City of Ann Arbor

Instrumentation & Controls Improvements

Ann Arbor, Michigan

Issued for Bids and Construction April 7, 2026

Project Number: 2501593
RFP Number: 26-24
File Number: 26004

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1515 Arboretum Drive
Grand Rapids, Michigan

GENERAL SHEET NOTES

* MARKED SHEETS TO BE VIEWED IN COLOR

GENERAL

G101	COVER SHEET
G102	SITE LAYOUT

DEMOLITION

D401	PROCESS OVERALL LAYOUT
D402	PROCESS FILTERS 1-10 PIPE GALLERY
D403	PROCESS FILTERS 1-10 OPERATING GALLERY
D404	PROCESS FILTERS 11-20 PIPE GALLERY
D405	PROCESS FILTERS 11-20 OPERATING GALLERY
D406	PROCESS FILTERS 21-26 PIPE GALLERY
D407	PROCESS FILTERS 21-26 OPERATING GALLERY
D408	PROCESS VAULTS
D409 *	PROCESS PHOTOS
D410 *	PROCESS PHOTOS
D701	ELECTRICAL OVERALL LAYOUT
D702	ELECTRICAL FILTERS 1-10 PIPE GALLERY PLANS
D703	ELECTRICAL FILTERS 1-10 OPERATING GALLERY PLAN
D704	ELECTRICAL FILTERS 11-20 PIPE GALLERY PLANS
D705	ELECTRICAL FILTERS 11-20 OPERATING GALLERY PLAN
D706	ELECTRICAL FILTERS 21-26 PIPE GALLERY PLANS
D707	ELECTRICAL FILTERS 21-26 OPERATING GALLERY PLAN
D708	ELECTRICAL FILTERS 21-26 VAULT PLANS

PROCESS

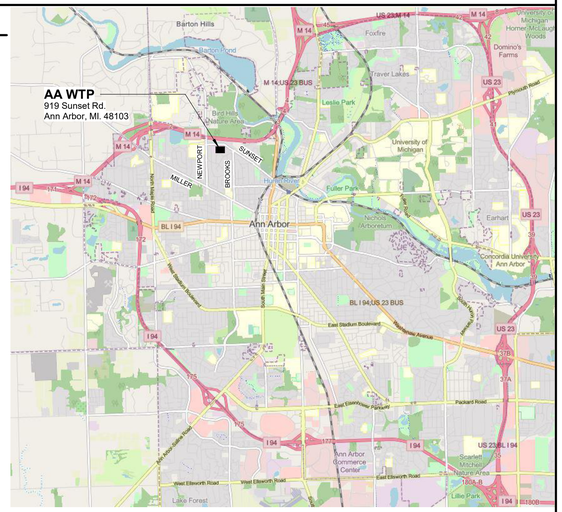
P001	GENERAL NOTES AND ABBREVIATIONS
P002	GENERAL SYMBOLS
P003	GENERAL INSTRUMENTATION
P004	VALVE SCHEDULES
P005	SCHEDULES
P006	DETAILS
P101	FILTER 1 FLOW SCHEMATIC AND P&ID
P102	FILTER 2 FLOW SCHEMATIC AND P&ID
P103	FILTER 8 FLOW SCHEMATIC AND P&ID
P104	FILTER 9 FLOW SCHEMATIC AND P&ID
P105	FILTER 11 FLOW SCHEMATIC AND P&ID
P106	FILTER 13 FLOW SCHEMATIC AND P&ID
P107	FILTER 19 FLOW SCHEMATIC AND P&ID
P108	FILTER 22 FLOW SCHEMATIC AND P&ID
P109	FILTER 26 FLOW SCHEMATIC AND P&ID
P110	FINISHED WATER FLOW SCHEMATIC AND P&ID
P111	CISTERN 1 AND 2 FLOW SCHEMATIC AND P&ID
P112	CLEARWELL 2 FLOW SCHEMATIC AND P&ID
P201	OVERALL LAYOUT
P202	FILTERS 1-10 PIPE GALLERY
P203	FILTERS 1-10 OPERATING GALLERY
P204	FILTERS 11-20 PIPE GALLERY
P205	FILTERS 11-20 OPERATING GALLERY
P206	FILTERS 21-26 PIPE GALLERY
P207	FILTERS 21-26 OPERATING GALLERY
P208	VAULTS
P301	FILTERS 1-10 SECTIONS
P302	FILTERS 11-20 SECTIONS
P303	FILTERS 21-26 SECTIONS

ELECTRICAL

E001	LEGENDS, ABBREVIATION, AND GENERAL NOTES
E201	OVERALL LAYOUT
E202	FILTERS 1-10 PIPE GALLERY PLANS
E203	FILTERS 1-10 OPERATING GALLERY PLAN
E204	FILTERS 11-20 PIPE GALLERY PLANS
E205	FILTERS 11-20 OPERATING GALLERY PLAN
E206	FILTERS 21-26 PIPE GALLERY PLANS
E207	FILTERS 21-26 OPERATING GALLERY PLAN
E208	VAULT PLANS
E601	DETAILS

INSTRUMENTATION

I101	I/O LIST FILTER 1-4 FILTER-CP2 AND PARTIAL NETWORK DIAGRAM
I102	I/O LIST FILTER 5-10 FILTER-CP2
I103	I/O LIST FILTER 11-18 FILTER-CP2
I104	I/O LIST FILTER 19-20 FILTER-CP2
I105	I/O LIST FILTER 21-26 FILTER-CP2
I106	I/O LIST FILTER 1-21 FILTER-CP
I107	I/O LIST FILTER 22-26 FILTER-CP, PLC-HS, PLC-C2, AND PLC-P2



NORTH

LOCATION MAP
SCALE: NOT TO SCALE

GRAPHIC SYMBOLS

ELEVATION, SECTION AND DETAIL DESIGNATION
1 SECTION
SCALE: 1/4" = 1'-0"

PLAN DESIGNATION
PLAN
SCALE: 1/8" = 1'-0"
NORTH

EXTERIOR ELEVATION TAG
A / A001

INTERIOR ELEVATION TAG / PHOTO TAG
A / C A301 D / B

NORTH ARROW DESIGNATION
NORTH TRUE NORTH NORTH

ROOM NAME AND NUMBER
ROOM NAME
101

ENLARGED DETAIL FRAME
1 / A201

SECTION CUT LINE
1 / A501

ELEVATION TARGET

SPOT ELEVATION
EL. 100'-0"

EXISTING CONSTRUCTION GRID 000

NEW CONSTRUCTION GRID 000

LEVEL CALLOUT
FIRST FLOOR
100'-0"

DEMOLITION KEY NOTE 1

NEW CONSTRUCTION KEY NOTE 1

REVISION CLOUD

ADDENDUM IDENTIFICATION A1

BULLETIN IDENTIFICATION B1

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BUILDING CODE INFORMATION

SEAL

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
COVER SHEET

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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PROJECT NO.
2501593

SHEET NO.
G101

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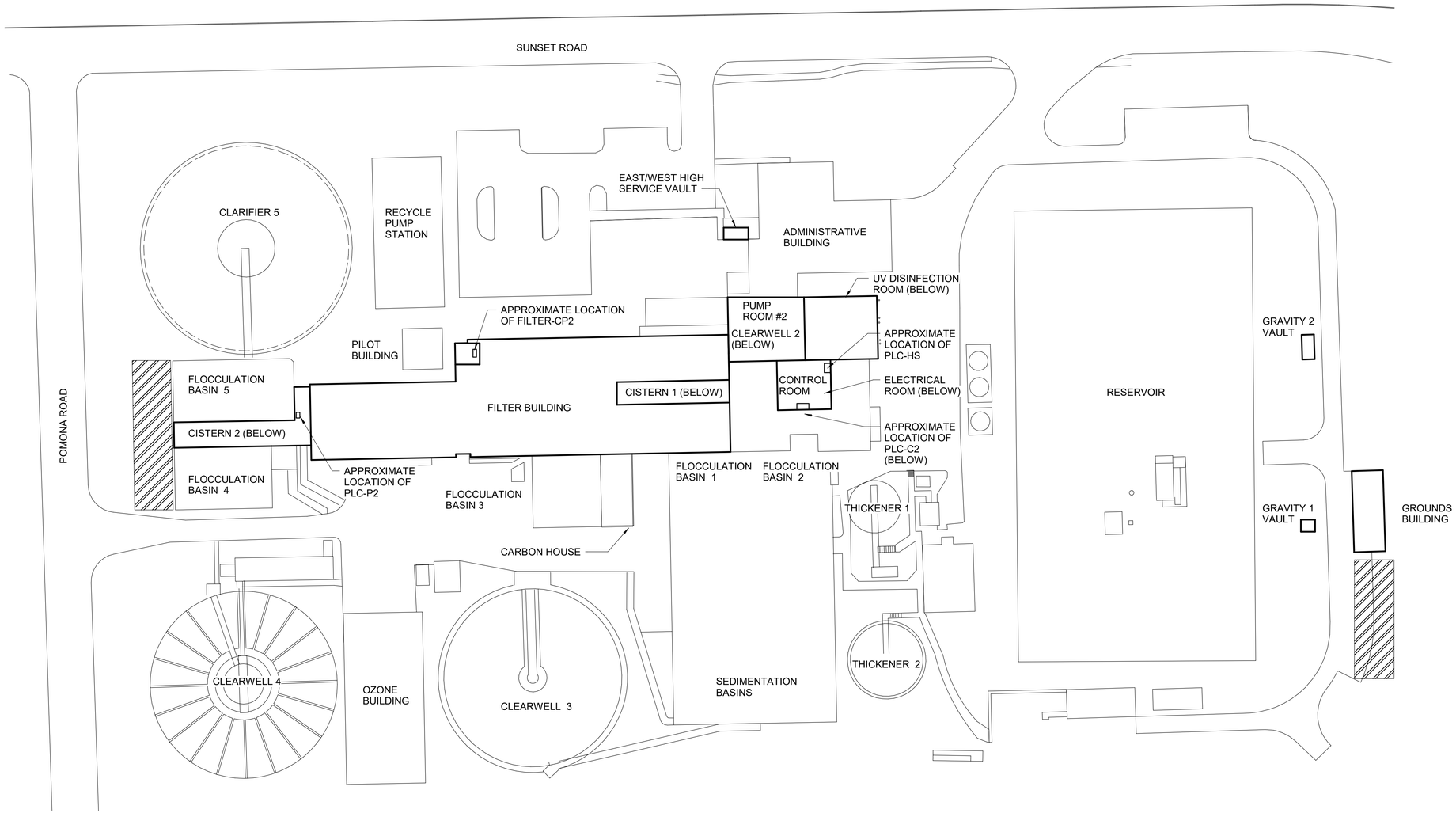
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SYMBOLS LEGEND

AREAS ALLOWED FOR EQUIPMENT STAGING

NOTES

1. ALL DRIVES AND PAVED AREAS TO BE CLEAR AT ALL TIMES, UNLESS OTHERWISE DESIGNATED.



WTP
SITE LAYOUT
SCALE: 1" = 40'-0"

NORTH

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SITE LAYOUT

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

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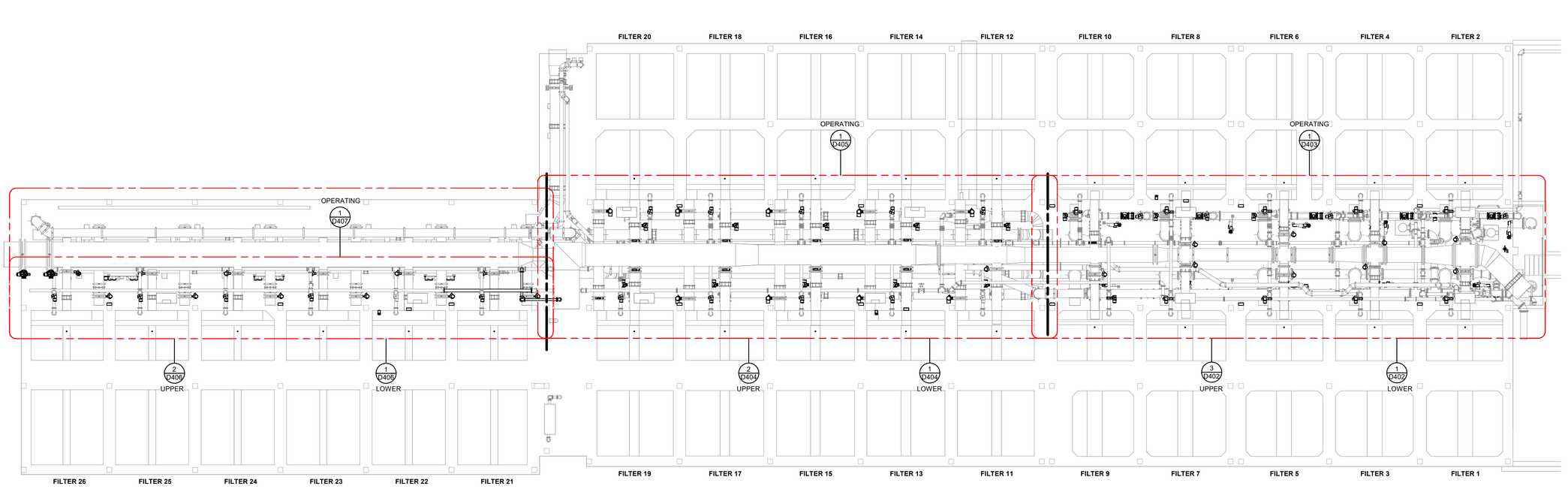
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G102

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PROCESS DEMOLITION NOTES

1. SEE SHEET P001 FOR GENERAL NOTES AND ABBREVIATIONS.
2. PROCESS DEMOLITION NOTES APPLY TO ALL PROCESS DEMOLITION DRAWINGS.
3. SEE SPECIFICATIONS FOR DETAIL ON SUGGESTED SEQUENCE OF CONSTRUCTION, CONSTRUCTION RESTRAINTS AND DEMOLITION SEQUENCE REQUIREMENTS.
4. REMOVE ALL PORTIONS OF WORK IDENTIFIED BY CROSS HATCHING UNLESS NOTED OTHERWISE.
5. DEMOLITION NOTES AND DRAWINGS DO NOT FULLY REPRESENT ALL DEMOLITION WORK REQUIRED TO INSTALL NEW WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS BUT ARE INTENDED TO SERVE AS GENERAL DEMOLITION GUIDELINES.
6. GRAPHICAL REPRESENTATIONS OF EXISTING SYSTEMS CREATED FROM PREVIOUS CONSTRUCTION AND/OR RECORD DRAWINGS MAY NOT FULLY REPRESENT EXISTING CONDITIONS AND ARE FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK.
7. COORDINATE ALL DEMOLITION WORK WITH PROCESS, MECHANICAL, ELECTRICAL, STRUCTURAL, ARCHITECTURAL, AND CIVIL DRAWINGS FOR BOTH DEMOLITION AND NEW CONSTRUCTION.
8. COORDINATE PHASING AND SEQUENCING OF DEMOLITION IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS TO MAINTAIN CONTINUOUS OPERATION FOR OWNER, BUILDING SECURITY, AND WEATHER TIGHTNESS.
9. COORDINATE ITEMS TO BE TURNED OVER TO OWNER PRIOR TO BEGINNING DEMOLITION. REMOVE, PROTECT, AND RELOCATE ITEMS TO BE TURNED OVER TO OWNER.
10. FIELD VERIFY ALL EXISTING UTILITIES AND BURIED PIPING PRIOR TO ABANDONMENT AND INSTALLATION OF NEW PIPING. PROTECT EXISTING STRUCTURES AND PIPING TO REMAIN. SOME PIPING TO BE REMOVED OR ABANDONED MAY BE UNDER PRESSURE. COORDINATE WITH OWNER TO ISOLATE SECTIONS TO BE DISTURBED.
11. BULKHEAD ENDS OF PIPES ABANDONED IN PLACE. BULKHEAD AT A STRUCTURE WHEN POSSIBLE. BULKHEAD METHODS AND DETERMINATION OF PIPES TO BE ABANDONED ARE SUBJECT TO APPROVAL OF OWNER AND ENGINEER.
12. USE APPROPRIATE FITTINGS AND/OR PIPE JOINT DEFLECTION AS NECESSARY TO INSTALL PIPE ELEVATIONS INDICATED.
13. SUPPORT PIPING TO REMAIN IN PLACE DURING AND AFTER DEMOLITION.
14. REMOVE ALL UTILITIES ASSOCIATED WITH EQUIPMENT TO BE REMOVED. REMOVE ALL PIPING, SUPPORTS, ANCHOR BOLTS, AND APPURTENANCES TO SOURCE AND PROVIDE SUITABLE CAP.
15. REMOVE ALL CONCRETE EQUIPMENT PADS ASSOCIATED WITH DEMOLISHED EQUIPMENT. SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAIL.
16. REMOVE EMBEDDED EQUIPMENT AND HARDWARE A MINIMUM OF 1" BELOW SURFACE IT IS ATTACHED TO. REPAIR SURFACE IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
17. WHERE ITEMS ARE REMOVED AND OPENINGS ARE CREATED BY DEMOLITION, IN ROOFS, WALLS, FLOORS, AND ADJACENT SURFACES, REPAIR TO MATCH ADJACENT SURFACES OR APPLY NEW FINISHES WHERE SCHEDULED.
18. REMOVE SIGNAGE RELATED TO EXISTING SYSTEMS AFTER EXISTING SYSTEMS ARE DECOMMISSIONED AND RELATED CHEMICALS HAVE BEEN REMOVED FROM SITE. REPAIR DAMAGED SURFACES RESULTING FROM REMOVAL OF SIGNAGE AND REPAINT DISTURBED AREAS TO MATCH ADJACENT SURFACES.
19. EXISTING EQUIPMENT LIST (WHEN USED) IS NOT ALL INCLUSIVE OF EQUIPMENT IN AREA SHOWN.



NORTH

PROCESS
FILTERS 1-26

OVERALL DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS OVERALL LAYOUT

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

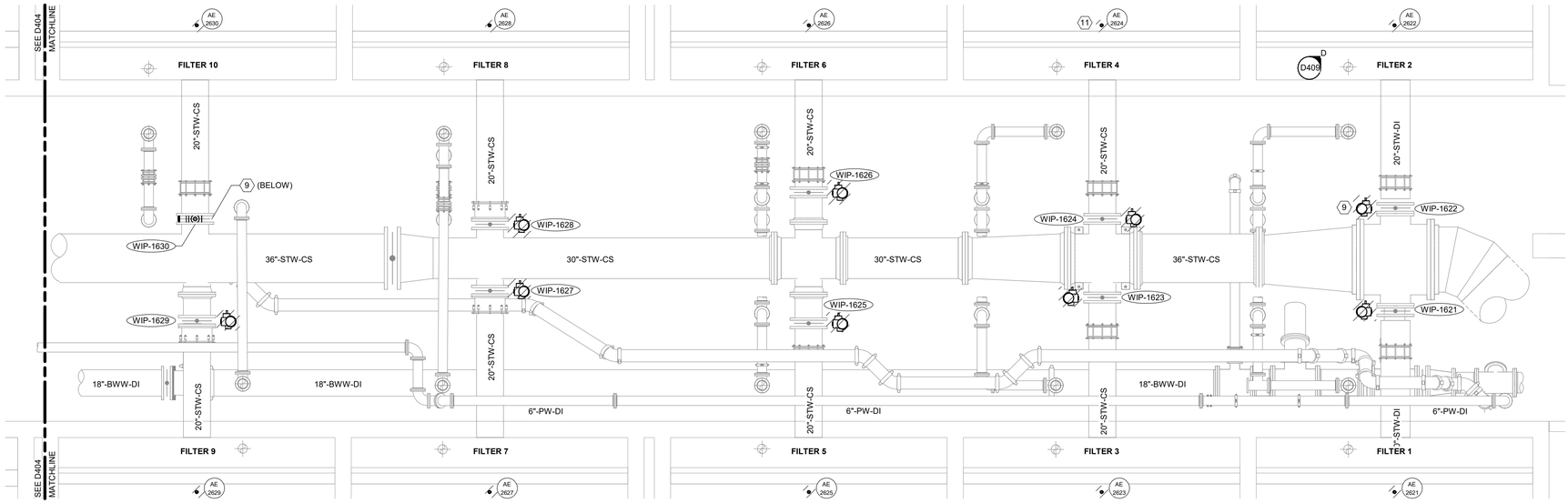
Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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PROJECT NO.
2501593

SHEET NO.
D401

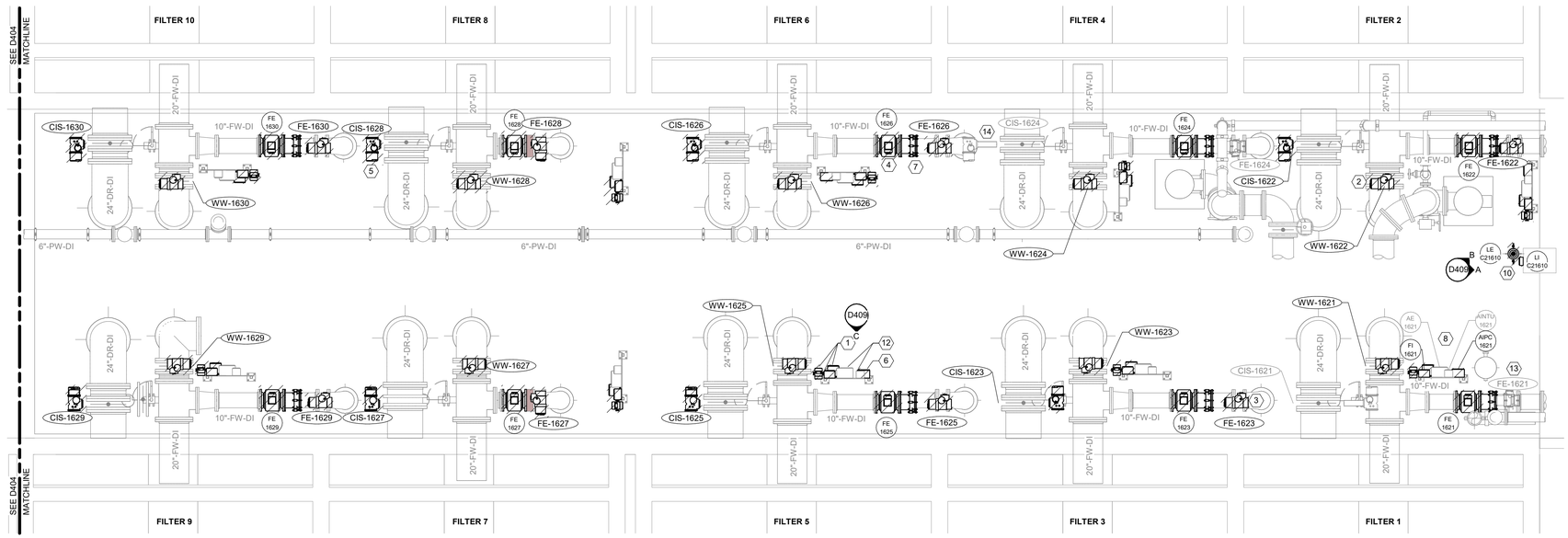
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PROCESS
UPPER PIPE GALLERY - FILTERS 1-10

3 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



PROCESS
LOWER PIPE GALLERY - FILTERS 1-10

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

SYMBOLS LEGEND

- EQUIPMENT AND PIPING TO BE REMOVED (PATTERN MAY BE ROTATED FOR READABILITY)
- PHOTOGRAPH LOCATION MARKER
- REFERENCE LETTER
- REFERENCE PAGE

DEMOLITION KEY NOTES

1. REMOVE FLOW TRANSMITTER, FILTER INFLUENT REMOTE HAND STATION, AND LOSS OF HEAD TRANSMITTER. REMOVE LOSS OF HEAD PVC PIPING AS NEEDED. TYPICAL OF FILTERS 1-10.
2. REMOVE WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
3. REMOVE FILTER EFFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
4. REMOVE FILTER EFFLUENT FLOW METER. TYPICAL OF FILTERS 1-10.
5. REMOVE FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
6. REMOVE PARTICLE COUNTER AND ASSOCIATED PIPING, SOLENOID VALVES, AND APPURTENANCES. EACH PAIR OF ADJACENT FILTERS SHARES ONE PARTICLE COUNTER. TYPICAL OF FILTERS 1-8.
7. REMOVE FLANGE COUPLING ADAPTER AND STORE FOR REINSTALLATION. REPLACE GASKET AND HARDWARE. TYPICAL OF FILTERS 1-6, 9-10.
8. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 1, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 1-10.
9. REMOVE FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
10. REMOVE CISTERN 1 SENSOR, TRANSMITTER, AND ASSOCIATED PIPING.
11. REMOVE FILTER BACKWASH TURBIDITY SENSOR AND ASSOCIATED MOUNTING HARDWARE AND APPURTENANCES. TYPICAL OF FILTERS 1-10.
12. EXISTING FILTER EFFLUENT TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 1-10.
13. EXISTING FILTER EFFLUENT VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 1 AND 4.
14. EXISTING FILTER DRAIN VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 1 AND 4.

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Instrumentation & Controls Improvements
PROCESS FILTERS 1-10 PIPE GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION
Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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PROJECT NO.
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SHEET NO.
D402

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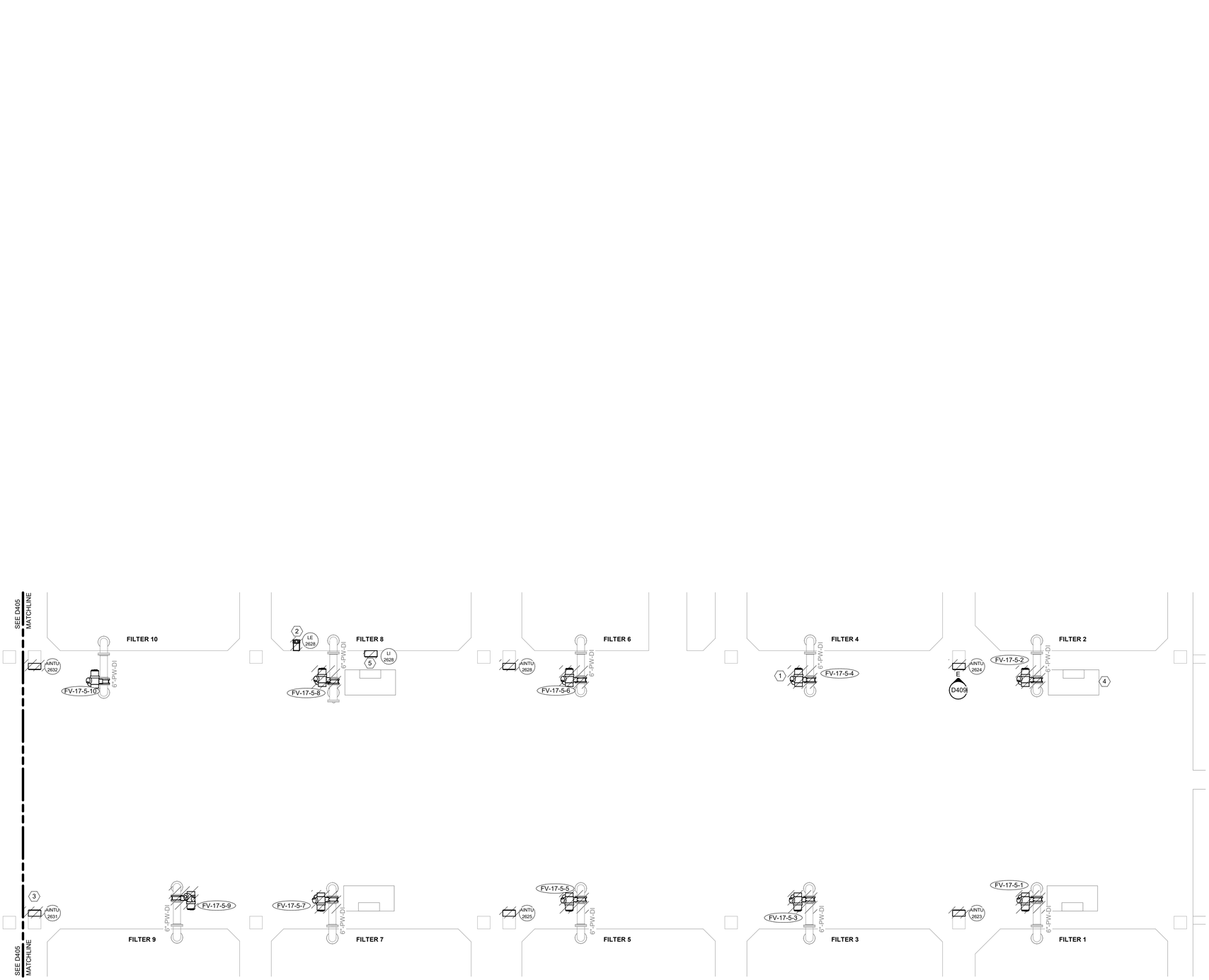
SYMBOLS LEGEND

EQUIPMENT AND PIPING TO BE REMOVED
(PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER
REFERENCE LETTER
REFERENCE PAGE

DEMOLITION KEY NOTES

1 REMOVE SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 1-10.
2 REMOVE FILTER 8 LEVEL SENSOR AND SUPPORT ACCESSORIES.
3 REMOVE FILTER BACKWASH TURBIDITY CONTROLLER. SHARED WITH ADJACENT FILTER. TYPICAL OF FILTERS 1-10, TOTAL OF 6 CONTROLLERS.
4 EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.
5 REMOVE FILTER 8 LEVEL TRANSMITTER. EXISTING SUPPORT STRUT TO REMAIN.



PROCESS
OPERATING GALLERY - FILTERS 1-10

1 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS FILTERS 1-10 OPERATING GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

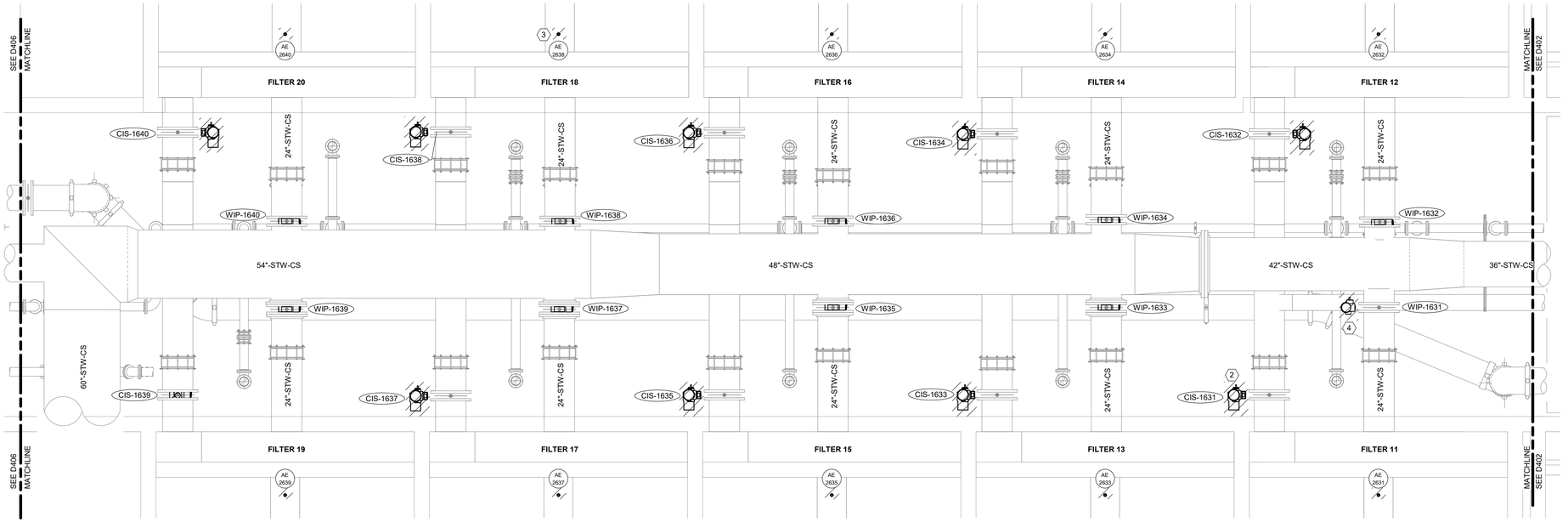
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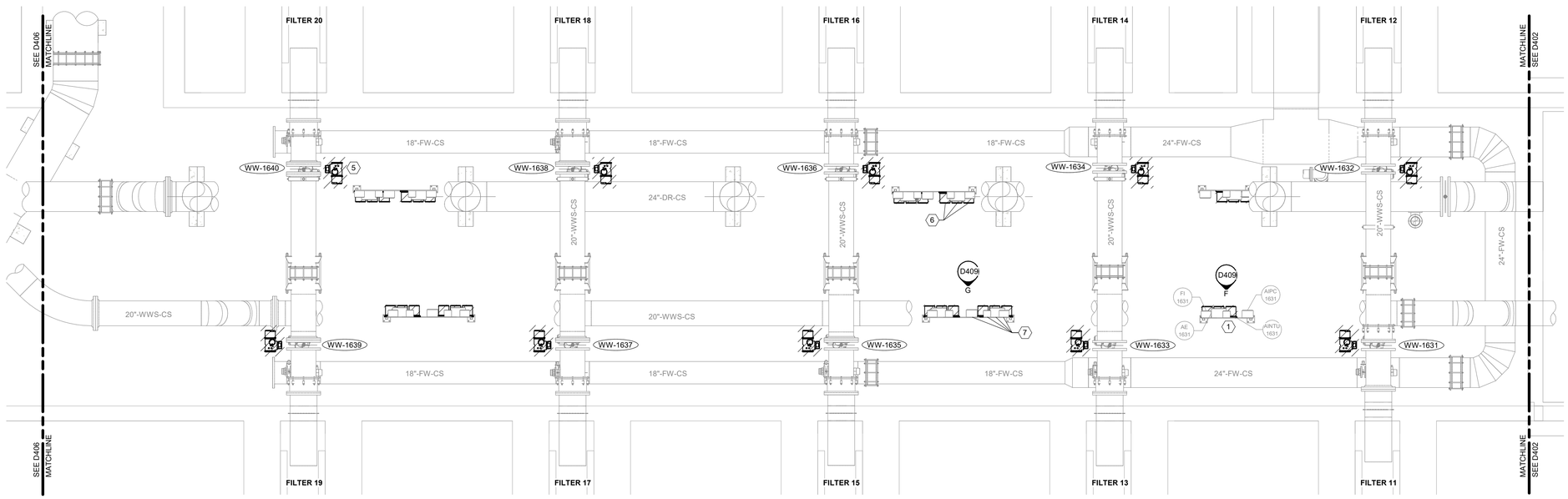
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PROCESS
UPPER PIPE GALLERY - FILTERS 11-20

2 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



PROCESS
LOWER PIPE GALLERY - FILTERS 11-20

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

SYMBOLS LEGEND

- EQUIPMENT AND PIPING TO BE REMOVED (PATTERN MAY BE ROTATED FOR READABILITY)
- PHOTOGRAPH LOCATION MARKER
- REFERENCE LETTER
- REFERENCE PAGE

DEMOLITION KEY NOTES

1. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 11, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 11-20.
2. REMOVE FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
3. REMOVE FILTER BACKWASH TURBIDITY SENSOR AND ASSOCIATED MOUNTING HARDWARE AND APPURTENANCES. TYPICAL OF FILTERS 11-20.
4. REMOVE FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
5. REMOVE WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
6. REMOVE FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. TYPICAL OF FILTERS 11-20.
7. EXISTING FILTER EFFLUENT FLOW TRANSMITTER, PARTICLE COUNTER, TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 11-20.

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PROCESS FILTERS 11-20 PIPE GALLERY

REVISIONS

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Designer	AWADE
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Manager	BDPHILLIPS

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D404

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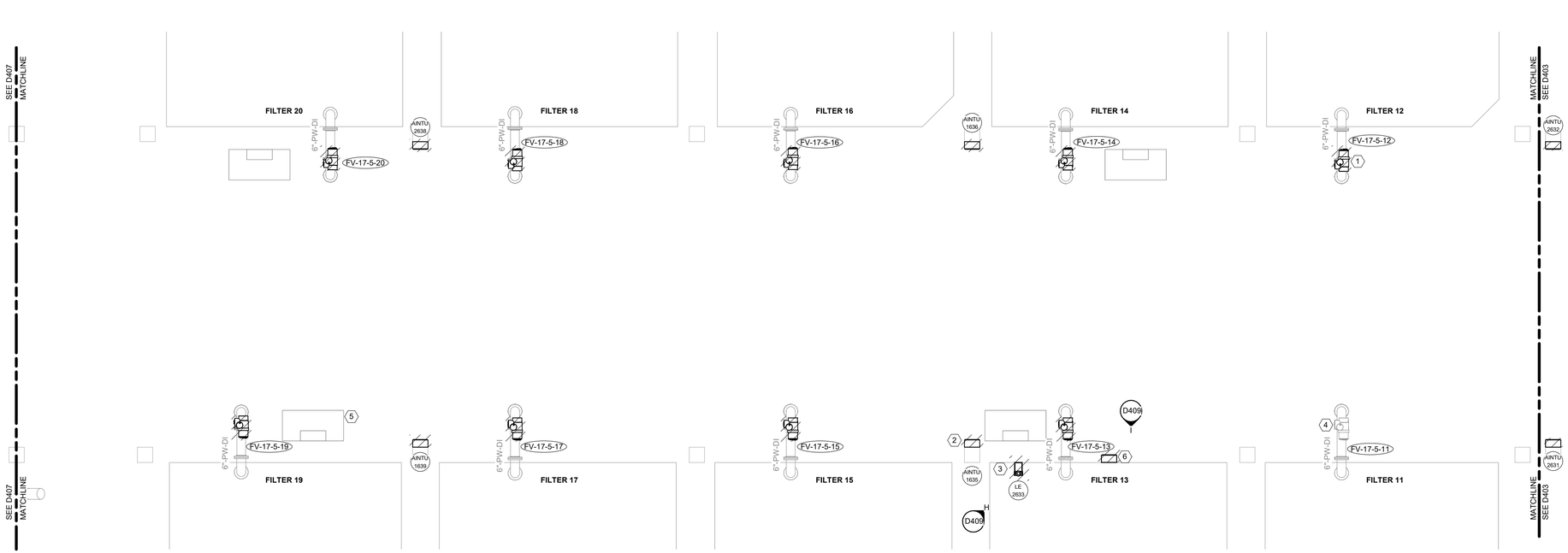
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EQUIPMENT AND PIPING TO BE REMOVED
(PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER
REFERENCE LETTER
REFERENCE PAGE

(#) DEMOLITION KEY NOTES

1 REMOVE SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 12-20.
2 REMOVE FILTER BACKWASH TURBIDITY CONTROLLER. SHARED WITH ADJACENT FILTER. TYPICAL OF FILTERS 11-20, TOTAL OF 4 CONTROLLERS.
3 REMOVE FILTER 13 LEVEL SENSOR AND SUPPORT ACCESSORIES.
4 FILTER 11 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.
5 EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.
6 REMOVE FILTER 13 LEVEL TRANSMITTER. EXISTING SUPPORT STRUT TO REMAIN.



PROCESS
OPERATING GALLERY - FILTERS 11-20

1 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS FILTERS 11-20 OPERATING GALLERY

REVISIONS

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Manager	BDPHILLIPS

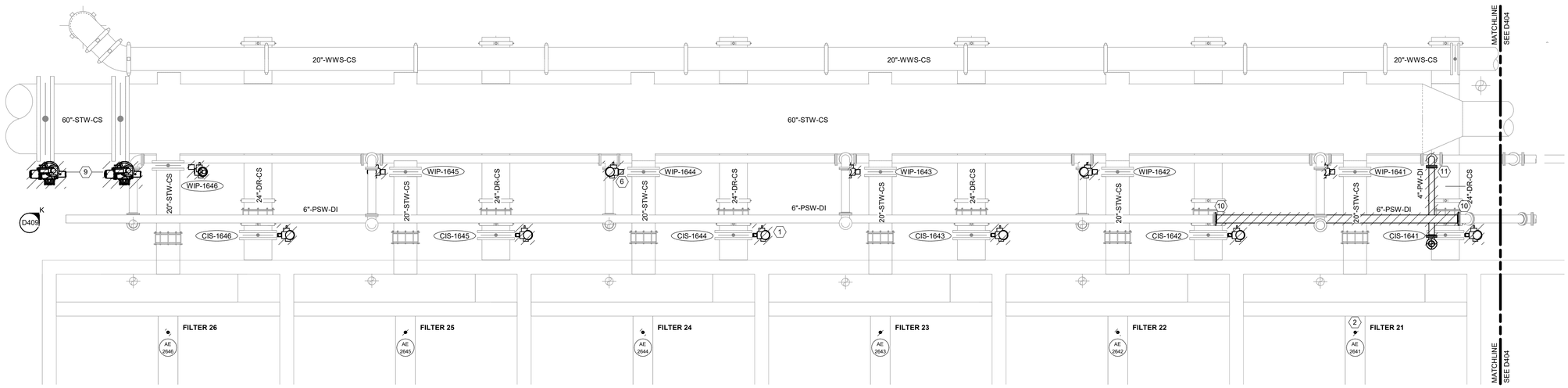
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PROJECT NO.
2501593

SHEET NO.
D405

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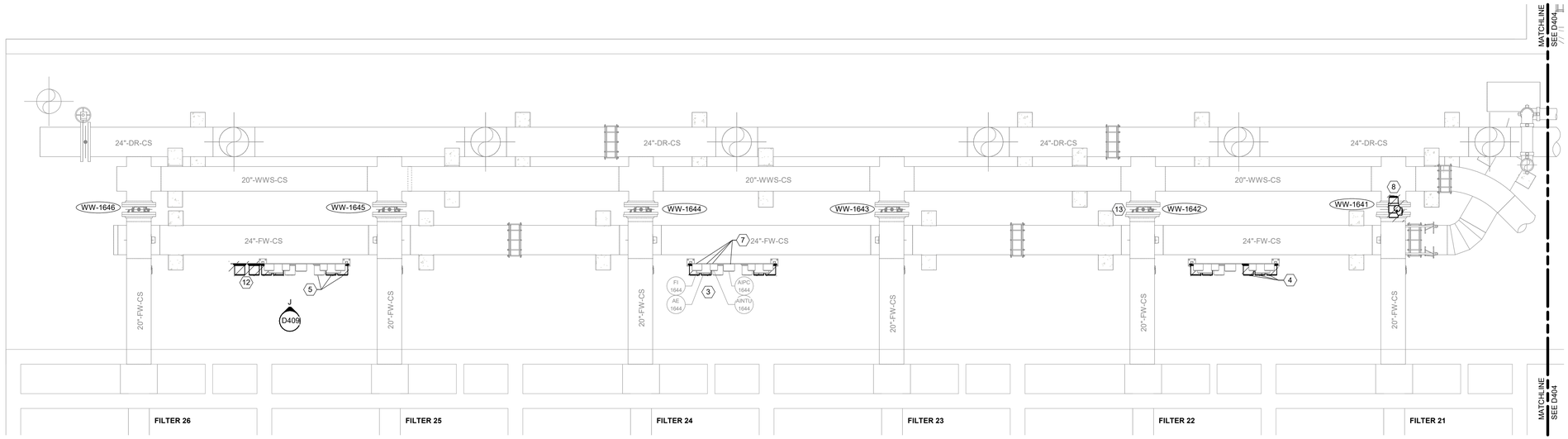
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PROCESS
UPPER PIPE GALLERY - FILTERS 21-26

2 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



PROCESS
LOWER PIPE GALLERY - FILTERS 21-26

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

SYMBOLS LEGEND

- EQUIPMENT AND PIPING TO BE REMOVED (PATTERN MAY BE ROTATED FOR READABILITY)
- PHOTOGRAPH LOCATION MARKER
- REFERENCE LETTER
- REFERENCE PAGE

DEMOLITION KEY NOTES

1. REMOVE FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
2. REMOVE FILTER BACKWASH TURBIDITY SENSOR AND ASSOCIATED MOUNTING HARDWARE AND APPURTENANCES. TYPICAL OF FILTERS 21-26.
3. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 24, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 21-26.
4. REMOVE FILTER 21 INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS.
5. REMOVE FILTER INFLUENT AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. EXISTING WASH WATER VALVE ACTUATOR REMOTE HAND STATION TO REMAIN. TYPICAL OF FILTERS 22-26.
6. REMOVE FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
7. FILTER EFFLUENT FLOW TRANSMITTER, EFFLUENT TURBIDIMETER AND CONTROLLER, AND PARTICLE COUNTER TO REMAIN. TYPICAL OF FILTERS 21-26.
8. REMOVE FILTER 21 WASH WATER VALVE ACTUATOR. VALVE TO REMAIN.
9. REMOVE SETTLED WATER ACTUATORS. VALVES TO REMAIN.
10. REMOVE 6" PW FLANGE BY FLANGE SPOOL PIECE.
11. REMOVE 4" PW PIPING FROM TEE BRANCH TO UPPER FLANGE.
12. REMOVE SETTLED WATER ACTUATOR REMOTE HAND STATIONS AND MOUNTING PANEL.
13. EXISTING WASH WATER VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 22-26.

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS FILTERS 21-26 PIPE GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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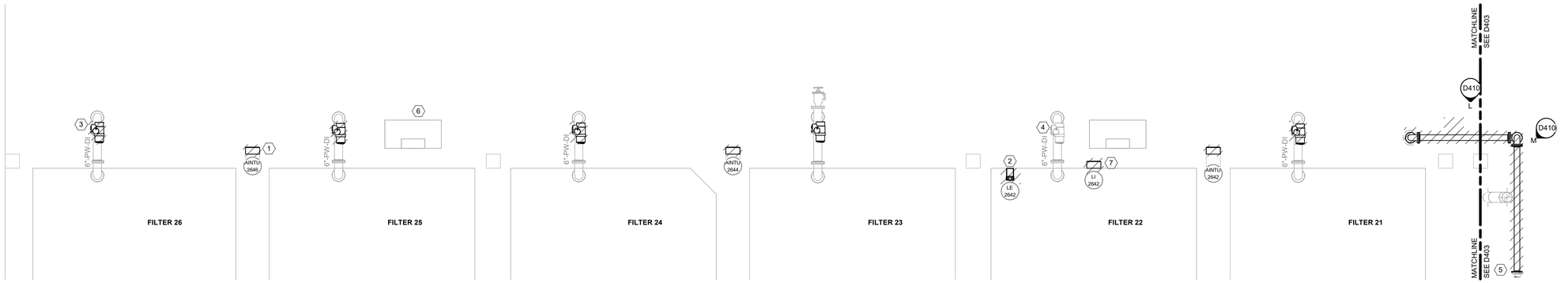
SYMBOLS LEGEND

EQUIPMENT AND PIPING TO BE REMOVED
(PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER
REFERENCE LETTER
REFERENCE PAGE

(#) DEMOLITION KEY NOTES

1. REMOVE FILTER BACKWASH TURBIDITY CONTROLLER. SHARED WITH ADJACENT FILTER. TYPICAL OF FILTERS 21-26, TOTAL OF 3 CONTROLLERS.
2. REMOVE FILTER 22 LEVEL SENSOR AND SUPPORT ACCESSORIES.
3. REMOVE SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 21, 23-26.
4. EXISTING FILTER 22 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.
5. REMOVE 4" PW PIPING FROM LOWER TEE BRANCH TO FLANGE.
6. EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.
7. REMOVE FILTER 22 LEVEL TRANSMITTER. EXISTING SUPPORT STRUT TO REMAIN.



PROCESS
OPERATING GALLERY - FILTERS 21-26

1 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS FILTERS 21-26 OPERATING GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

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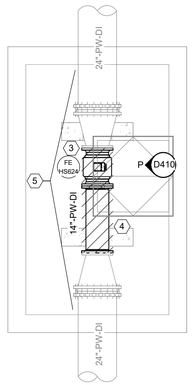
SYMBOLS LEGEND

EQUIPMENT AND PIPING TO BE REMOVED
(PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER
REFERENCE LETTER
REFERENCE PAGE

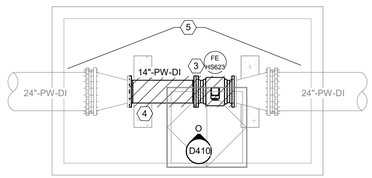
(#) DEMOLITION KEY NOTES

1 REMOVE FLOW METER AND ASSOCIATED FLOW TRANSMITTER LOCATED IN PUMP ROOM #2. TYPICAL OF FE/FI-HS0327 AND FE/FI-HS1216.
2 REMOVE 24-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE NEW FLOW METER LAY LENGTH.
3 REMOVE FLOW METER AND ASSOCIATED FLOW TRANSMITTER LOCATED IN GROUNDS BUILDING.
4 REMOVE 14-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE NEW FLOW METER LAY LENGTH.
5 BLAST AND RECOAT PIPING WITHIN VAULT.
6 REMOVE PIPE STAND.



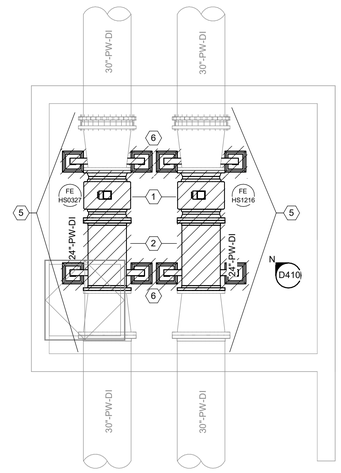
NORTH

PROCESS
GRAVITY VAULT 2
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NORTH

PROCESS
GRAVITY VAULT 1
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NORTH

PROCESS
EAST/WEST HIGH VAULT
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS VAULTS

REVISIONS

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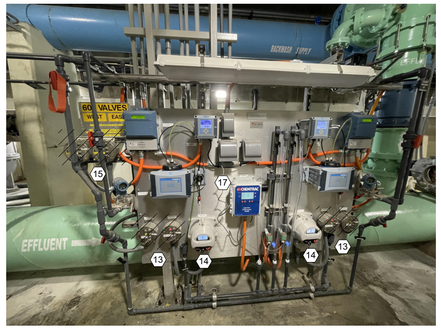
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SETTLED WATER HEADER

K PHOTO

SCALE: NOT TO SCALE



FILTER 25/26
SIMILAR OF FILTERS 21-26

J PHOTO

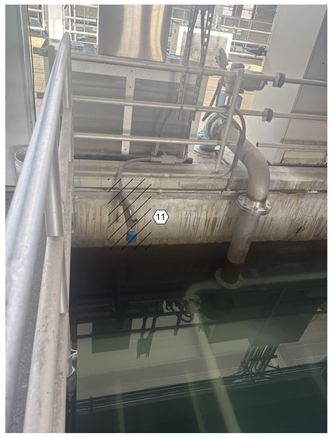
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FILTER 13
SIMILAR OF FILTERS 8, 13, 22

I PHOTO

SCALE: NOT TO SCALE



FILTER 13
SIMILAR OF FILTERS 8, 13, 22

H PHOTO

SCALE: NOT TO SCALE



FILTER 13/15
SIMILAR OF FILTERS 13-20

G PHOTO

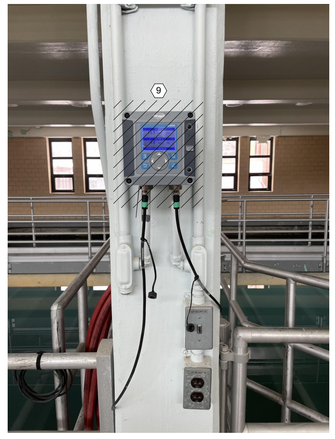
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FILTER 11
SIMILAR OF FILTERS 11-12

F PHOTO

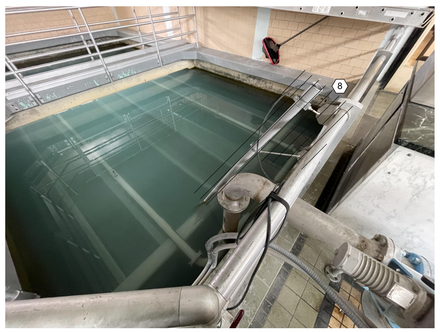
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FILTER 2/4
SIMILAR OF FILTERS 1-26

E PHOTO

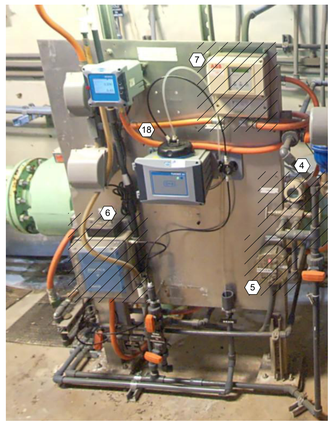
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FILTER 2
SIMILAR OF FILTERS 1-26

D PHOTO

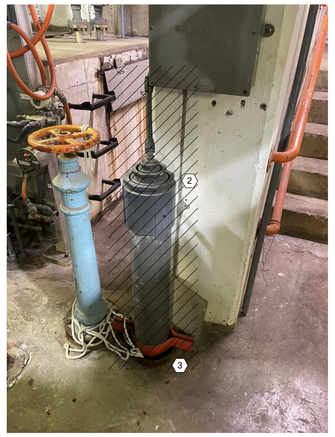
SCALE: NOT TO SCALE



FILTER 5
SIMILAR OF FILTERS 1-10

C PHOTO

SCALE: NOT TO SCALE



CISTERN 1

B PHOTO

SCALE: NOT TO SCALE



FILTER 1-10 PIPE GALLERY

A PHOTO

SCALE: NOT TO SCALE

SYMBOLS LEGEND

EQUIPMENT AND PIPING TO BE REMOVED (PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER

REFERENCE LETTER

REFERENCE PAGE

DEMOLITION KEY NOTES

1 REMOVE CISTERN 1 TRANSMITTER AND ASSOCIATED WIRING AND CONDUIT. JUNCTION BOX TO REMAIN.
2 REMOVE CISTERN 1 SENSOR AND ASSOCIATED PIPING, WIRING, AND CONDUIT.
3 BLAST AND RECOAT EXISTING STILLING PIPE ABOVE FLOOR.
4 REMOVE LOSS OF HEAD TRANSMITTER. REMOVE ASSOCIATED PIPING AND VALVES AS NEEDED TO COMPLETE THE WORK. TYPICAL OF FILTERS 1-10.
5 REMOVE FILTER INFLUENT VALVE ACTUATOR REMOTE HAND STATION. TYPICAL OF FILTERS 1-10.
6 REMOVE PARTICLE COUNTER AND ASSOCIATED PIPING, SOLENOID VALVES, AND APPURTENANCES. EACH PAIR OF ADJACENT FILTERS SHARES ONE PARTICLE COUNTER. TYPICAL OF FILTERS 1-8.
7 REMOVE FILTER EFFLUENT FLOW TRANSMITTER. TYPICAL OF FILTERS 1-10.
8 REMOVE FILTER BACKWASH TURBIDITY SENSOR AND ASSOCIATED MOUNTING HARDWARE. TYPICAL OF FILTERS 1-26.
9 REMOVE FILTER BACKWASH TURBIDITY CONTROLLER. SHARED WITH ADJACENT FILTER. TYPICAL OF FILTERS 1-26, TOTAL OF 13 CONTROLLERS.
10 REMOVE FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. TYPICAL OF FILTERS 11-21.
11 REMOVE LEVEL SENSOR AND ASSOCIATED MOUNTING HARDWARE. TYPICAL OF FILTERS 8, 13, 22.
12 REMOVE LEVEL TRANSMITTER, MOUNTING STRUT TO REMAIN. TYPICAL OF FILTERS 8, 13, 22.
13 REMOVE FILTER INFLUENT AND DRAIN ACTUATOR REMOTE HAND STATIONS. TYPICAL OF FILTERS 22-26.
14 EXISTING WASH WATER VALVE ACTUATOR REMOTE HAND STATION TO REMAIN. TYPICAL OF FILTERS 22-26.
15 REMOVE SETTLED WATER ACTUATOR REMOTE HAND STATIONS.
16 REMOVE SETTLED WATER ACTUATORS. VALVES TO REMAIN.
17 INSTRUMENTATION TO REMAIN. TYPICAL OF FILTERS 11-26.
18 FILTER EFFLUENT TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 1-10.
19 REMOVE SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 1-10, 12-21, 23-26.

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS PHOTOS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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WTP PUMP ROOM NO. 2

U PHOTO

SCALE: NOT TO SCALE



UV DISINFECTION ROOM/CLEARWELL 2

T PHOTO

SCALE: NOT TO SCALE

SYMBOLS LEGEND

EQUIPMENT AND PIPING TO BE REMOVED (PATTERN MAY BE ROTATED FOR READABILITY)

PHOTOGRAPH LOCATION MARKER

REFERENCE LETTER

REFERENCE PAGE

DEMOLITION KEY NOTES

1 REMOVE 4-INCH PSW PIPING AND INSULATION.
2 RELOCATE PHONE AS NEEDED.
3 RELOCATE LIGHT SWITCH AS NEEDED.
4 REMOVE 4-INCH PSW PIPING AND INSULATION TO FLANGE.
5 REMOVE INSULATION FROM 4-INCH PSW PIPING TO REMAIN.
6 REMOVE 14-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE NEW FLOW METER LAY LENGTH.
7 REMOVE FLOW METER.
8 REMOVE 14-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE NEW FLOW METER LAY LENGTH.
9 REMOVE GRAVITY FLOW TRANSMITTERS
10 REMOVE LEVEL TRANSMITTER.
11 REMOVE CISTERN 2A LEVEL SENSOR AND ASSOCIATED PIPING.
12 REMOVE CISTERN 2B LEVEL SENSOR AND ASSOCIATED FLANGE.
13 REMOVE PIPE STAND.
14 REMOVE PRESSURE TRANSMITTER AND ASSOCIATED TUBING.
15 REMOVE EHS AND WHS FLOW TRANSMITTERS.



FLOC 4&5 GALLERY

S PHOTO

SCALE: NOT TO SCALE



FLOC 4&5 GALLERY

R PHOTO

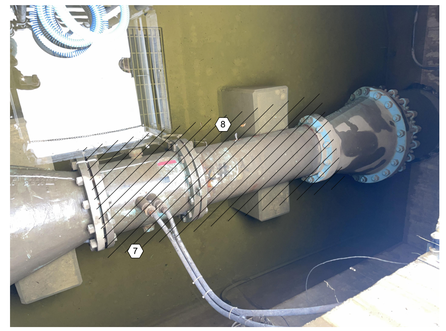
SCALE: NOT TO SCALE



GROUNDS BUILDING

Q PHOTO

SCALE: NOT TO SCALE



GRAVITY VAULT 2

P PHOTO

SCALE: NOT TO SCALE



GRAVITY VAULT 1

O PHOTO

SCALE: NOT TO SCALE



EAST/WEST HIGH VAULT

N PHOTO

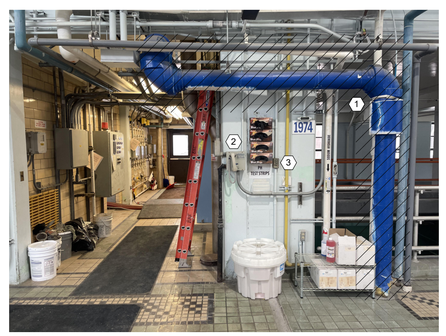
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OPERATING GALLERY

M PHOTO

SCALE: NOT TO SCALE



OPERATING GALLERY

L PHOTO

SCALE: NOT TO SCALE

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
PROCESS PHOTOS

REVISIONS

4/7/2026 BIDS AND CONSTRUCTION

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DEMOLITION SYMBOL LEGEND

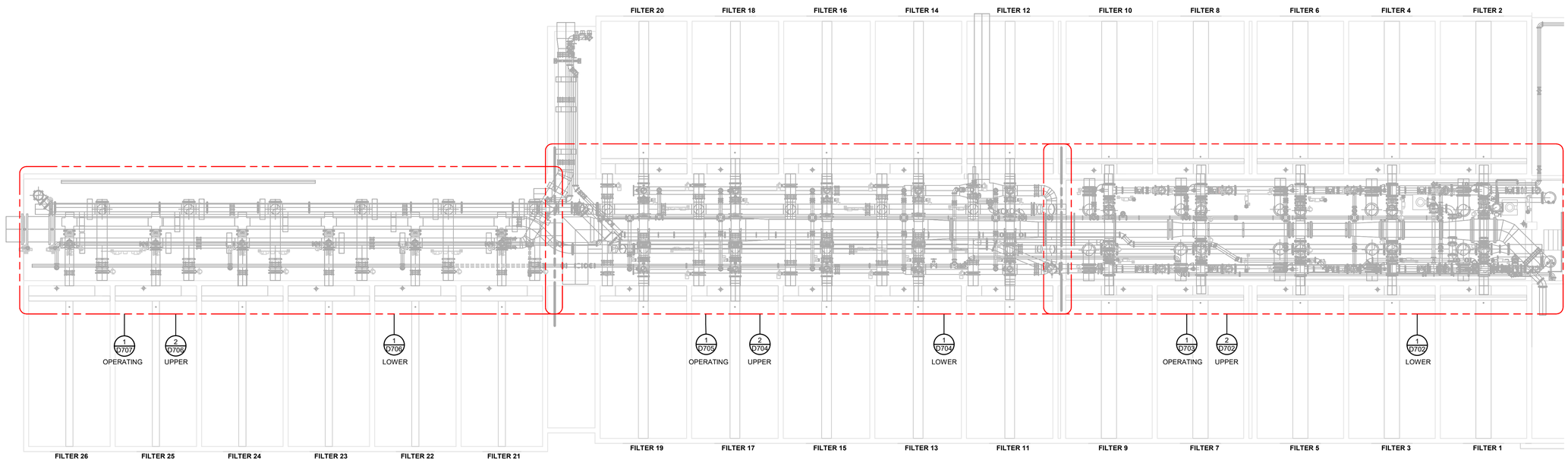
EQUIPMENT/DEVICE TO BE DISCONNECTED AND REMOVED. DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE OR LAST ACTIVE DEVICE UNLESS NOTED OTHERWISE

DEMOLITION WORK OUTSIDE FILTERS

1. SEE D400 SERIES SHEETS AND SITE LAYOUT ON "G" SHEETS FOR INSTRUMENT AND INSTRUMENT TRANSMITTER DEMOLITION OUTSIDE OF FILTER/PIPE GALLERIES. DISCONNECT AND MAINTAIN POWER CONDUIT AND CONDUCTORS. DEMOLISH CONTROLS CONDUIT AND CONDUCTORS BACK TO THEIR SOURCE, SEE P&IDS FOR SOURCE. CONDUITS THAT ARE INACCESSIBLE MAY BE LEFT IN PLACE AND REUSED WITH NEW CONTROL CONDUIT AND CONDUCTORS. ITEMS TO BE DEMOLISHED INCLUDE:
   A. HS0310-LE/LI AT CLEARWELL 2.
   B. P21701-LE AT CISTERN 2A.
   C. P21708-LE AT CISTERN 2B.

GENERAL ELECTRICAL DEMOLITION NOTES

1. EXISTING ELECTRICAL ITEMS INDICATED IN DRAWINGS ARE BASED ON OWNER'S LIMITED RECORD DRAWINGS AND ENGINEER'S LIMITED FIELD OBSERVATIONS. VISIT SITE TO UNDERSTAND COMPLETELY CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION OF DEVICES AND EQUIPMENT REQUIRED TO FACILITATE DEMOLITION WORK OF OTHER TRADES AT NO ADDITIONAL COST TO OWNER.
2. DRAWINGS DO NOT INDICATE ALL ELECTRICAL EQUIPMENT AND DEVICES INTENDED TO BE REMOVED OR MODIFIED. DRAWINGS INDICATE MAJOR ELECTRICAL EQUIPMENT, FIXTURES, AND DEVICES THAT ARE REQUIRED TO BE REMOVED OR MODIFIED. REMOVE OR RELOCATE ELECTRICAL EQUIPMENT, FIXTURES, AND DEVICES AS NECESSARY FOR A COMPLETE AND PROFESSIONAL INSTALLATION. SEE LIGHTING, POWER, SYSTEMS, ARCHITECTURAL, PLUMBING, PROCESS, AND MECHANICAL PLANS FOR ADDITIONAL REQUIREMENTS.
3. ALL ELECTRICAL DEMOLITION WORK MAY NOT NECESSARILY BE INDICATED ON ELECTRICAL DRAWINGS. REVIEW DEMOLITION DRAWINGS OF OTHER TRADES (ARCHITECTURAL, PROCESS, AND MECHANICAL) FOR EQUIPMENT TO BE DEMOLISHED.
4. FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK AND INCLUDE ALL COSTS ASSOCIATED WITH DEMOLITION IN BASE BID.
5. COORDINATE DEMOLITION WORK WITH OTHER TRADES. UNLESS NOTED OTHERWISE, DISCONNECT AND REMOVE ALL CONDUIT, CONDUCTORS, AND DEVICES ASSOCIATED WITH EQUIPMENT BEING DEMOLISHED. EXPOSED CONDUIT, JUNCTION BOXES, AND DEVICES TO BE DISCONNECTED AND REMOVED. CONCEALED CONDUIT, JUNCTION BOXES, AND DEVICES MAY BE ABANDONED IN PLACE. ALL CONDUCTORS TO BE COMPLETELY REMOVED BACK TO SOURCE OR LAST ACTIVE DEVICE. PROVIDE BLANK COVERS FOR ANY BOXES ABANDONED IN PLACE.
6. COORDINATE AND SEQUENCE DEMOLITION WORK SUCH THAT PLANT REMAINS IN CONTINUOUS OPERATION THROUGHOUT CONSTRUCTION. PLAN ALL INTERRUPTIONS TO ELECTRICAL SERVICE WITH OWNER A MINIMUM OF 72 HOURS IN ADVANCE.
7. PROVIDE TEMPORARY POWER, LIGHTING, AND CONTROLS AS REQUIRED TO KEEP EXISTING EQUIPMENT TO REMAIN IN SERVICE.
8. FOR ELECTRICAL EQUIPMENT TO BE REUSED, FIELD VERIFY EQUIPMENT CONFIGURATION AND ADVISE ENGINEER IF CIRCUITING REQUIREMENTS ARE DIFFERENT FROM THAT INDICATED ON PLANS. RECIRCUIT EQUIPMENT AS REQUIRED TO FACILITATE REUSE.
9. ELECTRICAL EQUIPMENT NOT SPECIFICALLY IDENTIFIED TO BE DISCONNECTED AND REMOVED IS TO BE MAINTAINED.
10. CROSSHATCHING IDENTIFIES DEVICES/EQUIPMENT TO BE DISCONNECTED AND REMOVED. DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE OR LAST ACTIVE DEVICE, UNLESS NOTED OTHERWISE.
11. FILTER DEMOLITION AND INSTALLATION WORK TO BE SEQUENCED SUCH THAT PLANT CAN MAINTAIN FILTER OPERATIONS. COORDINATE SEQUENCING WITH OTHER TRADES.
12. UNLESS NOTED OTHERWISE, DISPOSE OF ALL REMOVED MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. DISPOSAL OF MATERIALS TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
13. INSTRUMENTS TO BE TURNED OVER FOR OWNER FOR INSPECTION BEFORE DISPOSAL. OWNER MAY CHOOSE TO SALVAGE INSTRUMENTS.



ELECTRICAL
FILTERS 1-26

OVERALL DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

NORTH

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ELECTRICAL OVERALL LAYOUT

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
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Reviewer	JACONDIE
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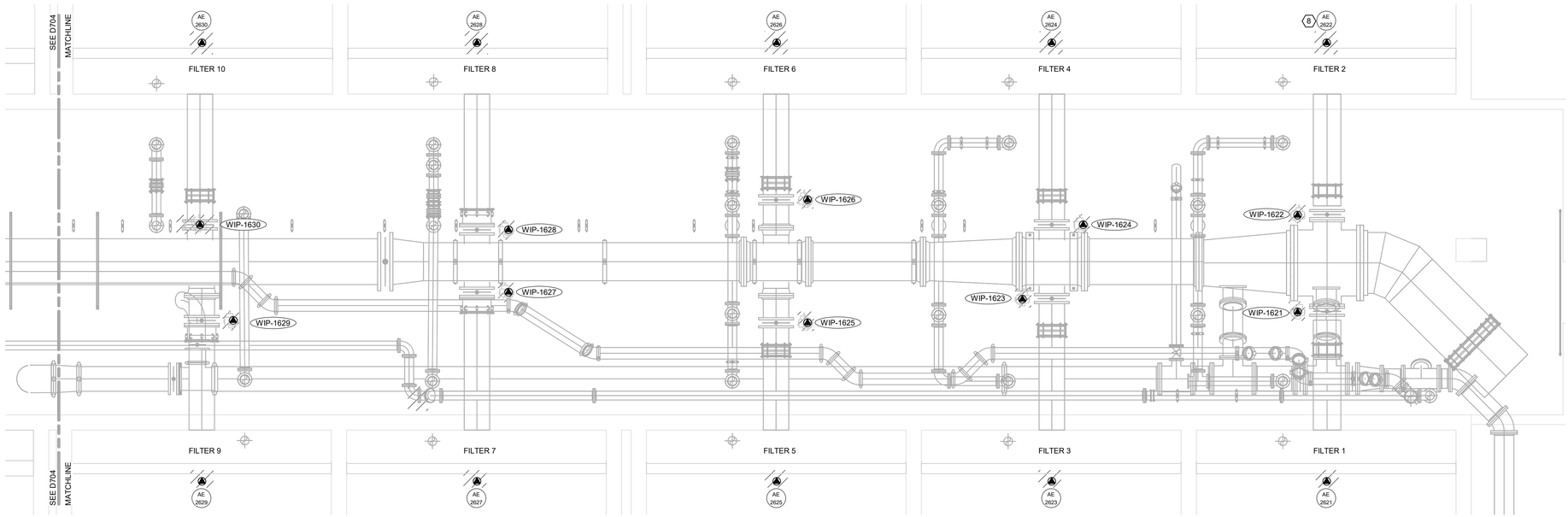
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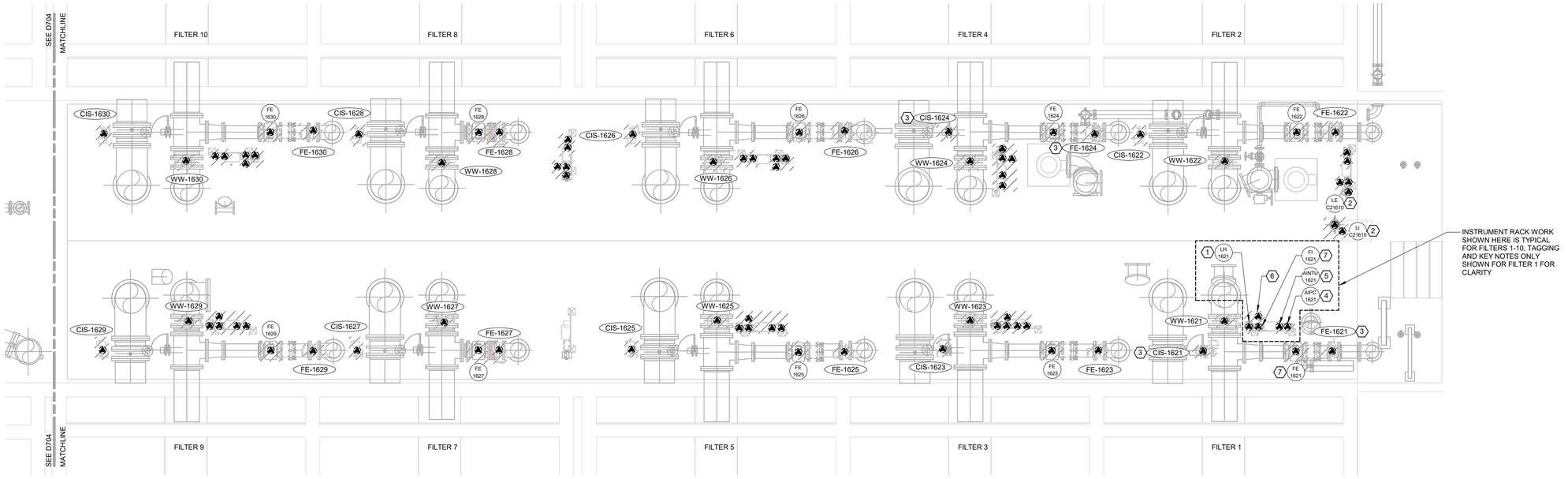
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ELECTRICAL
UPPER PIPE GALLERY FILTERS 1-10

2 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



ELECTRICAL
LOWER PIPE GALLERY FILTERS 1-10

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 1-10 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 8 AND 9.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 8 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 10.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

(#) DEMOLITION KEY NOTES

1 DISCONNECT AND REMOVE LOSS OF HEAD INSTRUMENT. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 1-10.

2 DISCONNECT AND REMOVE CISTERN 1 SENSOR AND TRANSMITTER. DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE, PLC-C2.

3 ACTUATOR TO REMAIN. CONTROLS CONDUIT AND CONDUCTORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.

4 PARTICLE COUNTER TO BE DISCONNECTED AND REMOVED. CONTROL CONDUIT AND CONDUCTORS, MODBUS CONNECTION, TO BE MAINTAINED FOR RECONNECTION TO NEW PARTICLE COUNTER IN SAME LOCATION.

5 DISCONNECT AND SALVAGE INSTRUMENT. MAINTAIN ASSOCIATED CONDUIT AND CONDUCTORS FOR RECONNECTION TO REINSTALLED INSTRUMENT.

6 DISCONNECT AND REMOVE FILTER INFLUENT ACTUATOR REMOTE HAND STATION.

7 DISCONNECT AND REMOVE FLOW METER AND TRANSMITTER. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 1-10.

8 DISCONNECT AND REMOVE BACKWASH TURBIDITY INSTRUMENT. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 1-10.

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Instrumentation & Controls Improvements
ELECTRICAL FILTERS 1-10 PIPE GALLERY PLANS

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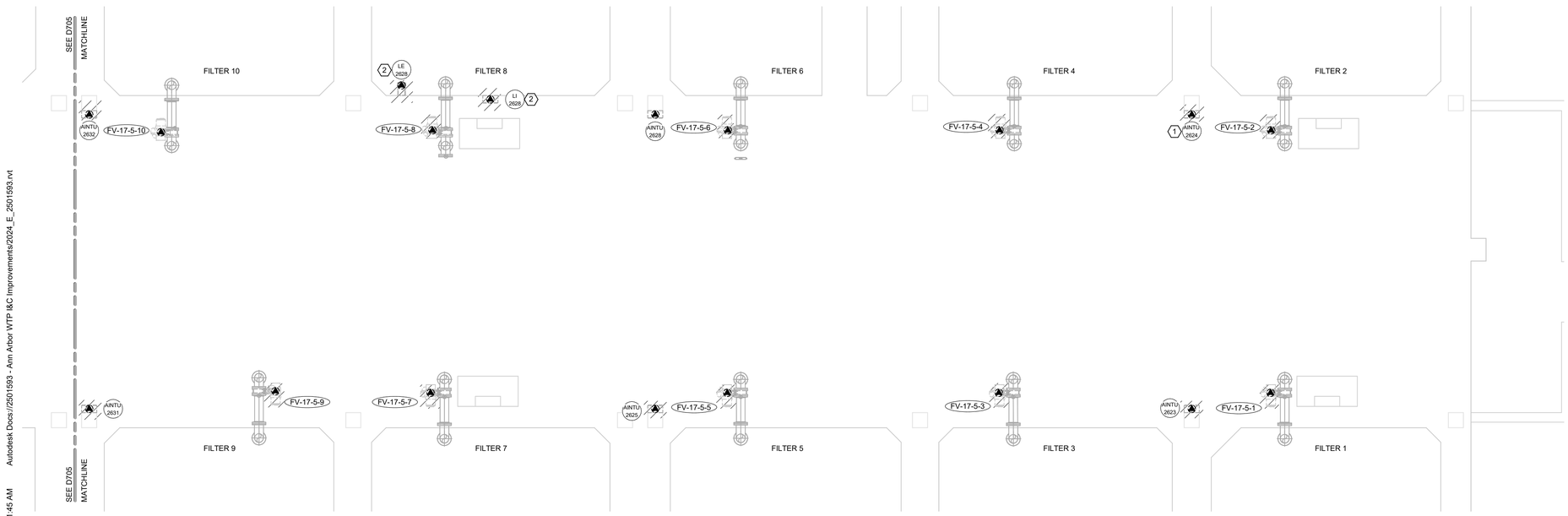
NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 1-10 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 8 AND 9.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 8 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 10.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

(#) DEMOLITION KEY NOTES

1 DISCONNECT AND REMOVE BACKWASH TURBIDITY TRANSMITTER. TRANSMITTER SERVERS TWO FILTERS. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 1-10.

2 DISCONNECT AND REMOVE FILTER 8 LEVEL INSTRUMENT AND TRANSMITTER. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE.



ELECTRICAL
OPERATING GALLERY FILTERS 1-10

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

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ELECTRICAL FILTERS 1-10 OPERATING GALLERY PLAN

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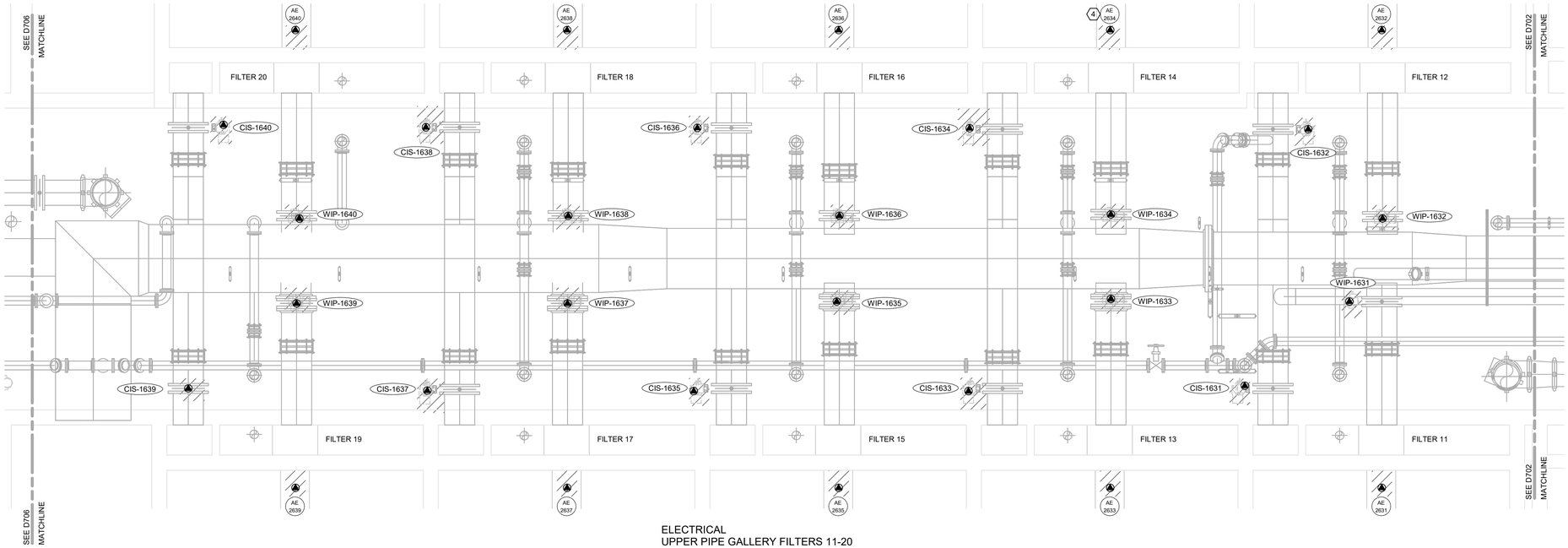
Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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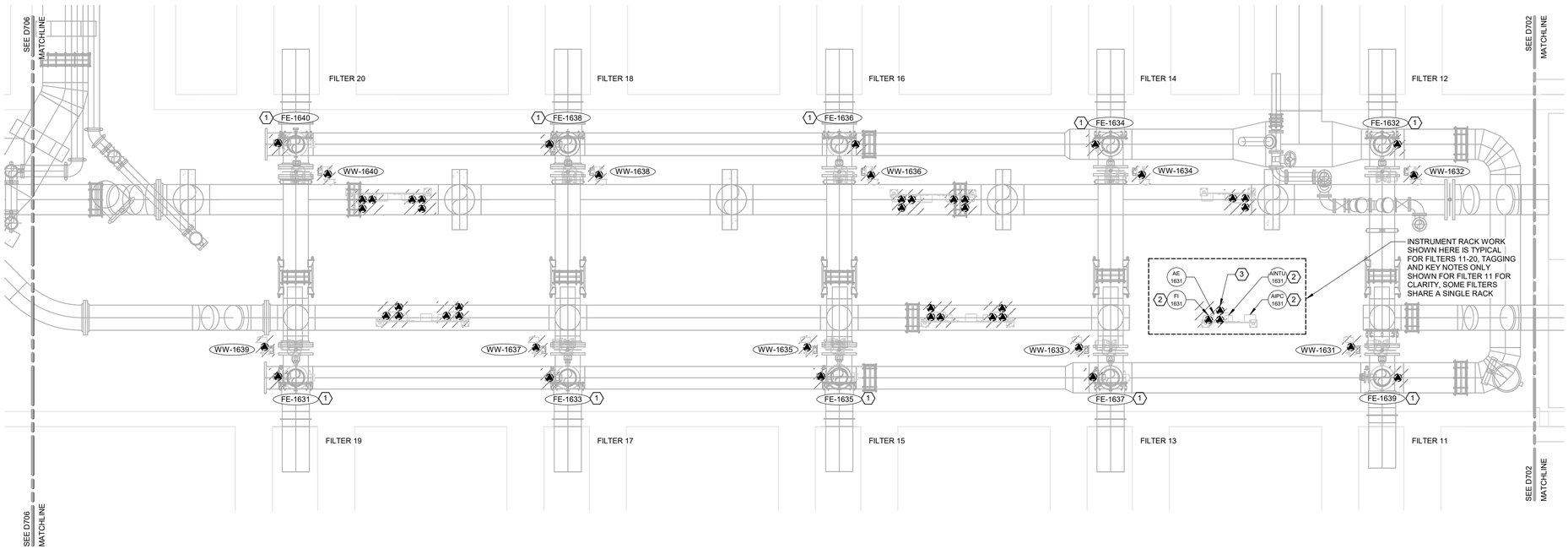
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ELECTRICAL
UPPER PIPE GALLERY FILTERS 11-20

2 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



ELECTRICAL
LOWER PIPE GALLERY FILTERS 11-20

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 11-20 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DISCONNECTED AND REMOVED TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 4 AND 5.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 13 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 6.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

(#) DEMOLITION KEY NOTES

1 ACTUATOR TO REMAIN. CONTROLS CONDUIT AND CONDUCTORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.

2 FILTER EFFLUENT FLOW TRANSMITTER, PARTICLE COUNTER, AND TURBIDIMETER AND CONTROLLER TO REMAIN.

3 DISCONNECT AND REMOVE FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS.

4 DISCONNECT AND REMOVE BACKWASH TURBIDITY INSTRUMENT. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 11-20.

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ELECTRICAL FILTERS 11-20 PIPE GALLERY PLANS

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Reviewer	JACONDIE
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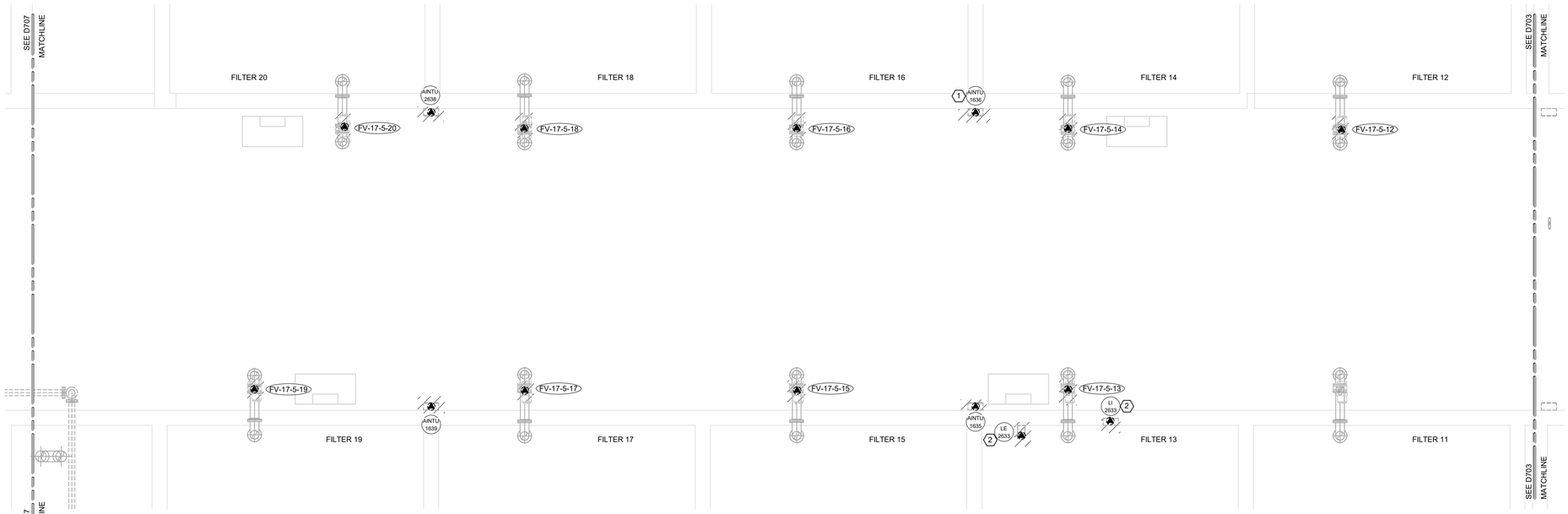
NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 11-20 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DISCONNECTED AND REMOVED TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 4 AND 5.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 13 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 6.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

(#) DEMOLITION KEY NOTES

1 DISCONNECT AND REMOVE BACKWASH TURBIDITY TRANSMITTER. TRANSMITTER SERVERS TWO FILTERS. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 11-20.

2 DISCONNECT AND REMOVE FILTER 13 LEVEL INSTRUMENT AND TRANSMITTER. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE.



ELECTRICAL
OPERATING GALLERY FILTERS 11-20

1 **DEMOLITION PLAN**

SCALE: 1/4" = 1'-0"

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ELECTRICAL FILTERS 11-20 OPERATING GALLERY PLAN

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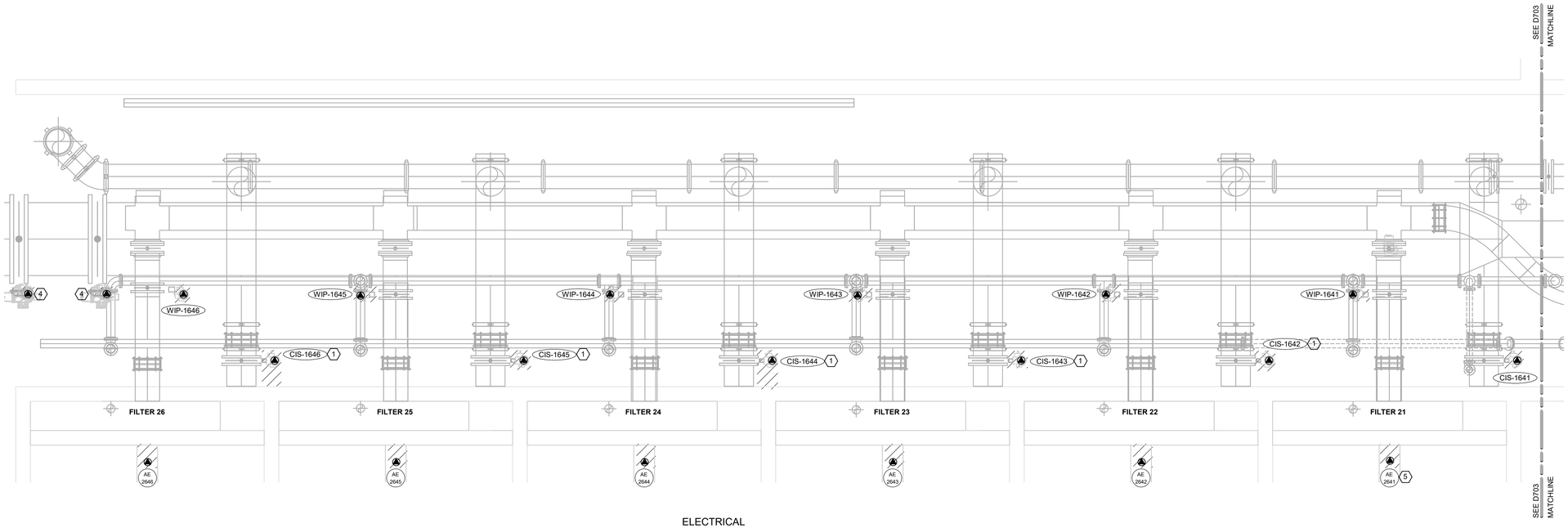
Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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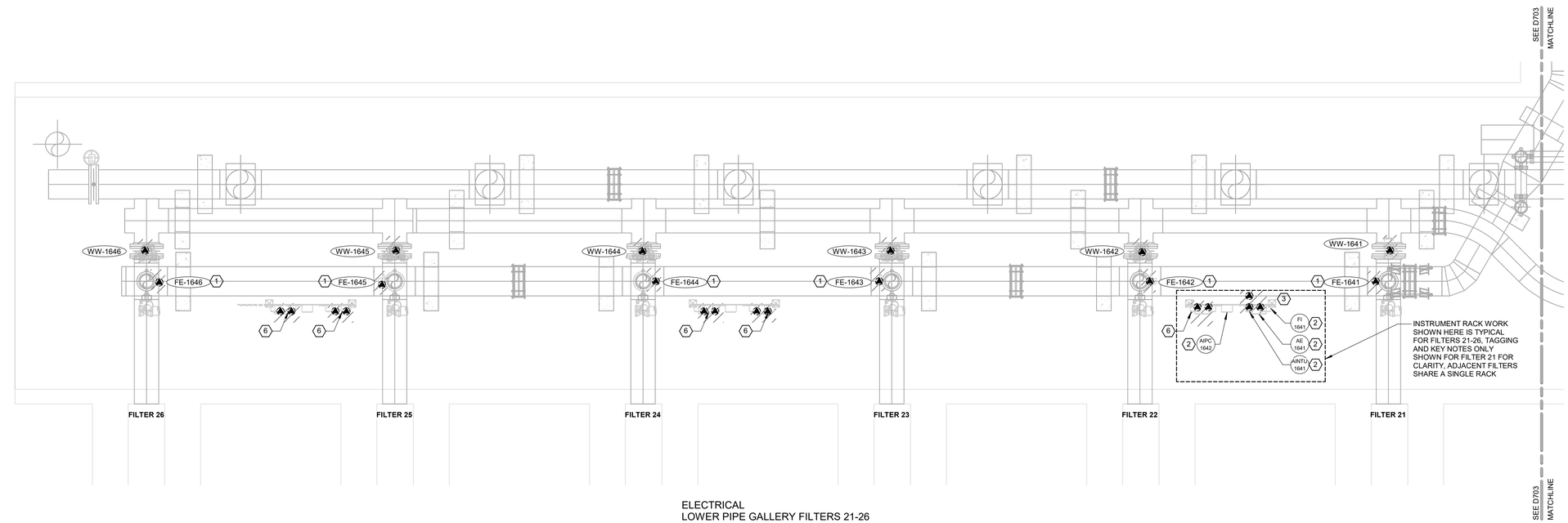
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ELECTRICAL
UPPER PIPE GALLERY FILTERS 21-26

2 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



ELECTRICAL
LOWER PIPE GALLERY FILTERS 21-26

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 21-26 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 4 AND 5.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 22 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 6.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

(#) DEMOLITION KEY NOTES

1 ACTUATOR TO REMAIN. CONTROLS CONDUIT AND CONDUCTORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
2 FILTER EFFLUENT FLOW TRANSMITTER, PARTICLE COUNTER, AND TURBIDIMETER AND CONTROLLER TO REMAIN.
3 FOR FILTER 21, DISCONNECT AND REMOVE FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS.
4 DISCONNECT AND REMOVE SETTLED WATER VALVE ACTUATOR.
5 DISCONNECT AND REMOVE BACKWASH TURBIDITY INSTRUMENT. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 21-26.
6 DISCONNECT AND REMOVE FILTER INFLUENT AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. WASH WATER ACTUATOR REMOTE HAND STATION TO REMAIN.

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ELECTRICAL FILTERS 21-26 PIPE GALLERY PLANS

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Designer	MSTACK
Reviewer	JACONDIE
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NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR ACTUATORS AND INSTRUMENTS TO BE DISCONNECTED AND REMOVED FOR RECONNECTION TO NEW ACTUATOR OR INSTRUMENT IN SAME LOCATION.
3. CONTROL FOR ACTUATORS FE-####, WW-####, WIP-####, AND CIS-#### ON FILTERS 21-26 IS ACCOMPLISHED VIA NETWORK COMMUNICATION USING RS485 CABLE. CONTROL CONDUIT AND CONDUCTORS FOR ALL ACTUATORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.
4. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP, UNLESS NOTED OTHERWISE.
5. BACKWASH TURBIDITY INSTRUMENTS AND TRANSMITTERS ARE INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTES 4 AND 5.
6. LEVEL INSTRUMENT AND INDICATOR FOR FILTER 22 IS INSTALLED ON FILTER GALLERY LEVEL AND SHOWN HERE FOR REFERENCE. SEE KEYNOTE 6.
7. WHERE EXISTING CONDUIT HANGERS/SUPPORTS (STRUT RACKS, THREADED RODS, ETC.) WILL BE EMPTY AFTER DEMOLITION, DEMOLISH HANGERS/SUPPORTS. NEW SUPPORT SYSTEMS TO BE PROVIDED FOR ALL NEW CONDUITS UNLESS OWNER PROVIDES PERMISSION TO REUSE EXISTING.

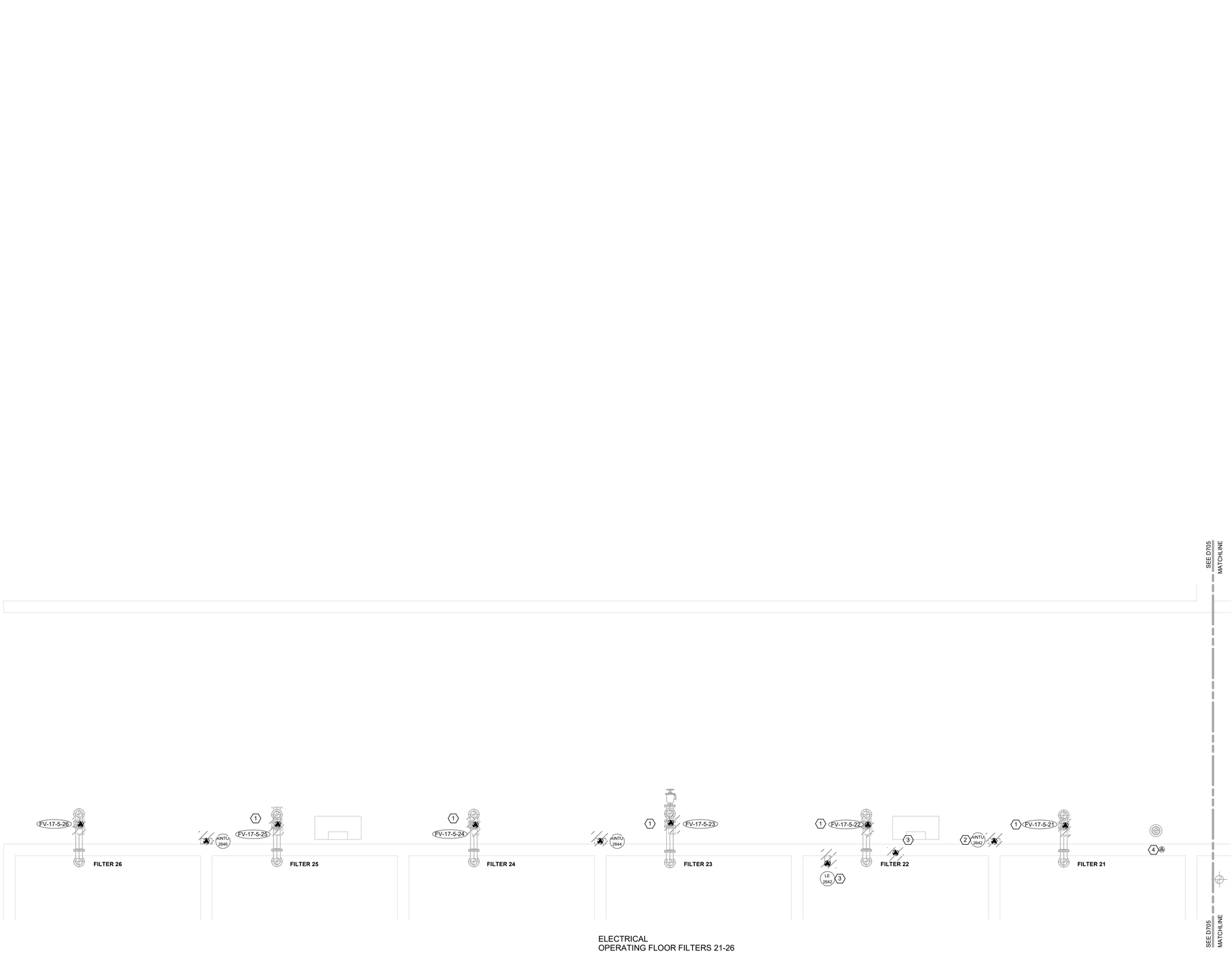
(#) DEMOLITION KEY NOTES

1 ACTUATOR TO REMAIN. CONTROLS CONDUIT AND CONDUCTORS TO BE DEMOLISHED BACK TO SOURCE, FILTER-CP.

2 DISCONNECT AND REMOVE BACKWASH TURBIDITY TRANSMITTER. TRANSMITTER SERVERS TWO FILTERS. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE. TYPICAL OF FILTERS 21-26.

3 DISCONNECT AND REMOVE FILTER 22 LEVEL INSTRUMENT AND TRANSMITTER. DEMOLISH ASSOCIATED CONTROLS CONDUIT AND CONDUCTORS BACK TO SOURCE.

4 FIELD COORDINATE ROUTING OF NEW PROCESS PIPING AT LOCATION ON FILTER GALLERY LEVEL. ADJUST LOCATION OF EXISTING TELEPHONE, LIGHT SWITCH, AND ASSOCIATED CONDUIT AS NEEDED TO INSTALL NEW PROCESS PIPING. EXTEND CONDUIT AND CONDUCTORS TO NEW LOCATION AS REQUIRED, MATCH EXISTING CONDUIT AND CONDUCTORS FOR EXTENSION, FIELD VERIFY. SEE D400 SERIES DRAWINGS FOR PHOTO OF EXISTING INSTALLATION.



ELECTRICAL
OPERATING FLOOR FILTERS 21-26

1 DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

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ELECTRICAL FILTERS 21-26 OPERATING GALLERY PLAN

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Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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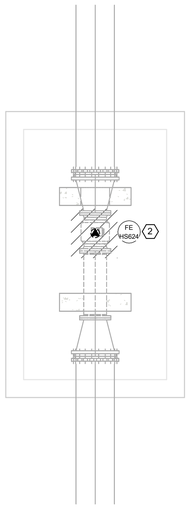
NOTES

1. SEE GENERAL ELECTRICAL DEMOLITION NOTES ON D701.
2. ALL CONTROL CONDUIT AND CONDUCTORS FOR INSTRUMENTS TO BE DEMOLISHED BACK TO SOURCE, UNLESS NOTED OTHERWISE. SEE P&ID SHEETS FOR SOURCE. PORTIONS OF CONDUIT THAT ARE INACCESSIBLE MAY BE LEFT IN PLACE AND REUSED.
3. MAINTAIN POWER CONDUIT AND CONDUCTORS FOR RECONNECTION TO NEW TRANSMITTERS INSTALLED IN SAME LOCATION.
4. SEE SITE LAYOUT ON "G" SHEETS FOR LOCATION OF VAULTS, MOTOR ROOM, GROUNDS BUILDING, AND CONTROL PANELS SERVING INSTRUMENTS ON THIS SHEET.

(#) DEMOLITION KEY NOTES

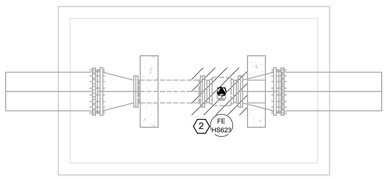
1 FLOW TRANSMITTER LOCATED IN PUMP ROOM #2. FIELD VERIFY EXACT LOCATION.

2 FLOW TRANSMITTER LOCATED IN GROUNDS BUILDING. FIELD VERIFY EXACT LOCATION.



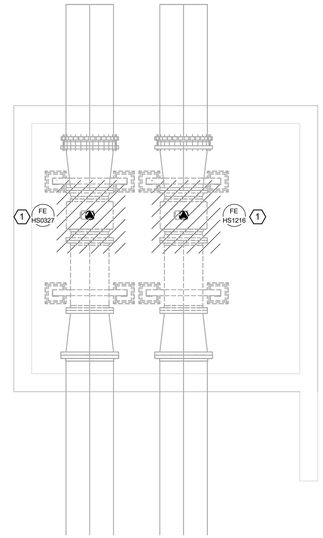
NORTH

ELECTRICAL
GRAVITY VAULT 2
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NORTH

ELECTRICAL
GRAVITY VAULT 1
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NORTH

ELECTRICAL
EAST/WEST HIGH VAULT
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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ELECTRICAL FILTERS 21-26 VAULT PLANS

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Reviewer	JACONDIE
Manager	BDPHILLIPS

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GENERAL ABBREVIATIONS

A	AIR
AB	ANCHOR BOLT
ABAN	ABANDON, ABANDONED
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AG	ABOVE GRADE
AL	ALUMINUM
ALT	ALTERNATE, ALTERNATIVE
AMT	AMOUNT
APPROX	APPROXIMATE
ASSY	ASSEMBLY
AVG	AVERAGE
B/B	BACK TO BACK
BF	BLIND FLANGE
BFG	BELOW FINISHED GRADE
BFP	BACKFLOW PREVENTER
BG	BIOGAS
BLDG	BUILDING
BLKHD	BULKHEAD
BLWDN	BLOWDOWN
BM	BENCHMARK
BMC	BOLTED MECHANICAL COUPLING
BTM	BOTTOM
BRG	BEARING
BSMT	BASEMENT
BTU	BRITISH THERMAL UNITS
BTWN	BETWEEN
C/C	CENTER TO CENTER
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAM	CHAMFER
CHEM	CHEMICAL
CHKPL	CHECKERPLATE
CL	CENTERLINE
CLR	CLEARANCE
CO	CLEANOUT
COMP	COMPANION
CONC	CONCRETE
CONC	CONCENTRATED
CONC	CONCENTRIC
CONST	CONSTRUCTION
COORD	COORDINATE
CPLG	COUPLING
CTL	CONTROL
CW	COLD WATER
CY	CUBIC YARD
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DIA	DIAMETER
DIF	DIFFUSER
DIM	DIMENSION
DIR	DIRECTION
DISCH	DISCHARGE
DIST	DISTANCE
DMS	DIAPHRAGM SEAL
DN	DOWN
DP	DEEP, DEPTH
DWG	DRAWING
DWV	DRAIN WASTE VENT
E/E	END TO END
EA	EACH
ECC	ECCENTRIC
EHT	ELECTRICALLY HEAT-TRACED
EJ	EXPANSION JOINT
EL ELEV	ELEVATION
EL	ELBOW
EMBED	EMBEDMENT
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
ESEW	EMERGENCY SHOWER AND EYE WASH
EW	EACH WAY
EX, EXIST	EXISTING
EXC	EXCAVATE, EXCAVATION
EXP	EXPOSED
EXT	EXTERIOR
F/F	FACE TO FACE
FAB	FABRICATED
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FIG	FIGURE
FIN	FINISHED
FLR	FLOOR
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PLASTIC
FSP	FABRICATED STEEL PIPE
FTG	FITTING
FV	FIELD VERIFY
GA	GAUGE/GAGE
GAC	GRANULATED ACTIVATED CARBON
GFA	GROOVED FLANGE ADAPTER
GPC	GROOVED PIPE COUPLING
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE EXTRUSION
HDWL	HEADWALL
HGL	HYDRAULIC GRADE LINE
HGR	HANGER
HHWL	HIGH HIGH WATER LEVEL
HORIZ	HORIZONTAL
HP	HIGH POINT
HP	HORSEPOWER
HT	HEIGHT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HWL	HIGH WATER LEVEL
HYD	HYDRAULIC
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INCL	INCLUDE
INSUL	INSULATE, INSULATION
INSTR	INSTRUMENT, INSTRUMENTATION
INT	INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
IR	ISOLATION RING
JT	JOINT
LAB	LABORATORY
LAT	LATERAL
LB	POUND
LF	LINEAL FOOT
LGTH	LENGTH
LH	LEFT HAND
LIQ	LIQUID
LLWL	LOW LOW WATER LEVEL
LONG	LONGITUDINAL
LP	LOW POINT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
M	MOTOR
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MEZZ	MEZZANINE
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MTD	MOUNTED
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NPT	AMERICAN NATIONAL TAPER PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OH	OVERHEAD
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PE	PLAIN END
PERF	PERFORATED
PHA	PHOSPHORIC ACID
PL	PLATE
PNL	PANEL
PPM	PARTS PER MILLION
PROP	PROPOSED
PS	PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
Q	FLOW
QD	QUICK DISCONNECT
QTY	QUANTITY
R	RADIUS
RD	ROOF DRAIN
RECIRC	RECIRCULATE, RECIRCULATING, RECIRCULATION
RED	REDUCER, REDUCING
REF	REFERENCE
REHAB	REHABILITATION
REINF	REINFORCE, REINFORCING
REQD	REQUIRED
REV	REVISION
RFA	RESTRAINED FLANGE ADAPTER
RH	RIGHT HAND
RJ	RESTRAINED JOINT
RM	ROOM
RO	ROUGH OPENING
RPM	REVOLUTIONS PER MINUTE
RSR	RISER
RUB	RUBBER
SAN	SANITARY
SCH	SCHEDULE
SCRN	SCREEN
SED	SEDIMENTATION
SHT	SHEET, SHEETING
SIM	SIMILAR
SL	SLOPE
SP	SAMPLE POINT
SP	STATIC PRESSURE
SPEC	SPECIFICATION/SPECIFIED
SPR	SPARE
SF	SQUARE FOOT
SY	SQUARE YARD
SR	SHORT RADIUS
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STG	STORAGE
STL	STEEL
SUBM	SUBMERGED
SUCT	SUCTION
SURF	SURFACE
SUSP	SUSPENDED
SW	SOCKET WELDED
SYS	SYSTEM
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
THK	THICK
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
UV	ULTRAVIOLET LIGHT
V	VOLTS
VAC	VACUUM
VB	VALVE BOX
VERT	VERTICAL
VOL	VOLUME
VTR	VENT THROUGH ROOF
VTW	VENT THROUGH WALL
W/	WITH
W/O	WITHOUT
WT	WEIGHT
WH	WALL HYDRANT
WL	WATER LEVEL
WP	WEATHERPROOF
WS	WATERSTOP
WSE	WATER SURFACE ELEVATION
WT	WATERTIGHT
XP	EXPLOSION PROOF

PIPE/TUBING MATERIAL ABBREVIATIONS

CI	CAST IRON
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
CU	COPPER
DI	DUCTILE IRON
FRP	FIBERGLASS REINFORCED PLASTIC
GALV	GALVANIZED STEEL
HDPE	HIGH-DENSITY POLYETHYLENE
LCS	LINED CARBON STEEL
LDI	LINED DUCTILE IRON
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PE	POLYETHYLENE
PP	POLYPROPYLENE
PTFE	TEFLON PIPE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE (KYNAR)
RCP	REINFORCED CONCRETE PIPE
###SS	STAINLESS STEEL (### INDICATES GRADE)
TT	TITANIUM

EQUIPMENT TYPE ABBREVIATIONS

A	AIR SYSTEM
AIC	AIR COMPRESSOR
BFP	BELT FILTER PRESS
BP	BOOSTER PUMP
BPS	BOOSTER PUMP SKID
BTK	BULK STORAGE CHEMICAL TANK
B	BLOWER
CENT	CENTRIFUGE
CF	CARTRIDGE FILTER
CIP	CLEAN-IN-PLACE
CL	CLARIFIER
CN	CONVEYOR
DIF	DIFFUSER
DIG	DIGESTER
DTK	DAY TANK (CHEMICAL)
ESEW	EMERGENCY SHOWER AND EYE WASH
FLT	FILTER
FM	FLOCCULATOR MIXER
GT	GRAVITY THICKENER
HP	HIGH-PRESSURE PUMP
HSP	HIGH SERVICE PUMP
HTR	HEATER
HX	HEAT EXCHANGER
LSP	LOW SERVICE PUMP
MH	MANHOLE
MX	MIXER
P	PUMP
PFP	PLATE AND FRAME FILTER PRESS
PM	POLYMER FEED SYSTEM
R	REACTOR
RD	RUPTURE DISC
RPZ	REDUCED PRESSURE ZONE VALVE
S	SAMPLER
SCP	SCREW PRESS
SCR	SCREEN
SMP	SUMP PUMP
SP	SAMPLE PUMP
STR	STRAINER
T	TANK
TP	TRANSFER PUMP
U	MISCELLANEOUS EQUIPMENT
UV	ULTRAVIOLET DISINFECTION
WC	WASHER COMPACTOR

VALVE ABBREVIATIONS

ANV	ANGLE VALVE
ARV	AIR RELEASE VALVE
AVV	AIR/VACUUM VALVE
BAV	BALL VALVE
BFV	BUTTERFLY VALVE
BPV	BACKPRESSURE VALVE
CAV	COMBINATION AIR/VACUUM RELEASE VALVE
CKV	CHECK VALVE
CNV	ROTARY CONE VALVE
CV	CONTROL VALVE
DV	DIAPHRAGM VALVE
ECV	ELECTRONIC CONTROL VALVE
EPV	ECCENTRIC PLUG VALVE
GBV	GLOBE VALVE
GV	GATE VALVE
HG	HAND GATE
MDV	MUD VALVE
NV	NEEDLE VALVE
PFV	PRESSURE RELIEF VALVE
PNV	PINCH VALVE
PRV	PRESSURE REDUCING VALVE
PSV	PRESSURE SUSTAINING/RELIEF VALVE
PV	PLUG VALVE
SAV	SURGE ANTICIPATOR VALVE
SG	SLIDE OR SLUICE GATE
SL	STOP LOG
SV	SOLENOID VALVE
TSV	THERMAL OPERATED SHUT-OFF VALVE
V	VALVE
VBV	VACUUM BREAKER VALVE
WG	WEIR GATE
XV	SPECIALTY VALVE

PIPE SYSTEM ABBREVIATIONS

ALUM	ALUMINUM SULFATE
AR	AIR RELEASE (RELIEF)
AS	AIR SCOUR
BWR	BACKWASH RETURN
BWS	BACKWASH SUPPLY
BWW	BACKWASH WASTE
CA	COMPRESSED AIR
CIT	CITRIC ACID
CLP	CHLORINE GAS (PRESSURIZED)
CLS	CHLORINE SOLUTION
CN	CENTRATE
DC	DECANT
DG	DIGESTER GAS
DR	DRAIN
DSL	DIGESTED SLUDGE
DW	DILUTION WATER
EQ	EQUALIZED WASTEWATER
FE	FINAL EFFLUENT
FECL	FERRIC CHLORIDE / FERROUS CHLORIDE
FLT	FILTRATE
FTW	FILTER TO WASTE
FW	FILTERED WATER
GRIT	GRIT SLURRY
HFS	HYDROFLUOROSILICIC ACID
HYPO	SODIUM HYPOCHLORITE
IA	INSTRUMENT AIR
LIME	LIME
LO	LUBRICATION OIL
LPA	LOW PRESSURE AIR
LPG	LIQUEFIED PETROLEUM GAS
ME	METHANOL
ML	MIXED LIQUOR
NAOH	SODIUM HYDROXIDE (CAUSTIC)
NG	NATURAL GAS
NH	AMMONIA
O2	OXYGEN
O3	OZONE
OF	OVERFLOW
PA	PLANT AIR
PAC	POWDERED ACTIVATED CARBON
PAL	POLYALUMINUM CHLORIDE
PE	PRIMARY EFFLUENT
PEW	PLANT EFFLUENT WATER
PH	PHOSPHATE
PI	PRIMARY INFLUENT
PIPR	PRIMARY INFLUENT W/ PLANT RECYCLE
POLY	POLYMER
PP	POTASSIUM PERMANGANATE
PR	PLANT RECYCLE
PSW	PLANT SERVICE WATER
PW	POTABLE/FINISHED WATER
RAS	RETURN ACTIVATED SLUDGE
RW	RAW WATER
SA	SULFURIC ACID
SAN	SANITARY
SBS	SODIUM BISULFITE
SCUM	SCUM
SE	SECONDARY EFFLUENT
SL	SLUDGE
SLR	SLUDGE RECIRCULATION
SN	SUPERNATANT
SODA	SODA ASH
SPD	SUMP PUMP DISCHARGE
SPL	SAMPLE LINE
STR	SLUDGE TRANSFER
STW	SETTLED/CLARIFIED WATER
TE	TERTIARY EFFLUENT
TSL	THICKENED SLUDGE
V	VENT
VC	VACUUM
WAS	WASTE ACTIVATED SLUDGE
WF	WARM FLARE
WW	INFLUENT WASTEWATER (RAW)

ANALYTICAL ABBREVIATIONS

ALK	ALKALINITY
CH4	METHANE
CL2	CHLORINE
COMB	COMBUSTIBLE GAS
CON	CONDUCTIVITY
DO	DISSOLVED OXYGEN
F	FLUORIDE
IR	INFRARED
H2S	HYDROGEN SULFIDE
METH	METHANOL
NH3	AMMONIA
NO3	NITRATE
O2	OXYGEN
O3	OZONE
ORP	OXIDATION/REDUCTION POTENTIAL
PC	PARTICLE COUNTER
PH	HYDROGEN ION CONCENTRATION
PO4	PHOSPHATE
SC	STREAMING CURRENT
SO2	SULFUR DIOXIDE
TH	TOTAL HARDNESS
TSS	TOTAL SUSPENDED SOLIDS
TURB	TURBIDITY
UV	ULTRAVIOLET

GENERAL SHEET NOTES

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.
2. CONTACT ENGINEER FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

PROCESS GENERAL NOTES

1. THE FOLLOWING NOTES APPLY TO ALL PROCESS SHEETS.
2. NOTES, SYMBOLS, LEGENDS, AND ABBREVIATIONS SHOWN ON PROCESS DRAWINGS MAY NOT BE ALL INCLUSIVE, ONLY APPLY TO PROCESS DRAWINGS (P### SHEETS) AND, WHEN PRESENT, PROCESS DEMOLITION (D## SHEETS).
3. GRAPHICAL REPRESENTATION OF EXISTING SYSTEMS IS BASED ON PREVIOUS CONSTRUCTION AND/OR RECORD DRAWINGS AND MAY NOT FULLY REPRESENT EXISTING CONDITIONS, AND IS FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK.
4. FIELD VERIFY ALL DIMENSIONS SHOWN.
5. REFER TO PIPING PLAN VIEWS FOR CORRECT PIPE ORIENTATION TO BUILDINGS AND STRUCTURES.
6. SEE STRUCTURAL FOR TYPICAL EQUIPMENT PAD DETAIL FOR NEW EQUIPMENT INSTALLATION.
7. WALL SLEEVES AND WALL PIPE TO BE PAINTED PRIOR TO EMBEDMENT/PIPE INSTALLATION.
8. PAINT PIPE SURFACES THAT WILL BE CONCEALED BY PIPE SUPPORTS PRIOR TO INSTALLING PIPE.
9. COORDINATE NEW WORK WITH DEMOLITION.
10. ALL BURIED/EXPOSED PIPE JOINTS NEW AND EXISTING FOR NEW PIPING INSTALLATIONS TO BE RESTRAINED, UNLESS NOTED OTHERWISE.
11. ENCASE BURIED PIPING UNDER STRUCTURES WITH 1'-0" MINIMUM CONCRETE ENCASEMENT AROUND PIPE AND FROM FURTHEST EXTENSIONS OF FITTING JOINTS, AFTER PIPE HAS BEEN PRESSURE TESTED.
12. FIELD VERIFY THAT ALL EXISTING PIPE PENETRATIONS, WALL SLEEVES AND WALL PIPES ARE AS SHOWN ON PLANS.
13. FOR PURPOSE OF CLARITY, NOT ALL PIPING AND VALVES MAY BE SHOWN IN PLAN VIEWS. SEE PROCESS SCHEMATICS FOR COMPLETE DETAILS.

PROCESS SITE PIPING NOTES

1. VERIFY DEPTH, SIZE, MATERIAL AND LOCATION OF ALL EXISTING BELOW GRADE PIPING FOR NEW BURIED PIPE INSTALLATION, PRIOR TO COMMENCING WORK.
2. COORDINATE CONSTRUCTION WITH ENGINEER/OWNER TO MAINTAIN PLANT/FACILITY NORMAL MODE OF OPERATION.
3. FIELD VERIFY ALL EXISTING UTILITIES AND BURIED PIPING PRIOR TO ABANDONMENT AND INSTALLATION OF PIPING.
4. INSTALL VALVE BOXES ON ALL BELOW GRADE VALVES.
5. USE APPROPRIATE FITTINGS AND/OR PIPE JOINT DEFLECTION AS NECESSARY TO INSTALL PIPE AT INVERTS AND ELEVATIONS INDICATED.
6. RESTRAIN ALL NEW BURIED MECHANICAL JOINT PIPE AND NEW TIE-IN CONNECTIONS TO EXISTING PIPE.

PROCESS CHEMICAL FEED NOTES

1. CHEMICAL FEED PIPING SHOWN FOR GENERAL ROUTING AND CHEMICAL FEED POINT LOCATIONS ONLY. ROUTE PIPING AS NECESSARY TO AVOID CONFLICTS AND INSTALL PIPING AND VALVES IN ACCORDANCE WITH THE CHEMICAL FEED SYSTEM SCHEMATIC DIAGRAMS.
2. DO NOT MOUNT VALVES HIGHER THAN 6 FEET ABOVE FINISHED FLOOR.
3. PUMP SHELVES TO BE COMPATIBLE WITH CHEMICAL SERVICE. MOUNT PUMP SHELVES 3 FEET ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

GENERAL NOTES AND ABBREVIATIONS

REVISIONS

4/7/2026 BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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SHEET NO.
P001

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PIPE/FITTINGS SYMBOLS

DOUBLE LINE PIPING — SINGLE LINE/SCHEMATIC

CROSS

TEE SIDE

TEE DOWN

TEE UP

LATERAL SIDE

LATERAL DOWN

LATERAL UP

ELBOW, 90 DEGREE

ELBOW, 90 DEGREE LONG RADIUS (LR)

ELBOW DOWN

ELBOW UP

ELBOW, 45 SIDE (45)

ELBOW, 22.5 AND 11.25 SIDE (22.5, 11.25)

CONCENTRIC REDUCER

ECCENTRIC REDUCER

FLARED END SECTION

FLANGED JOINT

MECHANICAL JOINT

GROOVED FLANGE ADAPTER (GFA)

GROOVED PIPE COUPLING (GPC)

BOLTED MECHANICAL COUPLING (BMC)

FLANGE ADAPTER (RFA) (RESTRAINED)

DISMANTLING JOINT (DMJ)

FLANGED EXPANSION JOINT (FXJ)

UNION

QUICK DISCONNECT COUPLING (FEMALE, MALE)

BLIND FLANGE (BF) (FLAT, DISHED)

PIPE CAP OR PLUG (CAP)

VALVE SYMBOLS

- GATE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- GLOBE VALVE
- PLUG VALVE
- 3-WAY PLUG VALVE
- ROTARY CONE VALVE
- PINCH VALVE
- NEEDLE VALVE
- CHECK VALVE
- BALL CHECK VALVE
- ANGLE VALVE
- DIAPHRAGM VALVE
- KNIFE GATE VALVE
- SOLENOID VALVE
- 3-WAY VALVE
- 4-WAY/MULTI-FUNCTION VALVE
- BACKPRESSURE VALVE
- ANTI-SIPHON VALVE (CHEMICAL)
- MUD VALVE
- TELESCOPING VALVE
- ROTARY VALVE
- CORPORATION STOP
- PRESSURE SUSTAINING/RELIEF VALVE (PILOT OPERATED) (PSV)
- PRESSURE REDUCING VALVE (PILOT OPERATED) (PRV)
- ELECTRONIC CONTROL VALVE (PILOT OPERATED) (ECV)
- SURGE ANTICIPATOR VALVE (PILOT OPERATED) (SAV)
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- AUTOMATIC AIR RELEASE VALVE
- MANUAL AIR RELEASE VALVE
- COMBINATION AIR/VACUUM RELEASE VALVE
- VACUUM BREAKER
- ANTI-SIPHON VALVE (PIPING)
- SPECIAL VALVE (X)
  - CV - CONTROL VALVE
  - F - FLAP GATE
  - S - STOP COCK
  - X - USER DEFINED
- BACKFLOW PREVENTER

ACTUATOR SYMBOLS

- CONTROL VALVE
- VALVE W/ ELECTRIC ACTUATOR
- VALVE W/ ELECTRIC ACTUATOR (MODULATING)
- VALVE W/ ELECTRO-HYDRAULIC ACTUATOR
- VALVE W/ PNEUMATIC ACTUATOR
- VALVE W/ HYDRAULIC ACTUATOR
- VALVE W/ SOLENOID ACTUATOR
- VALVE W/ MANUAL ACTUATOR

THE FOLLOWING ADDITIONAL DESIGNATIONS MAY BE UTILIZED ADJACENT TO SOME VALVE OR GATE SYMBOLS.

NC NORMALLY CLOSED
NO NORMALLY OPEN
FC FAILS CLOSED
FO FAILS OPEN
FIP FAILS IN LAST KNOWN POSITION

GATE SYMBOLS

- SLUICE GATE
- SLIDE GATE
- WEIR GATE
- STOP LOG / HAND GATE

BLOWER/COMPRESSOR SYMBOLS

- CENTRIFUGAL BLOWER
- ROTARY LOBE BLOWER
- ROTARY SCREW BLOWER
- COMPRESSOR

PUMP SYMBOLS

- CENTRIFUGAL PUMP (GENERAL)
- VERTICAL INLINE PUMP
- HAND (MANUAL) PUMP
- SUBMERSIBLE PUMP
- CHEMICAL METERING PUMP
- DOUBLE DISC PUMP
- GEAR PUMP
- SUMP PUMP
- VACUUM PUMP
- PERISTALTIC PUMP
- ROTARY LOBE PUMP
- PROGRESSIVE CAVITY PUMP
- AIR-OPERATED DOUBLE DIAPHRAGM (ADDD) PUMP
- VERTICAL TURBINE PUMP
- VERTICAL TURBINE PUMP (CANNED)
- GENERIC/UNKNOWN PUMP

EQUIPMENT SYMBOLS

- Y-STRAINER
- REGULATOR
- LUBRICATOR
- IN-LINE MIXER
- CALIBRATION COLUMN
- SIGHT GLASS
- AIR PUMP CONNECTION FITTING
- HOSE CONNECTION
- AIR GAP
- TIE-IN POINT/CONNECTION
- SAMPLE POINT (SP)
- CHEMICAL FEED INJECTION POINT (CHEM)
- PROBE LOCATION (PROBE)
- EJECTOR
- BASKET STRAINER
- FILTER
- COALESCING FILTER
- FLEXIBLE CONNECTION
- FLUSHING CONNECTION
- FLUSHING CONNECTION W/BALL VALVE
- PULSATION DAMPER
- MOTOR
- MIXER
- EMERGENCY SHOWER AND EYE WASH (ESEW)
- DRAIN (D)
- VENT (V)
- BELT CONVEYOR
- SCREW CONVEYOR

PRIMARY ELEMENT SYMBOLS

- PRESSURE GAUGE
- PRESSURE GAUGE W/SHUTOFF
- PRESSURE GAUGE W/DIAPHRAGM SEAL
- PRESSURE GAUGE W/DIAPHRAGM SEAL & SHUTOFF VALVE
- PRESSURE GAUGE W/ISOLATION RING
- PRESSURE GAUGE W/BALL VALVE
- PRESSURE GAUGE W/DIAPHRAGM SEAL & BALL VALVE
- PRESSURE SWITCH (PS)
- PRESSURE TRANSMITTER (PIT)
- TEMPERATURE GAUGE
- TEMPERATURE GAUGE W/SHUTOFF
- TEMPERATURE PROBE W/THERMOWELL
- ULTRASONIC LEVEL INDICATOR
- FLOAT LEVEL SWITCH
- SUBMERSIBLE LEVEL TRANSMITTER
- RADAR LEVEL INDICATOR (GUIDED WAVE)
- RADAR LEVEL INDICATOR (NON-CONTACT)
- BUBBLER
- FLOW SWITCH (FS)
- MAGNETIC FLOW METER (M)
- VENTURI FLOW METER
- V-CONE FLOW METER
- PROPELLER/TURBINE FLOW METER
- THERMAL MASS FLOW METER (ΔT)
- VORTEX FLOW METER
- ORIFICE FLOW METER
- MAGNETIC AIR FLOW METER (AFM)
- ROTAMETER
- FLUME
- WEIR

EQUIPMENT TAG NUMBERS

- X-YZZ — MAJOR EQUIPMENT TAG NUMBER:
  - X - EQUIPMENT TYPE
  - Y - PROCESS AREA DESIGNATION
  - Z - UNIT NUMBER
- X — VALVE TAG
- X-X — SPECIAL VALVE TAG

PIPELINE IDENTIFICATION NUMBERS

ZZ"-SSSS-MMMM

- ZZ" — PIPE SIZE IN INCHES
- SSSS — PIPE SYSTEM ABBREVIATION (SEE ABBREVIATIONS SHEET)
- MMMM — MATERIAL ABBREVIATION (SEE ABBREVIATIONS SHEET)

LINE SYMBOLS

- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- SCREENED LINE DENOTES EXISTING PIPING OR EQUIPMENT
- SCREENED DASHED LINE DENOTES FUTURE PIPING OR EQUIPMENT OR EXISTING BELOW PIPING
- BOLD THICK CENTERLINE DENOTES OWNER PROVIDED EQUIPMENT PACKAGE
- BOLD THICK PHANTOM DENOTES MANUFACTURER PROVIDED EQUIPMENT PACKAGE
- DEMOLISHED PIPING OR EQUIPMENT
- FLOW ARROW FOR MAJOR PROCESS PIPING
- FLOW ARROW FOR SECONDARY / MISCELLANEOUS PROCESS PIPING
- FLOW ARROW FOR BI-DIRECTIONAL PROCESS PIPING
- PROCESS PIPE BREAK (NOT CONNECTED)
- 1 P101 — PROCESS PIPING GOING TO ANOTHER SHEET
  - MATCH LINE SHEET NO.
  - MATCH LINE IDENTIFIER
- 1 P101 — PROCESS PIPING COMING FROM ANOTHER SHEET
- WSE — WATER SURFACE ELEVATION
- SPOT / LEVEL ELEVATION TARGET

GENERAL SHEET NOTES

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
GENERAL SYMBOLS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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DEVICE TYPE DEFINITIONS

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL (WITH FEEDBACK)	CLOSE OR CLOSED
D	DENSITY OR SPECIFIC GRAVITY	DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	GAUGE		GLASS, GAUGE, VIEW		
H	HAND/MANUAL				HIGH
I	CURRENT		INDICATE / TRANSMIT		
J	POWER		SCAN		
K	TIME, SCHEDULE	RATE OF CHANGE		CONTROL STATION (NO FEEDBACK)	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION OR MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN OR OPENED
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIOACTIVITY		RECORD OR PRINT		RUN
S	SPEED OR FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE				
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VISCOSITY OR VIBRATION			VALVE	
W	WEIGHT OR FORCE		WELL PROBE		
X	UNCLASSIFIED	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE	Y-AXIS		RELAY OR COMPUTE	
Z	POSITION	Z-AXIS		DRIVER, ACTUATOR, CONTROL	
LH	LOSS OF HEAD				
PC			PARTICLE COUNT		
NTU			NEPHELOMETRIC TURBIDITY UNIT		

GENERAL SYMBOLS

- FIELD/LOCAL DEVICE
- CONTROL PANEL DEVICE FACE-MOUNTED
- CONTROL PANEL DEVICE INTERIOR-MOUNTED
- MCC DEVICE FACE-MOUNTED
- MCC DEVICE INTERIOR-MOUNTED
- LOGICAL INTERLOCK

LINE SYMBOLS

- PROCESS CONTROL LINE
- DISCRETE SIGNAL
- ANALOG SIGNAL
- FIBER OPTIC CABLE
- UNSHIELDED TWISTED PAIR CABLE
- WIRELESS ETHERNET
- PNEUMATIC PIPING/SIGNAL
- HYDRAULIC PIPING/SIGNAL

I/O SYMBOLS

- DISCRETE PLC INPUT
- ANALOG PLC INPUT
- DISCRETE PLC OUTPUT
- ANALOG PLC OUTPUT
- CONTROL PANEL INPUT/OUTPUT INTERIOR-MOUNTED

INSTRUMENTATION TAG NUMBERS

- LOCAL DEVICE
X = DEVICE TYPE
Y = LOOP NUMBER
- PANEL MOUNTED DEVICE
X = DEVICE TYPE
Y = LOOP NUMBER

ABBREVIATIONS

AIT	ANALYZER INDICATING TRANSMITTER
AE	ANALYZER SENSOR
AV/SV	VALVE CONTROL
CP	CONTROL PANEL
CS	CONTROL SWITCH
ESPB	EMERGENCY STOP PUSH BUTTON
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIT	FLOW INDICATING TRANSMITTER
FIQ	FLOW INDICATING TOTALIZER
FR	FLOW RECORDER
FS	FLOW SWITCH
FT	FLOW TRANSMITTER
HOA	HAND/OFF/AUTO
HS	HAND SWITCH
JA	POWER ALARM
JIT	POWER TRANSMITTER
JY	POWER EVENT (FAIL)
KS	TIME DELAY
LAH	LEVEL ALARM HIGH
LAHH	LEVEL ALARM HIGH HIGH
LAL	LEVEL ALARM LOW
LALL	LEVEL ALARM LOW LOW
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LS	LEVEL SWITCH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LT	LEVEL TRANSMITTER
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
ML	MOTION LIGHT
PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATING TRANSMITTER
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
RHS	REMOTE HAND STATION
SC	SPEED CONTROL OR CONTROLLER
ST	SPEED TRANSMITTER
SV	SOLENOID VALVE
TS (H/L)	TEMPERATURE SWITCH (HIGH/LOW) (HH=HIGH HIGH) (LL=LOW LOW)
TT	TEMPERATURE TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
WE	WEIGHT ELEMENT
WIT	WEIGHT INDICATING TRANSMITTER
WT	WEIGHT TRANSMISSION SIGNAL
XL/ML	EVENT OR STATUS (I.E. RUNNING)
YA/QA	EVENT ALARM (I.E. FAULT)
YS	EVENT SWITCH
ZC	POSITION CONTROL
ZCC	CLOSE POSITION CONTROL
ZCO	OPEN POSITION CONTROL
ZS	POSITION SWITCH
ZSA	EMERGENCY CLOSE CONTROL (ALARM)
ZSC	CLOSED POSITION (LIMIT) SWITCH
ZSM	INTERMEDIATE POSITION (LIMIT) SWITCH (I.E. 95% CLOSED)
ZSO	OPENED POSITION (LIMIT) SWITCH
ZT	POSITION TRANSMITTER (STATUS)

GENERAL SHEET NOTES

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.
2. CONTACT ENGINEER FOR DEFINITIONS, SYMBOLS, AND ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

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City of Ann Arbor

Ann Arbor, Michigan

Instrumentation & Controls Improvements

GENERAL INSTRUMENTATION

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.

2501593

SHEET NO.

P003

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NOTES

1. THE VALVE SCHEDULE IS PROVIDED AS AN AID, BUT DOES NOT INCLUDE ALL PROJECT VALVES. SPECIFICALLY MANUAL VALVES SMALLER THAN 4 INCH NOMINAL SIZE. VERIFY ALL VALVE REQUIREMENTS AND PROVIDE VALVES FOR A COMPLETELY OPERABLE SYSTEM. PROVIDE TEMPORARY VALVES AS NEEDED.

EXISTING VALVE SCHEDULE

TAG	SIZE	TYPE	OPERATOR	SERVICE	LOCATION	NOTES
CIS-1622	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 2	NEW ACTUATOR
CIS-1623	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 3	NEW ACTUATOR
CIS-1625	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 5	NEW ACTUATOR
CIS-1626	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 6	NEW ACTUATOR
CIS-1627	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 7	NEW ACTUATOR
CIS-1628	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 8	NEW ACTUATOR
CIS-1629	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 9	NEW ACTUATOR
CIS-1630	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 10	NEW ACTUATOR
CIS-1631	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 11	NEW ACTUATOR, RHS
CIS-1632	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 12	NEW ACTUATOR, RHS
CIS-1633	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 13	NEW ACTUATOR, RHS
CIS-1634	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 14	NEW ACTUATOR, RHS
CIS-1635	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 15	NEW ACTUATOR, RHS
CIS-1636	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 16	NEW ACTUATOR, RHS
CIS-1637	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 17	NEW ACTUATOR, RHS
CIS-1638	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 18	NEW ACTUATOR, RHS
CIS-1639	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 19	NEW ACTUATOR, RHS
CIS-1640	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 20	NEW ACTUATOR, RHS
CIS-1641	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 21	NEW ACTUATOR, RHS
CIS-1642	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 22	NEW ACTUATOR, RHS
CIS-1643	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 23	NEW ACTUATOR, RHS
CIS-1644	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 24	NEW ACTUATOR, RHS
CIS-1645	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 25	NEW ACTUATOR, RHS
CIS-1646	24"	BUTTERFLY	ELECTRIC	DRAIN	FILTER 26	NEW ACTUATOR, RHS
FE-1622	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 2	NEW ACTUATOR
FE-1623	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 3	NEW ACTUATOR
FE-1625	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 5	NEW ACTUATOR
FE-1626	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 6	NEW ACTUATOR
FE-1627	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 7	NEW ACTUATOR
FE-1628	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 8	NEW ACTUATOR
FE-1629	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 9	NEW ACTUATOR
FE-1630	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 10	NEW ACTUATOR
FE-1631	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 11	NEW ANALOG I/O CARD
FE-1632	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 12	NEW ANALOG I/O CARD
FE-1633	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 13	NEW ANALOG I/O CARD
FE-1634	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 14	NEW ANALOG I/O CARD
FE-1635	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 15	NEW ANALOG I/O CARD
FE-1636	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 16	NEW ANALOG I/O CARD
FE-1637	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 17	NEW ANALOG I/O CARD
FE-1638	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 18	NEW ANALOG I/O CARD
FE-1639	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 19	NEW ANALOG I/O CARD
FE-1640	12"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 20	NEW ANALOG I/O CARD
FE-1641	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 21	NEW ANALOG I/O CARD
FE-1642	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 22	NEW ANALOG I/O CARD
FE-1643	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 23	NEW ANALOG I/O CARD
FE-1644	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 24	NEW ANALOG I/O CARD
FE-1645	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 25	NEW ANALOG I/O CARD
FE-1646	10"	BUTTERFLY	ELECTRIC, MODULATING	FILTER EFFLUENT	FILTER 26	NEW ANALOG I/O CARD
WIP-1603	60"	BUTTERFLY	ELECTRIC	SETTLED WATER	SETTLED WATER HEADER	NEW ACTUATOR, RHS
WIP-1604	60"	BUTTERFLY	ELECTRIC	SETTLED WATER	SETTLED WATER HEADER	NEW ACTUATOR, RHS
WIP-1621	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 1	NEW ACTUATOR, RHS
WIP-1622	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 2	NEW ACTUATOR, RHS
WIP-1623	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 3	NEW ACTUATOR, RHS
WIP-1624	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 4	NEW ACTUATOR, RHS
WIP-1625	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 5	NEW ACTUATOR, RHS
WIP-1626	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 6	NEW ACTUATOR, RHS
WIP-1627	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 7	NEW ACTUATOR, RHS
WIP-1628	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 8	NEW ACTUATOR, RHS
WIP-1629	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 9	NEW ACTUATOR, RHS
WIP-1630	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 10	NEW ACTUATOR, RHS
WIP-1631	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 11	NEW ACTUATOR, RHS
WIP-1632	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 12	NEW ACTUATOR, RHS
WIP-1633	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 13	NEW ACTUATOR, RHS
WIP-1634	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 14	NEW ACTUATOR, RHS
WIP-1635	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 15	NEW ACTUATOR, RHS
WIP-1636	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 16	NEW ACTUATOR, RHS
WIP-1637	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 17	NEW ACTUATOR, RHS
WIP-1638	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 18	NEW ACTUATOR, RHS
WIP-1639	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 19	NEW ACTUATOR, RHS
WIP-1640	24"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 20	NEW ACTUATOR, RHS
WIP-1641	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 21	NEW ACTUATOR, RHS
WIP-1642	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 22	NEW ACTUATOR, RHS
WIP-1643	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 23	NEW ACTUATOR, RHS
WIP-1644	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 24	NEW ACTUATOR, RHS
WIP-1645	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 25	NEW ACTUATOR, RHS
WIP-1646	20"	BUTTERFLY	ELECTRIC	FILTER INFLUENT	FILTER 26	NEW ACTUATOR, RHS
WW-1621	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 1	NEW ACTUATOR
WW-1622	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 2	NEW ACTUATOR
WW-1623	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 3	NEW ACTUATOR
WW-1624	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 4	NEW ACTUATOR
WW-1625	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 5	NEW ACTUATOR
WW-1626	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 6	NEW ACTUATOR
WW-1627	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 7	NEW ACTUATOR
WW-1628	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 8	NEW ACTUATOR
WW-1629	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 9	NEW ACTUATOR
WW-1630	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 10	NEW ACTUATOR
WW-1631	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 11	NEW ACTUATOR, RHS
WW-1632	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 12	NEW ACTUATOR, RHS
WW-1633	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 13	NEW ACTUATOR, RHS
WW-1634	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 14	NEW ACTUATOR, RHS
WW-1635	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 15	NEW ACTUATOR, RHS
WW-1636	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 16	NEW ACTUATOR, RHS
WW-1637	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 17	NEW ACTUATOR, RHS
WW-1638	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 18	NEW ACTUATOR, RHS
WW-1639	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 19	NEW ACTUATOR, RHS
WW-1640	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 20	NEW ACTUATOR, RHS
WW-1641	20"	BUTTERFLY	ELECTRIC	WASH WATER	FILTER 21	NEW ACTUATOR, RHS

*FIELD VERIFY ACTUATOR PLACEMENT. COORDINATE WITH ACTUATOR MANUFACTURER IF ADAPTER BRACKETS ARE NEEDED.

NEW VALVE SCHEDULE

TAG	SIZE	TYPE	OPERATOR	SERVICE	LOCATION	NOTES
2600	4"	PRESSURE REDUCING		PLANT SERVICE WATER	OPERATING GALLERY	
FV-17-5-1	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 1	NEW VALVE AND ACTUATOR
FV-17-5-2	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 2	NEW VALVE AND ACTUATOR
FV-17-5-3	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 3	NEW VALVE AND ACTUATOR
FV-17-5-4	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 4	NEW VALVE AND ACTUATOR
FV-17-5-5	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 5	NEW VALVE AND ACTUATOR
FV-17-5-6	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 6	NEW VALVE AND ACTUATOR
FV-17-5-7	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 7	NEW VALVE AND ACTUATOR
FV-17-5-8	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 8	NEW VALVE AND ACTUATOR
FV-17-5-9	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 9	NEW VALVE AND ACTUATOR
FV-17-5-10	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 10	NEW VALVE AND ACTUATOR
FV-17-5-12	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 12	NEW VALVE AND ACTUATOR
FV-17-5-13	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 13	NEW VALVE AND ACTUATOR
FV-17-5-14	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 14	NEW VALVE AND ACTUATOR
FV-17-5-15	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 15	NEW VALVE AND ACTUATOR
FV-17-5-16	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 16	NEW VALVE AND ACTUATOR
FV-17-5-17	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 17	NEW VALVE AND ACTUATOR
FV-17-5-18	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 18	NEW VALVE AND ACTUATOR
FV-17-5-19	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 19	NEW VALVE AND ACTUATOR
FV-17-5-20	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 20	NEW VALVE AND ACTUATOR
FV-17-5-21	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 21	NEW VALVE AND ACTUATOR
FV-17-5-23	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 23	NEW VALVE AND ACTUATOR
FV-17-5-24	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 24	NEW VALVE AND ACTUATOR
FV-17-5-25	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 25	NEW VALVE AND ACTUATOR
FV-17-5-26	6"	BUTTERFLY	ELECTRIC	SURFACE WASH	FILTER 26	NEW VALVE AND ACTUATOR

*FIELD VERIFY ACTUATOR PLACEMENT. COORDINATE WITH ACTUATOR MANUFACTURER IF ADAPTER BRACKETS ARE NEEDED.

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
VALVE SCHEDULES

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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P004

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INSTRUMENTATION SCHEDULE

DEVICE TAG	LOOP NUMBER	LOCATION	TYPE
FI	1621	FILTER 1	FLOW TRANSMITTER
AIPC	1621	FILTER 1/3	PARTICLE COUNT ANALYZER
LH	1621	FILTER 1	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1622	FILTER 2	FLOW TRANSMITTER
AIPC	1622	FILTER 2/4	PARTICLE COUNT ANALYZER
LH	1622	FILTER 2	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1623	FILTER 3	FLOW TRANSMITTER
LH	1623	FILTER 3	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1624	FILTER 4	FLOW TRANSMITTER
LH	1624	FILTER 4	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1625	FILTER 5	FLOW TRANSMITTER
AIPC	1625	FILTER 5/7	PARTICLE COUNT ANALYZER
LH	1625	FILTER 5	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1626	FILTER 6	FLOW TRANSMITTER
AIPC	1626	FILTER 6/8	PARTICLE COUNT ANALYZER
LH	1626	FILTER 6	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1627	FILTER 7	FLOW TRANSMITTER
LH	1627	FILTER 7	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1628	FILTER 8	FLOW TRANSMITTER
LH	1628	FILTER 8	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1629	FILTER 9	FLOW TRANSMITTER
LH	1629	FILTER 9	DIFFERENTIAL PRESSURE TRANSMITTER
FI	1630	FILTER 10	FLOW TRANSMITTER
LH	1630	FILTER 10	DIFFERENTIAL PRESSURE TRANSMITTER
LSH	2621	FILTER 1	FLOAT TYPE SWITCH
LSL	2621	FILTER 1	FLOAT TYPE SWITCH
AE	2621	FILTER 1	TURBIDITY SENSOR
AE	2622	FILTER 2	TURBIDITY SENSOR
AE	2623	FILTER 3	TURBIDITY SENSOR
AINTU	2623	FILTER 1/3	TURBIDITY CONTROLLER
AE	2624	FILTER 4	TURBIDITY SENSOR
AINTU	2624	FILTER 2/4	TURBIDITY CONTROLLER
AE	2625	FILTER 5	TURBIDITY SENSOR
AINTU	2625	FILTER 5/7	TURBIDITY CONTROLLER
AE	2626	FILTER 6	TURBIDITY SENSOR
AE	2627	FILTER 7	TURBIDITY SENSOR
LE	2628	FILTER 8	NON-CONTACT RADAR
LI	2628	FILTER 8	LEVEL TRANSMITTER
AE	2628	FILTER 8	TURBIDITY SENSOR
AINTU	2628	FILTER 6/8	TURBIDITY CONTROLLER
AE	2629	FILTER 9	TURBIDITY SENSOR
AE	2630	FILTER 10	TURBIDITY SENSOR
AE	2631	FILTER 11	TURBIDITY SENSOR
AINTU	2631	FILTER 9/11	TURBIDITY CONTROLLER
AE	2632	FILTER 12	TURBIDITY SENSOR
AINTU	2632	FILTER 10/12	TURBIDITY CONTROLLER
AE	2633	FILTER 13	TURBIDITY SENSOR
LE	2633	FILTER 13	NON-CONTACT RADAR
LI	2633	FILTER 13	LEVEL TRANSMITTER
AE	2634	FILTER 14	TURBIDITY SENSOR
AE	2635	FILTER 15	TURBIDITY SENSOR
AINTU	2635	FILTER 13/15	TURBIDITY CONTROLLER
AE	2636	FILTER 16	TURBIDITY SENSOR
AINTU	2636	FILTER 14/16	TURBIDITY CONTROLLER
AE	2637	FILTER 17	TURBIDITY SENSOR
AE	2638	FILTER 18	TURBIDITY SENSOR
AINTU	2638	FILTER 18/20	TURBIDITY CONTROLLER
LSL	2639	FILTER 19	FLOAT TYPE SWITCH
LSH	2639	FILTER 19	FLOAT TYPE SWITCH
AE	2639	FILTER 19	TURBIDITY SENSOR
AINTU	2639	FILTER 17/19	TURBIDITY CONTROLLER
AE	2640	FILTER 20	TURBIDITY SENSOR
AE	2641	FILTER 21	TURBIDITY SENSOR
AE	2642	FILTER 22	TURBIDITY SENSOR
LE	2642	FILTER 22	NON-CONTACT RADAR
LI	2642	FILTER 22	LEVEL TRANSMITTER
AINTU	2642	FILTER 21/22	TURBIDITY CONTROLLER
AE	2643	FILTER 23	TURBIDITY SENSOR
AE	2644	FILTER 24	TURBIDITY SENSOR
AINTU	2644	FILTER 23/24	TURBIDITY CONTROLLER
AE	2645	FILTER 25	TURBIDITY SENSOR
LSL	2646	FILTER 26	FLOAT TYPE SWITCH
LSH	2646	FILTER 26	FLOAT TYPE SWITCH
AE	2646	FILTER 26	TURBIDITY SENSOR
AINTU	2646	FILTER 25/26	TURBIDITY CONTROLLER
LE	C21610	CISTERN 1	NON-CONTACT RADAR; CONE ANTENNA
LI	C21610	FILTER 1-10 PIPE GALLERY	LEVEL TRANSMITTER
LE/LI	HS0310	UV DISINFECTION ROOM/CLEARWELL 2	GAUGE PRESSURE TRANSMITTER
FI	HS0327	PUMP ROOM #2	FLOW TRANSMITTER
FI	HS623	GROUNDS BUILDING	FLOW TRANSMITTER
FI	HS624	GROUNDS BUILDING	FLOW TRANSMITTER
FI	HS1216	PUMP ROOM #2	FLOW TRANSMITTER
LE	P21701	CISTERN 2	NON-CONTACT RADAR
LI	P21701	FLOC 4&5 GALLERY	LEVEL TRANSMITTER
LE	P21708	CISTERN 2	NON-CONTACT RADAR
LI	P21708	FLOC 4&5 GALLERY	LEVEL TRANSMITTER

FLOW METER SCHEDULE

DEVICE TAG	LOOP NUMBER	SIZE	TYPE	FLOW RANGE	SERVICE	LOCATION	NOTES
FE	1621	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 1	
FE	1622	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 2	
FE	1623	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 3	
FE	1624	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 4	
FE	1625	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 5	
FE	1626	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 6	
FE	1627	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 7	
FE	1628	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 8	
FE	1629	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 9	
FE	1630	10"	MAG METER	0-1,400 GPM	FILTER EFFLUENT	FILTER 10	
FE	HS0327	24"	MAG METER	-30 TO +30 MGD	EHS	EHS/WHS VAULT	
FE	HS623	14"	MAG METER	-15 TO +15 MGD	GRAVITY 1	GRAVITY 1 VAULT	
FE	HS624	14"	MAG METER	-15 TO +15 MGD	GRAVITY 2	GRAVITY 2 VAULT	
FE	HS1216	24"	MAG METER	-30 TO +30 MGD	WHS	EHS/WHS VAULT	

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
SCHEDULES

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

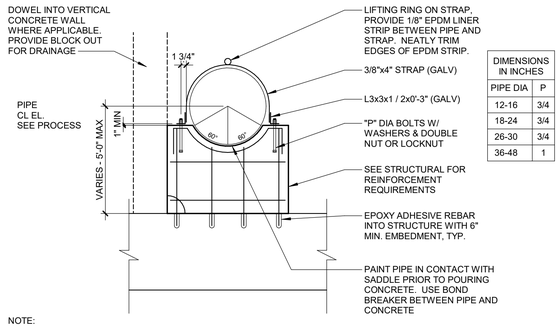
Drawn By	RSECORD
Designer	AWADE
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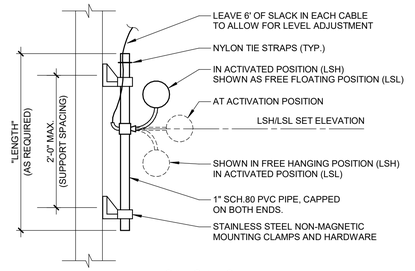


DIMENSIONS IN INCHES	
PIPE DIA	P
12-16	3/4
18-24	3/4
26-30	3/4
36-48	1

NOTE:

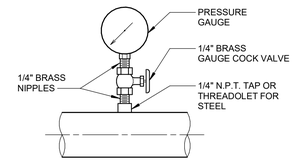
COORDINATE PIPE SIZE AND SUPPORT LOCATIONS WITH PROCESS.

CONCRETE PIPE SUPPORT
NO SCALE

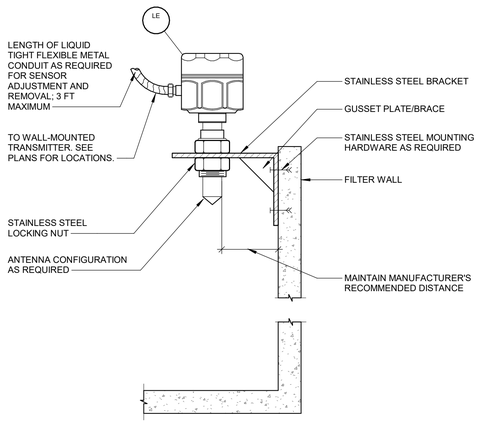


FLOAT SWITCH
NO SCALE

LSL 2621 | LSH 2621 | LSL 1639 | LSH 1639 | LSL 1646 | LSH 1646

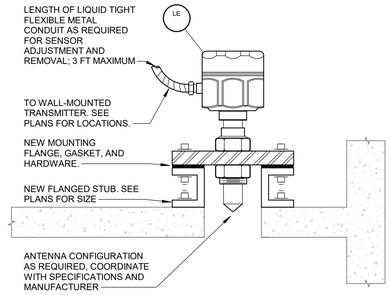


PRESSURE GAUGE TAP
NO SCALE



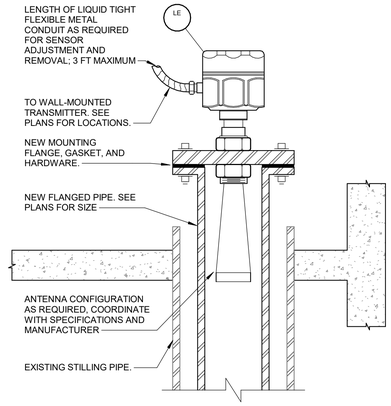
NON-CONTACT RADAR LEVEL ELEMENT INSTALLATION - WALL MOUNTED
NO SCALE

LE 2628 | LE 2633 | LE 2642



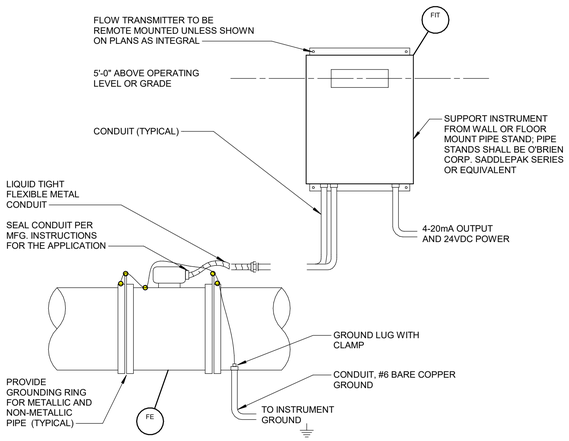
NON-CONTACT RADAR LEVEL ELEMENT INSTALLATION - FLANGE MOUNTED STYLE 1
NO SCALE

LE P21701 | LE P21708



NON-CONTACT RADAR LEVEL ELEMENT INSTALLATION - FLANGE MOUNTED STYLE 2
NO SCALE

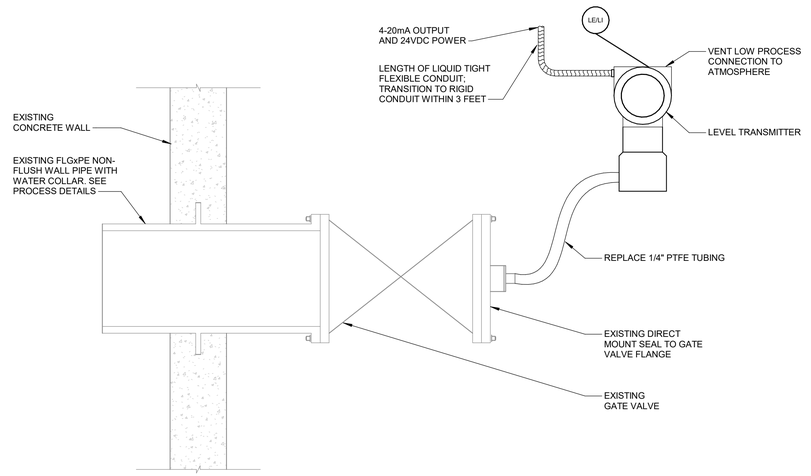
LE C21610



NOTE:
PIPE TO BE SUPPORTED ON BOTH SIDES OF METER.

MAGNETIC FLOWMETER WITH REMOTE TRANSMITTER INSTALLATION DETAIL
NO SCALE

FE/R 1621 | FE/R 1622 | FE/R 1623 | FE/R 1624 | FE/R 1625 | FE/R 1626 | FE/R 1627 | FE/R 1628 | FE/R 1629 | FE/R 1630 | FE/R HS0327 | FE/R HS1216 | FE/R HS624 | FE/R HS625



PRESSURE LEVEL TRANSMITTER INSTALLATION
NO SCALE

LE/LI HS0310

PLOT INFO: 4/7/2026 5:26:13 PM Autodesk Docs://2501593 - Ann Arbor WTP I&C Improvements/2024_PR_General_2501593.rvt

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DETAILS

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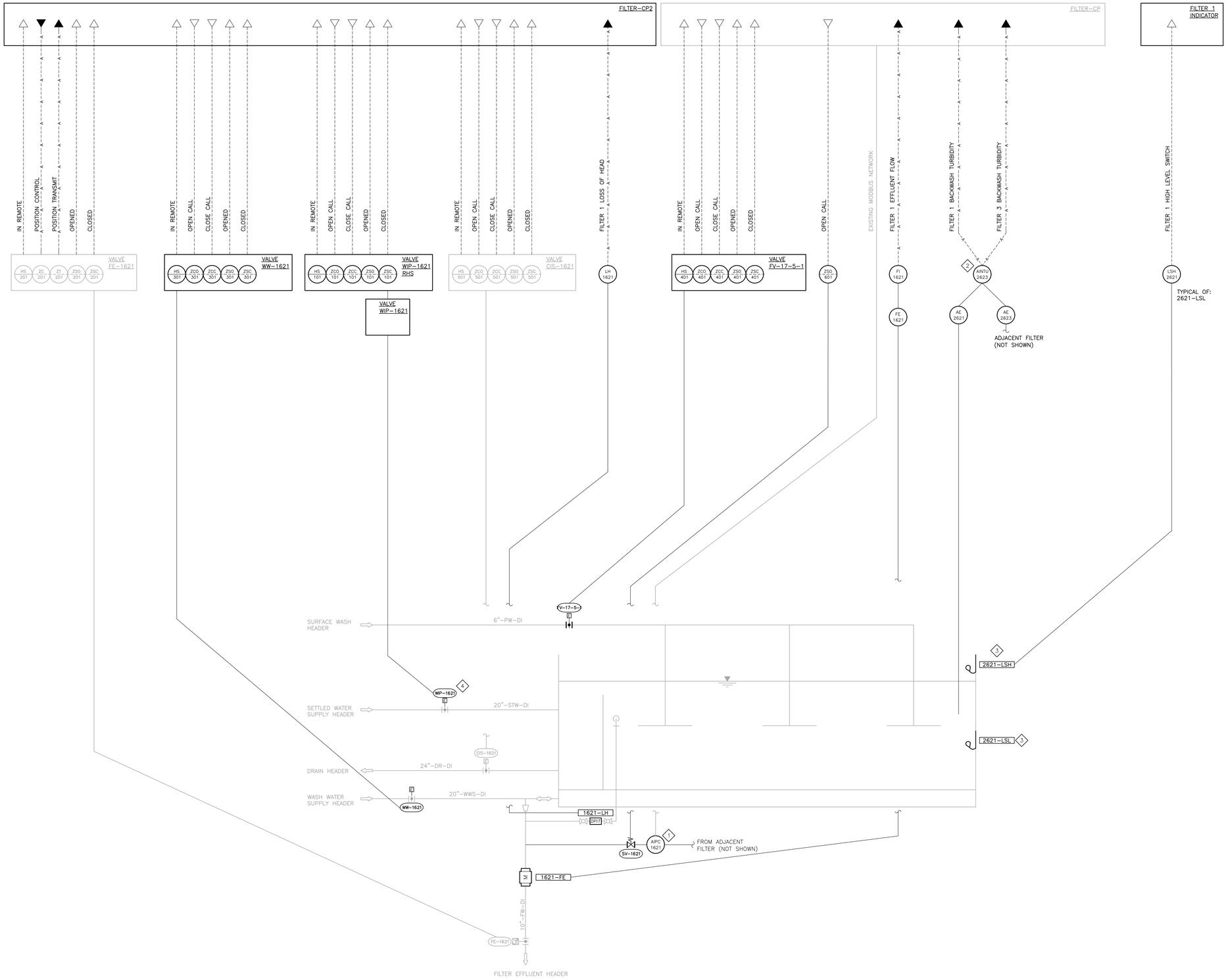
Drawn By	RSECORD
Designer	AWADE
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Manager	BDPHILLIPS

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SHEET NO.
P006

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FILTER 1, TYPICAL FOR FILTERS 1, 4

FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTERS TO SHARE A PARTICLE COUNTER. REPLACE PARTICLE COUNTER PIPING, TUBING, AND MANUFACTURER-PROVIDED SOLENOID VALVES. MAINTAIN CONNECTION TO EXISTING MODBUS NETWORK.
2. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
3. LEVEL SWITCHES TYPICAL OF FILTER 1 ONLY, NOT FILTER 4.
4. FILTER INFLUENT VALVE ACTUATOR TO BE SUPPLIED WITH REMOTE HAND STATION (RHS).

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FILTER 1 FLOW SCHEMATIC AND P&ID

REVISIONS

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Drawn By	SFALKOWSKI
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

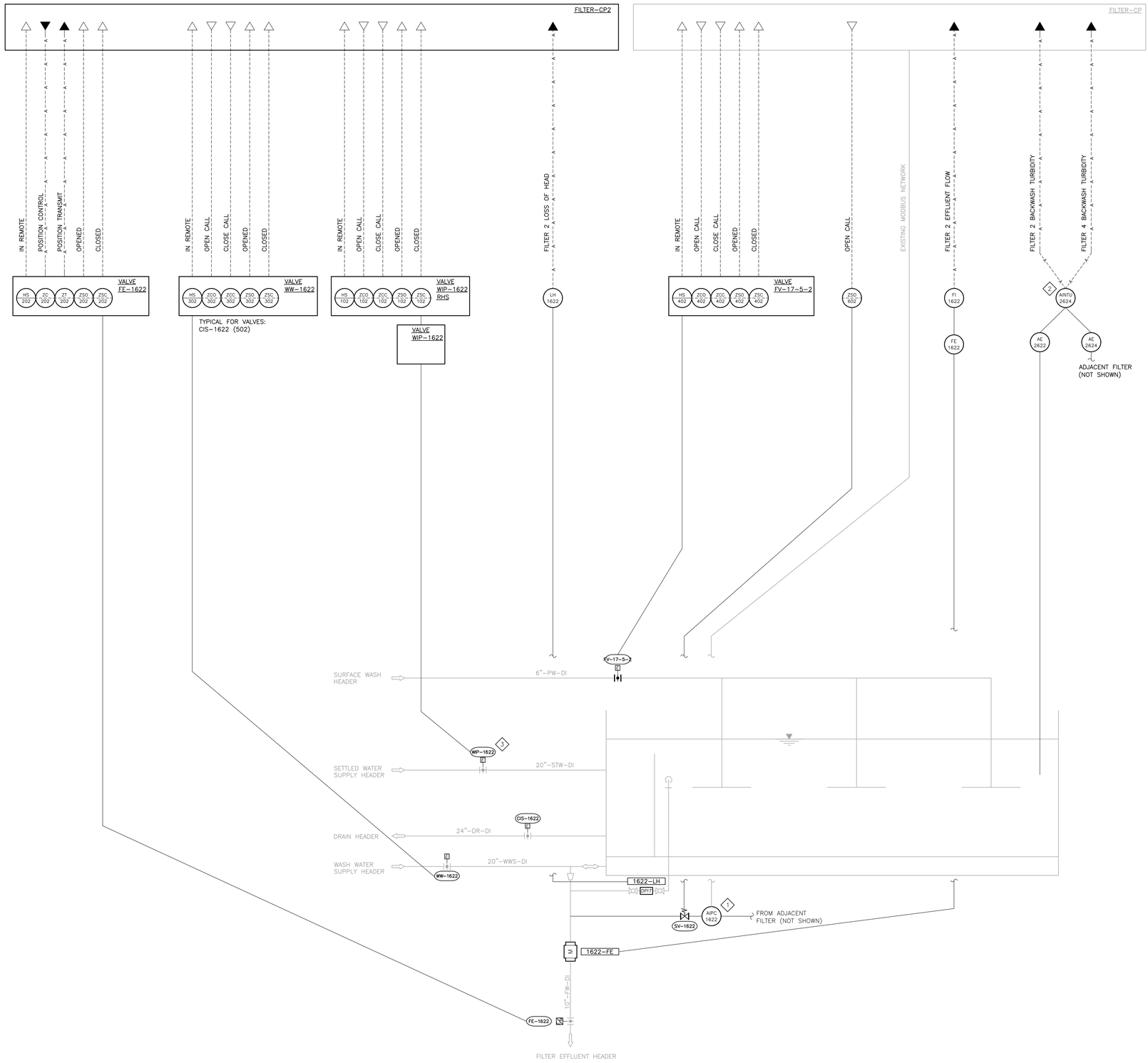
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2501593

SHEET NO.
P101

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FILTER 2, TYPICAL FOR FILTERS 2-3, 5-7

FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTERS TO SHARE A PARTICLE COUNTER. REPLACE PARTICLE COUNTER PIPING, TUBING, AND MANUFACTURER-PROVIDED SOLENOID VALVES. MAINTAIN CONNECTION TO EXISTING MODBUS NETWORK.
2. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
3. FILTER INFLUENT VALVE ACTUATOR TO BE SUPPLIED WITH REMOTE HAND STATION.

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FILTER 2 FLOW SCHEMATIC AND P&ID

REVISIONS

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Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

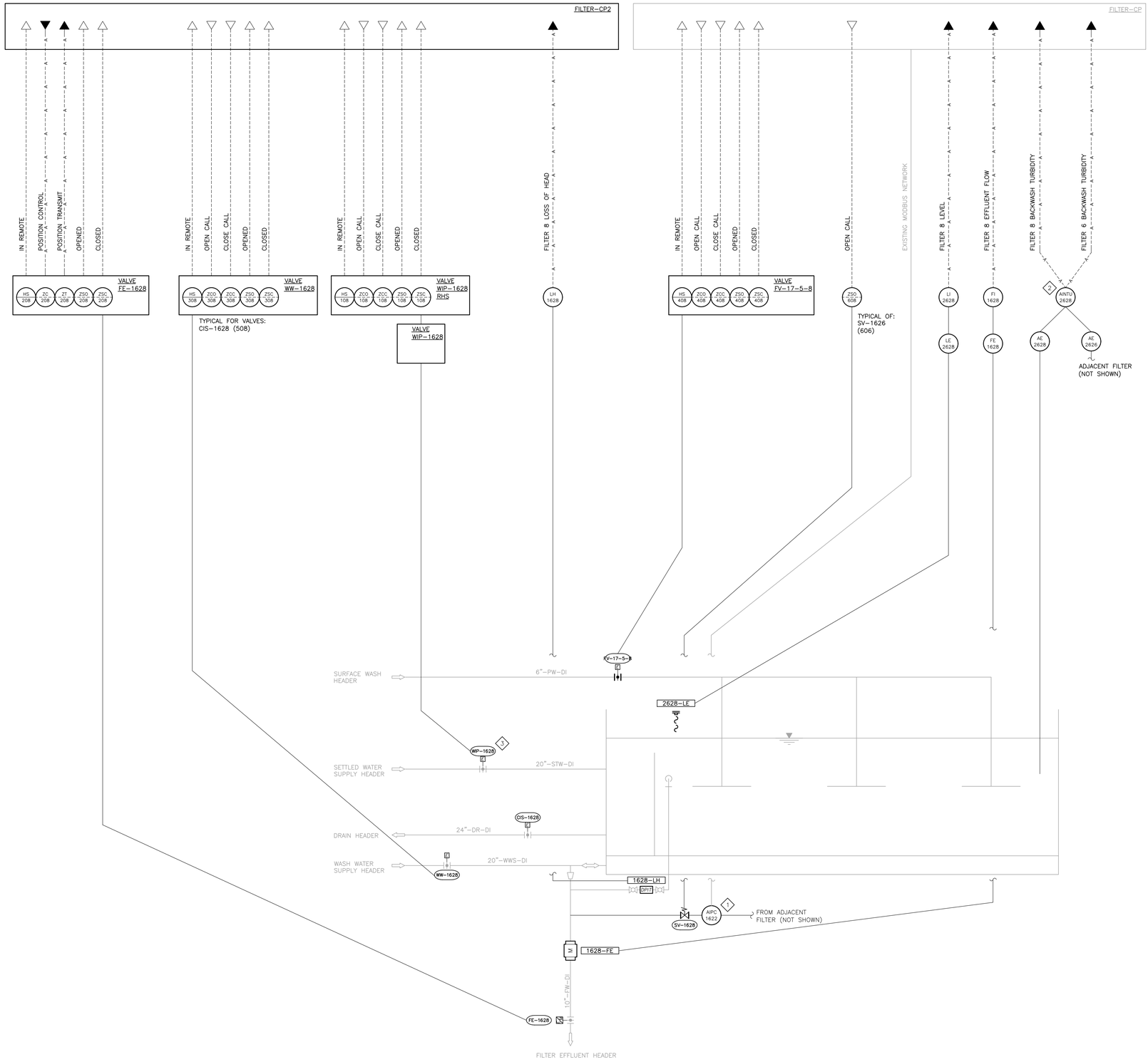
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P102

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FILTER 8
FLOW SCHEMATIC AND P&ID
NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTERS TO SHARE A PARTICLE COUNTER. REPLACE PARTICLE COUNTER PIPING, TUBING, AND MANUFACTURER-PROVIDED SOLENOID VALVES. MAINTAIN CONNECTION TO EXISTING MODBUS NETWORK.
2. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
3. FILTER INFLUENT VALVE ACTUATOR TO BE SUPPLIED WITH REMOTE HAND STATION.

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FILTER 8 FLOW SCHEMATIC AND P&ID

REVISIONS

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Drawn By	SFALKOWSKI
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

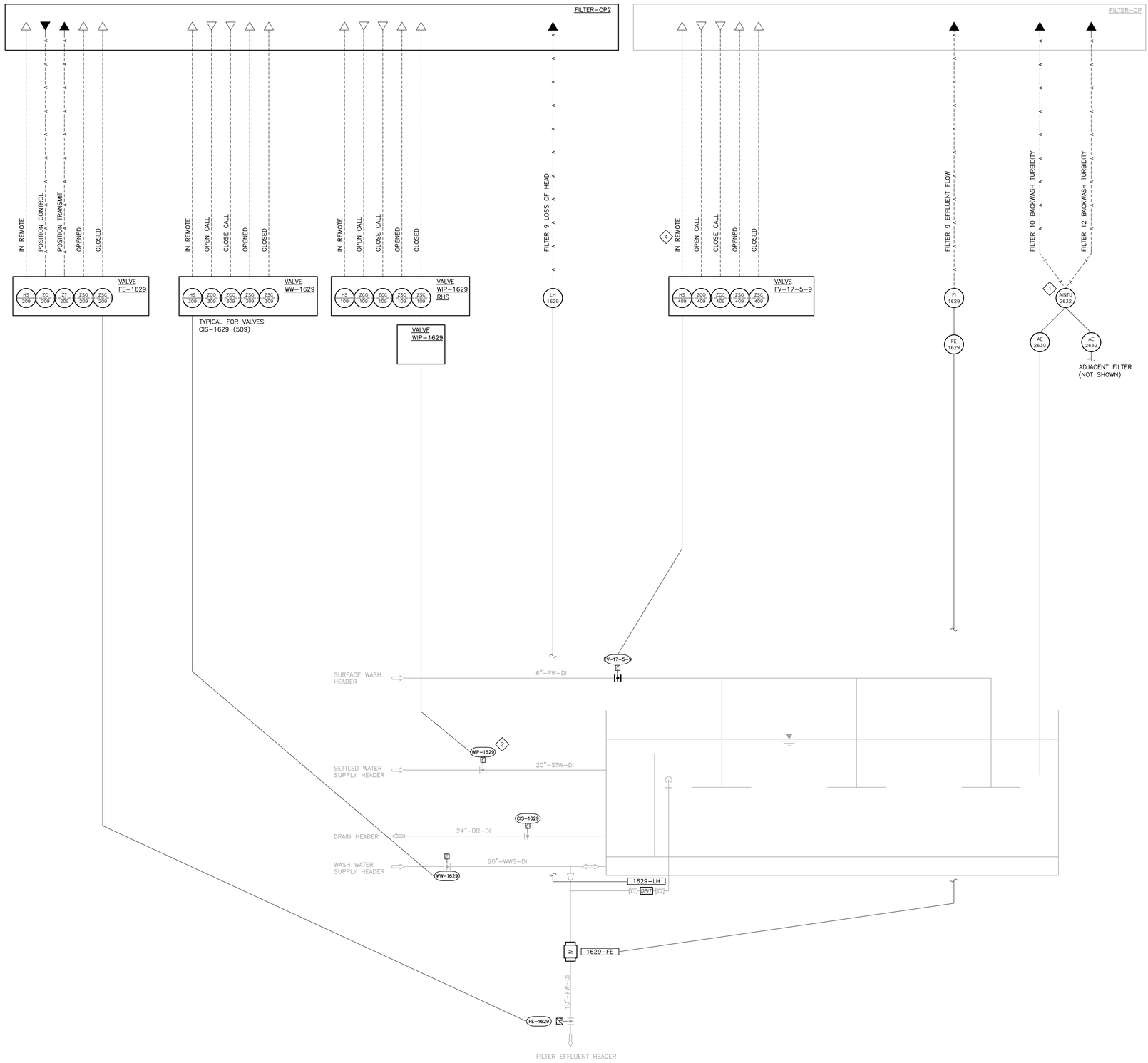
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FILTER 9, TYPICAL OF FILTERS 9 AND 10

FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTER TURBIDIMETERS TO SHARE A CONTROLLER.
2. FILTER INFLUENT VALVE ACTUATOR TO BE SUPPLIED WITH REMOTE HAND STATION.
3. "IN REMOTE" SIGNAL FOR FV-17-5-10 TO BE TERMINATED AT I/O MODULE IN FILTER-CP2. FILTER-CP F1 RACK DOES NOT HAVE SPARE SPACE TO ACCOMMODATE THIS SIGNAL.

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FILTER 9 FLOW SCHEMATIC AND P&ID

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Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

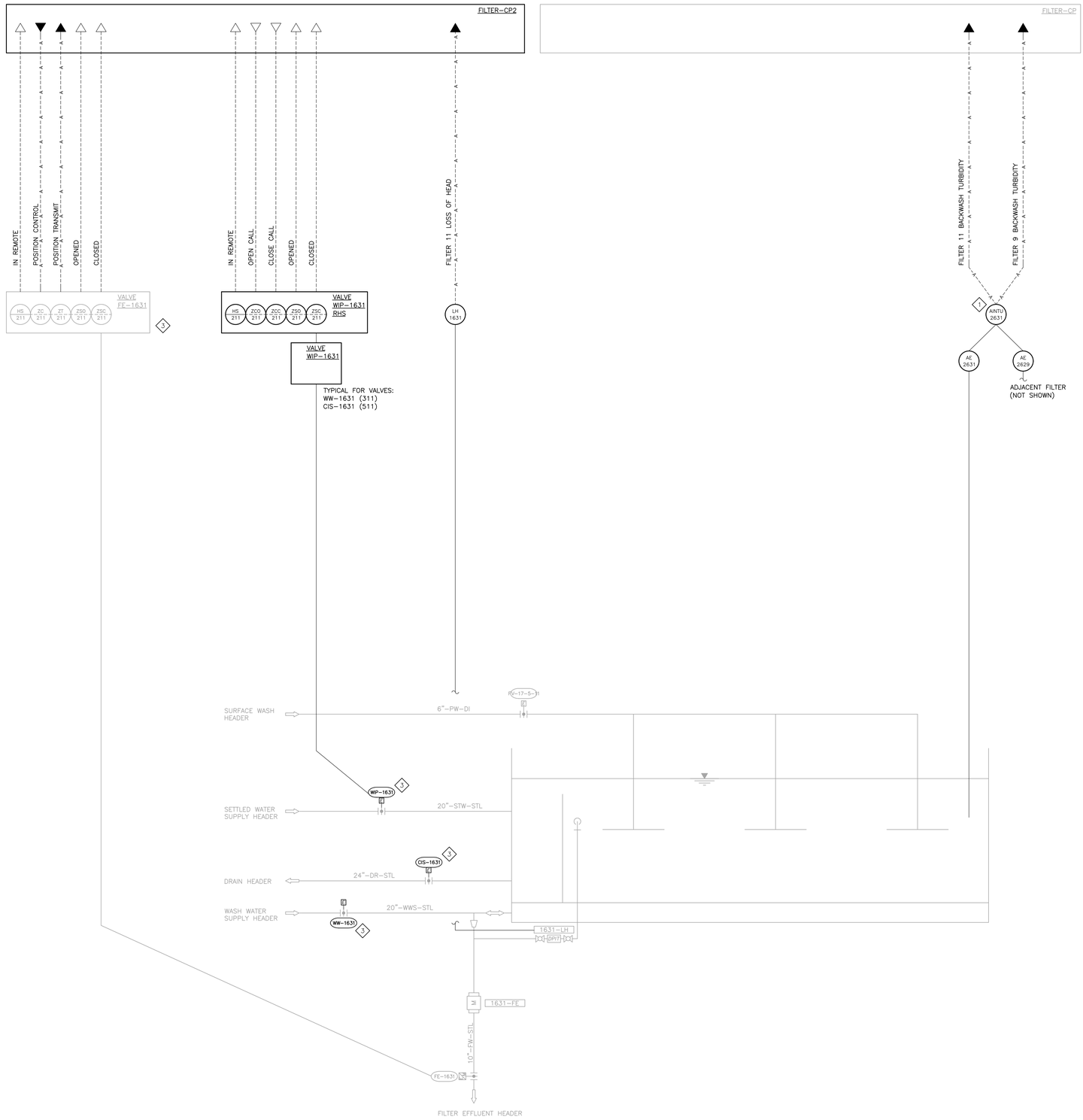
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FILTER 11
FLOW SCHEMATIC AND P&ID
NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. FILTER 9 AND 11 BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
2. FILTER INFLUENT VALVE (WIP-1631), WASH WATER VALVE (WW-1631), DRAIN VALVE (CIS-1631) ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS.
3. REMOVE EXISTING MODBUS INTERFACE CARD. INSTALL NEW I/O CARD, WIRING, AND CONDUIT.

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FILTER 11 FLOW SCHEMATIC AND P&ID

REVISIONS

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Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

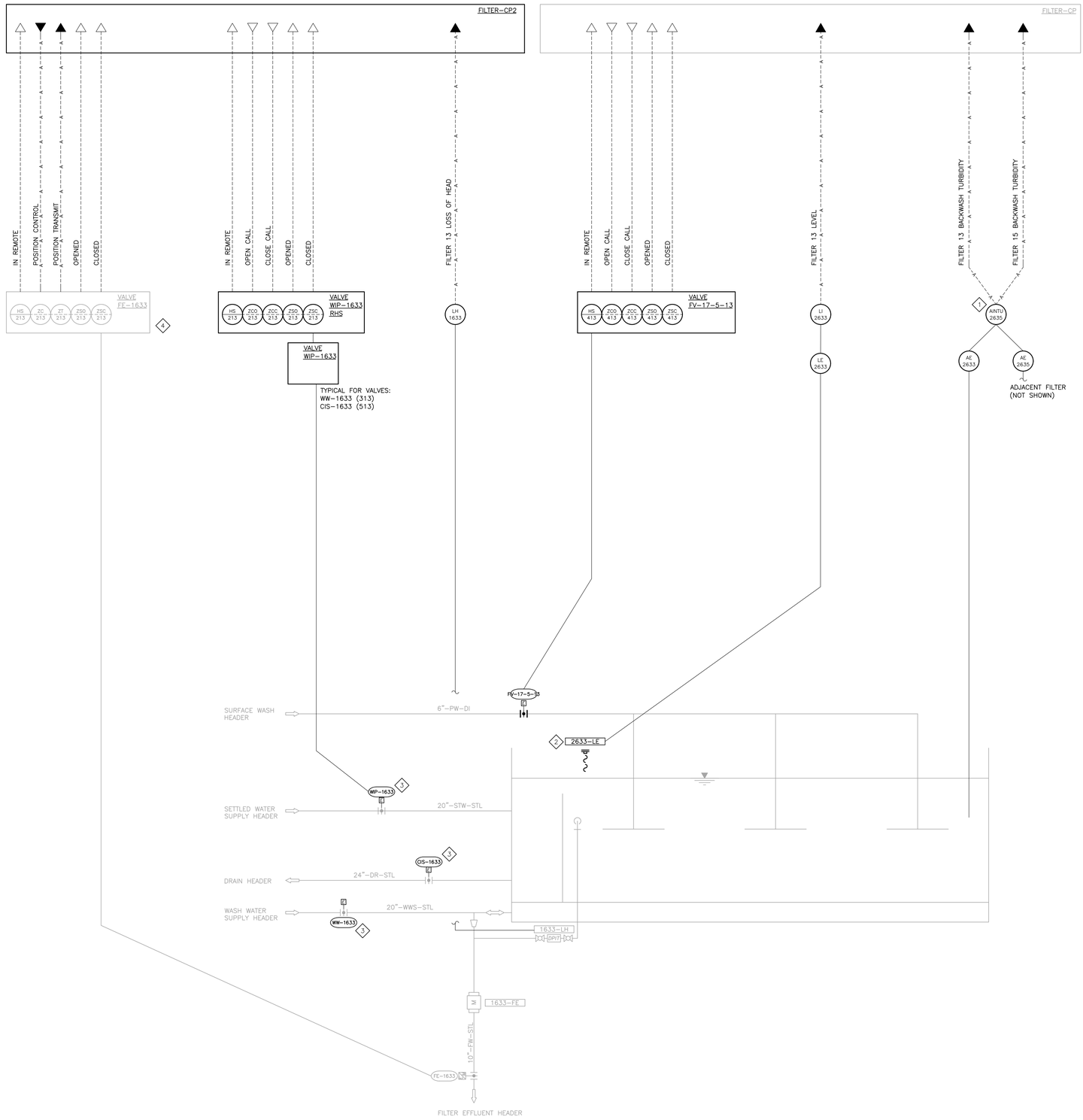
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FILTER 13, TYPICAL OF FILTERS 12-18, 20-21

FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
2. LEVEL ELEMENT AND TRANSMITTER TYPICAL OF FILTER 13 ONLY, NOT FILTER 12, FILTERS 14-18, OR FILTERS 20-21.
3. FILTER INFLUENT VALVE, WASH WATER VALVE, DRAIN VALVE ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS.
4. REMOVE EXISTING MODBUS INTERFACE CARD. INSTALL NEW I/O CARD, WIRING, AND CONDUIT.

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FILTER 13 FLOW SCHEMATIC AND P&ID

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Manager	BDPHILLIPS

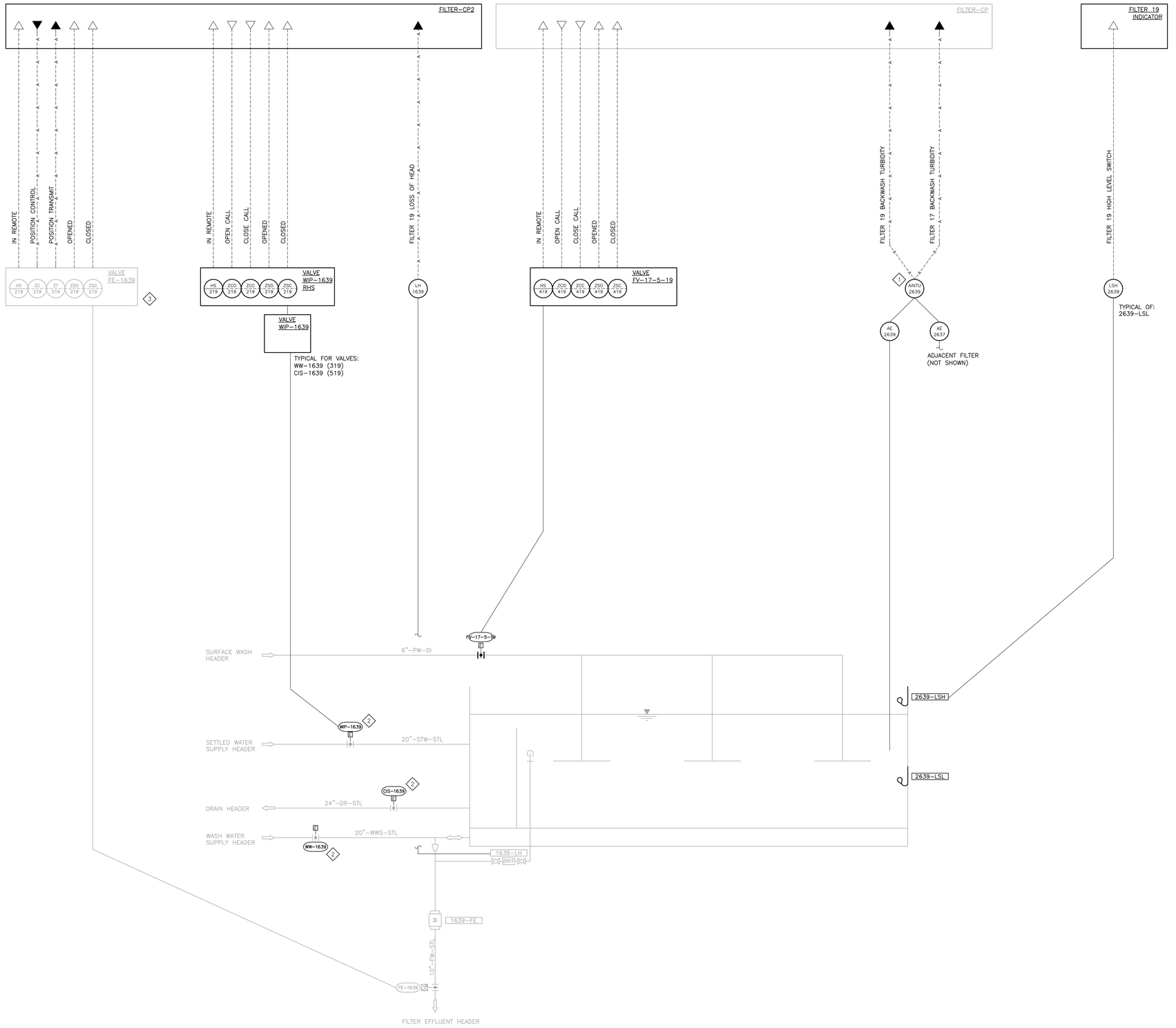
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P106

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FILTER 19
FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
2. FILTER INFLUENT VALVE, WASH WATER VALVE, DRAIN VALVE ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS.
3. REMOVE EXISTING MODBUS INTERFACE CARD. INSTALL NEW I/O CARD, WIRING, AND CONDUIT.

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FILTER 19 FLOW SCHEMATIC AND P&ID

REVISIONS

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Manager	BDPHILLIPS

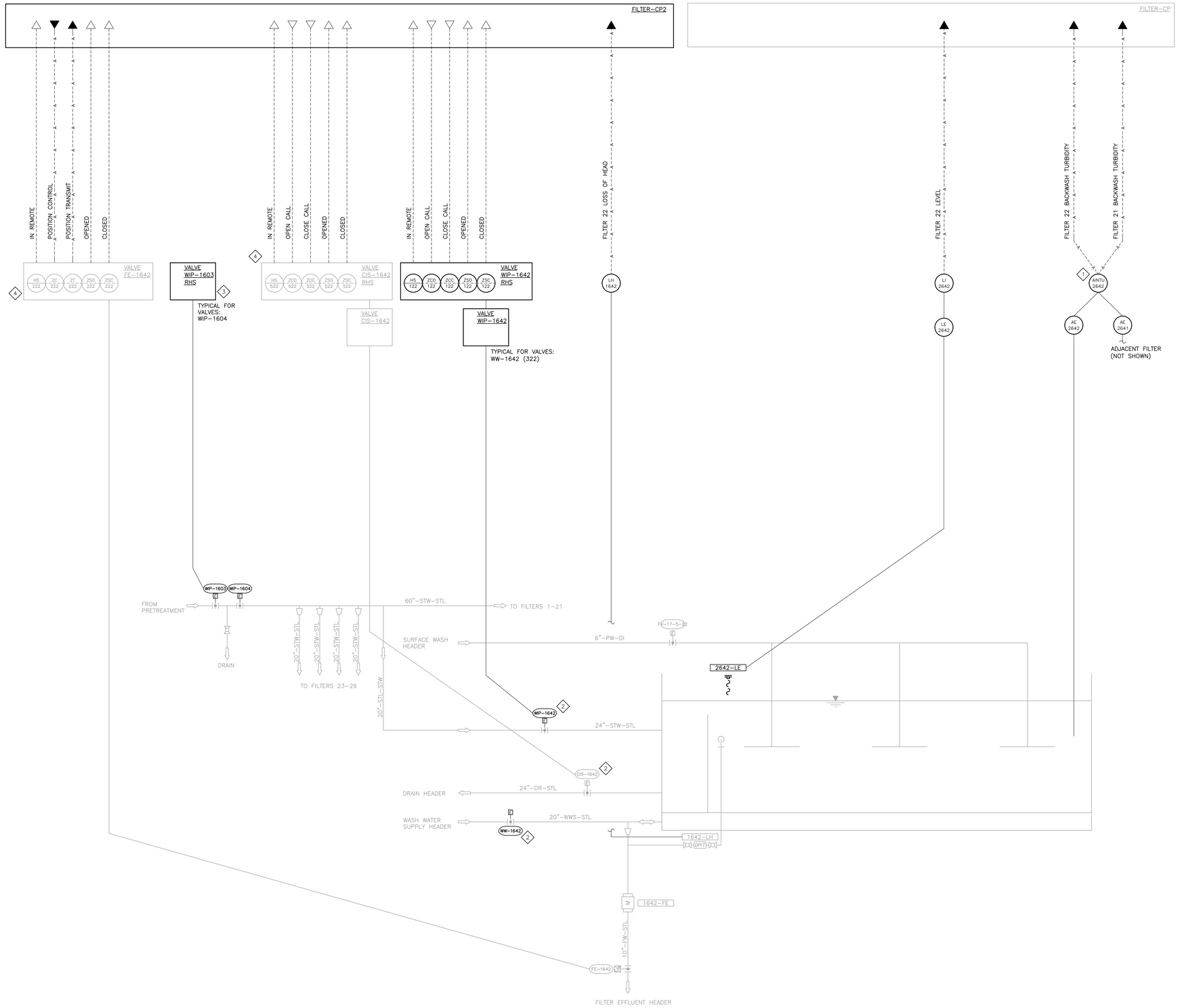
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P107

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FILTER 22
FLOW SCHEMATIC AND P&ID
NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. FILTER 21 AND 22 BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
2. FILTER INFLUENT VALVE (WIP-1642), WASH WATER SUPPLY VALVE (WW-1642), DRAIN VALVE (CIS-1642) ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS.
3. VALVE WIP-1603 AND WIP-1604 ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS, NOT CONNECTED TO SCADA.
4. REMOVE EXISTING MODBUS INTERFACE CARD. INSTALL NEW I/O CARD, WIRING, AND CONDUIT.

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FILTER 22 FLOW SCHEMATIC AND P&ID

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

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Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

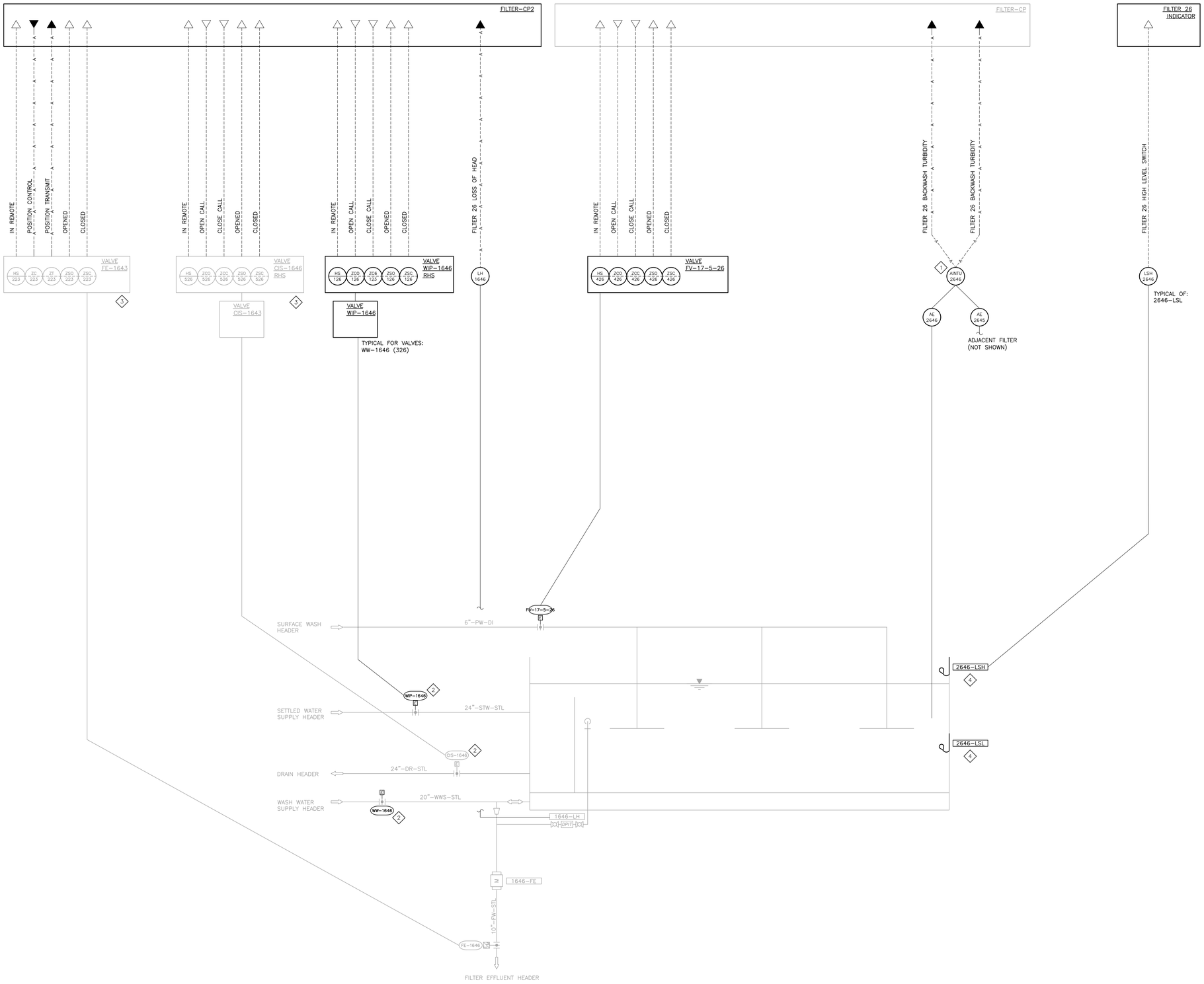
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FILTER 26, TYPICAL OF FILTERS 23-26

FLOW SCHEMATIC AND P&ID

NO SCALE

NOTES

1. NOT ALL EXISTING I/O TO REMAIN IS SHOWN.
2. TAGGING CONVENTION IS SPECIFIC TO EACH FILTER NUMBER. SEE INSTRUMENTATION SCHEDULE.

KEY NOTES

1. ADJACENT FILTER BACKWASH TURBIDIMETERS TO SHARE A CONTROLLER.
2. FILTER INFLUENT VALVE AND DRAIN VALVE ACTUATORS TO BE SUPPLIED WITH REMOTE HAND STATIONS.
3. REMOVE EXISTING MODBUS INTERFACE CARD. INSTALL NEW I/O CARD, WIRING, AND CONDUIT.
4. LEVEL SWITCHES FOR FILTER 26 ONLY, NOT FOR FILTERS 23-25.

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FILTER 26 FLOW SCHEMATIC AND P&ID

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Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

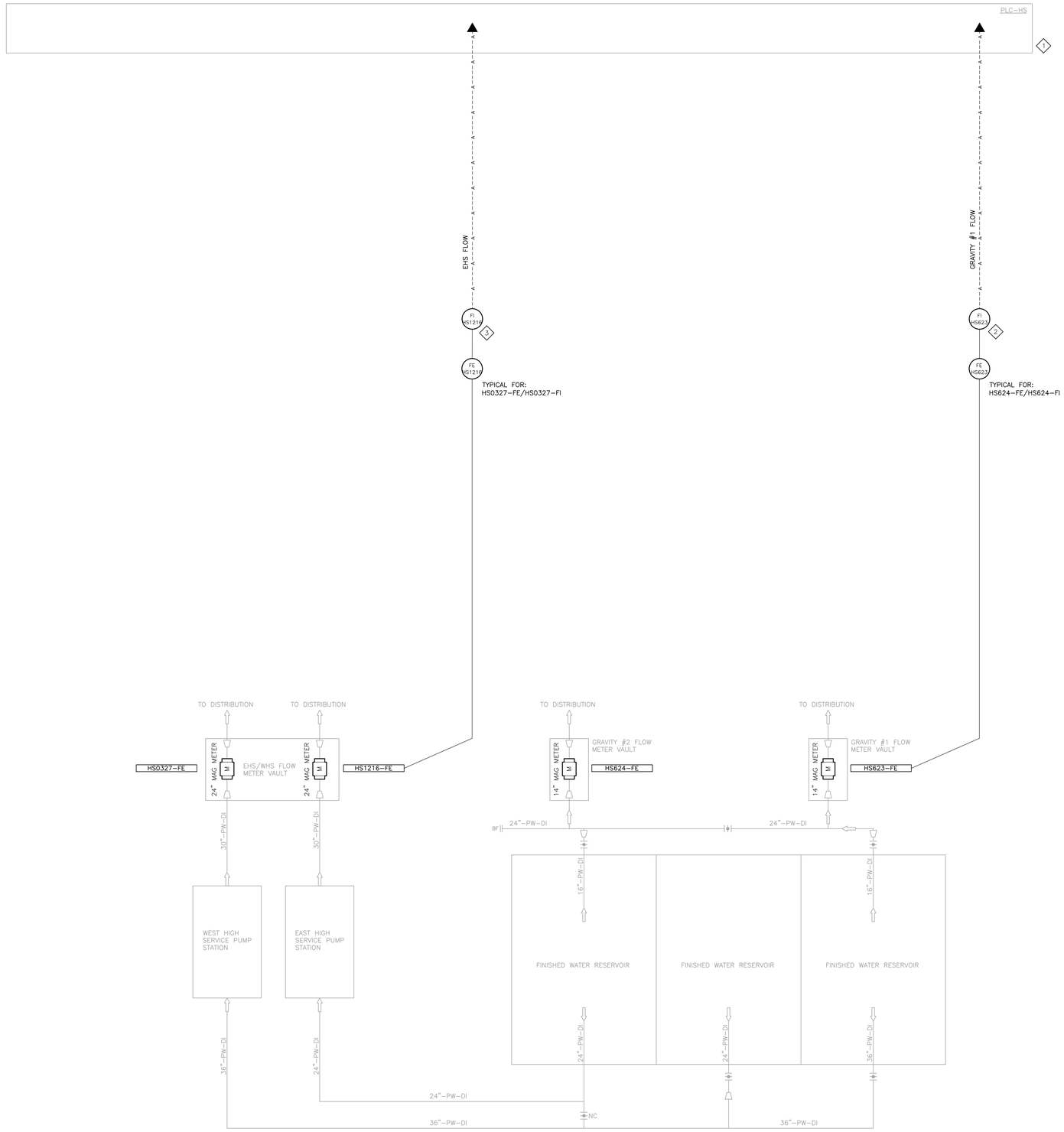
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FINISHED WATER
FLOW SCHEMATIC AND P&ID
NO SCALE

KEY NOTES

1. EXISTING PLC LOCATED IN WTP CONTROL ROOM.
2. GRAVITY FLOW TRANSMITTERS TO BE LOCATED IN THE GROUNDS BUILDING.
3. EHS AND WHS FLOW TRANSMITTERS TO BE LOCATED IN PUMP ROOM NO. 2.

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FINISHED WATER FLOW SCHEMATIC AND P&ID

REVISIONS

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Manager	BDPHILLIPS

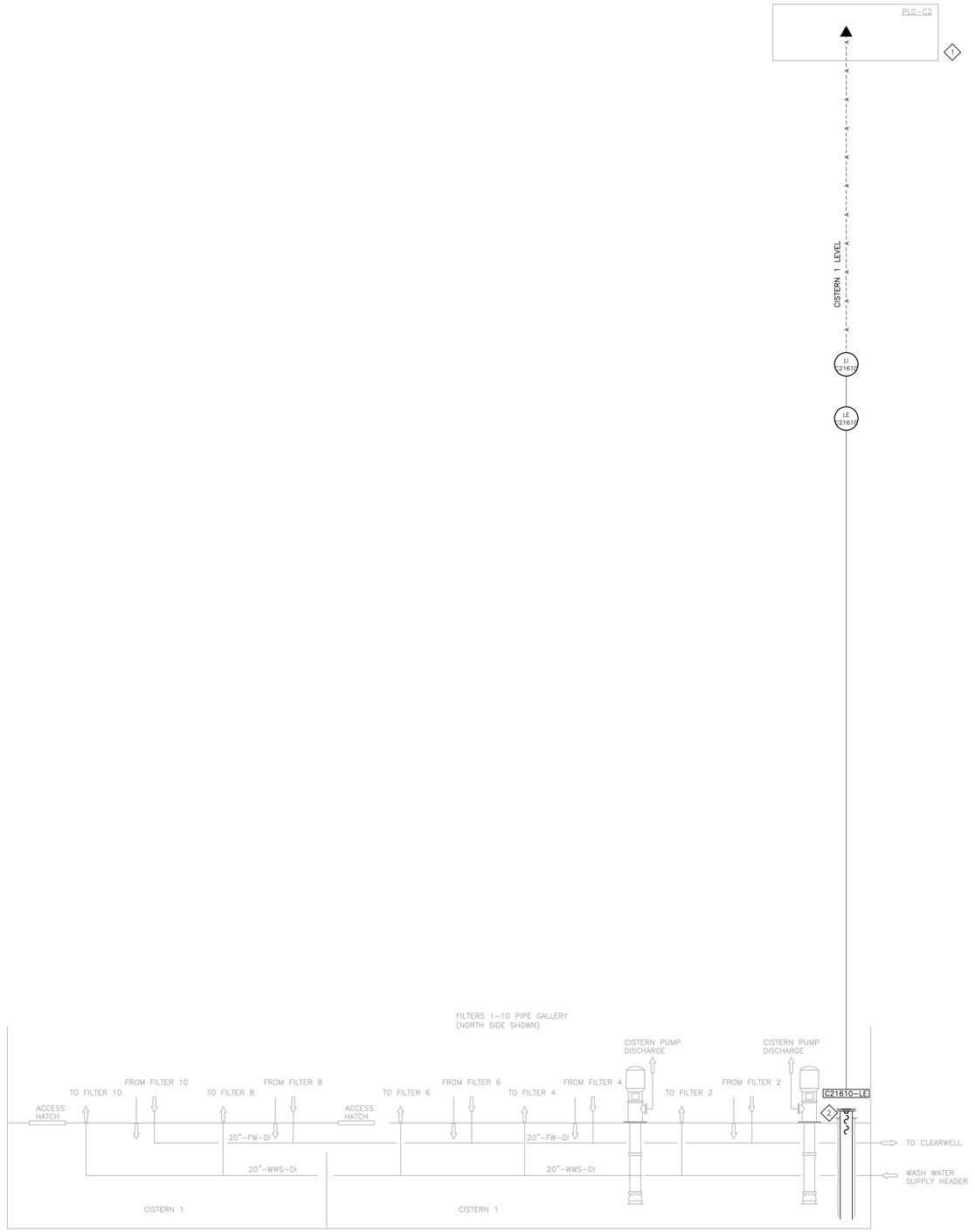
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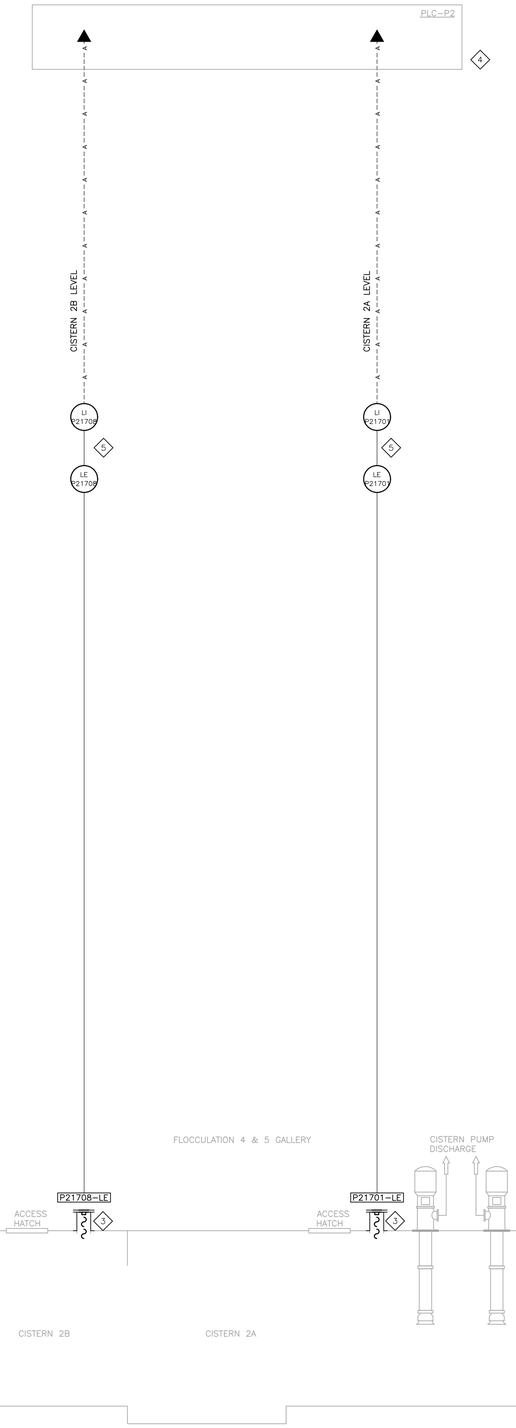
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SHEET NO.
P110

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KEY NOTES

1. EXISTING PLC-C2 LOCATED IN LOWER LEVEL ELECTRICAL ROOMS.
2. INSTALL FLANGE MOUNTED LEVEL INSTRUMENT TO NEW 4-INCH SS PIPE. PROVIDE PIPE CLAMP TO BRACE SS PIPE TO EXISTING 8-INCH FLOOR SLEEVE. SS PIPE LENGTH TO BE FIELD VERIFIED, EXTENDING BEYOND EXISTING STILLING PIPE. SEE DETAIL, STYLE 2
3. INSTALL FLANGE MOUNTED LEVEL INSTRUMENT TO NEW 6-INCH FLG X FLG PVC PIPE MOUNTED TO GALLERY FLOOR AT EXISTING CORED HOLE. SEE DETAIL, STYLE 1.
4. EXISTING PLC-P2 LOCATED IN FILTER OPERATING GALLERY.
5. LEVEL TRANSMITTER TO BE LOCATED IN FLOCCULATION 4 & 5 GALLERY, ADJACENT TO SENSOR.

CISTERN 1 AND 2
FLOW SCHEMATIC AND P&ID
NO SCALE

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CISTERN 1 & 2 FLOW SCHEMATIC AND P&ID

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

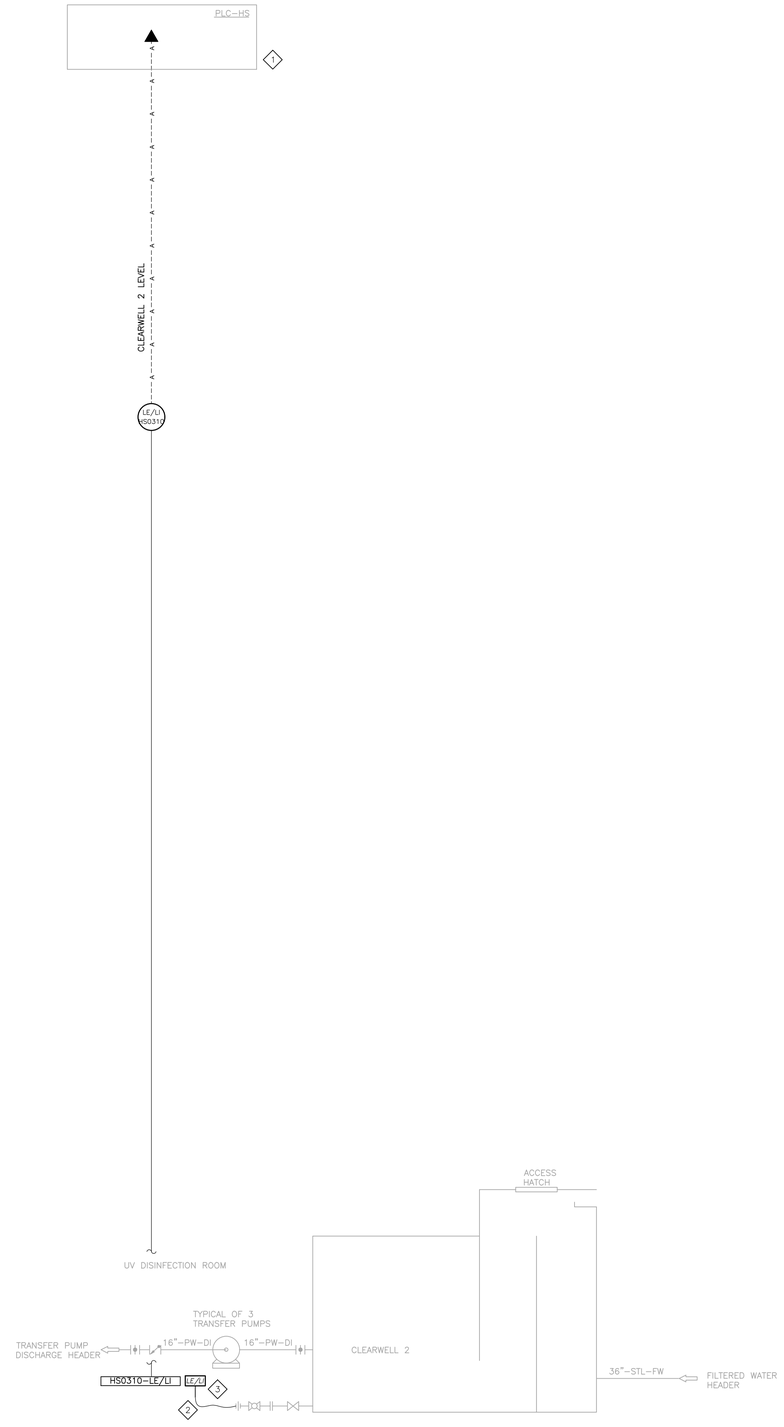
Drawn By	SFALKOWSKI
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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CLEARWELL 2

FLOW SCHEMATIC AND P&ID

NO SCALE

KEY NOTES

1. EXISTING PLC-HS LOCATED IN CONTROL ROOM.
2. REPLACE 1/4-INCH PTFE TUBING.
3. REPLACE PRESSURE LEVEL TRANSMITTER. SEE DETAIL.

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CLEARWELL 2 FLOW SCHEMATIC AND P&ID

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

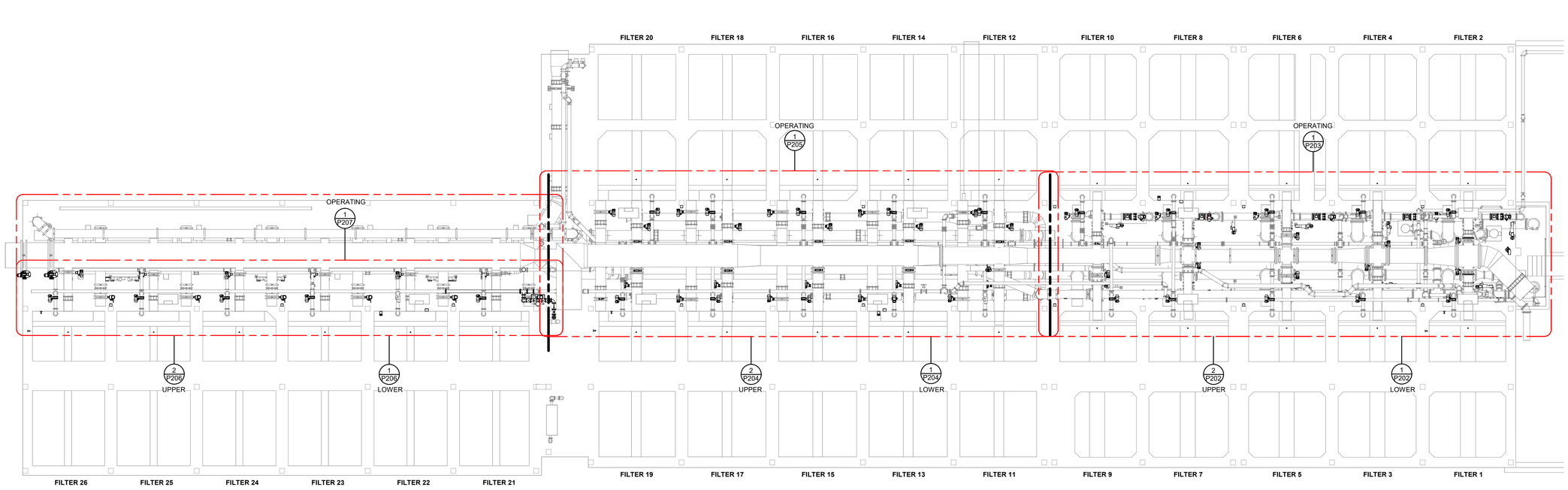
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2501593

SHEET NO.
P112

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PLOT INFO: Z:\2025\2501593\CAD\CDP\01\2501593.DWG LAYOUT: P112 DATE: 4/7/2026 TIME: 5:58:31 PM USER: RSECORD



NORTH

FILTERS 1-26

OVERALL LAYOUT PLAN

SCALE: 3/32" = 1'-0"

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OVERALL LAYOUT

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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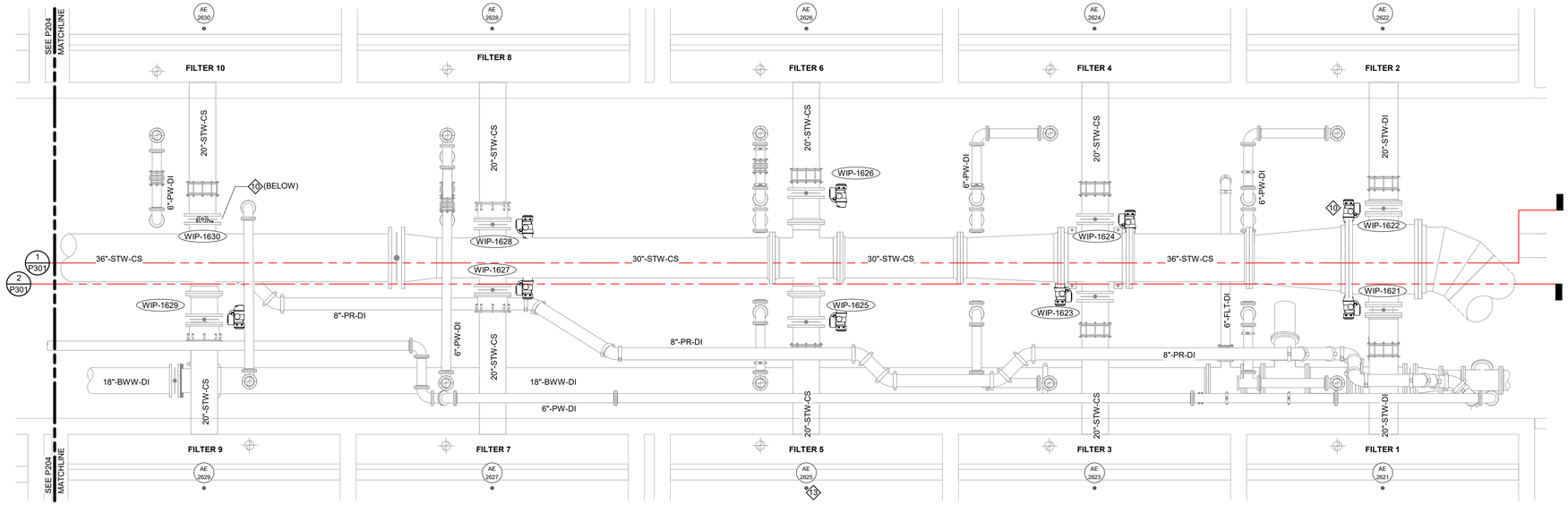
PROJECT NO.

2501593

SHEET NO.

P201

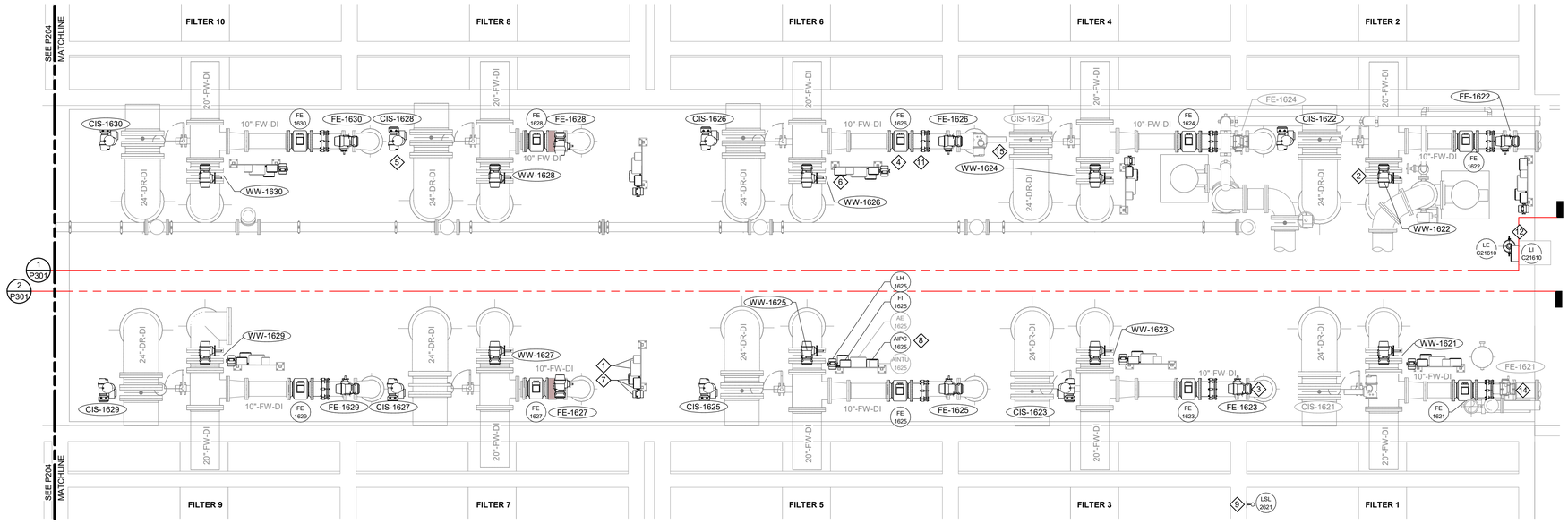
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UPPER PIPE GALLERY
FILTERS 1-10

2 PIPING PLAN

SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 1-10

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

KEY NOTES

1. EXISTING FILTER EFFLUENT TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 1-10.
2. NEW WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
3. NEW FILTER EFFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
4. NEW FILTER EFFLUENT FLOW METER. TYPICAL OF FILTERS 1-10.
5. NEW FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
6. NEW PARTICLE COUNTER AND ASSOCIATED PIPING, SOLENOID VALVES, AND APPURTENANCES. EACH PAIR OF ADJACENT FILTERS TO SHARE ONE PARTICLE COUNTER. TYPICAL OF FILTERS 1-8.
7. NEW FLOW TRANSMITTER, FILTER INFLUENT REMOTE HAND STATION, AND LOSS OF HEAD TRANSMITTER. REPLACE LOSS OF HEAD PVC PIPING AND VALVES AS NEEDED. TYPICAL OF FILTER 1-10.
8. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 5, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 1-10.
9. NEW FILTER 1 LOW LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
10. NEW FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
11. REINSTALL EXISTING FLANGE COUPLING ADAPTER. INSTALL NEW GASKET AND HARDWARE. TYPICAL OF FILTERS 1-6, 9-10.
12. FLANGE MOUNTED LEVEL INSTRUMENT TO BE INSTALLED WITH NEW 4" SS PIPE. PROVIDE PIPE CLAMP TO BRACE PVC PIPE TO EXISTING 8-INCH STILLING PIPE. CLEAN AND PAINT EXISTING PIPE. SEE DETAIL, STYLE 2, ON SHEET P006.
13. NEW FILTER BACKWASH TURBIDITY SENSOR. PROVIDE MOUNTING HARDWARE AND APPURTENANCES FOR INSTALLATION, PER MANUFACTURER'S RECOMMENDATIONS. TYPICAL OF FILTERS 1-10.
14. EXISTING FILTER EFFLUENT VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 1 AND 4.
15. EXISTING FILTER DRAIN VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 1 AND 4.

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FILTERS 1-10 PIPE GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

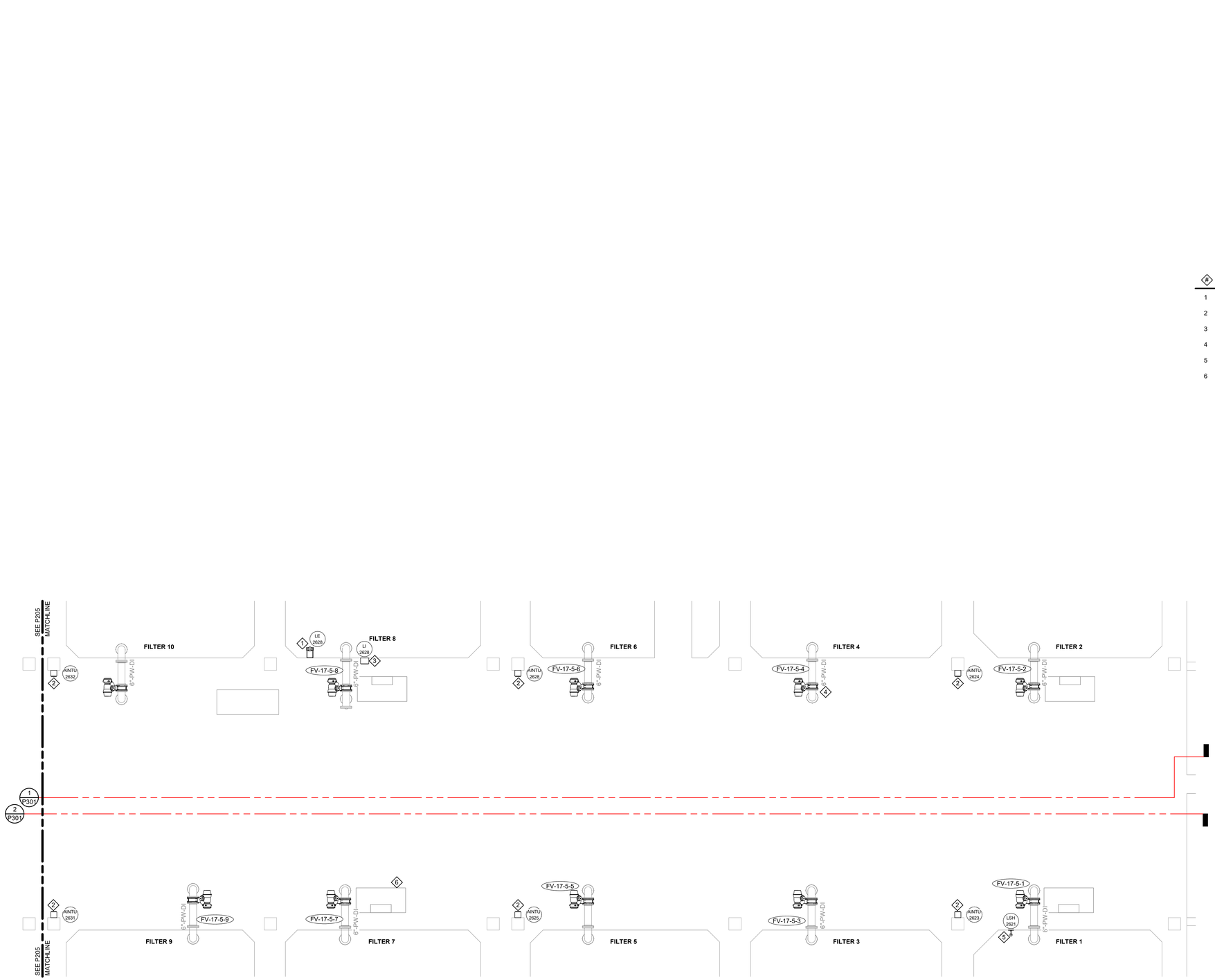
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OPERATING GALLERY
FILTERS 1-10

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

KEY NOTES

1. NEW FILTER 8 LEVEL SENSOR. MOUNT TO FILTER WALL AT OPERATING FLOOR LEVEL. SEE DETAIL ON SHEET P006.
2. NEW BACKWASH TURBIDITY CONTROLLER SHARED BETWEEN ADJACENT FILTERS.
3. NEW FILTER 8 LEVEL TRANSMITTER. MOUNT TO EXISTING STRUT. ADJUST AS NEEDED.
4. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 1-10.
5. NEW FILTER 1 HIGH LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
6. EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.

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FILTERS 1-10 OPERATING GALLERY

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

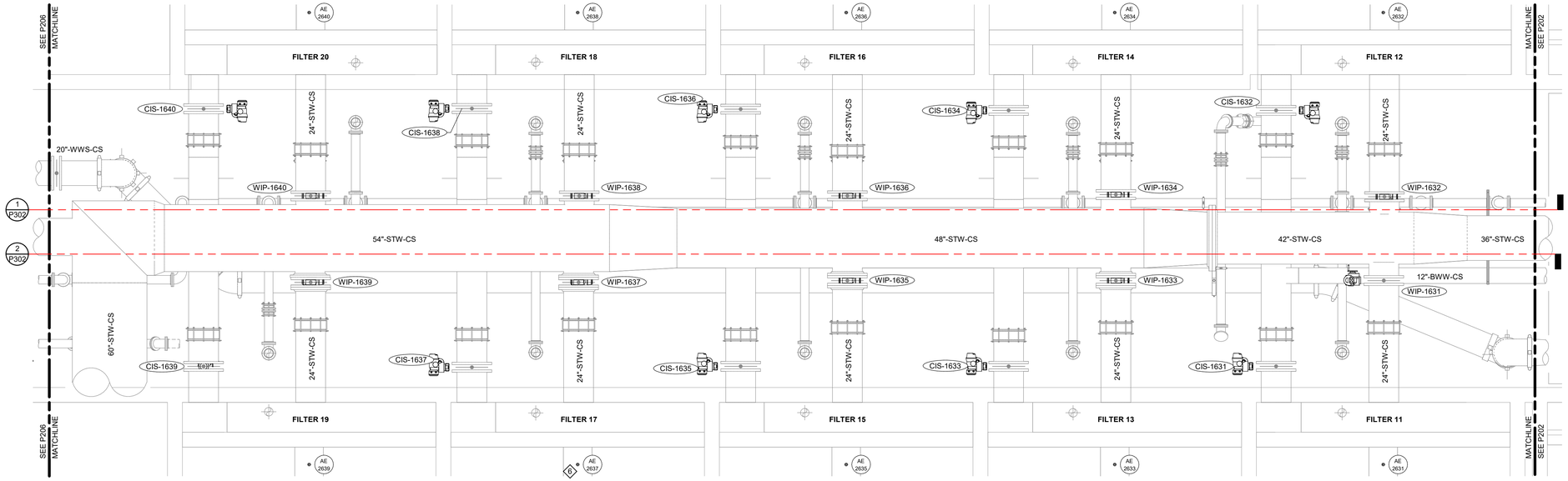
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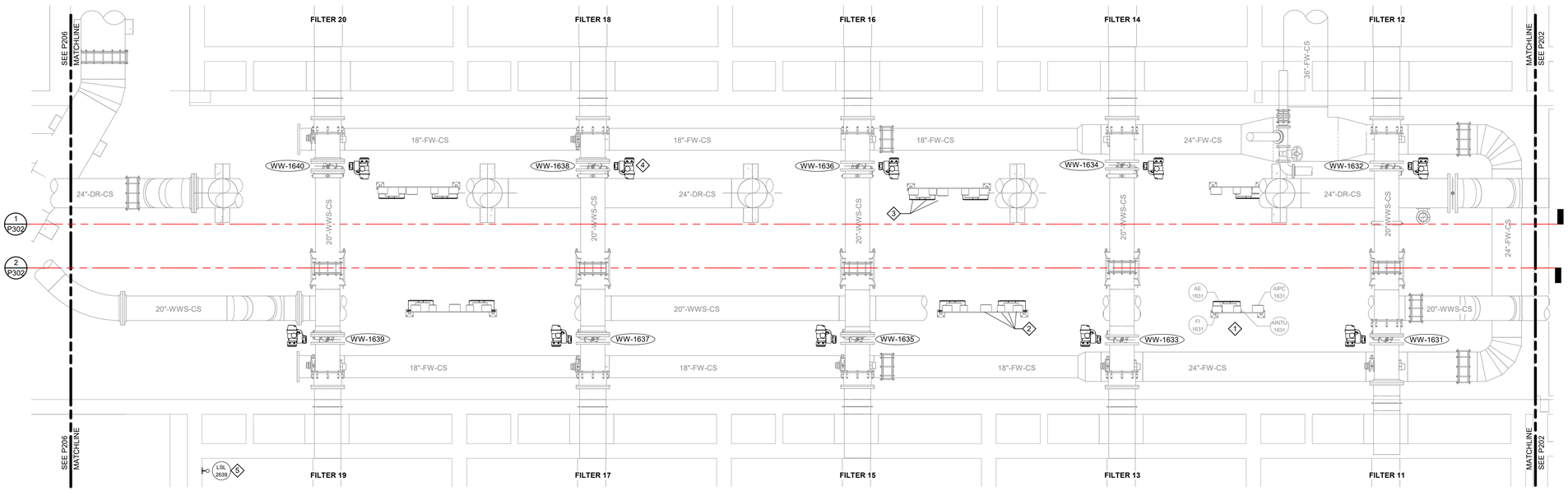
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UPPER PIPE GALLERY
FILTERS 11-20

2 PIPING PLAN

SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 11-20

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

KEY NOTES

1. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 11, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 11-20.
2. EXISTING FILTER EFFLUENT FLOW TRANSMITTER, PARTICLE COUNTER, TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 11-20.
3. NEW FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. TYPICAL OF FILTERS 11-20.
4. NEW WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
5. NEW FILTER 19 LOW LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
6. NEW FILTER BACKWASH TURBIDITY SENSOR. PROVIDE MOUNTING HARDWARE AND APPURTENANCES FOR INSTALLATION, PER MANUFACTURER'S RECOMMENDATIONS. TYPICAL OF FILTERS 11-20.

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FILTERS 11-20 PIPE GALLERY

REVISIONS

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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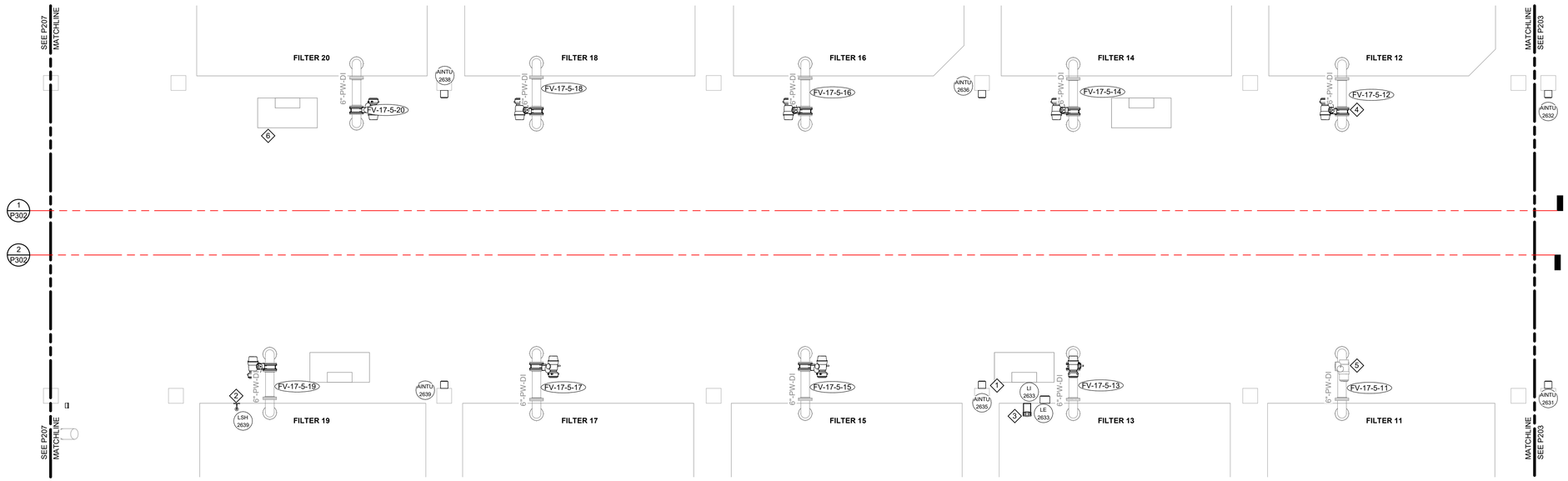
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KEY NOTES

1. NEW BACKWASH TURBIDITY CONTROLLER SHARED BETWEEN ADJACENT FILTERS. TYPICAL OF FILTERS 11-20.
2. NEW FILTER 19 HIGH LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
3. NEW FILTER 13 LEVEL SENSOR. MOUNT TO FILTER WALL AT OPERATING FLOOR LEVEL. SEE DETAIL ON SHEET P006.
4. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 12-20.
5. FILTER 11 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.
6. EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.



OPERATING GALLERY
FILTERS 11-20

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

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FILTERS 11-20 OPERATING GALLERY

REVISIONS

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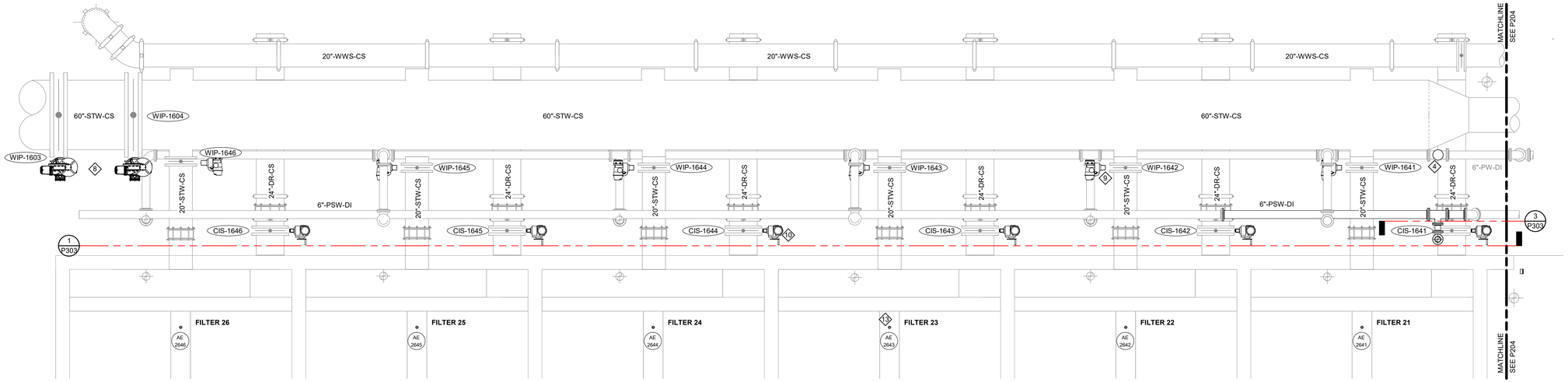
Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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P205

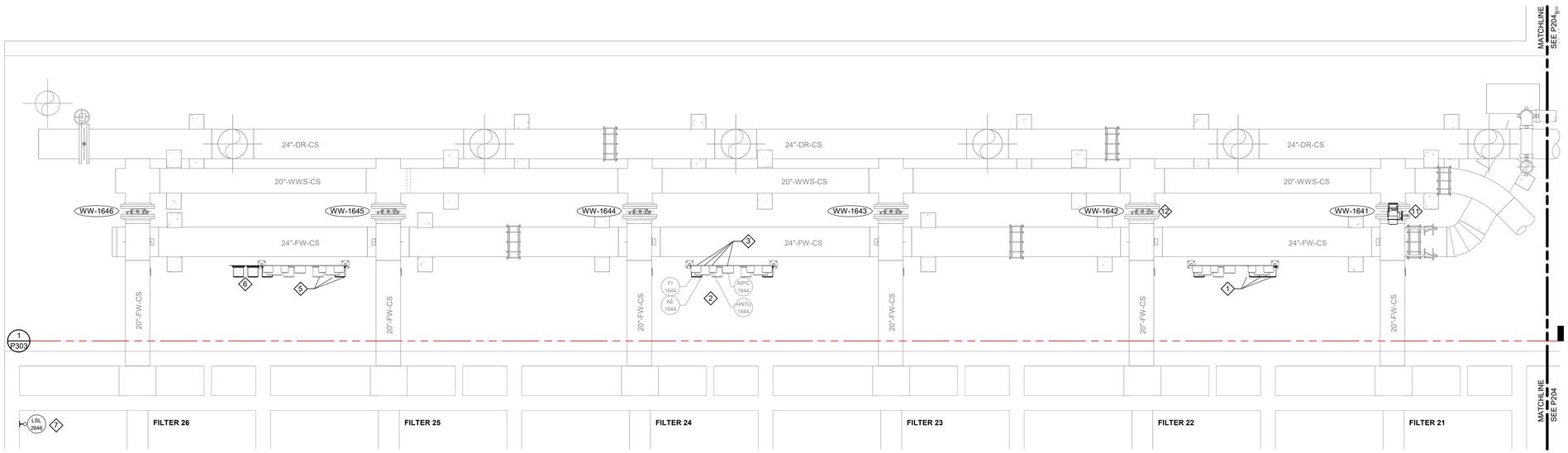
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UPPER PIPE GALLERY
FILTERS 21-26

2 PIPING PLAN

SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 21-26

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

KEY NOTES

1. NEW FILTER 11 INFLUENT, WASH WATER , AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS.
2. INSTRUMENTATION TAGGING ONLY SHOWN FOR FILTER 24, FOR SIMPLICITY. TAGGING CONVENTION TYPICAL OF FILTERS 21-26.
3. FILTER EFFLUENT FLOW TRANSMITTER, EFFLUENT TURBIDIMETER AND CONTROLLER, AND PARTICLE COUNTER TO REMAIN. TYPICAL OF FILTERS 21-26.
4. INSTALL BLIND FLANGE AT TEE BRANCH.
5. NEW FILTER INFLUENT AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. EXISTING WASH WATER VALVE ACTUATOR REMOTE HAND STATION TO REMAIN. TYPICAL OF FILTERS 22-26.
6. TWO NEW SETTLED WATER ACTUATOR REMOTE HAND STATIONS AND MOUNTING PANEL.
7. NEW FILTER 26 LOW LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
8. NEW SETTLED WATER VALVE ACTUATORS. VALVES TO REMAIN.
9. NEW FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
10. NEW FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
11. NEW FILTER 11 WASH WATER VALVE ACTUATOR. VALVE TO REMAIN.
12. EXISTING WASH WATER VALVE AND ACTUATOR TO REMAIN. TYPICAL OF FILTERS 22-26.
13. NEW FILTER BACKWASH TURBIDITY SENSOR. PROVIDE MOUNTING HARDWARE AND APPURTENANCES FOR INSTALLATION, PER MANUFACTURER'S RECOMMENDATIONS. TYPICAL OF FILTERS 21-26.

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FILTERS 21-26 PIPE GALLERY

REVISIONS

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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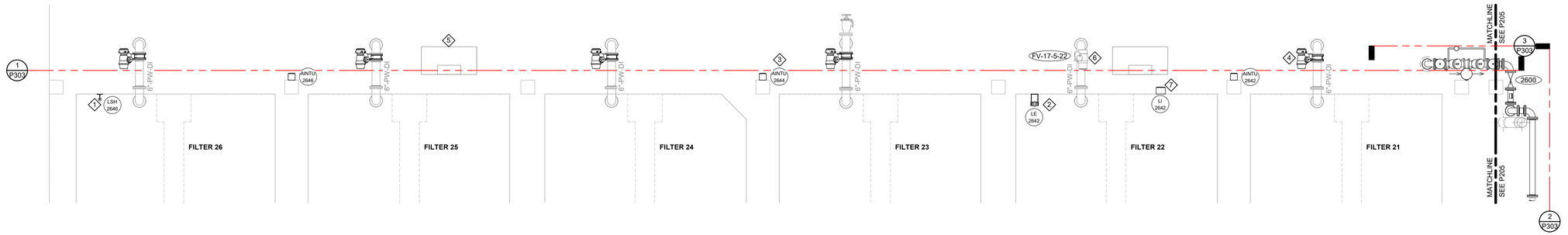
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SHEET NO.
P206

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KEY NOTES

1. NEW FILTER 26 HIGH LEVEL SWITCH. MOUNT TO FILTER WALL. SEE DETAIL ON SHEET P006.
2. NEW FILTER 22 LEVEL SENSOR. MOUNT TO FILTER WALL AT OPERATING FLOOR LEVEL. SEE DETAIL ON SHEET P006.
3. NEW BACKWASH TURBIDITY CONTROLLER SHARED BETWEEN ADJACENT FILTERS. TYPICAL OF FILTERS 21-26. TOTAL OF 3 CONTROLLERS.
4. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 21 AND 23-26.
5. EXISTING FILTER CONSOLE TO REMAIN. PROTECT DURING CONSTRUCTION. TYPICAL.
6. EXISTING FILTER 22 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.
7. NEW FILTER 22 LEVEL TRANSMITTER. MOUNT TO EXISTING STRUT. ADJUST AS NEEDED.



OPERATING GALLERY
FILTERS 21-26

1 PIPING PLAN

SCALE: 1/4" = 1'-0"

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FILTERS 21-26 OPERATING GALLERY

REVISIONS

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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2501593

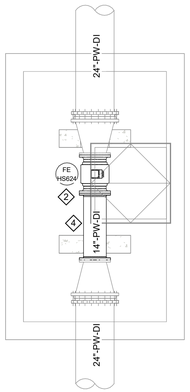
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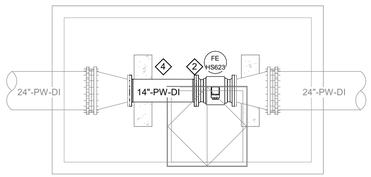
KEY NOTES

1. NEW FLOW METERS. ASSOCIATED FLOW TRANSMITTERS TO BE LOCATED IN PUMP ROOM NO. 2. TYPICAL OF FE/FI-HS0327 AND FE/FI-HS1216
2. NEW FLOW METER. ASSOCIATED FLOW TRANSMITTER TO BE LOCATED IN GROUNDS BUILDING.
3. REPLACE 24-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE FLOW METER LAY LENGTH.
4. REPLACE 14-INCH FLANGE BY FLANGE SPOOL PIECE OR ADD FLANGE FILLER AS NEEDED TO ACCOMMODATE FLOW METER LAY LENGTH.
5. NEW CONCRETE PIPE SUPPORT. SEE DETAIL ON SHEET P006.



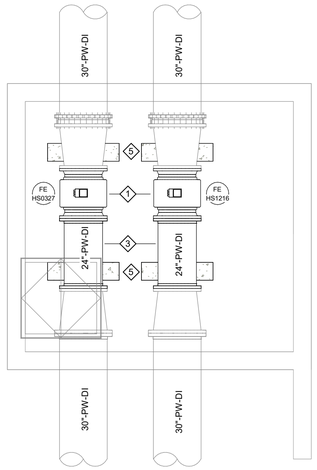
NORTH

GRAVITY VAULT 2
PIPING PLAN
SCALE: 1/4" = 1'-0"



NORTH

GRAVITY VAULT 1
PIPING PLAN
SCALE: 1/4" = 1'-0"



NORTH

EAST/WEST HIGH VAULT
PIPING PLAN
SCALE: 1/4" = 1'-0"

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VAULTS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

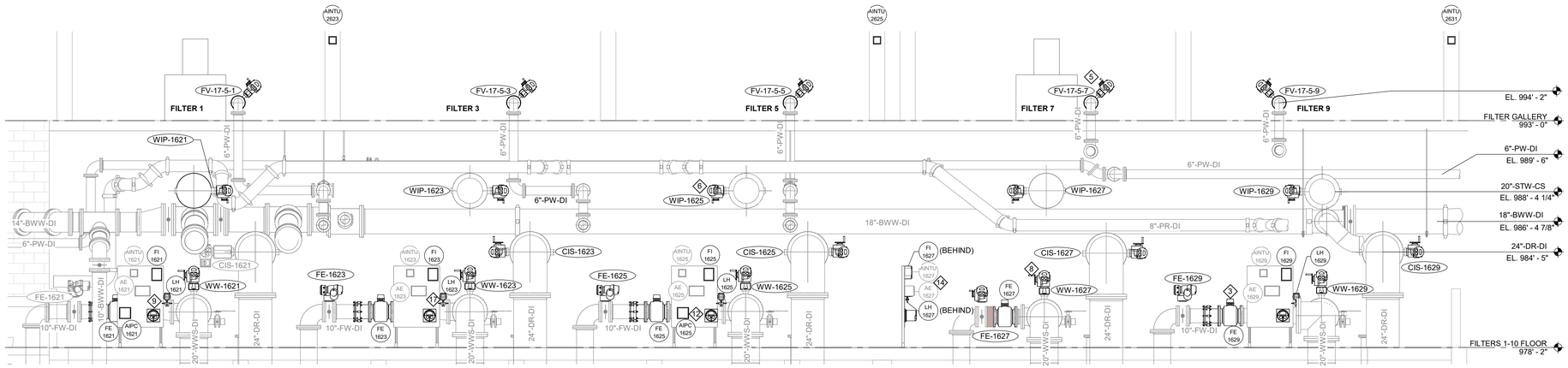
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Manager	BDPHILLIPS

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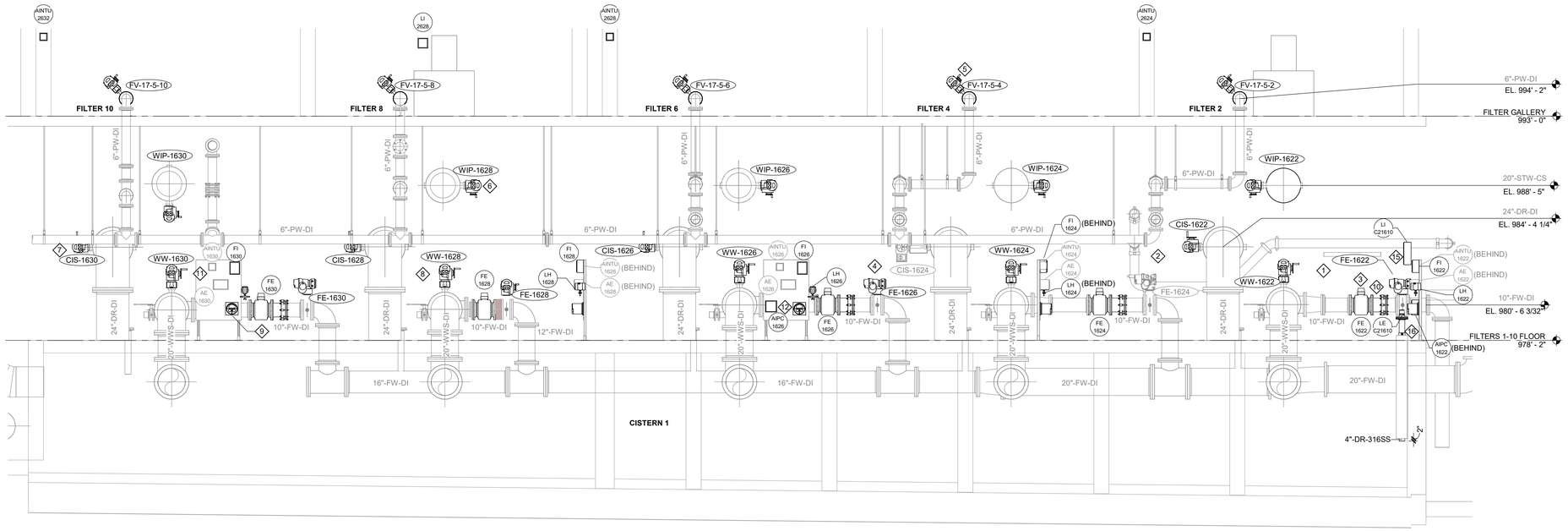
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FILTERS 1, 3, 5, 7, 9

2 SECTION

SCALE: 1/4" = 1'-0"



FILTERS 2, 4, 6, 8, 10

1 SECTION

SCALE: 1/4" = 1'-0"

KEY NOTES

1. EXISTING CISTERN PUMP AND DISCHARGE PIPING HIDDEN FOR CLARITY OF FILTER 2 EFFLUENT.
2. EXISTING CISTERN PUMP AND DISCHARGE PIPING HIDDEN FOR CLARITY OF FILTER 4 EFFLUENT.
3. NEW FILTER EFFLUENT FLOW METER. TYPICAL OF FILTERS 1-10.
4. NEW FILTER EFFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
5. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 1-10.
6. NEW FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
7. NEW FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 2-3, 5-10.
8. NEW WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 1-10.
9. NEW FILTER INFLUENT VALVE ACTUATOR REMOTE HAND STATION. TYPICAL OF FILTERS 1-10.
10. REINSTALL EXISTING FLANGE COUPLING ADAPTER. INSTALL NEW GASKET AND HARDWARE. TYPICAL OF FILTERS 1-7, 9-10.
11. EXISTING INSTRUMENT SUPPORT STAND TO REMAIN. TYPICAL OF FILTERS 1-10.
12. NEW PARTICLE COUNTER AND ASSOCIATED PIPING, SOLENOID VALVE, AND APPURTENANCES. EACH PAIR OF ADJACENT FILTERS TO SHARE ONE PARTICLE COUNTER. TYPICAL OF FILTERS 1-8.
14. EXISTING FILTER EFFLUENT TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 1-10.
15. CISTERN 1 LEVEL TRANSMITTER TO BE MOUNTED TO EXISTING COLUMN. COLUMN NOT SHOWN.
16. INSTALL 4-INCH SS MOUNTING PIPE WITHIN EXISTING 8-INCH STILLING WELL. PROVIDE PIPE CLAMP TO BRACE SS PIPE TO STILLING PIPE AT OPENING. LENGTH OF SS PIPE TO BE FIELD VERIFIED. SEE FLANGE MOUNTED LEVEL SENSOR DETAIL, STYLE 2, ON SHEET P006.
17. NEW LOSS OF HEAD SENSOR. REPLACE ASSOCIATED PIPING AND VALVES AS NEEDED. TYPICAL OF FILTERS 1-10.

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FILTERS 1-10 SECTIONS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

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Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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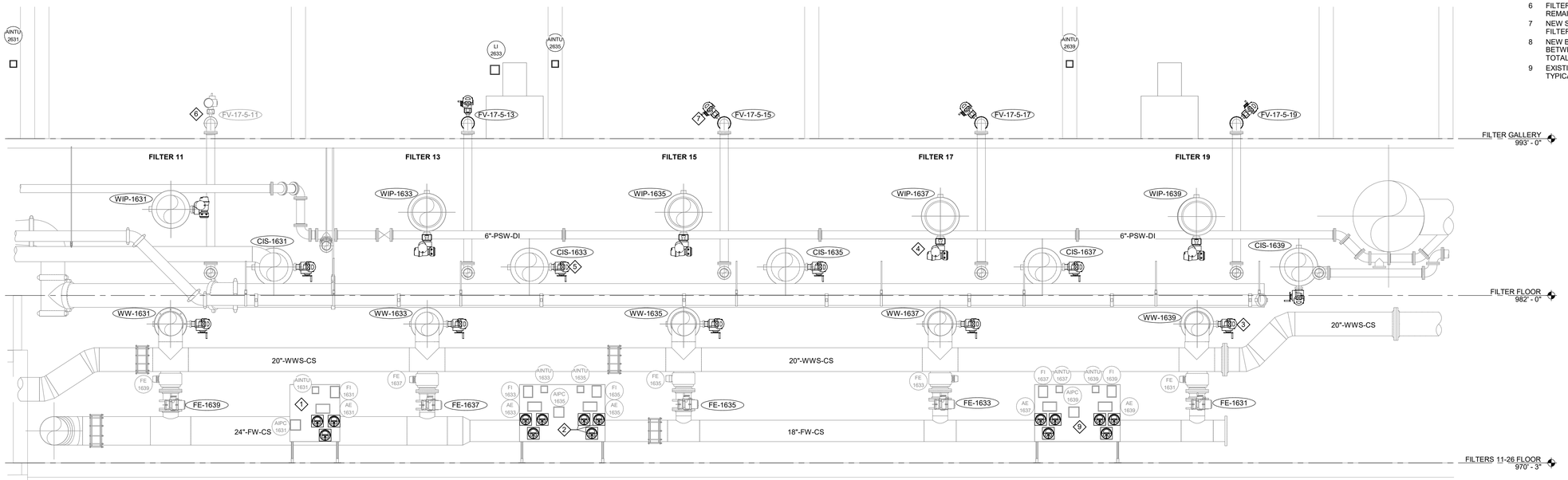
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KEY NOTES

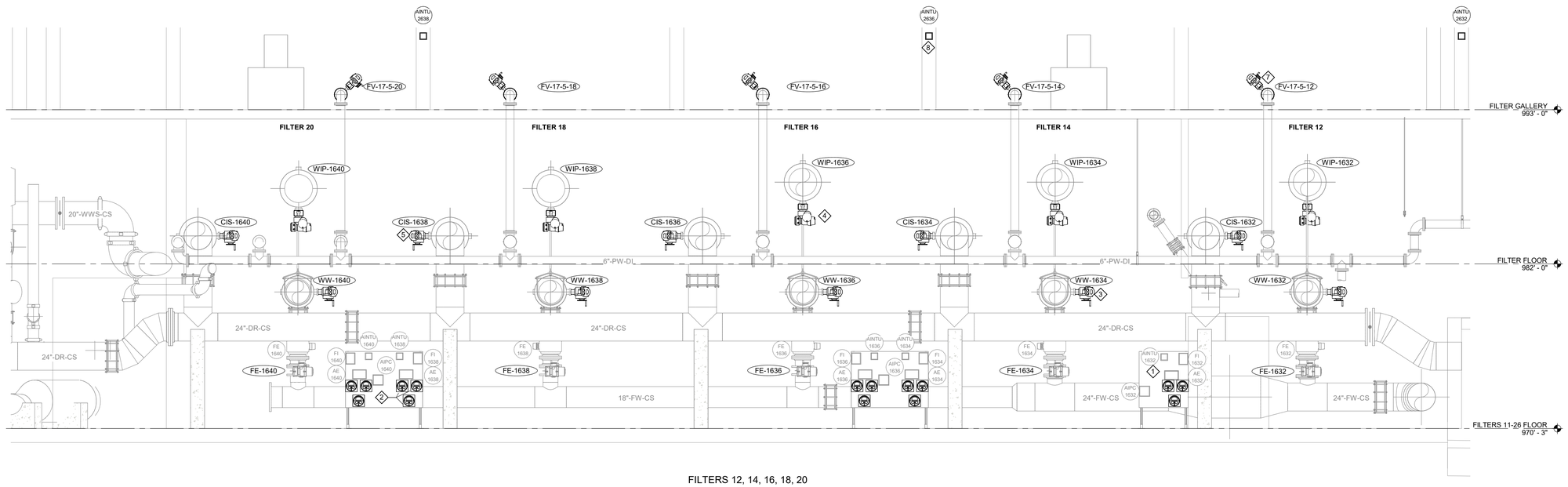
1. EXISTING FILTER EFFLUENT FLOW TRANSMITTER, PARTICLE COUNTER, TURBIDIMETER AND CONTROLLER TO REMAIN. TYPICAL OF FILTERS 11-20.
2. NEW FILTER INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. TYPICAL OF FILTERS 11-20.
3. NEW WASH WATER VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
4. NEW FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20.
5. NEW FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 11-20
6. FILTER 11 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.
7. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 12-20.
8. NEW BACKWASH TURBIDITY CONTROLLER SHARED BETWEEN ADJACENT FILTERS. TYPICAL OF FILTERS 11-20. TOTAL OF 6 CONTROLLERS.
9. EXISTING INSTRUMENT SUPPORT STAND TO REMAIN. TYPICAL OF FILTERS 11-20.



FILTERS 11, 13, 15, 17, 19

2 SECTION

SCALE: 1/4" = 1'-0"



FILTERS 12, 14, 16, 18, 20

1 SECTION

SCALE: 1/4" = 1'-0"

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Instrumentation & Controls Improvements

FILTERS 11-20 SECTIONS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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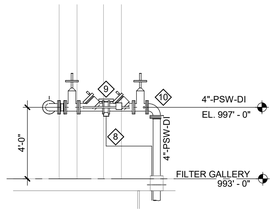
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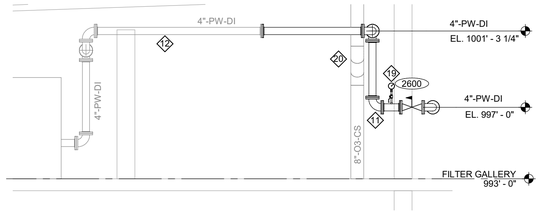
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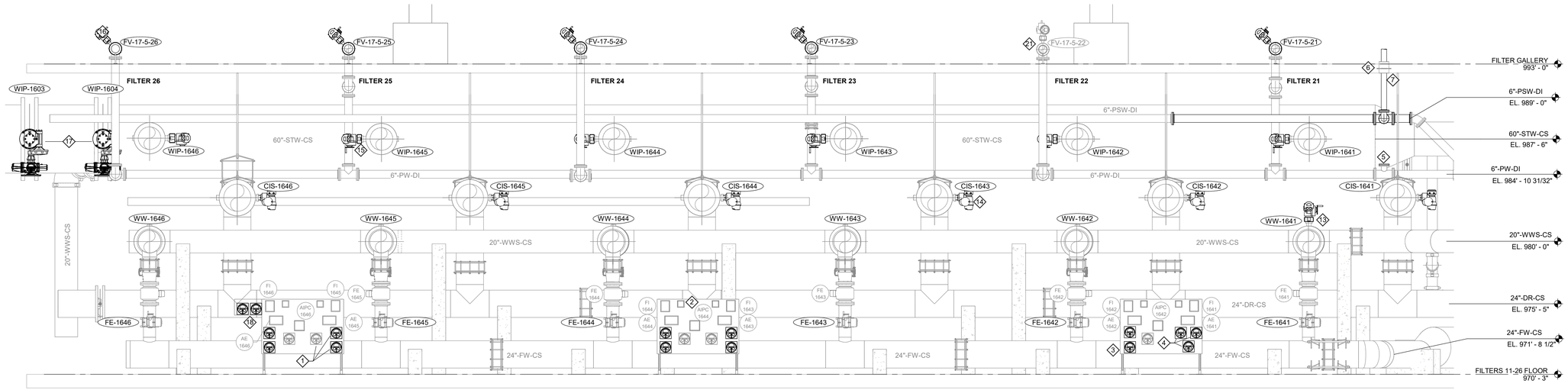
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3 SECTION
SCALE: 1/4" = 1'-0"



2 SECTION
SCALE: 1/4" = 1'-0"



FILTERS 21-26

1 SECTION
SCALE: 1/4" = 1'-0"

KEY NOTES

1. NEW FILTER INFLUENT AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS. EXISTING WASH WATER VALVE ACTUATOR REMOTE HAND STATION TO REMAIN. ADJUST EXISTING REMOTE HAND STATION LOCATION AS NEEDED. TYPICAL OF FILTERS 22-26.
2. FILTER EFFLUENT FLOW TRANSMITTER, EFFLUENT TURBIDIMETER AND CONTROLLER, AND PARTICLE COUNTER TO REMAIN. TYPICAL OF FILTERS 21-26.
3. EXISTING INSTRUMENT SUPPORT STAND TO REMAIN. TYPICAL OF FILTERS 21-26.
4. NEW FILTER 11 INFLUENT, WASH WATER, AND DRAIN VALVE ACTUATOR REMOTE HAND STATIONS.
5. INSTALL BLIND FLANGE AT TEE BRANCH.
6. NEW 4" PSW PIPING THROUGH EXISTING FLOOR SLEEVE.
7. INSULATE NEW 4" PSW PIPING IN OPERATING GALLERY. TERMINATE INSULATION BELOW FLOOR.
8. PROVIDE 1/2" DRAIN PIPING FROM RPZ. ROUTE THROUGH EXISTING FLOOR SLEEVE, TERMINATE AT PIPE GALLERY FLOOR. ROUTE AROUND EXISTING PIPING AND CONDUIT ON PIPE GALLERY WALL.
9. NEW 4-INCH RPZ.
10. INSULATE NEW 4-INCH PSW PIPING. TERMINATE INSULATION AT EITHER END OF RPZ.
11. INSULATE NEW 4-INCH PSW PIPING. TERMINATE INSULATION AT EITHER END OF VALVE 2600.
12. REPLACE INSULATION ON EXISTING 4-INCH PSW PIPING.
13. NEW FILTER 11 WASH WATER VALVE ACTUATOR. VALVE TO REMAIN.
14. NEW FILTER DRAIN VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
15. NEW FILTER INFLUENT VALVE ACTUATOR. VALVE TO REMAIN. TYPICAL OF FILTERS 21-26.
16. NEW SURFACE WASH VALVE AND ACTUATOR. TYPICAL OF FILTERS 21 AND 23-26.
17. NEW SETTLED WATER VALVE ACTUATORS. VALVES TO REMAIN.
18. NEW SETTLED WATER ACTUATOR REMOTE HAND STATIONS AND MOUNTING PANEL.
19. SEE PRESSURE GAUGE DETAIL ON SHEET P006.
20. ROUTE NEW PIPING AROUND EXISTING 20-INCH OZONE PIPING.
21. EXISTING FILTER 22 SURFACE WASH VALVE AND ACTUATOR TO REMAIN.

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Instrumentation & Controls Improvements
FILTERS 21-26 SECTIONS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	RSECORD
Designer	AWADE
Reviewer	BDPHILLIPS
Manager	BDPHILLIPS

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ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED OCCUPANCY SENSOR
WOS	WALL MOUNTED OCCUPANCY SENSOR
PP	POWER PACK FOR OCCUPANCY SENSOR
RP	RELAY PACK FOR OCCUPANCY SENSOR
EU	UL 924 EMERGENCY LIGHTING CONTROL UNIT
PC	CLG MTD DAYLIGHT HARVESTING PHOTO SENSOR
	POWER AND DATA POKE-THRU FLOOR DEVICE
FB	POWER AND DATA FLOOR BOX
TV	VIDEO MONITOR POWER AND DATA WALL BOX
C	CONTACTOR
J	CEILING MOUNTED JUNCTION BOX
WJ	WALL MOUNTED JUNCTION BOX
J	FLOOR MOUNTED JUNCTION BOX
PC	PHOTOCELL
PB	PUSHBUTTON
TC	TIME CLOCK
XL	LOW VOLTAGE TRANSFORMER
WT	THERMOSTAT
WH	HUMIDISTAT
	SPECIAL CONNECTION (AS NOTED)
	PANELBOARD (480Y/277V) OR (480V)
	PANELBOARD (208Y/120V) OR (120/240V)
	SINGLE PHASE MOTOR CONNECTION
	THREE PHASE MOTOR CONNECTION
	NON FUSIBLE DISCONNECT SWITCH
ZPX/Y	FUSIBLE DISCONNECT SWITCH (Z=No. POLES; X=SWITCH SIZE; Y=FUSE SIZE; MOUNT AT 5'-0" AFF, UNO)
X N	MOTOR STARTER N=STARTER SIZE; X=STARTER TYPE, (RV: REDUCED VOLTAGE; BLANK: FULL VOLTAGE); MOUNT AT 5'-0" AFF, UNO
X N	COMBINATION MOTOR STARTER / DISCONNECT SWITCH N=STARTER SIZE; X=STARTER TYPE, (RV: REDUCED VOLTAGE; BLANK: FULL VOLTAGE); MOUNT AT 5'-0" AFF, UNO
	GROUND ROD
	CONDUIT UNDER FLOOR
	CONDUIT ABOVE FLOOR
	SURFACE OR RECESSED LUMINAIRE
	SURFACE OR RECESSED DIRECTIONAL LUMINAIRE
	WALL MOUNTED LUMINAIRE
	TRACK MOUNTED LUMINAIRE
	EMERGENCY LUMINAIRE
	NIGHT LIGHT LUMINAIRE
	EMERGENCY NIGHT LIGHT LUMINAIRE
	BATTERY POWERED EMERGENCY LIGHTING UNIT
	CEILING MOUNTED EXIT SIGN
	WALL MOUNTED EXIT SIGN
	SITE LUMINAIRE AND POLE

GENERAL ELECTRICAL ABBREVIATIONS

ABBREVIATIONS ARE FOR REFERENCE ONLY AND MAY OR MAY NOT BE USED ELSEWHERE IN CONSTRUCTION DOCUMENTS

A, AMP	AMPERES	KW	KILOWATT
AC	ALTERNATING CURRENT	KWHR	KILOWATT-HOUR
ACP	ACOUSTICAL CEILING PANEL	LED	LIGHT-EMITTING DIODE
ADA	AMERICANS WITH DISABILITIES ACT	LS	LIGHT SWITCH OR LIMIT SWITCH
AFF	ABOVE FINISHED FLOOR	LT	LIGHT OR LEVEL TRANSDUCER
AHJ	AUTHORITY HAVING JURISDICTION	LTFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
AIC	AMPERE-INTERRUPTING CURRENT	LTG	LIGHTING
AL	ALUMINUM	LV	LOW VOLTAGE
ATM	AUTOMATIC TELLER MACHINE	M	METER
ATS	AUTOMATIC TRANSFER SWITCH	MANF	MANUFACTURER
BMS	BUILDING MANAGEMENT SYSTEM	MCA	MINIMUM CIRCUIT AMPACITY
BRKR	BREAKER	MCB	MAIN CIRCUIT BREAKER
C	CONDUIT OR CELSIUS	MCC	MOTOR CONTROL CENTER
CB	CIRCUIT BREAKER	MCP	MOTOR CIRCUIT PROTECTOR
CATV	CABLE TELEVISION	MH	MANHOLE
CIP	CAST-IN-PLACE	MLO	MAIN LUGS ONLY
CJ	CONTROL JOINT	MT	MOUNT
CKT	CIRCUIT	MTD	MOUNTED
CLG	CEILING	MV	MEDIUM VOLTAGE
CM	CONSTRUCTION MANAGER	N,NEUT	NEUTRAL
CMU	CONCRETE MASONRY UNIT	NC	NORMALLY CLOSED
COAX	COAXIAL	NEC	NATIONAL ELECTRICAL CODE
CONC	CONCRETE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CP	CONTROL PANEL	NL	NIGHT LIGHT
CT	CURRENT TRANSFORMER	NO	NORMALLY OPEN
CU	COPPER	NOM	NOMINAL
Cx	COMMISSIONING	NTS	NOT TO SCALE
CxA	COMMISSIONING AGENT	OD	OUTSIDE DIAMETER
DB	DECIBEL	OH	OVERHEAD
DC	DIRECT CURRENT	OHD	OVERHEAD DOOR
DEM	DEMOLISH	OL	OVERLOAD
DEMO	DEMOLISH OR DEMOLITION	PA	PUBLIC ADDRESS
DF	DRINKING FOUNTAIN	PB	PULL BOX OR PUSHBUTTON
DISC	DISCONNECT	PFC	POWER FACTOR CORRECTION
DPDT	DOUBLE POLE DOUBLE THROW	PH	PHASE
DPST	DOUBLE POLE SINGLE THROW	PNL	PANEL OR PANELBOARD
EC	ELECTRICAL CONTRACTOR	PT	POTENTIAL TRANSFORMER
EJ	EXPANSION JOINT	PTZ	PAN-TILT-ZOOM
ELEC	ELECTRICAL	PWR	POWER
ELEV	ELEVATOR OR ELEVATION	RCP	REFLECTED CEILING PLAN
EM	EMERGENCY	REBAR	REINFORCING BAR
EMT	ELECTRICAL METALLIC TUBING	RECEPT	RECEPTACLE
ENCL	ENCLOSURE	RM	ROOM
ETR	EXISTING TO REMAIN	RNMC	RIGID NON-METALLIC CONDUIT
EWC	ELECTRIC WATER COOLER	ROW	RIGHT-OF-WAY
EWH	ELECTRIC WATER HEATER	RMC	RIGID METAL CONDUIT
EXIST	EXISTING	SEC	SECONDARY
F	FUSE OR FAHRENHEIT	SPD	SURGE PROTECTIVE DEVICE
FA	FIRE ALARM	SPDT	SINGLE POLE DOUBLE THROW
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SPECS	SPECIFICATIONS
FACP	FIRE ALARM CONTROL PANEL	SPST	SINGLE POLE SINGLE THROW
FF&E	FIXTURES, FURNISHINGS & EQUIPMENT	SQ	SQUARE
FIXT	FIXTURE	SS	STAINLESS STEEL
FLA	FULL LOAD AMPERES	SV	SOLENOID VALVE
FM	FACTORY MUTUAL	SWBD	SWITCHBOARD
FMC	FLEXIBLE METAL CONDUIT	SWGR	SWITCHGEAR
FO	FIBER OPTIC	TCC	TEMPERATURE CONTROL CONTRACTOR
FRT	FIRE RETARDANT	TCP	TEMPERATURE CONTROL PANEL
GC	GENERAL CONTRACTOR	TRANS	TRANSFORMER
GEN	GENERATOR	TS	TIME SWITCH
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TYP	TYPICAL
GFI	GROUND FAULT INTERRUPTER	UL	UNDERWRITERS LABORATORIES
GND, G	GROUND	UNO	UNLESS NOTED OTHERWISE
GYP BD	GYPSUM BOARD	UPS	UNINTERRUPTIBLE POWER SUPPLY
HH	HANDHOLE	V	VOLTS
HOA	HAND-OFF-AUTO	VA	VOLT-AMPERE
HP	HORSE POWER	VAC	VOLTS-ALTERNATING CURRENT
HV	HIGH VOLTAGE	VDC	VOLTS-DIRECT CURRENT
ID	INSIDE DIAMETER	VFD	VARIABLE FREQUENCY DRIVE
JB	JUNCTION BOX	W	WATTS
KO	KNOCKOUT	WH	WATER HEATER
KVA	KILOVOLT AMPERE	WP	WEATHERPROOF

GENERAL NOTES

1. SYMBOLS AND GENERAL DESCRIPTIONS IN SYMBOL LEGENDS ARE INDICATED FOR GENERAL REFERENCE ONLY. NOT ALL SYMBOLS ARE USED ON THIS PROJECT. SEE SCHEDULES, SPECIFICATIONS, AND PLANS FOR ADDITIONAL INFORMATION INCLUDING MOUNTING HEIGHTS.
2. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND REPRESENT ELECTRICAL DESIGN INTENT. PROVIDE ALL WORK AND MATERIALS REQUIRED FOR COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEMS THAT FULLY MEET ELECTRICAL DESIGN INTENT. ELECTRICAL WORK TO CONFORM TO LATEST EDITION OF NEC AS ADOPTED BY AUTHORITY HAVING JURISDICTION. SEE SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS AND ITEMS THAT MAY BE REQUIRED ABOVE AND BEYOND MINIMUM REQUIREMENTS THAT ARE OUTLINED IN NATIONAL ELECTRICAL CODE (NEC).
3. THOROUGHLY AND CAREFULLY REVIEW ALL DRAWINGS, SPECIFICATIONS, AND WORK SCOPES IN CONTRACT DOCUMENTS PRIOR TO BIDS AND CONSTRUCTION. WHERE THERE ARE CONFLICTS AMONG DRAWINGS, SPECIFICATIONS, AND WORK SCOPES, MORE STRINGENT OR GREATER QUANTITY REQUIREMENTS APPLY.
4. ALL ELECTRICAL EQUIPMENT TO BE UL LISTED.
5. SEE INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC REQUIREMENTS RELATED TO TESTING, MANUFACTURER STARTUP, TRAINING, ETC. ALL APPLICABLE TESTING AND MANUFACTURER STARTUP REPORTS TO BE SUBMITTED AND APPROVED PRIOR TO DEVELOPMENT OF ELECTRICAL PUNCH LISTS.
6. ALL CONDUCTORS, INCLUDING GROUNDED CONDUCTORS (NEUTRALS), TO BE LABELED AT ALL ENDS AND JOINTS WITH CORRESPONDING PANELBOARD NAME AND CIRCUIT NUMBER, OR OTHERWISE IDENTIFIED TO CORRESPOND WITH ASSOCIATED EQUIPMENT MANUFACTURER'S IDENTIFICATION SYSTEM.
7. AT A MINIMUM, PROVIDE 1#12, 1#12N, 1#12G FOR 20A BRANCH CIRCUITING, UNO. MINIMUM CONDUIT SIZE IS 3/4", UNO. NO MORE THAN NINE CURRENT CARRYING CONDUCTORS ALLOWED IN A RACEWAY, UNO. EQUIPMENT GROUNDING CONDUCTORS TO BE SIZED IN ACCORDANCE WITH NEC AND MAY BE SHARED. ALL GROUNDED CONDUCTORS (NEUTRALS) TO BE TREATED AS CURRENT CARRYING CONDUCTORS.
8. PROVIDE A DEDICATED GROUNDED CONDUCTOR (NEUTRAL) FOR EACH BRANCH CIRCUIT. SHARED NEUTRALS ARE NOT ALLOWED.
9. INSTALL GREEN, INSULATED, COPPER EQUIPMENT GROUNDING CONDUCTORS IN RACEWAYS INCLUDING FLEXIBLE METAL CONDUITS AND NON-METALLIC RACEWAYS. GREEN, INSULATED, COPPER EQUIPMENT GROUNDING CONDUCTORS TO BE INSTALLED WITH ALL FEEDERS AND BRANCH CIRCUITS.
10. PROVIDE FIRESTOPPING FOR ALL CONDUIT AND OTHER ELECTRICAL EQUIPMENT PENETRATIONS THROUGH FLOORS, WALLS, AND CEILINGS TO MAINTAIN FIRE RATINGS.
11. LIMIT VOLTAGE DROP TO 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS ASSUMING FULL LOAD CONDITIONS. VOLTAGE DROP NOT TO EXCEED 5% FROM ELECTRICAL SERVICE TO FURTHEST ELECTRICAL DEVICE.
12. PROVIDE THERMAL SEALS IN ALL CONDUITS THAT RUN FROM CONDITIONED SPACES TO UNCONDITIONED SPACES.
13. ALL JUNCTION BOXES TO BE LABELED TO IDENTIFY CIRCUIT(S) ROUTED THROUGH EACH RESPECTIVE JUNCTION BOX USING BRADY LABELS.
14. CONDUCTORS INSTALLED IN WIREWAYS THAT CONTAIN MORE THAN 30 CURRENT CARRYING CONDUCTORS TO BE DERATED IN ACCORDANCE WITH NEC.
15. DO NOT USE LOAD CENTERS, PANELBOARDS, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND OTHER POWER DISTRIBUTION EQUIPMENT AS RACEWAYS.
16. SEE SPECIFICATION SECTION 26 05 34, RACEWAYS FOR ELECTRICAL SYSTEMS, FOR PROJECT SPECIFIC RACEWAY INSTALLATION REQUIREMENTS.
17. SEE SPECIFICATION SECTION 26 05 53, IDENTIFICATION FOR ELECTRICAL SYSTEMS, FOR PROJECT SPECIFIC IDENTIFICATION REQUIREMENTS.
18. NEMA 4X EQUIPMENT, WHERE IDENTIFIED, TO BE 316 STAINLESS STEEL UNLESS NOTED OTHERWISE.

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LEGENDS, ABBREVIATION, AND GENERAL NOTES

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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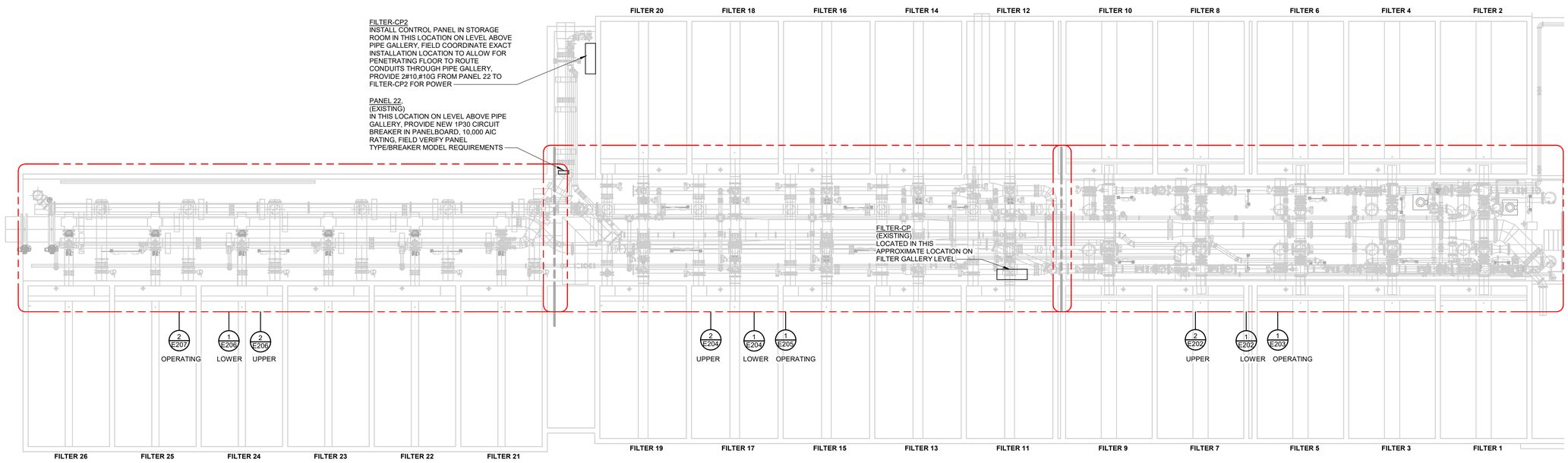
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NOTES

1. SEE SITE LAYOUT ON "G" SHEETS FOR LOCATION OF VAULTS, MOTOR ROOM, GROUNDS BUILDING, AND CONTROL PANELS SERVING INSTRUMENTS OUTSIDE OF FILTER/PIPE GALLERY.
2. INSTALL FOLLOWING INSTRUMENTS IN SAME LOCATION WHERE EXISTING WERE DEMOLISHED. RECONNECT POWER CONDUIT AND CONDUCTORS AS REQUIRED. PROVIDE NEW CONTROLS CONDUIT AND CONDUCTORS AS INDICATED IN I/O SCHEDULE.
   A. HS0310-LE/LI AT CLEARWELL 2.
   B. P21701-LE AT CISTERN 2A.
   C. P21708-LE AT CISTERN 2B.



NORTH

FILTERS 1-26

OVERALL LAYOUT PLAN

SCALE: 3/32" = 1'-0"

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OVERALL LAYOUT

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

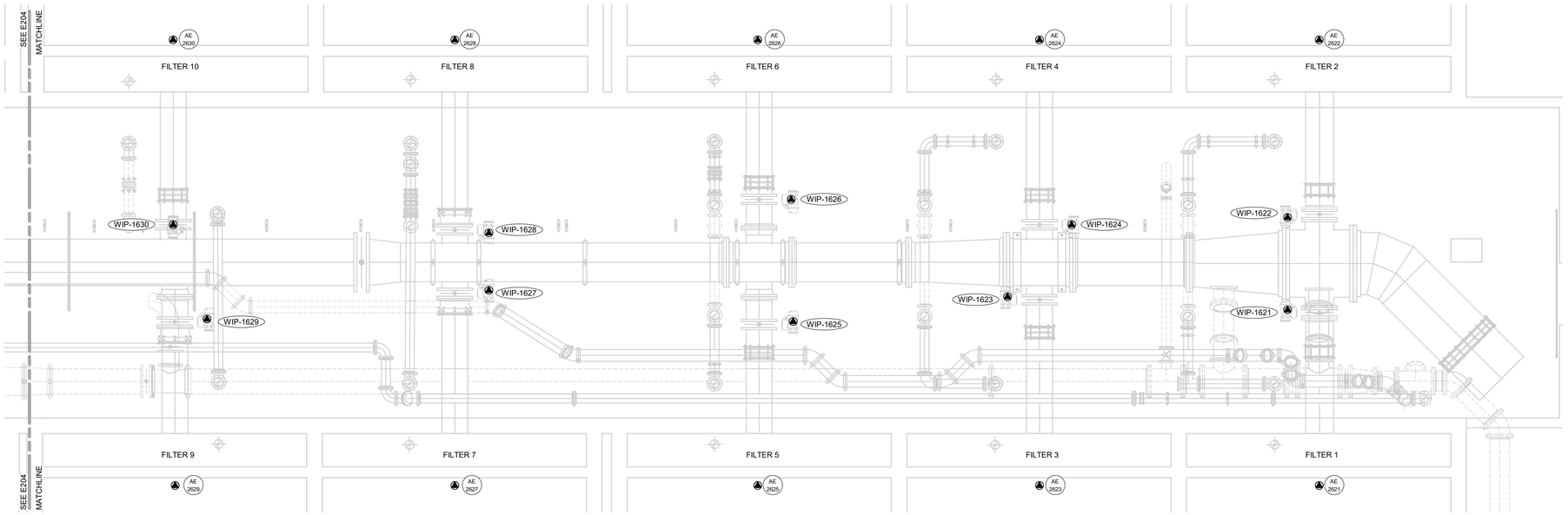
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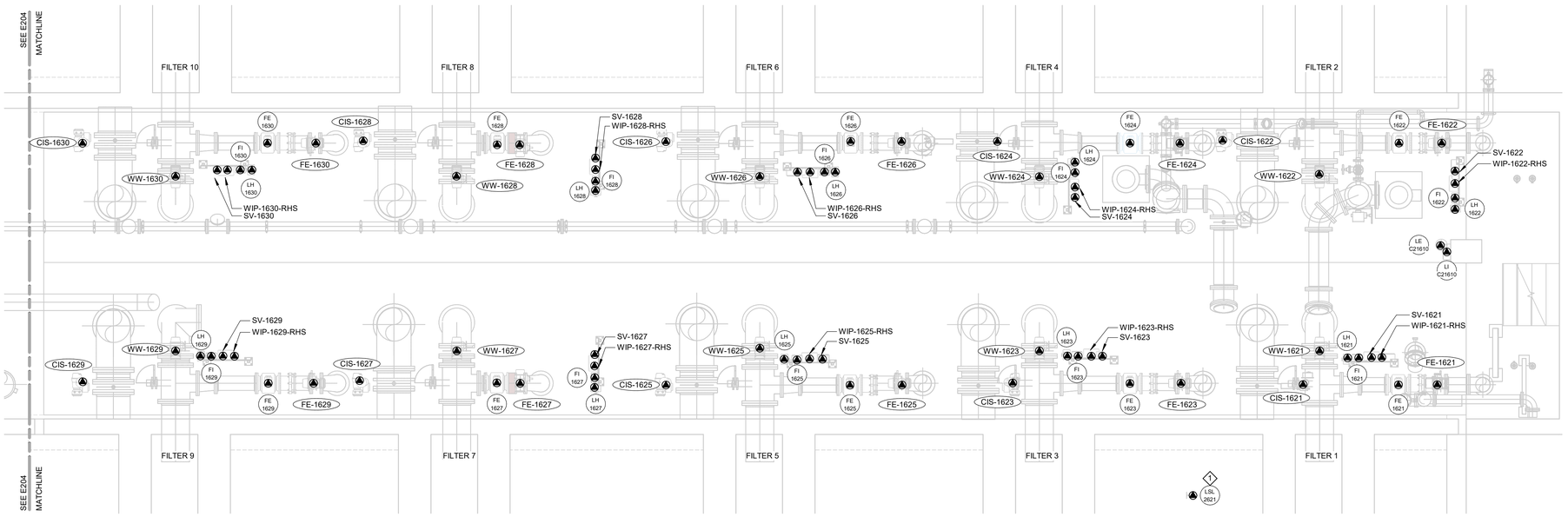
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UPPER PIPE GALLERY
FILTERS 1-10

1 ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 1-10

2 ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
   A. FILTER 1:
      a. FE-1621
      b. CIS-1621
   B. FILTER 4:
      a. FE-1624
      b. CIS-1624
2. SEE INPUT/OUTPUT LIST FOR CONTROL CONDUIT AND CONDUCTOR REQUIREMENTS FOR ALL ACTUATORS AND INSTRUMENTS.
3. SEE SECTIONS ON 'P' SHEETS FOR LOCATION/ELEVATION OF ACTUATORS AND INSTRUMENTS.
4. REMOTE HAND STATIONS, WHERE INDICATED ON P&IDS AND INPUT/OUTPUT LIST, TO BE INSTALLED ON INSTRUMENT RACK ASSOCIATED WITH FILTER.
5. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
6. CONDUIT IN PIPE GALLERY TO BE PVC SCHEDULE 40, 3/4" MINIMUM.
7. NEW CONDUIT IN FILTER GALLERY TO BE RIGID METAL CONDUIT, 3/4" MINIMUM. CONDUIT IN FILTER GALLERY TO BE PAINTED TO MATCH WALLS. FIELD VERIFY AND MATCH PAINT COLOR.
8. RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION TO INSTRUMENTS/INSTRUMENT TRANSMITTERS. EXTEND CONDUIT AND CONDUCTORS AS REQUIRED.
9. ALL NEW CONDUITS TO BE SUPPORTED FROM NEW HANGERS/SUPPORTS. DO NOT USE EXISTING HANGERS/SUPPORTS UNLESS OWNER PROVIDES EXPLICIT PERMISSION TO REUSE.

KEY NOTES

1 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.

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FILTERS 1-10 PIPE GALLERY PLANS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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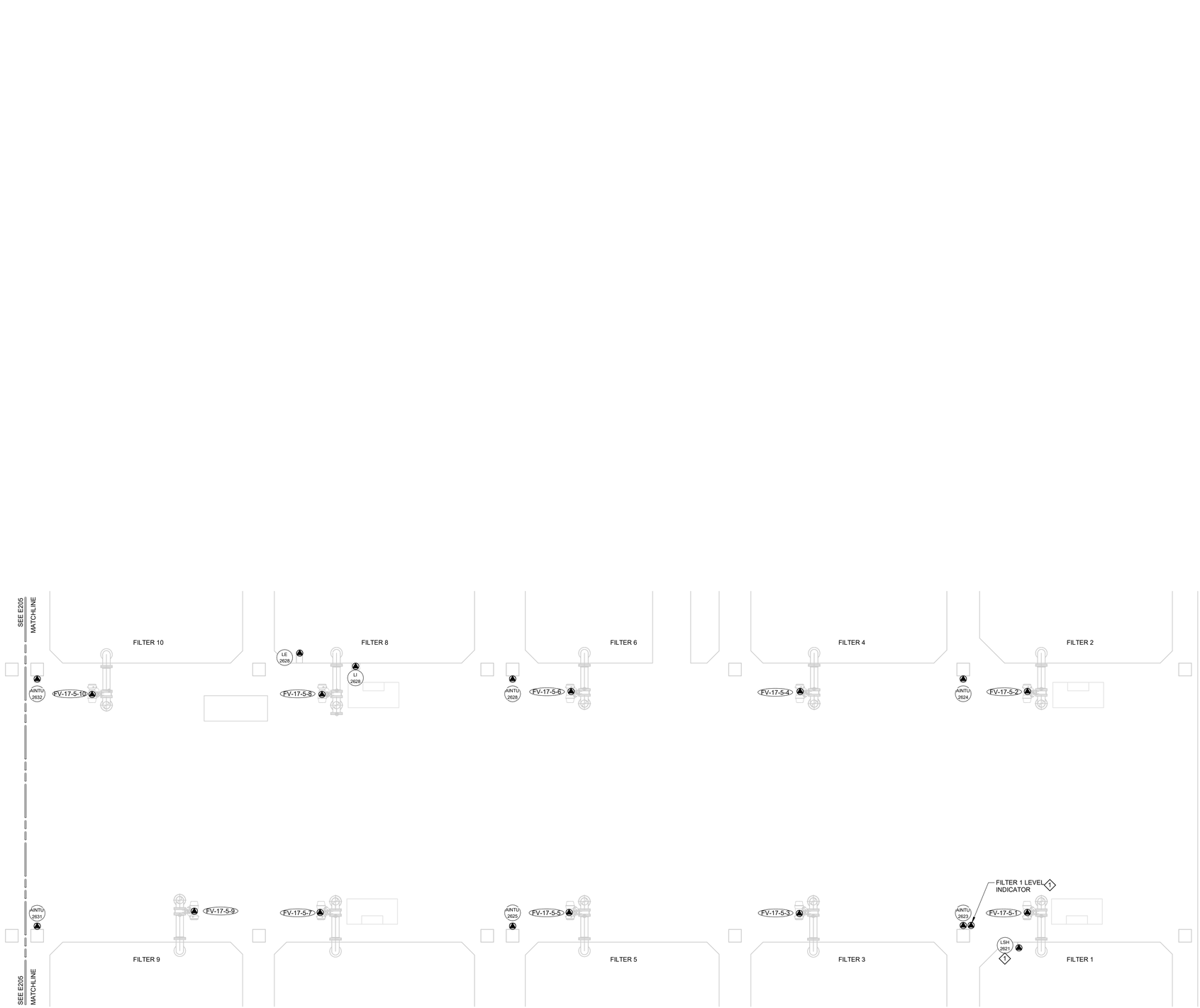
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NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
   A. FILTER 1:
      a. FE-1621
      b. CIS-1621
   B. FILTER 4:
      a. FE-1624
      b. CIS-1624
2. SEE INPUT/OUTPUT LIST FOR CONTROL CONDUIT AND CONDUCTOR REQUIREMENTS FOR ALL ACTUATORS AND INSTRUMENTS.
3. SEE SECTIONS ON 'P' SHEETS FOR LOCATION/ELEVATION OF ACTUATORS AND INSTRUMENTS.
4. REMOTE HAND STATIONS, WHERE INDICATED ON P&IDS AND INPUT/OUTPUT LIST, TO BE INSTALLED ON INSTRUMENT RACK ASSOCIATED WITH FILTER.
5. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
6. CONDUIT IN PIPE GALLERY TO BE PVC SCHEDULE 40, 3/4" MINIMUM.
7. NEW CONDUIT IN FILTER GALLERY TO BE RIGID METAL CONDUIT, 3/4" MINIMUM. CONDUIT IN FILTER GALLERY TO BE PAINTED TO MATCH WALLS. FIELD VERIFY AND MATCH PAINT COLOR.
8. RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION TO INSTRUMENTS/INSTRUMENT TRANSMITTERS. EXTEND CONDUIT AND CONDUCTORS AS REQUIRED.
9. ALL NEW CONDUITS TO BE SUPPORTED FROM NEW HANGERS/SUPPORTS. DO NOT USE EXISTING HANGERS/SUPPORTS UNLESS OWNER PROVIDES EXPLICIT PERMISSION TO REUSE.

KEY NOTES

1 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.



OPERATING GALLERY
FILTERS 1-10

1 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

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Instrumentation & Controls Improvements
FILTERS 1-10 OPERATING GALLERY PLAN

REVISIONS

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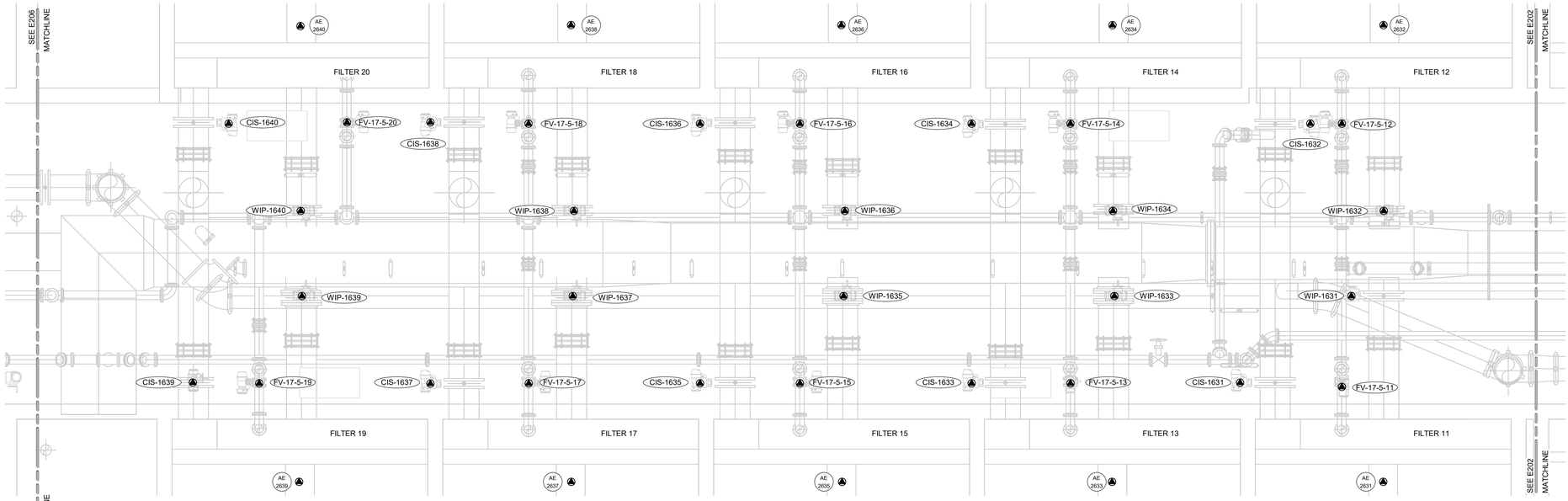
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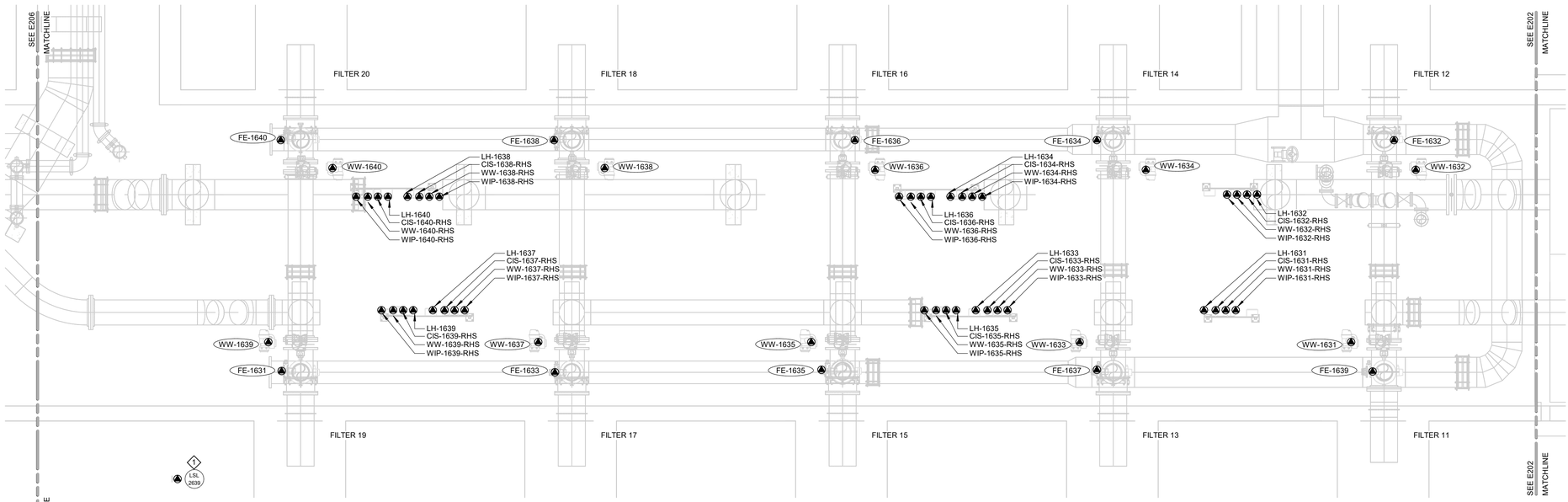
PLOT INFO: 4/8/2026 1:51:51 AM Autodesk Docs://2501593 - Ann Arbor WTP I&C Improvements/2024_E_2501593.rvt



UPPER PIPE GALLERY
FILTERS 11-20

2 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 21-26

1 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
   A. FILTER EFFLUENT VALVES FOR FILTERS 11-20:
      a. FE-16##
2. SEE INPUT/OUTPUT LIST FOR CONTROL CONDUIT AND CONDUCTOR REQUIREMENTS FOR ALL ACTUATORS AND INSTRUMENTS.
3. SEE SECTIONS ON 'P' SHEETS FOR LOCATION/ELEVATION OF ACTUATORS AND INSTRUMENTS.
4. REMOTE HAND STATIONS, WHERE INDICATED ON P&IDS AND INPUT/OUTPUT, LIST TO BE INSTALLED ON INSTRUMENT RACK ASSOCIATED WITH FILTER.
5. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
6. CONDUIT IN PIPE GALLERY TO BE PVC SCHEDULE 40, 3/4" MINIMUM.
7. NEW CONDUIT IN FILTER GALLERY TO BE RIGID METAL CONDUIT, 3/4" MINIMUM. CONDUIT IN FILTER GALLERY TO BE PAINTED TO MATCH WALLS. FIELD VERIFY AND MATCH PAINT COLOR.
8. RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION TO INSTRUMENTS/INSTRUMENT TRANSMITTERS. EXTEND CONDUIT AND CONDUCTORS AS REQUIRED.
9. ALL NEW CONDUITS TO BE SUPPORTED FROM NEW HANGERS/SUPPORTS. DO NOT USE EXISTING HANGERS/SUPPORTS UNLESS OWNER PROVIDES EXPLICIT PERMISSION TO REUSE.

KEY NOTES

1 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.

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Ann Arbor, Michigan

Instrumentation & Controls Improvements

FILTERS 11-20 PIPE GALLERY PLANS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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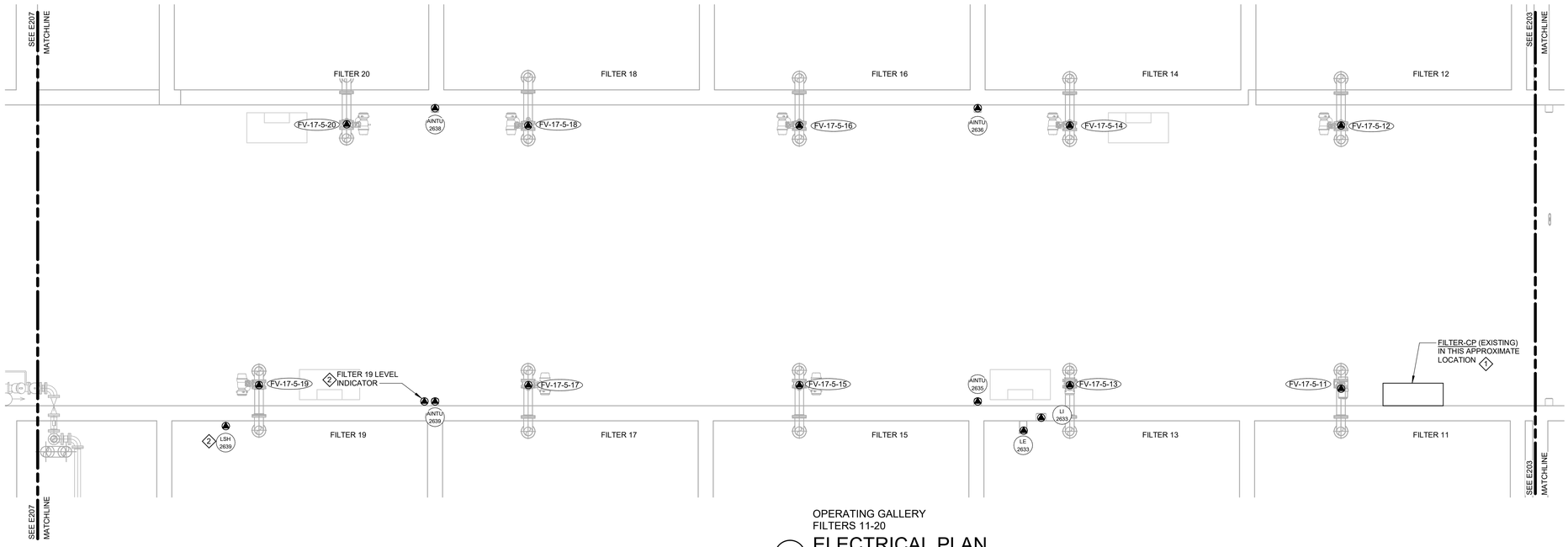
NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
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      a. FE-16##
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5. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
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9. ALL NEW CONDUITS TO BE SUPPORTED FROM NEW HANGERS/SUPPORTS. DO NOT USE EXISTING HANGERS/SUPPORTS UNLESS OWNER PROVIDES EXPLICIT PERMISSION TO REUSE.

KEY NOTES

1 PROVIDE A NEW 1P5 DIN-RAIL MOUNTED CIRCUIT BREAKER IN FILTER-CP TO SERVE FILTERS 1, 19, AND 26 LEVEL SWITCHES AND INDICATOR STATIONS. SEE FLOAT LEVEL INDICATOR DETAIL FOR ADDITIONAL REQUIREMENTS.

2 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.



OPERATING GALLERY
FILTERS 11-20

1 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

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Ann Arbor, Michigan

Instrumentation & Controls Improvements

FILTERS 11-20 OPERATING GALLERY PLAN

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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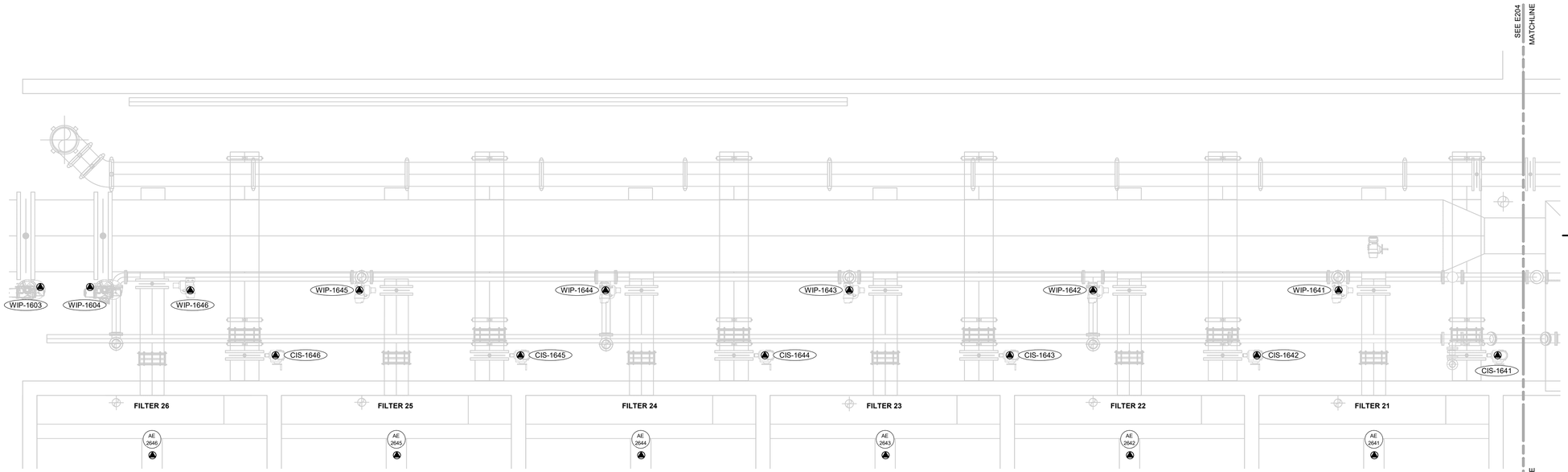
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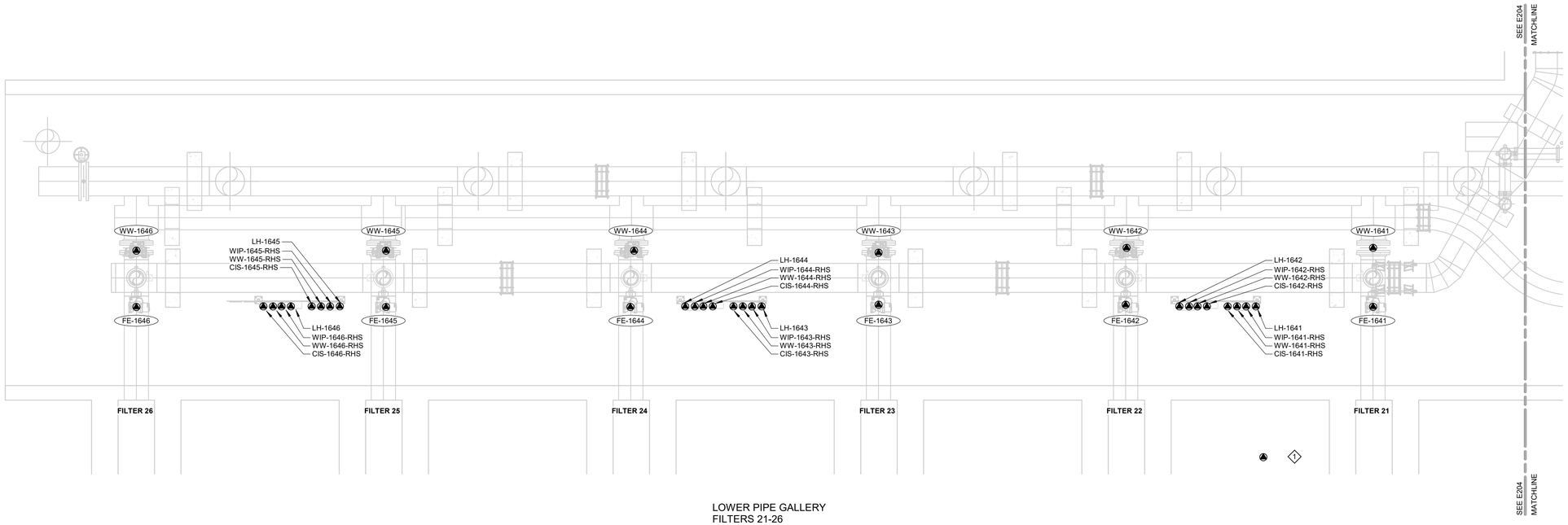
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UPPER PIPE GALLERY
FILTERS 21-26

2 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



LOWER PIPE GALLERY
FILTERS 21-26

1 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
   A. FILTER EFFLUENT VALVES FOR FILTERS 21-26:
      a. FE-16##
   B. DRAIN HEADER VALVES FOR FILTERS 22-26:
      a. CIS-16##
2. SEE INPUT/OUTPUT LIST FOR CONTROL CONDUIT AND CONDUCTOR REQUIREMENTS FOR ALL ACTUATORS AND INSTRUMENTS.
3. SEE SECTIONS ON 'P' SHEETS FOR LOCATION/ELEVATION OF ACTUATORS AND INSTRUMENTS.
4. REMOTE HAND STATIONS, WHERE INDICATED ON P&IDS AND INPUT/OUTPUT, LIST TO BE INSTALLED ON INSTRUMENT RACK ASSOCIATED WITH FILTER.
5. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
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9. ALL NEW CONDUITS TO BE SUPPORTED FROM NEW HANGERS/SUPPORTS. DO NOT USE EXISTING HANGERS/SUPPORTS UNLESS OWNER PROVIDES EXPLICIT PERMISSION TO REUSE.

◇# KEY NOTES

1 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
FILTERS 21-26 PIPE GALLERY PLANS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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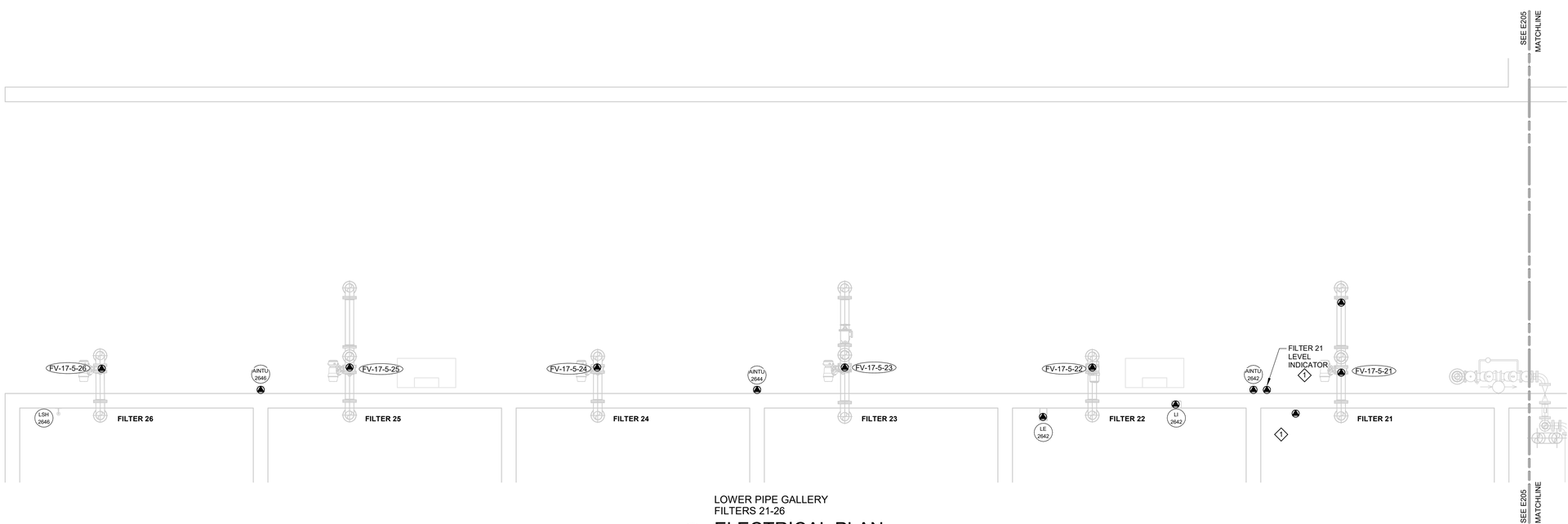
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NOTES

1. FOR ALL NEW ACTUATORS, RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED. FOLLOWING ACTUATORS ARE EXISTING TO REMAIN AND DO NOT NEED POWER RECONNECTED:
   A. FILTER EFFLUENT VALVES FOR FILTERS 21-26:
      a. FE-16##
   B. DRAIN HEADER VALVES FOR FILTERS 22-26:
      a. CIS-16##
2. SEE INPUT/OUTPUT LIST FOR CONTROL CONDUIT AND CONDUCTOR REQUIREMENTS FOR ALL ACTUATORS AND INSTRUMENTS.
3. SEE SECTIONS ON 'P' SHEETS FOR LOCATION/ELEVATION OF ACTUATORS AND INSTRUMENTS.
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KEY NOTES

1 SEE FLOAT LEVEL INDICATOR DETAIL FOR REQUIREMENTS.



LOWER PIPE GALLERY
FILTERS 21-26

2 ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements
FILTERS 21-26 OPERATING GALLERY PLAN

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION
Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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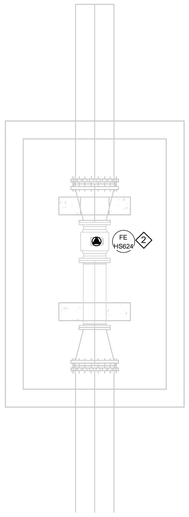
NOTES

1. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
2. RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION. EXTEND AS REQUIRED.
3. SEE I/O SCHEDULE FOR CONTROL CONDUIT AND WIRING REQUIREMENTS.
4. SEE 'P' SHEETS FOR INSTRUMENT MOUNTING REQUIREMENTS.
5. CONDUIT IN VAULTS TO BE PVC SCHEDULE 40, 3/4" MINIMUM.
6. RECONNECT POWER CONDUIT AND CONDUCTORS MAINTAINED DURING DEMOLITION TO INSTRUMENTS/INSTRUMENT TRANSMITTERS. EXTEND CONDUIT AND CONDUCTORS AS REQUIRED.
7. SEE SITE LAYOUT ON "G" SHEETS FOR LOCATION OF VAULTS, MOTOR ROOM, GROUNDS BUILDING, AND CONTROL PANELS SERVING INSTRUMENTS ON THIS SHEET.

KEY NOTES

1 FLOW METER TRANSMITTER LOCATED IN WTP MOTOR ROOM. INSTALL IN SAME LOCATION AS DEMOLISHED TRANSMITTER.

2 FLOW METER TRANSMITTER LOCATED IN GROUNDS BUILDING. INSTALL IN SAME LOCATION AS DEMOLISHED TRANSMITTER.

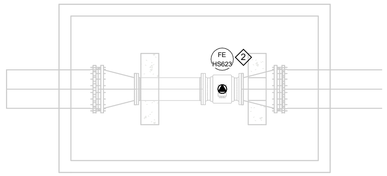


NORTH

GRAVITY VAULT 2

ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

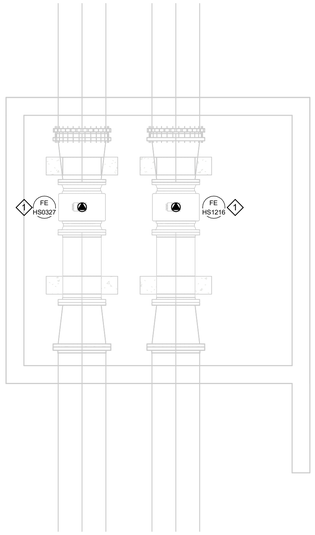


NORTH

GRAVITY VAULT 1

ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



NORTH

EAST/WEST HIGH VAULT

ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

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VAULT PLANS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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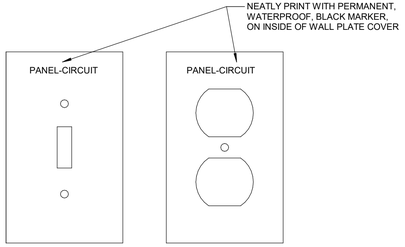
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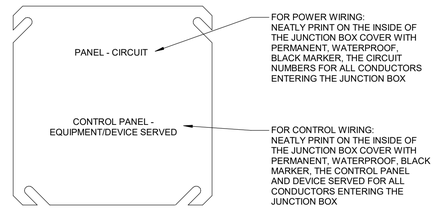
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NOTES:
1. SEE ABBOTT STANDARD SPECIFICATION SECTION 16.013 FOR ADDITIONAL LABELING/IDENTIFICATION REQUIREMENTS.

WALL PLATE LABELING
NO SCALE



NOTES:
1. SEE ABBOTT STANDARD SPECIFICATION SECTION 16.013 FOR ADDITIONAL LABELING/IDENTIFICATION REQUIREMENTS.

JUNCTION BOX LABELING
NO SCALE

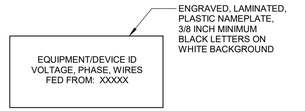


FOR POWER CONDUCTORS/CABLE:
DEVICE ID : PANEL ID-CIRCUIT ID
(EF-1 : MCC-2-2A)

FOR CONTROL CONDUCTORS/CABLE:
DEVICE ID : PANEL ID : I/O NUMBER/ID
(FIT-01 : CP-100 : O0102)

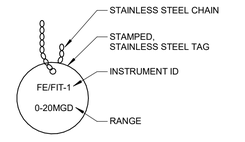
FOR COMMUNICATIONS CONDUCTORS/CABLE:
DEVICE ID : PANEL ID : RACK-PORT
(VFD-1 : PP-1 : 1-3)

CONDUCTOR LABELING
NO SCALE



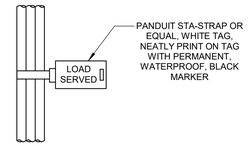
NOTES:
1. SEE SPECIFICATION SECTION "IDENTIFICATION FOR ELECTRICAL SYSTEMS" FOR EQUIPMENT/DEVICES REQUIRING LABELING AND EXAMPLES OF HOW TO LABEL EQUIPMENT/DEVICES.
2. A NAMEPLATE SCHEDULE SUBMITTAL IDENTIFYING EACH DEVICE TO BE LABELED WITH PROJECT SPECIFIC TEXT IS REQUIRED FOR APPROVAL BEFORE GENERATING NAMEPLATES.
3. SEE ABBOTT STANDARD SPECIFICATION SECTION 16.013 FOR ADDITIONAL LABELING/IDENTIFICATION REQUIREMENTS.

ELECTRICAL LABELS
NO SCALE



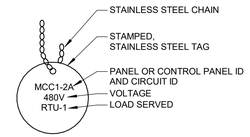
NOTES:
1. INSTRUMENT TAGS SHALL BE INSTALLED AFTER ALL PAINTING HAS BEEN COMPLETED.

INSTRUMENT TAG
NO SCALE



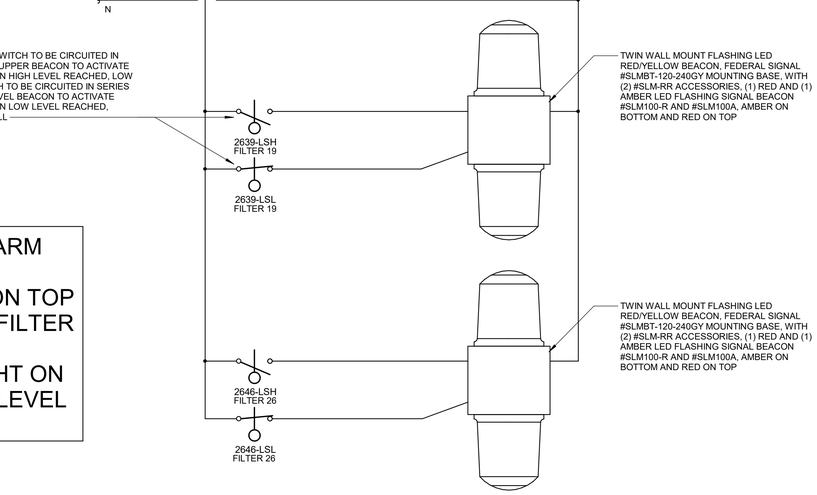
NOTES:
1. CABLES AND CONDUCTORS SERVING A COMMON EQUIPMENT/DEVICE SHALL BE BUNDLED TOGETHER AT EACH SPLICE, JOINT, OR TERMINATION LOCATION.
2. CABLES AND CONDUCTORS SHALL BE BUNDLED TOGETHER AND LABELED AT THEIR POINT OF ORIGIN AND TERMINATION POINT.

WIRE/CABLE BUNDLE LABELING
NO SCALE



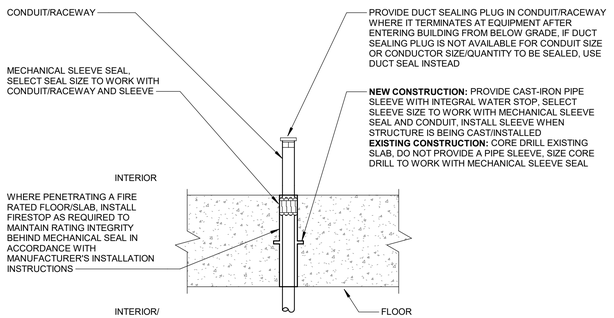
NOTES:
1. RACEWAYS TAGS SHALL BE INSTALLED AFTER ALL PAINTING HAS BEEN COMPLETED.
2. THERMAL TRANSFER, SELF LAMINATING LABELS, WITH BLACK LETTERS ON WHITE BACKGROUND MAY BE USED IN LIEU OF STAINLESS STEEL TAGS IN DRY, NON-CORROSIVE AREAS.
3. CONDUITS ORIGINATING AND TERMINATING IN THE SAME ROOM DO NOT REQUIRE LABELING.
4. LABEL CONDUITS AT WALL PENETRATIONS, PANEL CONNECTIONS, EQUIPMENT/DEVICE CONNECTIONS, AND JUNCTION BOX CONNECTIONS.

RACEWAY TAG
NO SCALE



NOTE:
1. ALL CONDUCTORS TO BE #12AWG ROUTED IN 3/4" CONDUIT.
2. PROVIDE JUNCTION BOX AS REQUIRED FOR MOUNTING OF BEACON BASE. CENTERLINE OF BEACON ASSEMBLY TO BE AT 5'-6" AFF. FIELD COORDINATE EXACT MOUNTING LOCATION AND HEIGHT.

FLOAT LEVEL INDICATOR DETAIL
NO SCALE



ON AND ABOVE GRADE
CONDUIT SLAB/FLOOR PENETRATION
NO SCALE

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Ann Arbor, Michigan

Instrumentation & Controls Improvements
DETAILS

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	JTAYLOR
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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PROJECT NO.
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SHEET NO.
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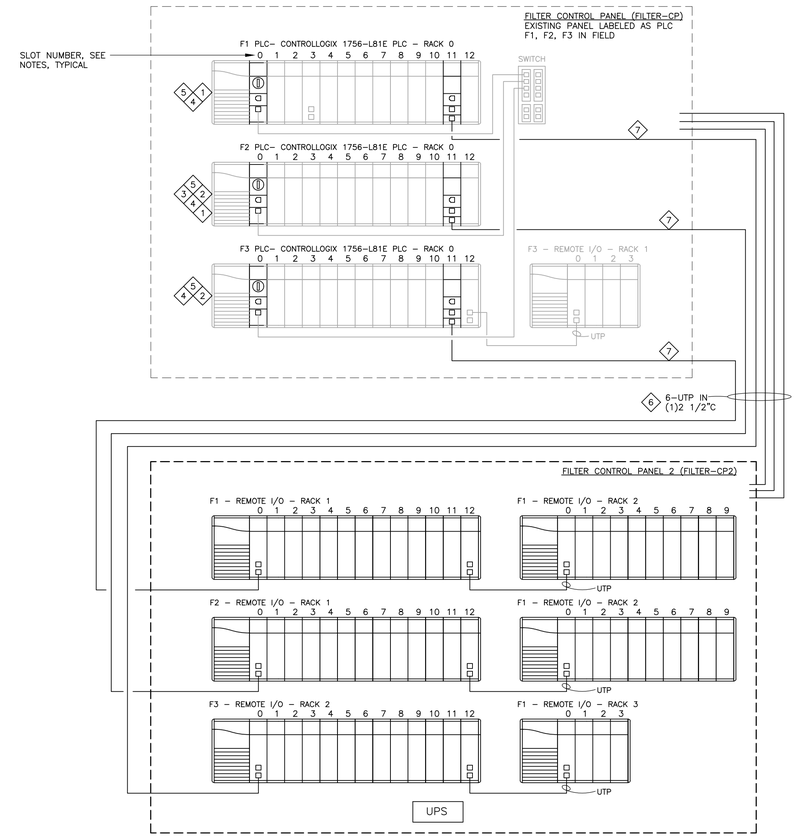
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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 1 THRU 10										
FILTER 1	IN REMOTE	DI	FE-1621	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1621	OPENED	DI	FE-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1621	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1621	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 1	IN REMOTE	DI	WW-1621	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1621	OPENED	DI	WW-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1621	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1621	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 1	IN REMOTE	DI	WIP-1621-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1621	OPENED	DI	WIP-1621-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1621-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1621-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1621-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1621-RHS	WIP-1621	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 1	IN REMOTE	DI	CIS-1621	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1621	OPENED	DI	CIS-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1621	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1621	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1621	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 1	LOSS OF HEAD	AI	1621-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 4	IN REMOTE	DI	FE-1624	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1624	OPENED	DI	FE-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1624	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1624	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 4	IN REMOTE	DI	WW-1624	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1624	OPENED	DI	WW-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1624	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1624	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 4	IN REMOTE	DI	WIP-1624-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1624	OPENED	DI	WIP-1624-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1624-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1624-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1624-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1624-RHS	WIP-1624	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 4	IN REMOTE	DI	CIS-1624	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1624	OPENED	DI	CIS-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1624	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1624	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1624	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 4	LOSS OF HEAD	AI	1624-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 2	IN REMOTE	DI	FE-1622	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1622	OPENED	DI	FE-1622	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1622	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1622	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1622	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 2	IN REMOTE	DI	WW-1622	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1622	OPENED	DI	WW-1622	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1622	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1622	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1622	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 2	IN REMOTE	DI	WIP-1622-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1622	OPENED	DI	WIP-1622-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1622-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1622-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1622-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1622-RHS	WIP-1622	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 2	LOSS OF HEAD	AI	1622-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 3	IN REMOTE	DI	FE-1623	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1623	OPENED	DI	FE-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1623	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1623	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 3	IN REMOTE	DI	WW-1623	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1623	OPENED	DI	WW-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1623	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1623	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 3	IN REMOTE	DI	CIS-1623	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1623	OPENED	DI	CIS-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1623	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1623	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1623	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 3	IN REMOTE	DI	WIP-1623-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1623	OPENED	DI	WIP-1623-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1623-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1623-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1623-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1623-RHS	WIP-1623	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 3	LOSS OF HEAD	AI	1623-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

FILTER-CP2 I/O MODULES

1. I/O MODULE LIST IS SUPPLIED AS AN AID. REVIEW I/O LIST, P&IDS, AND SECTION 40 90 00 AND PROVIDE I/O MODULES AS REQUIRED TO MEET PROJECT REQUIREMENTS.
2. FILTER–CP2 TO CONTAIN REMOTE I/O RACK(S) THAT MAINTAIN I/O SEPARATION BASED ON FILTER GROUPING. I/O AND THEIR ASSOCIATED MODULES FOR FILTERS 1–10 TO BE ON THEIR OWN RACKS (F1 RACK 1 AND F1 RACK 2), SEPARATE FROM FILTERS 11–20 (F2 RACK 1 AND F2 RACK 2), AND SEPARATE FROM FILTERS 21–26 (F3 RACK 2 AND F3 RACK 3).
3. F1 RACK 1 MODULES:
   - 3.1. SLOT 0 – ETHERNET MODULE – 1756–EN4TR
   - 3.2. SLOT 1 – DI MODULE, 1756–IA16
   - 3.3. SLOT 2 – DI MODULE, 1756–IA16
   - 3.4. SLOT 3 – DI MODULE, 1756–IA16
   - 3.5. SLOT 4 – DI MODULE, 1756–IA16
   - 3.6. SLOT 5 – DI MODULE, 1756–IA16
   - 3.7. SLOT 6 – DI MODULE, 1756–IA16
   - 3.8. SLOT 7 – DI MODULE, 1756–IA16
   - 3.9. SLOT 8 – DI MODULE, 1756–IA16
   - 3.10. SLOT 9 – RELAY OUTPUT – 1756–OW16I
   - 3.11. SLOT 10 – RELAY OUTPUT – 1756–OW16I
   - 3.12. SLOT 11 – RELAY OUTPUT – 1756–OW16I
   - 3.13. SLOT 12 – ETHERNET MODULE – 1756–EN2TR
4. F1 RACK 2 MODULES:
   - 4.1. SLOT 0 – ETHERNET MODULE – 1756–EN2TR
   - 4.2. SLOT 1 – RELAY OUTPUT – 1756–OW16I
   - 4.3. SLOT 2 – ANALOG INPUT – 1756–IF16
   - 4.4. SLOT 3 – ANALOG INPUT – 1756–IF16
   - 4.5. SLOT 4 – ANALOG INPUT – 1756–IF16
   - 4.6. SLOT 5 – ANALOG OUTPUT – 1756–OF8I
   - 4.7. SLOT 6 – ANALOG OUTPUT – 1756–OF8I
   - 4.8. SLOT 7 – ANALOG OUTPUT – 1756–OF8I
   - 4.9. SLOT 8 – SPACE
   - 4.10. SLOT 9 – SPACE
5. F2 RACK 1 MODULES:
   - 5.1. SLOT 0 – ETHERNET MODULE – 1756–EN4TR
   - 5.2. SLOT 1 – DI MODULE, 1756–IA16
   - 5.3. SLOT 2 – DI MODULE, 1756–IA16
   - 5.4. SLOT 3 – DI MODULE, 1756–IA16
   - 5.5. SLOT 4 – DI MODULE, 1756–IA16
   - 5.6. SLOT 5 – DI MODULE, 1756–IA16
   - 5.7. SLOT 6 – DI MODULE, 1756–IA16
   - 5.8. SLOT 7 – DI MODULE, 1756–IA16
   - 5.9. SLOT 8 – DI MODULE, 1756–IA16
   - 5.10. SLOT 9 – RELAY OUTPUT – 1756–OW16I
   - 5.11. SLOT 10 – RELAY OUTPUT – 1756–OW16I
   - 5.12. SLOT 11 – RELAY OUTPUT – 1756–OW16I
   - 5.13. SLOT 12 – ETHERNET MODULE – 1756–EN2TR
6. F2 RACK 2 MODULES:
   - 6.1. SLOT 0 – ETHERNET MODULE – 1756–EN2TR
   - 6.2. SLOT 1 – RELAY OUTPUT – 1756–OW16I
   - 6.3. SLOT 2 – ANALOG INPUT – 1756–IF16
   - 6.4. SLOT 3 – ANALOG INPUT – 1756–IF16
   - 6.5. SLOT 4 – ANALOG INPUT – 1756–IF16
   - 6.6. SLOT 5 – ANALOG OUTPUT – 1756–OF8I
   - 6.7. SLOT 6 – ANALOG OUTPUT – 1756–OF8I
   - 6.8. SLOT 7 – ANALOG OUTPUT – 1756–OF8I
   - 6.9. SLOT 8 – SPACE
   - 6.10. SLOT 9 – SPACE
7. F3 RACK 2 MODULES:
   - 7.1. SLOT 0 – ETHERNET MODULE – 1756–EN4TR
   - 7.2. SLOT 1 – DI MODULE, 1756–IA16
   - 7.3. SLOT 2 – DI MODULE, 1756–IA16
   - 7.4. SLOT 3 – DI MODULE, 1756–IA16
   - 7.5. SLOT 4 – DI MODULE, 1756–IA16
   - 7.6. SLOT 5 – DI MODULE, 1756–IA16
   - 7.7. SLOT 6 – RELAY OUTPUT – 1756–OW16I
   - 7.8. SLOT 7 – RELAY OUTPUT – 1756–OW16I
   - 7.9. SLOT 8 – RELAY OUTPUT – 1756–OW16I
   - 7.10. SLOT 9 – ANALOG INPUT – 1756–IF16
   - 7.11. SLOT 10 – ANALOG INPUT – 1756–IF16
   - 7.12. SLOT 11 – ANALOG OUTPUT – 1756–OF8I
   - 7.13. SLOT 12 – ETHERNET MODULE – 1756–EN2TR
8. F3 RACK 3 MODULES:
   - 8.1. SLOT 0 – ETHERNET MODULE – 1756–EN2TR
   - 8.2. SLOT 1 – ANALOG OUTPUT – 1756–OF8I
   - 8.3. SLOT 2 – SPACE
   - 8.4. SLOT 3 – SPACE



PARTIAL NETWORK DIAGRAM

NO SCALE

NOTES

1. PARTIAL NETWORK DIAGRAM DOES NOT SHOW ALL INTERNAL COMPONENTS FOR CONTROL PANELS FOR CLARITY. FIELD VERIFY EXISTING CONDITIONS FOR EXISTING PANEL AS REQUIRED. REVIEW SPECIFICATION 40 90 00 FOR NEW CONTROL PANELS FOR REQUIRED INTERNAL COMPONENTS.
2. LAYOUTS FOR NEW CONTROL PANELS, I/O, RACKS, ETC. ARE DIAGRAMMATIC. PROVIDE COMPONENTS AS REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. OWNER TO SELF–PERFORM PLC AND SCADA SYSTEM PROGRAMMING.

FILTER-CP I/O MODULES (EXISTING)

1. I/O MODULE LIST IS SUPPLIED AS AN AID. FIELD VERIFY INSTALLED CONDITIONS.
2. I/O CURRENTLY TERMINATED TO FILTER–CP TO BE REUSED WITH NEW ACTUATORS AND INSTRUMENTS. FIELD VERIFY TERMINATION LOCATIONS FOR I/O AND TERMINATE NEW CONDUCTORS TO SAME LOCATIONS. OWNER WILL PROVIDE A COPY OF EXISTING PANEL DRAWINGS TO SUCCESSFUL BIDDER. SEE KEYNOTES FOR I/O MODULE ADDITIONS WHERE REQUIRED.
3. F1 RACK 0 EXISTING MODULES:
   - 3.1. SLOT 0 – PLC
   - 3.2. SLOT 1 – DI MODULE, 1756–IA16
   - 3.3. SLOT 2 – DI MODULE, 1756–IA16
   - 3.4. SLOT 3 – ETHERNET MODULE – 1756–EN2TR
   - 3.5. SLOT 4 – RELAY OUTPUT – 1756–OW16I
   - 3.6. SLOT 5 – RELAY OUTPUT – 1756–OW16I
   - 3.7. SLOT 6 – RELAY OUTPUT – 1756–OW16I
   - 3.8. SLOT 7 – ANALOG INPUT – 1756–IF16
   - 3.9. SLOT 8 – ANALOG INPUT – 1756–IF16
   - 3.10. SLOT 9 – ANALOG INPUT – 1756–IF16
   - 3.11. SLOT 10 – ANALOG INPUT – 1756–IF16
   - 3.12. SLOT 11 – MODBUS MODULE – PROSOFT CARD
   - 3.13. SLOT 12 – MODBUS MODULE – PROSOFT CARD
4. F2 RACK 0 EXISTING MODULES:
   - 4.1. SLOT 0 – PLC
   - 4.2. SLOT 1 – DI MODULE, 1756–IA16
   - 4.3. SLOT 2 – DI MODULE, 1756–IA16
   - 4.4. SLOT 3 – AI MODULE, 1756–IF16
   - 4.5. SLOT 4 – RELAY OUTPUT – 1756–OW16I
   - 4.6. SLOT 5 – RELAY OUTPUT – 1756–OW16I
   - 4.7. SLOT 6 – RELAY OUTPUT – 1756–OW16I
   - 4.8. SLOT 7 – ANALOG INPUT – 1756–IF16
   - 4.9. SLOT 8 – ANALOG INPUT – 1756–IF16
   - 4.10. SLOT 9 – ANALOG INPUT – 1756–IF16
   - 4.11. SLOT 10 – ANALOG INPUT – 1756–IF16
   - 4.12. SLOT 11 – MODBUS MODULE – PROSOFT MODULE
   - 4.13. SLOT 12 – MODBUS MODULE – PROSOFT MODULE
5. F3 RACK 0 EXISTING MODULES:
   - 5.1. SLOT 0 – PLC
   - 5.2. SLOT 1 – DI MODULE, 1756–IA16
   - 5.3. SLOT 2 – DI MODULE, 1756–IA16
   - 5.4. SLOT 3 – DI MODULE, 1756–IA16
   - 5.5. SLOT 4 – RELAY OUTPUT – 1756–OW16I
   - 5.6. SLOT 5 – RELAY OUTPUT – 1756–OW16I
   - 5.7. SLOT 6 – RELAY OUTPUT – 1756–OW16I
   - 5.8. SLOT 7 – ANALOG INPUT – 1756–IF16
   - 5.9. SLOT 8 – ANALOG INPUT – 1756–IF16
   - 5.10. SLOT 9 – ANALOG INPUT – 1756–IF16
   - 5.11. SLOT 10 – ANALOG OUTPUT – 1756–OF8I
   - 5.12. SLOT 11 – MODBUS MODULE – PROSOFT MODULE
   - 5.13. SLOT 12 – ETHERNET MODULE – 1756–EN2TR
6. F3 RACK 0:
   - 6.1. SLOT 0 – ETHERNET MODULE – 1756–EN2TR
   - 6.2. SLOT 1 – MODBUS MODULE – PROSOFT MODULE
   - 6.3. SLOT 2 – MODBUS MODULE – PROSOFT MODULE
   - 6.4. SLOT 3 – SPACE

KEY NOTES

1. FILTERS 1–9 NEW "IN REMOTE" SIGNALS FOR VALVE ACTUATORS TO BE CONNECTED TO (9) SPARE INPUTS ON DIGITAL INPUT CARDS ON F1 RACK.
2. RECORD DRAWINGS INDICATE SPACE EXISTS ON I/O MODULES TO ADD NEW DISCRETE INPUT SIGNALS FOR ACTUATOR "IN REMOTE".
3. RECORD DRAWINGS INDICATE SPACE EXISTS ON I/O MODULES TO ADD ANALOG INPUT SIGNAL FOR FILTER 13 LEVEL.
4. MODBUS MODULE IN SLOT 11 SERVING EXISTING ACTUATORS FOR FILTERS TO BE REMOVED ONCE ALL ACTUATORS ARE REPLACED. RETURN MODULE TO OWNER. REPLACE MODULE WITH NEW 1756–EN4TR MODULE.
5. PROVIDE 1756–L83E PLC TO REPLACE EXISTING 1756–L81E PLC IN SLOT 0. RETURN L81E PLC TO OWNER. VERIFY L83E WILL HAVE CAPACITY TO MONITOR/CONTROL ALL SIGNALS REQUIRED BEFORE ORDERING, COORDINATE WITH OWNER.
6. (3) UTP CABLES TO BE MARKED AS SPARE AND COILED IN PANELS AT EACH END FOR FUTURE USE. LEAVE 20' OF CABLE COILED AT EACH END.
7. TO FACILITATE CONSTRUCTION SEQUENCE, UTP CABLES THAT WILL TERMINATE TO NEW EN4TR CARDS IN EXISTING RACKS WILL NEED TO TERMINATE TO SPARE PORTS ON EXISTING ETHERNET SWITCH IN FILTER–CP FIRST. MOVE CABLES OFF ETHERNET SWITCH TO EN4TR MODULES ONCE MODULES ARE INSTALLED (AFTER MODBUS MODULES ARE REMOVED).

fishbeck
Engineers | Architects | Scientists | Constructors

City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I101

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PLOT INFO: Z:\2025\2501593\CAD\CD\I101\2501593.DWG LAYOUT: I101 DATE: 4/8/2026 TIME: 1:58:20 AM USER: MSTACK

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 1 THRU 10										
FILTER 9	IN REMOTE	DI	FE-1629	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1629	OPENED	DI	FE-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1629	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1629	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 9	IN REMOTE	DI	WW-1629	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1629	OPENED	DI	WW-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1629	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1629	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 9	IN REMOTE	DI	CIS-1629	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1629	OPENED	DI	CIS-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1629	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1629	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1629	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 9	IN REMOTE	DI	WIP-1629-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1629	OPENED	DI	WIP-1629-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1629-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1629-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1629-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1629-RHS	WIP-1629	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 9	LOSS OF HEAD	AI	1629-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 10	IN REMOTE	DI	FE-1630	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1630	OPENED	DI	FE-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1630	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1630	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 10	IN REMOTE	DI	WW-1630	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1630	OPENED	DI	WW-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1630	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1630	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 10	IN REMOTE	DI	CIS-1630	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1630	OPENED	DI	CIS-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1630	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1630	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1630	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 10	IN REMOTE	DI	WIP-1630-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1630	OPENED	DI	WIP-1630-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1630-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1630-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1630-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1630-RHS	WIP-1630	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 10	VALVE IN REMOTE	DI	FV-17-5-10	FILTER-CP	-	2	-	3/4"	120VAC	-
FILTER 10	LOSS OF HEAD	AI	1630-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 1 THRU 10										
FILTER 5	IN REMOTE	DI	FE-1625	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1625	OPENED	DI	FE-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1625	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1625	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 5	IN REMOTE	DI	WW-1625	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1625	OPENED	DI	WW-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1625	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1625	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 5	IN REMOTE	DI	CIS-1625	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1625	OPENED	DI	CIS-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1625	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1625	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1625	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 5	IN REMOTE	DI	WIP-1625-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1625	OPENED	DI	WIP-1625-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1625-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1625-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1625-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1625-RHS	WIP-1625	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 5	LOSS OF HEAD	AI	1625-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 6	IN REMOTE	DI	FE-1626	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1626	OPENED	DI	FE-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1626	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1626	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 6	IN REMOTE	DI	WW-1626	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1626	OPENED	DI	WW-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1626	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1626	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 6	IN REMOTE	DI	CIS-1626	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1626	OPENED	DI	CIS-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1626	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1626	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1626	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 6	IN REMOTE	DI	WIP-1626-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1626	OPENED	DI	WIP-1626-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1626-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1626-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1626-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1626-RHS	WIP-1626	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 6	LOSS OF HEAD	AI	1626-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 7	IN REMOTE	DI	FE-1627	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1627	OPENED	DI	FE-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1627	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1627	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 7	IN REMOTE	DI	WW-1627	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1627	OPENED	DI	WW-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1627	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1627	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 7	IN REMOTE	DI	CIS-1627	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1627	OPENED	DI	CIS-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1627	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1627	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1627	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 7	IN REMOTE	DI	WIP-1627-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1627	OPENED	DI	WIP-1627-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1627-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1627-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1627-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1627-RHS	WIP-1627	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 7	LOSS OF HEAD	AI	1627-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 8	IN REMOTE	DI	FE-1628	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1628	OPENED	DI	FE-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1628	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1628	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 8	IN REMOTE	DI	WW-1628	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1628	OPENED	DI	WW-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1628	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1628	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 8	IN REMOTE	DI	CIS-1628	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1628	OPENED	DI	CIS-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1628	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1628	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1628	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 8	IN REMOTE	DI	WIP-1628-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1628	OPENED	DI	WIP-1628-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1628-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1628-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1628-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1628-RHS	WIP-1628	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 8	LOSS OF HEAD	AI	1628-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

PLOT INFO: Z:\2026\2501593\CAD\CD\I102501593.DWG LAYOUT: I102 DATE: 4/8/2026 TIME: 1:58:29 AM USER: MSTACK

fishbeck
Engineers | Architects | Scientists | Constructors

City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I102

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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 11 THRU 20										
FILTER 15	IN REMOTE	DI	FE-1635	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1635	OPENED	DI	FE-1635	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1635	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1635	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1635	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 15	IN REMOTE	DI	WIP-1635-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1635	OPENED	DI	WIP-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1635-RHS	WIP-1635	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 15	IN REMOTE	DI	WW-1635-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1635	OPENED	DI	WW-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1635-RHS	WW-1635	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 15	IN REMOTE	DI	CIS-1635-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1635	OPENED	DI	CIS-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1635-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1635-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1635-RHS	CIS-1635	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 15	LOSS OF HEAD	AI	1635-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 16	IN REMOTE	DI	FE-1636	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1636	OPENED	DI	FE-1636	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1636	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1636	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1636	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 16	IN REMOTE	DI	WIP-1636-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1636	OPENED	DI	WIP-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1636-RHS	WIP-1636	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 16	IN REMOTE	DI	WW-1636-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1636	OPENED	DI	WW-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1636-RHS	WW-1636	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 16	IN REMOTE	DI	CIS-1636-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1636	OPENED	DI	CIS-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1636-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1636-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1636-RHS	CIS-1636	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 16	LOSS OF HEAD	AI	1636-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 17	IN REMOTE	DI	FE-1637	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1637	OPENED	DI	FE-1637	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1637	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1637	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1637	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 17	IN REMOTE	DI	WIP-1637-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1637	OPENED	DI	WIP-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1637-RHS	WIP-1637	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 17	IN REMOTE	DI	WW-1637-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1637	OPENED	DI	WW-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1637-RHS	WW-1637	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 17	IN REMOTE	DI	CIS-1637-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1637	OPENED	DI	CIS-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1637-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1637-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1637-RHS	CIS-1637	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 17	LOSS OF HEAD	AI	1637-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 18	IN REMOTE	DI	FE-1638	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1638	OPENED	DI	FE-1638	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1638	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1638	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1638	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 18	IN REMOTE	DI	WIP-1638-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1638	OPENED	DI	WIP-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1638-RHS	WIP-1638	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 18	IN REMOTE	DI	WW-1638-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1638	OPENED	DI	WW-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1638-RHS	WW-1638	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 18	IN REMOTE	DI	CIS-1638-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1638	OPENED	DI	CIS-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1638-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1638-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1638-RHS	CIS-1638	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 18	LOSS OF HEAD	AI	1638-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 11 THRU 20										
FILTER 11	IN REMOTE	DI	FE-1631	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1631	OPENED	DI	FE-1631	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1631	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1631	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1631	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 11	IN REMOTE	DI	WIP-1631-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1631	OPENED	DI	WIP-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1631-RHS	WIP-1631	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 11	IN REMOTE	DI	WW-1631-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1631	OPENED	DI	WW-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1631-RHS	WW-1631	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 11	IN REMOTE	DI	CIS-1631-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1631	OPENED	DI	CIS-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1631-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1631-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1631-RHS	CIS-1631	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 11	LOSS OF HEAD	AI	1631-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 12	IN REMOTE	DI	FE-1632	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1632	OPENED	DI	FE-1632	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1632	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1632	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1632	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 12	IN REMOTE	DI	WIP-1632-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1632	OPENED	DI	WIP-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1632-RHS	WIP-1632	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 12	IN REMOTE	DI	WW-1632-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1632	OPENED	DI	WW-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1632-RHS	WW-1632	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 12	IN REMOTE	DI	CIS-1632-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1632	OPENED	DI	CIS-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1632-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1632-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1632-RHS	CIS-1632	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 12	LOSS OF HEAD	AI	1632-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 13	IN REMOTE	DI	FE-1633	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1633	OPENED	DI	FE-1633	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1633	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1633	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1633	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 13	IN REMOTE	DI	WIP-1633-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1633	OPENED	DI	WIP-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1633-RHS	WIP-1633	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 13	IN REMOTE	DI	WW-1633-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1633	OPENED	DI	WW-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1633-RHS	WW-1633	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 13	IN REMOTE	DI	CIS-1633-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1633	OPENED	DI	CIS-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1633-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1633-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1633-RHS	CIS-1633	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 13	LOSS OF HEAD	AI	1633-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 14	IN REMOTE	DI	FE-1634	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1634	OPENED	DI	FE-1634	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1634	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1634	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1634	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 14	IN REMOTE	DI	WIP-1634-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1634	OPENED	DI	WIP-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1634-RHS	WIP-1634	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 14	IN REMOTE	DI	WW-1634-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1634	OPENED	DI	WW-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1634-RHS	WW-1634	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 14	IN REMOTE	DI	CIS-1634-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1634	OPENED	DI	CIS-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1634-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1634-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1634-RHS	CIS-1634	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 14	LOSS OF HEAD	AI	1634-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

PLOT INFO: Z:\2025\2501593\CAD\CD\I1012501593.DWG LAYOUT: I103 DATE: 4/8/2026 TIME: 1:58:35 AM USER: MSTACK

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I103

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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 11 THRU 20										
FILTER 20	IN REMOTE	DI	FE-1640	FILTER-CP2	-	2	-	3/4"	120VAC	
VALVE FE-1640	OPENED	DI	FE-1640	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1640	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1640	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1640	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 20	IN REMOTE	DI	WIP-1640-RHS	FILTER-CP2	-	2	-	1"	120VAC	
VALVE WIP-1640	OPENED	DI	WIP-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1640-RHS	WIP-1640	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 20	IN REMOTE	DI	WW-1640-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1640	OPENED	DI	WW-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1640-RHS	WW-1640	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 20	IN REMOTE	DI	CIS-1640-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1640	OPENED	DI	CIS-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1640-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1640-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1640-RHS	CIS-1640	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 20	LOSS OF HEAD	AI	1640-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 19	IN REMOTE	DI	FE-1639	FILTER-CP2	-	2	-	3/4"	120VAC	
VALVE FE-1639	OPENED	DI	FE-1639	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1639	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1639	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1639	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 19	IN REMOTE	DI	WIP-1639-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1639	OPENED	DI	WIP-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1639-RHS	WIP-1639	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 19	IN REMOTE	DI	WW-1639-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1639	OPENED	DI	WW-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1639-RHS	WW-1639	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 19	IN REMOTE	DI	CIS-1639-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1639	OPENED	DI	CIS-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1639-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1639-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1639-RHS	CIS-1639	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 19	LOSS OF HEAD	AI	1639-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

PLOT INFO: Z:\2022\2501593\CAD\CD\I101\2501593.DWG LAYOUT: I104 DATE: 4/8/2026 TIME: 1:58:41 AM USER: MSTACK

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Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

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PROJECT NO.

2501593

SHEET NO.

I104

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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 21 THRU 26										
FILTER 25	IN REMOTE	DI	FE-1645	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1645	OPENED	DI	FE-1645	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1645	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1645	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1645	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 25	IN REMOTE	DI	CIS-1645	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1645	OPENED	DI	CIS-1645	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1645	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1645	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1645	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 25	IN REMOTE	DI	WIP-1645-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1645	OPENED	DI	WIP-1645-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1645-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1645-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1645-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1645-RHS	WIP-16425	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 25	IN REMOTE	DI	WW-1645-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1645	OPENED	DI	WW-1645-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1645-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WW-1645-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WW-1645-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1645-RHS	WW-16425	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 25	LOSS OF HEAD	AI	1645-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 26	IN REMOTE	DI	FE-1646	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1646	OPENED	DI	FE-1646	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1646	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1646	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1646	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 26	IN REMOTE	DI	CIS-1646	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1646	OPENED	DI	CIS-1646	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1646	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1646	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1646	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 26	IN REMOTE	DI	WIP-1646-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1646	OPENED	DI	WIP-1646-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1646-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1646-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1646-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1646-RHS	WIP-16426	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 26	IN REMOTE	DI	WW-1646-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1646	OPENED	DI	WW-1646-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1646-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WW-1646-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WW-1646-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1646-RHS	WW-16426	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 26	LOSS OF HEAD	AI	1646-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP2 - FILTERS 21 THRU 26										
FILTER 21	IN REMOTE	DI	FE-1641	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1641	OPENED	DI	FE-1641	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1641	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1641	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1641	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 21	IN REMOTE	DI	WIP-1641-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1641	OPENED	DI	WIP-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1641-RHS	WIP-1641	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 21	IN REMOTE	DI	WW-1641-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1641	OPENED	DI	WW-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP2	WW-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP2	WW-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1641-RHS	WW-1641	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 21	IN REMOTE	DI	CIS-1641-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1641	OPENED	DI	CIS-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1641-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1641-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	CIS-1641-RHS	CIS-1641	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 21	LOSS OF HEAD	AI	1641-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 22	IN REMOTE	DI	FE-1642	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1642	OPENED	DI	FE-1642	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1642	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1642	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1642	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 22	IN REMOTE	DI	CIS-1642	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1642	OPENED	DI	CIS-1642	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1642	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1642	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1642	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 22	IN REMOTE	DI	WIP-1642-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1642	OPENED	DI	WIP-1642-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1642-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1642-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1642-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1642-RHS	WIP-1642	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 22	IN REMOTE	DI	WW-1642-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1642	OPENED	DI	WW-1642-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1642-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WW-1642-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WW-1642-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1642-RHS	WW-1642	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 22	LOSS OF HEAD	AI	1642-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 23	IN REMOTE	DI	FE-1643	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1643	OPENED	DI	FE-1643	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1643	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1643	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1643	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 23	IN REMOTE	DI	CIS-1643	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1643	OPENED	DI	CIS-1643	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1643	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1643	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1643	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 23	IN REMOTE	DI	WIP-1643-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1643	OPENED	DI	WIP-1643-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1643-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1643-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1643-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1643-RHS	WIP-16423	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 23	IN REMOTE	DI	WW-1643-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1643	OPENED	DI	WW-1643-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1643-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WW-1643-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WW-1643-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1643-RHS	WW-16423	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 23	LOSS OF HEAD	AI	1643-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-
FILTER 24	IN REMOTE	DI	FE-1644	FILTER-CP2	-	2	-	3/4"	120VAC	-
VALVE FE-1644	OPENED	DI	FE-1644	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	FE-1644	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	POSITION CONTROL	AO	FILTER-CP2	FE-1644	1	-	-	3/4"	4-20mA	-
	POSITION TRANSMIT	AI	FE-1644	FILTER-CP2	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 24	IN REMOTE	DI	CIS-1644	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE CIS-1644	OPENED	DI	CIS-1644	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	CIS-1644	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	CIS-1644	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	CIS-1644	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 24	IN REMOTE	DI	WIP-1644-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WIP-1644	OPENED	DI	WIP-1644-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WIP-1644-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WIP-1644-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WIP-1644-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WIP-1644-RHS	WIP-16424	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 24	IN REMOTE	DI	WW-1644-RHS	FILTER-CP2	-	2	-	1"	120VAC	-
VALVE WW-1644	OPENED	DI	WW-1644-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSED	DI	WW-1644-RHS	FILTER-CP2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	OPEN CALL	DO	FILTER-CP2	WW-1644-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	CLOSE CALL	DO	FILTER-CP2	WW-1644-RHS	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	REMOTE CONNECTION	-	WW-1644-RHS	WW-16424	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FILTER 24	LOSS OF HEAD	AI	1644-LH	FILTER-CP2	1	-	-	3/4"	4-20mA	-

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Engineers | Architects | Scientists | Constructors

City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I105

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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP - EXISTING										
FILTER 10	VALVE OPENED	DI	FV-17-5-10	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-10	VALVE CLOSED	DI	FV-17-5-10	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-10	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-10	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 10	FILTER 10 EFFLUENT FLOW	-	FE-1630	FI-1630	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 10 EFFLUENT FLOW	AI	FI-1630	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 10 AND 12	FILTER 10 BACKWASH TURBIDITY	-	AE-2630	AINTU-2630	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 12 BACKWASH TURBIDITY	-	AE-2632	AINTU-2632	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 10 BACKWASH TURBIDITY	AI	AINTU-2632	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 12 BACKWASH TURBIDITY	AI	AINTU-2632	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 9 AND 11	FILTER 9 BACKWASH TURBIDITY	-	AE-2629	AINTU-2631	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 11 BACKWASH TURBIDITY	-	AE-2631	AINTU-2631	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 9 BACKWASH TURBIDITY	AI	AINTU-2631	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 11 BACKWASH TURBIDITY	AI	AINTU-2631	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 12	VALVE IN REMOTE	DI	FV-17-5-12	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-12	VALVE OPENED	DI	FV-17-5-12	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-12	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-12	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-12	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 13	VALVE IN REMOTE	DI	FV-17-5-13	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-13	VALVE OPENED	DI	FV-17-5-13	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-13	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-13	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-13	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 13	FILTER 13 LEVEL	-	2633-LE	2633-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	FILTER 13 LEVEL	AI	2633-LI	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 13 AND 15	FILTER 13 BACKWASH TURBIDITY	-	AE-2633	AINTU-2635	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 15 BACKWASH TURBIDITY	-	AE-2635	AINTU-2635	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 13 BACKWASH TURBIDITY	AI	AINTU-2635	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 15 BACKWASH TURBIDITY	AI	AINTU-2635	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 14	VALVE IN REMOTE	DI	FV-17-5-14	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-14	VALVE OPENED	DI	FV-17-5-14	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-14	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-14	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-14	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 15	VALVE IN REMOTE	DI	FV-17-5-15	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-15	VALVE OPENED	DI	FV-17-5-15	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-15	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-15	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-15	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 14 AND 16	FILTER 14 BACKWASH TURBIDITY	-	AE-2634	AINTU-2636	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 16 BACKWASH TURBIDITY	-	AE-2636	AINTU-2636	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 14 BACKWASH TURBIDITY	AI	AINTU-2636	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 16 BACKWASH TURBIDITY	AI	AINTU-2636	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 16	VALVE IN REMOTE	DI	FV-17-5-16	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-16	VALVE OPENED	DI	FV-17-5-16	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-16	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-16	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-16	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 17	VALVE IN REMOTE	DI	FV-17-5-17	FILTER-CP	-	2	-	3/4"	120VAC	-
VALVE FV-17-5-17	VALVE OPENED	DI	FV-17-5-17	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-17	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-17	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-17	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 17 AND 19	FILTER 17 BACKWASH TURBIDITY	-	AE-2637	AINTU-2639	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 19 BACKWASH TURBIDITY	-	AE-2639	AINTU-2639	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 17 BACKWASH TURBIDITY	AI	AINTU-2639	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 19 BACKWASH TURBIDITY	AI	AINTU-2639	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 18	VALVE IN REMOTE	DI	FV-17-5-18	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-18	VALVE OPENED	DI	FV-17-5-18	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-18	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-18	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-18	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 20	VALVE IN REMOTE	DI	FV-17-5-20	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-20	VALVE OPENED	DI	FV-17-5-20	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-20	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-20	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-20	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 18 AND 20	FILTER 18 BACKWASH TURBIDITY	-	AE-2638	AINTU-2640	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 20 BACKWASH TURBIDITY	-	AE-2640	AINTU-2640	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 18 BACKWASH TURBIDITY	AI	AINTU-2640	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 20 BACKWASH TURBIDITY	AI	AINTU-2640	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 21	VALVE IN REMOTE	DI	FV-17-5-21	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-21	VALVE OPENED	DI	FV-17-5-21	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-21	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-21	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-21	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 19	VALVE IN REMOTE	DI	FV-17-5-19	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-19	VALVE OPENED	DI	FV-17-5-19	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-19	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-19	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-19	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP - EXISTING										
FILTER 1	VALVE IN REMOTE	DI	FV-17-5-1	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-1	VALVE OPENED	DI	FV-17-5-1	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-1	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-1	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-1	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 1	OPEN CALL	DO	FILTER-CP	SV-1621	-	2	-	3/4"	120VAC	-
VALVE SV-1621										
FILTER 1	FILTER 1 EFFLUENT FLOW	-	FE-1621	FI-1621	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 1 EFFLUENT FLOW	AI	FI-1621	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 1 AND 3	FILTER 1 BACKWASH TURBIDITY	-	AE-2621	AINTU-2623	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 3 BACKWASH TURBIDITY	-	AE-2623	AINTU-2623	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 1 BACKWASH TURBIDITY	AI	AINTU-2623	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 3 BACKWASH TURBIDITY	AI	AINTU-2623	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 4	VALVE IN REMOTE	DI	FV-17-5-4	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-4	VALVE OPENED	DI	FV-17-5-4	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-4	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-4	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-4	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 4	OPEN CALL	DO	FILTER-CP	SV-1624	-	2	-	3/4"	120VAC	-
VALVE SV-1624										
FILTER 4	FILTER 1 EFFLUENT FLOW	-	FE-1624	FI-1624	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 1 EFFLUENT FLOW	AI	FI-1624	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 2	VALVE IN REMOTE	DI	FV-17-5-2	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-2	VALVE OPENED	DI	FV-17-5-2	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-2	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-2	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 2	OPEN CALL	DO	FILTER-CP	SV-1622	-	2	-	3/4"	120VAC	-
VALVE SV-1622										
FILTER 2	FILTER 2 EFFLUENT FLOW	-	FE-1622	FI-1622	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 2 EFFLUENT FLOW	AI	FI-1622	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 2 AND 4	FILTER 2 BACKWASH TURBIDITY	-	AE-2622	AINTU-2624	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 4 BACKWASH TURBIDITY	-	AE-2624	AINTU-2624	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 2 BACKWASH TURBIDITY	AI	AINTU-2624	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 4 BACKWASH TURBIDITY	AI	AINTU-2624	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 3	VALVE IN REMOTE	DI	FV-17-5-3	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-3	VALVE OPENED	DI	FV-17-5-3	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-3	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-3	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-3	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 3	OPEN CALL	DO	FILTER-CP	SV-1623	-	2	-	3/4"	120VAC	-
VALVE SV-1623										
FILTER 3	FILTER 3 EFFLUENT FLOW	-	FE-1623	FI-1623	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 3 EFFLUENT FLOW	AI	FI-1623	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 5	VALVE IN REMOTE	DI	FV-17-5-5	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-5	VALVE OPENED	DI	FV-17-5-5	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-5	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-5	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-5	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 5	OPEN CALL	DO	FILTER-CP	SV-1625	-	2	-	3/4"	120VAC	-
VALVE SV-1625										
FILTER 5	FILTER 5 EFFLUENT FLOW	-	FE-1625	FI-1625	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 5 EFFLUENT FLOW	AI	FI-1625	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 6	VALVE IN REMOTE	DI	FV-17-5-6	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-6	VALVE OPENED	DI	FV-17-5-6	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-6	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-6	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-6	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 6	OPEN CALL	DO	FILTER-CP	SV-1626	-	2	-	3/4"	120VAC	-
VALVE SV-1626										
FILTER 6	FILTER 6 EFFLUENT FLOW	-	FE-1626	FI-1626	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 6 EFFLUENT FLOW	AI	FI-1626	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 7	VALVE IN REMOTE	DI	FV-17-5-7	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-7	VALVE OPENED	DI	FV-17-5-7	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-7	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-7	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-7	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 7	OPEN CALL	DO	FILTER-CP	SV-1627	-	2	-	3/4"	120VAC	-
VALVE SV-1627										
FILTER 7	FILTER 7 EFFLUENT FLOW	-	FE-1627	FI-1627	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 7 EFFLUENT FLOW	AI	FI-1627	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 5 AND 7	FILTER 5 BACKWASH TURBIDITY	-	AE-2625	AINTU-2627	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 7 BACKWASH TURBIDITY	-	AE-2627	AINTU-2627	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 5 BACKWASH TURBIDITY	AI	AINTU-2627	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 7 BACKWASH TURBIDITY	AI	AINTU-2627	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 8	VALVE IN REMOTE	DI	FV-17-5-8	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-8	VALVE OPENED	DI	FV-17-5-8	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-8	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-8	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-8	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 8	OPEN CALL	DO	FILTER-CP	SV-1628	-	2	-	3/4"	120VAC	-
VALVE SV-1628										
FILTER 8	FILTER 8 LEVEL	-	2628-LE	2628-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	FILTER 8 LEVEL	AI	2628-LI	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 8	FILTER 8 EFFLUENT FLOW	-	FE-1628	FI-1628	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 8 EFFLUENT FLOW	AI	FI-1628	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 6 AND 8	FILTER 6 BACKWASH TURBIDITY	-	AE-2626	AINTU-2628	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 8 BACKWASH TURBIDITY	-	AE-2628	AINTU-2628	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 6 BACKWASH TURBIDITY	AI	AINTU-2628	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 8 BACKWASH TURBIDITY	AI	AINTU-2628	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 9	VALVE IN REMOTE	DI	FV-17-5-9	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-9	VALVE OPENED	DI	FV-17-5-9	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-9	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-9	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-9	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 9	FILTER 9 EFFLUENT FLOW	-	FE-1629	FI-1629	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	FILTER 9 EFFLUENT FLOW	AI	FI-1629	FILTER-CP	1	-	-	3/4"	4-20mA	-

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City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I106

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INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
PLC-HS										
GRAVITY #1	GRAVITY #1 FLOW	-	HS623-FE	HS623-FIT	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	GRAVITY #1 FLOW	AI	HS623-FIT	PLC-HS	1	-	-	3/4"	4-20mA	-
	TRANSMITTER 120V POWER	-	PLC-HS	HS623-FIT	-	-	2	3/4"	120VAC	-
GRAVITY #2	GRAVITY #2 FLOW	-	HS624-FE	HS624-FIT	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	GRAVITY #2 FLOW	AI	HS624-FIT	PLC-HS	1	-	-	3/4"	4-20mA	-
	TRANSMITTER 120V POWER	-	PLC-HS	HS624-FIT	-	-	2	3/4"	120VAC	-
EAST HIGH	GRAVITY #1 FLOW	-	HS1216-FE	HS1216-FIT	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	GRAVITY #1 FLOW	AI	HS1216-FIT	PLC-HS	1	-	-	3/4"	4-20mA	-
	TRANSMITTER 120V POWER	-	PLC-HS	HS1216-FIT	-	-	2	3/4"	120VAC	-
WEST HIGH	GRAVITY #1 FLOW	-	HS0327-FE	HS0327-FIT	-	-	-	3/4"	-	MANUFACTURER'S CABLE
FLOW METER	GRAVITY #1 FLOW	AI	HS0327-FIT	PLC-HS	1	-	-	3/4"	4-20mA	-
	TRANSMITTER 120V POWER	-	PLC-HS	HS0327-FIT	-	-	2	3/4"	120VAC	-
CLEARWELL 2	LEVEL	AI	HS0310-LE/LI	PLC-HS	1	-	-	3/4"	4-20mA	-
LEVEL										

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
PLC-C2										
CISTERN 1	LEVEL	-	C21610-LE	C21510-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	LEVEL		C21510-LI	PLC-C2	1	-	-	3/4"	4-20mA	-

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
PLC-P2										
CISTERN 2B	LEVEL	-	P21708-LE	P21708-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	LEVEL		P21708-LI	PLC-P2	1	-	-	3/4"	4-20mA	-
CISTERN 2A	LEVEL	-	P21701-LE	P21701-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	LEVEL		P21701-LI	PLC-P2	1	-	-	3/4"	4-20mA	-

INPUT/OUTPUT LIST AND WIRING SCHEDULE

DESCRIPTION		I/O TYPE	DESTINATION		WIRING			CONDUIT SIZE	SIGNAL TYPE	REMARKS
			FROM	TO	#16TSP	#14	#12			
FILTER-CP - EXISTING										
FILTER 22	FILTER 22 LEVEL	-	2642-LE	2642-LI	-	-	-	3/4"	-	MANUFACTURER'S CABLE
LEVEL	FILTER 22 LEVEL	AI	2642-LI	FILTER-CP	1	-	-	3/4"	4-20mA	-
FILTER 21 AND 22	FILTER 21 BACKWASH TURBIDITY	-	AE-2641	AINTU-2642	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 22 BACKWASH TURBIDITY	-	AE-2642	AINTU-2642	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 21 BACKWASH TURBIDITY	AI	AINTU-2642	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 22 BACKWASH TURBIDITY	AI	AINTU-2642	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 23	VALVE IN REMOTE	DI	FV-17-5-23	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-23	VALVE OPENED	DI	FV-17-5-23	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-23	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-23	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-23	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 24	VALVE IN REMOTE	DI	FV-17-5-24	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-24	VALVE OPENED	DI	FV-17-5-24	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-24	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-24	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-24	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 23 AND 24	FILTER 23 BACKWASH TURBIDITY	-	AE-2643	AINTU-2644	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 24 BACKWASH TURBIDITY	-	AE-2644	AINTU-2644	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 23 BACKWASH TURBIDITY	AI	AINTU-2644	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 24 BACKWASH TURBIDITY	AI	AINTU-2644	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS
FILTER 25	VALVE IN REMOTE	DI	FV-17-5-25	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-25	VALVE OPENED	DI	FV-17-5-25	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-25	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-25	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-25	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 26	VALVE IN REMOTE	DI	FV-17-5-26	FILTER-CP	-	2	-	1"	120VAC	-
VALVE FV-17-5-26	VALVE OPENED	DI	FV-17-5-26	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSED	DI	FV-17-5-26	FILTER-CP	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE OPEN CALL	DO	FILTER-CP	FV-17-5-26	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
	VALVE CLOSE CALL	DO	FILTER-CP	FV-17-5-26	-	2	-	-	120VAC	COMBINE SIMILAR SIGNALS
FILTER 25 AND 26	FILTER 25 BACKWASH TURBIDITY	-	AE-2645	AINTU-2646	-	-	-	3/4"	-	MANUFACTURER'S CABLE
TURBIDITY METER	FILTER 26 BACKWASH TURBIDITY	-	AE-2646	AINTU-2646	-	-	-	3/4"	-	MANUFACTURER'S CABLE
	FILTER 25 BACKWASH TURBIDITY	AI	AINTU-2646	FILTER-CP	1	-	-	3/4"	4-20mA	-
	FILTER 26 BACKWASH TURBIDITY	AI	AINTU-2646	FILTER-CP	1	-	-	-	4-20mA	COMBINE SIMILAR SIGNALS

PLOT INFO: Z:\2022\2501593\CAD\CD\I101\2501593.DWG LAYOUT: I107 DATE: 4/8/2026 TIME: 1:58:59 AM USER: MSTACK

fishbeck
Engineers | Architects | Scientists | Constructors

City of Ann Arbor
Ann Arbor, Michigan

Instrumentation & Controls Improvements

REVISIONS

4/7/2026	BIDS AND CONSTRUCTION

Drawn By	MSTACK
Designer	MSTACK
Reviewer	JACONDIE
Manager	BDPHILLIPS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2501593

SHEET NO.
I107

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