

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

STATE AID PROJECT NO. 062-593-004

LOCATED ON: CSAH 4 FROM CSAH 96 TO CSAH 9 (COUNTY ROAD H) (GEOGRAPHIC DESCRIPTION)

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS AND CONCRETE SURFACING, ADA IMPROVEMENTS, UTILITY IMPROVEMENTS, TRAFFIC SIGNAL SYSTEM IMPROVEMENTS AND STREET LIGHTING

GOVERNING SPECIFICATIONS
THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL SIGNING AND DEVICES SHALL CONFORM TO THE MUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX

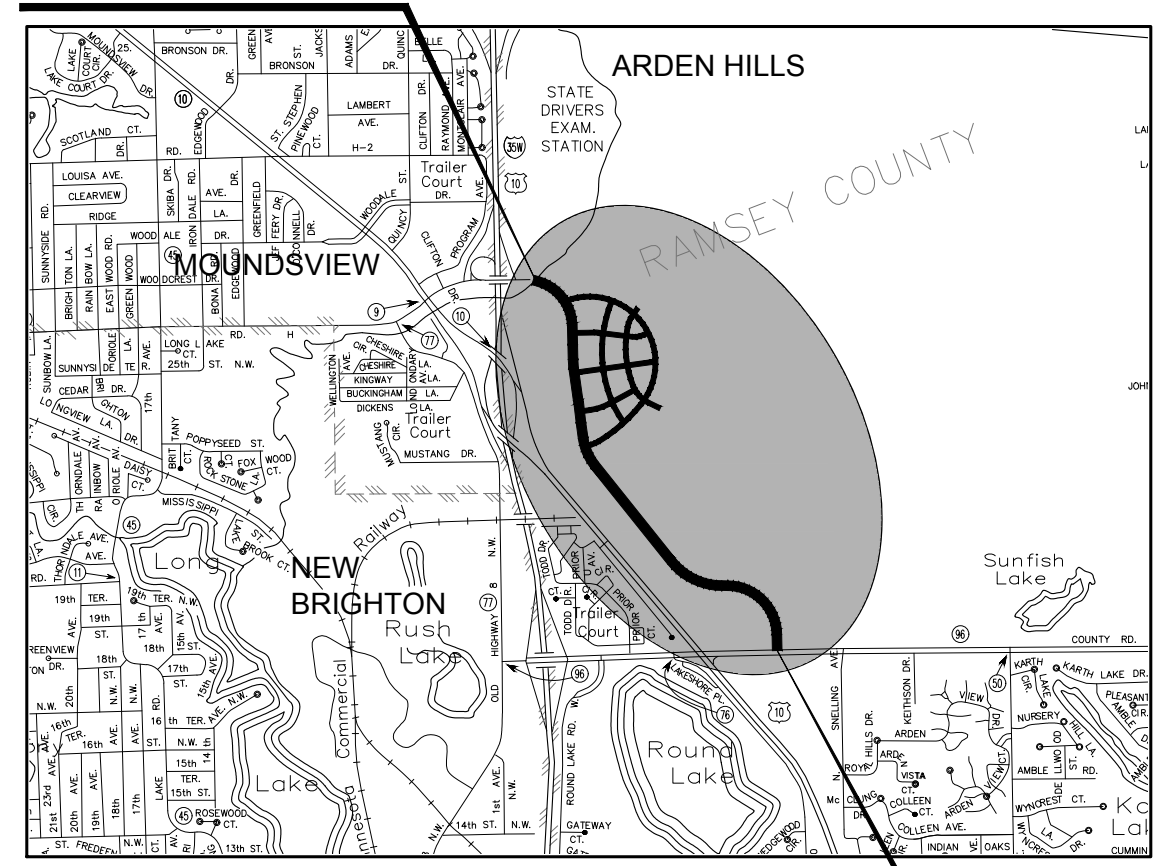
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LEGEND

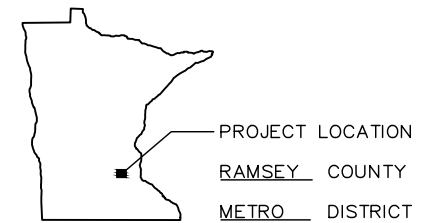
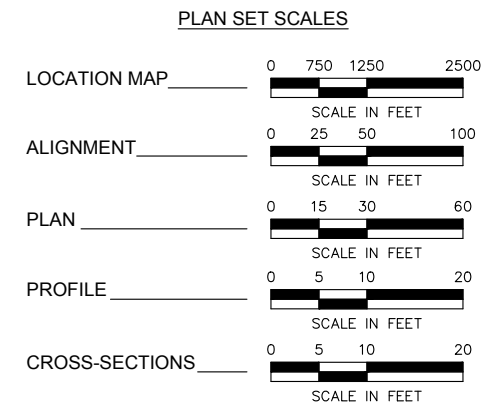
- | | |
|---------------------------|------------------------------------|
| ○ | INPLACE GATE VALVE |
| ⊕ | INPLACE HYDRANT |
| ● | INPLACE CURB BOX |
| ⊙ | INPLACE WATERMAIN MANHOLE |
| ⊚ | INPLACE SANITARY MANHOLE |
| ⊛ | INPLACE STORM MANHOLE |
| □ | INPLACE CATCH BASIN |
| ⊗ | INPLACE GAS VALVE |
| ⊘ | INPLACE CABLE TV BOX |
| ⊙ | INPLACE TELEPHONE BOX |
| ⊚ | INPLACE POWER POLE |
| ⊛ | INPLACE ELECTRICAL MANHOLE |
| ⊜ | INPLACE ELECTRICAL TRANSFORMER |
| ⊝ | INPLACE LIGHT POLE |
| — — | INPLACE WATERMAIN |
| — — — | INPLACE SANITARY SEWER |
| — — — — | INPLACE STORM SEWER |
| —GAS— | INPLACE GAS MAIN |
| —CATV— | INPLACE CABLE TV |
| —T-UG— | INPLACE UNDERGROUND TELEPHONE LINE |
| —P-UG— | INPLACE UNDERGROUND POWER |
| —P-OH— | INPLACE OVERHEAD POWER |
| — — — — — | INPLACE CURB AND GUTTER |
| — — — — — — | INPLACE PAVEMENT |
| —x—x—x—x— | INPLACE FENCE |
| — — — — — — — | INPLACE RIGHT-OF-WAY |
| — — — — — — — — | INPLACE EASEMENT |
| — — — — — — — — — | INPLACE PLAT BOUNDARY |
| — — — — — — — — — — | INPLACE MAILBOX |
| ⊕ | INPLACE SOIL BORING |
| ⊙ | INPLACE STREET SIGN |
| ⊚ | INPLACE TREE |
| — — — — — — — — — — | INPLACE TREE LINE |
| — — — — — — — — — — — | INPLACE WETLAND |
| — — — — — — — — — — — — | INPLACE CONTOUR |
| — — — — — — — — — — — — — | PROPOSED CONTOUR |
| ⊕ | PROPOSED GATE VALVE |
| ⊕ | PROPOSED HYDRANT |
| ● | PROPOSED MANHOLE (STORM/SANITARY) |
| □ | PROPOSED CATCH BASIN |
| — — | PROPOSED WATERMAIN |
| — — — | PROPOSED SANITARY SEWER |
| — — — — | PROPOSED STORM SEWER |
| — — — — — | PROPOSED CURB AND GUTTER |
| — — — — — — | PROPOSED CONSTRUCTION LIMITS |
| — — — — — — — | PROPOSED RIGHT OF WAY |
| — — — — — — — — | PROPOSED TEMPORARY EASEMENT |

TCAAP PUBLIC INFRASTRUCTURE
STATE AID PROJ. NO. 062-593-004
GROSS-LENGTH 7,604 FEET 1.44 MILES (NB CSAH 4)
BRIDGE-LENGTH 102 FEET 0.02 MILES (NB CSAH 4)
EXCEPTION-LENGTH 0 FEET 0 MILES (NB CSAH 4)
NET-LENGTH 7,502 FEET 1.42 MILES (NB CSAH 4)

CSAH 4
END S.A.P. 062-593-004
STA. 79+50.11



CSAH 4
BEGIN S.A.P. 062-593-004
STA. 3+45.61



TGRS PIPING REROUTE PLANS

GN01	COVER SHEET
GN02	LEGEND
C101-C114	CIVIL PLAN
ME01-ME02	MECHANICAL PLAN
EL01	ELECTRICAL PLAN

BRIDGE PLANS

BR1	GENERAL PLAN AND ELEVATION
BR2	BRIDGE LAYOUT
BR3	TRANSVERSE SECTION
BR4-BR6	ABUTMENT DETAILS
BR7-BR8	BRIDGE SURVEY
BR9-BR11	BORINGS
BR12-BR15	DETAILS

60% DESIGN
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

THIS PLAN SET CONTAINS 335 SHEETS

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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 1/4/19 LIC. NO. 41864

ENGINEER CHADD B. LARSON

APPROVED _____ 2019
RAMSEY COUNTY ENGINEER

APPROVED _____ 2019
CITY OF ARDEN HILLS CITY ENGINEER

_____ 2019
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID AND FEDERAL AID RULES/POLICY

DESIGN DESIGNATION: CSAH 4 - (S.A.P. 062-593-004)
STA. 3+45.61 TO 79+50.11

Functional Classification: A MINOR AUGMENTOR
No. of Traffic Lanes = 4 No. of Parking Lanes = 0
ADT (Current Year) 2019 = XX,XXX Design Speed 40 mph
ADT (Future Year) 2039 = XX,XXX Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = XX Height of eye 3.5' Height of Object 2.0'
D (Directional Distr.) = XX % Design Speed not achieved at: N.A.
T (Heavy Commercial) = 5.0 % STA. N.A. TO STA. N.A. MPH N.A.
R-Value 20 20 YR BESALS X,XXX,XXX Design Load 10 ton
K-Value XXX 20 YR CESALS X

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ENGINEER _____
DATE _____ REG. NO. _____

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

STATE AID PROJ. NO. 062-593-004

SHEET NO. 1 OF 335 SHEETS

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GOPHER STATE ONE CALL SYSTEM.....1-800-252-1166

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_SEQ.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864



 **RAMSEY COUNTY**
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STATEMENT OF ESTIMATED QUANTITIES

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 2
 335

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No.	Date	Revisions	App.	DRAWING NAME TCAAP_SPINERD_SEQ.dwg	 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114 PHONE: 651-645-4197 WWW.KIMLEY-HORN.COM	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CHADD B. LARSON DATE: 01/04/19 MN LIC. NO. 41864	 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS STATEMENT OF ESTIMATED QUANTITIES	CITY PROJECT	SHEET NO.		
				DESIGNED BY: RJG						COUNTY PROJECT	3
				DRAWN BY: RJG						S.A.P. 062-593-004	
				CHECKED BY: CBL						S.A.P.	335
				DATE: 01/04/19							
				PROJECT NO. 160553004							

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CONSTRUCTION NOTES:

- SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER UNSTABLE MATERIAL.
- SELECT GRANULAR SHALL MEET THE REQUIREMENTS OF 3149.2B2.
- SUITABLE GRADING MATERIAL FROM ALL PORTIONS OF THE PROJECT SHALL BE USED IN FILL AREAS, AS REQUIRED, THROUGHOUT THE PROJECT.
- THE GRADING GRADE ON THIS PROJECT IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE.
- UNDERGROUND UTILITIES EXIST WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES LOCATED PRIOR TO THE START OF CONSTRUCTION AND COORDINATE THE WORK SCHEDULE WITH UTILITY COMPANY CREWS PERFORMING RELOCATION WORK.
- NO DISPOSAL SITE IS PROVIDED. ALL EXCESS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR DISPOSAL. THE CONTRACTOR SHALL DISPOSE OF MATERIAL UNSUITABLE FOR USE IN THE CONSTRUCTION.
- REMOVALS: BITUMINOUS, DRAINAGE STRUCTURES, PIPE AND OTHER MISCELLANEOUS OBJECTS TO BE REMOVED UNDER THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND EITHER RECYCLED OR DISPOSED OF OUTSIDE OF THE PROJECT LIMITS IN ACCORDANCE WITH MNDOT SPEC. 2104.3C.
- GRADING: WHERE A PROPOSED ROADWAY BEGINS AT OR TERMINATES AT AN EXISTING ROADWAY, PROVIDE A VERTICAL NOTCH TO THE BOTTOM OF THE AGGREGATE OR BITUMINOUS BASE AND A 1:20 TAPER.
- PROVIDE 1:20 TAPERS BETWEEN LONGITUDINAL CHANGES IN SUBCUT DEPTHS.
- USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF .05 GAL/SQ. YD. THE APPLICATION RATE IS FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY). THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357 (INCIDENTAL).
- ALL BITUMINOUS MIXTURES SHALL CONFORM TO SPEC. 2360.
- STRIP AND REUSE AS SLOPE DRESSING ALL TOPSOIL AND EXISTING SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION. ALL SLOPE DRESSING SHALL MEET THE REQUIREMENTS OF "TOPSOIL BORROW" (SPEC. 3877).
- DURING CONSTRUCTION, TRAFFIC SHOULD BE NO CLOSER THAN AN IMAGINARY 2:1 LINE DRAWN FROM THE BOTTOM OF ANY SUBCUT TO THE TRAVELED SURFACE.
- COMPACTION OF GRADING AND AGGREGATE ITEMS SHALL BE BY THE "SPECIFIED DENSITY METHOD" AS DESCRIBED IN MNDOT SPEC. 2105.3F1.
- PROVIDE FOR A SAWCUT WHERE PLACING NEW PAVEMENT NEXT TO INPLACE PAVEMENT.
- PLACE A MINIMUM OF 6" TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT UNLESS SPECIFIED OTHERWISE.
- FERTILIZER SHALL BE APPLIED AT THE FOLLOWING RATES:
FERTILIZER TYPE 3, 22-5-10 APPLIED AT 350 LB/ACRE ON ALL GRADES GREATER THAN 1:3
FERTILIZER TYPE 4, 18-1-18 APPLIED AT 120 LB/ACRE AROUND THE PONDING AREAS
FERTILIZER TYPE 4, 18-1-18 APPLIED AT 150 LB/ACRE ON GRADES LESS THAN 1:3 SLOPES AND WETLAND AREAS

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

Mn/DOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
1070M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103K	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
1150R	CONCRETE HEADER JOINTS (2 SHEETS)
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIP RAP AT RCP OUTLETS
3145F	CONCRETE PIPE TIES
4010H	CONCRETE SHORT CONE & ADJUSTING RINGS (SECTIONAL CONCRETE)
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE - CASTING NO. 715 & 716
4125D	CATCH BASIN FRAME CASTING - CASTING NO. 806
4132F	CATCH BASIN FRAME CASTING - CASTING NO. 805
4134A	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 825
4151B	GRATE CASTING FOR CATCH BASIN - CASTING NO. 811
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B & DESIGN V)
7102J	CONCRETE CURB AND GUTTER (DESIGN BR, D, S, B4, B5, AND D3) (2 SHEETS)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8002G	PERMANENT BARRICADE
8127C	LIGHT FOUNDATION - DESIGN E
8129A	SHIM AND WASHER
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112G	PEDESTAL FOUNDATION
8114A	P.V.C. HAND HOLE/PULL BOX
8120P	POLE FOUNDATION (PA-85)
8121H	TRANSFORMER BASE AND POLE BASE PLATE
8122F	PEDESTRIAN & PEDESTAL BASE
8123G	POLE & MAST ARM-LUMINARIES & TRAFFIC LIGHTS ASSEMBLY
8126K	POLE FOUNDATION (PA90 AND PA 100)

CITY OF ARDEN HILLS STANDARD PLATES

PLATE NO.	DESCRIPTION
3401	PACER HYDRANT DETAIL
3402	HYDRANT RESTRAINT DETAIL
3404	WATERMAIN CROSSING
3405	CLASS C PIPE BEDDING
3406	CLASS B PIPE BEDDING
3407	PIPE INSULATION DETAIL
3408	VALVE TRACER WIRE DETAIL
4000	STANDARD MANHOLE
4001	SLAB TOP MANHOLE
4002	INSIDE DROP MANHOLE (TWO FEET OR LESS)
4004	STANDARD AIR RELIEF MANHOLE

UTILITY CONTACTS

RAMSEY COUNTY TED SCHOENECKER, P.E. 1425 PAUL KIRKWOLD DRIVE ARDEN HILLS, MN 55112 651-266-7116 ted.schoenecker@co.ramsey.mn.us	MnDOT ROGER VANDENHEUVEL (ONE CALL OPERATIONS) 6000 MINNEHAHA AVENUE SAINT PAUL, MN 55111 612-725-2370
CITY OF ARDEN HILLS SUE POLKA, P.E. 1245 WEST HIGHWAY 96 ARDEN HILLS, MN 55112 651-792-7847 spolka@cityofardenhills.org	GOPHER STATE ONE CALL EMERGENCY LOCATION 651-454-0002
AT&T LOCAL SERVICES JIM KULOSEK 511 11TH AVE SOUTH ROOM 360 MINNEAPOLIS, MN 55415 612-656-9840 kulousek@att.com	ZAYO BANDWIDTH GREGORY GRAMS 763-898-9568
COMCAST COMMUNICATIONS, INC. KEITH GESINGER 2611 FAIRVIEW AVE N ROSEVILLE, MN 55113 651-493-5535 keith_gesinger@cable.comcast.com	ARVIG NETWORK SERVICES PATRICK LYNCH 320-256-0271 (DIRECT) 320-792-8763 (CELL) pat.lynych@arvig.com
CENTURY LINK PATRICK SLAVIK 651-730-1365	XCEL ENERGY (GAS) CHARLIE RAUSCH 1700 EAST COUNTY ROAD E WHITE BEAR LAKE, MN 55110 651-748-3307 charles.g.rausch@xcelenergy.com
XCEL ENERGY (ELECTRIC) BJ GRANT 1700 E COUNTY ROAD E WHITE BEAR LAKE, MN 55110 651-779-3135 bj.grant@xcelenergy.com	

EROSION & SEDIMENT CONTROL CONTACTS

MINNESOTA POLLUTION CONTROL AGENCY CONSTRUCTION STORMWATER PERMIT PROGRAM 520 LAFAYETTE ROAD NORTH ST. PAUL, MN 55155-4194	RAMSEY COUNTY PUBLIC WORKS ALAN RUPNOW 1425 PAUL KIRKWOLD DRIVE ARDEN HILLS, MN 55112-3933
RICE CREEK WATERSHED DISTRICT 4325 PHEASANT RIDGE DRIVE NE, #116 BLAINE, MN 55449-4539	

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_CSN01.dwg
				DESIGNED BY: RJG
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				CHECKED BY: CBL
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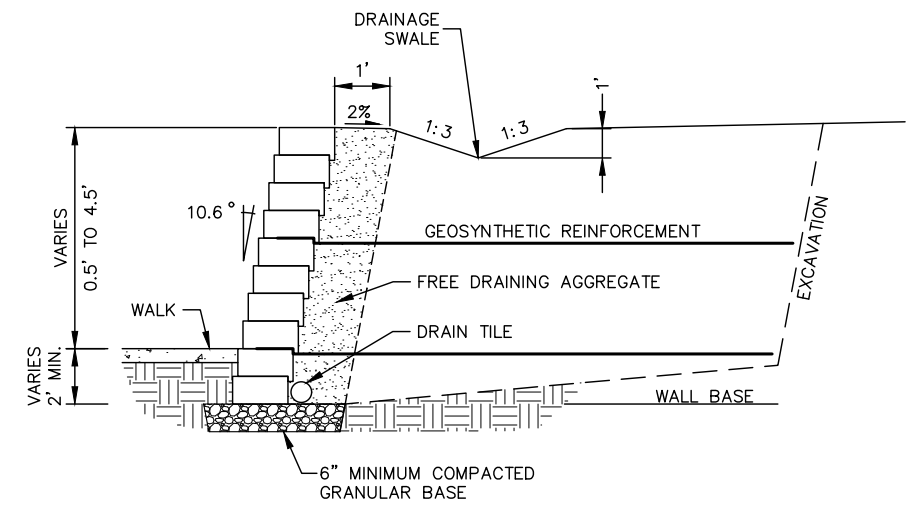
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864



TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CONSTRUCTION NOTES, STANDARD PLATES & UTILITY CONTACTS

CITY PROJECT	SHEET NO. 4 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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MODULAR BLOCK RETAINING WALL SECTION

No.	Date	Revisions	App.

DRAWING NAME	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CONSTRUCTION DETAILS

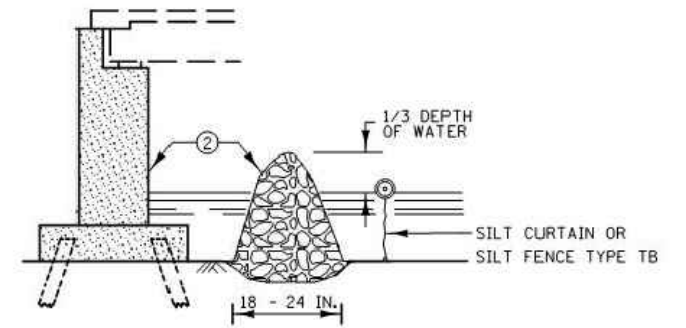
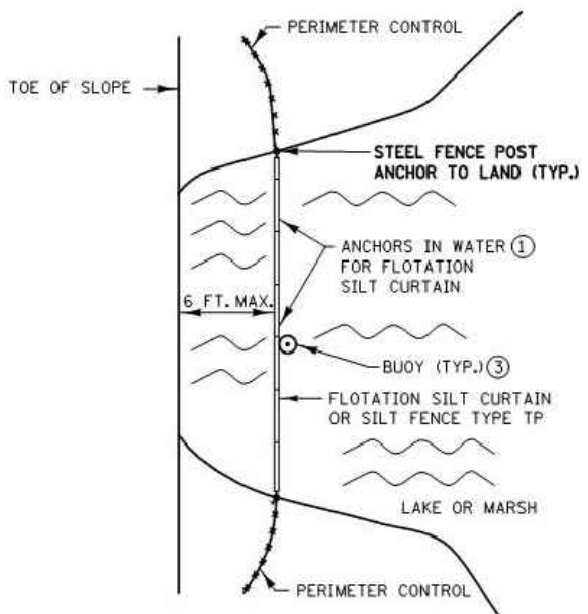
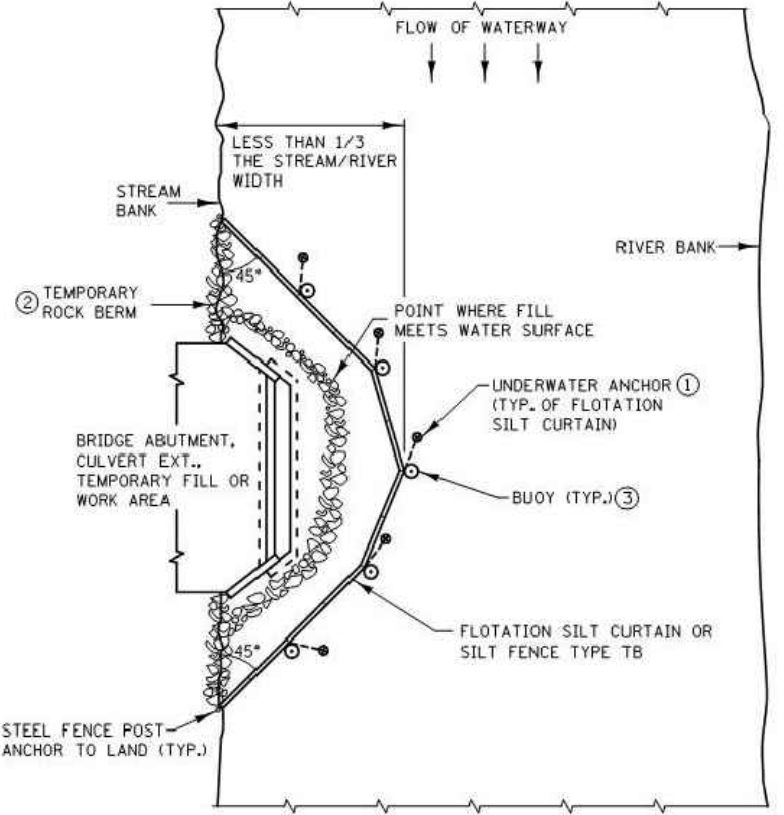
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
5
335

K:\TWC_Civil\County\RAMSEY\CAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\CAAP_SPINERD_DTL-ERO.dwg January 09, 2019 - 2:21pm

PLOTTED/REVISED: 4-APR-2018

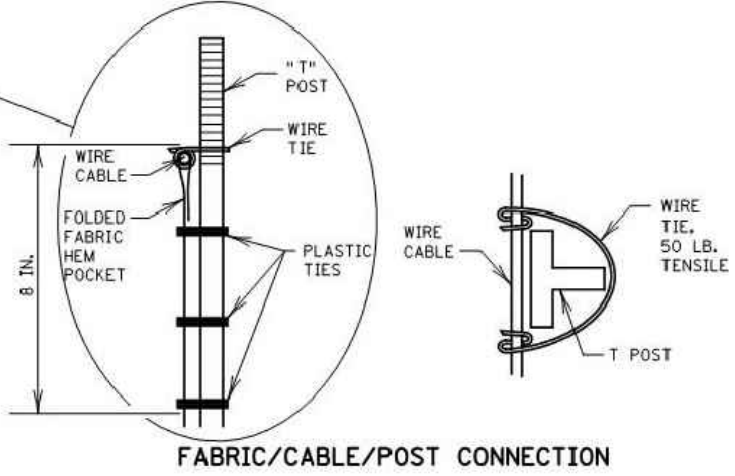
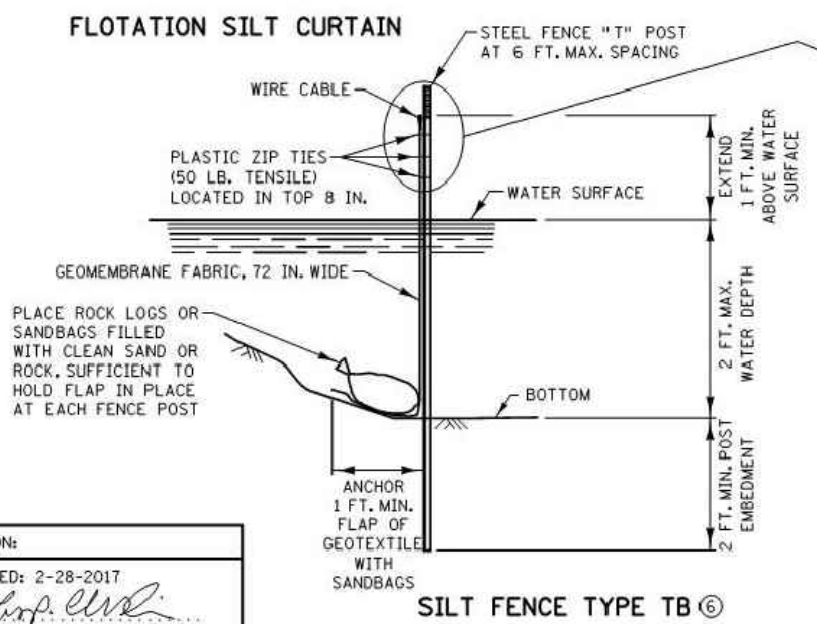
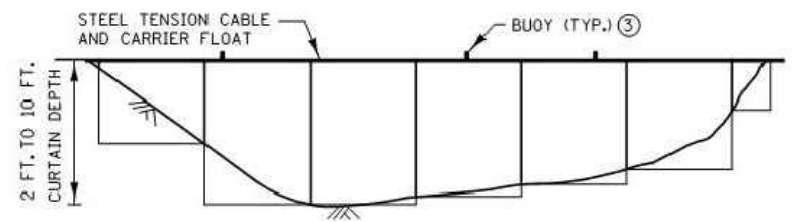
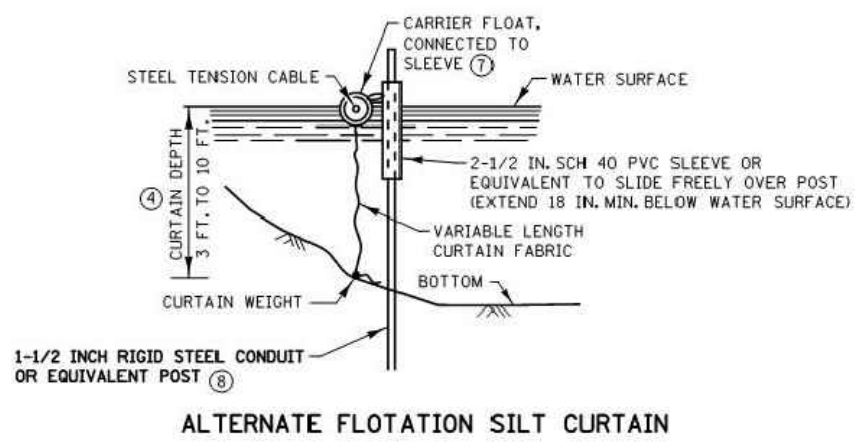
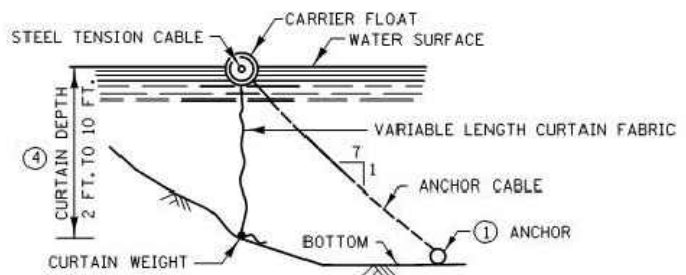
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**INSTALLATION GUIDELINES
 SILT FENCE TYPE TB**
 MINIMUM WATER DEPTH: 1 FT.
 MAXIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.

**INSTALLATION GUIDELINES ④
 FLOTATION SILT CURTAIN
 TYPE: STILL WATER**
 MINIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER DEPTH: 10 FT.
 MAXIMUM WATER VELOCITY: 2 FT./SEC.
 MAXIMUM WAVE HEIGHT: 1 FT.

**INSTALLATION GUIDELINES ④
 FLOTATION SILT CURTAIN
 TYPE: MOVING WATER**
 MINIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER DEPTH: 10 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.
 MAXIMUM WAVE HEIGHT: 2 FT.



NOTES:

- SEE SPECS. 2573, 3886, 3887 & 3893.
- ① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- ② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.
- ③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- ④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.
- ⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.
- ⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.
- ⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.
- ⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

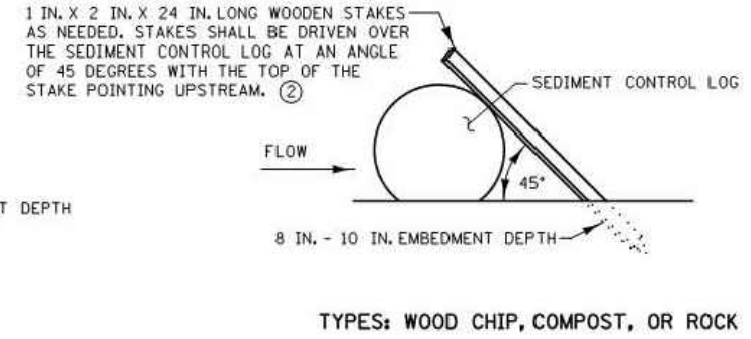
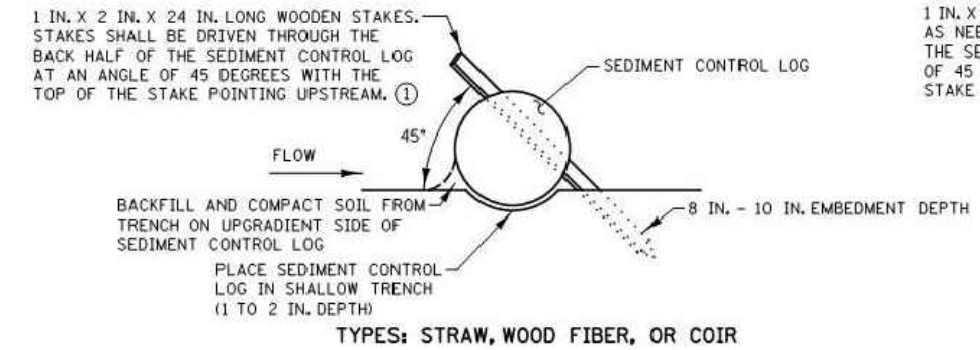
REVISION:
 APPROVED: 2-28-2017
 Chief Environmental Officer

MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 STANDARD PLAN 5-297.405
 1 OF 8
 APPROVED: 2-28-2017
 REVISION:
 STATE PROJ. NO.

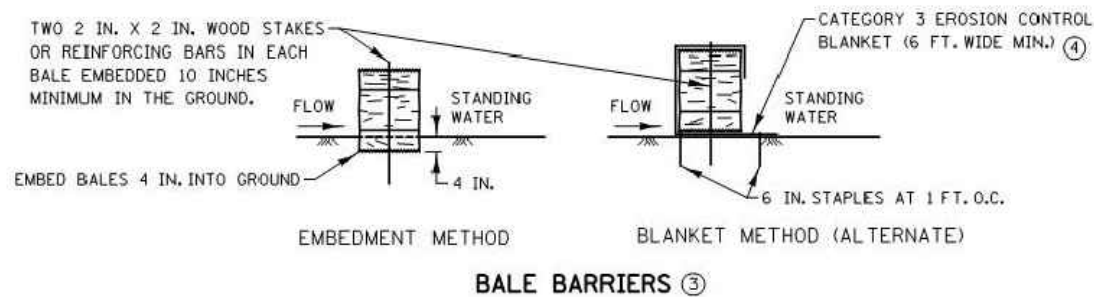
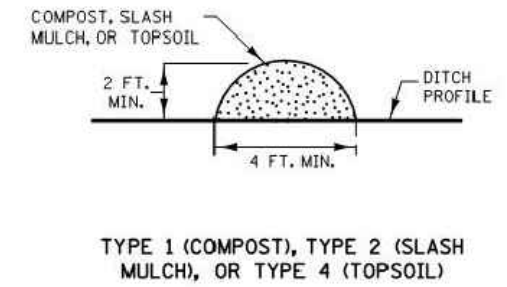
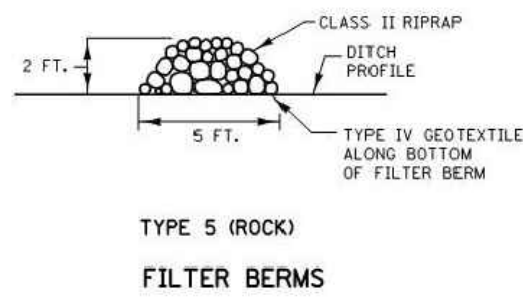
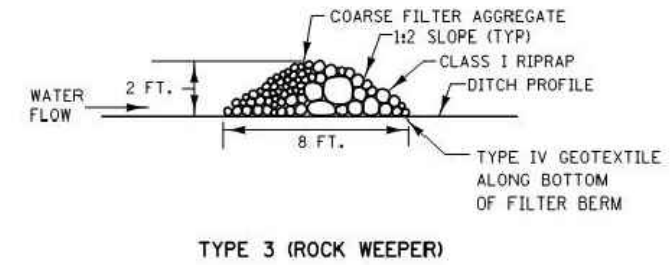
TEMPORARY SEDIMENT CONTROL
 SILT CURTAIN OR SILT FENCE TYPE TB
 (T.H.) SHEET NO. OF SHEETS

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SEDIMENT CONTROL LOGS



NOTES:

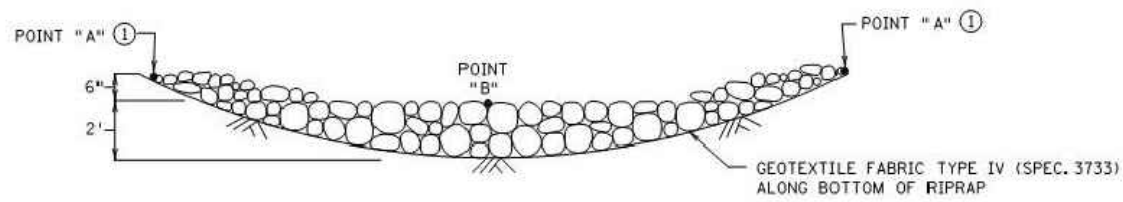
- SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.
- (1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
- (2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- (3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- (4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

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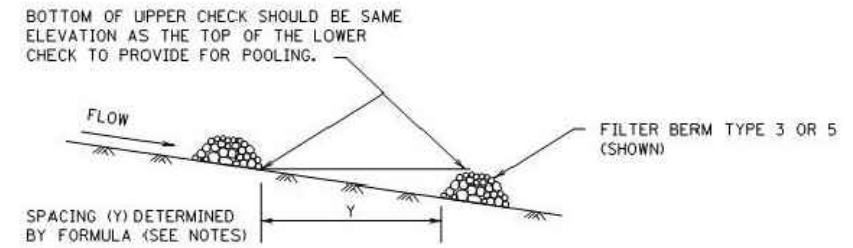
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	APPROVED: 2-28-2017 REVISED:	
[Signature] STATE DESIGN ENGINEER	STATE PROJ. NO.	(T.H.) SHEET NO. OF SHEETS

TEMPORARY SEDIMENT CONTROL
 FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

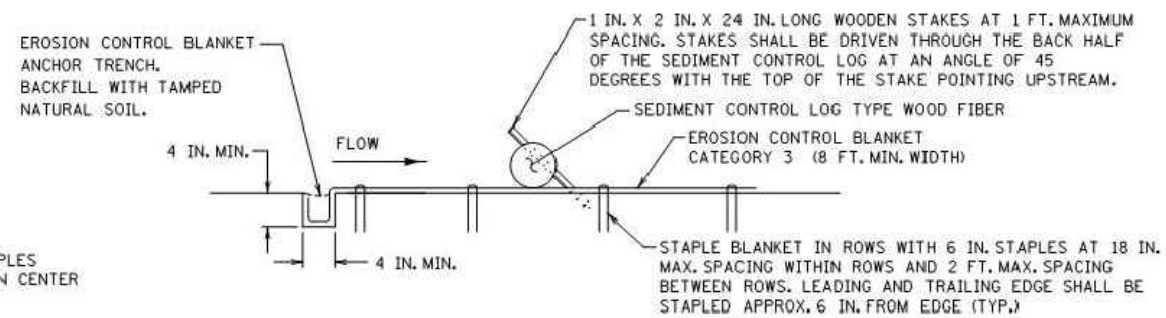
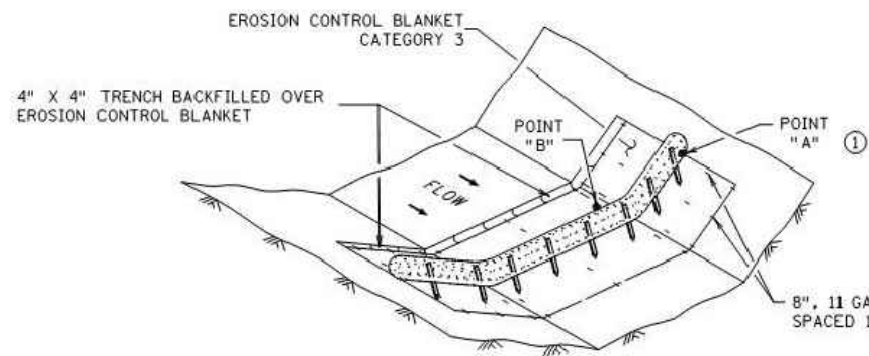
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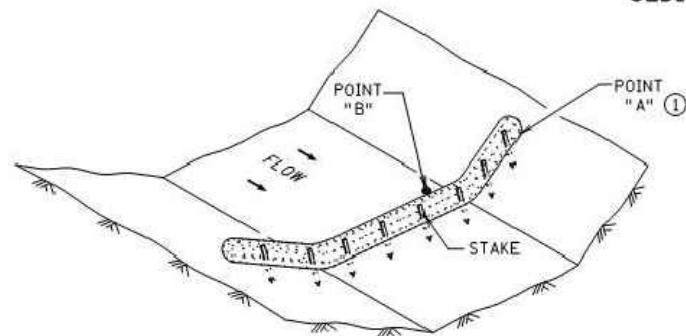
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
 (FOR USE ON ROUGH GRADED AREAS)



DITCH CHECK SPACING
 (FOR ALL FILTER BERM TYPES)



SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
 (FOR USE ON ROUGH GRADED AREAS)

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

- 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 PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..
- ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..
- ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

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STANDARD PLAN 5-297.405 3 OF 8

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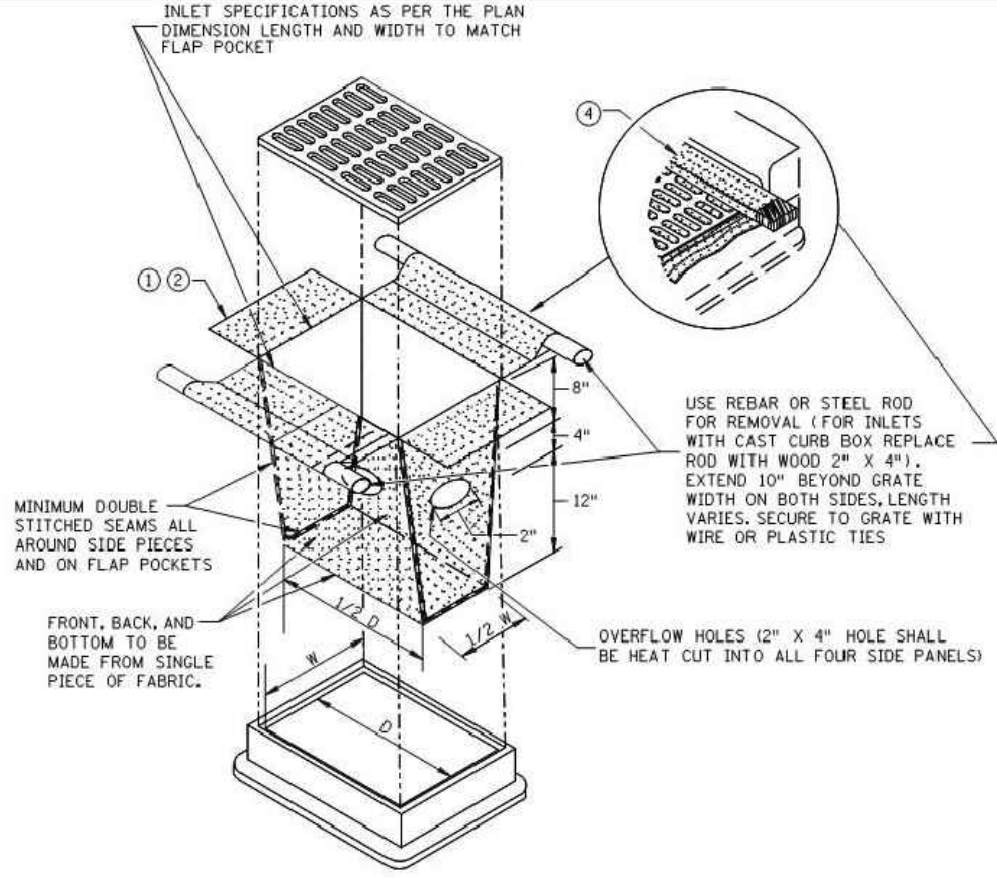
TEMPORARY SEDIMENT CONTROL	
DITCH CHECK	
STATE PROJ. NO.	(T.H.) SHEET NO. OF SHEETS

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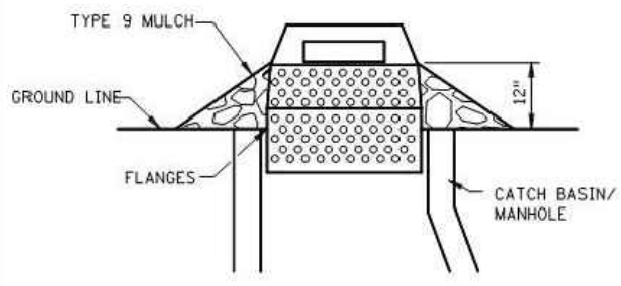
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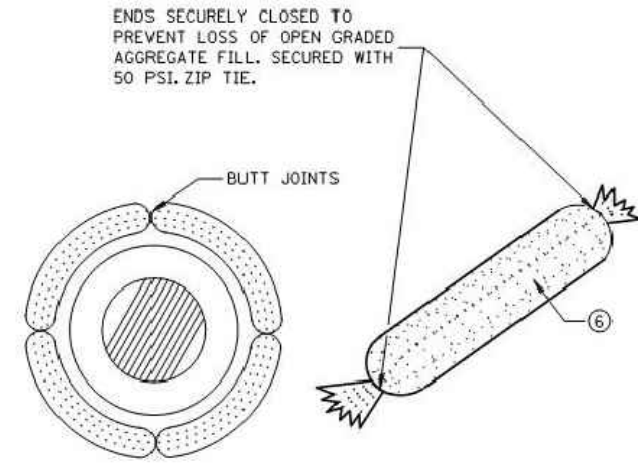


FILTER BAG INSERT ③
 (CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

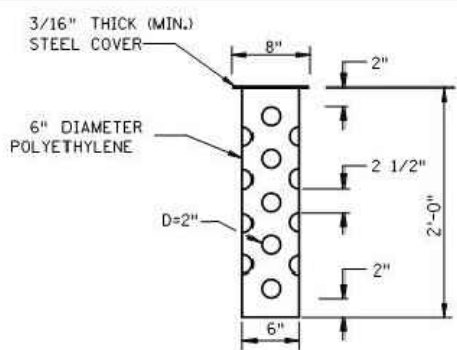


SEDIMENT CONTROL INLET HAT

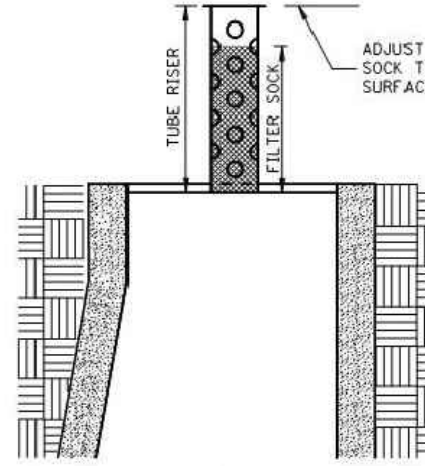
NOTE:
 THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



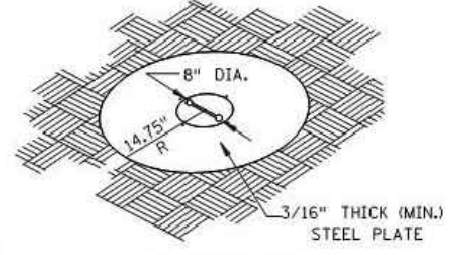
ROCK LOG/COMPOST LOG



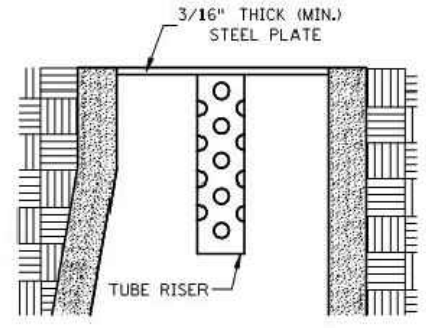
TUBE RISER



SECTION (UP POSITION)

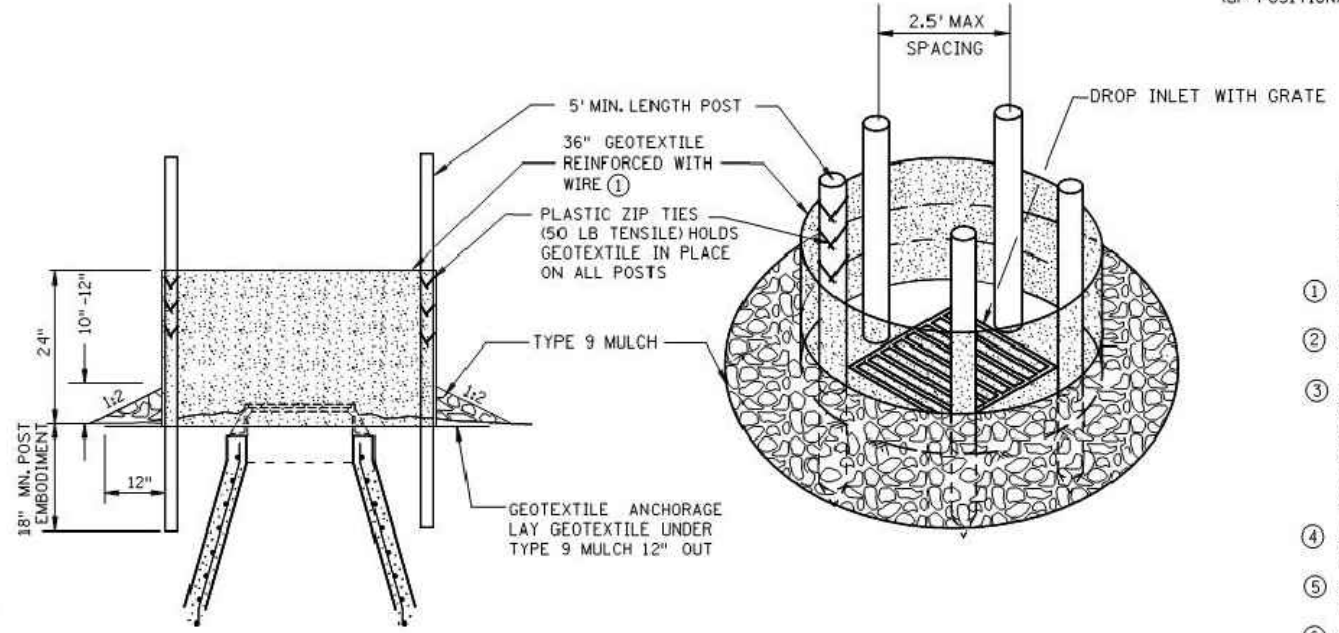


PERSPECTIVE VIEW



SECTION (DOWN POSITION)

POP-UP HEAD



SILTY 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.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE TRAFFIC FLOW.
- 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 PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED 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.

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STANDARD PLAN 5-297.405 4 OF 8

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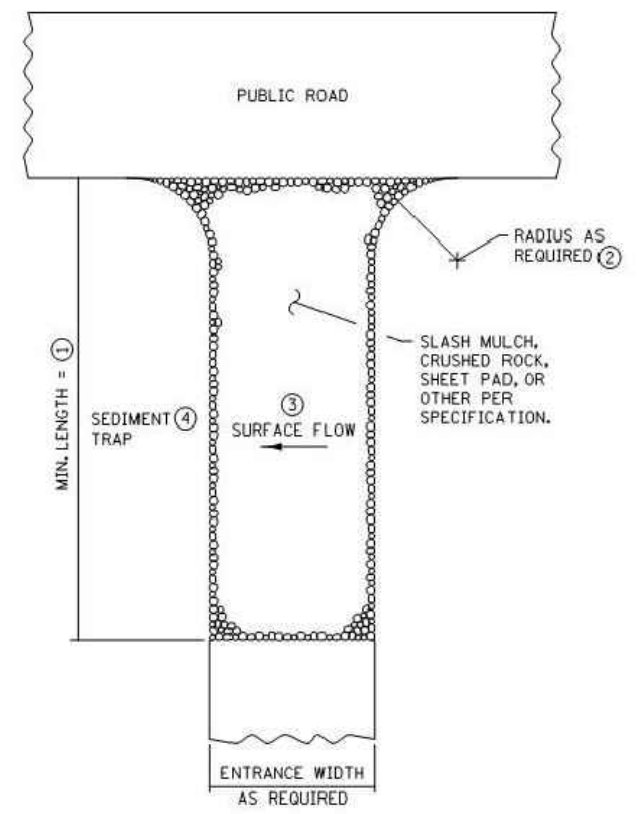
**TEMPORARY SEDIMENT CONTROL
 STORM DRAIN INLET PROTECTION**

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

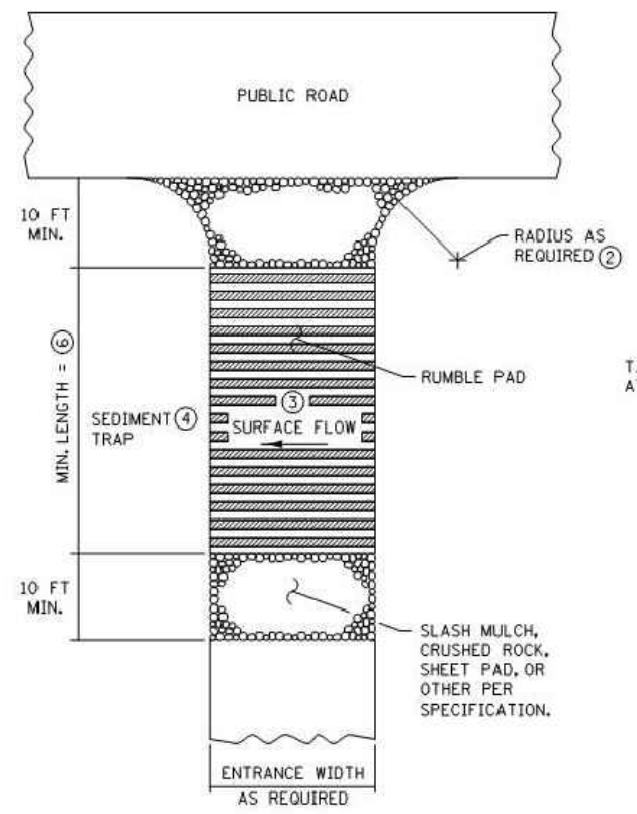
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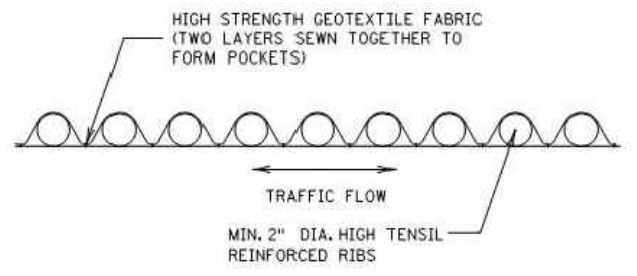
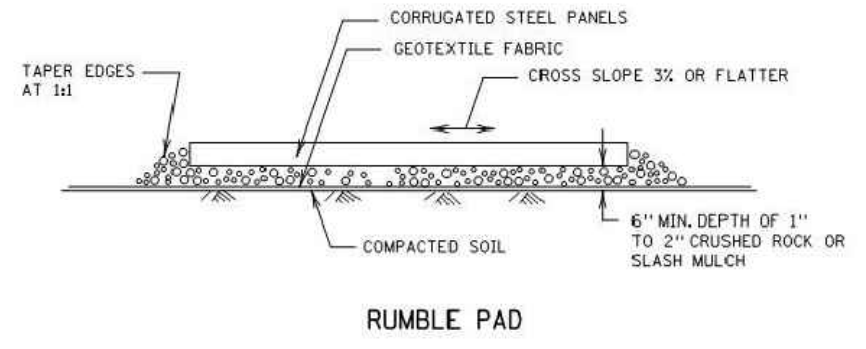
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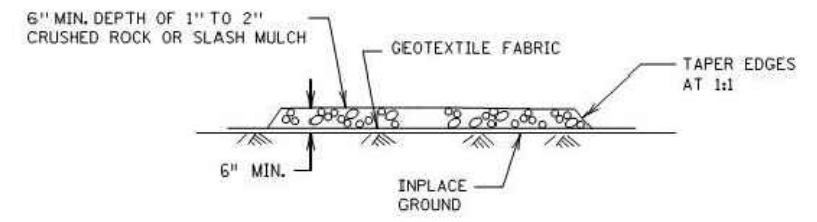
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

- SEE SPECS. 2573 & 3882.
- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
- ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
- ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
- ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
- ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
- ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
- ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

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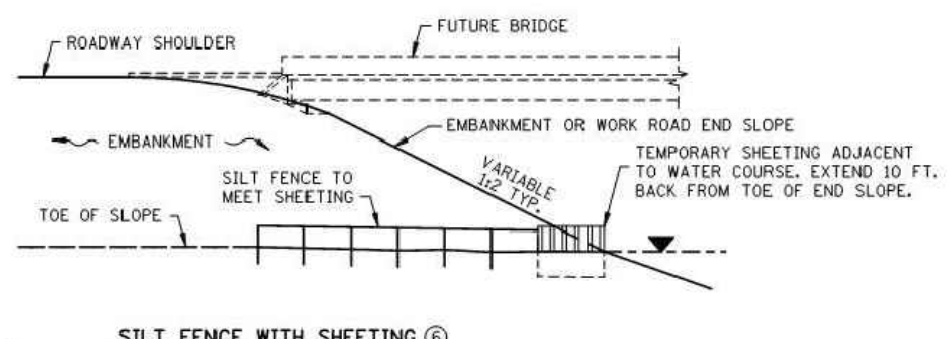
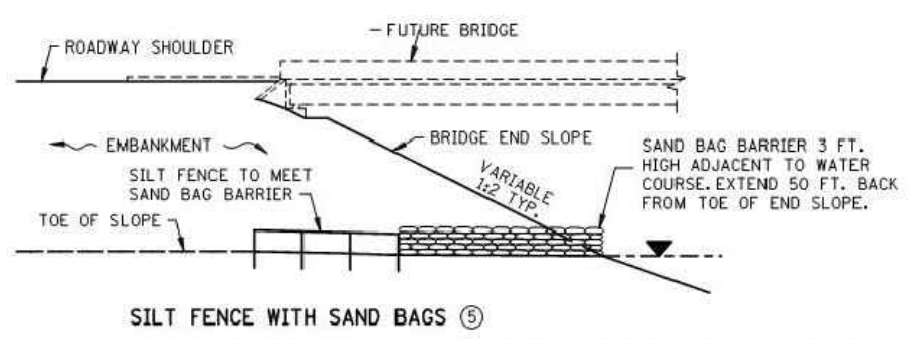
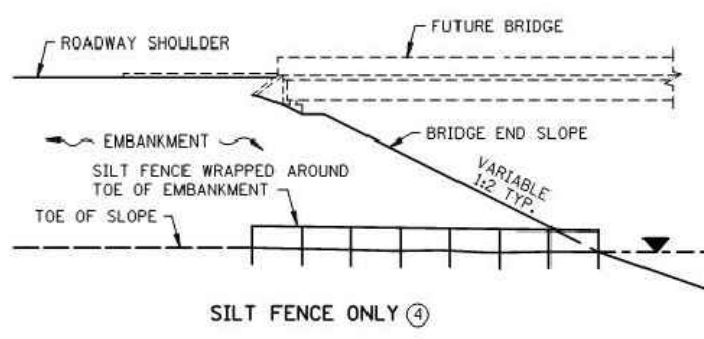
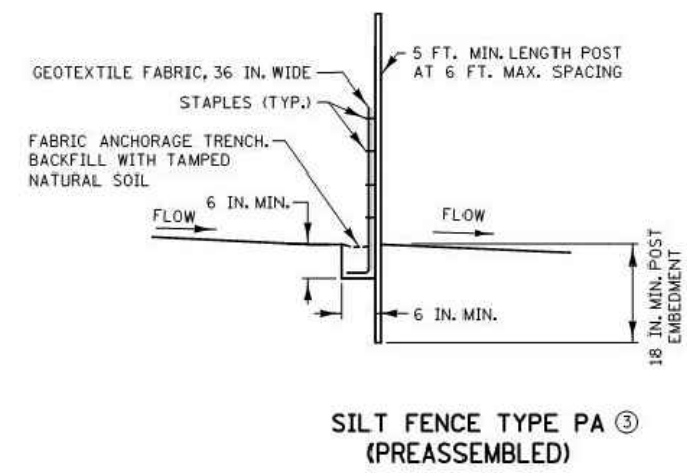
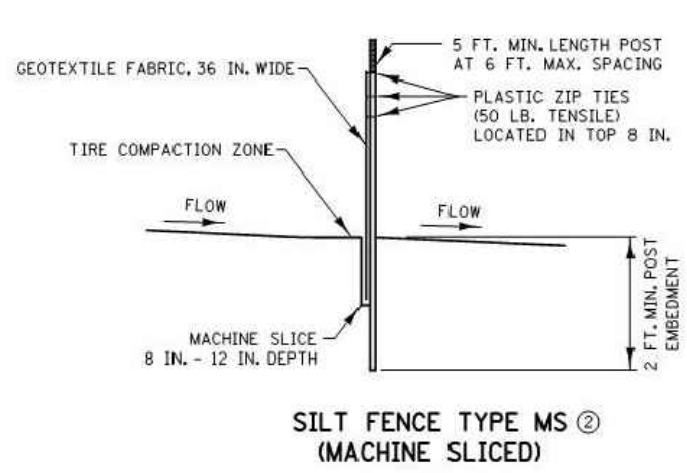
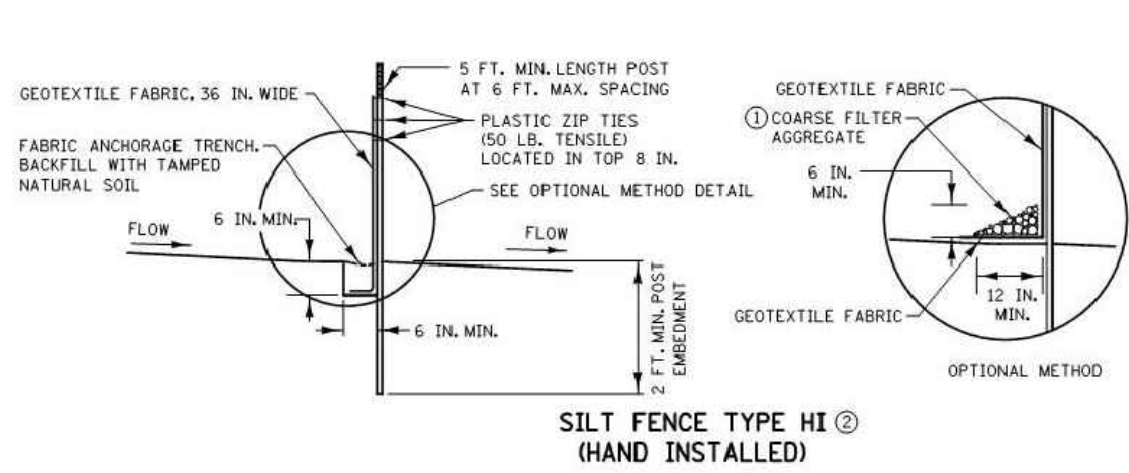
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 STANDARD PLAN 5-297.405 5 OF 8
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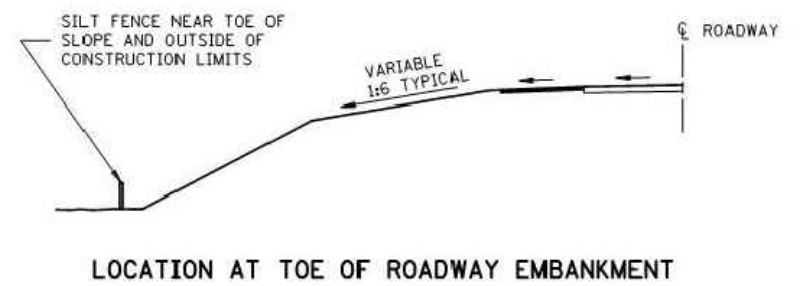
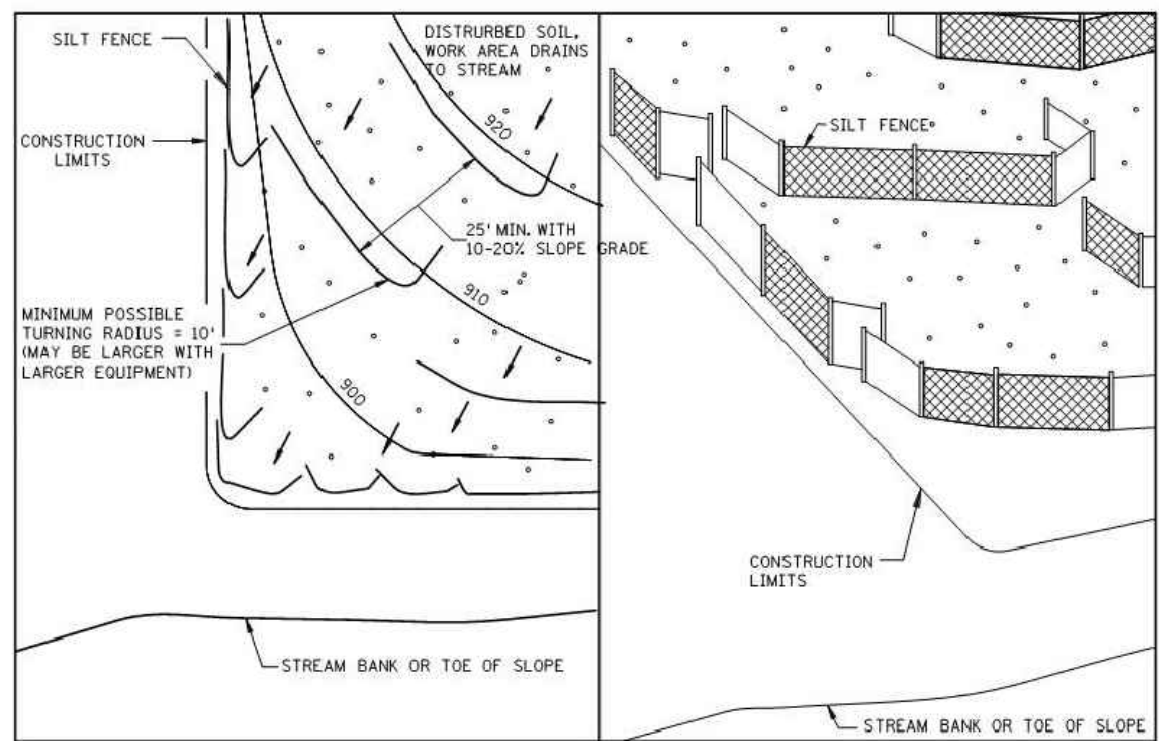
TEMPORARY SEDIMENT CONTROL
STABILIZED CONSTRUCTION EXIT
 (T.H.) SHEET NO. OF SHEETS

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INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



- NOTES:**
- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
 - ② TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 1 ACRE.
 - ③ TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
 - ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1/2 ACRE.
 - ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
 - ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

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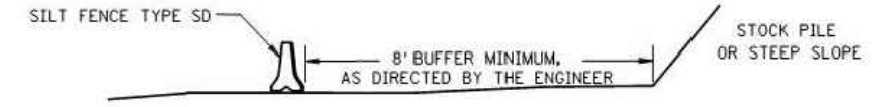
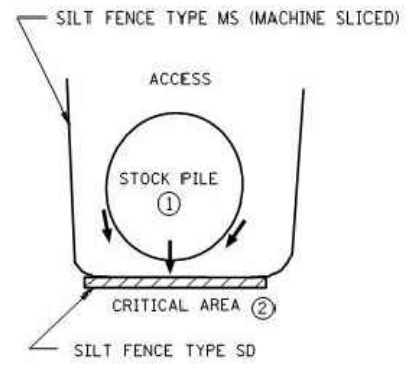
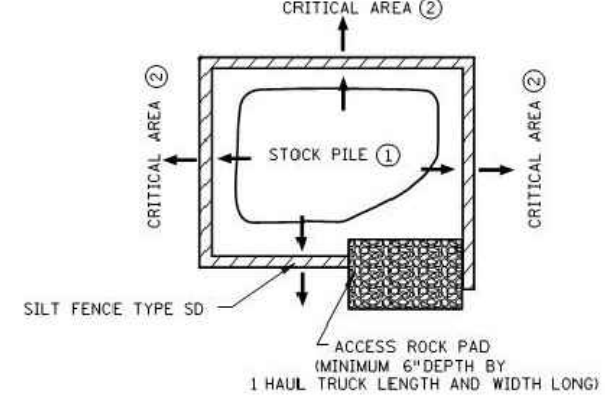
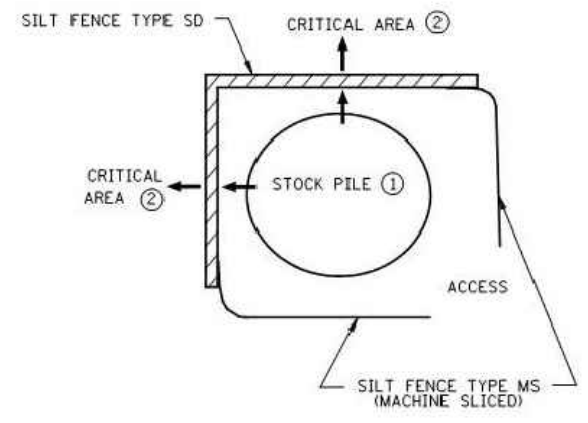
TEMPORARY SEDIMENT CONTROL
SILT FENCE

(T.H.) SHEET NO. OF SHEETS

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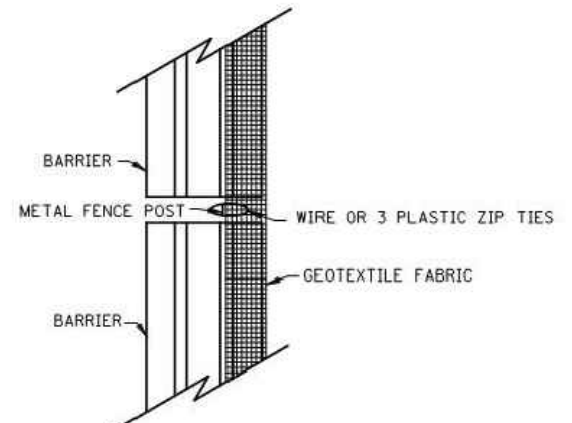
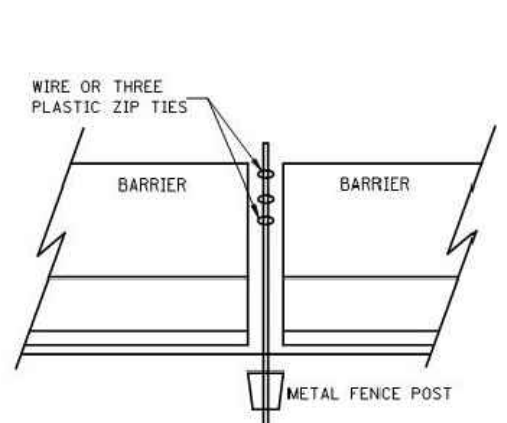
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STOCKPILE SEDIMENT CONTROL

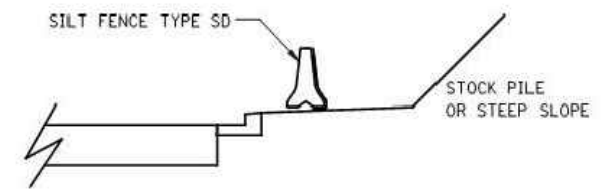
STOCK PILE CONTAINMENT



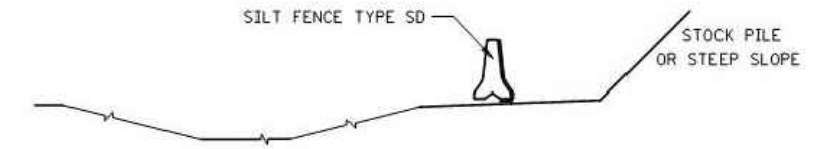
PROFILE VIEW

TOP VIEW

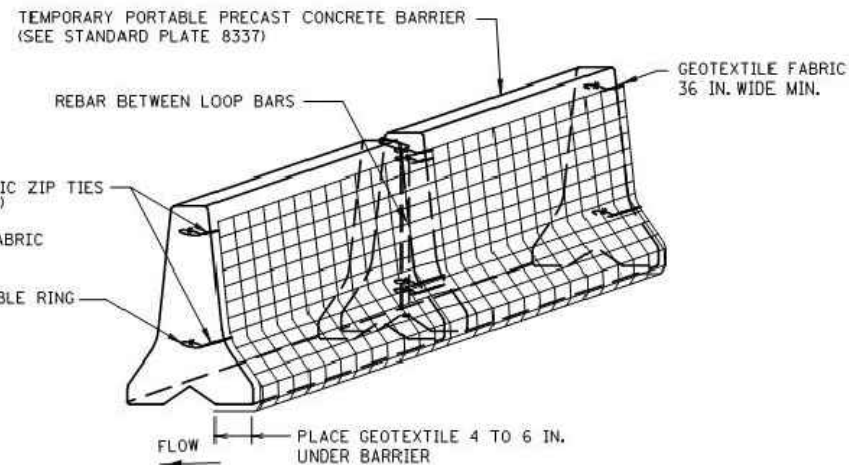
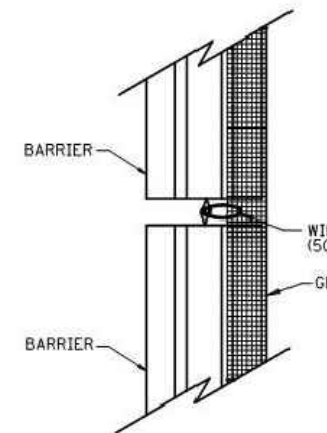
SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS



CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW

PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITH LOOP BARS

NOTES:

- SEE SPECS. 2533, 2573 & 3886.
- SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.
- SILT FENCE TYPE SD 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, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISION:
 APPROVED: 2-28-2017

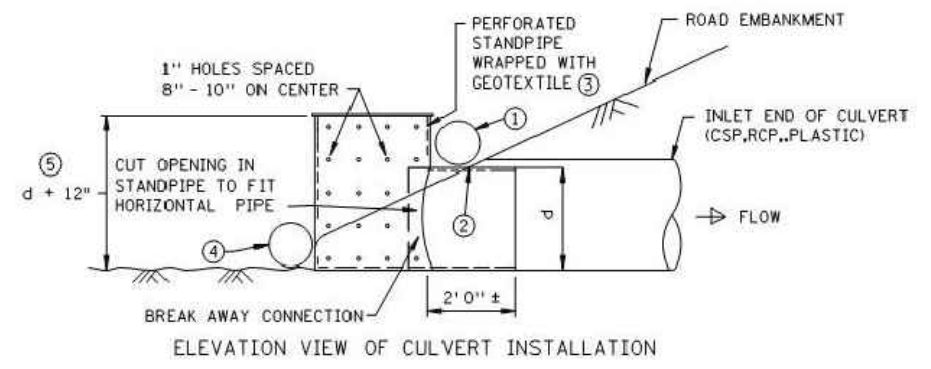
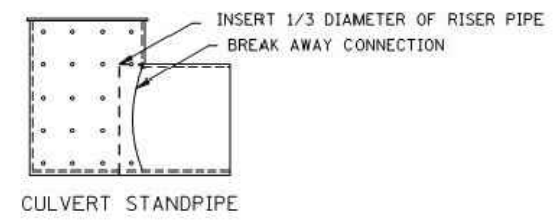
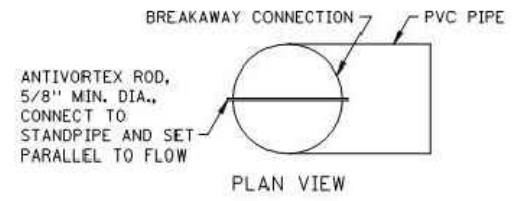
 CHIEF ENVIRONMENTAL OFFICER

 MINNESOTA DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.405	7 OF 8
	APPROVED: 2-28-2017 REVISOR: STATE DESIGN ENGINEER	
STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS		

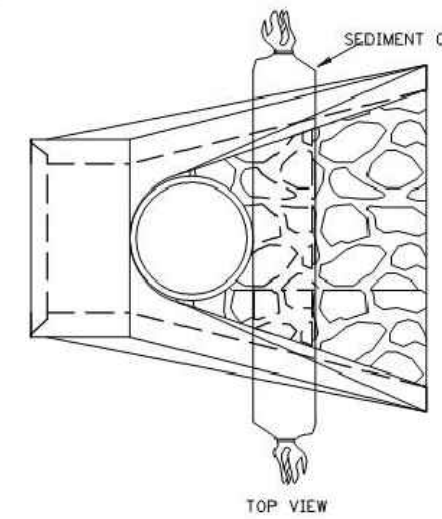
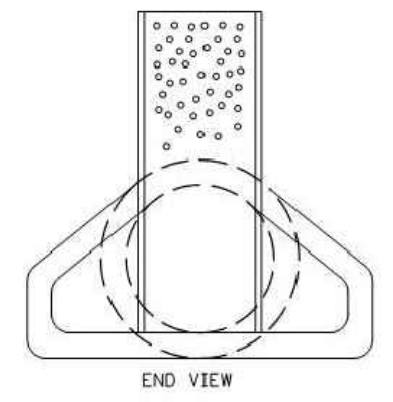
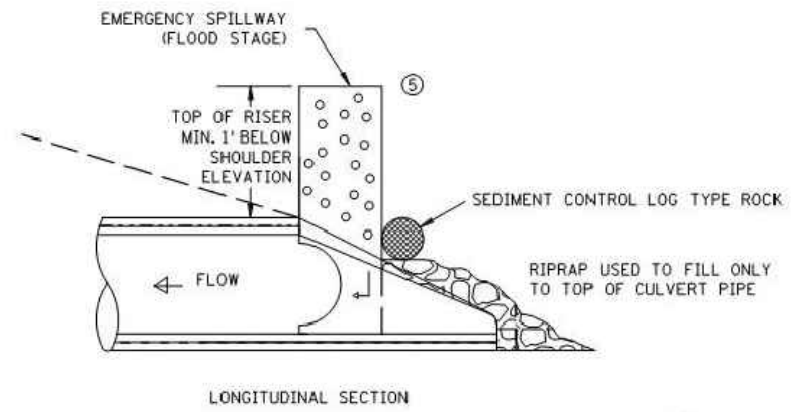
TEMPORARY SEDIMENT CONTROL
SUPER DUTY SILT FENCE

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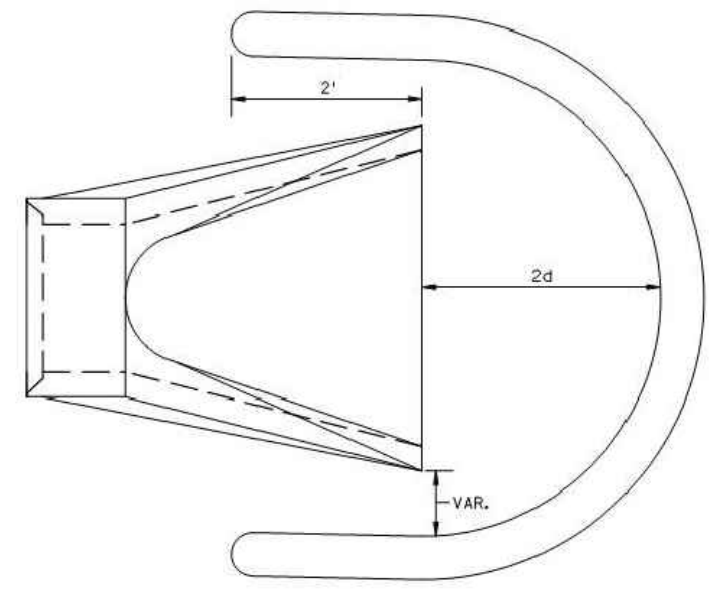


CULVERT STANDPIPE INSERT (D-RISER)
d = CULVERT SIZE: 12" - 36"

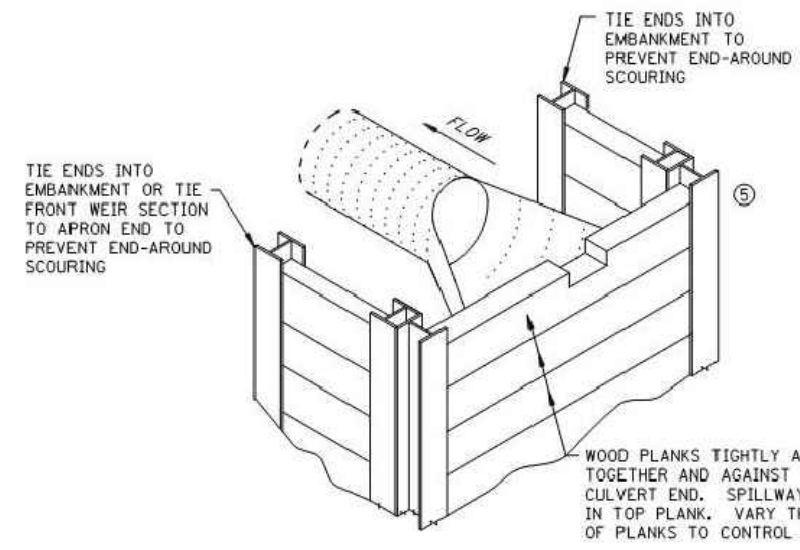


CULVERT STANDPIPE INSERT (D-RISER)

NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER



SEDIMENT CONTROL LOG WEIR (COMPOST, WOOD CHIP, OR ROCK)
d = CULVERT SIZE: 12" - 36"



WOOD PLANK WEIR

NOTES:

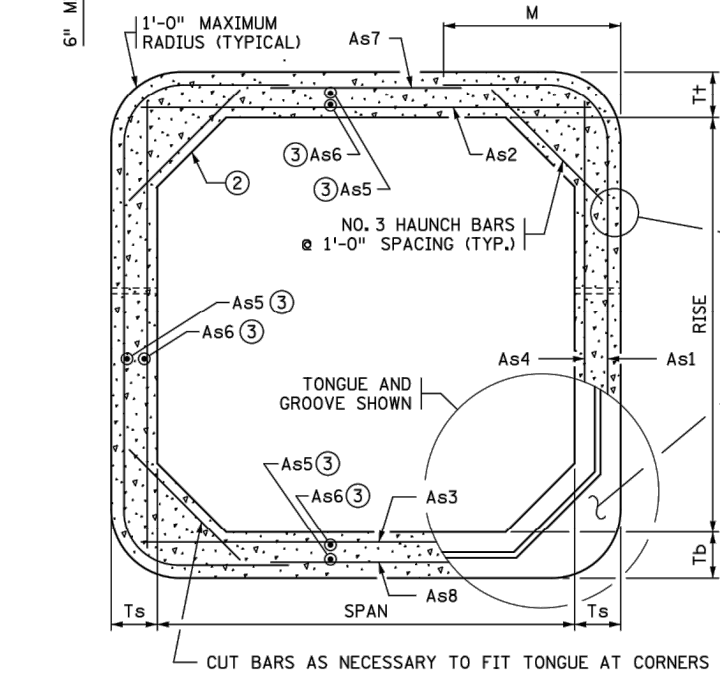
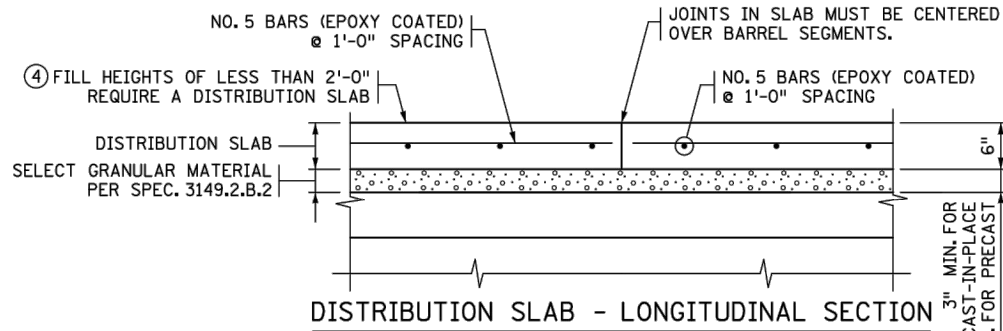
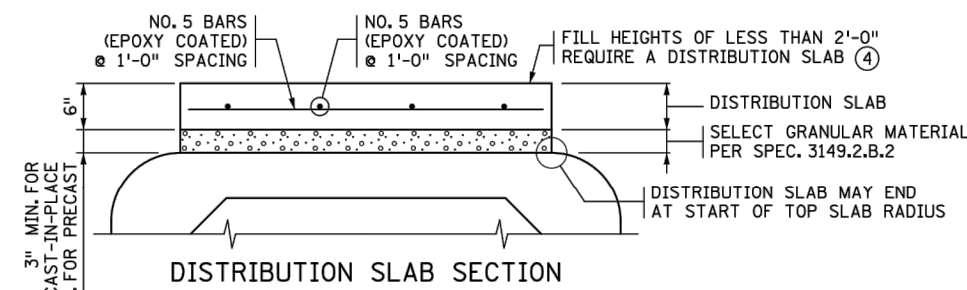
- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
- ② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
- ③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
- ④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
- ⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:
APPROVED: 2-28-2017
[Signature]
CHIEF ENVIRONMENTAL OFFICER

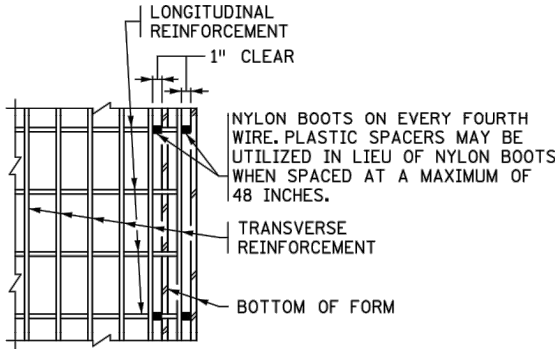
	STANDARD PLAN 5-297.405	8 OF 8
	APPROVED: 2-28-2017 REVISED: <i>[Signature]</i> STATE DESIGN ENGINEER	
STATE PROJ. NO.		(T.H.) SHEET NO. OF SHEETS

**TEMPORARY SEDIMENT CONTROL
CULVERT END CONTROLS**

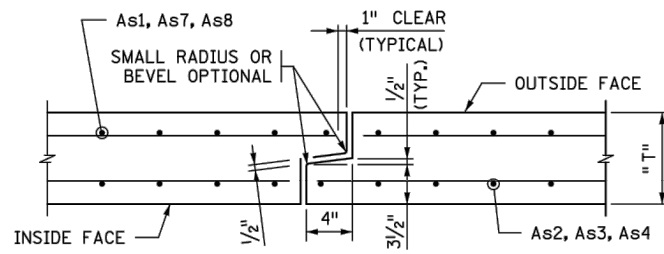
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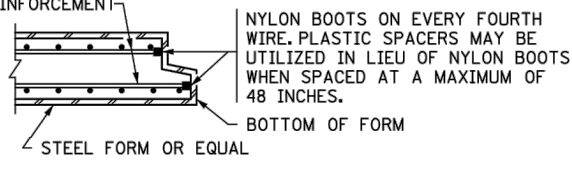
HAUNCH BAR LENGTH:
 31" FOR 8" WALL THICKNESS
 34" FOR 9" WALL THICKNESS
 34" FOR 10" WALL AND 10" SLAB
 36" FOR 10" WALL AND 11" SLAB
 38" FOR 10" WALL AND 12" SLAB
 38" FOR 11" WALL THICKNESS



PLAN

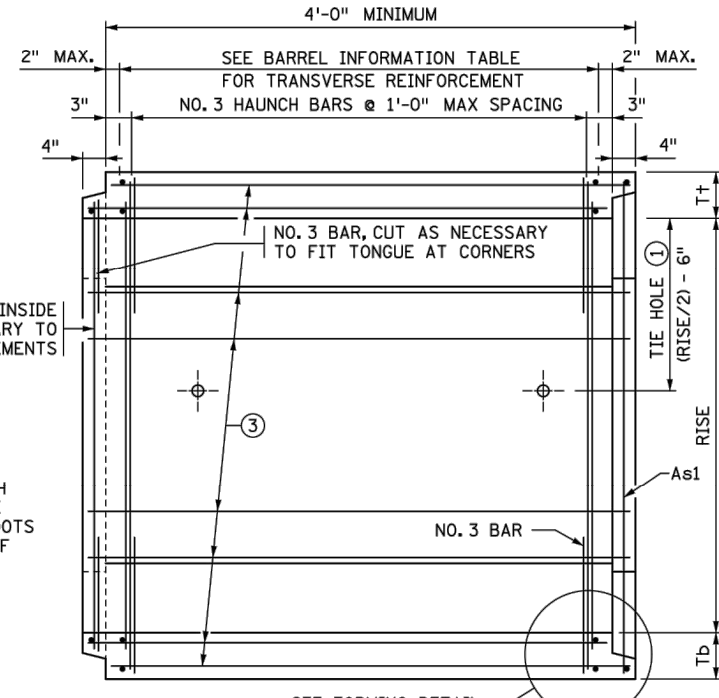


TONGUE AND GROOVE JOINT DETAIL

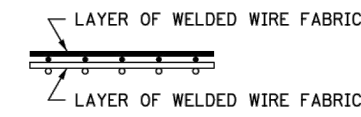


SECTION

FORMING DETAIL



LONGITUDINAL BARREL SECTION



FABRIC LAYER DETAIL

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

CONSTRUCTION NOTES

- CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.
- REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES AND TO STANDARD FIGURE 5-395.115 FOR MATERIAL REQUIREMENTS FOR FILL BETWEEN ADJACENT BOXES.
- THE WELDED WIRE FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.
- 1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.
- ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
 (a) 1 OR 2 LAYERS OF WELDED WIRE FABRIC OR
 (b) 1 LAYER OF WELDED WIRE FABRIC AND 1 LAYER OF REINFORCEMENT BARS OR
 (c) 1 LAYER OF REINFORCEMENT BARS.
- THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE FABRIC, THE AREA OF REINFORCEMENT SHALL BE INCREASED BY 8%, AND CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4. "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT".
- THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM WELDED WIRE FABRIC SIZE SHALL BE A W23 PER LAYER (MAXIMUM OF 2 LAYERS).
- THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".
- WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR WELDED WIRE FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.
- WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.
- CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.
- SHOP DRAWING APPROVAL PER SPEC. 3238.2.A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.
- COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.
- TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN. LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.
- ① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.
 - ② HAUNCH SIZES ARE TO BE 12" VERTICAL, 12" HORIZONTAL ON ALL BOX SIZES.
 - ③ LONGITUDINAL REINFORCEMENT DENOTED AS As5 AND As6 MUST BE PLACED IN ALL SLABS AND WALLS AND MUST BE 0.06 SQ. IN./FT. MIN.
 - ④ ROADWAY OR SHOULDER FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB.
- USE CONCRETE MIX 3Y43 FOR THE DISTRIBUTION SLAB.
- CAST-IN-PLACE DISTRIBUTION SLABS SHALL BE 6" THICK. PROVIDE 3" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.
- PRECAST DISTRIBUTION SLABS SHALL BE 6" THICK AND MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.
- THE WIDTH OF THE DISTRIBUTION SLAB SHALL EXTEND BETWEEN THE OUTSIDE EDGES OF THE SHOULDERS UNLESS DIRECTED BY THE ENGINEER.
- PAYMENT FOR THE DISTRIBUTION SLAB AND SELECT GRANULAR MATERIAL BENEATH THE SLAB SHALL BE CONSIDERED INCIDENTAL.
- IF DISTRIBUTION SLAB IS USED AS PAVEMENT SURFACE IT MUST BE REDESIGNED PER THE MnDOT PAVEMENT DESIGN MANUAL.

BARREL INFORMATION TABLE ***

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DISTRIBUTION SLAB REQUIRED *	RECESSED TIE RODS REQUIRED **	DIMENSIONS					WELDED WIRE FABRIC REINFORCEMENT													
							SPAN (FT.)	RISE (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	As1		As2		As3		As4		As7		As8			
												AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)		
					YES	NO																			
					YES	NO																			

* ALL CLASS 1 CULVERTS WITH FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. IF A DISTRIBUTION SLAB IS NOT REQUIRED, INDICATE "NO" IN THIS BOX.

** FOR PEDESTRIAN CULVERT APPLICATIONS HIDE-AWAY OR RECESSED TIE CONNECTIONS ARE REQUIRED, SEE STANDARD PLATE 3145. IF REQUIRED, INDICATE "YES" IN THIS BOX.

*** BOX CULVERTS WITH SPANS FROM 6 TO 14 FT. ARE DESIGNED FOR HL-93 LIVE LOADS (AASHTO LRFD 3.6.2.1) NOT INCLUDING THE DESIGN LANE LOAD. BOXES WITH SPANS OF 16 FT. ARE DESIGNED FOR HL-93 LIVE LOADS INCLUDING THE DESIGN LANE LOAD.

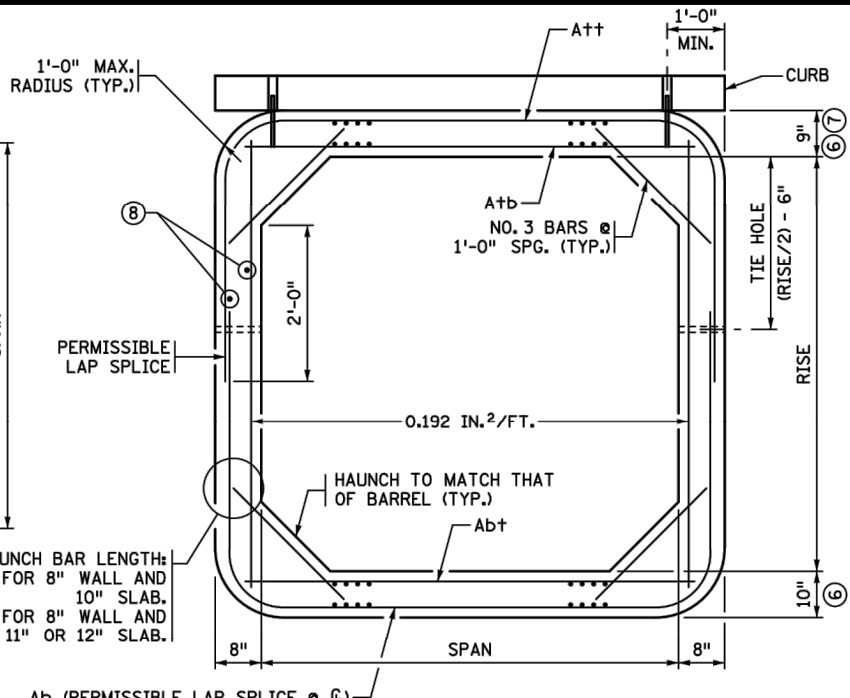
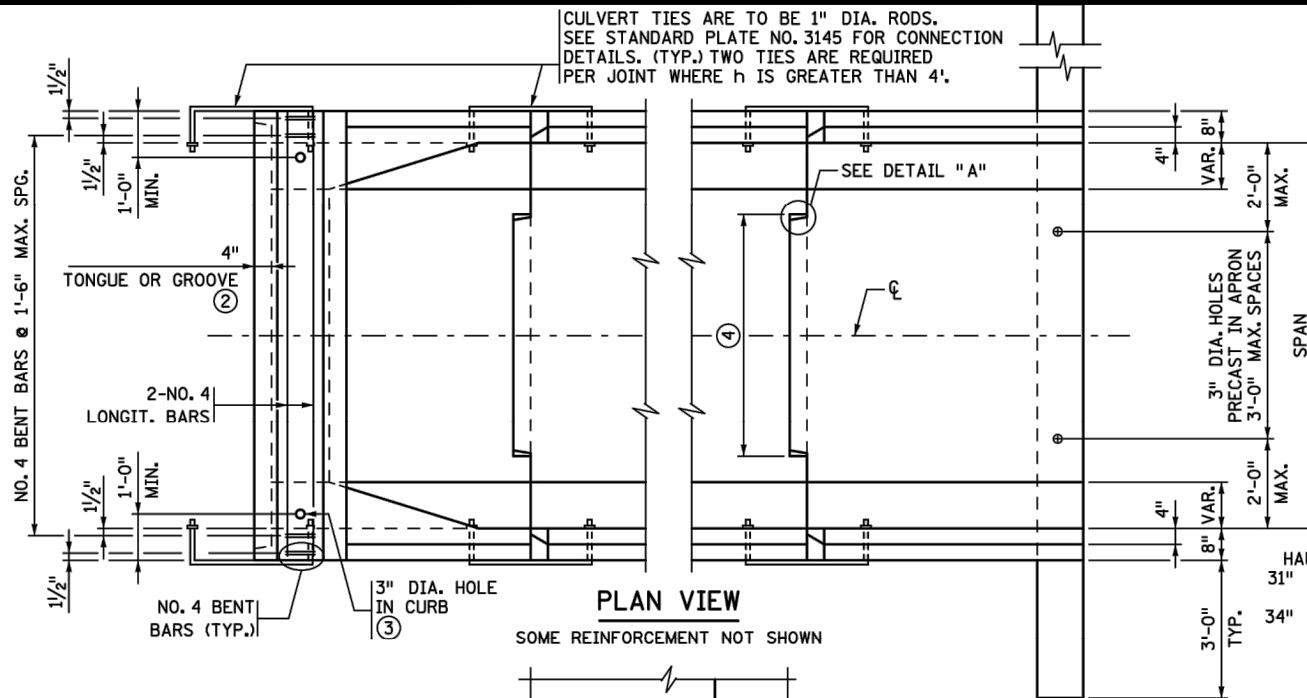
REVISION: 09-11-2014

APPROVED: MARCH 24, 2011

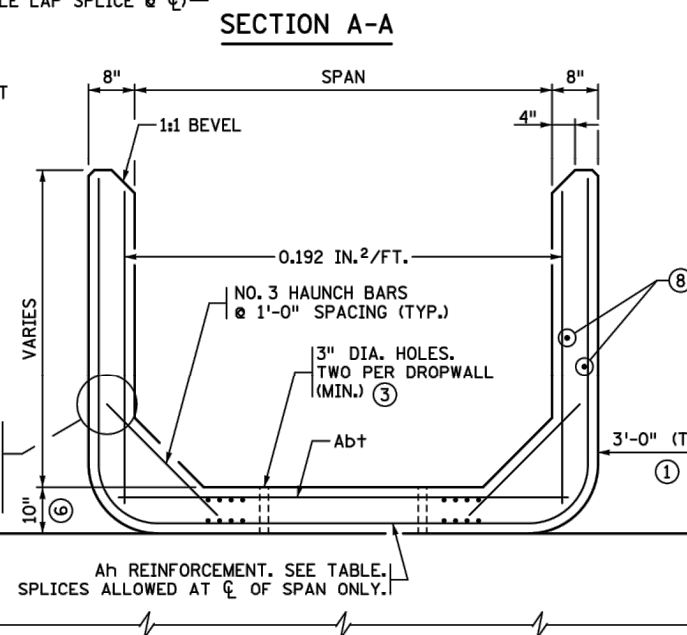
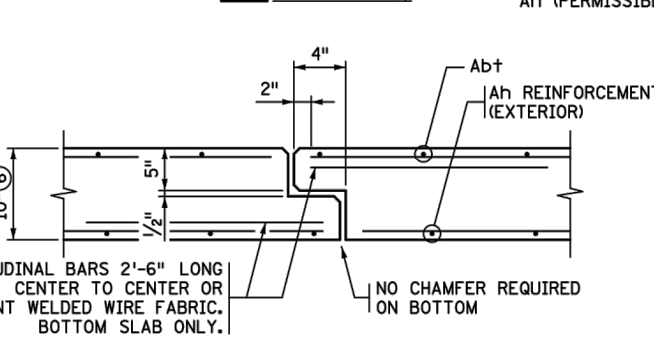
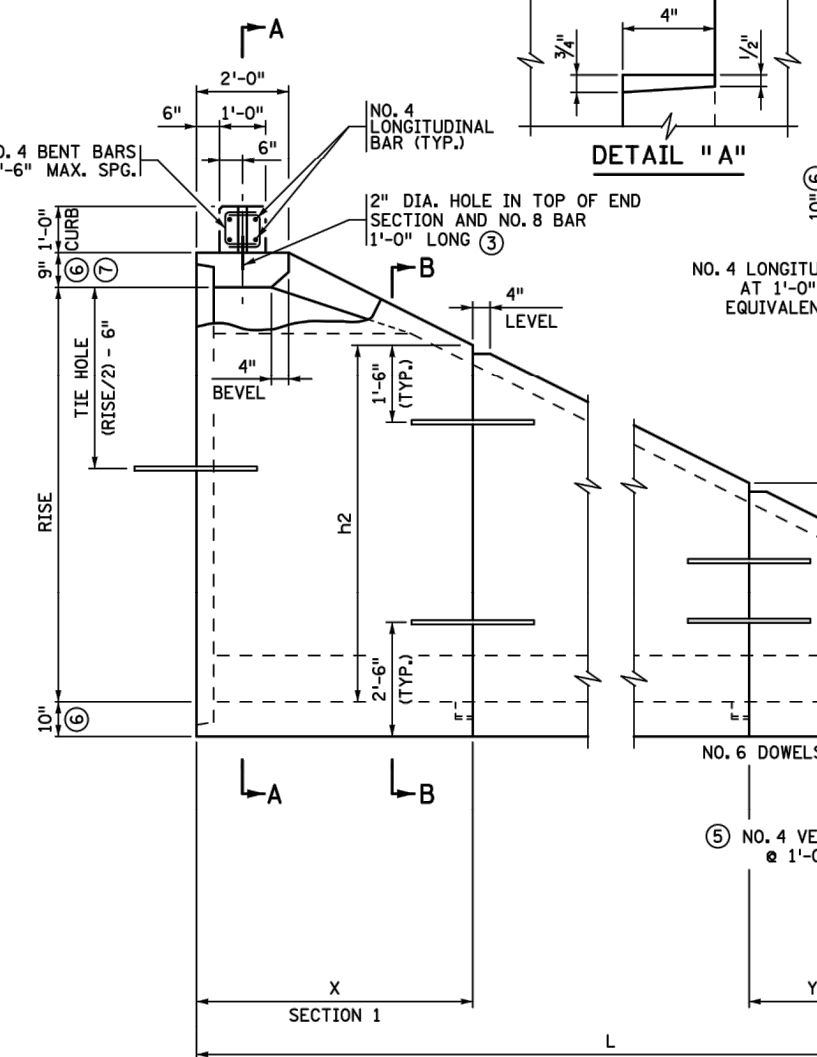
Nancy Subenberger
 STATE BRIDGE ENGINEER

STATE PROJ. NO - (T.H.) STA. + .						FIG. 5-395.101(A)								
CERTIFIED BY			DATE			TITLE: PRECAST CONCRETE BARREL DETAILS			DES: DR: APPROVED:			BRIDGE NO.		
NAME:			LIC. NO.						SHEET NO. OF SHEETS					

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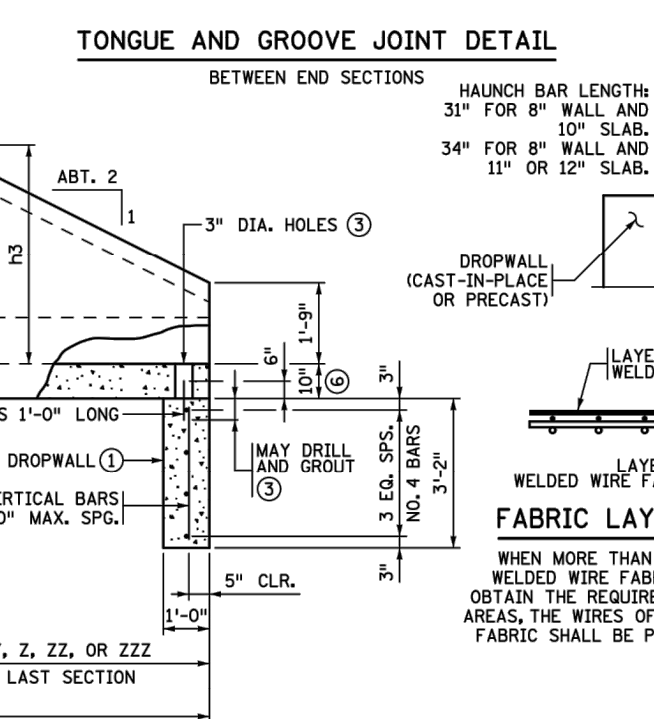


- ### CONSTRUCTION NOTES
- SEE STANDARD FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.
- ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.
- ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.
- SEE STANDARD FIG. 5-395.115 FOR EMBANKMENT PROTECTION.
- FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.
- WITH DOUBLE BOXES LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE STANDARD FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 C MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.
 - CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.
 - FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".
 - 3'-6" MIN. TONGUE AND 3'-7" MIN. GROOVE FOR CULVERTS WITH 6'-0" SPANS. 5'-0" MIN. TONGUE AND 5'-1" MIN. GROOVE FOR CULVERTS WITH SPANS GREATER THAN 6'-0". CENTER TONGUE AND GROOVE ON $\frac{1}{2}$ OF EACH APRON JOINT. TONGUE AND GROOVE JOINT ON ALL THREE SIDES OF APRON IS PERMISSIBLE.
 - AS AN ALTERNATE TO THE ONE LAYER WELDED WIRE FABRIC, PROVIDE TWO LAYERS OF REBAR OR WELDED WIRE FABRIC WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.
 - APRON TOP AND BOTTOM SLAB THICKNESS MAY BE 8" FOR CULVERTS WITH 6' SPANS ONLY. BOTTOM SLAB THICKNESS MAY BE INCREASED UP TO 2" MAX. PROVIDED CONCRETE COVER IS 1/2" MIN., 2" MAX.
 - 10" MINIMUM TOP SLAB FOR 14' AND 16' SPANS.
 - LONGITUDINAL REINFORCEMENT PERPENDICULAR TO THE CULVERT SPAN SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL.



A+t, A+b REINFORCEMENT		
SPAN (FT.)	A+t (IN ² /FT.)	A+b (IN ² /FT.)
6	0.27	0.44
8	0.47	0.60
10	0.62	0.74
12	0.88	1.06
14	1.20	1.58
16	1.52	2.09

Ab+ REINFORCEMENT	
SPAN (FT.)	Ab+ (IN ² /FT.)
6-10	0.20
12	0.30
14	0.39
16	0.39



APRON DIMENSIONS & Ah REINFORCEMENT

RISE FT.	L FT.	SECTION 1		SECTION 2		SECTION 3		SECTION 4		SECTION 5		h6				
		X	Ah	Y	Ah	Z	Ah	ZZ	Ah	ZZZ	Ah					
4	8	8' (4')	0.192	1'-9" (3'-9")	(4')	0.192	(1'-9")									
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	0.192	(1'-9")						
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	0.192	(1'-9")			
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	0.192	(1'-9")
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN²/FT.) VALUES IN () MAY BE USED FOR END SECTIONS WITH SPANS OF 14' AND 16' ONLY.

REVISION: 11-06-2013

APPROVED: MARCH 24, 2011

Nancy A. Subenberger
STATE BRIDGE ENGINEER

STATE PROJ. NO - (T.H.) STA. + .

FIG. 5-395.102

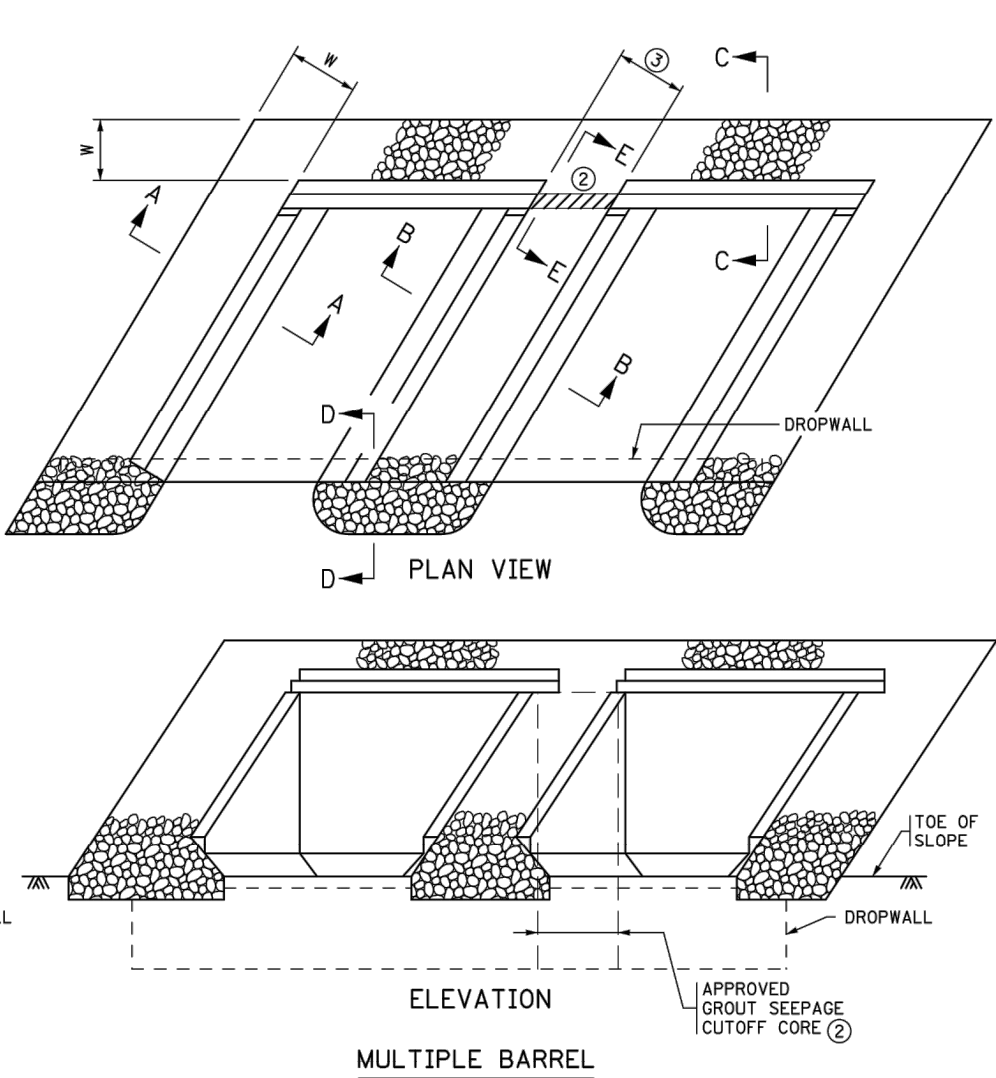
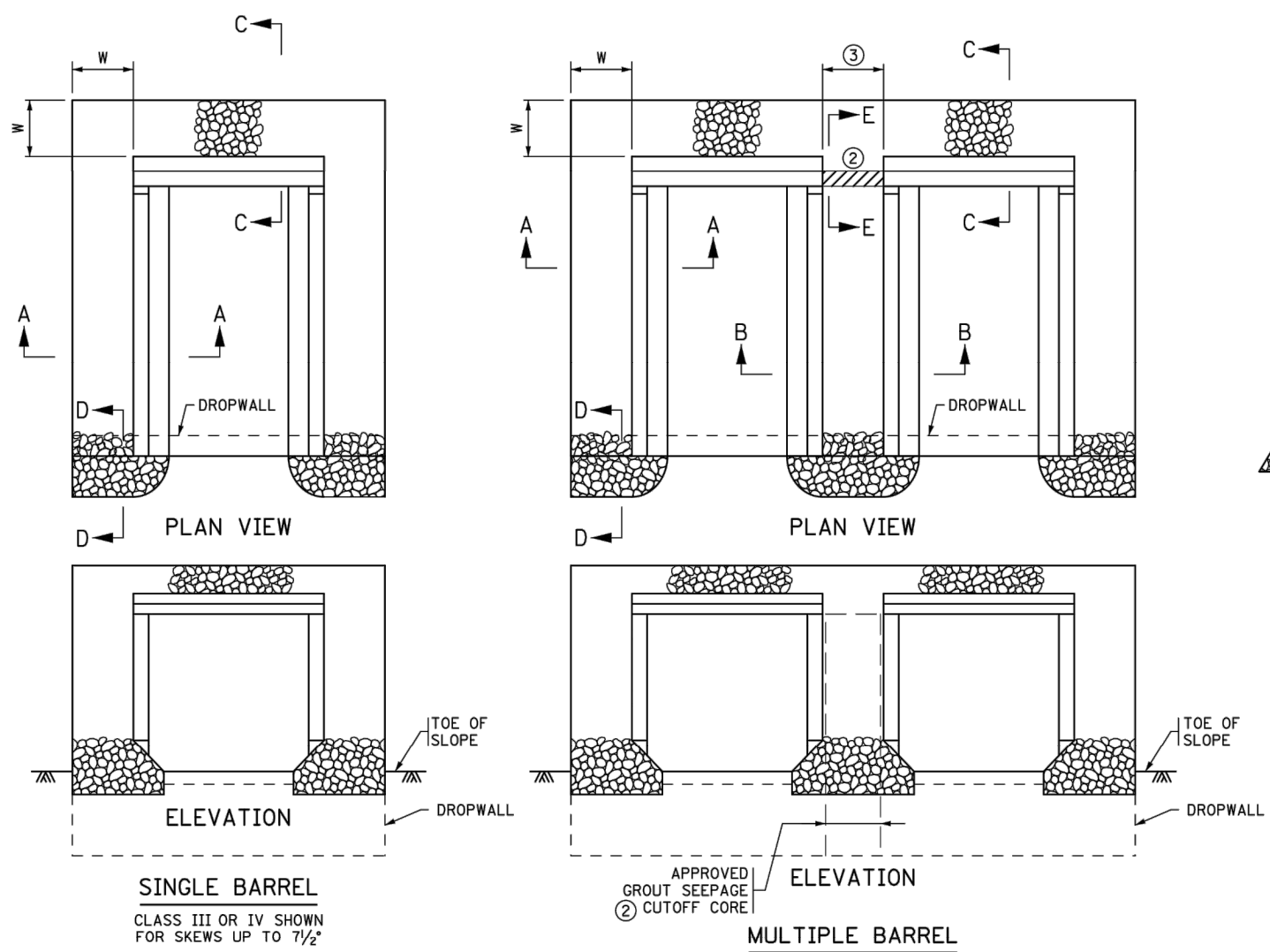
CERTIFIED BY _____ TITLE: PRECAST CONCRETE END SECTION TYPE I - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7/2"

DES: _____ DR: _____ APPROVED: _____

CHK: _____ CHK: _____

NAME: _____ LIC. NO. _____ SHEET NO. OF SHEETS BRIDGE NO. _____

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CONSTRUCTION NOTES

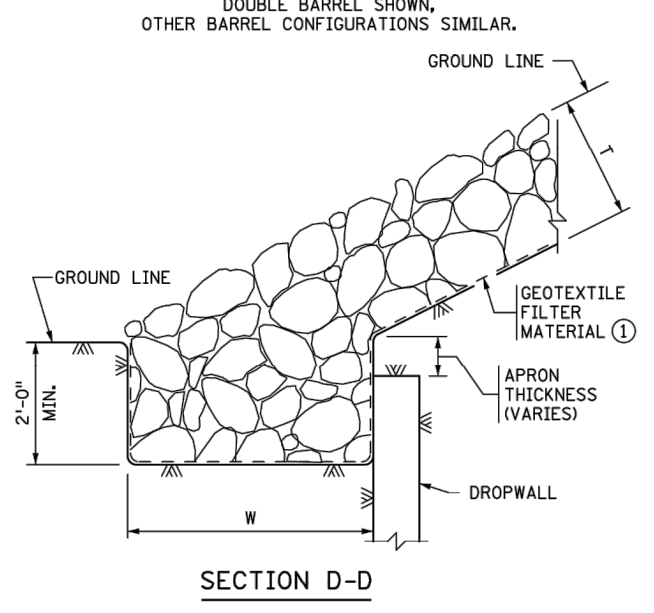
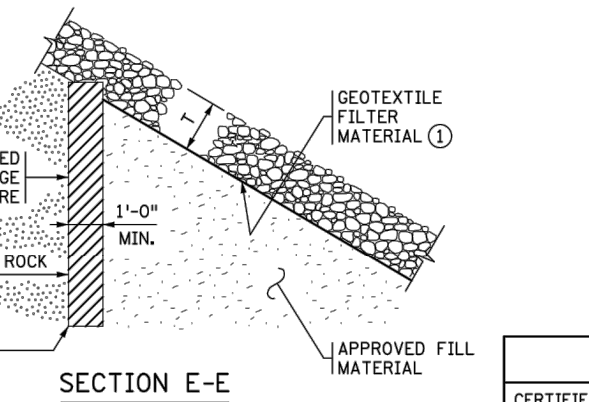
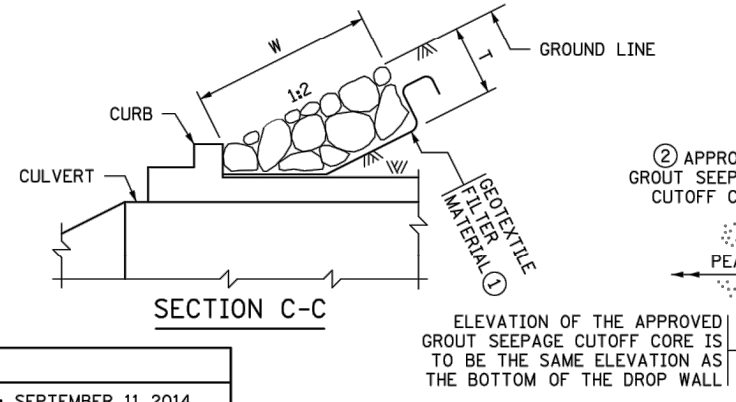
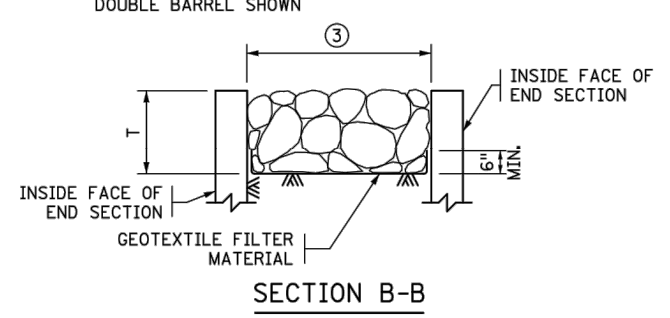
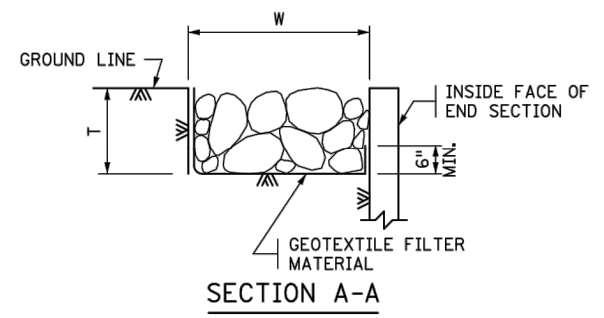
THIS PLAN SHEET IS FOR CULVERT EMBANKMENT PROTECTION ONLY. REFER TO THE GRADING PLANS FOR ADDITIONAL RIPRAP OR OTHER SCOUR PROTECTION MEASURES.

RIPRAP SHALL COMPLY WITH SPECS. 2511 AND 3601.

① FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE SPEC. 3733. GEOTEXTILE STRIPS SHOULD BE CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. THE TOP EDGE SHOULD BE BURIED TO PREVENT UNDERMINING.

② IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. IF PEA ROCK IS USED PROVIDE APPROVED GROUT SEEPAGE CUTOFF CORE, MINIMUM 12" THICK BETWEEN THE CULVERT'S TWO ENDS AND PROVIDE CLASS I GROUTED RIPRAP IN LIEU OF CLASS III RIPRAP.

③ REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES.



RIPRAP CLASS

RIPRAP CLASS	RIPRAP CLASS	T	W
<input type="checkbox"/>	III	1'-6"	3'-0"
<input type="checkbox"/>	IV	2'-0"	4'-0"

DESIGNER NOTE:
REMOVE PRIOR TO PLOTTING FINAL PLAN

DESIGNER TO SELECT EITHER CLASS III OR IV RIPRAP USING CHECK BOX ABOVE.

REVISION:
APPROVED: SEPTEMBER 11, 2014
Nancy Dubenberger
STATE BRIDGE ENGINEER

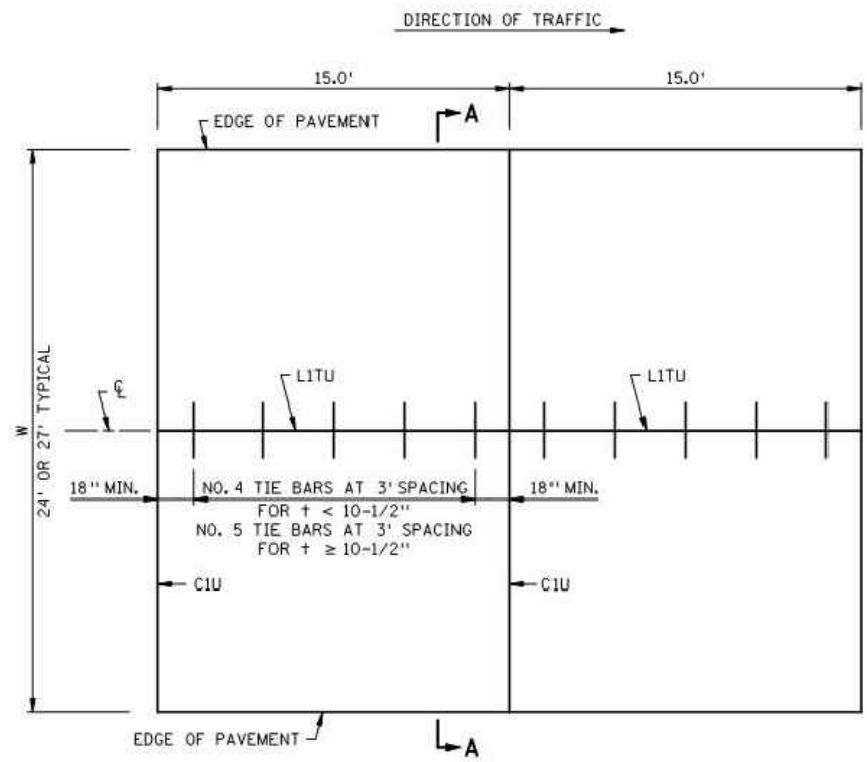
ELEVATION OF THE APPROVED GROUT SEEPAGE CUTOFF CORE IS TO BE THE SAME ELEVATION AS THE BOTTOM OF THE DROP WALL

STATE PROJ. NO - (T.H.) STA. + .		FIG. 5-395.115	
CERTIFIED BY	DATE	DES:	DR:
NAME:	LIC. NO.	CHK:	CHK:
EMBAKMENT PROTECTION FOR BOX CULVERTS		APPROVED:	
SHEET NO. OF SHEETS		BRIDGE NO.	
S.P. . S.A.P. 062-593-004		SHEET NO 16 OF 335 SHEETS	

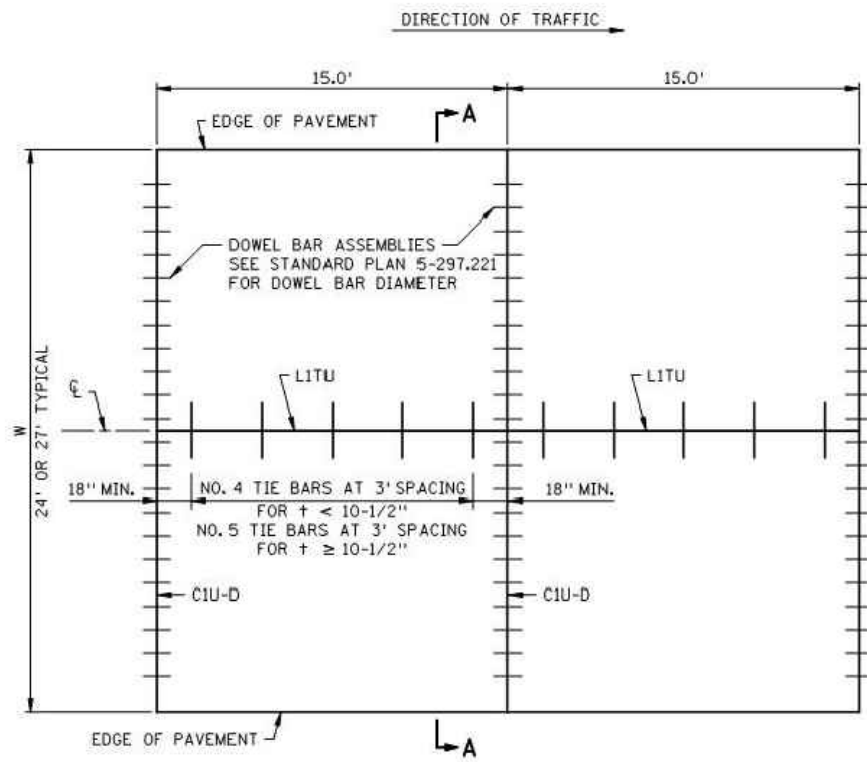
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PLOTTED/REVISED: 4-APR-2018

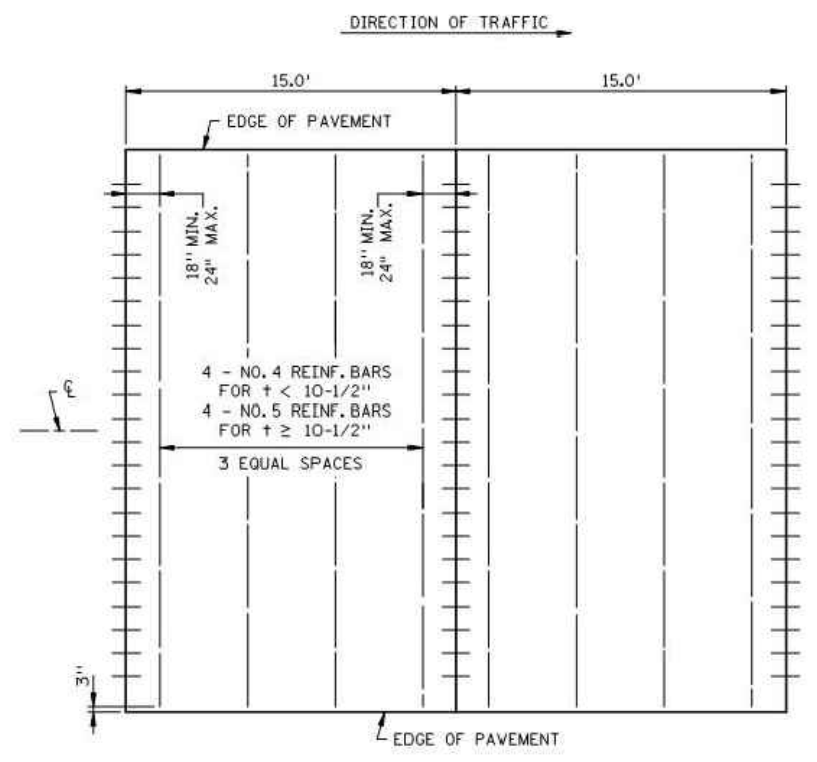
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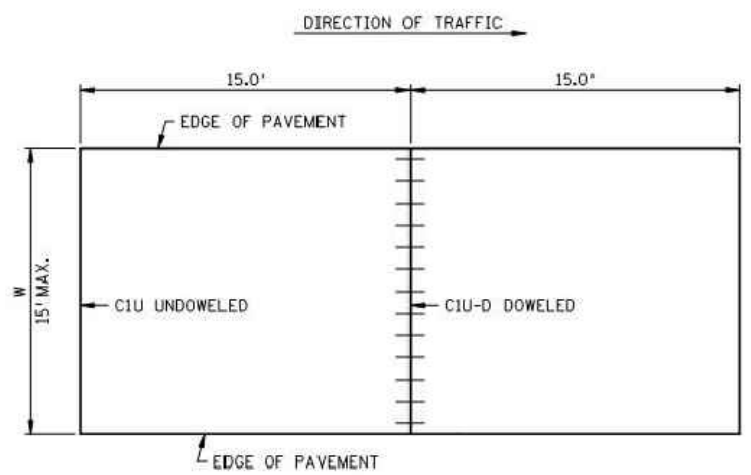
MAINLINE PAVEMENT
UNDOWELED



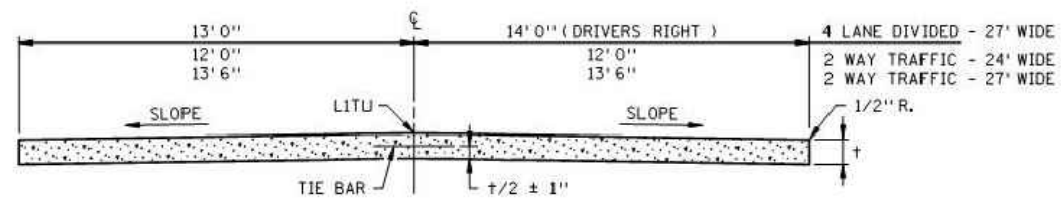
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .
 DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.
 ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.
 FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.
 PANEL REINFORCEMENT:
 PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, PLACEMENT DEPTH SHALL BE PLANNED $t/2 \pm 1''$. IT IS PREFERRED TO ADD A LONGITUDINAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

REVISION:
APPROVED: FEBRUARY 16, 2016
<i>[Signature]</i> DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

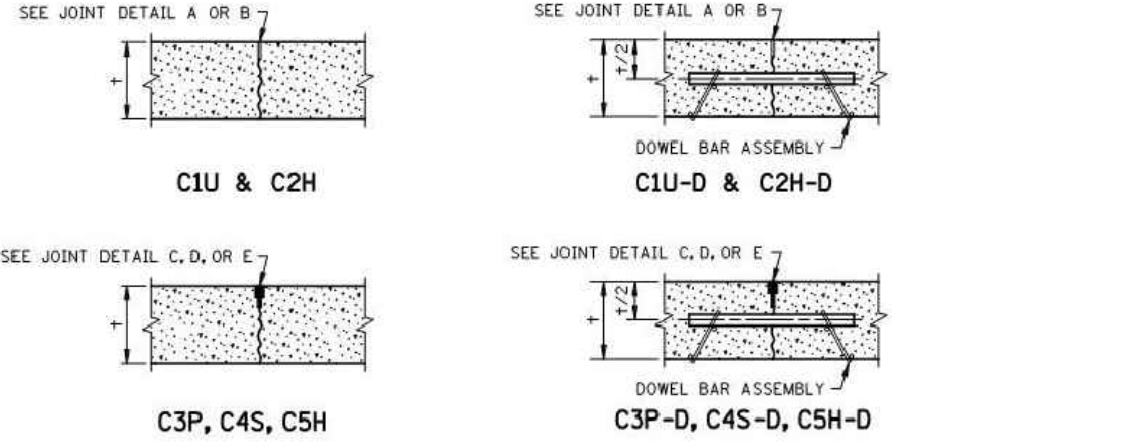


STANDARD PLAN 5-297.217 1 OF 2
 APPROVED: 2-16-2016
 REVISION:
 STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

CONCRETE MAINLINE PAVEMENT
 15.0 FT. PANEL LENGTH
 RURAL

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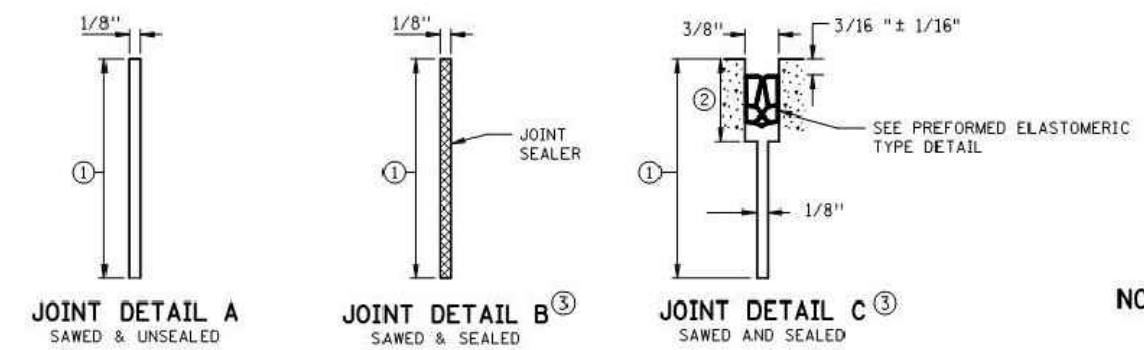


CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE WITHOUT DOWELS	JOINT REFERENCE WITH DOWELS	JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

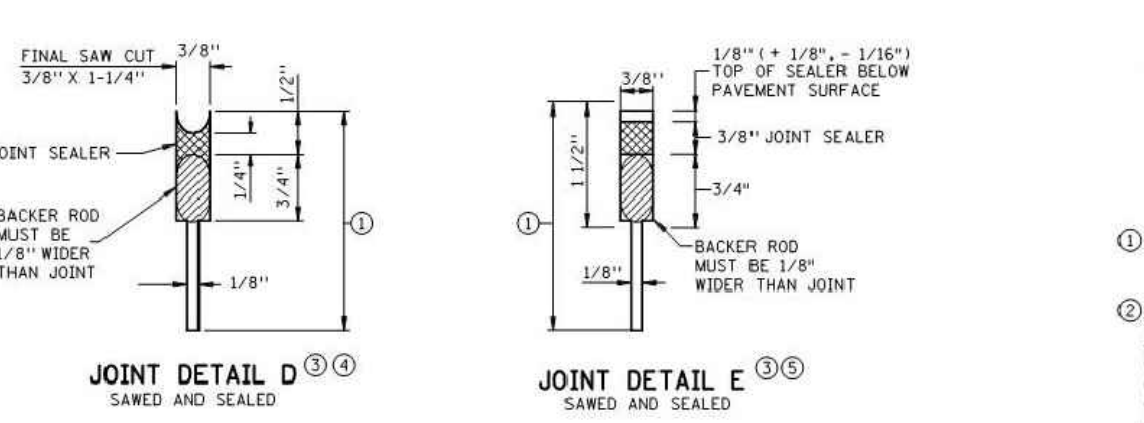
LEGEND
C = CONTRACTION JOINT
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
S = SILICONE
-D = DOWEL BARS

EXAMPLE
C2H-D



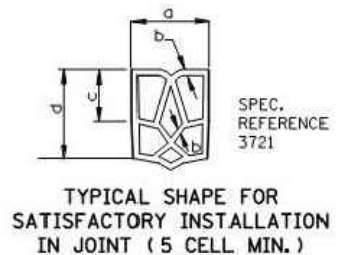
DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS + LESS THAN 6"	DOWEL BAR DIAMETER
6" - 6 1/2"	1" OR NONE
7" - 7 1/2"	1"
8" - 10"	1 1/4"
10 1/2" AND GREATER	1 1/2"

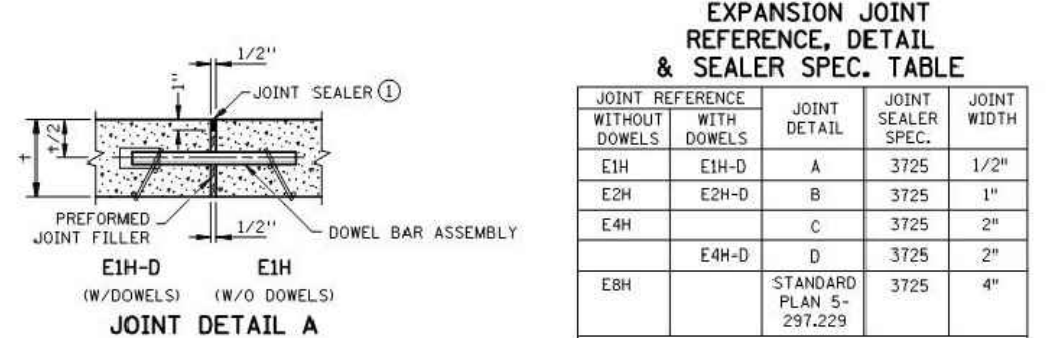


REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE NOMINAL SEALER SIZE	USE IN ALL 3/8" JOINTS
a	11/16"	0.69" + 0.13" - 0.05"
b		0.08" ± 0.02"
c		0.25" MIN.
d		0.63" MIN.

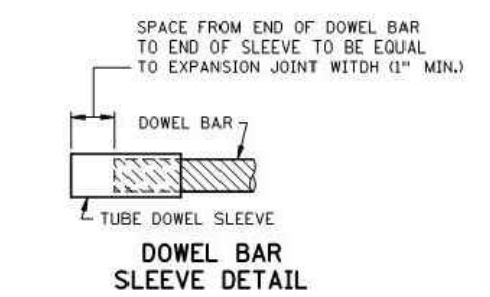
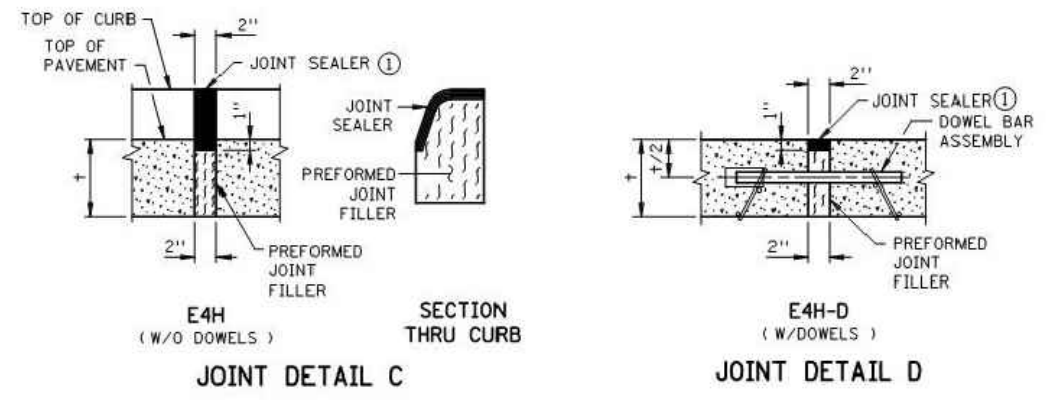
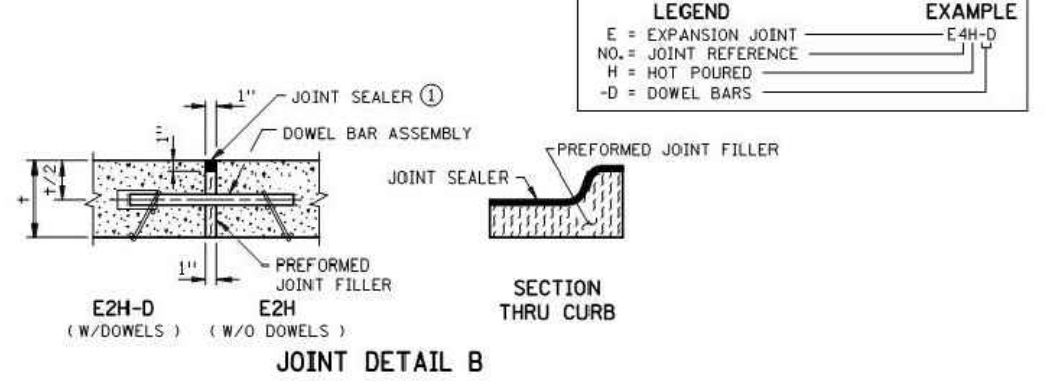


- NOTES:**
- SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS. JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"
 - FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SEE STANDARD PLANS 5-297.217 AND 5-297.219, FOR CONCRETE MAINLINE/RAMP PAVEMENT. SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
 - JOINT DEPTH SHALL BE: FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS
 - SEE CONTRACTION JOINT SEALER DETAIL. WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.
 - WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.
 - PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".
 - PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.



EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE WITHOUT DOWELS	JOINT REFERENCE WITH DOWELS	JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"



- NOTES:**
- PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
 - FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.
 - JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE ± 1/8".

REVISION:

APPROVED: 8-6-2014

[Signature]

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

CONTRACTION JOINTS
DESIGN C

m MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 1 OF 2

APPROVED: 8-6-2014
REVISED:

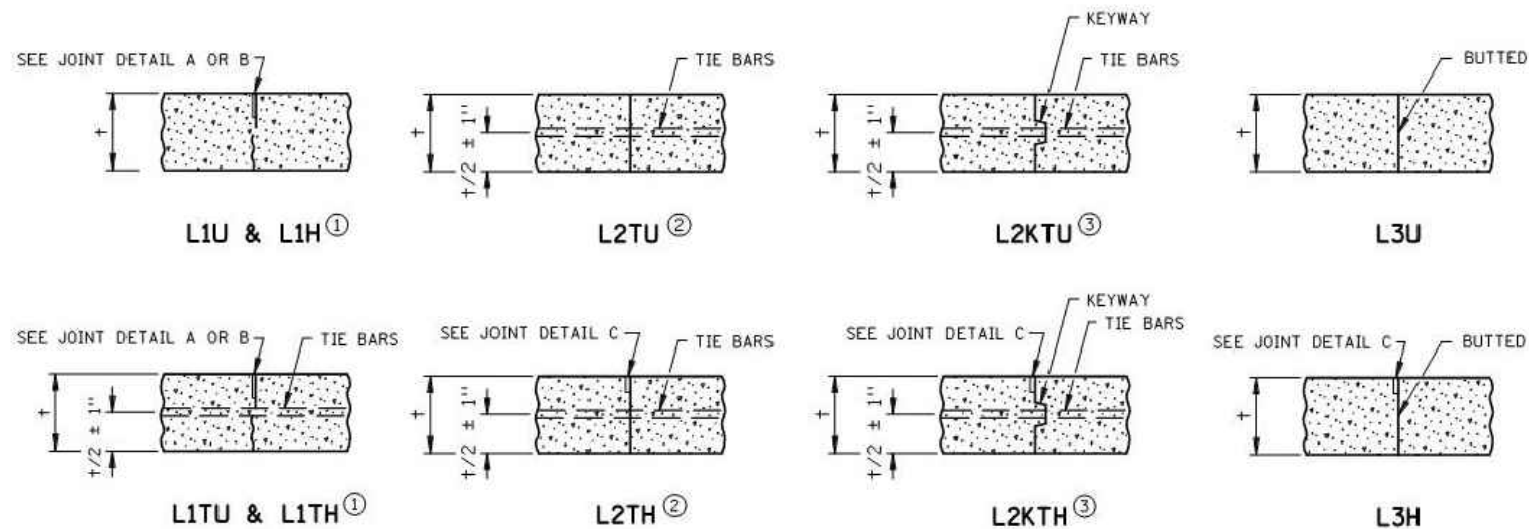
[Signature] STATE DESIGN ENGINEER

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

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

PLOTTED/REVISED: 4-APR-2018

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TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

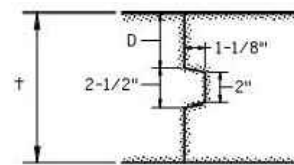
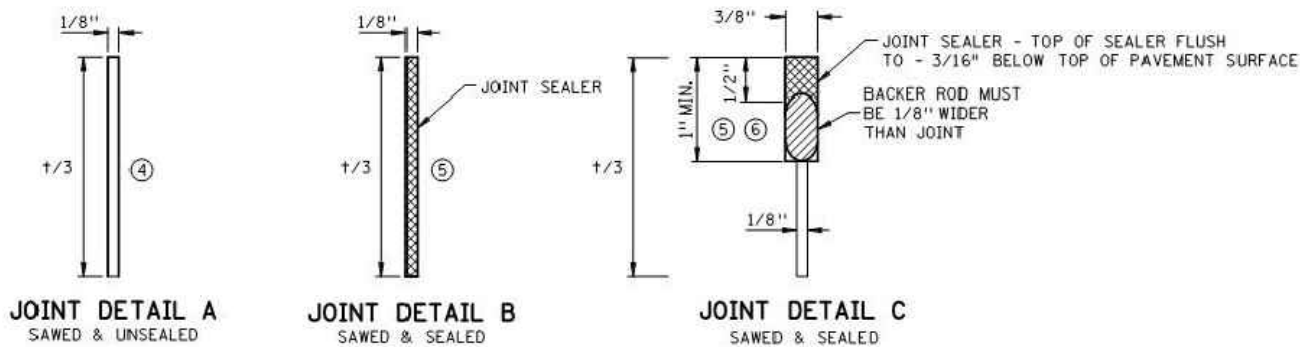
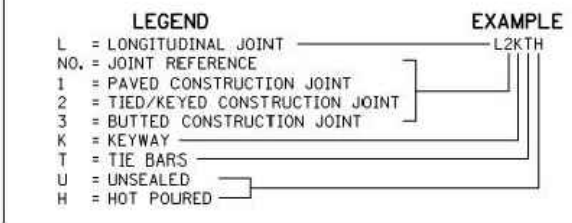
THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"



PAVEMENT KEYWAY DETAIL

NOTES:

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

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

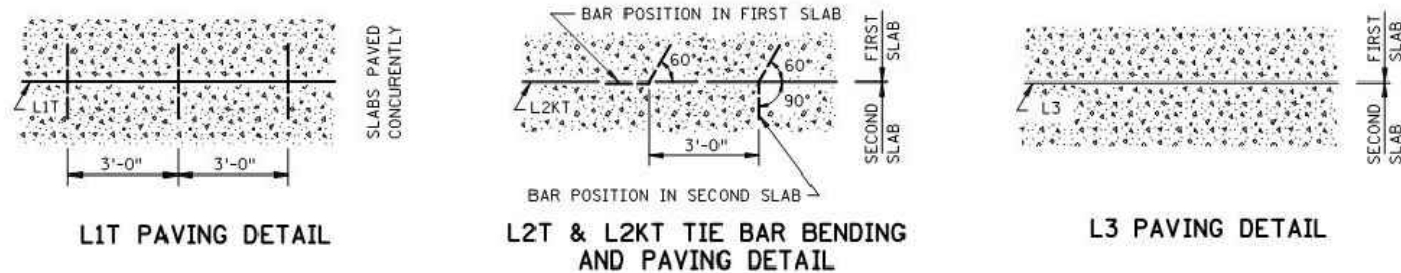
FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.

KEYWAY DIMENSION TABLE

PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7" TO 7-1/2"	3"
8" TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" x 2" x 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.



- SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.
- CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.
- CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.
- THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
- THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.
- PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.

REVISION:

APPROVED: 8-6-2014

[Signature]

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 2 OF 2

APPROVED: 8-6-2014
REVISED:

[Signature] STATE DESIGN ENGINEER

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

PAVEMENT JOINTS

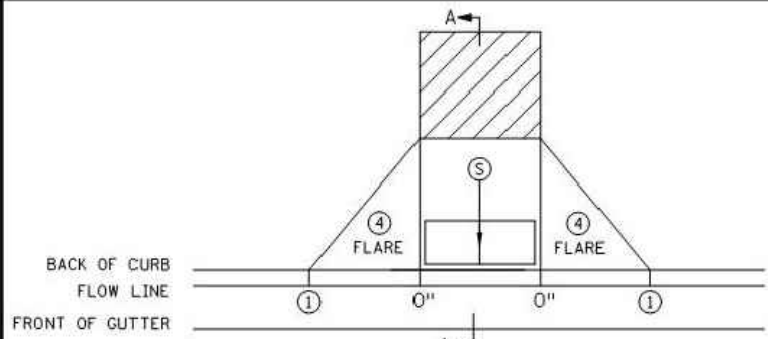
LONGITUDINAL (DESIGN L)

(T.H.) SHEET NO. OF SHEETS

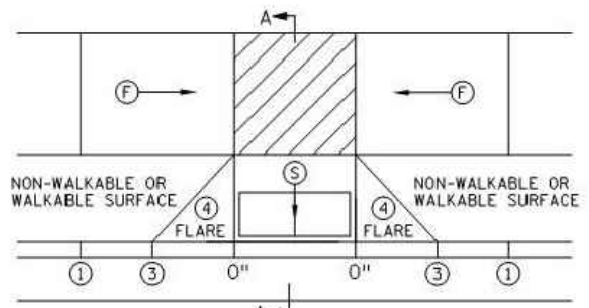
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PLOTTED/REVISED: 4-APR-2018

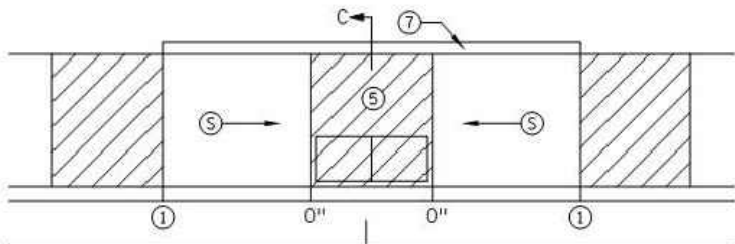
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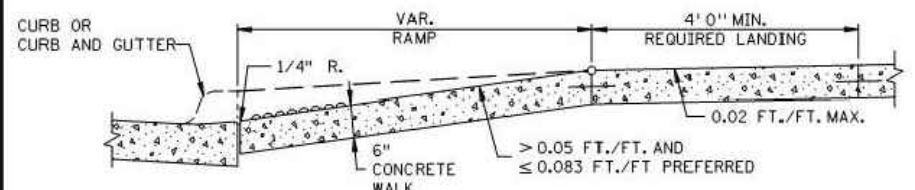
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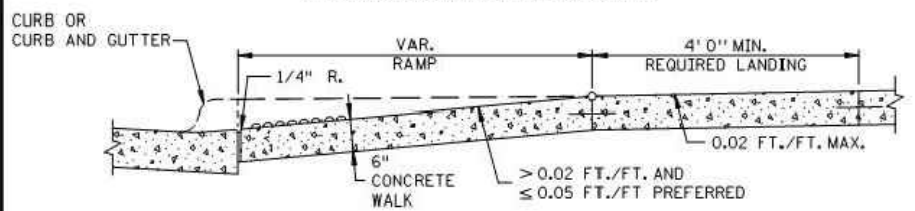
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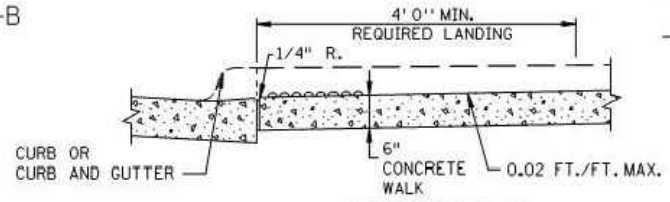
PARALLEL



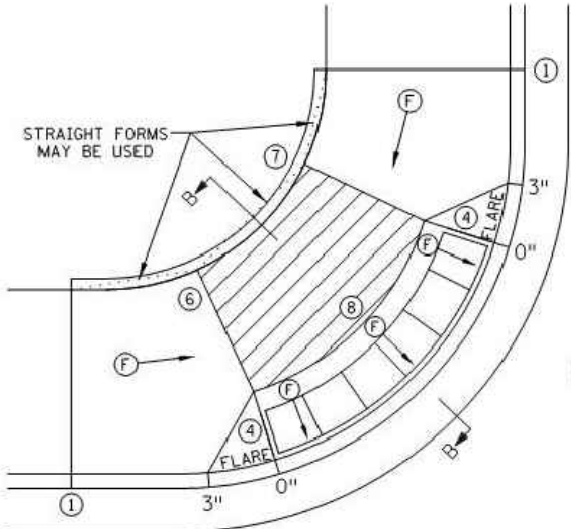
SECTION A-A
 PERPENDICULAR/TIERED/DIAGONAL



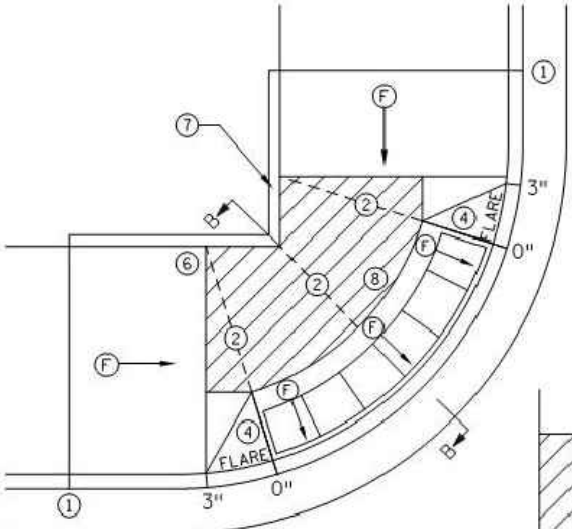
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 FAN



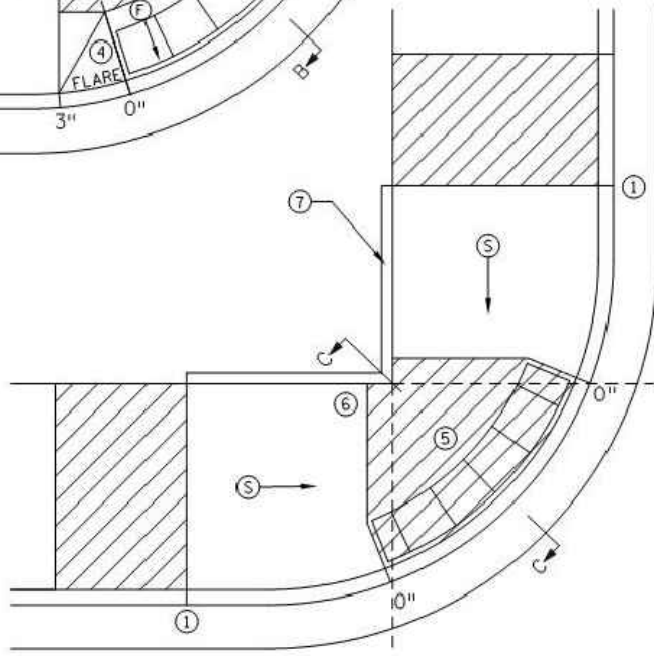
SECTION C-C
 PARALLEL/DEPRESSED CORNER



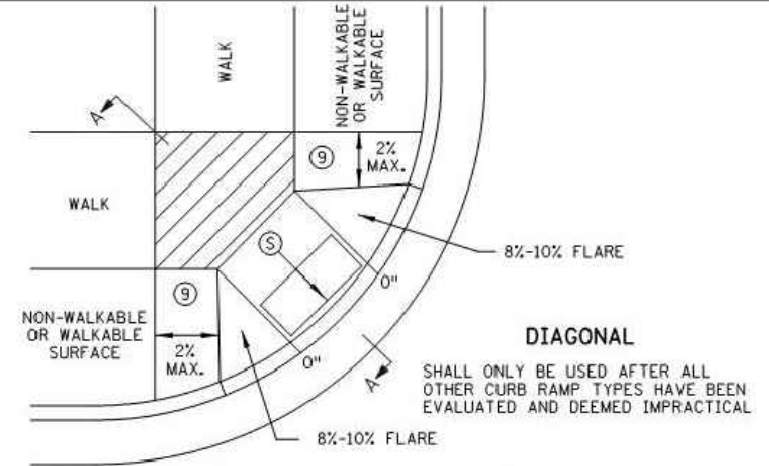
FAN ⑩



MODIFIED FAN ⑩
 USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.)
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- ① MATCH FULL HEIGHT CURB.
- ② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- ③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
- ⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- ⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
- ⑨ PAVE FULL WALK WIDTH.
- ⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

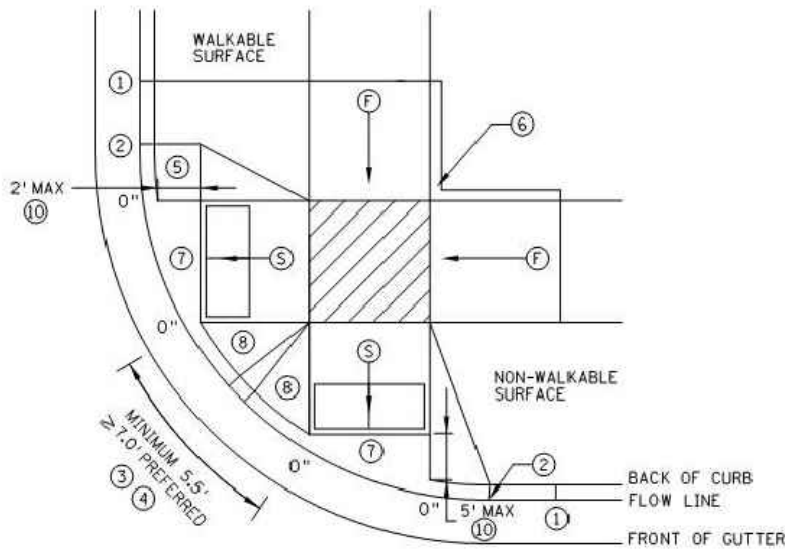
LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
(Hatched Box)	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISION:
 APPROVED: JANUARY 23, 2017
 OPERATIONS ENGINEER

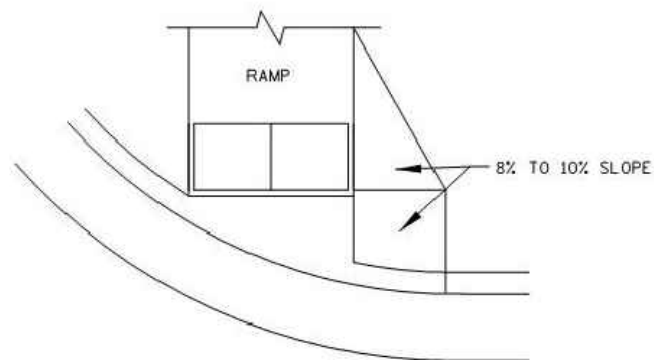
MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLAN 5-297.250 1 OF 6
 APPROVED: 1-23-2017
 REVISOR:
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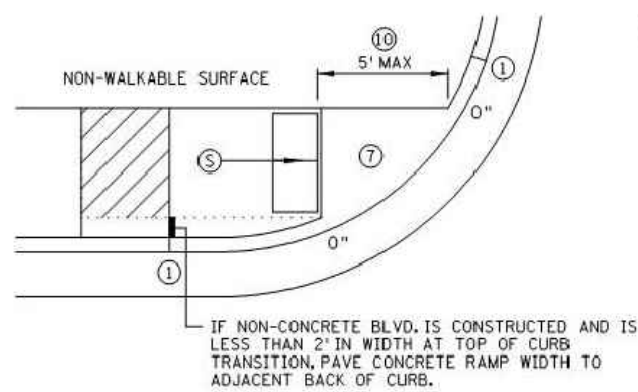
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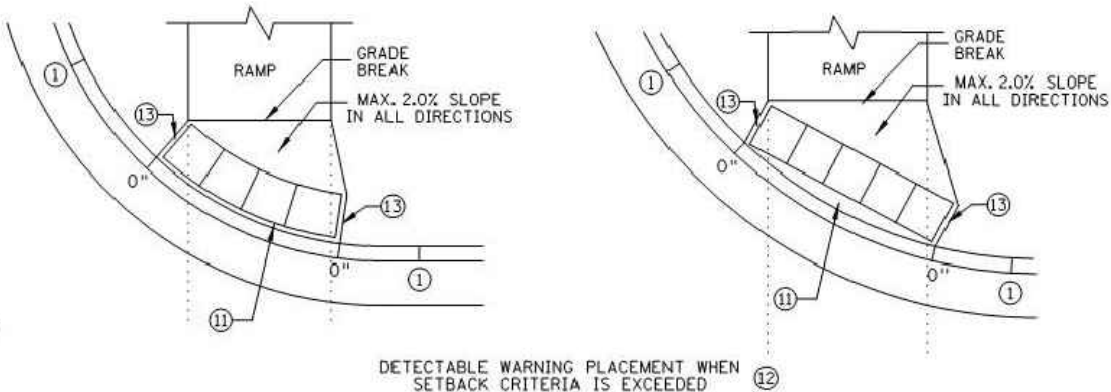
COMBINED DIRECTIONAL ⑨



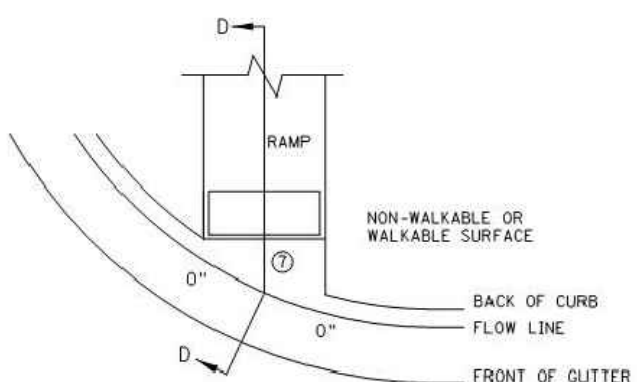
DIRECTIONAL RAMP WALKABLE FLARE



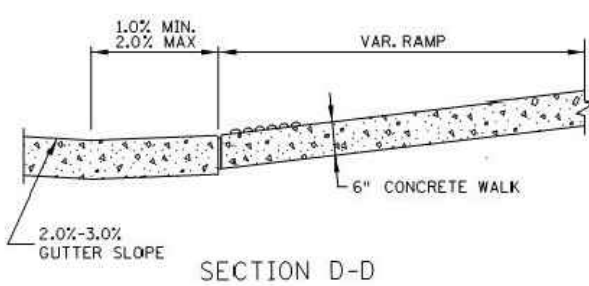
STANDARD ONE-WAY DIRECTIONAL ⑨



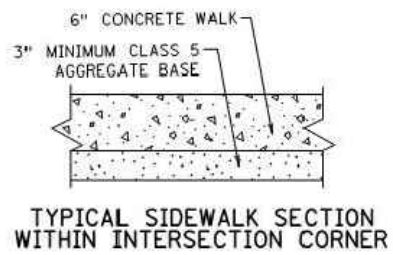
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

- NOTES:
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
 - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
 - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
 - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
 - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
 - TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
 - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
 - WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
 - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
 - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
 - RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.
- ① MATCH FULL CURB HEIGHT.
 - ② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
 - ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
 - ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
 - ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
 - ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
 - ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
 - ⑧ 8% TO 10% WALKABLE FLARE.
 - ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
 - ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
 - ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
 - ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
 - ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
 - ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
(Hatched Area)	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

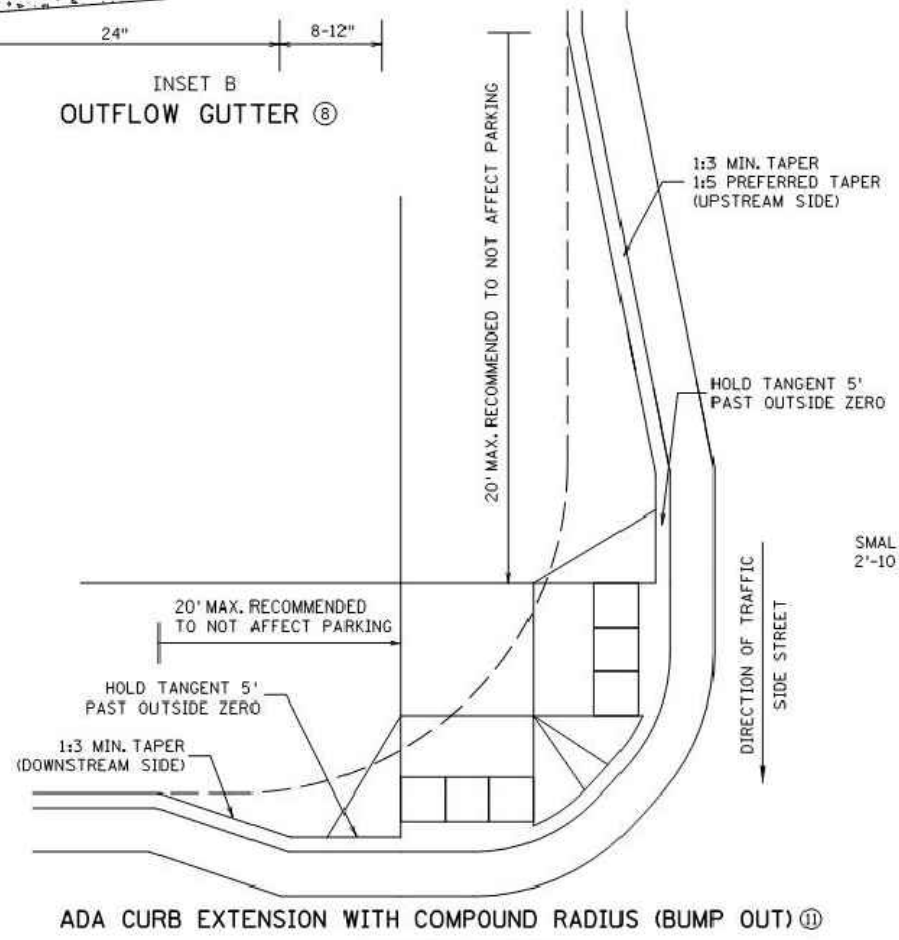
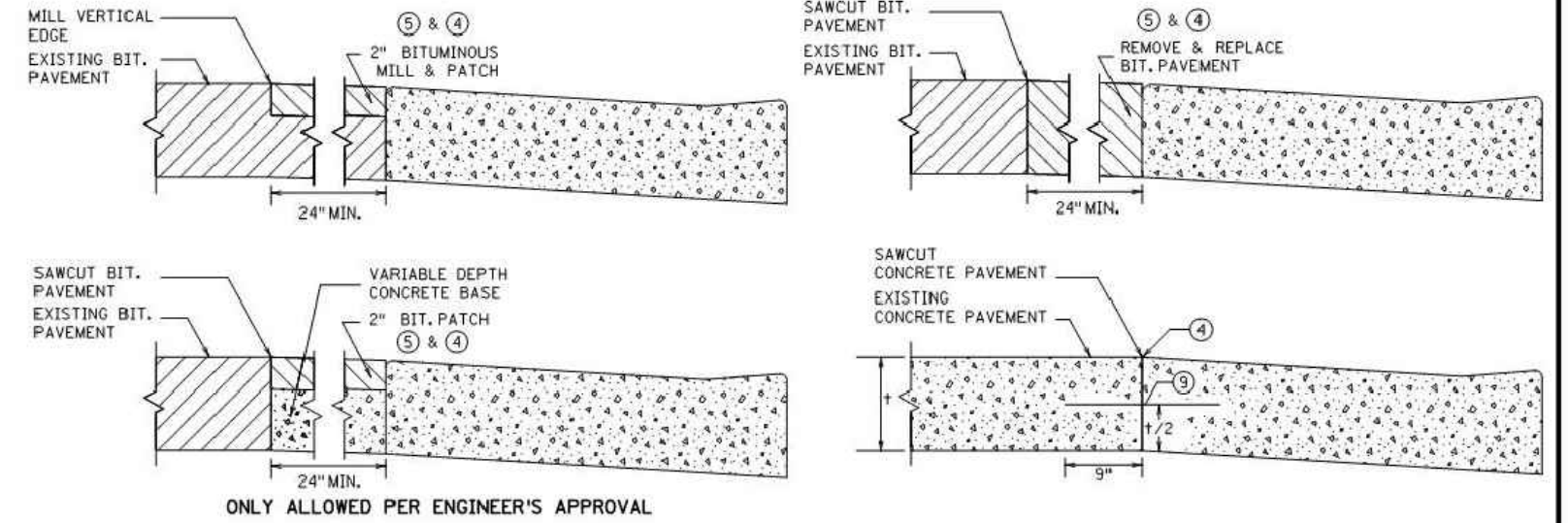
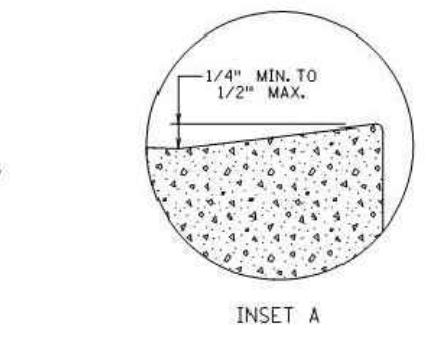
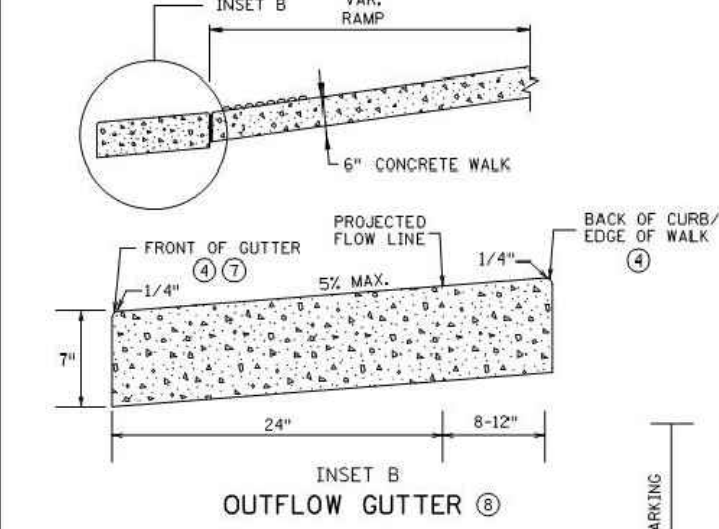
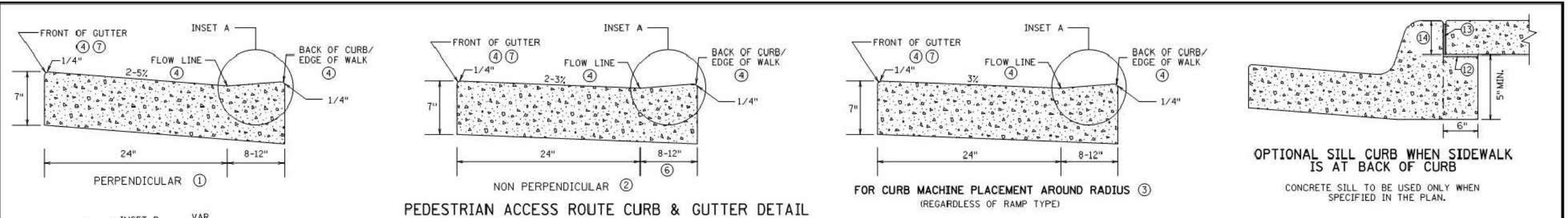
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APPROVED: JANUARY 23, 2017
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	STANDARD PLAN 5-297.250	2 OF 6
	 APPROVED: 1-23-2017 REVISOR:	
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PEDESTRIAN CURB RAMP DETAILS

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- NOTES:**
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
 - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
 - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
 - ② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
 - ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
 - ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
 - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
 - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
 - ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
 - ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
 - ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
 - ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
 - ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
 - ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
 - ⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
 - ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

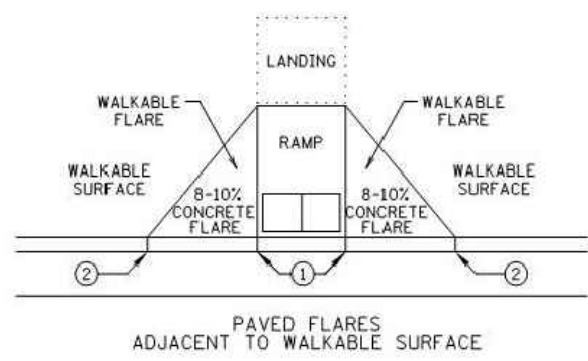
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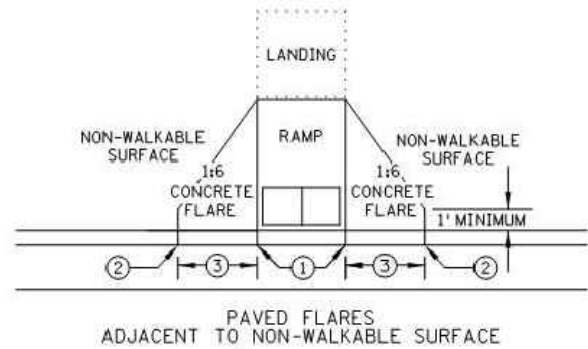
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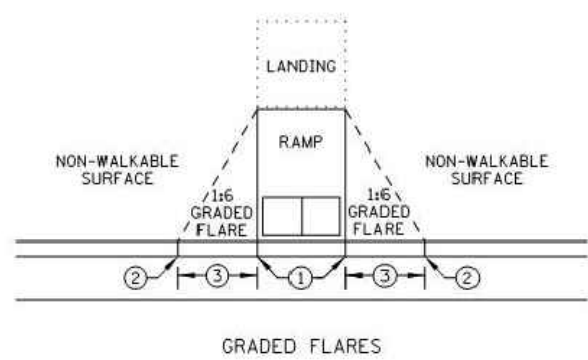
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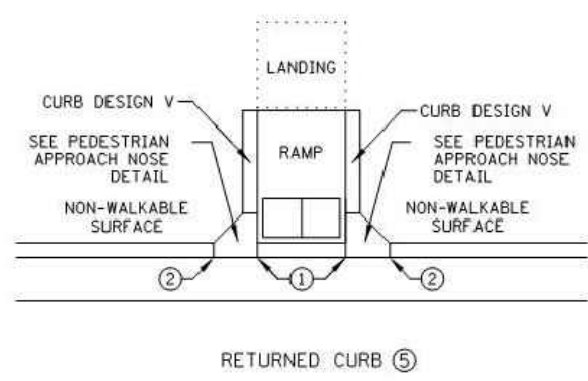
PAVED FLARES ADJACENT TO WALKABLE SURFACE



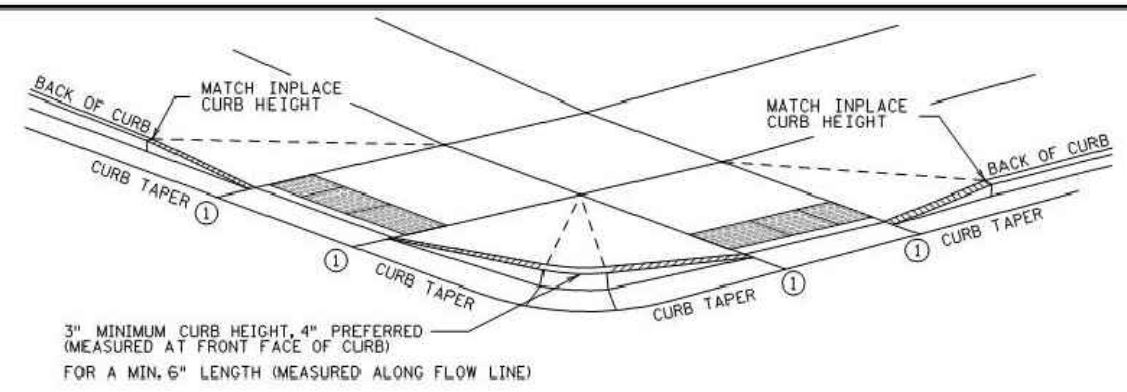
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GRADED FLARES

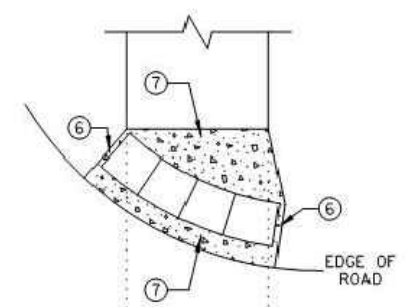


RETURNED CURB ⑤
 TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

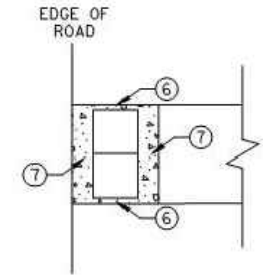


3" MINIMUM CURB HEIGHT, 4" PREFERRED
 (MEASURED AT FRONT FACE OF CURB)
 FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧ CURB AND GUTTER

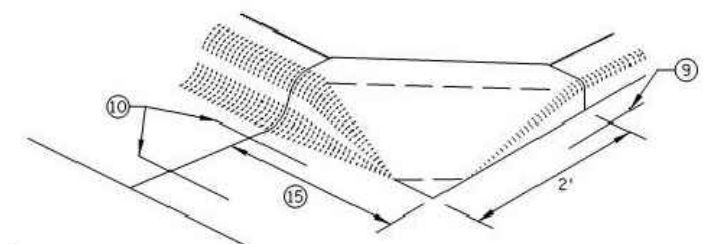


RADIAL DETECTABLE WARNING

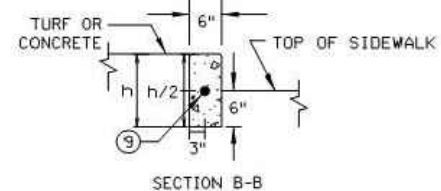


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

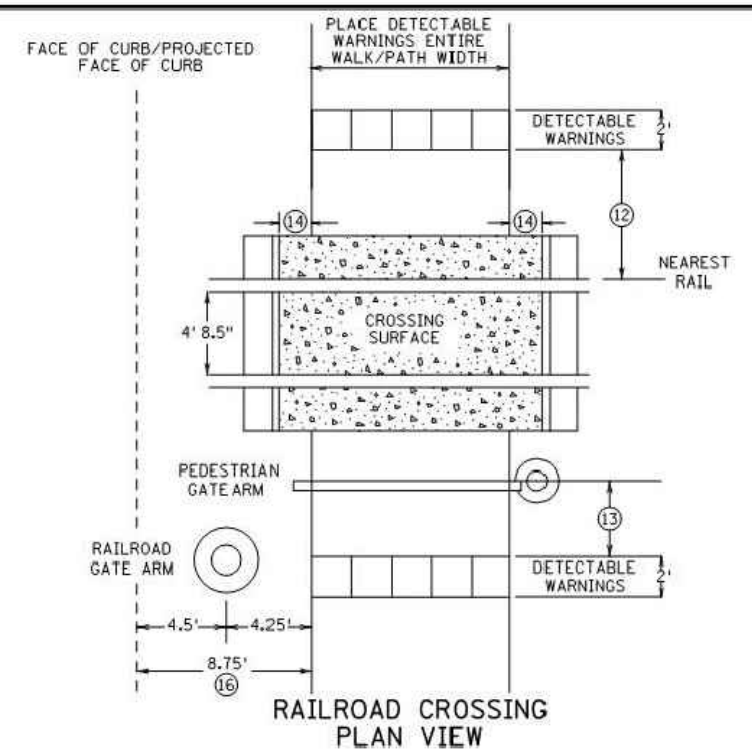


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

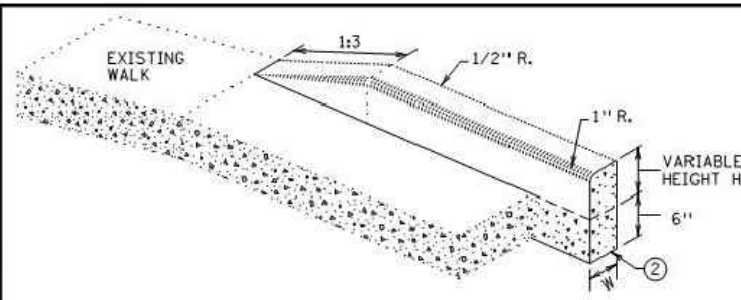
- NOTES:
 SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
 A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
 CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
 - ② FULL CURB HEIGHT.
 - ③ 2" FOR 4" HIGH CURB AND 3" FOR 6" HIGH CURB.
 - ④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
 - ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
 - ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF ROADWAY.
 - ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
 - ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB, CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
 - ⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
 - ⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
 - ⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.
 - ⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
 - ⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.
 - ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
 - ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
 - ⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

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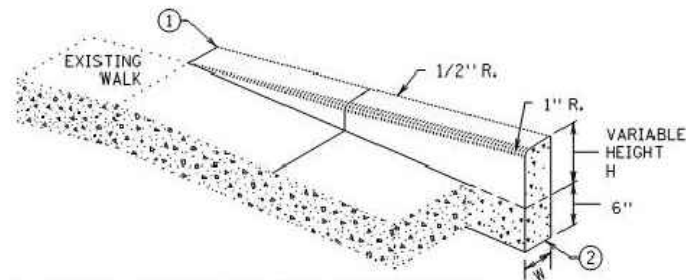
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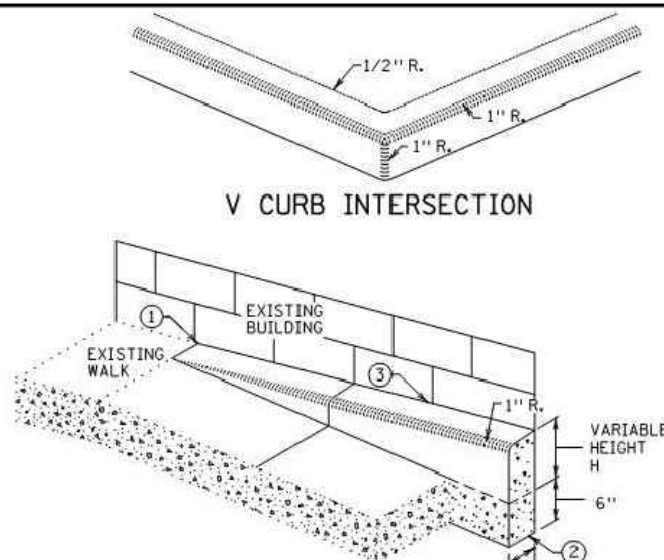
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V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

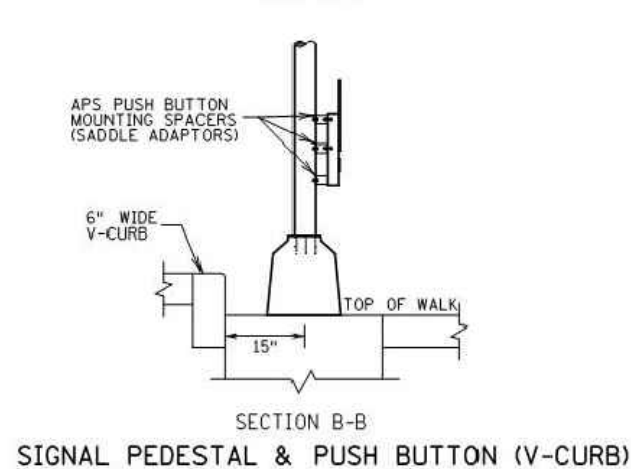
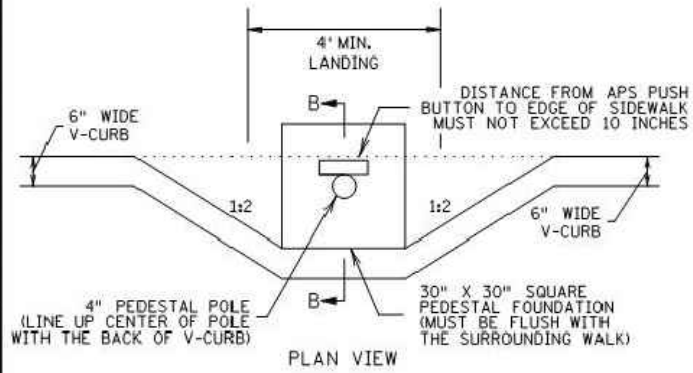


V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

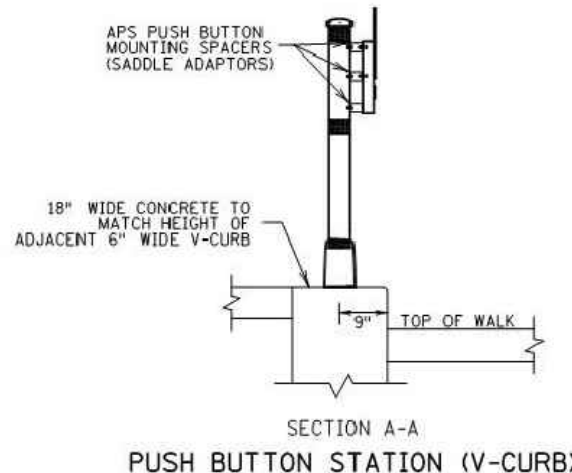
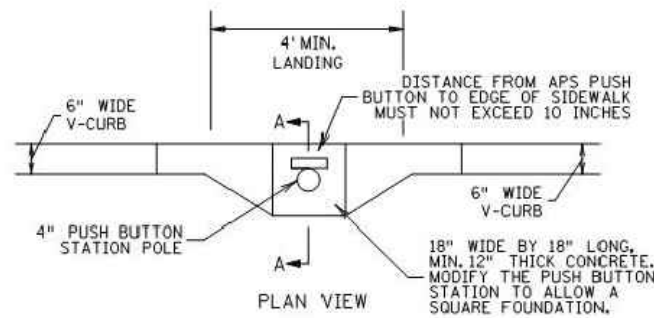


V CURB ADJACENT TO BUILDING
OR BARRIER

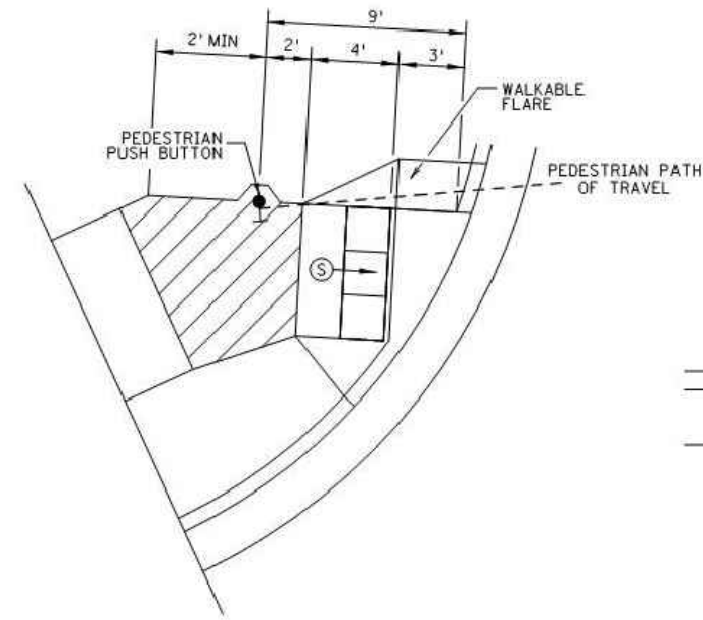
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"



SECTION B-B
SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)

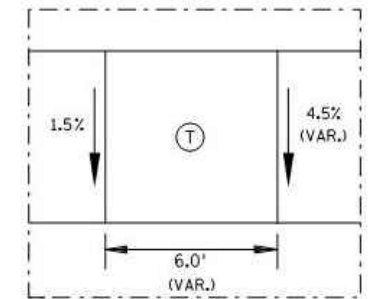
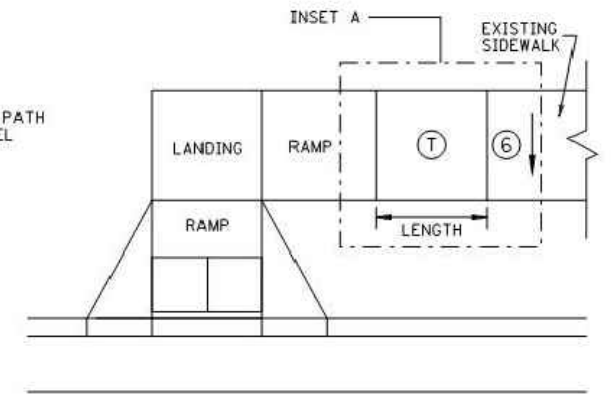


SECTION A-A
PUSH BUTTON STATION (V-CURB)



SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND
 PUSH BUTTON 9' FROM THE BACK OF CURB
 PRIMARILY USED FOR APS APPLICATIONS
 WHERE THE PAR DOES NOT CONTINUE PAST
 THE PUSH BUTTON (DEAD-END SIDEWALK)



INSET A
TRANSITION PANEL ④⑤

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE, WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND	
↓	THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
Ⓢ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
▨	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
Ⓣ	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK, SEE THIS SHEET FOR ADDITIONAL INFORMATION.

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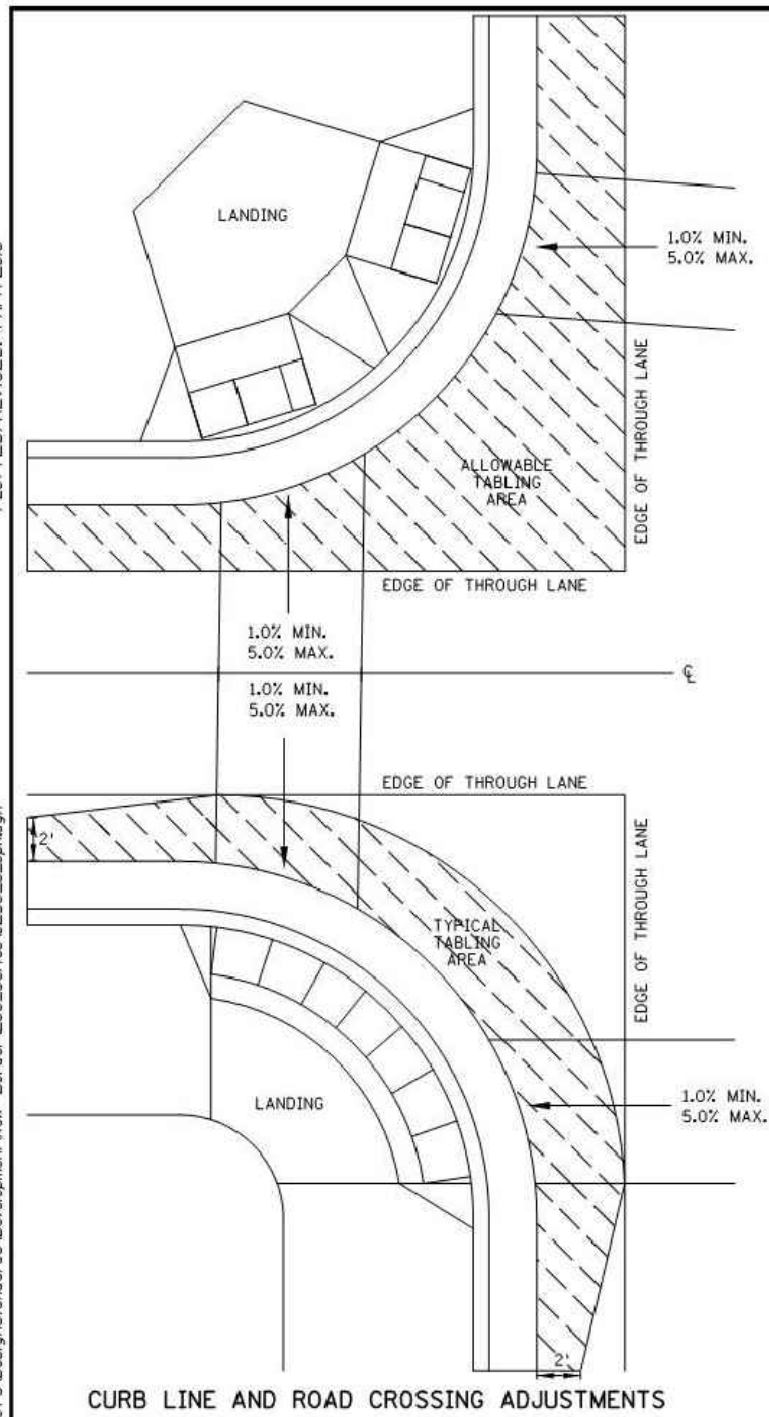
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PEDESTRIAN CURB RAMP DETAILS

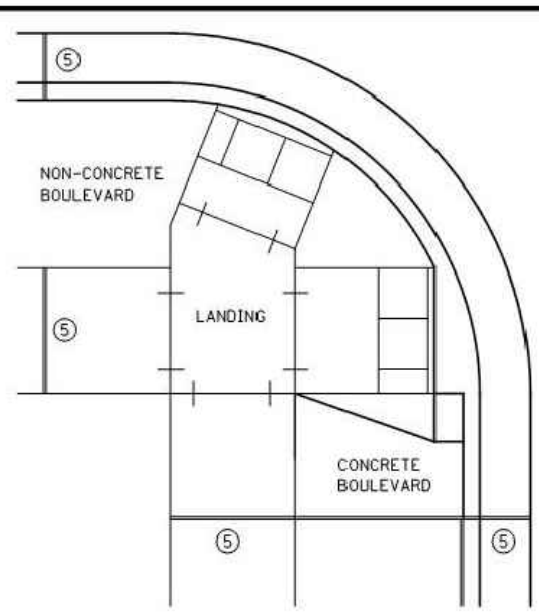
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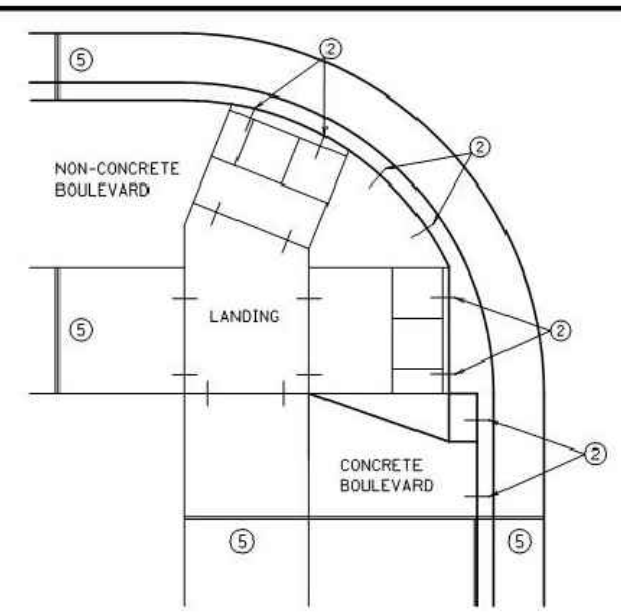
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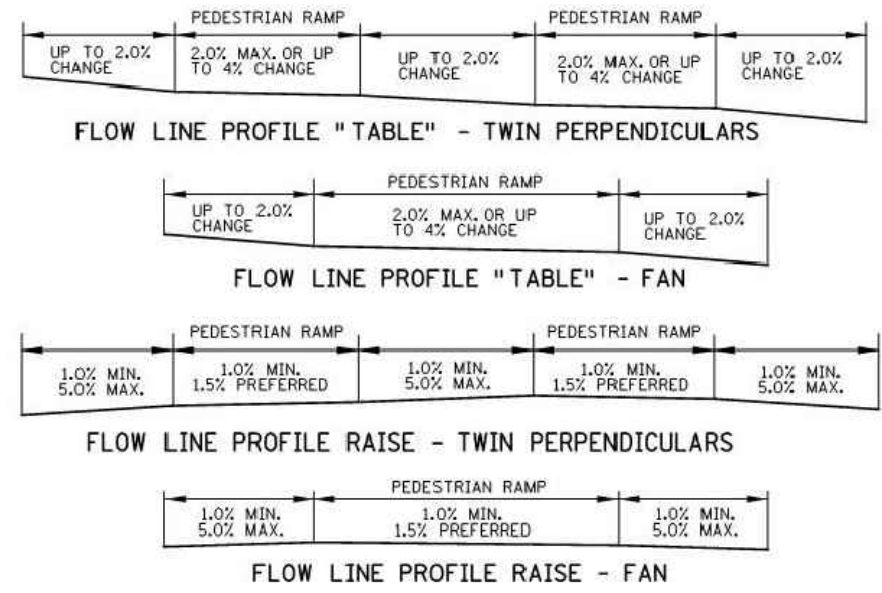
CURB LINE AND ROAD CROSSING ADJUSTMENTS



EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS

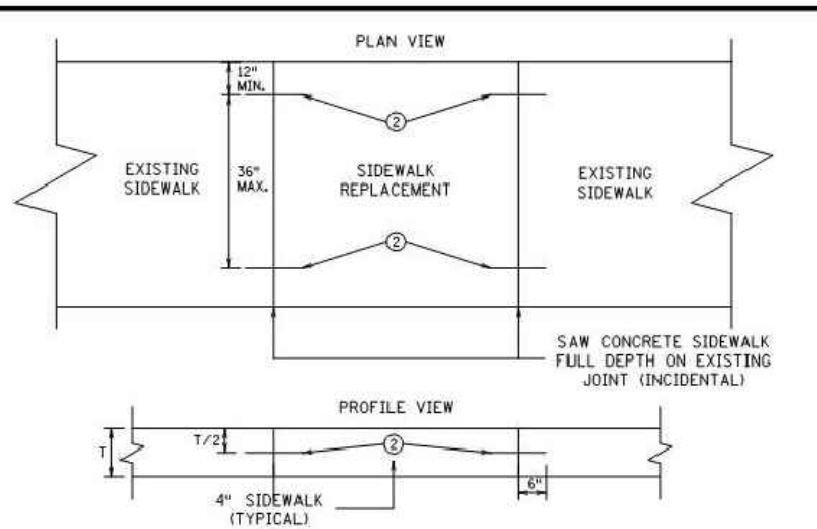


FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS

FLOW LINE PROFILE "TABLE" - FAN

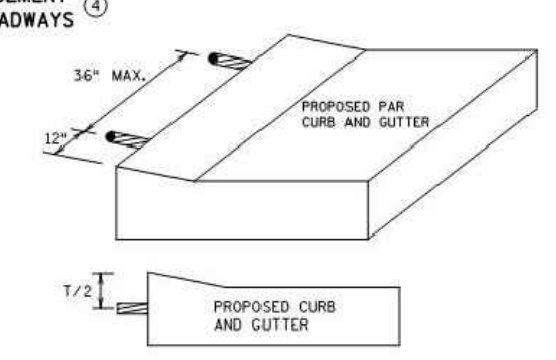
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

FLOW LINE PROFILE RAISE - FAN

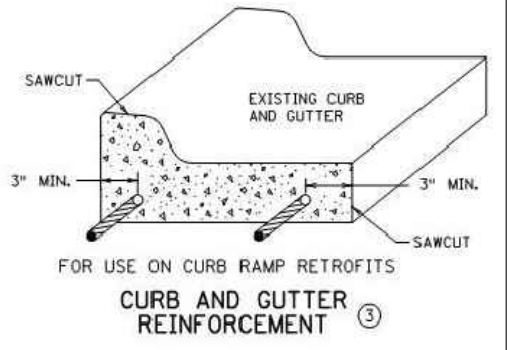


OPTIONAL SIDEWALK REINFORCEMENT

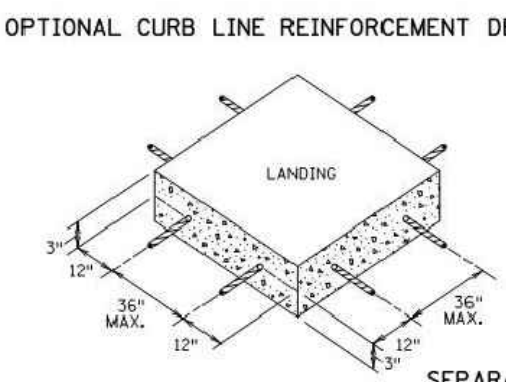
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



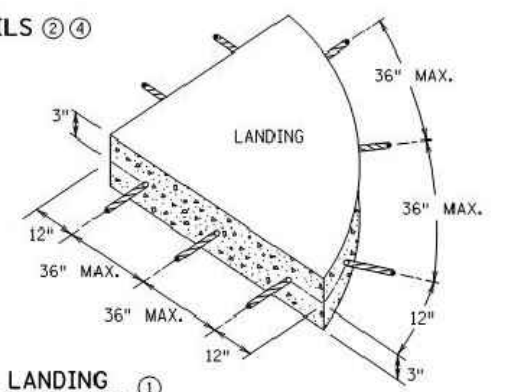
OPTIONAL CURB LINE REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- 1) TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- 2) DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- 3) DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- 4) THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- 5) 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

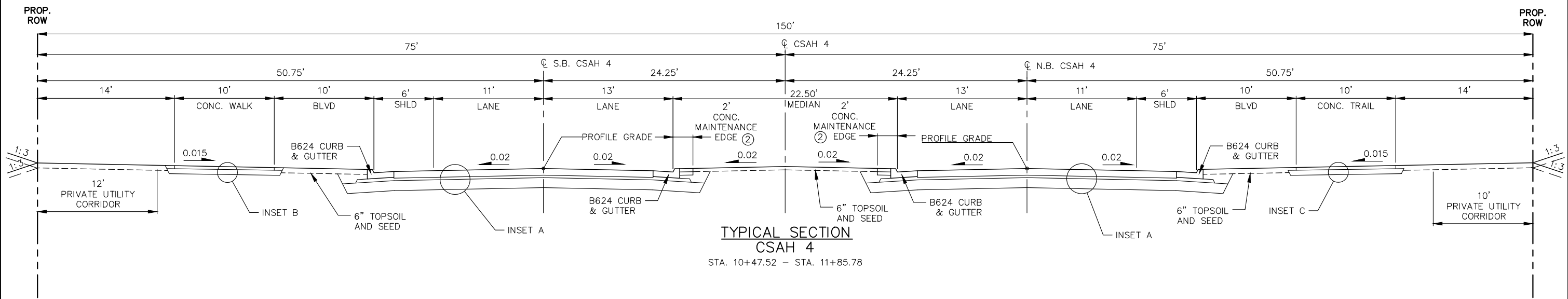
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APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER



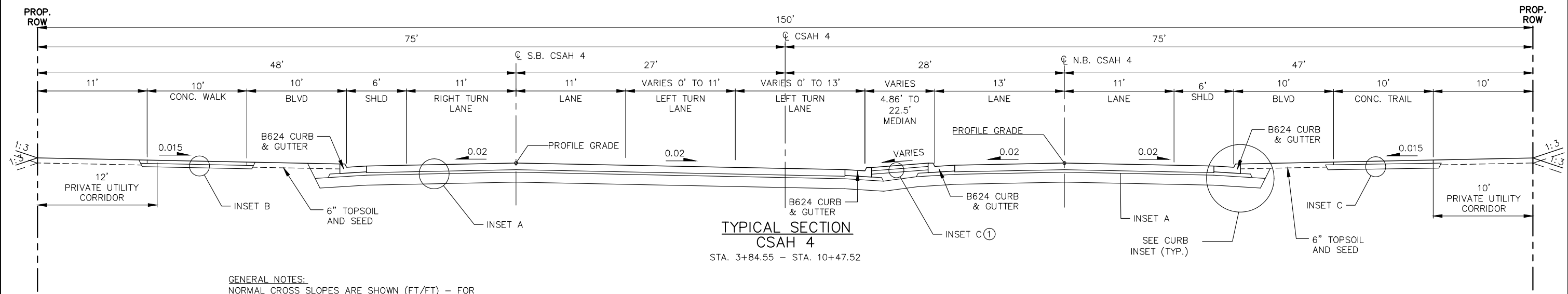
STANDARD PLAN 5-297.250 6 OF 6
 APPROVED: 1-23-2017
 REVISED:
 STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

PEDESTRIAN CURB RAMP DETAILS

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**TYPICAL SECTION
CSAH 4**
STA. 10+47.52 - STA. 11+85.78



**TYPICAL SECTION
CSAH 4**
STA. 3+84.55 - STA. 10+47.52

GENERAL NOTES:
 NORMAL CROSS SLOPES ARE SHOWN (FT/FT) - FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN
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 CSAH 4 STATION RANGES OF TYPICAL SECTIONS REFER TO NORTHBOUND ALIGNMENT STATIONING

① WHEN MEDIAN IS 14.33' OR LESS
 ② SEE CONCRETE MAINTENANCE EDGE DETAIL. PAID FOR AS 4" CONCRETE WALK.

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_TYP01.dwg
				DESIGNED BY: RJG
				DRAWN BY: RJG
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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

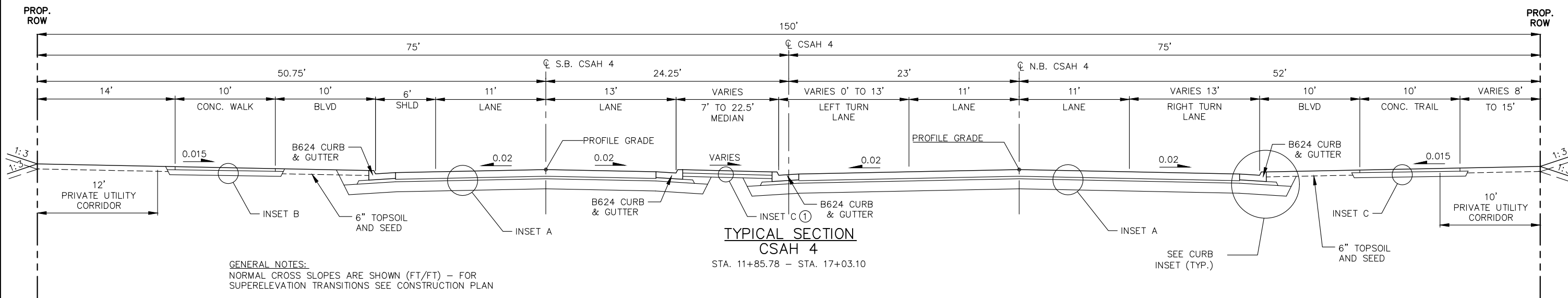
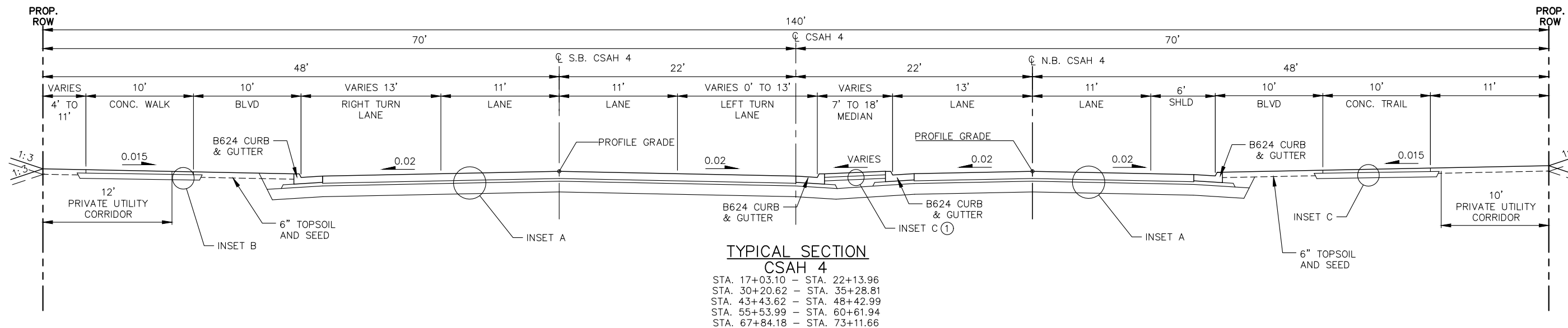
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	SHEET NO. 26
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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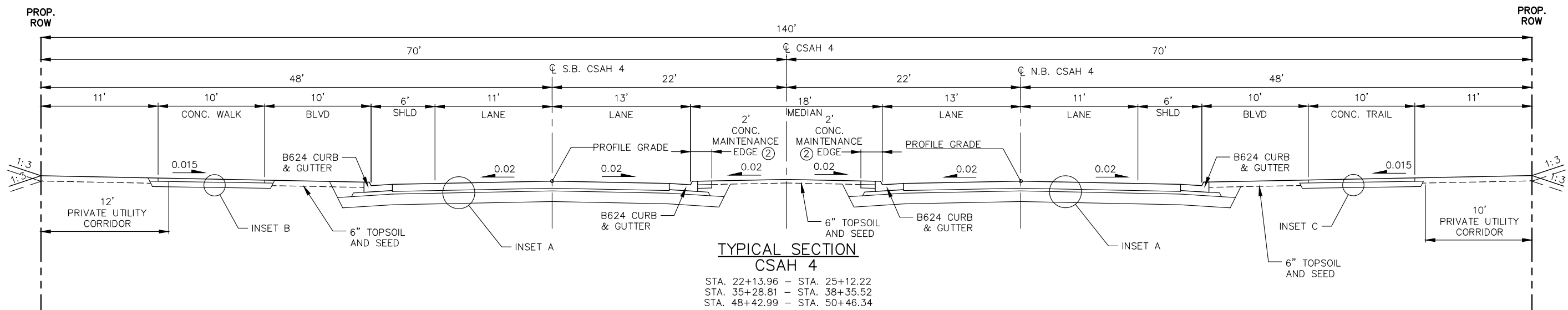
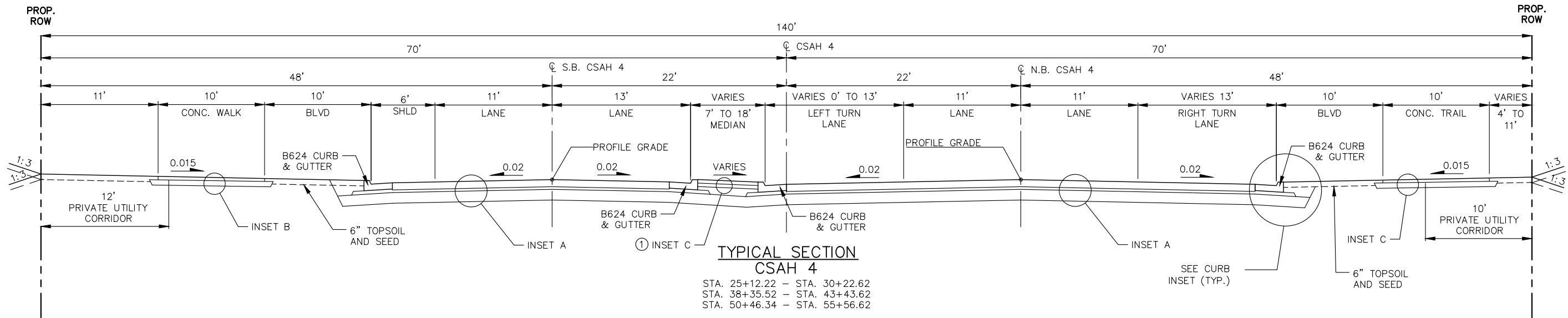
CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	27
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

SHEET NO. **27**
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DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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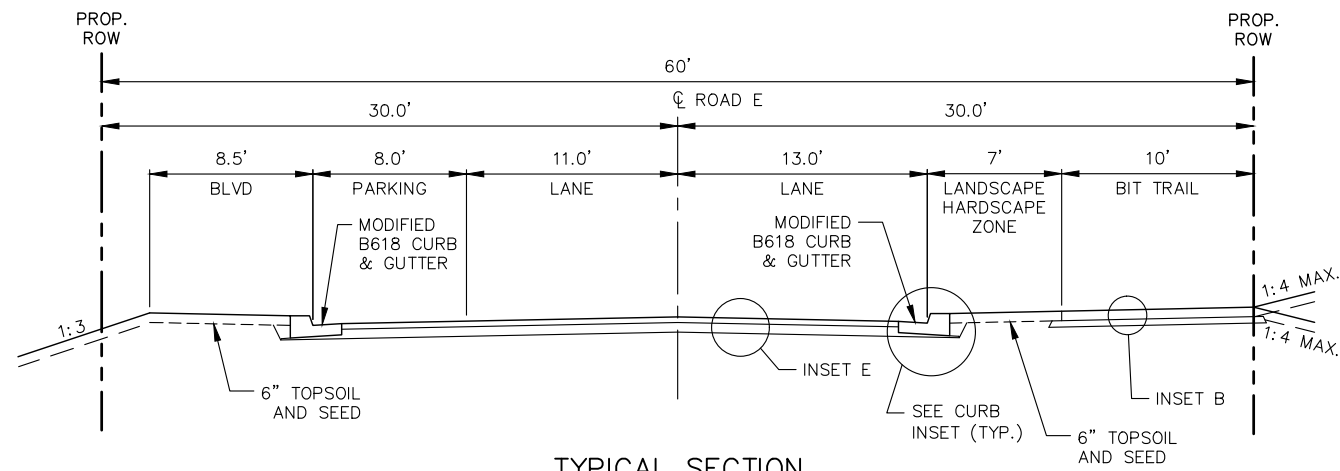
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

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COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

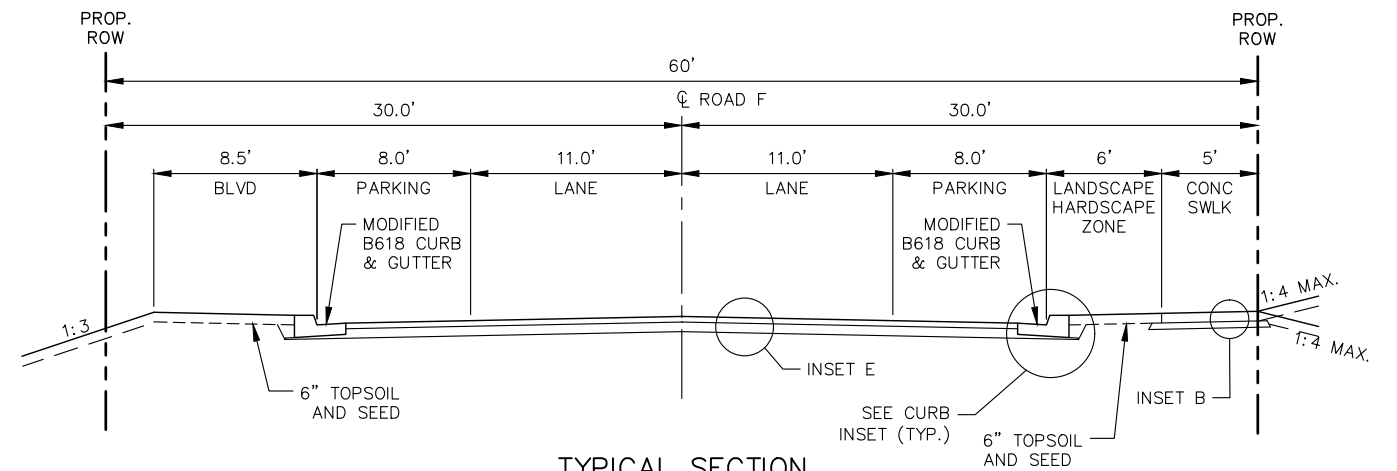
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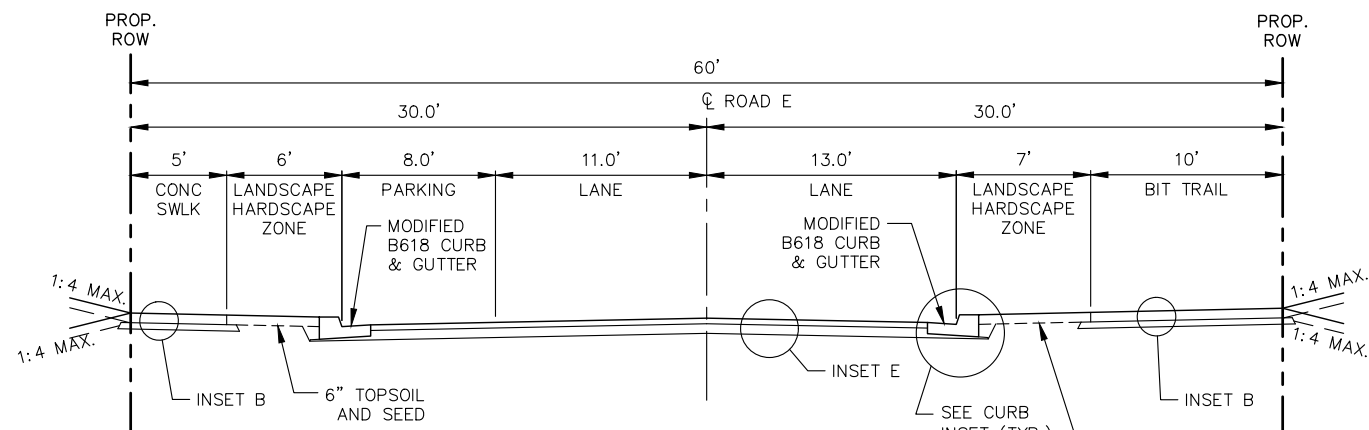
TYPICAL SECTION ROAD E

STA. 12+41.67 - STA. 17+48.63
STA. 18+71.24 - STA. 22+33.43



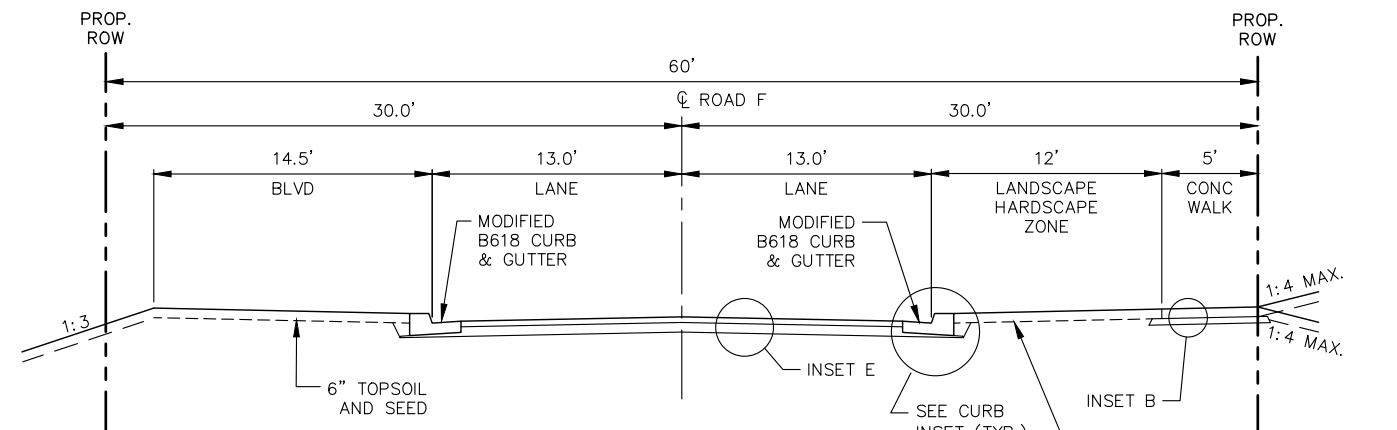
TYPICAL SECTION ROAD F

STA. 5+26.74 - STA. 11+57.77



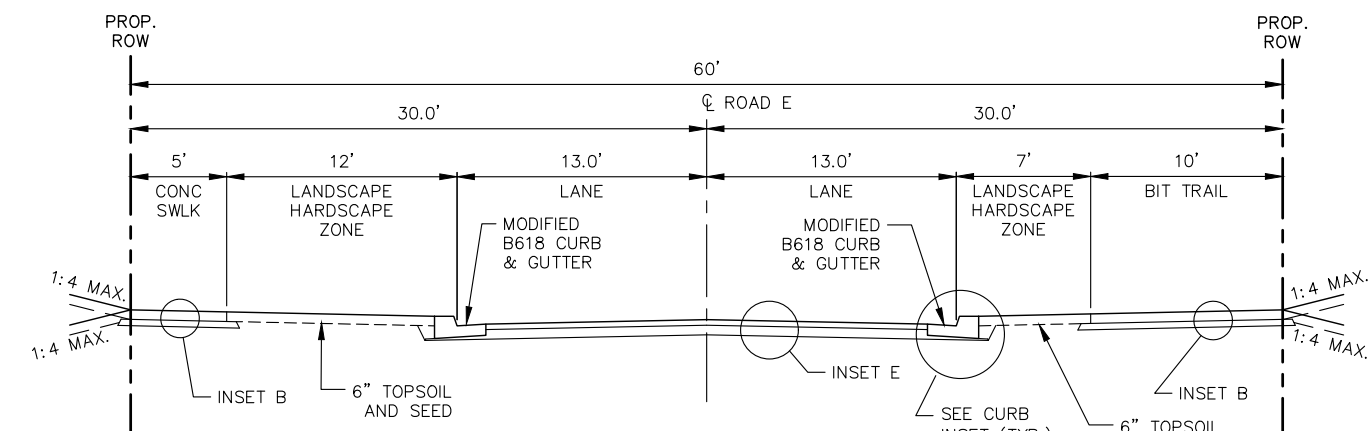
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STA. 3+54.43 - STA. 11+27.24
STA. 23+45.64 - STA. 37+02.02



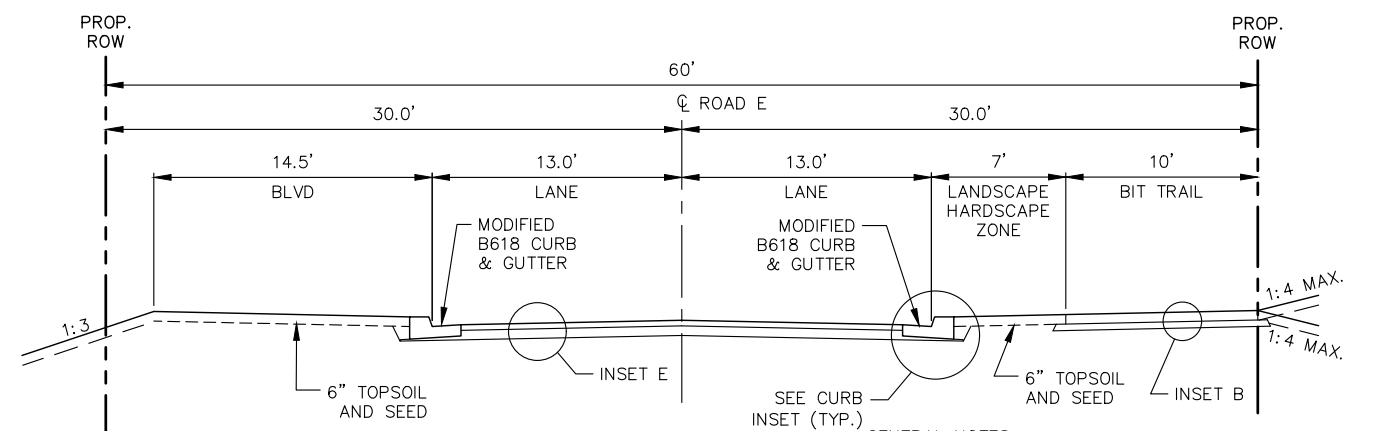
TYPICAL SECTION ROAD F

STA. 5+12.26 - STA. 5+26.74
STA. 11+57.77 - STA. 11+88.83



TYPICAL SECTION ROAD E

STA. 0+69.55 - STA. 3+54.43



TYPICAL SECTION ROAD E

STA. 17+48.63 - STA. 18+71.24

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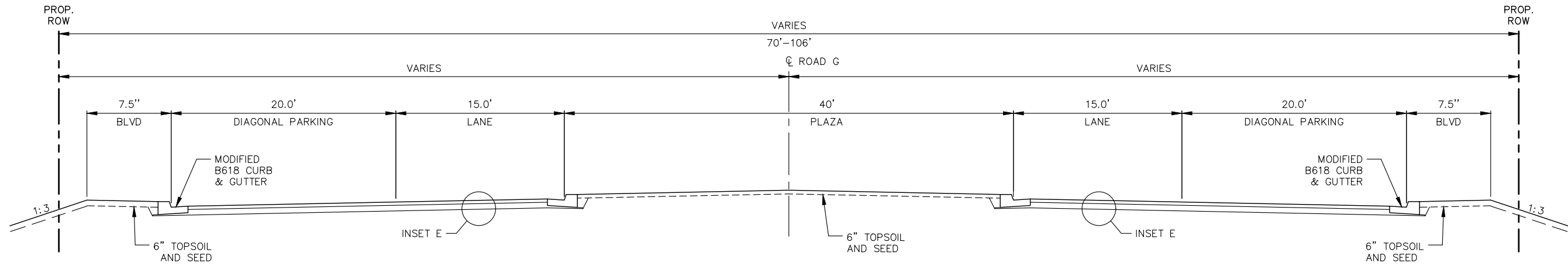
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DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TYPICAL SECTIONS

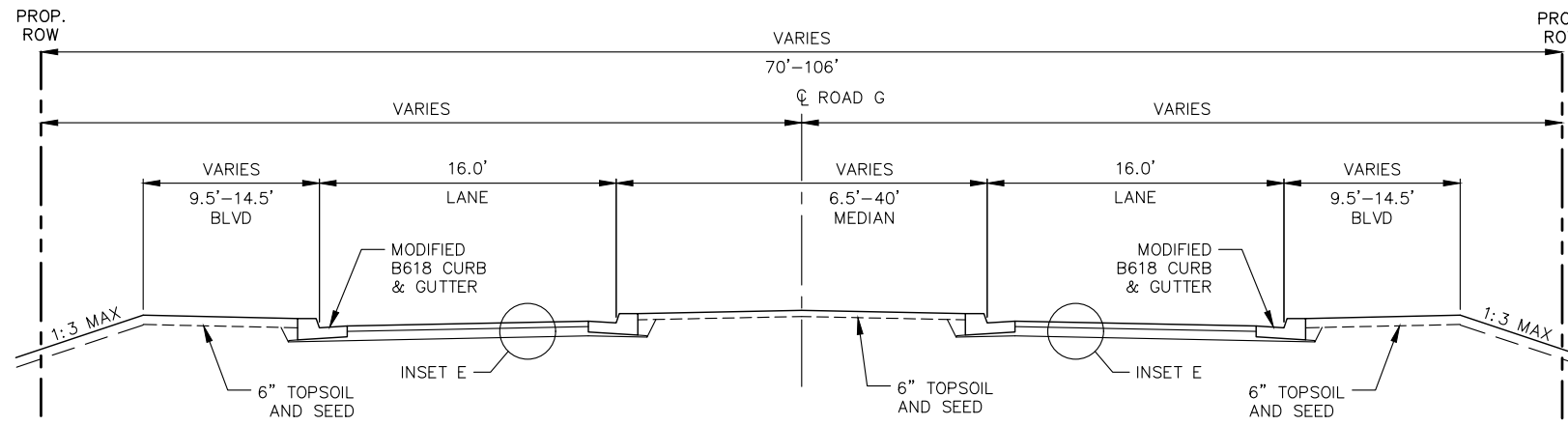
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SHEET NO.
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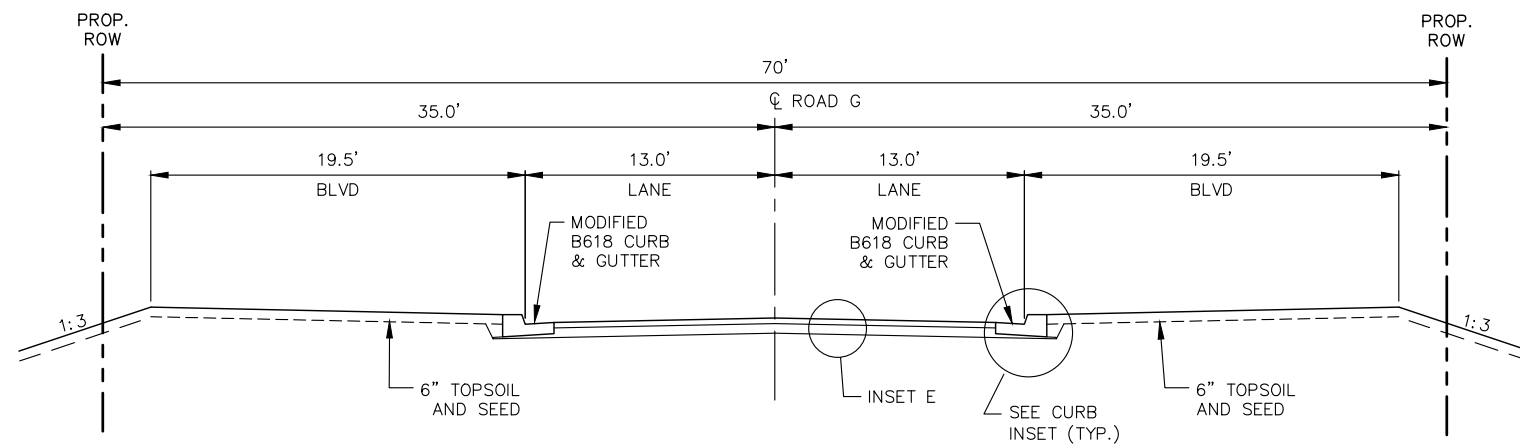
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**TYPICAL SECTION
ROAD G**
STA. 6+71.75 - STA. 7+89.93



**TYPICAL SECTION
ROAD G**
STA. 6+71.75 - STA. 7+89.93



**TYPICAL SECTION
ROAD G**
STA. 4+19.61 - STA. 6+16.83

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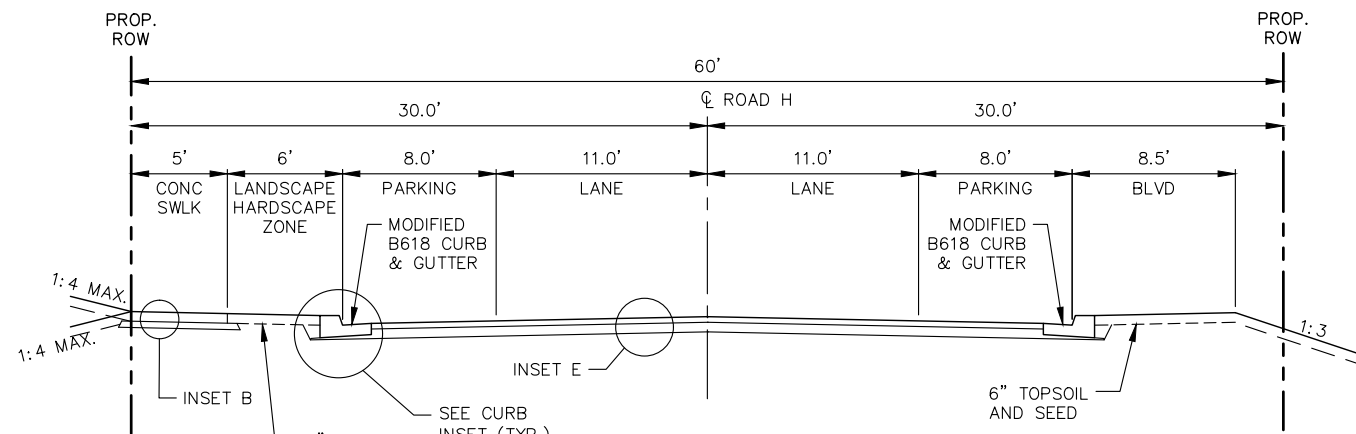
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
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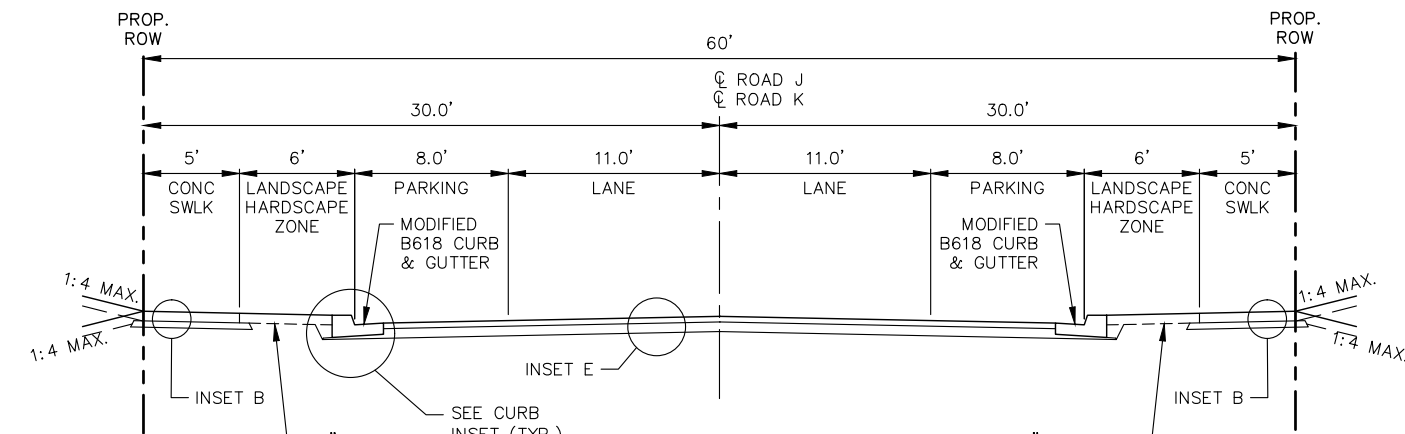
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S.A.P.	062-593-004
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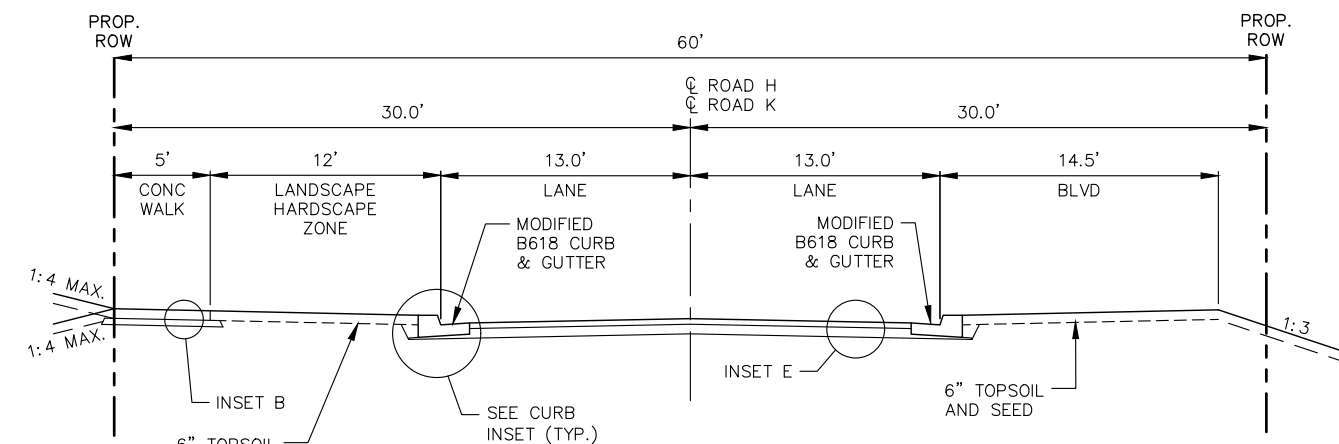
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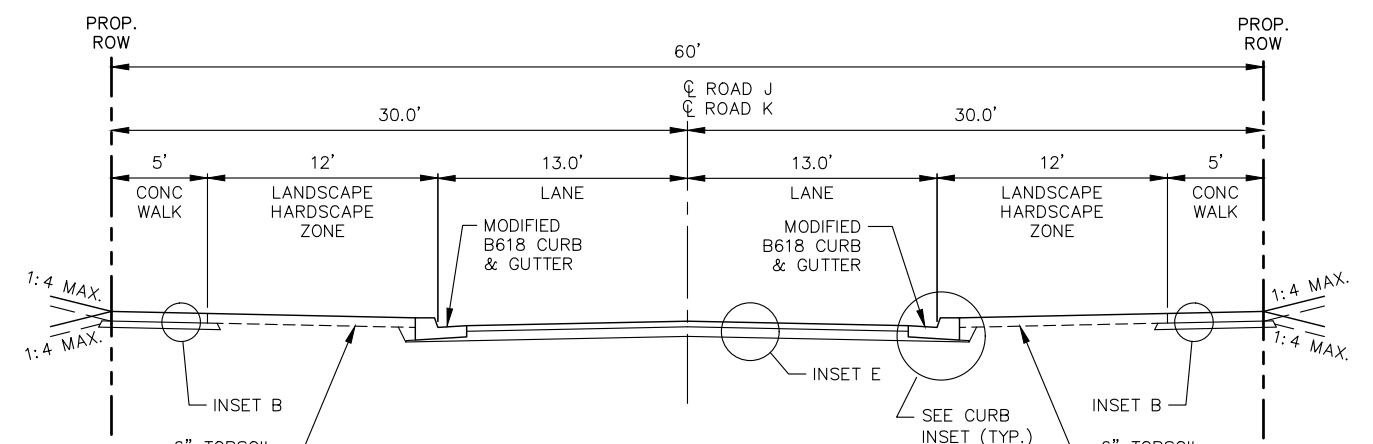
**TYPICAL SECTION
ROAD H**
 STA. 5+39.12 - STA. 6+97.70
 STA. 8+24.78 - STA. 10+60.78
 STA. 11+91.11 - STA. 14+16.08



**TYPICAL SECTION
ROAD J
ROAD K**
 STA. 0+69.08 - STA. 3+07.93
 STA. 15+22.68 - STA. 17+00.26
 STA. 17+60.64 - STA. 19+38.22
 STA. 14+13.93 - STA. 15+11.29
 STA. 15+72.93 - STA. 16+72.50



**TYPICAL SECTION
ROAD H
ROAD K**
 STA. 5+12.63 - STA. 5+39.12
 STA. 6+97.70 - STA. 8+24.78
 STA. 10+60.78 - STA. 11+91.11
 STA. 14+16.08 - STA. 14+48.52
 STA. 3+19.55 - STA. 4+69.28



**TYPICAL SECTION
ROAD J
ROAD K**
 STA. 0+39.08 - STA. 0+69.08
 STA. 3+07.93 - STA. 3+39.10
 STA. 15+00.02 - STA. 15+22.68
 STA. 17+00.26 - STA. 17+60.64
 STA. 19+38.22 - STA. 19+64.82
 STA. 15+11.29 - STA. 15+72.93

GENERAL NOTES:
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Kimley»Horn
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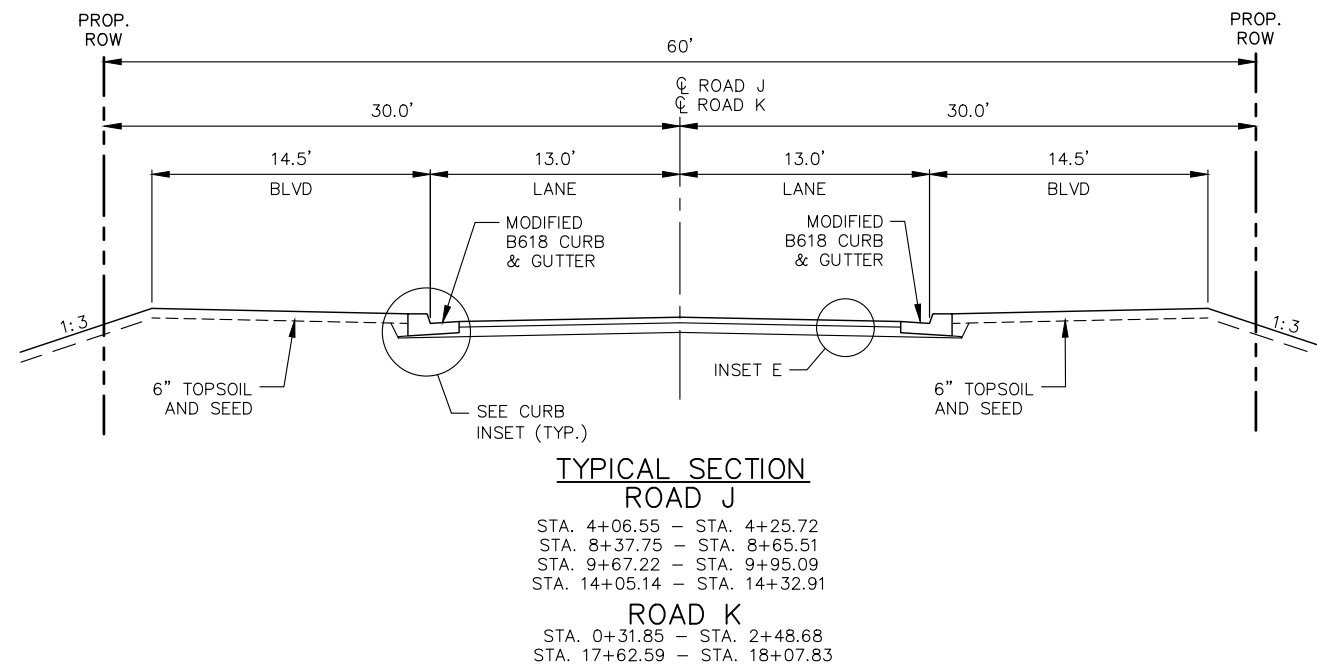
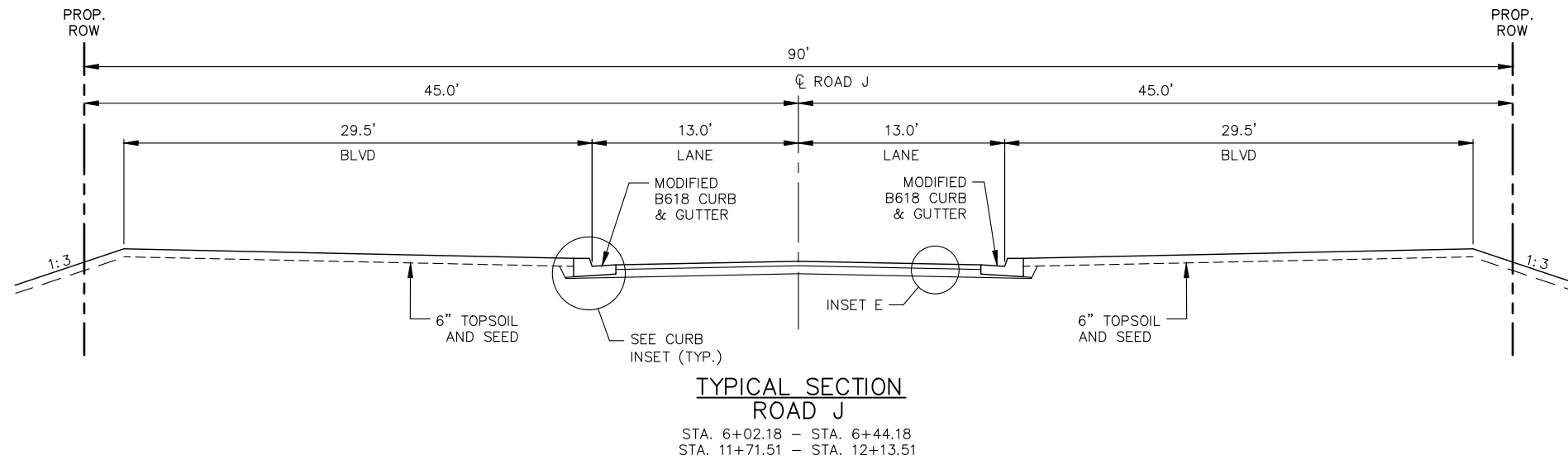
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 CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	31
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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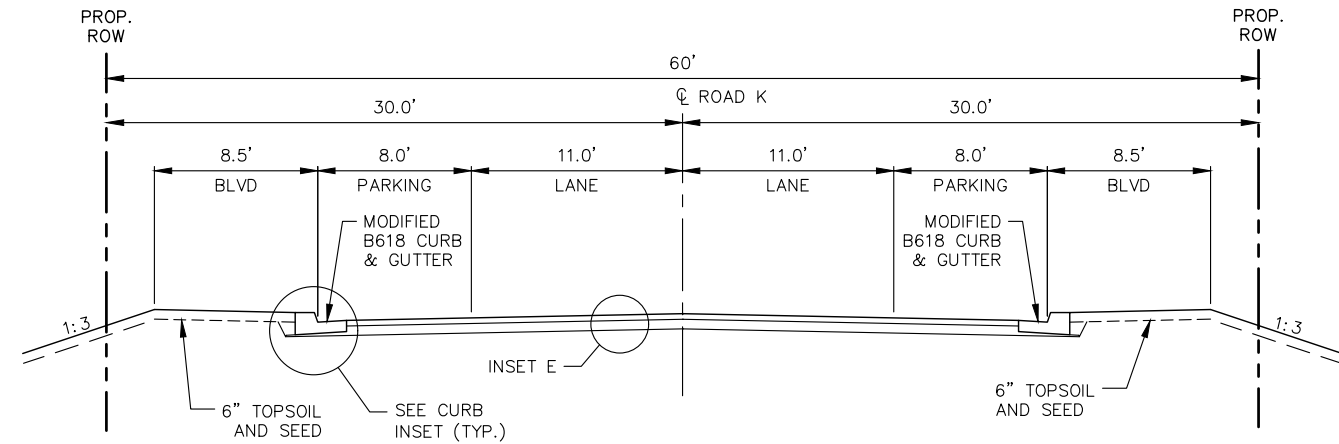
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
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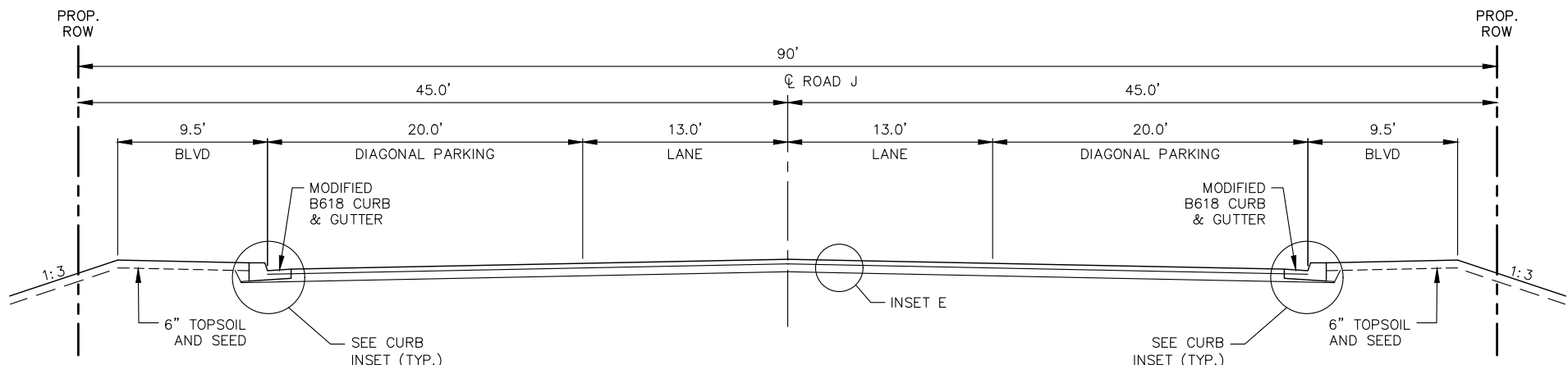
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SHEET NO.
 32
 335

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**TYPICAL SECTION
ROAD K**
 STA. 5+58.99 - STA. 8+18.20
 STA. 9+74.38 - STA. 12+94.01



**TYPICAL SECTION
ROAD J**
 STA. 4+25.72 - STA. 6+02.18
 STA. 6+44.18 - STA. 8+07.79
 STA. 9+95.09 - STA. 11+71.51
 STA. 12+13.51 - STA. 13+89.93

GENERAL NOTES:
 NORMAL CROSS SLOPES ARE SHOWN (FT/FT) - FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN
 UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_TYP01.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

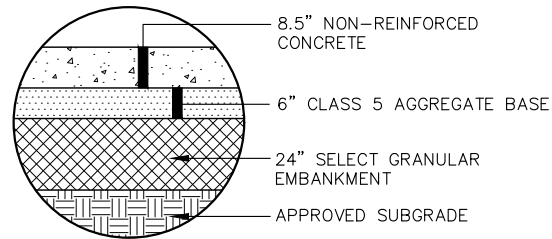
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

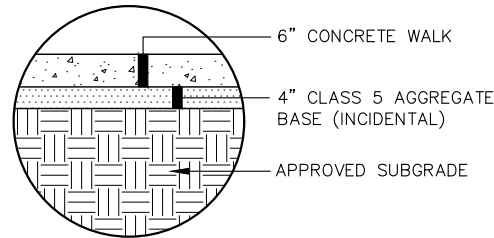
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	SHEET NO. 33 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

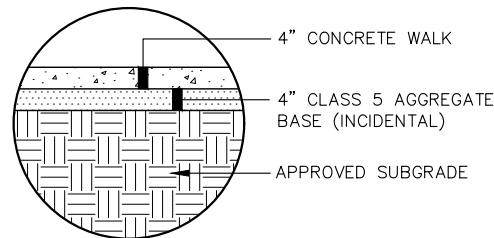
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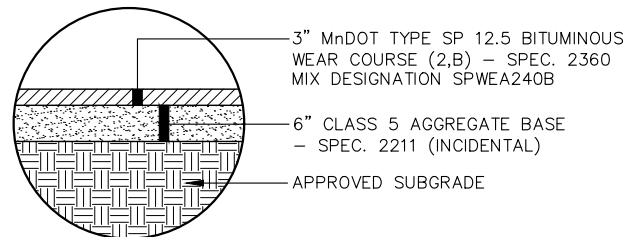
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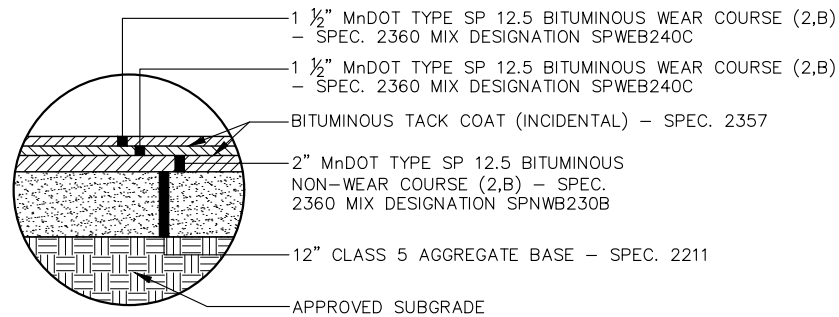
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INSET C



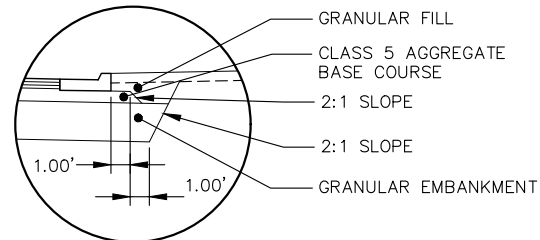
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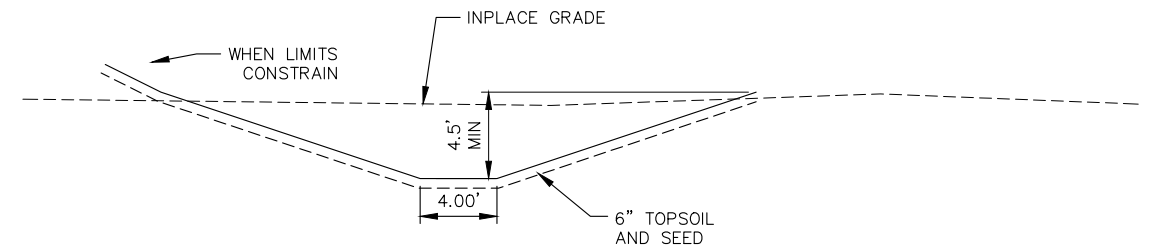
INSET E

GENERAL NOTES:
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 UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE
 CSAH 4 STATION RANGES OF TYPICAL SECTIONS REFER TO NORTHBOUND ALIGNMENT STATIONING

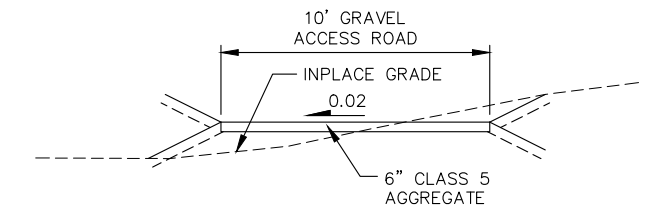
- ① WHEN MEDIAN IS 14.33' OR LESS
- ② SEE CONCRETE MAINTENANCE EDGE DETAIL. PAID FOR AS 4" CONCRETE WALK.



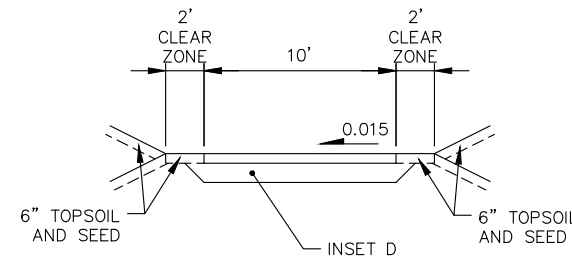
CURB INSET DETAIL



TYPICAL SWALE SECTION
 STA. 3+50 - STA. 37+50

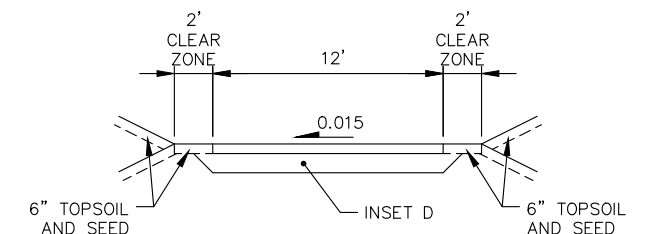


TYPICAL TGRS MAINTENANCE ROAD SECTION



TYPICAL SECTION 10' TRAIL

NATURAL RESOURCE CORRIDOR TRAIL
 NATURAL RESOURCE CONNECTOR TRAIL
 SPINE RD TRAIL CONNECTOR
 RICE CREEK REMEANDER TRAIL
 THUMB RD TRAIL CONNECTOR



TYPICAL SECTION 12' TRAIL

RICE CREEK NORTH REGIONAL TRAIL

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_TYP01.dwg
				DESIGNED BY: RJG
				DRAWN BY: RJG
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

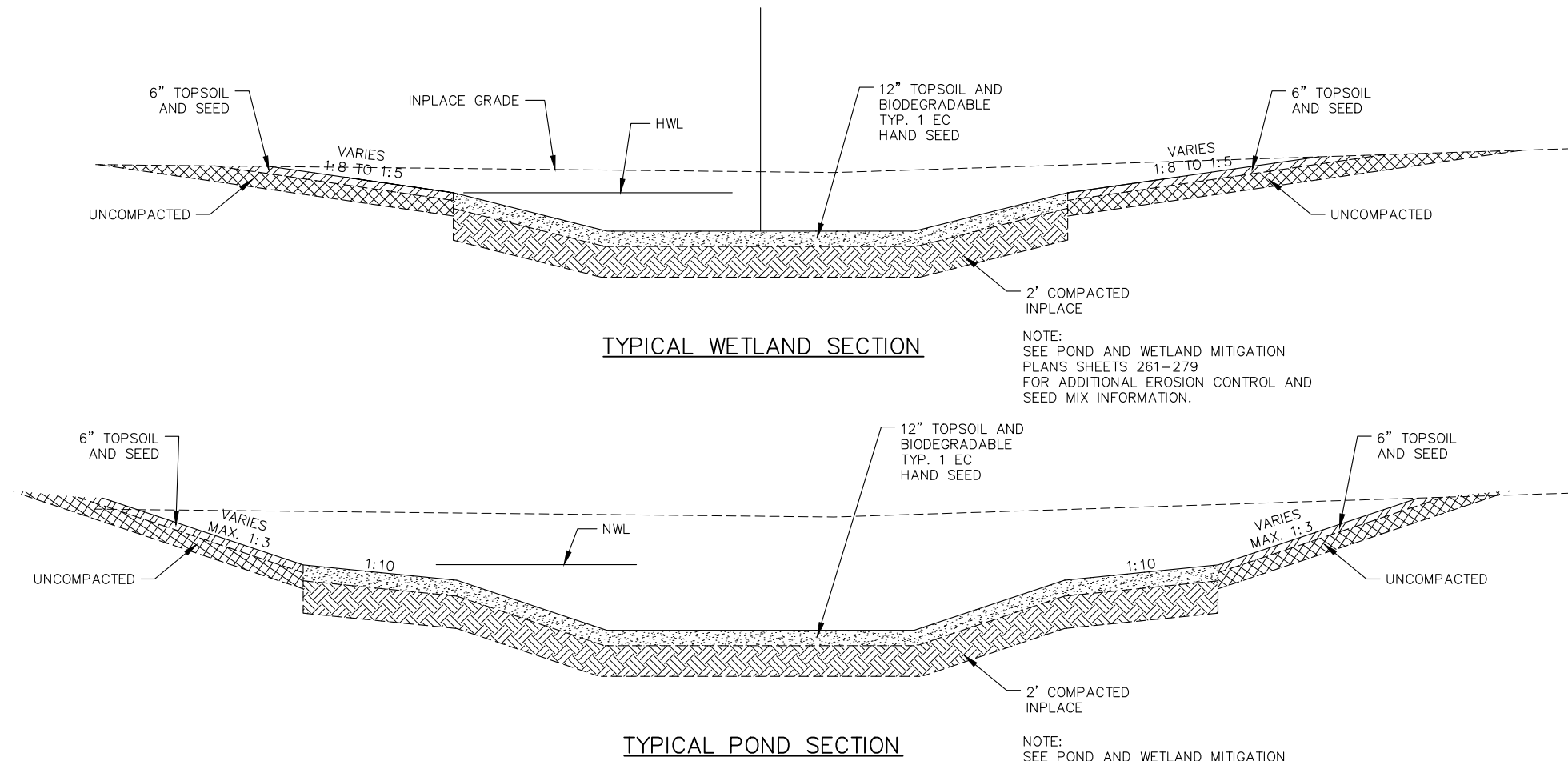
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	SHEET NO.
COUNTY PROJECT	34
S.A.P. 062-593-004	
S.A.P.	335

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NOTE:
 SEE POND AND WETLAND MITIGATION
 PLANS SHEETS 261-279
 FOR ADDITIONAL EROSION CONTROL AND
 SEED MIX INFORMATION.

NOTE:
 SEE POND AND WETLAND MITIGATION
 PLANS SHEETS 261-279
 FOR ADDITIONAL EROSION CONTROL AND
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No.	Date	Revisions	App.

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DATE:	01/04/19
PROJECT NO.	160553004

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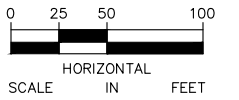
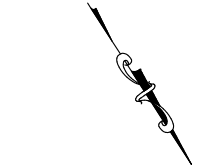
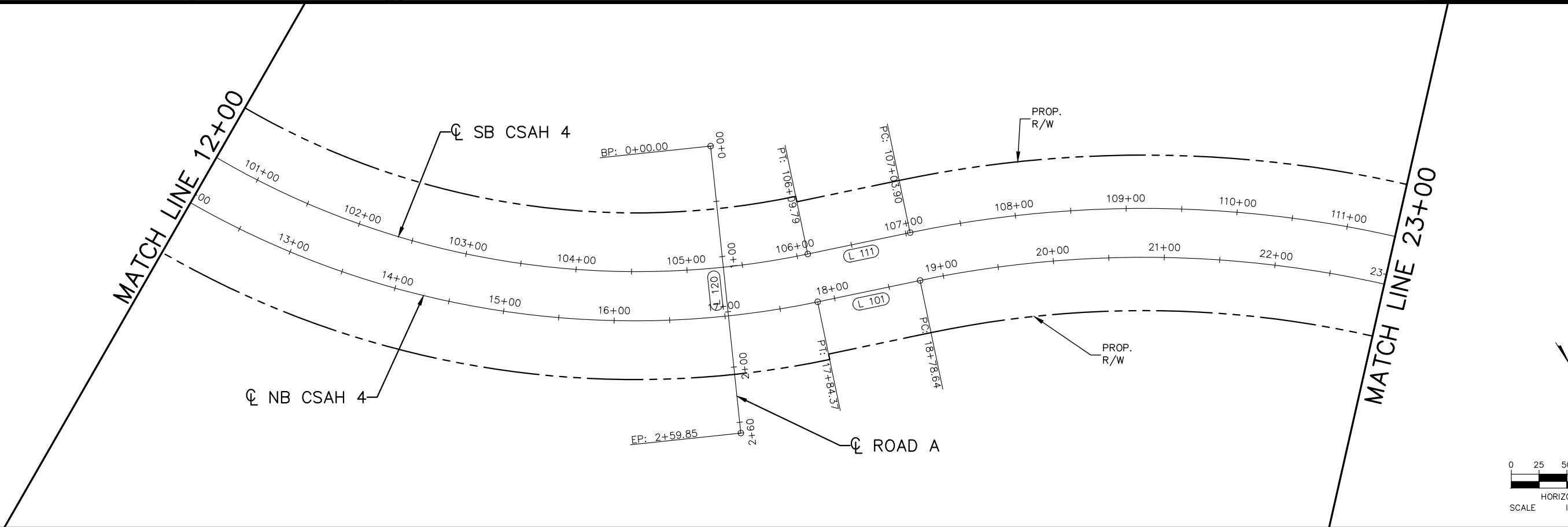
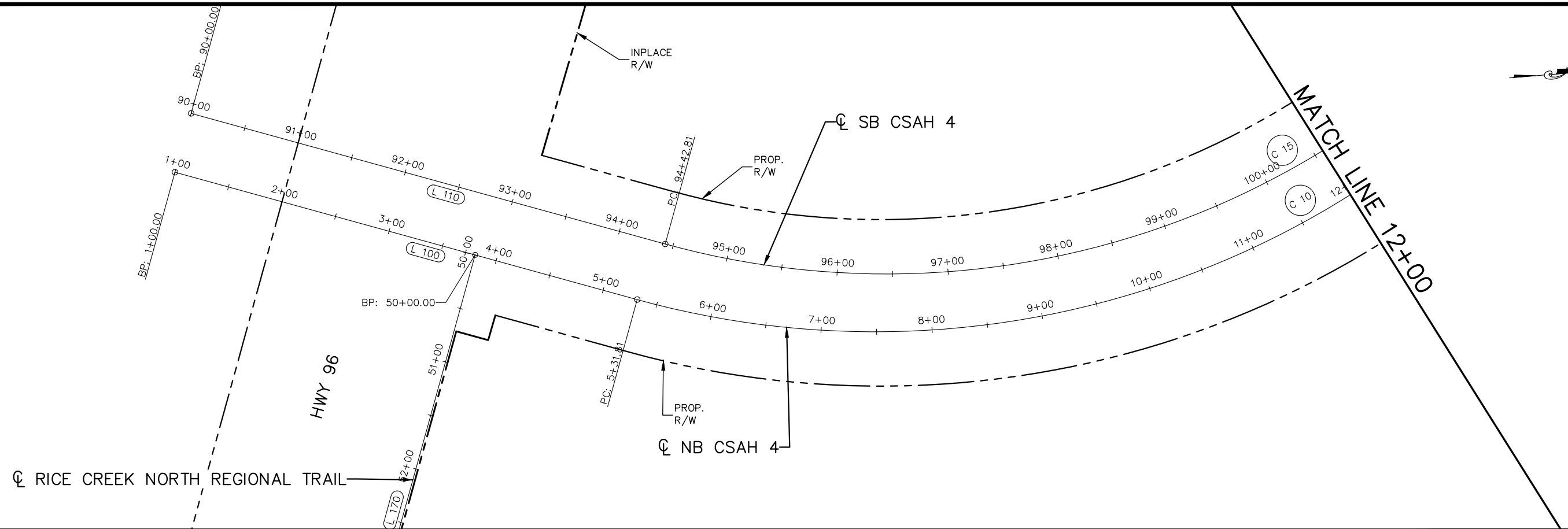
CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TYPICAL SECTIONS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 35
 335

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No.	Date	Revisions

App.	DRAWING NAME
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	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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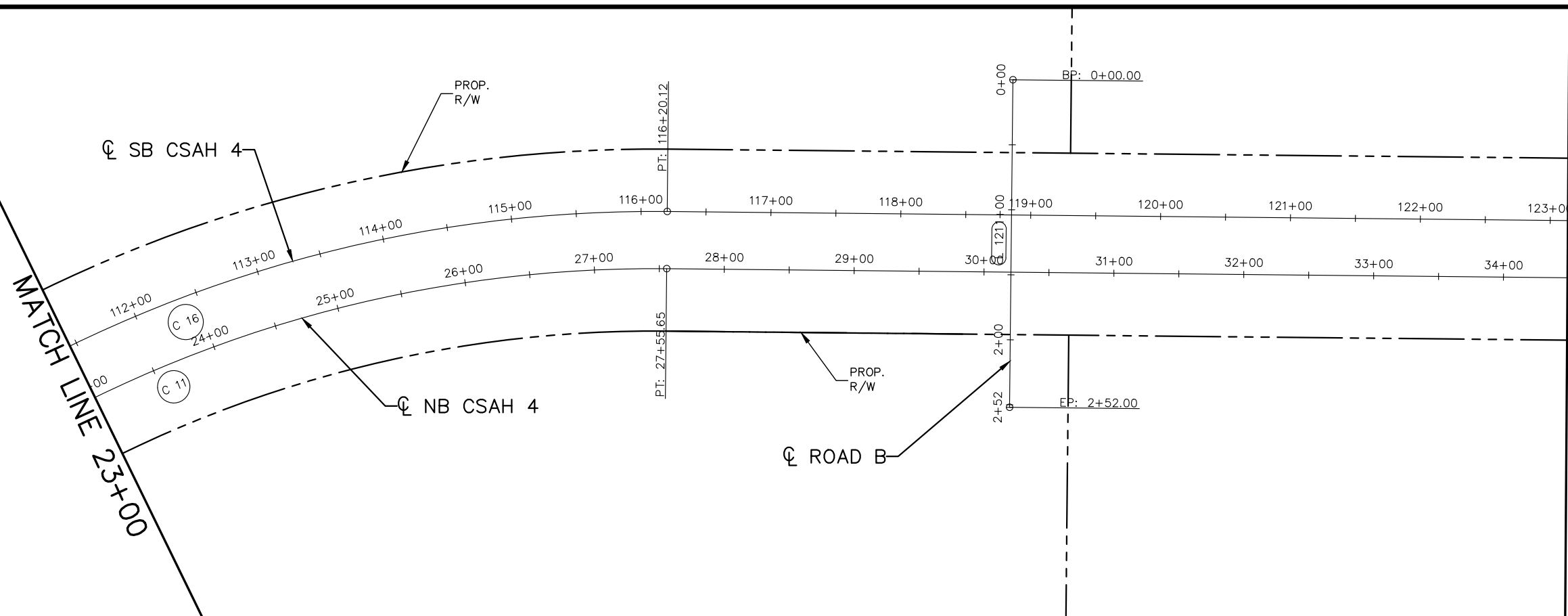
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 ALIGNMENT PLAN
 STA. 1+00 TO STA. 23+00

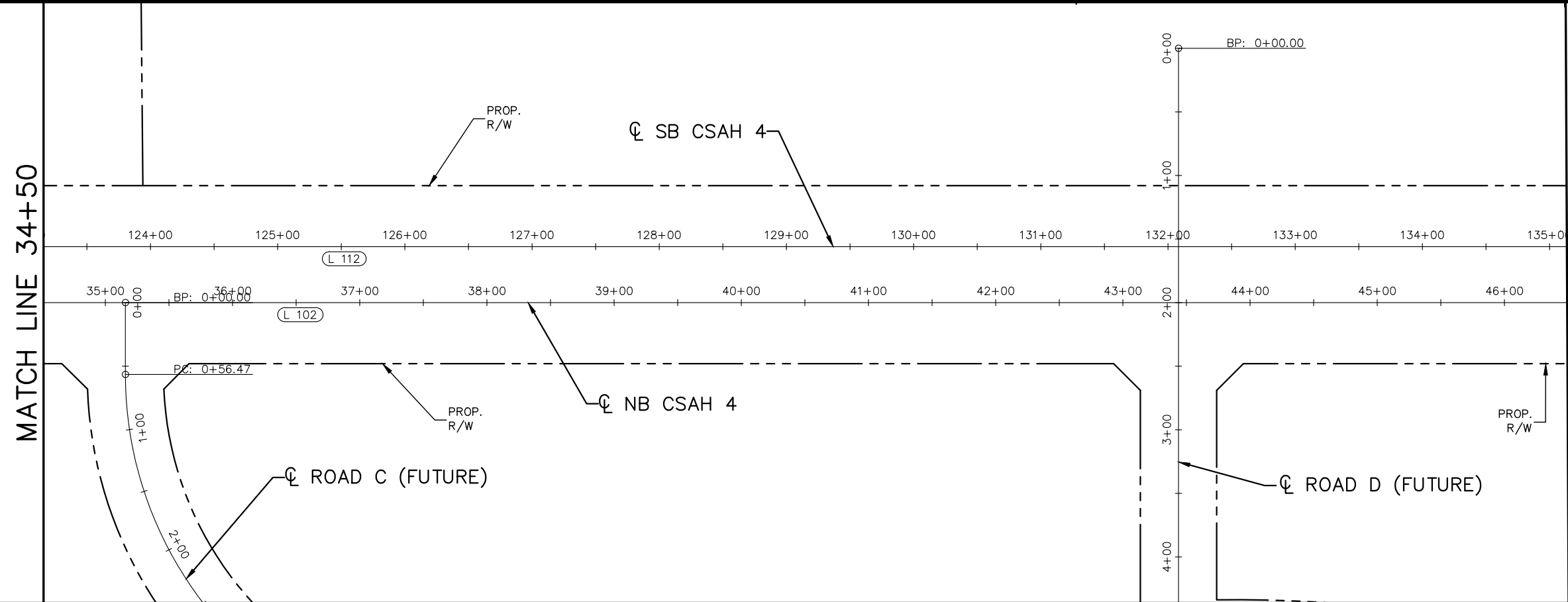
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S.A.P.	062-593-004
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SHEET NO.
36
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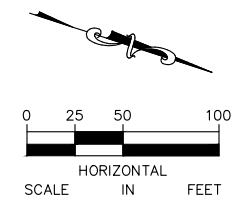
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MATCH LINE 34+50



MATCH LINE 46+50



No.	Date	Revisions	App.

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DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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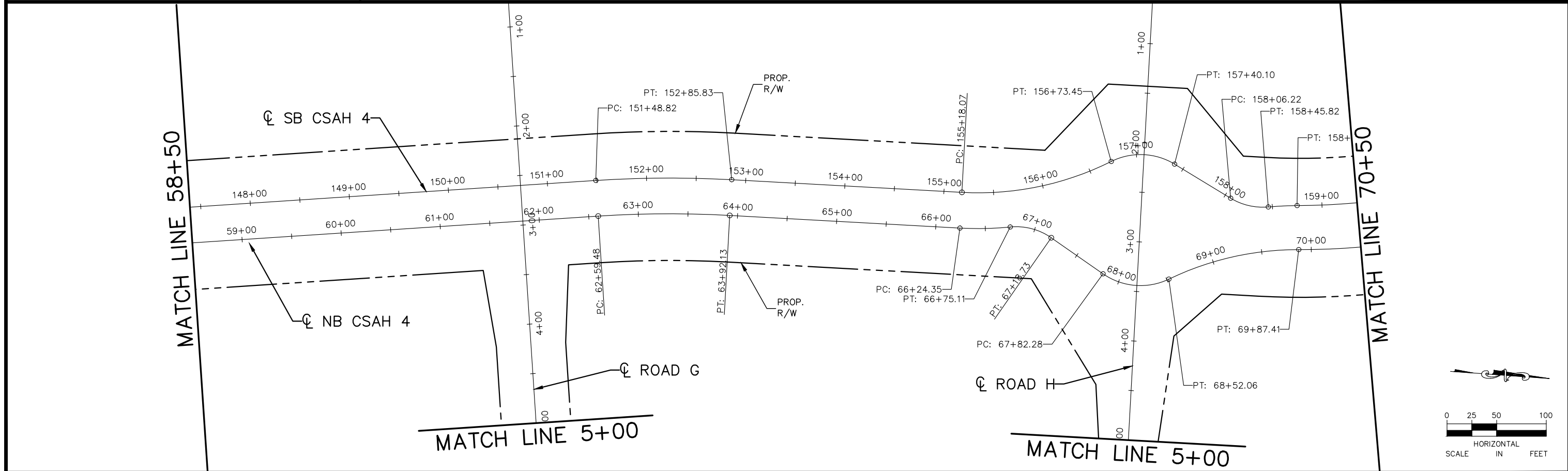
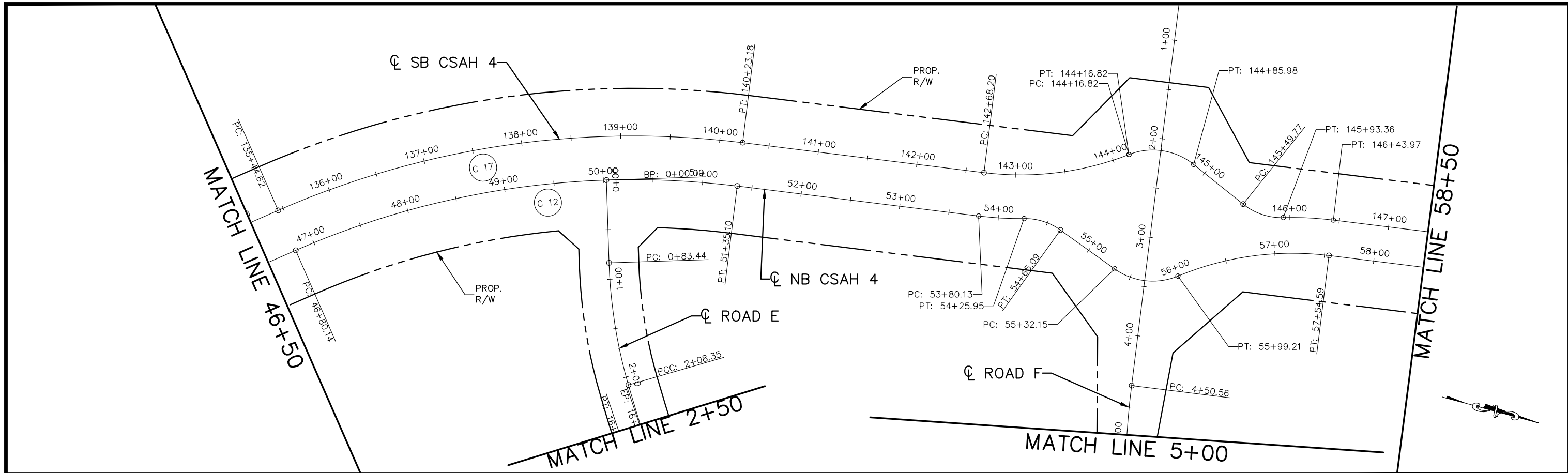
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 ALIGNMENT PLAN
 STA. 23+00 TO STA. 46+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
37
335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ALGN.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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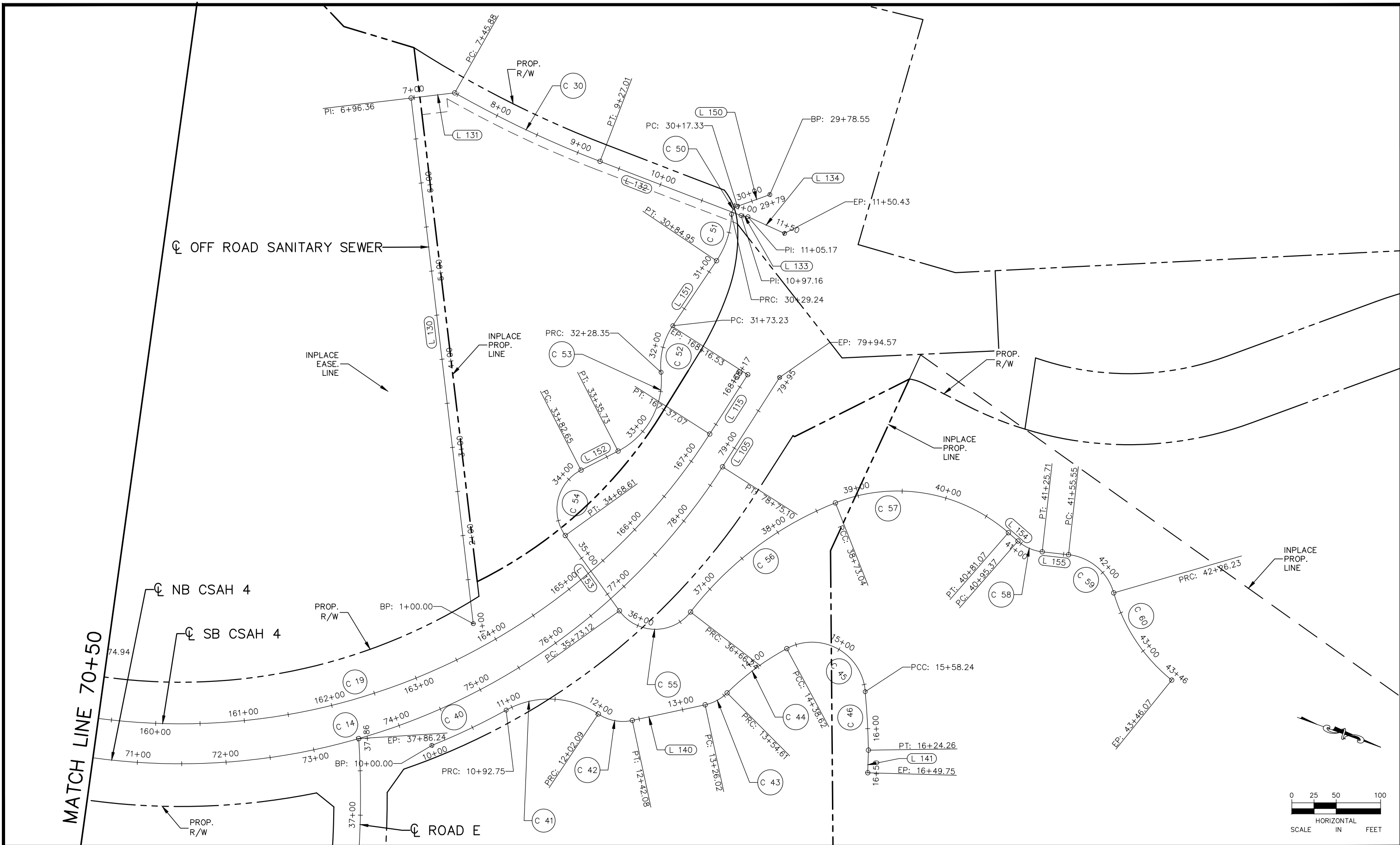
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 ALIGNMENT PLAN
 STA. 46+50 TO STA. 70+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
38
335

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No.	Date	Revisions	App.

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DESIGNED BY:	RJG
DRAWN BY:	RJG
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DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
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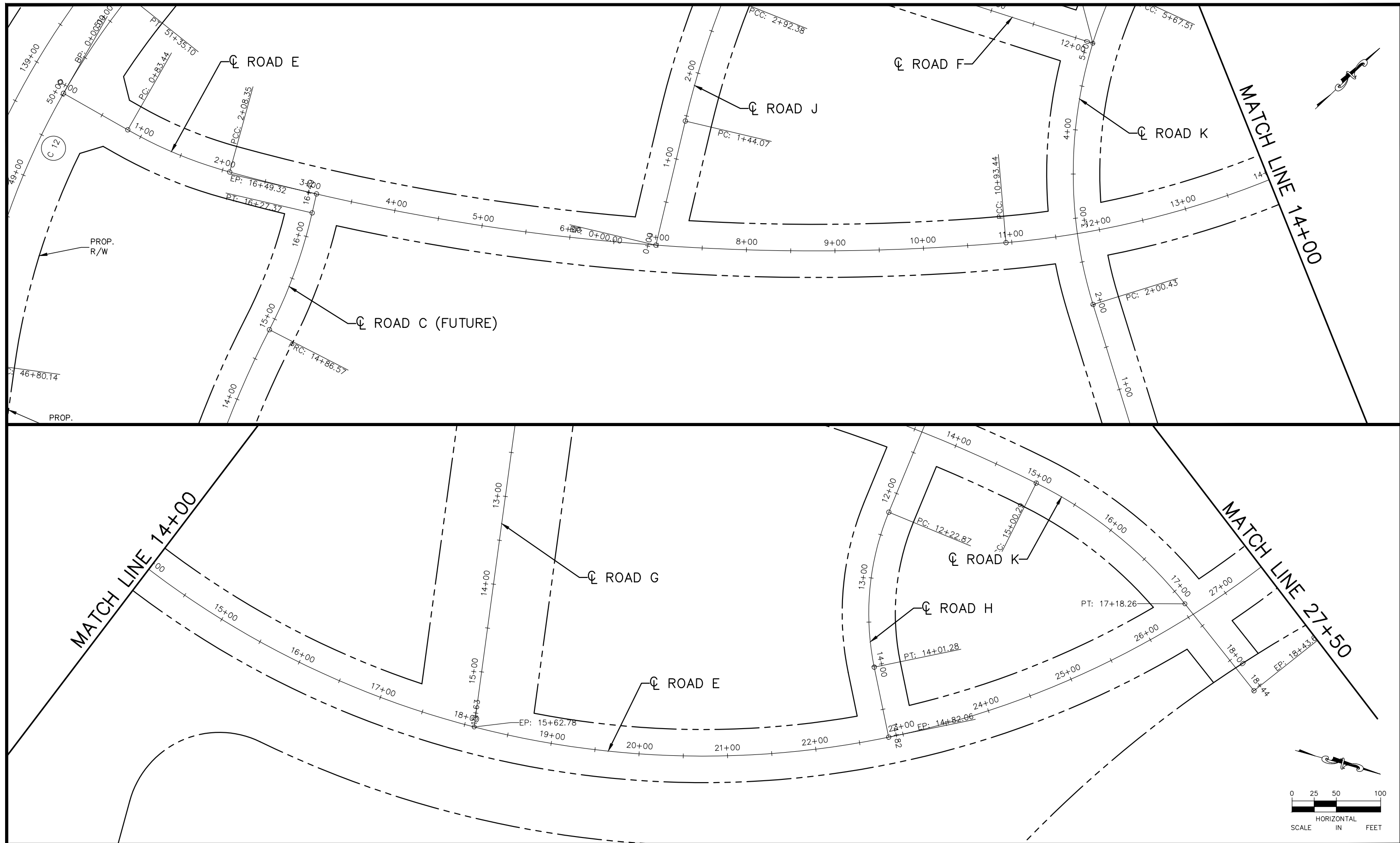
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 ALIGNMENT PLAN
 STA. 70+50 TO STA. 79+95

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
39
335

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No.	Date	Revisions	App.

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RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

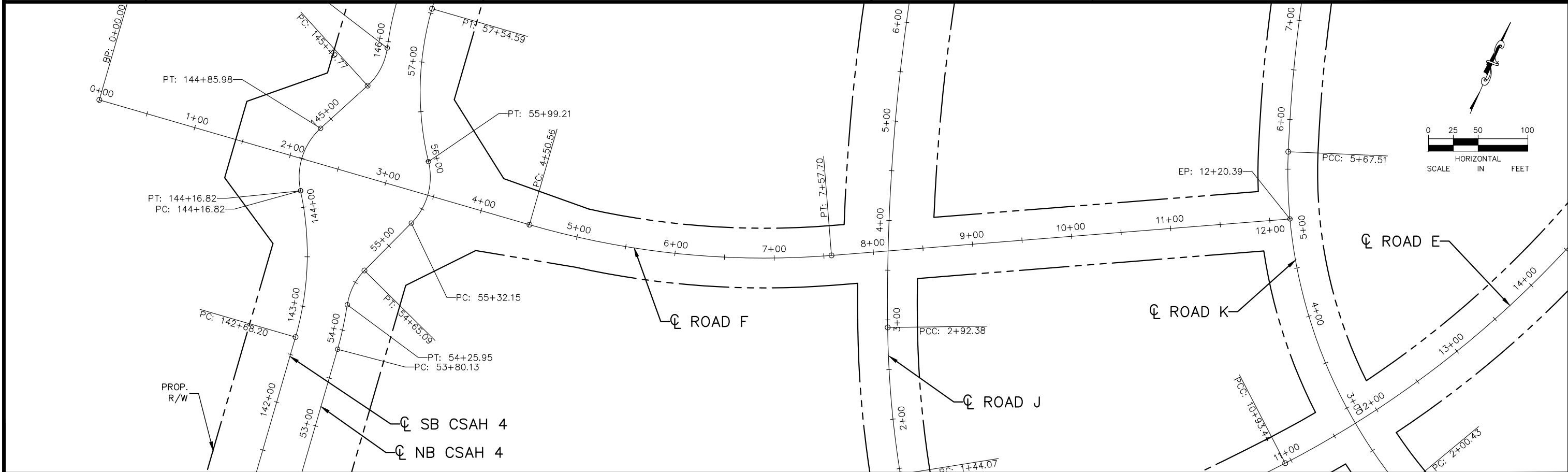
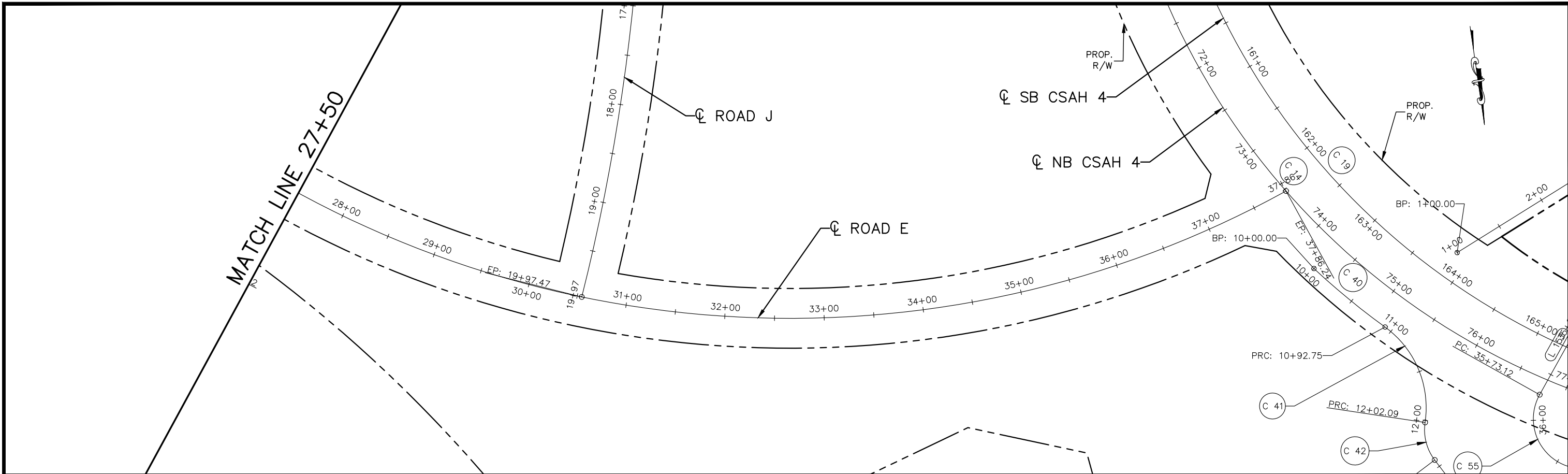
ROAD E
 ALIGNMENT PLAN
 STA. 0+00 TO STA. 27+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 40

335

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No.	Date	Revisions	App.

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PROJECT NO.	160553004

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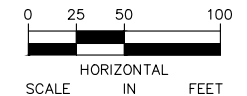
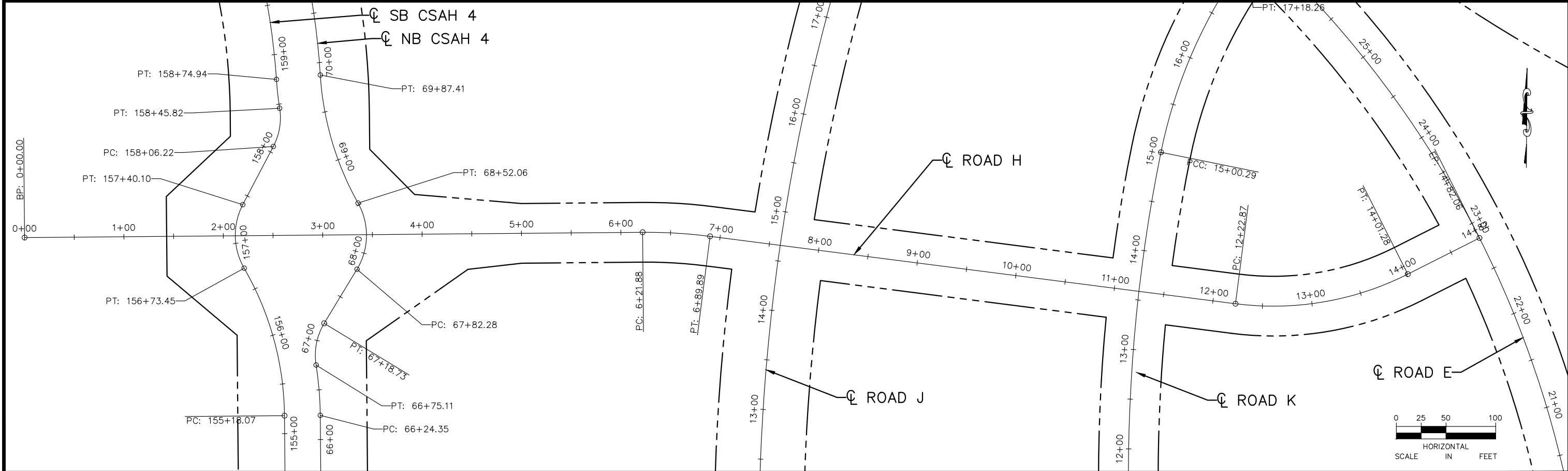
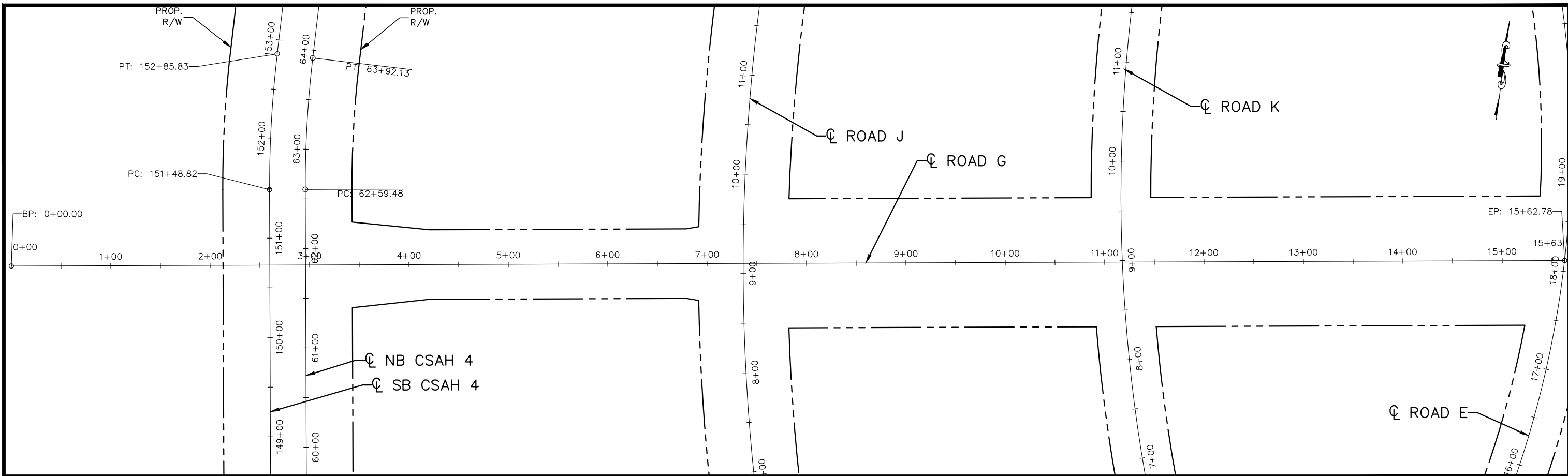
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E AND ROAD F
 ALIGNMENT PLAN
 STA. 27+50 TO STA. 37+86 AND STA. 0+00 TO STA. 12+20

CITY PROJECT	SHEET NO. 41
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

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DESIGNED BY:	RJG
DRAWN BY:	RJG
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PROJECT NO.	160553004

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RAMSEY COUNTY

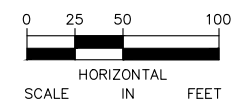
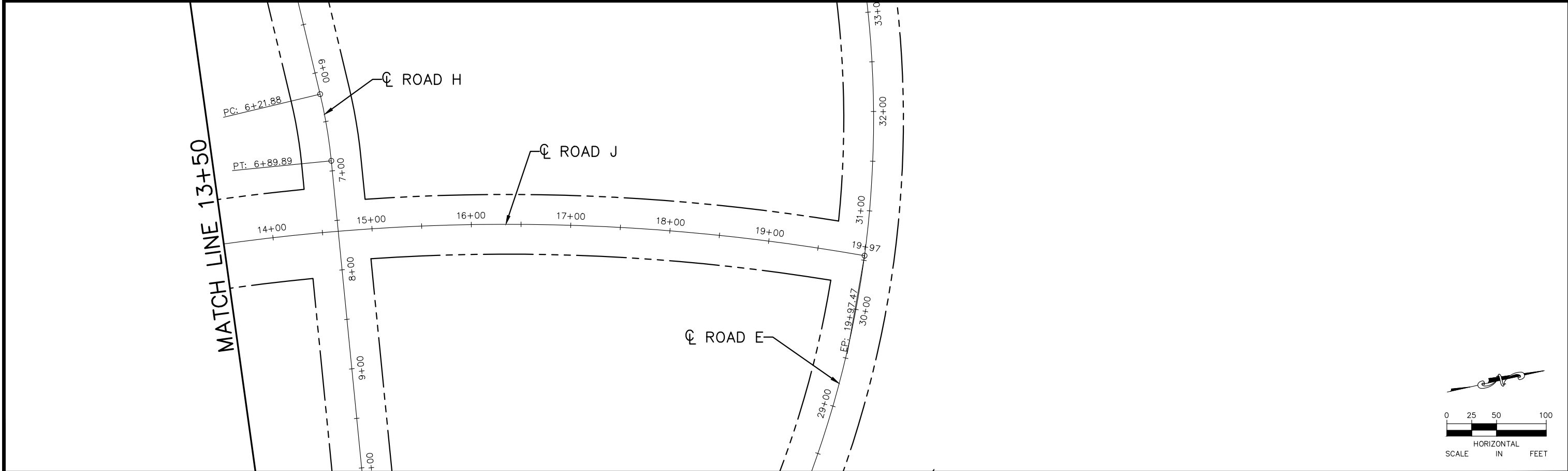
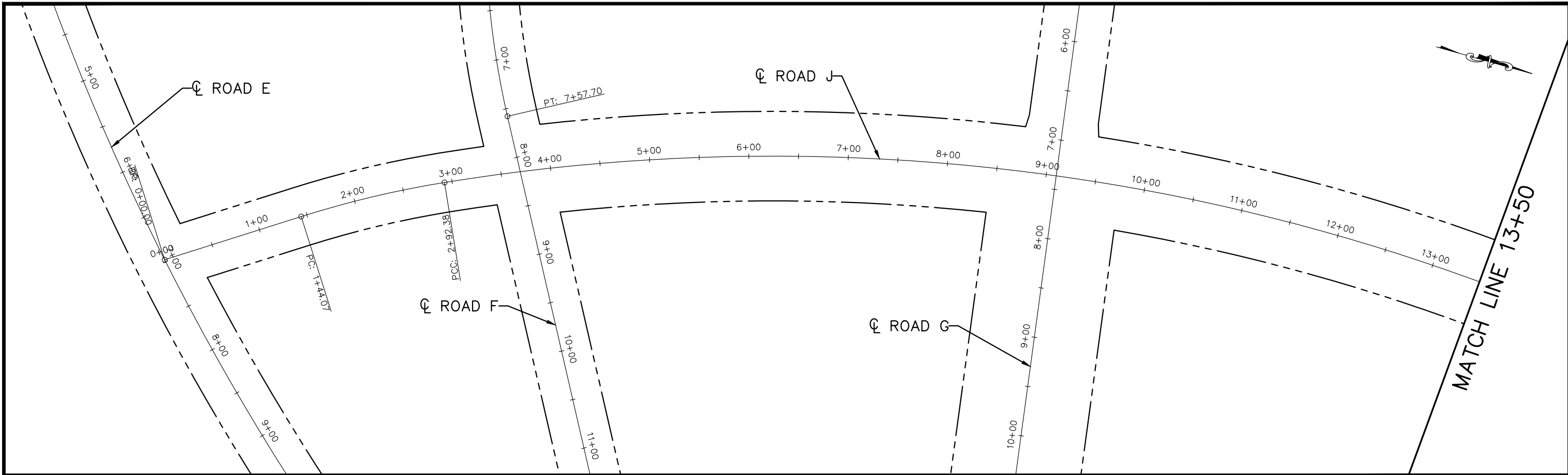
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD G AND ROAD H
 ALIGNMENT PLAN
 STA. 0+00 TO STA. 15+63 AND STA. 0+00 TO STA. 14+82

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
42

335

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RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

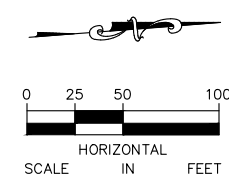
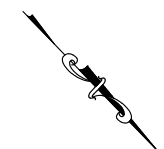
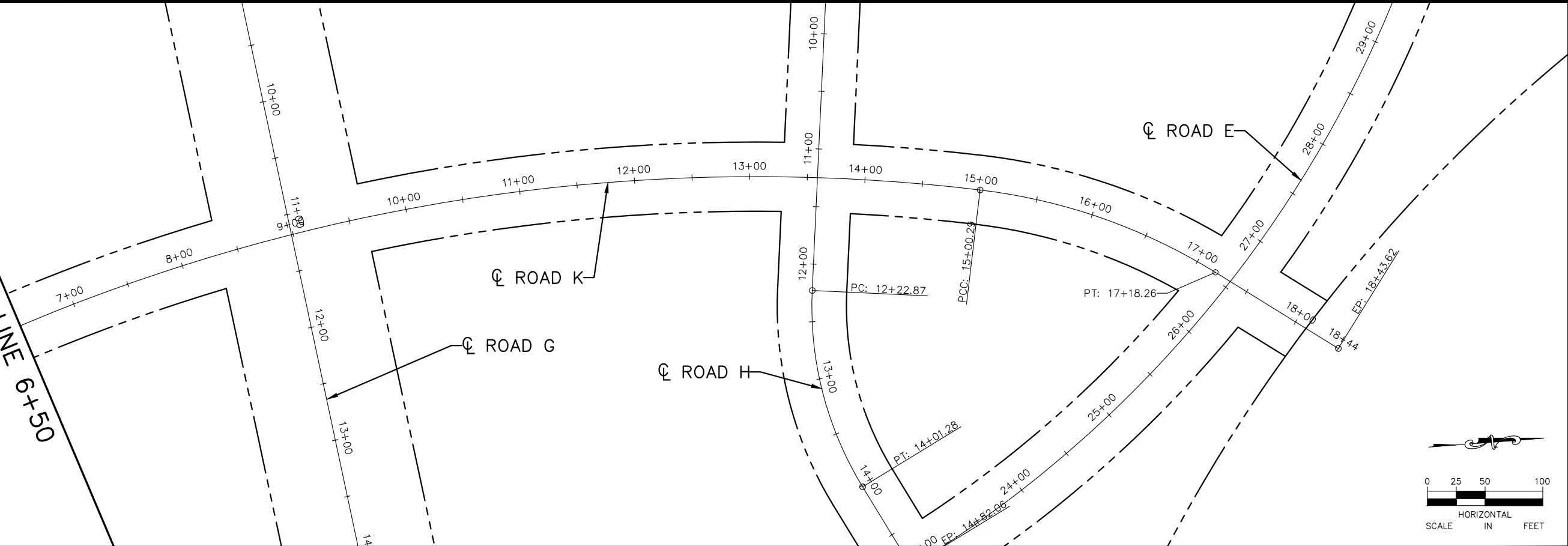
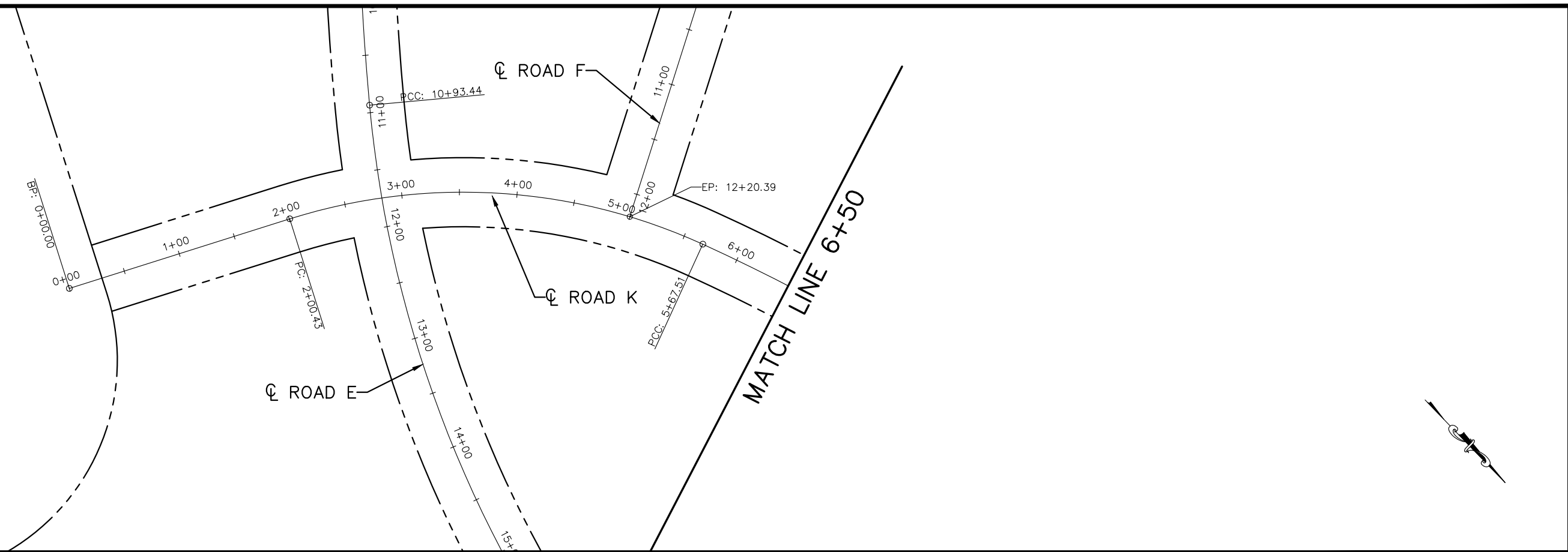
ROAD J
 ALIGNMENT PLAN
 STA. 0+00 TO STA. 19+97

CITY PROJECT	
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S.A.P.	062-593-004
S.A.P.	

SHEET NO.
43

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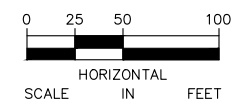
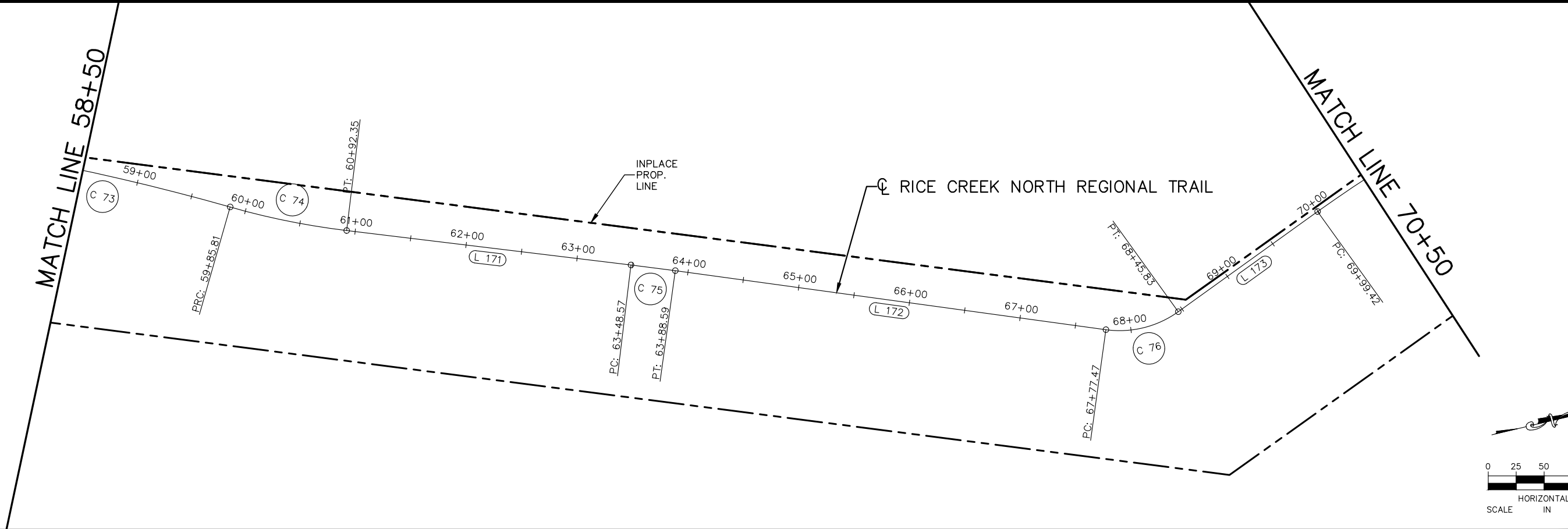
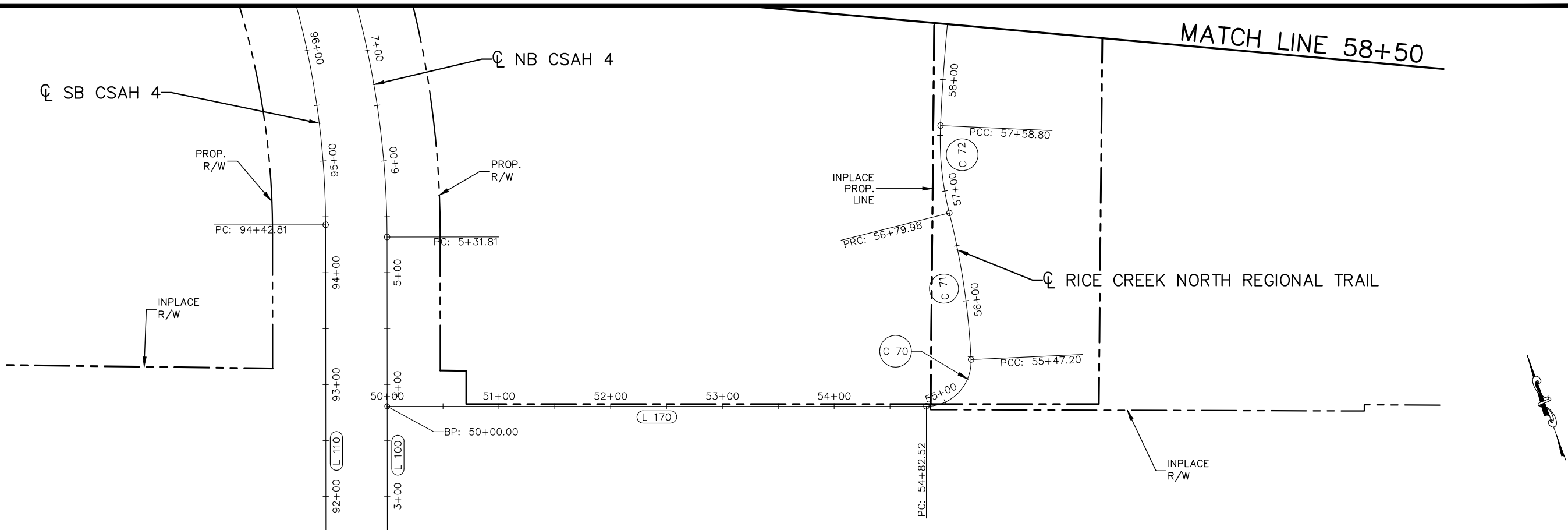
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD K
 ALIGNMENT PLAN
 STA. 0+00 TO STA. 18+44

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
44
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg Layout05 January 09, 2019 - 2:27pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ALGN.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

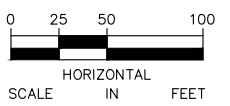
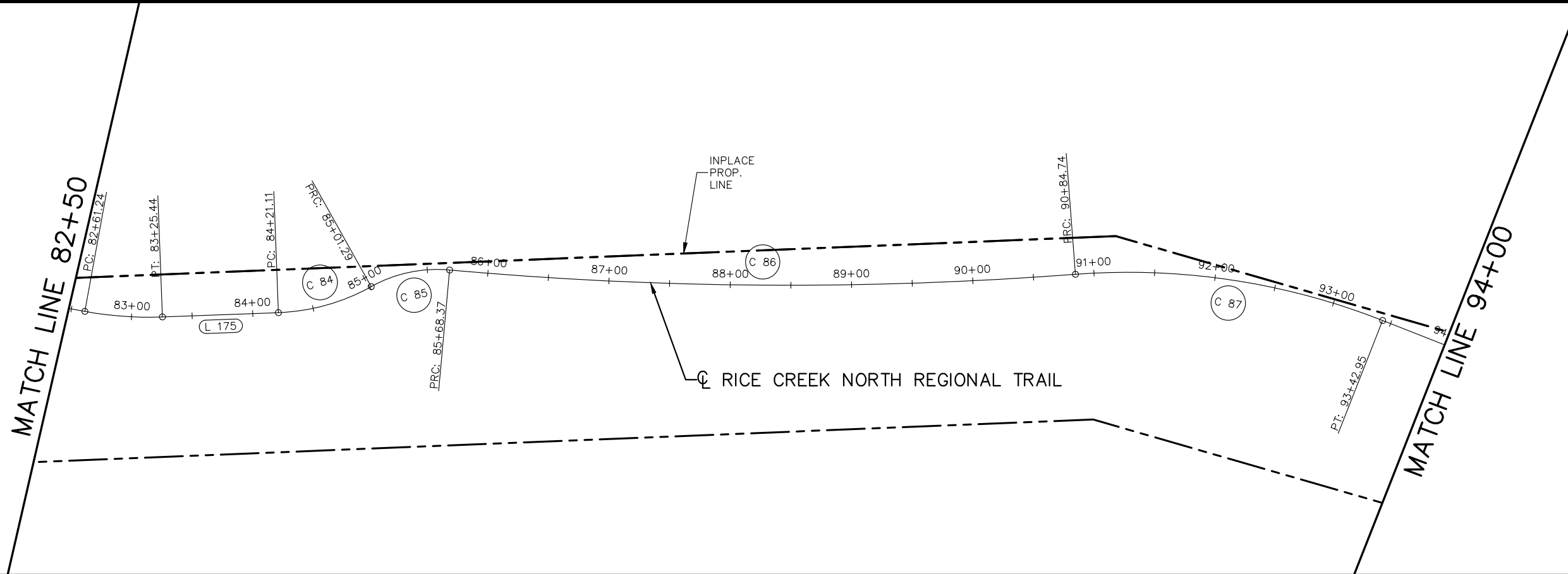
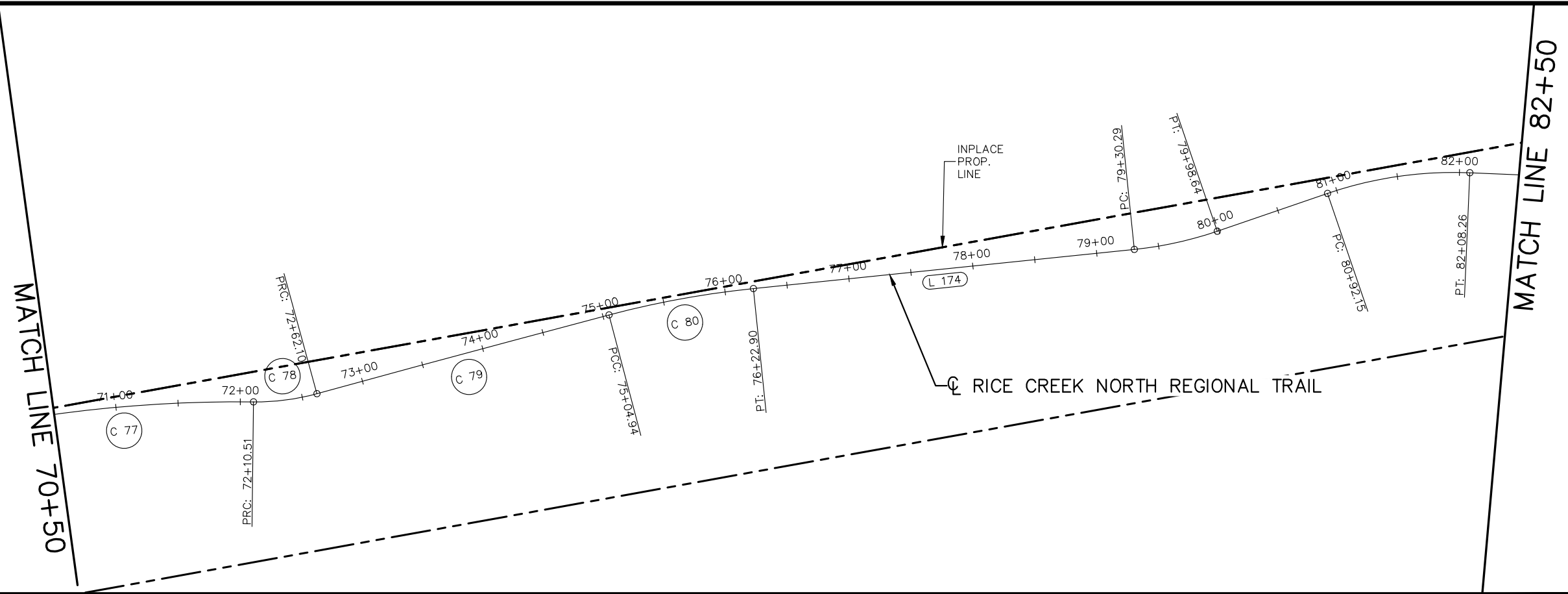
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 ALIGNMENT PLAN
 STA. 50+00 TO STA. 70+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
45

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg Layout07 January 09, 2019 - 2:27pm



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_ALGN.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

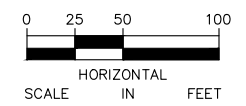
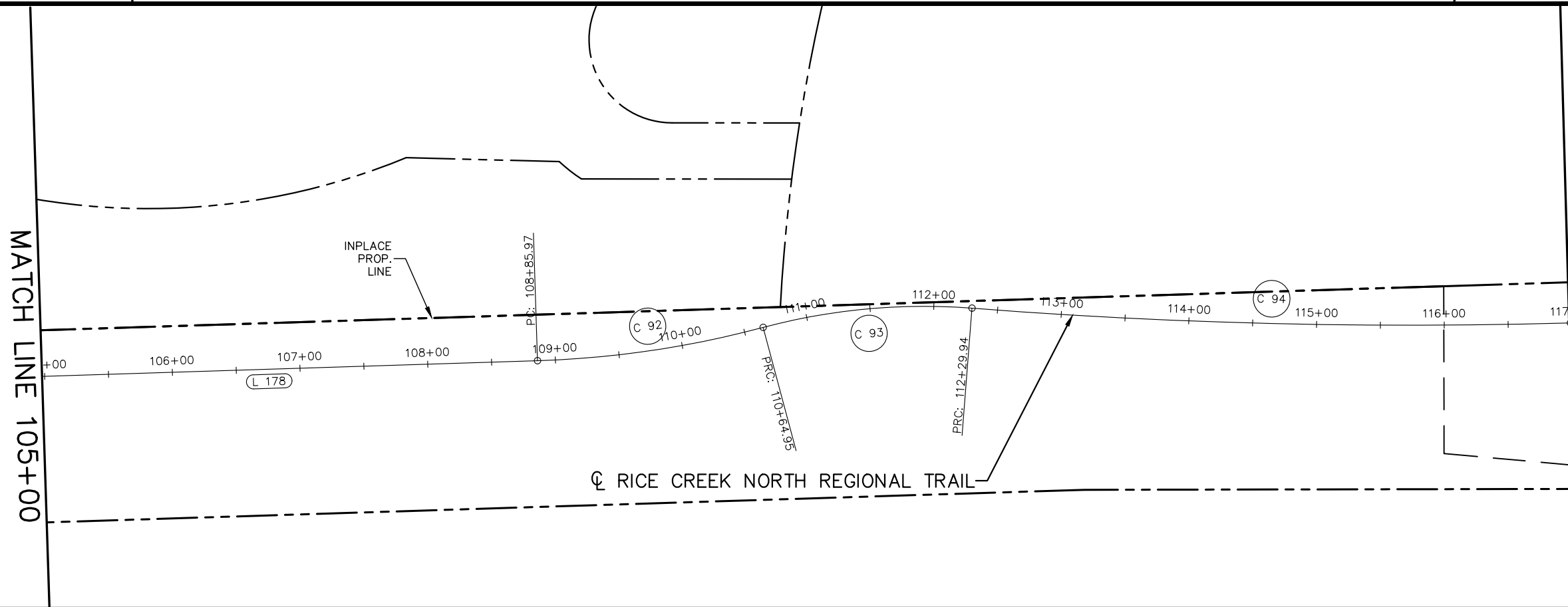
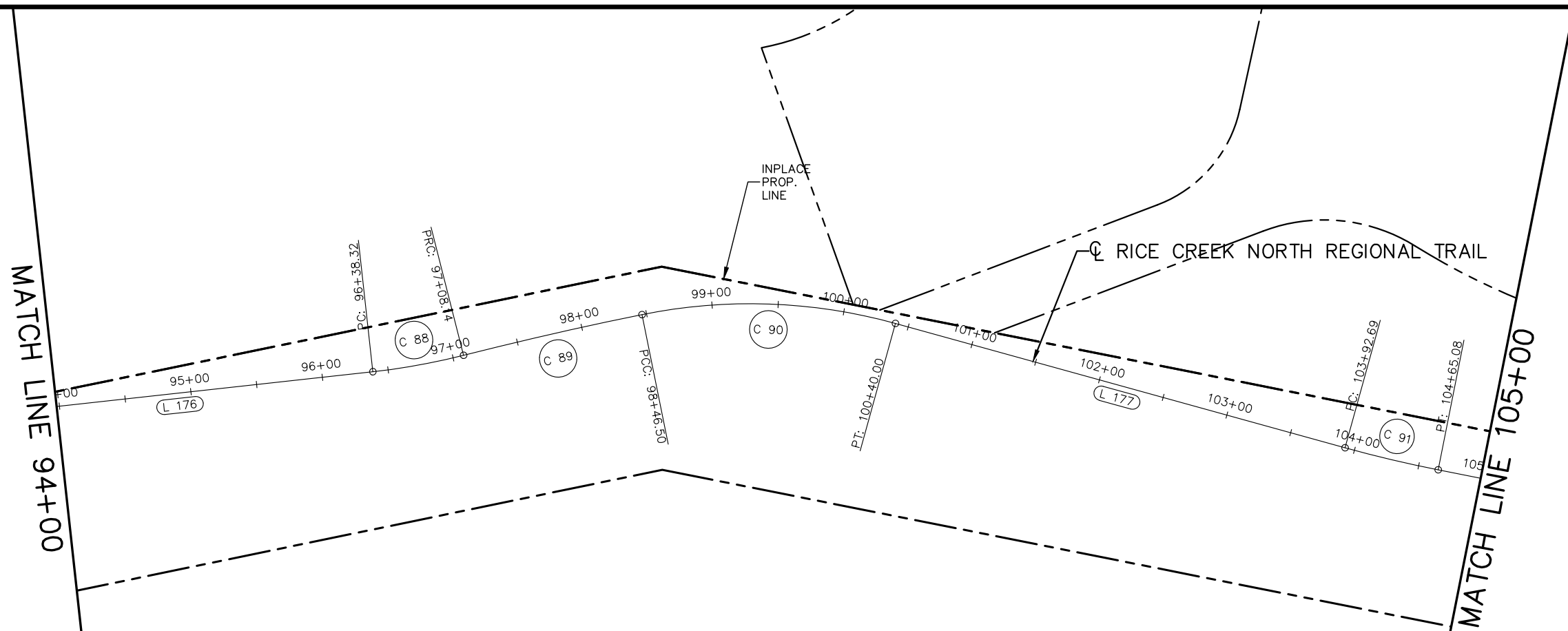
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL ALIGNMENT PLAN
 STA. 70+50 TO STA. 94+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
46

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg Layout08 January 09, 2019 - 2:27pm



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_ALGN.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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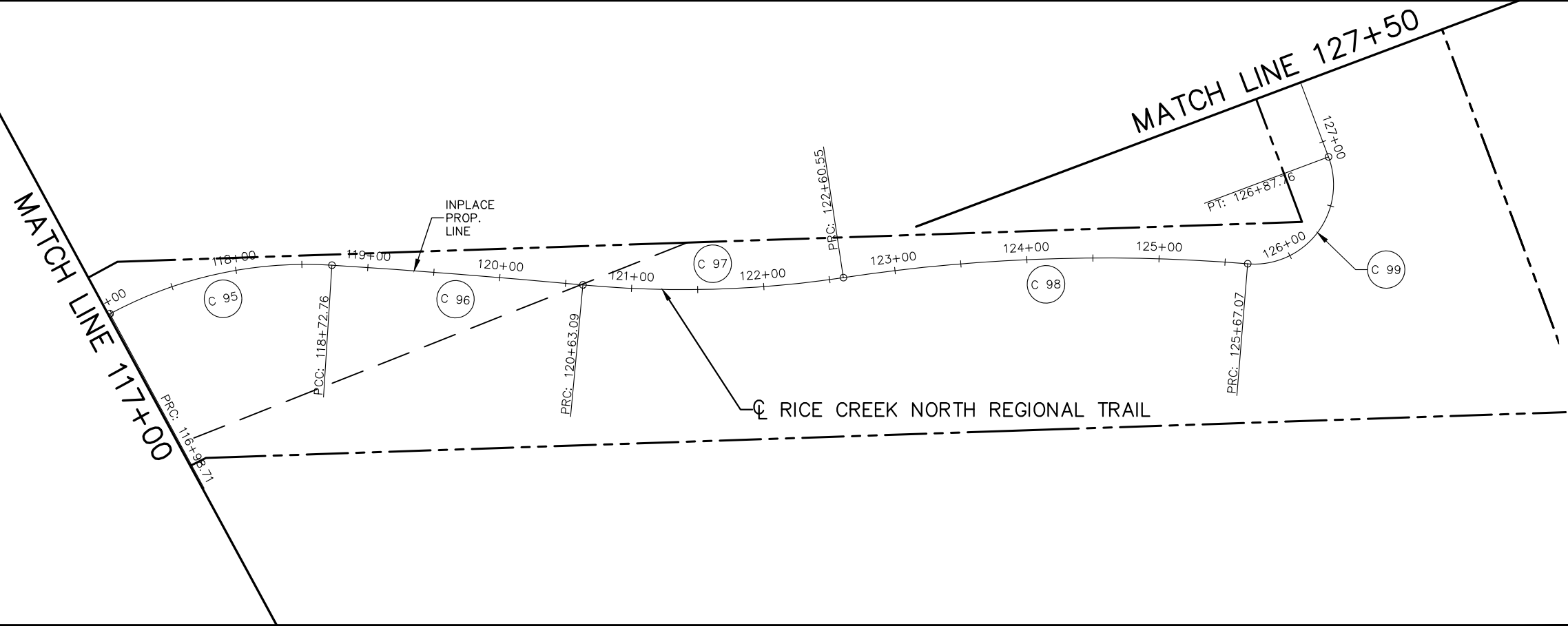
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL ALIGNMENT PLAN
 STA. 94+00 TO STA. 117+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 47
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg Layout09 January 09, 2019 - 2:27pm



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_ALGN.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
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 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL ALIGNMENT PLAN
 STA. 117+00 TO STA. 138+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

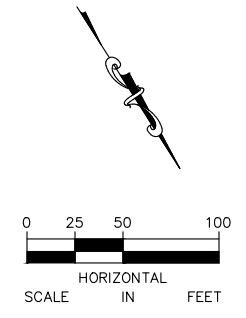
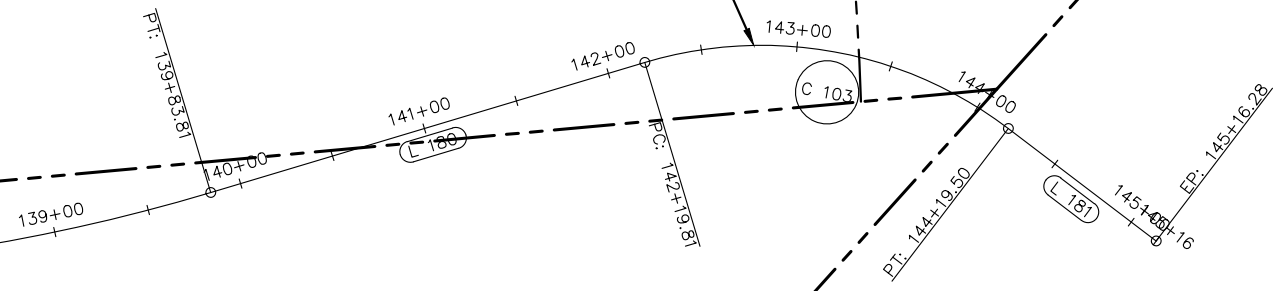
SHEET NO.
48
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg Layout10 January 09, 2019 - 2:27pm

MATCH LINE 138+50

☐ RICE CREEK NORTH REGIONAL TRAIL

INPLACE PROP. LINE



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_ALGN.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL ALIGNMENT PLAN
 STA. 138+50 TO STA. 145+16.28

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
49
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg AlignTab01 January 09, 2019 - 2:27pm

ALIGNMENT DATA
NB CSAH 4

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 100	1+00.00	5+31.81							431.81	204929.18	554800.27	205360.97	554796.09	359°26'45"
C 10	5+31.81	17+84.37	13+24.97		89°09'04"	7°07'02.96"	805.00	793.16	1252.56	205360.97	554796.09	206158.17	553995.27	359°26'45" 270°17'41"
L 101	17+84.37	18+78.64							94.27	206158.17	553995.27	206158.66	553901.01	270°17'41"
C 11	18+78.64	27+55.65	23+48.68		51°03'57"	5°49'21.87"	984.00	470.04	877.01	206158.66	553901.01	206528.22	553137.47	270°17'41" 321°21'38"
L 102	27+55.65	46+80.14							1924.50	206528.22	553137.47	208031.43	551935.79	321°21'38"
C 12	46+80.14	51+35.10	49+13.24		30°44'21"	6°45'23.68"	848.00	233.09	454.95	208031.43	551935.79	208444.38	551758.20	321°21'38" 352°05'59"
C 14	69+87.41	78+75.10	74+96.57		70°11'09"	7°54'23.67"	724.66	509.17	887.69	210244.86	551585.08	210891.24	551059.29	355°58'01" 285°46'52"
L 105	78+75.10	79+94.57							119.48	210891.24	551059.29	210923.73	550944.32	285°46'52"

ALIGNMENT DATA
SB CSAH 4

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 110	90+00.00	94+42.81							442.81	204928.65	554745.27	205371.44	554740.99	359°26'45"
C 15	94+42.81	106+09.79	101+81.78		89°09'04"	7°38'21.97"	750.00	738.97	1166.98	205371.44	554740.99	206114.18	553994.88	359°26'45" 270°17'41"
L 111	106+09.79	107+03.90							94.10	206114.18	553994.88	206114.66	553900.78	270°17'41"
C 16	107+03.90	116+20.12	111+94.96		51°03'57"	5°34'24.67"	1028.00	491.06	916.22	206114.66	553900.78	206500.75	553103.11	270°17'41" 321°21'38"
L 112	116+20.12	135+44.62							1924.50	206500.75	553103.11	208003.95	551901.42	321°21'38"
C 17	135+44.62	140+23.18	137+89.81		30°44'21"	6°25'23.86"	892.00	245.19	478.56	208003.95	551901.42	208438.33	551714.62	321°21'38" 352°05'59"
C 19	158+74.94	167+37.07	163+68.62		69°47'46"	8°05'44.87"	707.72	493.68	862.13	210240.01	551540.99	210866.74	551028.16	355°36'20" 285°48'34"
L 115	167+37.07	168+16.53							79.46	210866.74	551028.16	210888.38	550951.71	285°48'34"

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_ALGN.dwg
DESIGNED BY: RJC
DRAWN BY: RJC
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
ALIGNMENT PLAN TABULATION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
50
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ALGN.dwg AlignTab02 January 09, 2019 - 2:27pm

ALIGNMENT DATA ROAD A														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 120	0+00.00	2+59.85							259.85	206000.81	554060.11	206259.20	554087.63	6°04'46"

ALIGNMENT DATA ROAD B														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 121	0+00.00	2+52.00							252.00	206642.87	552856.34	206800.23	553053.17	51°21'38"

ALIGNMENT DATA OFF ROAD SANITARY SEWER														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 130	1+00.00	6+96.36							596.36	210673.42	551309.60	210435.26	550762.86	246°27'43"
L 131	6+96.36	7+45.88							49.52	210435.26	550762.86	210480.65	550743.09	336°27'43"
C 30	7+45.88	9+27.01	8+36.61		8°29'35"	4°41'19.28"	1222.00	90.74	181.14	210480.65	550743.09	210659.66	550769.72	12°42'39" 4°13'04"
L 132	9+27.01	10+97.16							170.14	210659.66	550769.72	210829.34	550782.24	4°13'04"
L 133	10+97.16	11+05.17							8.02	210829.34	550782.24	210837.30	550781.26	352°57'58"
L 134	11+05.17	11+50.43							45.26	210837.30	550781.26	210882.14	550787.34	7°43'52"

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_ALGN.dwg
DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 ALIGNMENT TABULATION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 51
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd_BP2\CAD\Plan_Sheets\Construction_Plans\TCAAP_SPINERD_ALGN.dwg AlignTab04 January 09, 2019 - 2:27pm

ALIGNMENT DATA
RICE CREEK NORTH REGIONAL TRAIL

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 170	50+00.00	54+82.52							482.52	205209.54	554797.56	205213.78	555280.06	89°29'51"
C 70	54+82.52	55+47.20	55+24.41		92°38'33"	143°14'22.02"	40.00	41.89	64.68	205213.78	555280.06	205255.97	555319.65	89°29'51" 356°51'18"
C 71	55+47.20	56+79.98	56+13.81		11°31'37"	8°40'52.24"	660.00	66.61	132.78	205255.97	555319.65	205386.93	555299.12	356°51'18" 345°19'41"
C 72	56+79.98	57+58.80	57+19.67		16°43'40"	21°13'14.37"	270.00	39.70	78.83	205386.93	555299.12	205465.00	555290.49	345°19'41" 2°03'21"
C 73	57+58.80	59+85.81	58+72.43		6°34'08"	2°53'37.41"	1980.00	113.63	227.01	205465.00	555290.49	205690.90	555311.61	2°03'21" 8°37'29"
C 74	59+85.81	60+92.35	60+39.19		9°02'38"	8°29'17.75"	675.00	53.38	106.55	205690.90	555311.61	205797.06	555319.22	8°37'29" 359°34'51"
L 171	60+92.35	63+48.57							256.22	205797.06	555319.22	206053.27	555317.35	359°34'51"
C 75	63+48.57	63+88.59	63+68.58		0°54'46"	2°16'51.18"	2512.00	20.01	40.02	206053.27	555317.35	206093.28	555317.37	359°34'51" 0°29'37"
L 172	63+88.59	67+77.47							388.88	206093.28	555317.37	206482.15	555320.72	0°29'37"
C 76	67+77.47	68+45.83	68+13.39		43°31'07"	63°39'43.12"	90.00	35.92	68.36	206482.15	555320.72	206544.33	555296.52	0°29'37" 316°58'30"
L 173	68+45.83	69+99.42							153.60	206544.33	555296.52	206656.62	555191.72	316°58'30"
C 77	69+99.42	72+10.51	71+05.30		11°04'32"	5°14'48.72"	1092.00	105.87	211.09	206656.62	555191.72	206823.86	555063.45	316°58'30" 328°03'02"
C 78	72+10.51	72+62.10	72+36.47		15°58'33"	30°58'14.49"	185.00	25.96	51.58	206823.86	555063.45	206863.28	555030.45	328°03'02" 312°04'28"
C 79	72+62.10	75+04.94	73+83.52		0°31'54"	0°13'08.32"	26165.00	121.42	242.84	206863.28	555030.45	207026.84	554850.95	312°04'28" 312°36'23"
C 80	75+04.94	76+22.90	75+64.04		8°57'07"	7°35'19.84"	755.00	59.10	117.96	207026.84	554850.95	207113.14	554770.70	312°36'23" 321°33'30"
L 174	76+22.90	79+30.29							307.39	207113.14	554770.70	207353.90	554579.60	321°33'30"
L 175	83+25.44	84+21.11							95.67	207645.08	554318.07	207715.46	554253.26	317°21'25"
C 84	84+21.11	85+01.29	84+61.96		27°01'17"	33°42'12.24"	170.00	40.85	80.17	207715.46	554253.26	207759.70	554187.29	317°21'25" 290°20'08"
C 85	85+01.29	85+68.37	85+35.87		34°19'03"	51°09'25.01"	112.00	34.58	67.08	207759.70	554187.29	207799.92	554134.86	290°20'08" 324°39'10"
C 86	85+68.37	90+84.74	88+27.15		9°31'42"	1°50'42.99"	3105.00	258.78	516.37	207799.92	554134.86	208194.38	553802.55	324°39'10" 315°07'28"
C 87	90+84.74	93+42.95	92+16.08		25°51'49"	10°01'00.28"	572.00	131.34	258.20	208194.38	553802.55	208411.63	553667.10	315°07'28" 340°59'17"
L 176	93+42.95	96+38.32							295.37	208411.63	553667.10	208690.89	553570.88	340°59'17"
C 88	96+38.32	97+08.14	96+73.29		8°00'02"	11°27'32.96"	500.00	34.97	69.82	208690.89	553570.88	208755.10	553543.60	340°59'17" 332°59'15"
C 89	97+08.14	98+46.50	97+77.33		2°48'31"	2°01'47.71"	2822.56	69.20	138.37	208755.10	553543.60	208879.87	553483.81	332°59'15" 335°47'46"
C 90	98+46.50	100+40.00	99+45.07		26°54'31"	13°54'24.27"	412.00	98.56	193.49	208879.87	553483.81	209068.22	553448.05	335°47'46" 2°42'17"
L 177	100+40.00	103+92.69							352.70	209068.22	553448.05	209420.53	553464.69	2°42'17"
C 91	103+92.69	104+65.08	104+28.90		4°13'55"	5°50'47.43"	980.00	36.21	72.38	209420.53	553464.69	209492.89	553465.44	2°42'17" 358°28'22"
L 178	104+65.08	108+85.97							420.89	209492.89	553465.44	209913.63	553454.22	358°28'22"
C 92	108+85.97	110+64.95	109+75.86		13°08'51"	7°20'44.22"	780.00	89.89	178.98	209913.63	553454.22	210090.44	553429.05	358°28'22" 345°19'31"
C 93	110+64.95	112+29.94	111+48.24		19°24'38"	11°45'54.15"	487.00	83.29	164.99	210090.44	553429.05	210254.02	553414.83	345°19'31" 4°44'09"

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ALGN.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
RICE CREEK REMEANDER TRAIL ALIGNMENT TABULATION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
53
335

ALIGNMENT DATA
RICE CREEK NORTH REGIONAL TRAIL

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
C 94	112+29.94	116+98.71	114+64.54		6°03'07"	1°17'27.70"	4438.00	234.60	468.77	210254.02	553414.83	210722.37	553428.81	4°44'09" 358°41'02"
C 95	116+98.71	118+72.76	117+88.06		31°57'44"	18°21'50.51"	312.00	89.35	174.05	210722.37	553428.81	210888.57	553472.30	358°41'02" 30°38'46"
C 96	118+72.76	120+63.09	119+67.93		1°44'57"	0°55'08.50"	6234.40	95.17	190.33	210888.57	553472.30	211050.81	553571.80	30°38'46" 32°23'43"
C 97	120+63.09	122+60.55	121+62.31		13°58'04"	7°04'24.79"	810.00	99.22	197.47	211050.81	553571.80	211228.73	553656.33	32°23'43" 18°25'39"
C 98	122+60.55	125+67.07	124+14.50		13°17'05"	4°20'02.48"	1322.00	153.95	306.52	211228.73	553656.33	211505.75	553785.92	18°25'39" 31°42'44"
C 99	125+67.07	126+87.76	126+61.70		115°14'52"	95°29'34.68"	60.00	94.63	120.69	211505.75	553785.92	211596.91	553741.63	31°42'44" 276°27'52"
L 179	126+87.76	128+68.29							180.53	211596.91	553741.63	211617.23	553562.25	276°27'52"
C 100	128+68.29	131+23.97	129+96.25		6°14'02"	2°26'17.23"	2350.00	127.97	255.68	211617.23	553562.25	211632.15	553307.13	276°27'52" 270°13'50"
C 101	131+23.97	136+59.70	133+93.14		13°50'43"	2°35'03.78"	2217.00	269.18	535.73	211632.15	553307.13	211698.70	552776.86	270°13'50" 284°04'34"
C 102	136+59.70	139+83.81	138+23.25		18°56'56"	5°50'47.43"	980.00	163.55	324.11	211698.70	552776.86	211724.59	552455.27	284°04'34" 265°07'38"
L 180	139+83.81	142+19.81							236.00	211724.59	552455.27	211704.54	552220.12	265°07'38"
C 103	142+19.81	144+19.50	143+27.76		53°58'08"	27°01'34.72"	212.00	107.95	199.69	211704.54	552220.12	211776.96	552041.88	265°07'38" 319°05'46"
L 181	144+19.50	145+16.28							96.78	211776.96	552041.88	211850.10	551978.51	319°05'46"

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_ALGN.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON

DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

RICE CREEK NORTH REGIONAL TRAIL ALIGNMENT TABULATION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
54

335

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ALIGNMENT DATA CSAH 4 TRAIL CONNECTOR														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
C 40	10+00.00	10+92.75	10+46.43		7°00'39"	7°33'31.72"	758.00	46.43	92.75	210668.32	551454.43	210736.97	551392.15	321°17'39" 314°17'00"
C 41	10+92.75	12+02.09	11+53.61		62°38'50"	57°17'44.81"	100.00	60.86	109.34	210736.97	551392.15	210837.68	551366.30	314°17'00" 16°55'50"
C 42	12+02.09	12+42.08	12+23.22		45°49'26"	114°35'29.56"	50.00	21.13	39.99	210837.68	551366.30	210876.40	551362.25	16°55'50" 331°06'24"
L 140	12+42.08	13+26.02							83.95	210876.40	551362.25	210949.90	551321.69	331°06'24"
C 43	13+26.02	13+54.61	13+40.72		32°45'05"	114°35'29.61"	50.00	14.69	28.58	210949.90	551321.69	210969.74	551301.66	331°06'24" 298°21'19"
C 44	13+54.61	14+38.62	13+96.91		16°32'37"	19°41'26.28"	290.98	42.30	84.02	210969.74	551301.66	211019.69	551234.46	298°21'19" 314°53'56"
C 45	14+38.62	15+58.24	15+31.42		114°13'38"	95°29'34.68"	60.00	92.79	119.62	211019.69	551234.46	211118.26	551255.44	314°53'56" 69°07'34"
C 46	15+58.24	16+24.26	15+91.27		4°43'14"	7°09'02.41"	801.26	33.03	66.02	211118.26	551255.44	211140.81	551317.46	67°39'36" 72°22'51"
L 141	16+24.26	16+49.75							25.49	211140.81	551317.46	211147.48	551342.06	74°49'17"

ALIGNMENT DATA RICE CREEK REMEANDER TRAIL														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 150	29+78.55	30+17.33							38.78	210853.67	550750.36	210822.50	550773.45	143°27'59"
C 50	30+17.33	30+29.24	30+24.11		68°15'14"	572°57'28.06"	10.00	6.78	11.91	210822.50	550773.45	210818.79	550784.04	143°27'59" 75°12'45"
C 51	30+29.24	30+84.95	30+57.84		31°54'59"	57°17'44.81"	100.00	28.60	55.70	210818.79	550784.04	210817.66	550839.01	75°12'45" 107°07'44"
L 151	30+84.95	31+73.23							88.28	210817.66	550839.01	210791.66	550923.38	107°07'44"
C 52	31+73.23	32+28.35	32+01.93		39°28'52"	71°37'11.01"	80.00	28.71	55.13	210791.66	550923.38	210794.13	550977.36	107°07'44" 67°38'52"
C 53	32+28.35	33+35.73	32+89.47		68°21'38"	63°39'43.12"	90.00	61.12	107.38	210794.13	550977.36	210773.40	551076.34	67°38'52" 136°00'30"
L 152	33+35.73	33+82.65							46.92	210773.40	551076.34	210739.64	551108.93	136°00'30"
C 54	33+82.65	34+68.61	34+40.68		98°29'46"	114°35'29.61"	50.00	58.02	85.95	210739.64	551108.93	210743.92	551184.56	136°00'30" 37°30'44"
L 153	34+68.61	35+73.12							104.51	210743.92	551184.56	210826.82	551248.20	37°30'44"
C 55	35+73.12	36+66.24	36+40.34		106°42'49"	114°35'29.61"	50.00	67.22	93.13	210826.82	551248.20	210904.01	551226.29	37°30'44" 290°47'55"
C 56	36+66.24	38+73.04	37+72.21		30°50'18"	14°54'45.20"	384.21	105.97	206.80	210904.01	551226.29	211024.73	551061.46	290°47'55" 321°38'14"
C 57	38+73.04	40+81.07	39+88.87		62°44'01"	30°09'20.42"	190.00	115.83	208.03	211024.73	551061.46	211221.05	551037.37	321°38'14" 24°22'14"
L 154	40+81.07	40+95.37							14.30	211221.05	551037.37	211234.08	551043.27	24°22'14"
C 58	40+95.37	41+25.71	41+11.03		34°45'47"	114°35'29.61"	50.00	15.65	30.34	211234.08	551043.27	211263.73	551046.91	24°22'14" 349°36'27"
L 155	41+25.71	41+55.55							29.83	211263.73	551046.91	211293.08	551041.53	349°36'27"
C 59	41+55.55	42+26.23	41+95.63		67°29'44"	95°29'34.68"	60.00	40.09	70.68	211293.08	551041.53	211354.28	551067.95	349°36'27" 57°06'11"
C 60	42+26.23	43+46.07	42+88.08		34°58'32"	29°11'07.25"	196.32	61.85	119.84	211354.28	551067.95	211445.17	551143.19	57°06'11" 22°07'39"

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_SPINERD_ALGN.dwg	DESIGNED BY: RJG
DRAWN BY: RJG	CHECKED BY: CBL
DATE: 01/04/19	PROJECT NO. 160553004



767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864



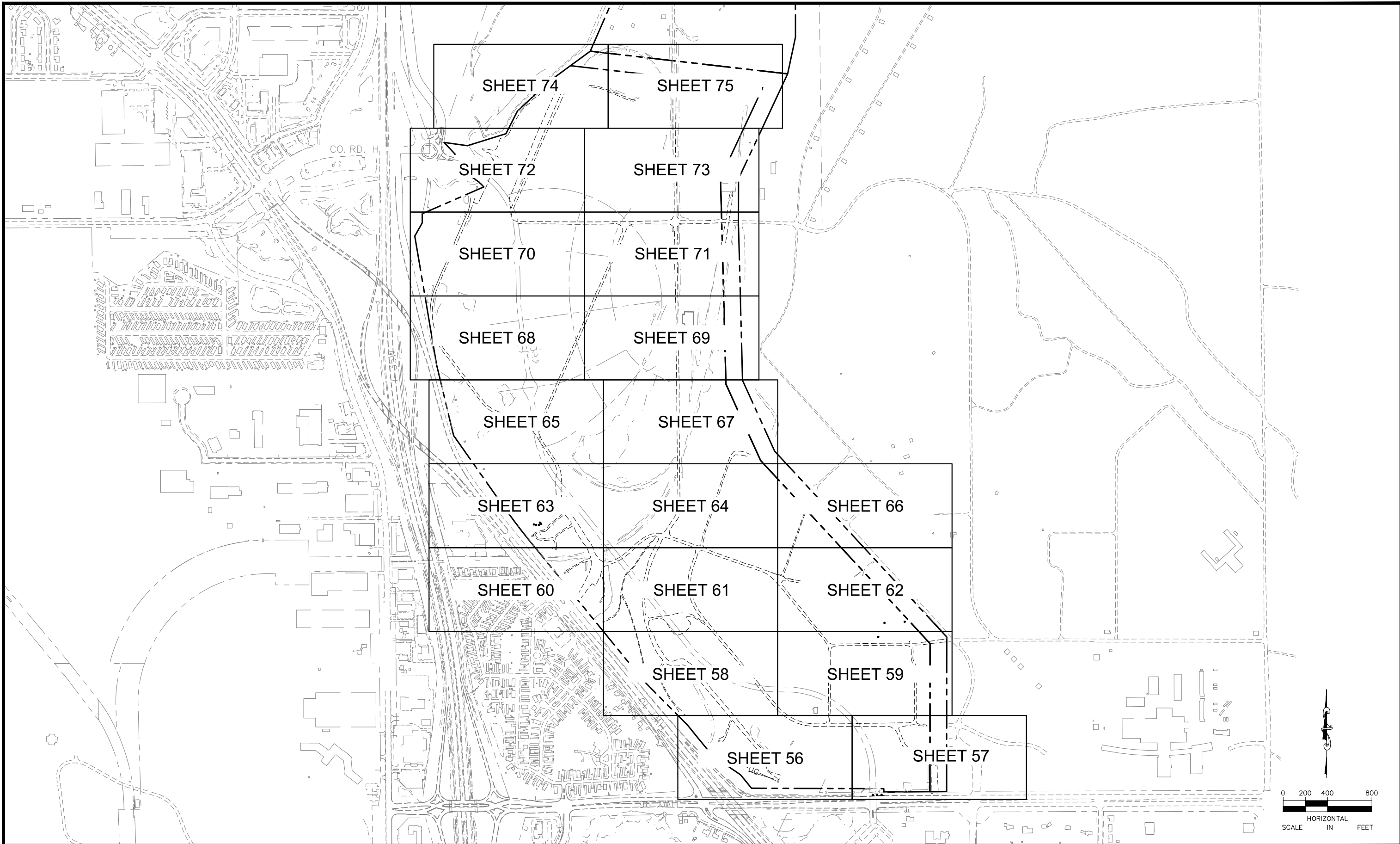
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4 TRAIL CONNECTOR AND RICE CREEK REMEANDER TRAIL ALIGNMENT TABULATION

CITY PROJECT	SHEET NO. 52
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

SHEET NO. 52

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC-INDX.dwg Layout01 January 09, 2019 - 2:28pm



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_EXC-INDX.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

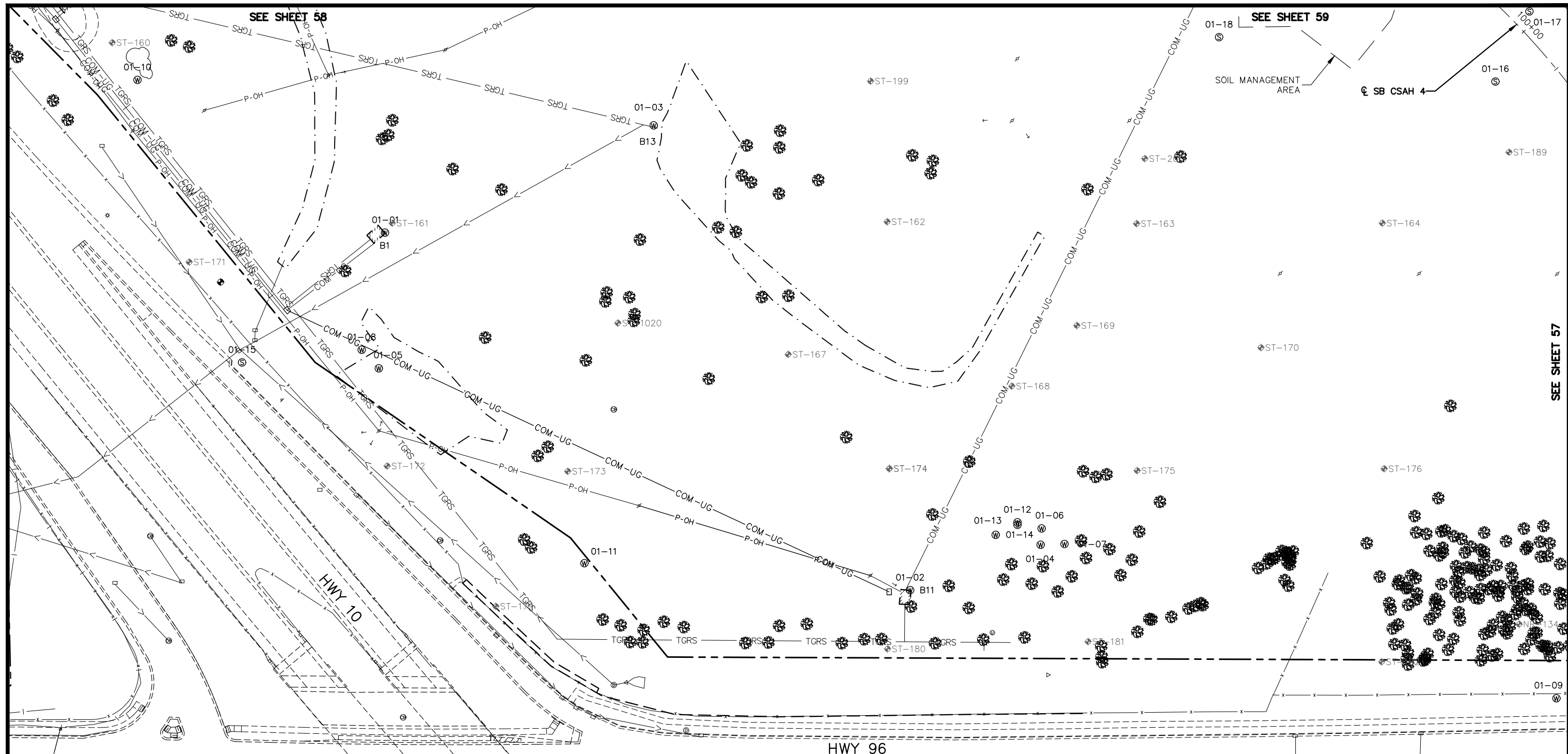
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS
 INDEX PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
55
335

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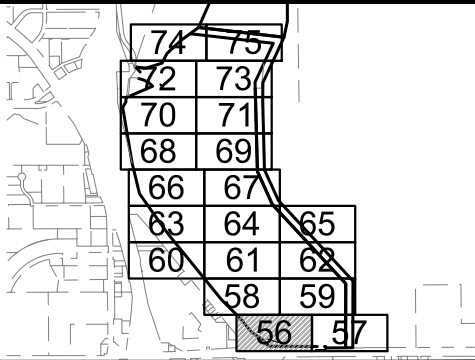
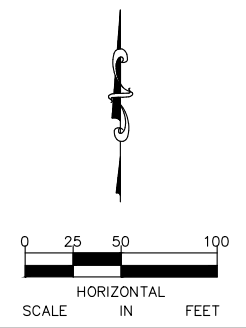


LEGEND

- ① ——— EXISTING STORM SEWER
- EXISTING WATER MAIN
- TGRS ——— EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)
- COM-UG ——— EXISTING TGRS COMMUNICATION LINE
- P-OH ——— EXISTING OVERHEAD POWER
- GAS ——— EXISTING GAS LINE
- 17-27 ⊙ EXISTING SEALED WELL
- 17-27 ⊕ EXISTING ACTIVE WELL
- x ——— EXISTING FENCE
- ~~~~~ EXISTING TREE LINE
- ▨ EXISTING BUILDING
- - - - - EXISTING EDGE OF GRAVEL
- · - · - · - EXISTING DELINEATED WETLAND
- ☼ ☼ EXISTING TREE
- ⚡ → POWER POLE & GUY WIRE
- ⊕ ST-100 SOIL BORING

GENERAL NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL INPLACE UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
3. PRIVATE UTILITY COORDINATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
5. SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_EXC.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

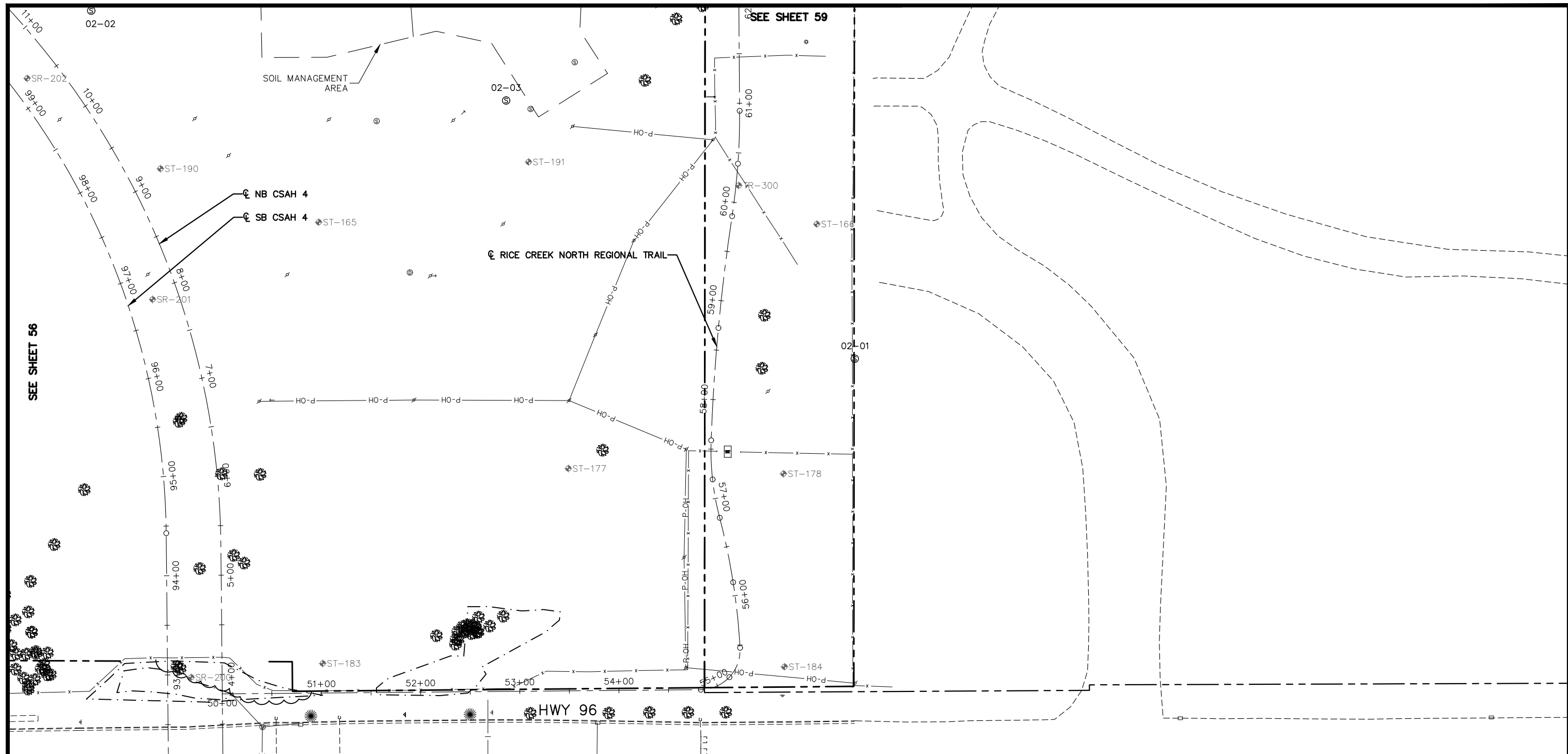
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO. 56
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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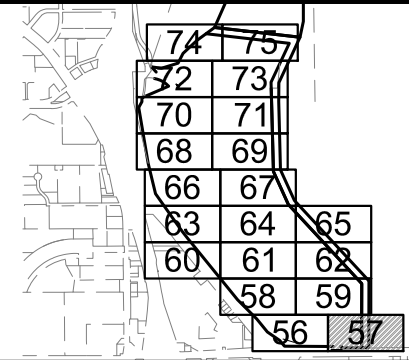
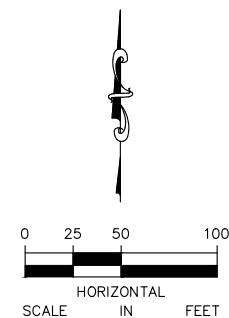


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

GENERAL NOTES

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- PRIVATE UTILITY COORDINATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

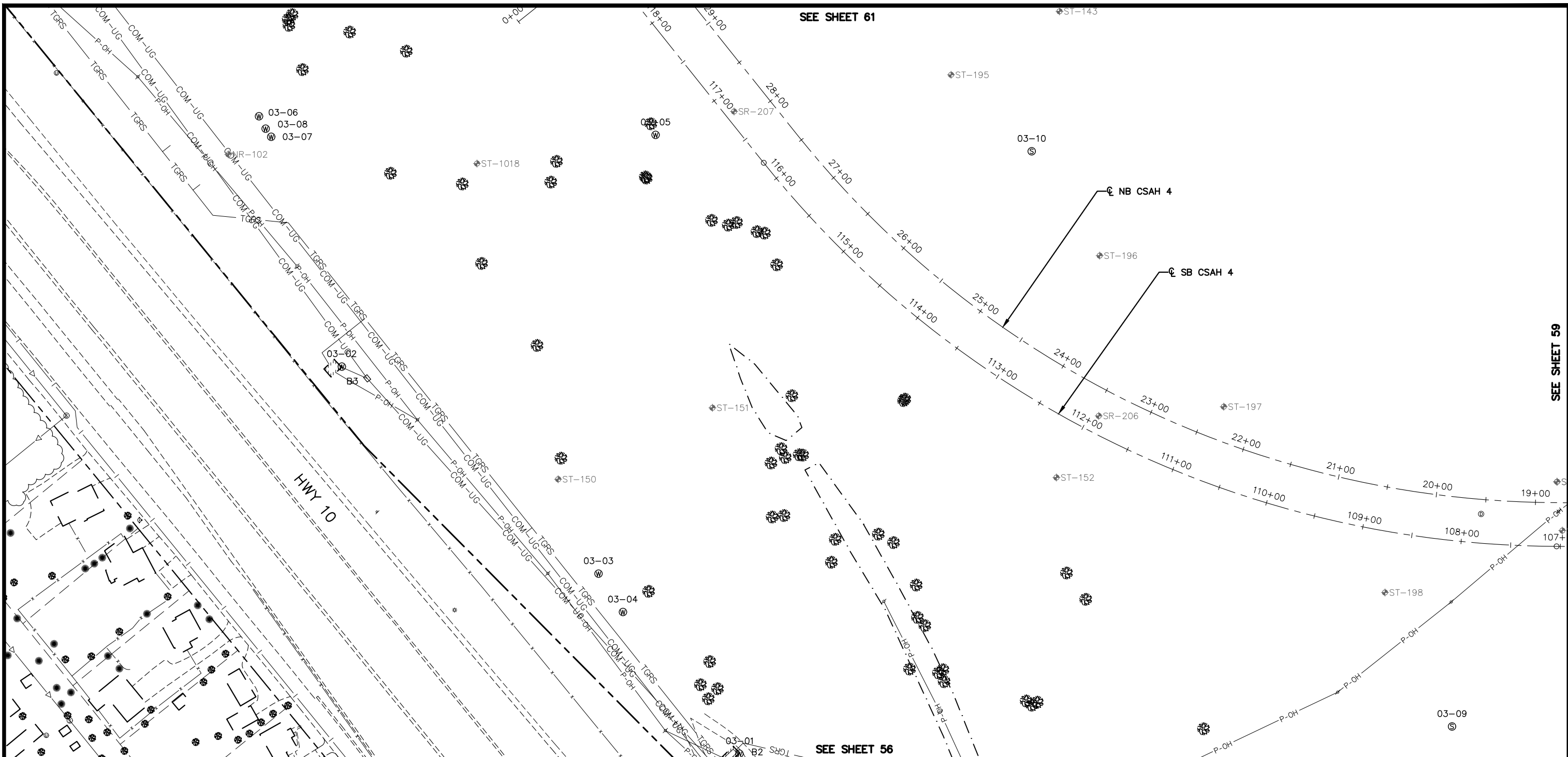
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	57
S.A.P. 062-593-004	
S.A.P.	335

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SEE SHEET 61

SEE SHEET 59

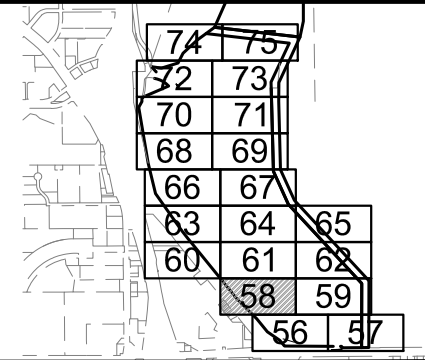
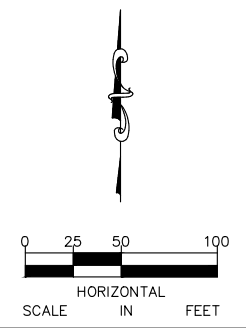
SEE SHEET 56

LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

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- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_EXC.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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

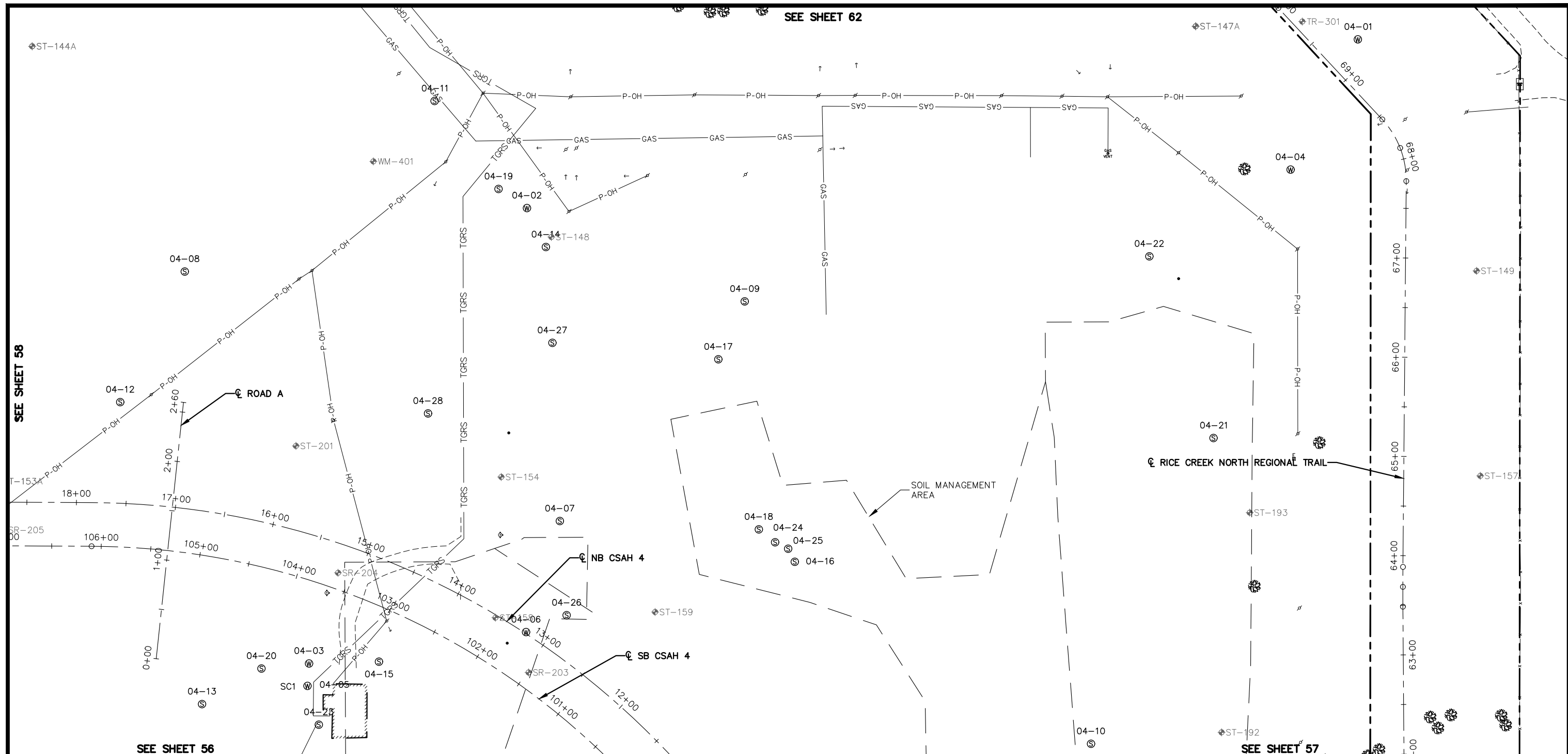
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
58
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout04 January 09, 2019 - 2:30pm



LEGEND

	EXISTING STORM SEWER		EXISTING FENCE
	EXISTING WATER MAIN		EXISTING TREE LINE
	EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)		EXISTING BUILDING
	EXISTING TGRS COMMUNICATION LINE		EXISTING EDGE OF GRAVEL
	EXISTING OVERHEAD POWER		DELINEATED WETLAND
	EXISTING GAS LINE		EXISTING TREE
	EXISTING SEALED WELL		POWER POLE & GUY WIRE
	EXISTING ACTIVE WELL		SOIL BORING

- GENERAL NOTES**
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 - SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.

SEE SHEET 58 (top left), SEE SHEET 56 (bottom left), SEE SHEET 57 (bottom right), SEE SHEET 62 (top center)

SOIL MANAGEMENT AREA

RICE CREEK NORTH REGIONAL TRAIL

NB CSAH 4

SB CSAH 4

SCALE: 0 25 50 100 HORIZONTAL IN FEET

Grid of sheet numbers: 74, 75, 72, 73, 70, 71, 68, 69, 66, 67, 63, 64, 65, 60, 61, 62, 58, 59, 56, 57

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

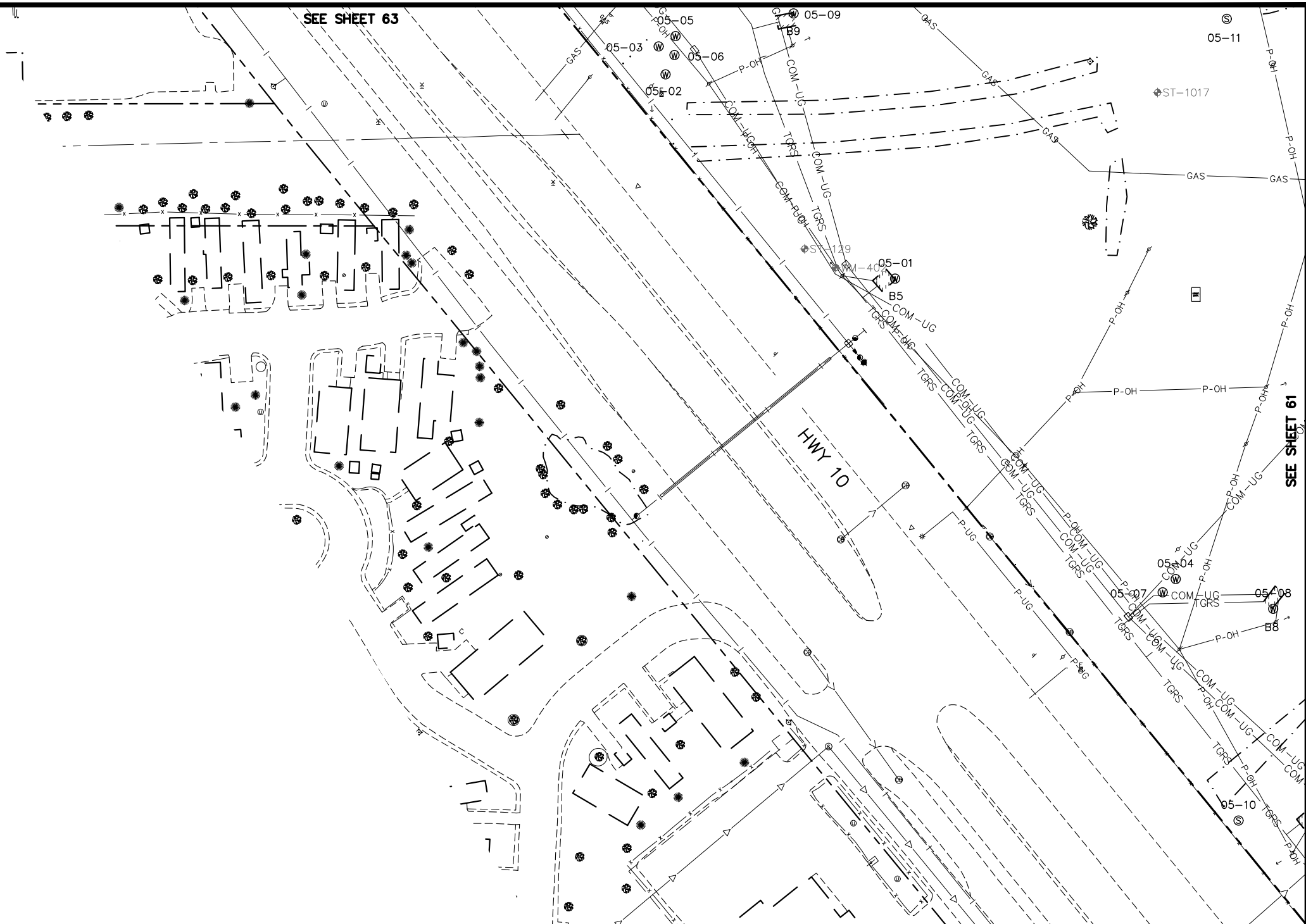
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	59
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout05 January 09, 2019 - 2:31pm

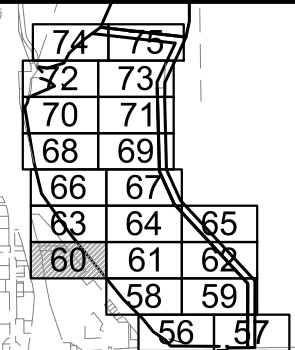
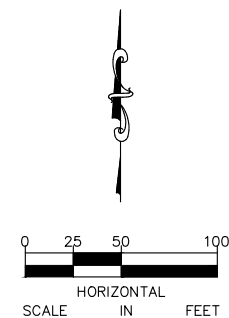


LEGEND

- ▽ <—⊕ EXISTING STORM SEWER
- |— EXISTING WATER MAIN
- TGRS — EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)
- COM-UG — EXISTING TGRS COMMUNICATION LINE
- P-OH — EXISTING OVERHEAD POWER
- GAS — EXISTING GAS LINE
- 17-27 ⊙ EXISTING SEALED WELL
- 17-27 ⊕ EXISTING ACTIVE WELL
- x — EXISTING FENCE
- ⌋ EXISTING TREE LINE
- ▨ EXISTING BUILDING
- - - - EXISTING EDGE OF GRAVEL
- · - · - DELINEATED WETLAND
- ☀ EXISTING TREE
- ⊕ → POWER POLE & GUY WIRE
- ⊕ ST-100 SOIL BORING

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No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_EXC.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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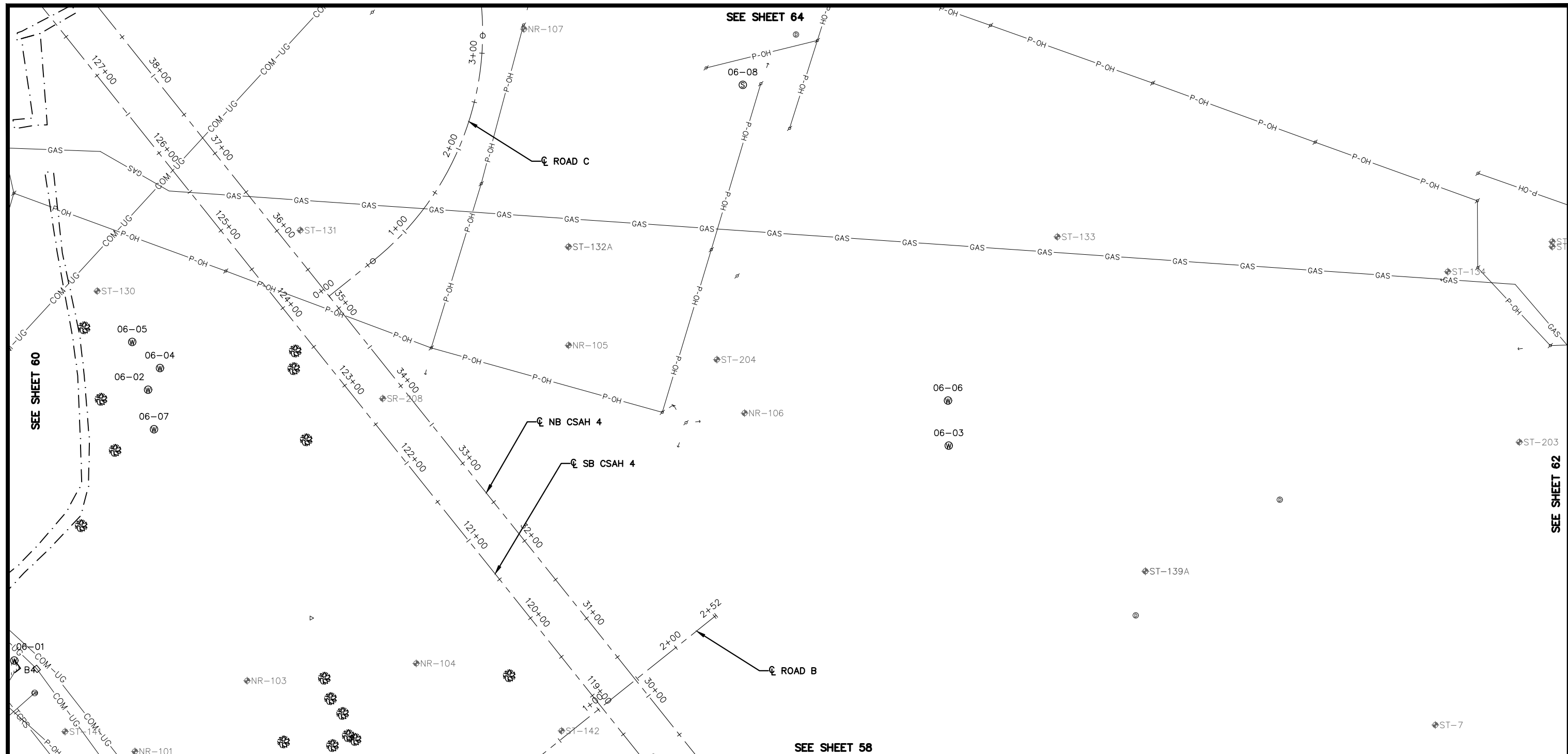
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 60
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout06 January 09, 2019 - 2:31pm

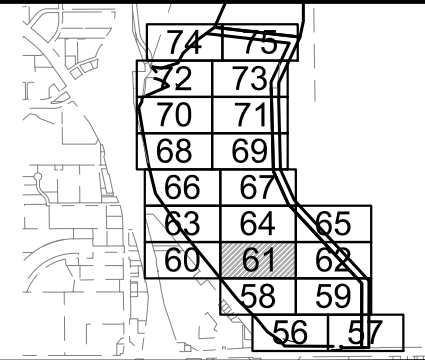
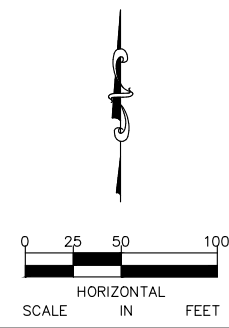


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

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- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_EXC.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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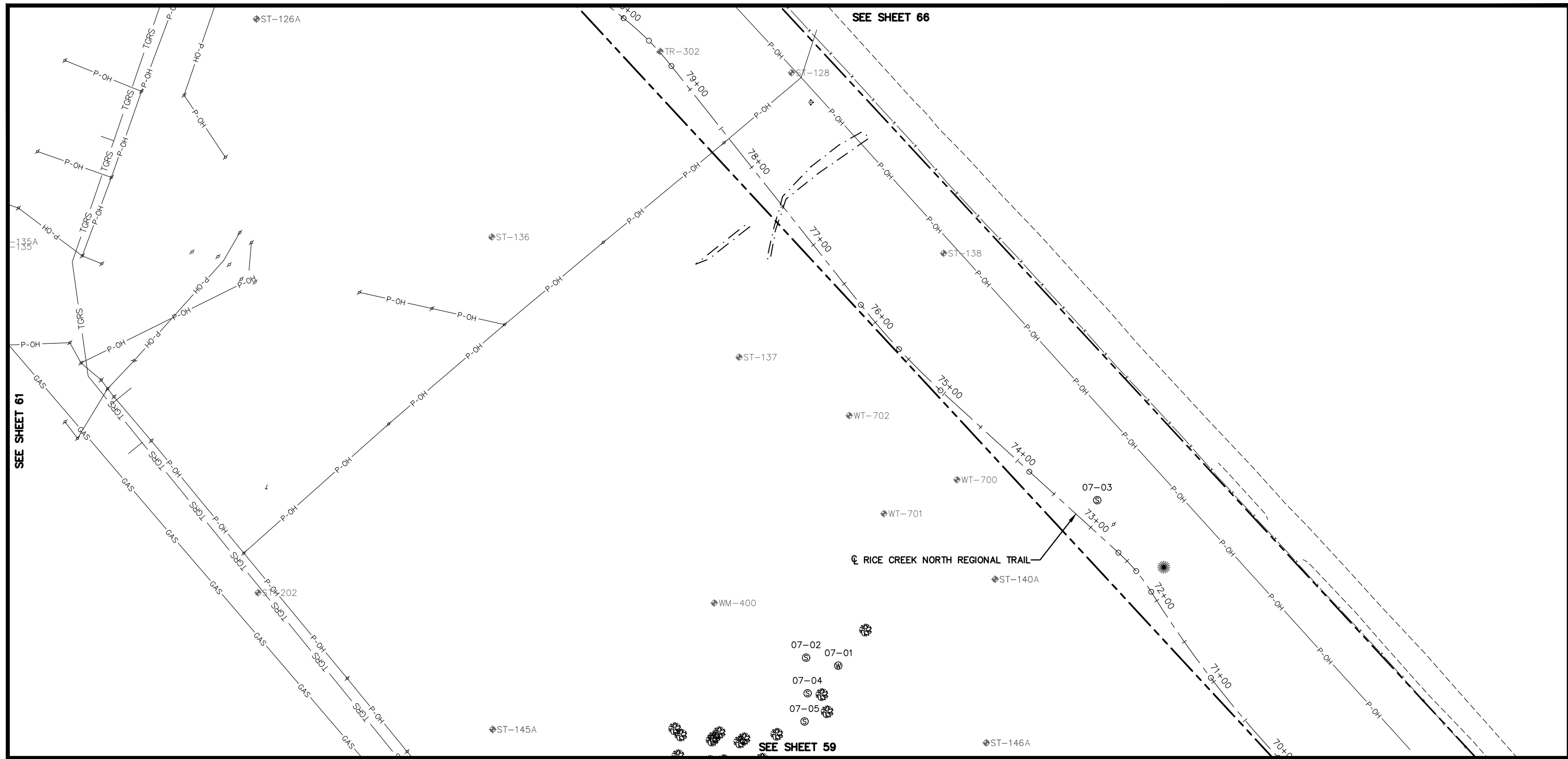
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 61
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout07 January 09, 2019 - 2:32pm



LEGEND

	EXISTING STORM SEWER		EXISTING FENCE
	EXISTING WATER MAIN		EXISTING TREE LINE
	EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)		EXISTING BUILDING
	EXISTING TGRS COMMUNICATION LINE		EXISTING EDGE OF GRAVEL
	EXISTING OVERHEAD POWER		DELINEATED WETLAND
	EXISTING GAS LINE		EXISTING TREE
	EXISTING SEALED WELL		POWER POLE & GUY WIRE
	EXISTING ACTIVE WELL		SOIL BORING

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SEE SHEET 61 (left), SEE SHEET 66 (top), SEE SHEET 59 (bottom)

RICE CREEK NORTH REGIONAL TRAIL

SCALE: 0 25 50 100 HORIZONTAL IN FEET

North arrow pointing up.

Grid of lot numbers (70-75) with lot 61 highlighted.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_EXC.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
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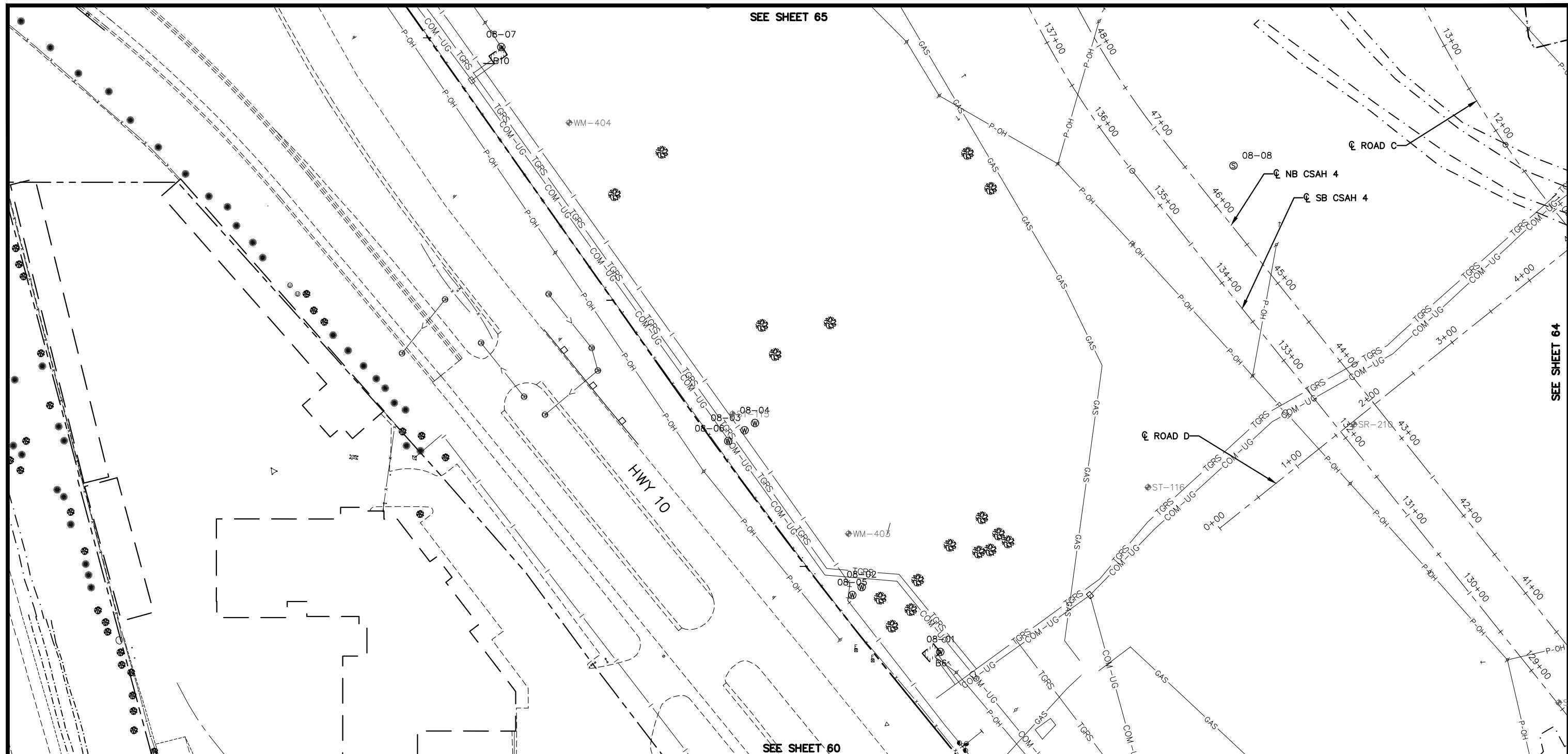
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

INPLACE CONDITIONS PLAN

CITY PROJECT		SHEET NO.	62
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout08 January 09, 2019 - 2:32pm



SEE SHEET 65

SEE SHEET 64

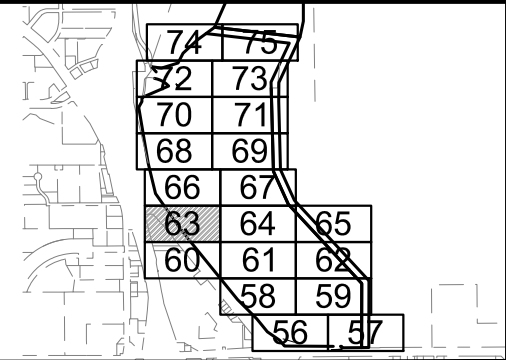
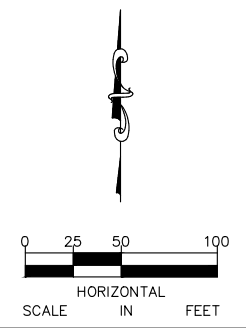
SEE SHEET 60

LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_EXC.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

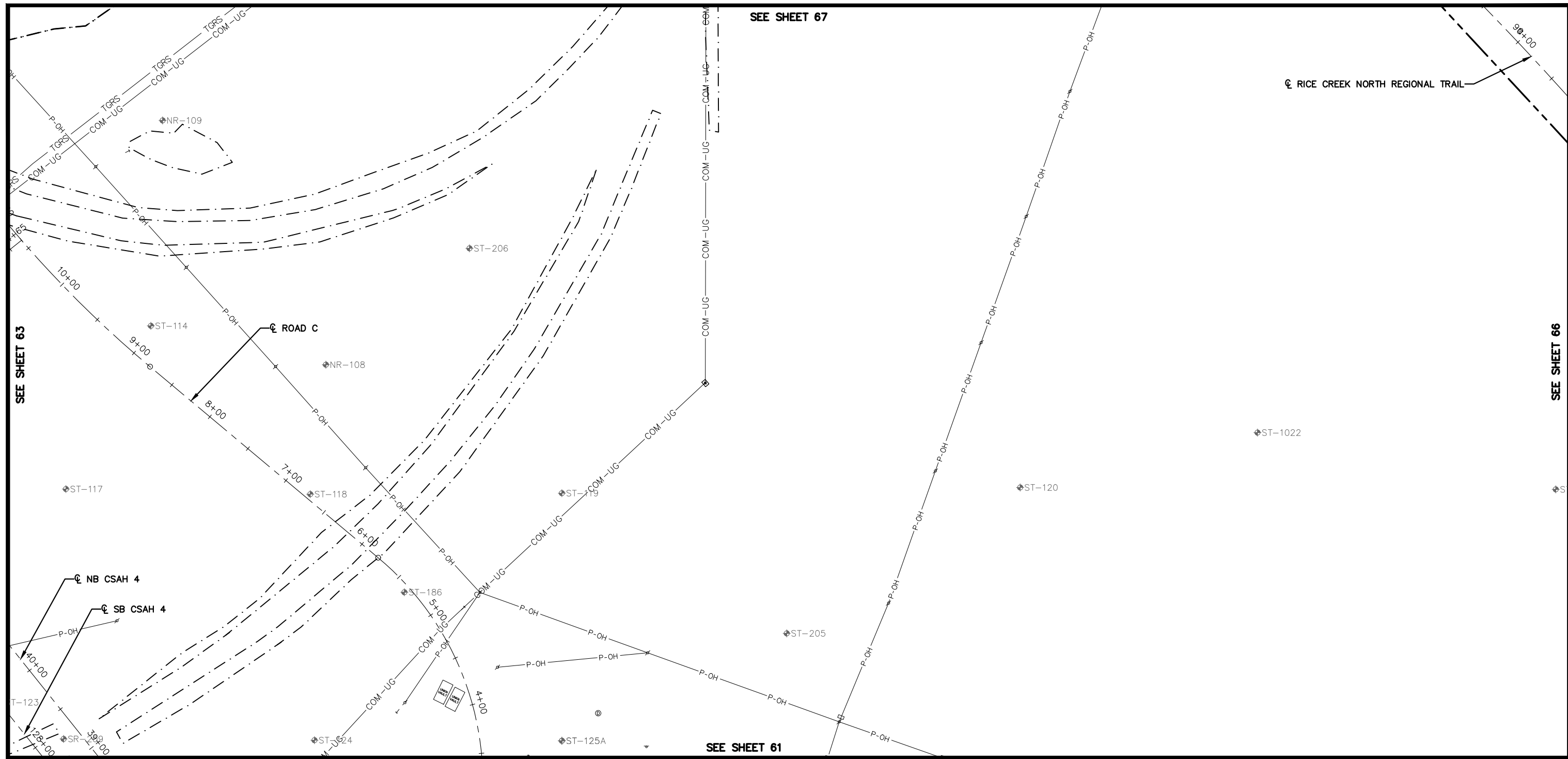
CITY PROJECT	SHEET NO.
COUNTY PROJECT	63
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout09 January 09, 2019 - 2:33pm

SEE SHEET 67

SEE SHEET 63

SEE SHEET 66

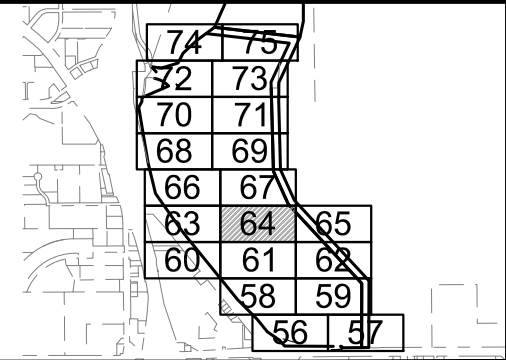
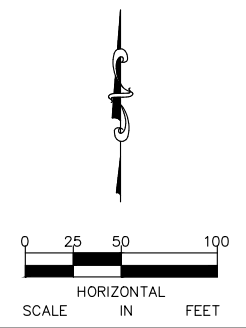


LEGEND

- ① EXISTING STORM SEWER
- |— EXISTING WATER MAIN
- TGRS EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)
- COM-UG EXISTING TGRS COMMUNICATION LINE
- P-OH EXISTING OVERHEAD POWER
- GAS EXISTING GAS LINE
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- x— EXISTING FENCE
- ~ EXISTING TREE LINE
- ▨ EXISTING BUILDING
- - - EXISTING EDGE OF GRAVEL
- · - · - DELINEATED WETLAND
- ☀ EXISTING TREE
- ♂ → POWER POLE & GUY WIRE
- ⊕ ST-100 SOIL BORING

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_EXC.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
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DATE:	01/04/19
PROJECT NO.	160553004

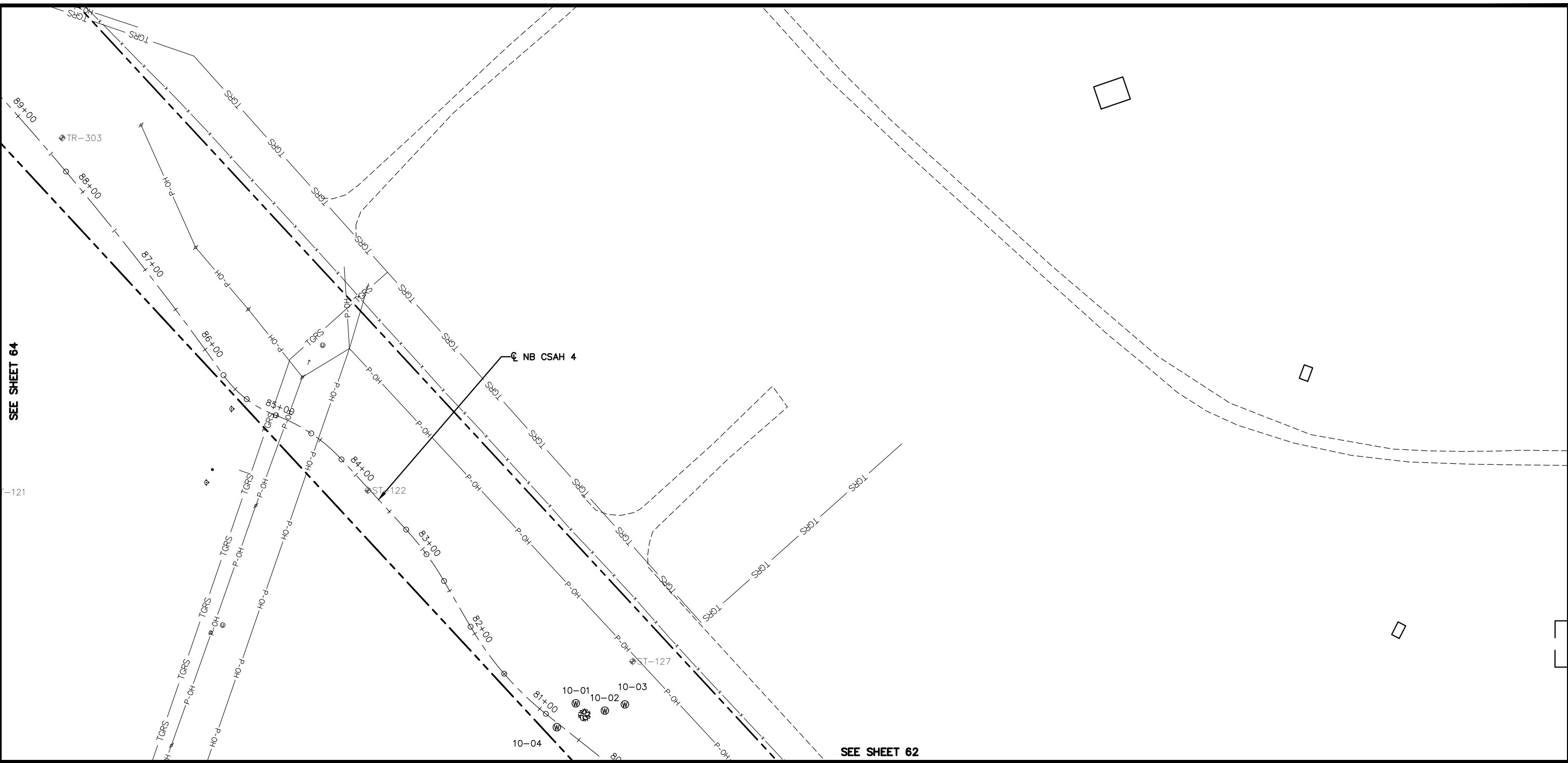
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	64
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout10 January 09, 2019 - 2:33pm

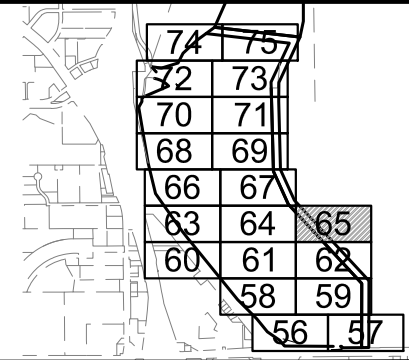
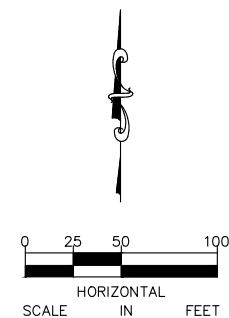


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
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| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
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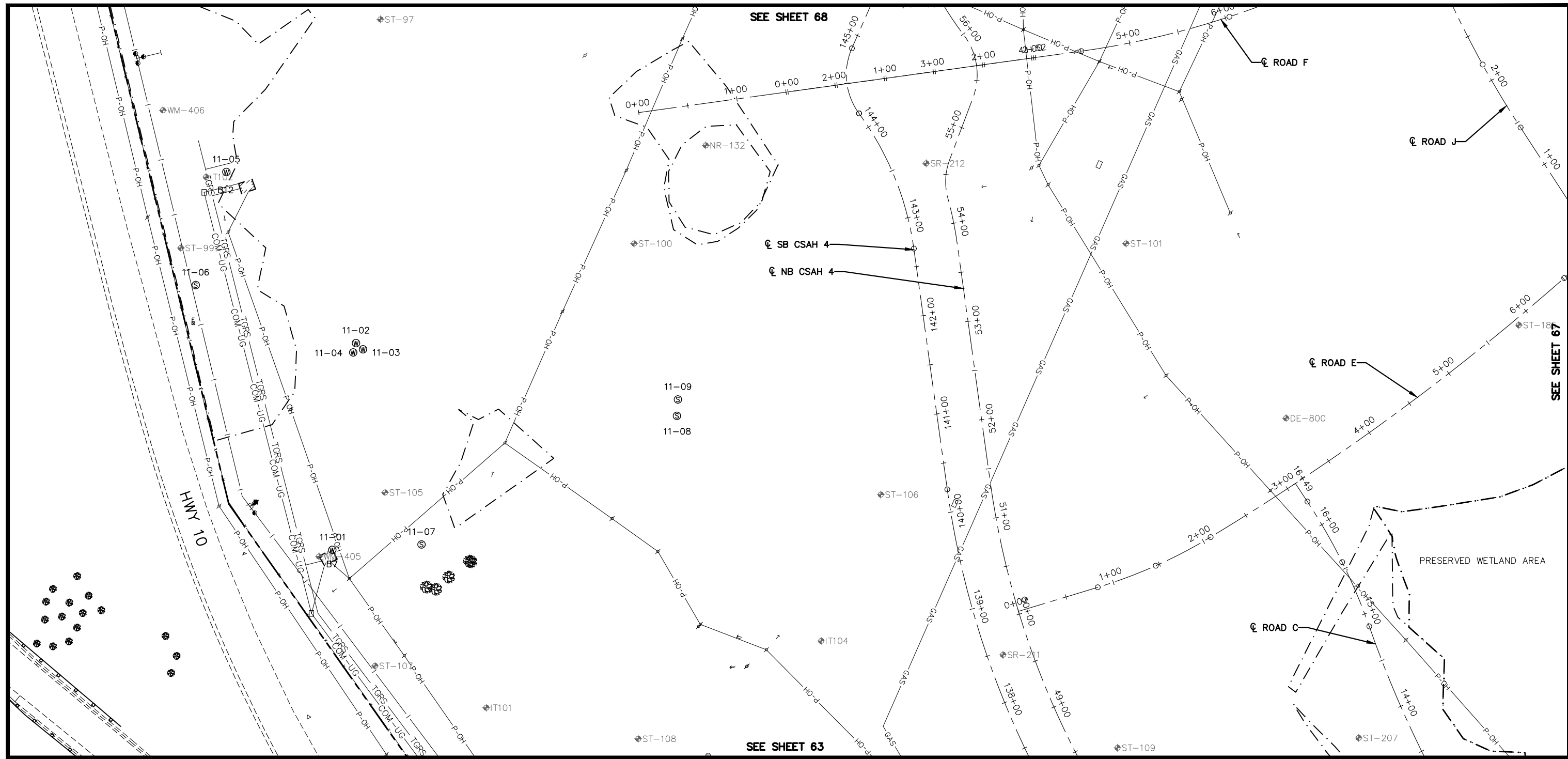
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
65
335

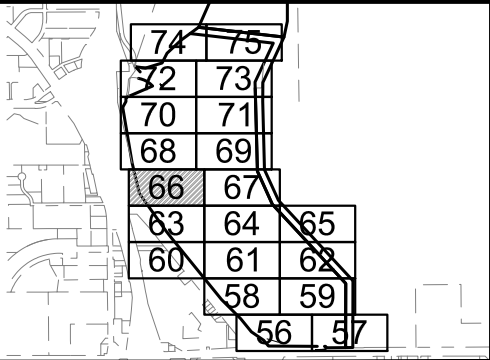
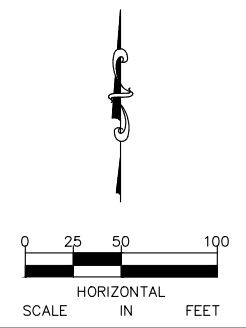


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
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| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

GENERAL NOTES

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- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_EXC.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

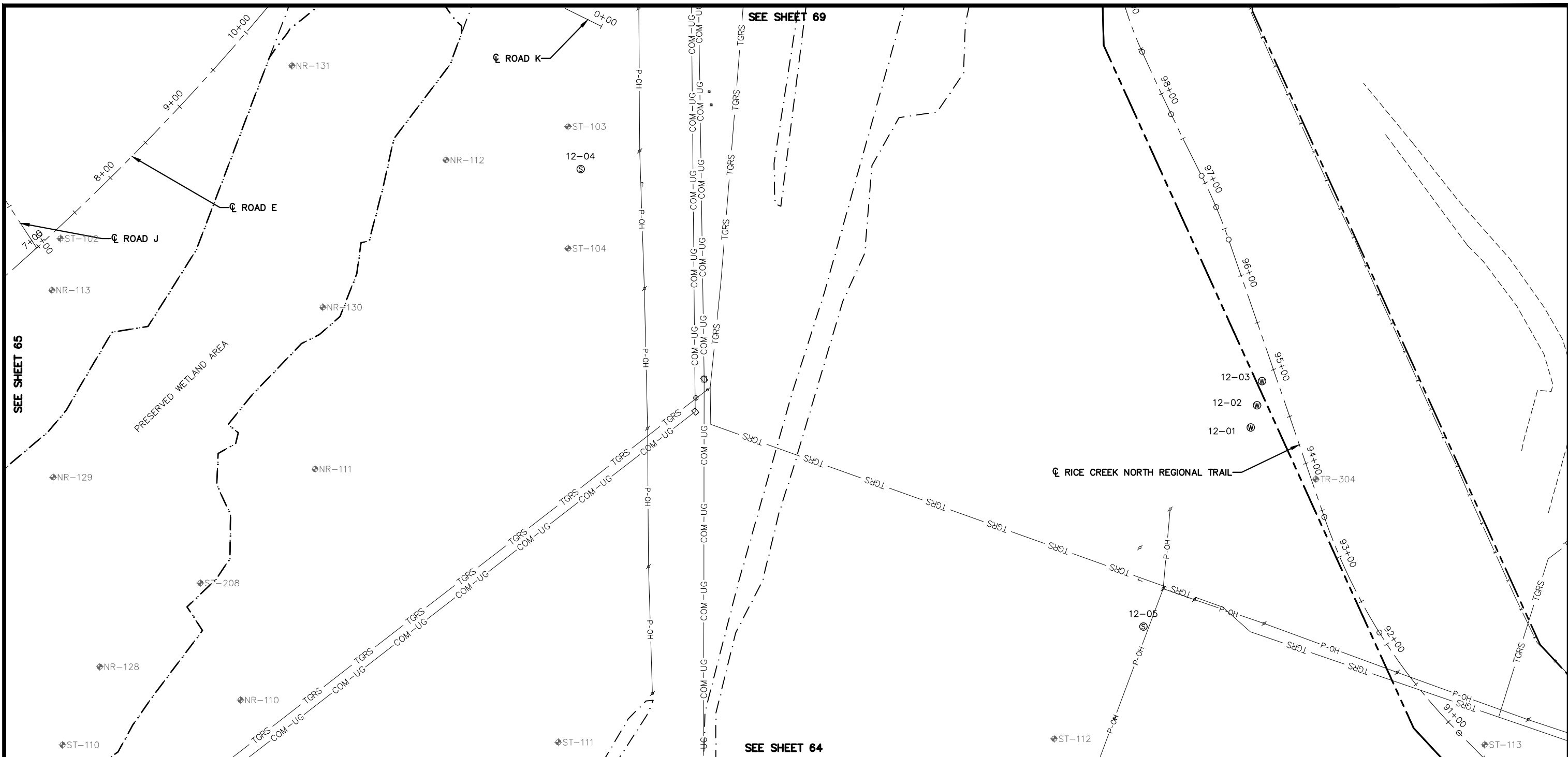
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	66
S.A.P.	062-593-004
S.A.P.	335

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LEGEND

	EXISTING STORM SEWER		EXISTING FENCE
	EXISTING WATER MAIN		EXISTING TREE LINE
	EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)		EXISTING BUILDING
	EXISTING TGRS COMMUNICATION LINE		EXISTING EDGE OF GRAVEL
	EXISTING OVERHEAD POWER		DELINEATED WETLAND
	EXISTING GAS LINE		EXISTING TREE
	EXISTING SEALED WELL		POWER POLE & GUY WIRE
	EXISTING ACTIVE WELL		SOIL BORING

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Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

INPLACE CONDITIONS PLAN

CITY PROJECT

COUNTY PROJECT

S.A.P. 062-593-004

S.A.P.

HORIZONTAL SCALE IN FEET

74 75
 72 73
 70 71
 68 69
 66 67
 63 64 65
 60 61 62
 58 59
 56 57

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

INPLACE CONDITIONS PLAN

CITY PROJECT

COUNTY PROJECT

S.A.P. 062-593-004

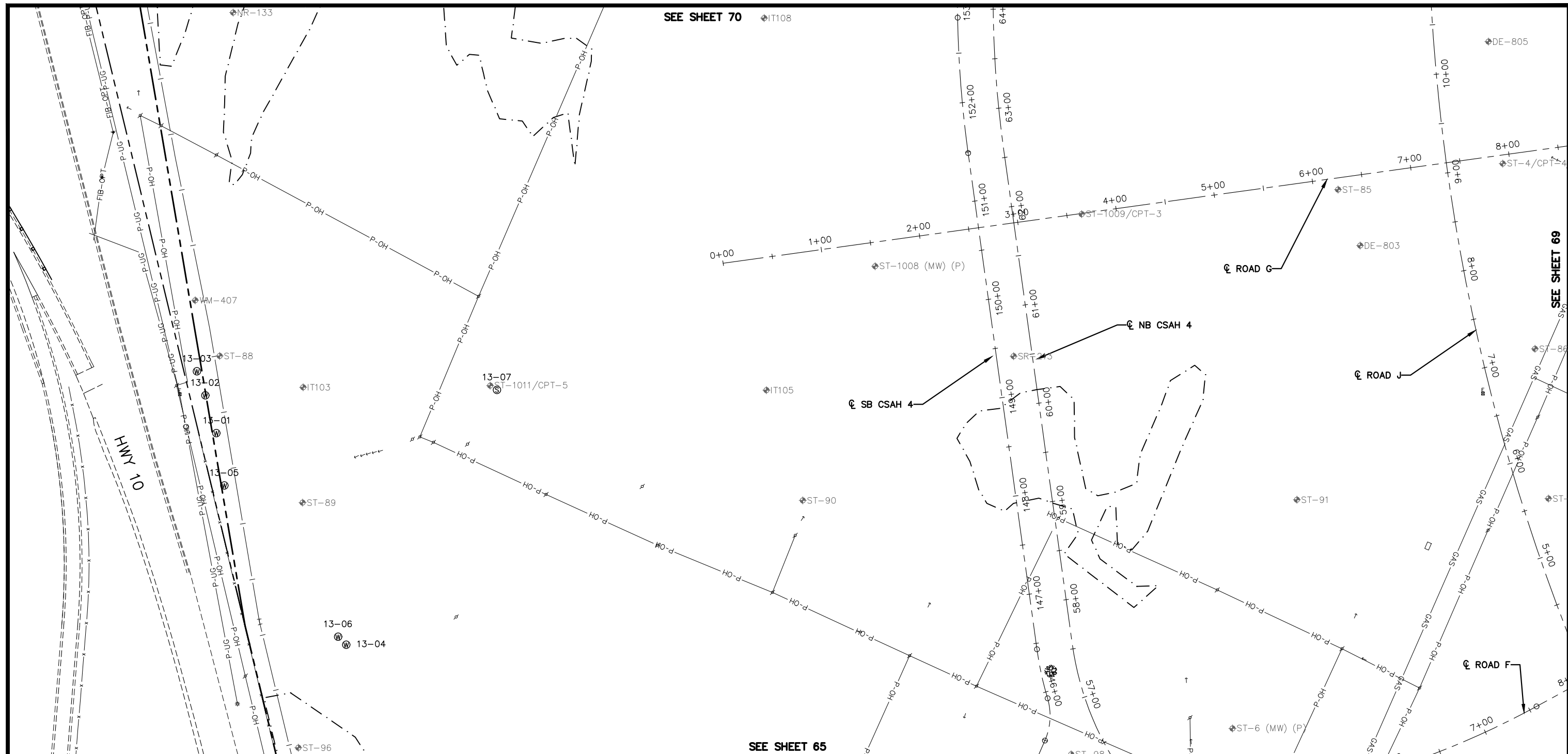
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SHEET NO. 67

335

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SEE SHEET 70 IT108



SEE SHEET 69

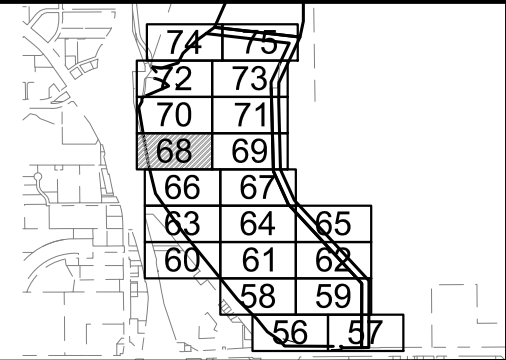
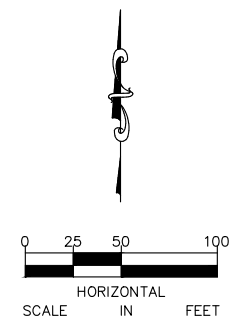
SEE SHEET 65

LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
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				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

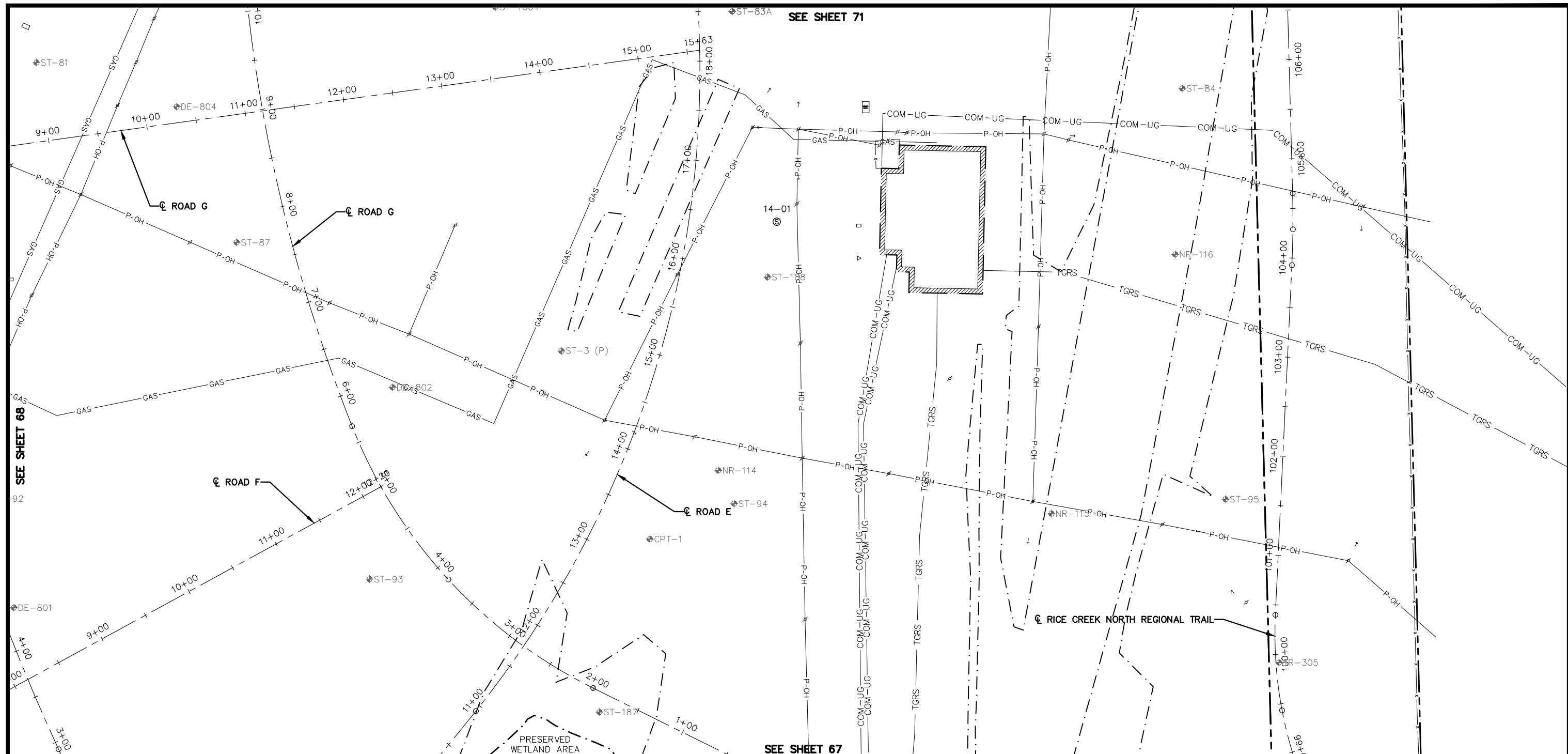
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	68	SHEET NO.
COUNTY PROJECT		335
S.A.P.	062-593-004	
S.A.P.		

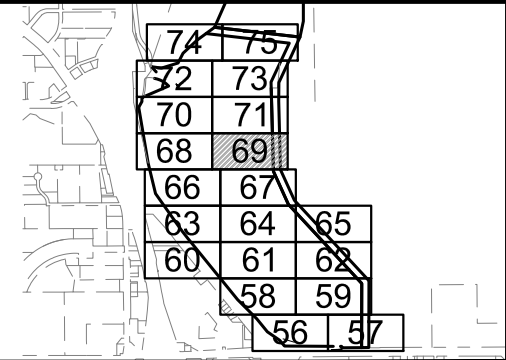
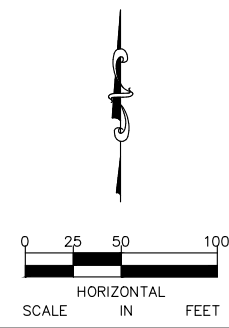
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LEGEND

	EXISTING STORM SEWER		EXISTING FENCE
	EXISTING WATER MAIN		EXISTING TREE LINE
	EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)		EXISTING BUILDING
	EXISTING TGRS COMMUNICATION LINE		EXISTING EDGE OF GRAVEL
	EXISTING OVERHEAD POWER		DELINEATED WETLAND
	EXISTING GAS LINE		EXISTING TREE
	EXISTING SEALED WELL		POWER POLE & GUY WIRE
	EXISTING ACTIVE WELL		SOIL BORING

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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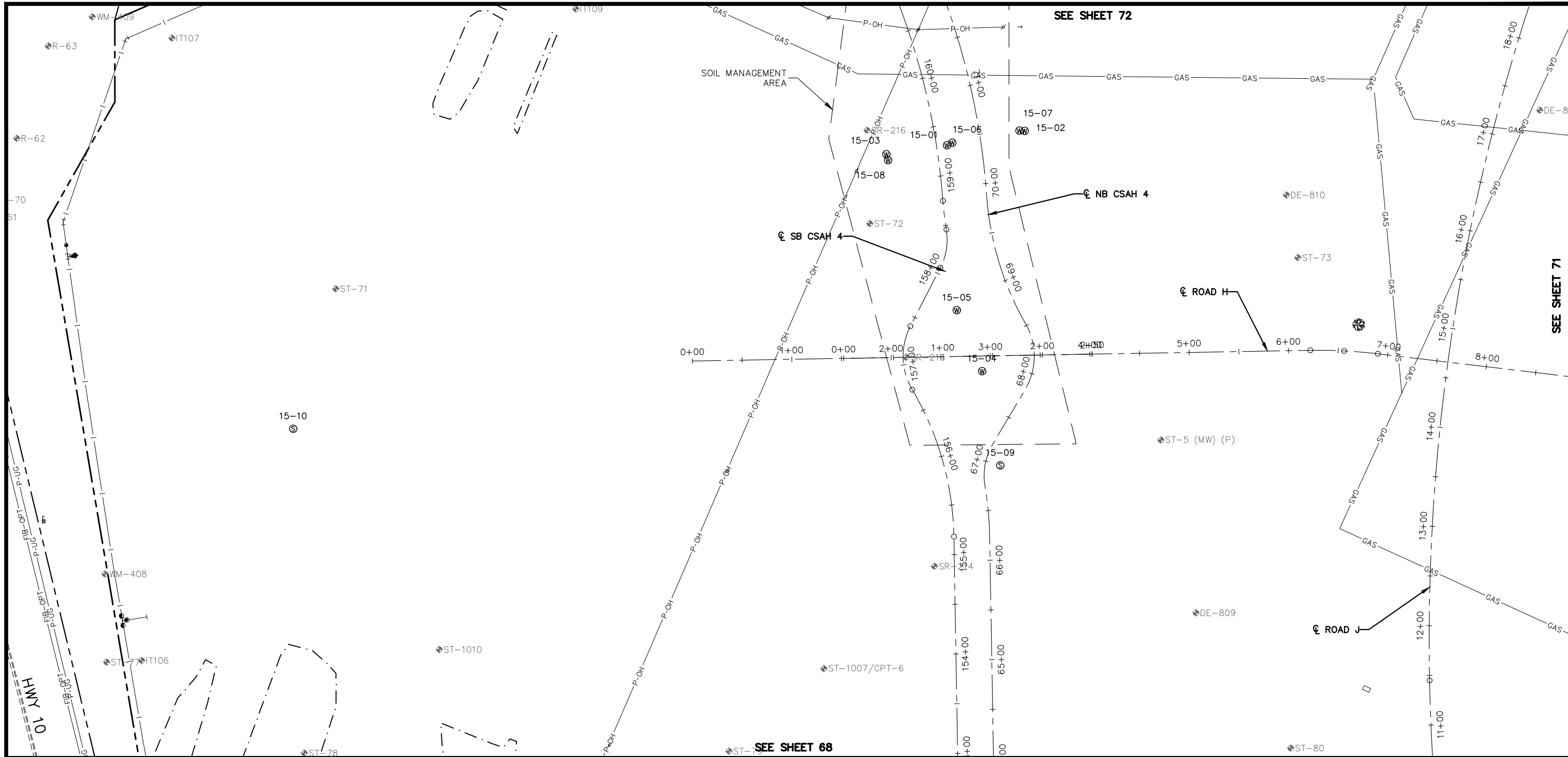
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	69
S.A.P. 062-593-004	
S.A.P.	335

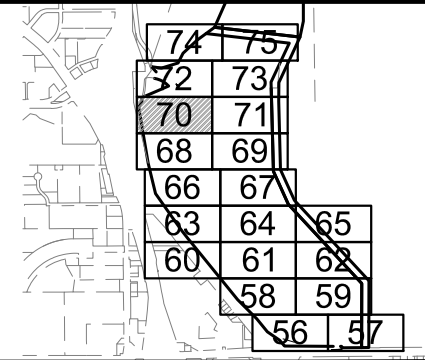
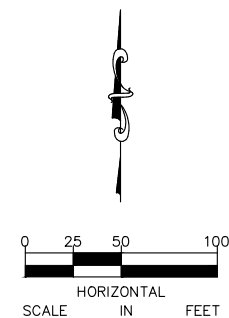


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

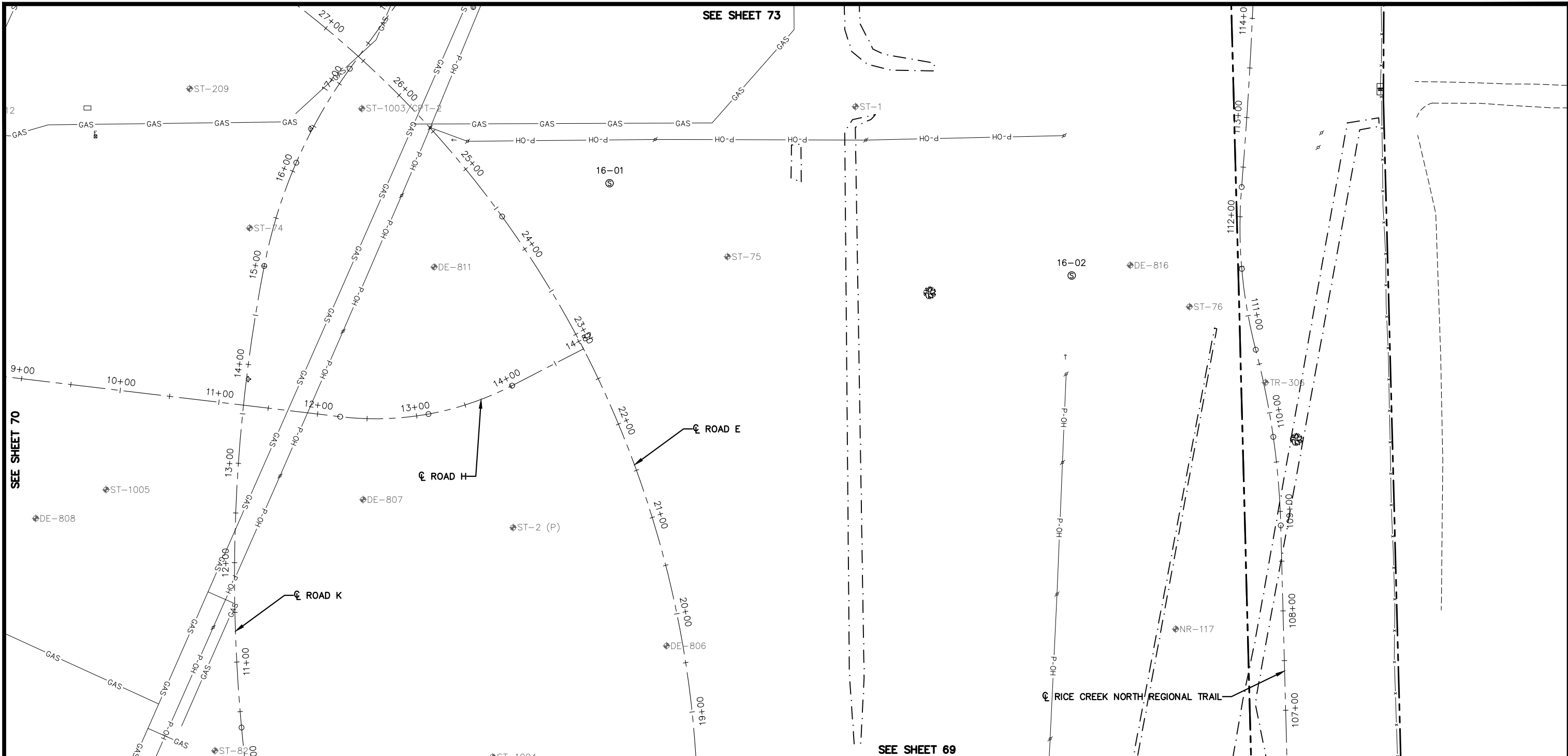
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	70
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout16 January 09, 2019 - 2:36pm

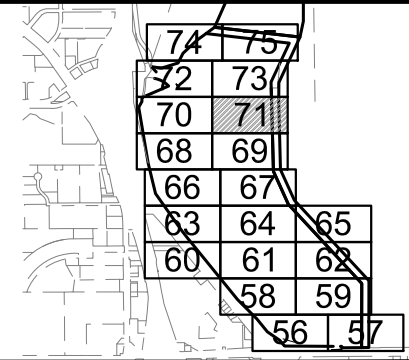
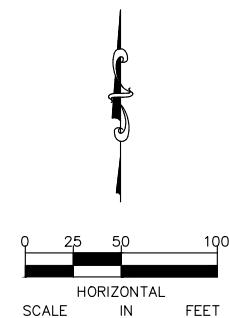


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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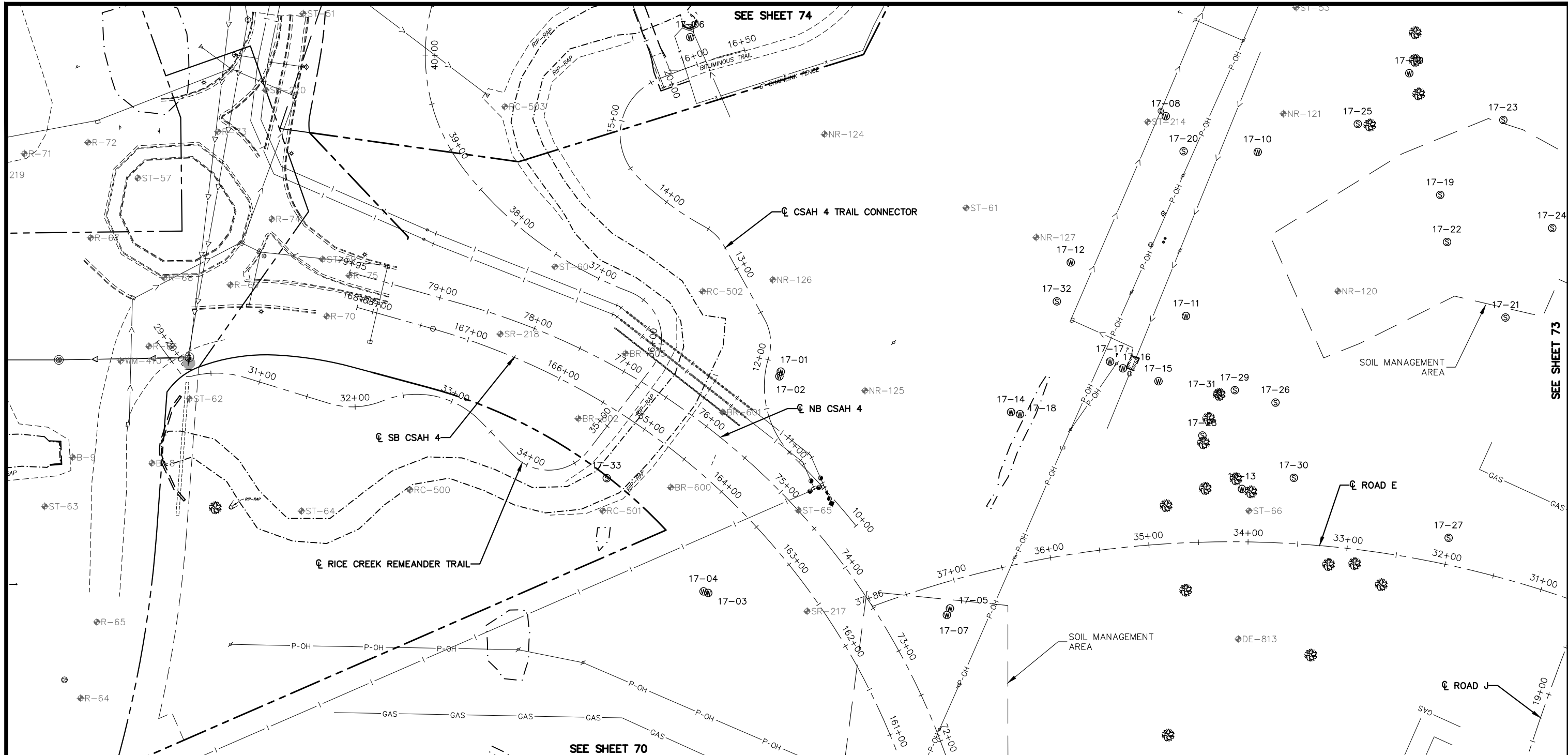
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	71
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout17 January 09, 2019 - 2:37pm

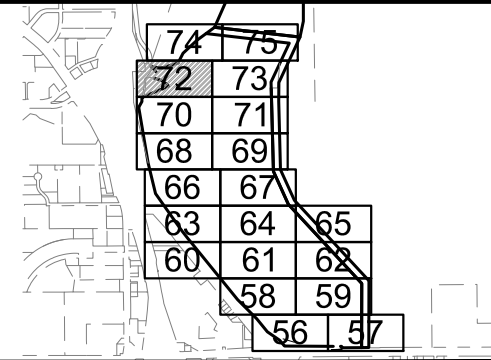
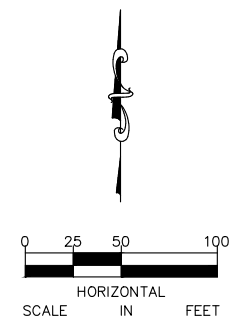


LEGEND

- ① EXISTING STORM SEWER
- |— EXISTING WATER MAIN
- TGRS EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS)
- COM-UG EXISTING TGRS COMMUNICATION LINE
- P-OH EXISTING OVERHEAD POWER
- GAS EXISTING GAS LINE
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- x— EXISTING FENCE
- ~~~ EXISTING TREE LINE
- ▨ EXISTING BUILDING
- - - EXISTING EDGE OF GRAVEL
- · - · - DELINEATED WETLAND
- ☀ EXISTING TREE
- ⚡ → POWER POLE & GUY WIRE
- ⊕ ST-100 SOIL BORING

GENERAL NOTES

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

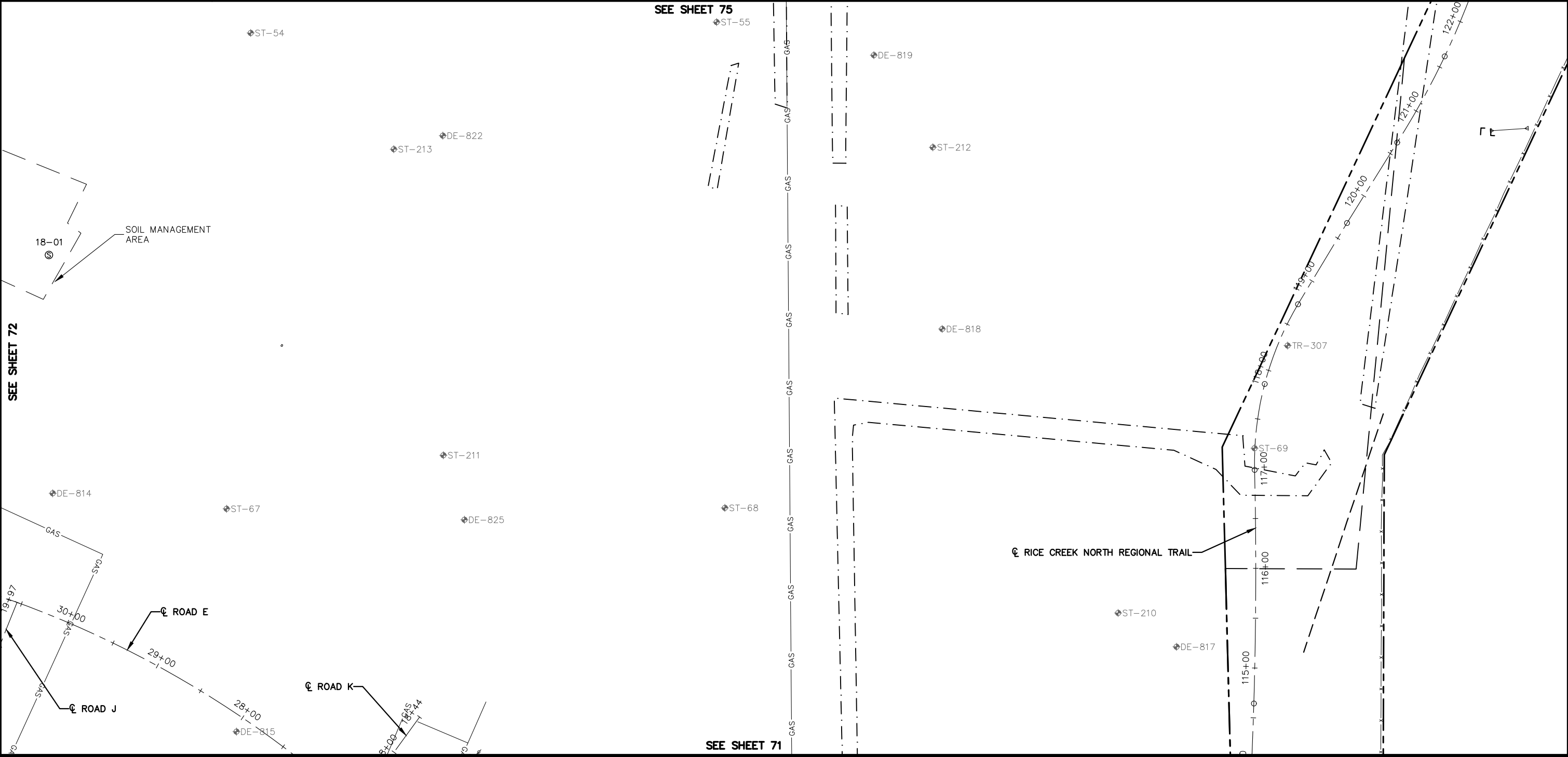
CITY PROJECT	SHEET NO.
COUNTY PROJECT	72
S.A.P. 062-593-004	
S.A.P.	335

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SEE SHEET 72

SEE SHEET 75

SEE SHEET 71

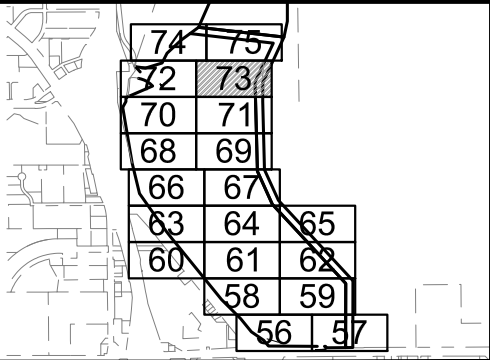
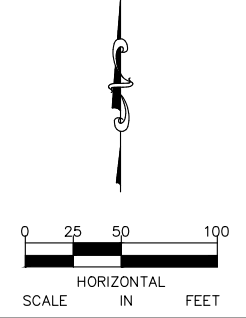


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_EXC.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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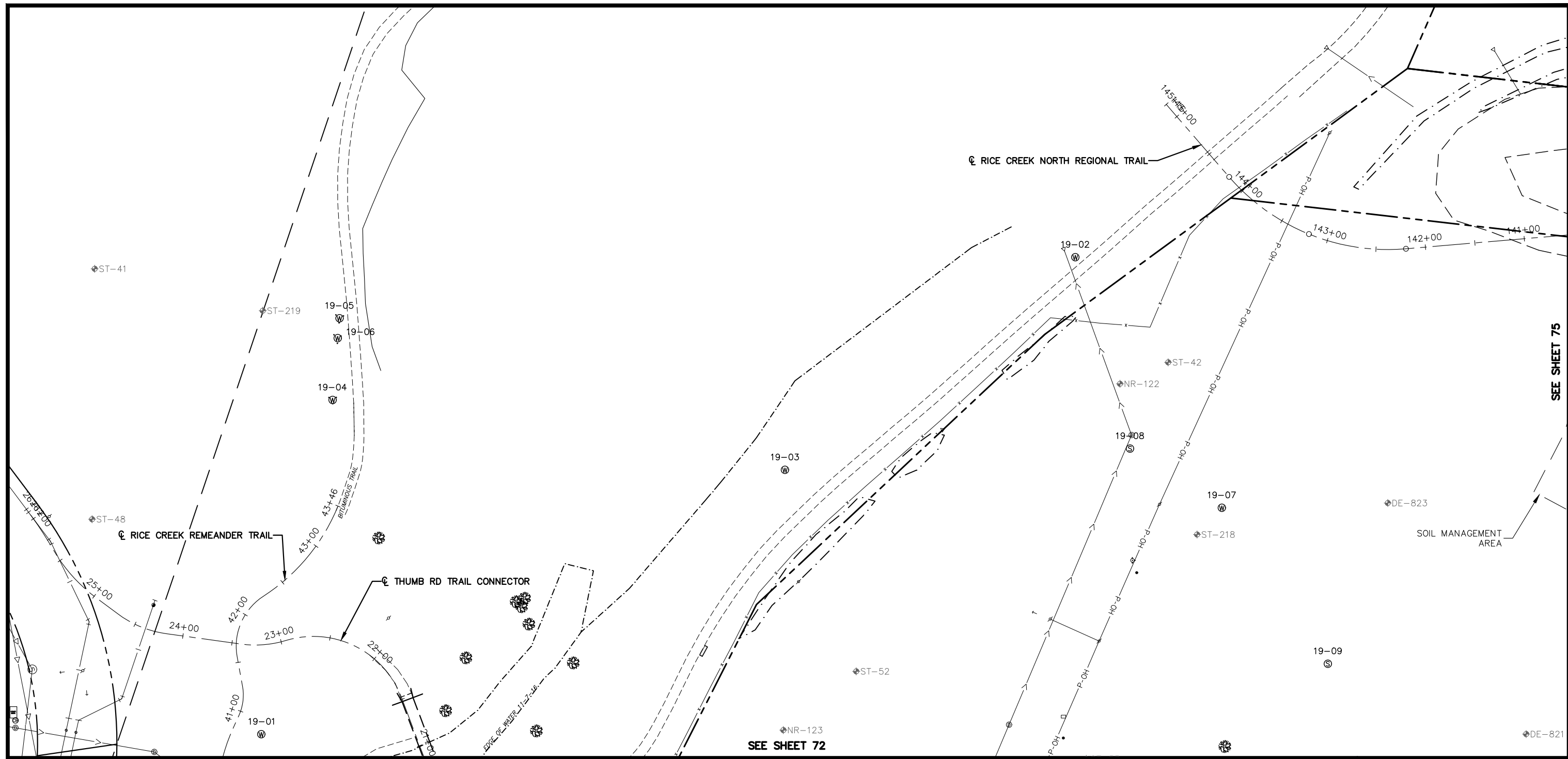
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT		SHEET NO.	73
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

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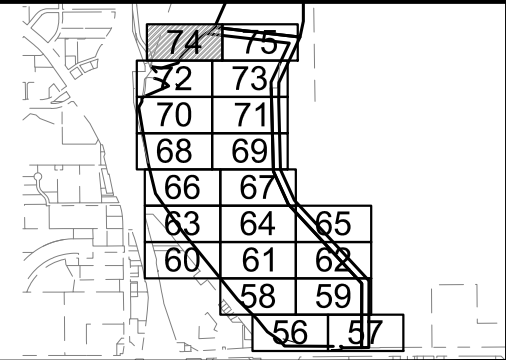
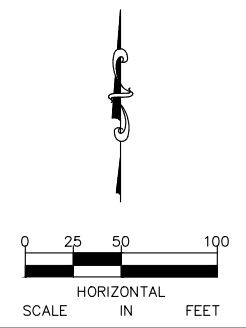


LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
| | EXISTING SEALED WELL | | POWER POLE & GUY WIRE |
| | EXISTING ACTIVE WELL | | SOIL BORING |

GENERAL NOTES

- CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR SHALL PROTECT ALL INPLACE UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
- PRIVATE UTILITY COORDINATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

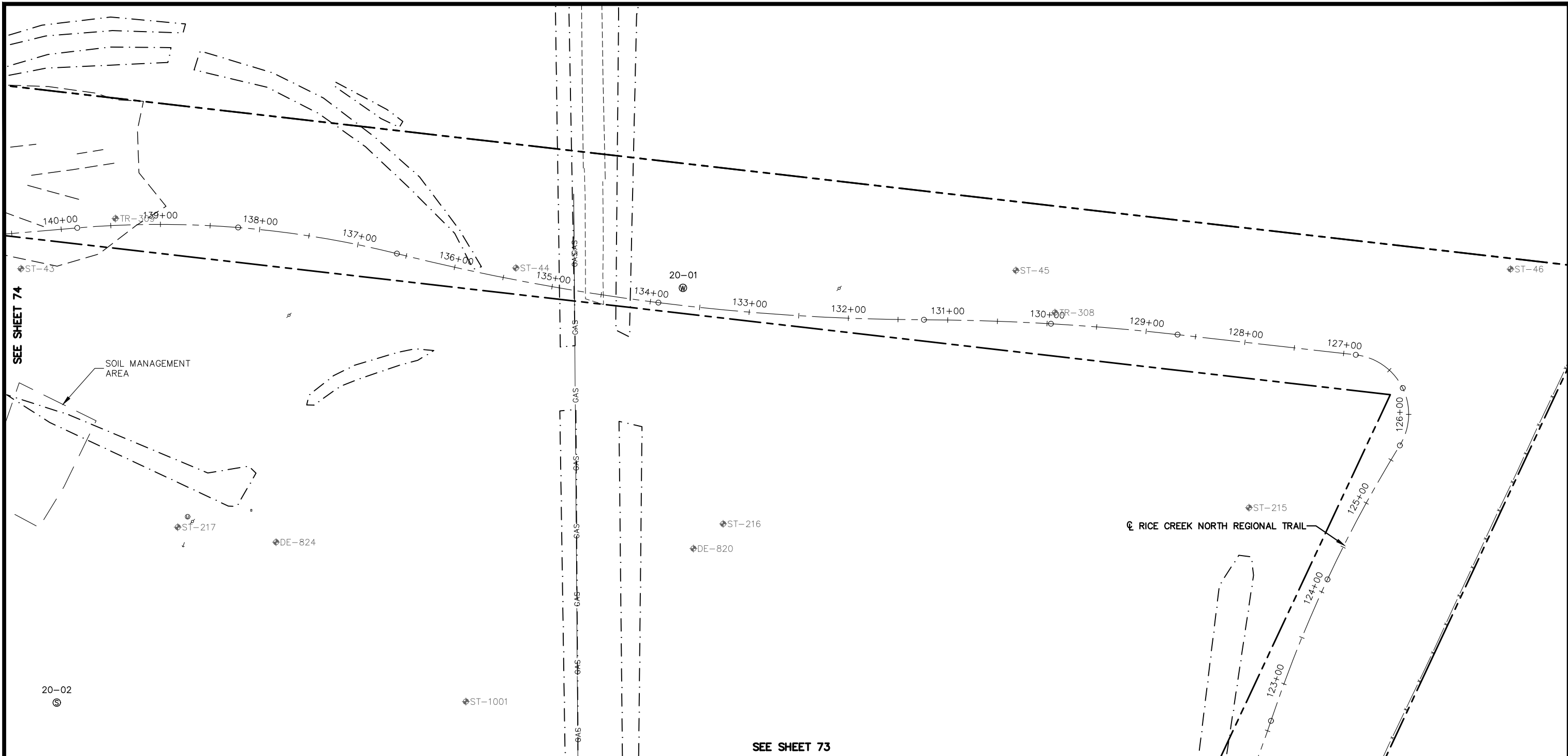
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	74
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_EXC.dwg Layout20 January 09, 2019 - 2:38pm



SEE SHEET 74

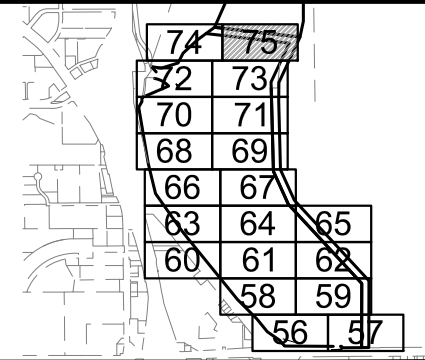
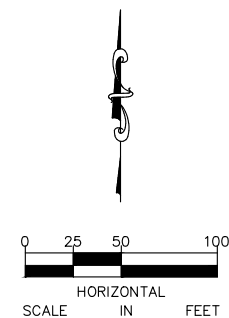
SEE SHEET 73

LEGEND

- | | | | |
|--|--|--|-------------------------|
| | EXISTING STORM SEWER | | EXISTING FENCE |
| | EXISTING WATER MAIN | | EXISTING TREE LINE |
| | EXISTING TCAAP GROUNDWATER RECLAMATION SYSTEM (TGRS) | | EXISTING BUILDING |
| | EXISTING TGRS COMMUNICATION LINE | | EXISTING EDGE OF GRAVEL |
| | EXISTING OVERHEAD POWER | | DELINEATED WETLAND |
| | EXISTING GAS LINE | | EXISTING TREE |
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- SEE MASS GRADING PLAN FOR ADDITIONAL INFORMATION ON SOIL MANAGEMENT AREAS.



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_EXC.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 INPLACE CONDITIONS PLAN

CITY PROJECT	SHEET NO. 75
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

TO BE ADDED AFTER 60%

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_SWPPP	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864



RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM WATER POLLUTION PREVENTION PLAN NARRATIVE

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.P.	

SHEET NO.
 76
 335

TO BE ADDED AFTER 60%

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_SWPPP.dwg SWPPP2 January 09, 2019 - 2:38pm

No.	Date	Revisions	App.	DRAWING NAME TCAAP_SPINERD_SWPPP	 <p>767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114 PHONE: 651-645-4197 WWW.KIMLEY-HORN.COM</p>	<p>I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>CHADD B. LARSON DATE: 01/04/19 MN LIC. NO. 41864</p>	 <p>TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS STORM WATER POLLUTION PREVENTION PLAN NARRATIVE</p>	CITY PROJECT	SHEET NO.		
				DESIGNED BY: RJG						COUNTY PROJECT	77
				DRAWN BY: RJG						S.A.P. 062-593-004	
				CHECKED BY: CBL						S.P.	335
				DATE: 01/04/19							
				PROJECT NO. 160553004							

TO BE ADDED AFTER 60%

TEMPORARY EROSION CONTROL & AND PERMANENT TURF ESTABLISHMENT LEGEND

- 

HYDROSEED
SEED MIX - MnDOT NO. 25-121 @ 61 LBS/ACRE
FERTILIZER - MnDOT TYPE 3 - 22-5-10 @ 300 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH - MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING
- 

HYDROSEED
SEED MIX - MnDOT NO. 25-121 @ 61 LBS/ACRE
FERTILIZER - MnDOT TYPE 3 - 22-5-10 @ 300 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
EROSION CONTROL BLANKET - MnDOT CAT. 4 WOOD FIBER
WITH ALL NATURAL NETTING AND STITCHING
- 

HYDROSEED
SEED MIX - MnDOT NO. 33-261 @ 35 LBS/ACRE
FERTILIZER - MnDOT TYPE 4 - 18-1-18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
MUCLH - MnDOT TYPE 3 @ 2 TONS/ACRE
NO EROSION CONTROL BLANKET
- 

HYDROSEED
SEED MIX - MnDOT NO. 35-221 @ 36.5 LBS/ACRE
FERTILIZER - MnDOT TYPE 4 - 18-1-18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
MUCLH - MnDOT TYPE 3 @ 2 TONS/ACRE, DISC ANCHORING
- 

HYDROSEED
SEED MIX - MnDOT NO. 35-221 @ 36.5 LBS/ACRE
FERTILIZER - MnDOT TYPE 4 - 18-1-18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET - MnDOT CAT. 4 WOOD FIBER
WITH ALL NATURAL NETTING AND STITCHING
- 

HYDROSEED
SEED MIX - MnDOT NO. 33-261 @ 35 LBS/ACRE
FERTILIZER - MnDOT TYPE 4 - 18-1-18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET - MnDOT CAT. 3 WITH ALL
NATURAL NETTING AND STITCHING
- 

HYDROSEED
SEED MIX - MnDOT NO. 34-181 @ 5 LBS/ACRE
FERTILIZER - MnDOT TYPE 3 - 18-1-8 @ 1 TON/ACRE
- 

HYDROSEED
SEED MIX - MnDOT NO. 34-262 @ 14.5 LBS/ACRE
FERTILIZER - MnDOT TYPE 3 - 22-5-10 @ 60 LBS/ACRE
MULCH - MnDOT TYPE 3 @ 2 TONS/ACRE, DISC ANCHORING
- 

HYDROSEED
SEED MIX - MnDOT NO. 34-271 @ 12 LBS/ACRE
FERTILIZER - MnDOT TYPE 3 - 22-5-10 @ 60 LBS/ACRE
- 

OFFSITE AREA DRAINS TO SUBJECT SITE
(SHOWN FOR INFORMATION ONLY)
- 

RANDOM RIPRAP
- 

DRAINAGE DIVIDE
- 


SOIL TYPE & BOUNDARY
- 

GRADING LIMITS
- 

SILT FENCE
- 

CONSTRUCTION EXIT/ENTRANCE
- 

SEDIMENT BASIN
- 

TEMPORARY DRAINAGE SWALE
- 

STORM DRAIN INLET PROTECTION
- 

ROCK CHECK DAM (PLACED ALONG
TEMPORARY DRAINAGE SWALE APROX. 3 FT.
VERTICAL GRADE CHANGE)

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_SWPPP.dwg SWPPP3 January 09, 2019 - 2:38pm

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_SWPPP	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON

DATE: 01/04/19 MN LIC. NO. 41864

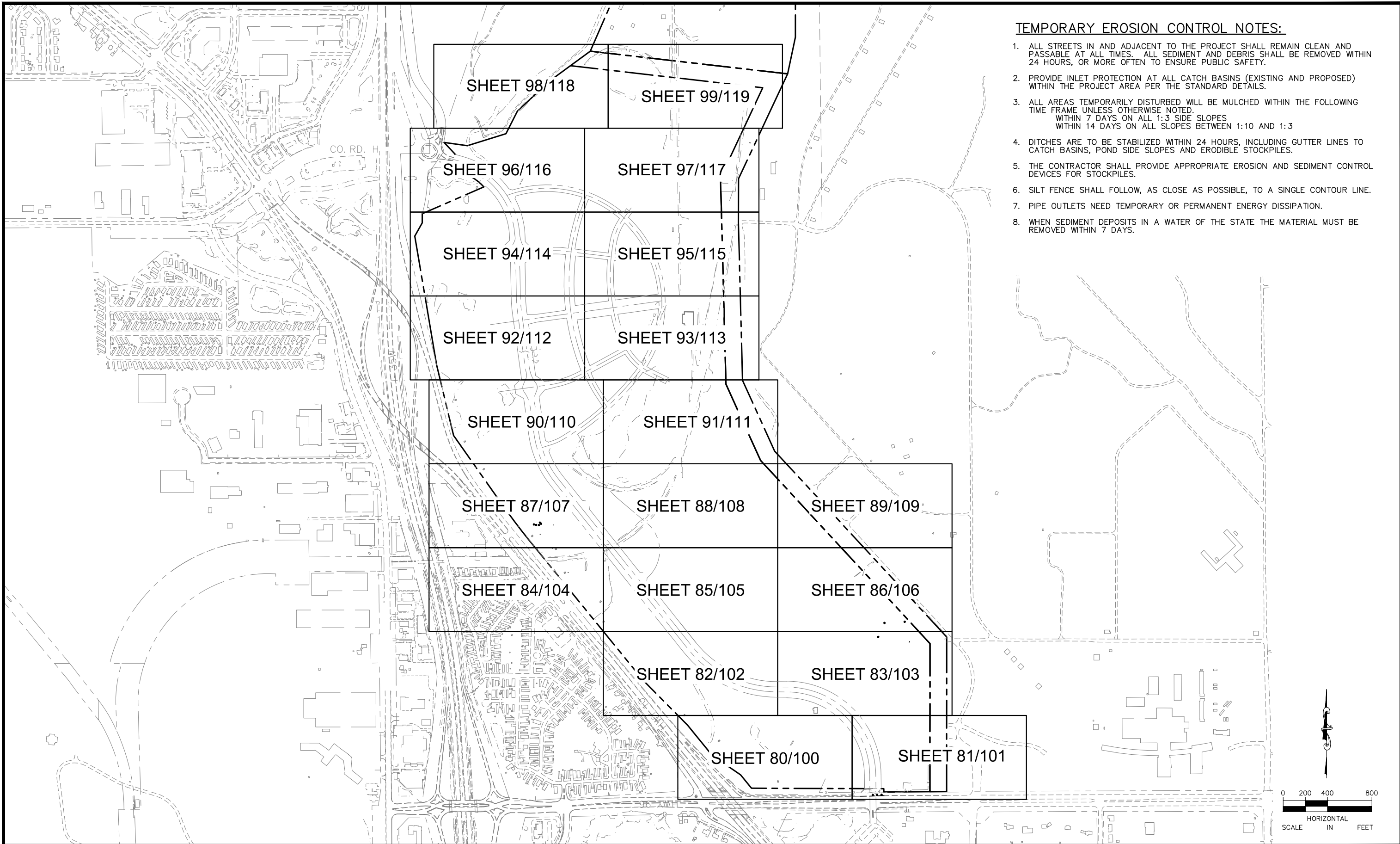
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

STORM WATER POLLUTION PREVENTION PLAN
WATER RESOURCE NOTES AND
TEMPORARY EROSION AND TURF ESTABLISHMENT LEGEND

CITY PROJECT	SHEET NO. 78 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.P.	

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TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR MORE OFTEN TO ENSURE PUBLIC SAFETY.
2. PROVIDE INLET PROTECTION AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
3. ALL AREAS TEMPORARILY DISTURBED WILL BE MULCHED WITHIN THE FOLLOWING TIME FRAME UNLESS OTHERWISE NOTED.
 WITHIN 7 DAYS ON ALL 1:3 SIDE SLOPES
 WITHIN 14 DAYS ON ALL SLOPES BETWEEN 1:10 AND 1:3
4. DITCHES ARE TO BE STABILIZED WITHIN 24 HOURS, INCLUDING GUTTER LINES TO CATCH BASINS, POND SIDE SLOPES AND ERODIBLE STOCKPILES.
5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.
6. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.
7. PIPE OUTLETS NEED TEMPORARY OR PERMANENT ENERGY DISSIPATION.
8. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

No.	Date	Revisions	App.

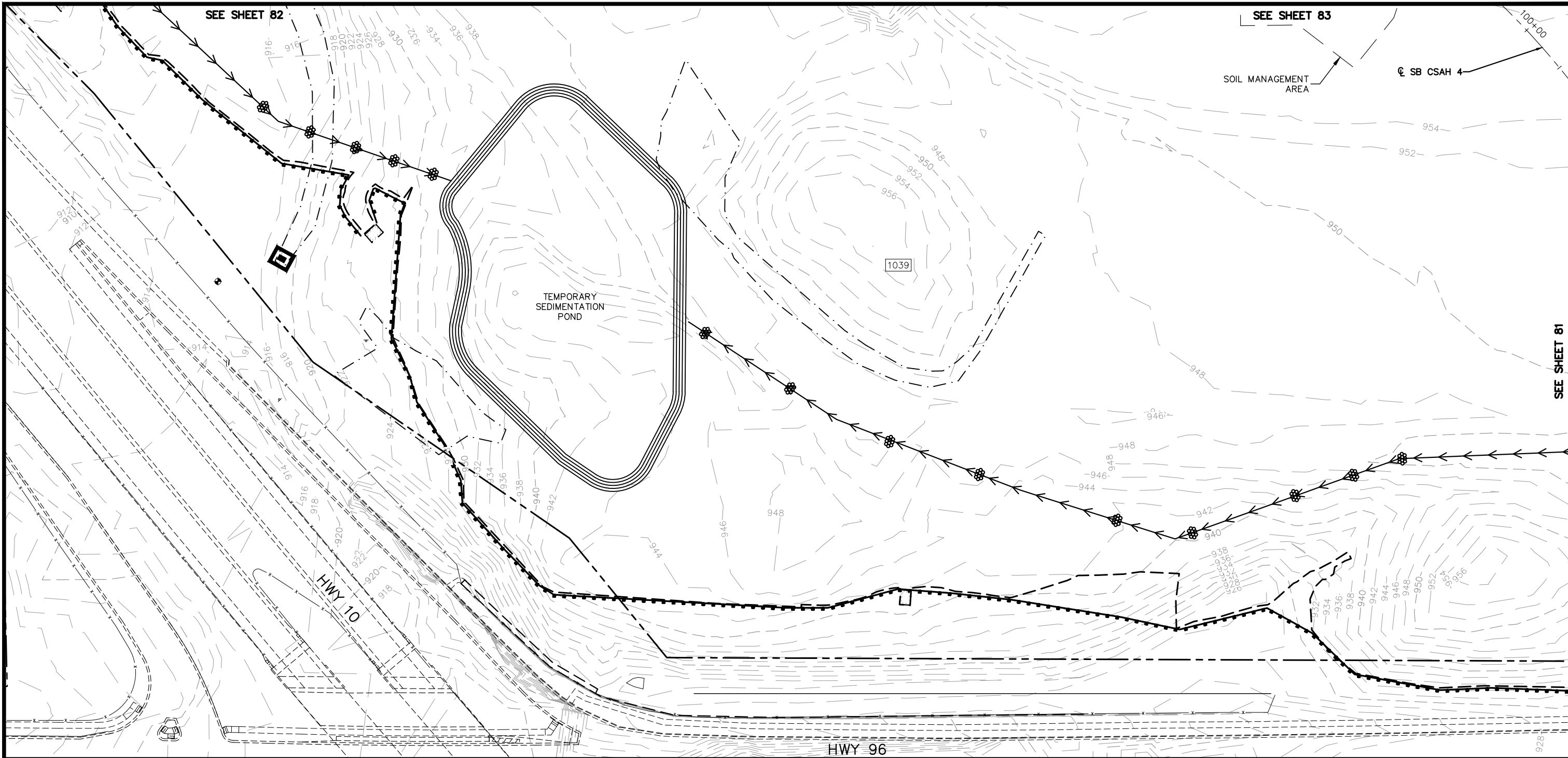
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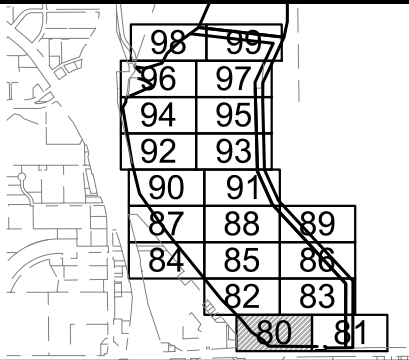
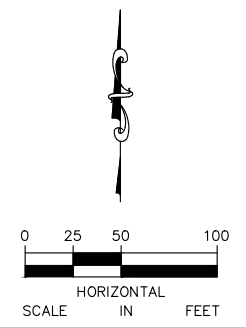
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL AND PERMANENT TURF ESTABLISHMENT INDEX PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	79
S.A.P. 062-593-004	335
S.A.P.	

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NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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RAMSEY COUNTY

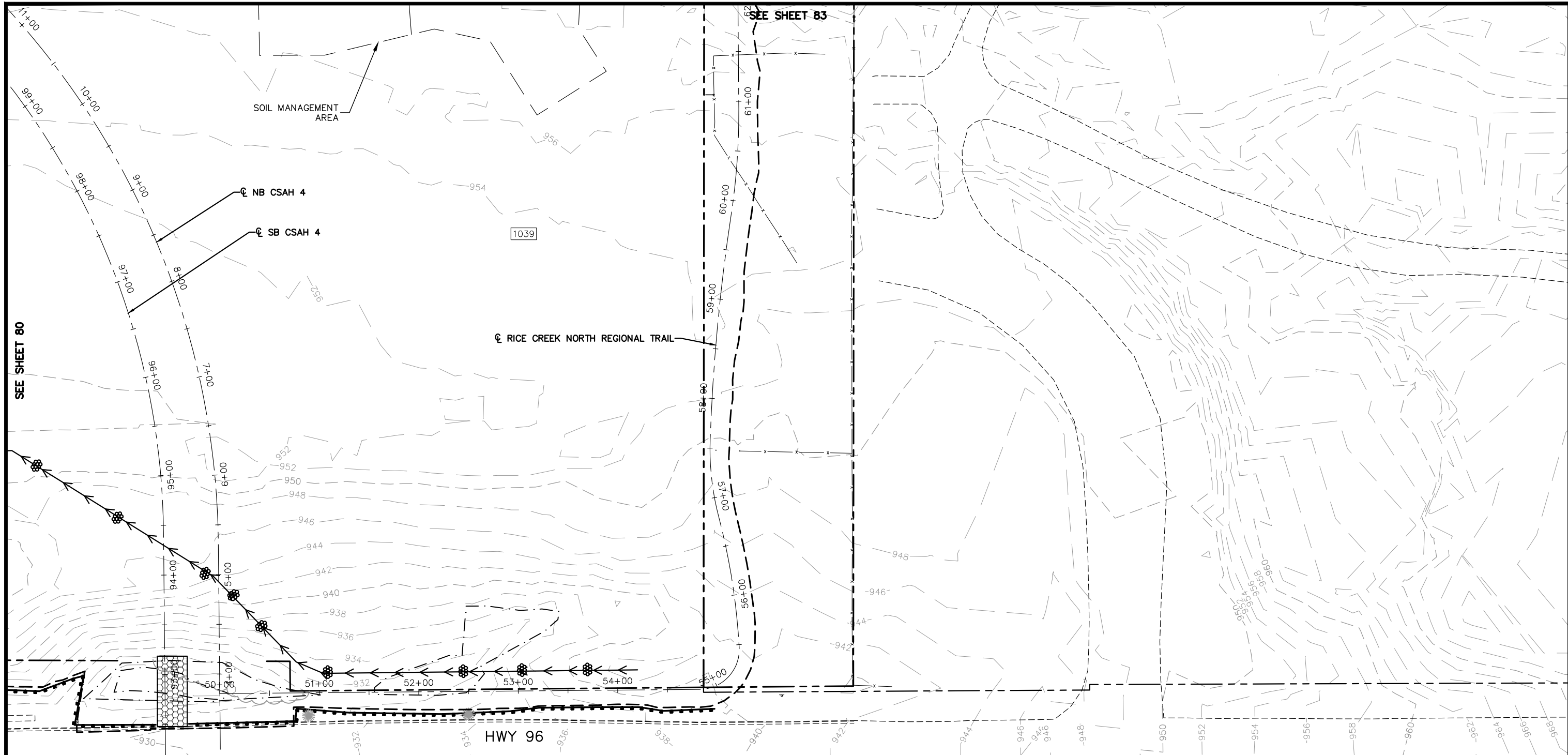
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

TEMPORARY EROSION CONTROL PLAN

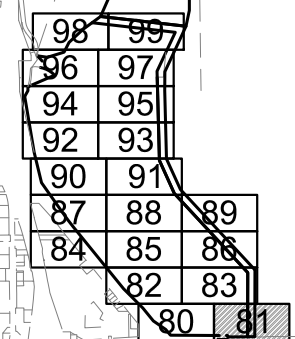
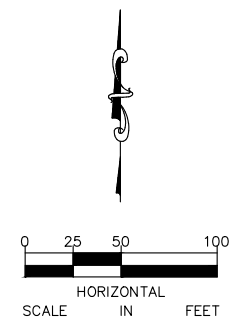
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.	80
	335

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NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

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PROJECT NO.	160553004

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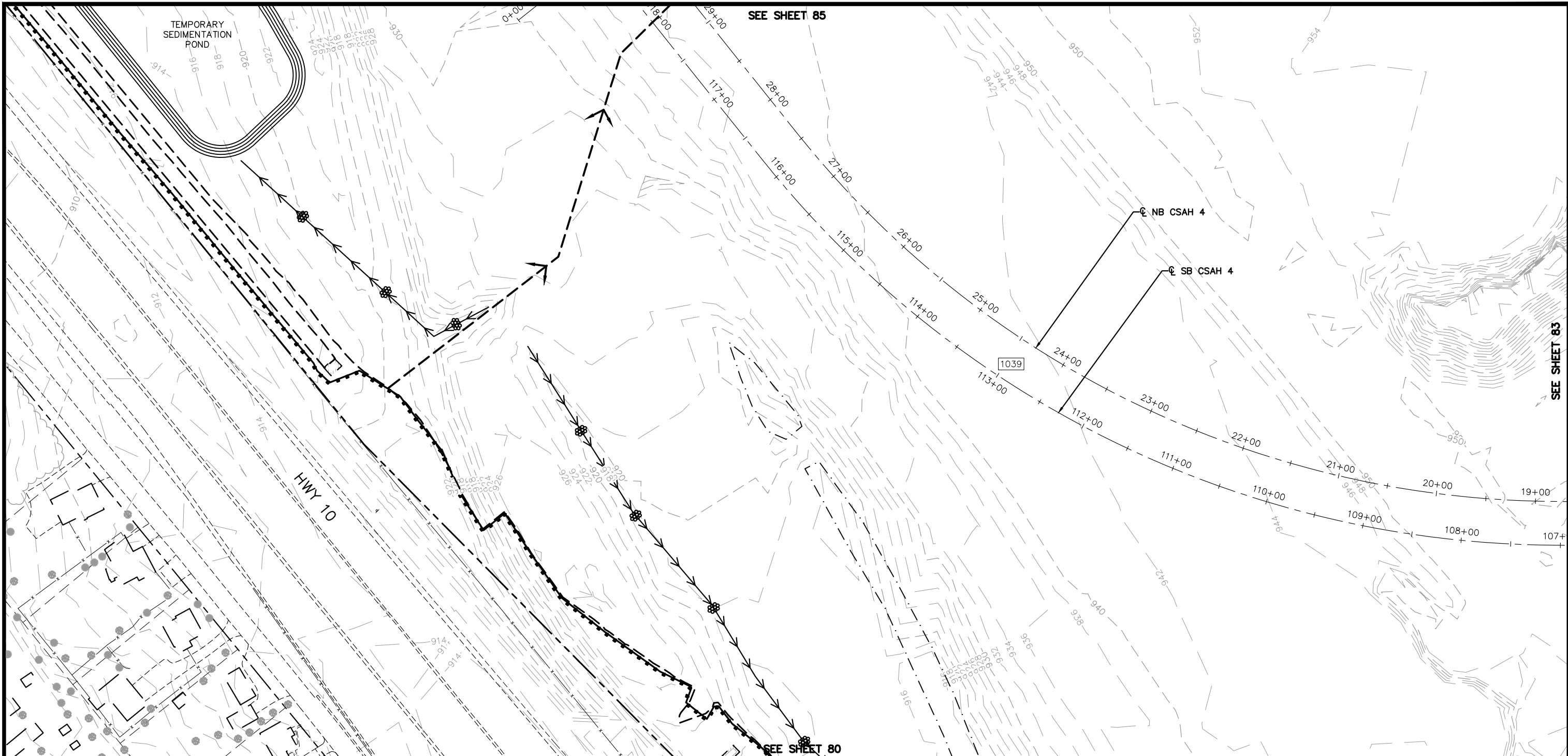
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

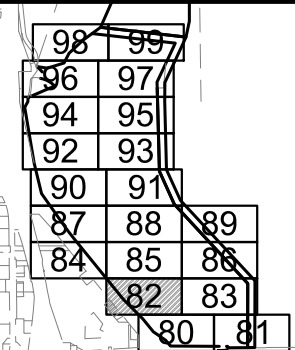
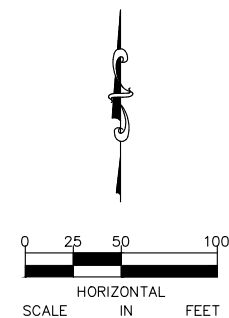
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	81
S.A.P. 062-593-004	335
S.A.P.	

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NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_TERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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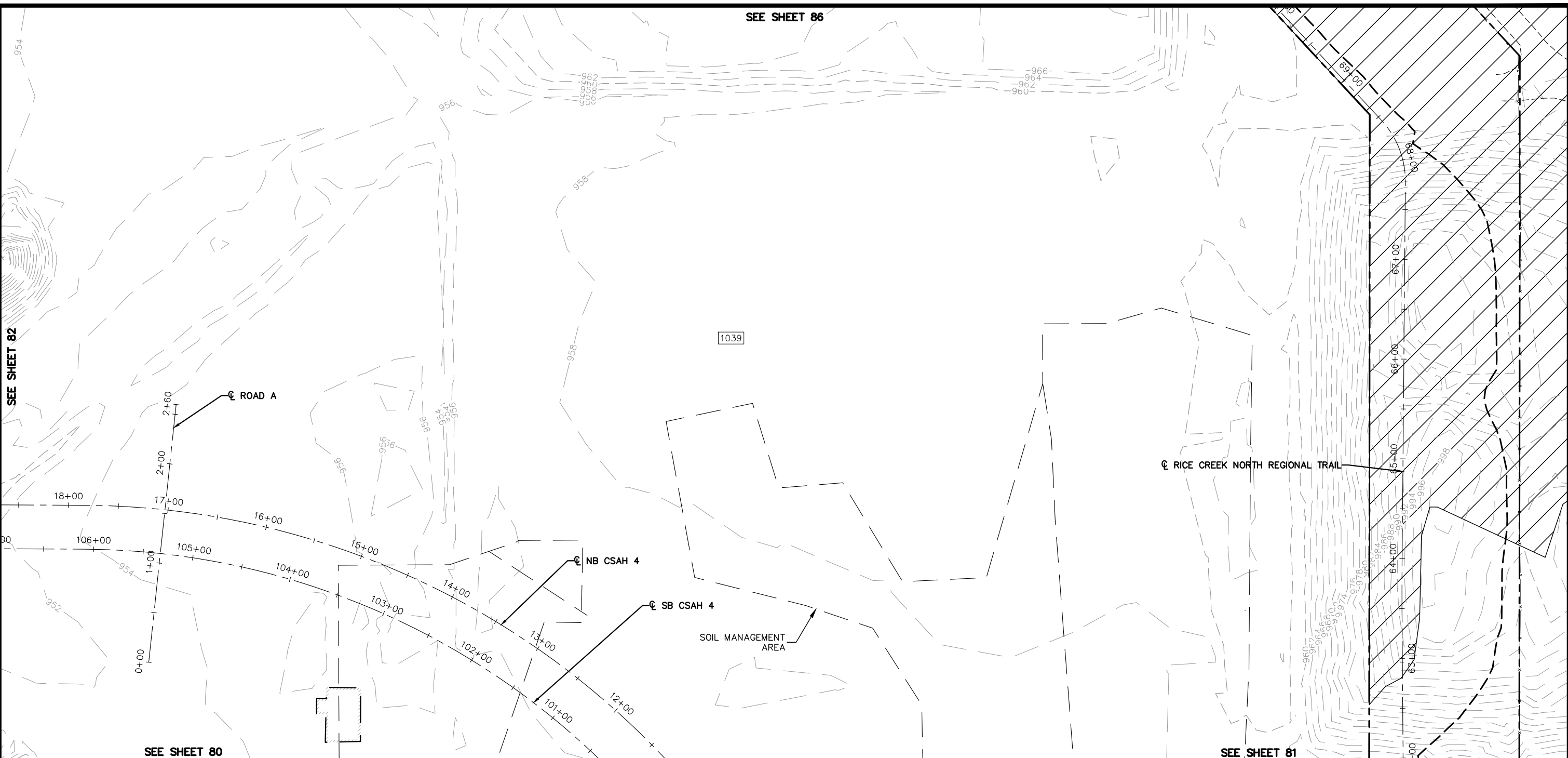
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

SHEET NO.
82
335

SEE SHEET 86

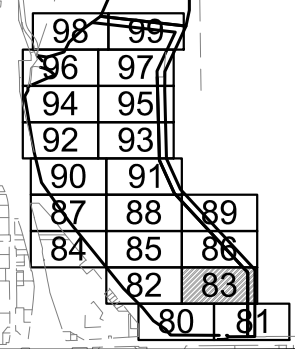
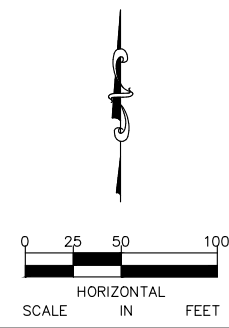


SEE SHEET 82

SEE SHEET 80

SEE SHEET 81

NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
DESIGNED BY:	ERW
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DATE:	01/04/19
PROJECT NO.	160553004

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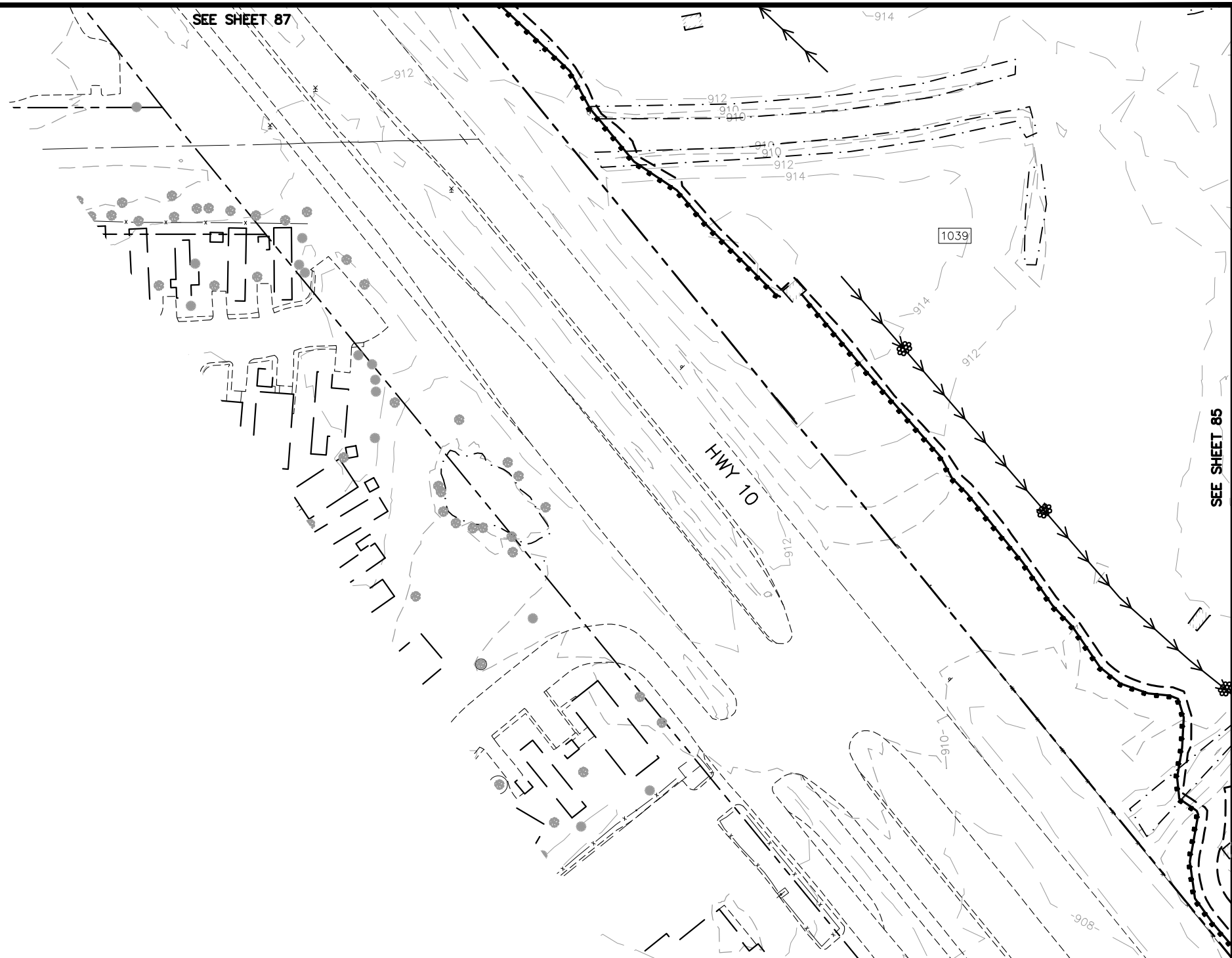
RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

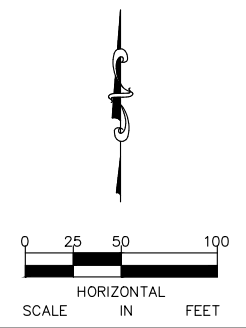
SHEET NO.
83
335

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NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



98	99	
96	97	
94	95	
92	93	
90	91	
87	88	89
84	85	86
	82	83
	80	81

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
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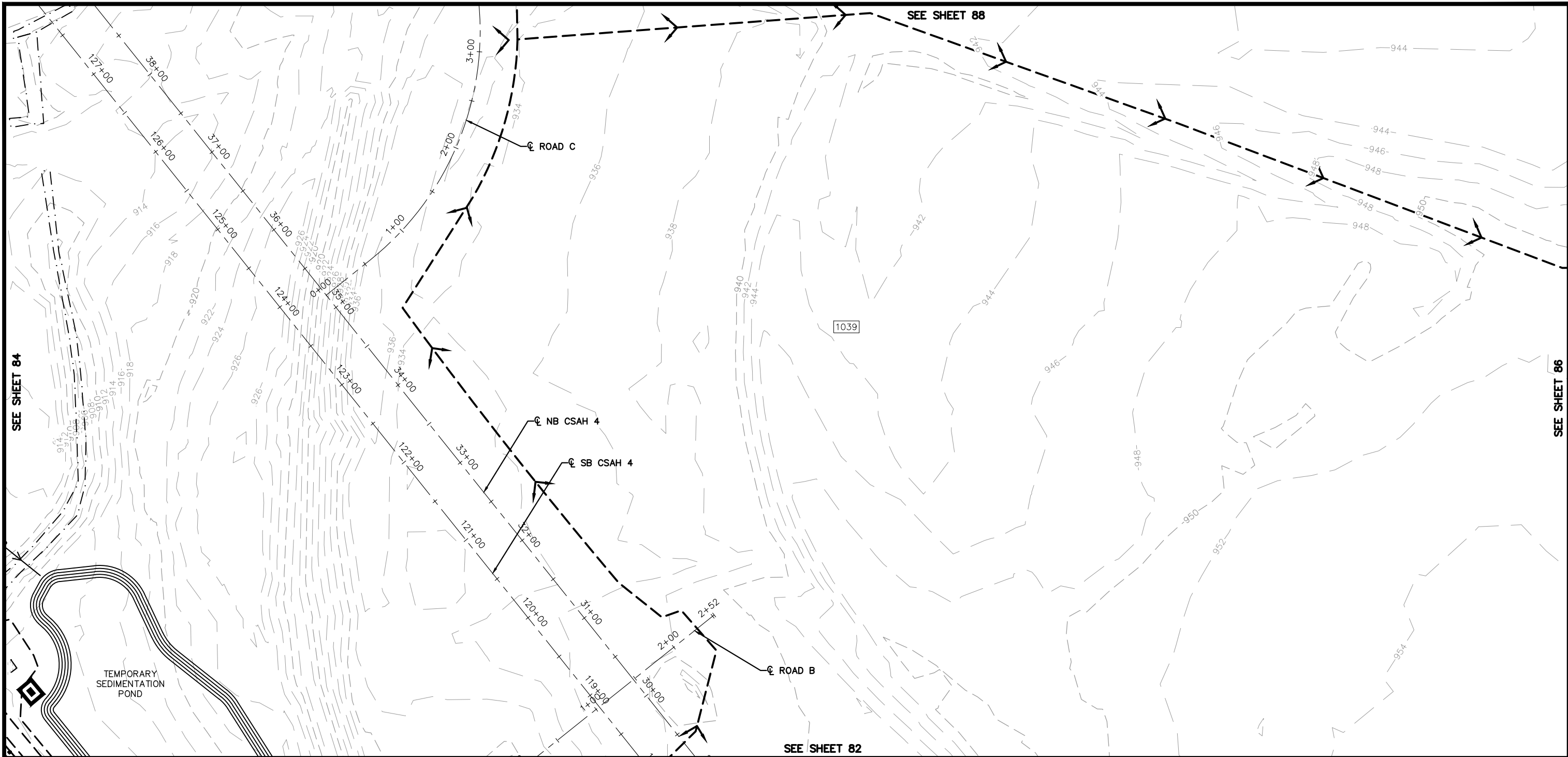
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL PLAN

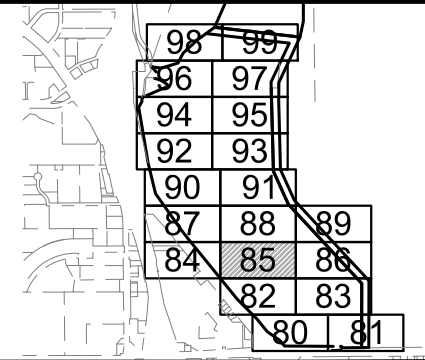
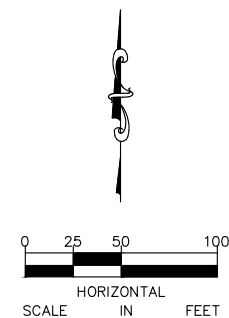
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
84
335

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NOTE:
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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
DESIGNED BY:	ERW
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DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

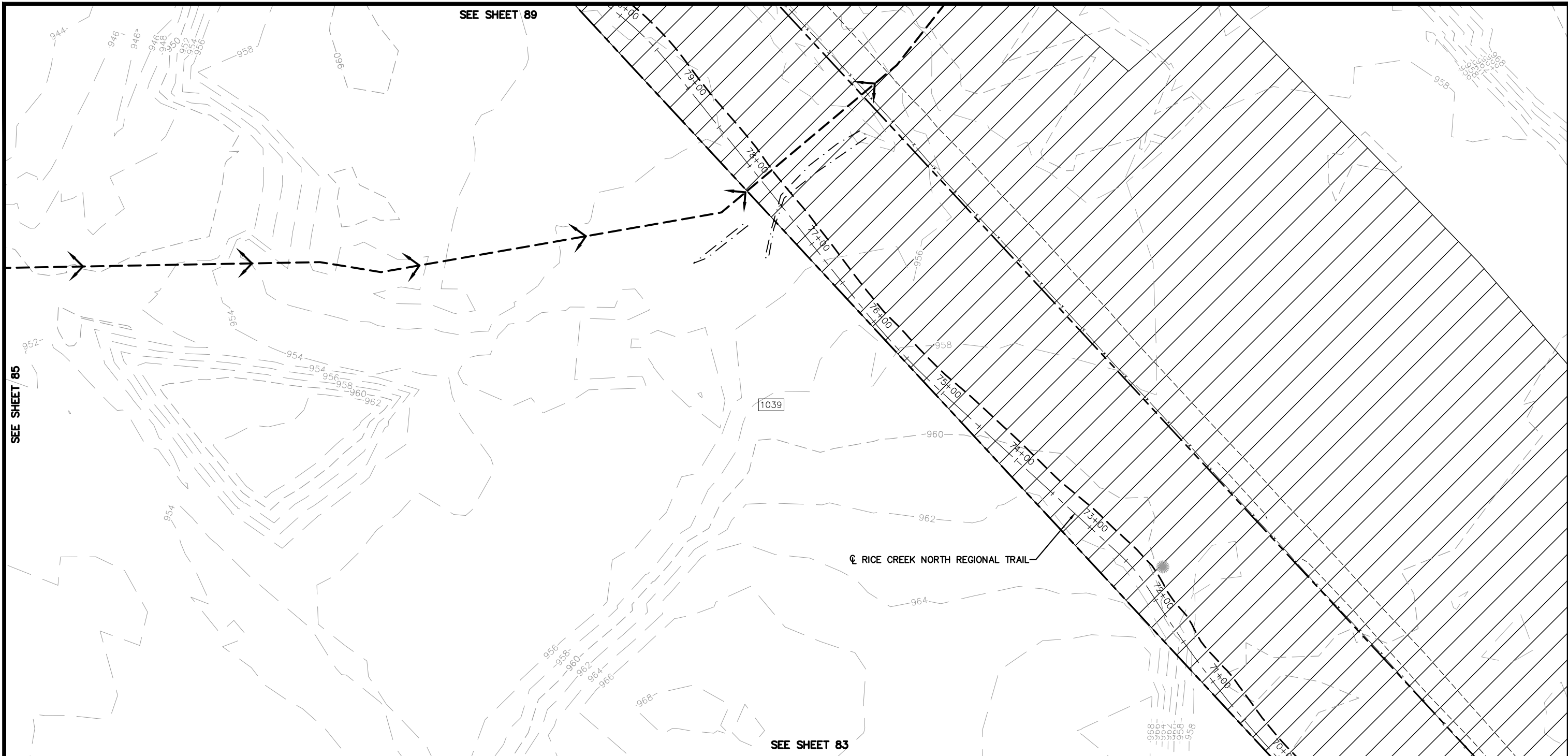
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	
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S.A.P.	062-593-004
S.A.P.	

SHEET NO.
85

335

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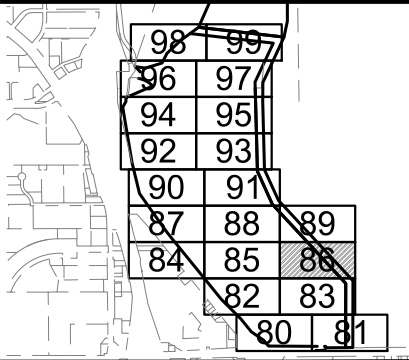
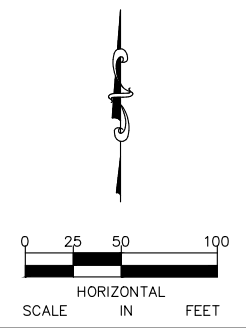
SEE SHEET 89

SEE SHEET 85

SEE SHEET 83

☉ RICE CREEK NORTH REGIONAL TRAIL

NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_TERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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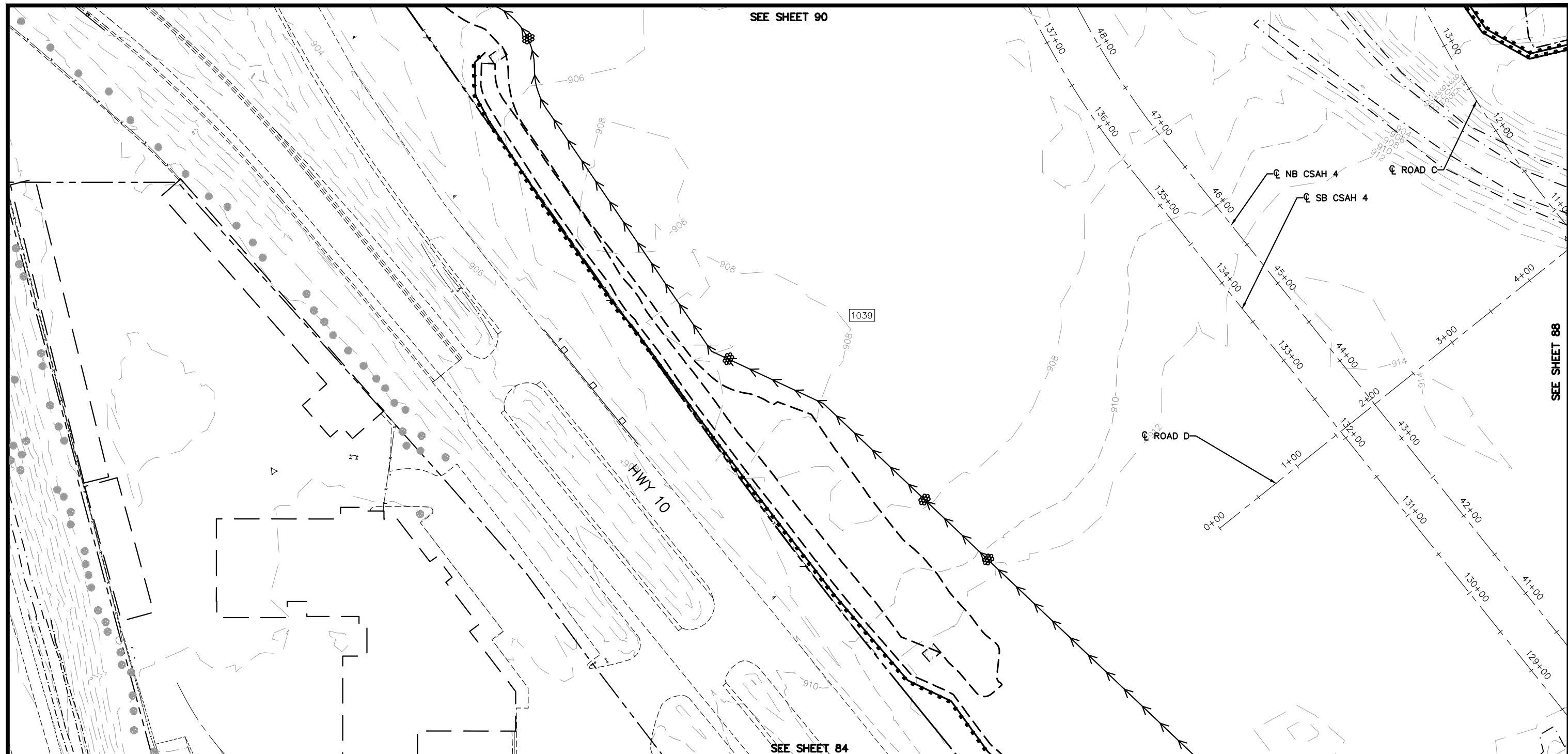
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

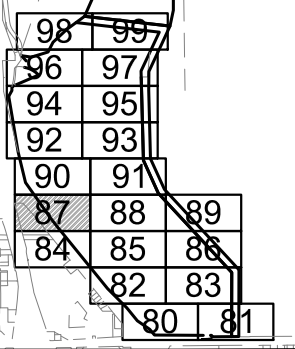
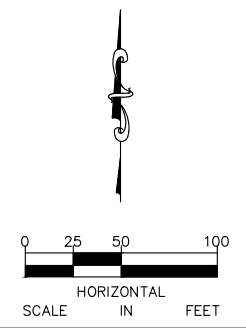
SHEET NO.
86
335



SEE SHEET 88

SEE SHEET 84

NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



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				PROJECT NO. 160553004

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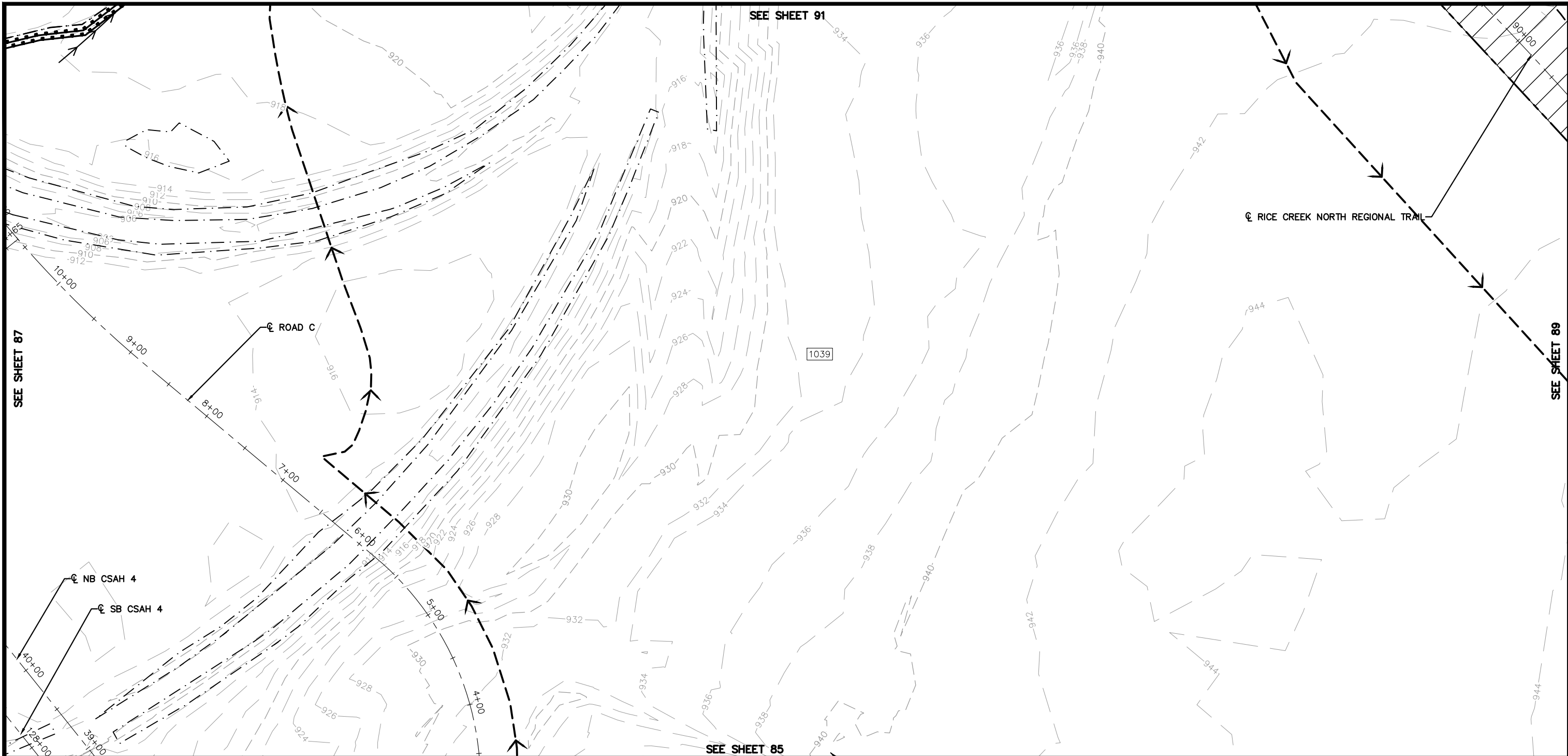
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL PLAN

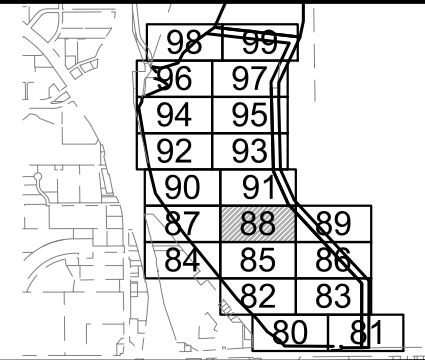
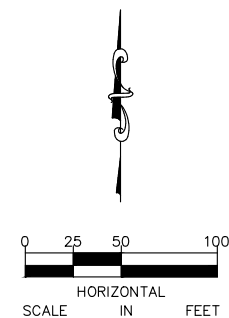
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
87
335

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NOTE:
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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
DESIGNED BY:	ERW
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DATE:	01/04/19
PROJECT NO.	160553004

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 DATE: 01/04/19 MN LIC. NO. 41864

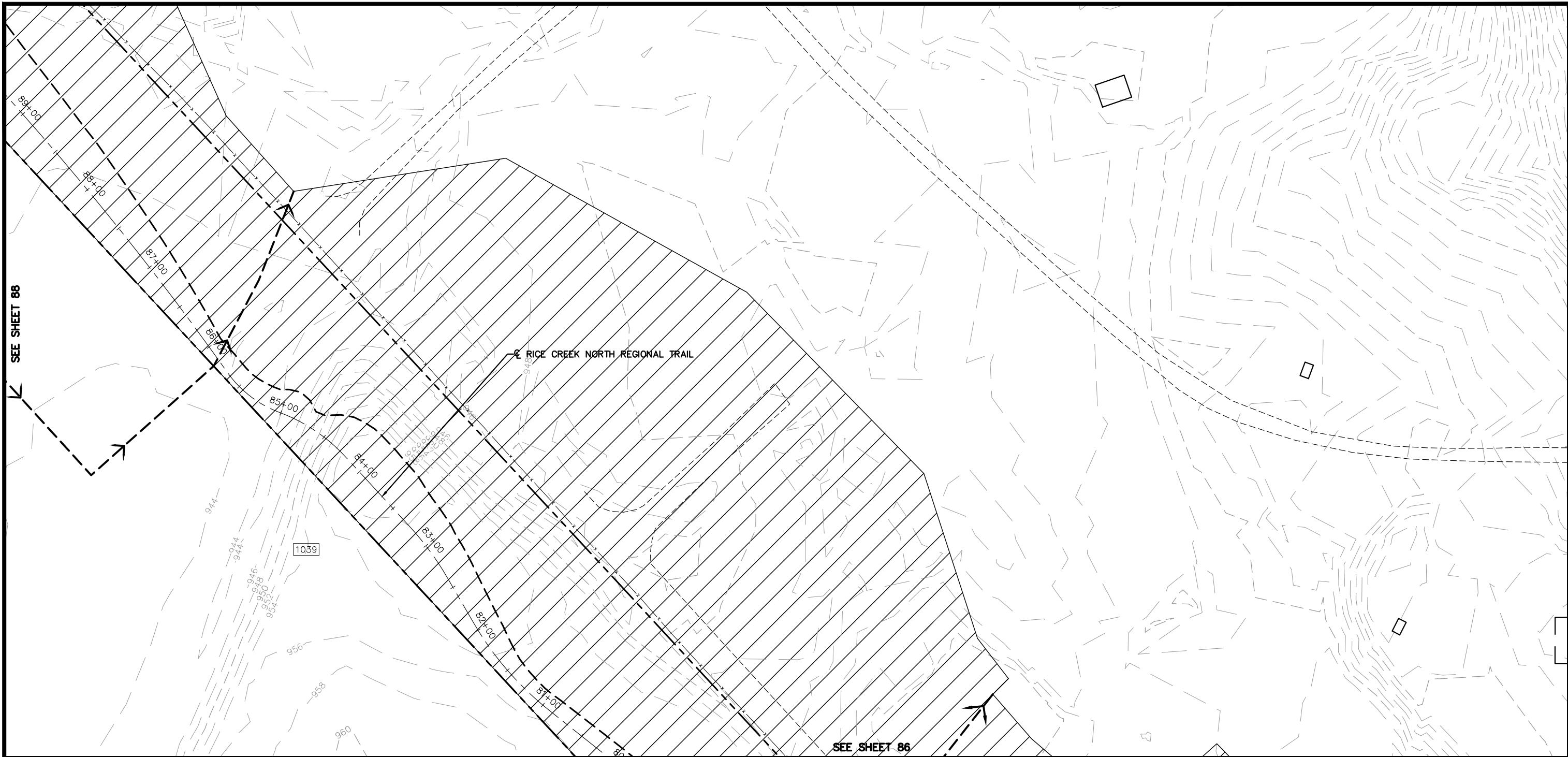
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	
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S.A.P.	062-593-004
S.A.P.	

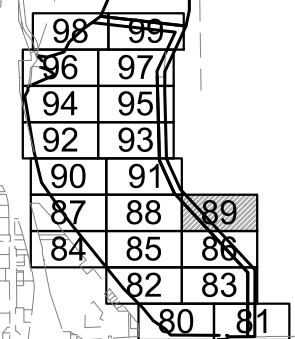
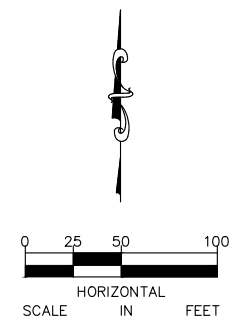
SHEET NO.
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NOTE:
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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
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DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

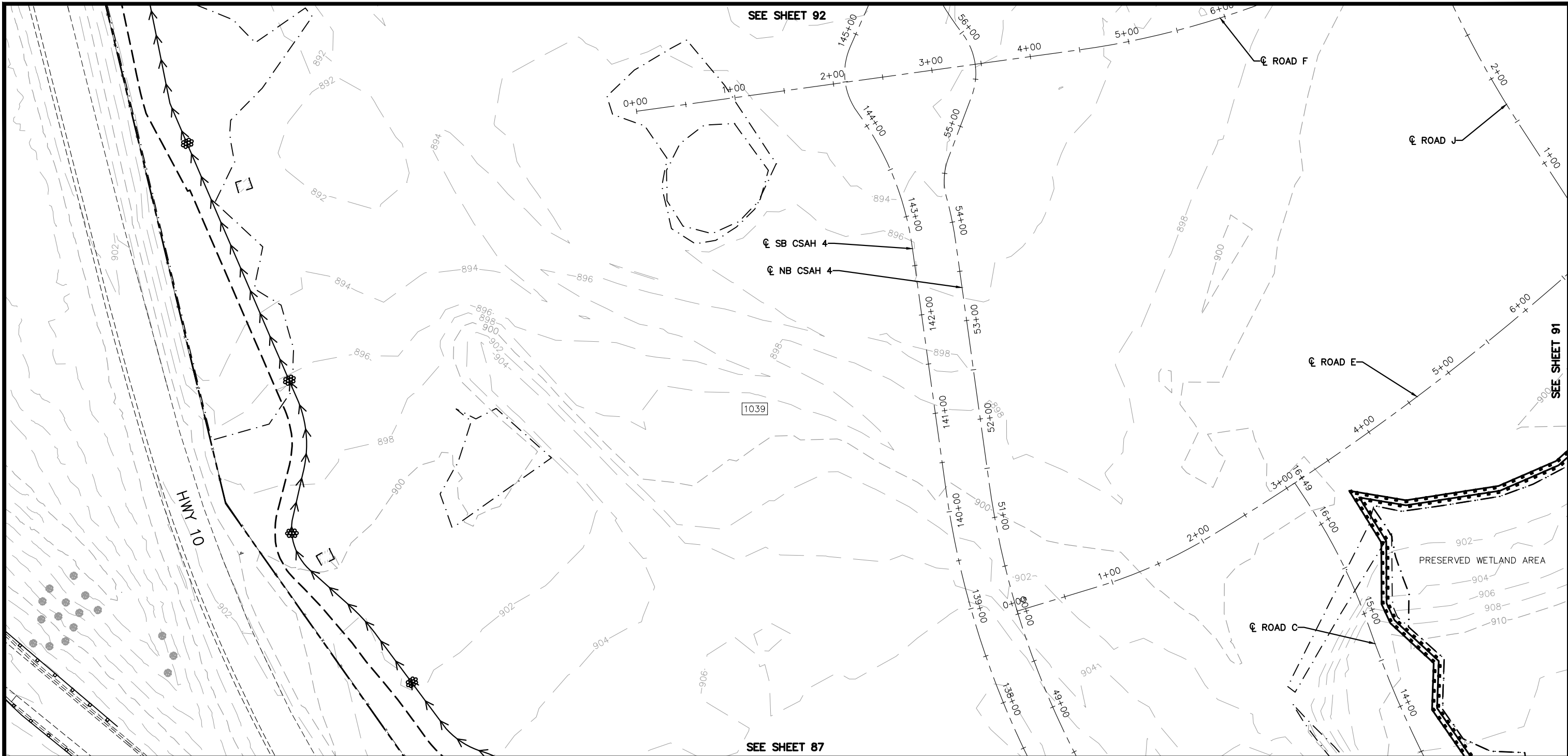
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
89

335

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NOTE:
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				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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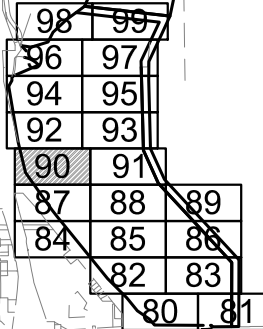
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DATE: 01/04/19 MN LIC. NO. 41864

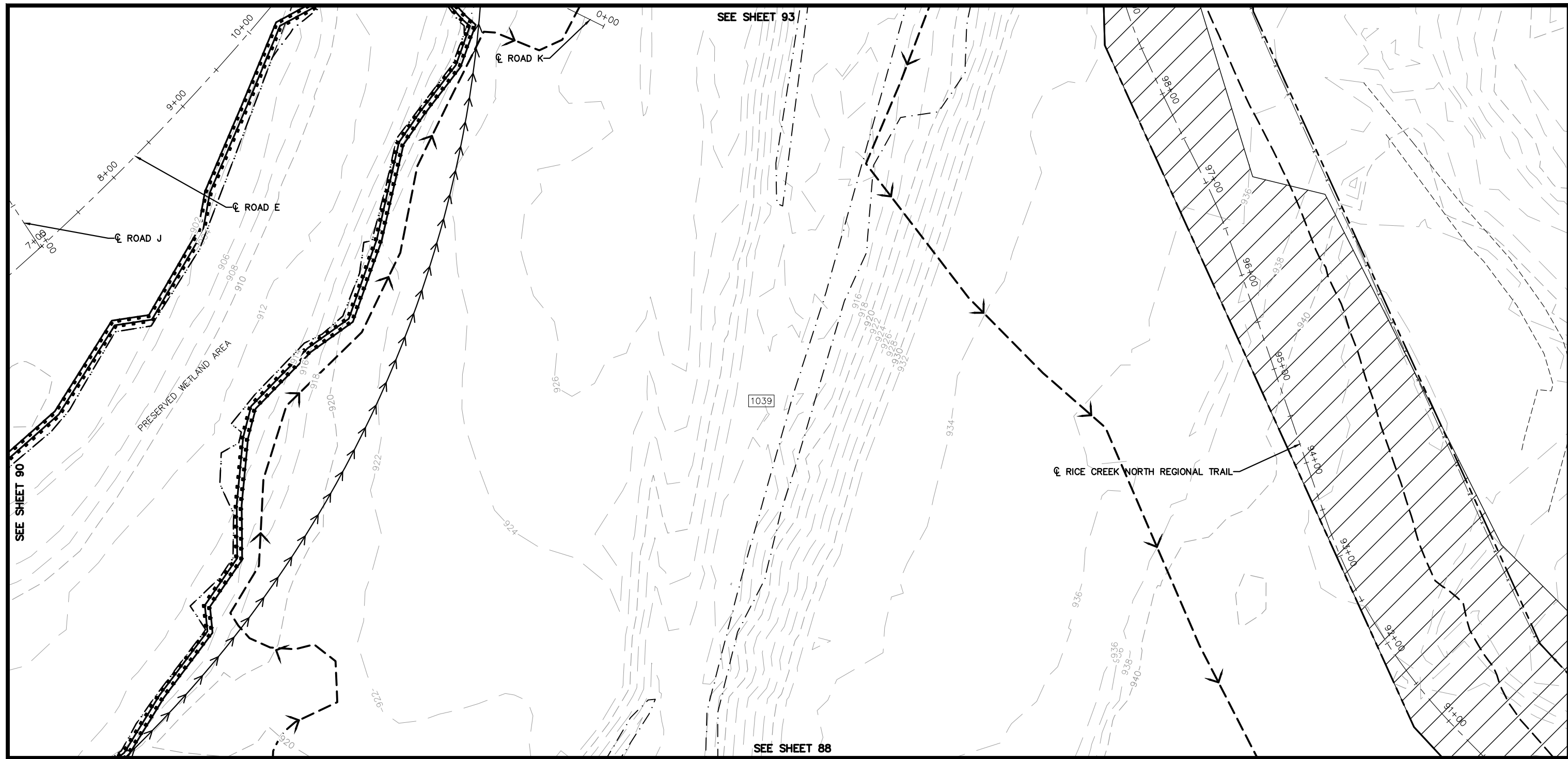
RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

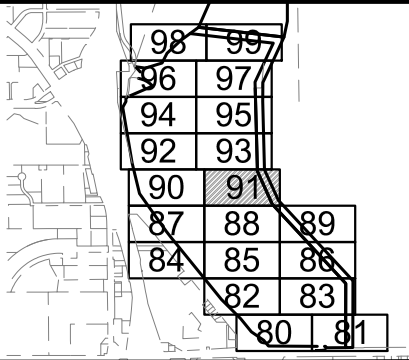
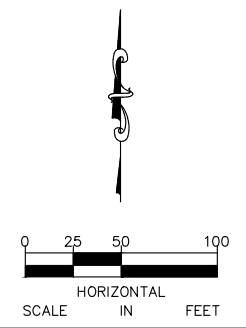
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NOTE:
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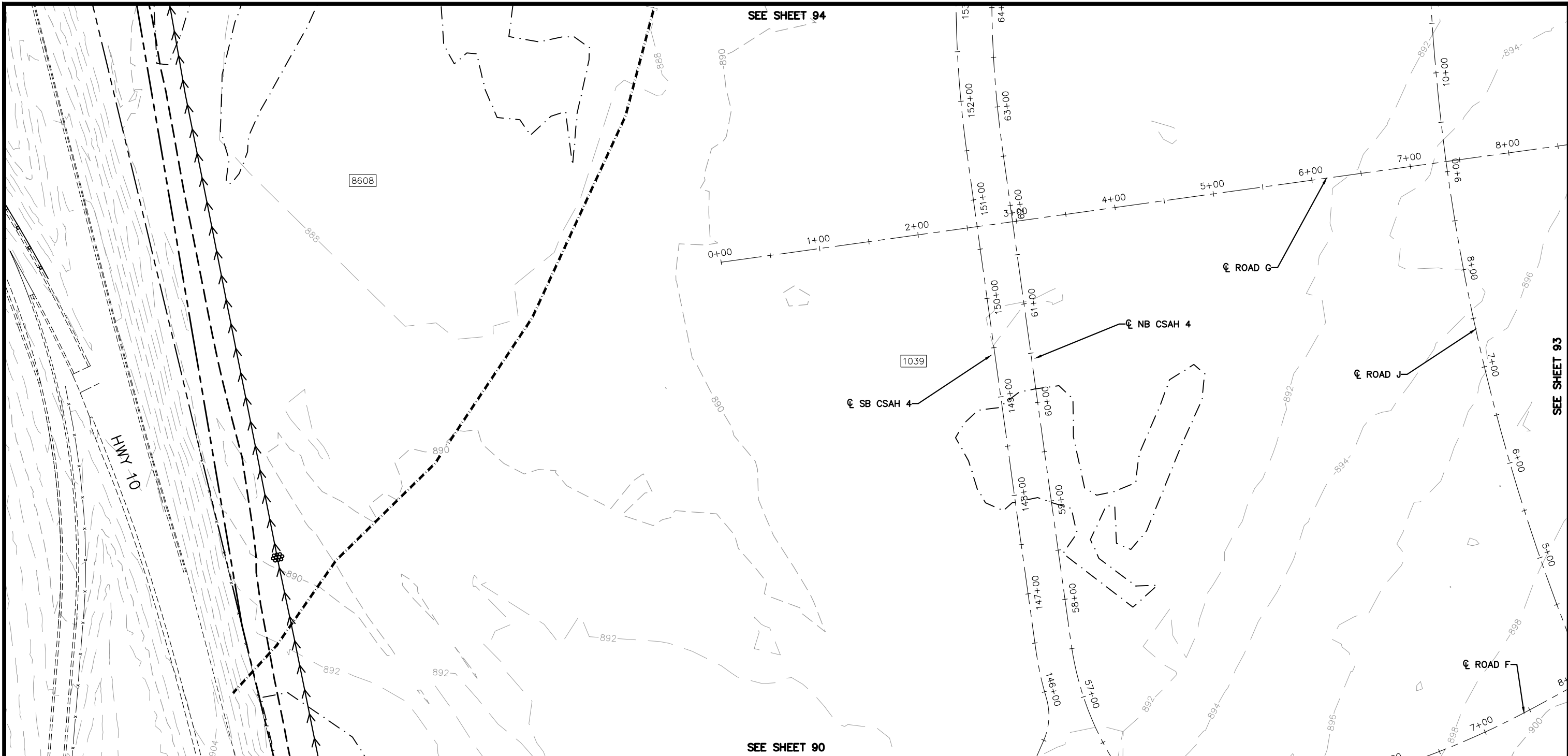
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

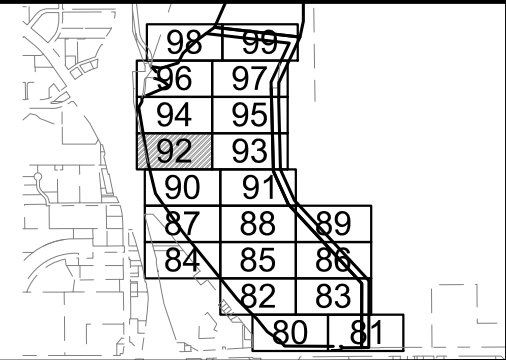
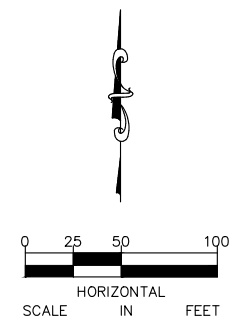
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	91
S.A.P. 062-593-004	
S.A.P.	335

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NOTE:
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				DESIGNED BY: ERW
				DRAWN BY: ERW
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				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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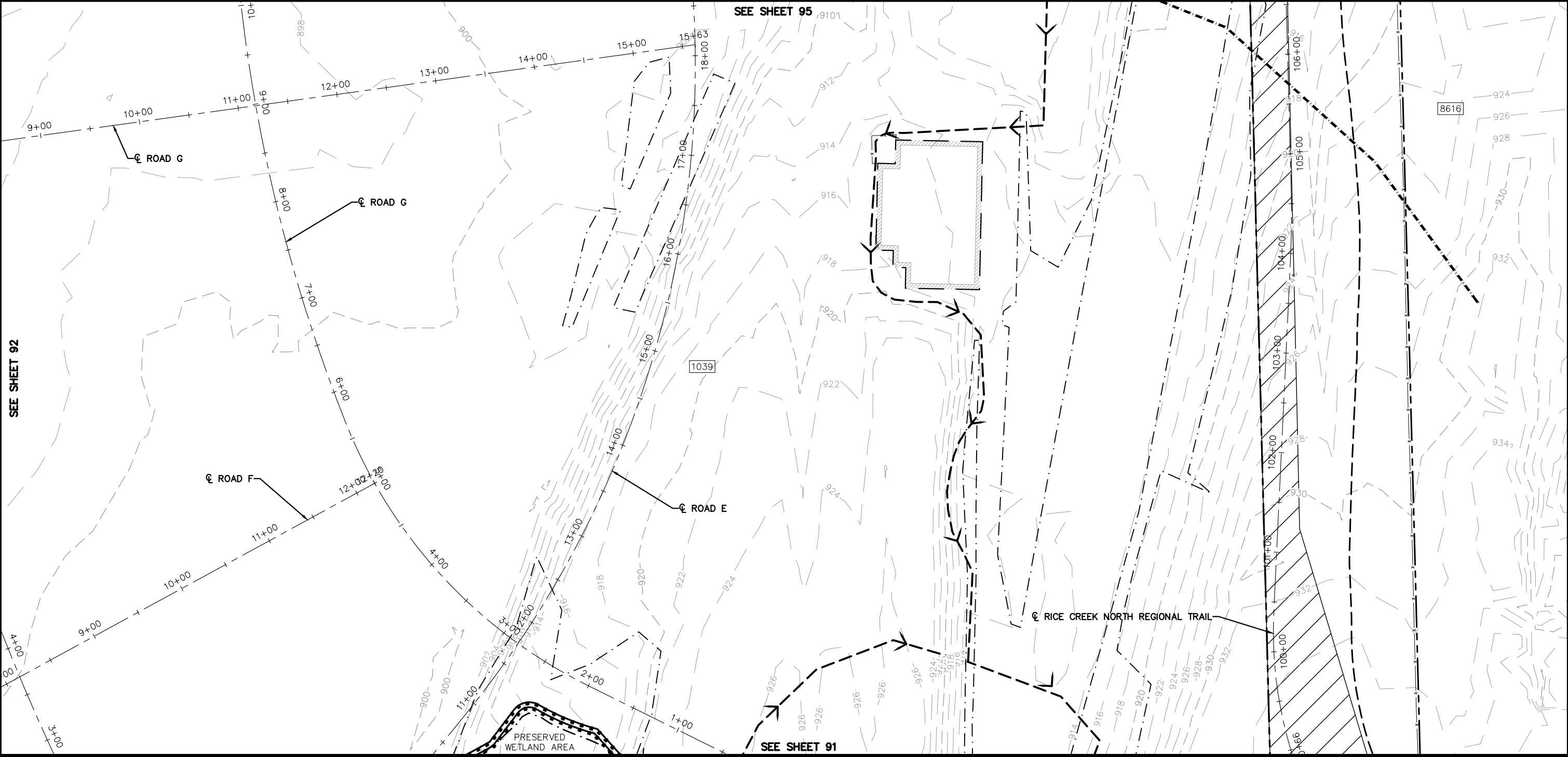
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DATE: 01/04/19 MN LIC. NO. 41864

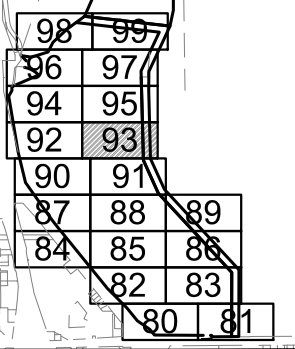
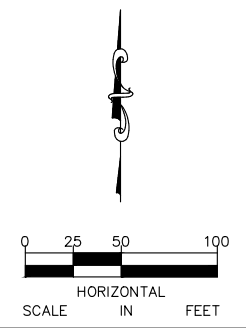
RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	92
S.A.P. 062-593-004	
S.A.P.	335

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NOTE:
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No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: ERW
				DRAWN BY: ERW
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				DATE: 01/04/19
				PROJECT NO. 160553004

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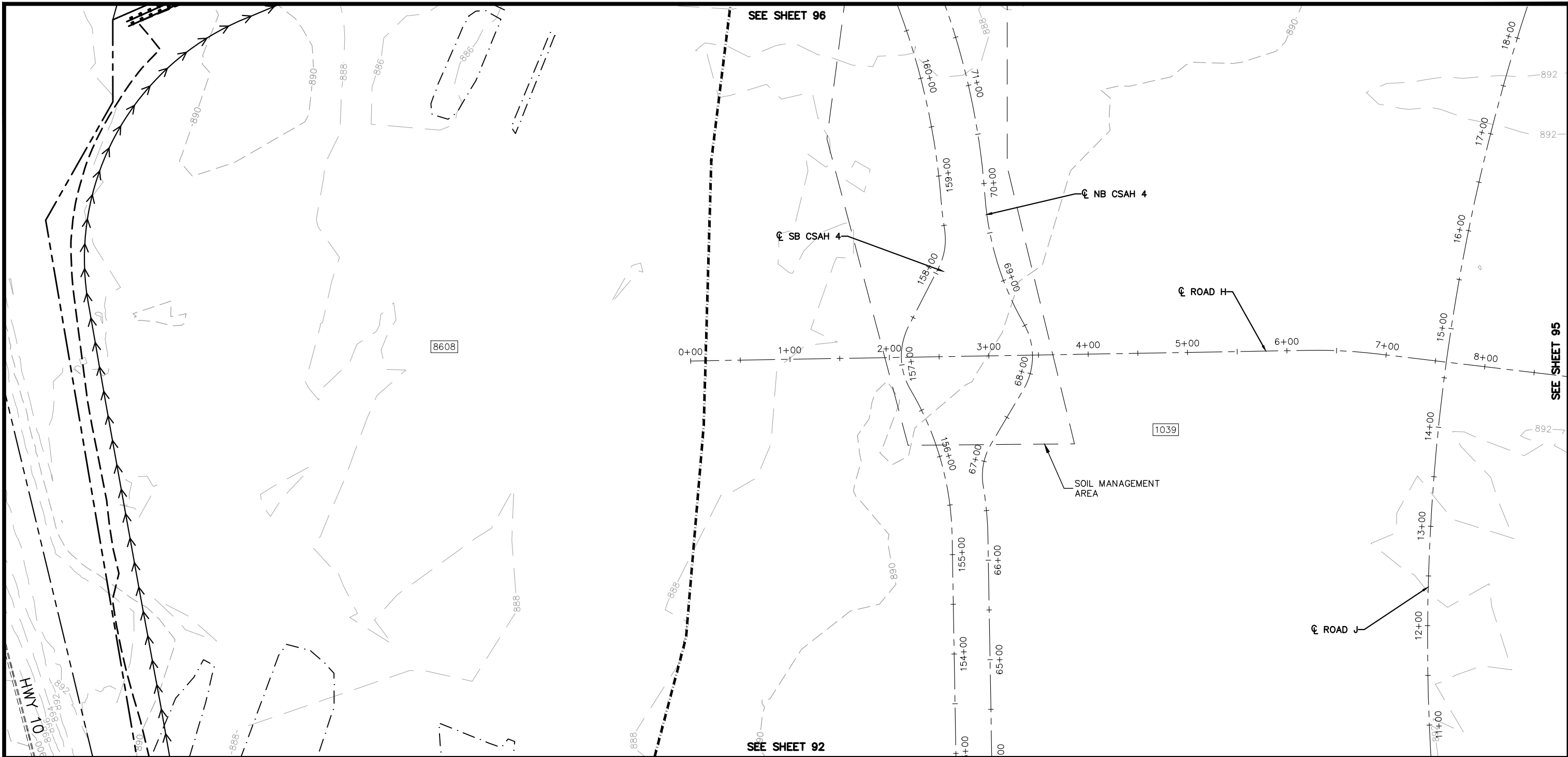
CHADD B. LARSON
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

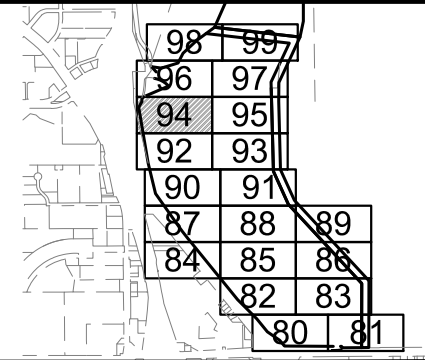
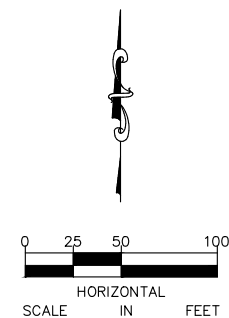
CITY PROJECT	
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S.A.P.	062-593-004
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SHEET NO.
93
335

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NOTE:
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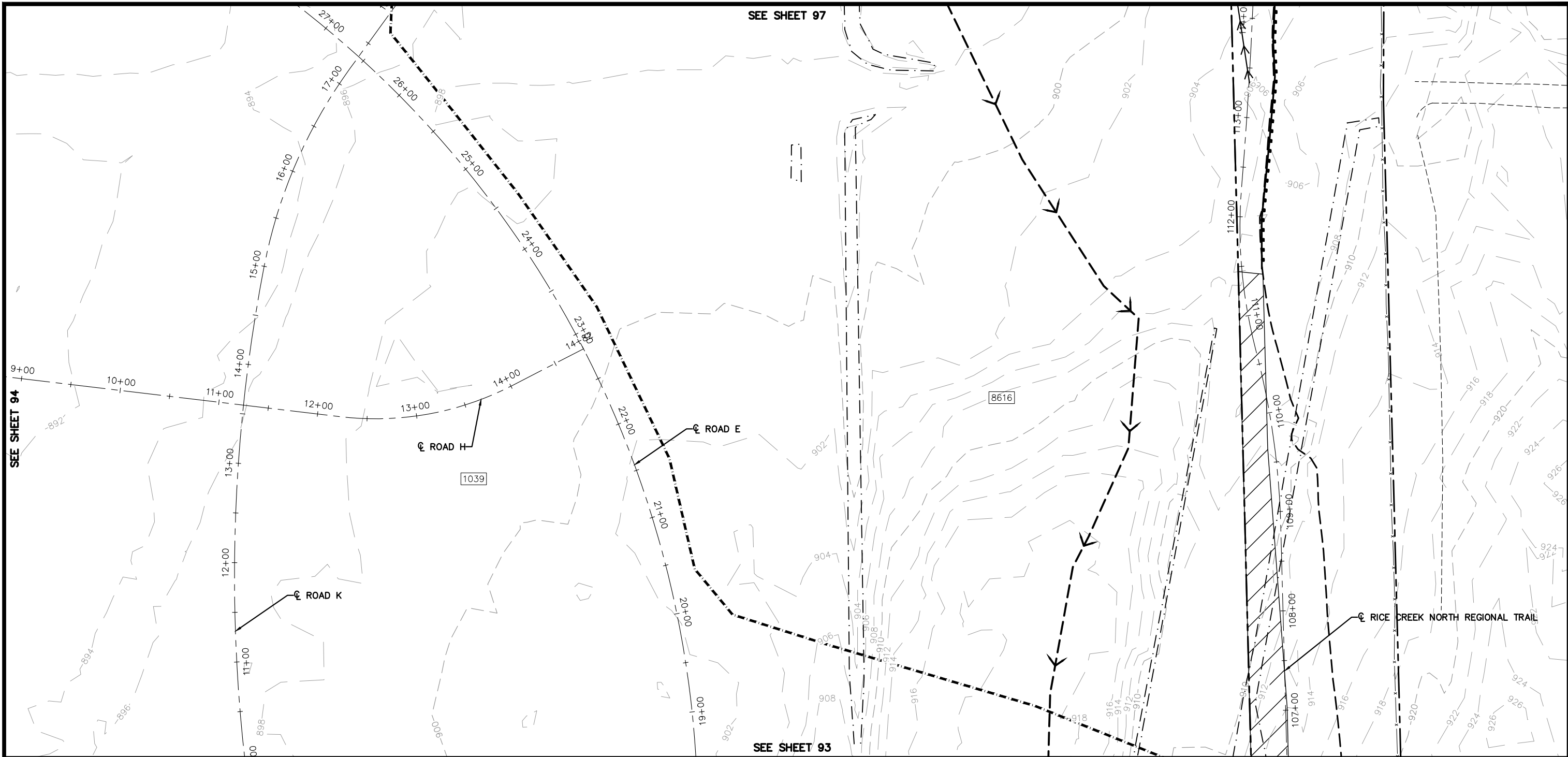
CHADD B. LARSON
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

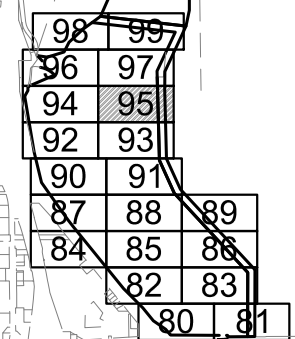
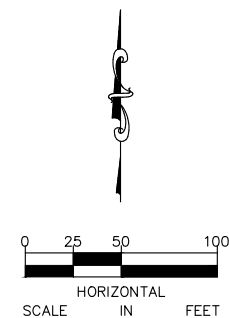
CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

SHEET NO.
94
335

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NOTE:
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				DESIGNED BY: ERW
				DRAWN BY: ERW
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				PROJECT NO. 160553004

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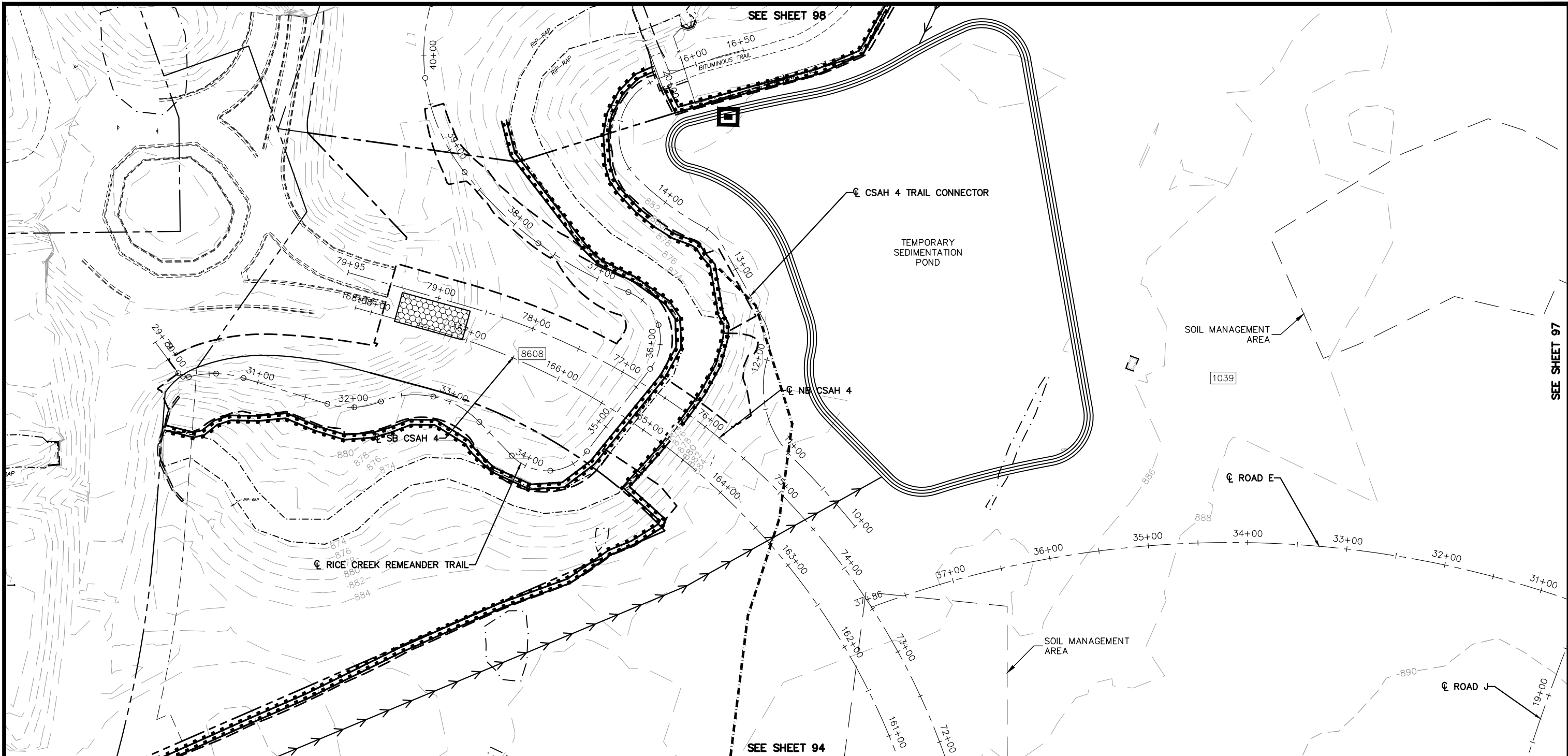
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

SHEET NO.
95
335

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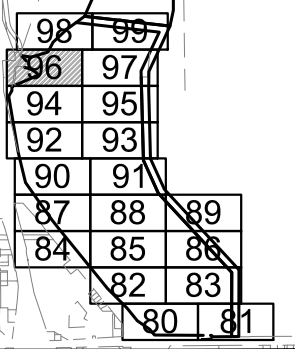
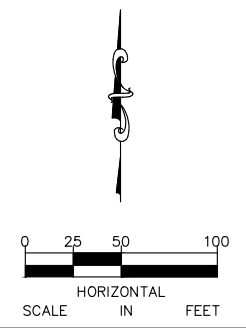


SEE SHEET 98

SEE SHEET 97

SEE SHEET 94

NOTE:
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				DESIGNED BY: ERW
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				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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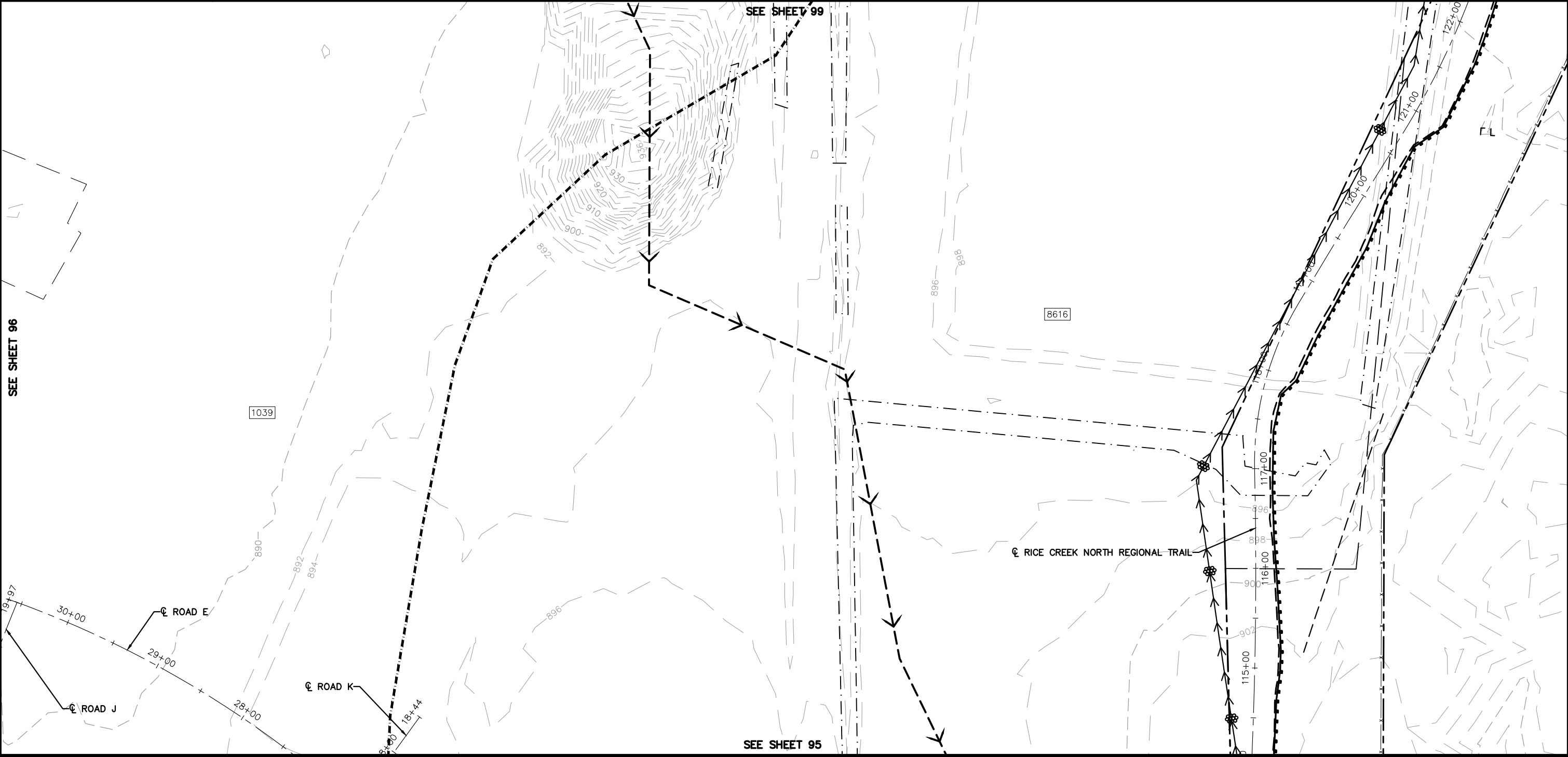
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 CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TEMPORARY EROSION CONTROL PLAN

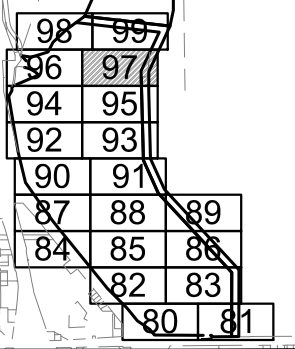
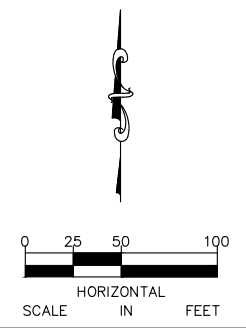
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COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
96
335

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NOTE:
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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_TERO.dwg
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DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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DATE: 01/04/19 MN LIC. NO. 41864

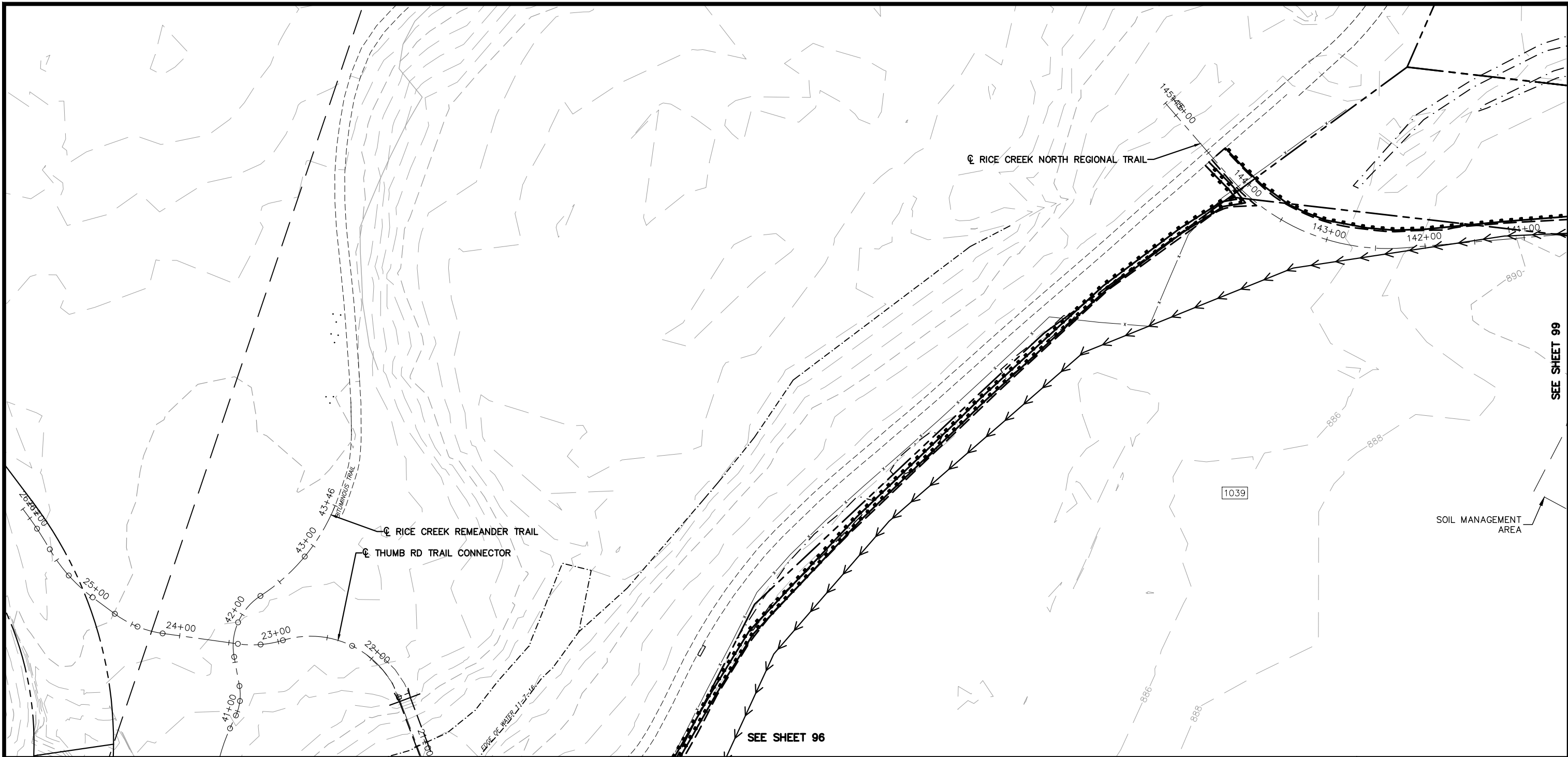
RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

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S.A.P.	062-593-004
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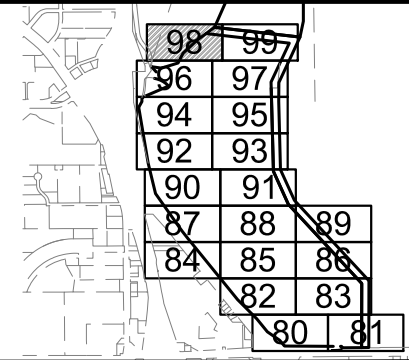
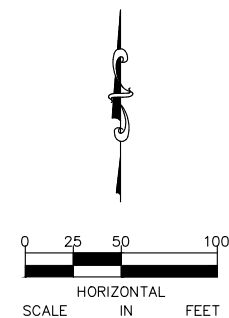
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NOTE:
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No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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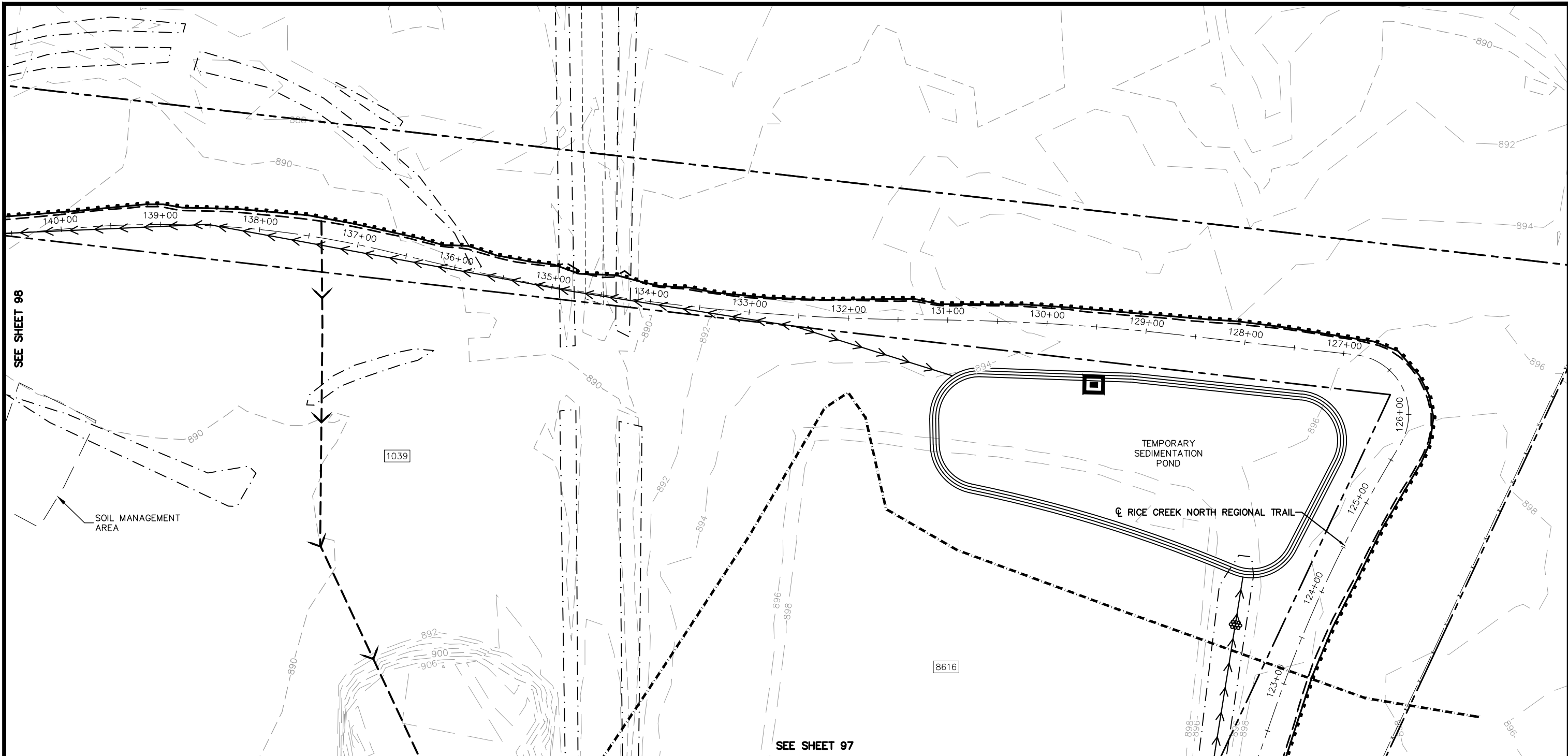
CHADD B. LARSON
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
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CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

SHEET NO.
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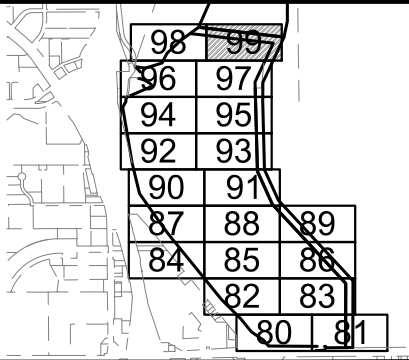
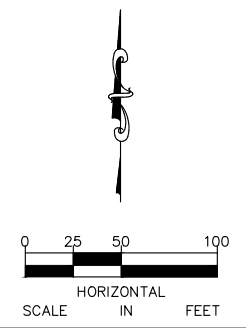
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SEE SHEET 98

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NOTE:
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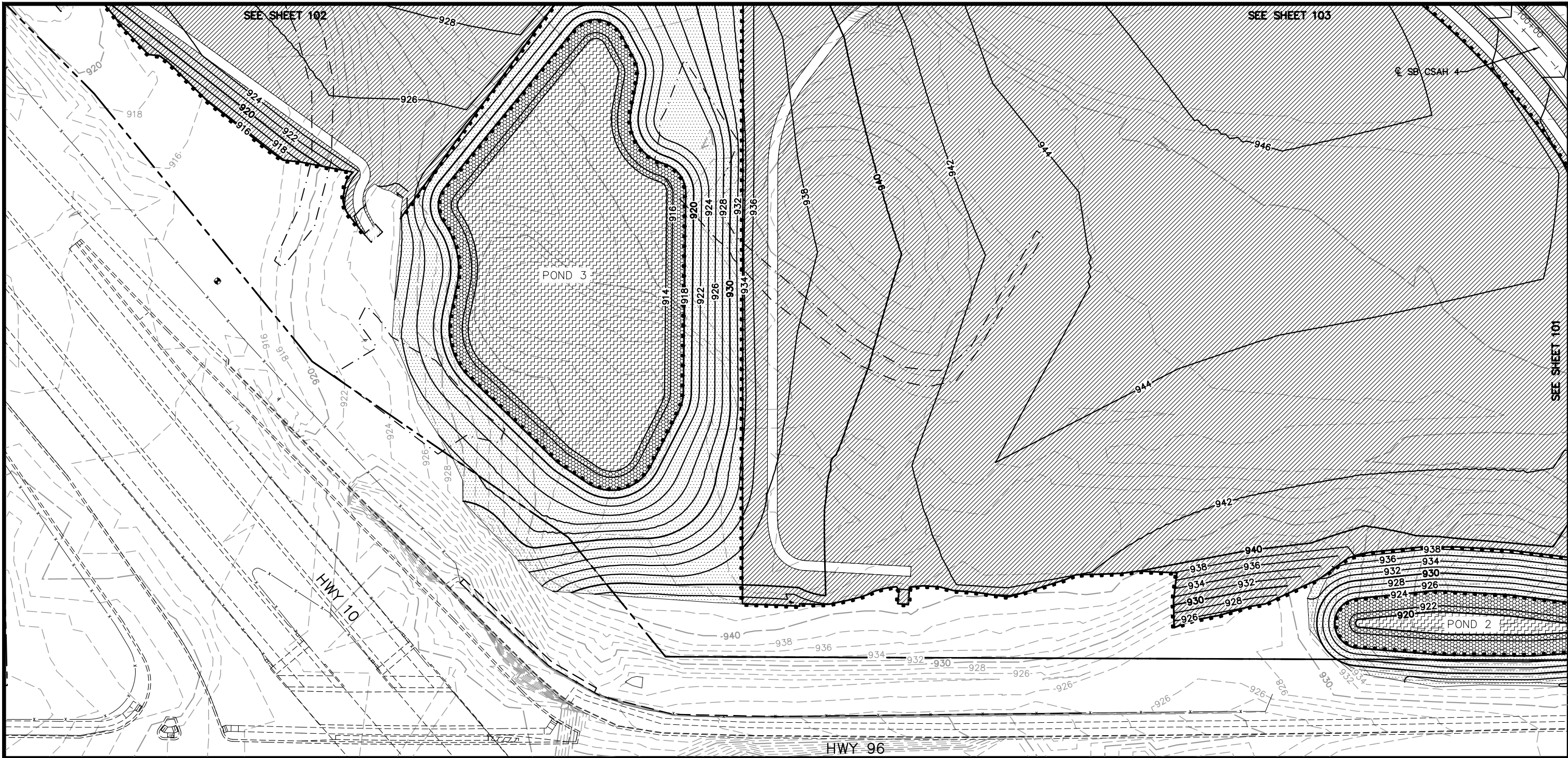
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TEMPORARY EROSION CONTROL PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

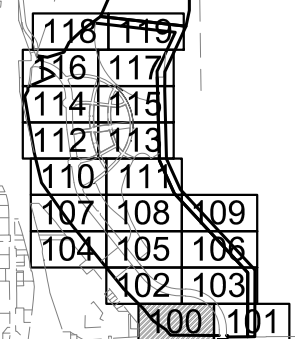
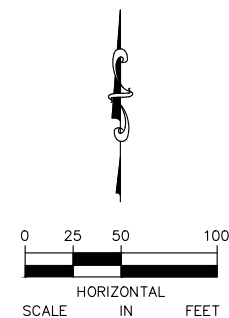
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NOTE:

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PROJECT NO.	160553004

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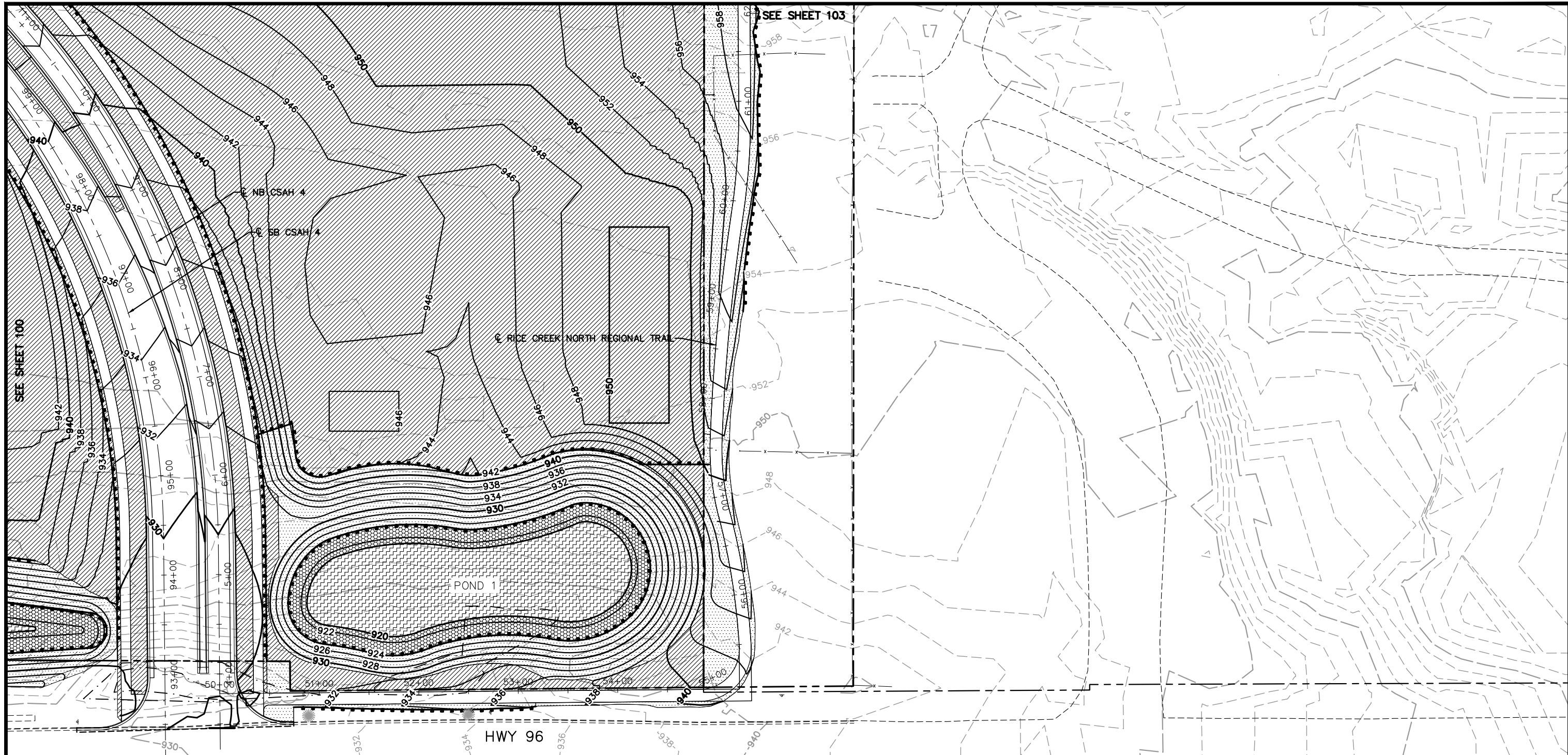
CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
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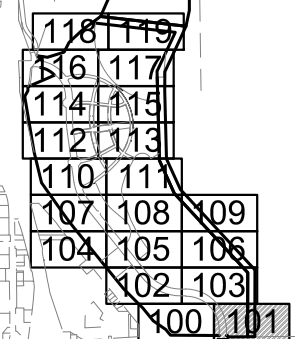
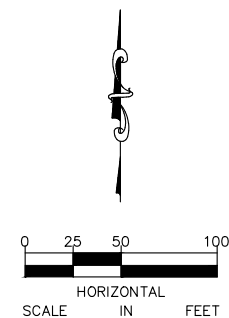
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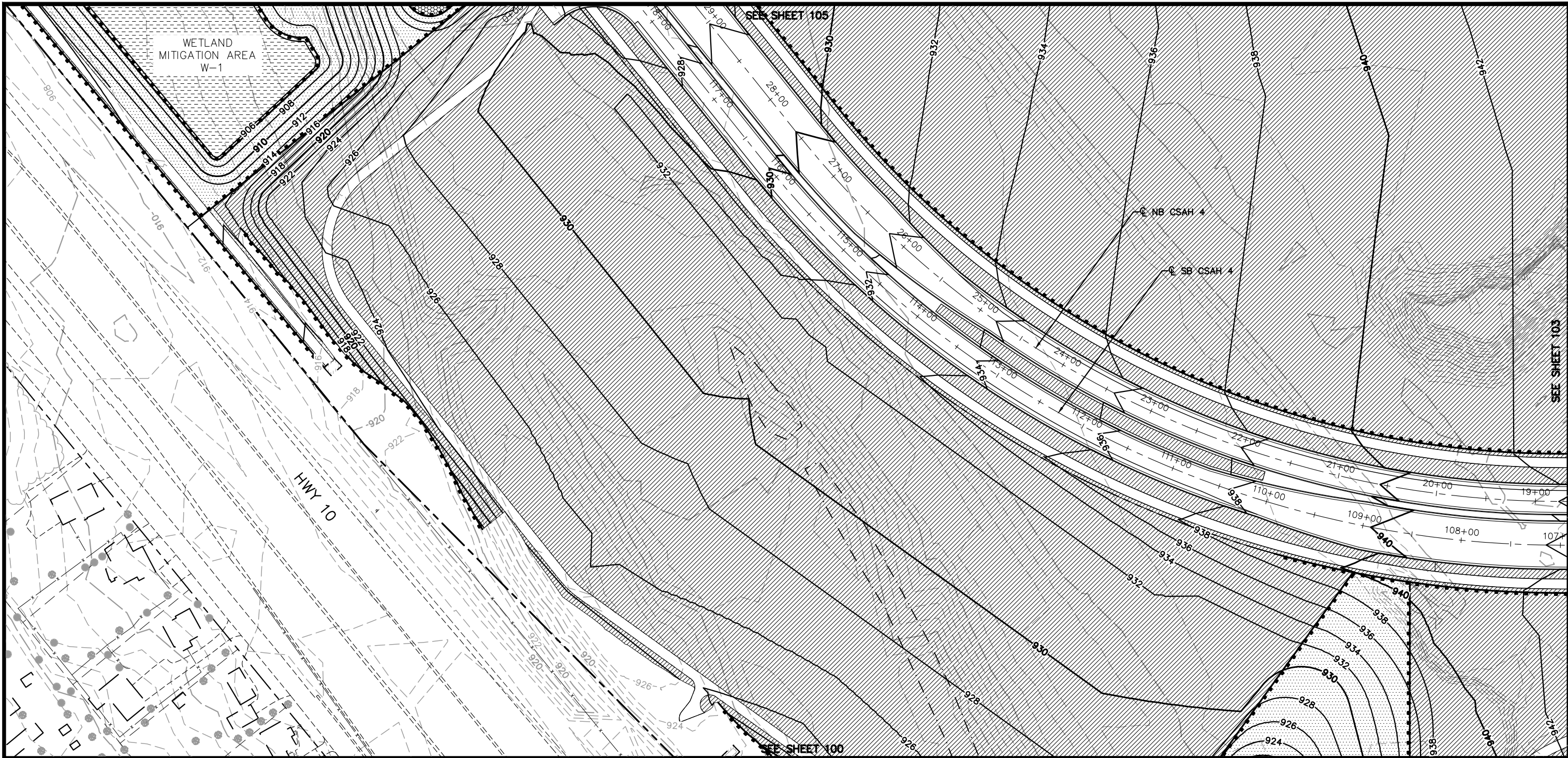
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DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT
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S.A.P.

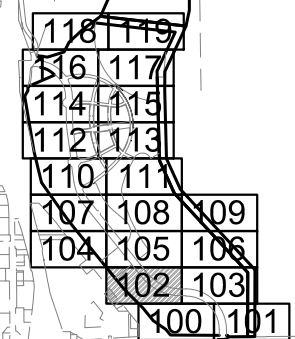
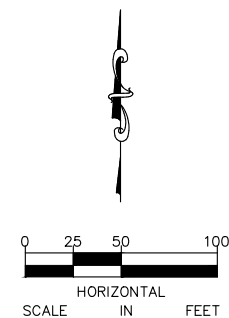
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				PROJECT NO. 160553004

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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

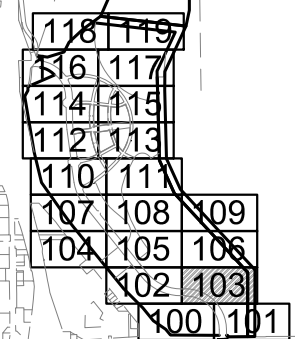
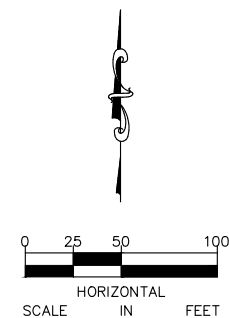
CITY PROJECT
 COUNTY PROJECT
 S.A.P. 062-593-004
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SHEET NO.
 102
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SEE SHEET 106



NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ERO.dwg
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RAMSEY COUNTY
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CITY PROJECT
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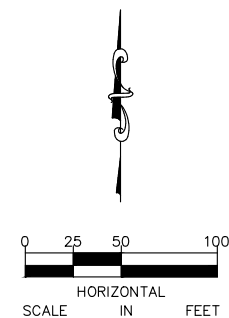
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NOTE:
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No.	Date	Revisions	App.

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RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

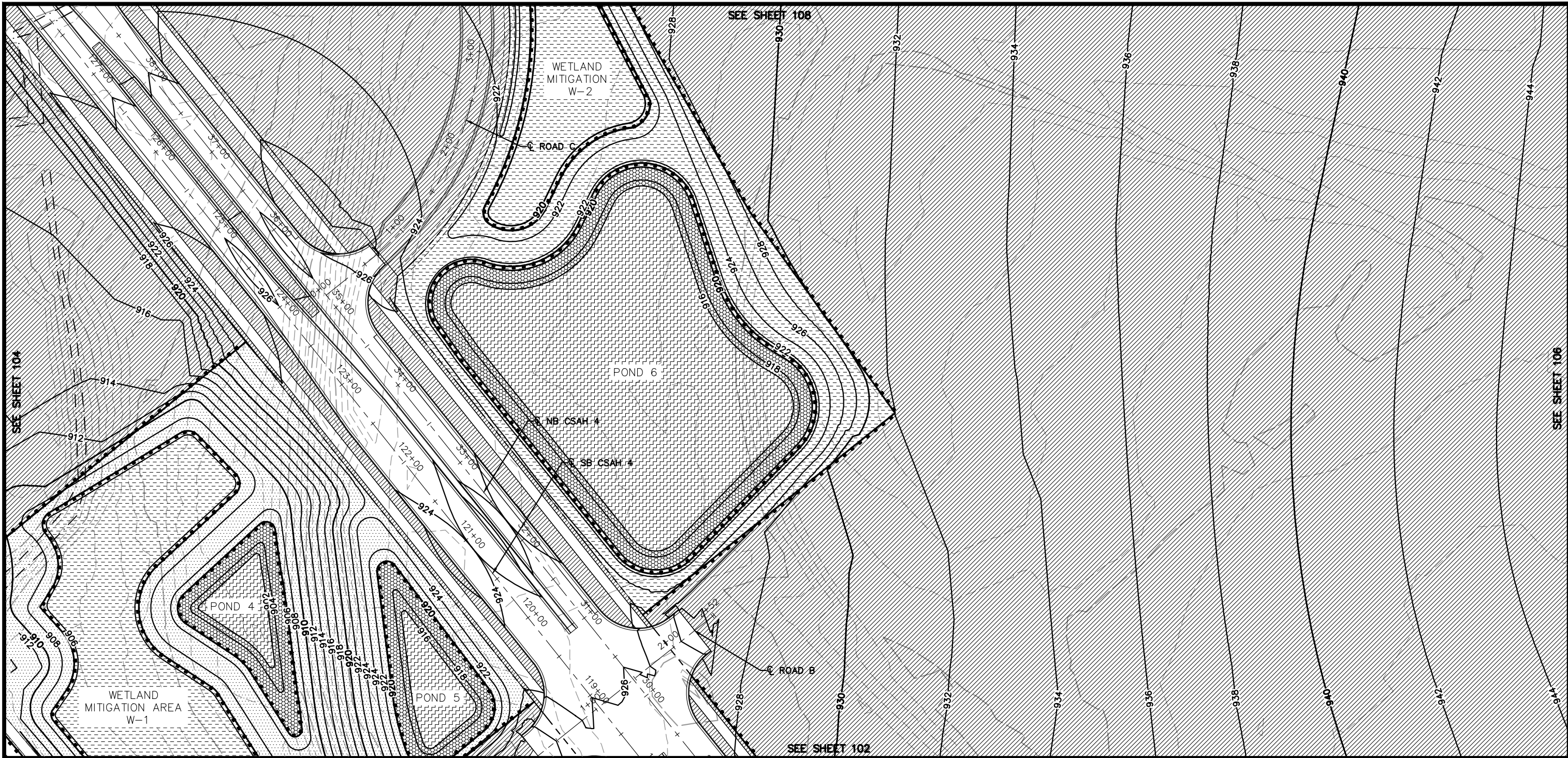
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

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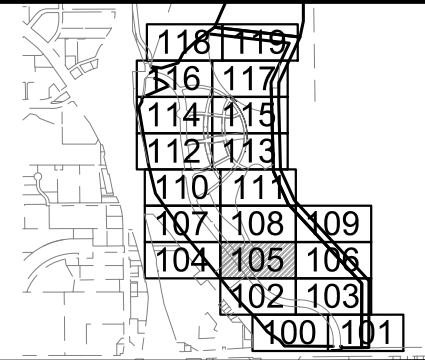
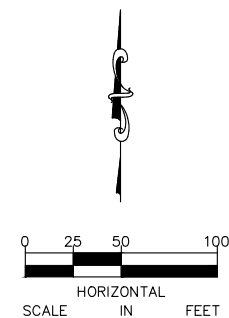
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NOTE:

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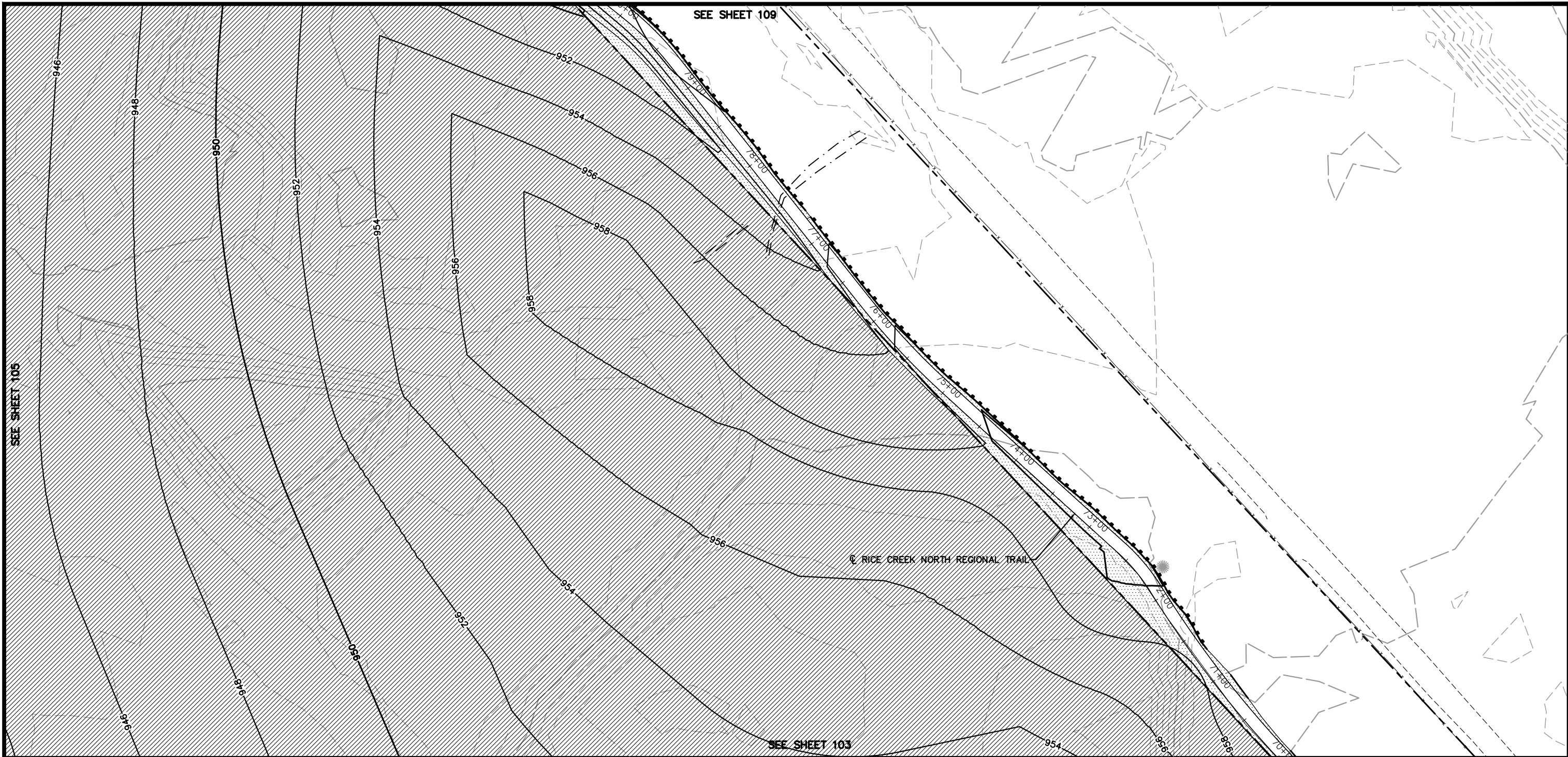
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

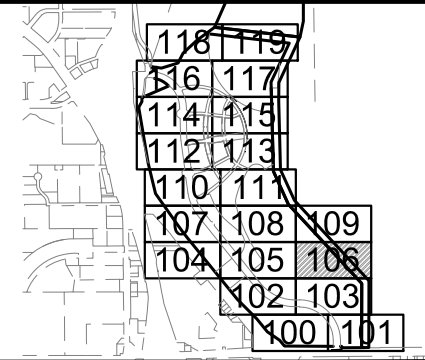
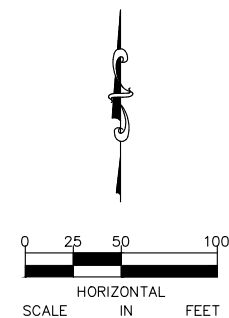
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

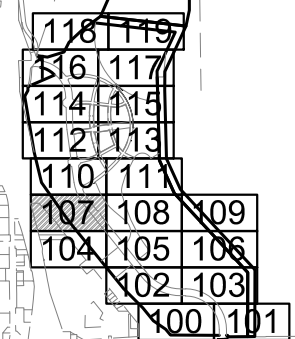
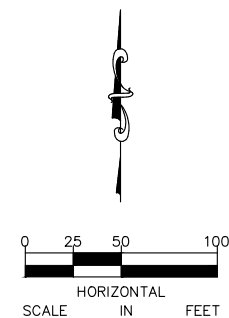
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SHEET NO.
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COUNTY PROJECT
S.A.P. 062-593-004
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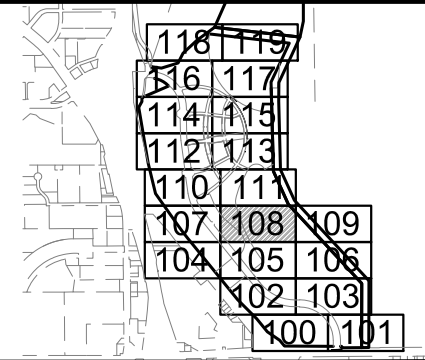
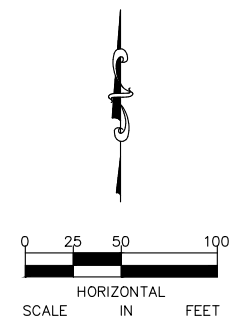
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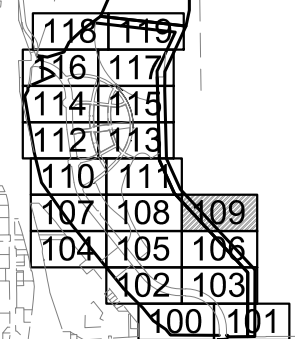
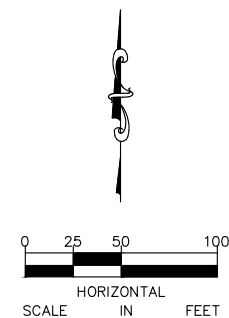
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT		SHEET NO.	108
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RAMSEY COUNTY
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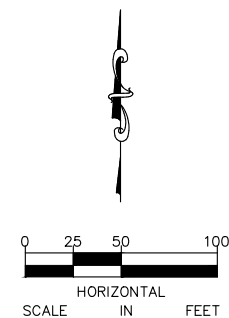
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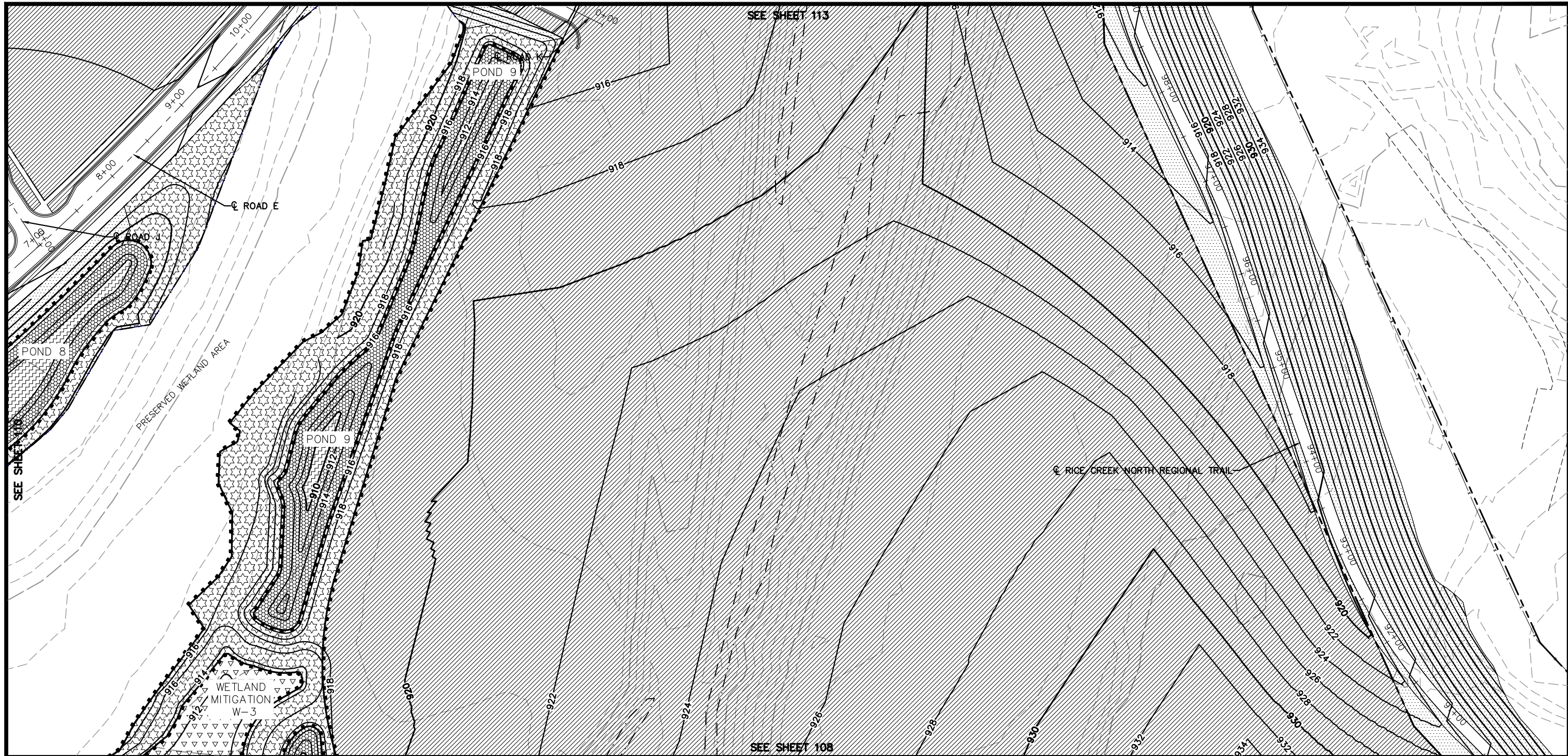
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

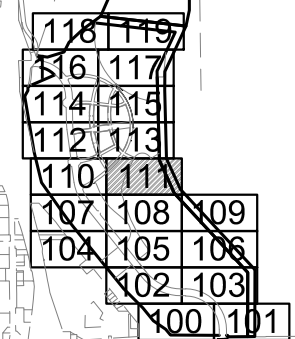
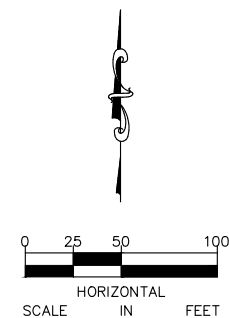
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 110
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ERO.dwg Layout12 January 09, 2019 - 2:57pm



NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ERO.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT
COUNTY PROJECT
S.A.P. 062-593-004
S.A.P.

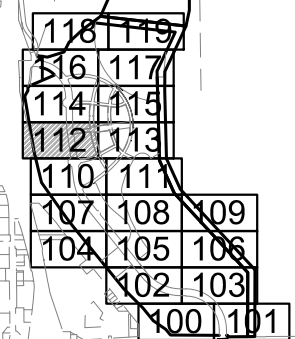
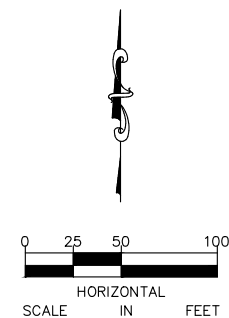
SHEET NO.
111
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ERO.dwg Layout13 January 09, 2019 - 2:58pm



NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
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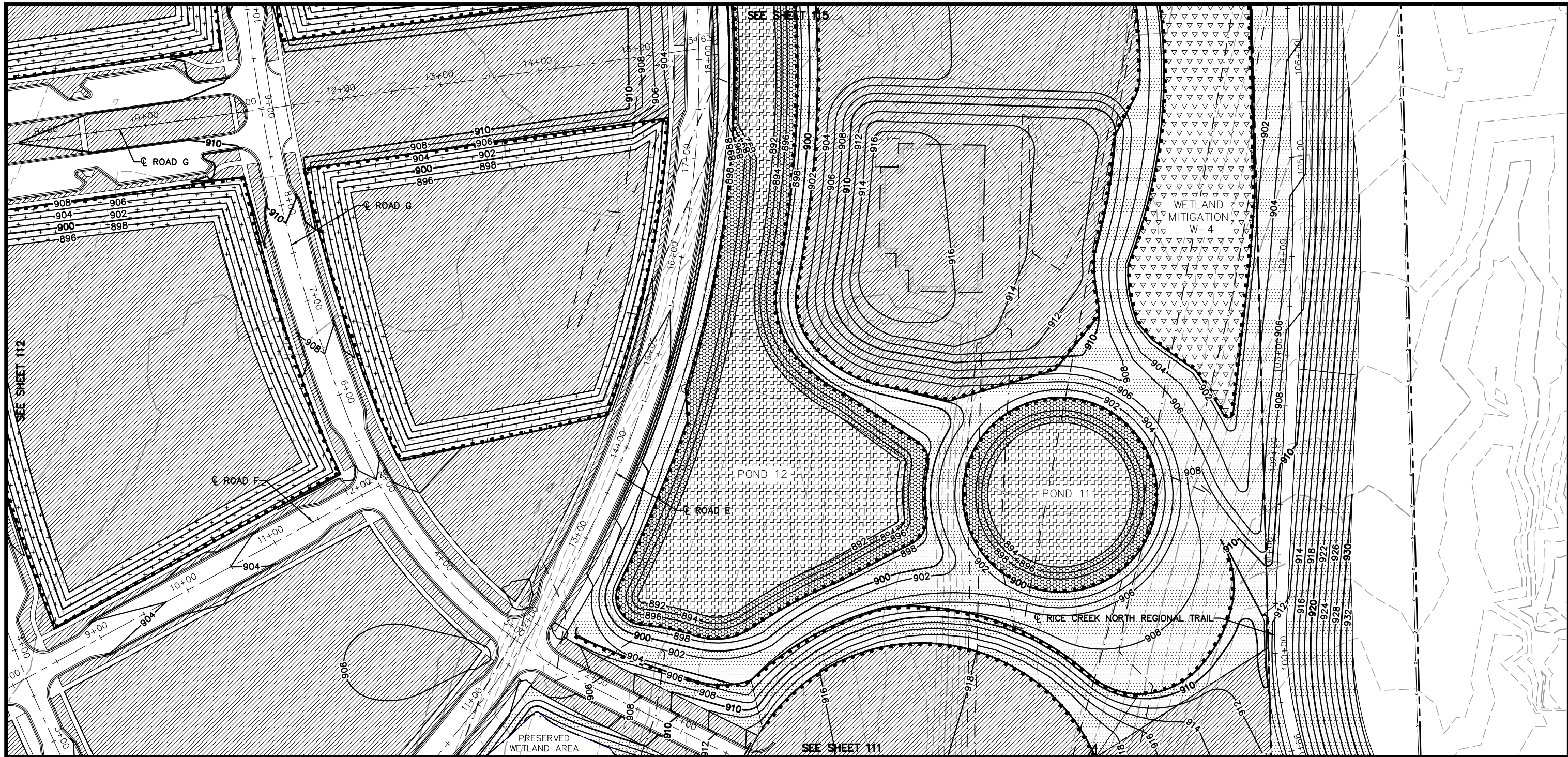
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

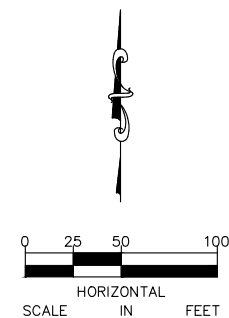
SHEET NO.
 112
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ERO.dwg Layout14 January 09, 2019 - 2:58pm



NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



118	119	
116	117	
114	115	
112	113	
110	111	
107	108	109
104	105	106
102	103	
100	101	

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
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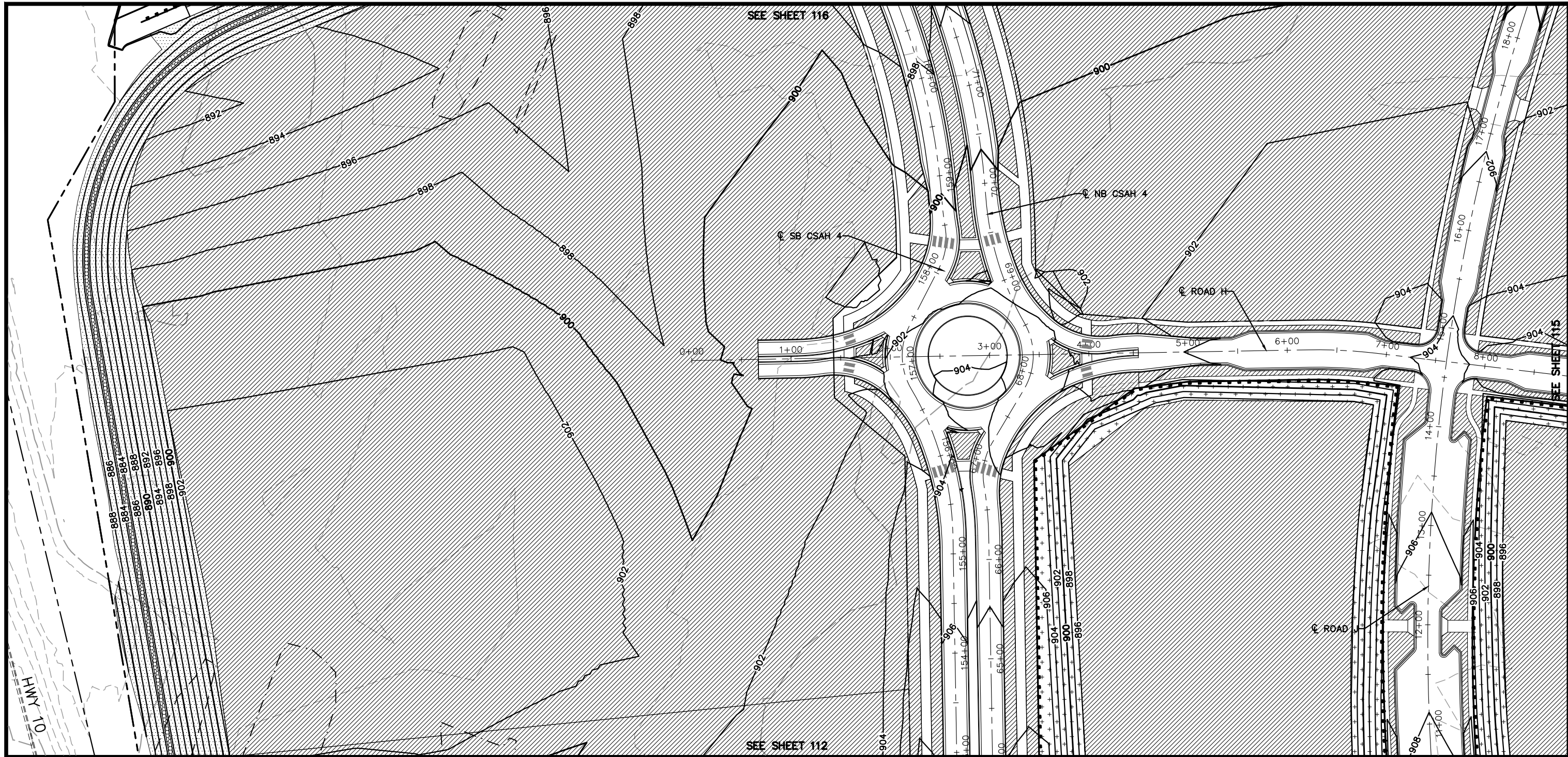
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 113
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ERO.dwg Layout15 January 09, 2019 - 2:59pm



NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

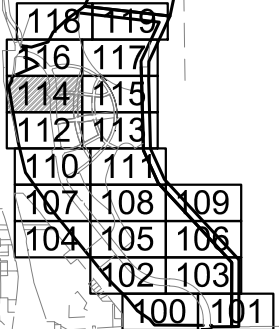
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

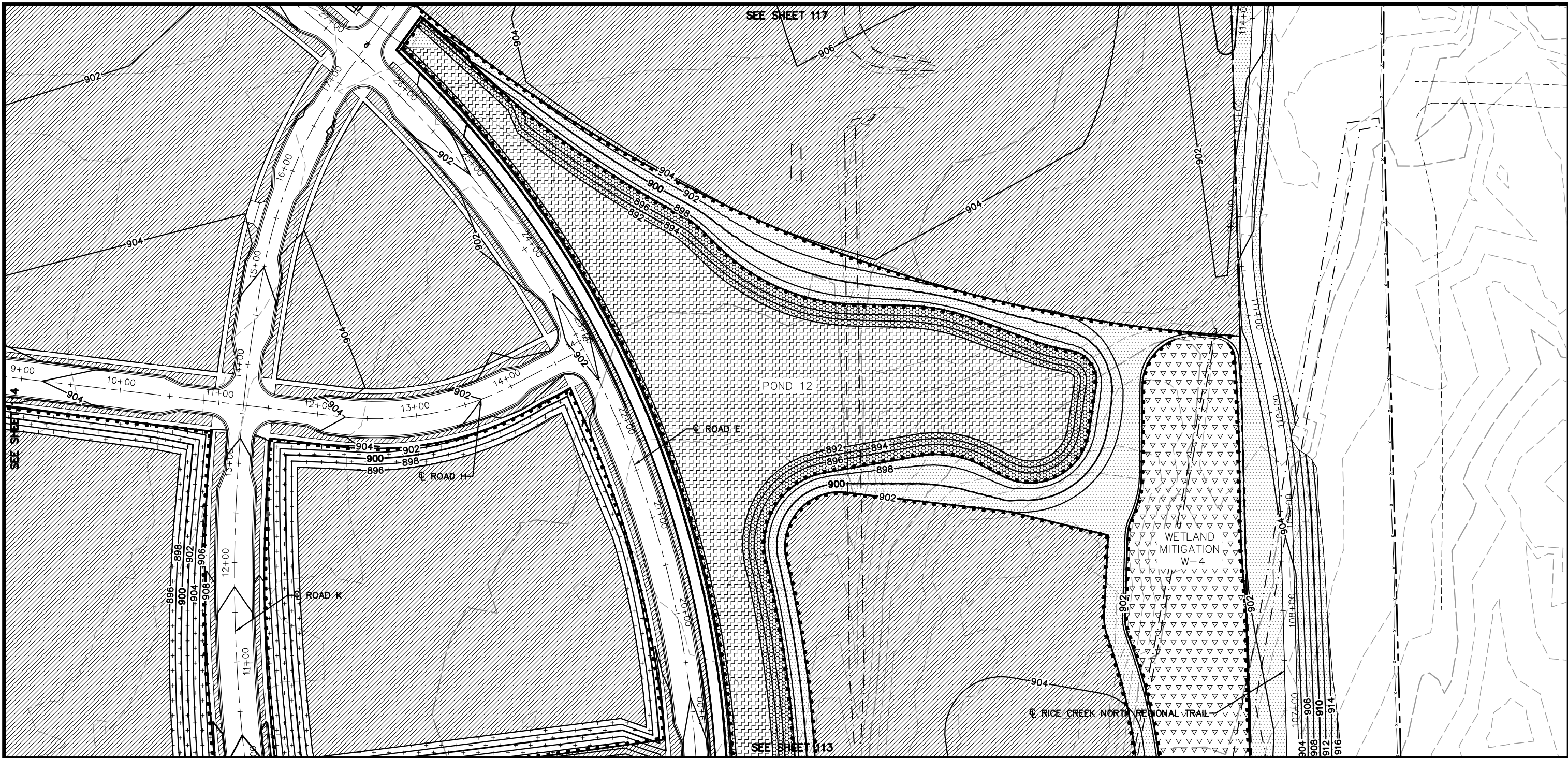
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
114

335

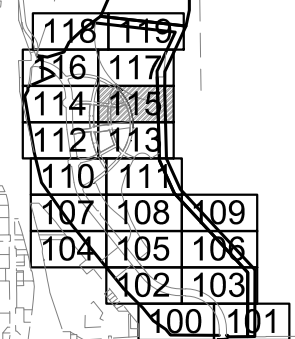
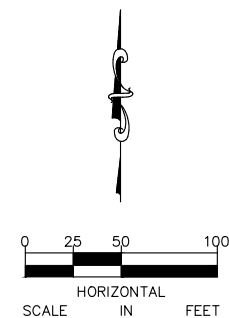


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NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ERO.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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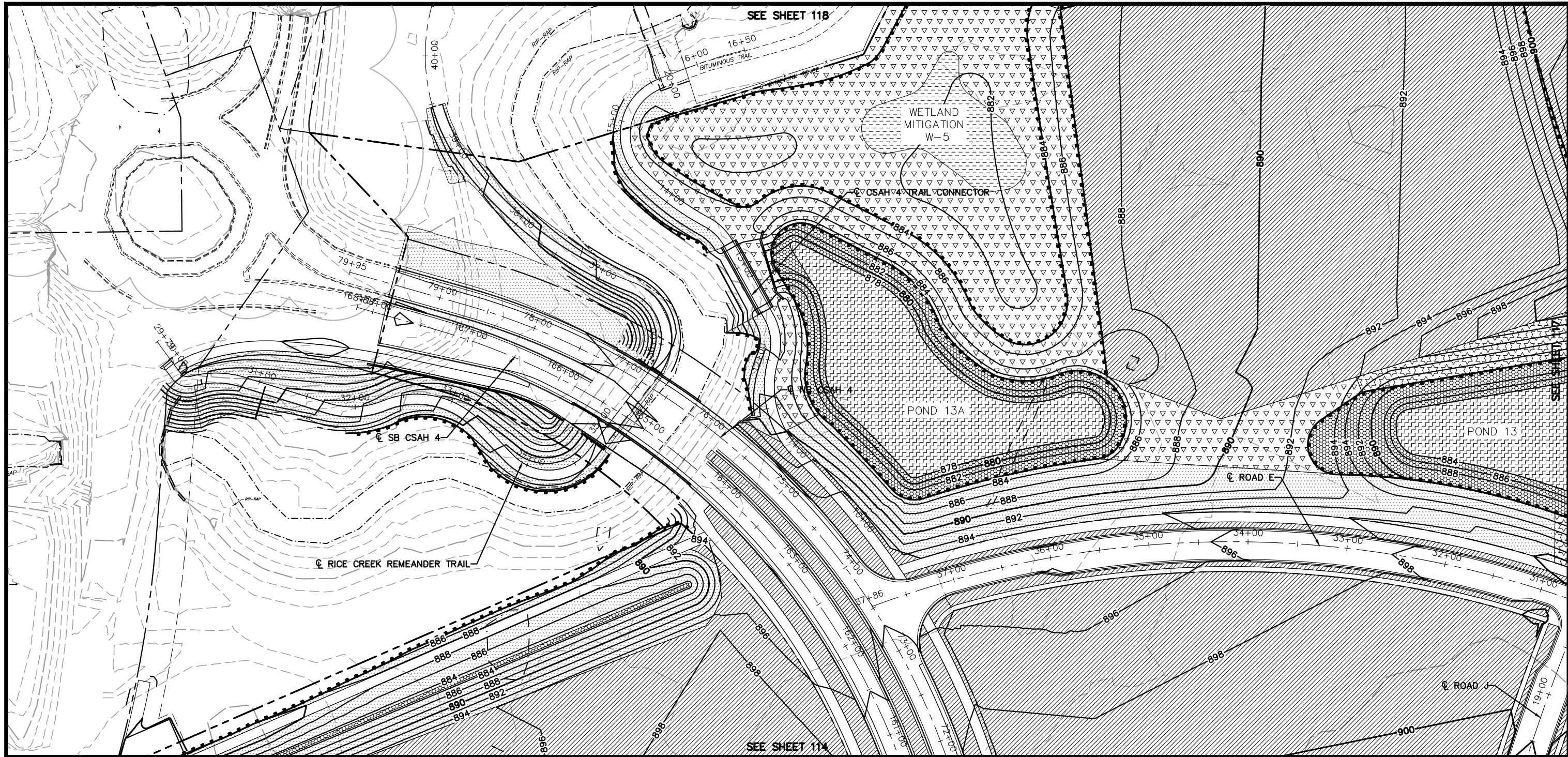
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

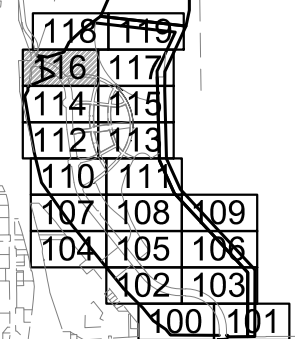
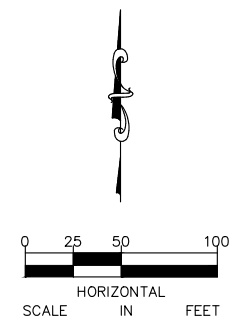
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
115
335

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NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

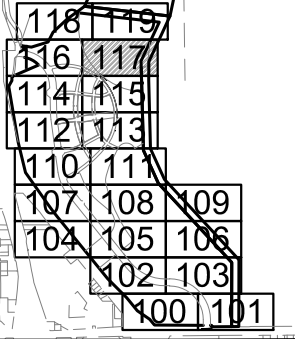
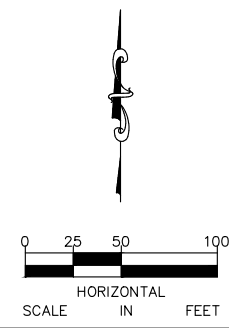
CITY PROJECT	SHEET NO. 116
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

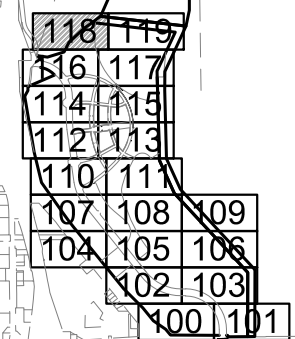
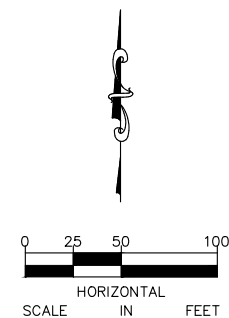
CITY PROJECT	SHEET NO.
COUNTY PROJECT	117
S.A.P. 062-593-004	
S.A.P.	335

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NOTE:

SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ERO.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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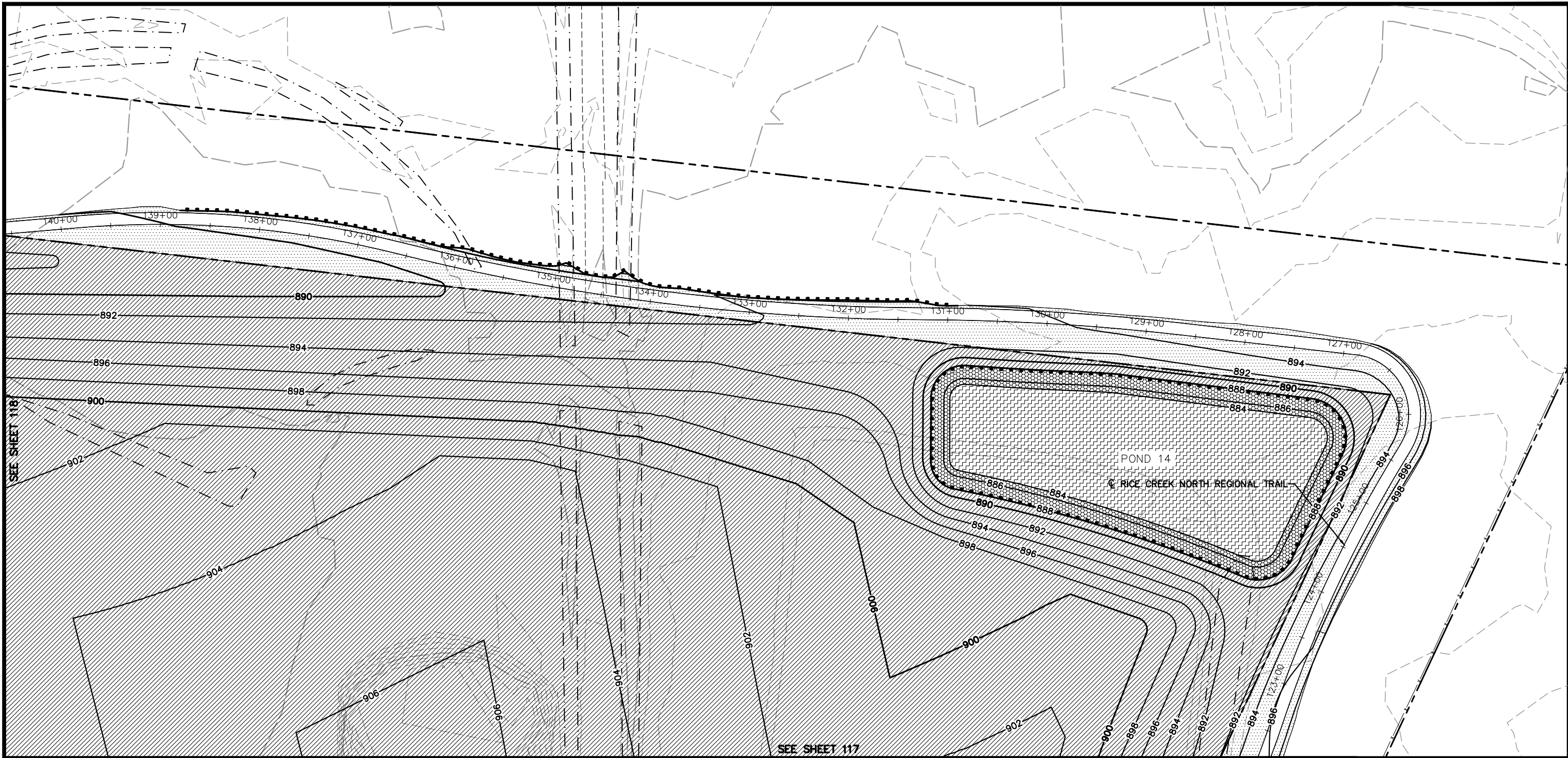
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

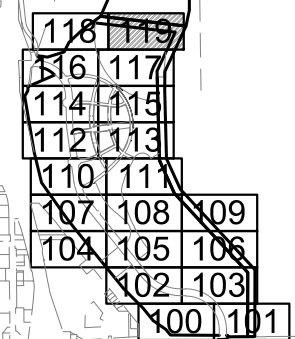
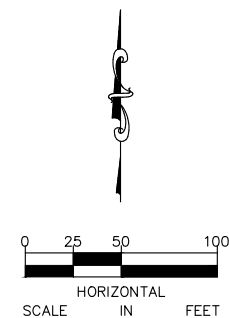
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 118
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ERO.dwg Layout20 January 09, 2019 - 3:02pm



NOTE:
SEE SHEET 78 FOR LEGEND AND GENERAL NOTES



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_ERO.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WETLAND MITIGATION & TURF ESTABLISHMENT PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
119
335

WELL AREA NUMBER	NORTHING	EASTING	ERIS	TYPE	SEALED	EXISTING ELEV.	PROPOSED ELEV.	NOTES
01-01	205674.2748'	553390.1542'	03F303	EXT	NO	927.0	927.0	E
01-02	205314.0061'	553919.7267'	03F312	EXT	NO	941.7	941.6	E
01-03	205782.3285'	553661.1115'	03F319	EXT	NO	941.3	923.3	H
01-04	205359.7262'	554051.2840'	03L003	MON	NO	943.1	942.0	C
01-05	205537.5631'	553383.9019'	03L078	MON	NO	923.7	923.7	E
01-06	205376.1337'	554052.2487'	03M003	MON	NO	943.3	942.4	C
01-07	205360.5304'	554075.3397'	03U003	MON	NO	943.1	942.0	C
01-08	205556.1975'	553366.6559'	03U079	MON	NO	923.7	923.7	E
01-09	205204.9895'	554571.3810'	03U677	MON	NO	931.4	931.4	A
01-10	205828.1921'	553140.5936'	03U703	MON	NO	918.7	919.5	C
01-11	205341.1464'	553591.2328'	03U710	MON	NO	943.7	934.4	C
01-12	205382.3917'	554027.9722'	04U003	MON	NO	943.3	942.6	C
01-13	205369.7378'	554005.9875'	PJ#003	MON	NO	943.2	942.0	C
01-14	205379.7793'	554027.9825'	01U003	MON	YES	943.4	942.5	F
01-15	205543.4750'	553246.0170'	01U053	MON	YES	914.6	914.6	A
01-16	205826.5402'	554509.9131'	01U638	MON	YES	955.6	938.6	F
01-17	205897.1665'	554544.1841'	N/A	MON	YES	956.2	939.7	F
01-18	205871.2465'	554231.2641'	N/A	MON	YES	954.7	939.6	F
02-01	205547.2750'	555435.3032'	01U004	MON	YES	951.1	951.1	A
02-02	205898.0105'	554665.3595'	01U639	MON	YES	956.1	939.7	F
02-03	205807.5192'	555083.7773'	01U640	MON	YES	956.2	942.0	F
03-01	205905.9527'	553078.6423'	03F302	EXT	NO	922.1	922.1	E
03-02	206295.6463'	552678.5988'	03F304	EXT	NO	917.0	917.0	E
03-03	206087.2172'	552936.9087'	03L077	MON	NO	928.0	924.0	C
03-04	206048.5744'	552961.4203'	03U078	MON	NO	927.8	923.6	C
03-05	206528.8206'	552994.3205'	03U671	MON	NO	931.7	930.7	C
03-06	206547.6320'	552595.2770'	03U708	MON	NO	919.8	905.5	C
03-07	206526.9075'	552607.5341'	04J708	MON	NO	919.6	910.1	C
03-08	206535.1095'	552601.9526'	04U708	MON	NO	919.6	908.1	C
03-09	205933.3903'	553795.5999'	01U054	MON	YES	942.9	933.4	F
03-10	206512.3580'	553372.7222'	01U525	PIEZ	YES	942.2	930.2	F
04-01	206624.9735'	555271.8717'	03L079	MON	NO	960.9	960.9	A
04-02	206455.0065'	554433.9409'	03U028	MON	NO	957.2	950.7	C
04-03	205996.0290'	554214.1606'	03U029	MON	NO	956.6	942.2	C
04-04	206493.7025'	555204.0450'	03U030	MON	NO	958.9	957.2	C
04-05	205973.4097'	554212.6535'	03U301	EXT	NO	956.0	942.7	H
04-06	206027.6172'	554433.0416'	03U659	MON	NO	956.2	NONE	B
04-07	206139.5440'	554467.1235'	01U064	MON	YES	956.9	944.9	F
04-08	206391.0196'	554088.8411'	01U132	MON	YES	952.6	940.6	F
04-09	206360.8700'	554653.5421'	01U631	MON	YES	958.6	949.1	F
04-10	205915.0632'	555002.7708'	01U632	MON	YES	956.7	942.7	F
04-11	206562.8934'	554340.7663'	01U634	MON	YES	954.9	946.0	F
04-12	206259.4194'	554023.8180'	01U635	MON	YES	952.7	938.2	F
04-13	205955.0967'	554106.2665'	01U636	MON	YES	953.7	938.6	F
04-14	206415.7201'	554453.0615'	01U652	MON	YES	957.4	946.9	F
04-15	205997.8491'	554284.7270'	01U666	MON	YES	957.0	939.2	F
04-16	206098.5242'	554704.0187'	01U667	MON	YES	957.8	948.4	F
04-17	206302.5522'	554626.9986'	01U668	MON	YES	958.6	949.2	F
04-18	206131.1756'	554667.7587'	01U675	MON	YES	958.1	949.5	F
04-19	206474.2364'	554405.3235'	03L028	MON	YES	956.5	946.4	F
04-20	205990.9443'	554166.2283'	03L029	MON	YES	955.2	938.5	F
04-21	206223.2050'	555126.2799'	03U647	MON	YES	959.9	946.1	F
04-22	206406.3355'	555061.6028'	03U648	MON	YES	959.6	947.3	F
04-23	205934.3569'	554224.0400'	03U674	MON	YES	955.0	939.3	F
04-24	206118.1244'	554684.2321'	03U675	MON	YES	958.0	949.0	F
04-25	206111.6221'	554697.3921'	03U676	MON	YES	957.9	948.7	F
04-26	206044.6221'	554473.9932'	N/A	MON	YES	956.6	940.5	F
04-27	206319.1231'	554459.5827'	N/A	MON	YES	957.7	947.5	F
04-28	206247.9652'	554334.1915'	N/A	MON	YES	956.1	944.4	F

WELL AREA NUMBER	NORTHING	EASTING	ERIS	TYPE	SEALED	EXISTING ELEV.	PROPOSED ELEV.	NOTES
05-01	207189.4659'	552002.6277'	03F306	EXT	NO	915.9	915.9	E
05-02	207357.5848'	551813.7732'	03L021	MON	NO	912.3	912.3	E
05-03	207380.5860'	551808.1442'	03U077	MON	NO	912.4	912.4	E
05-04	206942.2418'	552233.5135'	03U079	MON	NO	910.6	NONE	B
05-05	207389.1267'	551822.0267'	04J077	MON	NO	912.6	911.8	E
05-06	207373.4713'	551821.1542'	04U077	MON	NO	912.5	912.5	E
05-07	206931.3349'	552222.7447'	04U079	MON	NO	910.2	NONE	B
05-08	206917.7575'	552313.6809'	PJ#309	EXT	NO	911.6	910.1	E
05-09	207407.7639'	551919.0950'	PJ#310	EXT	NO	913.5	911.8	E
05-10	206743.5353'	552285.1815'	01U062	MON	YES	909.9	909.9	E
05-11	207403.2345'	552275.4935'	01U527	PIEZ	YES	911.8	911.8	F
06-01	206754.6751'	552345.3722'	03F305	EXT	NO	912.4	912.4	E
06-02	207027.5514'	552480.2390'	03L002	MON	NO	920.1	914.0	C
06-03	206971.2247'	553287.7329'	03L020	MON	NO	943.8	932.7	C
06-04	207049.3990'	552492.2892'	03M002	MON	NO	919.5	914.8	C
06-05	207075.7185'	552464.2326'	03U002	MON	NO	918.1	915.4	C
06-06	207016.6361'	553286.9708'	03U021	MON	NO	944.0	932.8	C
06-07	206987.7916'	552486.2585'	04U002	MON	NO	920.8	908.9	C
06-08	207334.8326'	553079.9840'	01U526	PIEZ	YES	938.6	925.4	F
07-01	206749.3805'	554747.8384'	03U027	MON	NO	966.5	955.0	C
07-02	206757.4845'	554715.4174'	03L027	MON	YES	966.6	951.0	F
07-03	206916.2453'	555008.9730'	03M509	DOM	YES	960.5	960.5	A
07-04	206721.5305'	554716.9122'	04U027	MON	YES	967.2	950.6	F
07-05	206693.1488'	554713.8105'	PJ#027	MON	YES	967.2	950.3	F
08-01	207519.1335'	551707.6772'	03F307	EXT	NO	912.5	912.5	C
08-02	207584.4740'	551628.5591'	03U071	MON	NO	909.2	909.2	C
08-03	207742.5732'	551510.3528'	03U072	MON	NO	908.3	908.3	C
08-04	207749.8294'	551520.8578'	04J702	MON	NO	908.3	908.3	C
08-05	207576.4580'	551619.0624'	04U071	MON	NO	909.2	909.2	C
08-06	207731.7352'	551493.9075'	04U072	MON	NO	908.2	908.2	C
08-07	208128.6905'	551264.9995'	PJ#311	EXT	NO	904.8	904.8	C
08-08	208009.1747'	552003.4742'	01U524	PIEZ	YES	909.3	909.3	F
10-01	207470.8454'	554488.2475'	03L018	MON	NO	954.9	954.9	A
10-02	207463.5001'	554517.3783'	03M020	MON	NO	955.0	955.0	A
10-03	207469.7786'	554537.4700'	03U020	MON	NO	954.7	954.7	A
10-04	207446.8468'	554469.2628'	04U020	MON	NO	955.5	955.1	C
11-01	208377.3747'	551094.3621'	03F308	EXT	NO	899.4	899.6	E
11-02	208585.8319'	551118.3467'	03M713	MON	NO	895.7	900.6	D
11-03	208579.5720'	551125.3954'	04J713	MON	NO	895.8	900.6	D
11-04	208576.3988'	551115.4515'	04U713	MON	NO	895.9	900.4	D
11-05	208758.2663'	550987.6024'	PJ#313	EXT	NO	892.3	891.4	E
11-06	208644.2708'	550956.6910'	01U050	MON	YES	893.0	893.0	E
11-07	208382.7632'	551184.4095'	01U051	MON	YES	900.4	892.8	F
11-08	208512.4872'	551442.0025'	03L084	MON	YES	898.7	893.5	F
11-09	208528.9862'	551442.9517'	03U084	MON	YES	898.4	898.0	F
12-01	208501.7816'	553593.0865'	03L017	MON	NO	939.4	918.6	C
12-02	208524.1394'	553599.4020'	03M017	MON	NO	939.3	917.4	C
12-03	208548.4156'	553604.4593'	03U017	MON	NO	939.3	916.3	C
12-04	208761.8778'	552918.9590'	PJ#503	IND	YES	926.3	913.7	F
12-05	208301.3250'	553485.0635'	PJ#506	ABAND	YES	939.8	926.8	F
13-01	209251.1806'	550808.4955'	03L001	MON	NO	888.8	888.8	E
13-02	209289.2569'	550797.3936'	03M001	MON	NO	888.7	888.7	E
13-03	209313.4893'	550788.8954'	03U001	MON	NO	888.5	888.5	E
13-04	209037.9543'	550939.4847'	04J714	MON	NO	891.7	898.9	D
13-05	209198.4412'	550816.5558'	04U001	MON	NO	889.1	889.1	E
13-06	209046.0103'	550931.2699'	04U714	MON	NO	891.6	897.0	D
13-07	209294.8071'	551091.4688'	01U130	MON	YES	888.8	888.8	F
14-01	209464.4172'	552945.1735'	PJ#502	IND	YES	916.8	891.4	F
15-01	210295.8492'	551545.0633'	01L581	MON	NO	888.6	NONE	B

WELL AREA NUMBER	NORTHING	EASTING	ERIS	TYPE	SEALED	EXISTING ELEV.	PROPOSED ELEV.	NOTES
15-02	210310.3179'	551623.2555'	01L583	MON	NO	889.1	900.4	D,X
15-03	210286.8147'	551483.9828'	01L584	MON	NO	888.2	900.1	D
15-04	210068.5557'	551580.5262'	01U579	MON	NO	890.0	NONE	B
15-05	210129.9703'	551554.9365'	01U580	MON	NO	889.5	NONE	B
15-06	210298.4193'	551550.4334'	01U581	MON	NO	888.7	NONE	B
15-07	210310.6245'	551617.9634'	01U583	MON	NO	889.1	900.3	D,X
15-08	210280.8425'	551485.8299'	01U584	MON	NO	888.2	900.2	D
15-09	209973.8608'	551598.6989'	01U578					

Table with 4 columns: POINT NUMBER, NORTHING, EASTING, NOTES. Contains 185 rows of data for points 100 to 185.

Table with 4 columns: POINT NUMBER, NORTHING, EASTING, NOTES. Contains 185 rows of data for points 186 to 271.

Table with 4 columns: POINT NUMBER, NORTHING, EASTING, NOTES. Contains 185 rows of data for points 272 to 357.

Table with 4 columns: POINT NUMBER, NORTHING, EASTING, NOTES. Contains 185 rows of data for points 358 to 437.

NOTES:

- 1) REMOVAL OF GUYWIRES, CABLE, SUPPORT STRUCTURES, AND ASSOCIATED APURTANENCES INCEDENTAL TO REMOVAL OF POWER POLE
2) EXISTING ELECTRIC DISTRIBUTION SYSTEM WILL BE MODIFIED BY XCEL ENERGY TO MAINTAIN SERVICE TO TGRS WHILE ELIMINATING THE NEED FOR AS MANY ONSITE POLES AS POSSIBLE.

Table with 3 columns: No., Date, Revisions. Contains 4 rows of revision information.

Table with 2 columns: App., DRAWING NAME. Contains 1 row with drawing name CAAP_SPINERD_REM_PP-TAB.

Kimley Horn logo and contact information: 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114. PHONE: 651-645-4197. WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CHADD B. LARSON DATE: 01/04/19 MN LIC. NO. 41864

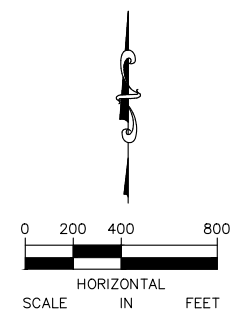
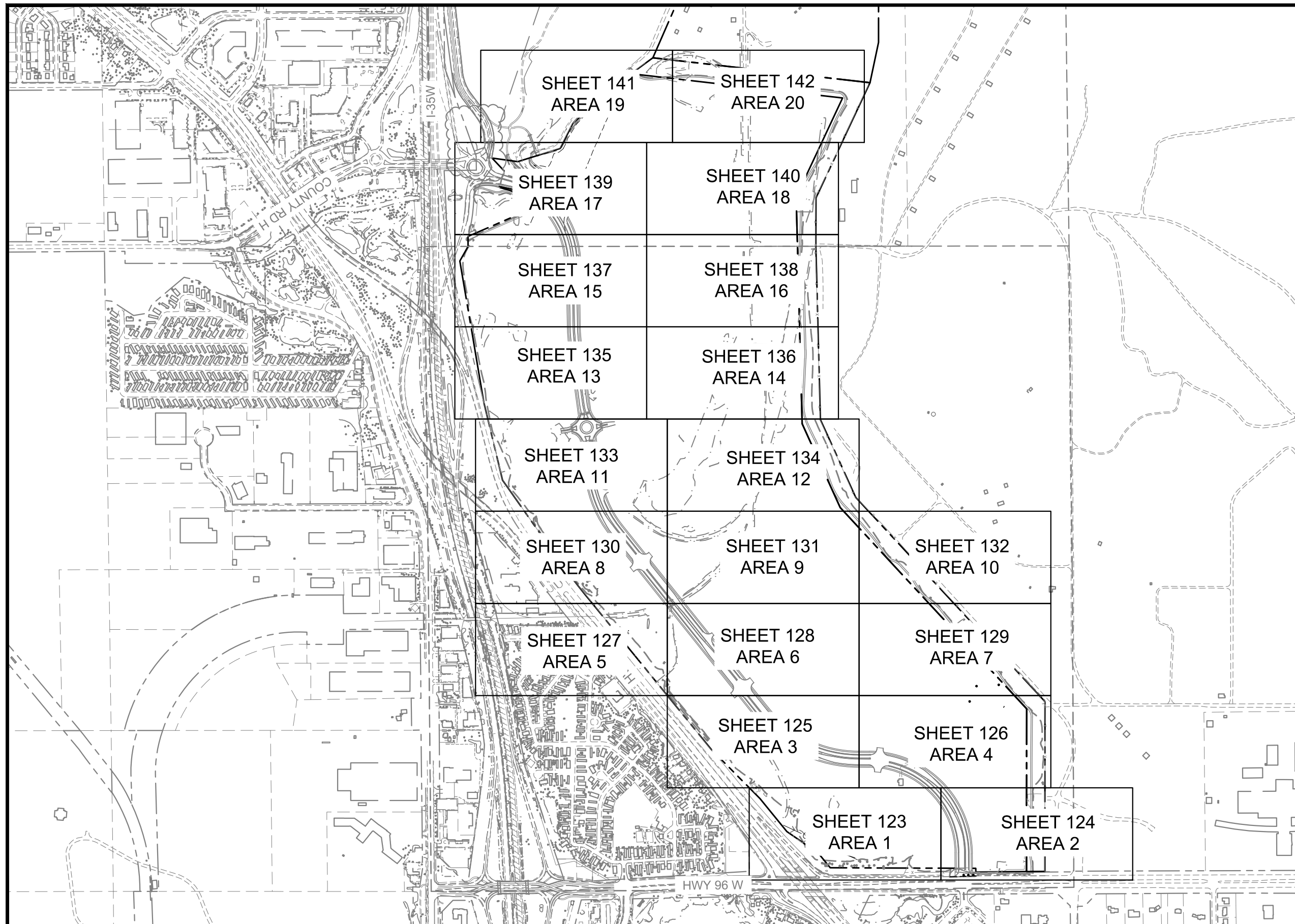
RAMSEY COUNTY logo and project name: TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS. POWER POLE MODIFICATION INDEX

Table with 2 columns: CITY PROJECT, COUNTY PROJECT, S.A.P., SHEET NO. Contains project details and sheet number 121.

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GENERAL NOTE

1. AREA NUMBERS REFER TO THE WELL MODIFICATION INDEX, SEE SHEET 120.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_REM-INDX.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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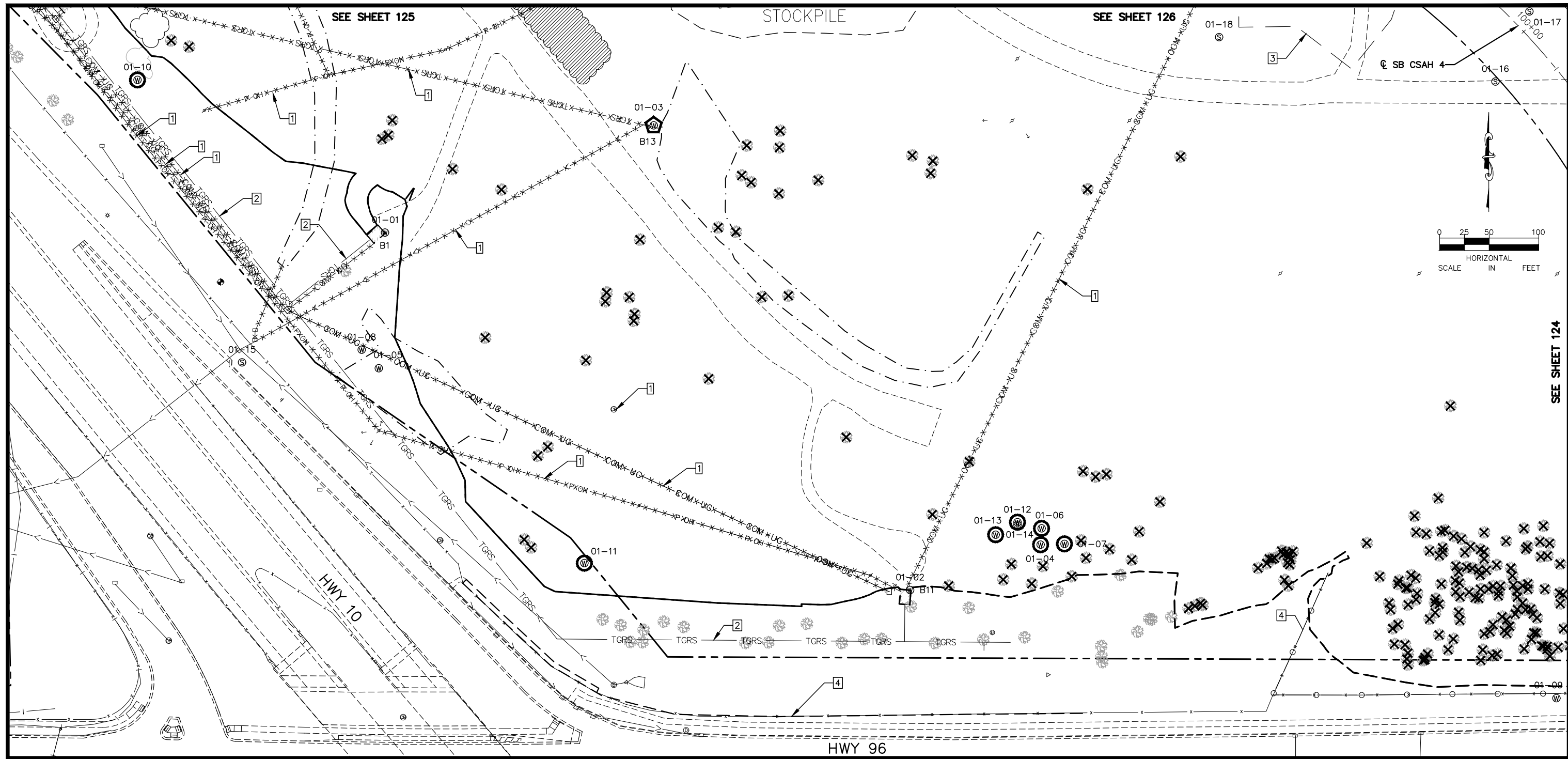
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL INDEX PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
122
335

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LEGEND

- | | | | |
|-----------|----------------------------|--|-----------------------------------|
| | REMOVE PAVEMENT | | REMOVE UTILITY |
| | REMOVE BUILDING | | REMOVE FENCE |
| | CLEARING & GRUBBING (ACRE) | | REMOVE CURB & GUTTER |
| | CLEARING & GRUBBING (TREE) | | SAWCUT PAVEMENT |
| 17-27
 | EXISTING SEALED WELL | | CONSTRUCTION LIMITS |
| 17-27
 | EXISTING ACTIVE WELL | | WELL TO BE RELOCATED (HORIZONTAL) |
| | | | WELL TO BE ADJUSTED (VERTICAL) |
| | | | WELL TO BE ABANDONED |

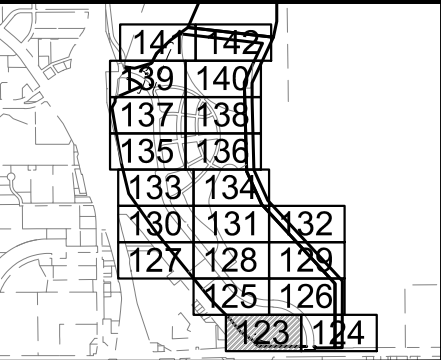
GENERAL REMOVAL AND UTILITY NOTES

- CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER, INCLUDING TREE REMOVALS.
- CONTRACTOR SHALL PROTECT ALL INPLACE UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
- TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS MAY BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.
- PRIVATE UTILITY COORDINATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."

- CONTRACTOR TO REMOVE ALL POWER POLES UNLESS OTHERWISE NOTED. REMOVAL OF GUY-WIRES, POWER CABLE, SUPPORT STRUCTURES, AND ASSOCIATED APPURTENANCES INCIDENTAL TO REMOVAL OF POWER POLE
- CONTRACTOR TO REMOVE ALL TGRS COMMUNICATION LINES ENCOUNTERED DURING CONSTRUCTION

REMOVAL NOTE LEGEND

- | | | | |
|--|-------------------------|--|--------------------------|
| | REMOVE INPLACE UTILITY | | ADJUSTED INPLACE UTILITY |
| | PROTECT INPLACE UTILITY | | |
| | SOIL MANAGEMENT AREA | | |
| | REMOVE FENCE | | |



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

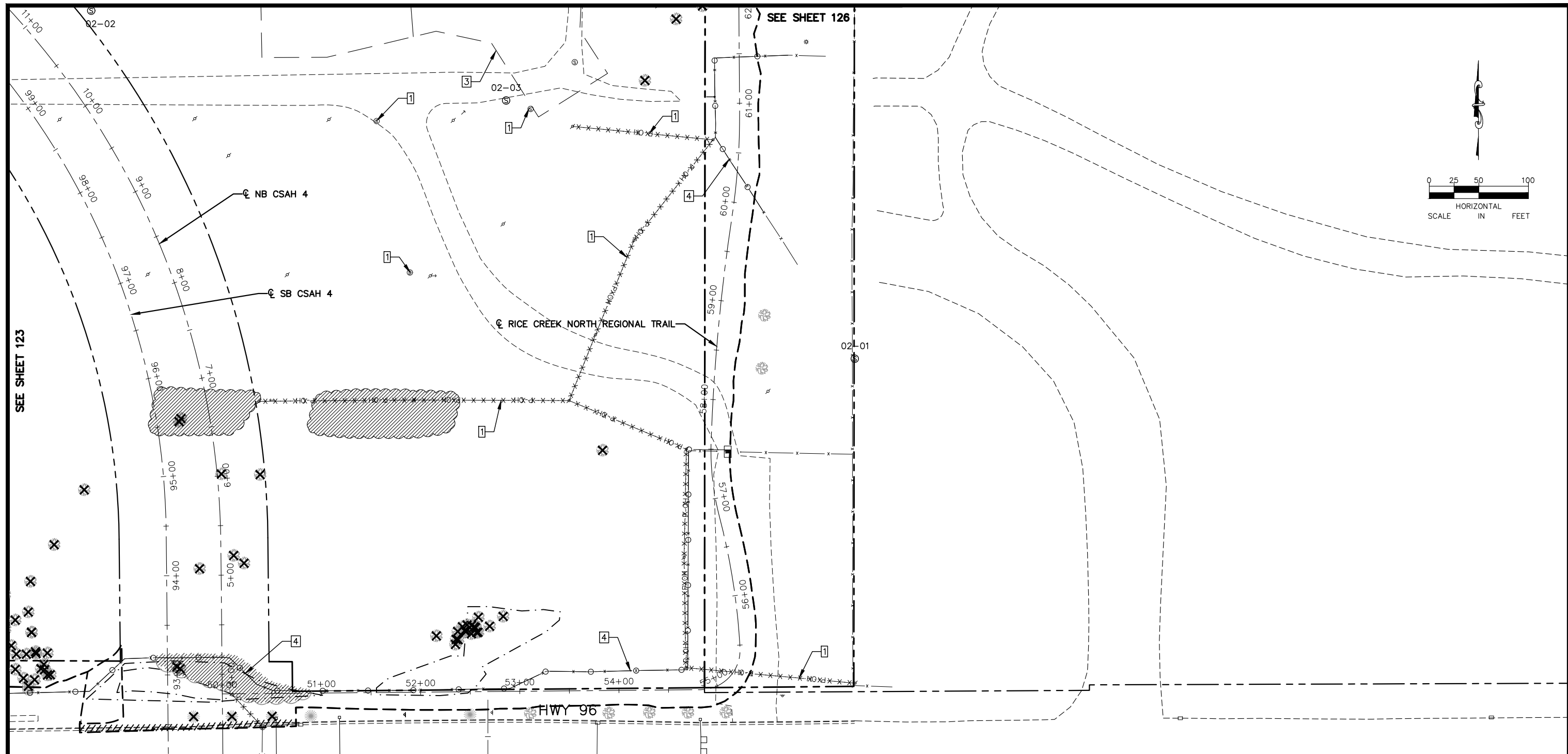
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	123
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- x·x·x·x·x· REMOVE UTILITY
- REMOVE FENCE
- // REMOVE CURB & GUTTER
- - - SAWCUT PAVEMENT
- - - CONSTRUCTION LIMITS
- WELL TO BE RELOCATED (HORIZONTAL)
- WELL TO BE ADJUSTED (VERTICAL)
- WELL TO BE ABANDONED

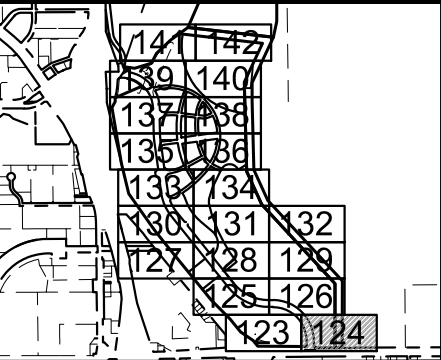
GENERAL REMOVAL AND UTILITY NOTES

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7. CONTRACTOR TO REMOVE ALL POWER POLES UNLESS OTHERWISE NOTED. REMOVAL OF GUY-WIRES, POWER CABLE, SUPPORT STRUCTURES, AND ASSOCIATED APPURTENANCES INCIDENTAL TO REMOVAL OF POWER POLE
8. CONTRACTOR TO REMOVE ALL TGRS COMMUNICATION LINES ENCOUNTERED DURING CONSTRUCTION

REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_REM.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

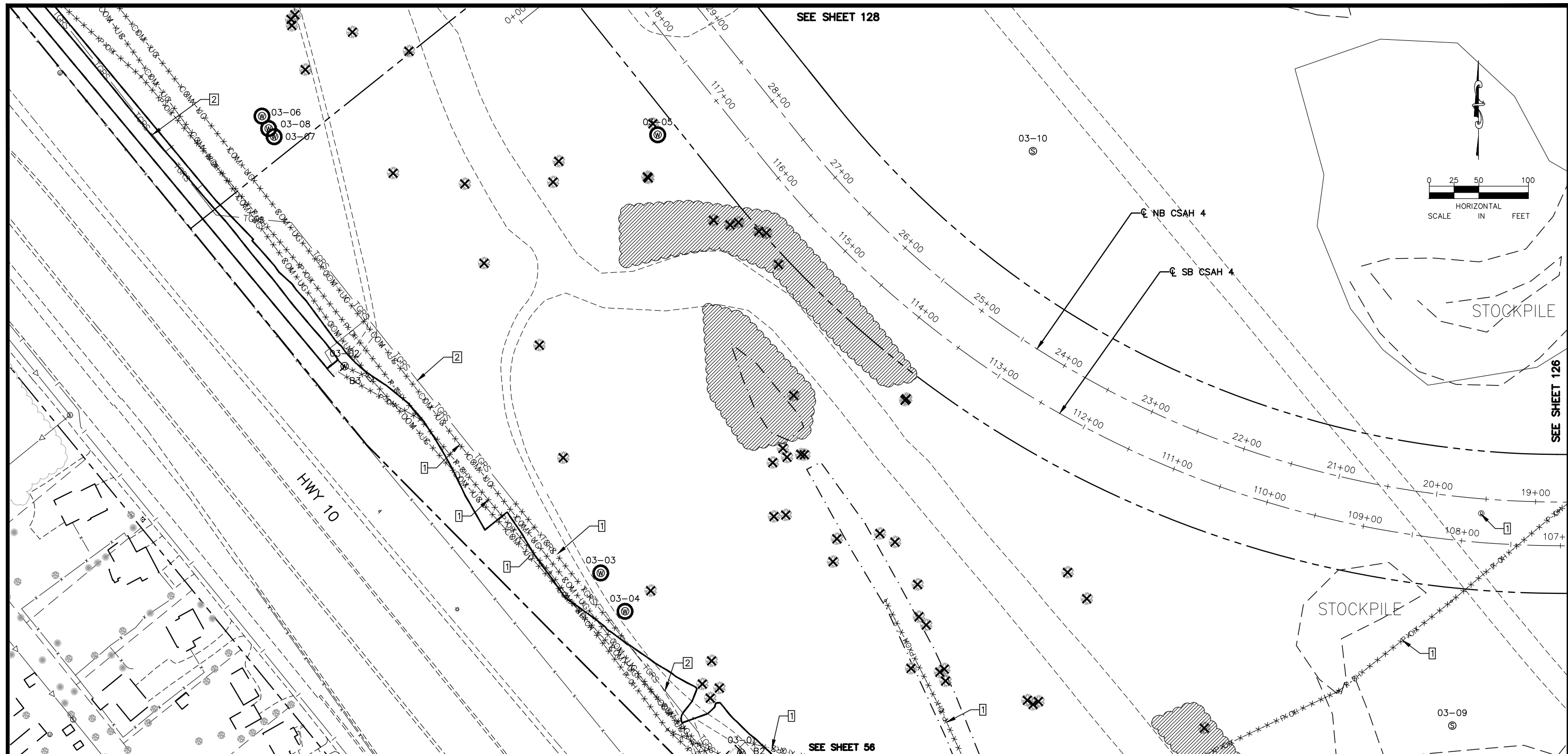
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	124
S.A.P. 062-593-004	335
S.A.P.	

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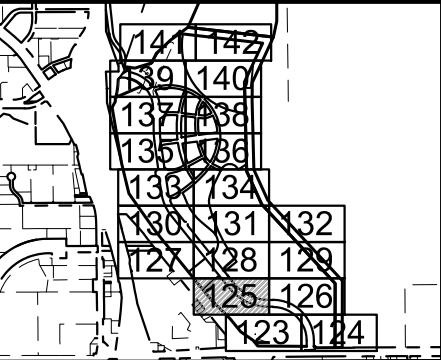


LEGEND	
	REMOVE PAVEMENT
	REMOVE BUILDING
	CLEARING & GRUBBING (ACRE)
	CLEARING & GRUBBING (TREE)
	EXISTING SEALED WELL
	EXISTING ACTIVE WELL
	REMOVE UTILITY
	REMOVE FENCE
	REMOVE CURB & GUTTER
	SAWCUT PAVEMENT
	CONSTRUCTION LIMITS
	WELL TO BE RELOCATED (HORIZONTAL)
	WELL TO BE ADJUSTED (VERTICAL)
	WELL TO BE ABANDONED

GENERAL REMOVAL AND UTILITY NOTES

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 - CONTRACTOR TO REMOVE ALL TGRS COMMUNICATION LINES ENCOUNTERED DURING CONSTRUCTION
- REMOVAL NOTE LEGEND**
- | | | | |
|--|-------------------------|--|--------------------------|
| | REMOVE INPLACE UTILITY | | ADJUSTED INPLACE UTILITY |
| | PROTECT INPLACE UTILITY | | |
| | SOIL MANAGEMENT AREA | | |
| | REMOVE FENCE | | |



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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CHADD B. LARSON
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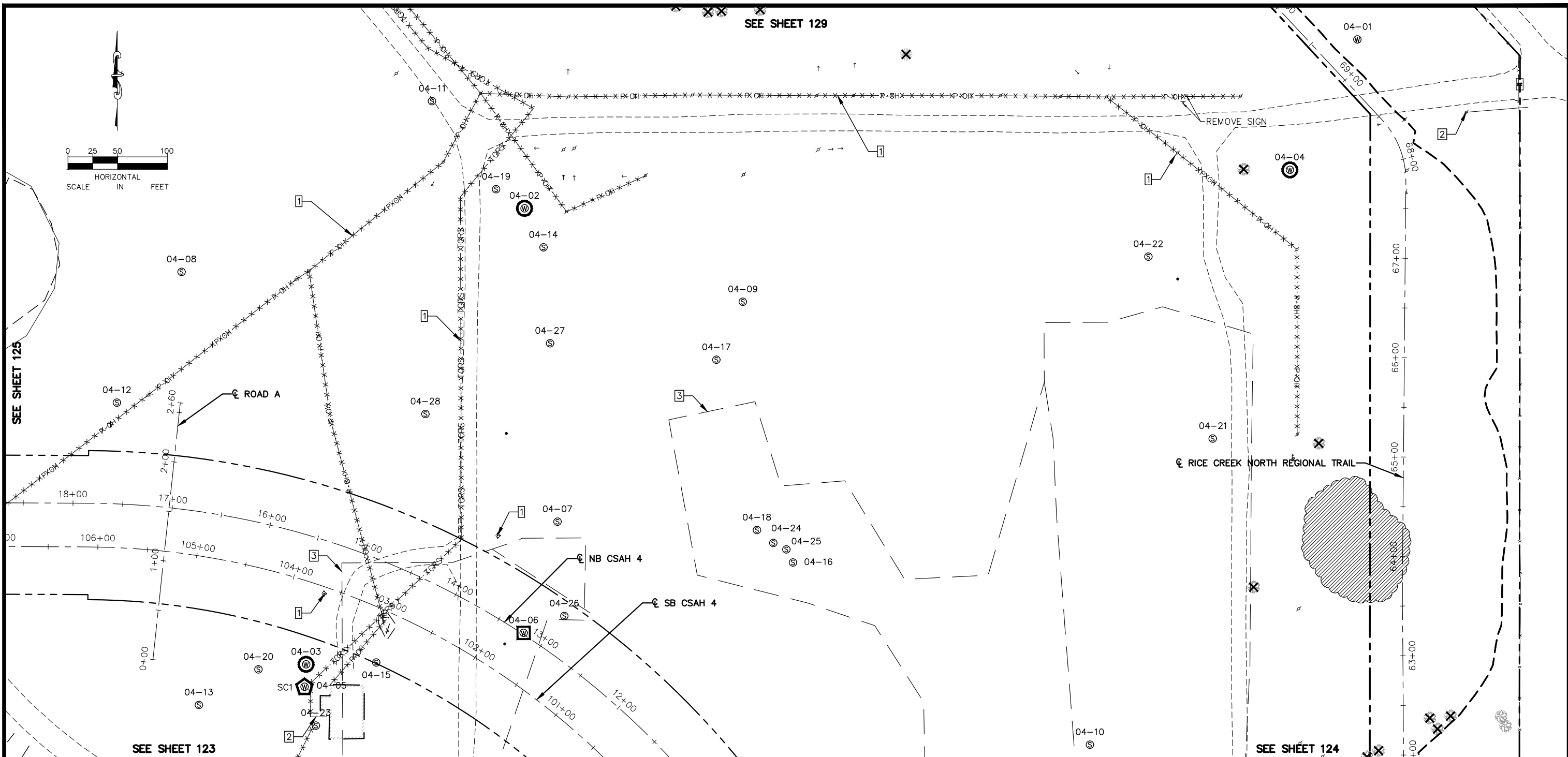
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	125
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

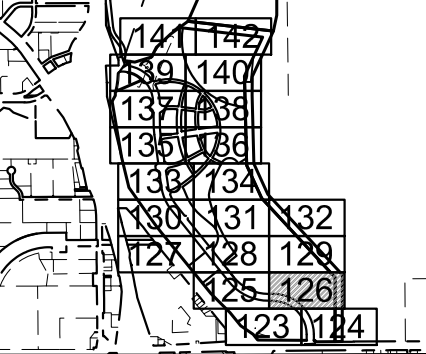
- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
- REMOVE FENCE
- REMOVE CURB & GUTTER
- SAWCUT PAVEMENT
- CONSTRUCTION LIMITS
- WELL TO BE RELOCATED (HORIZONTAL)
- WELL TO BE ADJUSTED (VERTICAL)
- WELL TO BE ABANDONED

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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

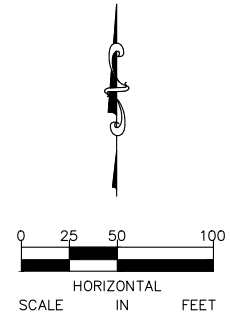
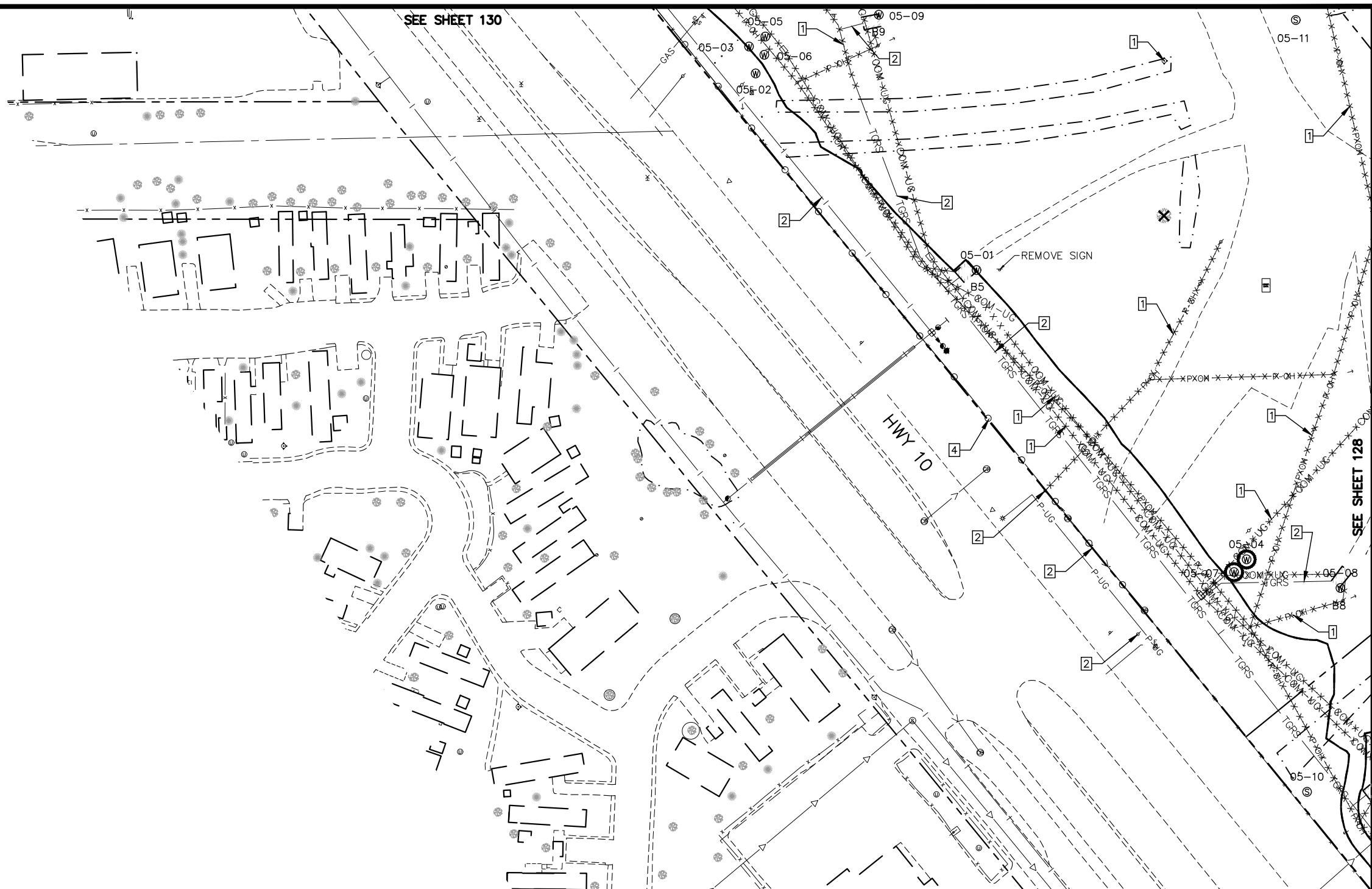
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 126
 335

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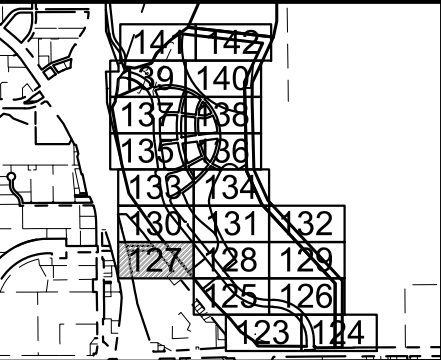
LEGEND

	REMOVE PAVEMENT		REMOVE UTILITY
	REMOVE BUILDING		REMOVE FENCE
	CLEARING & GRUBBING (ACRE)		REMOVE CURB & GUTTER
	CLEARING & GRUBBING (TREE)		SAWCUT PAVEMENT
	EXISTING SEALED WELL		CONSTRUCTION LIMITS
	EXISTING ACTIVE WELL		WELL TO BE RELOCATED (HORIZONTAL)
			WELL TO BE ADJUSTED (VERTICAL)
			WELL TO BE ABANDONED

GENERAL REMOVAL AND UTILITY NOTES

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- REMOVAL NOTE LEGEND**
- | | | | |
|--|-------------------------|--|--------------------------|
| | REMOVE INPLACE UTILITY | | ADJUSTED INPLACE UTILITY |
| | PROTECT INPLACE UTILITY | | |
| | SOIL MANAGEMENT AREA | | |
| | REMOVE FENCE | | |



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

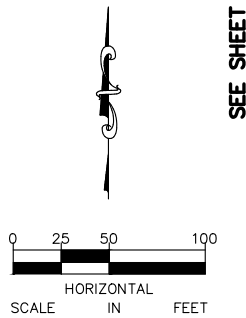
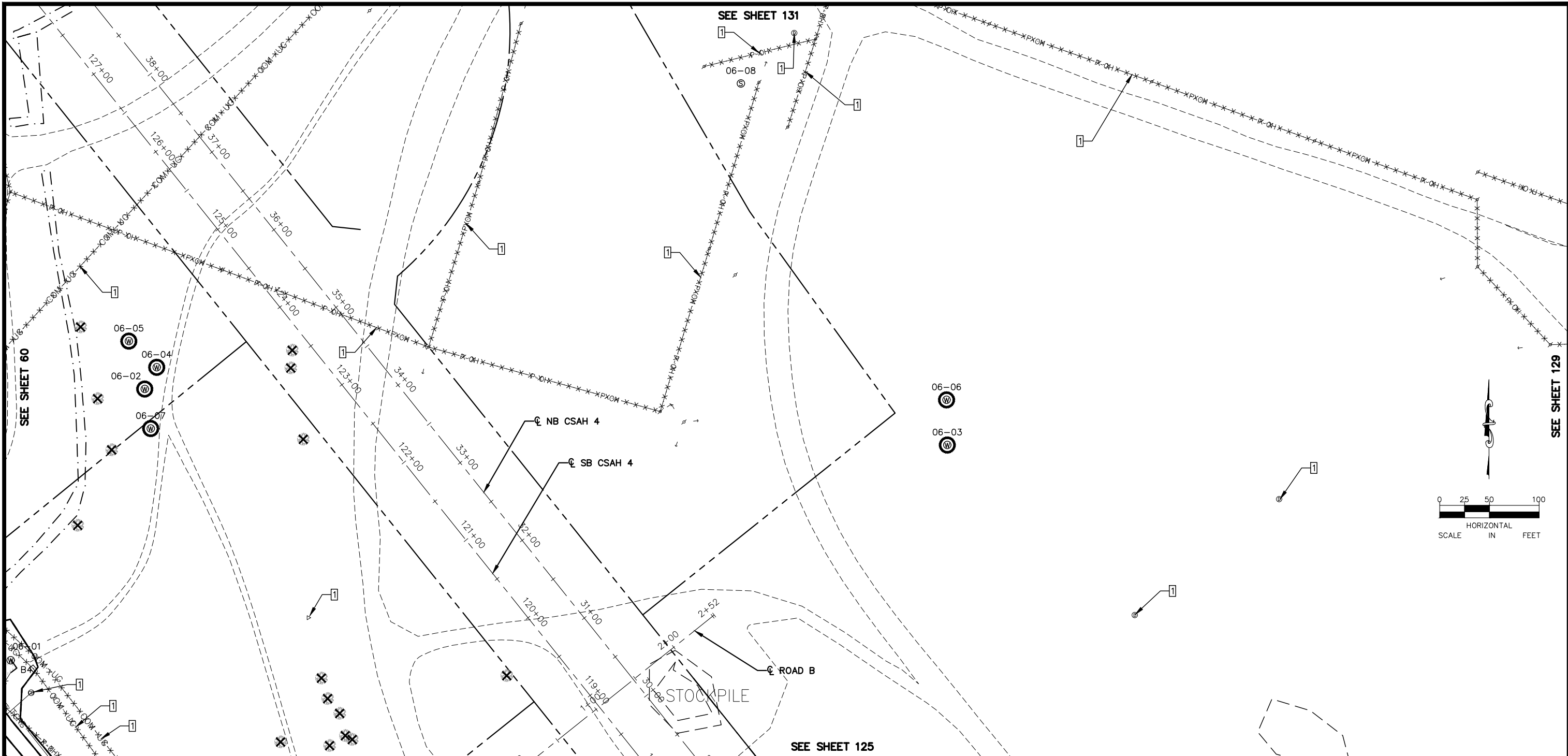
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	127
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- · · · · REMOVE UTILITY
- ○ — REMOVE FENCE
- // // // REMOVE CURB & GUTTER
- - - - - SAWCUT PAVEMENT
- - - - - CONSTRUCTION LIMITS
- ○ WELL TO BE RELOCATED (HORIZONTAL)
- ○ WELL TO BE ADJUSTED (VERTICAL)
- ○ WELL TO BE ABANDONED

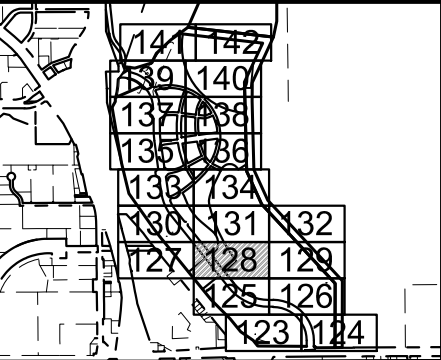
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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



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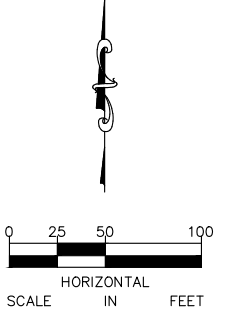
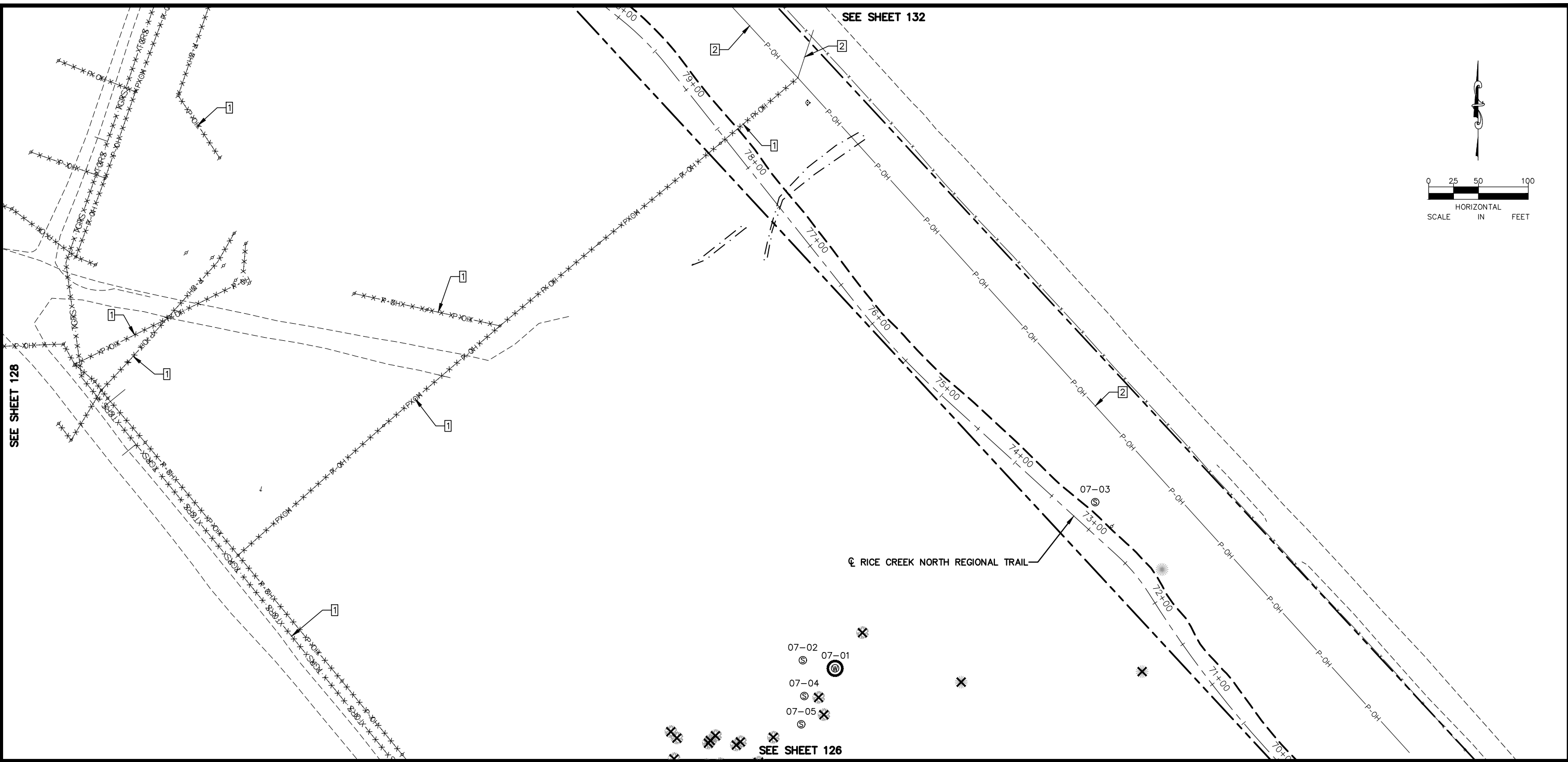
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

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S.A.P. 062-593-004	335
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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
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- 17-27 EXISTING SEALED WELL
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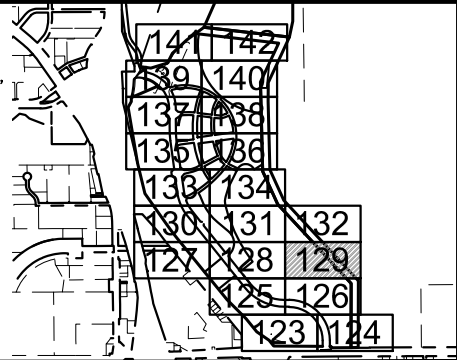
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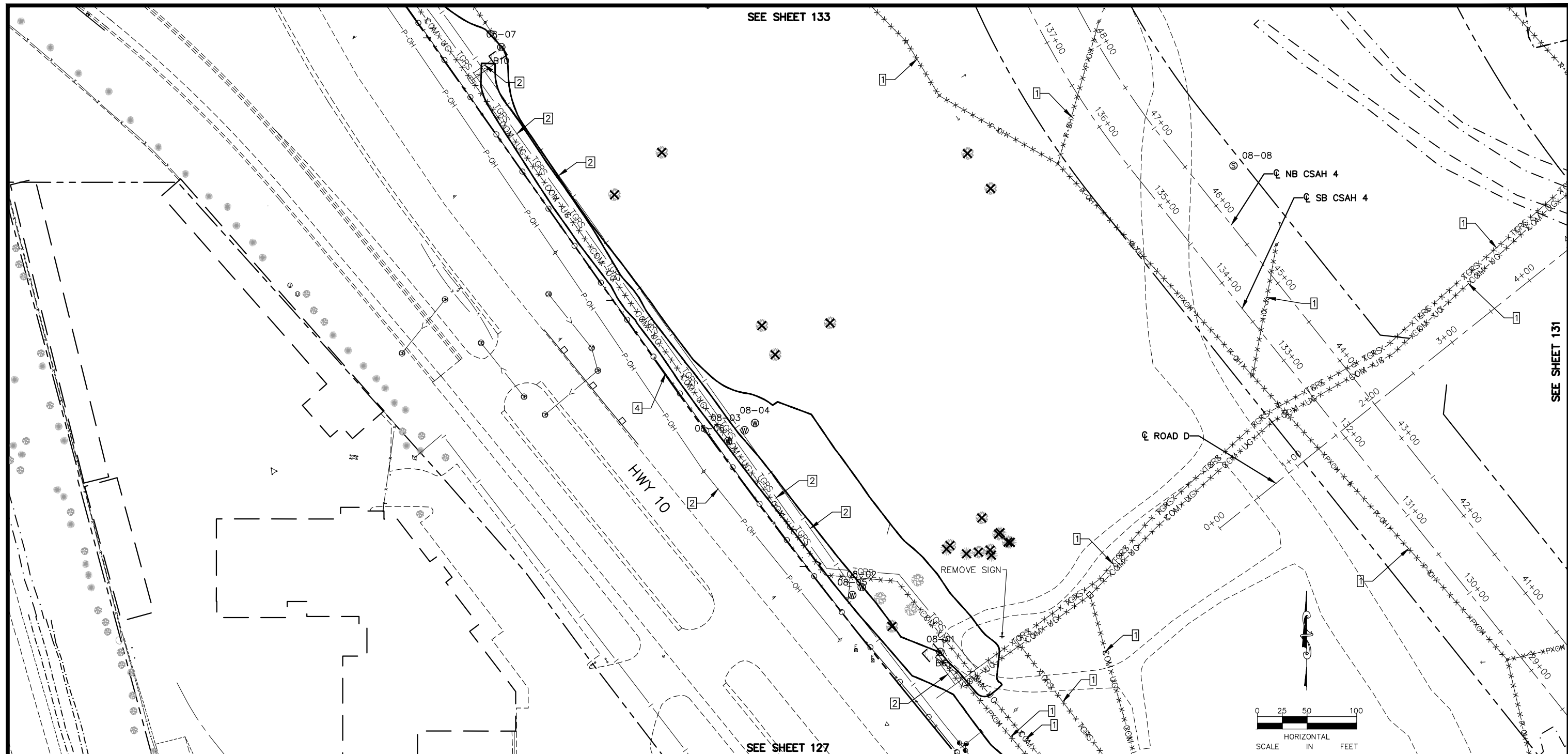
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RAMSEY COUNTY
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 REMOVAL PLAN

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
- REMOVE FENCE
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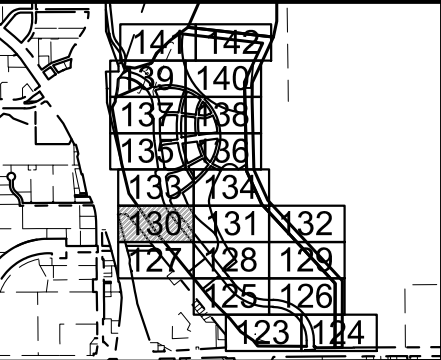
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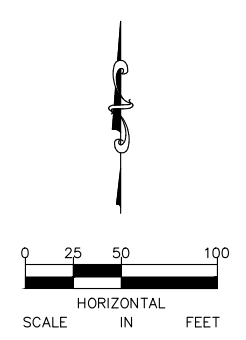
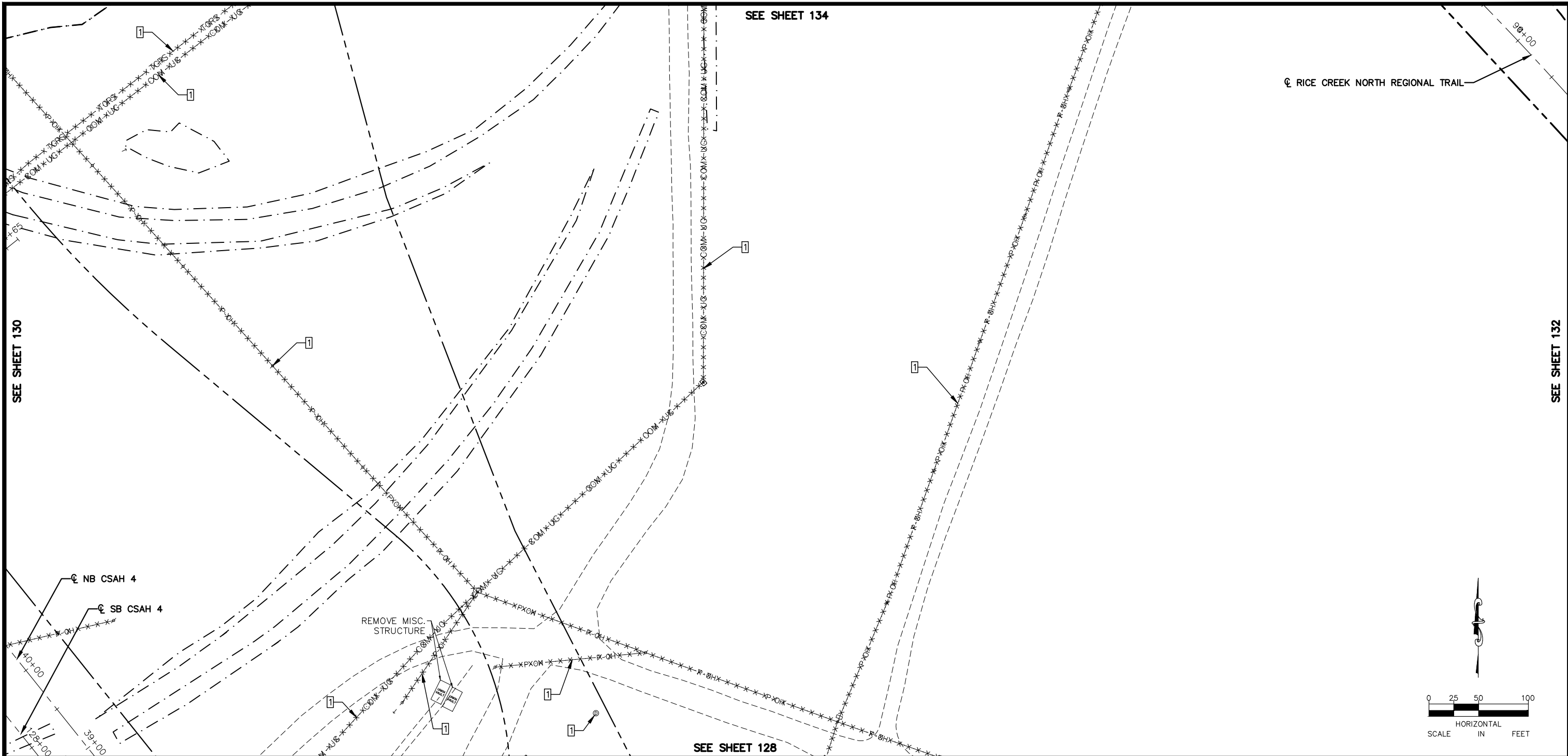
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
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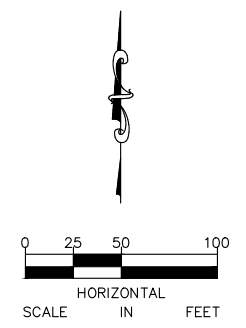
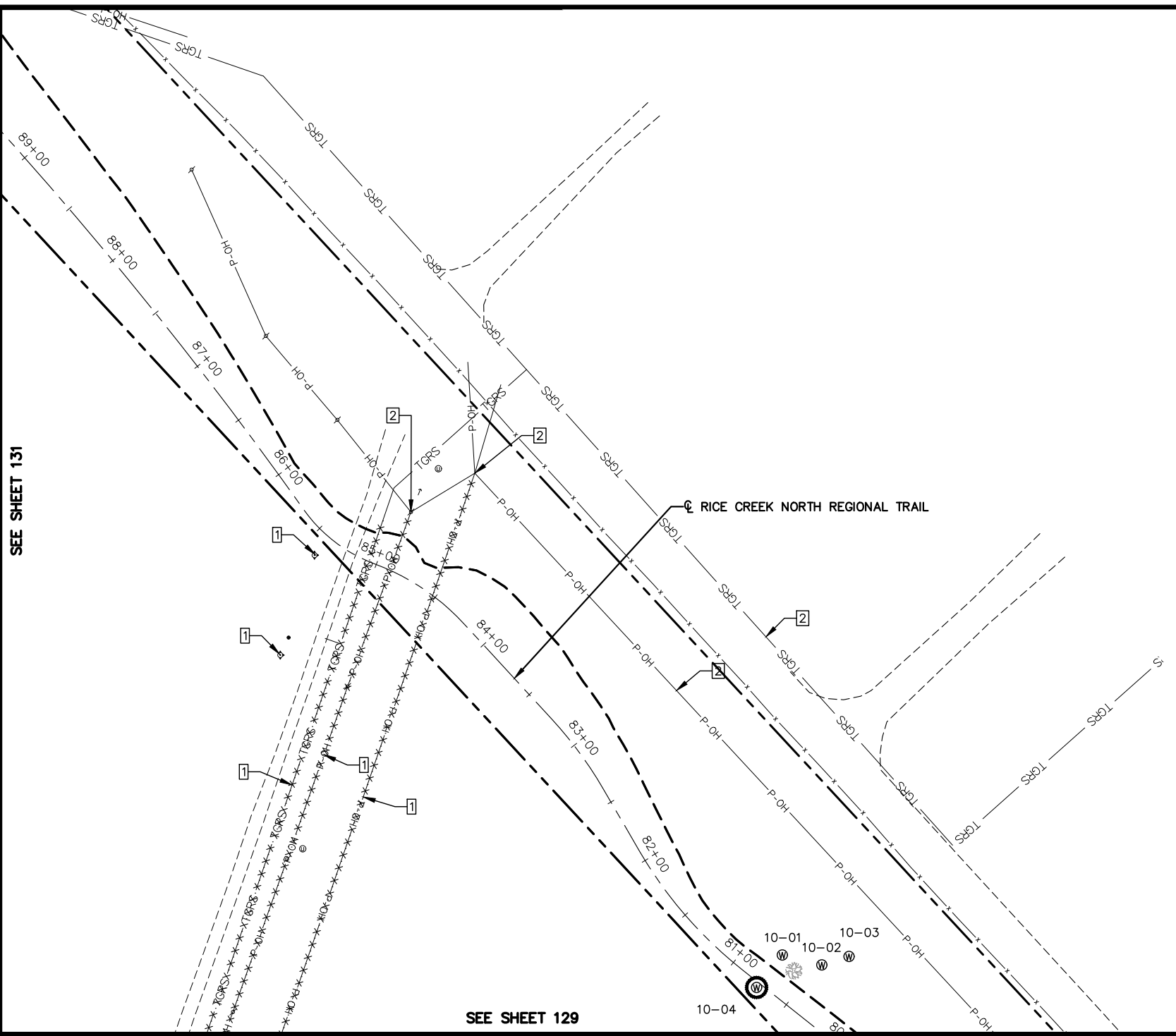
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RAMSEY COUNTY
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SEE SHEET 131



SEE SHEET 129

LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- · · · · REMOVE UTILITY
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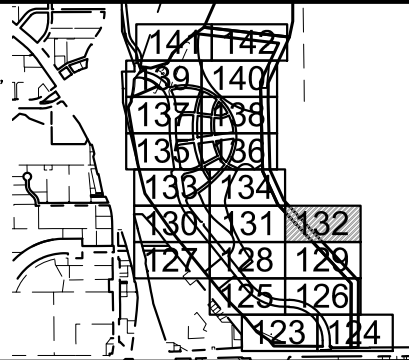
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RAMSEY COUNTY

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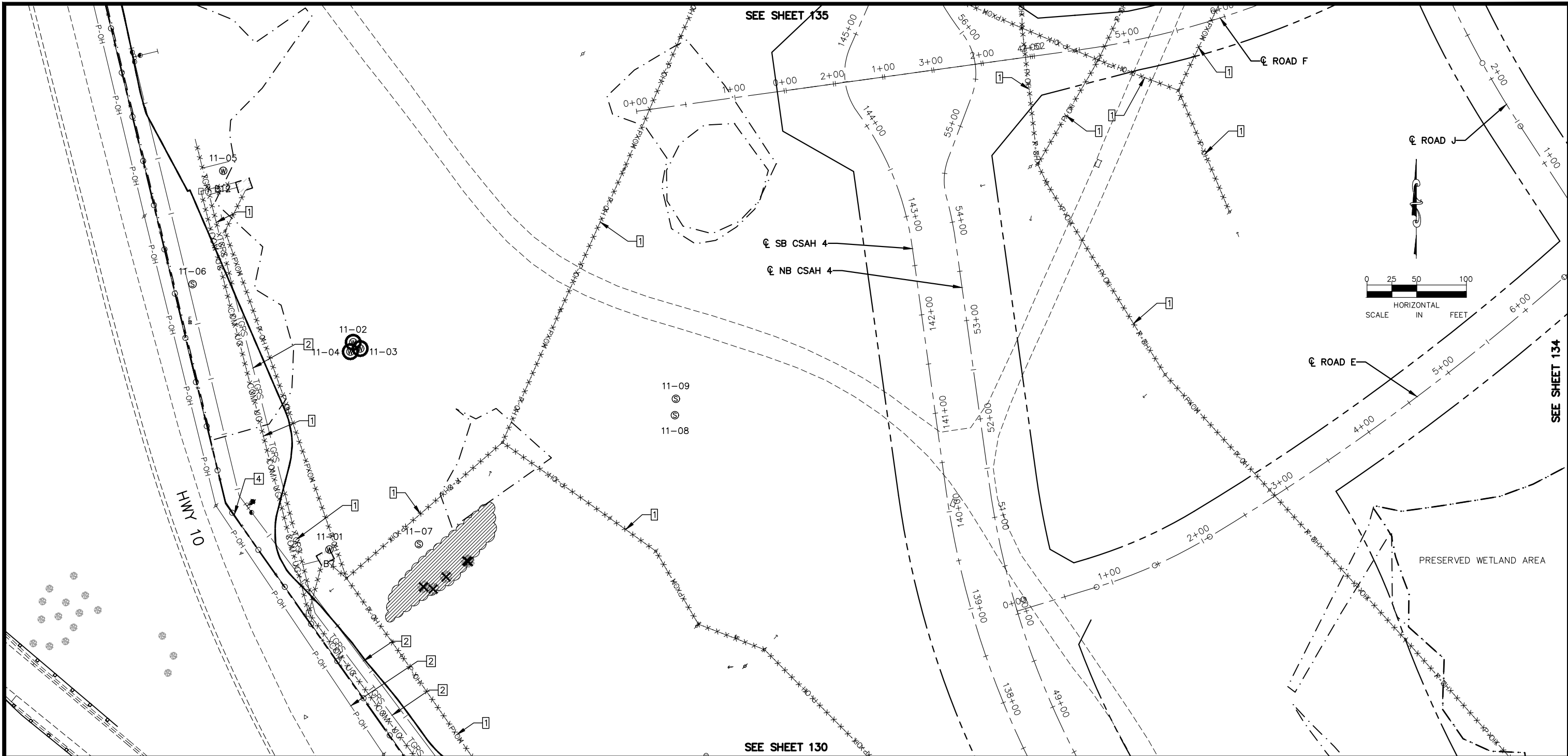
REMOVAL PLAN

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LEGEND

- | | | | |
|-----------|----------------------------|--|-----------------------------------|
| | REMOVE PAVEMENT | | REMOVE UTILITY |
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| | CLEARING & GRUBBING (ACRE) | | REMOVE CURB & GUTTER |
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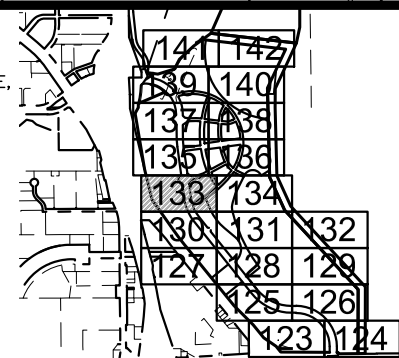
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- | | | | |
|--|-------------------------|--|--------------------------|
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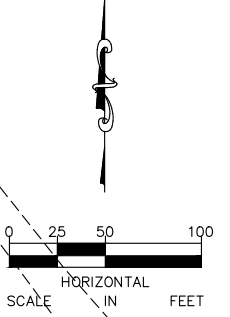
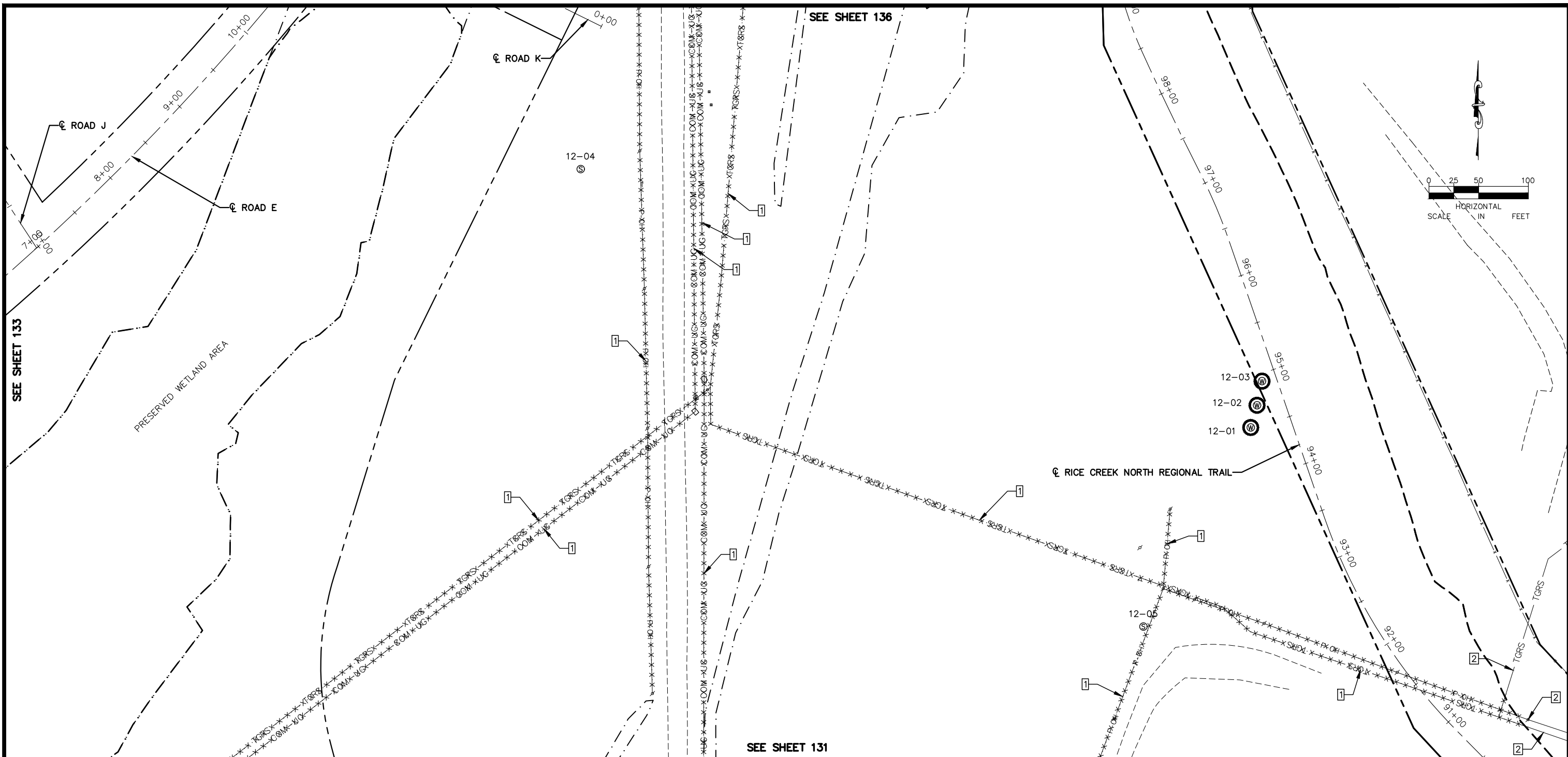
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT
 COUNTY PROJECT
 S.A.P. 062-593-004
 S.A.P.

SHEET NO.
 133
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_REM.dwg Layout12 January 09, 2019 - 3:38pm



LEGEND

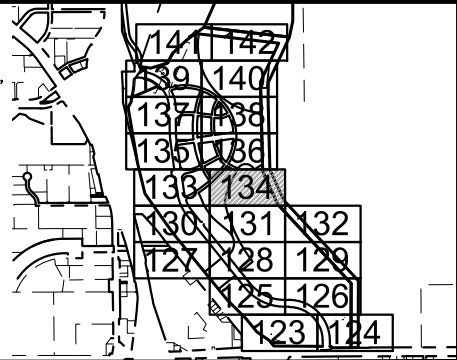
- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
- REMOVE FENCE
- REMOVE CURB & GUTTER
- SAWCUT PAVEMENT
- CONSTRUCTION LIMITS
- WELL TO BE RELOCATED (HORIZONTAL)
- WELL TO BE ADJUSTED (VERTICAL)
- WELL TO BE ABANDONED

GENERAL REMOVAL AND UTILITY NOTES

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REMOVAL NOTE LEGEND

- REMOVE INPLACE UTILITY
- PROTECT INPLACE UTILITY
- SOIL MANAGEMENT AREA
- REMOVE FENCE
- ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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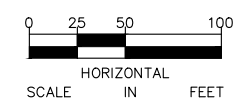
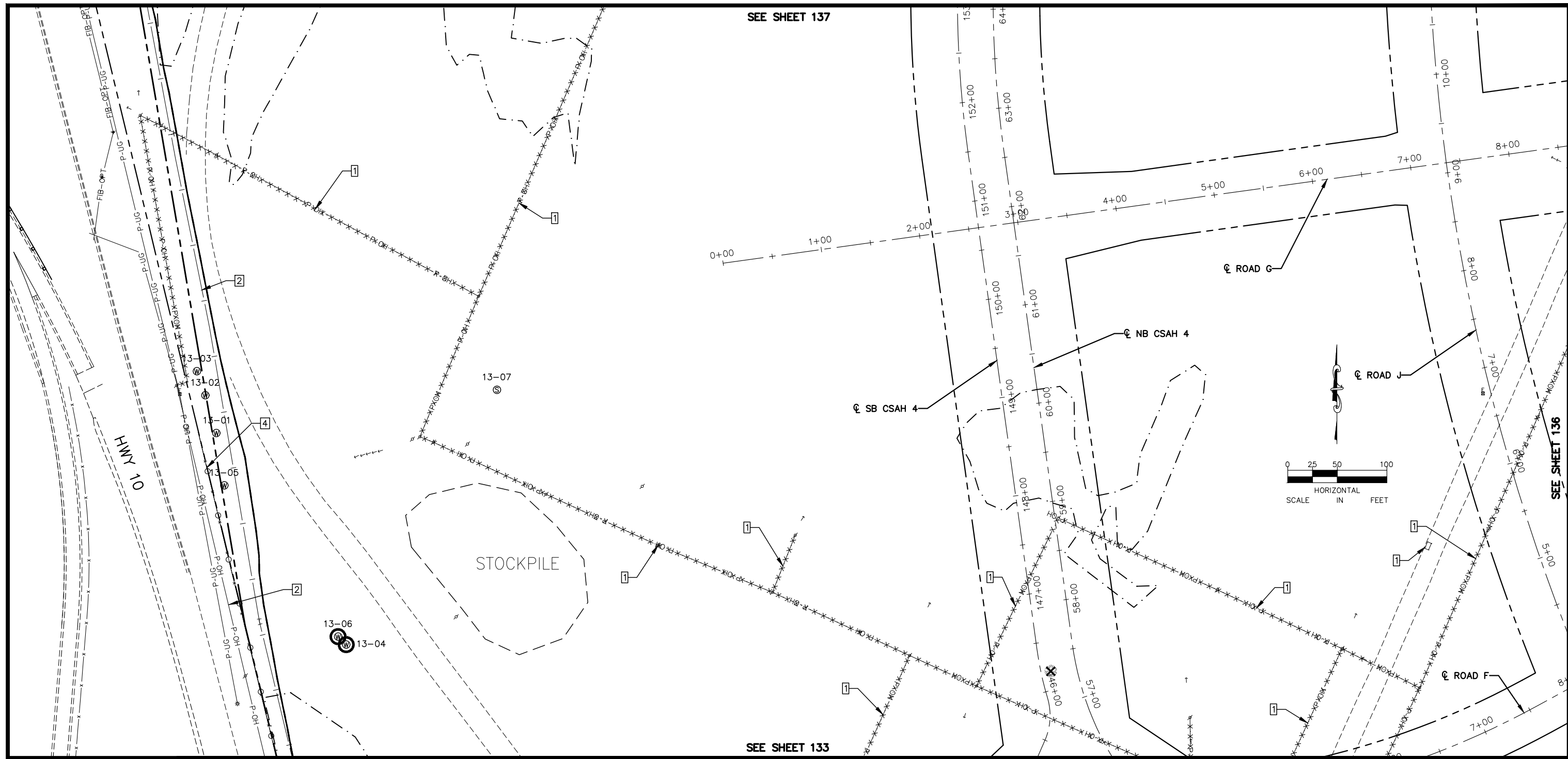
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	134
S.A.P. 062-593-004	
S.A.P.	335

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SEE SHEET 137

SEE SHEET 133



LEGEND

- | | | | |
|-----------|----------------------------|--|-----------------------------------|
| | REMOVE PAVEMENT | | REMOVE UTILITY |
| | REMOVE BUILDING | | REMOVE FENCE |
| | CLEARING & GRUBBING (ACRE) | | REMOVE CURB & GUTTER |
| | CLEARING & GRUBBING (TREE) | | SAWCUT PAVEMENT |
| 17-27
 | EXISTING SEALED WELL | | CONSTRUCTION LIMITS |
| 17-27
 | EXISTING ACTIVE WELL | | WELL TO BE RELOCATED (HORIZONTAL) |
| | | | WELL TO BE ADJUSTED (VERTICAL) |
| | | | WELL TO BE ABANDONED |

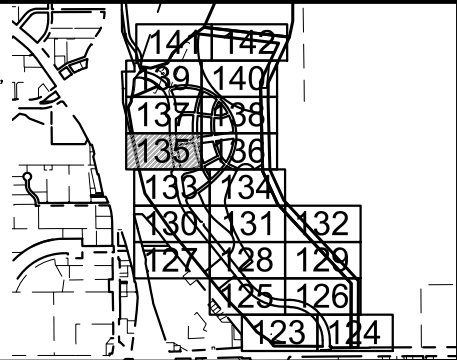
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- CONTRACTOR TO REMOVE ALL TGRS COMMUNICATION LINES ENCOUNTERED DURING CONSTRUCTION

REMOVAL NOTE LEGEND

- | | | | |
|--|-------------------------|--|--------------------------|
| | REMOVE INPLACE UTILITY | | ADJUSTED INPLACE UTILITY |
| | PROTECT INPLACE UTILITY | | |
| | SOIL MANAGEMENT AREA | | |
| | REMOVE FENCE | | |



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

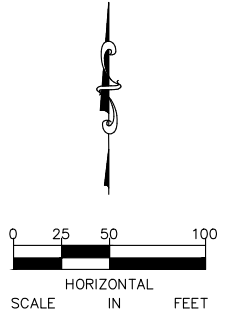
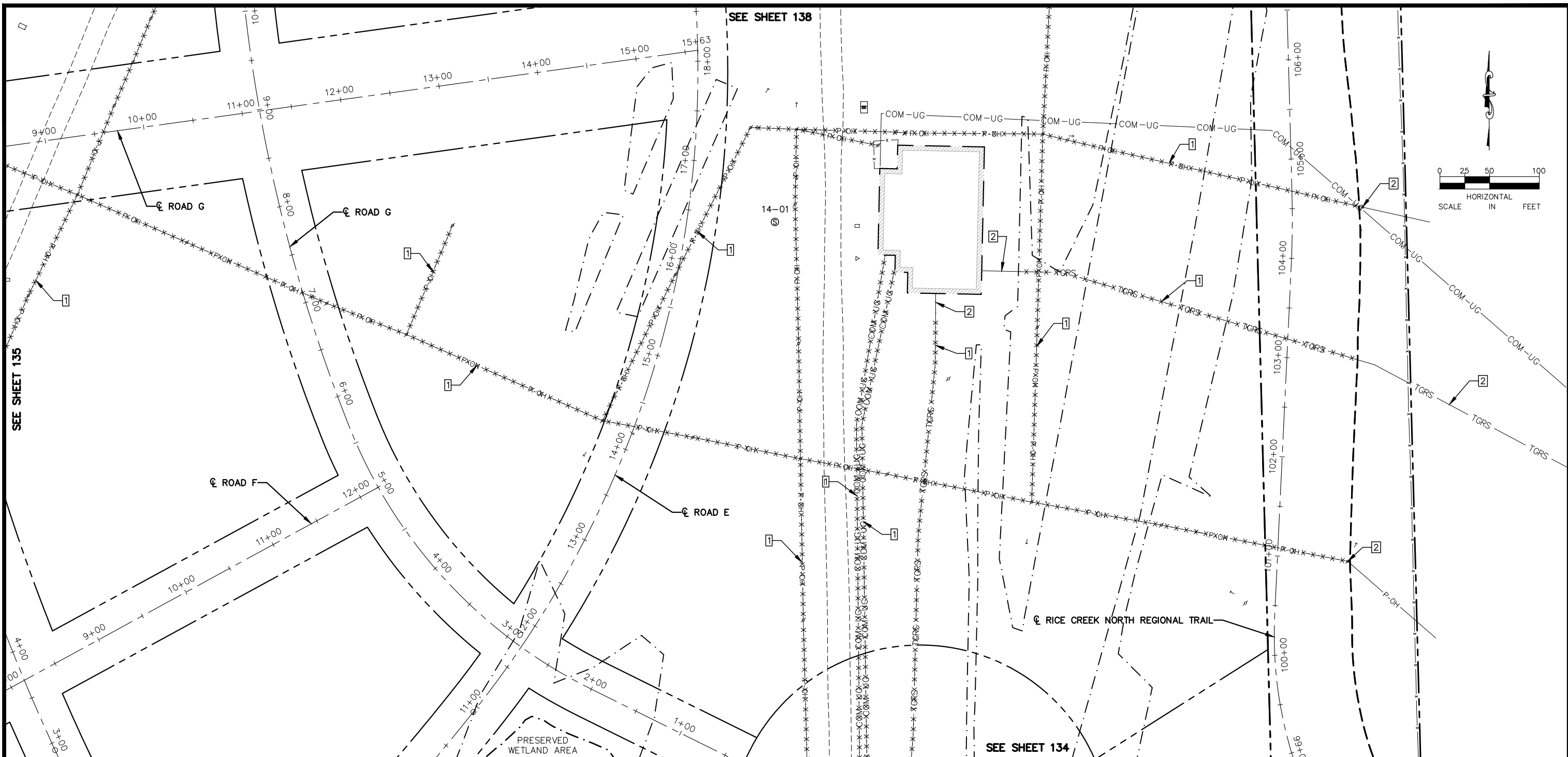
Kimley»Horn
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	135
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND	
	REMOVE PAVEMENT
	REMOVE BUILDING
	CLEARING & GRUBBING (ACRE)
	CLEARING & GRUBBING (TREE)
	EXISTING SEALED WELL
	EXISTING ACTIVE WELL
	REMOVE UTILITY
	REMOVE FENCE
	REMOVE CURB & GUTTER
	SAWCUT PAVEMENT
	CONSTRUCTION LIMITS
	WELL TO BE RELOCATED (HORIZONTAL)
	WELL TO BE ADJUSTED (VERTICAL)
	WELL TO BE ABANDONED

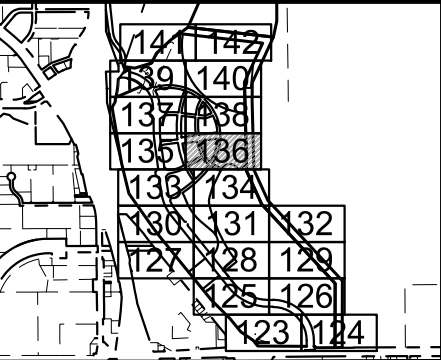
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REMOVAL NOTE LEGEND

	REMOVE INPLACE UTILITY		ADJUSTED INPLACE UTILITY
	PROTECT INPLACE UTILITY		
	SOIL MANAGEMENT AREA		
	REMOVE FENCE		



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_REM.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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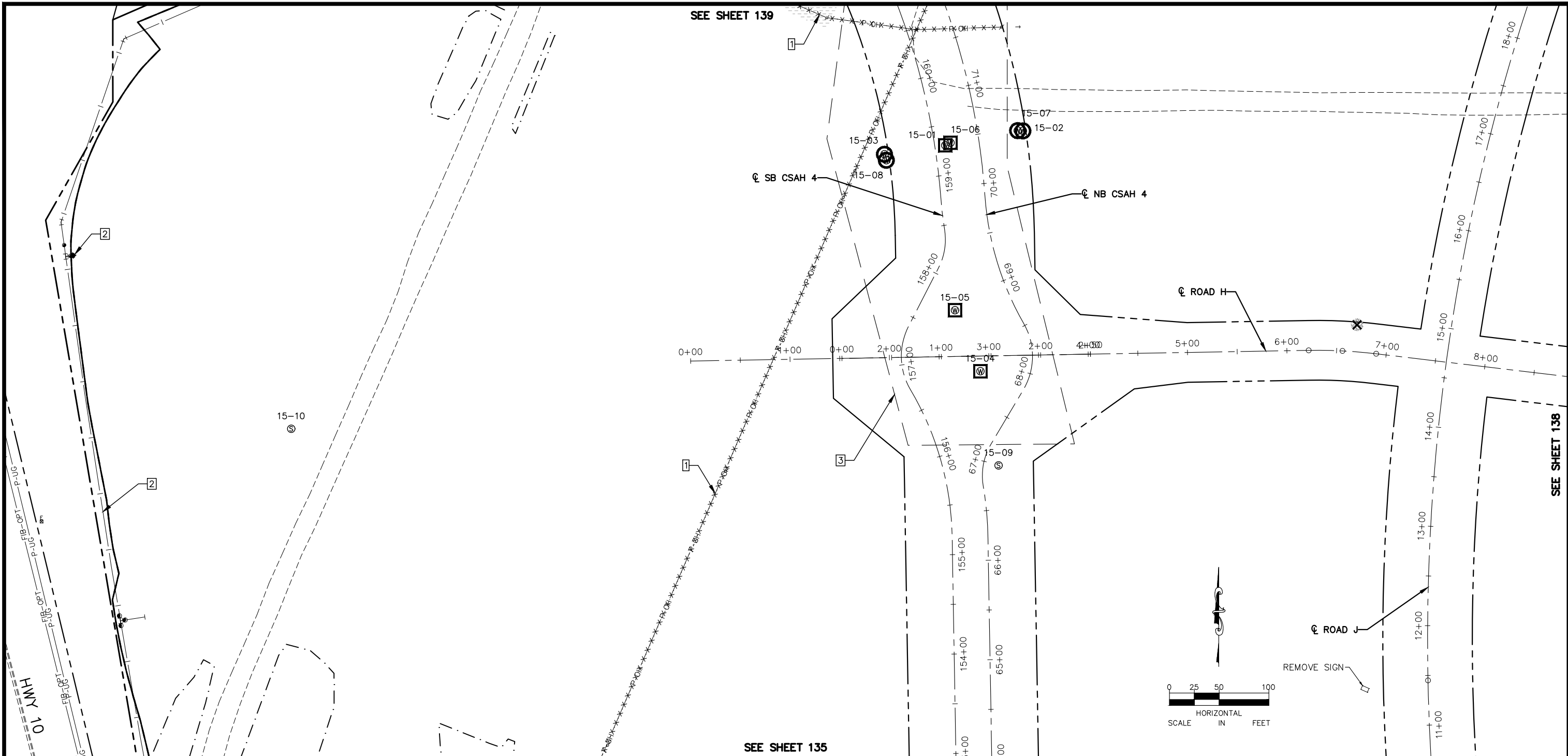
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT		SHEET NO.	136
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- · · · · REMOVE UTILITY
- ○ — REMOVE FENCE
- // // // REMOVE CURB & GUTTER
- - - - - SAWCUT PAVEMENT
- - - - - CONSTRUCTION LIMITS
- WELL TO BE RELOCATED (HORIZONTAL)
- WELL TO BE ADJUSTED (VERTICAL)
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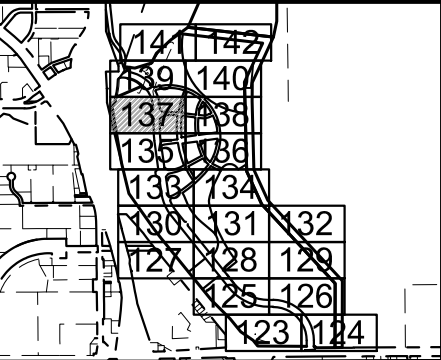
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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

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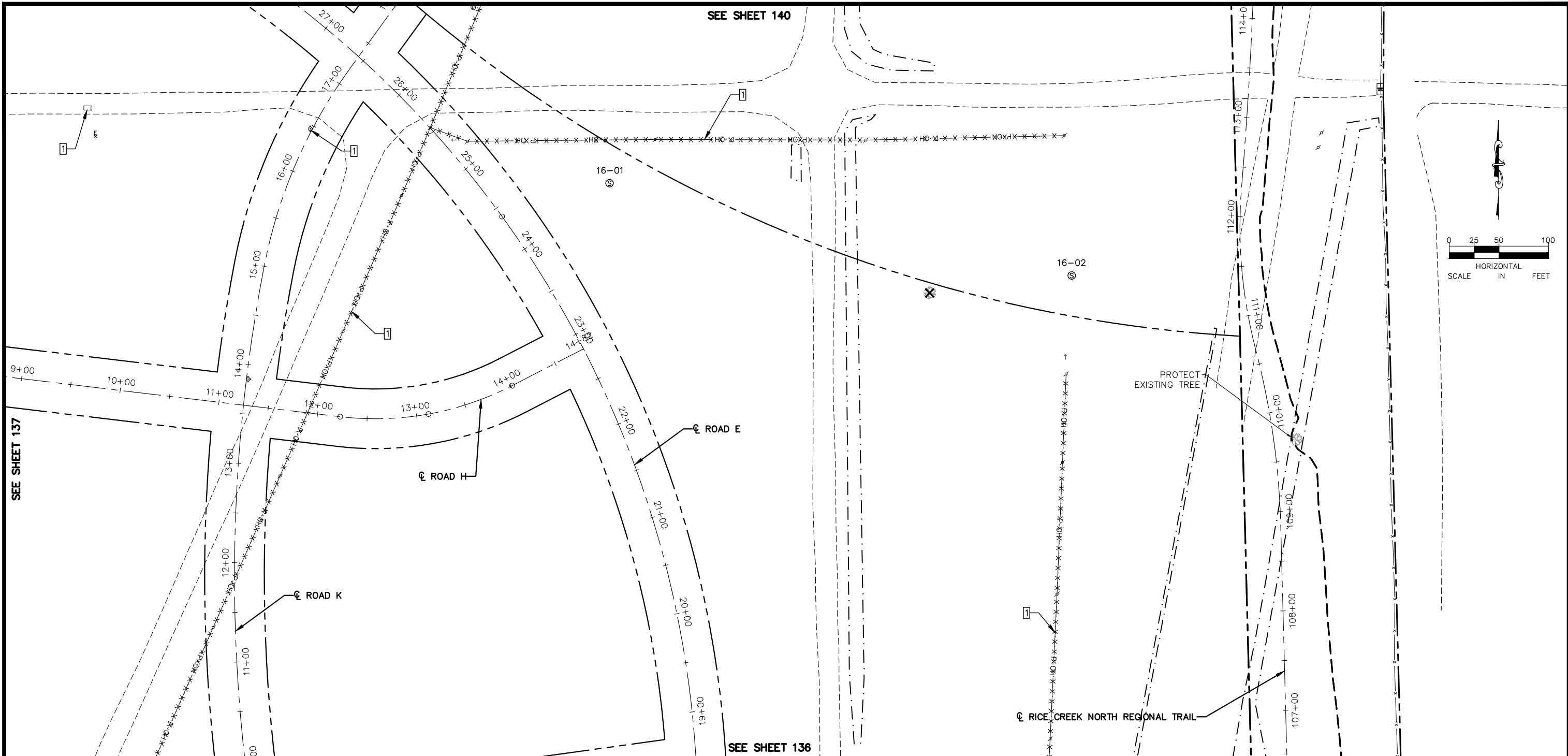
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	137
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

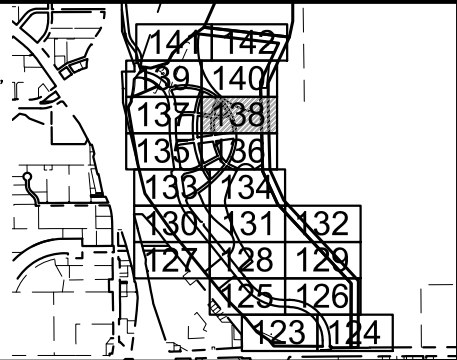
- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
- REMOVE FENCE
- REMOVE CURB & GUTTER
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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_REM.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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DATE: 01/04/19 MN LIC. NO. 41864

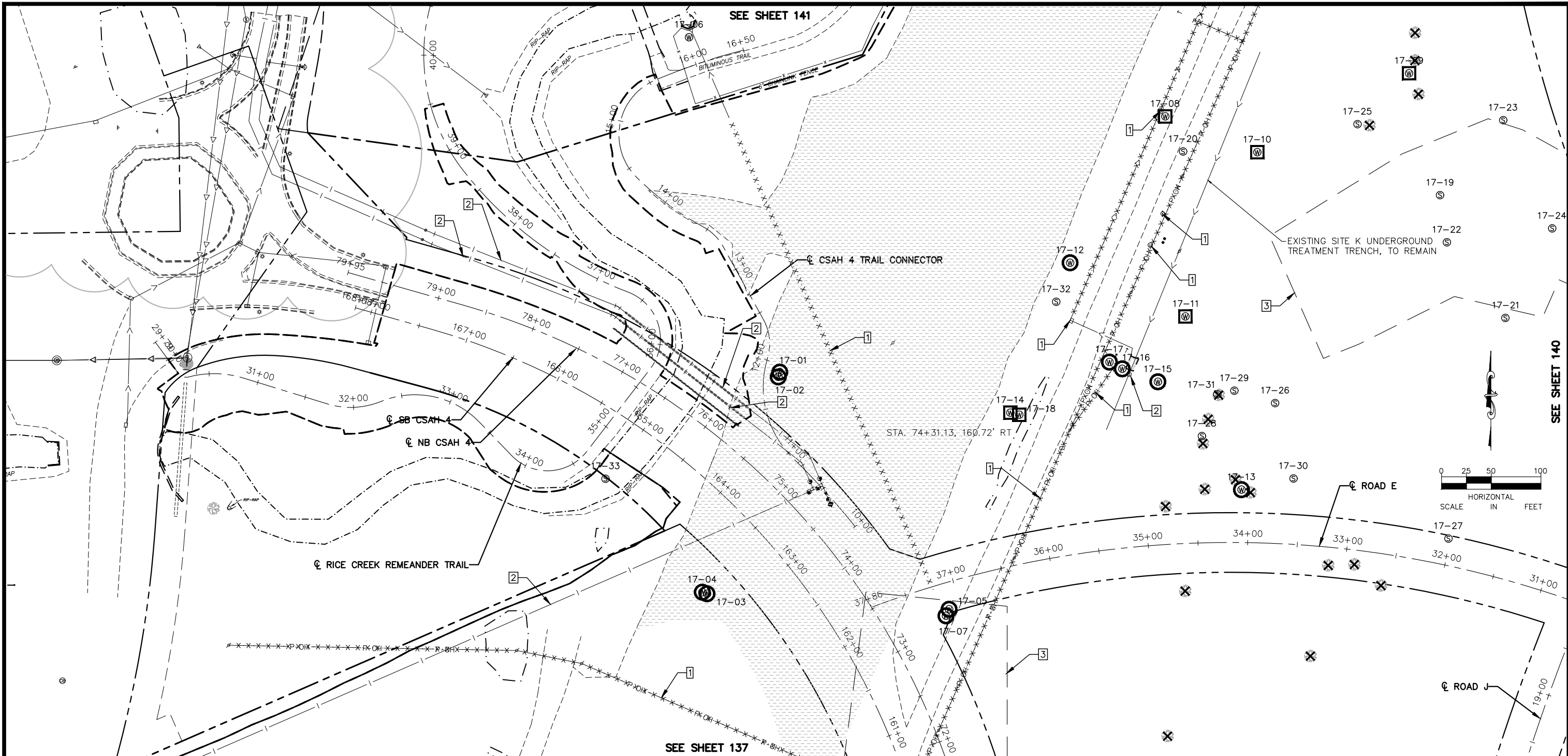
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO. 138
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
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RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT

COUNTY PROJECT

S.A.P. 062-593-004

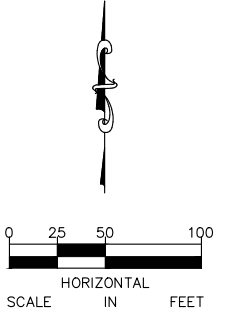
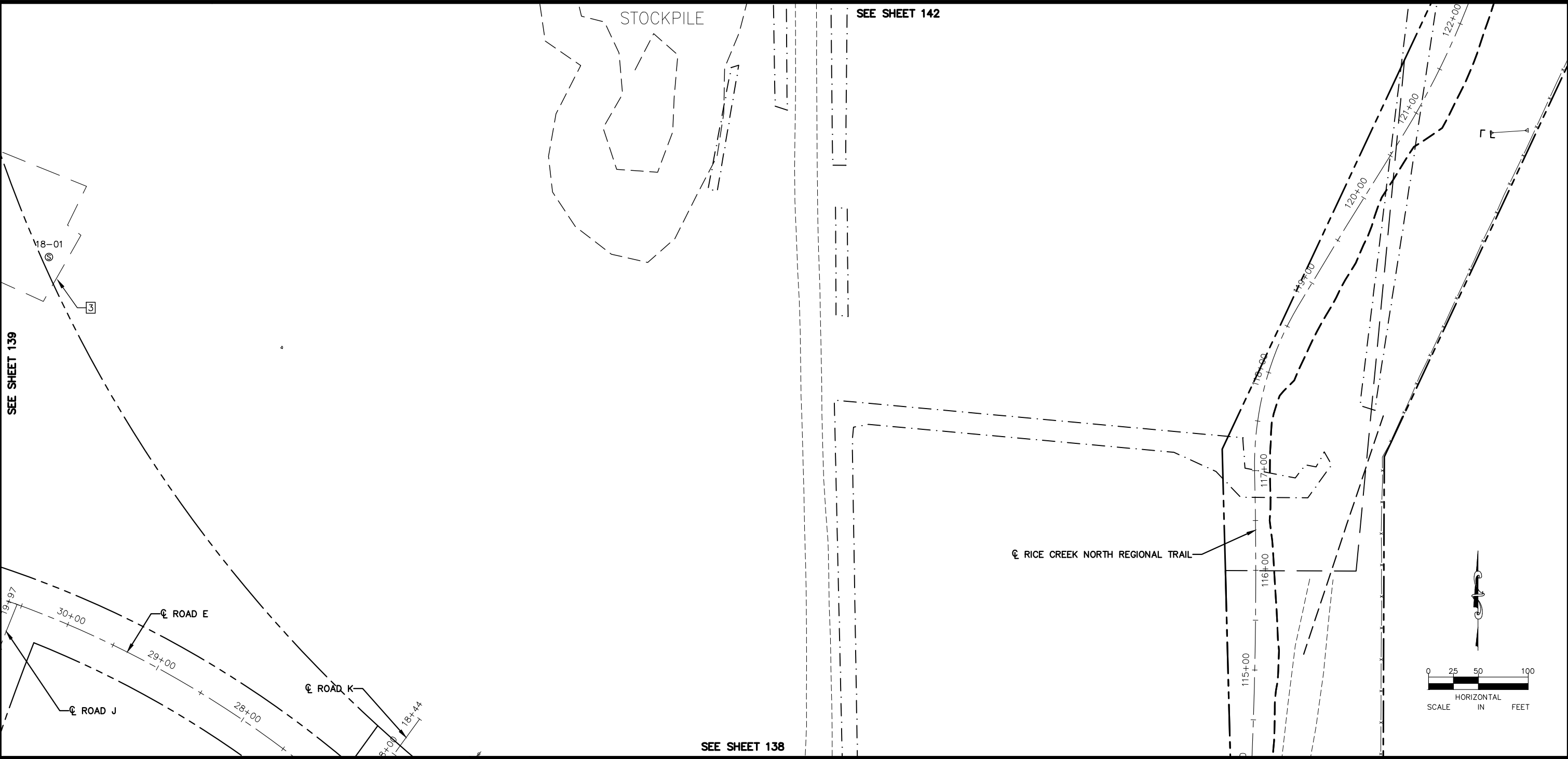
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SHEET NO.

139

335

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LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
- REMOVE FENCE
- REMOVE CURB & GUTTER
- SAWCUT PAVEMENT
- CONSTRUCTION LIMITS
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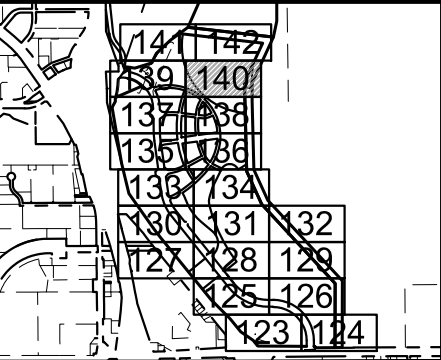
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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
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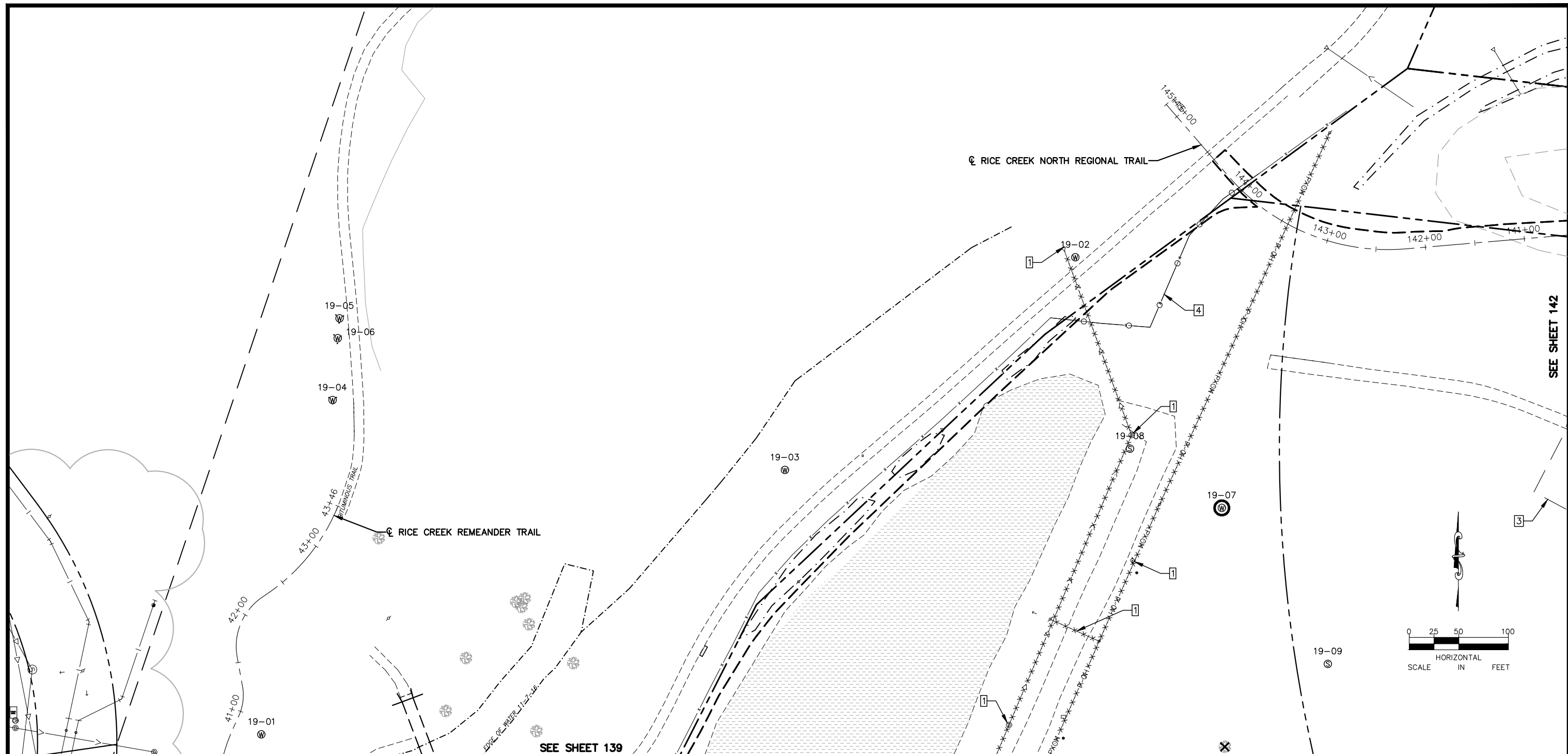
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	140
S.A.P. 062-593-004	
S.A.P.	335

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SEE SHEET 142

LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- REMOVE UTILITY
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7. CONTRACTOR TO REMOVE ALL POWER POLES UNLESS OTHERWISE NOTED. REMOVAL OF GUY-WIRES, POWER CABLE, SUPPORT STRUCTURES, AND ASSOCIATED APPURTENANCES INCIDENTAL TO REMOVAL OF POWER POLE
8. CONTRACTOR TO REMOVE ALL TGRS COMMUNICATION LINES ENCOUNTERED DURING CONSTRUCTION

REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
- 2 PROTECT INPLACE UTILITY
- 3 SOIL MANAGEMENT AREA
- 4 REMOVE FENCE
- 5 ADJUSTED INPLACE UTILITY



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_REM.dwg
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				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

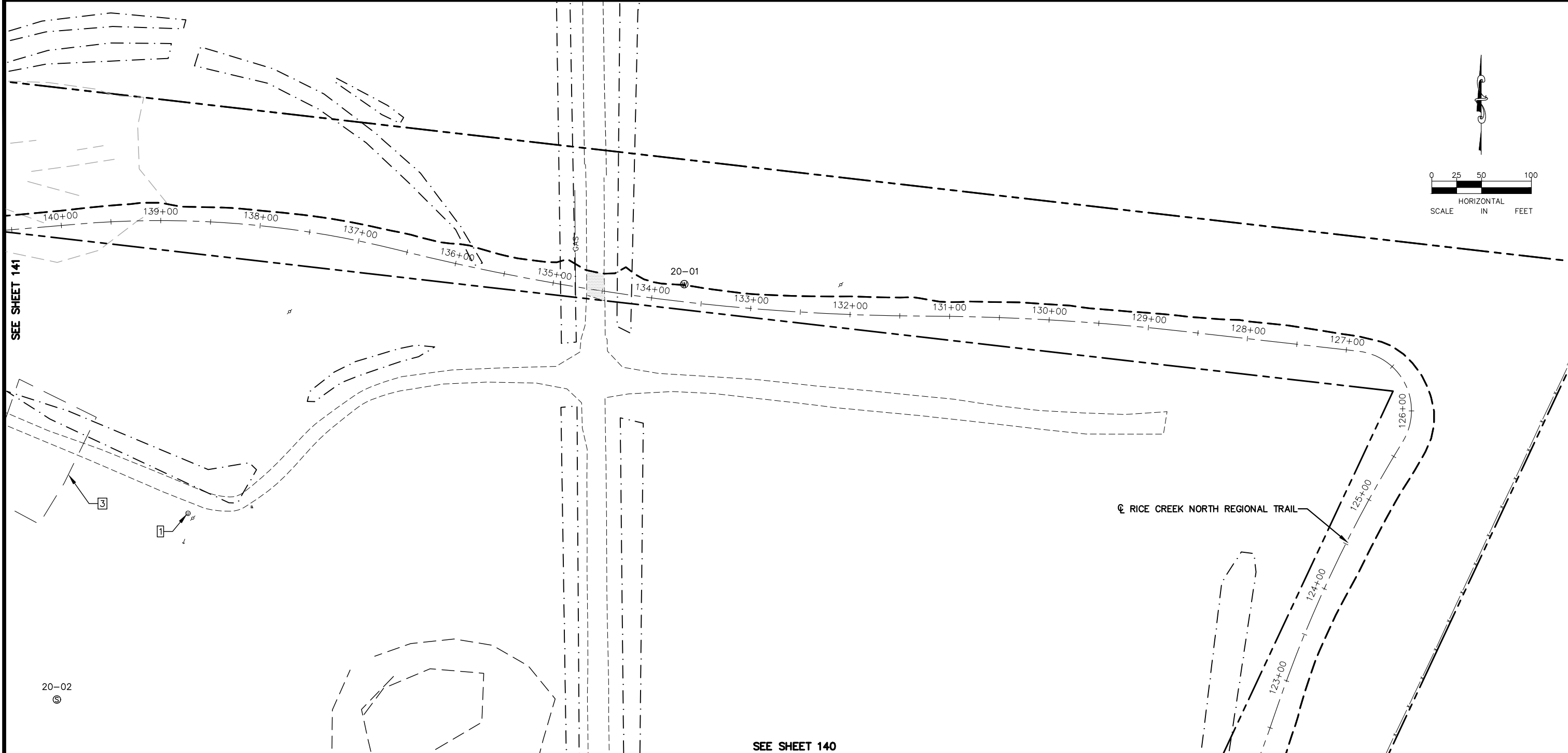
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	141
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_REM.dwg Layout20 January 09, 2019 - 3:42pm



SEE SHEET 141

SEE SHEET 140

LEGEND

- REMOVE PAVEMENT
- REMOVE BUILDING
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- · · · · REMOVE UTILITY
- ○ — REMOVE FENCE
- // // // REMOVE CURB & GUTTER
- - - - - SAWCUT PAVEMENT
- - - - - CONSTRUCTION LIMITS
- WELL TO BE RELOCATED (HORIZONTAL)
- WELL TO BE ADJUSTED (VERTICAL)
- WELL TO BE ABANDONED

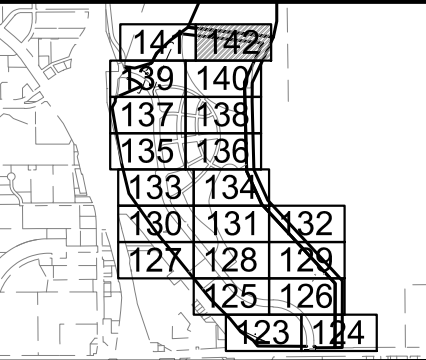
GENERAL REMOVAL AND UTILITY NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER, INCLUDING TREE REMOVALS.
3. CONTRACTOR SHALL PROTECT ALL INPLACE UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
4. TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS MAY BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.
5. PRIVATE UTILITY COORDINATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."

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REMOVAL NOTE LEGEND

- 1 REMOVE INPLACE UTILITY
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				TCAAP_SPINERD_REM.dwg
				DESIGNED BY: ERW
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				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

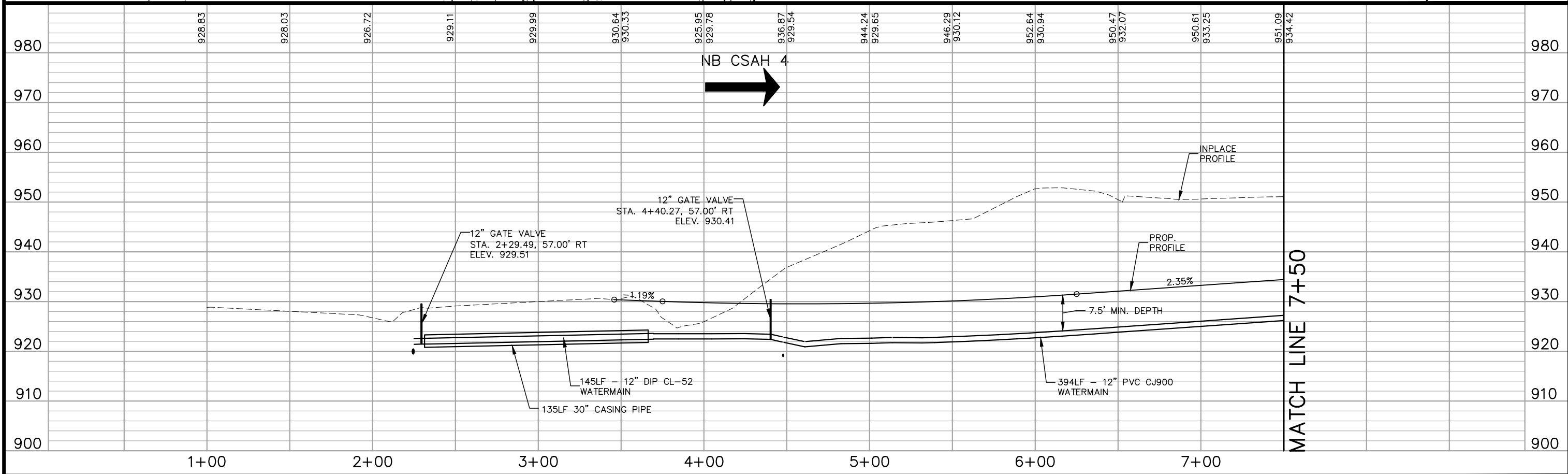
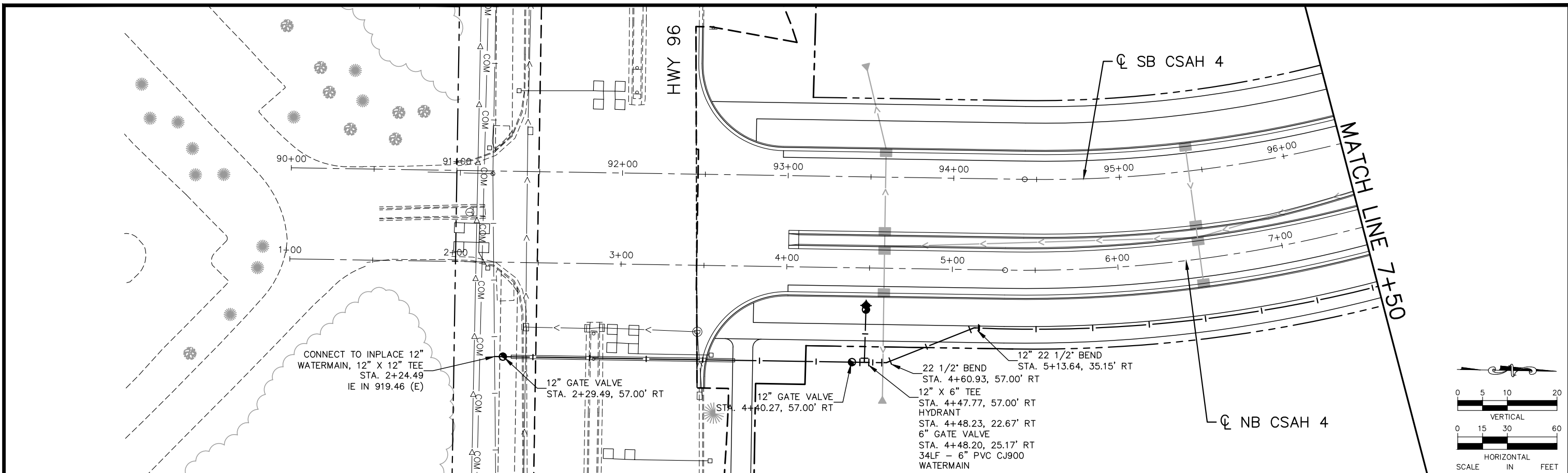
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

REMOVAL PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	142
S.A.P. 062-593-004	
S.A.P.	335

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No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_UTIL.dwg
	DESIGNED BY: R/JG
	DRAWN BY: R/JG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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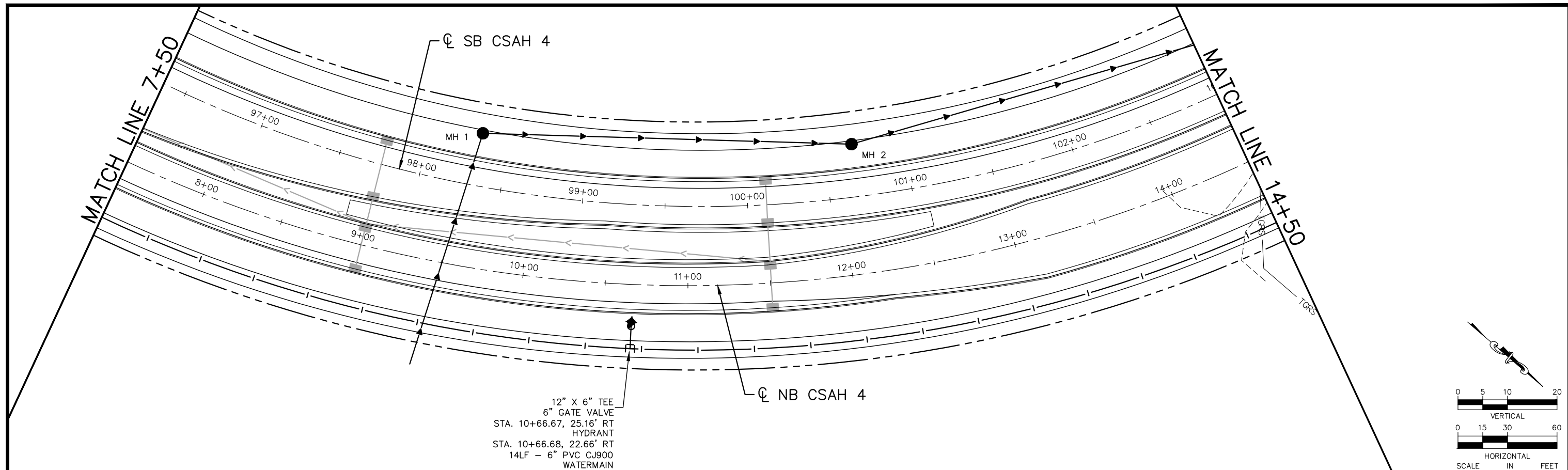
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

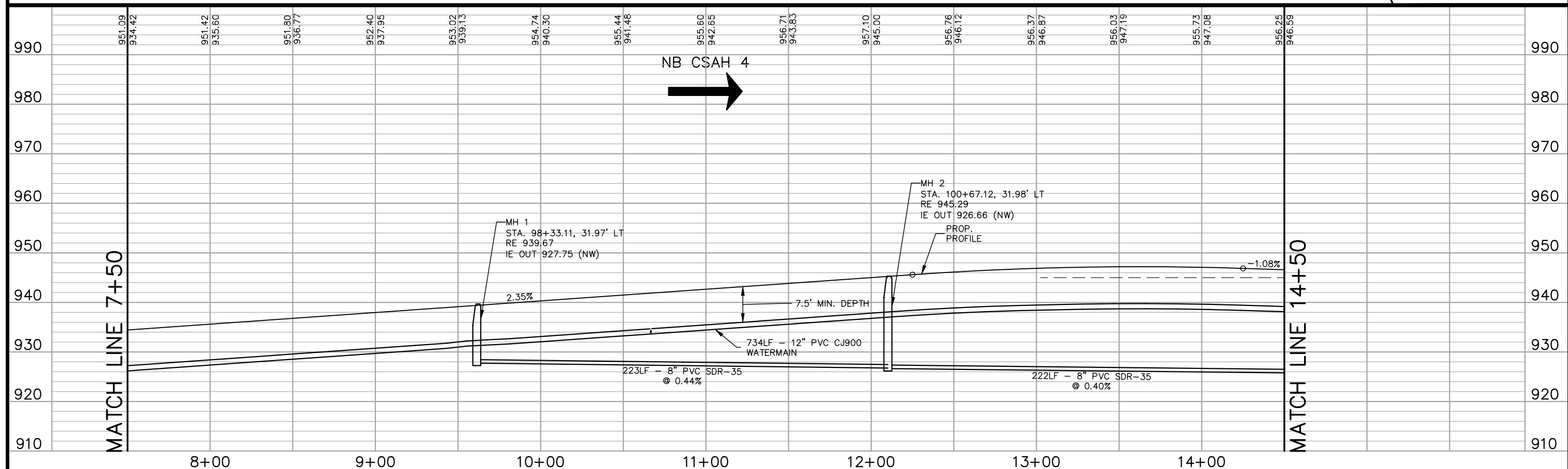
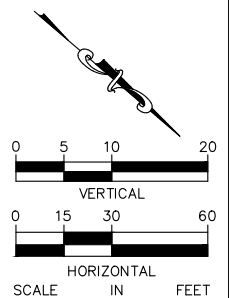
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 1+00 TO STA. 7+50

CITY PROJECT	SHEET NO. 143
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
335	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout02 January 09, 2019 - 3:44pm



12" X 6" TEE
6" GATE VALVE
STA. 10+66.67, 25.16' RT
HYDRANT
STA. 10+66.68, 22.66' RT
14LF - 6" PVC CJ900
WATERMAIN



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

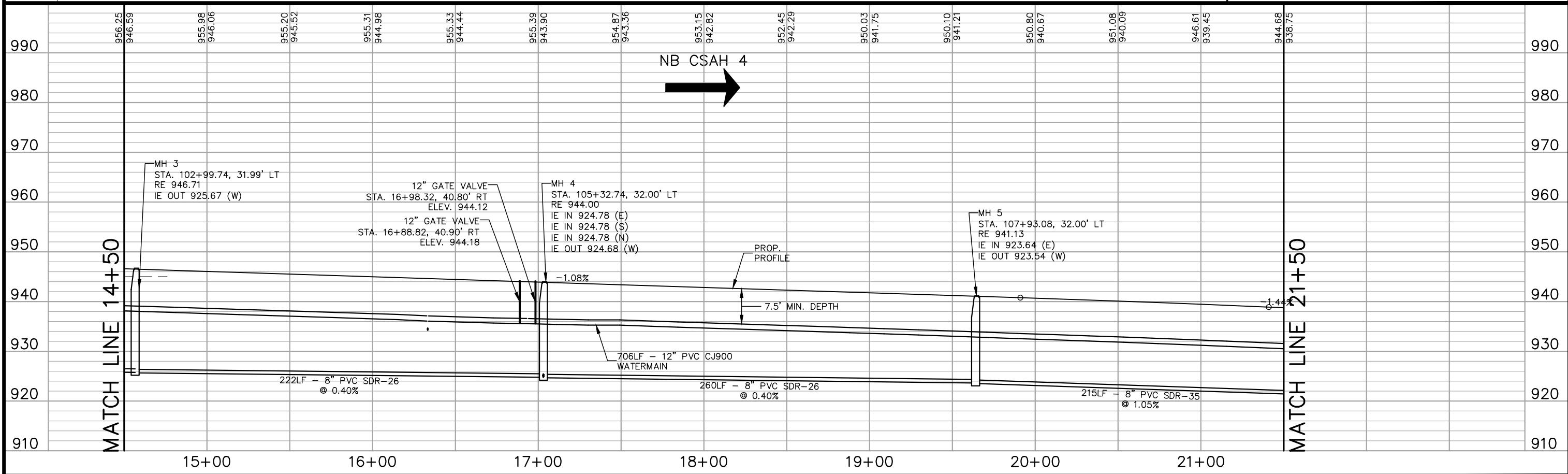
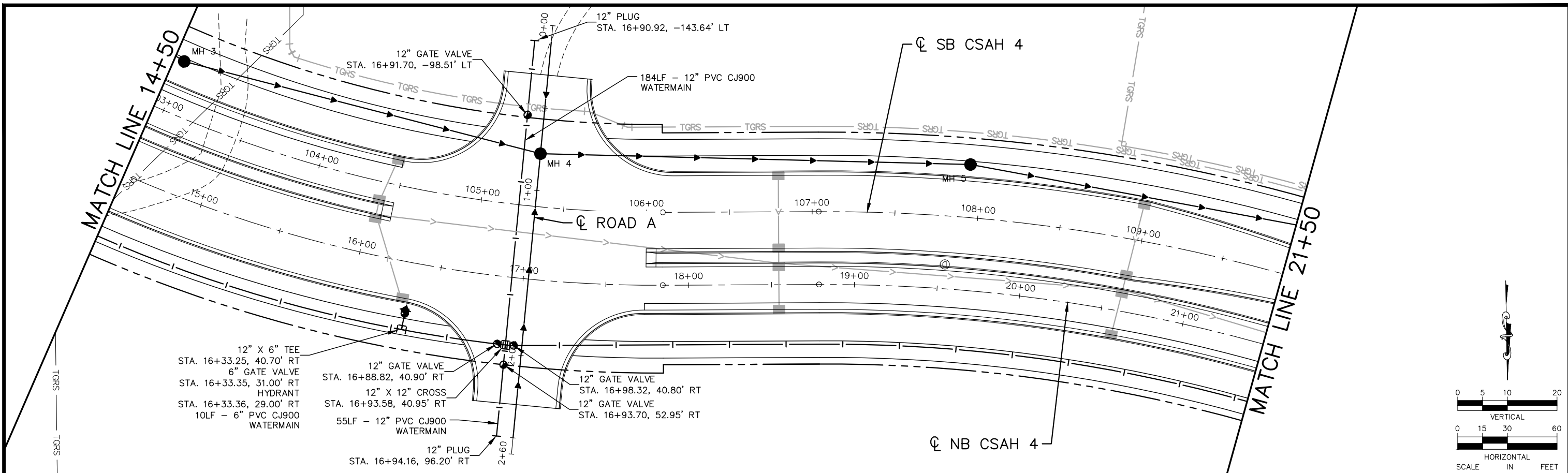
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

CSAH 4
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 7+50 TO STA. 14+50

CITY PROJECT		SHEET NO.	144
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout03 January 09, 2019 - 3:45pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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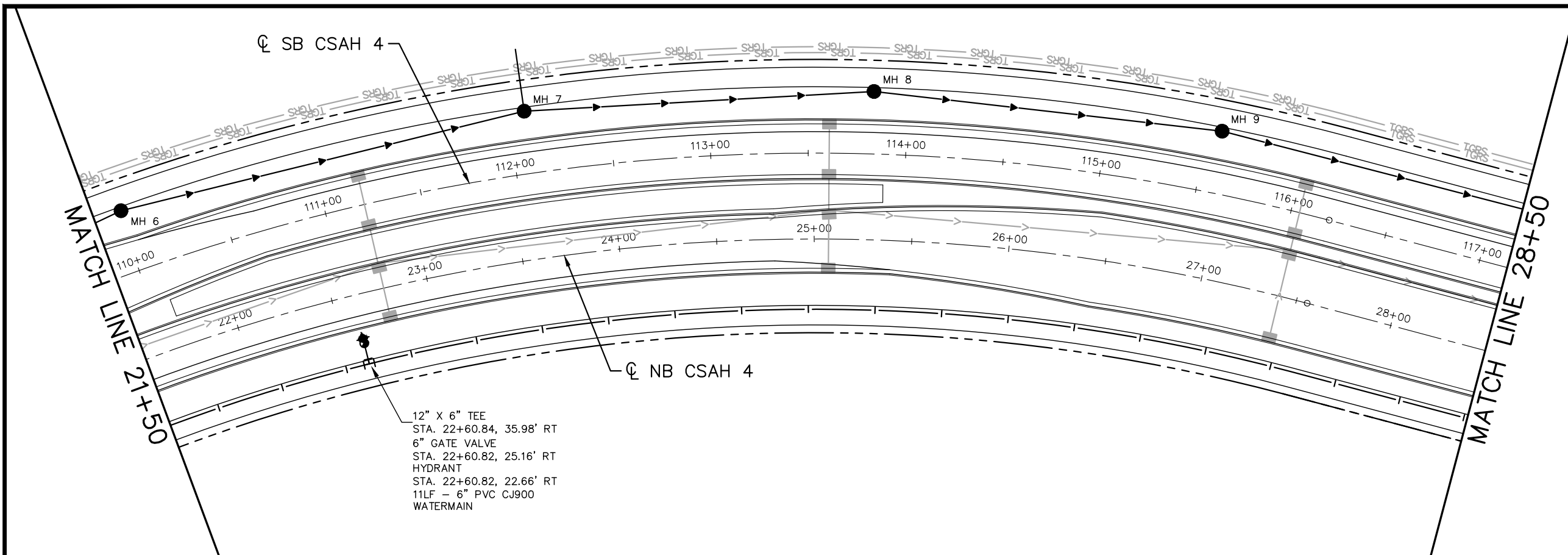
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

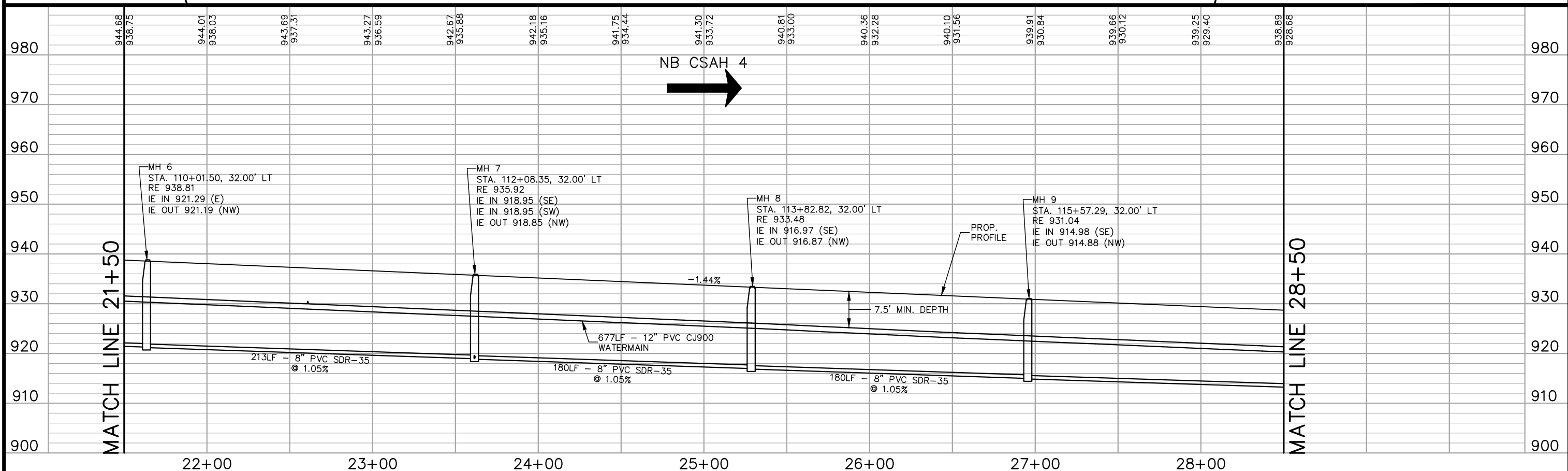
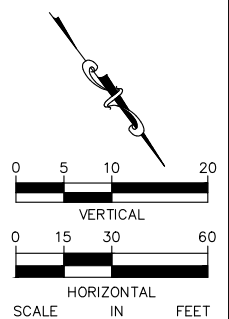
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 14+50 TO STA. 21+50

CITY PROJECT	145	SHEET NO.
COUNTY PROJECT		335
S.A.P.	062-593-004	
S.A.P.		

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout04 January 09, 2019 - 3:45pm



12" X 6" TEE
 STA. 22+60.84, 35.98' RT
 6" GATE VALVE
 STA. 22+60.82, 25.16' RT
 HYDRANT
 STA. 22+60.82, 22.66' RT
 11LF - 6" PVC CJ900
 WATERMAIN



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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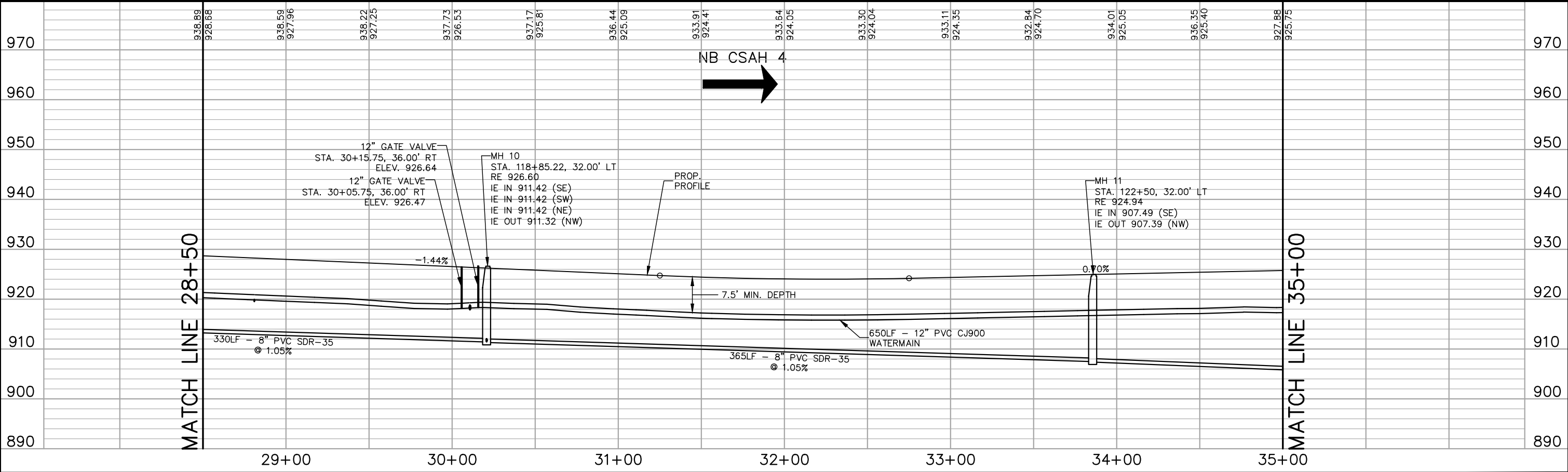
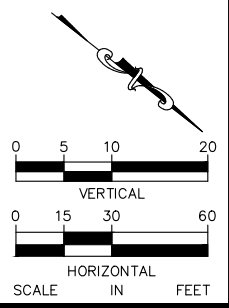
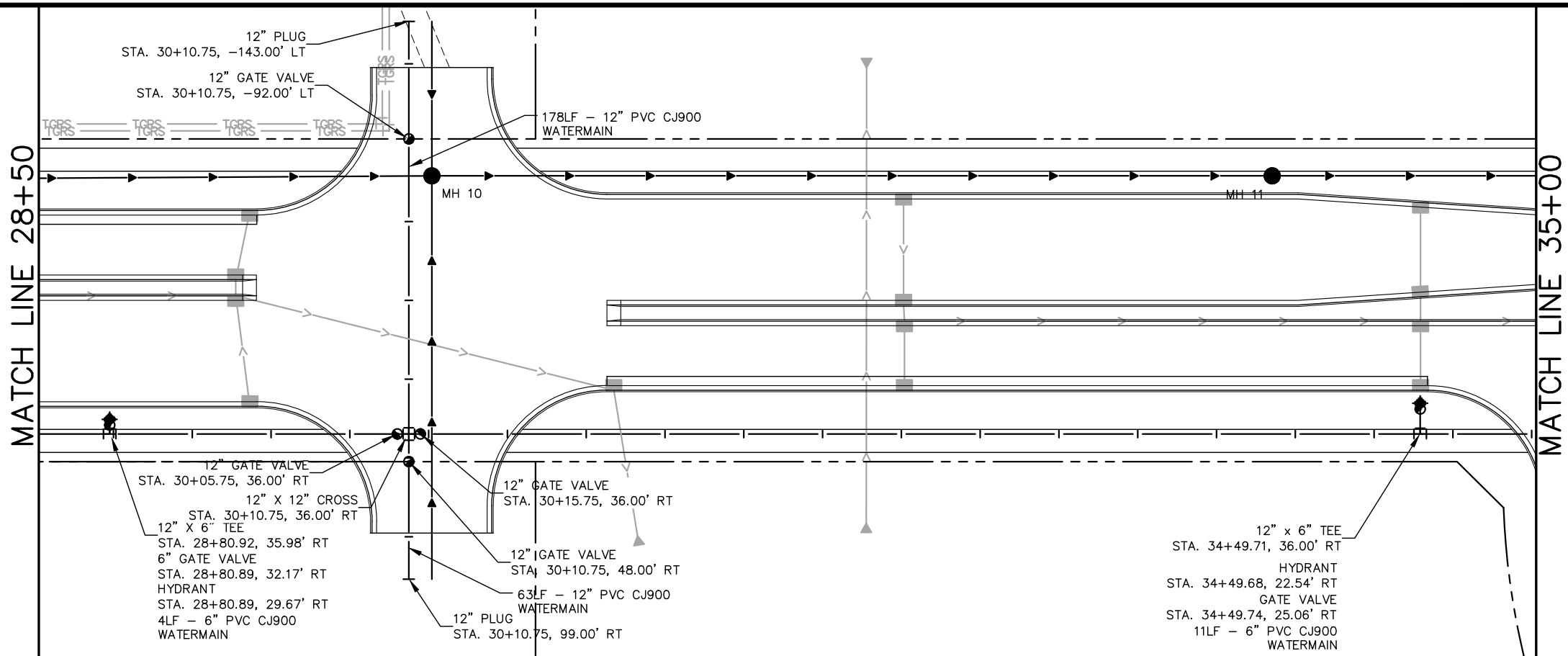
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 21+50 TO STA. 28+50

CITY PROJECT		SHEET NO.	146
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout05 January 09, 2019 - 3:46pm



No.	Date	Revisions	App.

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DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 28+50 TO STA. 35+00

CITY PROJECT	SHEET NO. 147
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

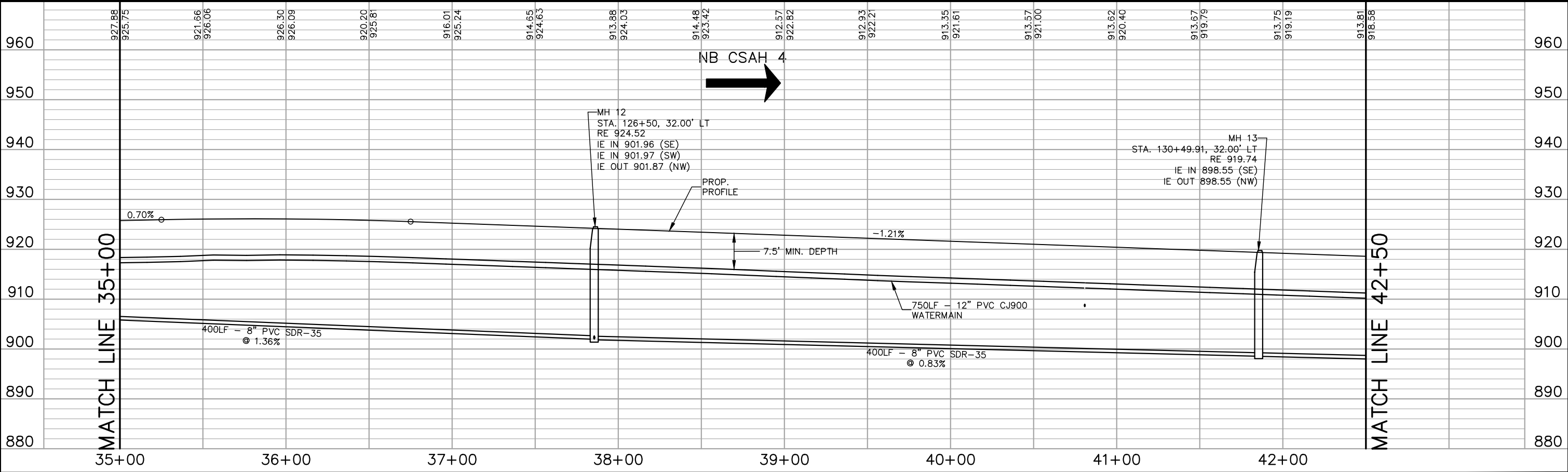
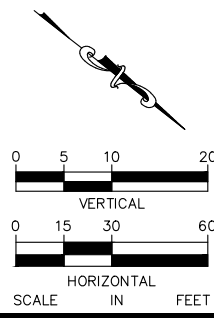
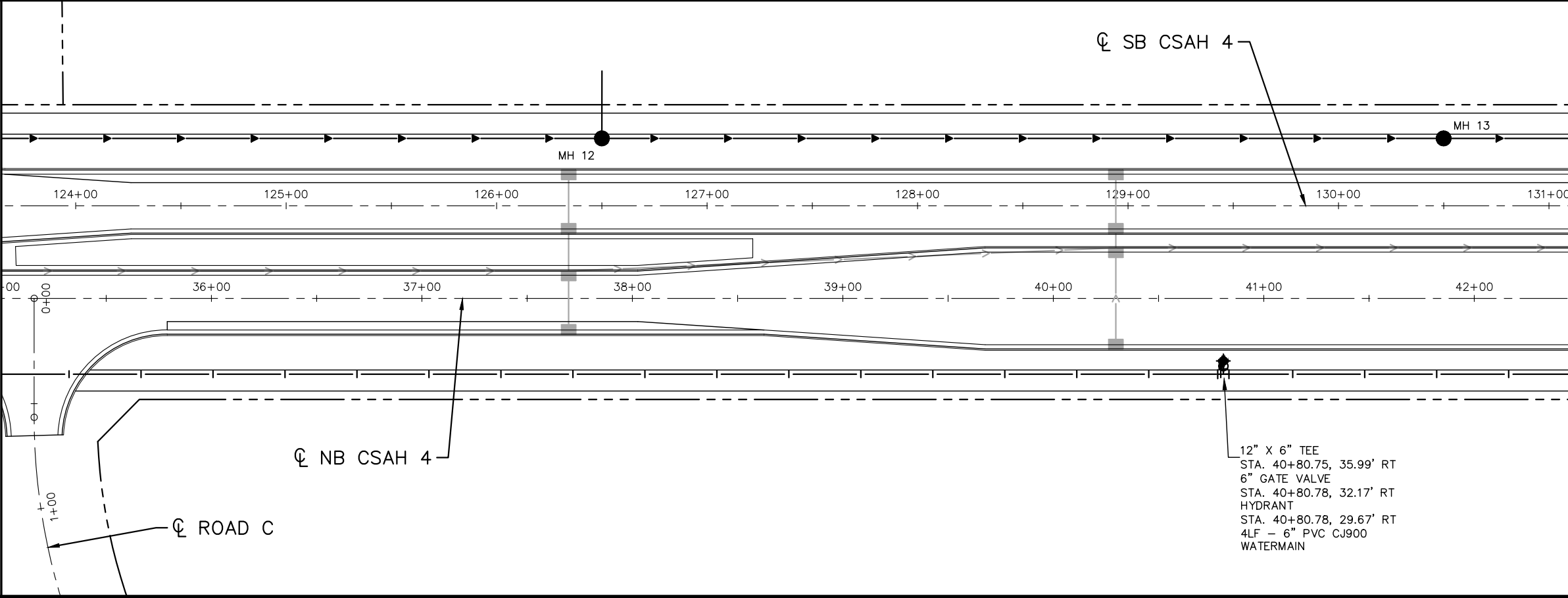
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MATCH LINE 35+00

MATCH LINE 35+00

MATCH LINE 42+50

MATCH LINE 42+50



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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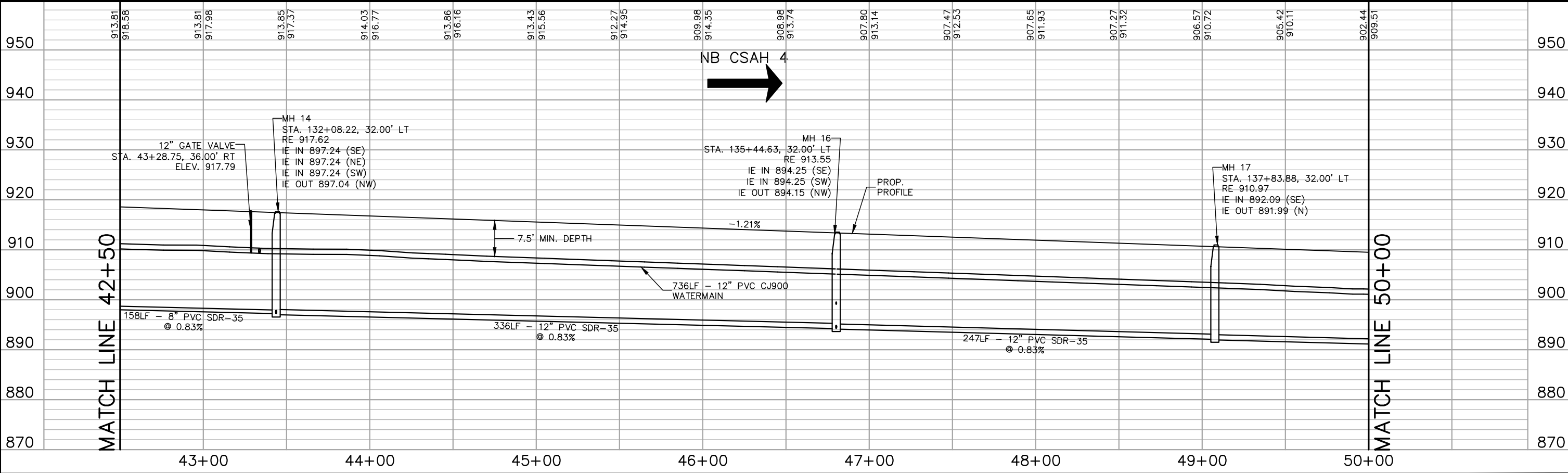
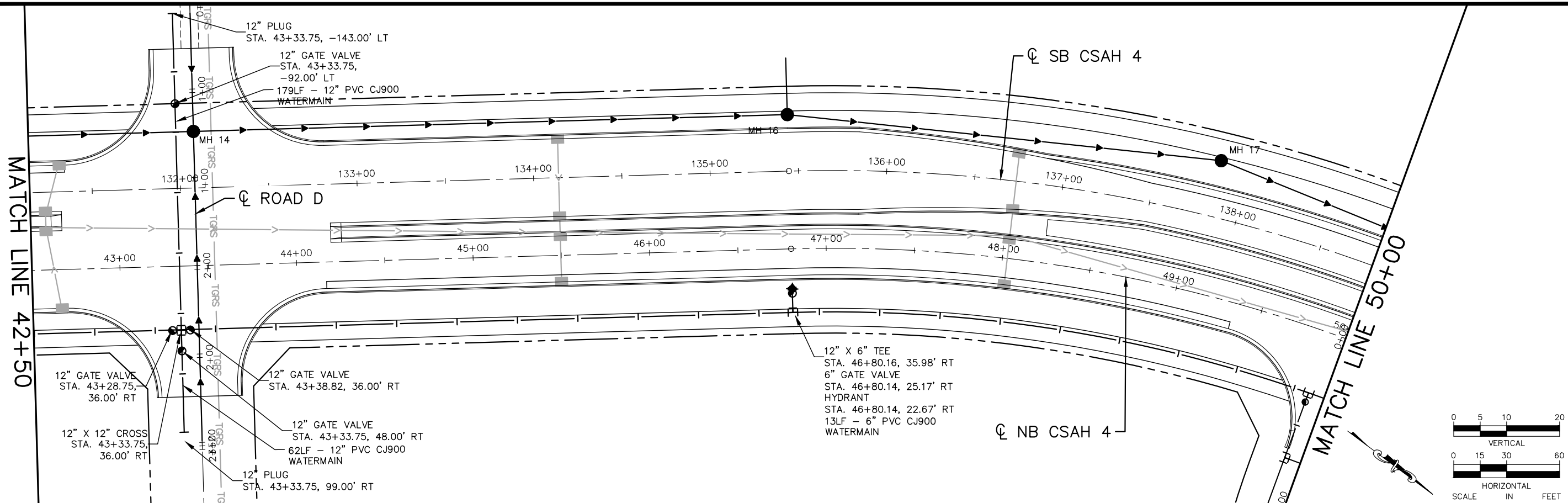
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 35+00 TO STA. 42+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
148
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout07 January 09, 2019 - 3:47pm



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_UTIL.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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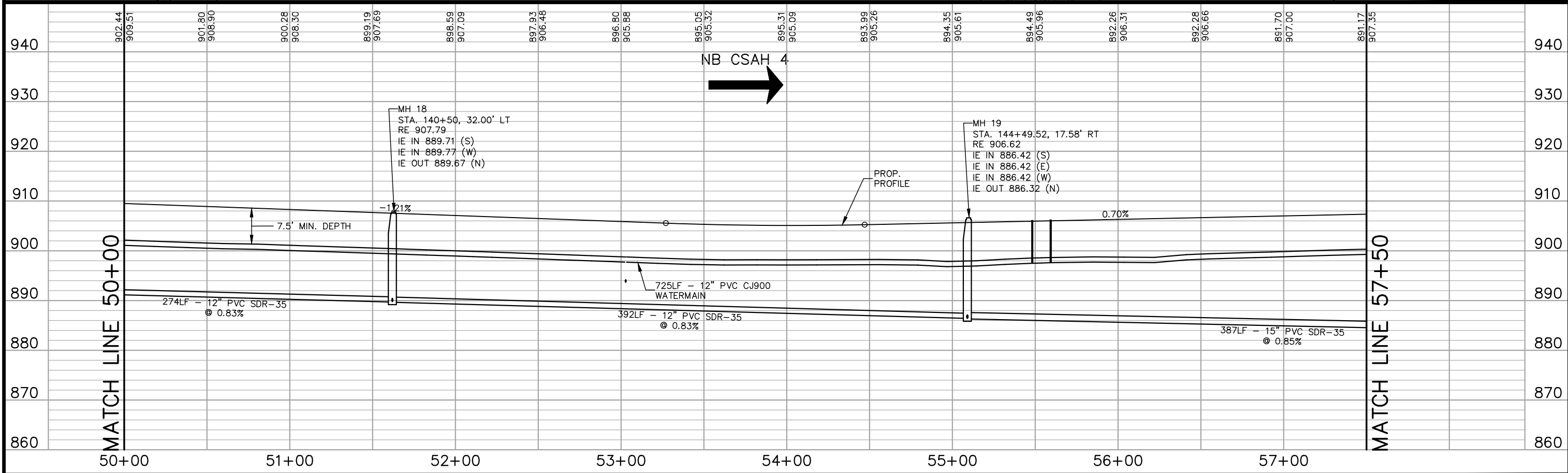
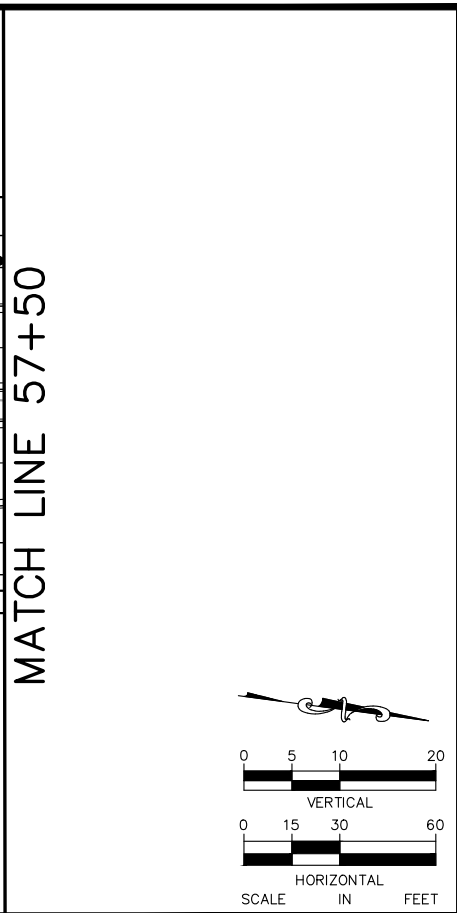
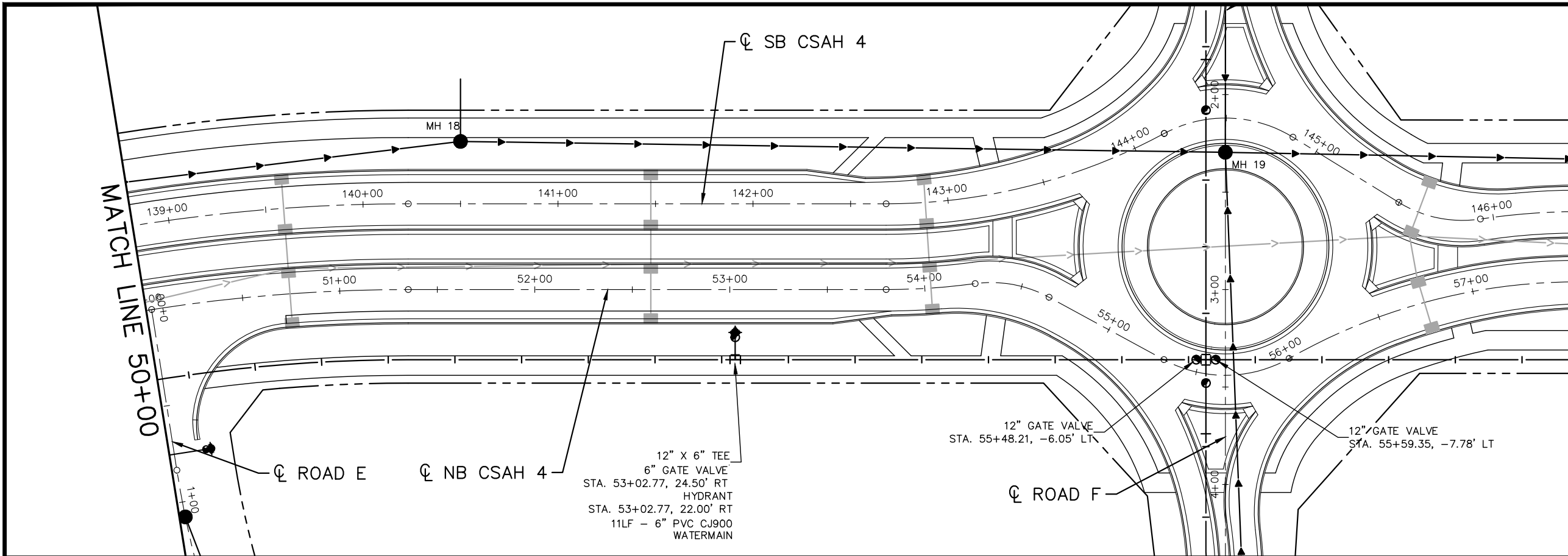
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CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 42+50 TO STA. 50+00

CITY PROJECT	SHEET NO. 149
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
335	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout08 January 09, 2019 - 3:47pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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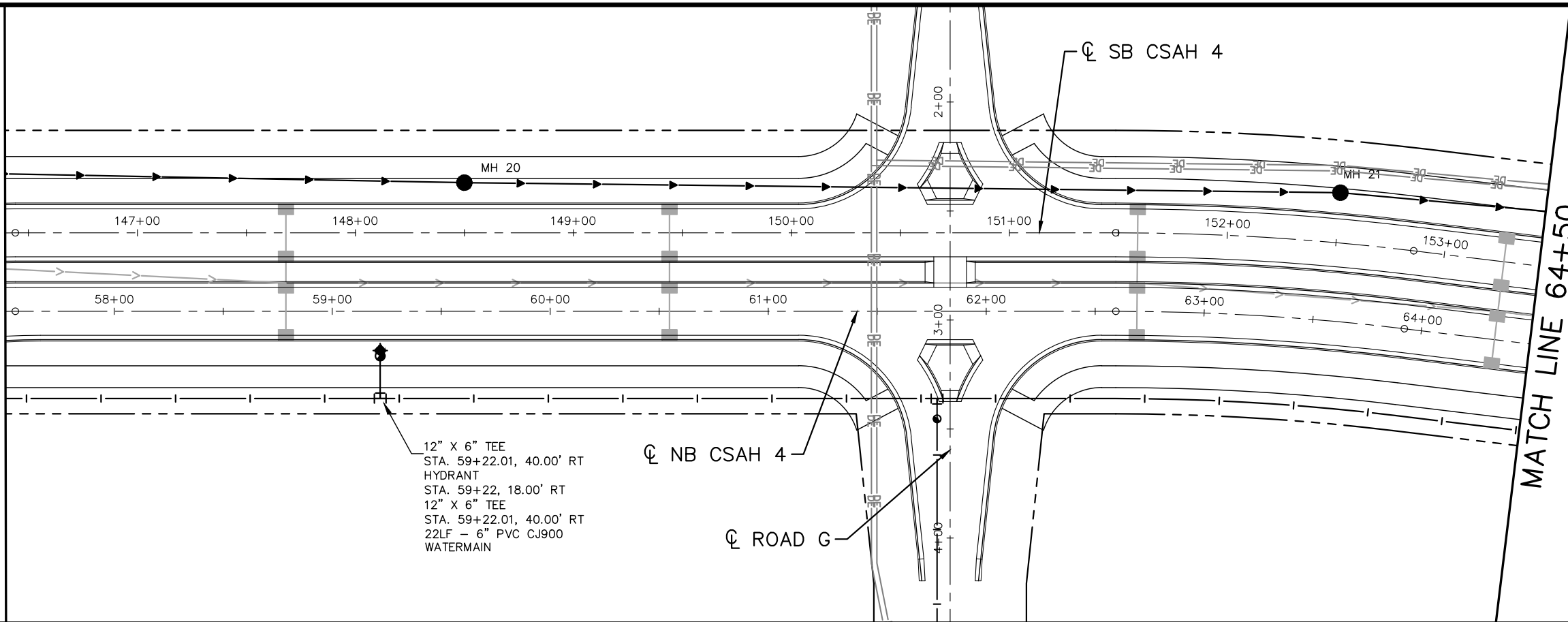
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 50+00 TO STA. 57+50

CITY PROJECT	150
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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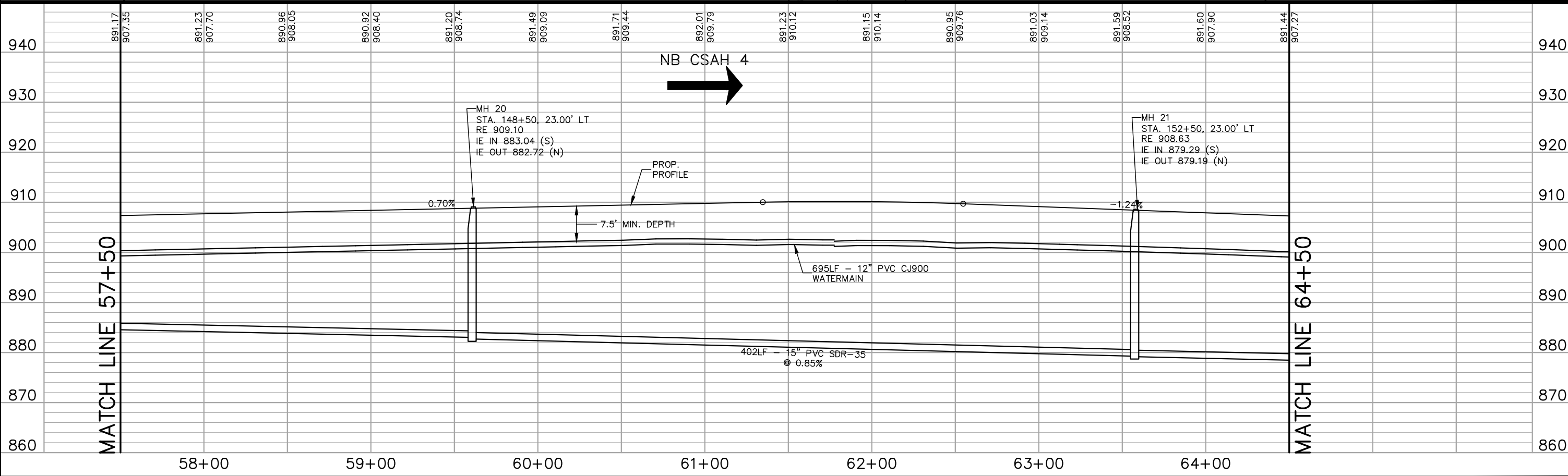
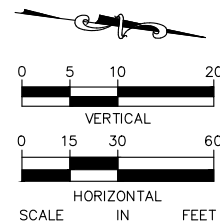
MATCH LINE 57+50



12" X 6" TEE
 STA. 59+22.01, 40.00' RT
 HYDRANT
 STA. 59+22, 18.00' RT
 12" X 6" TEE
 STA. 59+22.01, 40.00' RT
 22LF - 6" PVC CJ900
 WATERMAIN

☉ NB CSAH 4

☉ ROAD G



NB CSAH 4



MH 20
 STA. 148+50, 23.00' LT
 RE 909.10
 IE IN 883.04 (S)
 IE OUT 882.72 (N)

MH 21
 STA. 152+50, 23.00' LT
 RE 908.63
 IE IN 879.29 (S)
 IE OUT 879.19 (N)

MATCH LINE 57+50

MATCH LINE 64+50

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
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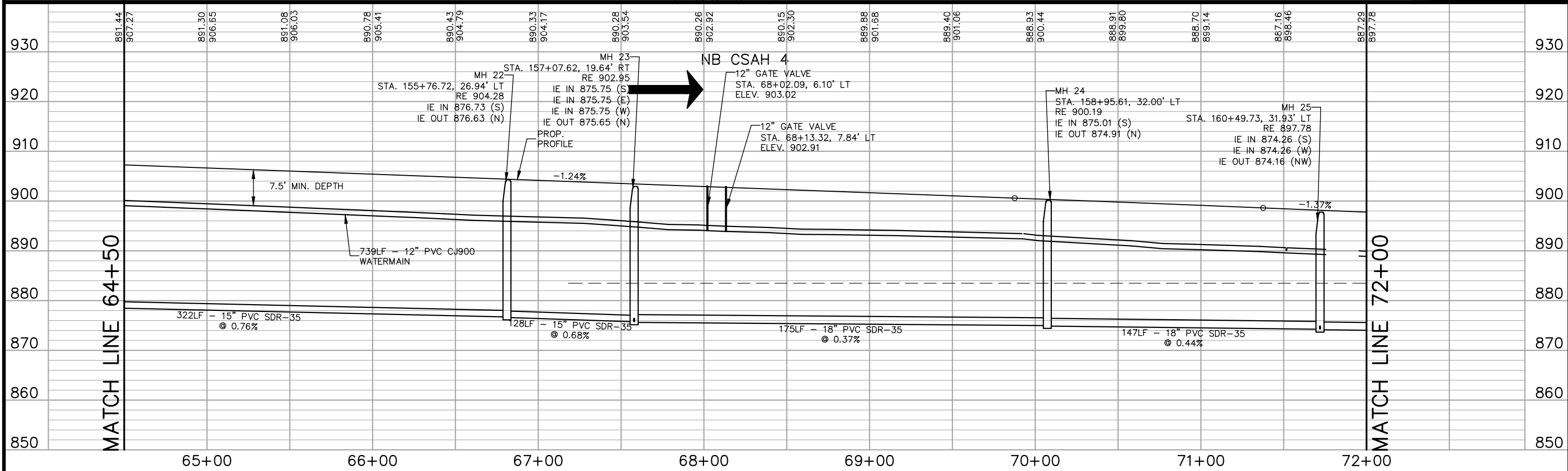
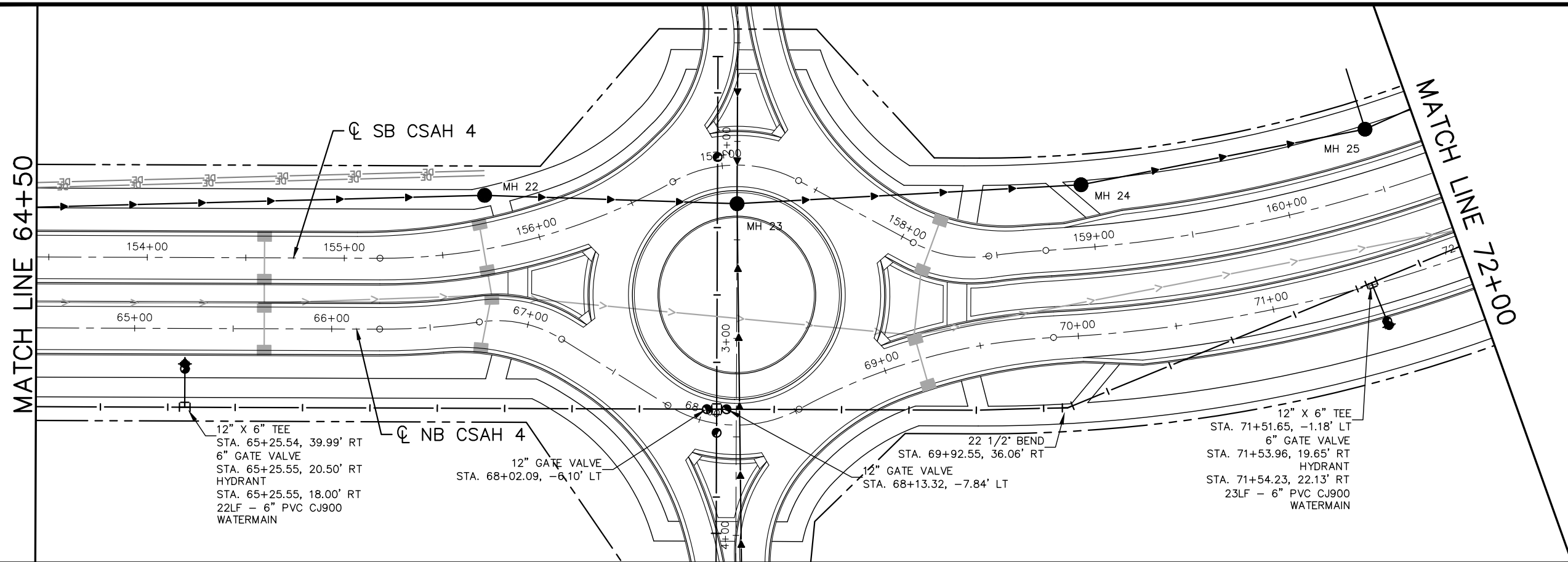
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 57+50 TO STA. 64+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 151
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout10 January 09, 2019 - 3:48pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
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DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

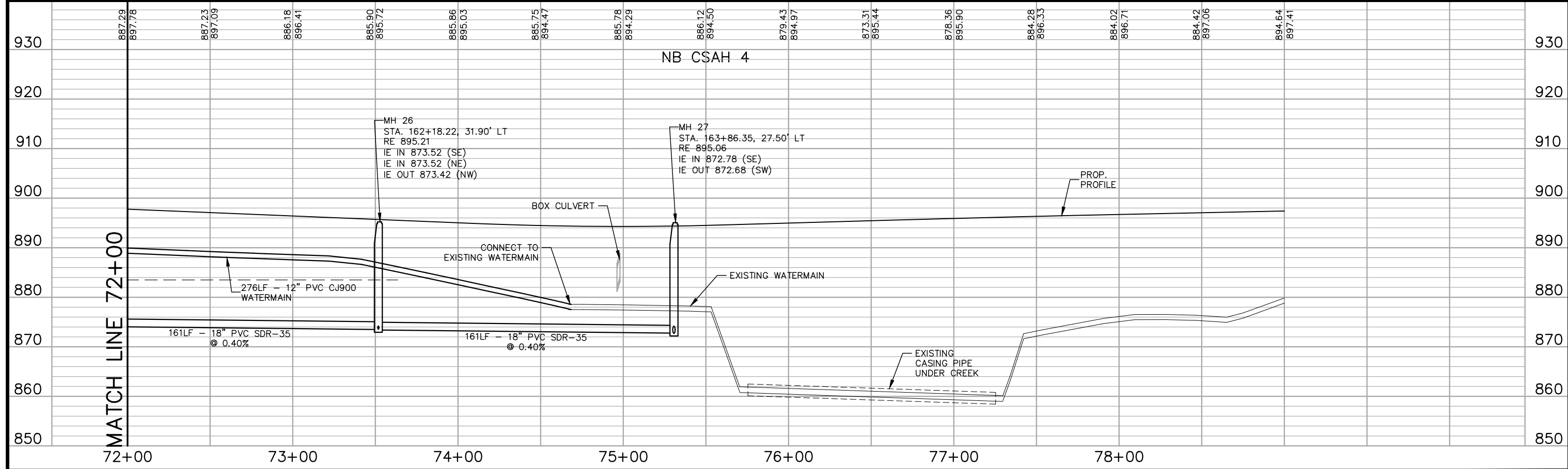
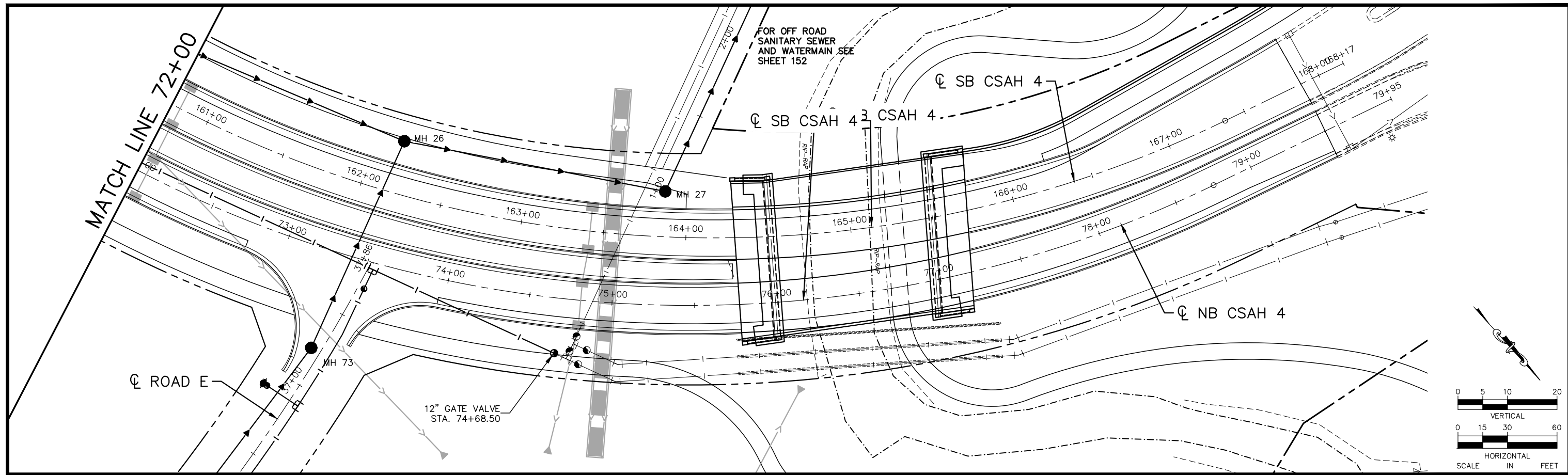
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 64+50 TO STA. 72+00

CITY PROJECT		SHEET NO.	152
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_UTIL.dwg Layout11 January 09, 2019 - 3:48pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

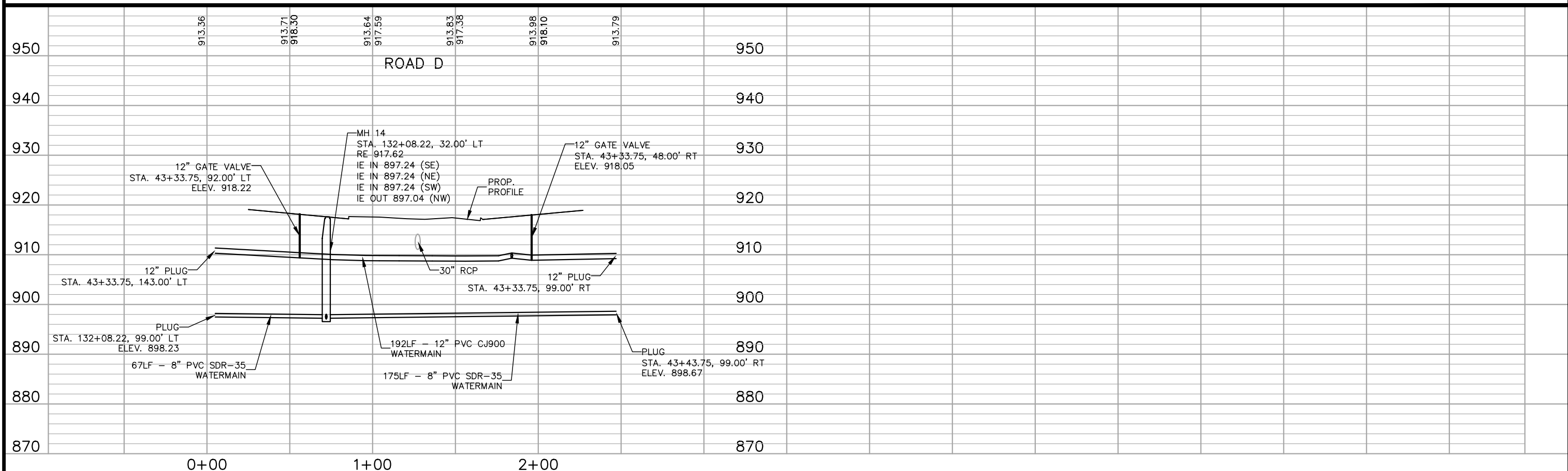
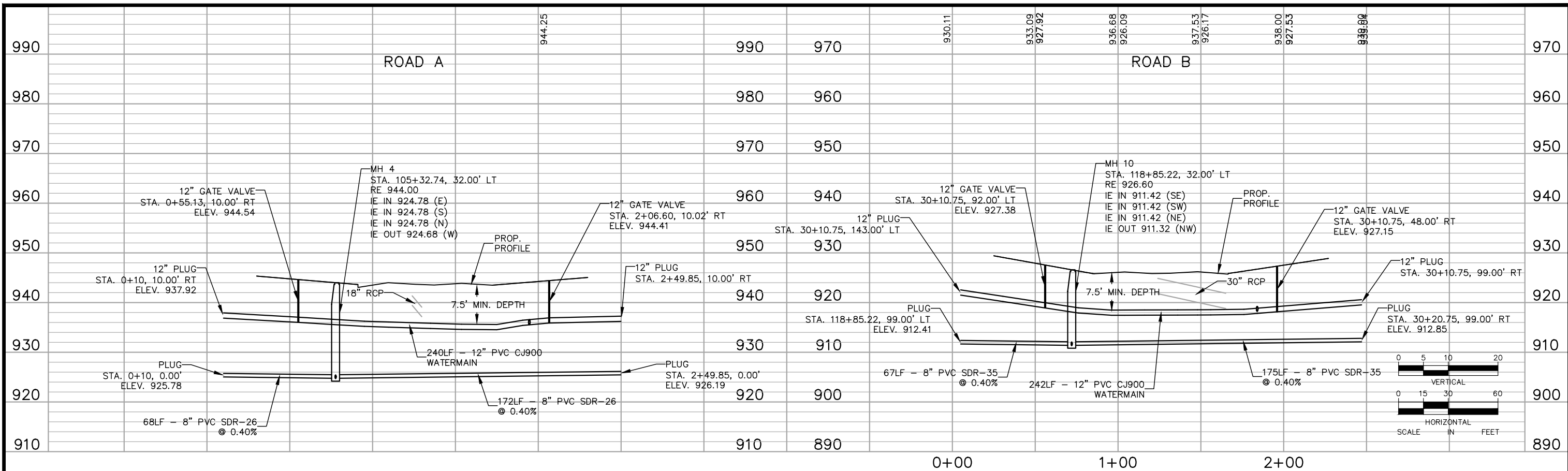
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

CSAH 4
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 72+00 TO STA. 79+00

CITY PROJECT		SHEET NO. 153
COUNTY PROJECT		
S.A.P.	062-593-004	335
S.A.P.		

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_UTIL.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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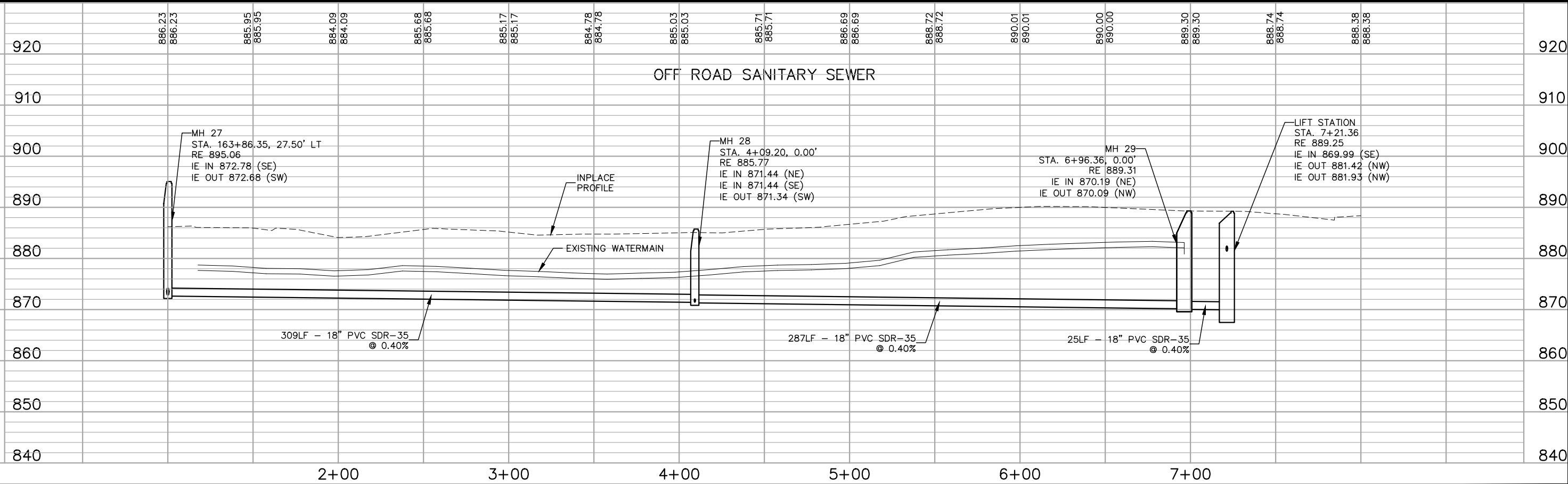
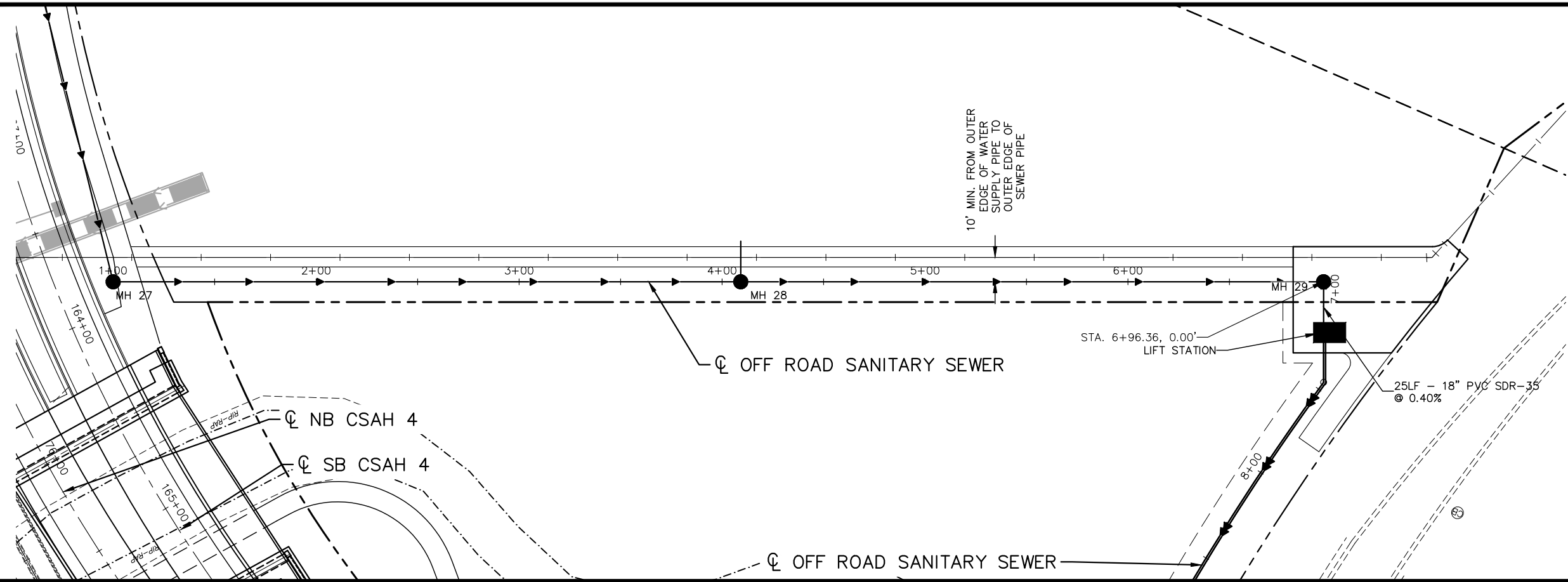
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD A, ROAD B AND ROAD D
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE

CITY PROJECT	SHEET NO. 154 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_UTIL.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

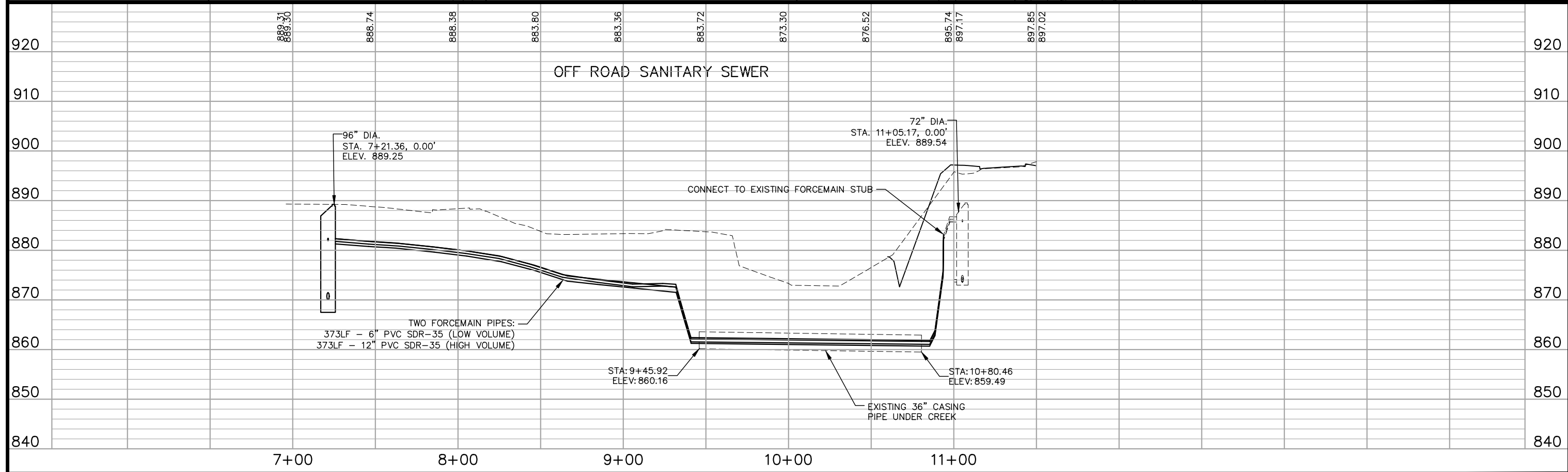
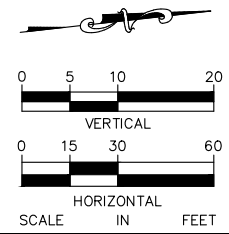
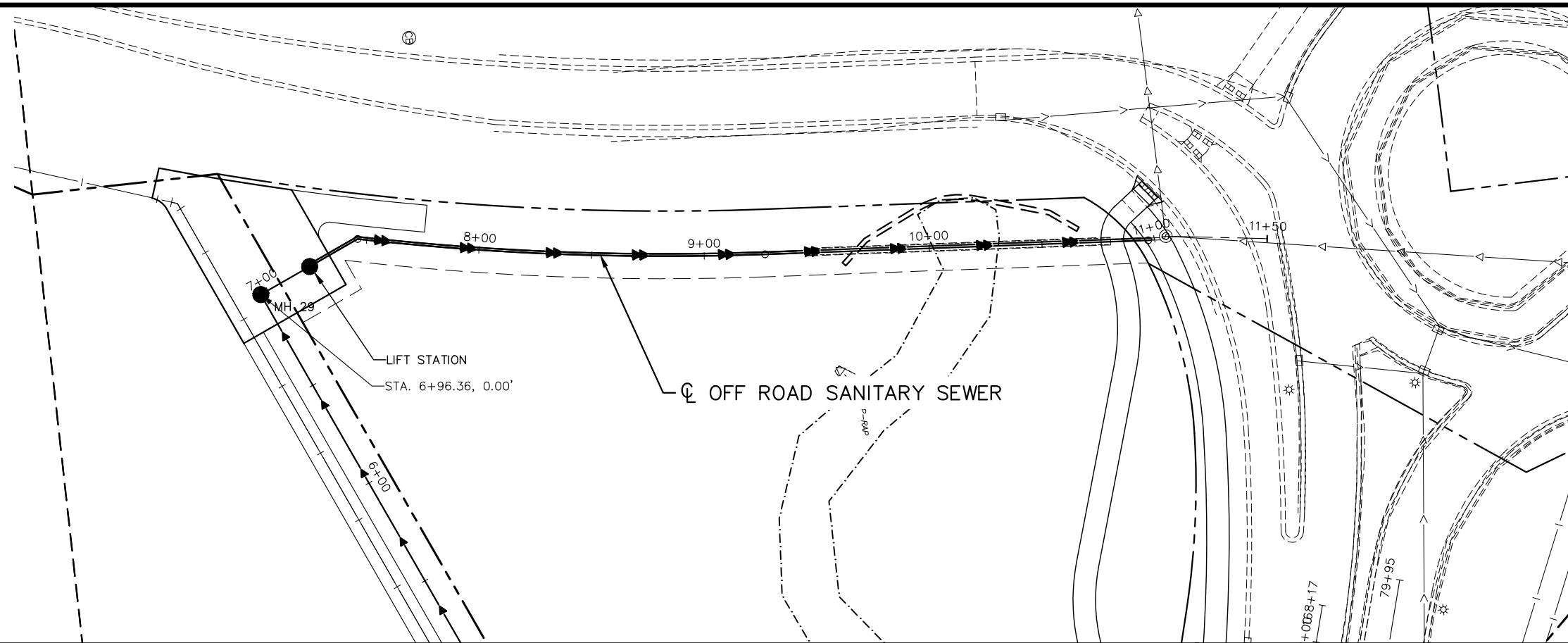
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 OFF ROAD SANITARY SEWER
 SANITARY SEWER PLAN AND PROFILE
 STA. 1+00 TO STA. 7+21

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
155

335

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_UTIL.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
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DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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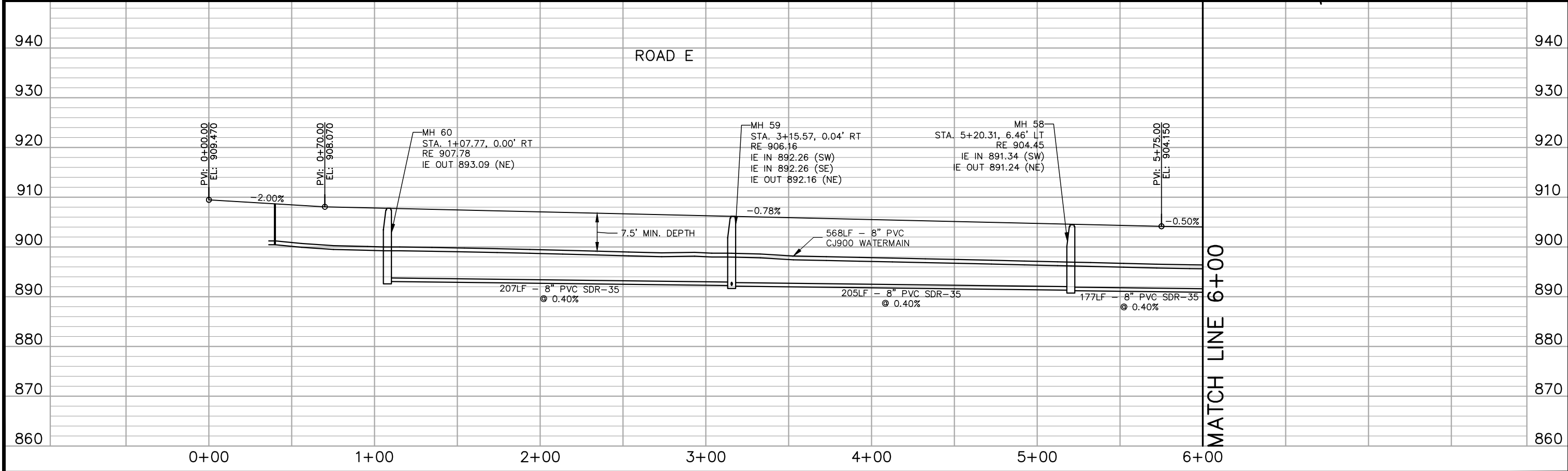
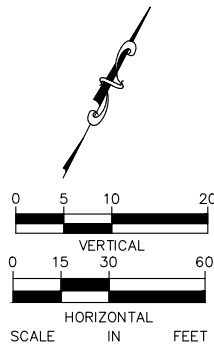
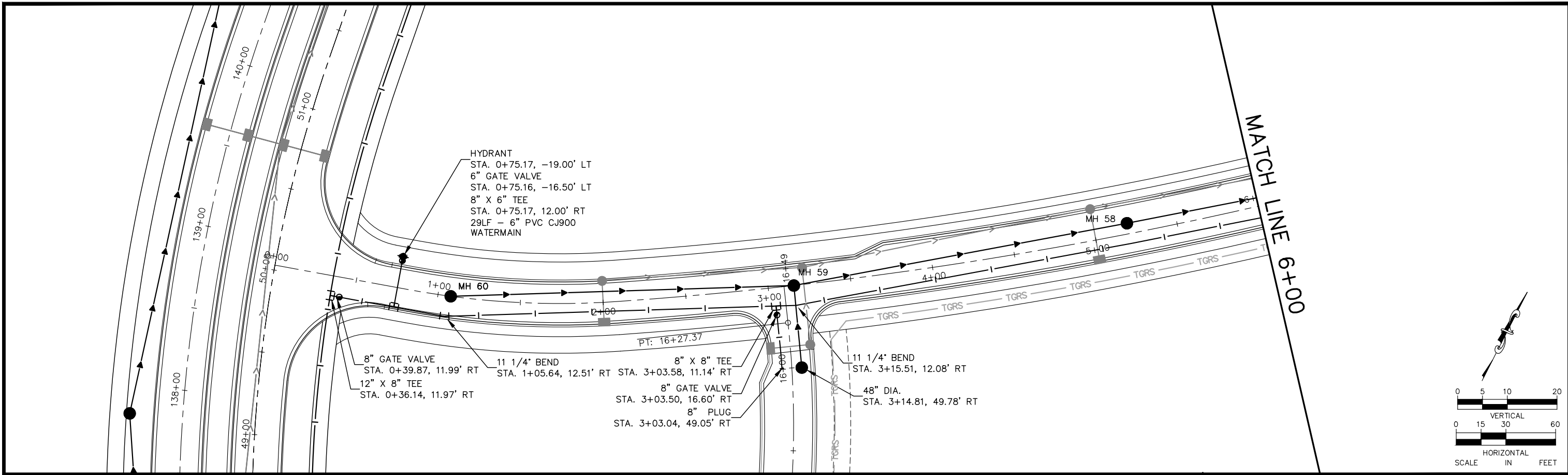
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SANITARY SEWER FORCEMAIN
 PLAN AND PROFILE
 STA. 7+21 TO STA. 11+05

CITY PROJECT	SHEET NO. 156
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

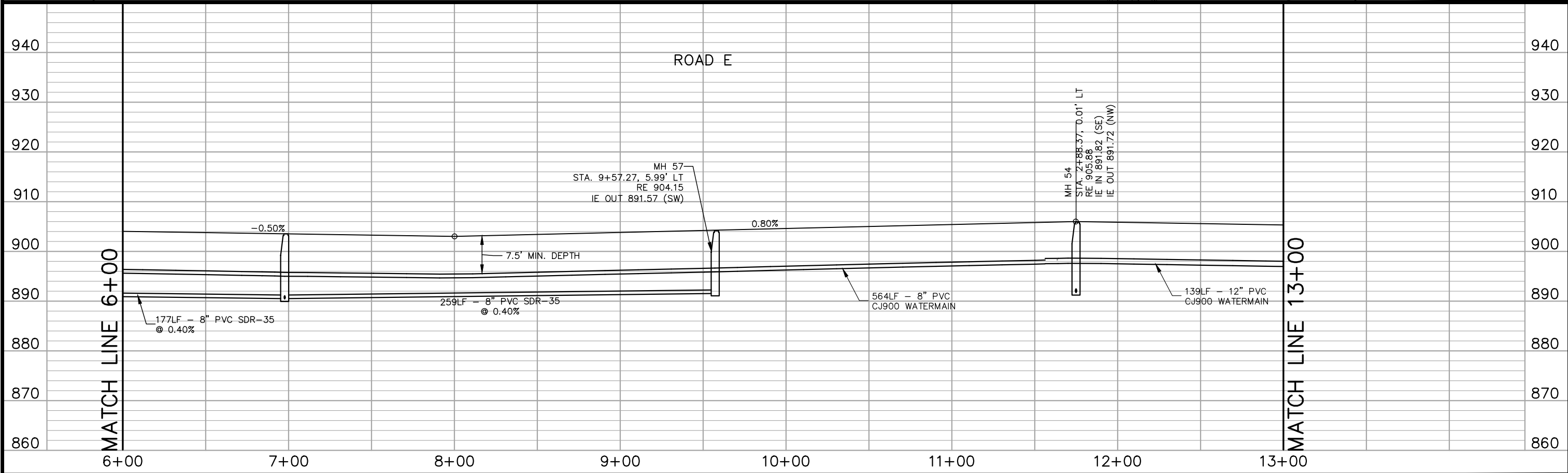
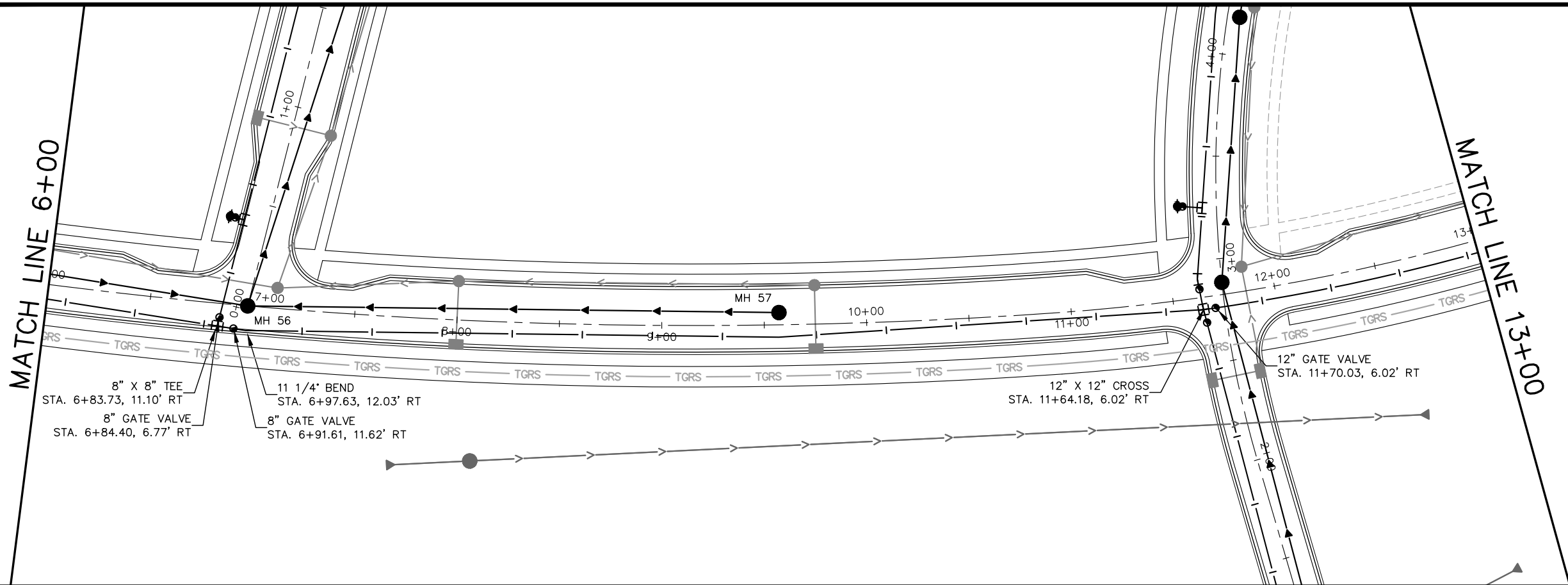
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 0+00 TO STA. 6+00

CITY PROJECT		SHEET NO. 157
COUNTY PROJECT		
S.A.P.	062-593-004	335
S.A.P.		

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_UTIL.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

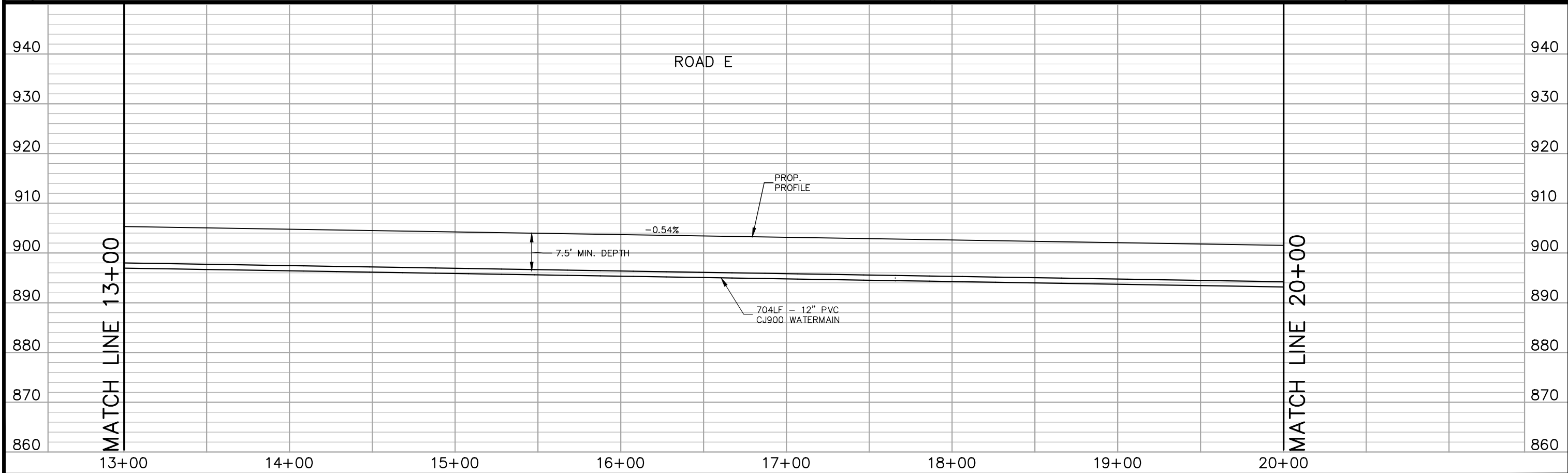
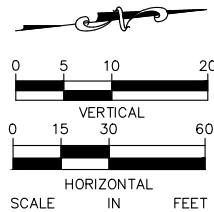
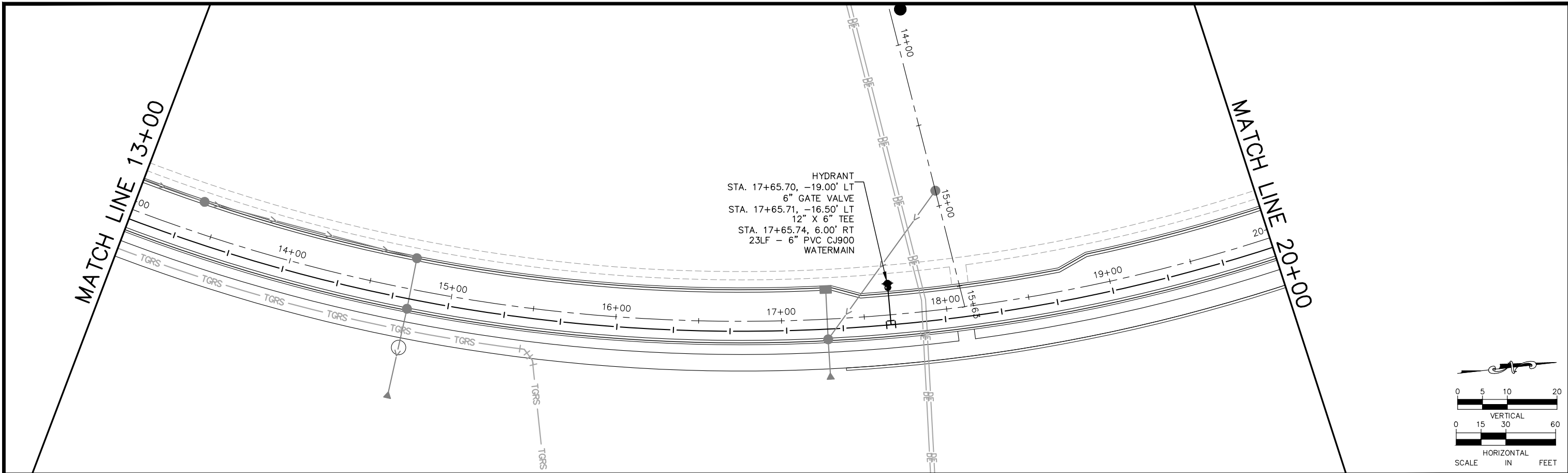
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 6+00 TO STA. 13+00

CITY PROJECT	SHEET NO. 158
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

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DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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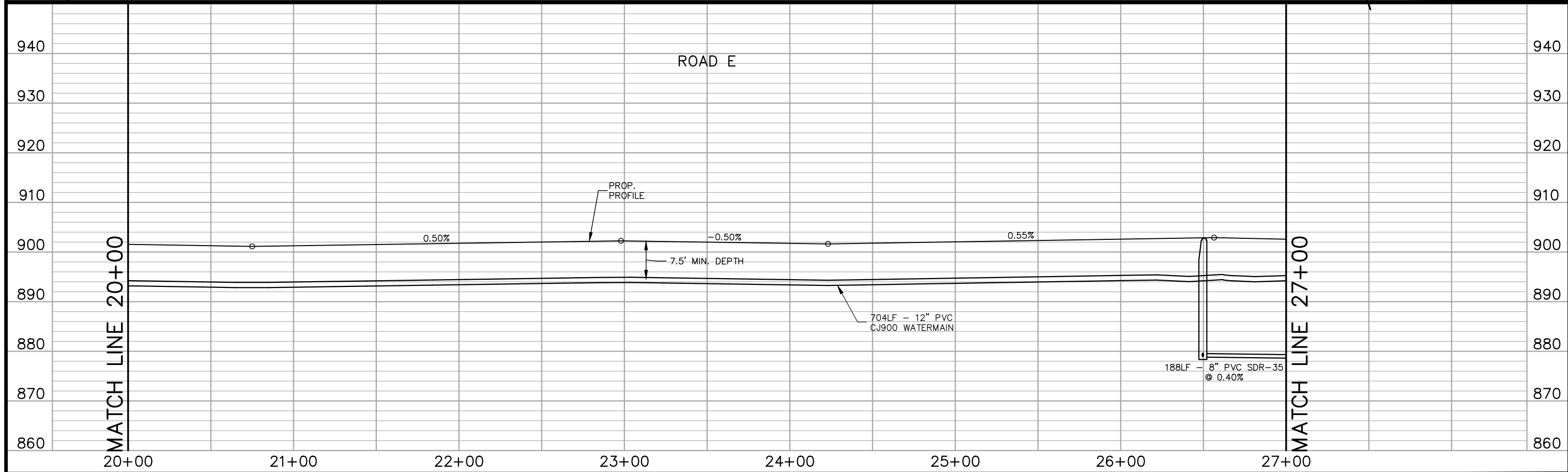
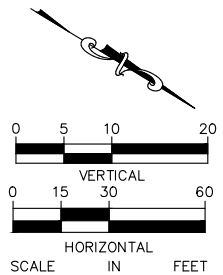
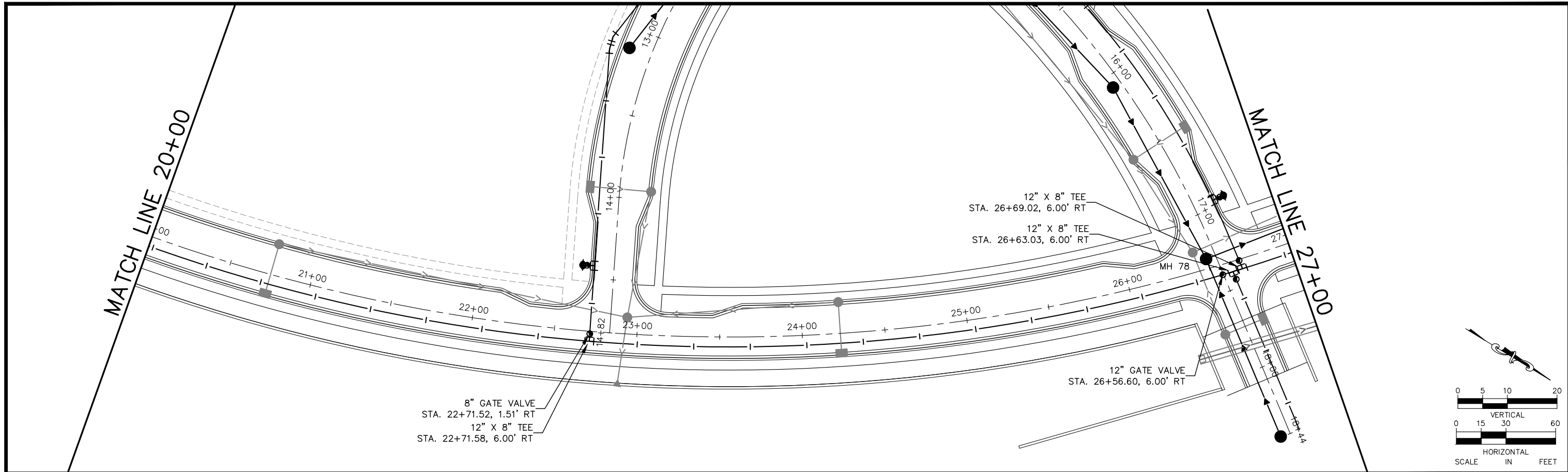
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 13+00 TO STA. 20+00

CITY PROJECT	SHEET NO. 159
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

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DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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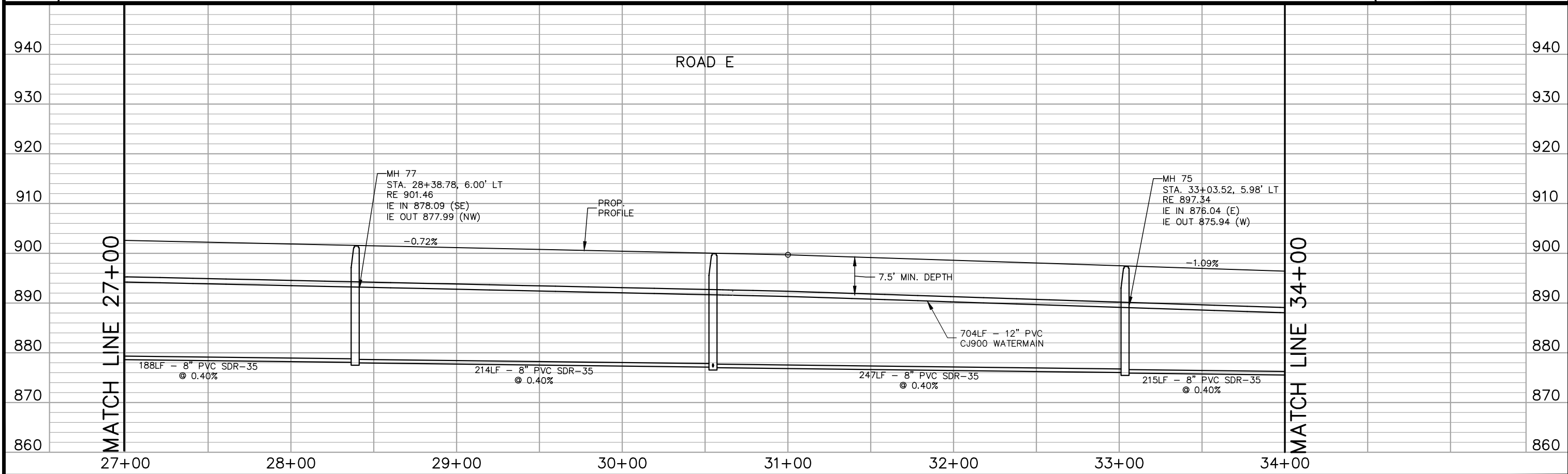
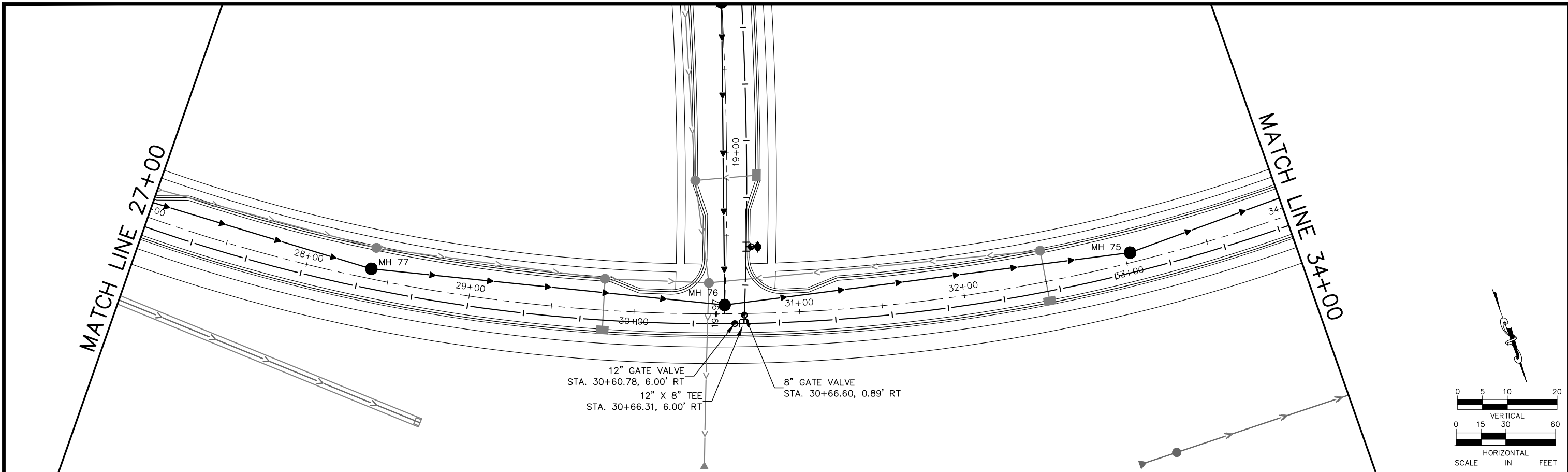
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 20+00 TO STA. 27+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 160
 335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 27+00 TO STA. 34+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
161

335

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MATCH LINE 34+00

MATCH LINE 34+00

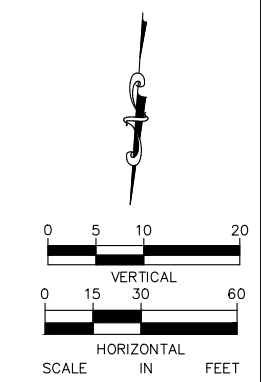
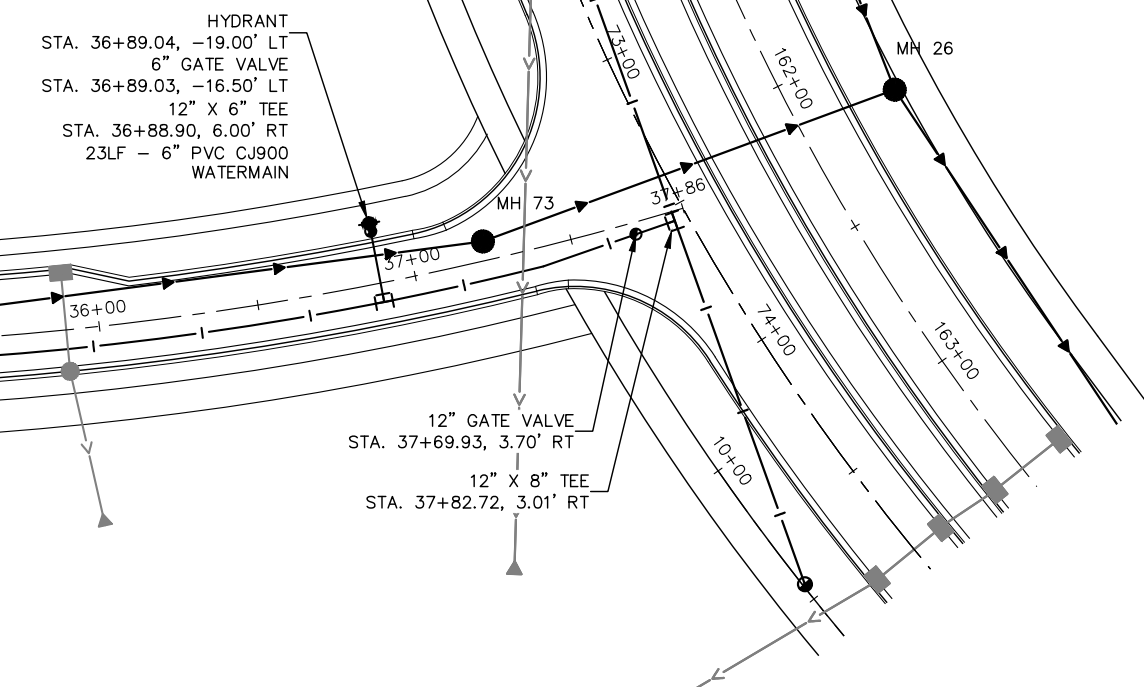
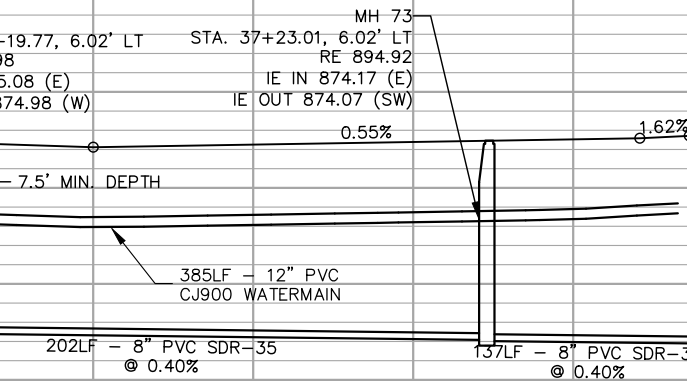
34+00

35+00

36+00

37+00

ROAD E



No.	Date	Revisions	App.

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DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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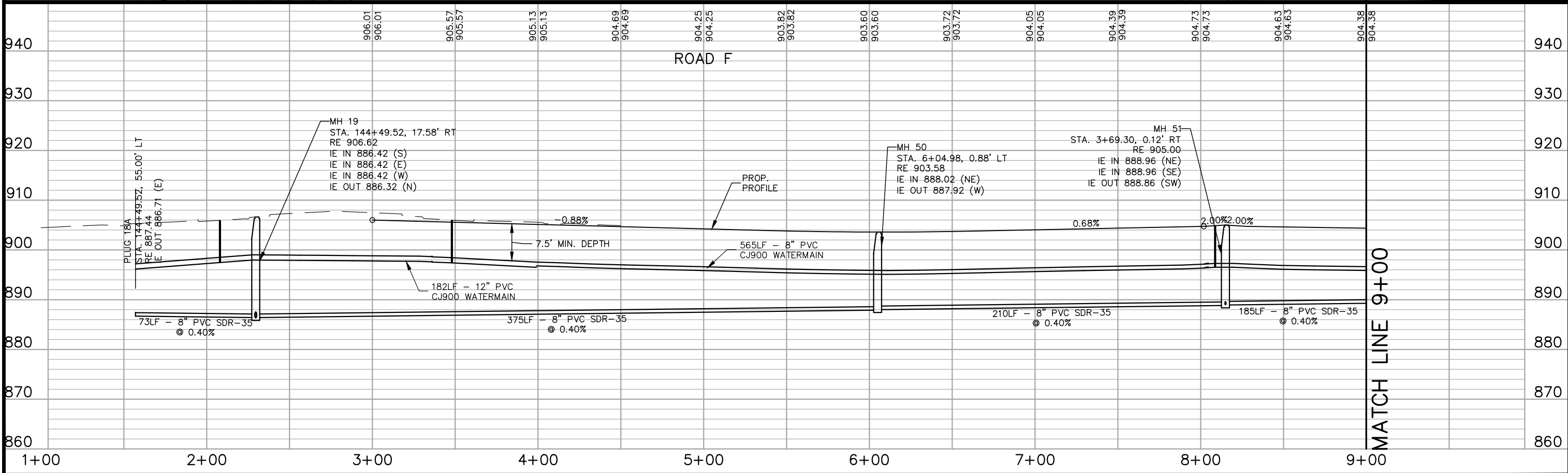
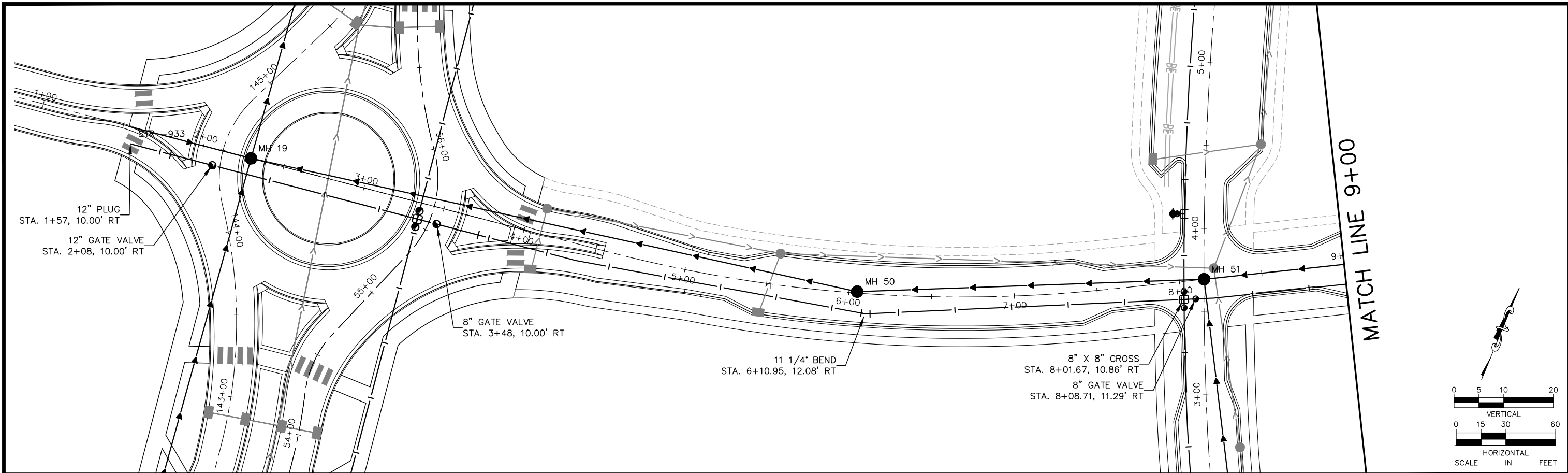
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 34+00 TO STA. 37+86

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 162
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_UTIL.dwg Layout07 January 09, 2019 - 3:55pm



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD F
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 1+00 TO STA. 9+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
163

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_UTIL.dwg Layout08 January 09, 2019 - 3:55pm

MATCH LINE 9+00

MATCH LINE 9+00

9+00

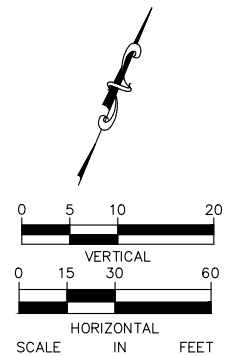
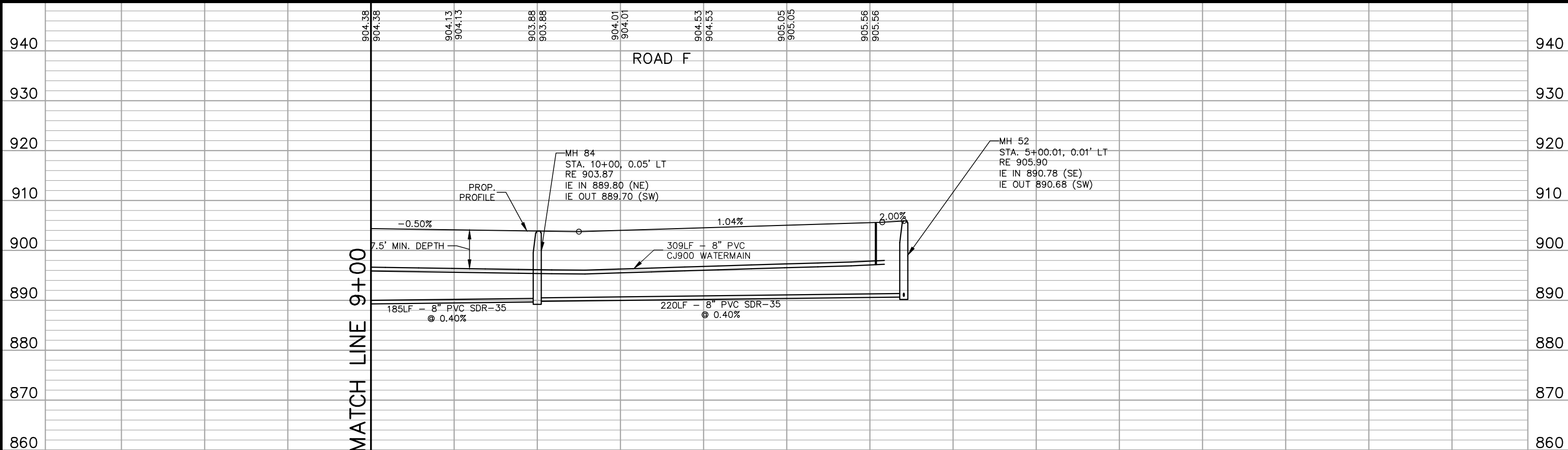
10+00

11+00

12+00

12+50

ROAD F



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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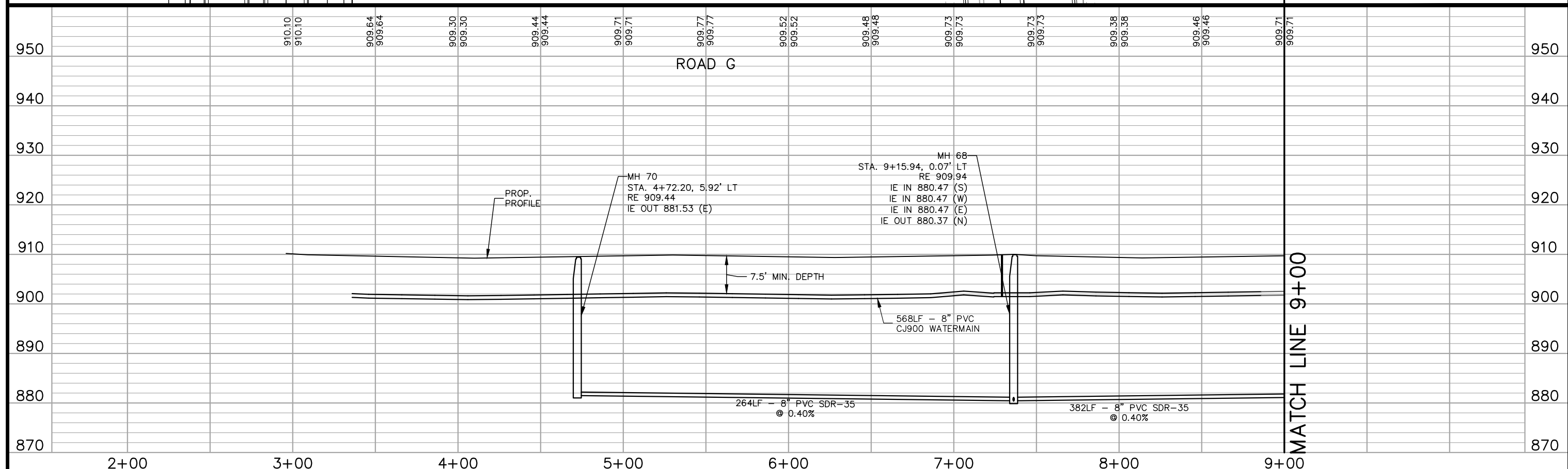
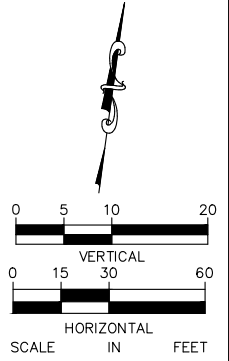
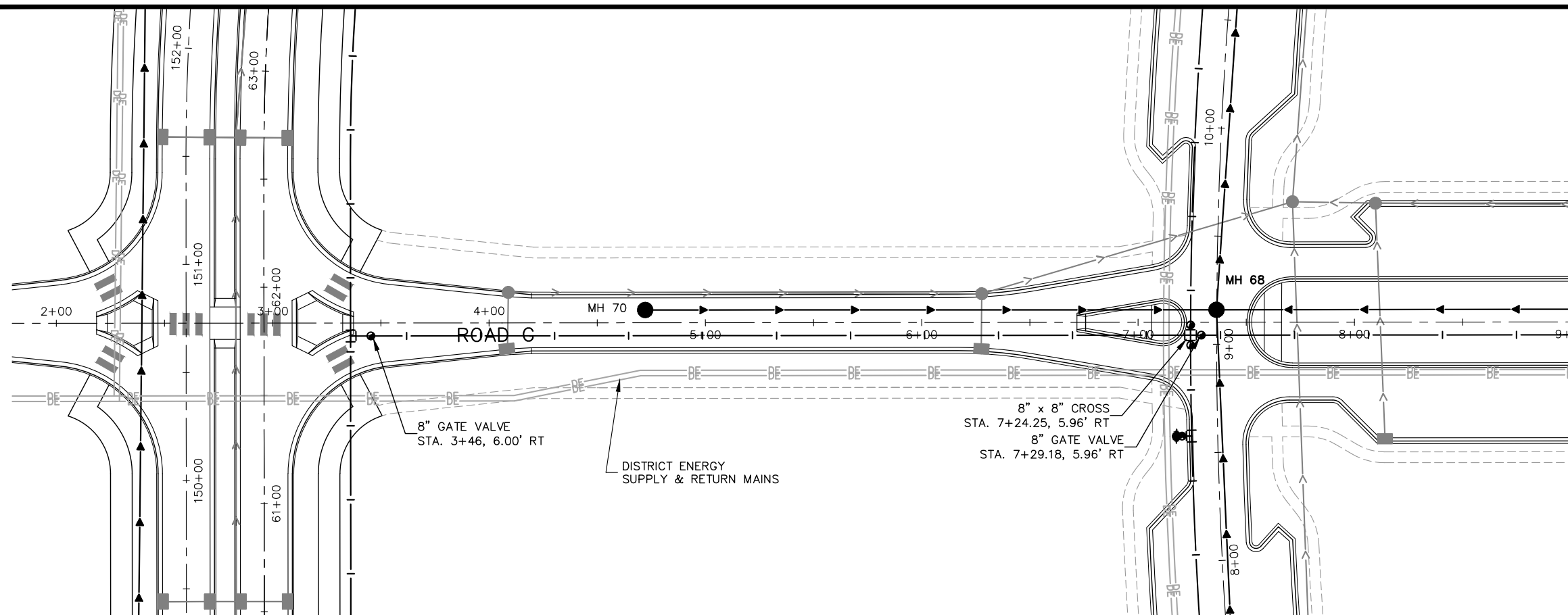
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD F
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 9+00 TO STA. 12+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 164
 335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
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DATE:	01/04/19
PROJECT NO.	160553004

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 DATE: 01/04/19 MN LIC. NO. 41864

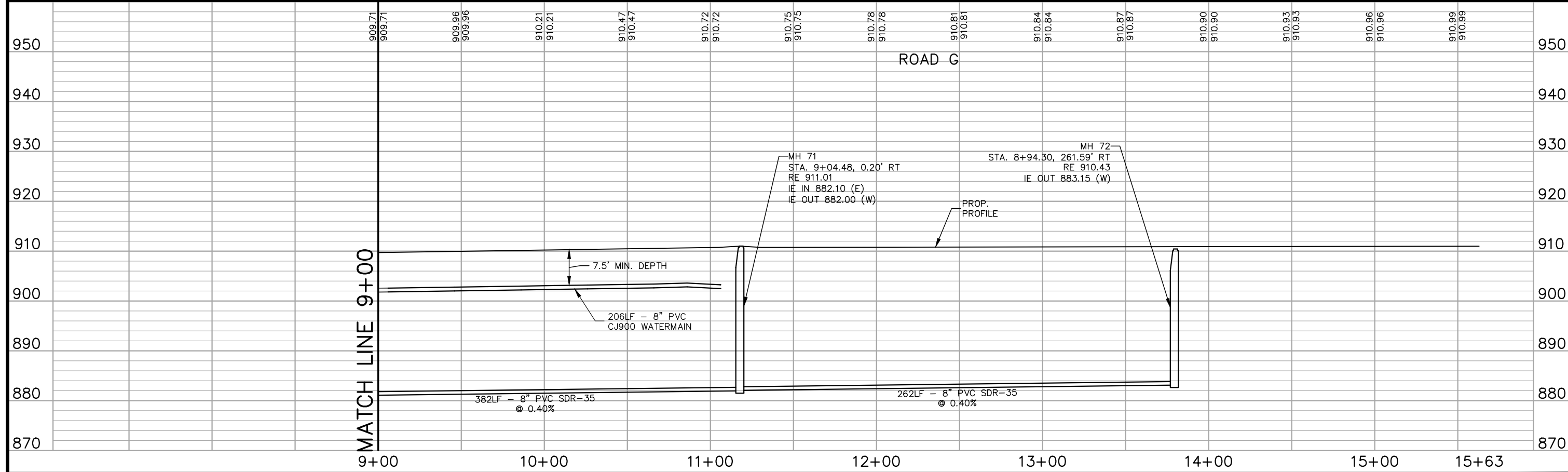
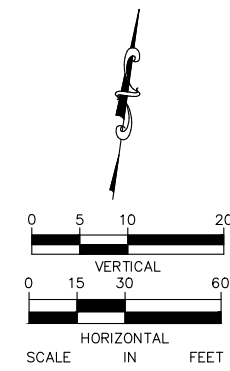
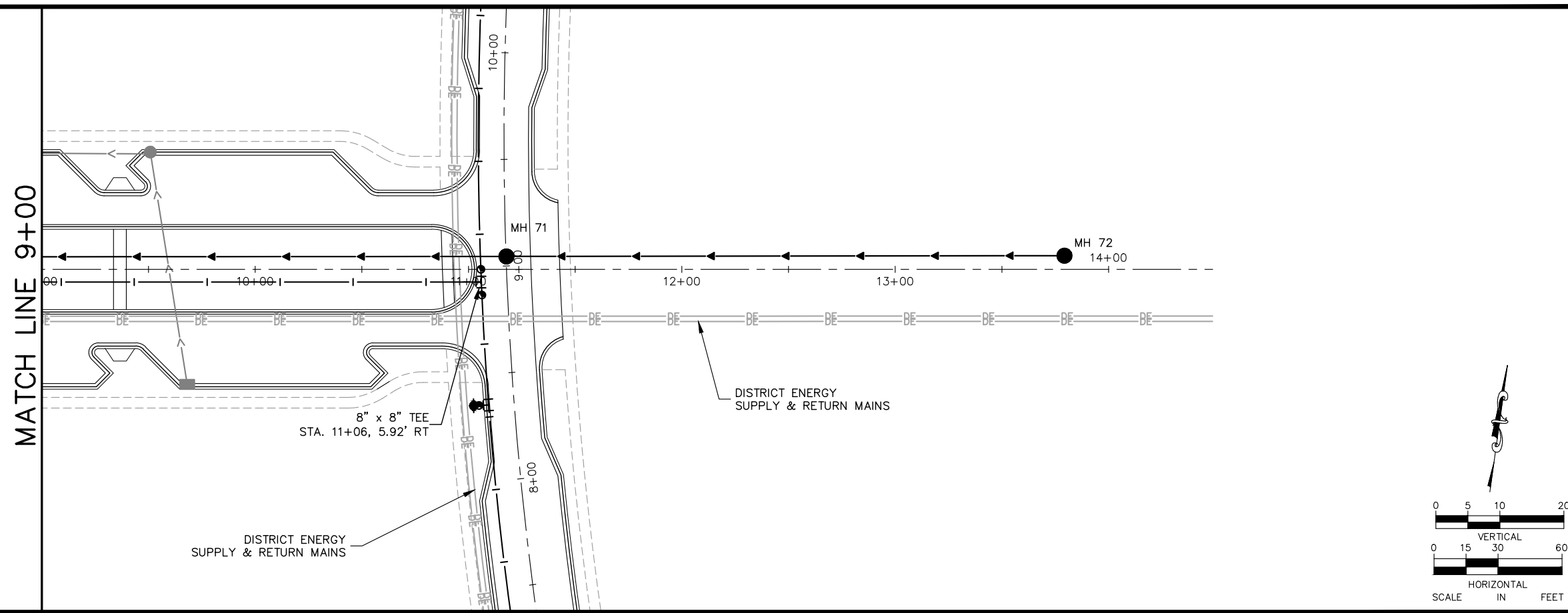
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD G
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 0+00 TO STA. 9+00

CITY PROJECT	165
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_UTIL.dwg January 09, 2019 - 3:56pm



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_TWNCNTR_UTIL.dwg
	DESIGNED BY: RSP
	DRAWN BY: RSP
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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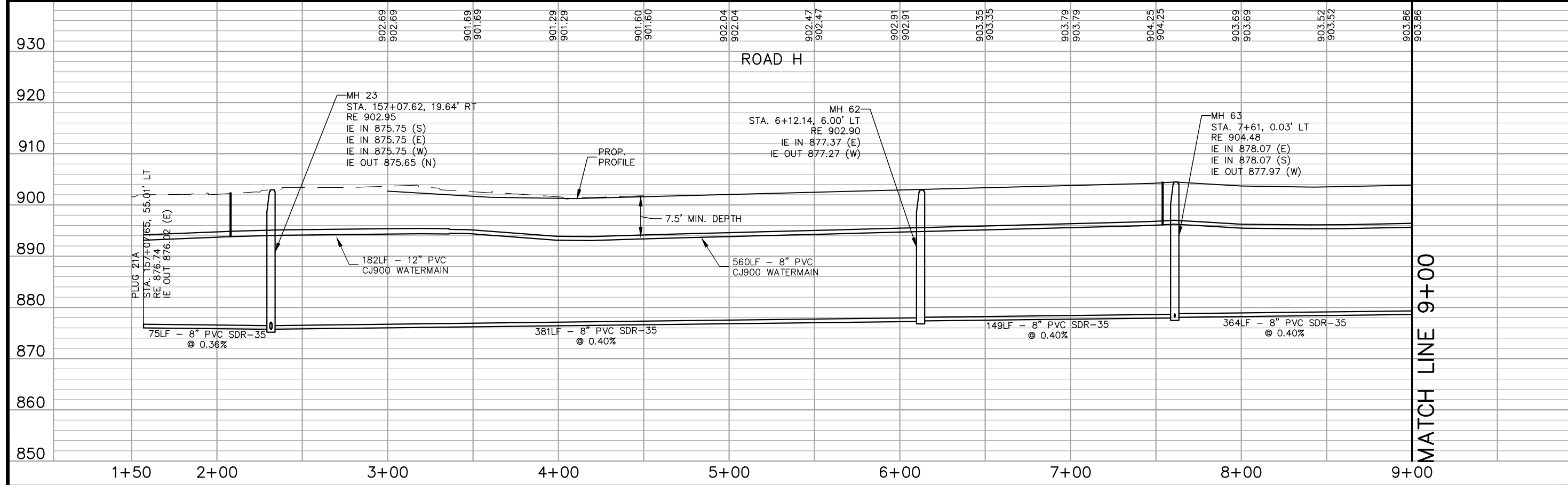
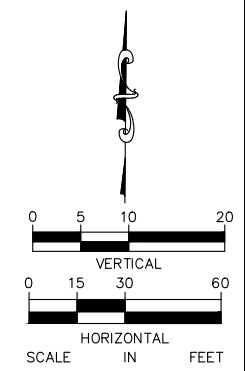
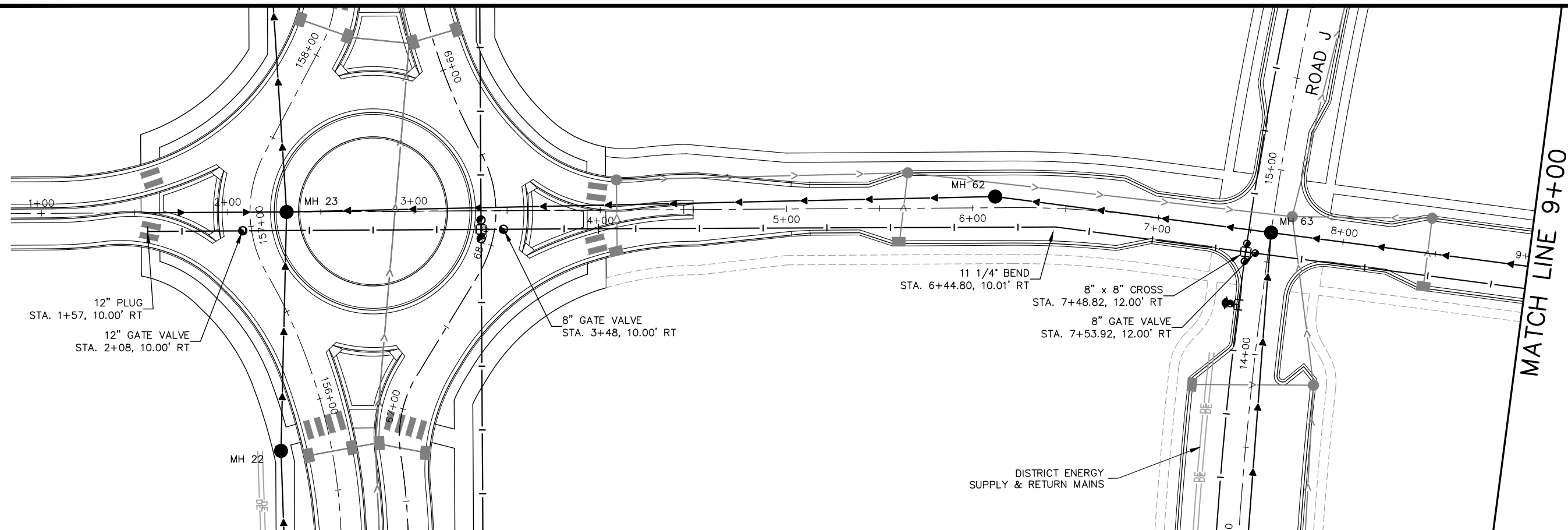
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD G
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 9+00 TO STA. 14+00

CITY PROJECT	SHEET NO. 166
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

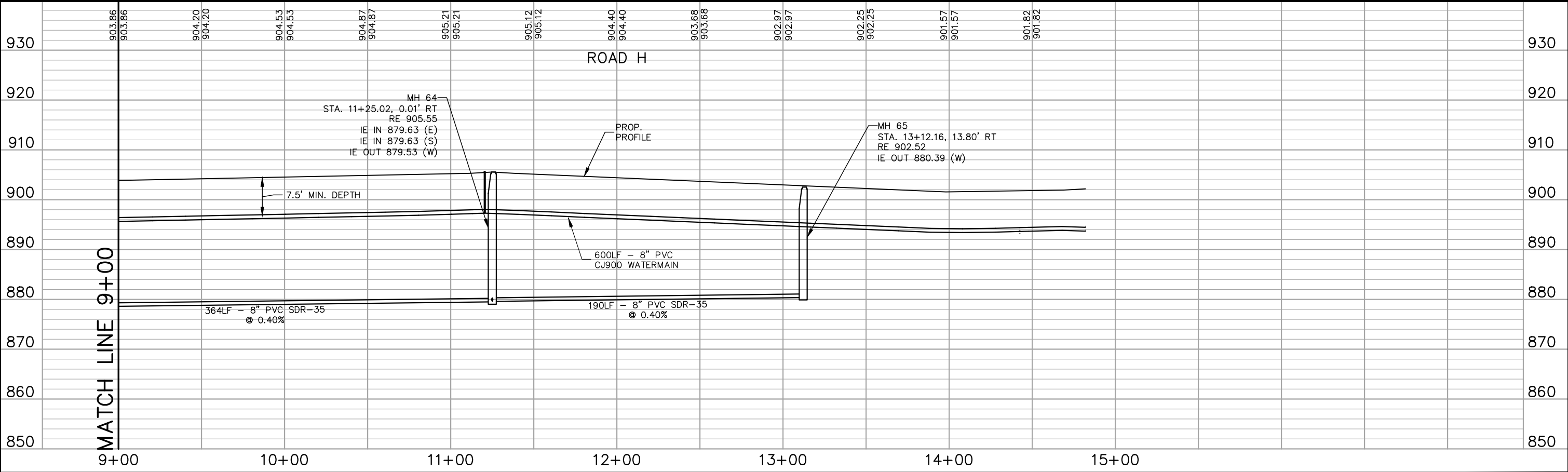
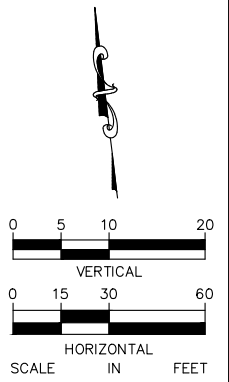
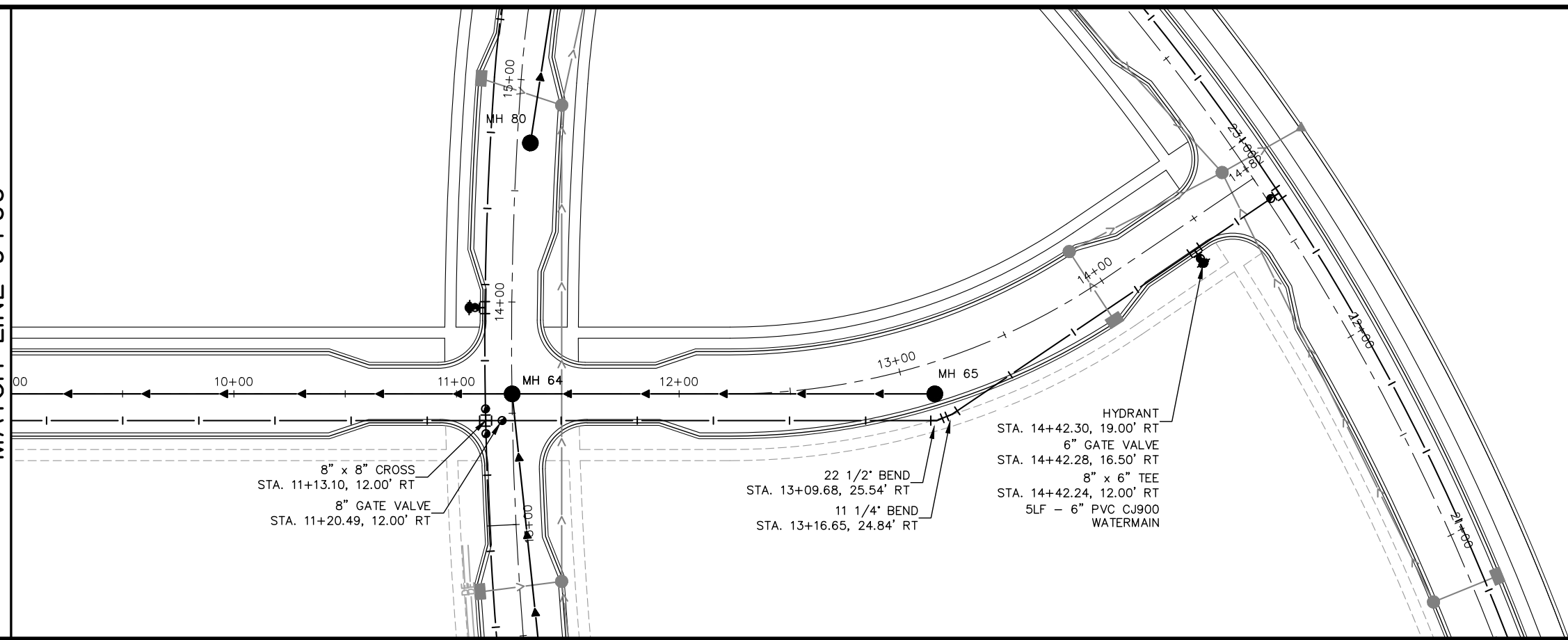
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD H
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 0+00 TO STA. 9+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
167
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_UTIL.dwg Layout12 January 09, 2019 - 3:57pm

MATCH LINE 9+00



No.	Date	Revisions	App.

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

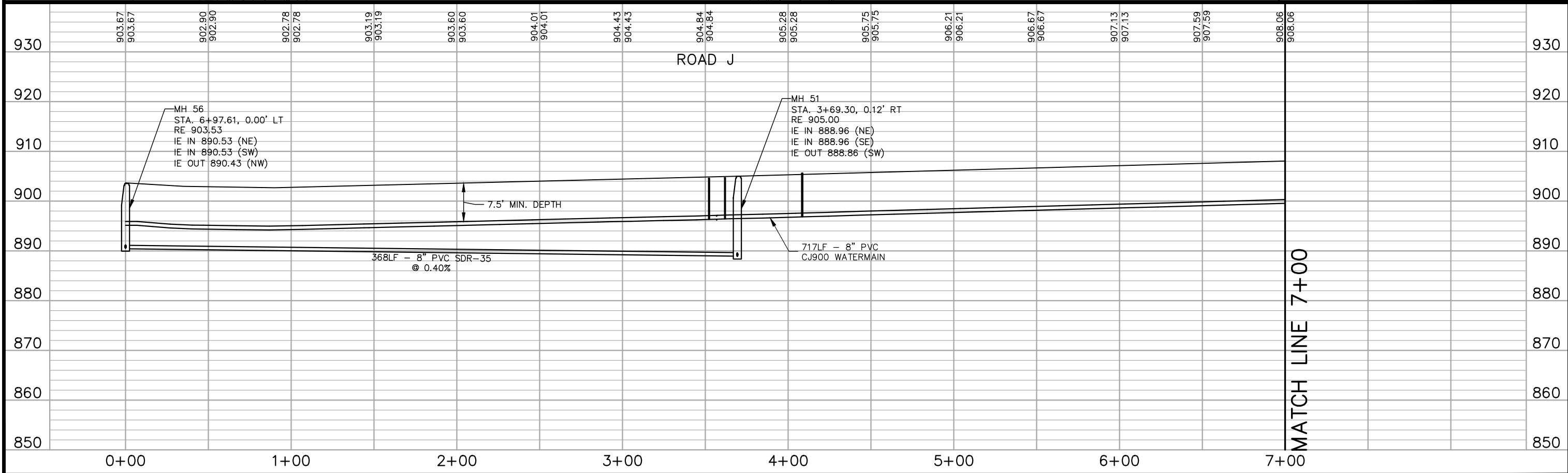
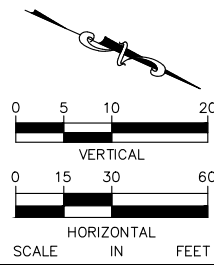
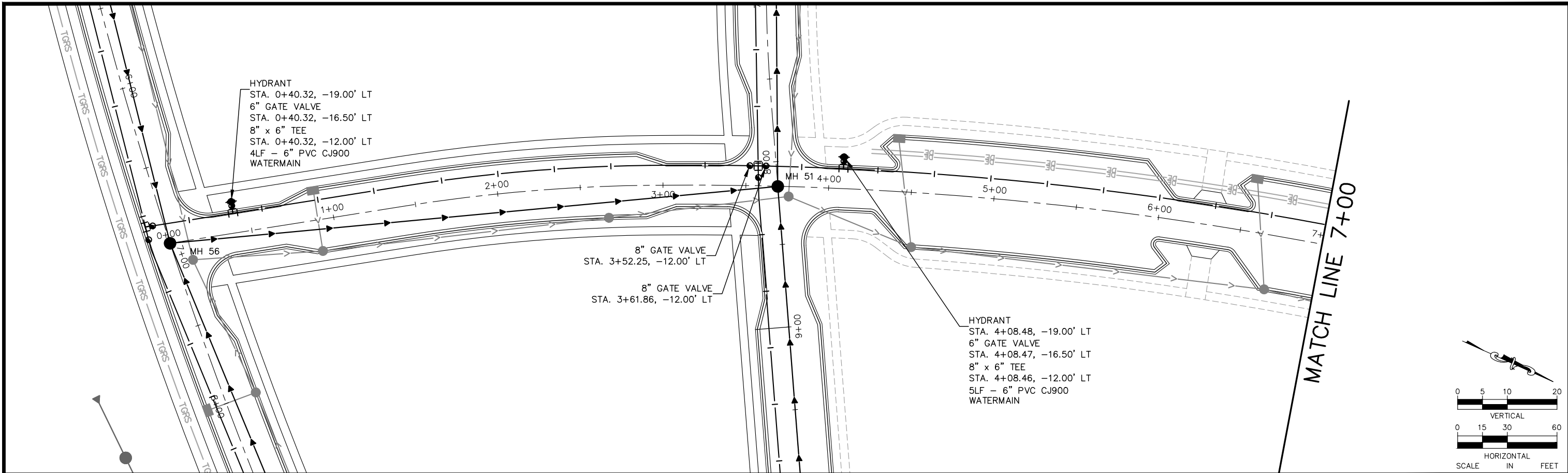
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD H
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 9+00 TO STA. 14+82

CITY PROJECT	SHEET NO. 168
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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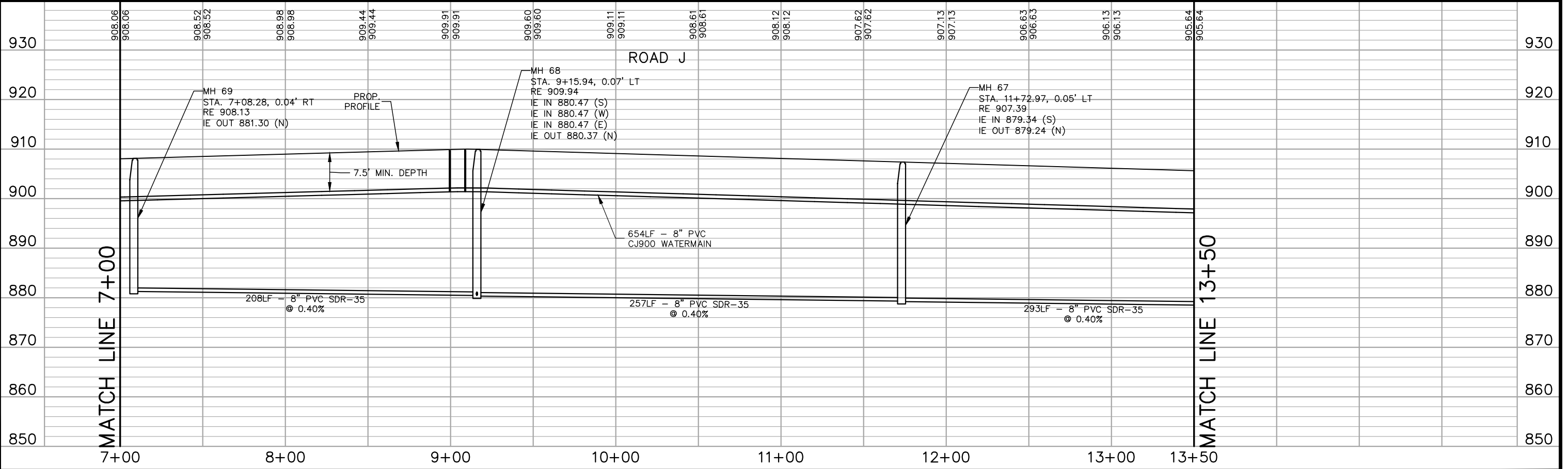
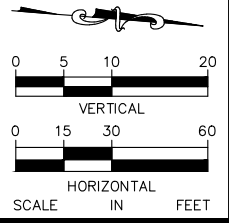
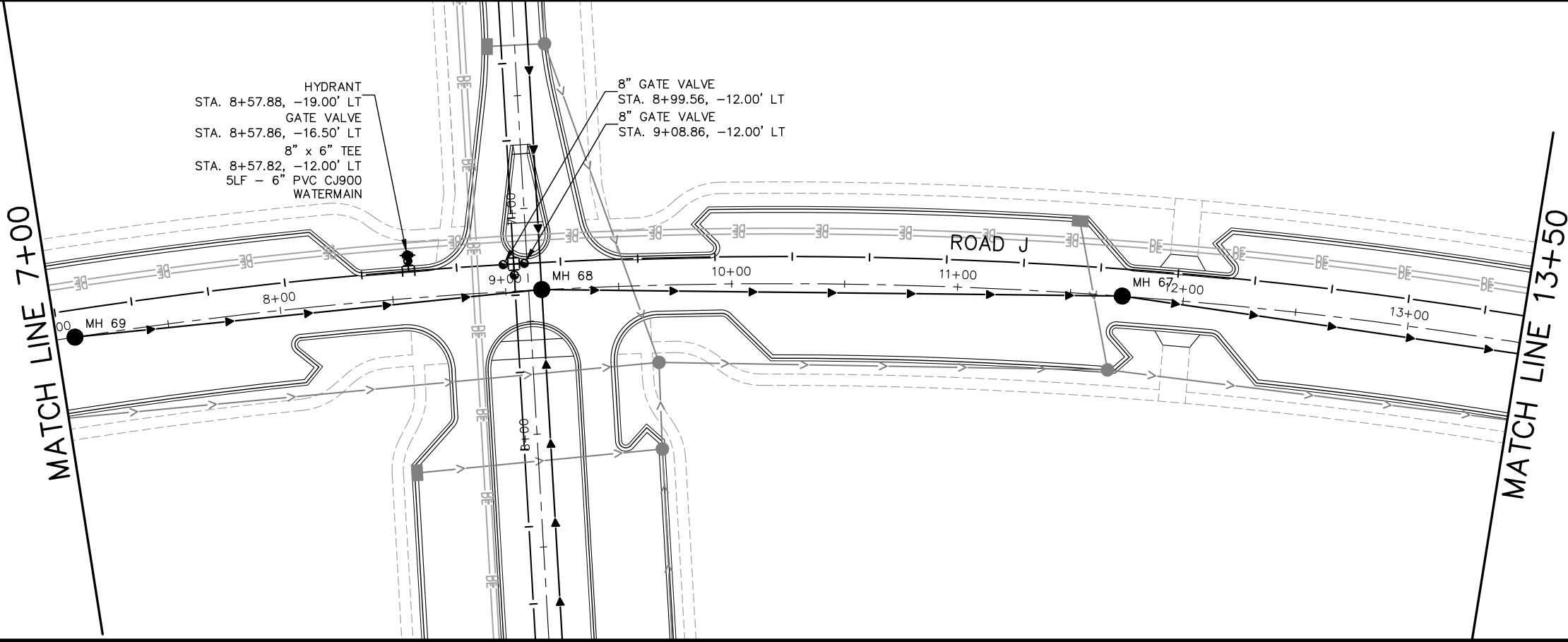
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD J
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 0+00 TO STA. 7+00

CITY PROJECT	169
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_UTIL.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

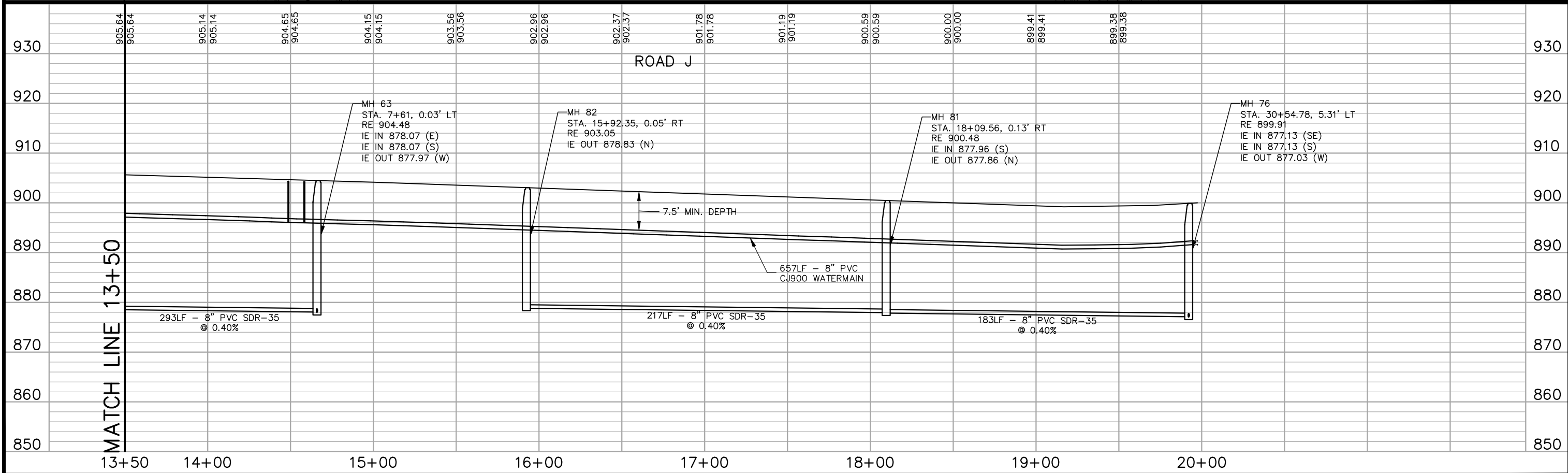
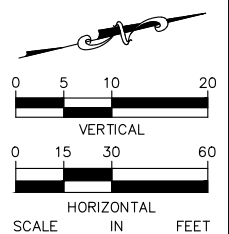
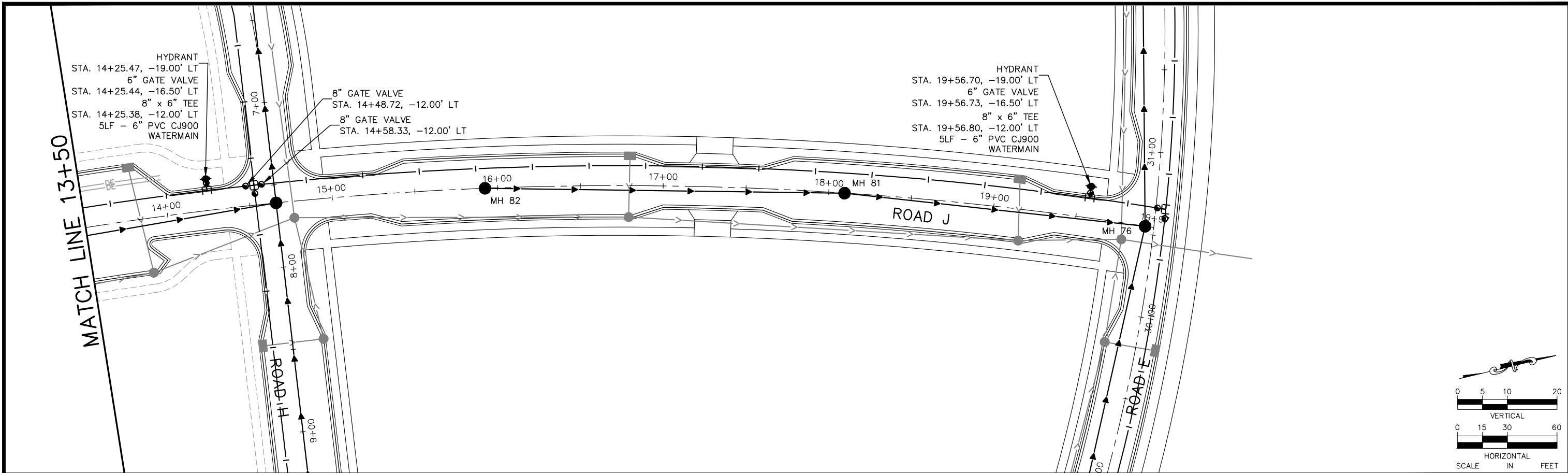
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD J
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 7+00 TO STA. 13+50

CITY PROJECT	SHEET NO. 170
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_UTIL.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

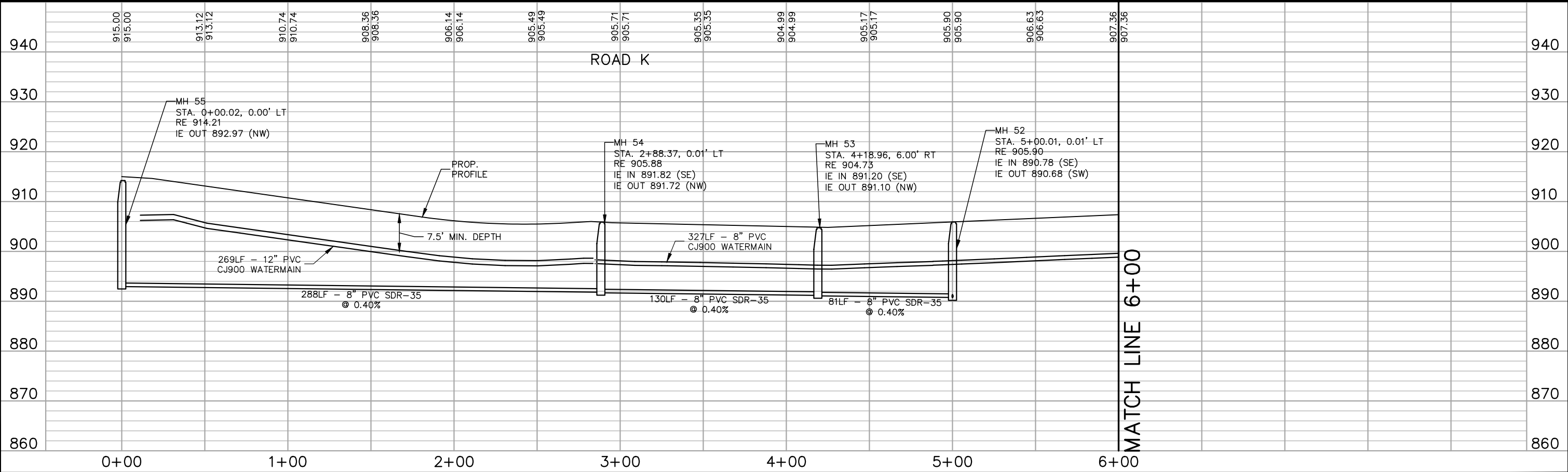
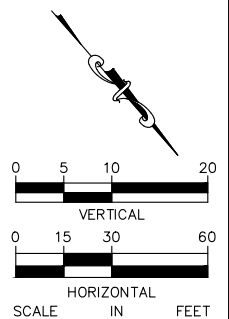
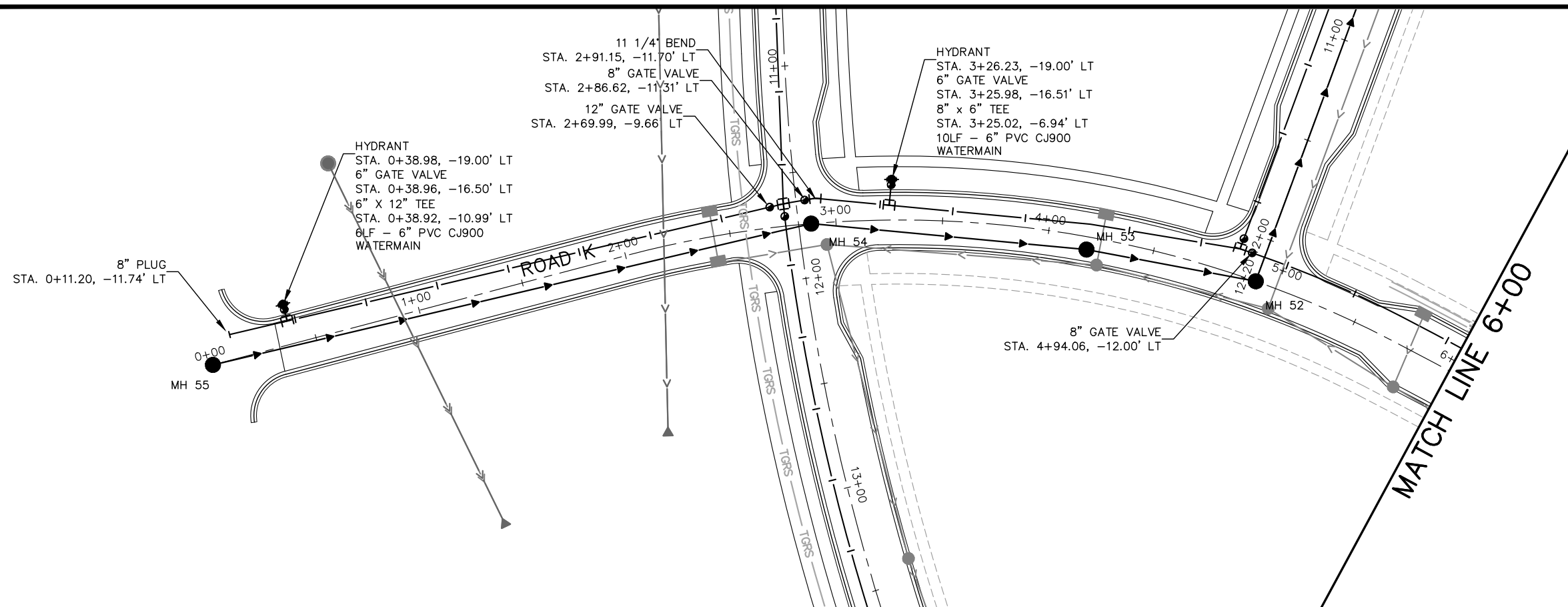
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD J
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 13+50 TO STA. 19+97

CITY PROJECT	SHEET NO. 171
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

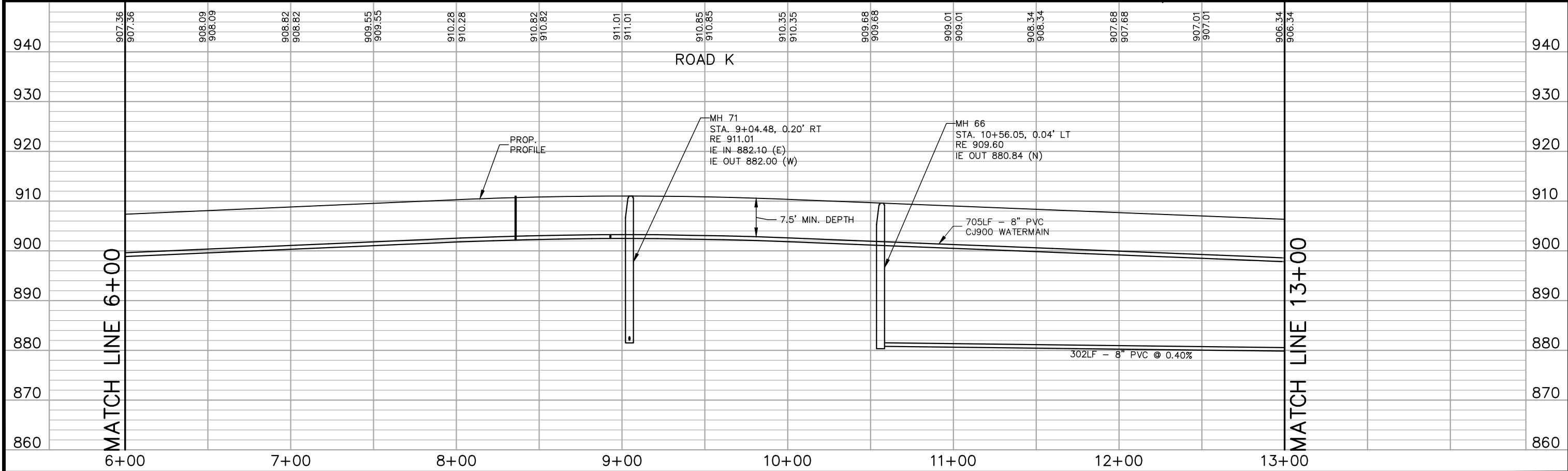
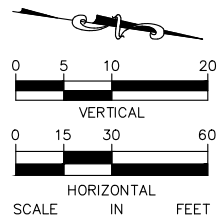
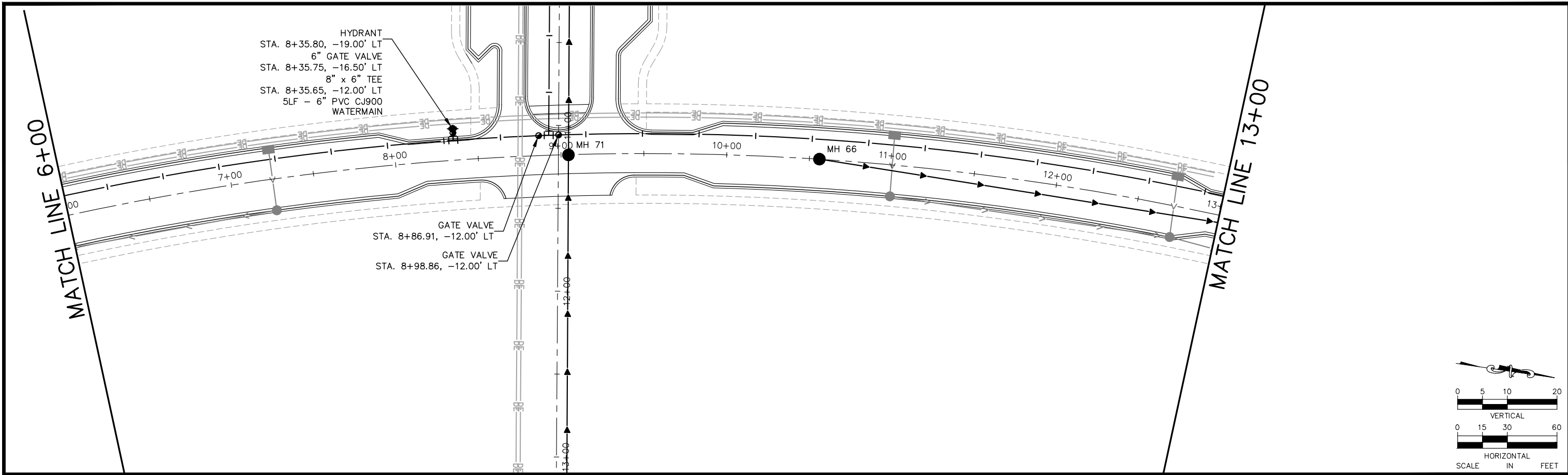
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD K
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 0+00 TO STA. 6+00

CITY PROJECT	SHEET NO. 172
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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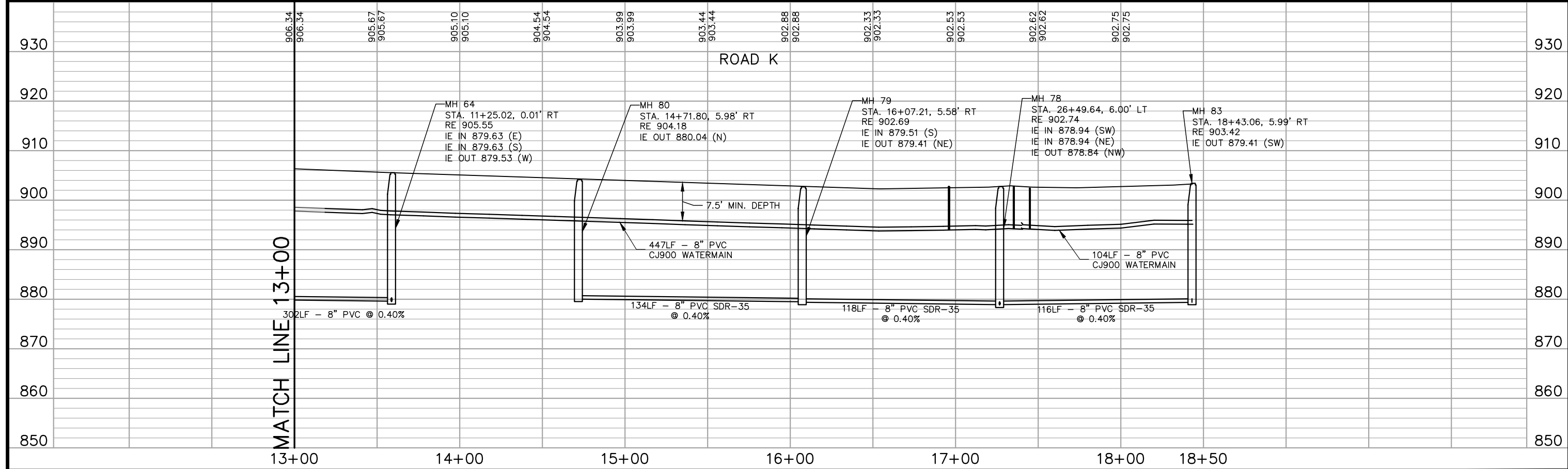
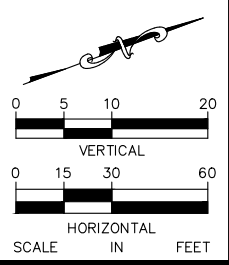
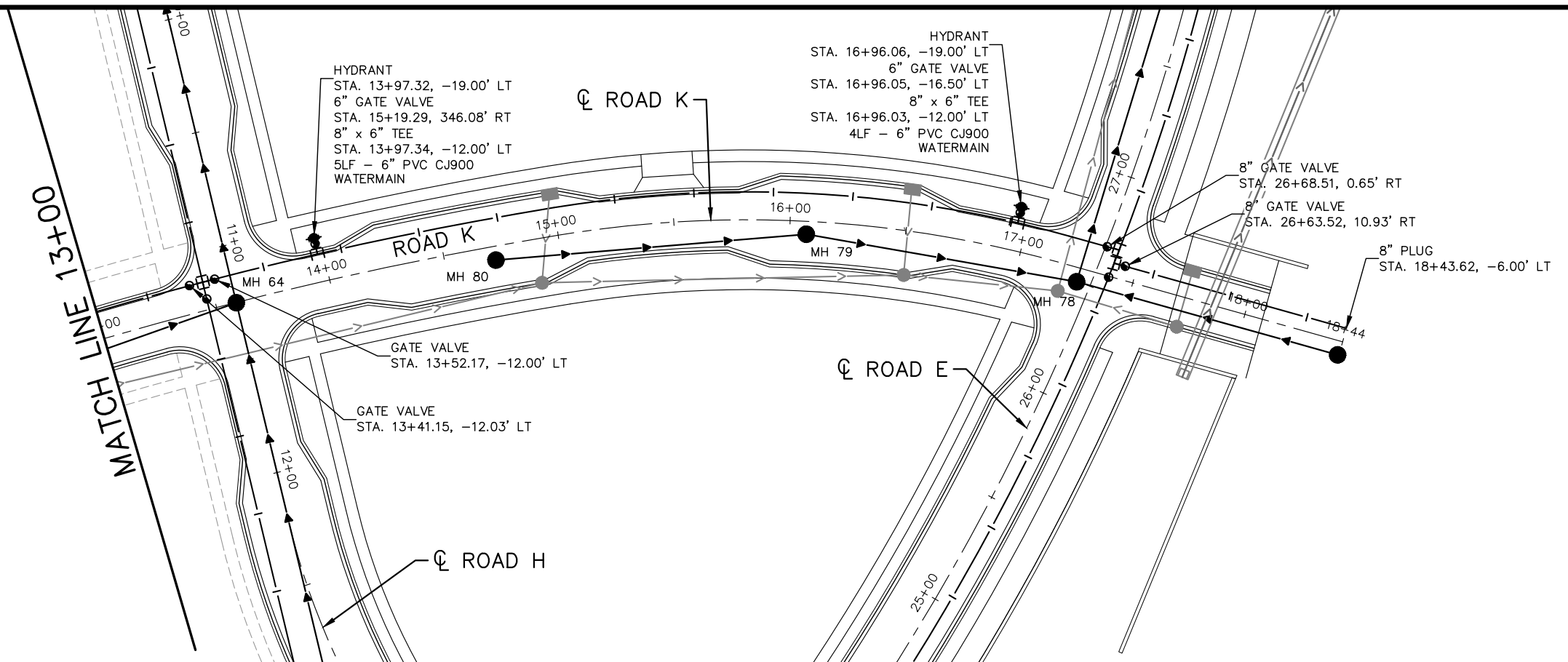
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD K
 SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
 STA. 6+00 TO STA. 13+00

CITY PROJECT	173
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_UTIL.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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PHONE: 651-645-4197
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

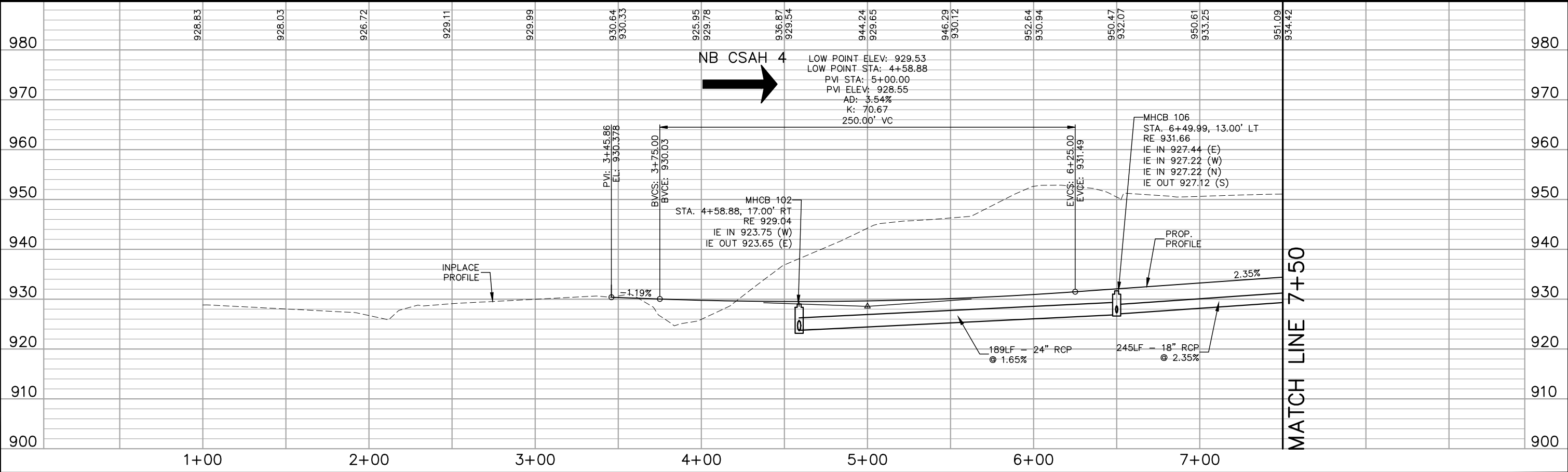
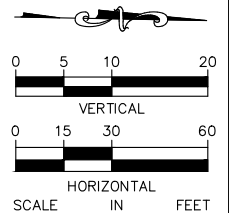
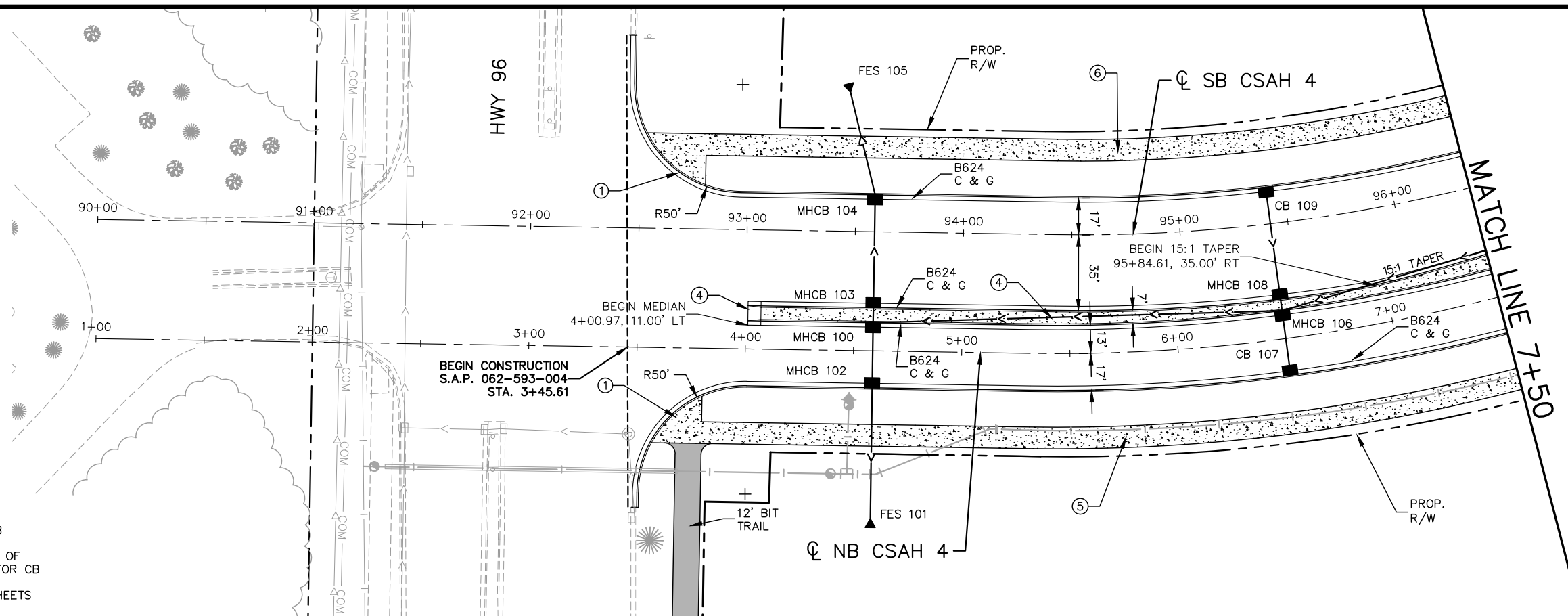
ROAD K
SANITARY SEWER AND WATERMAIN PLAN AND PROFILE
STA. 13+00 TO STA. 18+44

CITY PROJECT		SHEET NO.	174
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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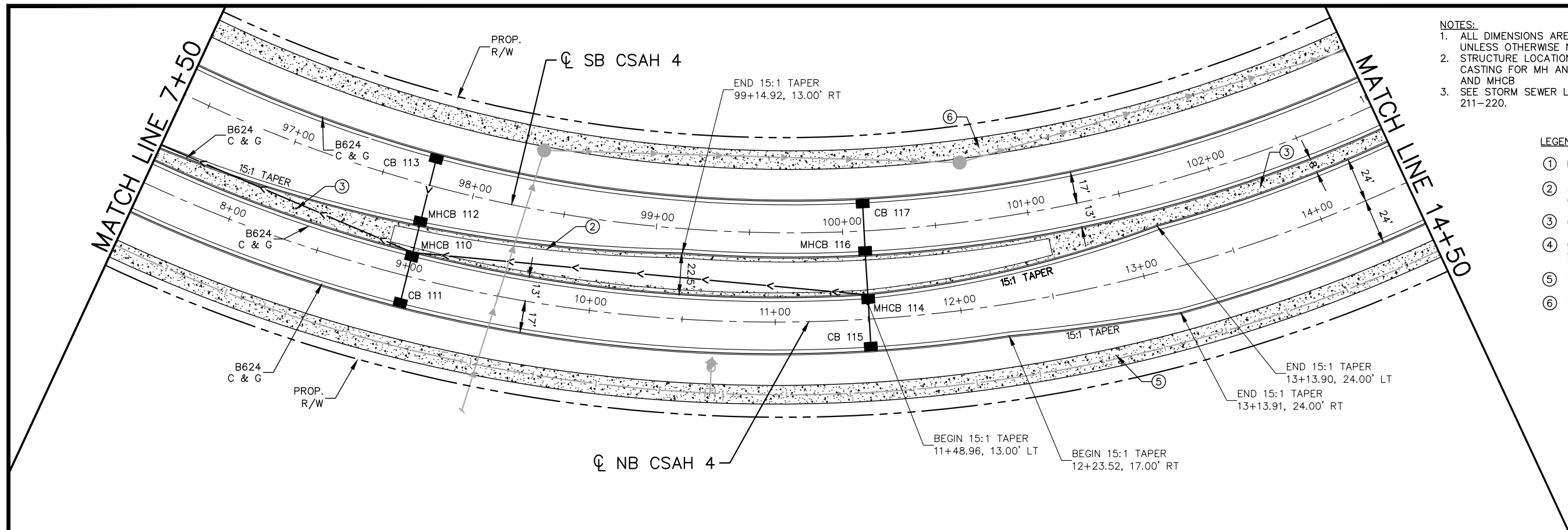
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 1+00 TO STA. 7+50

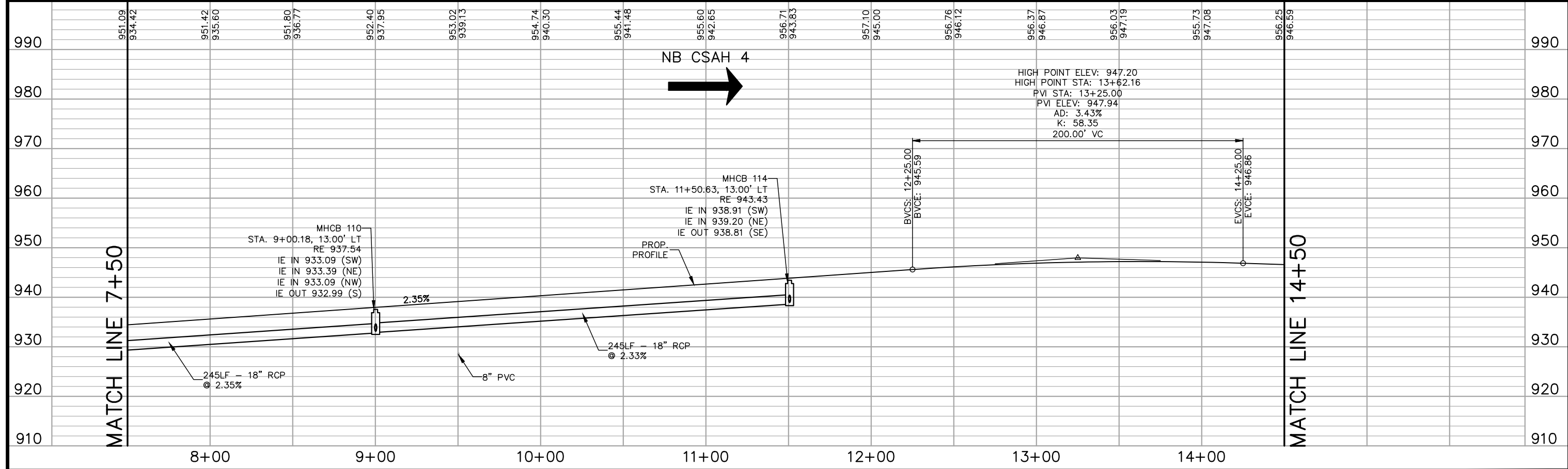
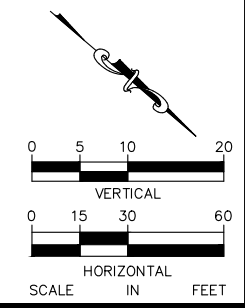
CITY PROJECT	SHEET NO. 175
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.

- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_SPINERD_PPF.dwg

DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn

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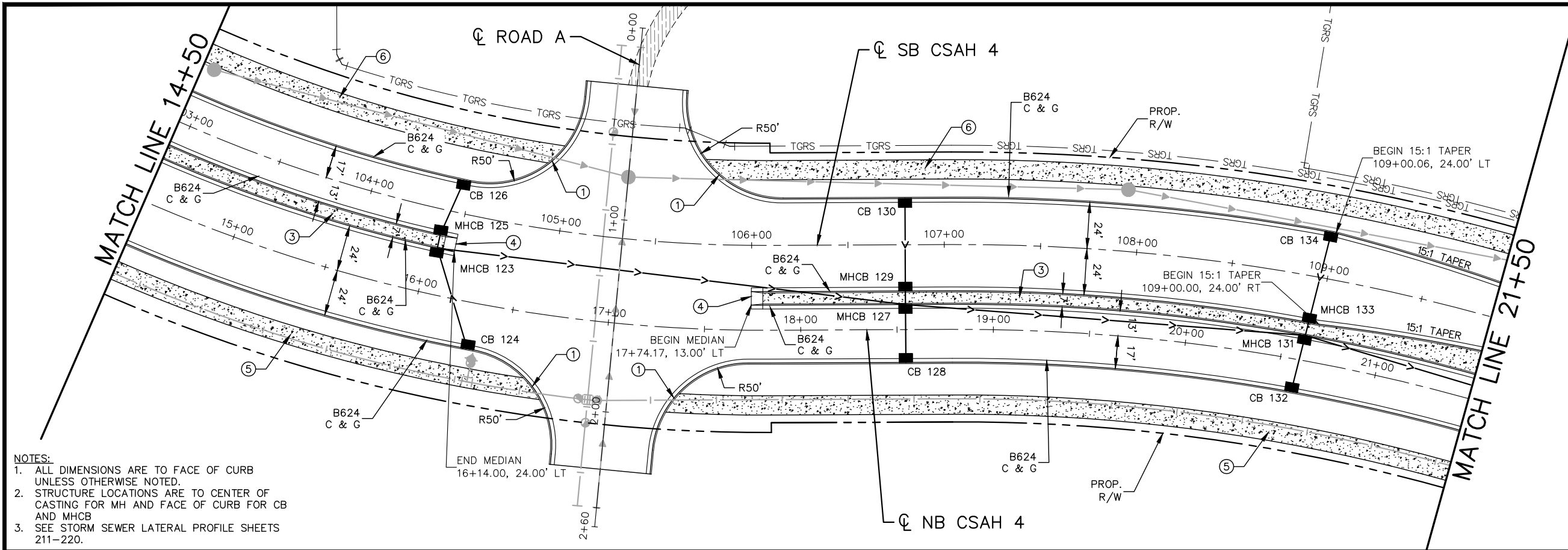
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
STREET AND STORM PLAN AND PROFILE
STA. 7+50 TO STA. 14+50

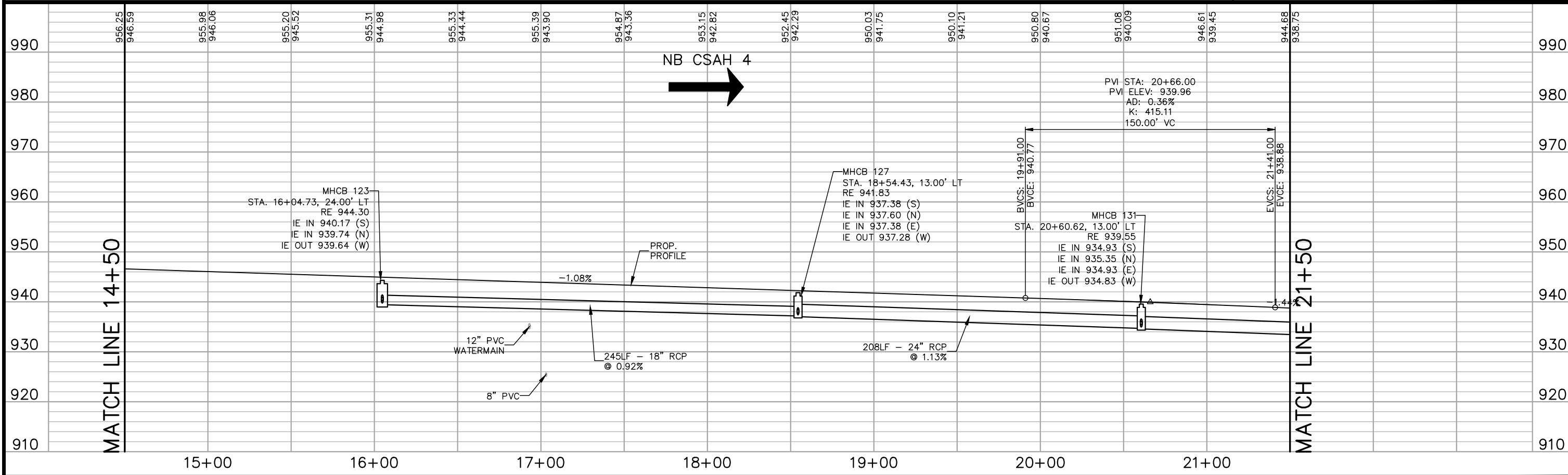
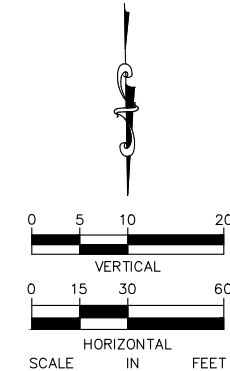
CITY PROJECT	176
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_SPINERD_PPF.dwg

DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 16053004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

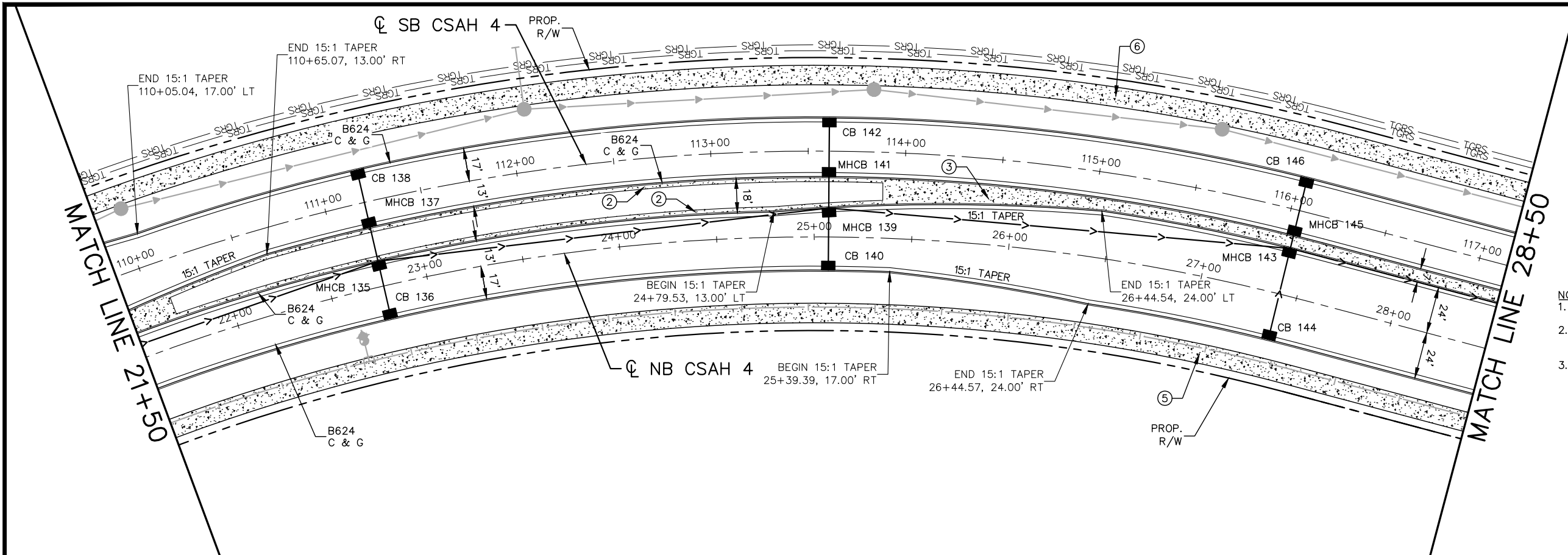
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
STREET AND STORM PLAN AND PROFILE
STA. 14+50 TO STA. 21+50

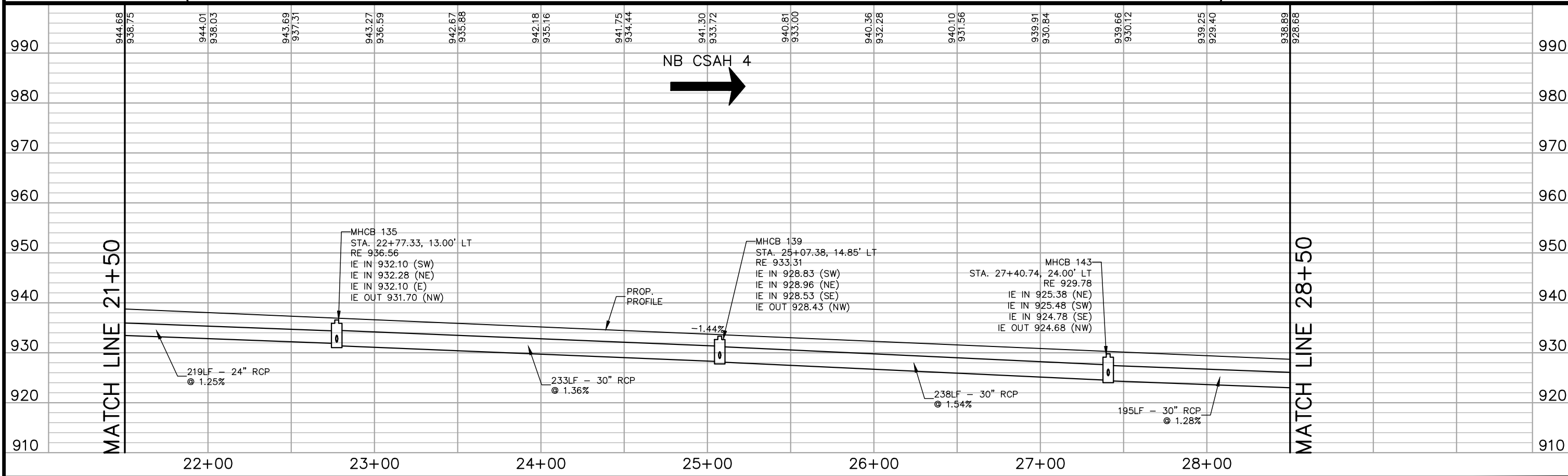
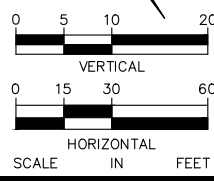
CITY PROJECT	SHEET NO.
COUNTY PROJECT	177
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PPF.dwg Layout04 January 10, 2019 - 8:28am



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

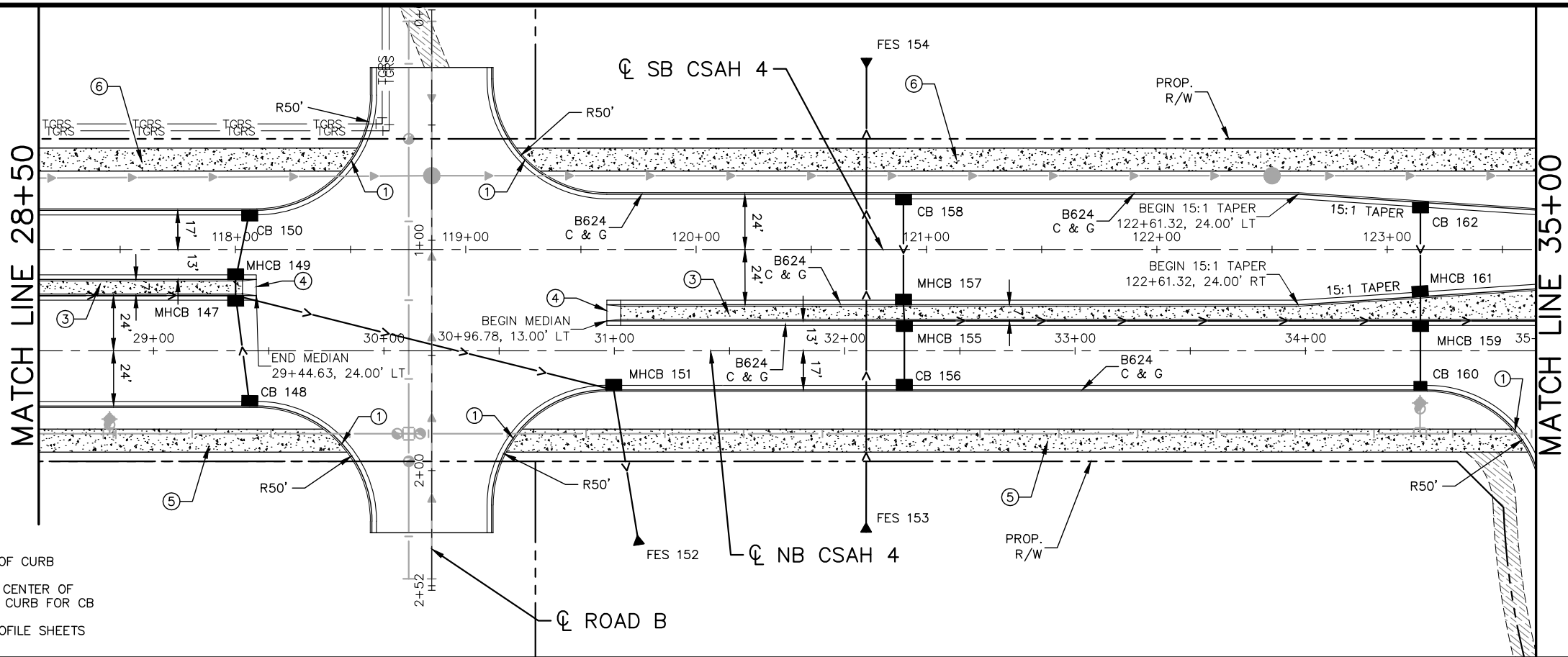
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
STREET AND STORM PLAN AND PROFILE
STA. 21+50 TO STA. 28+50

CITY PROJECT	178
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

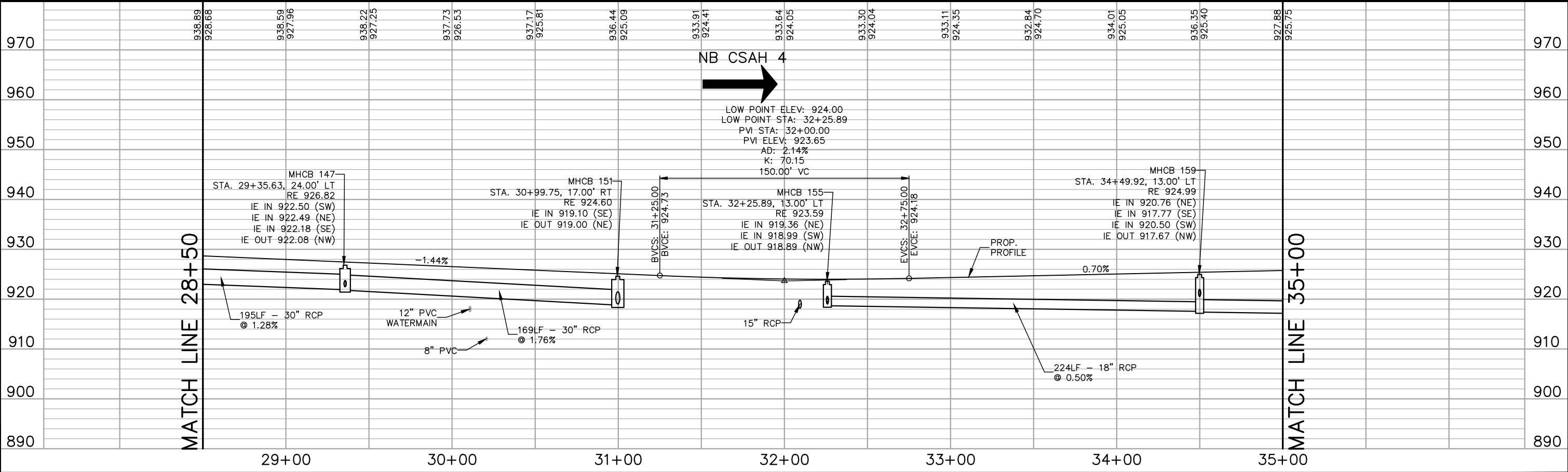
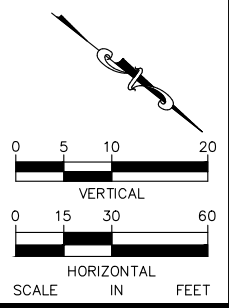
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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

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 DATE: 01/04/19 MN LIC. NO. 41864

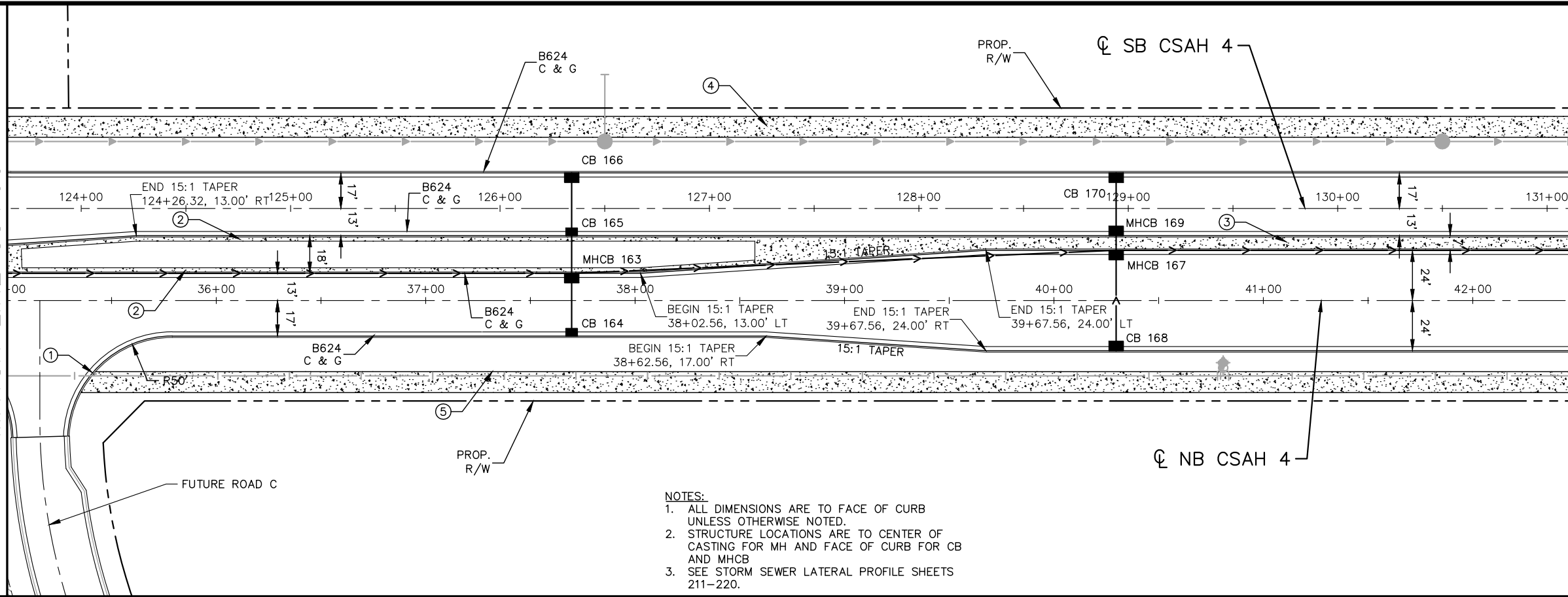
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 28+50 TO STA. 35+00

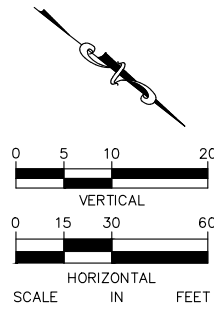
CITY PROJECT	179
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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MATCH LINE 35+00



MATCH LINE 42+50



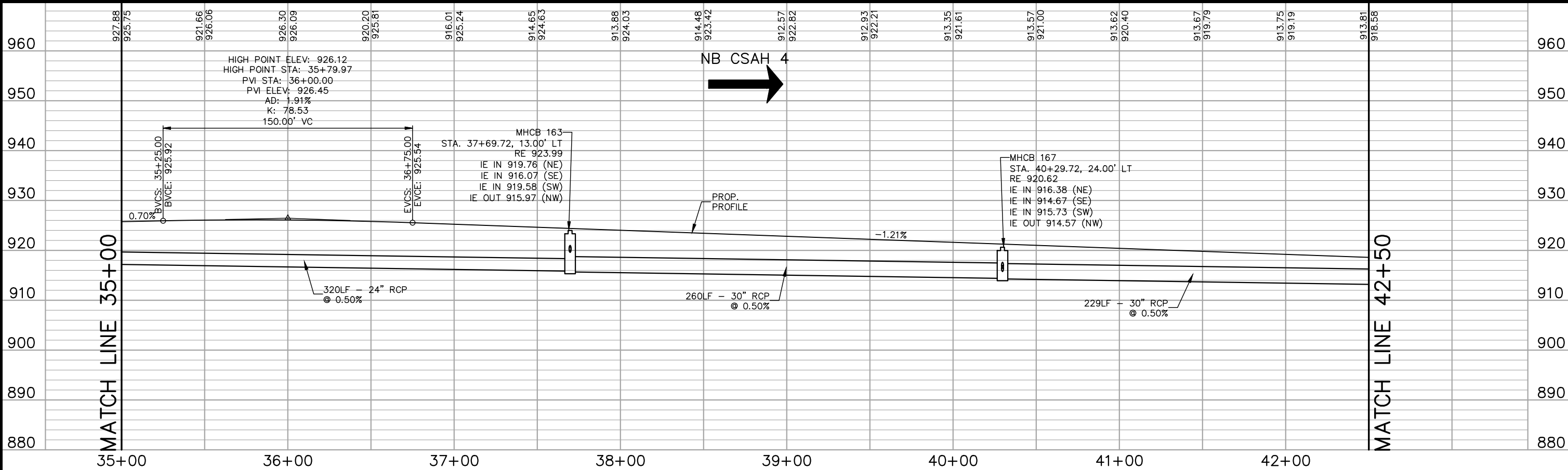
LEGEND

- ① PEDESTRIAN CURB RAMP
- ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
- ③ CONCRETE MEDIAN
- ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
- ⑤ 10' WALK (4" CONCRETE)
- ⑥ 10' WALK (6" CONCRETE)

NOTES:

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2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.

MATCH LINE 35+00



MATCH LINE 42+50

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_PPF.dwg
				DESIGNED BY: RJG
				DRAWN BY: RJG
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

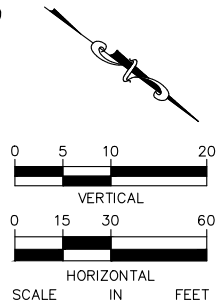
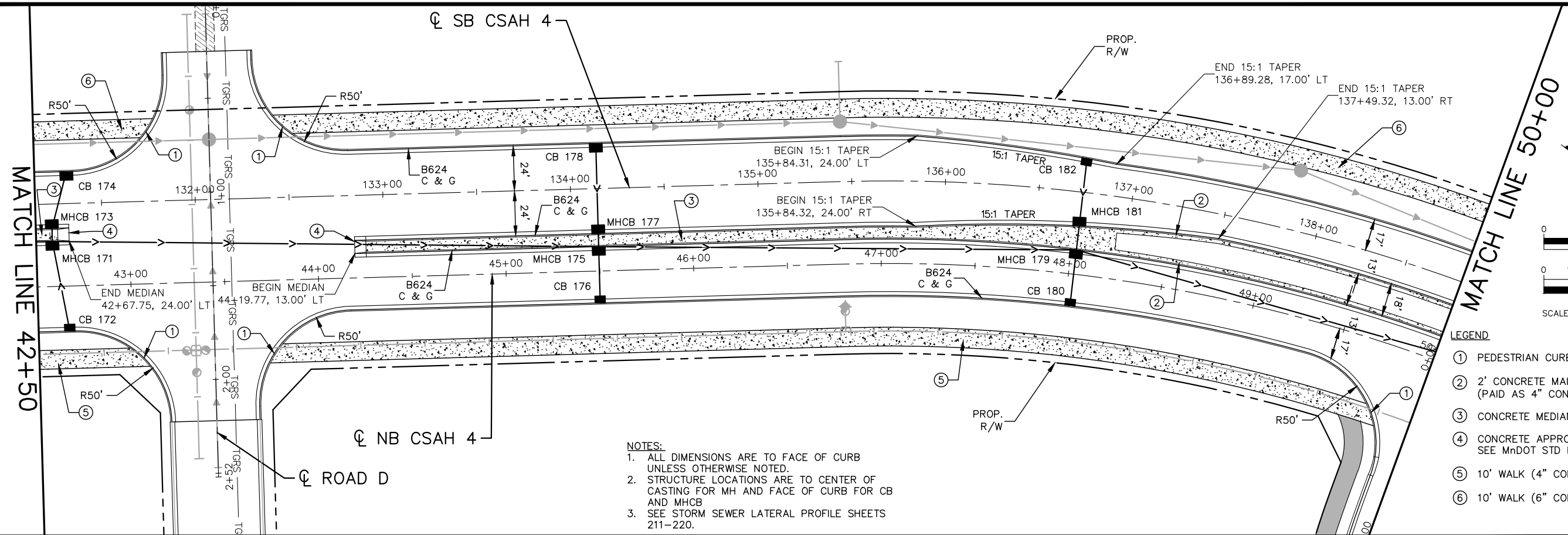
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 35+00 TO STA. 42+50

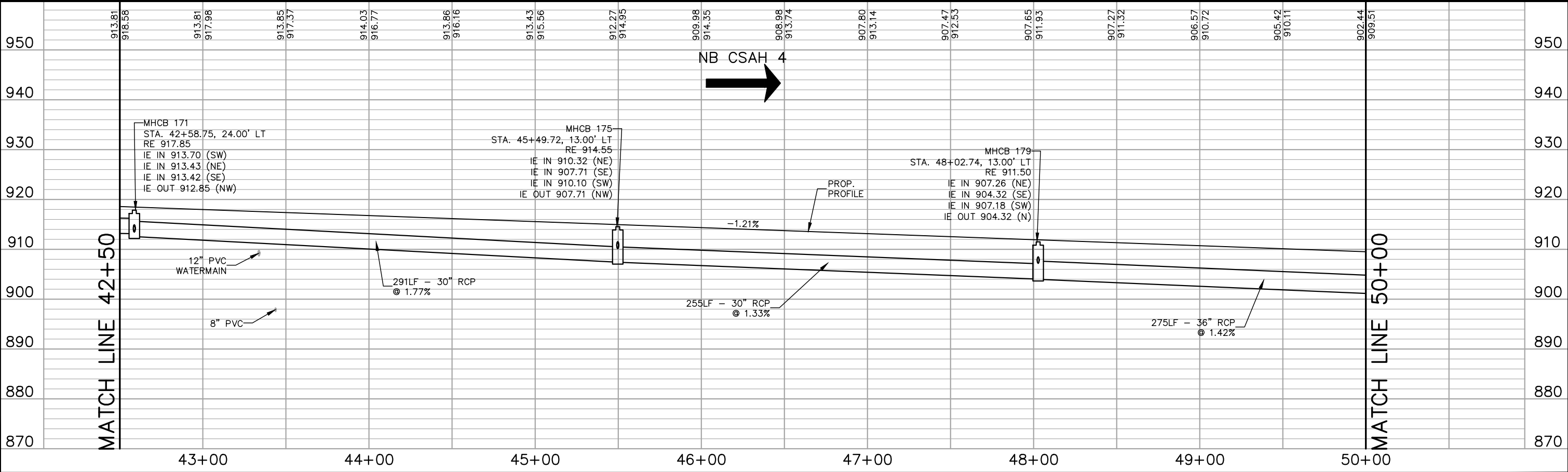
CITY PROJECT	SHEET NO.
COUNTY PROJECT	180
S.A.P. 062-593-004	
S.A.P.	335

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MNDOT STD. PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

NOTES:
 1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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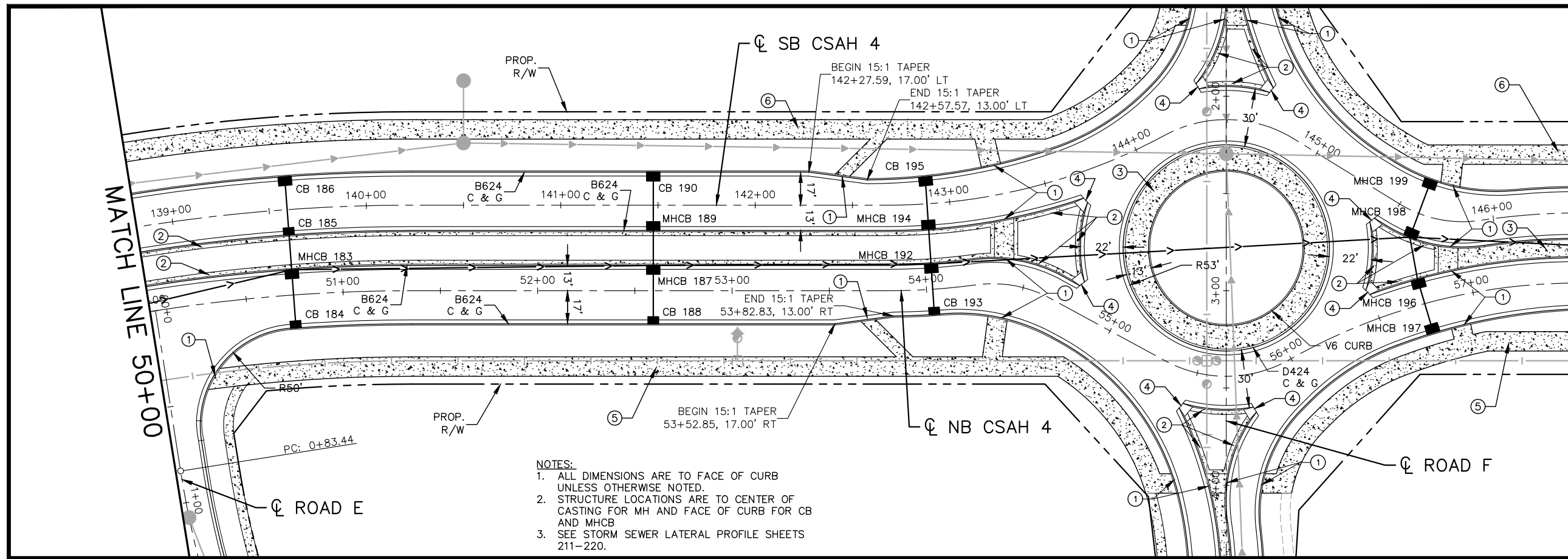
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 42+50 TO STA. 50+00

CITY PROJECT	SHEET NO. 181
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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LEGEND

- ① PEDESTRIAN CURB RAMP
- ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
- ③ CONCRETE MEDIAN
- ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
- ⑤ 10' WALK (4" CONCRETE)
- ⑥ 10' WALK (6" CONCRETE)

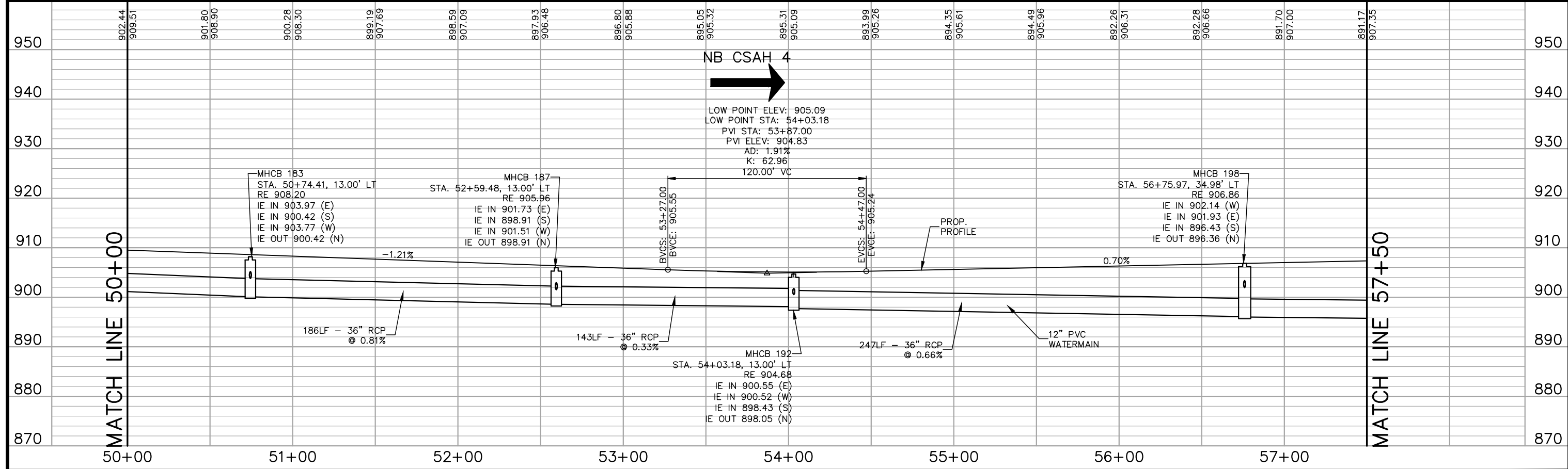
SCALE

VERTICAL: 0 5 10 20 FEET

HORIZONTAL: 0 15 30 60 FEET

NOTES:

- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
- SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

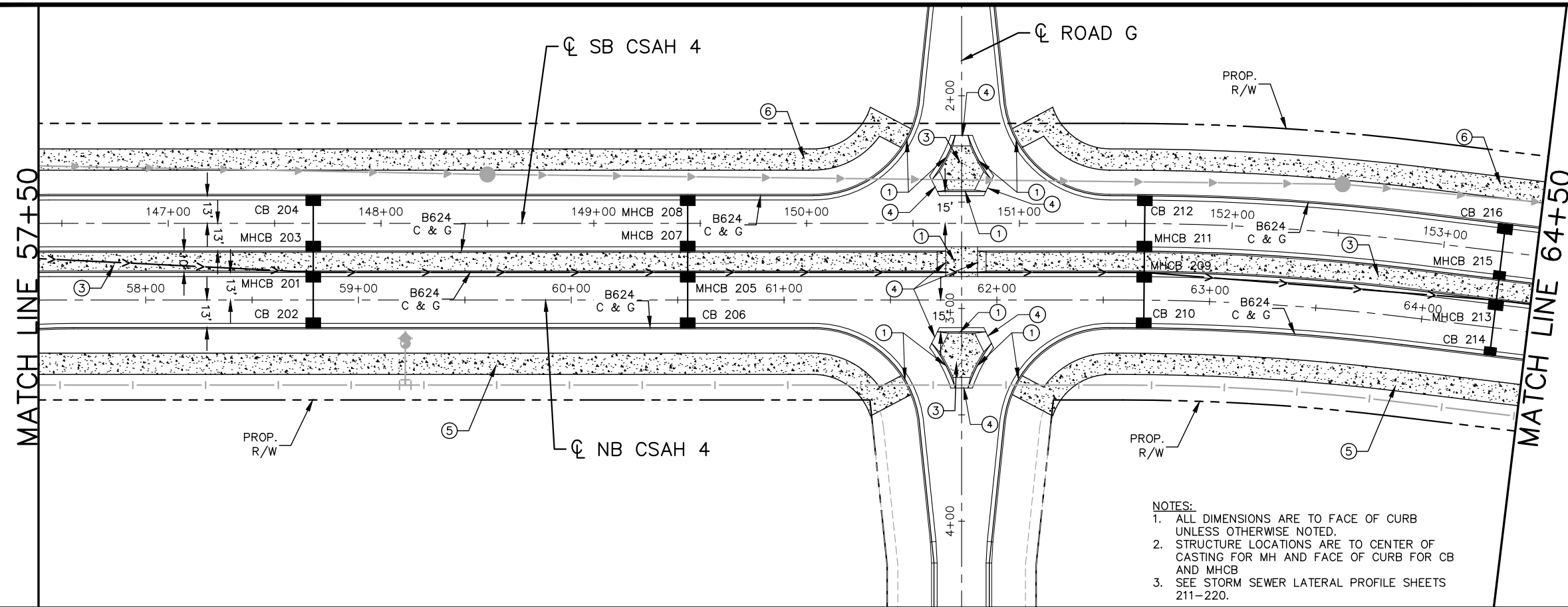
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 50+00 TO STA. 57+50

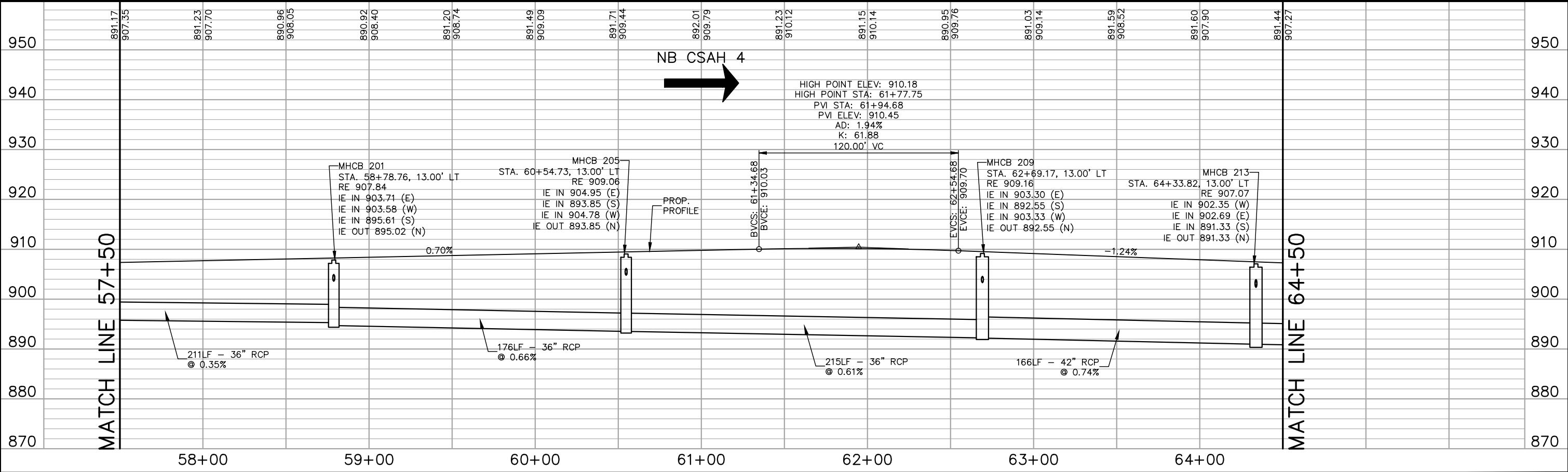
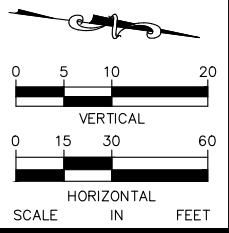
CITY PROJECT	182
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
 - ⑥ 10' WALK (6" CONCRETE)

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

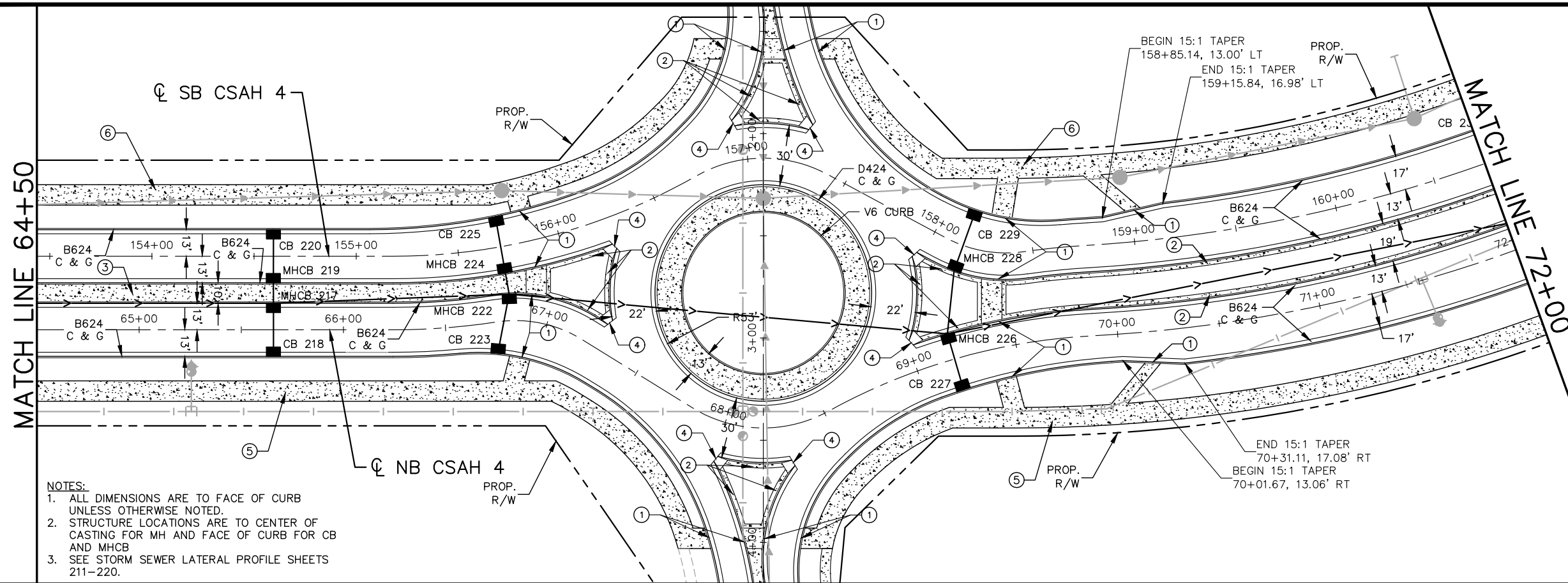
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 57+50 TO STA. 64+50

CITY PROJECT	SHEET NO. 183
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

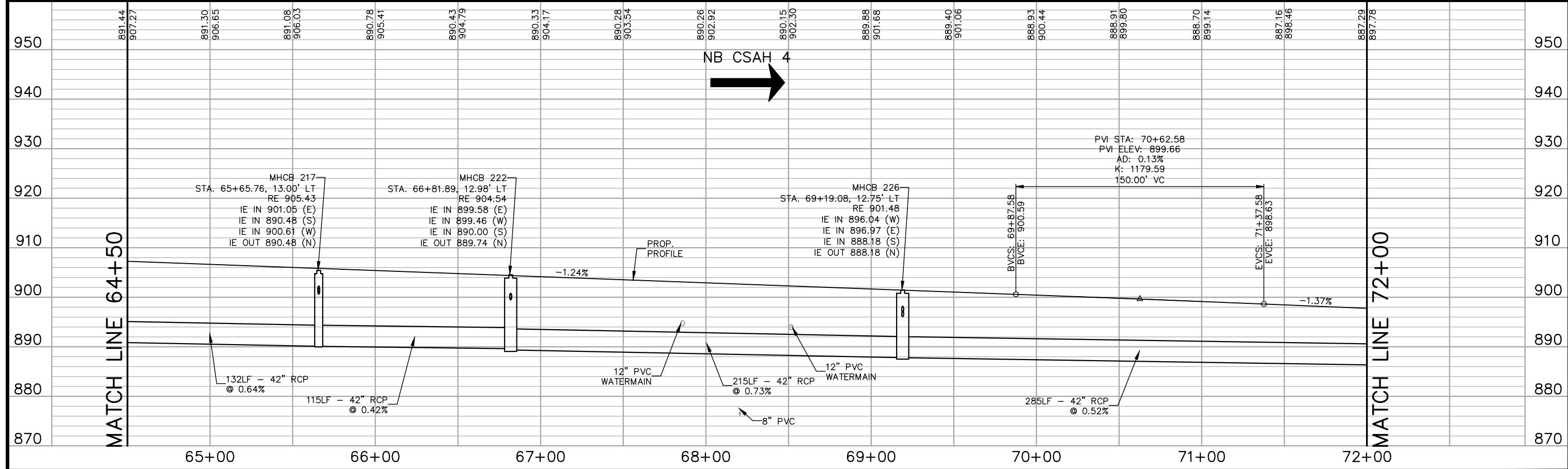
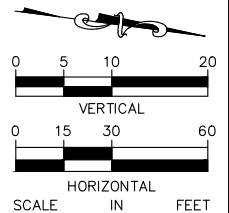
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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② 2' CONCRETE MAINTENANCE STRIP (PAID AS 4" CONCRETE WALK)
 - ③ CONCRETE MEDIAN
 - ④ CONCRETE APPROACH NOSE SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' WALK (4" CONCRETE)
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NOTES:
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 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 211-220.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PPF.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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 PHONE: 651-645-4197
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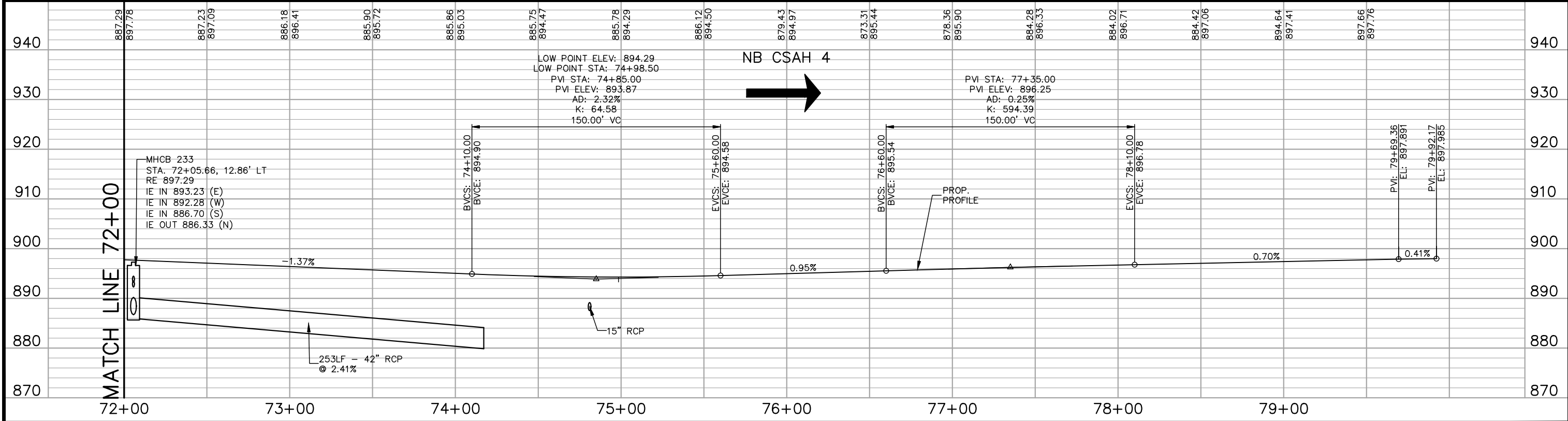
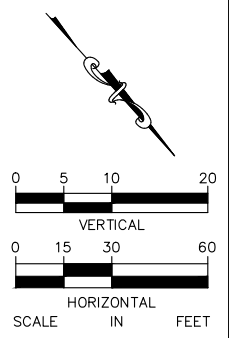
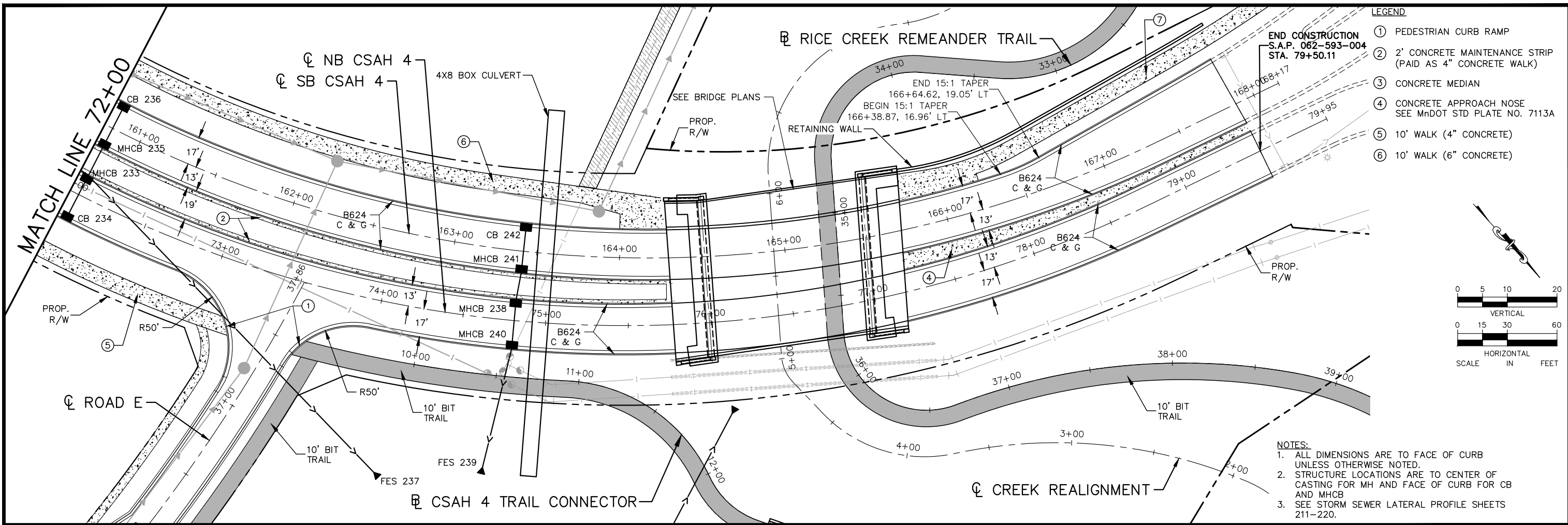
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 STREET AND STORM PLAN AND PROFILE
 STA. 64+50 TO STA. 72+00

CITY PROJECT	SHEET NO. 184
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PPF.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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PHONE: 651-645-4197
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

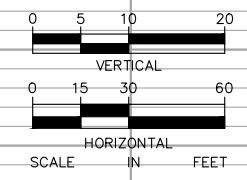
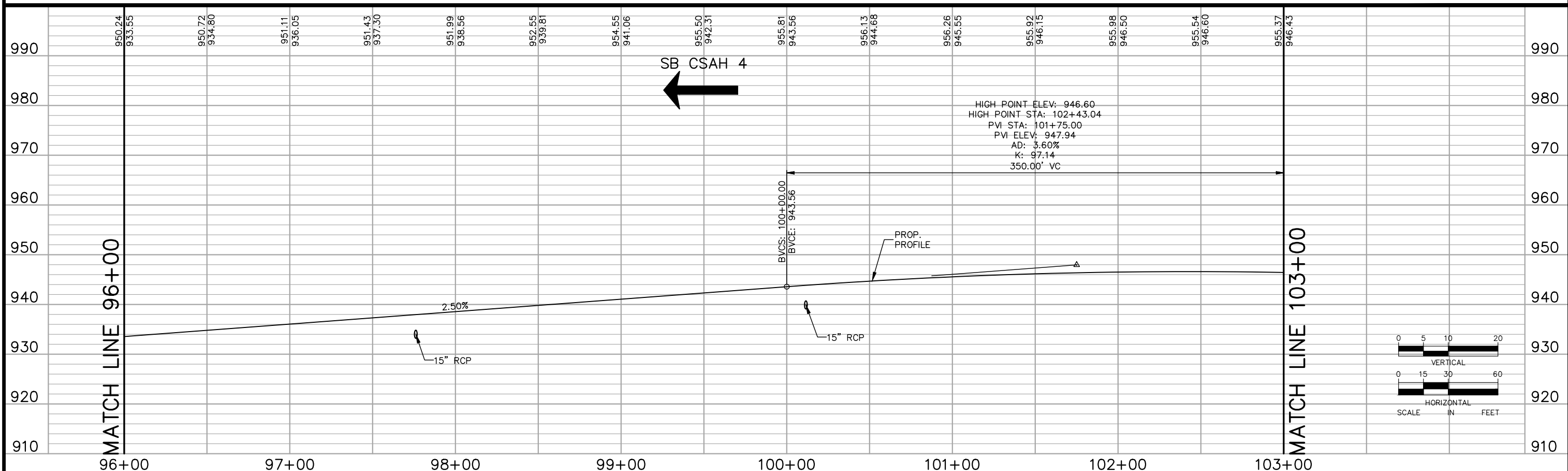
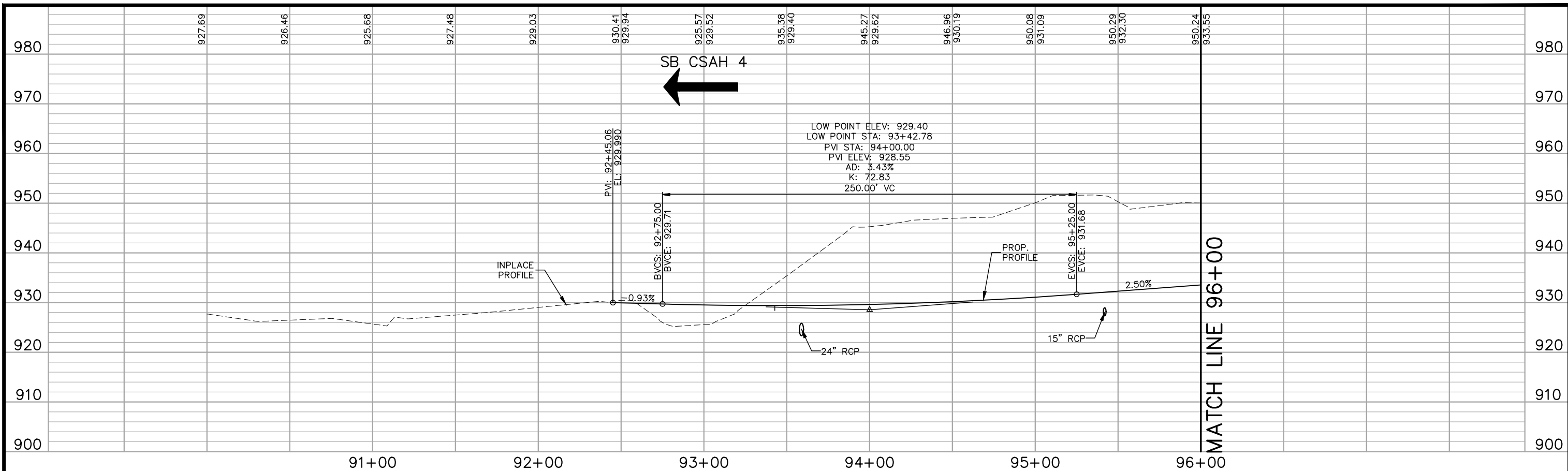
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
STREET AND STORM PLAN AND PROFILE
STA. 72+00 TO STA. 79+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO. 185

335

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

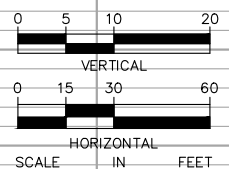
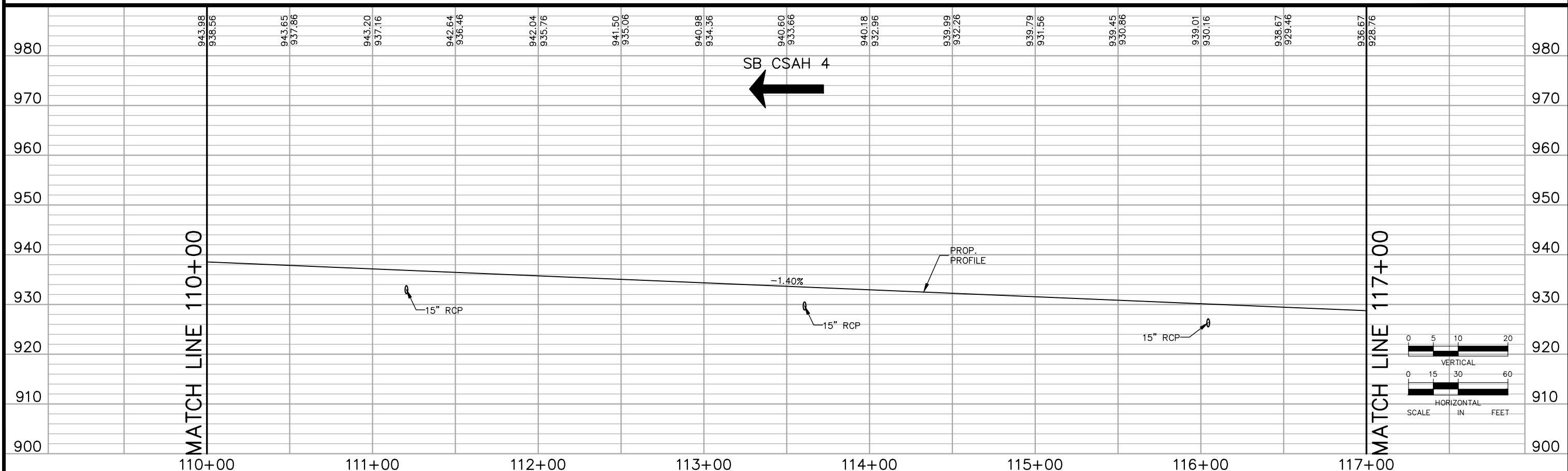
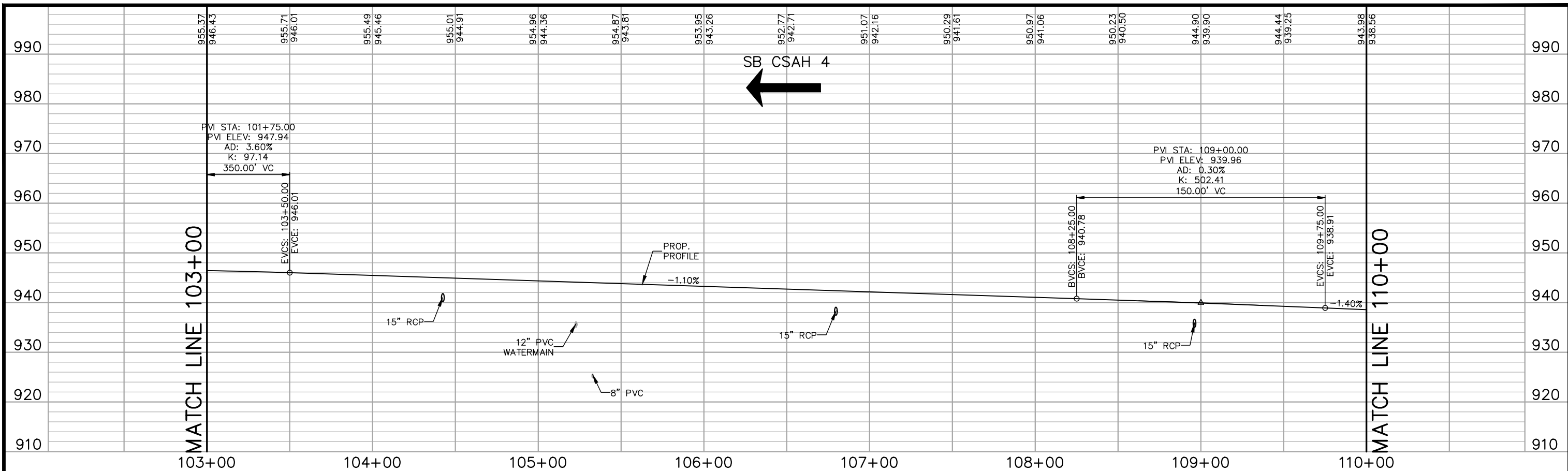
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 90+00 TO STA. 103+00

CITY PROJECT	SHEET NO. 186
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions

App.	DRAWING NAME TCAAP_SPINERD_PPF.dwg
	DESIGNED BY: R/JG
	DRAWN BY: R/JG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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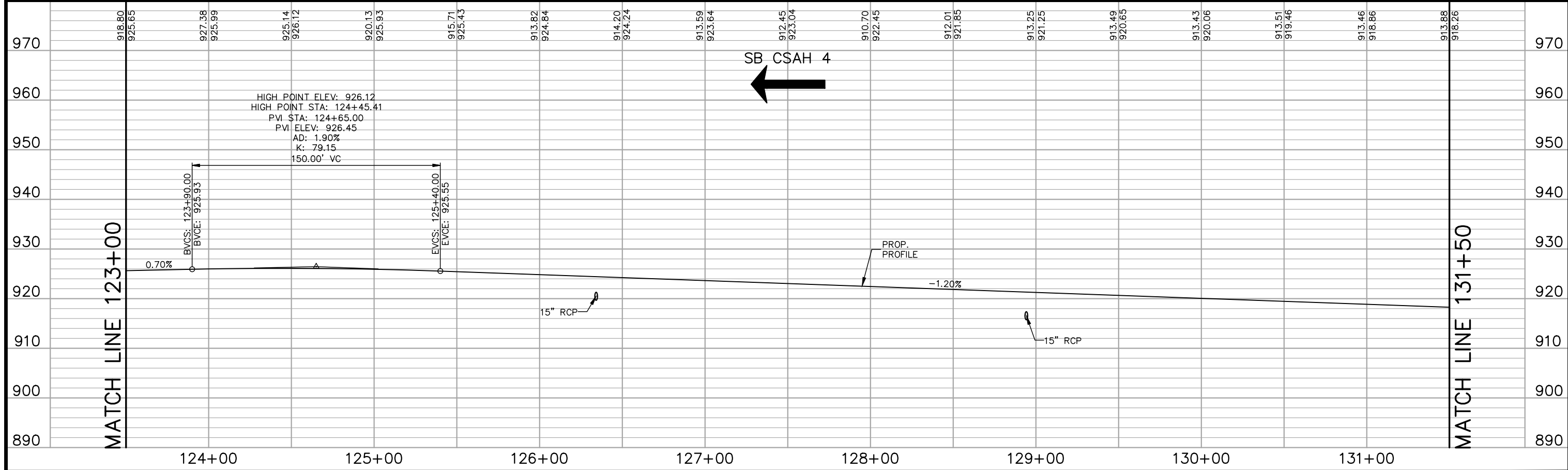
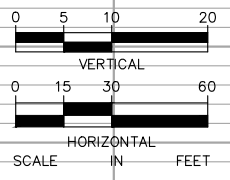
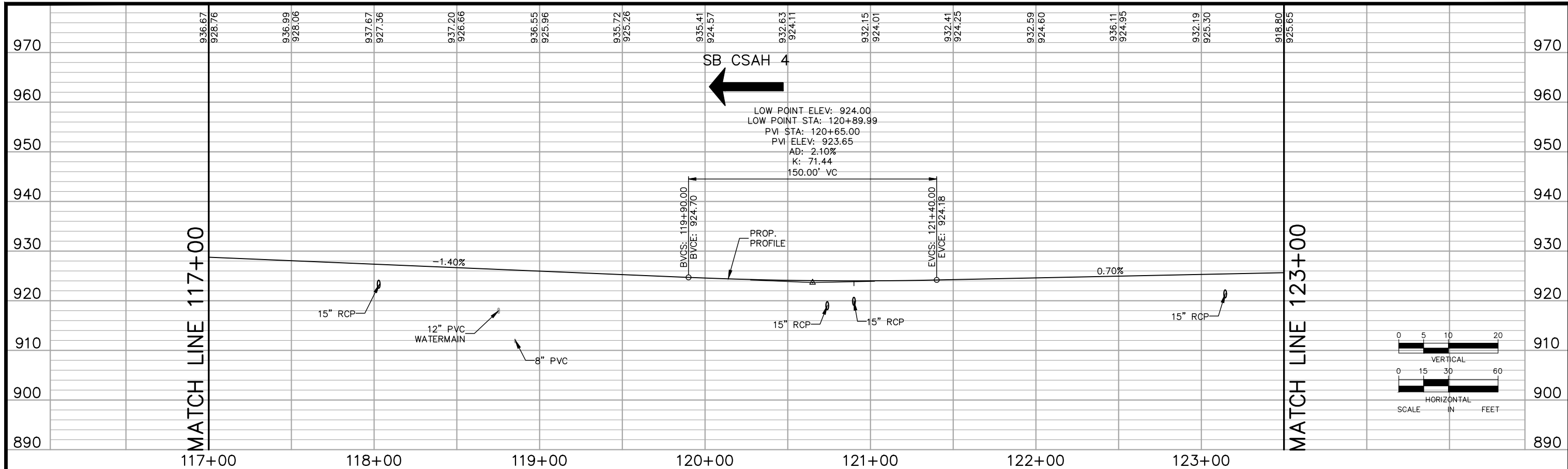
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 103+00 TO STA. 117+00

CITY PROJECT	SHEET NO. 187
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions

App.	DRAWING NAME TCAAP_SPINERD_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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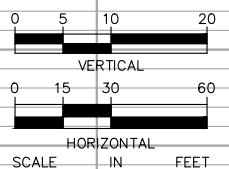
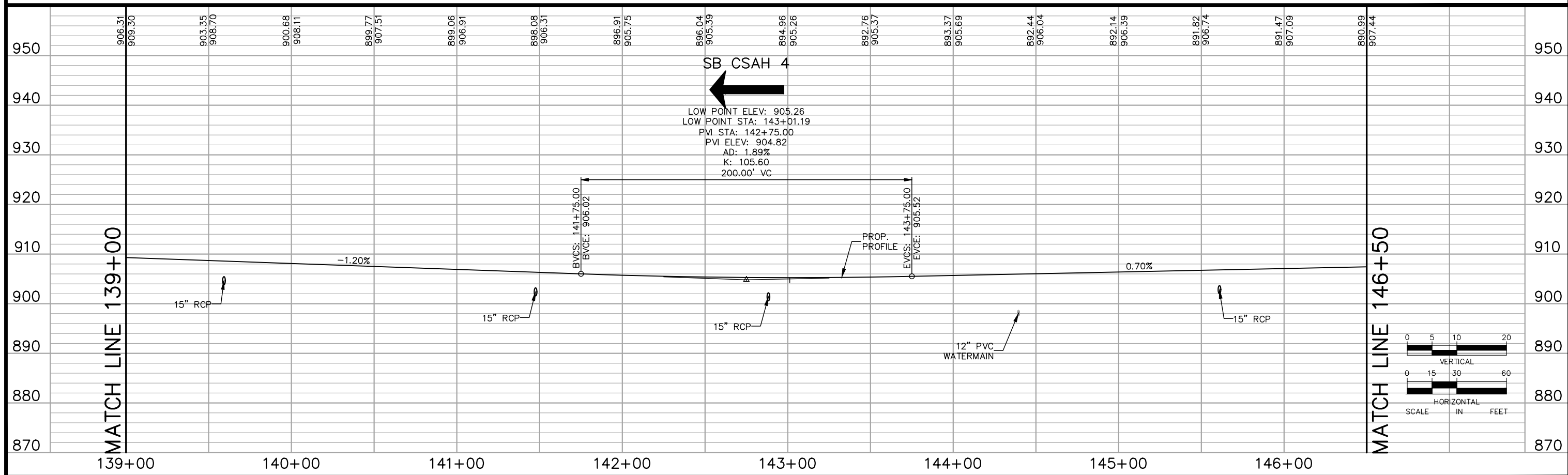
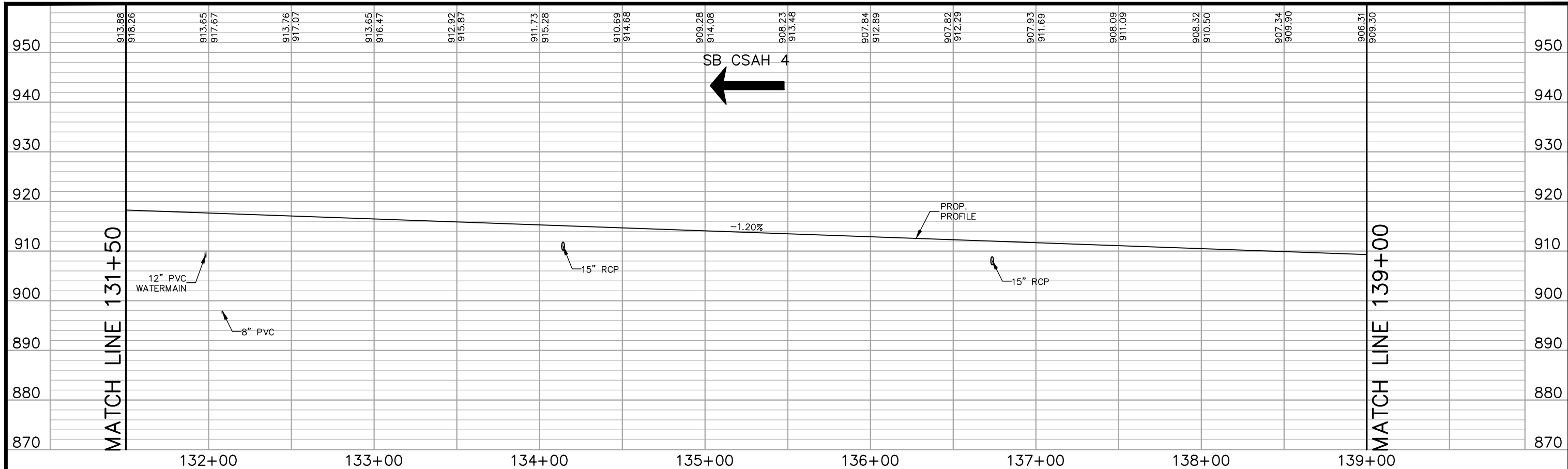
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 117+00 TO STA. 131+50

CITY PROJECT	SHEET NO. 188
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PPF.dwg Layout15 January 10, 2019 - 8:36am



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PPF.dwg	
DESIGNED BY:	RJG
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DATE:	01/04/19
PROJECT NO.	160553004

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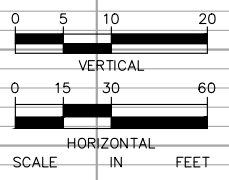
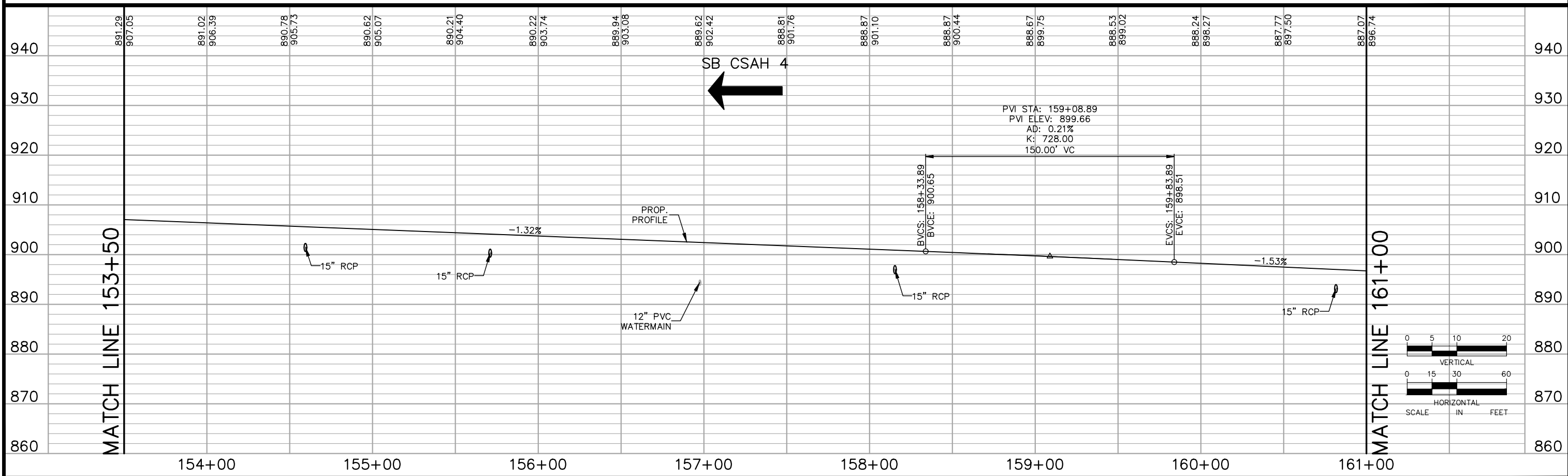
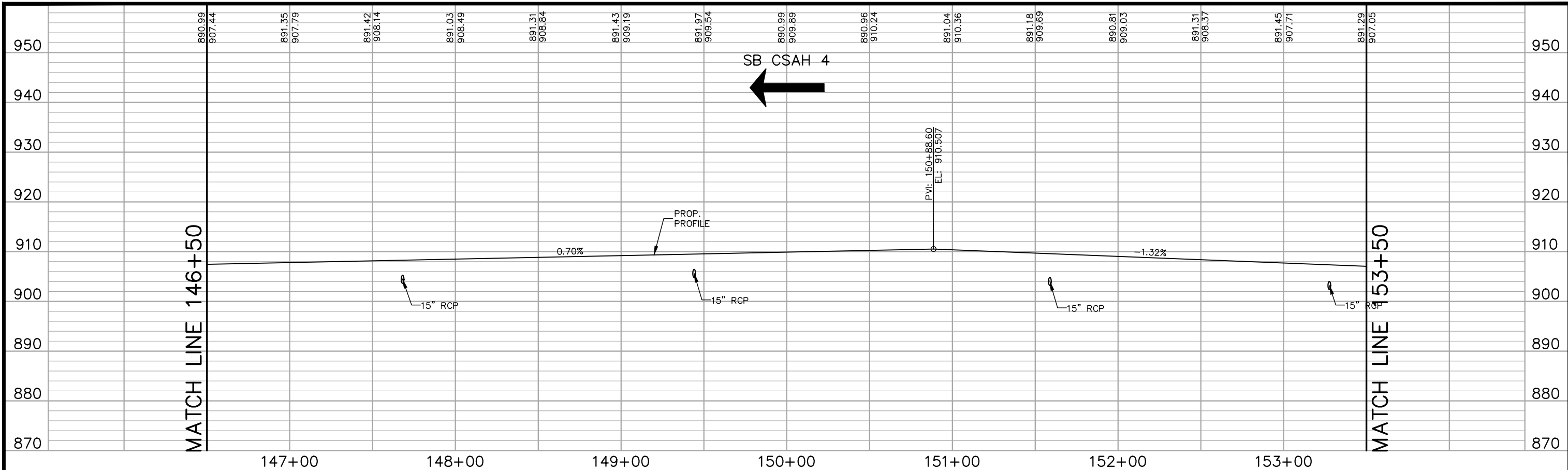
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 131+50 TO STA. 146+50

CITY PROJECT	SHEET NO. 189
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

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DESIGNED BY:	RJG
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DATE:	01/04/19
PROJECT NO.	160553004

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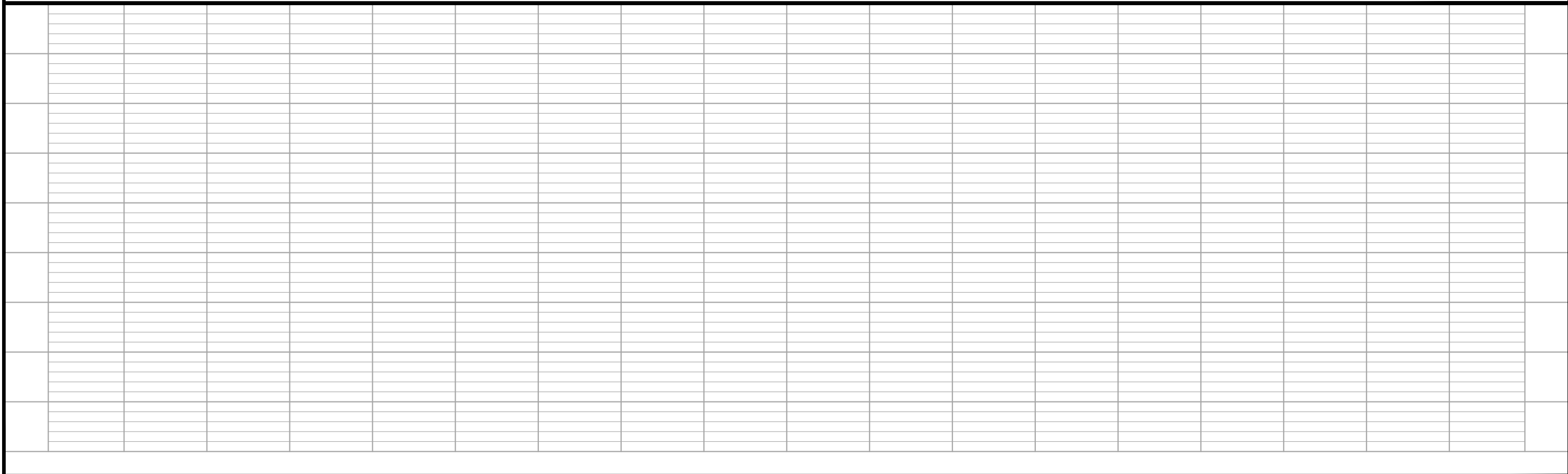
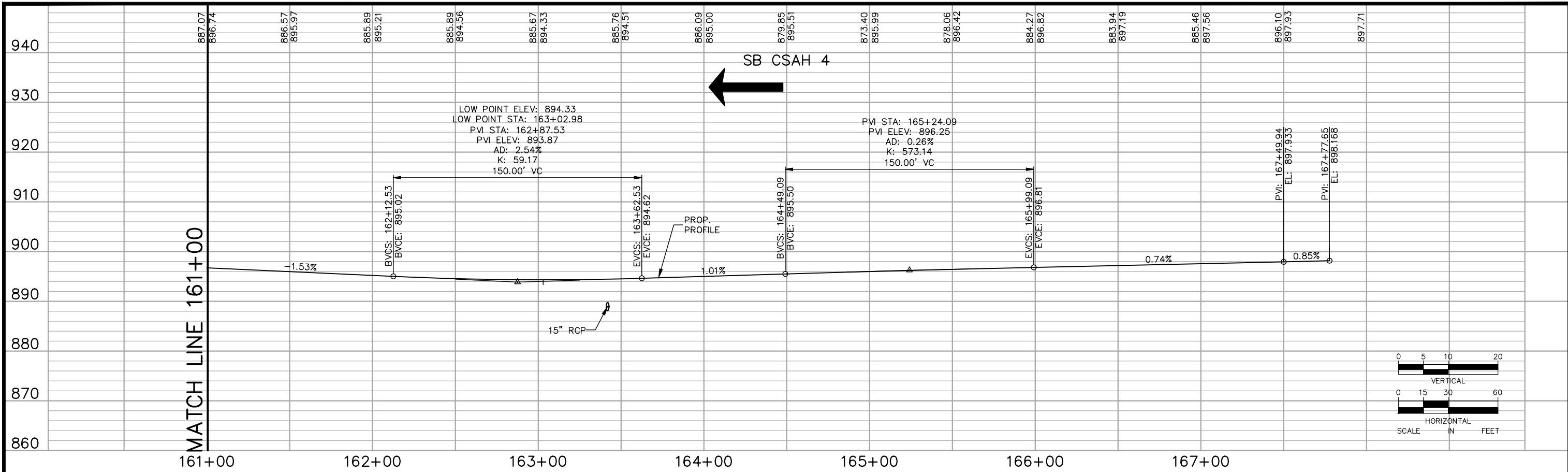
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 146+50 TO STA. 161+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
190
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PPF.dwg Layout17 January 10, 2019 - 8:37am



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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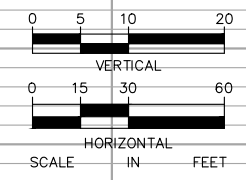
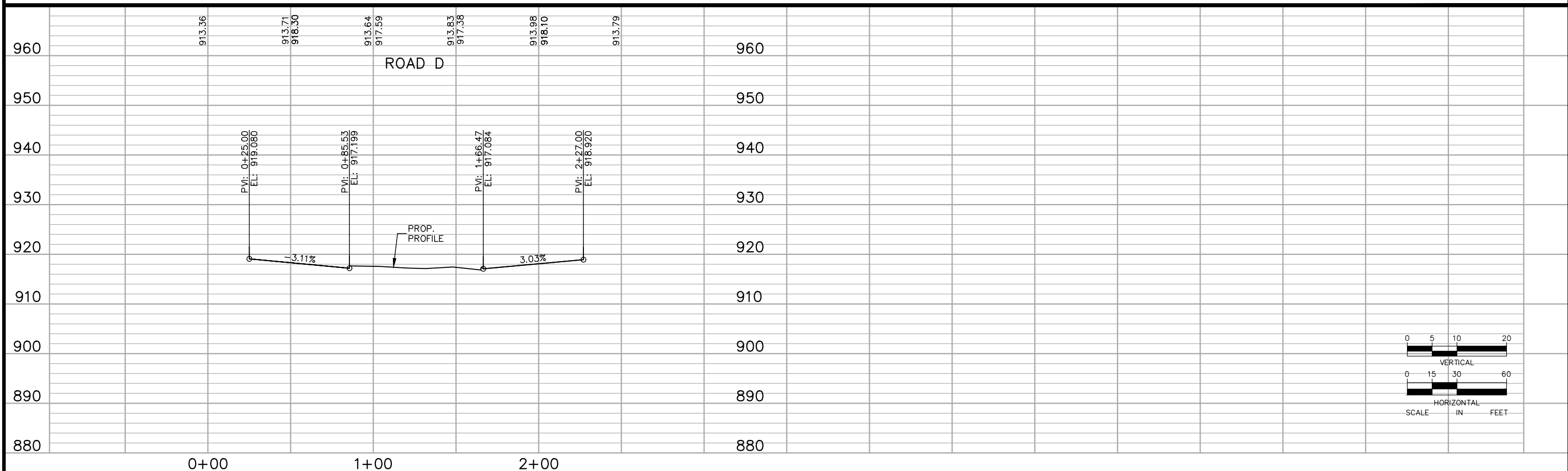
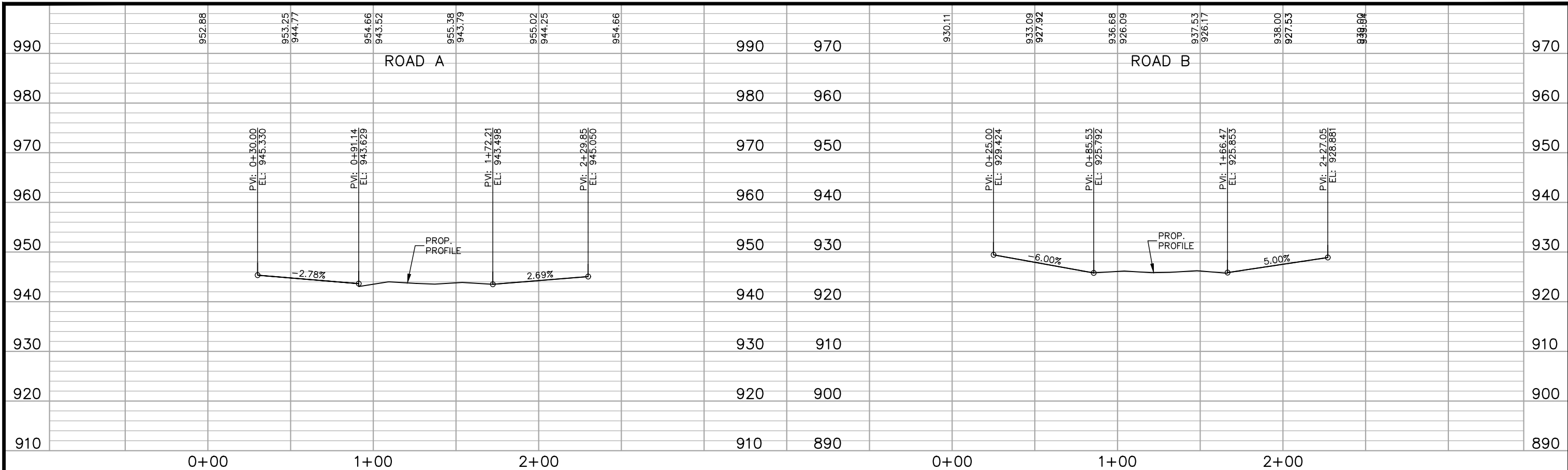
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SOUTHBOUND CSAH 4
 STREET AND STORM PROFILE
 STA. 161+00 TO STA. 167+45

CITY PROJECT	SHEET NO. 191 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

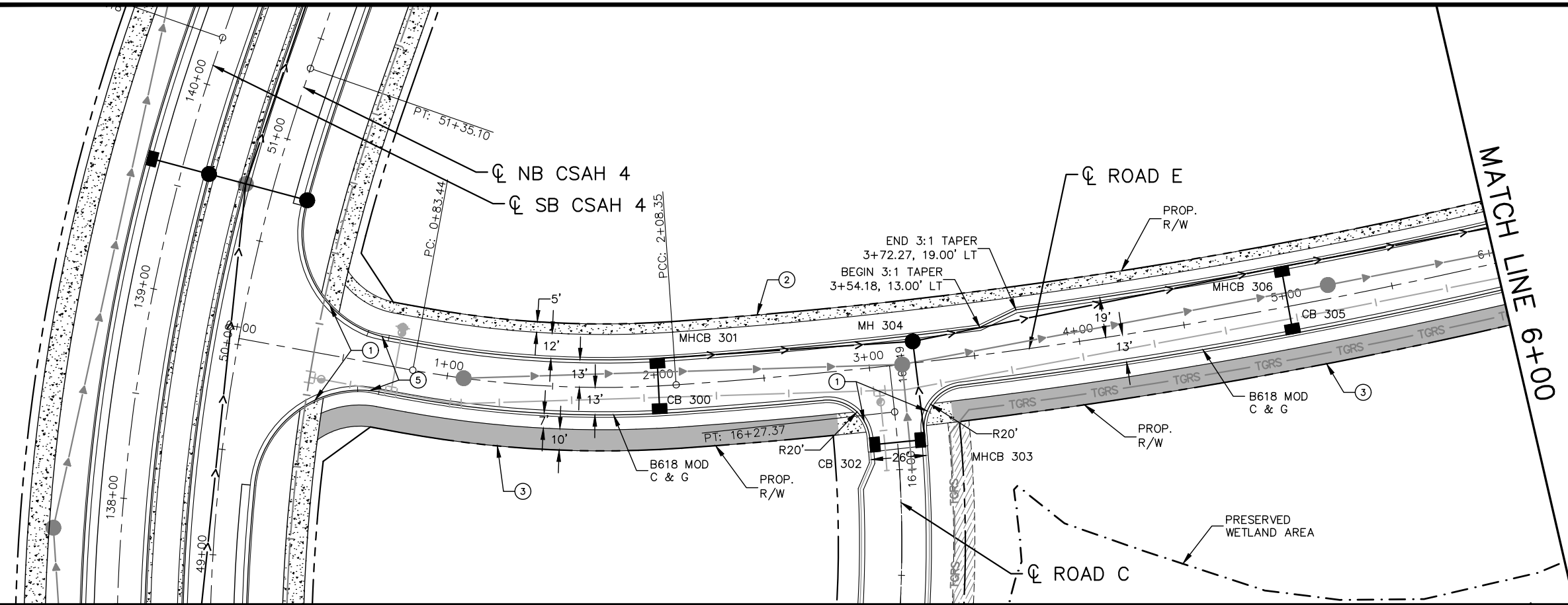
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4 INTERSECTIONS
 STREET AND STORM PROFILES

CITY PROJECT	SHEET NO. 192
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

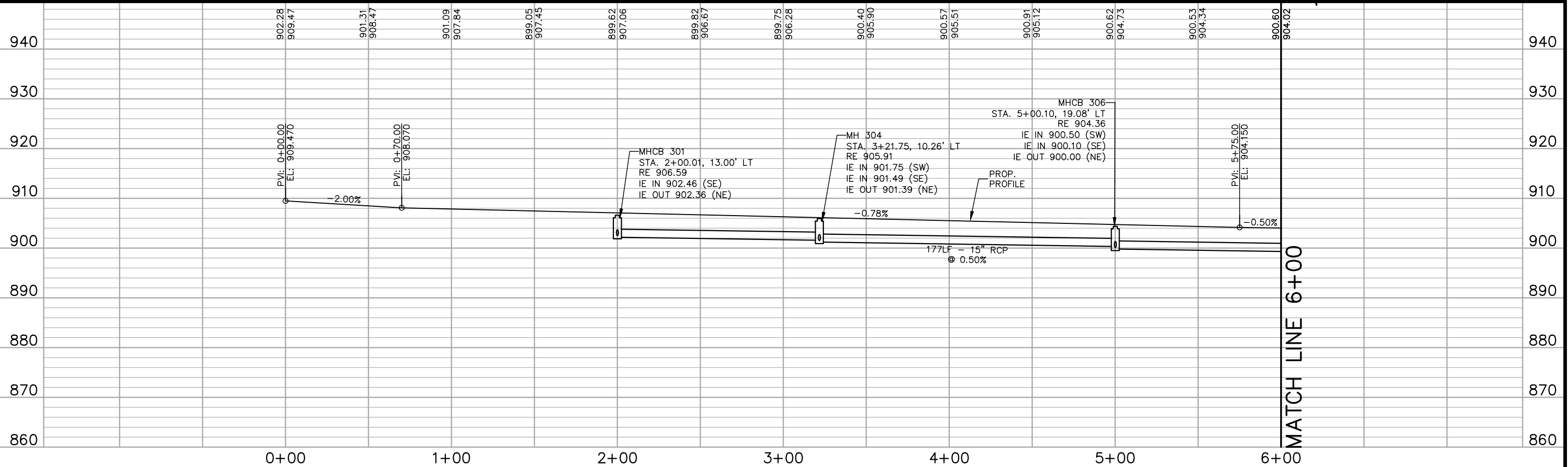
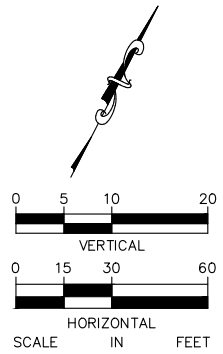
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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

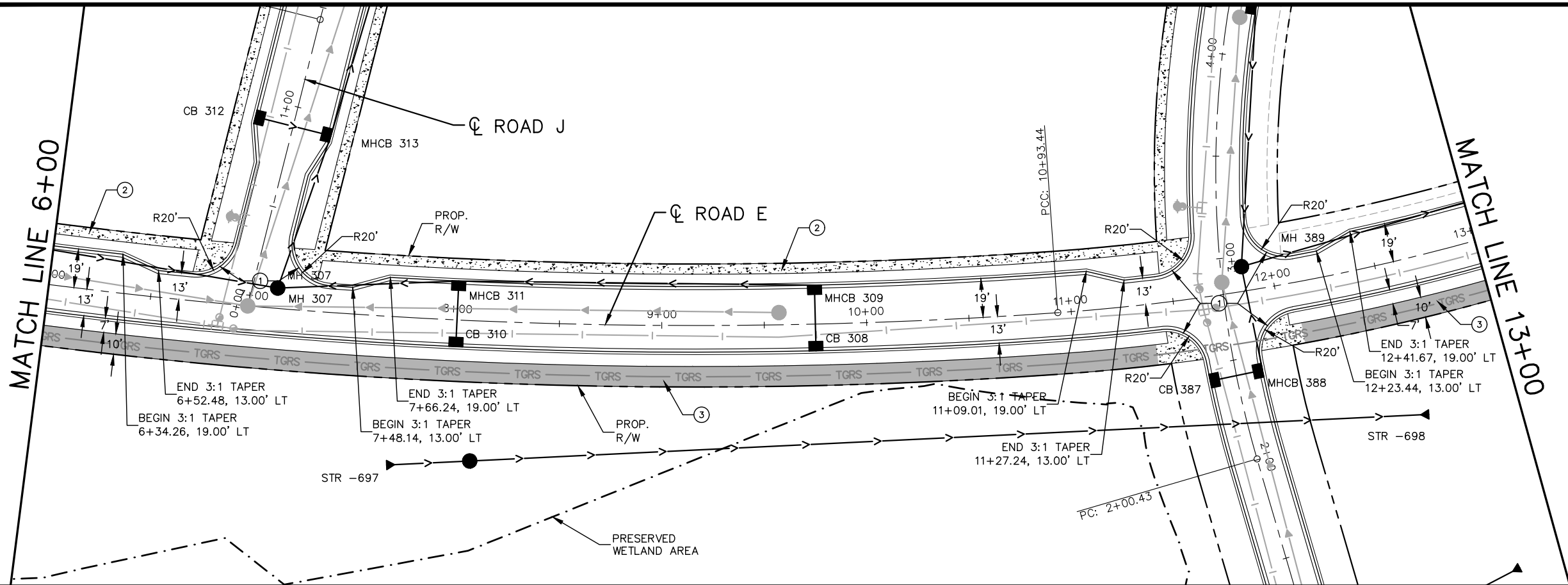
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD E
STREET AND STORM PLAN AND PROFILE
STA. 0+00 TO STA. 6+00

CITY PROJECT	193
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

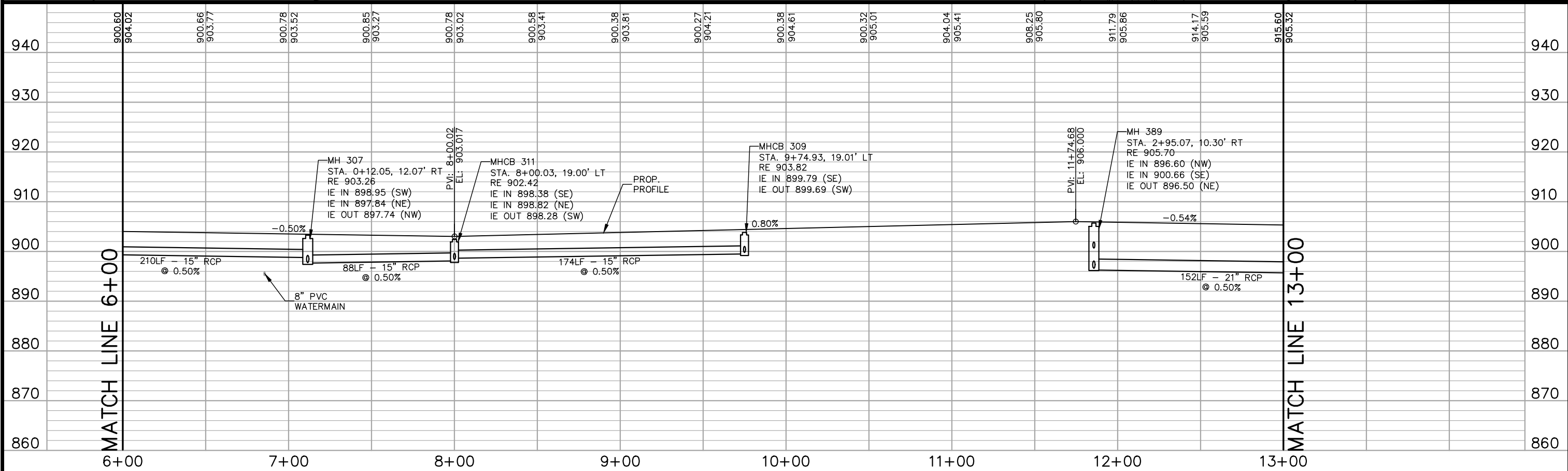
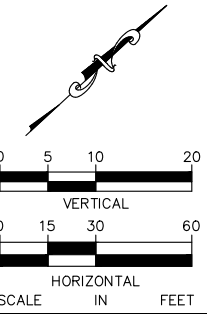
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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_TWNCNTR_PPF.dwg

DESIGNED BY: RSP
DRAWN BY: RSP
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

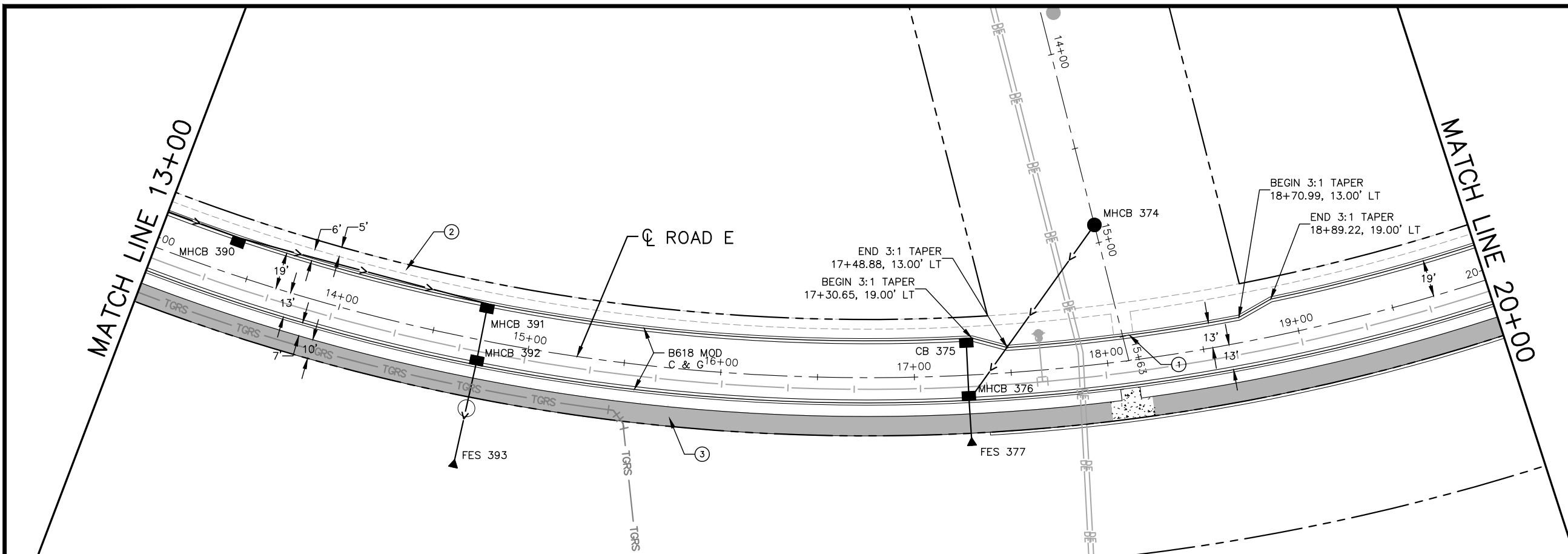
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
STREET AND STORM PLAN AND PROFILE
STA. 6+00 TO STA. 13+00

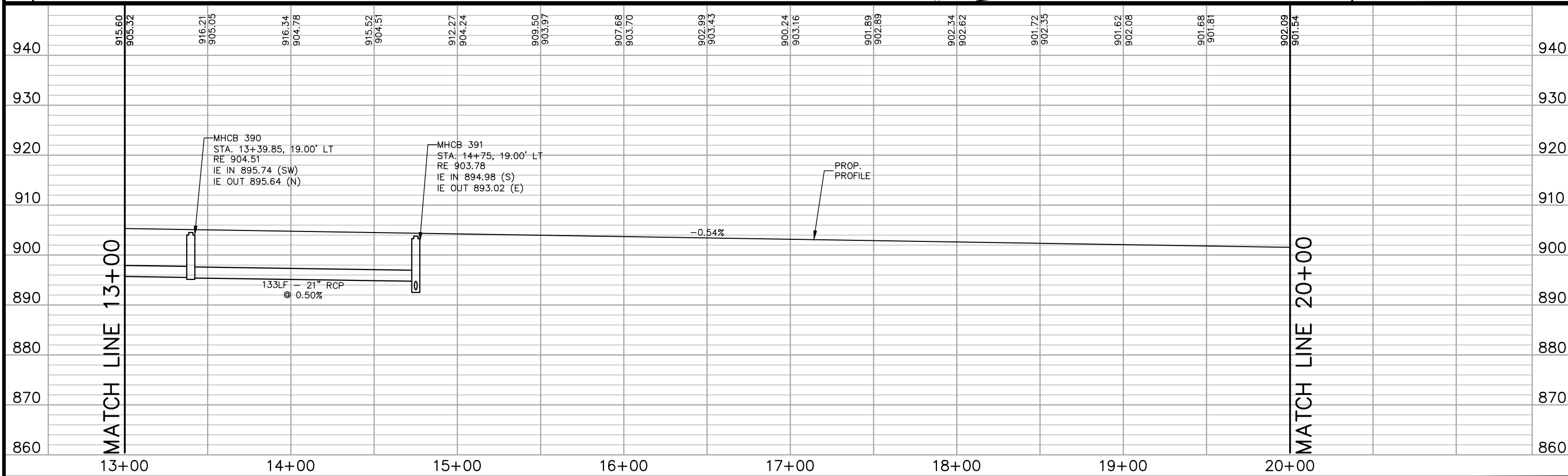
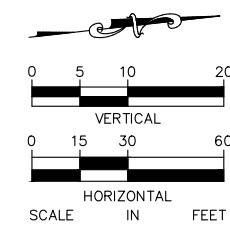
CITY PROJECT	194
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_PPF.dwg Layout03 January 10, 2019 - 8:50am



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_TWNCNTR_PPF.dwg

DESIGNED BY: RSP
DRAWN BY: RSP
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DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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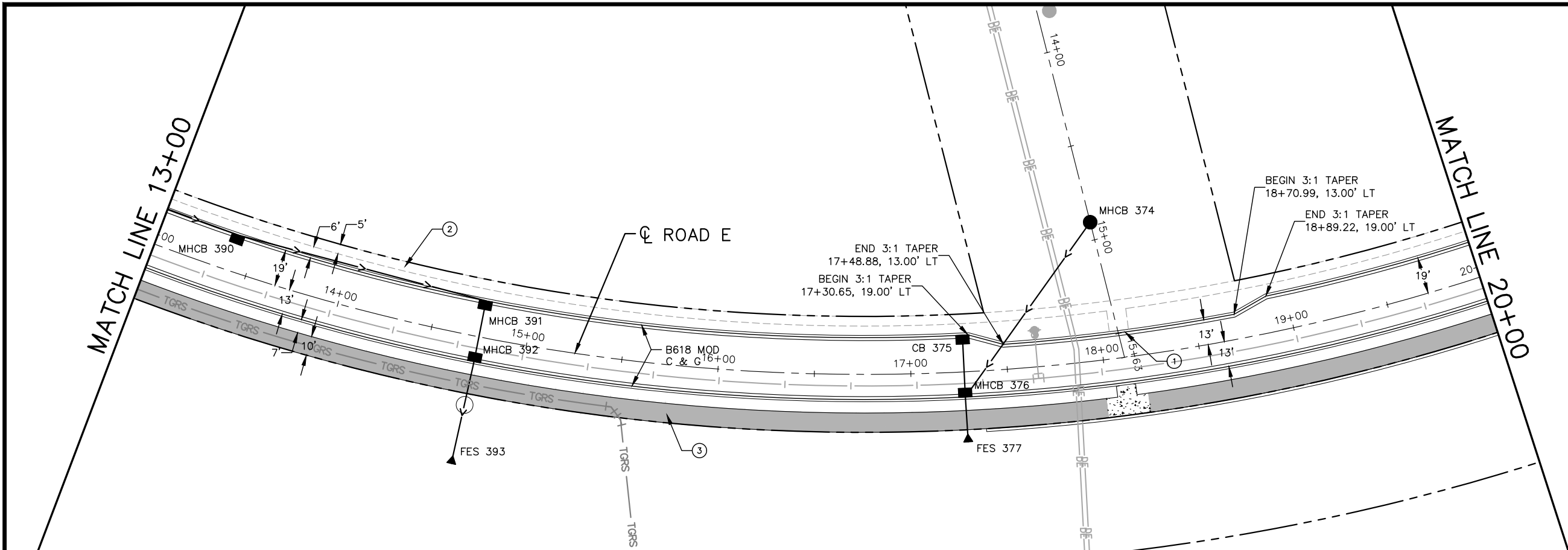
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD E
STREET AND STORM PLAN AND PROFILE
STA. 13+00 TO STA. 20+00

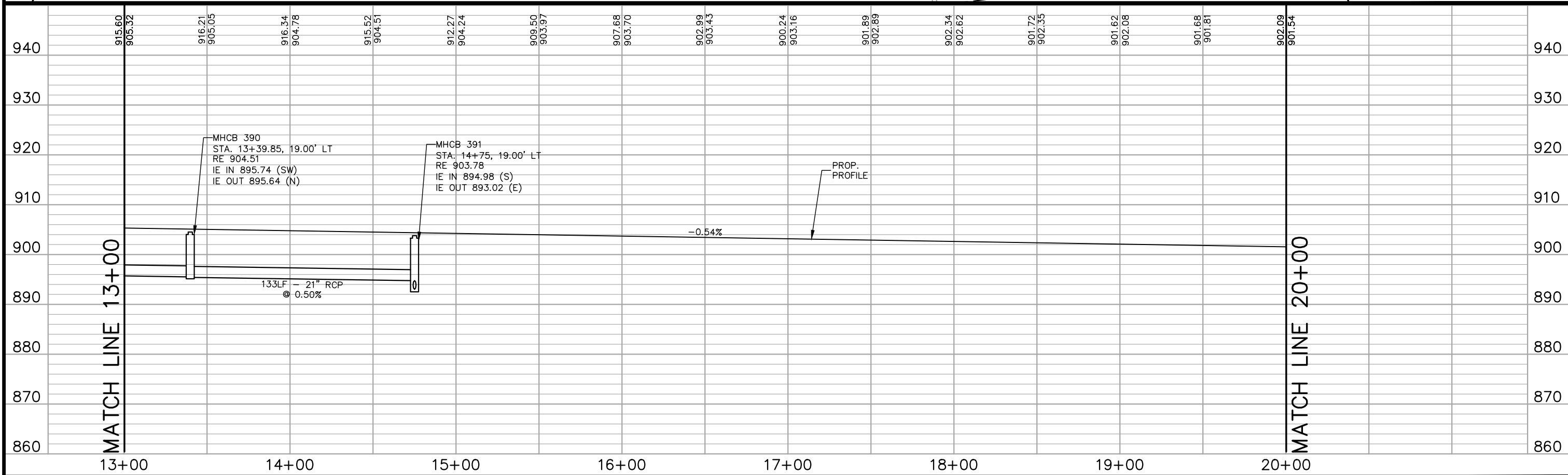
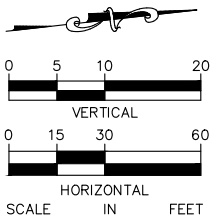
CITY PROJECT	SHEET NO. 195
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

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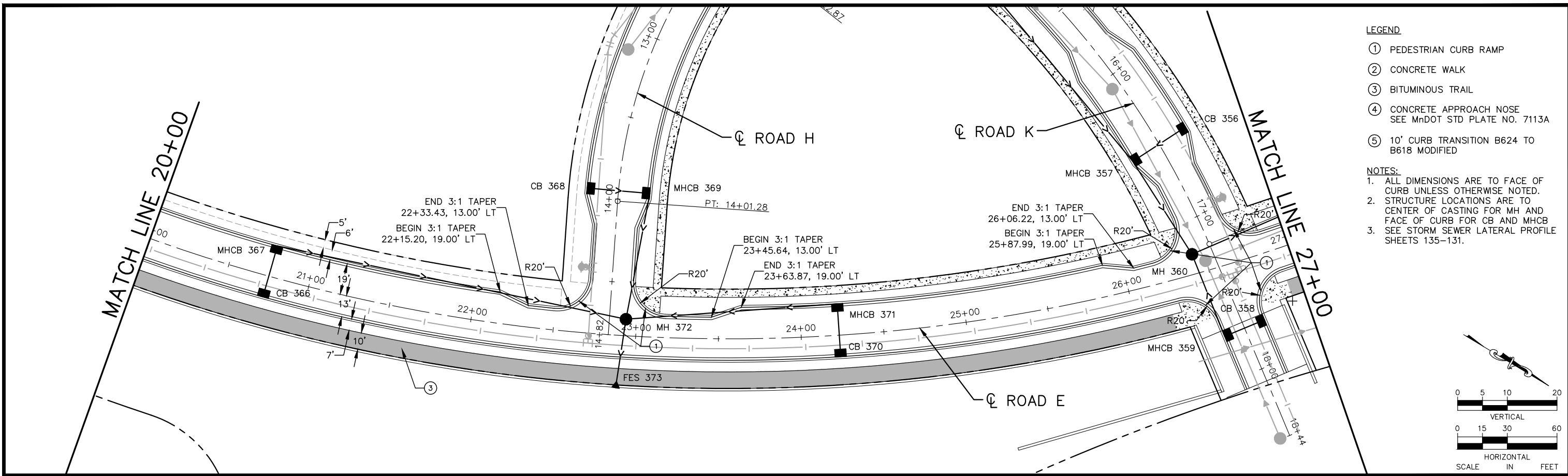
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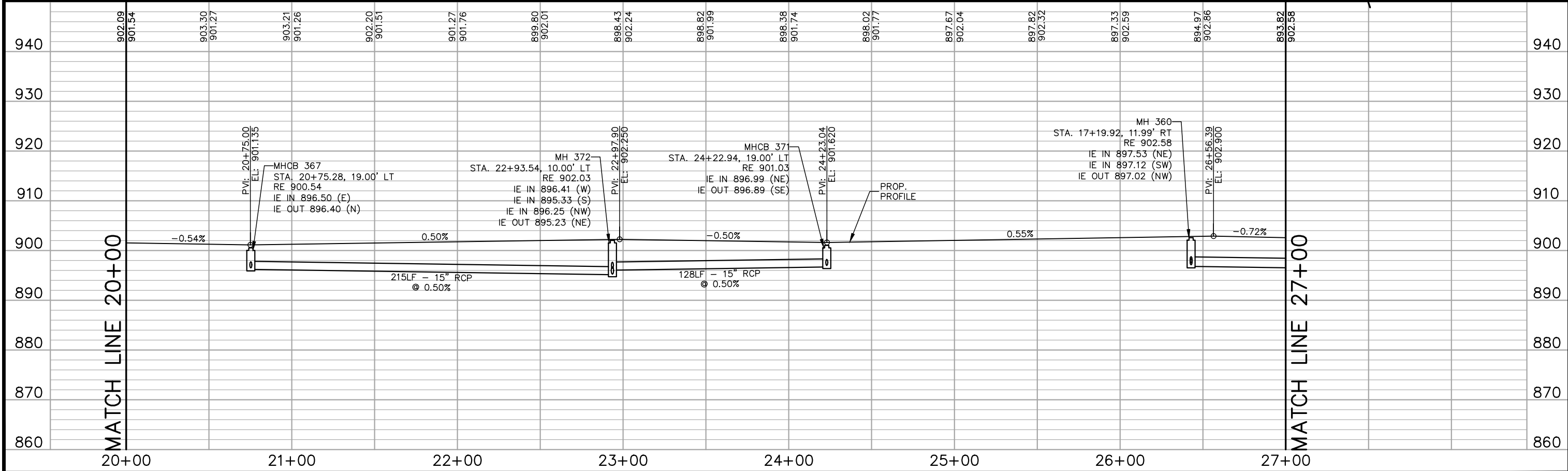
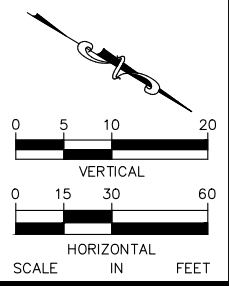
RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD E
STREET AND STORM PLAN AND PROFILE
STA. 13+00 TO STA. 20+00

CITY PROJECT	SHEET NO. 195
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
335	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_PPF.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

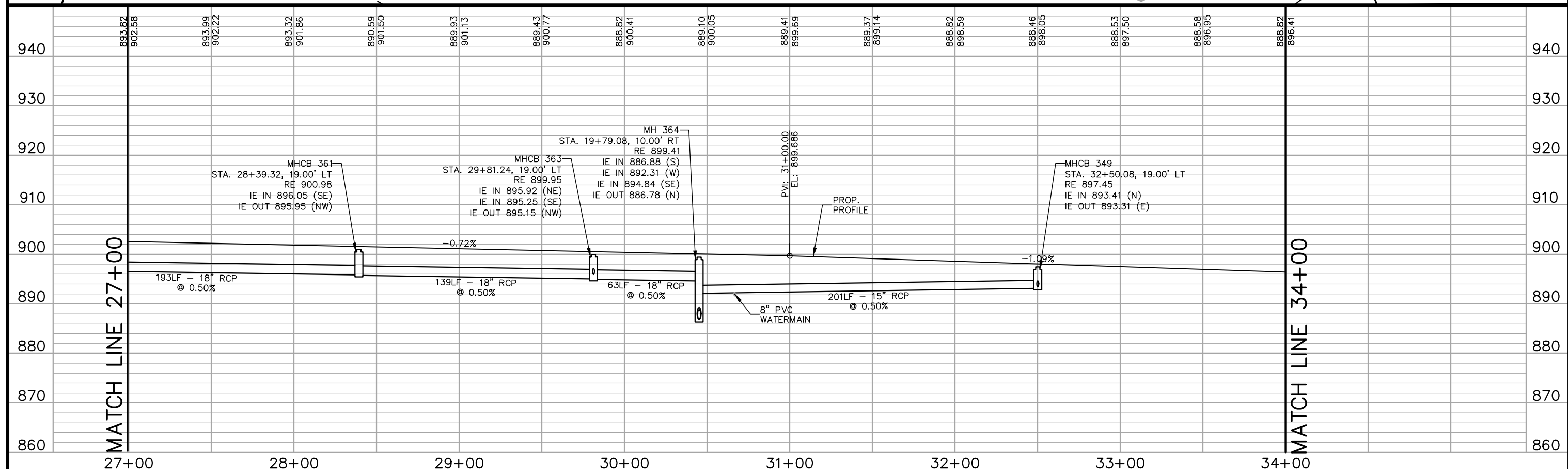
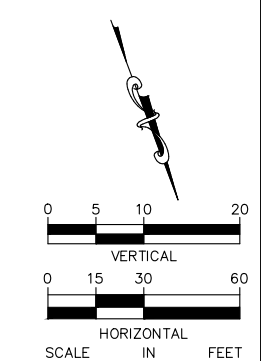
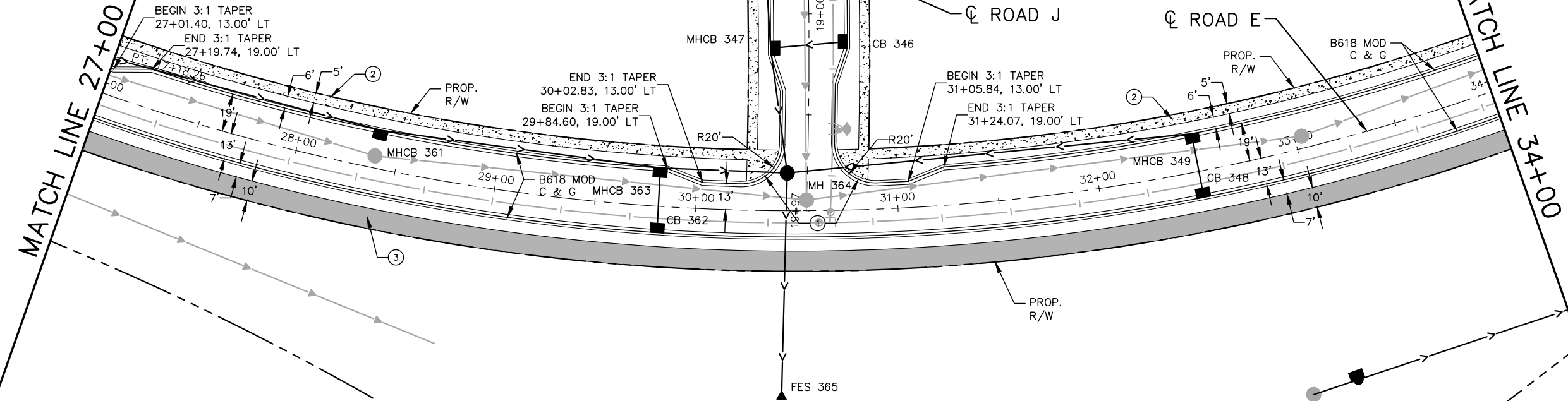
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 STREET AND STORM PLAN AND PROFILE
 STA. 20+00 TO STA. 27+00

CITY PROJECT	196
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



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DRAWN BY: RSP
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DATE: 01/04/19
PROJECT NO. 160553004

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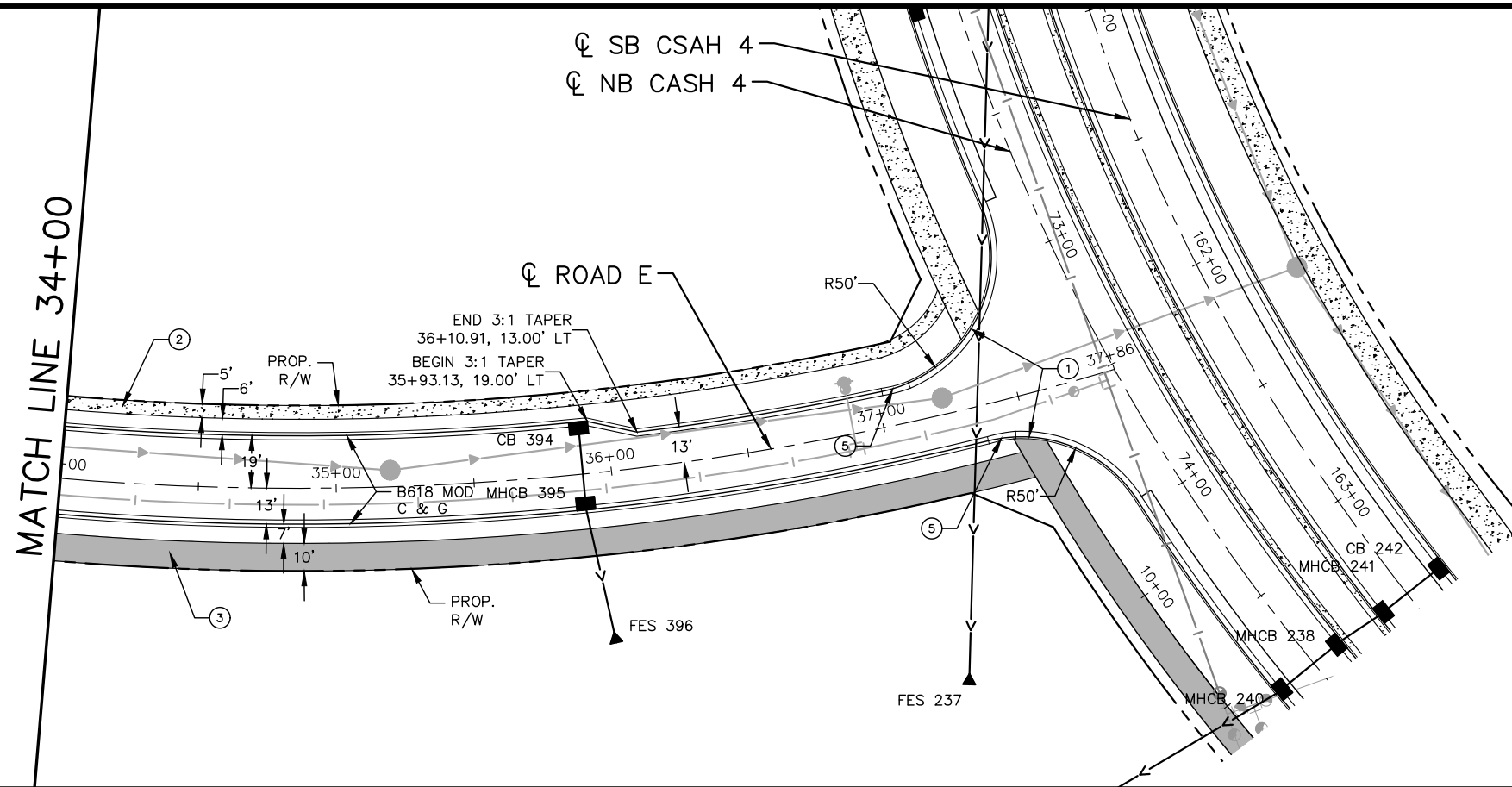
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
 STREET AND STORM PLAN AND PROFILE
 STA. 27+00 TO STA. 34+00

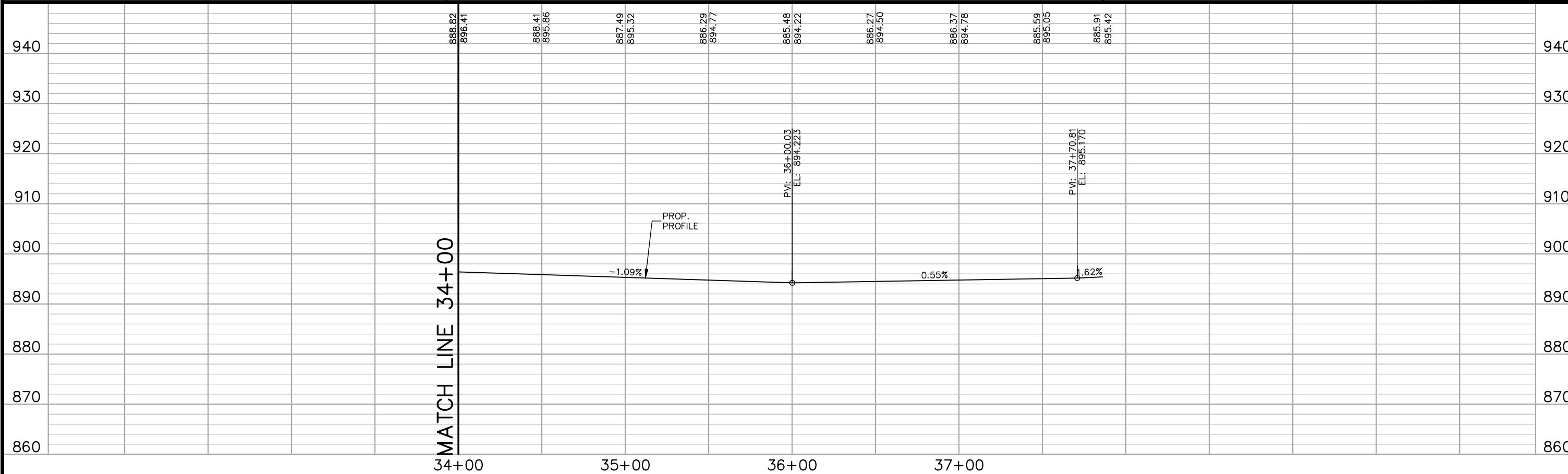
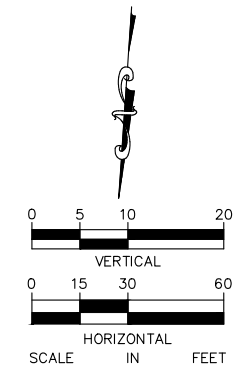
CITY PROJECT	197
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED

- NOTES:**
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 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

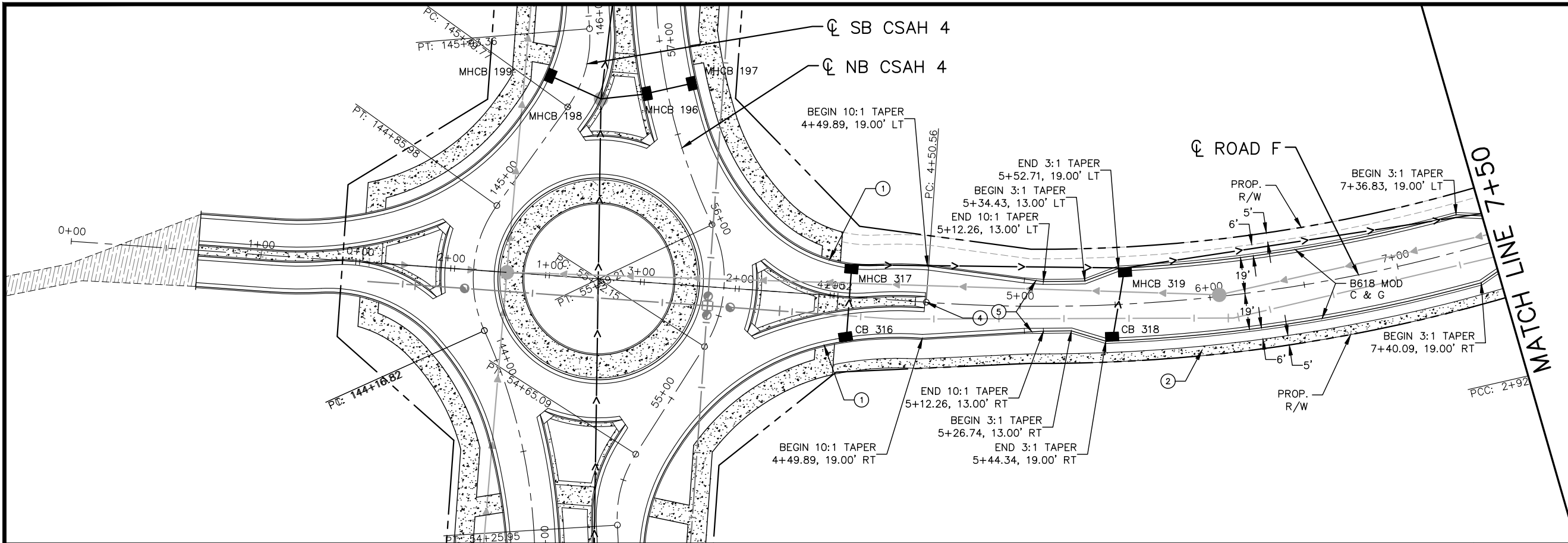
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

ROAD E
 STREET AND STORM PLAN AND PROFILE
 STA. 34+00 TO STA. 37+86

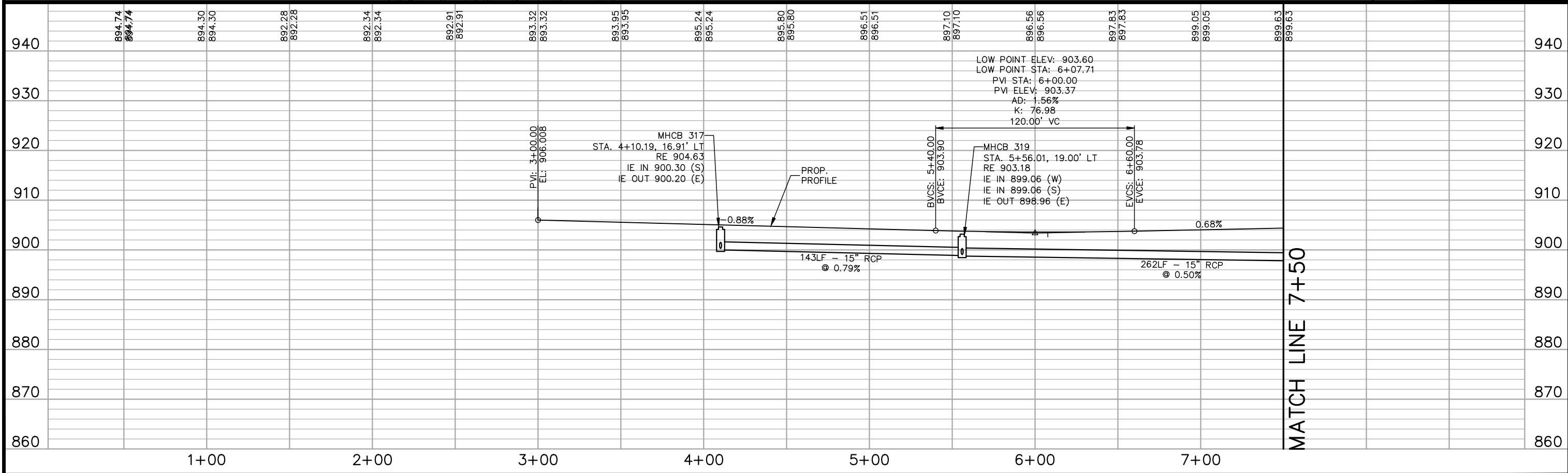
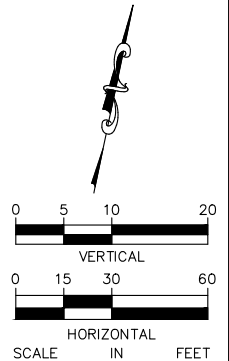
CITY PROJECT	SHEET NO. 198
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_PPF.dwg Layout07 January 10, 2019 - 9:07am



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD. PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCBS
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg
DESIGNED BY: RSP
DRAWN BY: RSP
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

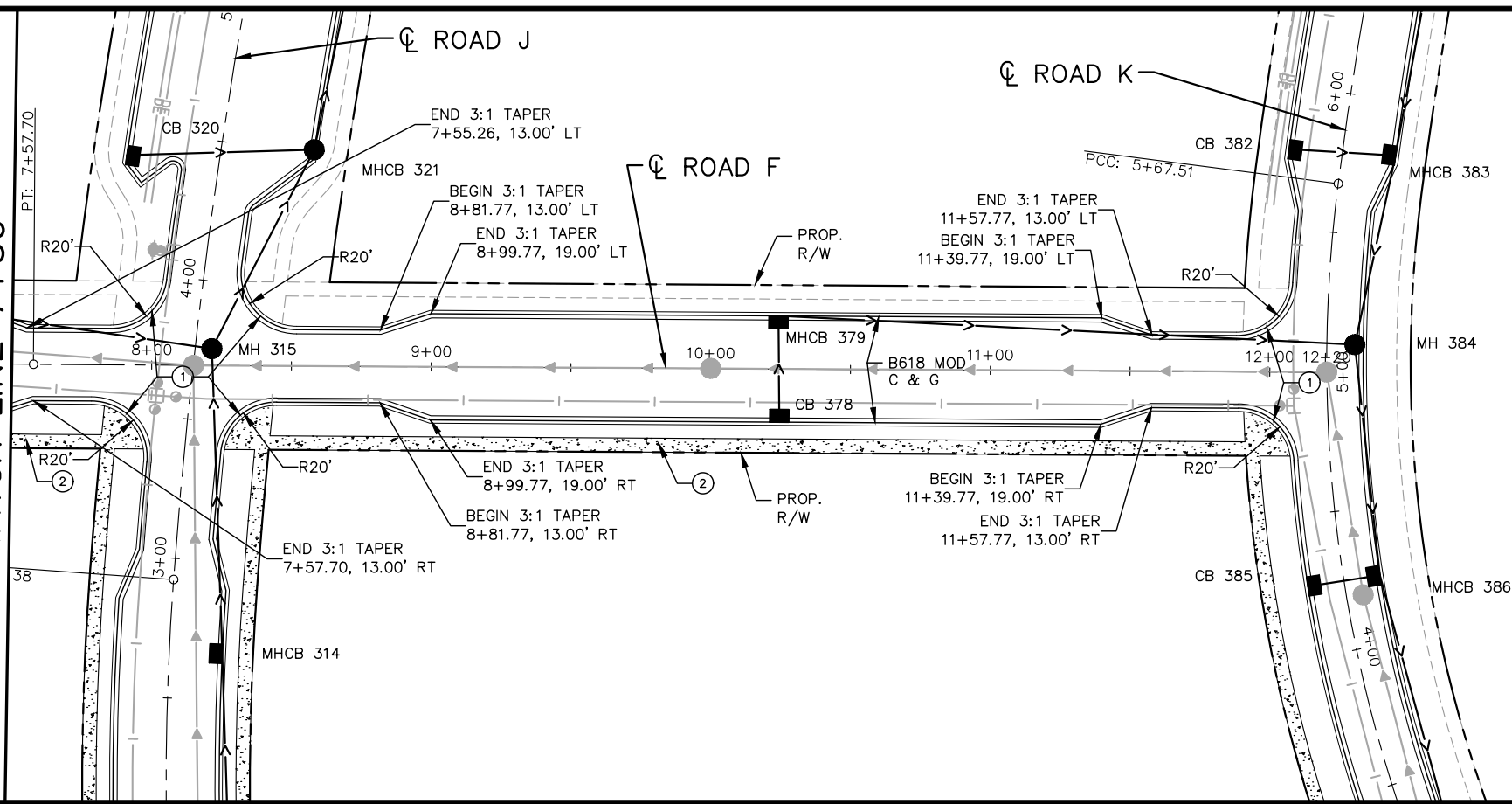
ROAD F
STREET AND STORM PLAN AND PROFILE
STA. 0+00 TO STA. 7+50

CITY PROJECT	SHEET NO. 199
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

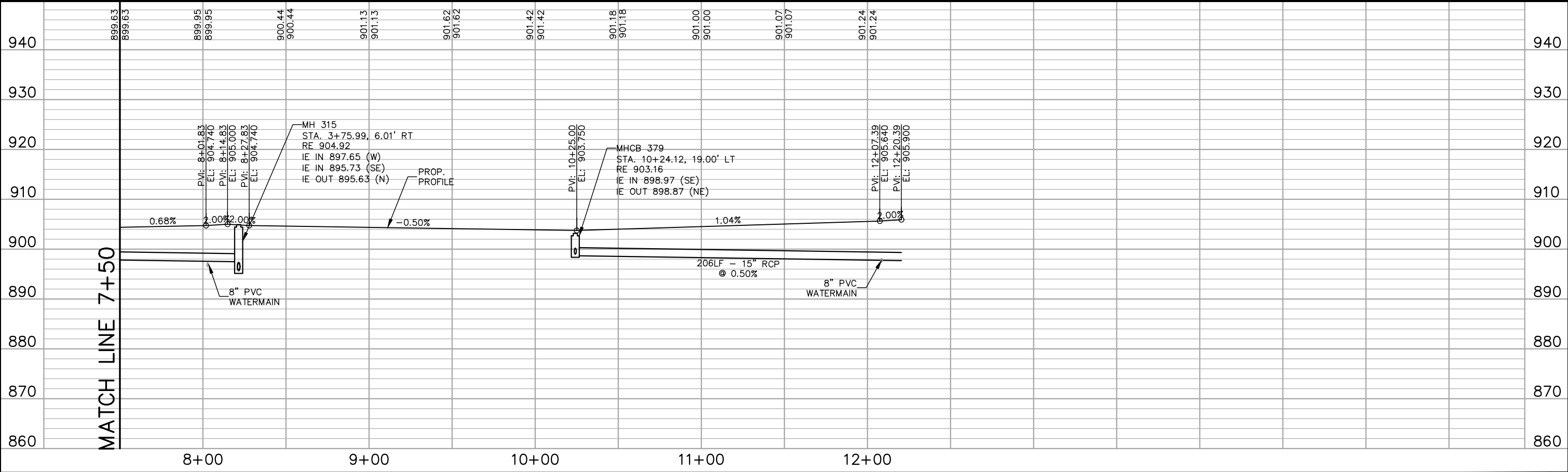
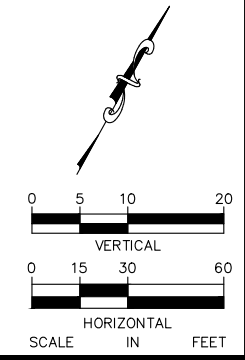
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MATCH LINE 7+50

MATCH LINE 7+50



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_PPF.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

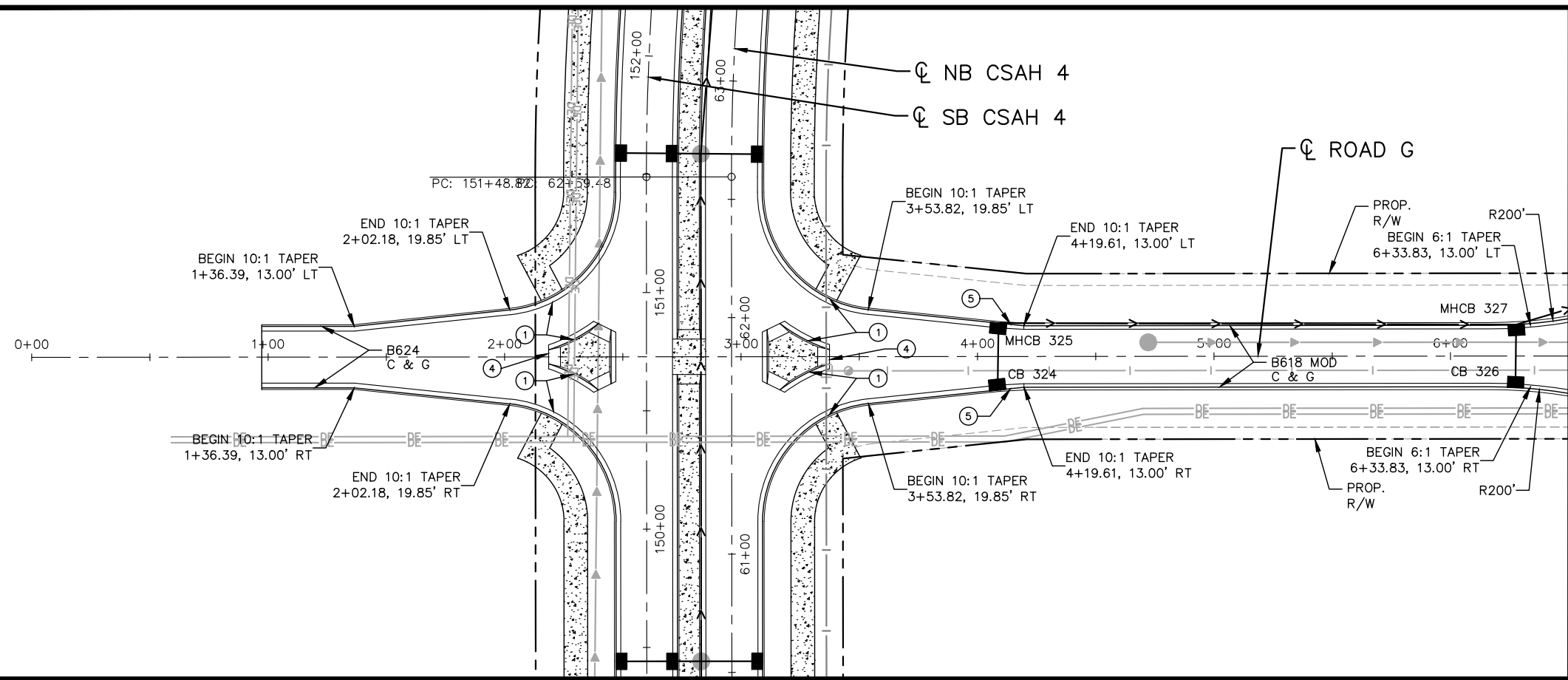
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

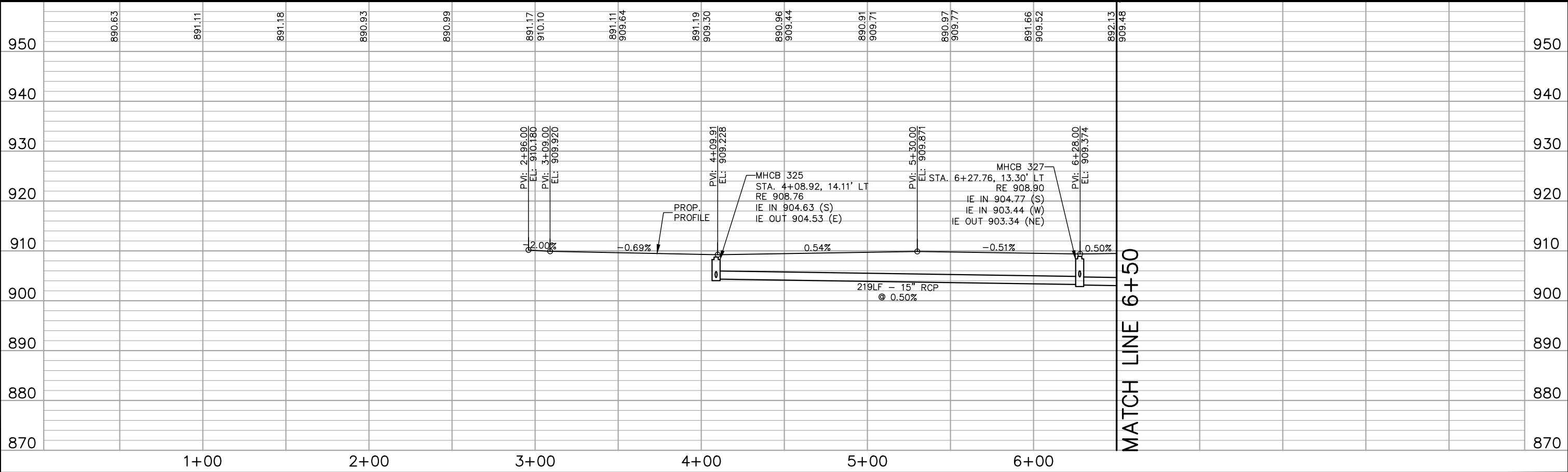
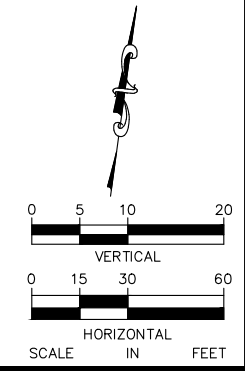
ROAD F
STREET AND STORM PLAN AND PROFILE
STA. 7+50 TO STA. 12+20

CITY PROJECT	SHEET NO. 200 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

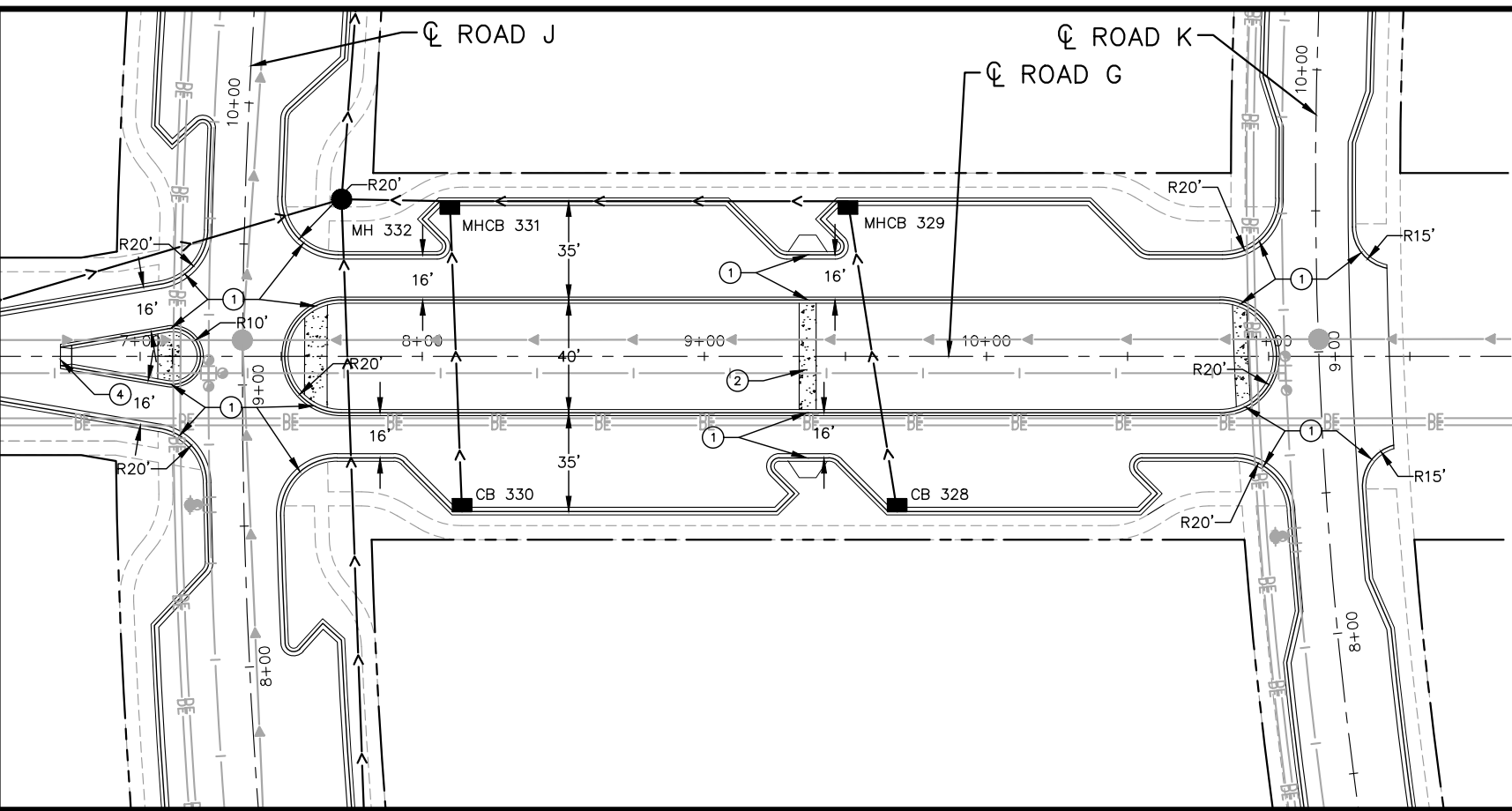
ROAD G
 STREET AND STORM PLAN AND PROFILE
 STA. 0+00 TO STA. 6+50

CITY PROJECT	201
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

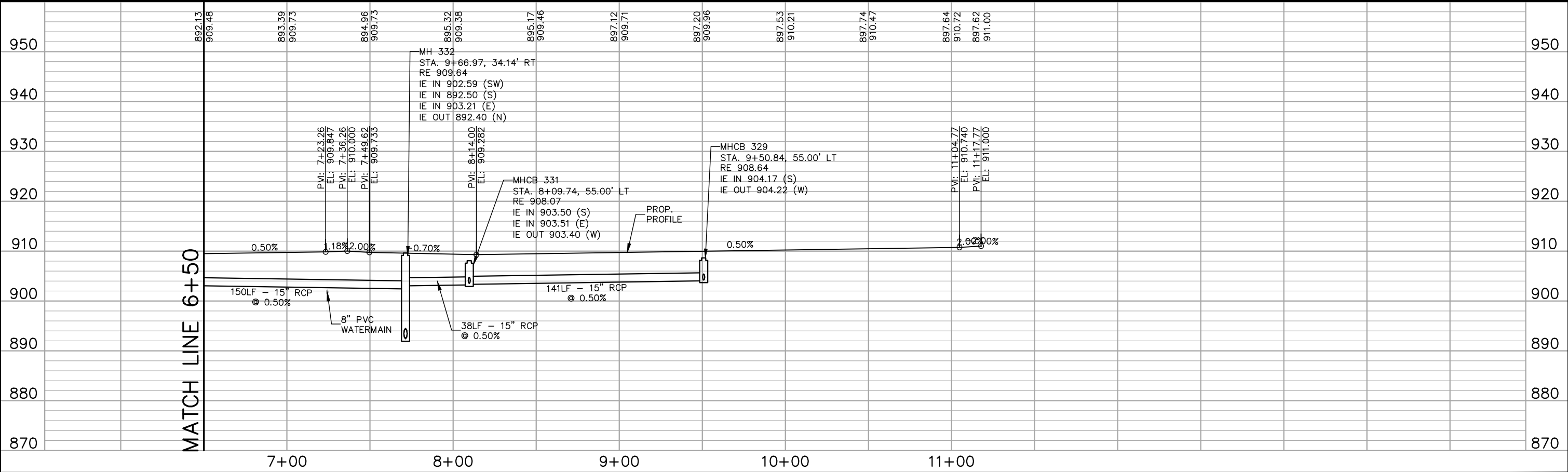
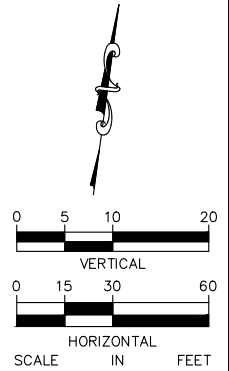
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MATCH LINE 6+50

MATCH LINE 6+50



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_TWNCNTR_PPF.dwg

DESIGNED BY: RSP

DRAWN BY: RSP

CHECKED BY: CBL

DATE: 01/04/19

PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

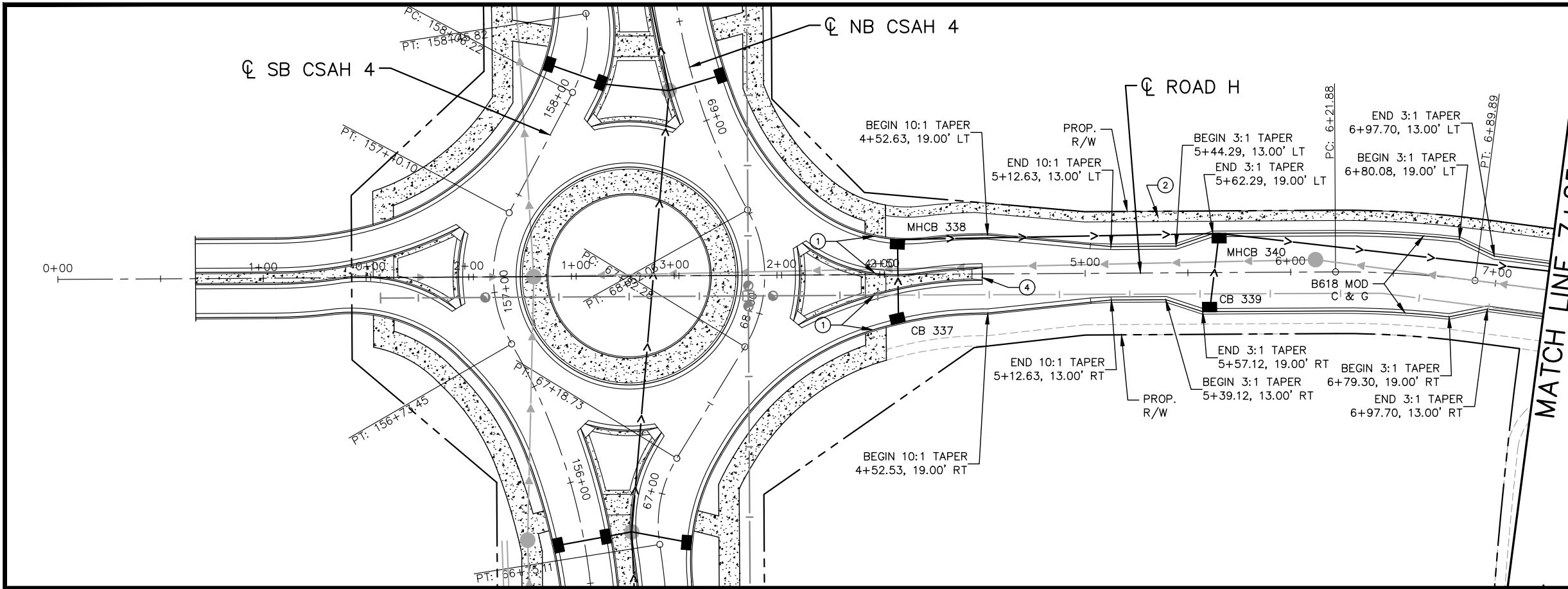
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

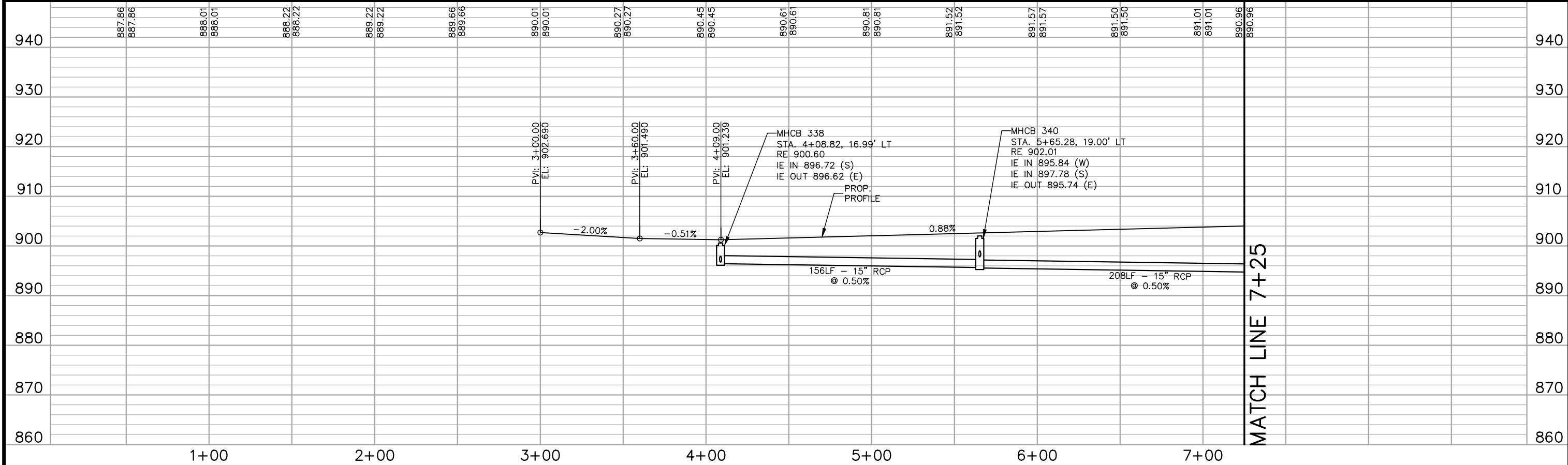
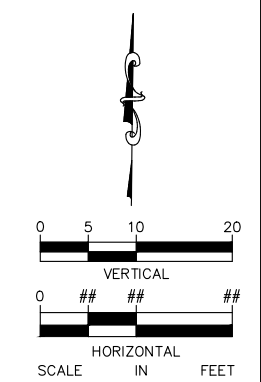
ROAD G
STREET AND STORM PLAN AND PROFILE
STA. 6+50 TO STA. 11+18

CITY PROJECT	SHEET NO. 202
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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PHONE: 651-645-4197
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

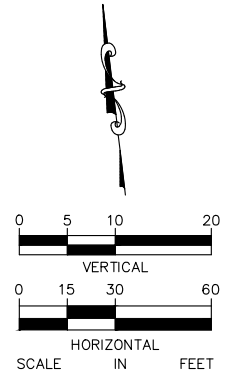
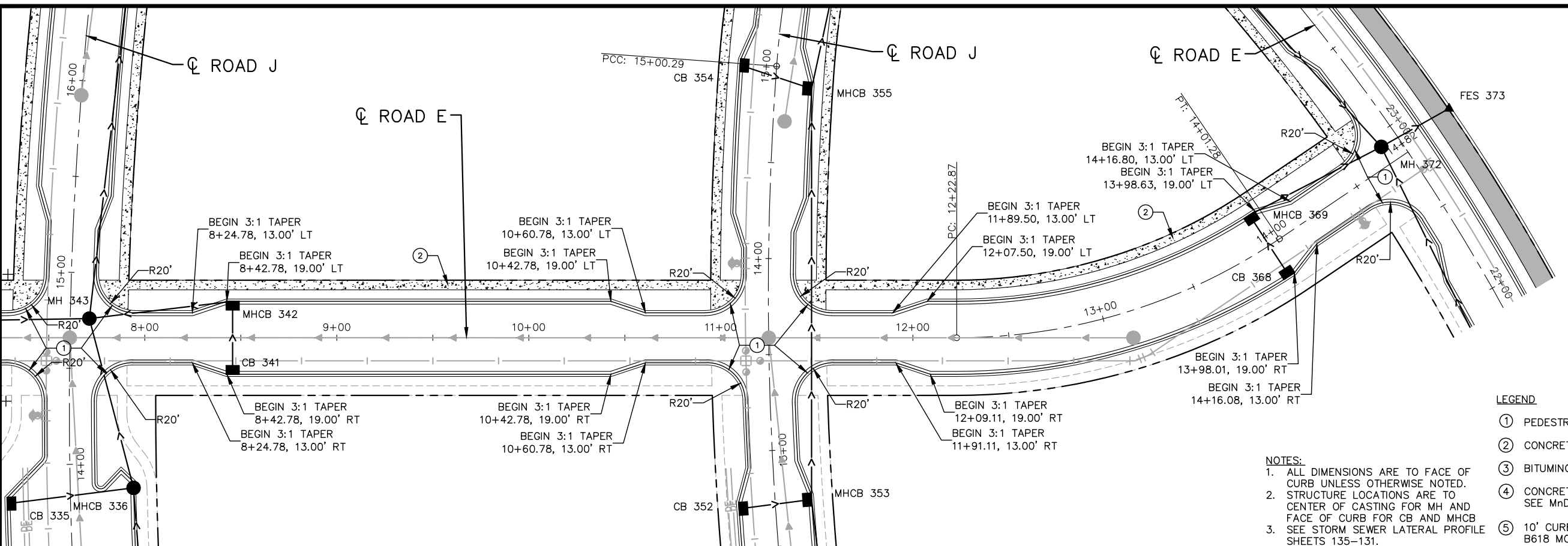
ROAD H
STREET AND STORM PLAN AND PROFILE
STA. 0+00 TO STA. 7+25

CITY PROJECT	SHEET NO. 203
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

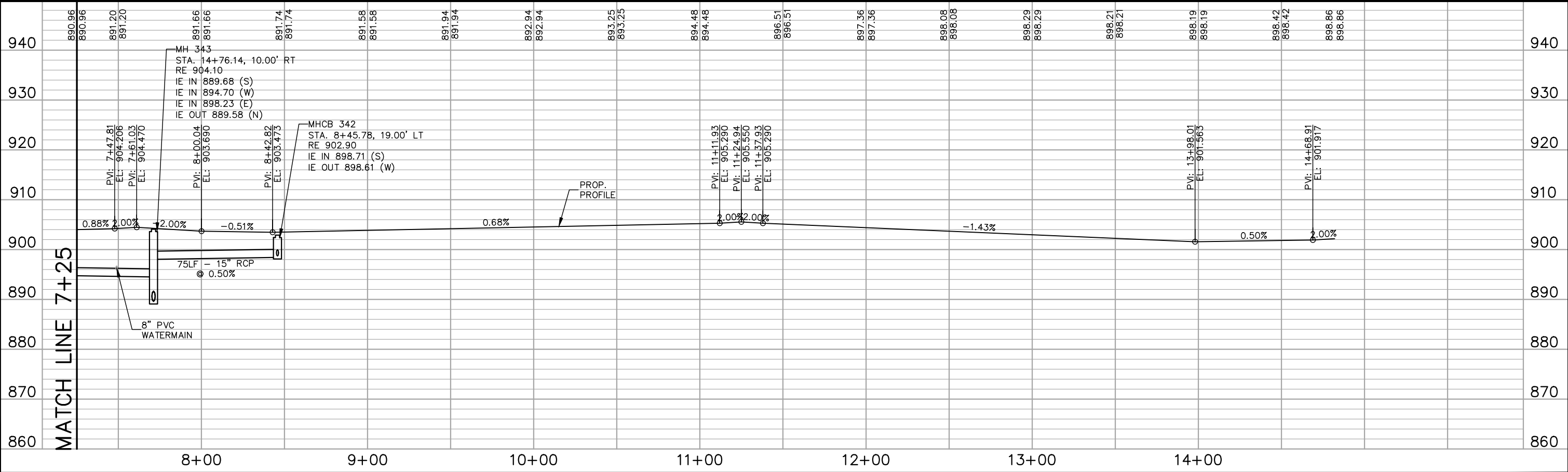
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MATCH LINE 7+25

MATCH LINE 7+25



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MNDOT STD. PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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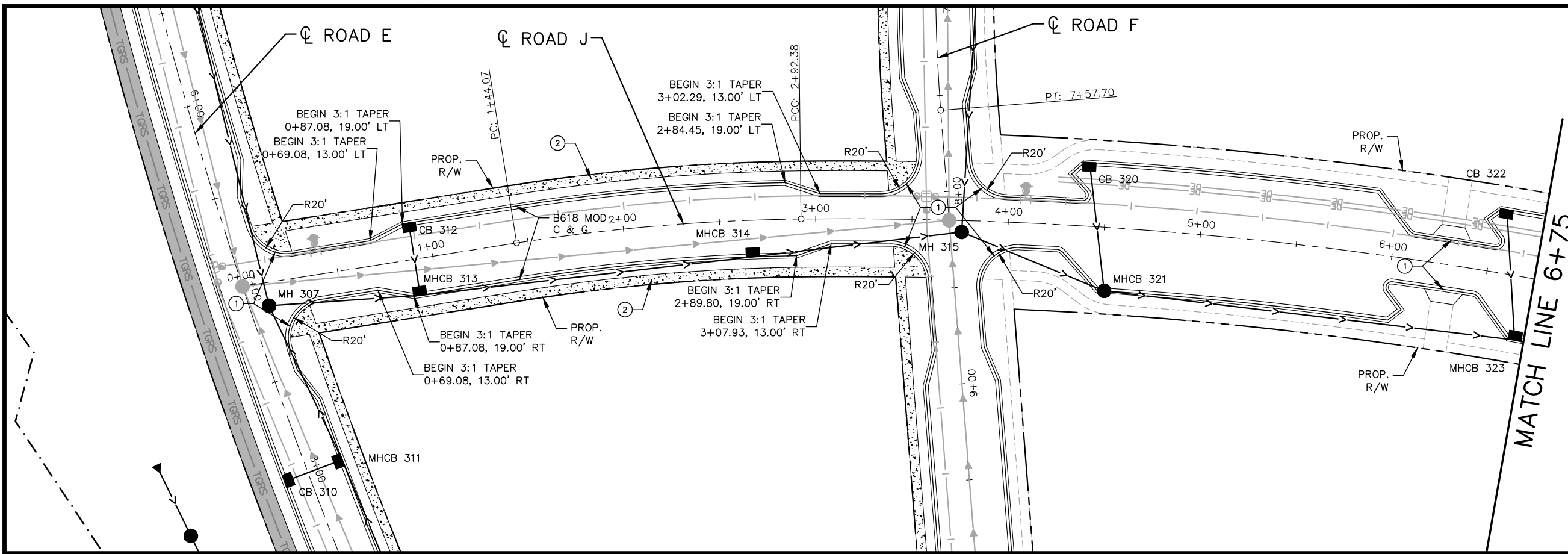
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD H
STREET AND STORM PLAN AND PROFILE
STA. 7+25 TO STA. 14+82

CITY PROJECT	204
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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LEGEND

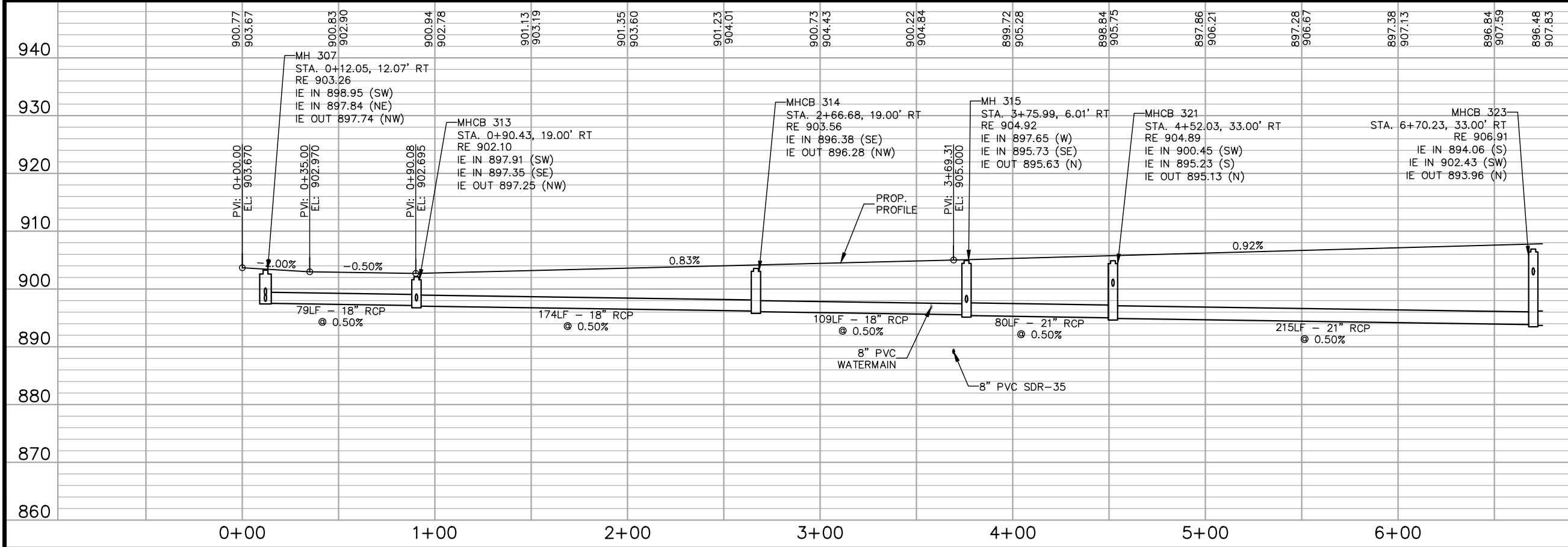
- ① PEDESTRIAN CURB RAMP
- ② CONCRETE WALK
- ③ BITUMINOUS TRAIL
- ④ CONCRETE APPROACH NOSE
SEE MnDOT STD. PLATE NO. 7113A
- ⑤ 10' CURB TRANSITION B624 TO B618 MODIFIED

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND MHCBS AND FACE OF CURB FOR CB AND MHCBS
3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.

MATCH LINE 6+75

SCALE IN FEET



MATCH LINE 6+75

No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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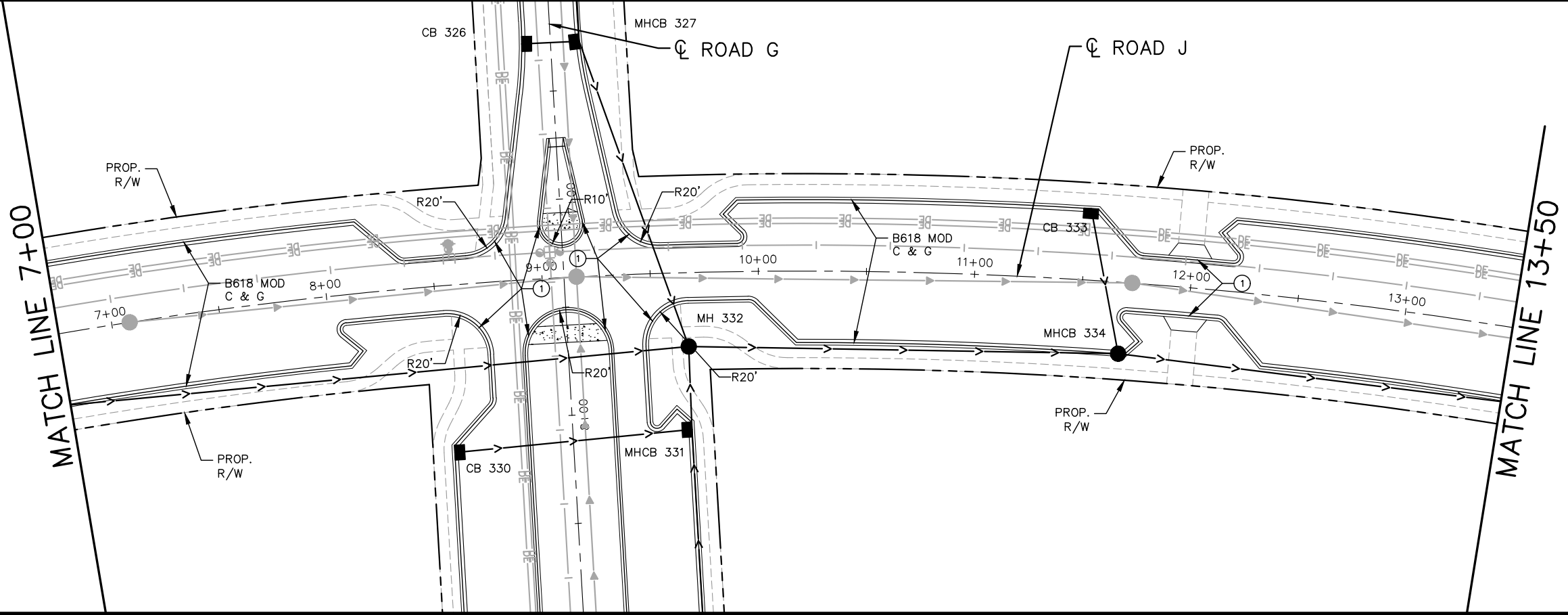
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

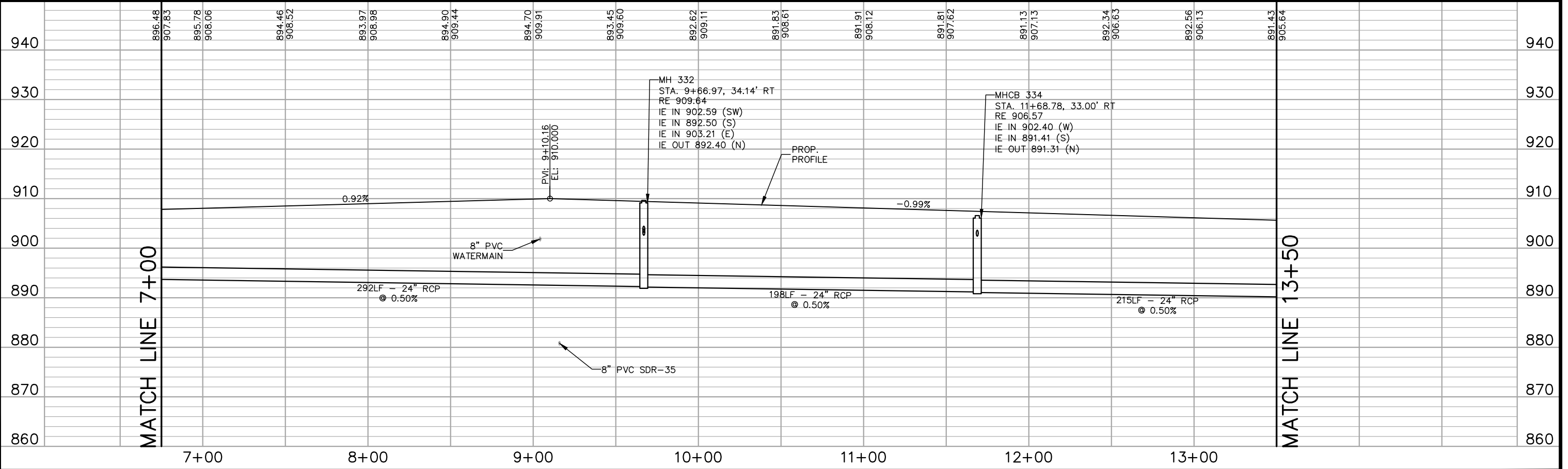
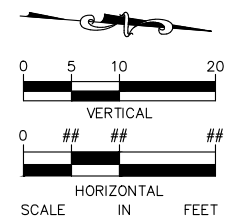
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD J
STREET AND STORM PLAN AND PROFILE
STA. 0+00 TO STA. 6+75

CITY PROJECT	205
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_PPF.dwg Layout14 January 10, 2019 - 9:30am



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TWNCNTR_PPF.dwg
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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 WWW.KIMLEY-HORN.COM

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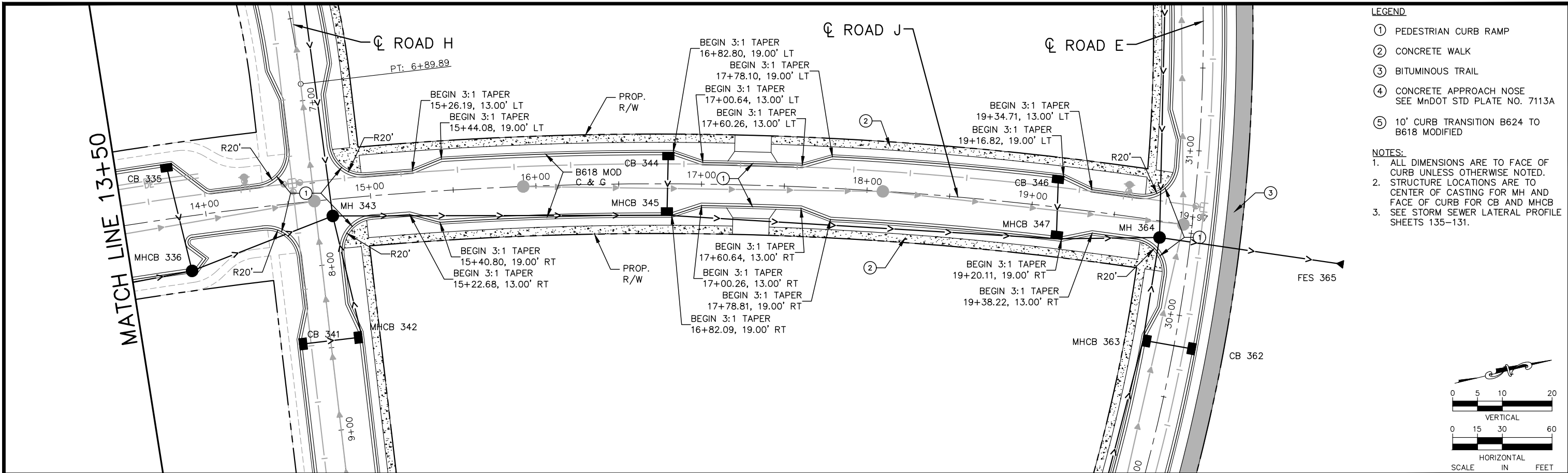
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

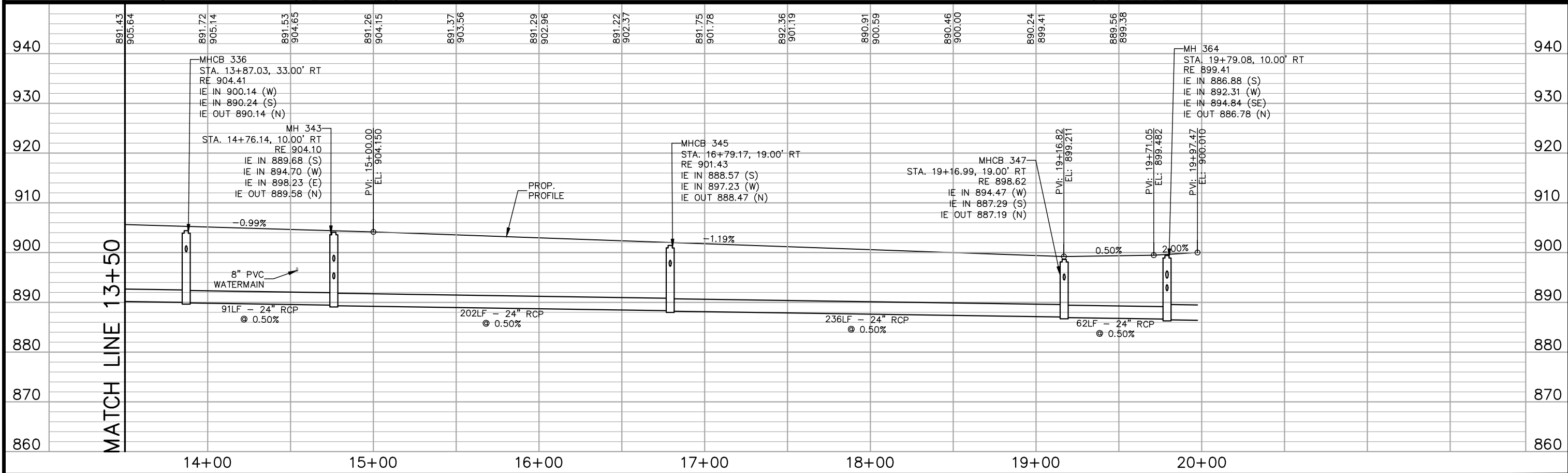
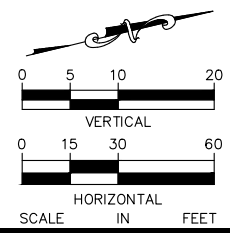
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD J
 STREET AND STORM PLAN AND PROFILE
 STA. 7+00 TO STA. 13+50

CITY PROJECT	206
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED
- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TWNCNTR_PPF.dwg	
DESIGNED BY:	RSP
DRAWN BY:	RSP
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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DATE: 01/04/19 MN LIC. NO. 41864

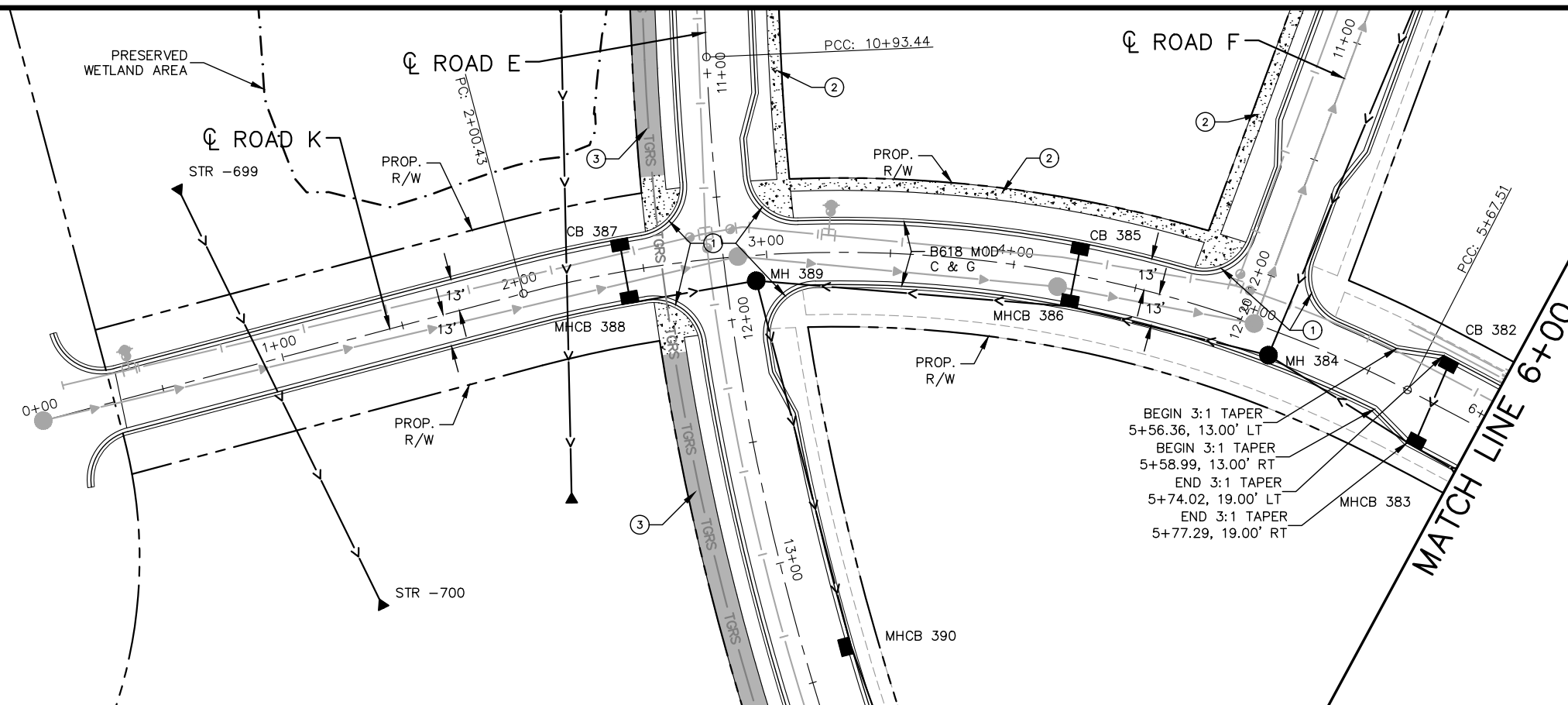
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD J
STREET AND STORM PLAN AND PROFILE
STA. 13+50 TO STA. 19+97

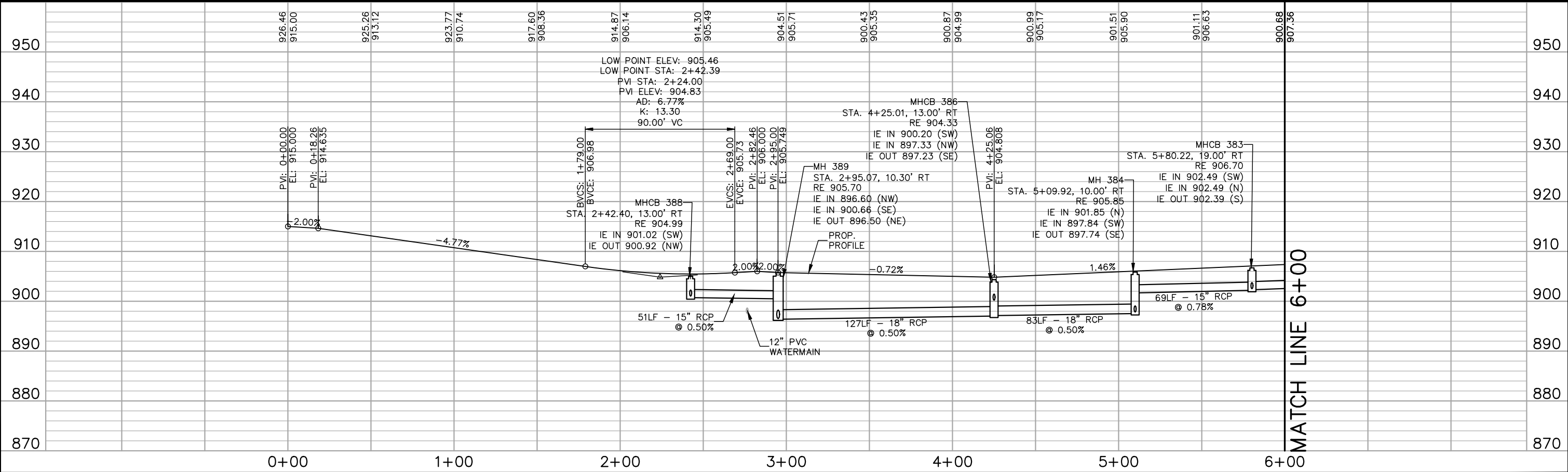
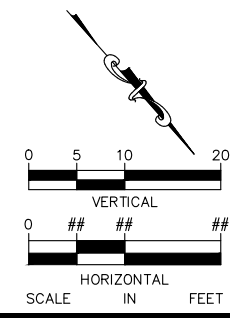
CITY PROJECT	207
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_PPF.dwg Layout16 January 10, 2019 - 9:35am



- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MnDOT STD. PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
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 3. SEE STORM SEWER LATERAL PROFILE SHEETS 135-131.



No.	Date	Revisions	App.

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DESIGNED BY: RSP
DRAWN BY: RSP
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn

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PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

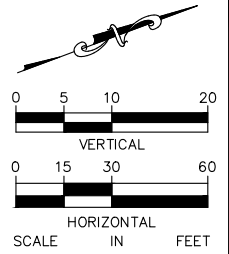
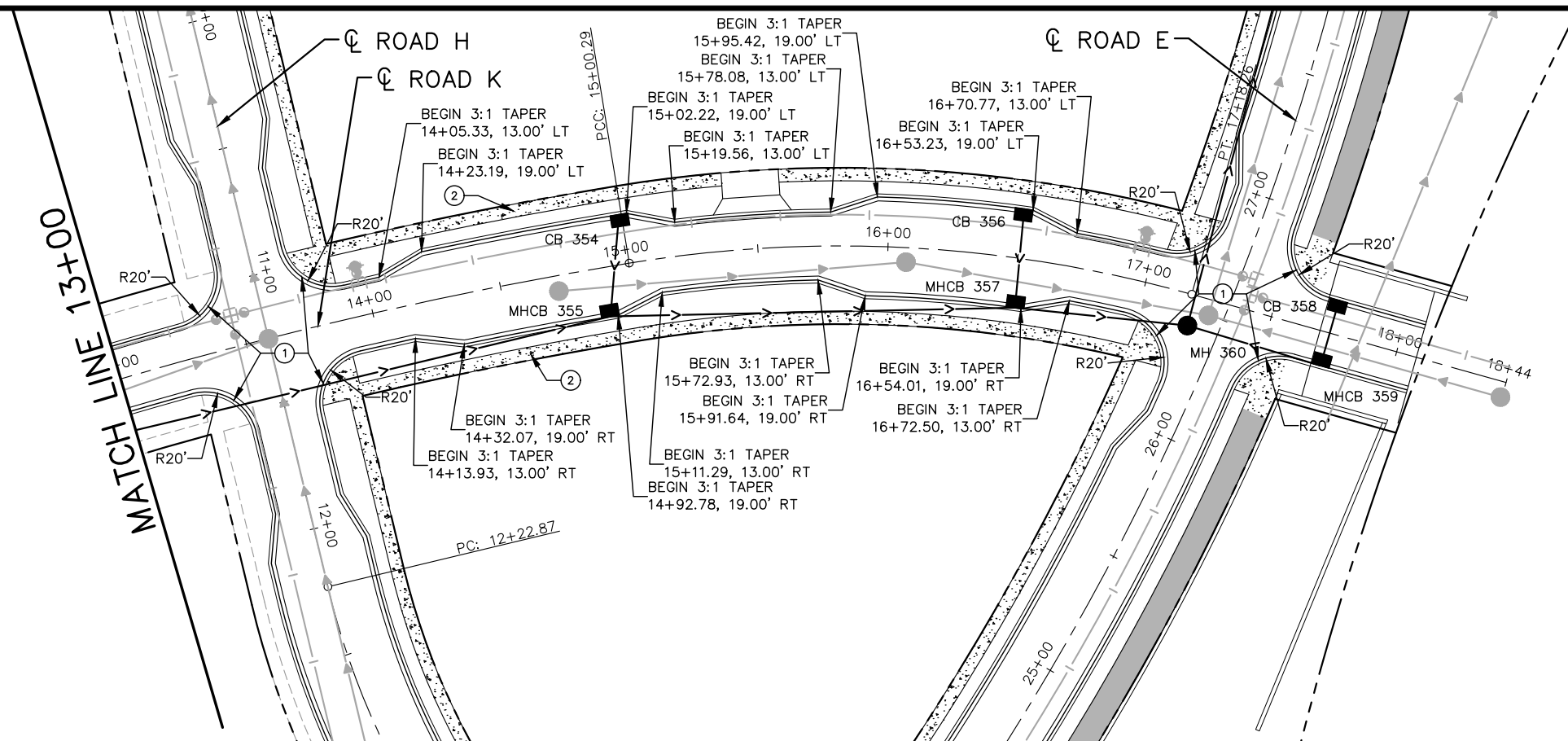
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD K
STREET AND STORM PLAN AND PROFILE
STA. 0+00 TO STA. 6+00

CITY PROJECT	SHEET NO. 208
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

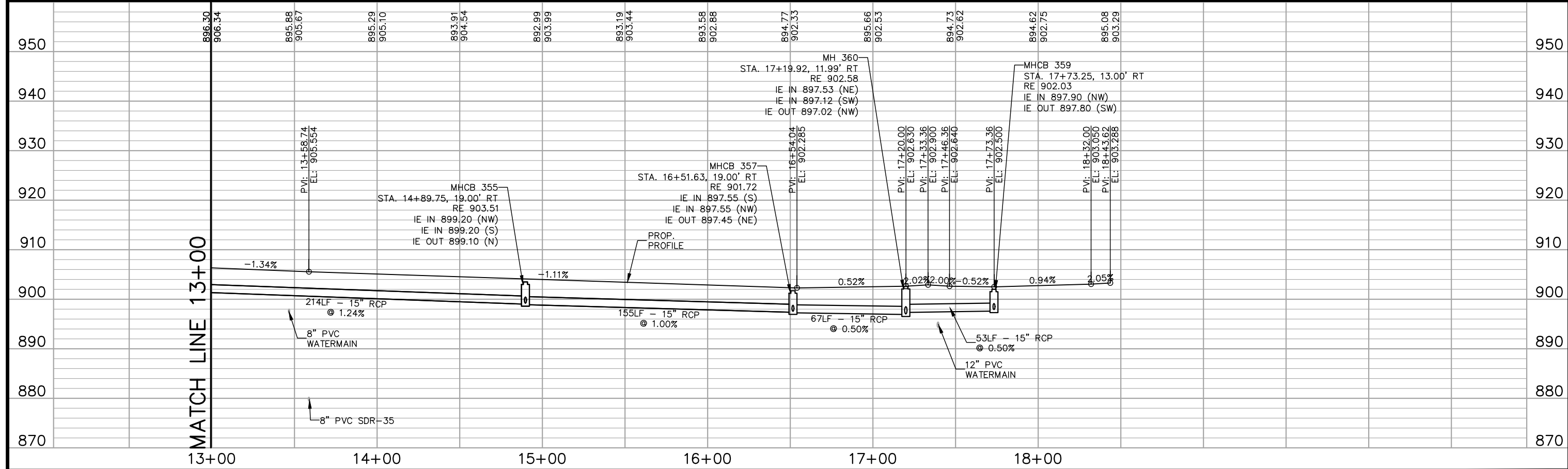
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- LEGEND**
- ① PEDESTRIAN CURB RAMP
 - ② CONCRETE WALK
 - ③ BITUMINOUS TRAIL
 - ④ CONCRETE APPROACH NOSE
SEE MNDOT STD PLATE NO. 7113A
 - ⑤ 10' CURB TRANSITION B624 TO
B618 MODIFIED

- NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. STRUCTURE LOCATIONS ARE TO



No.	Date	Revisions	App.

DRAWING NAME
TCAAP_TWNCNTR_PPF.dwg

DESIGNED BY: RSP
DRAWN BY: RSP
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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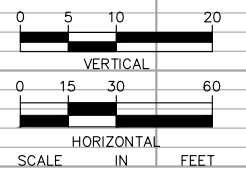
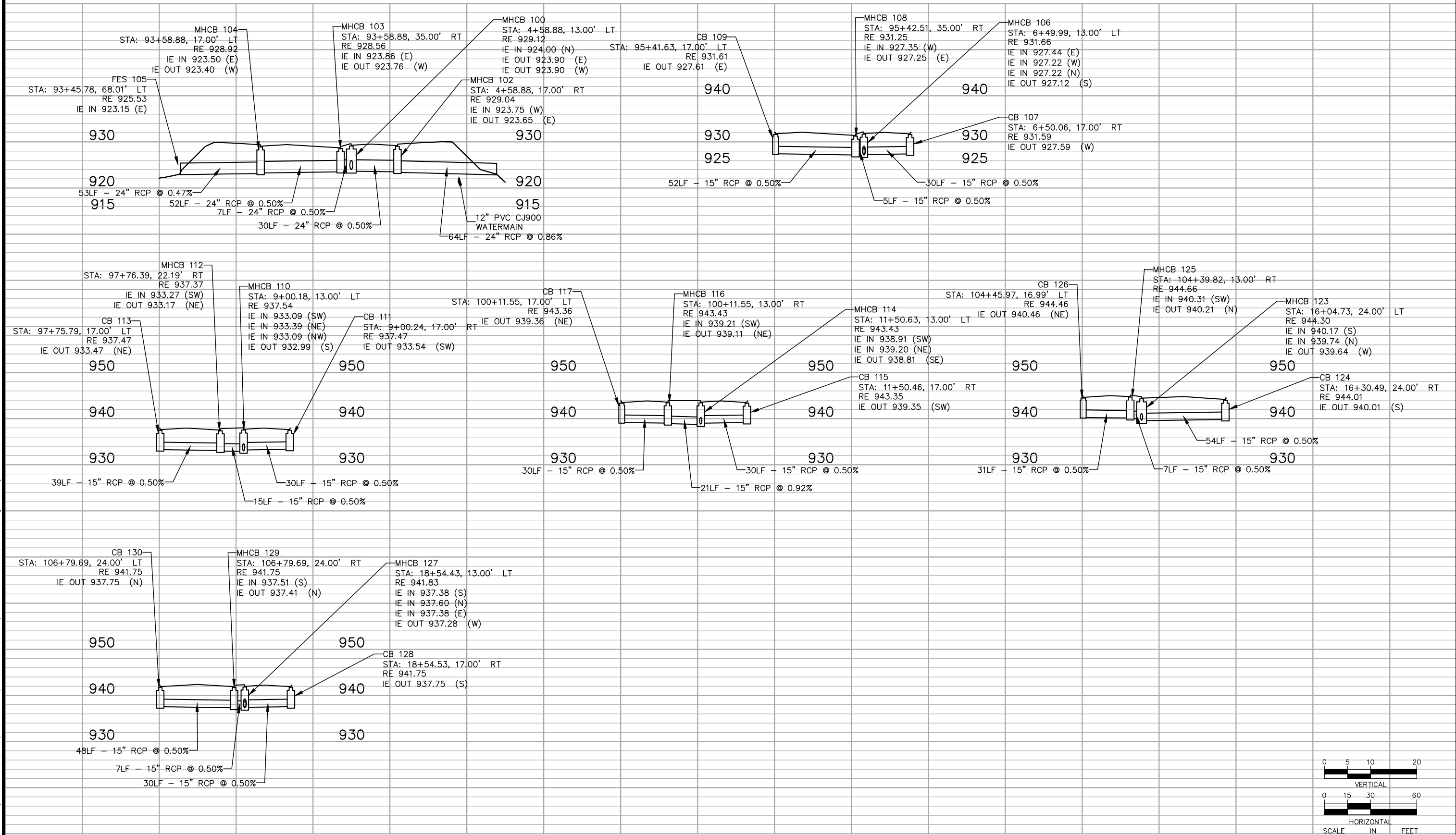
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
ROAD K
STREET AND STORM PLAN AND PROFILE
STA. 13+00 TO STA. 18+44

CITY PROJECT	SHEET NO. 210
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_STM-LAT.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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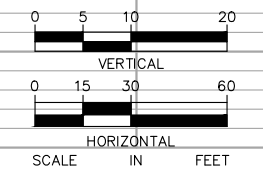
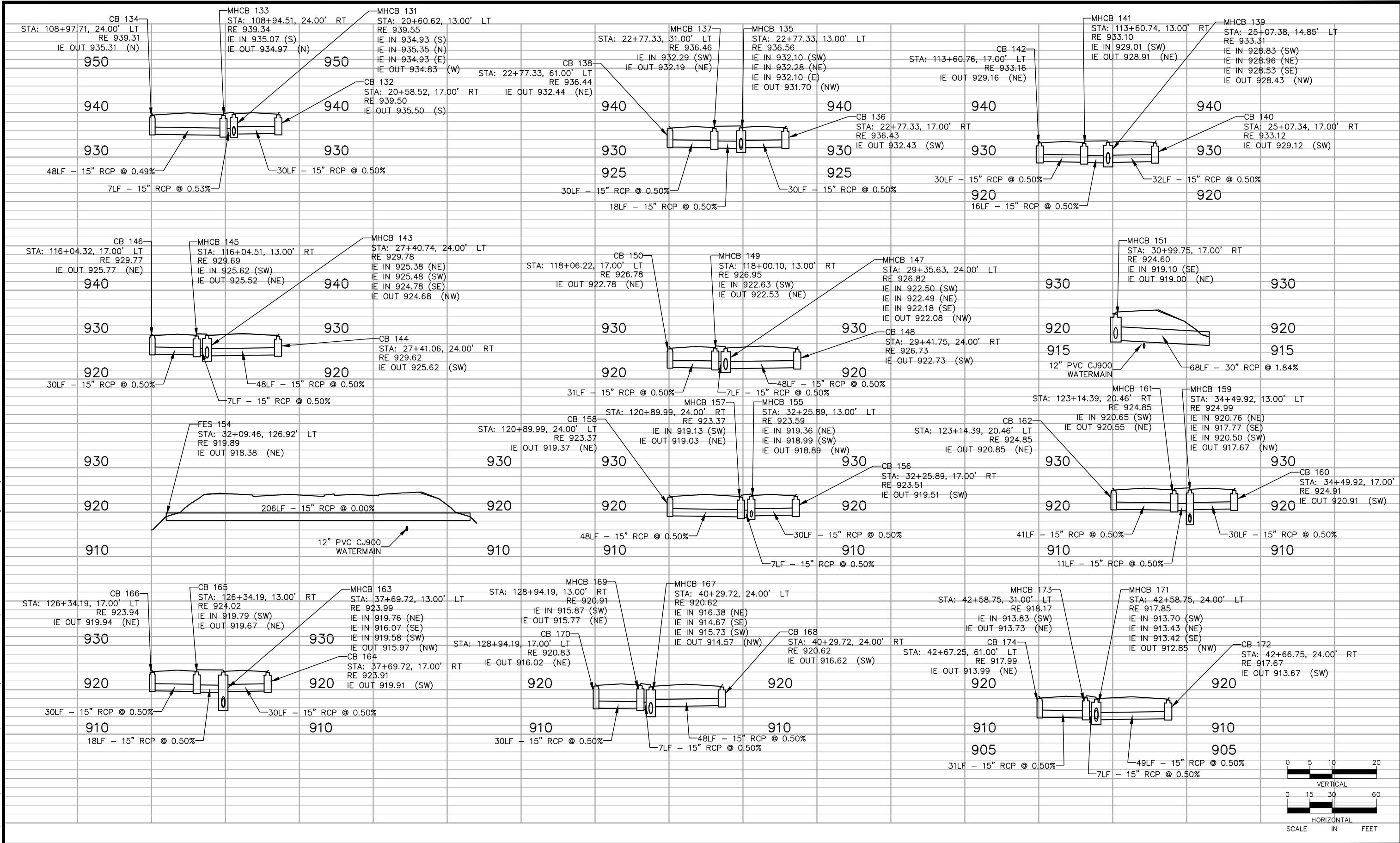
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 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 211
COUNTY PROJECT	
S.A.P.	
S.A.P.	
335	

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				DESIGNED BY: RJG
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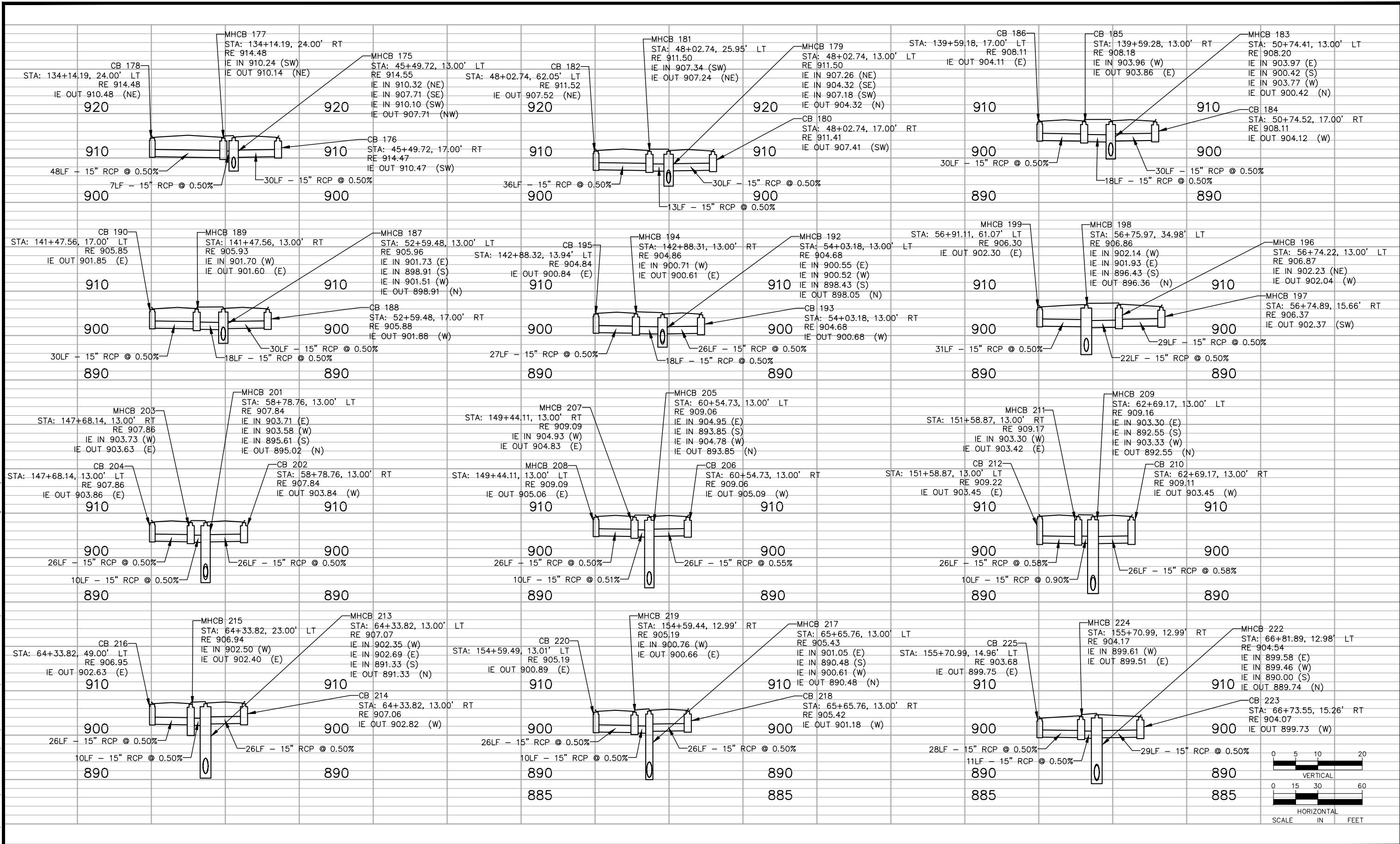
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 212
COUNTY PROJECT	
S.A.P.	
S.A.P.	
335	

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No.	Date	Revisions	App.

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DESIGNED BY:	RJG
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DATE:	01/04/19
PROJECT NO.	160553004

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RAMSEY COUNTY

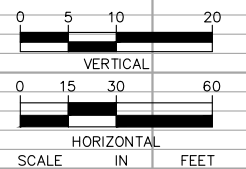
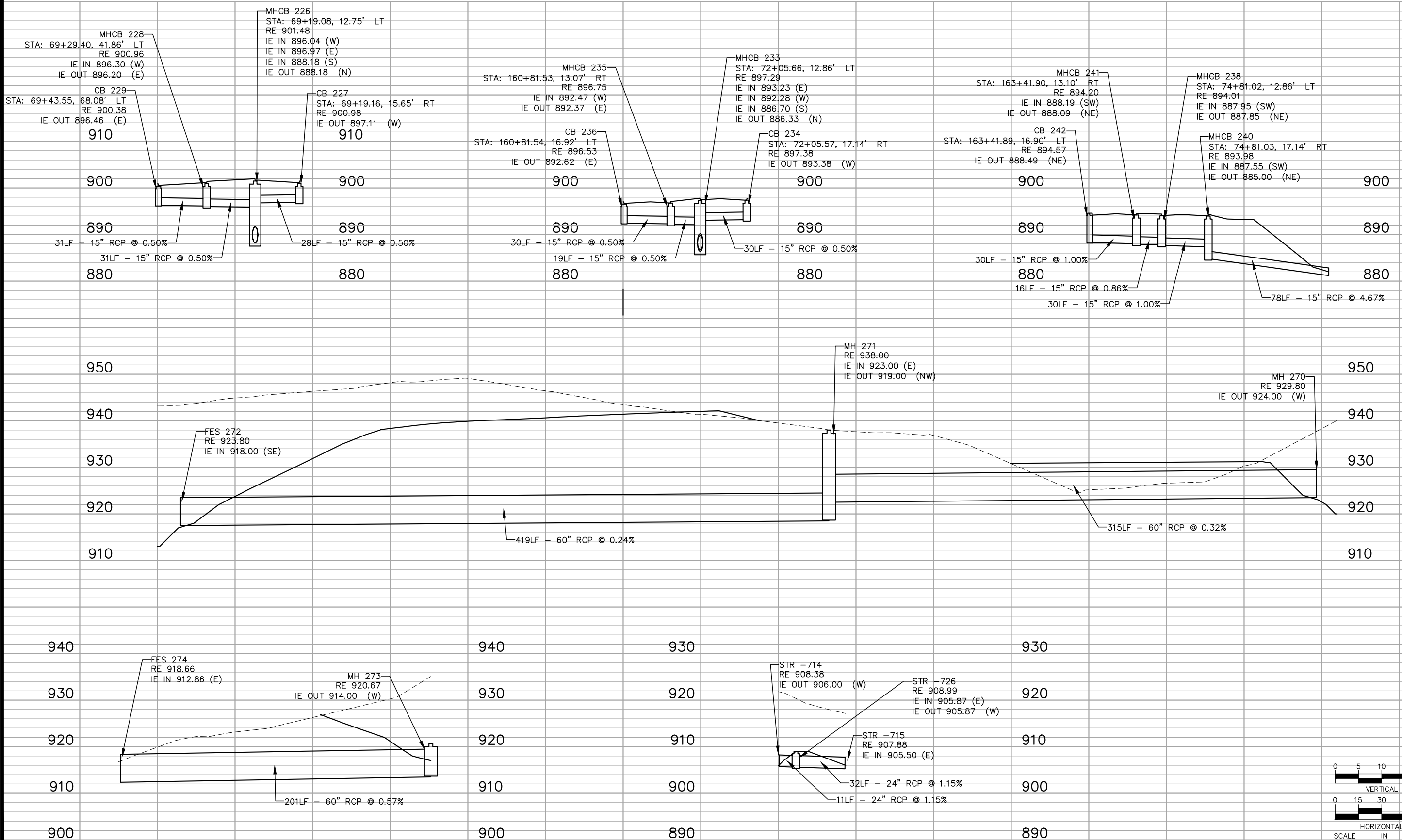
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

STORM SEWER LATERALS

CITY PROJECT	213
COUNTY PROJECT	
S.A.P.	
S.A.P.	

SHEET NO.	213
SCALE	335

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PROJECT NO.	160553004

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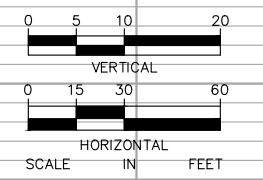
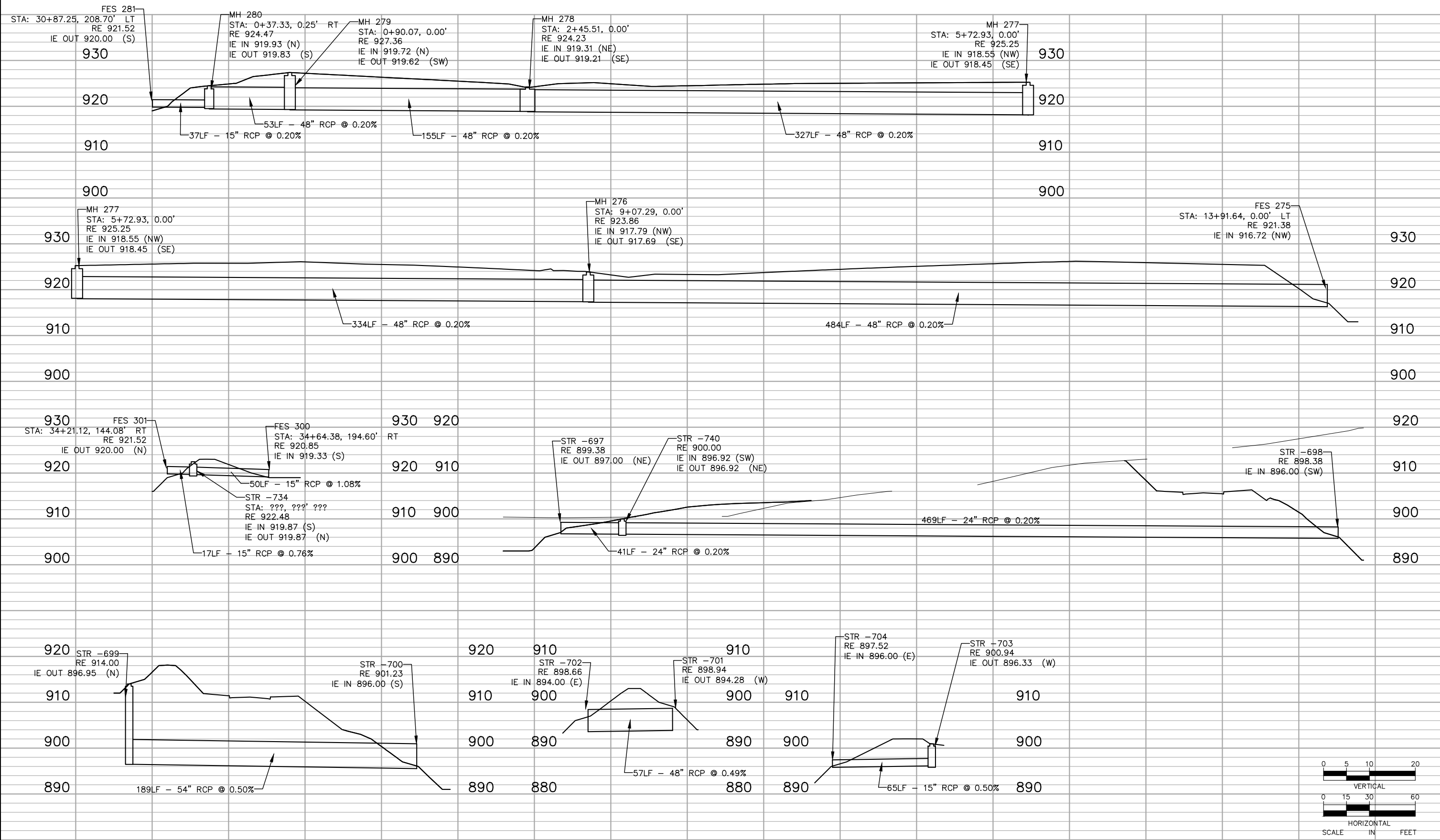
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 214 335
COUNTY PROJECT	
S.A.P.	
S.A.P.	

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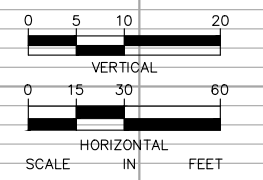
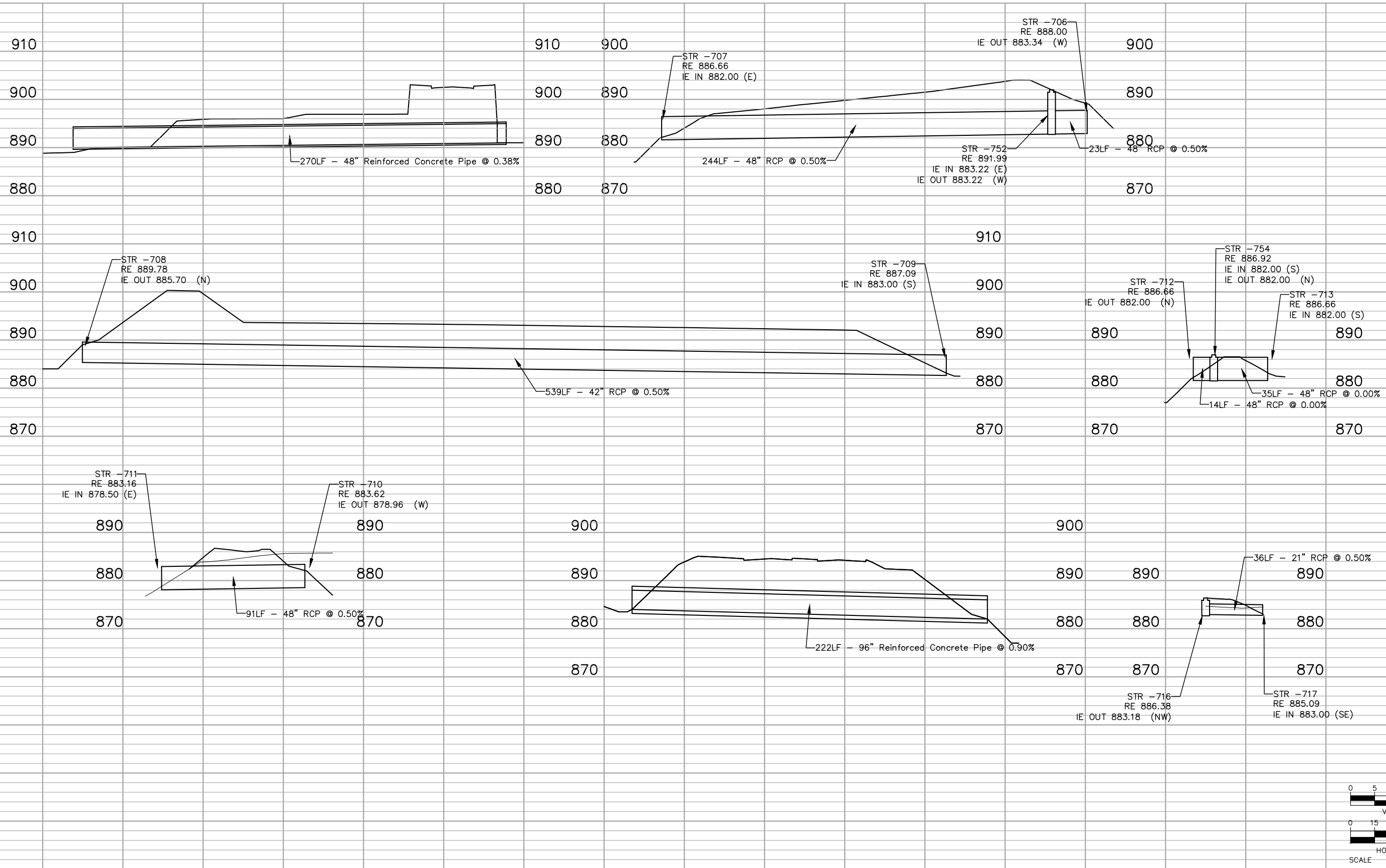
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 215
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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No.	Date	Revisions	App.

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PROJECT NO.	160553004

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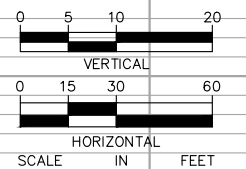
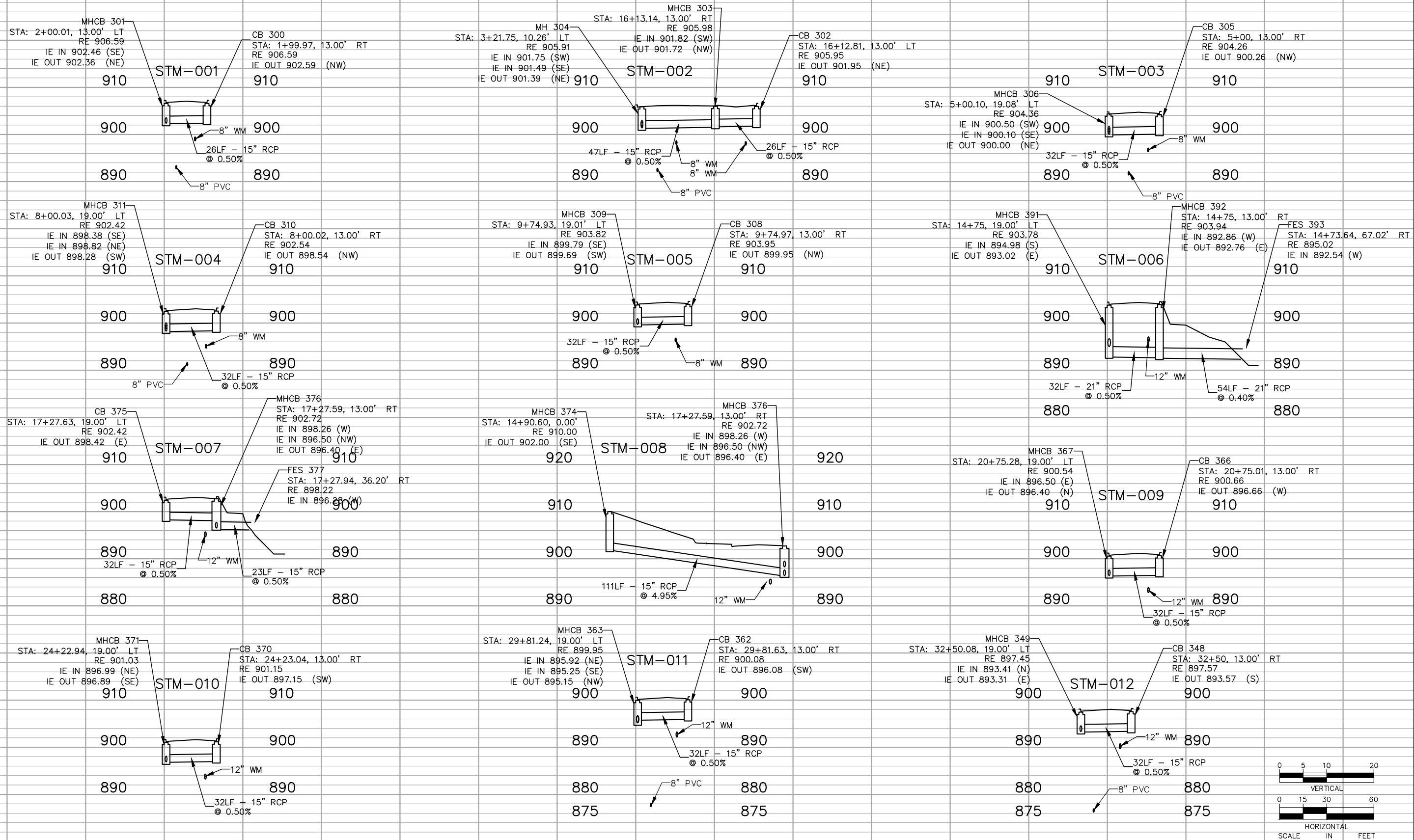
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM SEWER LATERALS

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
 216
 335

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No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: RJG
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				PROJECT NO. 160553004

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PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

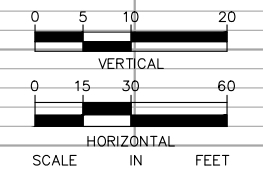
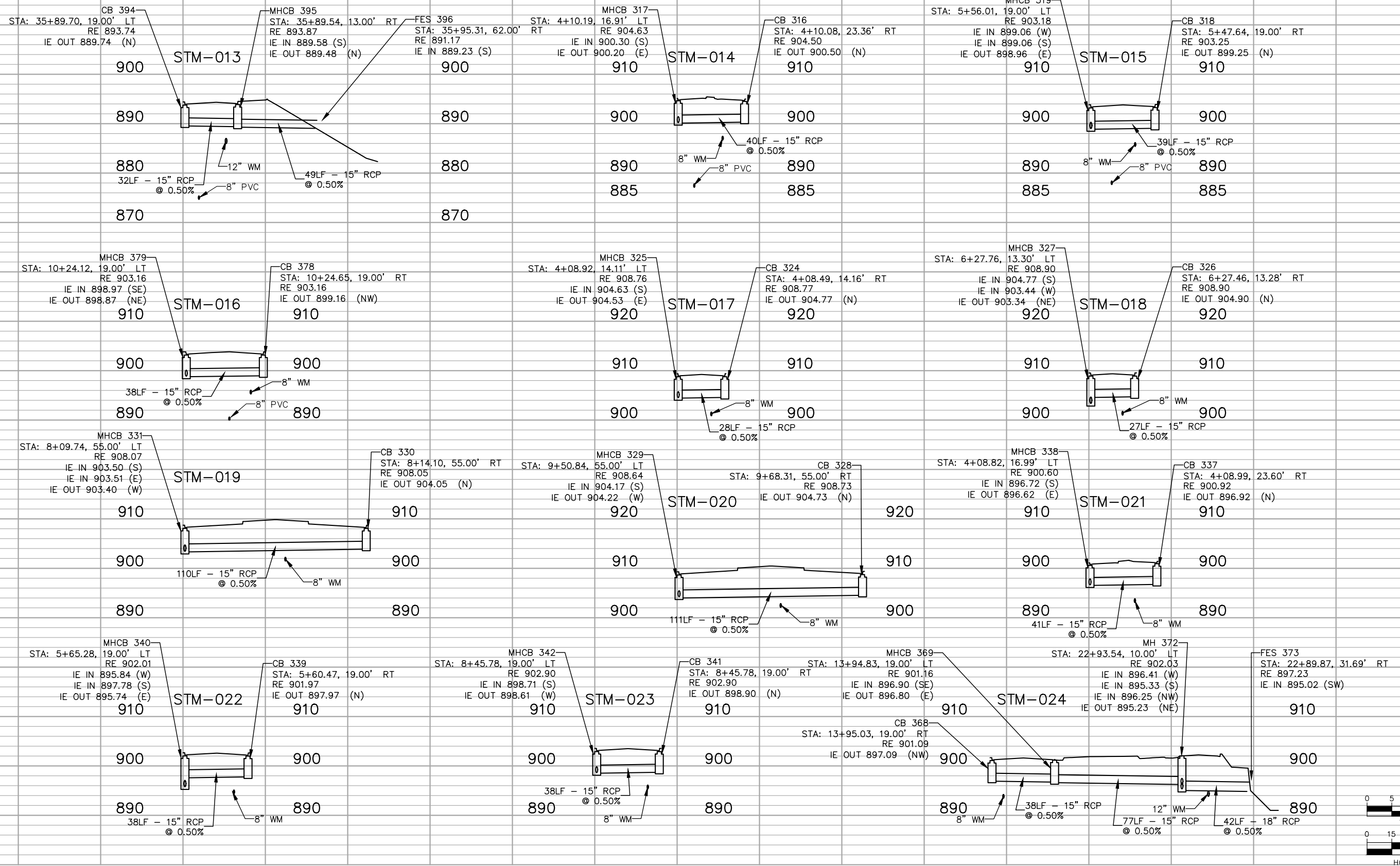
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 217 335
COUNTY PROJECT	
S.A.P.	
S.A.P.	

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				PROJECT NO. 160553004

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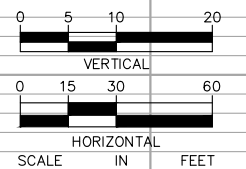
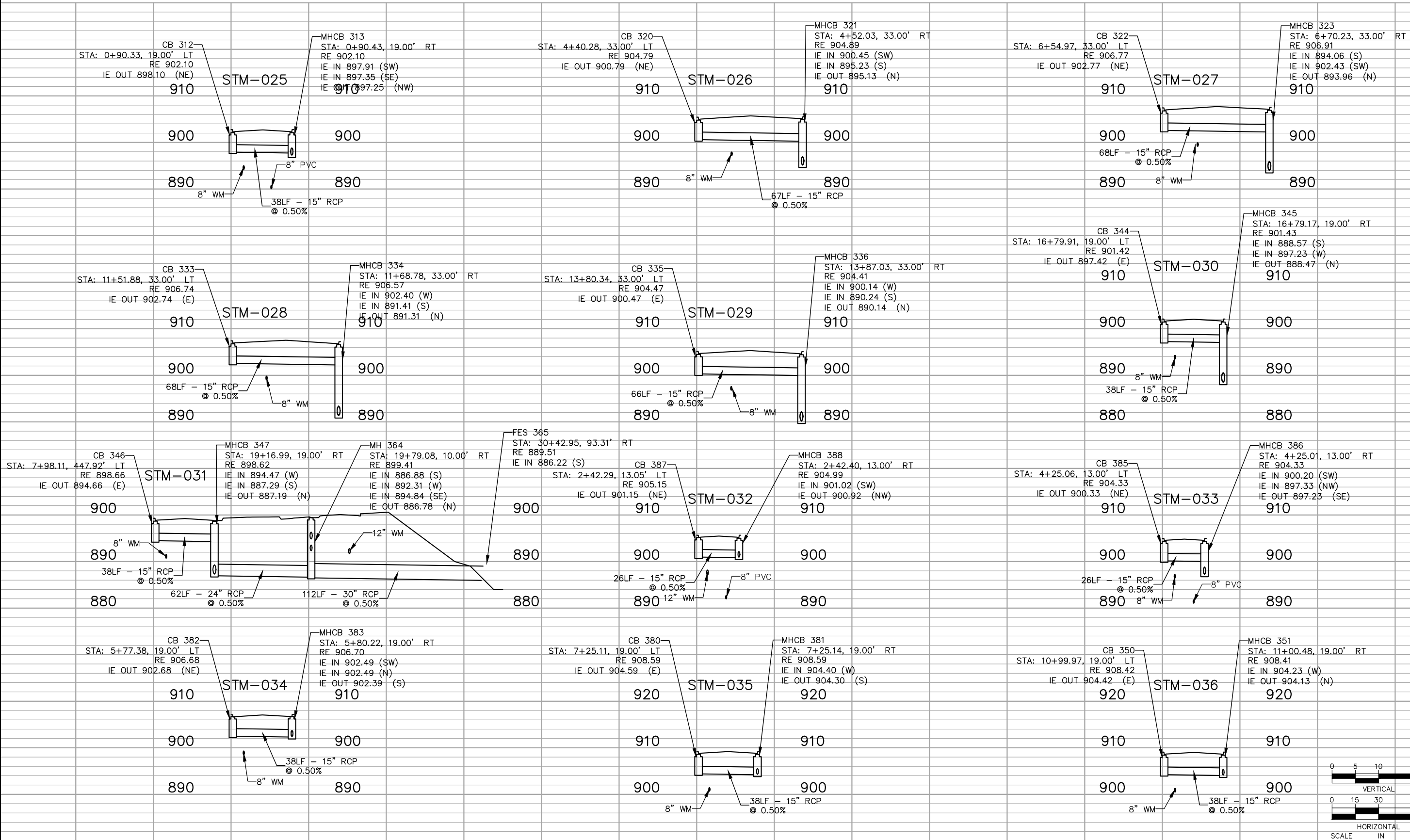
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 218
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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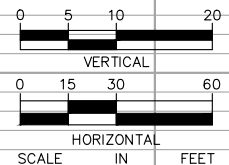
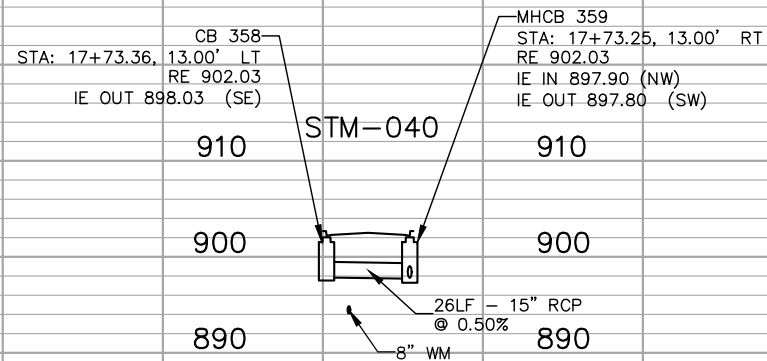
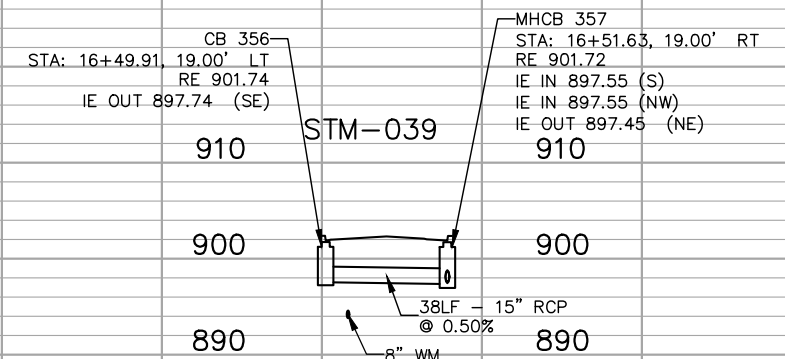
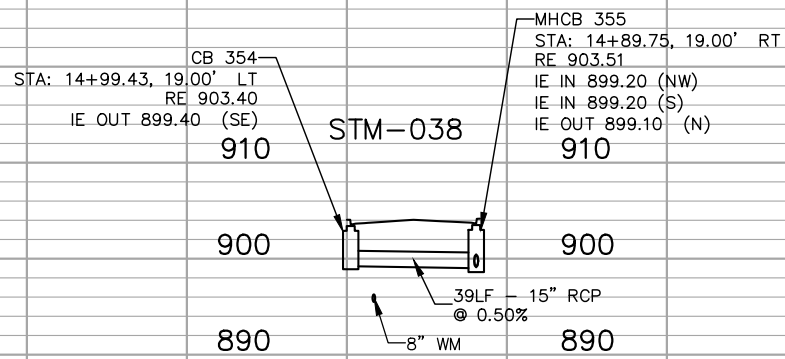
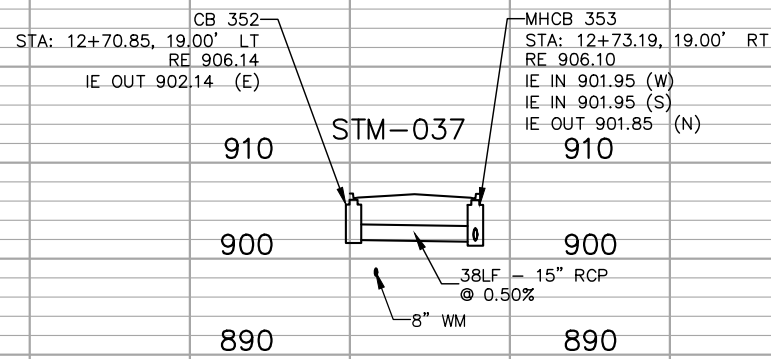
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864



CITY PROJECT	SHEET NO. 219
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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App.	DRAWING NAME
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	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
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	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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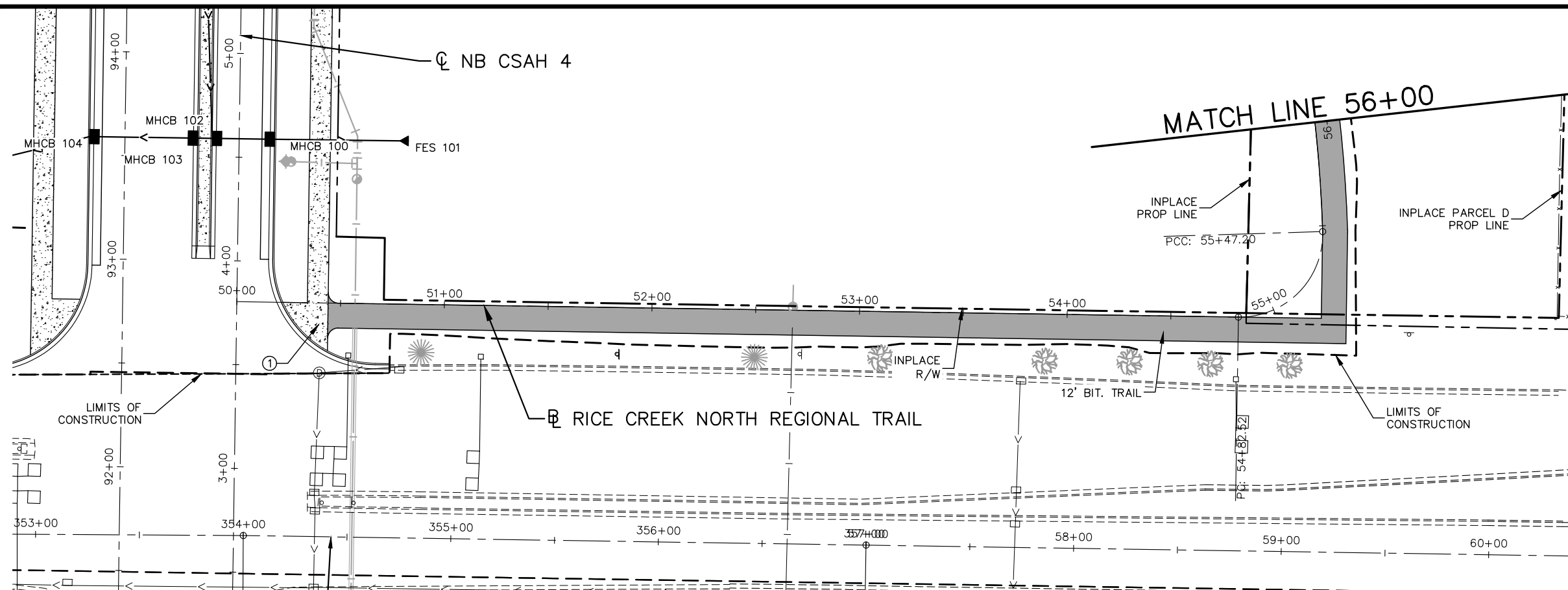
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 STORM SEWER LATERALS

CITY PROJECT	SHEET NO. 220
COUNTY PROJECT	
S.A.P.	
S.A.P.	

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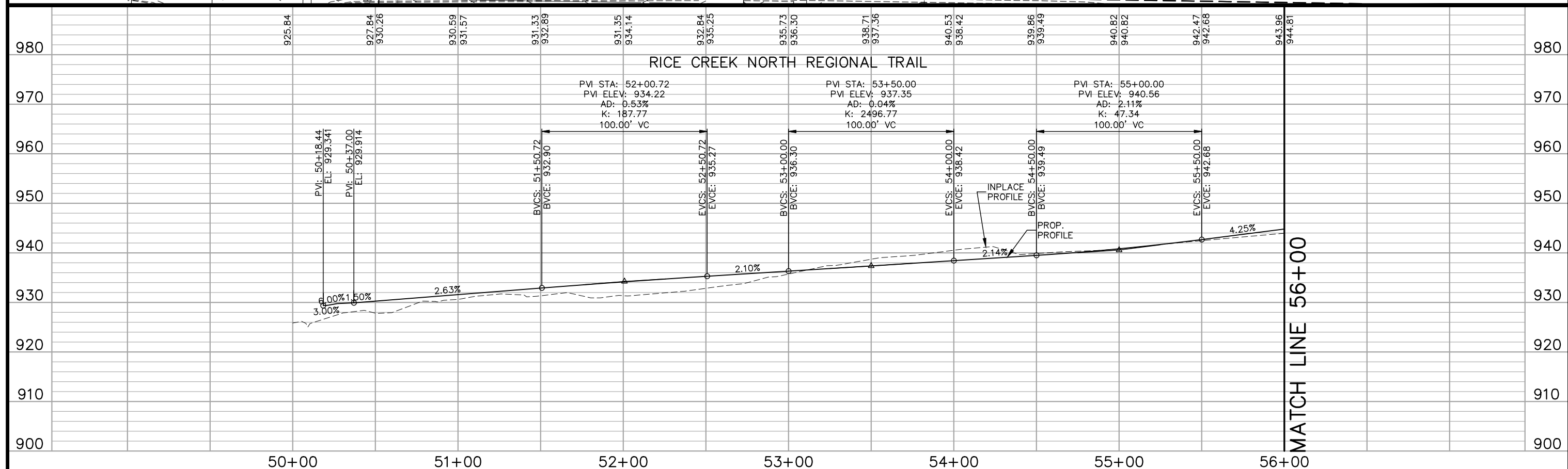
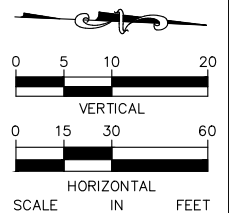


HATCH LEGEND

	CONCRETE SIDEWALK
	BITUMINOUS PAVEMENT
	GRAVEL ROADWAY

LEGEND

	PEDESTRIAN CURB RAMP
--	----------------------



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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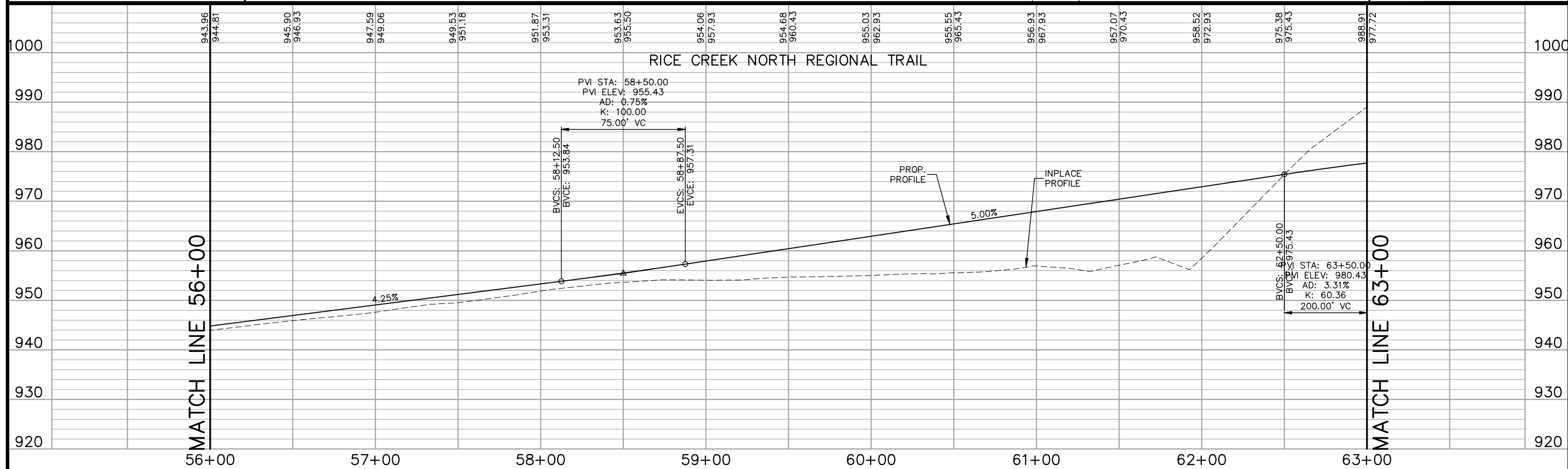
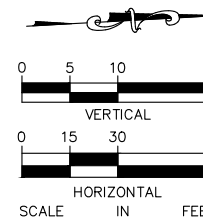
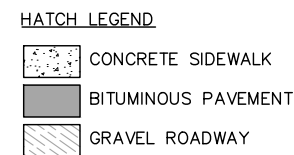
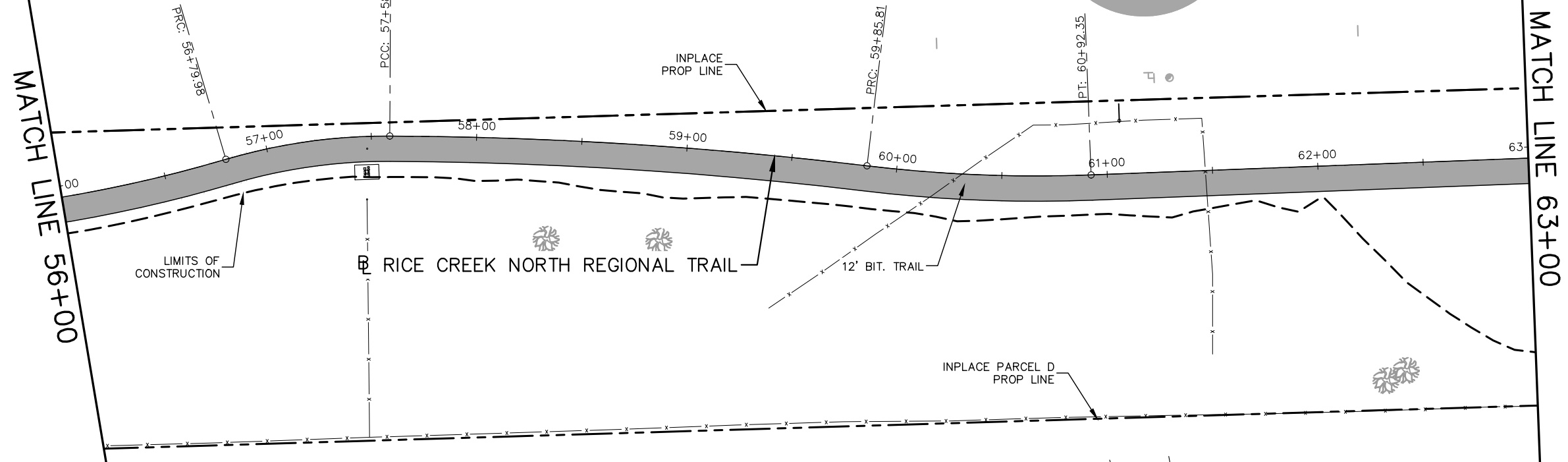
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 50+00 TO STA. 56+00

CITY PROJECT	SHEET NO. 221
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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	CHECKED BY: CBL
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	PROJECT NO. 160553004

Kimley»Horn

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 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

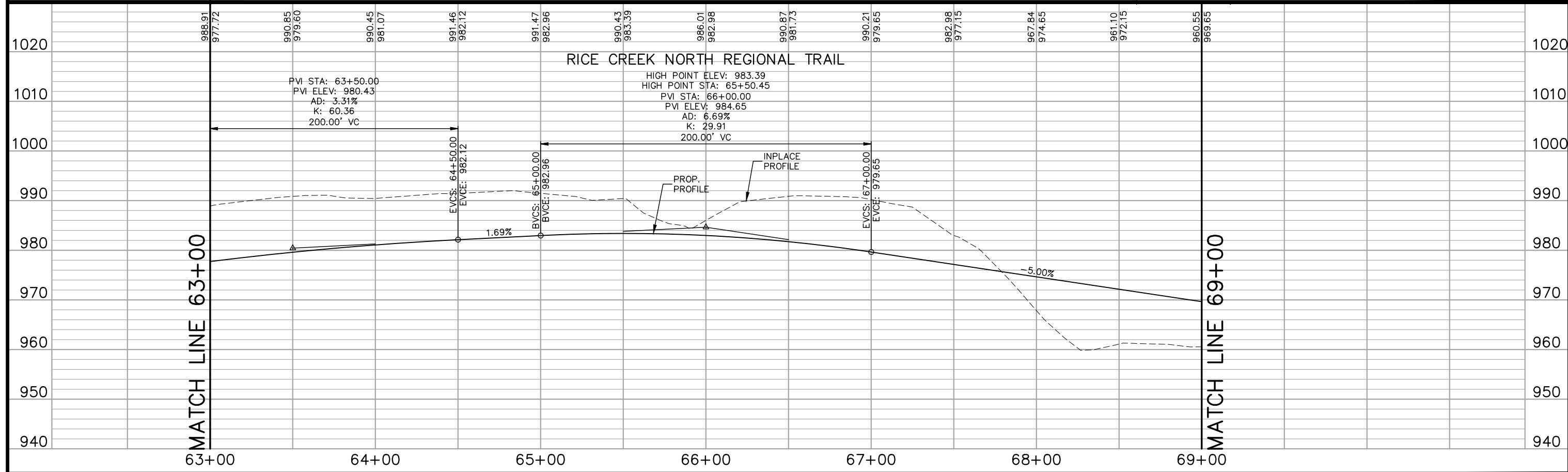
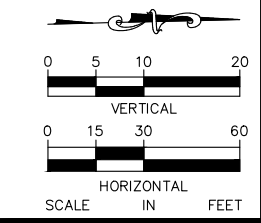
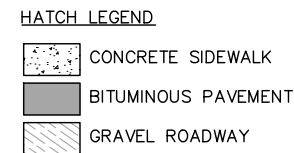
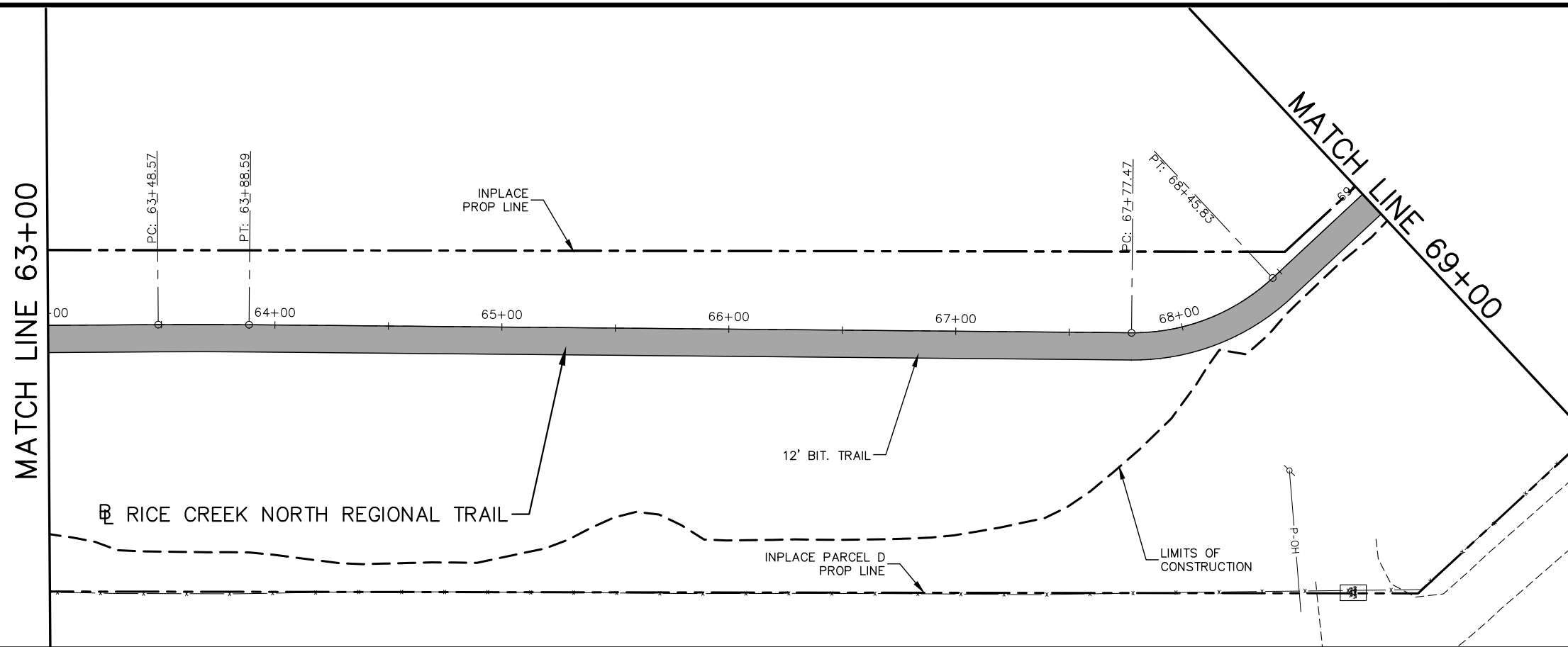
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 56+00 TO STA. 63+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
222

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout03 January 10, 2019 - 8:43am



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 63+00 TO STA. 69+00

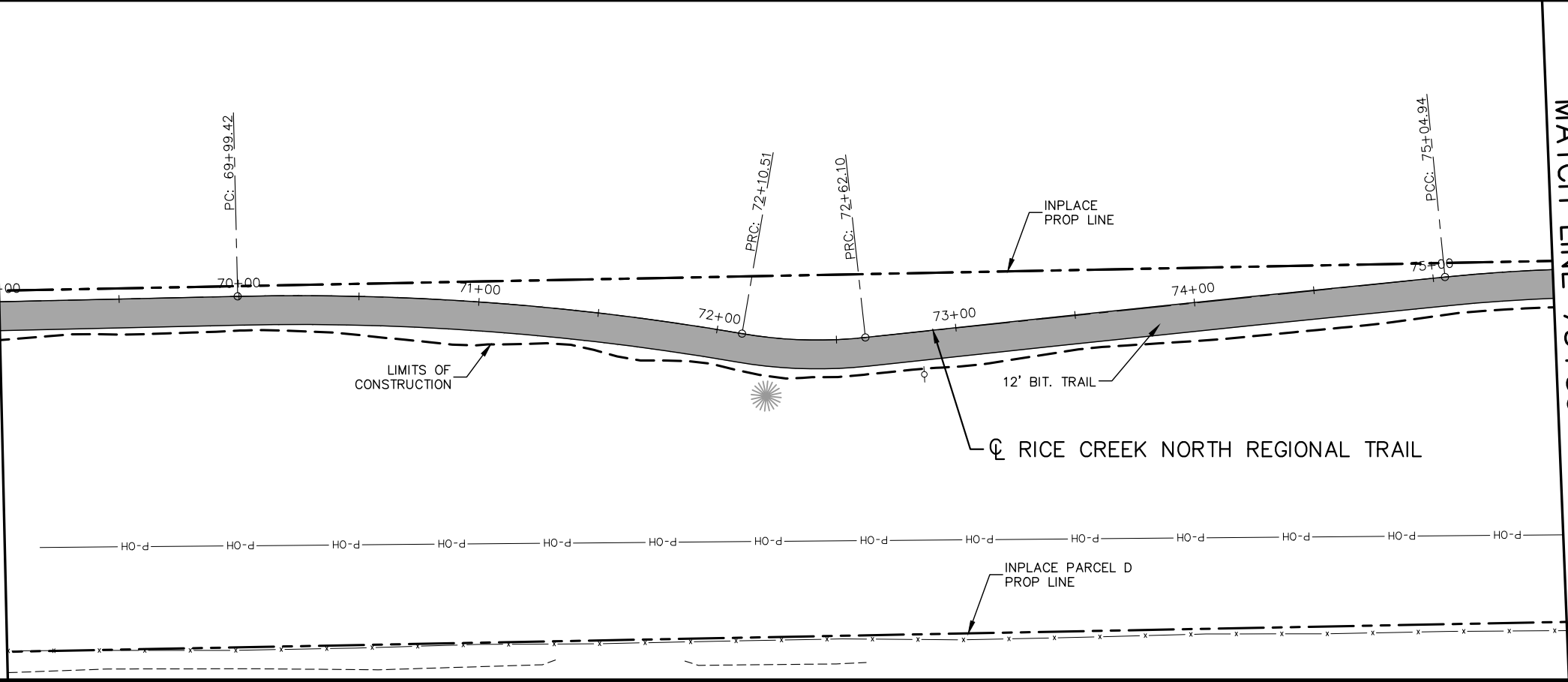
CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
223
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout04 January 10, 2019 - 8:44am

MATCH LINE 69+00

MATCH LINE 75+50

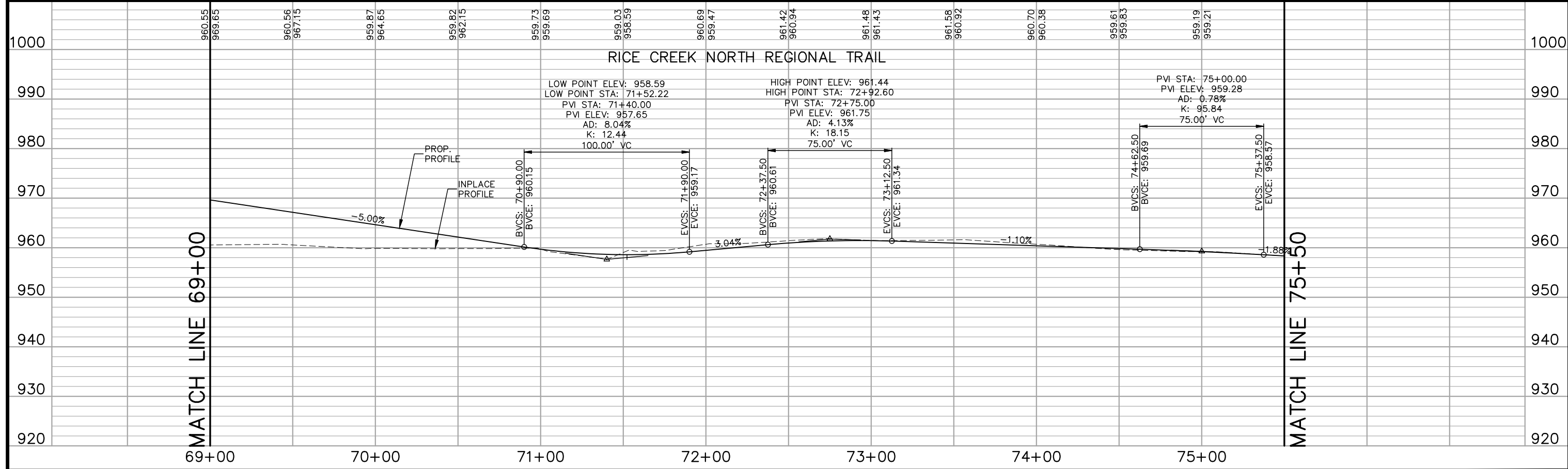
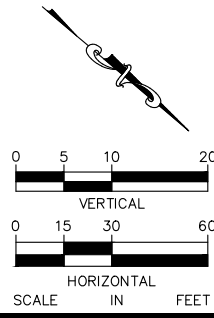


HATCH LEGEND

	CONCRETE SIDEWALK
	BITUMINOUS PAVEMENT
	GRAVEL ROADWAY

LEGEND

	PEDESTRIAN CURB RAMP
--	----------------------



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 69+00 TO STA. 75+50

CITY PROJECT	SHEET NO. 224
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

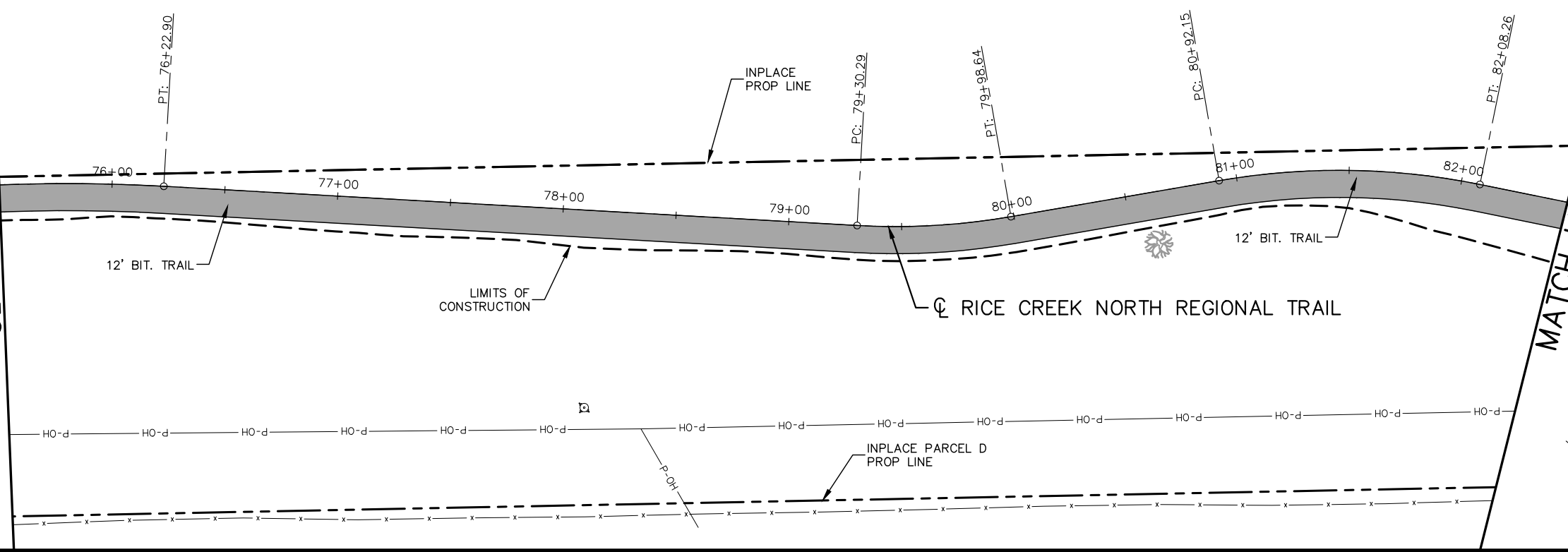
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MATCH LINE 75+50

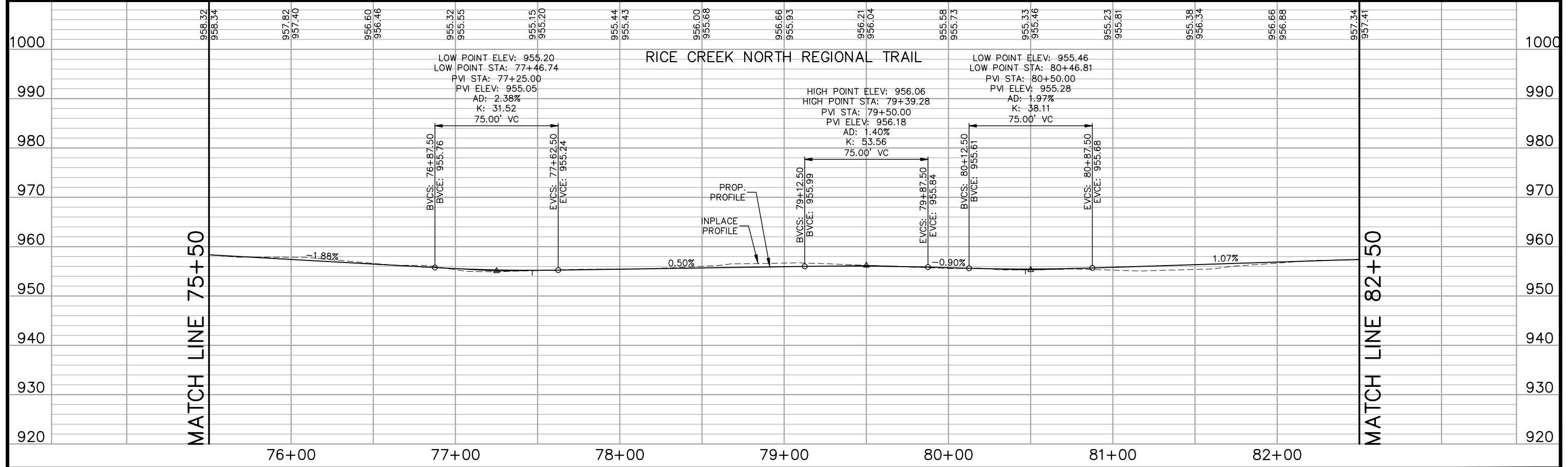
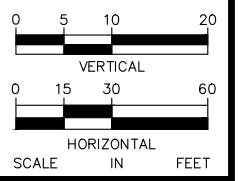
MATCH LINE 75+50

MATCH LINE 82+50

MATCH LINE 82+50



- HATCH LEGEND**
- CONCRETE SIDEWALK
 - BITUMINOUS PAVEMENT
 - GRAVEL ROADWAY
- LEGEND**
- PEDESTRIAN CURB RAMP



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

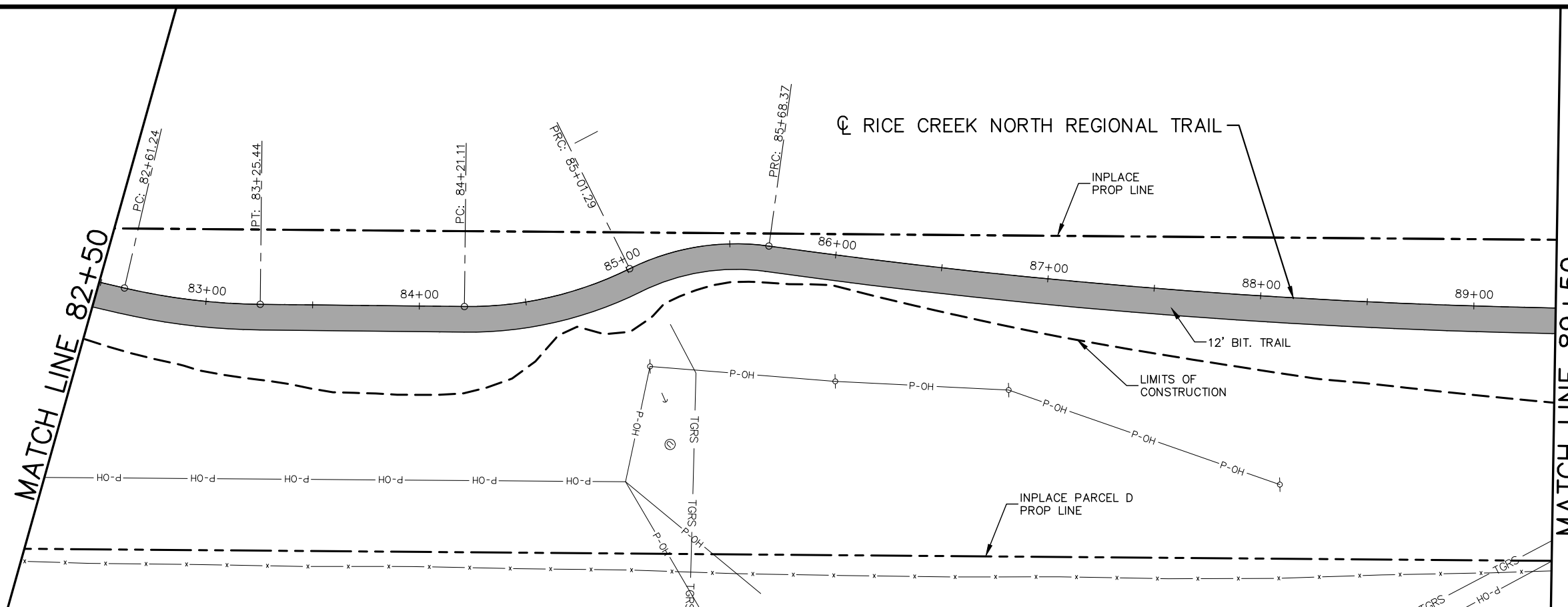
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 75+50 TO STA. 82+50

CITY PROJECT	SHEET NO. 225
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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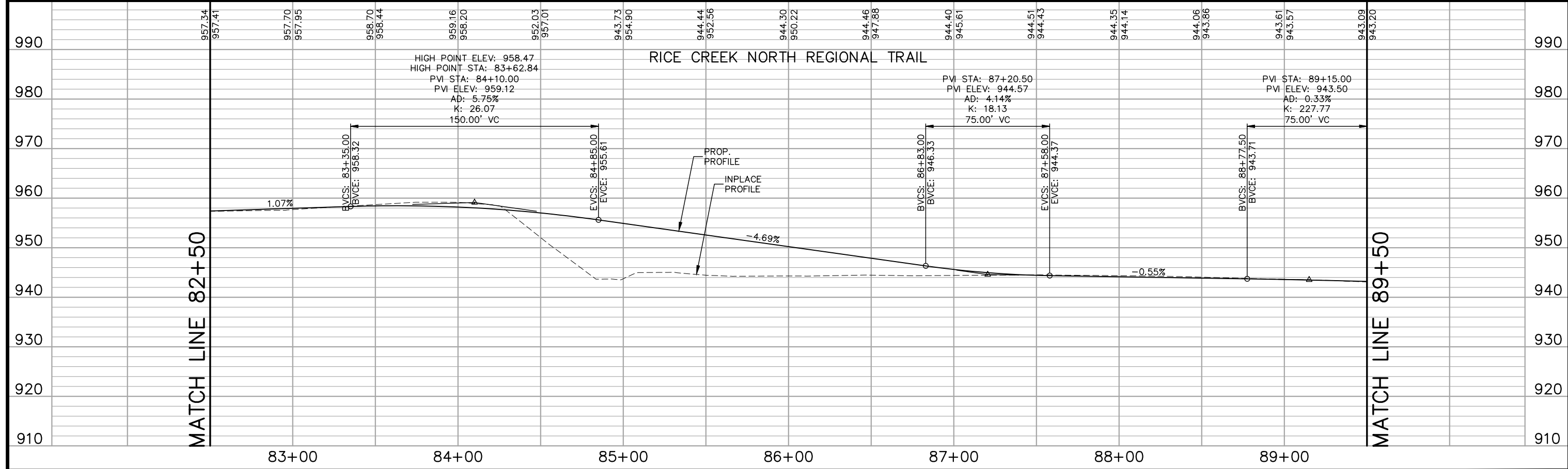
HATCH LEGEND

- CONCRETE SIDEWALK
- BITUMINOUS PAVEMENT
- GRAVEL ROADWAY

LEGEND

- ① PEDESTRIAN CURB RAMP

SCALE: VERTICAL 0 5 10 20 FEET; HORIZONTAL 0 15 30 60 FEET



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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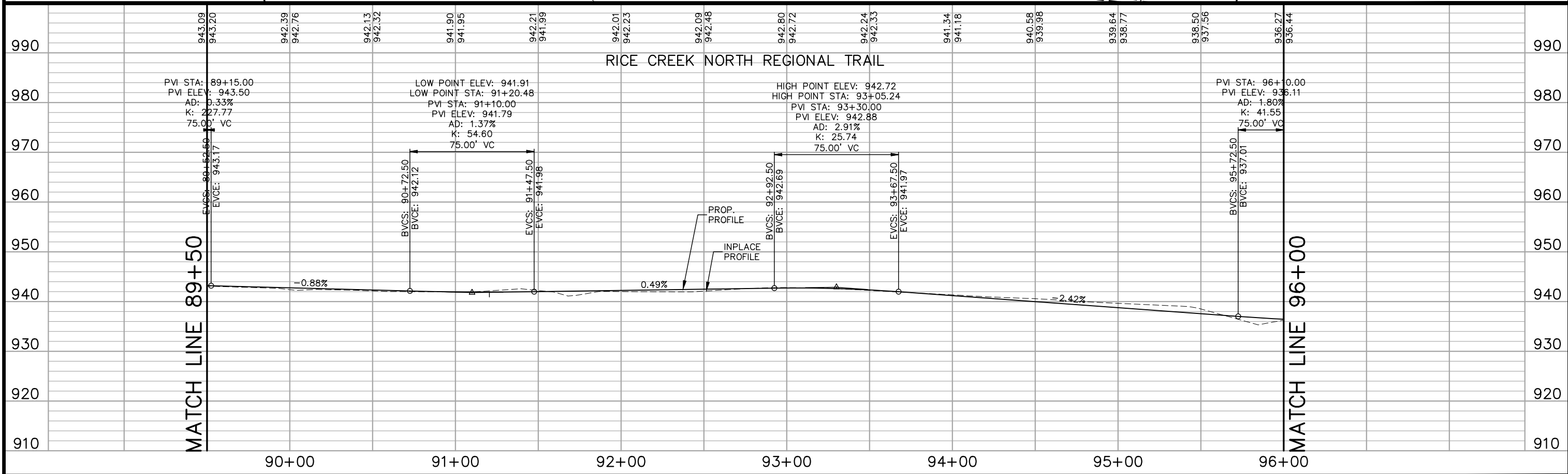
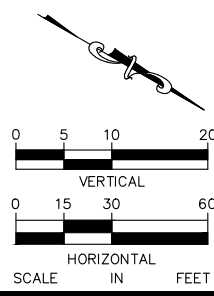
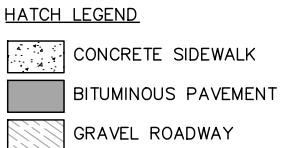
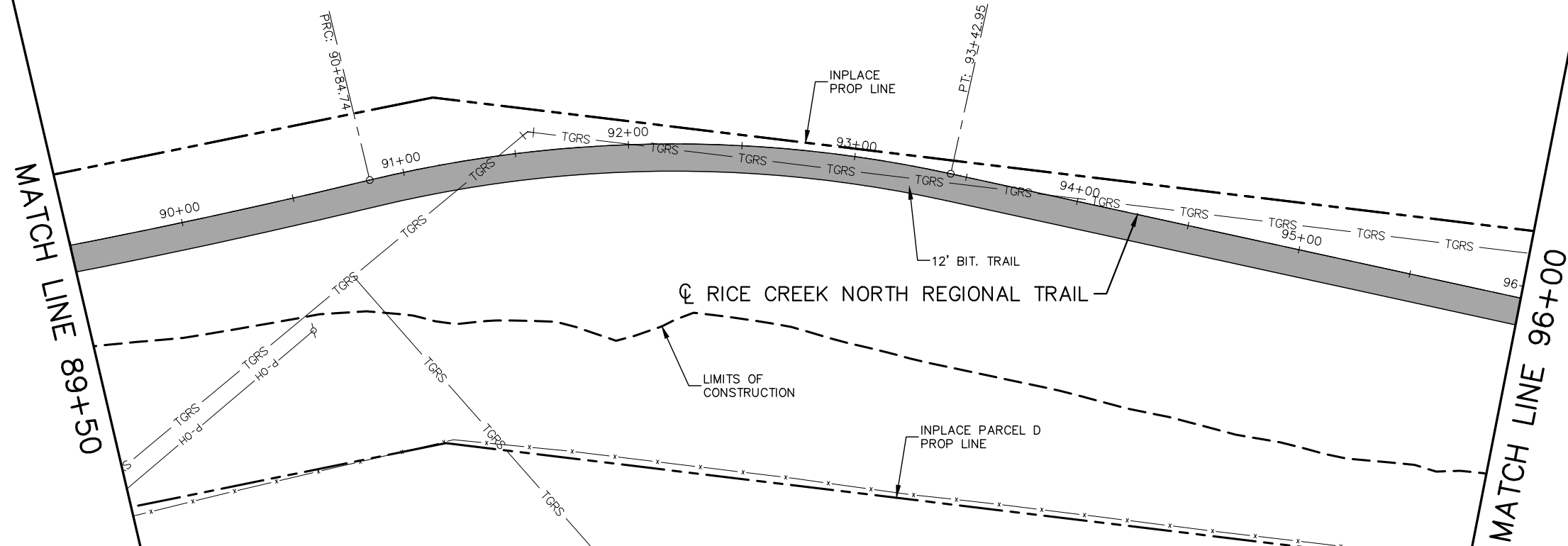
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 82+50 TO STA. 89+50

CITY PROJECT	SHEET NO. 226
COUNTY PROJECT	
S.A.P.	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout07 January 10, 2019 - 8:47am



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

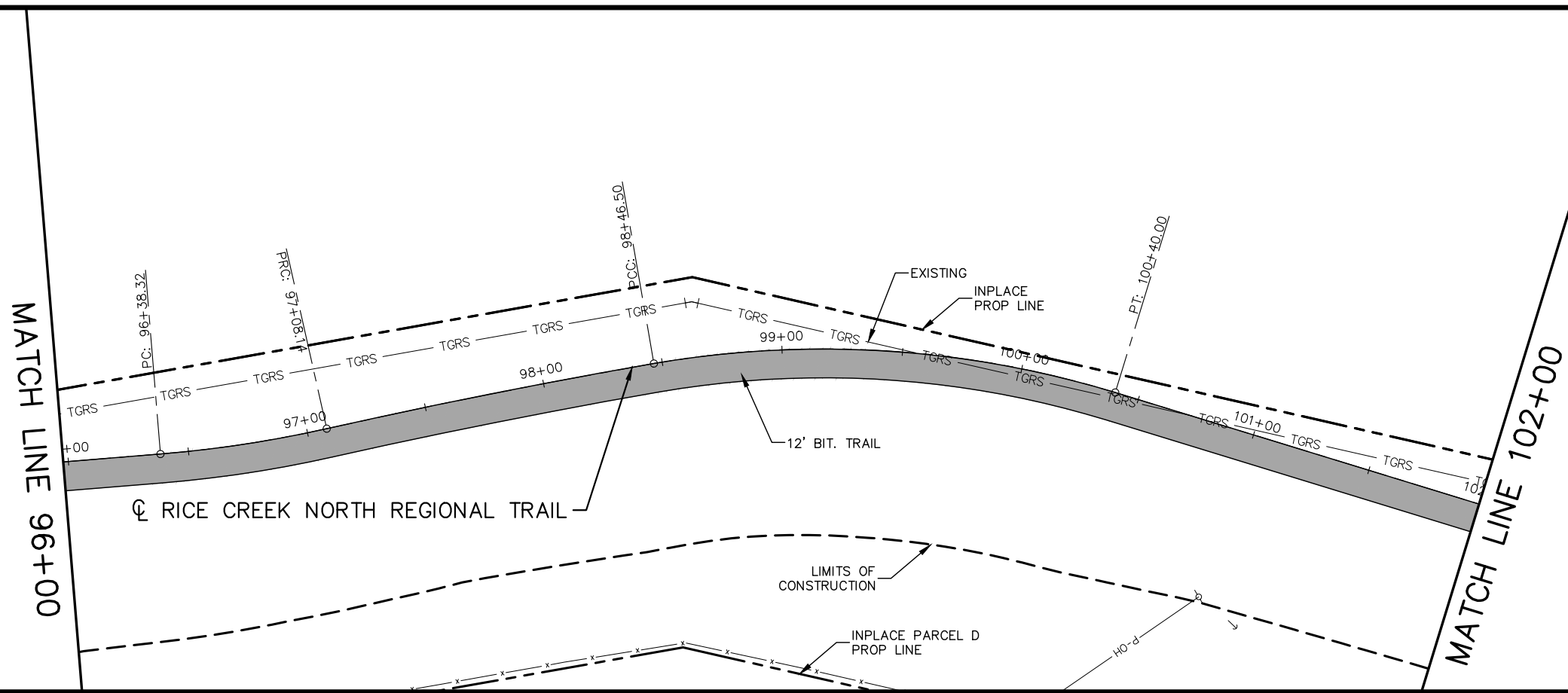
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
RICE CREEK NORTH REGIONAL TRAIL
PLAN AND PROFILE
STA. 89+50 TO STA. 96+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

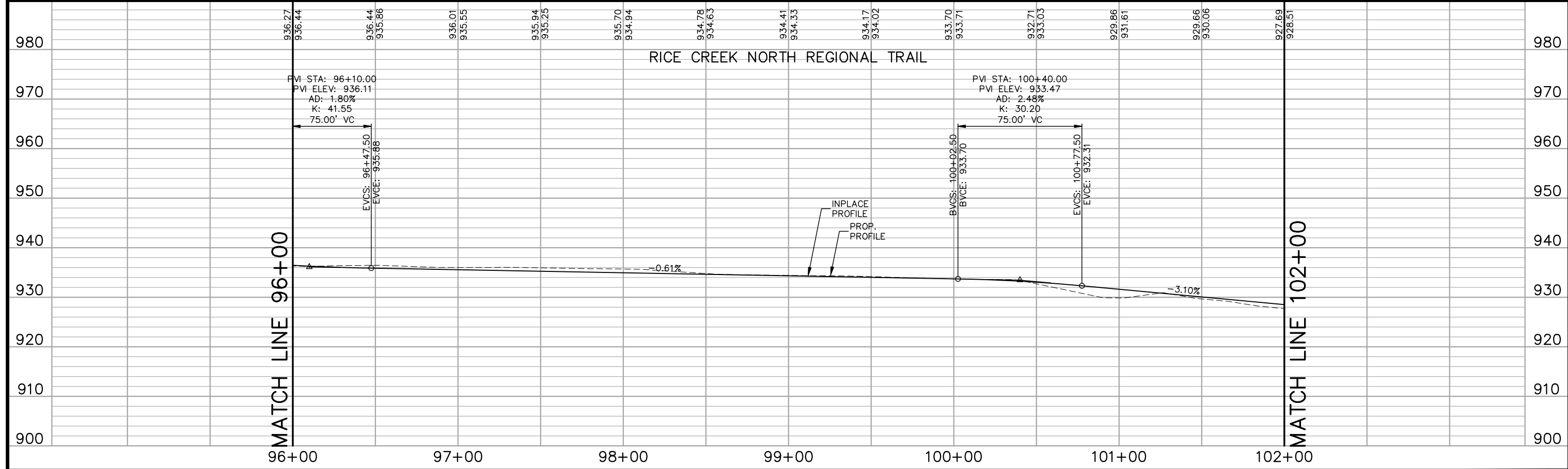
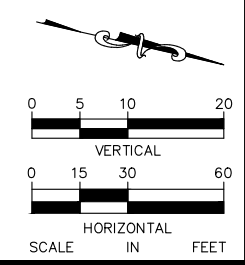
SHEET NO.
227

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout08 January 10, 2019 - 8:47am



- HATCH LEGEND**
- CONCRETE SIDEWALK
 - BITUMINOUS PAVEMENT
 - GRAVEL ROADWAY
- LEGEND**
- PEDESTRIAN CURB RAMP



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

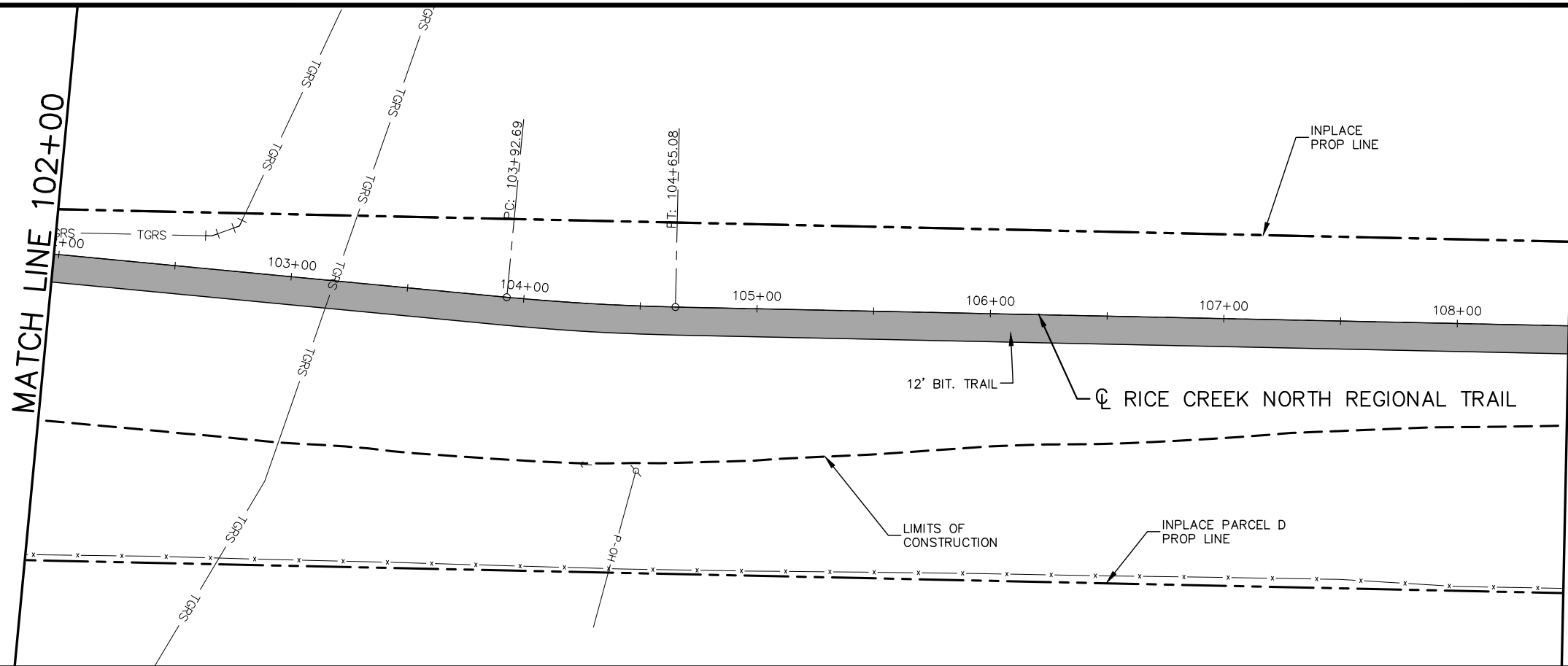
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 96+00 TO STA. 102+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
228

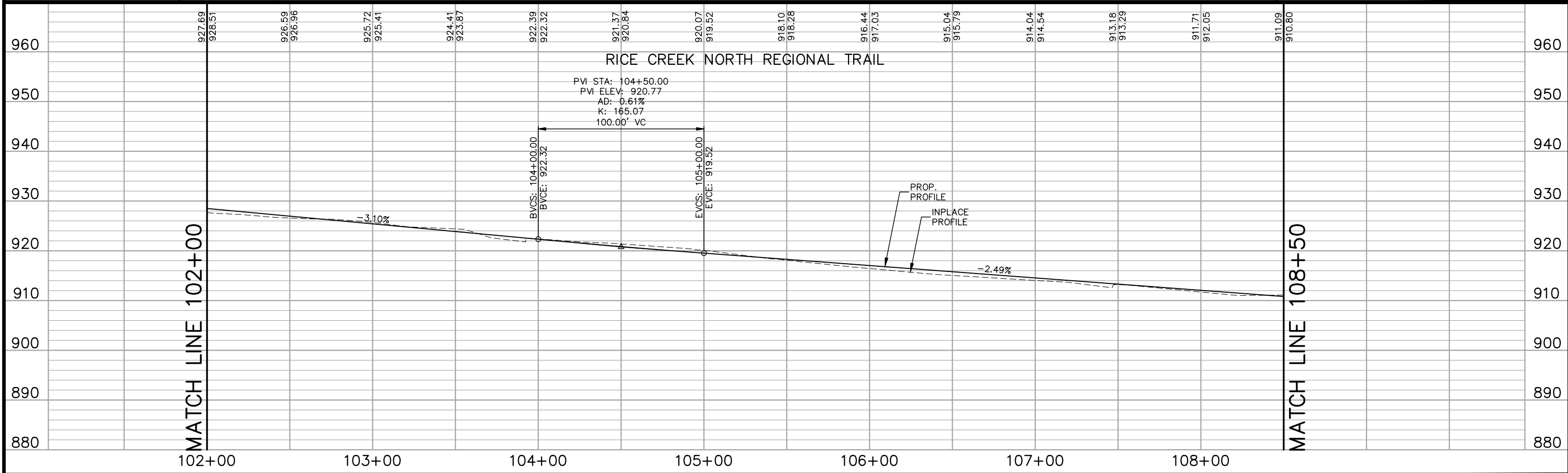
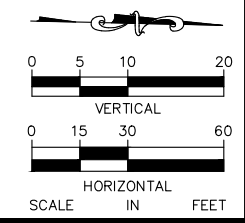
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LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 [Dotted pattern] CONCRETE SIDEWALK
 [Solid grey] BITUMINOUS PAVEMENT
 [Diagonal lines] GRAVEL ROADWAY



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_TRAIL_PPF.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 102+00 TO STA. 108+50

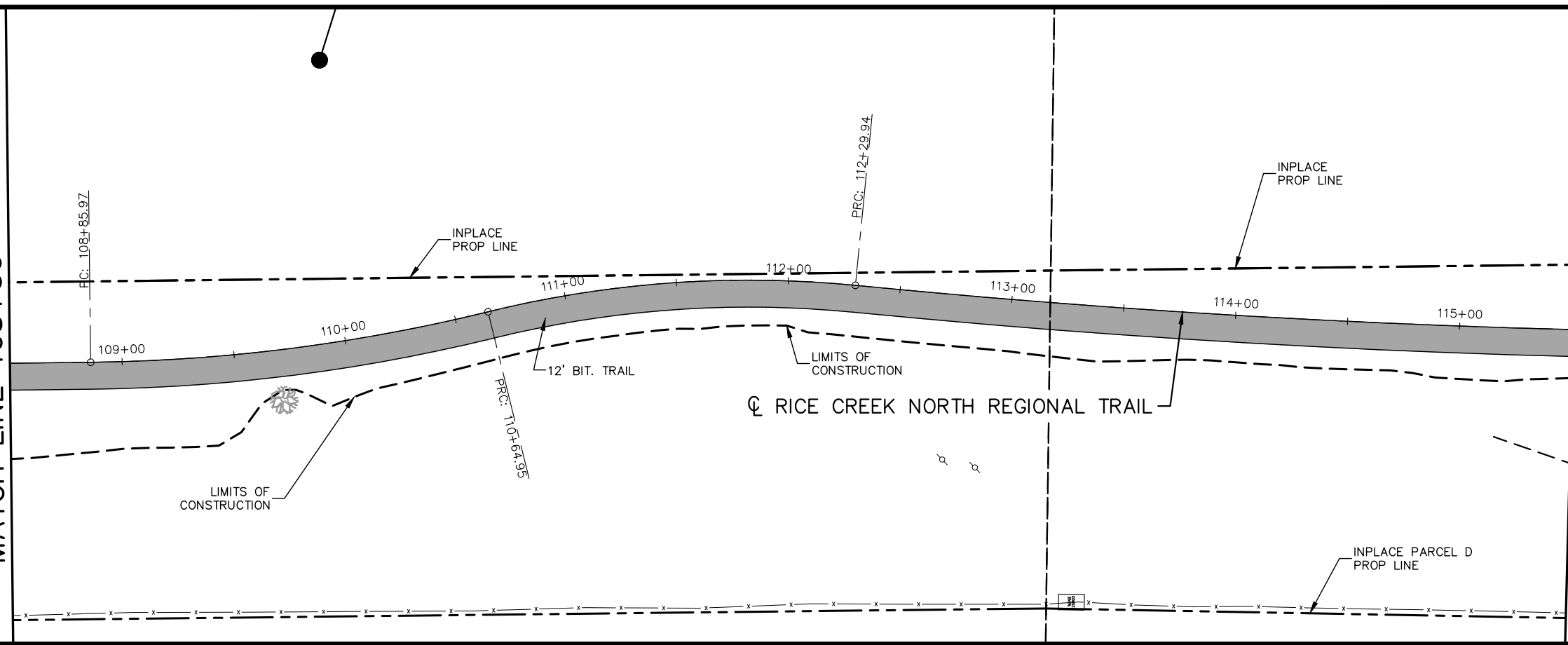
CITY PROJECT	SHEET NO. 229
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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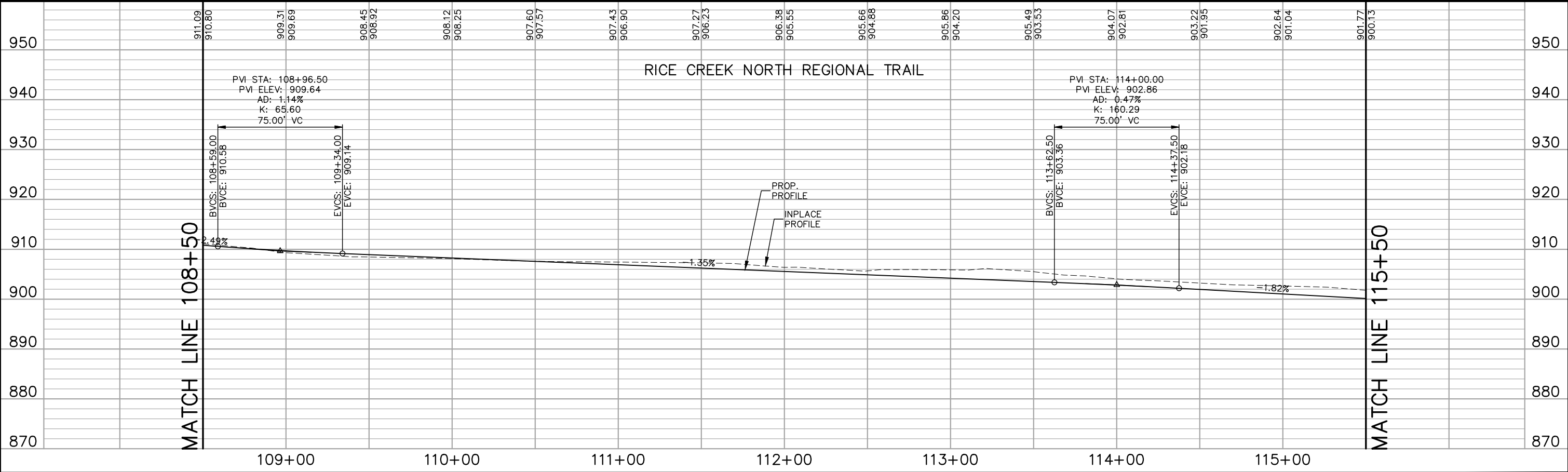
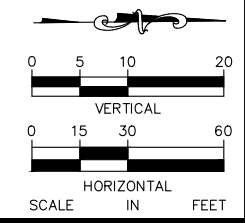
MATCH LINE 108+50

MATCH LINE 115+50



LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 CONCRETE SIDEWALK
 BITUMINOUS PAVEMENT
 GRAVEL ROADWAY



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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 CHADD B. LARSON
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RAMSEY TRAIL
 PLAN AND PROFILE
 STA. 108+50 TO STA. 115+50




CITY PROJECT	SHEET NO. 230 335
COUNTY PROJECT	
S.A.P.	
S.A.P.	

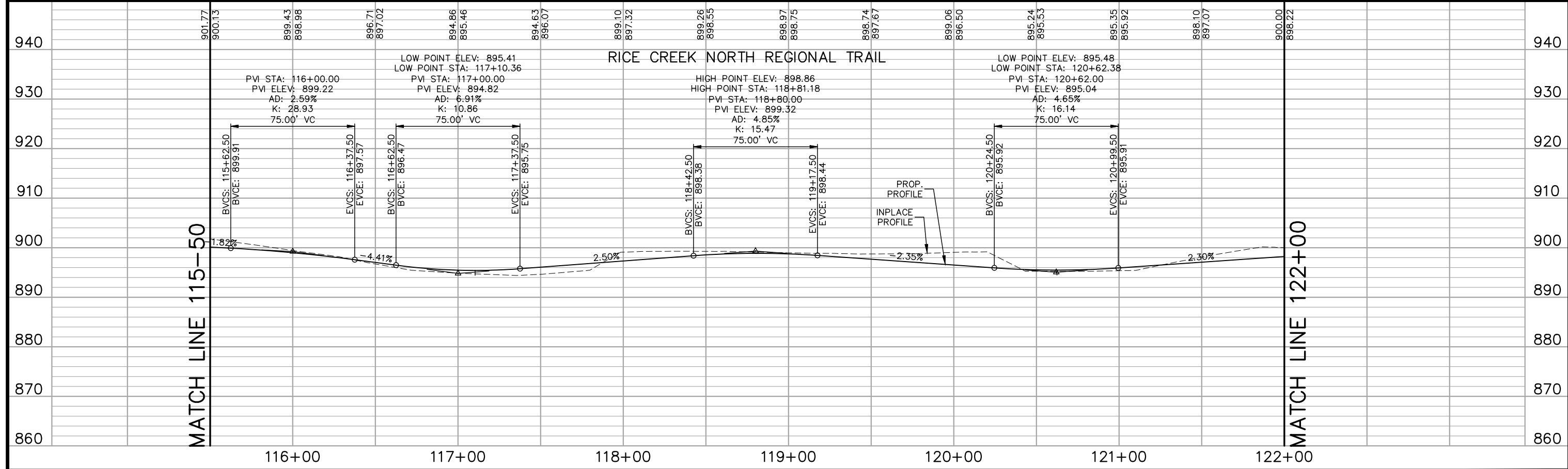
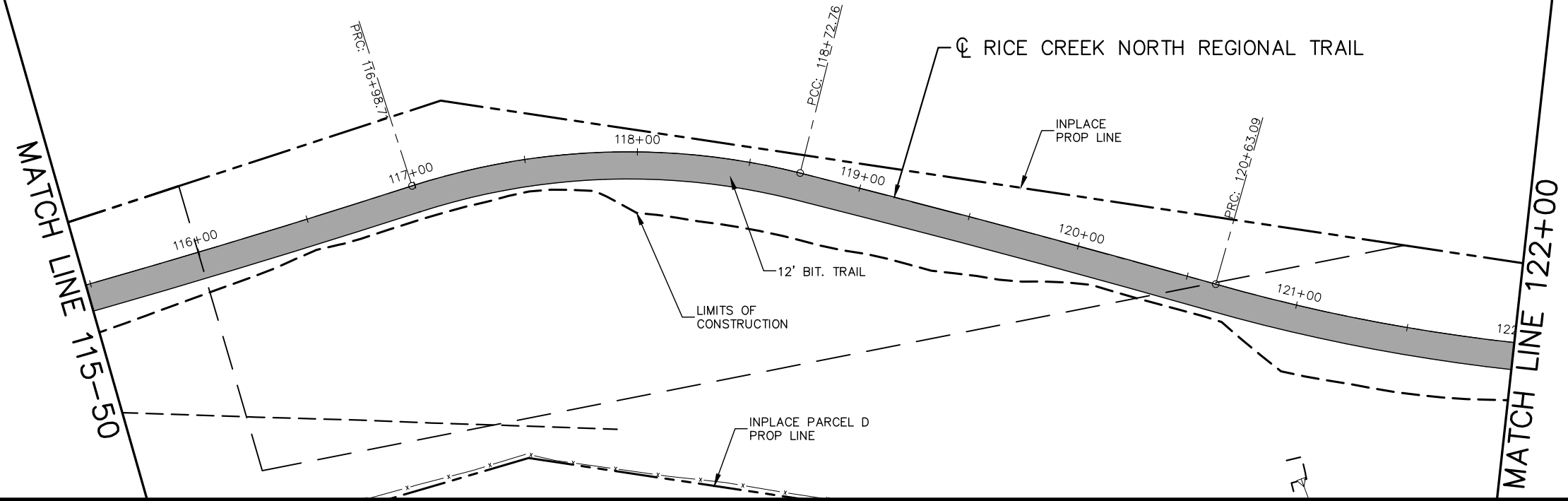
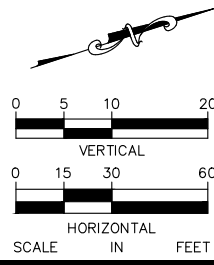
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LEGEND

① PEDESTRIAN CURB RAMP

HATCH LEGEND

-  CONCRETE SIDEWALK
-  BITUMINOUS PAVEMENT
-  GRAVEL ROADWAY



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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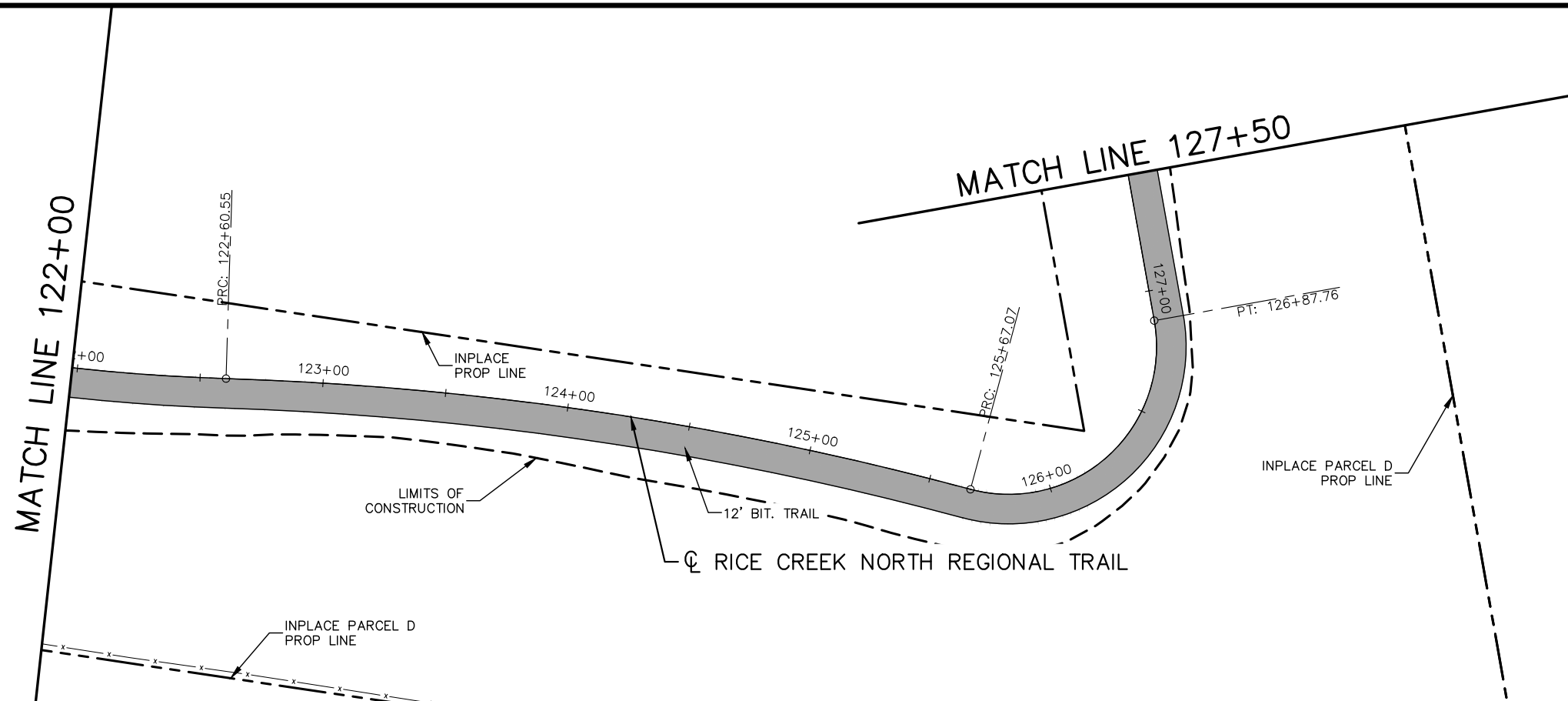
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 115-50 TO STA. 122+00

CITY PROJECT	SHEET NO. 231
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

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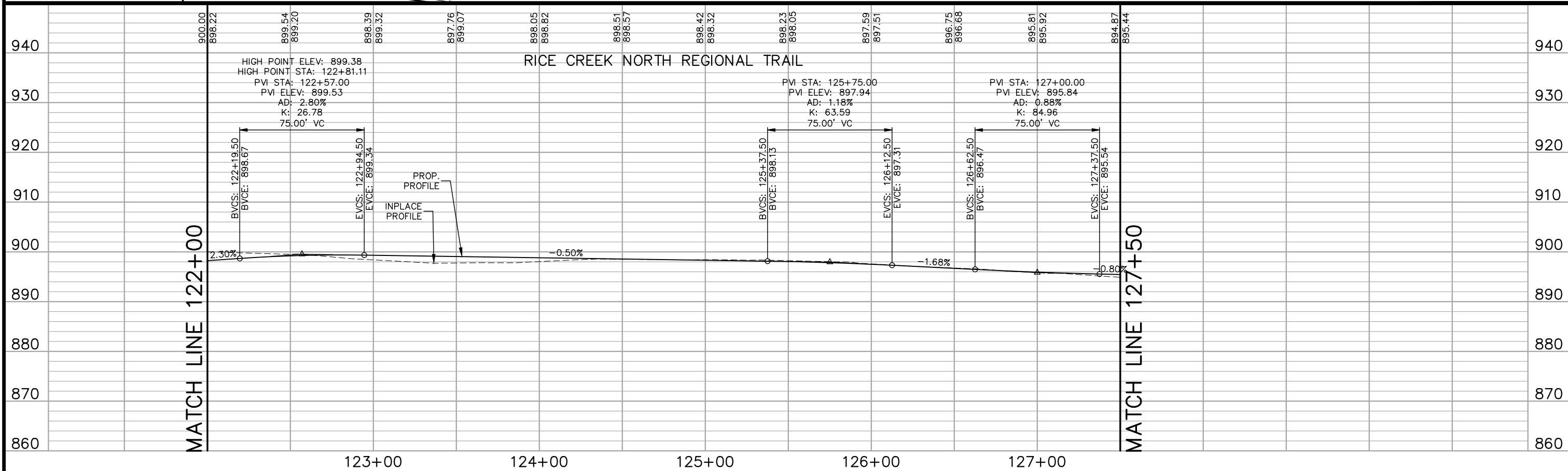
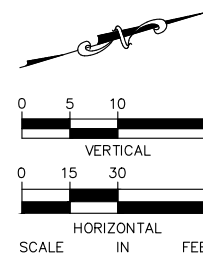


HATCH LEGEND

	CONCRETE SIDEWALK
	BITUMINOUS PAVEMENT
	GRAVEL ROADWAY

LEGEND

	PEDESTRIAN CURB RAMP
--	----------------------



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJK
	DRAWN BY: RJK
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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CHADD B. LARSON
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RAMSEY COUNTY

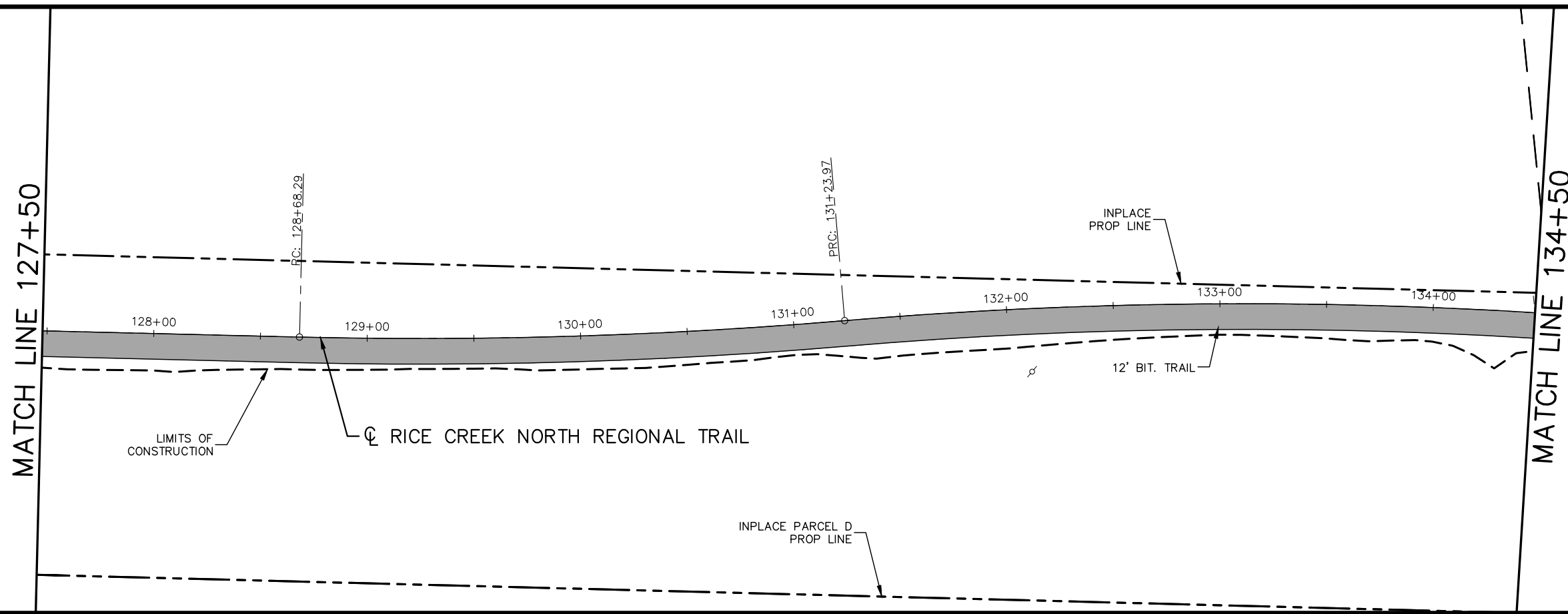
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 122+00 TO STA. 127+50

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
232

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout13 January 10, 2019 - 8:52am



LEGEND

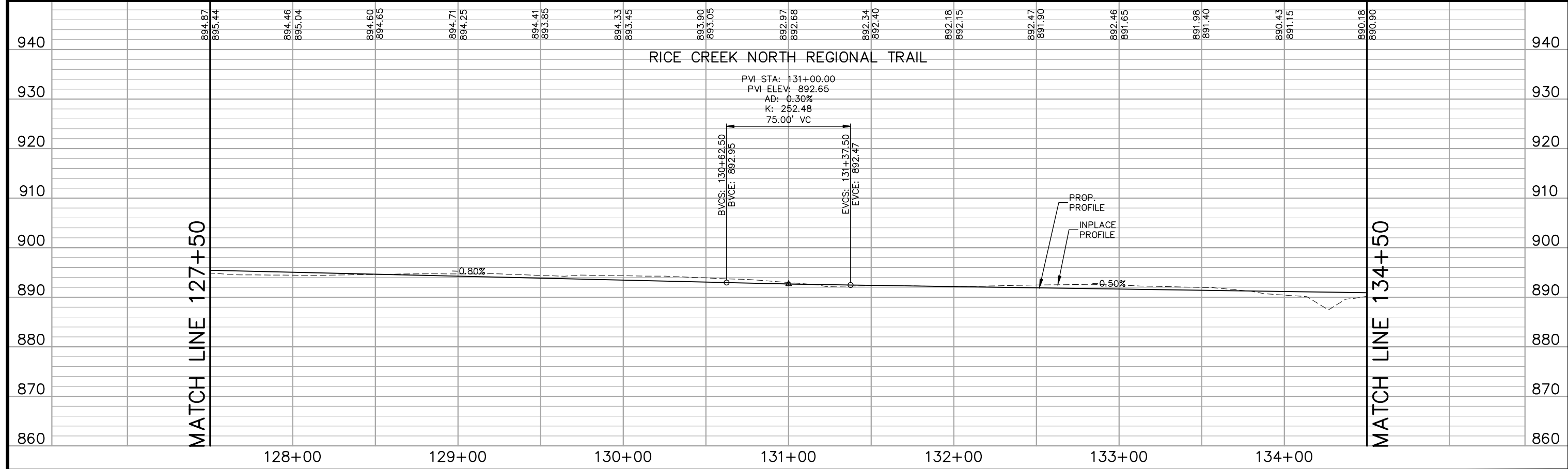
① PEDESTRIAN CURB RAMP

HATCH LEGEND

- CONCRETE SIDEWALK
- BITUMINOUS PAVEMENT
- GRAVEL ROADWAY

VERTICAL SCALE: 0, 5, 10, 20 FEET

HORIZONTAL SCALE: 0, 15, 30, 60 FEET



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY




TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
RICE CREEK NORTH REGIONAL TRAIL
PLAN AND PROFILE
STA. 127+50 TO STA. 134+50

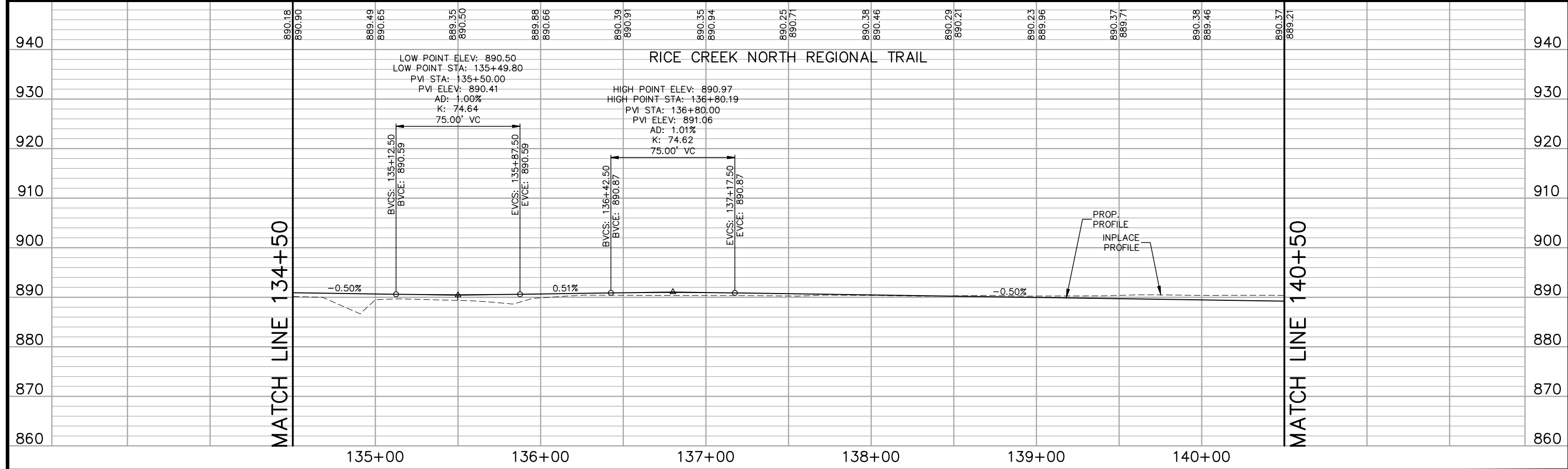
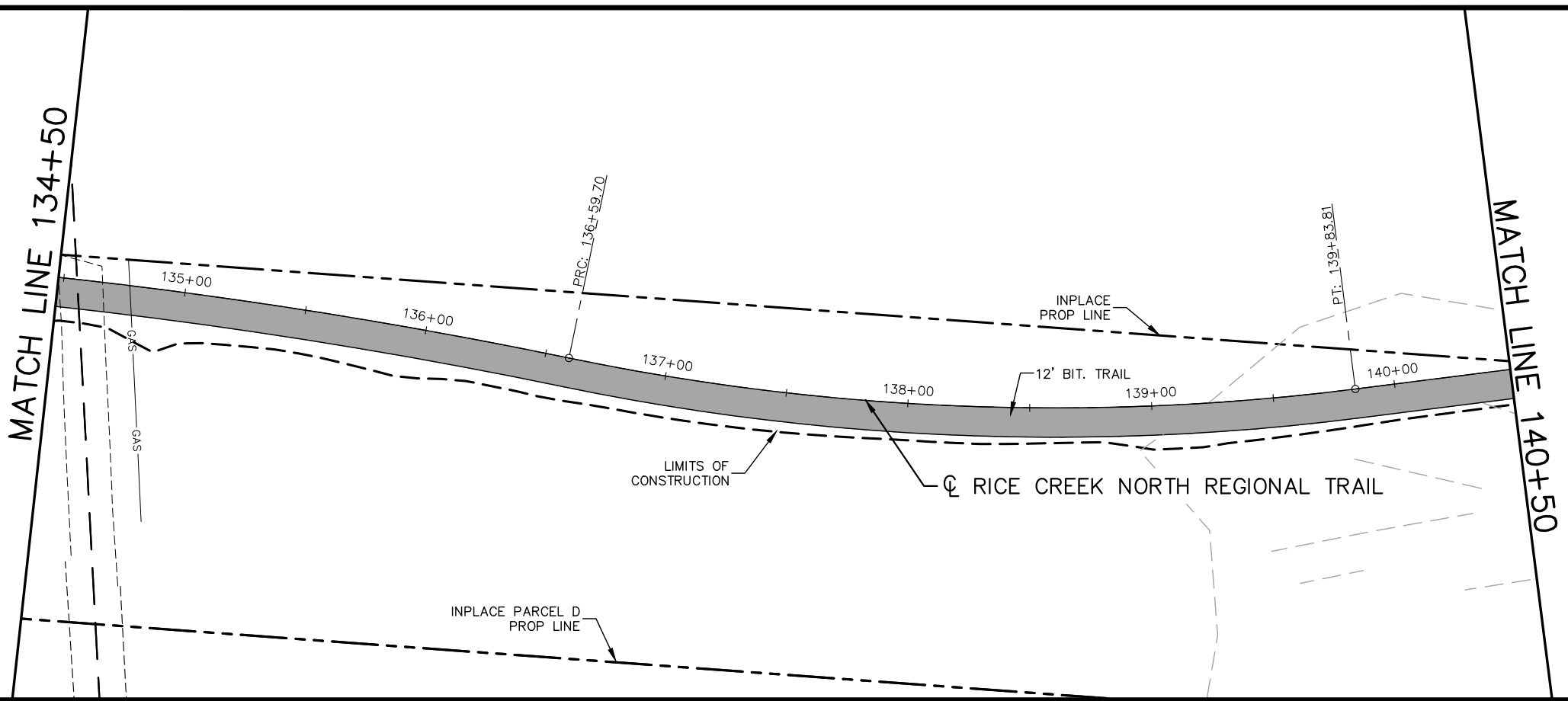
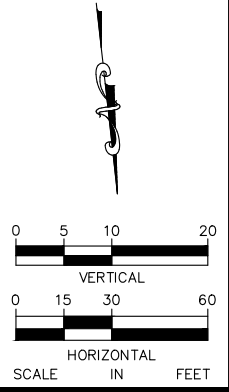
CITY PROJECT	SHEET NO. 233
COUNTY PROJECT	
S.A.P.	
S.A.P.	

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout14 January 10, 2019 - 8:53am

LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 CONCRETE SIDEWALK
 BITUMINOUS PAVEMENT
 GRAVEL ROADWAY



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 16053004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 134+50 TO STA. 140+50

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
 234
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout15 January 10, 2019 - 8:54am

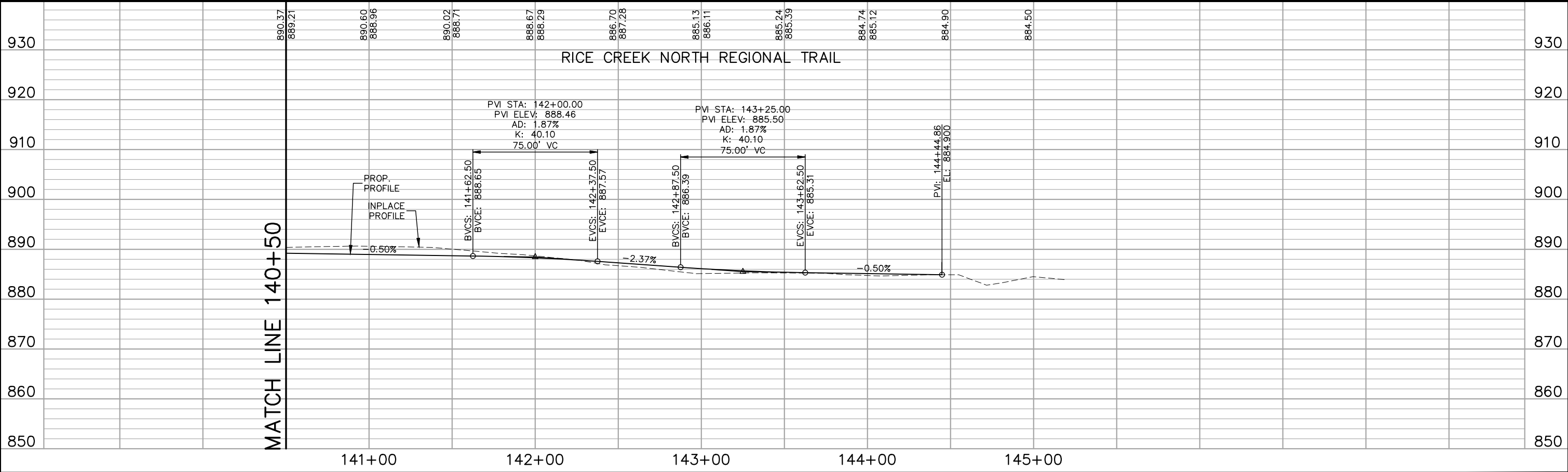
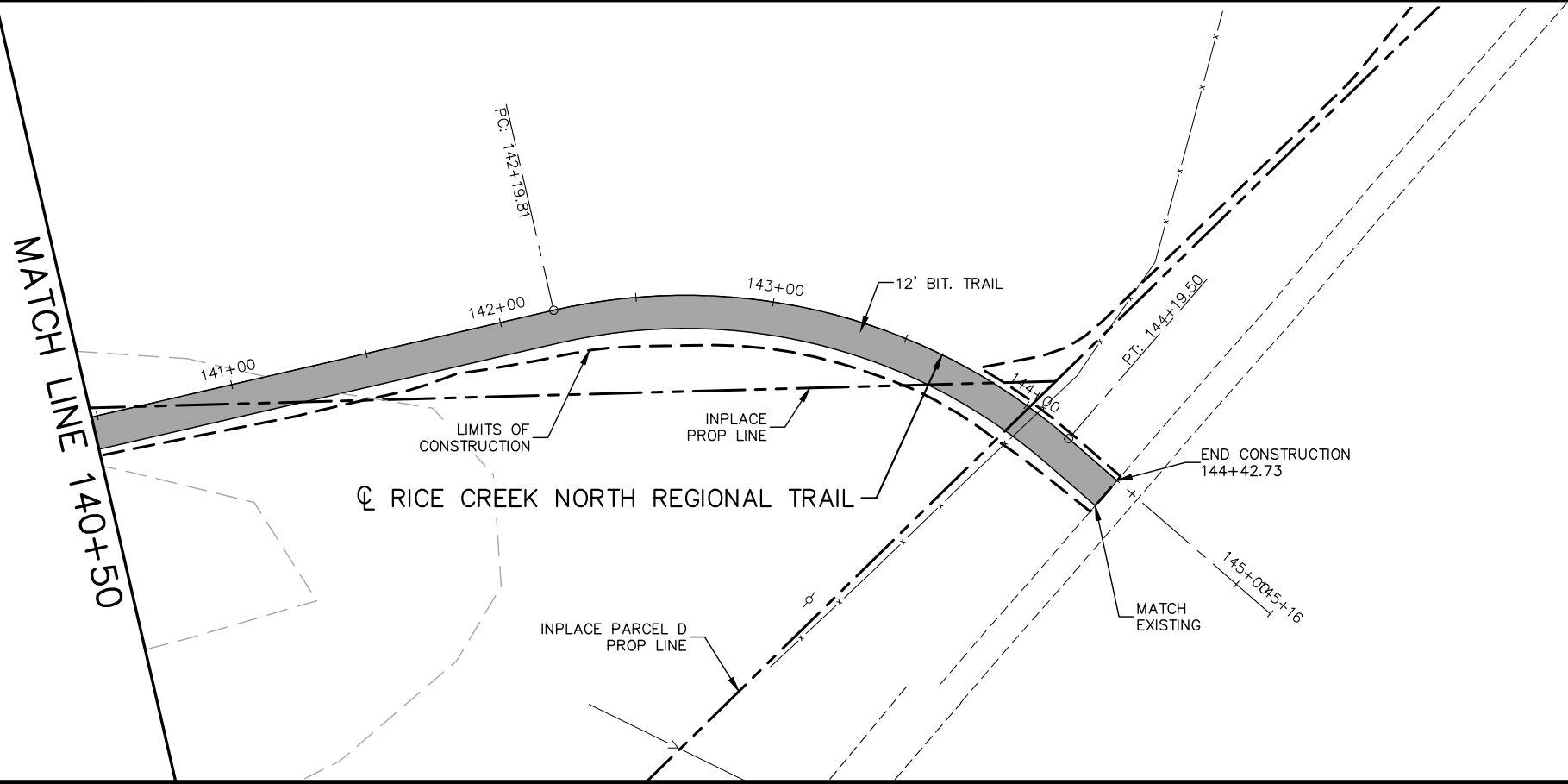
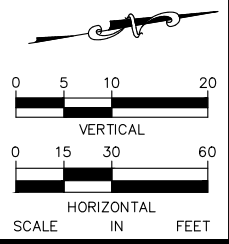
MATCH LINE 140+50

MATCH LINE 140+50

141+00 142+00 143+00 144+00 145+00

LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 CONCRETE SIDEWALK
 BITUMINOUS PAVEMENT
 GRAVEL ROADWAY



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

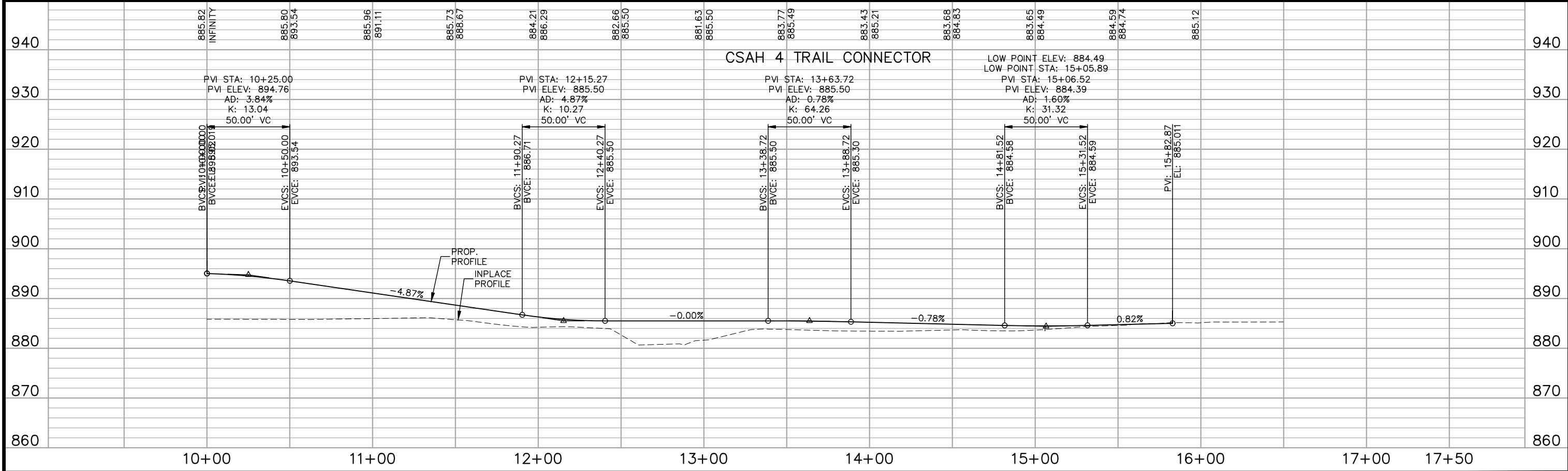
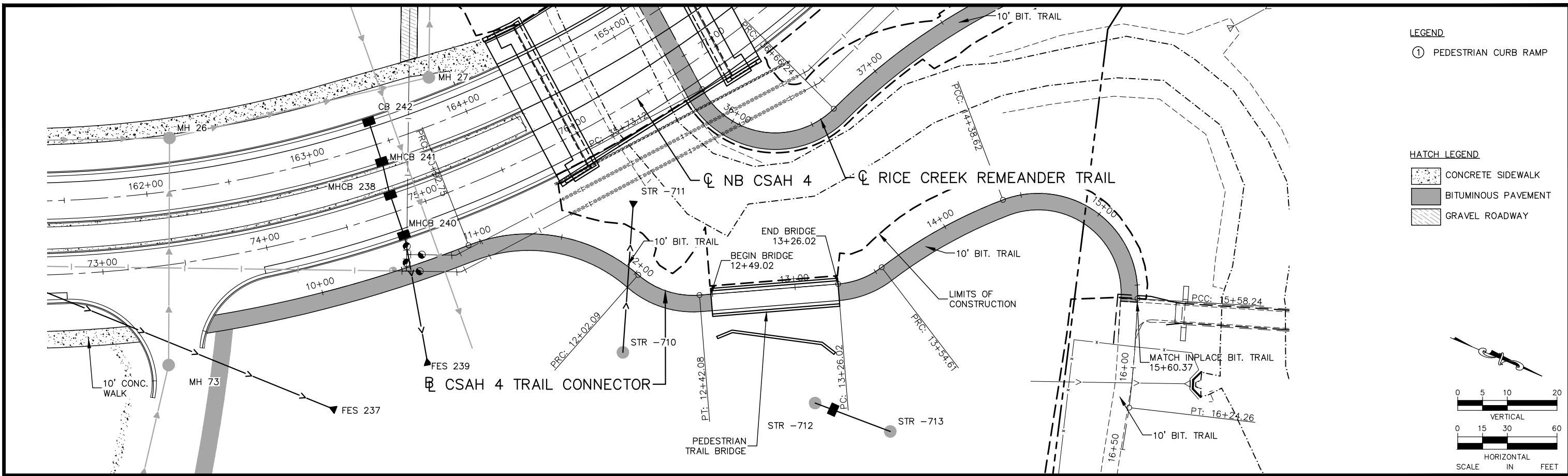
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 RICE CREEK NORTH REGIONAL TRAIL
 PLAN AND PROFILE
 STA. 140+50 TO STA. 145+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
 235
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout-30 January 10, 2019 - 8:55am



No.	Date	Revisions

App.	DRAWING NAME TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

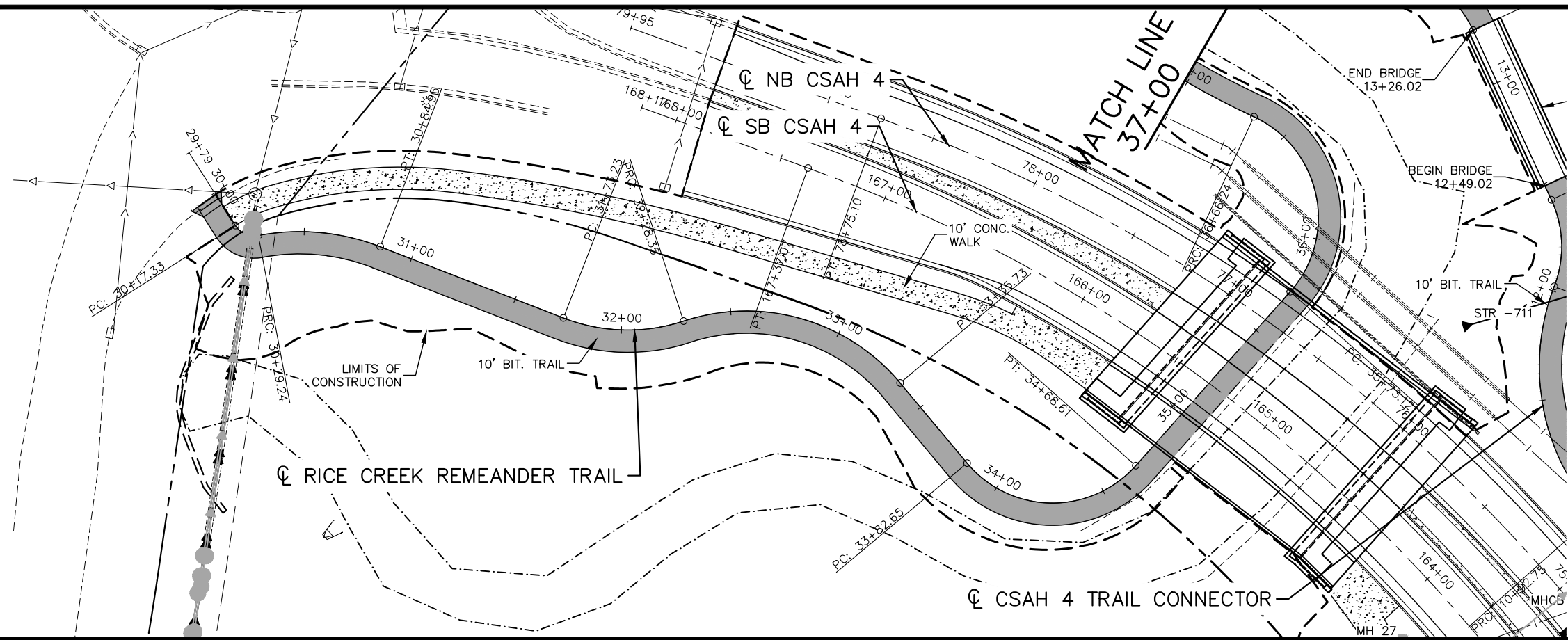
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4 TRAIL CONNECTOR
 PLAN AND PROFILE
 STA. 10+00 TO STA. 17+50

CITY PROJECT	SHEET NO. 236
COUNTY PROJECT	
S.A.P.	
S.A.P.	

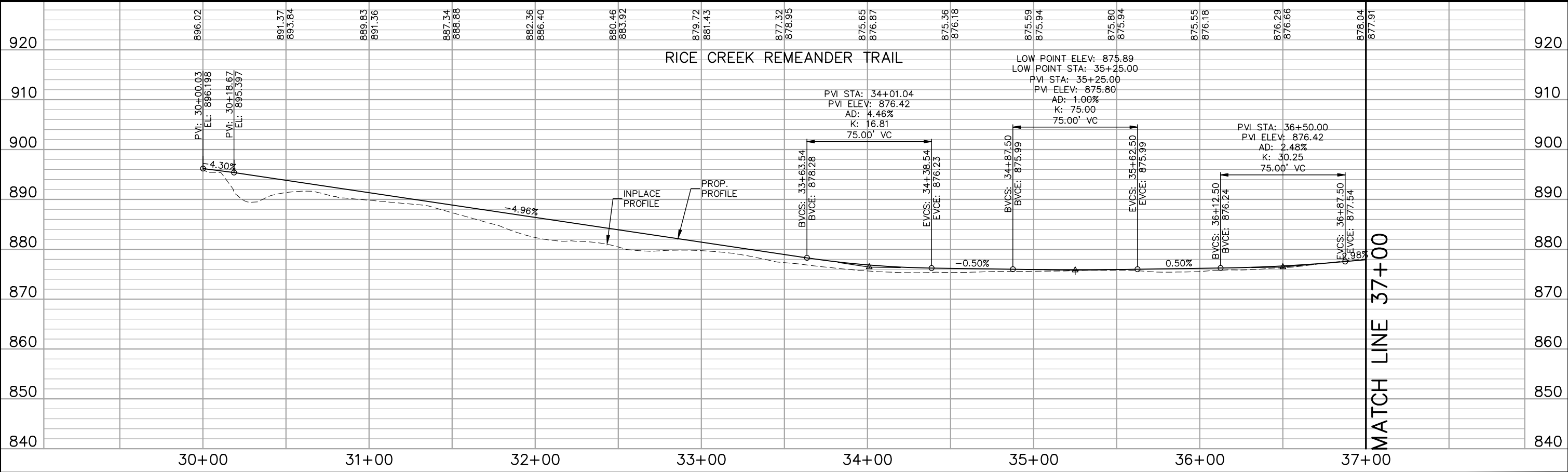
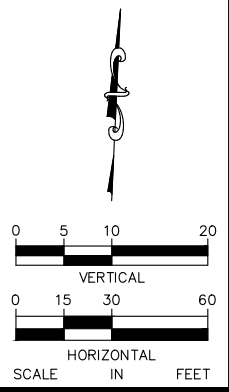
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K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TRAIL_PPF.dwg Layout-32 January 10, 2019 - 8:56am



LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 [Pattern] CONCRETE SIDEWALK
 [Pattern] BITUMINOUS PAVEMENT
 [Pattern] GRAVEL ROADWAY



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_TRAIL_PPF.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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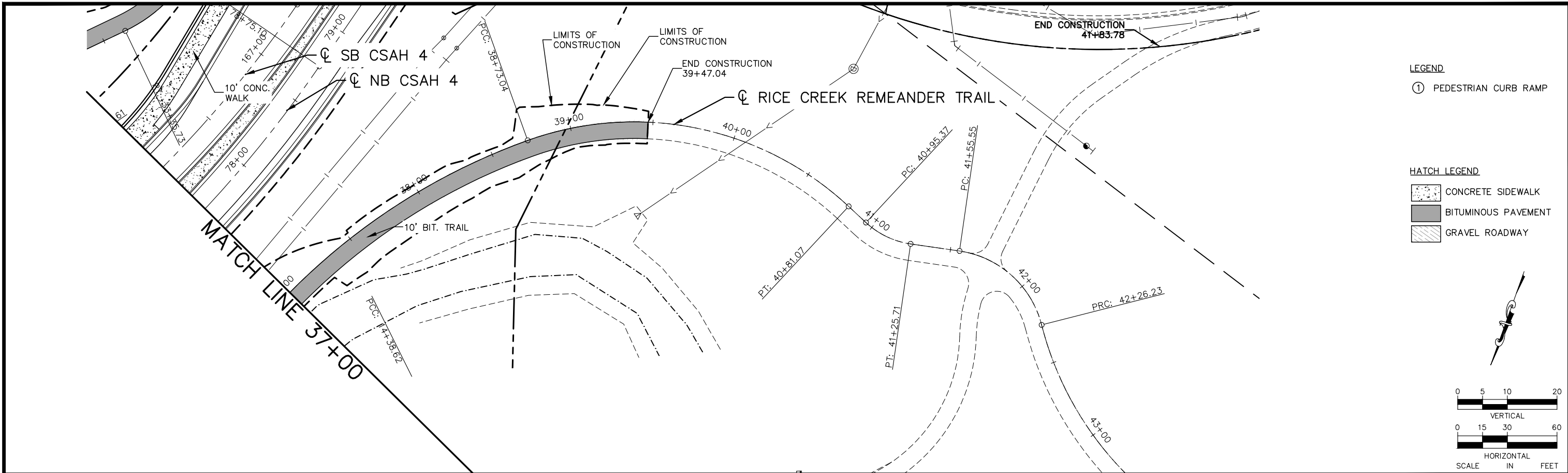
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CREEK TRAIL
 PLAN AND PROFILE
 STA. 30+00 TO STA. 37+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

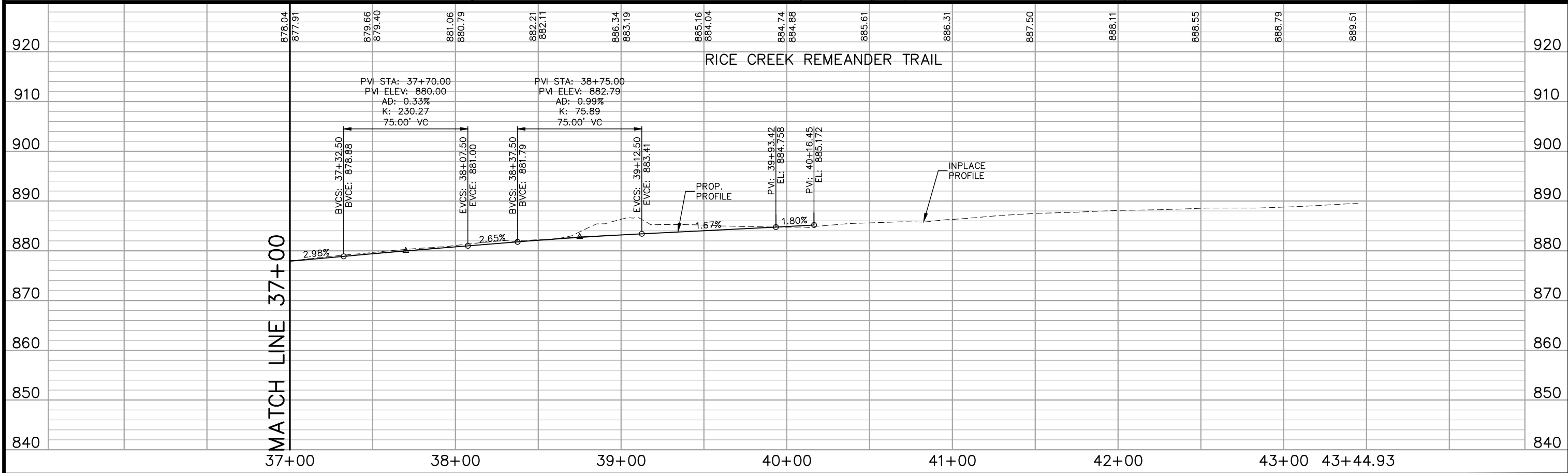
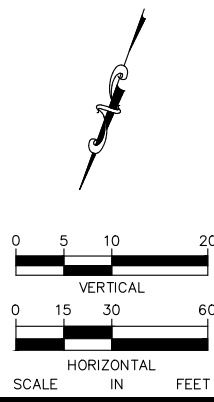
SHEET NO.
237
335

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LEGEND
 ① PEDESTRIAN CURB RAMP

HATCH LEGEND
 [Pattern] CONCRETE SIDEWALK
 [Pattern] BITUMINOUS PAVEMENT
 [Pattern] GRAVEL ROADWAY



No.	Date	Revisions	App.

DRAWING NAME TCAAP_TRAIL_PPF.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
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 WWW.KIMLEY-HORN.COM

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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CREEK TRAIL
 PLAN AND PROFILE
 STA. 37+00 TO STA. 43+00

CITY PROJECT
COUNTY PROJECT
S.A.P.
S.A.P.

SHEET NO.
 238
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD-TAB.dwg TCAAP_SPINERD_GRD-TAB January 10, 2019 - 8:15am

RICE CREEK COMMONS EARTHWORK SUMMARY

<u>EXCAVATION</u>	CUBIC YARDS
TOTAL COMMON EXCAVATION	5,231,000
EXCAVATION	2,691,000
CORRECTION OF EXISTING FILLS	932,000
CORRECTION OF EXISTING UTILITIES BACKFILL	221,000
CORRECTION OF BURIED TOPSOIL	187,000
CORRECTION OF MUCK DEPOSITS (SUITABLE MATERIAL ABOVE MUCK)	227,000
TOWN CENTER SUBCUT	126,000
CSAH 4 SUBCUT	40,000
TOWN CENTER ROADS SUBCUT	1,000
PROPOSED LANDSCAPE SUBCUT	202,000
EXISTING LANDSCAPE SUBCUT	40,000
PONDS SUBCUT	63,000
TOWN CENTER TEMPORARY SURCHARGE	216,000
MINING/SWAPPING OF MUCK MATERIAL	285,000
TOTAL MUCK EXCAVATION	285,000
 <u>EMBANKMENT</u>	
TOTAL COMMON EMBANKMENT	4,799,500
EMBANKMENT	1,895,500
BACKFILL OF EXISTING FILL CORRECTION	932,000
BACKFILL OF EXISTING UTILITY TRENCH CORRECTION	221,000
BACKFILL OF BURIED TOPSOIL CORRECTION	187,000
BACKFILL OF EXISTING MUCK DEPOSITS CORRECTION	227,000
TOWN CENTER SUBUT BACKFILL	126,000
EXISTING LANDSCAPE SUBCUT BACKFILL	40,000
MINING/SWAPPING OF MUCK MATERIAL	285,000
TOWN CENTER TEMPORARY SURCHARGE	216,000
TOPSOIL EMBANKMENT	385,000
MUCK EMBANKMENT	285,000
TOTAL SELECT GRANULAR EMBANKMENT	70,000
TOTAL POND LINER EMBANKMENT	63,000

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_GRD-TAB
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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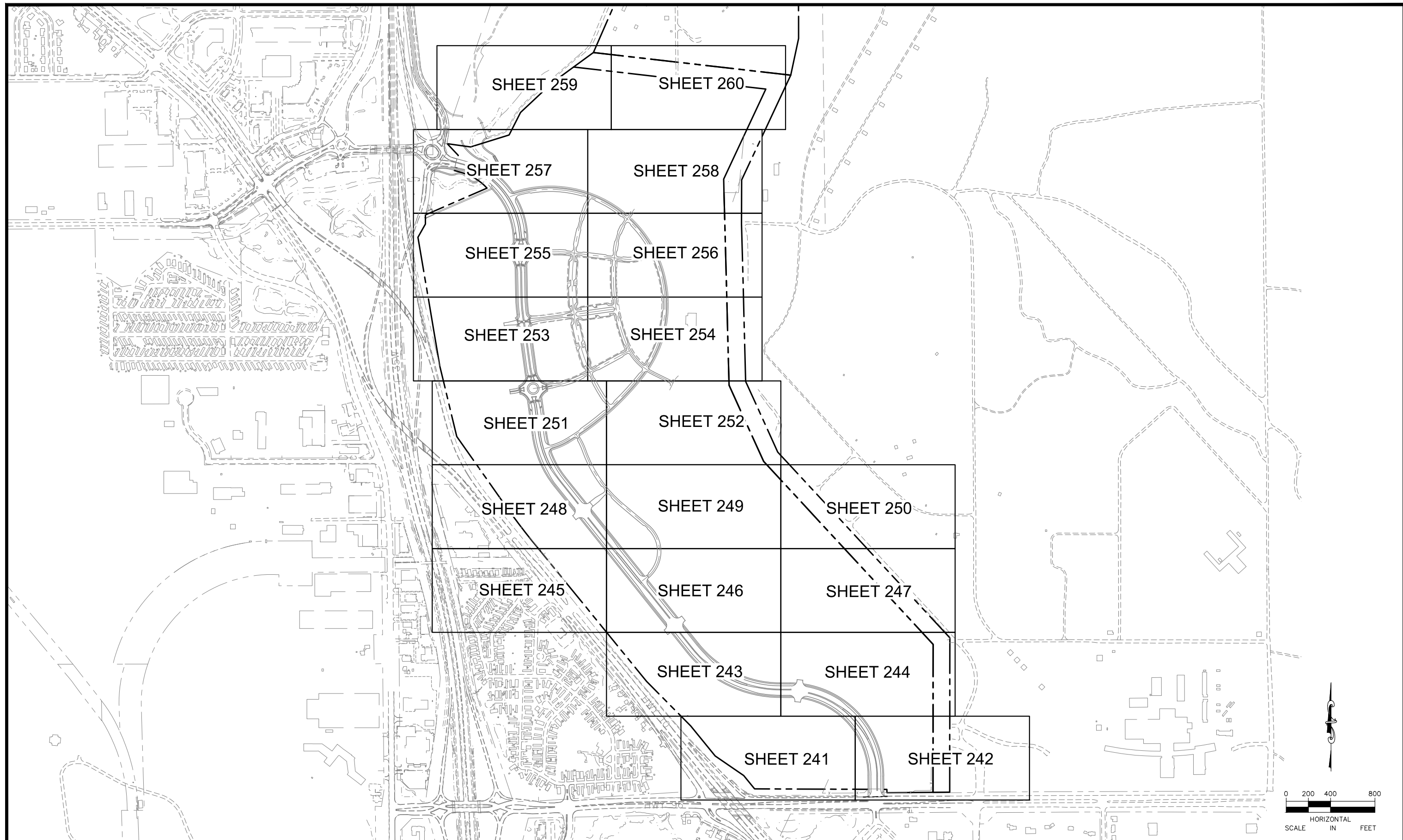
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 EARTHWORK QUANTITIES

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
239
335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD-INDX.dwg 161 GradingLayout January 10, 2019 - 8:15am



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_GRD-INDX
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

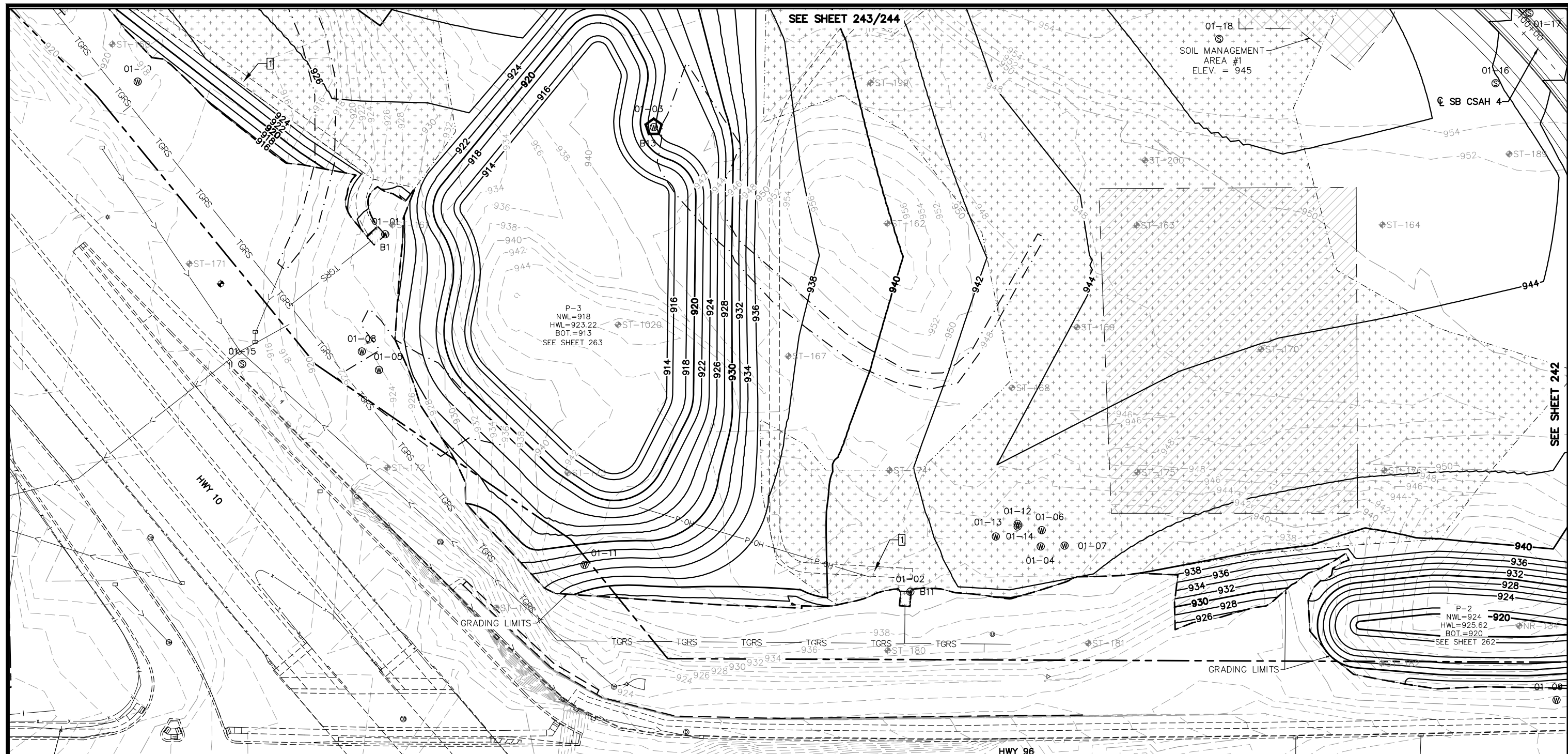
MASS GRADING INDEX PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
240

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD.dwg 162 Layout01 January 10, 2019 - 8:18am



LEGEND

	EXISTING FILL CORRECTION		SOIL MANAGEMENT AREA
	MUCK EXCAVATION		GRADING LIMITS
	APPROX. FUTURE BUILDING LOCATION		SOIL BORING
	EXISTING SEALED WELL		
	EXISTING ACTIVE WELL		

- MASS GRADING NOTES**
1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
 2. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
 3. ALL MATERIAL MOVED IN THE SOIL MANAGEMENT AREAS BELOW THE ELEVATION SPECIFIED, SHALL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

REMOVAL NOTE LEGEND

10' MAINTENANCE ACCESS ROAD

SCALE IN FEET

259	260	
257	258	
255	256	
253	254	
251	252	
248	249	250
245	246	247
	243	244
	241	242

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_GRD.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

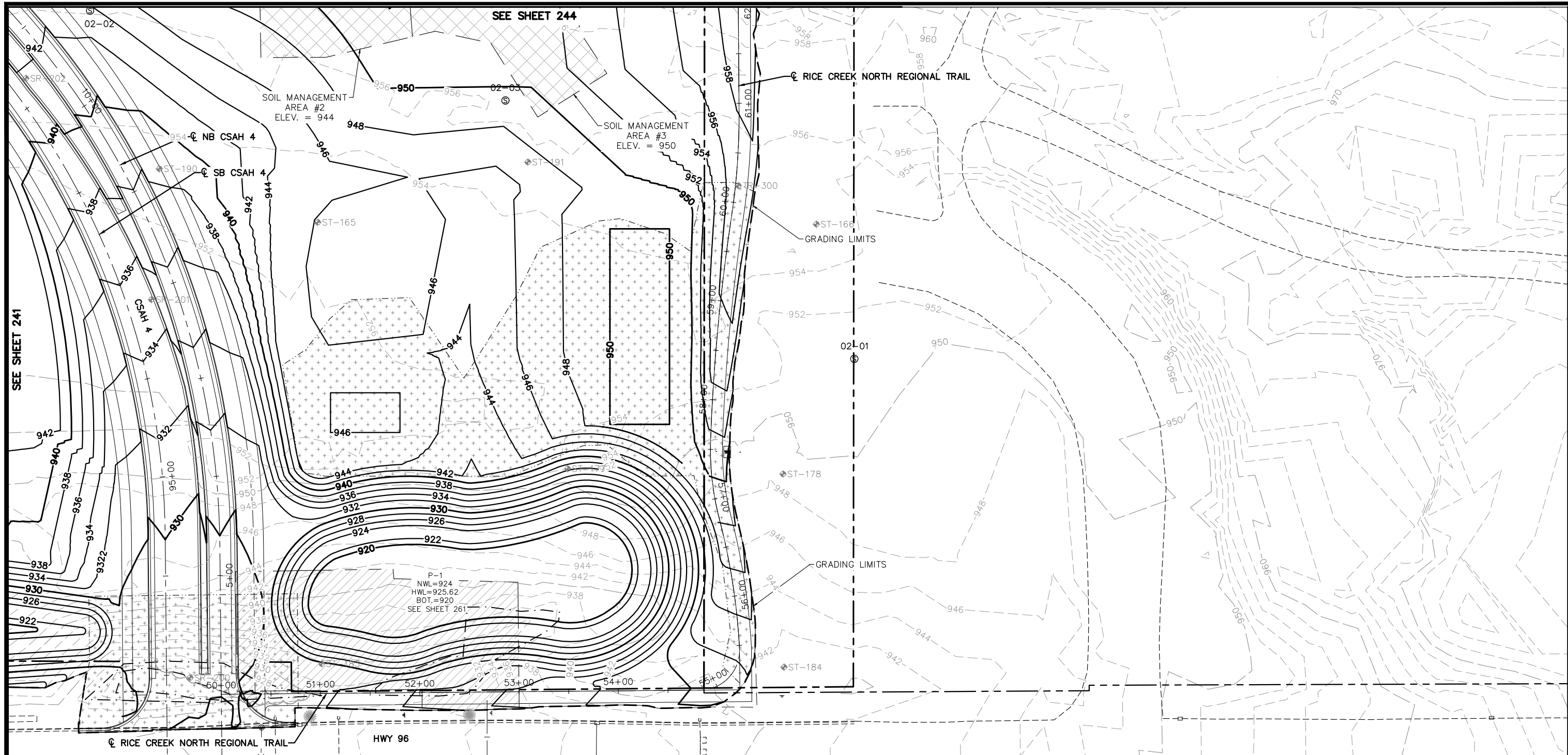
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

MASS GRADING PLAN

CITY PROJECT		SHEET NO.	241
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

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LEGEND

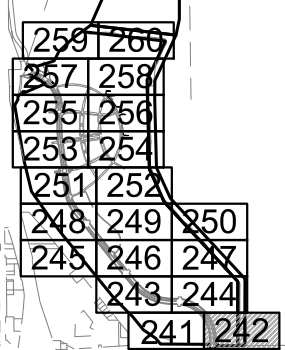
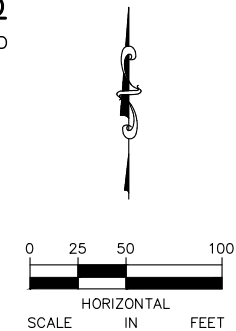
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100 SOIL BORING

MASS GRADING NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
3. ALL MATERIAL MOVED IN THE SOIL MANAGEMENT AREAS BELOW THE ELEVATION SPECIFIED, SHALL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

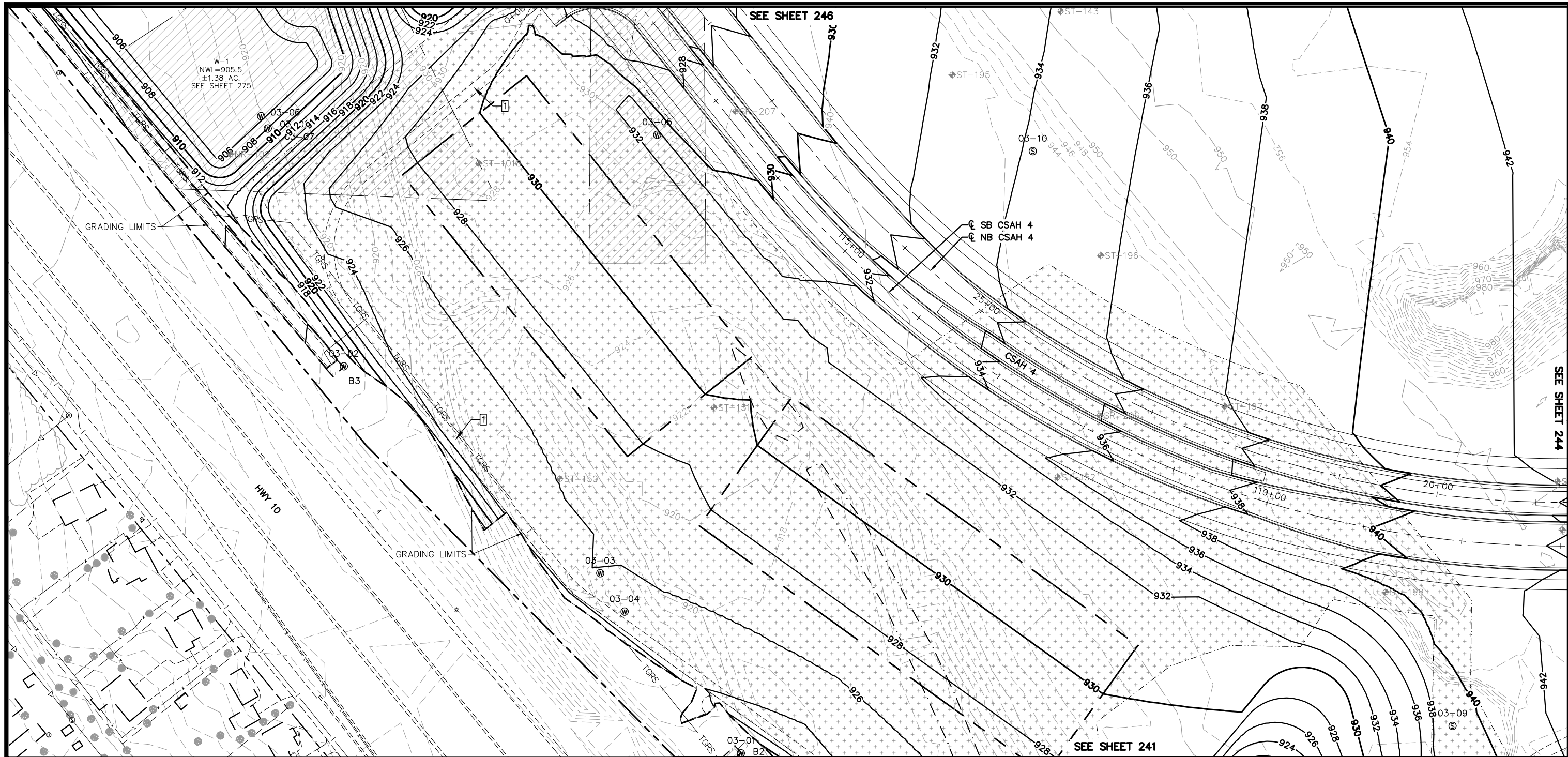
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	242
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

	EXISTING FILL CORRECTION		SOIL MANAGEMENT AREA
	MUCK EXCAVATION		GRADING LIMITS
	APPROX. FUTURE BUILDING LOCATION		SOIL BORING
	EXISTING SEALED WELL		
	EXISTING ACTIVE WELL		

- MASS GRADING NOTES**
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REMOVAL NOTE LEGEND

10' MAINTENANCE ACCESS ROAD

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

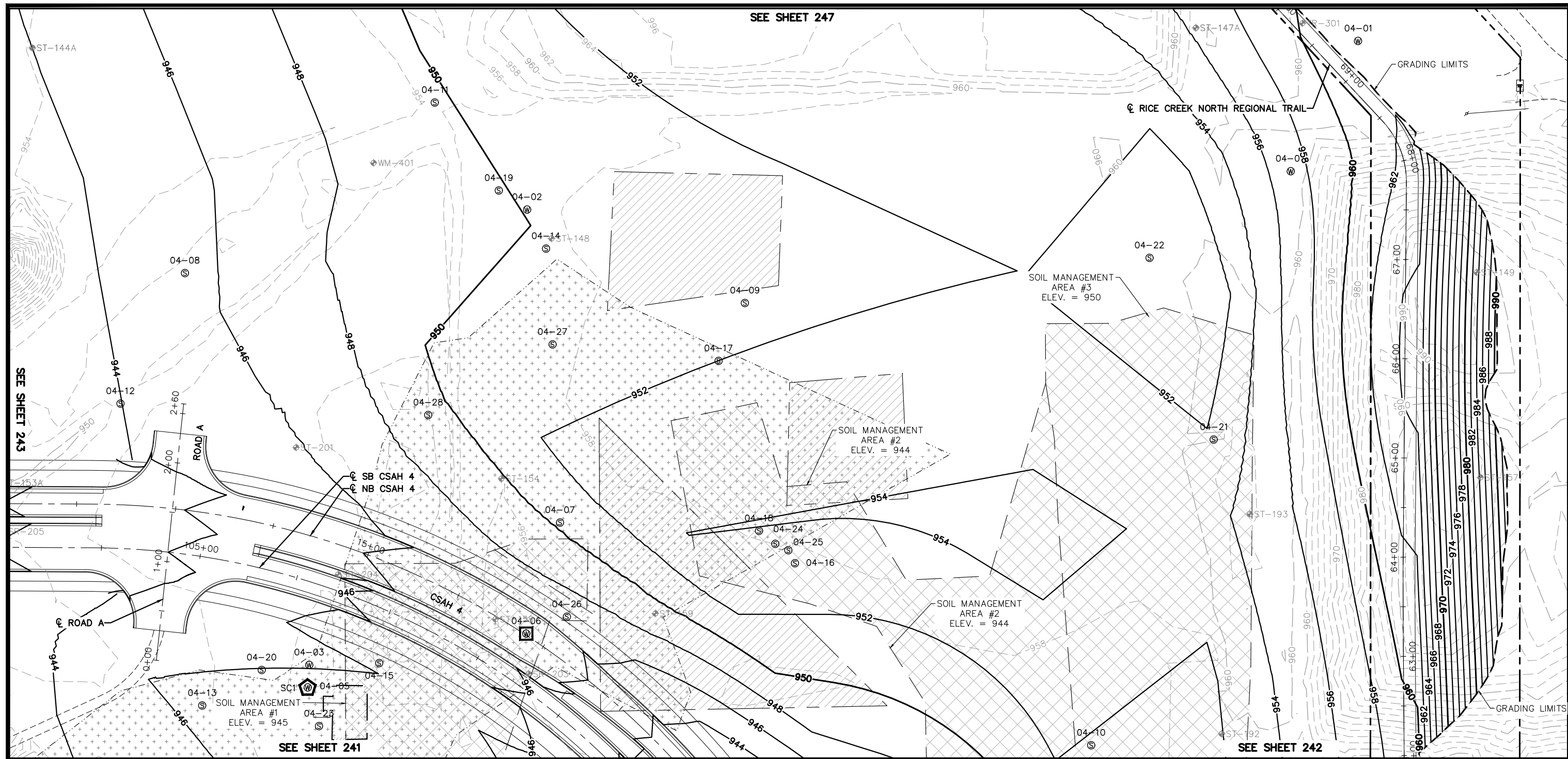
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

MASS GRADING PLAN

CITY PROJECT	SHEET NO. 243
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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LEGEND

	EXISTING FILL CORRECTION		SOIL MANAGEMENT AREA
	MUCK EXCAVATION		GRADING LIMITS
	APPROX. FUTURE BUILDING LOCATION		SOIL BORING
	EXISTING SEALED WELL		
	EXISTING ACTIVE WELL		

- MASS GRADING NOTES**
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REMOVAL NOTE LEGEND

10' MAINTENANCE ACCESS ROAD

259	260	
257	258	
255	256	
253	254	
251	252	
248	249	250
245	246	247
243	244	
241	242	

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_GRD.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

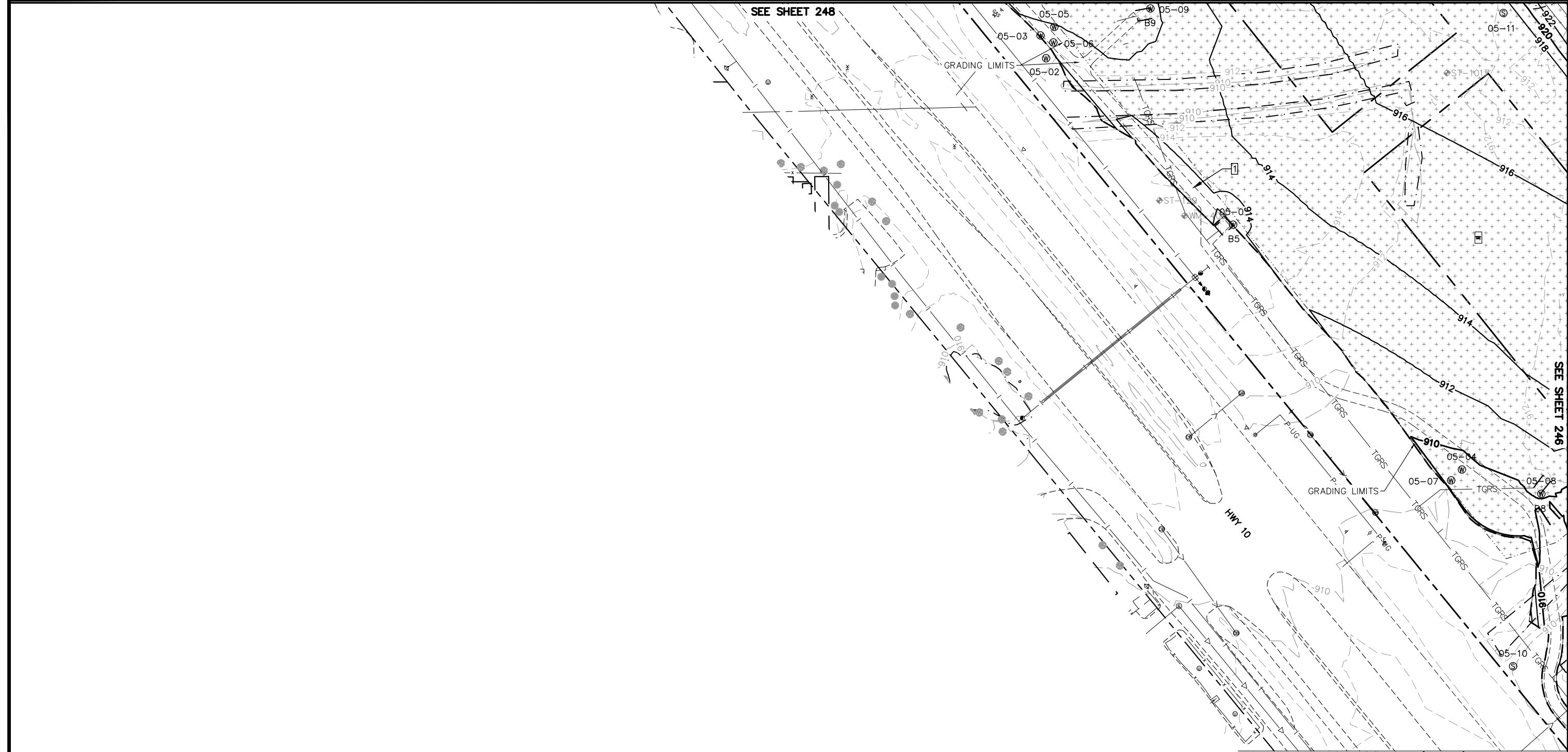
MASS GRADING PLAN

CITY PROJECT		SHEET NO.	244
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

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SEE SHEET 248

SEE SHEET 246



LEGEND

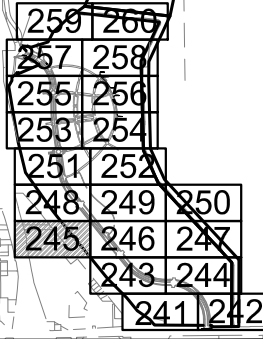
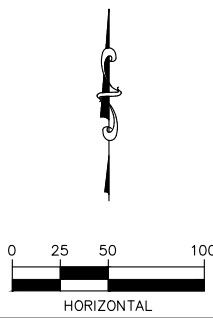
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- SOIL BORING

MASS GRADING NOTES

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

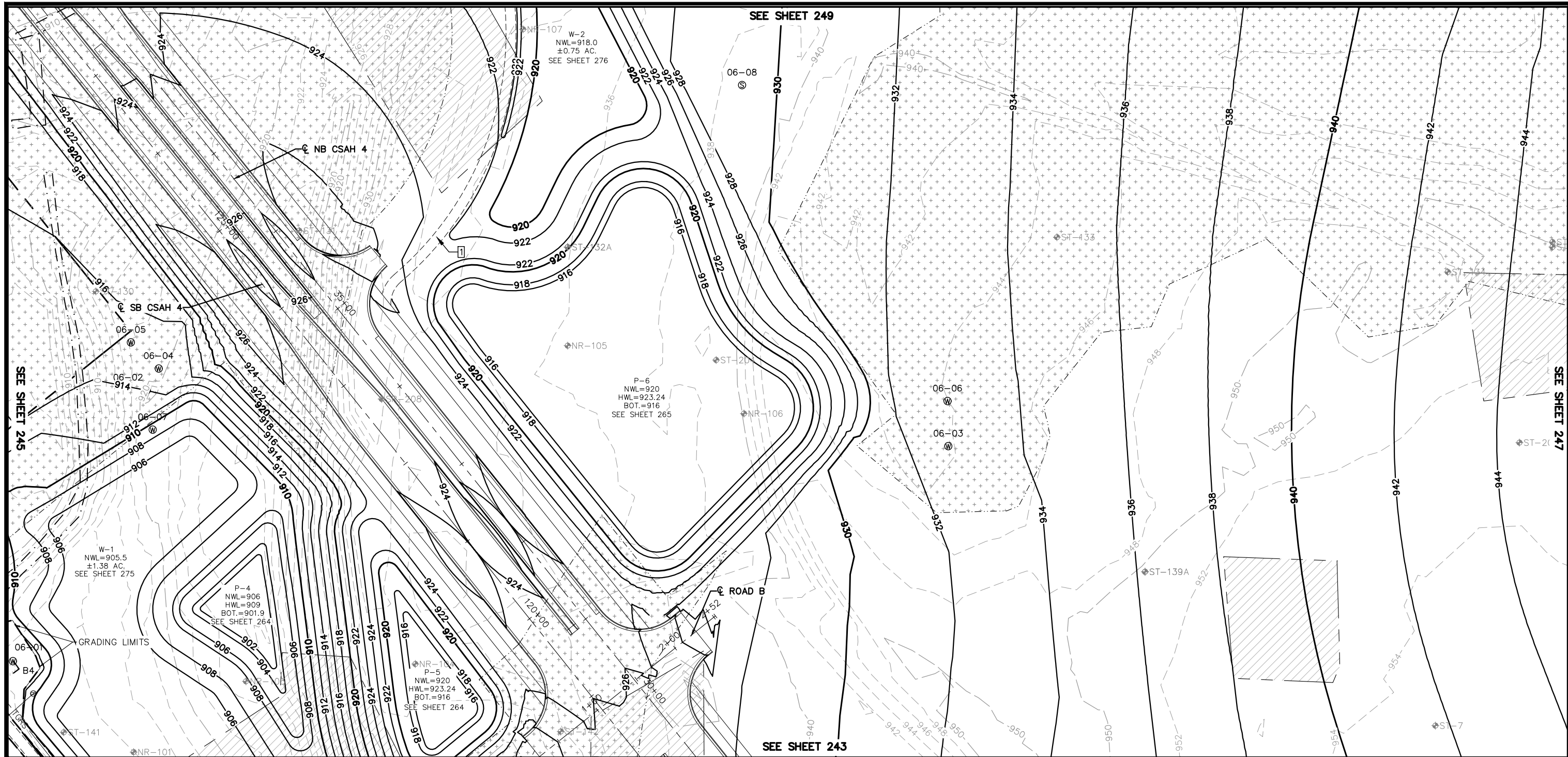
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 245
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
335	

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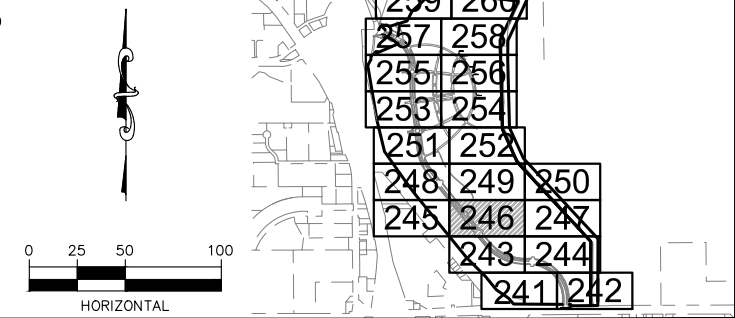
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100 SOIL BORING

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
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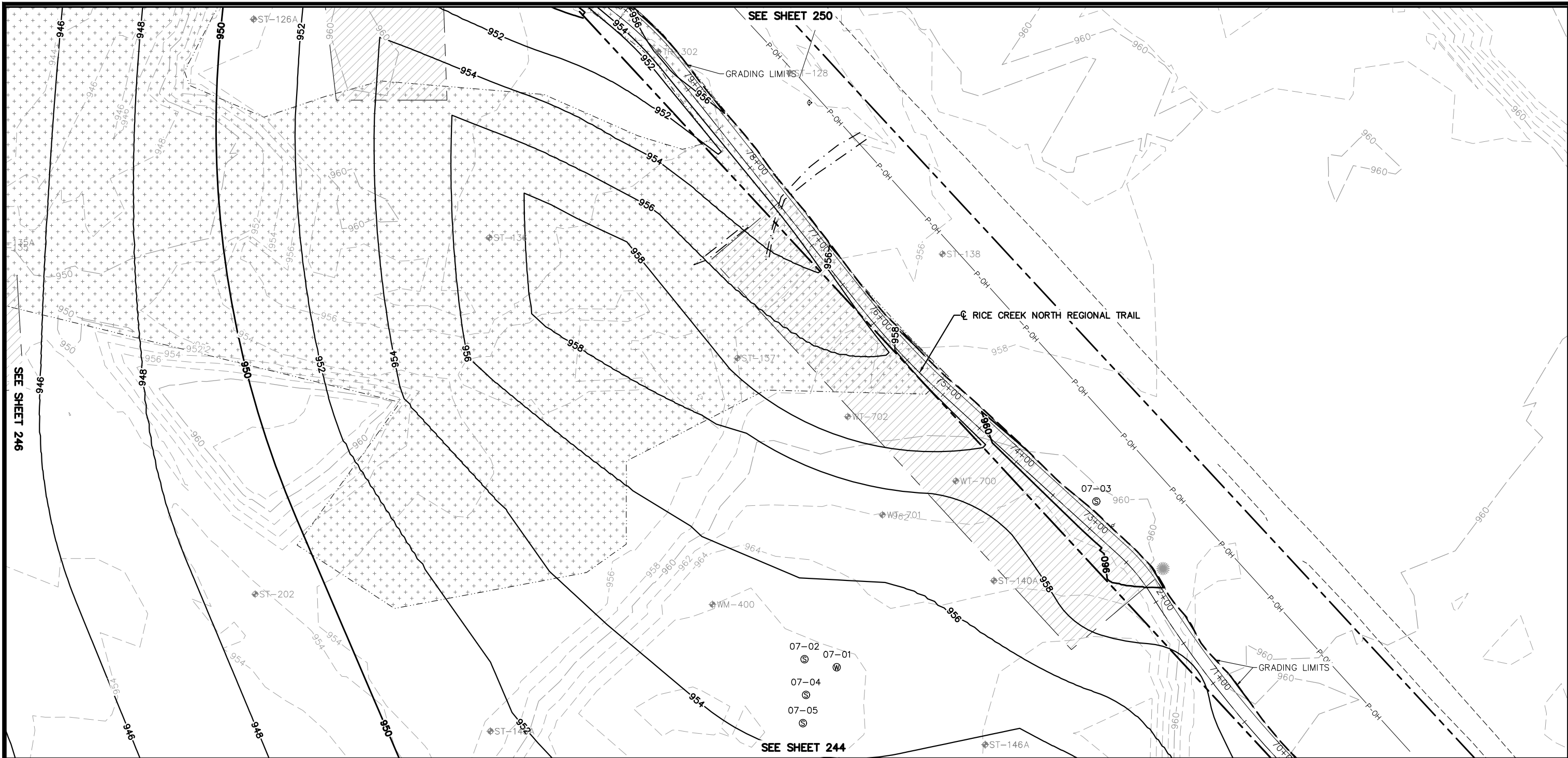
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 246
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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LEGEND

- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27
⊙ EXISTING SEALED WELL
- 17-27
⊗ EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100 SOIL BORING

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD

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				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

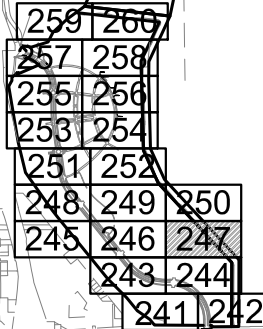
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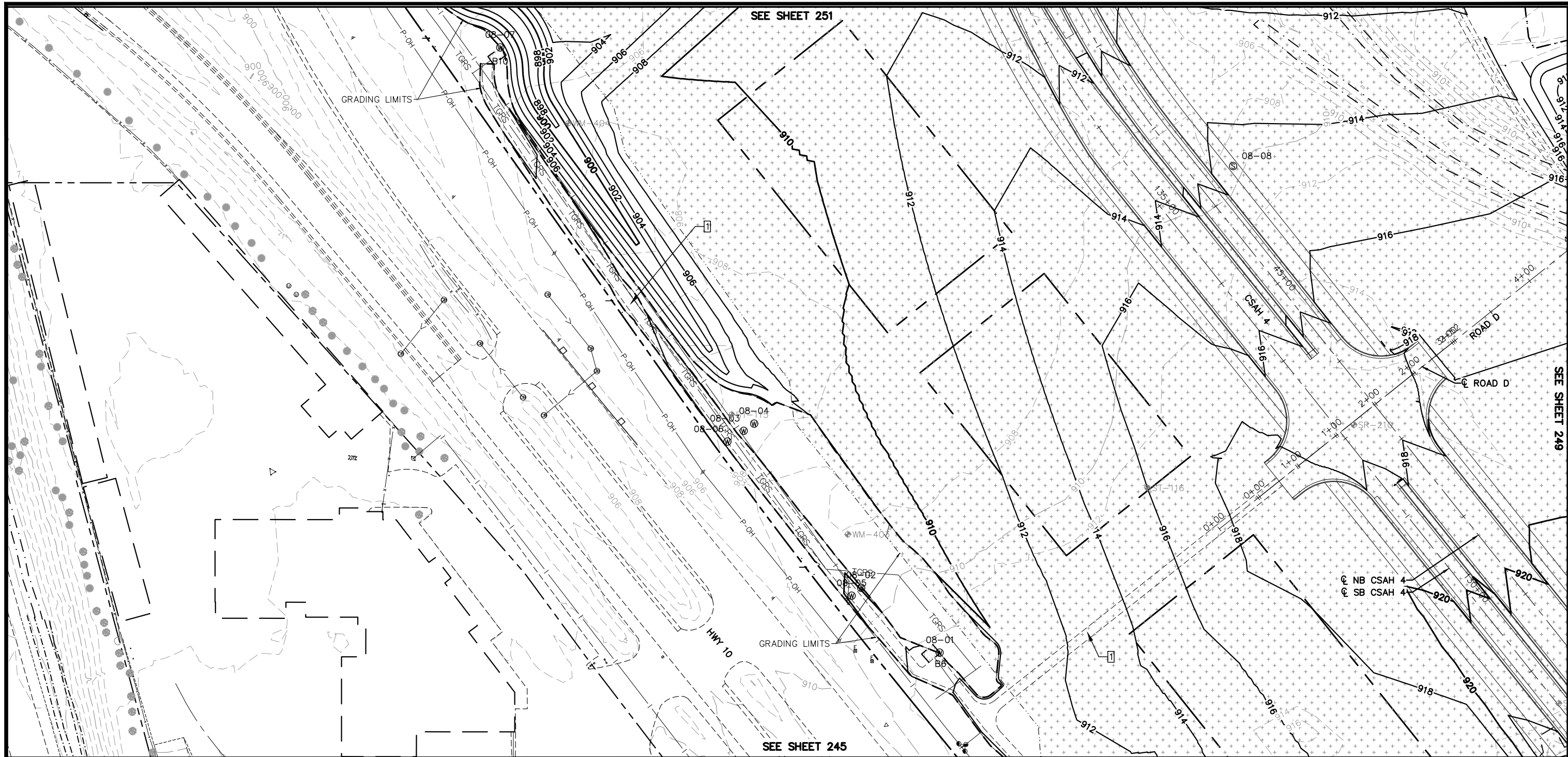
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 247
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335



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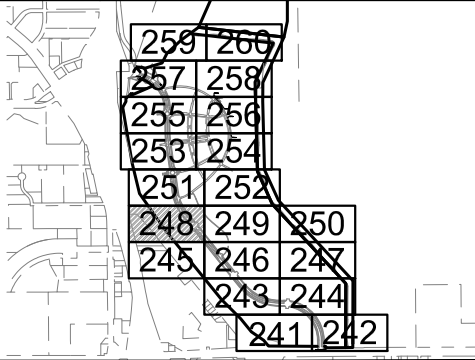
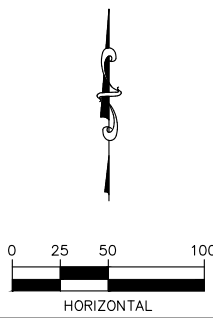
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27
EXISTING SEALED WELL
- 17-27
EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100
SOIL BORING

MASS GRADING NOTES

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

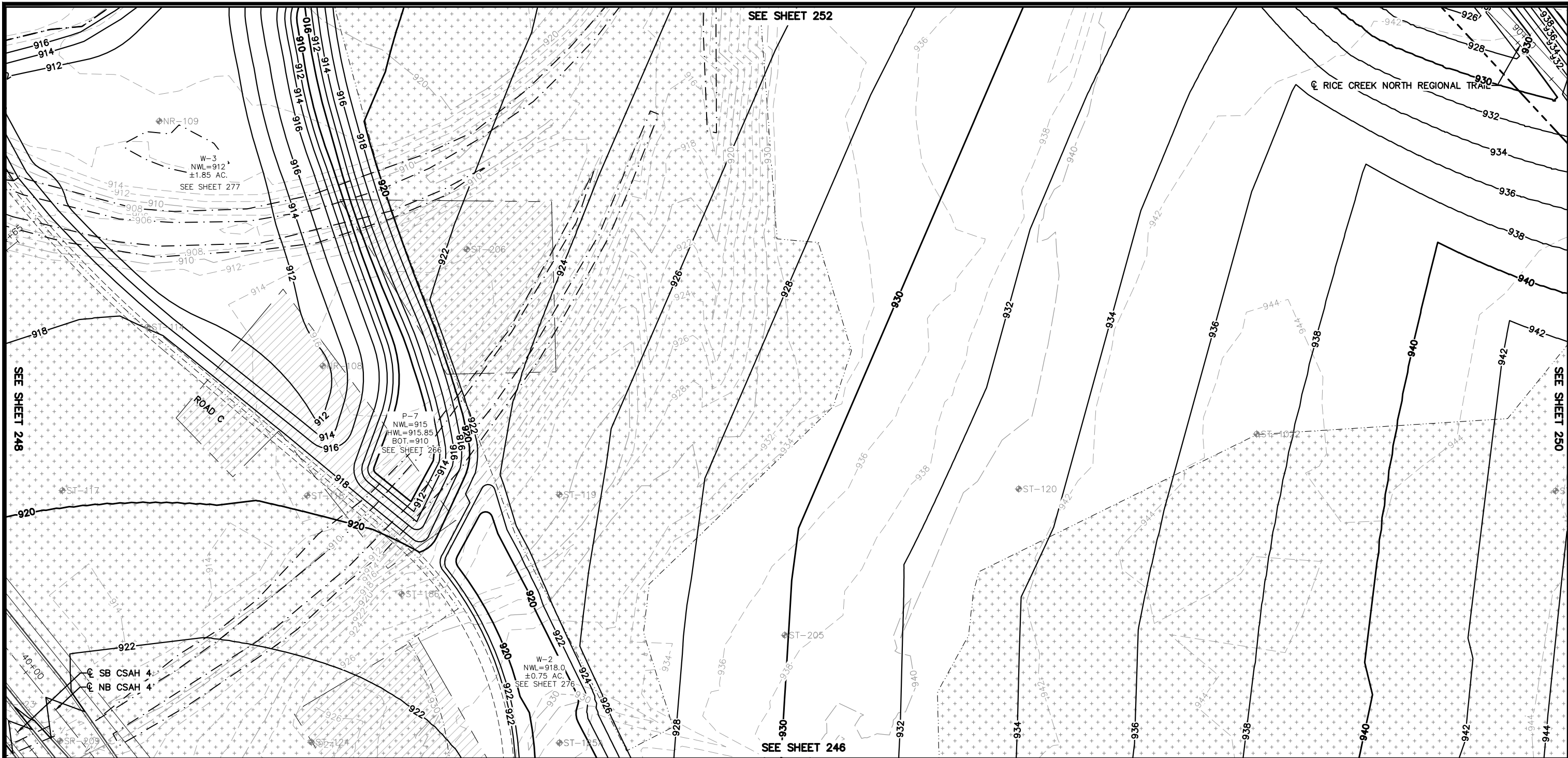
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

MASS GRADING PLAN

CITY PROJECT	248
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
SHEET NO. 335	

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LEGEND

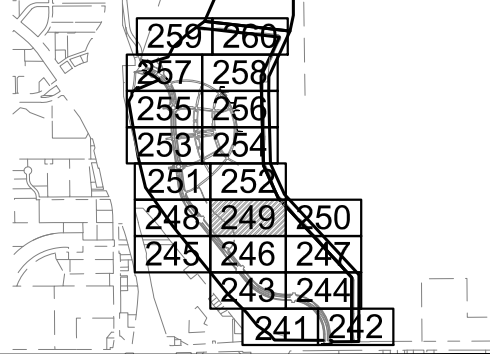
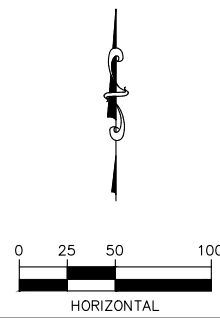
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27
EXISTING SEALED WELL
- 17-27
EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100
SOIL BORING

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

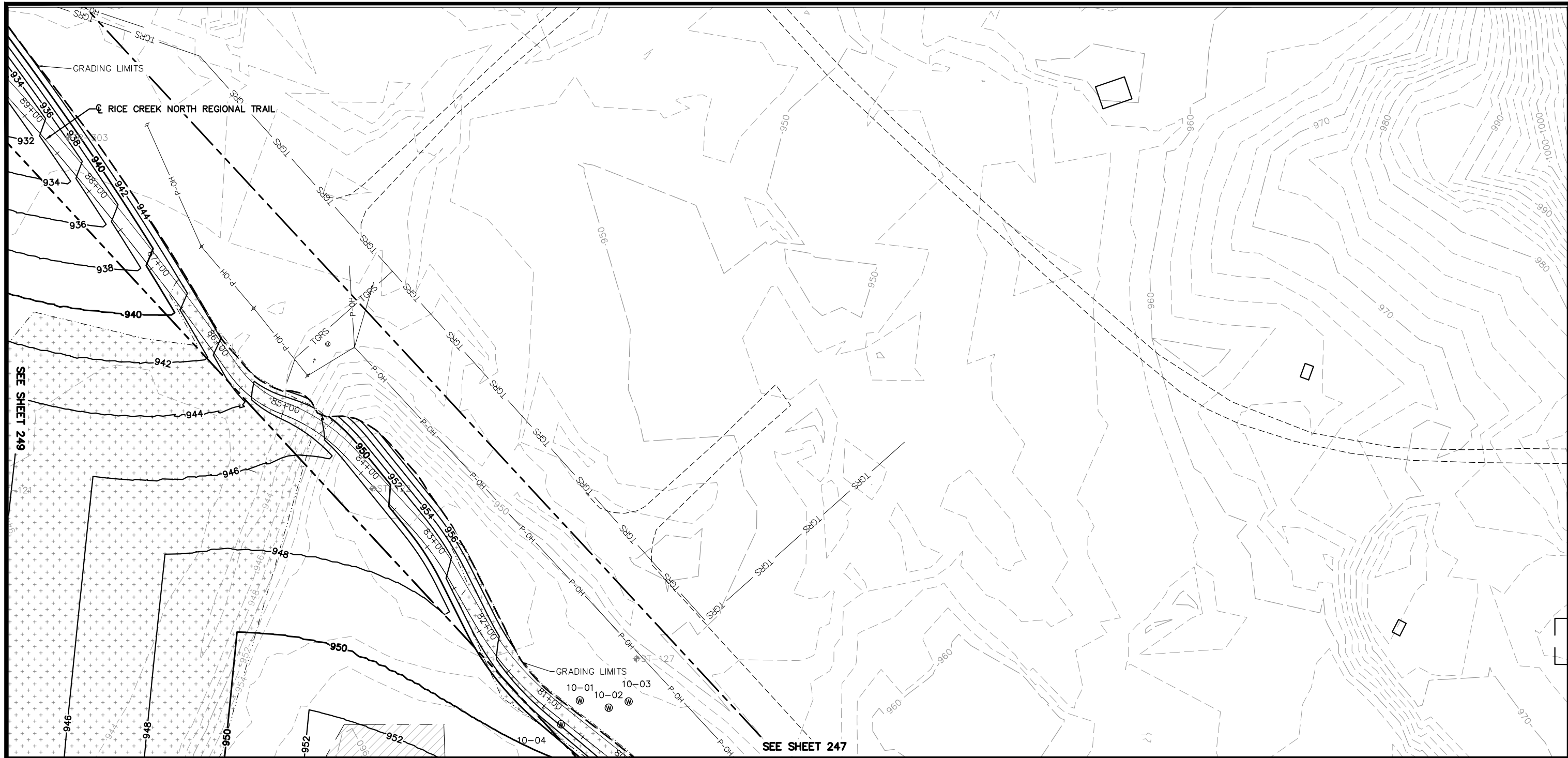
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	249
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

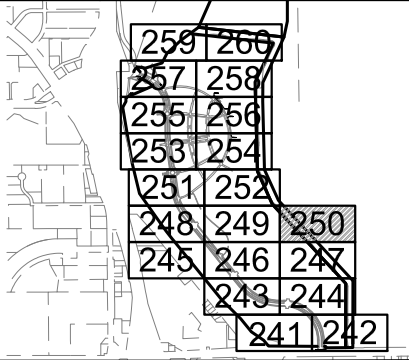
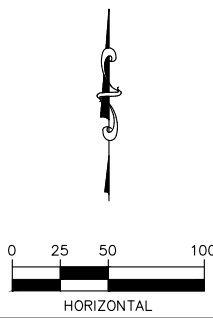
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
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- GRADING LIMITS
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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.

DRAWING NAME		TCAAP_SPINERD_GRD.dwg
DESIGNED BY:	ERW	
DRAWN BY:	ERW	
CHECKED BY:	CBL	
DATE:	01/04/19	
PROJECT NO.	160553004	

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

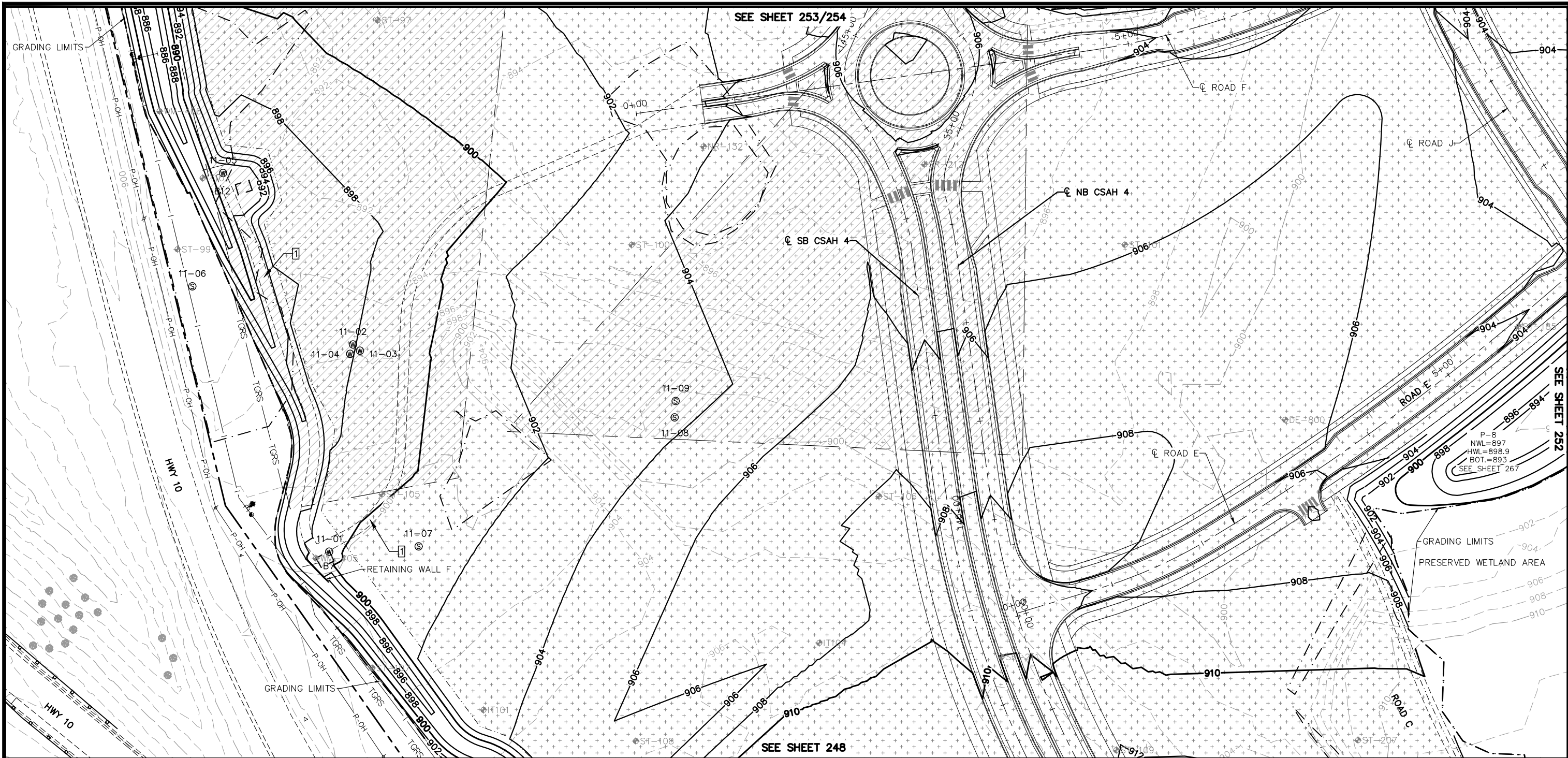
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 250
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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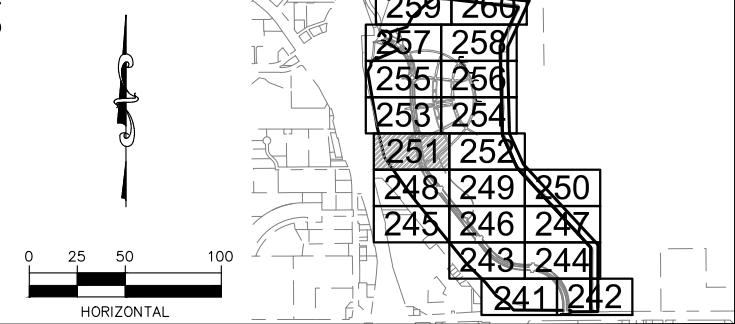
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
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- GRADING LIMITS
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- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
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				PROJECT NO. 160553004

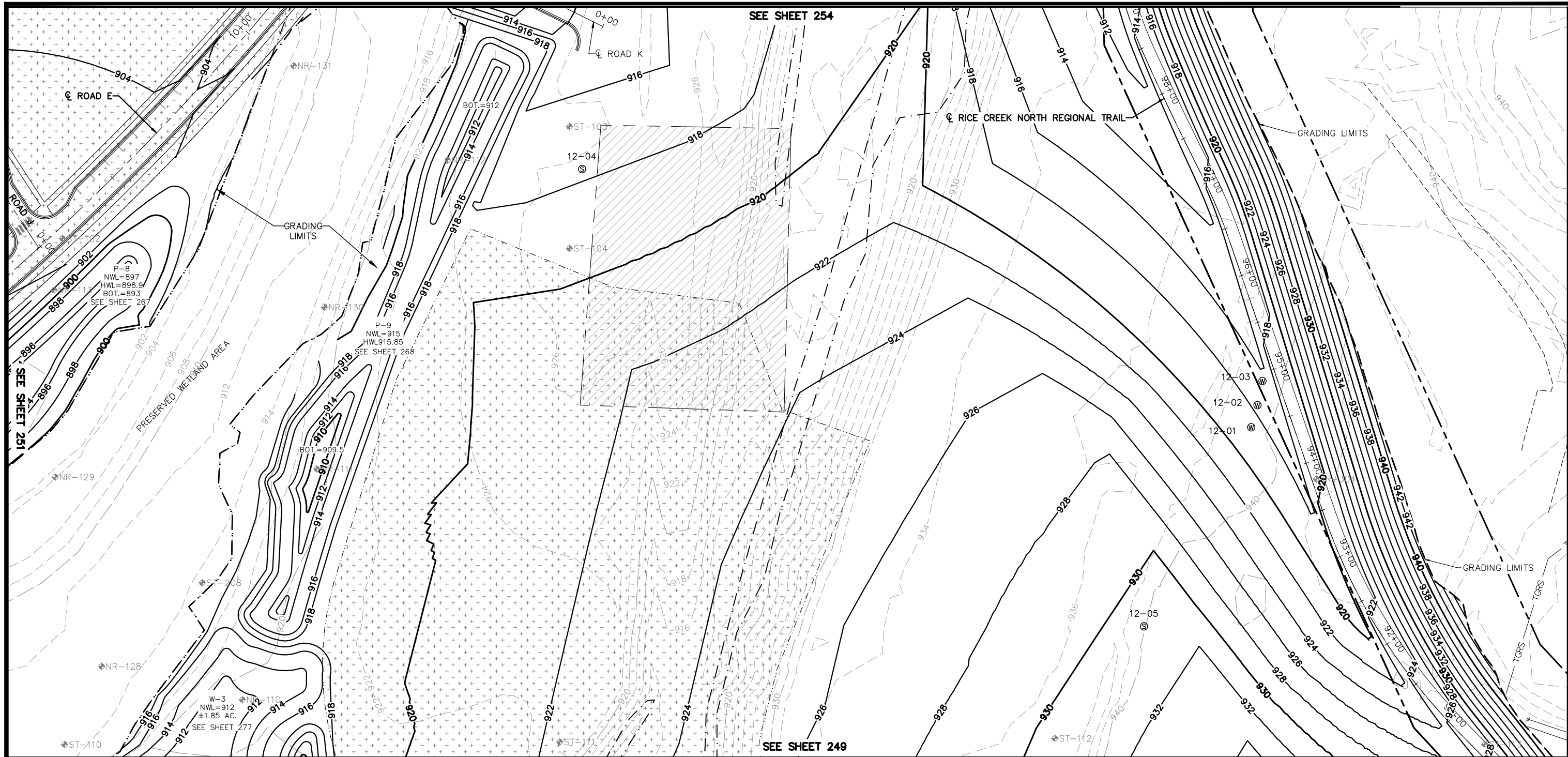
Kimley»Horn
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	251
S.A.P. 062-593-004	
S.A.P.	335

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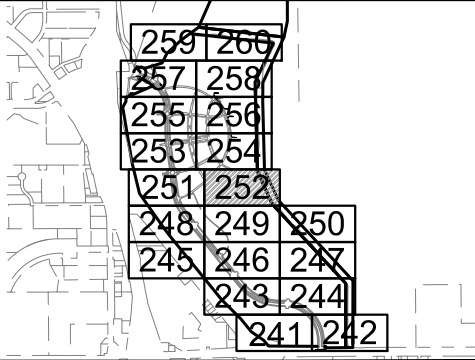
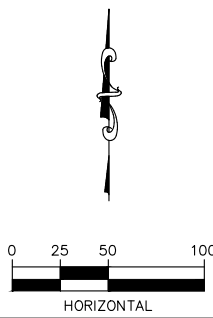
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27
EXISTING SEALED WELL
- 17-27
EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100
SOIL BORING

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 252
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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SEE SHEET 255

SEE SHEET 251

LEGEND

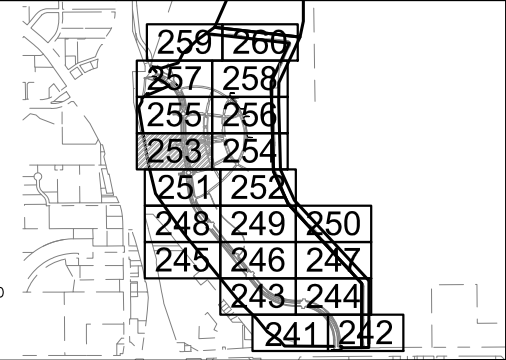
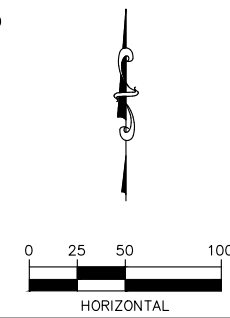
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				DRAWN BY: ERW
				CHECKED BY: CBL
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				PROJECT NO. 160553004

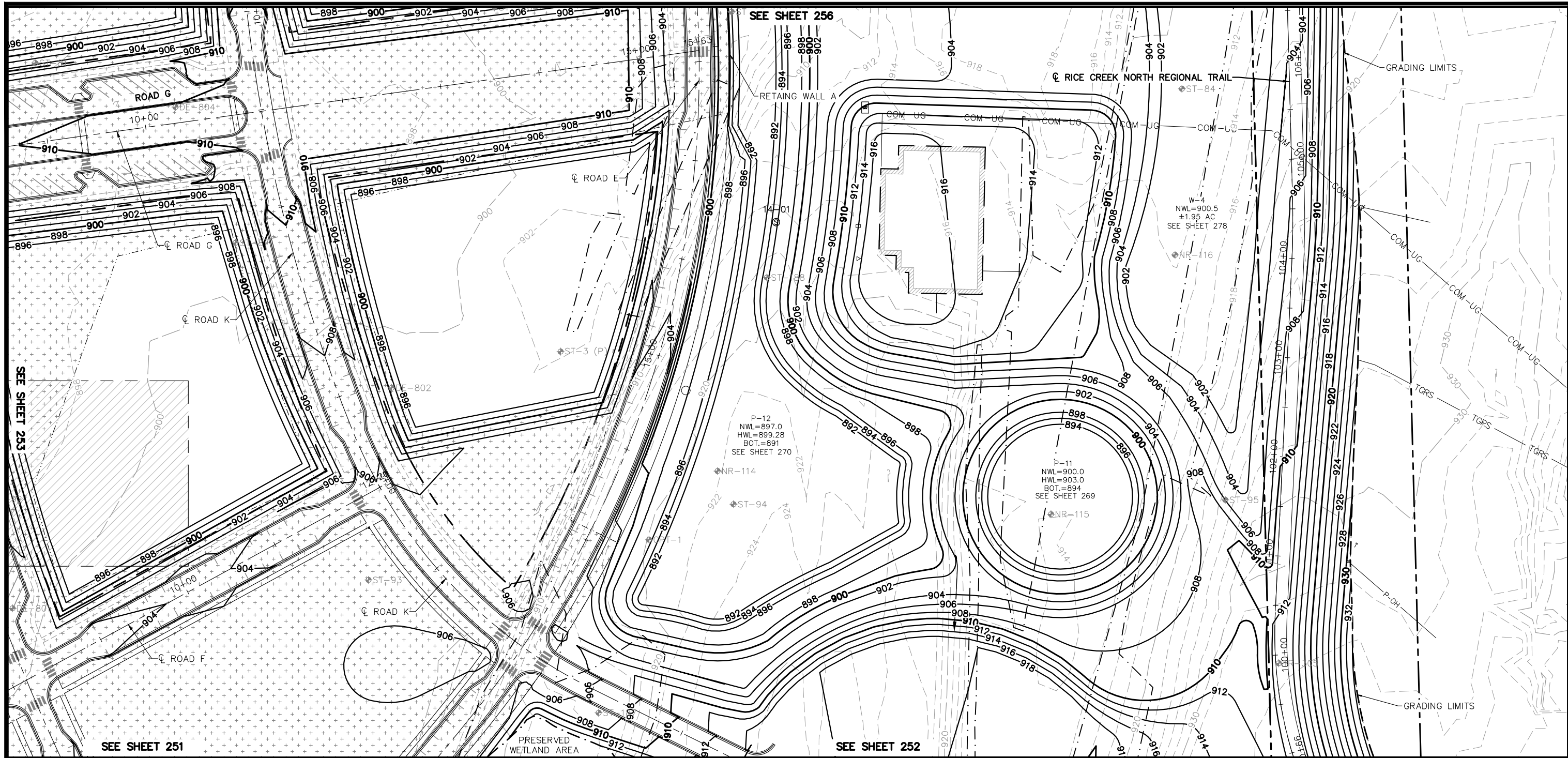
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	253
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD.dwg 175 Layout14 January 10, 2019 - 8:34am



LEGEND

	EXISTING FILL CORRECTION		SOIL MANAGEMENT AREA
	MUCK EXCAVATION		GRADING LIMITS
	APPROX. FUTURE BUILDING LOCATION		SOIL BORING
	EXISTING SEALED WELL		
	EXISTING ACTIVE WELL		

- MASS GRADING NOTES**
- CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
 - THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
 - ALL MATERIAL MOVED IN THE SOIL MANAGEMENT AREAS BELOW THE ELEVATION SPECIFIED, SHALL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

REMOVAL NOTE LEGEND

10' MAINTENANCE ACCESS ROAD

0 25 50 100
HORIZONTAL

259	260	
257	258	
255	256	
253	254	
251	252	
248	249	250
245	246	247
	243	244
	241	242

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

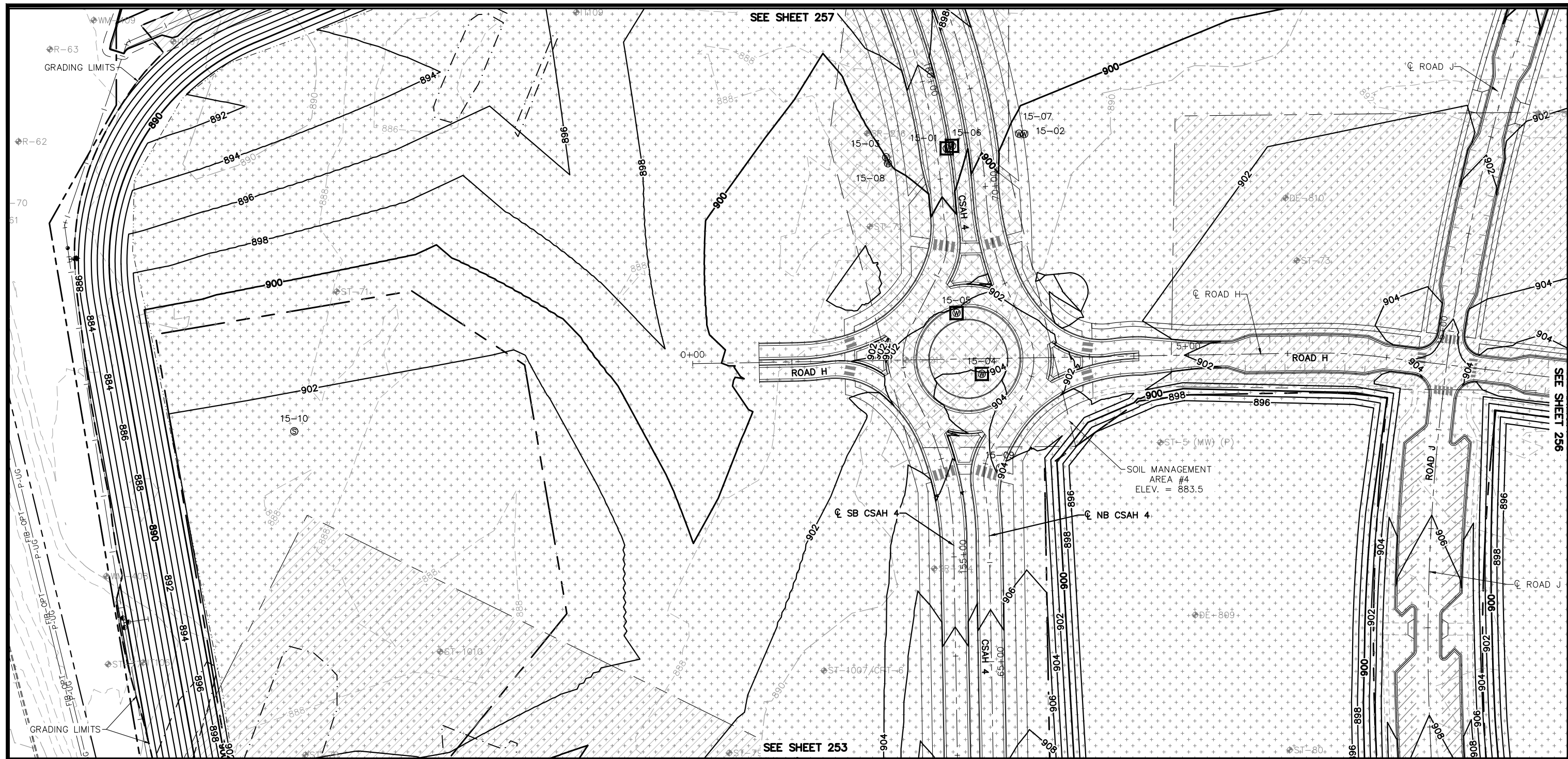
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

MASS GRADING PLAN

CITY PROJECT	SHEET NO. 254
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAAP_SPINERD_GRD.dwg 176 Layout15 January 10, 2019 - 8:35am



SEE SHEET 257

SEE SHEET 256

SEE SHEET 253

LEGEND

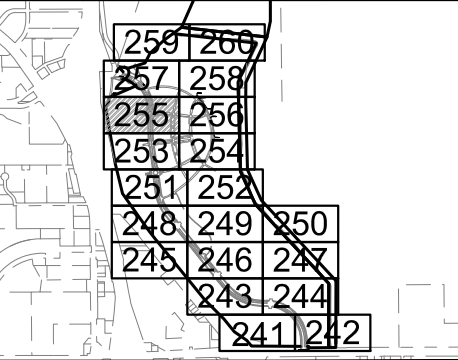
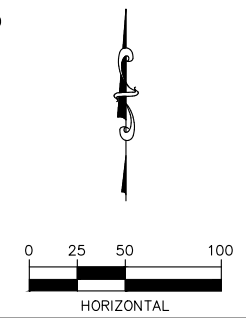
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100 SOIL BORING

MASS GRADING NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
3. ALL MATERIAL MOVED IN THE SOIL MANAGEMENT AREAS BELOW THE ELEVATION SPECIFIED, SHALL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

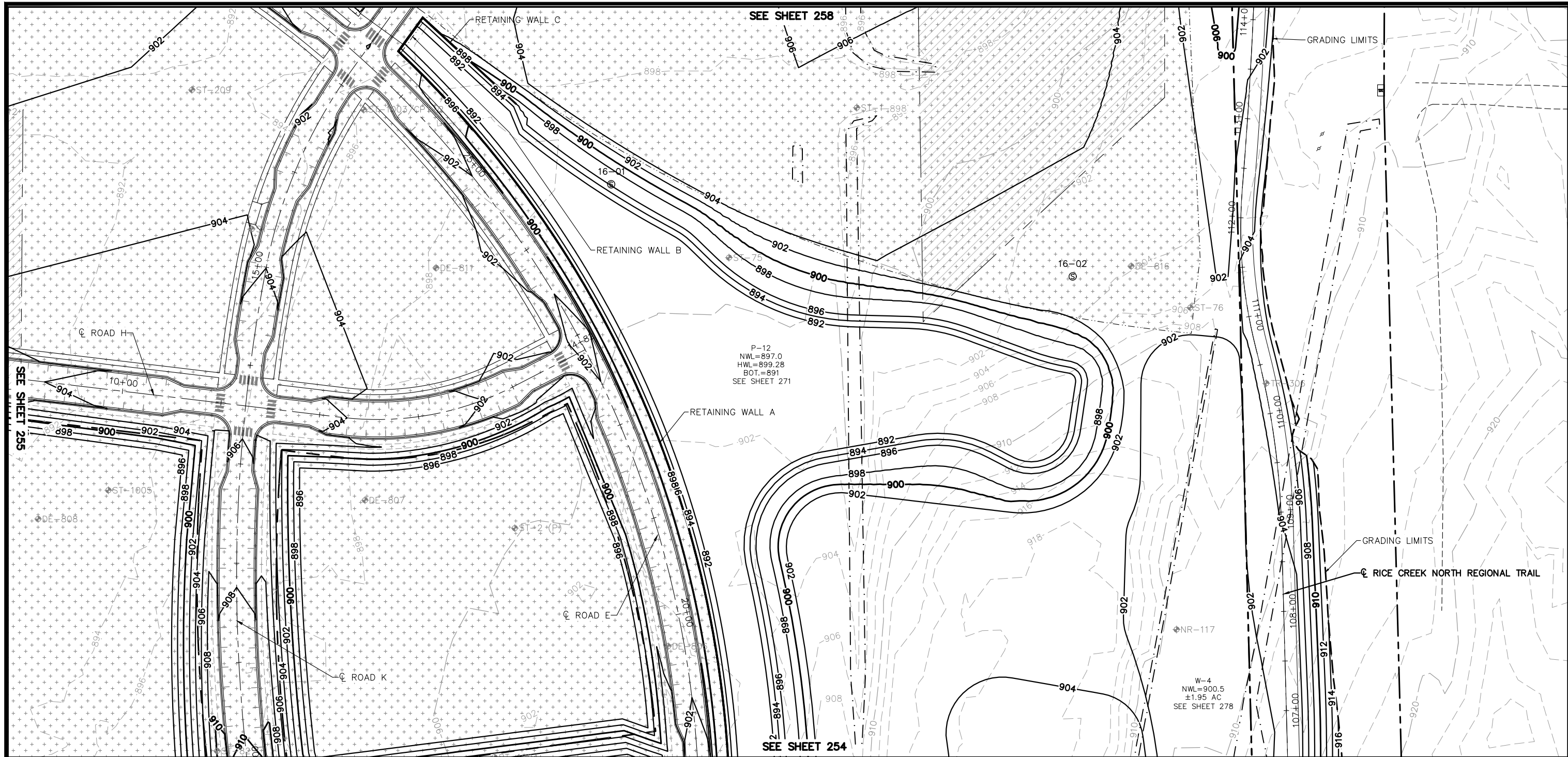
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	255
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD.dwg 177 Layout16 January 10, 2019 - 8:37am



LEGEND

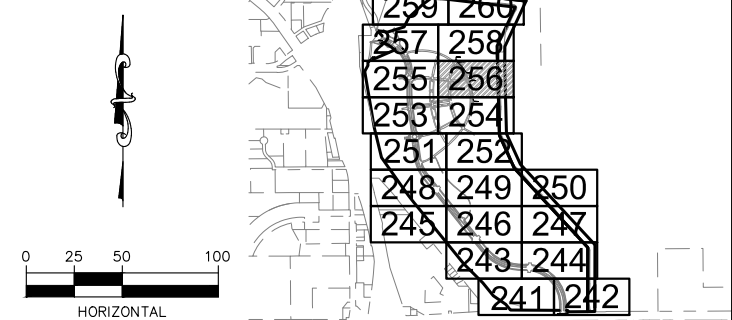
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- SOIL BORING

MASS GRADING NOTES

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

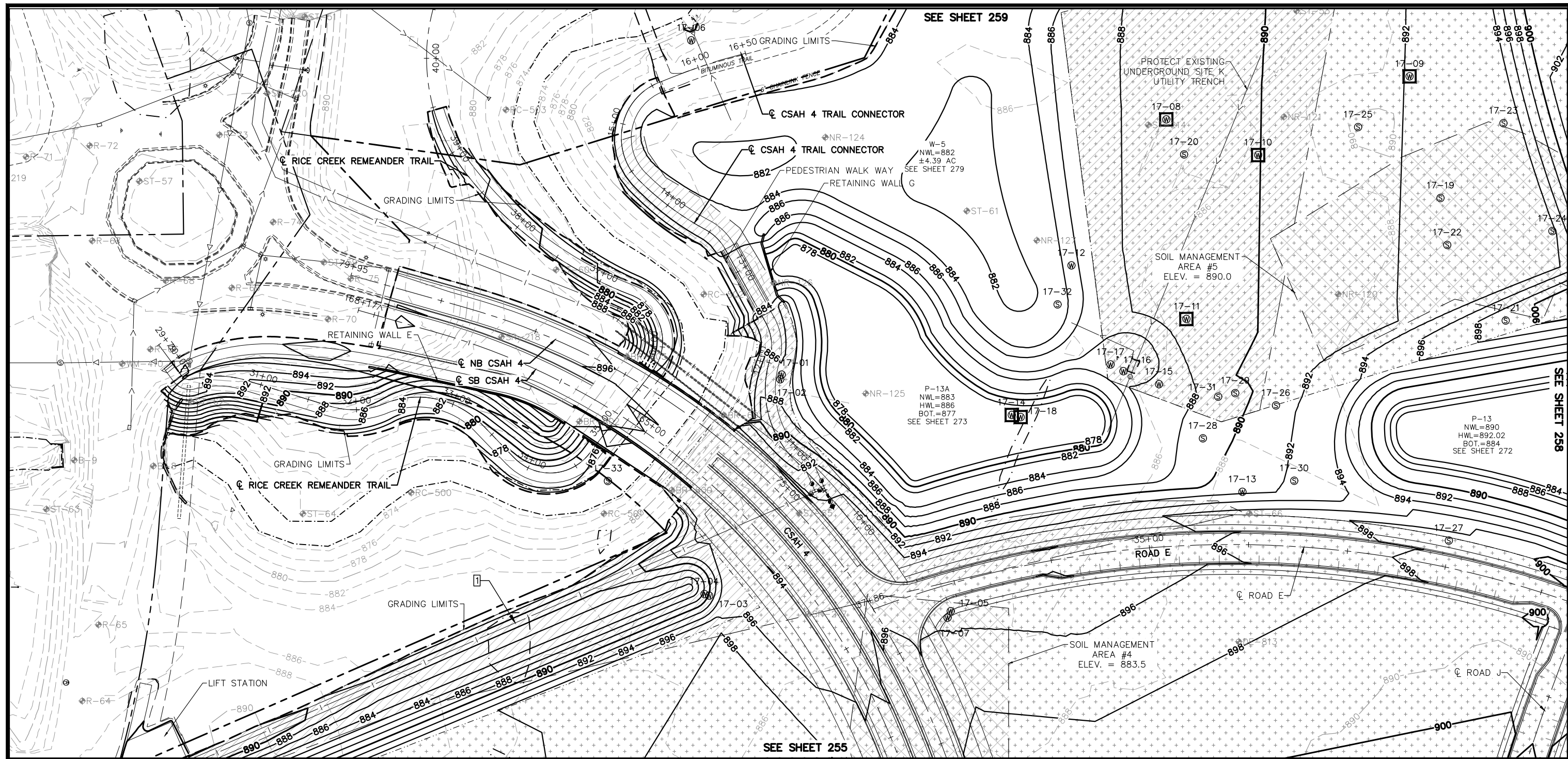
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	256
S.A.P. 062-593-004	
S.A.P.	335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_GRD.dwg 178 Layout17 January 10, 2019 - 8:38am



LEGEND	
	EXISTING FILL CORRECTION
	MUCK EXCAVATION
	APPROX. FUTURE BUILDING LOCATION
	EXISTING SEALED WELL
	EXISTING ACTIVE WELL
	SOIL MANAGEMENT AREA
	GRADING LIMITS
	SOIL BORING

- MASS GRADING NOTES**
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REMOVAL NOTE LEGEND

10' MAINTENANCE ACCESS ROAD

0 25 50 100
HORIZONTAL

259	260	
257	258	
255	256	
253	254	
251	252	
248	249	250
245	246	247
243	244	
241	242	

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
		DESIGNED BY:	ERW	
		DRAWN BY:	ERW	
		CHECKED BY:	CBL	
		DATE:	01/04/19	
		PROJECT NO.	160553004	

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

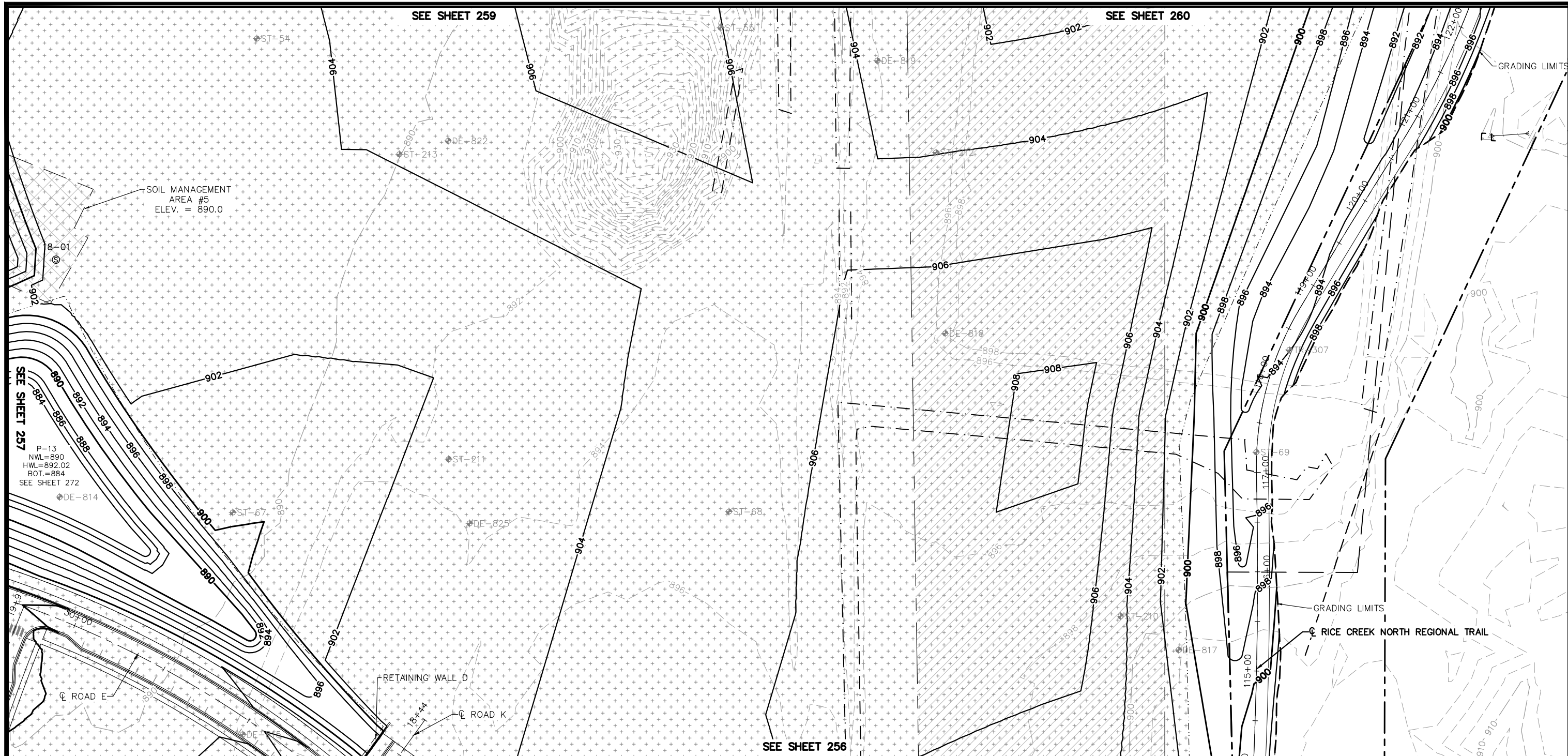
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	257
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

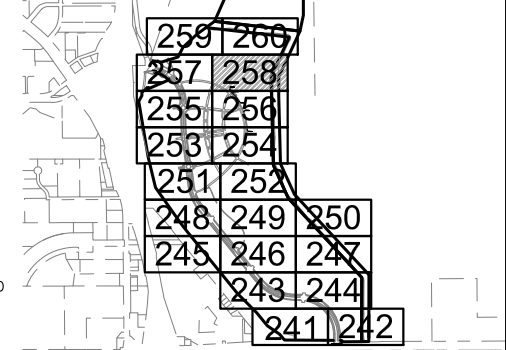
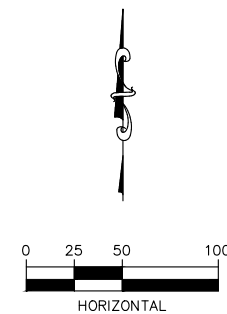
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- ST-100 SOIL BORING

MASS GRADING NOTES

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2. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA."
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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

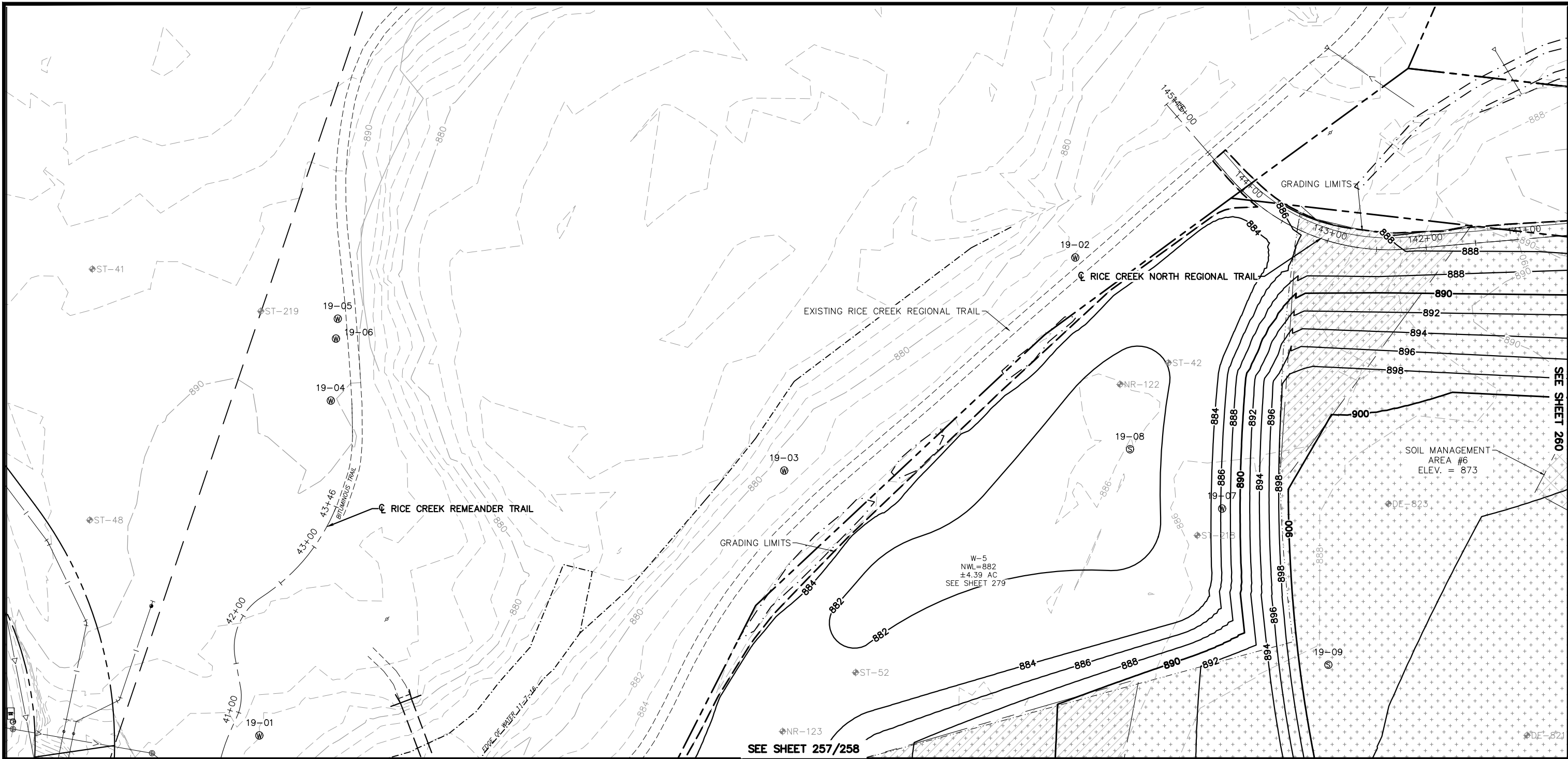
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO. 258
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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LEGEND

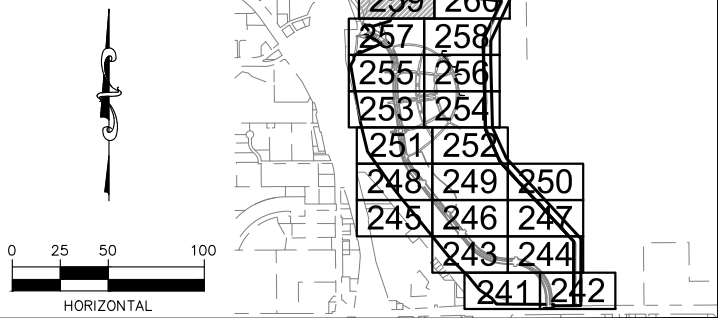
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- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27 EXISTING SEALED WELL
- 17-27 EXISTING ACTIVE WELL
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- GRADING LIMITS
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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
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				PROJECT NO. 160553004

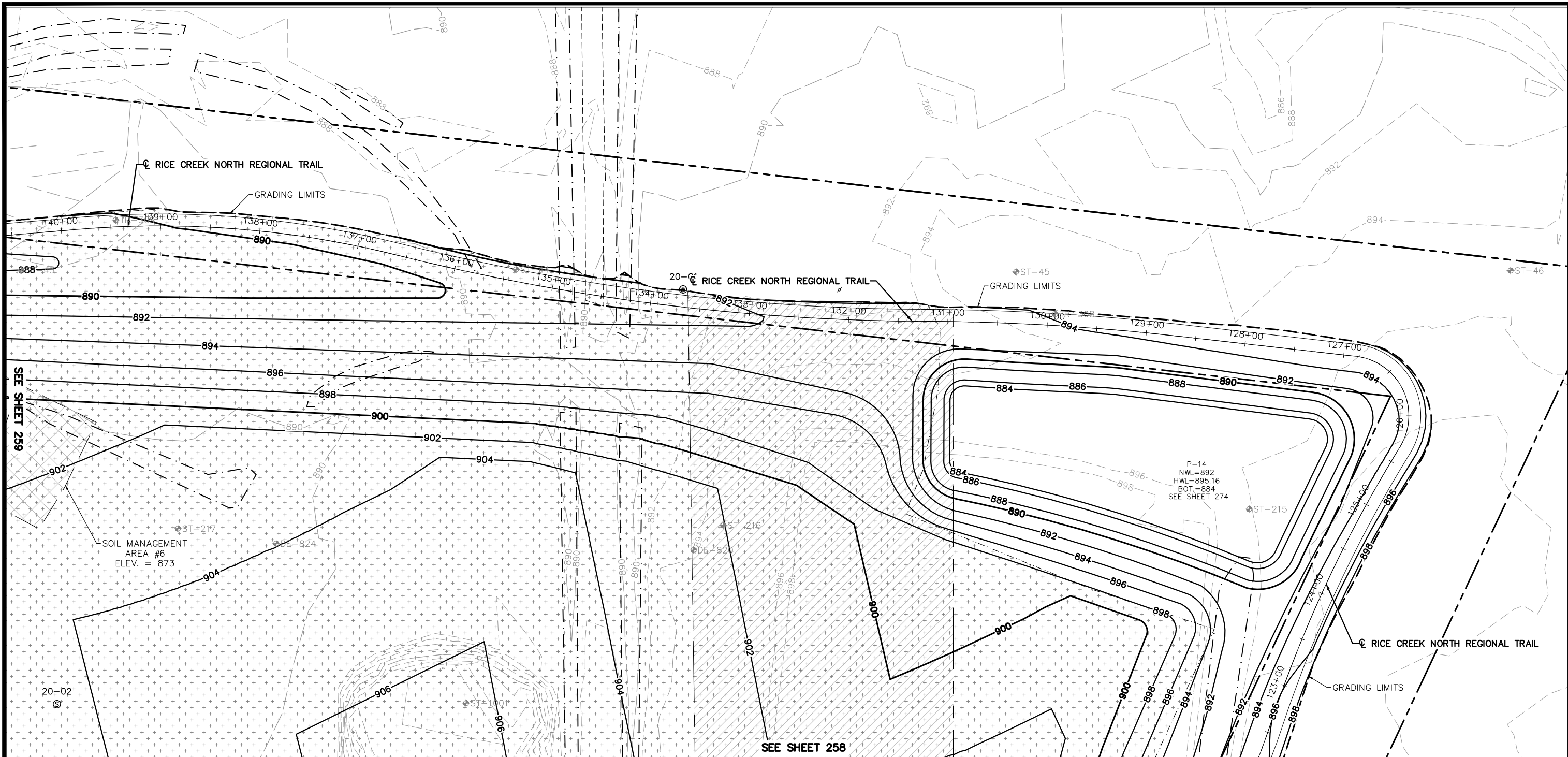
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	SHEET NO.
COUNTY PROJECT	259
S.A.P. 062-593-004	
S.A.P.	335

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LEGEND

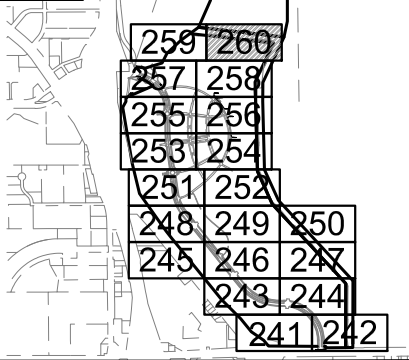
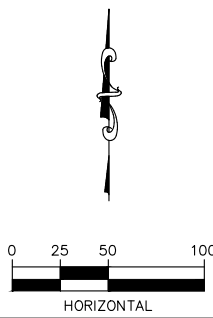
- EXISTING FILL CORRECTION
- MUCK EXCAVATION
- APPROX. FUTURE BUILDING LOCATION
- 17-27
EXISTING SEALED WELL
- 17-27
EXISTING ACTIVE WELL
- SOIL MANAGEMENT AREA
- GRADING LIMITS
- SOIL BORING

MASS GRADING NOTES

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REMOVAL NOTE LEGEND

- 10' MAINTENANCE ACCESS ROAD



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_GRD.dwg
				DESIGNED BY: ERW
				DRAWN BY: ERW
				CHECKED BY: CBL
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

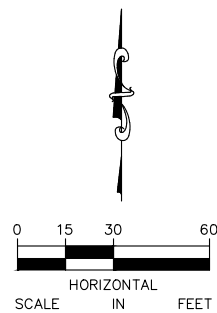
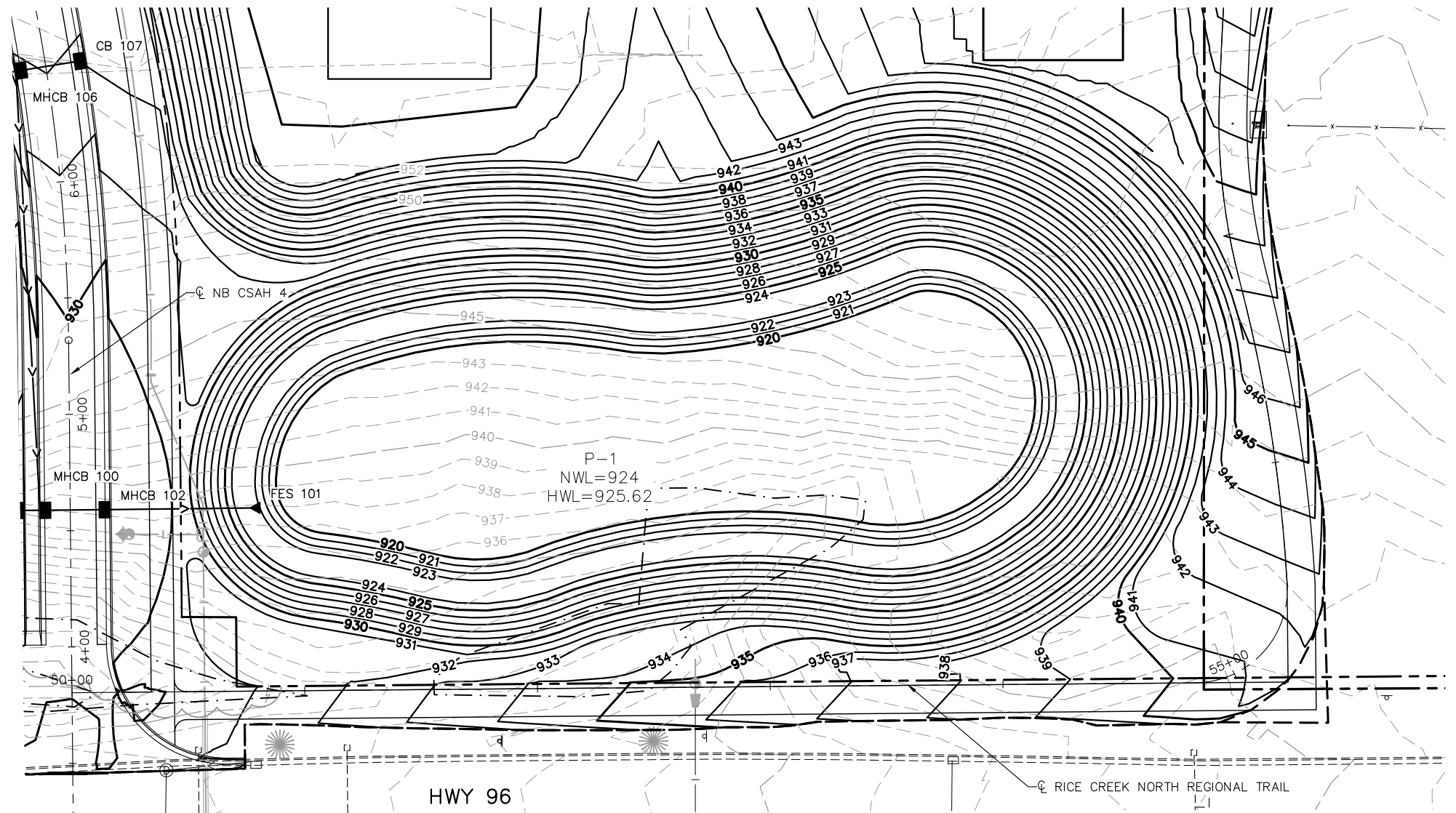
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 260
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Pond 1 January 10, 2019 - 8:44am



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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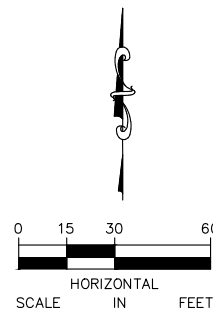
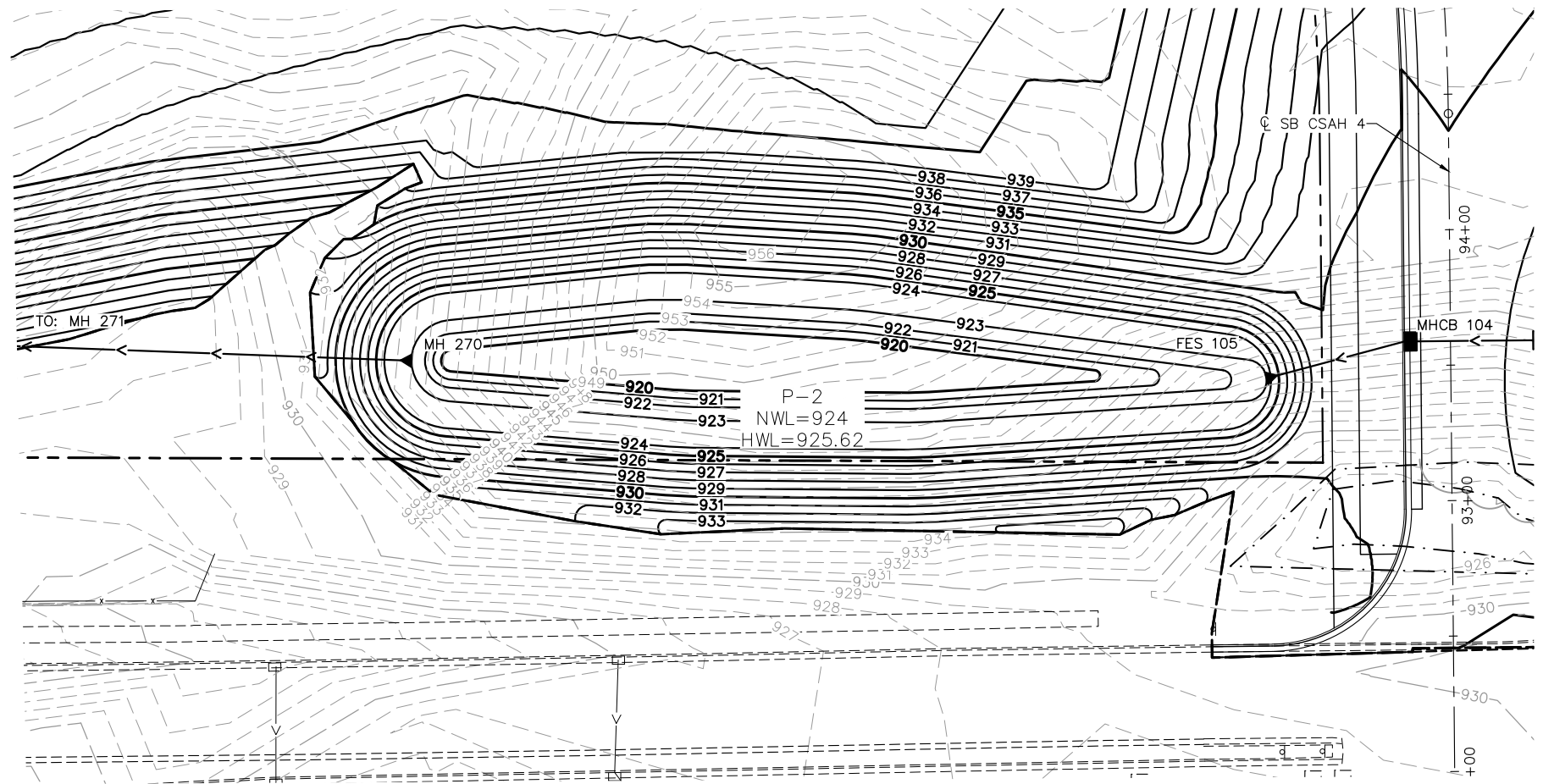
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 1 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 261
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Pond 2 January 10, 2019 - 8:45am



No.	Date	Revisions

App.	DESCRIPTION
	DRAWING NAME TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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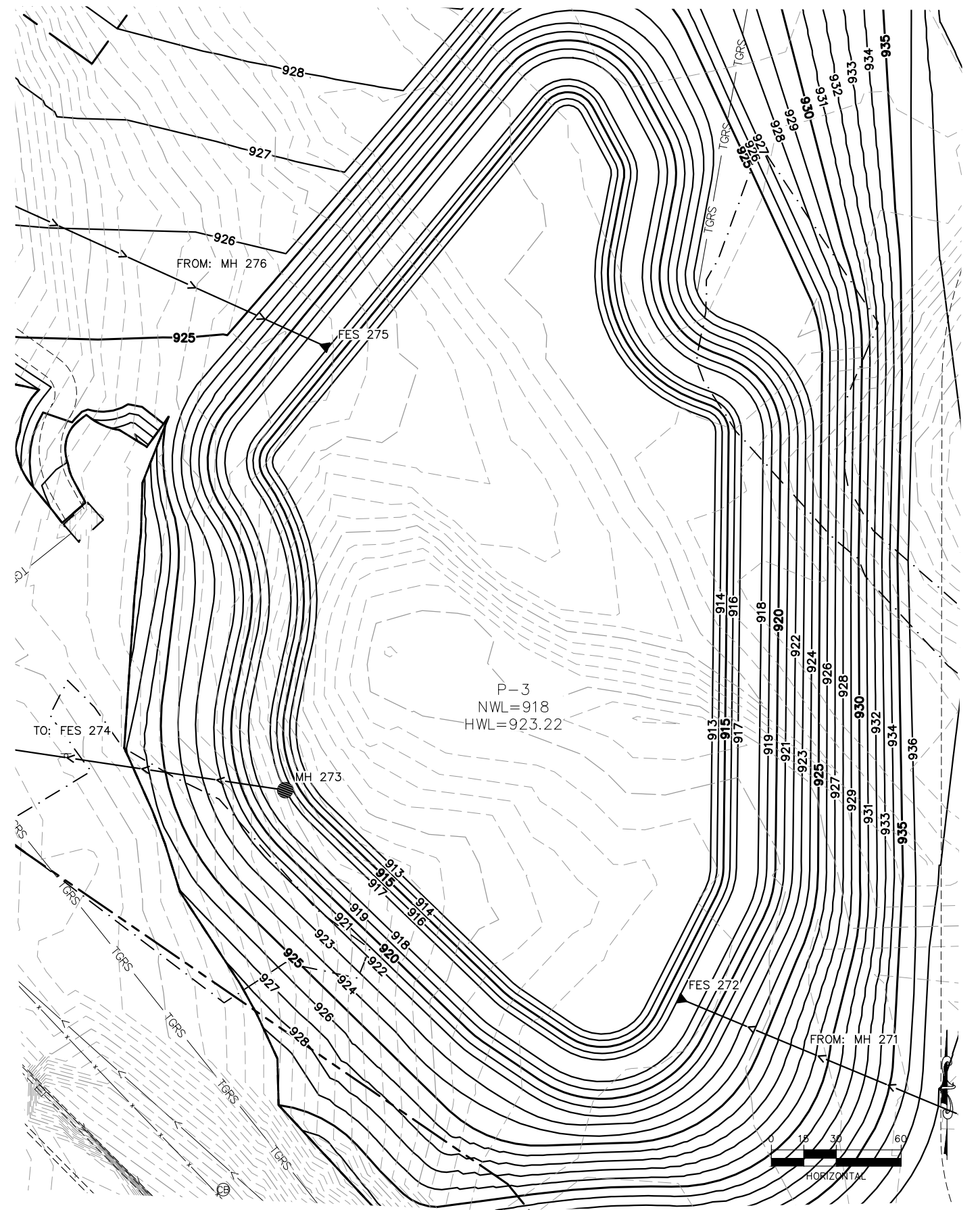
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 2 DETAIL

CITY PROJECT	SHEET NO. 262
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Pond 3 January 10, 2019 - 8:46am



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PND.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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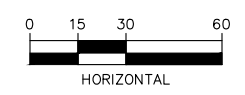
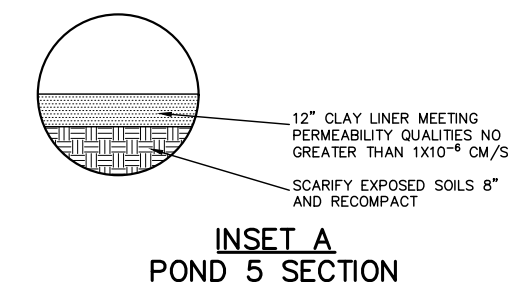
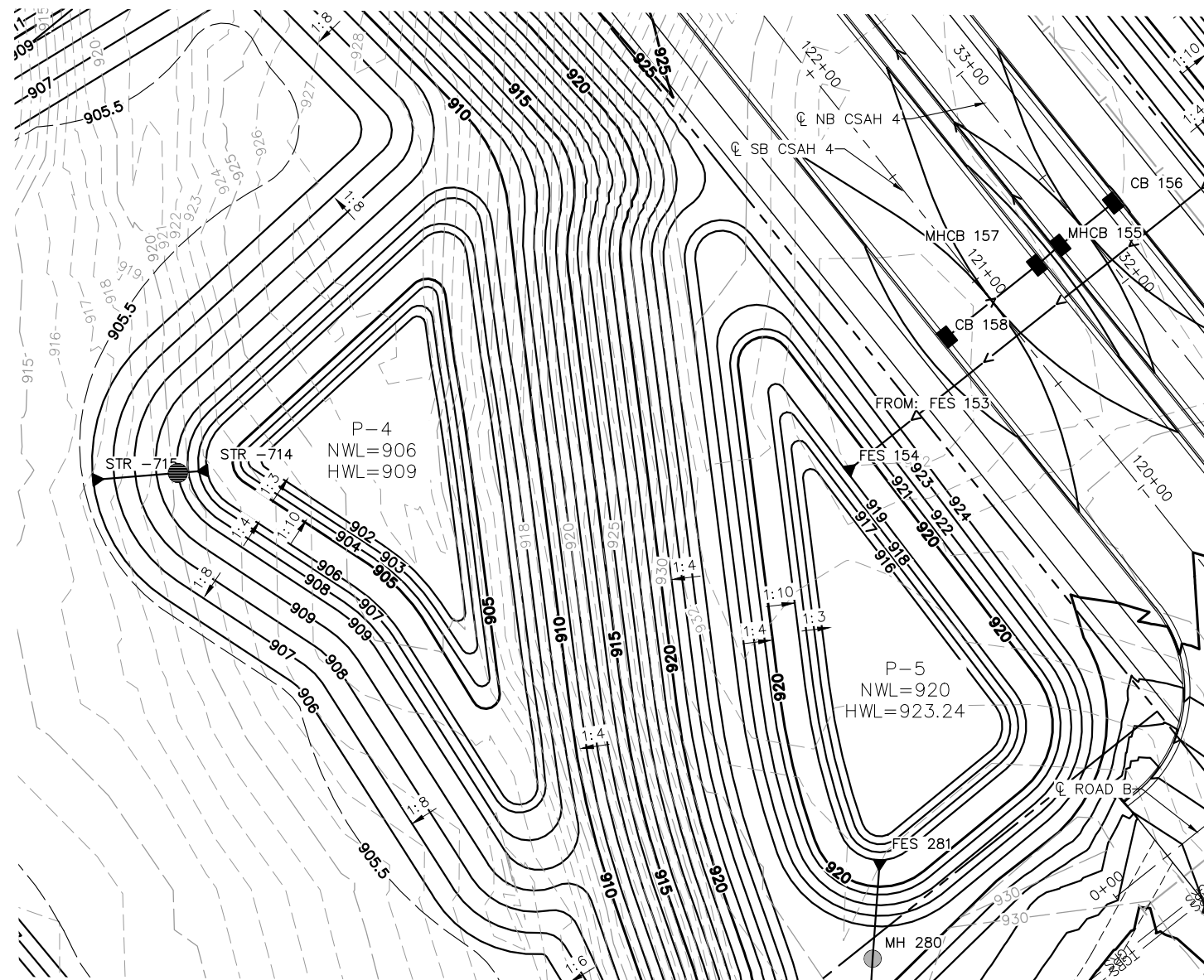
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 3 DETAIL

CITY PROJECT	SHEET NO. 263
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

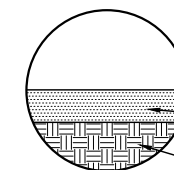
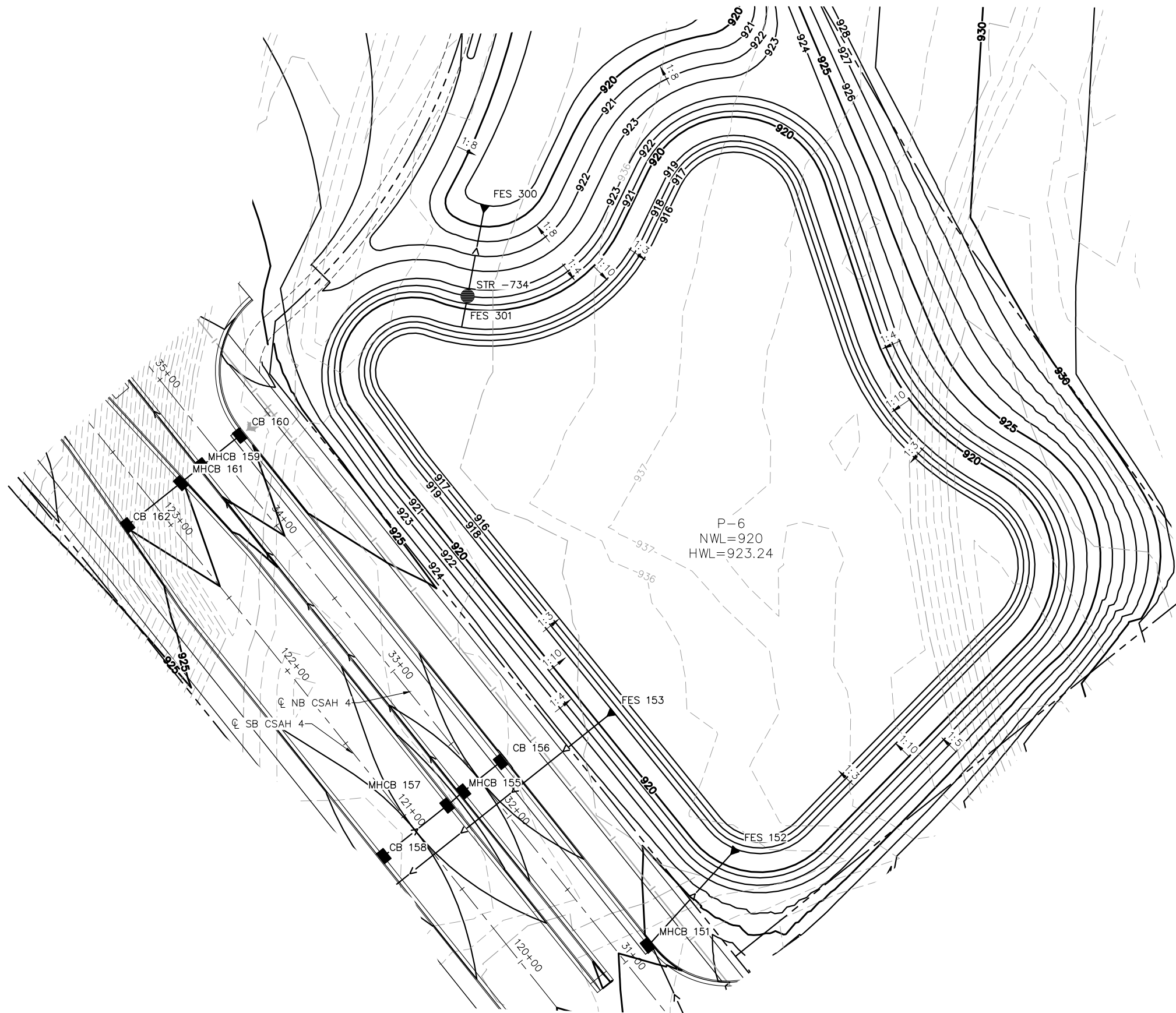
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLAN
POND 4 & 5 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
264

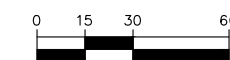
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K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Pond 6 January 10, 2019 - 8:48am



24" CLAY LINER MEETING PERMEABILITY QUALITIES NO GREATER THAN 1×10^{-9} CM/S
 SCARIFY EXPOSED SOILS 8" AND RECOMPACT

INSET A
POND 6 SECTION



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

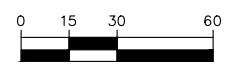
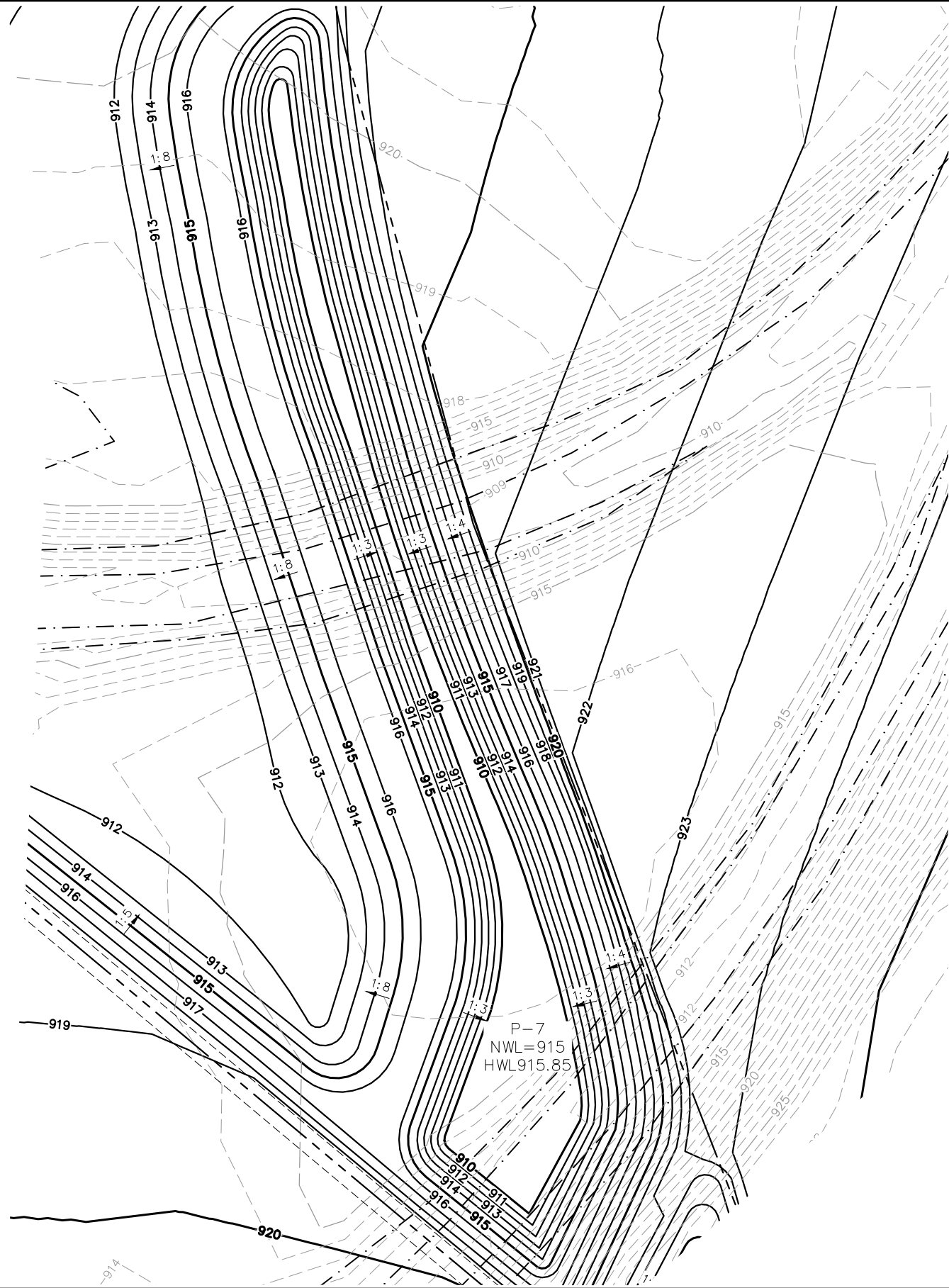
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 6 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
265
335

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No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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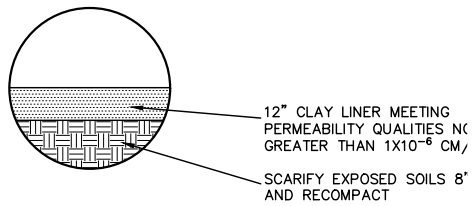
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 7 DETAIL

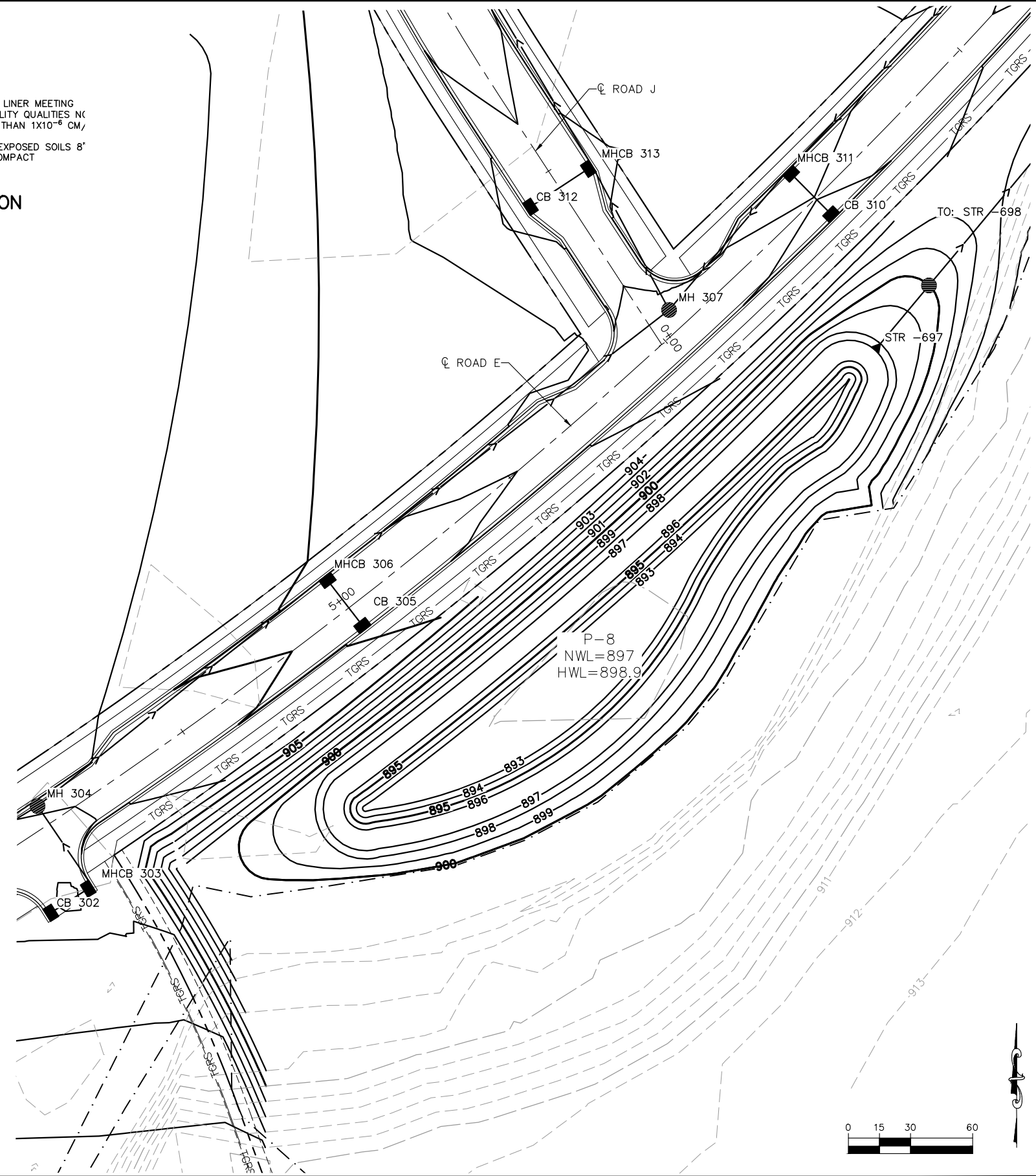
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
266
335

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INSET A
POND 8 SECTION



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
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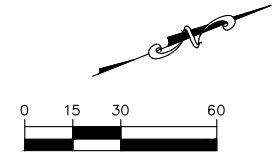
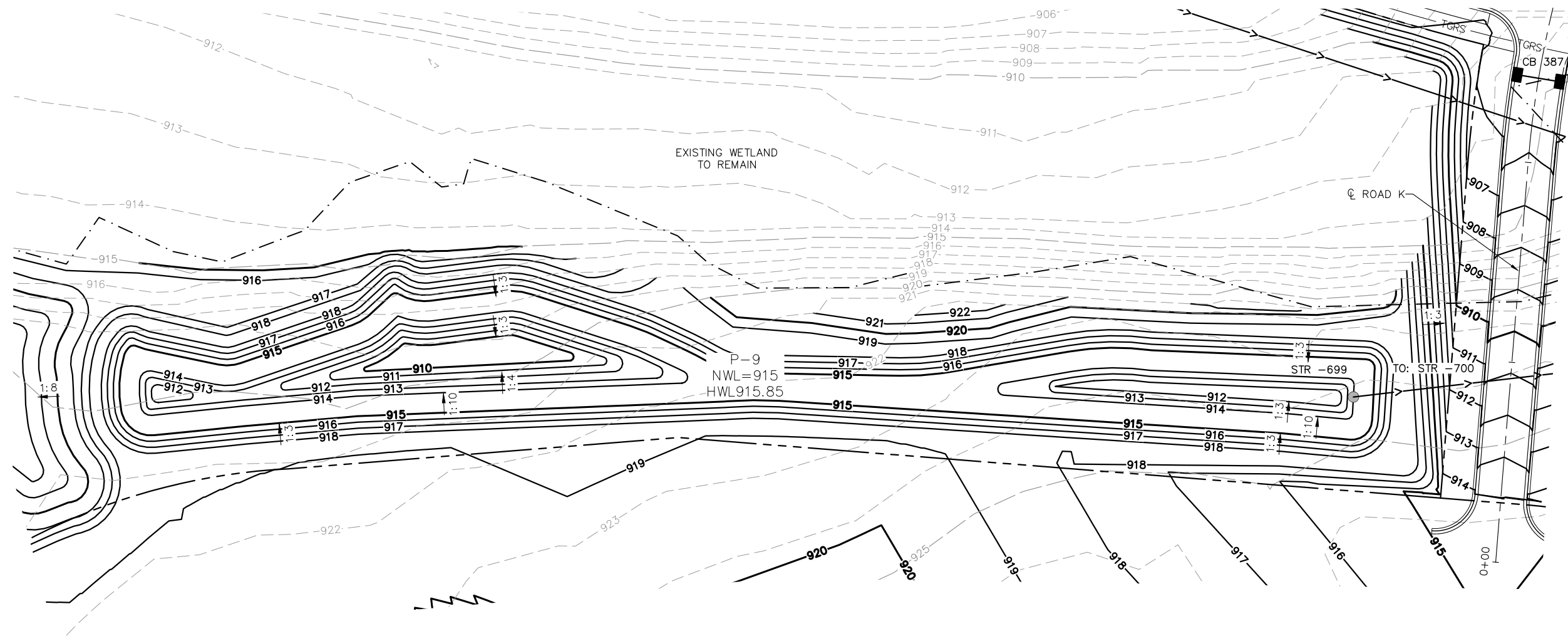
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLAN
POND 8 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
267
335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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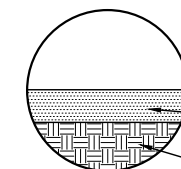
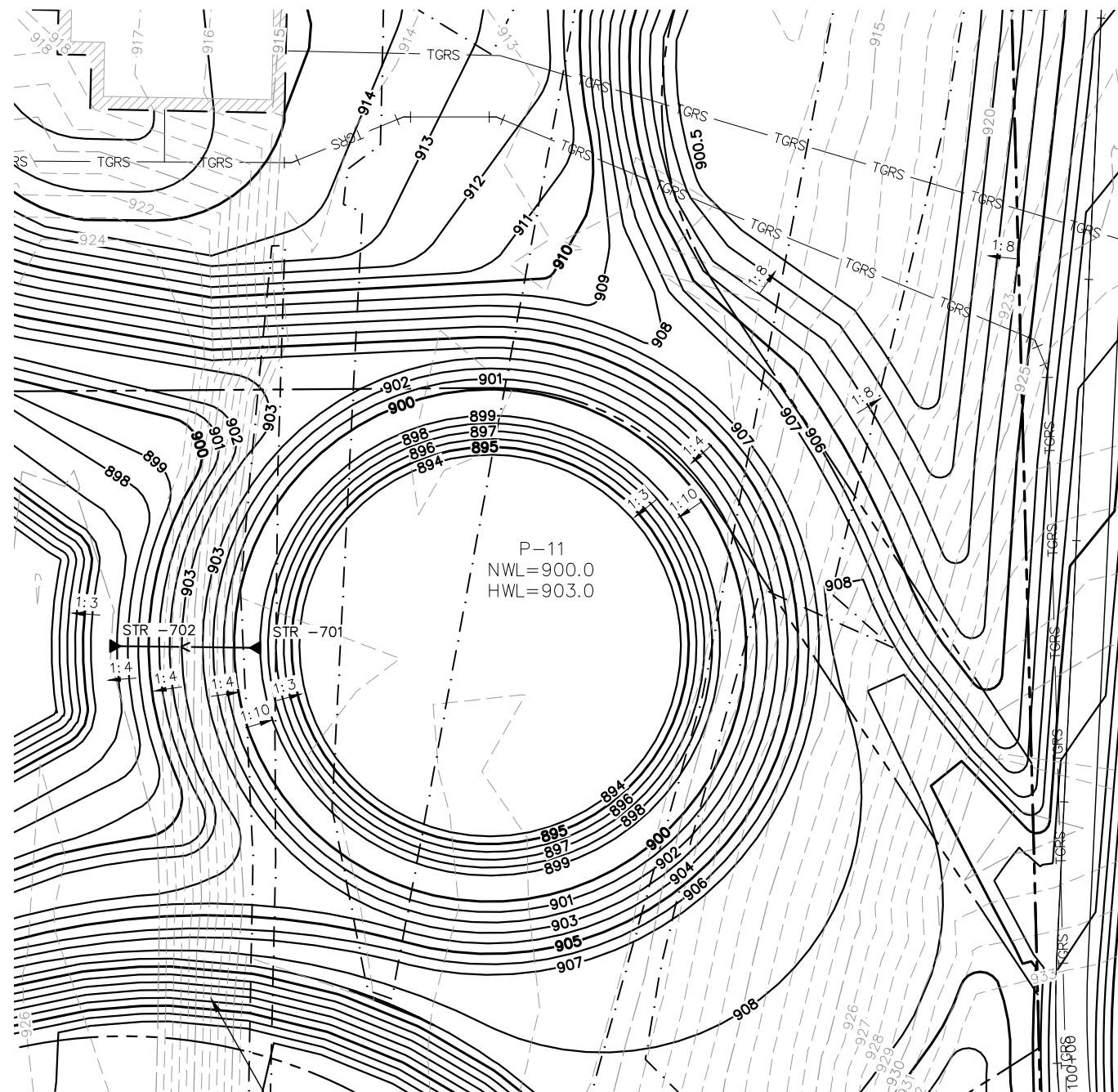
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 9 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

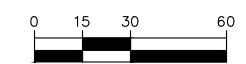
SHEET NO.
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24" CLAY LINER MEETING PERMEABILITY QUALITIES NO GREATER THAN 1×10^{-6} CM/S
SCARIFY EXPOSED SOILS 8" AND RECOMPACT

INSET A
POND 13 SECTION



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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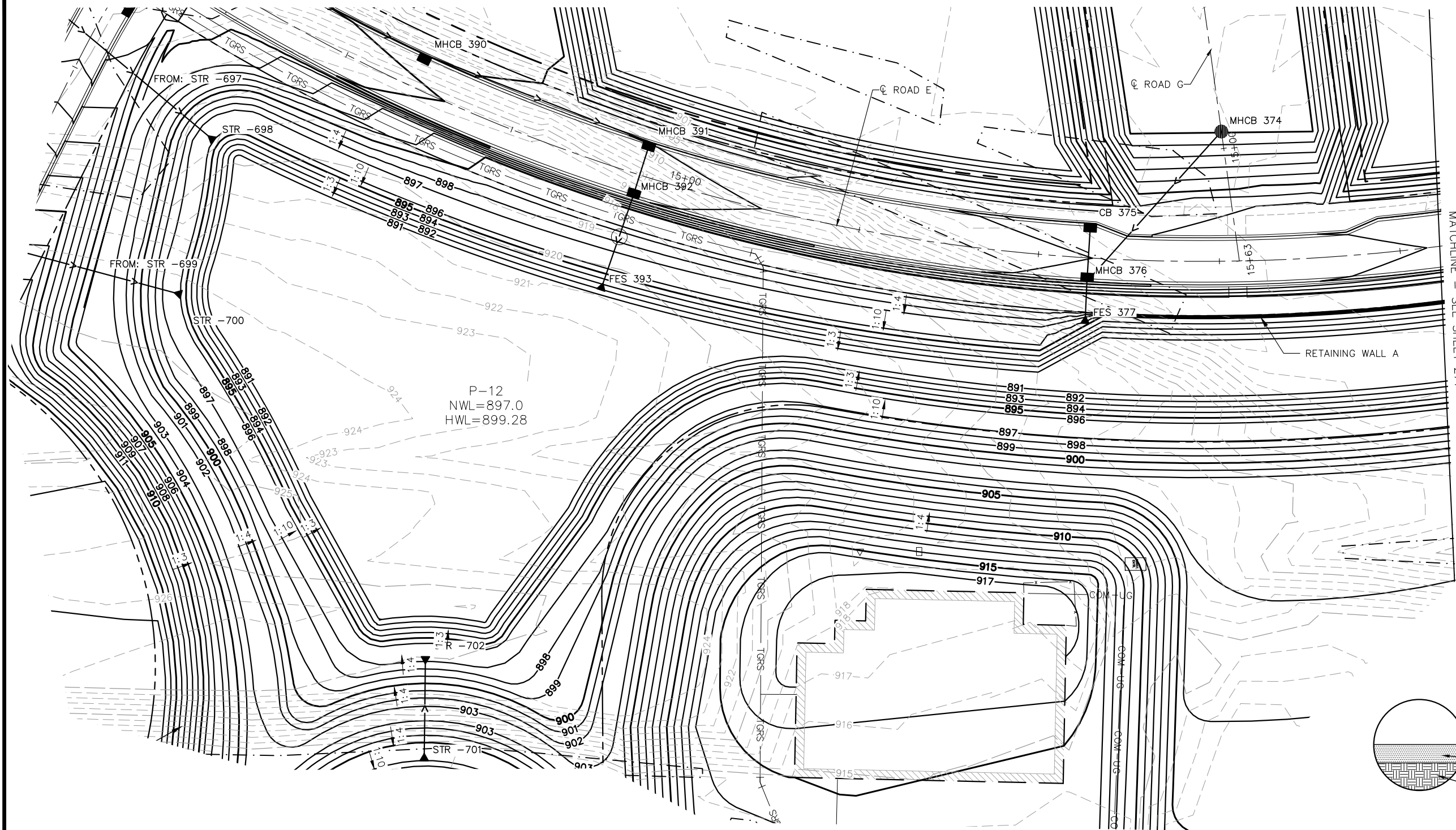
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLAN
POND 11 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

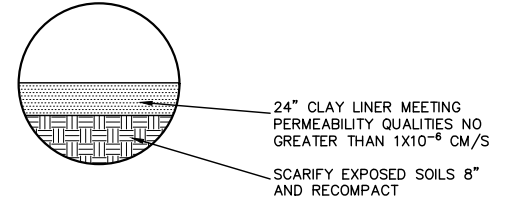
SHEET NO.
269
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MATCHLINE - SEE SHEET 271

P-12
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 HWL=899.28



INSET A
 POND 12 SECTION

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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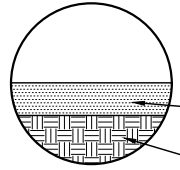
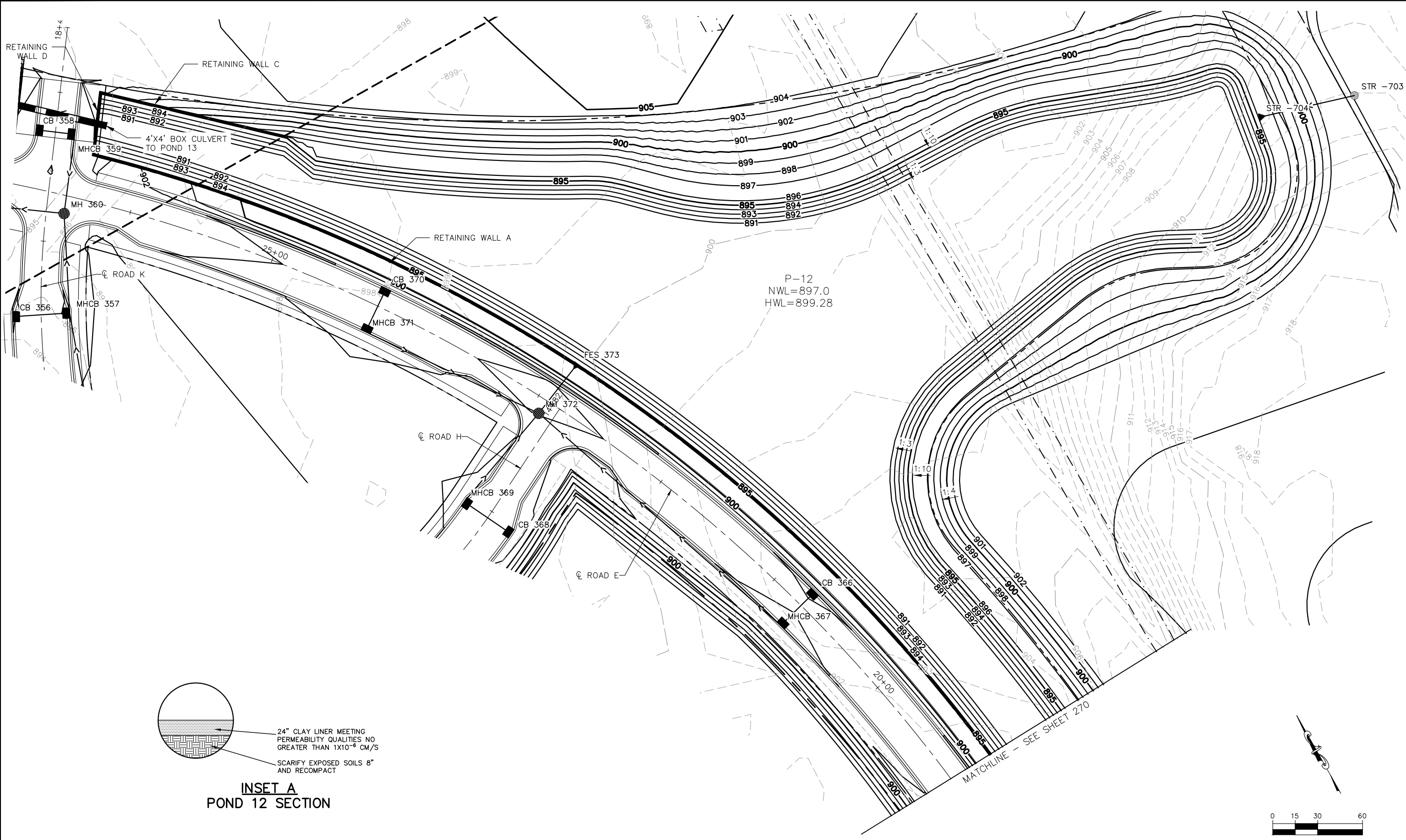
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 12 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

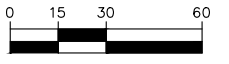
SHEET NO.
 270
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24" CLAY LINER MEETING PERMEABILITY QUALITIES NO GREATER THAN 1×10^{-6} CM/S
SCARIFY EXPOSED SOILS 8" AND RECOMPACT

INSET A
POND 12 SECTION



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	16053004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

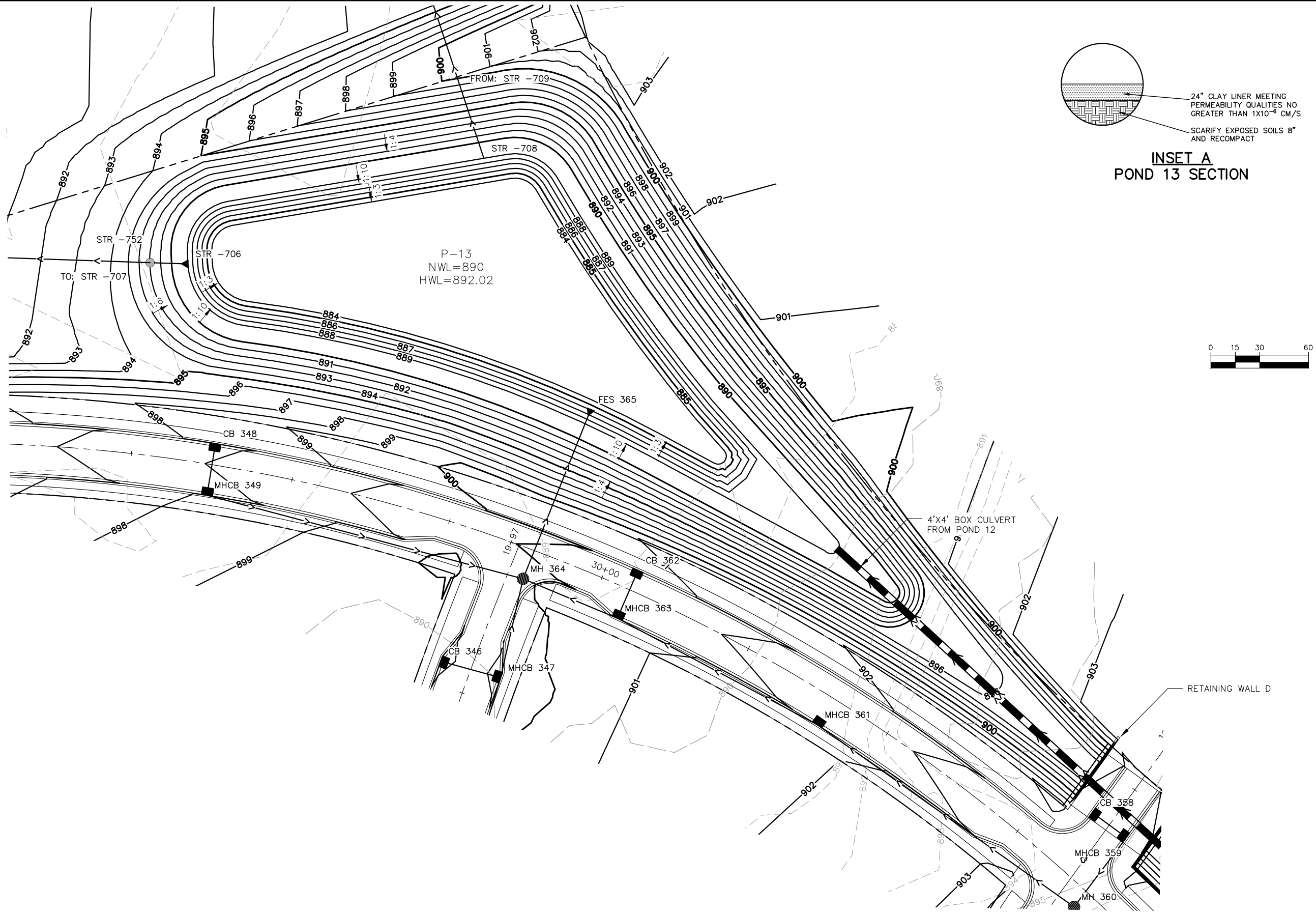
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLAN
POND 12 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
271

335

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

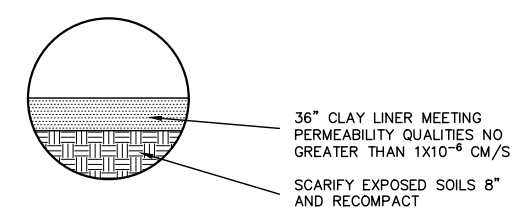
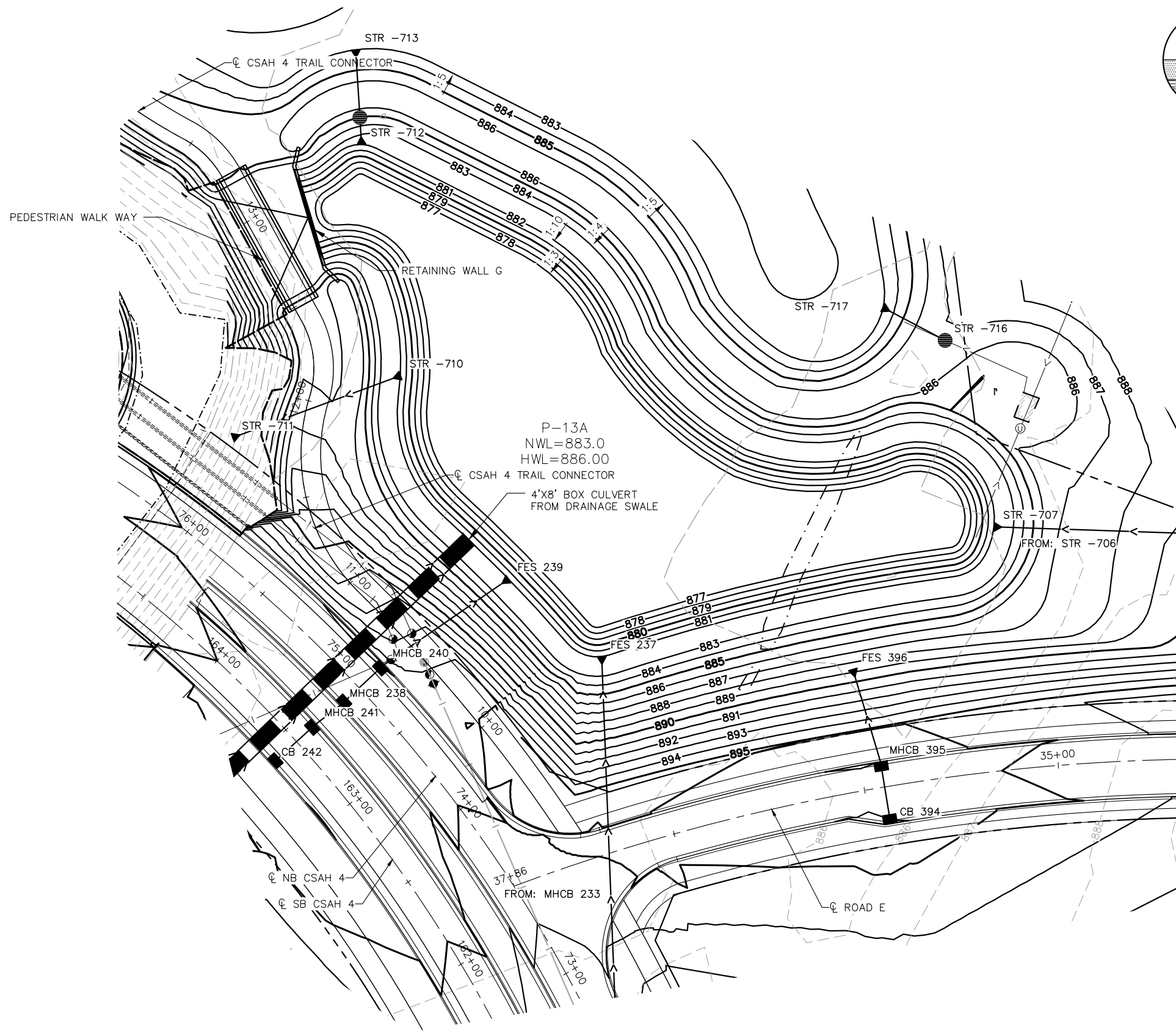
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLAN
POND 13 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

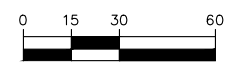
SHEET NO.
272

335

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INSET A
POND 13A SECTION



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
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DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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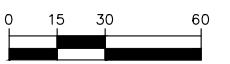
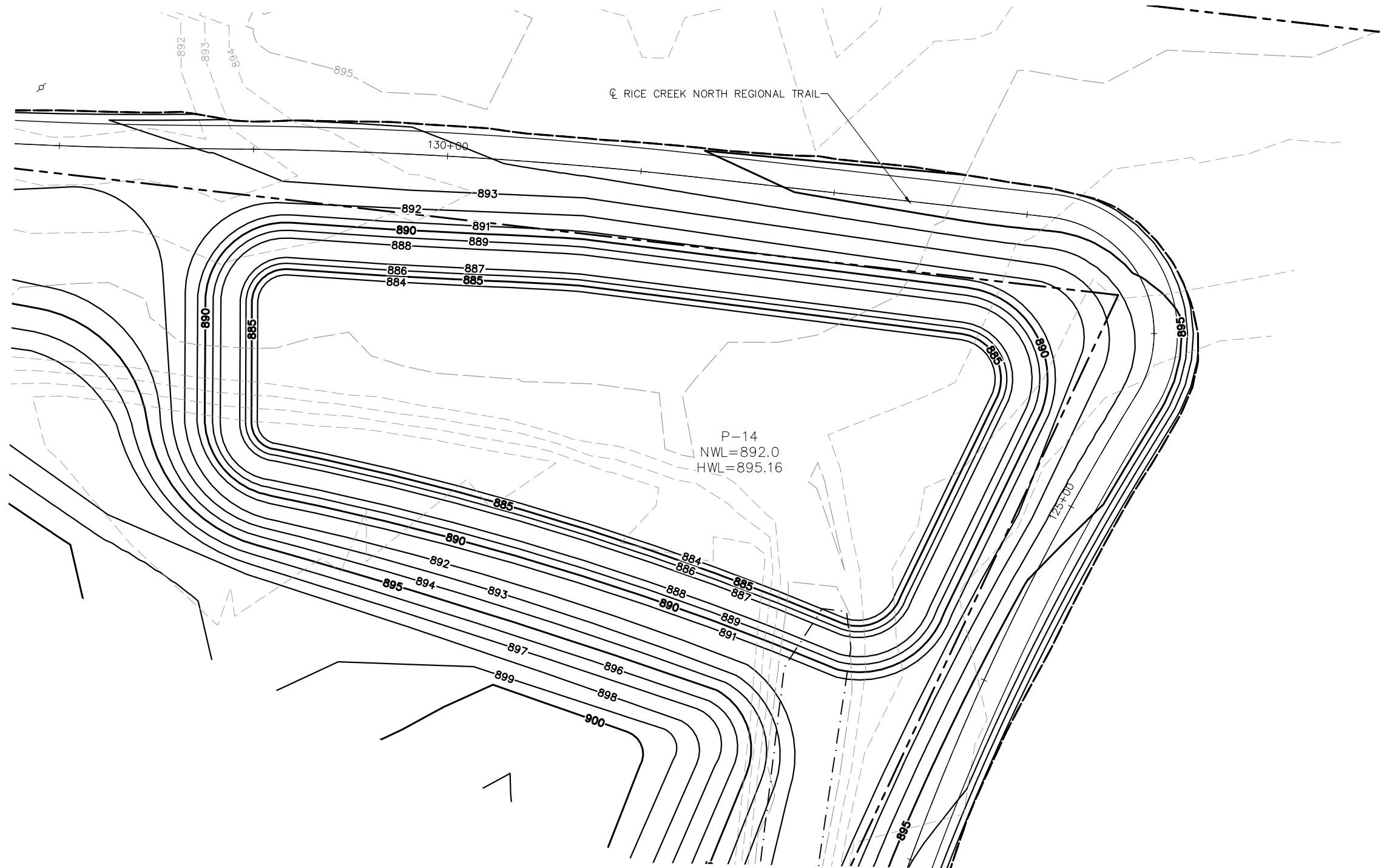
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 13A DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
273
335

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No.	Date	Revisions

App.	DRAWING NAME
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	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

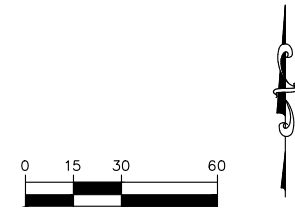
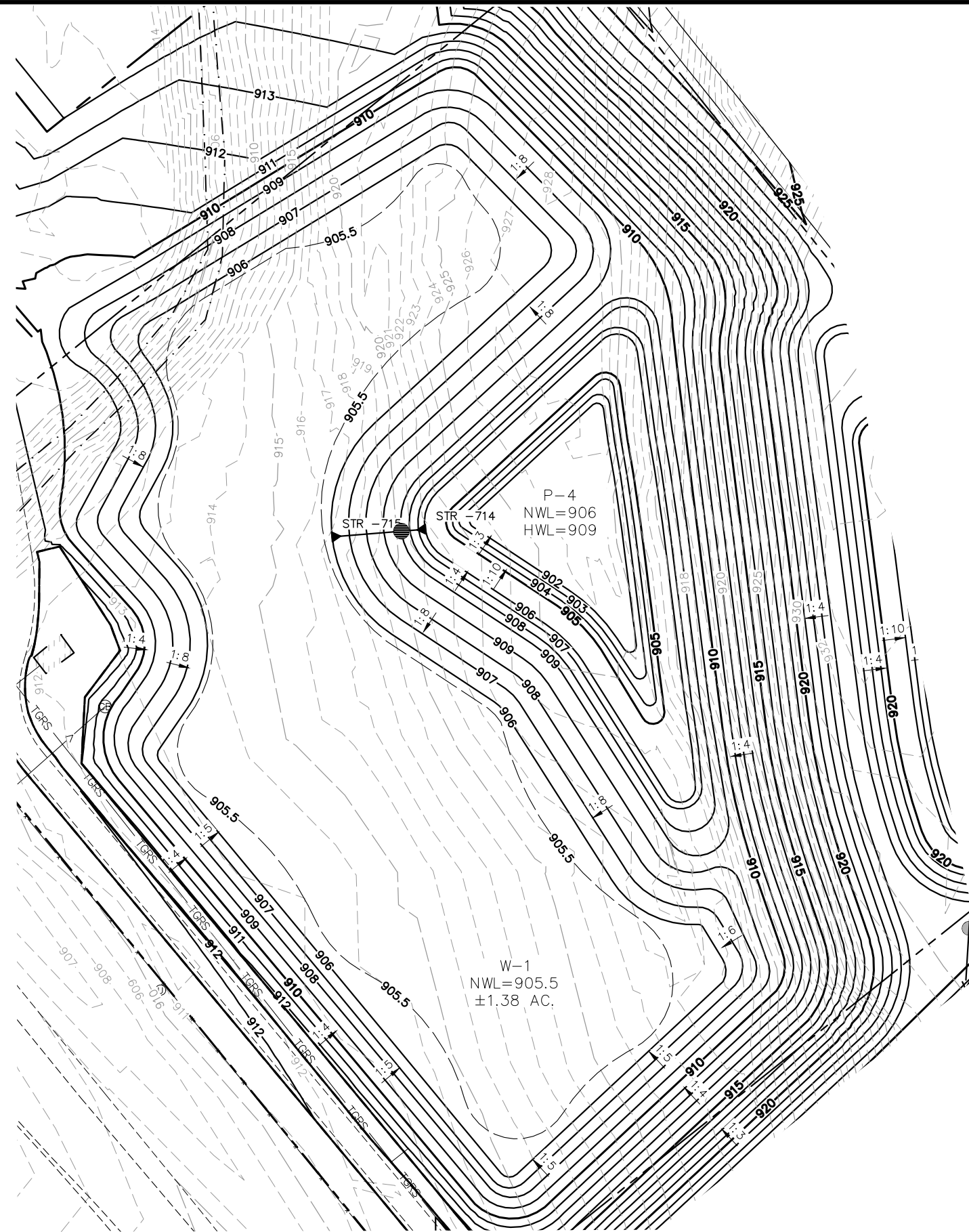
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 POND 14 DETAIL

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
274

335

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_PND.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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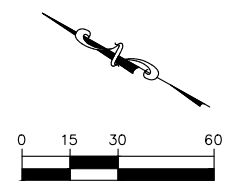
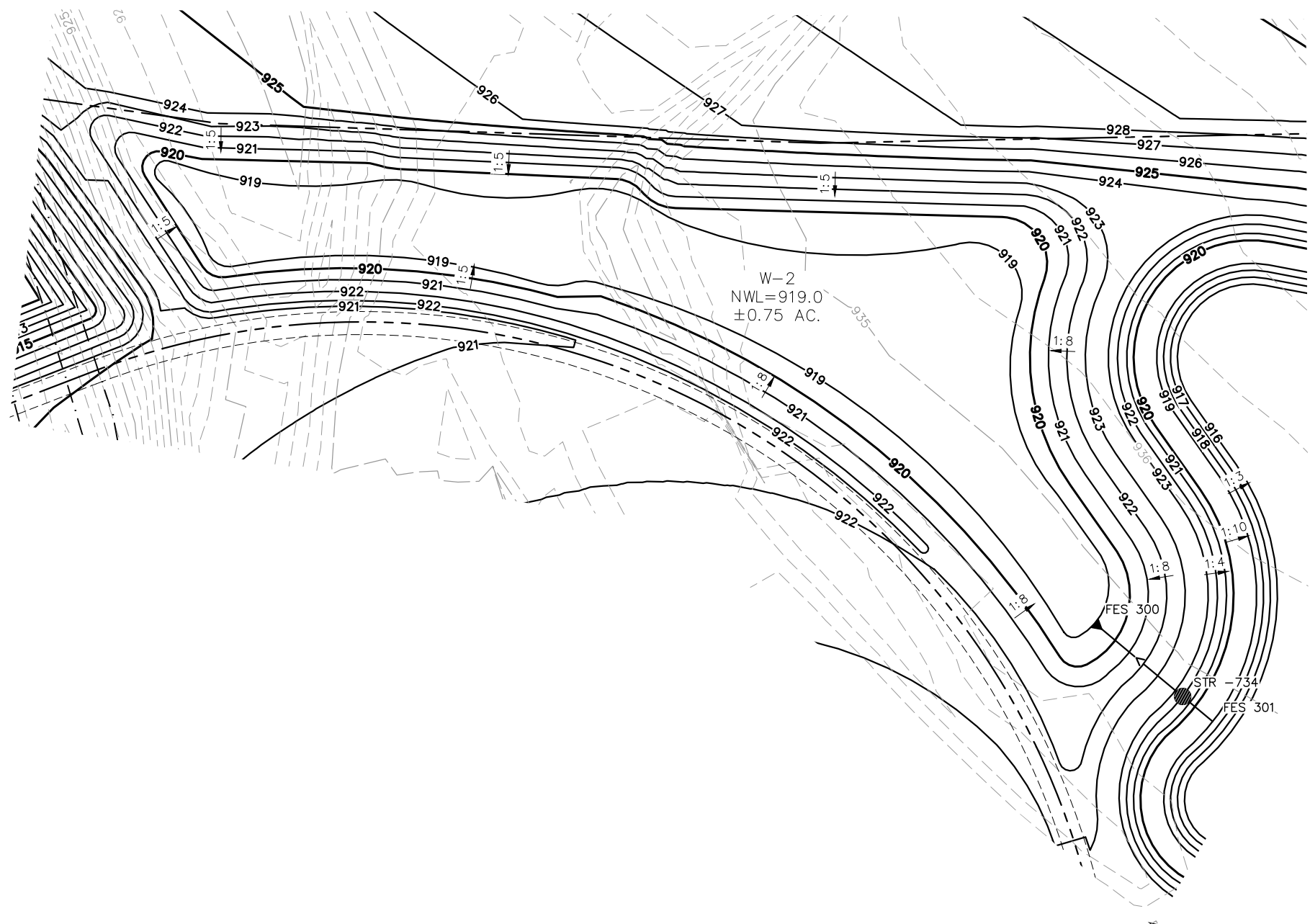
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 WETLAND 1 MITIGATION PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
275
335

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No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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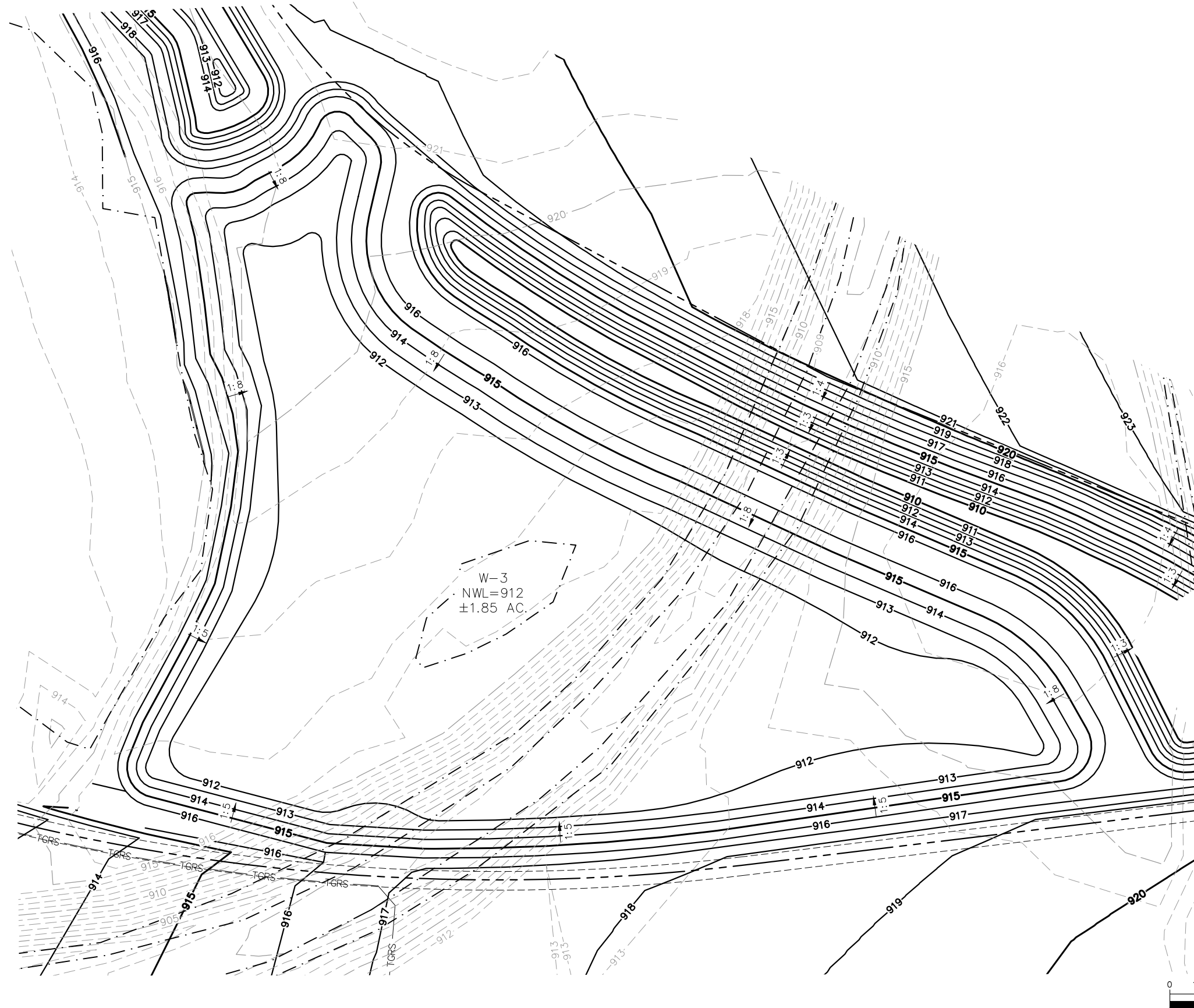
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 WETLAND 2 MITIGATION PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
 276
 335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Wetland 3 January 10, 2019 - 8:58am



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn

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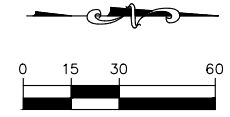
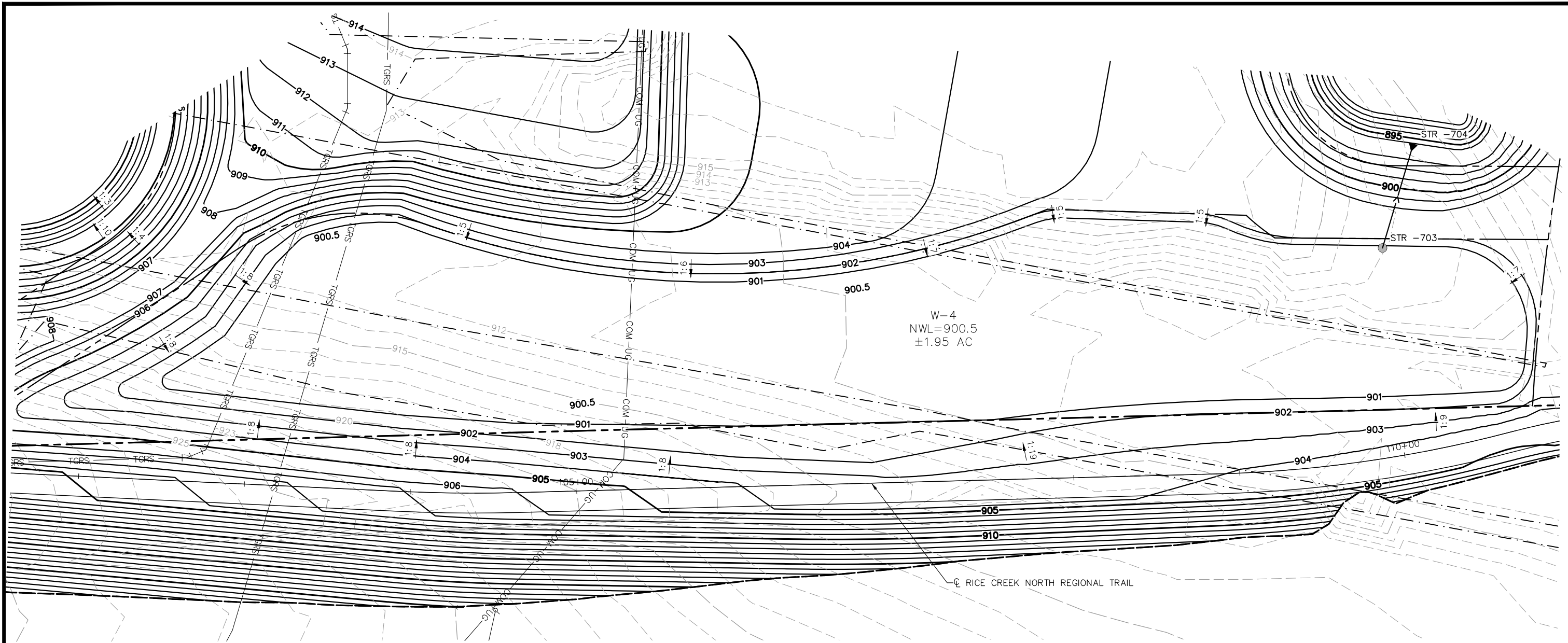
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 WETLAND 3 MITIGATION PLAN

CITY PROJECT	SHEET NO. 277
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_PND.dwg
	DESIGNED BY: ERW
	DRAWN BY: ERW
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 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

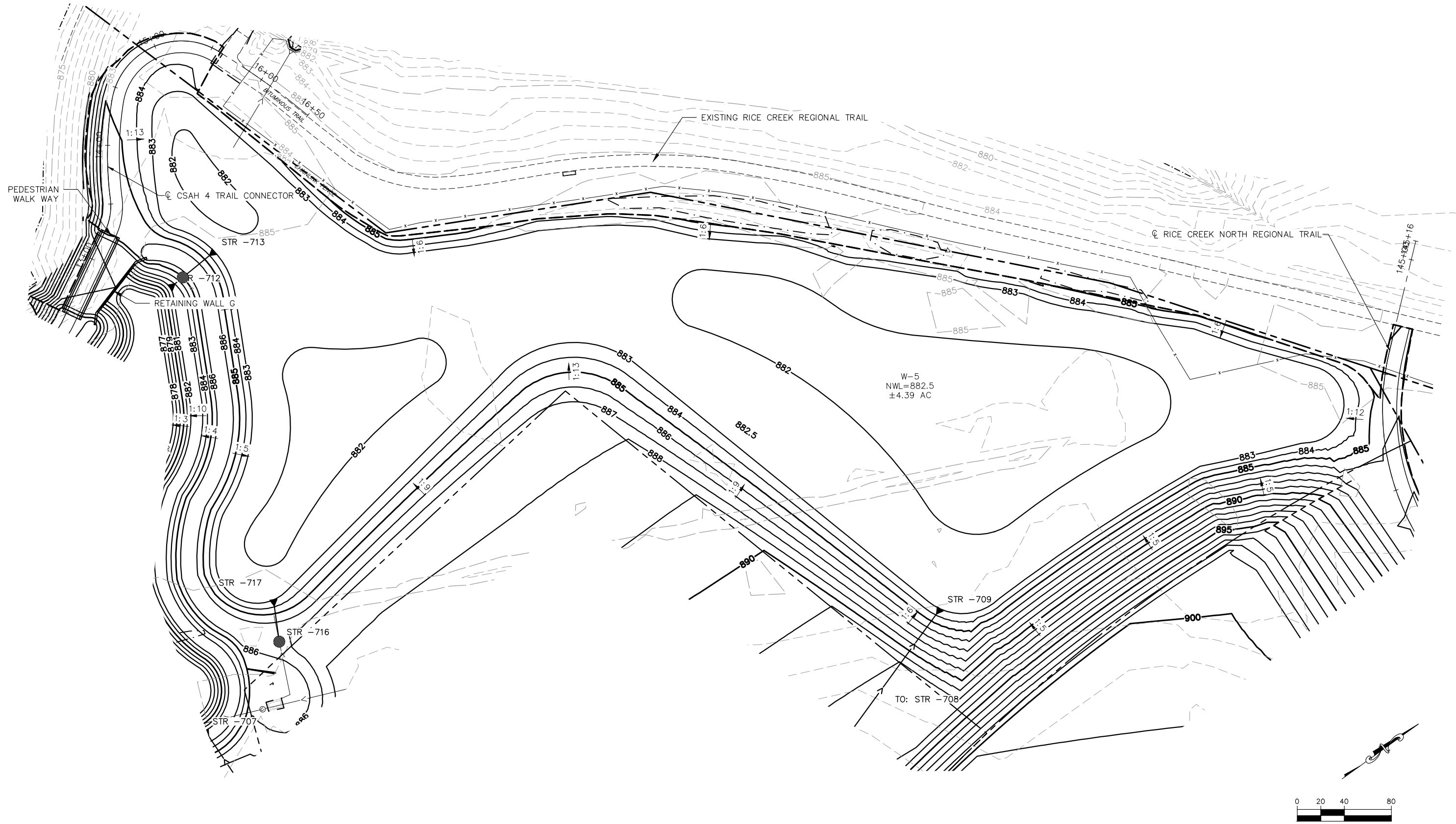
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 WETLAND 4 MITIGATION PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
278

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_PND.dwg Wetland 5 January 10, 2019 - 8:59am



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_PND.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

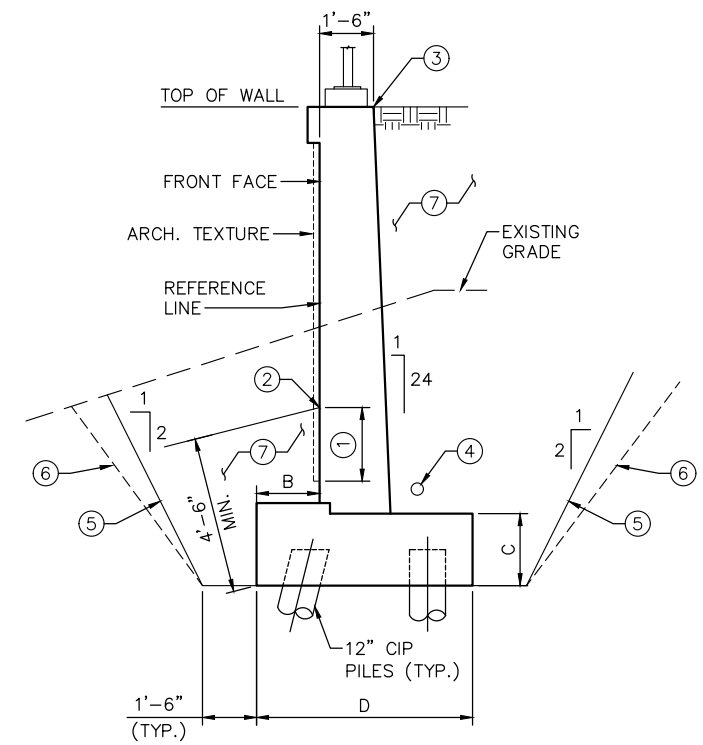
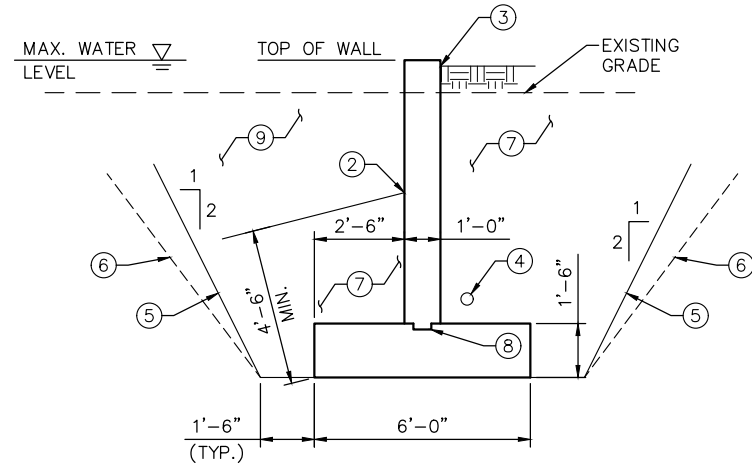
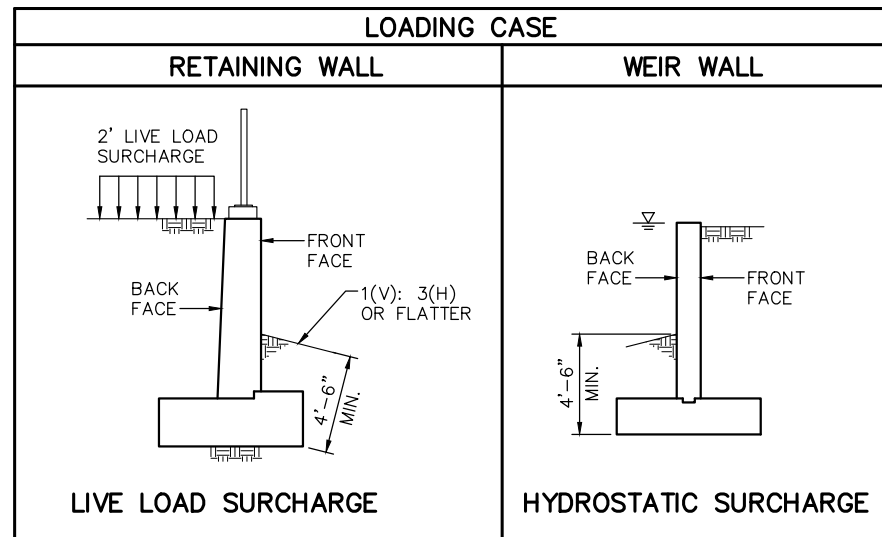
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 MASS GRADING PLAN
 WETLAND 5 MITIGATION PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
279

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_RTWL_DET.dwg Layout1 January 10, 2019 - 8:59am



GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. PRIOR TO EXCAVATION VERIFY THE LOCATION OF EXISTING FACILITIES AND EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO MnDOT SPEC. 2451.

CONCRETE:
ALL CONCRETE SHALL CONFORM TO MnDOT SPEC. 2461.

TRANSVERSE CONSTRUCTION JOINTS IN FOOTING ARE PERMISSIBLE. KEYWAYS AND CONTINUOUS REINFORCEMENT ARE REQUIRED THROUGH THESE JOINTS.

THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF PATTERN. CONCRETE NEEDED FOR THE TEXTURING IS INCIDENTAL.

POURING SEQUENCE:
THE POURING SEQUENCE SHALL BE AT THE CONTRACTOR'S OPTION. SUBMIT SEQUENCE (WITHIN 7 CALENDAR DAYS) TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE FIRST POUR.

CONSTRUCTION:
CONSTRUCT IN ACCORDANCE WITH MnDOT SPEC. 2411, EXCEPT AS NOTED.

APPLY MEMBRANE WATERPROOFING SYSTEM PER MnDOT SPEC. 2481 TO BACK SIDE OF WALL TO COVER ALL THRU-BOLT FORM HOLES.

REINFORCING STEEL:
USE REINFORCEMENT BARS CONFORMING TO MnDOT SPEC. 3301, GRADE 60.

BARS MARKED WITH THE SUFFIX "E" TO BE EPOXY COATED. ALL BARS WHICH EXTEND OUT OF THE FOOTING AND ALL BARS WHICH ARE ABOVE THE FOOTING TO BE EPOXY COATED.

ALL BENT BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.

MAINTAIN CLEAR DISTANCE BETWEEN REINFORCEMENT BARS AND FACE OF CONCRETE OF 3 INCHES IN FOOTINGS, 5 INCHES IN BOTTOM OF SPREAD FOOTINGS, AND 2 INCHES ELSEWHERE UNLESS OTHERWISE NOTED.

DOWEL BAR ASSEMBLIES:
DOWELED JOINTS/CONSTRUCTION JOINTS ARE INCIDENTAL.

GEOMETRICS AND GRADES:
DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE LINE IS ALONG FRONT FACE OF WALL.

ON UP TO 10% SLOPES, THE CONTRACTOR HAS THE OPTION OF POURING FOOTINGS SLOPED OR STEPPED. ADDITIONAL CONCRETE VOLUMES AND CHANGES TO THE BILL OF REINFORCEMENT WHICH MAY RESULT FROM CONTRACTOR REQUESTED OPTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE.

NOTES:

- ① ARCHITECTURAL TEXTURE AND FINISH TO EXTEND 2'-0" BELOW GRADE AT FRONT FACE OF WALL.
- ② PROPOSED GRADE AT FRONT FACE OF WALL.
- ③ PROPOSED GRADE AT BACK FACE OF WALL.
- ④ 4" DIA. PERFORATED TP PIPE DRAIN PER MnDOT SPEC. 3245, WRAPPED WITH APPROVED GEOTEXTILE PER MnDOT SPEC. 3733. SLOPE PIPE TO ENSURE PROPER DRAINAGE. RUN ENTIRE LENGTH OF WALL.
- ⑤ CUT LIMITS FOR STRUCTURAL EXCAVATION.
- ⑥ ACTUAL EXCAVATION BY OSHA REGULATIONS AND IN-SITU SOILS.
- ⑦ SELECT GRADING MATERIAL PER MnDOT SPEC. 2106.1.A.6. COMPACT BACKFILL TO SPECIFIED DENSITY METHOD IN ACCORDANCE WITH MnDOT SPEC. 2106.3.F.1.
- ⑧ 2" X 4" KEYWAY.
- ⑨ RETAINED STORM RUNOFF.

WEIR WALL SECTION

RETAINING WALL SECTION

No.	Date	Revisions	App.

DRAWING NAME TCAAP_RTWL_DET.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

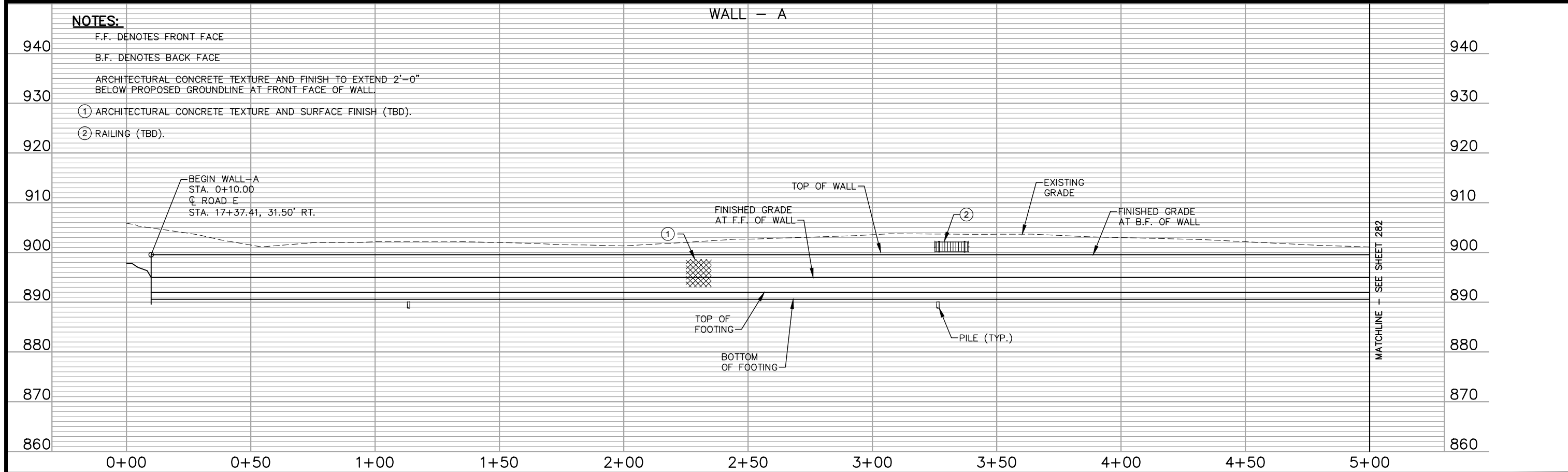
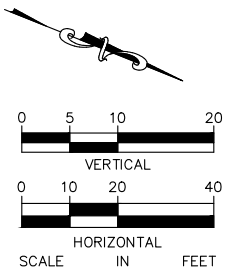
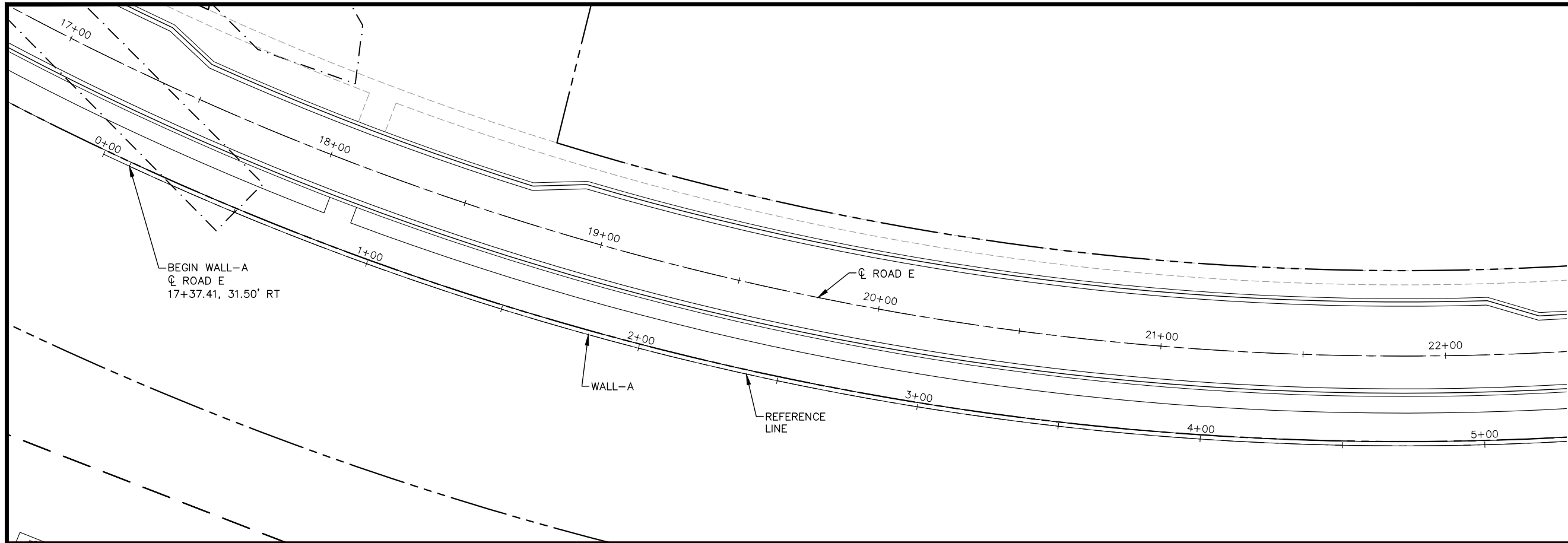
KATHRYN ELLIS, P.E.
DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
RETAINING WALL PLANS
GENERAL NOTES

CITY PROJECT	SHEET NO. 280
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_RTWL_PPF.dwg WALL A (1) January 10, 2019 - 9:01am



NOTES:

- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- ARCHITECTURAL CONCRETE TEXTURE AND FINISH TO EXTEND 2'-0" BELOW PROPOSED GROUNDLINE AT FRONT FACE OF WALL.
- ① ARCHITECTURAL CONCRETE TEXTURE AND SURFACE FINISH (TBD).
- ② RAILING (TBD).

No.	Date	Revisions	App.

DRAWING NAME TCAAP_RTWL_PPF.dwg
DESIGNED BY: ERW
DRAWN BY: ERW
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

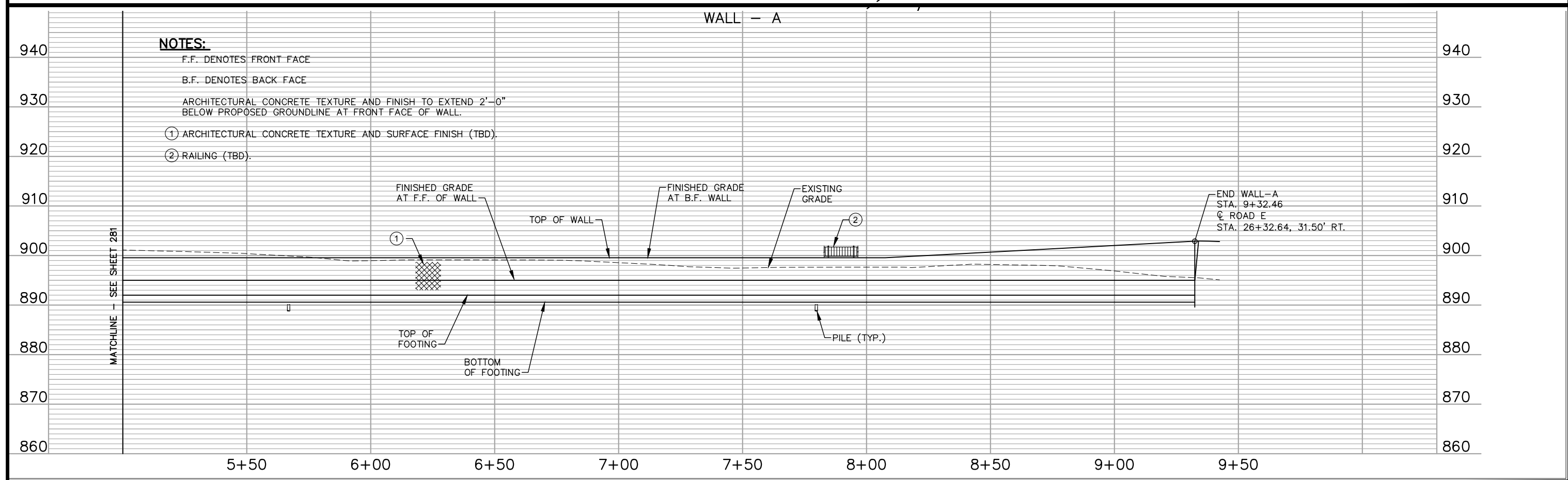
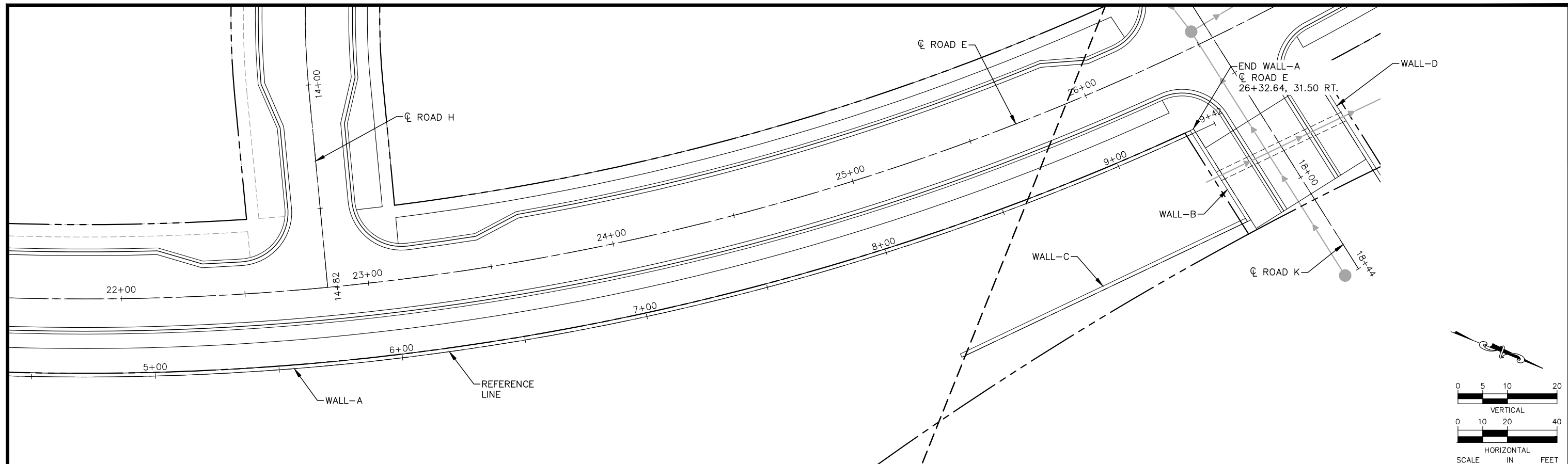
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WALL - A
 PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 281
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_RTWL_PPF.dwg
DESIGNED BY: ERW
DRAWN BY: ERW
CHECKED BY: CBL
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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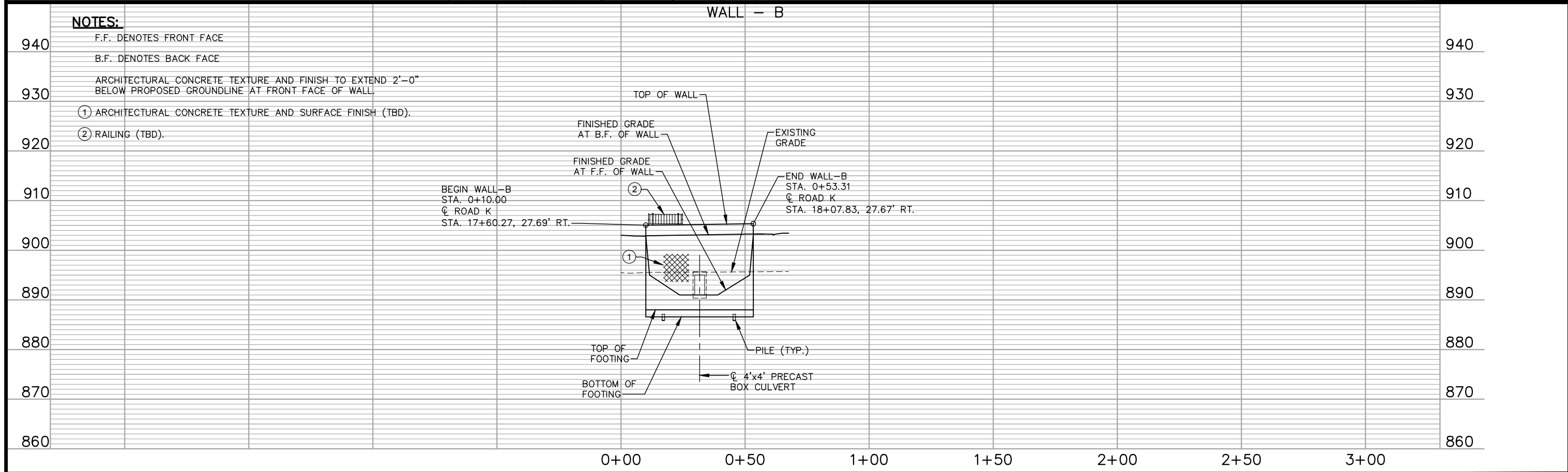
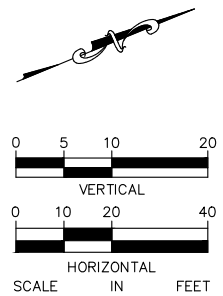
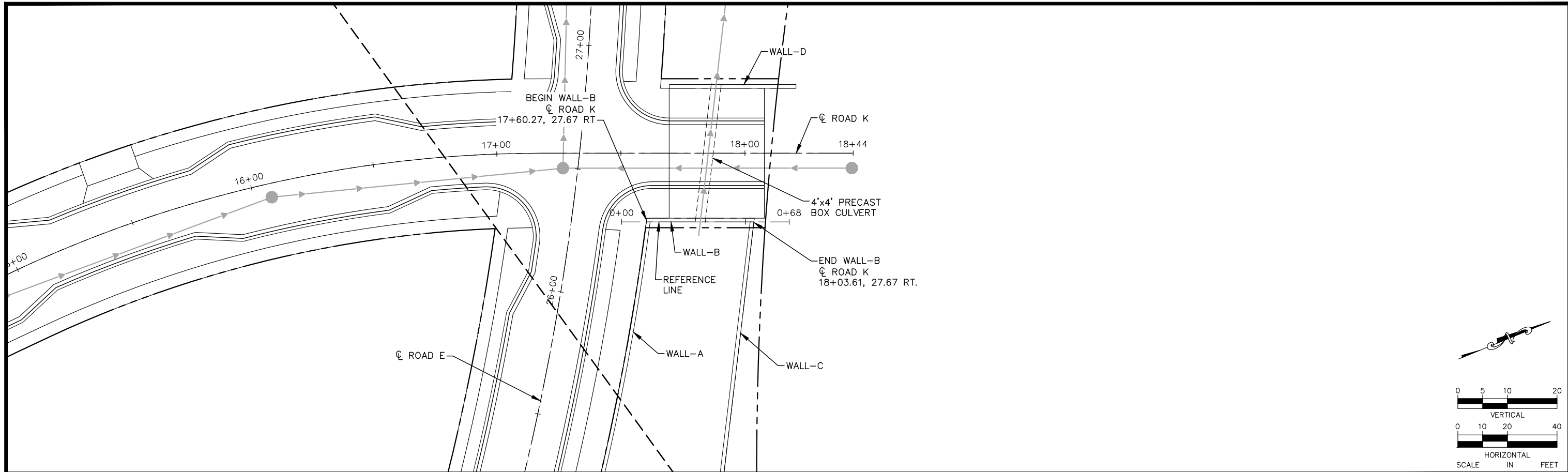
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WALL - A
 PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 282
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

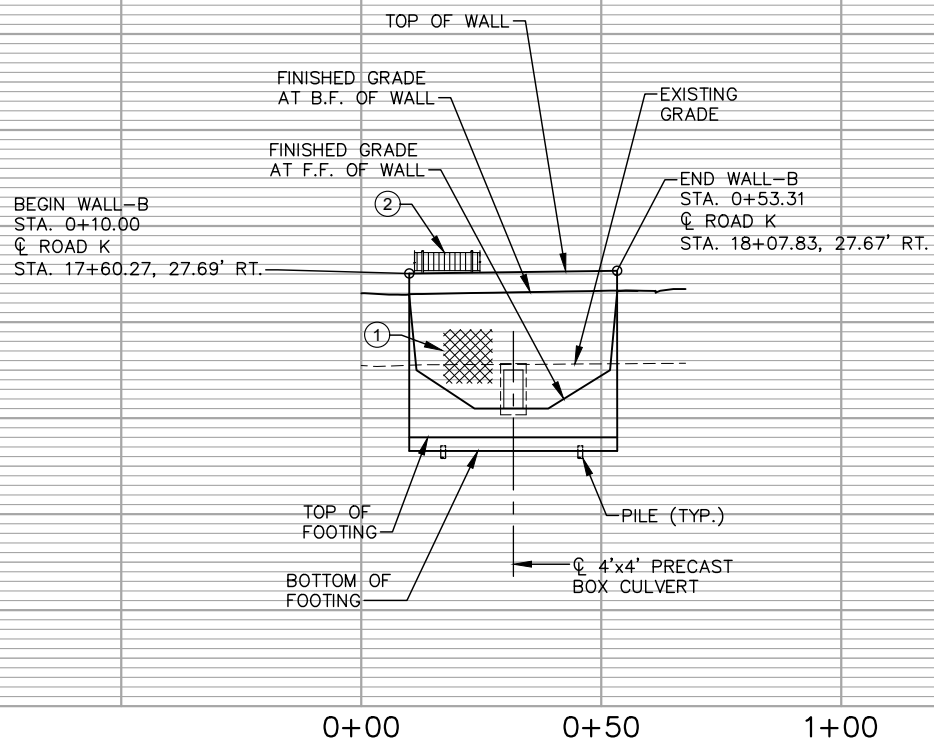
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NOTES:

- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- ARCHITECTURAL CONCRETE TEXTURE AND FINISH TO EXTEND 2'-0" BELOW PROPOSED GROUNDLINE AT FRONT FACE OF WALL.
- ① ARCHITECTURAL CONCRETE TEXTURE AND SURFACE FINISH (TBD).
- ② RAILING (TBD).

WALL - B



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_RTWL_PPF.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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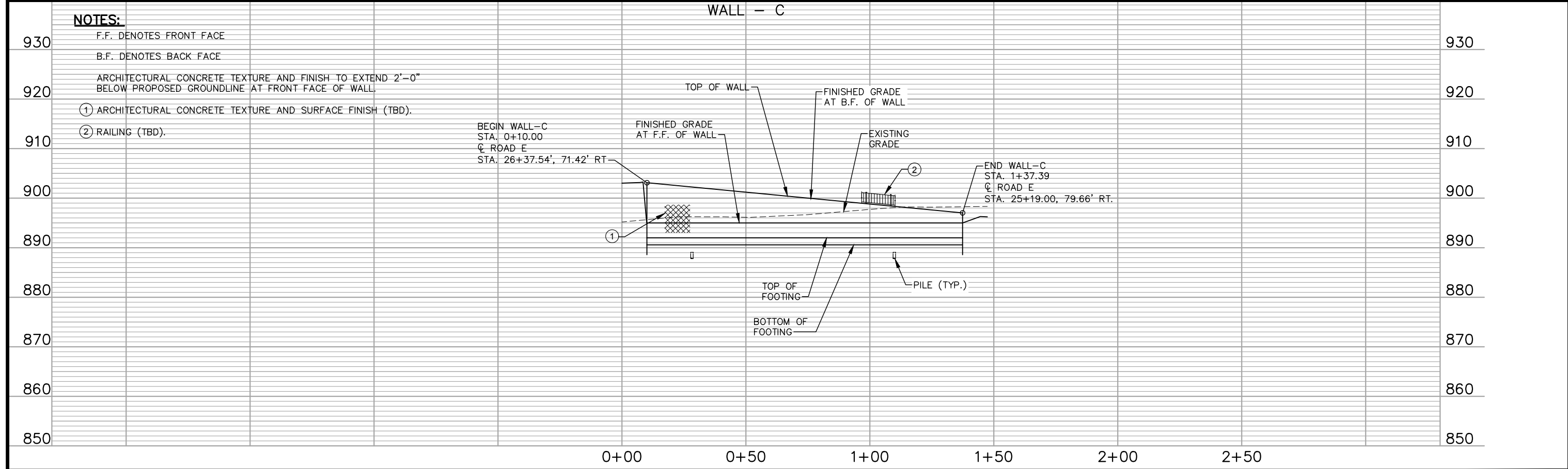
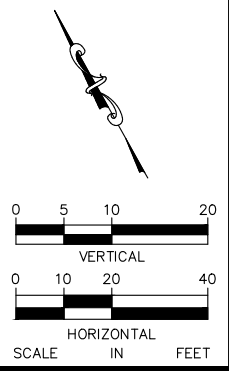
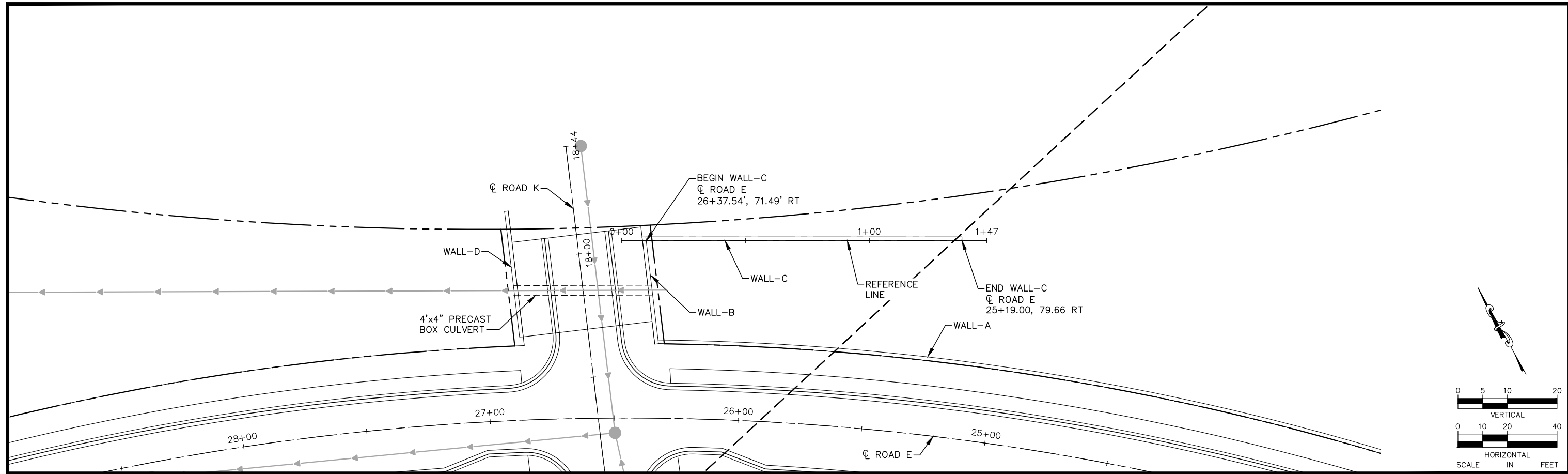
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WALL - B
 PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 283
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_RTWL_PPF.dwg WALL C January 10, 2019 - 9:04am



NOTES:

- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- ARCHITECTURAL CONCRETE TEXTURE AND FINISH TO EXTEND 2'-0" BELOW PROPOSED GROUNDLINE AT FRONT FACE OF WALL.
- ① ARCHITECTURAL CONCRETE TEXTURE AND SURFACE FINISH (TBD).
- ② RAILING (TBD).

No.	Date	Revisions	App.

DRAWING NAME TCAAP_RTWL_PPF.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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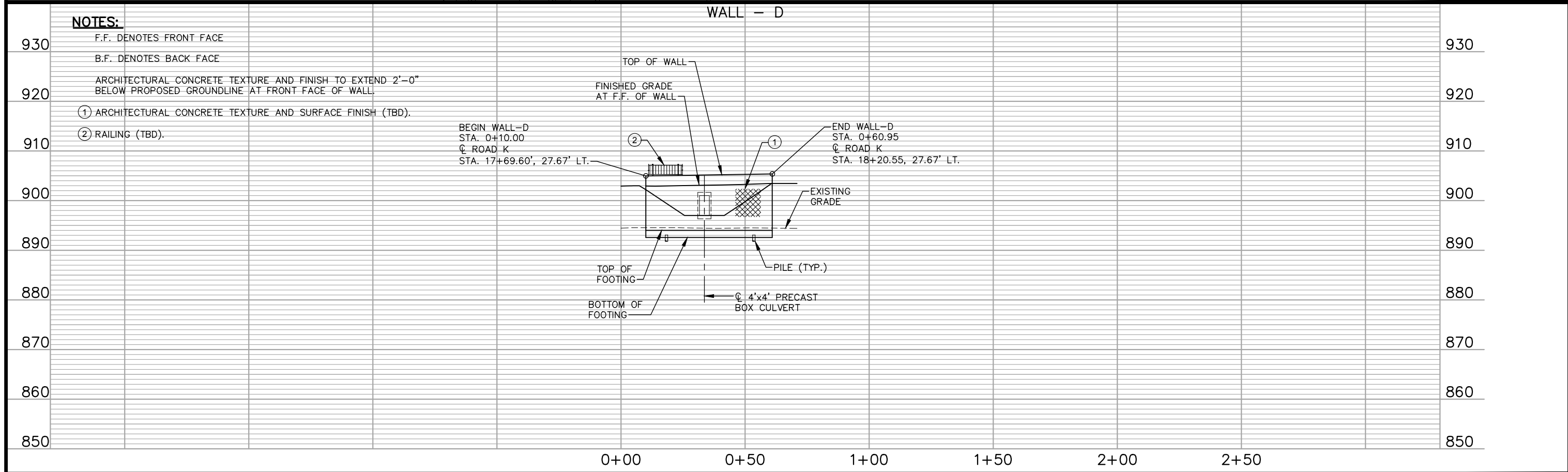
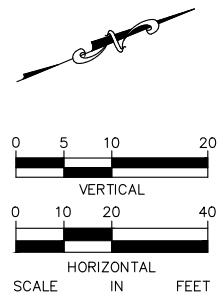
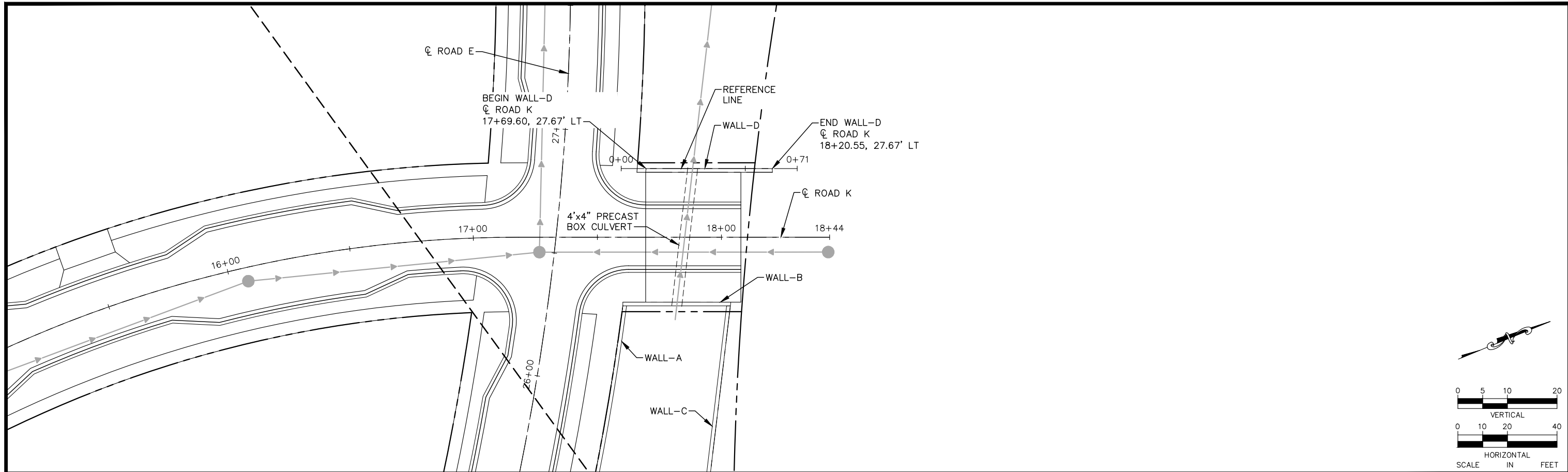
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WALL - C
PLAN AND ELEVATION

CITY PROJECT	284
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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No.	Date	Revisions	App.

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DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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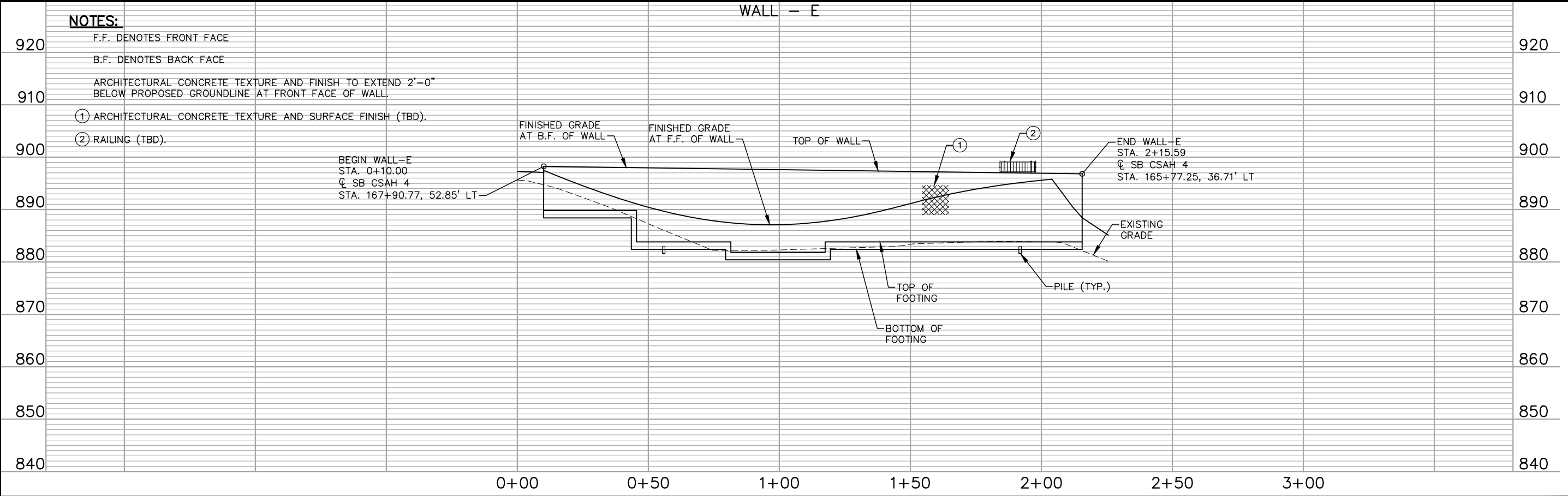
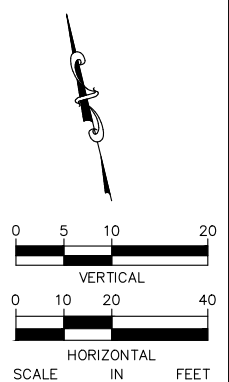
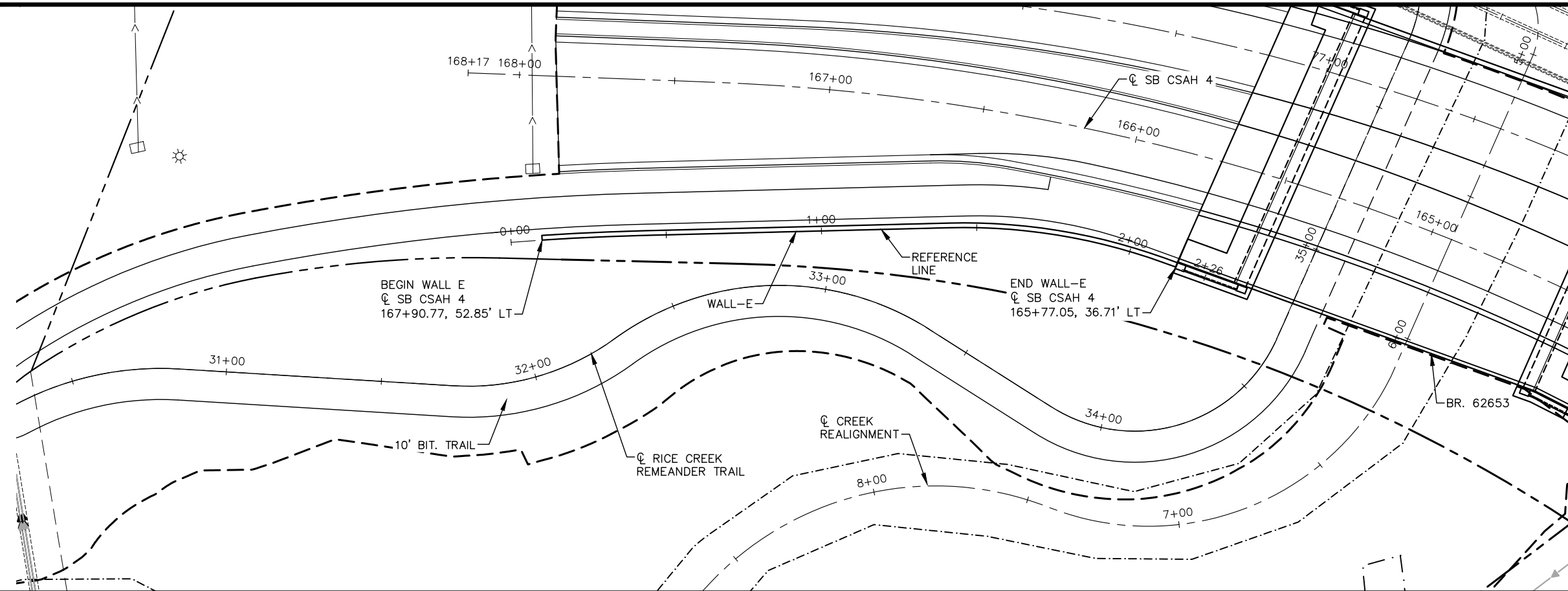
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WALL - D
 PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 285
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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NOTES:

- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- ARCHITECTURAL CONCRETE TEXTURE AND FINISH TO EXTEND 2'-0" BELOW PROPOSED GROUNDLINE AT FRONT FACE OF WALL.
- ① ARCHITECTURAL CONCRETE TEXTURE AND SURFACE FINISH (TBD).
- ② RAILING (TBD).

No.	Date	Revisions	App.

DRAWING NAME TCAAP_RTWL_PPF.dwg	
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

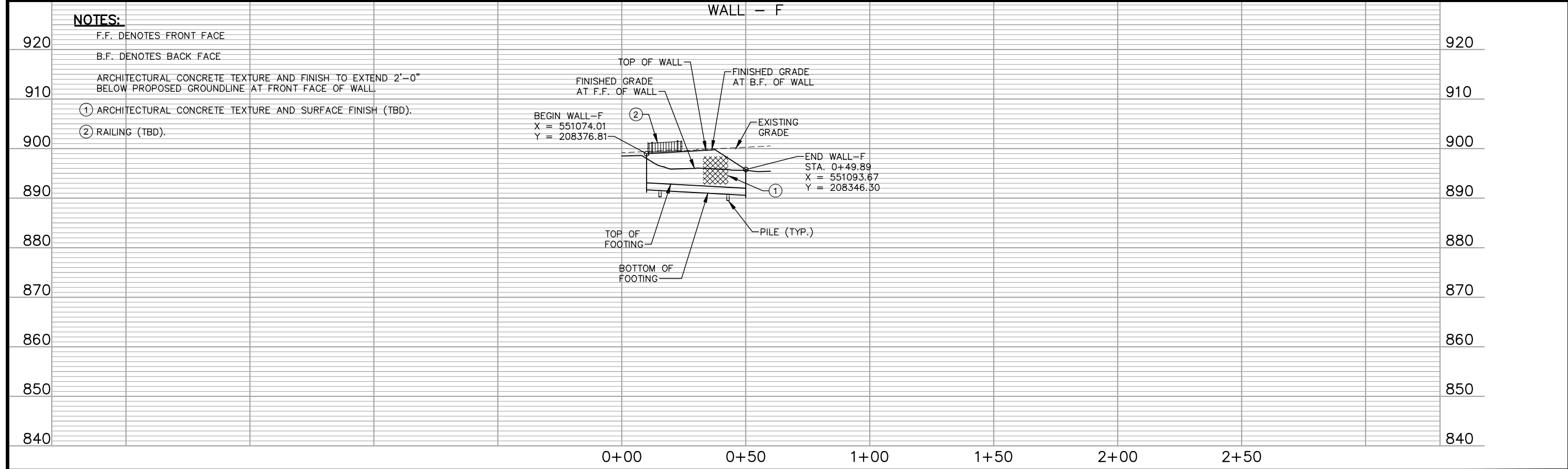
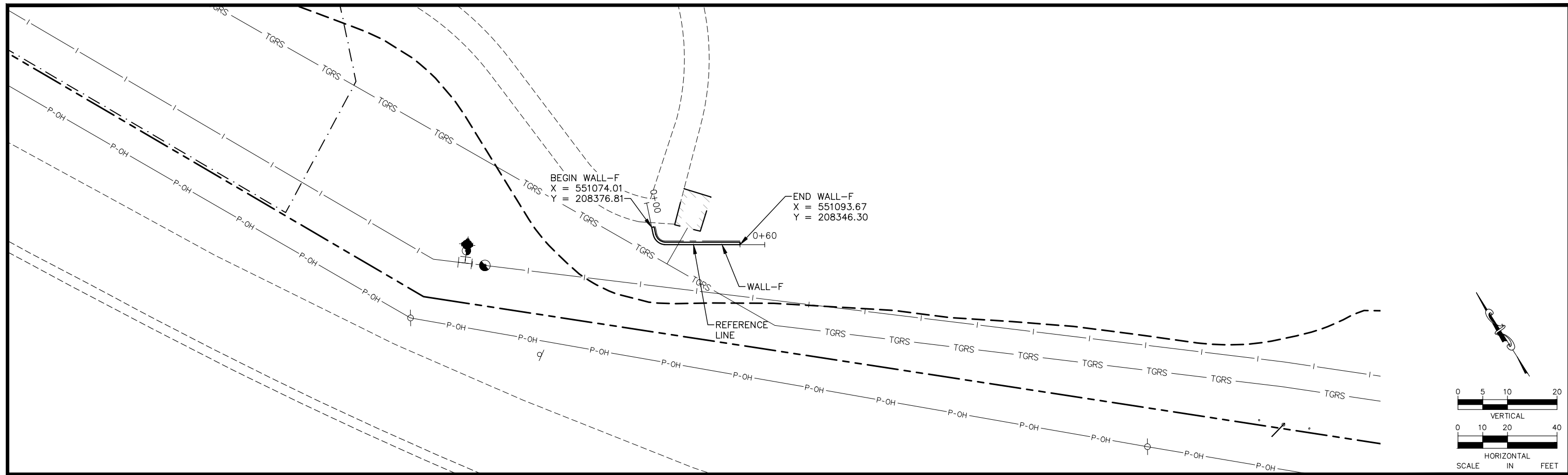
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WALL - E
PLAN AND ELEVATION

CITY PROJECT	286
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

SHEET NO.
286

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_RTWL_PPF.dwg WALL F January 10, 2019 - 9:07am



NOTES:

- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- ARCHITECTURAL CONCRETE TEXTURE AND FINISH TO EXTEND 2'-0" BELOW PROPOSED GROUNDLINE AT FRONT FACE OF WALL.
- ① ARCHITECTURAL CONCRETE TEXTURE AND SURFACE FINISH (TBD).
- ② RAILING (TBD).

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_RTWL_PPF.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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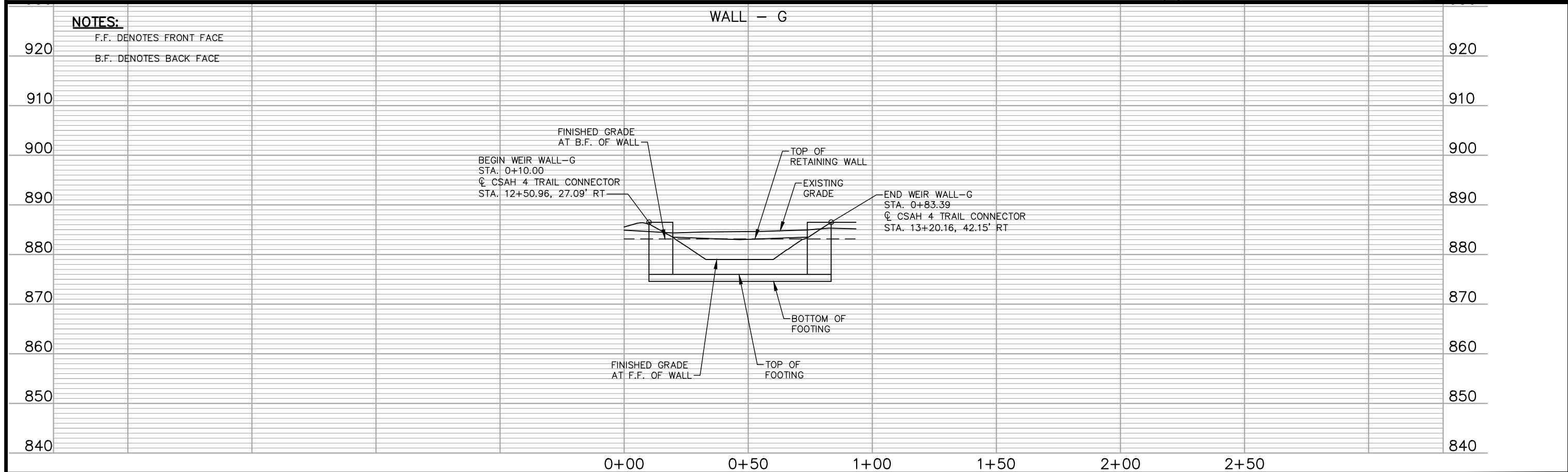
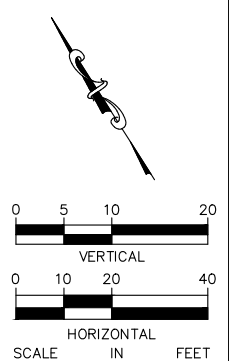
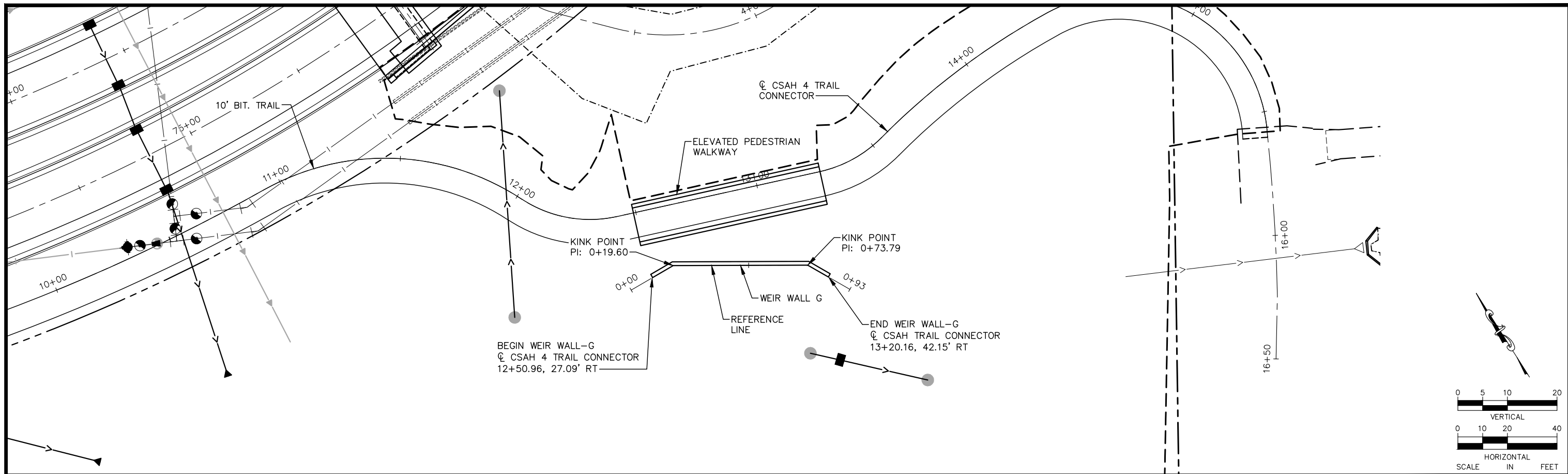
CHADD B. LARSON
DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
WALL - F
PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 287
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_RTWL_PPF.dwg WALL G January 10, 2019 - 9:07am



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_RTWL_PPF.dwg
DESIGNED BY:	ERW
DRAWN BY:	ERW
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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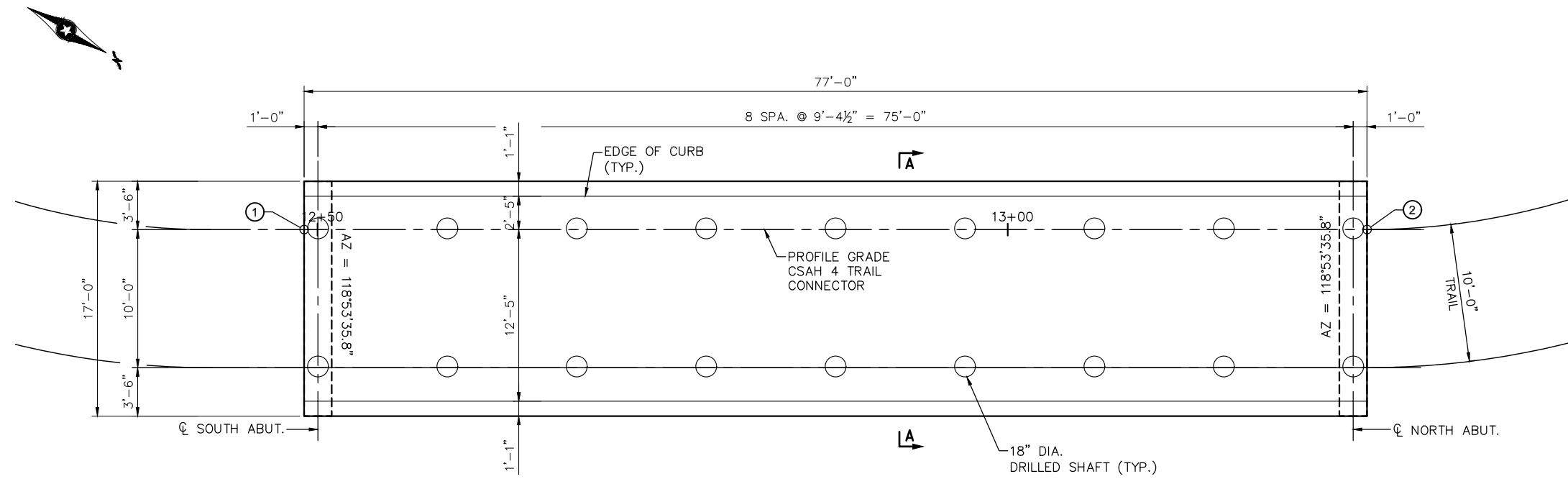
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 WALL - G
 PLAN AND ELEVATION

CITY PROJECT	SHEET NO. 288
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

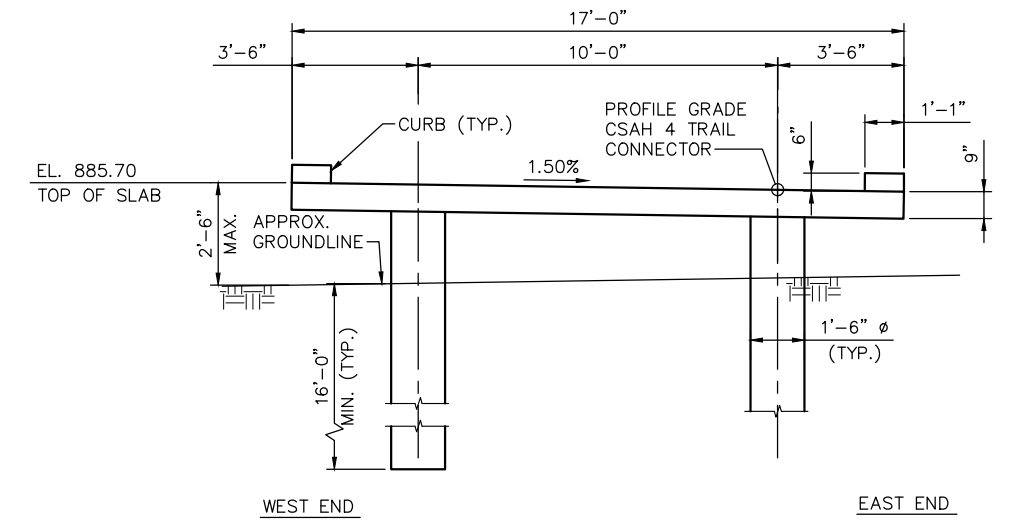
K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_ELEV-WKWY.dwg Layout1 January 10, 2019 - 9:08am



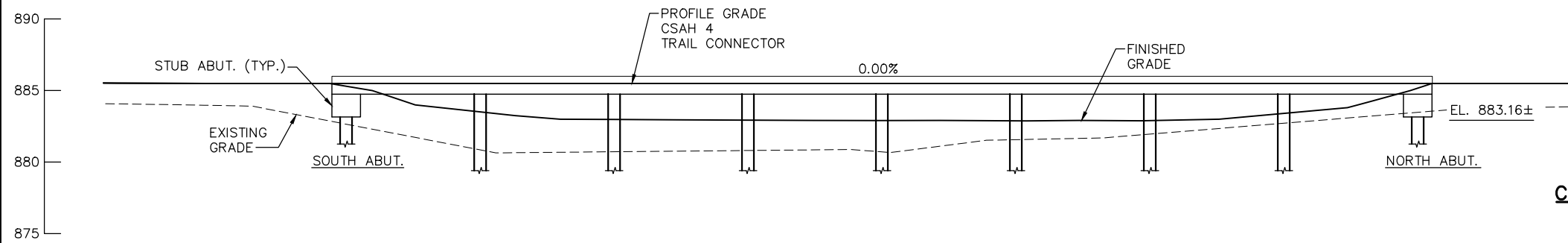
WALKWAY PLAN

NOTES:

- ① BEGIN WALKWAY
STA. 12+49.02
EL. 885.50
X = 551358.89
Y = 210882.48
- ② END WALKWAY
STA. 13+26.02
EL. 885.50
X = 551321.69
Y = 210949.90



SECTION A-A



WALKWAY ELEVATION

CONSTRUCTION NOTES

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". NO KNOWN UTILITIES IN THIS AREA.

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_ELEV-WKWY.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

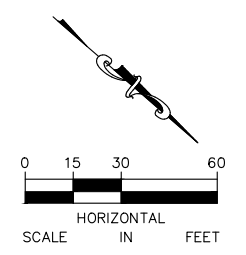
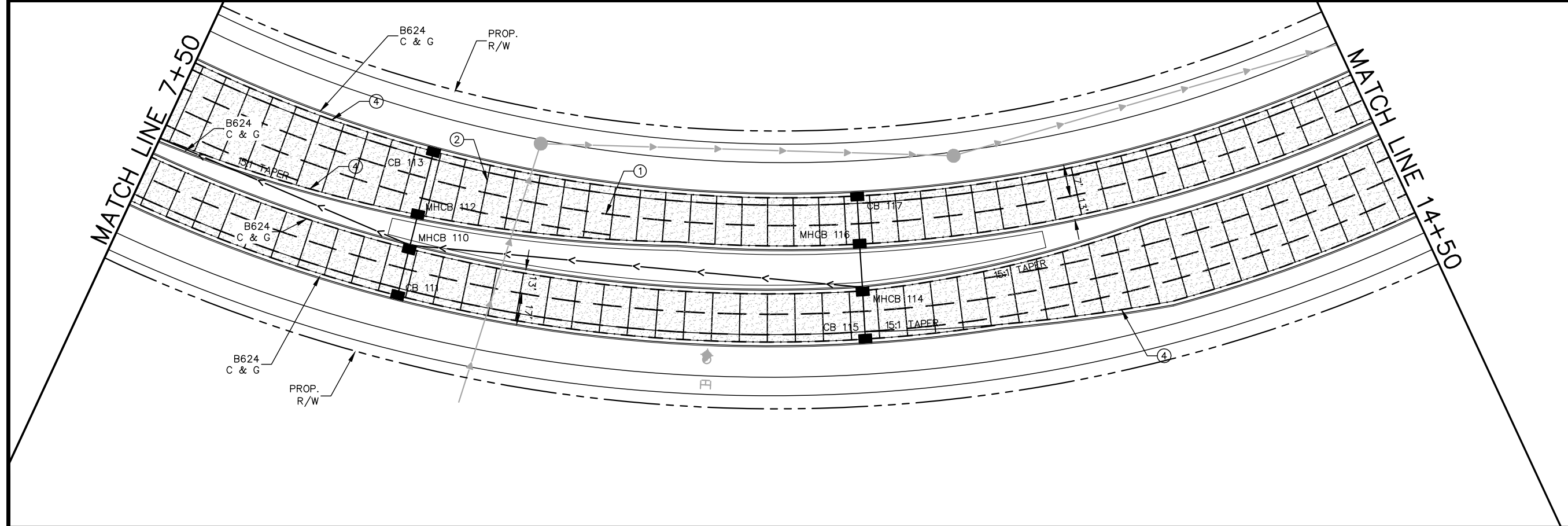
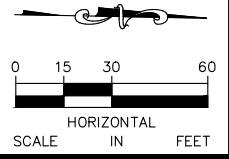
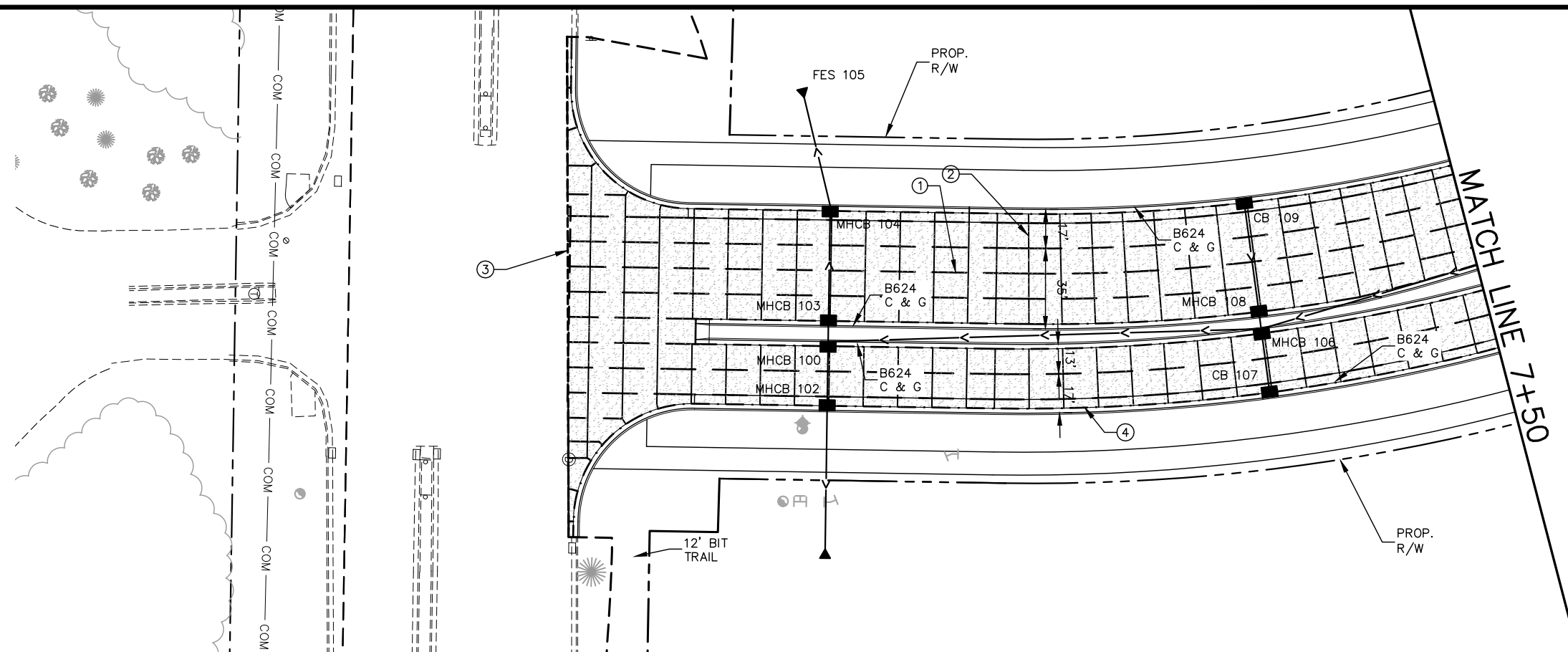
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ELEVATED PEDESTRIAN WALKWAY DETAILS

CITY PROJECT	SHEET NO. 289
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_CNC.dwg Layout01 January 10, 2019 - 9:11am

LEGEND

- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
- ② ALL TRANSVERSE JOINTS SHALL BE C2H-D UNLESS OTHERWISE NOTED
- ③ CONNECTION TO INPLACE CONCRETE PAVEMENT SHALL BE WITH AN E1H-D EXPANSION JOINT. SEE STANDARD PLATE 1150R
- ④ TIE ALL CURB AND GUTTER TO CONCRETE PAVEMENT WITH L2KTH JOINTS 30" OC
- ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_CNC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

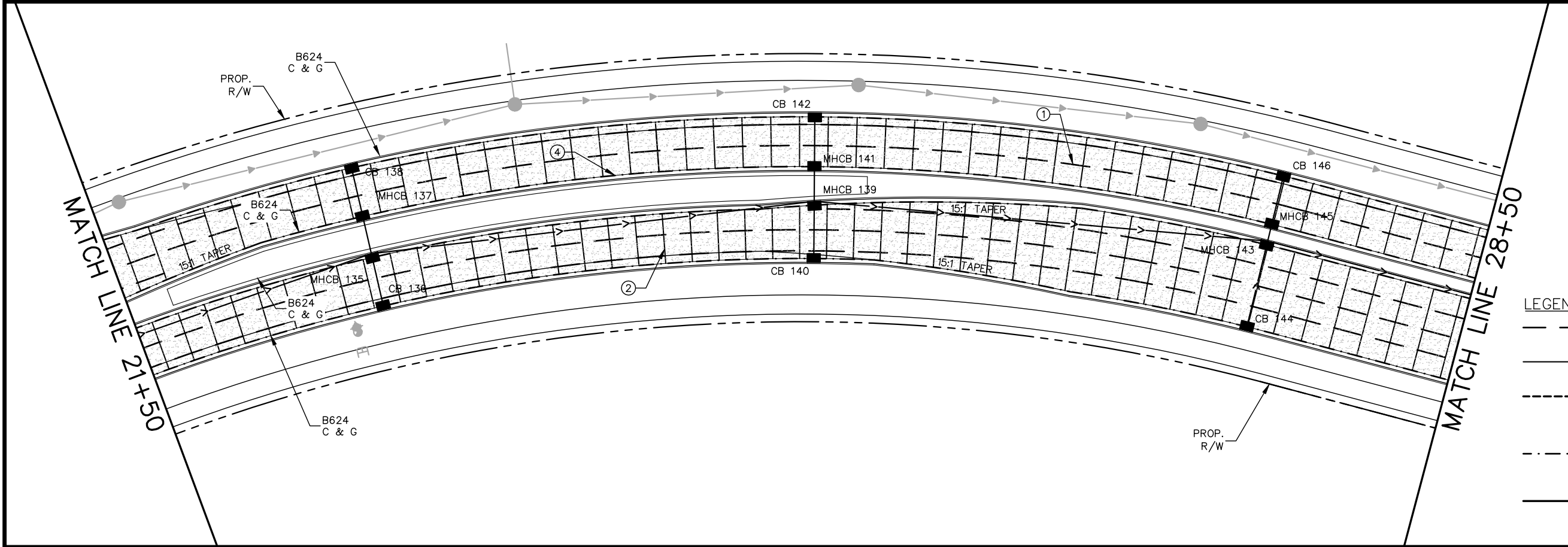
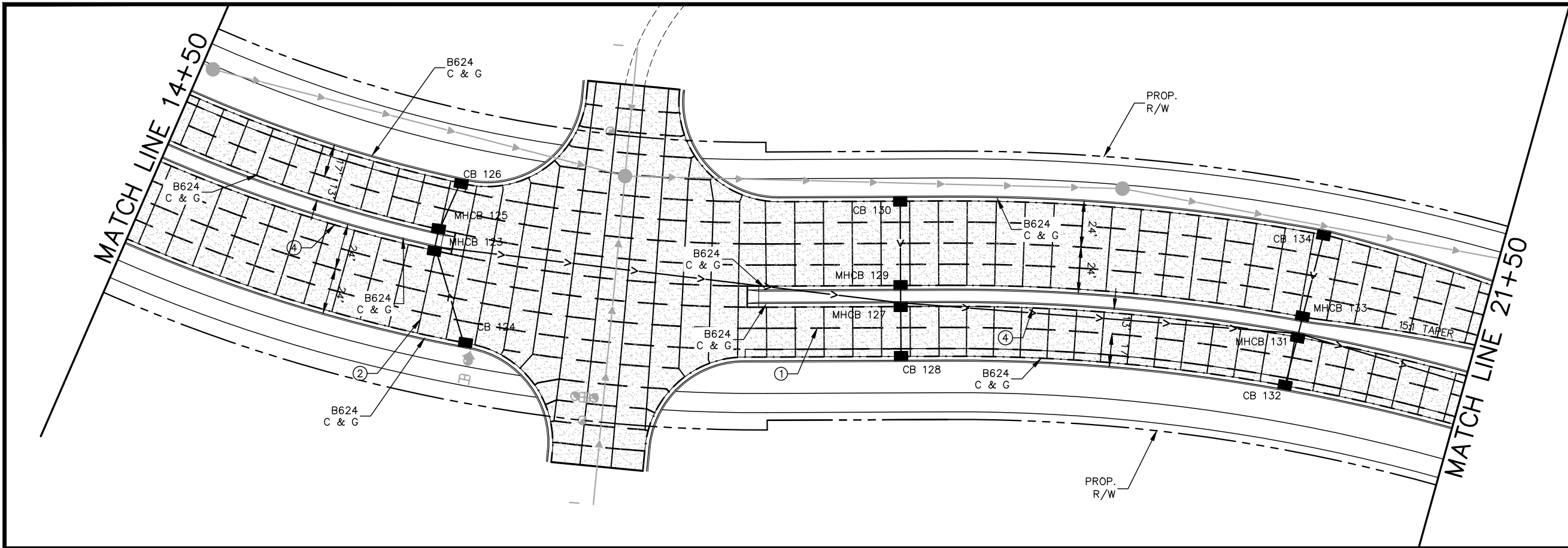
CSAH 4
 PAVING PLAN
 STA. 1+00 TO STA. 14+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
290

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_CNC.dwg Layout02 January 10, 2019 - 9:12am



- LEGEND**
- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
 - ② ALL TRANSVERSE JOINTS SHALL BE C2H-D UNLESS OTHERWISE NOTED
 - ③ CONNECTION TO INPLACE CONCRETE PAVEMENT SHALL BE WITH AN E1H-D EXPANSION JOINT. SEE STANDARD PLATE 1150R
 - ④ TIE ALL CURB AND GUTTER TO CONCRETE PAVEMENT WITH L2KTH JOINTS 30" OC
 - ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_CNC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

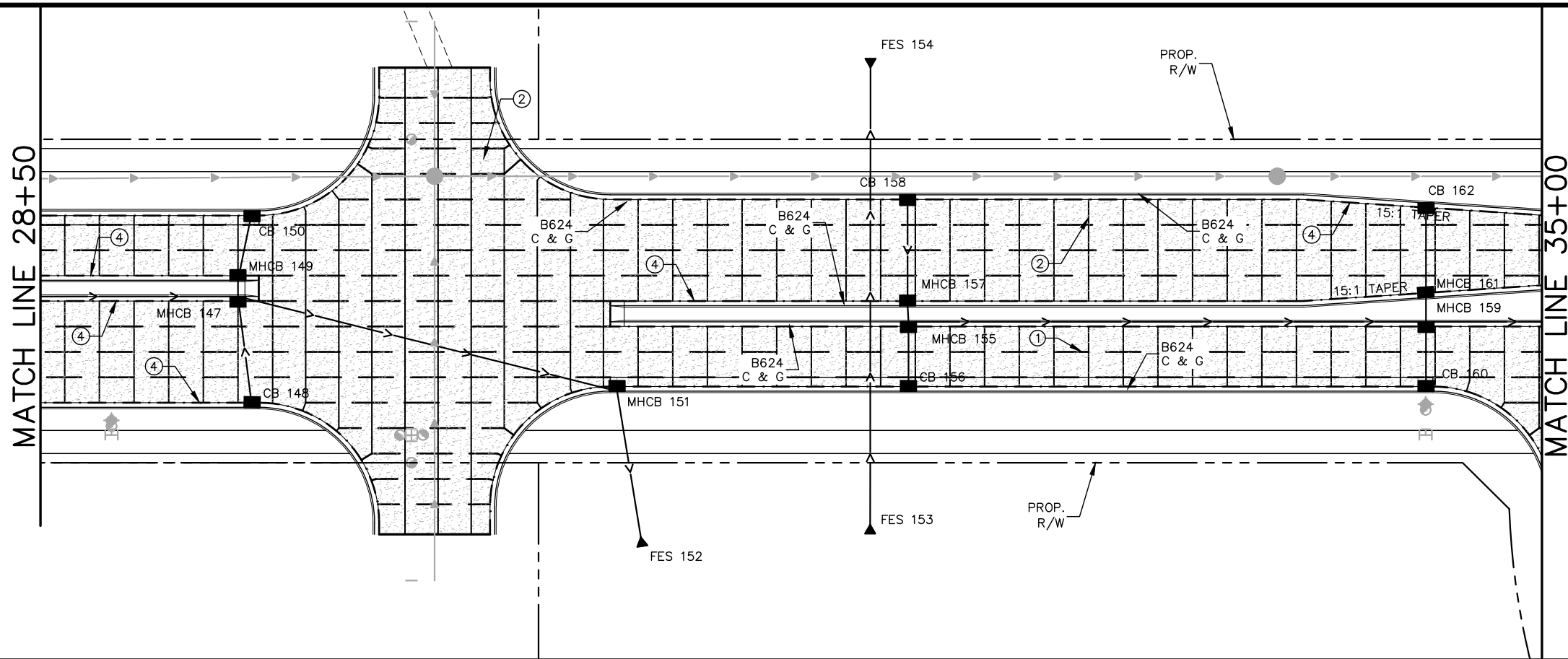
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

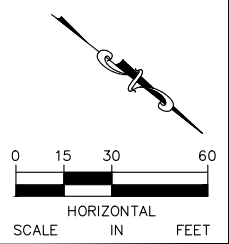
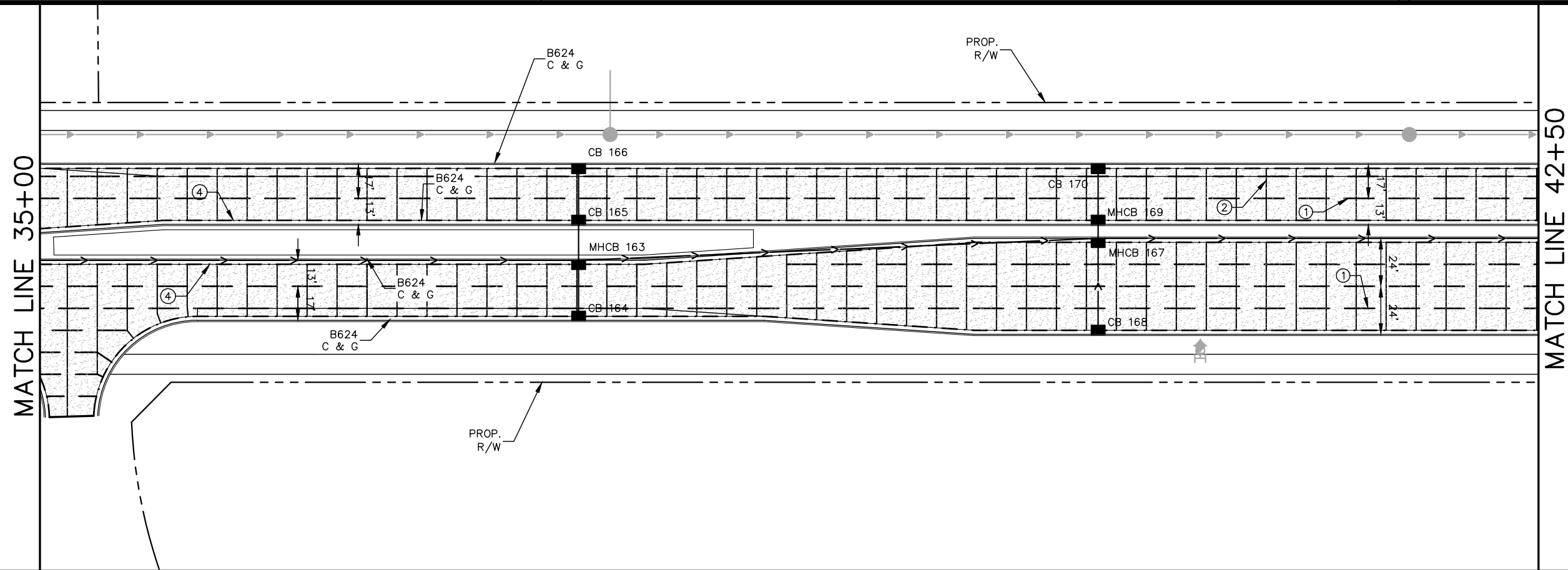
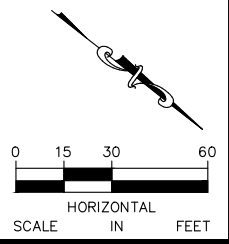
CSAH 4
 PAVING PLAN
 STA. 14+50 TO STA. 28+50

CITY PROJECT		SHEET NO.	291
COUNTY PROJECT			
S.A.P.	062-593-004		
S.A.P.			335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_CNC.dwg Layout03 January 10, 2019 - 9:14am



- LEGEND**
- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
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 - ③ CONNECTION TO INPLACE CONCRETE PAVEMENT SHALL BE WITH AN E1H-D EXPANSION JOINT. SEE STANDARD PLATE 1150R
 - ④ TIE ALL CURB AND GUTTER TO CONCRETE PAVEMENT WITH L2KTH JOINTS 30" OC
 - ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_CNC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

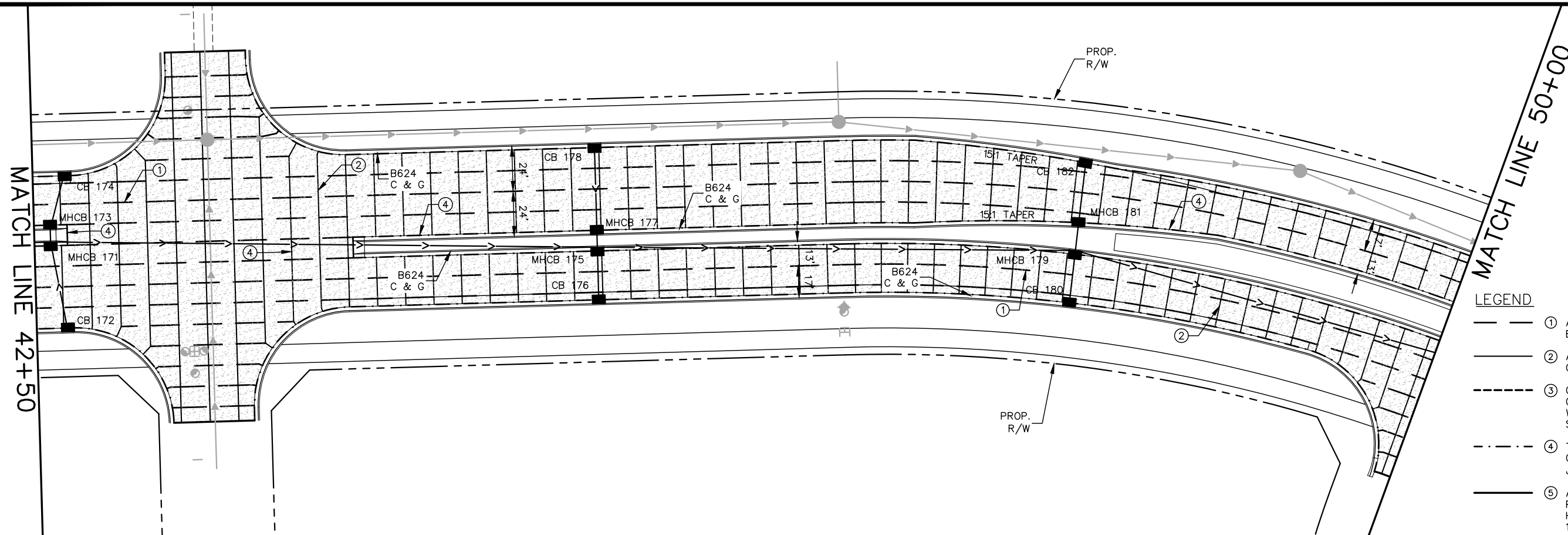
CSAH 4
 PAVING PLAN
 STA. 28+50 TO STA. 42+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

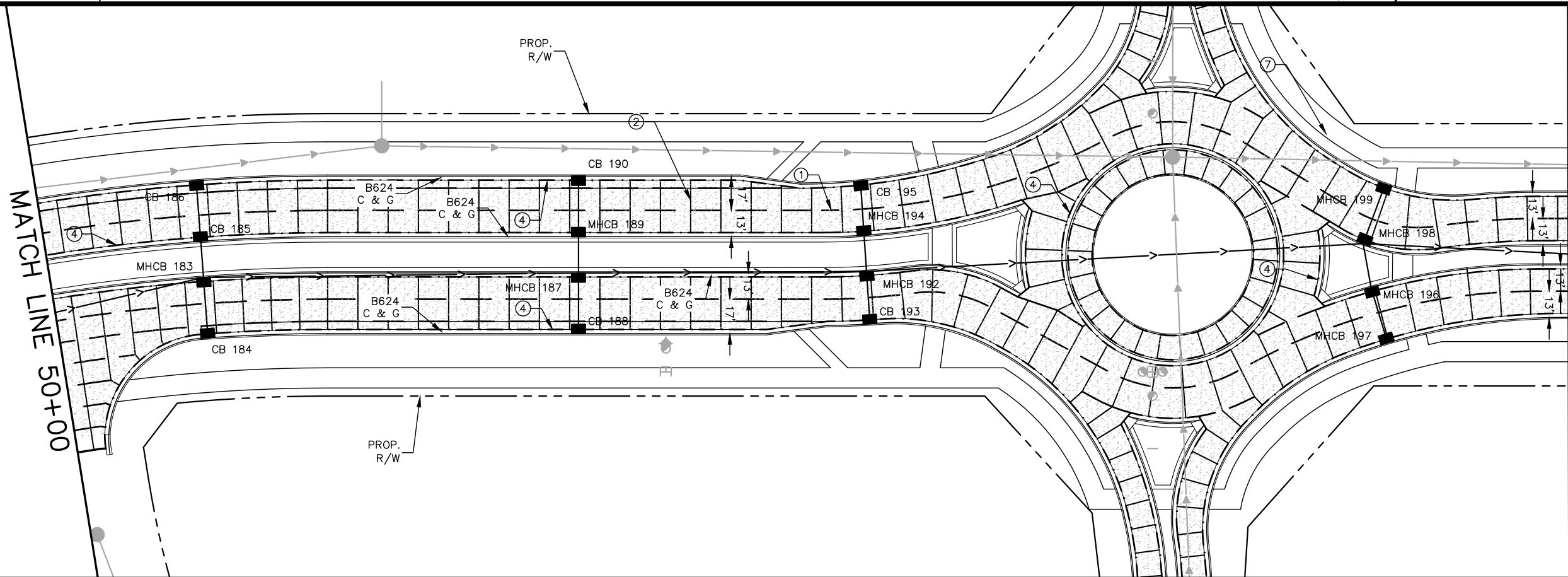
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292

335

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_CNC.dwg Layout04 January 10, 2019 - 9:15am



- LEGEND**
- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
 - ② ALL TRANSVERSE JOINTS SHALL BE C2H-D UNLESS OTHERWISE NOTED
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 - ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R



No.	Date	Revisions	App.

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DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

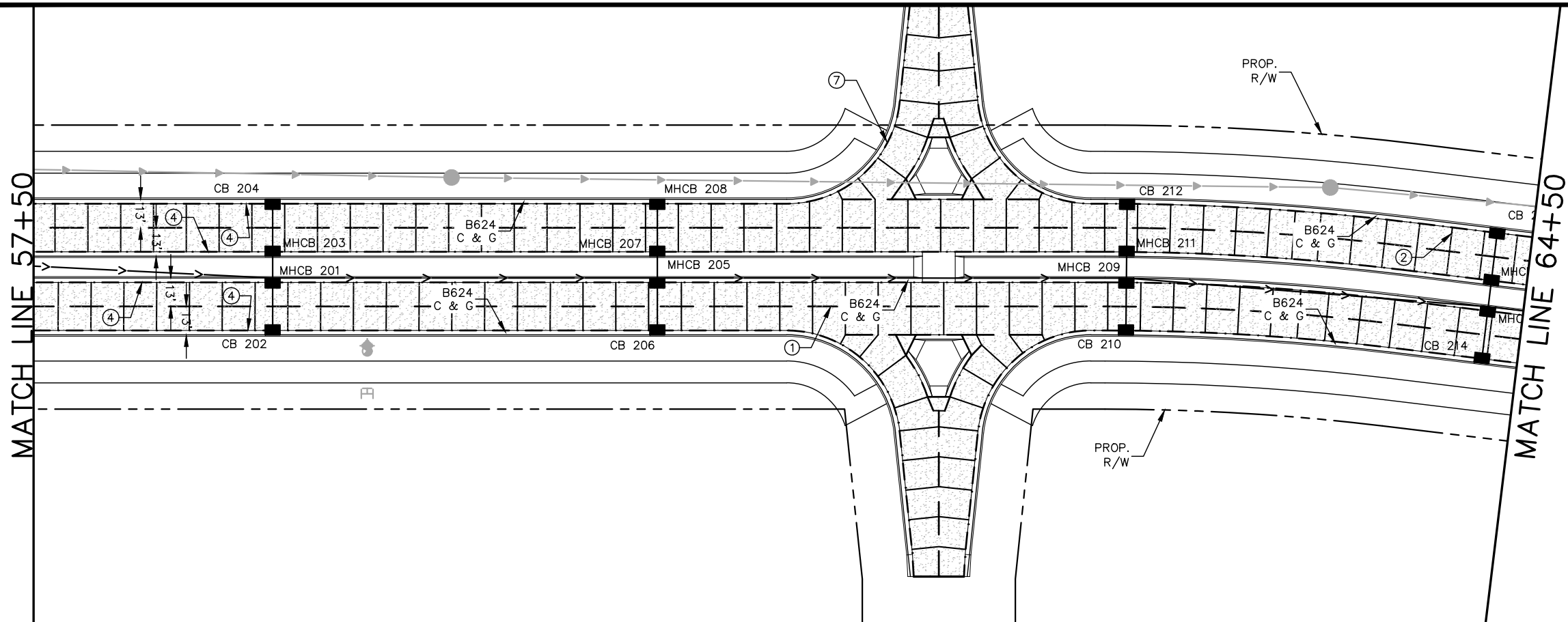
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 PAVING PLAN
 STA. 42+50 TO STA. 57+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
293

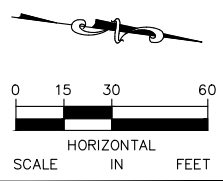
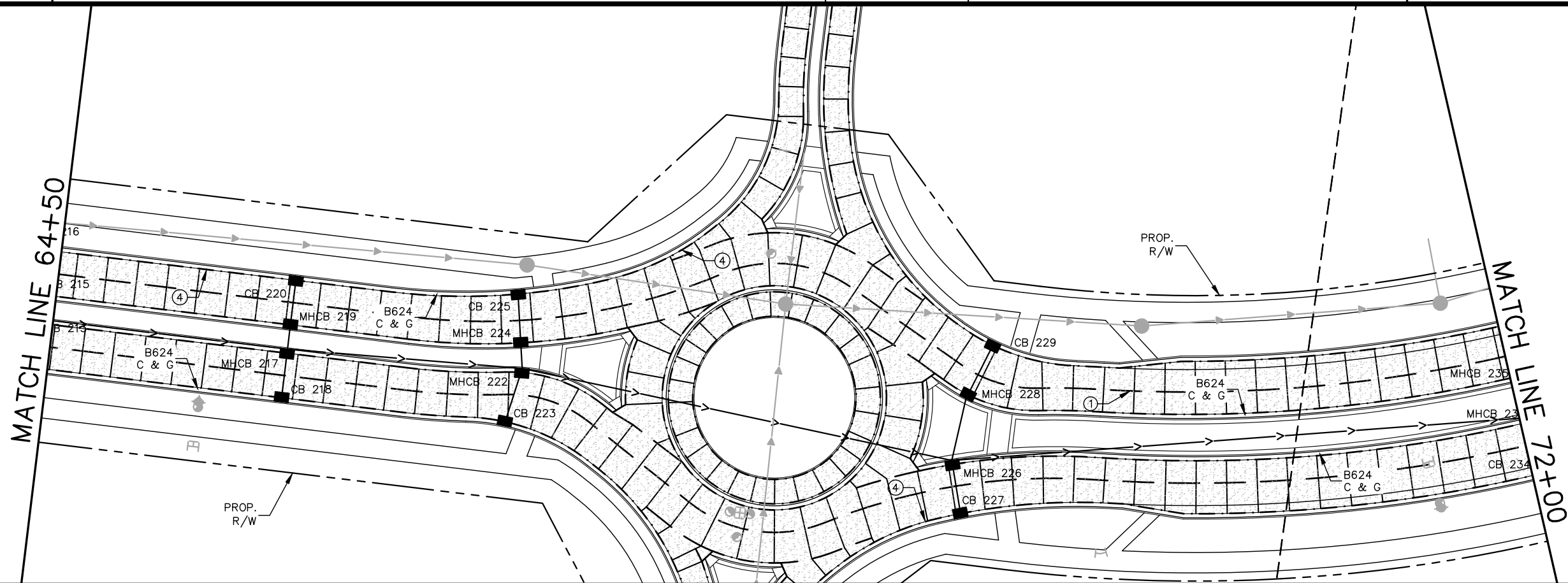
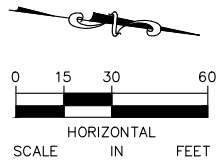
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LEGEND

- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
- ② ALL TRANSVERSE JOINTS SHALL BE C2H-D UNLESS OTHERWISE NOTED
- ③ CONNECTION TO INPLACE CONCRETE PAVEMENT SHALL BE WITH AN E1H-D EXPANSION JOINT. SEE STANDARD PLATE 1150R
- ④ TIE ALL CURB AND GUTTER TO CONCRETE PAVEMENT WITH L2KTH JOINTS 30" OC
- ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_CNC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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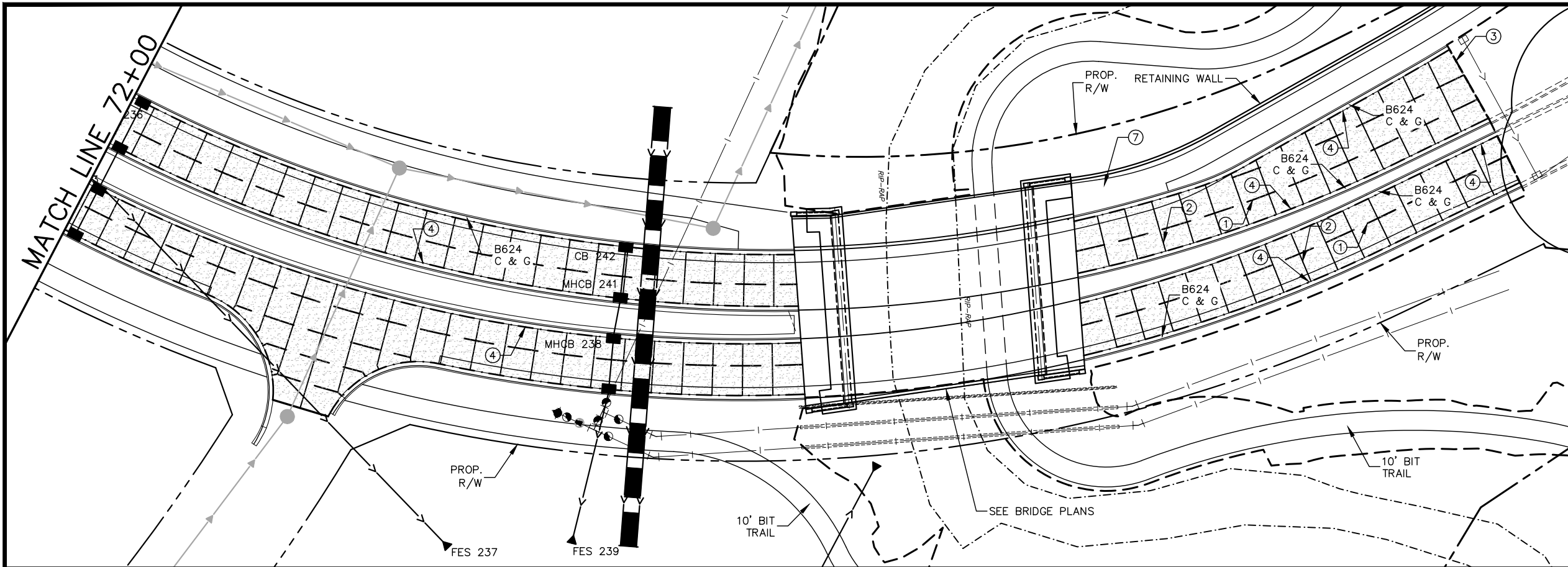
CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 PAVING PLAN
 STA. 57+50 TO STA. 72+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

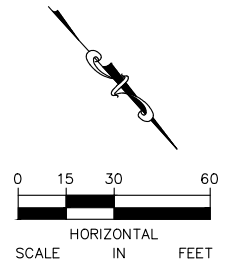
SHEET NO.
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LEGEND

- ① ALL LONGITUDINAL JOINTS SHALL BE L1TU UNLESS OTHERWISE NOTED
- ② ALL TRANSVERSE JOINTS SHALL BE C2H-D UNLESS OTHERWISE NOTED
- ③ CONNECTION TO INPLACE CONCRETE PAVEMENT SHALL BE WITH AN E1H-D EXPANSION JOINT. SEE STANDARD PLATE 1150R
- ④ TIE ALL CURB AND GUTTER TO CONCRETE PAVEMENT WITH L2KTH JOINTS 30" OC
- ⑤ AT TERMINI WITH BITUMINOUS PAVEMENT, INSTALL TERMINAL HEADER PER STANDARD PLATE 1150R



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_CNC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY

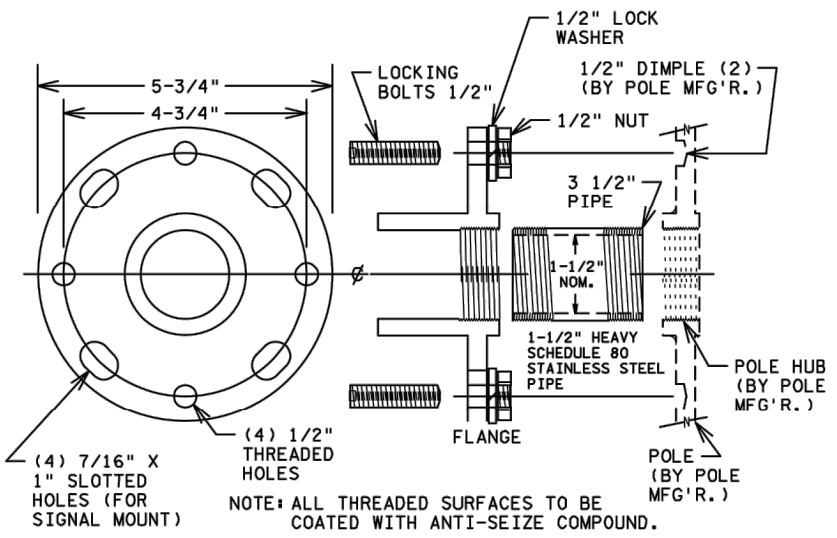
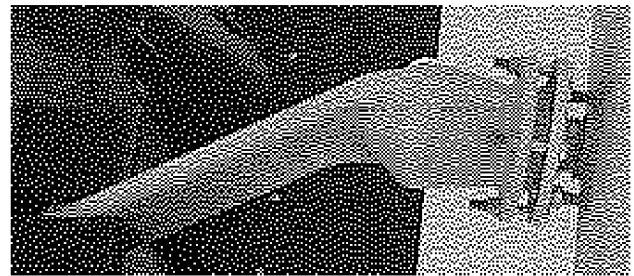
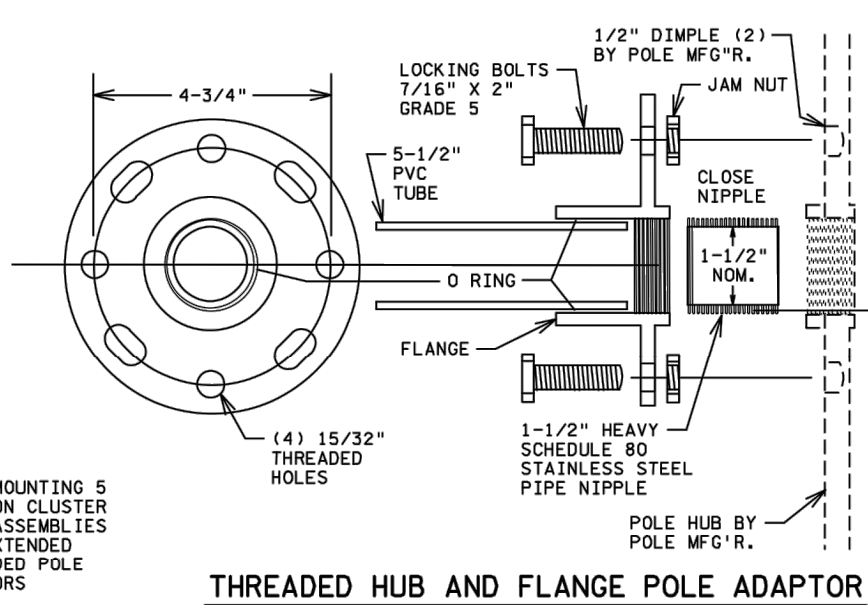
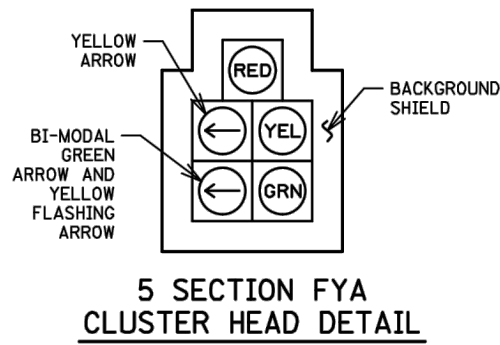
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 PAVING PLAN
 STA. 72+00 TO STA. 79+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

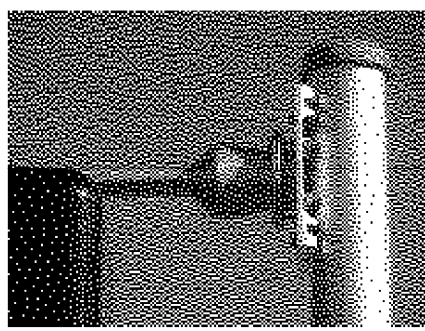
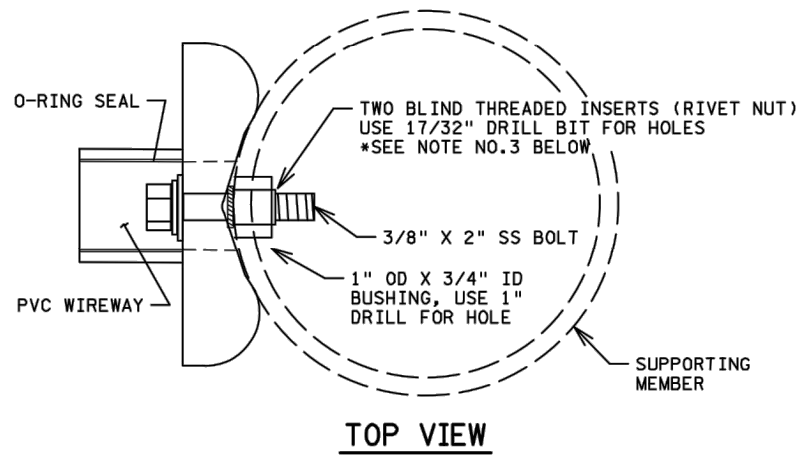
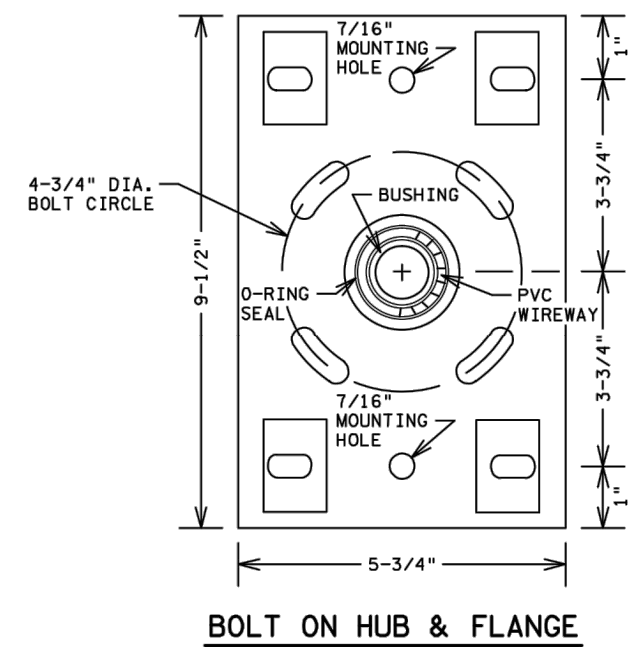
SHEET NO.
295

335

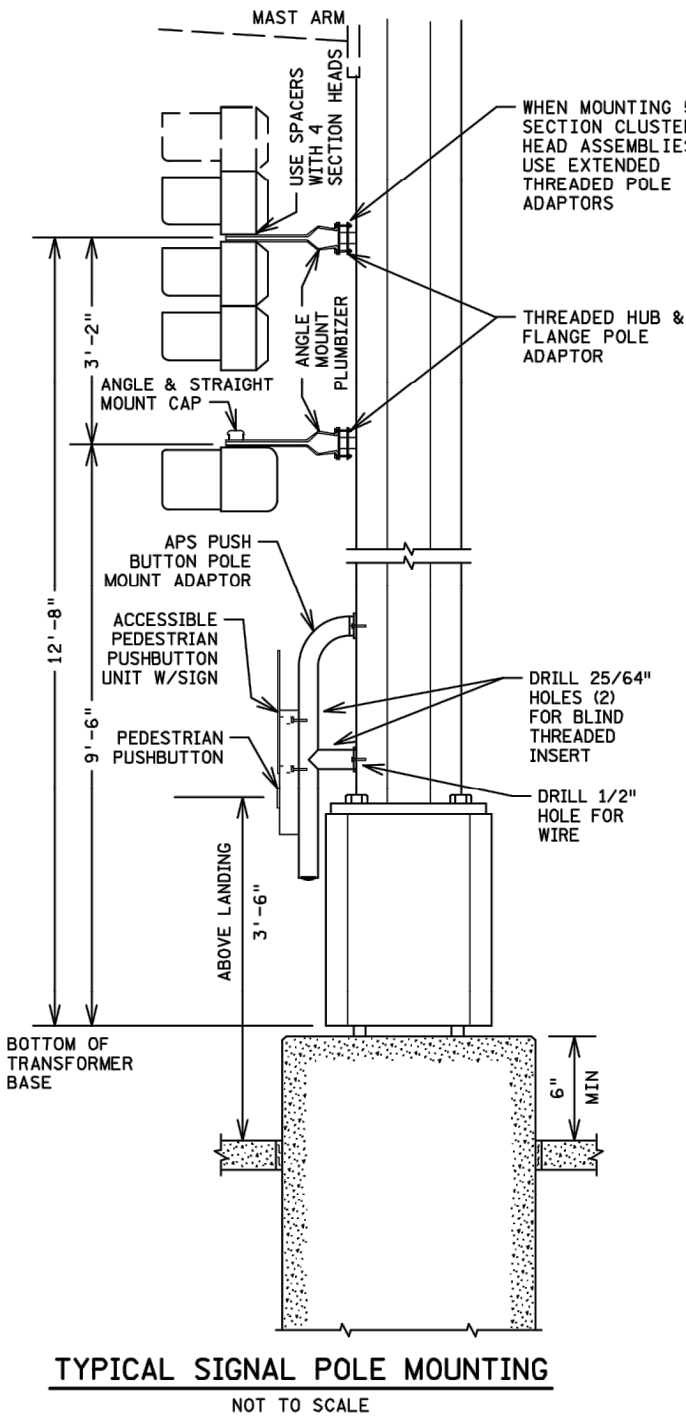
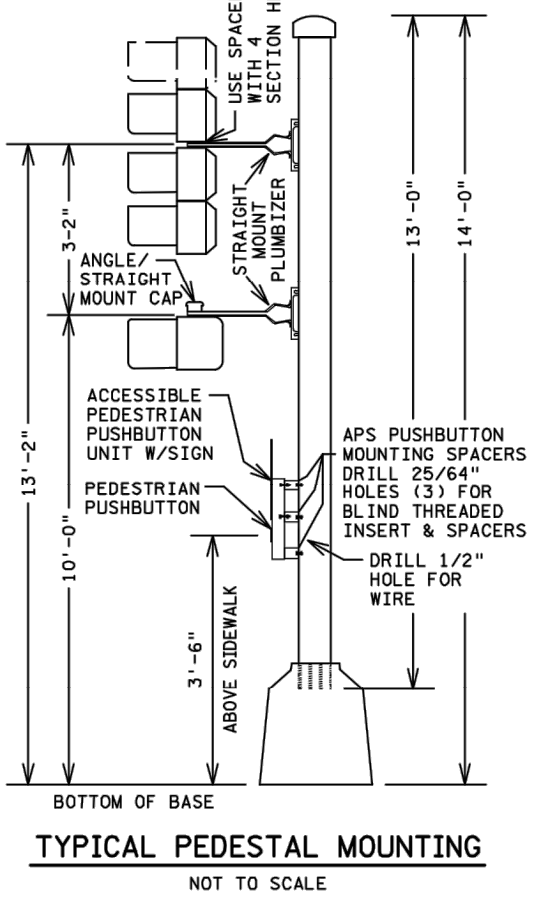
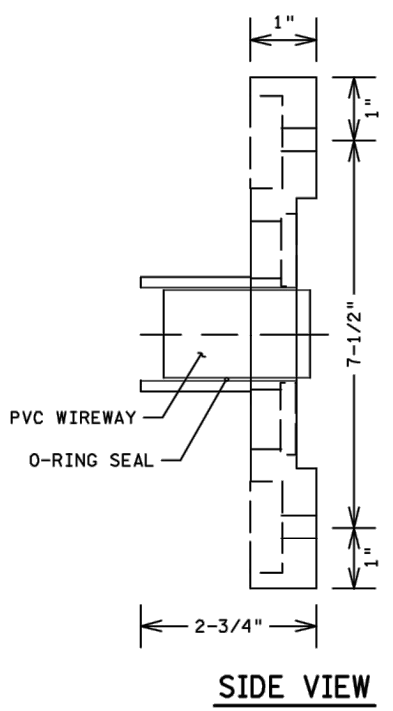
K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_TSG.dwg Detail01 January 10, 2019 - 9:07am



- NOTES:**
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
 4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



- NOTES:**
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



No.	Date	Revisions	App.

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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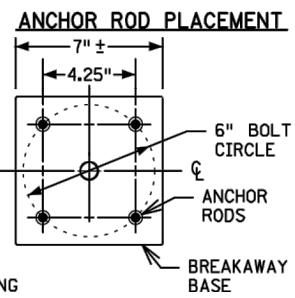
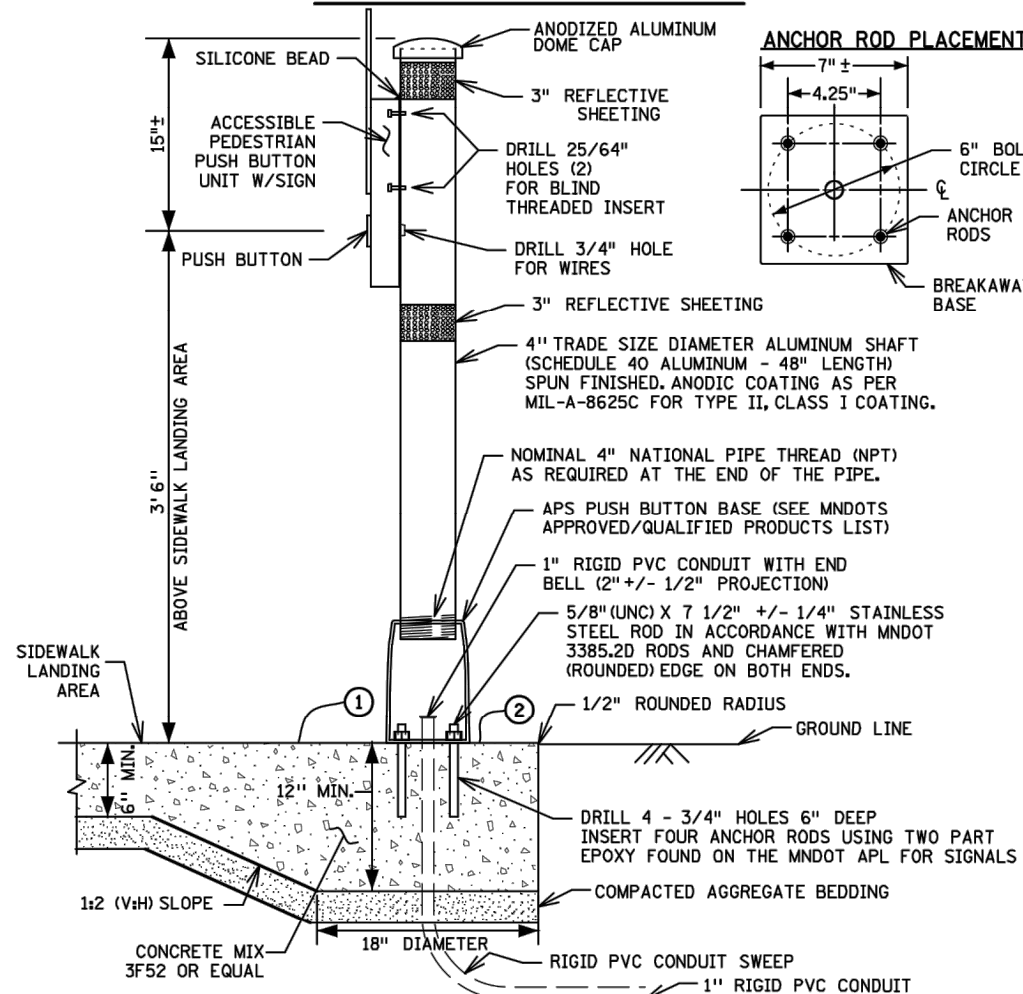
BRANDON J. BOURDON, P.E.
DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TRAFFIC SIGNAL PLANS
POLE MOUNT DETAIL

CITY PROJECT	SHEET NO.
COUNTY PROJECT	296
S.A.P. 062-593-004	
S.A.P.	335

APS PUSH BUTTON STATION



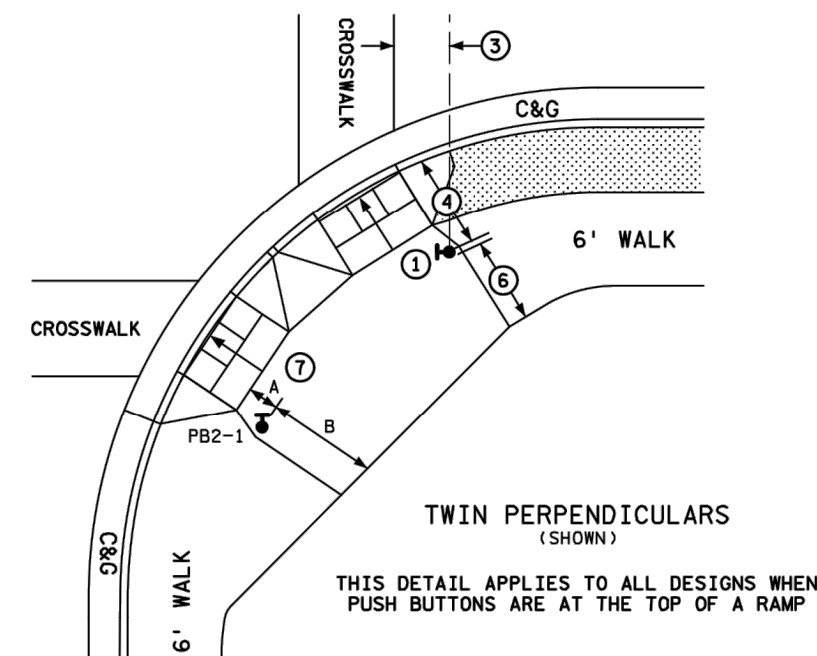
- NOTES:**
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.
 - ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
 - PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
 - INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.
 - USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.
 - USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
 - APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.
 - USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.
 - AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.
- THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.
 - ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

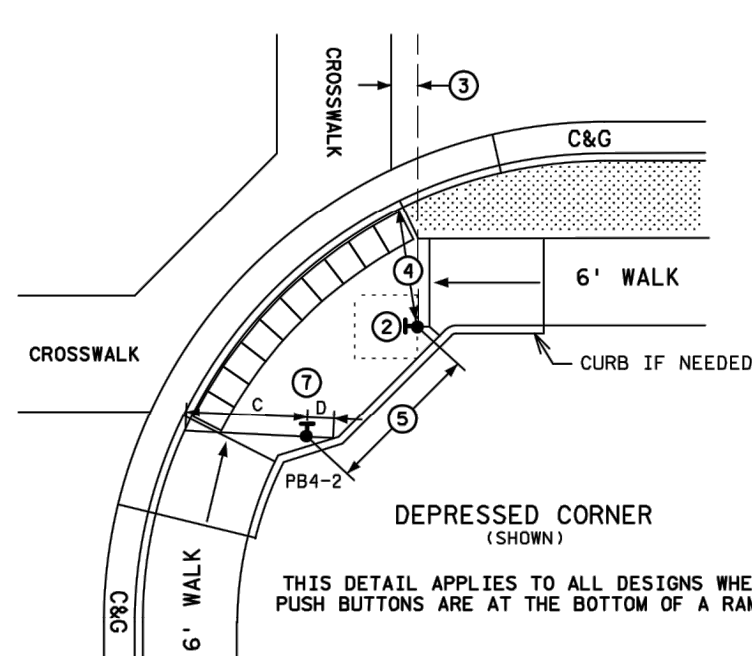
THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.
- A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.
- BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.
- BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.
- BUTTONS MINIMUM 10 FT APART.
- PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.
- BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.

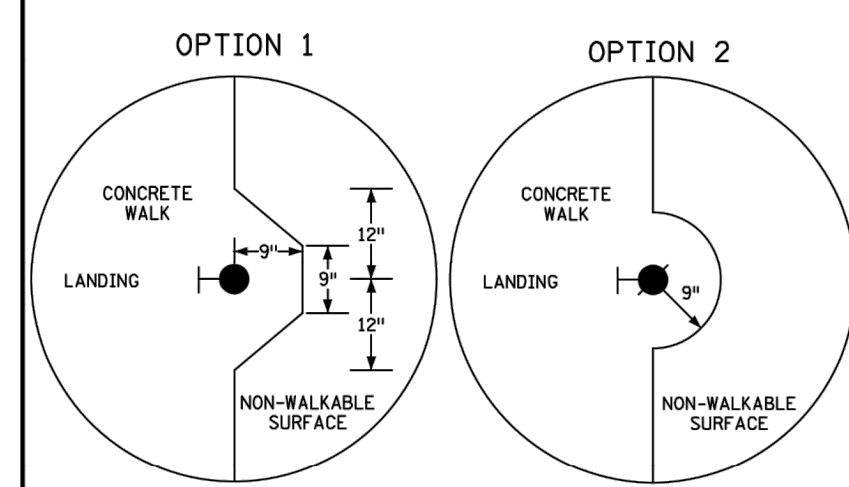


THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.



SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	-	-	A	B
PB4-2	-	-	C	D

- A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP
- B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK
- C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL
- D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

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No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_TSG.dwg
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				PROJECT NO. 160553004

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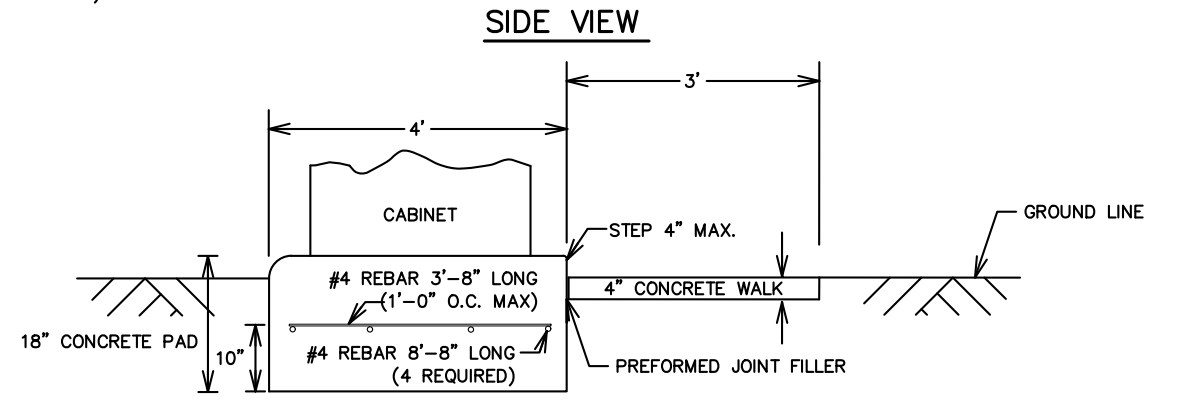
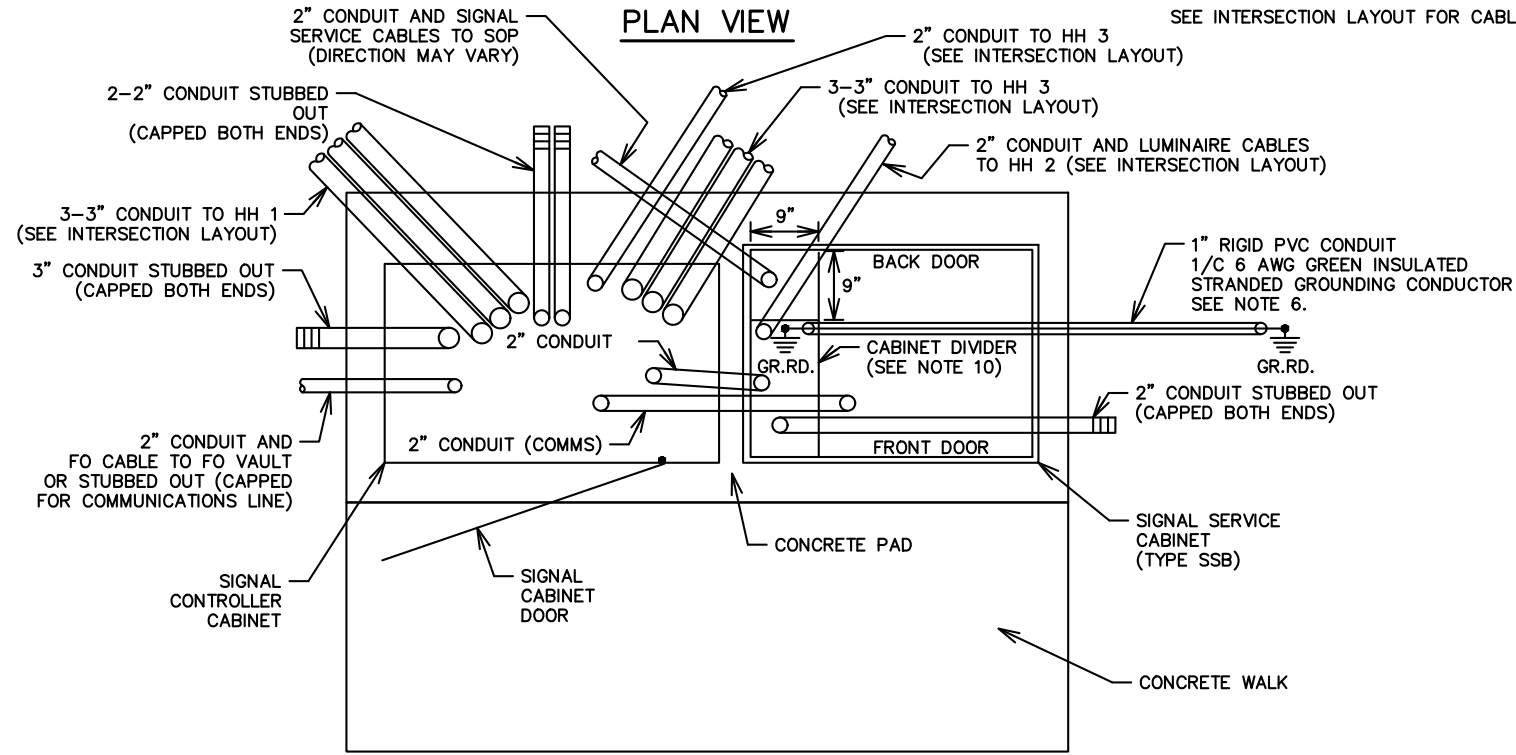
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 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TRAFFIC SIGNAL PLANS
 ACCESSIBLE PEDESTRIAN SIGNAL (APS) DETAIL

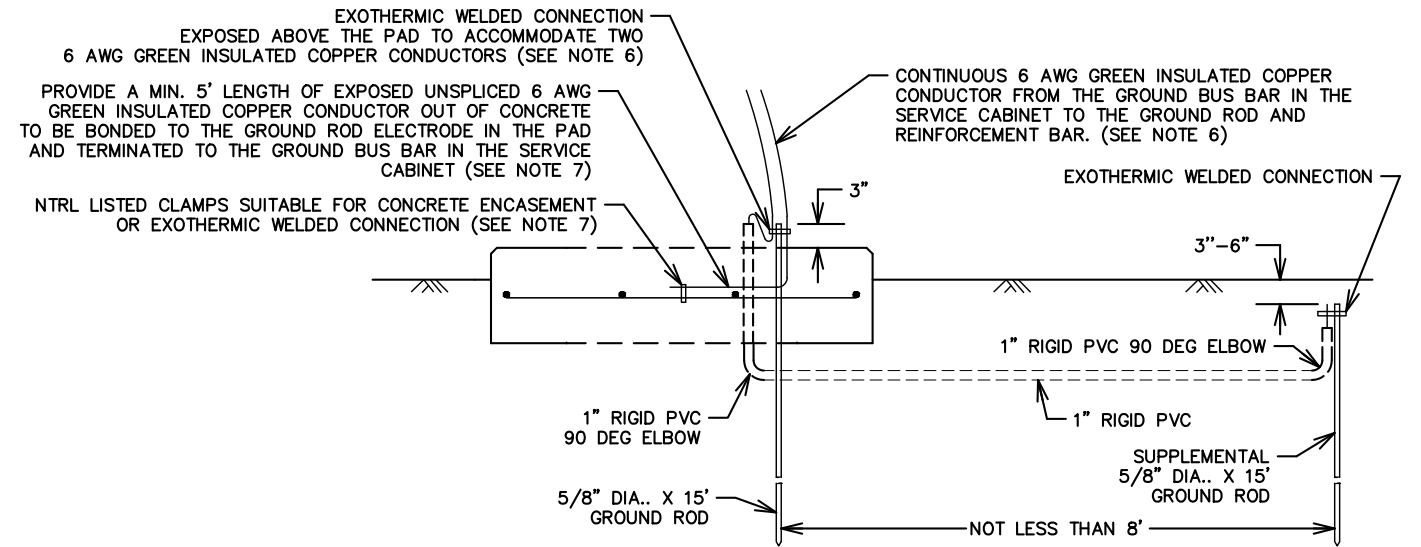
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COUNTY PROJECT	297
S.A.P. 062-593-004	
S.A.P.	335

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

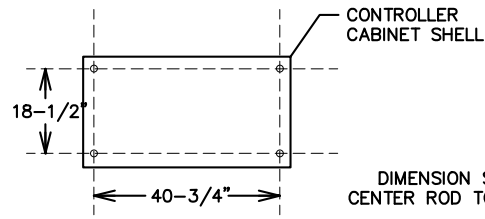
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)



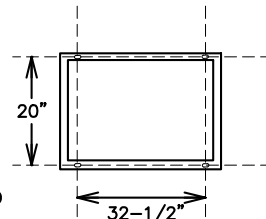
GROUNDING ELECTRODE SYSTEM



CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN

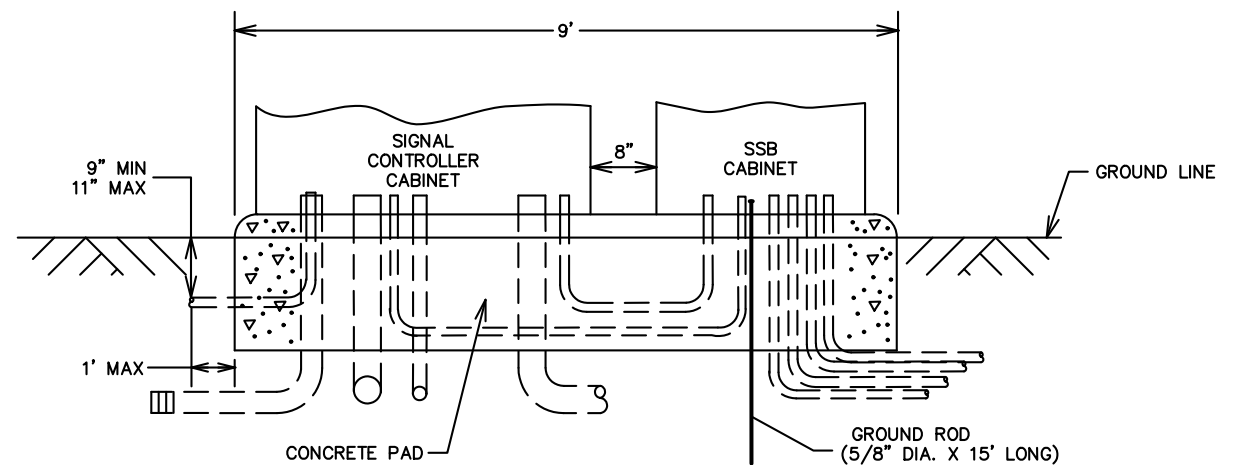


S.S.B. SERVICE CABINET BOLT PATTERN



- NOTES:**
- THE DEPARTMENT WILL FURNISH THE ANCHOR RODS, NUTS, WASHERS AND RUBBER GASKET FOR THE CONTROLLER CABINET.
 - BEVEL OR CHAMFER A 1/2 IN RADIUS ON THE OUTER EDGE OF THE PAD AND CONCRETE WALK.
 - CAP THE TOP OF THE CONDUITS AFTER PLACEMENT UNTIL CABLES ARE PLACED.
 - PROJECT THE CONDUIT 2" TO 3" ABOVE THE CONCRETE.
 - USE CONCRETE MIX 3F52.
 - SUPPLY TWO 15 FOOT GROUND ROD ELECTRODES IN ACCORDANCE WITH 2545.3R. PROVIDE ONE GROUND ROD IN THE EQUIPMENT PAD IN ACCORDANCE WITH 2545.3 F.3 AND THE OTHER OUTSIDE OF THE PAD WITH A MINIMUM OF 8 FEET OF SEPARATION BETWEEN ELECTRODES. BOND THE TWO GROUND RODS TOGETHER WITH ONE CONTINUOUS LENGTH UNSPLICED CONDUCTOR FROM THE OUTER MOST GROUND ROD TO THE GROUND BUS BAR IN THE CABINET. EXOTHERMICALLY WELD THE 6 AWG STRANDED GREEN INSULATED CONDUCTOR TO THE GROUND RODS. PLACE THE BONDING CONNECTION TO THE EQUIPMENT PAD GROUND ROD ABOVE THE CONCRETE. APPLY DE-OX COMPOUND TO THE GROUNDING CONNECTIONS AFTER FINAL ASSEMBLY.
 - BOND A 6 AWG GREEN INSULATED GROUNDING CONDUCTOR TO THE REINFORCEMENT BAR MAT BEFORE CONCRETE POURING OPERATIONS. ENSURE THE CONDUCTOR IS PLACED IN THE LOAD SIDE OF THE CABINET. TERMINATE THE GREEN INSULATED 6 AWG GROUND CONDUCTOR ON THE GROUND BUS IN THE SERVICE CABINET WITHOUT SPLICES.
 - ENSURE CONDUIT WITHIN THE PAD FROM ONE CABINET TO ANOTHER IS FULLY ENCASED IN CONCRETE.
 - PLACE THE CONDUITS AS DIRECTED BY THE ENGINEER. ENSURE THE CONDUITS DO NOT INTERFERE WITH THE SUPPORTING MEMBERS OR DIVIDERS OF THE CABINET.
 - ENSURE CONDUITS ARE PLACED TO THE LEFT OF THE DIVIDER AS SHOWN ON THE DETAIL.
 - PLACE ANCHOR RODS AS SHOWN ON THE DETAIL AND PROJECT 3 IN TO 4 IN ABOVE THE CONCRETE.
 - CENTER THE CABINETS ON THE PAD (LEFT & RIGHT) AS SHOWN ON THE DETAIL.
 - CENTER REINFORCEMENT BAR MAT IN CONCRETE PAD.

FRONT VIEW



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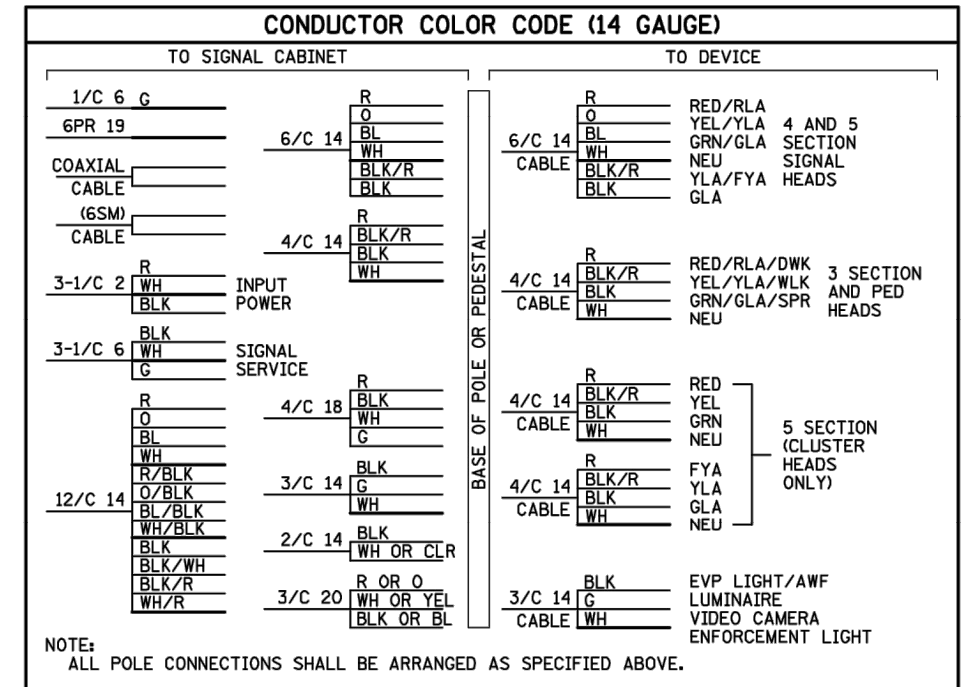
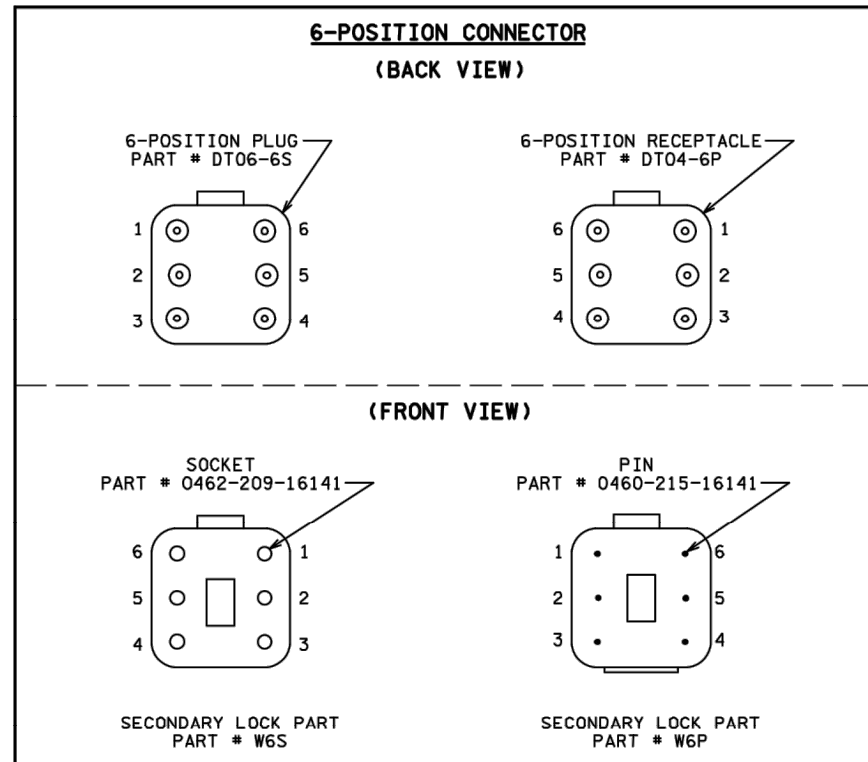
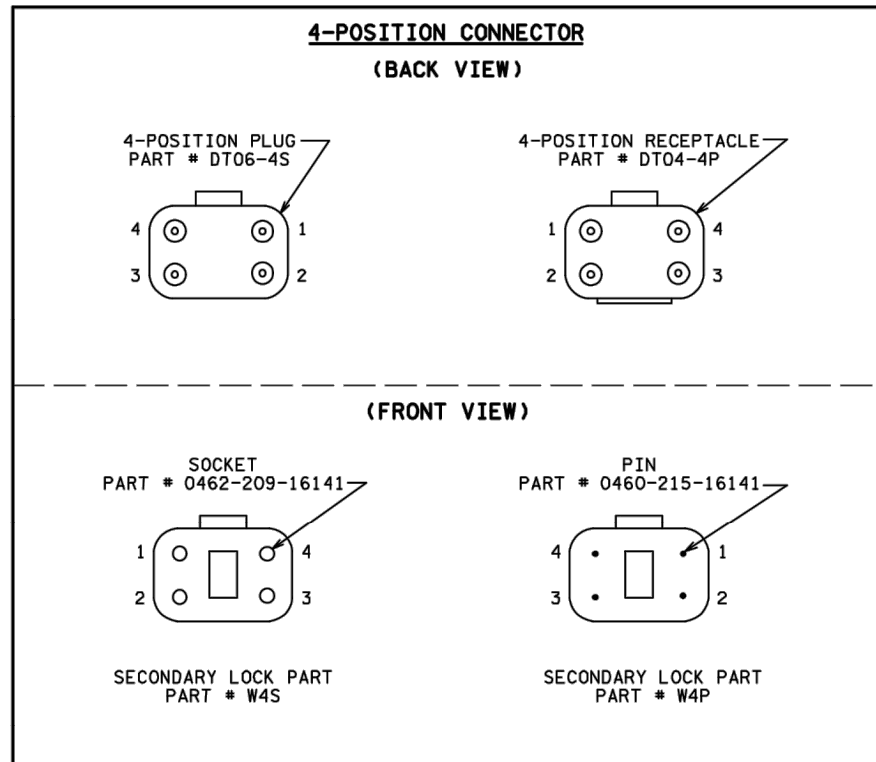
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DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TRAFFIC SIGNAL PLANS
EQUIPMENT PAD LAYOUT

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
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SHEET NO.	298
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4 Position DT Connector (3 Section Head/DWK/WLK)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R or R/BLK or BLK	1	R	RED or DWK
O or O/BLK or BLK/WH or BLK	2	BLK/R	YEL or WLK
BL or BL/BLK or BLK/R or BLK	3	BLK	GRN or SPR
WH or WH/BLK or WH/R	4	WH	NEU

4 Position DT Connector (EVP LHT/LUM/AWF/VID CAM/ENF LHT)
(Used with 3 Conductor Cable Only)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	EVP LHT or LUM or RED or YEL or VID CAM or ENF LHT or AWF
(Not Used)	2	(Not Used)	(Not Used) (See Note #8)
G	3	G	EQ.G
WH	4	WH	NEU

4 Position DT Connectors (Use Two Connectors for 5 Section FYA Cluster Heads)

12 Conductor Wire to Control Cabinet	Connector pin #	4 Conductor to Signal Indication	Signal Indication
R	1	R	RED
O	2	BLK/R	YEL
BL	3	BLK	GRN
WH	4	WH	NEU
R/BLK	1	R	FYA
O/BLK	2	BLK/R	YLA
BL/BLK	3	BLK	GLA
WH/BLK	4	WH	NEU

6 Position DT Connector (4 and 5 Section Heads)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R	1	R	RED
O	2	O	YEL
BL	3	BL	GRN
WH	4	WH	NEU
O/BLK or BLK/R (6/C)	5	BLK/R	YLA or FYLA
BL/BLK or BLK (6/C)	6	BLK	GLA

WIRE COLOR CODE KEY

R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

WIRE SPECIFICATION CHART

Type	Name	Specification Number
1/C 2	Power Conductors	3815.2B.1
1/C 6	Power Conductors	3815.2B.1
1/C 6 INS.GR.	Grounding Conductors	3815.2B.5
2/C 14	Loop Detector Lead-In Cable	3815.2C.4
3/C 14	Signal Control Cable	3815.2C.3
4/C 14	Signal Control Cable	3815.2C.3
6/C 14	Signal Control Cable	3815.2C.3
12/C 14	Signal Control Cable	3815.2C.3
6PR 19	Telephone Cables Outdoor	3815.2C.6.b
3/C 20	EVP Detector Cable	3815.2C.5

NOTES:

1. TERMINATE THE DT04-P RECEPTACLE TO THE WIRING HARNESS RUNNING FROM THE BASE/JUNCTION BOX OF THE POLES TO THE SIGNAL INDICATIONS.
2. TERMINATE THE DT06-S PLUGS TO THE CABLES RUNNING FROM THE TRAFFIC SIGNAL CABINETS TO THE BASE/JUNCTION BOX OF THE POLES.
3. LEAVE 24 INCHES OF SLACK ON EACH CABLE IN EACH POLE BASE /JUNCTION BOX.
4. STRIP 5 IN TO 6 IN OF THE OUTER JACKET OF EACH SIGNAL CABLE IN POLE BASES.
5. STRIP 1/4 IN OF INSULATION FROM EACH INDIVIDUAL CONDUCTOR IN EACH POLE BASE.
6. CRIMP PINS OR SOCKETS USING RATCHETING TYPE CRIMPING TOOL HDT-48-00. NO OTHER CRIMPING TOOL WILL BE ALLOWED.
7. TERMINATE CABLES AND CONDUCTORS AS SHOWN ON PLAN.
8. INSERT SEALING PLUGS (PART 114017) IN UNUSED PLUG AND RECEPTACLE PINS.
9. LABEL EACH HALF OF THE CONNECTOR (PLUG AND RECEPTACLE) WITH THE DEVICE DESIGNATION AS SHOWN ON THE WIRING DIAGRAM USING A PERMANENT BLACK MARKER.

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BRANDON J. BOURDON, P.E.
DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TRAFFIC SIGNAL PLANS
POLE WIRING CONNECTOR DETAIL

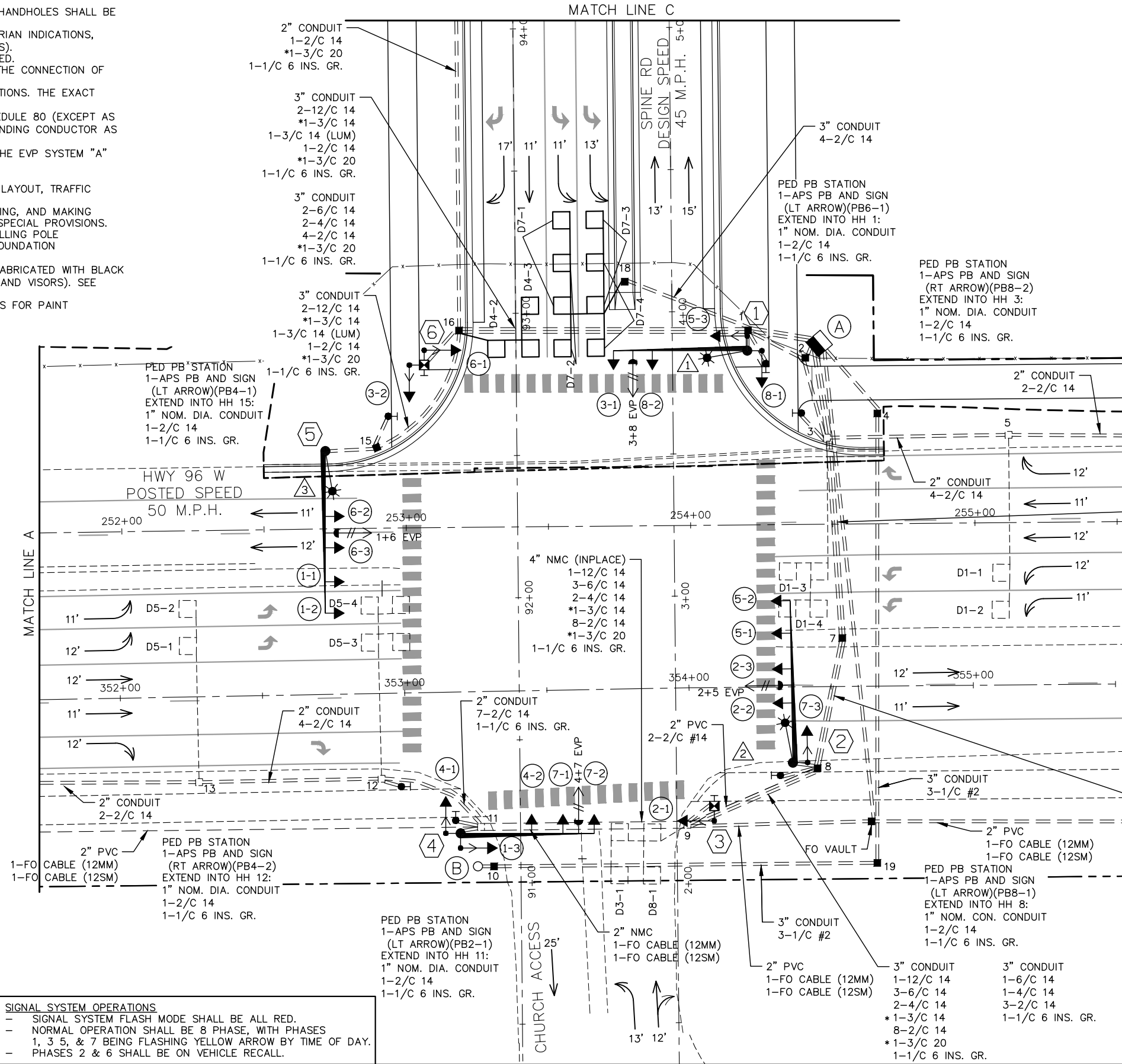
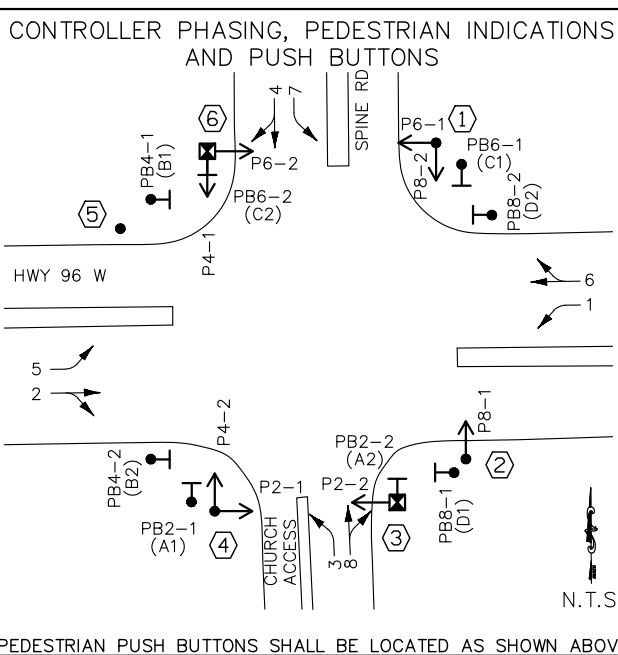
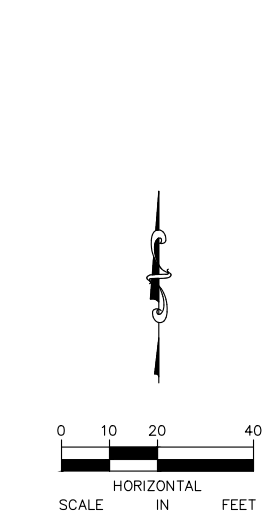
CITY PROJECT	SHEET NO.
COUNTY PROJECT	299
S.A.P. 062-593-004	
S.A.P.	335

NOTES:

1. THE EXACT LOCATION OF FOUNDATIONS, EQUIPMENT PAD, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY ENGINEER.
2. SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING PEDESTRIAN INDICATIONS, GALVANIZED POLES, AND ACCESSIBLE PEDESTRIAN SIGNALS (APS).
3. ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE NEW PERMANENT SIGNAL SYSTEM.
5. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, & GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
6. ALL NEW CONDUIT SHALL BE PVC SCHEDULE 80 OR HDPE SCHEDULE 80 (EXCEPT AS OTHERWISE NOTED) AND CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLANS.
7. ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "A" PAY ITEM.
8. ITEMS DENOTED WITH AN (**) DENOTES INTERCONNECTION ITEM.
9. SEE DETAIL FOR POLE MOUNTED SIGNAL, APS, EQUIPMENT PAD LAYOUT, TRAFFIC SIGNAL SIGNING, AND PAVEMENT MARKINGS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAKING OPERATIONAL THE TRAFFIC SIGNAL CONTROLLER CABINET. SEE SPECIAL PROVISIONS.
11. CONTRACTOR SHALL VERIFY GROUNDWATER LEVELS WHEN INSTALLING POLE FOUNDATIONS AND SHALL DE-WATER AS NECESSARY DURING FOUNDATION INSTALLATION (INCIDENTAL).
12. ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE FABRICATED WITH BLACK POLYCARBONATE MATERIALS (INCLUDING BACKGROUND SHIELDS AND VISORS). SEE SPECIAL PROVISIONS.
13. THE SIGNAL POLES SHALL BE PAINTED. SEE SPECIAL PROVISIONS FOR PAINT REQUIREMENTS.

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	1-6'X6'	76'
D1-2	1-6'X6'	76'
D1-3	2-6'X6'	1' & 12'
D1-4	2-6'X6'	1' & 12'
D2-1	6'X6'	442'
D2-2	6'X6'	442'
D3-1	2-6'X6'	5' & 20'
D4-1	6'X6'	300'
D4-3	6'X6'	5'
D4-2	2-6'X6'	5' & 20'
D5-1	1-6'X6'	72'
D5-2	1-6'X6'	72'
D5-3	2-6'X6'	-3' & 8'
D5-4	2-6'X6'	-3' & 8'
D6-1	6'X6'	446'
D6-2	6'X6'	446'
D7-1	2-6'X6'	20' & 50'
D7-2	2-6'X6'	5' & 35'
D7-3	2-6'X6'	20' & 50'
D7-4	2-6'X6'	5' & 35'
D8-1	2-6'X6'	5' & 20'

NOTES:
 -ALL LOOP DETECTORS ARE INPLACE WITH THE EXCEPTION OF PHASES 4 AND 7.
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



SIGNAL SYSTEM OPERATIONS
 - SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1, 3 5, & 7 BEING FLASHING YELLOW ARROW BY TIME OF DAY.
 - PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.

SIGNAL HEAD CHART				
FACE	R	Y	FYA	G
1-1, 1-2, 1-3	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
3-1, 3-2	←	←	←	←
4-1, 4-2	●	●	●	●
5-1, 5-2, 5-3	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
7-1, 7-2, 7-3	←	←	←	←
8-1, 8-2	●	●	●	●

- ALL SIGNAL INDICATIONS SHALL BE 12" LED
 - ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
 - FYA DENOTES FLASHING YELLOW ARROW

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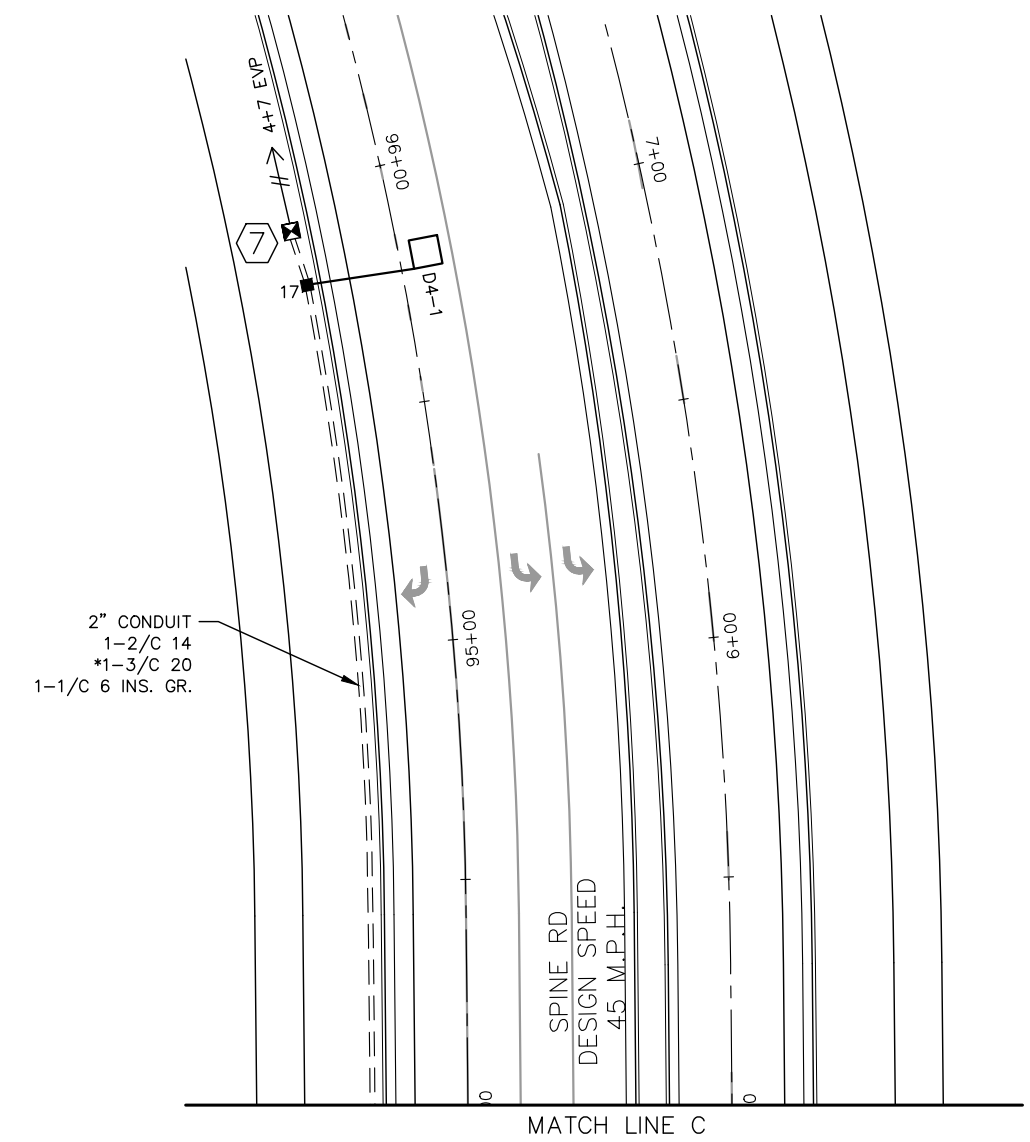
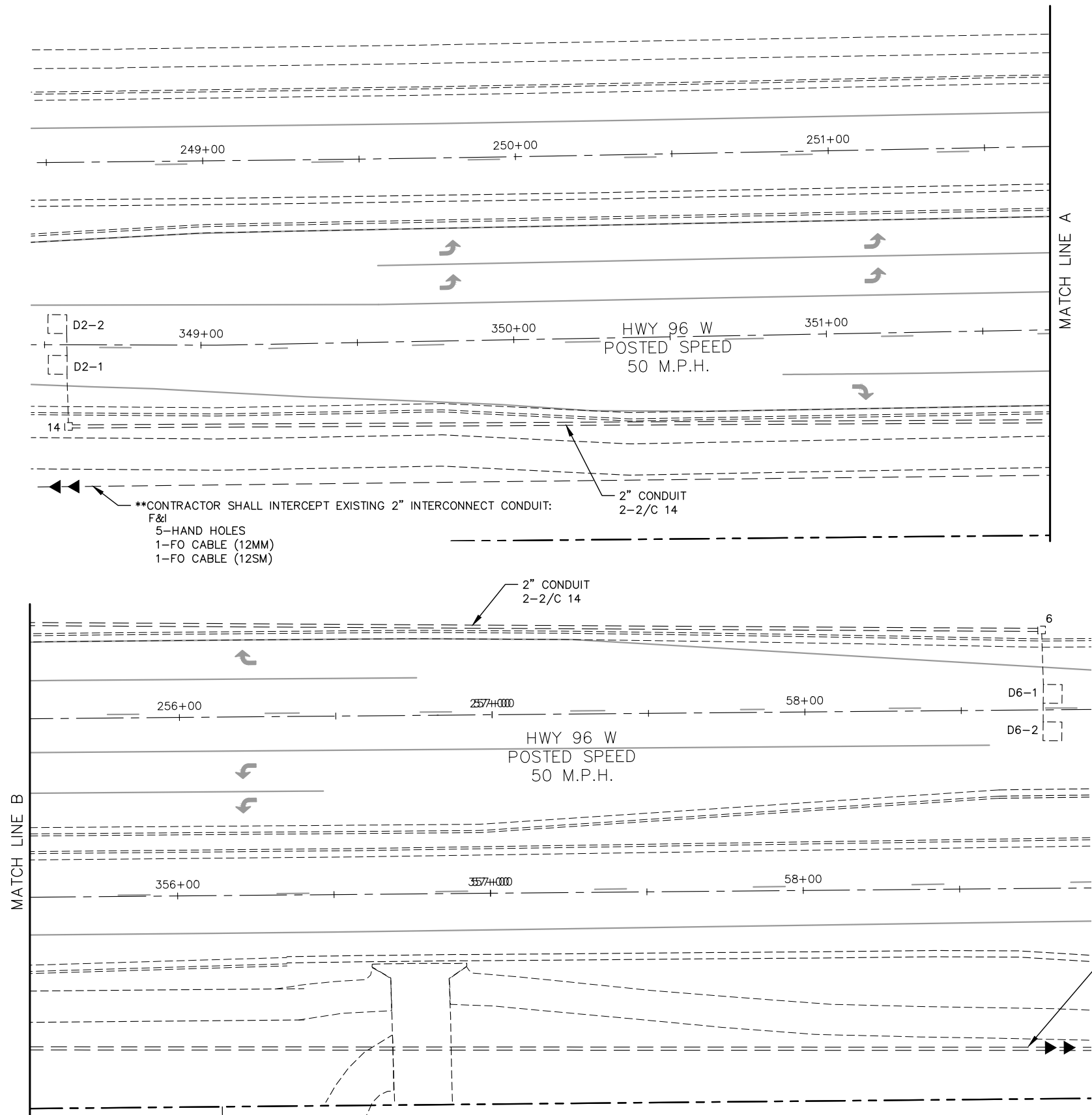
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RAMSEY COUNTY
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 TRAFFIC SIGNAL PLANS
 SIGNAL SYSTEM "A"
 INTERSECTION LAYOUT

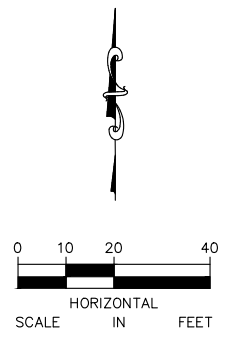
CITY PROJECT	SHEET NO.
COUNTY PROJECT	300
S.A.P. 062-593-004	335
S.A.P.	

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**CONTRACTOR SHALL F&I 3,500' OF 2" PVC INTERCONNECT CONDUIT TO HAMLINE AVE N:
 F&I
 12-HAND HOLES
 1-FO CABLE (12MM)
 1-FO CABLE (12SM)



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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TRAFFIC SIGNAL PLANS
 SIGNAL SYSTEM "A"
 INTERSECTION MATCHLINES

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
301
335

INTERSECTION NOTES

① PA100 POLE FOUNDATION
 TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 14'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8)
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
 1-R10-X12 SIGN ADJACENT TO HEAD (3-1)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 1:
 1-12/C 14
 2-6/C 14
 2-4/C 14
 *1-3/C 14
 1-3/C 14 (LUM)
 *1-3/C 20
 1-1/C 6 INS. GR.

② PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 3-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12', 24', & 36'
 1-ANGLE MOUNT SIGNAL AT 180 DEG
 1-ANGLE MOUNT C.D. PED HEAD AT 180 DEG
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
 1-R10-X12 SIGN ADJACENT TO HEAD (5-2)
 1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 8:
 2-12/C 14
 1-6/C 14
 1-4/C 14
 *1-3/C 14
 1-3/C 14 (LUM)
 *1-3/C 20
 1-1/C 6 INS. GR.

③ PEDESTAL FOUNDATION
 10' PEDESTAL POLE PLUS BASE
 1-STRAIGHT MOUNT SIGNAL AT 90 DEG
 1-STRAIGHT MOUNT C.D. PED HEAD AT 90 DEG
 1-APS PB AND SIGN (RT ARROW) (PB2-2)
 AND APS PB MOUNTING SPACERS
 3" CONDUIT TO HH 9:
 1-6/C 14
 1-4/C 14
 1-2/C 14
 1-1/C 6 INS. GR.

④ PA100 POLE FOUNDATION
 TYPE PA100-A-45-D40-9
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 22'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
 1-R10-X12 SIGN ADJACENT TO HEAD (7-2)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 11:
 1-12/C 14
 3-6/C 14
 2-4/C 14
 *1-3/C 14
 *1-3/C 20
 1-1/C 6 INS. GR.

⑤ PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 3-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11', 23', AND 34'
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
 1-R10-X12 SIGN ADJACENT TO HEAD (1-2)
 1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 15:
 2-12/C 14
 *1-3/C 14
 1-3/C 14 (LUM)
 *1-3/C 20
 1-1/C 6 INS. GR.

⑥ PEDESTAL FOUNDATION
 10' PEDESTAL POLE PLUS BASE
 2-STRAIGHT MOUNT SIGNALS AT 90 AND 180 DEG
 2-STRAIGHT MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 1-APS PB AND SIGN (RT ARROW) (PB6-2)
 AND APS PB MOUNTING SPACERS
 3" CONDUIT TO HH 16:
 2-6/C 14
 2-4/C 14
 1-2/C 14
 1-1/C 6 INS. GR.

Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET (SSB)
 CONTROLLER AND CABINET (STATE FURNISHED)

3" CONDUIT TO HH 3: 1-12/C 14 3-6/C 14 2-4/C 14 *1-3/C 14 8-2/C 14 *1-3/C 20 1-1/C 6 INS. GR.	3" CONDUIT TO HH 1: 1-12/C 14 2-6/C 14 2-4/C 14 *1-3/C 14 5-2/C 14 *1-3/C 20 1-1/C 6 INS. GR.
3" CONDUIT TO HH 3: 1-6/C 14 1-4/C 14 3-2/C 14 1-1/C 6 INS. GR.	3" CONDUIT TO HH 1: 2-12/C 14 *1-3/C 14 1-2/C 14 *1-3/C 20 1-1/C 6 INS. GR.
3" CONDUIT TO HH 3: 2-12/C 14 1-6/C 14 1-4/C 14 *1-3/C 14 *1-3/C 20 1-1/C 6 INS. GR.	3" CONDUIT TO HH 1: 2-6/C 14 2-4/C 14 4-2/C 14 *1-3/C 20 1-1/C 6 INS. GR.

2" CONDUIT TO HH 3:
7-2/C 14
1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 2" CONDUIT TO FO VAULT:
 1-FO PIGTAIL (12-MM)
 1-FO PIGTAIL (12-SM)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 3-1/C #6
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-6PR 19
 SERVICE CABINET TO HH 4:
 2" CONDUIT
 3-1/C #2

SERVICE CABINET TO HH 2:
 2" CONDUIT
 3-3/C 14 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C 6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)
 HH 2 TO HH 1:
 2" CONDUIT
 2-3/C 14 (LUM)
 HH 2 TO HH 3:
 2" CONDUIT
 1-3/C 14 (LUM)

⑦ PEDESTAL FOUNDATION
 10' PEDESTAL POLE PLUS BASE
 *1-ONE WAY EVP DETECTOR (PHASE 4+7)
 2" CONDUIT TO HH 17:
 *1-3/C 20
 1-1/C 6 INS. GR.

Ⓑ SOP-WOOD POLE (XCEL ENERGY)
 120/240 TRANSFORMER
 2" RSC RISER, WEATHERHEAD & PVC TO HH 10:
 3-1/C #2

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No.	Date	Revisions	App.


DRAWING NAME	TCAAP_SPINERD_TSG.dwg
DESIGNED BY:	BKV
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DATE:	01/04/19
PROJECT NO.	160553004



767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709



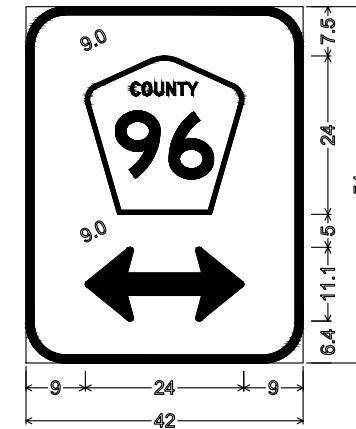
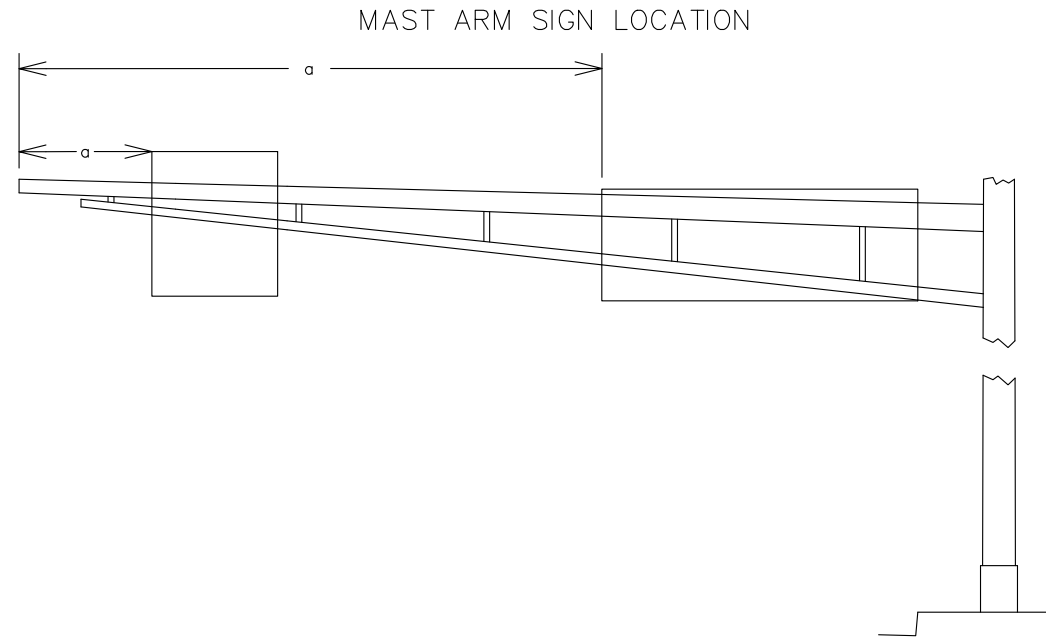
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 TRAFFIC SIGNAL PLANS
 SIGNAL SYSTEM "A"
 POLE NOTES

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

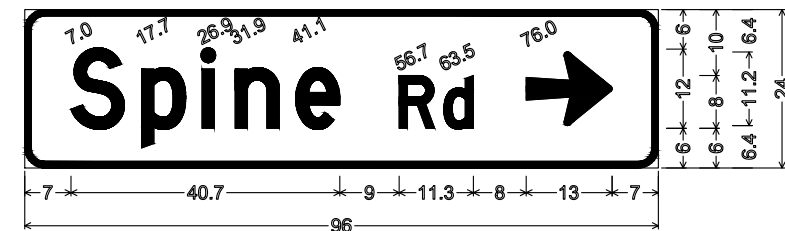
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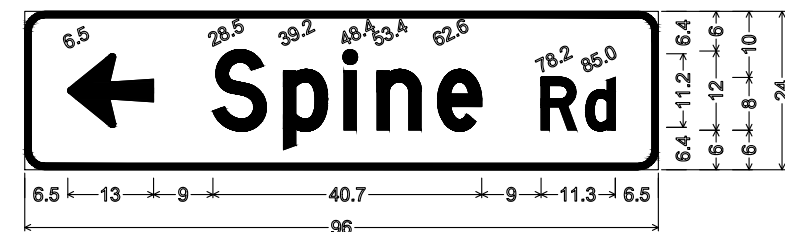
SIGN DETAILS



D-1;
6.0" Radius, 1.3" Border, White on Green;
Pentagonal County 96 M1-6a;
Double Headed Arrow 5 - 24.0" 0°;



D-2;
3.0" Radius, 1.0" Border, White on Green;
"Spine" D; "Rd" D; Arrow 5 - 13.0" 0°;



D-3;
3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180°; "Spine" D; "Rd" D;

SIGN PANELS TYPE OVERLAY							
CODE NO	QTY	SIZE INCH		AREA SQ FT	TOTAL SQ FT	LEGEND	
M1-6a	2	24	x	24	4.00	8.00	COUNTY 96

MAST ARM MOUNTED SIGNS										
SIGN NO	POLE NO	QTY	a FEET	PANEL			MOUNTING STIFFENERS		PANEL LEGEND	
				SIZE INCH	AREA SQ FT	TOTAL AREA SQ FT	NUMBER	SPACING (1)		
D-1	1	1	13	42 x 54	15.75	15.75	2	30	COUNTY 96 DOUBLE ARROW	
D-1	4	1	13	42 x 54	15.75	15.75	2	30	COUNTY 96 DOUBLE ARROW	
D-2	5	1	41	96 x 24	16.00	16.00	4	24	SPINE RD RIGHT ARROW	
D-3	2	1	38	96 x 24	16.00	16.00	4	24	SPINE RD LEFT ARROW	
R10-X12	1	1	0	42 x 48	14.00	14.00	2	30	LEFT TURN YIELD ON FLASHING YELLOW ARROW	
R10-X12	2	1	0	42 x 48	14.00	14.00	2	30	LEFT TURN YIELD ON FLASHING YELLOW ARROW	
R10-X12	4	1	0	42 x 48	14.00	14.00	2	30	LEFT TURN YIELD ON FLASHING YELLOW ARROW	
R10-X12	5	1	0	42 x 48	14.00	14.00	2	30	LEFT TURN YIELD ON FLASHING YELLOW ARROW	

SPECIFIC NOTES:

(1) SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL, PAGE 105A FOR STIFFENER SPACING REQUIREMENTS.

GENERAL NOTES:

- CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS SEE STANDARD SIGNS AND MARKINGS MANUAL, PAGE 105A.
- FOR TYPE D STRINGER AND PANEL JOINT DETAILS SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL, PAGE 105.
- THE MAST ARM MOUNTED SIGNS ARE INCLUDED IN THE TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.

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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
TRAFFIC SIGNAL PLANS
SIGNAL SYSTEM "A"
TYPE "D" SIGN DETAILS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.	303
	335

PERMANENT PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY 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 AN AGENCY PLACED 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 INCH UNDER OR 1/4 INCH OVER 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 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT MARKING APPLICATION REQUIREMENTS.

MULTI-COMPONENT LIQUID:

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 (NON-METALLIC) 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.

THE MULTI-COMPONENT LIQUID MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT LIQUID PAVEMENT MARKING.

APPLY MULTI-COMPONENT LIQUID MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS; GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40 DEG F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PREFORMED MARKINGS:

MANUFACTURER CERTIFICATIONS ARE REQUIRED FOR INSTALLERS, AND WRITTEN CERTIFICATION SHALL BE PRESENTED AT ANYTIME UPON REQUEST OF ENGINEER OR OTHER STATE PERSONAL.

DO NOT USE LINE MATERIAL TO PIECE TOGETHER INDIVIDUAL LETTERS, SYMBOLS, OR CROSSWALKS BLOCKS. UTILIZE PRECUT KITS PROVIDED BY THE MANUFACTURER. TWO STRIPS OF 18" LINE MATERIAL MAY BE USED TO FORM CROSSWALK BLOCKS OF 36" WIDTH.

DO NOT USE NARROWER LINE MATERIAL TO PIECE TOGETHER WIDER LINES.

IF THERE IS A CRACK OR JOINT IN ROAD SURFACE. (FOR TAPE LAY OVER CRACK OR JOINT THEN CUT TAPE 1" ON EACH SIDE OF CRACK OR JOINT). (FOR THERMO MAKE A DEEP SCORE IN THE MATERIAL ONCE IT HAS SET UP BUT NOT ENTIRELY COOLED DOWN).

PREFORM TAPE INLAY APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150 DEG F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120 DEG F. APPLICATION BELOW 120 DEG F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15th AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF THE YEAR.

NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT PLACE LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS. OF WEIGHT.

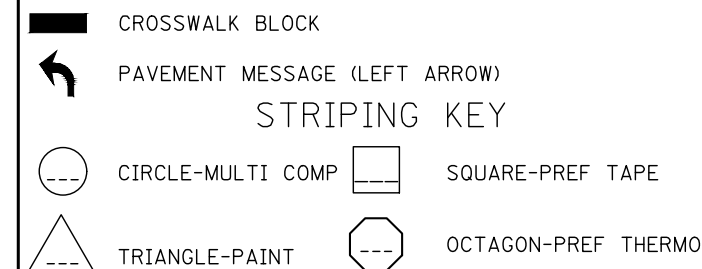
USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR. IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER, MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

BITUMINOUS PAVEMENT SURFACES WHERE PAVEMENT MARKINGS CANNOT BE INLAID IN THE HOT MAT SHALL HAVE A RECESS GROUND IN FOR THE PLACEMENT OF DURABLE REFLECTORIZED PAVEMENT MARKINGS. SEE CONSTRUCTION SPECIFICATIONS.

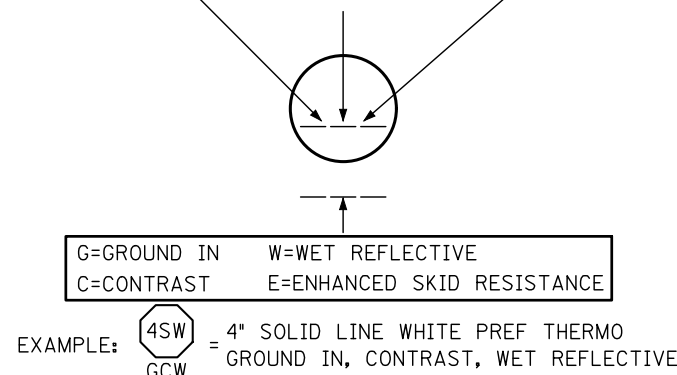
PERMANENT PAVEMENT MARKING PLAN INDEX

304	TITLE SHEET
305-307	PAVEMENT MARKING TYPICALS
308-309	SIGNING TABULATIONS
310-326	SIGNING AND PAVEMENT MARKING PLAN
327	SIGN PANEL LAYOUTS
328-331	SIGNING DETAILS

SYMBOLS & MATERIALS LEGEND



1ST DIGIT WIDTH 4", 8", ETC.	2ND DIGIT PATTERN S - SOLID B - BROKEN T - DOTTED D - DOUBLE K - DOUBLE BROKEN H - DOUBLE DOTTED	3RD DIGIT COLOR W - WHITE Y - YELLOW B - BLACK
------------------------------------	---	--



PAVEMENT MARKING TABULATION

ITEM	UNIT	QUANTITY
PAVEMENT MARKING REMOVAL	LIN FT	1,750
4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	14,000 ②
12" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	60 ③
4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	2,400 ④
12" DOTTED LINE PREFORM THERMOPLASTIC GROUND IN	LIN FT	350 ⑤
PAVEMENT MESSAGE PREFORM TAPE GROUND IN	SQ FT	30 ⑥
PAVEMENT MESSAGE PREFORM THERMOPLASTIC GROUND IN	SQ FT	1,167 ①
CROSSWALK PREFORM THERMOPLASTIC GROUND IN	SQ FT	4,695 ⑤

SPECIFIC NOTES

- ① 22 LEFT TURN PAVEMENT MARKING ARROWS (15 SQ FT EA).
16 RIGHT TURN PAVEMENT MARKING ARROWS (15 SQ FT EA).
4 THRU PAVEMENT MARKING ARROWS (12.20 SQ FT EA).
8 SHARED THRU/LEFT TURN PAVEMENT MARKING ARROWS (30 SQ FT EA).
5 SHARED THRU/RIGHT TURN PAVEMENT MARKING ARROWS (30 SQ FT EA).
5 SHARED THRU/LEFT (ROUNDAABOUT) TURN PAVEMENT MARKING ARROWS (31.47 SQ FT EA).
- ② 13,200 LIN FT WHITE, 800 LIN FT YELLOW.
- ③ WHITE.
- ④ 3 FT LINE, 3 FT GAP (6 FT CYCLE), UNLESS OTHERWISE NOTED ON THE PLANS.
- ⑤ 4,035 SQ FT WHITE (2.5' X 6' BLOCK).
660 SQ FT WHITE (2.5' X 8' BLOCK).
- ⑥ 2 LEFT TURN PAVEMENT MARKING ARROWS (15 SQ FT EA).

PERMANENT SIGNING TABULATION

ITEM	UNIT	QUANTITY
REMOVE PERMANENT BARRICADE	EACH	7
REMOVE DELINEATOR	EACH	9
REMOVE SIGN TYPE C	EACH	2
OBJECT MARKER TYPE X4-2	EACH	15
OBJECT MARKER TYPE X4-4	EACH	2
SIGN PANELS TYPE C	SQ FT	1425
SIGN PANELS TYPE D	SQ FT	11.25

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				DESIGNED BY: BKV
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				PROJECT NO. 160553004

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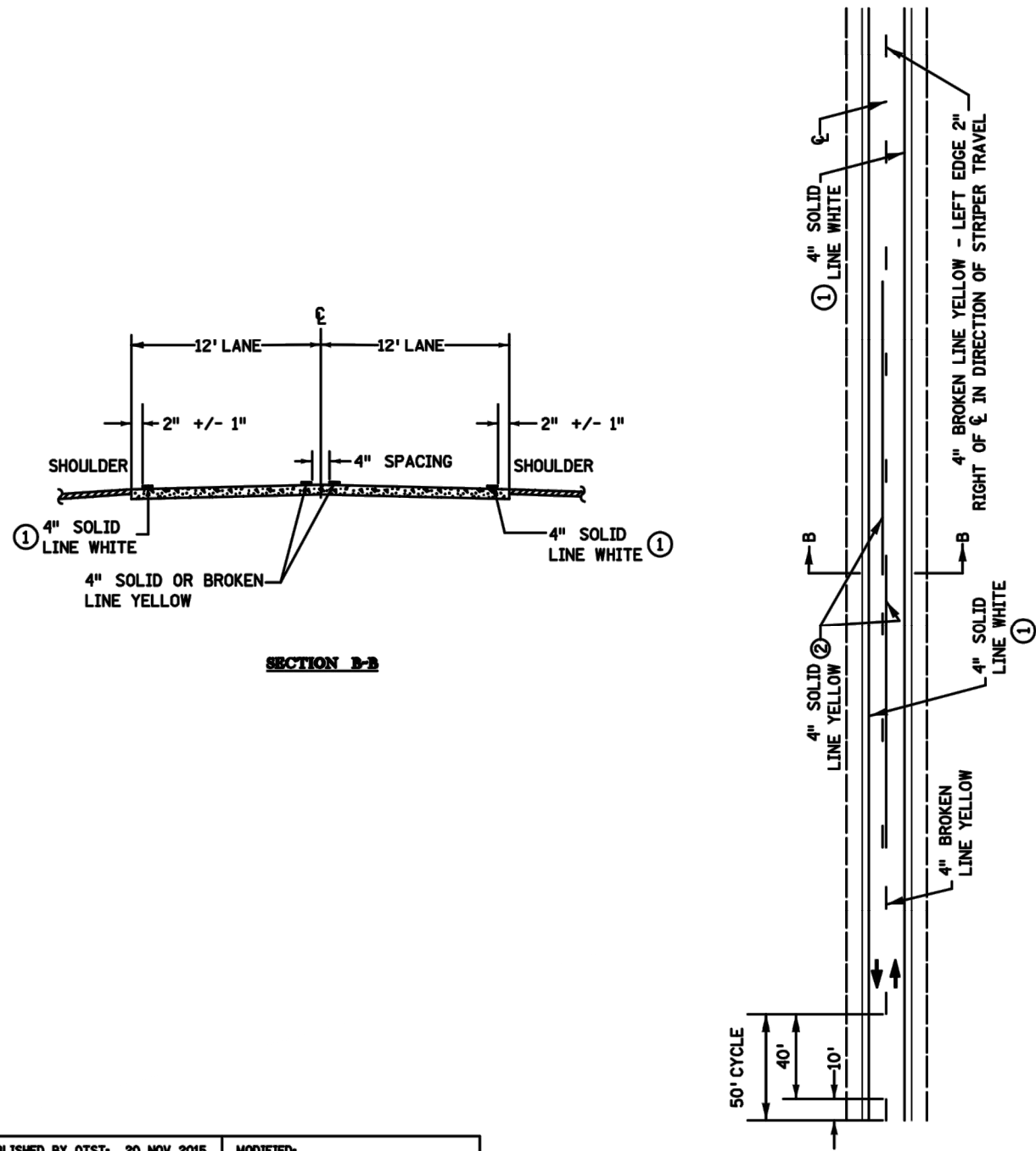
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RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
SIGNING AND PAVEMENT MARKING PLANS
TITLE SHEET

CITY PROJECT	SHEET NO.
COUNTY PROJECT	304
S.A.P. 062-593-004	
S.A.P.	335

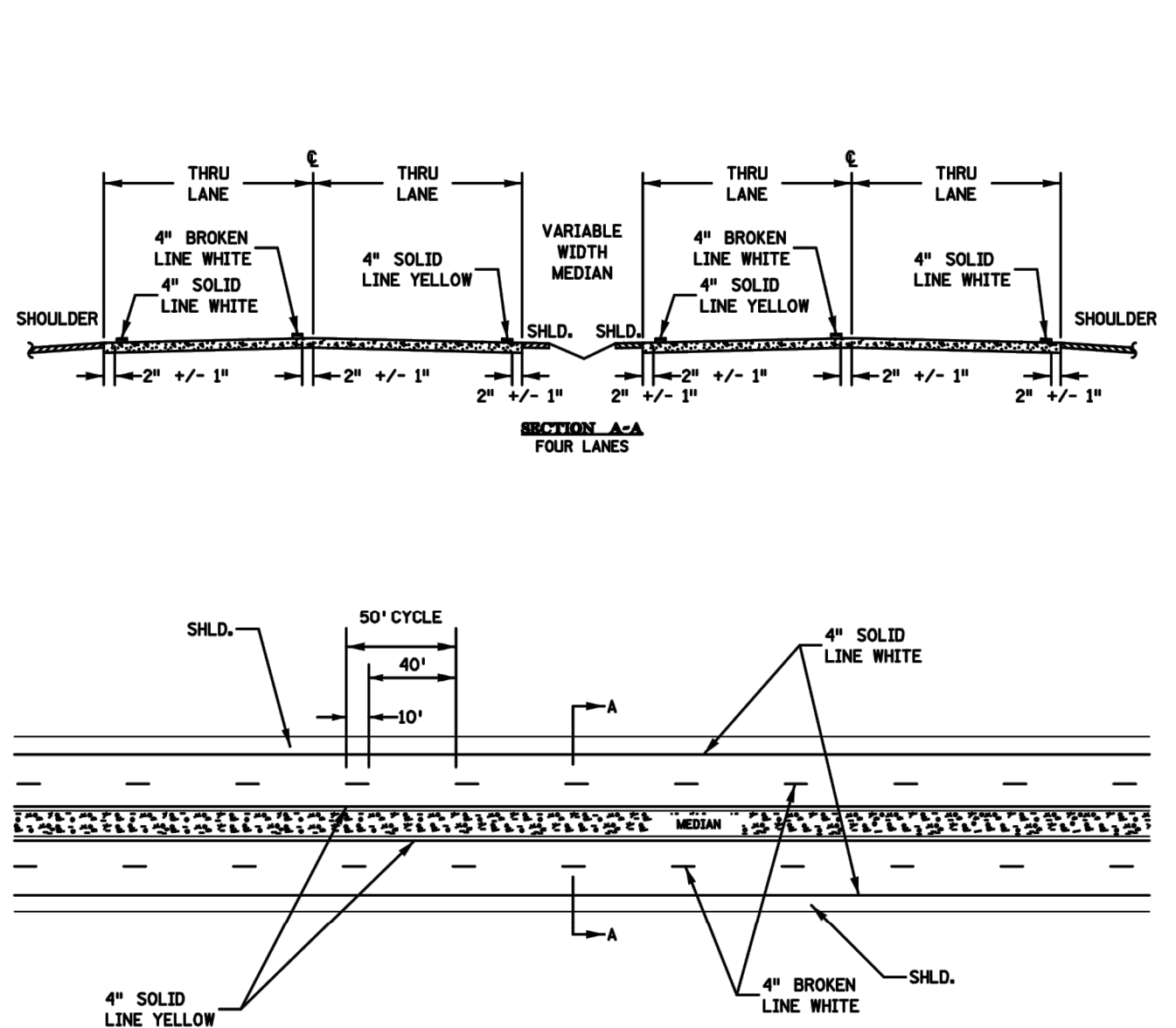
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TWO-LANE, TWO-WAY



PUBLISHED BY OTST: 20 NOV 2015 MODIFIED:

FOUR-LANE DIVIDED LANE



PUBLISHED BY OTST: 20 NOV 2015 MODIFIED:

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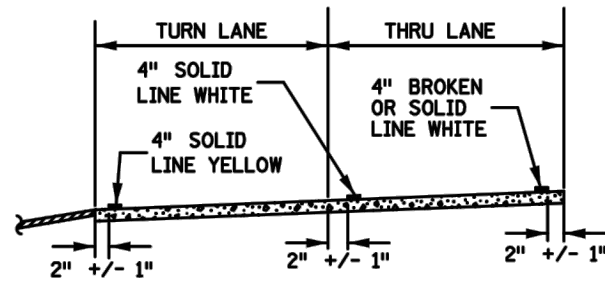
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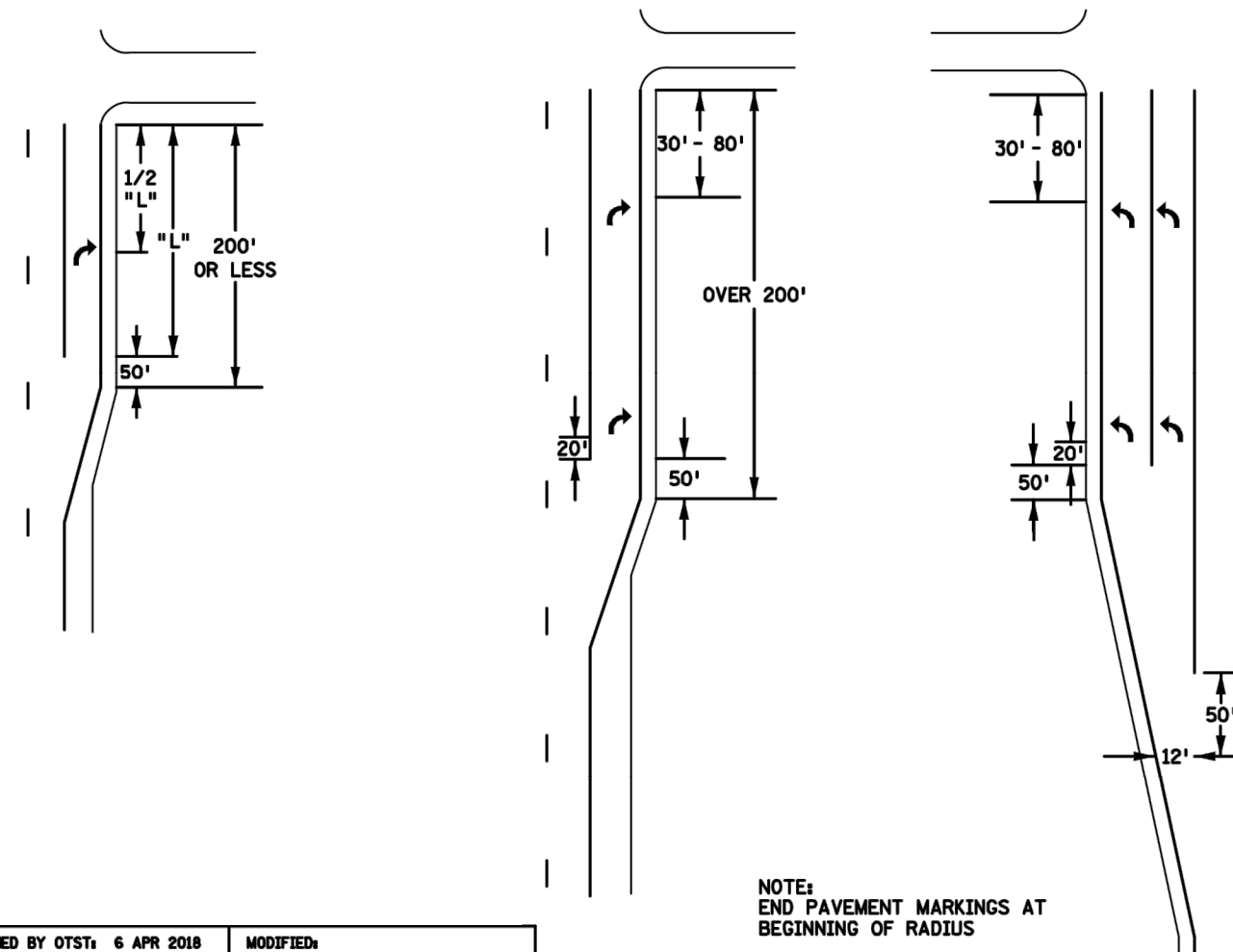
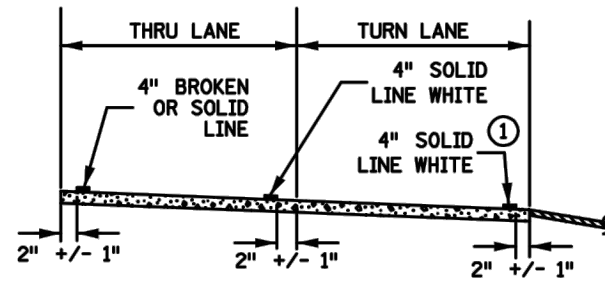
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TURN LANE WITH ARROW MESSAGE

LEFT TURN LANE

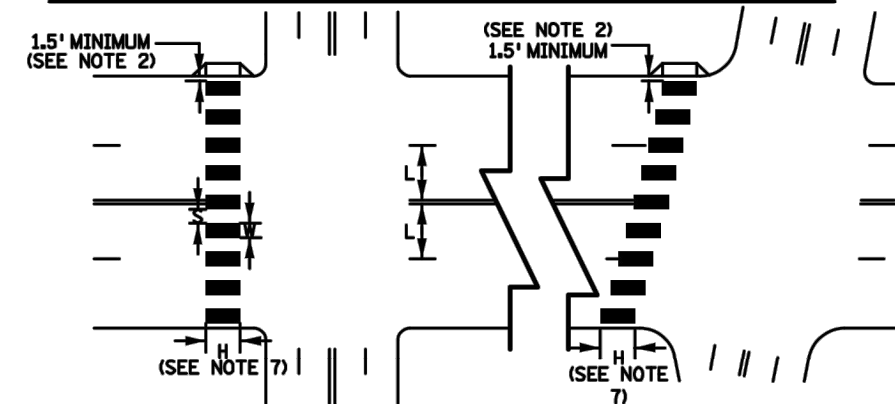


RIGHT TURN LANE



PEDESTRIAN CROSSWALK MARKINGS

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF SPACE
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



NOTES:

- PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
- A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
- ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
- 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.
- AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
- THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
- THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES, FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
- THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

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SHEET NO.

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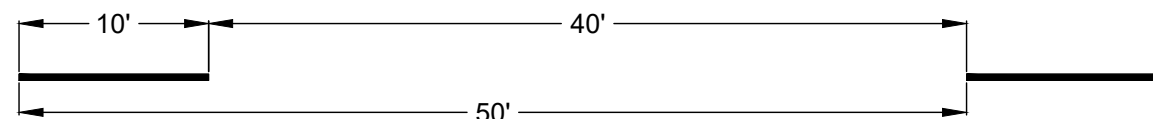
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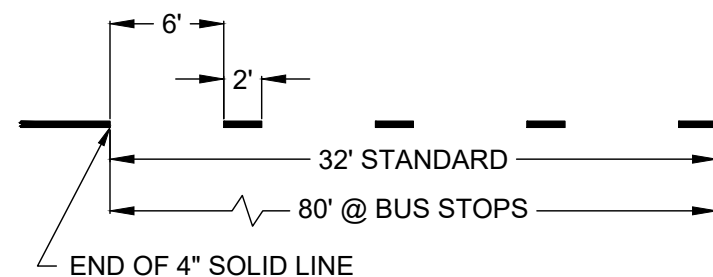
SKIP CYCLES

4" SKIP CYCLES

CENTERLINE AND CENTER TURN LANE
10' SKIP WITH 40' SPACE (50' OVERALL CYCLE)

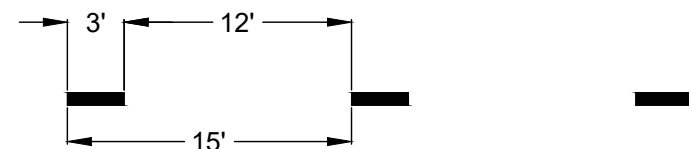


BIKE LANES APPROACHING INTERSECTIONS AND BUS STOPS
6' SPACE AND 2' SKIP (8' OVERALL CYCLE)
32' STANDARD LENGTH WHEN APPROACHING INTERSECTION
80' WHEN BUS STOP PRESENT

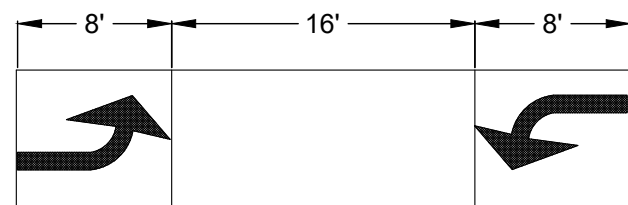


8" SKIP CYCLE

LANE ENDS
3 SPACE AND 12' SKIP (15' OVERALL CYCLE)

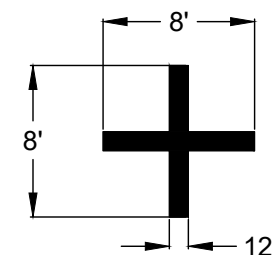


TYPICAL CENTER LEFT TURN ARROWS

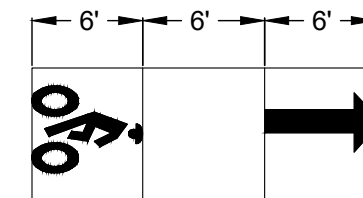


SURVEY MARKER

16' OF 12"
SOLID WHITE

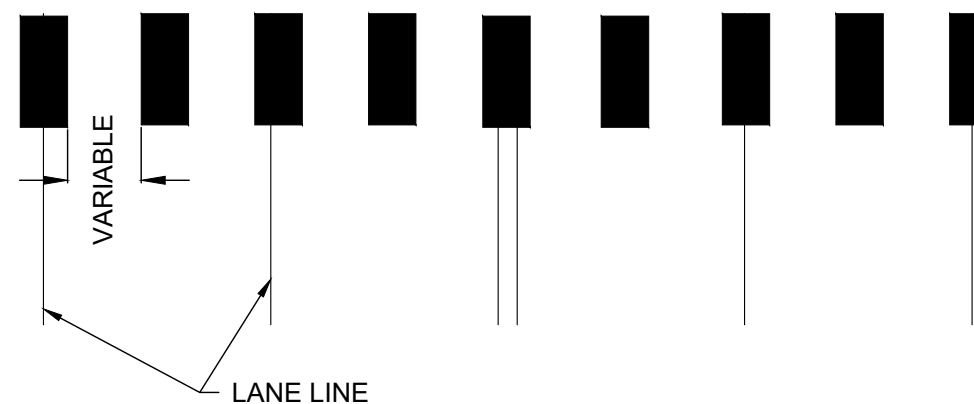


BIKE SYMBOLS



CROSSWALK BLOCKS

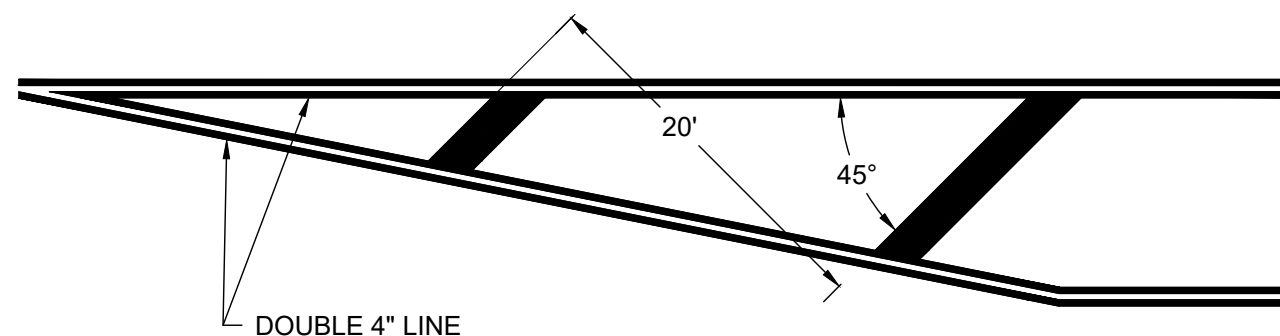
CROSSWALK BLOCKS SHALL BE CENTERED
ON AND IN BETWEEN LANE LINES



CROSSWALK BLOCKS ARE 2.5' WIDE
6' LONG AT CONTROLLED INTERSECTIONS
8' LONG AT MID BLOCK CROSSINGS
8' LONG AT UN-CONTROLLED INTERSECTIONS

PAINTED MEDIAN

24" SOLID LINE AT 45° ANGLE
SPACE 20' FROM FRONT EDGE OF LINES



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_DTL_STRP
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
BRANDON J. BOURDON, P.E.
DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
SIGNING AND PAVEMENT MARKING PLANS
PAVEMENT MARKING TYPICALS

CITY PROJECT	SHEET NO. 307 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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SIGN PANELS TYPE C

SIGN NO	QTY	POSTS			MTG HT (1) FEET	PANEL			CODE NO	PANEL LEGEND
		NO & TYPE	KNEE BRACES QTY	LENGTH FEET		SIZE INCH	AREA SQ FT	TOTAL AREA SQ FT		
(3)	C-1	13	1-ST	15	7	24 x 30	5.00	65.00	R4-7	KEEP RIGHT
(3)	C-2	7	1-ST	16	7	36 x 36	9.00	63.00	R5-1	DO NOT ENTER
(3)	C-3	3	1-ST	15	7	36 x 30	7.50	22.50	R3-8AB	L-L
	C-4	2	1-ST	16	7	30 x 36	7.50	15.00	R2-1	SPPED LIMIT ??
	C-5	8	1-ST	16	7	36 x 36	9.00	72.00	R3-7R	RIGHT LANE MUST TURN RIGHT
(3)	C-6	6	1-ST	16	7	36 x 36	9.00	54.00	R3-7L	LEFT LANE MUST TURN LEFT
	C-7	1	2-ST	15	7	66 x 30	13.75	13.75	R3-8ABCA	L-L-T-R
	C-8	10	1-ST	15	7	30 x 30	6.25	62.50	R1-1	STOP
	C-9	7	1-ST	15	7	24 x 24	4.00	28.00	R8-3	NO PARKING
	C-10	31	1-ST	14	7	12 x 18	1.50	46.50	SP-1	NO PARKING LEFT ARROW
	C-11	31	1-ST	14	7	12 x 18	1.50	46.50	SP-2	NO PARKING RIGHT ARROW
	C-12	7	1-ST	17	7	30 x 30	6.25	43.75	W11-2	PEDESTRIAN CROSSING
						24 x 18	3.00	21.00	W16-7mPL	DOWN ARROW PLAQUE LEFT
	C-13	19	1-ST	16	7	30 x 30	6.25	118.75	R1-1	STOP
						18 x 6	0.75	14.25	R1-3P	ALL WAY PLAQUE
(3)	C-14	3	1-ST	14	7	36 x 12	3.00	9.00	R6-1R	ONE WAY RIGHT
	C-15	5	1-ST	17	7	36 x 12	3.00	15.00	R6-1R	ONE WAY RIGHT
						36 x 36	9.00	45.00	R1-1	STOP
	C-16	5	1-ST	15	7	36 x 30	7.50	37.50	R3-8CD	T-TR
	C-17	6	1-ST	13	7	48 x 48 x 48	6.93	41.58	R1-2	YIELD
	C-18	4	1-ST	12	7	36 x 36 x 36	5.20	20.80	R1-2	YIELD
(3)	C-19	5	1-ST	16	7	48 x 48 x 48	6.93	34.65	R1-2	YIELD
						30 x 36	7.50	37.50	R6-2R	ONE WAY RIGHT
(3)	C-20	4	1-ST	15	7	36 x 36 x 36	5.20	20.80	R1-2	YIELD
						24 x 30	5.00	20.00	R6-2R	ONE WAY RIGHT
(3)	C-21	4	1-ST	14	5	54 x 18	6.75	27.00	R6-1R	ONE WAY RIGHT
						60 x 24	10.00	40.00	R6-4b	ROUNDAABOUT DIRECTIONAL (4 ARROWS)
(3)	C-22	4	1-ST	14	5	36 x 12	3.00	12.00	R6-1R	ONE WAY RIGHT
						48 x 24	8.00	32.00	R6-4a	ROUNDAABOUT DIRECTIONAL (3 ARROWS)
	C-23	4	1-ST	18	7	36 x 36	9.00	36.00	W11-2	PEDESTRIAN CROSSING
						30 x 24	5.00	20.00	W16-7mPL	DOWN ARROW PLAQUE LEFT
	C-24	1	1-ST	17	7	24 x 12	2.00	2.00	M3-1a	NORTH (BLUE)
						30 x 24	5.00	5.00	M1-1	INTERSTATE 35W
						24 x 18	3.00	3.00	M5-4a	LEFT LANE (BLUE)
	C-25	5	1-ST	16	7	36 x 36	9.00	45.00	W3-2	YIELD AHEAD
						21 x 15	2.19	2.19	M2-1a	JCT (BLUE)
	C-26	1	1-ST	17	7	24 x 12	2.00	2.00	M3-1a	NORTH (BLUE)
						30 x 24	5.00	5.00	M1-1	INTERSTATE 35W
	C-27	5	1-ST	18	7	36 x 12	3.00	15.00	W16-17P	ROUNDAABOUT PLAQUE
						30 x 30	6.25	31.25	W2-6a	ROUNDAABOUT
						18 x 18	2.25	11.25	W13-1P	20 M.P.H
	C-28	1	1-ST	17	7	24 x 12	2.00	2.00	M3-1a	NORTH (BLUE)
						30 x 24	5.00	5.00	M1-1	INTERSTATE 35W
						24 x 18	3.00	3.00	M5-6a	RIGHT LANE (BLUE)
	C-29	5	1-ST	15	7	42 x 30	8.75	43.75	R3-8EE	LT-TR
	C-30	2	1-ST	17	7	30 x 30	6.25	12.50	W11-2	PEDESTRIAN CROSSING
						24 x 18	3.00	6.00	W16-7mPR	DOWN ARROW PLAQUE RIGHT
(3)	C-31	2	1-ST	18	7	36 x 36	9.00	18.00	W11-2	PEDESTRIAN CROSSING
						30 x 24	5.00	10.00	W16-7mPL	DOWN ARROW PLAQUE LEFT
(3)	C-32	2	1-ST	18	7	36 x 36	9.00	18.00	W11-2	PEDESTRIAN CROSSING
						30 x 24	5.00	10.00	W16-7mPR	DOWN ARROW PLAQUE RIGHT
TOTAL								1385		

SPECIFIC NOTES:

- (1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET NO. 331 FOR TYPICAL MOUNTING.
- (2) FOR PUNCHING AND MOUNTING DETAILS, SEE MNDOT STANDARD SIGNS AND MARKING MANUAL PAGE 110.
- (3) MOUNT IN CONCRETE, SEE SHEET NO. 331 .

GENERAL NOTES:

- 1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- 2. SEE SHEET NO. 328 FOR SIGN PLACEMENT DETAILS.
- 3. SEE SHEET NO. 329 TO 330 FOR STRUCTURAL DETAILS.
- 4. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_DTL_SIGN	
DESIGNED BY:	BKV
DRAWN BY:	BKV
CHECKED BY:	BJB
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SIGNING AND PAVEMENT MARKING PLANS
 SIGNING TABULATIONS

CITY PROJECT	SHEET NO. 308
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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SIGN PANELS TYPE D										
SIGN NO	QTY	POSTS				MTG HT (1)	PANEL			PANEL LEGEND
		NO & TYPE	KNEE BRACES QTY	LENGTH	SPACING		SIZE	AREA	TOTAL AREA	
				FEET	INCH		INCH	SQ FT	SQ FT	
D-1	1	2-ST		15	30	7	54 x 30	11.25	11.25	COUNTY H 60 DEGREE ARROW
TOTAL									11.25	

SPECIFIC NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE) SEE SHEET NO. 331 FOR TYPICAL MOUNTING.

GENERAL NOTES:

- POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- SEE SHEET NO. 328 FOR SIGN PLACEMENT DETAILS.
- SEE SHEETS NO. 329 TO NO. 330 FOR STRUCTURAL DETAILS.
- SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR TYPE D STRINGER AND PANEL JOINT DETAILS.
- SEE SHEET NO. 327 FOR SIGN PANELS.

OBJECT MARKER			
CODE NO	SIZE INCH	COLOR	QUANTITY EACH
(2) X4-2	18 x 18	YELLOW ON BLACK	15
(1) X4-4R	12 x 36	BLACK ON YELLOW	2
TOTAL			17

SPECIFIC NOTES:

- MOUNT ON 3LB/FT POST (MNDOT 3401).
- MOUNT BELOW SIGN C-1.

GENERAL NOTES:

- SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR MARKER DETAIL.

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_DTL_SIGN	
DESIGNED BY:	BKV
DRAWN BY:	BKV
CHECKED BY:	BJB
DATE:	01/04/19
PROJECT NO.	160553004

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BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

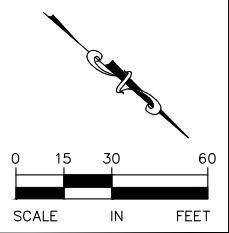
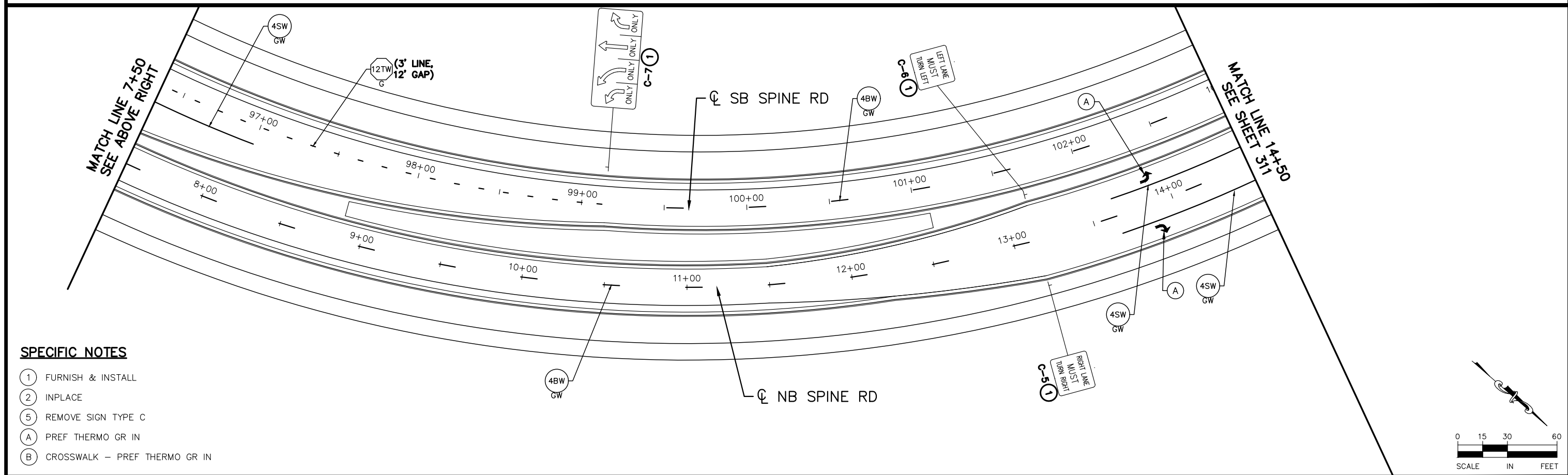
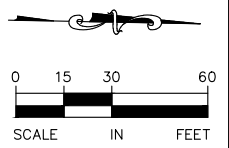
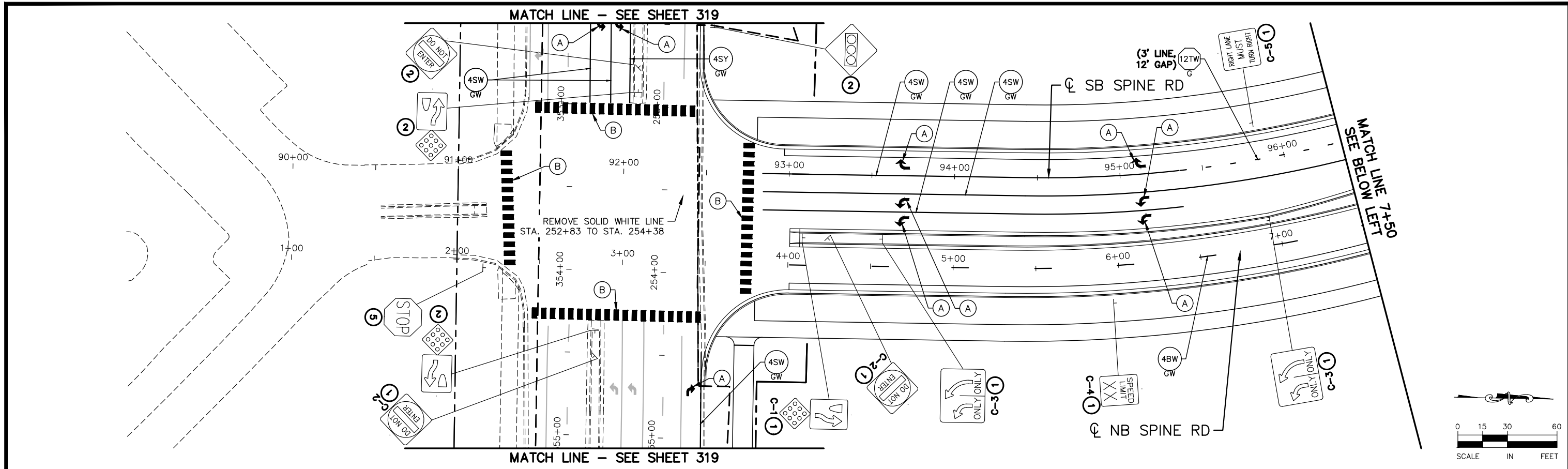
SIGNING AND PAVEMENT MARKING PLANS
SIGNING TABULATIONS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
309

335

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SPECIFIC NOTES

- (1) FURNISH & INSTALL
- (2) INPLACE
- (5) REMOVE SIGN TYPE C
- (A) PREF THERMO GR IN
- (B) CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_SG-ST.dwg
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

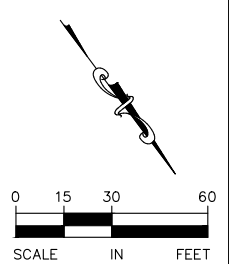
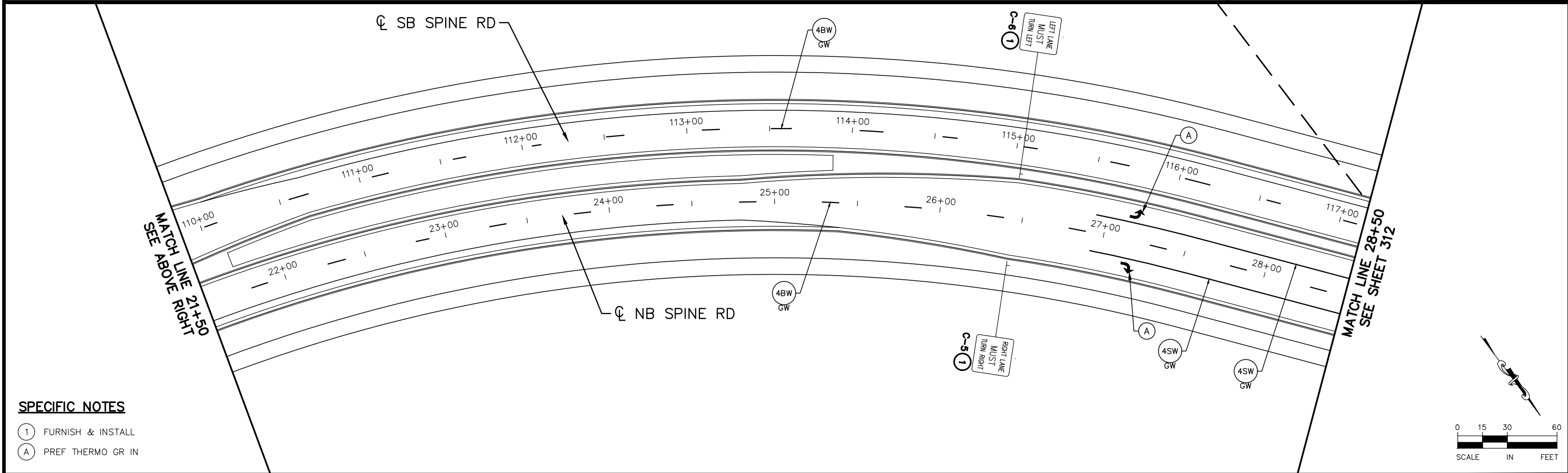
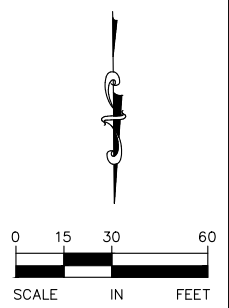
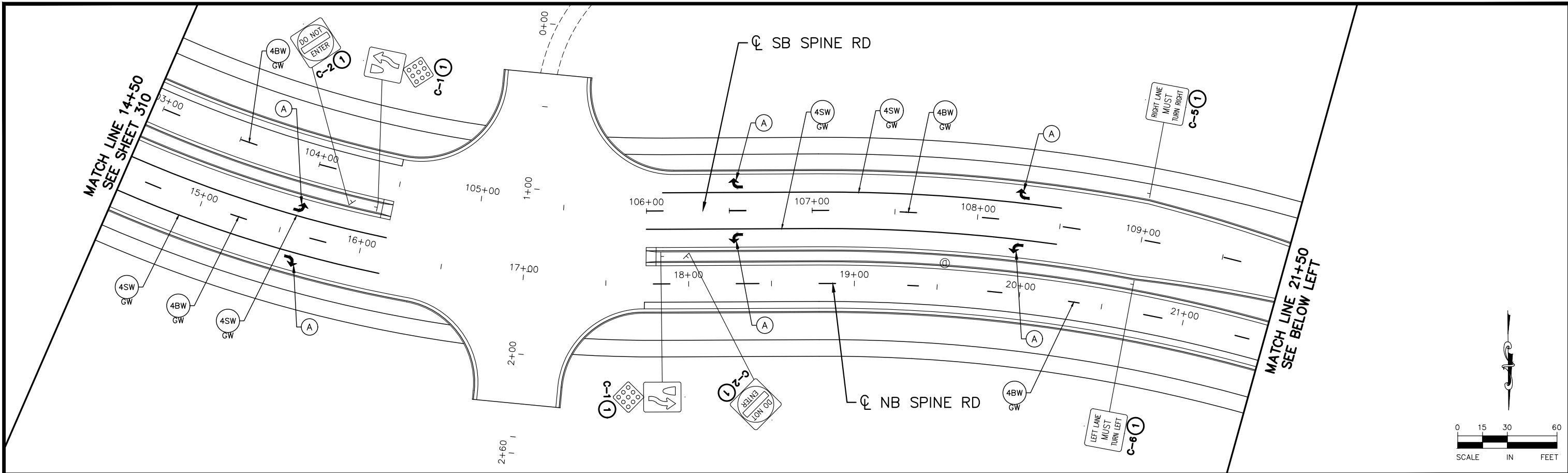
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 1+00 TO STA. 14+50

CITY PROJECT	SHEET NO. 310
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓐ PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_SG-ST.dwg
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

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DATE: 01/04/19 MN LIC. NO. 43709

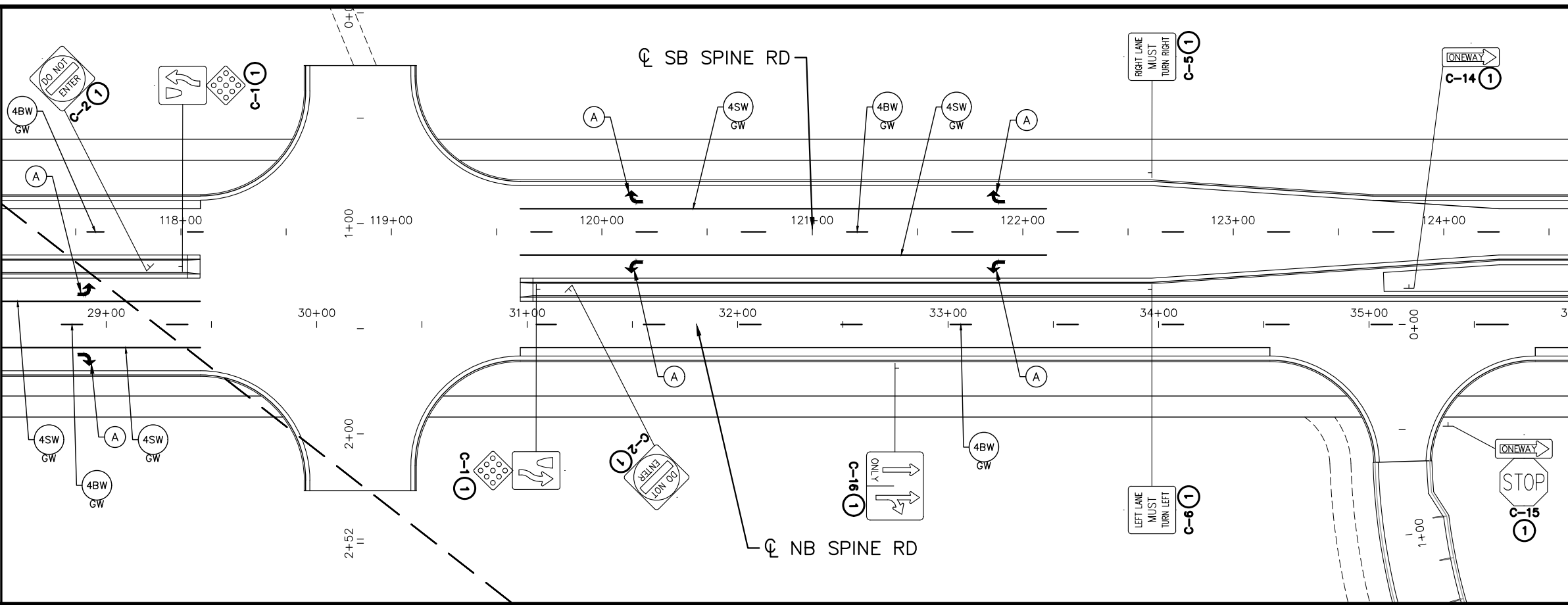
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
CSAH 4
SIGNING AND PAVEMENT MARKING PLAN
STA. 14+50 TO STA. 28+50

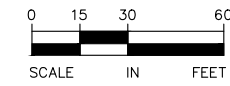
CITY PROJECT	SHEET NO. 311 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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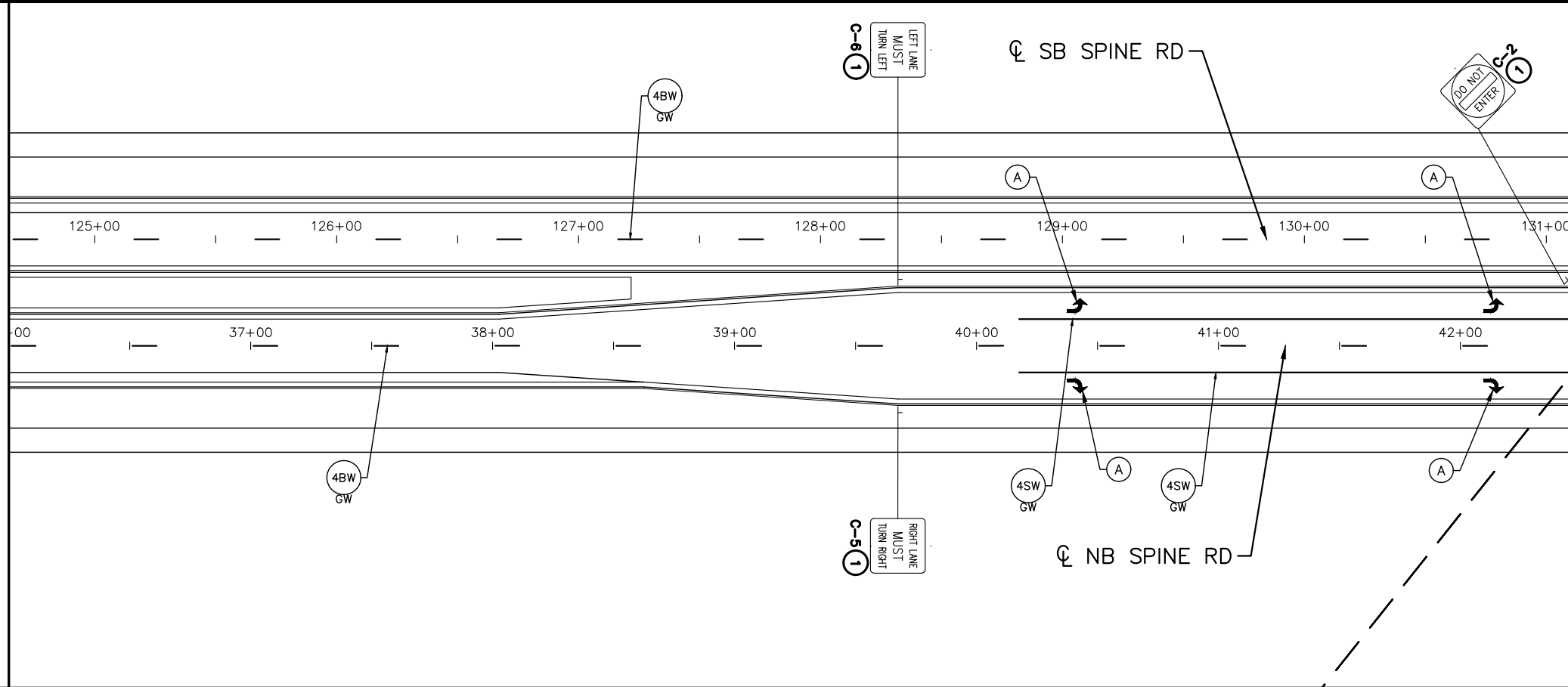
MATCH LINE 28+50
SEE SHEET 311



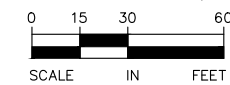
MATCH LINE 36+00
SEE BELOW LEFT



MATCH LINE 36+00
SEE ABOVE RIGHT



MATCH LINE 42+50
SEE SHEET 313



SPECIFIC NOTES

- ① FURNISH & INSTALL
- A PREF THERMO GR IN

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_SG-ST.dwg
DESIGNED BY:	BKV
DRAWN BY:	BKV
CHECKED BY:	BJB
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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 BRANDON J. BOURDON, P.E.
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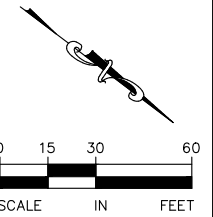
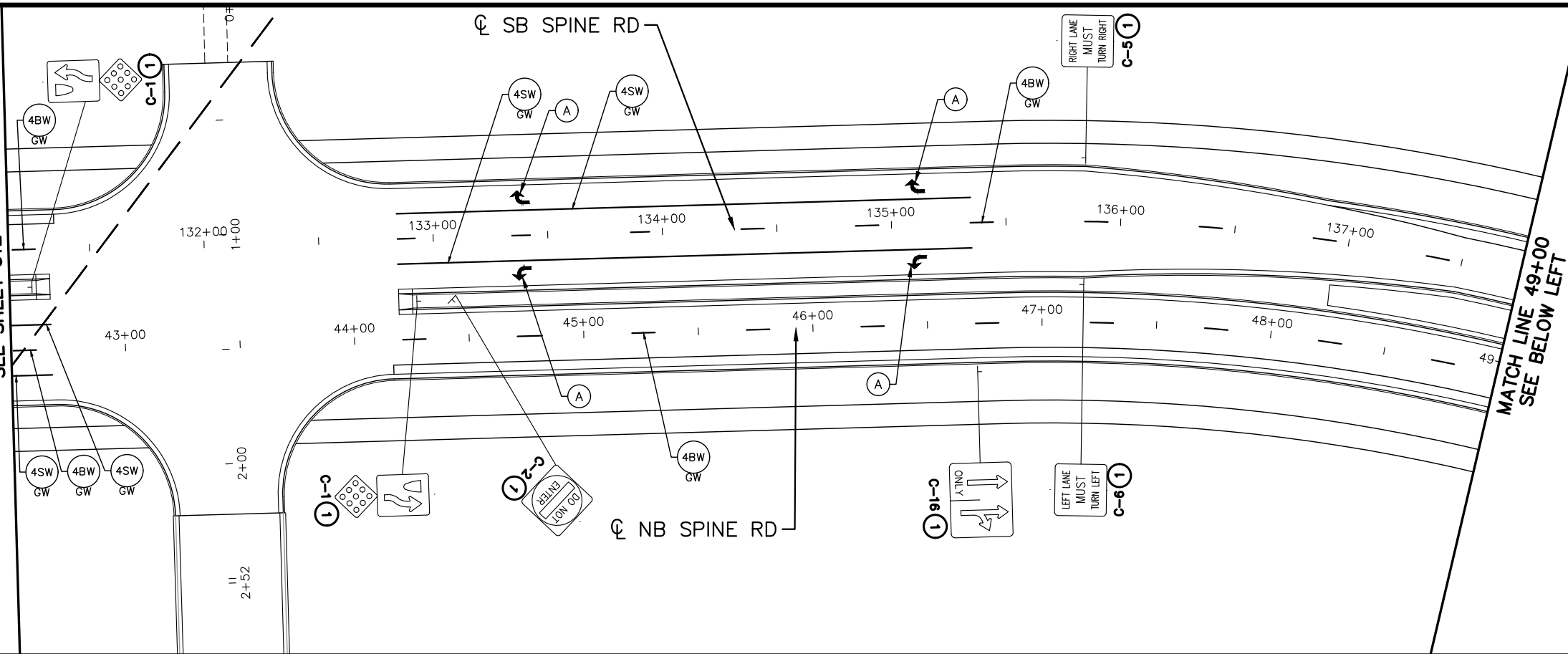
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 28+50 TO STA. 42+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

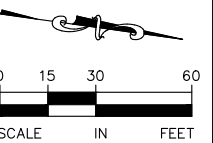
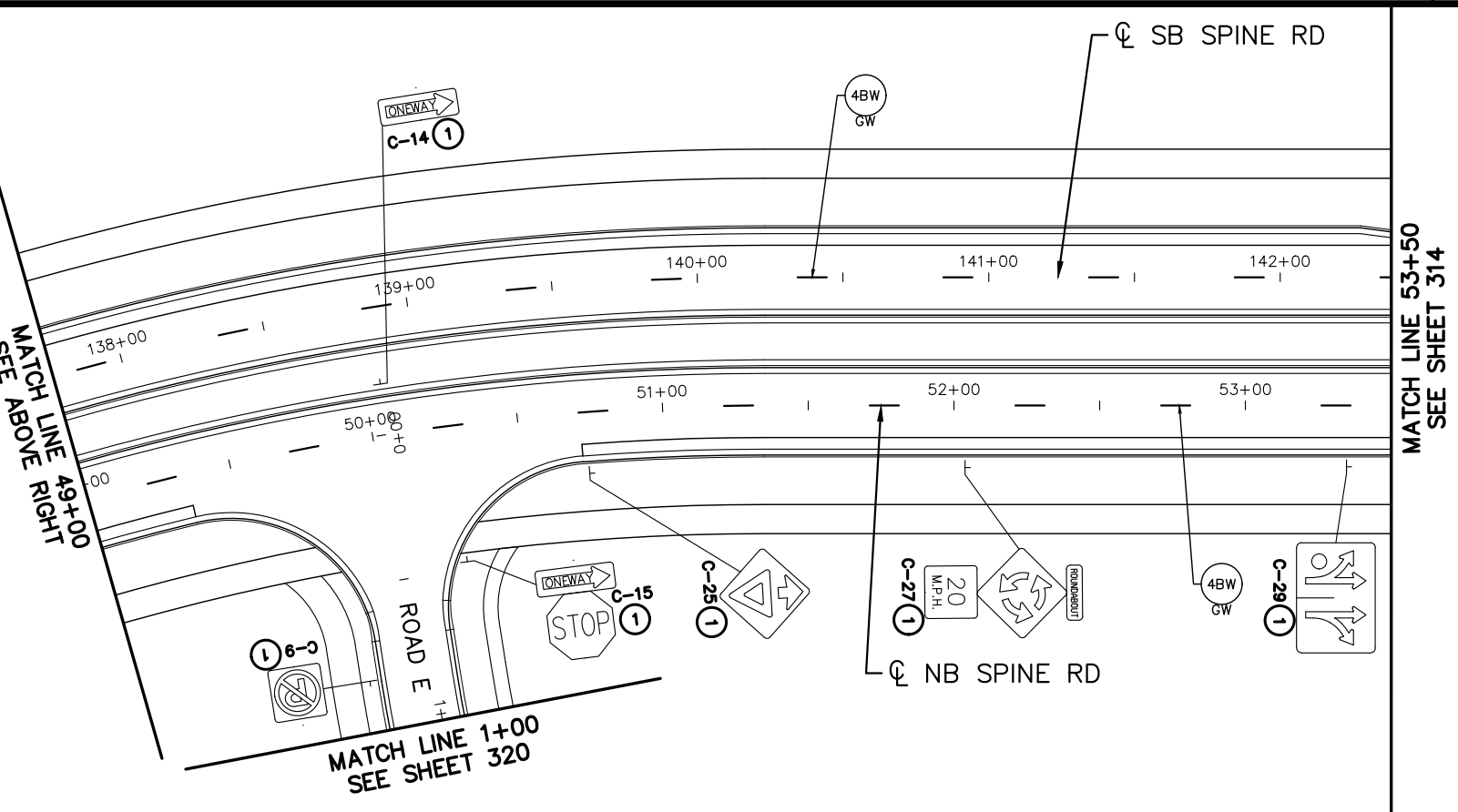
SHEET NO.
312
335

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MATCH LINE 42+50
SEE SHEET 312



MATCH LINE 49+00
MATCH ABOVE RIGHT



SPECIFIC NOTES

- ① FURNISH & INSTALL
- (A) PREF THERMO GR IN

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_SG-ST.dwg
DESIGNED BY:	BKV
DRAWN BY:	BKV
CHECKED BY:	BJB
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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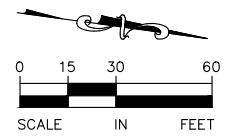
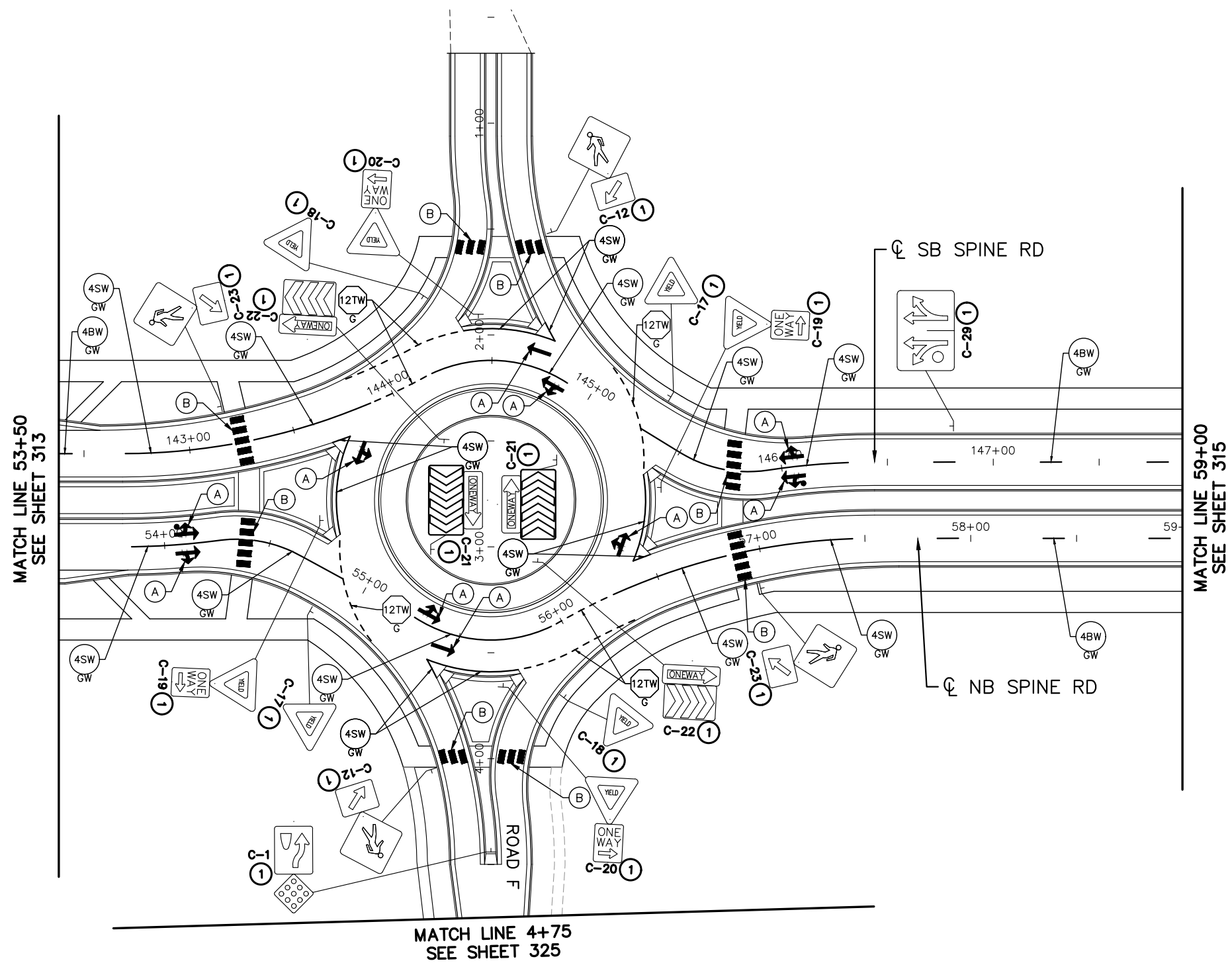
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 BRANDON J. BOURDON, P.E.
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 42+50 TO STA. 53+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
313
335

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓐ PREF THERMO GR IN
- Ⓑ CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_SG-ST.dwg
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

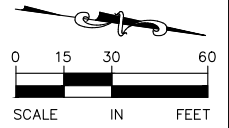
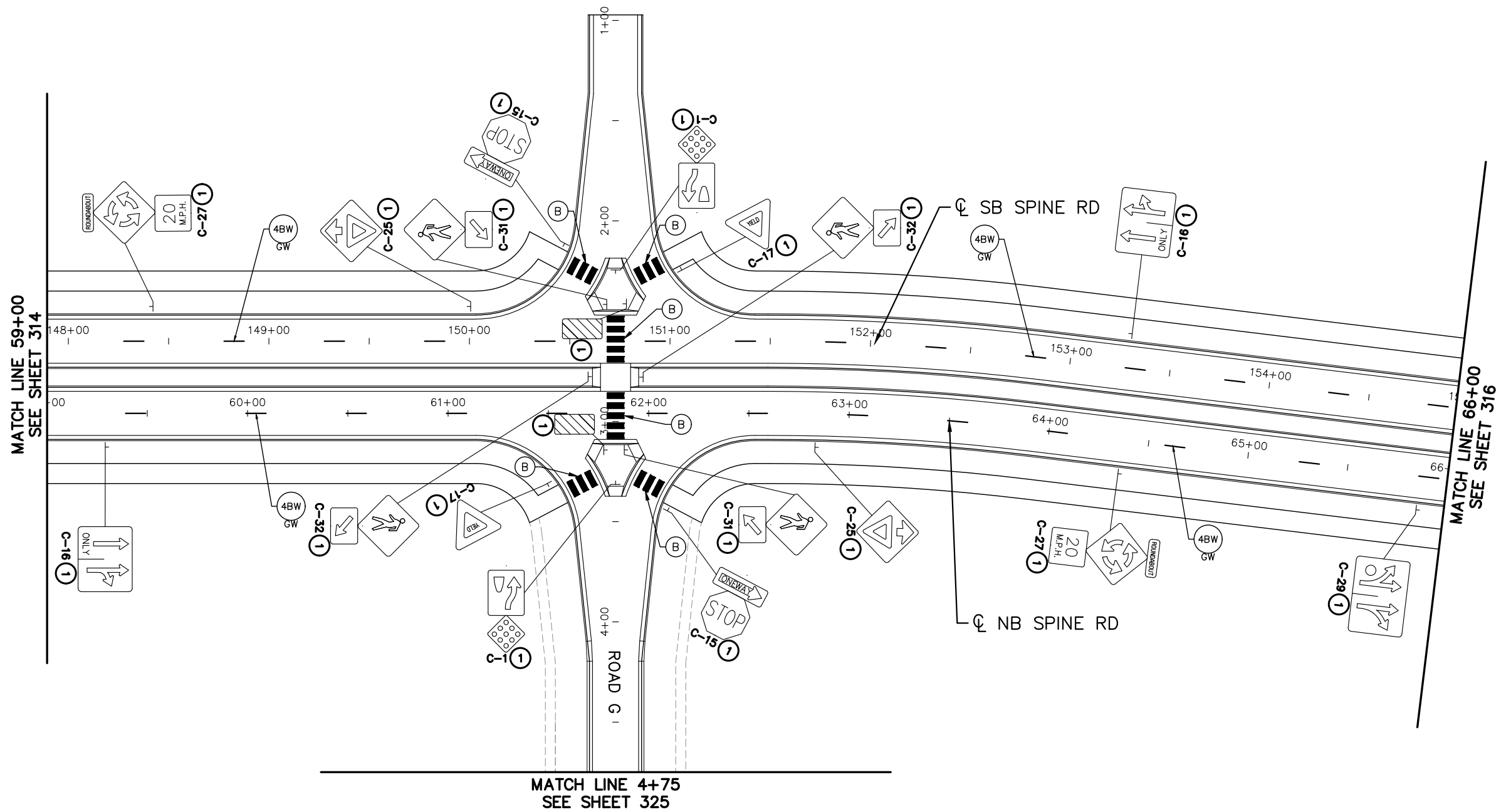
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 53+00 TO STA. 59+00

CITY PROJECT	SHEET NO. 314 335
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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SPECIFIC NOTES

- (1) FURNISH & INSTALL
- (B) CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_SG-ST.dwg
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				DATE: 01/04/19
				PROJECT NO. 160553004

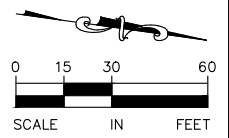
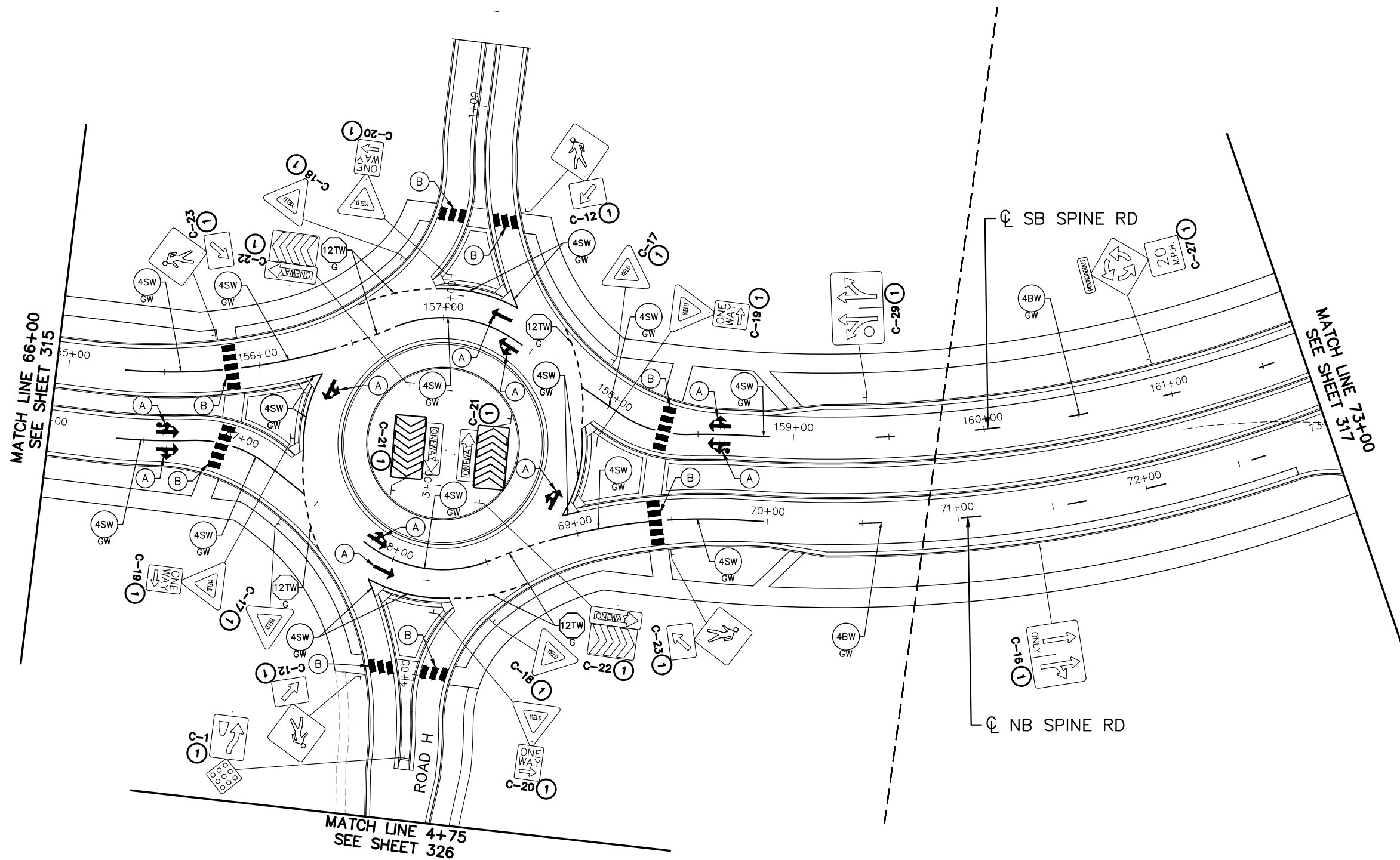
Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 59+00 TO STA. 66+00

CITY PROJECT	SHEET NO. 315
COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- A PREF THERMO GR IN
- B CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: BKV
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				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
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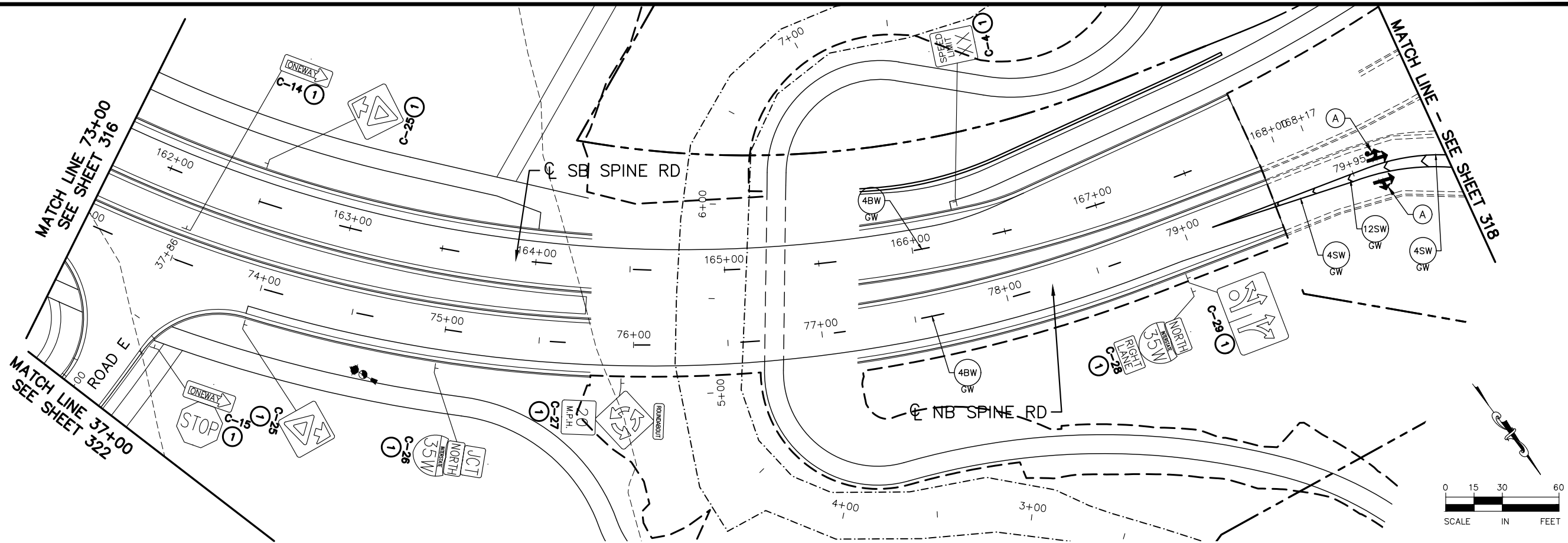
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRANDON J. BOURDON, P.E.
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 66+00 TO STA. 73+00

CITY PROJECT	SHEET NO. 316
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓐ PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
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				DATE: 01/04/19
				PROJECT NO. 160553004

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 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

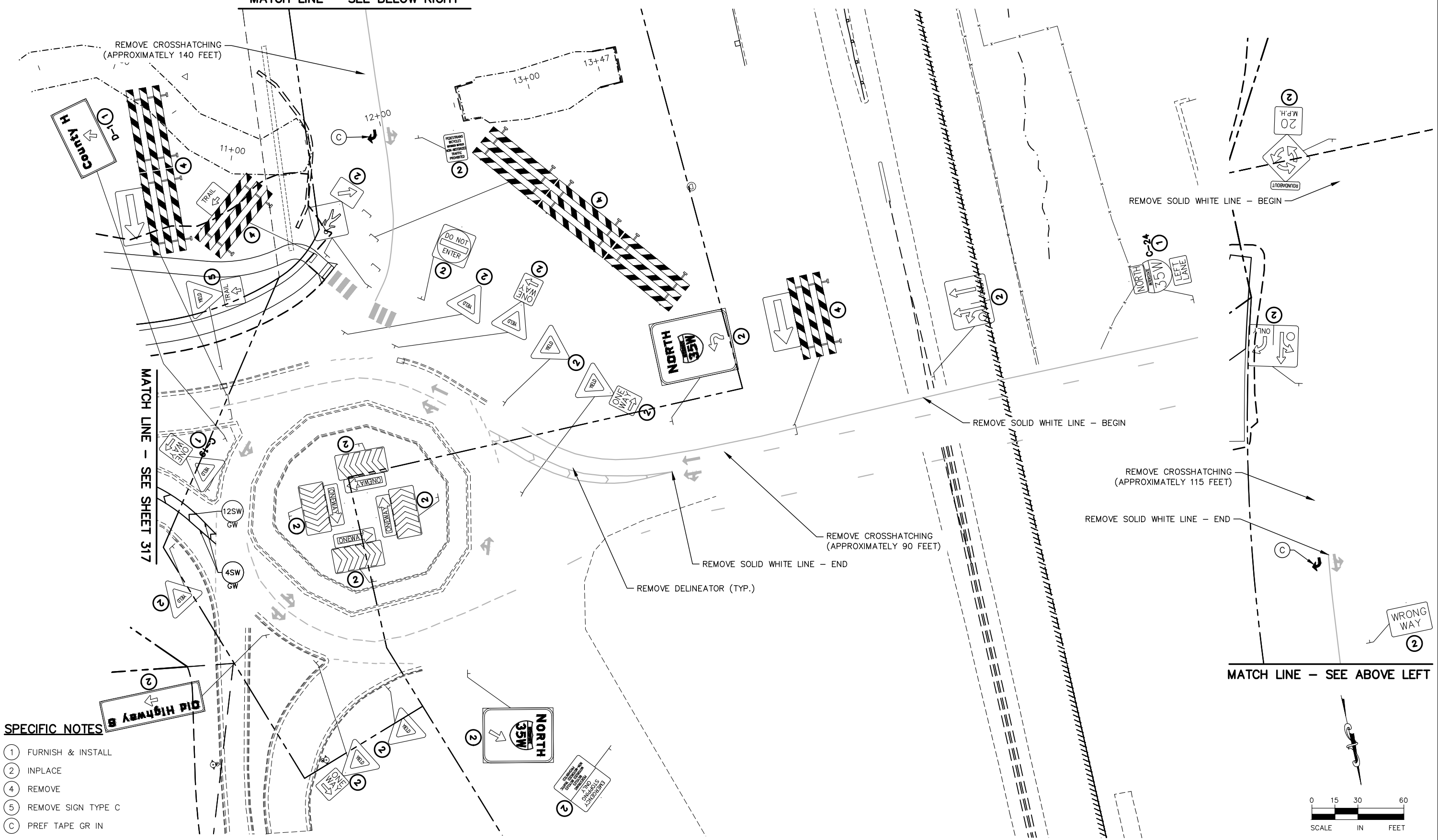
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 73+00 TO STA. 80+45

CITY PROJECT	SHEET NO. 317
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

335

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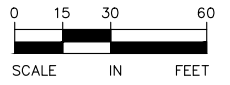


MATCH LINE - SEE SHEET 317

MATCH LINE - SEE ABOVE LEFT

SPECIFIC NOTES

- ① FURNISH & INSTALL
- ② INPLACE
- ④ REMOVE
- ⑤ REMOVE SIGN TYPE C
- ③ PREF TAPE GR IN



No.	Date	Revisions

App.	DRAWING NAME
	TCAAP_SPINERD_SG-ST.dwg
	DESIGNED BY: BKV
	DRAWN BY: BKV
	CHECKED BY: BJB
	DATE: 01/04/19
	PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

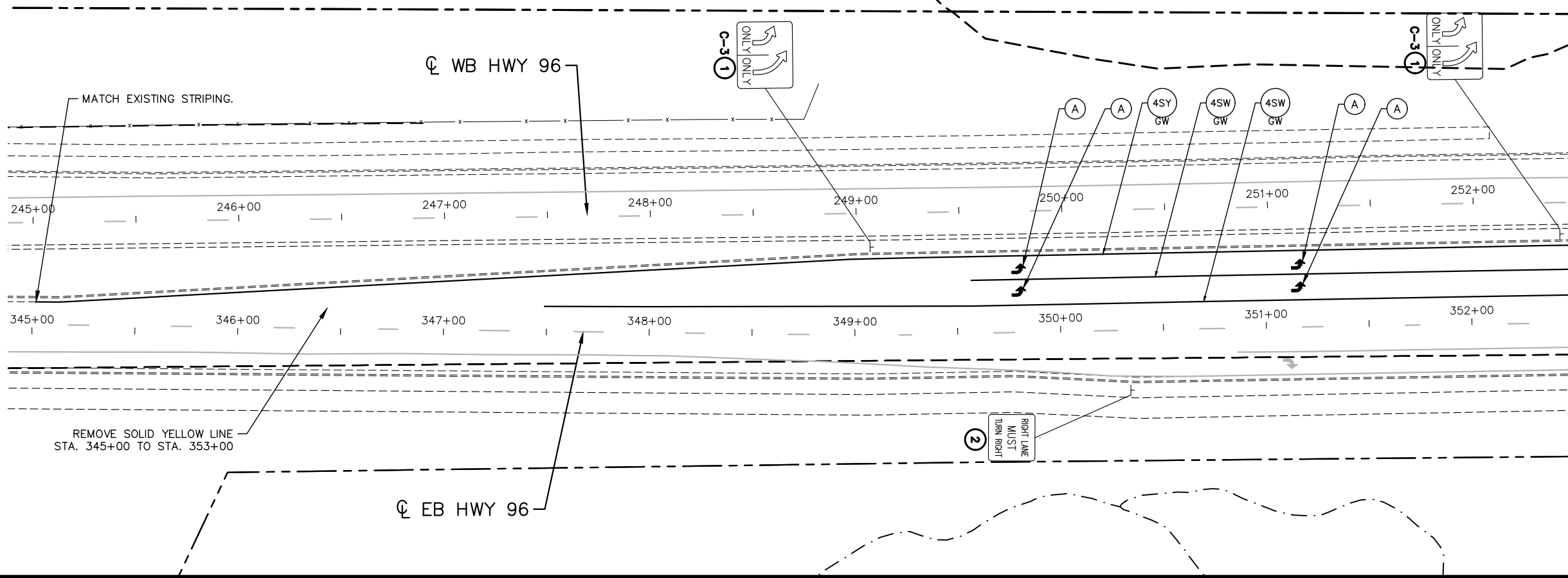
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 CSAH 4
 SIGNING AND PAVEMENT MARKING PLAN

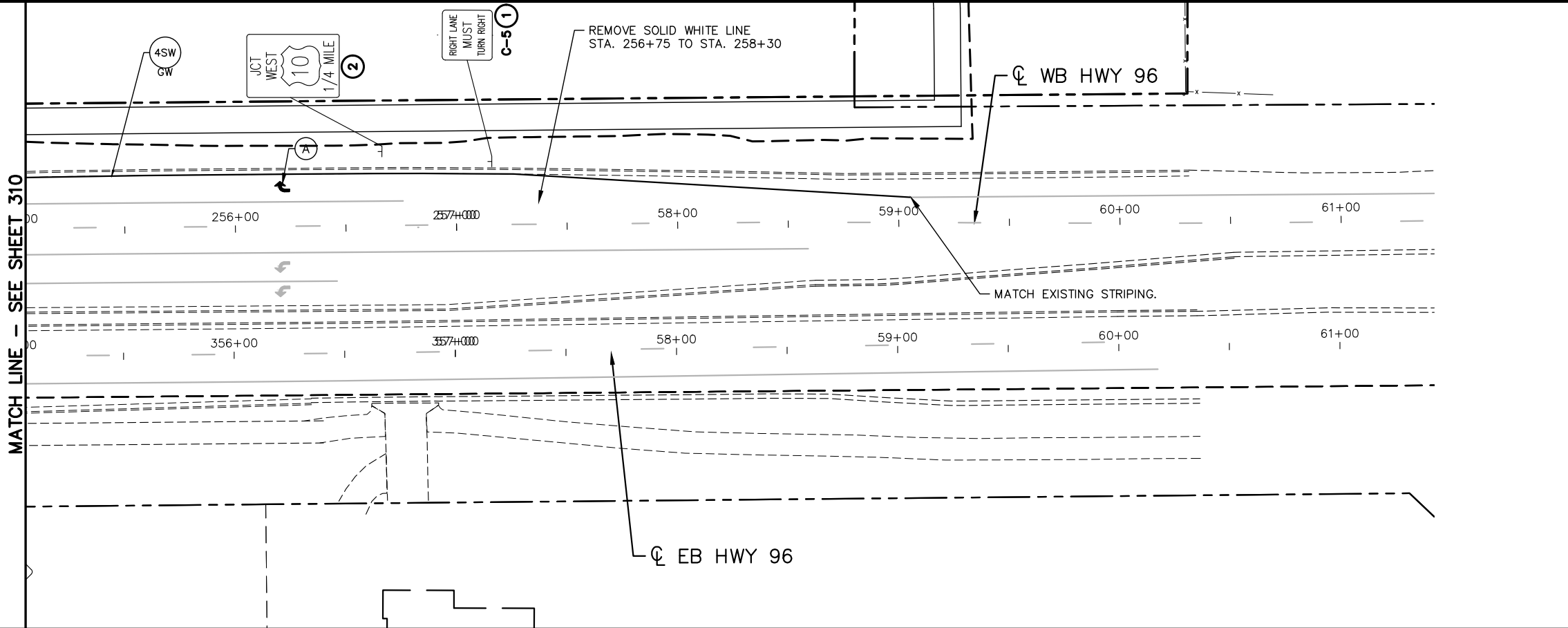
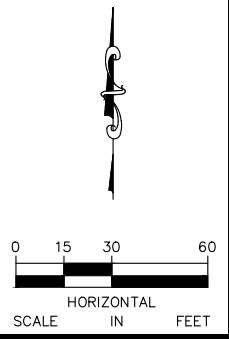
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
318
335

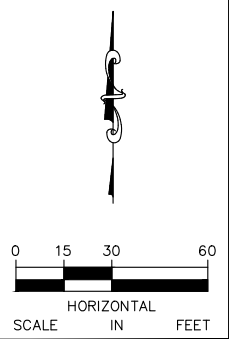
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MATCH LINE - SEE SHEET 310



MATCH LINE - SEE SHEET 310



SPECIFIC NOTES

- ① FURNISH & INSTALL
- ② INPLACE
- A PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_SG-ST.dwg
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

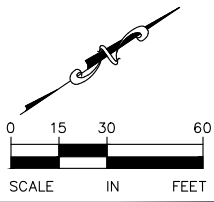
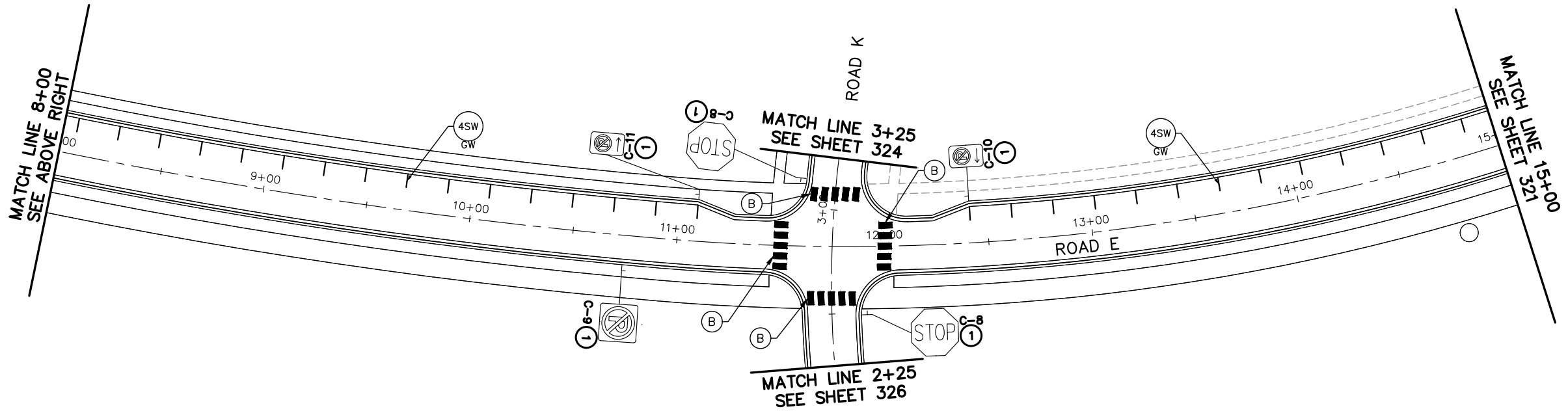
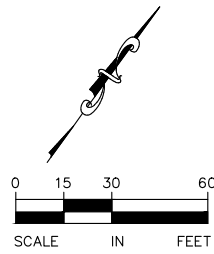
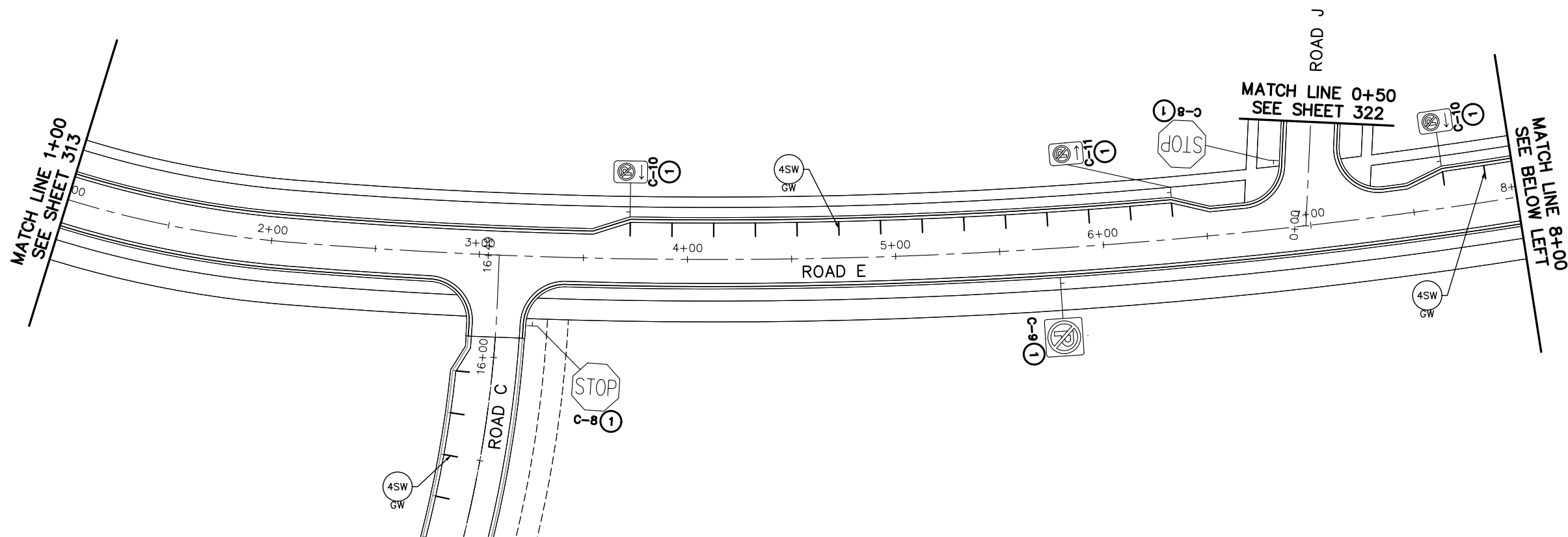
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 HIGHWAY 96
 SIGNING AND PAVEMENT MARKING PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
319
335

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓑ CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
				CAAP_TWNCNTR_SG-ST.dwg
				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

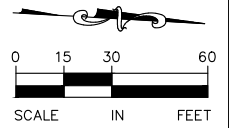
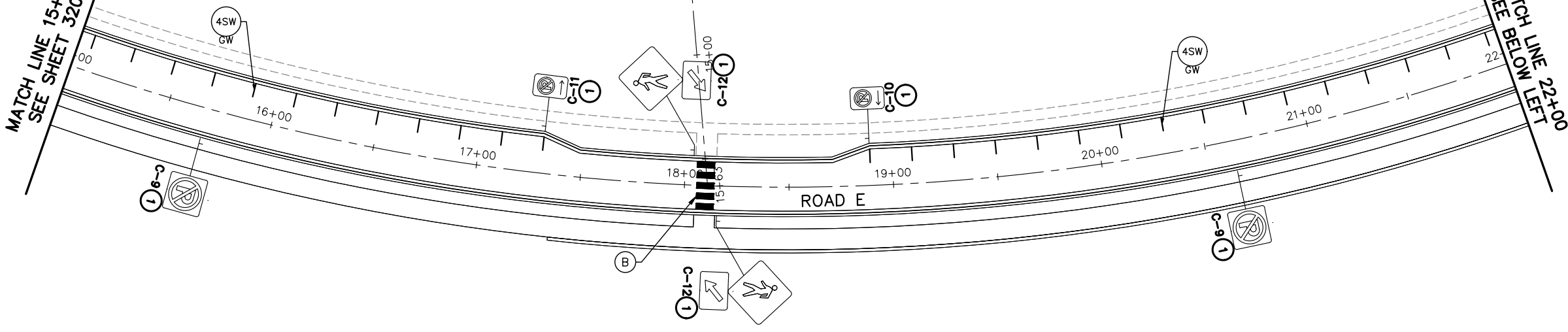
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 1+00 TO STA. 15+00

CITY PROJECT	SHEET NO.
COUNTY PROJECT	320
S.A.P. 062-593-004	
S.A.P.	335

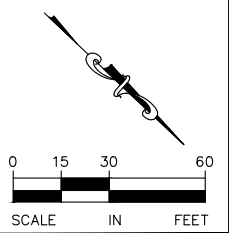
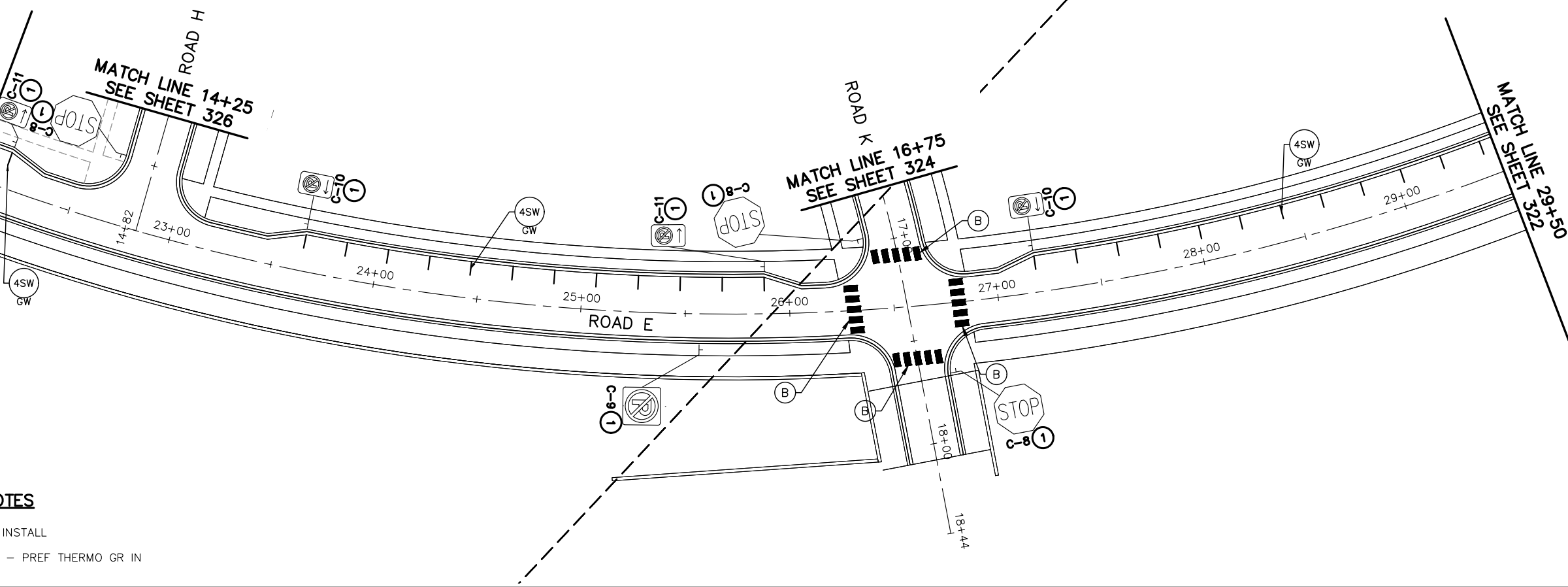
K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_TWNCNTR_SG-ST.dwg Layout02 January 10, 2019 - 9:11am

MATCH LINE 15+00
SEE SHEET 320



MATCH LINE 22+00
SEE ABOVE RIGHT

MATCH LINE 14+25
SEE SHEET 326



SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓑ CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.

DRAWING NAME	CAAP_TWNCNTR_SG-ST.dwg
DESIGNED BY:	BKV
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CHECKED BY:	BJB
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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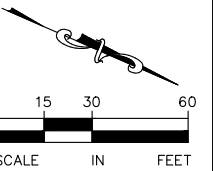
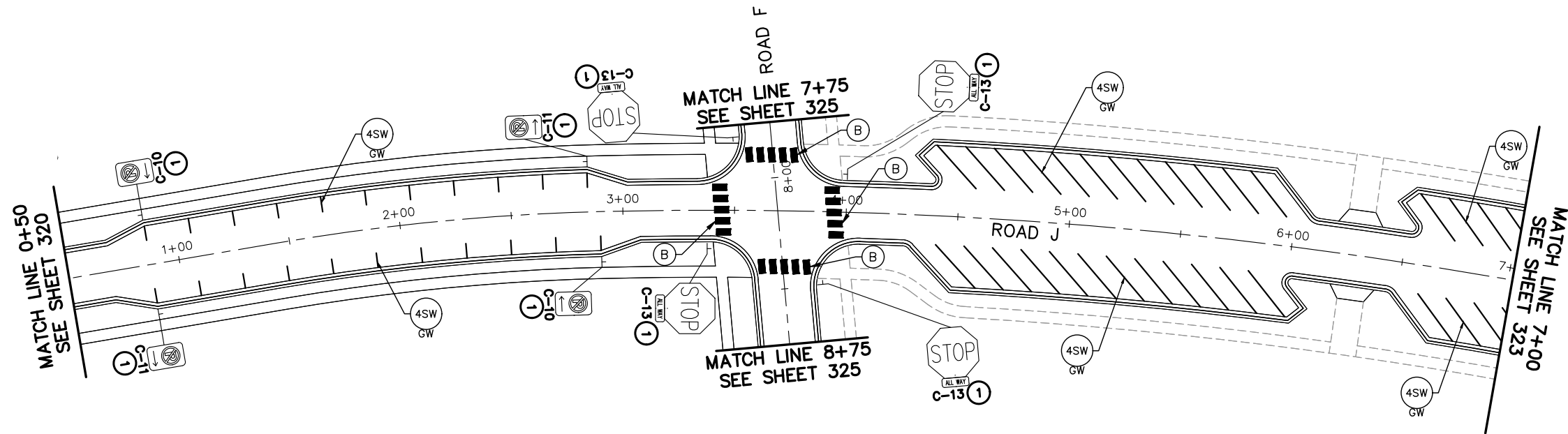
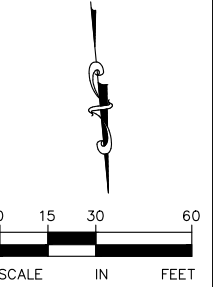
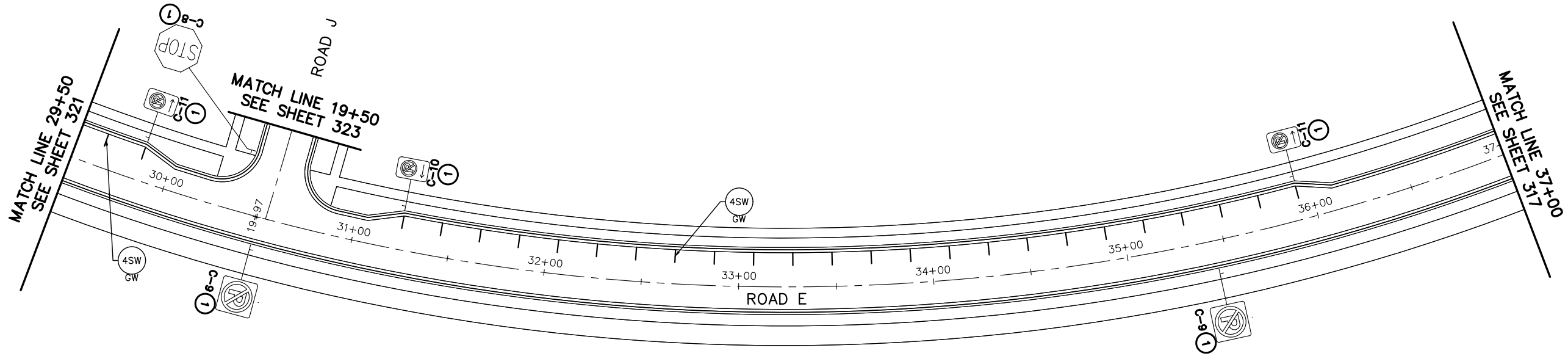
BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 15+00 TO STA. 29+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
321
335

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SPECIFIC NOTES

- (1) FURNISH & INSTALL
- (B) CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.

DRAWING NAME	CAAP_TWNCNTR_SG-ST.dwg
DESIGNED BY:	BKV
DRAWN BY:	BKV
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PROJECT NO.	160553004

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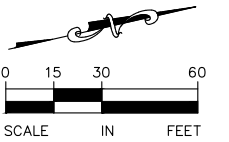
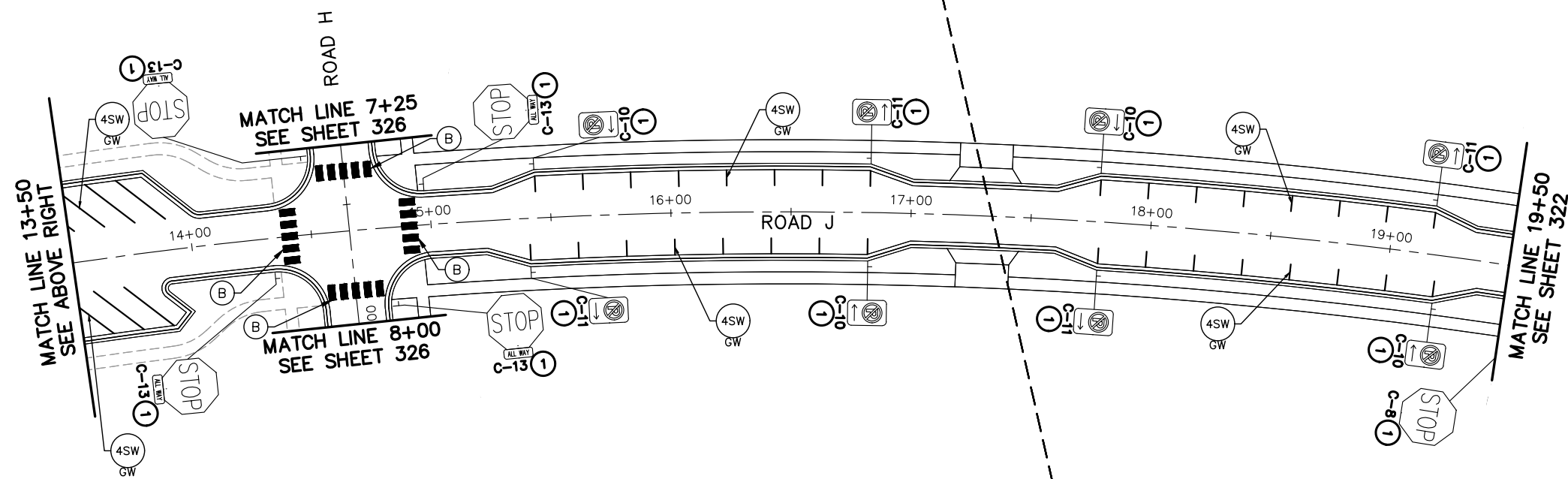
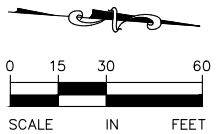
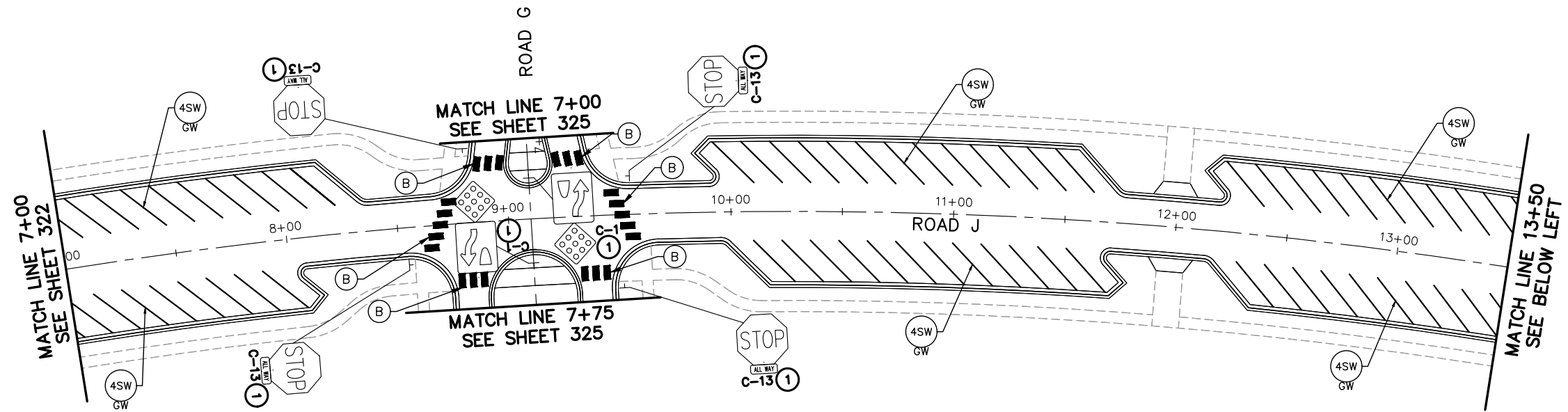
BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD E AND ROAD J
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 29+50 TO STA. 37+00 AND STA. 0+50 TO STA. 7+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
322
335

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SPECIFIC NOTES

- (1) FURNISH & INSTALL
- (B) CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.

DRAWING NAME	CAAP_TWNCNTR_SG-ST.dwg
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PROJECT NO.	160553004

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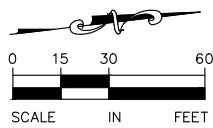
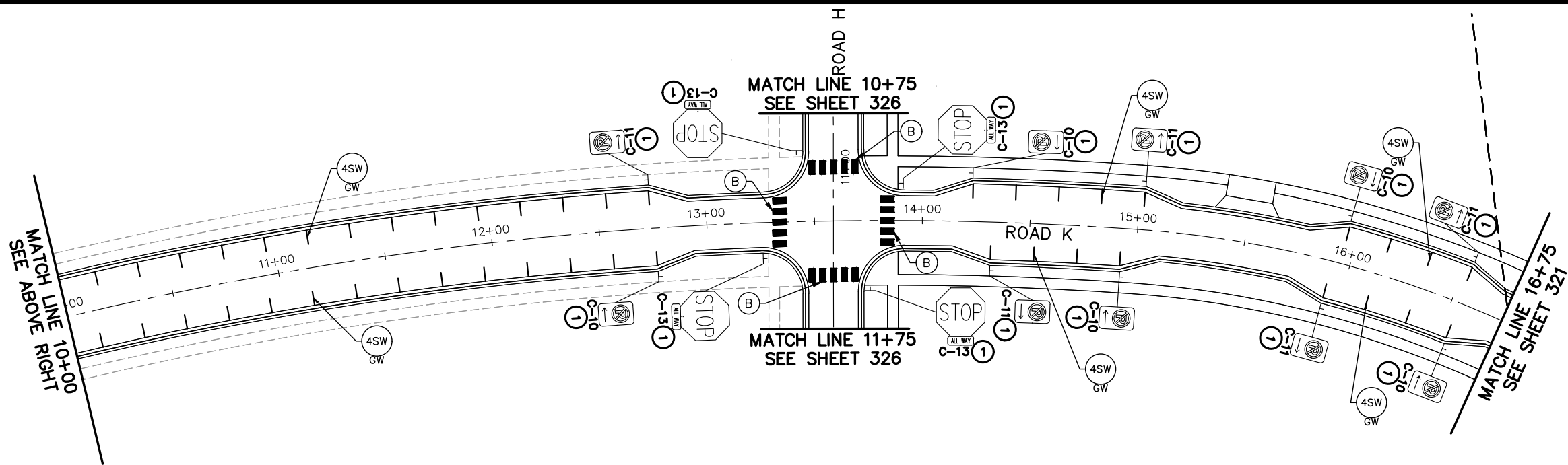
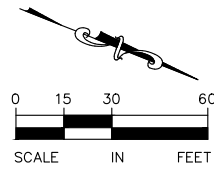
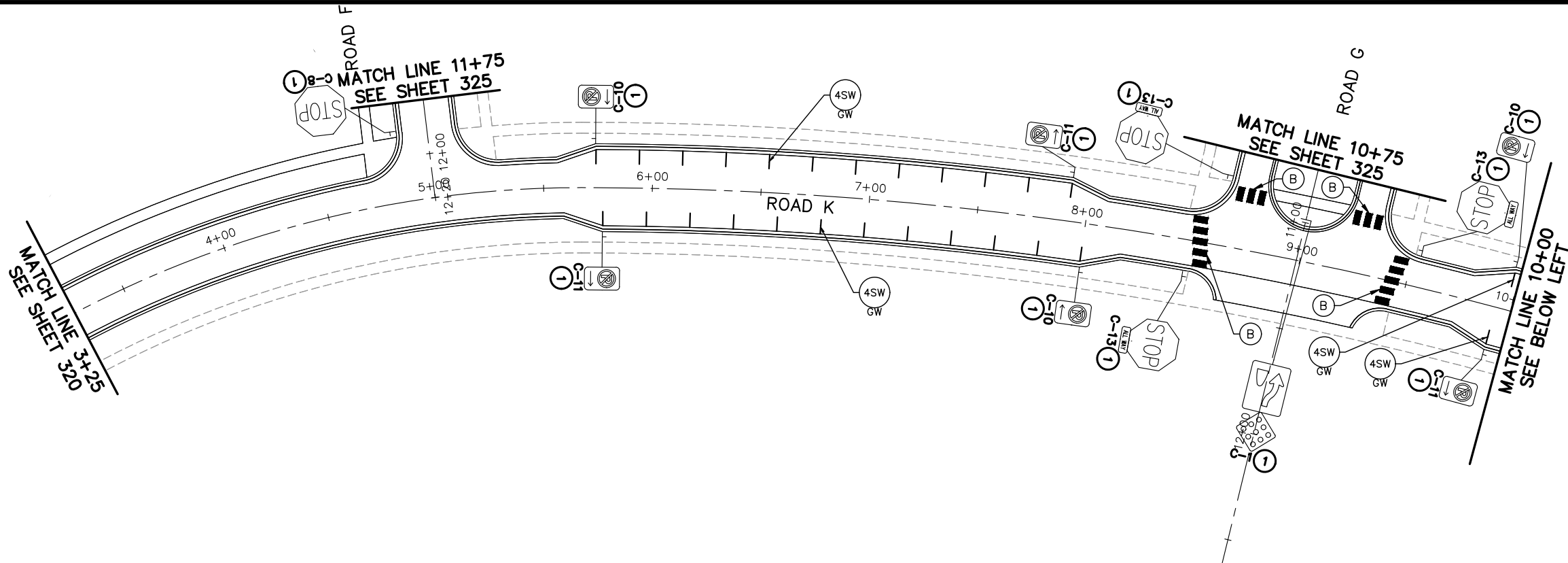
BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD J
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 7+00 TO STA. 19+50

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
323
335

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓑ CROSSWALK - PREF THERMO GR IN

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 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

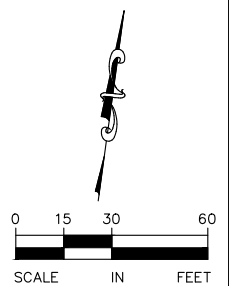
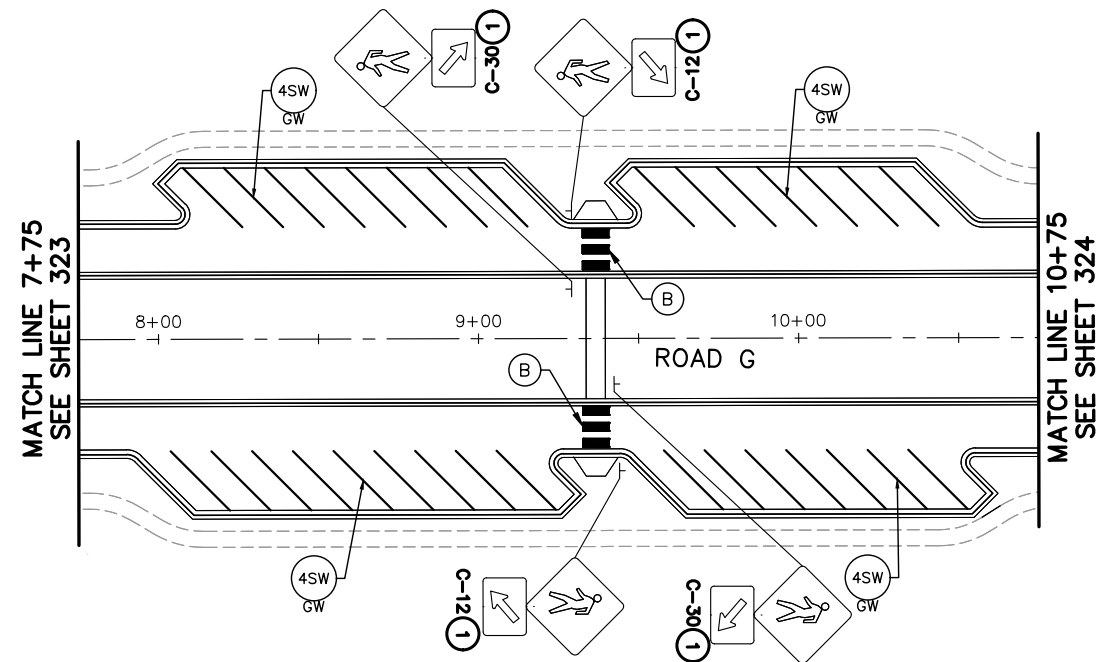
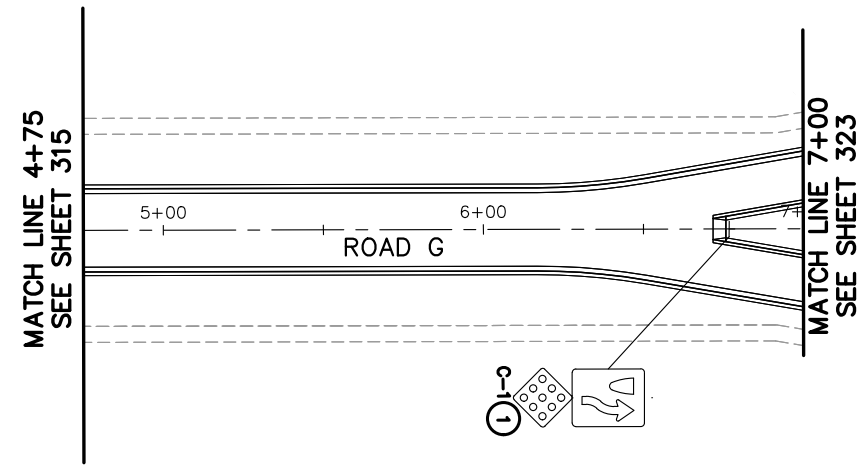
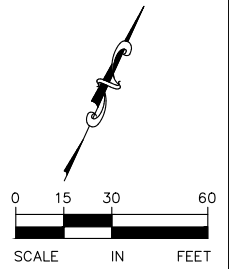
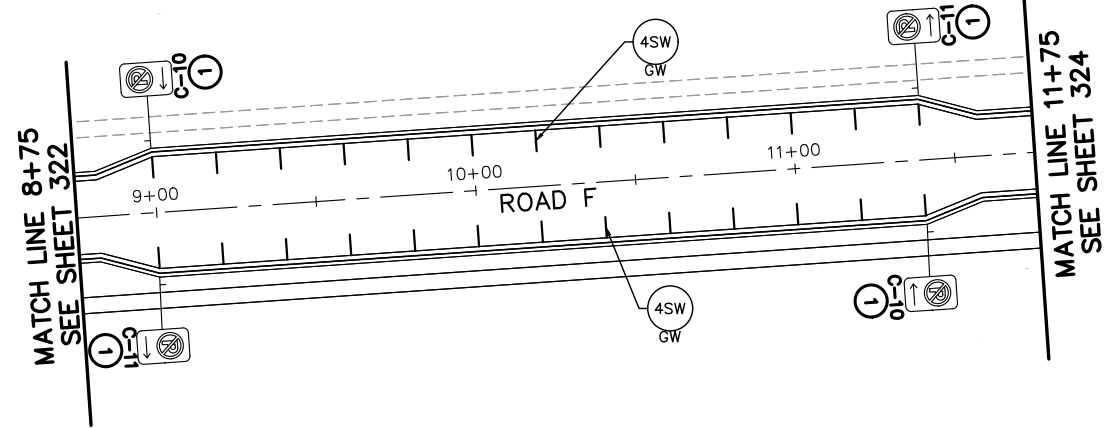
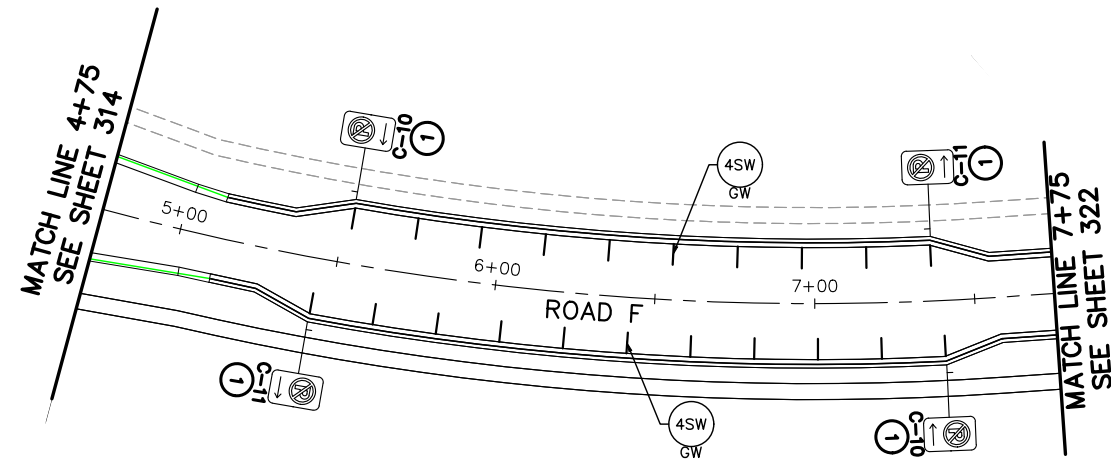
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 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD K
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 3+25 TO STA. 19+75

CITY PROJECT	324
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

SHEET NO.
324
335

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SPECIFIC NOTES

- ① FURNISH & INSTALL
- Ⓑ CROSSWALK - PREF THERMO GR IN

No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: BKV
				DRAWN BY: BKV
				CHECKED BY: BJB
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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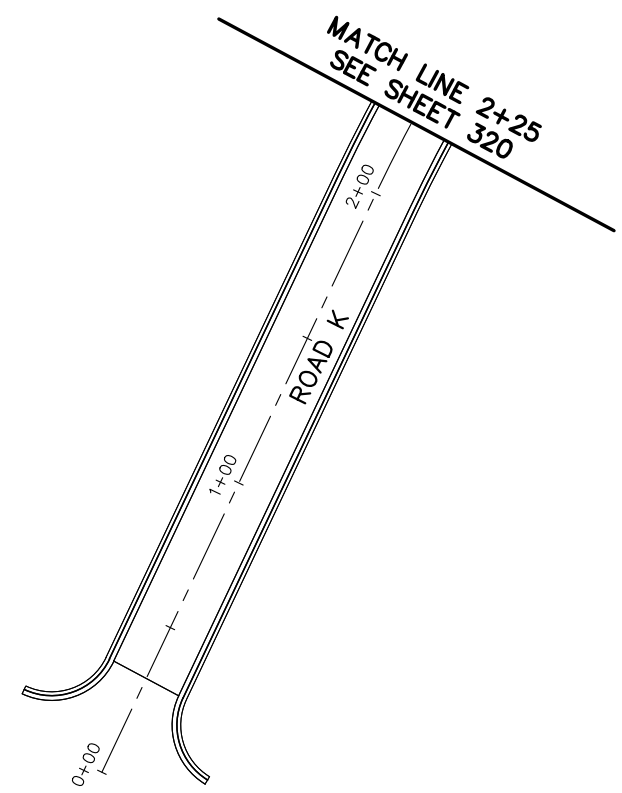
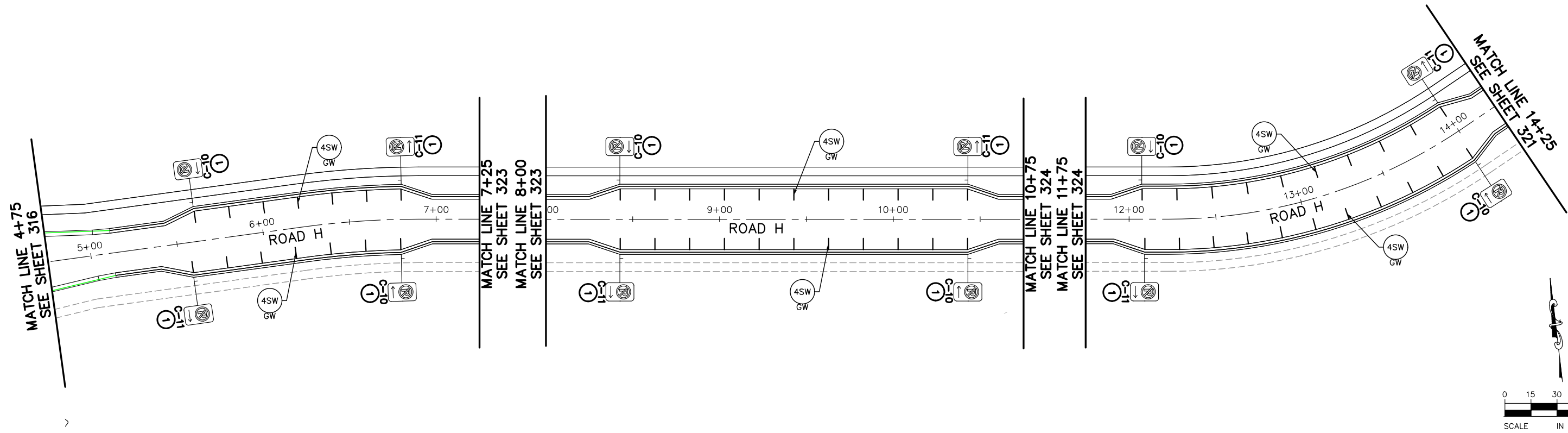
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD F AND ROAD G
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 4+75 TO STA. 11+75 AND STA. 4+75 TO STA. 10+75

CITY PROJECT	325
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

SHEET NO.
325
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SPECIFIC NOTES

- ① FURNISH & INSTALL

No.	Date	Revisions	App.

DRAWING NAME	CAAP_TWNCNTR_SG-ST.dwg
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DRAWN BY:	BKV
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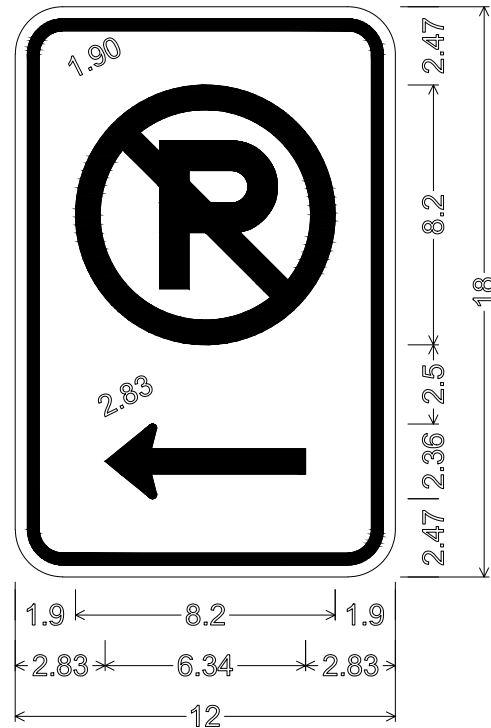
BRANDON J. BOURDON, P.E.
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 ROAD H AND ROAD K
 SIGNING AND PAVEMENT MARKING PLAN
 STA. 4+75 TO STA. 14+25 AND STA. 0+00 TO STA. 2+25

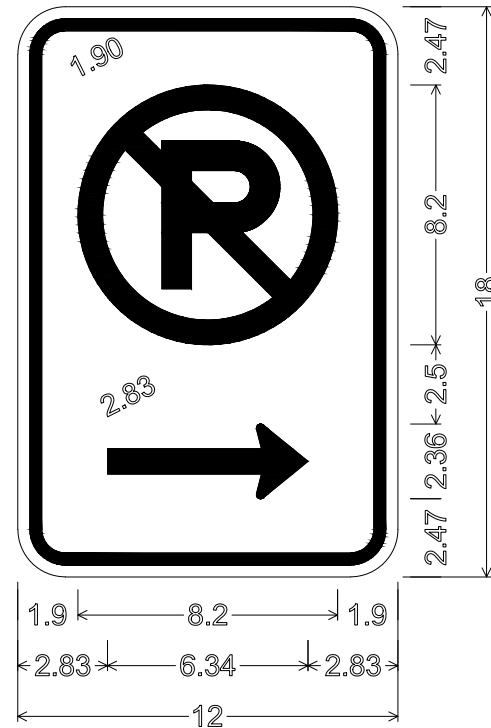
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COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
326
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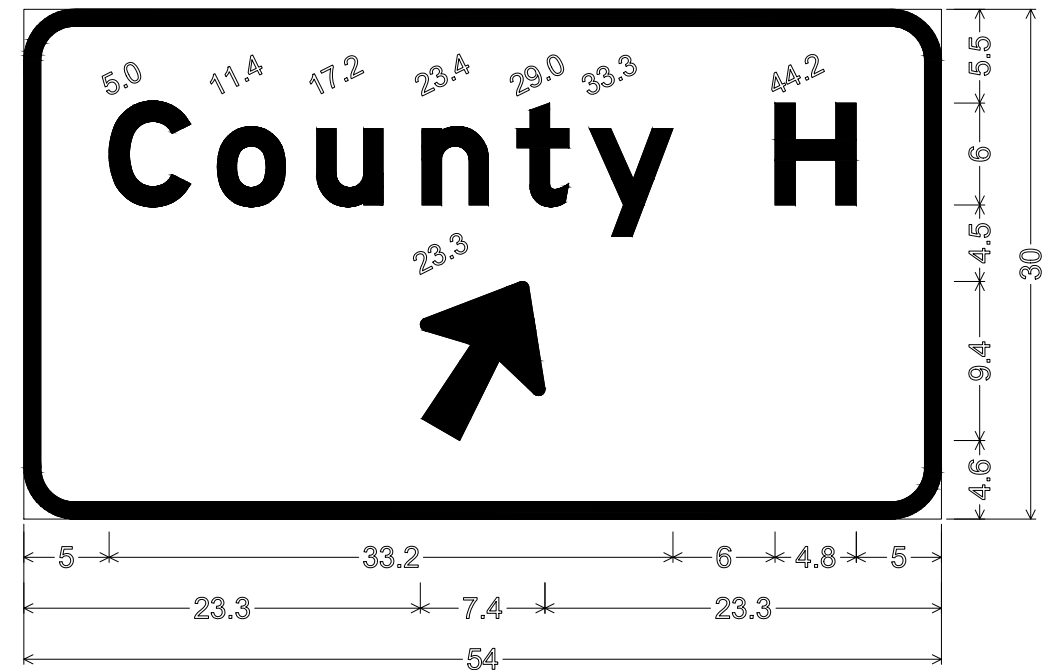
K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Construction Plans\TCAAP_SPINERD_DTL_SIGN.dwg January 10, 2019 - 9:12am



SP-1;
 1.50" Radius, 0.38" Border, 0.38" Indent, Red on White;
 No Parking Graphic;
 Arrow Custom - 6.33" 180°;



SP-2;
 1.50" Radius, 0.38" Border, 0.38" Indent, Red on White;
 No Parking Graphic;
 Arrow Custom - 6.33" 0°;



D-1;
 3.0" Radius, 1.0" Border, White on Green;
 "County H" E Mod; Arrow 3 - 10.0" 60°;

No.	Date	Revisions	App.

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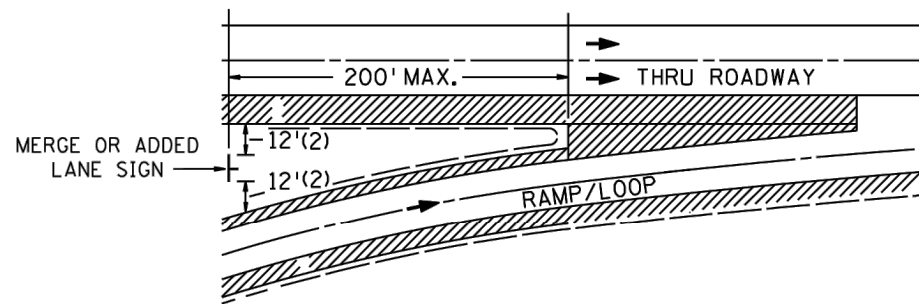
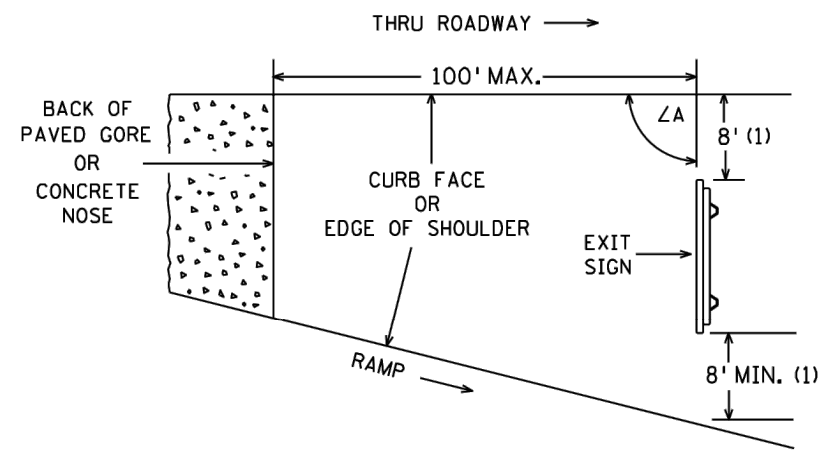
BRANDON J. BOURDON, P.E.
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SIGNING AND PAVEMENT MARKING PLANS
 SIGN PANEL LAYOUTS

CITY PROJECT
 COUNTY PROJECT
 S.A.P. 062-593-004
 S.A.P.

SHEET NO.
 327
 335

GORE PLACEMENT



SPECIFIC NOTES:

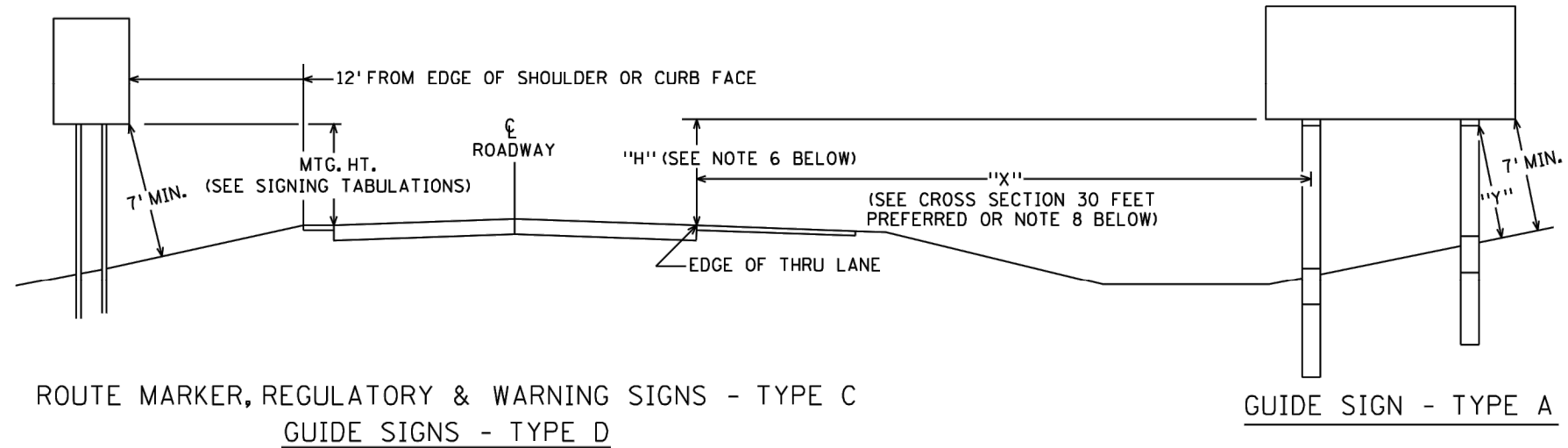
(1) EXIT SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE OR ADDED LANE SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, $\angle A$ SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

REVISED: 4-28-17

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_DTL_SIGN
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PROJECT NO.	160553004

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BRANDON J. BOURDON, P.E.
 DATE: 01/04/19 MN LIC. NO. 43709

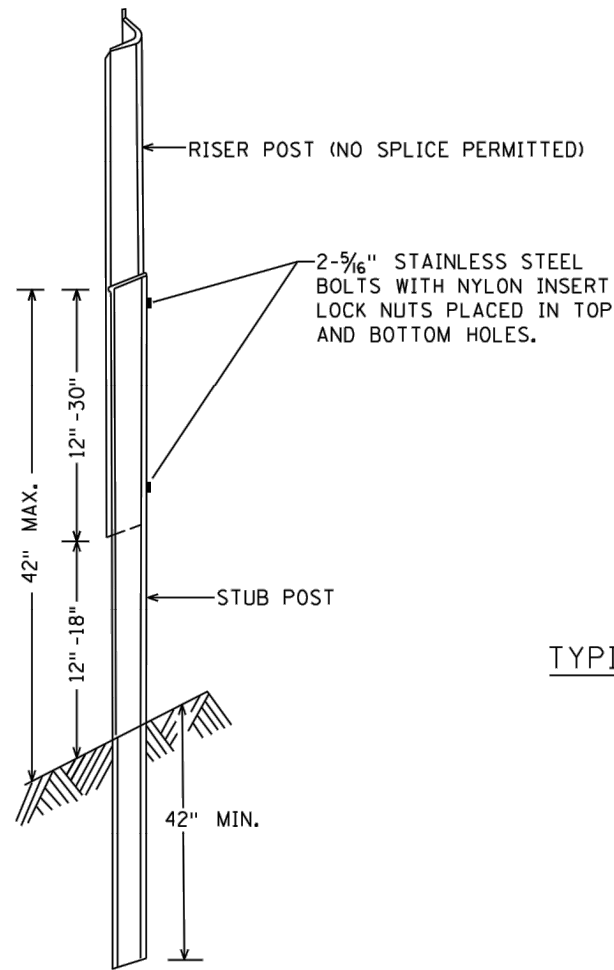
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SIGNING AND PAVEMENT MARKING PLANS
 SIGNING DETAILS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

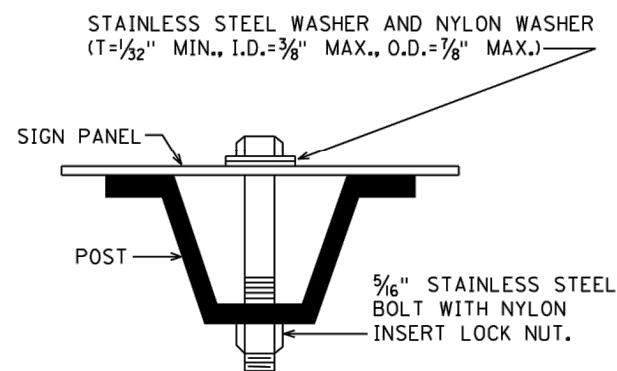
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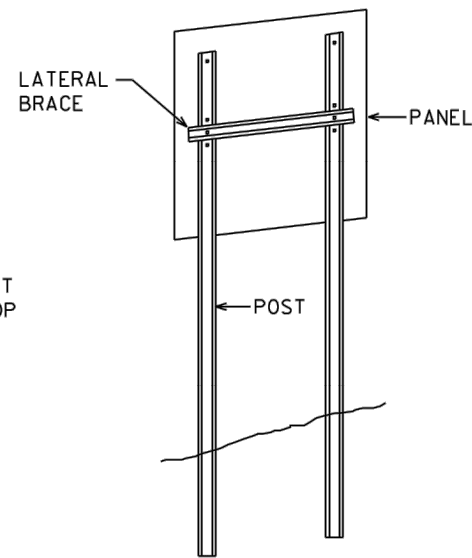
TYPE C & D POST



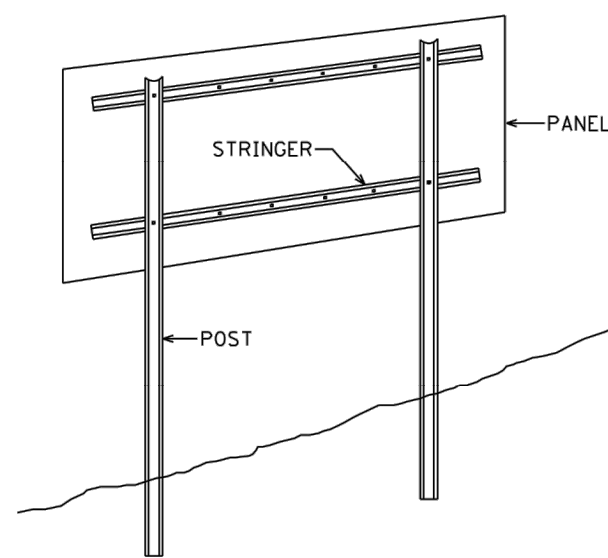
U POST BREAKAWAY SPLICE



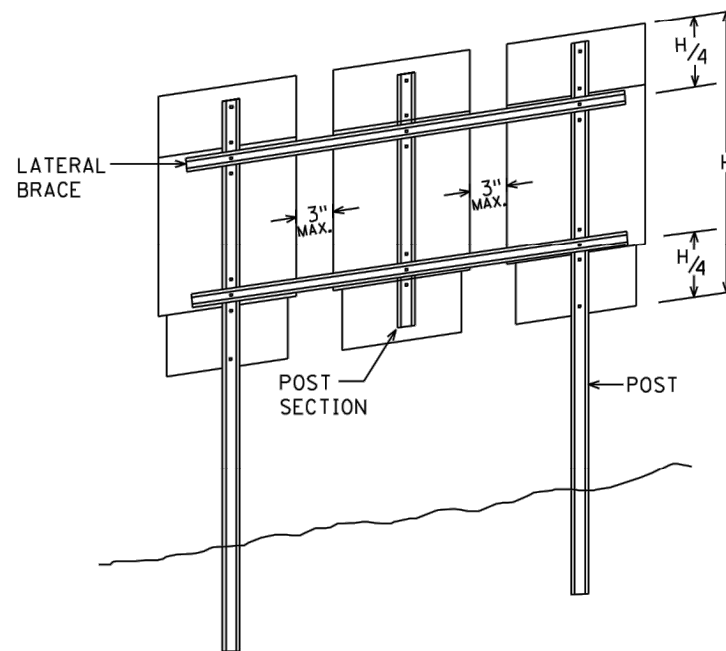
U POST MOUNTING
TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

- USE 3 LB/FT STUB POSTS, SHALL CONFORM TO MNDOT 3401.
- USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
- SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
- IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
- TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
- MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
- ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
- USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
- STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
- BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
- A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
- COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
- 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
- WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
- WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 1 of 2

REVISED: 5-5-2017

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_DTL_SIGN
DESIGNED BY:	BKV
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PROJECT NO.	160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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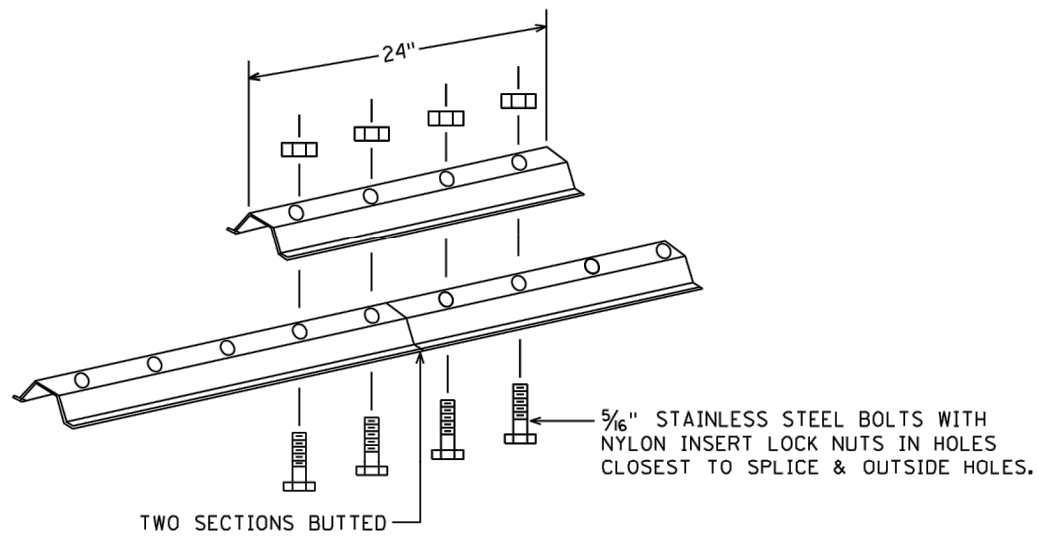
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BRANDON J. BOURDON, P.E.
DATE: 01/04/19 MN LIC. NO. 43709

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
SIGNING AND PAVEMENT MARKING PLANS
SIGNING DETAILS

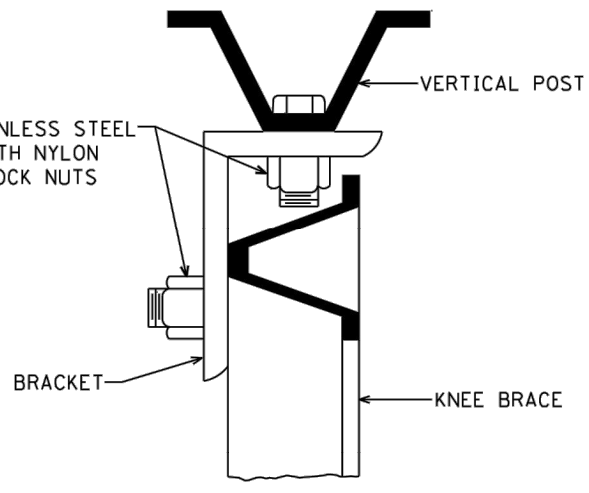
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COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
329
335

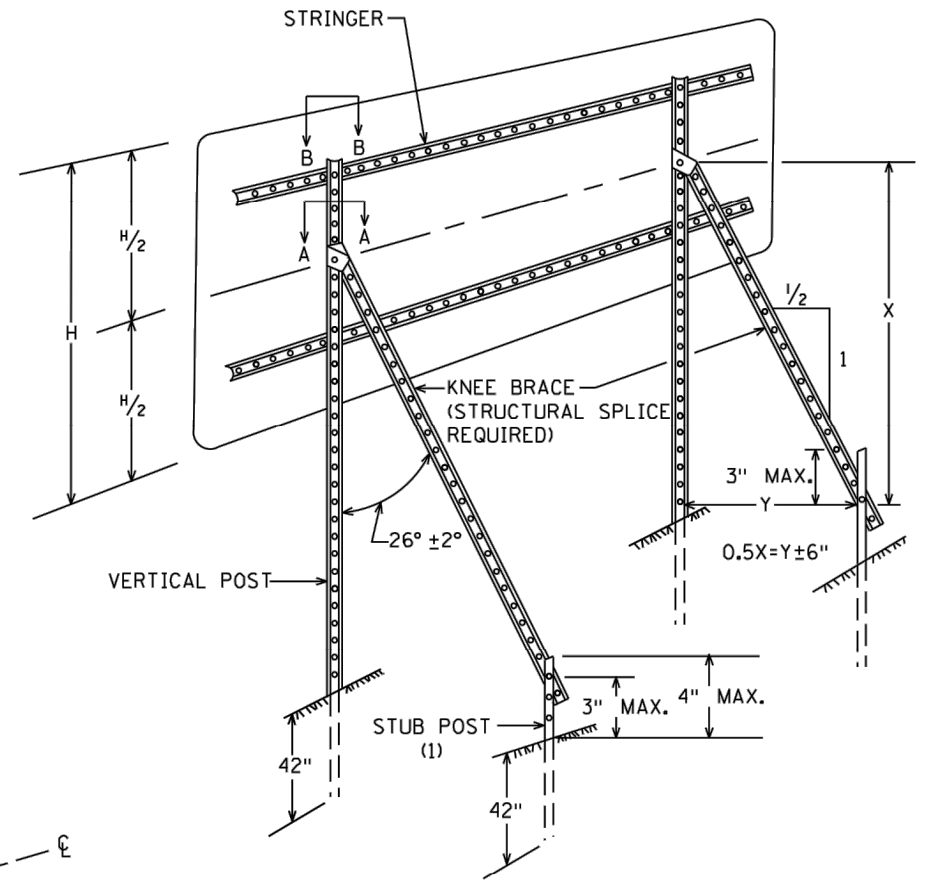
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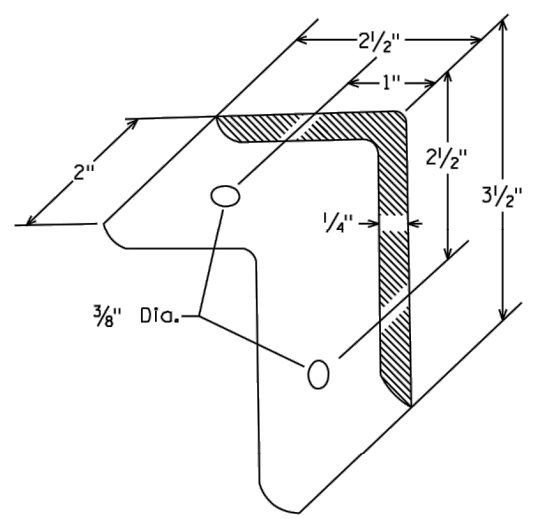
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

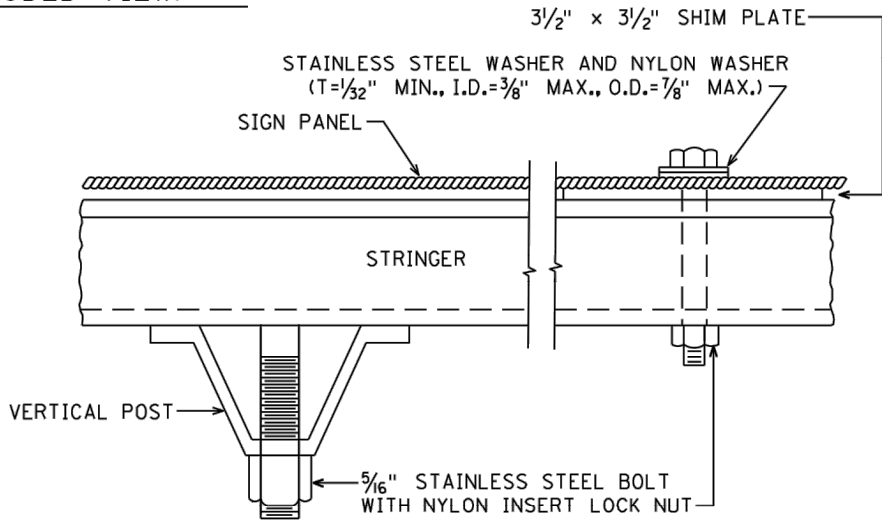


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

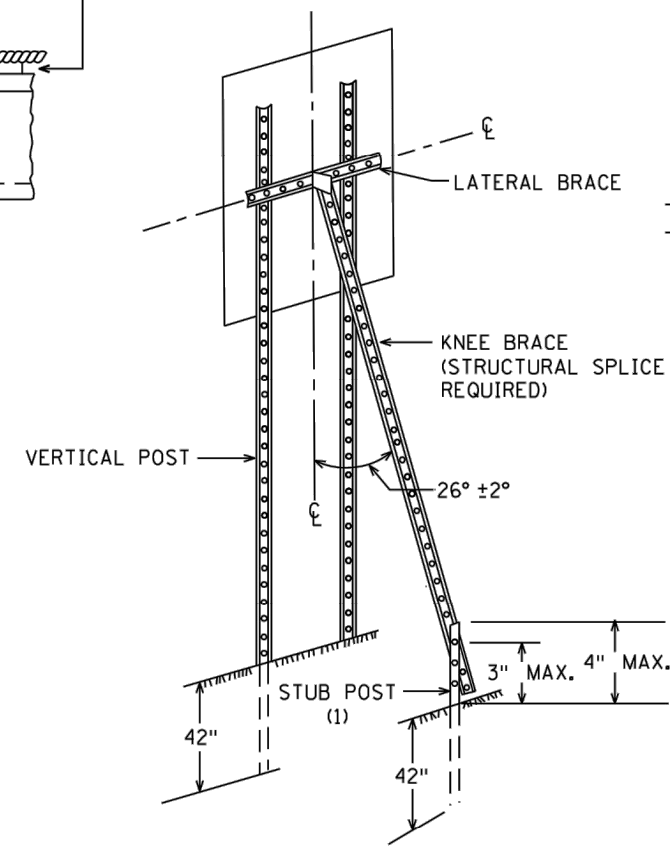


A-FRAME BRACKET

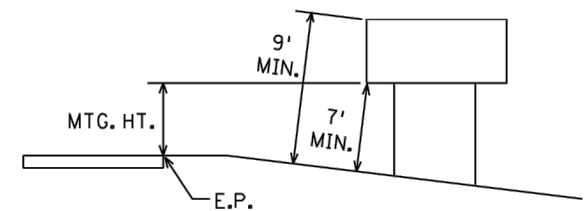
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



SECTION B-B

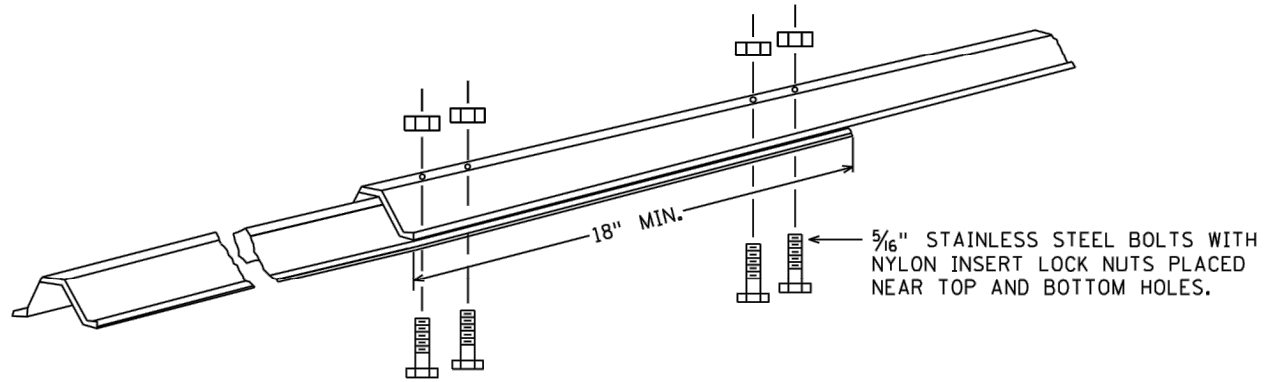


TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.



STRUCTURAL SPLICE

(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

REVISED: 5-5-2017

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 2 of 2

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RAMSEY COUNTY
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GENERAL REQUIREMENTS

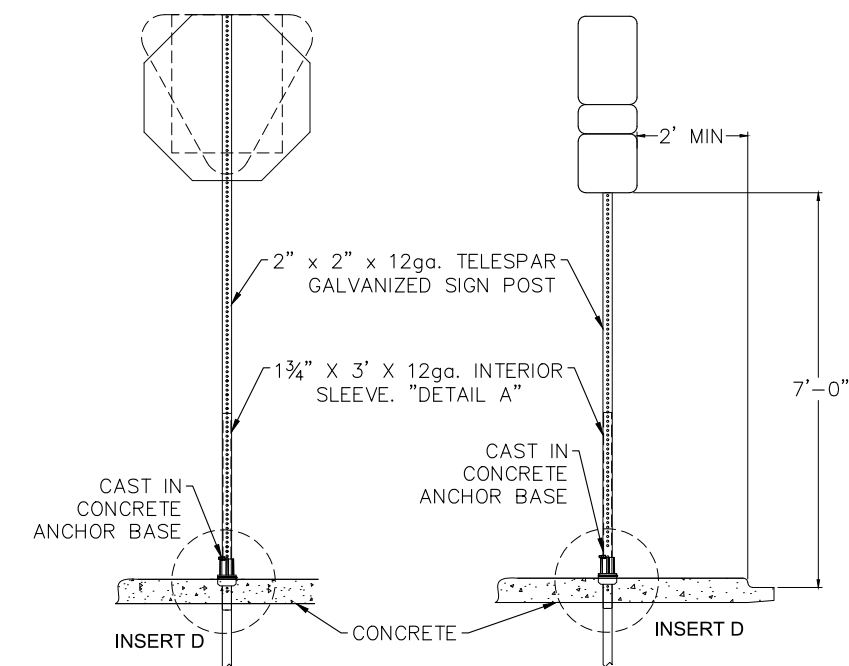
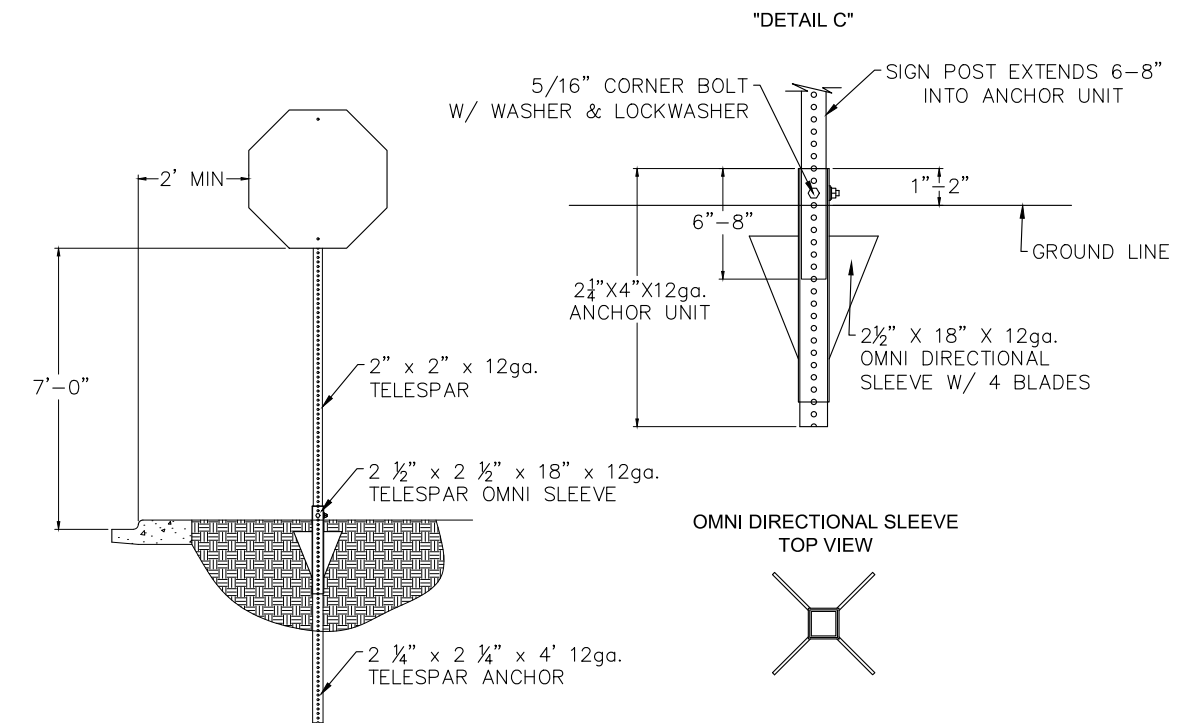
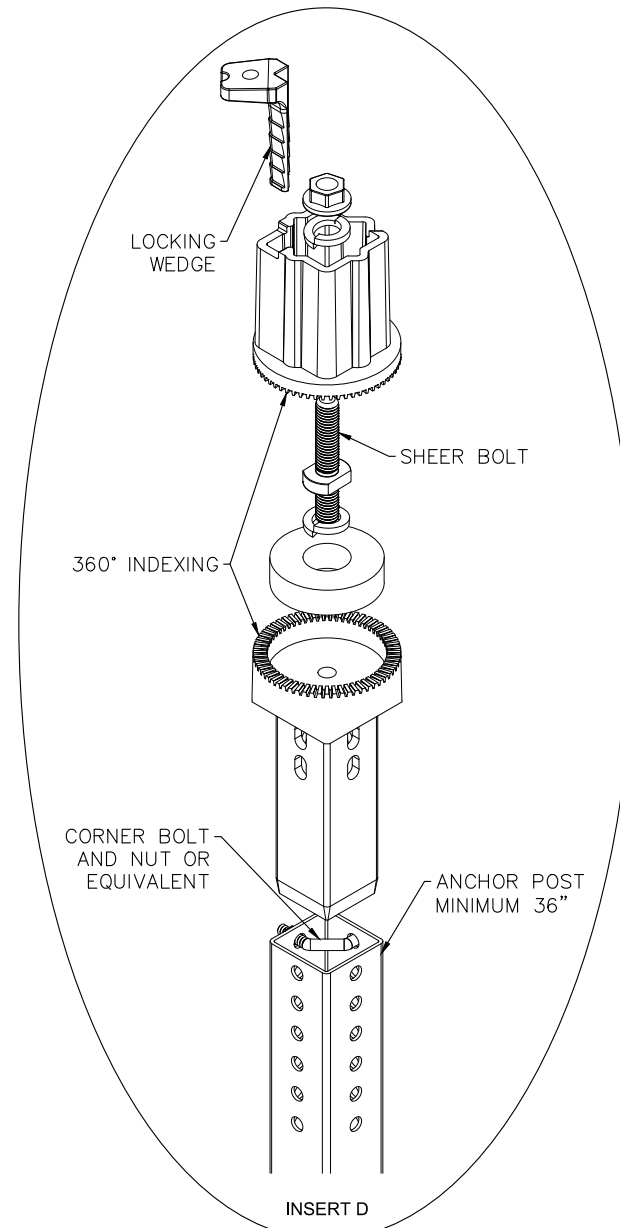
1. ALL SIGN POSTS SHALL BE 2" X 2" GALVANIZED STEEL TUBING, 12 GAUGE WITH 7/16" HOLES SPACED 1" APART ON ALL SIDES (TELSPAR)
2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED. PLATED STEEL NYLON INSERT LOCK NUTS AS SHOWN.
3. USE STAINLESS STEEL 5/16" BOLTS AND WASHERS WITH PLATED STEEL NYLON INSERT LOCK NUTS FOR SIGN MOUNTING
4. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
5. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - FEBRUARY 2011 OR NEWER.
6. ALL TRAFFIC CONTROL DEVICES SHALL HAVE DIAMOND GRADE (DG3) RETROREFLECTIVE SHEETING.

CONCRETE INSTALLATION

1. ALL SIGNS PLACED IN CONCRETE SURFACES SHALL CONSIST OF A BREAK AWAY UNIT
 - 1.1. UNIT SHALL ALLOW FOR 360° INDEXING FOR PROPER SIGN ORIENTATION AFTER INSTALLATION
 - 1.2. UNIT SHALL HAVE A STUB HEIGHT LESS THAN 4" AFTER BREAK AWAY.
 - 1.3. UNIT SHALL UTILIZE A SHEER BOLT AS IT'S MEANS OF BREAKING AWAY
 - 1.4. UNIT SHALL UTILIZE A LOCKING WEDGE OR SHIM TO ELIMINATE ALL TOLERANCE BETWEEN MOUNTING UNIT AND POST
 - 1.4.1. LOCKING WEDGE SHALL BE TAPPED INTO PLACE UNTIL SNUG. AVOID FORCING WEDGE INTO PLACE TO ELIMINATE POSSIBLE DAMAGE TO THE TOP COUPLING
 - 1.5. BREAK AWAY BASE SHALL BE SECURED TO AN ANCHOR POST WITH A MINIMUM LENGTH OF 36" BY A CORNER BOLT AND NUT OR EQUIVALENT.
 - 1.6. UNIT SHALL BE ON THE MnDOT PRE APPROVED PRODUCTS LIST
2. UNIT SHALL BE CONSTRUCTED TO MANUFACTURERS SPECIFICATIONS
3. IF CORING IS REQUIRED FOR SIGN PLACEMENT, THE CORING AND CONCRETE SHALL BE INCIDENTAL.
4. UNIT PLACEMENT MAY DEPEND ON SIZE OF SIGN, SEE "DETAIL B" FOR PLACEMENT.
5. A 1 3/4" X 1 3/4" GALVANIZED STEEL TUBING, 12 GAUGE WITH 7/16" HOLES SPACED 1" APART ON ALL SIDES (TELSPAR), 3' IN LENGTH SHALL BE SUPPLIED AND INSERTED INTO THE SIGN POST FOR ADDED STABILITY. SEE "DETAIL A"
6. A SLIP BASE UNIT MAY BE SUBSTITUTED UPON ENGINEERS APPROVAL. CONTRACTOR SHALL SUPPLY PRODUCT SPECIFICATIONS AND INFORMATION TO THE ENGINEER FOR REVIEW PRIOR TO APPROVAL.

GROUND INSTALLATION

1. ALL SIGNS INSTALLED IN GROUND SHALL CONSIST OF A BREAK AWAY UNIT
 - 1.1. UNIT SHALL BE STEM BASE MOUNT ATTACHED TO A SOIL ANCHOR THAT IS 4' IN DEPTH AND INCORPORATES A SOIL SPADE DRIVEN WITHIN 1" TO 2" ABOVE GRADE. SEE "DETAIL C"
 - 1.2. UNIT SHALL HAVE A STUB HEIGHT LESS THAN 4" AFTER BREAK AWAY.
2. UNIT SHALL BE CONSTRUCTED TO MANUFACTURERS SPECIFICATIONS
3. UNIT PLACEMENT MAY DEPEND ON SIZE OF SIGN, SEE "DETAIL B" FOR PLACEMENT.
4. A SLIP BASE UNIT MAY BE SUBSTITUTED UPON ENGINEERS APPROVAL. CONTRACTOR SHALL SUPPLY PRODUCT SPECIFICATIONS AND INFORMATION TO THE ENGINEER FOR REVIEW PRIOR TO APPROVAL.



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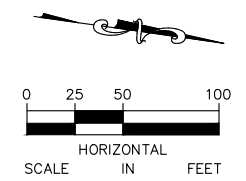
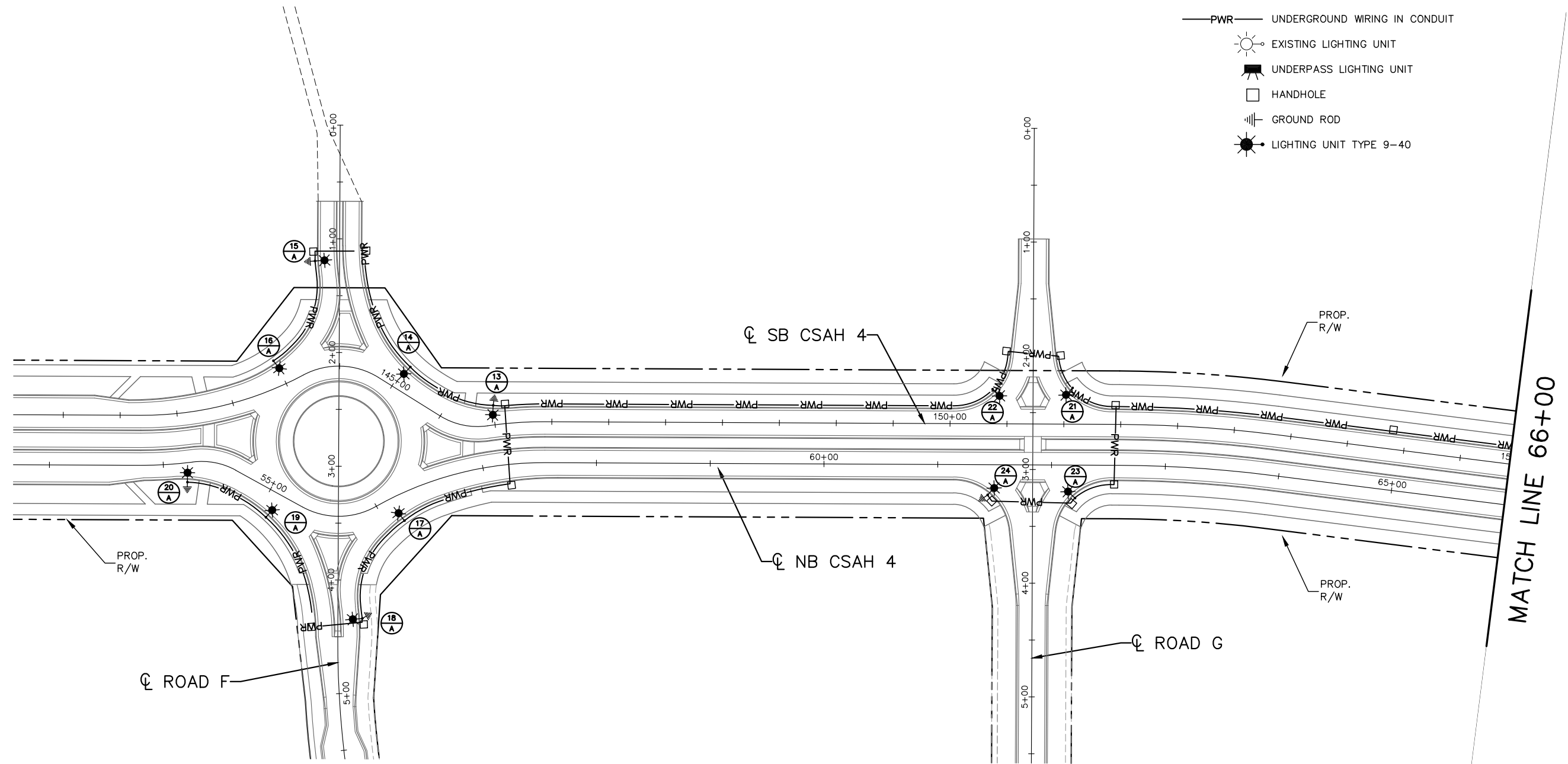
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

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331
335

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LEGEND

- PWR— UNDERGROUND WIRING IN CONDUIT
- ☉ EXISTING LIGHTING UNIT
- ☐ UNDERPASS LIGHTING UNIT
- ☐ HANDHOLE
- ⊥ GROUND ROD
- ☼ LIGHTING UNIT TYPE 9-40



No.	Date	Revisions

App.	DRAWING NAME
	CAAP_SPINERD_LIGHTING.dwg
	DESIGNED BY: RJG
	DRAWN BY: RJG
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CHADD B. LARSON
 DATE: 01/04/19 MN LIC. NO. 41864

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

LIGHTING PLAN
 STA. 53+00 TO STA. 66+00

CITY PROJECT	SHEET NO. 332
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

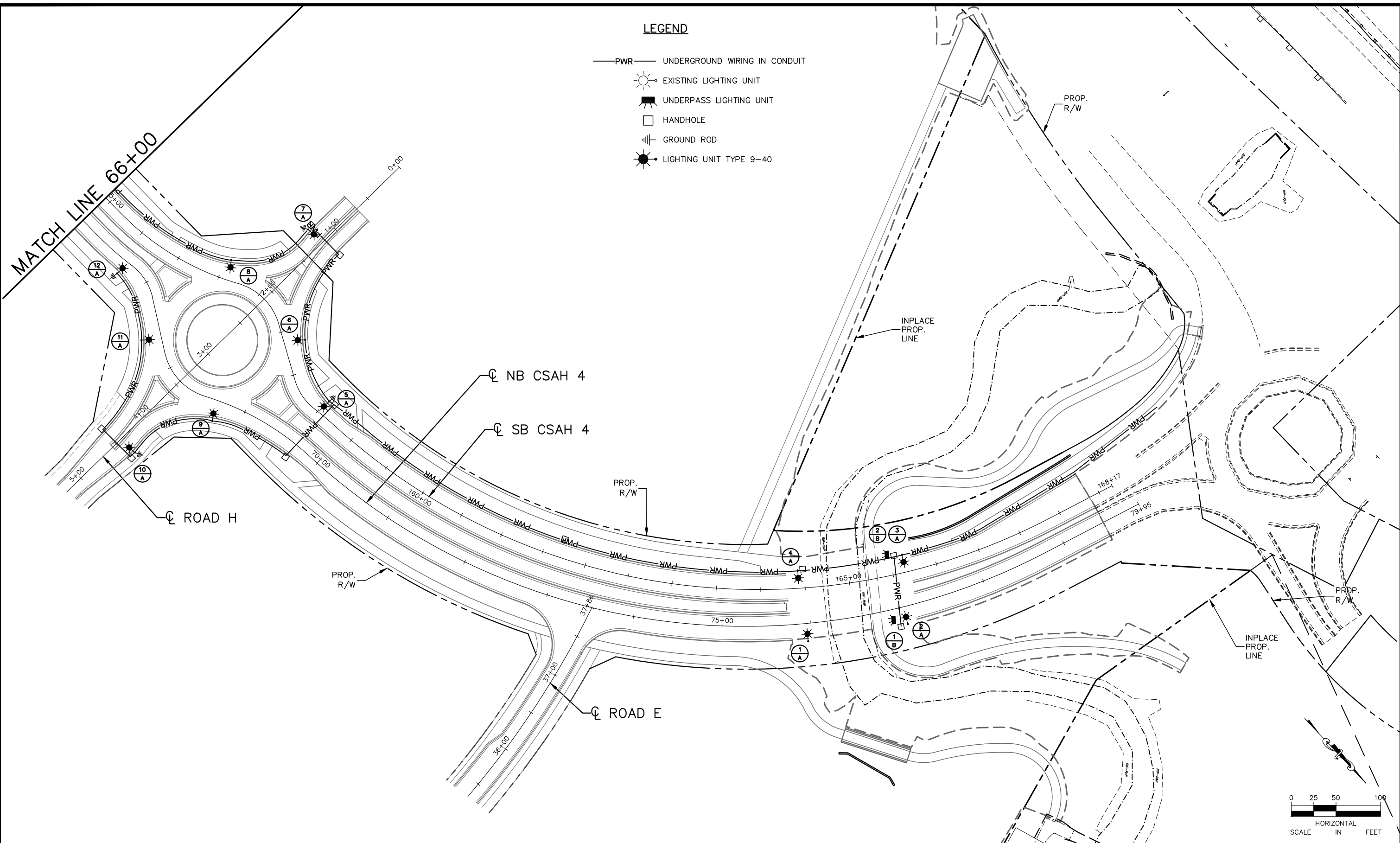
335

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LEGEND

- PWR— UNDERGROUND WIRING IN CONDUIT
- ☀ EXISTING LIGHTING UNIT
- ⬛ UNDERPASS LIGHTING UNIT
- HANDHOLE
- ⚡ GROUND ROD
- ☀ LIGHTING UNIT TYPE 9-40

MATCH LINE 66+00



No.	Date	Revisions	App.

DRAWING NAME	CAAP_SPINERD_LIGHTING.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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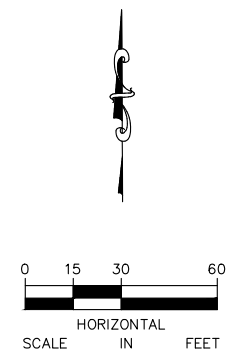
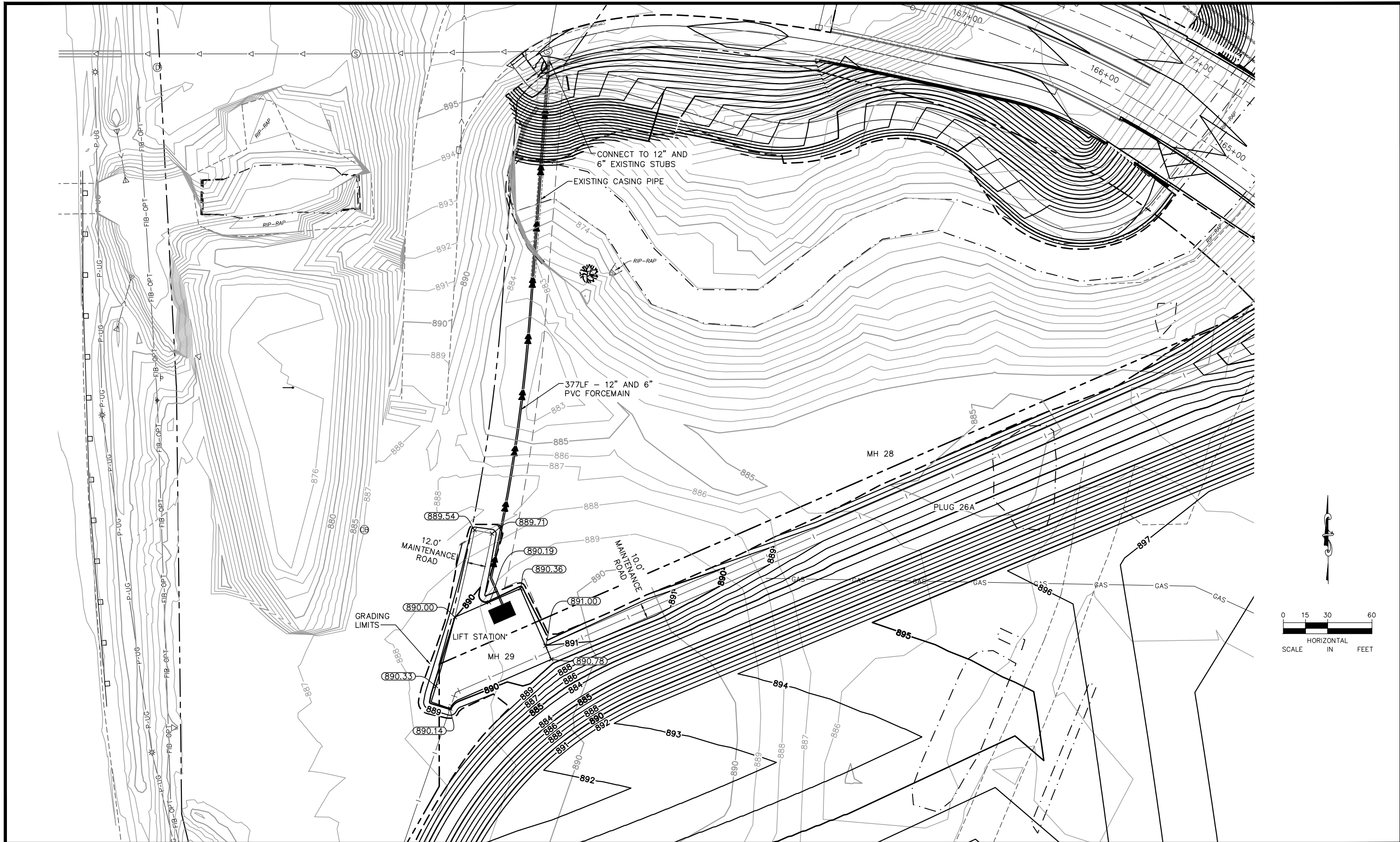
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

LIGHTING PLAN
 STA. 66+00 TO STA. 80+00

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
333
335

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No.	Date	Revisions

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	DESIGNED BY: R/JG
	DRAWN BY: R/JG
	CHECKED BY: CBL
	DATE: 01/04/19
	PROJECT NO. 160553004

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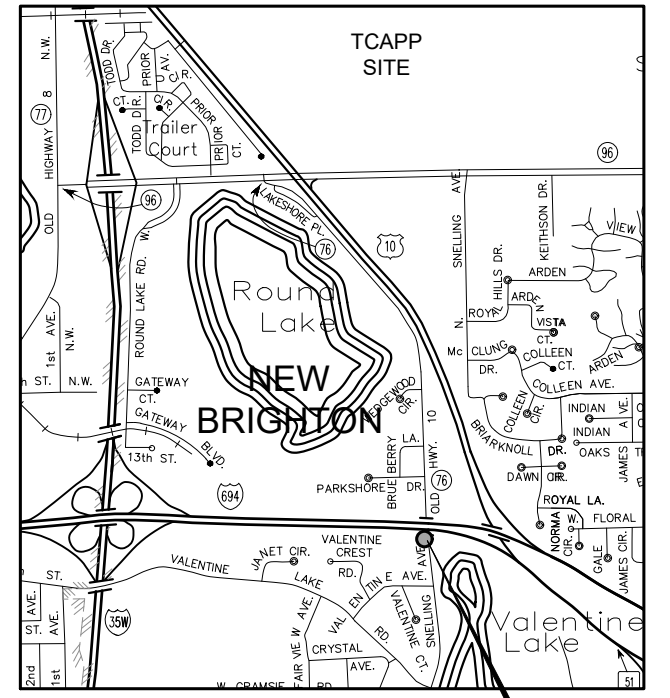
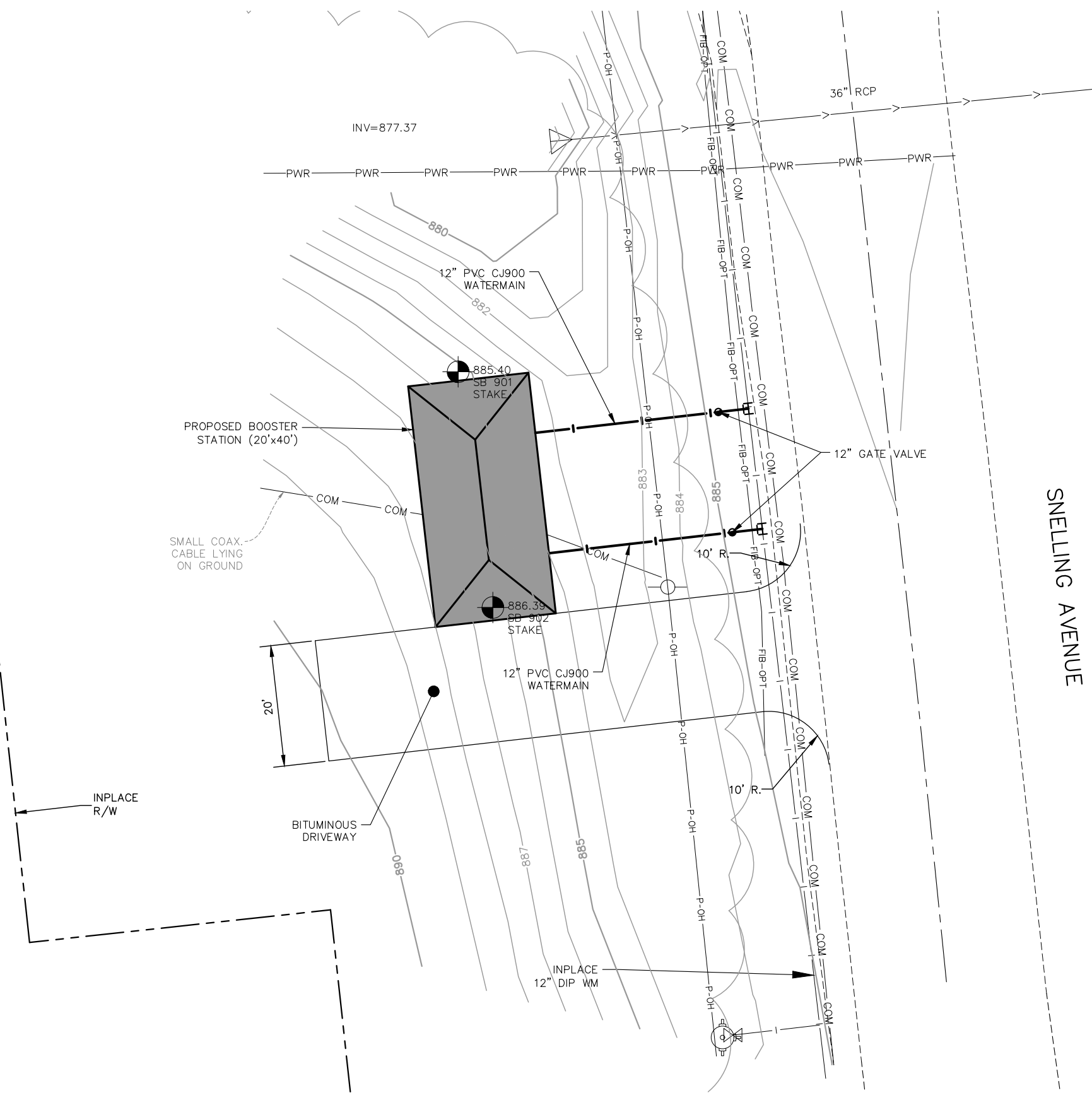
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 SANITARY SEWER LIFT STATION GRADING PLAN

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

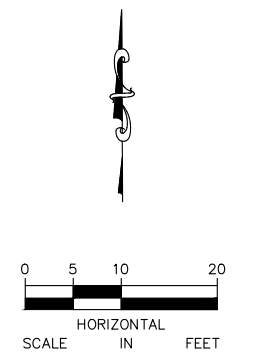
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PROJECT LOCATION



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BURST STA	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	01/04/19
PROJECT NO.	160553004

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TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS

BOOSTER STATION SITE PLAN

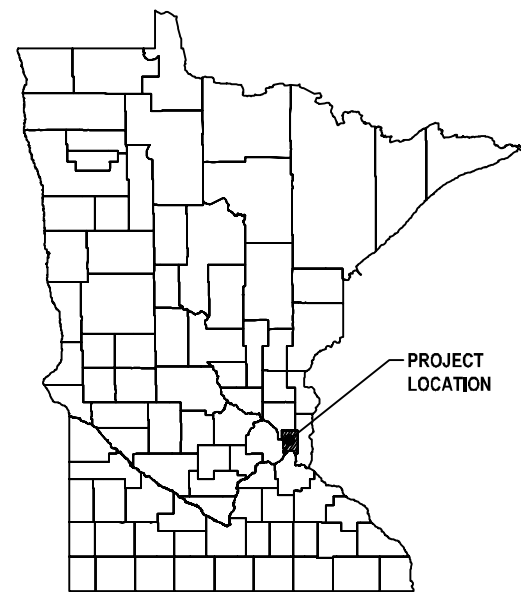
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COUNTY PROJECT	
S.A.P. 062-593-004	335
S.A.P.	

CARL BOLANDER AND SONS

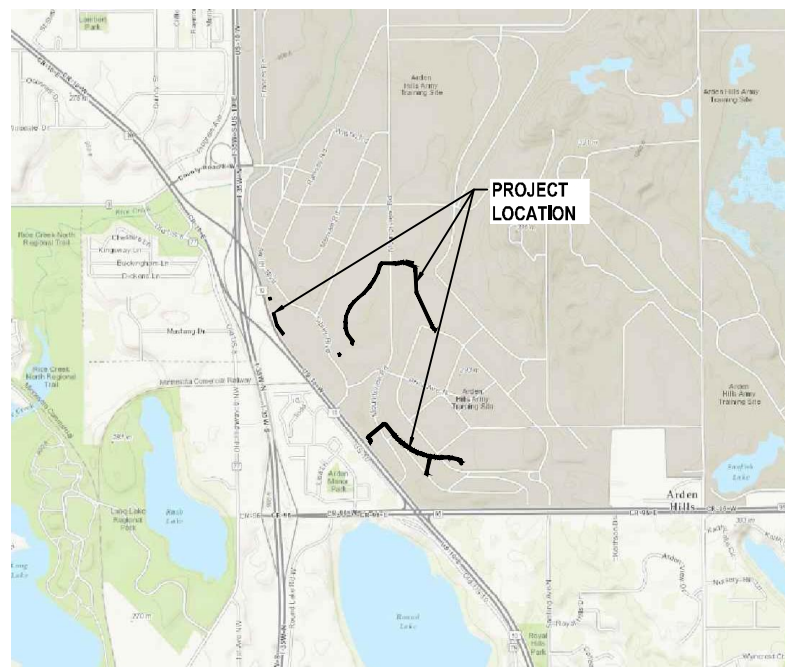


TGRS PIPING REROUTE

JUNE 2016
83125-00(001)



MINNESOTA AREA MAP



LOCATION MAP

SHEET NUMBER	DRAWING LIST	SHEET DESCRIPTION
GN-01	COVER SHEET	
GN-02	LEGEND	
CI-01	PROPOSED SITE PLAN	
CI-02	PLAN AND PROFILE STA A0+00 TO STA A13+00	
CI-03	PLAN AND PROFILE STA A13+00 TO STA A23+00	
CI-04	PLAN AND PROFILE STA B0+00 TO STA B10+00	
CI-05	PLAN AND PROFILE STA B10+00 TO STA B20+00	
CI-06	PLAN AND PROFILE STA C0+00 TO STA C10+00	
CI-07	PLAN AND PROFILE STA C10+00 TO STA C18+75	
CI-08	PLAN AND PROFILE STA D0+00 TO STA D11+00	
CI-09	PLAN AND PROFILE STA D11+00 TO STA D15+25	
CI-10	PLAN AND PROFILE STA E0+00 TO STA E1+50 AND STA F0+00 TO STA F1+50	
CI-11	PLAN AND PROFILE STA G0+00 TO STA 8+00	
CI-12	DRAWING NOTES AND SPECIFICATIONS	
CI-13	MISCELLANEOUS DETAILS	
CI-14	INTERCONNECTION DETAILS	
ME-01	MECHANICAL PIPING PLAN PUMP HOUSE B3	
ME-02	WELL VAULT SC-01	
EL-01	ELECTRICAL SITE PLAN & GENERAL NOTES	
EL-02	ELECTRICAL DEMOLITION	
EL-03	PROPOSED ELECTRICAL WORK-PUMPHOUSE B-3	
EL-04	PROPOSED ELECTRICAL WORK-SC-1, B-13 WELLHEADS	
EL-05	PANELBOARD ARRGT & PARTIAL ONE LINE DIAG'S	
IC-01	CONTROL PANEL ARRANGEMENT & BILL OF MATERIAL	
IC-02s1	CONTROL PANEL POWER DISTRIBUTION DIAGRAM	
IC-02s2	CONTROL PANEL ANALOG INPUT MODULE WIRING DIAGRAM (RACK 1, SLOT 1)	
IC-02s3	CONTROL PANEL DIGITAL INPUT-OUTPUT MODULE WIRING DIAGRAM (RACK 1, SLOT 2)	
IC-02s4	CONTROL PANEL DIGITAL INPUT MODULE WIRING DIAGRAM (RACK 1, SLOT 3)	

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				Bar is one inch on original size drawing 		 GHD Services Inc. 1801 Old Highway 8 Northwest Suite 114 St. Paul, Minnesota 55112 USA T 1 651 639 0913 F 1 651 639 0923 W www.ghd.com		Drawn: CR/TD Designer: W. WHEELER Drafting Check: W. WHEELER Design Check: E. HOGLUND Project Manager: E. HOGLUND Date: May 31, 2016		Client: CARL BOLANDER AND SONS Project: TGRS PIPING REROUTE Title: COVER SHEET Project No.: 83125-00(001) Original Size: Arch D Sheet No.: GN-01	
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SURVEY LINETYPES		
FEATURE	EXISTING	PROPOSED
PROPERTY LINE	---	---
CENTER LINE	---	---
EASEMENT	---	---
ROW & MONUMENT	---	---
ROADWAY EASEMENT	---	---
DRAINAGE EASEMENT	---	---

UTILITY LINETYPES		
FEATURE	EXISTING	PROPOSED
ELECTRIC UNDERGROUND	---	---
ELECTRIC OVERHEAD	---	---
TELEPHONE UNDERGROUND	---	---
TELEPHONE OVERHEAD	---	---
COMMUNICATION UNDERGROUND	---	---
COMMUNICATION OVERHEAD	---	---
GAS	---	---
WATER MAIN	---	---
SANITARY SEWER	---	---
SANITARY SEWER FORCEMAIN	---	---
STORM SEWER	---	---
TGRS	---	---
ABANDONED PIPE	XXX	XXX
DEMOLITION	---	---

TOPOGRAPHIC LINETYPES		
FEATURE	EXISTING	PROPOSED
FENCE	---	---
GUIDE POSTS GUARD RAIL	---	---
RR TRACKS SMALL SCALE	---	---
SHEET PILING	---	---
SHORE LINE	---	---
WORK LIMIT LINE	---	---

SURVEY		
FEATURE	EXISTING	PROPOSED
MONUMENT	○	○
SIB	○	○
IB	○	○
RB	○	○
IRON PIPE	○	○
CUT-CROSS	X	X
NAIL	○	○
DRILL HOLE	○	○
BENCHMARK	○	○
TEMPORARY BENCHMARK	○	○
CONTROL POINT	○	○
PERMANENT SURVEY MARKER	○	○

SANITARY		
FEATURE	EXISTING	PROPOSED
SANITARY SEWER MH	○	○
CLEAN OUT	○	○
SANITARY SEWER VALVE	○	○
VENT	○	○
LATERAL	---	---
END CAP	---	---
MANHOLE DEMOLITION	---	---

STORM & DRAINAGE		
FEATURE	EXISTING	PROPOSED
STORM MANHOLE	○	○
STORM CATCH BASIN	□	□
CULVERT/ENDSECTIONS	---	---
SWALE/DITCH	---	---
YARD DRAIN	---	---
FLOW ARROW	---	---
STORM PIPE	---	---

WATER		
FEATURE	EXISTING	PROPOSED
WATER GATE VALVE	○	○
WATER BUTTERFLY VALVE	○	○
HYDRANT VALVE	○	○
HYDRANT	○	○
CURB STOP	○	○
WATER METER	○	○
AIR RELIEF VALVE	↑	↑
WELL	○	○
SERVICE	---	---
SERVICE RECONNECT	---	---
BLOWOFF/SAMPLE POINT	↑	↑
TAPPING SLEEVE	---	---
WATER SERVICE BOX	○	○
SPRINKLER HEAD	○	○
VALVE CHAMBER	○	○

POWER		
FEATURE	EXISTING	PROPOSED
UTILITY POLE	○	○
GUY WIRE ANCHOR	○	○
STREET LIGHT	○	○
BURIED CABLE MARKER	○	○
TRANSMISSION TOWERS	□	□
PULL BOX STREET LIGHTS	□	□
TERMINAL BOX	□	□
UTILITY MANHOLE	○	○
HANDHOLE	○	○
INSPECTION POST	○	○
UTILITY MARKER	○	○

NATURAL GAS		
FEATURE	EXISTING	PROPOSED
GAS VALVE	○	○
GAS METER	○	○
GAS MAIN MARKER	△	△
GAS SERVICE BOX	□	□
GAS WELL	○	○

COMMUNICATIONS		
FEATURE	EXISTING	PROPOSED
PEDESTAL	○	○
POLICE OR FIRE CALL BOX	○	○

RAILROAD		
FEATURE	EXISTING	PROPOSED
RR SIGNAL	---	---
RR SIGNAL CONTROL BOX	□	□
RR SWITCHSTAND	+	+
RR FROG POINT	---	---
RR BUMPER	---	---

TOPOGRAPHY		
FEATURE	EXISTING	PROPOSED
SPLASH BLOCK	---	---
MAIL BOX	---	---
YARD LIGHT	---	---
STONE FENCE	---	---
TREE LINE	---	---
DECIDUOUS TREE, TRUNK Ø	○	○
CONIFER TREE, TRUNK Ø	○	○
CONIFER TREE, MULTI-TRUNK Ø	○	○
DECIDUOUS TREE, MULTI-TRK Ø	○	○
TREE BORING	○	○
TREE REMOVAL	○	○
BORING/RECEIVING PITS	---	---
STUMP	---	---
HEEDGE	---	---
BOLLARD	○	○
SPOT ELEVATION	---	---
WATER ELEVATION	---	---
GATE	○	○
POST	○	○
STREAM OR RIVER	---	---
TOP OF SLOPE	---	---
TOE OF SLOPE	---	---
TEST BORE HOLE	○	○

TRAFFIC		
FEATURE	EXISTING	PROPOSED
TRAFFIC SIGNAL	○	○
PULL BOX TRAFFIC SIGNAL	○	○
SIGNAL POLE W/CONTROL	○	○
ROAD SIGNS	---	---
MILE MARKER	---	---
RAISED PAVEMENT MARKER	---	---

EROSION CONTROL		
FEATURE	EXISTING	PROPOSED
SILT FENCE	---	---
INLET PROTECTION	---	---

MISC		
FEATURE	EXISTING	PROPOSED
TANK FILLER	○	○
CLAY DAM	---	---
CONTRACTOR TEST PIT	○	○
POST INDICATOR VALVE	---	---
PUMP	○	○
VALVE OPERATOR **	○	○
CHECK VALVE	---	---

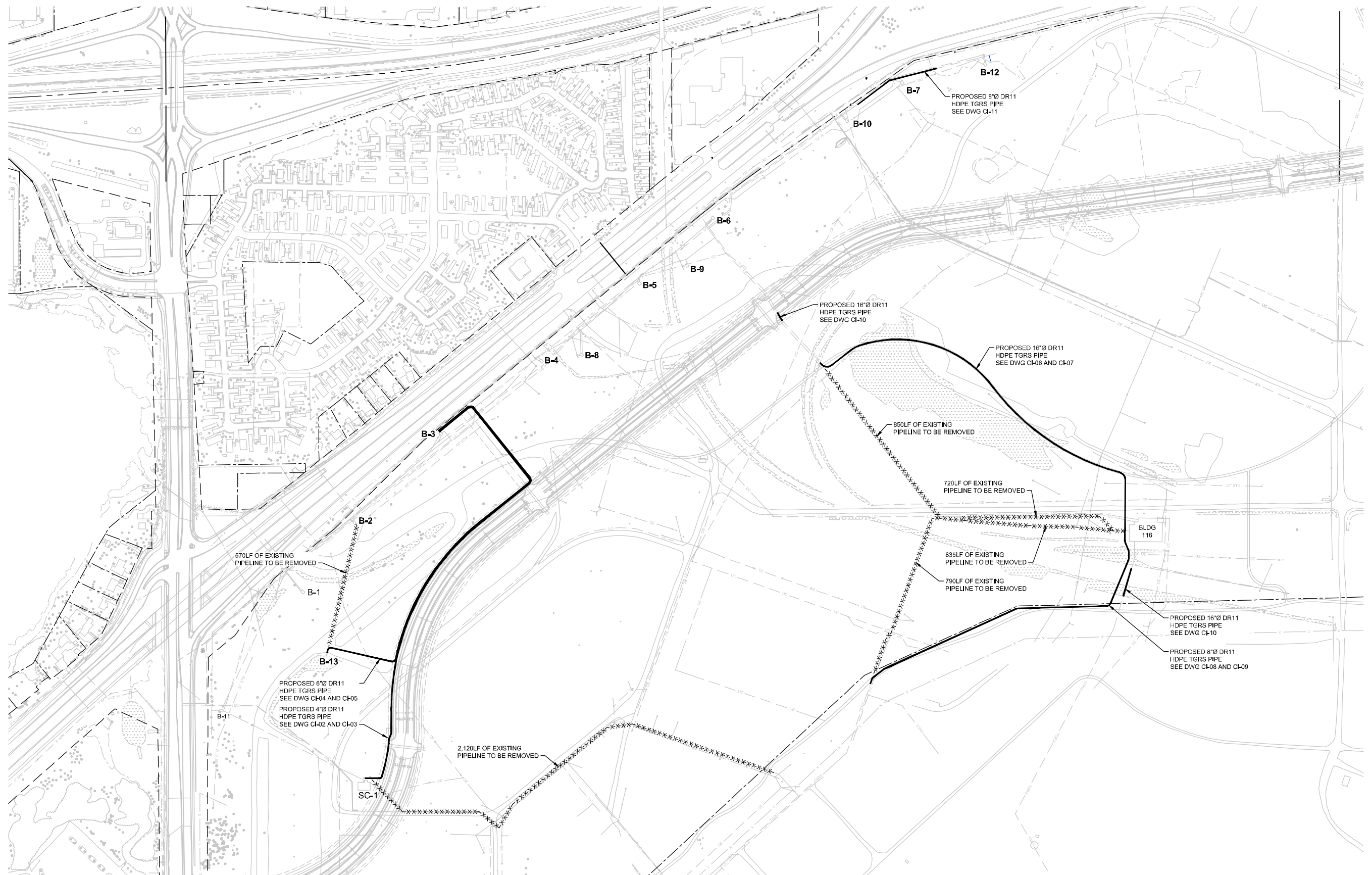
MATERIAL SYMBOLS	
FEATURE	HATCH
CLAY	---
APPROVED BACKFILL	---
SAND	---
SEDIMENT	---
COMPACT STONE SUBBASE	---
SELECT FILL / CRUSHED STONE	---
FILL	---
RIP-RAP	---
BEDROCK	---
SWAMP	---
TOPSOIL	---
ASPHALT	---
CONCRETE	---
CONCRETE MASONRY UNIT	---
ROCK SURFACE	---
EARTH SURFACE	---
PIPE BEDDING	---
TOP COURSE	---
BINDER COURSE	---
GRANITE	---
PEA GRAVEL	---
EASEMENT	---
MARSH OR SWAMP	---
ROCK OUTCROPPING	---

ABBREVIATIONS		
Ø, DIA	=	DIAMETER
AOBE	=	AS ORDERED BY ENGINEER
ASPH	=	ASPHALT
AHD	=	AHEAD
BOB	=	BOTTOM OF BANK
BC	=	BOTTOM OF CURB
BDY	=	BOUNDARY
BV	=	BUTTERFLY VALVE
BLDG	=	BUILDING
BLVD	=	BOULEVARD
BM	=	BENCHMARK
BTD	=	BLACK TOP DRIVE
BK	=	BACK
CL	=	CENTERLINE
CB	=	CATCH BASIN
CATV	=	CABLE TV
C/C	=	CENTER TO CENTER
CIP	=	CAST IRON PIPE
CMP	=	CORRUGATED METAL PIPE
CC	=	CLEANOUT
CONC	=	CONCRETE
CONST	=	CONSTRUCTION
CP	=	CONTROL POINT
CR	=	COUNTY ROAD
CSD	=	CRUSHED STONE DRIVE
CSPA	=	CORRUGATED STEEL PIPE ARCH
CT	=	COPPER TUBING PIPE
CULV	=	CULVERT
DI	=	DRAINAGE INLET
DIP	=	DUCTILE IRON PIPE
DIA, Ø	=	DIAMETER
DN	=	DOWN
E	=	EAST
EL	=	ELEVATION
EP	=	EDGE OF PAVEMENT
EPS	=	EDGE OF PAVED SHOULDER
ES	=	EDGE OF SHOULDER
FND	=	FOUNDATION
FS	=	FAR SIDE
FT	=	FOOT, FEET
GAR	=	GARAGE
GM	=	GAS METER
GP	=	GUY POLE
GRAV	=	GRAVEL
GSB	=	GAS SERVICE BOX
GV	=	GAS VALVE (MAIN LINE)
GS	=	GATE SERVICE
GW	=	GAS WELL
HC	=	HANDICAP
HDPE	=	HIGH DENSITY POLYETHYLENE PIPE
HP	=	HIGH POINT
HPG	=	HIGH PRESSURE GAS
HSE #	=	HOUSE NUMBER
HW	=	HEADWALL
HWY	=	HIGHWAY
HYD	=	HYDRANT
INV	=	INVERT
IB	=	IRON BAR
IP	=	IRON PIPE OR IRON PIN
LF	=	LINEAR FOOT
LP	=	LIGHT POLE
LPG	=	LOW PRESSURE GAS
LT	=	LEFT
MH	=	MANHOLE
MON	=	MONUMENT

ABBREVIATIONS		
N	=	NORTH
NE	=	NORTH EAST
NW	=	NORTH WEST
NITC	=	NOT IN THIS CONTRCT
NYT	=	NEW YORK TELEPHONE
PAVT	=	PAVEMENT
PCCP	=	PRESTRESSED CONCRETE CYLINDER PIPE
PCSP	=	PERFORATED CORRUGATED STEEL PIPE
PS	=	PUMP STATION
PVC	=	POLYVINYL CHLORIDE PIPE
PP	=	POWER POLE
RCP	=	REINFORCED CONCRETE PIPE
RB	=	RECORDED IRON BAR
RD	=	ROAD
RP	=	REFLECTOR POST
RR	=	RAILROAD
ROW	=	RIGHT OF WAY
RT	=	RIGHT
RTE	=	ROUTE
R	=	RADIUS
STA	=	STATION
SA	=	SANITARY MANHOLE (SYMBOL)
SAN	=	SANITARY SEWER
SSMH	=	SANITARY MANHOLE
SHDR	=	SHOULDER
SIB	=	SET IRON BAR
SH	=	STATE HIGHWAY
S	=	SOUTH
SE	=	SOUTH EAST
SF	=	SILT FECE
SBD	=	STRAW BALE DIKE
SPK	=	SPIKE
STP	=	STEEL PIPE
STM	=	STORM SEWER
STM MH	=	STORM MANHOLE
STK	=	STAKE
ST	=	STREET
STY	=	STORY
SW	=	SIDEWALK
SW	=	SOUTH WEST
TB	=	TEST BORE
TOB	=	TOP OF BANK
TBM	=	TEMPORARY BENCH MARK
TC	=	TOP OF CURB
TEL P	=	TELEPHONE POLE
TGL	=	THEORETICAL GRADE LINE
TGRS	=	TCAAP GROUNDWATER RECOVERY SYSTEM
UP	=	UTILITY POLE
UGE	=	UNDERGROUND ELECTRIC
UGT	=	UNDERGROUND TELEPHONE
VCP	=	VITRIFIED CLAY PIPE
VTP	=	VITRIFIED TILE PIPE
WAT	=	WATER
W	=	WEST
WP	=	WATER PIPE
WM	=	WATER METER
WV	=	WATER VALVE
WS	=	WATER SERVICE (H.S.E. LINE)

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<p>B ISSUED FOR REVIEW CR/ID WWW 06/03/16</p>		<p>A ISSUED FOR REVIEW CR/ID WWW 03/25/15</p>		<p>Project No. 83125-00(001) Original Size Arch D Sheet No. GN-02</p>	
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A	ISSUED FOR REVIEW	CR/TD	WWW	03/25/15

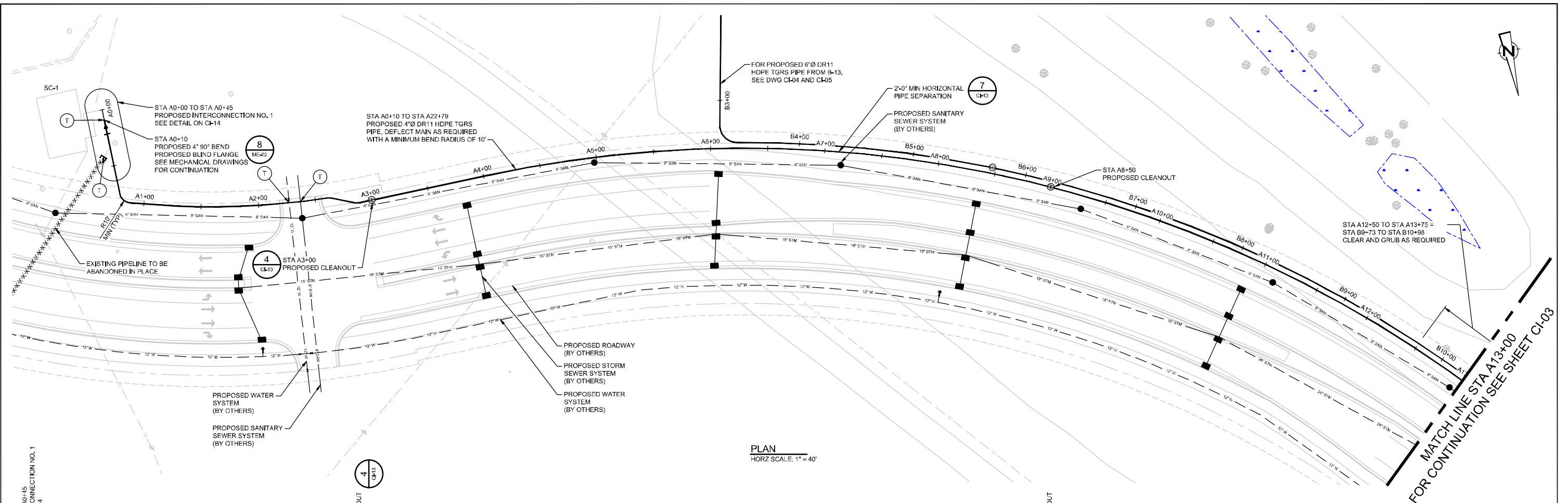
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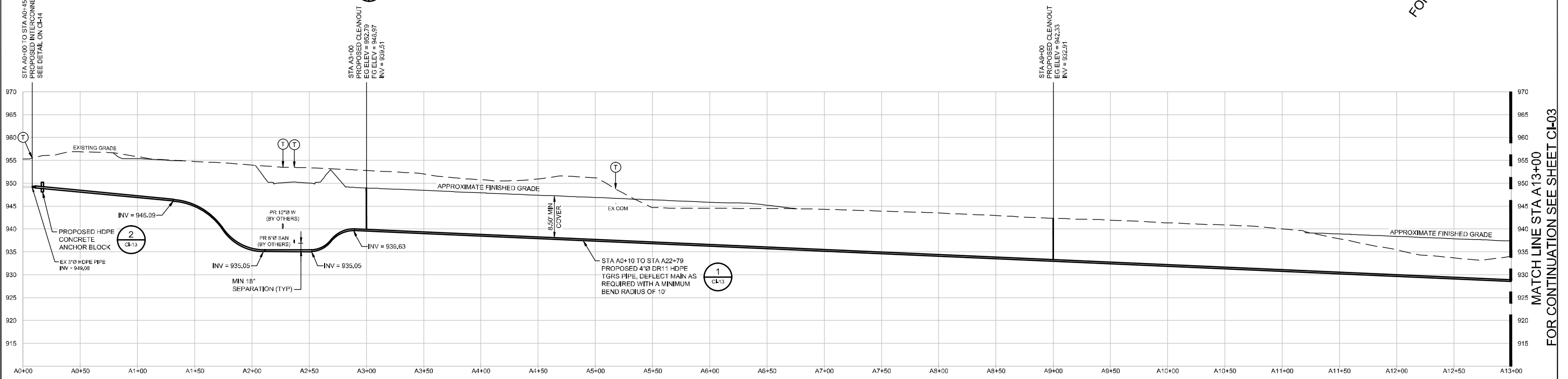
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 GHD Services Inc.
 1801 Old Highway 8 Northwest Suite 114
 St. Paul, Minnesota 55112 USA
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Drawn	CR/TD	Designer	W. WHEELER
Drafting Check	W. WHEELER	Design Check	E. HOGLUND
Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	PROPOSED SITE PLAN		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-01
		Sheet	1 of 1



PLAN
HORZ SCALE: 1" = 40'

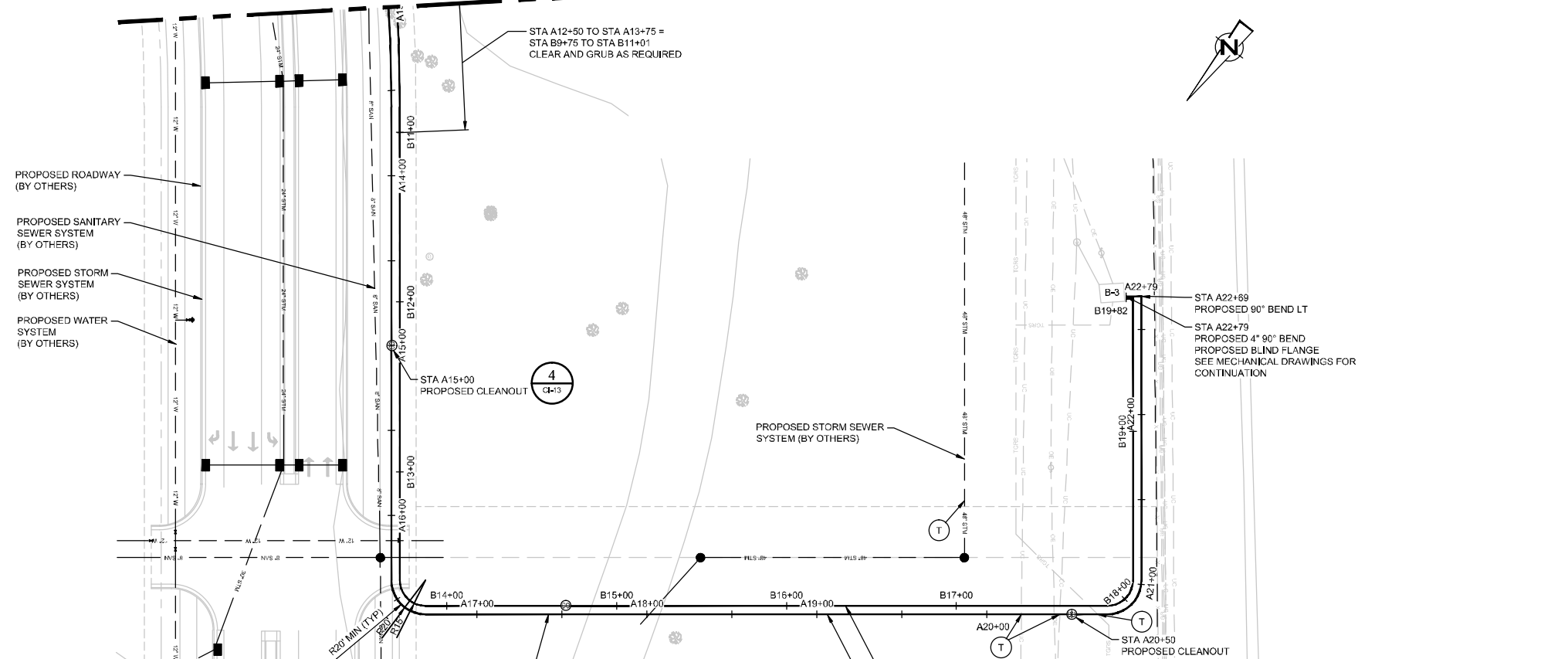


PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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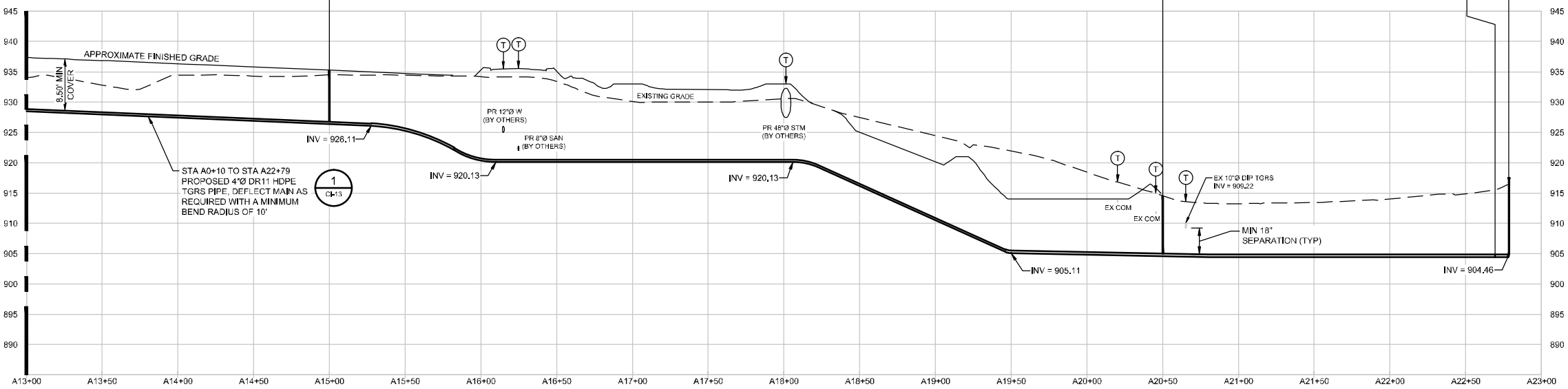
<table border="1"> <tr> <td>Bar is one inch on original size drawing</td> <td>0</td> <td>1"</td> </tr> </table>		Bar is one inch on original size drawing	0	1"	<p>GHD Services Inc. 1801 Old Highway 8 Northwest Suite 114 St. Paul, Minnesota 55112 USA T 1 651 639 0913 F 1 651 639 0923 W www.ghd.com</p>	<table border="1"> <tr> <td>Drawn</td> <td>CR/TD</td> <td>Designer</td> <td>W. WHEELER</td> </tr> <tr> <td>Drafting Check</td> <td>W. WHEELER</td> <td>Design Check</td> <td>E. HOGLUND</td> </tr> <tr> <td>Project Manager</td> <td>E. HOGLUND</td> <td>Date</td> <td>Jun 1, 2016</td> </tr> </table>	Drawn	CR/TD	Designer	W. WHEELER	Drafting Check	W. WHEELER	Design Check	E. HOGLUND	Project Manager	E. HOGLUND	Date	Jun 1, 2016	<table border="1"> <tr> <td>Client</td> <td>CARL BOLANDER AND SONS</td> </tr> <tr> <td>Project</td> <td>TGRS PIPING REROUTE</td> </tr> <tr> <td>Title</td> <td>PLAN AND PROFILE</td> </tr> <tr> <td>Project Name</td> <td>STA A0+00 TO STA A13+00</td> </tr> <tr> <td>Project No.</td> <td>83125-00(001)</td> </tr> <tr> <td>Original Scale</td> <td>Arch D</td> </tr> <tr> <td>Sheet No.</td> <td>CI-02</td> </tr> </table>	Client	CARL BOLANDER AND SONS	Project	TGRS PIPING REROUTE	Title	PLAN AND PROFILE	Project Name	STA A0+00 TO STA A13+00	Project No.	83125-00(001)	Original Scale	Arch D	Sheet No.	CI-02
Bar is one inch on original size drawing	0	1"																															
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No.	Issue	Drawn	Approved	Date																													
Scale	AS NOTED																																

MATCH LINE STA A13+00
FOR CONTINUATION SEE SHEET CI-02



PLAN
HORZ SCALE: 1" = 40'

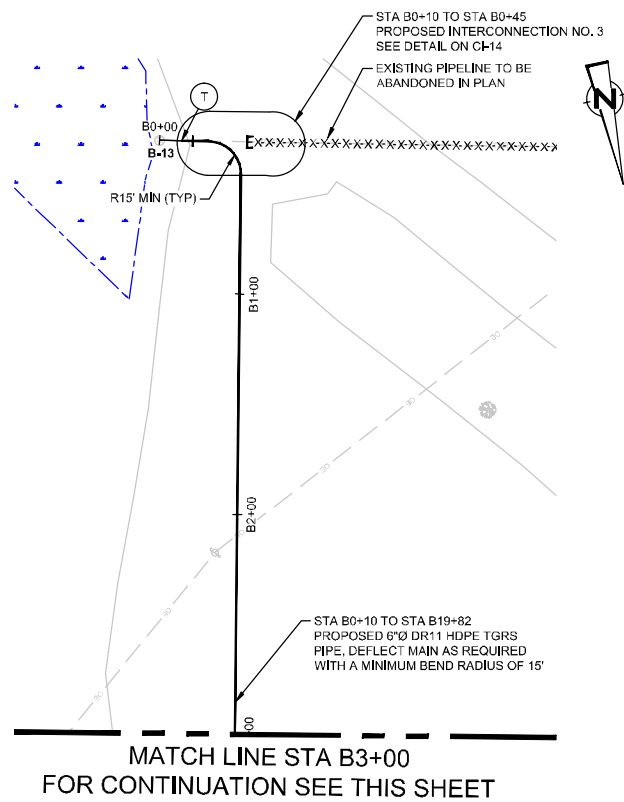
MATCH LINE STA A13+00
FOR CONTINUATION SEE SHEET CI-02



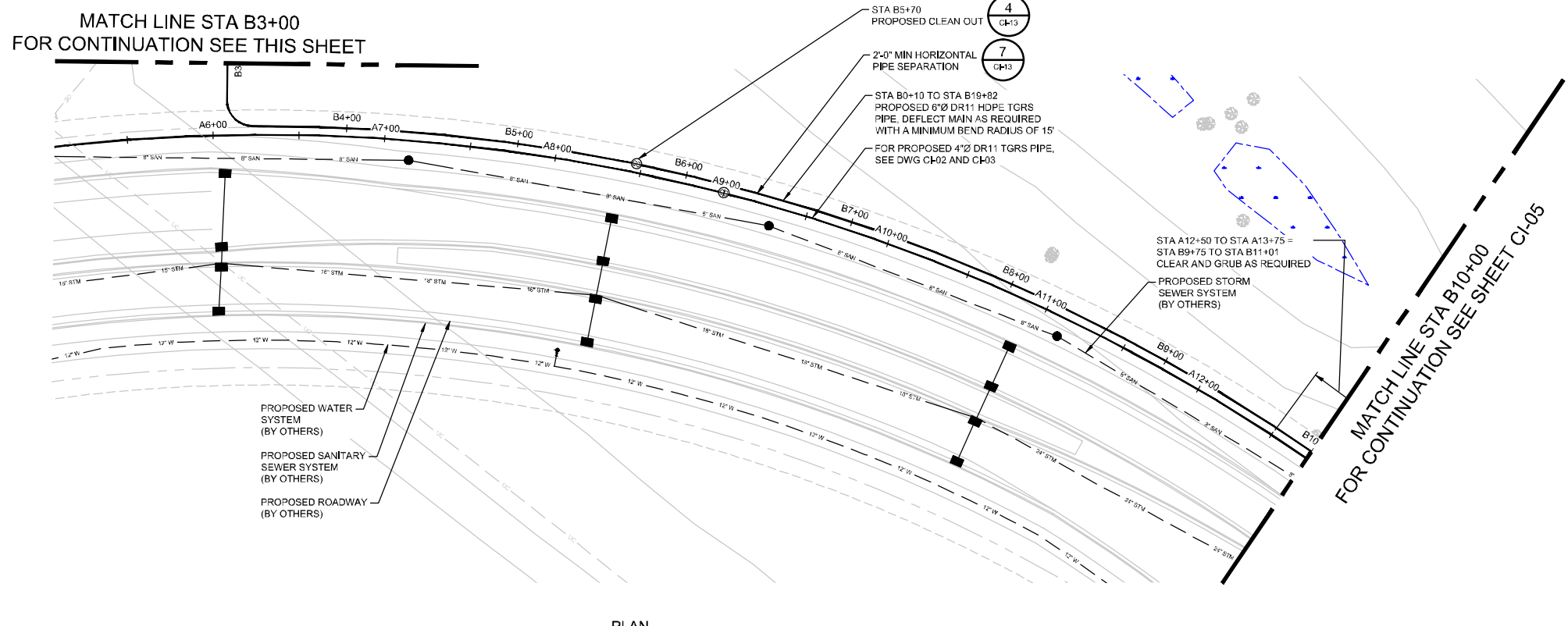
PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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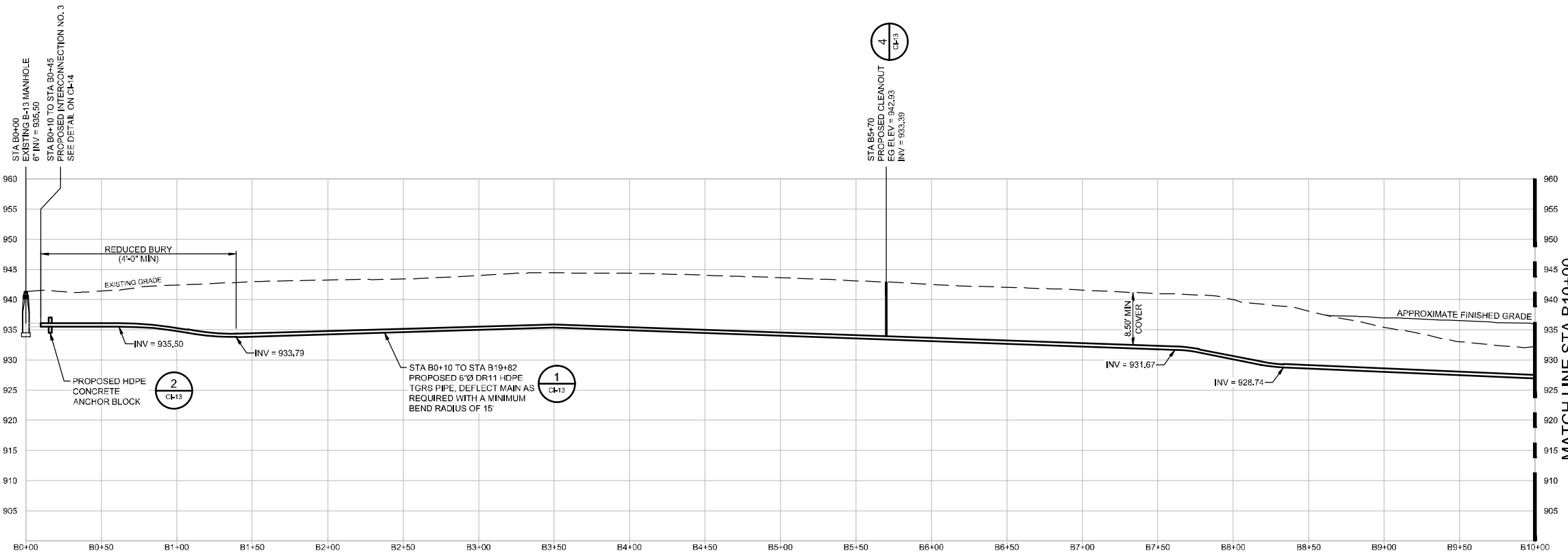
				<p>Bar is one inch on original size drawing</p> <p>0 1"</p>		<p>GHD Services Inc. 1801 Old Highway 8 Northwest Suite 114 St. Paul, Minnesota 55112 USA T 1 651 639 0913 F 1 651 639 0923 W www.ghd.com</p>		<p>Drawn: CR/TD Designer: W. WHEELER</p> <p>Drafting Check: W. WHEELER Design Check: E. HOGLUND</p> <p>Project Manager: E. HOGLUND Date: Jun 1, 2016</p> <p>Scale: AS NOTED</p>		<p>Client: CARL BOLANDER AND SONS</p> <p>Project: TGRS PIPING REROUTE</p> <p>Title: PLAN AND PROFILE</p> <p>Project No.: STA A13+00 TO STA A23+00</p> <p>Project No.: 83125-00(001)</p> <p>Original Size: Arch D</p> <p>Sheet No.: CI-03</p>	
<p>B ISSUED FOR REVIEW CR/TD WWW 06/03/16</p> <p>A ISSUED FOR REVIEW CR/TD WWW 08/26/15</p>				<p>Reuse of Documents</p> <p>This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD and shall not be used in whole or in part for any other project without GHD's written authorization. © 2015 GHD</p>		<p>This document shall not be used for construction unless signed and sealed for construction.</p>		<p>Sheet 1 of 1</p>			



PLAN
HORZ SCALE: 1" = 40'



PLAN
HORZ SCALE: 1" = 40'



PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

MATCH LINE STA B10+00
FOR CONTINUATION SEE SHEET C1-05

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No.	Issue	Drawn	Approved	Date
B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16
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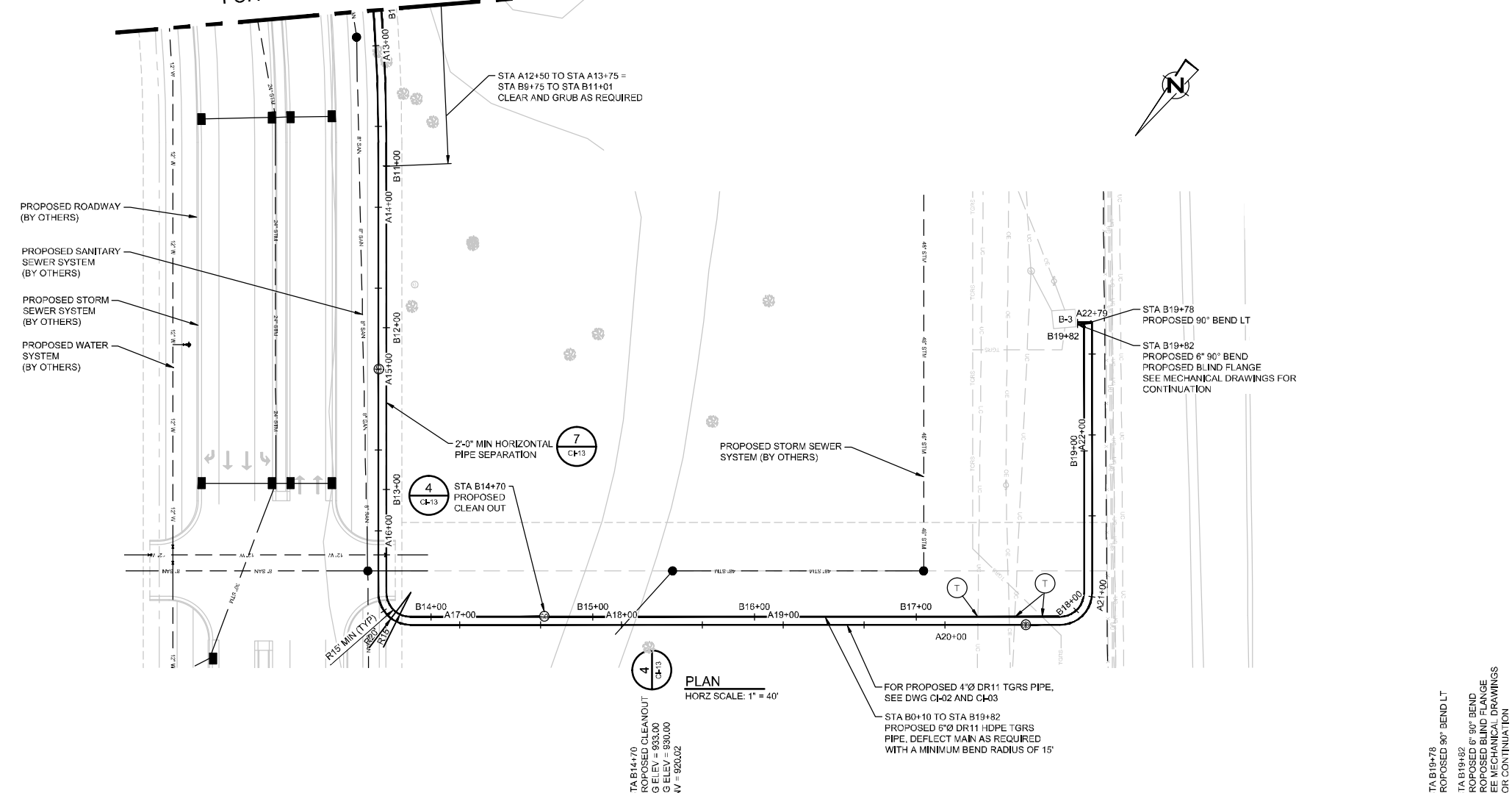
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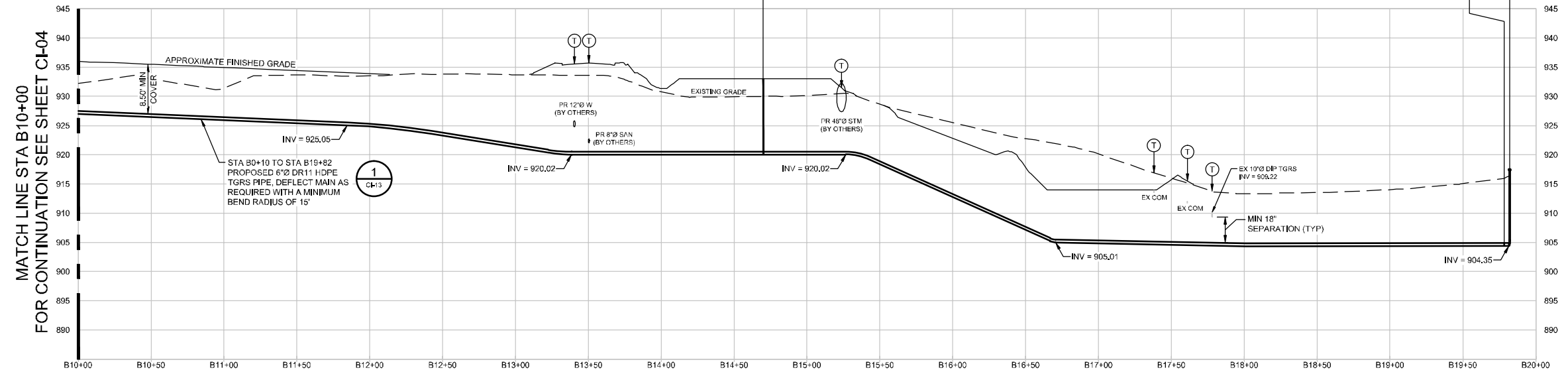
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Drafting Check	W. WHEELER	Design Check	E. HOGLUND
Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Project	TGRS PIPING REROUTE		
Title	PLAN AND PROFILE		
	STA B0+00 TO STA B10+00		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-04

MATCH LINE STA B10+00
FOR CONTINUATION SEE SHEET CI-04



PLAN
HORZ SCALE: 1" = 40'



PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16
A	ISSUED FOR REVIEW	CR/TD	WWW	02/26/15

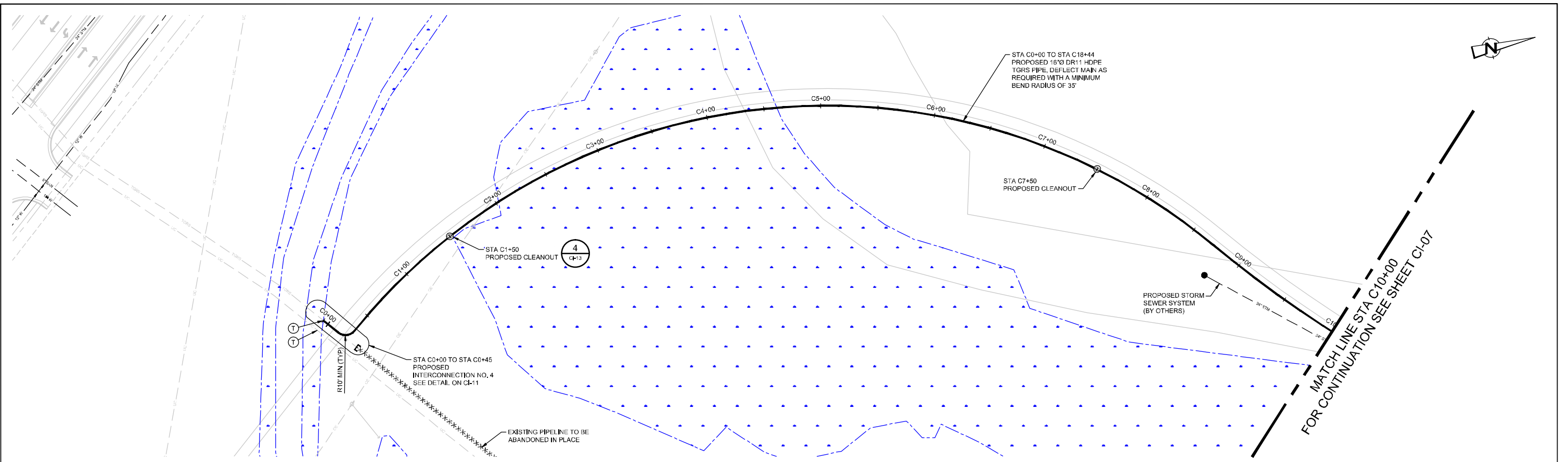
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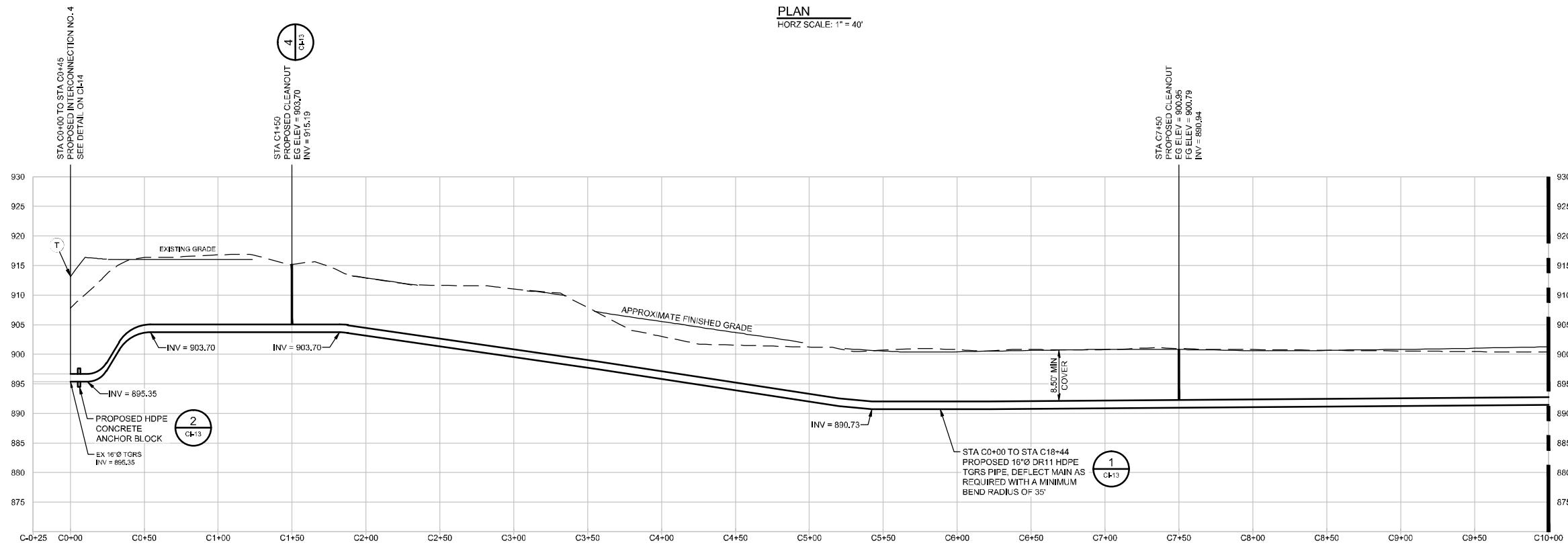
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Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	PLAN AND PROFILE		
	STA B10+00 TO STA B20+00		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-05
			Sheet 1 of 1



PLAN
HORZ SCALE: 1" = 40'




PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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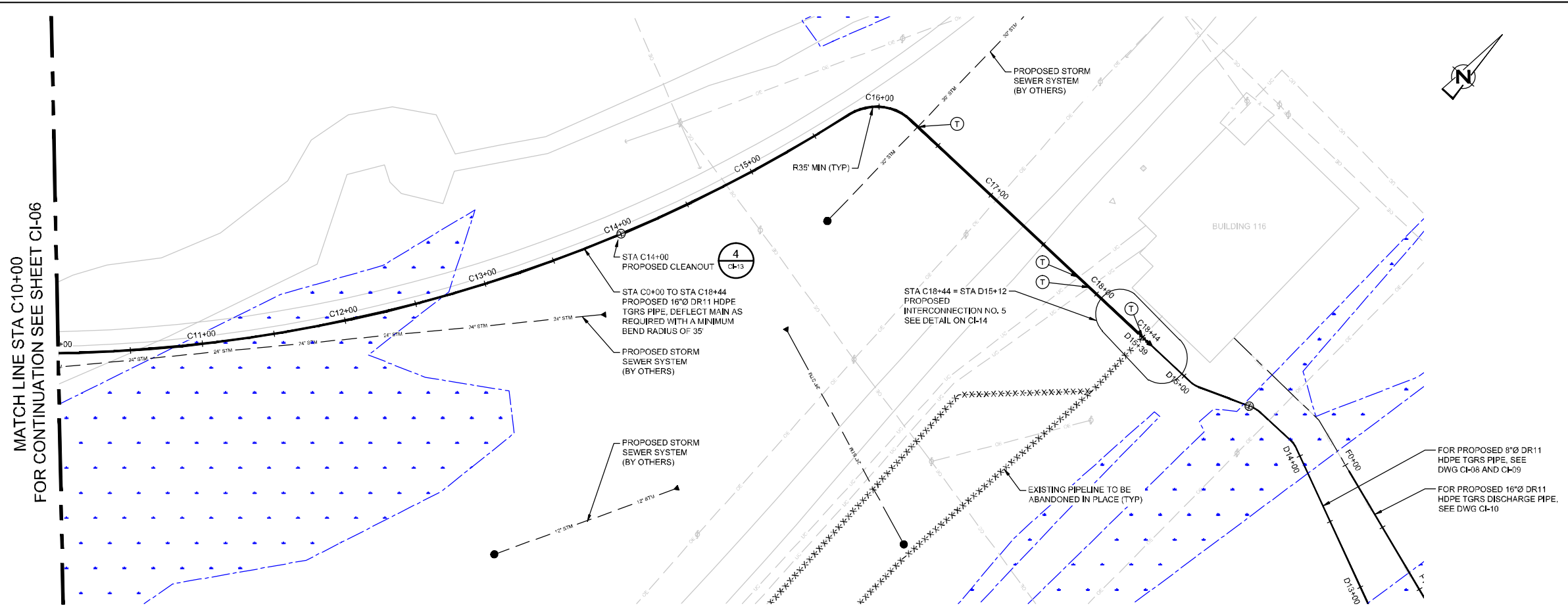
No.	Issue	Drawn	Approved	Date
B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16
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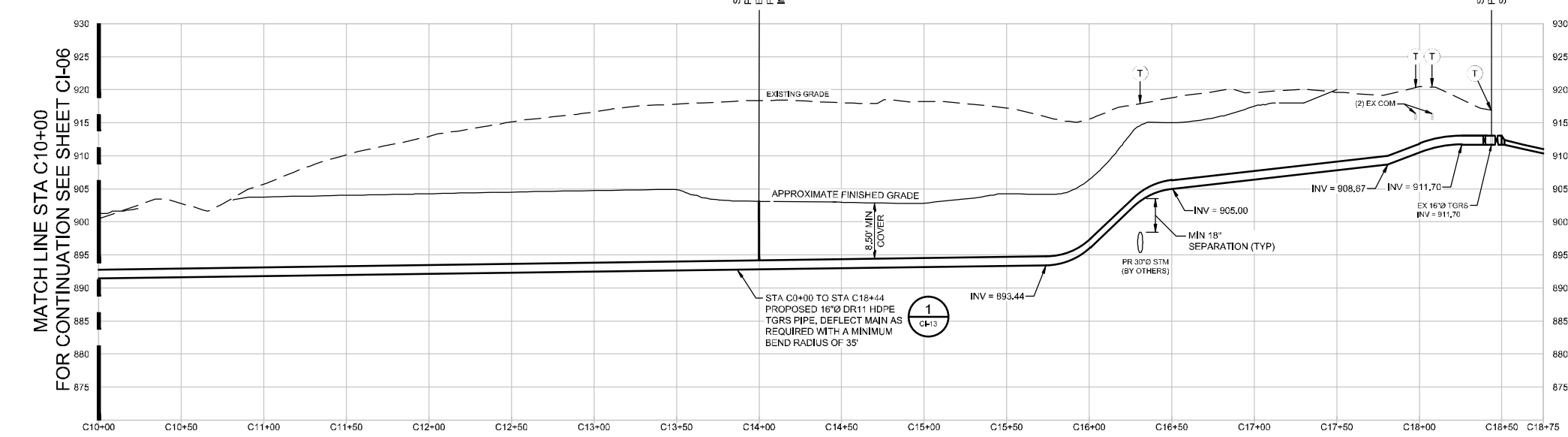

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Drafting Check	W. WHEELER	Design Check	E. HOGLUND
Project Manager	E. HOGLUND	Date	Jun 1, 2016
Scale	AS NOTED	Original Size	Arch D

Client	CARL BOLANDER AND SONS
Project	TGRS PIPING REROUTE
Title	PLAN AND PROFILE
Project No.	83125-00(001)
Sheet No.	CI-06



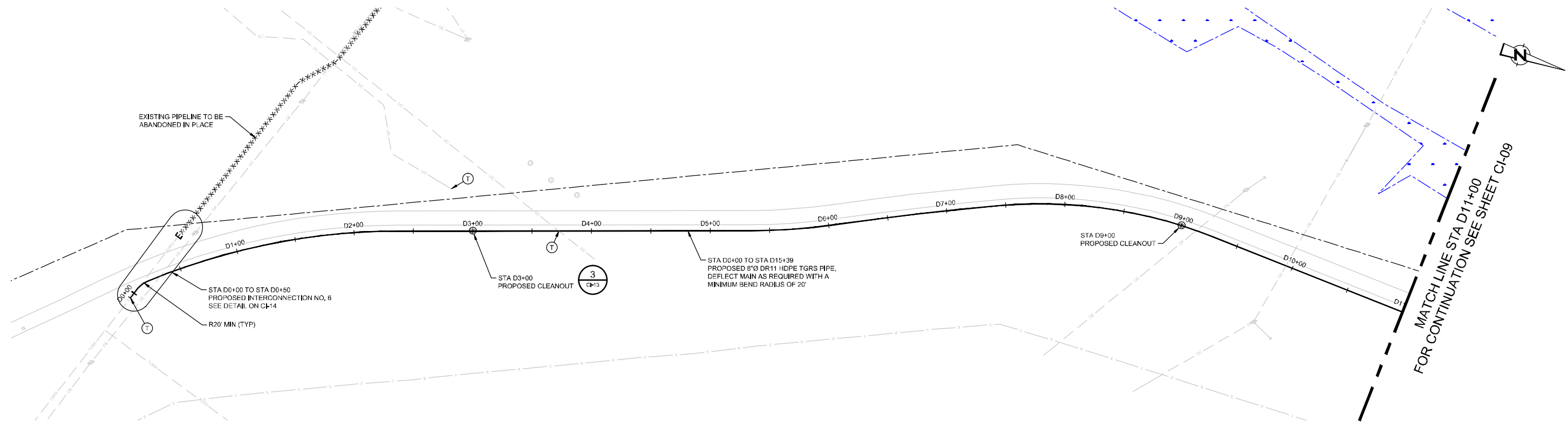
PLAN
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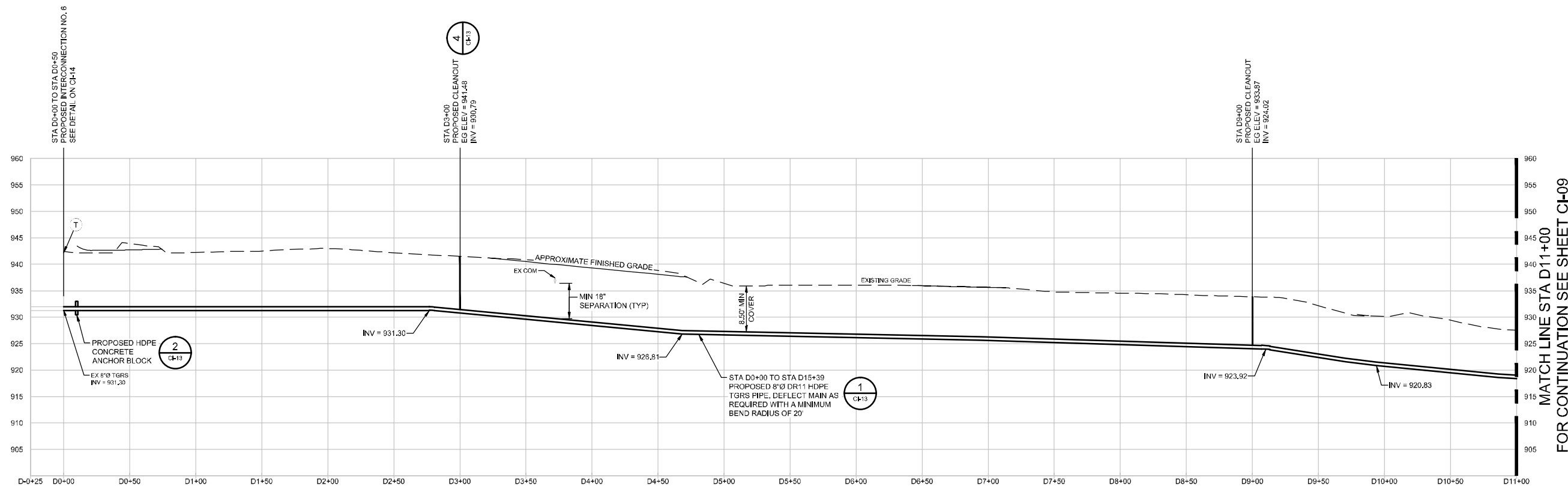
PROFILE
HORZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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				Bar is one inch on original size drawing 0 1"		<p>GHD Services Inc. 1801 Old Highway 8 Northwest Suite 114 St. Paul, Minnesota 55112 USA T 1 651 639 0913 F 1 651 639 0923 W www.ghd.com</p>	Drawn: CR/TD Drafting Check: W. WHEELER Project Manager: E. HOGLUND	Designer: W. WHEELER Design Check: E. HOGLUND Date: Jun 1, 2016	Client: CARL BOLANDER AND SONS Project: TGRS PIPING REROUTE Title: PLAN AND PROFILE STA C10+00 TO STA C18+75 Project No.: 83125-00(001)	Original Size: Arch D Sheet No.: CI-07	Sheet 1 of 1
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PLAN
HORIZ SCALE: 1" = 40'



PROFILE
HORIZ SCALE: 1" = 40'
VERT SCALE: 1" = 10'

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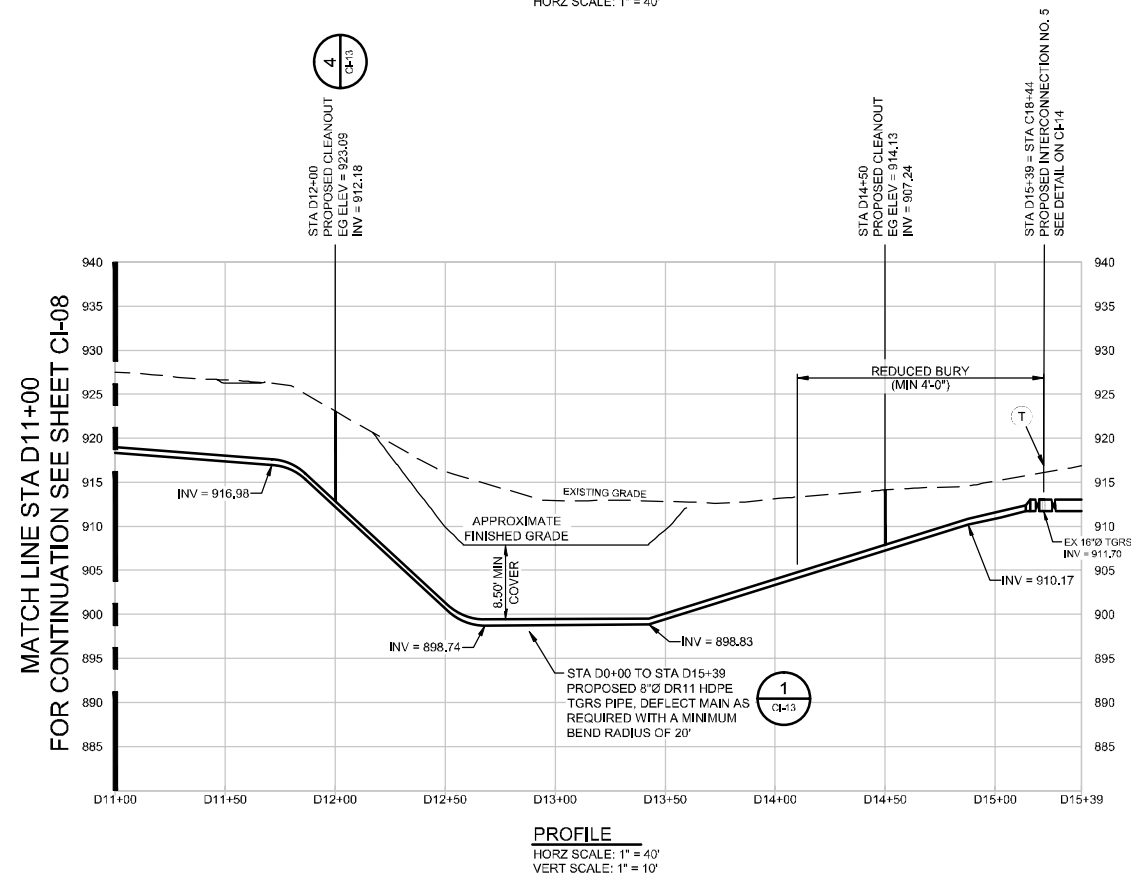
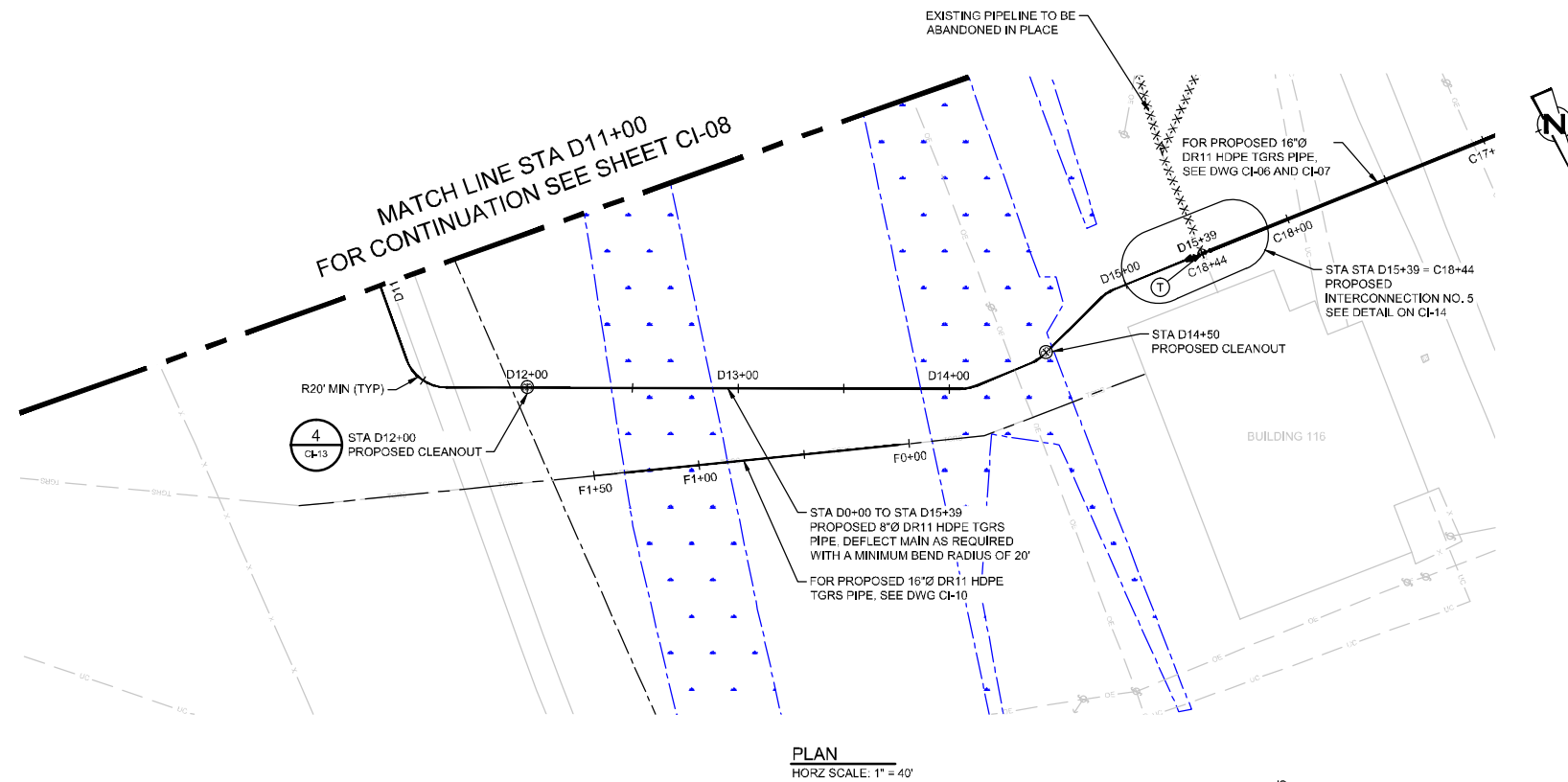
No.	Issue	Drawn	Approved	Date
B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16
A	ISSUED FOR REVIEW	CR/TD	WWW	02/26/15

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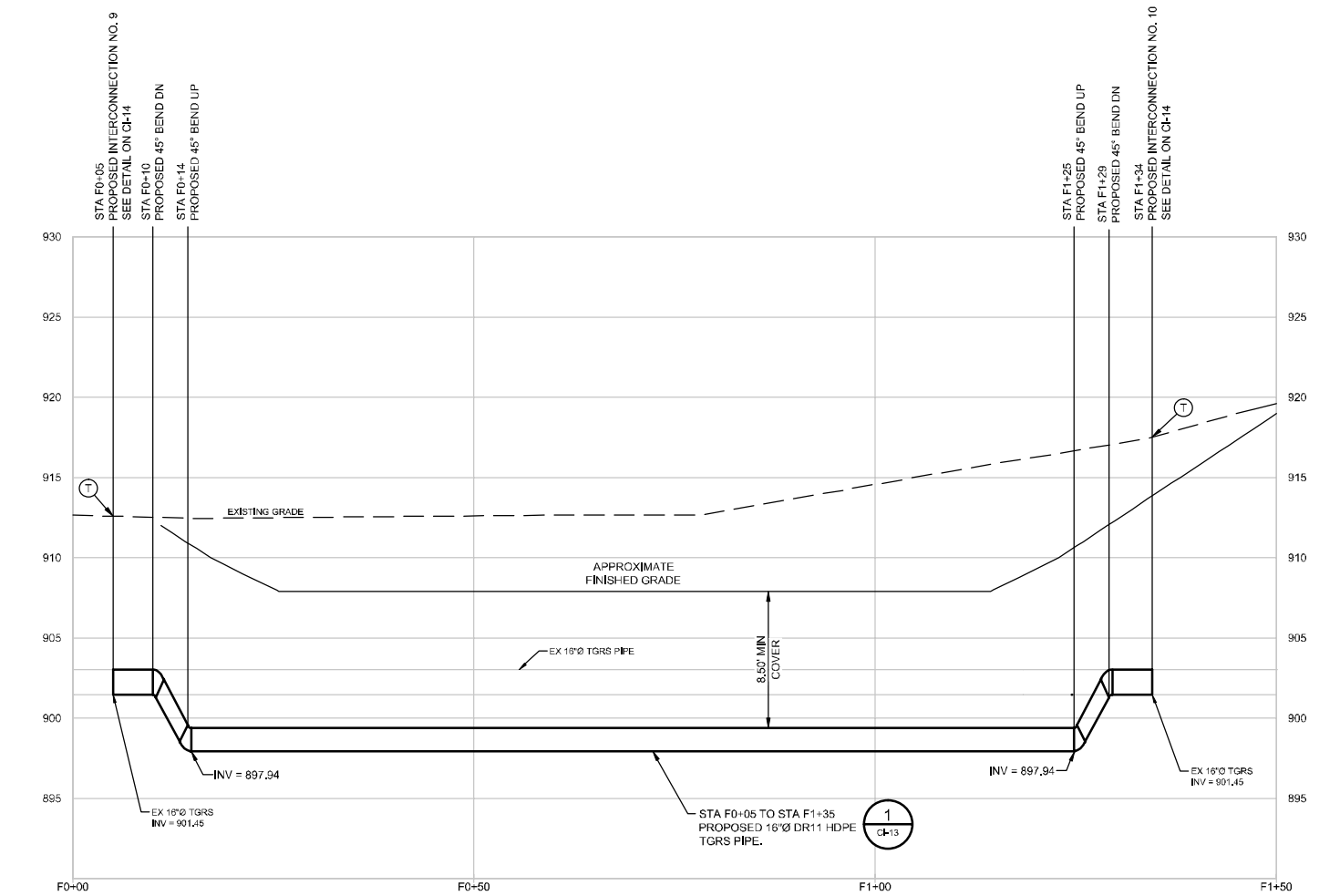
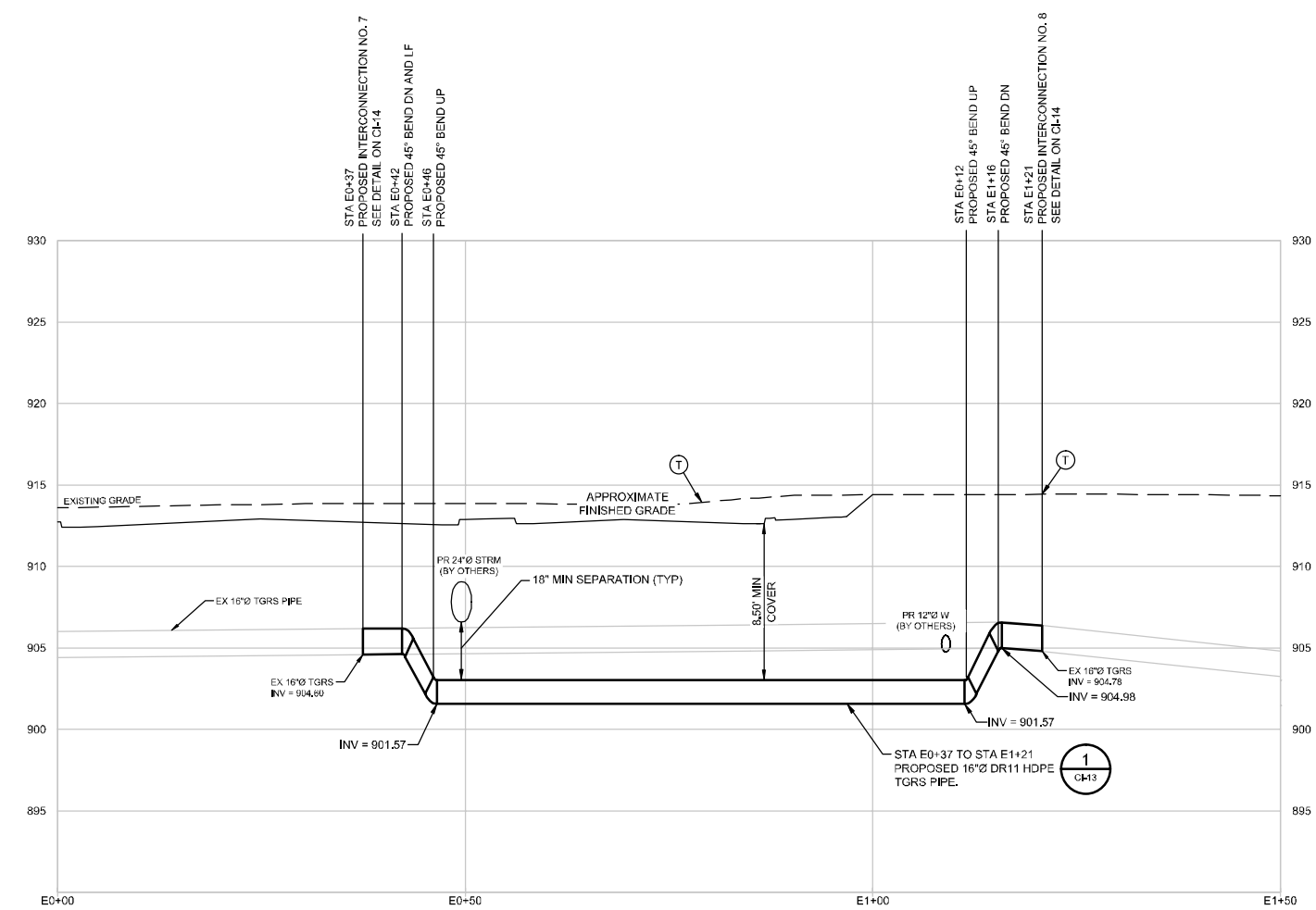
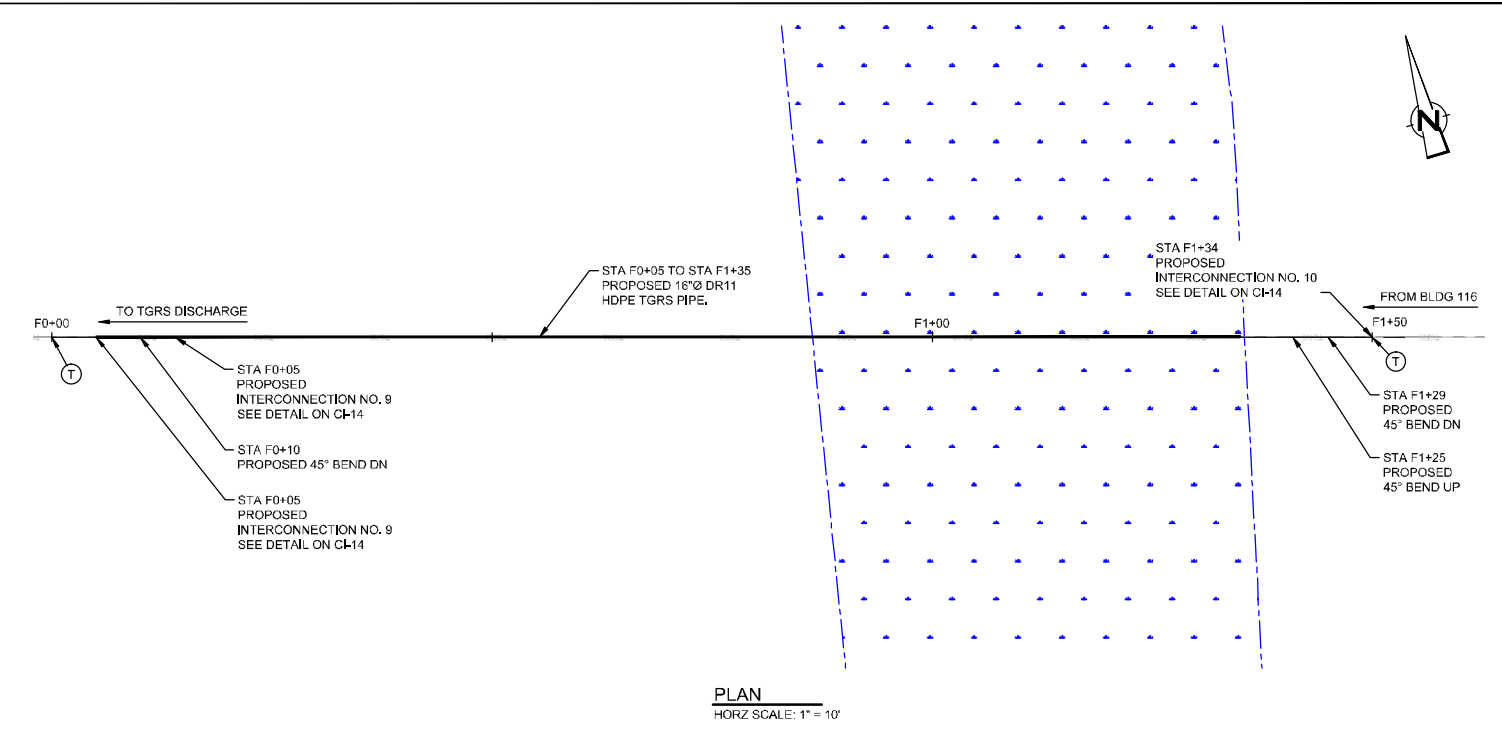
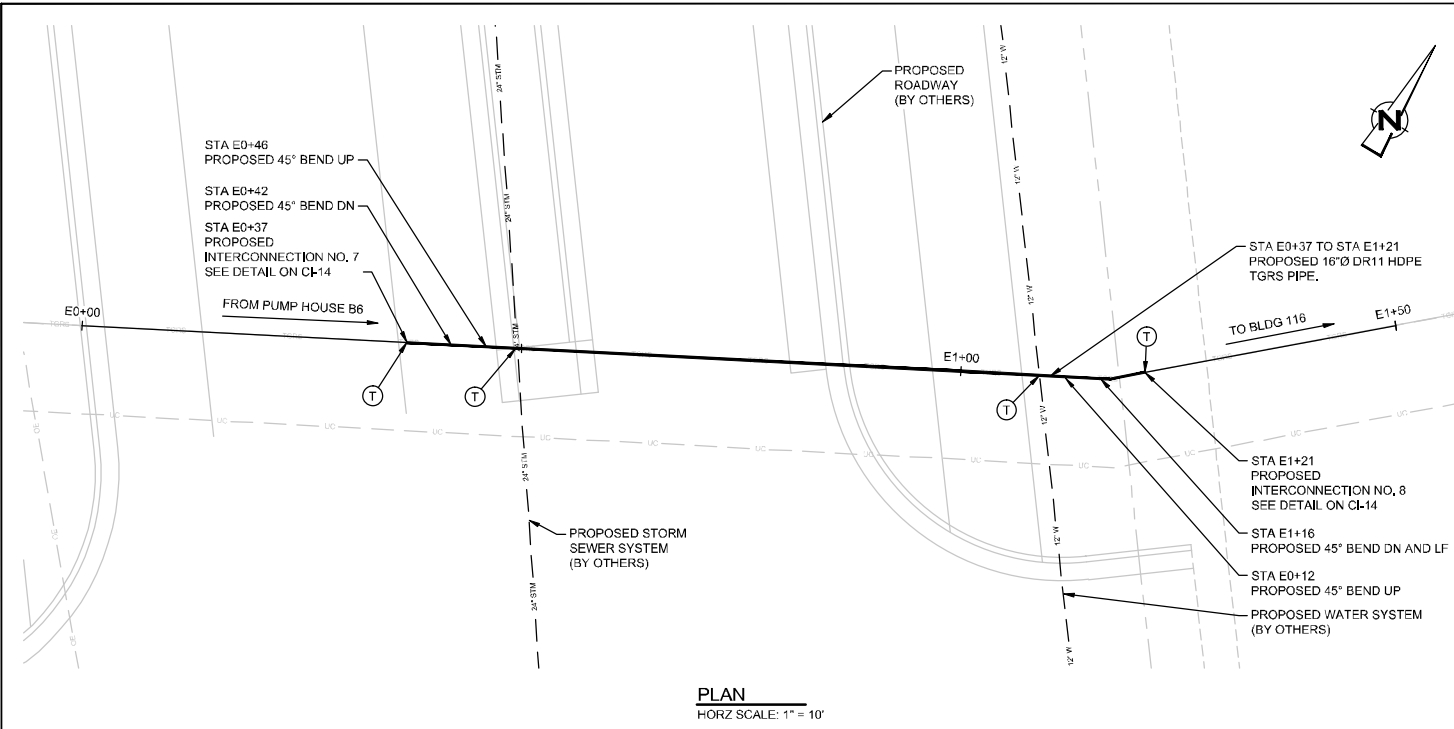
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Drafting Check	W. WHEELER	Design Check	E. HOGLUND
Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	PLAN AND PROFILE		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-08
		Sheet	1 of 1



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B ISSUED FOR REVIEW				CR/TD	WWW	06/03/16	Title: PLAN AND PROFILE		
A ISSUED FOR REVIEW				CR/TD	WWW	08/26/15	Project Manager: E. HOGLUND		
							Date: Jun 1, 2016	Project No.: 83125-00(001)	
No.	Issue	Drawn	Approved	Date			Scale: AS NOTED	Original Size: Arch D	
								Sheet No. CI-09	Sheet 1 of 1



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No.	Issue	Drawn	Approved	Date
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A	ISSUED FOR REVIEW	CR/TD	WWW	02/26/15

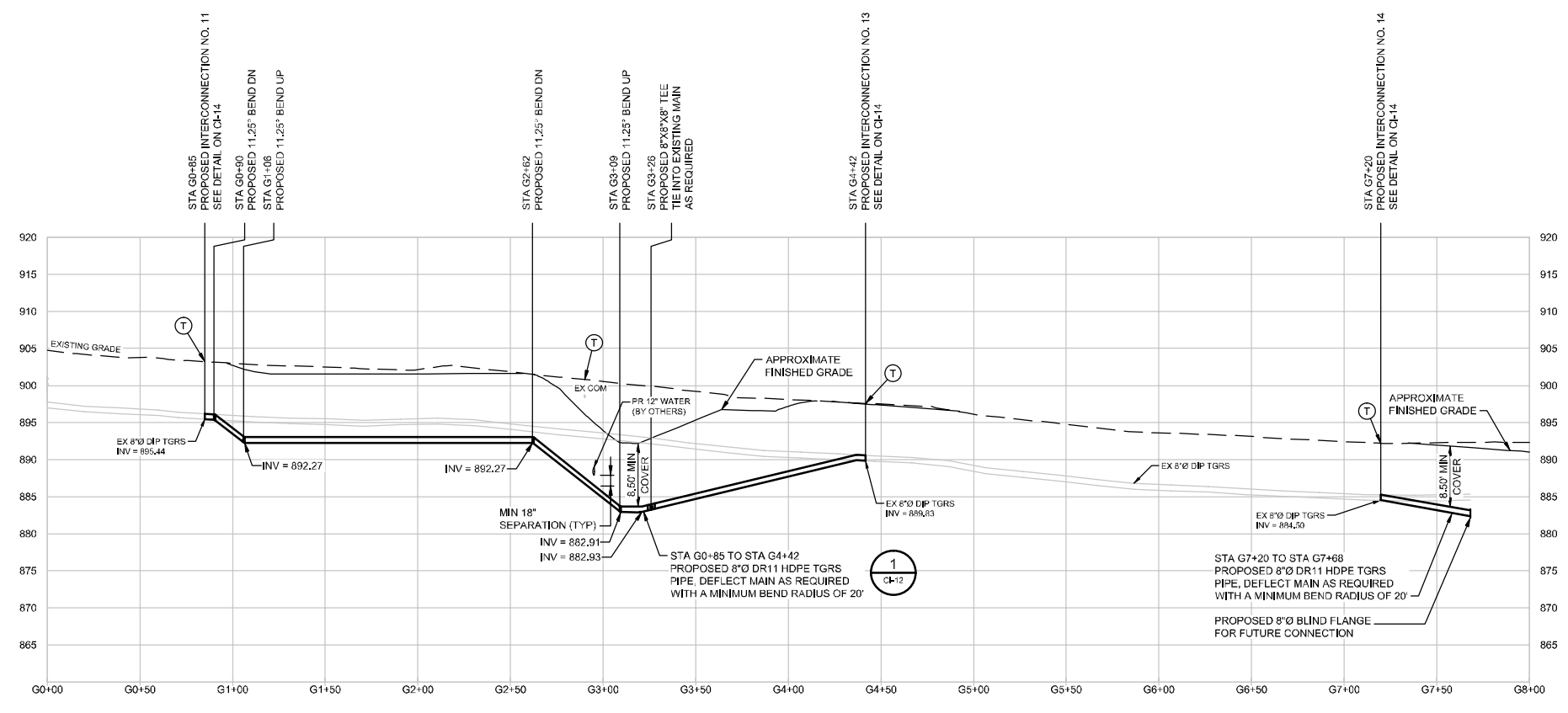
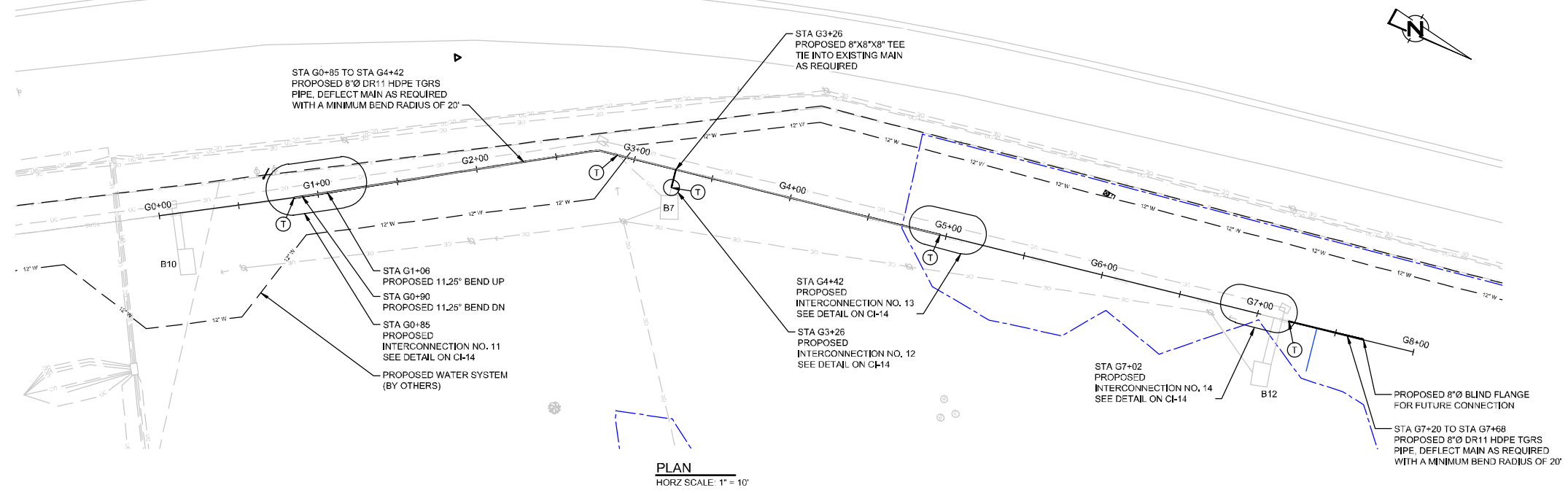
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Drafting Check	W. WHEELER	Design Check	E. HOGLUND
Project Manager	E. HOGLUND	Date	Jun 1, 2016
Scale	AS NOTED		

Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	PLAN AND PROFILE		
	STA E0+00 TO STA E1+50 AND STA F0+00 TO STA F1+50		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-10
			Sheet 1 of 1



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No.	Issue	Drawn	Approved	Date
B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16
A	ISSUED FOR REVIEW	CR/TD	WWW	03/26/15

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Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	PLAN AND PROFILE		
Project Name	STA G0+00 TO STA 8+00		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	CI-11
		Sheet	1 of 1

GENERAL NOTES

- 1. THE SURVEY FOR THIS PROJECT WAS COMPLETED BY KIMLEY-HORN.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND FURNISH COPIES TO THE OWNER OR THEIR REPRESENTATIVE PRIOR TO COMMENCING WORK.
3. THE METHODS, PROCEDURES, AND SEQUENCE OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PERTINENT TO THE WORK OF THE CONTRACT, NO ALLOWANCE SHALL BE MADE ON THE BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.
5. THE CONTRACTORS WORK SHALL BE CONFINED TO THE LIMITS OF RIGHT-OF-WAYS AND EASEMENTS. THE CONTRACTOR SHALL OBTAIN ANY ADDITIONAL EASEMENTS OR WORK RELEASES SHOULD THE CONTRACTOR REQUIRE ADDITIONAL AREA TO ACCOMMODATE HIS OPERATIONS.
6. MAINTENANCE AND PROTECTION OF TRAFFIC:
A. THE CONTRACTOR SHALL MAINTAIN TRAFFIC THROUGHOUT THE LENGTH OF THE CONTRACT.
B. PRIOR TO THE START OF ANY CONSTRUCTION PHASE, ALL PROPOSED MAINTENANCE AND PROTECTION OF TRAFFIC RELATED WORK SHALL BE COMPLETE. THIS INCLUDES, WHERE APPLICABLE, ALL SIGNS, PAVEMENT MARKINGS, BARRIERS, DELINEATION (CONES, DRUMS, ETC.), PAVEMENT MODIFICATIONS AND OTHER RELATED WORK.
C. THE CONTRACTOR SHALL POST WARNING SIGNS AT ALL APPROACHES TO THE PROJECT AREA AND AT CONSTRUCTION ENTRANCES, THE CONTRACTOR SHALL PROVIDE FLAGMEN WHEN AND WHERE NECESSARY.
D. THE CONTRACTOR SHALL SUBMIT A WORK ZONE TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL BY THE OWNER AND OWNERS REPRESENTATIVE PRIOR TO THE START OF WORK.
E. CONSTRUCTION INGRESS AND EGRESS
1. THE CONTRACTOR SHALL KEEP TO A MINIMUM THE MOVEMENT OF CONSTRUCTION VEHICLES AND EQUIPMENT IN AND OUT OF DESIGNATED TRAVEL LANES. ONLY NECESSARY OR AUTHORIZED VEHICLES, AS DETERMINED BY THE OWNER OR THEIR REPRESENTATIVE, SHALL BE ALLOWED TO ENTER THE WORK AREA.
2. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED.
F. PUBLIC INGRESS AND EGRESS
1. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF ONE TRAVEL LANE AT ALL TIMES, FLAGMEN OR OTHER TRAFFIC DEVICES SHALL BE UTILIZED TO DIRECT THE FLOW OF TRAFFIC.
2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO EXISTING DRIVEWAYS, PARKING LOTS, AND DRIVEWAY ENTRIES AT ALL TIMES.
3. WHERE DIRECT ACCESS TO DRIVEWAYS IS NOT POSSIBLE DUE TO NECESSARY CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL PLAN ALTERNATE MEANS OF ACCESS AND SUBMIT SUCH PLANS TO THE OWNER OR THEIR REPRESENTATIVE FOR REVIEW BEFORE OPERATIONS COMMENCE.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND FIELD MEASUREMENTS.
A. OTHER UNDERGROUND UTILITIES NOT SHOWN MAY BE ENCOUNTERED.
B. THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUESTED DETAILED FIELD LOCATIONS OF EACH UTILITY.
C. THE CONTRACTOR IS RESPONSIBLE TO CALL GOPHER STATE ONE CALL AT 1-800-252-1166 OR 811 FOR UTILITY MARKOUT PRIOR TO THE START OF ANY EXCAVATION WORK ON THIS PROJECT.
D. THE CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION AND ELEVATION OF UTILITIES AT INTERCONNECTIONS AND CROSSINGS AS SHOWN, DIRECTED OR REQUIRED.
E. THE CONTRACTOR SHALL EXCAVATE IN ADVANCE OF THE PIPE LAYING OPERATIONS AND EXPOSE ALL EXISTING UNDERGROUND UTILITIES TO PREVENT DAMAGE DURING CONSTRUCTION AND TO DETERMINE REQUIRED CHANGES IN GRADE NECESSARY TO INSTALL THE NEW PIPELINE TO AVOID CONFLICTS.
8. THE CONTRACTOR SHALL INSTALL THOSE MEASURES REQUIRED TO LIMIT EROSION OF AREAS DISTURBED BY WORK. CLEARING SHALL BE PERFORMED ON AN AS NEEDED BASIS, PHASED TO REDUCE EROSION POTENTIAL AND VISUAL IMPACT.
9. BLASTING WILL NOT BE PERMITTED.
10. IF MATERIALS AT THE DESIGN GRADE IS UNSUITABLE AS DETERMINED BY THE OWNER OR THEIR REPRESENTATIVE, THE CONTRACTOR WHEN ORDER IN WRITING, SHALL EXCAVATE ADDITIONAL MATERIAL TO THE DEPTH NECESSARY AND SHALL BACKFILL TO THE PROPOSED GRADE WITH SELECT BACKFILL MATERIAL.
11. IF MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION THAT ARE SUSPECTED OF BEING CONTAMINATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OR THEIR REPRESENTATIVE FOR DIRECTION REQUIRING TESTING, SEPARATION, CONTAINMENT AND DISPOSAL PROCEDURES.
12. THE CONTRACTOR SHALL BE PRESENT AND ASSIST IN THE FINAL WALK INSPECTION, THE CONTRACTOR SHALL PROVIDE SUFFICIENT PERSONNEL AND EQUIPMENT TO DEMONSTRATE TO THE OWNER OR THEIR REPRESENTATIVE THAT ALL NEW FACILITIES OPERATE AS REQUIRED.

SHOP DRAWING SUBMITTAL, RECORD DRAWINGS, AND CORRESPONDENCE PROCEDURE

- 1. THE SUBMITTAL OF SHOP DRAWINGS SHALL CONFORM TO PROCEDURES IN THIS SECTION.
A. SUBMITTALS OF SHOP DRAWINGS SHALL BE MADE TO: CARL BOLANDER AND SONS CO., 251 STARKEY STREET, ST. PAUL, MINNESOTA 55107. ALL SUBMITTALS AND DRAWINGS SHALL BE MADE IN THE ENGLISH LANGUAGE.
ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO ANY CONSTRUCTION ACTIVITIES.
SHOP DRAWINGS FOR COMPONENTS OF SYSTEMS SHALL BE SUBMITTED AS ONE COMPLETE PACKAGE, REVIEWED AND COORDINATED BY THE CONTRACTOR, FOR ALL ASPECTS OF THE SYSTEM. PARTIAL SUBMITTAL PACKAGES WILL NOT BE REVIEWED.
B. A LETTER OF TRANSMITTAL SHALL ACCOMPANY EACH SUBMISSION. IF DATA FOR MORE THAN ONE SECTION OF THE SPECIFICATIONS ARE SUBMITTED, A SEPARATE TRANSMITTAL LETTER SHALL ACCOMPANY EACH SECTION SUBMITTED.

C. AT THE BEGINNING OF EACH LETTER OF TRANSMITTAL AND EACH LETTER OF INQUIRY, PROVIDE A REFERENCE HEADING INDICATING THE FOLLOWING:

- 1) OWNER'S NAME
2) PROJECT NAME
3) CONTRACT NO.
4) TRANSMITTAL NO.
5) SECTION AND ITEM NO.

D. IF SHOP DRAWING SUBMITTALS SHOW VARIATION FROM THE REQUIREMENTS OF THE CONTRACT BECAUSE OF STANDARD SHOP PRACTICES OR FOR OTHER REASONS, THE CONTRACTOR SHALL MAKE SPECIFIC MENTION OF SUCH VARIATION IN HIS LETTER OF TRANSMITTAL.

E. ALL SHOP DRAWINGS SUBMITTED FOR APPROVAL SHALL HAVE AN IDENTIFYING TITLE, THE CONTRACTOR SHOULD HAVE A RUBBER STAMP MADE FOR AFFIXING THIS TITLE, THE SECTION AND ITEM NUMBER SHALL BE COMPLETED IN INK.

F. ALL SHOP DRAWINGS SUBMITTED SHALL BEAR THE STAMP OF APPROVAL AND SIGNATURE OF THE CONTRACTOR AS EVIDENCE THAT THEY HAVE BEEN REVIEWED BY THE CONTRACTOR. SUBMITTALS WITHOUT THIS STAMP OF APPROVAL WILL NOT BE REVIEWED BY THE ENGINEER AND WILL BE RETURNED TO THE CONTRACTOR, THE STAMP SHALL CONTAIN THE FOLLOWING MINIMUM INFORMATION.

CONTRACTOR'S NAME: _____ DATE: _____ REFERENCE: _____ ITEM: _____ SPECIFICATIONS: _____ SECTION: _____ PAGE NO.: _____ PARA. NO.: _____ DRAWING NO. _____ OF _____ LOCATION: _____ SUBMITTAL NO.: _____ APPROVED BY: _____

G. A NUMBER SHALL BE ASSIGNED TO EACH SUBMITTAL BY THE CONTRACTOR STARTING WITH NO. 1 AND THENCE NUMBERED CONSECUTIVELY. RESUBMITTALS SHALL BE IDENTIFIED BY THE SAME NUMBER FOLLOWED BY THE SUFFIX "A" FOR THE FIRST RESUBMITTAL, THE SUFFIX "B" FOR THE SECOND RESUBMITTAL, ETC.

H. THE CONTRACTOR SHALL INITIALLY SUBMIT TO THE ENGINEER A MINIMUM OF THREE HARD COPIES OF ALL SUBMITTALS, IN ADDITION TO THE NUMBER THE CONTRACTOR REQUIRES RETURNED. IN LIEU OF SUBMITTING HARD COPIES, A FILE TRANSFER PROTOCOL (FTP) SITE MAY BE SET UP FOR THIS PROJECT FOR EASE OF DATA TRANSFER, PROJECT RELATED SHOP DRAWINGS, SUBMITTALS, DATA, ETC. CAN BE UPLOADED/DOWNLOADED TO THIS FTP SITE. PROCEDURES, USERNAME, AND PASSWORDS WILL BE ESTABLISHED FOR THE FTP SITE DURING OR PRIOR TO THE PRECONSTRUCTION MEETING.

I. AFTER THE OWNER OR THEIR REPRESENTATIVE COMPLETES HIS REVIEW, THE SHOP DRAWINGS WILL BE MARKED WITH ONE OF THE FOLLOWING NOTATIONS:

- 1) APPROVED.
2) FURNISH AS CORRECTED.
3) REVISE AND RESUBMIT.
4) REJECTED.

J. IF A SUBMITTAL IS ACCEPTED, IT WILL BE MARKED "APPROVED" OR "FURNISH AS CORRECTED". UPON RETURN OF A SUBMITTAL MARKED "APPROVED" OR "FURNISH AS CORRECTED," THE CONTRACTOR MAY ORDER, SHIP OR FABRICATE THE MATERIALS INCLUDED ON THE SUBMITTAL, PROVIDED IT IS IN ACCORDANCE WITH THE CORRECTIONS INDICATED. FOR EXTENSIVE CORRECTIONS OR CORRECTIONS OF MAJOR IMPORTANCE AFFECTING OTHER ITEMS, THE ENGINEER MAY REQUIRE THAT THE CONTRACTOR MAKE THE CORRECTIONS INDICATED THEREON AND RESUBMIT FOR A FINAL REVIEW.

K. IF A SUBMITTAL IS UNACCEPTABLE, IT WILL BE MARKED WITH "REVISE AND RESUBMIT" OR "REJECTED". UPON RETURN OF A SUBMITTAL MARKED "REVISE AND RESUBMIT," THE CONTRACTOR SHALL MAKE THE CORRECTIONS INDICATED AND REPEAT THE INITIAL APPROVAL PROCEDURE. THE "REJECTED" NOTATION IS USED TO INDICATE MATERIAL OR EQUIPMENT THAT IS NOT ACCEPTABLE. UPON RETURN OF A SUBMITTAL SO MARKED, THE CONTRACTOR SHALL REPEAT THE INITIAL APPROVAL PROCEDURE UTILIZING ACCEPTABLE MATERIAL OR EQUIPMENT.

L. SHOP DRAWINGS OR OTHER SUBMITTALS NOT BEARING THE ENGINEER'S "APPROVED" NOTATION SHALL NOT BE ISSUED TO SUBCONTRACTORS NOR UTILIZED FOR CONSTRUCTION PURPOSES. NO WORK SHALL BE PERFORMED OR EQUIPMENT INSTALLED WITHOUT AN "APPROVED" DRAWING OR SUBMITTAL.

M. IN THE EVENT THE CONTRACTOR OBTAINS THE ENGINEER'S APPROVAL FOR THE USE OF EQUIPMENT OTHER THAN THAT WHICH IS SHOWN OR SPECIFIED, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE AND USING METHODS APPROVED BY THE ENGINEER, MAKE ALL CHANGES TO THE WORK, INCLUDING STRUCTURES, PIPING, ELECTRICAL, EQUIPMENT AND CONTROLS, THAT MAY BE NECESSARY TO ACCOMMODATE THIS EQUIPMENT.

N. SHOP DRAWINGS SHALL BE SUBMITTED WELL IN ADVANCE OF THE NEED FOR THE MATERIAL OR EQUIPMENT FOR CONSTRUCTION AND WITH AMPLE ALLOWANCE FOR TIME REQUIRED TO MAKE DELIVERY OF MATERIAL OR EQUIPMENT AFTER DATA COVERING SUCH IS APPROVED. THE CONTRACTOR SHALL ASSUME THE RISK FOR ALL MATERIALS OR EQUIPMENT WHICH ARE FABRICATED OR DELIVERED PRIOR TO THE APPROVAL OF SHOP DRAWINGS. NO MATERIALS OR EQUIPMENT WILL BE PERMITTED TO BE INCORPORATED INTO THE WORK NOR WILL SUCH BE INCLUDED IN MONTHLY ESTIMATES UNTIL APPROVAL THEREOF HAS BEEN OBTAINED IN THE SPECIFIED MANNER.

O. THE ENGINEER WILL REVIEW AND PROCESS ALL SUBMITTALS PROMPTLY, BUT A REASONABLE TIME SHOULD BE ALLOWED FOR THIS, FOR THE DRAWINGS BEING REVISED AND RESUBMITTED, AND FOR TIME REQUIRED TO RETURN THE APPROVED DRAWINGS TO THE CONTRACTOR.

P. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW SUBMITTALS MADE BY HIS SUPPLIERS AND SUBCONTRACTORS BEFORE TRANSMITTING THEM TO THE ENGINEER TO ASSURE PROPER COORDINATION OF THE WORK AND TO DETERMINE THAT EACH SUBMITTAL IS IN ACCORDANCE WITH HIS DESIRES AND THAT THERE IS SUFFICIENT INFORMATION ABOUT MATERIALS AND EQUIPMENT FOR THE ENGINEER TO DETERMINE COMPLIANCE WITH THE CONTRACT DOCUMENTS, INCOMPLETE OR INADEQUATE SUBMITTALS WILL BE RETURNED FOR REVISION WITHOUT REVIEW.

Q. APPROVAL OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF FURNISHING MATERIALS AND EQUIPMENT OF PROPER DIMENSION, SIZE, QUALITY, QUANTITY, AND ALL PERFORMANCE CHARACTERISTICS TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE CONTRACT DOCUMENTS. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT ON THE SHOP DRAWINGS. APPROVAL IS INTENDED ONLY TO ASSURE CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE PROJECT SITE. THE CONTRACTOR IS ALSO RESPONSIBLE FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESS OR TO THE TECHNIQUE OF CONSTRUCTION AND FOR THE COORDINATION OF THE WORK OF ALL TRADES.

2. RECORD DOCUMENTS

A. THE CONTRACTOR SHALL MAINTAIN AND PROVIDE THE ENGINEER WITH RECORD DOCUMENTS AS SPECIFIED BELOW EXCEPT WHERE OTHERWISE SPECIFIED OR MODIFIED.

B. MAINTENANCE OF DOCUMENTS:

- 1. MAINTAIN IN CLEAN, DRY, LEGIBLE CONDITION THE FOLLOWING: CONTRACT DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP DRAWINGS, CHANGE ORDERS, OTHER MODIFICATIONS OF CONTRACT, TEST RECORDS, SURVEY DATA, FIELD ORDERS, AND ALL OTHER DOCUMENTS PERTINENT TO THE WORK OF THE CONTRACTOR.
2. PROVIDE FILES AND RACKS FOR PROPER STORAGE AND EASY ACCESS. FILE IN ACCORDANCE WITH FILING FORMAT OF UNIFORM CONSTRUCTION INDEX (UCI).
3. MAKE DOCUMENTS AVAILABLE AT ALL TIMES FOR INSPECTION BY ENGINEER AND OWNER.
4. RECORD DOCUMENTS SHALL NOT BE USED FOR ANY OTHER PURPOSE.

C. MARKING SYSTEM: PROVIDE COLORED PENCILS FOR MARKING CHANGES, REVISIONS, ADDITIONS AND DELETIONS, TO THE RECORD SET OF CONTRACT DRAWINGS.

D. RECORDING:

- 1. LABEL EACH DOCUMENT "PROJECT RECORD" IN 2-INCH HIGH PRINTED LETTERS.
2. KEEP RECORD DOCUMENTS CURRENT.
3. DO NOT PERMANENTLY CONCEAL ANY WORK UNTIL REQUIRED INFORMATION HAS BEEN RECORDED.
4. DRAWINGS:

LEGIBLY MARK TO RECORD ACTUAL CONSTRUCTION INCLUDING:

- A. DEPTHS OF VARIOUS ELEMENTS OF FOUNDATION IN RELATION TO DATUM.
B. HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND UTILITIES AND APPURTENANCES REFERENCED TO PERMANENT SURFACE IMPROVEMENTS.
C. LOCATION OF INTERNAL UTILITIES AND APPURTENANCES CONCEALED IN CONSTRUCTION REFERENCED TO VISIBLE AND ACCESSIBLE FEATURES OF STRUCTURE.
D. FIELD CHANGES OF DIMENSION AND DETAIL.
E. CHANGES MADE BY CHANGE ORDER OR FIELD ORDER.
F. DETAILS NOT ON ORIGINAL CONTRACT DRAWINGS.

5. SPECIFICATIONS AND ADDENDA:

LEGIBLY MARK UP EACH SECTION TO RECORD:

- A. MANUFACTURER, TRADE NAME, CATALOG NUMBER, AND SUPPLIER OF EACH PRODUCT AND ITEM OF EQUIPMENT ACTUALLY INSTALLED.
B. CHANGE MADE BY CHANGE ORDER OR FIELD ORDER.
C. OTHER INFORMATION NOT ORIGINALLY SPECIFIED.
6. SHOP DRAWINGS: MAINTAIN AS RECORD DOCUMENTS AND LEGIBLY ANNOTATE DRAWINGS TO RECORD CHANGES MADE AFTER REVIEW.

E. SUBMITTAL:

- 1. AT COMPLETION OF PROJECT, DELIVER RECORD DOCUMENTS TO ENGINEER.
2. ACCOMPANY SUBMITTAL WITH TRANSMITTAL LETTER CONTAINING:
A. DATE.
B. PROJECT TITLE AND NUMBER.
C. THE NAME AND ADDRESS OF THE CONTRACTOR.
D. TITLE AND NUMBER OF EACH RECORD DOCUMENT.
E. CERTIFICATION THAT EACH DOCUMENT AS SUBMITTED IS COMPLETE AND ACCURATE.
F. SIGNATURE OF CONTRACTOR, OR AN AUTHORIZED REPRESENTATIVE THEREOF.

CIVIL SPECIFICATIONS

1. WATER PIPE AND FITTINGS

- A. POLYETHYLENE (HDPE) SHALL BE DR11, PE4710 AND CONFORM TO AWWA C-906, LATEST REVISION. HDPE RESTRAINED JOINTS SHALL BE ACCOMPLISHED BY COMPLETION BUTT FUSION JOINTS.
B. HDPE FITTINGS SHALL BE PE4710 MOLDED FITTINGS, HAVING A PRESSURE RATING EQUAL TO OR GREATER THAN THE PIPE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL FITTINGS SHALL BE SUITABLE FOR USE AS PRESSURE CONDUITS, AND PER AWWA C-906, HAVING NOMINAL BURST VALUES OF 3.5 TIMES THE WORKING PRESSURE RATING OF THE FITTING. MOLDED FITTINGS SHALL MEET REQUIREMENTS OF ASTM D2883 FOR SOCKET-TYPE FITTINGS, ASTM D3261 FOR BUTT-TYPE FITTINGS, OR ASTM F1055 FOR ELECTROFUSION-TYPE FITTINGS, AND THE REQUIREMENTS OF AWWA C-906.
C. HDPE SHALL HAVE A TRACER WIRE INSTALLED 12" ABOVE PIPELINE AND MAGNETIC WARNING TAPE MARKER LAID DIRECTLY ABOVE THE FULL LENGTH OF PIPE APPROXIMATELY 18" BELOW GROUND SURFACE. TAPE TO BE THREE (3) INCHES WIDE, ALARMA TAPE, PAUL POTTER WARNING TAPES, INC., OR EQUAL. THIS TAPE WILL CARRY IDENTIFICATION MEANT FOR USE WITH WATER SYSTEMS.
D. THE MANUFACTURER SHALL FURNISH A SWORN STATEMENT THAT INSPECTION AND TESTS HAVE BEEN MADE AND THAT THE RESULTS THEREOF COMPLY WITH THE REQUIREMENTS OF ANSI SPECIFICATION A21.51 (AWWA C-151), LATEST REVISION, FOR DI PIPE AND FITTINGS AND WITH THE REQUIREMENTS OF AWWA C-906, LATEST REVISION, FOR HDPE PIPE.
E. FOR THE USE OF NON-HDPE FITTINGS, THE FITTINGS SHALL BE MECHANICAL RESTRAINED JOINT FITTINGS AND SHALL BE COMPACT TYPE DUCTILE IRON FITTINGS IN ACCORDANCE WITH AWWA C-153 (ANSI 21.53), LATEST REVISION. JOINTS SHALL CONFORM TO AWWA C-111, LATEST REVISION, AND SHALL BE MANUFACTURED BY U.S. PIPE OR APPROVED EQUAL.
F. ALL DUCTILE IRON FITTINGS EXCEPT SOLID SLEEVES SHALL BE FURNISHED WITH A SEAL-COATED CEMENT MORTAR LINING INSTALLED IN ACCORDANCE WITH ANSI SPECIFICATION A21.4 (AWWA C-104) LATEST REVISION EXCEPT THAT THE CEMENT LINING SHALL BE DOUBLE THE THICKNESS SPECIFIED.
G. BOLTS FURNISHED FOR MECHANICAL JOINTS SHALL BE FLOURCOAL CARBON COATED OR TYPE 304 STAINLESS STEEL, HIGH-STRENGTH, LOW-ALLOY BOLTS, WITH ROLLED THREADS, TEE HEAD, AND HEXAGONAL NUT, CONFORMING TO THE REQUIREMENTS OF ANSI A52.11 (AWWA C-111), LATEST REVISION, WHERE CONNECTIONS ARE REQUIRED AT THE BEGINNING AND END OF THE PIPELINE AND FOR CONNECTIONS TO EXISTING MAINS, SUITABLE TRANSITION PIECES SHALL BE PROVIDED.
H. RESTRAINED JOINTS SHALL BE MADE BY RESTRAINING THE PIPE ON EACH SIDE OF THE FITTING AND SHALL BE RATED FOR A PULLOUT FORCE OF GREATER THAN OR EQUAL TO THE UTILIZED PIPE.

2. EXCAVATION AND BACKFILL

- A. TREES, LANDSCAPING, ETC. SHALL NOT BE REMOVED UNLESS NOTED ON THE DRAWINGS WITHOUT APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE. CONTRACTOR SHALL PRESERVE AND PROTECT TREES AND LANDSCAPING AS REQUIRED. IF DAMAGE RESULTING FROM CONTRACTOR'S OPERATIONS APPEARS DURING A PERIOD OF UP TO 12 MONTHS AFTER COMPLETION OF THE PROJECT HE SHALL REPLACE DAMAGED ITEMS AT NO EXPENSE TO THE OWNER.
B. CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR DESIGNING, INSTALLING, AND OPERATING ALL SHEETING, SHORING, BRACING, UNDERPINNING, PROTECTION AND DEWATERING AS NECESSARY TO COMPLETE THE PROJECT.
C. SHORING AND BRACING SHALL BE MAINTAINED IN EXCAVATIONS REGARDLESS OF TIME EXCAVATIONS WILL BE OPEN. CARRY DOWN SHORING OR BRACING AS EXCAVATION PROGRESSES.
D. REMOVAL OF SHORING AND BRACING SHALL BE DONE SO AS NOT TO DAMAGE TO WORK. REMOVAL SHALL BE EQUAL ON BOTH SIDES OF EXCAVATION TO ENSURE NO UNEQUAL LOADS ON PILING OR STRUCTURES.
E. THE CONTRACTOR SHALL PERFORM ALL TEST PITS OF EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION TO DETERMINE EXISTING LOCATION AND CONDITION OF FACILITIES. THE CONTRACTOR SHALL NOTIFY THE OWNER OR THEIR REPRESENTATIVE OF ANY POTENTIAL CONFLICTS WITH THE PROPOSED PIPELINE SO ALIGNMENT CORRECTIONS CAN BE MADE PRIOR TO CONFLICT.
F. EXCAVATIONS FOR PIPELINES SHALL BE OPEN-CUT EXCAVATIONS, SHORED AND BRACED WHERE NECESSARY TO PREVENT POSSIBLE INJURY TO WORKERS AND/OR THE PUBLIC AND TO NEW AND EXISTING FACILITIES.
G. SUBGRADES FOR ROADWAYS, STRUCTURES, AND TRENCH BOTTOMS SHALL BE FIRM, DENSE, AND THOROUGHLY COMPACTED AND CONSOLIDATED. SHALL BE FREE OF MUD, MUCK, AND OTHER SOFT OR UNSUITABLE MATERIALS; AND SHALL REMAIN FIRM AND INTACT UNDER ALL CONSTRUCTION OPERATIONS.
H. ALL EXCAVATIONS OUTSIDE THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS AND WHICH IS NOT APPROVED BY THE OWNER OR THEIR REPRESENTATIVE SHALL BE AT THE CONTRACTOR'S EXPENSE. THE UNAUTHORIZED EXCAVATION SHALL BE FILLED AND COMPACTED WITH SELECT BACKFILL MATERIAL BY THE CONTRACTOR AT HIS EXPENSE.
I. THE MINIMUM DENSITY FOR GENERAL BACKFILL SHALL BE 95% OF MAXIMUM DENSITY OBTAINED IN THE LABORATORY IN ACCORDANCE WITH ASTM D1557, LATEST REVISION.
J. CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ALL SETTLEMENT THAT OCCURS. HE SHALL MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY WITHIN 30 DAYS AFTER NOTICE FROM THE OWNER OR THEIR REPRESENTATIVE.

3. INSTALLATION NOTES

- A. PIPING SHALL BE INSTALLED AND TESTED ACCORDANCE WITH AWWA C-906, LATEST REVISION, FOR HDPE PIPE WITH INSTALLATION AND TESTING PER AWWA MANUAL M-55. TEST GRANULAR BEDDING SOURCE MATERIAL FOR GRAIN SIZE (ASTM D422) AND MAXIMUM DRY DENSITY (ASTM D698) AT A FREQUENCY OF 1 TEST PER 5,000 CY.
B. THE CONSTRUCTION OF THE FACILITIES SHALL BE UNDER THE SUPERVISION OF A PERSON OR FIRM QUALIFIED TO PRACTICE PROFESSIONAL ENGINEERING IN MINNESOTA. WHENEVER ENGINEERING SERVICES ARE REQUIRED BY SUCH LAW FOR SUCH PURPOSES.
C. WHERE SUCH FACILITIES ARE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, HE SHALL CERTIFY TO THE OWNER THAT THE CONSTRUCTED FACILITIES HAVE BEEN UNDER HIS SUPERVISION AND THAT THE WORKS HAVE BEEN FULLY COMPLETED IN ACCORDANCE WITH THE APPROVED ENGINEERING REPORTS, PLANS, SPECIFICATIONS AND APPROVALS.
D. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO THAT, IF MINOR ADJUSTMENTS MUST BE MADE IN ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.
E. ALL PIPE AND APPURTENANCES SHALL BE LAID TO CONFORM TO THE LOCATION SHOWN ON THE PLANS, OR AS REQUIRED BY THE ENGINEER. EACH PIPE AND FITTINGS SHALL BE CAREFULLY BEDDED THROUGHOUT ITS LENGTH AS SHOWN ON THE DRAWINGS. THE BEDDING SHALL CONFORM WITH MNDOT 3149.2F GRANULAR BEDDING WITH 100 PERCENT PASSING THE 1" SIEVE AND NOT MORE THAN 10 PERCENT PASSING 80/100 SIEVE. COMPACT BEDDING AND TRENCH BACKFILL TO 95 PERCENT SPD.
F. DEFLECTIONS SHALL NOT EXCEED ONE-HALF OF THOSE RECOMMENDED FOR THE TYPE OF PIPE OR JOINT USED.
G. UTILITY CROSSINGS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF PIPE TO OUTSIDE OF PIPE. THIS SHALL BE THE CASE WHERE THE PROPOSED MAIN IS EITHER ABOVE OR BELOW THE EXISTING UTILITY. THE CROSSING SHALL BE ARRANGED SO THAT THE PROPOSED PIPE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE EXISTING UTILITY CENTERLINE.
H. CUTTING OF PIPE FOR INSERTING VALVES, FITTINGS AND CLOSURE PIECES SHALL BE DONE IN A NEAT AND CAREFUL MANNER WITHOUT DAMAGE TO THE PIPE. CUTS SHALL BE MADE BY APPROVED METHOD TO PRODUCE CLEAN SQUARE CUTS AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
I. ALL PIPE CROSSING UNDER PAVED AREAS ARE TO BE BACKFILLED TO SUB-GRADE WITH COMPACTED SELECT MATERIAL IN ACCORDANCE WITH MNDOT 3149.2D1-GANULAR BACKFILL, TO 5' OUTSIDE THE PAVEMENT EDGES.
J. EXCAVATIONS FOR STRUCTURES AND PIPELINES SHALL BE OPEN EXCAVATIONS, SHORED AND BRACED WHERE NECESSARY TO PREVENT DAMAGE OR INJURY TO WORKMEN, PUBLIC, STRUCTURES AND PIPELINES.
K. PIPE TRENCH SHALL HAVE SIDE SLOPES COMPLYING WITH ALL CODES AND ORDINANCES, SHORE AND BRACE WHERE SLOPING IS NOT POSSIBLE.
L. TRENCH WIDTH SHALL BE MINIMIZED TO GREATEST EXTENT POSSIBLE BUT SHALL BE SUFFICIENT TO INSTALL PIPE, AND ALLOW THOROUGH COMPACTING OF PIPE BEDDING AND BACK-FILL MATERIAL AND SHALL CONFORM TO TYPICAL TRENCH DETAIL SHOWN ON DRAWINGS.
M. MINIMUM COVER OVER PIPING SHALL BE 3.5 FEET UNLESS OTHERWISE SHOWN OR APPROVED BY THE OWNER. THE CONTRACTOR IS REQUIRED AND RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ANY AND ALL EXCESS MATERIALS.

4. TESTING NOTES

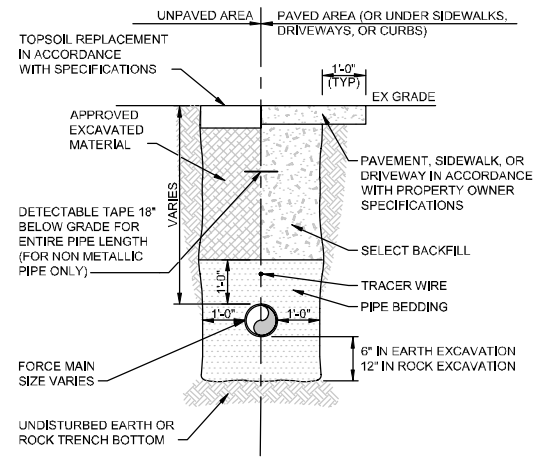
- A. THE NEW PIPELINE SHALL BE HYDROSTATIC TESTED TO 185 PSI, AT THE LOWEST POINT IN THE SYSTEM, FOR A MINIMUM PERIOD OF TWO (2) HOURS. THE TEST SHALL COMMENCE AFTER ALLOWING TIME FOR INITIAL EXPANSION. THE CONTRACTOR WILL INFORM THE OWNER OR THEIR REPRESENTATIVE WHEN THEY ARE READY FOR THE 2 HOUR TEST TO START.
B. PIPELINES WHICH FAIL TO HOLD SPECIFIED TEST PRESSURE OR WHICH EXCEED THE MAKE-UP WATER ALLOWABLE RATE (SPECIFIED BELOW) SHALL BE REPAIRED AND RETESTED.
C. TESTING AT A MINIMUM SHALL COMPLY WITH THE REQUIREMENTS OF AWWA C-600 SPECIFICATION, SECTION 4, "HYDROSTATIC TESTING FOR DUCTILE IRON WATER MAINS" AND MANUAL M-65, PE DESIGN AND INSTALLATION.
D. MAKE-UP WATER ALLOWABLE (U.S. GALLON) PER 100 FT. OF PIPE SHALL BE AS SPECIFIED BELOW FOR A 2 HOUR TEST:

Table with 2 columns: NOMINAL PIPE DIAMETER (IN) and MAKE-UP WATER ALLOWANCE U.S. GALLON PER 100 FEET OF PIPE. Values range from 0.60 to 3.30.

- E. UPON SUCCESSFUL COMPLETION OF PRESSURE TESTING THE LINE SHALL BE FLUSHED WITH WATER TO CREATE A MINIMUM VELOCITY OF 2.5 FPS (225 GPM FOR 6", 400 GPM FOR 8", AND 1,600 GPM FOR 16"), A MINIMUM OF 30 MINUTES OR UNTIL PIPELINE IS CLEAN OF DEBRIS WHICHEVER IS GREATER.

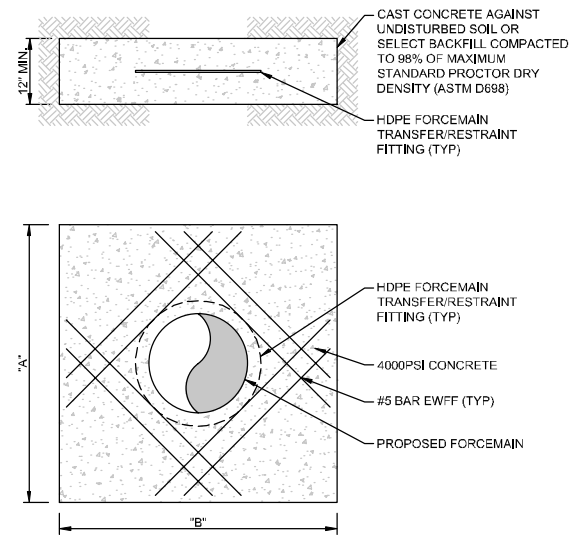
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Project information table including client (CARL BOLANDER AND SONS), title (DRAWING NOTES AND SPECIFICATIONS), project number (83125-00(001)), and sheet number (1 of 1). Includes GHD logo and contact information.



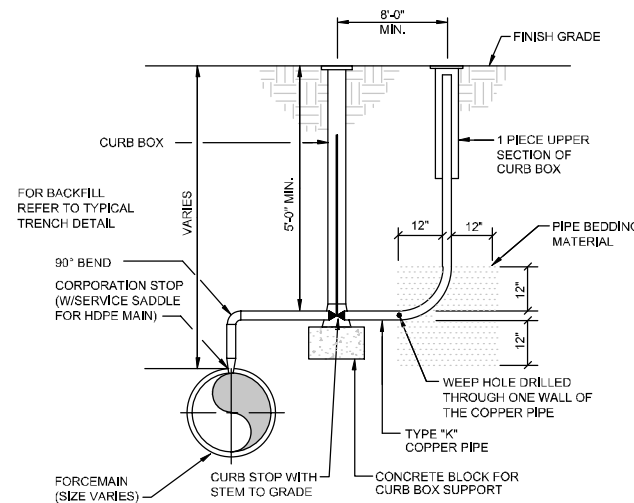
- NOTES:**
- DIMENSIONS ARE PAVEMENT LIMITS WHERE APPROPRIATE.
 - TEST GRANULAR BEDDING SOURCE MATERIAL FOR GRAIN SIZE (ASTM D422) AND MAXIMUM DRY DENSITY (ASTM D698) AT A FREQUENCY OF 1 TEST PER 5,000 CUBIC YARDS. TEST BULK WET DENSITY (ASTM D2922) OF TRENCH BEDDING AND BACKFILL MATERIALS AT FREQUENCY OF 1 TEST PER 5,000 CY.

DETAIL 1
1/2" = 1'-0"
TYPICAL TRENCH
CI-01



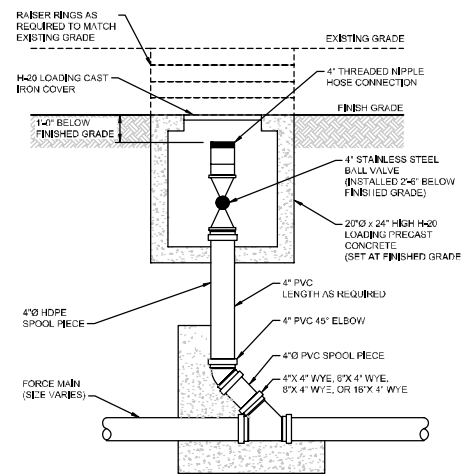
SIZE	"A"	"B"
4"	30"	30"
6"	36"	36"
16"	60"	60"

DETAIL 2
NTS
HDPE CONCRETE ANCHOR BLOCK
CI-01

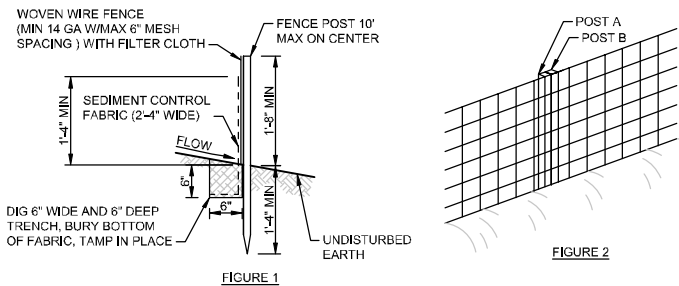


FM	AIR RELIEF
4"	1"
6"	1"
8"	1"
16"	2"

DETAIL 3
NTS
TYPICAL MANUAL AIR RELEASE ASSEMBLY DETAIL
CI-04



DETAIL 4
3/4" = 1'-0"
4 INCH PVC FORCE MAIN CLEANOUT
CI-02

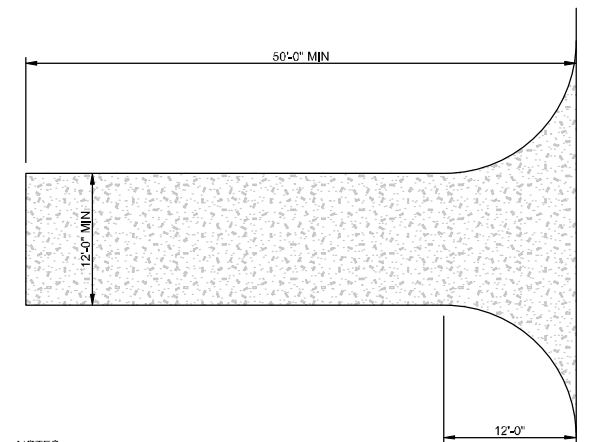


- NOTES:**
- SILT FENCE HEIGHT TO BE 1'-6" MIN ABOVE GROUND. CONSTRUCTED OF FABRIC WITH MIN TENSILE STRENGTH OF 136 LBS.
 - WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL "T" OR "U" TYPE OR HARDWOOD.
 - FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE. SILT FENCE TO HAVE FACTORY ATTACHED FENCE POSTS.
 - REFER TO DRAWING FOR LOCATION OF SILT FENCE.
 - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

DETAIL 5
3/4" = 1'-0"
SILT FENCE
CI-01

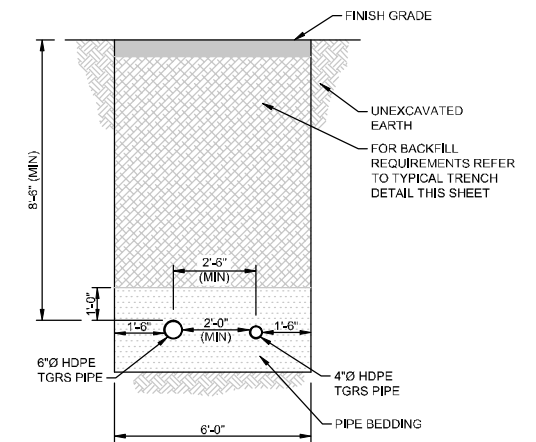


- INSTALLATION SEQUENCE:**
- DIG A 6" X 6" TRENCH ALONG SILT FENCE LOCATIONS SHOWN.
 - UNROLL SILT FENCE POSITIONING THE POSTS ON THE DOWNSTREAM SIDE.
 - DRIVE POSTS INTO THE GROUND AS SHOWN ON FIGURE 1.
 - LAY THE BOTTOM 12" OF FABRIC FLAP IN THE BOTTOM OF THE TRENCH, BACKFILL AND COMPACT. ADJACENT SECTIONS OF THE SILT FENCE ARE JOINED AS SHOWN IN FIGURE 3. A COUPLER CAN BE USED TO SECURE ADJACENT POSTS AS SHOWN IN FIGURE 2.



- NOTES:**
- STONE SIZE - USE 1'-4" INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 - LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30-FOOT MINIMUM LENGTH WOULD APPLY)
 - THICKNESS - NOT LESS THAN 6 INCHES.
 - WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 - FOOT IF SINGLE ENTRANCE TO SITE.
 - GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
 - SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
 - MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
 - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
 - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

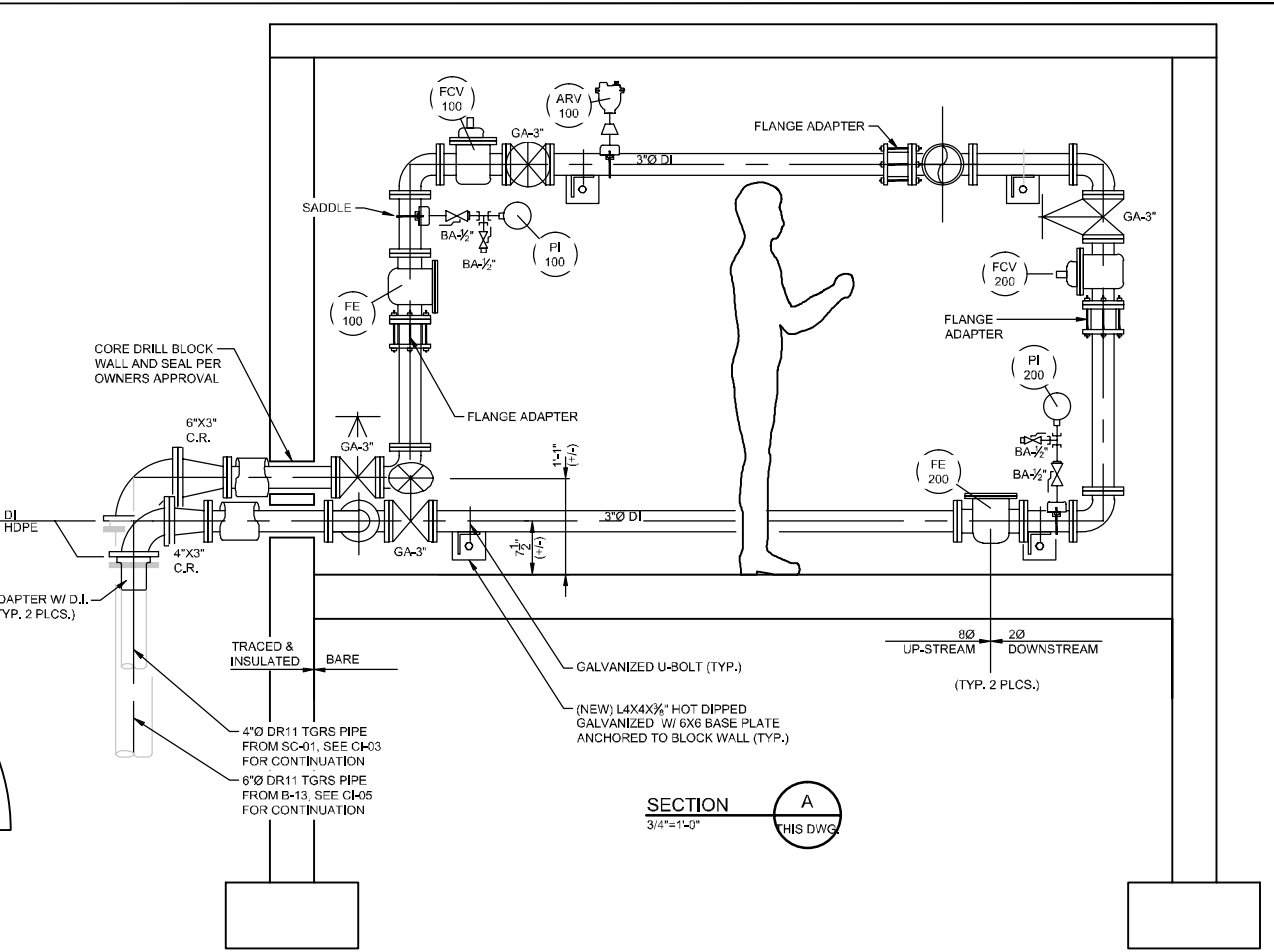
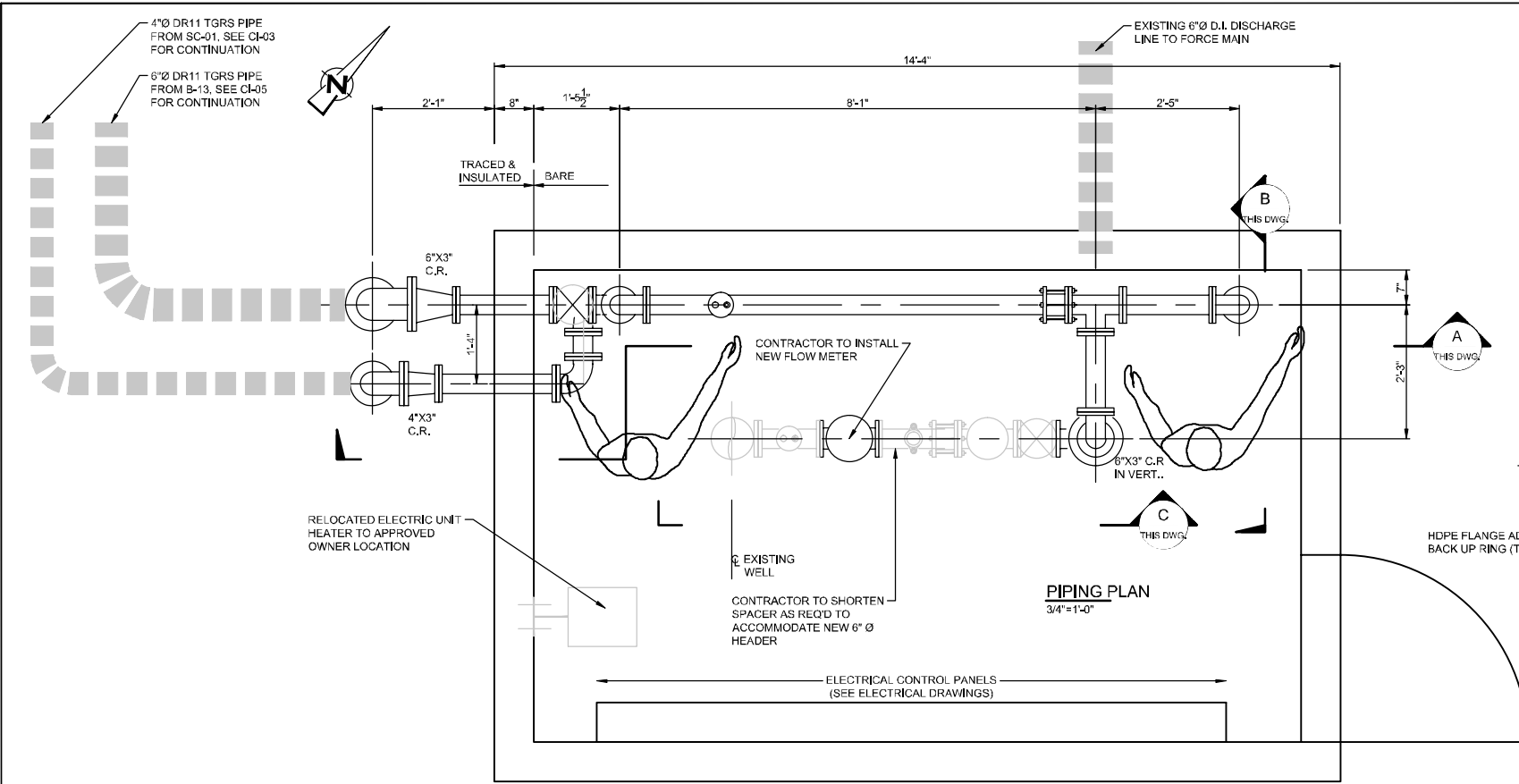
DETAIL 6
1/8" = 1'-0"
STABILIZED CONSTRUCTION ENTRANCE
CI-01



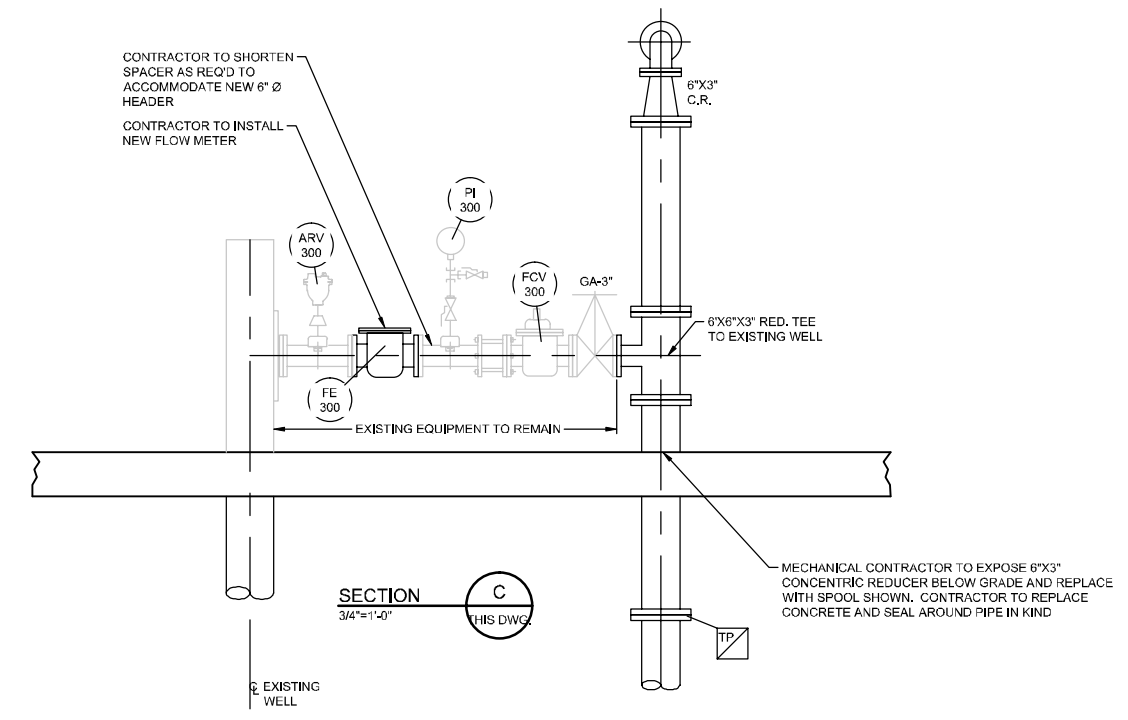
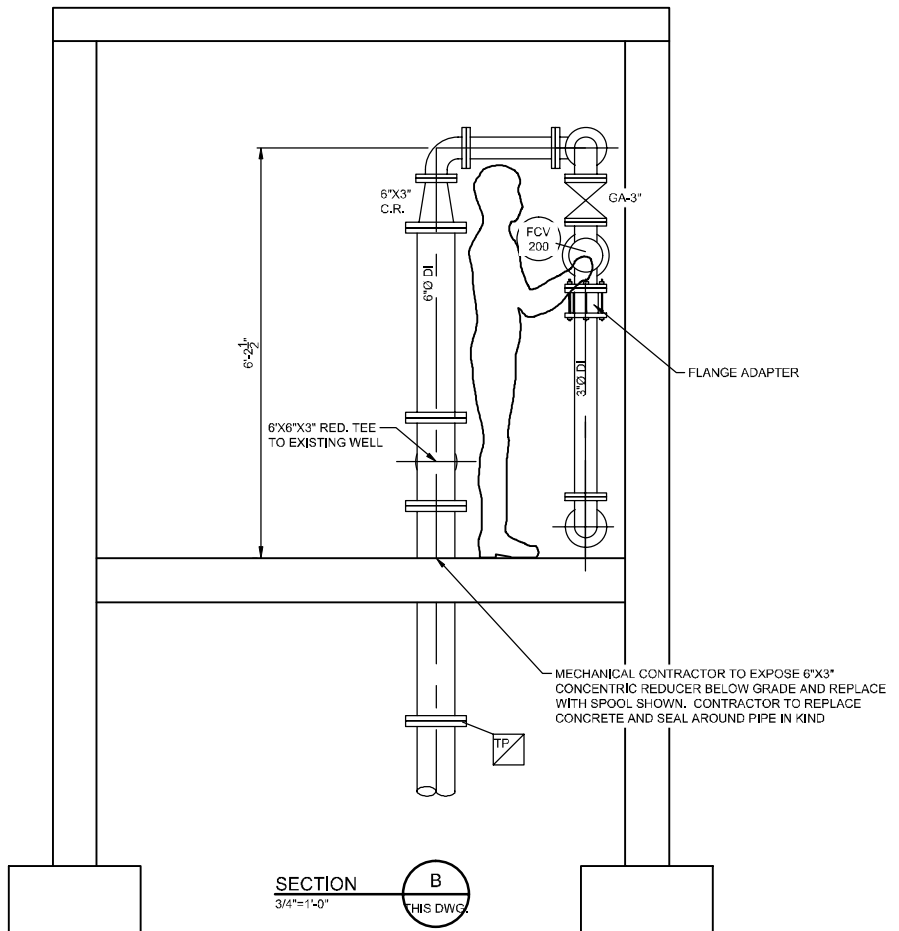
DETAIL 7
NTS
MINIMUM PIPE SEPARATION
CI-02

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B	ISSUED FOR REVIEW	CR/TD	WWW	06/03/16																																													
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Scale	AS NOTED	Original Size	Arch D	Sheet No.	CI-13																																												



Quantity	Item	Description
2	FCV-100 FCV-200	CLA-VAL COMBINATION BACK PRESSURE AND SOLENOID SHUT-OFF VALVE OR BACK PRESSURE AND PUMP CONTROL VALVE EQUIPPED FOR RAPID CLOSING MODEL 58-40 OR SIMILAR CLA-VAL MODEL - VERIFY SIMILAR TO EXISTING FCV-300 3 INCH FLANGED GLOBE STYLE VALVE ENERGIZED TO OPEN - CLOSE IF FAIL FCV-100 TO BE INSTALLED HORIZONTALLY, FCV-200 TO BE INSTALLED VERTICALLY X-105L LIMIT SWITCH ASSEMBLY REFER TO: TYPICAL EQUIPMENT SPECIFICATION FORM - TCAAP GROUNDWATER REMEDIATION SYSTEM FOR DETAILS
3	FE-100 FE-200 FE-300	3-INCH NEPTUNE HIGH PERFORMANCE TURBINE METER TRICON/E3 TRANSMITTER FOR TOTAL FLOW AND FLOW RATE DIGITAL PULSE AND 4-20 MA SIGNALS AND LOCAL READING FE-100 & FE-300 TO BE INSTALLED HORIZONTALLY, FE-200 TO BE INSTALLED VERTICALLY
1	ARV-100	1/2 - INCH APCO AIR/VACUUM VALVE - VERIFY SIMILAR TO EXISTING ARV-300 MODEL NO 141 OR SIMILAR APCO MODEL INSTALL AT HORIZONTAL HIGH POINT
2	PI-100 PI-200	STANDARD PRESSURE GAUGE WITH LOCAL READING CONTRACTOR TO SELECT AND INSTALL SIMILAR TO EXISTING PI-300
4	GA-3"	STANDARD 3-INCH GATE VALVE CONTRACTOR TO SELECT AND INSTALL SIMILAR TO EXISTING B-3 GATE VALVE
4	BA-1/2"	STANDARD 1/2 - INCH BALL VALVE CONTRACTOR TO SELECT AND INSTALL SIMILAR TO EXISTING PI-300 BALL VALVES



CONTRACTOR TO FIELD VERIFY ALL DIMENSION PRIOR TO FABRICATION

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No.	Issue	Drawn	Approved	Date
B	ISSUED FOR REVIEW	BMS	MJP	6/06/16
A	ISSUED FOR REVIEW AND COMMENT	BMS	MJP	8/31/15

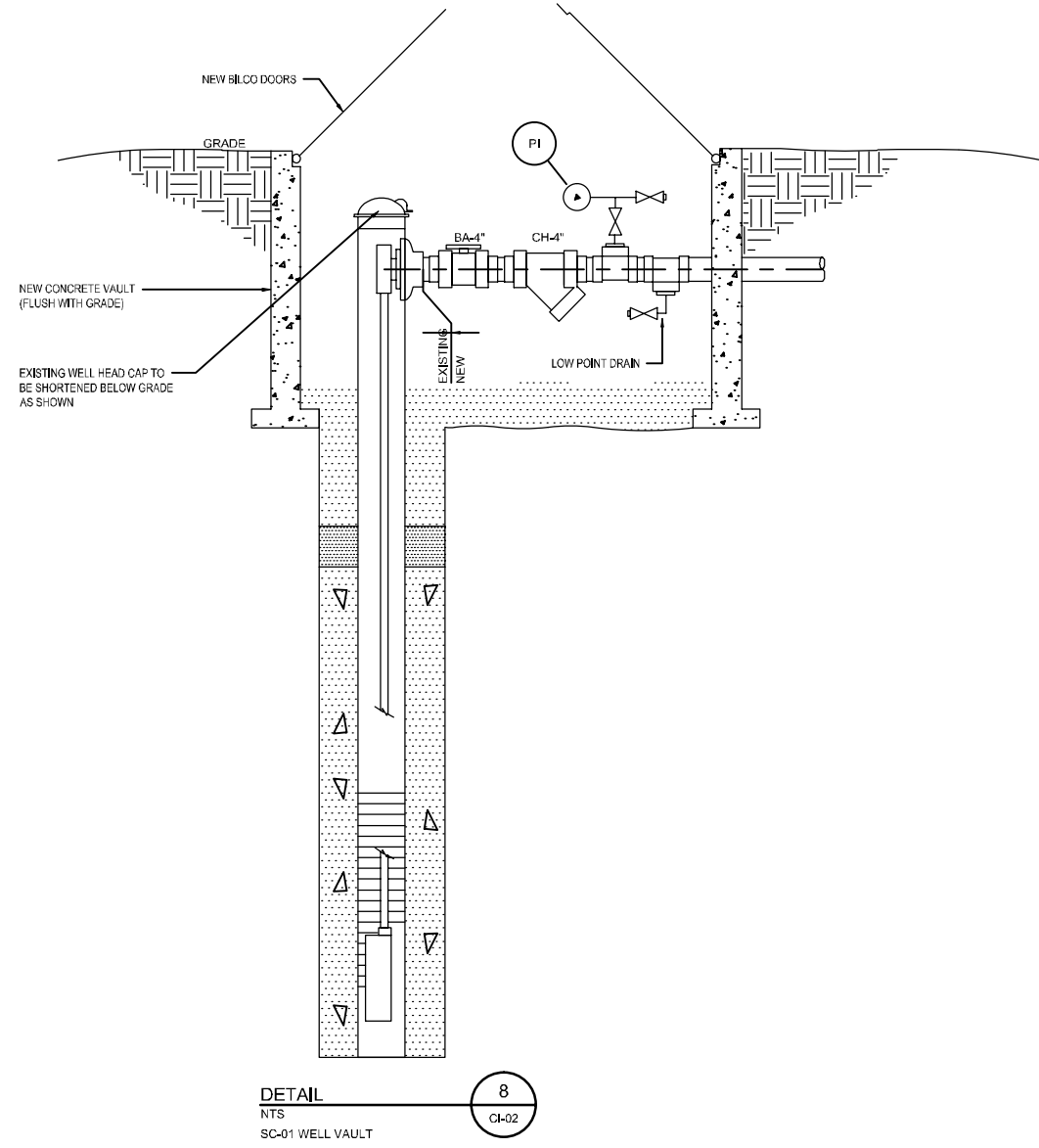
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Drawn	B. SUCHAN	Designer	B. SUCHAN
Drafting Check		Design Check	M. PLUSZKA
Project Manager	E. HOGLUND	Date	Jun 1, 2016
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Client	CARL BOLANDER AND SONS
Project	TGRS PIPING REROUTE
Title	MECHANICAL PIPING PLAN
	PUMP HOUSE B3
Project No.	83125-00(001)
Original Size	Arch D
Sheet No.	ME-01
Sheet	1 of 1



DETAIL
 NTS
 SC-01 WELL VAULT

8
 CH-02

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A ISSUED FOR REVIEW				BMS	MJP	6/06/16
No.	Issue	Drawn	Approved	Date		

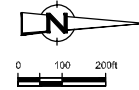
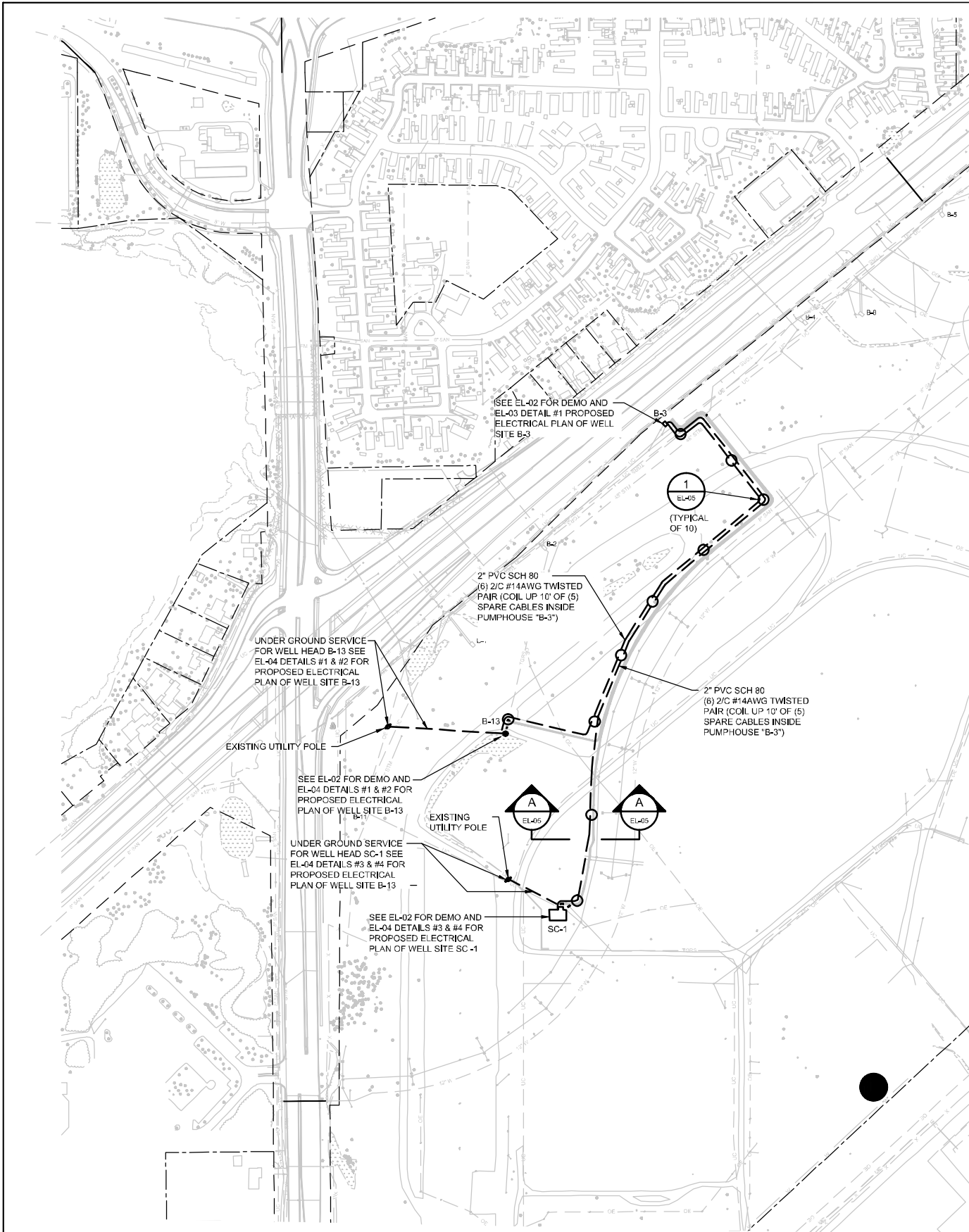
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Drawn: B. SUCHAN	Designer: B. SUCHAN	Client: CARL BOLANDER AND SONS
Drafting Check:	Design Check: M. PLUSKA	Project: TGRS PIPING REROUTE
Project Manager: E. HOGLUND	Date: Jun 1, 2016	Title: WELL VAULT SC-01
This document shall not be used for construction unless signed and sealed for construction.		Project No.: 83125-00(001)
Scale:	Original Size	Arch D Sheet No. ME-02
		Sheet 1 of 1



GENERAL MATERIAL & INSTALLATION REQ'S.

- MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH NEMA, UL, OSHA, AND NEC STANDARDS.
- ALL CONDUIT SHALL BE NEC RIGID GALV. STEEL CONDUIT UNLESS OTHERWISE NOTED. MINIMUM CONDUIT SIZE SHALL BE 3/4".
- EXPOSED RGS CONDUIT SHALL BE SUPPORTED EVERY 10'-0" MINIMUM AND SHALL BE INSTALLED IN A MANNER SUCH THAT IT DOES NOT CONSTITUTE A TRIPPING HAZARD OR INFRINGE UPON PROVIDING 8'-0" MINIMUM HEAD CLEARANCE.
- ALL WALL-THRU CONDUIT PENETRATIONS SHALL BE WEATHER SEALED USING MODULAR MECHANICAL SEALS (2 SEALS PER CORE)
- ALL INTERCONNECTING WIRING SHALL BE TAGGED WITH APPROPRIATE CIRCUIT NUMBERS AT BOTH TERMINAL ENDS.
- SUPPORTS AND HANGERS: ALL EQUIPMENT/DEVICE/FIXTURE SUPPORTS AND HANGERS SHALL BE TYPE 304 STAINLESS STEEL OF 1/4" THICK MINIMUM. PVC CONDUIT IS NOT PERMITTED AS EQUIPMENT/DEVICE/FIXTURE SUPPORTING MEMBER.
- ROUTE WIRING CONDUIT BASED ON FIELD CONDITIONS AND AS APPROVED BY ENGINEER.
- UPDATE ALL PANELBOARD SCHEDULES TO REFLECT COMPLETED WORK.
- FIELD VERIFY ALL POWER SOURCES AS INDICATED ON DRAWINGS (LIGHTING & POWER PANELS) OF EQUIPMENT BEING REMOVED, RELOCATED OR REPLACED.

GENERAL NOTES

- THE CONTRACTOR SHALL NOT SCALE THE DRAWINGS TO ESTABLISH DIMENSIONS, ALL DIMENSIONS SHALL BE CHECKED ON-SITE PRIOR TO ASSEMBLY OR CONSTRUCTION OF ANY WORK.
- THE STRUCTURE HAS BEEN DESIGNED FOR THE IN-SERVICE LOADS, THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, SUPPORTING FORMWORK FOR CONCRETE CONSTRUCTION SHALL NOT BE REMOVED BEFORE THE CONCRETE HAS GAINED SUFFICIENT STRENGTH TO SAFELY SUPPORT THE DEAD AND SUPERIMPOSED LOADS, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID OVERLOADS, AND MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
- THE CONTRACTOR SHALL REFER TO MECHANICAL & ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR SIZE AND LOCATION OF SLEEVES, ANCHORS, INSERTS AND OPENINGS REQUIRED, PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THE DRAWINGS, SLEEVES AND OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- MATERIALS SPECIFIED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS SHALL BE USED UNLESS THE CONTRACTOR OBTAINS WRITTEN APPROVAL OF THE ENGINEER TO USE ALTERNATIVE MATERIALS. WHEN REQUESTING SUCH APPROVAL, THE CONTRACTOR SHALL PROVIDE ADEQUATE AND DETAILED MANUFACTURER'S LITERATURE AND TECHNICAL DATA FOR EACH MATERIAL PRIOR TO ITS POTENTIAL USE.
- CONTRACTOR SHALL NOT DERIVE SUPPORTS FROM EXISTING STRUCTURE TO FACILITATE NEW CONSTRUCTION, IF SUCH SUPPORT IS SPECIFICALLY ALLOWED BY THE ENGINEER, CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL DETAILED DESIGN, CALCULATIONS AND DRAWINGS SEALED BY LICENSED PROFESSIONAL ENGINEER VERIFYING ADEQUACY/SAFETY OF EXISTING STRUCTURE. IF DAMAGE TO EXISTING STRUCTURE OCCURS, CONTRACTOR AT ITS OWN COST SHALL REPAIR THE DAMAGE AND RESTORE TO ORIGINAL CONDITION AND SATISFACTION OF THE ENGINEER.
- NO EXCAVATION WORK MAY BEGIN UNTIL ALL UNDERGROUND UTILITIES HAVE BEEN LOCATED AND MARK OUTS HAVE BEEN APPROVED BY THE OWNER. UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THE DRAWINGS.

CONCRETE NOTES

- CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301, 305, 306, 308, 315, 318 AND 350R SPECIFICATIONS.
- LATEST REVISION AND/OR VERSION OF ALL CODES AND REFERENCE STANDARDS SHALL BE FOLLOWED.
- CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. SLUMP SHALL BE 3 1/2 INCHES ± 1 INCH.
- CONCRETE SHALL BE AIR ENTRAINED. CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C150, TYPE II WITH AIR-ENTRAINING ADMIXTURE CONFORMING TO ASTM C260, AIR CONTENT (% BY VOLUME) SHALL NOT BE LESS THAN 4% NOR GREATER THAN 6.5% AND SHALL DEPEND ON MAXIMUM SIZE AGGREGATE USED. WATER TO CEMENT RATIO SHALL NOT EXCEED .40 BY WEIGHT.
- NO ADMIXTURE SHALL CONTAIN CALCIUM CHLORIDE BASED COMPOUNDS, FLYASH AND POZZOLAN CONTENT SHALL NOT EXCEED 25% BY WEIGHT OF CEMENT.
- REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS.
- LAP SPLICES IN REINFORCING BARS IN ACCORDANCE WITH THE TABLE BELOW.
- CONCRETE PROTECTION FOR REINFORCING BARS (UNLESS OTHERWISE NOTED):
 - FOOTINGS - 3 INCH BOTTOM AND SIDES, 2 INCH TOP
 - GRADE BEAMS - 2 INCH BOTTOM AND SIDES, 1 1/2 INCH TOP (TO STIRRUPS)
 - PIERS - 1 1/2 INCH (TO TIES)
 - FORMED SLABS - 1 1/2 INCH TOP AND BOTTOM
 - WALLS AND PADS - 2 INCH
 - EXTERIOR SLABS ON FILL - 2 1/2 INCH BOTTOM, 2 INCH TOP
 - INTERIOR SLABS ON FILL - 2 1/2 INCH BOTTOM, 1 1/2 INCH TOP
- NO CONSTRUCTION JOINT SHALL BE MADE UNLESS SHOWN ON DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER.
- ANCHOR BOLTS SHALL BE CARBON STEEL CONFORMING TO ASTM F1554 SPECIFICATIONS, WITH HEAVY HEX NUTS AND WASHERS, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED CONFORMING TO ASTM A123 AND A153 SPECIFICATIONS UNLESS OTHERWISE SPECIFIED, AND SHALL BE ACCURATELY PLACED USING TEMPLATES.
- GROUT IN DRILLED HOLES FOR ANCHOR BOLTS AND REINFORCING STEEL DOWELS, AND UNDER BASE PLATES SHALL BE NON-SHRINK NON-METALLIC "MASTERFLOW 713" OR "MASTERFLOW 928" BY DEGUSSA BUILDING SYSTEMS OR APPROVED EQUAL. MANUFACTURER'S INSTRUCTIONS CONCERNING HOLE SIZE, SURFACE PREPARATION AND INSTALLATION SHALL BE FOLLOWED.
- EDGE TOOL TOP HORIZONTAL EDGES OF PIERS AND EQUIPMENT (PUMP) PADS, OTHER EXPOSED EDGES SHALL HAVE 3/4 INCH CHAMFER.
- PADS SHALL BE TROWEL FINISHED TO WITHIN 1/8 INCH OF ELEVATIONS SHOWN ON DRAWINGS, FOLLOWING TROWELLING, PROVIDE NON-SLIP MEDIUM BROOM FINISH.
- PROVIDE CORNER REINFORCING BARS TO MATCH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS FOR CONTINUITY.
- NOT USED.

BAR SIZE	LAP SPlice LENGTHS (IN)			
	TOP BARS		OTHERS	
	A	B	A	B
#3 (10)	19	24	15	19
#4 (13)	25	32	19	25
#5 (16)	31	40	24	31
#6 (19)	37	48	29	37
#7 (22)	54	70	42	54
#8 (25)	62	80	48	62
#9 (29)	70	91	54	70
#10 (32)	79	102	61	79
#11 (36)	87	113	67	87

- BAR SIZES IN PARENTHESIS (13) ARE CORRESPONDING METRIC SIZES.
- LAP SPLICES SHALL BE CLASS B SPLICES EXCEPT THAT CLASS A SPLICES ARE ALLOWED WHEN ONE-HALF OR LESS OF TOTAL REINFORCEMENT IS SPLICED WITHIN A LAP LENGTH.
- TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW BARS.

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No.	Issue	Drawn	Approved	Date
A	ISSUED FOR REVIEW	PED	JD	6/06/16

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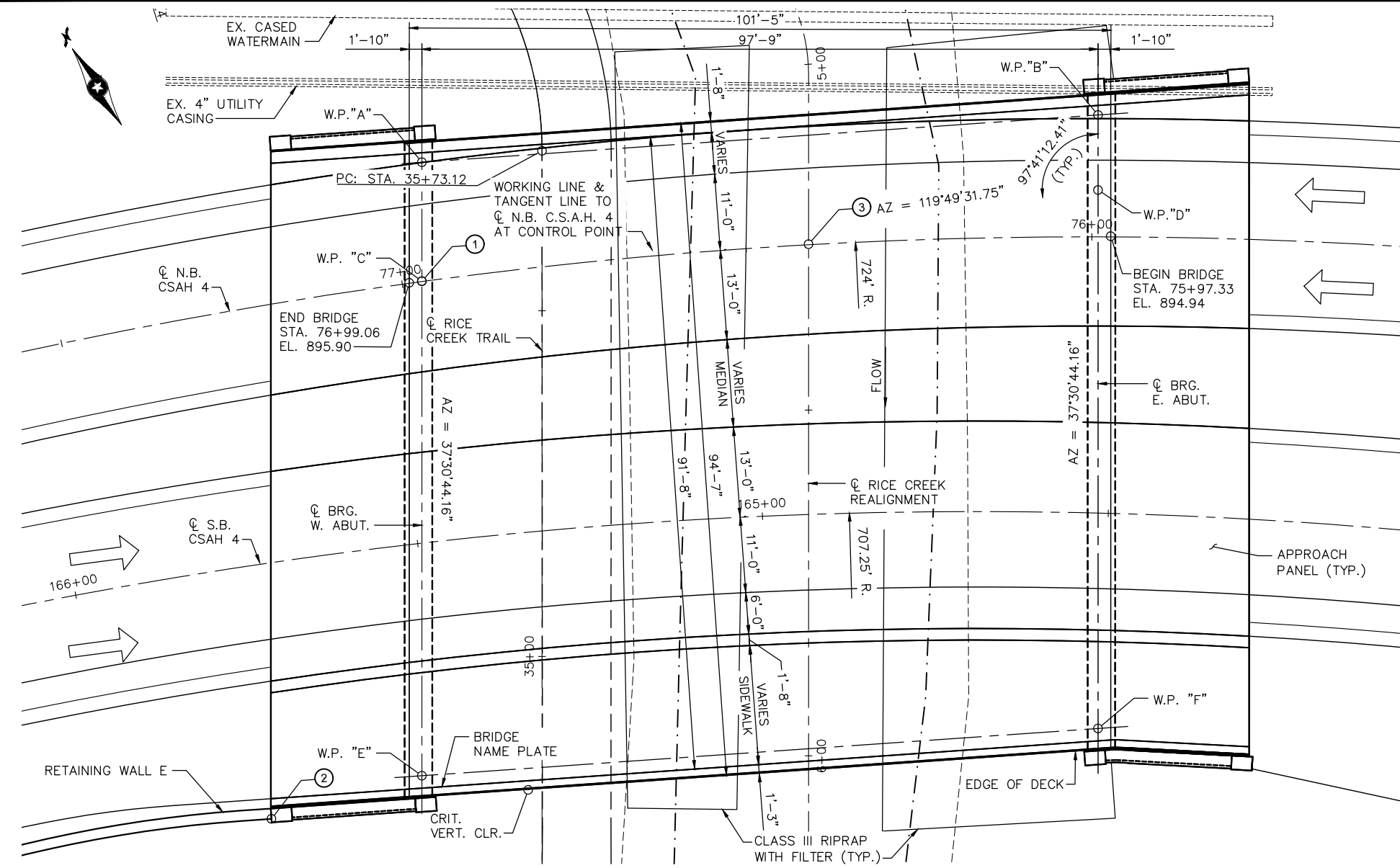
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Drawn	P.DIFRANCISCO	Designer	P.DIFRANCISCO
Drafting Check	J.DAVIS	Design Check	J.DAVIS
Project Manager	E.HOGLUND	Date	Jun 1, 2016

Client	CARL BOLANDER AND SONS		
Project	TGRS PIPING REROUTE		
Title	ELECTRICAL SITE PLAN & GENERAL NOTES		
Project No.	83125-00(001)		
Original Size	Arch D	Sheet No.	EL-01
Scale	1"=200'	Sheet	1 of 1

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NOTES

- ① CONTROL POINT
 C N.B. CSAH 4
 STA. 76+97.21
 Δ 82°18'47.59"
 X = 551222.945
 Y = 210822.439
- ② RETAINING WALL E
 TIE-IN C N.B. CSAH 4
 STA. 77+32.77
 X = 551158.35
 Y = 210774.01
- ③ C N.B. CSAH 4
 P.O.T. STA. 76+41.05
 C RICE CREEK REALIGNMENT
 P.O.T. STA. 5+26.02
 X = 551270.537
 Y = 210792.645

NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.

APPROXIMATELY 800 SQ. FT. OF WATERWAY AREA IS AVAILABLE BELOW EL 883.24.

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

DESIGN DATA

DESIGNED IN ACCORDANCE WITH 2018 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

HL-93 LIVE LOAD

MATERIAL DESIGN PROPERTIES:
 REINFORCED CONCRETE:
 f'c = 4 KSI CONCRETE
 fy = 60 KSI PLAIN AND EPOXY COATED BARS
 n = 75 KSI STAINLESS STEEL BARS
 n = 8 FOR REINFORCEMENT BARS

PRETENSIONED CONCRETE:
 f'c = 8.5 KSI CONCRETE
 fpu = 270 KSI LOW RELAXATION STRANDS
 N = 1 FOR PRETENSIONING STRANDS
 0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED:
 OVER = 40 MPH

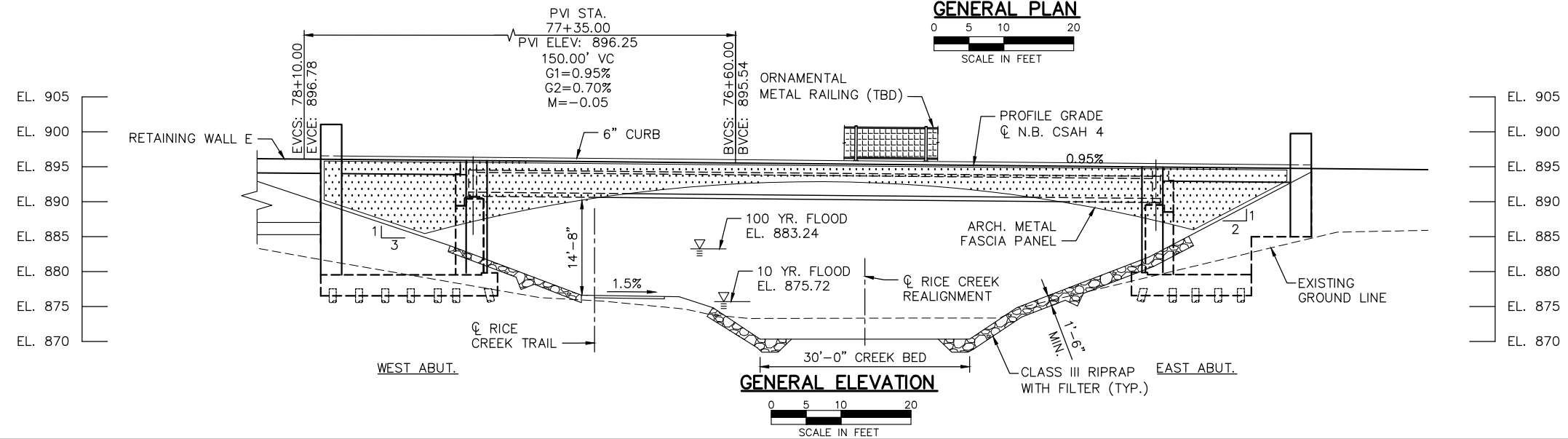
DECK AREA = 9640 SQUARE FEET

2039 PROJECTED TRAFFIC VOLUMES

19,500 A.A.D.T.
1,950 D.H.V.
1,000 H.C.A.A.D.T.

LIST OF SHEETS

	DESCRIPTION
BR1	GENERAL PLAN AND ELEVATION
BR2	BRIDGE LAYOUT
BR3	TRANSVERSE SECTION
BR4-BR6	ABUTMENT DETAILS
BR7-BR8	BRIDGE SURVEY
BR9-BR10	BORINGS
BR12-BR15	DETAILS



No.	Date	Revisions	App.

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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

KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

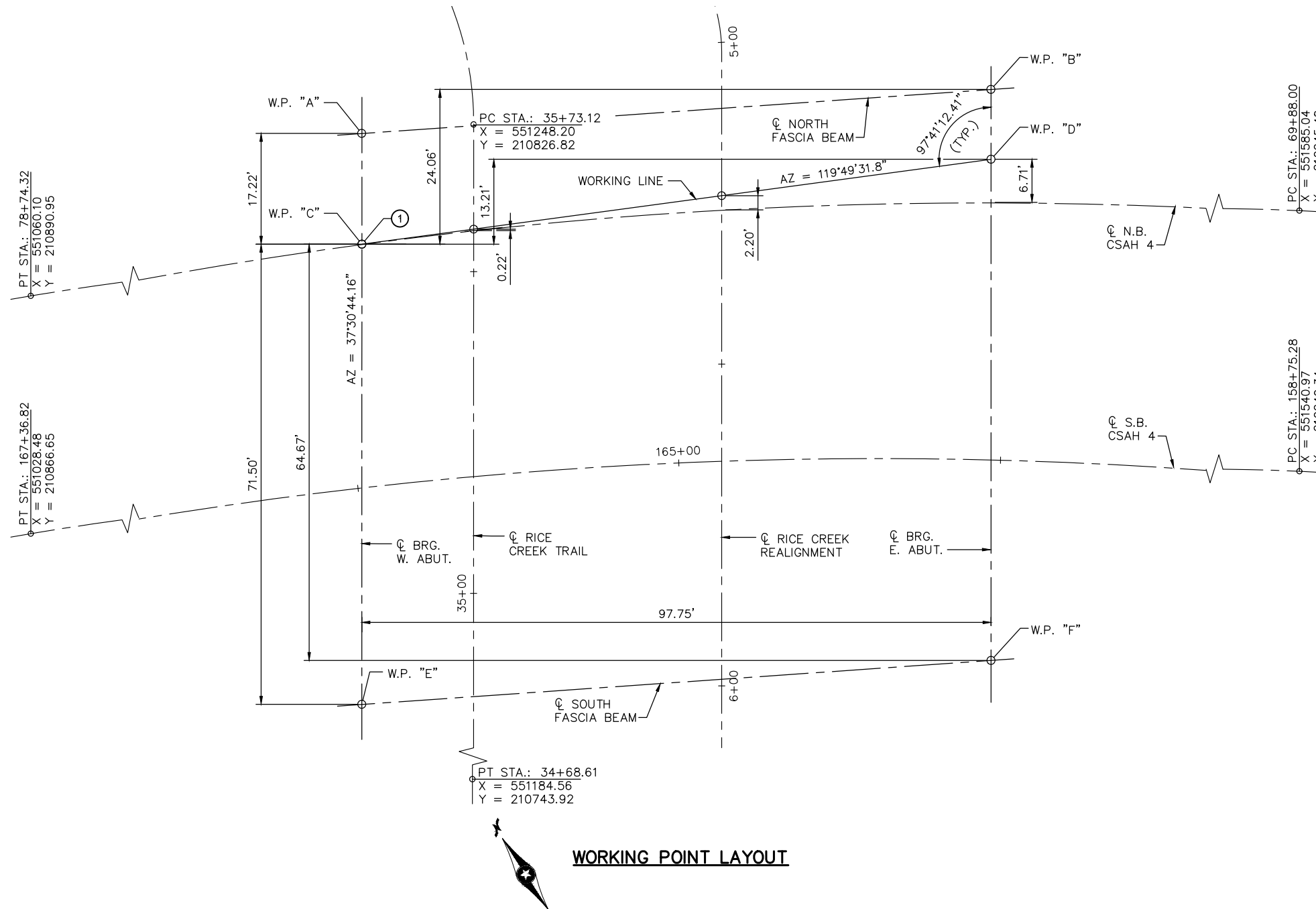
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 GENERAL PLAN AND ELEVATION

CITY PROJECT	SHEET NO. BR1
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

BR15

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WORKING POINT LAYOUT

POINT	STATION	DIMENSIONS BETWEEN WORKING POINTS						COORDINATES		ELEVATIONS			POINT
		A	B	C	D	E	F	X	Y	TOP OF DECK	DECK TO BRIDGE SEAT	BRIDGE SEAT	
A	76+94.96	--	97.99	--	97.83	88.71	127.51	551233.422	210836.087	895.52			A
B	75+99.19	--	--	100.67	--	136.69	88.72	551315.124	210781.985	894.61			B
C	76+97.21	--	--	--	--	--	117.21	551222.945	210822.439	895.88			C
D	75+99.17	--	--	--	--	129.34	--	551308.518	210773.381	894.82			D
E	77+07.81	--	--	--	--	--	97.99	551179.401	210765.716	895.86			E
F	75+99.07	--	--	--	--	--	--	551261.102	210711.614	894.80			F

NOTES

- ① CONTROL POINT
 C N.B. CSAH 4
 STA. 76+97.21
 Δ 82'18"47.59"
 X = 551222.945
 Y = 210822.439

No.	Date	Revisions	App.

DRAWING NAME
TCAAP_SPINERD_BRID_SUP01.dwg
 DESIGNED BY: SSB
 DRAWN BY: PHH
 CHECKED BY:
 DATE: 01/04/19
 PROJECT NO. 160553004

Kimley»Horn
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
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 WWW.KIMLEY-HORN.COM

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 KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BRIDGE LAYOUT

CITY PROJECT	SHEET NO. BR2 BR15
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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CONSTRUCTION NOTES

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

SEE SPECIAL PROVISIONS FOR ALL XXX.6XX SERIES ITEMS FOR ADDITIONAL REQUIREMENTS.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

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

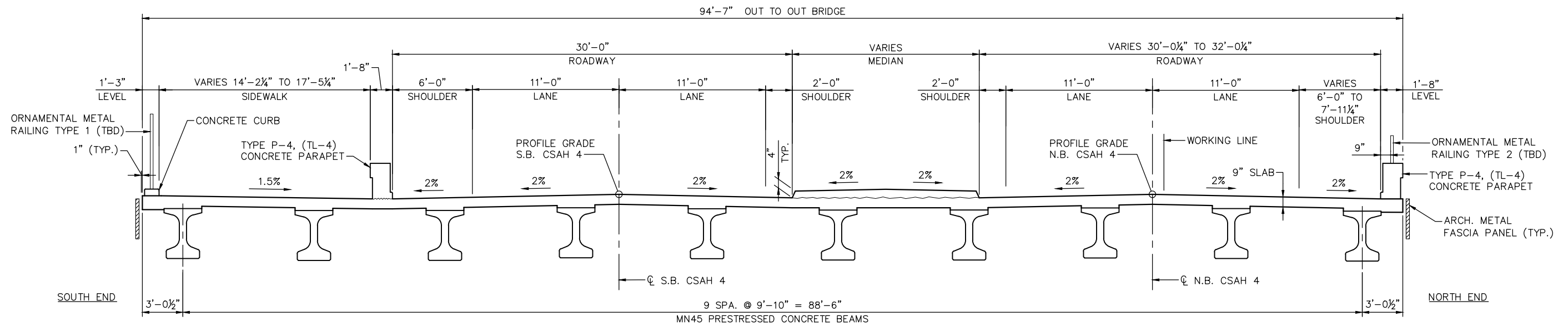
THE PILE LOADS SHOWN IN THE PLANS AND CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R_n) WERE COMPUTED USING LRFD MEHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET IN FINAL DESIGN.

NOTES:

① DOES NOT INCLUDE TEST PILES.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE			
ITEM NO.	ITEM	UNIT	QUANTITY
2401.503	TYPE CURB BARRIER CONCRETE (3S52)	LIN. FT.	105
2401.503	TYPE P-4 (TL-4) BARRIER CONCRETE (3S52)	LIN. FT.	285
2401.507	STRUCTURAL CONCRETE (1G52)	CU. YD.	305
2401.507	STRUCTURAL CONCRETE (3B52)	CU. YD.	315
2401.508	REINFORCEMENT BARS	POUND	45570
2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	47000
2401.508	REINFORCEMENT BARS (STAINLESS-60KSI)	POUND	660
2401.518	RAISED MEDIAN CONCRETE (3S52)	SQ. FT.	1815
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2401.618	BRIDGE DECK PLANING	SQ. FT.	8660
2401.618	BRIDGE SLAB CONCRETE (3YHPC-M)	SQ. FT.	9250
2402.502	BEARING ASSEMBLY	EACH	20
2402.503	ORNAMENTAL METAL RAILING TYPE 1 (TBD)	LIN. FT.	145
2402.503	ORNAMENTAL METAL RAILING TYPE 2 (TBD)	LIN. FT.	105
2405.503	PRESTRESSED CONCRETE BEAMS MN45	LIN. FT.	990
2405.503	DIAPHRAGMS FOR TYPE MN 45 PREST BEAMS	LIN. FT.	180
2406.504	BRIDGE APPROACH PANELS	SQ. YD.	435
2411.618	ANTI-GRAFFITI COATING	SQ. FT.	640
2411.618	ARCH SURFACE FINISH (SINGLE COLOR)	SQ. FT.	2600
2411.618	ARCH CONC. TEXTURE (TBD)	SQ. FT.	480
2411.618	ARCH METAL FASCIA PANEL	SQ. FT.	1850
2452.502	C-I-P CONC TEST PILE 85 FT. LONG 12"	EACH	4
① 2452.603	C-I-P CONCRETE PILING 12"	LIN. FT.	11250
2502.501	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
2511.507	RANDOM RIPRAP CLASS III	CU. YD.	215
2511.504	GEOTEXTILE FILTER TYPE 3	SQ. YD.	430



TRANSVERSE SECTION

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_BRID_TNVS.dwg
DESIGNED BY:	SSB
DRAWN BY:	PHH
CHECKED BY:	
DATE:	01/04/19
PROJECT NO.	160553004

Kimley»Horn
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 WWW.KIMLEY-HORN.COM

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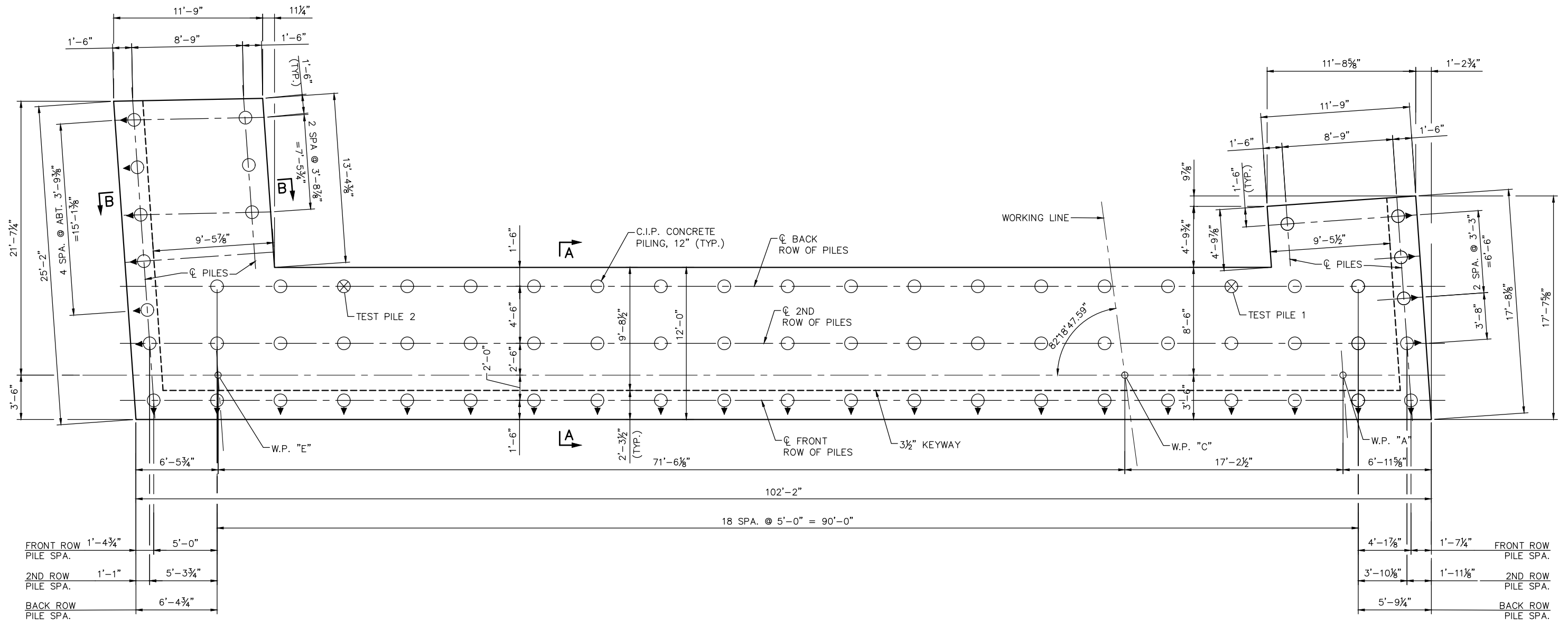
KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 TRANSVERSE SECTION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
BR3
BR15

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridg\TCAAP_SPINERD_BRID_ABUT01.dwg West Abut January 08, 2019 - 1:01pm



**WEST ABUTMENT
FOOTING PLAN**

GENERAL PILE NOTES:

- 2 C-I-P CONCRETE TEST PILES 85 FT. LONG
 - 74 C-I-P CONCRETE PILES EST. LENGTH 75 FT.
 - 76 C-I-P CONCRETE PILES REQ'D FOR WEST ABUTMENT
- PILE SPACING IS SHOWN AT BOTTOM OF FOOTING
- PILES MARKED THUS $\odot \rightarrow$ TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO HAVE A NOMINAL DIAMETER OF 12" AND MINIMUM WALL THICKNESS OF 1/4".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- SEE SHEET BR6 FOR SECTIONS A-A AND B-B.

No.	Date	Revisions	App.	DRAWING NAME
				CAAP_SPINERD_BRID_ABUT01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

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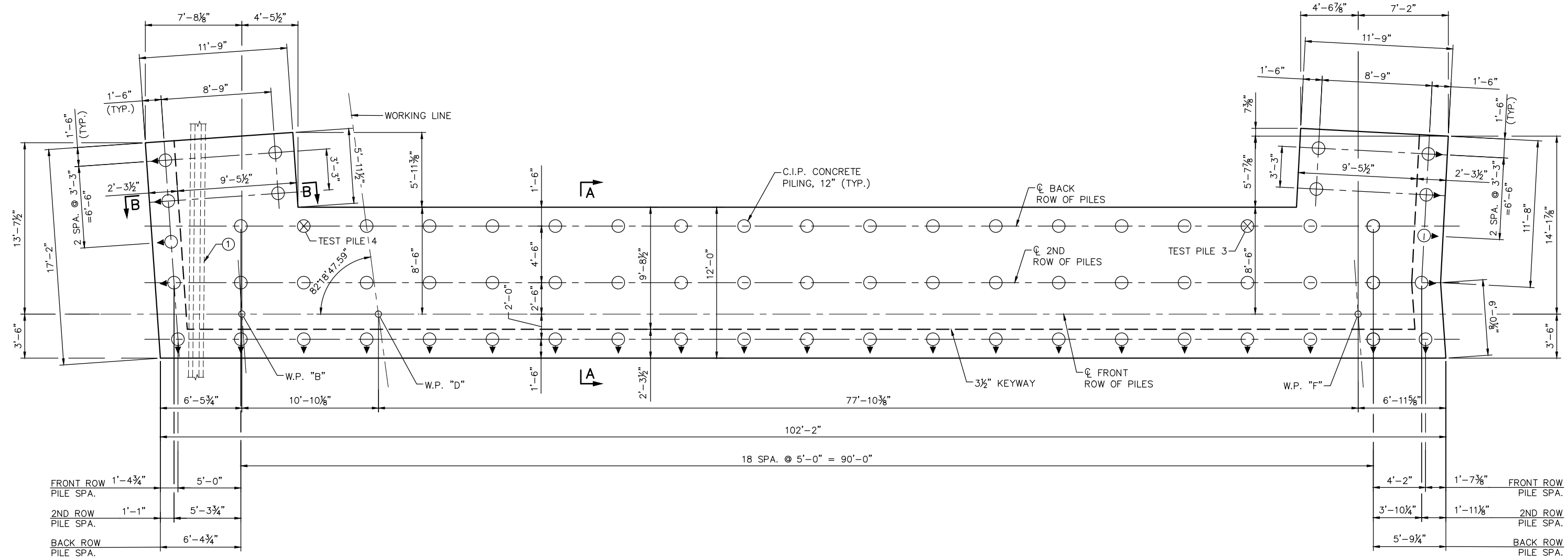
RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 WEST ABUTMENT DETAILS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
BR4
BR15

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP_SPINERD_BRID_ABUT01.dwg East Abut January 08, 2019 - 1:08pm



EAST ABUTMENT FOOTING PLAN

GENERAL PILE NOTES:

- 2 C-I-P CONCRETE TEST PILES 85 FT. LONG
 - 74 C-I-P CONCRETE PILES EST. LENGTH 75 FT.
 - 76 C-I-P CONCRETE PILES REQ'D FOR EAST ABUTMENT
- PILE SPACING IS SHOWN AT BOTTOM OF FOOTING
- PILES MARKED THUS $\odot \rightarrow$ TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO HAVE A NOMINAL DIAMETER OF 12" AND MINIMUM WALL THICKNESS OF 1/4".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- SEE SHEET BR6 FOR SECTIONS A-A AND B-B.
- ① EXISTING 4" UTILITY CASING

No.	Date	Revisions	App.	DRAWING NAME
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				DRAWN BY: PHH
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				DATE: 01/04/19
				PROJECT NO. 160553004

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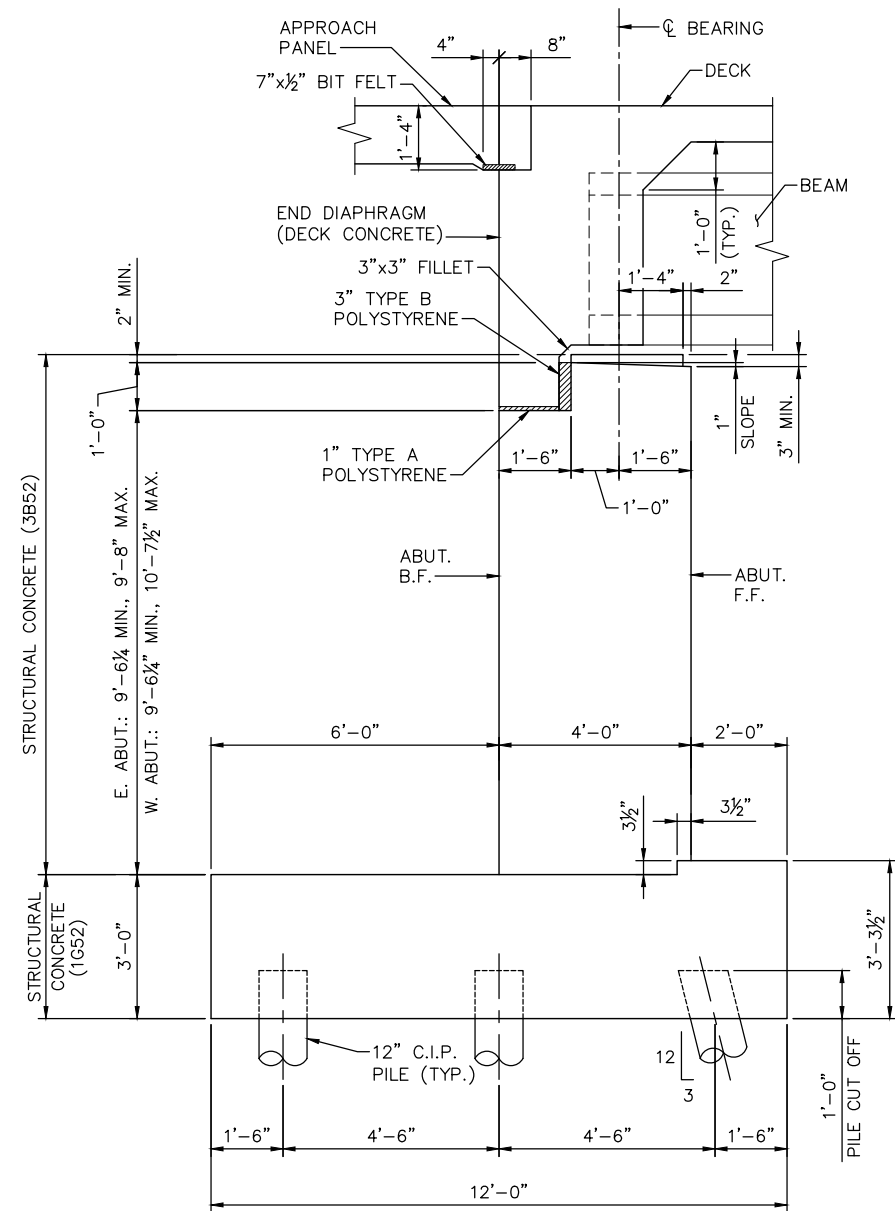
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RAMSEY COUNTY

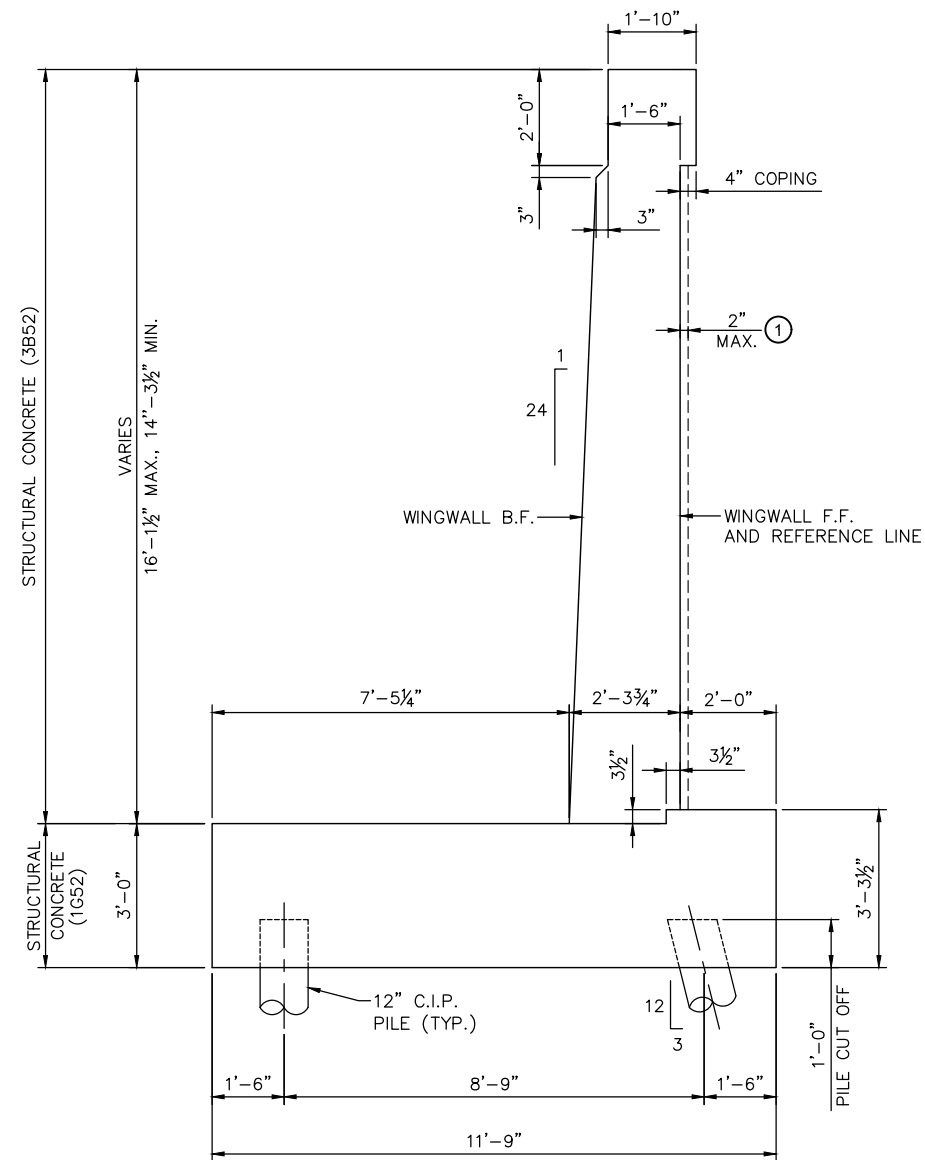
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 EAST ABUTMENT DETAILS

CITY PROJECT	BR5
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
BR15	

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SECTION A-A



SECTION B-B

NOTES:

SEE SHEETS BR4 AND BR5 FOR LOCATIONS OF SECTIONS A-A AND B-B.

① ARCHITECTURAL CONCRETE TEXTURE (TBD), ARCHITECTURAL SURFACE FINISH (SINGLE COLOR), AND ANTI-GRAFFITI COATING.

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				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

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 KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

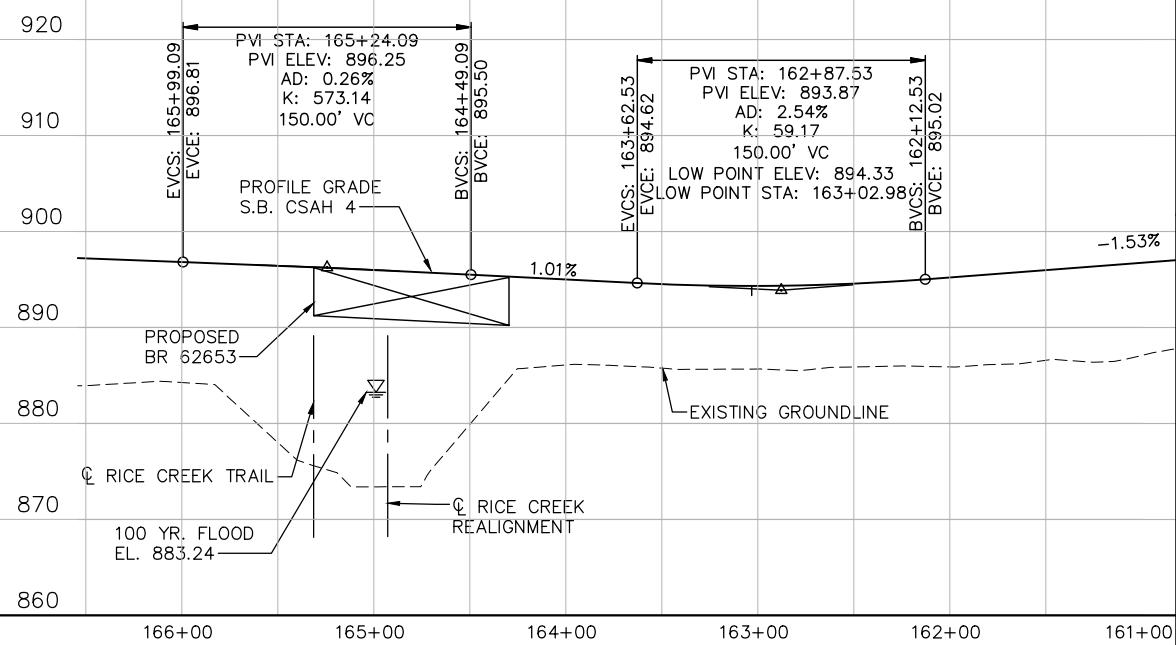
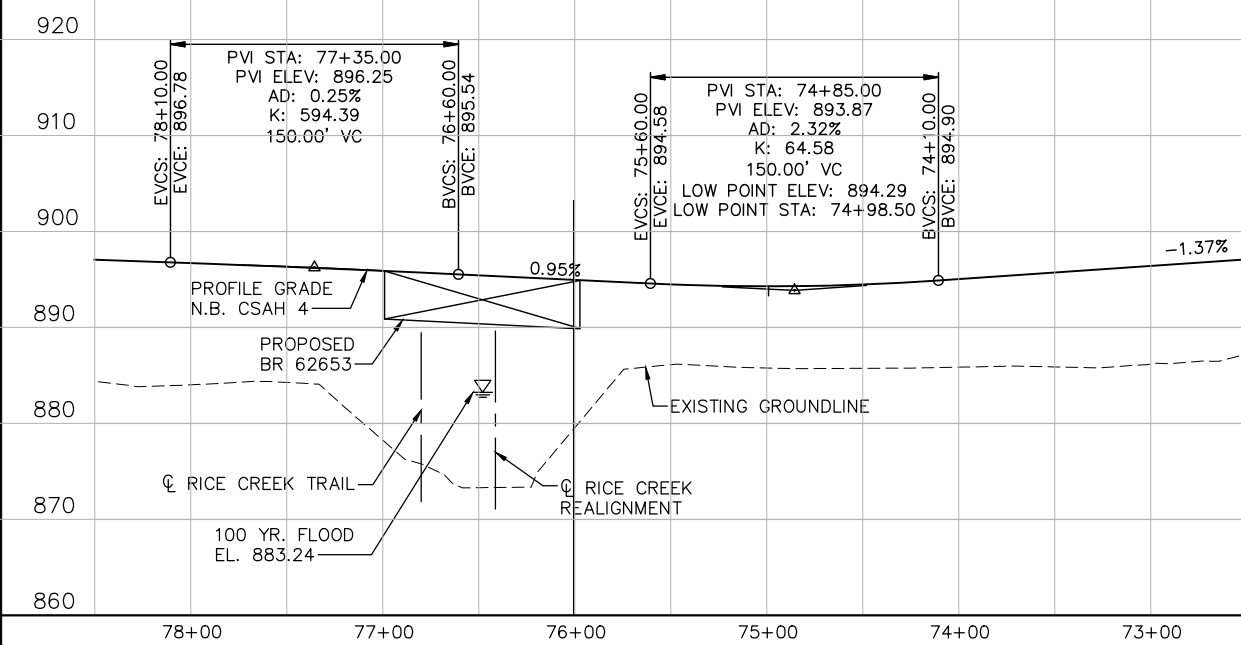
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 ABUTMENT DETAILS

CITY PROJECT	SHEET NO. BR6
COUNTY PROJECT	
S.A.P. 062-593-004	BR15
S.A.P.	

CONTRACTED PROFILE
 SCALE: 0 25' 50' 0 5' 10'
 HORIZONTAL VERTICAL

N.B. CSAH 4 PROFILE

S.B. CSAH 4 PROFILE



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS SLIDING BANKS, RECREATIONAL BOATING.
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY): GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
- APPARENT HIGHWATER ELEVATION OBTAINED FROM:
- OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

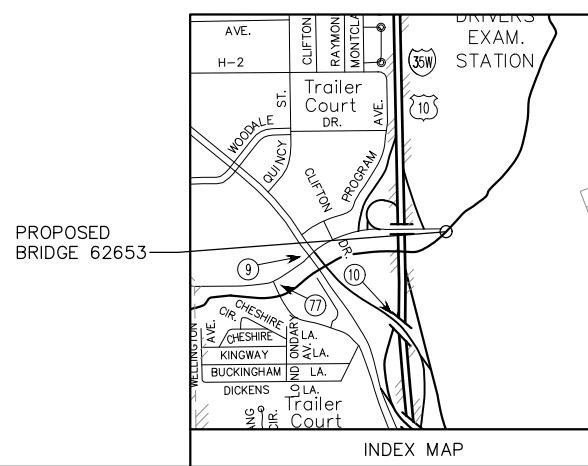
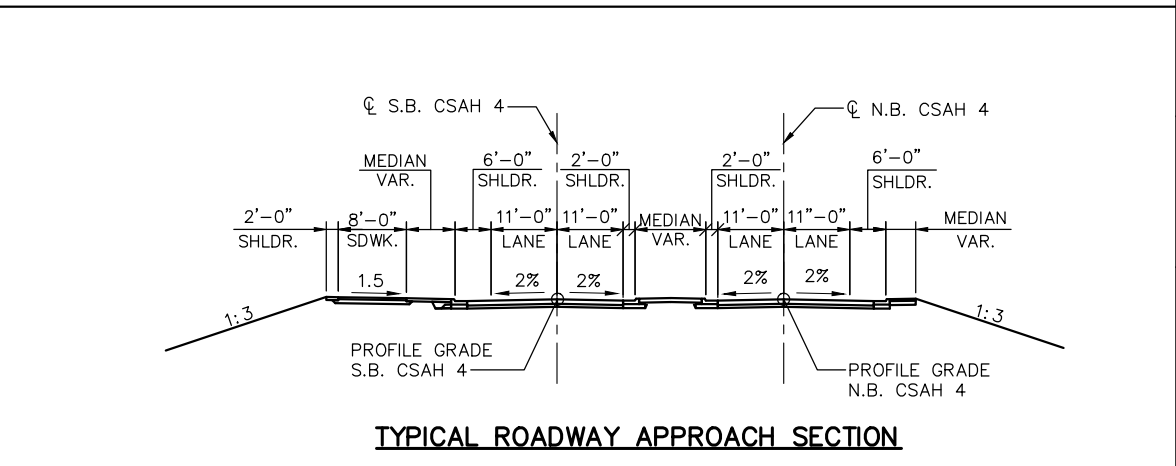
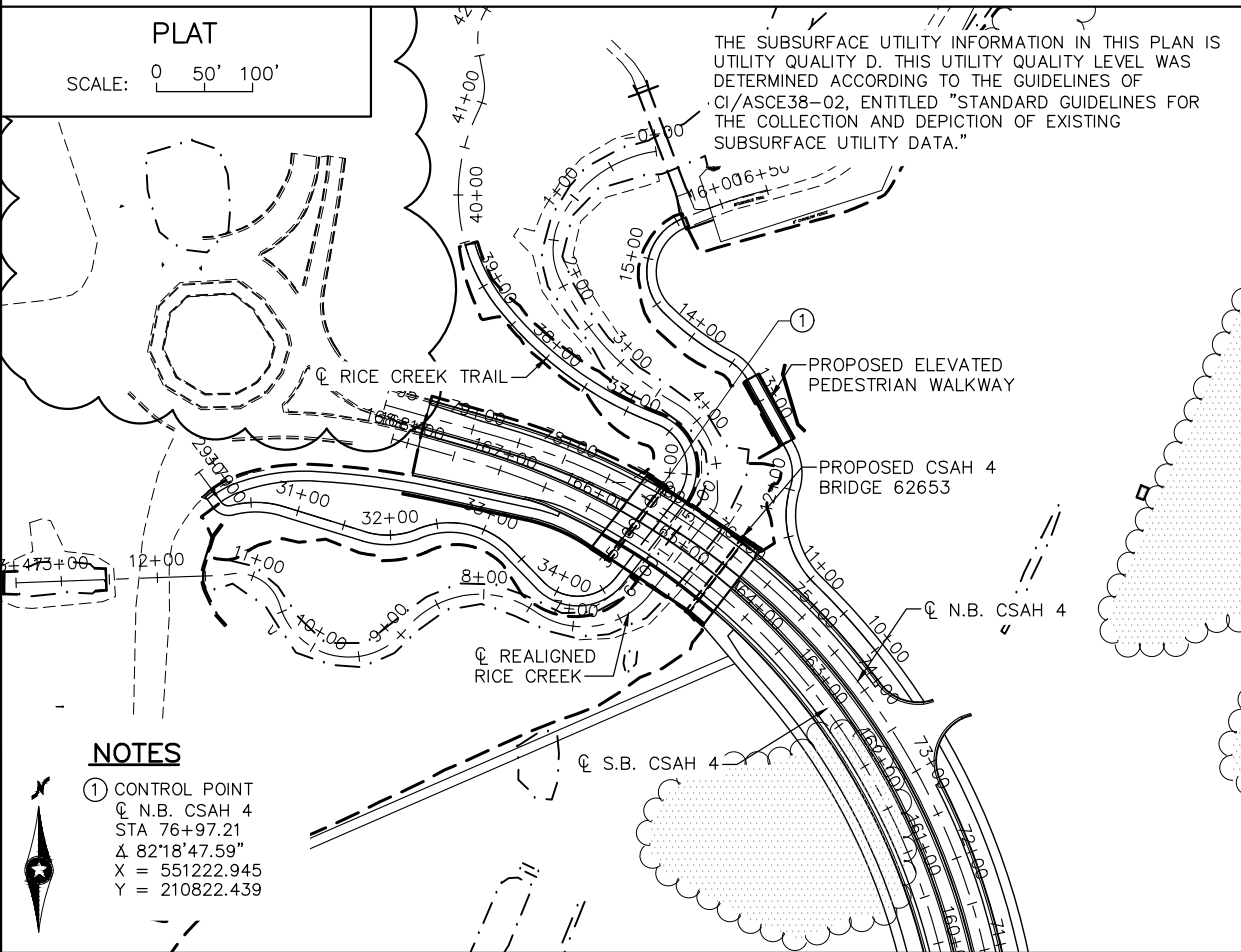
HYDRAULIC ENGINEERS RECOMMENDATION

DATE: 6-25-2015
 STREAM OR DITCH DESIGNATION: RICE CREEK
 DRAINAGE AREA: APPROX 153.1 SQ. MI.
 MAX. FLOOD ON RECORD: XX.X C.F.S. UNKNOWN
 MAXIMUM OBSERVED HIGHWATER ELEVATION: UNKNOWN FT.
 DESIGN FLOOD (100 YR. FREQ.): 819.0 C.F.S.
 HEADWATER EL.: 883.24 FT.
 DESIGN MEAN VELOCITY THROUGH STRUCTURE: 1.5 F.P.S.
 TOTAL STAGE INCREASE: 0.0 FT.
 LOW MEMBER AT OR ABOVE ELEVATION: 889.96 FT.
 WATERWAY AREA REQUIRED BELOW ELEV. 883.24 = NA SQ. FT. AT RIGHT ANGLES TO CHANNEL
 BASIC FLOOD (100 YR. FREQ.): 819.0 C.F.S.
 HEADWATER ELEVATION: 883.24 FT.
 TOTAL STAGE INCREASE: 0.0 FT.
 MEAN VELOCITY THROUGH STRUCTURE: 1.5 F.P.S.
 FLOWLINE ELEVATION: 870.4 FT. SKEW ANGLE: 0°
 ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. N/A (500 OR OT YR. FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE:
 TOTAL SCOUR AT PIER EL. (500 OR OT YR. FREQ.)
 SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM: WENCK ASSOCIATES DATA:
 BENCH MARK ELEVATION: 900.126 (N.A.V.D. 88 ADJ.)
 LOCATION: 0.11 MILES EAST ON COUNTY ROAD H (RICE CREEK NORTH REGIONAL TRAIL PARKING LOT ENTRANCE), 0.05 MILE NORTH-NORTHEAST OF HIGHWAY 10 AND EXISTING RICE CREEK INTERSECTION.



NOTES
 ① CONTROL POINT
 N.B. CSAH 4
 STA 76+97.21
 Δ 82°18'47.59"
 X = 551222.945
 Y = 210822.439

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_SUR01.dwg
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				PROJECT NO. 160553004

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 KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

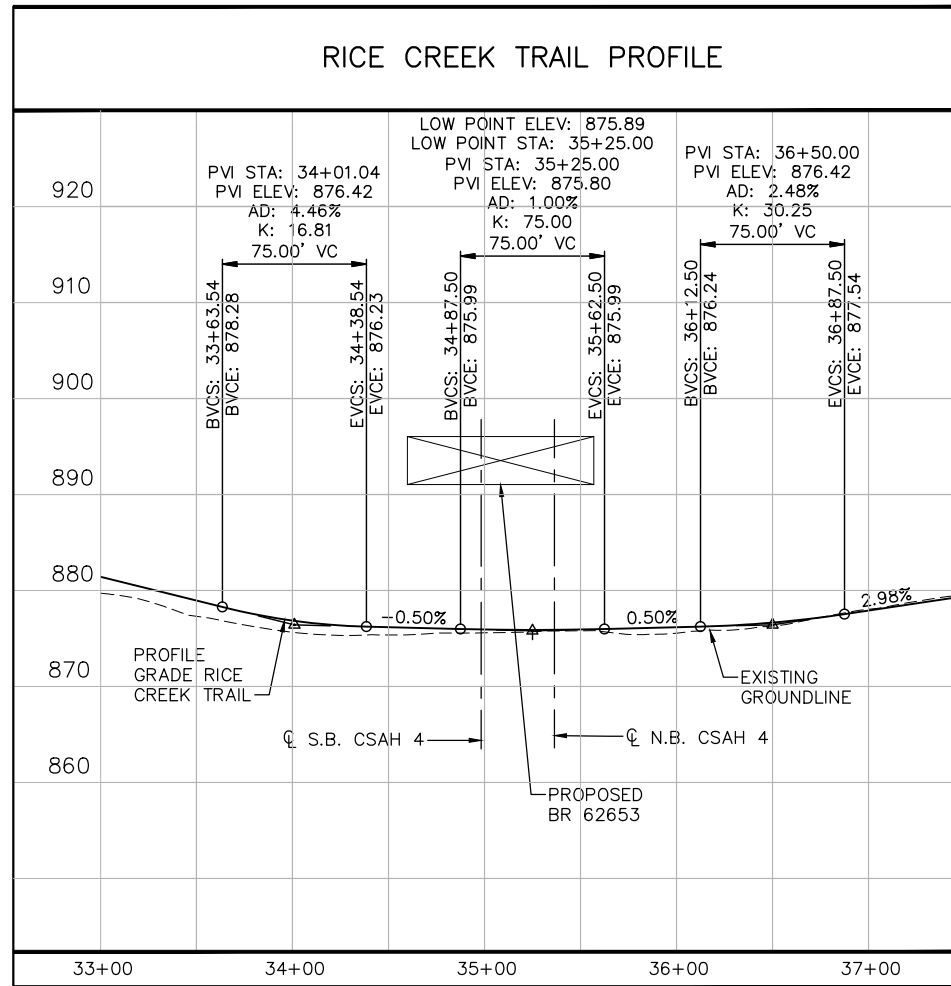
RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BRIDGE SURVEY

CITY PROJECT	SHEET NO. BR7 BR15
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

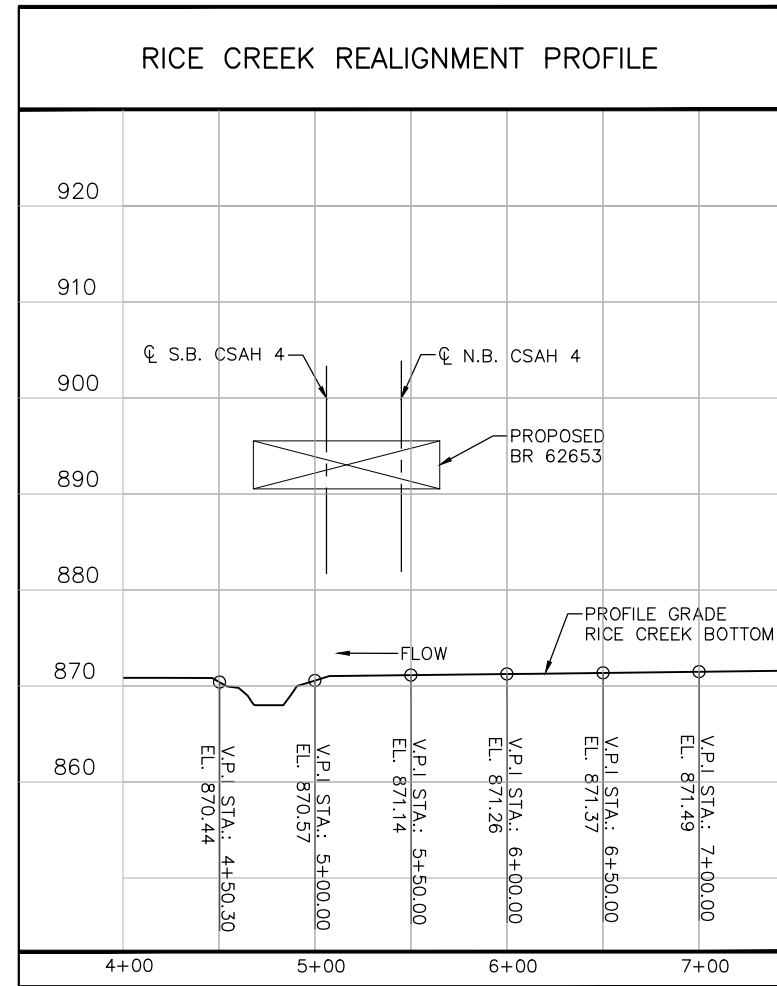
K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridges\TCAAP_SPINERD_BRID_SUR01.dwg SUR01 January 08, 2019 - 1:02pm

CONTRACTED PROFILE
 SCALE: 0 25' 50' 0 5' 10'
 HORIZONTAL VERTICAL

RICE CREEK TRAIL PROFILE



RICE CREEK REALIGNMENT PROFILE



K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP_SPINERD_BRID_SUR02.dwg SUR02 January 08, 2019 - 1:02pm

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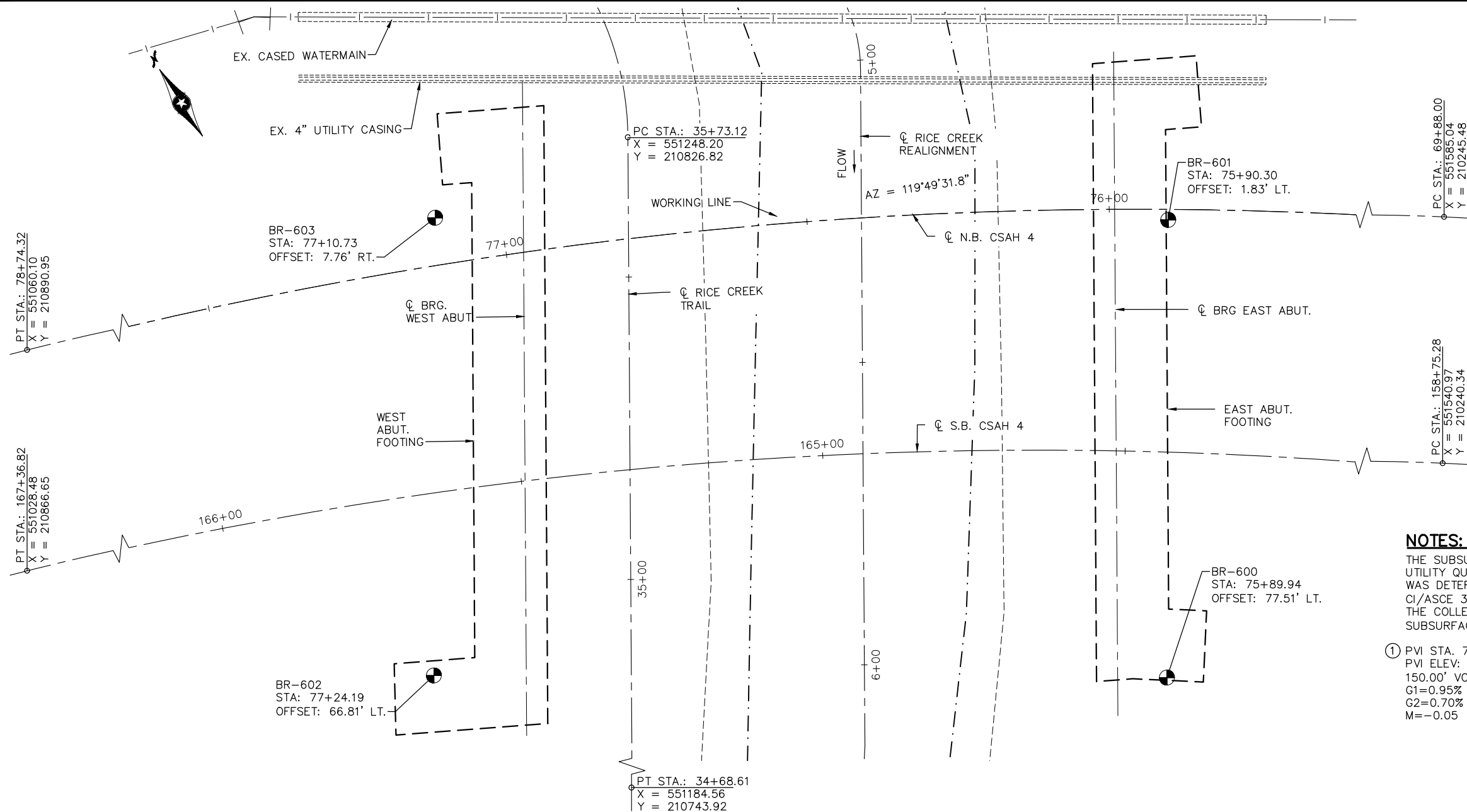
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BRIDGE SURVEY

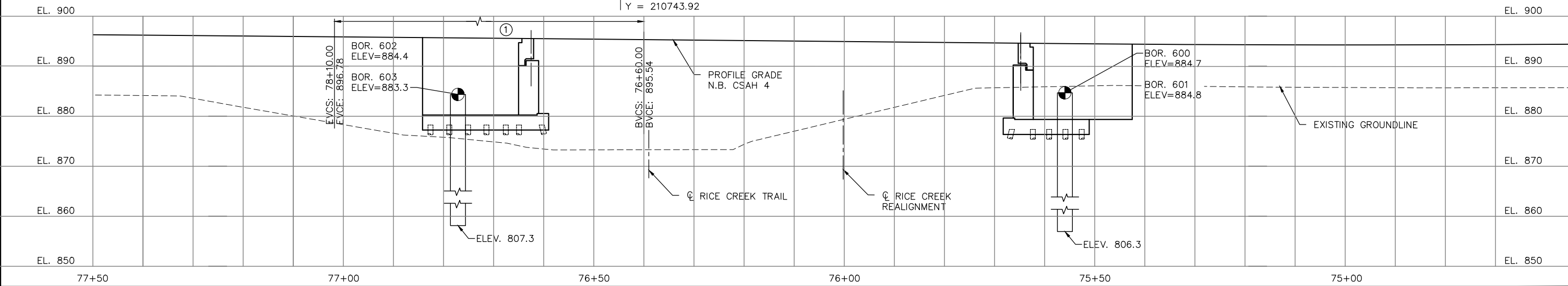
CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
BR8
BR15

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP_SPINERD_BRID_BOR01.dwg PLAN & ELEV January 08, 2019 - 1:03pm



- NOTES:**
 THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
- ① PVI STA. 77+35.00
 PVI ELEV: 896.25
 150.00' VC
 G1=0.95%
 G2=0.70%
 M=-0.05



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BRID_BOR01.dwg	
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CHECKED BY:	
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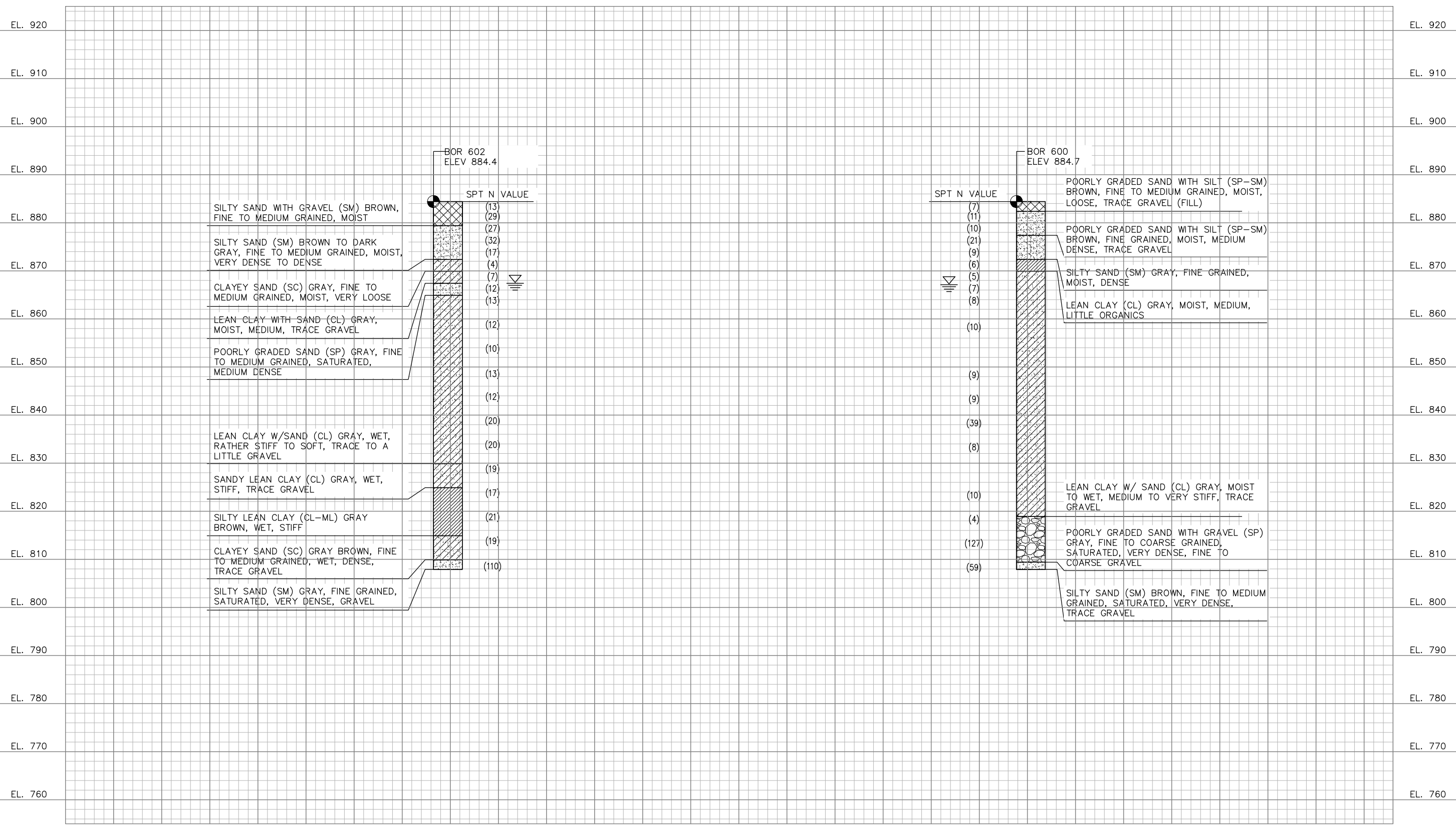
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RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BORINGS

CITY PROJECT	SHEET NO. BR9
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

BR15

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_BRID_BOR02.dwg
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DATE:	01/04/19
PROJECT NO.	160553004

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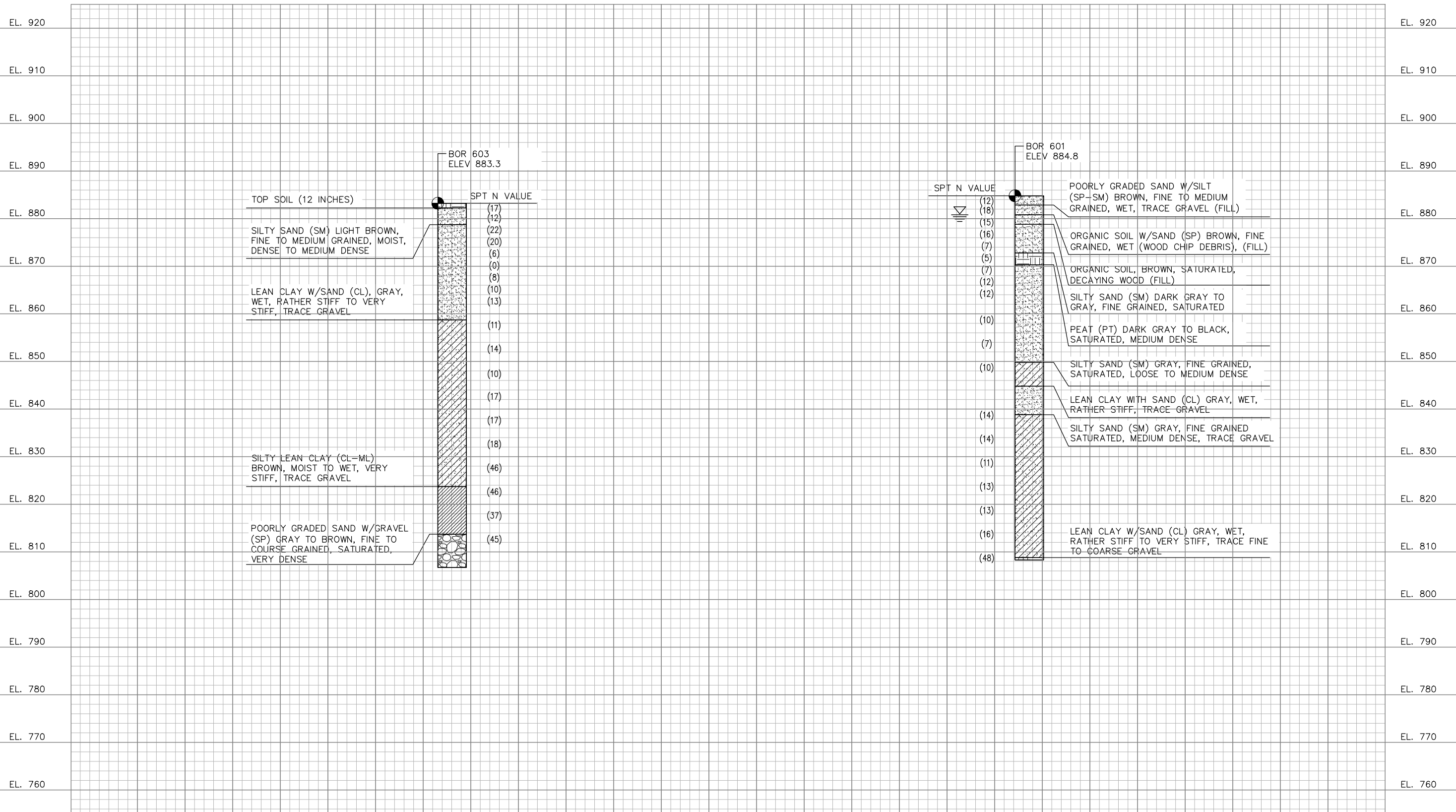
KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BORINGS

CITY PROJECT	SHEET NO. BR10 BR15
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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No.	Date	Revisions	App.

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DATE:	01/04/19
PROJECT NO.	160553004

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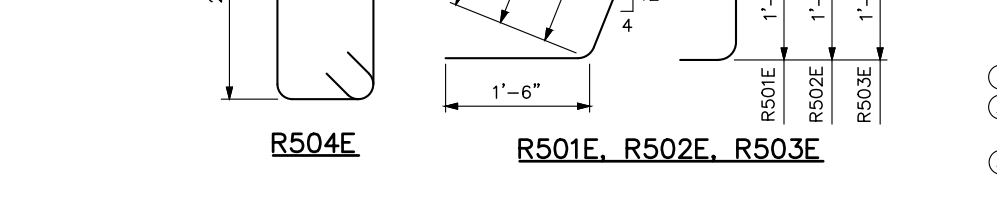
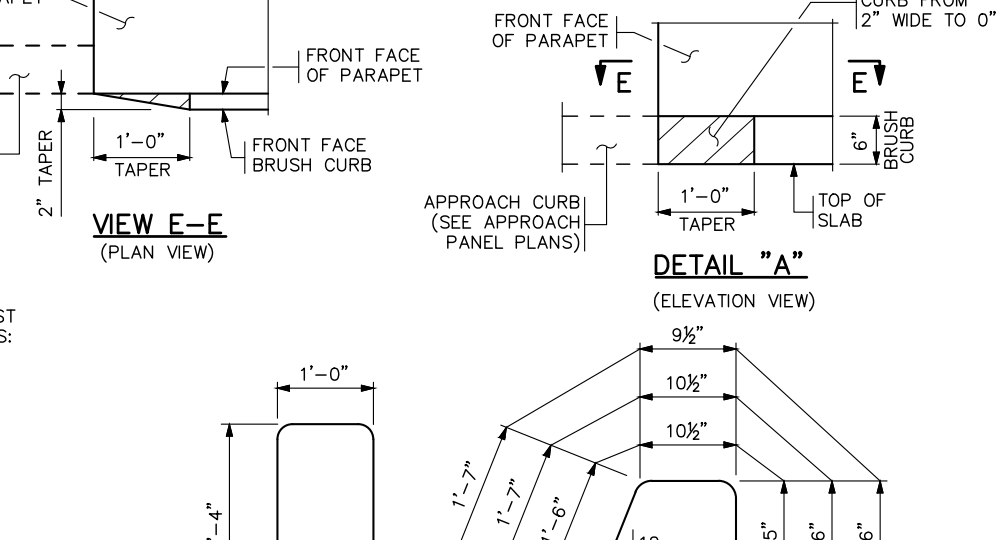
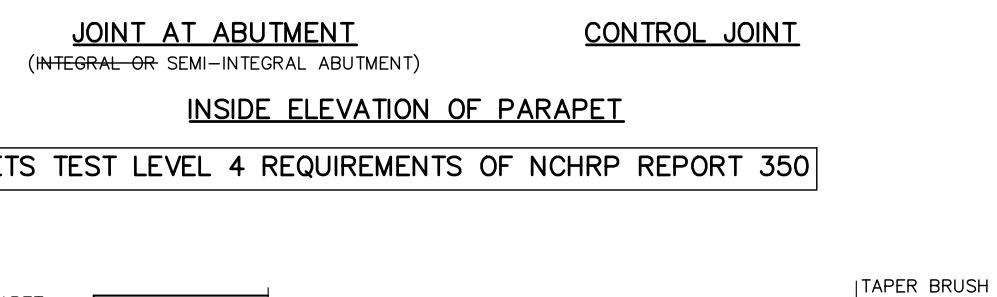
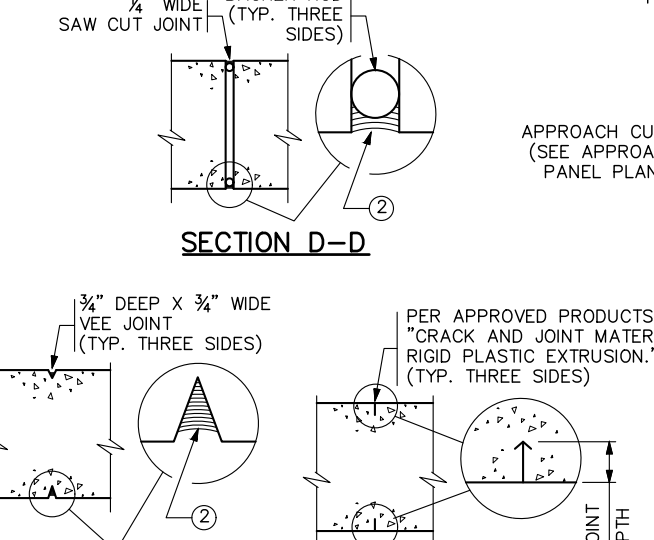
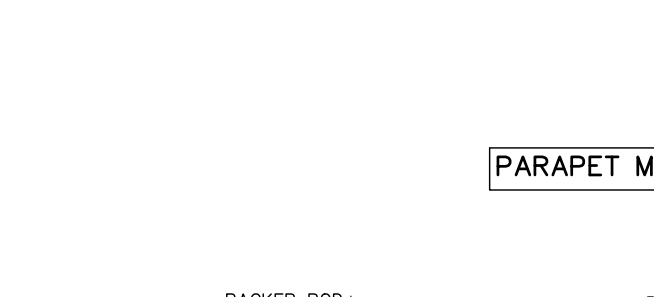
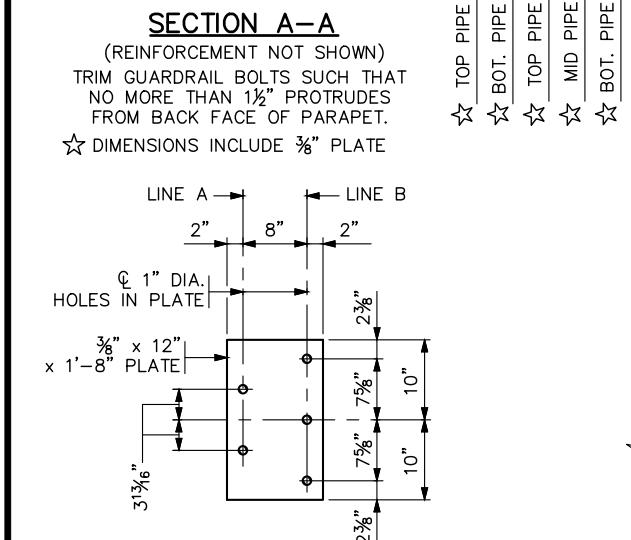
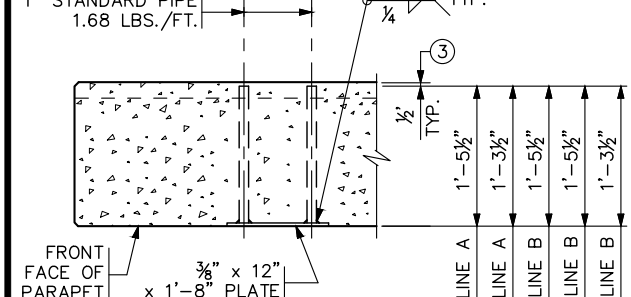
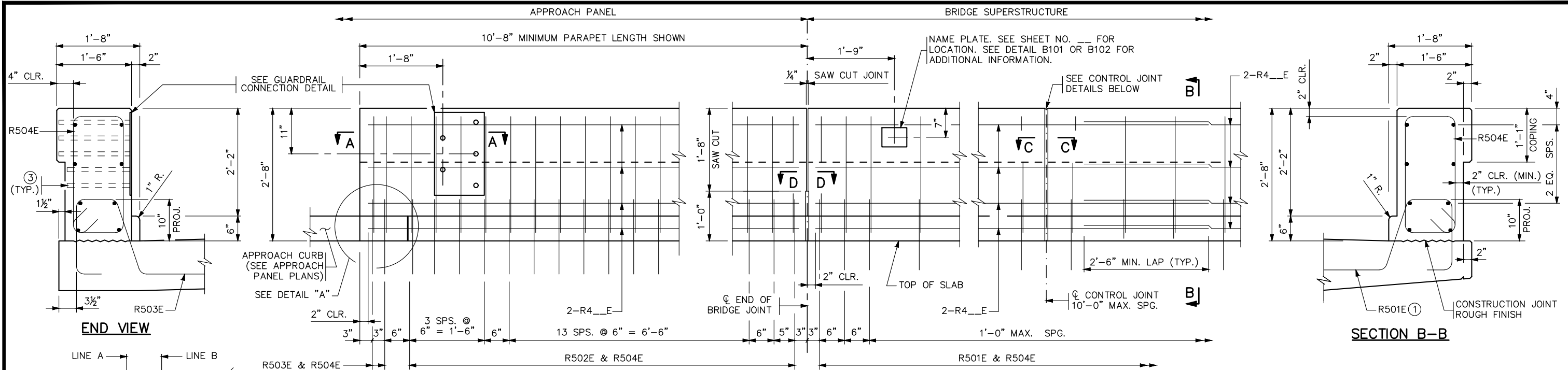
KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 BORINGS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.
BR11
BR15

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridges\TCAAP_SPINERD_BRID_BAR01.dwg P-4 PARAPET January 08, 2019 - 1:03pm



GENERAL NOTES

- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE FACES OF THE PARAPET.
- CONCRETE PARAPET = 572 LBS./FT. (0.141 CU. YDS./FT.)
- FINISH ALL EDGES OF PARAPET WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
- SPACE CONTROL JOINTS AT 10 FT. MAXIMUM. REFER TO SUPERSTRUCTURE SHEET FOR SPECIFIC SPACING INFORMATION.
- GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.
- GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO PARAPET.
- PARAPET QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT IN DECK.
 ② JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
 ③ REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.

PARAPET MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

REVISED:
 APPROVED: FEBRUARY 22, 2018
 Kevin Westrom
 STATE BRIDGE ENGINEER

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_BAR01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
 PHONE: 651-645-4197
 WWW.KIMLEY-HORN.COM

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

KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY

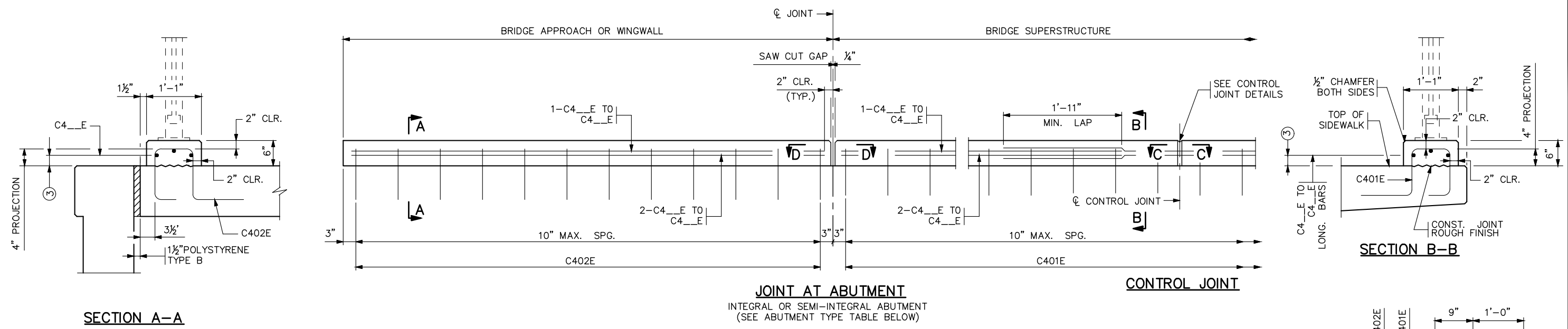
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 CONCRETE PARAPET

CITY PROJECT	BR12	SHEET NO.
COUNTY PROJECT		BR15
S.A.P.	062-593-004	
S.A.P.		

FIG. 5-397.173(A)

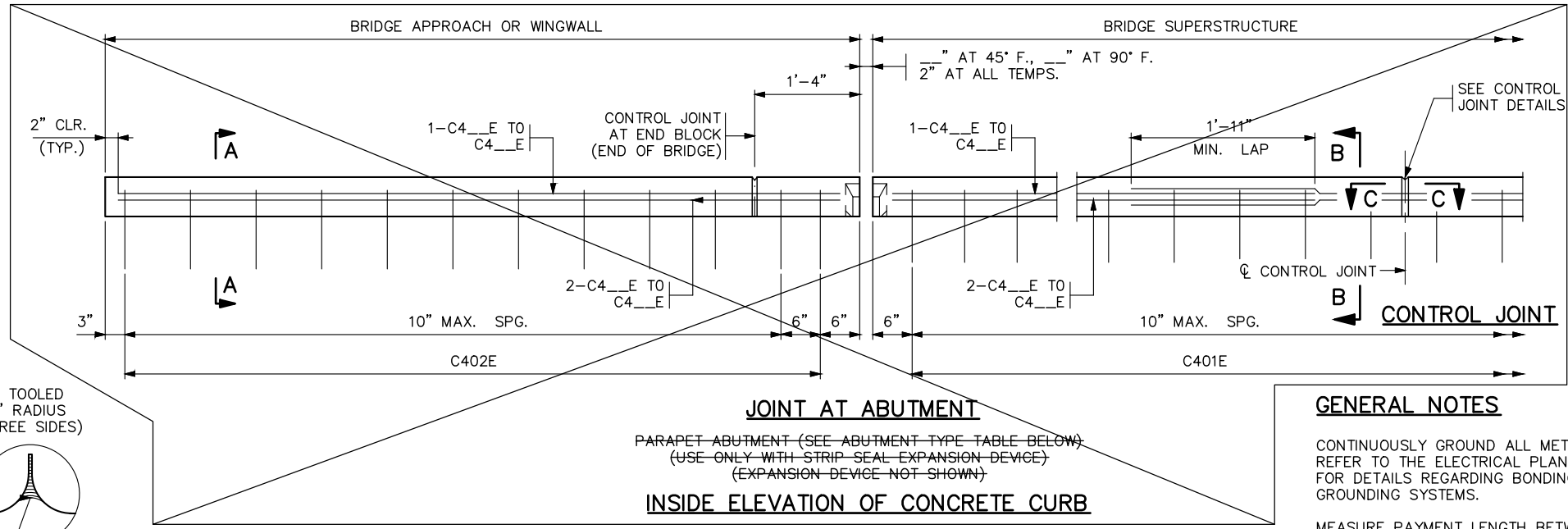
CODE 68

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan_Sheets\Bridges\SPINERD_BRID_BAR01.dwg CONCRETE CURB January 08, 2019 - 1:03pm

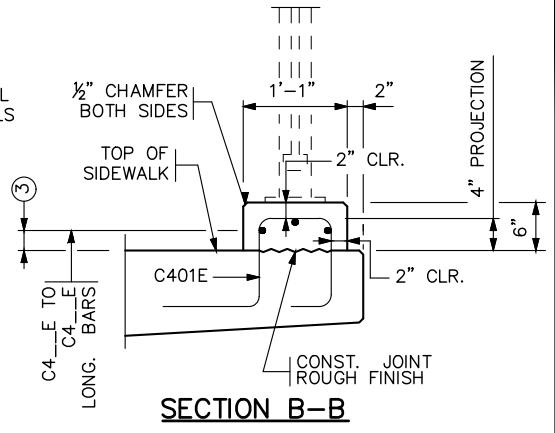


SECTION A-A

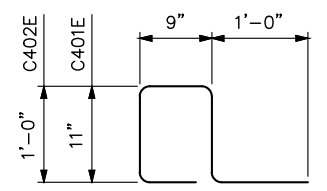
INSIDE ELEVATION OF CONCRETE CURB



CURB DOES NOT MEET CRASH TEST REQUIREMENTS OF NCHRP REPORT 350 OR MASH

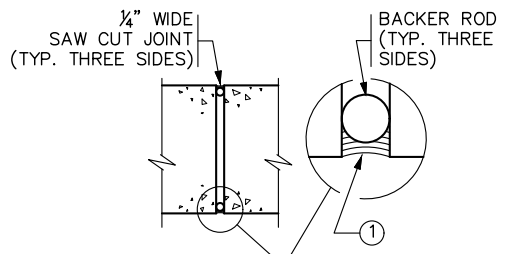


SECTION B-B

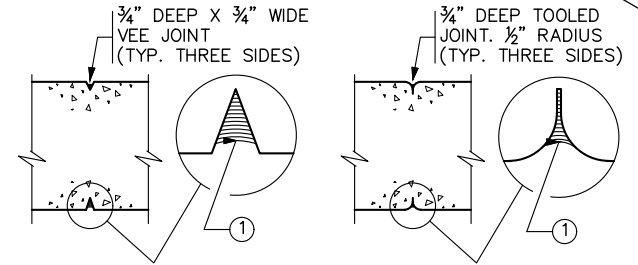


C401E, C402E

BILL OF REINFORCEMENT FOR CURB				
BAR	NO.	LENGTH	SHAPE	LOCATION
C401E		4'-2"		CURB BASE VERTICAL
C402E		4'-4"		CURB BASE VERTICAL
C4_E				CURB BASE LONGIT.
C4_E				CURB BASE LONGIT.
C4_E				CURB BASE LONGIT.



SECTION D-D



SECTION C-C

SECTION C-C

CONTRACTOR OPTION 1 CONTRACTOR OPTION 2
CONTROL JOINT DETAILS

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)

ABUTMENT TYPE
INTEGRAL OR SEMI-INTEGRAL ABUTMENT <input checked="" type="checkbox"/>
PARAPET ABUTMENT <input type="checkbox"/>

GENERAL NOTES

- CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.
- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE CONCRETE CURB.
- CONCRETE CURB = 81 LBS./FT. (0.020 CU. YDS./FT.)
- FINISH ALL EDGES OF CURB WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONTROL JOINTS ON SUPERSTRUCTURE, APPROACH AND WINGWALL IS 10 FT. SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- CONCRETE CURB QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
- ② REFER TO STANDARD FIGURE 5-397.632 FOR COVER PLATE DETAILS.
- ③ TO MAXIMIZE CLEARANCES FOR ANCHORAGES, PLACE TOP OF OUTSIDE LONGITUDINAL BARS 2" FROM DECK SURFACE (TYP.).

REVISION: 08-24-2016
APPROVED: NOVEMBER 6, 2013
Lynn Weston
STATE BRIDGE ENGINEER

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_BAR01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

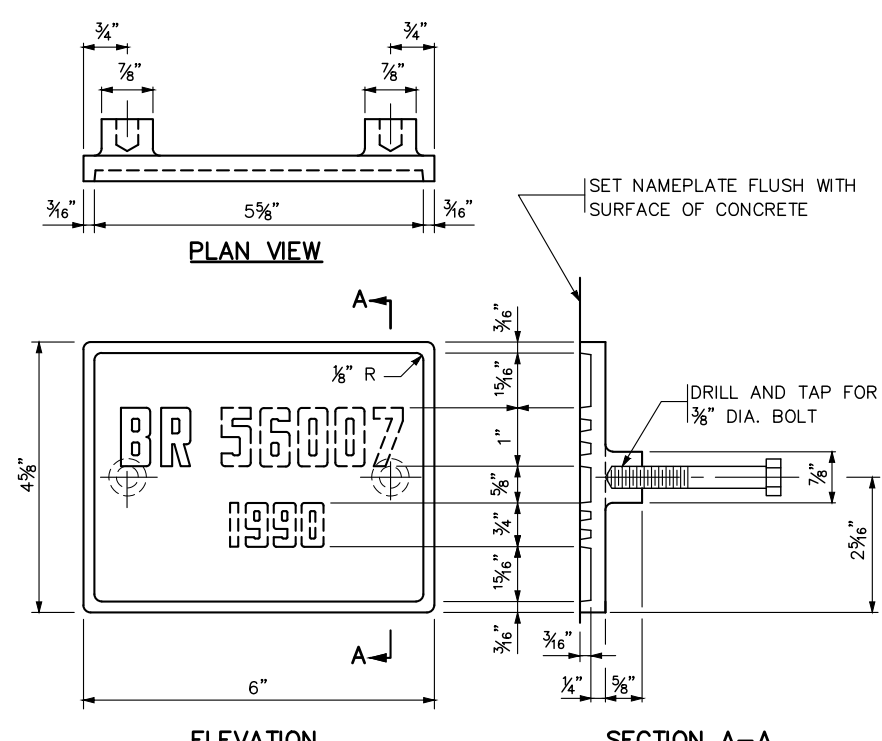
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
KATHRYN ELLIS, P.E.
DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
BRIDGE 62653
CONCRETE CURB

CITY PROJECT	SHEET NO.
COUNTY PROJECT	BR13
S.A.P. 062-593-004	
S.A.P.	BR15

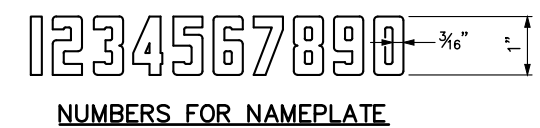
FIG. 5-397.167

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP_SPINERD_BRID_DET.dwg B101 & B201 January 08, 2019 -- 1:03pm



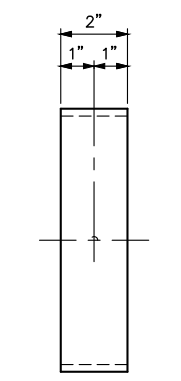
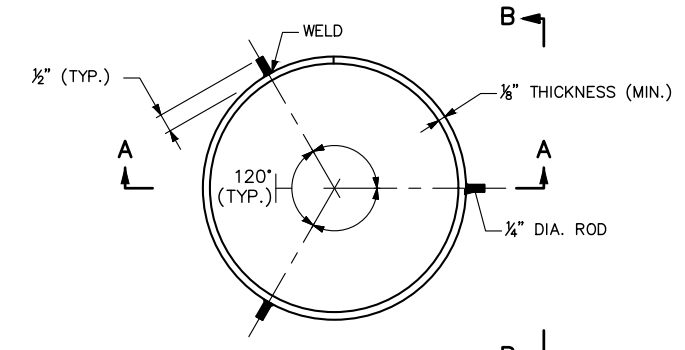
THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 62653
YEAR 20XX

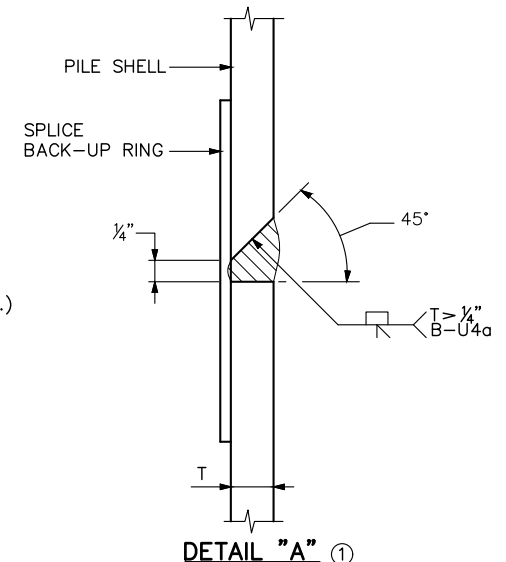
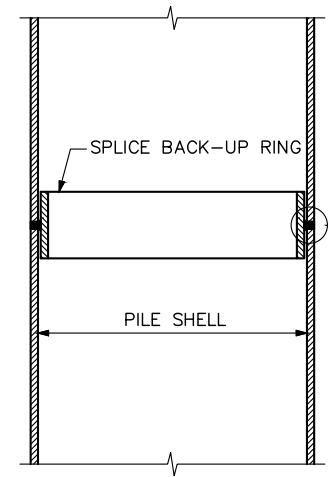


NOTES:
MATERIAL SHALL COMPLY WITH SPEC. 3327.
LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002 <i>Daniel A. Johnson</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE (FOR NEW BRIDGES)	REVISION 09-11-2014	DETAIL NO. B101
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PLAN VIEW - SPLICE BACK-UP RING
PILE NOT SHOWN



SECTION A-A

DETAIL "A" ①

NOTES:
APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED, PROVIDED THAT 1/4" ROOT IS MAINTAINED. BACK-UP RING SHALL HAVE A TIGHT FIT.
WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

① FOR PILE SHELL THICKNESSES GREATER THAN 1/4", USE A B-U4a WELD CONFIGURATION. SEE DETAIL "A".

APPROVED: NOVEMBER 22, 2002 <i>Daniel A. Johnson</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION PILE SPLICE (CAST-IN-PLACE CONCRETE PILES)	REVISION: 11-06-2013	DETAIL NO. B201
--	--	-------------------------	---------------------------

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BRID_DET.dwg
DESIGNED BY: SSB
DRAWN BY: PHH
CHECKED BY:
DATE: 01/04/19
PROJECT NO. 160553004

Kimley»Horn
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

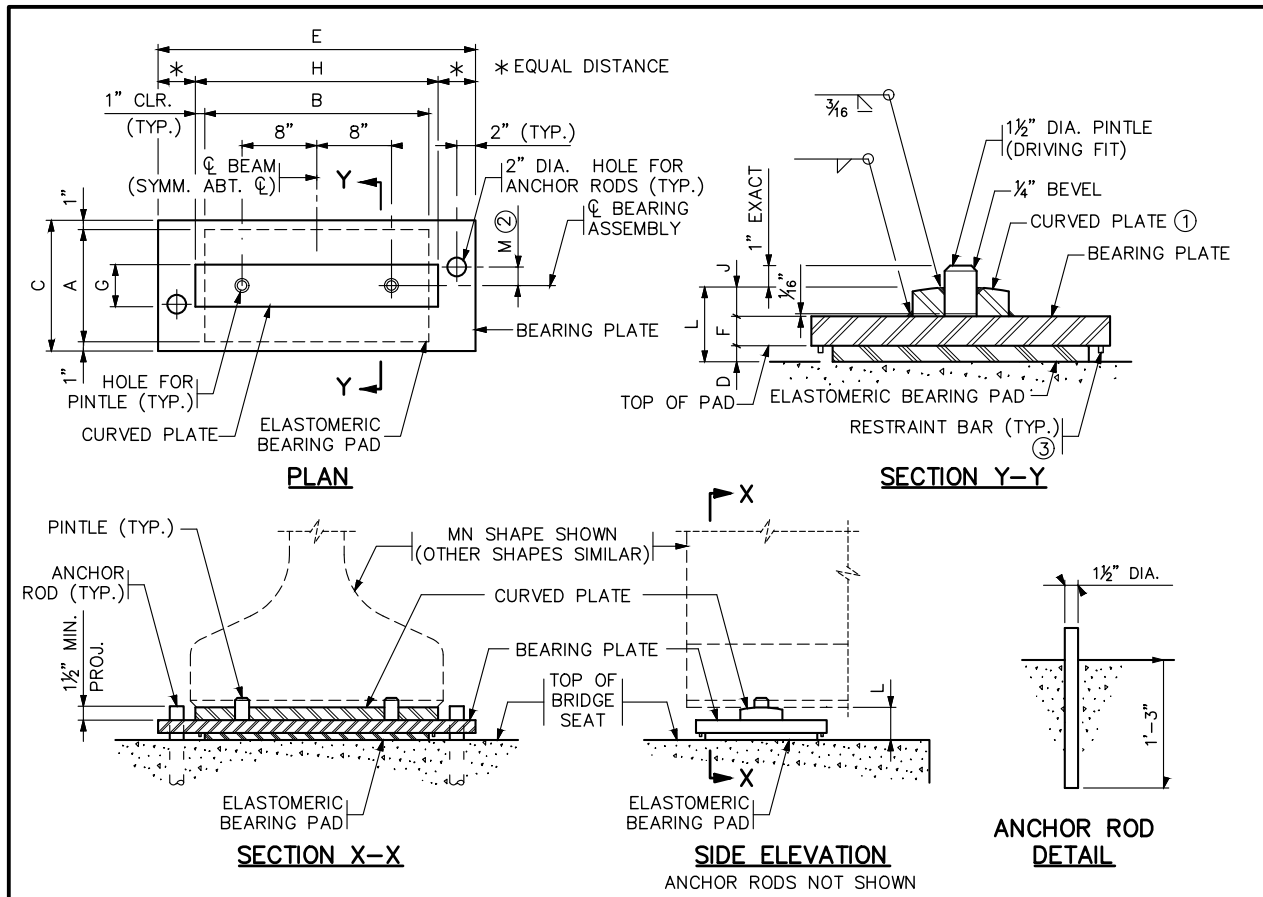
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
KATHRYN ELLIS, P.E.
DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
BRIDGE 62653
B-DETAILS

CITY PROJECT	SHEET NO. BR14
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

BR15

K:\TWC_Civil\County\RAMSEY\TCAAP_Spine Rd BP2\CAD\Plan Sheets\Bridg\TCAAP_SPINERD_BRID_DET.dwg B310 & B311 January 08, 2019 - 1:03pm



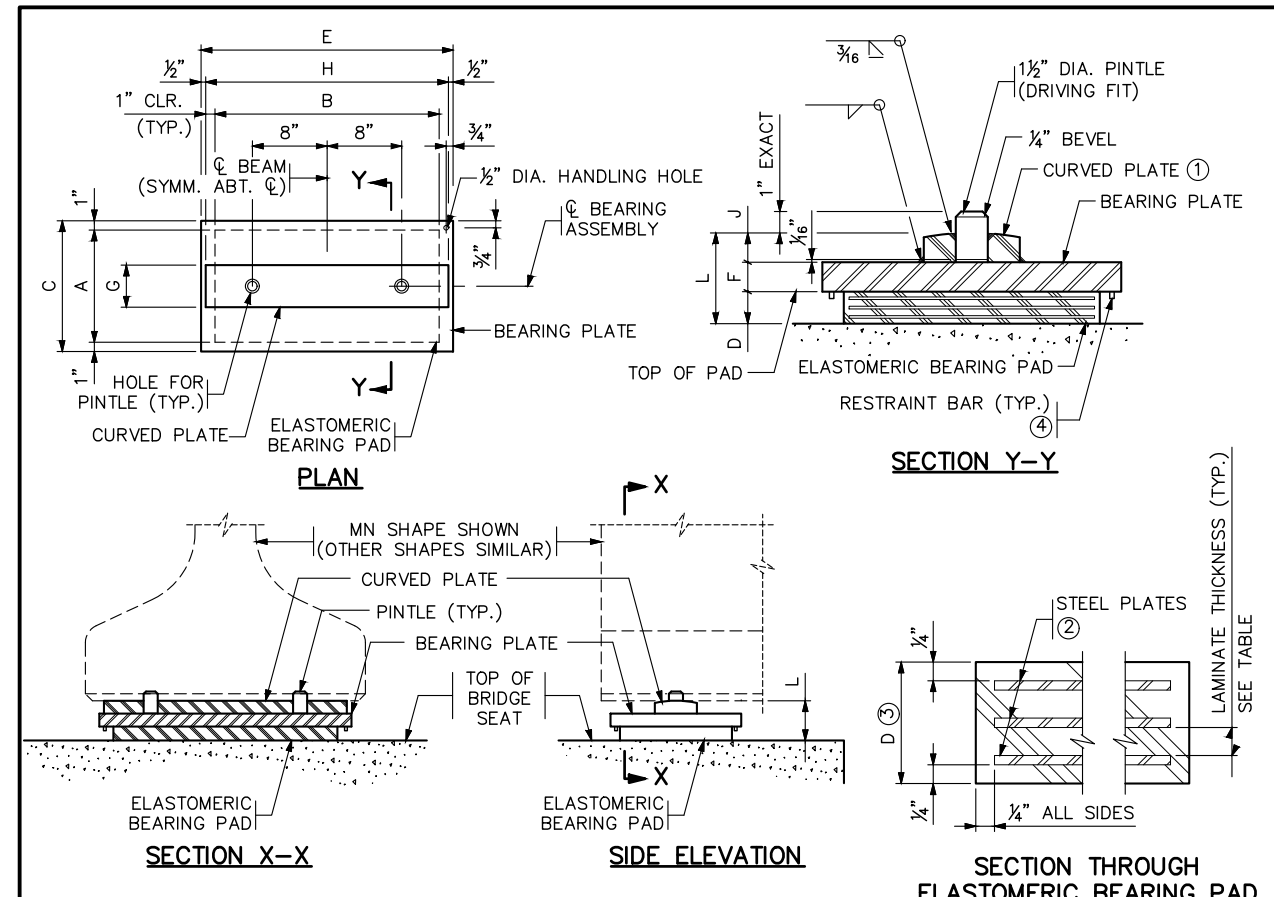
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE				ANCHOR ROD OFFSET			ASSY. HEIGHT L	RESTRAINT PATTERN ③
			A	B	D		C	E	F	G	H	J	R ①	+/- ②	M			

NOTES:
 PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741. ③ REFER TO BEARING PAD RESTRAINT B-DETAIL FOR ADDITIONAL INFORMATION AND DETAILS.
 PROVIDE STEEL PLATES PER SPEC. 3306.
 PROVIDE ANCHOR RODS PER SPEC. 3306. GALVANIZE PER SPEC. 3394.
 PROVIDE PINTLES PER SPEC. 3309.
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.
 PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.
 ② "+." DENOTES OFFSET AS SHOWN. "-." DENOTES OFFSET OPPOSITE OF SHOWN.

DESIGN DATA:
 MAX. FACTORED SHEAR RESISTANCE:
 - 50.3 KIPS PER 1 1/2" DIA. PINTLE
 - 36.2 KIPS PER 1 1/2" DIA. ANCHOR ROD

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 11-06-2013 11-03-2015 01-05-2017 11-02-2017 11-08-2018	DETAIL NO. B310
CURVED PLATE BEARING ASSEMBLY (PRESTRESSED CONCRETE BEAMS) (FIXED)			



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES NO. THICK.	LAMINATES NO. THICK.	SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE				ASSY. HEIGHT L	RESTRAINT PATTERN ④
			A	B	D				C	E	F	G	H	J	R ①		

NOTES:
 PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741. ② THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.
 PROVIDE STEEL PLATES PER SPEC. 3306. ③ DO NOT GALVANIZE THESE PLATES.
 PROVIDE PINTLES PER SPEC. 3309. ④ REFER TO BEARING PAD RESTRAINT B-DETAIL FOR ADDITIONAL INFORMATION AND DETAILS.
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.
 PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

DESIGN DATA:
 MAX. FACTORED SHEAR RESISTANCE:
 - 50.3 KIPS PER 1 1/2" DIA. PINTLE

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 11-03-2015 11-02-2017 11-08-2018	DETAIL NO. B311
CURVED PLATE BEARING ASSEMBLY (PRESTRESSED CONCRETE BEAMS) (EXPANSION)			

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_DET.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
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KATHRYN ELLIS, P.E.
 DATE: 01/04/19 MN LIC. NO. 55462

RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS
 BRIDGE 62653
 B-DETAILS

CITY PROJECT	BR15
COUNTY PROJECT	
S.A.P. 062-593-004	BR15
S.A.P.	