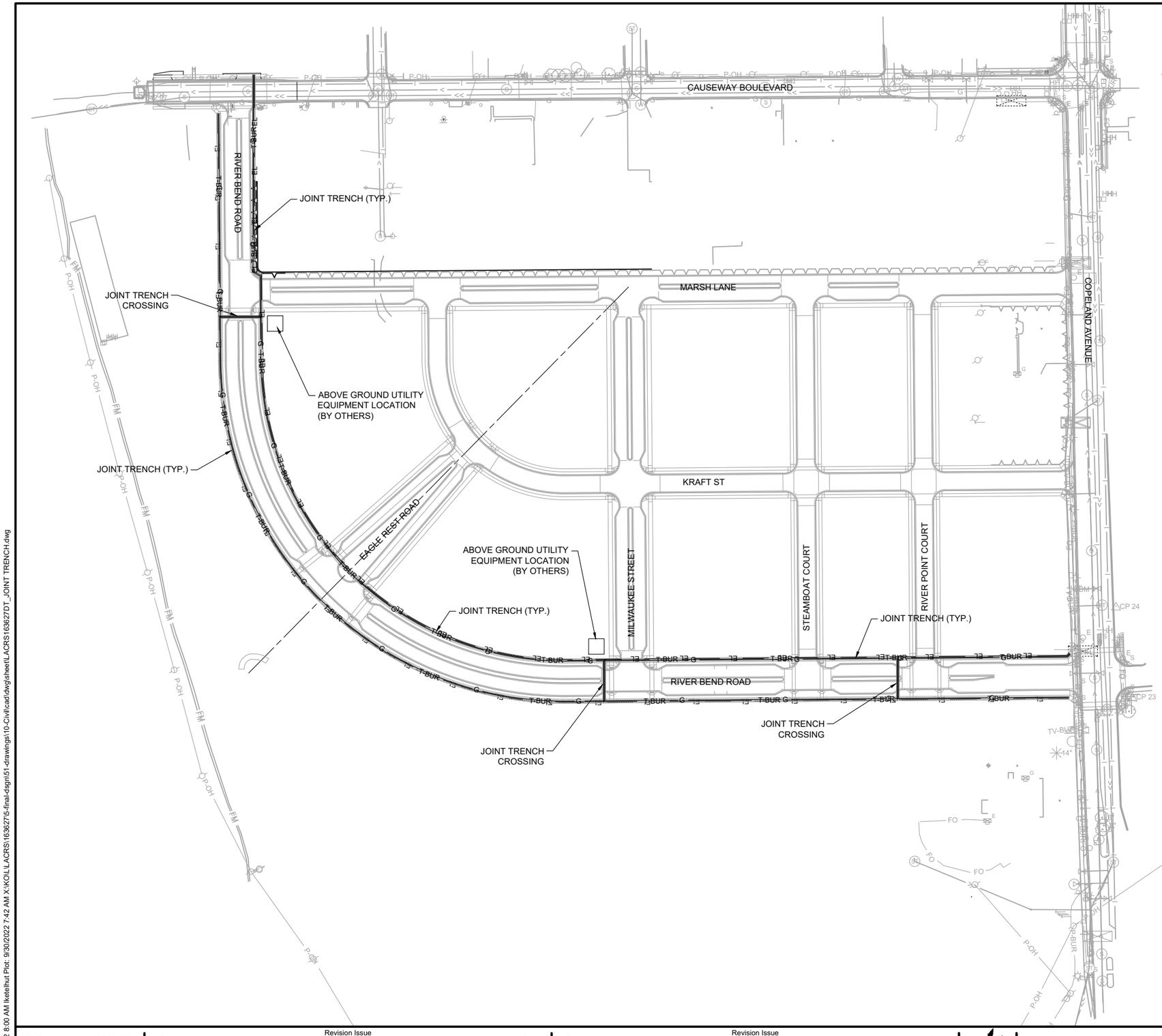


N

100 0 100 200

scale 50 feet

NOTES:

1. WORK ASSOCIATED WITH "CONDUIT SYSTEM (2-INCH CITY FIBER)" SHALL INCLUDE ITEMS SHOWN ON THE JOINT TRENCH PLAN AND SHALL REFERENCE SPECIFICATION SECTION 26 56 19. WHERE CONFLICTING INFORMATION EXISTS BETWEEN JOINT TRENCH PLAN AND SPECIFICATION, JOINT TRENCH PLAN SHALL TAKE PRECEDENCE.

2. JOINT TRENCH PLAN IS A SCHEMATIC REPRESENTATION OF PROPOSED GAS, ELECTRIC, AND COMMUNICATIONS INFRASTRUCTURE. ACTUAL LOCATIONS OF ABOVE AND BELOW GROUND INFRASTRUCTURE MAY BE ADJUSTED IN THE FIELD.

3. CONTRACTOR SHALL NOTIFY XCEL ENERGY GAS WHEN TRENCH BOTTOM IS AT GRADE. SEE SHEET C0.01 FOR UTILITY CONTACT INFORMATION.

4. CONTRACTOR SHALL LEAVE THE TRENCH OPEN FOR A MINIMUM OF THREE BUSINESS DAYS FROM TIME OF NOTIFICATION TO ALLOW XCEL ENERGY GAS TO INSTALL NECESSARY INFRASTRUCTURE.

5. CONTRACTOR SHALL BACKFILL TRENCH 6" OVER GAS MAIN.

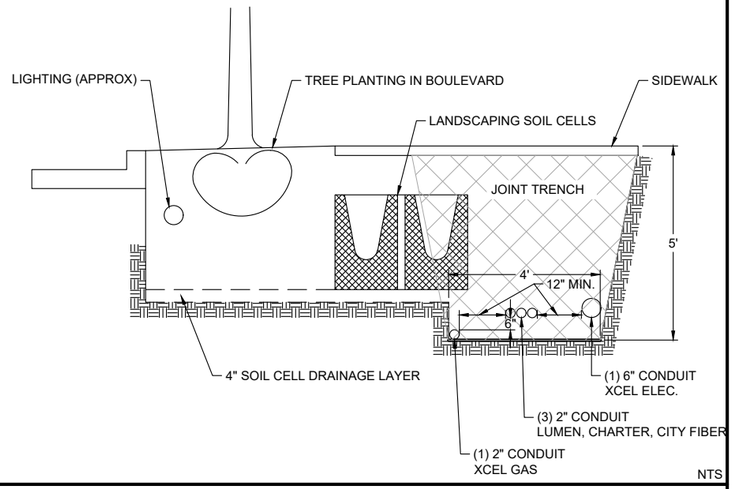
6. CONTRACTOR SHALL NOTIFY XCEL ENERGY ELECTRIC , LUMEN, AND CHARTER WHEN TRENCH HAS BEEN BACKFILLED 6" OVER GAS. SEE SHEET C0.01 FOR UTILITY CONTACT INFORMATION.

7. CONTRACTOR SHALL LEAVE THE TRENCH OPEN FOR A MINIMUM OF FIVE BUSINESS DAYS FROM TIME OF NOTIFICATION TO ALLOW REMAINING UTILITIES TO INSTALL NECESSARY INFRASTRUCTURE.

8. CONTRACTOR SHALL INSTALL (1) 2-INCH CONDUIT IN CENTER OF TRENCH TO BE UTILIZED FOR FUTURE CITY OF LA CROSSE FIBER OPTIC CABLE.

9. JOINT TRENCH COORDINATION IS INCIDENTAL TO "CONDUIT SYSTEM (2-INCH CITY FIBER)"

JOINT TRENCH DETAIL



NTS

SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

Rev.#	Revision Issue Description	Date
1	RELEASED FOR PERMITTING	03.17.2022
2	RELEASED FOR BIDDING	06.03.2022
3	RELEASED FOR REBID	07.29.2022
4	REVISED FOR CONSTRUCTION	09.30.2022

Rev.# | Revision Issue Description | Date

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

JOINT TRENCH PLAN OVERVIEW

C2.31

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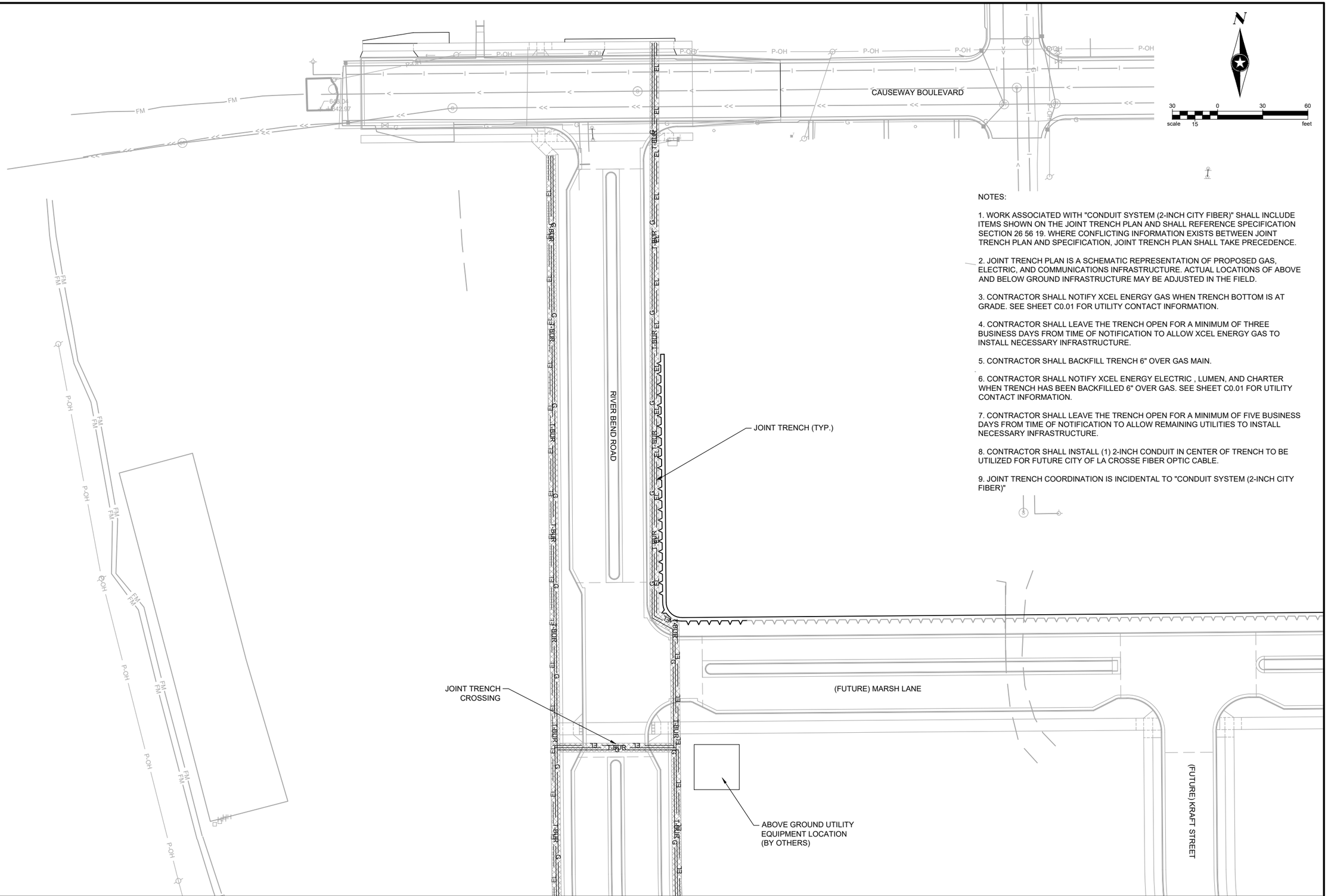

NOTES:

1. WORK ASSOCIATED WITH "CONDUIT SYSTEM (2-INCH CITY FIBER)" SHALL INCLUDE ITEMS SHOWN ON THE JOINT TRENCH PLAN AND SHALL REFERENCE SPECIFICATION SECTION 26 56 19. WHERE CONFLICTING INFORMATION EXISTS BETWEEN JOINT TRENCH PLAN AND SPECIFICATION, JOINT TRENCH PLAN SHALL TAKE PRECEDENCE.

2. JOINT TRENCH PLAN IS A SCHEMATIC REPRESENTATION OF PROPOSED GAS, ELECTRIC, AND COMMUNICATIONS INFRASTRUCTURE. ACTUAL LOCATIONS OF ABOVE AND BELOW GROUND INFRASTRUCTURE MAY BE ADJUSTED IN THE FIELD.

3. CONTRACTOR SHALL NOTIFY XCEL ENERGY GAS WHEN TRENCH BOTTOM IS AT GRADE. SEE SHEET C0.01 FOR UTILITY CONTACT INFORMATION.

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5. CONTRACTOR SHALL BACKFILL TRENCH 6" OVER GAS MAIN.

6. CONTRACTOR SHALL NOTIFY XCEL ENERGY ELECTRIC , LUMEN, AND CHARTER WHEN TRENCH HAS BEEN BACKFILLED 6" OVER GAS. SEE SHEET C0.01 FOR UTILITY CONTACT INFORMATION.

7. CONTRACTOR SHALL LEAVE THE TRENCH OPEN FOR A MINIMUM OF FIVE BUSINESS DAYS FROM TIME OF NOTIFICATION TO ALLOW REMAINING UTILITIES TO INSTALL NECESSARY INFRASTRUCTURE.

8. CONTRACTOR SHALL INSTALL (1) 2-INCH CONDUIT IN CENTER OF TRENCH TO BE UTILIZED FOR FUTURE CITY OF LA CROSSE FIBER OPTIC CABLE.

9. JOINT TRENCH COORDINATION IS INCIDENTAL TO "CONDUIT SYSTEM (2-INCH CITY FIBER)"

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SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

Rev.#	Revision Issue Description	Date
1	RELEASED FOR PERMITTING	03.17.2022
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4	REVISED FOR CONSTRUCTION	09.30.2022

Rev.#	Revision Issue Description	Date

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

JOINT TRENCH PLAN

C2.32

NOTES:

1. WORK ASSOCIATED WITH "CONDUIT SYSTEM (2-INCH CITY FIBER)" SHALL INCLUDE ITEMS SHOWN ON THE JOINT TRENCH PLAN AND SHALL REFERENCE SPECIFICATION SECTION 26 56 19. WHERE CONFLICTING INFORMATION EXISTS BETWEEN JOINT TRENCH PLAN AND SPECIFICATION, JOINT TRENCH PLAN SHALL TAKE PRECEDENCE.

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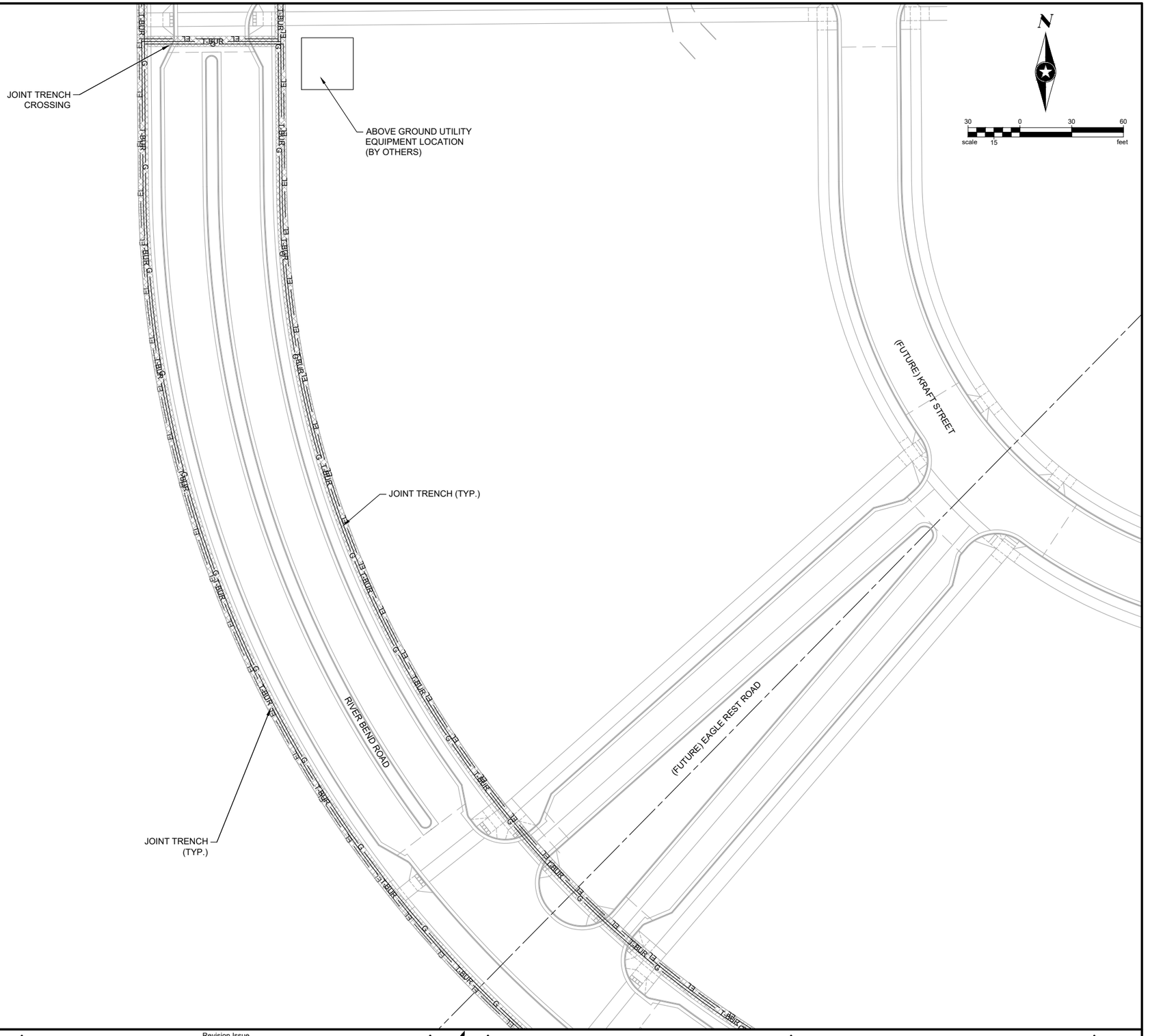
9. JOINT TRENCH COORDINATION IS INCIDENTAL TO "CONDUIT SYSTEM (2-INCH CITY FIBER)"



SEH Project	LACRS163627
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Designed By	CMR
Checked By	DAS

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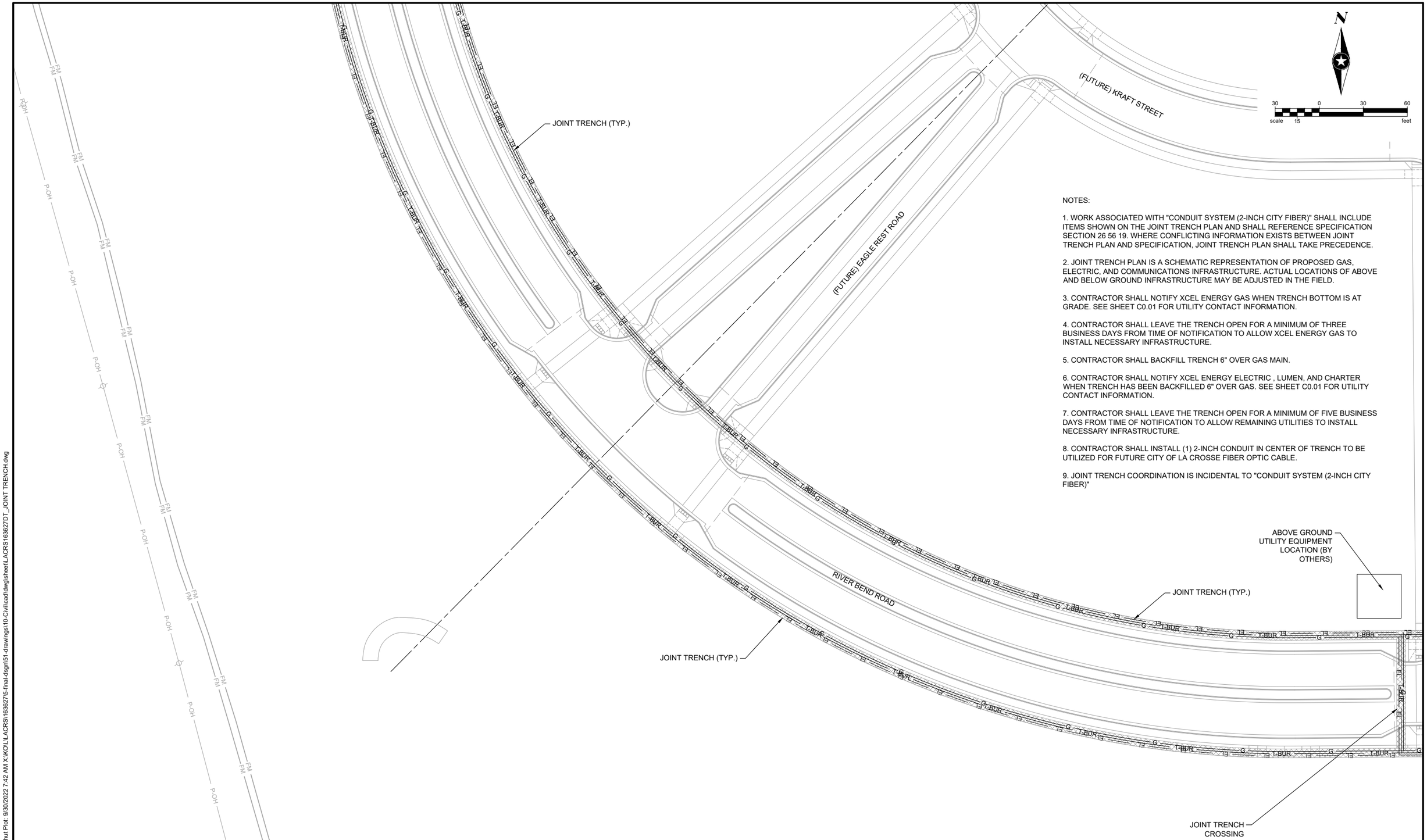
SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

JOINT TRENCH PLAN

C2.33



NOTES:

1. WORK ASSOCIATED WITH "CONDUIT SYSTEM (2-INCH CITY FIBER)" SHALL INCLUDE ITEMS SHOWN ON THE JOINT TRENCH PLAN AND SHALL REFERENCE SPECIFICATION SECTION 26 56 19. WHERE CONFLICTING INFORMATION EXISTS BETWEEN JOINT TRENCH PLAN AND SPECIFICATION, JOINT TRENCH PLAN SHALL TAKE PRECEDENCE.

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9. JOINT TRENCH COORDINATION IS INCIDENTAL TO "CONDUIT SYSTEM (2-INCH CITY FIBER)"

SEH Project	LACRS163627
Drawn By	SFA
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Checked By	DAS

Rev.#	Revision Issue Description	Date
1	RELEASED FOR PERMITTING	03.17.2022
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SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

JOINT TRENCH PLAN

C2.34

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NOTES:

1. WORK ASSOCIATED WITH "CONDUIT SYSTEM (2-INCH CITY FIBER)" SHALL INCLUDE ITEMS SHOWN ON THE JOINT TRENCH PLAN AND SHALL REFERENCE SPECIFICATION SECTION 26 56 19. WHERE CONFLICTING INFORMATION EXISTS BETWEEN JOINT TRENCH PLAN AND SPECIFICATION, JOINT TRENCH PLAN SHALL TAKE PRECEDENCE.

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9. JOINT TRENCH COORDINATION IS INCIDENTAL TO "CONDUIT SYSTEM (2-INCH CITY FIBER)"

N

30 0 30 60
scale 15 feet

(FUTURE) MILWAUKEE STREET

(FUTURE) STEAMBOAT COURT

(FUTURE) RIVER POINT COURT

ABOVE GROUND UTILITY EQUIPMENT LOCATION (BY OTHERS)

JOINT TRENCH (TYP.)

JOINT TRENCH (TYP.)

RIVER BEND ROAD

JOINT TRENCH CROSSING

JOINT TRENCH CROSSING

SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

Rev.#	Revision Issue Description	Date
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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

JOINT TRENCH PLAN

C2.35

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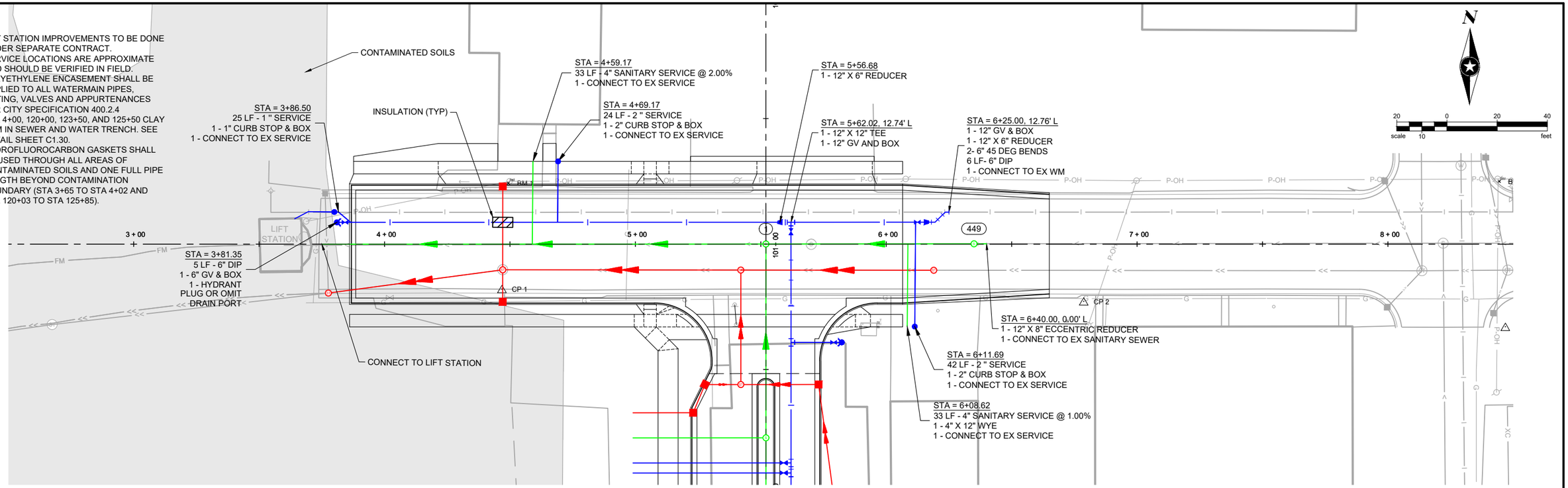
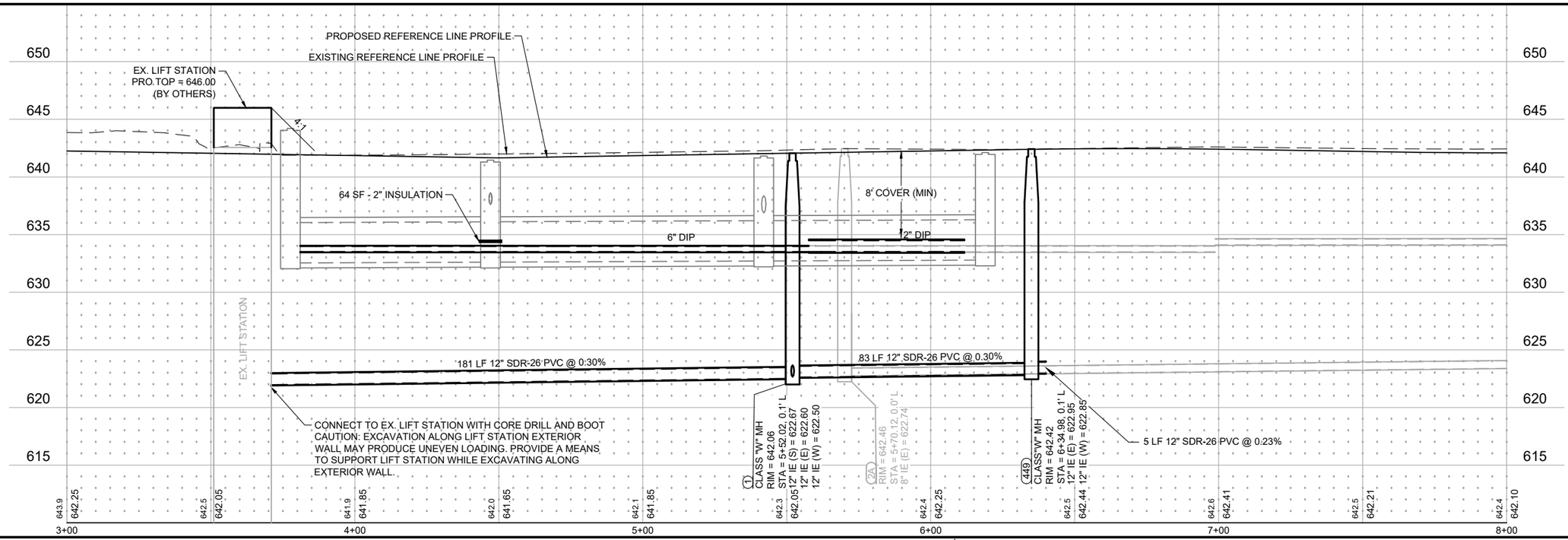
NOTES:

1. LIFT STATION IMPROVEMENTS TO BE DONE UNDER SEPARATE CONTRACT.
2. SERVICE LOCATIONS ARE APPROXIMATE AND SHOULD BE VERIFIED IN FIELD.
3. POLYETHYLENE ENCASEMENT SHALL BE APPLIED TO ALL WATERMAIN PIPES, FITTING, VALVES AND APPURTENANCES PER CITY SPECIFICATION 400.2.4
4. STA 4+00, 120+00, 123+50, AND 125+50 CLAY DAM IN SEWER AND WATER TRENCH. SEE DETAIL SHEET C1.30.
5. HYDROFLUOROCARBON GASKETS SHALL BE USED THROUGH ALL AREAS OF CONTAMINATED SOILS AND ONE FULL PIPE LENGTH BEYOND CONTAMINATION BOUNDARY (STA 3+65 TO STA 4+02 AND STA 120+03 TO STA 125+85).



CAUSEWAY BOULEVARD



SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

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1	RELEASED FOR PERMITTING	03.17.2022
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3	RELEASED FOR REBID	07.29.2022
4	REVISED FOR CONSTRUCTION	09.30.2022

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE CAUSEWAY BOULEVARD

C3.01

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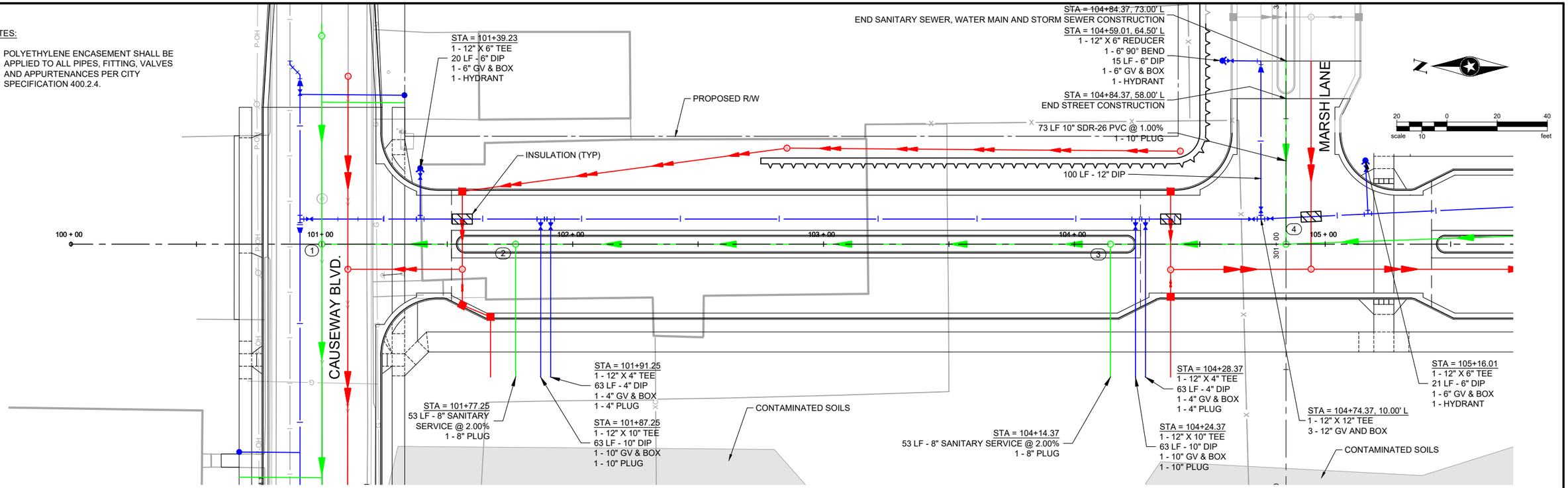
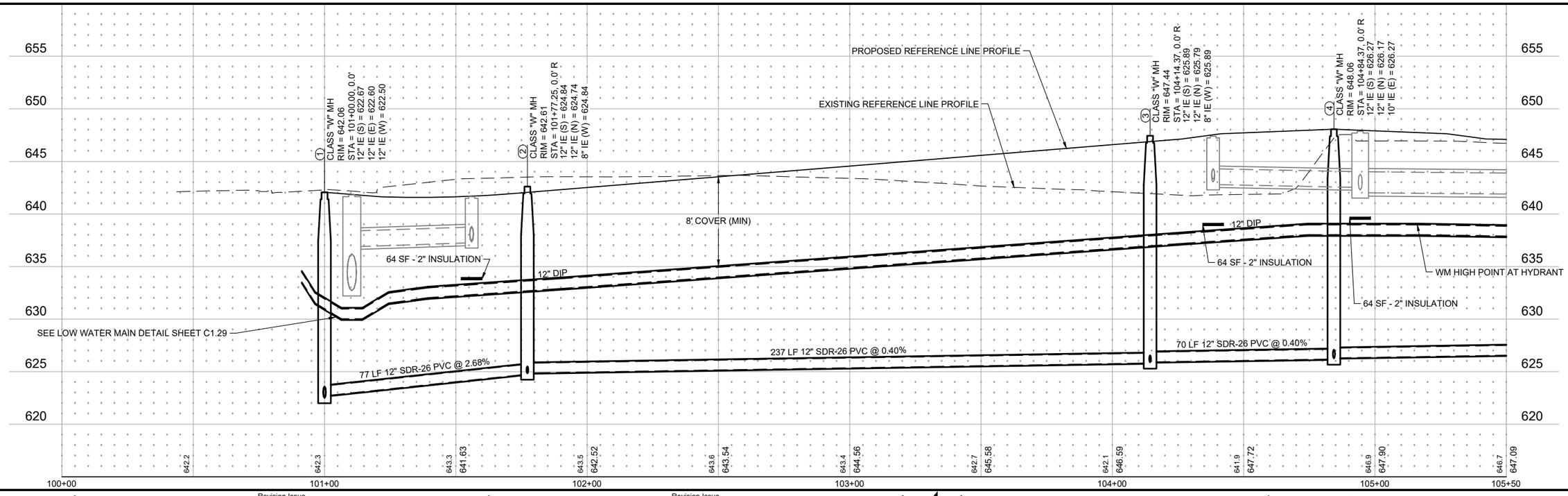
NOTES:

1. POLYETHYLENE ENCASEMENT SHALL BE APPLIED TO ALL PIPES, FITTING, VALVES AND APPURTENANCES PER CITY SPECIFICATION 400.2.4.



RIVER BEND ROAD



SEH Project	LACRS163627
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Checked By	DAS

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1	.	RELEASED FOR PERMITTING	03.17.2022
2	.	RELEASED FOR BIDDING	06.03.2022
3	.	RELEASED FOR REBID	07.29.2022
4	.	REVISED FOR CONSTRUCTION	09.30.2022

Rev.#	Revision Issue Description	Date
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SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE RIVER BEND ROAD

C3.02

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NOTES:

1. POLYETHYLENE ENCASEMENT SHALL BE APPLIED TO ALL PIPES, FITTING, VALVES AND APPURTENANCES PER CITY SPECIFICATION 400.2.4.

NOTE: WATER LATERALS TO BE PLACED UNDERNEATH STORM SEWER.

STA = 106+25.81
46 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = 106+36.76
1 - 12" X 10" CROSS
36 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

STA = 106+41.13
1 - 12" X 4" CROSS
35 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 107+75.13, 5.17' L
1 - 12" 22 ½° BEND

STA = 107+81.28
1 - 12" X 6" TEE
27 LF - 6" DIP
1 - 6" GV & BOX
1 - HYDRANT

STA = 109+56.84, 10.07' L
1 - 12" 11 ¼° BEND

STA = 109+55.81
53 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = 109+47.64
1 - 12" X 4" CROSS
42 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 109+44.39
1 - 12" X 10" CROSS
41 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

STA = 110+65.76, 58.11' L
END STREET CONSTRUCTION

STA = 110+32.11
1 - 12" X 6" TEE
12 LF - 6" DIP
1 - 6" GV & BOX
1 - HYDRANT

EAGLE REST RD

20 0 20 40
scale 10 feet

INSULATION (TYP)

STA = 106+38.11
71 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 106+34.42
71 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

STA = 106+25.06
60 LF - 8" SANITARY SERVICE @ 1.53%
1 - 8" PLUG

CONTAMINATED SOILS

LOWER WATER MAIN SEE DETAIL SHEETC1.29

STA = 109+40.36
65 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

STA = 109+48.24
64 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 109+57.49
53 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = ???
56 LF - 6" SANITARY SERVICE @ 2.00%
1 - 6" PLUG

STA = ???
66 LF - 2 " SERVICE
1 - 2" CURB STOP
1 - 2" CAP

STA 110+89.41, 10.07' L
1 - 12" 11 ¼° BEND

CONCRETE MONOLITH

PROPOSED STORMWATER MANAGEMENT TANK

RIVER BEND ROAD

EXISTING STOCKPILE

(5) CLASS "W" MH
RIM = 646.68
STA = 106+27.67, 7.0' L
12" IE (S) = 626.94
12" IE (N) = 626.84
8" IE (W) = 626.94
8" IE (E) = 626.94

(6) CLASS "W" MH
RIM = 647.37
STA = 107+64.61, 6.9' R
12" IE (SE) = 627.58
12" IE (N) = 627.48

(7) CLASS "W" MH
RIM = 647.26
STA = 109+56.73, 0.0'
12" IE (SE) = 628.45
12" IE (NW) = 628.35
8" IE (NE) = 628.45
8" IE (SW) = 628.45

(8) CLASS "W" MH
RIM = 647.97
STA = 110+89.53, 0.0'
10" IE (SE) = 629.08
12" IE (NW) = 628.98

PROPOSED REFERENCE LINE PROFILE

EXISTING REFERENCE LINE PROFILE

8' COVER (MIN)

12" DIP

WM HIGH POINT AT HYDRANT

64 SF - 2" INSULATION

64 SF - 2" INSULATION

STA 110+32 TO STA 110+45
INSTALL WATER MAIN WITH FALL TO THE OFFSET UNDER STORM SEWER

143 LF 12" SDR-26 PVC @ 0.40%

137 LF 12" SDR-26 PVC @ 0.39%

193 LF 12" SDR-26 PVC @ 0.40%

92 LF 12" SDR-26 PVC @ 0.40%

40 LF 12" SDR-26 PVC @ 0.40%

SEE LOW WATER MAIN DETAIL SHEET C1.29

660 655 650 645 640 635 630 625

646.7 647.09 668.6 646.84 646.7 646.93 646.9 647.18 646.9 647.43 646.9 647.50 647.0 647.25 647.0 647.00 647.0 646.75 647.0 646.83 647.0 647.58 647.0 648.08

105+50 106+00 107+00 108+00 109+00 110+00 111+00

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SEH Project	LACRS163627	1	RELEASED FOR PERMITTING	03.17.2022	.		
Drawn By	SFA	2	RELEASED FOR BIDDING	06.03.2022	.		
Designed By	CMR	3	RELEASED FOR REBID	07.29.2022	.		
Checked By	DAS	4	REVISED FOR CONSTRUCTION	09.30.2022	.		

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE RIVER BEND ROAD

C3.03

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NOTES:

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EAGLE REST RD.

STA = 111+42.13, 58.00' L
END STREET CONSTRUCTION

STA = 112+52.63, 10.09' L
1 - 12" 11 ¼° BEND

STA = 112+52.67
53 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = 112+62.72
1 - 12" X 10" CROSS
42 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

INSULATION (TYP)

STA = 112+66.77
1 - 12" X 4" CROSS
41 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 114+29.70
1 - 12" X 6" TEE
25 LF - 6" DIP
1 - 6" GV & BOX
1 - HYDRANT

STA = 115+81.55
1 - 12" X 10" TEE
36 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

STA = 115+70.83
47 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = 115+85.92
1 - 12" X 4" TEE
36 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = ???
58 LF - 6" SANITARY SERVICE @ 2.00%
1 - 6" PLUG

LOWER WATER MAIN SEE DETAIL SHEET C1.29

EMERGENCY OVERFLOW
(SEE DETAIL SHEET C1.33)

STA = ???
69 LF - 2 " SERVICE
1 - 2" CURB STOP
1 - 2" CAP

STA = 112+66.77
65 LF - 4" DIP
1 - 4" GV & BOX
1 - 4" PLUG

STA = 112+52.67
53 LF - 8" SANITARY SERVICE @ 2.00%
1 - 8" PLUG

STA = 112+62.72
64 LF - 10" DIP
1 - 10" GV & BOX
1 - 10" PLUG

PROPOSED STORMWATER
MANAGEMENT TANK

STA = 114+54.92, 5.17' L
1 - 12" 22 ½° BEND

CONCRETE MONOLITH

FLOODWAY

CP 20

WE

N

scale 20 0 20 40 feet 10

RIVER BEND ROAD

PROPOSED REFERENCE LINE PROFILE

EXISTING REFERENCE LINE PROFILE

9 CLASS "W" MH
RIM = 647.26
STA = 112+52.67, 0.0' R
10" IE (SE) = 629.83
10" IE (NW) = 629.73
8" IE (NE) = 629.83
8" IE (SW) = 629.83

10 CLASS "W" MH
RIM = 647.37
STA = 114+45.79, 6.9' R
10" IE (E) = 630.70
10" IE (NW) = 630.60

11 CLASS "W" MH
RIM = 646.75
STA = 115+71.10, 6.4' L
10" IE (E) = 631.31
10" IE (W) = 631.21
8" IE (N) = 631.31

8' COVER (MIN)

64 SF - 2" INSULATION

64 SF - 2" INSULATION

12" DIP

WM HIGH POINT AT HYDRANT

64 SF - 2" INSULATION

STA 111+15 TO STA 112+10
INSTALL WATER MAIN FALL TO THE
OFFSET UNDER STORM SEWER

70 LF 10" SDR-26 PVC @ 0.40%

93 LF 10" SDR-35 PVC @ 0.40%

194 LF 10" SDR-26 PVC @ 0.40%

126 LF 10" SDR-26 PVC @ 0.41%

158 LF 10" SDR-26 PVC @ 0.40%

SEE LOW WATER MAIN DETAIL SHEET C1.29

660 655 650 645 640 635 630 625

647.0 648.08 | 647.1 647.66 | 647.0 646.87 | 646.9 646.69 | 646.9 646.94 | 646.8 647.19 | 646.7 647.44 | 646.8 647.49 | 646.9 647.24 | 646.9 646.99 | 646.9 646.78 | 646.9 647.03

111+00 112+00 113+00 114+00 115+00 116+00 116+50

SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

Rev.#	Revision Issue Description	Date
1	RELEASED FOR PERMITTING	03.17.2022
2	RELEASED FOR BIDDING	06.03.2022
3	RELEASED FOR REBID	07.29.2022
4	REVISED FOR CONSTRUCTION	09.30.2022

Rev.# / Revision Issue Description / Date: .

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE RIVER BEND ROAD

C3.04

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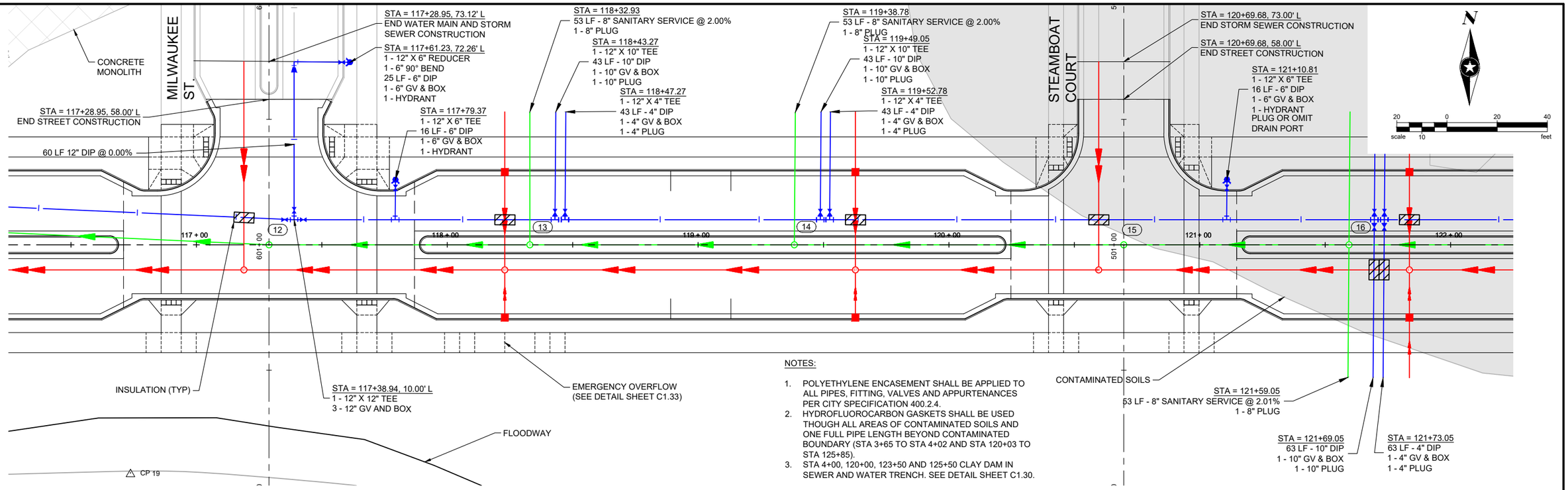
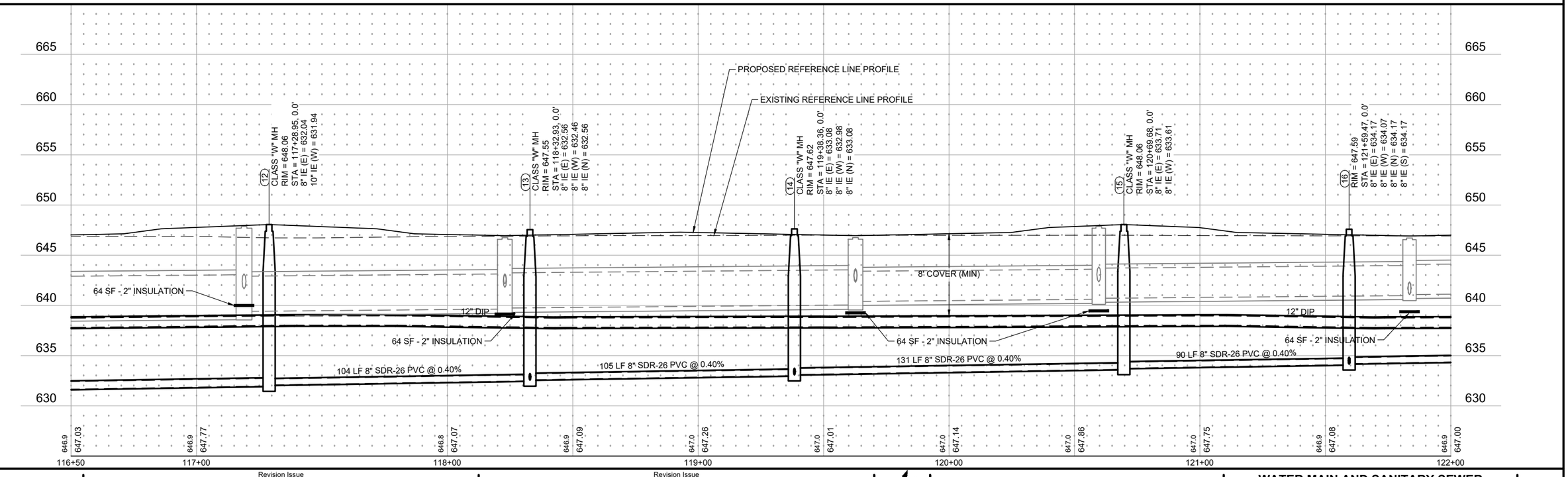


NOTES:

1. POLYETHYLENE ENCASEMENT SHALL BE APPLIED TO ALL PIPES, FITTING, VALVES AND APPURTENANCES PER CITY SPECIFICATION 400.2.4.
2. HYDROFLUOROCARBON GASKETS SHALL BE USED THOUGH ALL AREAS OF CONTAMINATED SOILS AND ONE FULL PIPE LENGTH BEYOND CONTAMINATED BOUNDARY (STA 3+65 TO STA 4+02 AND STA 120+03 TO STA 125+85).
3. STA 4+00, 120+00, 123+50 AND 125+50 CLAY DAM IN SEWER AND WATER TRENCH. SEE DETAIL SHEET C1.30.

RIVER BEND ROAD



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SEH Project	LACRS163627	1	RELEASED FOR PERMITTING	03.17.2022	.		
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Checked By	DAS	4	REVISED FOR CONSTRUCTION	09.30.2022	.		

SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE RIVER BEND ROAD

C3.05

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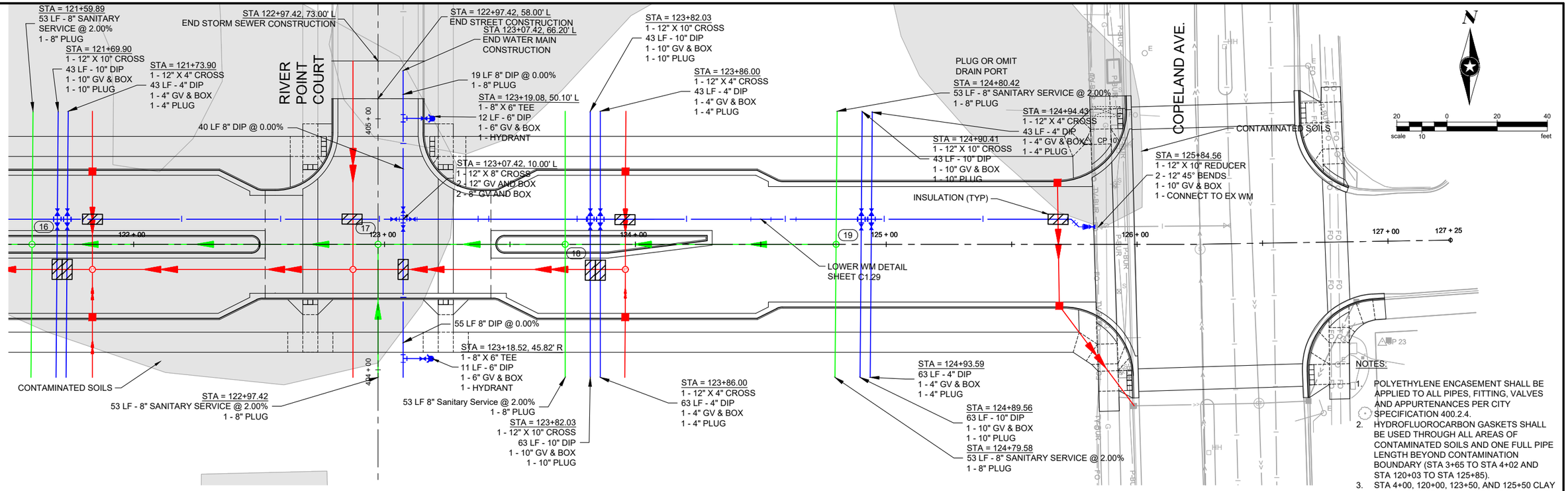
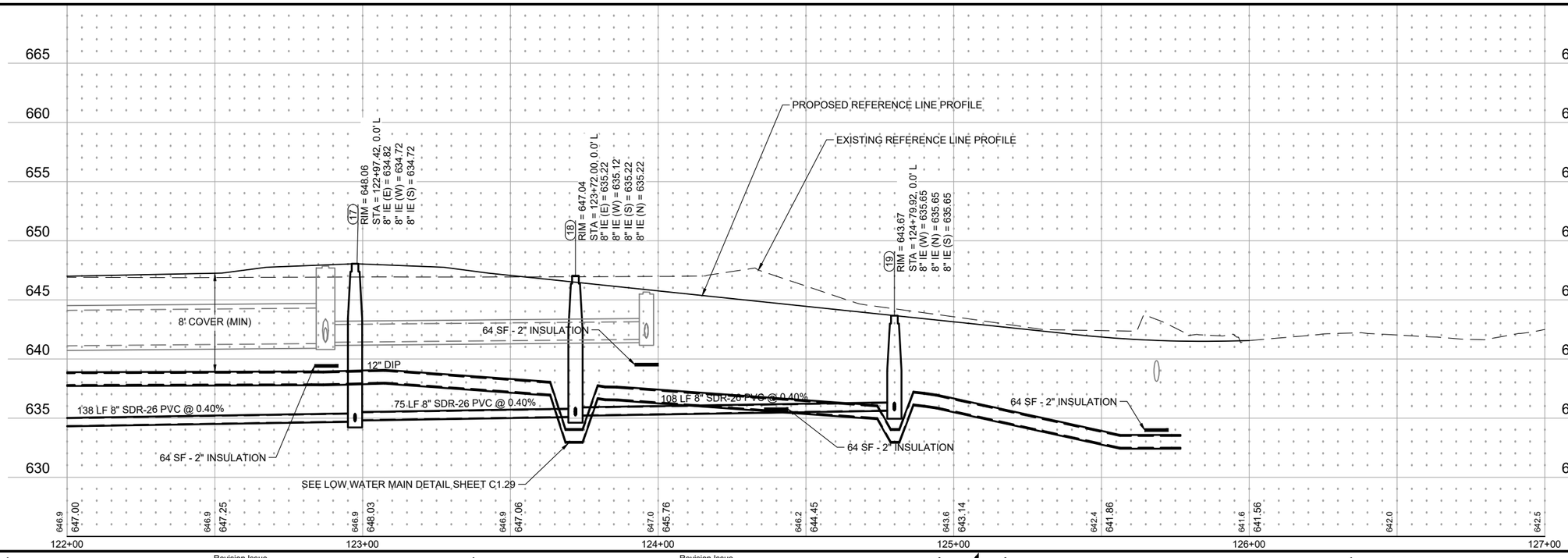


RIVER BEND ROAD



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SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

WATER MAIN AND SANITARY SEWER PLAN & PROFILE RIVER BEND ROAD

C3.06

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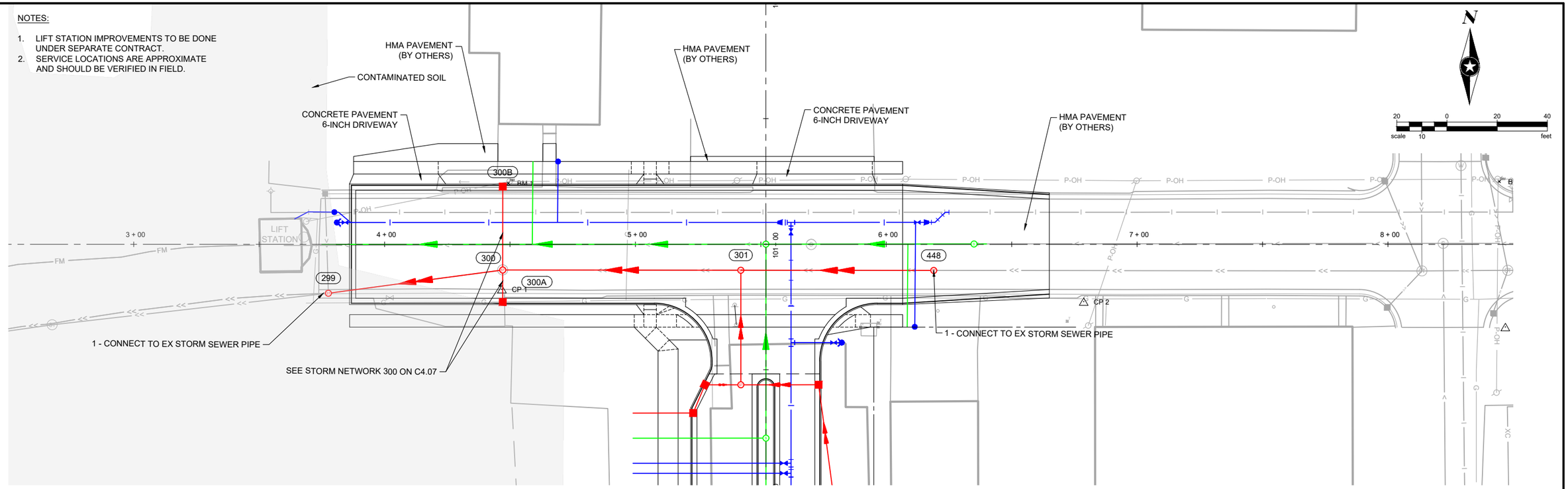
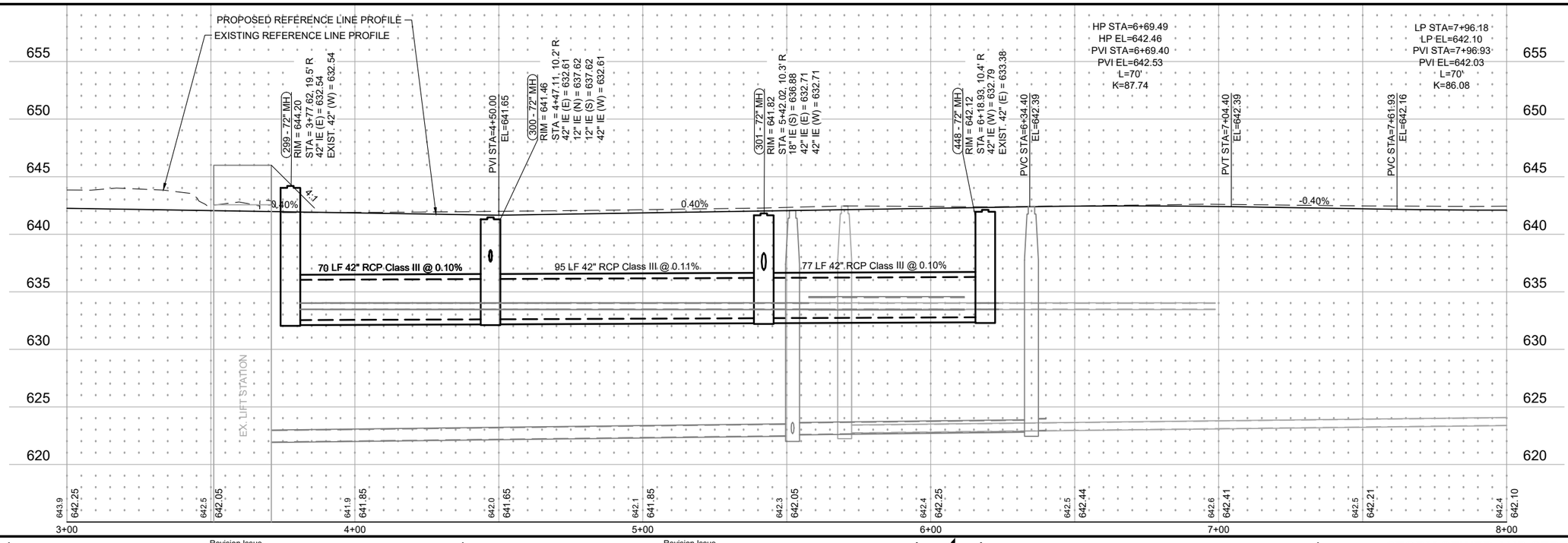
NOTES:

1. LIFT STATION IMPROVEMENTS TO BE DONE UNDER SEPARATE CONTRACT.
2. SERVICE LOCATIONS ARE APPROXIMATE AND SHOULD BE VERIFIED IN FIELD.



CAUSEWAY BOULEVARD



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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER AND STREET PLAN & PROFILE CAUSEWAY BOULEVARD

C4.01

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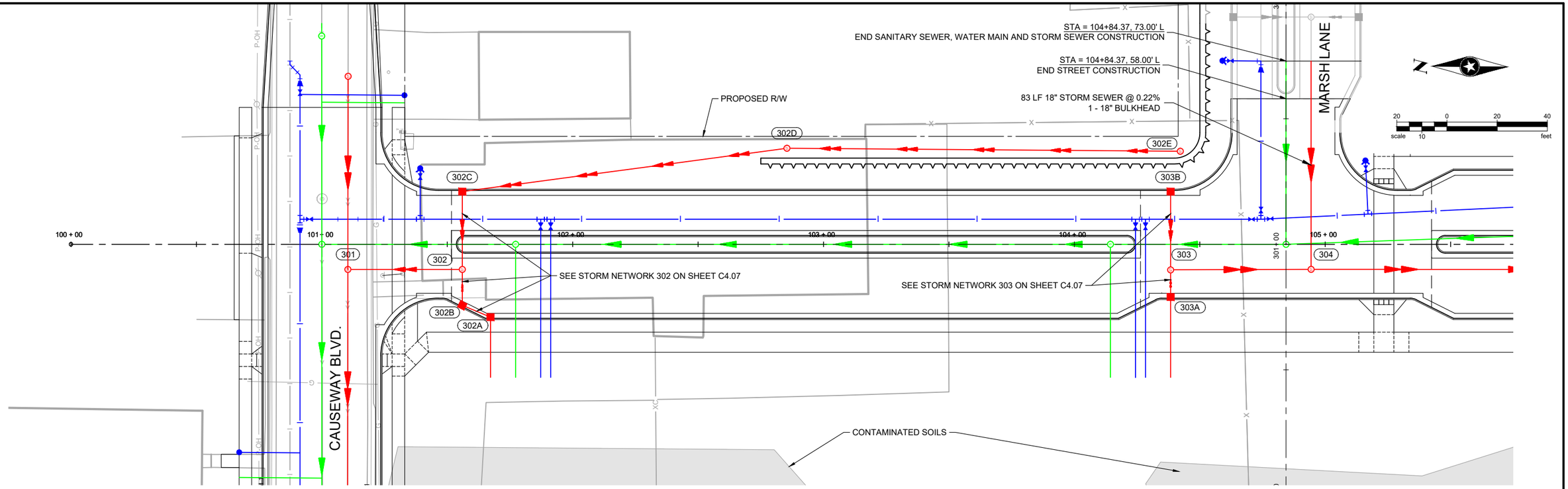
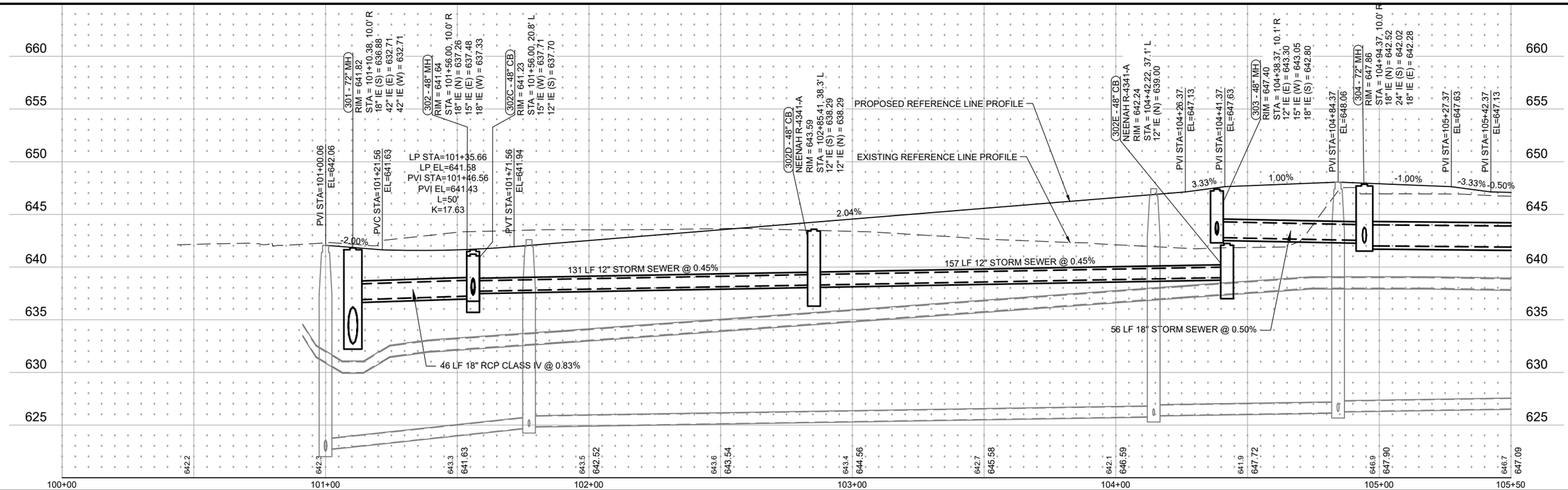


RIVER BEND ROAD



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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER AND STREET PLAN & PROFILE RIVER BEND ROAD

C4.02

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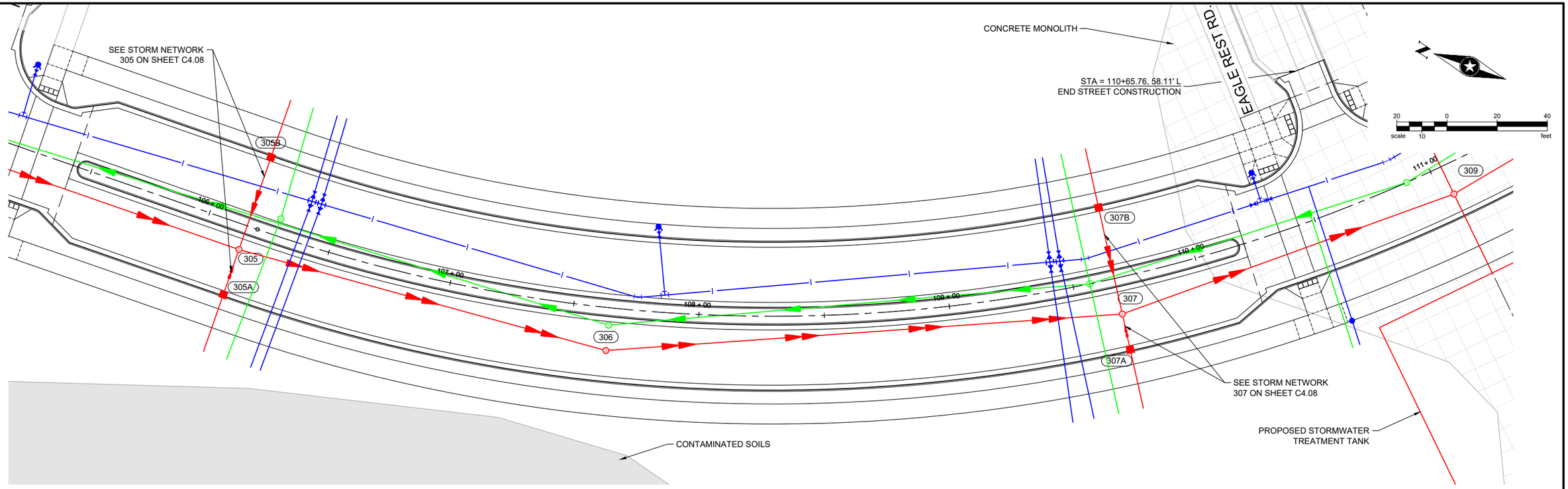

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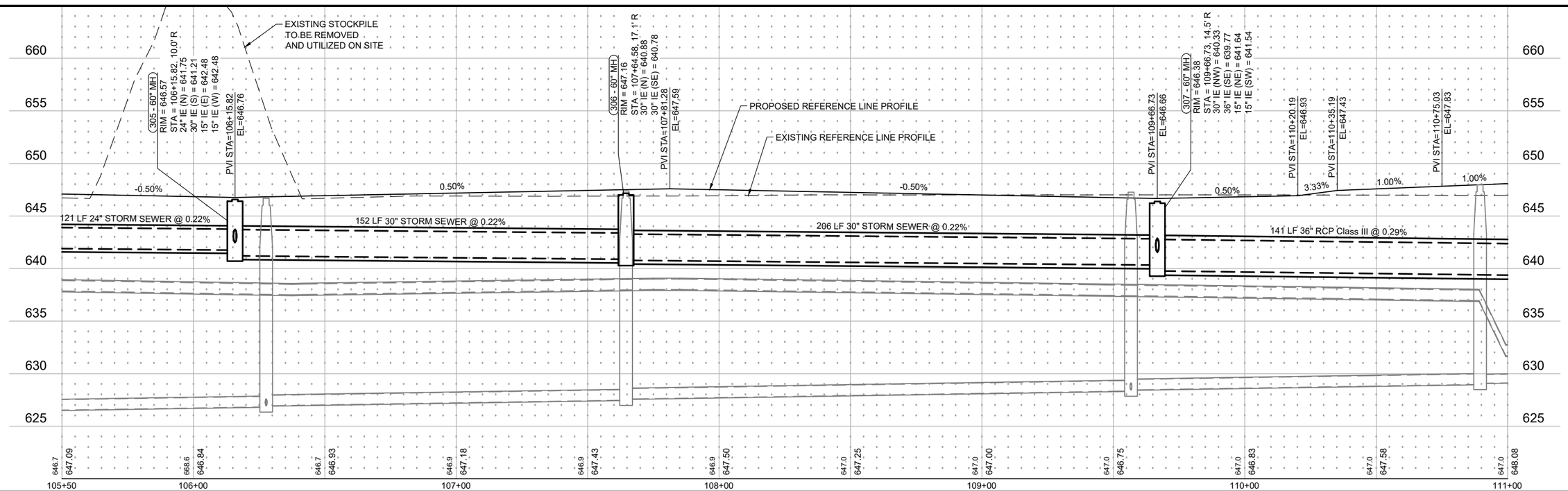

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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER AND STREET PLAN & PROFILE RIVER BEND ROAD

C4.03

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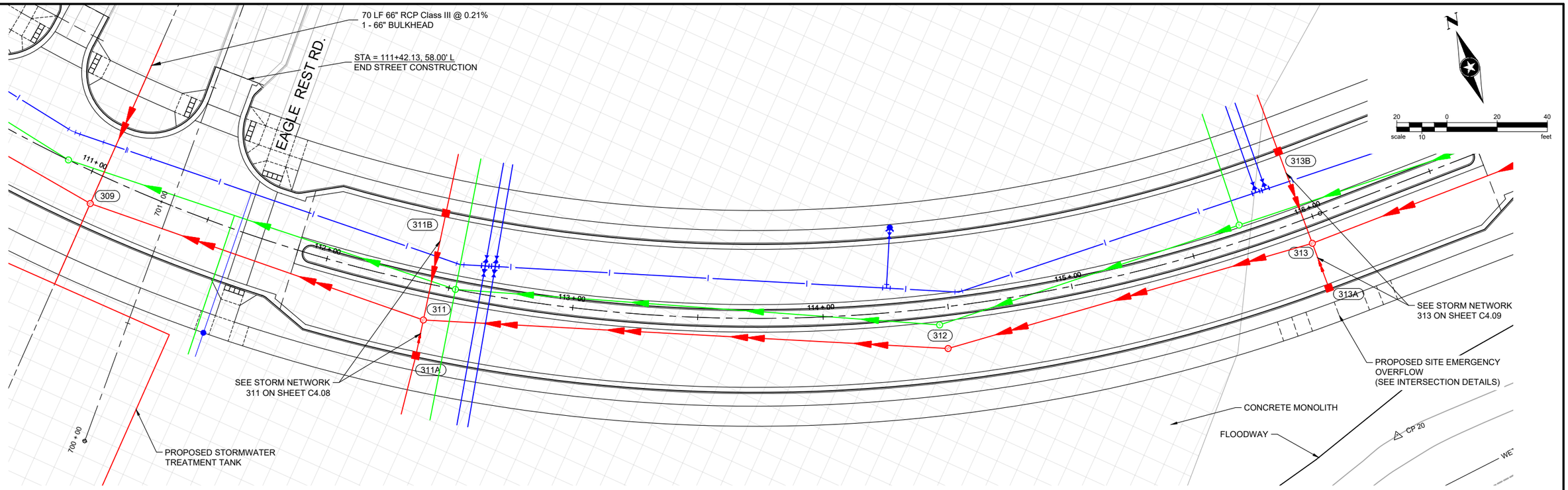
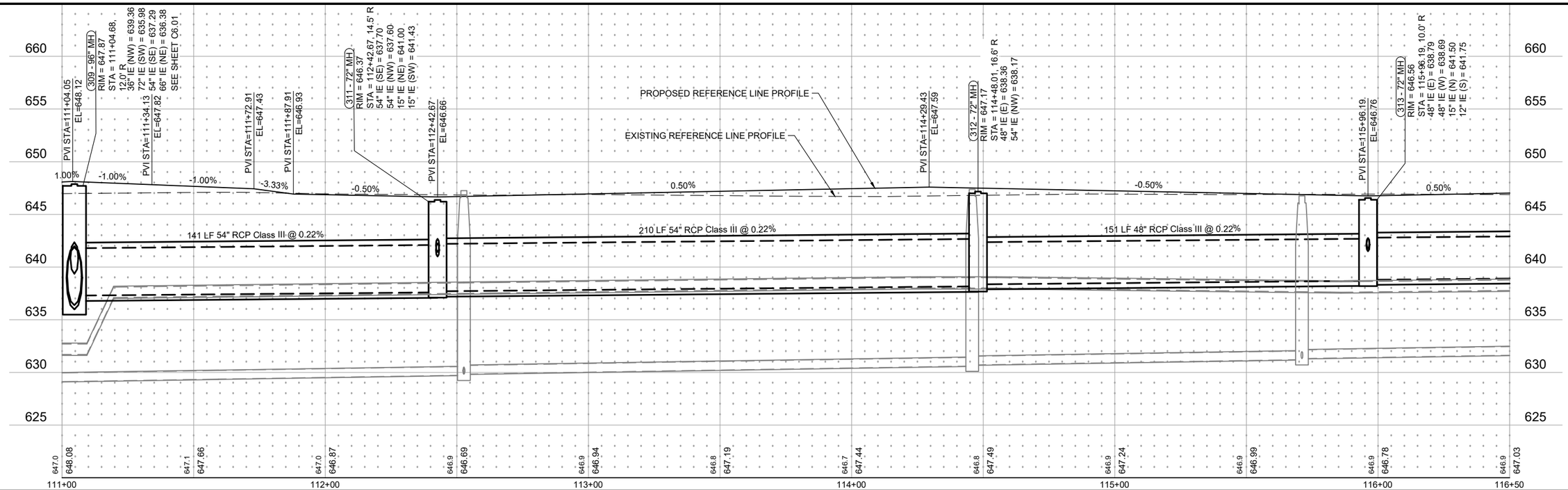


RIVER BEND ROAD



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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER AND STREET PLAN & PROFILE RIVER BEND ROAD

C4.04

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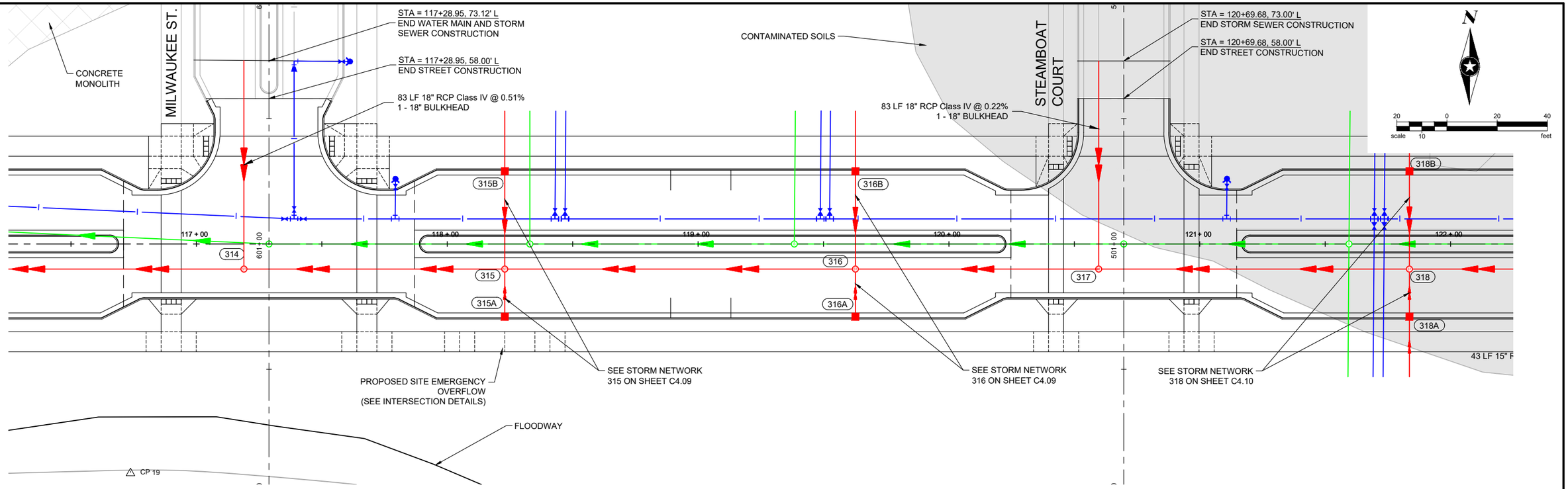
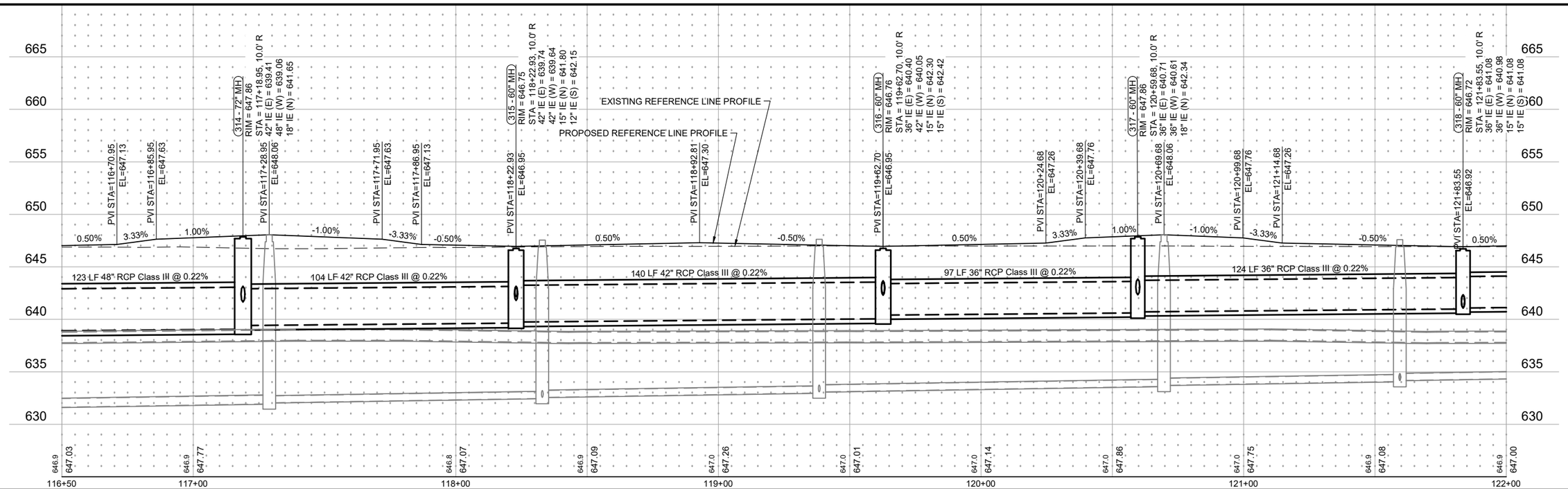


RIVER BEND ROAD



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Designed By	CMR	3	RELEASED FOR REBID	07.29.2022	.	.	.
Checked By	DAS	4	REVISED FOR CONSTRUCTION	09.30.2022	.	.	.

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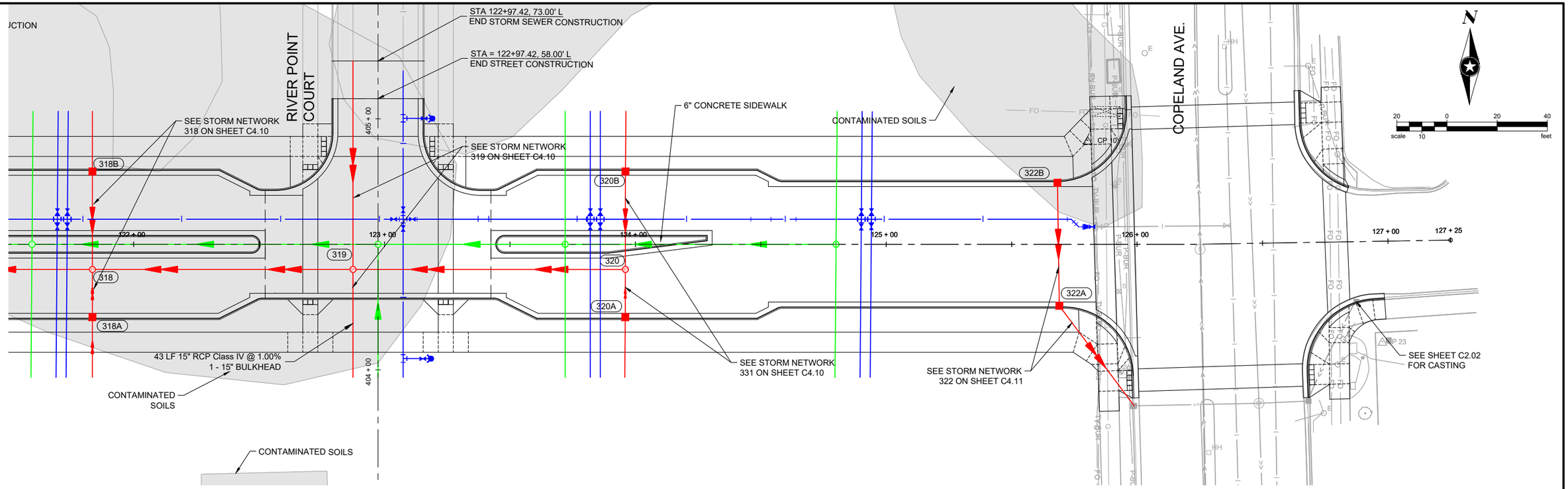
RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

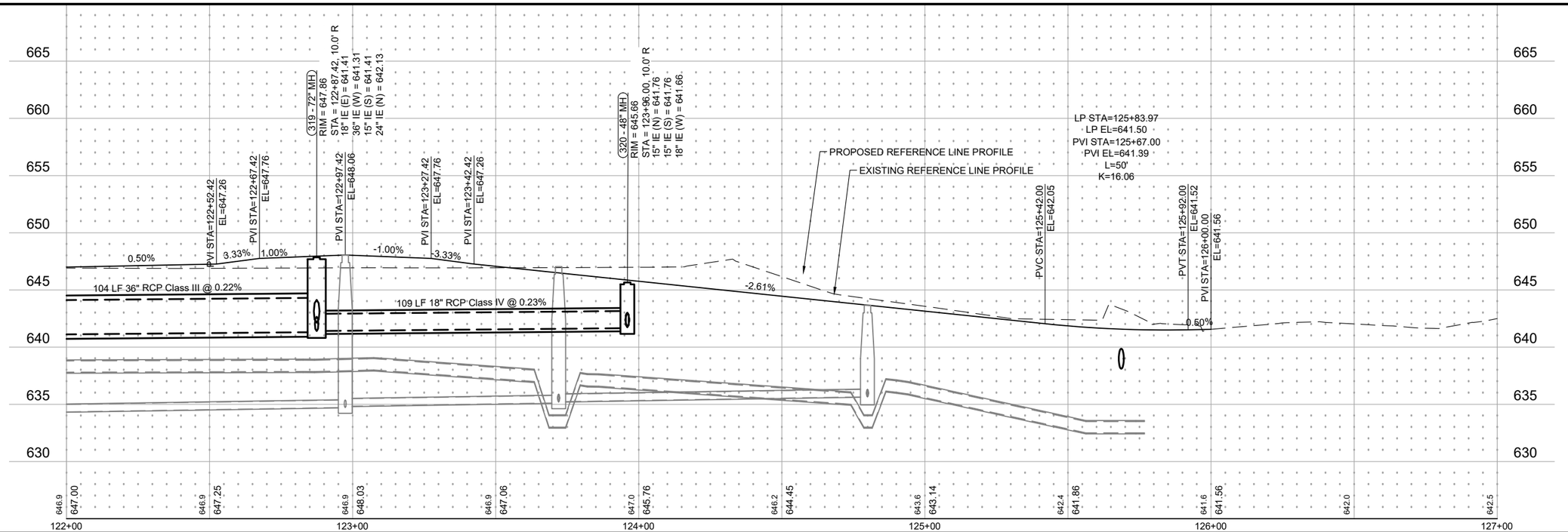
STORM SEWER AND STREET PLAN & PROFILE RIVER BEND ROAD

C4.05

Save: 9/29/2022 8:02 AM lketelhut Plot: 9/30/2022 7:48 AM X:\KOIL\LACRS\163627\5-final-dsgn\51-drawings\10-Civil\cad\dwg\sheet\LACRS163627PP_Street A storm.dwg



RIVER BEND ROAD



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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER AND STREET PLAN & PROFILE RIVER BEND ROAD

C4.06

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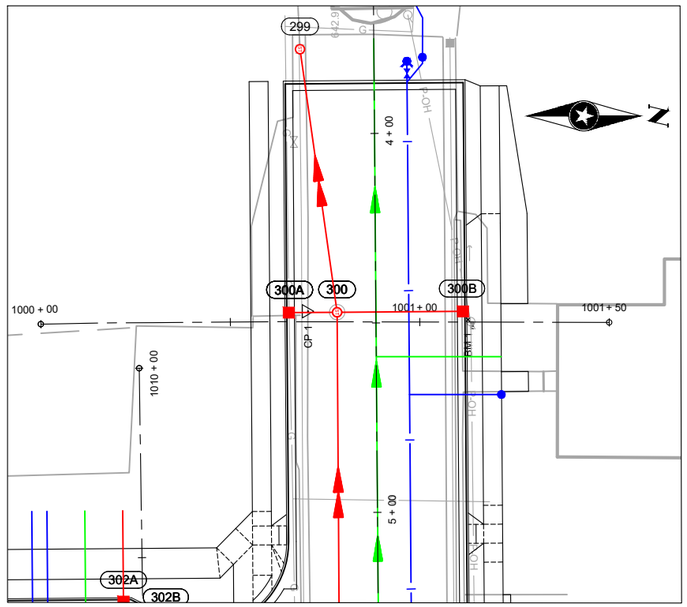
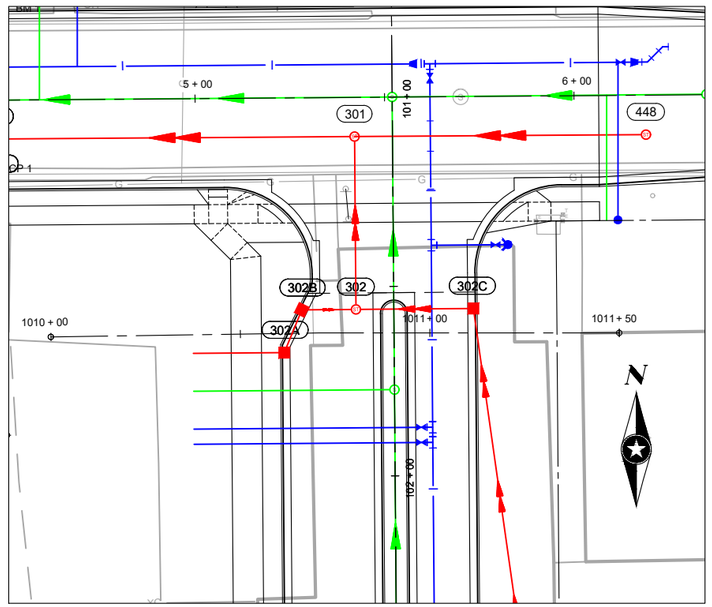


STORM NETWORK 300



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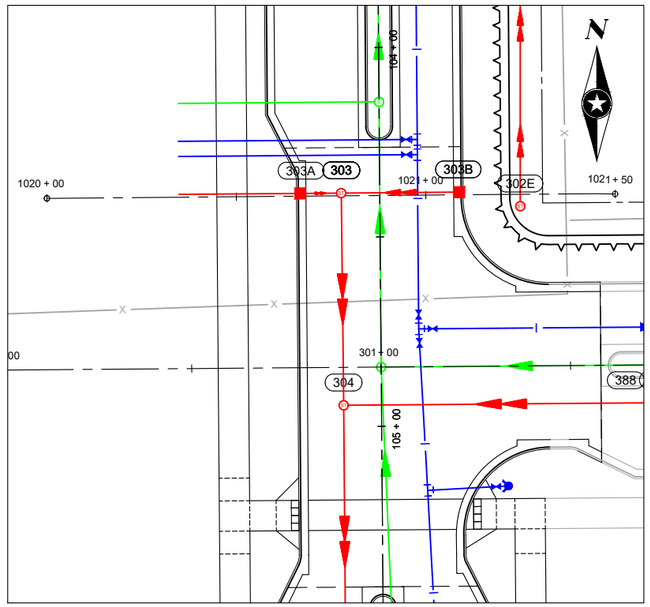

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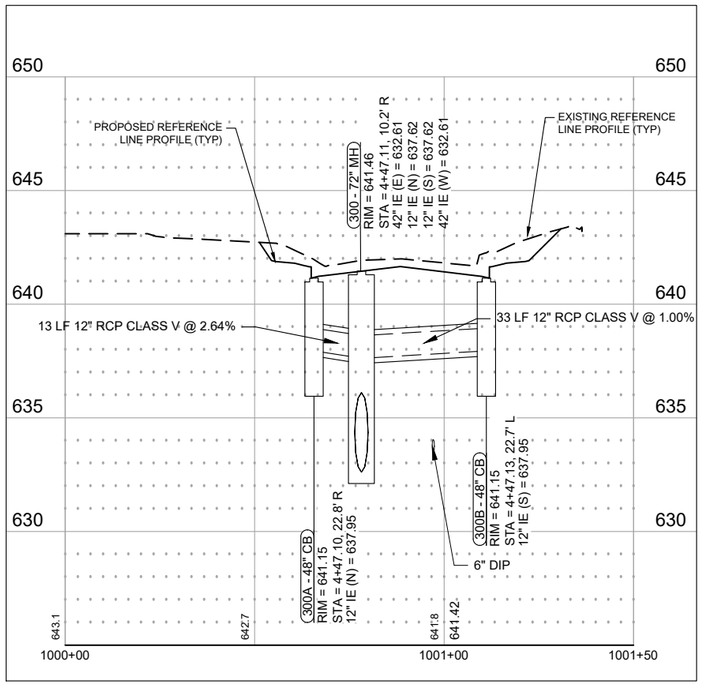

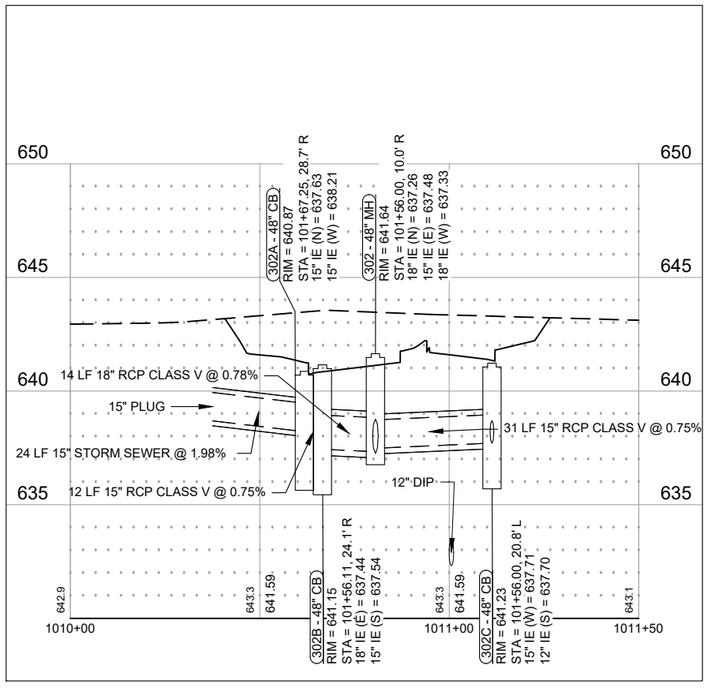

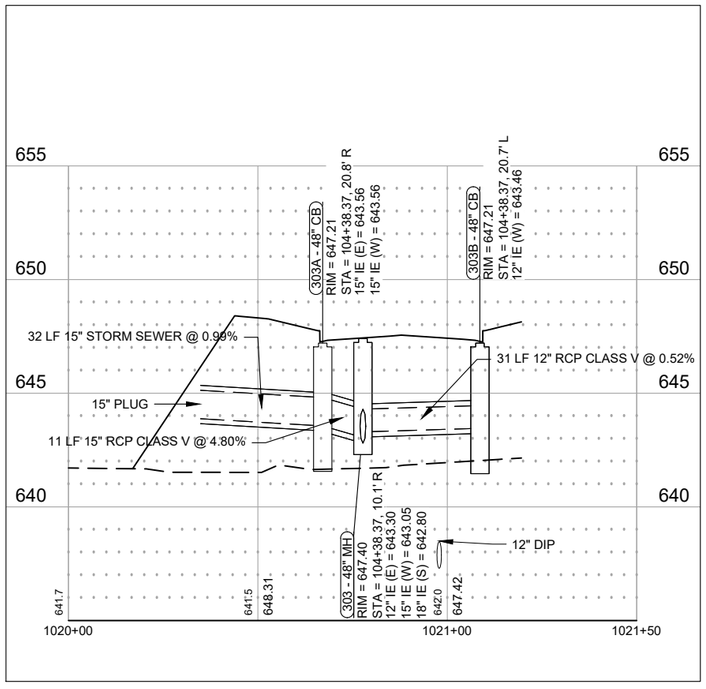

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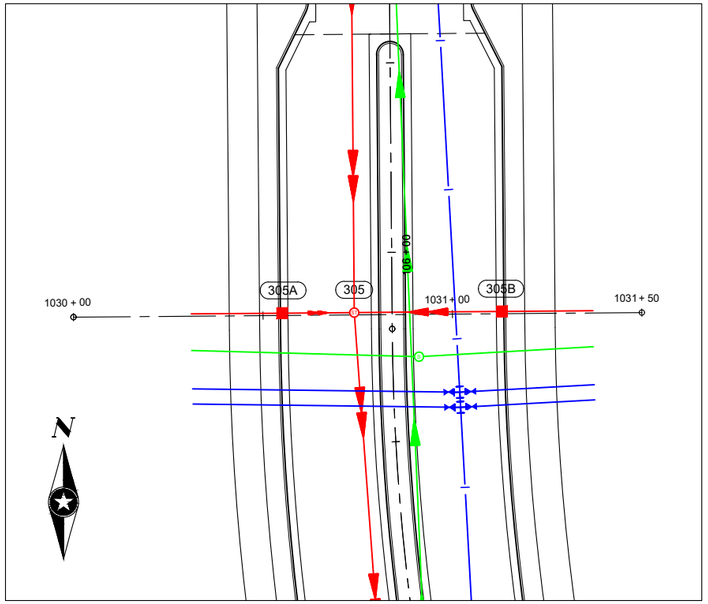
SEH

RIVER POINT DISTRICT

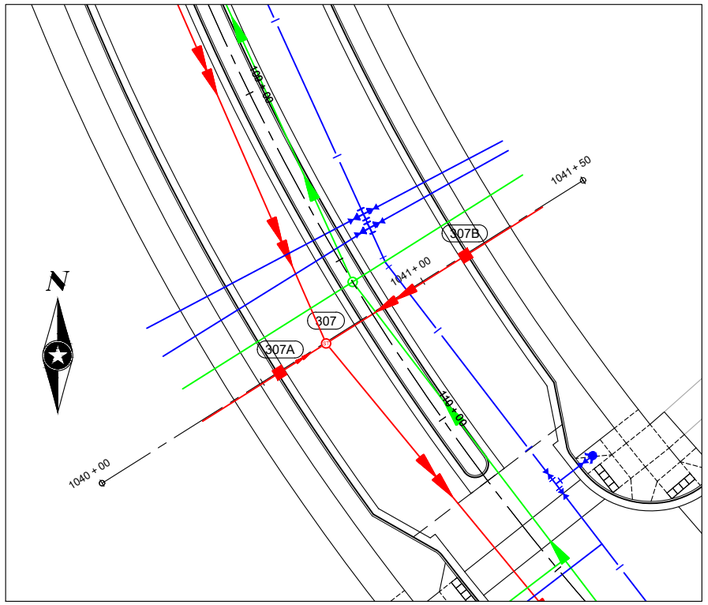
LA CROSSE, WISCONSIN

STORM SEWER CROSSING
PLAN & PROFILE
RIVER BEND ROAD

C4.07



STORM NETWORK 305



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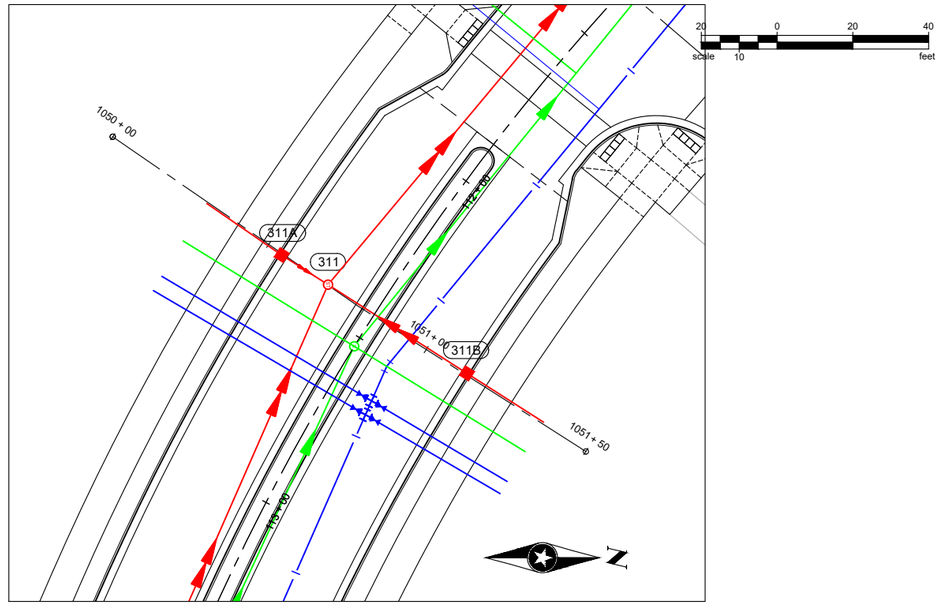

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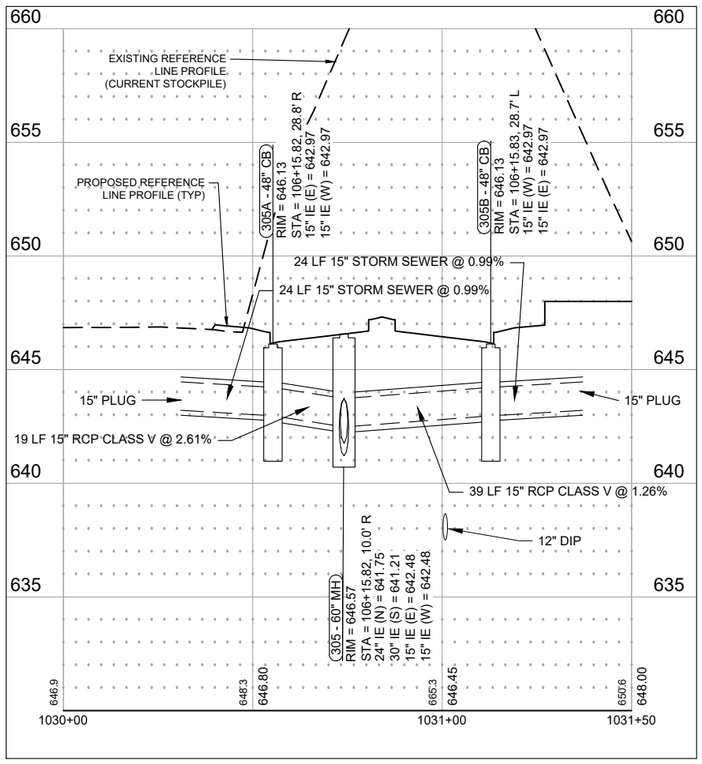

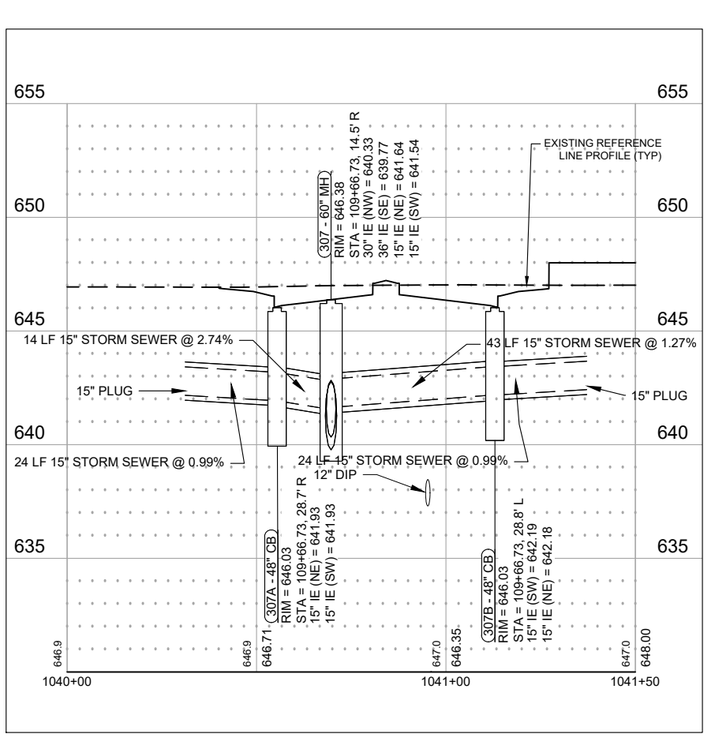

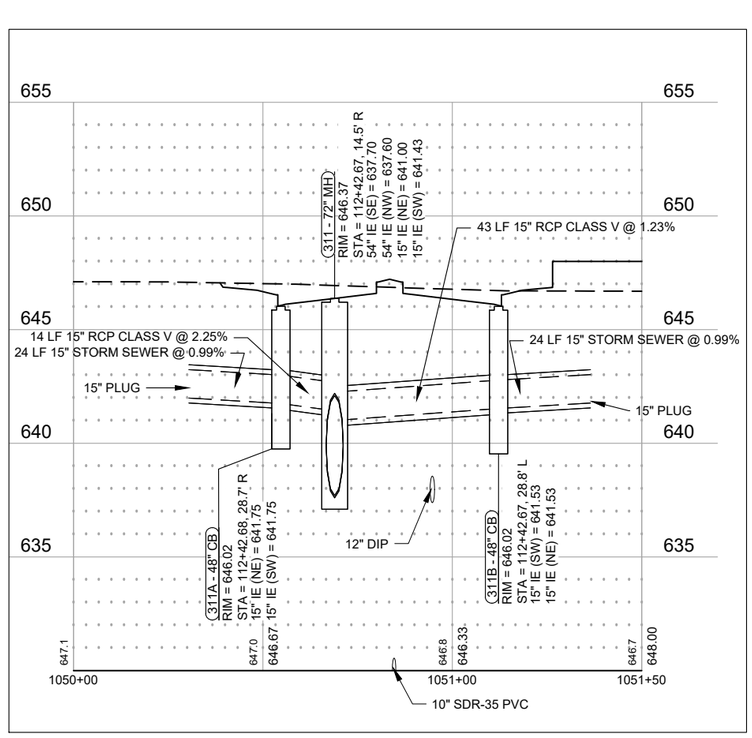

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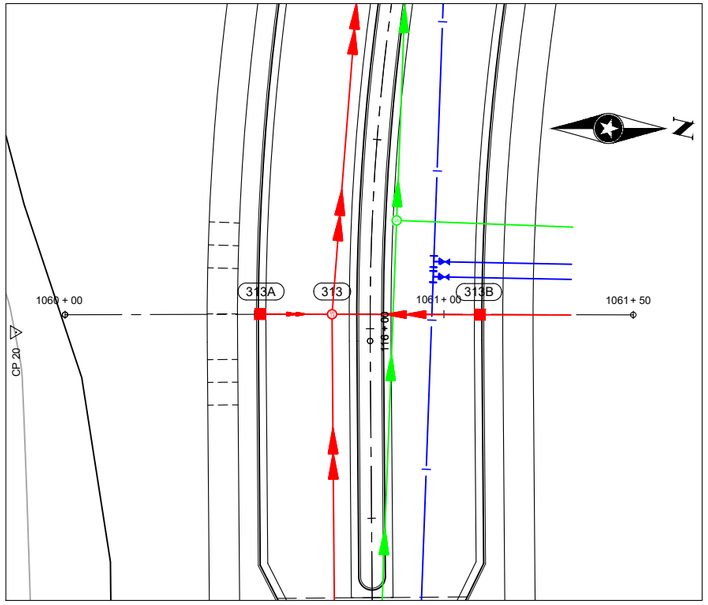
SEH

RIVER POINT DISTRICT

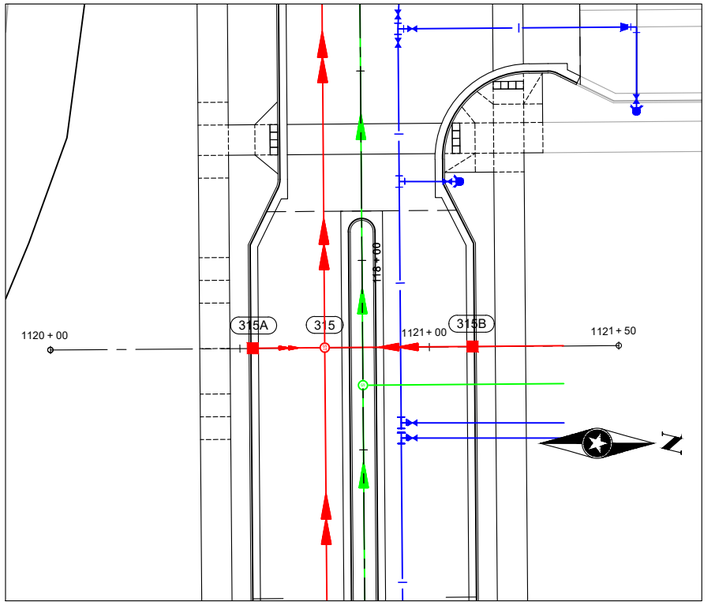
LA CROSSE, WISCONSIN

STORM SEWER CROSSING PLAN & PROFILE RIVER BEND ROAD

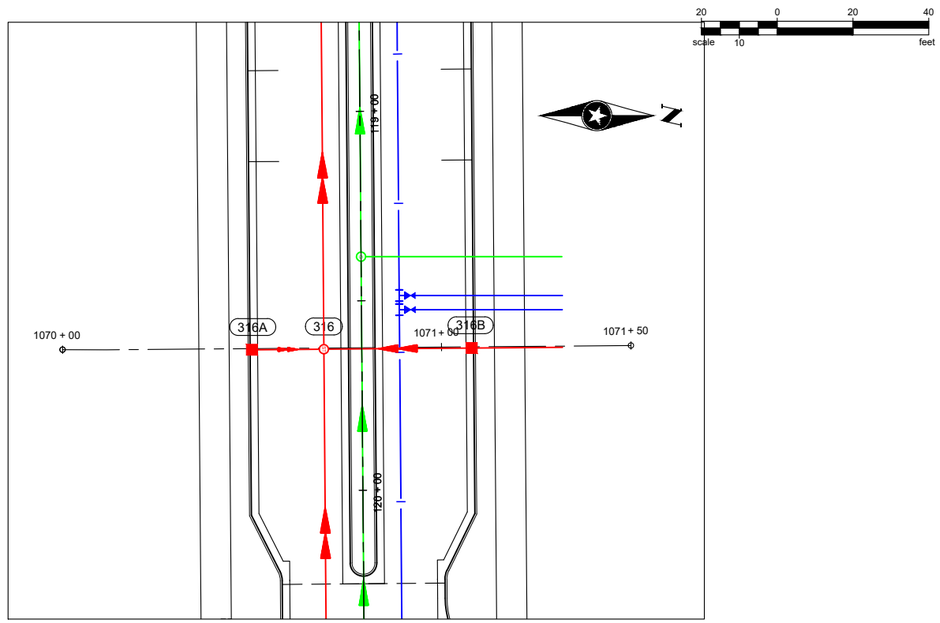
C4.08



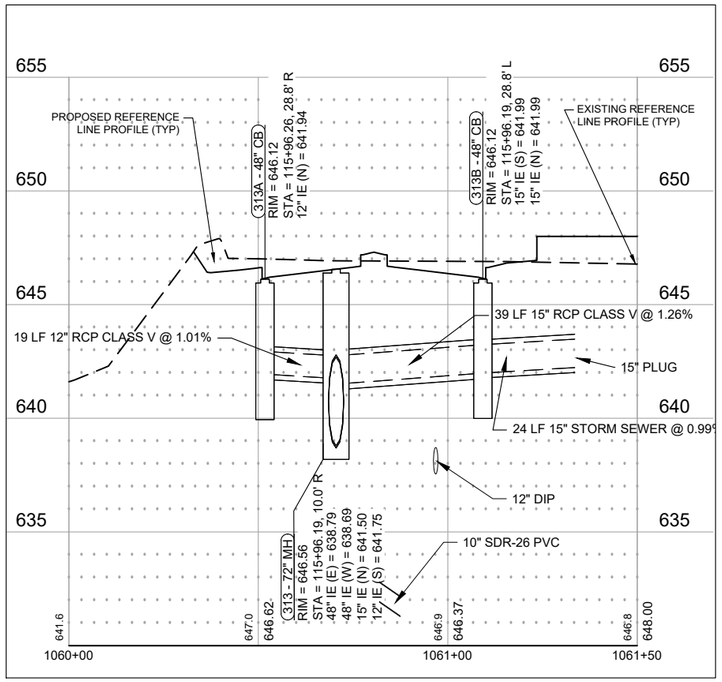
STORM NETWORK 313

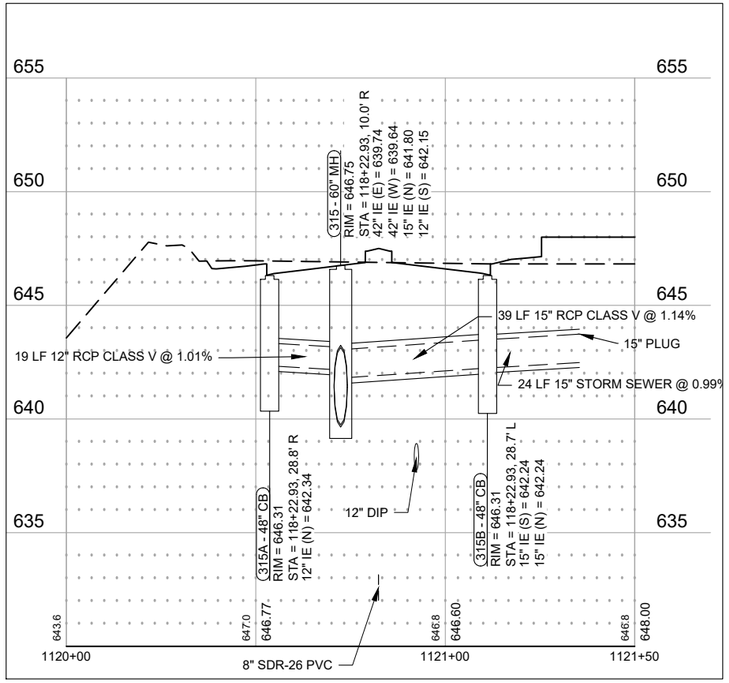


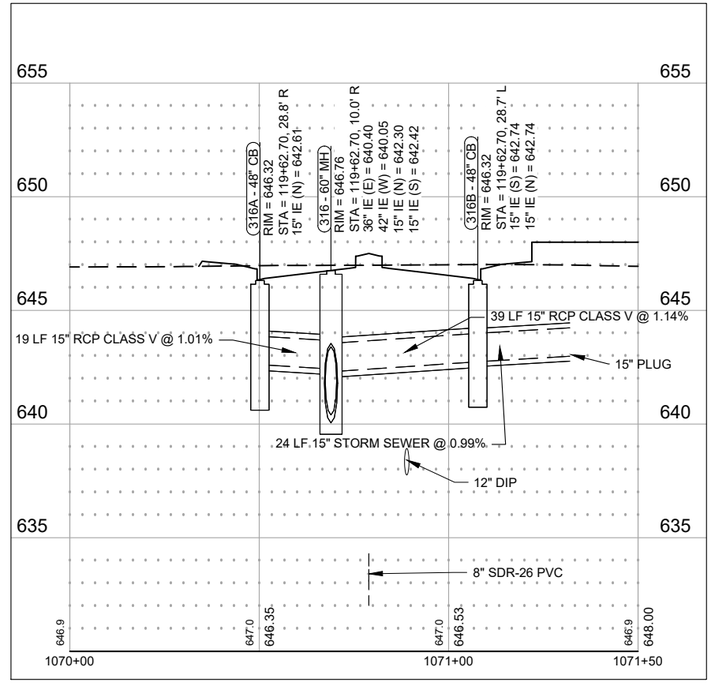
STORM NETWORK 315



STORM NETWORK 316







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SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

Rev.#	Revision Issue Description	Date
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2	RELEASED FOR BIDDING	06.03.2022
3	RELEASED FOR REBID	07.29.2022
4	REVISED FOR CONSTRUCTION	09.30.2022

Rev.# | Revision Issue Description | Date

SEH

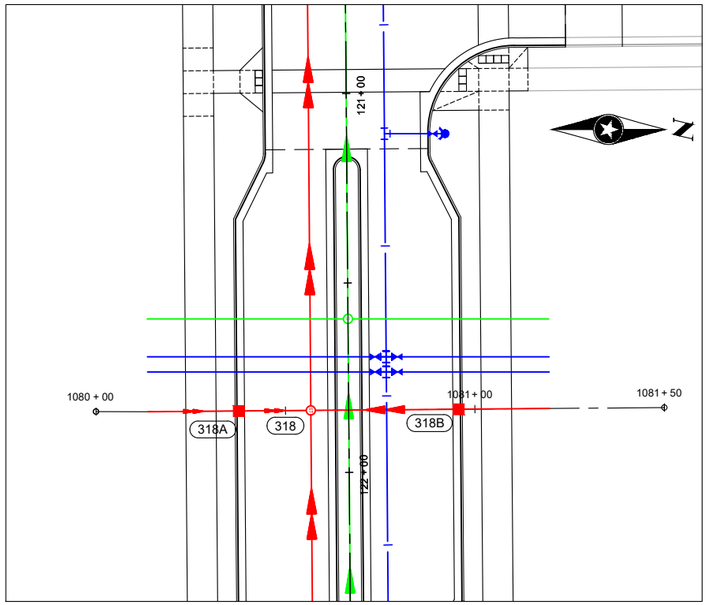
RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER CROSSING PLAN & PROFILE

RIVER BEND ROAD

C4.09



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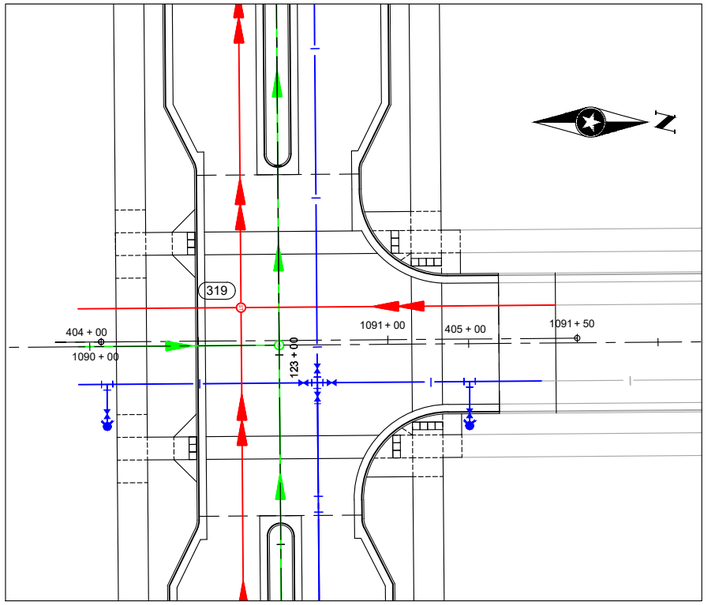

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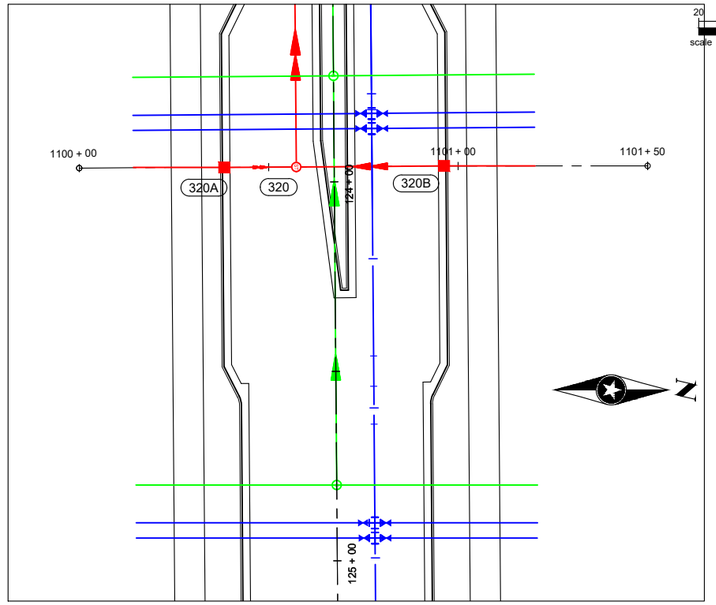

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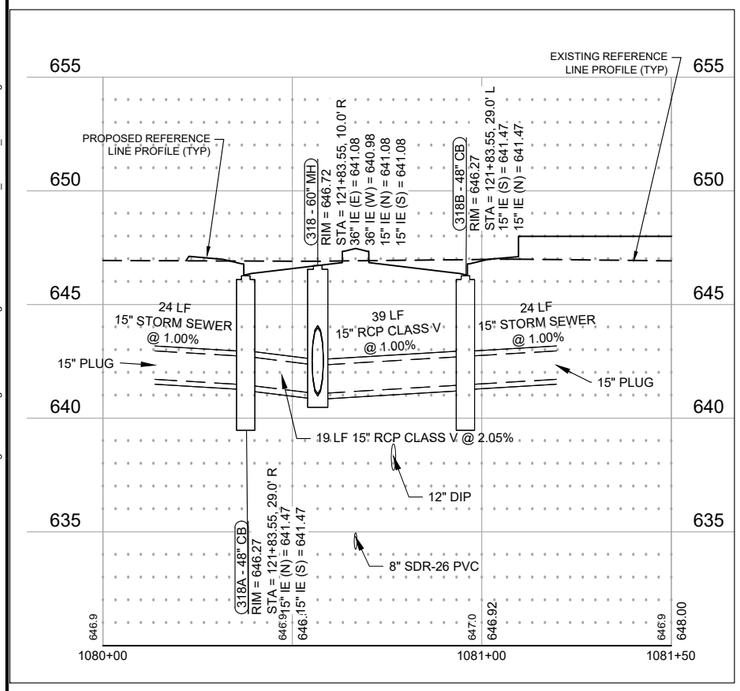

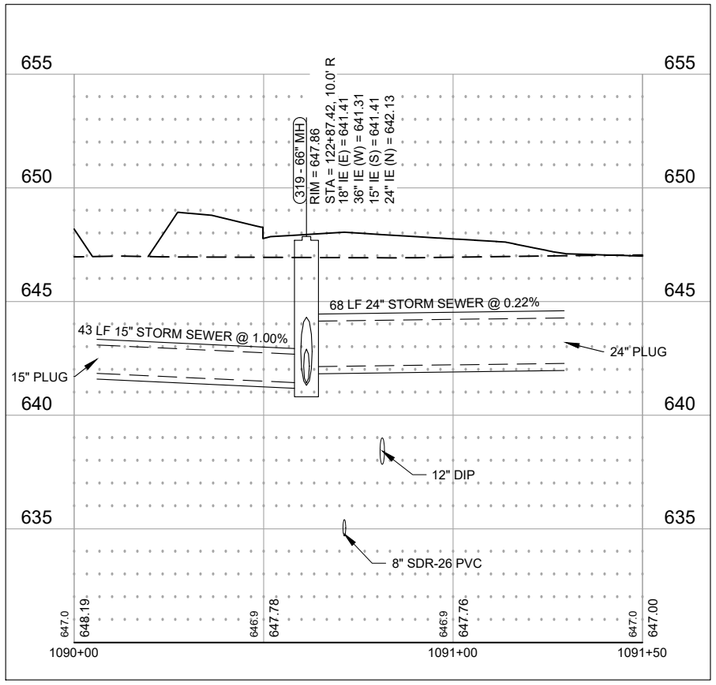

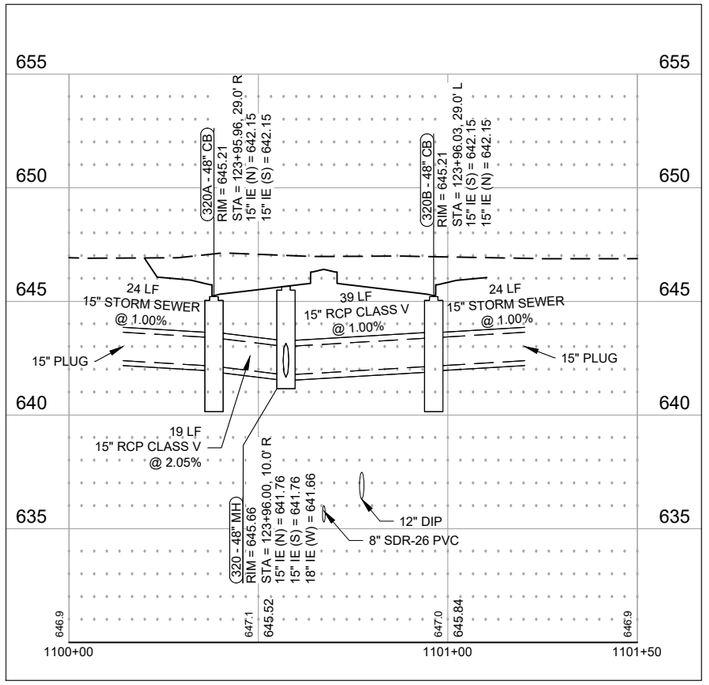

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SEH Project	LACRS163627
Drawn By	SFA
Designed By	CMR
Checked By	DAS

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Rev.# | Revision Issue Description | Date

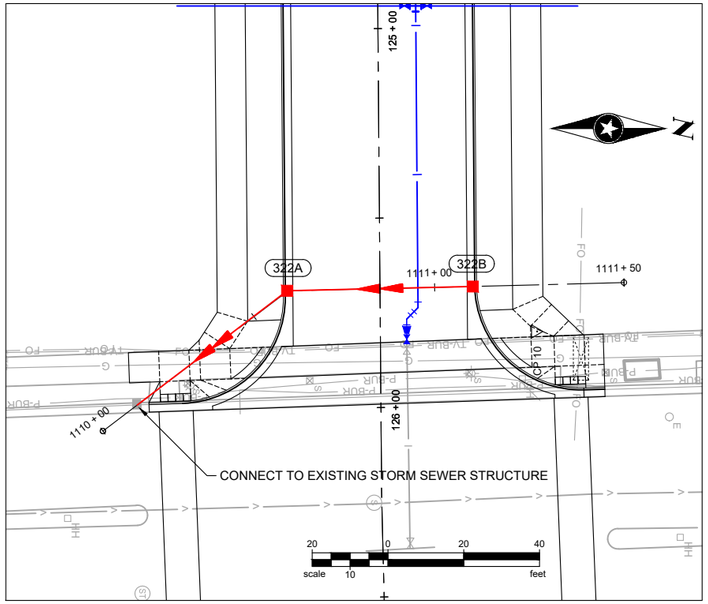
SEH

RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

STORM SEWER CROSSING PLAN & PROFILE RIVER BEND ROAD

C4.10



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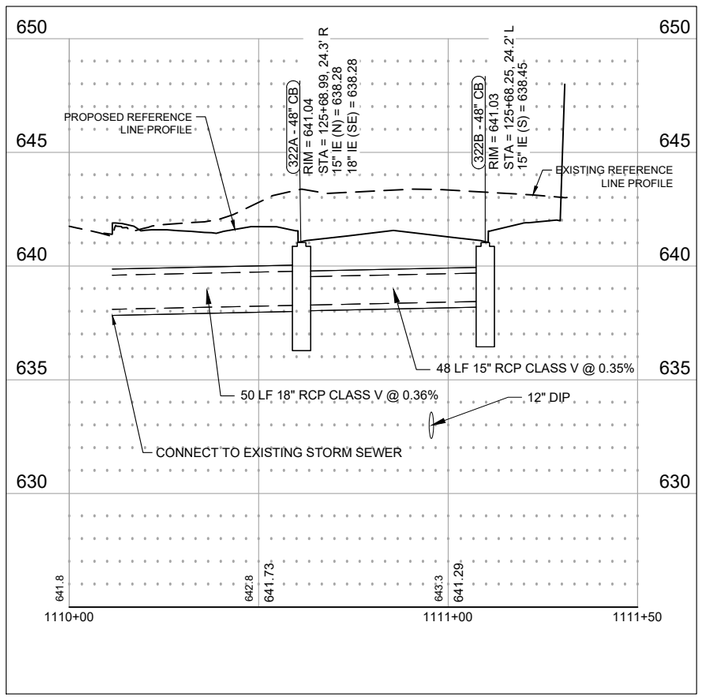

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Rev.#	Revision Issue Description	Date

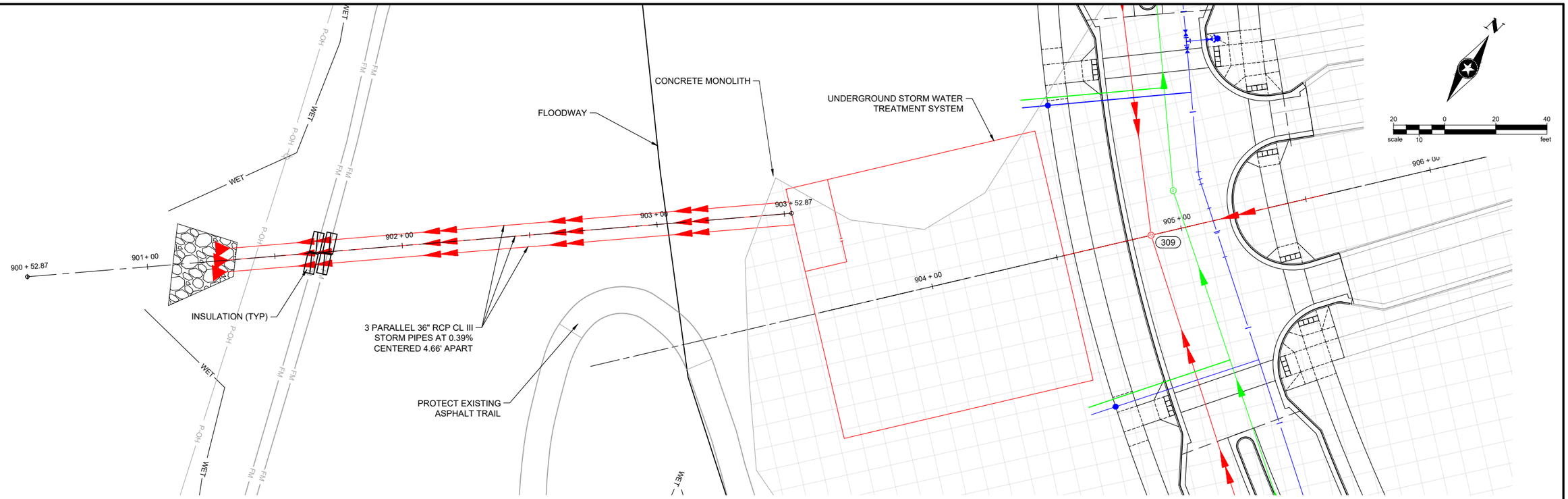
SEH

RIVER POINT DISTRICT

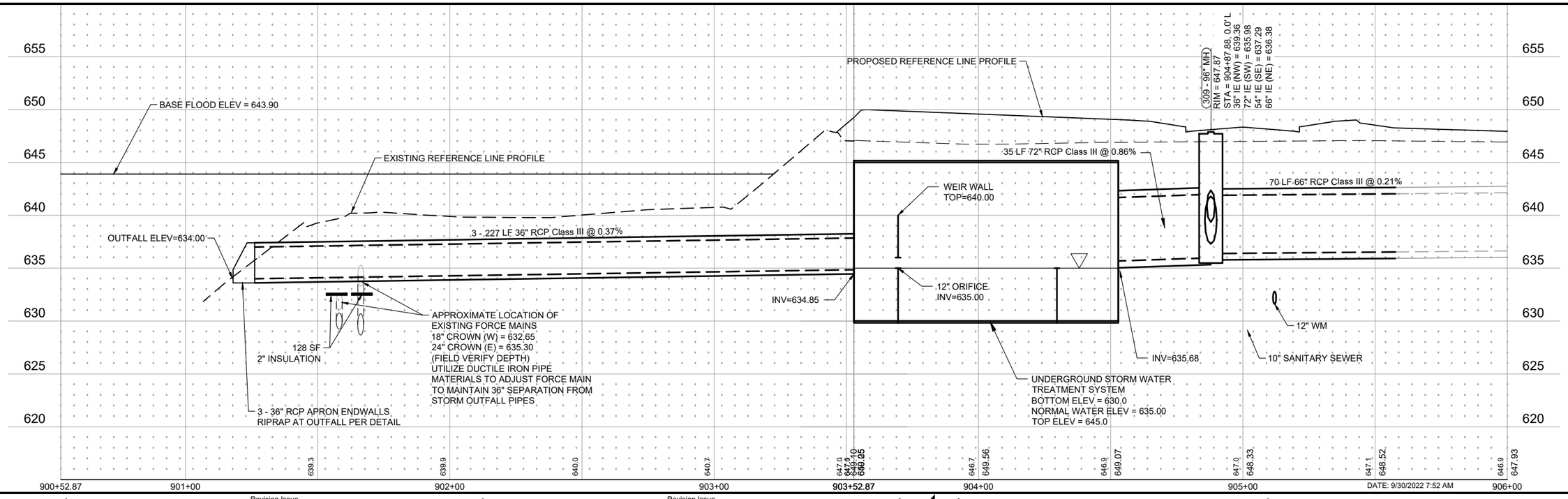
LA CROSSE, WISCONSIN

STORM SEWER CROSSING PLAN & PROFILE
RIVER BEND ROAD

C4.11



DEVELOPMENT STORMWATER OUTFALL



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RIVER POINT DISTRICT

LA CROSSE, WISCONSIN

PLAN & PROFILE
STORM SEWER ALIGNMENT

C5.01

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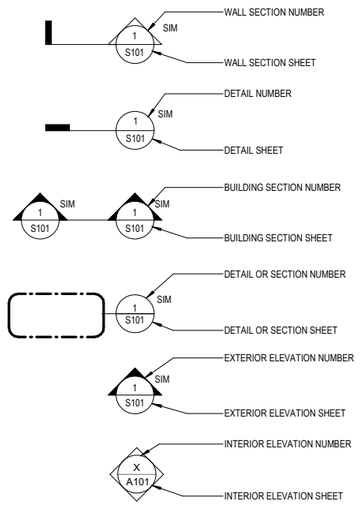
ABBREVIATIONS

&	AND
L	ANGLE
@	AT
℄	CENTERLINE
ø	DIAMETER/ROUND
(E)	EXISTING
#	POUND/NUMBER
+/-	PLUS OR MINUS
SQ	SQUARE
AB	ANCHOR BOLT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
ADJA	ADJACENT
AGGR	AGGREGATE
ALUM	ALUMINUM
ALT	ALTER OR ALTERNATE
ANCH	ANCHOR
ANG	ANGLE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT (PAVING)
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN
C	CHANNEL
CANT	CANTILEVER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLR	CLEAR
CM	CENTIMETER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CRM	CONCRETE RUBBLE MASONRY
CTR	CENTER
d	PENNY (NAILS)
D	DEEP/DEPTH
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DWL	DOWEL
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
ENCL	ENCLOSURE
EQ	EQUAL
EQPT	EQUIPMENT
EW	EACH WAY
EXP	EXPANSION
EXIST	EXISTING
EXT	EXTERIOR
EXTN	EXTENSION
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FH	FLAT HEAD
FL	FLOOR
FND	FOUNDATION
FR	FRAME
FRP	FIBERGLASS REINFORCED POLYESTER/PLASTIC
FS	FOOTING STEP
FT	FOOT/FEET
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GB	GRADE BEAM
GEN	GENERATOR
GP	GUSSET PLATE
GR	GRADE
H	HEIGHT/HIGH
HC	HOLLOW CORE
HD	HEAD
HEF	HORIZONTAL EACH FACE
HIF	HORIZONTAL INSIDE FACE
HOF	HORIZONTAL OUTSIDE FACE
HORIZ	HORIZONTAL
HR	HOUR
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SHAPE
ID	INSIDE DIAMETER (DIMENSION)
IN	INCH
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JBE	JOIST BEARING ELEVATION
JGBE	JOIST GIRDER BEARING ELEVATION
JST	JOIST
JT	JOINT
K	KIPS
KG	KILOGRAM
KM	KILOMETER
KO	KNOCK-OUT
KW	KILOWATT
L	LENGTH/LONG
L#	LINTEL
LB	POUND
LF	LINEAL FOOT
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LTL	LINTEL
LVR	LOUVER
MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MFG	MANUFACTURING
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
MTL	METAL
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NO SCALE
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER (DIMENSION)
OPNG	OPENING
OPP	OPPOSITE
OVHD	OVERHEAD
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE
PLYWD	PLYWOOD
PNL	PANEL
PREFAB	PREFABRICATED
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
QT	QUARRY TILE
R	RISER
RAD	RADIUS
REF	REFERENCE/REFER
REINF	REINFORCED/REINFORCING
REQ	REQUIRED
REV	REVISED/REVISION
RH	ROUND HEAD
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	SOUTH
SCHED	SCHEDULE
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SLNT	SEALANT
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SM	SQUARE METER
SOG	SLAB ON GRADE
SP	SPACED
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUC	STRUCTURE/STRUCTURAL
SUSP	SUSPEND/SUSPENDED
SYM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
TBE	TOP OF BEAM ELEVATION
TD	TRENCH DRAIN
TFE	TOP OF FOOTING ELEVATION
THK	THICK/THICKNESS
THR	THRESHOLD
THRD	THREADED
TOS	TOP OF STEEL
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAR	VARIES
VEF	VERTICAL EACH FACE
VERT	VERTICAL
VIF	VERTICAL INSIDE FACE OR VERIFY IN FIELD
VL#	VENEER LINTEL
VLE	VENEER LEDGE ELEVATION
VLS	VENEER LEDGE STEP
VOF	VERTICAL OUTSIDE FACE
VOL	VOLUME
W	WEST/WIDTH/WIDE
W	WIDE FLANGE (STEEL)
WF	WIDE FLANGE (ALUMINUM)
W/	WITH
W/O	WITHOUT
WP	WATERPROOF
WPM	WATERPROOF MEMBRANE
WS	WATER STOP
WR	WATER RESISTANT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

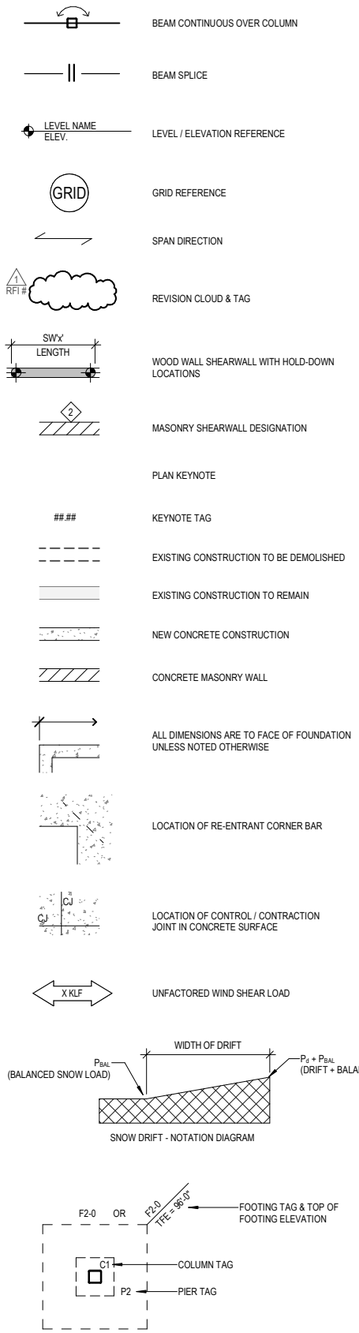
MATERIAL SYMBOLS

- GRAVEL
- SOIL
- BASE COURSE, SUB-BASE, GRAVEL, CRUSHED ROCK
- CONCRETE
- BRICK MASONRY
- CUT STONE, SAND, MORTAR, PLASTER
- CONCRETE MASONRY UNITS
- STEEL
- ALUMINUM (OMIT IN THIN MATERIAL)
- INSULATION BOARD
- RIGID INSULATION
- WOOD FRAMING THROUGH MEMBER
- WOOD FRAMING INTERRUPTED MEMBER
- PLYWOOD
- GYPSUM BOARD
- PARTICLE BOARD

CALLOUT SYMBOLS



ANNOTATION SYMBOLS



STRUCTURAL SHEET INDEX

S0.01	GENERAL
S0.02	GENERAL
S1.01	FOUNDATION
S1.11	TOP SLAB
S2.01	SECTIONS
S3.01	DETAILS
S3.02	DETAILS

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SEH Project	LACRS 163627
Drawn By	PAM
Designed By	MLH/SMJ
Checked By	MLH

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SEH

RIVER POINT DISTRICT
UNDERGROUND RESERVOIR
LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL GENERAL

S0.01

GENERAL STRUCTURAL NOTES
1. These notes do not replace the specifications but are to be read in conjunction with them. Any discrepancies or conflicts between the two shall be brought to the attention of the Structural Engineer of Record (SER) for resolution. In these Notes and the Specifications, the word "shall" means "has a duty to."
2. These drawings are for Lacrosse River Point District (SEH project number (LACRS-163627) and no other use is authorized. Contact SER, Mike Hemstad at SEH 651-470-9287.

GOVERNING BUILDING CODE:
2018 Wisconsin Commercial Building Code
2015 International Building Code as adopted and amended by the state building code

DESIGN CODES AND STANDARDS:
ACI Manual of Concrete Practice
ACI 318, 301 Building Code Requirements & Specifications for Structural Concrete
ACI 350 Environmental Engineering Concrete Structures

DESIGN LOADS PER ASCE 7-10
Risk category II
1. Live load:
   - Roof live load: 50 PSF
2. Dead load:
   - Soil dead load: 420 PSF
3. Snow loads:
   - Ground snow load: 40 PSF (non-concurrent with roof live load)
   - Importance factor: 1.00
4. Rain Load Intensity: N/A
5. Wind loads: N/A
6. Seismic loads: N/A
   - Seismic design category: A
7. Soil criteria:
   - Allowable soil bearing pressure: 3,000 PSF
   - Design water elevation (Q100): 644.00'
   - Frost depth: 65 inches (unheated structure)
   - Anticipated max differential settlement: 1/2 inch
   - Anticipated max total settlement: 1 inch

   Sand backfill:
   - Wet unit weight: 120 PCF
   - Angle of Internal Friction: 32 degrees
   - At-rest pressure: 52 PCF (unsaturated), 90 PCF (saturated)
   - Passive pressure: 300 PCF
   - Sliding coefficient: 0.35
   - Subgrade modulus: 50 PCI

DESIGN / CONSTRUCTION CRITERIA
1. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding. Note presence of concrete monolith at approximate elevation of 636 feet (avg) and groundwater found in borings at approximate elevation of 635 feet. These elevations vary over the site.
2. All material, workmanship, and details shall be in accordance with typical competent construction practices, current manufacturer's recommendations, and all applicable codes and government regulations.
3. The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on process, architectural, mechanical, electrical or other drawings. All conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect and engineer's attention for direction before proceeding.
4. Equipment and structural anchor rod sizes, types, embedment, and patterns shall be verified with the manufacturer or fabricator. All anchor patterns shall be templated to ensure accuracy of placement.
5. The contractor shall supply all necessary temporary bracing, shoring, guying, or other means to avoid excessive stresses and to hold structural elements in place during construction.
6. Job site safety (including excavations) is the sole responsibility of the general contractor and their
7. subcontractors.
8. The engineer is not responsible for construction means, methods, techniques or practices. Where drawings and details imply this, they are provided to show final construction. If contractor desires to use different means and methods than implied by these drawings, submit similar details for review.
9. Standard or typical structural details are intended to illustrate design concepts and to specify material and required physical dimensions matching or similar to the referenced locations in the drawing set. Standard details apply whether or not they are cut on the drawings.
10. There is no provision for future vertical or horizontal expansion in the design.
11. Unless specifically noted otherwise, building sections may not illustrate all dowels, keyways, or waterstops required by design. All base slab or footing to wall joints shall have vertical dowels crossing the joint. All elevated slabs (including base slabs above the lowest base slab elevation) to tank or foundation walls shall have horizontal dowels crossing the joint. Refer to typical details in the drawings for design intent.

FOUNDATIONS
1. CAUTION: Existing underground utilities may exist anywhere on the site. Notify owner and Digger's hotline (800) 242-8511 (Wisconsin) prior to disturbing any grade or excavation.
2. Material Definitions and Gradations:
   a. Non-frost-susceptible fill
      - 100% passing 1" sieve
      - < 50% passing #40 sieve
      - < 6% passing #200 sieve
      - < 2% organic content
   b. Aggregate Base
      - 100% passing 1" sieve
      - 70-100% passing 3/4" sieve
      - 45-90% passing 3/8" sieve
      - 35-80% passing #4 sieve
      - 20-65% passing #10 sieve
      - 10-35% passing #40 sieve
      - 3-10% passing #200 sieve
      - < 2% organic content
      - Large aggregates through #4 have minimum 25% fractured faces or crushed (per gradation)
   c. Aggregate Filter/Base
      - 100% passing 2" sieve
      - 30-70% passing 3/4" sieve
      - 10-50% passing 3/8" sieve
      - 0-10% passing #10 sieve
      - 0-6% passing #200 sieve
      - < 2% organic content
      - Large aggregates through #4 have minimum 75% fractured faces or crushed
   d. Granular Structural Backfill
      - 100% passing 1" sieve
      - 0-65% passing #10 sieve
      - 0-65% passing #40 sieve
      - 0-10% passing #200 sieve
      - < 2% organic content
3. Structural foundations consist of driven piles as recommended by BRAUN INTERTEC in report B2201011 dated 5/20/2022. The structural engineer is not responsible for the accuracy or content of the subsurface soil conditions described in the specifications, test borings, or geotechnical report. A licensed geotechnical engineer shall be present during construction to test, inspect and verify all assumed soil conditions as required.

FOUNDATIONS (CONT)
4. Basement and subgrade tank walls shall be backfilled with Granular Structural Backfill or Non-Frost Susceptible Fill (as defined above) within 2 feet of the wall. Tank walls are designed for an exterior lateral load of 52 PCF equivalent fluid pressure, at-rest, above groundwater (taken as elevation 642.0 due to drain tiles). Tank walls are designed for an equivalent fluid pressure of 90 PCF below elevation 646.0. Walls are designed for an interior lateral load of 63 pcf. Tank walls are not designed to resist any lateral load until the wall concrete has achieved its full design strength, 14 days minimum, and the top slab is in place and has achieved 75 percent of its design strength.
5. Away from walls, place fill in 8 inch loose lifts and compact to 98 percent Standard Proctor beneath foundations, 95 percent otherwise. Within 8 feet of walls, hand compact to 95 percent Standard Proctor.
6. When placing compacted fill adjacent to foundation walls and piers, place backfill at equal rates on both sides to prevent overturning or structural damage.
7. Contractor shall provide for dewatering at excavations from either surface water or seepage.
8. Moisture content in soils beneath building locations should not be allowed to vary after footing excavations and after grading for slabs on grade are completed to a degree that would de-stabilize the compacted soil. If subgrade materials become desiccated or softened by water or other conditions, remove and replace with engineered fill as recommended by the geotechnical engineer. Do not place concrete on frozen ground, nor allow ground beneath foundations to freeze. All foundation work shall be placed on substrate approved and tested by geotechnical engineer of record.
9. Do not place backfill on frozen subgrade. Do not place frozen backfill.
10. Base slab shall be constructed on a subgrade of native material compacted to at least 98 percent of its maximum dry density (standard proctor), and 6 inches of Aggregate Base or Aggregate Filter/Base (as defined above) or WisDOT base aggregate course (dense) below the slab compacted to 100 percent standard proctor density unless noted otherwise in geotechnical report. In wet or potentially wet situations, use Aggregate Filter/Base (as defined above).
11. Grading: where not specifically shown on the plans, it is intended that all excavated and backfilled areas shall be graded to slope away from buildings and other structures.

DRIVEN PILES
1. The foundation system shall be supported by closed end driven steel pipe piling based on the recommendations of the project geotechnical engineering report.
2. Piles are designed for a maximum net capacity of 62.5 tons per pile (working load). Maximum net capacities shall have a minimum factor of safety of 3.0.
3. Piles are not designed for uplift load.
4. Piles are not designed for lateral load.
5. No pile shall be more than 3 inches from its design location (measured at cutoff), nor more than 2 percent out of plumb or specified batter.
6. Minimum steel pipe properties shall be: 12" diameter x 0.30" wall thickness; ASTM A252, grade 3 (fy=45 KSI) or ASTM A572 (fy = 50 KSI).
7. Pipe piles shall be driven with a closed end consisting of a 1" thick end plate, no larger than the pipe. The pile shall be prepared for full penetration welding to the end plate or with commercially fabricated point reinforcement as required by the geotechnical engineer. In addition, piles shall have top bearing plates as detailed in the drawings.
8. All connection splices between pile sections shall be full penetration welds, unless noted otherwise on plans.
9. All pipe piles shall be filled with concrete (f'c = 3,000 PSI) after inspecting for damage or leaking. Where reinforcing is detailed in the top of pile, concrete containing reinforcing shall be vibrated.
10. Reference the drawings for estimated pile lengths and/or estimated pile tip elevations. As-built drawings with final locations, tip elevations, and blow or capacity information, shall be furnished by the Contractor.
11. Provide test piles as shown in the drawings, directed by the geotechnical engineer. Test piles that comply with the project documents may be used in the completed work. Reference drawings for test pile locations.
12. See project specification for required pile driving criteria, pile test program, coordination meetings, notification requirements, seismic monitoring and condition surveys of adjacent structures.

CONCRETE
1. An independent testing agency shall cast 4 six inch test cylinders for 4000 psi concrete, 5 cylinders for 6000 psi conccrete or an equivalent number of four inch cylinders for each 75 cubic yards of each concrete mix placed or for each day's operation, whichever is the lesser amount. The testing agency shall cast, cure, and test the specimens in accordance with ASTM C31 and ASTM C39. Air, temperature, and slump shall be tested at minimum for the first truck and every third truck thereafter (1st, 4th, 7th, etc.) or when a change in properties is noticed, at the final location (test after pump, not at truck).
2. The contractor shall be responsible for the design of form work to comply with the dimensions indicated on the plans, maintaining proper alignment during concrete pouring operations. Special care shall be taken with formwork for self-consolidating concrete.
3. All concrete except as noted in the following paragraphs shall meet the following requirements:
   - Compressive Strength: f'c = 6,000 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.45 max (0.40 max if exposed to sulfates)
4. Concrete used in walls and columns shall meet the following requirements:
   - Compressive Strength: f'c = 4,000 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.45 max
5. Grout fill used in hydraulic structures shall meet the following requirements:
   - Compressive Strength: f'c = 3,000 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.45 max
6. Concrete fill for steel pipe piles shall meet the following requirements:
   - Compressive Strength: f'c = 3,000 psi at 28 days
   - Water/(cement + pozzolan) ratio: 0.45 max
7. Concrete and grout exposed to frost (including foundation walls) shall be air entrained 6% +/- 1%.
8. Slump shall be 4 inches +/- 1 inch without water reducing admixtures. With water reducing admixtures, concrete mix design shall state design slump and field tests shall be +/- 1 inch. Slump is used primarily as a measure of concrete consistency, truck to truck. If slump is outside these ranges, water content (water:cementitious ratio) shall be checked against allowable; and concrete rejected, accepted, or adjusted on that basis.
9. Water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates may be used for improved workability.
10. Do not add water to concrete at the jobsite without written approval of the SER, and in no case in excess of the water in the approved mix design.
11. No chloride containing admixtures are allowed.
12. All concrete is normal weight unless specifically noted otherwise.
13. Cement shall be Portland cement type 1 or Portland Limestone Cement type 1L conforming to ASTM C150. Up to 30% cement may be replaced with fly ash and up to 50% with GGBFS (50% combined max.). Aggregate for normal weight concrete shall conform to ASTM C33. Water is to be potable or demonstrated to have no harmful effects on concrete. Fly ash shall be demonstrated by test to contain minimum 18 percent CAO. When fly ash is used in concrete to be air entrained, air entraining shall be adjusted as required for LOI per recent experience of ready mix supplier.
14. Measured from the time water and cement are batched together, no more than 90 minutes shall elapse until concrete is placed. This time shall be reduced by two minutes for every degree that concrete temperature exceeds 75 degrees Fahrenheit. These criteria may be relaxed by the use of set-controlling admixtures.
15. Protect concrete in accordance with ACI 305 and ACI 306 for hot weather concreting and cold weather concreting respectively. In cold weather, heat is required if outside temperature falls below 30 degrees any time during first three days. Reinforcing shall be 40 degrees or warmer at time of concrete placement. Concrete temperature shall be recorded every morning and shall be kept above 40 degrees in all locations for 7 days. Concrete shall not be exposed to combustion products (use electric heat, ducted heater or ground thaw). Keep protection in place minimum 24 hours after cessation of heating to provide gradual cool-down.
16. When air temperature is above 85 degrees, provide mist, shading, windscreens and other protection as required for 12 hours after placing.
17. Concrete being placed shall be protected from rain. If rain falls on concrete before it has set, or within 3 hours of placement in any event, contractor shall bear cost of testing to prove concrete is unaffected, and shall remove and replace affected concrete to the satisfaction of the engineer.
18. Wet cure (poly and burlap or proprietary blankets kept moist daily) for a minimum of 7 days; sides of footings may be buried after 24 hours. Add one day of cure for fly ash in excess of 15 percent or GGBFS in excess of 10 percent of cementitious. Contractor is responsible for staining caused by burlap in visible areas. Spray-on curing compounds shall not be used as a substitute for wet curing without written permission of the SER except as follows. Liquid-containing structures must use a wet cure on all surfaces. Spray-on curing compounds may be substituted for wet curing in areas of non-liquid-holding structures that are not visible in the final condition and in liquid holding structures in winter conditions where water curing may be hazardous or difficult. When spray-on curing compounds are used, they should be applied in two layers perpendicular to each other and according to manufacturer's instructions.
19. Cementitious grout shall be non-shrink and non-metallic grout. Place according to manufacturer's recommendations and trim neatly where visible.
20. Leak testing is not required for this structure. However, any honeycomb greater than ½" deep shall be patched, and any cracks greater than 1/32 inch shall be treated with crystalline waterproofing (such as Xypex), topically applied per manufacturer's recommendations.
21. Coordinate with other trades for sleeves, conduit, electrical grounding wires, inserts, underground utilities, and other items to be embedded into concrete and verify that they are properly installed and supported before casting concrete. Holes through slab or wall shall leave minimum 1 inch clear to reinforcing; shift reinforcing as required. Placement of such items shall be coordinated with reinforcing placement where they would otherwise displace each other. For instance, in areas with a single mat of reinforcing, east-west conduit should be placed with east-west reinforcing and north-south conduit is placed with north-south reinforcing.
22. Embedments shall not significantly impair the strength of the structure and shall not reduce fire protection. In no case shall embedments violate the required concrete cover. Conduit and pipes, with their fittings, embedded in concrete shall not be larger in outside dimension than 1/3 the overall thickness of slab, wall, or beam in which they are embedded and shall not be spaced closer than three diameters on center. Conduit and pipes placed within 2 feet below bottom of slabs and footings shall not be spaced closer than three diameters on center and shall be encased in CLSM or concrete vibrated to flow around conduit.
23. No uncoated aluminum items shall be embedded in any concrete. All aluminum surfaces in direct contact with concrete shall receive one coat of 8-12 mil dry film thickness bitumastic.
24. Unless shown on drawings, concrete shall be placed without construction joints except where specifically shown on shop drawings approved by the engineer. The contractor shall submit shop drawings showing additional or alternate construction joint locations to the engineer for approval.

CONCRETE (CONT)
24. Bevel all exposed corners of concrete 3/4"x3/4".
25. Verify size and location of all equipment bases, housekeeping pads, and openings.
26. All concrete to be trowel finished shall be tested for air content, whether or not it is purposely air entrained. If concrete contains more than 2 percent entrained air, delay start of finishing to preclude weakened air-rich plane just below surface.
27. Unless specifically noted otherwise, building sections may not illustrate all dowels, keyways, or waterstops required by design. All base slab or footing to wall joints shall have vertical dowels crossing the joint. All elevated slabs (including base slabs above the lowest base slab elevation) to tank or foundation walls shall have horizontal dowels crossing the joint. Slabs on grade may either be independent (with expansion joint) or doweled in; provide dowels where slabs on grade are shown to bear on walls in sections. Refer to typical details in the drawings for design intent.

JOINTS IN CONCRETE STRUCTURES
1. Because of the effects of concrete consolidation, workmanship, detailing, cure, temperature, aggregate size, and other factors; Contractor is responsible for cracking in base slabs and walls of liquid-holding structures, and shall repair any leaking cracks by sealing, injecting, or otherwise filling them. Where sealing is judged necessary by either Contractor or Engineer, Contractor shall submit material and description of sealing to be used for review by Engineer. Note that crystalline waterproofing will heal tight cracks (less than approximately 1/64") over time in warm temperatures, but wide cracks or leak tests attempted in cold temperatures will require additional measures. Any wall which is or may be subject to external groundwater is considered liquid holding.
2. Contractor is encouraged to use well-graded aggregate larger than ¾"; fiber reinforcing; shrinkage reducing admixtures; crystalline waterproofing; extended moist cure; and other means to reduce shrinkage. If used, crystalline waterproofing shall be used at the manufacturer's recommended dosage.
3. Concrete walls and top slabs in liquid-holding structures:
   a. Concrete walls in liquid-holding structures shall have waterstopped construction joints at a maximum spacing of 20 feet for concrete proportioned according to these Notes and the specification. Full horizontal reinforcing shall extend through these joints and be developed each side of joint. At least 36 hours shall pass between adjacent wall pours in liquid-holding structures. Joint spacing in walls shall be measured at the inside surface between corners in a straight line or along a curve, but not around corners. For example, an 18' square box is not required to have wall joints, but a 22' square box is required to have one in each wall. For this purpose, a T-intersection counts as a corner at the intersecting wall but not at the continuing wall.
   b. Alternatively, a low-shrinkage mix may be proposed, and shrinkage measured for the specific concrete mix to be used in the walls, and the maximum construction joint spacing determined by the equation: Spacing = 2.0 / (sh + 0.03), where "sh" is the shrinkage in percent from the 35-day shrinkage test described below; and the spacing is limited to 50 feet. Concrete placed in the walls shall have the same or lesser water content as that used in the test. If a Shrinkage Reducing Admixture or Shrinkage Compensating Admixture is used, it shall be used at the manufacturer's recommended dosage. Measurement of shrinkage shall be according to ASTM C157, except that the specimens should be cured in a lime saturated bath for 7 days rather than 28 days. Shrinkage shall be reported based on measurements at the end of the 7-day moist cure, and at 28 days after cessation of curing. If Shrinkage Compensating Admixture is used, initial measurement shall be 12 hours after placing rather than 7 days; full 7-day lime bath cure and 28-day drying shall still be followed.
4. Concrete base slabs in liquid-holding structures:
   a. Concrete base slabs in liquid-holding structures shall have waterstopped construction joints at a maximum spacing of 40 feet in each direction, with full reinforcing through the joint and developed each side of each joint. At least 36 hours shall pass between adjacent slab pours in liquid-holding structures.
   b. Alternatively, shrinkage may be measured as specified above for the specific concrete mix to be used in the base slab, and the maximum spacing determined by the equation: Spacing = 4.0 / (sh + 0.03), where "sh" is the shrinkage in percent from the 35-day shrinkage test described above and the spacing is limited to 100 feet. Concrete placed in the base slab shall have the same or lesser water content as that used in the test. If a Shrinkage Reducing Admixture is used, it shall be used at the manufacturer's recommended dosage.

WATERSTOPS
1. Waterstops in new construction shall be 6-inch PVC, center bulb, ribbed, unless specifically noted otherwise.
2. At splices, miter all intersecting connections at 45 degrees and use a manufacturer approved heating iron to make full contact butt joints.
3. For construction joints at hardened (existing) concrete, hydrophilic waterstops may be proposed by the contractor in lieu of adhered split-T PVC waterstop. Such material shall be selected considering water head to be resisted, concrete cover in all directions, reinforcing present through the joint, and whether waterstop is continually immersed. Contractor's proposal shall include waterstop information and contact information for a technical representative of the waterstop supplier along with the representative's written recommendation of the type of waterstop to be used. Hydrophilic waterstop shall not be used unless this process is followed.

REINFORCING STEEL
1. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
2. All reinforcing steel shall conform to the requirements of ASTM A615 grade 60 steel. Reinforcing steel shall not be welded without authorization of the SER, and if welded shall be A706 grade 60 steel. Reinforcing to be welded shall only be welded to structural steel, not other reinforcing, unless specifically noted on the drawings. Welded plain wire fabric shall be supplied in sheets, not rolls, and conform to the requirements of ASTM A185.
3. Clear minimum cover of concrete over reinforcing steel shall be as follows unless specifically noted otherwise:
   - 3" Concrete placed against earth
   - 3" Top mat of base slabs to receive waterstops at wall joint
   - 2" All other concrete
4. All reinforcing shall be tied to crossing reinforcing on at least every other bar (every bar at perimeter), and sufficiently to resist displacement from workers and placement of concrete.
5. All footing dowels shall be accurately positioned and wired in place before casting footing concrete. Where not noted, provide and install dowels of same size and spacing as vertical reinforcement in all columns and walls. Position all anchor bolts with templates.
6. Bar lap lengths in concrete and 90 degree end hooks shall be in accordance with the table below unless noted otherwise. This table lists class 'B' laps. For epoxy coated reinforcing steel, increase lap length by 50% with c-c bar spacing < 6db and cover to center of bar <3db, otherwise increase by 20%. For masonry reinforcing, use fc' = 3000 psi values.

CLASS B REINFORCING BAR LAP SPLICE TABLE
(note d, e, & f)

	f_c' = 3000 psi (note c)		f_c' = 4000 psi		f_c' = 6000 psi		
BAR SIZE	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	STD 90° HOOK
#3	21"	28"	19"	24"	15"	20"	6"
#4	29"	37"	25"	32"	20"	26"	8"
#5	36"	46"	31"	40"	25"	33"	10"
#6	43"	56"	37"	48"	30"	39"	12"
#7	62"	81"	54"	70"	44"	57"	14"
#8	71"	93"	62"	80"	50"	66"	16"
#9	80"	104"	70"	90"	57"	74"	19"
#10	91"	118"	78"	102"	64"	83"	22"
#11	100"	131"	87"	113"	71"	92"	24"

a. Vertical bars; and horizontal or diagonal bars with less than 12" of concrete placed below them.
b. Horizontal or diagonal bars with 12" or more of concrete placed below them. (eg. wall horizontals)
c. Use f_c' = 3000 psi values for masonry rebar laps. Do not lap splice bars bigger than #8 in masonry. Break off fins in cores of 6" CMU.
d. For epoxy coated bars, multiply these values x 1.20.
e. For laps between different bar sizes, use the greater of these values based on the smaller bar, or these values based on the bigger bar divided by 1.30.
f. Hoop bar laps shall be staggered such that splices do not overlap with bars above, below, or on opposite faces.

7. Bars marked continuous, corner bars, and all vertical steel shall be lapped in accordance with table above at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
8. Bar support accessories shall be as specified in latest edition of the ACI detailing handbook and the concrete reinforcing steel institute design handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces shall have plastic coated ends. Chairs shall be supported on sand plates as required to keep from sinking into subgrade. WWF shall be supported by continuous bolsters or bars on chairs sufficiently close to prevent sheets from sagging appreciably during concrete placement. Support rebar used at contractor's option shall be extra bars supplied by contractor, not taken from design reinforcing.

POST INSTALLED ANCHOR RODS AND DOWELS
1. Unless noted otherwise, anchors and reinforcing dowels installed in concrete or concrete masonry shall be as noted below. Anchors not shown or noted on the drawings, those required by the contractor solely for his means and methods, or those required by mechanical/electrical and carrying less than 100 pounds of non-safety-related items, do not require special inspection.
2. Approved manufacturers are: HILTI, ITW / Redhead, Simpson, and Powers / Rawl. Submit product data and current ICC ES report or IAPMO report showing product is compliant with project code requirements for review. Contractor shall arrange for manufacturer's rep to train all installers on the complete installation process. A letter of procedure stating method of drilling, the product for use, the complete installation procedure, manufacturer training date and a list of the personnel trained on anchor installation shall be submitted to the engineer.
3. Permanent anchors exposed to earth, weather, or corrosive environments, including all anchors in wet areas, and anchors engaging stainless steel or FRP/aluminum members, shall be stainless steel type 304 or 316; Otherwise, anchors shall be zinc plated, minimum ASTM A36 material unless ASTM A193 grade B7 is noted in the drawings, and shall be according to ASTM F1554. Reinforcing dowels shall be of the same size (U.N.O.), material and coating (if any) as the continuing reinforcing.
4. Where expansion anchors are called for, contractor may substitute screw type anchors with self-tapping threads or adhesive anchors of the same size and embedment, subject to review of capacity by the engineer for the product substituted. Where adhesive anchors are called for, other types shall not be substituted. Screw type anchors shall not be re-used on permanent work.
5. Adhesive shall have a current ICC ES report. Use high viscosity adhesive and placement devices in consultation with the manufacturer for overhead work. Overhead installation shall be subject to continuous special inspection during installation and shall only be performed by certified adhesive anchor installers. Use low temperature formulations for cold weather work. Do not apply significant load to anchors until their capacity has been assured.
6. Anchors installed in concrete masonry and precast hollow core concrete shall be installed in cores grouted solid. Minimum grout strength f'g = 3,000 PSI. Minimum 12 inches of grout each way along horizontal cores from anchor. Vertical cores shall be grouted full height. Anchors installed in masonry shall not be installed within 1 1/2 inches of any head joint unless block are square end and mortared across full width of head joint, or filled bond beam.
7. Holes shall be drilled, cleaned, and maintained until installation in accordance with manufacturer's recommendations using standard rotary-impact bits and oil-free compressed air; diamond core bits shall not be used unless specifically approved by the manufacturer. Locate and avoid reinforcing bars and PT tendons. Maintain spacing (minimum 8 inches) and edge/corner distances (minimum 4 inches) as recommended by manufacturer unless specifically noted otherwise in the drawings.
8. Unless noted otherwise, anchors shall be installed to the following embedments:

	Diameter	CIP Concrete	Grouted CMU
Expansion/screw:	1/2 inch	3 1/2 inches	4 1/2 inches
	5/8 inch	4 inches	5 inches
	3/4 inch	5 inches	6 inches
Adhesive:	1/2 inch	4 1/2 inches	5 1/2 inches
	5/8 inch	5 inches	6 inches
	3/4 inch	6 inches	7 inches (6" in 8" CMU)

9. Except as noted, all anchors shall have intermittent special structural inspection by one of the following. Load tests shall be to 150 percent of service capacity or 75 percent of ultimate strength, with no appreciable slip, permanent deformation, or concrete damage. Anchors which fail this test shall be replaced at no cost to the project. Two failures in a given installation shall result in mandatory load testing at double the rate noted below.
   a. Expansion and screw anchors:
      - Witness installation with torque wrench according to manufacturer's recommendations and requirements of ICC report;
      - Test all anchors with torque wrench after installation (including load test of 5 percent of installed anchors); or
      - Load test of 10 percent of installed anchors by supplier or third party inspector
   b. Adhesive anchor rods and dowels:
      - Witness installation according to manufacturer's recommendations and requirements of ICC report; or
      - Load test of 10 percent of installed anchors by supplier or third party inspector

STRUCTURAL METALS / FRP
1. All structural steel shall be as follows:
   - Wide flange beams and columns shall be ASTM A992, grade 50 steel.
   - All miscellaneous steel (angles, channels, plate) shall be ASTM A992, A529, or A36 steel (min. fy = 36 KSI).
   - Rectangular steel tubes (HSS) shall be ASTM A500, grade C steel (fy = 50 KSI).
   - Pipe shall be ASTM A53 (fy = 35 KSI) unless A500 grade C (fy = 46 KSI) is noted.
   - Other shapes shall be ASTM A36 (fy = 36 KSI).
2. Splicing or modification of members in the field is prohibited without prior written approval of the SER.
3. All primary member bolted connections shall be two bolt minimum.
4. Fabrication and erection shall be in accordance with the latest edition of the AISC Manual of Steel Construction, Code of Standard Practice for Steel Buildings and Bridges, except as follows:
   - To paragraph 3.1, add "The project architectural drawings are a part of the structural steel design drawings by reference and must be used concurrently with the structural steel design drawings for any information not shown on the structural steel design drawings".
   - Delete paragraph 3.2 and insert the following: "architectural, process, electrical and mechanical plans shall be used as a supplement to the structural steel design drawings to define detail configurations and construction information".
   - Paragraph 3.3 modify the last sentence to read, "in case of discrepancies between the structural steel plans and plans of other disciplines or existing conditions, such discrepancies shall be called to the architect / engineer's attention for resolution".
5. All aluminum shapes shall be ASTM B209, B308, alloy 6061-T6; except handrail may be 6063-T5 or -T6. All welding shall be performed by a certified welder using compatible electrodes in accordance with the requirements of AWS D1.2 and visually inspected. Where designed by the fabricator, aluminum alloy and temper shall be stated on shop drawings.
6. All exposed steel shall be galvanized. Damaged galvanizing shall be repaired by application of cold galvanizing compound such as ZRC (minimum 3 coats). Paint finish per architectural.
7. All steel welding shall be performed by a certified welder using E70 electrodes in accordance with the requirements of AWS D1.1 "Structural Welding Code" and visually inspected. Full-pen welds shall also be inspected by NDT methods such as ultrasonic, mag particle, or dye pen.
8. All field welded connections shall be chipped, ground where required, wire brush cleaned and painted to match the paint system.
9. All bolts not otherwise specified shall be 3/4" diameter high strength (ASTM A325-N). All bolts shall be fully pretensioned. Any non-twist off bolts shall have 10 percent checked with a torque wrench by the special inspector.
10. All copes shall be made with a 1 inch minimum radius.
11. All anchor rods shall be minimum 3/4" diameter ASTM A276 Stainless Steel type 304 unless noted otherwise. Where headed rods are noted or specified, bent rods shall not be furnished; rods may be headed or nutted, with the nut tack welded at the bottom end of the anchor or double nutted.
12. All cut or raw surfaces of FRP shall be coated with compatible epoxy.

SHOP DRAWING REVIEW
1. Short Elliott Hendrickson Inc. (SEH) will review the general contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by SEH. In general, submittals will not be reviewed for correct quantities or construction considerations. SEH shall review shop drawings and related materials with comments provided that each submission has met the requirements herein. SEH shall return without comment unrequired material or submissions without GC approval stamp
2. Any items requiring submittal of calculation packages shall have calculations submitted prior to or as part of the shop drawing submittal they accompany. Shop drawings submitted prior to submittal of required calculations will be rejected. All calculations shall be sealed and signed by an engineer licensed in the state of the project. The supplier's engineer must provide calculations for all systems and connections that differ from the drawings. Design shall comply with the requirements in these notes, the drawings and the specifications.
3. Prior to submittal of a shop drawing or any related material to SEH, the GC shall:
   - Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
   - Review and approve each submission.
   - Stamp each submission as approved.
4. SEH shall assume that no submission comprises a variation from the contract documents unless the GC advises SEH with written documentation. Should SEH require more than ten (10) working days to perform the review, SEH shall so notify the GC. Submittals shall include drawings and related material (if any) as indicated below.
   - Concrete mix designs and material certificates including admixtures, compounds applied to the concrete after placement, and associated product data. See specifications.
   - Aggregate tests and concrete test history for each mix design, with the submission of concrete mix designs.
   - Reinforcing steel shop drawings including erection drawings and bending details. Bar list will not be reviewed for correct quantities. Include elevations of all reinforced concrete masonry walls and all concrete walls with footing steps or other elevation changes, at a scale no smaller than 1/8" = 1'-0" showing all required reinforcing.
   - Structural steel and metal fabrication shop drawings including erection drawings and piece details.

REQUIRED INSPECTION
1. Required inspection and testing is required according to the table below. Refer to specification section 01 45 10 for responsibilities. Contractor shall coordinate with SER, testing agency and geotechnical engineer throughout the project.
   - Required Inspections shall be performed in accordance with IBC Chapter 17.
   - Required Inspection of reinforcing steel and anchor rod placement shall be performed prior to concrete placement or during anchor rod installation for adhesive anchors.
   - Continuous inspection during concrete placement is required.
   - Conduct concrete slump tests in accordance with ASTM C143.
   - Obtain set of a four (4) concrete test cylinders each time concrete is placed. Make test cylinders in accordance with ASTM C39.
   - See these Notes for testing of Post-Installed anchors and rebar where installation is not witnessed.
   - Reports of Required Inspections shall be provided, at the frequency noted above, to the Owner, Contractor, and Engineer of Record by the firm contracted to perform Required Inspections.
   - Special Inspection criteria presented above and in specification shall apply to all footings and foundation walls, but does not apply to non-structural slab on grade and site work concrete.

REQUIRED INSPECTIONS & TESTS SCHEDULE	INSPECTION FREQUENCY		TESTING		NOT APPLICABLE
DESCRIPTION OF WORK - PER IBC CH. 17	C*	P*	YES	NO	
METAL CONSTRUCTION					
1. WELDING	☐	☑	☐	☑	☐
2. DETAILS: BRACING, LOCATIONS, ETC.	☐	☑	☐	☑	☐
3. BOLTING	☐	☑	☐	☑	☐
4. OPEN-WEB STEEL JOISTS & JOIST GIRDERS:					
A. INSTALLATION OF OPEN-WEB JOISTS & JOIST GIRDERS END CONNECTIONS WELD OR BOLT	☐	☐	☐	☐	☑
B. INSTALLATION OF STANDARD BRIDGING & BRIDGING THAT DIFFERS FROM SJI SPECS	☐	☐	☐	☐	☑
5. STEEL DECK INCLUDING WELDING OR MECHANICAL FASTENING	☐	☐	☐	☐	☑
6. COMPOSITE CONSTRUCTION INCLUDING HEADED STUD ANCHORS	☐	☐	☐	☐	☑
7. COLD FORMED TRUSSES SPANNING 60FT OR GREATER	☐	☐	☐	☐	☑
CONCRETE CONSTRUCTION					
1. INSPECT REINFORCEMENT	☐	☑	☐	☑	☐
2. REINFORCING BAR WELD	☑	☐	☑	☐	☐
3. INSPECT ANCHORS CAST IN CONCRETE	☐	☑	☐	☑	☐
4. INSPECT ANCHORS POST-INSTALLED IN CONCRETE	☐	☑	☐	☑	☐
5. VERIFY USE OF REQUIRED DESIGN MIX	☐	☑	☐	☑	☐
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	☐	☑	☑	☐	☐
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	☑	☐	☐	☑	☐
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	☐	☑	☐	☑	☐
9. INSPECT PRESTRESSED CONCRETE MEMBERS	☐	☐	☐	☐	☑
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	☐	☐	☐	☐	☑
11. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO POST-TENSIONING CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	☐	☐	☐	☐	☑
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	☐	☑	☐	☑	☐
MASONRY CONSTRUCTION - LEVEL A					
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	☐	☐	☐	☐	☑
MASONRY CONSTRUCTION - LEVEL B					
1. REINFORCEMENT: SIZE AND SPACING	☐	☐	☐	☐	☑
2. PRISMS	☐	☐	☐	☐	☑
3. DETAILS: GROUTING, LINTELS, ETC	☐	☐	☐	☐	☑
WOOD AND LIGHT GAUGE METAL					
1. HIGH LOAD DIAPHRAGMS	☐	☐	☐	☐	☑
2. METAL-PLATE-CONNECTED WOOD TRUSSES SPANNING 60FT OR GREATER	☐	☐	☐	☐	☑
SOILS					
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATION ARE ADEQUATE= TO ACHIEVE THE DESIGN BEARING CAPACITY	☐	☑	☐	☑	☐
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	☐	☑	☐	☑	☐
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	☐	☑	☐	☑	☐
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	☐	☑	☐	☑	☐
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	☐	☑	☐	☑	☐
CAST-IN-PLACE DEEP FOUNDATIONS					
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	☐	☐	☐	☐	☑
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, LENGTHS, EMBEDMENTS INTO BEDROCK AND BELL DIAMETERS (IF APPLICABLE), AND ADEQUATE END BEARING STRATA CAPACITY, RECORD CONCRETE OR GROUT VOLUMES	☐	☐	☐	☐	☑
DRIVEN DEEP FOUNDATIONS ELEMENTS					
1. VERIFY ELEMENT MATERIALS SIZE AND LENGTHS COMPLY WITH THE REQUIREMENTS	☑	☐	☐	☑	☐
2. DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED	☑	☐	☐	☑	☐
3. INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	☑	☐	☐	☑	☐
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION. DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT	☑	☐	☐	☑	☐

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SEH Project	LACRS 163627
Drawn By	PAM
Designed By	MLH/SMJ
Checked By	MLH

Rev. #	Revision Issue Description	Date
1	RELEASED FOR PERMITTING	03.17.2022
2	RELEASED FOR BIDDING	06.03.2022
3	RELEASED FOR REBID	07.29.2022

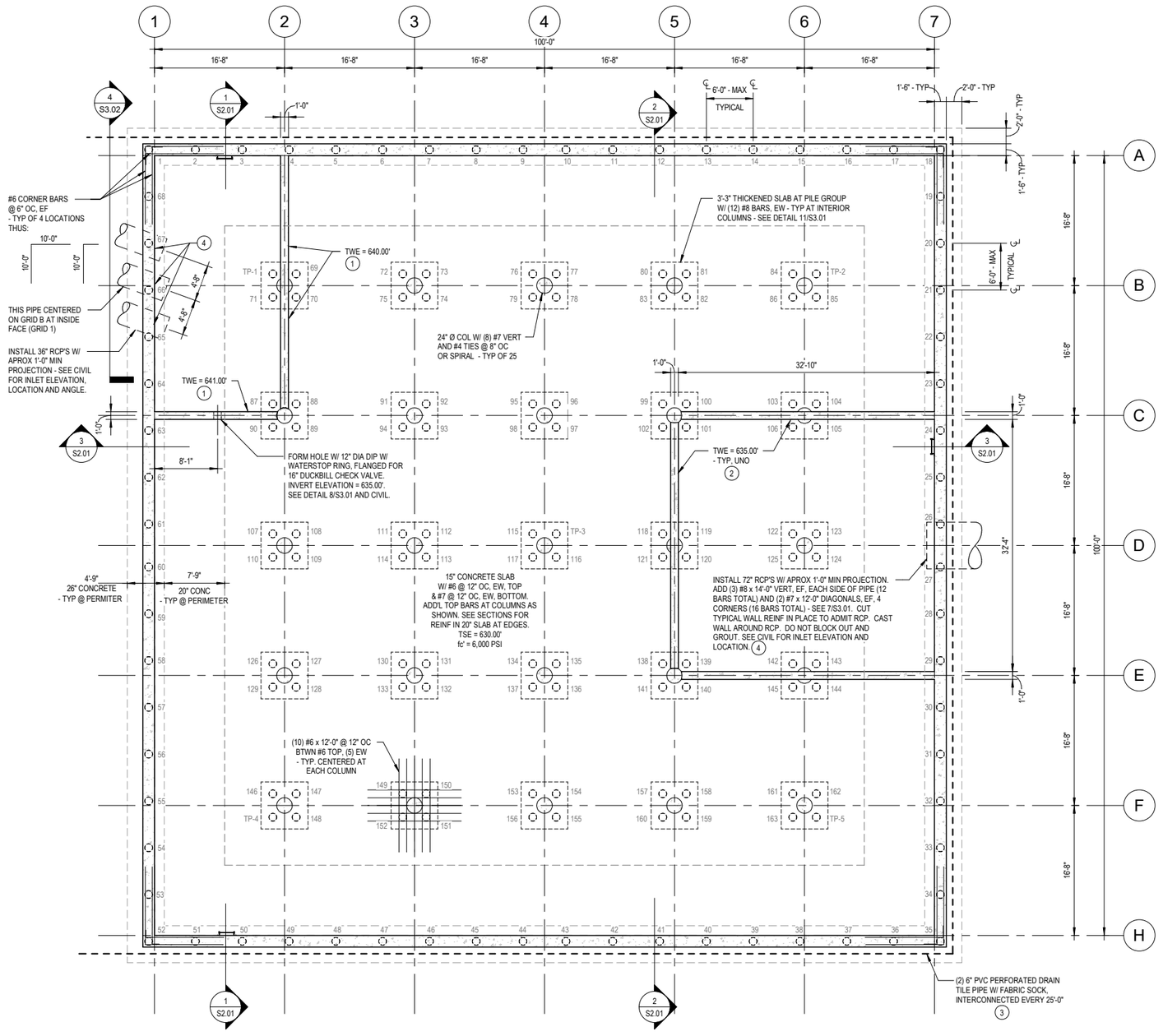
Rev. #	Revision Issue Description	Date

SEH

RIVER POINT DISTRICT
UNDERGROUND RESERVOIR
LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL GENERAL

S0.02



1 S1.01 STRUCTURAL FOUNDATION PLAN

1/8" = 1'-0"

0 4' 8' 16'

NORTH

FOUNDATION PLAN NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. SEE TYPICAL DETAILS FOR UTILITY PENETRATIONS THROUGH WALLS. SEE PLAN FOR APPROXIMATE LOCATIONS. VERIFY LOCATIONS AND ELEVATIONS WITH CIVIL AND MECHANICAL DRAWINGS
2. FOR SLAB JOINT LAYOUTS, SEE GENERAL STRUCTURAL NOTES FOR CRITERIA. SEE TYPICAL SLAB CONSTRUCTION JOINT DETAILS.
3. VERIFY SIZE, LOCATION AND INVERT ELEVATIONS FOR ALL UTILITIES, SITE STRUCTURES, SUMPS AND DRAINS WITH CIVIL, MECHANICAL, AND ELECTRICAL AND DRAWINGS.
4. ALL PILE GROUPS AND PILES ARE CENTERED ON WALLS AND COLUMNS - TYPICAL, UNLESS NOTED OTHERWISE. SEE PLAN AND TYPICAL DETAILS.

FOUNDATION PLAN KEYNOTES:

1. 12" CONCRETE WALL WITH #6 @ 12" OC VERTICAL AND HORIZONTAL DOWELS AND HORIZONTAL BARS, #5 @ 12" OC VERTICAL, EACH FACE WITH HOOKED DOWELS INTO SLAB BELOW. SINGLE #6 HORIZONTAL DOWELS @ 12" OC, CENTERED INTO COLUMNS, SEE DETAIL 4/S3.02
2. 12" CONCRETE WALL WITH #5 @ 12" OC, EW, EF. SINGLE #6 HORIZONTAL DOWELS @ 12" OC, CENTERED INTO COLUMNS
3. DAYLIGHT DRAIN TILES W/ RODENT SCREEN AND CONCRETE SPLASH PAD, EACH END.
4. INSTALL PRESS SEAL CAS 802 PER MANUFACTURER'S RECOMMENDATION, WITH 1" FOAM-FILLED GAP AROUND PIPE, FULL THICKNESS OF WALL.

STEEL PIPE PILE PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND SPECIFICATIONS FOR PILE TYPE, CAPACITY, AND TEST PILE REQUIREMENTS.
2. PILE NUMBERS ARE INDICATED ON PLAN. 163 PILES THUS AND 5 TEST PILES (INDICATED BY TP-X).
3. ESTIMATED PILE LENGTHS FOR PILE GROUPS IN THICKENED SLAB AND PERIMETER PILES, IS 68 FEET. TEST PILES SHALL BE MINIMUM 80 FEET LONG. IF CAPACITY IS NOT REACHED WITH 65 FEET OF TEST PILE IN THE GROUND, STOP AND WAIT FOR PORE WATER TO DISSIPATE, THEN RE-STRIKE. WORKING PILE CAPACITY IS 62.5 TONS (125 KIPS) WITH A FACTOR OF SAFETY OF 3.0. REFERENCE GEOTECHNICAL REPORT.
4. PILE DRIVER SHALL RECORD TIP ELEVATION, CAPACITY BASED ON FINAL 10 BLOWS, AND RE-STRIKE, IF ANY, FOR EACH PILE.

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Rev. # | Revision Issue Description | Date

SEH

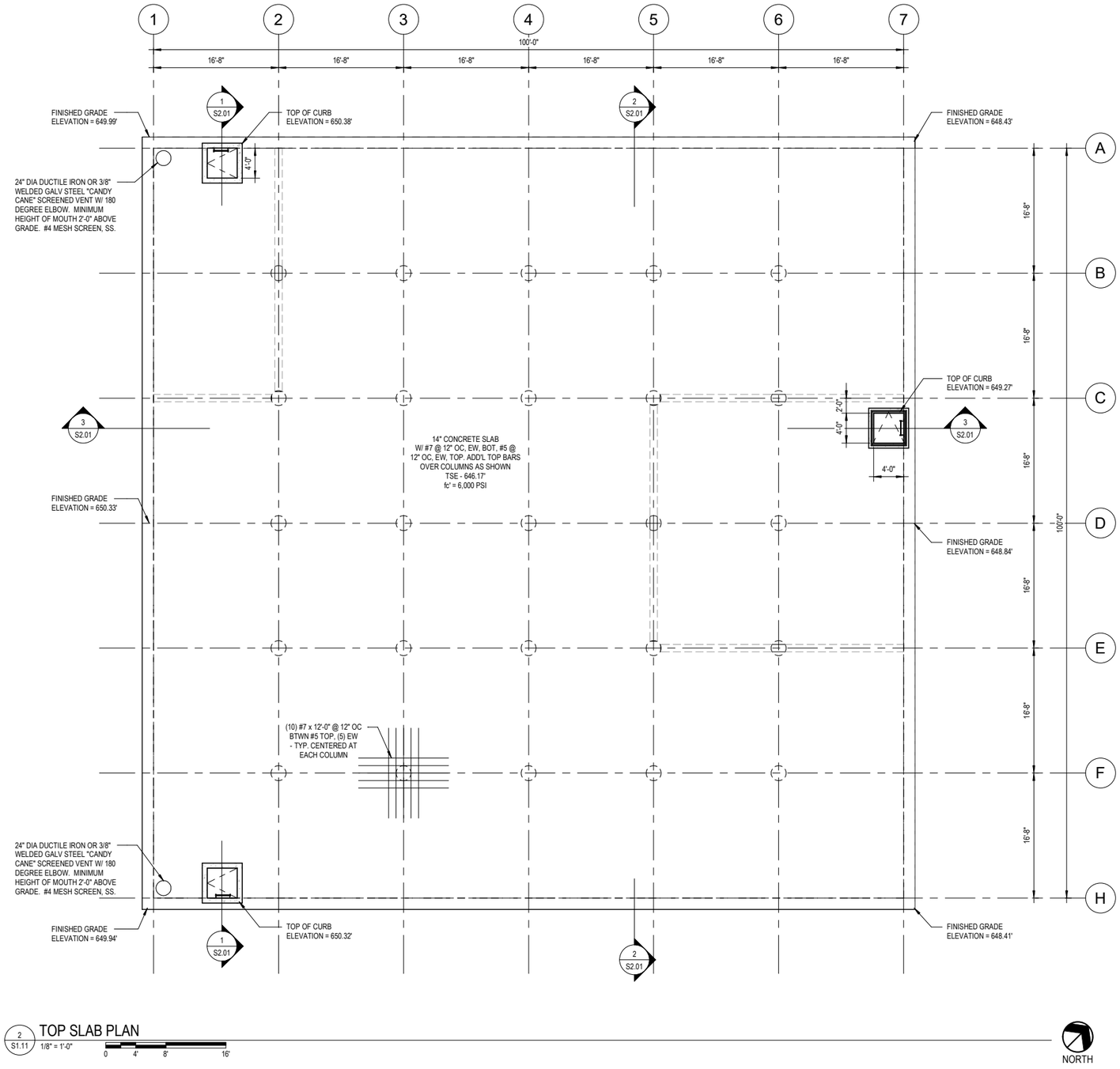
RIVER POINT DISTRICT

UNDERGROUND RESERVOIR

LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL FOUNDATION

S1.01



2 S1.11 TOP SLAB PLAN

1/8" = 1'-0"

0 4' 8' 16'

NORTH

TOP SLAB PLAN NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. DO NOT BACKFILL UNTIL CONCRETE LID IS IN PLACE WITH MINIMUM 0.75 Fc' BY TEST.
2. SEE TYPICAL DETAILS FOR PENETRATIONS THROUGH TOP SLABS FOR OPENINGS AND HATCHES. SEE PLAN FOR APPROXIMATE LOCATIONS.
3. FOR WALL JOINT LAYOUTS, SEE GENERAL STRUCTURAL NOTES FOR CRITERIA. SEE TYPICAL WALL CONSTRUCTION JOINT DETAILS.
4. FOR SLAB JOINT LAYOUTS, SEE GENERAL STRUCTURAL NOTES FOR CRITERIA. SEE TYPICAL SLAB CONSTRUCTION JOINT DETAILS

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SEH

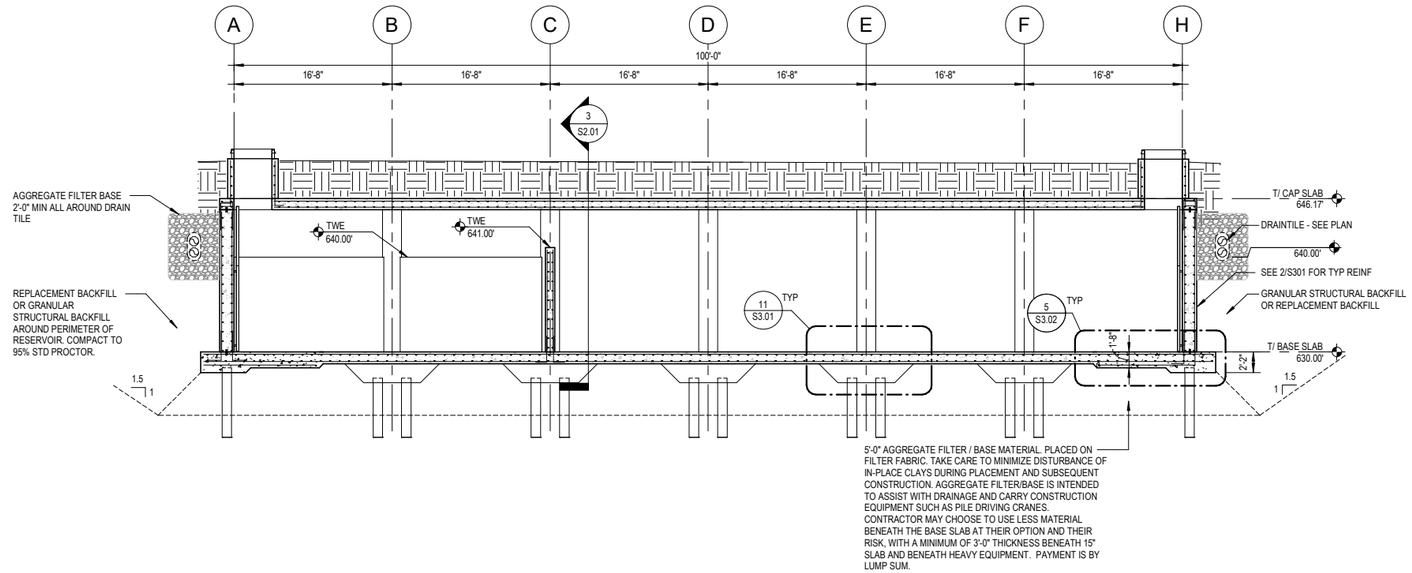
RIVER POINT DISTRICT

UNDERGROUND RESERVOIR

LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL
TOP SLAB

S1.11



1 S2.01 STRUCT BLDG SECTION

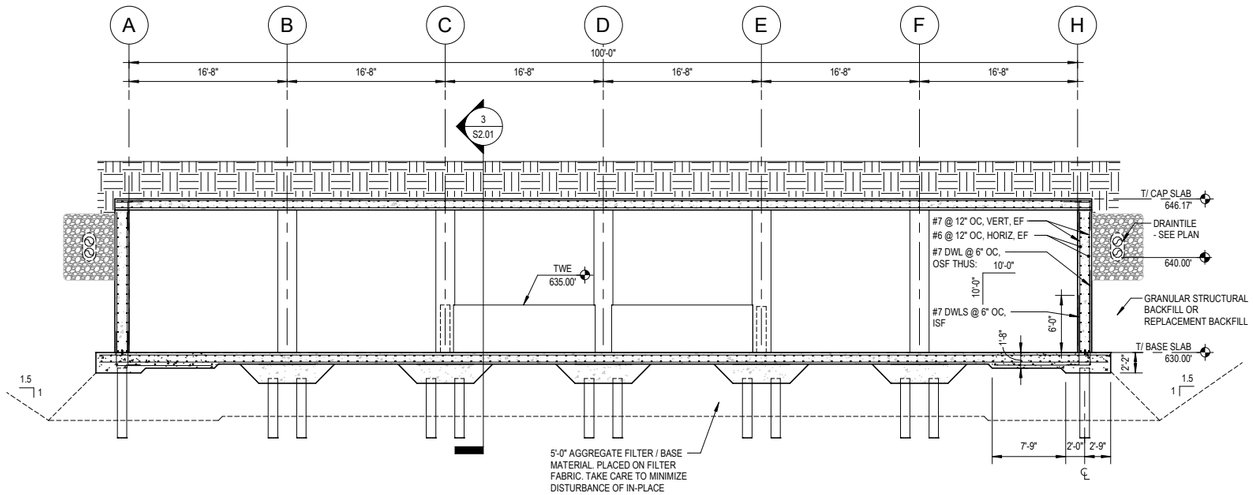
1/8" = 1'-0"

0 4' 8' 16'

NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

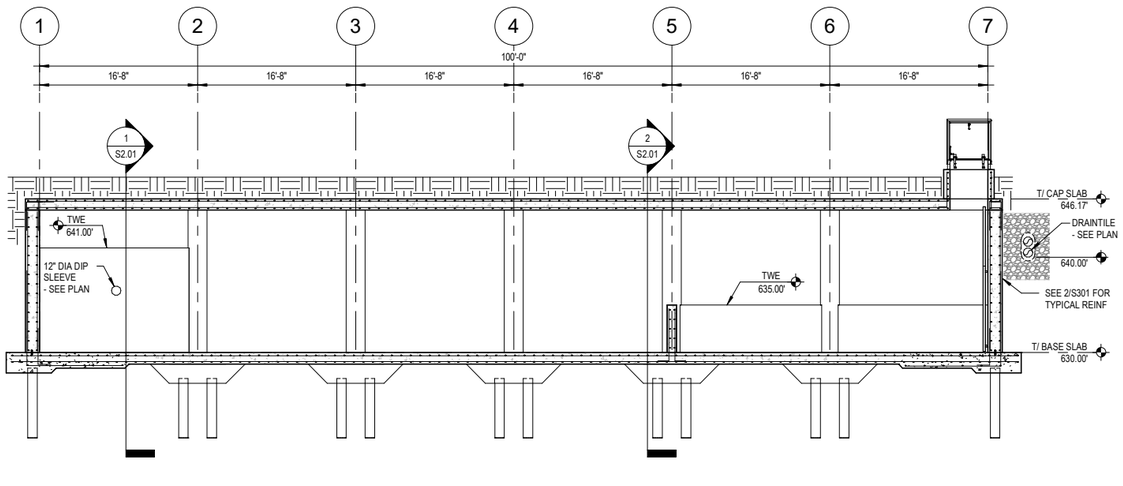
1. AGGREGATE FILTER/BASE SHALL MEET GRADATION SPECIFIED FOR AGGREGATE FILTER/BASE MATERIAL IN THE STRUCUTURAL NOTES. AGGREGATE FILTER/BASE MATERIAL IS NOT COMPACTED.
2. GRANULAR STRUCTURAL BACKFILL SHALL BE PAID FOR AS REPLACEMENT BACKFILL AS DEFINED IN SPECIFICATION 31 23 33. IT SHALL MEET EITHER THE GRADATION SPECIFIED FOR GRANULAR STRUCTURAL BACKFILL IN THE STRUCTURAL NOTES, OR REPLACEMENT BACKFILL.



2 S2.01 STRUCT BLDG SECTION1

1/8" = 1'-0"

0 4' 8' 16'



3 S2.01 STRUCT BLDG SECTION2

1/8" = 1'-0"

0 4' 8' 16'

SEH Project	LACRS 163627
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RIVER POINT DISTRICT

UNDERGROUND RESERVOIR

LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL SECTIONS

S2.01

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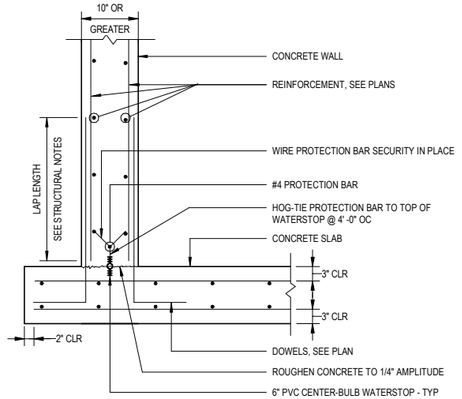
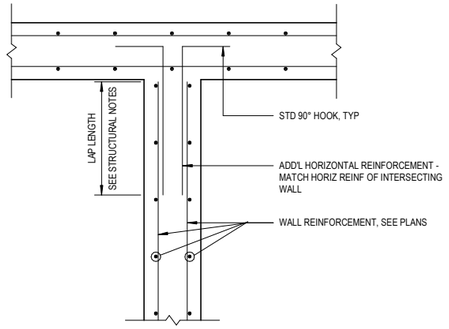


1 S3.01 WALL TO SLAB JOINT DETAIL

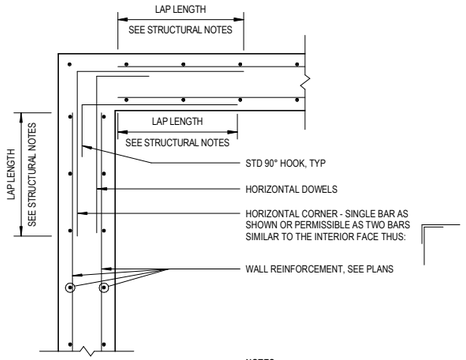
NOT TO SCALE



NOTES:
1. REINFORCEMENT IS SYMMETRICAL.
2. SEE PLANS FOR REINF SIZE & SPACING.

2 S3.01 WALL INTERSECTION REINFORCEMENT DETAIL

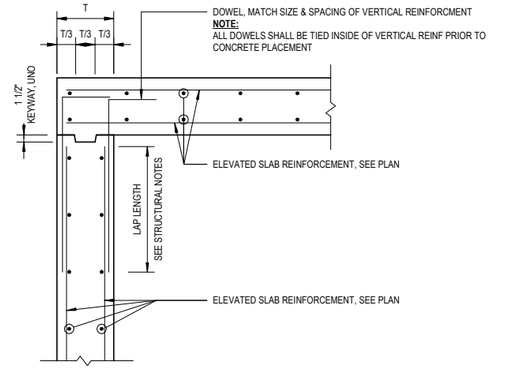
NOT TO SCALE



NOTES:
1. DOWELS & CORNER REINF SHALL MATCH REINF SIZE & SPACING (UNO).
2. REINFORCEMENT IS SYMMETRICAL.

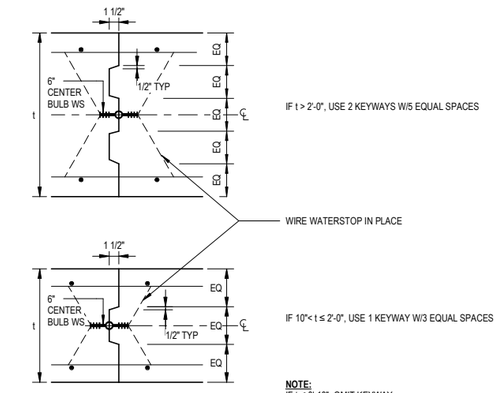
3 S3.01 WALL CORNER REINFORCEMENT DETAIL

NOT TO SCALE



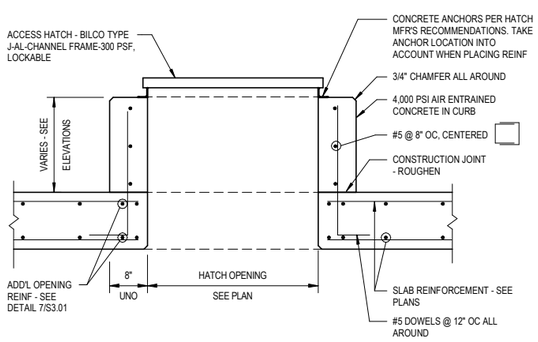
13 S3.01 ELEVATED SLAB CONNECTION DETAIL

NOT TO SCALE



5 S3.01 WALL CONSTRUCTION JOINT DETAIL

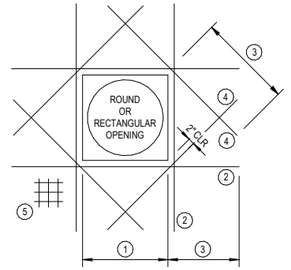
NOT TO SCALE



6 S3.01 ACCESS HATCH CURB DETAIL

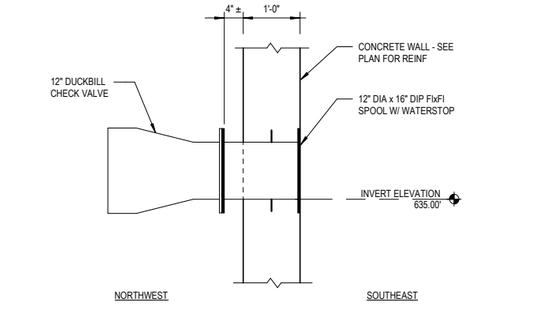
NOT TO SCALE

NOTES:
1. IF OPENING DIMENSION OR DIAMETER IS GREATER THAN 3'-0", REFER TO SPECIFIC DETAIL.
2. BAR OR BARS OF SAME SIZE AND COATING AS BARS CUT, W/(1/2) THE NUMBER OF CUT BARS EACH SIDE OF OPENING, SPACED @ 4". IF ONLY ONE BAR, OR NO BARS (PER MAT) ARE CUT IN EITHER DIRECTION USE ONLY DIAGONAL BARS.
3. PROVIDE LAP LENGTH. SEE TABLE IN STRUCTURAL NOTES.
4. SINGLE DIAGONAL BAR EACH FACE, SAME SIZE AND COATING AS BIGGEST BAR CUT, MINIMUM #5 x 5'-0".
5. IF REINF IS WWF, OR THERE IS NO REINF, PROVIDE (4) #5 x 5'-0" DIAGONAL BARS.



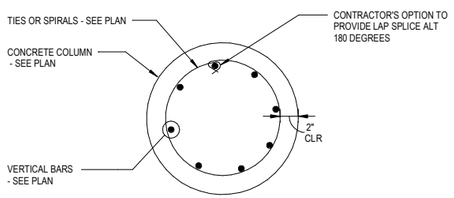
7 S3.01 OPENING REINFORCEMENT DETAIL

NOT TO SCALE



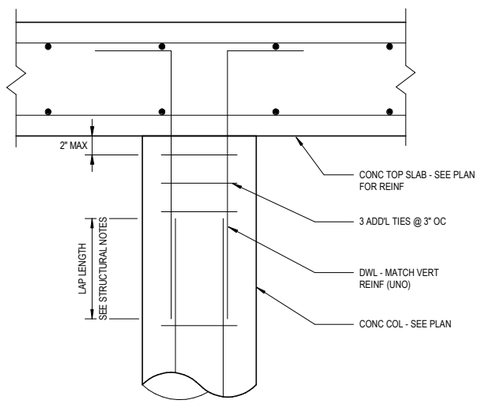
8 S3.01 CHECK VALVE DETAIL

NOT TO SCALE



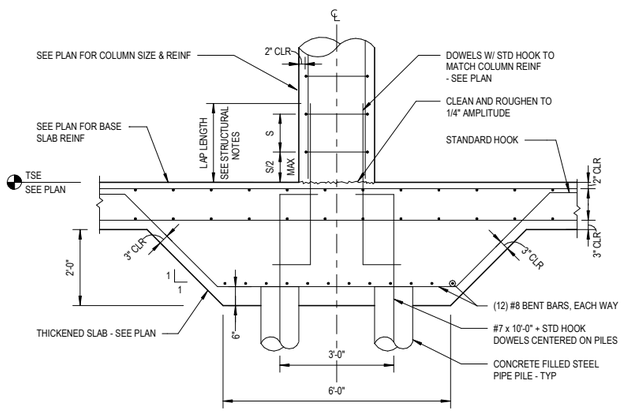
9 S3.01 CONCRETE COLUMN REINFORCING DETAIL

NOT TO SCALE



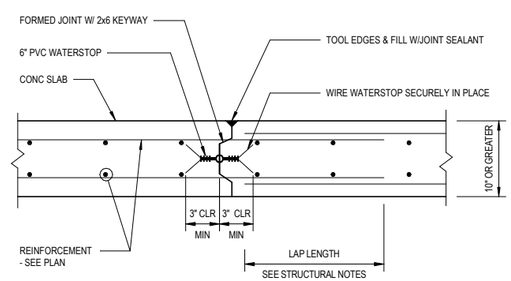
10 S3.01 TYPICAL INTERIOR COLUMN SECTION AT TOP SLAB

NOT TO SCALE



11 S3.01 TYPICAL INTERIOR COLUMN SECTION AT PILE CAP

NOT TO SCALE



12 S3.01 SLAB CONSTRUCTION JT DETAIL (TWO MATS)

NOT TO SCALE

SEH Project LACRS 163627
Drawn By PAM
Designed By MLH/SMJ
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RIVER POINT DISTRICT

UNDERGROUND RESERVOIR

LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL DETAILS

S3.01

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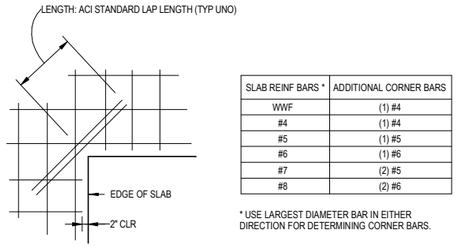


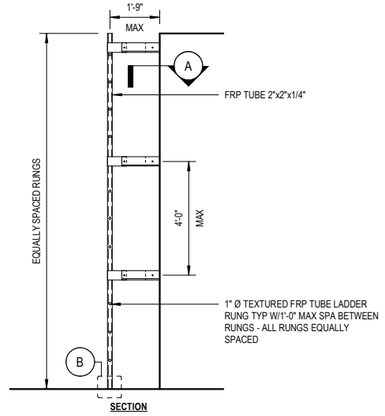
SLAB REINF BARS *	ADDITIONAL CORNER BARS
WWF	(1) #4
#4	(1) #4
#5	(1) #5
#6	(1) #6
#7	(2) #5
#8	(2) #6

* USE LARGEST DIAMETER BAR IN EITHER DIRECTION FOR DETERMINING CORNER BARS.

NOTE:
PROVIDE 2" CLEAR COVER OVER ALL BARS AT OPENINGS

ADDITIONAL CORNER BARS:
- WHEN SLAB HAS BOTTOM REINFORCEMENT LAYER ONLY, PLACE DIAGONAL BARS AT MID-DEPTH.
- WHEN SLAB HAS TOP REINFORCEMENT LAYER
- ONLY, PLACE DIAGONAL BARS BELOW TOP REINFORCEMENT.
- WHEN SLAB HAS TOP & BOTTOM REINFORCEMENT
- LAYERS, PLACE DIAGONAL BARS BETWEEN TOP & BOTTOM REINFORCEMENT (2-LAYERS).

1 S3.02 SLAB REENTRANT CORNER DETAIL
NOT TO SCALE



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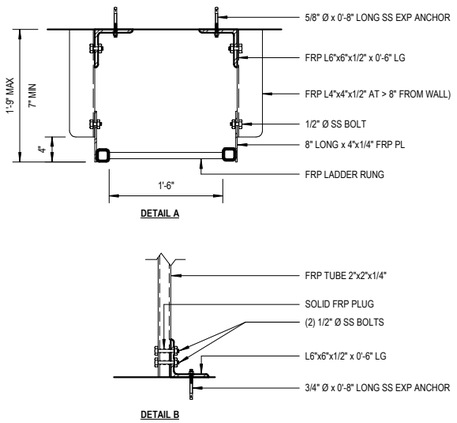
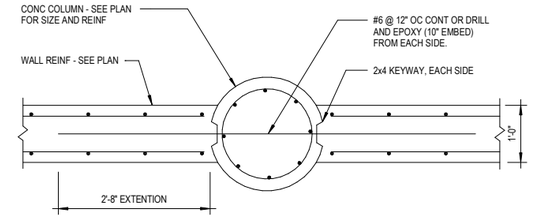
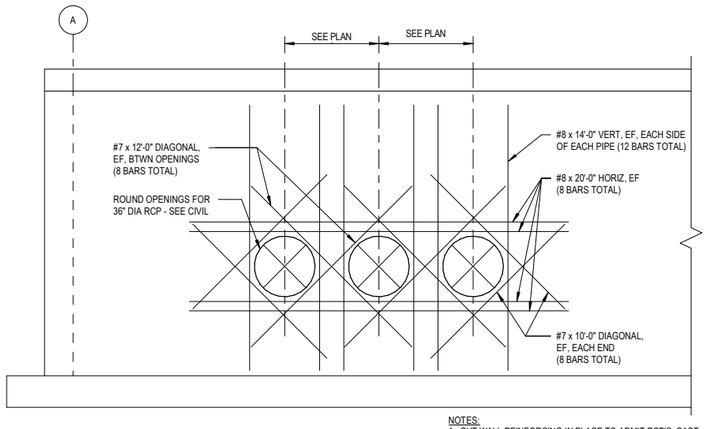


2 S3.02 FRP LADDER DETAIL
NOT TO SCALE

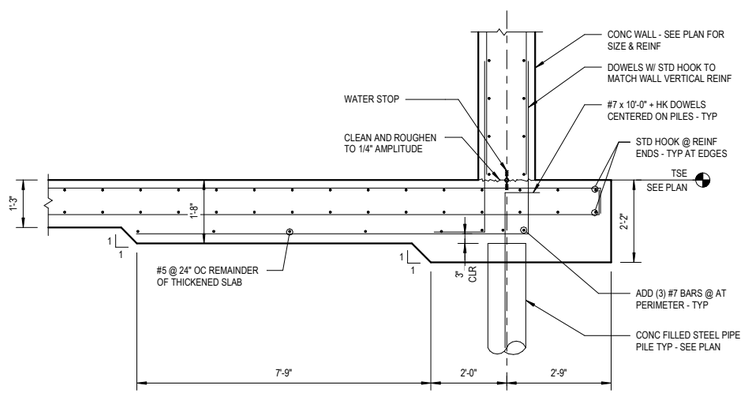


3 S3.02 DETAIL AT INTERIOR WALLS
NOT TO SCALE



NOTES:
1. CUT WALL REINFORCING IN PLACE TO ADMIT RCP'S. CAST WALL AROUND RCP'S. DO NOT BLOCK OUT AND GROUT.
2. REFERENCE TYPICAL DETAIL 7/S3.01 FOR INFO NOT SHOWN.

4 S3.02 ADDITIONAL REINFORCING AT OUTLET PIPES
NOT TO SCALE



NOTES:
1. SEE 2/S2.01 FOR INFORMATION NOT SHOWN.

5 S3.02 TYPICAL EXTERIOR WALL SECTION AT PILE CAP
NOT TO SCALE

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RIVER POINT DISTRICT
UNDERGROUND RESERVOIR
LA CROSSE, WISCONSIN

STORM TANK STRUCTURAL DETAILS

S3.02