CENTRAL ARKANSAS WATER
JACK H WILSON WATER TREATMENT PLANT
WILSON RENEWAL AND RESLIENCY PROJECT
ADDENDUM NO. 2
JANUARY 9, 2025

This Addendum forms part of the Contract Documents and modifies the Specifications and Drawings as noted below. Acknowledge receipt of the Addendum in the space provided on the Bid Proposal. Failure to acknowledge receipt of the Addendum may subject the Bidder to disqualification.

This Addendum consists of 164 pages, including attachments.

A. SPECIFICATIONS

1. Section 10 28 00 – TOILET AND BATH ACCESSORIES
    a. Modify Paragraph 2.01.A as follows:
        a. Include #5. Saniflow Corp as an acceptable manufacturer.
    b. Modify Paragraph 2.02.A.13 as follows:
        a. Include Speedflow Plus as an example.
2. Section 22 05 29 HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
    a. Add Paragraph 2.01.I below:
        I. For areas where chemicals are stored in excess of 50 gallons, provide stainless steel equivalent to models listed above.
3. Section 22 07 19 PLUMBING PIPING INSULATION
    a. Replace 22 07 19 PLUMBING PIPING INSULATION in its entirety with the one attached to this Addendum.
4. Section 22 13 16 SANITARY WASTE AND VENT PIPING.
    a. Replace 22 13 16 SANITARY WASTE AND VENT PIPING in its entirety with the one attached to this Addendum.
5. Section 22 14 13 FACILITY STORM DRAINAGE

a. Add section 22 14 13 FACILITY STORM DRAINAGE in its entirety attached in this Addendum.

6. Section 32 31 19 ORNAMENTAL FENCES AND GATES
    a. Modify Paragraph 2.03.A.7 as follows:
        a. Replace the unavailable Monumental Iron Works selection. Modify as follows:
            1. Ornamental picket fence swing gates shall be the 4 Rail Classic as manufactured by Montage Plus, or equal.
7. Section 33 05 21 WATER DISTRIBUTION
    a. Modify Paragraph 1.01.B.4 as follows:
        a. Section 40 05 19 – Ductile Iron Pipe and Fittings
8. Section 33 05 31 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE
    a. Modify Paragraph 1.01.B.5 as follows:
        a. Section 40 05 19 – Ductile Iron Pipe and Fittings
9. Section 33 07 00 SANITARY SEWERS
    a. Modify Paragraph 1.01.B.6 as follows:
        a. Section 40 05 19 – Ductile Iron Pipe and Fittings
10. Section 40 05 19 DUCTILE IRON PIPE
    a. Replace Paragraph 2.04.D.5 in its entirety with “After installation, buried couplings not constructed of ductile iron or stainless steel, shall receive two heavy coats of coal tar epoxy (min. 24 mil thickness) which is compatible with the finish of the couplings.”
11. Section 40 05 64.1 BUTTERFLY VALVES – LARGE DIAMETER
    a. Replace Table 1 – Large Butterfly Valve Schedule (Paragraph 2.02.C) in its entirety with the table below.

Description	Valve Size (in.)	Max Flow, (mgd)	Maximum Operating Pressure (psi)	Shaft Orientation	Electric Actuator, Gearbox, and Shaft Requirements.
(8) Raw Water Yard Valves	48	80	25	Vertical	N/A
(2) Basin Influent Valves	48	38.75	25	Vertical	N/A
(1) Sed Basin 4 Flow Split Box Valve	48	38.75	25	Horizontal	N/A
(1) Raw Water Yard Valve	60	150	10	Vertical	N/A

12. Section 40 05 64.2 BUTTERFLY VALVES – SMALL AND MEDIUM DIAMETER

a. Modify paragraph 2.03.A as follows:

a. "Isolation valves and throttling valves for low pressure (less than 25 psig) air service shall be resilient-seated **or high-performance** butterfly valves as manufactured by Centerline (Crane), Bray, DeZurik or Engineer approved equal. All valve components shall be suitable for continuous operation at temperatures up to 300ºF with a 25 psig minimum working pressure. Materials of construction shall be as specified below. Valves shall otherwise be as described above in Paragraph 2.02 - Butterfly Valves (Water Service).

i. Valve bodies - 316 Stainless Steel

ii. Valve discs and shafts – 316 stainless steel

iii. Valve seals

1. Resilient Seat Valve – Viton

2. High Performance Valve – Teflon”

13. Section 40 06 20 PROCESS PIPE VALVE AND GATE SCHEDULES

    a. Replace 40 06 20 PROCESS PIPE VALVE AND GATE SCHEDULES in its entirety with the one attached to this Addendum.

    b. Note: all valves less than 4" have been removed from the Manual Valve schedule.

14. Section 40 61 91 PROCESS CONTROL SYSTEM INSTRUMENT LIST

    a. Modified the Pressure and Differential Pressure Gauges - Section 40 73 13 section with the following additions:

TAG NUMBER	SERVICE DESCRIPTION	PROCESS FLUID	MEASURING RANGE	P&ID	REMARKS
PI-2052	Raw Water Sample Inlet Pressure Gauge 2		0-45 PSI	I3004	
PI-2053	Coagulated Water Sample Inlet Pressure Gauge		0-45 PSI	I3004	

15. Section 46 43 12 HOSELESS SOLIDS COLLECTORS

    a. Remove the following requirement (formerly Paragraph 2.05.C.10):

        a. “Local disconnects shall be provided by Contractor immediately adjacent to all control panel(s). Disconnects shall be in accordance with Division 40.”

    b. Modify Paragraph 2.05.D.4.e (Control Panels) to the following:

        a. “VFD shall be as specified in Section 26 29 23 - Low Voltage Variable Frequency Motor Controllers.”

16. Section 46 43 76 INCLINED PLATE SETTLERS

    a. Modify Paragraph 1.05.D.1 (Warranty Bond) to the following:

        a. Contractor shall cause Manufacturer to provide a one-year warranty bond from substantial completion to guarantee

system performance for all aspects defined in this specification. In the event that Manufacturer is not able to meet the performance requirements specified herein, and is not able to remedy installation, Owner will use the warranty bond to either accept the defective system or remedy the system themselves.

17. Section 46 61 16 GAC FILTER MEDIA
    a. Modify tables 1.05.A and 2.03.A as follows:
        a. “Effective size (mm) = 1.0 – 1.2”

B. DRAWINGS

1. Drawing E1008 ELECTRICAL – ENLARGED DEMO PLAN – AREA 8
    a. Replace Drawing E1008 ELECTRICAL – ENLARGED DEMO PLAN – AREA 8 in its entirety with the one attached to this Addendum.
2. Drawing E1015 ELECTRICAL – ENLARGED PLAN – AREA 6
    a. Replace Drawing E1015– ELECTRICAL ENLARGED PLAN – AREA 6 in its entirety with the one attached to this Addendum.
3. Drawing E1017 ELECTRICAL – ENLARGED PLAN – AREA 8
    a. Replace Drawing E1017 ELECTRICAL – ENLARGED PLAN – AREA 8 in its entirety with the one attached to this Addendum.
4. Drawing E3000 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY DEMOLITION
    a. Replace Drawing E3000 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY DEMOLITION in its entirety with the one attached to this Addendum.
5. Drawing E3010 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY

a. Replace Drawing E3010 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY in its entirety with the one attached to this Addendum.

6. Drawing E3032 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS III
    a. Replace Drawing E3032 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS III in its entirety with the one attached to this Addendum.
7. Drawing E3033 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS IV
    a. Replace Drawing E3033 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS IV in its entirety with the one attached to this Addendum.
8. Drawing E3034 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS V
    a. Replace Drawing E3034 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS V in its entirety with the one attached to this Addendum.
9. Drawing E3035 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS VI
    a. Replace Drawing E3035 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS VI in its entirety with the one attached to this Addendum.
10. Drawing E3041 FILTER BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM IV

a. Replace Drawing E3041 FILTER BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM IV in its entirety with the one attached to this Addendum.

11. Drawing E3043 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE I
    a. Replace Drawing E3043 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE I in its entirety with the one attached to this Addendum.
12. Drawing E3044 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE II
    a. Replace Drawing E3044 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE II in its entirety with the one attached to this Addendum.
13. Drawing E3045 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE III
    a. Replace Drawing E3045 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE III in its entirety with the one attached to this Addendum.
14. Drawing E3047 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE V
    a. Replace Drawing E3047 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE V in its entirety with the one attached to this Addendum.
15. Drawing E3203 AIR SCOUR BLOWER BUILDING – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM AND CONTROL BLOCK DIAGRAM

a. Replace Drawing E3203 AIR SCOUR BLOWER BUILDING – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM AND CONTROL BLOCK DIAGRAM in its entirety with the one attached to this Addendum.

16. Drawing E4002 BACKWASH TREATMENT TANK – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM
    a. Replace Drawing E4002 BACKWASH TREATMENT TANK – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM in its entirety with the one attached to this Addendum.
17. Drawing E6008 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – PANEL SCHEDULES
    a. Replace Drawing E6008 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – PANEL SCHEDULES in its entirety with the one attached to this Addendum.
18. Drawing E6010 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM
    a. Replace Drawing E6010 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM in its entirety with the one attached to this Addendum.
19. Drawing E6012 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
    a. Replace Drawing E6012 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE in its entirety with the one attached to this Addendum.
20. Drawing E6107 BULK CHEMICAL BUILDING – ELECTRICAL – RISER DIAGRAMS

a. Replace Drawing E6107 BULK CHEMICAL BUILDING – ELECTRICAL – RISER DIAGRAMS in its entirety with the one attached to this Addendum.

21. Drawing E6111 BULK CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULES
    a. Replace Drawing E6111 BULK CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULES in its entirety with the one attached to this Addendum.
22. Drawing E7106 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONTROL BLOCK DIAGRAM
    a. Replace Drawing E7106 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONTROL BLOCK DIAGRAM in its entirety with the one attached to this Addendum.
23. Drawing E7108 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
    a. Replace Drawing E7108 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE in its entirety with the one attached to this Addendum.
24. Drawing E7109 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
    a. Replace Drawing E7109 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE in its entirety with the one attached to this Addendum.
25. Drawing I2100 FLOCCULATION AND SEDIMENTATION BASIN NO. 1 P&ID – INSTRUMENTATION

a. Replace Drawing I2100 INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 1 P&ID in its entirety with the one attached to this Addendum.

26. Drawing I2200 FLOCCULATION AND SEDIMENTATION BASIN NO. 2 P&ID – INSTRUMENTATION
    a. Replace Drawing I2200 INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 2 P&ID in its entirety with the one attached to this Addendum.
27. Drawing I2300 FLOCCULATION AND SEDIMENTATION BASIN NO. 3 P&ID – INSTRUMENTATION
    a. Replace Drawing I2300 INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 3 P&ID in its entirety with the one attached to this Addendum.
28. Drawing I2400 FLOCCULATION AND SEDIMENTATION BASIN NO. 4 P&ID – INSTRUMENTATION
    a. Replace Drawing I2400 INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 4 P&ID in its entirety with the one attached to this Addendum.
29. Drawing I3004 FILTER BUILDING ANALYZER ROOM P&ID SHEET 1 – INSTRUMENTATION
    a. Replace Drawing I3004 FILTER BUILDING ANALYZER ROOM P&ID SHEET 1 in its entirety with the one attached to this Addendum.
30. Drawing I3005 FILTER BUILDING ANALYZER ROOM P&ID SHEET 2 – INSTRUMENTATION
    a. Replace Drawing I3005 FILTER BUILDING ANALYZER ROOM P&ID SHEET 2 in its entirety with the one attached to this Addendum.

31. Drawing P0002 SCHEDULES SHEET 1

    a. Replace Drawing P0002 SCHEDULES SHEET 1 in its entirety with the one attached to this Addendum.

32. Drawing P0003 SCHEDULES SHEET 2

    a. Replace Drawing P0003 SCHEDULES SHEET 2 in its entirety with the one attached to this Addendum.

33. Drawing P8015 FIRST FLOOR PLAN - SUPPLY

    a. Replace Drawing P8015 FIRST FLOOR PLAN - SUPPLY in its entirety with the one attached to this Addendum.

C. BID PACKAGES

Attached is supplemental documentation for the following Bid Packages:

1. Bid Package 6
2. Bid Package 7

D. ATTACHMENTS

1. Section 22 07 19 PLUMBING PIPING INSULATION
2. Section 22 13 16 SANITARY WASTE AND VENT PIPING
3. Section 22 14 13 FACILITY STORM DRAINAGE
4. Section 40 06 20 PROCESS PIPE VALVE AND GATE SCHEDULES
5. Drawing E1008 ELECTRICAL – ENLARGED DEMO PLAN – AREA 8
6. Drawing E1015 ELECTRICAL – ENLARGED PLAN – AREA 6
7. Drawing E1017 ELECTRICAL – ENLARGED PLAN – AREA 8
8. Drawing E3000 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY DEMOLITION
9. Drawing E3010 FILTER BUILDING – ELECTRICAL – ENLARGED BOTTOM PLAN – CROSS GALLERY

10. Drawing E3032 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS III
11. Drawing E3033 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS IV
12. Drawing E3034 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS V
13. Drawing E3035 FILTER BUILDING – ELECTRICAL – PANEL SCHEDULES AND RISER DIAGRAMS VI
14. Drawing E3041 FILTER BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM IV
15. Drawing E3043 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE I
16. Drawing E3044 FILTER BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE II
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19. Drawing E3203 AIR SCOUR BLOWER BUILDING – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM AND CONTROL BLOCK DIAGRAM
20. Drawing E4002 BACKWASH TREATMENT TANK – ELECTRICAL – PANEL SCHEDULE RISER DIAGRAM
21. Drawing E6008 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – PANEL SCHEDULES
22. Drawing E6010 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONTROL BLOCK DIAGRAM

23. Drawing E6012 SODIUM HYPOCHLORITE CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
24. Drawing E6107 BULK CHEMICAL BUILDING – ELECTRICAL – RISER DIAGRAMS
25. Drawing E6111 BULK CHEMICAL BUILDING – ELECTRICAL – CONDUIT AND WIRE SCHEDULES
26. Drawing E7106 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONTROL BLOCK DIAGRAM
27. Drawing E7108 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
28. Drawing E7109 ELECTRICAL BUILDING NO. 2 – ELECTRICAL – CONDUIT AND WIRE SCHEDULE
29. Drawing I2100 FLOCCULATION AND SEDIMENTATION BASIN NO. 1 P&ID – INSTRUMENTATION
30. Drawing I2200 FLOCCULATION AND SEDIMENTATION BASIN NO. 2 P&ID – INSTRUMENTATION
31. Drawing I2300 FLOCCULATION AND SEDIMENTATION BASIN NO. 3 P&ID – INSTRUMENTATION
32. Drawing I2400 FLOCCULATION AND SEDIMENTATION BASIN NO. 4 P&ID – INSTRUMENTATION
33. Drawing I3004 FILTER BUILDING ANALYZER ROOM P&ID SHEET 1 – INSTRUMENTATION
34. Drawing I3005 FILTER BUILDING ANALYZER ROOM P&ID SHEET 2 – INSTRUMENTATION
35. Drawing P0002 SCHEDULES SHEET 1
36. Drawing P0003 SCHEDULES SHEET 2

37. Drawing P8015 FIRST FLOOR PLAN – SUPPLY

38. Bidder Questions and Responses

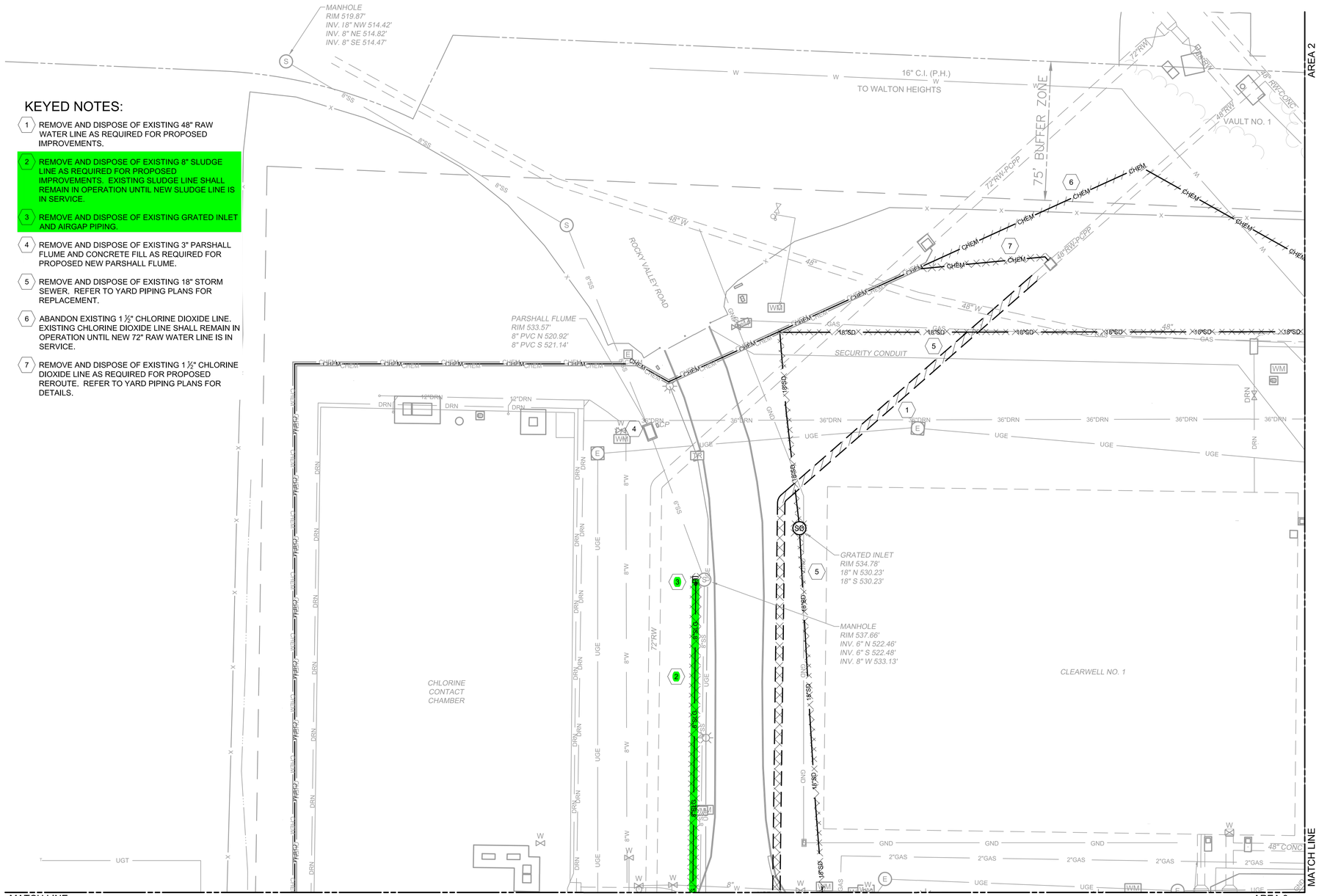
HAZEN AND SAWYER

BID PACKAGE 6

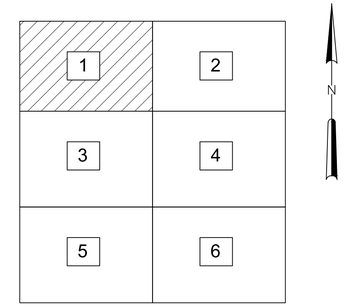
YARD PIPING
PACKAGE

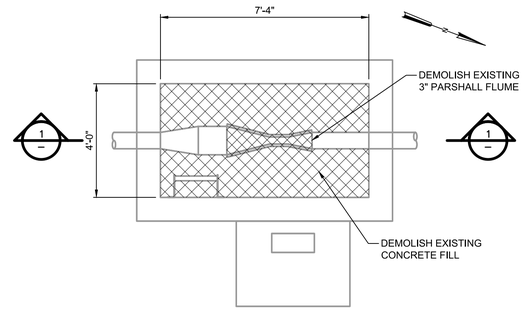
KEYED NOTES:

1. REMOVE AND DISPOSE OF EXISTING 48" RAW WATER LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS.
2. REMOVE AND DISPOSE OF EXISTING 8" SLUDGE LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS. EXISTING SLUDGE LINE SHALL REMAIN IN OPERATION UNTIL NEW SLUDGE LINE IS IN SERVICE.
3. REMOVE AND DISPOSE OF EXISTING GRATED INLET AND AIRGAP PIPING.
4. REMOVE AND DISPOSE OF EXISTING 3" PARSHALL FLUME AND CONCRETE FILL AS REQUIRED FOR PROPOSED NEW PARSHALL FLUME.
5. REMOVE AND DISPOSE OF EXISTING 18" STORM SEWER. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
6. ABANDON EXISTING 1 ½" CHLORINE DIOXIDE LINE. EXISTING CHLORINE DIOXIDE LINE SHALL REMAIN IN OPERATION UNTIL NEW 72" RAW WATER LINE IS IN SERVICE.
7. REMOVE AND DISPOSE OF EXISTING 1 ½" CHLORINE DIOXIDE LINE AS REQUIRED FOR PROPOSED REROUTE. REFER TO YARD PIPING PLANS FOR DETAILS.

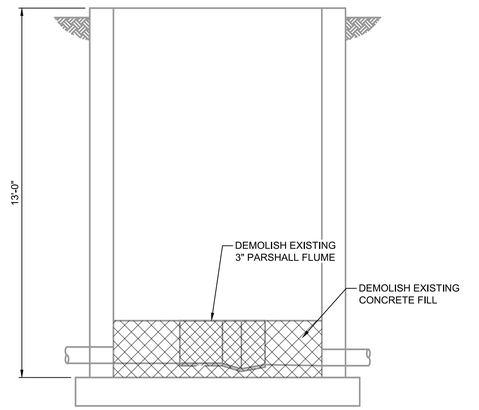


PLAN
SCALE: 1" = 30'





PARSHALL FLUME DEMOLITION
DETAIL A
N.T.S.



PARSHALL FLUME DEMOLITION
SECTION 1
N.T.S.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L.. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS 21918 REGISTERED PROFESSIONAL ENGINEER LAURA ELLIS YANCEY No. 12185

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLITION I

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1101

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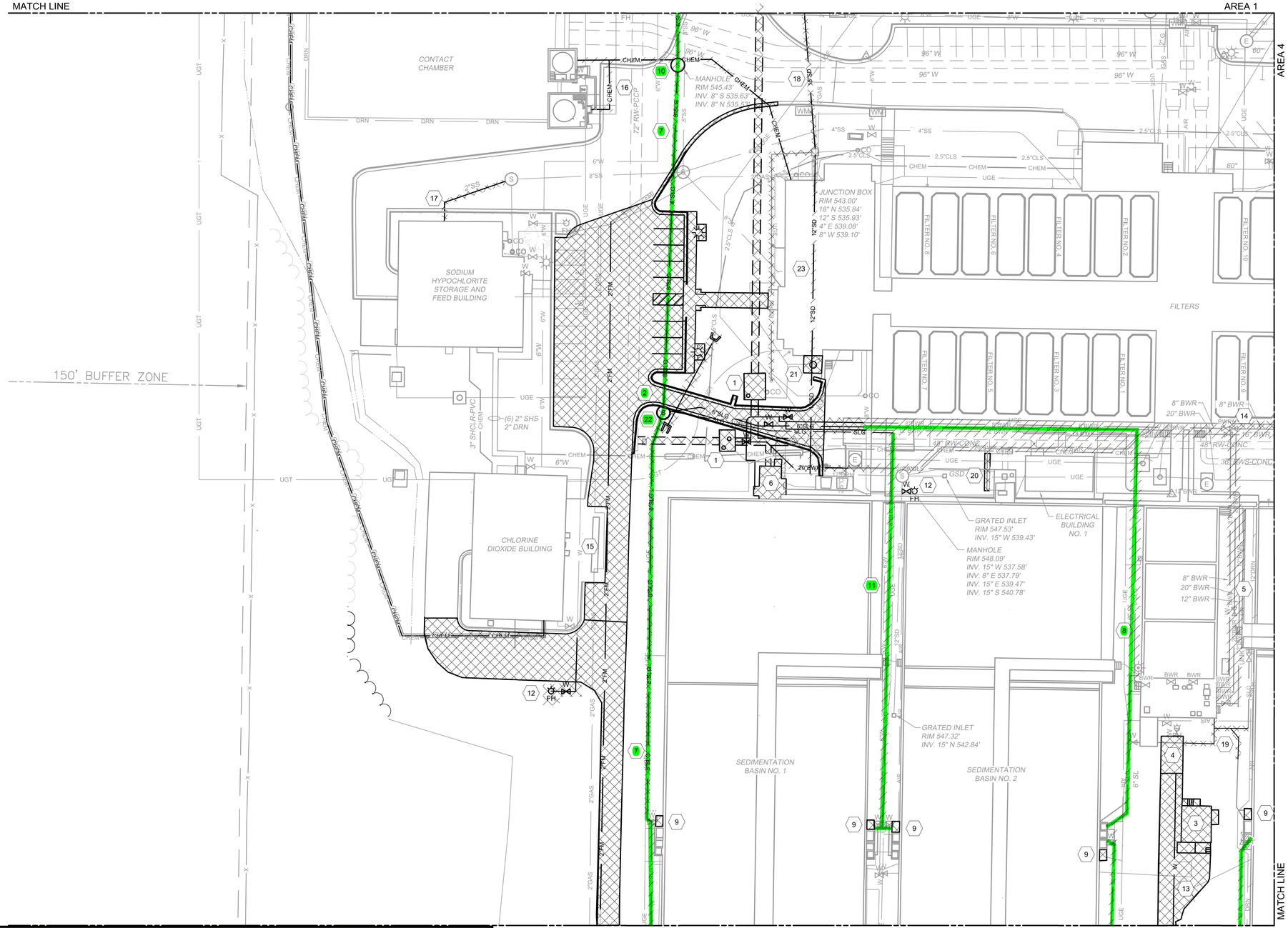
PLOT DATE: 11/18/2024 10:08 AM BY: MWEIR



PLAN
SCALE: 1" = 30'

1	2
3	4
5	6

N

KEYED NOTES:

1. REMOVE AND DISPOSE OF EXISTING RAW WATER METER VAULT ONCE NEW RAW WATER METER IS OPERATIONAL.
2. DEMOLISH EXISTING PAVEMENT, AS CONSTRUCTION SEQUENCE DICTATES.
3. REMOVE AND DISPOSE OF EXISTING BUILDING, PAVEMENT AND APPURTANENCES
4. REMOVE AND SALVAGE CANOPY TO OWNER.
5. CUT, CAP AND ABANDON EXISTING BACKWASH RECYCLE LINES ONCE NEW BACKWASH EQUALIZATION TANK AND WASTE PIT PUMP STATION ARE FULLY OPERATIONAL.
6. REFER TO STRUCTURAL AND MECHANICAL PLANS FOR SEDIMENTATION BASIN NO. 1 RAPID MIX DEMOLITION.
7. ONCE THE PROPOSED SLUDGE LINE IS CONSTRUCTED AND OPERATIONAL, REMOVE AND DISPOSE OF EXISTING SLUDGE LINE AS REQUIRED FOR THE CONSTRUCTION OF PROPOSED IMPROVEMENTS.
8. CUT, CAP AND ABANDON EXISTING 6" SLUDGE LINE ONCE BACKWASH EQUALIZATION TANK AND WASTE PIT PUMP STATION ARE FULLY OPERATIONAL.
9. DEMOLISH EXISTING CONCRETE SIDEWALK.
10. ABANDON EXISTING MANHOLE IN PLACE.
11. CUT, CAP, AND ABANDON EXISTING 6" SLUDGE LINE ONCE THE NEW 12" SLUDGE LINE IS IN SERVICE.
12. DEMOLISH EXISTING FIRE HYDRANT. REFER TO YARD PIPING PLANS FOR ADDITIONAL INFORMATION.
13. REMOVE AND DISPOSE OF EXISTING 6" WATER LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS.
14. REMOVE AND DISPOSE OF EXISTING LIME PIPING ON SOUTH FILTER WALL AS REQUIRED FOR PROPOSED IMPROVEMENTS. UNISTRUTS TO REMAIN FOR PROPOSED IMPROVEMENTS.
15. CUT, CAP, AND ABANDON EXISTING 2" SSFM-PVC.
16. DEMOLISH AND DISPOSE OF EXISTING FLUORIDE LINES. COORDINATE WITH OWNER FOR DISPOSAL OF CHEMICAL.
17. REMOVE AND REPLACE EXISTING 2" SUMP PUMP FORCE MAIN AFTER CONSTRUCTION OF PROPOSED IMPROVEMENTS.
18. REMOVE AND DISPOSE OF EXISTING 18" STORM SEWER. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
19. DEMOLISH AND DISPOSE OF EXISTING SLUDGE PIPING. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
20. REMOVE AND DISPOSE OF SECTIONS OF EXISTING CHEMICAL TRENCH BOX THAT ARE NOT REQUIRED FOR PROPOSED IMPROVEMENTS.
21. REMOVE ARGON TANK AND PAD.
22. REMOVE AND DISPOSE OF EXISTING MANHOLE.
23. CUT, CAP, AND ABANDON EXISTING 12-INCH STORM DRAIN.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LARRY ELLIS YANCEY No. 12185 PROFESSIONAL ENGINEER

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLITION III

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1103

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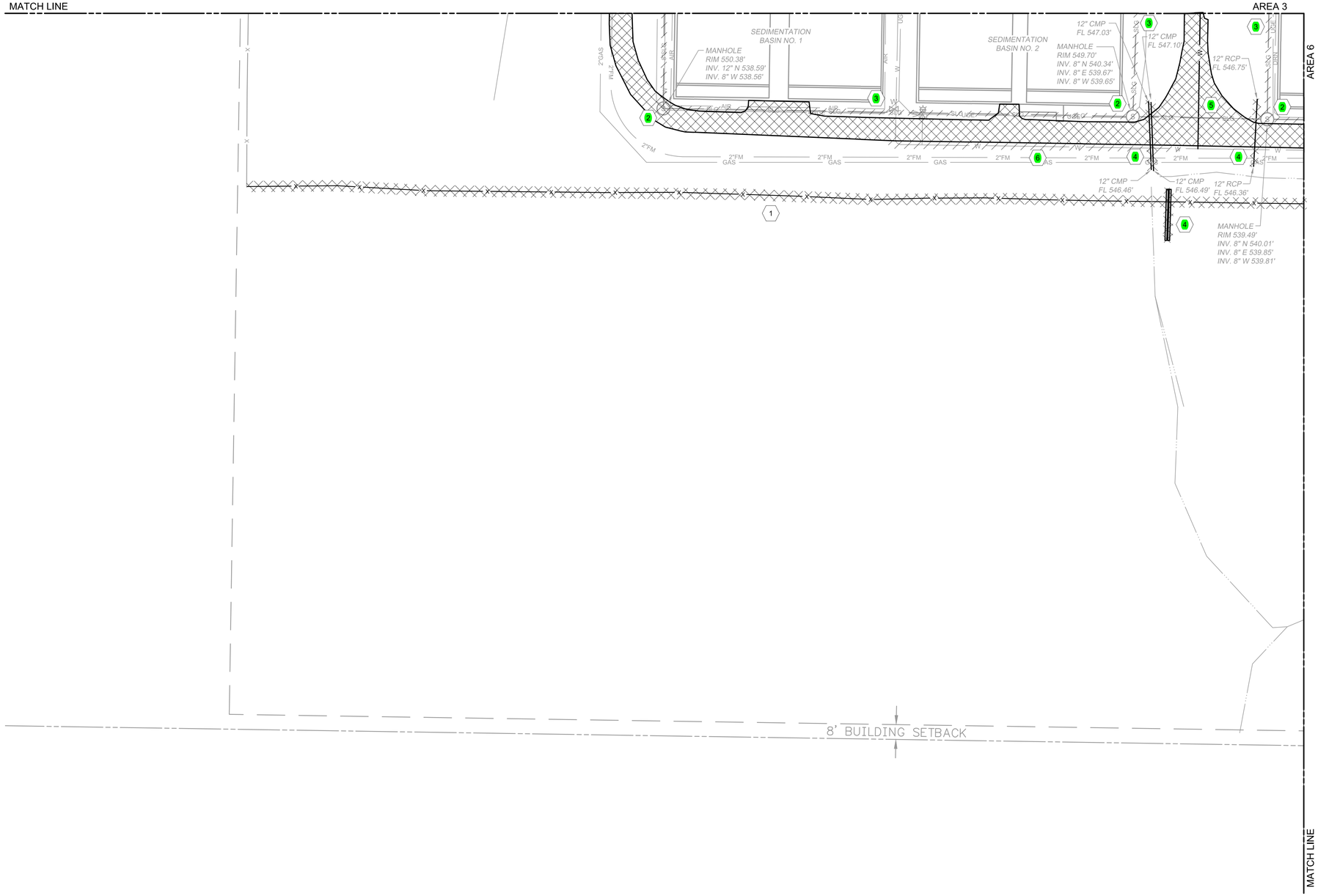
PLOT DATE: 11/18/2024 10:08 AM BY: MWEIR



PLAN
SCALE: 1" = 30'

1	2		
3	4		
5	6		

N

KEYED NOTES:

1. CONTRACTOR IS REQUIRED TO MAINTAIN SITE SECURITY. INSTALL NEW CHAIN LINK FENCE PRIOR TO REMOVAL OF EXISTING FENCE.
2. ABANDON EXISTING MANHOLE IN PLACE.
3. ABANDON EXISTING SLUDGE LINE IN PLACE.
4. REMOVE AND DISPOSE OF EXISTING STORM DRAIN.
5. REMOVE AND DISPOSE OF EXISTING 6" WATER LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS.
6. ABANDON EXISTING 6" WATER LINE.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY ELLIS YANCEY No. 12185

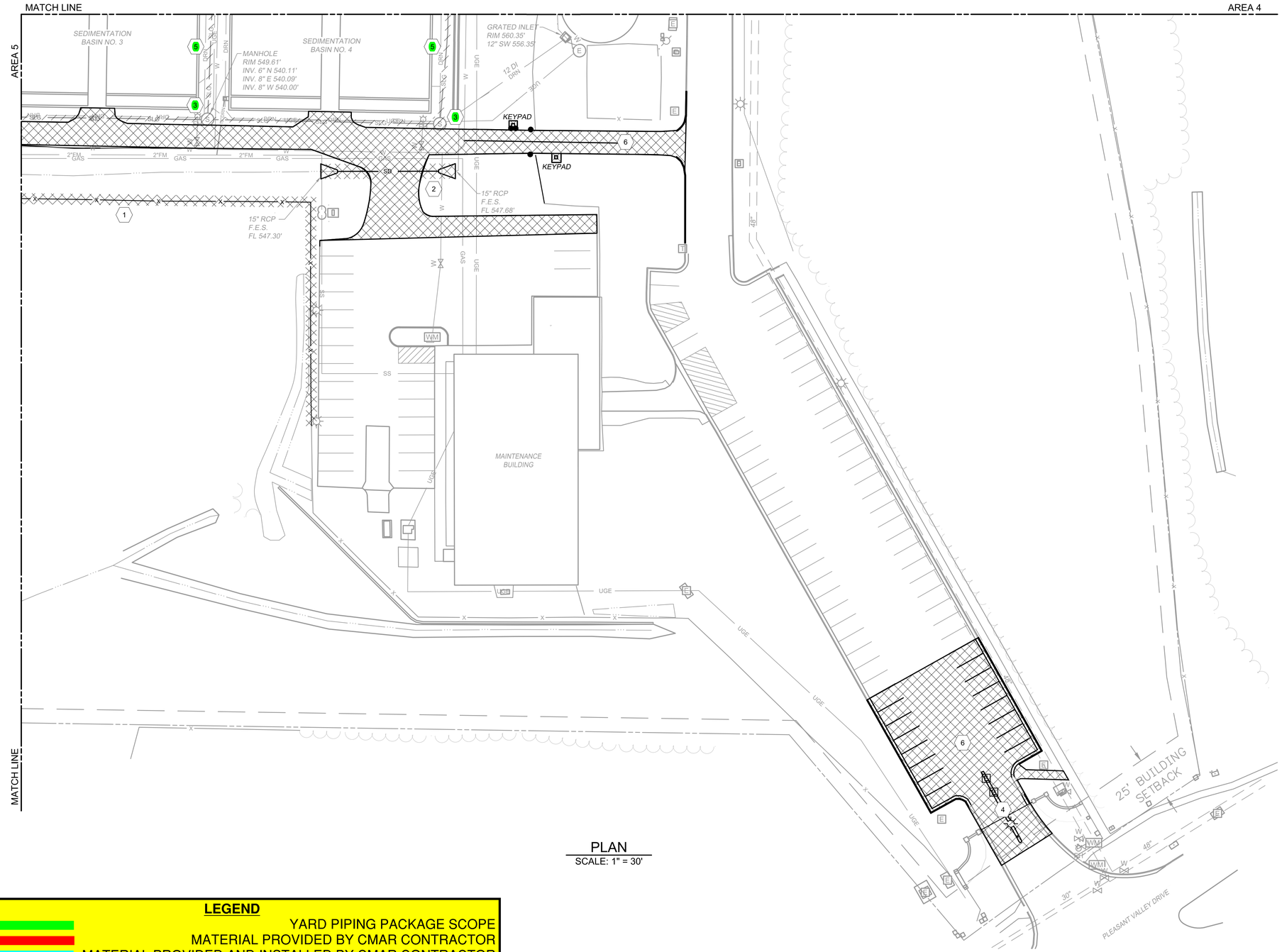
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

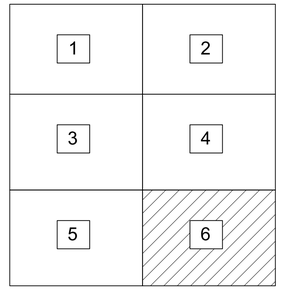
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLITION V

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1105



PLAN
SCALE: 1" = 30'



KEYED NOTES:

1. CONTRACTOR IS REQUIRED TO MAINTAIN SITE SECURITY. INSTALL NEW CHAIN LINK FENCE PRIOR TO REMOVAL OF EXISTING FENCE.
2. REMOVE AND DISPOSE OF EXISTING STORM SEWER PIPING AND FLARED END SECTIONS.
3. ABANDON EXISTING MANHOLE IN PLACE.
4. DEMOLISH EXISTING CURBED ISLAND AS REQURIED FOR CONSTRUCTION SITE ACCESS. REPLACE EXISTING AUTOMATIC FRONT GATE, EXISTING LIGHT POLE, KEY PAD, GATE ELECTRICAL EQUIPMENT AND APPURTENANCES. REFER TO ARCHITECTURAL AND ELECTRICAL PLANS FOR ADDITIONAL INFORMATION.
5. ABANDON EXISTING SLUDGE LINES IN PLACE.
6. REMOVE AND DISPOSE OF EXISTING ASPHALT PAVEMENT, CURB, AND GUTTER.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS PROFESSIONAL ENGINEER No. 12185 LARRY ELLIS YANCEY

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8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLITION VI

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1106

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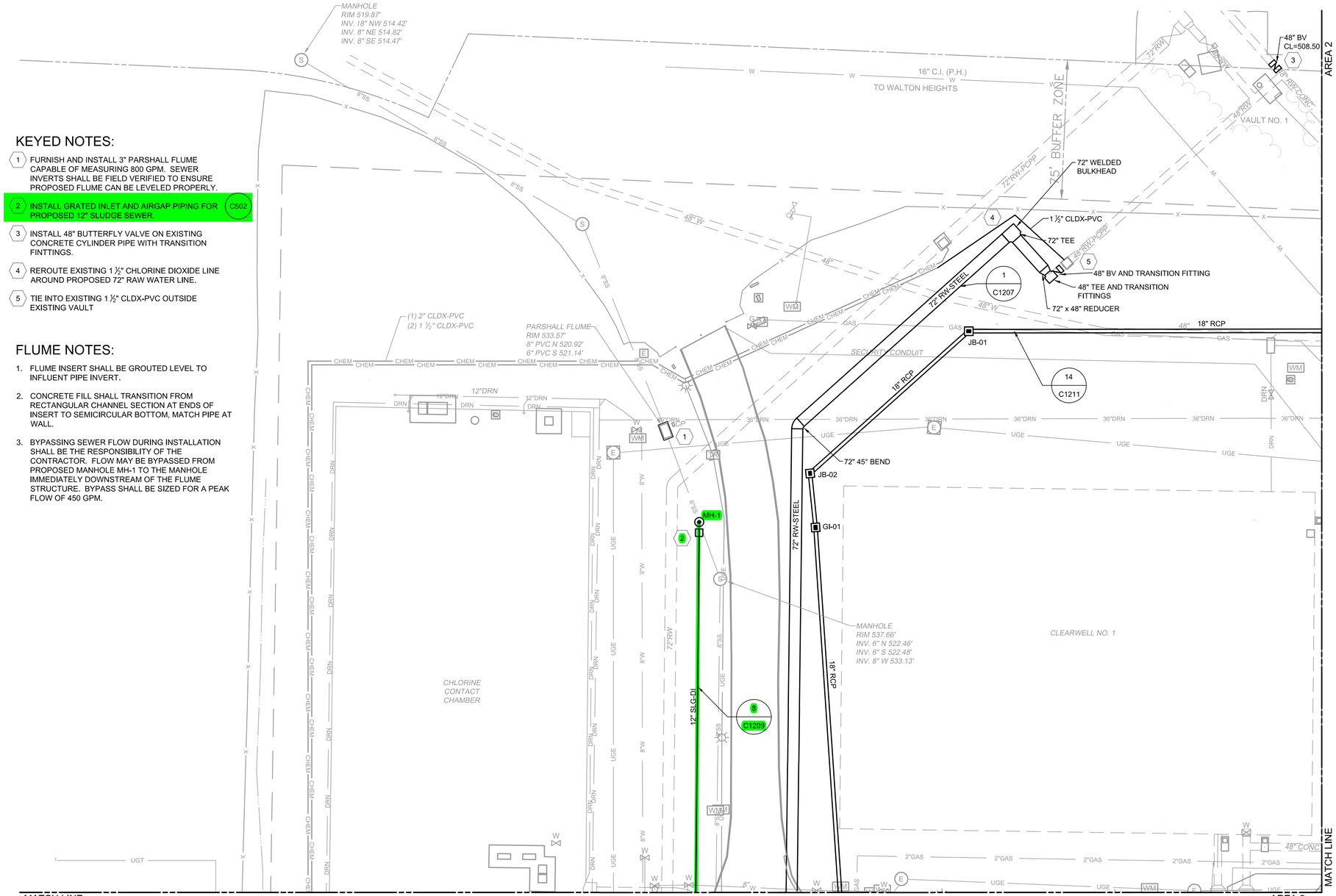
PLOT DATE: 11/18/2024 10:09 AM BY: MWEIR

KEYED NOTES:

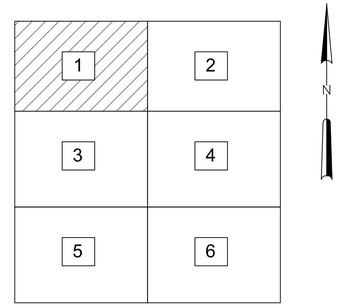
1. FURNISH AND INSTALL 3" PARSHALL FLUME CAPABLE OF MEASURING 800 GPM. SEWER INVERTS SHALL BE FIELD VERIFIED TO ENSURE PROPOSED FLUME CAN BE LEVELED PROPERLY.
2. INSTALL GRATED INLET AND AIRGAP PIPING FOR PROPOSED 12" SLUDGE SEWER. (C502)
3. INSTALL 48" BUTTERFLY VALVE ON EXISTING CONCRETE CYLINDER PIPE WITH TRANSITION FINTTINGS.
4. REROUTE EXISTING 1 ½" CHLORINE DIOXIDE LINE AROUND PROPOSED 72" RAW WATER LINE.
5. TIE INTO EXISTING 1 ½" CLDX-PVC OUTSIDE EXISTING VAULT

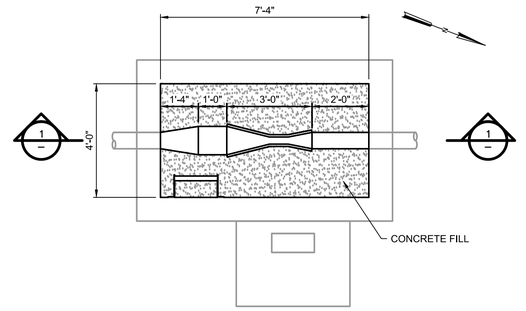
FLUME NOTES:

1. FLUME INSERT SHALL BE GROUTED LEVEL TO INFLUENT PIPE INVERT.
2. CONCRETE FILL SHALL TRANSITION FROM RECTANGULAR CHANNEL SECTION AT ENDS OF INSERT TO SEMICIRCULAR BOTTOM, MATCH PIPE AT WALL.
3. BYPASSING SEWER FLOW DURING INSTALLATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FLOW MAY BE BYPASSED FROM PROPOSED MANHOLE MH-1 TO THE MANHOLE IMMEDIATELY DOWNSTREAM OF THE FLUME STRUCTURE. BYPASS SHALL BE SIZED FOR A PEAK FLOW OF 450 GPM.

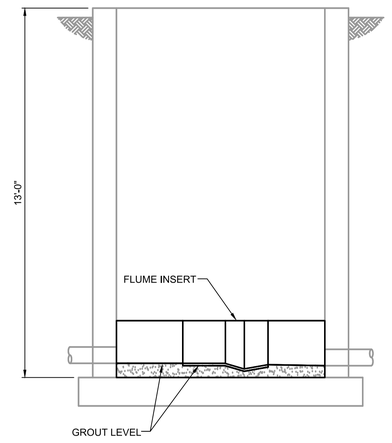


PLAN
SCALE: 1" = 30'





PARSHALL FLUME
DETAIL A
N.T.S.



PARSHALL FLUME
SECTION 1
N.T.S.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS * LARRY ELLIS YANCEY * PROFESSIONAL ENGINEER * No. 12185

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING I

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1201

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PLOT DATE: 11/18/2024 10:09 AM BY: MWEIR

MATCH LINE

AREA 1

150' BUFFER ZONE

MANHOLE
RIM 546.50'
INV. 6" E 540.56'
INV. 4" S 540.69'
INV. 2" S 542.93'

JUNCTION BOX
RIM 543.00'
18" N 535.84'
12" S 535.93'
4" E 539.08'
8" W 539.10'

MANHOLE
RIM 546.54'
INV. 6" N 528.33'
INV. 4" E 528.59'
INV. 2"FM SW 538.85'
INV. 6" S 542.02'
INV. 6" S 529.25'
INV. 8" W 539.08'

SODIUM HYPOCHLORITE STORAGE AND FEED BUILDING

CHLORINE DIOXIDE BUILDING

BULK CHEMICAL BUILDING

SEDIMENTATION BASIN NO. 1

SEDIMENTATION BASIN NO. 2

SEDIMENTATION BASIN NO. 1

RAW WATER METER VAULT

(1) 2" CLDX-PVC
(2) 1 ½" CLDX-PVC

2"FM-PVC

(5) 2" SHS-PVC
2" DRN FM-PVC

(6) 6" SHS

3" SHCLR-PVC

2" FM-PVC TO BE INSTALLED BY CMAR CONTRACTOR

(2) 6" LIME-PVC
REFER TO MECHANICAL PLANS FOR CONTINUATION OF LIME THROUGH CRAWL SPACE AND TO THE FILTERS

2" DRN FM-PVC

(10) ¾" SAMP-PEX-A
(2) 2" SHS-PVC
REFER TO MECHANICAL PLANS FOR CONTUATION

(4) ¾" SA-PEX-A

(2) 6" LIME-PVC
(3) 2" SHS-PVC
REFER TO MECHANICAL PLANS FOR CONTINUATION TO RAPID MIX

(2) 6" ALUM-PVC
(6) 6" LIME-PVC

SEE INSET A

DUPLEX SAMPLE PUMP ENCLOSURE

(3) 48" BI-DI
REFER TO MECHANICAL PLANS FOR PIPING WITHIN BASIN

2" DRN FM-PVC
REFER TO MECHANICAL PLAN FOR CONTINUATION

GRATED INLET
RIM 547.53'
INV. 12" W 539.43'

GRATED INLET
RIM 547.32'
INV. 15" N 542.84'

ELECTRICAL BUILDING NO. 1

BWR FLOW METER
REFER TO MECHANICAL PLANS FOR DETAILS

RPZ ENCLOSURES
REFER TO PLUMBING PLANS FOR DETAILS

24" MJ DI
22.5° BEND

CONNECT TO EXISTING 2" FM AND REROUTE WEST

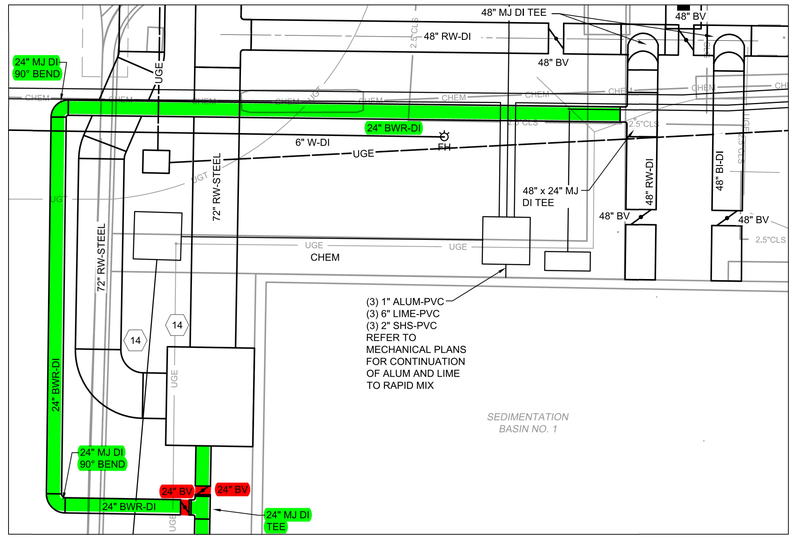
ZOP 4" x 1 ½" DOUBLE WALLED PVC

WASTE PIT PUMP STATION

SEE INSET B

AREA 5

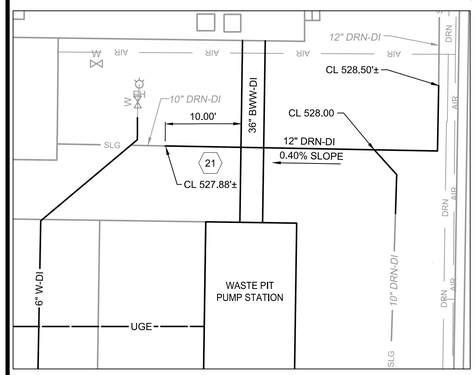
MATCH LINE



INSET A

PLAN

SCALE: 1" = 10'



INSET B

PLAN

SCALE: 1" = 10'

PLAN

SCALE: 1" = 30'

CHEMICAL PIPING NOTES:

1. ROUTE CHEMICAL PIPING AND SAMPLE LINES THROUGH EXISTING SODIUM HYPOCHLORITE TRENCH BOXES WHERE POSSIBLE.
2. ALL DIRECT BURY SODIUM HYPOCHLORITE PIPING SHALL BE 4" x 2" DOUBLE WALLED SCHEDULE 80 PVC. ALL DIRECT BURY FLUORIDE AND ZINC ORTHOPHOSPHATE PIPING SHALL BE 4" x 1 ½" DOUBLE WALLED SCHEDULE 80 PVC.

KEYED NOTES:

1. RELOCATE EXISTING FIRE HYDRANT. CONNECT TO EXISTING WATER LINE WITH 6" DI SLEEVE.
2. CONNECT TO EXISTING 6" DI WATER WITH 90° BEND.
3. 6" TAPPING SLEEVE AND VALVE.
4. CHEMICAL PULL BOX. REFER TO MECHANICAL PLANS FOR DETAILS. MAXIMUM 50' SPACING.
5. CONNECT PROPOSED 6" WATER LINE TO EXISTING HYDRANT.
6. CONNECT TO EXISTING STORM DRAIN.
7. CONSTRUCT 6' x 6' x 8" THICK ARGON TANK PAD WITH #4 REBAR IN BOTH DIRECTIONS AND RECONNECT ARGON PIPING IN CRAWL SPACE. TANK RELOCATED BY VENDOR.
8. SLOPE ZOP AND FLUORIDE LINES TO LEAK DETECTION VAULTS.
9. CONSTRUCT DROP INLET (DI-03)

   RIM: 547.95'
   INV. 12" RCP 537.98'
10. REPLACE EXISTING 12" DI BASIN DRAIN PIPING. CONNECT TO EXISTING 10" DI DRAIN TO WASTE PIT.
11. INSTALL CAP AND BLOCKING ON EXISTING 6" WATER LINE.
12. INSTALL 12" THICK FLOWABLE FILL CAP THE WIDTH OF THE CHEMICAL LINES FROM CPB1 TO CPB4 AND CPB7 TO CPB8 (SEE SHEET C1204).
13. INSTALL REINFORCED CHEMICAL DUCT BANK FROM CPB4 TO CPB7 PER DETAIL E-33-0101 WITHOUT GROUNDING ROD.
14. EACH PIPE PENETRATION REQUIRES THE INSTALLATION OF TWO VICTAULIC COUPLINGS, SPACED 10 FEET APART BETWEEN THE COUPLINGS OR IJS SYSTEM.
15. ROUTE EXISTING DOWNSPOUT DRAIN TO JUNCTION BOX (JB-04).
16. CONNECT EXISTING 8" STS DRAIN LINE TO JUNCTION BOX (JB-04).
17. CONNECT EXISTING 8" STS DRAIN LINE TO DROP INLET (DI-02).
18. CONNECT EXISTING 6" STS DRAIN LINE TO JUNCTION BOX (JB-03).
19. EXPANDING JOINTS TO BE INSTALLED ON ALL 2" SHS LINES EVERY 100 LF, STARTING 50LF FROM SODIUM HYPOCHLORITE BUILDING.
20. FIXED SUPPORTS TO BE INSTALLED ON ALL 2" SHS LINES EVERY 100LF FROM SODIUM HYPOCHLORITE BUILDING.
21. INSTALL 12" X 10" DI MJ REDUCER TO PROPOSED DRAIN AND (2) 10" 22.5 DEGREE BENDS TO MATCH ELEVATION OF EXISTING 10" DRAIN LINE. CONTRACTOR SHALL FIELD VERIFY ELEVATION OF EXISTING 10" DRAIN LINE.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY ELLIS YANCEY No. 12185

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPNG III

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1203

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PLOT DATE: 11/18/2024 10:10 AM BY: MWEIR

MATCH LINE

AREA 2

AREA 3

N

CLEARWELL NO. 2

GRATED INLET
RIM 533.70'
12" W 527.54'
15" SE 520.05'
18" N 520.05'

GRATED INLET
RIM 535.92'
12" NW 531.17'

GRATED INLET
RIM 538.53'
12" SW 535.68'
15" N 528.60'

FILTERS

FILTER NO. 11

FILTER NO. 13

FILTER NO. 15

FILTER NO. 12

FILTER NO. 14

FILTER NO. 16

AIR SCOUR BUILDING

(4) ¾" SA-PEX-A

48" RW-DI

6" DRN-DI

48" BI-DI

ELECTRICAL BUILDING NO. 2

RAW WATER METER VAULT NO .2

SEE INSET

(4) ¾" SA-PEX-A

GRATED INLET
RIM 548.88'
12" E 543.65'

SEDIMENTATION BASIN NO. 3

SEDIMENTATION BASIN NO. 4

WASH TANK NO. 1

WASH TANK NO. 2

CL=553.33'

FILTERS

AIR SCOUR BUILDING

(4) ¾" SA-PEX-A

6" DRN-DI

48" BI-DI

ELECTRICAL BUILDING NO. 2

48" BV

48" RW-DI

48" RW-DI

RAW WATER METER VAULT NO .2

(4) ¾" SA-PEX-A

SEDIMENTATION BASIN NO. 3

SEDIMENTATION BASIN NO. 4

INSET
PLAN
SCALE: 1" = 10'

KEYED NOTES:

1. INSTALL FIRE HYDRANT ASSEMBLY.
2. INSTALL CAP AND BLOCKING ON EXISTING 6" WATER LINE. (C301)

MATCH LINE

MATCH LINE

AREA 3

PLAN
SCALE: 1" = 30'

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS GILBERT PROFESSIONAL ENGINEER No. 12185 ELLIS YANCEY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING IV

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1204

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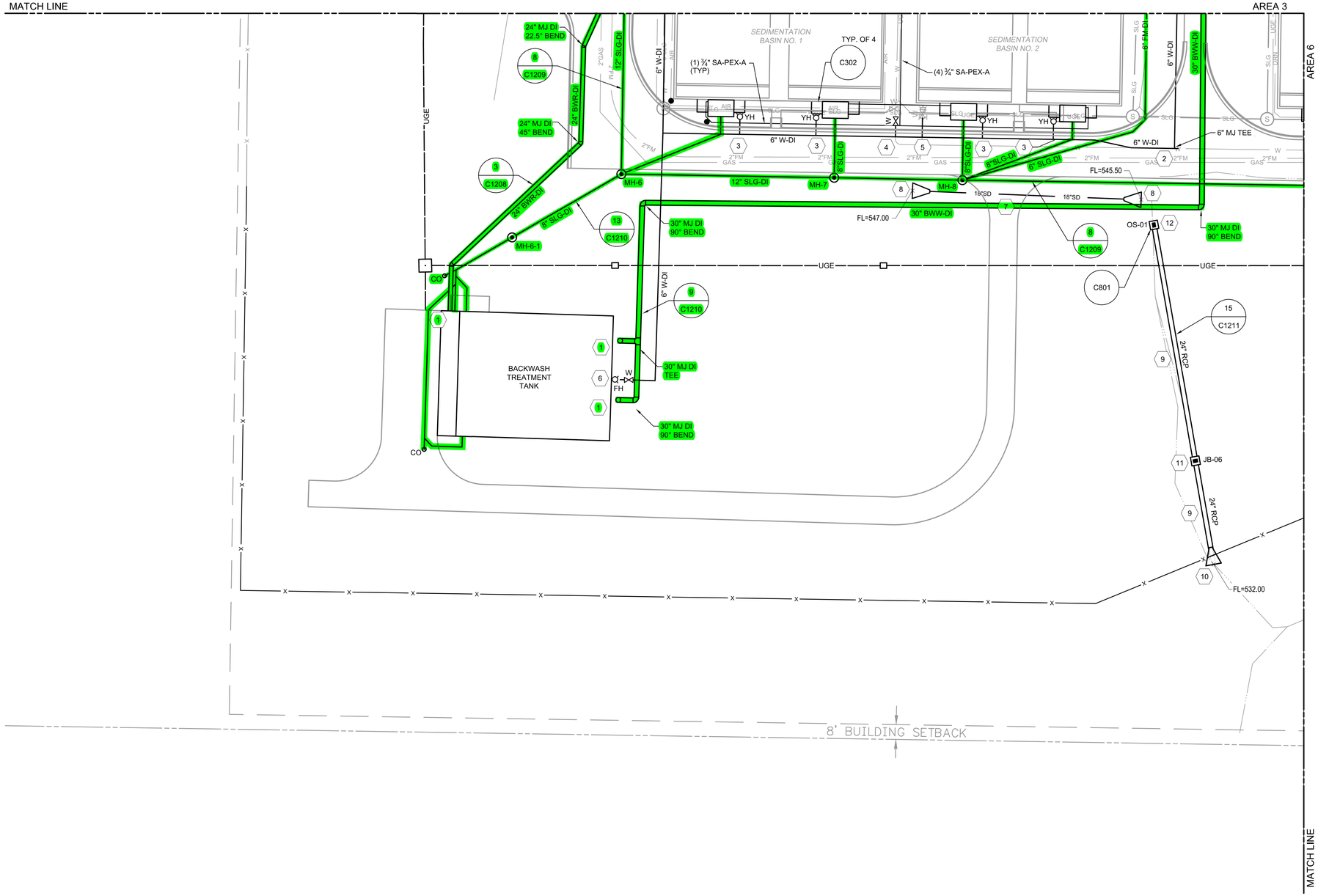
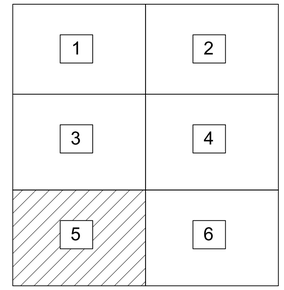
PLOT DATE: 11/18/2024 10:10 AM BY: MWEIR



PLAN
SCALE: 1" = 30'



KEYED NOTES:

1. REFER TO MECHANICAL PLANS FOR CONTINUATION OF LINES.
2. CONNECT TO EXISTING 6" DI WATER LINE
3. CONNECT TO PROPOSED 6" DI WATER LINE WITH 1.5" SADDLE AND CORP STOP.
4. INSTALL 6" TEE AND VALVE AND CONNECT TO EXISTING 6" WATER LINE.
5. INSTALL 6" TEE AND CONNECT TO EXISTING FIRE HYDRANT.
6. INSTALL FIRE HYDRANT ASSEMBLY.
7. INSTALL 18" RCP.
8. INSTALL 18" FLARED END SECTION.
9. INSTALL 24" RCP.
10. INSTALL 24" FLARED END SECTION.
11. INSTALL 4' x 4' JUNCTION BOX.
12. CONSTRUCT OUTLET STRUCTURE (OS-01)

    RIM: 548.92'
    INV. 24" RCP 545.00'

NOTES:

1. FIELD ROUTE (4) SAMPLE LINES BETWEEN SEDIMENTATION BASINS NO. 1 & 2. (1) SAMPLE LINE FROM EACH SLUDGE VAULT. 30" MINIMUM BURY DEPTH.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LARRY ELLIS YANCEY No. 12185 PROFESSIONAL ENGINEER

Hazen

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8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING V

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1205

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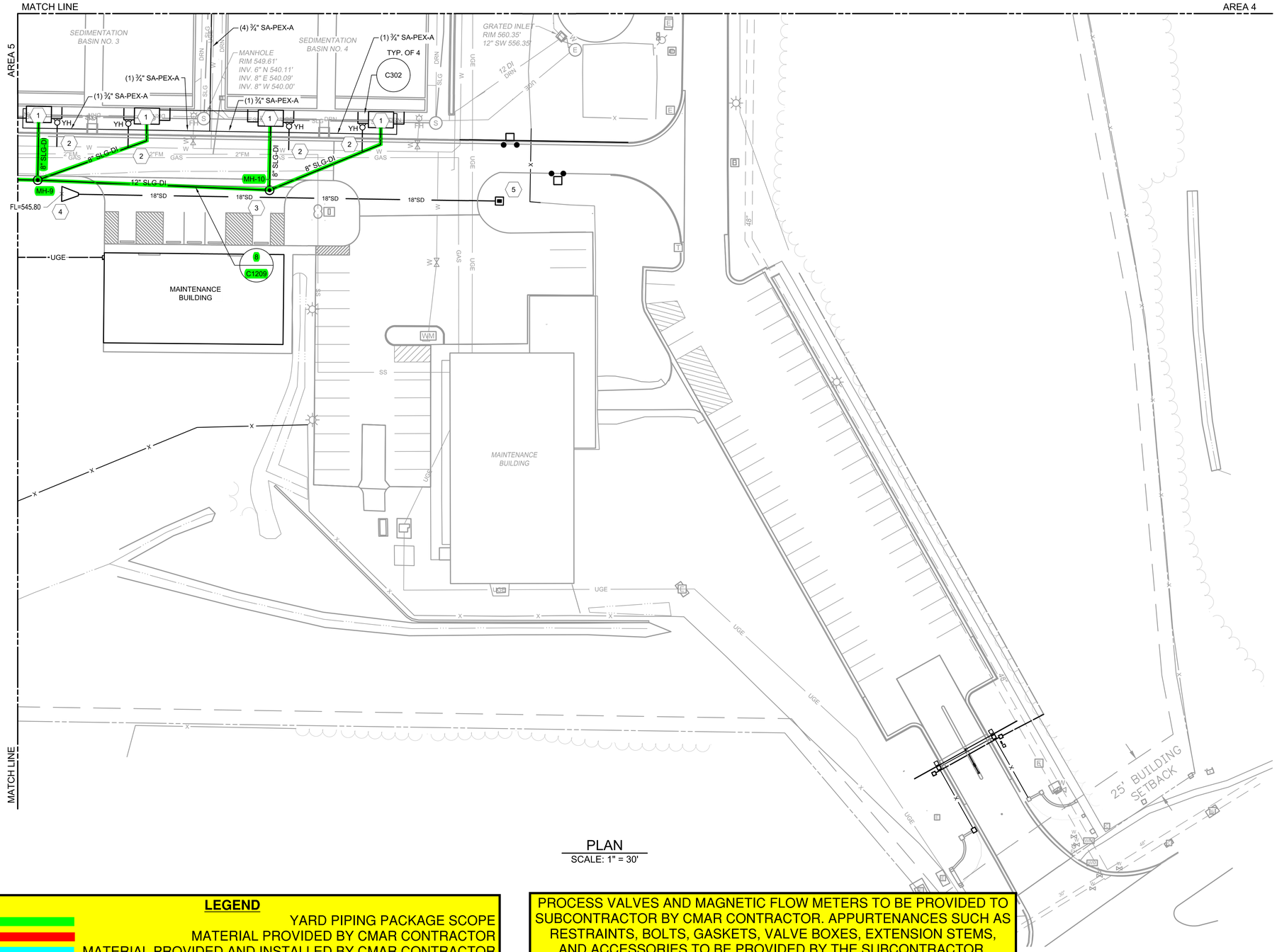
PLOT DATE: 11/18/2024 10:10 AM BY: MWEIR



1 | 2
3 | 4
5 | 6

N

KEYED NOTES:

1. REFER TO MECHANICAL PLANS FOR CONTINUATION OF LINES IN SLUDGE VAULT.
2. CONNECT TO EXISTING 6" DI WATER LINE WITH 1.5" SADDLE AND CORP STOP.
3. INSTALL 18" RCP.
4. INSTALL 18" FLARED END SECTION.
5. CONSTRUCT GRATED INLET (GI-02) (C502)
   RIM: 548.50'
   INV. 18" RCP 547.00'

NOTES:

1. FIELD ROUTE (4) SAMPLE LINES BETWEEN SEDIMENTATION BASINS NO. 3 & 4. (1) SAMPLE LINE FROM EACH SLUDGE VAULT. 30" MINIMUM BURY DEPTH.

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS PROFESSIONAL ENGINEER No. 12185 LARRY ELLIS YANCEY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

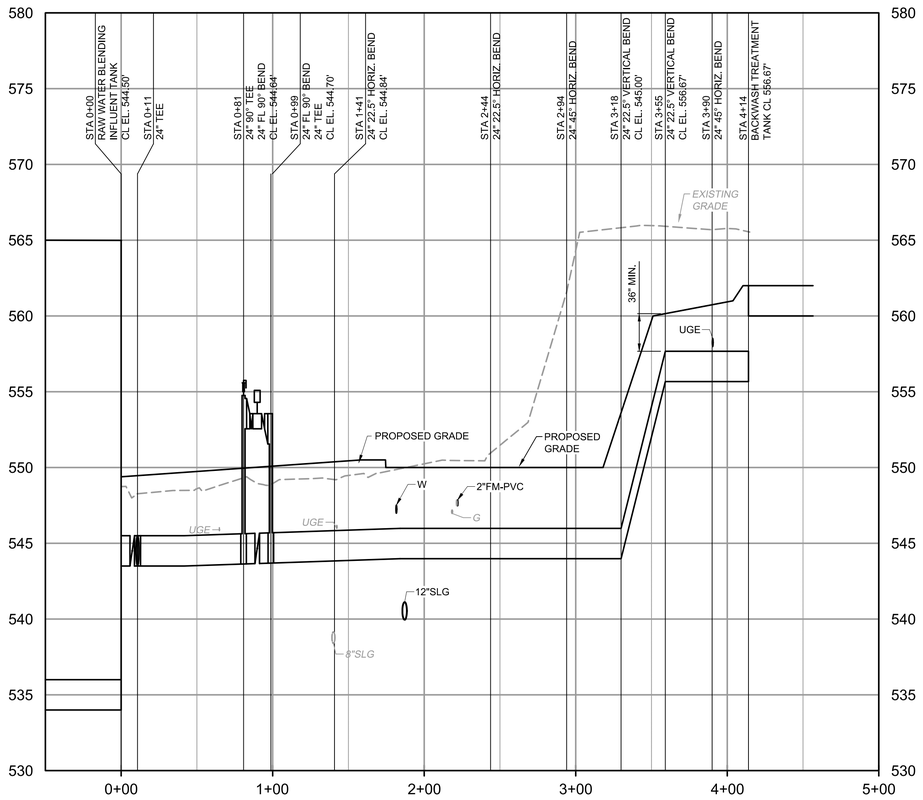
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING VI

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1206

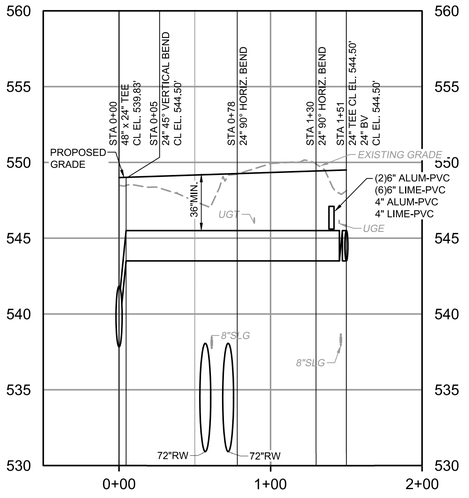
File: C:\USERS\MWEIR\DOCACCDOCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_HW00_CIVIL\CIVIL\60711-001-C1206.Saved by MWEIR Save date: 11/15/2024 11:29 AM
PLOT DATE: 11/18/2024 10:10 AM BY: MWEIR

24" BWR-DI



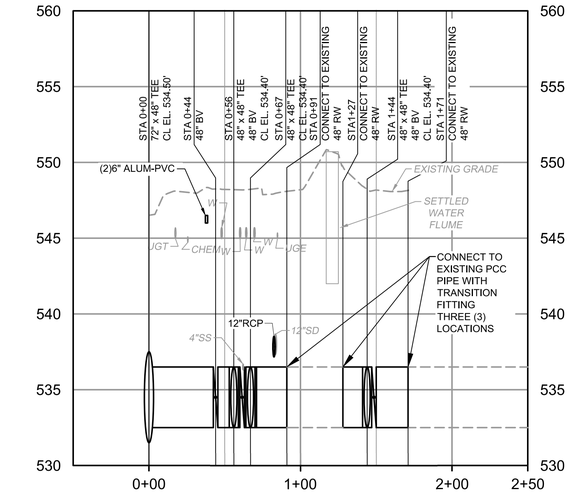
PROFILE 3 (C1203)
H:1"=50'V:1"=5'

24" BWR-DI



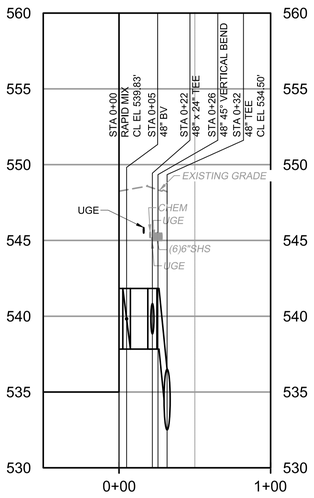
PROFILE 4 (C1203)
H:1"=50'V:1"=5'

48" RW-DI



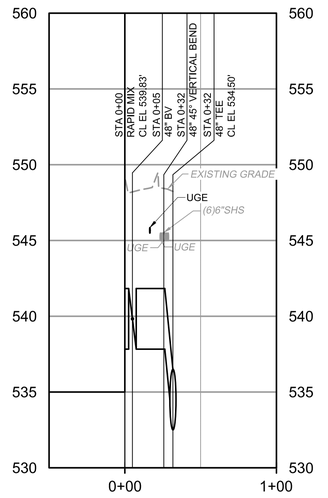
PROFILE 5 (C1203)
H:1"=50'V:1"=5'

48" BI-DI (TO RAPID MIX)



PROFILE 6 (C1203)
H:1"=50'V:1"=5'

48" SW-DI (FROM RAPID MIX)



PROFILE 7 (C1203)
H:1"=50'V:1"=5'

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

HAWKINS WEIR ENGINEERS, INC. Engineering Client Success

NOTES:

1. UNDERGROUND UTILITIES EXISTING WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF UTILITIES SHOWN MAY VARY FROM THE LOCATION SHOWN ON THE PLANS. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AND VERIFY GRADES AND SIZES PRIOR TO COMMENCING CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES THAT IS REQUIRED FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK. THE COST TO REPAIR ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING UTILITIES, AS WELL AS ANY FINES OR PENALTIES THAT ARE A RESULT OF THE DAMAGE OR FAILURE TO FOLLOW THE REQUIREMENTS OF THE ARKANSAS UNDERGROUND FACILITIES DAMAGE PREVENTION ACT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

STATE OF ARKANSAS LARRY ELLIS YANCEY No. 12185 PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

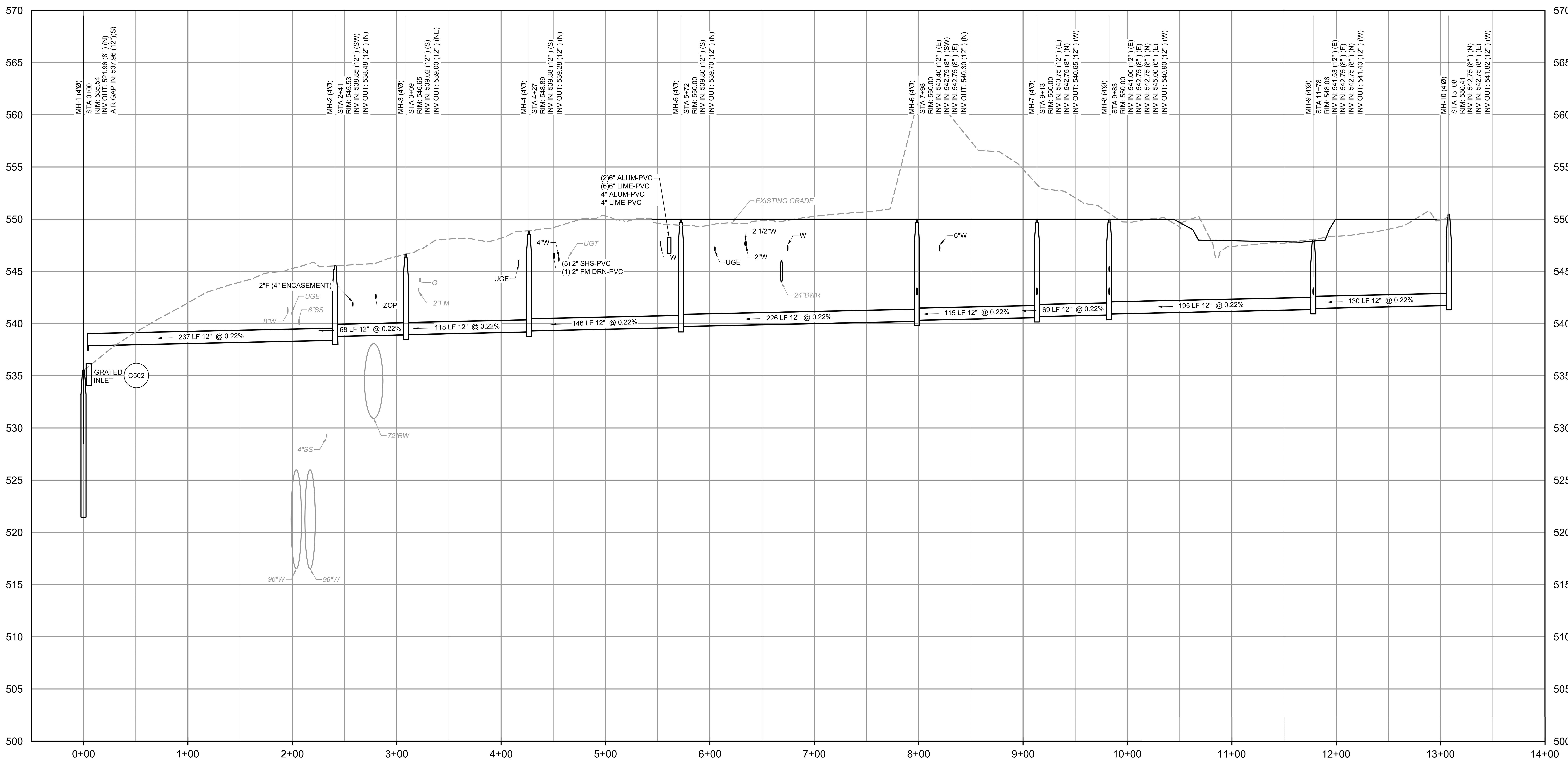
CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PIPING PROFILES

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1208

12" SLG-DI (GRAVITY SLUDGE LINE)



LEGEND

- YARD PIPING PACKAGE SCOPE
- MATERIAL PROVIDED BY CMAR CONTRACTOR
- MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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PROFILE 8 C1201 8 C1203 8 C1205 8 C1206
H:1"=50'V:1"=5'

NOTES:

1. UNDERGROUND UTILITIES EXISTING WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF UTILITIES SHOWN MAY VARY FROM THE LOCATION SHOWN ON THE PLANS. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AND VERIFY GRADES AND SIZES PRIOR TO COMMENCING CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES THAT IS REQUIRED FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK. THE COST TO REPAIR ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING UTILITIES, AS WELL AS ANY FINES OR PENALTIES THAT ARE A RESULT OF THE DAMAGE OR FAILURE TO FOLLOW THE REQUIREMENTS OF THE ARKANSAS UNDERGROUND FACILITIES DAMAGE PREVENTION ACT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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REV	ISSUED FOR	DATE	BY

MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 12185 LARRY ELLIS YANCEY 11/12/24

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PIPING PROFILES

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1209

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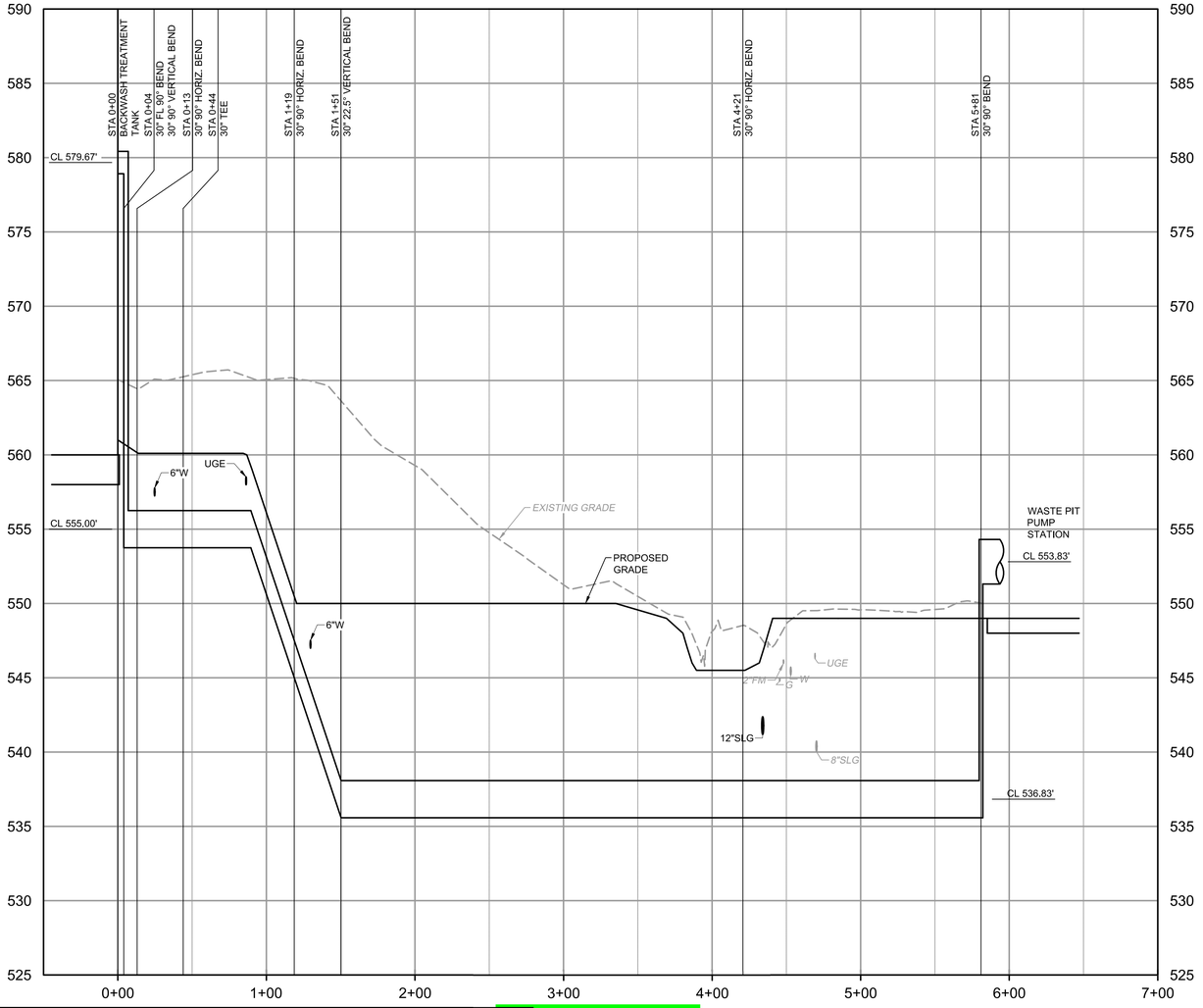
PLOT DATE: 11/18/2024 10:11 AM BY: MWEIR

30" BWW-DI



PROFILE 9 (C1203) / 9 (C1205)
H:1"=50',V:1"=5'

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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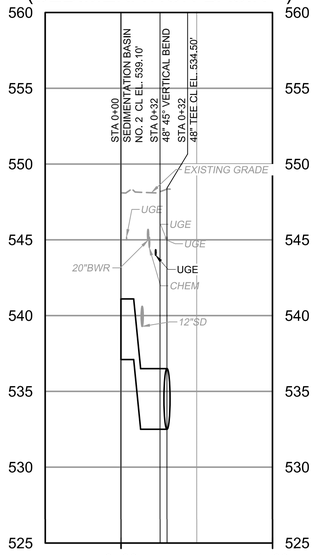
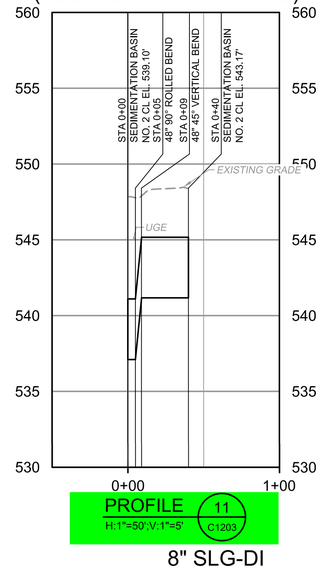
HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

48" BI-DI (SEDIMENATION BASIN 4)



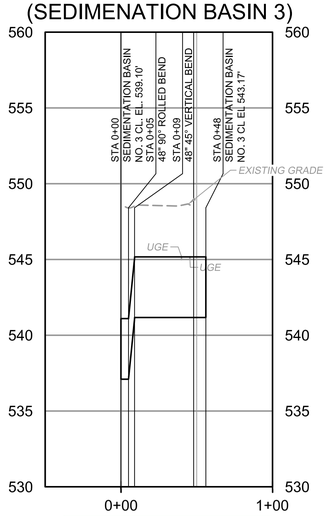
PROFILE 10 (C1203)
H:1"=50',V:1"=5'

48" BI-DI (SEDIMENATION BASIN 2)



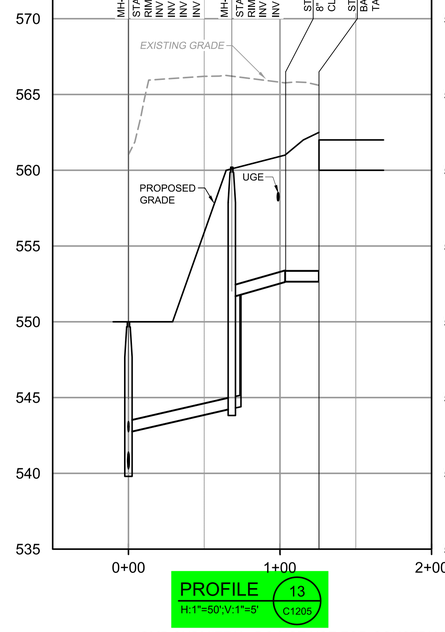
PROFILE 11 (C1203)
H:1"=50',V:1"=5'

48" BI-DI (SEDIMENATION BASIN 3)



PROFILE 12 (C1203) / 12 (C1204)
H:1"=50',V:1"=5'

8" SLG-DI



PROFILE 13 (C1205)
H:1"=50',V:1"=5'

NOTES:

1. UNDERGROUND UTILITIES EXISTING WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF UTILITIES SHOWN MAY VARY FROM THE LOCATION SHOWN ON THE PLANS. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AND VERIFY GRADES AND SIZES PRIOR TO COMMENCING CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES THAT IS REQUIRED FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK. THE COST TO REPAIR ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING UTILITIES, AS WELL AS ANY FINES OR PENALTIES THAT ARE A RESULT OF THE DAMAGE OR FAILURE TO FOLLOW THE REQUIREMENTS OF THE ARKANSAS UNDERGROUND FACILITIES DAMAGE PREVENTION ACT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

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STATE OF ARKANSAS — LARRY ELLIS YANCEY — No. 12185 — PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PIPING PROFILES

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1210

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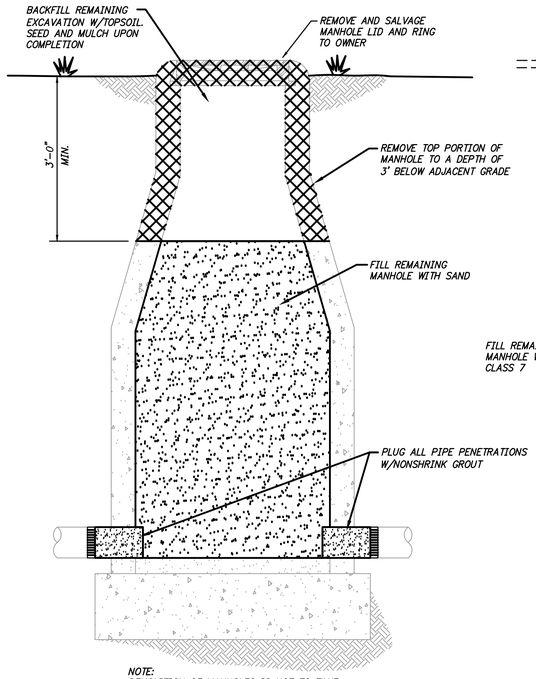
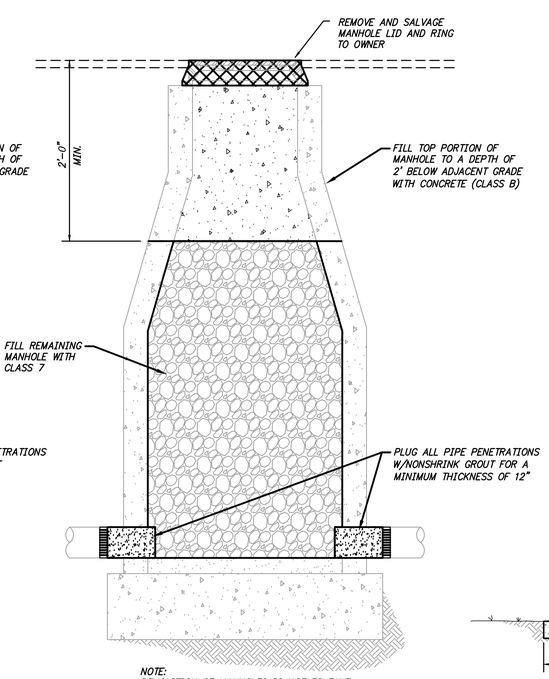
PROJECT FILES\00_HW\00_CIVIL\CIVIL\60711-001-C1210 Saved by MWEIR Save date: 9/24/2024 2:10 PM



NOTE:
DEMOLITION OF MANHOLES IS NOT TO TAKE PLACE UNTIL SUCCESSFUL COMPLETION AND OPERATION OF THE NEW GRAVITY SEWER

DEMOLISH AND ABANDON
EXISTING MANHOLE (GRASS AREAS)

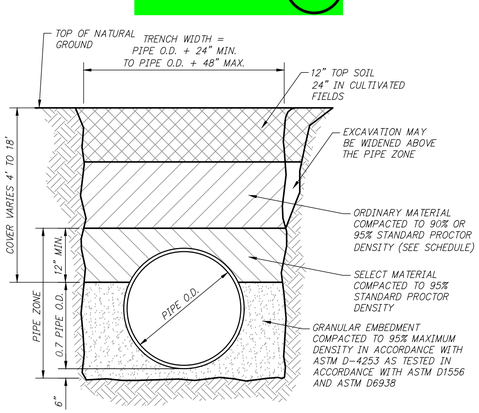
DETAIL C201 N.T.S.



NOTE:
DEMOLITION OF MANHOLES IS NOT TO TAKE PLACE UNTIL SUCCESSFUL COMPLETION AND OPERATION OF THE NEW GRAVITY SEWER

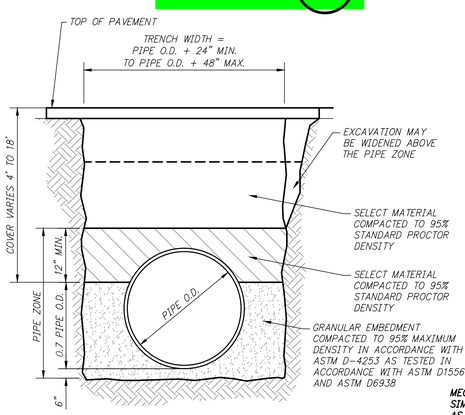
DEMOLISH AND ABANDON
EXISTING MANHOLE (PAVED AREAS)

DETAIL C202 N.T.S.



TYPICAL TRENCH DETAIL
IN NON PAVED AREA

DETAIL C205 N.T.S.

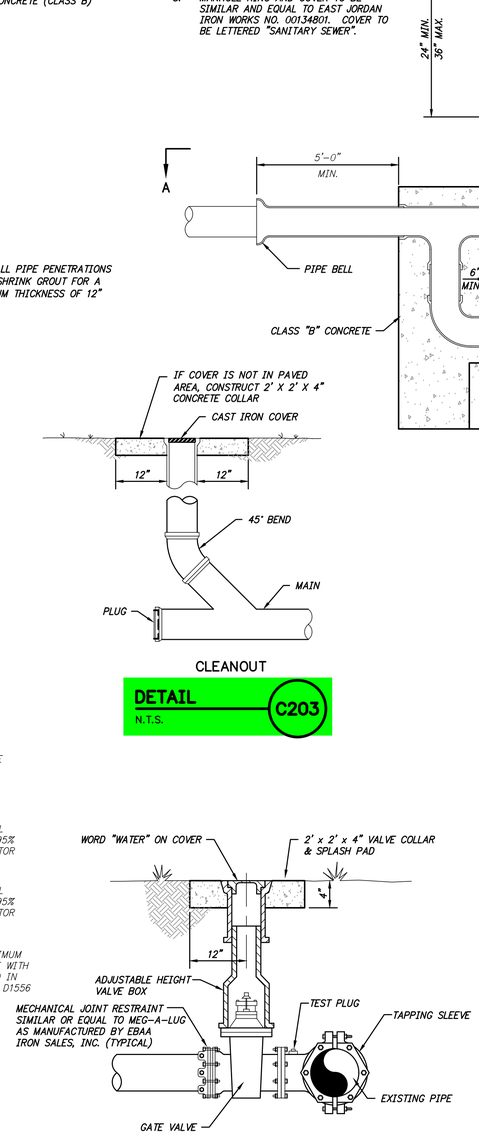


TYPICAL TRENCH DETAIL IN PAVED AREA
OR ADJACENT TO STRUCTURES

DETAIL C206 N.T.S.

CLEANOUT

DETAIL C203 N.T.S.

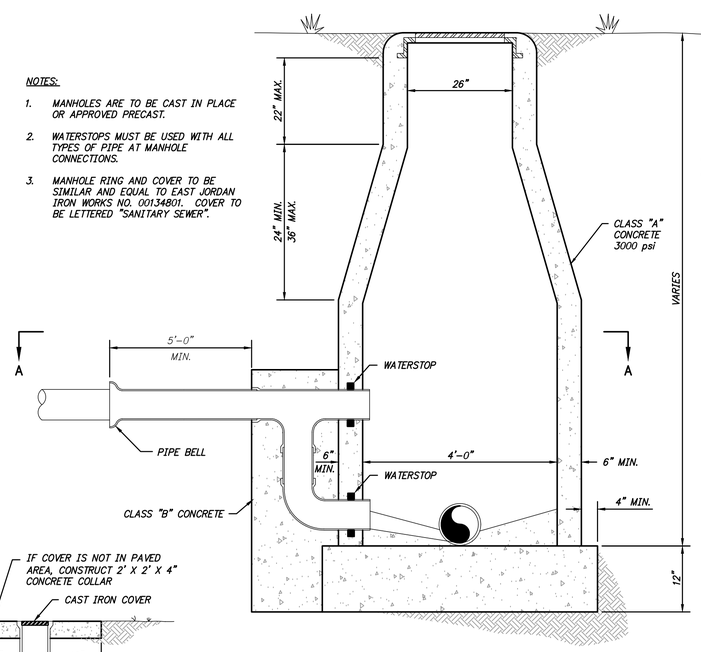


TAPPING SLEEVE AND VALVE

DETAIL C207 N.T.S.

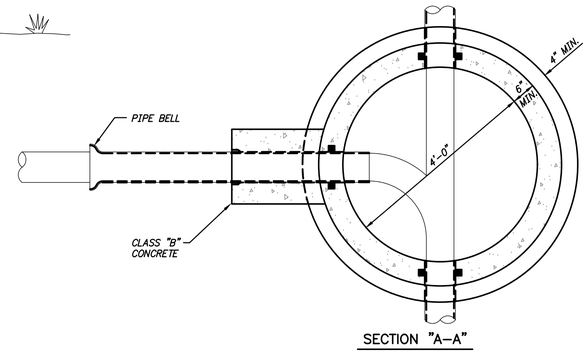
NOTES:

1. MANHOLES ARE TO BE CAST IN PLACE OR APPROVED PRECAST.
2. WATERSTOPS MUST BE USED WITH ALL TYPES OF PIPE AT MANHOLE CONNECTIONS.
3. MANHOLE RING AND COVER TO BE SIMILAR AND EQUAL TO EAST JORDAN IRON WORKS NO. 00134801. COVER TO BE LETTERED "SANITARY SEWER".

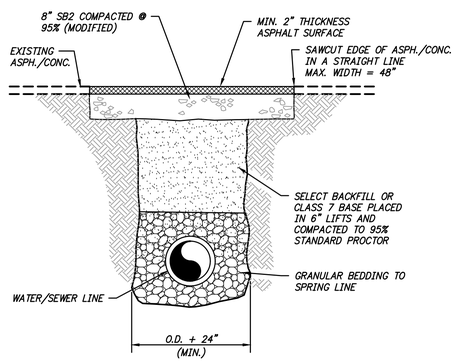


PROPOSED CAST-IN-PLACE MANHOLE
WITH DROP CONNECTION

DETAIL C204 N.T.S.



SECTION "A-A"

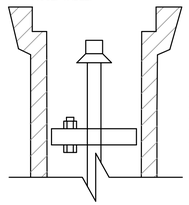


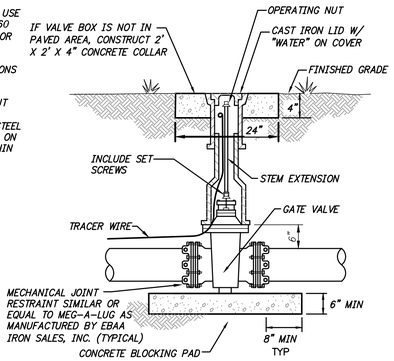
ASPHALT STREET & DRIVEWAY
CROSSING REPAIR

DETAIL C209 N.T.S.

NOTE:

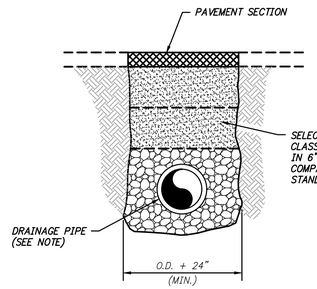
1. FOR VALVES UP TO 12", USE TYLER TWO-PIECE SERIES 6850 OR EQUAL.
2. FOR VALVES LARGER THAN 12", USE TYLER THREE-PIECE SERIES 6860 VALVE BOX W/BELL TYPE BASE OR EQUAL.
3. USE TYLER VALVE BOX EXTENSIONS OR EQUAL FOR DEEP VALVES.
4. VALVES WITH AN OPERATING NUT DEEPER THAN 42" SHALL BE EQUIPPED WITH A STAINLESS STEEL STEM EXTENSION. TOP OF NUT ON STEM EXTENSION MUST BE WITHIN 6" OF FINISHED GRADE.
5. PRECAST COLLARS ARE NOT ACCEPTABLE.





BURIED YARD VALVE

DETAIL C208 N.T.S.



NOTE:
CLASS "D" GRAVEL BEDDING TO SPRINGLINE FOR RCP; GRANULAR BEDDING & BACKFILL 6" ABOVE PIPE FOR HDPE

STORM DRAIN
TRENCHING/BEDDING
IN PAVED AREA

DETAIL C210 N.T.S.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

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STATE OF ARKANSAS * REGISTERED PROFESSIONAL ENGINEER * LARRY ELLIS YANCEY JR. No. 12185 11-18-24

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

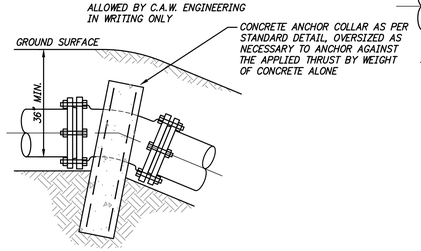
CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

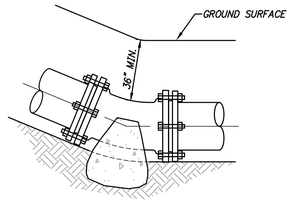
CIVIL
DETAILS II

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	CZ-2

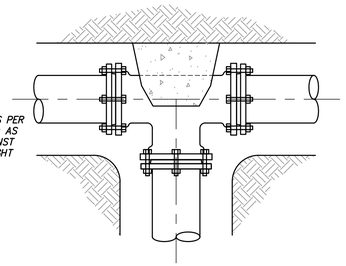
File: C:\USERS\MWEIR\DCACCDOCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_HW00_CW\LCIVIL\60711-001-C202 Saved by MWEIR Save date: 11/12/2024 10:19 AM
PLOT DATE: 11/18/2024 10:14 AM BY: MWEIR



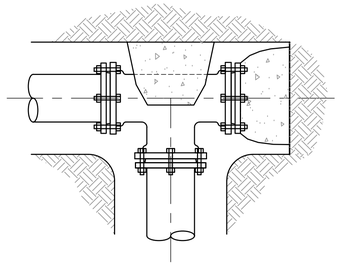
HORIZONTAL BENDS



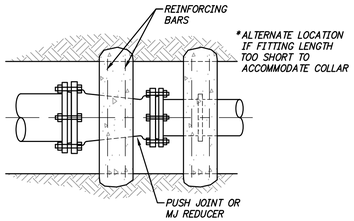
VERTICAL BENDS



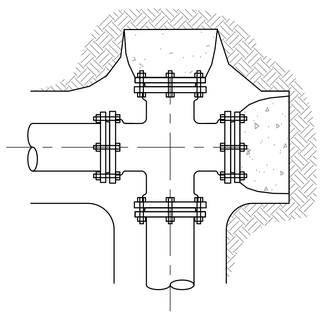
BLOCKING FOR TEE



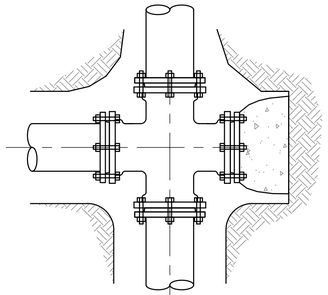
SPECIAL BLOCKING OF TEE & PLUG (WHEN DIRECTED BY ENGINEER)



THRUST SUPPORT FOR REDUCER CONNECTION



TYPICAL BLOCKING OF CROSS & 2 PLUG BLOCKING (WHEN DIRECTED BY ENGINEER)



TYPICAL BLOCKING OF CROSS & PLUG BLOCKING (WHEN DIRECTED BY ENGINEER)

FITTING	THRUST PER 100 psi PRESSURE THRUST (TONS)									
	6"	8"	12"	16"	20"	24"	30"	36"	42"	48"
11 ¼°	0.3	0.5	1.1	2.0	3.1	4.4	6.9	10.0	13.6	17.7
15°	0.4	0.7	1.5	2.6	4.1	5.9	9.2	13.3	18.1	23.6
22 ½°	0.6	1.0	2.2	3.9	6.1	8.8	13.8	19.9	27.0	35.3
30°	0.7	1.3	2.9	5.2	8.1	11.7	18.3	26.3	35.3	46.8
45°	1.1	1.9	4.3	7.7	12.0	17.3	27.1	39.0	53.0	69.2
90°	2.0	3.6	8.0	14.2	22.2	32.0	50.0	72.0	98.0	128.0
PLUG (DEAD END)	1.4	2.5	5.7	10.1	15.7	22.6	35.3	50.3	69.3	90.5

TYPE OF SOIL	SUGGESTED SAFE BEARING VALUES (TONS/SQ. FT.)
SOLID ROCK	25
HARD SLATE	6
MEDIUM SHALE	4
SOFT SHALE	2
DRY CLAY GRAVEL	4
SOFT CLAY	1.5
DRY SAND OR LOAM	2.5
WET CLAY	0.75

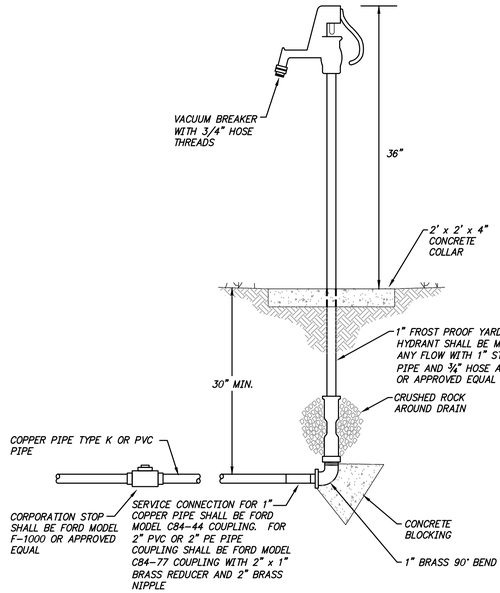
THRUST BLOCKING NOTES:

1. ALL BLOCKING SHALL BE AGAINST UNDISTURBED HAND DUG SOIL.
2. WHERE SOIL CONDITIONS MAKE IT NECESSARY TO POUR CONCRETE BLOCKING OVER JOINTS, THE ENDS OF THE ADJACENT PIPES MUST HAVE A KICKER BLOCK TO RESIST ANY MOVEMENT OF THESE JOINTS.
3. WEIGHT CALCULATIONS TO BE BASED ON THRUST DUE TO STATIC PRESSURE + 50% OR TEST PRESSURE, WHICH EVER IS GREATER. (THRUST = 2AP 1/2 SIN Ø WHERE A = AREA OF PIPE P = WATER PRESSURE)
4. WHEN BLOCKING AGAINST PLUG PLUG SHALL BE COVERED TO PREVENT BONDING OF CONCRETE.
5. WHERE SHEAR BECOMES A PROBLEM, PROPER REINFORCING MUST BE INSTALLED INTO THE BLOCKING.
6. CLEARANCE SHALL BE A MINIMUM OF 6" BETWEEN PIPE AND OBSTRUCTIONS.
7. CLEARANCE ON PIPES BELONGING TO OIL/GAS COMPANIES SHALL BE 18" UNLESS SPECIAL PERMISSION IS GIVEN BY THESE COMPANIES.

STANDARD THRUST BLOCKING

DETAIL C301

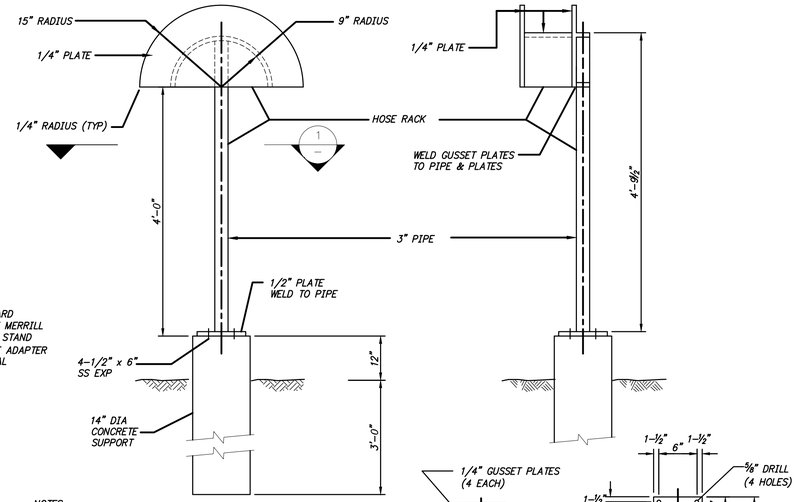
N.T.S.



YARD HYDRANT

DETAIL C302

N.T.S.



NOTES:

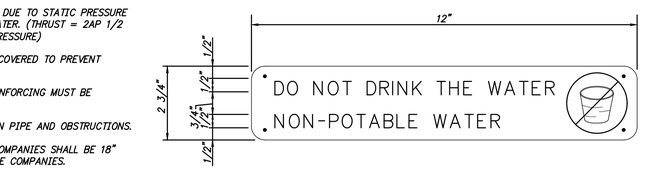
1. HOSE RACK AND RUBBER HOSE DESCRIBED ON THIS DETAIL SHALL BE PROVIDED IF SO NOTED ON DRAWING UNIT SHALL BE FABRICATED FROM 1/4" TYPE 304 STAINLESS STEEL
2. FURNISH 50' OF RUBBER HOSE (BOSTON INDUSTRIAL WATER OR EQUAL) AT EACH HOSE STATION HOSE SHALL BE DESIGNED FOR 150 PSI WORKING PRESSURE NEOPRENE EXTERIOR THAT RESISTS OIL, GREASE, ABRASION AND SEVERE WEATHER CONDITION FOR INDUSTRIAL USE BOTH ENDS OF HOSE SHALL BE THREADED, ONE END MALE, ONE END FEMALE PROVIDE A RUBBER COVERED SPRAY NOZZLE WITH SWIVEL TYPE ADAPTORS, (STRAHMAN MODEL 70) OR EQUAL, LEVER ACTION, RATED AT 150 PSI
3. INSIDE DIAMETER OF HOSE SHALL BE SAME AS HOSE VALVE

TOP VIEW

YARD HYDRANT HOSE RACK

DETAIL C303

N.T.S.



COLORS: BACKGROUND SHALL BE OSHA SAFETY YELLOW, LETTERS SHALL BE RECESSED BLACK

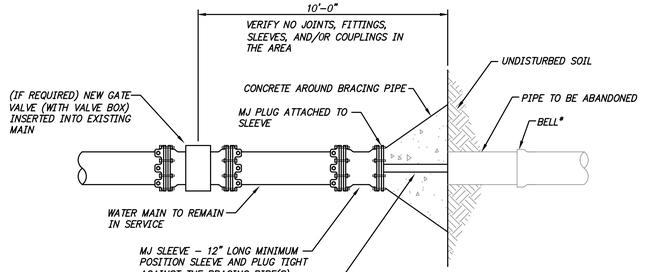
NOTES:

1. FURNISH & INSTALL THE ABOVE SIGN ABOVE ALL (EXIST & NEW) NON-POTABLE WATER HOSE BIBBS. ATTACH THE SIGN TO THE STRUCTURE, GUARDRAIL OR POST WITH STAINLESS STEEL HARDWARE & MOUNTING BRACKET.
2. PROVIDE 25 OF THESE SIGNS. CONFIRM QUANTITY WITH OWNER DURING CONSTRUCTION.
3. FURNISH ONE SIGN & RECEIVE APPROVAL FROM OWNER PRIOR TO ORDERING REMAINDER OF SIGNS.

NON-POTABLE WATER SIGN

DETAIL C304

N.T.S.



*IF THERE IS NOT BELL AT OR NEAR THE POINT TO BE CUT, PHYSICALLY CUT THE ABANDONED PIPE 5-FEET FROM THE ANCHOR COLLAR AFTER THE CONCRETE HAS ALL SET, TAKING SPECIAL CARE NOT TO DISTURB ANCHOR COLLAR. SEAL END OF ABANDONED PIPE WITH CONCRETE IF 12" PIPE OR SMALLER. SEAL END OF PIPE WITH MJ PLUG/CAP IF 14" PIPE AND LARGER.

STANDARD CUT AND PLUG DETAIL

DETAIL C305

N.T.S.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ELLIS YANCEY JR. No. 12185 11/19/24

HAWKINS WEIR ENGINEERS, INC. Engineering Client Success

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DETAILS III

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	CZ-3

File: C:\USERS\MWEIR\DOCUMENTS\ACCDOCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_HW\00_CIVIL\CIVIL\60711-001-C203 Saved by MWEIR Save date: 10/3/2024 9:46 AM
PLOT DATE: 11/18/2024 10:14 AM BY: MWEIR

NOTES:

1. SEE SPECIFICATION 43 25 17 SUBMERSIBLE SUMP PUMP SPEC FOR DETAILS.
2. EACH PIPE REQUIRES THE INSTALLATION OF TWO VICAULTIC COUPLINGS SPACED 10 FEET APART BETWEEN THE COUPLINGS, NWPIPE INFRASHIELD PER PIPE, OR EQUAL

PLANT NORTH
N

16' - 0" | 5' - 6" | 50' - 9 3/4" | 11' - 4 1/2" | 50' - 9 3/4"

SEE CIVIL DWGS FOR CONTINUATION, TYP

72" RW, CL 540.17, FROM LAKE MAUMELLE

VICTAULIC COUPLING, TYPE 77W OR EQUAL, SEE NOTE 2, TYP

72" RW, CL 540.17, FROM LAKE MAUMELLE OR JACKSON RESERVOIR

K M2006

C M2005

6' - 0" | 6' - 10"

9' - 6"

10' - 0"

10' - 0"

9' - 6"

RAW WATER INFLUENT BOX

M-40-0110 TYP

76x76 NON-SELF CONTAINED SLIDE GATE, TYP

2" DRN

SUBMERSIBLE PUMP AND RAIL SYSTEM, TYP, SEE NOTE 1

2" PW, FOR CIRCULATING SUMP BEFORE USING PUMP, TYP

A M2004

5' - 0" | 6' - 6"

24" BUTTERFLY VALVE, TYP

24" BWR, CL 544.50

24" BWR, CL 544.50, FROM BACKWASH TREATMENT TANK

B M2004

C M2005

36' - 0"

RAW WATER BLENDING BOX

26' - 0"

LAUNDER SUPPORT COLUMN, SEE STRU DWGS

48" RW, CL 539.83

D M2005

E M2005

F M2005

48" BI, CL 539.83

48" BUTTERFLY VALVE, TYP

M-40-0106R1

K M2006

G M2005

J M2006

H M2006

M-40-0106R1 TYP

66" SST CASING PIPE FOR 48" BI BURIED BETWEEN BASINS, SEE STRU DWGS FOR DETAIL, TYP

48" BI, CL 539.10, TO 48" RW MAIN

8' - 0"

3/4" SA

M-40-0106R1

15' - 6"

3/4" SA

2" DRN

2" PW

8' - 0"

6' - 0"

72x72 NON-SELF CONTAINED SLIDE GATE, TYP

28' - 6"

LAUNDER SUPPORT COLUMN, SEE STRU DWGS

8' - 0"

RAPID MIX - STAGE 1

2" DRN

2" PW

RAPID MIX - STAGE 2

CONCRETE ORIFICE WALL, SEE STRU DWGS

STAINLESS STEEL U-SHAPE BAFFLE WALL, SEE STRU DWGS

2" PW

8' - 0"

6" PVC THROUGH WALL TO CONNECT SUMPS, TYP

SUBMERSIBLE PUMP AND RAIL SYSTEM, TYP

2" DRN

CONCRETE VERTICAL BAFFLE COLUMN, TYP

COAGULATED WATER DISTRIBUTION

48" BI, CL 539.10, TO BASIN 2 FLOW SPLIT BOX

48" BI, CL 539.10, TO BASIN 3 FLOW SPLIT BOX

A M2004

FRP STATOR BAFFLE, DIMENSIONED PER MIXER MANUFACTURER'S RECOMMENDATION, TYP

D M2005

E M2005

F M2005

G M2005

J M2006

H M2006

B M2004

MIX-2102

MIX-2101

MIX-2112

MIX-2111

BASIN 1A STAGE 2 | BASIN 1A STAGE 1 | BASIN 1B STAGE 2 | BASIN 1B STAGE 1

BASIN 1A STAGE 3 | BASIN 1A STAGE 4 | BASIN 1B STAGE 3 | BASIN 1B STAGE 4

BOTTOM PLAN - RAPID MIX

3/16" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL, DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. YEO
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	S. HARDY
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 22315 SCOTT HARDY 11-19-2024

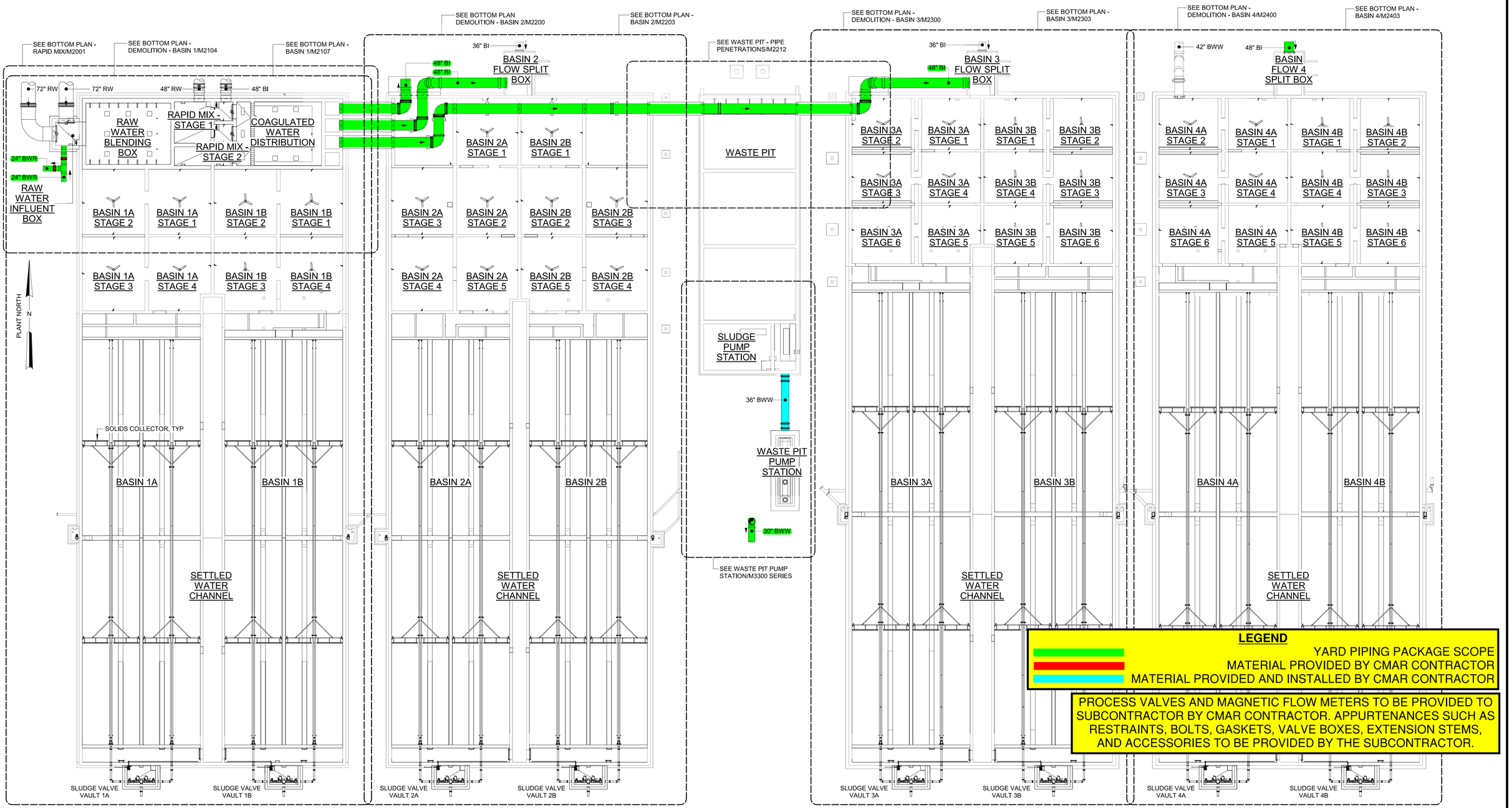
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

RAPID MIX MECHANICAL BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2001



OVERALL BOTTOM PLAN

1" = 20'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 21489 TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

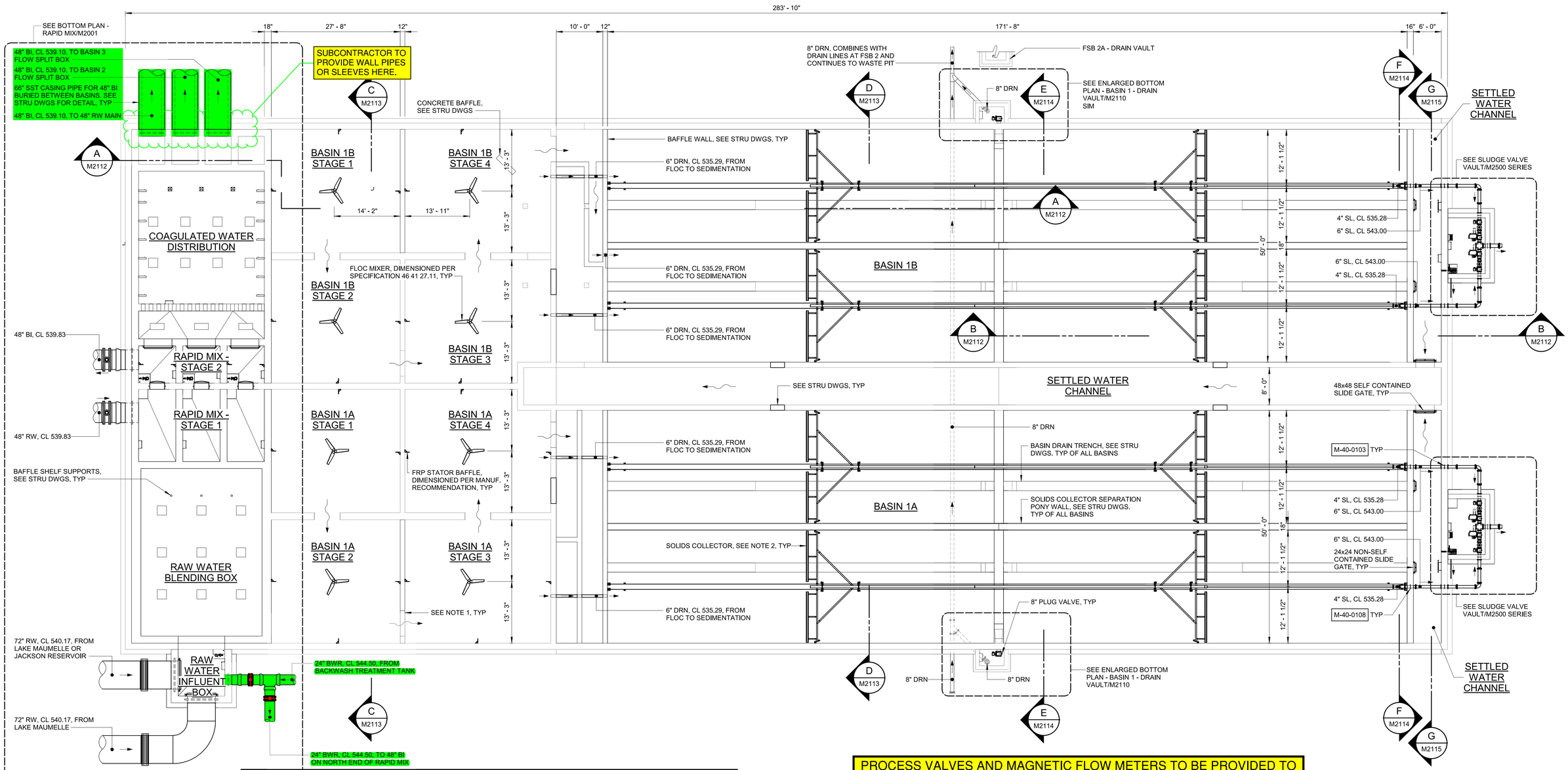
FLOCCULATION AND SEDIMENTATION BASINS
MECHANICAL
OVERALL BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2101

NOTES:

1. HIGH OPENINGS IN WALLS BETWEEN FLOC STAGES SHOWN ON BOTTOM PLAN FOR FLOW REFERENCE.
2. SOLIDS COLLECTORS PER MFR AND SPECIFICATION 46 43 12.
3. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL YARD PIPING.

PLANT NORTH



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

BOTTOM PLAN

3/32" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FLOCCULATION AND SEDIMENTATION
BASIN 1
MECHANICAL
BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2107

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-2000-RAPID MIX-2100-FSB1-MECH.rvt
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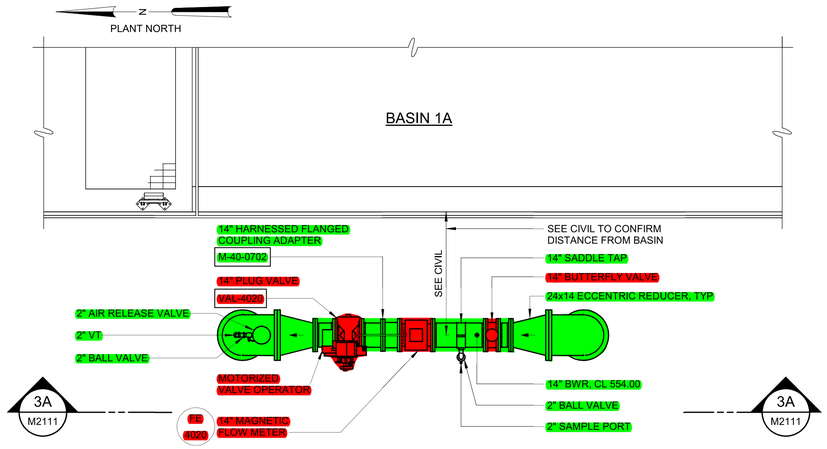
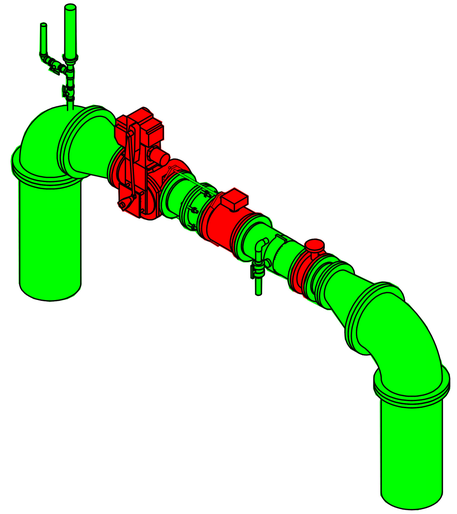
NOTES:

1. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL YARD PIPING.
2. APPLY INSULATED COATING SYSTEM TO ALL EXPOSED BWR PIPING AND VALVES. SEE SPECIFICATION 09 90 00 FOR DETAILS.



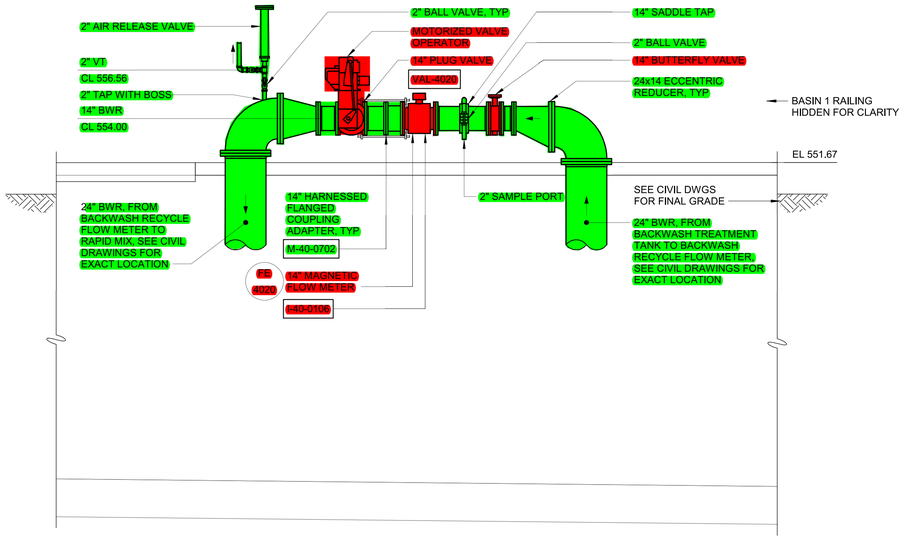
ENLARGED TOP PLAN - BACKWASH RECYCLE FLOW METER

1/4" = 1'-0"



ISOMETRIC FLOW METER AND PIPING

NO SCALE - DRAWING FOR ILLUSTRATIVE PURPOSES ONLY



SECTION 3A M2111

1/4" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	S. HARDY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 22315 SCOTT HARDY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

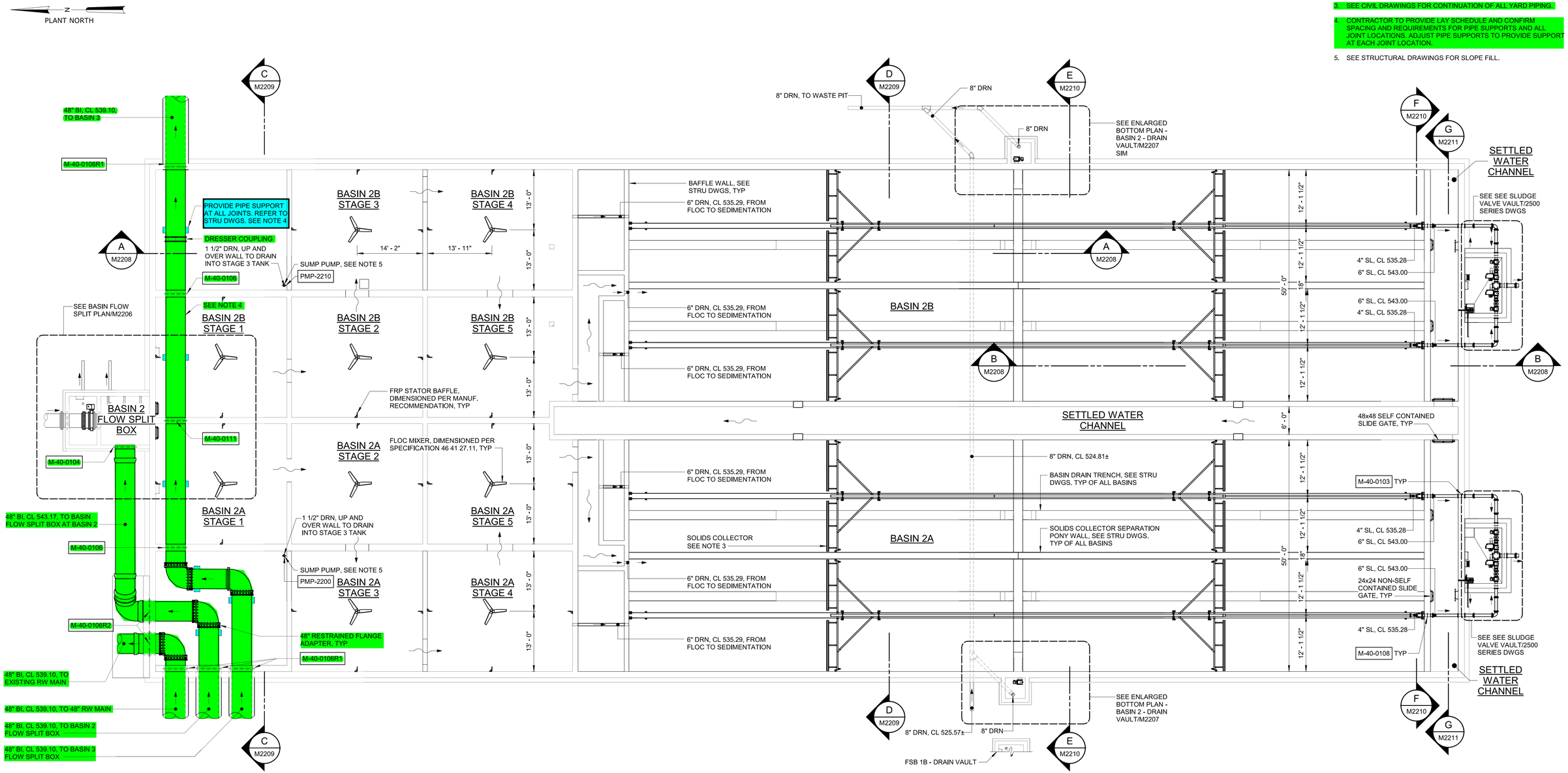
FLOCCULATION AND SEDIMENTATION
BASIN 1
MECHANICAL
ENLARGED PLANS AND SECTIONS - BACKWASH RECYCLE FLOW METER

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2111

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-2000-RAPID MIX-2100-FSB1-MECH.rvt
11/12/2024 6:50:48 PM

NOTES:

1. HIGH OPENINGS IN WALLS BETWEEN FLOC STAGES SHOWN ON BOTTOM PLAN FOR FLOW REFERENCE.
2. SOLIDS COLLECTORS PER MFR AND SPECIFICATION 46 43 12.
3. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL YARD PIPING.
4. CONTRACTOR TO PROVIDE LAY SCHEDULE AND CONFIRM SPACING AND REQUIREMENTS FOR PIPE SUPPORTS AND ALL JOINT LOCATIONS. ADJUST PIPE SUPPORTS TO PROVIDE SUPPORT AT EACH JOINT LOCATION.
5. SEE STRUCTURAL DRAWINGS FOR SLOPE FILL.



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

BOTTOM PLAN
3/32" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 21489 TYLER HUDSON

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

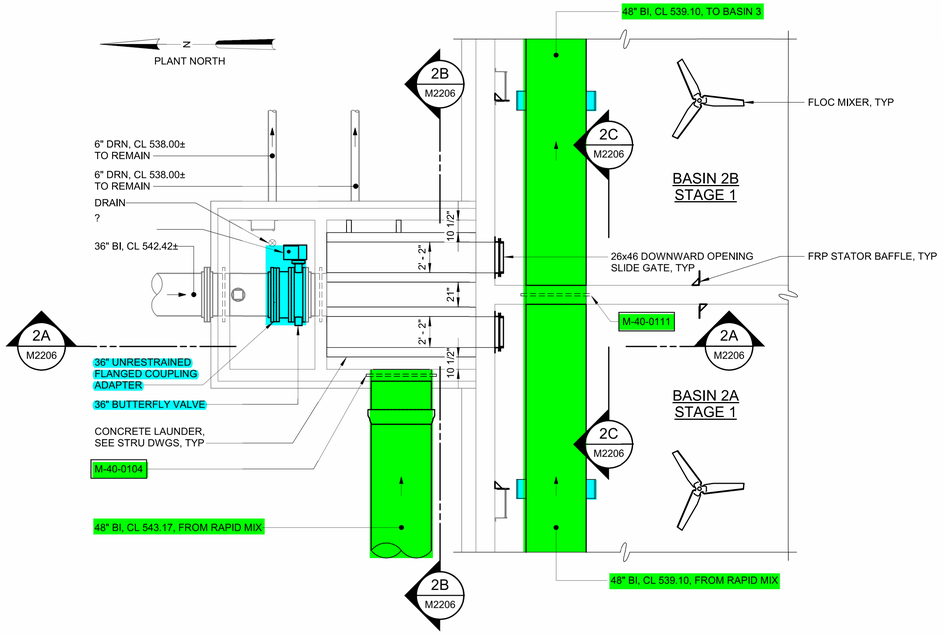
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FLOCCULATION AND SEDIMENTATION BASIN 2 MECHANICAL BOTTOM PLAN

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: M2203

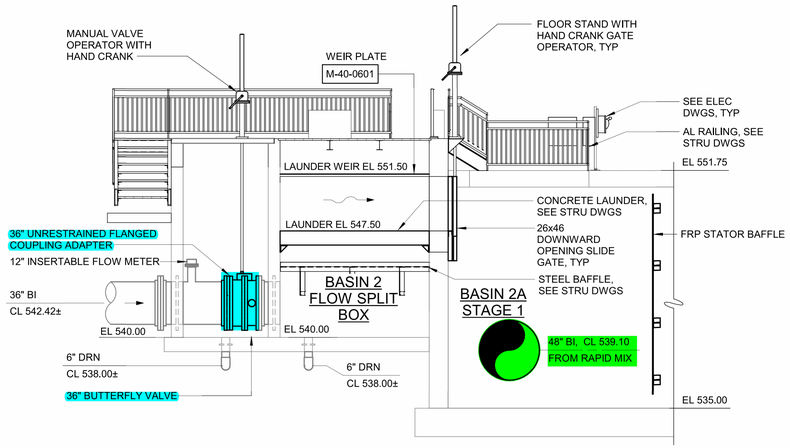
NOTES:

1. REFER TO SPECIFICATION 01 14 00 FOR SEQUENCING INFORMATION.



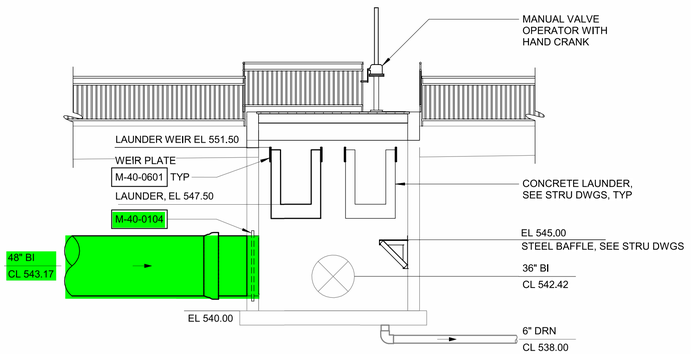
ENLARGED BASIN FLOW SPLIT BOX PLAN

3/16" = 1'-0"



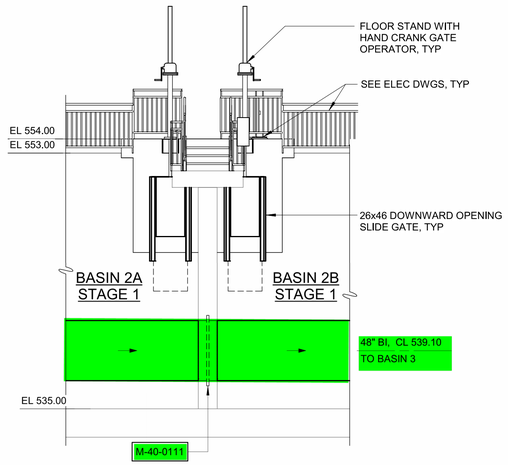
SECTION 2A M2206

3/16" = 1'-0"



SECTION 2B M2206

3/16" = 1'-0"



SECTION 2C M2206

3/16" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen

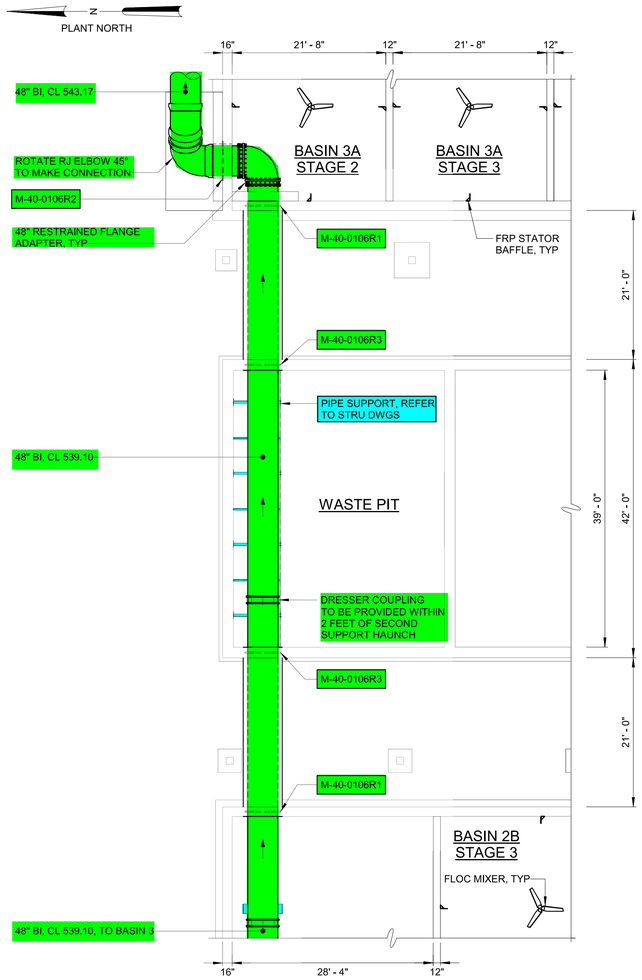
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL
AND RESILIENCY PROJECT

FLOCCULATION AND SEDIMENTATION
BASIN 2
MECHANICAL
ENLARGED PLAN AND SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2206



WASTE PIT - BASIN INFLUENT PIPE PENETRATIONS

3/32" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 21489 — TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

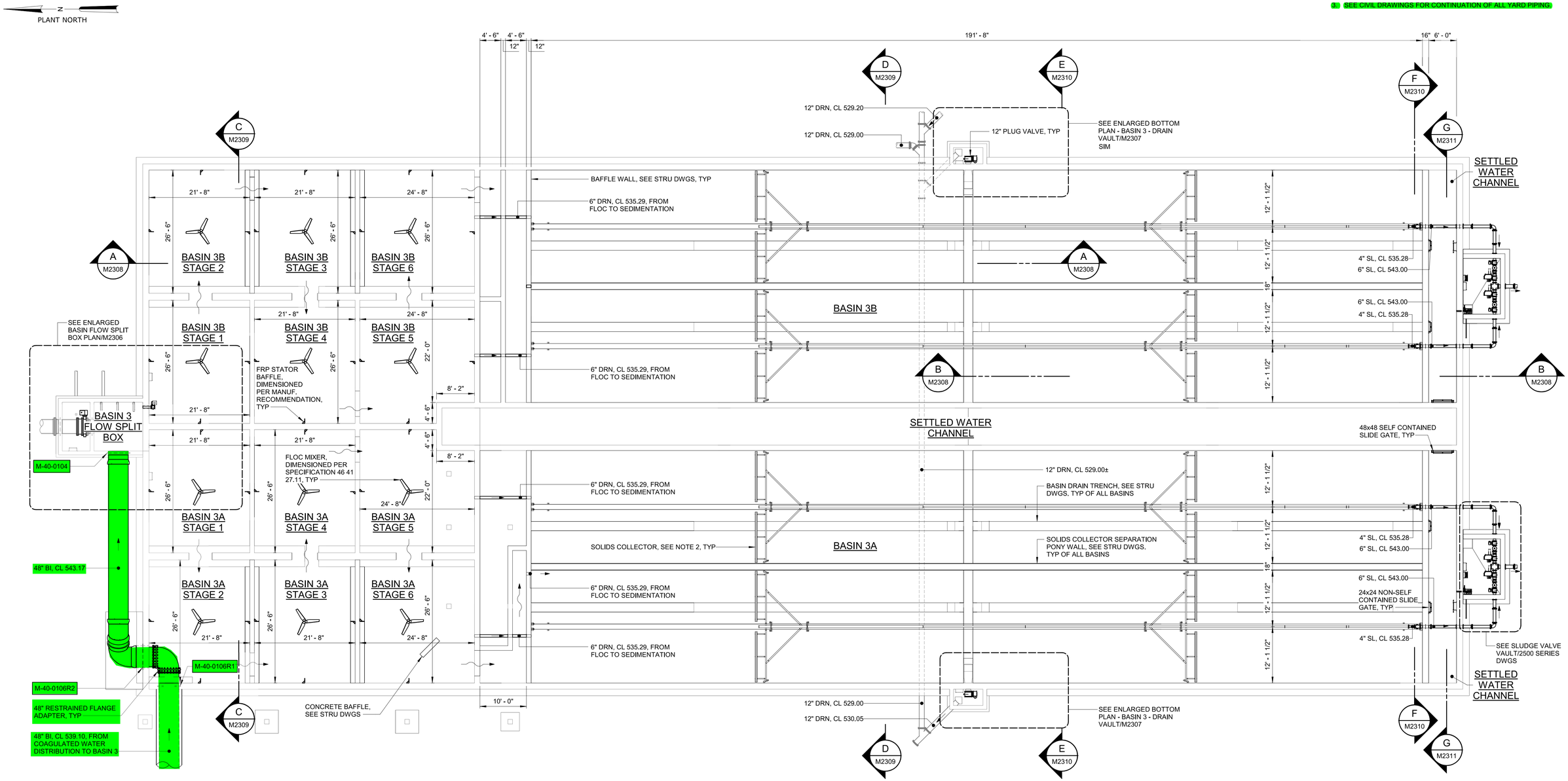
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

WASTE PIT
MECHANICAL
BASIN INFLUENT PIPE PENETRATIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2212

NOTES:

1. HIGH OPENINGS IN WALLS BETWEEN FLOC STAGES SHOWN ON BOTTOM PLAN FOR FLOW REFERENCE.
2. SOLIDS COLLECTORS PER MFR AND SPECIFICATION 46 43 12.
3. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL YARD PIPING.



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

BOTTOM PLAN
3/32" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 21489 TYLER HUDSON

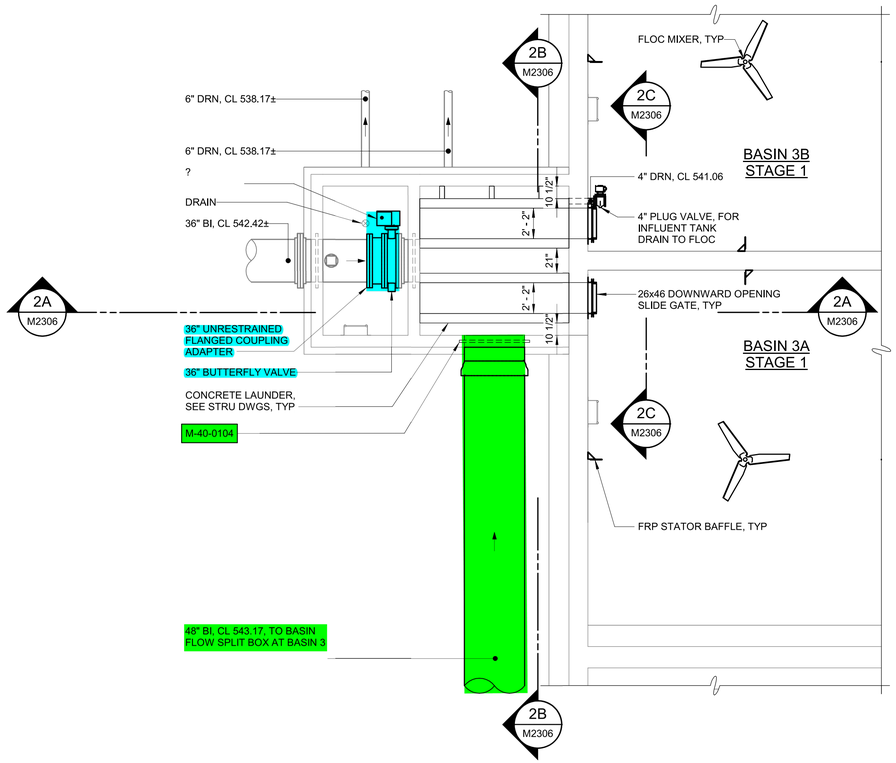
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

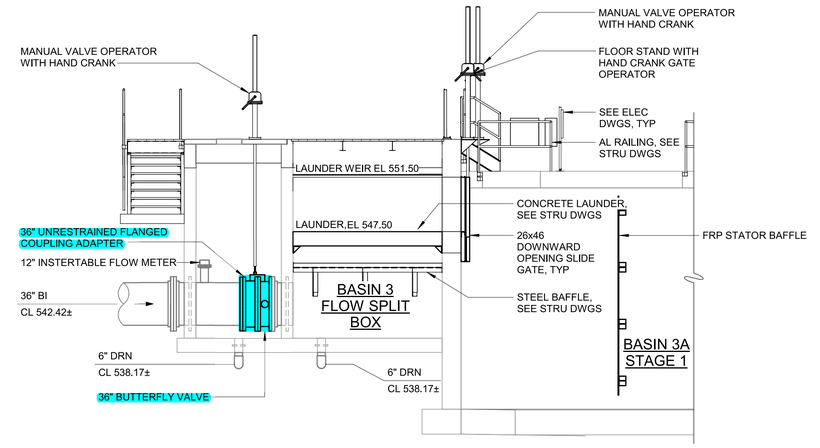
FLOCCULATION AND SEDIMENTATION BASIN 3 MECHANICAL BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2303



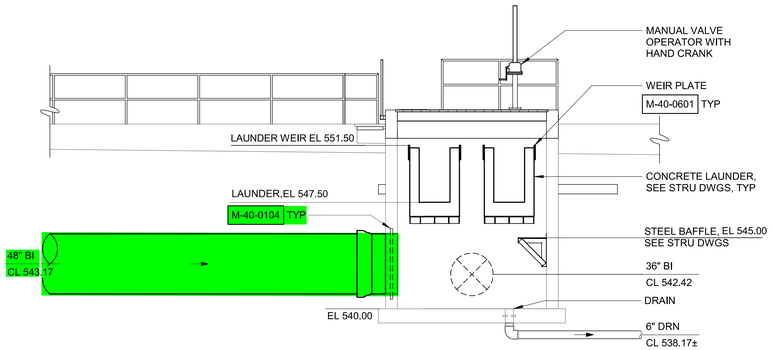
ENLARGED INFLUENT WELL PLAN

3/16" = 1'-0"



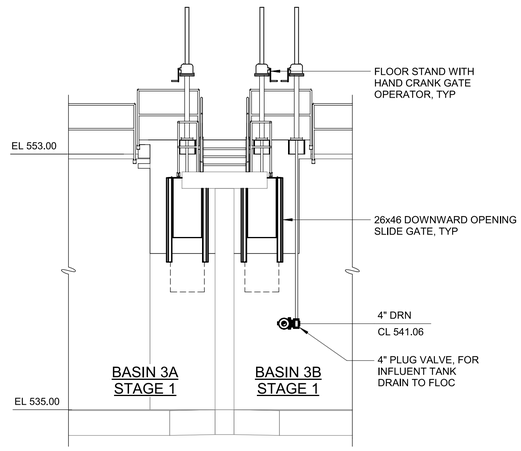
SECTION 2A M2306

3/16" = 1'-0"



SECTION 2B M2306

3/16" = 1'-0"



SECTION 2C M2306

3/16" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

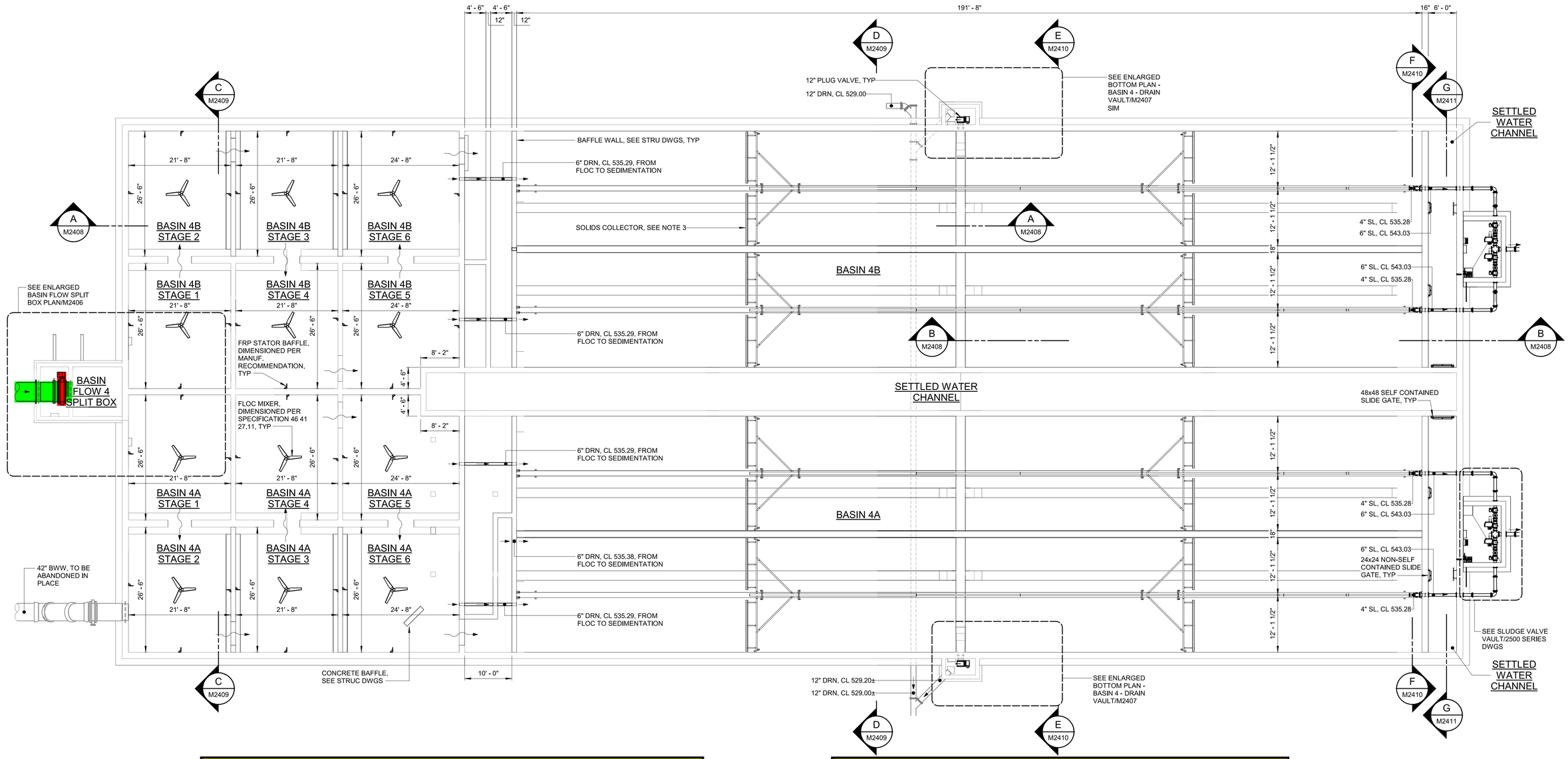
FLOCCULATION AND SEDIMENTATION BASIN 3 MECHANICAL ENLARGED PLANS AND SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2306

NOTES:

1. HIGH OPENINGS IN WALLS BETWEEN FLOC STAGES SHOWN ON BOTTOM PLAN FOR FLOW REFERENCE.
2. SOLIDS COLLECTORS PER MRF AND SPECIFICATION 46 43 12.
3. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL YARD PIPING.

N
PLANT NORTH



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

BOTTOM PLAN
3/32" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

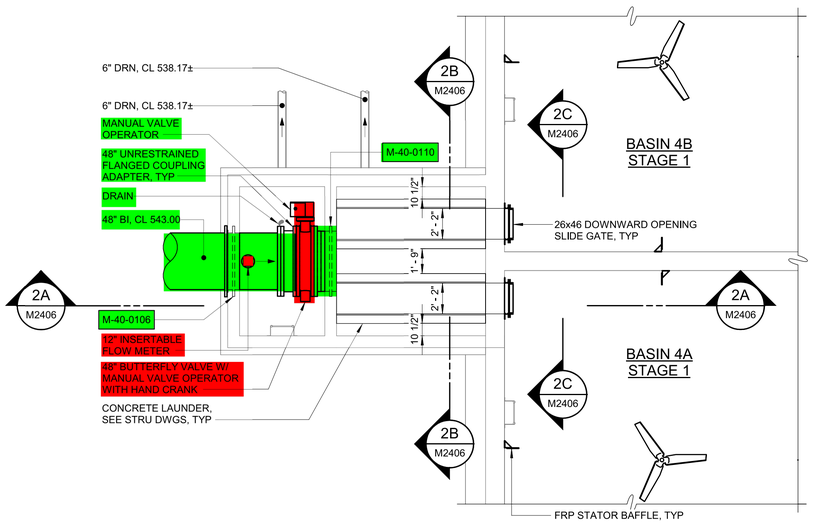
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

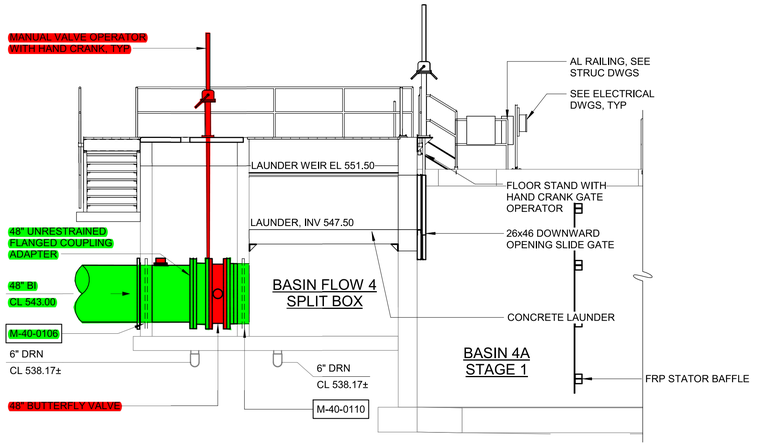
FLOCCULATION AND SEDIMENTATION
BASIN 4
MECHANICAL
BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2403



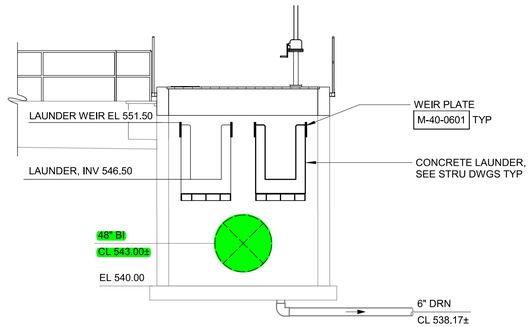
ENLARGED BASIN FLOW SPLIT BOX PLAN

3/16" = 1'-0"



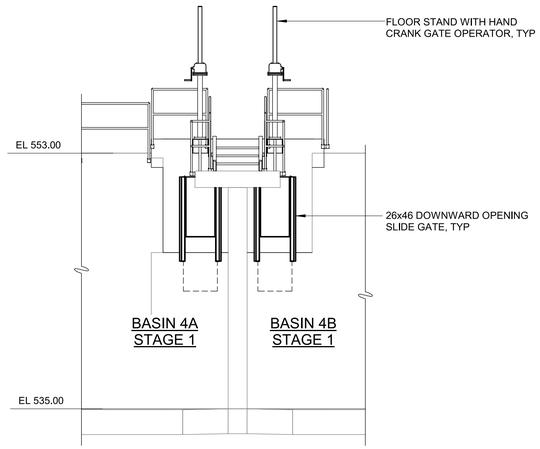
SECTION 2A M2406

3/16" = 1'-0"



SECTION 2B M2406

3/16" = 1'-0"



SECTION 2C M2406

3/16" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FLOCCULATION AND SEDIMENTATION BASIN 4
MECHANICAL
ENLARGED PLAN AND SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2406

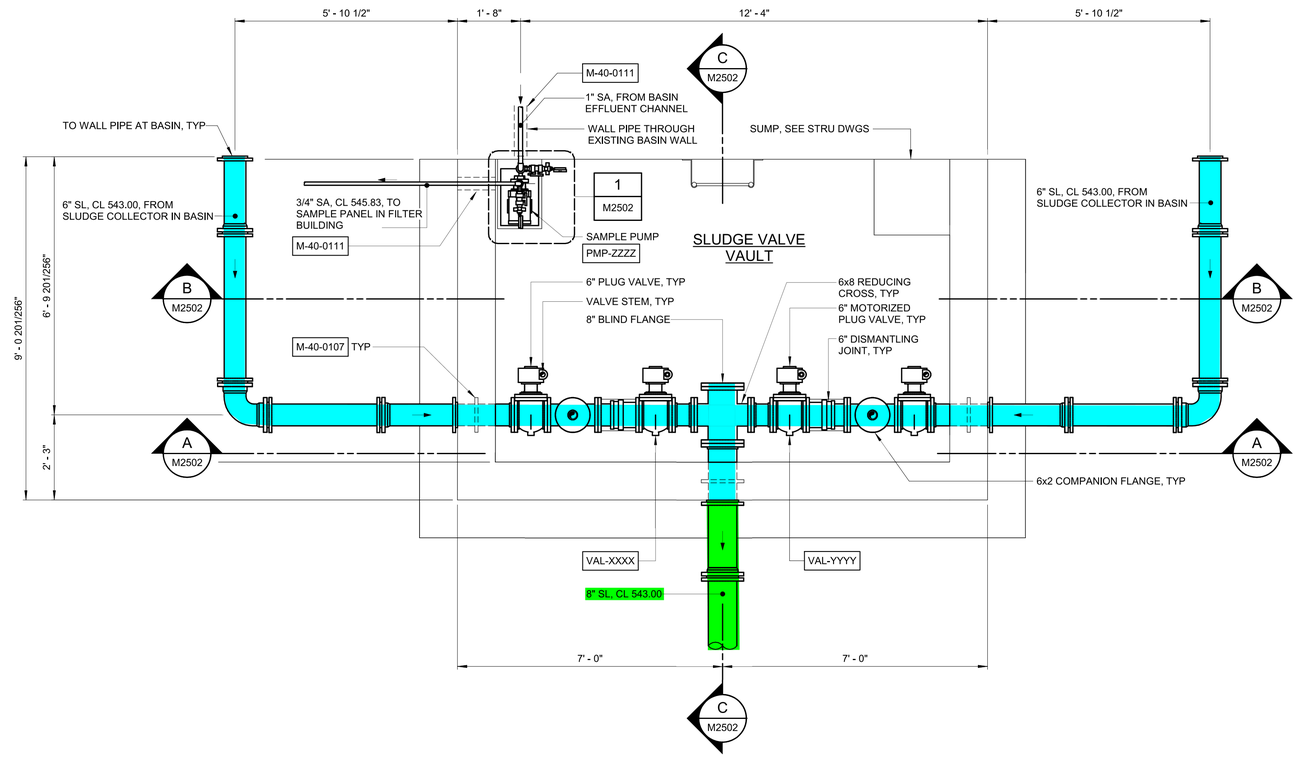
PLANT NORTH

N

BASIN VALVE VAULT EQUIPMENT SCHEDULE			
VALVE VAULT No.	VAL-XXXX	VAL-YYYY	PMP-ZZZZ
1A	VAL-2142	VAL-2141	PMP-2143
1B	VAL-2152	VAL-2151	PMP-2153
2A	VAL-2241	VAL-2242	PMP-2243
2B	VAL-2251	VAL-2252	PMP-2253
3A	VAL-2341	VAL-2342	PMP-2343
3B	VAL-2351	VAL-2352	PMP-2353
4A	VAL-2441	VAL-2442	PMP-2443
4B	VAL-2451	VAL-2452	PMP-2453

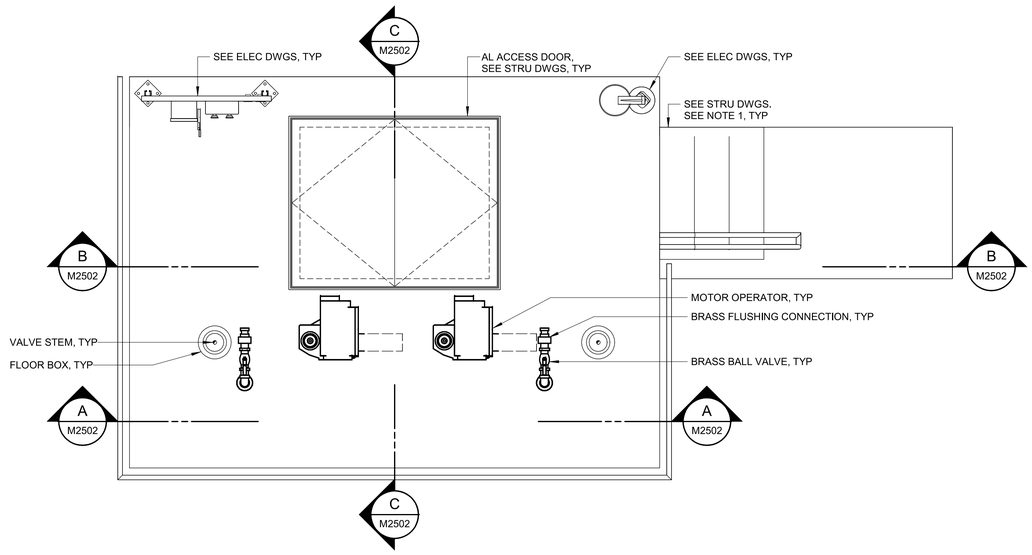
NOTES:

1. THESE DRAWINGS REPRESENT 8 TOTAL VALVE VAULTS WITH THE SAME LAYOUT. STAIRS SHOWN HERE WILL BE ON THE WEST SIDE FOR ALL (8) BASINS.
2. REFER TO BASIN VALVE VAULT EQUIPMENT SCHEDULE FOR VALVE AND PUMP TAGS FOR EACH VALVE VAULT.



BOTTOM PLAN

1/2" = 1'-0"



TOP PLAN

1/2" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	E. VOSBURGH
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

SLUDGE VALVE VAULTS
1A THRU 4B
MECHANICAL
BOTTOM AND TOP PLANS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M2501

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-2500-SVV-MECH.rvt
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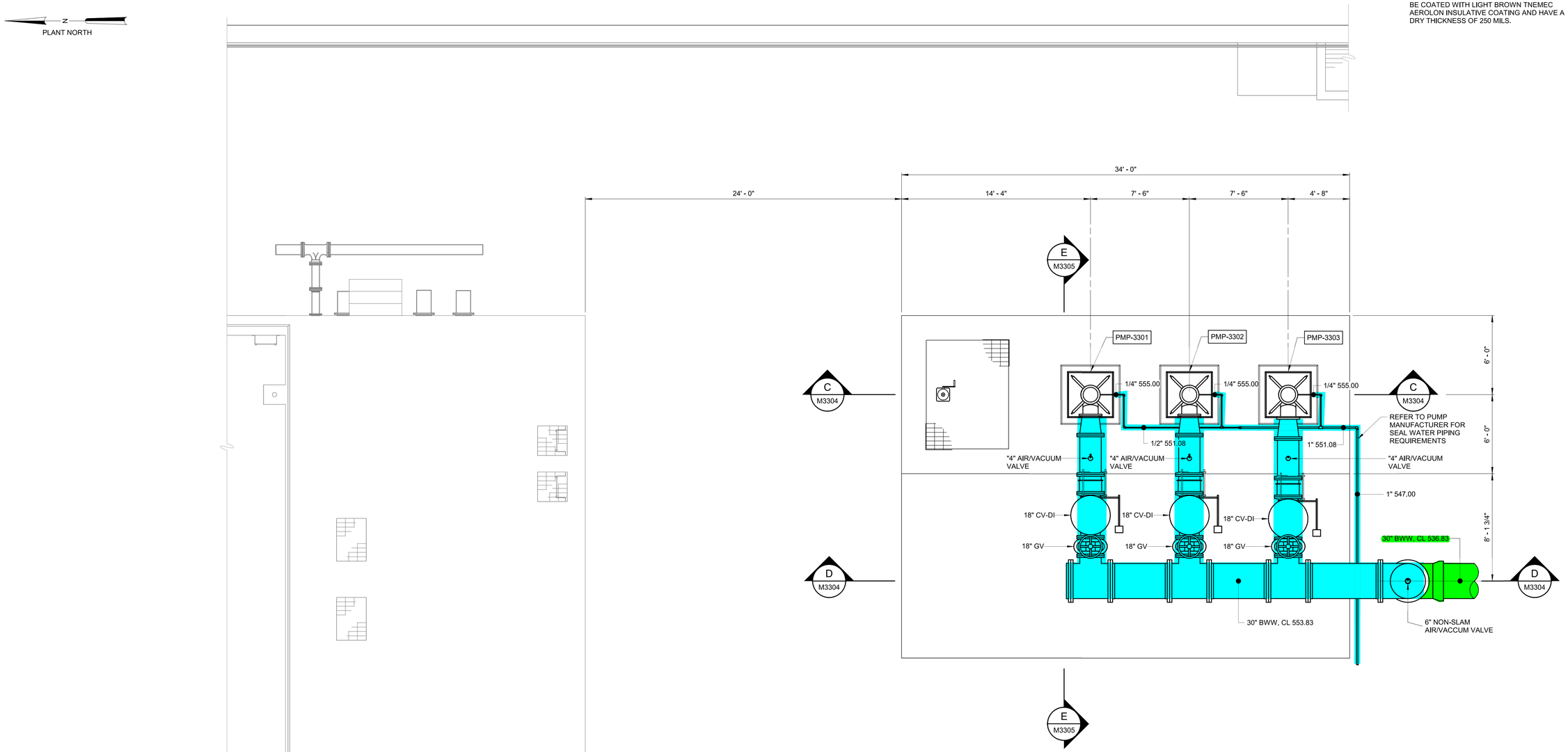
NOTES:

1. EXPOSED PIPING, VALVES, AND FITTINGS SHALL BE COATED WITH LIGHT BROWN TNEMEC AEROLON INSULATIVE COATING AND HAVE A DRY THICKNESS OF 250 MILS.

PLANT NORTH



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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TOP PLAN
1/4" = 1'-0"

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	C. GRAY
DRAWN BY:	C. SELMAN
PROJECT ENGINEER:	A. KAUFMAN

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15655
ADRIAN J. KAUFMAN

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

WASTE PIT PUMP STATION
MECHANICAL
TOP PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M3303

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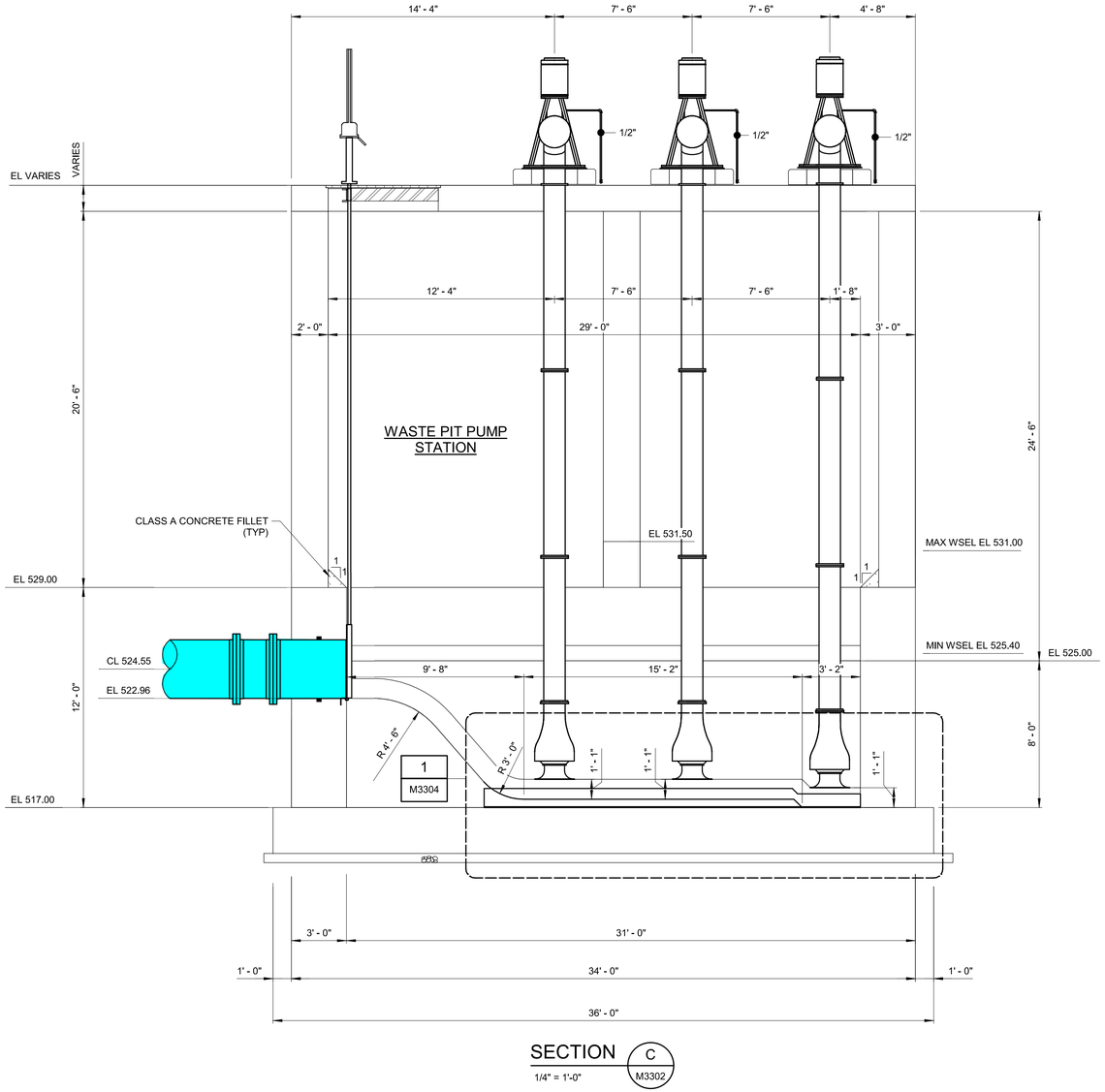
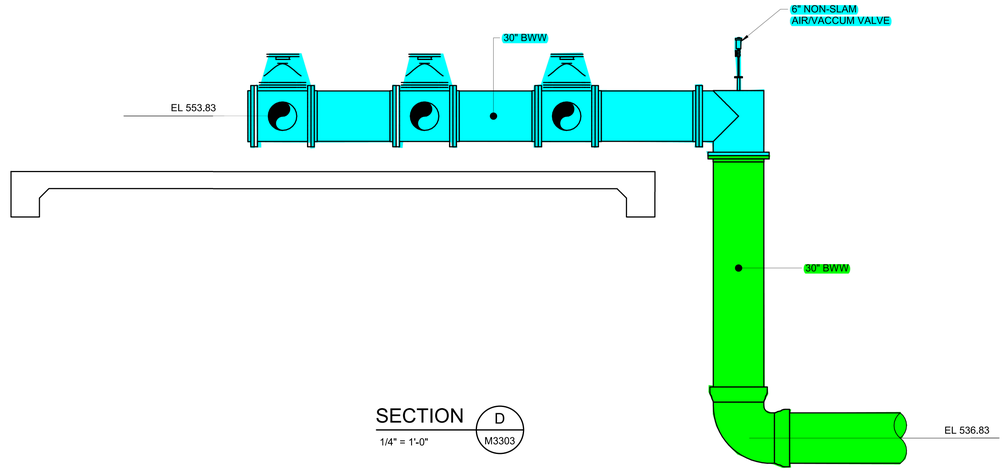
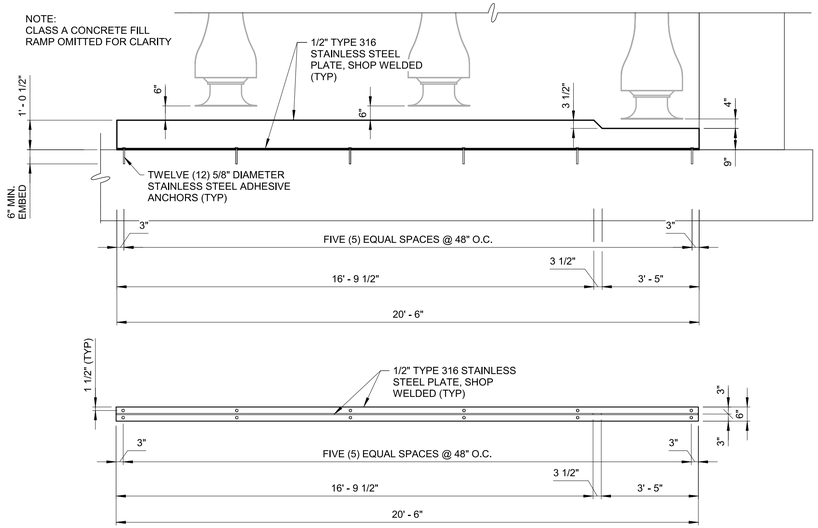


SECTION C
1/4" = 1'-0"
M3302



SECTION D
1/4" = 1'-0"
M3303



METAL FLOOR SPLITTER DETAIL

DETAIL 1
3/8" = 1'-0"
M3304

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

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GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	C. GRAY
DRAWN BY:	C. SELMAN
PROJECT ENGINEER:	A. KAUFMAN

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15655 ADRIAN J. KAUFMAN

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

WASTE PIT PUMP STATION
MECHANICAL
SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M3304

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-3300-WPPS-MECH.rvt
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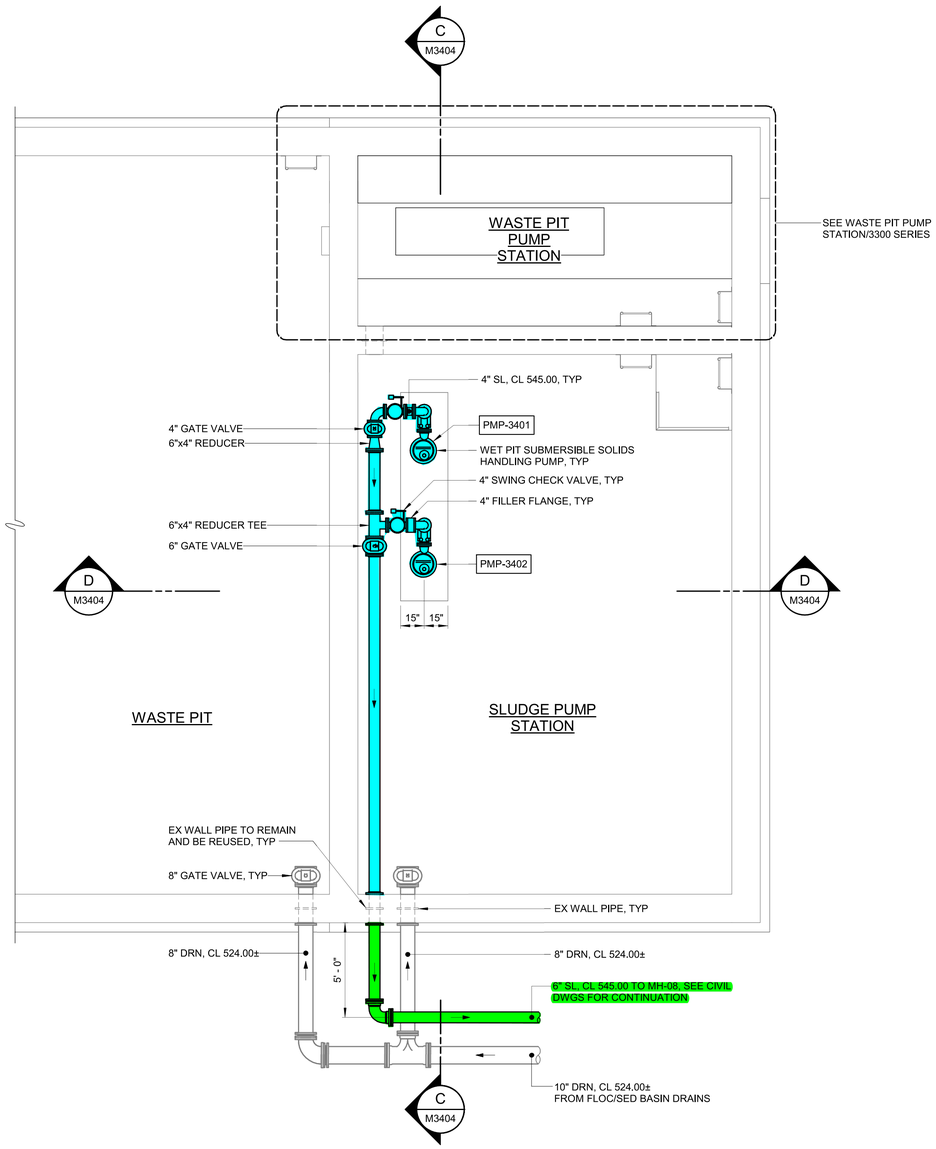
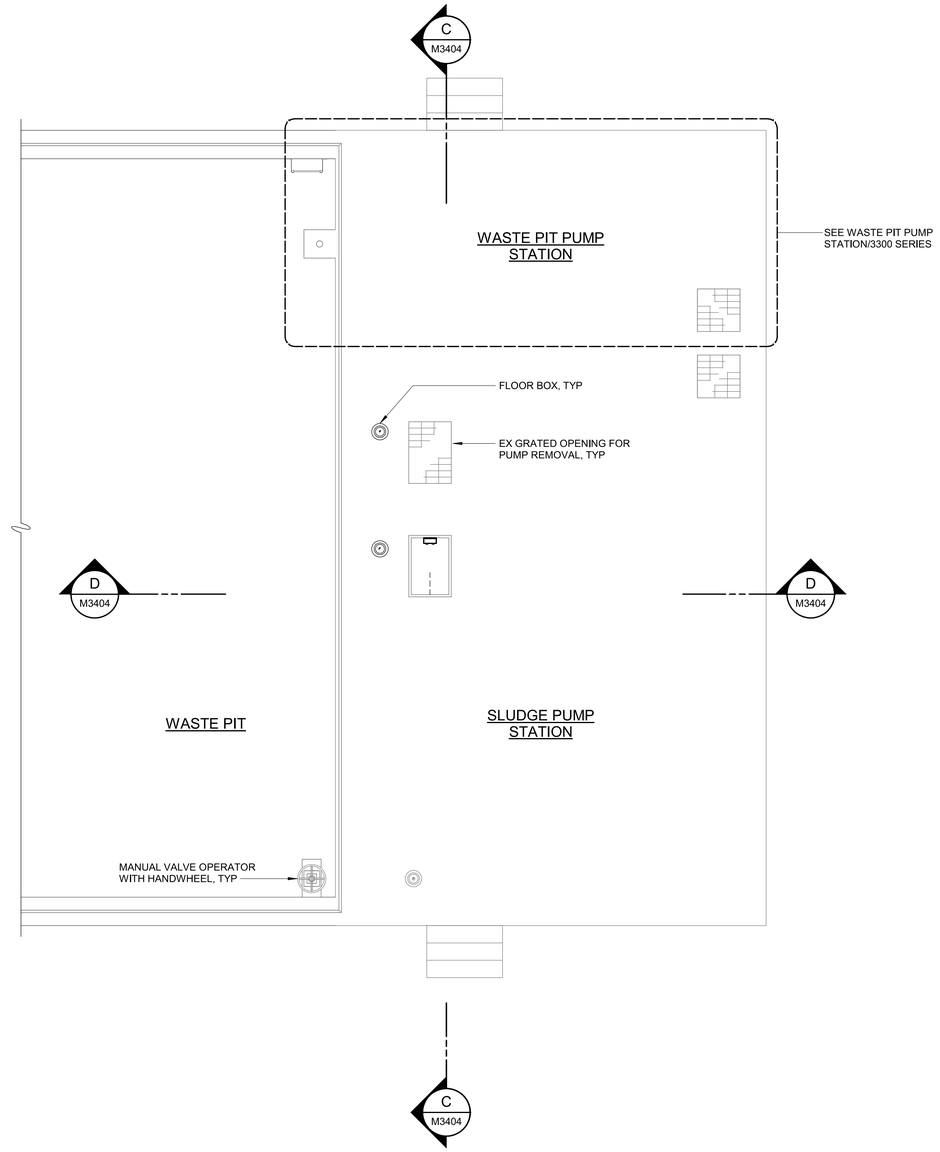
NOTES:

1. BOLTS USED FOR FLANGED JOINTS IN SUBMERGED APPLICATIONS SHALL BE TYPE 316 STAINLESS STEEL AND INSTALLED WITH DIELECTRIC ISOLATION FLANGE KITS AND ANTI-SEIZE.



BOTTOM PLAN



TOP PLAN
1/4" = 1'-0"

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	B. UPRETI
DRAWN BY:	C. TEJEDA DIAZ
PROJECT ENGINEER:	S. HARDY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22315
SCOTT HARDY

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

SLUDGE PUMP STATION
MECHANICAL
BOTTOM AND TOP PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M3403

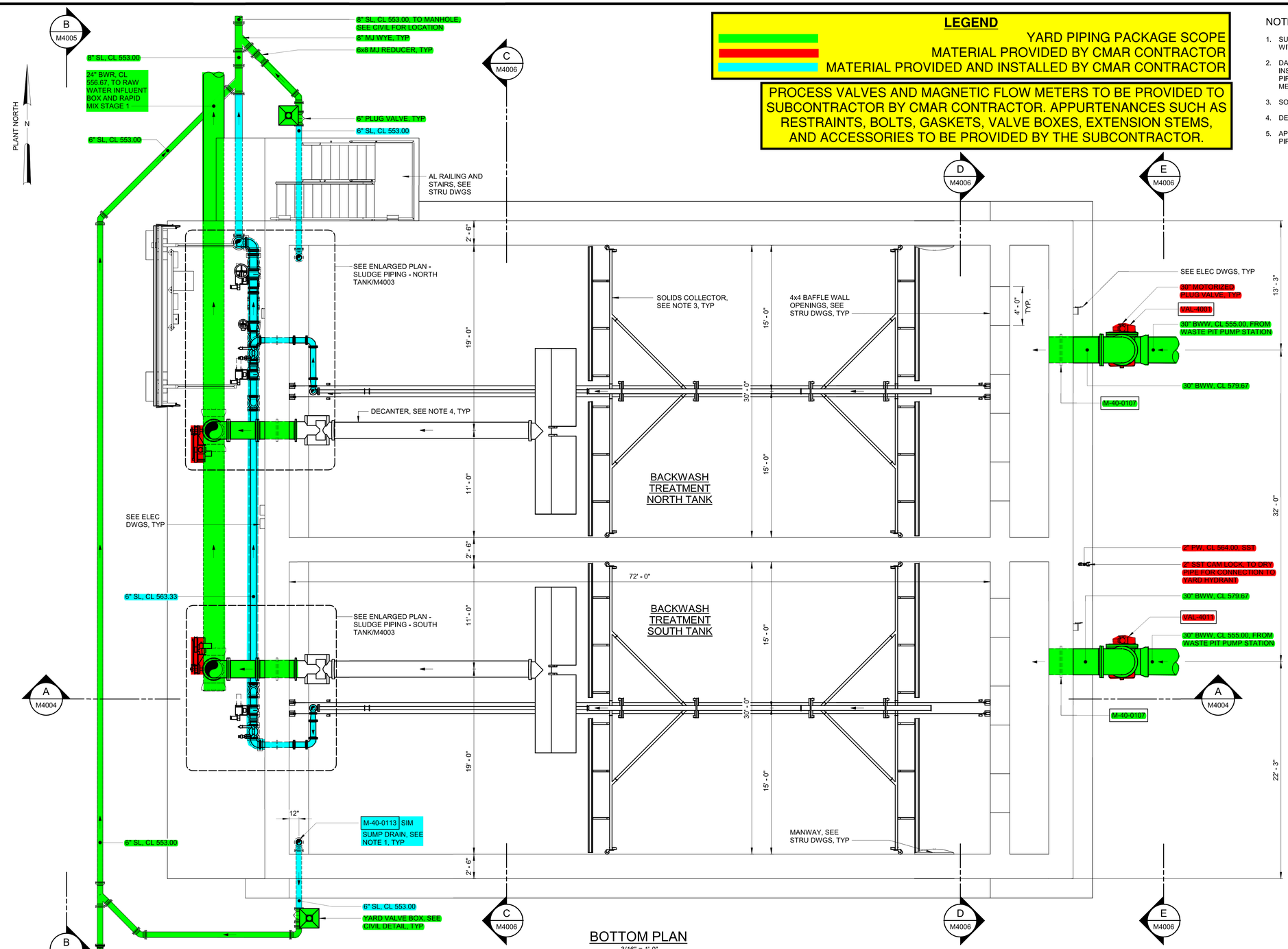
LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

NOTES:

1. SUMP DRAIN WILL TERMINATE WITH A PLAIN END PIPE FLUSH WITH THE SUMP SLAB.
2. DASHED LINES ON SLUDGE PIPING REPRESENTS INSULATION. INSULATION TO BE ADDED TO ALL ABOVE GROUND SLUDGE PIPING, AND REMOVABLE BLANKETS SHALL BE USED FOR FLOW METER AND VALVES SO THEY MAY BE EASILY ACCESSED.
3. SOLIDS COLLECTORS PER MFR AND SPECIFICATION 46 43 12.
4. DECANTERS PER MFR AND SPECIFICATION 46 73 22.
5. APPLY INSULATED COATING SYSTEM TO ALL EXPOSED BWR PIPING AND VALVES. SEE SPECIFICATION 09 90 00 FOR DETAILS.



BOTTOM PLAN

3/16" = 1'-0"

GMP SUBMITTAL, DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 21489 TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

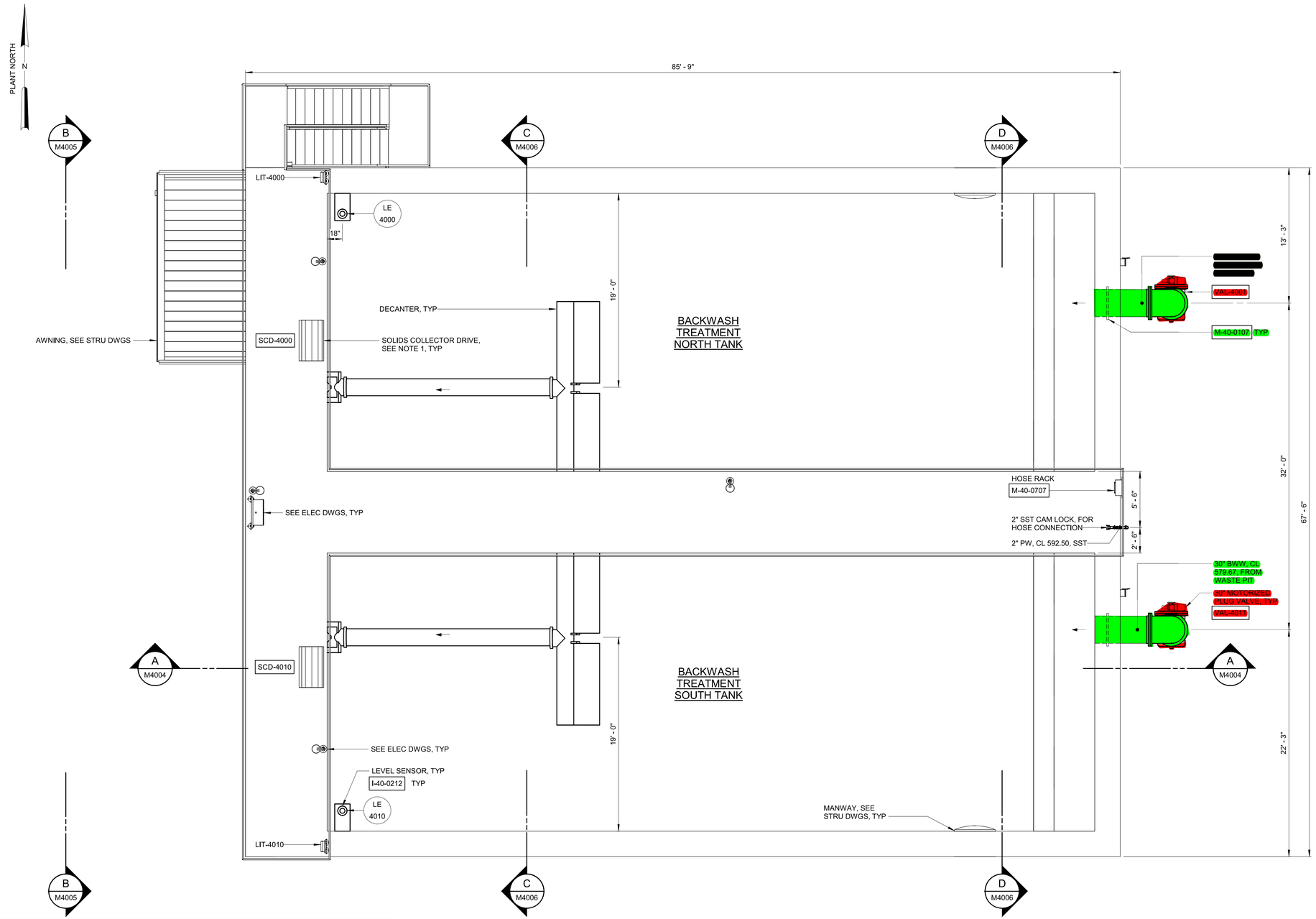
BACKWASH TREATMENT TANK
MECHANICAL
BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4001

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-4000-BWTT-MECH.rvt
11/13/2024 11:31:37 AM

NOTES:

1. FINAL LOCATION OF SOLIDS COLLECTOR DRIVES TO BE DETERMINED DURING INSTALLATION OF SOLIDS COLLECTOR.



LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

TOP PLAN
3/16" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen
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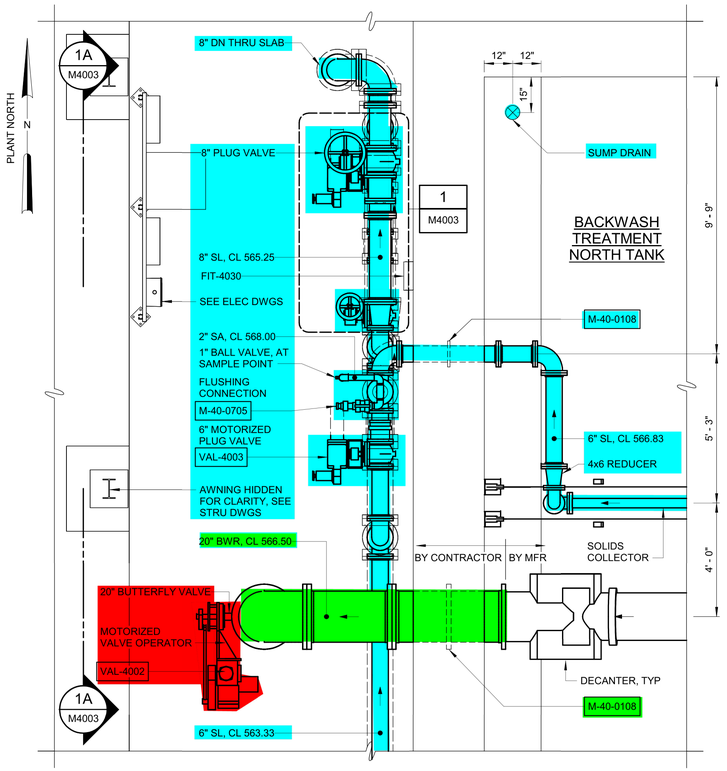
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL
AND RESILIENCY PROJECT

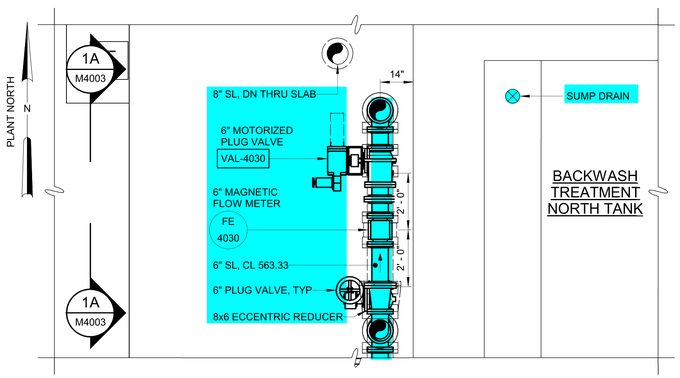
BACKWASH TREATMENT TANK
MECHANICAL
TOP PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4002



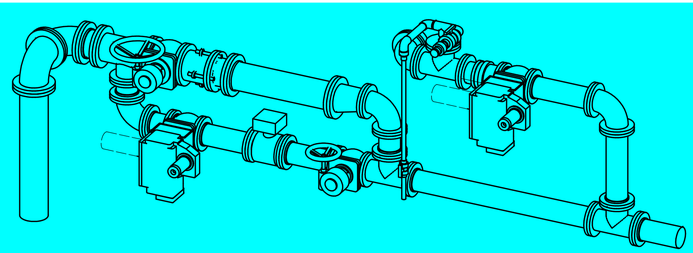
ENLARGED PLAN - SLUDGE PIPING - NORTH TANK

3/8" = 1'-0"



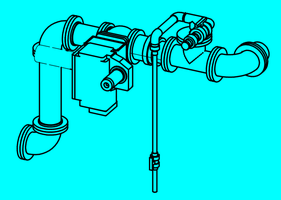
SLUDGE FLOW METER

DETAIL 1 / 3/8" = 1'-0" / M4003



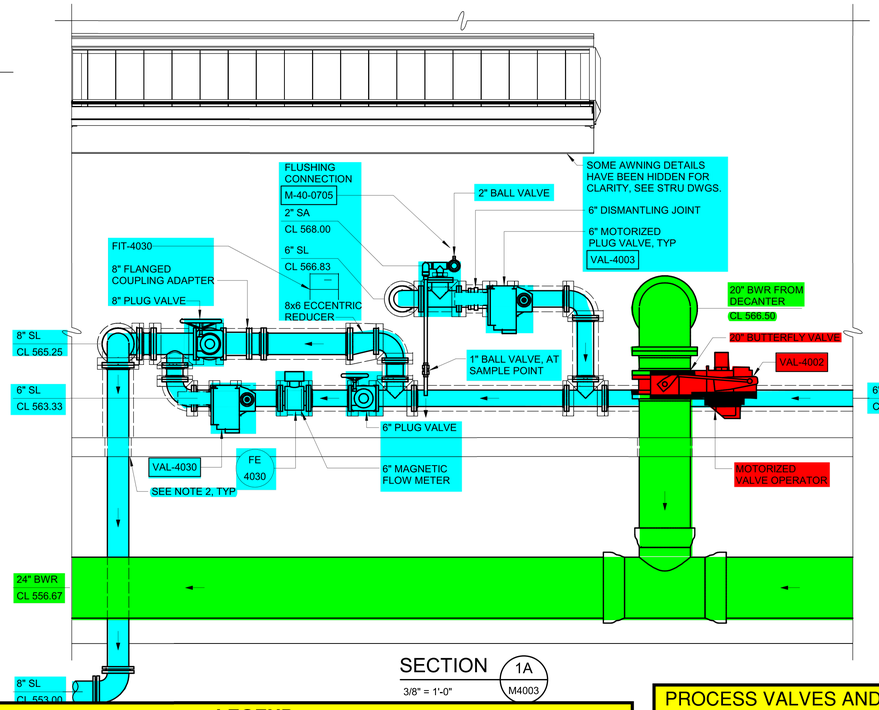
ISOMETRIC VIEW - SLUDGE PIPING - NORTH TANK

NO SCALE - DRAWING FOR ILLUSTRATIVE PURPOSES ONLY
SHOWN WITHOUT INSUMLATION



ISOMETRIC VIEW - SLUDGE PIPING - SOUTH TANK

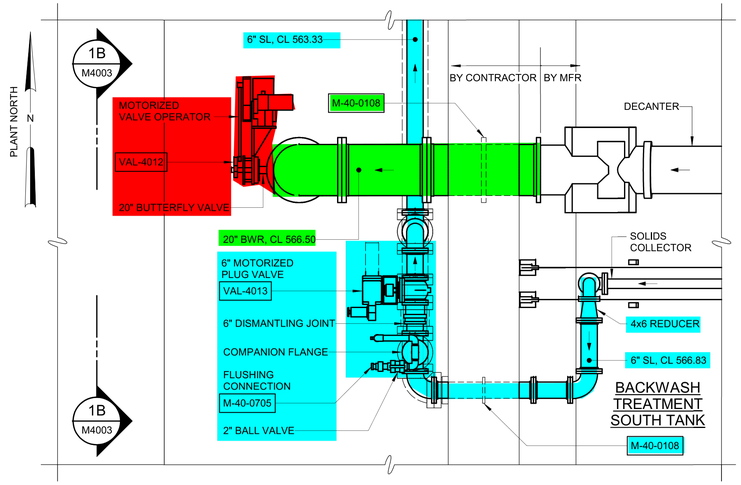
NO SCALE - DRAWING FOR ILLUSTRATIVE PURPOSES ONLY
SHOWN WITHOUT INSULATION



SECTION 1A / M4003 / 3/8" = 1'-0"

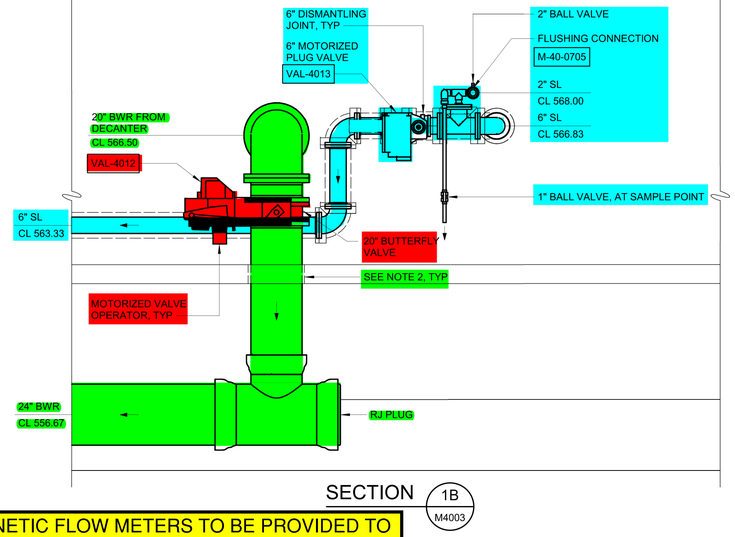
NOTES:

1. DASHED LINES ON SLUDGE PIPING REPRESENT INSULATION. INSULATION TO BE ADDED TO ALL ABOVE GROUND SLUDGE PIPING, AND REMOVABLE BLANKETS SHALL BE USED FOR FLOW METER AND VALVES SO THEY MAY BE EASILY ACCESSED.
2. BLOCKOUT SLAB FOR PIPE PENETRATION. PROVIDE MIN. 1" ANNULAR SPACE BETWEEN PIPE OD AND CONCRETE. FILL ANNULAR SPACE WITH EXPANSION MATERIAL AND APPLY FLEXIBLE SEALANT AROUND PIPE.



ENLARGED PLAN - SLUDGE PIPING - SOUTH TANK

3/8" = 1'-0"



SECTION 1B / M4003

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 1/2" 1")

LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

LITTLE ROCK, ARKANSAS

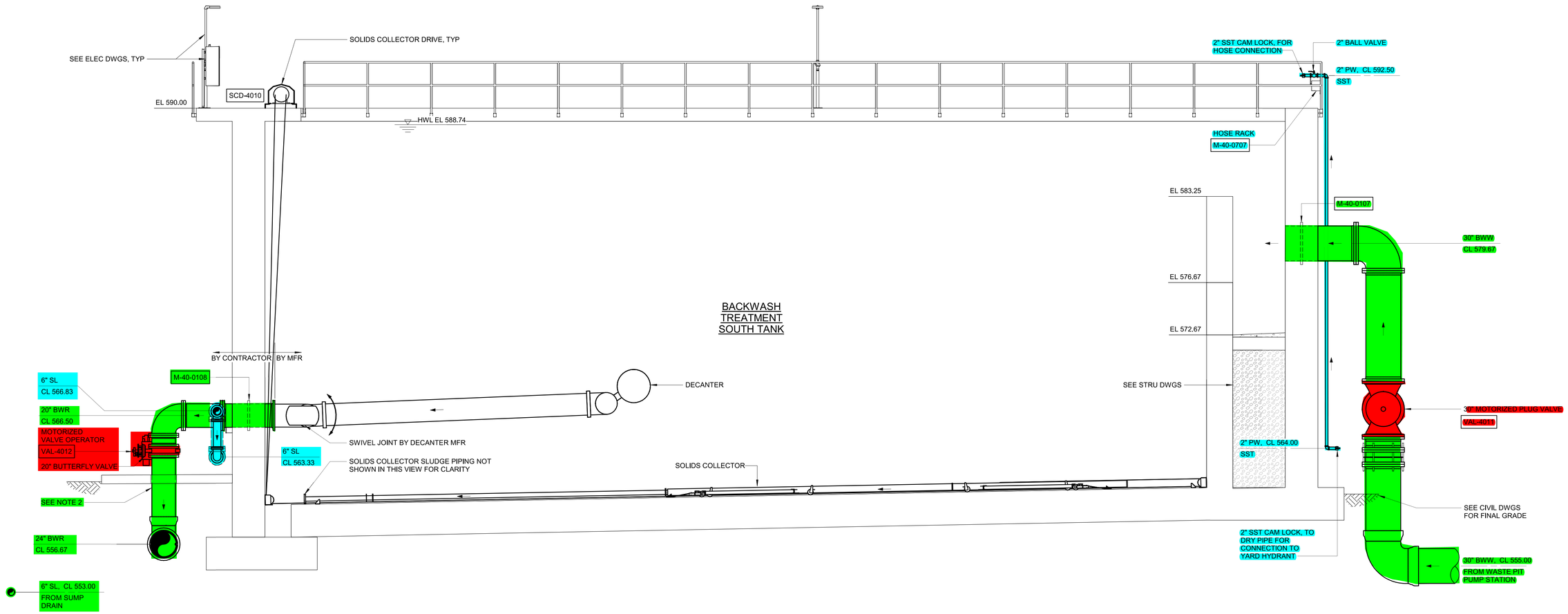
JACK H. WILSON WTP RENEWAL
AND RESILIENCY PROJECT

BACKWASH TREATMENT TANK
MECHANICAL
ENLARGED PLANS AND SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4003

NOTES:

1. DECANTERS TO BE SUPPORTED ABOVE MINIMUM WATER LEVEL VIA RESTRAINING CABLES TIED TO TOP PLATFORM OF BASIN OR VIA WALL SUPPORTS BY DECANTER MFR. AT NO POINT MUST THE DECANTER INTERFERE WITH THE OPERATION OF THE SOLIDS COLLECTOR ON THE TANK FLOOR.
2. BLOCKOUT SLAB FOR PIPE PENETRATION. PROVIDE MIN. 1" ANNULAR SPACE BETWEEN PIPE OD AND CONCRETE. FILL ANNULAR SPACE WITH EXPANSION MATERIAL AND APPLY FLEXIBLE SEALANT AROUND PIPE.



BACKWASH TREATMENT SOUTH TANK

SECTION A
1/4" = 1'-0" M4001

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen
HAZEN AND SAWYER
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DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

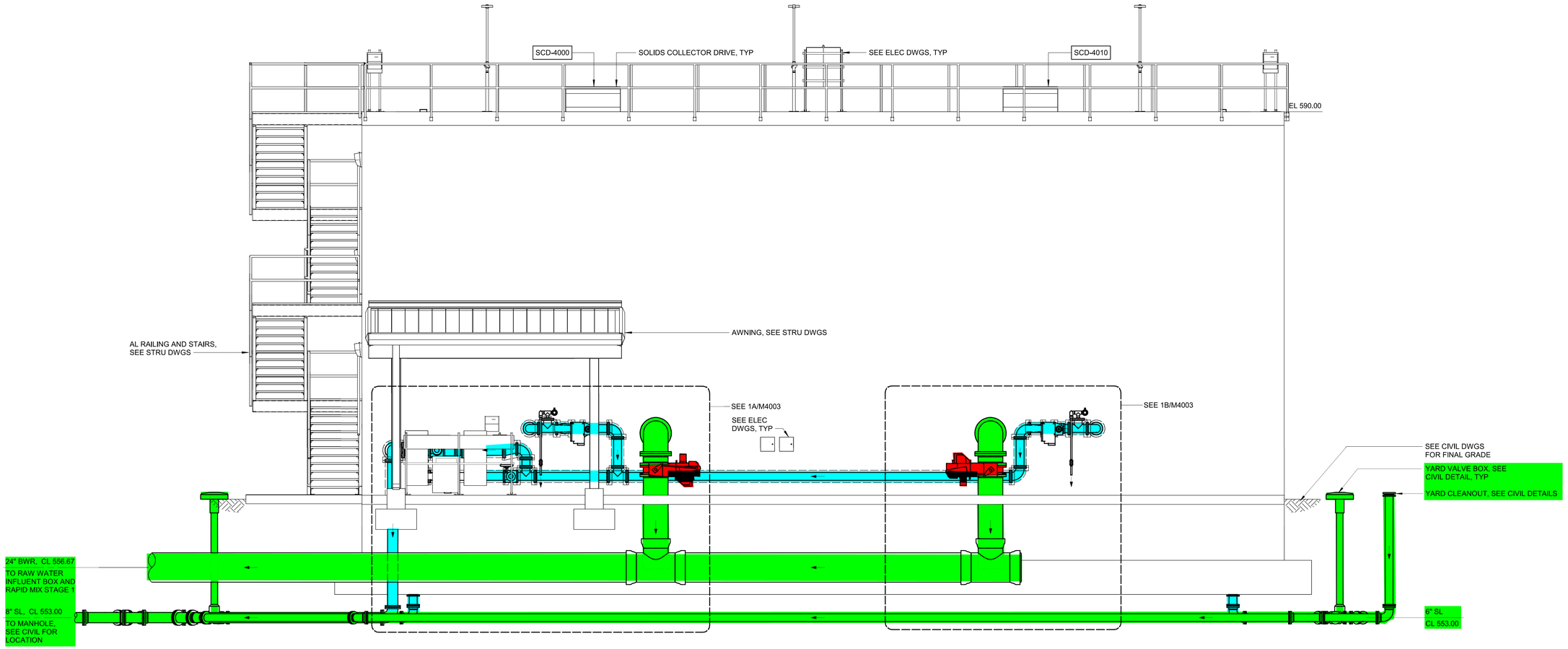
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

BACKWASH TREATMENT TANK MECHANICAL SECTION

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4004

NOTES:

1. DASHED LINES ON SLUDGE PIPING REPRESENT INSULATION. INSULATION TO BE ADDED TO ALL ABOVE GROUND SLUDGE PIPING, AND REMOVABLE BLANKETS SHALL BE USED FOR FLOW METER AND VALVES SO THEY MAY BE EASILY ACCESSED.



SECTION B
1/4" = 1'-0" M4001

LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

BACKWASH TREATMENT TANK
MECHANICAL
SECTION

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4005

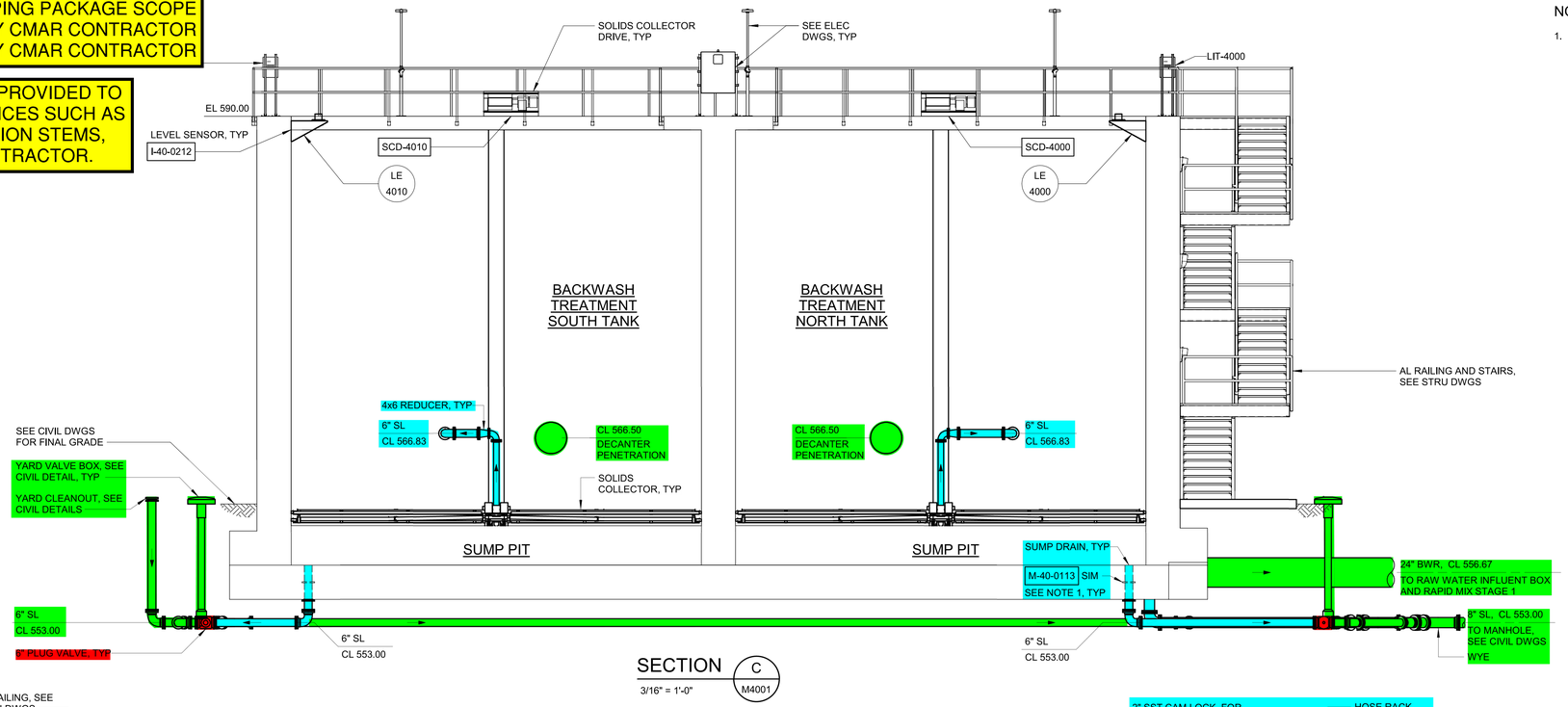
LEGEND

YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

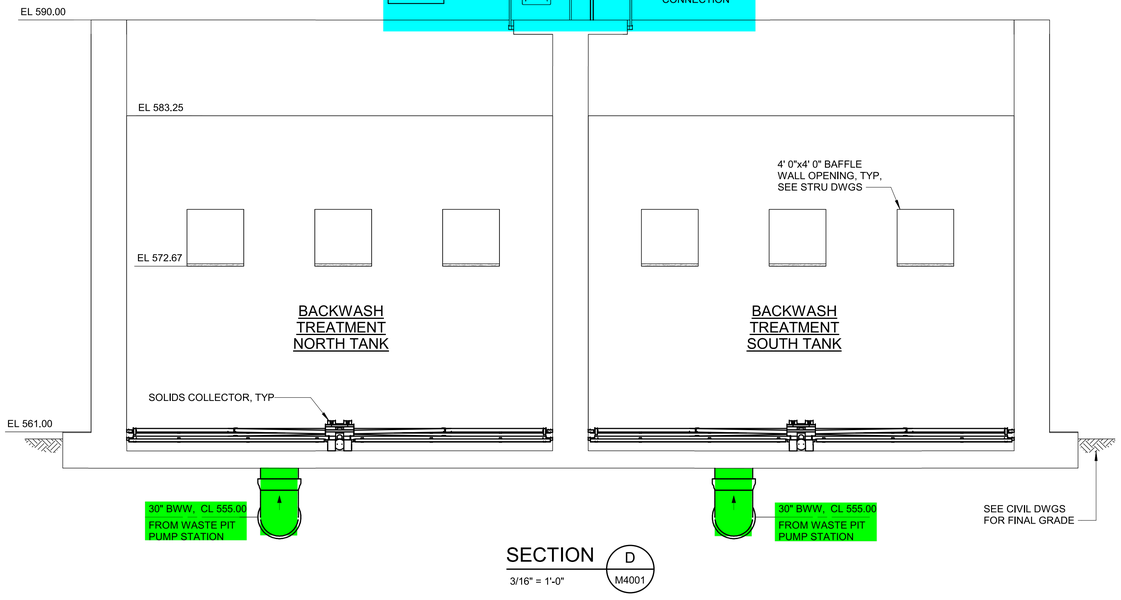
PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

NOTES:

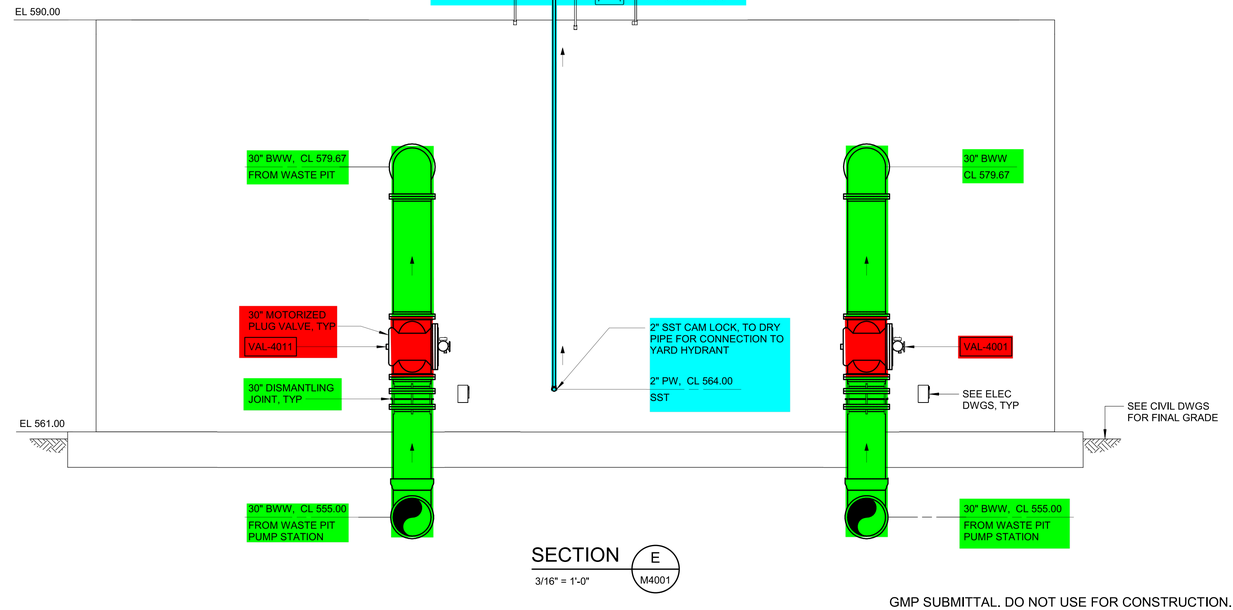
1. SUMP DRAIN WILL TERMINATE WITH A PLAIN END PIPE FLUSH WITH THE SUMP SLAB.



SECTION C
3/16" = 1'-0"
M4001



SECTION D
3/16" = 1'-0"
M4001



SECTION E
3/16" = 1'-0"
M4001

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	F. KHAN
DRAWN BY:	J. LUTHMAN II
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 21489 TYLER HUDSON

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CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

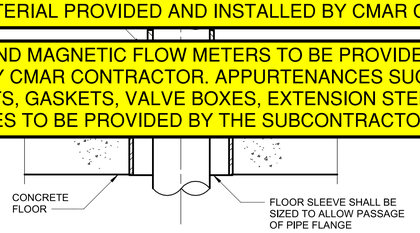
BACKWASH TREATMENT TANK MECHANICAL SECTIONS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M4006

LEGEND

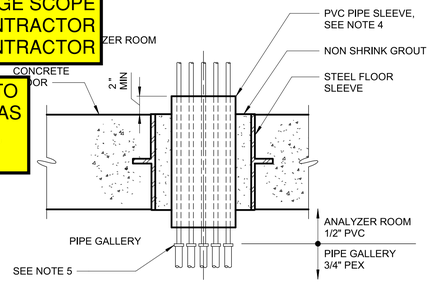
YARD PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.



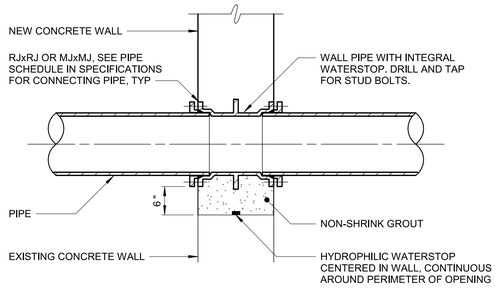
ELEVATED FLOOR PENETRATION

M-40-0100



SAMPLE PIPING ELEVATED FLOOR PENETRATION

M-40-0100R



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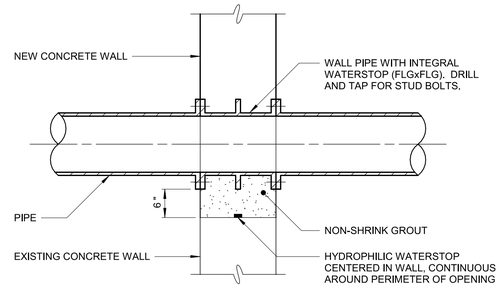
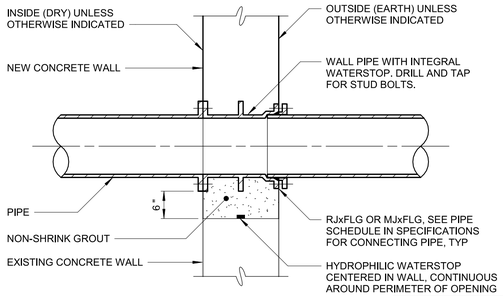


M-40-0101

NOTES:

1. ALL WALL PIPES SHALL BE CAST UNLESS OTHERWISE NOTED.
2. PROVIDE PIPE JOINT WITHIN TWO (2) FEET OF EXTERIOR FACE OF WALL AT CONNECTION TO ALL NEW AND EXISTING STRUCTURES OR MANHOLES.
3. ALL NEW OPENINGS IN EXISTING CONCRETE WALLS AND SLABS SHALL BE SAWCUT OR CORE DRILLED. USE OF JACKHAMMERS OR STITCH DRILLING SHALL NOT BE PERMITTED. ANNULAR SURFACE SHALL BE SMOOTH. ANNULAR SURFACE SHALL BE ROUGHENED BY APPROVED METHODS WHEN INSTALLATION OF NONSHRINK GROUT IS REQUIRED AT EXISTING CONCRETE WALLS.
4. SMALL DIAMETER PVC LINES TO BE PROTECTED BY PIPE SLEEVE.
5. PIPING TO TRANSITION FROM 3/4" PEX IN PIPE GALLERY TO 1/2" PVC IN ANALYZER ROOM.



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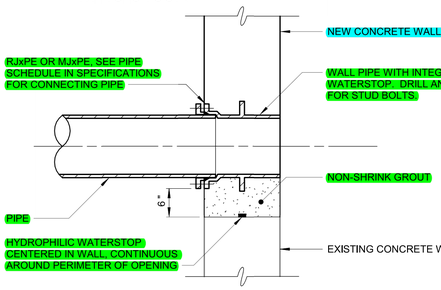

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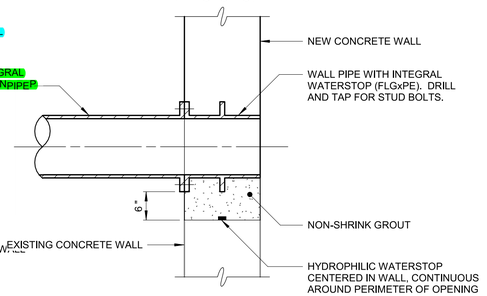
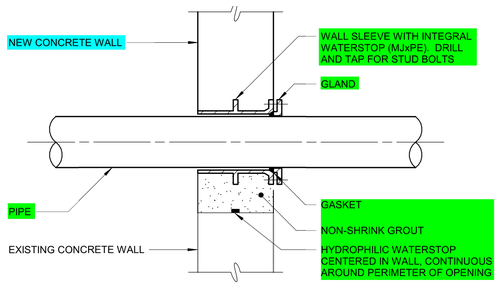
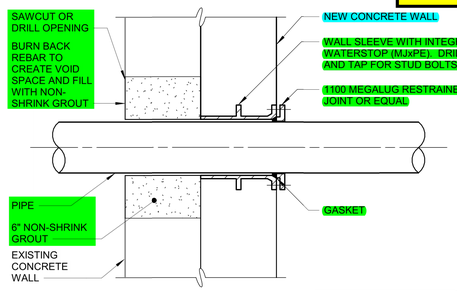


M-40-0105



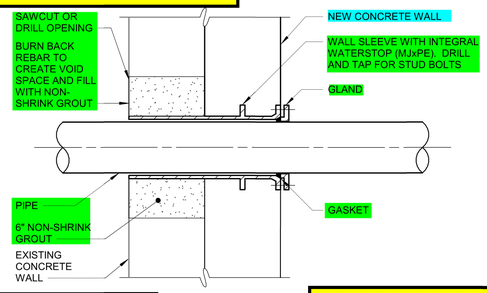
M-40-0106

SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.



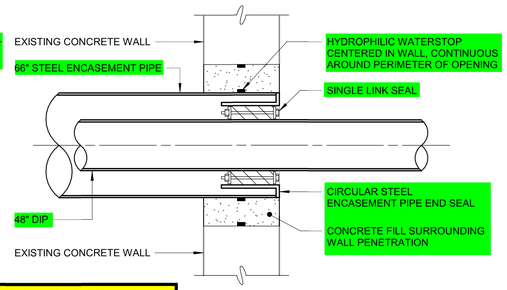
M-40-0106R1

SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.

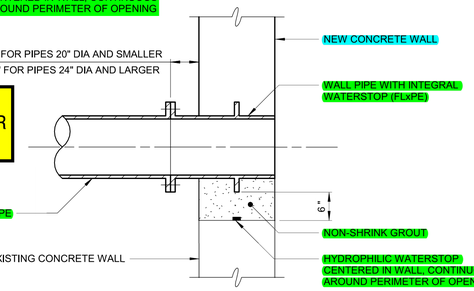


M-40-0106R2

SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.

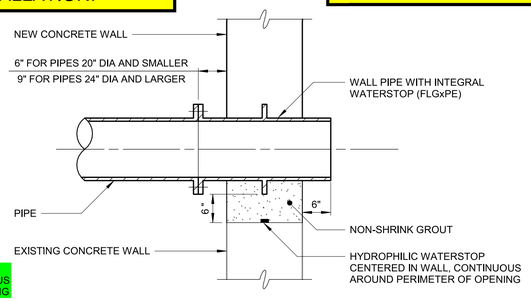


M-40-0106R3



M-40-0110

M-40-0108



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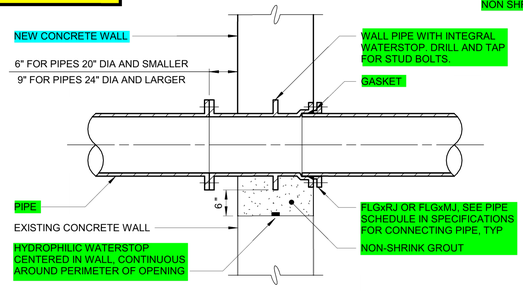
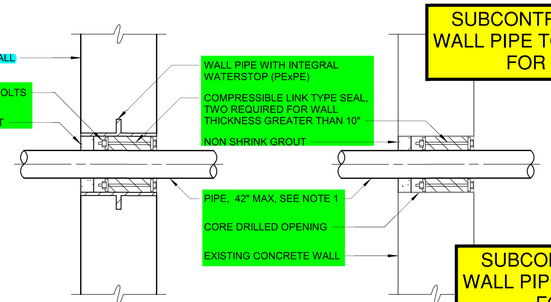


M-40-0107



SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.

NOTE:

1. THE USE OF COMPRESSIBLE TYPE LINK SEALS ON PIPES LARGER THAN 42" REQUIRES ENGINEER'S APPROVAL.
2. PRIOR TO INSTALLATION OF LINK SEAL, BURN BACK REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND FILL VOIDS CREATED WITH EPOXY RESIN BINDER.
3. CONTRACTOR SHALL PROVIDE HYDROPHILIC GROUT BETWEEN LINK SEALS FOR FILTER PIPING LINK SEAL REPLACEMENT.

M-40-0111

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	H&S
DRAWN BY:	H&S
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 21489
TYLER HUDSON

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

MECHANICAL STANDARD DETAILS
SHEET 1

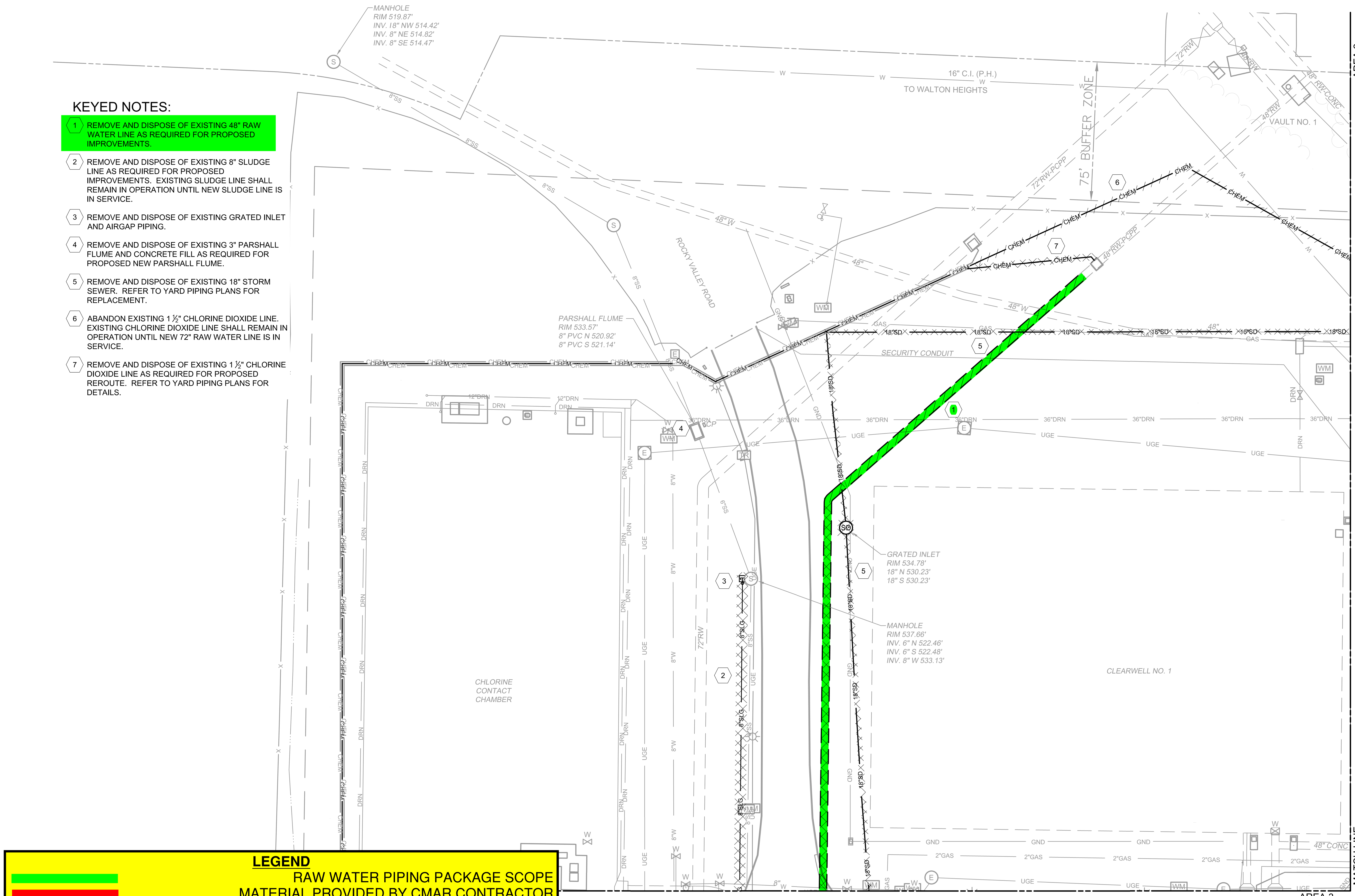
DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	MD1

BID PACKAGE 7

RAW WATER
PIPING
PACKAGE

KEYED NOTES:

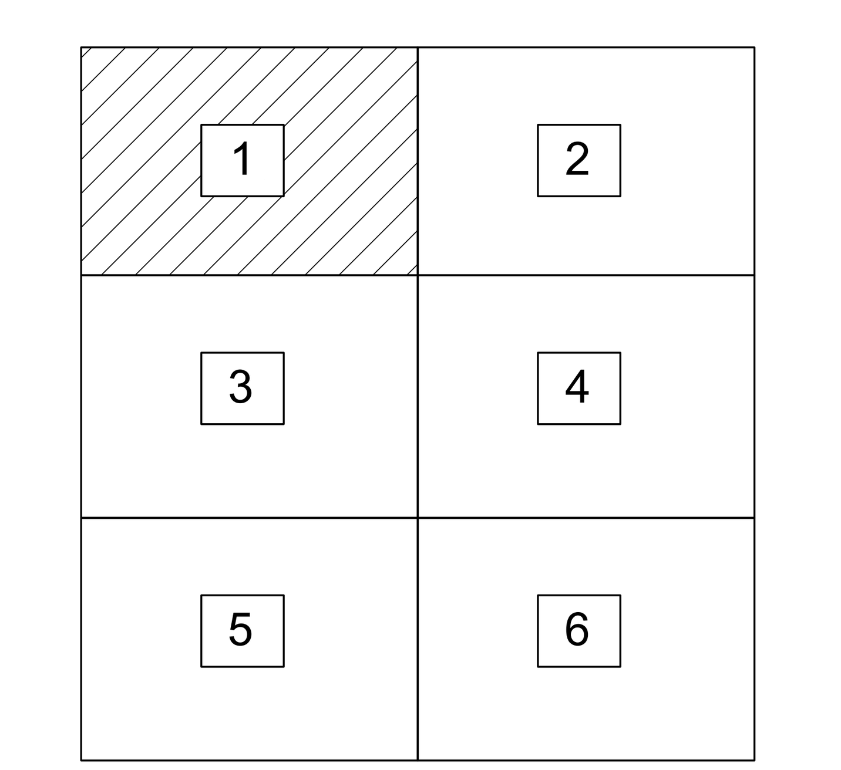
1. REMOVE AND DISPOSE OF EXISTING 48" RAW WATER LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS.
2. REMOVE AND DISPOSE OF EXISTING 8" SLUDGE LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS. EXISTING SLUDGE LINE SHALL REMAIN IN OPERATION UNTIL NEW SLUDGE LINE IS IN SERVICE.
3. REMOVE AND DISPOSE OF EXISTING GRATED INLET AND AIRGAP PIPING.
4. REMOVE AND DISPOSE OF EXISTING 3" PARSHALL FLUME AND CONCRETE FILL AS REQUIRED FOR PROPOSED NEW PARSHALL FLUME.
5. REMOVE AND DISPOSE OF EXISTING 18" STORM SEWER. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
6. ABANDON EXISTING 1 ½" CHLORINE DIOXIDE LINE. EXISTING CHLORINE DIOXIDE LINE SHALL REMAIN IN OPERATION UNTIL NEW 72" RAW WATER LINE IS IN SERVICE.
7. REMOVE AND DISPOSE OF EXISTING 1 ½" CHLORINE DIOXIDE LINE AS REQUIRED FOR PROPOSED REROUTE. REFER TO YARD PIPING PLANS FOR DETAILS.

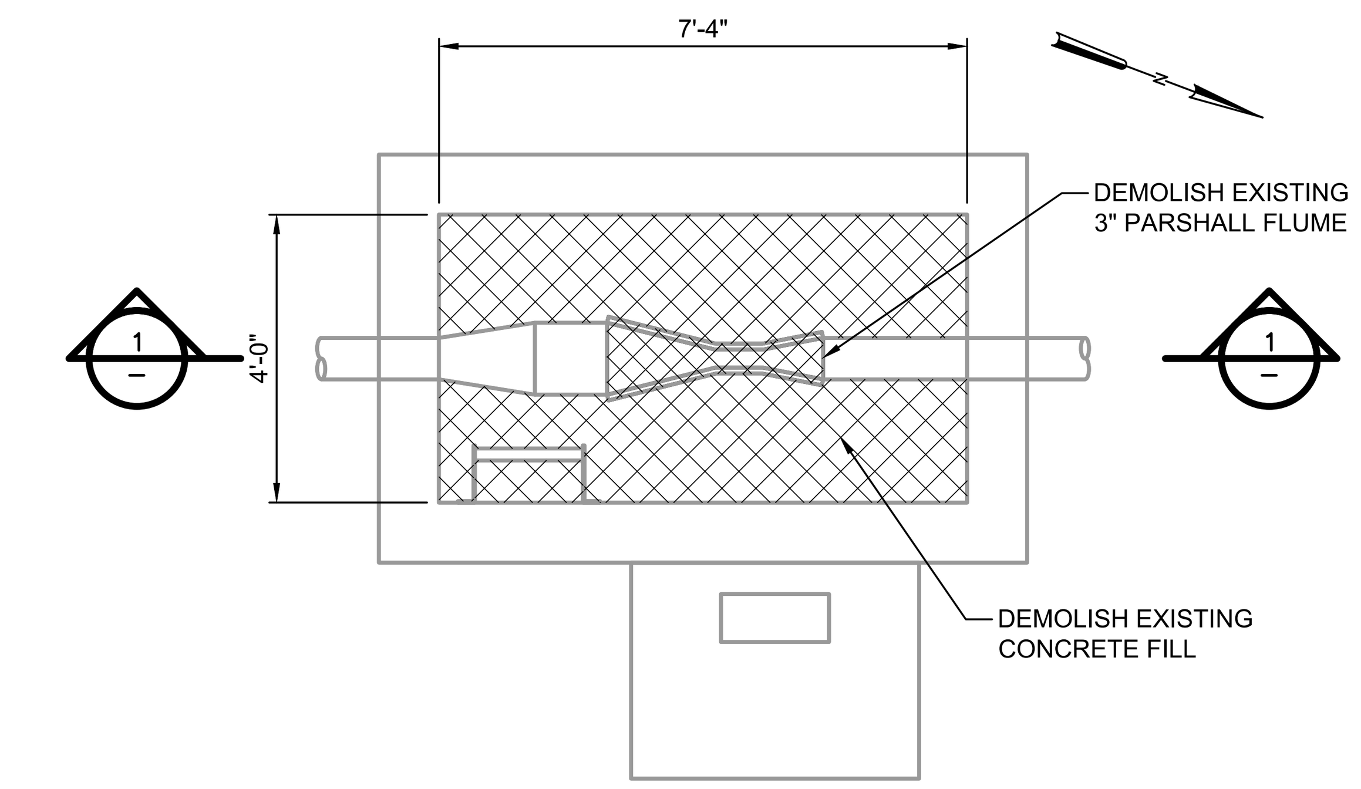


LEGEND

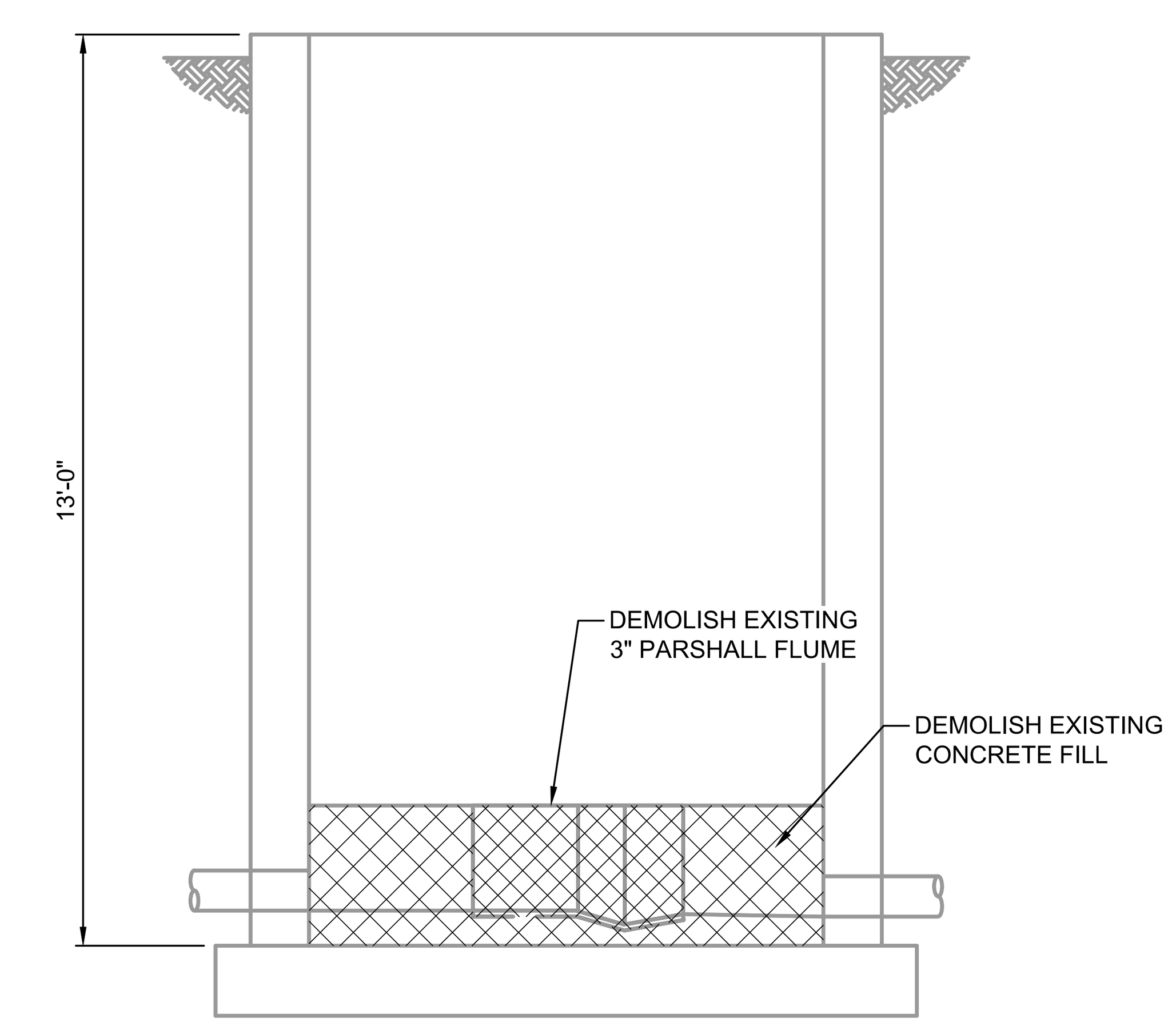
- RAW WATER PIPING PACKAGE SCOPE (green)
- MATERIAL PROVIDED BY CMAR CONTRACTOR (red)
- MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR (cyan)

PLAN
SCALE: 1" = 30'





PARSHALL FLUME DEMOLITION
DETAIL A
N.T.S.



PARSHALL FLUME DEMOLITION
SECTION 1
N.T.S.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L.. YANCEY
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 12185 LARRY ELLIS YANCEY 11/20/24

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLITION I

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1101

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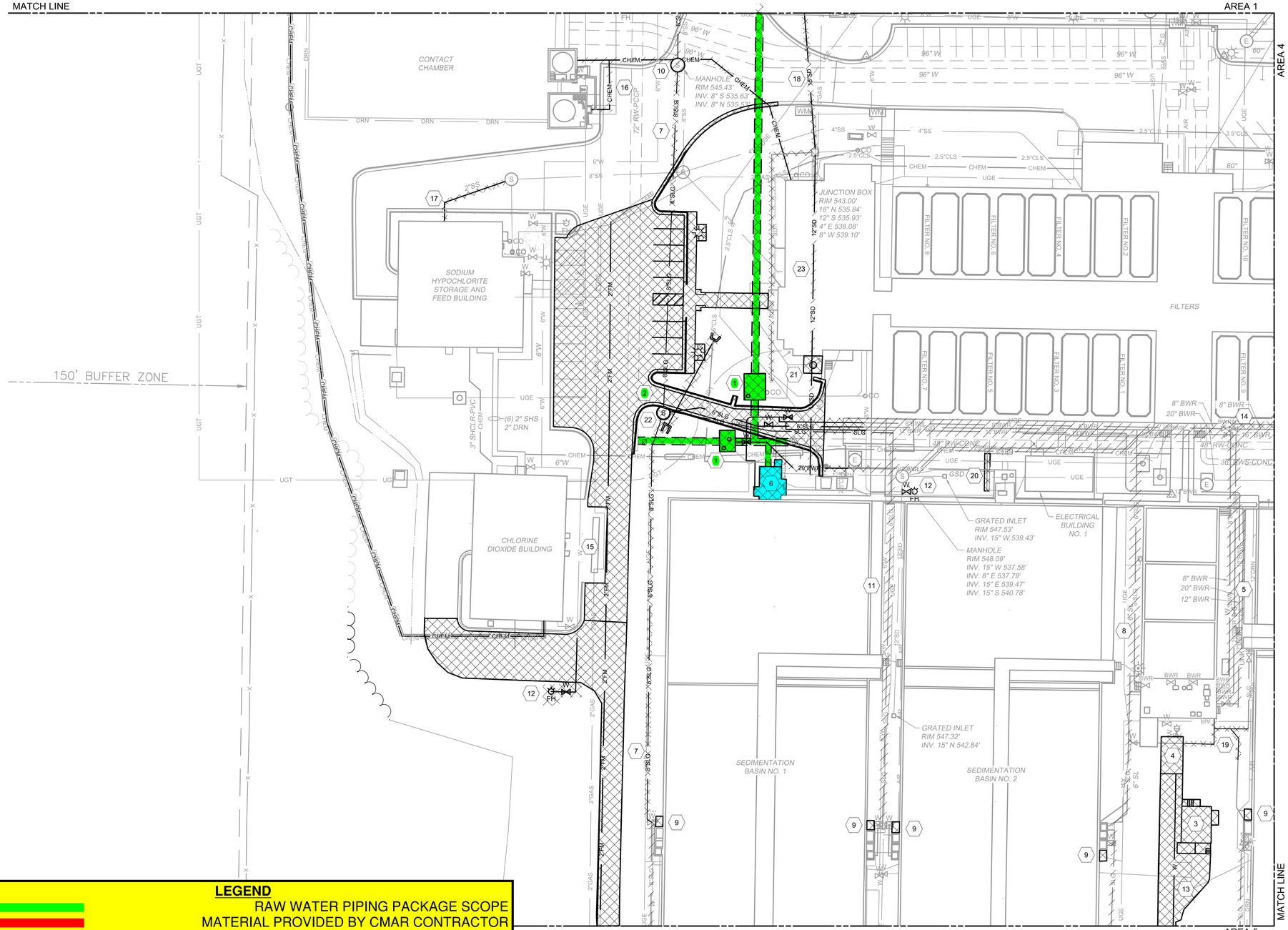
PLOT DATE: 11/18/2024 10:08 AM BY: MWEIR



PLAN
SCALE: 1" = 30'

1		2	
	3		4
5		6	

N

KEYED NOTES:

1. REMOVE AND DISPOSE OF EXISTING RAW WATER METER VAULT ONCE NEW RAW WATER METER IS OPERATIONAL.
2. DEMOLISH EXISTING PAVEMENT, AS CONSTRUCTION SEQUENCE DICTATES.
3. REMOVE AND DISPOSE OF EXISTING BUILDING, PAVEMENT AND APPURTANENCES
4. REMOVE AND SALVAGE CANOPY TO OWNER.
5. CUT, CAP AND ABANDON EXISTING BACKWASH RECYCLE LINES ONCE NEW BACKWASH EQUALIZATION TANK AND WASTE PIT PUMP STATION ARE FULLY OPERATIONAL.
6. REFER TO STRUCTURAL AND MECHANICAL PLANS FOR SEDIMENTATION BASIN NO. 1 RAPID MIX DEMOLITION.
7. ONCE THE PROPOSED SLUDGE LINE IS CONSTRUCTED AND OPERATIONAL, REMOVE AND DISPOSE OF EXISTING SLUDGE LINE AS REQUIRED FOR THE CONSTRUCTION OF PROPOSED IMPROVEMENTS.
8. CUT, CAP AND ABANDON EXISTING 6" SLUDGE LINE ONCE BACKWASH EQUALIZATION TANK AND WASTE PIT PUMP STATION ARE FULLY OPERATIONAL.
9. DEMOLISH EXISTING CONCRETE SIDEWALK.
10. ABANDON EXISTING MANHOLE IN PLACE.
11. CUT, CAP, AND ABANDON EXISTING 6" SLUDGE LINE ONCE THE NEW 12" SLUDGE LINE IS IN SERVICE.
12. DEMOLISH EXISTING FIRE HYDRANT. REFER TO YARD PIPING PLANS FOR ADDITIONAL INFORMATION.
13. REMOVE AND DISPOSE OF EXISTING 6" WATER LINE AS REQUIRED FOR PROPOSED IMPROVEMENTS.
14. REMOVE AND DISPOSE OF EXISTING LIME PIPING ON SOUTH FILTER WALL AS REQUIRED FOR PROPOSED IMPROVEMENTS. UNISTRUTS TO REMAIN FOR PROPOSED IMPROVEMENTS.
15. CUT, CAP, AND ABANDON EXISTING 2" SSFM-PVC.
16. DEMOLISH AND DISPOSE OF EXISTING FLUORIDE LINES. COORDINATE WITH OWNER FOR DISPOSAL OF CHEMICAL.
17. REMOVE AND REPLACE EXISTING 2" SUMP PUMP FORCE MAIN AFTER CONSTRUCTION OF PROPOSED IMPROVEMENTS.
18. REMOVE AND DISPOSE OF EXISTING 18" STORM SEWER. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
19. DEMOLISH AND DISPOSE OF EXISTING SLUDGE PIPING. REFER TO YARD PIPING PLANS FOR REPLACEMENT.
20. REMOVE AND DISPOSE OF SECTIONS OF EXISTING CHEMICAL TRENCH BOX THAT ARE NOT REQUIRED FOR PROPOSED IMPROVEMENTS.
21. REMOVE ARGON TANK AND PAD.
22. REMOVE AND DISPOSE OF EXISTING MANHOLE.
23. CUT, CAP, AND ABANDON EXISTING 12-INCH STORM DRAIN.

LEGEND

RAW WATER PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 12185 LARRY ELLIS YANCEY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DEMOLISH III

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1103

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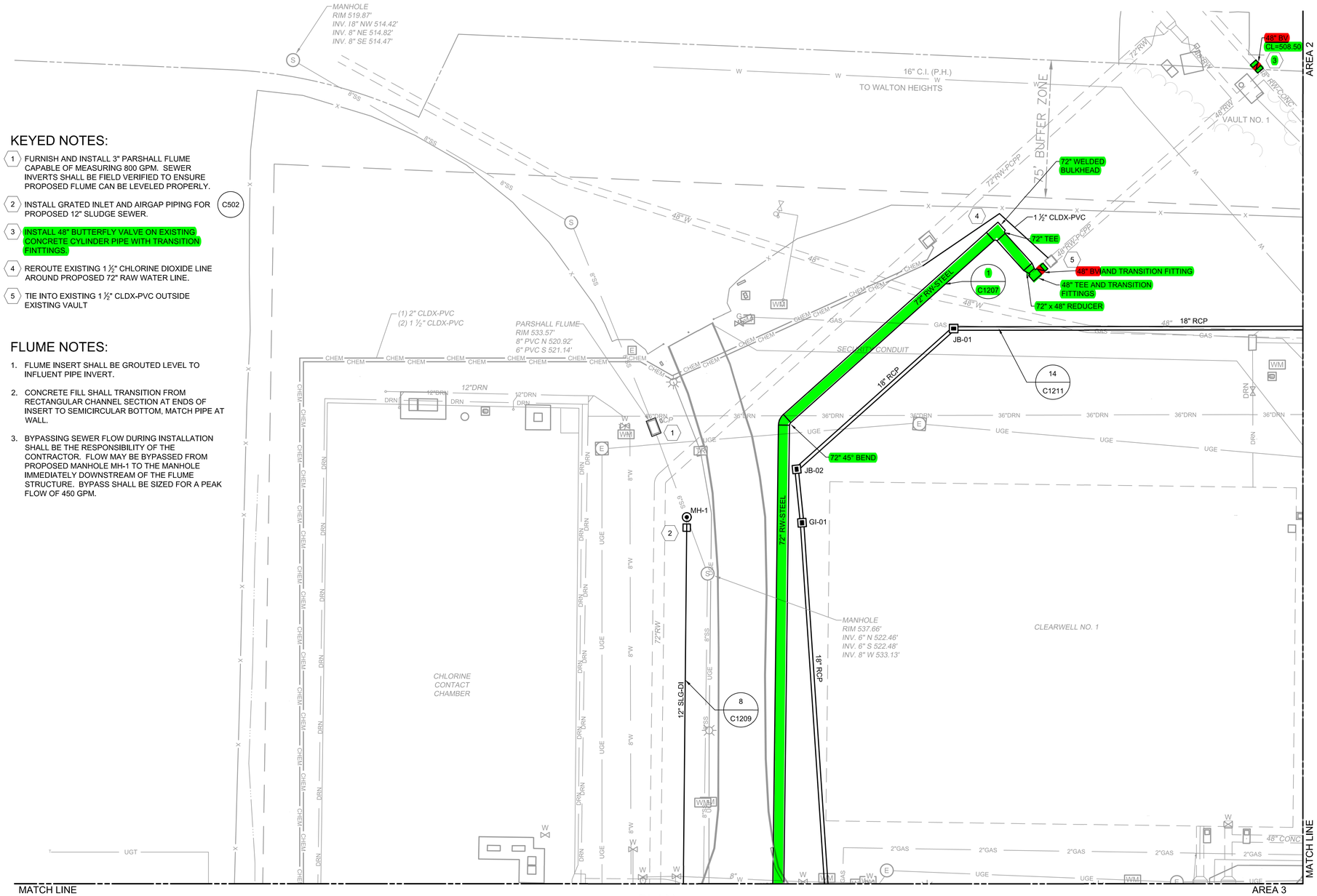
PLOT DATE: 11/18/2024 10:08 AM BY: MWEIR

KEYED NOTES:

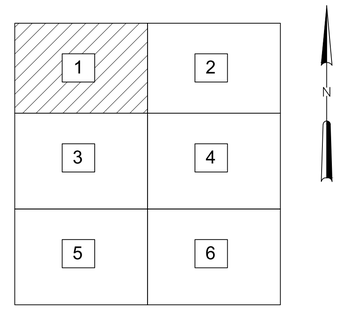
1. FURNISH AND INSTALL 3" PARSHALL FLUME CAPABLE OF MEASURING 800 GPM. SEWER INVERTS SHALL BE FIELD VERIFIED TO ENSURE PROPOSED FLUME CAN BE LEVELED PROPERLY.
2. INSTALL GRATED INLET AND AIRGAP PIPING FOR PROPOSED 12" SLUDGE SEWER. (C502)
3. INSTALL 48" BUTTERFLY VALVE ON EXISTING CONCRETE CYLINDER PIPE WITH TRANSITION FINTTINGS.
4. REROUTE EXISTING 1 ½" CHLORINE DIOXIDE LINE AROUND PROPOSED 72" RAW WATER LINE.
5. TIE INTO EXISTING 1 ½" CLDX-PVC OUTSIDE EXISTING VAULT

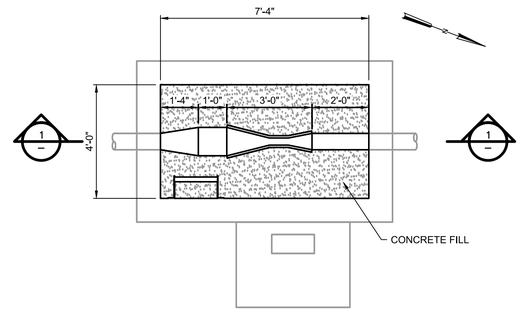
FLUME NOTES:

1. FLUME INSERT SHALL BE GROUTED LEVEL TO INFLUENT PIPE INVERT.
2. CONCRETE FILL SHALL TRANSITION FROM RECTANGULAR CHANNEL SECTION AT ENDS OF INSERT TO SEMICIRCULAR BOTTOM, MATCH PIPE AT WALL.
3. BYPASSING SEWER FLOW DURING INSTALLATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FLOW MAY BE BYPASSED FROM PROPOSED MANHOLE MH-1 TO THE MANHOLE IMMEDIATELY DOWNSTREAM OF THE FLUME STRUCTURE. BYPASS SHALL BE SIZED FOR A PEAK FLOW OF 450 GPM.



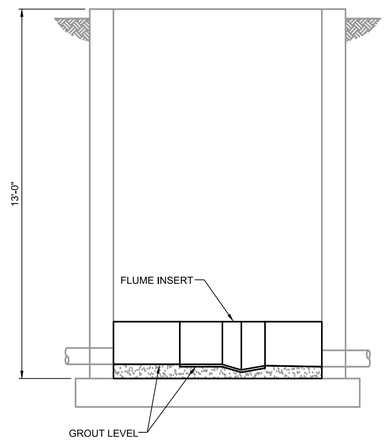
PLAN
SCALE: 1" = 30'





PARSHALL FLUME

DETAIL 1/– N.T.S.



PARSHALL FLUME

SECTION 1/– N.T.S.

LEGEND

RAW WATER PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC. Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY ELLIS YANCEY No. 12185

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING I

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1201

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PLOT DATE: 11/18/2024 10:09 AM BY: MWEIR

PLAN

SCALE: 1" = 30'

1	2
3	4
5	6

N

KEYED NOTES:

(1) REMOVE AND REPLACE EXISTING 48" BV

48" BV PROVIDED BY CMAR CONTRACTOR.

LEGEND

RAW WATER PIPING PACKAGE SCOPE

MATERIAL PROVIDED BY CMAR CONTRACTOR

MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

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STATE OF ARKANSAS
PROFESSIONAL ENGINEER
No. 12185
LARRY ELLIS YANCEY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPING II

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1202

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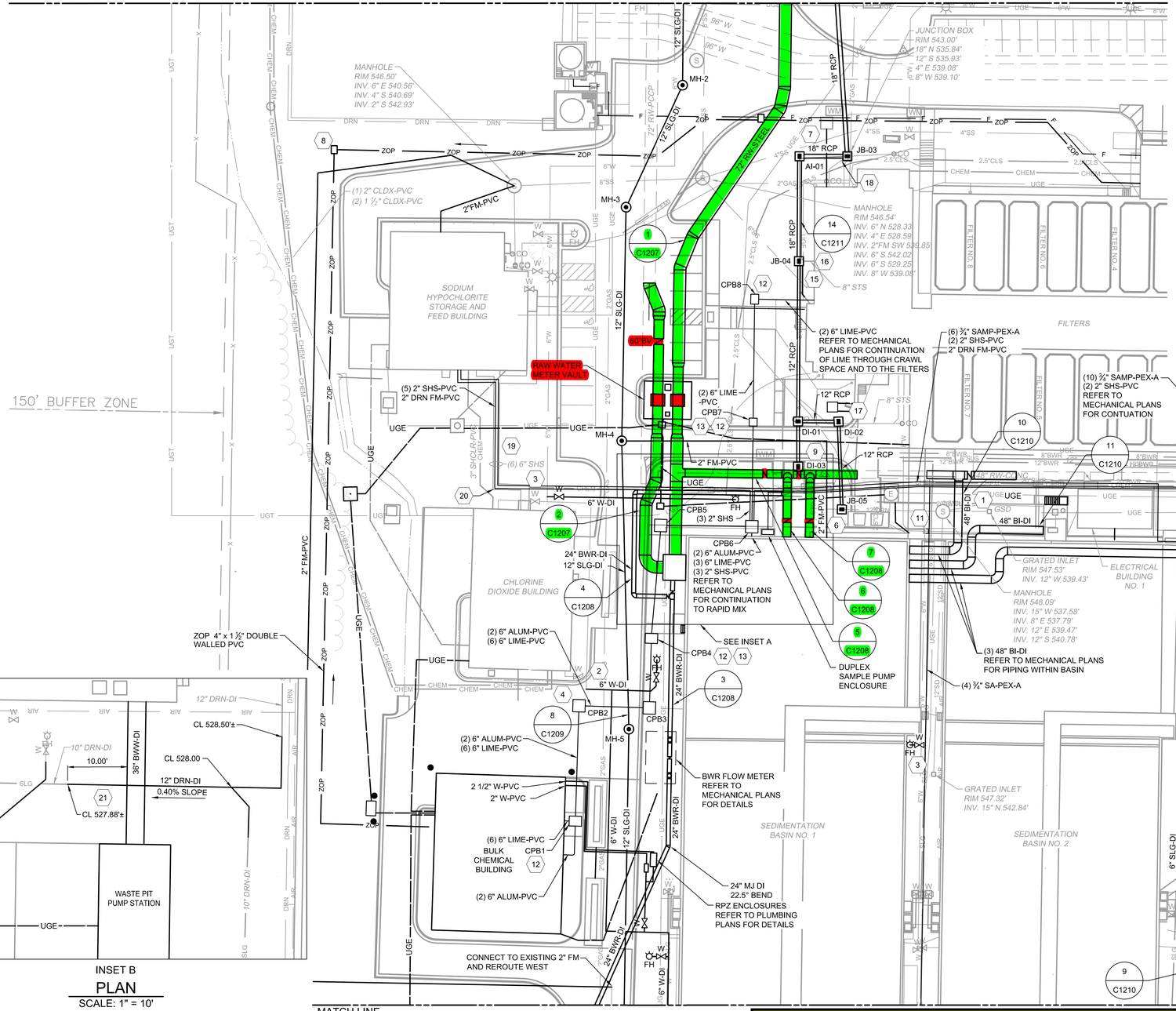
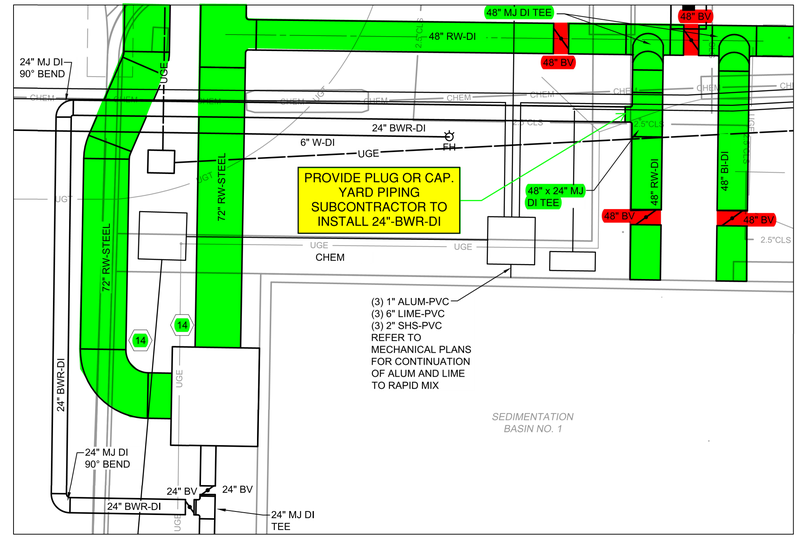
MATCH LINE

AREA 1

150' BUFFER ZONE

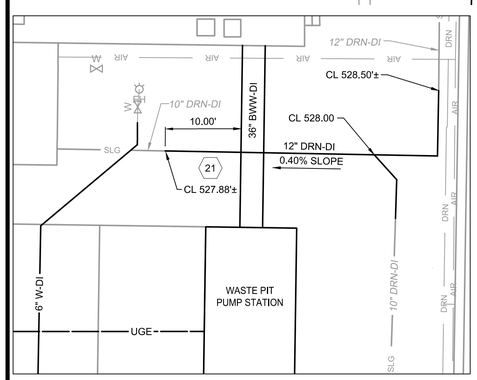




INSET A

PLAN

SCALE: 1" = 10'



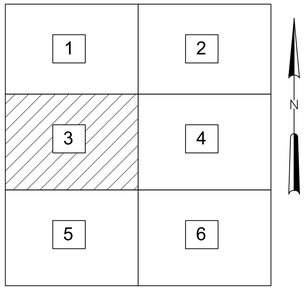
INSET B

PLAN

SCALE: 1" = 10'

CHEMICAL PIPING NOTES:

1. ROUTE CHEMICAL PIPING AND SAMPLE LINES THROUGH EXISTING SODIUM HYPOCHLORITE TRENCH BOXES WHERE POSSIBLE.
2. ALL DIRECT BURY SODIUM HYPOCHLORITE PIPING SHALL BE 4" x 2" DOUBLE WALLED SCHEDULE 80 PVC. ALL DIRECT BURY FLUORIDE AND ZINC ORTHOPHOSPHATE PIPING SHALL BE 4" x 1 ½" DOUBLE WALLED SCHEDULE 80 PVC.



KEYED NOTES:

1. RELOCATE EXISTING FIRE HYDRANT. CONNECT TO EXISTING WATER LINE WITH 6" DI SLEEVE.
2. CONNECT TO EXISTING 6" DI WATER WITH 90° BEND.
3. 6" TAPPING SLEEVE AND VALVE.
4. CHEMICAL PULL BOX. REFER TO MECHANICAL PLANS FOR DETAILS. MAXIMUM 50' SPACING.
5. CONNECT PROPOSED 6" WATER LINE TO EXISTING HYDRANT.
6. CONNECT TO EXISTING STORM DRAIN.
7. CONSTRUCT 6' x 6' x 8" THICK ARGON TANK PAD WITH #4 REBAR IN BOTH DIRECTIONS AND RECONNECT ARGON PIPING IN CRAWL SPACE. TANK RELOCATED BY VENDOR.
8. SLOPE ZOP AND FLUORIDE LINES TO LEAK DETECTION VAULTS.
9. CONSTRUCT DROP INLET (DI-03)

   RIM: 547.95'
   INV. 12" RCP 537.98'
10. REPLACE EXISTING 12" DI BASIN DRAIN PIPING. CONNECT TO EXISTING 10" DI DRAIN TO WASTE PIT.
11. INSTALL CAP AND BLOCKING ON EXISTING 6" WATER LINE. (C301)
12. INSTALL 12" THICK FLOWABLE FILL CAP THE WIDTH OF THE CHEMICAL LINES FROM CPB1 TO CPB4 AND CPB7 TO CPB8 (SEE SHEET C1204).
13. INSTALL REINFORCED CHEMICAL DUCT BANK FROM CPB4 TO CPB7 PER DETAIL E-33-0101 WITHOUT GROUNDING ROD.
14. EACH PIPE PENETRATION REQUIRES THE INSTALLATION OF TWO VICTAULIC COUPLINGS, SPACED 10 FEET APART BETWEEN THE COUPLINGS OR IJS SYSTEM.
15. ROUTE EXISTING DOWNSPOUT DRAIN TO JUNCTION BOX (JB-04).
16. CONNECT EXISTING 8" STS DRAIN LINE TO JUNCTION BOX (JB-04).
17. CONNECT EXISTING 8" STS DRAIN LINE TO DROP INLET (DI-02).
18. CONNECT EXISTING 6" STS DRAIN LINE TO JUNCTION BOX (JB-03).
19. EXPANDING JOINTS TO BE INSTALLED ON ALL 2" SHS LINES EVERY 100 LF, STARTING 50LF FROM SODIUM HYPOCHLORITE BUILDING.
20. FIXED SUPPORTS TO BE INSTALLED ON ALL 2" SHS LINES EVERY 100LF FROM SODIUM HYPOCHLORITE BUILDING.
21. INSTALL 12" X 10" DI MJ REDUCER TO PROPOSED DRAIN AND (2) 10" 22.5 DEGREE BENDS TO MATCH ELEVATION OF EXISTING 10" DRAIN LINE. CONTRACTOR SHALL FIELD VERIFY ELEVATION OF EXISTING 10" DRAIN LINE.

MATCH LINE

PLAN

SCALE: 1" = 30'

AREA 5

LEGEND

RAW WATER PIPING PACKAGE SCOPE

MATERIAL PROVIDED BY CMAR CONTRACTOR

MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

MANAGER: T. HUDSON
DESIGNED BY: L. YANCEY
DRAWN BY: M. WEIR
PROJECT ENGINEER: L. YANCEY
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY ELLIS YANCEY No. 12185

Hazen

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8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

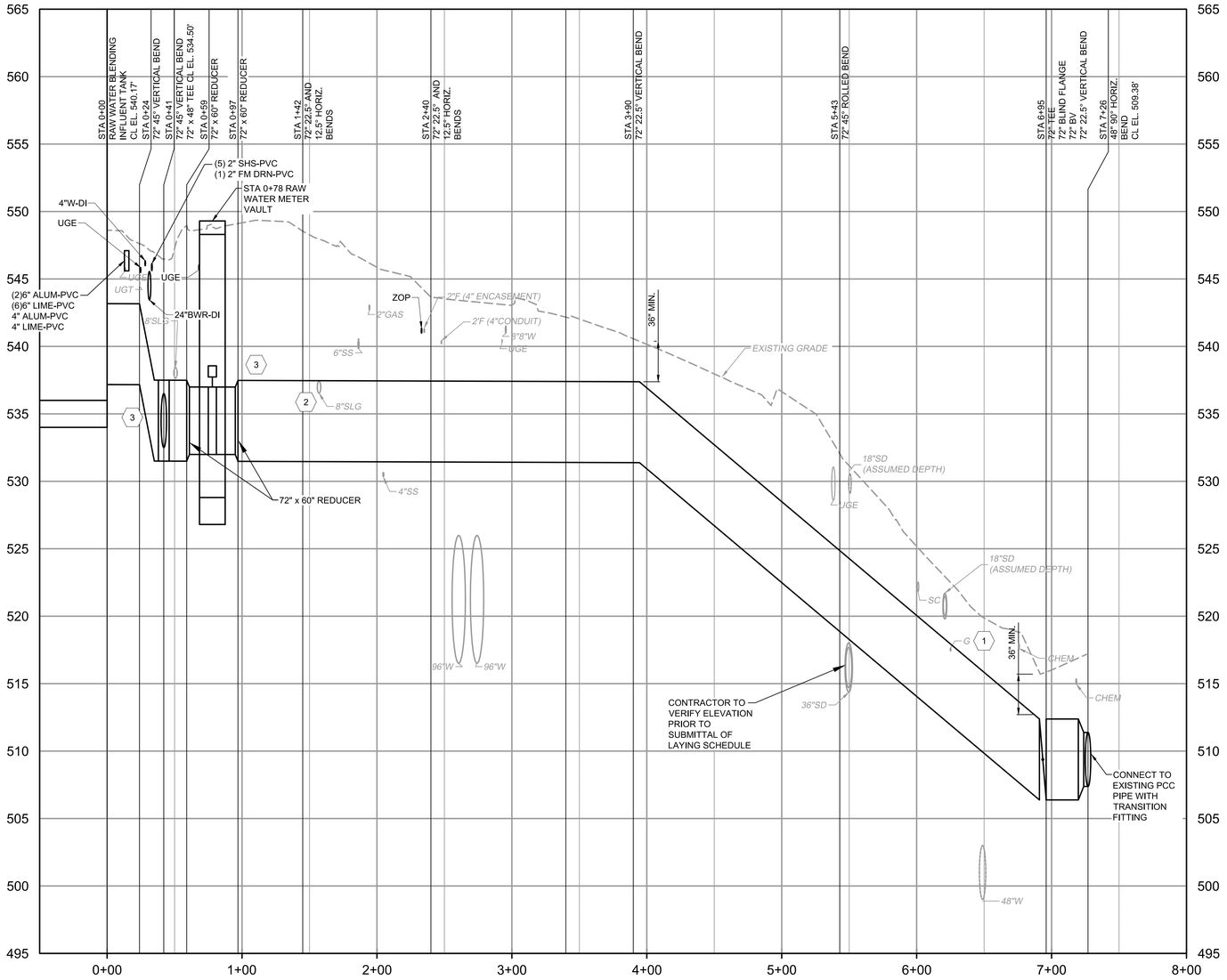
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PROPOSED YARD PIPNG III

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: C1203

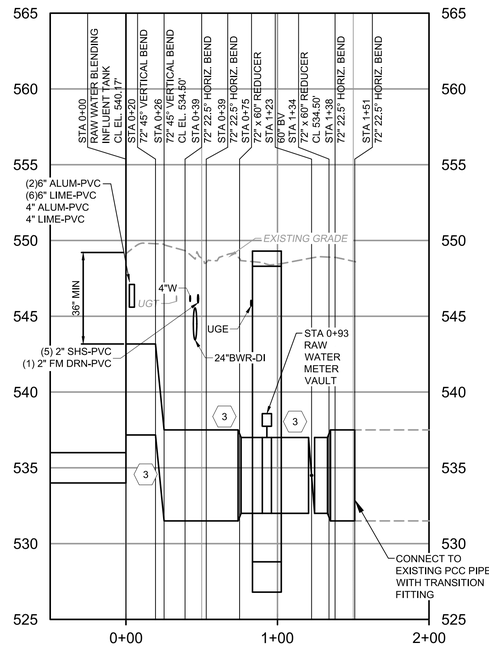
File: C:\USERS\MWEIR\DCACCDCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_HWY00_CIVIL\CIVIL\60711-001-C1203 Saved by MWEIR Save date: 11/15/2024 10:16 AM
PLOT DATE: 11/18/2024 10:10 AM BY: MWEIR

72" RW-STEEL



PROFILE H:1"=50'V:1"=5' (1) C1201 (1) C1203

72" RW-STEEL



PROFILE (2) C1203 H:1"=50'V:1"=5'

LEGEND

RAW WATER PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

KEYED NOTES:

1. RELOCATE EXISTING GAS LINE AS REQUIRED FOR RW INSTALLATION.
2. SLUDGE LINE TO BE REMOVED AND DISPOSED PRIOR TO 72-INCH RW INSTALLATION.
3. EACH PIPE PENETRATION REQUIRES THE INSTALLATION OF TWO VICTAULIC COUPLINGS, SPACED 10 FEET APART BETWEEN THE COUPLINGS OR IJS SYSTEM.

NOTES:

1. UNDERGROUND UTILITIES EXISTING WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF UTILITIES SHOWN MAY VARY FROM THE LOCATION SHOWN ON THE PLANS. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AND VERIFY GRADES AND SIZES PRIOR TO COMMENCING CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES THAT IS REQUIRED FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK. THE COST TO REPAIR ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING UTILITIES, AS WELL AS ANY FINES OR PENALTIES THAT ARE A RESULT OF THE DAMAGE OR FAILURE TO FOLLOW THE REQUIREMENTS OF THE ARKANSAS UNDERGROUND FACILITIES DAMAGE PREVENTION ACT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY ELLIS YANCEY No. 12185

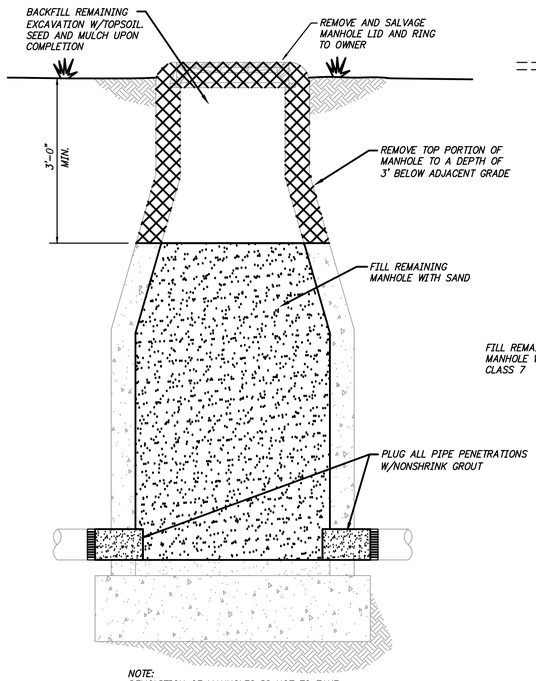
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
PIPING PROFILES

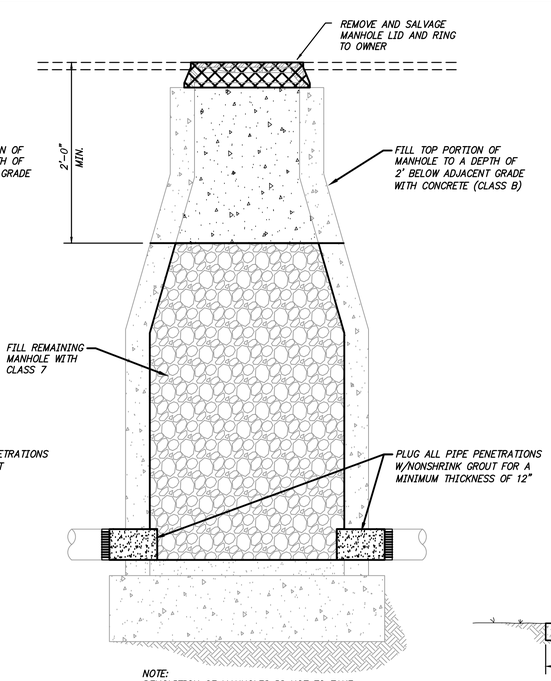
DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	C1207



NOTE:
DEMOLITION OF MANHOLES IS NOT TO TAKE PLACE UNTIL SUCCESSFUL COMPLETION AND OPERATION OF THE NEW GRAVITY SEWER

DEMOLISH AND ABANDON
EXISTING MANHOLE (GRASS AREAS)

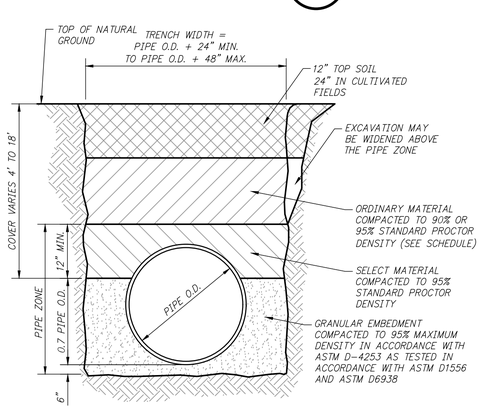
DETAIL C201
N.T.S.



NOTE:
DEMOLITION OF MANHOLES IS NOT TO TAKE PLACE UNTIL SUCCESSFUL COMPLETION AND OPERATION OF THE NEW GRAVITY SEWER

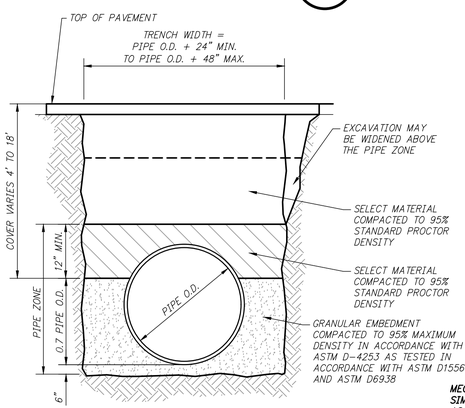
DEMOLISH AND ABANDON
EXISTING MANHOLE (PAVED AREAS)

DETAIL C202
N.T.S.



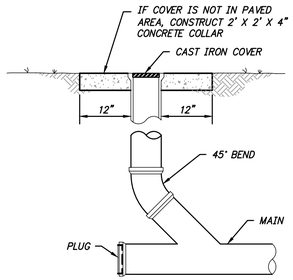
TYPICAL TRENCH DETAIL
IN NON PAVED AREA

DETAIL C205
N.T.S.



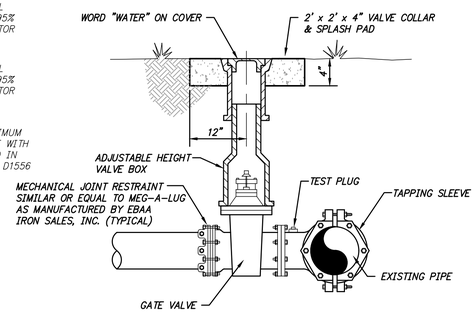
TYPICAL TRENCH DETAIL IN PAVED AREA
OR ADJACENT TO STRUCTURES

DETAIL C206
N.T.S.



CLEANOUT

DETAIL C203
N.T.S.

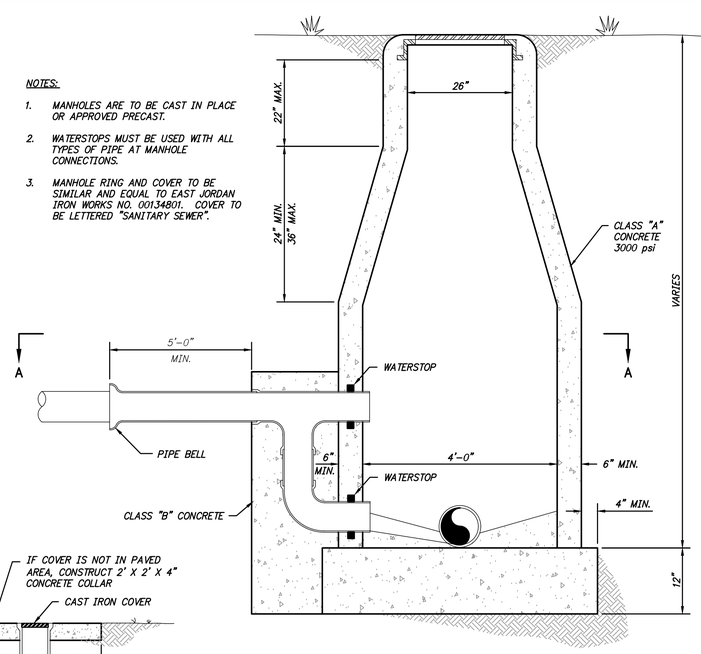


TAPPING SLEEVE AND VALVE

DETAIL C207
N.T.S.

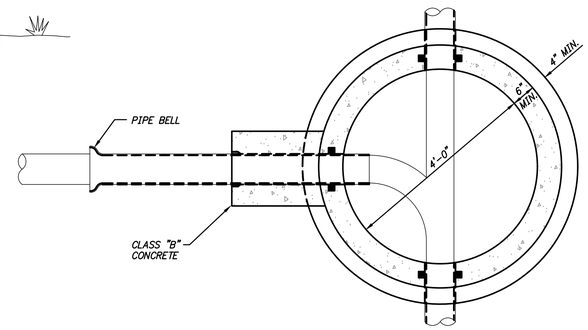
NOTES:

1. MANHOLES ARE TO BE CAST IN PLACE OR APPROVED PRECAST.
2. WATERSTOPS MUST BE USED WITH ALL TYPES OF PIPE AT MANHOLE CONNECTIONS.
3. MANHOLE RING AND COVER TO BE SIMILAR AND EQUAL TO EAST JORDAN IRON WORKS NO. 00134801. COVER TO BE LETTERED "SANITARY SEWER".

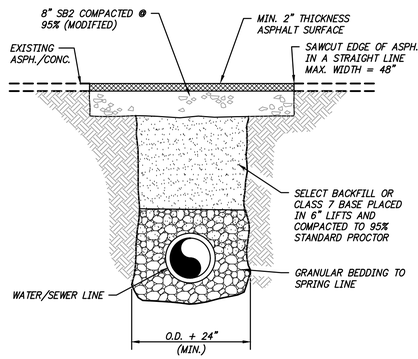


PROPOSED CAST-IN-PLACE MANHOLE
WITH DROP CONNECTION

DETAIL C204
N.T.S.



SECTION "A-A"

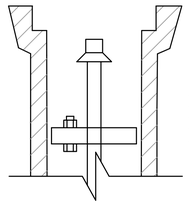


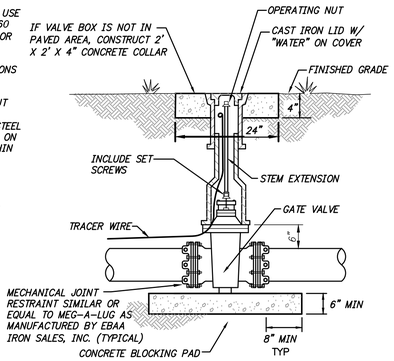
ASPHALT STREET & DRIVEWAY
CROSSING REPAIR

DETAIL C209
N.T.S.

NOTE:

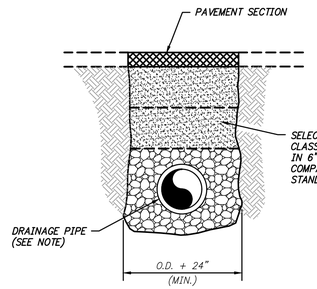
1. FOR VALVES UP TO 12", USE TYLER TWO-PIECE SERIES 6850 OR EQUAL.
2. FOR VALVES LARGER THAN 12", USE TYLER THREE-PIECE SERIES 6860 VALVE BOX W/BELL TYPE BASE OR EQUAL.
3. USE TYLER VALVE BOX EXTENSIONS OR EQUAL FOR DEEP VALVES.
4. VALVES WITH AN OPERATING NUT DEEPER THAN 42" SHALL BE EQUIPPED WITH A STAINLESS STEEL STEM EXTENSION. TOP OF NUT ON STEM EXTENSION MUST BE WITHIN 6" OF FINISHED GRADE.
5. PRECAST COLLARS ARE NOT ACCEPTABLE.





BURIED YARD VALVE

DETAIL C208
N.T.S.



NOTE:
CLASS "D" GRAVEL BEDDING TO SPRINGLINE FOR RCP; GRANULAR BEDDING & BACKFILL 6" ABOVE PIPE FOR HDPE

STORM DRAIN
TRENCHING/BEDDING
IN PAVED AREA

DETAIL C210
N.T.S.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

HAWKINS WEIR ENGINEERS, INC.
Engineering Client Success

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	L. YANCEY
DRAWN BY:	M. WEIR
PROJECT ENGINEER:	L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS * PROFESSIONAL ENGINEER * No. 12185 * LARRY ELLIS YANCEY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND
RESILIENCY PROJECT

CIVIL
DETAILS II

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	CZ-2

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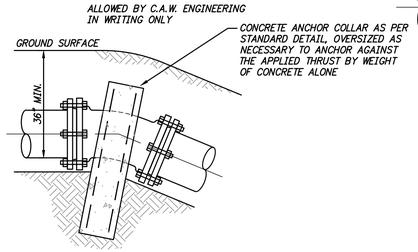
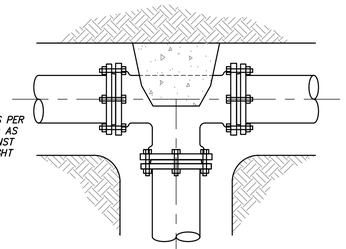
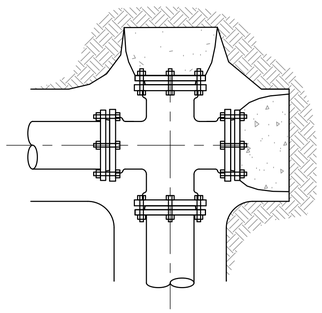
PLOT DATE: 11/18/2024 10:14 AM BY: MWEIR

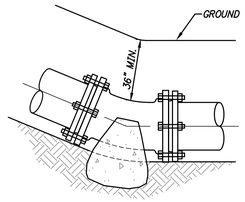




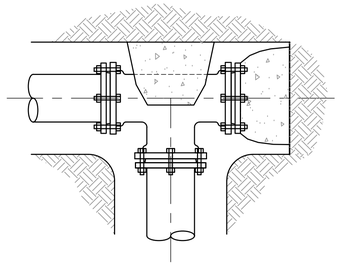
BLOCKING FOR TEE



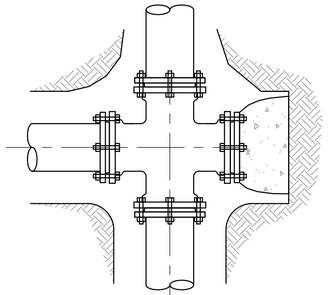
TYPICAL BLOCKING OF CROSS & 2 PLUG BLOCKING (WHEN DIRECTED BY ENGINEER)



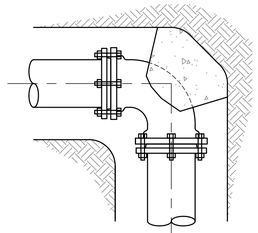
VERTICAL BENDS



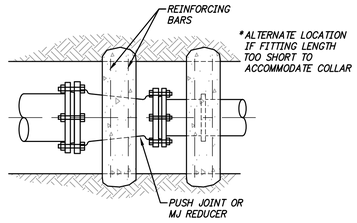
SPECIAL BLOCKING OF TEE & PLUG (WHEN DIRECTED BY ENGINEER)



TYPICAL BLOCKING OF CROSS & PLUG BLOCKING (WHEN DIRECTED BY ENGINEER)



HORIZONTAL BENDS



THRUST SUPPORT FOR REDUCER CONNECTION

FITTING	THRUST PER 100 psi PRESSURE THRUST (TONS)									
	6"	8"	12"	16"	20"	24"	30"	36"	42"	48"
11 ¼°	0.3	0.5	1.1	2.0	3.1	4.4	6.9	10.0	13.6	17.7
15°	0.4	0.7	1.5	2.6	4.1	5.9	9.2	13.3	18.1	23.6
22 ½°	0.6	1.0	2.2	3.9	6.1	8.8	13.8	19.9	27.0	35.3
30°	0.7	1.3	2.9	5.2	8.1	11.7	18.3	26.3	35.3	46.8
45°	1.1	1.9	4.3	7.7	12.0	17.3	27.1	39.0	53.0	69.2
90°	2.0	3.6	8.0	14.2	22.2	32.0	50.0	72.0	98.0	128.0
PLUG (DEAD END)	1.4	2.5	5.7	10.1	15.7	22.6	35.3	50.3	69.3	90.5

TYPE OF SOIL	SUGGESTED SAFE BEARING VALUES (TONS/SQ. FT.)
SOLID ROCK	25
HARD SLATE	6
MEDIUM SHALE	4
SOFT SHALE	2
DRY CLAY GRAVEL	4
SOFT CLAY	1.5
DRY SAND OR LOAM	2.5
WET CLAY	0.75

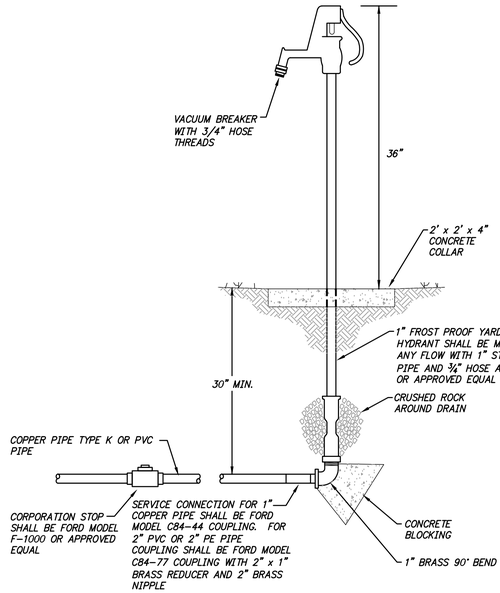
THRUST BLOCKING NOTES:

1. ALL BLOCKING SHALL BE AGAINST UNDISTURBED HAND DUG SOIL.
2. WHERE SOIL CONDITIONS MAKE IT NECESSARY TO POUR CONCRETE BLOCKING OVER JOINTS, THE ENDS OF THE ADJACENT PIPES MUST HAVE A KICKER BLOCK TO RESIST ANY MOVEMENT OF THESE JOINTS.
3. WEIGHT CALCULATIONS TO BE BASED ON THRUST DUE TO STATIC PRESSURE + 50% OR TEST PRESSURE, WHICH EVER IS GREATER. (THRUST = 2AP 1/2 SIN Ø WHERE A = AREA OF PIPE P = WATER PRESSURE)
4. WHEN BLOCKING AGAINST PLUG PLUG SHALL BE COVERED TO PREVENT BONDING OF CONCRETE.
5. WHERE SHEAR BECOMES A PROBLEM, PROPER REINFORCING MUST BE INSTALLED INTO THE BLOCKING.
6. CLEARANCE SHALL BE A MINIMUM OF 6" BETWEEN PIPE AND OBSTRUCTIONS.
7. CLEARANCE ON PIPES BELONGING TO OIL/GAS COMPANIES SHALL BE 18" UNLESS SPECIAL PERMISSION IS GIVEN BY THESE COMPANIES.

STANDARD THRUST BLOCKING

DETAIL C301

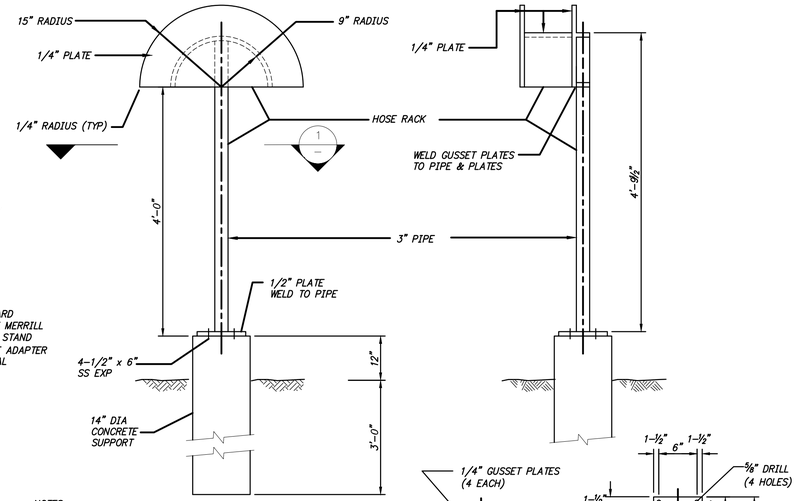
N.T.S.



YARD HYDRANT

DETAIL C302

N.T.S.



NOTES:

1. HOSE RACK AND RUBBER HOSE DESCRIBED ON THIS DETAIL SHALL BE PROVIDED IF SO NOTED ON DRAWING UNIT SHALL BE FABRICATED FROM 1/4" TYPE 304 STAINLESS STEEL
2. FURNISH 50' OF RUBBER HOSE (BOSTON INDUSTRIAL WATER OR EQUAL) AT EACH HOSE STATION HOSE SHALL BE DESIGNED FOR 150 PSI WORKING PRESSURE NEOPRENE EXTERIOR THAT RESISTS OIL, GREASE, ABRASION AND SEVERE WEATHER CONDITION FOR INDUSTRIAL USE BOTH ENDS OF HOSE SHALL BE THREADED, ONE END MALE, ONE END FEMALE PROVIDE A RUBBER COVERED SPRAY NOZZLE WITH SWIVEL TYPE ADAPTORS, (STRAHMAN MODEL 70) OR EQUAL, LEVER ACTION, RATED AT 150 PSI
3. INSIDE DIAMETER OF HOSE SHALL BE SAME AS HOSE VALVE

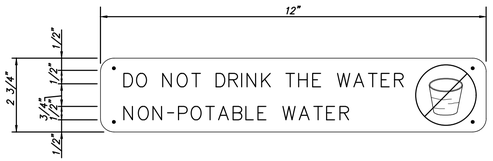
TOP VIEW

SECTION 1

YARD HYDRANT HOSE RACK

DETAIL C303

N.T.S.



COLORS: BACKGROUND SHALL BE OSHA SAFETY YELLOW, LETTERS SHALL BE RECESSED BLACK

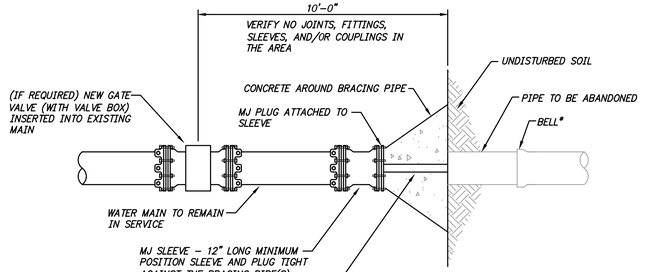
NOTES:

1. FURNISH & INSTALL THE ABOVE SIGN ABOVE ALL (EXIST & NEW) NON-POTABLE WATER HOSE BIBBS. ATTACH THE SIGN TO THE STRUCTURE, GUARDRAIL OR POST WITH STAINLESS STEEL HARDWARE & MOUNTING BRACKET.
2. PROVIDE 25 OF THESE SIGNS. CONFIRM QUANTITY WITH OWNER DURING CONSTRUCTION.
3. FURNISH ONE SIGN & RECEIVE APPROVAL FROM OWNER PRIOR TO ORDERING REMAINDER OF SIGNS.

NON-POTABLE WATER SIGN

DETAIL C304

N.T.S.



*IF THERE IS NOT BELL AT OR NEAR THE POINT TO BE CUT, PHYSICALLY CUT THE ABANDONED PIPE 5-FEET FROM THE ANCHOR COLLAR AFTER THE CONCRETE HAS ALL SET, TAKING SPECIAL CARE NOT TO DISTURB ANCHOR COLLAR. SEAL END OF ABANDONED PIPE WITH CONCRETE IF 12" PIPE OR SMALLER. SEAL END OF PIPE WITH MJ PLUG/CAP IF 14" PIPE AND LARGER.

STANDARD CUT AND PLUG DETAIL

DETAIL C305

N.T.S.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER: T. HUDSON
DESIGNED BY: L. YANCEY
DRAWN BY: M. WEIR
PROJECT ENGINEER: L. YANCEY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 12185 ELLIS YANCEY 11/18/24

HAWKINS WEIR ENGINEERS, INC. Engineering Client Success

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

CIVIL
DETAILS III

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: CZ-3

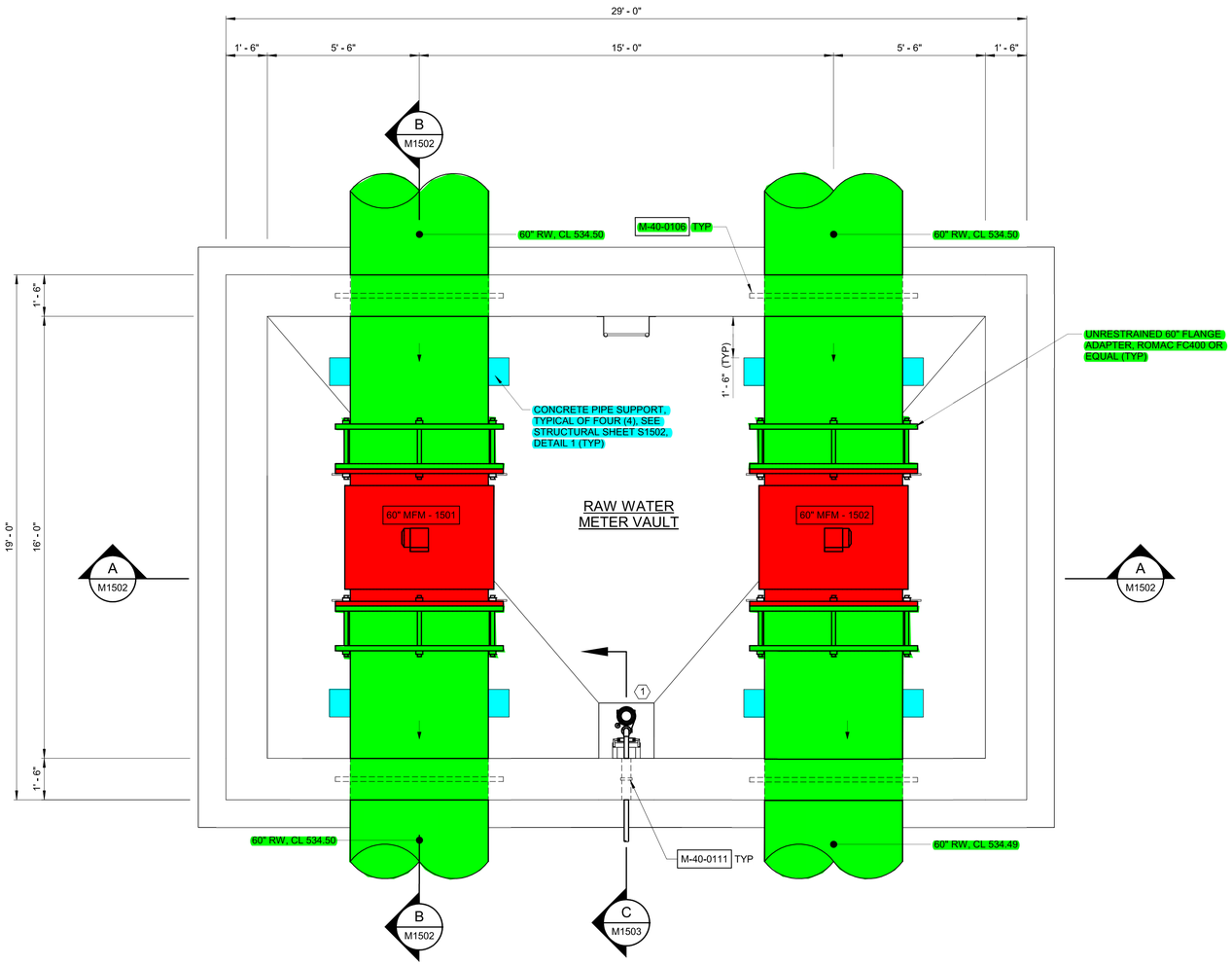
File: C:\USERS\MWEIR\DOCACCDOCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_HW\00_CIVIL\CIVIL\60711-001-C203 Saved by MWEIR Save date: 10/3/2024 9:46 AM
PLOT DATE: 11/18/2024 10:14 AM BY: MWEIR

PLANT NORTH

N

KEYED NOTES:

1. SUMP PUMP SHALL BE SIMPLEX 1/2 HP, 115V, 60HZ MOTORS CAPABLE OF PUMPING 30 GPM @ 24 FT-TDH. PUMP SHALL INCLUDE AN INTEGRAL FLOAT SWITCH, OIL FILLED MOTOR, THERMAL OVERLOAD PROTECTION, CAST IRON CASE, AND THERMOPLASTIC IMPELLER. SUMP PUMP SHALL BE EQUAL TO HYDROMATIC MODEL HP-50.



LEGEND

RAW WATER PIPING PACKAGE SCOPE

MATERIAL PROVIDED BY CMAR CONTRACTOR

MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

BOTTOM PLAN

3/8" = 1'-0"

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

HAWKINS WEIR ENGINEERS, INC. Engineering Client Success

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	A. BENZING
DRAWN BY:	A. FITTIN
PROJECT ENGINEER:	A. BENZING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 12484 AARON M. BENZING 11/20/24

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

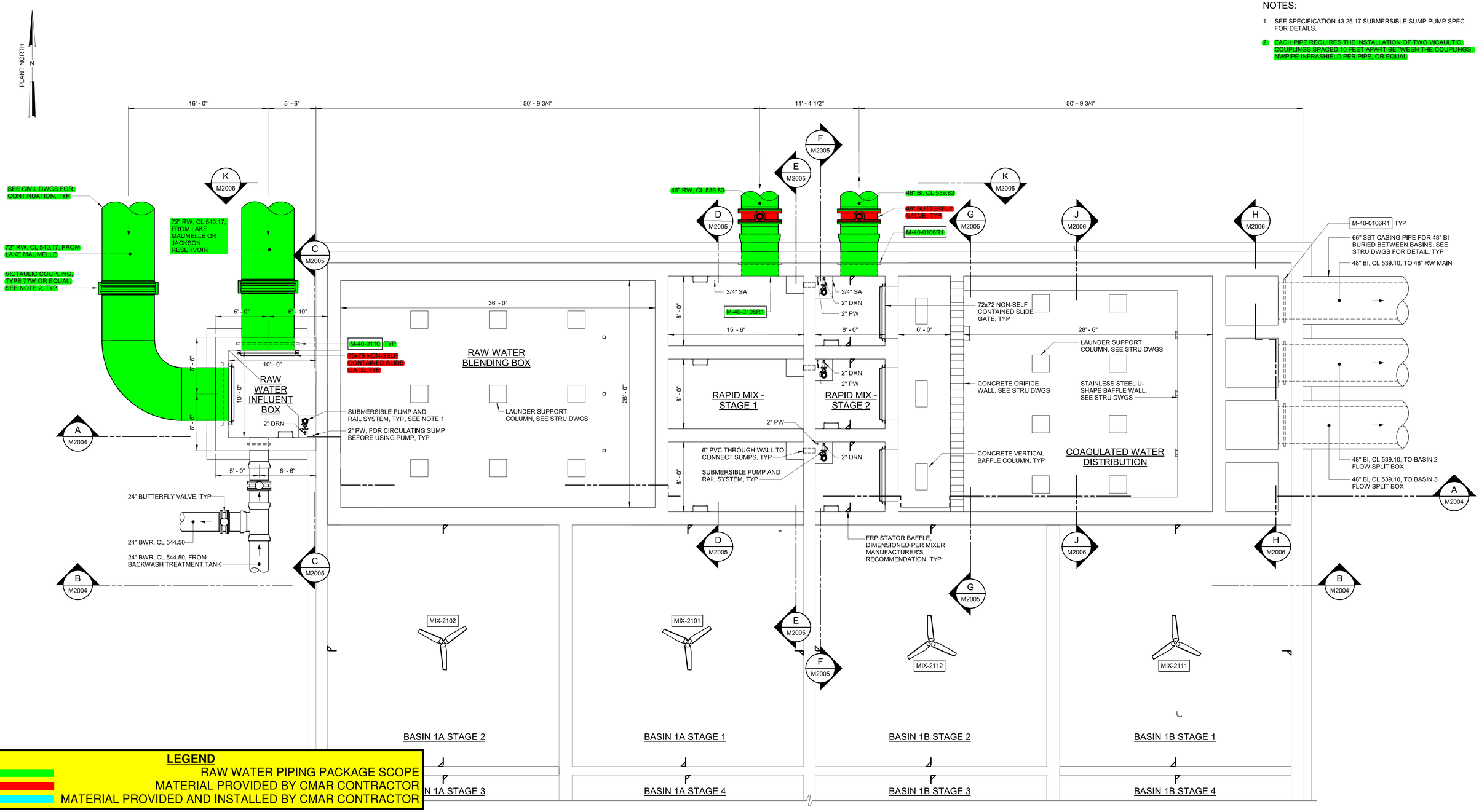
RAW WATER METER VAULT
MECHANICAL
BOTTOM PLAN

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	M1501

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-1500-RWMV-MECH.rvt
11/17/2024 6:19:16 PM

NOTES:

1. SEE SPECIFICATION 43 25 17 SUBMERSIBLE SUMP PUMP SPEC FOR DETAILS.
2. EACH PIPE REQUIRES THE INSTALLATION OF TWO VICAULTIC COUPLINGS SPACED 10 FEET APART BETWEEN THE COUPLINGS. NWPIPE INFRASHIELD PER PIPE, OR EQUAL



BOTTOM PLAN - RAPID MIX

3/16" = 1'-0"

LEGEND

RAW WATER PIPING PACKAGE SCOPE

MATERIAL PROVIDED BY CMAR CONTRACTOR

MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY

MANAGER:

DESIGNED BY: S. YEO

DRAWN BY: J. LUTHMAN II

PROJECT ENGINEER: S. HARDY

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 22315 SCOTT HARDY

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

RAPID MIX MECHANICAL BOTTOM PLAN

DATE: NOVEMBER 2024

HAZEN NO.: 60711-003

CONTRACT NO.: 1

DRAWING NUMBER: M2001

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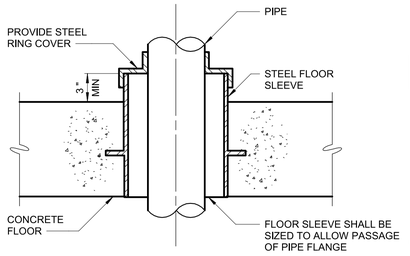
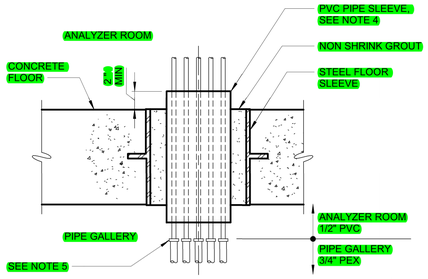


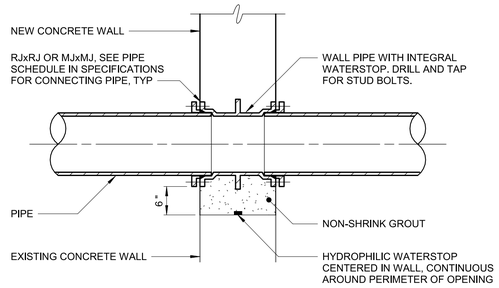
ELEVATED FLOOR PENETRATION

M-40-0100



SAMPLE PIPING ELEVATED FLOOR PENETRATION

M-40-0100R



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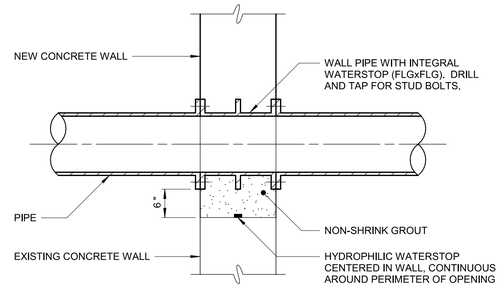
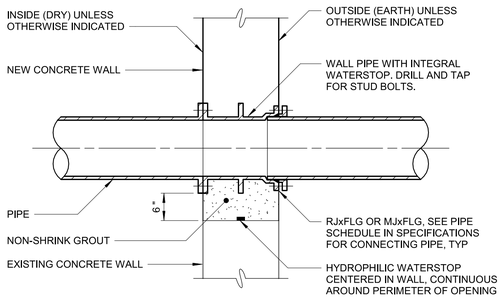


M-40-0101

NOTES:

1. ALL WALL PIPES SHALL BE CAST UNLESS OTHERWISE NOTED.
2. PROVIDE PIPE JOINT WITHIN TWO (2) FEET OF EXTERIOR FACE OF WALL AT CONNECTION TO ALL NEW AND EXISTING STRUCTURES OR MANHOLES.
3. ALL NEW OPENINGS IN EXISTING CONCRETE WALLS AND SLABS SHALL BE SAWCUT OR CORE DRILLED. USE OF JACKHAMMERS OR STITCH DRILLING SHALL NOT BE PERMITTED. ANNULAR SURFACE SHALL BE SMOOTH. ANNULAR SURFACE SHALL BE ROUGHENED BY APPROVED METHODS WHEN INSTALLATION OF NONSHRINK GROUT IS REQUIRED AT EXISTING CONCRETE WALLS.
4. SMALL DIAMETER PVC LINES TO BE PROTECTED BY PIPE SLEEVE.
5. PIPING TO TRANSITION FROM 3/4" PEX IN PIPE GALLERY TO 1/2" PVC IN ANALYZER ROOM.



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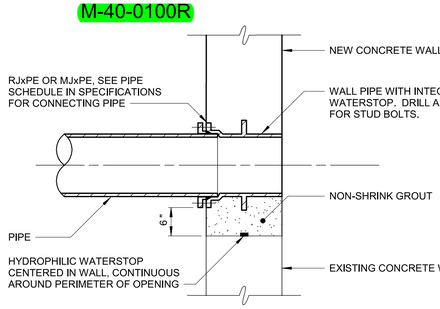

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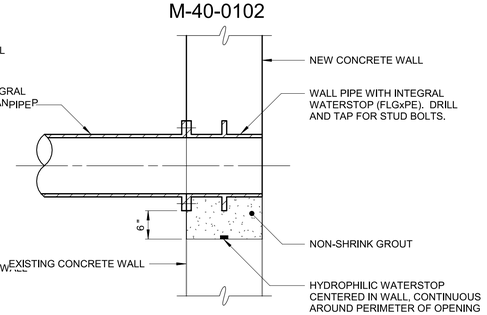

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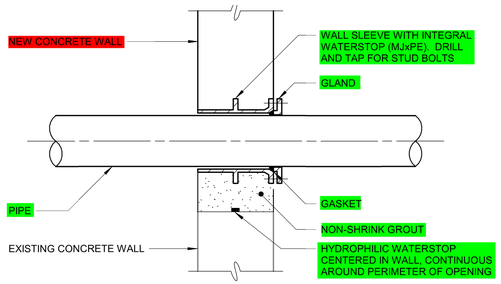

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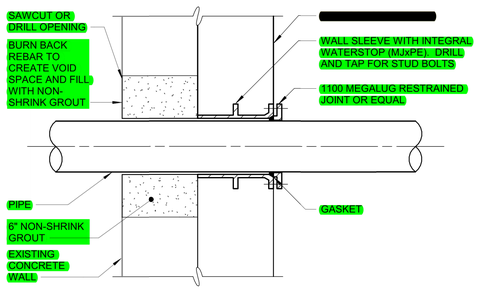

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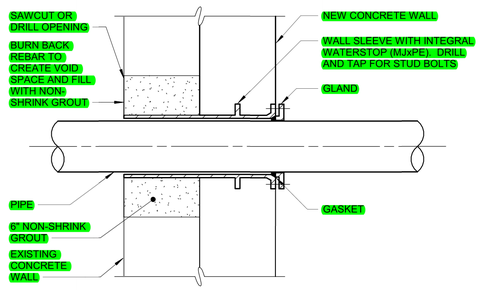
SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.



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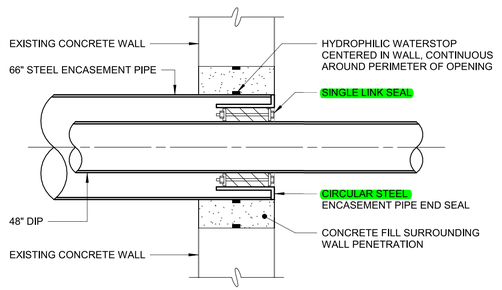

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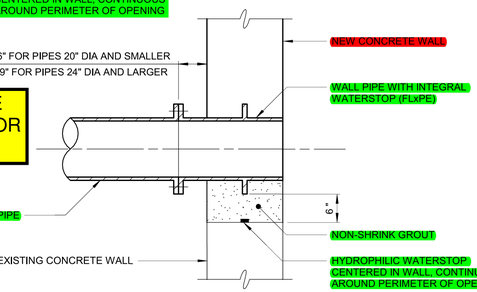

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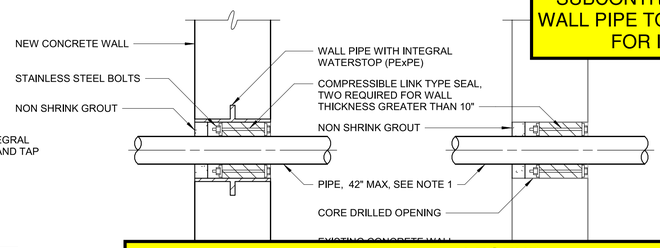

SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.

SUBCONTRACTOR TO PROVIDE WALL PIPE TO CMAR CONTRACTOR FOR INSTALLATION.

LEGEND

RAW WATER PIPING PACKAGE SCOPE
MATERIAL PROVIDED BY CMAR CONTRACTOR
MATERIAL PROVIDED AND INSTALLED BY CMAR CONTRACTOR

PROCESS VALVES AND MAGNETIC FLOW METERS TO BE PROVIDED TO SUBCONTRACTOR BY CMAR CONTRACTOR. APPURTENANCES SUCH AS RESTRAINTS, BOLTS, GASKETS, VALVE BOXES, EXTENSION STEMS, AND ACCESSORIES TO BE PROVIDED BY THE SUBCONTRACTOR.

TRUCTION.

REV	ISSUED FOR	DATE	BY

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	H&S
DRAWN BY:	H&S
PROJECT ENGINEER:	T. HUDSON

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 21489 TYLER HUDSON

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

MECHANICAL STANDARD DETAILS SHEET 1

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	MD1

SECTION 22 07 19

PLUMBING PIPING INSULATION

PART 1 – GENERAL

1.01 SUMMARY

A. Related Documents: Drawings and general provisions of the Subcontract apply to this Section.

1. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:

1. Piping insulation.

2. Jackets and accessories.

C. Related Sections:

1. Section 09 90 00 – Painting for painting insulation jacket.

2. Section 22 05 53 – Identification for Plumbing Piping and Equipment.

1.02 REFERENCES

A. General:

1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.

2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.

3. Refer to Section 22 05 00 – Common Results for Plumbing for codes and standards, and other general requirements.

B. ASTM International:

1. ASTM-B-209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

2. ASTM-C-195 – Standard Specification for Mineral Fiber Thermal Insulating Cement

3. ASTM C 196 – Standard Specification for Expanded or Exfoliated Vermiculite Thermal Insulating Cement

4. ASTM-C-449 – Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement

5. ASTM-C-533 – Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation

6. ASTM C534 / C534M – Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form

7. ASTM-C-547 – Standard Specification for Mineral Fiber Pipe Insulation

8. ASTM-C-552 – Standard Specification for Cellular Glass Thermal Insulation

9. ASTM C553 – Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications

10. ASTM-C-578– Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

11. ASTM-C-610 – Standard Specification for Molded Expanded Perlite Block and Pipe Thermal Insulation

12. ASTM-E-84 – Standard Test Method for Surface Burning Characteristics of Building Material.

13. ASTM C 450 – Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging

14. ASTM C 921 – Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation

15. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

16. ASTM A666 – Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar

C. Code of Federal Regulations 20-CFR-1910.7 Definitions and Requirements for A Nationally Recognized Testing Laboratory (NRTL)

D. National Fire Protection Association NFPA-90A & NFPA-255 Surface Burning Characteristics of Building Materials

E. Underwriters Laboratories UL-723 Surface Burning Characteristics of Building Materials

1.03 SUBMITTALS

A. Submit under provisions of Section 22 05 00 – Common Results for Plumbing, Review of Materials and Section 01 33 00 – Submittal Procedures.

B. Subcontractor shall submit the product description, list of materials and thickness for each service, and at each location.

C. LEED Submittals:

1. Product Data for Credit EQ 4.1: For solvent cements and adhesive primers, including printed statement of VOC content.

1.04 QUALITY ASSURANCE

A. Subcontractor shall assure applicator is a company specializing in piping insulation application with at least 3 years of relevant experience.

B. Fire Hazard: Provide insulation, jackets, facings adhesives and accessories acceptable to the State Fire Marshall and meeting the requirements of NFPA 90A. Meet the following hazard classifications stated in accordance with U.L. Test Method of Fire Hazard Classifications of Building Materials, No. 723:

1. Flame-spread: Maximum 25.

2. Fuel Contributed: Maximum 50.

3. Smoke Developed: Maximum 50.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manville Corporation, Certain-Teed, or Owens Corning Fiberglass.

B. Armacell (Armaflex Cellucar Insulation) LLC.

C. Approved Equals

2.02 INSULATION MATERIALS

A. Mineral-Fiber Insulation: Glass fibers bonded with a thermosetting resin complying with the following:

1. Preformed Pipe Insulation: Comply with ASTM C 547, Type I, with factory-applied, all-purpose, vapor-retardant jacket.

2. Blanket Insulation: Comply with ASTM C553, Type II, without facing.

3. Fire-Resistant Adhesive: Comply with MIL-A-3316C in the following classes and grades:

a. Class I, Grade A for bonding glass cloth and tape to unfaced glass-fiber insulation, for sealing edges of glass-fiber insulation, and for bonding lagging cloth to unfaced glass-fiber insulation.

b. Class 2, Grade A for bonding glass-fiber insulation to metal surfaces.

c. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

4. Vapor-Retarder Mastics: Fire and water-resistant, vapor-retarder mastic for indoor applications. Comply with MIL-C 19565C, Type II. See Paragraph 2.05 of this Section.

5. Mineral-Fiber Insulating Cements: Comply with ASTM C 195.

6. Expanded or Exfoliated Vermiculite Insulating Cements: Comply with ASTM C 196.

7. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449/C 449M.

B. Cellular-Glass Insulation: Inorganic, foamed or cellulated glass, annealed, rigid, hermetically sealed cells, incombustible.

1. Preformed Pipe Insulation, without Jacket: Comply with ASTM C 552, Type II, Class I.

2. Preformed Pipe Insulation, with Jacket: Comply with ASTM C 552, Type II, Class 2.

3. Cellular-Glass, Phenolic, Polyisocyanurate, and Polystyrene Adhesive: Solvent-based resin adhesive, with a service temperature range of minus 75 to plus 300

deg F. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Prefabricated Thermal Insulating Fitting Covers: Comply with ASTM C 450 for dimensions used in performing insulation to cover valves, elbows, tees, and flanges.

2.03 FIELD-APPLIED JACKETS

A. General: ASTM C 921, Type I, unless otherwise indicated.

B. Foil and Paper Jacket: Not acceptable.

C. PVC Jacket: High-impact, ultraviolet-resistant PVC; 20 mils thick; roll stock ready for shop or field cutting and forming.

1. Adhesive: As recommended by insulation material manufacturer.

2. PVC Jacket Color: White

3. PVC Jacket Color: Color-code piping jacket as determined by existing conditions.

4. Not to be used for outdoors.

D. Heavy PVC Fitting Covers: Factory-fabricated fitting covers manufactured from 30-mil (0.75 mm) thick, high-impact, ultraviolet-resistant PVC.

1. Shapes: 45 and 90-degree, short and long-radius elbows, tees, valves, flanges, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories for the disabled.

2. Adhesive: As recommended by insulation material manufacturer.

3. Not to be used for outdoors.

E. Aluminum Jacket: Aluminum roll stock, ready for shop or field cutting and forming to indicated sizes. Comply with ASTM B 209 (ASTM B 209M), 3003 alloy, H-14 temper.

1. Finish and Thickness: Smooth finish, 0.010 (0.25 mm) inch thick.

2. Moisture Barrier: 1-mil thick, heat-bonded polyethylene and kraft paper.

3. Elbows: preformed 45 and 90-degree, short and long-radius elbows; same material, finish, and thickness as jacket.

2.04 ACCESSORIES AND ATTACHMENTS

A. Bands: stainless steel ASTM A666, Type 304, 3/4 inch (20 mm) wide; 0.02 inch (0.050 mm) thick.

2.05 VAPOR RETARDANTS

A. Mastics: Use materials as recommended by the insulation material manufacturer that are compatible with insulation materials, jackets, and substrates.

B. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 25 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.06 SEALANTS

A. Joint Sealants:

1. For indoor applications, use mastics that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Install materials after piping has been tested and approved.

B. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.03 GENERAL APPLICATION REQUIREMENTS.

A. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions; with smooth, straight, and even surfaces; and free of voids throughout the length of ducts and fittings.

B. Refer to schedules at the end of this Section for material, form, jacket, and thickness required for each piping system insulation requirements.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften or otherwise attack insulation or jacket when in either wet or dry state.

D. Apply insulation with longitudinal seams at top and bottom of horizontal pipe runs.

E. Apply multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Seal joints and seams with vapor-retardant mastic on insulation indicated to receive a vapor retardant.

H. Keep insulation materials dry during application and finishing.

I. Apply insulation with tight longitudinal seams and end joints. Bond the seams and joints with adhesive recommended by the insulation material manufacturer.

J. Apply insulation with the least number of joints practical.

K. Apply insulation over fittings, valves, and specialties, with continuous thermal and vapor-retardant integrity, unless otherwise indicated. Refer to special instruction for applying insulation over fittings, valves, and specialties.

L. Hangers and Anchors: Where vapor retardant is indicated, seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retardant mastic.

    1. Apply insulation continuously through hangers and around anchor attachments.

    2. For insulation application where vapor retardants are indicated, extend insulation on anchor legs at least 12 inches (300 mm) from point of attachment to pipe and taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retardant integrity.

    3. Install insert materials and apply insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by the insulation material manufacturer.

    4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect the jacket from tear or puncture by the hanger, support, and shield.

M. Insulation Terminations: For insulation where vapor retardants are indicated, taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retardant integrity.

N. Apply adhesives and mastics at the manufacturer's recommended coverage rate.

O. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.

2. Circumferential Joints: Cover with 3 inches (75 mm) wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip and spaced 4-inches o.c.

3. Longitudinal Seams: Overlap jacket seams at least 1 1/2 inches (38 mm). Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4-inches o.c.

4. Exception: Do not staple longitudinal laps on insulation having a vapor retardant.

5. Vapor-retardant mastics: Where vapor retardants are indicated, apply mastic on seams and joints and at ends adjacent to flanges, unions, valves, and fittings.

6. At penetrations in jackets for thermometers and pressure gauges, fill and seal voids with vapor-retardant mastic.

P. Roof Penetrations: Apply insulation for interior applications to a point even with top of roof flashing.

1. Seal penetrations with vapor-retardant mastic.

2. Apply insulation for exterior applications tightly joined to interior insulation ends.

3. Extend metal jacket for exterior insulation occurring outside of roof flashing at least 2-inches below the top of the roof flashing.

4. Seal sheet metal jacket to roof flashing with vapor-retardant mastic.

Q. Exterior Wall Penetrations: For penetration of below-grade exterior walls, terminate insulation flush with mechanical sleeve seal. Seal terminations with vapor-retardant mastic.

R. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and floors.

S. Fire-Rated Wall and Partition Penetrations: Apply insulation continuously through penetrations of fire-rated walls and partitions

1. Firestopping and fire-resistive joint sealers are specified in Division 07 "Penetration Firestopping".

2. Floor Penetrations: Apply insulation continuously through floor assembly.

3. For insulation with vapor retardants, seal insulation with vapor-retardant mastic where floor supports penetrate vapor retardant.

3.04 MINERAL-FIBER INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows;

1. Secure each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.

2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic. Apply vapor retarder to ends of insulation at intervals of 15 to 20-feet (4.5 to 6 m) to form a vapor retarder between pipe insulation segments.

3. For insulation with factory-applied jackets, secure laps with outward clinches staples at 6 inches o.c.

4. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply Insulation to flanges as follows:

1. Apply preformed pipe insulation to outer diameter of pipe flange.

2. Make width of insulation segment the same as overall width of the flange and bolts, plus twice the thickness of the pipe insulation.

3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.

4. Apply canvas jacket material with manufacturer's recommended adhesive, overlapping seams at least 1 inch (25 mm), and seal joints with vapor-retarder mastic.

C. Apply insulation to fittings and elbows as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.

2. When premolded insulation elbows and fittings are not available, apply mitered sections of pipe insulation, or glass-fiber blanket insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire, tape, or bands.

3. Cover fittings with heavy PVC covers. Overlap PVC covers on pipe insulation jackets at least 1 inch (25 mm) at each end. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

D. Apply insulation to valves and specialties as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.

2. When premolded insulation sections are not available, apply glass-fiber blanket insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation. For check valves, arrange insulation for access to strainer basket without disturbing insulation.

3. Apply insulation to flanges as specified for flange insulation application.

4. Use preformed heavy PVC fitting covers for valve sizes where available. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

5. For larger sizes where PVC fitting covers are not available, seal insulation with canvas jacket and sealing compound recommended by the insulation material manufacturer.

3.05 CELLULAR-GLASS INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Secure each layer of insulation to pipe with bands without deforming insulation.

2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic.

3. For insulation with factory-applied jackets, secure laps with outward clinched staples at 6-inches o.c.

4. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply insulation to flanges as follows:

1. Apply preformed pipe insulation to outer diameter of pipe flange.

2. Make width of insulation segment the same as overall width of the flange and bolts, plus twice the thickness of the pipe insulation.

3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of cellular-glass block insulation of the same thickness as pipe insulation

4. Apply insulation to fittings and elbows as follows:

5. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instruction.

6. When premolded sections of insulation are not available, apply mitered sections of cellular-glass insulation. Secure insulation materials with bands.

7. Cover fittings with heavy PVC fitting covers. Overlap PVC covers on pipe insulation jackets as least 1 inch (25 mm) at each end. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

C. Apply insulation to valves and specialties as follows:

1. Apply premolded segments of cellular-glass insulation or glass-fiber blanket insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation. For check valves, arrange insulation for access to strainer basket without disturbing insulation.

2. Apply insulation to flanges as specified for flange insulation application.

3. Use preformed heavy PVC fitting covers for valve sizes where available. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

4. For larger sizes where PVC fitting covers are not available, seal insulation with canvas jacket and sealing compound recommended by the insulation material manufacturer.

3.06 PREFORMED ELASTOMERIC CELLULAR THERMAL INSULATION APPLICAION

A. Apply insulation to straight pipes and tubes as follows:

1. Install pipe insulation by slitting tubular sections and applying onto pipes. Seams and butt joints shall be adhered and sealed using Armaflex 520 adhesive

2. All edges shall be clean-cut. Rough or jagged edges shall not be permitted.

B. Apply insulation to valves, flanges and fittings as follows:

1. Insulate with the same insulation thickness as the adjacent piping. Seams and butt joints shall be adhered and sealed with Armaflex 520 adhesive.

2. All edges shall be clean-cut. Rough or jagged edges shall not be permitted.

C. Outdoor insulation shall be protected as follows:

1. Furnish PVC jacket and PVC fitting covers or aluminum jackets.

2. All jackets shall have the seams located on the bottom of the pipes.

3.07 FIELD-APPLIED JACKET APPLICATION

A. Apply PVC jacket where indicated, with 1 inch (25 mm) overlap at longitudinal seams and end joints. Seal with manufacturer's recommended adhesive.

B. Apply metal jacket where indicated, with 2-inch (50 mm) overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel band 12 inches (300 mm) o.c. and at end joints.

C. Insulation and jacket for cold pipes shall include wicks to direct possible condensation to outside the jacket. The product shall be Knauf PermaWick or equal.

D. Indoor, Concealed Applications: Insulated pipes conveying fluids above ambient temperature shall have standard jackets, with or without vapor barrier, factory-applied or field-applied. Insulate fittings, joints and valves with insulation of like material and thickness as adjoining pipe, and finish with glass cloth and adhesive. PVC jackets shall be used.

E. Indoor, Exposed Applications: For pipe exposed in mechanical equipment rooms or in finished spaces, insulate as for concealed applications. Finish with canvas jacket; size for finish painting. PVC jackets shall be used.

F. Exterior Applications: Provide vapor-barrier jackets. Cover with aluminum jacket with seams located on bottom side of horizontal piping. Insulate fittings, joints, and valves

with insulation of like material and thickness as adjoining pipe and cover with aluminum jacket.

G. Buried Piping: Provide factory-fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt-impregnated open-mesh glass fabric, with 0.001 inch thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.

3.08 FINISHES

A. Paint insulation as specified in Section 09 90 00 – Painting.

B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

3.09 PIPING SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

B. Items Not Insulated: Unless otherwise indicated, do not apply insulation to the following systems, materials, and equipment.

1. Flexible connectors.

2. Vibration control devices.

3. Fire-suppression piping.

4. Drainage piping located in crawl spaces, unless otherwise indicated.

5. Below-grade piping, unless otherwise indicated.

6. Chrome-plated pipes and fittings, unless potential for personal injury.

7. Air chambers, unions, strainers, check valves, plug valves, and flow regulators.

3.10 INSULATION APPLICATION SCHEDULE, GENERAL.

A. Refer to insulation application schedules for required insulation materials, vapor retarders, and field-applied jackets.

B. Application schedules identify piping system and indicate pipe size ranges and material, thickness, and jacket requirements.

3.11 INTERIOR INSULATION APPLICATION SCHEDULE

A. Service: Domestic tepid, tepid return, hot water, and hot water return.

1. Operating Temperature: 60 to 140 deg F (15.6 to 60 deg C).

2. Insulation Material: Cellular Glass

3. Insulation Thickness: Apply the following insulation thicknesses:

a. Copper Pipe, Up to 2 inches (50.8 mm): 1 inch (25 mm) Insulation

b. CPVC Pipe, Up to 2 inches (50.8 mm): 1 inch (25 mm) Insulation

4. Field-Applied Jacket: PVC

5. Vapor Retarder Required: Yes

6. Finish: As specified in Paragraph 3.08 of this Section.

B. Service: Horizontal runs of Storm Drainage piping.

1. Operating Temperature: 30 to 100 deg F (-1.1 to 37.8 deg C).

2. Insulation Material: Cellular Glass

3. Insulation Thickness: Apply the following insulation thicknesses:

a. PVC Pipe, Up to 4 inches (101.6 mm): 1 inch (25 mm) Insulation

4. Field-Applied Jacket: PVC

5. Vapor Retarder Required: Yes

6. Finish: As specified in Paragraph 3.08 of this Section.

7.

3.12 EXTERIOR INSULATION APPLICATION SCHEDULE

A. This application schedule is for aboveground insulation outside the building.

B. Service: Domestic, industrial and DI Water.

1. Operating Temperature: 60 to 140 deg F (15 to 60 deg C).

2. Insulation Material: Cellular Glass

3. Insulation Thickness: Apply the following insulation thicknesses:

   a. Copper pipe, All sizes: 1 inch (25 mm) Insulation

4. Field-Applied Jacket: Aluminum

5. Vapor Retarder Required: Yes

6. Finish: As specified in Paragraph 3.08 of this Section.

3.13 ALTERNATE INSULATION APPLICATION

A. Preformed elastomeric cellular insulation may be used as an alternative to the materials in Paragraphs 3.11 and 3.12 of this Section.

END OF SECTION

SECTION 22 13 16
SANITARY WASTE AND VENT PIPING

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section pertains to sanitary sewer and vent systems, including piping, equipment and all necessary accessories as designated in this section.

B. A complete listing of all acronyms and abbreviations are included in Section 22 05 00 – Common Results for Plumbing.

1.02 RELATED WORK

A. Section 01 75 00 – Checkout and Startup Procedures

B. Section 07 84 00 – Firestopping: Penetrations in Rated Enclosures

C. Section 07 90 00 – Joint Fillers, Sealants and Caulking: Sealant Products

D. Section 09 90 00 – Painting: Preparation and Finish Painting and Identification of Piping Systems.

E. Section 22 05 00 – Common Results for Plumbing: Pipe Hangers and Supports, Materials Identification.

F. Section 22 07 19 – Plumbing Piping Insulation

G. Section 26 05 26 – Grounding and Bonding for Electrical Systems

H. Section 26 05 33.13 – Conduit for Electrical Systems

I. Section 26 05 33.16 – Boxes for Electrical Systems

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society of Mechanical Engineers (ASME):

1. A13.1-2007 – Scheme for the Identification of Piping Systems

2. A112.36.2M-1991(R 2012) – Cleanouts

032819

3. A112.6.3-2001 (R2007) – Standard for Floor and Trench Drains

4. B1.20.1-2013 – Pipe Threads, General Purpose (Inch)

5. B16.1-2010 – Gray Iron Pipe Flanges and Flanged Fittings

6. B16.4-2011 – Standard for Grey Iron Threaded Fittings Classes 125 and 250

7. B16.15-2013 – Cast Copper Alloy Threaded Fittings, Classes 125 and 250

8. B16.18-2012 – Cast Copper Alloy Solder Joint Pressure Fittings

9. B16.21-2011 – Nonmetallic Flat Gaskets for Pipe Flanges

10. B16.22-2013 – Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings

11. B16.23-2011 – Cast Copper Alloy Solder Joint Drainage Fittings: DWV

12. B16.24-2001 (R2006) – Cast Copper Alloy Pipe Flanges and Flanged Fittings

13. B16.29-2012 – Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings: DWV

14. B16.39-2009 – Malleable Iron Threaded Pipe Unions Classes 150, 250, and 300

15. B18.2.1-2012 – Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)

C. American Society of Sanitary Engineers (ASSE):

1. 1001-2008 – Performance Requirements for Atmospheric Type Vacuum Breakers

2. 1044-2001 – Performance Requirements for Trap Seal Primer Devices – Drainage Types and Electronic Design Types

3. 1079-2012 – Performance Requirements for Dielectric Pipe Unions

D. American Society for Testing and Materials (ASTM):

1. A53/A53M-2012 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-coated, Welded and Seamless

2. A74-2013a – Standard Specification for Cast Iron Soil Pipe and Fittings

3. A888-2013a – Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

4. B32-2008 – Standard Specification for Solder Metal

5. B43-2009 – Standard Specification for Seamless Red Brass Pipe, Standard Sizes

6. B75-2011 – Standard Specification for Seamless Copper Tube

7. B88-2009 – Standard Specification for Seamless Copper Water Tube

8. B306-2013 – Standard Specification for Copper Drainage Tube (DWV)

9. B584-2013 – Standard Specification for Copper Alloy Sand Castings for General Applications

10. B687-1999 (R 2011) – Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

11. B813-2010 – Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube

12. B828-2002 (R 2010) – Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings

13. C564-2012 – Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings

14. D1785-2012 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

15. D2321-2011 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

16. D2564-2012 – Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems

17. D2665-2012 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

18. D2855-1996 (R 2010) – Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings

19. D5926-2011 – Standard Specification for Poly(Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems

20. F402-2005 (R 2012) – Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings

21. F477-2010 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

22. F1545-1997 (R 2009) – Standard Specification for Plastic-Lined Ferrous Metal Pipe, Fittings, and Flanges

E. Cast Iron Soil Pipe Institute (CISPI):

1. 2006 – Cast Iron Soil Pipe and Fittings Handbook

2. 301-2012 – Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

3. 310-2012 – Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

F. Copper Development Association, Inc. (CDA):

G. International Code Council (ICC):

1. IPC-2012 – International Plumbing Code

H. Manufacturers Standardization Society (MSS):

I. National Fire Protection Association (NFPA):

1. 70-2014 – National Electrical Code (NEC)

J. Plumbing and Drainage Institute (PDI):

1. WH-201 (R 2010) – Water Hammer Arrestors Standard

K. Underwriters' Laboratories, Inc. (UL):

1. 508-99 (R2013) – Standard for Industrial Control Equipment

1.04 SUBMITTALS

A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 00 – Submittal Procedures.

B. Information and material submitted under this Section shall be marked “SUBMITTED UNDER SECTION 22 13 16 – SANITARY WASTE AND VENT PIPING”, with applicable paragraph identification.

C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.

1. Piping
2. Floor Drains
3. Grease Removal Unit
4. Cleanouts
5. Trap Seal Protection
6. Penetration Sleeves
7. Pipe Fittings
8. Traps
9. Exposed Piping and Fittings

D. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane or the floor drain.

1.05 AS-BUILT DOCUMENTATION

A. The installing contractor shall maintain as-built drawings of each completed phase for verification; and, shall provide the complete set at the time of final systems certification testing. As-built drawings are to be provided, and a copy of them on Auto-Cad version provided on compact disk or DVD. Should the installing contractor engage the testing company to provide as-built or any portion thereof, it shall not be deemed a conflict of interest or breach of the ‘third party testing company’ requirement.

B. Certification documentation shall be provided prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and a certification that all results of tests were within limits specified.

PART 2 – PRODUCTS

2.01 SANITARY WASTE, DRAIN, AND VENT PIPING

A. Cast iron waste, drain, and vent pipe and fittings.

1. Cast iron waste, drain, and vent pipe and fittings shall be used for the following applications:

    a. Pipe buried in or in contact with earth.

    b. Sanitary pipe extensions to a distance of approximately 5 feet outside of the building.

    c. Interior waste and vent piping above grade.

2. Cast iron Pipe shall be bell and spigot or hubless (plain end or no-hub or hubless).

3. The material for all pipe and fittings shall be cast iron soil pipe and fittings and shall conform to the requirements of CISPI 301, ASTM A888, or ASTM A74.

4. Cast iron pipe and fittings shall be made from a minimum of 95 percent post-consumer recycled material.

5. Joints for hubless pipe and fittings shall conform to the manufacturer's installation instructions. Couplings for hubless joints shall conform to CISPI 310. Joints for hub and spigot pipe shall be installed with compression gaskets conforming to the requirements of ASTM C564.

B. Polyvinyl Chloride (PVC)

1. Polyvinyl chloride (PVC) pipe and fittings are permitted where the waste temperature is below 140 degrees F.

2. PVC piping and fittings shall NOT be used for the following applications:

    a. Waste collected from steam condensate drains.

    b. Spaces such as mechanical equipment rooms, kitchens, Sterile Processing Services, sterilizer areas, and areas designated for sleep.

    c. Vertical waste and soil stacks serving more than two floors.

    d. Exposed in mechanical equipment rooms.

    e. Exposed inside of ceiling return plenums.

3. Polyvinyl chloride sanitary waste, drain, and vent pipe and fittings shall be solid core sewer piping conforming to ASTM D2665, sewer and drain series with ends for solvent cemented joints.

4. Fittings: PVC fittings shall be solvent welded socket type using solvent cement conforming to ASTM D2564.

2.02 PUMP DISCHARGE PIPING

A. Galvanized steel pump discharge pipe and fittings:

1. Galvanized steel pipe shall be Schedule 40 weight class conforming to ASTM A53/A53M, with square cut grooved or threaded ends to match joining method.

2. Fittings shall be Class 125, gray-iron threaded fittings conforming to ASME B16.4.

3. Unions shall be Class 150 hexagonal-stock body with ball and socket, metal to metal, bronze seating surface, malleable iron conforming to ASME B16.39 with female threaded ends.

4. Flanges shall be Class 125 cast iron conforming to ASME B16.1.

a. Flange gaskets shall be full face, flat nonmetallic, asbestos free conforming to ASME B16.21.

b. Flange nuts and bolts shall be carbon steel conforming to ASME B18.2.1.

B. Copper pump discharge pipe and fittings:

1. Copper tube shall be hard drawn Type L conforming to ASTM B88.

2. Fittings shall be wrought copper conforming to ASME B16.22 with solder joint ends.

3. Unions shall be copper alloy, hexagonal stock body with ball and socket, metal to metal seating surface conforming to MSS SP-123 with female

4. Flanges shall be Class 150, cast copper conforming to ASME B16.24 with solder-joint end.

a. Flange gaskets shall be full face, flat nonmetallic, asbestos free conforming to ASME B16.21.

b. Flange nuts and bolts shall be carbon steel conforming to ASME B18.2.1.

5. Solder shall be lead-free, water flushable flux conforming to ASTM B32 and ASTM B813.

2.03 ACID WASTE AND VENT PIPING

A. Polypropylene waste and vent piping and fittings

1. Schedule 40 Polypropylene acid waste pipe and fittings shall be No-Hub, plain end factory grooved fittings with No-Hub couplings. Each coupling shall have 300 series stainless with 5/16" bolts, nuts, and washers plated to conform to ASTM B117. Pipe and fittings shall conform to ASTM D4101 and ASTM F1412.

2. Piping and fittings shall be Orion Blueline Schedule 40 or approved equal.

2.04 EXPOSED WASTE PIPING

A. Chrome plated brass piping of full iron pipe size shall be used in finished rooms for exposed waste piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Owner or specified in other sections.

1. The Pipe shall meet ASTM B43, regular weight.

2. The Fittings shall conform to ASTM D2665.

3. Nipples shall conform to ASTM B687, Chromium-plated.

4. Unions shall be brass or bronze with chrome finish. Unions 65 mm (21/2 inches) and larger shall be flange type with approved gaskets.

B. In unfinished Rooms such as mechanical Rooms and Kitchens, Chromeplated brass piping is not required. The pipe materials specified under the paragraph "Sanitary Waste, Drain, and Vent Piping" can be used. The sanitary pipe in unfinished rooms shall be painted as specified in Section 09 90 00 – Painting.

2.05 SPECIALTY PIPE FITTINGS

A. Transition pipe couplings shall join piping with small differences in outside diameters or different materials. End connections shall be of the same size and compatible with the pipes being joined. The transition coupling shall be elastomeric, sleeve type reducing or transition pattern and include shear and corrosion resistant metal, tension band and tightening mechanism on each end. The transition coupling sleeve coupling shall be of the following material:

1. For cast iron soil pipes, the sleeve material shall be rubber conforming to ASTM C564.

2. For PVC soil pipes, the sleeve material shall be elastomeric seal or PVC, conforming to ASTM F477 or ASTM D5926.

3. For dissimilar pipes, the sleeve material shall be PVC conforming to ASTM D5926, or other material compatible with the pipe materials being joined.

B. The dielectric fittings shall conform to ASSE 1079 with a pressure rating of 125 psig at a minimum temperature of 180 degrees F. The end connection shall be solder joint copper alloy and threaded ferrous.

C. Dielectric flange insulating kits shall be of non-conducting materials for field assembly of companion flanges with a pressure rating of 150 psig. The gasket shall be neoprene or phenolic. The bolt sleeves shall be phenolic or polyethylene. The washers shall be phenolic with steel backing washers.

D. The di-electric nipples shall be electroplated steel nipple complying with ASTM F1545 with a pressure rating of 300 psig at 225 degrees F. The end connection shall be male threaded. The lining shall be inert and noncorrosive propylene.

2.06 CLEANOUTS

A. Cleanouts shall be the same size as the pipe, up to 4 inches; and not less than 4 inches for larger pipe. Cleanouts shall be easily accessible and shall be gastight and watertight. Minimum clearance of 24 inches shall be provided for clearing a clogged sanitary line.

B. Floor cleanouts shall be gray iron housing with clamping device and round, secured, scoriated, gray iron cover conforming to ASME A112.36.2M. A gray iron ferrule with hubless, socket, inside calk or spigot connection and counter sunk, taper-thread, brass or bronze closure plug shall be included. The frame and cover material and finish shall be nickel-bronze copper alloy with a square shape. The cleanout shall be vertically adjustable for a minimum of 2 inches. When a waterproof membrane is used in the floor system, clamping collars shall be provided on the cleanouts. Cleanouts shall consist of wye fittings and eighth bends with brass or bronze screw plugs. Cleanouts in the resilient tile floors, quarry tile and ceramic tile floors shall be provided with square top covers recessed for tile insertion. In the carpeted areas, carpet cleanout markers shall be provided. Two-way cleanouts shall be provided where indicated on drawings and at every building exit. The loading classification for cleanouts in sidewalk areas or subject to vehicular traffic shall be heavy duty type.

C. Cleanouts shall be provided at or near the base of the vertical stacks with the cleanout plug located approximately 24 inches above the floor. If there are no fixtures installed on the lowest floor, the cleanout shall be installed at the base of the stack. The cleanouts shall be extended to the wall access cover. Cleanout shall consist of sanitary tees. Nickel-bronze square frame and stainless steel cover with minimum opening of 6 by 6 inches shall be furnished at each wall cleanout. Where the piping is concealed, a fixture trap or a fixture with integral trap, readily removable without disturbing concealed pipe, shall be accepted as a cleanout equivalent providing the opening to be used as a cleanout opening is the size required.

2.07 IN HORIZONTAL RUNS ABOVE GRADE, CLEANOUTS SHALL CONSIST OF CAST BRASS TAPERED SCREW PLUG IN FITTING OR CAULKED/HUBLESS CAST IRON FERRULE. PLAIN END (HUBLESS) PIPING IN INTERSTITIAL SPACE OR ABOVE CEILING MAY USE PLAIN END (HUBLESS) BLIND PLUG AND CLAMP.
FLOOR DRAINS

A. General Data: floor drain shall comply with ASME A112.6.3. A caulking flange, inside gasket, or hubless connection shall be provided for connection to cast iron pipe, screwed or no hub outlets for connection to steel pipe. The drain connection shall be bottom outlet. A membrane clamp and extensions shall be provided, if required, where installed in connection with waterproof membrane. Puncturing membrane other than for drain opening will not be permitted. Double drainage pattern floor drains shall have integral seepage pan for embedding into floor construction, and weep holes to provide adequate drainage from pan to drain pipe. For drains not installed in connection with a waterproof membrane, a //16-ounce soft copper// //2.5 to 4 lbs.// flashing membrane, 24 inches square or another approved waterproof membrane shall be provided.

B. FD-1: medium duty (non-traffic) floor drain shall comply with ASME A112.6.3. The floor drain shall be constructed of an epoxy coated cast iron body with medium duty nickel bronze grate, double drainage pattern, clamping device, without sediment bucket but with secondary strainer in bottom for large debris. The grate shall be 6 inches minimum.

C. FD-2: medium duty (non-traffic) floor drain shall comply with ASME A112.6.3. The floor drain shall have an epoxy coated cast iron body, double drainage pattern, clamping device, light duty nickel bronze adjustable strainer with round or square grate of 150 mm (6 inches) width or diameter minimum for toilet rooms, showers and kitchens.

D. FD-1: medium duty (non-traffic) floor drain shall comply with ASME A112.6.3. The floor drain shall have an epoxy coated cast iron body with flange for membrane type flooring, integral reversible clamping device, seepage openings and 6-inch diameter polished nickel bronze or polished bronze strainer with 4-inch flange for toilet rooms, showers and kitchens.

E. FD-2: medium duty (non-traffic) floor drain shall comply with ASME A112.6.3. The floor drain shall have an epoxy coated cast iron body with flange for membrane type flooring, integral reversible clamping device, seepage openings and 8-inch diameter polished nickel bronze strainer with sediment bucket.

F.

2.08 TRAPS

A. Traps shall be provided on all sanitary branch waste connections from fixtures or equipment not provided with traps. Exposed brass shall be polished brass chromium plated with nipple and set screw escutcheons. Concealed traps may be rough cast brass

or same material as the piping they are connected to. Slip joints are not permitted on sewer side of trap. Traps shall correspond to fittings on cast iron soil pipe or steel pipe respectively, and size shall be as required by connected service or fixture.

2.09 TRAP SEAL PROTECTION

A. Floor trap seals can be protected by a barrier type trap seal device. The device shall conform to ASSE 1072 and be installed in accordance with manufacturer requirements.

2.10 PENETRATION SLEEVES

A. A sleeve flashing device shall be provided at points where pipes pass through membrane waterproofed floors or walls. The sleeve flashing device shall be manufactured, cast iron fitting with clamping device that forms a sleeve for the pipe floor penetration of the floor membrane. A galvanized steel pipe extension shall be included in the top of the fitting that will extend 2 inches above finished floor and galvanized steel pipe extension in the bottom of the fitting that will extend through the floor slab. A waterproof caulked joint shall be provided at the top hub.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. The pipe installation shall comply with the requirements of the International Plumbing Code (IPC) and these specifications.

B. Branch piping shall be installed for waste from the respective piping systems and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Owner or specified in other Sections.

C. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.

D. All pipe runs shall be laid out to avoid interference with other work.

E. The piping shall be installed above accessible ceilings where possible.

F. The piping shall be installed to permit valve servicing or operation.

G. The piping shall be installed free of sags and bends.

H. Seismic restraint shall be installed where required by code.

I. Changes in direction for soil and waste drainage and vent piping shall be made using appropriate branches, bends and long sweep bends. Sanitary tees and short sweep

quarter bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Long turn double wye branch and eighth bend fittings shall be used if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Proper size of standard increaser and reducers shall be used if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

J. Buried soil and waste drainage and vent piping shall be laid beginning at the low point of each system. Piping shall be installed true to grades and alignment indicated with unbroken continuity of invert. Hub ends shall be placed upstream. Required gaskets shall be installed according to manufacturer's written instruction for use of lubricants, cements, and other installation requirements.

K. Cast iron piping shall be installed according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings"

L. Aboveground copper tubing shall be installed according to Copper Development Association's (CDA) "Copper Tube Handbook".

M. Aboveground PVC piping shall be installed according to ASTM D2665. Underground PVC piping shall be installed according to ASTM D2321.

N. If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no cost to the Owner.

3.02 JOINT CONSTRUCTION

A. Hub and spigot, cast iron piping with gasket joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

B. Hub and spigot, cast iron piping with calked joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.

C. Hubless or No-hub, cast iron piping shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless piping coupling joints.

D. For threaded joints, thread pipe with tapered pipe threads according to ASME B1.20.1. The threads shall be cut full and clean using sharp disc cutters. Threaded pipe ends shall be reamed to remove burrs and restored to full pipe inside diameter. Pipe fittings and valves shall be joined as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is required by the pipe service.

2. Pipe sections with damaged threads shall be replaced with new sections of pipe.

E. Copper tube and fittings with soldered joints shall be joined according to ASTM B828. A water flushable, lead free flux conforming to ASTM B813 and a lead-free alloy solder conforming to ASTM B32 shall be used.

F. For PVC piping, solvent cement joints shall be used for joints. All surfaces shall be cleaned and dry prior to applying the primer and solvent cement. Installation practices shall comply with ASTM F402. The joint shall conform to ASTM D2855 and ASTM D2665 appendixes.

3.03 SPECIALTY PIPE FITTINGS

A. Transition coupling shall be installed at pipe joints with small differences in pipe outside diameters.

B. Dielectric fittings shall be installed at connections of dissimilar metal piping and tubing.

3.04 PIPE HANGERS, SUPPORTS AND ACCESSORIES

A. All piping shall be supported according to the International Plumbing Code (IPC), Section 22 05 00 – Common Results for Plumbing, and these specifications. Where conflicts arise between these the code and Section 22 05 00 – Common Results for Plumbing the most restrictive or the requirement that specifies supports with highest loading or shortest spacing shall apply.

B. Hangers, supports, rods, inserts and accessories used for pipe supports shall be painted according to Section 09 90 00 – Painting. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.

C. Horizontal piping and tubing shall be supported within 12 inches of each fitting or coupling.

D. Horizontal cast iron piping shall be supported with the following maximum horizontal spacing and minimum hanger rod diameters:

1. NPS 1-1/2 inch to NPS 2 inch: 60 inches with 3/8-inch rod.

2. NPS 3 inch: 60 inches with ½-inch rod.

3. NPS 4 inch to NPS 5 inch: 60 inches with 5/8-inch rod.

4. NPS 6 inch to NPS 8 inch: 60 inches with ¾-inch rod.

5. NPS 10 inch to NPS 12 inch: 60 inch with 7/8 inch rod.

E. The maximum spacing for plastic pipe shall be 4 feet.

F. Vertical piping and tubing shall be supported at the base, at each floor, and at intervals no greater than 15 feet.

G. In addition to the requirements in Section 22 05 00 – Common Results for Plumbing shall have the following characteristics:

1. Solid or split unplated cast iron.

2. All plates shall be provided with set screws.

3. Height adjustable clevis type pipe hangers.

4. Adjustable floor rests and base flanges shall be steel.

5. Hanger rods shall be low carbon steel, fully threaded or threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.

6. Riser clamps shall be malleable iron or steel.

7. Rollers shall be cast iron.

8. See Section 22 05 00 – Common Results for Plumbing, for requirements on insulated pipe protective shields at hanger supports.

H. Miscellaneous materials shall be provided as specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories. If the vertical distance exceeds 20 feet for cast iron pipe additional support shall be provided in the center of that span. All necessary auxiliary steel shall be provided to provide that support.

I. Cast escutcheon with set screw shall be provided at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.

J. Penetrations:

1. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, a fire stop shall be installed that provides an effective barrier against the spread of fire, smoke and gases as specified in Section 07 84 00 – Firestopping. Clearances between raceways and openings shall be completely filled and sealed with the fire stopping materials.

2. Water proofing: At floor penetrations, clearances shall be completely sealed around the pipe and make watertight with sealant as specified in Section 07 90 00 – Joint Fillers, Sealants and Caulking.

K. Exhaust vents shall be extended separately through roof. Sanitary vents shall not connect to exhaust vents.

3.05 TESTS

A. Sanitary waste and drain systems shall be tested either in its entirety or in sections.

B. Waste System tests shall be conducted before trenches are backfilled or fixtures are connected. A water test or air test shall be conducted, as directed.

1. If entire system is tested for a water test, tightly close all openings in pipes except highest opening, and fill system with water to point of overflow. If the waste system is tested in sections, tightly plug each opening except highest opening of section under test, fill each section with water and test with at least a 10-foot head of water. In testing successive sections, test at least upper 10 feet of next preceding section so that each joint or pipe except upper most 10 feet of system has been submitted to a test of at least a 10-foot head of water. Water shall be kept in the system, or in portion under test, for at least 15 minutes before inspection starts. System shall then be tight at all joints.

2. For an air test, an air pressure of 5 psig gauge shall be maintained for at least 15 minutes without leakage. A force pump and mercury column gauge shall be used for the air test.

3. After installing all fixtures and equipment, open water supply so that all p-traps can be observed. For 15 minutes of operation, all p-traps shall be inspected for leaks and any leaks found shall be corrected.

4. Final Tests: Either one of the following tests may be used.

a. Smoke Test: After fixtures are permanently connected and traps are filled with water, fill entire drainage and vent systems with smoke under pressure of 1 inch of water with a smoke machine. Chemical smoke is prohibited.

b. Peppermint Test: Introduce 2 ounces of peppermint into each line or stack.

END OF SECTION

SECTION 22 14 13
FACILITY STORM DRAINAGE

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for storm drainage systems, including piping and all necessary accessories as designated in this Section.

B. A complete listing of all acronyms and abbreviations are included in Section 22 05 00 – Common Results for Plumbing.

1.02 RELATED WORK

A. Section 01 33 00 – Submittal Procedures

B. Section 01 75 00 – Checkout and Startup Procedures

C. Section 07 84 00 – Firestopping: Penetrations in rated enclosures.

D. Section 07 90 00 – Joint Fillers, Sealants and Caulking

E. Section 09 90 00 – Painting: Preparation and finish painting and identification of piping systems.

F. Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment

G. Section 22 07 19 – Plumbing Piping Insulation

H.

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society of Mechanical Engineers (ASME):

1. A112.6.4-2003 (R2012) – Roof, Deck, and Balcony Drains

2. A13.1-2007 (R2013) – Scheme for Identification of Piping Systems

3. B1.20.1-2013 – Pipe Threads, General Purpose, Inch

4. B16.3-2011 – Malleable Iron Threaded Fittings: Classes 150 and 300

5. B16.9-2012 – Factory-Made Wrought Buttwelding Fittings

6. B16.11-2011 – Forged Fittings, Socket-Welding and Threaded

7. B16.12-2009 (R2014) – Cast Iron Threaded Drainage Fittings

8. B16.15-2013 – Cast Copper Alloy Threaded Fittings: Classes 125 and 250

9. B16.18-2012 – Cast Copper Alloy Solder-Joint Pressure Fittings

10. B16.22-2013 – Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings

11. B16.23-2011 – Cast Copper Alloy Solder Joint Drainage Fittings - DWV

12. B16.29-2012 – Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings – DWV

C. American Society of Sanitary Engineering (ASSE)

1. 1079-2012 – Performance Requirements for Dielectric Pipe Unions

D. American Society for Testing and Materials (ASTM):

1. A47/A47M-1999 (R2014) – Standard Specification for Ferritic Malleable Iron Castings

2. A53/A53M-2012 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-coated Welded and Seamless

3. A74-2013a – Standard Specification for Cast Iron Soil Pipe and Fittings

4. A183-2014 – Standard Specification for Carbon Steel Track Bolts and Nuts

5. A312/A312M-2015 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
6. A536-1984(R2014 – Standard Specification for Ductile Iron Castings

7. A733-2013 – Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples

8. A888-2013a – Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications
9. B32-2008 (R2014) – Standard Specification for Solder Metal
10. B61-2008 (R2013) – Standard Specification for Steam or Valve Bronze Castings

11. B62-2009 – Standard Specification for Composition Bronze or Ounce Metal Castings

12. B75/B75M-2011 – Standard Specification for Seamless Copper Tube

13. B88-2014 – Standard Specification for Seamless Copper Water Tube

14. B306-2013 – Standard Specification for Copper Drainage Tube (DWV)

15. B584-2014 – Standard Specification for Copper Alloy Sand Castings for General Applications

16. B687-1999 (R2011) – Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

17. B828-2002 (R2011) – Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings

18. B813-2010– Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube

19. C564-2014 – Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings

20. C1173-2010 (R2014) – Standard Specification for Flexible Transition Couplings for Underground Piping Systems

21. D1785-2012 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120

22. D2000-2012 – Standard Classification System for Rubber Products in Automotive Applications

23. D2321-2014e1 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

24. D2564-2012 – Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems

25. D2665-2014 – Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

26. D2855-1996 (R2010) – Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings

27. D4101-2014 – Standard Specification for Polypropylene Injection and Extrusion Materials

28. D5926-2011 – Standard for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems

29. F477-2014 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

30. F656-2010 – Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings

31. F1545-2015 – Standard Specification for Plastic-Lined Ferrous Metal Pipe, Fittings, and Flanges

E. American Welding Society (AWS):

1. A5.8M/A5.8 AMD1-2011 – Specification for Filler Metals for Brazing and Braze Welding

F. Cast Iron Soil Pipe Institute (CISPI):

1. 301-2012 – Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

2. 310-2012 – Standard Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

G. International Code Council (ICC):

1. – 2018 Arkansas Plumbing Code

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):

1. SP-72-2010a – Ball Valves with Flanged or Butt-Welding Ends for General Service

2. SP-110-2010 – Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.04 SUBMITTALS

A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 00– Submittal Procedures.

B. Information and material submitted under this Section shall be marked “SUBMITTED UNDER SECTION 22 14 13 – FACILITY STORM DRAINAGE”, with applicable paragraph identification.

C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.

1. Pipe and Fittings.

2. Specialty Pipe Fittings.

3. Cleanouts.

4. Roof Drains.

5. Expansion Joints.

6. Downspout Nozzles.

7. Sleeve Flashing Devices.

D. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.05 QUALITY ASSURANCE

A. Bio-Based Materials: For products designated by the USDA's Bio-Preferred Program, provide products that meet or exceed USDA recommendations for bio-based content, so long as products meet all performance requirements in this Specifications Section. For more information regarding the product categories covered by the Bio-Preferred Program, visit http://www.biopreferred.gov.

1.06 AS-BUILT DOCUMENTATION

A. Submit manufacturer's literature and data updated to include submittal review comments and any equipment substitutions.

B. Submit operation and maintenance data updated to include submittal review comments, substitutions and construction revisions shall be in electronic version on compact disc or DVD inserted into a three-ring binder. All aspects of system operation and maintenance procedures, including piping isometrics, wiring diagrams of all circuits, a written description of system design, control logic, and sequence of operation shall be included in the operation and maintenance manual. The operations and maintenance manual shall include troubleshooting techniques and procedures for emergency situations. Notes on all special systems or devices such as damper and door closure interlocks shall be included. A List of recommended spare parts (manufacturer, model number, and quantity) shall be furnished. Information explaining any special knowledge or tools the owner will be required to employ shall be inserted into the As-Built documentation.

C. The installing contractor shall maintain as-built drawings of each completed phase for verification; and shall provide the complete set at the time of final systems certification testing. As-built drawings are to be provided, and a copy of them in Auto-CAD provided on compact disk or DVD. Should the installing contractor engage the testing company to

provide as-built or any portion thereof, it shall not be deemed a conflict of interest or breach of the 'third party testing company' requirement.

D. Certification documentation shall be provided to Owner's Representative 10 working days prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and certification that all results of tests were within limits specified.

PART 2 – PRODUCTS

2.01 STORM WATER DRAIN PIPING

A. Cast Iron Storm Pipe and Fittings:

1. Cast iron storm pipe and fittings shall be used for the following applications:

   a. Pipe buried in or in contact with earth.

   b. Extension of pipe to a distance of approximately 5 feet outside of building walls.

   c. Interior storm piping above grade.

   d. All mechanical equipment rooms or other areas containing mechanical air handling equipment.

2. The cast iron storm pipe shall be bell and spigot, or hubless (plain end or no-hub) as required by selected jointing method.

3. The material for all pipe and fittings shall be cast iron soil pipe and fittings and shall conform to the requirements of CISPI 301, ASTM A888, or ASTM A74.

4. Joints for hubless pipe and fittings shall conform to the manufacturer's installation instructions. Couplings for hubless joints shall conform to CISPI 310. Joints for hub and spigot pipe shall be installed with compression gaskets conforming to the requirements of ASTM C564.

B. Polyvinyl Chloride (PVC):

1. PVC storm sewer pipe and fittings are permitted for single story structures except for mechanical equipment rooms and other areas containing air handling equipment or hot water generation equipment.

2. PVC storm sewer pipe and fittings shall be schedule 40 solid core piping conforming to ASTM D1785 and ASTM D2665, Sewer and Drain Series, with ends for solvent cemented joints.

3. PVC joints shall be solvent welded socket type using solvent cement conforming to ASTM D2564 and adhesive primer conforming to ASTM F656. Bio-based materials shall be utilized when possible.

C. Roof drain piping and body of drain in locations where the outdoor conditions are subject to freezing shall be insulated.

D. metals.

2.02 SPECIALTY PIPE FITTINGS

A. Transition pipe couplings shall join piping with small differences in outside diameters or be of different materials. End connections shall be of the same size and compatible with the pipes being joined. The transition coupling shall be unshielded, elastomeric, sleeve type reducing or transition pattern conforming with ASTM C1173 and include shear ring and corrosion resistant metal tension band and tightening mechanism on each end. The transition coupling sleeve coupling shall be of the following material:

1. For cast iron soil pipes, the sleeve material shall be rubber conforming to ASTM C564.

2. For PVC soil pipes, the sleeve material shall be elastomeric seal conforming to ASTM F477 or PVC conforming to ASTM D5926.

3. dissimilar pipes, the sleeve material shall be PVC conforming to ASTM D5926, or other material compatible with the pipe materials being joined.

B. Dielectric fittings shall conform to ASSE 1079 with a pressure rating of 150 psig at a minimum temperature of 180 degrees F. The end connection shall be solder joint copper alloy and threaded ferrous.

C. Dielectric flanges shall conform to ASSE 1079 with a pressure rating of //150 psig//175 psig// //300 psig//. The flange shall be a factory fabricated, bolted, companion flange assembly. The end connection shall be threaded or solder-joint copper alloy and threaded ferrous.

D. Dielectric flange insulating kits shall be of non-conducting materials for field assembly of companion flanges with a pressure rating of 150 psig. The gasket shall be neoprene or phenolic. The bolt sleeves shall be phenolic or polyethylene. The washers shall be phenolic with steel backing washers.

E. Dielectric nipples shall be electroplated steel and shall conform with ASTM F1545 with a pressure ratings of 300 psig at 225 degrees F. The end connection shall be male threaded. The lining shall be inert and noncorrosive propylene. Bio-based materials shall be utilized when possible.

2.03 CLEANOUTS

A. Cleanouts shall be the same size as the pipe, up to 4 inches; not less than 4 inches for larger pipe. Cleanouts shall be easily accessible and shall be gastight and watertight. A minimum clearance of 24 inches shall be provided for clearing a clogged storm sewer line.

B. Floor cleanouts shall be gray iron housing with clamping device and round, secured, scoriated, gray iron cover conforming to ASME A112.36.2M. A gray iron ferrule with hubless, socket, inside caulk or spigot connection and counter sunk, taper-thread, brass or bronze closure plug shall be included. The frame and cover material and finish shall be nickel-bronze copper alloy with a square shape. The cleanout shall be vertically adjustable for a minimum of 2 inches. When a waterproof membrane is used in the floor system, clamping collars shall be provided on the cleanouts. Cleanouts shall consist of wye fittings and eighth bends with brass or bronze screw plugs. Cleanouts in the resilient tile floors, quarry tile and ceramic tile floors shall be provided with square top covers recessed for tile insertion. In the carpeted areas, carpet cleanout markers shall be provided. Two-way cleanouts shall be provided where indicated on the drawings and at each building exit. The loading classification for cleanouts in sidewalk areas or subject to vehicular traffic shall be heavy duty.

C. Cleanouts shall be provided at or near the base of the vertical stacks with the cleanout plug located approximately 24 inches above the floor. The cleanouts shall be extended to the wall access cover. Cleanout shall consist of sanitary tees. Nickel bronze square frame and stainless steel cover with minimum opening of 6 inch by 6 inch shall be provided at each wall cleanout.

D. In horizontal runs above grade, cleanouts shall consist of cast brass tapered screw plug in fitting or caulked/no hub cast iron ferrule. Plain end (no-hub) piping in interstitial space or above ceiling may use plain end (no-hub) blind plug and clamp.

2.04 ROOF DRAINS AND CONNECTIONS

A. Roof Drains: Roof Drains (RD) shall be cast iron with clamping device for making watertight connection and shall conform with ASME A112.6.4. Free openings through strainer shall be twice area of drain outlet. For roof drains not installed in connection with a waterproof membrane, a soft copper membrane shall be provided 12 inches in diameter greater than outside diameter of drain collar. An integral gravel stop shall be provided for drains installed on roofs having built up roofing covered with gravel or slag. Integral no-hub, soil pipe gasket or threaded outlet connection shall be provided.

    1. Flat Roofs: The roof drain shall have a beehive or dome shaped strainer with integral flange not less than 12 inches in diameter. For an insulated roof, a roof drain with an adjustable drainage collar shall be provided, which can be raised or lowered to meet required insulation heights, sump receiver and deck clamp. The bottom section shall serve as roof drain during construction before insulation is installed.

2. Canopy Roofs: The roof drain shall have a beehive or dome shaped strainer with the integral flange no greater than 8 inches in diameter. For an insulated roof, the roof drain shall be provided with an adjustable drainage collar, which can be raised or lowered to meet the required insulation heights, sump receiver and deck clamp. Bottom section shall serve as roof drain during construction before insulation is installed.

3. Promenade Decks: the roof drain shall be the same as for canopy roofs, except decks shall have flat, round, loose, nonslip, bronze grate set in square, nonslip, bronze frame.

4. Portico Roofs and Gutters: Roof drains shall be horizontal angle type drain with flat bottom and horizontal outlet at the same elevation as the pipe to which it is connected. Strainer shall be removable angle grate type.

5. Protective Roof Membrane Insulation Assembly: The roof drain shall have a perforated stainless steel extension filter, non-puncturing clamp ring, large sump with extra wide roof flange and deck clamp.

    a. Non pedestrian Roofs: The roof drain shall have large polypropylene or aluminum locking dome.

    b. Pedestrian Roof: The roof drain shall have a bronze promenade top 14 inches square, set in square secured frame support collar.

6. Roof Drains, Overflow or Secondary (Emergency): Roof Drains identified as overflow or secondary (emergency) drains shall have a 2-inch water dam integral to the drain body.

7. Roof drains in areas subject to freezing shall have heat tape and shall be insulated.

B. Expansion Joints: Expansions joints shall be heavy cast iron with cast brass or PVC expansion sleeve having smooth bearing surface working freely against a packing ring held in place and under pressure of a bolted gland ring, forming a water and airtight flexible joint. Asbestos packing is prohibited.

C. Interior Downspouts: An expansion joint shall be provided, specified above, at top of run on straight, vertical runs of downspout piping 40 feet long or greater.

D. Downspout Nozzle: The downspout nozzle fitting shall be of brass, unfinished, with internal pipe thread for connection to downspout.

2.05 WATERPROOFING

A. A sleeve flashing device shall be provided at points where pipes pass through membrane waterproofed floors or walls. The sleeve flashing device shall be manufactured, cast iron

fitting with clamping device that forms a sleeve for the pipe floor penetration of the floor membrane. A galvanized steel pipe extension shall be included in the top of the fitting that will extend 2 inches above finished floor and galvanized steel pipe extension in the bottom of the fitting that will extend through the floor slab. A waterproof caulked joint shall be provided at the top hub.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. The pipe installation shall comply with the requirements of the IPC and these specifications.

B. Branch piping shall be installed from the piping system and connect to all drains and outlets.

C. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, except for glass, shall be reamed to remove burrs and a clean smooth finish restored to full pipe inside diameter.

D. All pipe runs shall be laid out to avoid interference with other work/trades.

E. The piping shall be installed above accessible ceilings to allow for ceiling panel removal.

F. Unless otherwise stated on the documents, minimum horizontal slope shall be one inch for every 8 feet (1 percent slope) of pipe length.

G. The piping shall be installed free of sags and bends.

H. Seismic restraint shall be installed where required by code.

I. Changes in direction for storm drainage piping shall be made using appropriate branches, bends and long sweep bends. Sanitary tees and short sweep ¼ bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Long turn double wye branch and 1/8 bend fittings shall be used if two drains are installed back-to-back or side by side with common drainpipe. Do not change direction of flow more than 90 degrees. Proper size of standard increaser and reducers shall be used if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

J. Buried storm drainage piping shall be laid beginning at the low point of each system. Piping shall be installed true to grades and alignment indicated with unbroken continuity of invert. Hub ends shall be placed upstream. Required gaskets shall be installed according to manufacturer's written instruction for use of lubricants, cements, and other installation requirements. Bio-based materials shall be utilized when possible.

K. Cast iron piping shall be installed according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings"

L. Aboveground copper tubing shall be installed according to CDA A4015.

M. Aboveground PVC piping shall be installed according to ASTM D2665. Underground PVC piping shall be installed according to ASTM D2321.

3.02 JOINT CONSTRUCTION

A. Hub and spigot, cast iron piping with gasket joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

B. Hub and spigot, cast iron piping with calked joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.

C. Hubless, cast iron piping shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless piping coupling joints.

D. For threaded joints, thread pipe with tapered pipe threads according to ASME B1.20.1. The threads shall be cut full and clean using sharp disc cutters. Threaded pipe ends shall be reamed to remove burrs and restored to full pipe inside diameter. Pipe fittings and valves shall be joined as follows:

    1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is required by the pipe service

    2. Pipe sections with damaged threads shall be replaced with new undamaged sections of pipe at no additional time or cost to the Owner.

E. Copper tube and fittings with soldered joints shall be joined according to ASTM B828. A water flushable, lead-free flux conforming to ASTM B813 and a lead-free alloy solder conforming to ASTM B32 shall be used.

F. For PVC piping, solvent cement joints shall be used for joints. All surfaces shall be cleaned and dry prior to applying the primer and solvent cement. Installation practices shall comply with ASTM F402. The joint shall conform to ASTM D2855 and ASTM D2665 appendices.

3.03 SPECIALTY PIPE FITTINGS

A. Transition coupling shall be installed at pipe joints with small differences in pipe outside diameters.

B. Dielectric fittings shall be installed at connections of dissimilar metal piping and tubing.

3.04 PIPE HANGERS, SUPPORTS AND ACCESSORIES

A. All piping shall be supported according to the IPC, Section 22 05 00 – Common Results for Plumbing, and these Specifications.

B. Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.

C. Horizontal piping and tubing shall be supported within 12 inches of each fitting or coupling.

D. Horizontal cast iron piping shall be supported with the following maximum horizontal spacing and minimum hanger rod diameters:

1. NPS 1-1/2 to NPS 2: 60 inches with 3/8-inch rod.

2. NPS 3: 60 inches with 1/2-inch rod.

3. NPS 4 to NPS 5: 60 inches) with 5/8-inch rod.

4. NPS 6 to NPS 8: 60 inches with 3/4-inch rod.

5. NPS 10 to NPS 12: 60 inches with 7/8-inch rod.

E. The maximum support spacing for horizontal plastic shall be 4 feet.

F. Vertical piping and tubing shall be supported at the base, at each floor, and at intervals no greater than 15 feet.

G. In addition to the requirements in Section 22 05 00 – Common Results for Plumbing, floor, wall and ceiling plates shall have the following characteristics:

1. Solid or split unplated cast iron.

2. All plates shall be provided with set screws.

3. Height adjustable clevis type pipe hangers.

4. Adjustable Floor Rests and Base Flanges shall be steel.

5. Hanger Rods shall be low carbon steel, fully threaded or threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.

6. Riser Clamps shall be malleable iron or steel.

7. Roller shall be cast iron.

8. Hangers and supports utilized with insulated pipe and tubing shall have 180-degree (minimum) metal protection shield centered on and welded to the hanger and support. The shield shall be 4 inches in length and be 16-gauge steel. The shield shall be sized for the insulation.

H. Miscellaneous materials shall be provided as specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories. If the vertical distance exceeds 20 feet for cast iron pipe additional support shall be provided in the center of that span. All necessary auxiliary steel shall be provided to provide that support.

I. Cast escutcheon with set screw shall be installed at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.

J. Penetrations:

1. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, a fire stop shall be installed that provides an effective barrier against the spread of fire, smoke and gases as specified in Section 07 84 00 – Firestopping. Clearances between raceways and openings shall be completely filled and sealed with the fire stopping materials.

2. Waterproofing: At floor penetrations, Clearances around the pipe shall be completely sealed and made watertight with sealant as specified in Section 07 90 00 – Joint Fillers, Sealants and Caulking. Bio-based materials shall be utilized when possible.

3.05 INSULATION

A. Insulate horizontal sections and 600 mm (2 feet) past changes of direction to vertical sections for interior section of roof drains. Install insulation in accordance with the requirements of Section 22 07 19 – Plumbing Piping Insulation.

3.06 TESTS

A. Storm sewer system shall be tested either in its entirety or in sections.

B. Storm Water Drain tests shall be conducted before trenches are backfilled or fixtures are connected. A water test or air test shall be conducted, as directed.

1. If entire system is tested with water, tightly close all openings in pipes except the highest opening, and fill system with water to point of overflow. If system is tested in sections, tightly plug each opening except highest opening of section under test, fill each section with water and test with at least a 10 foot head of water. In testing successive sections, test at least upper 10 feet of next preceding section so that each joint or pipe except upper most 10 feet of system has been submitted to a test of at least a 10 foot head of water. Water shall be kept in the system, or in portion under test, for at least 15 minutes before inspection starts. System shall then be tight at all joints.

2. For an air test, an air pressure of 34 kPa (5 psig) gauge shall be maintained for at least 15 minutes without leakage. A force pump and mercury column gauge shall be used for the test.

3. Final Tests: While either one of the following tests may be used, Contractor shall check with Owner's Representative as to which test will be performed.

    a. Smoke Test: After fixtures are permanently connected and traps are filled with water, fill entire drainage and vent systems with smoke under pressure of 0.25 kPa (1 inch of water) with a smoke machine. Chemical smoke is prohibited.

    b. Peppermint Test: Introduce .06 liters (2 ounces) of peppermint into each line or stack.

C. Owner's Representative shall witness all tests. Contractor shall coordinate schedules with the Owner's Representative and CxA. Contractor shall provide a minimum of 10 working days prior to flushing, disinfection/sterilization, startup, and testing.

3.07 DEMONSTRATION AND TRAINING

A. Provide services of manufacturer's technical representative for one hour to instruct Owner's Personnel in operation and maintenance of the system.

END OF SECTION

SECTION 40 06 20

PROCESS PIPE, VALVE, AND GATE SCHEDULES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Reference Section 40 05 00 - Basic Mechanical Requirements.

1.02 PIPING SCHEDULES

A. Piping requirements for this Section are outlined on the Drawings and in the Piping Schedules. In the absence of a specified test pressure, pipe shall be tested at the greater of: 1) 150 percent of working pressure as determined by the Engineer or 2) 10 psig, unless the Schedule indicates no test is required.

B. If the pipe material is not shown on the Piping Schedule or otherwise specified, the following materials shall be used.

PIPE SIZE	MATERIAL	TYPE OF JOINT	CLASS/DESIGN	TEST PRESSURE
4-IN AND LARGER	DIP	FLANGED (EXPOSED)	CLASS 53	(1)
		RESTRAINED (BURIED)	PRESSURE CLASS 350	
LESS THAN 4-IN	PVC/CPVC (2)	SOCKET	SCH 80	(1)

(1) Test at 150 percent of working pressure or 10 psi, whichever is greater.
(2) For all PVC / CPVC designations, if piping is exposed to direct sunlight or if heat tracing is required, CPVC shall be used. Otherwise, PVC shall be used.

1.03 VALVE SCHEDULES

A. All valves shall be tagged by the manufacturer according to the control valve designations listed in this Section.

B. Valves not listed in this Section shall be manually operated, unless otherwise shown on the Drawings.

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1.04 GATE SCHEDULES

A. Gates shall be tagged by the manufacturer according to locations listed in this Section.

WATER TREATMENT PLANT PIPING SCHEDULE

PIPE DESIGNATIONS		MATERIAL	BURIED PIPING		EXPOSED PIPING			DESIGN PRESSURE (PSI)[1]			
			TYPE OF JOINT	CLASS/ DESIGN	TYPE OF JOINT	CLASS/ DESIGN	HEAT TRACE[2]	WORKING	SURGE	RESTRAINT	FIELD TEST
NPW	NON-POTABLE (SERVICE) WATER	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	125	xx	xx	125
PW	POTABLE WATER	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	Per Local Plumbing Code			
		< 4" COPPER[6]	SOLDERED	TYPE K	SOLDERED	TYPE L	YES				
		STAINLESS STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO				
CA	COMPRESSED AIR	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
O	OXYGEN	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
HE	HELIUM	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
VA	VACUUM	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
N	NITROGEN	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
A	ARGON	< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE L	NO	Per ASME B31.3			
SPD	SUMP PUMP DISCHARGE	PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	NO	N/A	N/A	N/A	N/A
RD	ROOF DRAINAGE	CAST IRON	NO-HUB COUPLING	CISPI 301	NO-HUB COUPLING	CISPI 301	NO	Per Local Plumbing Code			
		PVC[3]	SOCKET	SCH 40	SOCKET/ FLANGED	SCH 40	NO				
W	SANITARY WASTE	CAST IRON	NO-HUB COUPLING	CISPI 301	NO-HUB COUPLING	CISPI 301	NO	Per Local Plumbing Code			
		PVC[3]	SOCKET	SCH 40	SOCKET/ FLANGED	SCH 40	NO				
V	VENT	< 4" PVC / CPVC[3]	SOCKET	SCH 40	SOCKET/ FLANGED	SCH 40	N/A	Per Local Plumbing Code			

WATER TREATMENT PLANT PIPING SCHEDULE

PIPE DESIGNATIONS		MATERIAL	BURIED PIPING		EXPOSED PIPING			DESIGN PRESSURE (PSI)[1]			
			TYPE OF JOINT	CLASS/ DESIGN	TYPE OF JOINT	CLASS/ DESIGN	HEAT TRACE[2]	WORKING	SURGE	RESTRAINT	FIELD TEST
BWR	BACKWASH WASTE RECYCLE	DIP	RESTRAINED	PRESSURE CLASS 150	FLANGED	CLASS 53	NO	20	N/A	30	25
SL/ SLG	SOLIDS	DIP (P401 LINER)	PUSH ON JOINT	PRESSURE CLASS 350	FLANGED	CLASS 53	NO	7	4	11	11
SA	SAMPLE	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	50	62.5	87.5	75
		< 4" PEX A	EXPANSION	PEX-a	EXPANSION	PEX-a	YES	65	81.25	113.75	97.5
		< 4" COPPER	SOLDERED	TYPE K	SOLDERED	TYPE K	NO	50	62.5	87.5	75
BI	FLOC BASIN INFLUENT WATER	DIP	RESTRAINED	PRESSURE CLASS 150	FLANGED	CLASS 53	NO	20	N/A	30	25
SC	SCUM	DIP	RESTRAINED	PRESSURE CLASS 150	FLANGED	CLASS 53	NO	10	N/A	12.5	15
RW	RAW WATER	DIP	RESTRAINED	PRESSURE CLASS 150	FLANGED	CLASS 53	YES/NO	150	100	xx	xx
ASA	AIR SCOUR	STAINLESS STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.13	NO	10	20	18.0	15.0

WATER TREATMENT PLANT PIPING SCHEDULE

PIPE DESIGNATIONS		MATERIAL	BURIED PIPING		EXPOSED PIPING			DESIGN PRESSURE (PSI)[1]			
			TYPE OF JOINT	CLASS/ DESIGN	TYPE OF JOINT	CLASS/ DESIGN	HEAT TRACE[2]	WORKING	SURGE	RESTRAINT	FIELD TEST
BW	BACKWASH SUPPLY	CARBON STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO	15	20	26.0	23.0
BWW[5]	BACKWASH WASTE	CARBON STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO	10	20	18.0	15.0
	BACKWASH WASTE	DIP	RESTRAINED	PRESSURE CLASS 150	FLANGED	CLASS 53	NO	150	187.5	262.5	225
FI	FILTER INFLUENT	CARBON STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO	10	20	18.0	15.0
FLW	FILTERED WATER	CARBON STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO	25	40	44.0	38.0
FTW	FILTER TO WASTE	CARBON STEEL	N/A	N/A	WELDED/ FLANGED[4]	SECTION 40 05 24.23	NO	10	20	18.0	15.0

1) Surge pressure is the maximum pressure in the system during a surge event. Restraint pressure shall be used to determine pipe joint design and if required, the size, number, material, and dimensions of tabs and threaded-rods and thrust blocking for thrust restraint of piping and piping system components specified.
2) Provide heat tracing and insulation as specified in Section 40 41 13 on all exposed outdoor piping indicated.
3) For all PVC / CPVC designations, if piping is exposed to direct sunlight or if heat tracing is required, CPVC shall be used. Otherwise, PVC shall be used.
4) Flanges shall be provided as shown on the drawings or as approved by the Engineer.
5) All proposed BWW pipe within the filter building shall be carbon steel. All other BWW pipe shall be DIP.
6) Unless noted on the drawings, copper piping shall be used for all potable water lines.

CHEMICAL PIPING SCHEDULE

PIPE DESIGNATIONS		MATERIAL	BURIED PIPING		EXPOSED PIPING			DESIGN PRESSURE (PSI)[1]		
			TYPE OF JOINT	CLASS/ DESIGN	TYPE OF JOINT	CLASS/ DESIGN	HEAT TRACE[2]	WORKING	RESTRAINT	FIELD TEST
AL	ALUMINUM SULFATE	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET	SCH 80	YES	100	175	125
		PVC HOSE (IN CCP)	COMPRESSION	SECTION 40 05 31	N/A	N/A	NO			
CCP	CHEMICAL CASING PIPE	PVC / CPVC[3] CONDUIT	SOCKET (PRESS-URE SOLVENT)	SCH 40 (LONG RADIUS BENDS)	SOCKET/ FLANGED	SCH 40 (LONG RADIUS BENDS)	YES	N/A	N/A	N/A
DW	DOUBLE-WALLED PIPE[5]	PVC / CPVC[3] CONDUIT	SOCKET	SCH 80	SOCKET	SCH 80	YES	100	150	125
F	HYDROFLUOSILICIC ACID	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	NO	100	150	125
LS	LIME SLURRY	< 4" PVC / CPVC[3]	SOCKET	SCH 80	N/A	N/A	YES	100	175	125
		PVC HOSE (IN CCP)	COMPRESSION	SECTION 40 05 31	N/A	N/A	NO			
PLW	PLANT WATER	<4" PVC/CPVC	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	100	175	125
SH	SODIUM HYPHOCHLORITE	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	100	175	125
ZOP	ZINC ORTHOPHOSPHATE	< 4" PVC / CPVC[3]	SOCKET	SCH 80	SOCKET/ FLANGED	SCH 80	YES	100	150	125

CHEMICAL PIPING SCHEDULE

PIPE DESIGNATIONS	MATERIAL	BURIED PIPING		EXPOSED PIPING			DESIGN PRESSURE (PSI)[1]		
		TYPE OF JOINT	CLASS/ DESIGN	TYPE OF JOINT	CLASS/ DESIGN	HEAT TRACE[2]	WORKING	RESTRAINT	FIELD TEST

1) Surge pressure is the maximum pressure in the system during a surge event. Restraint pressure shall be used to determine pipe joint design and if required, the size, number, material, and dimensions of tabs and threaded-rods and thrust blocking for thrust restraint of piping and piping system components specified.
2) Provide heat tracing and insulation as specified in Section 40 41 13 on all exposed outdoor piping indicated.
3) For all PVC / CPVC designations, if piping is exposed to direct sunlight or if heat tracing is required, CPVC shall be used. Otherwise, PVC shall be used.
4) Flanges shall be provided as shown on the drawings or as approved by the Engineer.
5) Provide double-walled piping in accordance with specification section 40 05 31.

ELECTRICALLY OPERATED VALVE SCHEDULE

TAG NO.	VALVE TYPE	OPERATOR TYPE	SIZE (in.)	FLOW	MAX DIFFERENTIAL PRESSURE (psi)	CLASS	SERVICE	LOCATION	QUANTITY
VAL-3201	BUTTERFLY	MODULATING	14	6000 SCFM	15	150	AIR	BLOWER BLDG - EXISTING BLOWER SUCTION	1
VAL-3202	BUTTERFLY	MODULATING	18	6000 SCFM	15	150	AIR	BLOWER BLDG - NEW BLOWER SUCTION	1
VAL-30XXC[2]	BUTTERFLY	OPEN/CLOSE	14	6000 SCFM	10	150	AIR	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXA[2]	BUTTERFLY	OPEN/CLOSE	42	10.1 MGD	10	150	FI	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXB[2]	BUTTERFLY	MODULATING	24	10.1 MGD	25	150	FLW	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXF[2]	BUTTERFLY	OPEN/CLOSE	24	10.1 MGD	10	150	FTW	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXG[2]	BUTTERFLY	OPEN/CLOSE	30	10.1 MGD	10	150	FTW	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXH[2]	BUTTERFLY	OPEN/CLOSE	20	10.1 MGD	10	150	FLW	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXD[2]	BUTTERFLY	OPEN/CLOSE	36	43.2 MGD	25	150	BW	FILTER GALLERY - FILTER PIPING[1]	16
VAL-30XXE[2]	BUTTERFLY	OPEN/CLOSE	36	43.2 MGD	10	150	BWW	FILTER GALLERY - FILTER PIPING	16
VAL-2$X_3$41 VAL-2$X_3$42 VAL-2$X_3$51 VAL-2$X_3$52	PLUG	OPEN/CLOSE	6	225 GPM	10	150	SL	SLUDGE VALVE VAULTS	16
VAL-6000	BALL	OPEN/CLOSE	2	37.5 GPM	15	150	HYPO	HYPO BUILDING	1
VAL-6003	BALL	OPEN/CLOSE	2	30 GPM	15	150	HYPO	HYPO BUILDING	1
VAL-4001 VAL-4011	PLUG	OPEN/CLOSE	30	12 MGD	150	150	BWW	BWT - INFLUENT VALVES	2
VAL-4002 VAL-4012	BUTTERFLY	OPEN/CLOSE	20	7.5 MGD	20	150	BWR	BWT - DECANT VALVES	2
VAL-4020	PLUG	MODULATING	14	7.5 MGD	20	150	BWR	BWT - DECANT MAG METER (LOCATED WEST OF SED BASIN NO. 1)	1
VAL-4003 VAL-4013	PLUG	OPEN/CLOSE	6	225 GPM	20	150	SL	BWT - SOLIDS VALVES	2
VAL-4030	PLUG	MODULATING	6	450 GPM	20	150	SL	BWT - SOLIDS MAG METER	1

1) Provide local control station for actuated filter valves in accordance with the drawings. See instrumentation sheets for details.
2) XX = Filter number. For example, Filter 12 air scour will be VAL-3012C, Filter 6 air scour will be VAL-3006C
3) X = Basin number. For example, 2141 - 2152 correspond with basins 1A and 1B. 2341 -2352 correspond with basins 3A and 3B.

MANUALLY OPERATED VALVE SCHEDULE

TAG NO.	VALVE TYPE	OPERATOR TYPE	SIZE (in.)	SERVICE	LOCATION	QUANTITY
-	BUTTERFLY	OPEN/CLOSE	60	RW	YARD - RAW WATER PIPING	1
-	BUTTERFLY	OPEN/CLOSE	48	RW	YARD - RAW WATER PIPING	8
-	BUTTERFLY	OPEN/CLOSE	48	BI	YARD - BASIN INFLUENT	2
-	BUTTERFLY	OPEN/CLOSE	24	BWR	YARD - RAW WATER INFLUENT BOX	2
-	BUTTERFLY	OPEN/CLOSE	14	BWR	YARD - BWR MAG METER PIPING BYPASS	1
-	BUTTERFLY	OPEN/CLOSE	24	BWR	YARD - BWR MAG METER PIPING BYPASS	1
-	BUTTERFLY	OPEN/CLOSE	30	BI	RAPID MIX BASIN - TO FLOC-SED BASIN 1A	1
-	GATE	OPEN/CLOSE	6	W	YARD - FIRE HYDRANT	6
	GATE	OPEN/CLOSE	6	W	YARD - BASIN 1 & 2	1
-	GATE	OPEN/CLOSE	4	SL	SLUDGE PUMP STATION - DISCHARGE	1
-	GATE	OPEN/CLOSE	6	SL	SLUDGE PUMP STATION - COMMON DISCHARGE	1
-	SWING CHECK	OPEN/CLOSE	4	SL	SLUDGE PUMP STATION - DISCHARGE	2
-	BUTTERFLY	OPEN/CLOSE	36	BI	BASINS 2 & 3 - FLOW SPLIT BOX - IN-KIND REPLACEMENT	2
-	PLUG	OPEN/CLOSE	4	DRN	BASIN 3 - FLOW SPLIT BOX DRAIN TO BASIN 3B, FLOC STAGE 1	1
-	BUTTERFLY	OPEN/CLOSE	48	BI	BASIN 4 - FLOW SPLIT BOX	1
-	BUTTERFLY	OPEN/CLOSE	14	SC	ALL BASINS - ROTARY SKIMMER SCUM PIPING	8
-	PLUG	OPEN/CLOSE	8	DRN	BASINS 1 & 2 - DRAIN VAULTS	4
-	PLUG	OPEN/CLOSE	12	DRN	BASINS 3 & 4 - DRAIN VAULTS	4
-	PLUG	OPEN/CLOSE	6	SL	SLUDGE VAULT MANUAL SLUDGE VALVES	16
-	PLUG	OPEN/CLOSE	6	SL	BACKWASH TREATMENT TANK - SLUDGE PIPING BYPASS	1
-	PLUG	OPEN/CLOSE	8	SL	BACKWASH TREATMENT TANK - SLUDGE PIPING BYPASS	1
-	PLUG	OPEN/CLOSE	6	SL	BACKWASH TREATMENT TANK - TANK DRAINS IN YARD W/ YARD VALVE BOX	2
-	BUTTERFLY	OPEN/CLOSE	36	BW	FILTER GALLERY - BACKWASH SUPPLY HEADER	3
-	BUTTERFLY	OPEN/CLOSE	14	FLW	FILTER GALLERY - WASHWATER SUPPLY PUMP SUCTION	2
-	SWING CHECK	OPEN/CLOSE	12	BW	FILTER GALLERY - WASHWATER SUPPLY PUMP DISCHARGE	1
-	RESILIENT WEDGE GATE	OPEN/CLOSE	12	BW	FILTER GALLERY - WASHWATER SUPPLY PUMP DISCHARGE	1
-	FLANGE INSERT CHECK	OPEN/CLOSE	4	AL	BULK CHEMICAL BUILDING - ALUM BULK/DAY TANK OVERFLOW	4
-	BALL CHECK	OPEN/CLOSE	4	AL	BULK CHEMICAL BUILDING - ALUM TRANSFER PUMP DISCHARGE	3
-	BALL	OPEN/CLOSE	4	AL	BULK CHEMICAL BUILDING - ALUM TRANSFER PUMP DISCHARGE	4
-	GLOBE	OPEN/CLOSE	4	AL	BULK CHEMICAL BUILDING - ALUM TRANSFER PUMP DISCHARGE	3
-	FLANGE INSERT CHECK	OPEN/CLOSE	4	ZOP	BULK CHEMICAL BUILDING - ZOP BULK TANK OVERFLOW	2
-	FLANGE INSERT CHECK	OPEN/CLOSE	4	SHS	BULK CHEMICAL BUILDING - SHS DELIVERY TANK OVERFLOW	1
-	WAFER CHECK	OPEN/CLOSE	14	AIR	BLOWER BLDG - BLOWER DISCHARGE	1
-	BUTTERFLY	OPEN/CLOSE	14	AIR	BLOWER BLDG - BLOWER DISCHARGE	1
-	AIR/VACUUM	OPEN/CLOSE	4	BW	WASTE PIT PUMP STATION	3
-	NON-SLAM AIR/VACUUM	OPEN/CLOSE	6	BW	WASTE PIT PUMP STATION	1
-	GATE	OPEN/CLOSE	18	BW	WASTE PIT PUMP STATION	3
-	SWING CHECK	OPEN/CLOSE	18	BW	WASTE PIT PUMP STATION	3

40 05 59.23 FABRICATED STAINLESS-STEEL SLIDE GATE SCHEDULE (ANSI/AWWA C561)

Process	DESCRIPTION	SIZE		DESIGN HEAD[1]		SUBMERGED/ FREE SURFACE	OPEN DIRECTION (UP/DOWN)	GATE MOUNT	GATE CONFIG-URATION	DUAL STEM (YES/NO)	ACTUATOR STAND MOUNT	ACTUATOR TYPE
		WIDTH (in.)	HEIGHT (in.)	SEATING (ft.)	UN-SEATING (ft.)							
Rapid Mix	Basin 1-1; 1st Trough Effluent	50	82	-	6.83	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Basin 1-2; 1st Trough Effluent	50	82	-	6.83	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Basin 1-3; 1st Trough Effluent	50	82	-	6.83	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Basin 1-1; Post Rapid Mixed Water	72	72	20.79	23.09	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Basin 1-2; Post Rapid Mixed Water	72	72	20.79	23.09	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Basin 1-3; Post Rapid Mixed Water	72	72	20.79	23.09	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Inside Trough to Floc Basin 2	31	60	5	5	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Inside Trough to Floc Basin 3	31	60	5	5	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Inside Trough to Floc Basin 4	31	60	5	5	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Floc Basin 1 Influent Split Box B	36	64	5.45	-	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Floc Basin 2 Influent	36	64	5.45	5.45	SUBMERGED	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Floc Basin 3 Influent	36	64	5.45	5.45	SUBMERGED	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Floc Basin 4 Influent	36	64	5.45	5.45	SUBMERGED	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Rapid Mix Influent 1	76	76	24.71	24.71	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Rapid Mix	Rapid Mix Influent 2	76	76	24.71	24.71	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2A - Flow Split Launder Gate	26	46	2.68	3.42	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2B - Flow Split Launder Gate	26	46	2.88	3.54	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3A - Flow Split Launder Gate	26	46	2.76	3.47	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3B - Flow Split Launder Gate	26	46	2.67	3.41	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK

Floc/Sed Basin	Basin 4A - Flow Split Launder Gate	26	46	2.76	3.47	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4B - Flow Split Launder Gate	26	46	2.67	3.41	FREE SURFACE	DOWN	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1A - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1A - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1B - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1B - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2A - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2A - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2B - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2B - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3A - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3A - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3B - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3B - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4A - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4A - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK

Floc/Sed Basin	Basin 4B - Settled Water Channel Gate - Upper	48	48	4.19	4.22	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4B - Settled Water Channel Gate - Lower	48	48	12.22	6	SUBMERGED	UP	CONCRETE (SURFACE)	SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1A - Plate Settler Trough Wall - Bottom Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 1B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 2B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 3B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK

Floc/Sed Basin	Basin 4A - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
Floc/Sed Basin	Basin 4B - Settled Water Channel Drain Opening	24	24	13.24	14.82	SUBMERGED	UP	CONCRETE (SURFACE)	NON-SELF-CONTAINED	NO	PEDESTAL	HAND-CRANK
1) Design Head is as measured from the gate invert to the maximum WSEL.												

STOP PLATE SCHEDULE

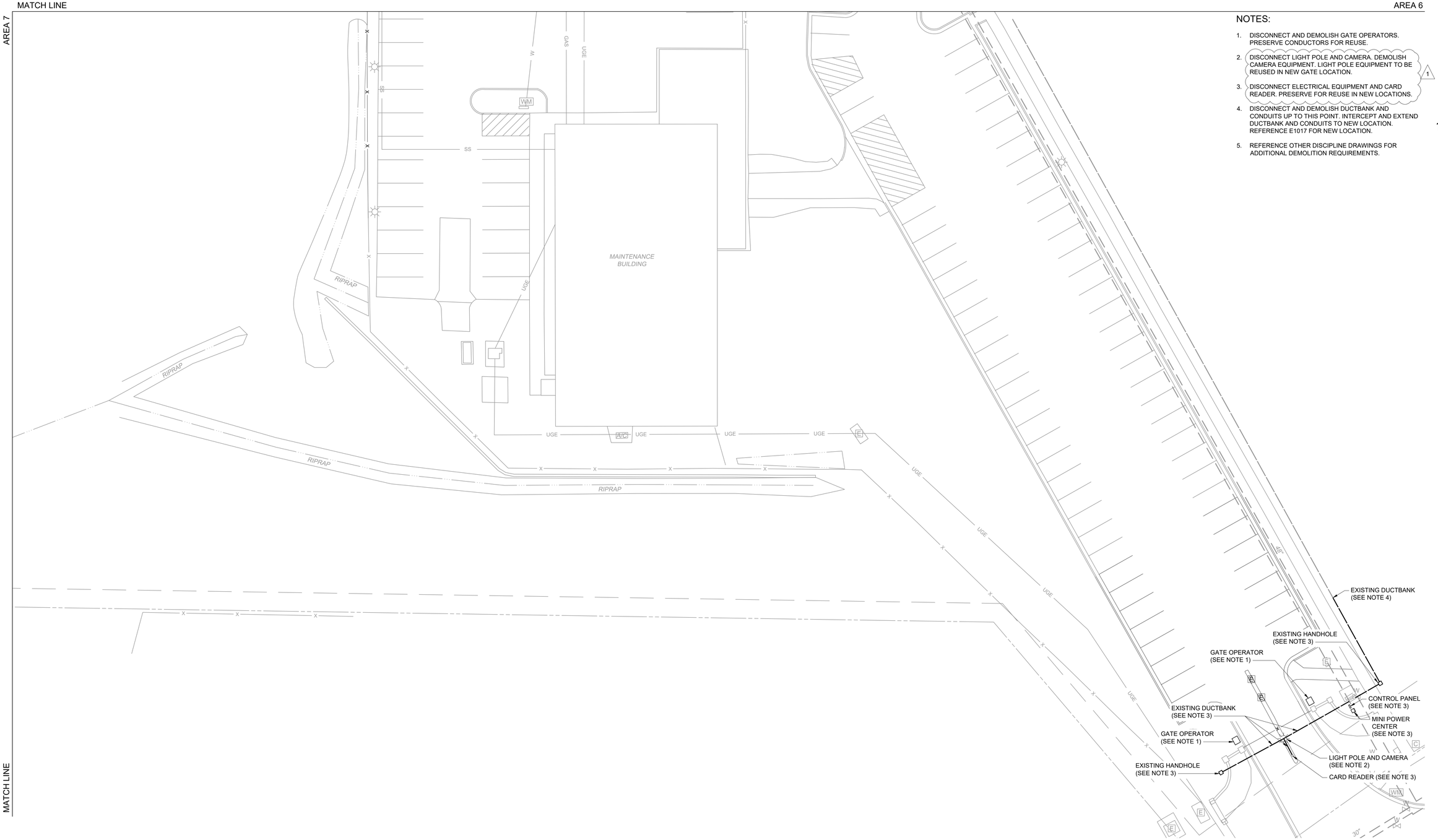
TAG NO.	DESCRIPTION	SIZE		DESIGN HEAD[1]		NO. OF PLATE GUIDE ASSEMBLIES	NUMBER OF PLATES
		WIDTH (in.)	HEIGHT (in.)	SEATING (ft.)	UN-SEATING (ft.)		
-	Flow Split between Basin 1A and 1B at Trough 1	36	64	5.5	5.5	5	1

1) Design Head is as measured from the gate invert to the maximum WSEL.

MATCH LINE

AREA 6

AREA 7



NOTES:

1. DISCONNECT AND DEMOLISH GATE OPERATORS. PRESERVE CONDUCTORS FOR REUSE.
2. DISCONNECT LIGHT POLE AND CAMERA. DEMOLISH CAMERA EQUIPMENT. LIGHT POLE EQUIPMENT TO BE REUSED IN NEW GATE LOCATION.
3. DISCONNECT ELECTRICAL EQUIPMENT AND CARD READER. PRESERVE FOR REUSE IN NEW LOCATIONS.
4. DISCONNECT AND DEMOLISH DUCTBANK AND CONDUITS UP TO THIS POINT. INTERCEPT AND EXTEND DUCTBANK AND CONDUITS TO NEW LOCATION. REFERENCE E1017 FOR NEW LOCATION.
5. REFERENCE OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.

N

1"=20

MATCH LINE

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	N. NELSON
DRAWN BY:	N. NELSON
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ELECTRICAL
ENLARGED DEMO PLAN - AREA 8

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E1008

MATCH LINE

AREA 4 (SEE SHEET E1013)

AREA 5 (SEE SHEET E1014)

SEDIMENTATION BASIN NO. 3
DWG E2300

SEDIMENTATION BASIN NO. 4
DWG E2400

36" BWS-DI

SEE NOTE 3

WASH TANK #1

WASH TANK #2

KEYPAD

KEY PAD (SEE NOTE 4)

SEE NOTE 2

SEE NOTE 1

DB 47

MAINTENANCE BUILDING

MATCH LINE

AREA 8 (SEE SHEET E1017)

NOTES:

1. FURNISH AND INSTALL 400A DISCONNECT SWITCH FOR FUTURE POWER TO MAINTENANCE BUILDING. SEE DRAWING E6105 FOR REQUIREMENTS.
2. STUB-UP CONDUIT P-6100-075, P-6100-076, AND I-6100-078 AND CAP FOR FUTURE USE.
3. PROVIDE NEW CONDUCTORS TO DPIT-3050 AND DPIT-3060. EXTEND EXISTING CONDUIT TO NEW CP-WIL-MSTR LOCATION IN FILTER BUILDING.
4. REUSE AND RELOCATE EXISTING KEY PADS TO THIS LOCATION. EXTEND EXISTING CIRCUITS AND DUCTBANKS TO NEW EQUIPMENT LOCATION AND RECONNECT. RECONNECTION AND TESTING OF RELOCATED KEYPADS SHALL BE PERFORMED BY OTHERS. (1)

N

1"=20

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

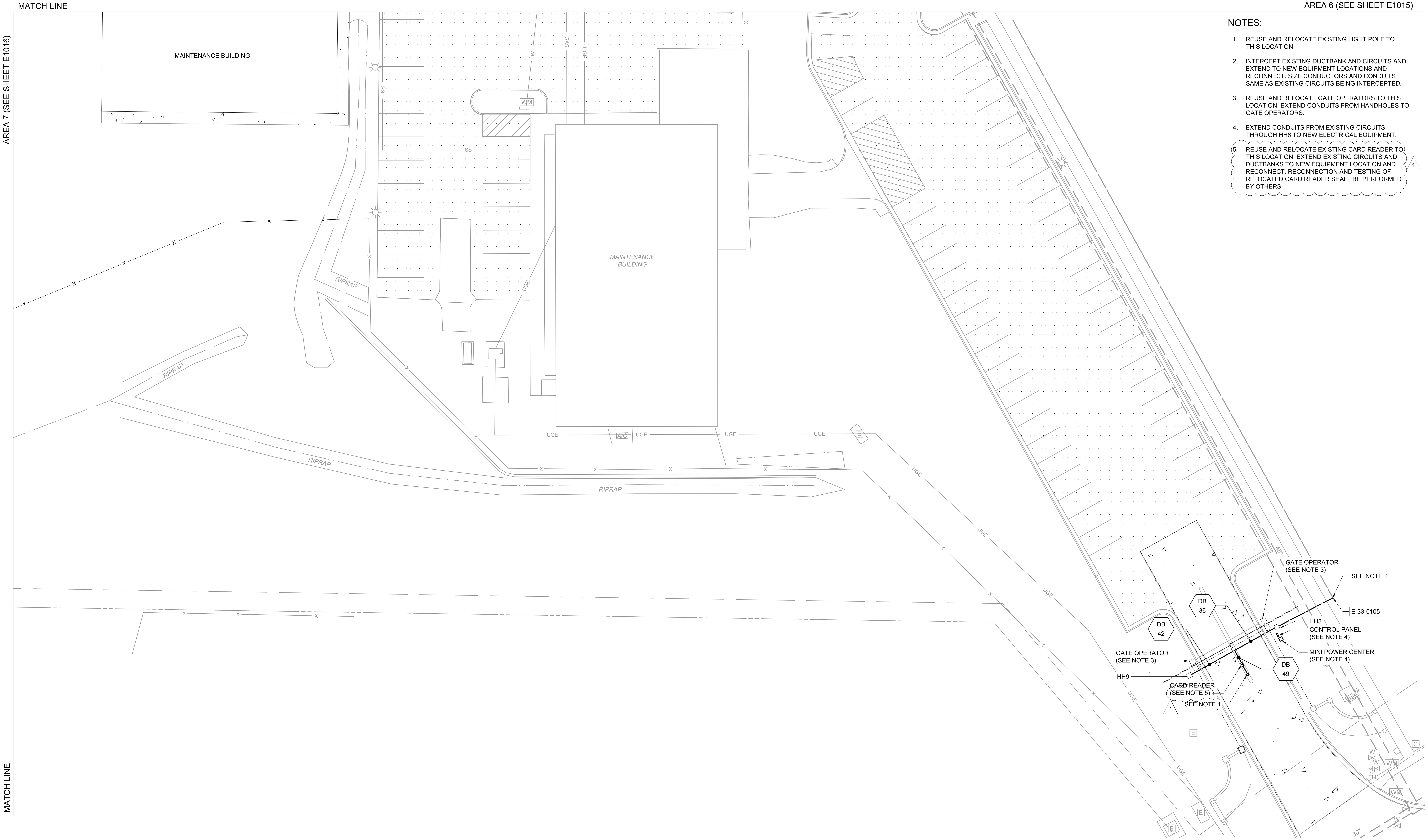
CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ELECTRICAL
ENLARGED PLAN - AREA 6

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E1015

File: C:\USERS\NMNELSON\DOCACCDOCS\HAZEN AND SAWYER\60711-001_WILSON_WTP_REHAB_FILTER_BASIN\PROJECT FILES\00_ELECTRICAL\E1015 Saved by NMNELSON Save date: 1/7/2025 12:36 PM
PLOT DATE: 1/7/2025 12:39 PM BY: NMNELSON



NOTES:

1. REUSE AND RELOCATE EXISTING LIGHT POLE TO THIS LOCATION.
2. INTERCEPT EXISTING DUCTBANK AND CIRCUITS AND EXTEND TO NEW EQUIPMENT LOCATIONS AND RECONNECT. SIZE CONDUCTORS AND CONDUITS SAME AS EXISTING CIRCUITS BEING INTERCEPTED.
3. REUSE AND RELOCATE GATE OPERATORS TO THIS LOCATION. EXTEND CONDUITS FROM HANDHOLES TO GATE OPERATORS.
4. EXTEND CONDUITS FROM EXISTING CIRCUITS THROUGH HH8 TO NEW ELECTRICAL EQUIPMENT.
5. REUSE AND RELOCATE EXISTING CARD READER TO THIS LOCATION. EXTEND EXISTING CIRCUITS AND DUCTBANKS TO NEW EQUIPMENT LOCATION AND RECONNECT. RECONNECTION AND TESTING OF RELOCATED CARD READER SHALL BE PERFORMED BY OTHERS. (1)

N

1"=20

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 1/2" 1")

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

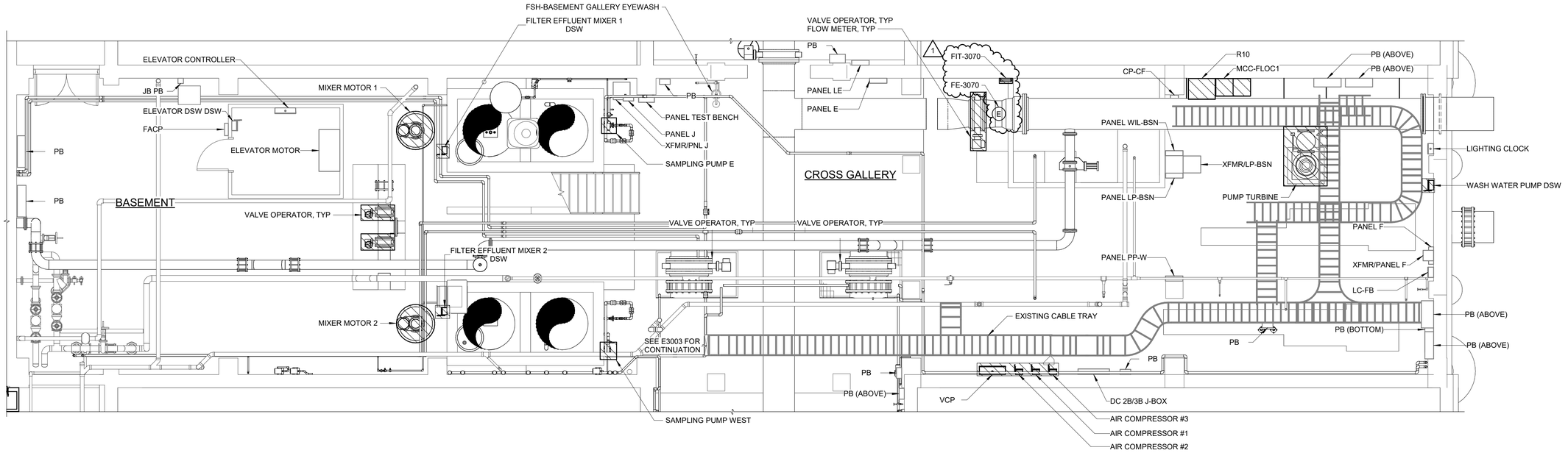
ELECTRICAL
ENLARGED PLAN - AREA 8

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E1017

PLANT NORTH

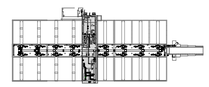
NOTES:

1. REMOVE CONDUCTORS, CONDUITS, AND SUPPORTS ASSOCIATED WITH DEMOLISHED ELECTRICAL AND INSTRUMENTATION EQUIPMENT.
2. REFERENCE OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.



ENLARGED BOTTOM PLAN - CROSS GALLERY DEMOLITION - EL 529.50

3/16" = 1'-0"



KEY PLAN

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/7/25	BDB

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

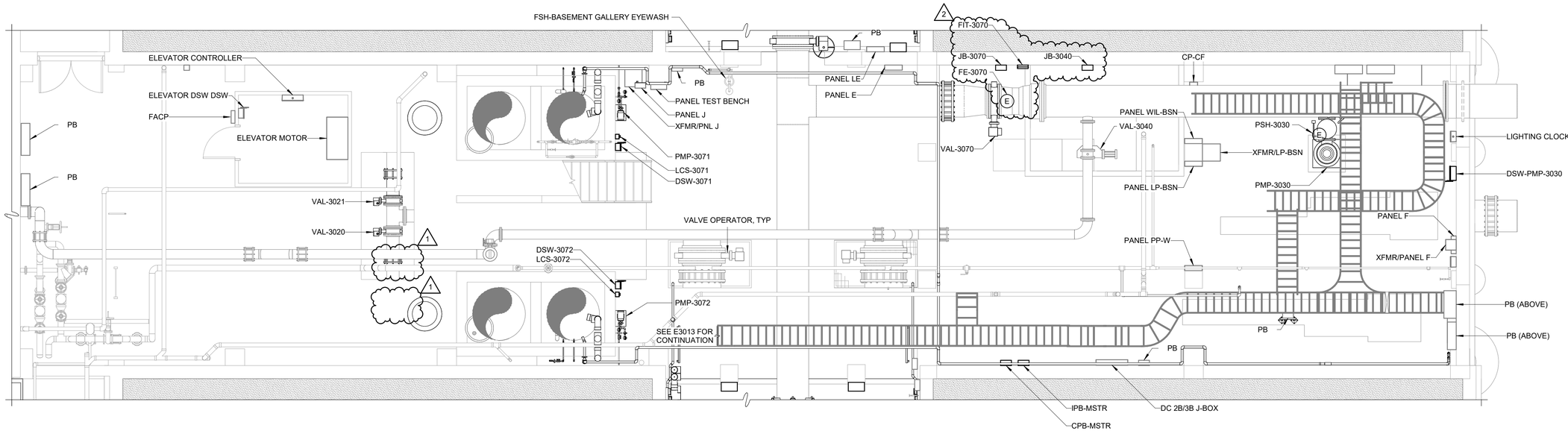
CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
ENLARGED BOTTOM PLAN - CROSS GALLERY DEMOLITION

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E3000

PLANT NORTH



ENLARGED BOTTOM PLAN - CROSS GALLERY

3/16" = 1'-0"

KEY PLAN

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1/7/25	BDB
1	ADDENDUM 1	12/12/24	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL
AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
ENLARGED BOTTOM PLAN - CROSS GALLERY

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E3010

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-3000-FB-3100-FWC-ELEC.rvt
1/9/2025 11:12:41 AM

208/120 VOLTS
3 PHASE, 4 WIRE

LP-FB-1/2
MAIN BREAKER
100A 3P

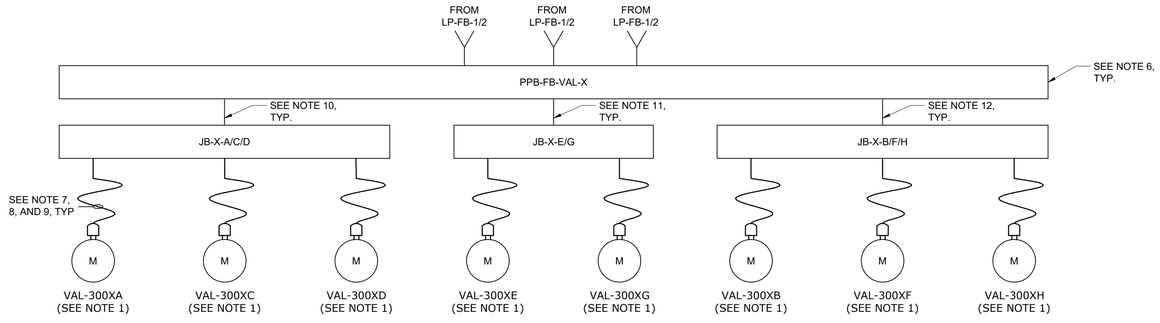
TYPE: NEMA 4X
MOUNT: SURFACE

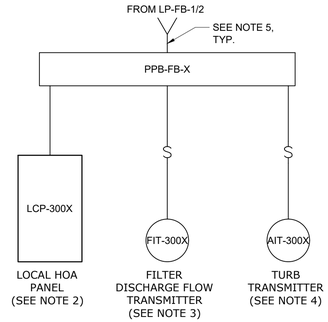
MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
LFD	VAL-3001A	P-3000-030	10	1	1	60			60			2	1	10	P-3000-041	VAL-3003A	LFD
LFD	VAL-3001C		10	1	3		60			60		4	1	10		VAL-3003C	LFD
LFD	VAL-3001D		10	1	5			60			60	6	1	10		VAL-3003D	LFD
LFD	VAL-3001E	P-3000-031	10	1	7	60			60			8	1	10	P-3000-042	VAL-3003E	LFD
LFD	VAL-3001G		10	1	9		60			60		10	1	10		VAL-3003G	LFD
LFD	VAL-3001B	P-3000-032	10	1	11			60			60	12	1	10	P-3000-043	VAL-3003B	LFD
LFD	VAL-3001F		10	1	13	60			60			14	1	10		VAL-3003F	LFD
LFD	VAL-3001H		10	1	15		60			60		16	1	10		VAL-3003H	LFD
LFD	LCP-3001	P-3000-038	20	1	17			500			500	18	1	20	P-3000-049	LCP-3003	LFD
LFD	FIT-3001	P-3000-039	20	1	19	100			100			20	1	20	P-3000-050	FIT-3003	LFD
LFD	AIT-3001	P-3000-040	20	1	21		100			100		22	1	20	P-3000-051	AIT-3003	LFD
LFD	VAL-3005A	P-3000-052	10	1	23			60			60	24	1	10	P-3000-063	VAL-3007A	LFD
LFD	VAL-3005C		10	1	25	60			60			26	1	10		VAL-3007C	LFD
LFD	VAL-3005D		10	1	27		60			60		28	1	10		VAL-3007D	LFD
LFD	VAL-3005E	P-3000-053	10	1	29			60	60		60	30	1	10	P-3000-064	VAL-3007E	LFD
LFD	VAL-3005G		10	1	31	60				60		32	1	10		VAL-3007G	LFD
LFD	VAL-3005B	P-3000-054	10	1	33		60				60	34	1	10	P-3000-065	VAL-3007B	LFD
LFD	VAL-3005F		10	1	35	60		60	60			36	1	10		VAL-3007F	LFD
LFD	VAL-3005H		10	1	37		60			60		38	1	10		VAL-3007H	LFD
LFD	LCP-3005	P-3000-060	20	1	39			500			500	40	1	20	P-3000-071	LCP-3007	LFD
LFD	FIT-3005	P-3000-061	20	1	41	100			100			42	1	20	P-3000-072	FIT-3007	LFD
LFD	AIT-3005	P-3000-062	20	1	43		100			100		44	1	20	P-3000-073	AIT-3007	LFD
LFD	AIT-3001A	P-3000-270	20	1	45			100			-	46	1	20		SPARE	LFD
LFD	SPARE		20	1	47				-			48	1	20		SPARE	LFD
LFD	SPARE		20	1	49					1,900		50	1				
LFD	SPARE		20	1	51						1,800	52	1	60	P-3000-005	LP-FB-3/4	LFD
LFD	SPARE		20	1	53				1,120			54	1				
		TOTAL	560	560	1,400	1,680	2,460	3,100	TOTAL								
			PHASE TOTAL			TOTAL LOAD (VA)											
			2,240	3,020	4,500	9,760											
						TOTAL LOAD (A)											
						27											

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
10kAIC
100kA SPD

FILTER BUILDING EQUIPMENT SCHEDULE									
FILTER No.	VAL-300XX	LCP-300X	FIT-300X	AIT-300X	PPB-FB-VAL-X	PPB-FB-X	JB-X-A/C/D	JB-X-E/G	JB-X-B/F/H
FILTER 1	VAL-3001A	LCP-3001	FIT-3001	AIT-3001	PPB-FB-VAL-1	PPB-FB-1	JB-1-A/C/D	JB-1-E/G	JB-1-B/F/H
	VAL-3001B								
	VAL-3001C								
	VAL-3001D								
	VAL-3001E								
	VAL-3001F								
	VAL-3001G								
	VAL-3001H								
FILTER 3	VAL-3003A	LCP-3003	FIT-3003	AIT-3003	PPB-FB-VAL-3	PPB-FB-3	JB-3-A/C/D	JB-3-E/G	JB-3-B/F/H
	VAL-3003B								
	VAL-3003C								
	VAL-3003D								
	VAL-3003E								
	VAL-3003F								
	VAL-3003G								
	VAL-3003H								
FILTER 5	VAL-3005A	LCP-3005	FIT-3005	AIT-3005	PPB-FB-VAL-5	PPB-FB-5	JB-5-A/C/D	JB-5-E/G	JB-5-B/F/H
	VAL-3005B								
	VAL-3005C								
	VAL-3005D								
	VAL-3005E								
	VAL-3005F								
	VAL-3005G								
	VAL-3005H								
FILTER 7	VAL-3007A	LCP-3007	FIT-3007	AIT-3007	PPB-FB-VAL-7	PPB-FB-7	JB-7-A/C/D	JB-7-E/G	JB-7-B/F/H
	VAL-3007B								
	VAL-3007C								
	VAL-3007D								
	VAL-3007E								
	VAL-3007F								
	VAL-3007G								
	VAL-3007H								





NOTES:

1. RISER IS TYPICAL FOR ALL VALVES.
2. RISER IS TYPICAL FOR ALL CONTROL PANELS.
3. RISER IS TYPICAL FOR ALL FLOW TRANSMITTERS.
4. RISER IS TYPICAL FOR ALL TURBIDITY TRANSMITTERS.
5. POWER CONDUCTORS FOR EACH SET OF 3 INSTRUMENT TRANSMITTERS AT FILTER SHALL BE COMBINED INTO ONE CONDUIT FOR HOMERUN BACK TO PANEL. TYPICAL OF ALL 16 FILTERS.
6. POWER CONDUCTORS FOR EACH SET OF 8 VALVES SHALL BE COMBINED IN PULL BOX INTO 3 CONDUIT FOR HOMERUN BACK TO PANEL. TYPICAL OF ALL 16 FILTERS.
7. PROVIDE FLEXIBLE POWER PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, A-SIZE 3 POLE, FEMALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR POWER CONNECTION.
8. PROVIDE FLEXIBLE CONTROLS PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 10 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR CONTROLS CONNECTION.
9. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E3205 FOR CONTROLS CONNECTION FROM CP-WIL-BLWR TO JUNCTION BOX.
10. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XA, C, AND D) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS
11. POWER CONDUCTORS FOR EACH SET OF 2 VALVES (VAL-300XE AND G) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS.
12. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XB, F, AND H) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. REXHEPI
DRAWN BY: S. REXHEPI
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
PANEL SCHEDULES AND RISER DIAGRAMS III

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3032

208/120 VOLTS
3 PHASE, 4 WIRE

LP-FB-3/4
MAIN LUGS ONLY
60A 3P

TYPE: NEMA 4X
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C
LFD	VAL-3002A		10	1	1	60		
LFD	VAL-3002C	P-3000-074	10	1	3		60	
LFD	VAL-3002D		10	1	5			60
LFD	VAL-3002E		10	1	7	60		
LFD	VAL-3002G	P-3000-075	10	1	9		60	
LFD	VAL-3002B		10	1	11			60
LFD	VAL-3002F		10	1	13	60		
LFD	VAL-3002H	P-3000-076	10	1	15		60	
LFD	LCP-3002	P-3000-082	20	1	17			500
LFD	FIT-3002	P-3000-083	20	1	19	100		
LFD	AIT-3002	P-3000-084	20	1	21		100	
LFD	VAL-3006A		10	1	1			60
LFD	VAL-3006C	P-3000-096	10	1	3	60		
LFD	VAL-3006D		10	1	5		60	
LFD	VAL-3006E		10	1	7			60
LFD	VAL-3006G	P-3000-097	10	1	9	60		
LFD	VAL-3006B		10	1	11		60	
LFD	VAL-3006F	P-3000-98	10	1	13			60
LFD	VAL-3006H		10	1	15	60		
LFD	LCP-3006	P-3000-104	20	1	17		500	
LFD	FIT-3006	P-3000-105	20	1	19			100
LFD	AIT-3006	P-3000-106	20	1	21	100		
LFD	AIT-3008A	P-3000-274	20	1	23		100	
LFD	SPARE		20	1	25			
LFD	SPARE		20	1	27			
LFD	SPARE		20	1	29			
LFD	SPARE		20	1	31			-

TOTAL	560	1,000	900
PHASE TOTAL			
	1,120	1,900	1,800

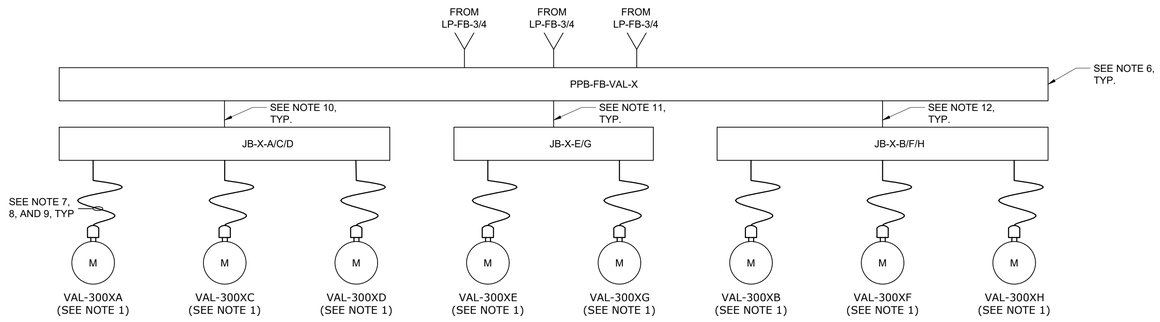
VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
60			2	1	10		VAL-3004A	LFD
	60		4	1	10	P-3000-085	VAL-3004C	LFD
		60	6	1	10		VAL-3004D	LFD
60			8	1	10	P-3000-086	VAL-3004E	LFD
	60		10	1	10		VAL-3004G	LFD
		60	12	1	10		VAL-3004B	LFD
60			14	1	10	P-3000-087	VAL-3004F	LFD
	60		16	1	10		VAL-3004H	LFD
		500	18	1	20	P-3000-093	LCP-3004	LFD
100			20	1	20	P-3000-094	FIT-3004	LFD
	100		22	1	20	P-3000-095	AIT-3004	LFD
		60	2	1	10		VAL-3008A	LFD
60			4	1	10	P-3000-107	VAL-3008C	LFD
	60		6	1	10		VAL-3008D	LFD
		60	8	1	10	P-3000-108	VAL-3008E	LFD
60			10	1	10		VAL-3008G	LFD
	60		12	1	10		VAL-3008B	LFD
		60	14	1	10	P-3000-109	VAL-3008F	LFD
60			16	1	10		VAL-3008H	LFD
	500		18	1	20	P-3000-115	LCP-3008	LFD
		100	20	1	20	P-3000-116	FIT-3008	LFD
100			22	1	20	P-3000-117	AIT-3008	LFD
			24	1	20		SPARE	LFD
			26	1	20		SPARE	LFD
			28	1	20		SPARE	LFD
			30	1	20		SPARE	LFD
		-	32	1	20		SPARE	LFD

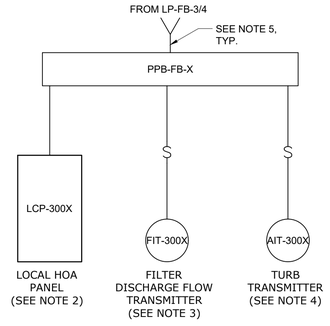
560	900	900	TOTAL
TOTAL LOAD (VA)			
4,820			
TOTAL LOAD (A)			
13			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
10kAIC

FILTER BUILDING EQUIPMENT SCHEDULE									
FILTER No.	VAL-300XX	LCP-300X	FIT-300X	AIT-300X	PPB-FB-VAL-X	PPB-FB-X	JB-X-A/C/D	JB-X-E/G	JB-X-B/F/H
FILTER 2	VAL-3002A	LCP-3002	FIT-3002	AIT-3002	PPB-FB-VAL-2	PPB-FB-2	JB-2-A/C/D	JB-2-E/G	JB-2-B/F/H
	VAL-3002B								
	VAL-3002C								
	VAL-3002D								
	VAL-3002E								
	VAL-3002F								
	VAL-3002G								
	VAL-3002H								
FILTER 4	VAL-3004A	LCP-3004	FIT-3004	AIT-3004	PPB-FB-VAL-4	PPB-FB-4	JB-4-A/C/D	JB-4-E/G	JB-4-B/F/H
	VAL-3004B								
	VAL-3004C								
	VAL-3004D								
	VAL-3004E								
	VAL-3004F								
	VAL-3004G								
	VAL-3004H								
FILTER 6	VAL-3006A	LCP-3006	FIT-3006	AIT-3006	PPB-FB-VAL-6	PPB-FB-6	JB-6-A/C/D	JB-6-E/G	JB-6-B/F/H
	VAL-3006B								
	VAL-3006C								
	VAL-3006D								
	VAL-3006E								
	VAL-3006F								
	VAL-3006G								
	VAL-3006H								
FILTER 8	VAL-3008A	LCP-3008	FIT-3008	AIT-3008	PPB-FB-VAL-8	PPB-FB-8	JB-8-A/C/D	JB-8-E/G	JB-8-B/F/H
	VAL-3008B								
	VAL-3008C								
	VAL-3008D								
	VAL-3008E								
	VAL-3008F								
	VAL-3008G								
	VAL-3008H								





NOTES:

1. RISER IS TYPICAL FOR ALL VALVES.
2. RISER IS TYPICAL FOR ALL LEVEL TRANSMITTERS.
3. RISER IS TYPICAL FOR ALL FLOW TRANSMITTERS.
4. RISER IS TYPICAL FOR ALL TURBIDITY TRANSMITTERS.
5. POWER CONDUCTORS FOR EACH SET OF 3 INSTRUMENT TRANSMITTERS AT FILTER SHALL BE COMBINED INTO ONE CONDUIT FOR HOMERUN BACK TO PANEL. TYPICAL OF ALL 16 FILTERS.
6. POWER CONDUCTORS FOR EACH SET OF 8 VALVES SHALL BE COMBINED IN PULL BOX INTO 3 CONDUIT FOR HOMERUN BACK TO PANEL. TYPICAL OF ALL 16 FILTERS.
7. PROVIDE FLEXIBLE POWER PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, A-SIZE 3 POLE, FEMALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR POWER CONNECTION.
8. PROVIDE FLEXIBLE CONTROLS PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 10 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR CONTROLS CONNECTION.
9. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E3205 FOR CONTROLS CONNECTION FROM CP-WIL-BLWR TO JUNCTION BOX.
10. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XA, C, AND D) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS
11. POWER CONDUCTORS FOR EACH SET OF 2 VALVES (VAL-300XE AND G) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS.
12. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XB, F, AND H) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. REXHEPI
DRAWN BY: S. REXHEPI
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
PANEL SCHEDULES AND RISER DIAGRAMS IV

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3033

208/120 VOLTS
3 PHASE, 4 WIRE

LP-FB-5/6
MAIN BREAKER
100A 3P

TYPE: NEMA 4X
MOUNT: SURFACE

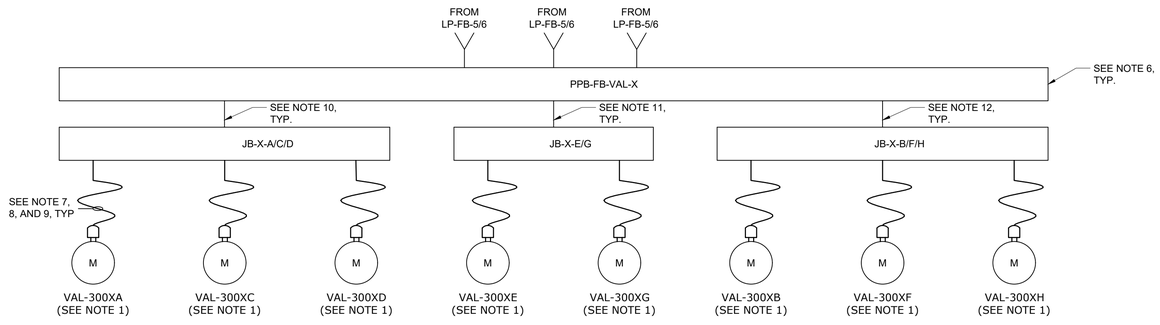
MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
LFD	VAL-3009A	P-3000-118	10	1	1	60			60			2	1	10	P-3000-129	VAL-3011A	LFD
LFD	VAL-3009C		10	1	3		60			60		4	1	10		VAL-3011C	LFD
LFD	VAL-3009D		10	1	5			60			60	6	1	10		VAL-3011D	LFD
LFD	VAL-3009E	P-3000-119	10	1	7	60			60			8	1	10	P-3000-130	VAL-3011E	LFD
LFD	VAL-3009G		10	1	9		60			60		10	1	10		VAL-3011G	LFD
LFD	VAL-3009B		10	1	11			60			60	12	1	10		VAL-3011B	LFD
LFD	VAL-3009F	P-3000-120	10	1	13	60			60			14	1	10	P-3000-131	VAL-3011F	LFD
LFD	VAL-3009H		10	1	15		60			60		16	1	10		VAL-3011H	LFD
LFD	LCP-3009	P-3000-126	20	1	17			500			500	18	1	20	P-3000-137	LCP-3011	LFD
LFD	FIT-3009	P-3000-127	20	1	19	100			100			20	1	20	P-3000-138	FIT-3011	LFD
LFD	AIT-3009	P-3000-128	20	1	21		100			100		22	1	20	P-3000-139	AIT-3011	LFD
LFD	VAL-3013A	P-3000-140	10	1	23			60			60	24	1	10	P-3000-151	VAL-3015A	LFD
LFD	VAL-3013C		10	1	25	60			60			26	1	10		VAL-3015C	LFD
LFD	VAL-3013D		10	1	27		60			60		28	1	10		VAL-3015D	LFD
LFD	VAL-3013E	P-3000-141	10	1	29			60			60	30	1	10	P-3000-152	VAL-3015E	LFD
LFD	VAL-3013G		10	1	31	60			60			32	1	10		VAL-3015G	LFD
LFD	VAL-3013B		10	1	33		60			60		34	1	10		VAL-3015B	LFD
LFD	VAL-3013F	P-3000-142	10	1	35			60			60	36	1	10	P-3000-153	VAL-3015F	LFD
LFD	VAL-3013H		10	1	37	60			60			38	1	10		VAL-3015H	LFD
LFD	LCP-3013	P-3000-148	20	1	39		500			500		40	1	20	P-3000-159	LCP-3015	LFD
LFD	FIT-3013	P-3000-149	20	1	41			100			100	42	1	20	P-3000-160	FIT-3015	LFD
LFD	AIT-3013	P-3000-150	20	1	43	100			100			44	1	20	P-3000-161	AIT-3015	LFD
LFD	AIT-3009A	P-3000-293	20	1	45		100			-		46	1	20		SPARE	LFD
LFD	SPARE		20	1	47						-	48	1	20		SPARE	LFD
LFD	SPARE		20	1	49				-			50	1	20		SPARE	LFD
LFD	SPARE		20	1	51		-			1,120		52					
LFD	SPARE		20	1	53						2,840	54	3	60	P-3000-010	LP-FB-7/8	LFD
LFD	SPARE		20	1	55			-	1,180			56					

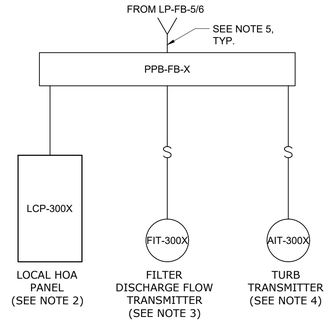
TOTAL	560	1,000	900	1,740	2,020	3,740	TOTAL
	PHASE TOTAL			TOTAL LOAD (VA)			
	2,300	3,020	4,640	9,960			
				TOTAL LOAD (A)			
				28			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
10kAIC
100kA SPD

FILTER BUILDING EQUIPMENT SCHEDULE									
FILTER No.	VAL-300XX	LCP-300X	FIT-300X	AIT-300X	PPB-FB-VAL-X	PPB-FB-X	JB-X-A/C/D	JB-X-E/G	JB-X-B/F/H
FILTER 9	VAL-3009A	LCP-3009	FIT-3009	AIT-3009	PPB-FB-VAL-9	PPB-FB-9	JB-9-A/C/D	JB-9-E/G	JB-9-B/F/H
	VAL-3009B								
	VAL-3009C								
	VAL-3009D								
	VAL-3009E								
	VAL-3009F								
	VAL-3009G								
	VAL-3009H								
FILTER 11	VAL-3011A	LCP-3011	FIT-3011	AIT-301	PPB-FB-VAL-11	PPB-FB-11	JB-11-A/C/D	JB-11-E/G	JB-11-B/F/H
	VAL-3011B								
	VAL-3011C								
	VAL-3011D								
	VAL-3011E								
	VAL-3011F								
	VAL-3011G								
	VAL-3011H								
FILTER 13	VAL-30013A	LCP-3013	FIT-3013	AIT-3013	PPB-FB-VAL-13	PPB-FB-13	JB-13-A/C/D	JB-13-E/G	JB-13-B/F/H
	VAL-3013B								
	VAL-3013C								
	VAL-3013D								
	VAL-3013E								
	VAL-3013F								
	VAL-3013G								
	VAL-3013H								
FILTER 15	VAL-3015A	LCP-3015	FIT-3015	AIT-3015	PPB-FB-VAL-15	PPB-FB-15	JB-15-A/C/D	JB-15-E/G	JB-15-B/F/H
	VAL-3015B								
	VAL-3015C								
	VAL-3015D								
	VAL-3015E								
	VAL-3015F								
	VAL-3015G								
	VAL-3015H								





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GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. REXHEPI
DRAWN BY: S. REXHEPI
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
PANEL SCHEDULES AND RISER DIAGRAMS V

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3034

208/120 VOLTS
3 PHASE, 4 WIRE

LP-FB-7/8
MAIN LUGS ONLY
60A 3P

TYPE: NEMA 4X
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C
LFD	VAL-3010A	P-3000-162	10	1	1	60		
LFD	VAL-3010B		10	1	3		60	
LFD	VAL-3010C		10	1	5			60
LFD	VAL-3010D	P-3000-163	10	1	7	60		
LFD	VAL-3010E		10	1	9		60	
LFD	VAL-3010F		10	1	11			60
LFD	VAL-3010G	P-3000-164	10	1	13	60		
LFD	VAL-3010H		10	1	15		60	
LFD	LCP-3010	P-3000-170	20	1	17			500
LFD	FIT-3010	P-3000-171	20	1	19	100		
LFD	AIT-3010	P-3000-172	20	1	21		100	
LFD	FSH-BASEMENT GALLERY EYEWASH	P-3000-240	20	1	23			100
LFD	VAL-3014A	P-3000-184	10	1	25	60		
LFD	VAL-3014B		10	1	27		60	
LFD	VAL-3014C		10	1	29			60
LFD	VAL-3014D	P-3000-185	10	1	31	60		
LFD	VAL-3014E		10	1	33		60	
LFD	VAL-3014F		10	1	35			60
LFD	VAL-3014G	P-3000-186	10	1	37	60		
LFD	VAL-3014H		10	1	39		60	
LFD	LCP-3014	P-3000-192	20	1	41			500
LFD	FIT-3014	P-3000-193	20	1	43	100		
LFD	AIT-3014	P-3000-194	20	1	45		100	
LFD	AIT-3016A	P-3000-294	20	1	47			100
LFD	SPARE		20	1	49	-		
LFD	SPARE		20	1	51		-	
LFD	SPARE		20	1	53			-
LFD	SPARE		20	1	55	-		
	TOTAL					560	560	1,440
	PHASE TOTAL					1,180	1,120	2,840

VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
60			2	1	10	P-3000-173	VAL-3012A	LFD
	60		4	1	10		VAL-3012B	LFD
		60	6	1	10		VAL-3012C	LFD
60			8	1	10	P-3000-174	VAL-3012D	LFD
	60		10	1	10		VAL-3012E	LFD
		60	12	1	10		VAL-3012F	LFD
60			14	1	10	P-3000-175	VAL-3012G	LFD
	60		16	1	10		VAL-3012H	LFD
		500	18	1	20	P-3000-181	LCP-3012	LFD
100			20	1	20	P-3000-182	FIT-3012	LFD
	100		22	1	20	P-3000-183	AIT-3012	LFD
		100	24	1	20	P-3000-241	FSH-LOADING DOCK AREA EYEWASH	LFD
60			26	1	10	P-3000-201	VAL-3016A	LFD
	60		28	1	10		VAL-3016B	LFD
		60	30	1	10		VAL-3016C	LFD
60			32	1	10	P-3000-202	VAL-3016D	LFD
	60		34	1	10		VAL-3016E	LFD
		60	36	1	10		VAL-3016F	LFD
60			38	1	10	P-3000-203	VAL-3016G	LFD
	60		40	1	10		VAL-3016H	LFD
		500	42	1	20	P-3000-209	LCP-3016	LFD
100			44	1	20	P-3000-210	FIT-3016	LFD
	100		46	1	20	P-3000-211	AIT-3016	LFD
		60	48	1	20	P-3000-199	BACKWASH SUPPLY LINE - 24" MAGNETIC FLOW METER	LFD
60			50	1	20	P-3000-200	VAL-3070	LFD
	-		52	1	20		SPARE	LFD
		-	54	1	20		SPARE	LFD
-			56	1	20		SPARE	LFD
620	560	1,400	TOTAL					
TOTAL LOAD (VA)								
5,140								
TOTAL LOAD (A)								
14								

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
10kAIC

FILTER BUILDING EQUIPMENT SCHEDULE									
FILTER No.	VAL-300XX	LCP-300X	FIT-300X	AIT-300X	PPB-FB-VAL-X	PPB-FB-X	JB-X-A/C/D	JB-X-E/G	JB-X-B/F/H

FILTER 9	VAL-3009A	LCP-3009	FIT-3009	AIT-3009	PPB-FB-VAL-9	PPB-FB-9	JB-9-A/C/D	JB-9-E/G	JB-9-B/F/H
	VAL-3009B								
	VAL-3009C								
	VAL-3009D								
	VAL-3009E								
	VAL-3009F								
	VAL-3009G								
	VAL-3009H								
FILTER 11	VAL-3011A	LCP-3011	FIT-3011	AIT-301	PPB-FB-VAL-11	PPB-FB-11	JB-11-A/C/D	JB-11-E/G	JB-11-B/F/H
	VAL-3011B								
	VAL-3011C								
	VAL-3011D								
	VAL-3011E								
	VAL-3011F								
	VAL-3011G								
	VAL-3011H								
FILTER 13	VAL-30013A	LCP-3013	FIT-3013	AIT-3013	PPB-FB-VAL-13	PPB-FB-13	JB-13-A/C/D	JB-13-E/G	JB-13-B/F/H
	VAL-3013B								
	VAL-3013C								
	VAL-3013D								
	VAL-3013E								
	VAL-3013F								
	VAL-3013G								
	VAL-3013H								
FILTER 15	VAL-3015A	LCP-3015	FIT-3015	AIT-3015	PPB-FB-VAL-15	PPB-FB-15	JB-15-A/C/D	JB-15-E/G	JB-15-B/F/H
	VAL-3015B								
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	VAL-3015E								
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	VAL-3015G								
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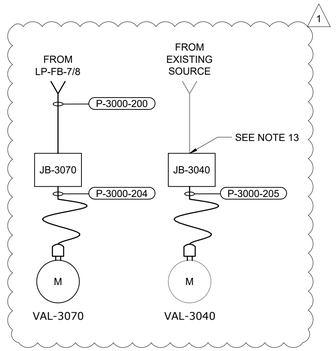

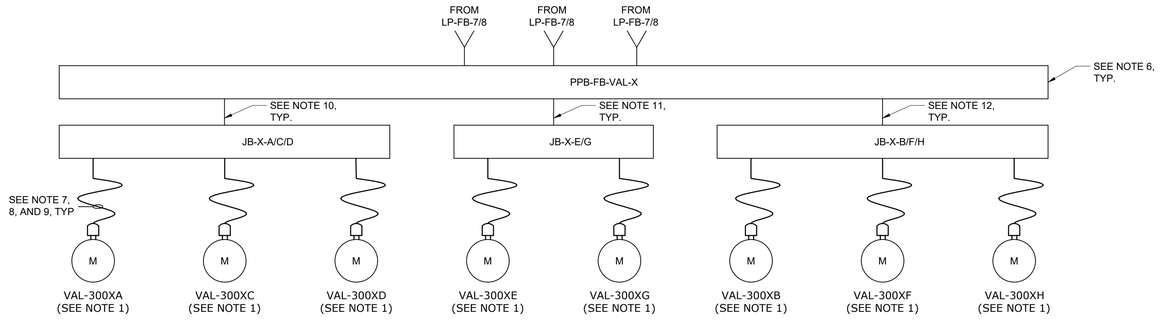

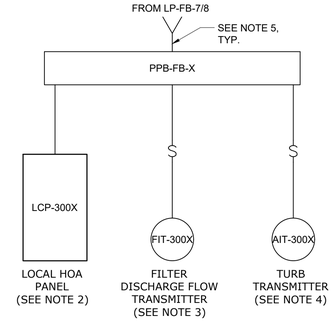

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10. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XA, C, AND D) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS
11. POWER CONDUCTORS FOR EACH SET OF 2 VALVES (VAL-300XE AND G) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16 FILTERS.
12. POWER CONDUCTORS FOR EACH SET OF 3 VALVES (VAL-300XB, F, AND H) SHALL BE COMBINED IN JUNCTION BOX FOR RUN BACK TO PULL BOX. TYPICAL OF ALL 16
13. DISCONNECT EXISTING CIRCUIT FROM VAL-3040 AND CONNECT SAME CIRCUIT TO JB-3040.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. REXHEPI
DRAWN BY: S. REXHEPI
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

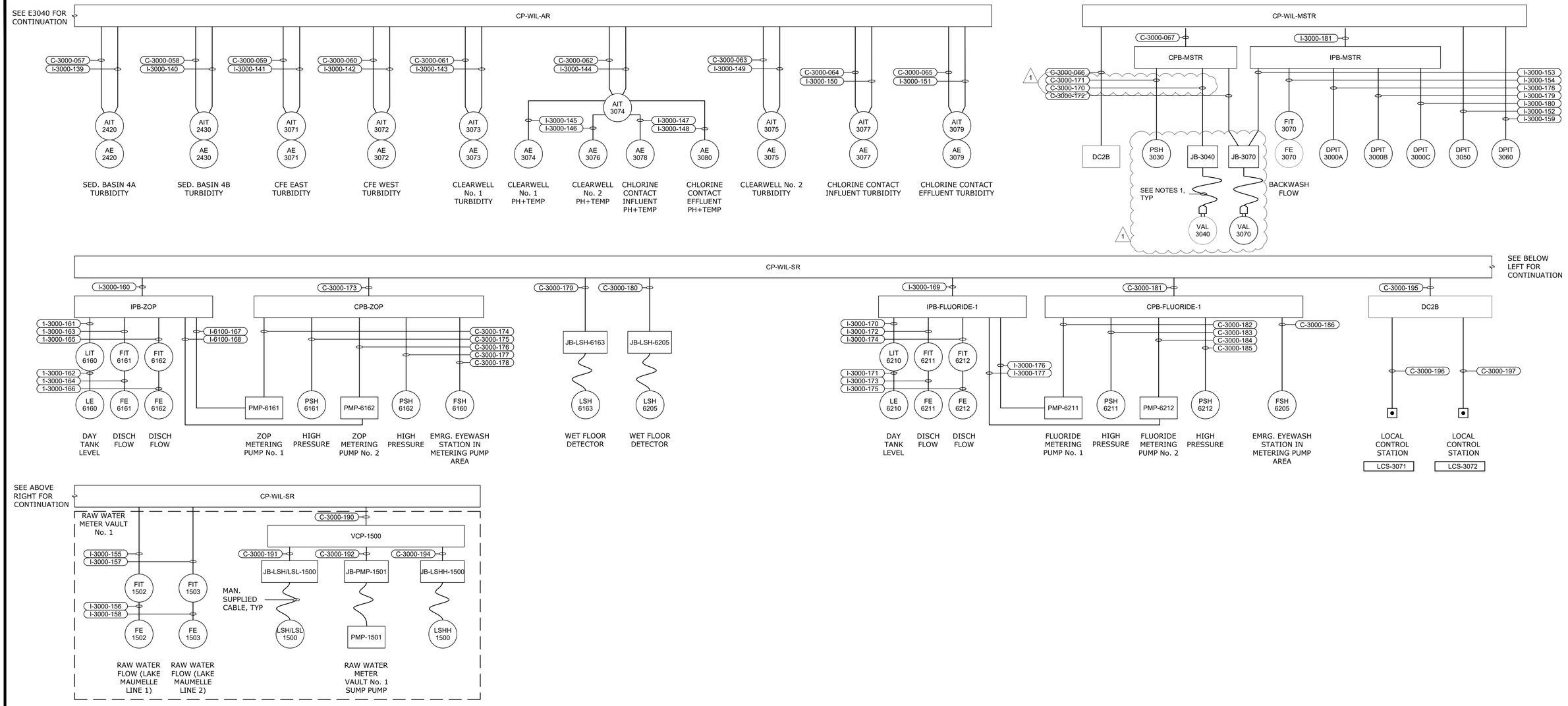
Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
PANEL SCHEDULES AND RISER DIAGRAMS VI

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3035



1. NOTES:
   1. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E3203 FOR CONNECTION DETAILS AND CONDUIT NUMBER.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: N. NELSON
DRAWN BY: N. NELSON
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
CONTROL BLOCK DIAGRAM IV

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3041

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-3000-001	1-1/2"	DC2B	WASH WATER SUPPLY PUMP [PMP-3030]	3#2/0, #4GND	VIA DSW
P-3000-002	1"	DC2B	T-LPFB1	3#4, #8GND	
P-3000-003	1-1/2"	T-LPFB1	LP-FB-1/2	4#1, #6GND	
P-3000-004	3/4"	PANEL LF	GUH-3001	2#12, #12GND	
P-3000-005	1-1/2"	LP-FB-1/2	LP-FB-3/4	4#4, #8GND	
P-3000-006	3/4"	PANEL LF	GUH-3002	2#12, #12GND	
P-3000-007	1"	DC2B	T-LPFB5	3#4, #8GND	
P-3000-008	1-1/2"	T-LPFB5	LP-FB-5/6	4#1, #6GND	
P-3000-009	3/4"	PANEL LF	GUH-3003	2#12, #12GND	
P-3000-010	1-1/2"	LP-FB-5/6	LP-FB-7/8	4#4, #8GND	
P-3000-011	3/4"	PANEL LF	GUH-3004	2#12, #12GND	
P-3000-012	1-1/2"	DC2B	PP-FB-2	3#1, #6GND	
P-3000-013	2"	DC2B	PP-FB-1	3#4/0, #4GND	
P-3000-014	3/4"	DC2B	PMP-3071	3#12, #12GND	VIA DSW
P-3000-015	3/4"	DC2B	PMP-3072	3#12, #12GND	VIA DSW
P-3000-016	1"	DC2B	T-LPFB9	3#4, #8GND	
P-3000-017	1-1/2"	T-LPFB9	LP-FB-9	4#1, #6GND	
P-3000-018	1-1/2"	DSW-UPS	UPS	4#1, #6GND	
P-3000-019	1-1/2"	LP-FB-10	LP-FB-11	4#1, #6GND	
P-3000-020	1"	DC3B	T-LPFB10	3#4, #8GND	
P-3000-021	1-1/2"	T-LPFB10	LP-FB-10	4#1/0, #6GND	
P-3000-022	1-1/2"	T-EP/LF	PANEL LF	4#1/0, #6GND	
P-3000-023	1-1/2"	DC3B	DSW-UPS	4#1, #6GND	
P-3000-024	1-1/2"	UPS	PANEL WIL UPS	4#1, #6GND	
P-3000-025	3/4"	PANEL LF	GUH-3005	2#12, #12GND	
P-3000-026	3/4"	PANEL LF	GUH-3006	2#12, #12GND	
P-3000-027	3/4"	PANEL LF	GUH-3007	2#12, #12GND	
P-3000-028	3/4"	LP-FB-11	FINISHED WATER CHEMICAL FEED OH DOOR	2#12, #12GND	
P-3000-029	3/4"	LP-FB-9	HURRICANE SHUTTERS BREAK RM AND CONTROL RM	2#12, #12GND	
P-3000-030	3/4"	LP-FB-1/2	JB-3001-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3001
P-3000-031	3/4"	LP-FB-1/2	JB-3001-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3001
P-3000-032	3/4"	LP-FB-1/2	JB-3001-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3001
P-3000-033	1-1/2"	JB-3001-A/C/D	VAL-3001A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-034	1-1/2"	JB-3001-A/C/D	VAL-3001C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-035	1-1/2"	JB-3001-A/C/D	VAL-3001D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-036	1-1/2"	JB-3001-E/G	VAL-3001E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-037	1-1/2"	JB-3001-E/G	VAL-3001G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-038	3/4"	LP-FB-1/2	LCP-3001	2#12, #12GND	VIA PPB-FB-3001
P-3000-039	3/4"	LP-FB-1/2	FIT-3001	2#12, #12GND	VIA PPB-FB-3001
P-3000-040	3/4"	LP-FB-1/2	AIT-3001	2#12, #12GND	VIA PPB-FB-3001
P-3000-041	3/4"	LP-FB-1/2	JB-3003-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3003
P-3000-042	3/4"	LP-FB-1/2	JB-3003-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3003
P-3000-043	3/4"	LP-FB-1/2	JB-3003-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3003
P-3000-044	1-1/2"	JB-3003-A/C/D	VAL-3003A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-045	1-1/2"	JB-3003-A/C/D	VAL-3003C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-046	1-1/2"	JB-3003-A/C/D	VAL-3003D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-047	1-1/2"	JB-3003-E/G	VAL-3003E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-048	1-1/2"	JB-3003-E/G	VAL-3003G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-049	3/4"	LP-FB-1/2	LCP-3003	2#12, #12GND	VIA PPB-FB-3003
P-3000-050	3/4"	LP-FB-1/2	FIT-3003	2#12, #12GND	VIA PPB-FB-3003
P-3000-051	3/4"	LP-FB-1/2	AIT-3003	2#12, #12GND	VIA PPB-FB-3003
P-3000-052	3/4"	LP-FB-1/2	JB-3005-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3005
P-3000-053	3/4"	LP-FB-1/2	JB-3005-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3005
P-3000-054	3/4"	LP-FB-1/2	JB-3005-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3005
P-3000-055	1-1/2"	JB-3005-A/C/D	VAL-3005A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-056	1-1/2"	JB-3005-A/C/D	VAL-3005C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-057	1-1/2"	JB-3005-A/C/D	VAL-3005D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-058	1-1/2"	JB-3005-E/G	VAL-3005E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-059	1-1/2"	JB-3005-E/G	VAL-3005G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-060	3/4"	LP-FB-1/2	LCP-3005	2#12, #12GND	VIA PPB-FB-3005
P-3000-061	3/4"	LP-FB-1/2	FIT-3005	2#12, #12GND	VIA PPB-FB-3005
P-3000-062	3/4"	LP-FB-1/2	AIT-3005	2#12, #12GND	VIA PPB-FB-3005
P-3000-063	3/4"	LP-FB-1/2	JB-3007-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3007
P-3000-064	3/4"	LP-FB-1/2	JB-3007-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3007
P-3000-065	3/4"	LP-FB-1/2	JB-3007-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3007
P-3000-066	1-1/2"	JB-3007-A/C/D	VAL-3007A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-067	1-1/2"	JB-3007-A/C/D	VAL-3007C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-068	1-1/2"	JB-3007-A/C/D	VAL-3007D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-069	1-1/2"	JB-3007-E/G	VAL-3007E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-070	1-1/2"	JB-3007-E/G	VAL-3007G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-071	3/4"	LP-FB-1/2	LCP-3007	2#12, #12GND	VIA PPB-FB-3007
P-3000-072	3/4"	LP-FB-1/2	FIT-3007	2#12, #12GND	VIA PPB-FB-3007
P-3000-073	3/4"	LP-FB-1/2	AIT-3007	2#12, #12GND	VIA PPB-FB-3007
P-3000-074	3/4"	LP-FB-3/4	JB-3002-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3002
P-3000-075	3/4"	LP-FB-3/4	JB-3002-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3002
P-3000-076	3/4"	LP-FB-3/4	JB-3002-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3002
P-3000-077	1-1/2"	JB-3002-A/C/D	VAL-3002A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-078	1-1/2"	JB-3002-A/C/D	VAL-3002C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-079	1-1/2"	JB-3002-A/C/D	VAL-3002D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-080	1-1/2"	JB-3002-E/G	VAL-3002E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-081	1-1/2"	JB-3002-E/G	VAL-3002G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-082	3/4"	LP-FB-3/4	LCP-3002	2#12, #12GND	VIA PPB-FB-3002
P-3000-083	3/4"	LP-FB-3/4	FIT-3002	2#12, #12GND	VIA PPB-FB-3002
P-3000-084	3/4"	LP-FB-3/4	AIT-3002	2#12, #12GND	VIA PPB-FB-3002
P-3000-085	3/4"	LP-FB-3/4	JB-3004-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3004
P-3000-086	3/4"	LP-FB-3/4	JB-3004-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3004
P-3000-087	3/4"	LP-FB-3/4	JB-3004-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3004
P-3000-088	1-1/2"	JB-3004-A/C/D	VAL-3004A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-089	1-1/2"	JB-3004-A/C/D	VAL-3004C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-090	1-1/2"	JB-3004-A/C/D	VAL-3004D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-091	1-1/2"	JB-3004-E/G	VAL-3004E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-092	1-1/2"	JB-3004-E/G	VAL-3004G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-093	3/4"	LP-FB-3/4	LCP-3004	2#12, #12GND	VIA PPB-FB-3004
P-3000-094	3/4"	LP-FB-3/4	FIT-3004	2#12, #12GND	VIA PPB-FB-3004
P-3000-095	3/4"	LP-FB-3/4	AIT-3004	2#12, #12GND	VIA PPB-FB-3004
P-3000-096	3/4"	LP-FB-3/4	JB-3006-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3006
P-3000-097	3/4"	LP-FB-3/4	JB-3006-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3006
P-3000-098	3/4"	LP-FB-3/4	JB-3006-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3006
P-3000-099	1-1/2"	JB-3006-A/C/D	VAL-3006A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-100	1-1/2"	JB-3006-A/C/D	VAL-3006C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-101	1-1/2"	JB-3006-A/C/D	VAL-3006D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-102	1-1/2"	JB-3006-E/G	VAL-3006E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-103	1-1/2"	JB-3006-E/G	VAL-3006G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-104	3/4"	LP-FB-3/4	LCP-3006	2#12, #12GND	VIA PPB-FB-3006
P-3000-105	3/4"	LP-FB-3/4	FIT-3006	2#12, #12GND	VIA PPB-FB-3006
P-3000-106	3/4"	LP-FB-3/4	AIT-3006	2#12, #12GND	VIA PPB-FB-3006
P-3000-107	3/4"	LP-FB-3/4	JB-3008-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3008
P-3000-108	3/4"	LP-FB-3/4	JB-3008-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3008
P-3000-109	3/4"	LP-FB-3/4	JB-3008-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3008
P-3000-110	1-1/2"	JB-3008-A/C/D	VAL-3008A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-111	1-1/2"	JB-3008-A/C/D	VAL-3008C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-112	1-1/2"	JB-3008-A/C/D	VAL-3008D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-113	1-1/2"	JB-3008-E/G	VAL-3008E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-114	1-1/2"	JB-3008-E/G	VAL-3008G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-115	3/4"	LP-FB-3/4	LCP-3008	2#12, #12GND	VIA PPB-FB-3008
P-3000-116	3/4"	LP-FB-3/4	FIT-3008	2#12, #12GND	VIA PPB-FB-3008
P-3000-117	3/4"	LP-FB-3/4	AIT-3008	2#12, #12GND	VIA PPB-FB-3008
P-3000-118	3/4"	LP-FB-5/6	JB-3009-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3009
P-3000-119	3/4"	LP-FB-5/6	JB-3009-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3009
P-3000-120	3/4"	LP-FB-5/6	JB-3009-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3009
P-3000-121	1-1/2"	JB-3009-A/C/D	VAL-3009A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-122	1-1/2"	JB-3009-A/C/D	VAL-3009C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-123	1-1/2"	JB-3009-A/C/D	VAL-3009D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-124	1-1/2"	JB-3009-E/G	VAL-3009E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-125	1-1/2"	JB-3009-E/G	VAL-3009G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-126	3/4"	LP-FB-5/6	LCP-3009	2#12, #12GND	VIA PPB-FB-3009
P-3000-127	3/4"	LP-FB-5/6	FIT-3009	2#12, #12GND	VIA PPB-FB-3009
P-3000-128	3/4"	LP-FB-5/6	AIT-3009	2#12, #12GND	VIA PPB-FB-3009
P-3000-129	3/4"	LP-FB-5/6	JB-3011-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3011
P-3000-130	3/4"	LP-FB-5/6	JB-3011-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3011
P-3000-131	3/4"	LP-FB-5/6	JB-3011-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3011
P-3000-132	1-1/2"	JB-3011-A/C/D	VAL-3011A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-133	1-1/2"	JB-3011-A/C/D	VAL-3011C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-134	1-1/2"	JB-3011-A/C/D	VAL-3011D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-135	1-1/2"	JB-3011-E/G	VAL-3011E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-136	1-1/2"	JB-3011-E/G	VAL-3011G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-137	3/4"	LP-FB-5/6	LCP-3011	2#12, #12GND	VIA PPB-FB-3011
P-3000-138	3/4"	LP-FB-5/6	FIT-3011	2#12, #12GND	VIA PPB-FB-3011
P-3000-139	3/4"	LP-FB-5/6	AIT-3011	2#12, #12GND	VIA PPB-FB-3011
P-3000-140	3/4"	LP-FB-5/6	JB-3013-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3013
P-3000-141	3/4"	LP-FB-5/6	JB-3013-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3013
P-3000-142	3/4"	LP-FB-5/6	JB-3013-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3013
P-3000-143	1-1/2"	JB-3013-A/C/D	VAL-3013A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-144	1-1/2"	JB-3013-A/C/D	VAL-3013C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-145	1-1/2"	JB-3013-A/C/D	VAL-3013D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-146	1-1/2"	JB-3013-E/G	VAL-3013E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-147	1-1/2"	JB-3013-E/G	VAL-3013G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-148	3/4"	LP-FB-5/6	LCP-3013	2#12, #12GND	VIA PPB-FB-3013
P-3000-149	3/4"	LP-FB-5/6	FIT-3013	2#12, #12GND	VIA PPB-FB-3013
P-3000-150	3/4"	LP-FB-5/6	AIT-3013	2#12, #12GND	VIA PPB-FB-3013
P-3000-151	3/4"	LP-FB-5/6	JB-3015-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3015
P-3000-152	3/4"	LP-FB-5/6	JB-3015-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3015
P-3000-153	3/4"	LP-FB-5/6	JB-3015-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3015
P-3000-154	1-1/2"	JB-3015-A/C/D	VAL-3015A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-155	1-1/2"	JB-3015-A/C/D	VAL-3015C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-156	1-1/2"	JB-3015-A/C/D	VAL-3015D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-157	1-1/2"	JB-3015-E/G	VAL-3015E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-158	1-1/2"	JB-3015-E/G	VAL-3015G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-159	3/4"	LP-FB-5/6	LCP-3015	2#12, #12GND	VIA PPB-FB-3015
P-3000-160	3/4"	LP-FB-5/6	FIT-3015	2#12, #12GND	VIA PPB-FB-3015
P-3000-161	3/4"	LP-FB-5/6	AIT-3015	2#12, #12GND	VIA PPB-FB-3015
P-3000-162	3/4"	LP-FB-7/8	JB-3010-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3010
P-3000-163	3/4"	LP-FB-7/8	JB-3010-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3010
P-3000-164	3/4"	LP-FB-7/8	JB-3010-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3010
P-3000-165	1-1/2"	JB-3010-A/C/D	VAL-3010A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-166	1-1/2"	JB-3010-A/C/D	VAL-3010C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-167	1-1/2"	JB-3010-A/C/D	VAL-3010D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-168	1-1/2"	JB-3010-E/G	VAL-3010E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-169	1-1/2"	JB-3010-E/G	VAL-3010G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-170	3/4"	LP-FB-7/8	LCP-3010	2#12, #12GND	VIA PPB-FB-3010
P-3000-171	3/4"	LP-FB-7/8	FIT-3010	2#12, #12GND	VIA PPB-FB-3010
P-3000-172	3/4"	LP-FB-7/8	AIT-3010	2#12, #12GND	VIA PPB-FB-3010

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. REXHEPI
DRAWN BY: S. REXHEPI
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULE I

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3043

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-3000-173	3/4"	LP-FB-7/8	JB-3012-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3012
P-3000-174	3/4"	LP-FB-7/8	JB-3012-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3012
P-3000-175	3/4"	LP-FB-7/8	JB-3012-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3012
P-3000-176	1-1/2"	JB-3012-A/C/D	VAL-3012A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-177	1-1/2"	JB-3012-A/C/D	VAL-3012C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-178	1-1/2"	JB-3012-A/C/D	VAL-3012D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-179	1-1/2"	JB-3012-E/G	VAL-3012E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-180	1-1/2"	JB-3012-E/G	VAL-3012G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-181	3/4"	LP-FB-7/8	LCP-3012	2#12, #12GND	VIA PPB-FB-3012
P-3000-182	3/4"	LP-FB-7/8	FIT-3012	2#12, #12GND	VIA PPB-FB-3012
P-3000-183	3/4"	LP-FB-7/8	AIT-3012	2#12, #12GND	VIA PPB-FB-3012
P-3000-184	3/4"	LP-FB-7/8	JB-3014-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3014
P-3000-185	3/4"	LP-FB-7/8	JB-3014-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3014
P-3000-186	3/4"	LP-FB-7/8	JB-3014-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3014
P-3000-187	1-1/2"	JB-3014-A/C/D	VAL-3014A	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-188	1-1/2"	JB-3014-A/C/D	VAL-3014C	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-189	1-1/2"	JB-3014-A/C/D	VAL-3014D	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-190	1-1/2"	JB-3014-E/G	VAL-3014E	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-191	1-1/2"	JB-3014-E/G	VAL-3014G	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-192	3/4"	LP-FB-7/8	LCP-3014	2#12, #12GND	VIA PPB-FB-3014
P-3000-193	3/4"	LP-FB-7/8	FIT-3014	2#12, #12GND	VIA PPB-FB-3014
P-3000-194	3/4"	LP-FB-7/8	AIT-3014	2#12, #12GND	VIA PPB-FB-3014
P-3000-195	1"	LP-FB-11	HTCP-3000-1	2#10, #12GND	
P-3000-196	3/4"	HTCP-3000-1	TEPIC WATER HEATER 1-1/2" - CIRCUIT 1	2#10, #12GND	
P-3000-197	3/4"	TEPIC WATER HEATER 1-1/2" - CIRCUIT 1	FLUORIDE - CIRCUIT 2	2#10, #12GND	
P-3000-198	3/4"	FLUORIDE - CIRCUIT 2	ZOP - CIRCUIT 3	2#10, #12GND	
P-3000-199	3/4"	LP-FB-7/8	BACKWASH SUPPLY LINE-24" MAGNETIC FLOW METER	2#12, #12GND	
P-3000-200	3/4"	LP-FB-7/8	JB-3070	2#12, #12GND	
P-3000-201	3/4"	LP-FB-7/8	JB-3016-A/C/D	3(2#12, #12GND)	VIA PPB-FB-VAL-3016
P-3000-202	3/4"	LP-FB-7/8	JB-3016-E/G	2(2#12, #12GND)	VIA PPB-FB-VAL-3016
P-3000-203	3/4"	LP-FB-7/8	JB-3016-B/F/H	3(2#12, #12GND)	VIA PPB-FB-VAL-3016
P-3000-204	3/4"	JB-3070	VAL-3070	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-205	3/4"	JB-3040	VAL-3040	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-206	1-1/2"	JB-3016-A/C/D	VAL-3016A	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-207	1-1/2"	JB-3016-A/C/D	VAL-3016C	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-208	1-1/2"	JB-3016-A/C/D	VAL-3016D	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-209	3/4"	LP-FB-7/8	LCP-3016	2#12, #12GND	VIA PPB-FB-3016
P-3000-210	3/4"	LP-FB-7/8	FIT-3016	2#12, #12GND	VIA PPB-FB-3016
P-3000-211	3/4"	LP-FB-7/8	AIT-3016	2#12, #12GND	VIA PPB-FB-3016
P-3000-212	3/4"	LP-FB-9	AIT-2051	2#12, #12GND	
P-3000-213	3/4"	LP-FB-9	AIT-2052	2#12, #12GND	
P-3000-214	3/4"	LP-FB-9	AIT-2120	2#12, #12GND	
P-3000-215	3/4"	LP-FB-9	AIT-2130	2#12, #12GND	
P-3000-216	3/4"	LP-FB-9	AIT-2220	2#12, #12GND	
P-3000-217	3/4"	LP-FB-9	AIT-2230	2#12, #12GND	
P-3000-218	3/4"	LP-FB-9	AIT-2320	2#12, #12GND	
P-3000-219	3/4"	LP-FB-9	AIT-2330	2#12, #12GND	
P-3000-220	3/4"	LP-FB-9	AIT-2420	2#12, #12GND	
P-3000-221	3/4"	LP-FB-9	AIT-2430	2#12, #12GND	
P-3000-222	3/4"	LP-FB-9	EUH-3002	2#12, #12GND	
P-3000-223	3/4"	LP-FB-9	EUH-3003	2#12, #12GND	
P-3000-224	1-1/2"	JB-3016-E/G	VAL-3016E	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-225	1-1/2"	JB-3016-E/G	VAL-3016G	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-3000-226	3/4"	LP-FB-9	EF-3001	2#12, #12GND	
P-3000-227	3/4"	LP-FB-9	EF-3002	2#12, #12GND	
P-3000-228	3/4"	PP-FB-1	EF-3003	3#12, #12GND	
P-3000-229	3/4"	LP-FB-11	EF-3006	2#12, #12GND	
P-3000-230	3/4"	LP-FB-11	EF-3007	2#12, #12GND	
P-3000-231	3/4"	LP-FB-11	AHU-3007	2#12, #12GND	
P-3000-232	3/4"	PP-FB-1	AHU-3008	2#12, #12GND	
P-3000-233	3/4"	LP-FB-9	AIT-3071	2#12, #12GND	
P-3000-234	3/4"	LP-FB-9	AIT-3072	2#12, #12GND	
P-3000-235	3/4"	LP-FB-9	AIT-3073	2#12, #12GND	
P-3000-236	3/4"	LP-FB-9	AIT-3074	2#12, #12GND	
P-3000-237	3/4"	LP-FB-9	AIT-3075	2#12, #12GND	
P-3000-238	3/4"	LP-FB-9	AIT-3077	2#12, #12GND	
P-3000-239	3/4"	LP-FB-9	AIT-3079	2#12, #12GND	
P-3000-240	3/4"	LP-FB-7/8	FSH-BASEMENT GALLERY EYEWASH	2#12, #12GND	
P-3000-241	3/4"	LP-FB-7/8	FSH-LOADING DOCK AREA EYEWASH	2#12, #12GND	
P-3000-242	3/4"	LP-FB-9	RCP-3001	2#12, #12GND	
P-3000-243	3/4"	LP-FB-9	DP-3001	2#12, #12GND	
P-3000-244	3/4"	LP-FB-9	ACC-3003	2#12, #12GND	
P-3000-245	3/4"	LP-FB-9	ACC-3005	2#12, #12GND	
P-3000-246	3/4"	LP-FB-10	AHU-3003	2#12, #12GND	
P-3000-247	3/4"	LP-FB-10	AHU-3004	2#12, #12GND	
P-3000-248	3/4"	LP-FB-9	AHU-3005	2#12, #12GND	
P-3000-249	3/4"	LP-FB-11	PMP-6161	2#12, #12GND	
P-3000-250	3/4"	LP-FB-11	PMP-6162	2#12, #12GND	
P-3000-251	3/4"	LP-FB-11	PMP-6211	2#12, #12GND	
P-3000-252	3/4"	LP-FB-11	PMP-6212	2#12, #12GND	
P-3000-253	3/4"	PP-FB-2	WH-3002	3#12, #12GND	
P-3000-254	3/4"	PP-FB-2	EUH-3001	3#12, #12GND	
P-3000-255	3/4"	PP-FB-2	EUH-3101	3#12, #12GND	
P-3000-256	3/4"	PP-FB-2	EUH-3102	3#12, #12GND	
P-3000-257	3/4"	PP-FB-2	EUH-3103	3#12, #12GND	
P-3000-258	3/4"	PP-FB-1	WH-3001	3#12, #12GND	
P-3000-259	3/4"	LP-FB-10	ACC-3001	2#8, #8GND	
P-3000-260	3/4"	LP-FB-10	ACC-3002	2#8, #8GND	
P-3000-261	3/4"	LP-FB-10	AHU-3001	2#12, #12GND	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-3000-262	3/4"	LP-FB-10	AHU-3002	2#12, #12GND	
P-3000-263	3/4"	LP-FB-9	AHU-3006	2#12, #12GND	
P-3000-264	3/4"	LP-FB-9	EF-3004	2#12, #12GND	
P-3000-265	3/4"	LP-FB-11	EF-3005	2#12, #12GND	
P-3000-266	3/4"	LP-FB-10	CHAIR LIFT	2#12, #12GND	
P-3000-267	3/4"	LP-FB-11	FSH-6205	2#12, #12GND	
P-3000-268	3/4"	LP-FB-11	FSH-6160	2#12, #12GND	
P-3000-269	3/4"	LP-FB-11	LIT-6160	2#12, #12GND	
P-3000-270	3/4"	LP-FB-1/2	AIT-3001A	2#12, #12GND	
P-3000-271	3/4"	LP-FB-11	FIT/FE-6161	2#12, #12GND	
P-3000-272	3/4"	LP-FB-11	FIT/FE-6162	2#12, #12GND	
P-3000-273	3/4"	LP-FB-11	LIT-6210	2#12, #12GND	
P-3000-274	3/4"	LP-FB-3/4	AIT-3008A	2#12, #12GND	
P-3000-275				NOT USED	
P-3000-276				NOT USED	
P-3000-277	3/4"	PANEL LF	GUH-3008	2#12, #12GND	
P-3000-278	3/4"	PANEL LF	GUH-3009	2#12, #12GND	
P-3000-279	3/4"	LP-FB-9	ACC-3004	2#12, #12GND	
P-3000-280	3/4"	LP-FB-9	ACC-3006	2#12, #12GND	
P-3000-281	3/4"	LP-FB-9	ACC-3007	2#12, #12GND	
P-3000-282	3/4"	PANEL LF	ACC-3008	2#10, #10GND	
P-3000-283	3/4"	PANEL LF	RF-3001	2#12, #12GND	
P-3000-284	3/4"	PANEL LF	RF-3002	2#12, #12GND	
P-3000-285	3/4"	PANEL LF	RF-3003	2#12, #12GND	
P-3000-286	1-1/2"	DC2B	MCC-FLOC-4	3#1/0, #1GND	TEMPORARY CIRCUIT
P-3000-287	1-1/2"	DC3B	MCC-FLOC-3	3#1/0, #1GND	TEMPORARY CIRCUIT
P-3000-288	3/4"	LP-FB-11	WH-3002 RECIR. PUMP	2#12, #12GND	
P-3000-289	3/4"	LP-FB-10	WH-3001 RECIR. PUMP	2#12, #12GND	
P-3000-290	3/4"	HTCP-3000-1	TEPIC WATER HEATER 1" - CIRCUIT 4	2#10, #10GND	
P-3000-291	3/4"	TEPIC WATER HEATER 1" - CIRCUIT 4	FLUORIDE - CIRCUIT 5	2#10, #10GND	
P-3000-292	3/4"	FLUORIDE - CIRCUIT 5	ZOP - CIRCUIT 6	2#10, #10GND	
P-3000-293	3/4"	LP-FB-5/6	AIT-3009A	2#12, #12GND	
P-3000-294	3/4"	LP-FB-7/8	AIT-3016A	2#12, #12GND	
P-3000-295	1-1/2"	JB-3001-B/F/H	VAL-3001B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-296	1-1/2"	JB-3001-B/F/H	VAL-3001F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-297	1-1/2"	JB-3001-B/F/H	VAL-3001H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-298	1-1/2"	JB-3003-B/F/H	VAL-3003B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-299	1-1/2"	JB-3003-B/F/H	VAL-3003F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-300	1-1/2"	JB-3003-B/F/H	VAL-3003H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-301	1-1/2"	JB-3005-B/F/H	VAL-3005B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-302	1-1/2"	JB-3005-B/F/H	VAL-3005F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-303	1-1/2"	JB-3005-B/F/H	VAL-3005H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-304	1-1/2"	JB-3007-B/F/H	VAL-3007B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-305	1-1/2"	JB-3007-B/F/H	VAL-3007F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-306	1-1/2"	JB-3007-B/F/H	VAL-3007H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-307	1-1/2"	JB-3002-B/F/H	VAL-3002B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-308	1-1/2"	JB-3002-B/F/H	VAL-3002F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-309	1-1/2"	JB-3002-B/F/H	VAL-3002H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-310	1-1/2"	JB-3004-B/F/H	VAL-3004B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-311	1-1/2"	JB-3004-B/F/H	VAL-3004F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-312	1-1/2"	JB-3004-B/F/H	VAL-3004H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-313	1-1/2"	JB-3006-B/F/H	VAL-3006B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-314	1-1/2"	JB-3006-B/F/H	VAL-3006F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-315	1-1/2"	JB-3006-B/F/H	VAL-3006H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-316	1-1/2"	JB-3008-B/F/H	VAL-3008B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-317	1-1/2"	JB-3008-B/F/H	VAL-3008F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-318	1-1/2"	JB-3008-B/F/H	VAL-3008H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-319	1-1/2"	JB-3009-B/F/H	VAL-3009B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-320	1-1/2"	JB-3009-B/F/H	VAL-3009F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-321	1-1/2"	JB-3009-B/F/H	VAL-3009H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-322	1-1/2"	JB-3011-B/F/H	VAL-3011B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-323	1-1/2"	JB-3011-B/F/H	VAL-3011F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-324	1-1/2"	JB-3011-B/F/H	VAL-3011H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-325	1-1/2"	JB-3013-B/F/H	VAL-3013B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-326	1-1/2"	JB-3013-B/F/H	VAL-3013F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-327	1-1/2"	JB-3013-B/F/H	VAL-3013H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-328	1-1/2"	JB-3015-B/F/H	VAL-3016B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-329	1-1/2"	JB-3015-B/F/H	VAL-3016F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-330	1-1/2"	JB-3015-B/F/H	VAL-3016H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-331	1-1/2"	JB-3010-B/F/H	VAL-3010B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-332	1-1/2"	JB-3010-B/F/H	VAL-3010F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-333	1-1/2"	JB-3010-B/F/H	VAL-3010H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-334	1-1/2"	JB-3012-B/F/H	VAL-3012B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-335	1-1/2"	JB-3012-B/F/H	VAL-3012F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-336	1-1/2"	JB-3012-B/F/H	VAL-3012H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-337	1-1/2"	JB-3014-B/F/H	VAL-3014B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-338	1-1/2"	JB-3014-B/F/H	VAL-3014F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-339	1-1/2"	JB-3014-B/F/H	VAL-3014H	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-340	1-1/2"	JB-3016-B/F/H	VAL-3016B	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-341	1-1/2"	JB-3016-B/F/H	VAL-3016F	(2) PIGTAIL CORDSET	POWER AND CONTROL
P-3000-342	1-1/2"	JB-3016-B/F/H	VAL-3016H	(2) PIGTAIL CORDSET	POWER AND CONTROL

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1/08/24	BDB
1	ADDENDUM 1	12/17/24	BDB

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULE II

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E3044

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-3000-001	1"	CP-WIL-FLT1	LCP-3001	20#14, #14GND	
C-3000-002	3/4"	LCP-3001	JB-1-A/C/D	6#14, #14GND	
C-3000-003	3/4"	LCP-3001	JB-1-B/F/H	6#14, #14GND	
C-3000-004	1"	CP-WIL-FLT2	LCP-3002	20#14, #14GND	
C-3000-005	3/4"	LCP-3002	JB-2-A/C/D	6#14, #14GND	
C-3000-006	3/4"	LCP-3002	JB-2-B/F/H	6#14, #14GND	
C-3000-007	1"	CP-WIL-FLT3	LCP-3003	20#14, #14GND	
C-3000-008	3/4"	LCP-3003	JB-3-A/C/D	6#14, #14GND	
C-3000-009	3/4"	LCP-3003	JB-3-B/F/H	6#14, #14GND	
C-3000-010	1"	CP-WIL-FLT4	LCP-3004	20#14, #14GND	
C-3000-011	3/4"	LCP-3004	JB-4-A/C/D	6#14, #14GND	
C-3000-012	3/4"	LCP-3004	JB-4-B/F/H	6#14, #14GND	
C-3000-013	1"	CP-WIL-FLT5	LCP-3005	20#14, #14GND	
C-3000-014	3/4"	LCP-3005	JB-5-A/C/D	6#14, #14GND	
C-3000-015	3/4"	LCP-3005	JB-5-B/F/H	6#14, #14GND	
C-3000-016	1"	CP-WIL-FLT6	LCP-3006	20#14, #14GND	
C-3000-017	3/4"	LCP-3006	JB-6-A/C/D	6#14, #14GND	
C-3000-018	3/4"	LCP-3006	JB-6-B/F/H	6#14, #14GND	
C-3000-019	1"	CP-WIL-FLT7	LCP-3007	20#14, #14GND	
C-3000-020	3/4"	LCP-3007	JB-7-A/C/D	6#14, #14GND	
C-3000-021	3/4"	LCP-3007	JB-7-B/F/H	6#14, #14GND	
C-3000-022	1"	CP-WIL-FLT8	LCP-3008	20#14, #14GND	
C-3000-023	1"	LCP-3008	JB-8-A/C/D	6#14, #14GND	
C-3000-024	3/4"	LCP-3008	JB-8-B/F/H	6#14, #14GND	
C-3000-025	1"	CP-WIL-FLT9	LCP-3009	20#14, #14GND	
C-3000-026	3/4"	LCP-3009	JB-9-A/C/D	6#14, #14GND	
C-3000-027	3/4"	LCP-3009	JB-9-B/F/H	6#14, #14GND	
C-3000-028	1"	CP-WIL-FLT10	LCP-3010	20#14, #14GND	
C-3000-029	3/4"	LCP-3010	JB-10-A/C/D	6#14, #14GND	
C-3000-030	3/4"	LCP-3010	JB-10-B/F/H	6#14, #14GND	
C-3000-031	1"	CP-WIL-FLT11	LCP-3011	20#14, #14GND	
C-3000-032	3/4"	LCP-3011	JB-11-A/C/D	6#14, #14GND	
C-3000-033	3/4"	LCP-3011	JB-11-B/F/H	6#14, #14GND	
C-3000-034	1"	CP-WIL-FLT12	LCP-3012	20#14, #14GND	
C-3000-035	3/4"	LCP-3012	JB-12-A/C/D	6#14, #14GND	
C-3000-036	3/4"	LCP-3012	JB-12-B/F/H	6#14, #14GND	
C-3000-037	1"	CP-WIL-FLT13	LCP-3013	20#14, #14GND	
C-3000-038	3/4"	LCP-3013	JB-13-A/C/D	6#14, #14GND	
C-3000-039	3/4"	LCP-3013	JB-13-B/F/H	6#14, #14GND	
C-3000-040	1"	CP-WIL-FLT14	LCP-3014	20#14, #14GND	
C-3000-041	3/4"	LCP-3014	JB-14-A/C/D	6#14, #14GND	
C-3000-042	3/4"	LCP-3014	JB-14-B/F/H	6#14, #14GND	
C-3000-043	1"	CP-WIL-FLT15	LCP-3015	20#14, #14GND	
C-3000-044	3/4"	LCP-3015	JB-15-A/C/D	6#14, #14GND	
C-3000-045	3/4"	LCP-3015	JB-15-B/F/H	6#14, #14GND	
C-3000-046	1"	CP-WIL-FLT16	LCP-3016	20#14, #14GND	
C-3000-047	3/4"	CPB-FLT-16	JB-16-A/C/D	6#14, #14GND	
C-3000-048	3/4"	CPB-FLT-16	JB-16-B/F/H	6#14, #14GND	
C-3000-049	3/4"	CP-WIL-AR	AIT/AE-2051	4#14, #14GND	
C-3000-050	3/4"	CP-WIL-AR	AIT-2052	4#14, #14GND	
C-3000-051	3/4"	CP-WIL-AR	AIT/AE-2120	4#14, #14GND	
C-3000-052	3/4"	CP-WIL-AR	AIT/AE-2130	4#14, #14GND	
C-3000-053	3/4"	CP-WIL-AR	AIT/AE-2220	4#14, #14GND	
C-3000-054	3/4"	CP-WIL-AR	AIT/AE-2230	4#14, #14GND	
C-3000-055	3/4"	CP-WIL-AR	AIT/AE-2320	4#14, #14GND	
C-3000-056	3/4"	CP-WIL-AR	AIT/AE-2330	4#14, #14GND	
C-3000-057	3/4"	CP-WIL-AR	AIT/AE-2420	4#14, #14GND	
C-3000-058	3/4"	CP-WIL-AR	AIT/AE-2430	4#14, #14GND	
C-3000-059	3/4"	CP-WIL-AR	AIT/AE-3071	4#14, #14GND	
C-3000-060	3/4"	CP-WIL-AR	AIT/AE-3072	4#14, #14GND	
C-3000-061	3/4"	CP-WIL-AR	AIT/AE-3073	4#14, #14GND	
C-3000-062	3/4"	CP-WIL-AR	AIT-3074	4#14, #14GND	
C-3000-063	3/4"	CP-WIL-AR	AIT/AE-3075	4#14, #14GND	
C-3000-064	3/4"	CP-WIL-AR	AIT/AE-3077	4#14, #14GND	
C-3000-065	3/4"	CP-WIL-AR	AIT/AE-3079	4#14, #14GND	
C-3000-066	3/4"	CP-WIL-MSTR	DC2B	10#14, #14GND	
C-3000-067	1"	CP-WIL-MSTR	CPB-MSTR	24#14, #14GND	
C-3000-068	-			NOT USED	
C-3000-069	-			NOT USED	
C-3000-070	-			NOT USED	
C-3000-071	-			NOT USED	
C-3000-072	3/4"	LCP-3001	JB-1-A/C/D	6#14, #14GND	
C-3000-073	3/4"	LCP-3001	JB-1-A/C/D	6#14, #14GND	
C-3000-074	3/4"	LCP-3001	JB-1-E/G	6#14, #14GND	
C-3000-075	3/4"	LCP-3001	JB-1-B/F/H	6#14, #14GND	
C-3000-076	3/4"	LCP-3001	JB-1-E/G	6#14, #14GND	
C-3000-077	3/4"	LCP-3001	JB-1-B/F/H	6#14, #14GND	
C-3000-078	3/4"	LCP-3002	JB-2-A/C/D	6#14, #14GND	
C-3000-079	3/4"	LCP-3002	JB-2-A/C/D	6#14, #14GND	
C-3000-080	3/4"	LCP-3002	JB-2-E/G	6#14, #14GND	
C-3000-081	3/4"	LCP-3002	JB-2-B/F/H	6#14, #14GND	
C-3000-082	3/4"	LCP-3002	JB-2-E/G	6#14, #14GND	
C-3000-083	3/4"	LCP-3002	JB-2-B/F/H	6#14, #14GND	
C-3000-084	3/4"	LCP-3003	JB-3-A/C/D	6#14, #14GND	
C-3000-085	3/4"	LCP-3003	JB-3-A/C/D	6#14, #14GND	
C-3000-086	3/4"	LCP-3003	JB-3-E/G	6#14, #14GND	
C-3000-087	3/4"	LCP-3003	JB-3-B/F/H	6#14, #14GND	
C-3000-088	3/4"	LCP-3003	JB-3-E/G	6#14, #14GND	
C-3000-089	3/4"	LCP-3003	JB-3-B/F/H	6#14, #14GND	
C-3000-090	3/4"	LCP-3004	JB-4-A/C/D	6#14, #14GND	
C-3000-091	3/4"	LCP-3004	JB-4-A/C/D	6#14, #14GND	
C-3000-092	3/4"	LCP-3004	JB-4-E/G	6#14, #14GND	
C-3000-093	3/4"	LCP-3004	JB-4-B/F/H	6#14, #14GND	
C-3000-094	3/4"	LCP-3004	JB-4-E/G	6#14, #14GND	
C-3000-095	3/4"	LCP-3004	JB-4-B/F/H	6#14, #14GND	
C-3000-096	3/4"	LCP-3005	JB-5-A/C/D	6#14, #14GND	
C-3000-097	3/4"	LCP-3005	JB-5-A/C/D	6#14, #14GND	
C-3000-098	3/4"	LCP-3005	JB-5-E/G	6#14, #14GND	
C-3000-099	3/4"	LCP-3005	JB-5-B/F/H	6#14, #14GND	
C-3000-100	3/4"	LCP-3005	JB-5-E/G	6#14, #14GND	
C-3000-101	3/4"	LCP-3005	JB-5-B/F/H	6#14, #14GND	
C-3000-102	3/4"	LCP-3006	JB-6-A/C/D	6#14, #14GND	
C-3000-103	3/4"	LCP-3006	JB-6-A/C/D	6#14, #14GND	
C-3000-104	3/4"	LCP-3006	JB-6-E/G	6#14, #14GND	
C-3000-105	3/4"	LCP-3006	JB-6-B/F/H	6#14, #14GND	
C-3000-106	3/4"	LCP-3006	JB-6-E/G	6#14, #14GND	
C-3000-107	3/4"	LCP-3006	JB-6-B/F/H	6#14, #14GND	
C-3000-108	3/4"	LCP-3007	JB-7-A/C/D	6#14, #14GND	
C-3000-109	3/4"	LCP-3007	JB-7-A/C/D	6#14, #14GND	
C-3000-110	3/4"	LCP-3007	JB-7-E/G	6#14, #14GND	
C-3000-111	3/4"	LCP-3007	JB-7-B/F/H	6#14, #14GND	
C-3000-112	3/4"	LCP-3007	JB-7-E/G	6#14, #14GND	
C-3000-113	3/4"	LCP-3007	JB-7-B/F/H	6#14, #14GND	
C-3000-114	3/4"	LCP-3008	JB-8-A/C/D	6#14, #14GND	
C-3000-115	3/4"	LCP-3008	JB-8-A/C/D	6#14, #14GND	
C-3000-116	3/4"	LCP-3008	JB-8-E/G	6#14, #14GND	
C-3000-117	3/4"	LCP-3008	JB-8-B/F/H	6#14, #14GND	
C-3000-118	3/4"	LCP-3008	JB-8-E/G	6#14, #14GND	
C-3000-119	3/4"	LCP-3008	JB-8-B/F/H	6#14, #14GND	
C-3000-120	3/4"	LCP-3009	JB-9-A/C/D	6#14, #14GND	
C-3000-121	3/4"	LCP-3009	JB-9-A/C/D	6#14, #14GND	
C-3000-122	3/4"	LCP-3009	JB-9-E/G	6#14, #14GND	
C-3000-123	3/4"	LCP-3009	JB-9-B/F/H	6#14, #14GND	
C-3000-124	3/4"	LCP-3009	JB-9-E/G	6#14, #14GND	
C-3000-125	3/4"	LCP-3009	JB-9-B/F/H	6#14, #14GND	
C-3000-126	3/4"	LCP-3010	JB-10-A/C/D	6#14, #14GND	
C-3000-127	3/4"	LCP-3010	JB-10-A/C/D	6#14, #14GND	
C-3000-128	3/4"	LCP-3010	JB-10-E/G	6#14, #14GND	
C-3000-129	3/4"	LCP-3010	JB-10-B/F/H	6#14, #14GND	
C-3000-130	3/4"	LCP-3010	JB-10-E/G	6#14, #14GND	
C-3000-131	3/4"	LCP-3010	JB-10-B/F/H	6#14, #14GND	
C-3000-132	3/4"	LCP-3011	JB-11-A/C/D	6#14, #14GND	
C-3000-133	3/4"	LCP-3011	JB-11-A/C/D	6#14, #14GND	
C-3000-134	3/4"	LCP-3011	JB-11-E/G	6#14, #14GND	
C-3000-135	3/4"	LCP-3011	JB-11-B/F/H	6#14, #14GND	
C-3000-136	3/4"	LCP-3011	JB-11-E/G	6#14, #14GND	
C-3000-137	3/4"	LCP-3011	JB-11-B/F/H	6#14, #14GND	
C-3000-138	3/4"	LCP-3012	JB-12-A/C/D	6#14, #14GND	
C-3000-139	3/4"	LCP-3012	JB-12-A/C/D	6#14, #14GND	
C-3000-140	3/4"	LCP-3012	JB-12-E/G	6#14, #14GND	
C-3000-141	3/4"	LCP-3012	JB-12-B/F/H	6#14, #14GND	
C-3000-142	3/4"	LCP-3012	JB-12-E/G	6#14, #14GND	
C-3000-143	3/4"	LCP-3012	JB-12-B/F/H	6#14, #14GND	
C-3000-144	3/4"	LCP-3013	JB-13-A/C/D	6#14, #14GND	
C-3000-145	3/4"	LCP-3013	JB-13-A/C/D	6#14, #14GND	
C-3000-146	3/4"	LCP-3013	JB-13-E/G	6#14, #14GND	
C-3000-147	3/4"	LCP-3013	JB-13-B/F/H	6#14, #14GND	
C-3000-148	3/4"	LCP-3013	JB-13-E/G	6#14, #14GND	
C-3000-149	3/4"	LCP-3013	JB-13-B/F/H	6#14, #14GND	
C-3000-150	3/4"	LCP-3014	JB-14-A/C/D	6#14, #14GND	
C-3000-151	3/4"	LCP-3014	JB-14-A/C/D	6#14, #14GND	
C-3000-152	3/4"	LCP-3014	JB-14-E/G	6#14, #14GND	
C-3000-153	3/4"	LCP-3014	JB-14-B/F/H	6#14, #14GND	
C-3000-154	3/4"	LCP-3014	JB-14-E/G	6#14, #14GND	
C-3000-155	3/4"	LCP-3014	JB-14-B/F/H	6#14, #14GND	
C-3000-156	3/4"	LCP-3015	JB-15-A/C/D	6#14, #14GND	
C-3000-157	3/4"	LCP-3015	JB-15-A/C/D	6#14, #14GND	
C-3000-158	3/4"	LCP-3015	JB-15-E/G	6#14, #14GND	
C-3000-159	3/4"	LCP-3015	JB-15-B/F/H	6#14, #14GND	
C-3000-160	3/4"	LCP-3015	JB-15-E/G	6#14, #14GND	
C-3000-161	3/4"	LCP-3015	JB-15-B/F/H	6#14, #14GND	
C-3000-162	3/4"	LCP-3016	JB-16-A/C/D	6#14, #14GND	
C-3000-163	3/4"	LCP-3016	JB-16-A/C/D	6#14, #14GND	
C-3000-164	3/4"	LCP-3016	JB-16-E/G	6#14, #14GND	
C-3000-165	3/4"	LCP-3016	JB-16-B/F/H	6#14, #14GND	
C-3000-166	3/4"	LCP-3016	JB-16-E/G	6#14, #14GND	
C-3000-167	3/4"	LCP-3016	JB-16-B/F/H	6#14, #14GND	
C-3000-168	3/4"			NOT USED	
C-3000-169	3/4"			NOT USED	
C-3000-170	3/4"	CPB-MSTR	JB-3040	14#14, #14GND	1
C-3000-171	3/4"	CPB-MSTR	PSH-3030	4#14, #14GND	1
C-3000-172	3/4"	CPB-MSTR	JB-3070	6#14, #14GND	

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. REXHEPI
DRAWN BY:	S. REXHEPI
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULE III

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E3045

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
I-3000-144	2"	CP-WIL-AR	AIT-3074	10(2/C#16TSH), #14GND	
I-3000-145	3/4"	AIT-3074	AE-3074	MAN. SUPPLIED CABLE	
I-3000-146	3/4"	AIT-3074	AE-3076	MAN. SUPPLIED CABLE	
I-3000-147	3/4"	AIT-3074	AE-3078	MAN. SUPPLIED CABLE	
I-3000-148	3/4"	AIT-3074	AE-3080	MAN. SUPPLIED CABLE	
I-3000-149	3/4"	CP-WIL-AR	AIT/AE-3075	2/C#16TSH, #14GND	
I-3000-150	3/4"	CP-WIL-AR	AIT/AE-3077	2/C#16TSH, #14GND	
I-3000-151	3/4"	CP-WIL-AR	AIT/AE-3079	2/C#16TSH, #14GND	
I-3000-152	1"	CP-WIL-MSTR	DPIT-3050	2/C#16TSH, #14GND	
I-3000-153	3/4"	IPB-MSTR	JB-3070	2(2/C#16TSH), #14GND	
I-3000-154	3/4"	IPB-MSTR	FE/FIT-3070	2/C#16TSH, #14GND	
I-3000-155	1"	CP-WIL-SR	FIT-1502	2/C#16TSH, #14GND	
I-3000-156	3/4"	FIT-1502	FE-1502	MAN. SUPPLIED CABLE	
I-3000-157	1"	CP-WIL-SR	FIT-1503	2/C#16TSH, #14GND	
I-3000-158	3/4"	FIT-1503	FE-1503	MAN. SUPPLIED CABLE	
I-3000-159	1"	CP-WIL-MSTR	DPIT-3060	2/C#16TSH, #14GND	
I-3000-160	1-1/2"	CP-WIL-SR	IPB-ZOP	7(2/C#16TSH), #14GND	
I-3000-161	3/4"	IPB-ZOP	LIT-6160	2/C#16TSH, #14GND	
I-3000-162	3/4"	LIT-6160	LE-6160	MAN. SUPPLIED CABLE	
I-3000-163	3/4"	IPB-ZOP	FIT-6161	2/C#16TSH, #14GND	
I-3000-164	3/4"	FIT-6161	FE-6161	MAN. SUPPLIED CABLE	
I-3000-165	3/4"	IPB-ZOP	FIT-6162	2/C#16TSH, #14GND	
I-3000-166	3/4"	FIT-6162	FE-6162	MAN. SUPPLIED CABLE	
I-3000-167	3/4"	IPB-ZOP	PMP-6161	2(2/C#16TSH), #14GND	
I-3000-168	3/4"	IPB-ZOP	PMP-6162	2(2/C#16TSH), #14GND	
I-3000-169	1-1/2"	CP-WIL-SR	IPB-FLUORIDE-1	7(2/C#16TSH), #14GND	
I-3000-170	3/4"	IPB-FLUORIDE-1	LIT-6210	2/C#16TSH, #14GND	
I-3000-171	3/4"	LIT-6210	LE-6210	MAN. SUPPLIED CABLE	
I-3000-172	3/4"	IPB-FLUORIDE-1	FIT-6211	2/C#16TSH, #14GND	
I-3000-173	3/4"	FIT-6211	FE-6211	MAN. SUPPLIED CABLE	
I-3000-174	3/4"	IPB-FLUORIDE-1	FIT-6212	2/C#16TSH, #14GND	
I-3000-175	3/4"	FIT-6212	FE-6212	MAN. SUPPLIED CABLE	
I-3000-176	3/4"	IPB-FLUORIDE-1	PMP-6211	2(2/C#16TSH), #14GND	
I-3000-177	3/4"	IPB-FLUORIDE-1	PMP-6212	2(2/C#16TSH), #14GND	
I-3000-178	3/4"	IPB-MSTR	DPIT-3000A	2/C#16TSH, #14GND	
I-3000-179	3/4"	IPB-MSTR	DPIT-3000B	2/C#16TSH, #14GND	
I-3000-180	3/4"	IPB-MSTR	DPIT-3000C	2/C#16TSH, #14GND	
I-3000-181	1-1/2"	CP-WIL-MSTR	IPB-MSTR	6(2/C#16TSH), #14GND	
I-3000-182	1-1/4"	CP-WIL-FLT1	LCP-3001	3(2/C#16TSH), #14GND	
I-3000-183	1-1/4"	CP-WIL-FLT2	LCP-3002	3(2/C#16TSH), #14GND	
I-3000-184	1-1/4"	CP-WIL-FLT3	LCP-3003	3(2/C#16TSH), #14GND	
I-3000-185	1-1/4"	CP-WIL-FLT4	LCP-3004	3(2/C#16TSH), #14GND	
I-3000-186	1-1/4"	CP-WIL-FLT5	LCP-3005	3(2/C#16TSH), #14GND	
I-3000-187	1-1/4"	CP-WIL-FLT6	LCP-3006	3(2/C#16TSH), #14GND	
I-3000-188	1-1/4"	CP-WIL-FLT7	LCP-3007	3(2/C#16TSH), #14GND	
I-3000-189	1-1/4"	CP-WIL-FLT8	LCP-3008	3(2/C#16TSH), #14GND	
I-3000-190	1-1/4"	CP-WIL-FLT9	LCP-3009	3(2/C#16TSH), #14GND	
I-3000-191	1-1/4"	CP-WIL-FLT10	LCP-3010	3(2/C#16TSH), #14GND	
I-3000-192	1-1/4"	CP-WIL-FLT11	LCP-3011	3(2/C#16TSH), #14GND	
I-3000-193	1-1/4"	CP-WIL-FLT12	LCP-3012	3(2/C#16TSH), #14GND	
I-3000-194	1-1/4"	CP-WIL-FLT13	LCP-3013	3(2/C#16TSH), #14GND	
I-3000-195	1-1/4"	CP-WIL-FLT14	LCP-3014	3(2/C#16TSH), #14GND	
I-3000-196	1-1/4"	CP-WIL-FLT15	LCP-3015	3(2/C#16TSH), #14GND	
I-3000-197	1-1/4"	CP-WIL-FLT16	LCP-3016	3(2/C#16TSH), #14GND	
I-3000-198	3/4"	CP-WIL-FLT1	AIT-3001A	RS-485	
I-3000-199	3/4"	AIT-3001A	FSP-1A	RS-485	
I-3000-200	3/4"	CP-WIL-FLT1	AIT-3008A	RS-485	
I-3000-201	3/4"	AIT-3008A	FSP-8A	RS-485	
I-3000-202	3/4"	CP-WIL-FLT1	AIT-3009A	RS-485	
I-3000-203	3/4"	AIT-3009A	FSP-9A	RS-485	
I-3000-204	3/4"	CP-WIL-FLT1	AIT-3016A	RS-485	
I-3000-205	3/4"	AIT-3016A	FSP-16A	RS-485	
I-3000-206					
I-3000-207					
I-3000-208					
I-3000-209					
I-3000-210					

1

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1/08/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: N. NELSON
DRAWN BY: N. NELSON
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

FILTER BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULE V

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E3047

208/120 VOLTS
3 PHASE, 4 WIRE

PANEL BLP
MAIN BREAKER
600A 3P

TYPE: NEMA 1
MOUNT: SURFACE

SEE NOTE 2

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
	HEATER		50	3	1	-			-			2	1	20		ADP-W301	
					3		-			-		4	1	20		LIGHTS	
					5			-			-	6	1	20		RECEPTACLES	
	FAN		20	3	7	-			-			8	1	20		BLOWER PANEL	
					9		-			-		10	1	20		UNKNOWN	
					11			-			-	12	1	20		UNKNOWN	
	PRZ HEATER & RECEPT		20	1	13	-			-			14	1	20		AIR/WIL BLOWER CONTR. PNL	
	UNKNOWN		20	1	15		-			-		16	1	20		UNKNOWN	
	UNKNOWN		20	1	17			-			-	18	1	20		UNKNOWN	
	BACKWASH CONTROL PANEL		20	1	19	-			-			20	1	20		UNKNOWN	
	CLAY VALVE		20	3	21		-			-		22	1	20		UNKNOWN	
					23			-			-	24	1	20		UNKNOWN	
					25	-			-			26					
	UNKNOWN		60	3	27		-			-		28	3	60		UNKNOWN	
					29			-			-	30					
					31	-			-			32	1			SPACE	
	SPACE			1	33		-			-		34	1			SPACE	
	SPACE			1	35			-			-	36	1			SPACE	
	SPACE			1	37	-			-			38	1			SPACE	
	SPACE			1	39		-			-		40	1			SPACE	
	SPACE			1	41			-			-	42	1			SPACE	

TOTAL	0	0	0
PHASE TOTAL			
	0	0	0

0	0	0	TOTAL
TOTAL LOAD (VA)			
0			
TOTAL LOAD (A)			
0			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
65kAIC

208/120 VOLTS
3 PHASE, 4 WIRE

PANEL BLP
MAIN BREAKER
600A 3P

TYPE: NEMA 1
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
	EUH-3201	P-3200-004	20	3	1	-			-			2	1	20		ADP-W301	
					3		-			-		4	1	20		LIGHTS	
					5			-			-	6	1	20		RECEPTACLES	
	EF-3201	P-3200-005	20	3	7	-			-			8	1	20		BLOWER PANEL	
					9		-			-		10	1	20		UNKNOWN	
					11			-			-	12	1	20		UNKNOWN	
	PRZ HEATER & RECEPT		20	1	13	-			-			14	1	20		AIR/WIL BLOWER CONTR. PNL	
	UNKNOWN		20	1	15		-			-		16	1	20		UNKNOWN	
	UNKNOWN		20	1	17			-			-	18	1	20		UNKNOWN	
	BACKWASH CONTROL PANEL		20	1	19	-			-			20	1	20		UNKNOWN	
	CLAY VALVE		20	3	21		-			-		22	1	20		UNKNOWN	
					23			-			-	24	1	20		UNKNOWN	
					25	-			-			26					
	UNKNOWN		60	3	27		-			-		28	3	60		UNKNOWN	
					29			-			-	30					
	FIT-3203	P-3200-003	20	1	33		100		100			32	1	20	P-3200-002	VCP-BLWR-2	
	VAL-3201	P-3200-007	10	1	35			250				34	1			SPACE	
	VAL-3202	P-3200-008	10	1	37	250					-	36	1			SPACE	
	SPACE			1	39		-			-		38	1			SPACE	
	SPACE			1	41			-			-	40	1			SPACE	
												42	1			SPACE	

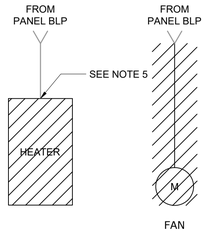
SEE NOTE 3, TYP.

TOTAL	250	100	250
PHASE TOTAL			
	350	100	250

100	0	0	TOTAL
TOTAL LOAD (VA)			
700			
TOTAL LOAD (A)			
2			

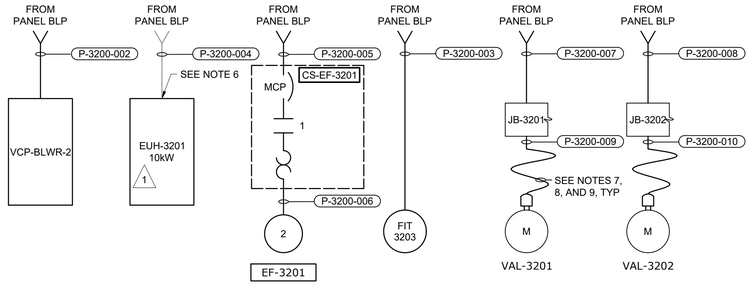
MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

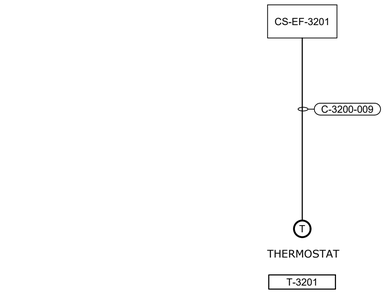
NOTES:
65kAIC



NOTES:

1. EXISTING PANEL BLP IS A GE A SERIES PANELBOARD; CAT. AQF3426JBX.
2. DISCONNECT AND DEMOLISH EXISTING BREAKERS. FURNISH AND INSTALL NEW BREAKERS BASED ON PROPOSED PANEL SCHEDULE ON THIS SHEET.
3. FURNISH AND INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE.
4. CONTRACTOR SHALL UPDATE EXISTING PANEL BLP SCHEDULE TO REFLECT CHANGES SHOWN.
5. DISCONNECT AND REMOVE CONDUCTORS. PRESERVE CONDUIT FOR REUSE.
6. REUSE CONDUIT FOR EQUIPMENT TO BE REPLACED IN-KIND. EXISTING CONDUIT HAS BEEN NUMBERED FOR CLARITY.
7. PROVIDE FLEXIBLE POWER PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, A-SIZE 3 POLE, FEMALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR POWER CONNECTION.
8. PROVIDE FLEXIBLE CONTROLS PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 12 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR CONTROLS CONNECTION. 2
9. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E3205 FOR CONTROLS CONNECTION FROM CP-WIL-BLWR TO JUNCTION BOX.





AIR SCOUR BLOWER BUILDING
CONTROL BLOCK DIAGRAM

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	01/09/25	BDB
1	ADDENDUM 1	12/17/24	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	N. NELSON
DRAWN BY:	N. NELSON
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

AIR SCOUR BLOWER BUILDING
ELECTRICAL
PANEL SCHEDULE RISER DIAGRAM AND CONTROL BLOCK DIAGRAM

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E3203

480 VOLTS
3 PHASE, 3 WIRE

PP-BWTT
MAIN BREAKER W/ETU (LSIG)
225AF/225AP/150AT, 3P

TYPE: NEMA 4X
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
					1	2,500			-			2					
LFD	VCP-4000	P-4000-004	20	3	3		2,500			-		4	3	20	-	SPARE	LFD
					5			2,500			-	6					
LFD	SPARE	-	20	3	7	-			-			8					
					9		-			-		10	3	20	-	SPARE	LFD
					11			-			-	12					
LFD	SPARE	-	20	3	13	-			-			14					
					15		-			-		16	3	15	-	SPARE	LFD
					17			-			-	18					
-	SPACE	-	-	3	19	-			-			20					
					21		-			-		22	3	-	-	SPACE	-
					23			-			-	24					
-	SPACE	-	-	3	25	-			-			26					
					27		-			-		28	3	-	-	SPACE	-
					29			-			-	30					
-	SPACE	-	-	3	31	-			-			32					
					33		-			-		34	3	-	-	SPACE	-
					35			-			-	36					
-	SPACE	-	-	3	37	-			7,300			38					
					39		-			2,100		40	3	50	P-4000-002	T-BWTT	LFD
					41			-			1,700	42					
			TOTAL	2,500	2,500	2,500	7,300	2,100	1,700	TOTAL							
				PHASE TOTAL			TOTAL LOAD (VA)										
				9,800	4,600	4,200	18,600										
							TOTAL LOAD (A)										
							22										

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE
ETU - ELECTRONIC TRIP UNIT

NOTES:
22kAIC
100kA SPD

208/120 VOLTS
3 PHASE, 4 WIRE

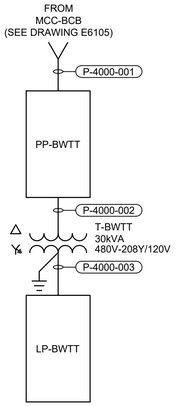
LP-BWTT
MAIN BREAKER
100A 3P

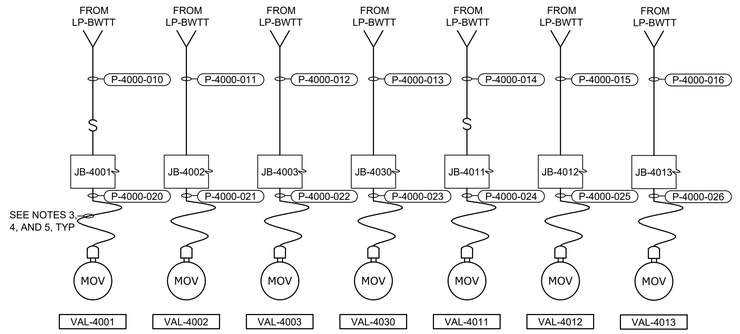
TYPE: NEMA 4X
MOUNT: SURFACE

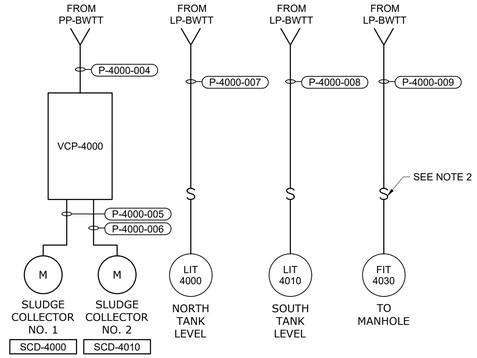
MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
LFD	BACK WASH TREATEMNT TANK LTG	SEE NOTE 1	20	1	1	600			200			2	1	20	P-4000-007	LIT-4000	LFD
LFD	BACK WASH TREATEMNT TANK RECP	SEE NOTE 1	20	1	3		900			200		4	1	20	P-4000-008	LIT-4010	LFD
LFD	VAL-4001	P-4000-010	10	1	5			500			500	6	1	10	P-4000-014	VAL-4011	LFD
LFD	VAL-4002	P-4000-011	10	1	7	500			500			8	1	10	P-4000-015	VAL-4012	LFD
LFD	VAL-4003	P-4000-012	10	1	9		500			500		10	1	10	P-4000-016	VAL-4013	LFD
LFD	FIT-4030	P-4000-009	20	1	11			200			500	12	1	10	P-4000-013	VAL-4030	LFD
LFD	SPARE	-	20	1	13	-			5,000			14	1	30	P-4000-018	HTCP-4000-1	EPD
LFD	SPARE	-	20	1	15		-			-		16	1	15	-	SPARE	LFD
LFD	SPARE	-	15	1	17			-			-	18	1	15	-	SPARE	LFD
LFD	SPARE	-	15	1	19	-			-			20	1	-	-	SPACE	LFD
-	SPACE	-	-	1	21		-			-		22	1	-	-	SPACE	LFD
-	SPACE	-	-	1	23			-			-	24	1	-	-	SPACE	LFD
-	SPACE	-	-	1	25	-			-			26	1	-	-	SPACE	LFD
-	SPACE	-	-	1	27		-			-		28	1	-	-	SPACE	LFD
-	SPACE	-	-	1	29			-			-	30	1	-	-	SPACE	LFD
-	SPACE	-	-	1	31	-			-			32	1	-	-	SPACE	LFD
-	SPACE	-	-	1	33		-			-		34	1	-	-	SPACE	LFD
-	SPACE	-	-	1	35			-			-	36	1	-	-	SPACE	LFD
-	SPACE	-	-	1	37	-			-			38	1	-	-	SPACE	LFD
-	SPACE	-	-	1	39		-			-		40	1	-	-	SPACE	LFD
-	SPACE	-	-	1	41			-			-	42	1	-	-	SPACE	LFD
			TOTAL	1,100	1,400	700	5,700	700	1,000	TOTAL							
				PHASE TOTAL			TOTAL LOAD (VA)										
				6,800	2,100	1,700	10,600										
							TOTAL LOAD (A)										
							29										

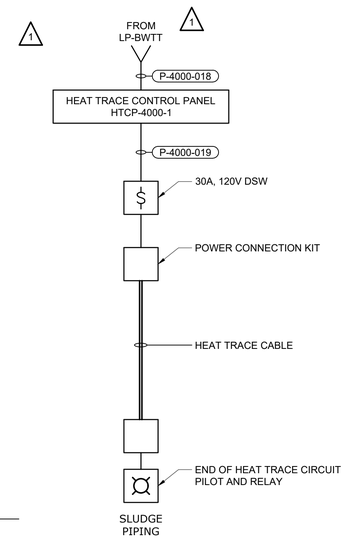
MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
10kAIC
100kA SPD









NOTES:

1. UNLESS SPECIFIED OTHERWISE, ALL LIGHTING ANDRECEPTACLE CIRCUITS SHALL BE 2#12, #12GND IN 3/4" CONDUIT.
2. NSSC SERIES MANUAL MOTOR STARTING SWITCH WITHOUT OVERLOAD PROTECTION.
3. PROVIDE FLEXIBLE POWER PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, A-SIZE 3 POLE, FEMALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR POWER CONNECTION.
4. PROVIDE FLEXIBLE CONTROLS PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 12 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR CONTROLS CONNECTION. 2
5. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E4003 FOR CONTROLS CONNECTION FROM CPB-BWTT-1 TO JUNCTION BOX.

BACKWASH TREATMENT TANKS
RISER DIAGRAMS

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	01/09/25	BDB
1	ADDENDUM 1	12/17/24	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. CHAVEZ
DRAWN BY: S. CHAVEZ
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

BACKWASH TREATMENT TANK
ELECTRICAL
PANEL SCHEDULES AND RISER DIAGRAM

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E4002

480/277 VOLTS
3 PHASE, 4 WIRE

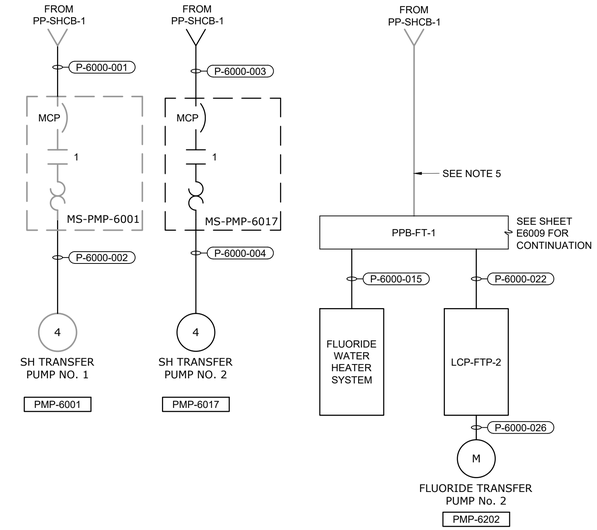
PP-SHCB-1
MAIN LUGS ONLY
400A 3P

TYPE: NEMA 1
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
LFD	FLUORIDE WATER HEATER SYSTEM	P-6000-015	25	3	1	4,500			13,333			2					
					3		4,500			13,333		4	3	70		PANEL "LP1" AND "LP2"	
					5			4,500			13,333	6					
					7	14,400			3,033			8					
	MAU-2		70	3	9		14,400			3,033		10	3	20		AHU-2	
					11			14,400			3,033	12					
					13	330			333			14					
	SUMP PUMP 1		20	3	15		330			333		16	3	20		SUMP PUMP 2	
					17			330			333	18					
					19	1,390			166			20					
	UH-2		20	3	21		1,390			166		22	3	20		EF-6 AND EF-8	
					23			1,390			166	24					
					25	83			1,330			26					
	EF-7		20	3	27		83			1,330		28	3	20	P-6000-001	SH TRANSFER PUMP PMP-6001	LFD
					29			80			1,330	30					
					31	83			1,330			32					
	EF-9		20	3	33		83			1,330		34	3	20	P-6000-003	SH TRANSFER PUMP PMP-6017	LFD
					35			83			1,330	36					
	LIGHTS-INTERIOR		30	3	37	2,250			-			38					
	LIGHTS-INTERIOR		30	3	39		2,250			-		40	3	20	P-6000-022	LCP-FTP-2	LFD
	LIGHTS-INTERIOR		30	3	41			2,250			-	42					
					TOTAL	23,036	23,036	23,033	19,525	19,525	19,525	TOTAL					
						PHASE TOTAL			TOTAL LOAD (VA)								
						42,561	42,561	42,558	127,680								
									TOTAL LOAD (A)								
									154								

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:



PP-SHCB-1
RISER DIAGRAM

NOTES:

1. NSSC SERIES MANUAL MOTOR STARTING SWITCH WITHOUT OVERLOAD PROTECTION.
2. UTILIZE SPARE BREAKERS TO POWER NEW VAL-6000, VAL-6003, FIT-6002, FIT-6003, LIT-6000, CP-SH-FILL, PMP-6025, FIT-6025, FIT-6026 AS SHOWN.
3. CONTRACTOR SHALL UPDATE EXISTING PANEL LP-SHCB-1 SCHEDULE TO REFLECT CHANGES SHOWN.
4. CONTRACTOR SHALL UPDATE EXISTING PANEL PP-SHCB-1 SCHEDULE TO REFLECT CHANGES SHOWN.
5. ROUTE THROUGH EXISTING 2" SPARE CONDUIT IN DB-17 TO FLUORIDE TANKS. SEE SHEET E6009 FOR ADDITIONAL LOADS FROM LP-SHCB-2 TO BE RUN IN THE SAME CONDUIT.
6. EXISTING PANEL LP-SHCB-1 IS A SQUARE D MODEL PANEL, CAT. No. 12281008340040001.
7. EXISTING PANEL PP-SHCB-1 IS S A SQUARE D MODEL NF, CAT. No. 1227237132003000l
8. PROVIDE FLEXIBLE POWER PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 12 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR POWER CONNECTION.
9. PROVIDE FLEXIBLE CONTROLS PIGTAIL CORD AND PLUG AS SPECIFIED IN SECTION 26 05 19. TERMINATE CONDUCTORS IN JUNCTION BOX WITH TERMINAL STRIPS. INSTALL MINI CHANGE, C-SIZE 12 POLE, MALE RECEPTACLE INTO CONDUIT HUB ON MOTOR ACTUATOR FOR CONTROLS CONNECTION. 2
10. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E6010 FOR CONTROLS CONNECTION FROM CP-WIL-SHCB TO JUNCTION BOX.

208/120 VOLTS
3 PHASE, 4 WIRE

LP-SHCB-1
MAIN BREAKER
150A 3P

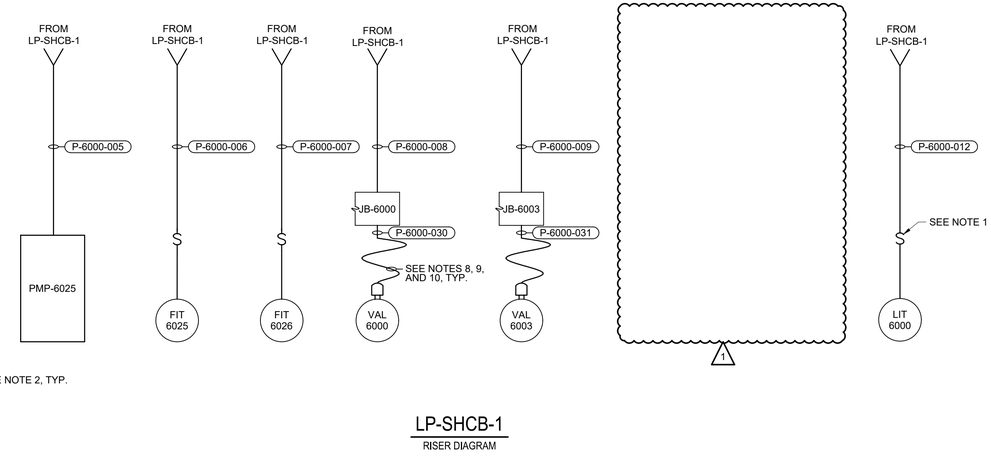
TYPE: NEMA 1
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
	SPARE		50	2	1	-			1,440			2	1	20		RECEPTACLES-MECH. ROOM	
					3		-			900		4	1	20		RECEPTACLES-ELECT. ROOM	
LFD	VAL-6000	P-6000-008	10	1	5			500			0	6	1	20		RECEPTACLES-CHEM. AREA	
LFD	METERING PUMP PMP-6021	-	20	1	7	250			0			8	1	20		RECEPTACLES-CHEM. AREA	
LFD	METERING PUMP PMP-6023	-	20	1	9		250			530		10	1	20		RECEPTACLES-CHEM. AREA	
LFD	METERING PUMP PMP-6026	-	20	1	11			250			1,000	12	1	20		RECEPTACLES-CHEM. AREA	
LFD	METERING PUMP PMP-6022	-	20	1	13	250			500			14	1	20		EF-10	
LFD	METERING PUMP PMP-6024	-	20	1	15		250			500		16	1	20		ACCESS CONTROL PANEL	
LFD	VAL-6003	P-6000-009	10	1	17			500			250	18	1	20		FIT-600	
LFD	CP-HYPO-DIL	P-6000-010	20	1	19	500			250			20	1	20		FIT-601	
	SPARE		20	1	21					250		22	1	20		FIT-602	
	HVAC CONTROL PANEL		30	1	23			100			250	24	1	20		FIT-603	
	LIGHTS-MECHANICAL ROOM		30	1	25	640			250			26	1	20		FIT-605 WEST MTR	
	LIGHTS-ELECTRICAL ROOM		20	1	27		260			250		28	1	20		FIT-604 EAST MTR	
	FIT-606		20	1	29			250			200	30	1	20	P-6000-005	METERING PUMP PMP-6025	LFD
	LIGHTS-EXIT		20	1	31	2,700			200			32	1	20	P-6000-006	FIT-6025	LFD
LFD	LIT-6000	P-6000-012	20	1	33		200			-		34	1	20		ADVENT	
LFD	CP-SH-FILL	P-6000-013	20	1	35			500			-	36	1	20		SCADA	
	CL2 GAS DETECTOR		20	1	37	100			200			38	1	20	P-6000-007	FIT-6026	LFD
	CP-CL2		20	1	39		100				-	40	2	20		SPARE	
	FIRE ALARM CONTROL PANEL		20	1	41			-	-			42					
					TOTAL	4,440	1,060	2,100	2,840	2,430	1,700	TOTAL					
						PHASE TOTAL			TOTAL LOAD (VA)								
						7,280	3,490	3,800	14,570								
									TOTAL LOAD (A)								
									40								

1 SEE NOTE 2, TYP.

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:



LP-SHCB-1
RISER DIAGRAM

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. CHAVEZ
DRAWN BY: S. CHAVEZ
PROJECT ENGINEER: B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

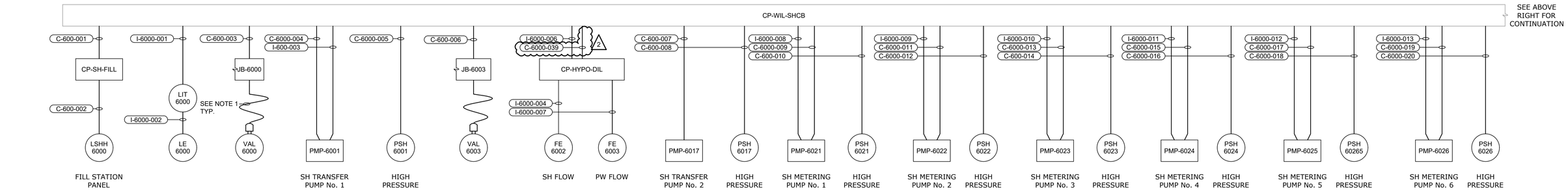
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

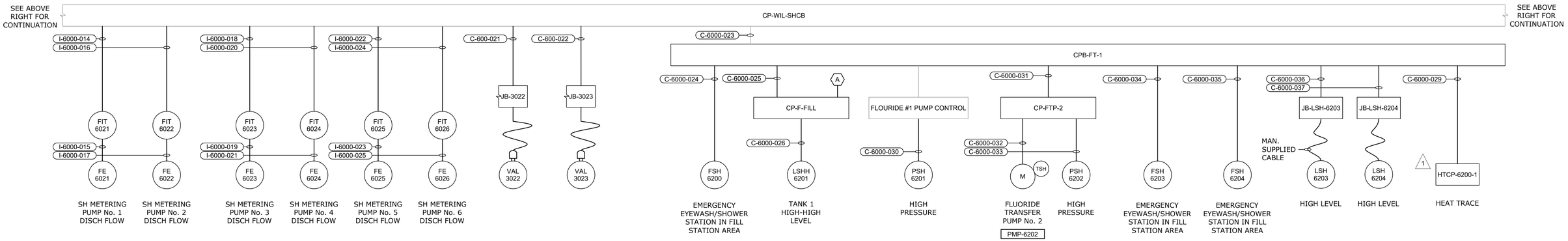
SODIUM HYPOCHLORITE CHEMICAL BUILDING ELECTRICAL
PANEL SCHEDULES

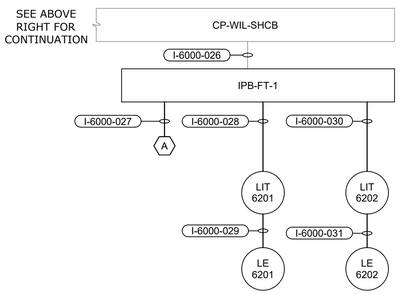
DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E6008

NOTES:

1. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E6008 FOR CONNECTION DETAILS AND CONDUIT NUMBER.







CP-WIL-SHCB
CONTROL BLOCK DIAGRAM

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	01/09/25	BDB
1	ADDENDUM 1	12/17/24	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. CHAVEZ
DRAWN BY:	S. CHAVEZ
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

SODIUM HYPOCHLORITE CHEMICAL BUILDING ELECTRICAL CONTROL BLOCK DIAGRAM

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E6010

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-6000-001	3/4"	PP-SHCB-1	MS-PMP-6001	3#12, #12GND	
P-6000-002	3/4"	MS-PMP-6001	PMP-6001	3#12, #12GND	
P-6000-003	3/4"	PP-SHCB-1	MS-PMP-6017	3#12, #12GND	
P-6000-004	3/4"	MS-PMP-6017	PMP-6017	3#12, #12GND	
P-6000-005	3/4"	LP-SHCB-1	PMP-6025	2#12, #12GND	
P-6000-006	3/4"	LP-SHCB-1	FIT-6025	2#12, #12GND	VIA DSW
P-6000-007	3/4"	LP-SHCB-1	FIT-6026	2#12, #12GND	VIA DSW
P-6000-008	3/4"	LP-SHCB-1	JB-6000	2#12, #12GND	VIA DSW
P-6000-009	3/4"	LP-SHCB-1	JB-6003	2#12, #12GND	VIA DSW
P-6000-010	3/4"	LP-SHCB-1	FIT-6002	2#12, #12GND	VIA DSW
P-6000-011	3/4"	LP-SHCB-1	FIT-6003	2#12, #12GND	VIA DSW
P-6000-012	3/4"	LP-SHCB-1	LIT-6000	2#12, #12GND	VIA DSW
P-6000-013	3/4"	LP-SHCB-1	CP-SH-FILL	2#12, #12GND	
P-6000-014	1"	LP-SHCB-2	HTCP-6200-1	2#10, #10GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-015	1"	PP-SHCB-1	FLUORIDE WATER HEATER SYSTEM	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-016	1"	LP-SHCB-2	FLUORIDE EYEWASH TANK 1	3#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-017	1"	LP-SHCB-2	FLUORIDE EYEWASH TANK 2	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-018	1"	LP-SHCB-2	FLUORIDE HOT BOX	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-019	3/4"	LP-SHCB-2	FLUORIDE EYEWASH FILL STATION	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-020	3/4"	LP-SHCB-2	CP-F-FILL	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-021	3/4"	LP-SHCB-2	LIT-6201	2#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-022	3/4"	PP-SHCB-1	LCP-FTP-2	3#12, #12GND	VIA EXISTING SPARE 2" TO FLUORIDE
P-6000-023	3/4"	FLUORIDE EYEWASH TANK 1	FSH-6003	2#12, #12GND	
P-6000-024	3/4"	FLUORIDE EYEWASH TANK 2	FSH-6004	2#12, #12GND	
P-6000-025	3/4"	FLUORIDE EYEWASH FILL STATION	FSH-6000	2#12, #12GND	
P-6000-026	1"	LCP-FTP-2	PMP-6202	3#12, #12GND	
P-6000-027	3/4"	HTCP-6200-1	WATER HEATER SUPPLY - CIRCUIT 1	2#10, #10GND	
P-6000-028	3/4"	WATER HEATER SUPPLY - CIRCUIT 1	FLUORIDE CONT. 2 - CIRCUIT 2	2#10, #10GND	
P-6000-029	3/4"	HTCP-6200-1	FLUORIDE CONT. 1 - CIRCUIT 3	2#10, #10GND	
P-6000-030	1-1/2"	JB-6000	VAL-6000	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-6000-031	1-1/2"	JB-6003	VAL-6003	(2) PIGTAIL CORDSET	POWER AND CONTROLS

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-6000-001	3/4"	CP-WIL-SHCB	CP-SH-FILL	4#14, #14GND	
C-6000-002	3/4"	CP-SH-FILL	LSHH-6000	4#14, #14GND	
C-6000-003	3/4"	CP-WIL-SHCB	VAL-6000	14#14, #14GND	
C-6000-004	3/4"	CP-WIL-SHCB	PMP-6001	10#14, #14GND	
C-6000-005	3/4"	CP-WIL-SHCB	PSH-6001	4#14, #14GND	
C-6000-006	3/4"	CP-WIL-SHCB	VAL-6003	14#14, #14GND	VIA JB-6003
C-6000-007	3/4"	CP-WIL-SHCB	PMP-6017	10#14, #14GND	
C-6000-008	3/4"	CP-WIL-SHCB	PSH-6017	4#14, #14GND	
C-6000-009	3/4"	CP-WIL-SHCB	PMP-6021	10#14, #14GND	
C-6000-010	3/4"	CP-WIL-SHCB	PSH-6021	4#14, #14GND	
C-6000-011	3/4"	CP-WIL-SHCB	PMP-6022	10#14, #14GND	
C-6000-012	3/4"	CP-WIL-SHCB	PSH-6022	4#14, #14GND	
C-6000-013	3/4"	CP-WIL-SHCB	PMP-6023	10#14, #14GND	
C-6000-014	3/4"	CP-WIL-SHCB	PSH-6023	4#14, #14GND	
C-6000-015	3/4"	CP-WIL-SHCB	PMP-6024	10#14, #14GND	
C-6000-016	3/4"	CP-WIL-SHCB	PSH-6024	4#14, #14GND	
C-6000-017	3/4"	CP-WIL-SHCB	PMP-6025	10#14, #14GND	
C-6000-018	3/4"	CP-WIL-SHCB	PSH-6025	4#14, #14GND	
C-6000-019	3/4"	CP-WIL-SHCB	PMP-6026	10#14, #14GND	
C-6000-020	3/4"	CP-WIL-SHCB	PSH-6026	4#14, #14GND	
C-6000-021	3/4"	CP-WIL-SHCB	VAL-3022	14#14, #14GND	
C-6000-022	3/4"	CP-WIL-SHCB	VAL-3023	14#14, #14GND	
C-6000-023	1"	CP-WIL-SHCB	CPB-FT-1	44#14, #14GND	VIA EXISTING 2" TO FLUORIDE
C-6000-024	3/4"	CPB-FT-1	FSH-6200	4#14, #14GND	
C-6000-025	3/4"	CPB-FT-1	CP-F-FILL	6#14, #14GND	
C-6000-026	3/4"	CP-F-FILL	LSHH-6201	4#14, #14GND	
C-6000-027	1"	FPP-WIL-SHCB	FPP-WIL-CLDX	FO CABLE	
C-6000-028	1"	FPP-WIL-CLDX	FPP-WIL-BCB	FO CABLE	
C-6000-029	3/4"	CPB-FT-1	HTCP-6200-1	4#14, #14GND	
C-6000-030	3/4"	FLOURIDE #1 PUMP CONTROL	PSH-6201	4#14, #14GND	
C-6000-031	3/4"	CPB-FT-1	LCP-FTP-2	14#14, #14GND	
C-6000-032	3/4"	CP-FTP-2	PMP-6202	4#14, #14GND	
C-6000-033	3/4"	CP-FTP-2	PSH-6202	4#14, #14GND	
C-6000-034	3/4"	CPB-FT-1	FSH-6203	4#14, #14GND	
C-6000-035	3/4"	CPB-FT-1	FSH-6204	4#14, #14GND	
C-6000-036	3/4"	CPB-FT-1	JB-LSH-6203	4#14, #14GND	
C-6000-037	3/4"	CPB-FT-1	JB-LSH-6204	4#14, #14GND	
C-6000-038	1"	FPP-WIL-CLDX	FPP-WIL-BCB	EMPTY W/PULLSTRING	
C-6000-039	3/4"	CP-WIL-SHCB	CP-HYPO-DIL	4#14, #14GND	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
I-6000-001	3/4"	CP-WIL-SHCB	LIT-6000	(2/C#16TSH), #14GND	
I-6000-002	3/4"	LIT-6000	LE-6000	MAN. SUPPLIED CABLE	
I-6000-003	1"	CP-WIL-SHCB	PMP-6001	3(2/C#16TSH), #14GND	
I-6000-004	3/4"	CP-WIL-SHCB	FIT-6002	MAN. SUPPLIED CABLE	
I-6000-005	-	-	-	NOT USED	
I-6000-006	1"	CP-WIL-SHCB	CP-HYPO-DIL	3(2/C#16TSH), #14GND	
I-6000-007	3/4"	CP-HYPO-DIL	FE-6003	MAN. SUPPLIED CABLE	
I-6000-008	1"	CP-WIL-SHCB	PMP-6021	2(2/C#16TSH), #14GND	
I-6000-009	1"	CP-WIL-SHCB	PMP-6022	2(2/C#16TSH), #14GND	
I-6000-010	1"	CP-WIL-SHCB	PMP-6023	2(2/C#16TSH), #14GND	
I-6000-011	1"	CP-WIL-SHCB	PMP-6024	2(2/C#16TSH), #14GND	
I-6000-012	1"	CP-WIL-SHCB	PMP-6025	2(2/C#16TSH), #14GND	
I-6000-013	1"	CP-WIL-SHCB	PMP-6026	2(2/C#16TSH), #14GND	
I-6000-014	3/4"	CP-WIL-SHCB	FIT-6021	(2/C#16TSH), #14GND	
I-6000-015	3/4"	FIT-6021	FE-6021	MAN. SUPPLIED CABLE	
I-6000-016	3/4"	CP-WIL-SHCB	FIT-6022	(2/C#16TSH), #14GND	
I-6000-017	3/4"	FIT-6022	FE-6022	MAN. SUPPLIED CABLE	
I-6000-018	3/4"	CP-WIL-SHCB	FIT-6023	(2/C#16TSH), #14GND	
I-6000-019	3/4"	FIT-6023	FE-6023	MAN. SUPPLIED CABLE	
I-6000-020	3/4"	CP-WIL-SHCB	FIT-6024	(2/C#16TSH), #14GND	
I-6000-021	3/4"	FIT-6024	FE-6024	MAN. SUPPLIED CABLE	
I-6000-022	3/4"	CP-WIL-SHCB	FIT-6025	(2/C#16TSH), #14GND	
I-6000-023	3/4"	FIT-6025	FE-6025	MAN. SUPPLIED CABLE	
I-6000-024	3/4"	CP-WIL-SHCB	FIT-6026	(2/C#16TSH), #14GND	
I-6000-025	3/4"	FIT-6026	FE-6026	MAN. SUPPLIED CABLE	
I-6000-026	1-1/2"	CP-WIL-SHCB	IPB-FT-1	4(2/C#16TSH), #14GND	VIA EXISTING 2" TO FLUORIDE
I-6000-027	1"	IPB-FT-1	CP-F-FILL	2(2/C#16TSH), #14GND	
I-6000-028	3/4"	IPB-FT-1	LIT-6201	(2/C#16TSH), #14GND	
I-6000-029	3/4"	LIT-6201	LE-6201	MAN. SUPPLIED CABLE	
I-6000-030	3/4"	IPB-FT-1	LIT-6202	(2/C#16TSH), #14GN	EXISTING CONDUIT
I-6000-031	3/4"	LIT-6202	LE-6202	MAN. SUPPLIED CABLE	
I-6000-032	-	-	-	NOT USED	
I-6000-033	-	-	-	NOT USED	

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	01/09/25	BDB
1	ADDENDUM 1	12/17/24	BDB

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. CHAVEZ
DRAWN BY: S. CHAVEZ
PROJECT ENGINEER: B. BUELTEL

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

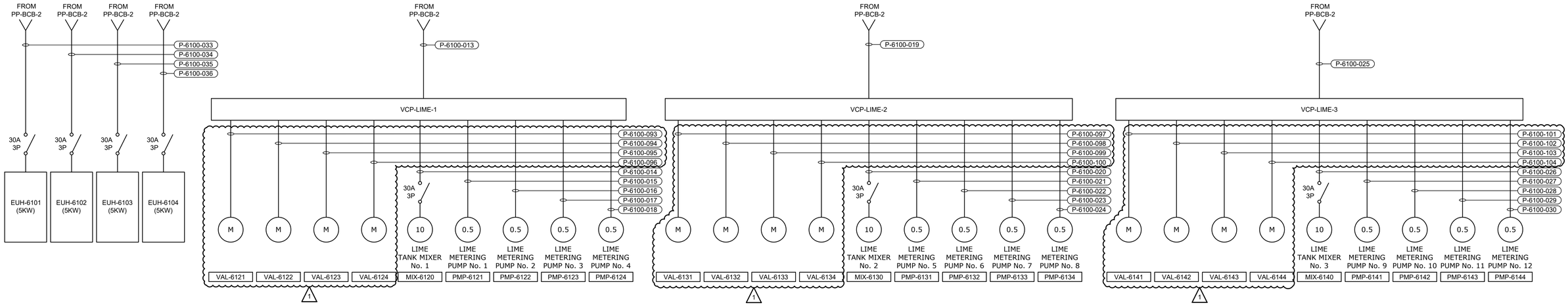
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

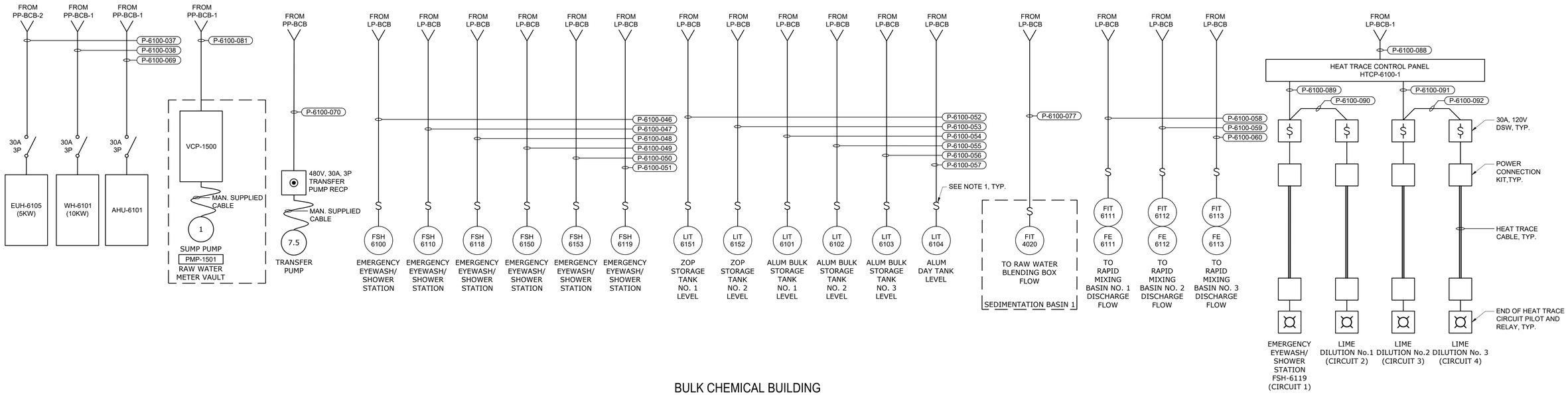
SODIUM HYPOCHLORITE CHEMICAL BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULE

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E6012

NOTES:

1. NSSC SERIES MANUAL MOTOR STARTING SWITCH WITHOUT OVERLOAD PROTECTION.





BULK CHEMICAL BUILDING

RISER DIAGRAMS

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	N. NELSON
DRAWN BY:	N. NELSON
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

BULK CHEMICAL BUILDING
ELECTRICAL
RISER DIAGRAMS

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E6107

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-6100-001	4"	PCR SWITCHGEAR	TX-BCB	3#350Kcmil, #4GND	5kV RATED CABLE
P-6100-002	4"	PCR SWITCHGEAR	TX-BCB	EMPTY W/ PULLSTRING	SPARE
P-6100-003	4"	TX-BCB	MCC-BCB	3#350Kcmil, #4/0GND	
P-6100-004	4"	TX-BCB	MCC-BCB	3#350Kcmil, #4/0GND	
P-6100-005	2"	MCC-BCB	PP-BCB	3#4/0, #4GND	
P-6100-006	1"	PP-BCB	T-BCB	3#4, #8GND	
P-6100-007	1-1/2"	T-BCB	LP-BCB	4#1, #6GND	
P-6100-008	3/4"	MCC-BCB	PMP-6101	3#12, #12GND	VIA DSW
P-6100-009	3/4"	MCC-BCB	PMP-6102	3#12, #12GND	VIA DSW
P-6100-010	3/4"	MCC-BCB	PMP-6103	3#12, #12GND	VIA DSW
P-6100-011	3/4"	MCC-BCB	PMP-6151	3#12, #12GND	VIA DSW
P-6100-012	3/4"	MCC-BCB	PMP-6152	3#12, #12GND	VIA DSW
P-6100-013	1"	PP-BCB-2	VCP-LIME-1	3#4, #8GND	
P-6100-014	3/4"	VCP-LIME-1	MIX-6120	MFR. SUPPLIED CABLE	VIA DSW
P-6100-015	3/4"	VCP-LIME-1	PMP-6121	MFR. SUPPLIED CABLE	
P-6100-016	3/4"	VCP-LIME-1	PMP-6122	MFR. SUPPLIED CABLE	
P-6100-017	3/4"	VCP-LIME-1	PMP-6123	MFR. SUPPLIED CABLE	
P-6100-018	3/4"	VCP-LIME-1	PMP-6124	MFR. SUPPLIED CABLE	
P-6100-019	1"	PP-BCB-2	VCP-LIME-2	3#4, #8GND	
P-6100-020	3/4"	VCP-LIME-2	MIX-6130	MFR. SUPPLIED CABLE	VIA DSW
P-6100-021	3/4"	VCP-LIME-2	PMP-6131	MFR. SUPPLIED CABLE	
P-6100-022	3/4"	VCP-LIME-2	PMP-6132	MFR. SUPPLIED CABLE	
P-6100-023	3/4"	VCP-LIME-2	PMP-6133	MFR. SUPPLIED CABLE	
P-6100-024	3/4"	VCP-LIME-2	PMP-6134	MFR. SUPPLIED CABLE	
P-6100-025	1"	PP-BCB-2	VCP-LIME-3	3#4, #8GND	
P-6100-026	3/4"	VCP-LIME-3	MIX-6140	MFR. SUPPLIED CABLE	VIA DSW
P-6100-027	3/4"	VCP-LIME-3	PMP-6141	MFR. SUPPLIED CABLE	
P-6100-028	3/4"	VCP-LIME-3	PMP-6142	MFR. SUPPLIED CABLE	
P-6100-029	3/4"	VCP-LIME-3	PMP-6143	MFR. SUPPLIED CABLE	
P-6100-030	3/4"	VCP-LIME-3	PMP-6144	MFR. SUPPLIED CABLE	
P-6100-031	4"	MCC-BCB	MAINTENANCE BUILDING	3#350Kcmil, #4/0GND	
P-6100-032	4"	MCC-BCB	MAINTENANCE BUILDING	3#350Kcmil, #4/0GND	
P-6100-033	3/4"	PP-BCB-2	EUH-6101	3#12, #12GND	VIA DSW
P-6100-034	3/4"	PP-BCB-2	EUH-6102	3#12, #12GND	VIA DSW
P-6100-035	3/4"	PP-BCB-2 △1	EUH-6103	3#12, #12GND	VIA DSW
P-6100-036	3/4"	PP-BCB-2	EUH-6104	3#12, #12GND	VIA DSW
P-6100-037	3/4"	PP-BCB-2	EUH-6105	3#12, #12GND	VIA DSW
P-6100-038	3/4"	PP-BCB-1	WH-6101	3#12, #12GND	VIA DSW
P-6100-039	3/4"	MCC-BCB	SF-6101	3#12, #12GND	VIA DSW
P-6100-040	3/4"	PP-BCB-1	PMP-6111	3#12, #12GND	
P-6100-041	3/4"	MCC-BCB	EF-6101	3#12, #12GND	VIA DSW
P-6100-042	3/4"	PP-BCB-1	PMP-6112	3#12, #12GND	
P-6100-043	3/4"	MCC-BCB	EF-6102	3#12, #12GND	VIA DSW
P-6100-044	3/4"	PP-BCB-1	PMP-6113	3#12, #12GND	
P-6100-045	1"	MCC-BCB	EDH-6101	3#1/0, #6GND	VIA DSW
P-6100-046	3/4"	LP-BCB	FSH-6100	2#12, #12GND	VIA DSW
P-6100-047	3/4"	LP-BCB	FSH-6110	2#12, #12GND	VIA DSW
P-6100-048	3/4"	LP-BCB	FSH-6118	2#12, #12GND	VIA DSW
P-6100-049	3/4"	LP-BCB	FSH-6150	2#12, #12GND	VIA DSW
P-6100-050	3/4"	LP-BCB	FSH-6153	2#12, #12GND	VIA DSW
P-6100-051	3/4"	LP-BCB	FSH-6119	2#12, #12GND	VIA DSW
P-6100-052	3/4"	LP-BCB	LIT-6151	2#12, #12GND	VIA DSW
P-6100-053	3/4"	LP-BCB	LIT-5152	2#12, #12GND	VIA DSW
P-6100-054	3/4"	LP-BCB	LIT-6101	2#12, #12GND	VIA DSW
P-6100-055	3/4"	LP-BCB	LIT-6102	2#12, #12GND	VIA DSW
P-6100-056	3/4"	LP-BCB	LIT-6103	2#12, #12GND	VIA DSW
P-6100-057	3/4"	LP-BCB	LIT-6104	2#12, #12GND	VIA DSW
P-6100-058	3/4"	LP-BCB	FE/FIT-6111	2#12, #12GND	VIA DSW
P-6100-059	3/4"	LP-BCB	FE/FIT-6112	2#12, #12GND	VIA DSW
P-6100-060	3/4"	LP-BCB	FE/FIT-6113	2#12, #12GND	VIA DSW
P-6100-061	3/4"	LP-BCB	VCP-LIME-DIL1	2#12, #12GND	
P-6100-062	3/4"	LP-BCB	VCP-LIME-DIL2	2#12, #12GND	
P-6100-063	3/4"	LP-BCB	VCP-LIME-DIL3	2#12, #12GND	
P-6100-064	3/4"	LP-BCB	CP-LIME-FILL	2#12, #12GND	
P-6100-065	3/4"	LP-BCB	CP-ALUM/ZOP-FILL	2#12, #12GND	
P-6100-066	1"	LP-BCB	VAL-4020	2#12, #12GND	
P-6100-067	3/4"	LP-BCB	RCP-6100	2#12, #12GND	VIA DSW
P-6100-068	3/4"	PP-BCB-1	PMP-6114	3#12, #12GND	
P-6100-069	1"	PP-BCB-1	AHU-6101	3#12, #12GND	VIA DSW
P-6100-070	3/4"	PP-BCB	TRANSFER PUMP RECEPTACLE	3#12, #12GND	
P-6100-071	4"	TX-BCB	MCC-BCB	3#350Kcmil, #4/0GND △1	
P-6100-072	4"	TX-BCB	MCC-BCB	3#350Kcmil, #4/0GND	
P-6100-073	4"	TX-BCB	MCC-BCB	EMPTY W/ PULLSTRING	SPARE
P-6100-074	4"	TX-BCB	MCC-BCB	EMPTY W/ PULLSTRING	SPARE
P-6100-075	4"	MCC-BCB	MAINTENANCE BUILDING	EMPTY W/ PULLSTRING	SPARE
P-6100-076	4"	MCC-BCB	MAINTENANCE BUILDING	EMPTY W/ PULLSTRING	SPARE
P-6100-077	1"	LP-BCB	FIT-4020	2#12, #12GND	
P-6100-078	1"	MCC-BCB	WH-6102	3#10, #10GND △1	VIA DSW
P-6100-079	1"	LP-BCB	RAW WATER METER VAULT LTG.	2#10, #12GND	
P-6100-080	1"	LP-BCB	RAW WATER METER VAULT RECPT.	2#10, #12GND	
P-6100-081	1"	PP-BCB-1	VCP-1500	3#12, #12GND	
P-6100-082	1"	PP-BCB-1	VCP-1500	EMPTY W/ PULLSTRING	SPARE
P-6100-083	4"	MCC-BCB	PORTABLE GENERATOR CONNECTION	3#350Kcmil, #1GND △1	
P-6100-084	4"	MCC-BCB	PORTABLE GENERATOR CONNECTION	3#350Kcmil, #1GND	
P-6100-085	1"	LP-BCB	FIT-1502	2#12, #12GND	
P-6100-086	1"	LP-BCB	FIT-1503	2#12, #12GND	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-6100-087	2"	PP-BCB-1	PP-BCB-2	3#2/0, #6GND	
P-6100-088	1"	LP-BCB	HTCP-6100-1	2#10, #10GND △1	
P-6100-089	3/4"	HTCP-6100-1	FSH-6119 CIRCUIT 1	2#10, #10GND	
P-6100-090	3/4"	FSH-6119 CIRCUIT 1	LIME DILUTION NO. 1 CIRCUIT 2	2#10, #10GND	
P-6100-091	3/4"	HTCP-6100-1	LIME DILUTION NO. 2 CIRCUIT 3	2#10, #10GND	
P-6100-092	3/4"	LIME DILUTION NO. 2 CIRCUIT 3	LIME DILUTION NO. 3 CIRCUIT 4	2#10, #10GND	
P-6100-093	3/4"	VCP-LIME-1	VAL-6121	MFR. SUPPLIED CABLE	
P-6100-094	3/4"	VCP-LIME-1	VAL-6122	MFR. SUPPLIED CABLE	
P-6100-095	3/4"	VCP-LIME-1	VAL-6123	MFR. SUPPLIED CABLE	
P-6100-096	3/4"	VCP-LIME-1	VAL-6124	MFR. SUPPLIED CABLE	
P-6100-097	3/4"	VCP-LIME-2	VAL-6131	MFR. SUPPLIED CABLE	
P-6100-098	3/4"	VCP-LIME-2	VAL-6132	MFR. SUPPLIED CABLE	△2
P-6100-099	3/4"	VCP-LIME-2	VAL-6133	MFR. SUPPLIED CABLE	
P-6100-100	3/4"	VCP-LIME-2	VAL-6134	MFR. SUPPLIED CABLE	
P-6100-101	3/4"	VCP-LIME-3	VAL-6141	MFR. SUPPLIED CABLE	
P-6100-102	3/4"	VCP-LIME-3	VAL-6142	MFR. SUPPLIED CABLE	
P-6100-103	3/4"	VCP-LIME-3	VAL-6143	MFR. SUPPLIED CABLE	
P-6100-104	3/4"	VCP-LIME-3	VAL-6144	MFR. SUPPLIED CABLE	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-6100-001	1"	CP-WIL-BCB	VAL-4020	10#14, #14GND	
C-6100-002	1"	CP-WIL-BCB	SEDIMENTATION BASIN 1	EMPTY W/PULLSTRING	
C-6100-003	1"	CP-WIL-BCB	SEDIMENTATION BASIN 1	EMPTY W/PULLSTRING	
C-6100-004	1"	CP-WIL-BCB	SEDIMENTATION BASIN 1	EMPTY W/PULLSTRING △1	
C-6100-005	1-1/2"	MCC-BCB	CPB-ALUM-1	54#14, #14GND	
C-6100-006	1"	MCC-BCB	CPB-ZOP-1	32#14, #14GND	
C-6100-007	3/4"	CPB-ALUM-1	PSH--6101	2#14, #14GND	
C-6100-008	3/4"	CPB-ALUM-1	LCS-6101	12#14, #14GND	
C-6100-009	3/4"	CPB-ALUM-1	PMP-6101	4#14, #14GND	
C-6100-010	3/4"	CPB-ALUM-1	PSH--6102	2#14, #14GND	
C-6100-011	3/4"	CPB-ALUM-1	LCS-6102	12#14, #14GND	
C-6100-012	3/4"	CPB-ALUM-1	PMP-6102	4#14, #14GND	
C-6100-013	3/4"	CPB-ALUM-1	PSH-6103	2#14, #14GND	
C-6100-014	3/4"	CPB-ALUM-1	LCS-6103	12#14, #14GND	
C-6100-015	3/4"	CPB-ALUM-1	PMP-6103	4#14, #14GND	
C-6100-016	3/4"	CPB-ZOP-1	PSH-6151	2#14, #14GND	
C-6100-017	3/4"	CPB-ZOP-1	LCS-6151	12#14, #14GND	
C-6100-018	3/4"	CPB-ZOP-1	PMP-6151	4#14, #14GND	
C-6100-019	3/4"	CPB-ZOP-1	PSH-6152	2#14, #14GND	
C-6100-020	3/4"	CPB-ZOP-1	LCS-6152	12#14, #14GND	
C-6100-021	3/4"	CPB-ZOP-1	PMP-6152	4#14, #14GND	
C-6100-022	3/4"	CP-WIL-BCB	CP-ZOP/ALUM-FILL	16#14, #14GND	
C-6100-023	3/4"	CP-ZOP/ALUM-FILL	LSHH-6101	MAN. SUPPLIED CABLE	
C-6100-024	3/4"	CP-ZOP/ALUM-FILL	LSHH-6102	MAN. SUPPLIED CABLE	
C-6100-025	3/4"	CP-ZOP/ALUM-FILL	LSHH-6103	MAN. SUPPLIED CABLE	
C-6100-026	3/4"	CP-WIL-BCB	JB-LSH-6100	2#14, #14GND	
C-6100-027	3/4"	CP-WIL-BCB	JB-LSH-6154	2#14, #14GND	
C-6100-028	3/4"	CP-WIL-BCB	JB-LSH-6119	2#14, #14GND	
C-6100-029	1-1/2"	CP-WILL-BCB	CPB-ALUM-2	48#14, #14GND	
C-6100-030	3/4"	CPB-ALUM-2	PMP-6111	10#14, #14GND	10#14, #14GND
C-6100-031	3/4"	CPB-ALUM-2	PSH-6111	2#14, #14GND	
C-6100-032	3/4"	CPB-ALUM-2	PMP-6112	10#14, #14GND	
C-6100-033	3/4"	CPB-ALUM-2	PSH-6112	2#14, #14GND	
C-6100-034	3/4"	CPB-ALUM-2	PMP-6113	10#14, #14GND	
C-6100-035	3/4"	CPB-ALUM-2	PSH-6113	2#14, #14GND	
C-6100-036	3/4"	CPB-ALUM-2	PMP-6114	10#14, #14GND	
C-6100-037	3/4"	CPB-ALUM-2	PSH-6114	2#14, #14GND	
C-6100-038	3/4"	VCP-LIME-DIL1	VAL-6120	MAN. SUPPLIED CABLE	
C-6100-039	3/4"	VCP-LIME-1	ZSO/ZSC-6121, ZSO/ZSC-6122, ZSO/ZSC-6123, ZSO/ZSC-6124	MAN. SUPPLIED CABLE	
C-6100-040	2"	VCP-LIME-1	CPB-LIME-1	MAN. SUPPLIED CABLE	
C-6100-041	3/4"	CPB-LIME-1	VAL-6121	MAN. SUPPLIED CABLE	
C-6100-042	3/4"	CPB-LIME-1	VAL-6122	MAN. SUPPLIED CABLE	
C-6100-043	3/4"	CPB-LIME-1	VAL-6123	MAN. SUPPLIED CABLE	
C-6100-044	3/4"	CPB-LIME-1	VAL-6124	MAN. SUPPLIED CABLE	
C-6100-045	3/4"	CPB-LIME-1	PMP-6121	MAN. SUPPLIED CABLE	
C-6100-046	3/4"	CPB-LIME-1	PMP-6122	MAN. SUPPLIED CABLE	
C-6100-047	3/4"	CPB-LIME-1	PMP-6123	MAN. SUPPLIED CABLE	
C-6100-048	3/4"	CPB-LIME-1	PMP-6124	MAN. SUPPLIED CABLE	
C-6100-049	3/4"	CPB-LIME-1	CP-LIME-FILL	4#14, #14GND	
C-6100-050	3/4"	VCP-LIME-DIL2	VAL-6130	MAN. SUPPLIED CABLE	
C-6100-051	3/4"	VCP-LIME-2	ZSO/ZSC-6131, ZSO/ZSC-6132, ZSO/ZSC-6133, ZSO/ZSC-6134	MAN. SUPPLIED CABLE	
C-6100-052	2"	VCP-LIME-2	CPB-LIME-2	MAN. SUPPLIED CABLE	
C-6100-053	3/4"	CPB-LIME-2	PMP-6131	MAN. SUPPLIED CABLE	
C-6100-054	3/4"	CPB-LIME-2	PMP-6132	MAN. SUPPLIED CABLE	
C-6100-055	3/4"	CPB-LIME-2	PMP-6133	MAN. SUPPLIED CABLE	
C-6100-056	3/4"	CPB-LIME-2	PMP-6134	MAN. SUPPLIED CABLE	
C-6100-057	3/4"	CPB-LIME-2	VAL-6131	MAN. SUPPLIED CABLE	
C-6100-058	3/4"	CPB-LIME-2	VAL-6132	MAN. SUPPLIED CABLE	
C-6100-059	3/4"	CPB-LIME-2	VAL-6133	MAN. SUPPLIED CABLE	
C-6100-060	3/4"	CPB-LIME-2	VAL-6134	MAN. SUPPLIED CABLE	
C-6100-061	3/4"	VCP-LIME-2 △1	CP-LIME-FILL	4#14, #14GND	
C-6100-062	3/4"	VCP-LIME-3	CP-LIME-FILL	4#14, #14GND	
C-6100-063	3/4"	VCP-LIME-DIL3	VAL-6140	MAN. SUPPLIED CABLE	
C-6100-064	3/4"	VCP-LIME-3	ZSO/ZSC-6141, ZSO/ZSC-6142, ZSO/ZSC-6143, ZSO/ZSC-6144	MAN. SUPPLIED CABLE	

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	01/09/25	BDB
1	ADDENDUM 1	12/17/24	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. CHAVEZ
DRAWN BY:	S. CHAVEZ
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

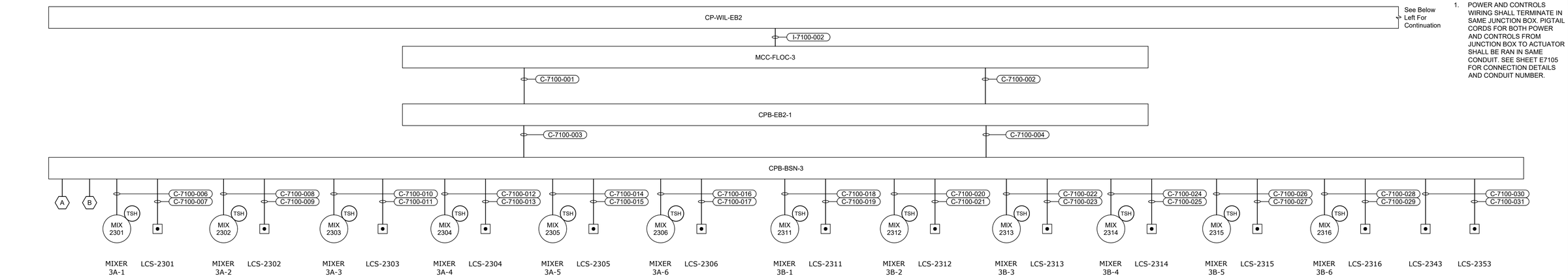
JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

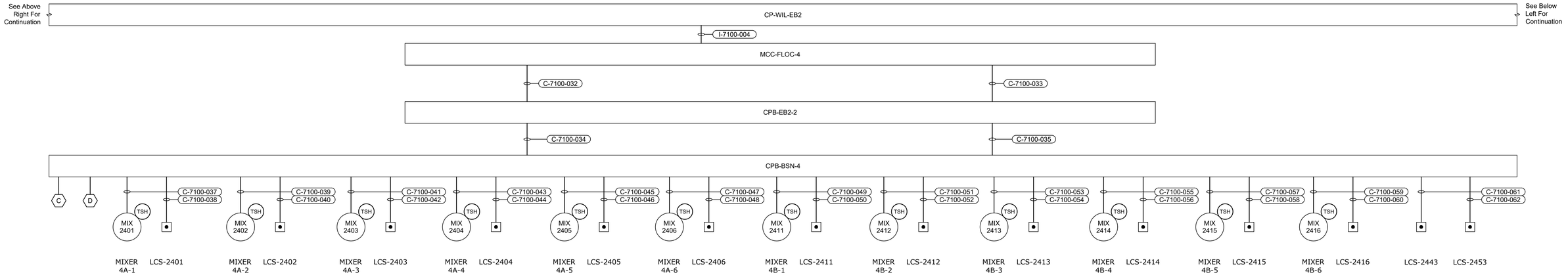
BULK CHEMICAL BUILDING
ELECTRICAL
CONDUIT AND WIRE SCHEDULES

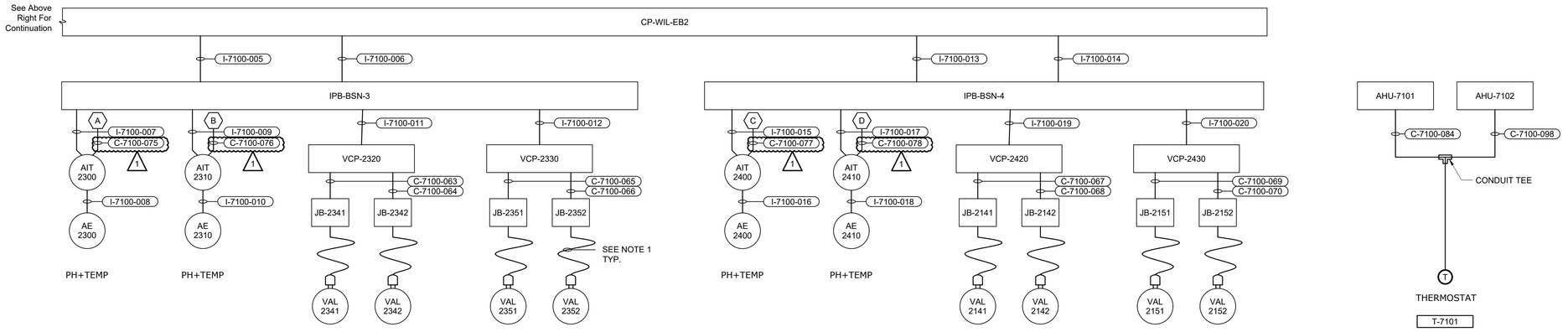
DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E6111

NOTES:

1. POWER AND CONTROLS WIRING SHALL TERMINATE IN SAME JUNCTION BOX. PIGTAIL CORDS FOR BOTH POWER AND CONTROLS FROM JUNCTION BOX TO ACTUATOR SHALL BE RAN IN SAME CONDUIT. SEE SHEET E7105 FOR CONNECTION DETAILS AND CONDUIT NUMBER.







CP-WIL-EB2
CONTROL BLOCK DIAGRAM

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	N. NELSON
DRAWN BY:	N. NELSON
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ELECTRICAL BUILDING NO. 2
ELECTRICAL
CONTROL BLOCK DIAGRAM

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	E7106

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-7100-001	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-002	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-003	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-004	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-005	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-006	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-007	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-008	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-009	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-010	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-011	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-012	1-1/2"	MCC-FLOC-3	PPB-EB2-1	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-013	4"	PPB-EB2-1	JB-3B	12#12 VFD CABLE, #12GND	VIA WALKER DUCT
P-7100-014	1-1/2"	JB-3B	MIX-2301	#12 VFD CABLE, #12GND	VIA DSW
P-7100-015	1-1/2"	JB-3B	MIX-2302	#12 VFD CABLE, #12GND	VIA DSW
P-7100-016	1-1/2"	JB-3B	MIX-2303	#12 VFD CABLE, #12GND	VIA DSW
P-7100-017	1-1/2"	JB-3B	MIX-2304	#12 VFD CABLE, #12GND	VIA DSW
P-7100-018	1-1/2"	JB-3B	MIX-2305	#12 VFD CABLE, #12GND	VIA DSW
P-7100-019	1-1/2"	JB-3B	MIX-2306	#12 VFD CABLE, #12GND	VIA DSW
P-7100-020	1-1/2"	JB-3B	MIX-2311	#12 VFD CABLE, #12GND	VIA DSW
P-7100-021	1-1/2"	JB-3B	MIX-2312	#12 VFD CABLE, #12GND	VIA DSW
P-7100-022	1-1/2"	JB-3B	MIX-2313	#12 VFD CABLE, #12GND	VIA DSW
P-7100-023	1-1/2"	JB-3B	MIX-2314	#12 VFD CABLE, #12GND	VIA DSW
P-7100-024	1-1/2"	JB-3B	MIX-2315	#12 VFD CABLE, #12GND	VIA DSW
P-7100-025	1-1/2"	JB-3B	MIX-2316	#12 VFD CABLE, #12GND	VIA DSW
P-7100-026	2"	MCC-FLOC-3	ATS-BSN-3/4	3#4/0, #4GND	VIA CABLE TRAY
P-7100-027	2"	ATS-BSN-3/4	TX-ISO-3/4	3#4/0, #4GND	
P-7100-028	2"	TX-ISO-3/4	PP-BSN-3/4	4#4/0, #4GND	
P-7100-029	1"	PP-BSN-3/4	TX-BSN-3/4	3#6, #10GND	
P-7100-030	1-1/2"	TX-BSN-3/4	LP-BSN-3/4	4#1, #8GND	
P-7100-031	2"	MCC-FLOC-4	ATS-BSN-3/4	3#4/0, #4GND	VIA CABLE TRAY
P-7100-032	3/4"	MCC-FLOC-3	PPB-EB2-1	3#12, #12GND	VIA CABLE TRAY
P-7100-033	3/4"	MCC-FLOC-3	PPB-EB2-1	3#12, #12GND	VIA CABLE TRAY
P-7100-034	1-1/2"	PPB-EB2-1	JB-3B	14#12, #12GND	VIA WALKER DUCT
P-7100-035	3/4"	JB-3B	PMP-2343	3#12, #12GND	VIA DSW
P-7100-036	3/4"	JB-3B	PMP-2353	3#12, #12GND	VIA DSW
P-7100-037	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-038	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-039	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-040	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-041	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-042	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-043	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-044	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-045	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-046	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-047	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-048	1-1/2"	MCC-FLOC-4	PPB-EB2-2	#12 VFD CABLE, #12GND	VIA CABLE TRAY
P-7100-049	4"	PPB-EB2-2	JB-4B	12#12 VFD CABLE, #12GND	VIA WALKER DUCT
P-7100-050	1-1/2"	JB-4B	MIX-2401	#12 VFD CABLE, #12GND	VIA DSW
P-7100-051	1-1/2"	JB-4B	MIX-2402	#12 VFD CABLE, #12GND	VIA DSW
P-7100-052	1-1/2"	JB-4B	MIX-2403	#12 VFD CABLE, #12GND	VIA DSW
P-7100-053	1-1/2"	JB-4B	MIX-2404	#12 VFD CABLE, #12GND	VIA DSW
P-7100-054	1-1/2"	JB-4B	MIX-2405	#12 VFD CABLE, #12GND	VIA DSW
P-7100-055	1-1/2"	JB-4B	MIX-2406	#12 VFD CABLE, #12GND	VIA DSW
P-7100-056	1-1/2"	JB-4B	MIX-2411	#12 VFD CABLE, #12GND	VIA DSW
P-7100-057	1-1/2"	JB-4B	MIX-2412	#12 VFD CABLE, #12GND	VIA DSW
P-7100-058	1-1/2"	JB-4B	MIX-2413	#12 VFD CABLE, #12GND	VIA DSW
P-7100-059	1-1/2"	JB-4B	MIX-2414	#12 VFD CABLE, #12GND	VIA DSW
P-7100-060	1-1/2"	JB-4B	MIX-2415	#12 VFD CABLE, #12GND	VIA DSW
P-7100-061	1-1/2"	JB-4B	MIX-2416	#12 VFD CABLE, #12GND	VIA DSW
P-7100-062	3/4"	MCC-FLOC-4	PPB-EB2-2	3#12, #12GND	
P-7100-063	3/4"	MCC-FLOC-4	PPB-EB2-2	3#12, #12GND	
P-7100-064	1-1/2"	PP-EB2-2	JB-4B	14#12, #12GND	VIA WALKER DUCT
P-7100-065	3/4"	JB-4B	PMP-2443	3#12, #12GND	VIA DSW
P-7100-066	3/4"	JB-4B	PMP-2453	3#12, #12GND	VIA DSW
P-7100-067	3/4"	PP-BSN-3/4	AHU-7101	3#12, #12GND	VIA CABLE TRAY
P-7100-068	3/4"	PP-BSN-3/4	AHU-7102	3#12, #12GND	VIA CABLE TRAY
P-7100-069	1-1/2"	LP-BSN-3/4	PPB-EB2-1	8#12, #12GND	VIA CABLE TRAY
P-7100-070	3/4"	LP-BSN-3/4	HVCP-EB2	2#12, #12GND	VIA CABLE TRAY
P-7100-071	3/4"	JB-3B	AIT-2310	2#12, #12GND	VIA DSW
P-7100-072	3/4"	JB-3B	AIT-2300	2#12, #12GND	VIA DSW
P-7100-073	3/4"	JB-3B	VCP-2320	2#12, #12GND	
P-7100-074	1"	VCP-2320	SCD-2321	MFR. SUPPLIED CABLE	
P-7100-075	1"	VCP-2320	SCD-2322	MFR. SUPPLIED CABLE	
P-7100-076	3/4"	VCP-2320	JB-2341	2#12, #12GND	
P-7100-077	3/4"	VCP-2320	JB-2342	2#12, #12GND	
P-7100-078	3/4"	JB-3B	VCP-2330	2#12, #12GND	
P-7100-079	1"	VCP-2330	SCD-2331	MFR. SUPPLIED CABLE	
P-7100-080	1"	VCP-2330	SCD-2332	MFR. SUPPLIED CABLE	
P-7100-081	3/4"	VCP-2330	JB-2351	2#12, #12GND	
P-7100-082	3/4"	VCP-2330	JB-2352	2#12, #12GND	
P-7100-083	1-1/2"	LP-BSN-3/4	PPB-EB2-2	8#12, #12GND	VIA CABLE TRAY
P-7100-084	3/4"	AHU-7101	T-7101	4#12, #12GND	VIA CONDUIT TEE
P-7100-085	3/4"	JB-4B	AIT-2410	2#12, #12GND	VIA DSW

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-7100-086	3/4"	JB-4B	AIT-2400	2#12, #12GND	VIA DSW
P-7100-087	3/4"	JB-4B	VCP-2420	2#12, #12GND	
P-7100-088	1"	VCP-2420	SCD-2422	MFR. SUPPLIED CABLE	
P-7100-089	1"	VCP-2420	SCD-2421	MFR. SUPPLIED CABLE	
P-7100-090	3/4"	VCP-2420	JB-2442	2#12, #12GND	
P-7100-091	3/4"	VCP-2420	JB-2441	2#12, #12GND	
P-7100-092	3/4"	JB-4B	VCP-2430	2#12, #12GND	
P-7100-093	1"	VCP-2430	SCD-2432	MFR. SUPPLIED CABLE	
P-7100-094	1"	VCP-2430	SCD-2431	MFR. SUPPLIED CABLE	
P-7100-095	3/4"	VCP-2430	JB-2452	2#12, #12GND	
P-7100-096	3/4"	VCP-2430	JB-2451	2#12, #12GND	
P-7100-097	3/4"	LP-BSN-3/4	CP-WIL-EB2	2#12, #12GND	VIA CABLE TRAY
P-7100-098	3/4"	AHU-7102	T-7101	4#12, #12GND	VIA CONDUIT TEE
P-7100-099	1-1/2"	JB-2341	VAL-2341	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-100	1-1/2"	JB-2342	VAL-2342	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-101	1-1/2"	JB-2351	VAL-2351	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-102	1-1/2"	JB-2352	VAL-2352	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-103	1-1/2"	JB-2441	VAL-2441	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-104	1-1/2"	JB-2442	VAL-2442	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-105	1-1/2"	JB-2451	VAL-2451	(2) PIGTAIL CORDSET	POWER AND CONTROLS
P-7100-106	1-1/2"	JB-2452	VAL-2452	(2) PIGTAIL CORDSET	POWER AND CONTROLS

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-7100-001	1-1/2"	MCC-FLOC-3	CPB-EB2-1	70#14, #14GND	1 VIA CABLE TRAY
C-7100-002	1-1/2"	MCC-FLOC-3	CPB-EB2-1	70#14, #14GND	VIA CABLE TRAY
C-7100-003	2"	CPB-EB2-1	CPB-BSN-3	140#14, #14GND	
C-7100-004	2"	CPB-EB2-1	CPB-BSN-3	EMPTY W/ PULLSTRING	SPARE
C-7100-005	1"	FPP-WIL-EB2	FPP-WIL-ASB	FO CABLE	VIA CABLE TRAY, WALKER DUCT
C-7100-006	3/4"	CPB-BSN-3	MIX-2301	4#14, #14GND	
C-7100-007	3/4"	CPB-BSN-3	LCS-2301	6#14, #14GND	
C-7100-008	3/4"	CPB-BSN-3	MIX-2302	4#14, #14GND	
C-7100-009	3/4"	CPB-BSN-3	LCS-2302	6#14, #14GND	
C-7100-010	3/4"	CPB-BSN-3	MIX-2303	4#14, #14GND	
C-7100-011	3/4"	CPB-BSN-3	LCS-2303	6#14, #14GND	
C-7100-012	3/4"	CPB-BSN-3	MIX-2304	4#14, #14GND	
C-7100-013	3/4"	CPB-BSN-3	LCS-2304	6#14, #14GND	
C-7100-014	3/4"	CPB-BSN-3	MIX-2305	4#14, #14GND	
C-7100-015	3/4"	CPB-BSN-3	LCS-2305	6#14, #14GND	
C-7100-016	3/4"	CPB-BSN-3	MIX-2306	4#14, #14GND	
C-7100-017	3/4"	CPB-BSN-3	LCS-2306	6#14, #14GND	
C-7100-018	3/4"	CPB-BSN-3	MIX-2311	4#14, #14GND	
C-7100-019	3/4"	CPB-BSN-3	LCS-2311	6#14, #14GND	
C-7100-020	3/4"	CPB-BSN-3	MIX-2312	4#14, #14GND	
C-7100-021	3/4"	CPB-BSN-3	LCS-2312	6#14, #14GND	
C-7100-022	3/4"	CPB-BSN-3	MIX-2313	4#14, #14GND	
C-7100-023	3/4"	CPB-BSN-3	LCS-2313	6#14, #14GND	
C-7100-024	3/4"	CPB-BSN-3	MIX-2314	4#14, #14GND	
C-7100-025	3/4"	CPB-BSN-3	LCS-2314	6#14, #14GND	
C-7100-026	3/4"	CPB-BSN-3	MIX-2315	4#14, #14GND	
C-7100-027	3/4"	CPB-BSN-3	LCS-2315	6#14, #14GND	
C-7100-028	3/4"	CPB-BSN-3	MIX-2316	4#14, #14GND	
C-7100-029	3/4"	CPB-BSN-3	LCS-2316	6#14, #14GND	
C-7100-030	3/4"	CPB-BSN-3	LCP-2343	6#14, #14GND	
C-7100-031	3/4"	CPB-BSN-3	LCP-2353	6#14, #14GND	
C-7100-032	1-1/2"	MCC-FLOC-4	CPB-EB2-2	70#14, #14GND	1 VIA CABLE TRAY
C-7100-033	1-1/2"	MCC-FLOC-4	CPB-EB2-2	70#14, #14GND	VIA CABLE TRAY
C-7100-034	2"	CPB-EB2-2	CPB-BSN-4	140#14, #14GND	
C-7100-035	2"	CPB-EB2-2	CPB-BSN-4	EMPTY W/ PULLSTRING	
C-7100-036	-	-	-	NOT USED	
C-7100-037	3/4"	CPB-BSN-4	MIX-2401	4#14, #14GND	
C-7100-038	3/4"	CPB-BSN-4	LCS-2401	6#14, #14GND	
C-7100-039	3/4"	CPB-BSN-4	MIX-2402	4#14, #14GND	
C-7100-040	3/4"	CPB-BSN-4	LCS-2402	6#14, #14GND	
C-7100-041	3/4"	CPB-BSN-4	MIX-2403	4#14, #14GND	
C-7100-042	3/4"	CPB-BSN-4	LCS-2403	6#14, #14GND	
C-7100-043	3/4"	CPB-BSN-4	MIX-2404	4#14, #14GND	
C-7100-044	3/4"	CPB-BSN-4	LCS-2404	6#14, #14GND	
C-7100-045	3/4"	CPB-BSN-4	MIX-2405	4#14, #14GND	
C-7100-046	3/4"	CPB-BSN-4	LCS-2405	6#14, #14GND	
C-7100-047	3/4"	CPB-BSN-4	MIX-2406	4#14, #14GND	
C-7100-048	3/4"	CPB-BSN-4	LCS-2406	6#14, #14GND	
C-7100-049	3/4"	CPB-BSN-4	MIX-2411	4#14, #14GND	
C-7100-050	3/4"	CPB-BSN-4	LCS-2411	6#14, #14GND	
C-7100-051	3/4"	CPB-BSN-4	MIX-2412	4#14, #14GND	
C-7100-052	3/4"	CPB-BSN-4	LCS-2412	6#14, #14GND	
C-7100-053	3/4"	CPB-BSN-4	MIX-2413	4#14, #14GND	
C-7100-054	3/4"	CPB-BSN-4	LCS-2413	6#14, #14GND	
C-7100-055	3/4"	CPB-BSN-4	MIX-2414	4#14, #14GND	
C-7100-056	3/4"	CPB-BSN-4	LCS-2414	6#14, #14GND	
C-7100-057	3/4"	CPB-BSN-4	MIX-2415	4#14, #14GND	
C-7100-058	3/4"	CPB-BSN-4	LCS-2415	6#14, #14GND	
C-7100-059	3/4"	CPB-BSN-4	MIX-2416	4#14, #14GND	
C-7100-060	3/4"	CPB-BSN-4	LCS-2416	6#14, #14GND	
C-7100-061	3/4"	CPB-BSN-4	LCP-2443	6#14, #14GND	
C-7100-062	3/4"	CPB-BSN-4	LCP-2453	6#14, #14GND	
C-7100-063	3/4"	VCP-2320	VAL-2341	12#14, #14GND	
C-7100-064	3/4"	VCP-2320	VAL-2342	12#14, #14GND	

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER: T. HUDSON
DESIGNED BY: N. NELSON
DRAWN BY: N. NELSON
PROJECT ENGINEER: B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ELECTRICAL BUILDING NO. 2
ELECTRICAL
CONDUIT AND WIRE SCHEDULE

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E7108

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-7100-065	3/4"	VCP-2330	VAL-2351	12#14, #14GND	
C-7100-066	3/4"	VCP-2330	VAL-2352	12#14, #14GND	
C-7100-067	3/4"	VCP-2420	VAL-2441	12#14, #14GND	
C-7100-068	3/4"	VCP-2420	VAL-2442	12#14, #14GND	
C-7100-069	3/4"	VCP-2430	VAL-2451	12#14, #14GND	
C-7100-070	3/4"	VCP-2430	VAL-2452	12#14, #14GND	
C-7100-071	1"	FPP-WIL-EB2	FPP-WIL-ASB	EMPTY W/ PULLSTRING	
C-7100-072	3/4"	ACP-EB2	WEST DOOR	EMPTY W/ PULLSTRING	
C-7100-073	3/4"	ACP-EB2	EAST DOOR	EMPTY W/ PULLSTRING	
C-7100-074	3/4"	ACP-EB2	SECURITY CAMERA	EMPTY W/ PULLSTRING	
C-7100-075	3/4"	CPB-BSN-3	AIT-2300	4#14, #14GND	
C-7100-076	3/4"	CPB-BSN-3	AIT-2310	4#14, #14GND	
C-7100-077	3/4"	CPB-BSN-4	AIT-2400	4#14, #14GND	
C-7100-078	3/4"	CPB-BSN-4	AIT-2410	4#14, #14GND	

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CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
I-7100-001	1"	FPP-WIL-EB2	CP-WIL-EB2	(1) CAT-6 CABLE, #14 GND	
I-7100-002	3/4"	CP-WIL-EB2	MCC-FLOC-3	(1) CAT-6 CABLE, #14 GND	
I-7100-003	-	-	-	NOT USED	
I-7100-004	3/4"	CP-WIL-EB2	MCC-FLOC-4	(1) CAT-6 CABLE, #14 GND	
I-7100-005	1-1/2"	CP-WIL-EB2	IPB-BSN-3	4(2/C#16TSH), #14GND	
I-7100-006	1-1/2"	CP-WIL-EB2	IBP-BSN-3	(2) CAT-6 CABLE, #14 GND	
I-7100-007	1"	IBP-BSN-3	AIT-2300	2(2/C#16TSH), #14GND	
I-7100-008	1"	AIT-2300	AE-2300	MAN. SUPPLIED CABLE	
I-7100-009	1"	IBP-BSN-3	AIT-2310	2(2/C#16TSH), #14GND	
I-7100-010	1"	AIT-2310	AE-2310	MAN. SUPPLIED CABLE	
I-7100-011	3/4"	IBP-BSN-3	VCP-2320	(1) CAT-6 CABLE, #14 GND	
I-7100-012	3/4"	IBP-BSN-3	VCP-2330	(1) CAT-6 CABLE, #14 GND	
I-7100-013	1-1/2"	CP-WIL-EB2	IBP-BSN-4	4(2/C#16TSH), #14GND	
I-7100-014	1-1/2"	CP-WIL-EB2	IBP-BSN-4	(1) CAT-6 CABLE, #14 GND	
I-7100-015	1"	IBP-BSN-4	AIT-2400	2(2/C#16TSH), #14GND	
I-7100-016	1"	AIT-2400	AE-2400	2(2/C#16TSH), #14GND	
I-7100-017	1"	IBP-BSN-4	AIT-2410	2(2/C#16TSH), #14GND	
I-7100-018	1"	AIT-2410	AE-2410	2(2/C#16TSH), #14GND	
I-7100-019	3/4"	IBP-BSN-4	VCP-2420	(1) CAT-6 CABLE, #14 GND	
I-7100-020	3/4"	IBP-BSN-4	VCP-2430	(1) CAT-6 CABLE, #14 GND	

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	01/09/25	BDB

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	N. NELSON
DRAWN BY:	N. NELSON
PROJECT ENGINEER:	B. BUELTEL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ELECTRICAL BUILDING NO. 2
ELECTRICAL
CONDUIT AND WIRE SCHEDULE

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: E7109

SCADA HMI

CP-WIL-EB1

POWER SOURCE

FIELD

TYPICAL OF EIGHT: SPEED CONTROL SC 2111; SPEED FEEDBACK SI 2111; MTR WIND HI TEMP TAH 2111; IN REMOTE YL 2111; RUNNING YLR 2111; FAULT YA 2111; START/STOP YCR 2111

TYPICAL OF TWO: PH AI 2110; TEMP TI 2110; FAULT YA 2110

TYPICAL OF TWO: CLOSE COMMAND ZCC 2151; OPEN COMMAND ZCO 2151; OPENED ZLO 2151; CLOSED ZLC 2151; FAULT YA 2151; IN REMOTE YL 2151

TYPICAL OF TWO: IN REMOTE YL 2131; RUNNING YLR 2131; FAULT YA 2131; START/STOP YCR 2131

TYPICAL OF TWO: CLOSE COMMAND ZCC 2141; OPEN COMMAND ZCO 2141; OPENED ZLO 2141; CLOSED ZLC 2141; FAULT YA 2141; IN REMOTE YL 2141

TYPICAL OF TWO: IN REMOTE YL 2121; RUNNING YLR 2121; FAULT YA 2121; START/STOP YCR 2121

TYPICAL OF TWO: RUNNING YLR 2153; FAULT YA 2153

UIC 2111; AT 2110; TT 2110; YS 2110; UIC 2151; UIC 2131; UIC 2141; UIC 2121; UIC 2153

MCC-FLOC-1 — VFD-2111 — YLR 2111 RUNNING — YA 2111 FAULT — VFD — 1 — ES 480/3 — TYPICAL FOR ALL MIXERS

MCC-EB1-1 — RUNNING YLR 2153 — FAULT YA 2153 — FVNR — ES 480/3 — TYPICAL OF TWO

HARDWIRED INTERLOCKS

1 MIXER SHALL BE STOPPED ON MOTOR WINDING HIGH TEMP.

VCP-2130 — PLC 2130 — VFD-2131 — VFD-2132 — ES 120/1 — BASIN 1B SCD 1 & 2 VENDOR CONTROL PANEL

VCP-2120 — PLC 2120 — VFD-2121 — VFD-2122 — ES 120/1 — BASIN 1A SCD 1 & 2 VENDOR CONTROL PANEL

TYPICAL OF TWO — LCS-2153 — HS 2153 SS

TO MANHOLE

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

I3000 — TO FILTERS

BI I2001 — FROM RAPID MIX

LCS-2111 — HS 2111 LOR A — HS 2111 SS B — TYPICAL FOR ALL MIXERS

FLOC BASIN 1B STAGE 1 — M — TSH 2111 — MIX-2111 — MIXER 1B-1

FLOC BASIN 1B STAGE 4 — M — TSH 2114 — MIX-2114 — MIXER 1B-4

FLOC BASIN 1B STAGE 2 — ES 120/1 — AIT 2110 — AE 2110 PH+TEMP — M — TSH 2112 — MIX-2112 — MIXER 1B-2

FLOC BASIN 1B STAGE 3 — M — TSH 2113 — MIX-2113 — MIXER 1B-3

FLOC BASIN 1A STAGE 1 — M — TSH 2101 — MIX-2101 — MIXER 1A-1

FLOC BASIN 1A STAGE 4 — M — TSH 2104 — MIX-2104 — MIXER 1A-4

FLOC BASIN 1A STAGE 2 — ES 120/1 — AIT 2100 — AE 2100 PH+TEMP — M — TSH 2102 — MIX-2102 — MIXER 1A-2

FLOC BASIN 1A STAGE 3 — M — TSH 2103 — MIX-2103 — MIXER 1A-3

ROTARY SKIMMER, TYP

PLATE SETTLERS ASSEMBLY, TYP

SOLIDS COLLECTOR, TYP

SCD-2131 — B1B SOLIDS COLLECTOR DRIVE NO. 1

SCD-2132 — B1B SOLIDS COLLECTOR DRIVE NO. 2

BASIN 1B

SETTLED WATER CHANNEL

SCD-2121 — B1A SOLIDS COLLECTOR DRIVE NO. 1

SCD-2122 — B1A SOLIDS COLLECTOR DRIVE NO. 2

BASIN 1A

PI 2153 A — PI 2153 B — PMP-2153 — BASIN 1B SAMPLE PUMP

SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

VAL-2151 — VAL-2152 — TO MANHOLE

BASIN 1B SLUDGE VALVE VAULT

PI 2143 A — PI 2143 B — PMP-2143 — BASIN 1A SAMPLE PUMP

SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

VAL-2141 — VAL-2142 — TO MANHOLE

BASIN 1A SLUDGE VALVE VAULT

BI I2001 — FROM RAPID MIX

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

TO MANHOLE

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE
1	ADDENDUM 1	12-17-24	DBE

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. ZOMORODI
DRAWN BY:	B. HARRIS
PROJECT ENGINEER:	S. ZOMORODI

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen

HAZEN AND SAWYER
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DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 1 P&ID

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: I2100

SCADA HMI

CP-WIL-EB1

POWER SOURCE

FIELD

TYPICAL OF TEN: SPEED CONTROL (SC 2213), SPEED FEEDBACK (SI 2213), MTR WIND HI TEMP (TAH 2213), IN REMOTE (YL 2213), RUNNING (YLR 2213), FAULT (YA 2213), START/STOP (YCR 2213)

TYPICAL OF TWO: PH (AI 2210), TEMP (TI 2210), FAULT (YA 2210)

TYPICAL OF TWO: CLOSE COMMAND (ZCC 2251), OPEN COMMAND (ZCO 2251), OPENED (ZLO 2251), CLOSED (ZLC 2251), FAULT (YA 2251), IN REMOTE (YL 2251)

TYPICAL OF TWO: IN REMOTE (YL 2231), RUNNING (YLR 2231), FAULT (YA 2231), START/STOP (YCR 2231)

TYPICAL OF TWO: CLOSE COMMAND (ZCC 2241), OPEN COMMAND (ZCO 2241), OPENED (ZLO 2241), CLOSED (ZLC 2241), FAULT (YA 2241), IN REMOTE (YL 2241)

TYPICAL OF TWO: IN REMOTE (YL 2221), RUNNING (YLR 2221), FAULT (YA 2221), START/STOP (YCR 2221)

TYPICAL OF TWO: RUNNING (YLR 2253), FAULT (YA 2253)

UIC 2213 · AT 2210 · TT 2210 · YS 2210 · UIC 2251 · UIC 2231 · UIC 2241 · UIC 2221 · UIC 2253

MCC-FLOC-2 — VFD-2213 — ES 480/3 — YLR 2213 RUNNING — YA 2213 FAULT — VFD — 1 — TYPICAL FOR ALL MIXERS

MCC-EB1-2 — ES 480/3 — RUNNING YLR 2253 — FAULT YA 2253 — FVNR — TYPICAL OF TWO

HARDWIRED INTERLOCKS

1 MIXER SHALL BE STOPPED ON MOTOR WINDING HIGH TEMP.

VCP-2230 — PLC 2230 — BASIN 2B SCD 1 & 2 VENDOR CONTROL PANEL — ES 120/1 — VFD-2231 — VFD-2232 — 5 — 6

VCP-2220 — PLC 2220 — BASIN 2A SCD 1 & 2 VENDOR CONTROL PANEL — ES 120/1 — VFD-2221 — VFD-2222 — 3 — 4 — 1 — 2

TYPICAL OF TWO — LCS-2253 — HS 2253 SS

TO MANHOLE

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

I3000 — TO FILTERS

LCS-2213 — HS 2213 A LOR — HS 2213 B SS — TYPICAL FOR ALL MIXERS

LCS-2210 — HS 2210 SS — PMP–2210 — BASIN 2B DRAIN SUBMERSIBLE SUMP PUMP

FLOC BASIN 2B STAGE 3 — M — TSH 2213 — MIX–2213 — MIXER 2B-3

FLOC BASIN 2B STAGE 4 — M — TSH 2214 — MIX–2214 — MIXER 2B-4

FLOC BASIN 2B STAGE 1 — M — TSH 2211 — MIX–2211 — MIXER 2B-1

FLOC BASIN 2B STAGE 2 — ES 120/1 — M — TSH 2212 — AIT 2210 — AE 2210 — PH+TEMP — MIX–2212 — MIXER 2B-2

FLOC BASIN 2B STAGE 5 — M — TSH 2215 — MIX–2215 — MIXER 2B-5

BI I1500 — FROM RAPID MIX BYPASS

BI I2001 — FROM RAPID MIX

FLOC BASIN 2A STAGE 1 — M — TSH 2201 — MIX–2201 — MIXER 2A-1

FLOC BASIN 2A STAGE 2 — ES 120/1 — M — TSH 2202 — AIT 2200 — AE 2200 — PH+TEMP — MIX–2202 — MIXER 2A-2

FLOC BASIN 2A STAGE 5 — M — TSH 2205 — MIX–2205 — MIXER 2A-5

LCS-2200 — HS 2200 SS — PMP–2200 — BASIN 2A DRAIN SUBMERSIBLE SUMP PUMP

FLOC BASIN 2A STAGE 3 — M — TSH 2203 — MIX–2203 — MIXER 2A-3

FLOC BASIN 2A STAGE 4 — M — TSH 2204 — MIX–2204 — MIXER 2A-4

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

TO MANHOLE

M — SCD–2231 — B2B SOLIDS COLLECTOR DRIVE NO. 1

M — SCD–2232 — B2B SOLIDS COLLECTOR DRIVE NO. 2

BASIN 2B

ROTARY SKIMMER, TYP

PLATE SETTLERS ASSEMBLY, TYP

SOLIDS COLLECTOR, TYP

SETTLED WATER CHANNEL

M — 1 — SCD–2221 — B2A SOLIDS COLLECTOR DRIVE NO. 1

M — 2 — SCD–2222 — B2A SOLIDS COLLECTOR DRIVE NO. 2

BASIN 2A

PI 2253 A · PI 2253 B · M — PMP–2253 — BASIN 2B SAMPLE PUMP

SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

2 — VAL–2252 — O/C — VAL–2251 — O/C — TO MANHOLE

BASIN 2B SLUDGE VALVE VAULT

PI 2243 A · PI 2243 B · M — PMP–2243 — BASIN 2A SAMPLE PUMP

SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

2 — VAL–2242 — O/C — VAL–2241 — O/C — TO MANHOLE

BASIN 2A SLUDGE VALVE VAULT

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE
1	ADDENDUM 1	12-17-24	DBE

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. ZOMORODI
DRAWN BY:	B. HARRIS
PROJECT ENGINEER:	S. ZOMORODI

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
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8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION FLOCCULATION AND SEDIMENTATION BASIN NO. 2 P&ID

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: I2200

SCADA HMI

TYPICAL OF TWELVE: SPEED CONTROL SC 2313; SPEED FEEDBACK SI 2313; MTR WIND HI TEMP TAH 2313; IN REMOTE YL 2313; RUNNING YLR 2313; FAULT YA 2313; START/STOP YCR 2313

TYPICAL OF TWO: PH AI 2310; TEMP TI 2310; FAULT YA 2310

TYPICAL OF TWO: CLOSE COMMAND ZCC 2351; OPEN COMMAND ZCO 2351; OPENED ZLO 2351; CLOSED ZLC 2351; FAULT YA 2351; IN REMOTE YL 2351

TYPICAL OF TWO: IN REMOTE YL 2331; RUNNING YLR 2331; FAULT YA 2331; START/STOP YCR 2331

TYPICAL OF TWO: CLOSE COMMAND ZCC 2341; OPEN COMMAND ZCO 2341; OPENED ZLO 2341; CLOSED ZLC 2341; FAULT YA 2341; IN REMOTE YL 2341

TYPICAL OF TWO: IN REMOTE YL 2321; RUNNING YLR 2321; FAULT YA 2321; START/STOP YCR 2321

TYPICAL OF TWO: RUNNING YLR 2353; FAULT YA 2353

CP-WIL-EB2

UIC 2313; AT 2310; TT 2310; YS 2310; UIC 2351; UIC 2331; UIC 2341; UIC 2321; UIC 2353

POWER SOURCE

MCC-FLOC-3 — VFD-2313 — ES 480/3 — YLR 2313 RUNNING — YA 2313 FAULT — VFD — 1 — TYPICAL FOR ALL MIXERS

MCC-FLOC-3 — ES 480/3 — YLR 2353 RUNNING — YA 2353 FAULT — FVNR — TYPICAL OF TWO

HARDWIRED INTERLOCKS

1 MIXER SHALL BE STOPPED ON MOTOR WINDING HIGH TEMP.

FIELD

VCP-2330 — PLC 2330 — ES 120/1 — VFD-2331 — VFD-2332 — BASIN 3B SCD 1 & 2 VENDOR CONTROL PANEL

VCP-2320 — PLC 2320 — ES 120/1 — VFD-2321 — VFD-2322 — BASIN 3A SCD 1 & 2 VENDOR CONTROL PANEL

TYPICAL OF TWO — LCS-2353 — HS 2353 SS

TO MANHOLE

I3300 TO WASTE PIT/ SLUDGE PUMP STATION

LCS-2313 — HS 2313 A LOR — HS 2313 B SS — TYPICAL FOR ALL MIXERS

FLOC BASIN 3B STAGE 2 — ES 120/1 — AIT 2310 — M TSH 2312 — AE 2310 PH+TEMP — MIX–2312 MIXER 3B-2

FLOC BASIN 3B STAGE 3 — M TSH 2313 — MIX–2313 MIXER 3B-3

FLOC BASIN 3B STAGE 6 — M TSH 2316 — MIX–2316 MIXER 3B-6

FLOC BASIN 3B STAGE 1 — M TSH 2311 — MIX–2311 MIXER 3B-1

FLOC BASIN 3B STAGE 4 — M TSH 2314 — MIX–2314 MIXER 3B-4

FLOC BASIN 3B STAGE 5 — M TSH 2315 — MIX–2315 MIXER 3B-5

BI I1500 FROM RAPID MIX BYPASS

BI I2001 FROM RAPID MIX

FLOC BASIN 3A STAGE 1 — M TSH 2301 — MIX–2301 MIXER 3A-1

FLOC BASIN 3A STAGE 4 — M TSH 2304 — MIX–2304 MIXER 3A-4

FLOC BASIN 3A STAGE 5 — M TSH 2305 — MIX–2305 MIXER 3A-5

FLOC BASIN 3A STAGE 2 — ES 120/1 — AIT 2300 — M TSH 2302 — AE 2300 PH+TEMP — MIX–2302 MIXER 3A-2

FLOC BASIN 3A STAGE 3 — M TSH 2303 — MIX–2303 MIXER 3A-3

FLOC BASIN 3A STAGE 6 — M TSH 2306 — MIX–2306 MIXER 3A-6

I3000 TO FILTERS

I3300 TO WASTE PIT/ SLUDGE PUMP STATION

TO MANHOLE

SCD–2331 B3B SOLIDS COLLECTOR DRIVE NO. 1

SCD–2332 B3B SOLIDS COLLECTOR DRIVE NO. 2

BASIN 3B

ROTARY SKIMMER, TYP

PLATE SETTLERS ASSEMBLY, TYP

SOLIDS COLLECTOR, TYP

SETTLED WATER CHANNEL

SCD–2321 B3A SOLIDS COLLECTOR DRIVE NO. 1

SCD–2322 B3A SOLIDS COLLECTOR DRIVE NO. 2

BASIN 3A

PI 2353 A — PI 2353 B — PMP–2353 SAMPLE PUMP 2 — SA I3001 TO SAMPLE PANEL B IN FILTER BUILDING

VAL–2352 — VAL–2351 — O/C — TO MANHOLE

BASIN 3B SLUDGE VALVE VAULT

PI 2343 A — PI 2343 B — PMP–2343 SAMPLE PUMP 1 — SA I3001 TO SAMPLE PANEL B IN FILTER BUILDING

VAL–2342 — VAL–2341 — O/C — TO MANHOLE

BASIN 3A SLUDGE VALVE VAULT

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE
1	ADDENDUM 1	12-17-24	DBE

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. ZOMORODI
DRAWN BY:	B. HARRIS
PROJECT ENGINEER:	S. ZOMORODI

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
HAZEN AND SAWYER
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TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION
FLOCCULATION AND SEDIMENTATION BASIN NO. 3 P&ID

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	I2300

SCADA HMI

CP-WIL-EB2

POWER SOURCE

FIELD

TYPICAL OF TWELVE: SPEED CONTROL SC 2413; SPEED FEEDBACK SI 2413; MTR WIND HI TEMP TAH 2413; IN REMOTE YL 2413; RUNNING YLR 2413; FAULT YA 2413; START/STOP YCR 2413

TYPICAL OF TWO: PH AI 2410; TEMP TI 2410; FAULT YA 2410

TYPICAL OF TWO: CLOSE COMMAND ZCC 2451; OPEN COMMAND ZCO 2451; OPENED ZLO 2451; CLOSED ZLC 2451; FAULT YA 2451; IN REMOTE YL 2451

TYPICAL OF TWO: IN REMOTE YL 2431; RUNNING YLR 2431; FAULT YA 2431; START/STOP YCR 2431

TYPICAL OF TWO: CLOSE COMMAND ZCC 2441; OPEN COMMAND ZCO 2441; OPENED ZLO 2441; CLOSED ZLC 2441; FAULT YA 2441; IN REMOTE YL 2441

TYPICAL OF TWO: IN REMOTE YL 2421; RUNNING YLR 2421; FAULT YA 2421; START/STOP YCR 2421

TYPICAL OF TWO: RUNNING YLR 2453; FAULT YA 2453

UIC 2413; AT 2410; TT 2410; YS 2410; UIC 2451; UIC 2431; UIC 2441; UIC 2421; UIC 2453

MCC-FLOC-3 — ES 480/3 — VFD-2413 — YLR 2413 RUNNING — YA 2413 FAULT — VFD — 1 — TYPICAL FOR ALL MIXERS

MCC-FLOC-4 — ES 480/3 — YLR 2453 RUNNING — YA 2453 FAULT — FVNR — TYPICAL OF TWO

HARDWIRED INTERLOCKS

1 MIXER SHALL BE STOPPED ON MOTOR WINDING HIGH TEMP.

VCP-2430 — PLC 2430 — ES 120/1 — VFD-2431 — VFD-2432 — BASIN 4B SCD 1 & 2 VENDOR CONTROL PANEL

VCP-2420 — PLC 2420 — ES 120/1 — VFD-2421 — VFD-2422 — BASIN 4A SCD 1 & 2 VENDOR CONTROL PANEL

TYPICAL OF TWO — LCS-2453 — HS 2453 SS

TO MANHOLE

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

LCS-2413 — HS 2413 A LOR — HS 2413 B SS — TYPICAL FOR ALL MIXERS

FLOC BASIN 4B STAGE 2 — ES 120/1 — AIT 2410 — TSH 2412 — AE 2410 PH+TEMP — MIX–2412 — MIXER 4B-2

FLOC BASIN 4B STAGE 3 — TSH 2413 — MIX–2413 — MIXER 4B-3

FLOC BASIN 4B STAGE 6 — TSH 2416 — MIX–2416 — MIXER 4B-6

FLOC BASIN 4B STAGE 1 — TSH 2411 — MIX–2411 — MIXER 4B-1

FLOC BASIN 4B STAGE 4 — TSH 2414 — MIX–2414 — MIXER 4B-4

FLOC BASIN 4B STAGE 5 — TSH 2415 — MIX–2415 — MIXER 4B-5

BI — I1500 — FROM RAPID MIX

FLOC BASIN 4A STAGE 1 — TSH 2401 — MIX–2401 — MIXER 4A-1

FLOC BASIN 4A STAGE 4 — TSH 2404 — MIX–2404 — MIXER 4A-4

FLOC BASIN 4A STAGE 5 — TSH 2405 — MIX–2405 — MIXER 4A-5

FLOC BASIN 4A STAGE 2 — ES 120/1 — AIT 2400 — TSH 2402 — AE 2400 PH+TEMP — MIX–2402 — MIXER 4A-2

FLOC BASIN 4A STAGE 3 — TSH 2403 — MIX–2403 — MIXER 4A-3

FLOC BASIN 4A STAGE 6 — TSH 2406 — MIX–2406 — MIXER 4A-6

I3300 — TO WASTE PIT/ SLUDGE PUMP STATION

TO MANHOLE

I3000 — TO FILTERS

ROTARY SKIMMER, TYP

PLATE SETTLERS ASSEMBLY, TYP

SOLIDS COLLECTOR, TYP

SCD–2431 — B4B SOLIDS COLLECTOR DRIVE NO. 1

BASIN 4B

SCD–2432 — B4B SOLIDS COLLECTOR DRIVE NO. 2

SETTLED WATER CHANNEL

SCD–2421 — B4A SOLIDS COLLECTOR DRIVE NO. 1

BASIN 4A

SCD–2422 — B4A SOLIDS COLLECTOR DRIVE NO. 2

PI 2453 A — PI 2453 B — PMP–2453 SAMPLE PUMP 2 — SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

VAL–2452 — VAL–2451 — O/C — TO MANHOLE

BASIN 4B SLUDGE VALVE VAULT

PI 2443 A — PI 2443 B — PMP–2443 SAMPLE PUMP 1 — SA I3001 — TO SAMPLE PANEL B IN FILTER BUILDING

VAL–2442 — VAL–2441 — O/C — TO MANHOLE

BASIN 4A SLUDGE VALVE VAULT

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE
1	ADDENDUM 1	12-17-24	DBE

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. ZOMORODI
DRAWN BY:	B. HARRIS
PROJECT ENGINEER:	S. ZOMORODI

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
HAZEN AND SAWYER
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DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION
FLOCCULATION AND SEDIMENTATION BASIN NO. 4 P&ID

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: I2400

File: C:\USERS\BHARRIS\APPDATA\LOCAL\AUTODESK\AUTOCAD PLANT 3D\COLLABORATION\CACHE\60711-001_WILSON WTP REHAB FILTER BASIN\PID DWG\I2400 Saved by BHARRIS Save date: 1/9/2025 10:13 AM
PLOT DATE: 1/9/2025 12:46 PM BY: BHARRIS

SCADA HMI

CP-WIL-AR

FIELD

RAW WATER TURBIDITY — AI 2051 — AT 2051
XMTR FAULT — YA 2051 — YS 2051
RAW WATER PH — AI 2052 — AT 2052 A
RAW WATER TEMP — TI 2052 — TT 2052 B
RAPID MIX EFFLUENT PH — AI 2052 — AT 2052 A
RAPID MIX EFFLUENT TEMP — TI 2053 — TT 2053 B
XMTR FAULT — YA 2053 — YS 2053
SED BASIN 1A TURBIDITY — AI 2120 — AT 2120
XMTR FAULT — YA 2120 — YS 2120
SED BASIN 1B TURBIDITY — AI 2130 — AT 2130
XMTR FAULT — YA 2130 — YS 2130
SED BASIN 2A TURBIDITY — AI 2220 — AT 2220
XMTR FAULT — YA 2220 — YS 2220
SED BASIN 2B TURBIDITY — AI 2230 — AT 2230
XMTR FAULT — YA 2230 — YS 2230
SED BASIN 3A TURBIDITY — AI 2320 — AT 2320
XMTR FAULT — YA 2320 — YS 2320
SED BASIN 3B TURBIDITY — AI 2330 — AT 2330
XMTR FAULT — YA 2330 — YS 2330
SED BASIN 4A TURBIDITY — AI 2420 — AT 2420
XMTR FAULT — YA 2420 — YS 2420
SED BASIN 4B TURBIDITY — AI 2430 — AT 2430
XMTR FAULT — YA 2430 — YS 2430

2

ES — 120/1 — AIT 2051 TURB — AE 2051 TURB — PI 2051 A — PI 2052 — D
ES — 120/1 — AIT 2052 PH — AE 2052 PH/TEMP — AE 2053 PH/TEMP — PI 2053 — D
ES — 120/1 — AIT 2120 TURB — AE 2120 TURB — PI 2120 — D
ES — 120/1 — AIT 2130 TURB — AE 2130 TURB — PI 2130 — D
ES — 120/1 — AIT 2220 TURB — AE 2220 TURB — PI 2220 — D
ES — 120/1 — AIT 2230 TURB — AE 2230 TURB — PI 2230 — D
ES — 120/1 — AIT 2320 TURB — AE 2320 TURB — PI 2320 — D
ES — 120/1 — AIT 2330 TURB — AE 2330 TURB — PI 2330 — D
ES — 120/1 — AIT 2420 TURB — AE 2420 TURB — PI 2420 — D
ES — 120/1 — AIT 2430 TURB — AE 2430 TURB — PI 2430 — D

SA I2000 — RAW WATER SAMPLE PUMP
SA I2000 — COAGULATED WATER SAMPLE PUMP
SA I2100 — SED BASIN 1A SAMPLE PUMP
SA I2100 — SED BASIN 1B SAMPLE PUMP
SA I2200 — SED BASIN 2A SAMPLE PUMP
SA I2200 — SED BASIN 2B SAMPLE PUMP
SA I2300 — SED BASIN 3A SAMPLE PUMP
SA I2300 — SED BASIN 3B SAMPLE PUMP
SA I2400 — SED BASIN 4A SAMPLE PUMP
SA I2400 — SED BASIN 4B SAMPLE PUMP

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	S. ZOMORODI
DRAWN BY:	B. HARRIS
PROJECT ENGINEER:	S. ZOMORODI

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE — 0 1/2" 1"

Hazen
HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION
FILTER BUILDING ANALYZER ROOM P&ID
SHEET 1

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	I3004

SCADA HMI

CP-WIL-AR

FIELD

CFE EAST TURBIDITY — AI 3071
XMTR FAULT — YA 3071
CFE WEST TURBIDITY — AI 3072
XMTR FAULT — YA 3072
CLEARWELL NO.1 PH — AI 3074
CLEARWELL NO.1 TEMP — TI 3074
CLEARWELL NO.2 PH — AI 3076
CLEARWELL NO.2 TEMP — TI 3076
CHLORINE CONTACT INFL PH — AI 3078
CHLORINE CONTACT INFL TEMP — TI 3078
CHLORINE CONTACT EFFL PH — AI 3080
CHLORINE CONTACT EFFL TEMP — TI 3080
XMTR FAULT — YA 3074
CLEARWELL NO.1 CL2 — AI 3073
XMTR FAULT — YA 3073
CLEARWELL NO.2 CL2 — AI 3075
XMTR FAULT — YA 3075
CHLORINE CONTACT INFL CL2 — AI 3077
XMTR FAULT — YA 3077
CHLORINE CONTACT EFFL CL2 — AI 3079
XMTR FAULT — YA 3079

AT 3071 / YS 3071
AT 3072 / YS 3072
AT 3074 / TT 3074 / AT 3076 / TT 3076 / AT 3078 / TT 3078 / AT 3080 / TT 3080 / YS 3074
AT 3073 / YS 3073
AT 3075 / YS 3075
AT 3077 / YS 3077
AT 3079 / YS 3079

ES 120/1 — AIT 3071 TURB — AE 3071 TURB — PI 3071 — D
ES 120/1 — AIT 3072 TURB — AE 3072 TURB — PI 3072 — D

ES 120/1 — AIT 3074 PH/TEMP — AE 3074 PH/TEMP — ① ② ③
ES 120/1 — AIT 3073 CL2 — AE 3073 CL2 — PI 3073 — D
① ES 120/1 — AIT 3075 CL2 — AE 3076 PH/TEMP — AE 3075 CL2 — PI 3075 — D
② ES 120/1 — AIT 3077 CL2 — AE 3078 PH/TEMP — AE 3077 CL2 — PI 3077 — D
③ ES 120/1 — AIT 3079 CL2 — AE 3080 PH/TEMP — AE 3079 CL2 — PI 3079 — D
2

SA I3006 — CFE EAST SAMPLE PUMP
SA I3006 — CFE WEST SAMPLE PUMP

PI 3073 A — M — PI 3073 B — PMP–3073 — CLEARWELL NO. 1 SAMPLE PUMP
SA — CLEARWELL NO. 1
SA — TO SAMPLE PANEL A

PI 3075 A — M — PI 3075 B — PMP–3075 — CLEARWELL NO. 2 SAMPLE PUMP
SA — CLEARWELL NO. 2
SA — TO SAMPLE PANEL A

PI 3077 A — M — PI 3077 B — PMP–3077 — CHLORINE CONTACT INFLUENT SAMPLE PUMP
SA — CHLORINE CONTACT INFLUENT
SA — TO SAMPLE PANEL A

PI 3079 A — M — PI 3079 B — PMP–3079 — CHLORINE CONTACT EFFLUENT SAMPLE PUMP
SA — CHLORINE CONTACT EFFLUENT
SA — TO SAMPLE PANEL A

SA — CLEARWELL NO. 1/ SAMPLE PANEL A
SA — CLEARWELL NO. 2/ SAMPLE PANEL A
SA — CHLORINE CONTACT INFLUENT/ SAMPLE PANEL A
SA — CHLORINE CONTACT EFFLUENT/ SAMPLE PANEL A

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
2	ADDENDUM 2	1-9-25	DBE

PROJECT MANAGER: T. HUDSON
DESIGNED BY: S. ZOMORODI
DRAWN BY: B. HARRIS
PROJECT ENGINEER: S. ZOMORODI
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LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

INSTRUMENTATION
FILTER BUILDING ANALYZER ROOM P&ID
SHEET 2

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: I3005

PLUMBING BACKFLOW PREVENTER ASSEMBLY SCHEDULE

TAG	ASSEMBLY TYPE	HOT BOX MODEL	SYSTEM SERVED	MAKE	MODEL	NOMINAL SIZE (IN)	ACCESSORIES	DRAINAGE POSITION	DESIGN FLOW (GPM)	DESIGN PRESSURE LOSS (PSI)	INLET JOINT	OUTLET JOINT	VALVE TYPE	NOTES
BFP-3001	REDUCED PRESSURE ZONE	N/A	FILTER BUILDING - SECOND FLOOR POTABLE WATER	WATTS	LF009QT	2	AIR GAP FITTING	DRAIN TO FD-1	54	13	NPT	NPT	BALL	1, 2
BFP-6101	REDUCED PRESSURE ZONE	WB-2	BULK CHEMICIAL BUILDING - POTABLE SERVICE	WATTS	LF009QTS	2	STRAINER	DRAIN TO EXTERIOR	23	13	NPT	NPT	BALL	1, 2
BFP-6102	REDUCED PRESSURE ZONE	WB-N3	BULK CHEMICIAL BUILDING - NONPOTABLE SERVICE	WATTS	LF009OSY	2-1/2	STRAINER	DRAIN TO EXTERIOR	75	13	FLANGE	FLANGE	OS & Y	1, 2
BFP-6201	REDUCED PRESSURE ZONE	WB-1.5	FLUORIDE TANKS - EMERGENCY SHOWER SYSTEM	WATTS	LF009QT	1-1/2	STRAINER	DRAIN TO EXTERIOR	23	13	NPT	NPT	BALL	1, 2

NOTES
1. SEE SPECIFICATION 22 11 19 FOR INSTALLATION AND ACCESSORY REQUIREMENTS.
2. ASSEMBLY SHALL CONFORM TO NSF 61 AND 372 REQUIREMENTS (LEAD FREE).

ELECTRIC WATER HEATER SCHEDULE

TAG	MANUFACTURER		SYSTEM SERVED	LOCATION	TYPE	INLET (IN)	OUTLET (IN)	ELEMENT (QTY)	ELEMENT (KW)	STORAGE TEMPERATURE (°F)	RECOVERY RATE (GPH) AT 80°F RISE	INLET TEMPERATURE (°F)	STORAGE CAPACITY (GALLONS)	TEMPERATURE RISE (°F)	POWER			NOTES
	MAKE	MODEL													VOLTAGE	PHASE	FREQUENCY	
WH-3001	A.O. SMITH	DEN-52	ADMINISTRATIVE	FILTER BUILDING - UTILITY/JANITOR	ELECTRIC STORAGE	1	1	2	6	140	30.7	60	55	80	460	3	60	1-7
WH-3002	HAWS CO	MODEL 8780	EMERGENCY SHOWERS	FILTER BUILDING - FINISHED WATER CHEMICALS FEED ROOM	ELECTRIC STORAGE	1-1/2	1-1/2	1	10	165	39.0	60	119	105	460	3	60	1-6
WH-6101	HAWS CO	MODEL 8780	EMERGENCY SHOWERS	BULK CHEMICAL BUILDING	ELECTRIC STORAGE	1-1/2	1-1/2	1	10	165	39.0	60	119	105	460	3	60	1-6
WH-6201	HAWS CO	MODEL 8785	EMERGENCY SHOWERS	FLUORIDE TANKS	ELECTRIC STORAGE	1-1/2	1-1/2	1	10	165	39.0	60	119	105	460	3	60	1-6
WH-8001	A.O. SMITH	DEN-52	ADMINISTRATIVE	ADMIN BUILDING - CLOSET	ELECTRIC STORAGE	1	1	2	6	140	30.7	60	55	50	460	3	60	1-7

NOTES:
1. REFER TO SPECFICATION 22 33 00 FOR CONSTRUCTION AND ACCESSORY DETAILS.
2. ALL WATER HEATERS SHALL MEET OR EXCEED STANDBY LOSS REQUIREMENTS PER US DEPT OF ENERGY OR ASHRAE 90.1-2016.
3. RATED FOR 150 PSIG WORKING PRESSURE.
4. PROVIDE DIELECTRIC UNIONS AND SHUT OFF ISOLATION VALVES AT EACH CONNECTION.
5. PROVIDE TEMPERATURE AND PRESSURE GAUGES.
6. ROUTE TEMPERATURE AND PRESSURE RELIEF TO DRAIN.
7. NON-SIMULTANEOUS OPERATION.

ELECTRIC TANKLESS WATER HEATER SCHEDULE

TAG	MANUFACTURER		SYSTEM SERVED	LOCATION	TYPE	INLET (IN)	OUTLET (IN)	ELEMENT (QTY)	ELEMENT (KW)	TEMPERATURE RISE AT FLOW (°F/GPM)	TURN ON FLOW (GPM)	INLET TEMPERATURE (°F)	POWER			NOTES
	MAKE	MODEL											VOLTAGE	PHASE	FREQUENCY	
WH-6102	EEMAX	PROSERIES XTP02480	HOT ALUM FLUSH	BULK CHEMICAL BUILDING	ELECTRIC TANKLESS	3/4	3/4	1	20	27°F / 5 GPM	0.5	60	480	3	60	1-5

NOTES:
1. REFER TO SPECFICATION 22 33 00 FOR CONSTRUCTION AND ACCESSORY DETAILS.
2. PROVIDE MANUFACTURER SUPPLIED 24" STANDING LEGS.
3. RATED FOR 150 PSIG WORKING PRESSURE.
4. PROVIDE DIELECTRIC UNIONS AND SHUT OFF ISOLATION VALVES AT EACH CONNECTION.
5. FIELD SET OUTLET TEMPERATURE TO 85°F.

EMERGENCY SHOWERS

TAG	FIXTURE	MANUFACTURER		TW (IN)	EMERGENCY ALARM POWER (V)	HEAT TRACE POWER (V)	ACCESSORIES
		MAKE	MODEL				
ESEW-3001	EMERGENCY EYEWASH & SHOWER	HAWS CO	8300	1-1/4	120	--	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM
ESEW-3002	EMERGENCY EYEWASH & SHOWER	HAWS CO	8300	1-1/4	120	--	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM
ESEW-6101	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, RECIRCULATION OPTION, SP157A SCALD PROTECT VALVE (1)
ESEW-6102	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, RECIRCULATION OPTION, SP157A SCALD PROTECT VALVE (1)
ESEW-6103	EMERGENCY EYEWASH & SHOWER	HAWS CO	8300	1-1/4	120	--	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM
ESEW-6104	EMERGENCY EYEWASH & SHOWER	HAWS CO	8300	1-1/4	120	--	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM
ESEW-6105	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, RECIRCULATION OPTION, SP157A SCALD PROTECT VALVE (1)
ESEW-6106	EMERGENCY EYEWASH & SHOWER	HAWS CO	8300	1-1/4	120	--	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM
ESEW-6201	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, SP157A SCALD PROTECT VALVE (1)
ESEW-6202	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, SP157A SCALD PROTECT VALVE
ESEW-6203	EMERGENCY EYEWASH & SHOWER	HAWS CO	8317CTFP	1-1/4	120	120	HAWS CO MODEL 9001 EMERGENCY ALARM SYSTEM, 5 FT HEAT TRACE CABLE, SP157A SCALD PROTECT VALVE

NOTES
1.SEE SPECIFICATION 22 45 00 FOR CONSTRUCTION AND ACCESSORY DETAILS.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1-9-25	TLM

PROJECT MANAGER: T. HUDSON
DESIGNED BY: J. JOHNSON
DRAWN BY: J. JOHNSON
PROJECT ENGINEER: T. MONAHAN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

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CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL
AND RESILIENCY PROJECT

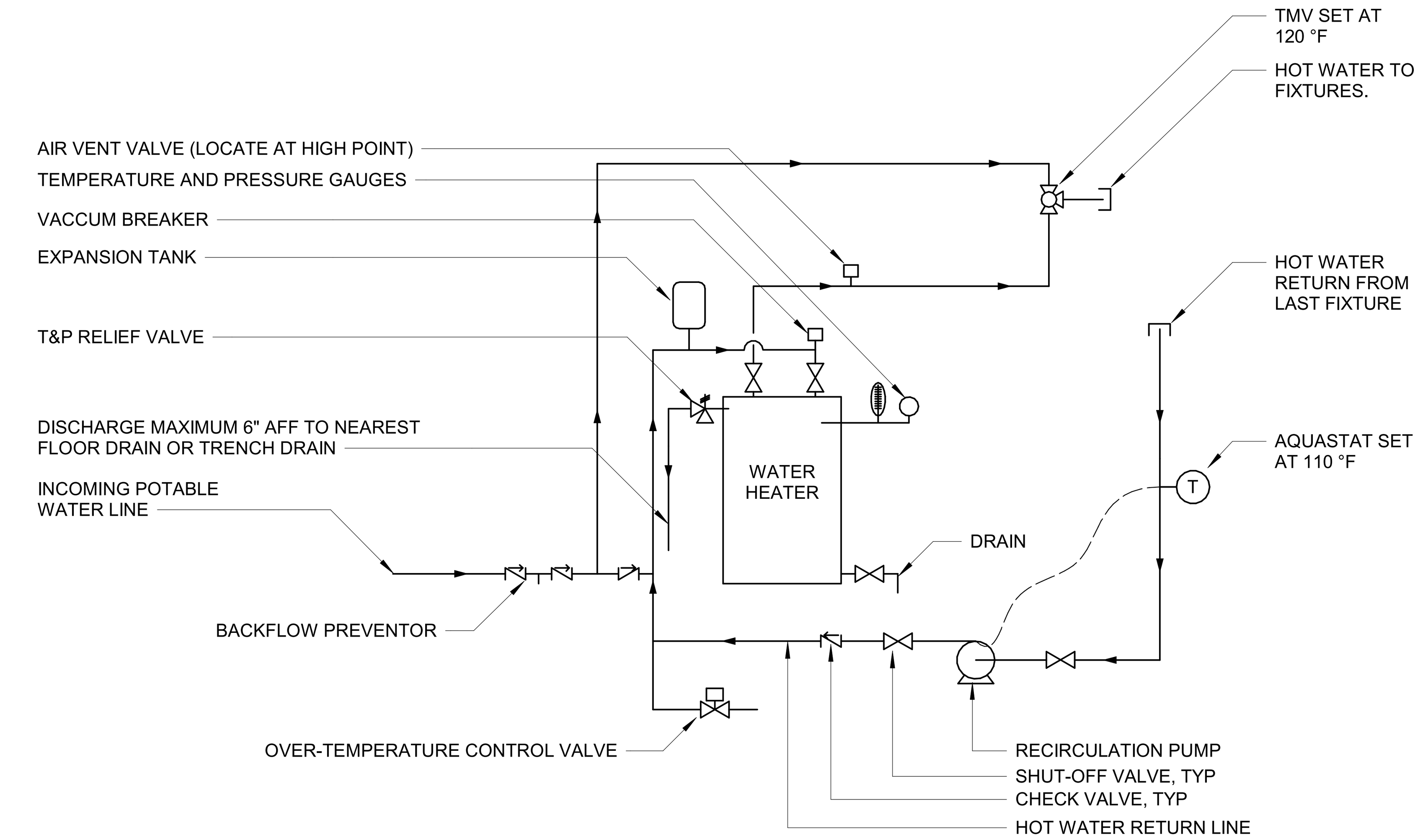
GENERAL
PLUMBING
SCHEDULES SHEET 1

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: P0002

PLUMBING DRAINAGE/SPECIALTY PRODUCTS

TAG	FIXTURE	MANUFACTURER MAKE	MANUFACTURER MODEL	CW (IN)	HW (IN)	TW (IN)	WASTE (IN)	VENT (IN)	ACCESSORIES	NOTES
AV	HIGH CAPACITY AUTOMATIC AIR VENT	WATTS	FV-4	1/2	-	-	-	-	--	4
ET-3001	EXPANSION TANK	AMTROL	ST-12C-DD	3/4	-	-	-	-	--	1
ET-8001	EXPANSION TANK	AMTROL	ST-12C-DD	3/4	-	-	-	-	--	1
FC0	FLOOR CLEANOUT	ZURN	Z1400-ZB	-	-	-	4	-	--	2
FD-1	6" ROUND FLOOR DRAIN	ZURN	Z415B	-	-	-	3	SEE PLANS	PROSET TRAP GUARD TG33	2
FD-2	8" ROUND FLOOR DRAIN	ZURN	ZB415B-Y	-	-	-	4	SEE PLANS	PROSET TRAP GUARD TG33	2
HB	HOSE BIB	WOODFORD	MODEL 24	3/4	-	-	-	-	NON-REMOVABLE ANTI-SIPHONN VACUUM BREAKER	1
HR	HOSE RACK	LEONARD	HDHR	-	-	-	-	-	--	1
NFWH	NON-FREEZE WALL HYDRANT	WOODFORD	MODEL 65	3/4	-	-	-	-	FREEZEPROOF FIXTURE WITH ANTI-SIPHON VACUUM BREAKER	1
NFYH	NON-FREEZE YARD HYDRANT	ZURN	Z1390	1-1/2	-	-	-	-	--	1
IMB	ICE MAKER BOX	GUY GRAY	MIB1HAAB	1/2	-	-	-	-	WATER HAMMER ARRESTOR	1
PRV-1	PRESSURE REDUCING VALVE	WATTS	LF223S	2	-	-	-	-	STRAINER	1, 5
PRV-2	PRESSURE REDUCING VALVE	WATTS	ES-LFN223B	2-1/2	-	-	-	-	STRAINER	1, 5
TMV-1	THERMOSTATIC MIXING VALVE	LEONARD	XL-32A-LF-BDT	3/4	3/4	-	-	-	--	1
WHA-X	WATER HAMMER ARRESTOR	WATTS	LF15M2	SEE PLANS	-	-	-	-	--	1

NOTES:
1. SEE SPECIFICATION 22 11 19 FOR CONSTRUCTION AND ACCESSORY DETAILS.
2. SEE SPECIFICATION 22 13 19 FOR CONSTRUCTION AND ACCESSORY DETAILS.
3. PROVIDE FOR ALL LAVATORIES. SET TO 110°F.
4. INSTALL AT HIGH POINT OF HOT WATER SYSTEM.
5. SET AT 70 PSI.

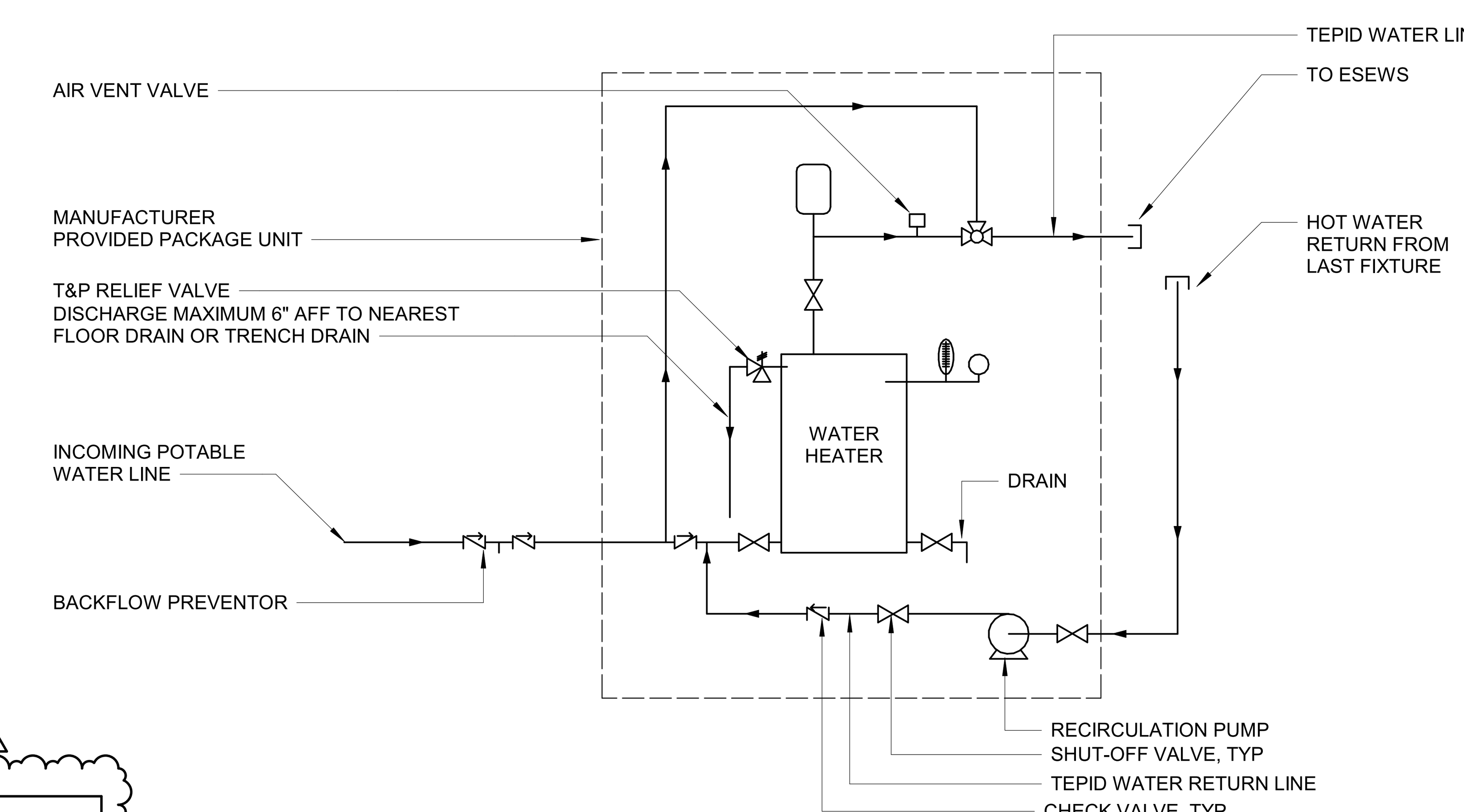


WATER HEATER DIAGRAM -DOMESTIC HOT WATER

PLUMBING FIXTURES

TAG	FIXTURE	MANUFACTURER MAKE	MANUFACTURER MODEL	CW (IN)	HW (IN)	WASTE (IN)	VENT (IN)	ACCESSORIES	NOTES
EWC	BILEVEL ELEC WATER COOLER	ELKAY	LZSTL8WSLP	1/2	-	1-1/2	1-1/2	BOTTLE FILLER, WATER COOLER, AND FILTERS	1, 2
LAV-1	DROP-IN LAVATORY	AMERICAN STANDARD	RELIANT 0475247	1/2	1/2	1-1/2	1-1/2	AMERICAN STANDARD 6055.105 ADA FAUCET, ADJUSTABLE P-TRAP, QUARTER-TURN BRASS BALL VALVE LAVATORY SUPPLY	1, 2
LAV-2	WALL-HUNG LAVATORY	AMERICAN STANDARD	DECORUM 9024.001EC	1/2	1/2	1-1/2	1-1/2	AMERICAN STANDARD 6055.105 ADA FAUCET, ADJUSTABLE P-TRAP, QUARTER-TURN BRASS BALL VALVE LAVATORY SUPPLY	1, 2
LS-1	LAB SINK	CHEMTOP	U25	1/2	1/2	1-1/2	1-1/2	CHICAGO FAUCETS LWM3-A13-A, ADJUSTABLE P-TRAP, QUARTER-TURN BRASS BALL VALVE LAVATORY SUPPLY	1, 2
LS-2	LAB SINK	CHEMTOP	U49	1/2	1/2	1-1/2	1-1/2	CHICAGO FAUCETS LWM4-A13-A, ADJUSTABLE P-TRAP, QUARTER-TURN BRASS BALL VALVE LAVATORY SUPPLY	1, 2
SS	MOP SINK	FIAT	MSB3624	1/2	1/2	3	2	FIAT 830AA FAUCET WITH VACUUM BREAKER, SS SPLASH PANELS	1
SH	SHOWER ENCLOSURE	FREEDOM SHOWERS	APF3838BF1PRRF	1/2	1/2	2	2	GRAB BARS, FOLDING SHOWER SEAT, SLIDE BAR WITH HANDHELD SHOWER, PRESSURE BALANCE VALVE, CAULKLESS DRAIN	1, 2
S-1	DOUBLE BOWL DROP-IN SINK	ELKAY	LR3122PD	1/2	1/2	2	2	CHICAGO 786-GN10AE3SWGABP FAUCET, ELKAY LKPD1 DRAIN FITTING, STOPS AND RISERS	1, 2
S-2	DROP-IN SINK	AMERICAN STANDARD	RELIANT 0475247	1/2	1/2	1-1/2	1-1/2	AMERICAN STANDARD 7075104 ADA FAUCET, ADJUSTABLE P-TRAP, QUARTER-TURN BRASS BALL VALVE LAVATORY SUPPLY	1, 2
UR	URINAL	KOHLER	K-5452-ETSS	3/4	-	2	2	K-10UD00D20-CP 0.125 GPF FLUSHOMETER	1, 2
WC	WATER CLOSET	KOHLER	KINGSTON ULTRA K-84325-SSL	1	-	4	2	K-4731-SA OPEN FRONT SEAT, K-10TD00N10-CP 1.28 GPF	1, 2

NOTES
1. SEE SPECIFICATION 22 40 00 FOR CONSTRUCTION AND ACCESSORY DETAILS.
2. REFER TO ARCHITECTURAL FOR ACCESSIBILITY REQUIREMENTS AND INSTALLATION HEIGHTS / DIMENSIONS.



WATER HEATER DIAGRAM - LOCAL & REMOTE ESEW

PUMP SCHEDULE

TAG	MANUFACTURER MAKE	MANUFACTURER MODEL	LOCATION	CONTROLS	CAPACITY (GPM)	HEAD (FT)	SHUTOFF HEAD (FT)	SIZE SUCT.	SIZE DISCHARGE	MOTOR HP	MOTOR TYPE	VOLT	PHASE	HZ	NOTES
RCP-3001	BELL & GOSSETT	ECOCIRC+ 20-18	FILTER BUILDING - JANITOR	INTEGRAL AQUASTAT	3	8	10	3/4	3/4	FRACTIONAL	ECM	115	1	60	1, 2
RCP-8001	BELL & GOSSETT	ECOCIRC+ 20-18	ADMIN BUILDING - CLOSET	INTEGRAL AQUASTAT	3	8	10	3/4	3/4	FRACTIONAL	ECM	115	1	60	1, 2
DP-3001	LIBERTY PUMPS	MODEL 404	ADMIN BUILDING - BREAK ROOM	FLOAT SWITCH	5	20	21	1-1/2	1-1/2	FRACTIONAL	ECM	115	1	60	-

NOTES:
1. SEE SPECIFICATION 22 11 23 FOR CONSTRUCTION AND ACCESSORY DETAILS.
2. PROVIDE INTEGRAL AQUASTAT.

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1-9-25	TLM

PROJECT MANAGER: T. HUDSON
DESIGNED BY: J. JOHNSON
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PROJECT ENGINEER: T. MONAHAN
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0 1/2" 1"

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LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

GENERAL
PLUMBING
SCHEDULES SHEET 2

DATE: NOVEMBER 2024
HAZEN NO.: 60711-003
CONTRACT NO.: 1
DRAWING NUMBER: P0003

Autodesk Docs://60711-001_Wilson_WTP_Rehab_Filter_Basin/60711-003-3000-FB-3100-FWC-PLUM.rvt
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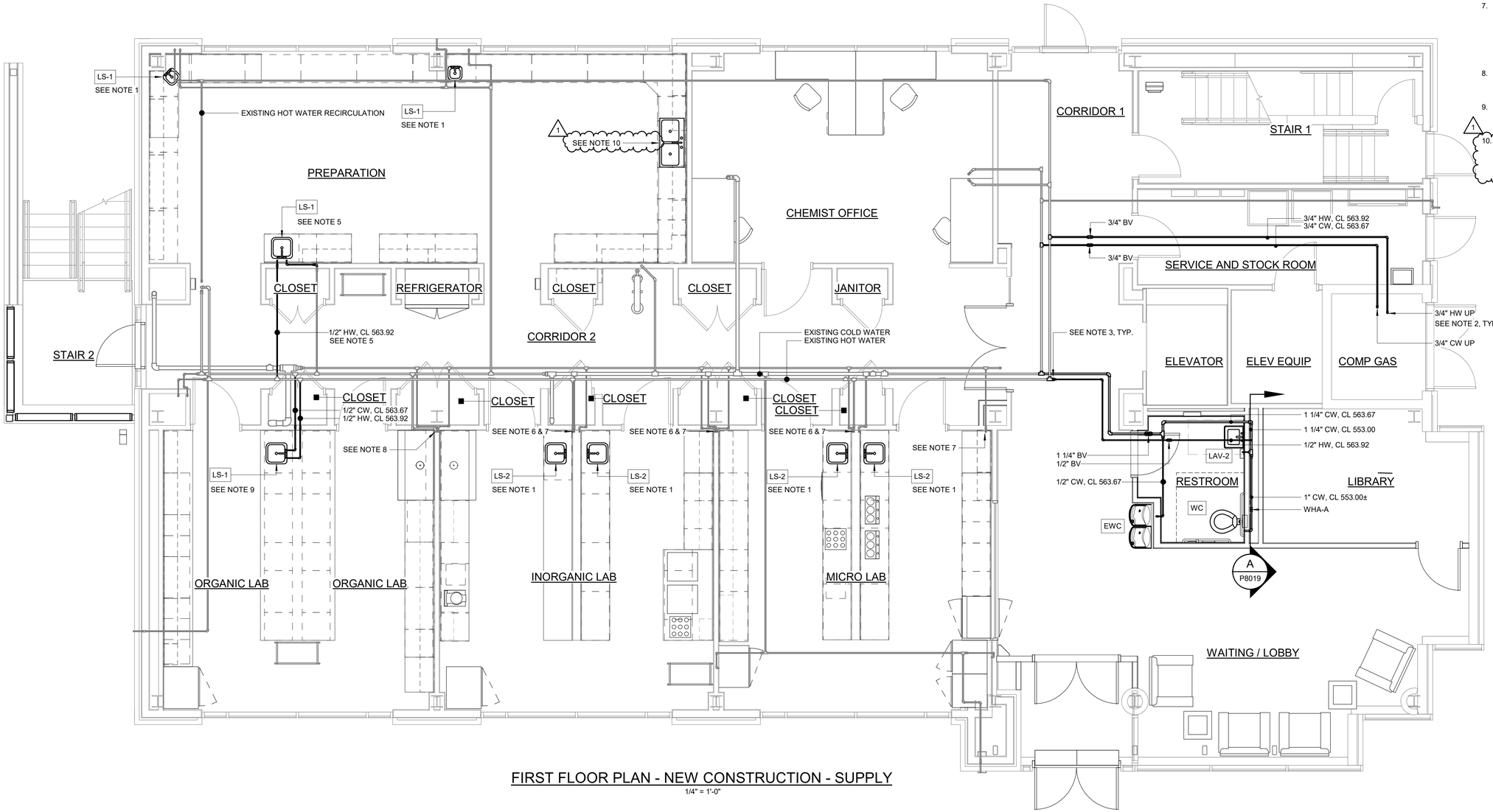
PLANS BASED ON RECORD DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ALL PIPE LOCATIONS AND CONNECTIONS.

NOTES:

1. EXISTING SINK TO BE REPLACED. DISCONNECT EXISTING WATER PIPING AND RECONNECT TO NEW FIXTURE. REFER TO ARCHITECTURAL FOR MORE INFORMATION ON MASONRY.
2. HOT AND COLD WATER UP TO P8017.
3. CONNECT TO EXISTING WATER LINE.
4. CONTRACTOR SHALL FIELD VERIFY EXACT LCOATION AND ELEVATION OF ALL EXISTING PIPE.
5. CONTRACTOR SHALL PROVIDE NEW LS-1. CONTRACTOR SHALL CONNECT NEW 1/2" CW TO EXISTING 3/4" CW. CONTRACTOR SHALL PROVIDE NEW 1/2" HW AND CONNECT TO EXISTING HW MAIN IN CORRIDOR.
6. CONTRACTOR SHALL CONNECT NEW 1/2" HOT AND COLD WATER LINES TO EXISTING WATER LINES IN WALL. CONTRACTOR SHALL ROUTE NEW WATER LINES TO NEW LAB SINKS.
7. CONTRACTOR SHALL REPLACE IN KIND ALL COMPRESSED GAS AND NATURAL GAS CONNECTIONS AND PROVIDE NEW SERRATED HOSE CONNECTION ON LAB COUNTER TOP. COMPRESSED LINES MAY INCLUDE OXYGEN, NITROGEN, COMPRESSED AIR, HELIUM, ARGON, AND VACUUM. CONTRACTOR SHALL CONFIRM WITH OWNER AND ENGINEER COMPRESSED GAS LINES TO REMAIN ACTIVE.
8. CONTRACTOR SHALL PROVIDE NEW 3/4" CW AND 3/4" NG PIPING TO FUME HOOD. CONTRACTOR SHALL CONNECT NEW PIPING TO EXISTING PIPING IN WALL.
9. CONTRACTOR SHALL PROVIDE NEW 1/2" HW AND 1/2" CW PIPING FOR LAB SINK. NEW PIPING SHALL CONNECT TO EXISTING MAINS IN CORRIDOR.
10. CONTRACTOR SHALL INSTALL NEW SAMPLE FAUCETS FOR SAMPLE SINK. FOR SAMPLE FAUCET SEQUENCE AND LABELING, REFER TO M8002, AND PLUMBING SPECIFICATION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES, PARAGRAPH 2.07 FOR FAUCET SPECIFICATIONS.



FIRST FLOOR PLAN - NEW CONSTRUCTION - SUPPLY

1/4" = 1'-0"

GMP SUBMITTAL. DO NOT USE FOR CONSTRUCTION.

REV	ISSUED FOR	DATE	BY
1	ADDENDUM 2	1-9-25	TLM

PROJECT MANAGER:	T. HUDSON
DESIGNED BY:	J. JOHNSON
DRAWN BY:	J. JOHNSON
PROJECT ENGINEER:	T. MONAHAN

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Hazen

HAZEN AND SAWYER
8150 N. CENTRAL EXPRESSWAY
TOWER II - SUITE 700
DALLAS, TEXAS 75206

CENTRAL ARKANSAS WATER
LITTLE ROCK, ARKANSAS

JACK H. WILSON WTP RENEWAL AND RESILIENCY PROJECT

ADMINISTRATION BUILDING
PLUMBING
FIRST FLOOR PLAN - SUPPLY

DATE:	NOVEMBER 2024
HAZEN NO.:	60711-003
CONTRACT NO.:	1
DRAWING NUMBER:	P8015

Number	Question	Drawing/Specification Reference	Response
24	Subcontractors pricing the paving package are requesting a CAD file for takeoff purposes. Can we share these CAD files released for their use?	Civil	We do not take execption to the CMAR providing subcontractors access to the electronic files.
25	Define mill/overlay detail including depths required and any defined limits of new vs. mill/overlay scope.	Civil	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102.
	a. C1401 – New asphalt paving extends beyond the limits of demolition showing on page C1101.	C1401	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102.
	b. C1402 – New asphalt paving extends beyond the limits of demolition showing on page C1102.	C1402	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102.
	c. C1403 – New asphalt/concrete paving extends beyond the limits of demolition showing on page C1103.	C1403	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102 or C101.
	d. C1404 – New asphalt paving extends beyond the limits of demolition showing on page C1104.	C1404	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102.
	e. C1406 – New asphalt paving extends beyond the limits of demolition showing on page C1106.	C1406	Asphalt not directly impacted by construction activities shall be milled 2-inches deep and overlayed with 2-inches of asphalt following construction. Areas of pavement reconstruction shall be in accordance with Detail C102.
26	CZ-1 – Details C103, C104, C105, C106, C108, C111, C112, & C113 Please clarify reinforcement requirements for details.	CZ-1	There is no reinforcement steel required for the referenced details.
27	Will an Infra Shield Joint System be acceptable for use in lieu of the Victaulic Coupling call out on the plans for the raw water pipeline? Submittal data is attached for review.	Civil	Yes, the Infra Shield Joint system is an acceptable alternative to the victaulic coupling. See keyed note 14 on C1203.
28	Reference drawing C1207, Profile 1. Station 6+95 indicates a 72” valve is required. Drawings C1201, C1203, and the valve schedule do not indicate that a 72” valve is required. Please clarify.	C1207	The 72-inch diameter valve referenced has been eliminated in Addendum Number 1.

29	[from JTE/Dezurik] Please confirm when the warranty period will start on the valve and actuators. Delivery Date, Startup Date, or substantial completion of the entire project regardless of when the valve was put into service? What is the warranty period as spec section 40 05 64.1; 1.04 says 2 years from substantial completion but the valve actuator spec 40 05 57 1.03 says the warranty period shall be for 5 years.	40 05 64.1 / 40 05 57	Warranty period for valves covered under 40 05 64.1 shall begin following substantial completion as per spec section 1.04. Refer to spec section 01 61 00, 1.05 for further clarification of substantial completion. Adjustments have been made to spec 40 05 64.1 such that no valves covered under this section are electrically actuated therefore the warranty requirements are no longer in confict.
30	[from JTE/Dezurik] The valve body materials specification state that Ductile iron or Cast Iron are acceptable. Should we be matching the valve material to the pipe material it will be plumbed into. Or can we go with any option?	40 05 64.1 / 40 05 57	Either cast iron or ductile iron are sufficient for lower pressure applications. High pressure applications must be ductile iron.
31	[from JTE/Dezurik] Plan Sheet M2111 BWR Flow Meter shows a motor operated 14” plug valve that is not listed in the valve schedule. Can you please confirm if this is existing or needing to be added along with quantity needed?	M2111	The drawing is correct and the valve schedule has been updated to reflect the addition of the new 14" motorized plug valve on the BWR line. See Addendum No. 1 for updated Valve Schedule.
32	[from JTE/Dezurik] Plan Sheet M2306 Basin 3 shows a 4” plug valve with a 12ft extension stem and handcrank pedestal for the influent tank drain to floc, that is not listed in the valve schedule. Is this valve existing or does it need to be added?	M2306	The drawing is correct and the valve schedule has been updated to reflect the addition of the new 4" plug valve. See Addendum No. 1 for updated Valve Schedule.
33	[from JTE/Dezurik] The first item on the Manually Operated Valve Schedule shows a 60” Butterfly in the Yard – Raw Water Piping. In the large diameter butterfly valve specification, it calls for a 72” diameter in the yard and no 60” diameter valves are mentioned. I cannot locate a plan sheet showing this valve as a reference. Please confirm if these are two separate valves or the same valve and confirm sizing.	Civil	The 72" butterfly valve has been removed from the project. The large diameter butterfly valve spec shall be updated to reflect the design intent.
34	[from JTE/Dezurik] Plan Sheet M3029 shows a LW Check valve and a 12” Gate Valve, but they are not located in the valve schedules. Will these be bid as part of the backwash pump package, or do they need to be added to the valve schedule.	M3029	LW check and gate valve will not be provided as part of the backwash pump package. These valves will be added to the valve schedule. See updated valve schedule in Addendum No. 2
35	[from JTE/Dezurik] Please clarify if the plug valves listed in the valve schedule are to be standard port or full port.	40 06 20	For valves on sludge/solids lines, which are labeled as "SL", use full port. For valves on all other lines, use standard port.

36	[from JTE/Dezurik] Current Specification Exceptions as written to be approved for the Dezurik BAW Butterfly valves for water and Air Service. See attached BAW datasheet. Specification Section 40 05 64.2 •2.02E – on valves under 24" the resilient seat can't be adjusted/replaced in the field. •2.02F – on valves under 24" the taper pin is not used. (DeZURIK uses set screws) •2.02I – O-ring shaft seal is not contained in removable bronze cartridge. •2.02J – Exception to 15 turns on 18" and smaller valves – we are at 12-13 turns.	40 05 64.2	Noted.
37	[from JTE/Dezurik] Regarding Butterfly Valves on Air service Only, Dezurik wants to know if a BHP butterfly valve will be considered. See below the comments from Dezurik on the differentiation to the current spec. I also have attached datasheets on the BHP & BAW for reference. We would normally go with a BOS valve but that model does not meet AIS so we would like to look at the BHP if the exceptions to the spec listed below would be acceptable. •On air service butterfly valves, DZ can do 14" BAW as 316SS body with viton seat. As it is AWWA C504 it will meet spec (exception taken on 2.02, E as resilient seat shall be capable of being adjusted or replaced in the field without moving the valve disc along shaft axis or removing the valve from the line). Dezurik also offers the BHP butterfly valve in 316SS body with Teflon seat. This valve will more than meet upper temp requirements but is not AWWA C504. Per Dezurik, it is more appropriate for the air service application over the BAW. It may also be more cost effective than 14" BAW 316SS body.	40 05 64.2	BHP valve is acceptable. BAW is not. See Addendum 2 for associated updates to specification 40 05 64.2
38	[from Calgon Carbon Group, CCC] Average Specific Gravity: 1.3 to 1.4. We take exception to this test as it is not a standard test for GAC per AWWA B604. Instead, per AWWA B604, we can conduct apparent density for GAC, with a typical value of 0.59 g/cc.	46 61 16, Part 1, Section 1.05.A	Noted. Specification to remain as is.
39	[CCC] Effective Size (mm): 1.05-1.15 We take exception to the given range for effective size. Filtrasorb® 820 has an effective size range of 1.0-1.2 mm.	46 61 16, Part 1, Section 1.05.A	See Addendum No. 2 for specifications adjustments.
40	[CCC] Acid solubility We take exception to this test as it is not a standard test for GAC per AWWA B604 (it is a test for sand media). Instead, per AWWA B604, we can conduct the Food Chemical Codex (FCC) water extractables test.	46 61 16, Part 1, Section 1.06.B.7	Noted. Specification to remain as is.

41	[CCC] Friability We take exception to this test as it is not a standard test for GAC per AWWA B604.	46 61 16, Part 1, Section 1.06.B.7	Noted. Specification to remain as is.
42	[CCC] Warranty We take exception to this requirement. The properties of GAC media change over time as it removes contaminants from the water stream.	46 61 16, Part 1, Section 1.10	Noted. Specification to remain as is.
43	[CCC] Real Density: 2.1 g/cc We take exception to this test as it is not a standard test for GAC per AWWA B604.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
44	[CCC] Typical Apparent Density: 0.50 g/cc Please note our Filtrasorb 820 product has a typical apparent density of 0.59 g/cc and a typical backwashed and drained density of 0.50 g/cc.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
45	[CCC] Particle Density, Wetted in Water: 1.3 to 1.4 g/cc We take exception to this test as it is not a standard test for GAC per AWWA B604.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
46	[CCC] Pore Volume: 0.75 to 0.85 cc/g We take exception to this test as it is not a standard test for GAC per AWWA B604.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
47	[CCC] Effective Size: 1.05-1.20 mm Please see item #2. [listed as item #39 in this list]	46 61 16, Part 2, Section 2.03.A	See Addendum No. 2 for specifications adjustments.
48	[CCC] Surface Area: 900 sq m/g (min) We take exception to this test as it is not a standard test for GAC per AWWA B604.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
49	[CCC] Water Soluble Ash Content: 0.5% (max) We take exception to the water soluble ash test. Instead, we conduct the AWWA B604 water extractables test per the Food Chemical Codex with a maximum weight limit of 4%.	46 61 16, Part 2, Section 2.03.A	Noted. Specification to remain as is.
50	[CCC] Samples after arrival to site. We will provide a sample & COA to be sent with the delivery truck rather than sampling from the truck upon delivery. It is not logistically viable to get a quality sample from a bulk truck & a sample packaged from actual material at the time of loading is more representative of the media as a whole.	46 61 16, Part 2, Section 2.03.C.2	This is acceptable.

51	[CCC, Notes for Contractor] We do not recommend scraping of GAC media. It is something that we have included when it's absolutely required by the Engineer, but scraping GAC will result in loss of good product. If we are to scrap 1" from the top of the filter, that would be 2,000 cubic feet of good material (estimated to cost over $110k) that would be disposed of. We would recommend having this requirement removed and instead remove the fines by backwashing the filter and washing the fines out.		Noted. Specification to remain as is.
52	[CCC, Notes for Contractor] We typically recommend loading the GAC layer in one lift, but if lifts are used, we recommend backwashing only once per lift using the manufacturer's standard procedure.		Noted. Specification to remain as is.
53	[CCC, Notes for Contractor] Per the specs, "After the final scraping of fines of the second lift, the top 1 inch must meet gradation requirements (effective size and uniformity coefficient)." Please note that the top 1 inch of the media bed post-backwashing will contain the smallest granule sizes due to stratification. For this reason, the top 1 inch of the bed will not be representative of the full bed. We ask that this requirement be removed.	46 61 16	Noted. Specification to remain as is.
54	[Garney Construction] Please confirm that in order to lock in a 2026 price we will be able to bill for stored materials.		Confirmed, in accordance with the specifications.
55	[Garney Construction] Can we remove the 48" valve install in tunnel from the scope of work and make it an allowance item as design is not clear on limitations/access?		Yes, the 48" valves in area 2 will be removed from the raw water bid package and the CMAR will carry an allowance. The work will be let for pricing later once design documents can be provided.
56	[Garney Construction] Please estimate or provide an approximate number of gallons anticipated that will need to be dewatered for line cut ins.		There is approximately 1000-feet of 48-inch diameter water line that will need to be drained for the 48-inch diameter butterfly valve shown on C1201 (Valve 19, 20, 21, and 23). There is approximately 750-feet of 48-inch diameter water line that will need to be drained for the 48-inch diameter butterfly valve shown on C1204 (Valve 23 and 27).
57	[Garney Construction] Please confirm if a bid bond is required or not.		Bid bond is not required.
58	[Garney Construction] Please confirm it is the intention that the hydrostatic test be required in addition to the magnetic particle/weld testing. This is going to involve welding and cutting a cap on each side before tie ins, and a significant amount of time to fill. If it is AWWA is 1.5 operating pressure. Do we know what the operating pressure of the line is going to be?		The minimum hydrostatic pressure testing of the new 60-inch diamter and 72-inch diamter raw water lines shall be 75-psi. Testing shall occur between new line valves.

59	[Bills Fence] Please see the attached email from Master Halco in regard to the Monumental Iron Works fencing included in the spec's for the Jack Wilson ornamental fence/gates, apparently it is no longer available. Is it possible to get an alternate option approved? I have attached a few brochures for prefabricated steel or aluminum fences that would match closely to the aluminum that is on site currently (see picture attached and below). Let me know what you guys think!		Master Halco carries an ornamental steel fencing "Montage Plus - 4 Rail Classic" which matches the existing fence profile. This may be used as an approved alternate. Please refer to the performance spec 32 31 19 Ornamental Fences and Gates as well as the drawing sheets for specific requirements.
60	PKG 7 - THE YARD DWGS CALL FOR THE 72" RW TO BE STEEL, HOWEVER, PIPE SCHEDULE CALLS FOR DIP. WHICH IS CORRECT?	C1201/1203/40 06 20	The 72-inch diameter water line will be steel.
61	PKG 7 - DWG C1201 SHOWS THE 48" RW INF WITH A VALVE CONNECTED TO THE PCPP TRANSITION FITTING. DWG C1207 PROFILE SHOWS THIS VALVE ON THE 72" LINE. WHICH IS CORRECT?	C1201/1207	The 72-inch diameter valve referenced has been eliminated in Addendum Number 1.
62	PKG 7 - DWGS 1201 & 1203 DO NOT SHOWN THE RW TO BE INCLUDED HIGHLIGHTED. DWG M2001 HAS THE 48" RW INF AS PART OF THE PACKAGE. THE TRADE PACKAGE 7 DESCRIPTION (PG 122 OF 135) INDICATES DUCTILE IRON IS TO BE EXCLUDED. HOWEVER, PROFILES 6&7 ON DWG C1208 SHOW THESE LINES AS "DI". 1) IS THE 48" PART OF PKG 7? 2) IF SO, IS THE 48" RW STEEL OR DI? 3) OR, SHOULD THE 48" BE DI & PART OF PKG 6 AS THE PROFILES ARE HIGHLIGHTED GREEN IN THOSE DOCUMENTS?	C1201,3,8/M2001	See attached bid package 7 scope delineation drawings. Drawing C1201 highlighting did not upload correctly. The RW influent piping labeled 48”-BI-DI and 48”-RW-DI are included in the raw water bid package and are ductile iron.
63	PKG 6 - IT IS NOTED ON DWG M2107 TO INSTALL "66" SST CASING PIPE FOR 48" BI BURIED BETWEEN BASINS". HOWEVER, DWG S2130 INDICATES THE CASING IS STEEL. 1) WHICH IS CORRECT?	M2107/S2130	The proposed casing is steel per the following requirements: Steel Casing Pipe: Spiral-welded or smooth wall, seamless steel casing pipe, conforming to ASTM A139 (Grade B) or ASTM A252 (Grade 2) with a minimum yield strength of 35,000 psi, a minimum tensile strength of 55,000 psi, and minimum wall thickness of 0.844 inches.
64	SECTION 40 05 19 DUCTILE IRON PIPE HAS SPECIFICATIONS FOR CEMENT LINED, P-401, GLASS LINED & FUSION BONDED EPOXY. HOWEVER, THERE ARE NO LININGS LISTED ON THE PIPE SCHEDULE IN SPEC. 40 06 20. WHERE ARE THE P-401, GLASS & FBE LININGS TO BE USED?	40 05 19/40 06 20	P-401 to be used for SL/SLG (solids). Please see the updated 40 06 20 specification.
65	THE SANITARY SEWER SPEC INDICATES THE DUCTILE IRON PIPE IS TO BE PER SPEC 33 11 13 WHICH IS FOR STEEL PIPE. THE PIPE SCHEDULE INDICATES THE BURIED "SL" LINES ARE TO BE FLANGED DUCTILE IRON. 1) CAN THE GRAVITY "SL" LINES BE DUCTILE IRON PUSH ON JOINT WITH MJ RESTRAINED FITTINGS? 2) SHOULD THE "SL" LINES BE P-401 LINED?	33 07 00/40 06 20	The buried sludge lines shall be push joint ductile iron pipe with P-401 lining.
66	SEVERAL LOCATIONS ON THE "SL" LINES WITH BENDS AND NO CLEAN OUT SHOWN. SHOULD CLEAN OUTS BE INSTALLED AT ALL THE BENDS OR ONLY THOSE SHOWN?	C1203/1205	Cleanouts shall be installed as shown on the plans.

67	[Alessi Keyes] We have gone over the drawings multiple times and cannot find any guidance on what is desired to fix the exterior wall and brick failure at the new control room. I know you spoke of vertical rebar and horizontal FRP panels, but there is no indication on the drawings as to how this is to be achieved. Does Hazen plan to issue anything in writing as a narrative for how this repair is to be done?		Drawings and details will be issued in a forth coming addendum.
68	[Koontz Electric] At the Blower Bldg, Note 8 on E3203 states to provide a 10 pole cordset for controls connections to the actuator valves. But circuits C-3200-003 & C-3200-004 call for 16#14 with a #14 gnd for each valve. So the 10 pole cordset does not have enough conductors in it. Please confirm that the wire schedule for these circuits is correct for the number of conductors or if a larger pole cordset is required.	E3203	A larger cordset for the valves at the Blower Building are required between the junction box and actuator. In addition, a larger cordset for the valves at the Backwash Treatment Tank and Sodium Hypochlorite Chemical Building is also required between the junction box and actuator in these repsective locations. Please see revisions in Addendum 2. The extra (spare) conductors indicated in conduits C-3200-003 and C-3200-004 shall be terminated to spare terminal blocks within the local junction box for future use.
69	[Koontz Electric] During previous review meetings it was discussed that CAW would coordinate procurement and installation of specialty systems (fire alarm, access control, security system) and for the EC to install a conduit system for these specialty systems as indicated on the drawings. Regarding the relocation of equipment at the side entrance gate (E1015) and the main entrance gate (E1017):	E1015/E1017	See below
	a. E1015 – Will another contractor coordinated through CAW be performing the reconnecting and testing of the relocated keypads or should we cover that work in addition to the physical relocation as required?	E1015	Separate specialty contractor will perform reconnecting and testing of relocated keypads. Drawings will be updated to reflect this.
	b. E1017 - Will another contractor coordinated through CAW be performing the reconnecting and testing of the relocated card readers or should we cover that work in addition to the physical relocation as required?	E1017	Separate specialty contractor will perform reconnecting and testing of relocated card readers. Drawings will be updated to reflect this.
	c. At the main entrance gate, there is an existing Control Panel and Mini Power Center as shown on E1008 which is noted to be disconnected and demolished (Note 3). The new install shown on E1017 notes that a new Control Panel and Mini Power Center are to be installed (Note 4). We do not see any requirements through the remaining drawings for this new Control Panel and Mini Power Center. Please confirm if that is to be provided & installed by the EC or will that by coordinated through CAW with others.	E1008/E1017	Existing control panel and mini power center shall be reused and relocated instead of being demolished. This work shall be completed by the EC. Drawings will be updated to reflect this change.
70	[Magnolia Steel] There does not appear to be any rebar design shown for the AREA 61: BULK CHEMICAL BUILDING. Hopefully the engineer will release new drawings for this structure before the bid date; otherwise, we will probably have to exclude this structure from our proposal.	S6100 Series	Drawings detailing rebar will be issued in a forth coming addendum.

71	[Jack Tyler Eng] The three 31” x 60” slide gates (Rapid Mix – inside Trough to Floc basin 2, 3, & 4.) These gates are called out as non-self-contained on the schedule. Due to location and operation a self-contained frame is required. The top of gate will be above the operation floor elevation in fully open position plus the walkway channels are not structural designed to support loads of gate operators if no-self contained wall brackets and pedestal were to be mounted to the walkway. Please consider changing the gate schedule for these gates to self-contained frames.	M2000 Series	Considering the wall's thickness, it has been determined that self-contained gates are not feasible. Gate operators are not mounted to the walkway.
72	[Jack Tyler Eng] The four 36” x 64” slide gates (Rapid Mix - Floc Basin 1 Influent Split Box B, Floc Basin 2, 3, 4 Influents.) Floc Basin 1 Influent Split Box B the design head in the schedule is 5.87 for gates Floc Basin 2, 3, 4 Influents the design head is 19.37. Please verify if all four of these gates should be designed for a head of 5.87, 19.37 design head would put the water level at 569.87 almost 10 feet above the structure.	M2000 Series	The design head for 36"x64" slide gates in Rapid Mix area has been updated as 5.45. The updated gate schedule will be issued.
74	[Jack Tyler Eng] Please verify if the slide gate for 36” pipe shown on sheets M3303 & M3304 (Waste Pit Pump Station) should be supplied with this project. Please add this gate to the gate schedule if required. Please identify the type of pipe and how the pipe was installed. Slide gate will need to be designed to the OD of any existing flange or core opening with link seal if pipe was not cast in place.	M3303/M3304	Yes, this slide gate is new and will be added to the valve schedule. The pipe is 36" DIP with a sleeve installed flush to the wall face.
75	[Jack Tyler Eng] After talking with several of my manufacturers (AWI, Dezurik, & Rotork) they are all requesting a bid extension if available. With the number of questions and clarifications that still need to be addressed, it is going to be tough to get this project put together by January 8th with also losing a few days with the holidays. Please let me know if we can get a bid extension.		Bid extension has been provided
76	[ETEC] I didn’t see anything in the trade packages regarding price escalation. I expect every manufacturer to ask about this since the project schedule is several years. Have y’all had discussions about this with the engineers and CAW?		Please include any anticipated escalations as adder pricing to the respective quote for analysis and application by the CMAR Contractor.
77	[ETEC] The specified warranty period for some of the equipment (maybe all of it) is one year from substantial completion. Given the extensive construction period, will there be a separate substantial completion date for each trade package? Will there be a separate substantial completion date for each Floc/Sed Basin since each of those will have to be completed and placed into operation before moving to the next one?		Warranty periods will commence upon successful startup and acceptance by the Owner. Please note that the bid packages further define required warranties in the information to bidders’ section as “All bidders should note the requirements for the warranty for all equipment will be based on a 24-month time period from the date of startup of equipment and acceptance by the Owner of the equipment.” A preliminary construction schedule was provided with each bid package.

78	[ETEC] Specification 46 43 76, paragraph 1.05.D.1 [Plate Settler Spec]- We would request a 2-year warranty bond from the date of delivery of the equipment. Sureties are pushing back on providing warranty bonds for lengthy projects that have warranties starting at substantial completion. And with the phased schedule, it is difficult to identify what the start time will be to have this bond in place.	46 43 76, Section 1.05.D.1	Revised this requirement to a one-year warranty bond from substantial completion.
79	[ETEC] Regarding the backwash basin, should any submerged decanter supports be manufactured from stainless steel? Or is carbon steel/galvanized steel acceptable?	M4000 Series	The submerged decanter supports should be 304 stainless steel.
80	[ETEC] Many of the manufacturers have asked about the possibility of postponing this bid two (2) weeks (until January 22, 2025). They usually shut down for holidays and likely won't be fully staffed until January 6 due to PTO, etc. This extension will allow them to submit their best, most competitive, bid quotes.		Bid extension has been provided
81	[ETEC] Section 46 43 12 2.05.D.4.e requires Schneider Altivar VFDs. Are Allen-Bradley PowerFlex 4M or 520-series VFDs an acceptable alternative?	46 43 12 - 2.05.D.4.e	No. The VFDs shall be as listed in Section 26 29 23 - 2.03.A. Section 46 43 12 2.05.D.4.e will be revised to "VFD shall be as specified in Section 26 29 23 - Low Voltage Variable Frequency Motor Controllers."
82	[ETEC] Section 46 43 12 2.05.C.10 requires a, external disconnect adjacent to control panel. 2.05.D.4.g also requires a door-mounted disconnect. This seems redundant - can the local disconnect be omitted since this is a 120VAC-fed panel?	46 43 12 - 2.05.C.10/2.05.D.4.g	Local disconnect switch noted in Section 46 43 12 2.05.C.10 shall be omitted. Strike this paragraph.
83	[ETEC] Section 26 29 23.2.02.B.6 requires load reactors for VFDs. Damaging voltage levels are typically only a concern for motors operating at 480VAC and higher. Since the sludge collector VFDs will be outputting 230VAC, can the load reactors be omitted?	26 29 23 - 2.02.B.6	Provide load reactor as specified.
84	[ETEC] Section 26 29 23.2.02.C.10 requires a UL489 circuit breaker for incoming power to VFDs. Since the sludge collector VFDs will be fed by single phase 120VAC, can fuses be used instead?	26 29 23 - 2.02.C.10	Provide breaker as specified. Breaker to be selected based on VFD manufacturer requirements.
85	[ETEC] Section 26 29 23.2.02.E.2 requires that VFD HIMs be mounted on the exterior of the enclosure. Does this also apply to the sludge collector VFDs?	26 29 23 - 2.02.E.2	No. The VFD HMI shall remain on the VFD inside the enclosure. Adjustable setpoints for the VFD, as required for control of the sludge collector mechanism, shall be programmable from the panel mounted OIT.
86	[ETEC] 40 67 00 2.03.G requires cabinet air conditioners to be ProAir CR series. Are IceQube and Saginaw Controls air conditioners acceptable alternatives for the sludge collector panels?	40 67 00 - 2.03.G	IceQube or Saginaw Controls air conditioners will be acceptable alternatives to ProAir CR series.
87	[ETEC] 40 67 63 1.01.C requires a UPS for each PLC panel. Is this required for the hoseless sludge collectors? The UPS will not be able to power the sludge collector drive, so there is not much benefit of a UPS.	40 67 63 - 1.01.C	Yes, we should keep the UPS in the PLC cabinet for the Hoseless Solids Collectors. Although it may not be enough to power the drives, the UPS can keep the PLC and any other instruments connected to the PLC online and be used to send a "Loss of Power" fault alarm to the master PLC

88	[Alessi Keyes] There is no specification section for stainless steel hangers. Please advise if stainless steel hangers and pipe supports will be required in any of the areas of this project.	22 05 29	Stainless steel or coated hangers shall be used in rooms storing chemicals. Notation will be added to 22 05 29.
89	[Alessi Keyes] There is no specification for insulation of below-grade domestic water piping. There appears to be some below-grade piping shown on Plan Page P6202. If insulation is required for this (and other) piping, please provide specification section for it…	22 07 19 / P6202	No insulation required for below grade pipe.
90	[Alessi Keyes] There appears to be some storm drain piping above-grade in a few locations for this project. Please provide specifications for required piping material…		Roof drain specifications will be added to provide direction on piping materials. Note: insulation shall be provided on horizontal piping runs for roof drainage to avoid condensation. New section will be 22 14 13 - Facility Storm Drainage.
91	[Alessi Keyes] SH shower schedule says that this fixture is to be a Zurn Z7500. This is a penal-type, wall-hung, non-ADA shower system with valve and head only. The schedule goes on to show a 36” x 36” shower base and ADA seat. Spec section 22 40 00, 2.17, A is calling out a shower with reinforced walls, 38” x 38”, grab bars, slide bar, and hand-held shower wand. Please provide clarification on exactly what will be required for the SH shower fixtures for the Filter Building…	P0003 / 22 40 00 - 2.17	Model listed on P0003 needs to be updated. Architecture and Plumbing coordinated use of prefabricated shower enclosure as described in 22 40 00. Basis of design is Freedom Showers ADA transfer shower 38" x 38" model APF3838BF1PRRF.
92	[Alessi Keyes] This plan shows two ESEW fixtures to be removed. Are they to be re-installed or demolished? Please advise…	P6200	ESEW fixtures near Fluoride Tanks shall be demolished and replaced with new fixtures shown on P6201.
93	[Alessi Keyes] This plan shows three emergency shower and eyewash stations (ESEW-6201, 6202, and 6203) that are not scheduled on Plan Page P0002. Please provide schedule information for these ESEW units…	P6202	ESEW-6201, 6202, and 6203 will be added to Emergency Showers schedule to reflect non-freeze showers.
94	[Alessi Keyes] There is some acid waste piping (AW) shown on this plan page. There does not appear to be a specification section for acid waste piping. Please provide specification…	P8013	Specification will be added to "22 13 16 - Sanitary Waste and Vent Piping".
95	[Alessi Keyes] Note #2 calls out the sample sinks, but no faucets. Please provide schedule information for the Sample Sink faucets…	P8014	Faucet is called out on Process Mechanical sheet M8002. Drawing directs contractor to plumbing specification "22 11 19 - DOMESTIC WATER PIPING SPECIALTIES" for faucet specification. Faucet is specified in paragraph 2.07 - SAMPLE SINK HOSE BIBBS". Note added to P8015 to address sample faucets.
96	[Alessi Keyes] Note #8 calls out piping for Fume Hoods. New hoods are not scheduled on the mechanical pages. Are these existing hoods to remain? Or will the mechanical contractor be providing and installing a new hood(s). If they are to be new, please also send schedule information for the new hoods…	P8015	We are removing one hood in the Prep Lab, all other existing hoods to be replaced with energy efficient units. Existing infrastructure to the new hoods to remain or modified to accomodate the new hood, at the same location as the existing. See specification 12 35 53 - 2.12 for hood requirements.