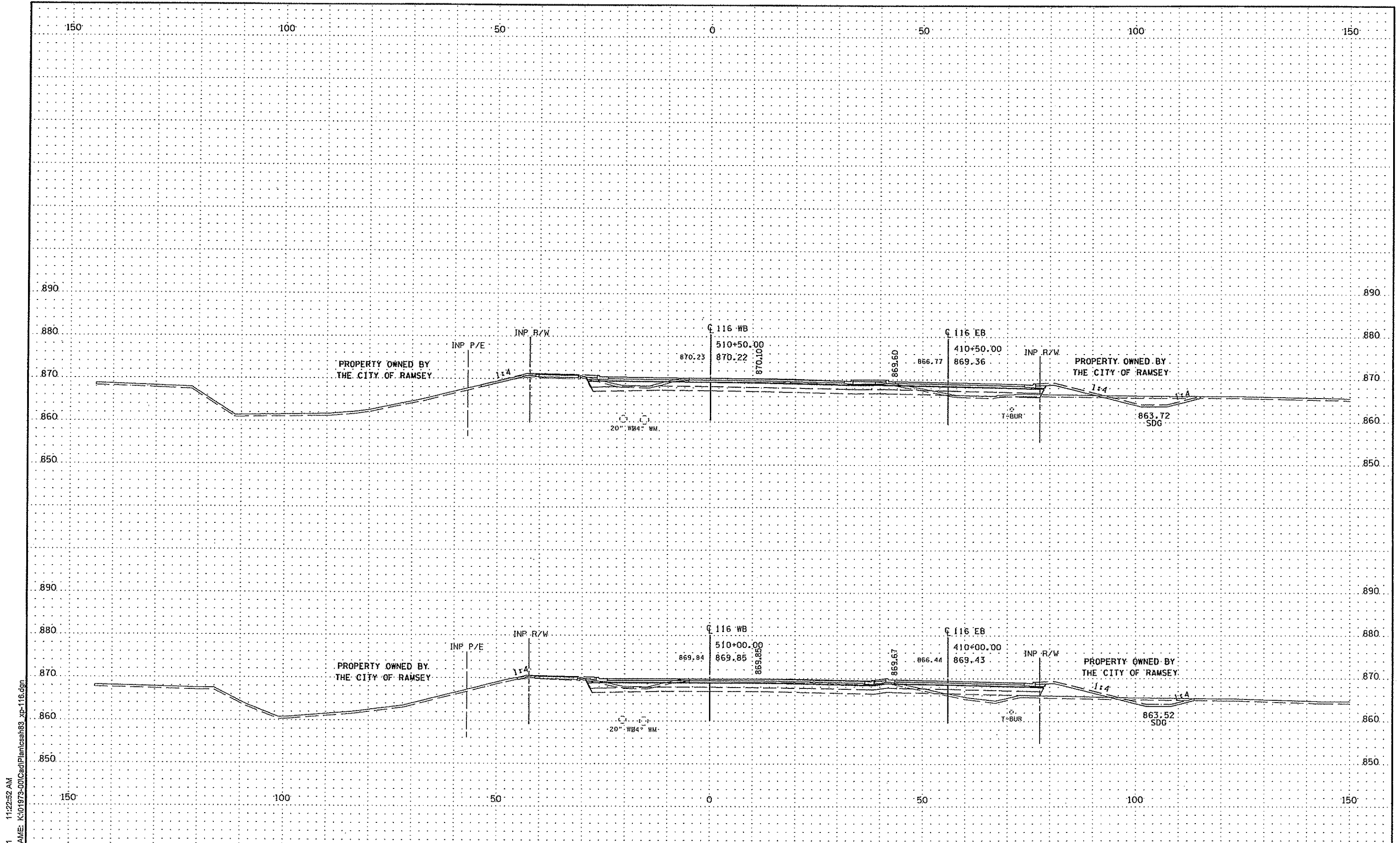
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jape Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / CSAH 116  
 CROSS SECTIONS  
 STA. 509+00.00 TO STA. 509+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 218  
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 249  
 SHEETS



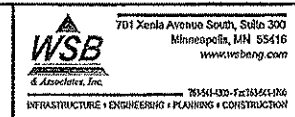
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, June Hales P.E.  
 DATE: 04/28/11 LIC NO: 42064

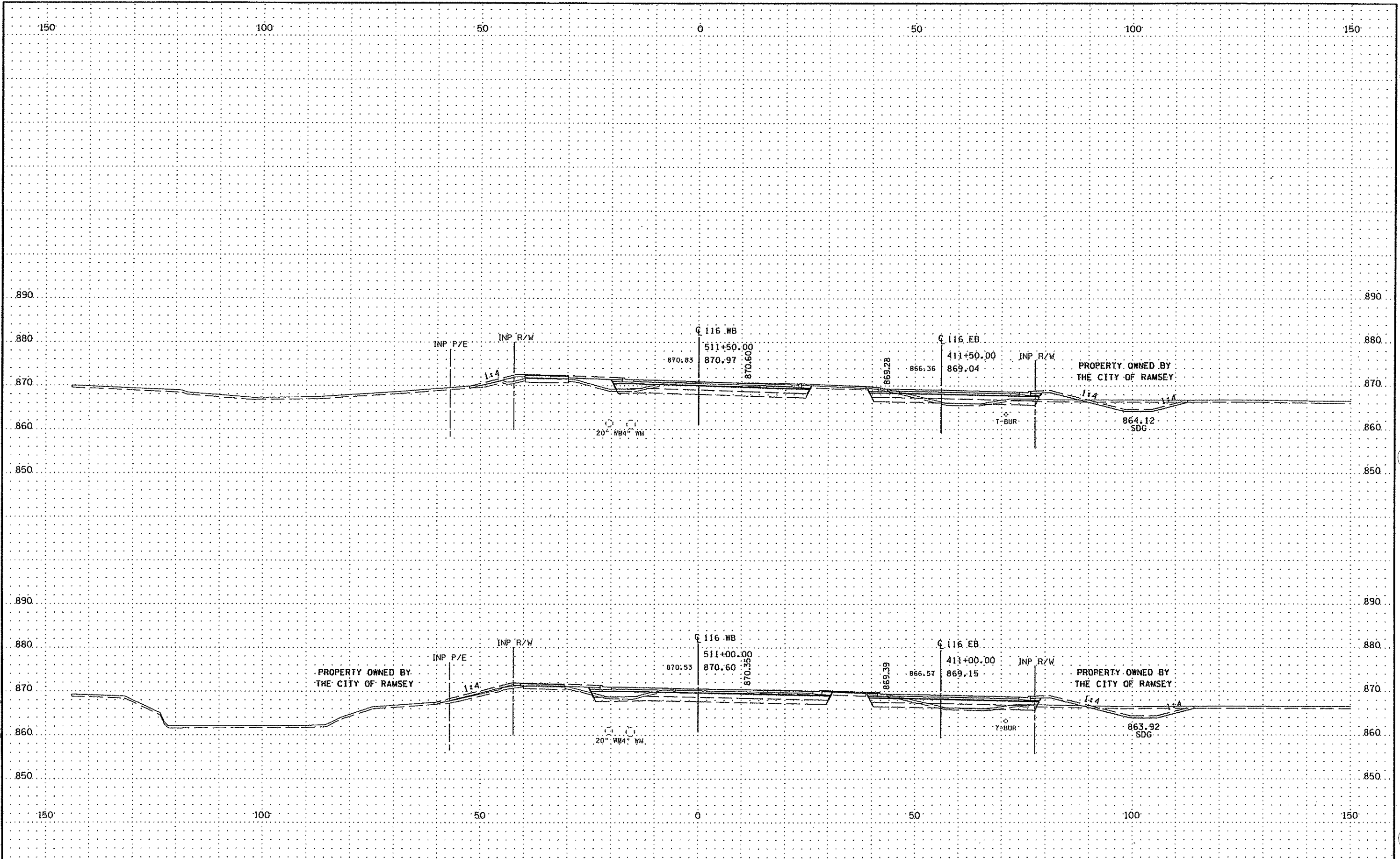
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / CSAH 116**  
**CROSS SECTIONS**  
 STA. 510+00.00 TO STA. 510+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 219 OF 249 SHEETS



DATE: 5/4/2011 11:22:54 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Aps Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

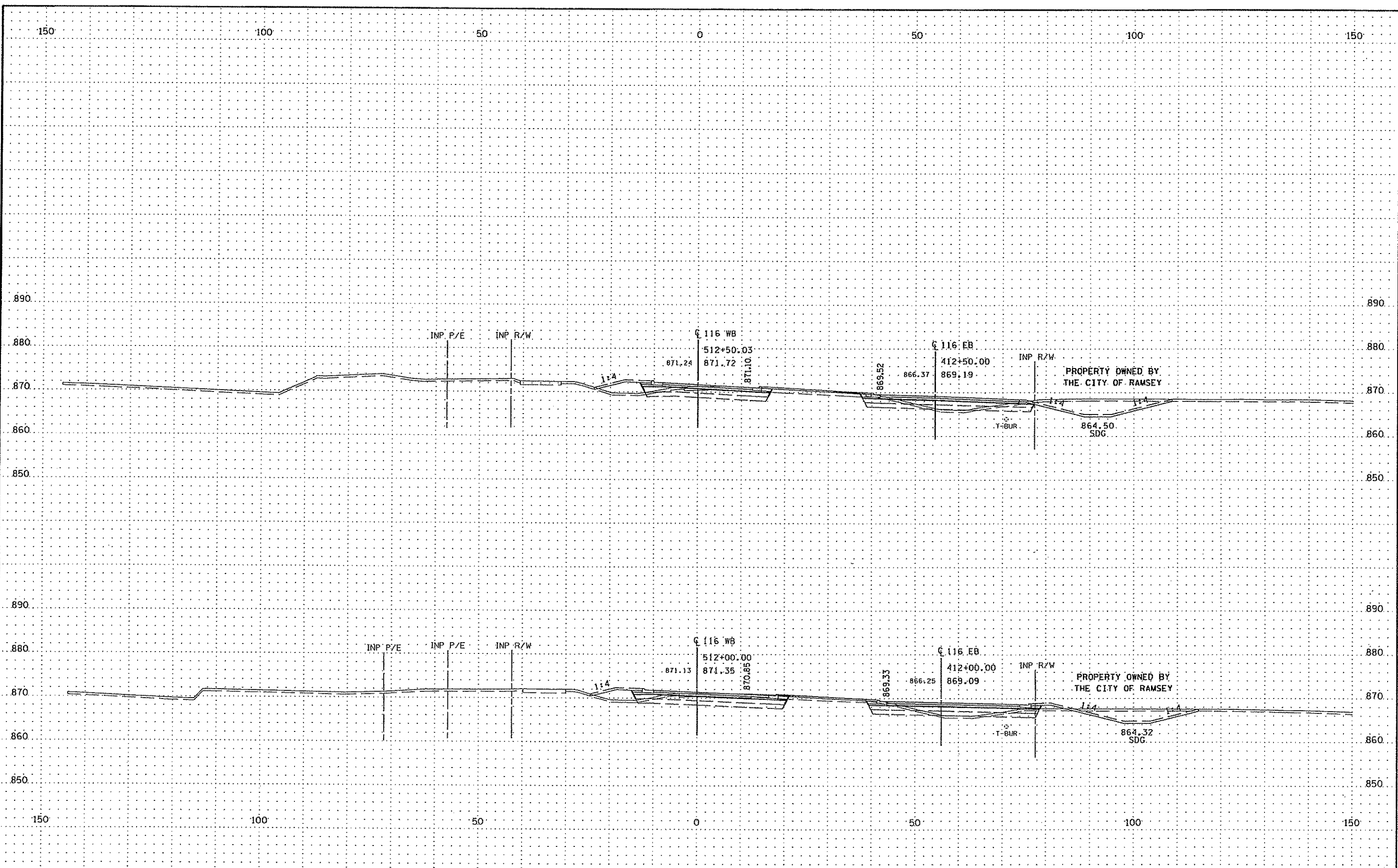
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**BUNKER LAKE BLVD / CSAH 116**  
**CROSS SECTIONS**  
 STA. 511+00.00 TO STA. 511+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:55 AM  
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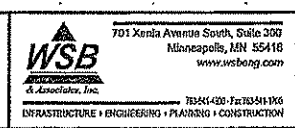
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 DATE: 04/28/11 LIC NO: 42064

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

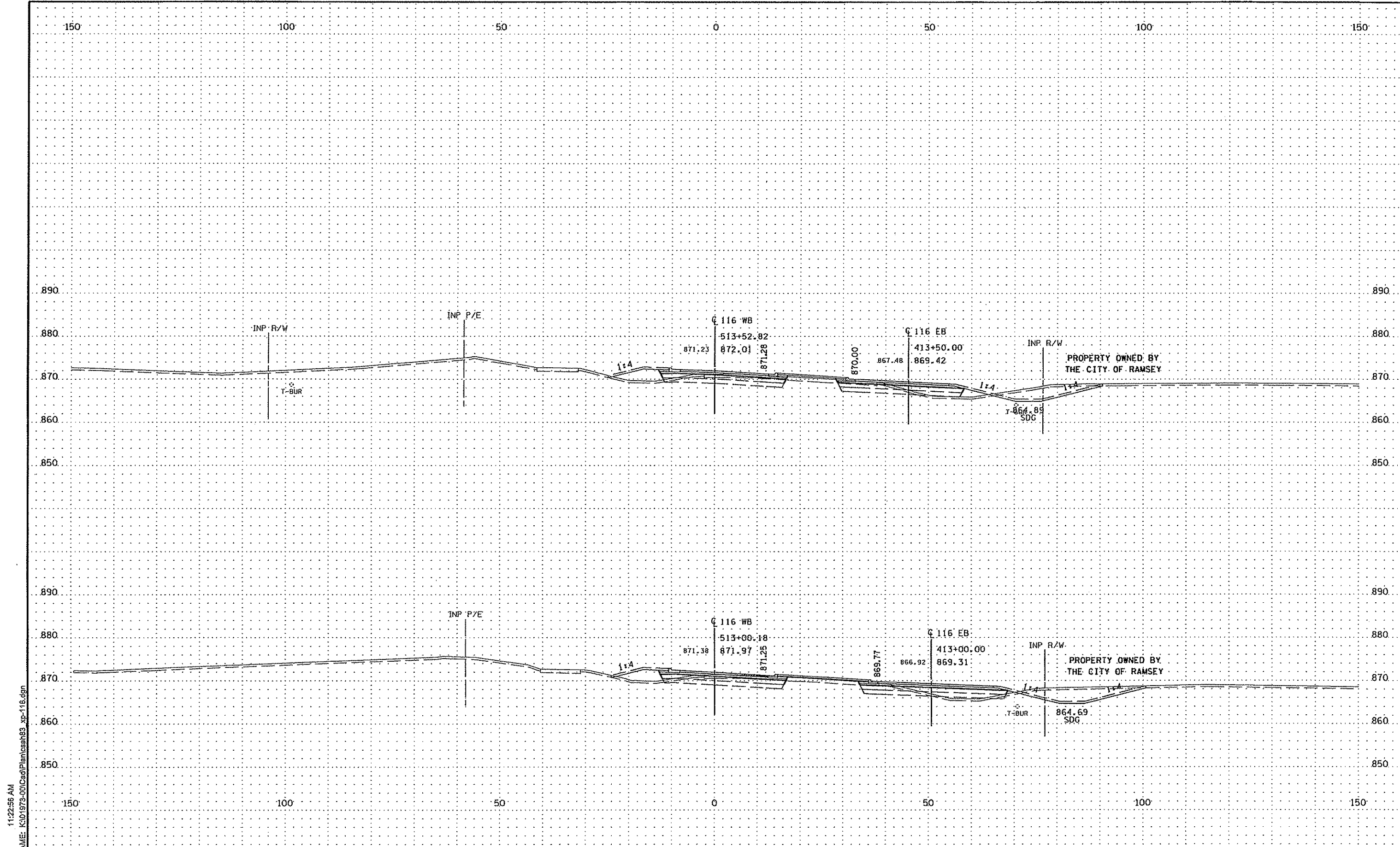
*J. Hale*  
 Licensed Professional Engineer, J. Hale P.E.

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / CSAH 116  
 CROSS SECTIONS  
 STA. 512+00.00 TO STA. 512+50.03  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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DATE: 5/4/2011 11:22:56 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, State of Minn. P.E.

DATE: 04/28/11 LIC NO: 42064

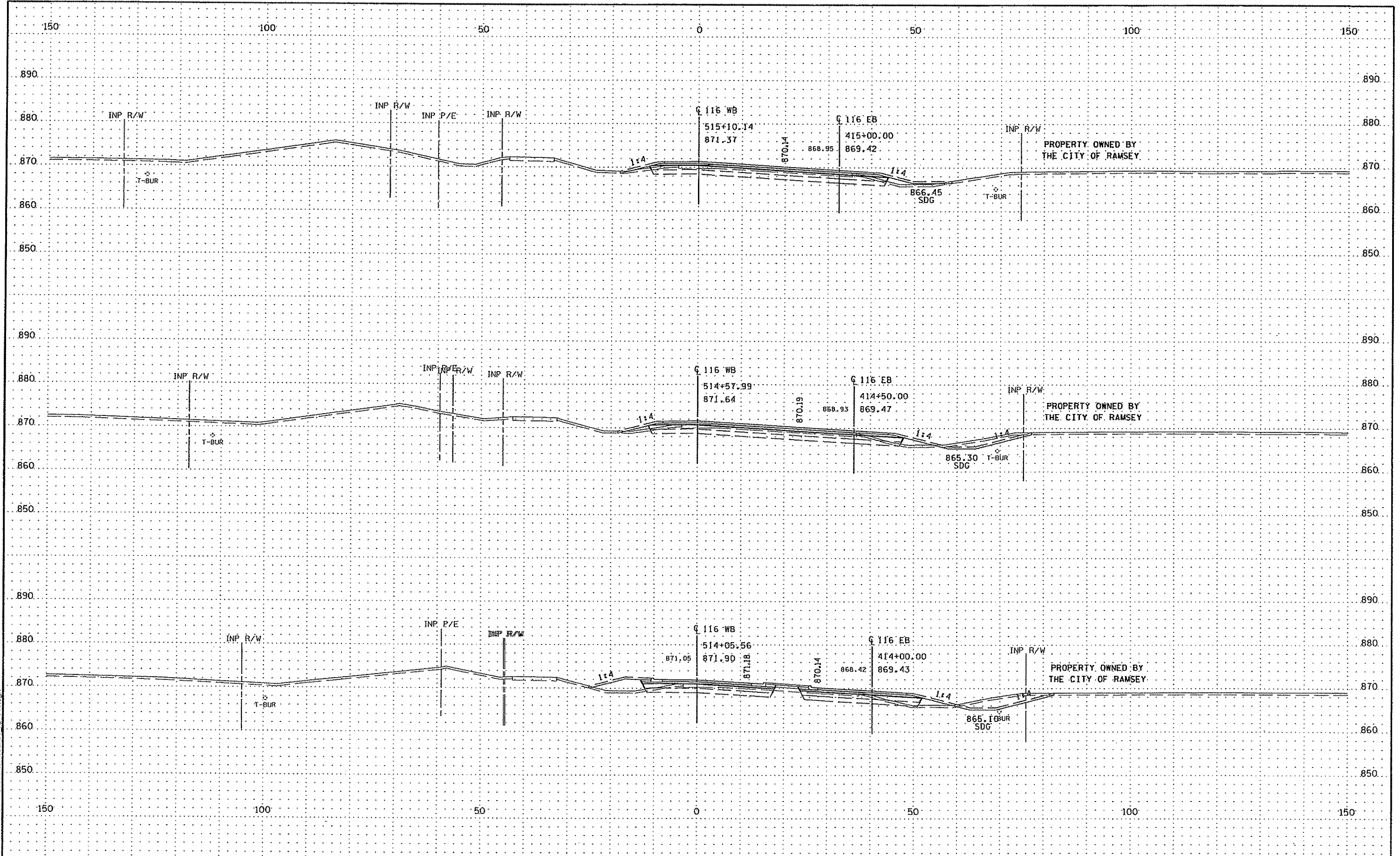
**CITY OF RAMSEY**  
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**BUNKER LAKE BLVD / CSAH 116**  
**CROSS SECTIONS**  
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S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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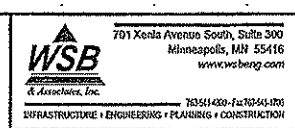
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A FLOWMAN  
 Approved By: J HALE

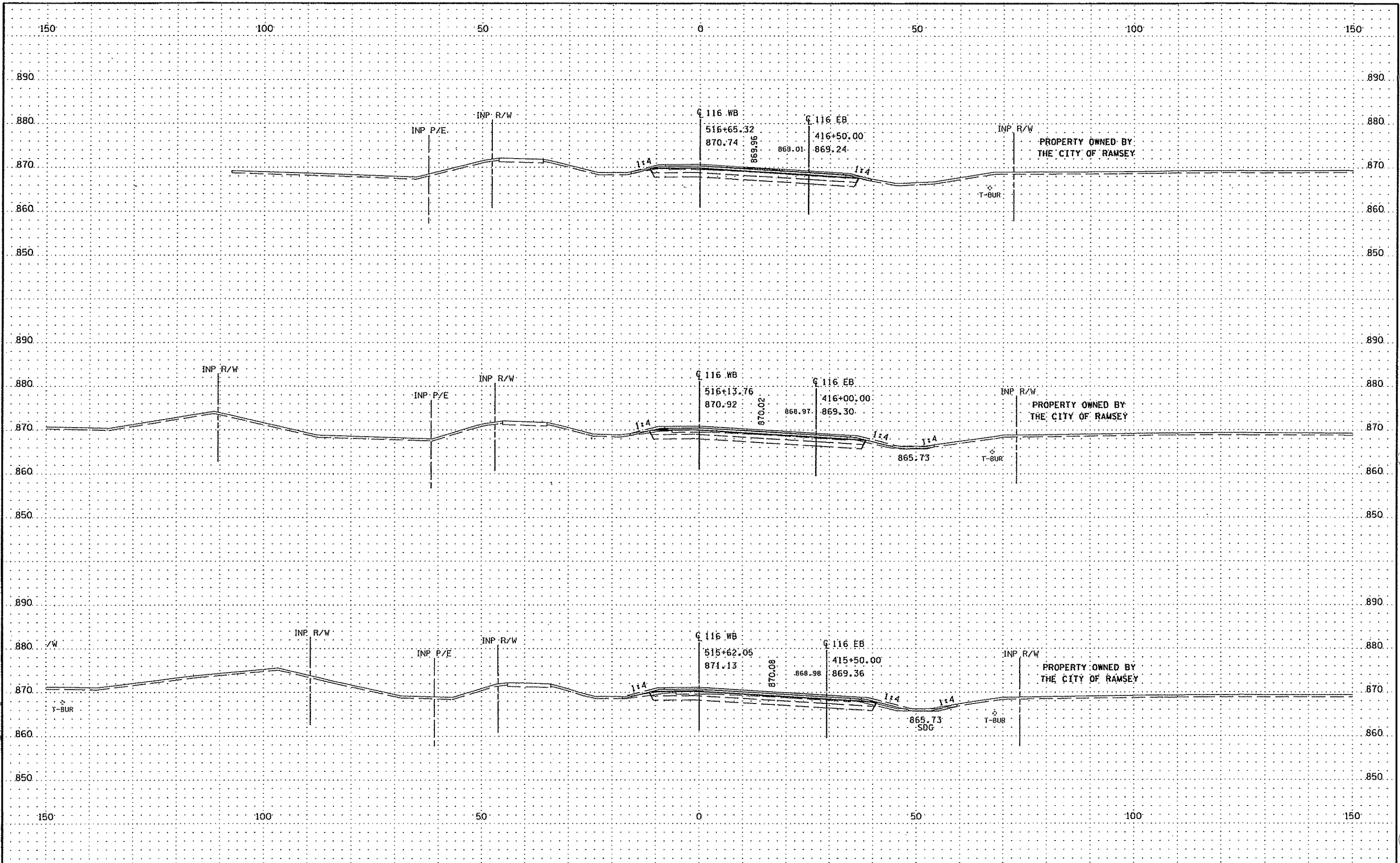
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / CSAH 116  
 CROSS SECTIONS  
 STA. 514+05.56 TO STA. 515+10.14  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 223 OF 249 SHEETS



DATE: 5/4/2011 11:22:56 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

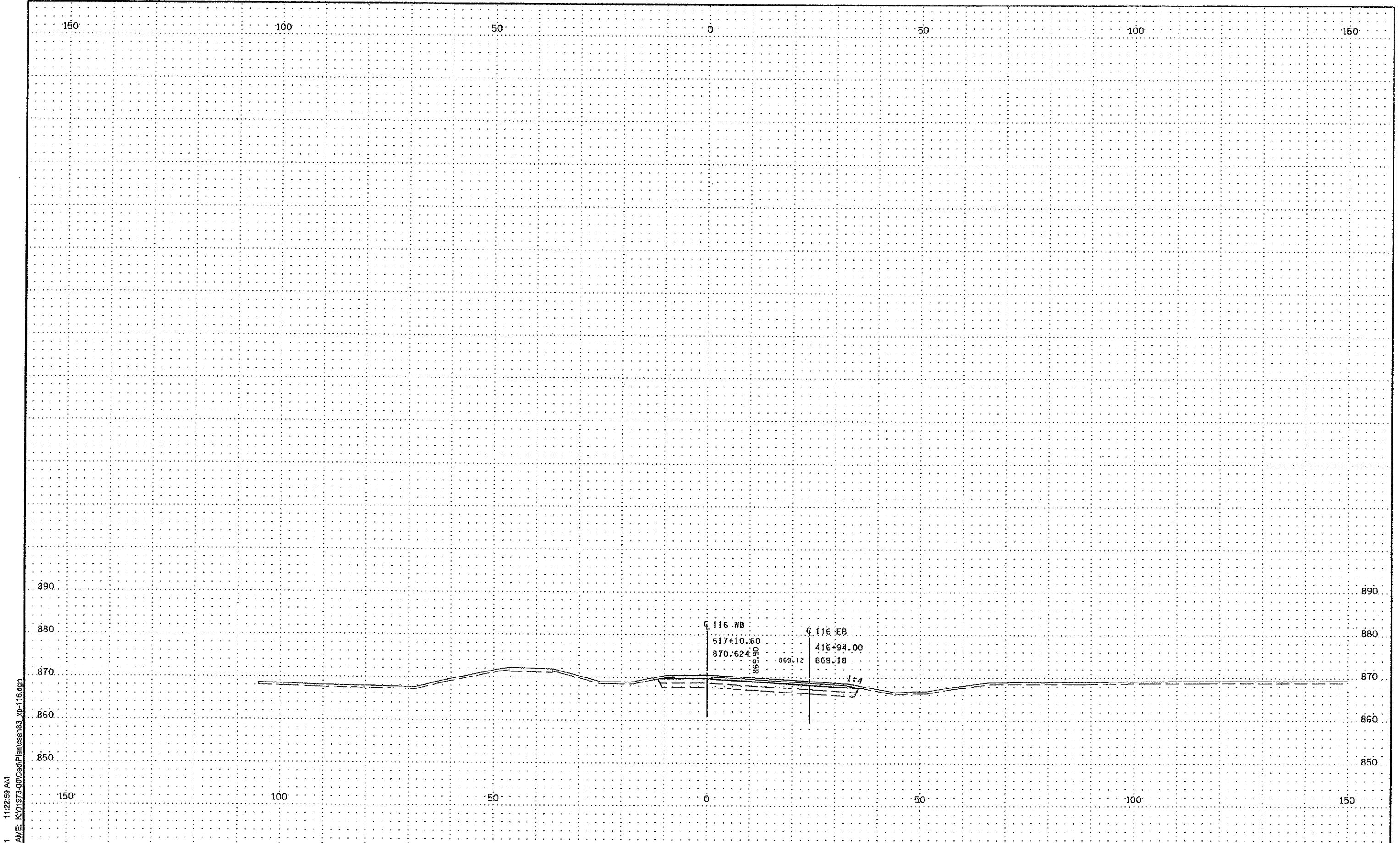
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



BUNKER LAKE BLVD / CSAH 116  
 CROSS SECTIONS  
 STA. 515+62.05 TO STA. 516+65.32  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 224  
 OF  
 249  
 SHEETS



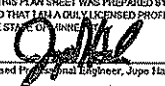


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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

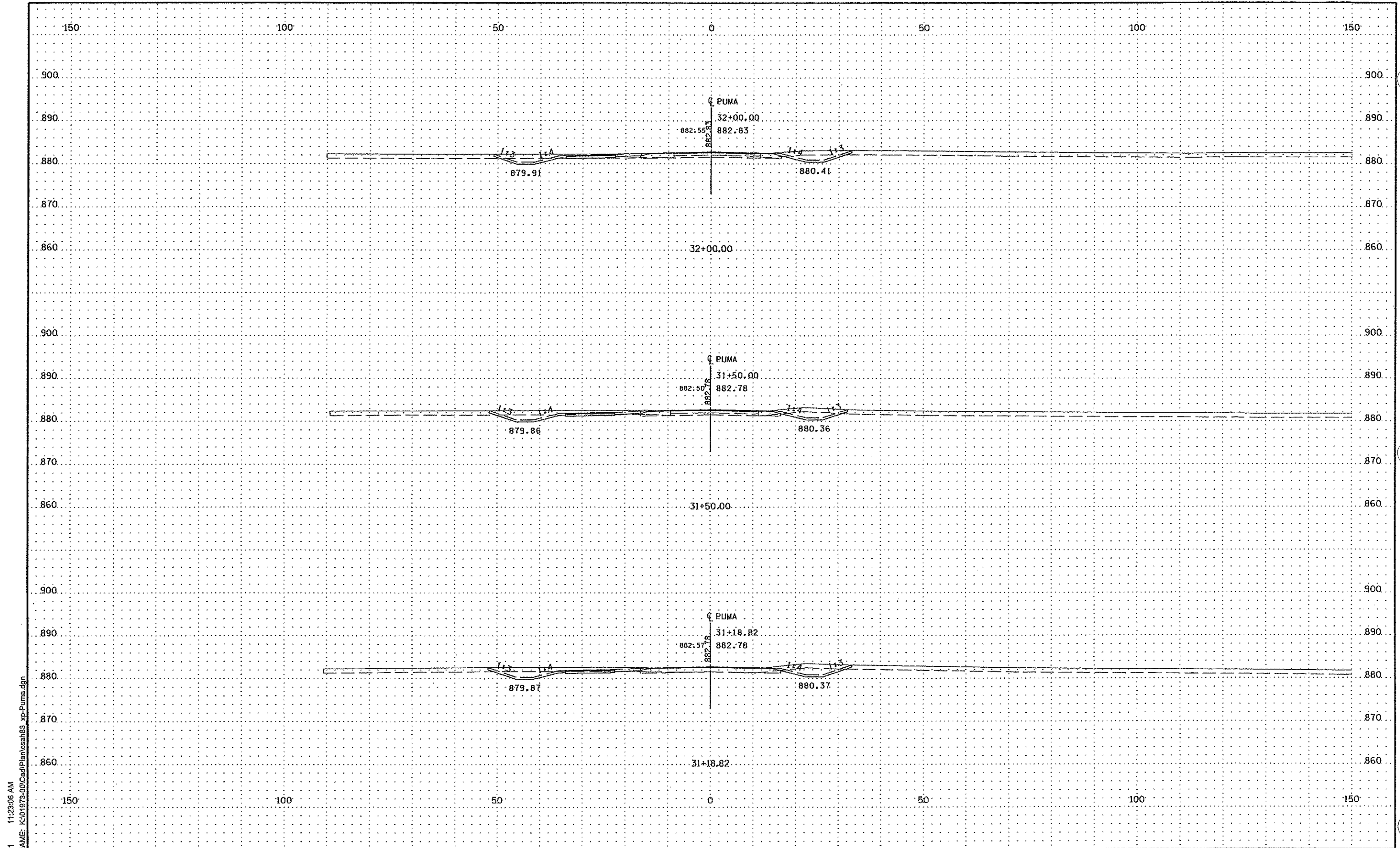
  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

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SHEET  
 225  
 OF  
 249  
 SHEETS



DATE: 5/4/2011 11:23:06 AM  
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| NO | DATE | BY | CHK | REVISIONS |
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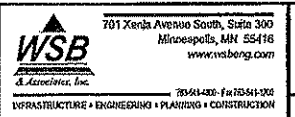
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, June Hale P.E.

DATE: 04/28/11 LIC NO: 42064

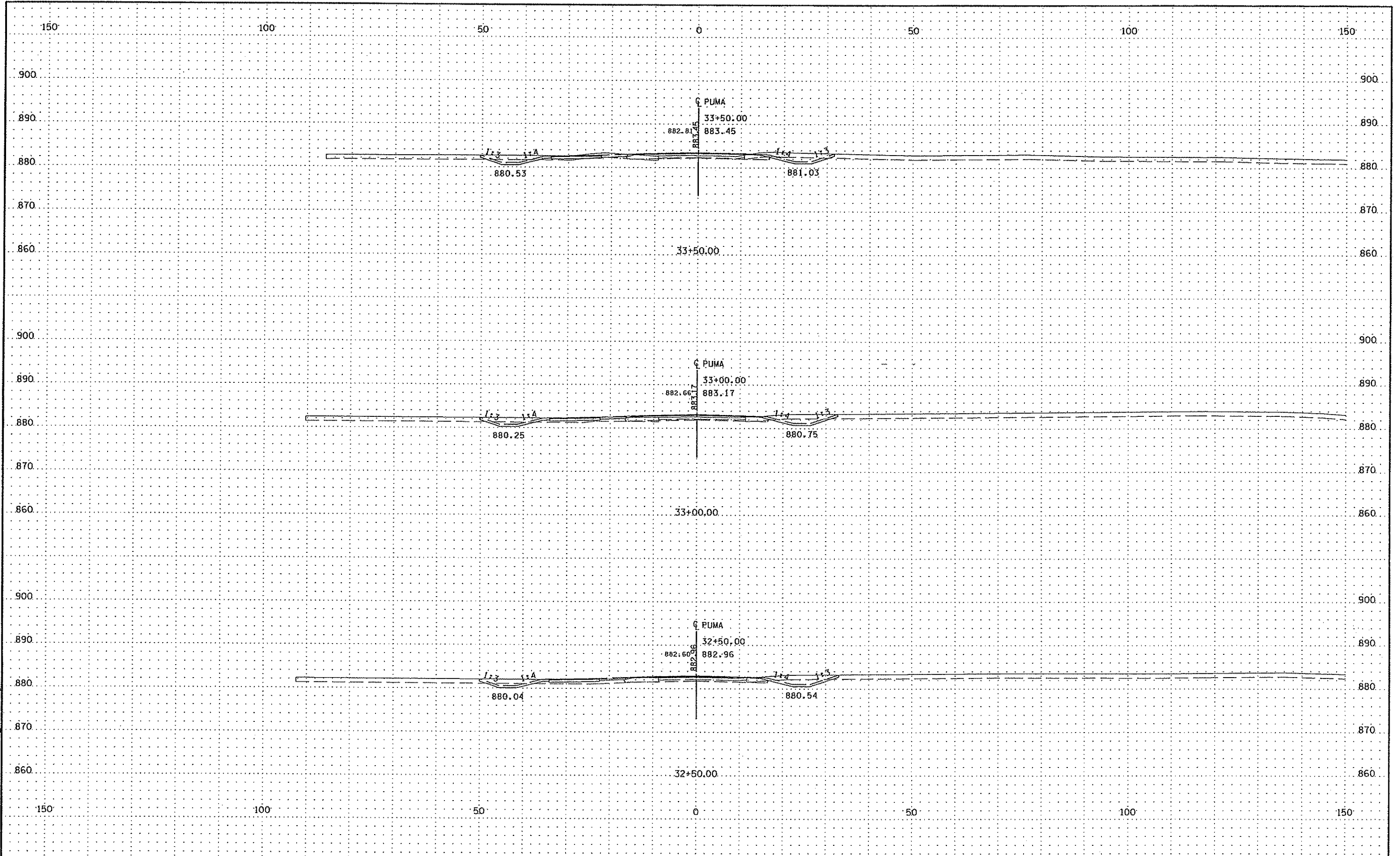
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 31+18.82 TO STA. 32+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 226  
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 249  
 SHEETS



DATE: 5/4/2011 11:23:07 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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

*J. Hale*  
 Licensed Professional Engineer, Jupo Hale P.E.

DATE: 04/28/11 LIC NO: 42064

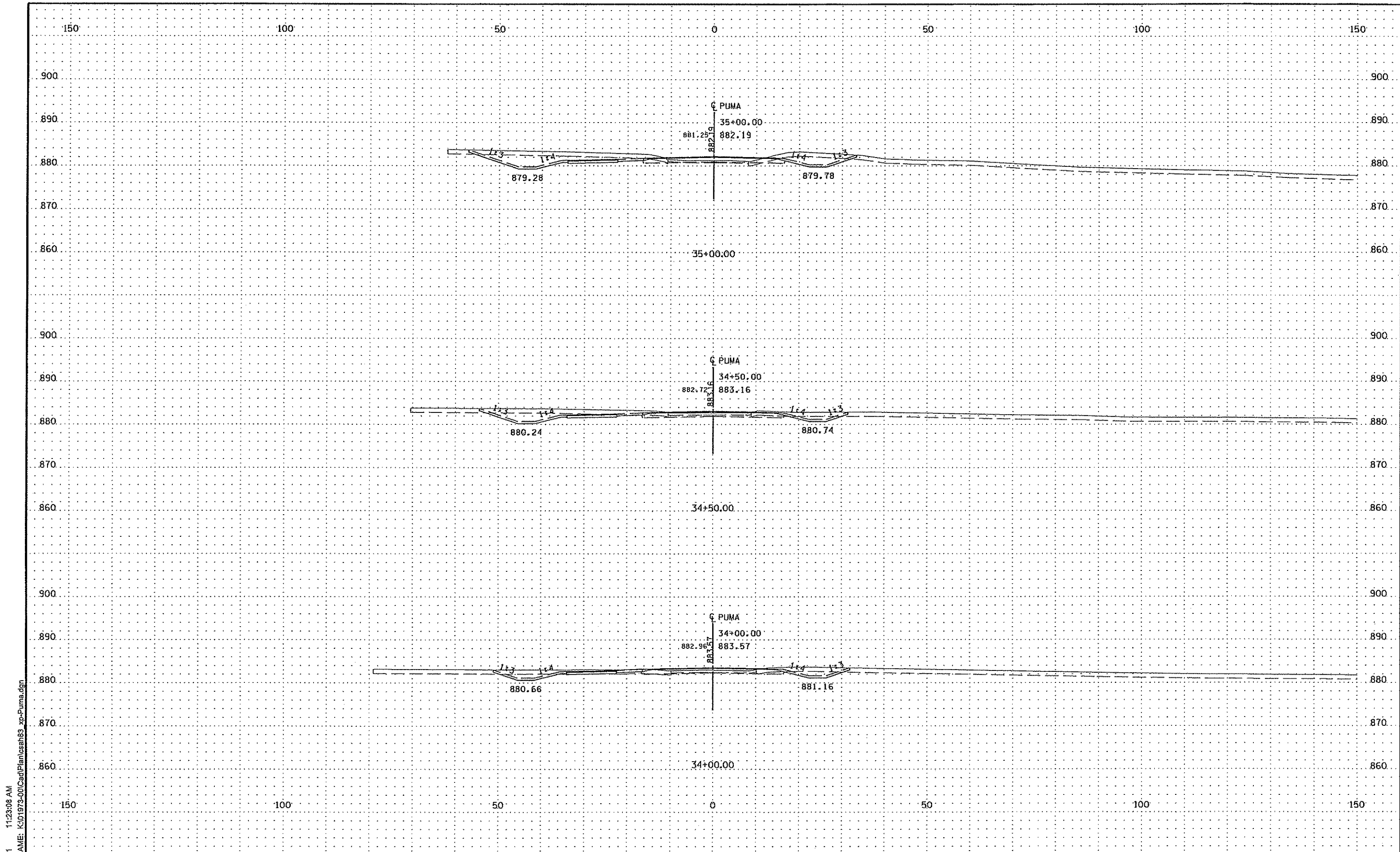
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 32+50.00 TO STA. 33+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 227  
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 249  
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DATE: 5/4/2011 11:23:08 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

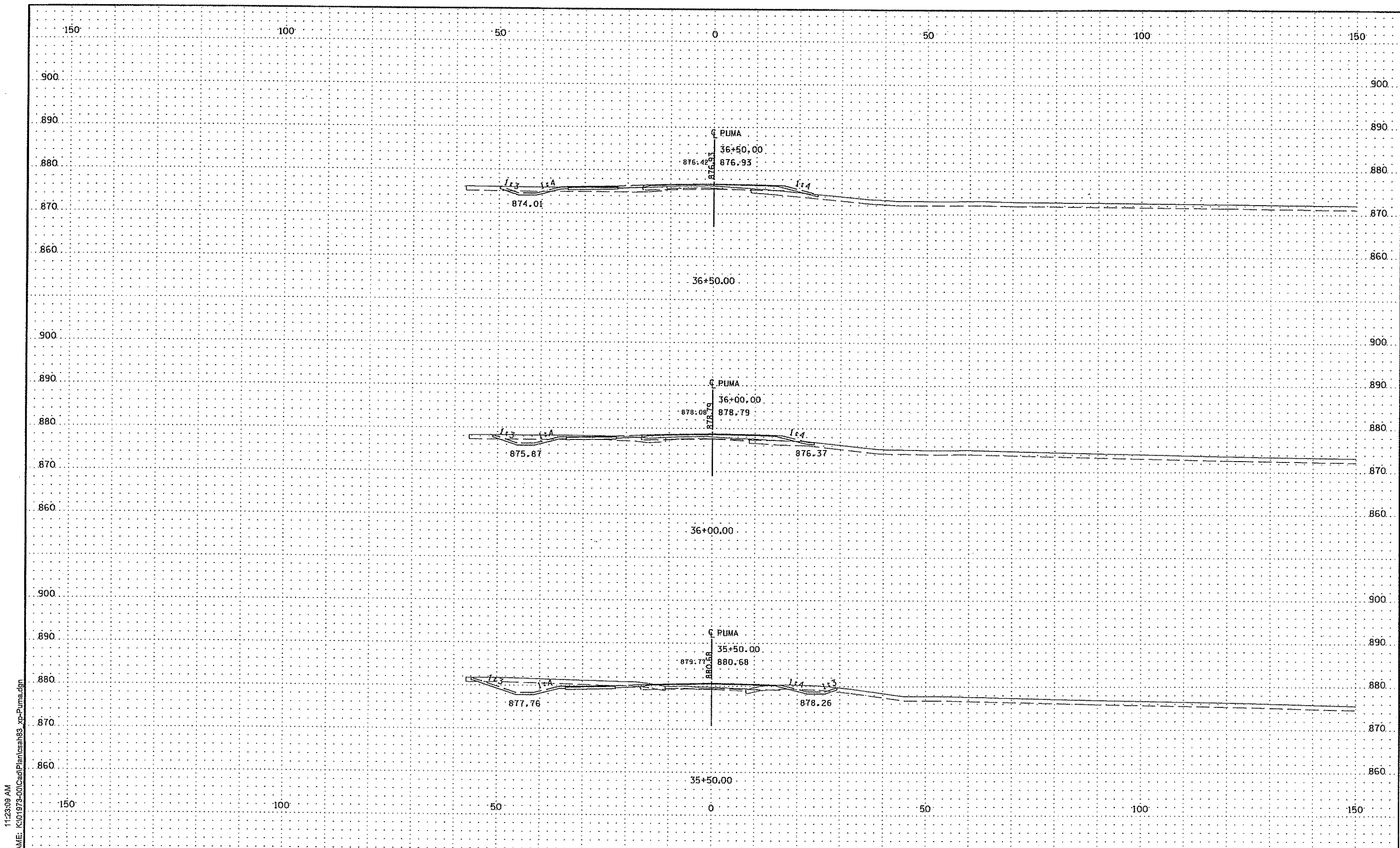
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42084

CITY OF RAMSEY  
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PUMA STREET  
 CROSS SECTIONS  
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 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:23:09 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

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

*J. Hale*  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

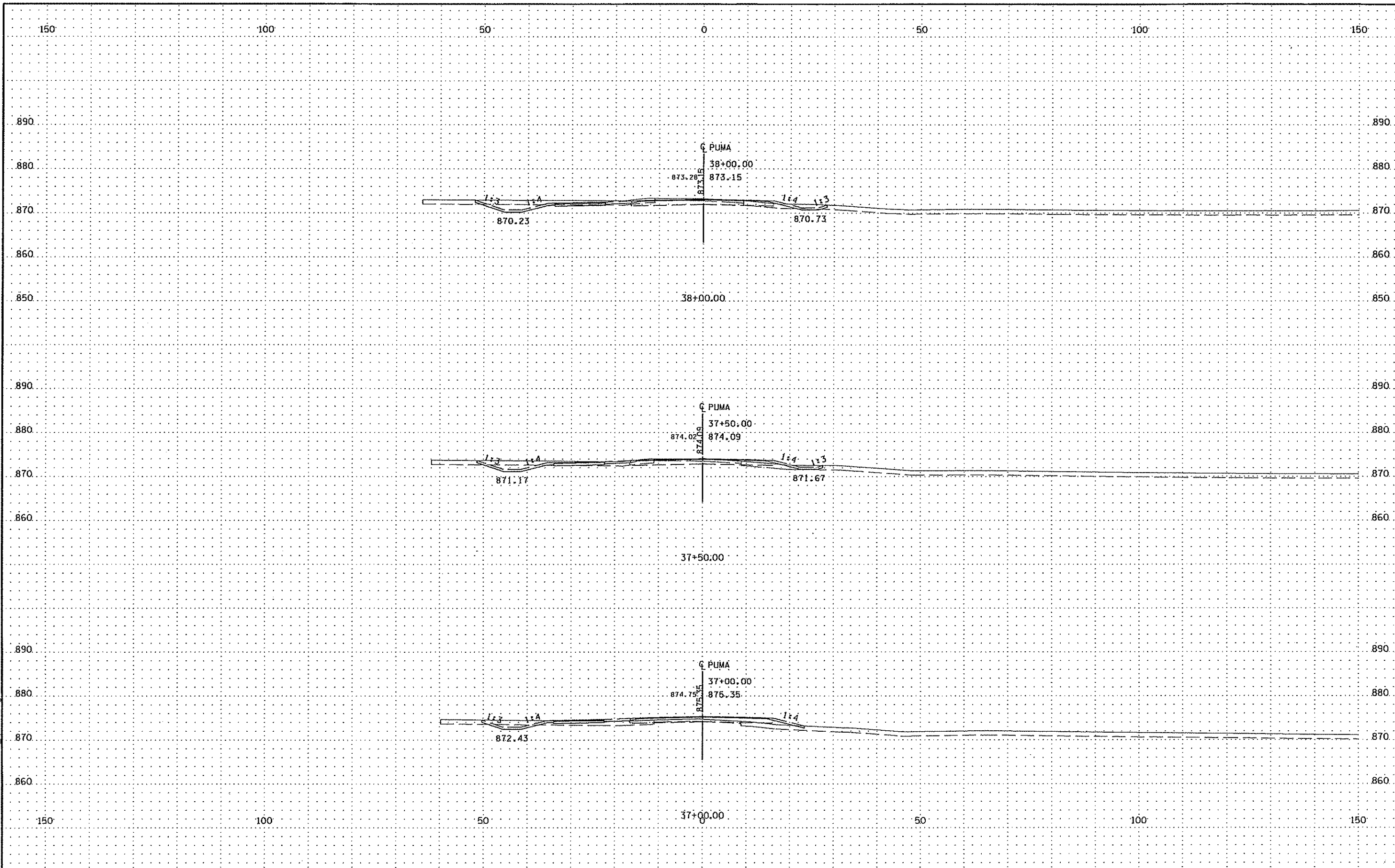
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 35+50.00 TO STA. 36+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 229  
 OF  
 249  
 SHEETS

DATE: 5/4/2011 11:23:10 AM  
 PATH & FILENAME: K:\01973-00\Cad\Plan\csah83\_xp-Puma.dgn



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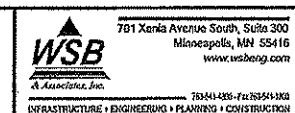
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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 NEW HAMPSHIRE.

*[Signature]*  
 Licensed Professional Engineer, June 1960 P.E.

DATE: 04/28/11 LIC NO: 42064

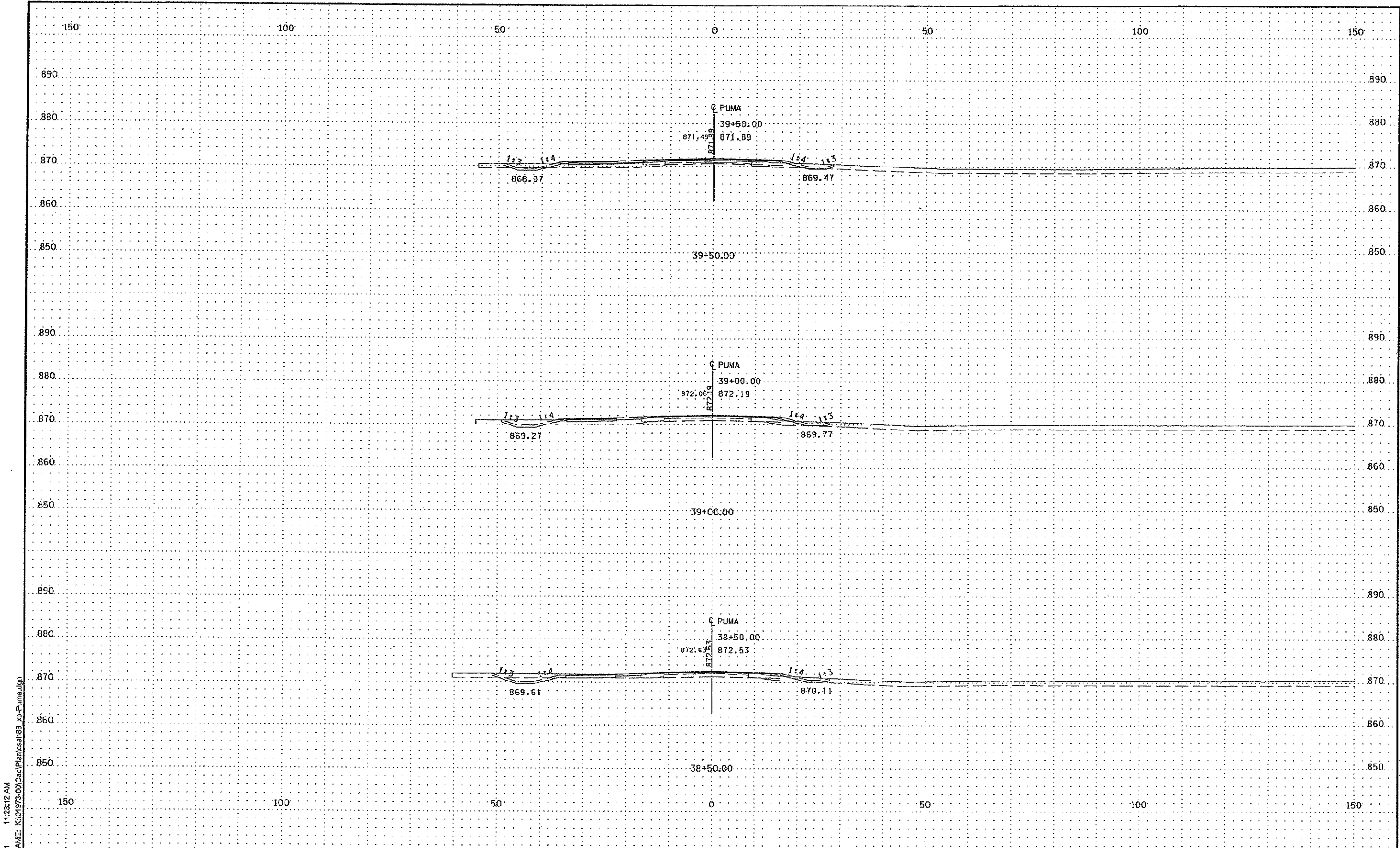
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 37+00.00 TO STA. 38+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21


SHEET  
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DATE: 5/4/2011 11:23:12 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

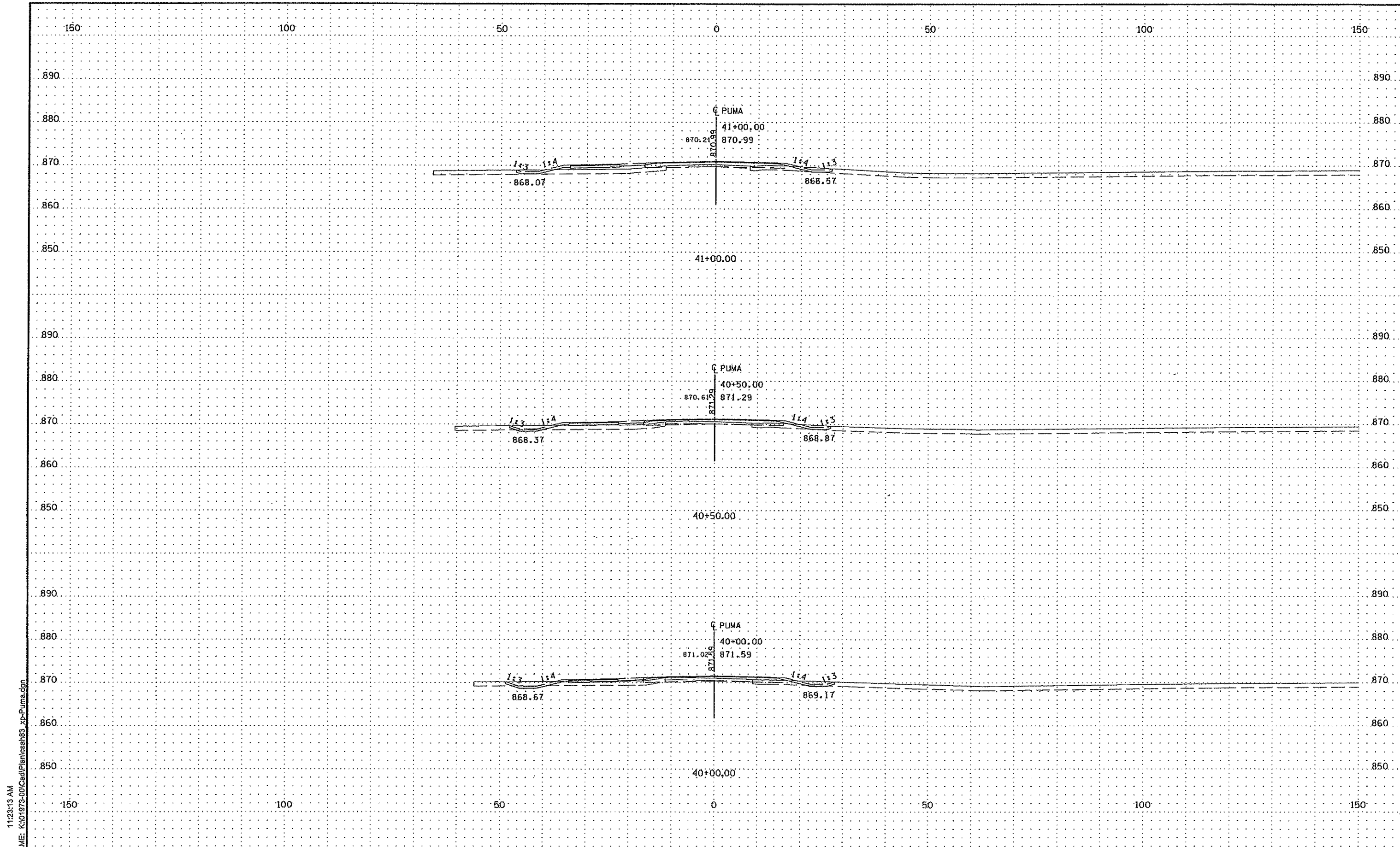
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
 Licensed Professional Engineer, Jupo Hales P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbinc.com  
 612-334-4200 • Fax: 612-334-1300  
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PUMA STREET  
 CROSS SECTIONS  
 STA. 38+50.00 TO STA. 39+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 231  
 OF  
 249  
 SHEETS

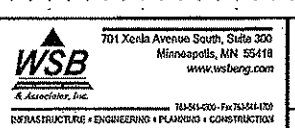


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, State No. P.E.  
 DATE: 04/28/11 LIC NO: 42084

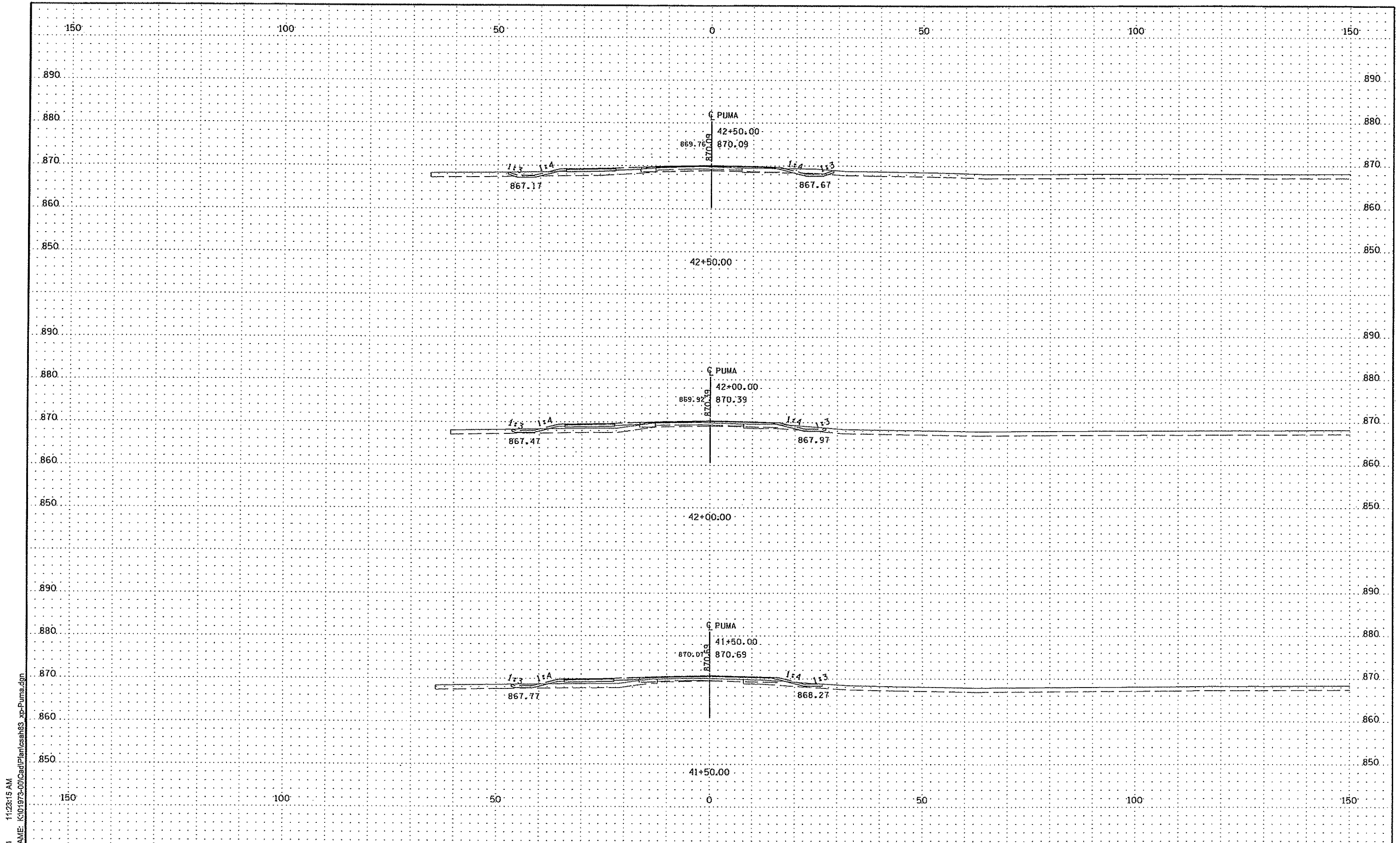
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**PUMA STREET**  
**CROSS SECTIONS**  
 STA. 40+00.00 TO STA. 41+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 6/4/2011 11:23:15 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 J. HALE  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

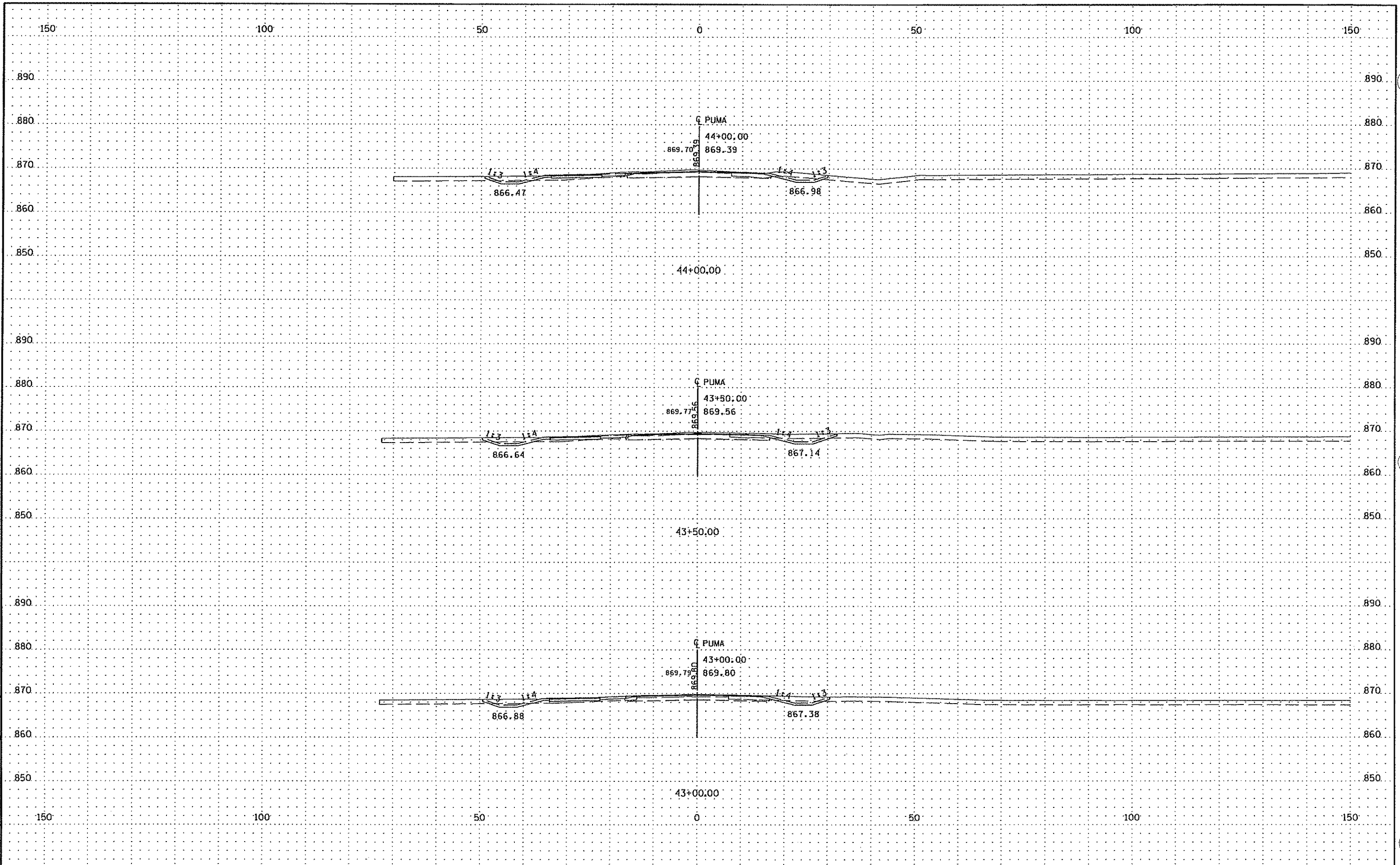
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**PUMA STREET**  
**CROSS SECTIONS**  
 STA. 41+50.00 TO STA. 42+50.00

S.A.P. 189-020-005, S.A.P. 189-121-001; C.P. 11-21

SHEET  
 233  
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 249  
 SHEETS



DATE: 5/4/2011 11:23:16 AM  
 PATH & FILENAME: K:\01973-00\Cad\Plant\csah83\_xp-Puma.dgn

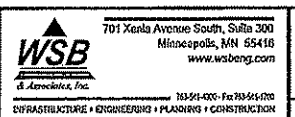
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42064

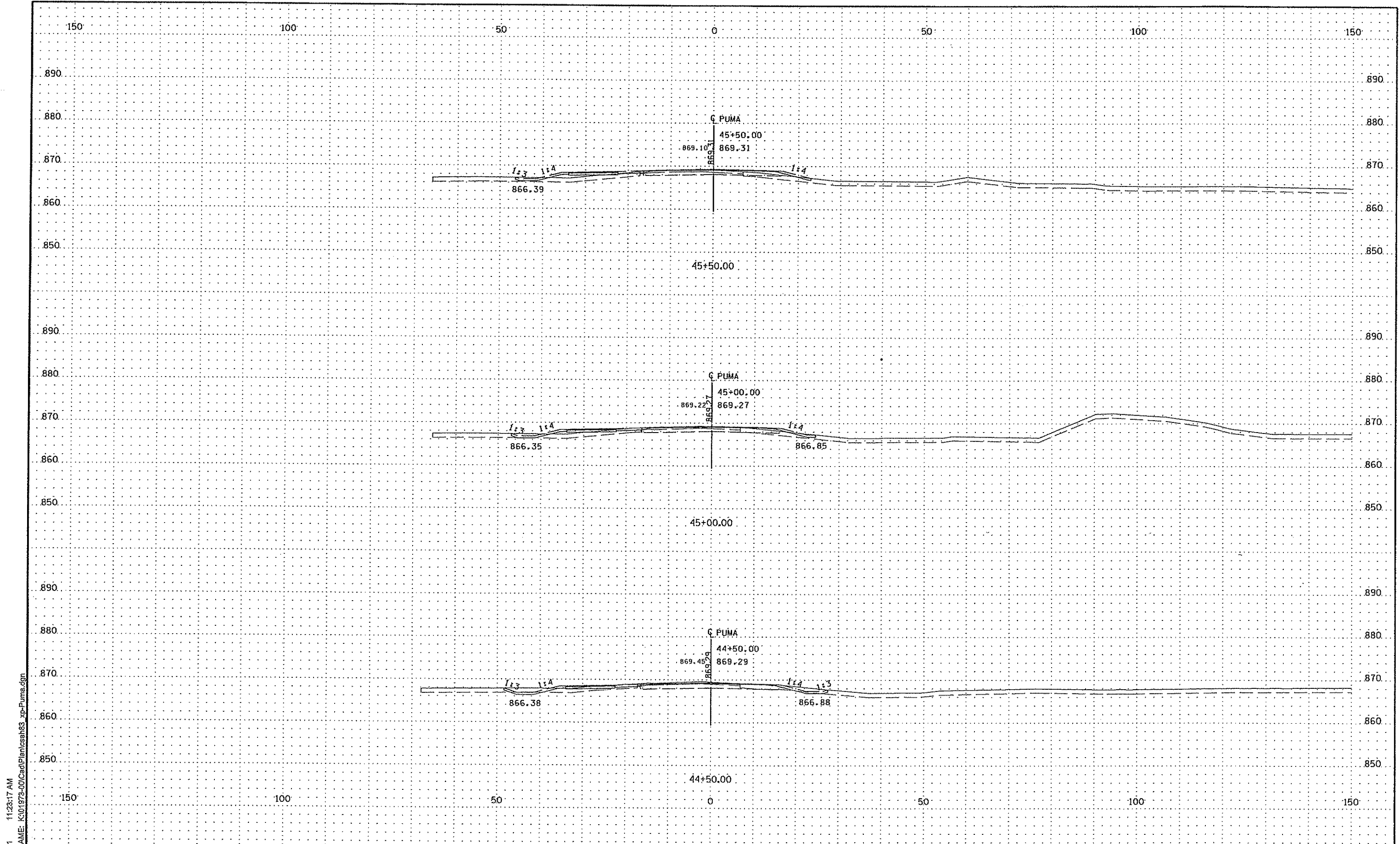
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**PUMA STREET**  
**CROSS SECTIONS**  
 STA. 43+00.00 TO STA. 44+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:23:17 AM  
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*J. Hale*  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

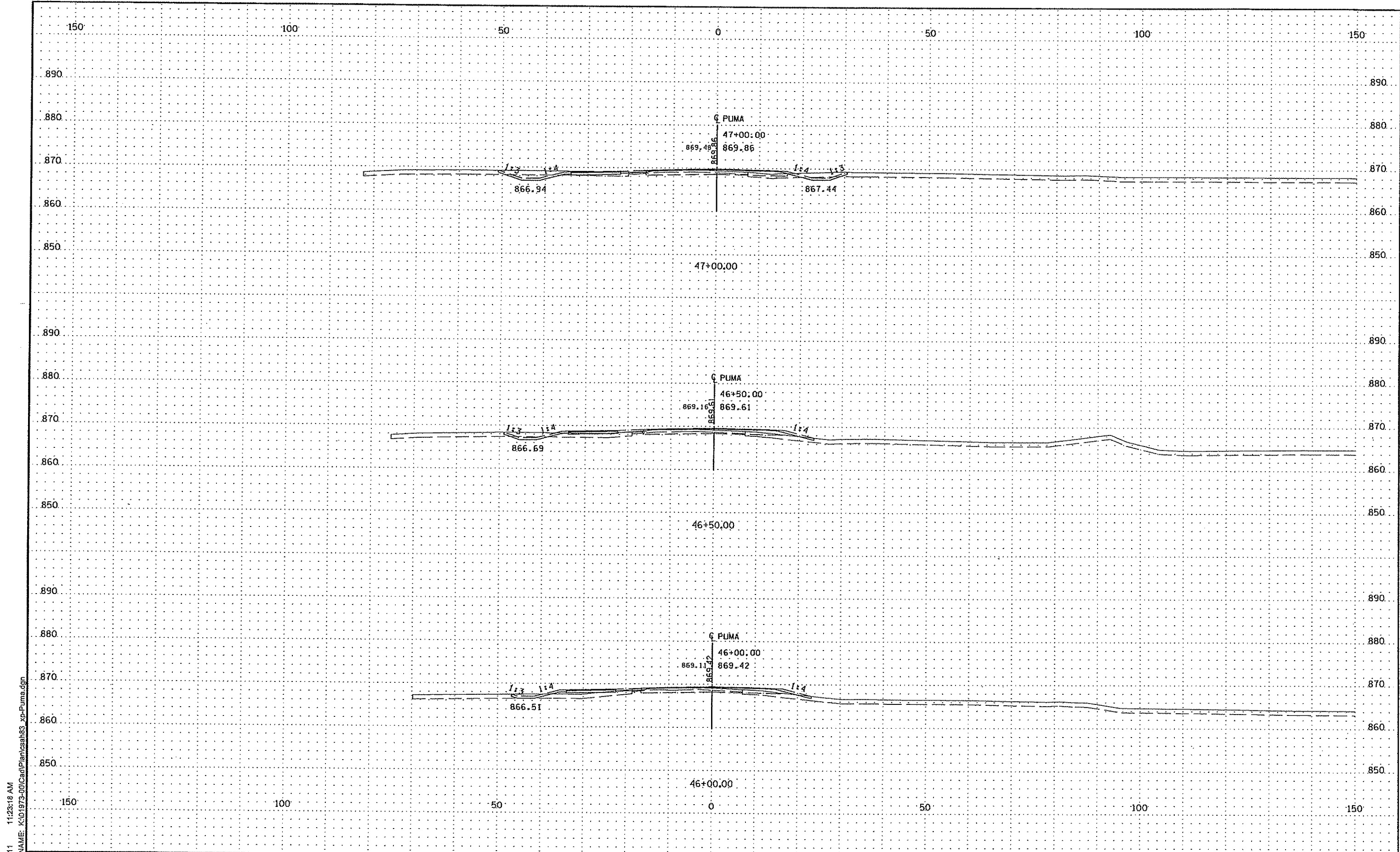
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**PUMA STREET CROSS SECTIONS**  
 STA. 44+50.00 TO STA. 45+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 235 OF 249 SHEETS

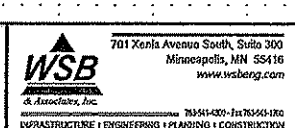


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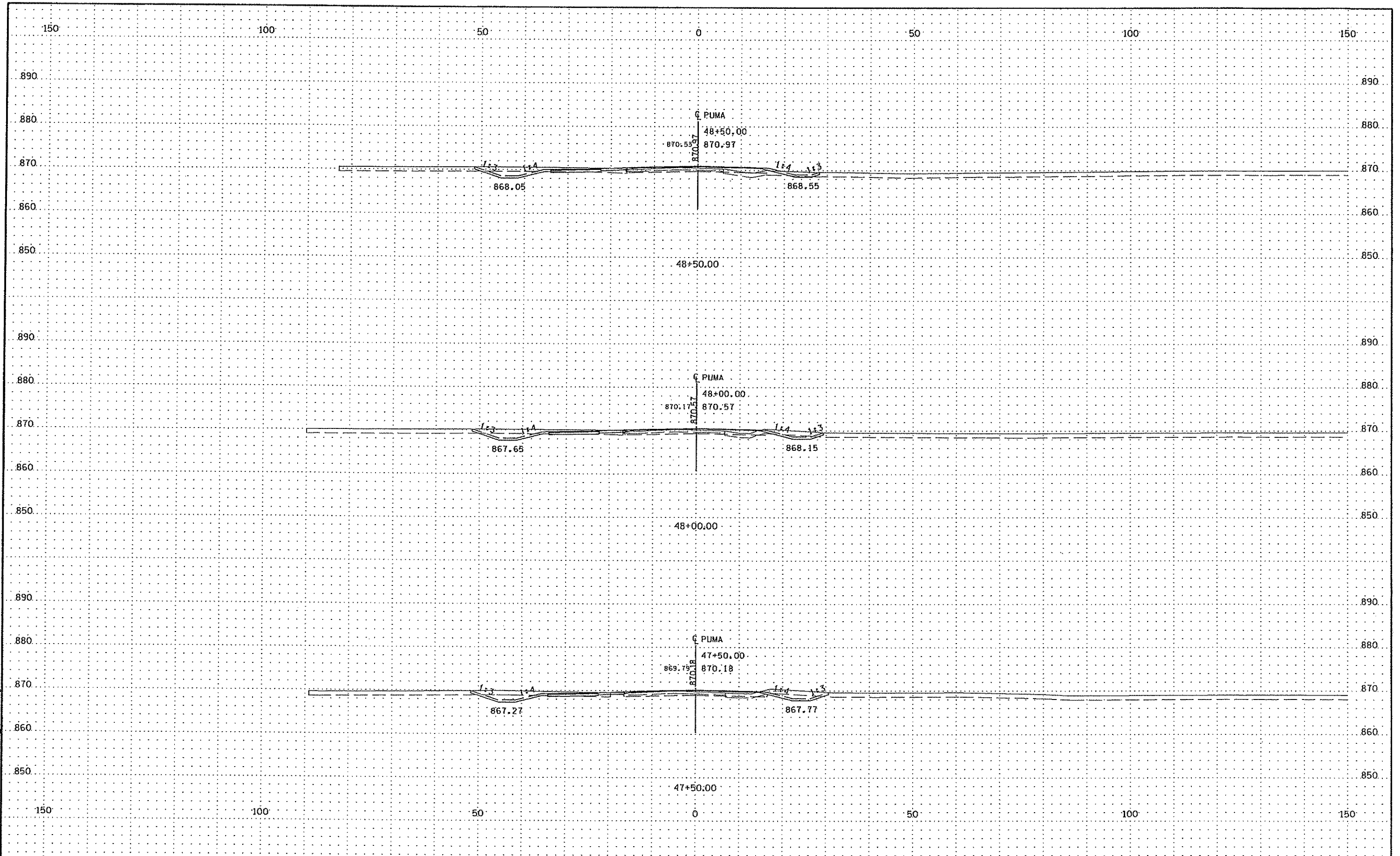
Drawn By: C KOCHMAN  
 Designed By: M HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Japo Hain P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 46+00.00 TO STA. 47+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 236  
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 249  
 SHEETS

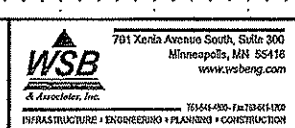


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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 License No. 42064  
 DATE: 04/28/11

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

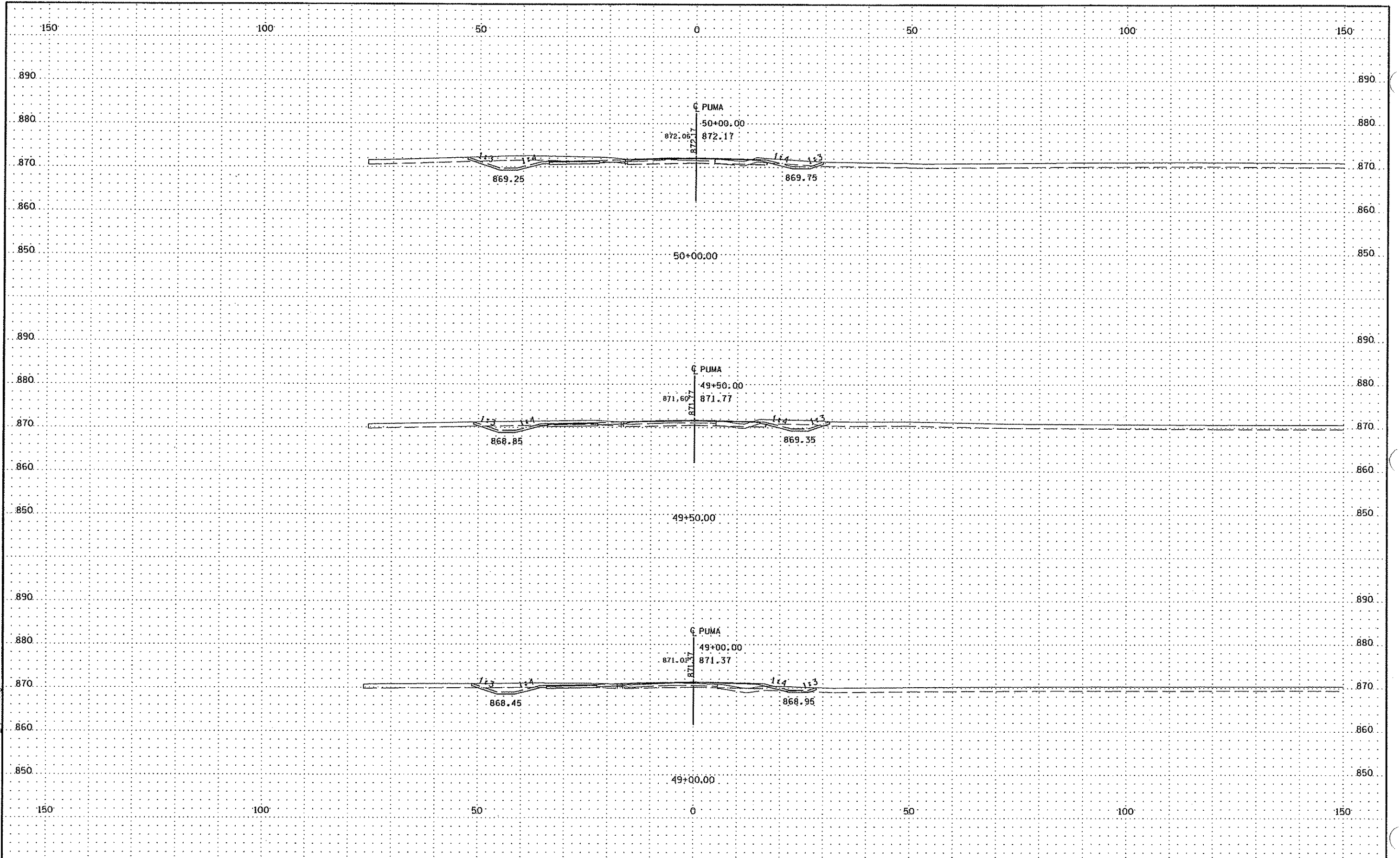


PUMA STREET  
 CROSS SECTIONS  
 STA. 47+50.00 TO STA. 48+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
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DATE: 5/4/2011 11:23:21 AM

PATH & FILENAME: K:\01979-00\Cad\Plant\csah83 xp-Puma.dgn



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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

DATE: 04/28/11 LIC NO: 42084

EVERY CERTIFY THAT THIS PLAN SHEET 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

*[Signature]*  
 Licensed Professional Engineer, June 11th P.E.

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

**WSB**  
 A. Associates, Inc.

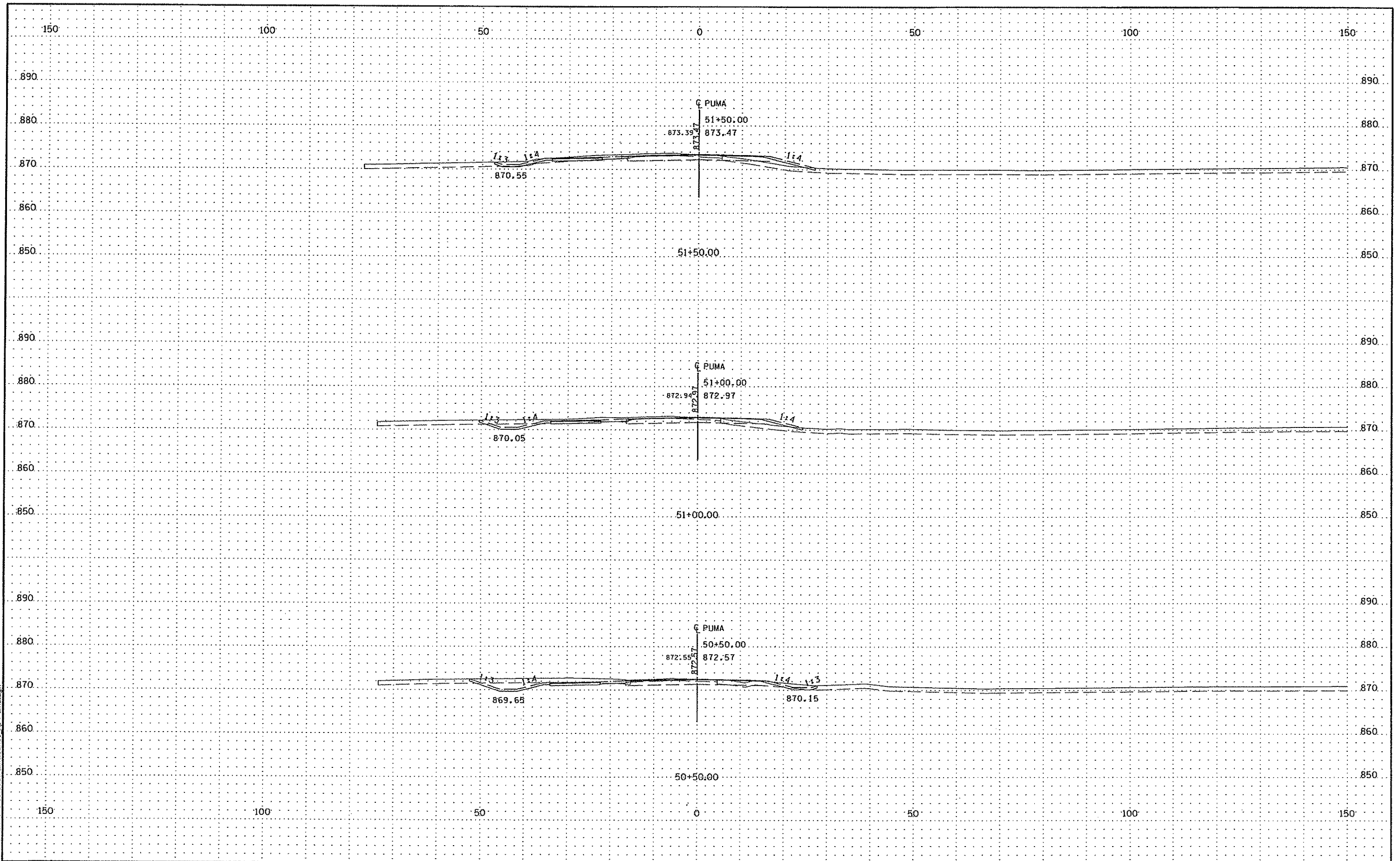
701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsb.org.com

763-241-4000 Fax: 763-241-1320  
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PUMA STREET  
 CROSS SECTIONS  
 STA. 49+00.00 TO STA. 50+00.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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 249  
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DATE: 5/4/2011 11:23:22 AM  
 PATH & FILENAME: K:\01973-00\Cad\Plants\sh83\_xp-Puma.dgn

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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE  
 I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

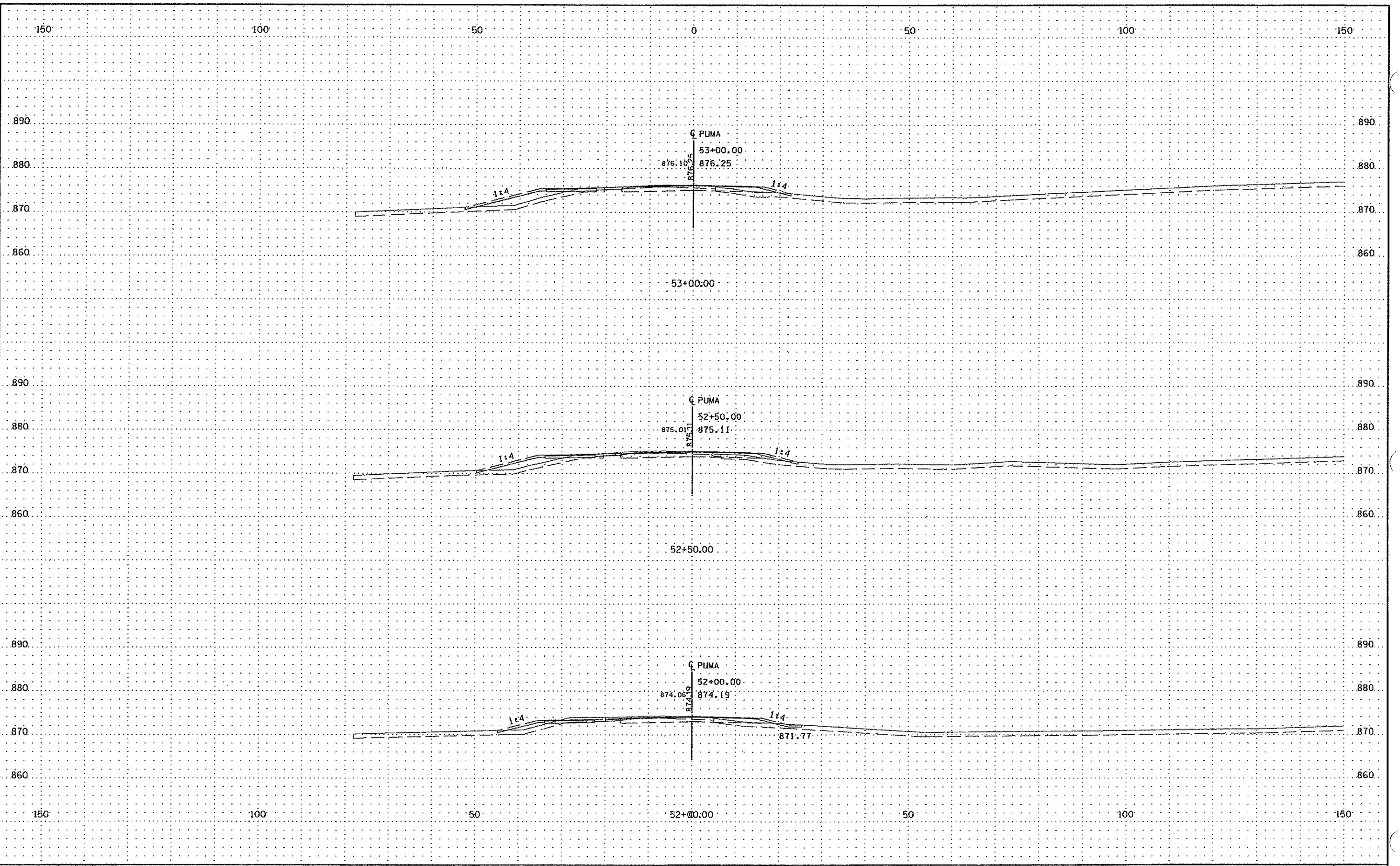
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 50+50.00 TO STA. 51+50.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21


SHEET 239 OF 249 SHEETS

DATE: 5/4/2011 11:23:23 AM  
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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
  
 Licensed Professional Engineer, State of Minn. P.E.  
 DATE: 04/28/11 LIC NO: 42054

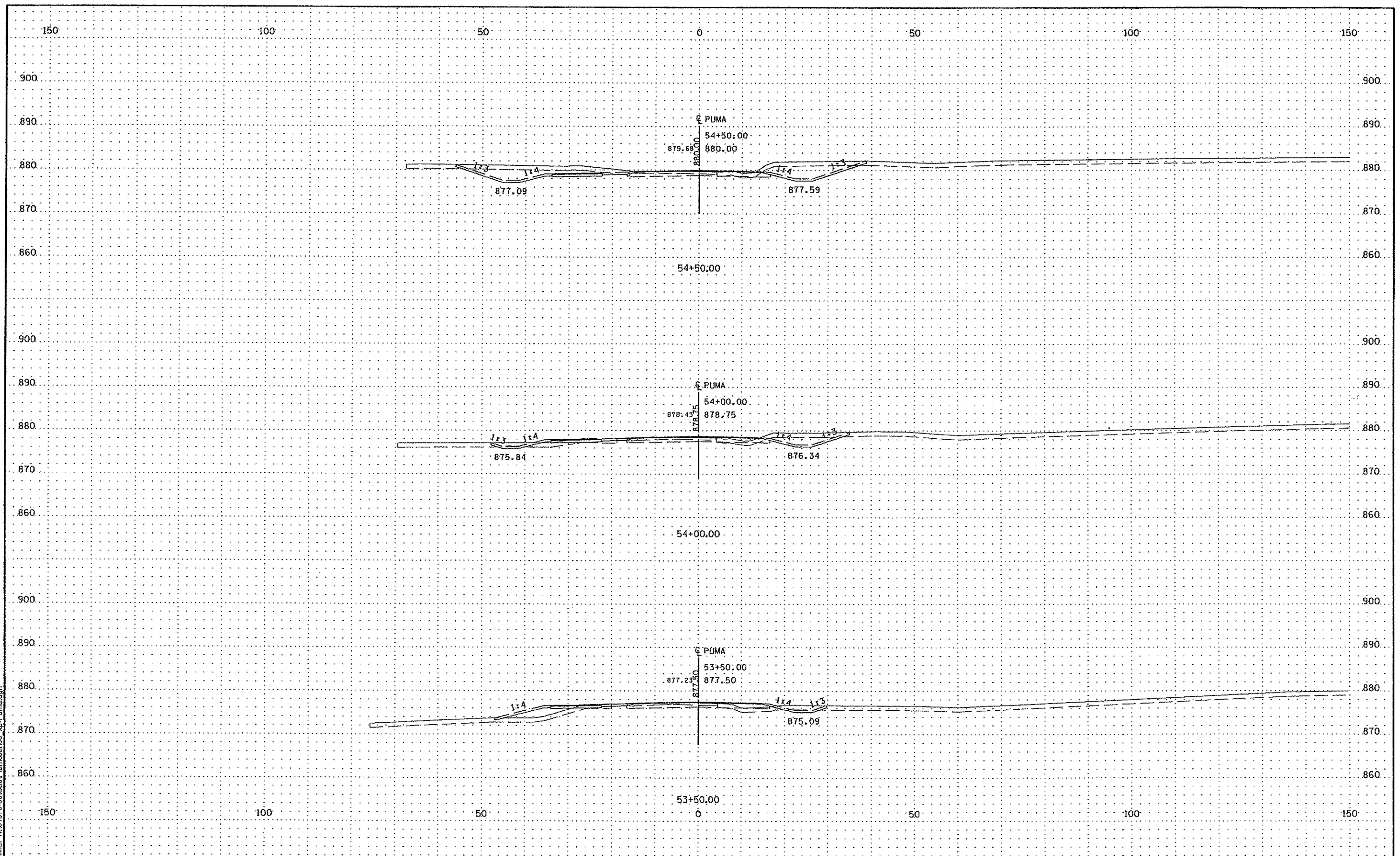
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**PUMA STREET**  
**CROSS SECTIONS**  
 STA. 52+00.00 TO STA. 53+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 240  
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 249  
 SHEETS





DATE: 5/4/2011 11:23:24 AM  
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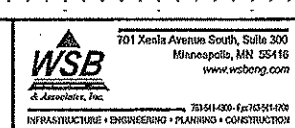
Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, June 15th P.E.

DATE: 04/28/11 LIC NO: 42064

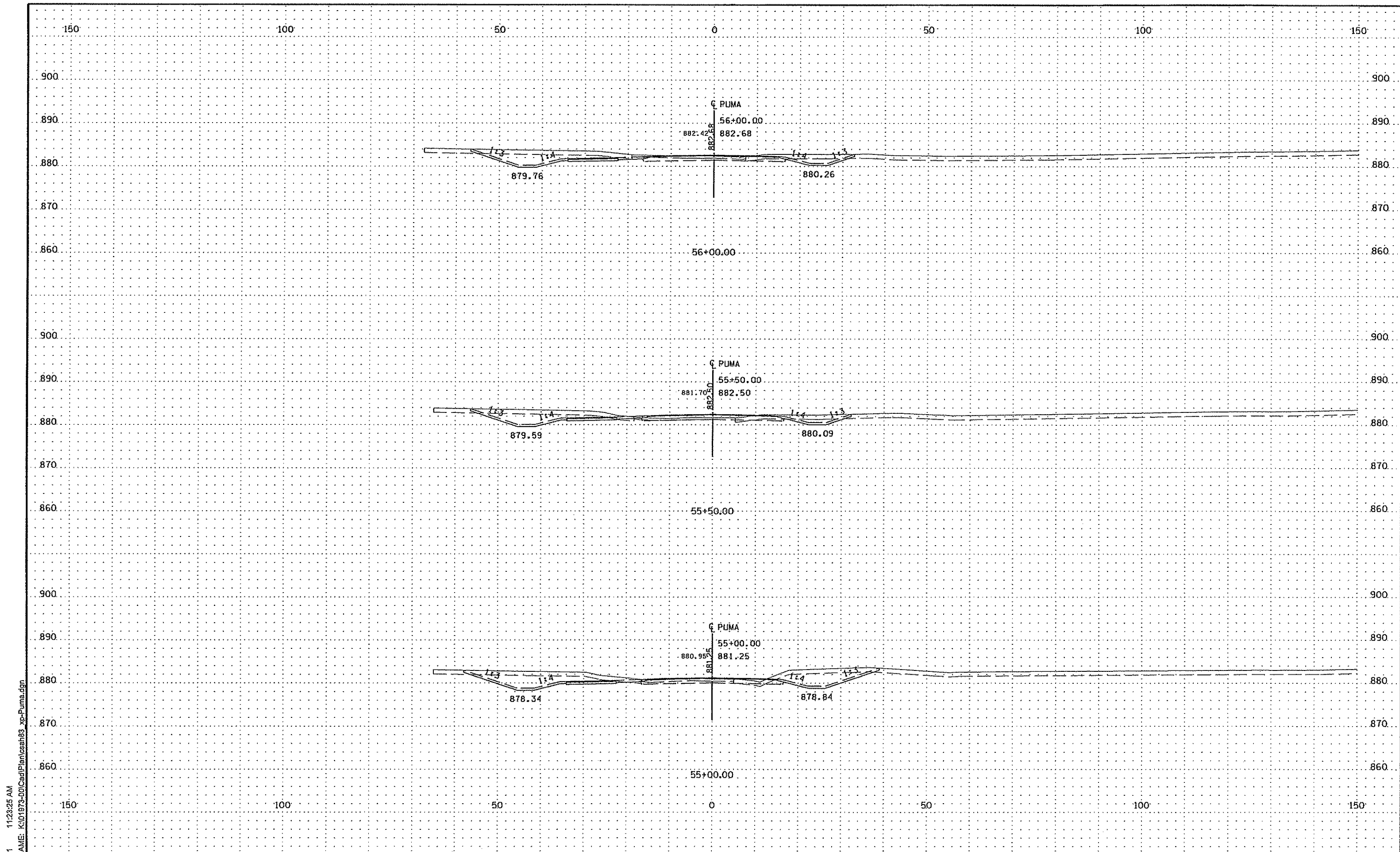
CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 53+50.00 TO STA. 54+50.00

S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 241  
 OF  
 249  
 SHEETS



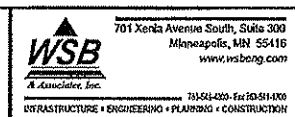
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

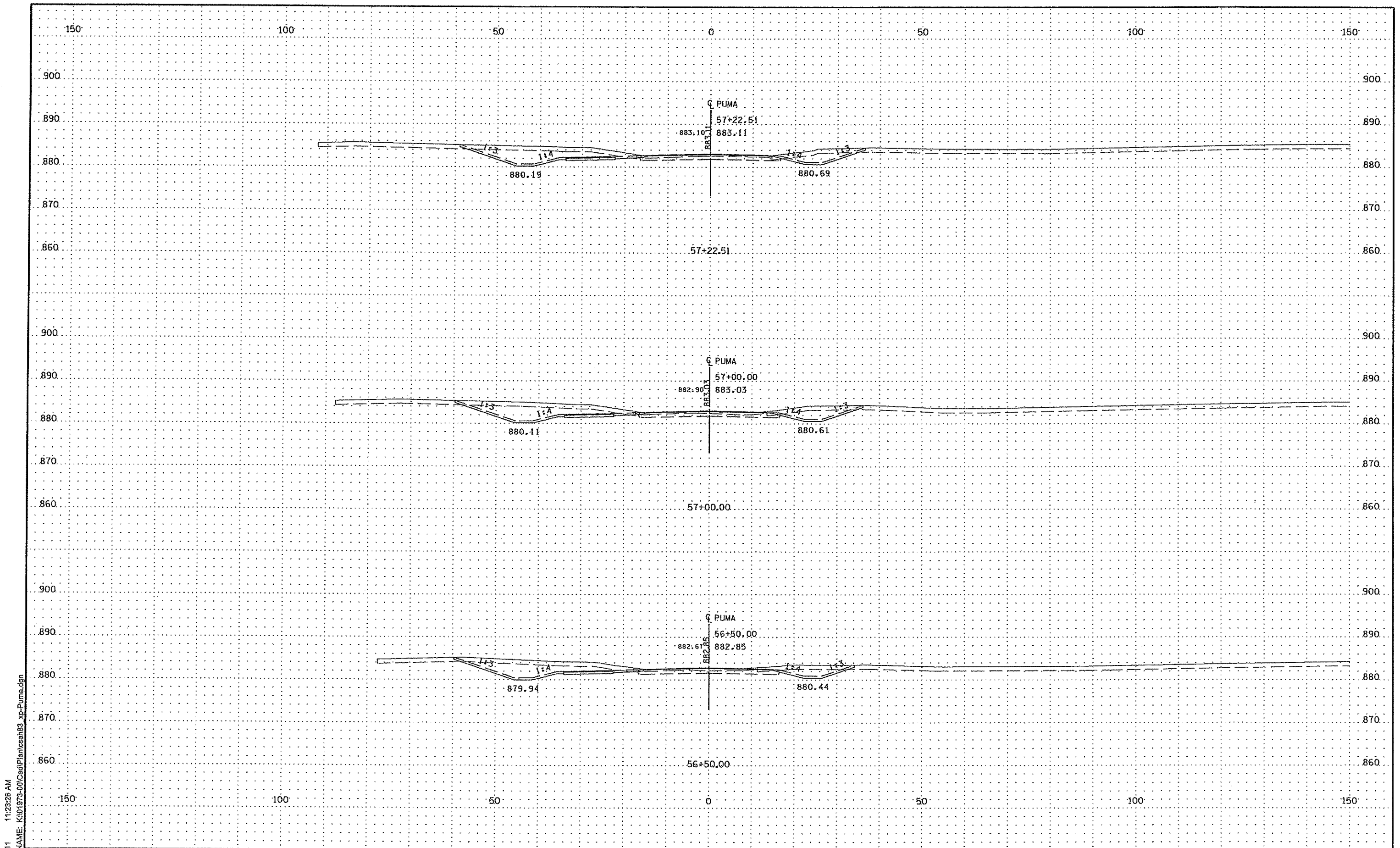
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Aipe Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 55+00.00 TO STA. 56+00.00  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 242  
 OF  
 249  
 SHEETS



DATE: 5/4/2011 11:23:26 AM  
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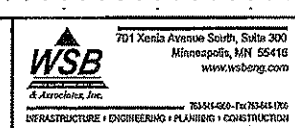
| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

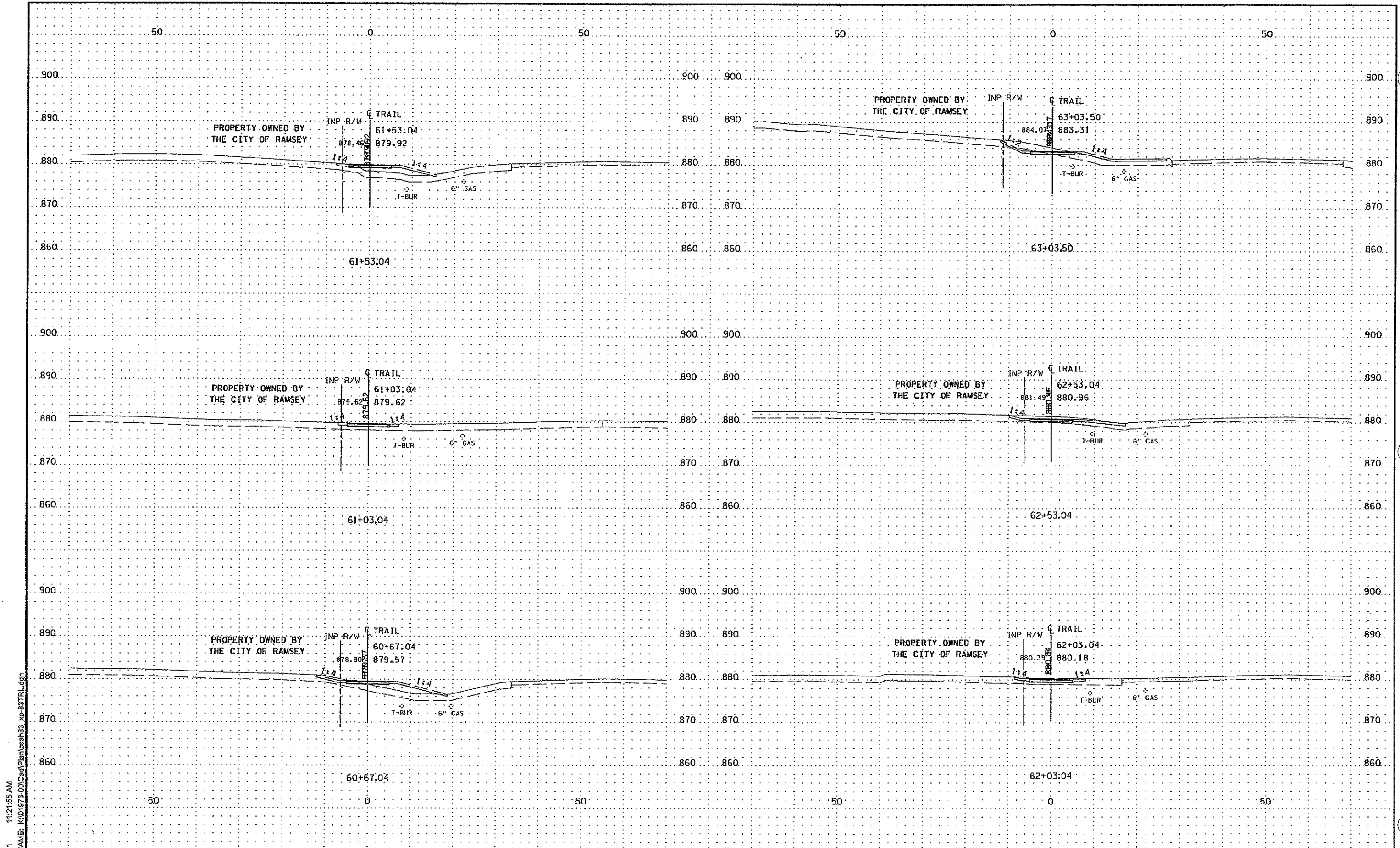
*J. Hale*  
 Licensed Professional Engineer, June Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



PUMA STREET  
 CROSS SECTIONS  
 STA. 56+50.00 TO STA. 57+22.51  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 243  
 OF  
 249  
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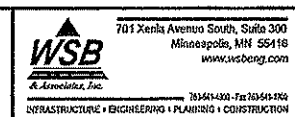
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

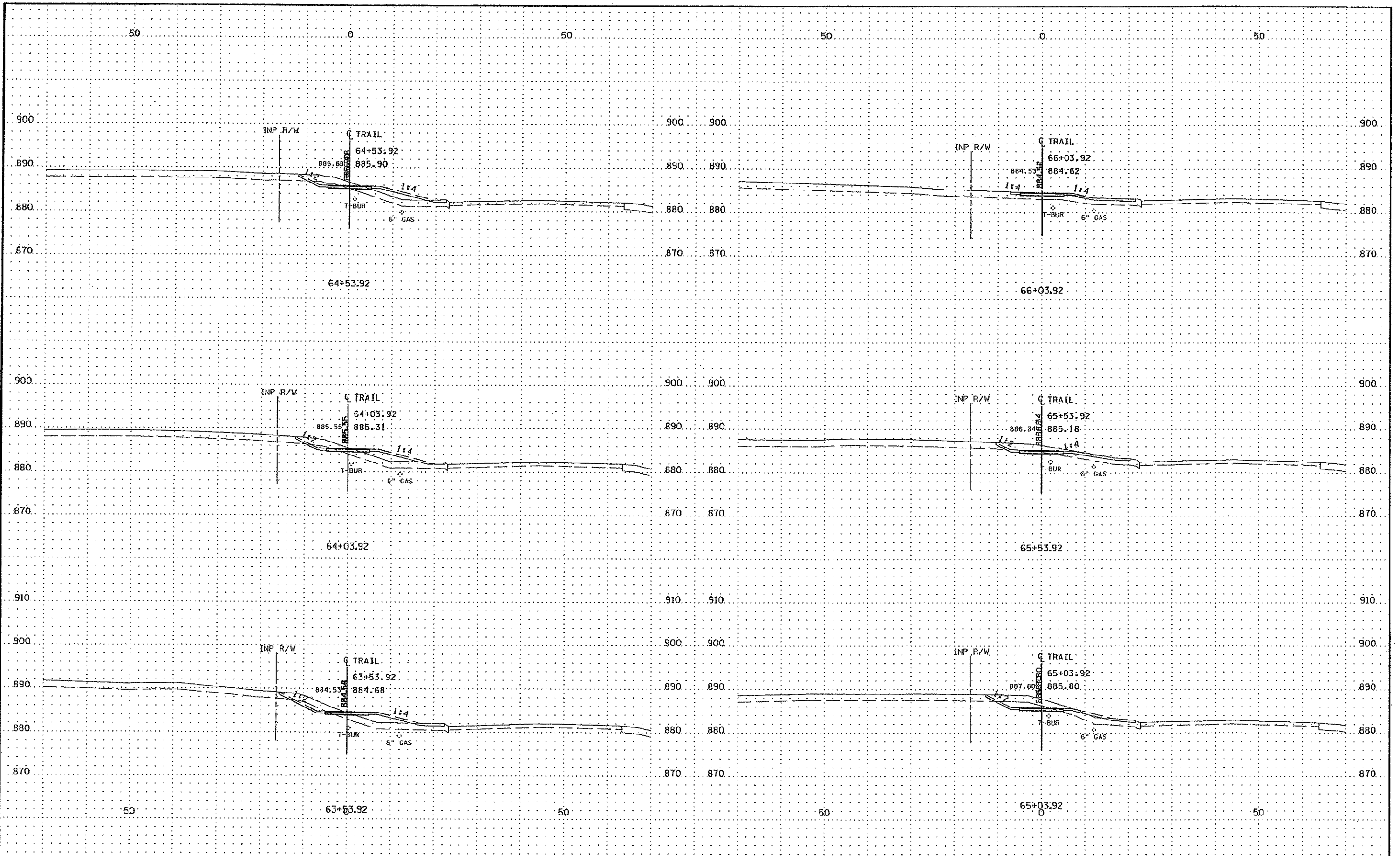
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Licensed Professional Engineer, Jope Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 TRAIL**  
**CROSS SECTIONS**  
 STA. 60+67.04 TO STA. 63+03.50  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

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 SHEETS



DATE: 5/4/2011 11:21:56 AM  
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jule Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION

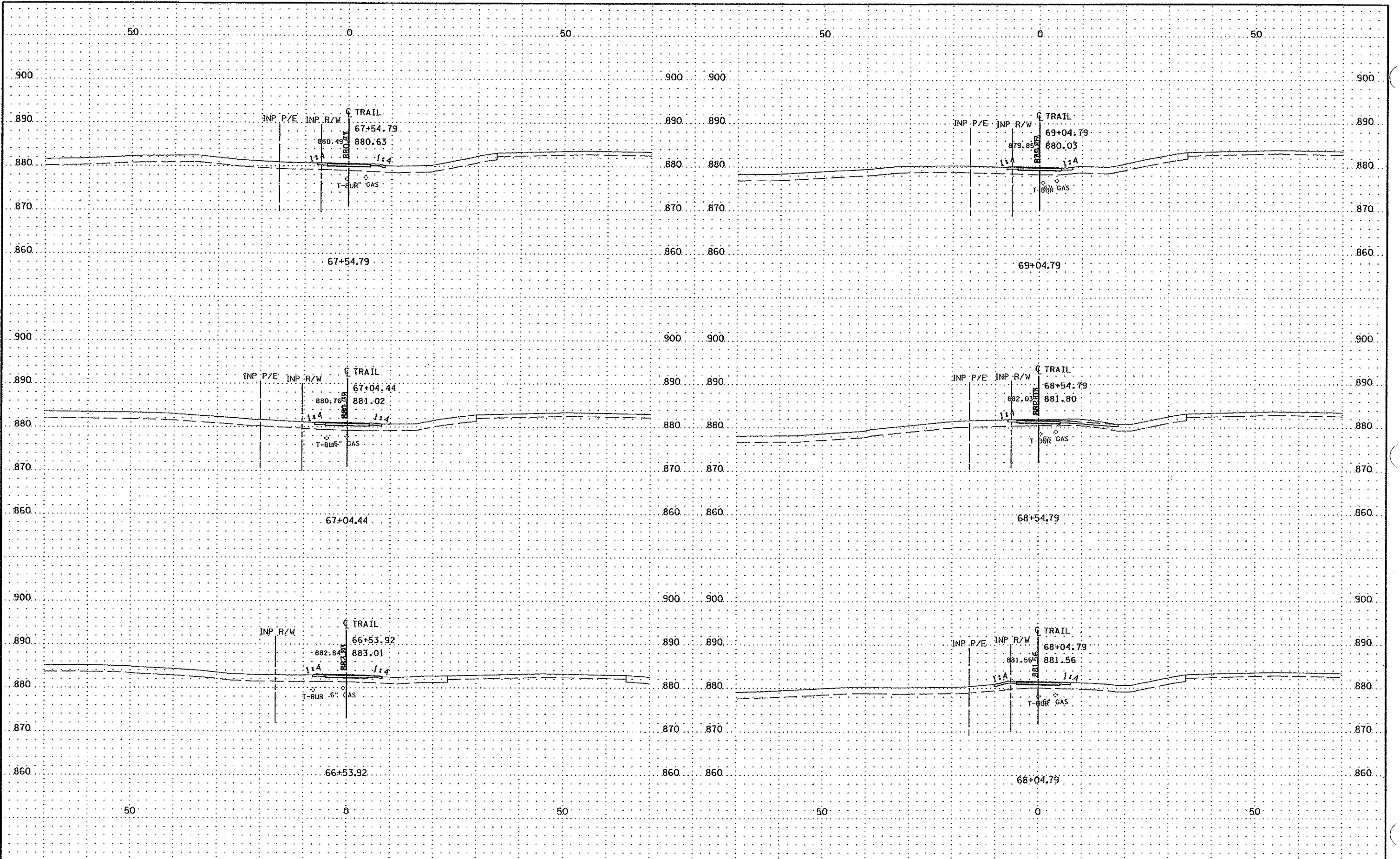


CSAH 83 TRAIL  
 CROSS SECTIONS  
 STA. 63+53.91 TO STA. 65+03.91  
 S.A.P. 199-02D-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 245  
 OF  
 249  
 SHEETS

DATE: 5/4/2011 11:21:57 AM

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CITY OF RAMSEY  
CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 TRAIL  
CROSS SECTIONS  
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S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

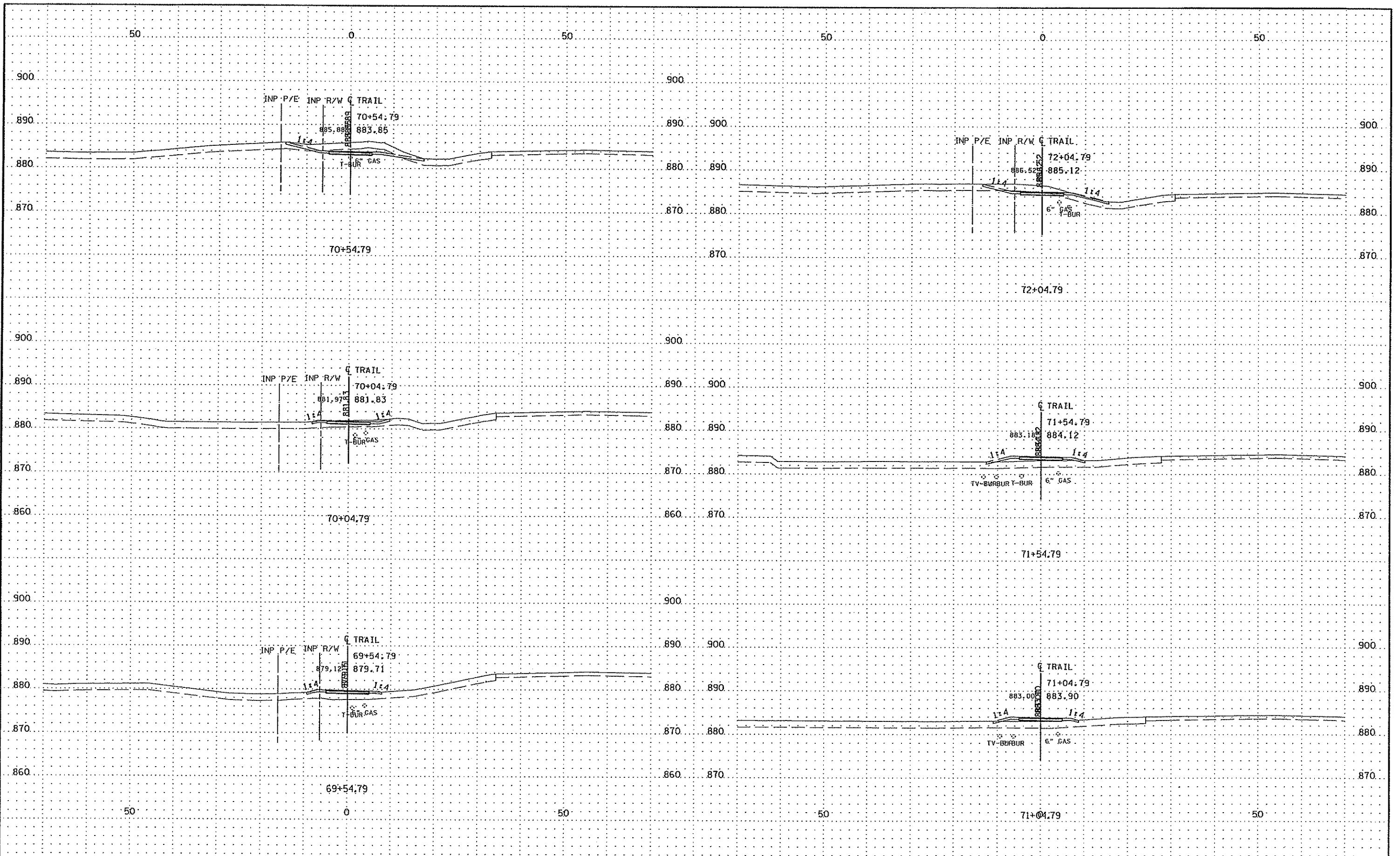
SHEET  
246  
OF  
249  
SHEETS

Drawn By: C KOCHMAN  
Designed By: N HENTGES  
Checked By: A PLOWMAN  
Approved By: J HALE

DATE: 04/28/11 LIC NO: 42084

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
Licensed Professional Engineer, Ape Hale P.E.



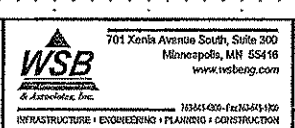
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Drawn By: **C KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, Jips Hale P.E.  
 DATE: 04/28/11 LIC NO: 42054

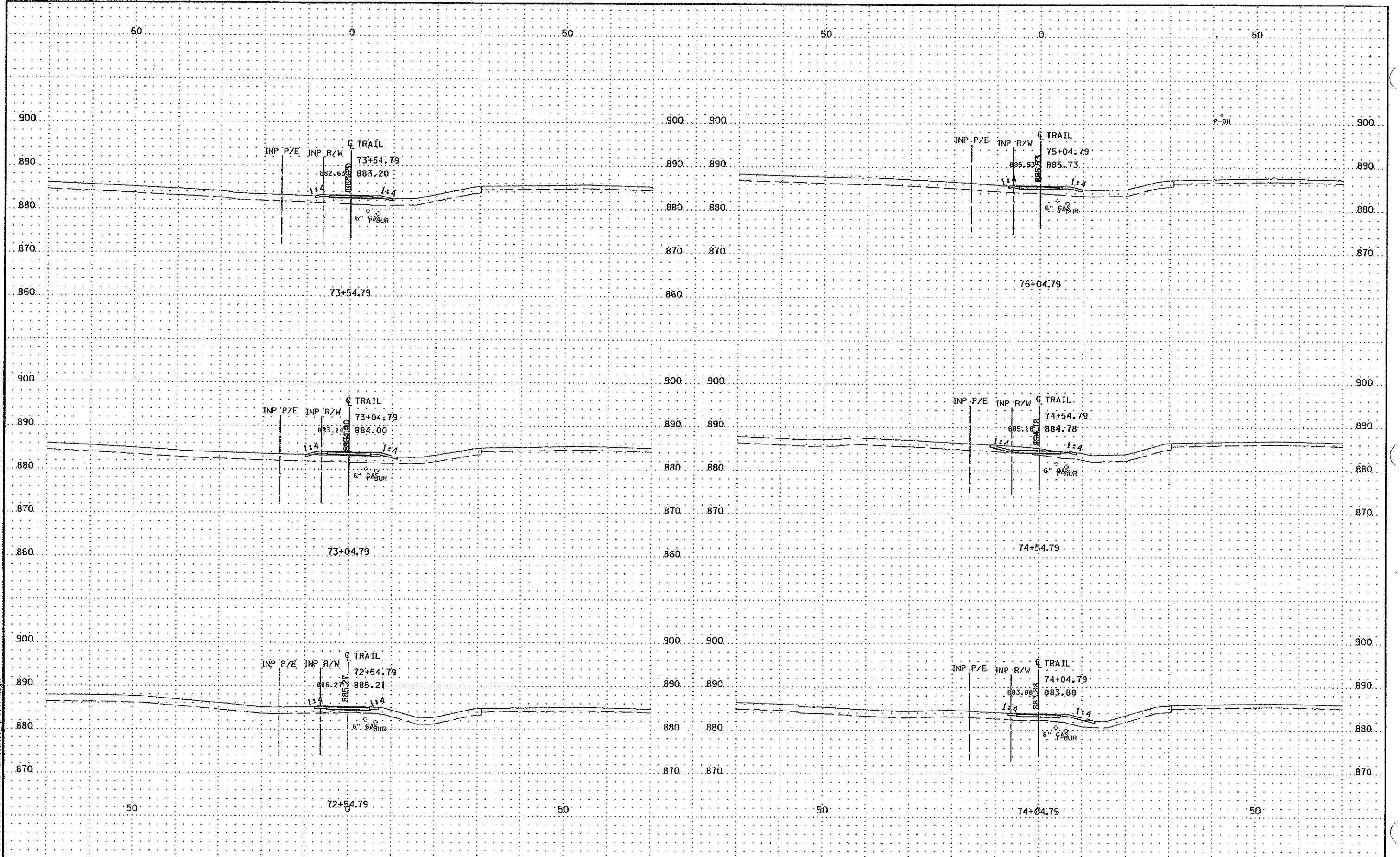
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 TRAIL**  
**CROSS SECTIONS**  
 STA. 68+54.78 TO STA. 71+04.78  
 S.A.P. 189-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 247 OF 249 SHEETS

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Drawn By: **G KOCHMAN**  
 Designed By: **N HENTGES**  
 Checked By: **A PLOWMAN**  
 Approved By: **J HALE**

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.  
 Licensed Professional Engineer, J. Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

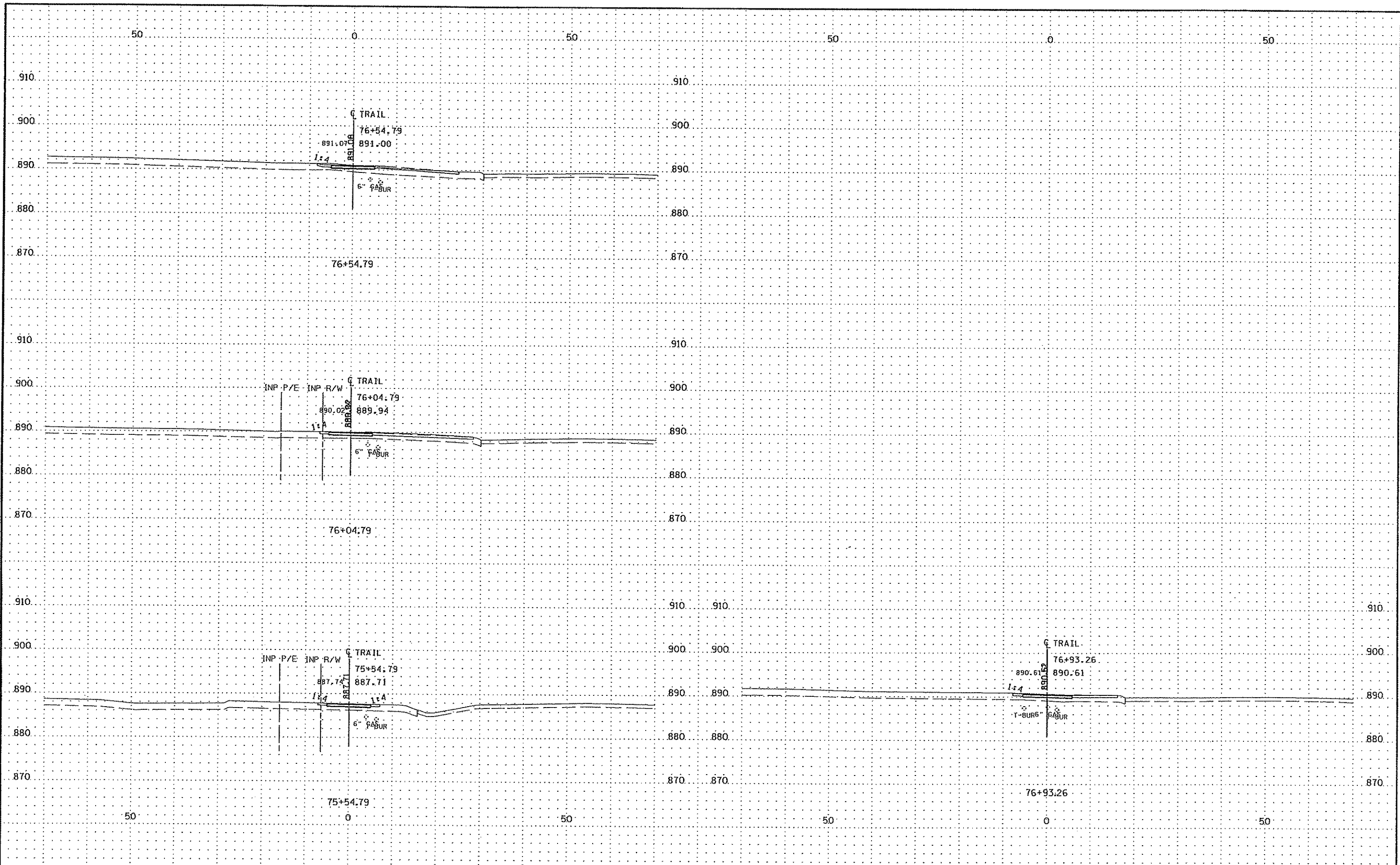
**CITY OF RAMSEY**  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



**CSAH 83 TRAIL**  
**CROSS SECTIONS**  
 STA. 71+54.78 TO STA. 74+04.78  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET  
 248  
 OF  
 249  
 SHEETS





DATE: 5/4/2011 11:22:00 AM  
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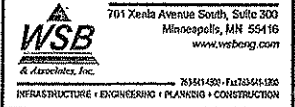
| NO | DATE | BY | CHK | REVISIONS |
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Drawn By: C KOCHMAN  
 Designed By: N HENTGES  
 Checked By: A PLOWMAN  
 Approved By: J HALE

I HEREBY CERTIFY THAT THIS PLAN SHEET 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.

*[Signature]*  
 Licensed Professional Engineer, Jupa Hale P.E.  
 DATE: 04/28/11 LIC NO: 42064

CITY OF RAMSEY  
 CSAH 83/116 & MSAS 121 CONSTRUCTION



CSAH 83 TRAIL  
 CROSS SECTIONS  
 STA. 74+54.78 TO STA. 76+93.26  
 S.A.P. 199-020-005, S.A.P. 199-121-001; C.P. 11-21

SHEET 249 OF 249 SHEETS

