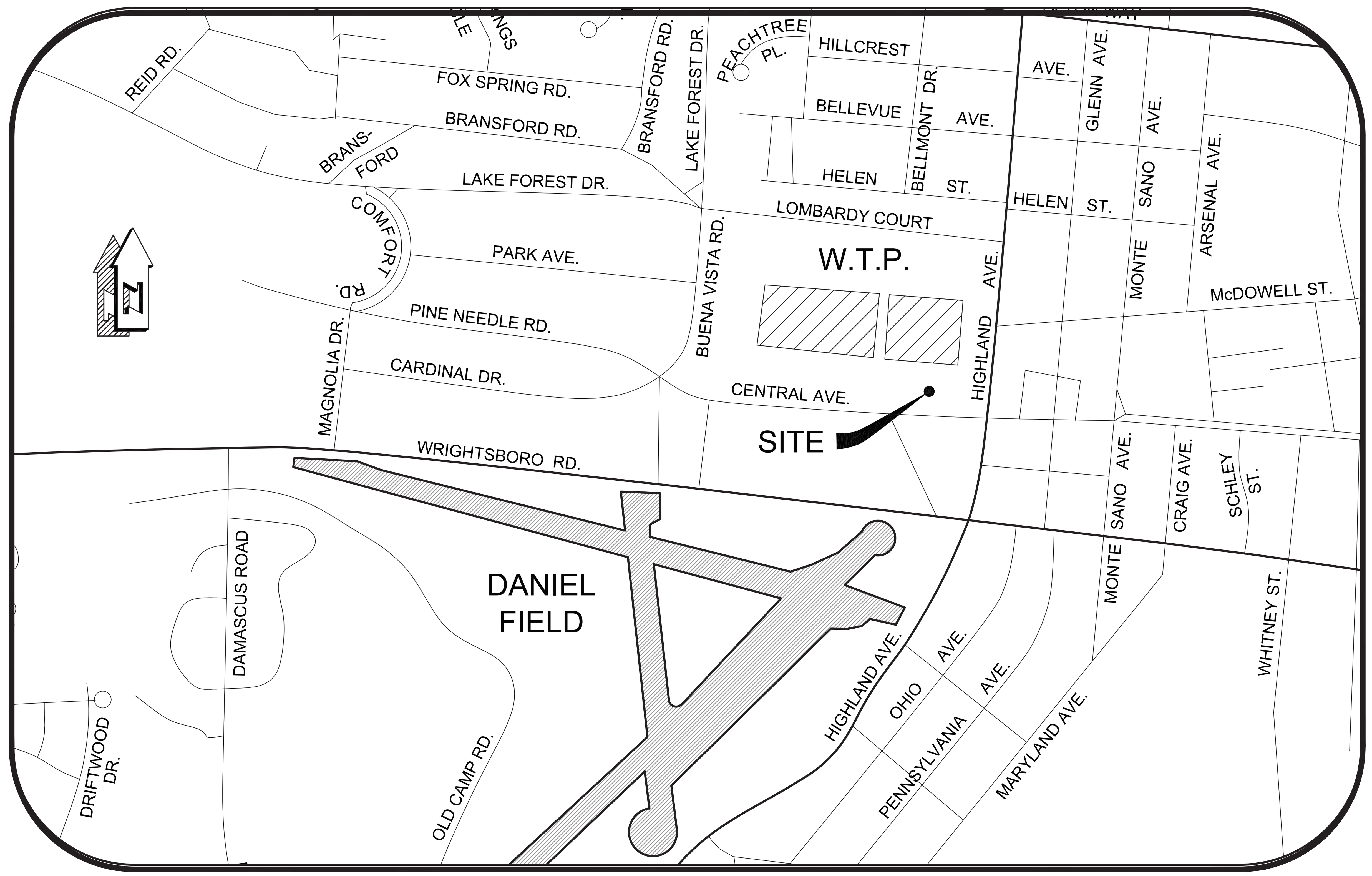
AUGUSTA UTILITIES DEPARTMENT

2102 HIGHLAND AVENUE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2



LOCATION MAP
N.T.S.

MAYOR GARNETT JOHNSON
COMMISSION

JORDAN JOHNSON	TONY LEWIS
STACY PULLIAM	TINA SLENDAK
CATHERINE SMITH-RICE	BRANDON GARRETT
ALVIN MASON	FRANCINE SCOTT
DON CLARK	WAYNE GUILFOYLE

AUGUSTA UTILITIES DEPARTMENT
DIRECTOR: WES BYNE, P.E.

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED No. PE040015 PROFESSIONAL ENGINEER AARON C. BAIRD
2025.03.20 11:18:55-04'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

COVER SHEET

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA 30901
PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

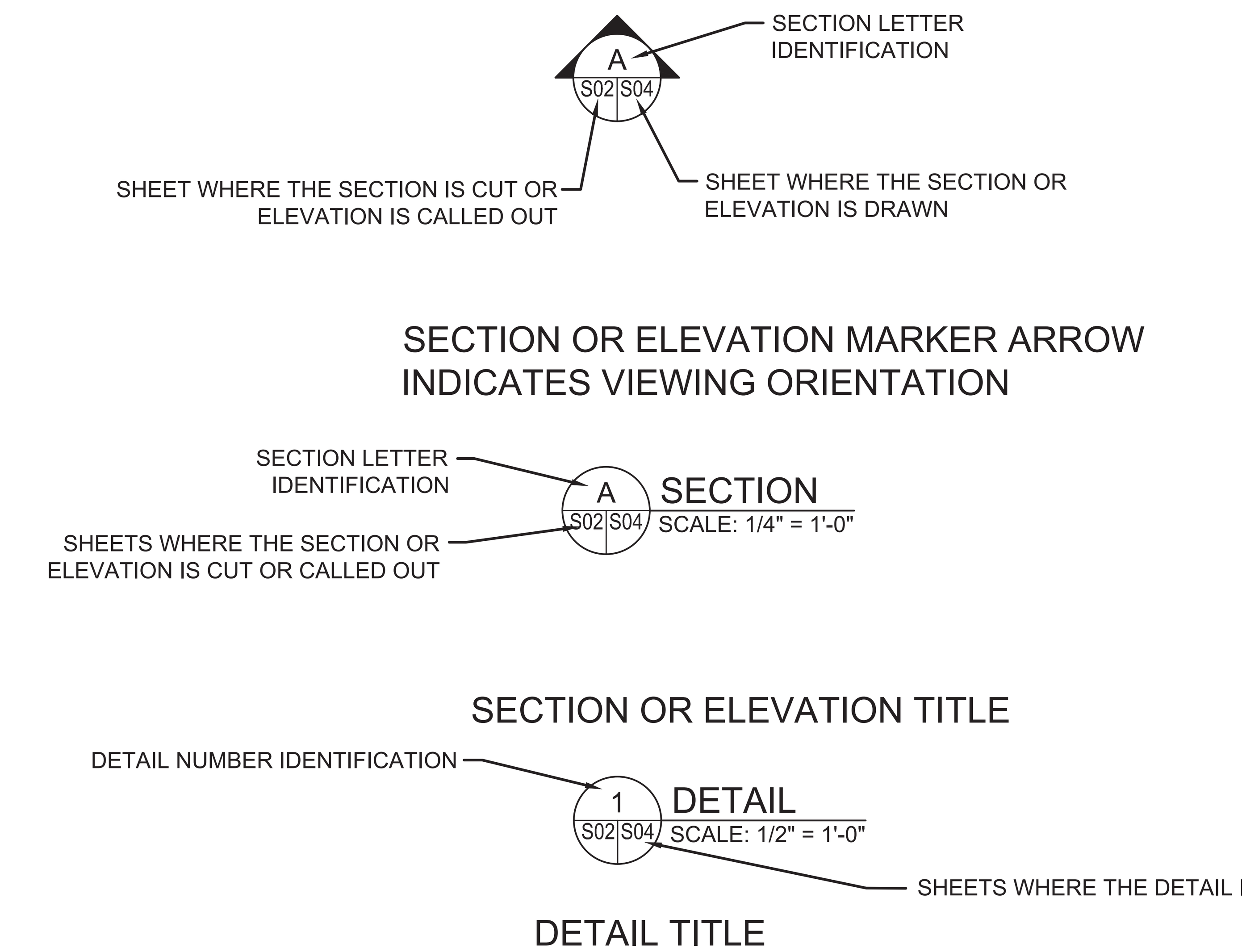
FILE SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
DATE MARCH 2025
PROJ. 100339.11
DWG. G0

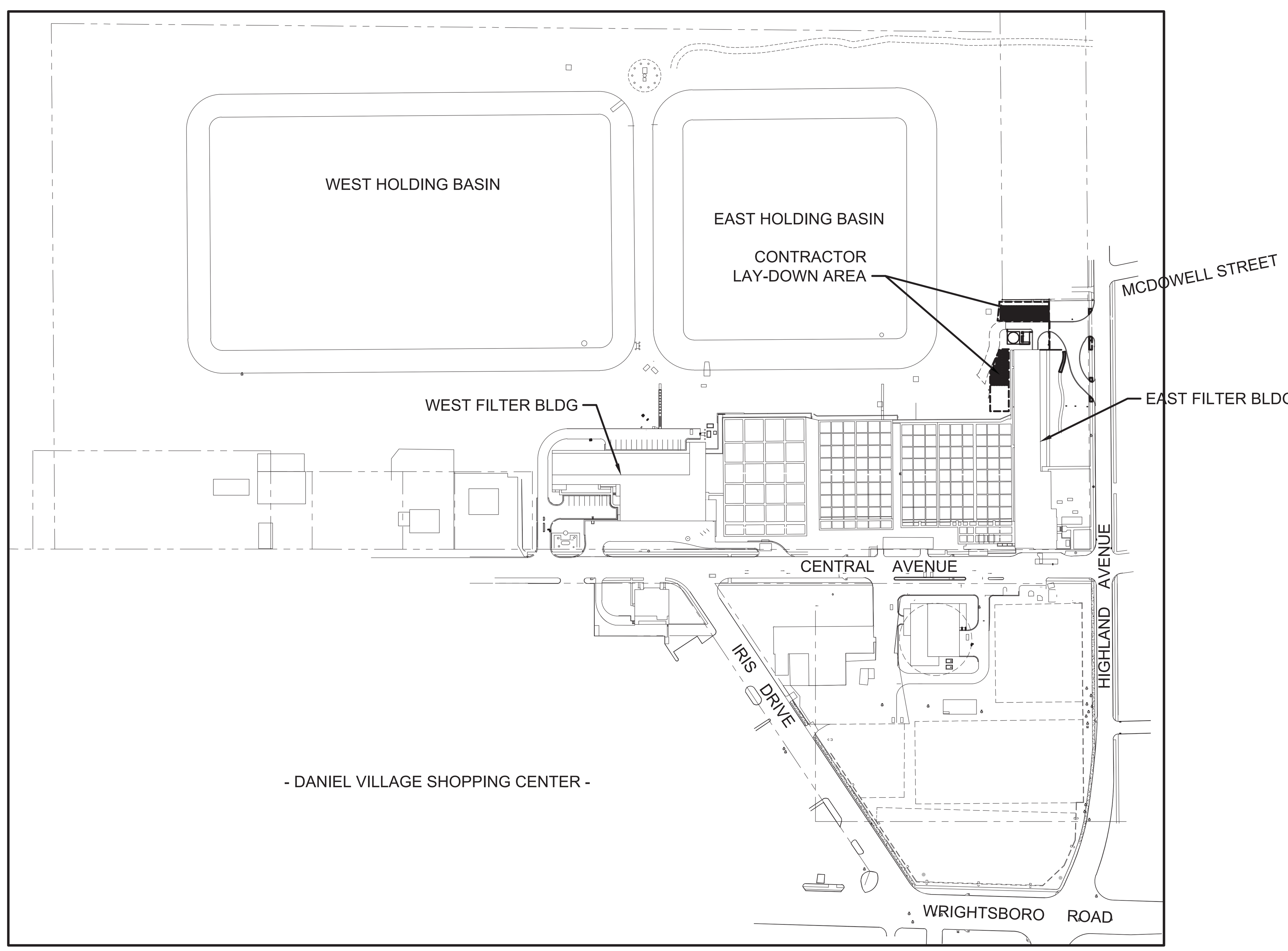
H:\PROJECT FILES\100339 – AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS – ZEL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\00 GENERAL\G-0 COVER.DWG

GENERAL NOTES

1. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING GROUND CONFIGURATIONS AND INFORM HIMSELF OF THE CONDITIONS TO BE ENCOUNTERED DURING CONSTRUCTION.
2. THE LOCATIONS OF UTILITIES SHOWN ON THE DRAWINGS HAVE BEEN DETERMINED FROM UTILITY COMPANY/DEPARTMENT RECORDS AND PERSONNEL. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THE DRAWINGS WHICH PRESENTLY EXIST IN THE AREA OF CONSTRUCTION. THE ENGINEER AND/OR OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
3. THE CONTRACTOR SHALL CONTACT ALL UTILITY AGENCIES PRIOR TO COMMENCING CONSTRUCTION FOR PURPOSES OF LOCATING EXISTING UTILITIES ON THE PROJECT SITE. THE CONTRACTOR SHALL COORDINATE AND PROVIDE FOR THE PROTECTION OF CONFLICTING UTILITIES. UTILITIES OR OTHER OBSTRUCTIONS REQUIRING RELOCATION OR FACILITIES DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE RELOCATED AND/OR REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. THE DRAWINGS CONTAIN DETAILED VERTICAL AND HORIZONTAL CONTROL AND CONTROL POINTS FOR THE LAYOUT OF THE PROJECT. DETAILED CONSTRUCTION STAKING SHALL BE UNDERTAKEN BY THE CONTRACTOR.

SYMBOLS





PROJECT VICINITY MAP
SCALE: 1" = 200'

Sheet List Table	
Sheet Number	Sheet Title
	GENERAL
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S02	FILTERS NO 2 AND NO 8 STRUCTURAL DETAILS
	MECHANICAL
M01	EAST FILTER BUILDING FLOOR PLAN
M02	FILTER DEMOLITION PLAN
M03	FILTERS NO 2 & NO 8 DEMOLITION SECTIONS
M04	FILTER NO 2 MODIFICATIONS PLAN
M05	FILTER NO 8 MODIFICATIONS PLAN
M06	FILTER NO 2 SECTIONS
M07	FILTER NO 8 SECTIONS
M08	MISCELLANEOUS DETAILS 1
M09	MISCELLANEOUS DETAILS 2
	INSTRUMENT
I01	P & ID LEGEND
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	ELECTRICAL
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E02	ELECTRICAL SYMBOLS
E03	ELECTRICAL SYMBOLS 2
E04	POWER SINGLELINE
E05	FCC 1–2 CONTROL SINGLELINE
E06	FCC 3–4 & FCC 5–6 CONTROL SINGLELINE
E07	FCC 7–8 & FCC 9–10 CONTROL SINGLELINE
E08	HF PANEL SCHEDULES
E09	LF1 & LF2 PANEL SCHEDULES
E10	LF3 & LF4 PANEL SCHEDULES
E11	LF5 PANEL SCHEDULE
E12	ELECTRICAL FILTER FLOOR PLAN
E13	FILTER 2 ELECTRICAL PLAN
E14	FILTER 8 ELECTRICAL PLAN

H:\PROJECT FILES\100339 – AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS – ZEL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\00 GENERAL\GENERAL NOTES.DWG

ENGINEER SEAL

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

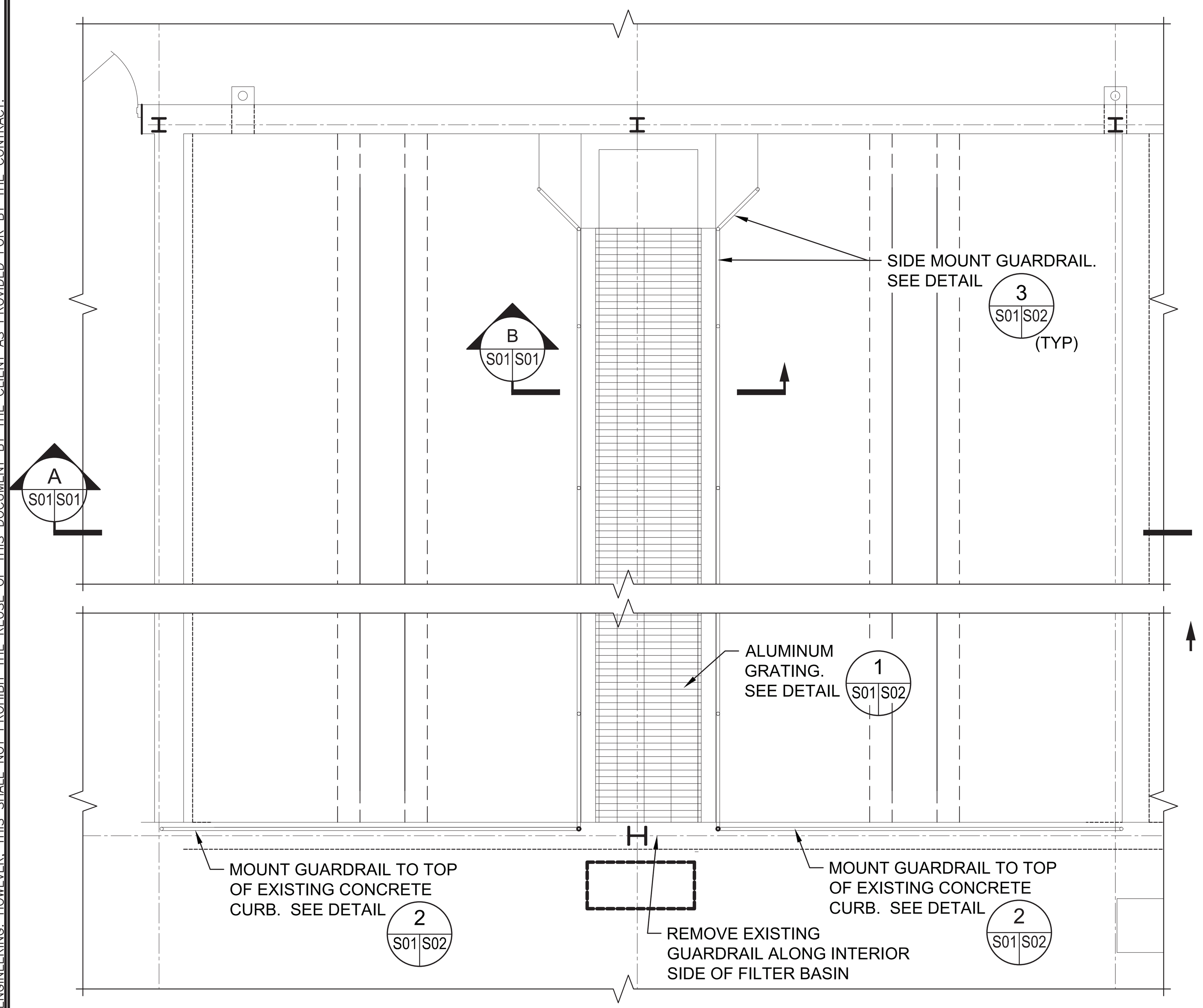
GENERAL NOTES, VICINITY MAP AND DRAWING INDEX

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

FILE: SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
DATE: MARCH 2025
PROJ.: 100339.11
DWG.: G01

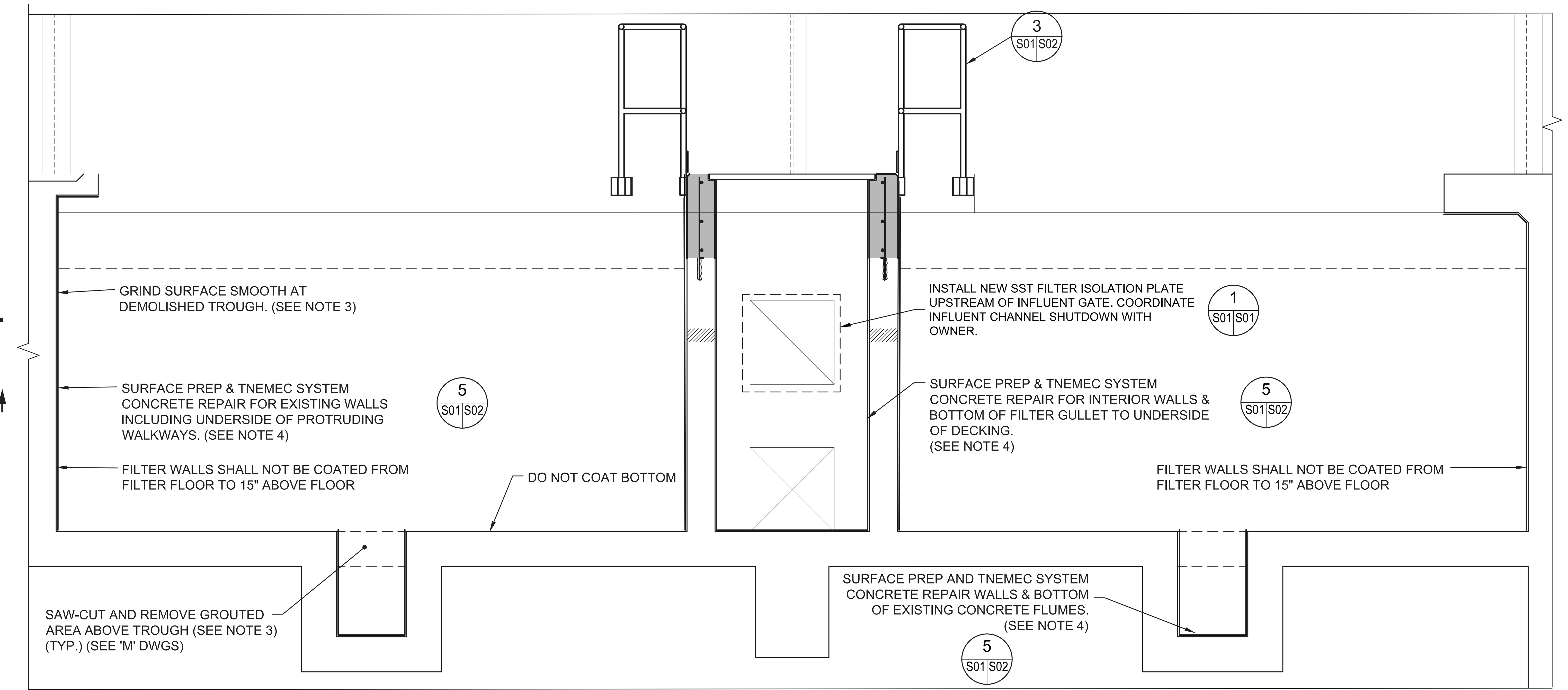
ISSUED FOR BID



FILTER NO. 2 & NO 8 REPAIR PLAN

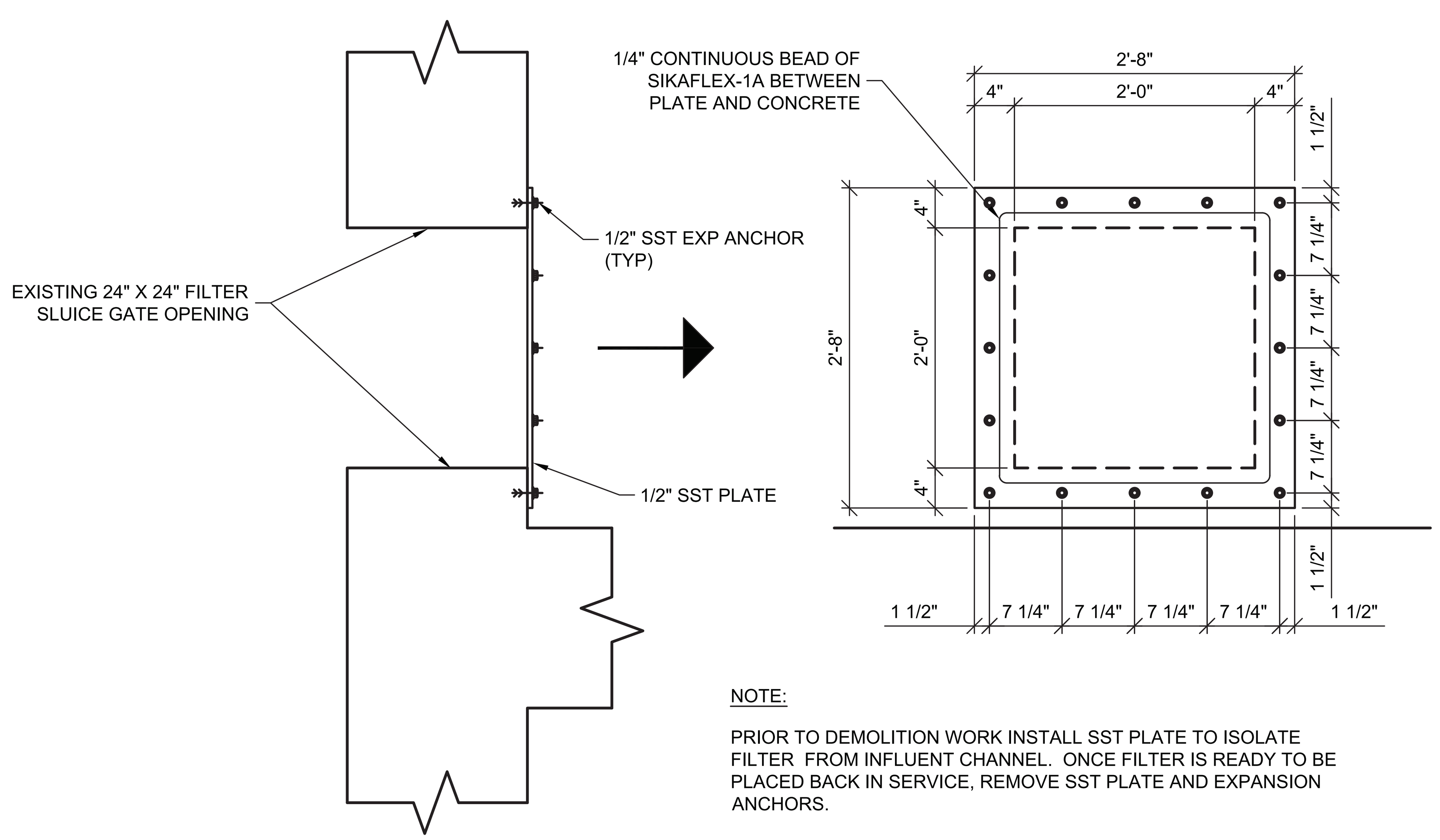
SCALE: 1/4"=1'-0"

(REPAIRS SHOWN ARE TYPICAL FOR FILTER NO. 2 & NO. 8)



A S01 S01 SECTION

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

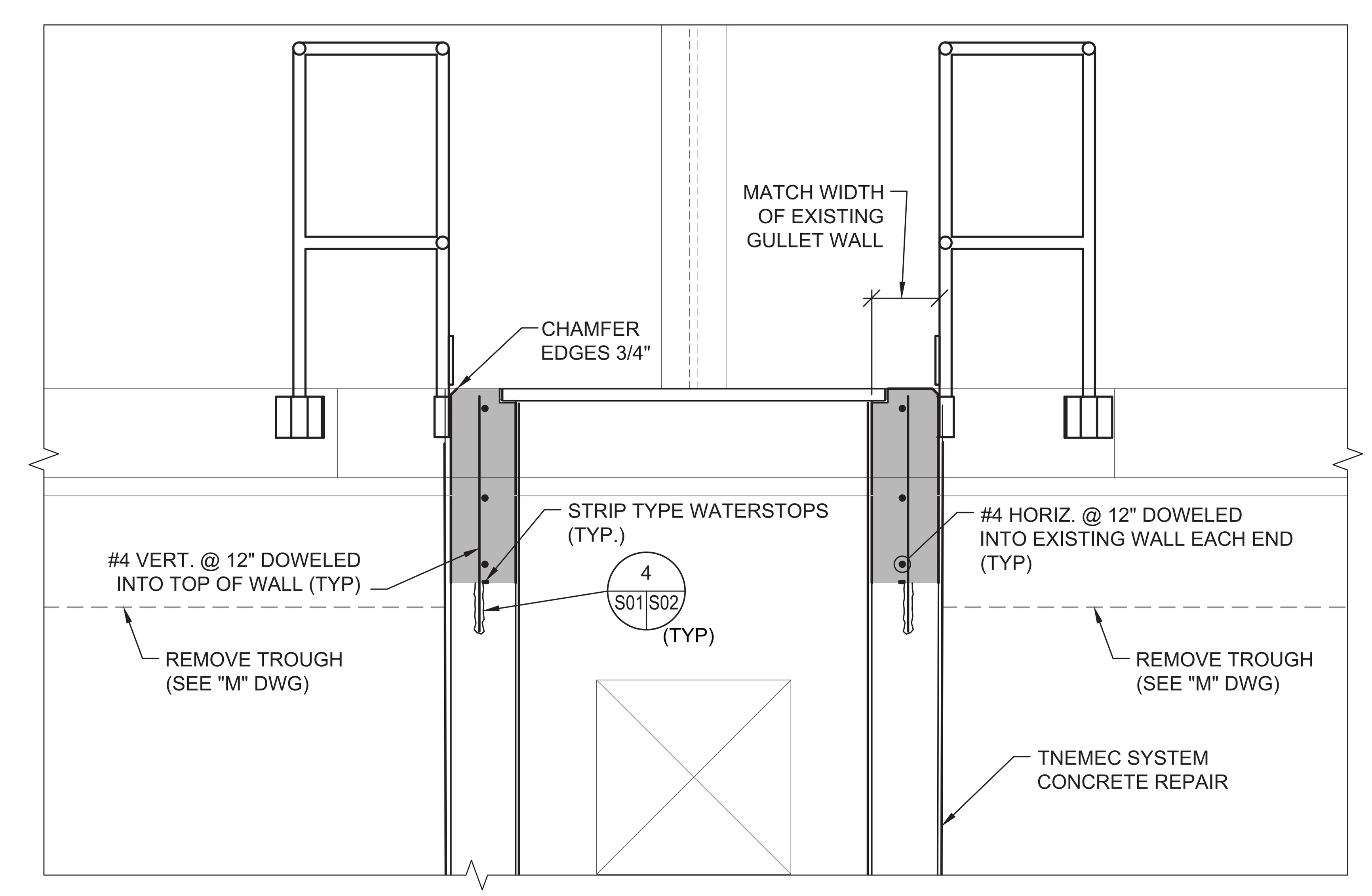


NOTE:

PRIOR TO DEMOLITION WORK INSTALL SST PLATE TO ISOLATE FILTER FROM INFLUENT CHANNEL. ONCE FILTER IS READY TO BE PLACED BACK IN SERVICE, REMOVE SST PLATE AND EXPANSION ANCHORS.

1 M02 M03 S01 STAINLESS STEEL PLATE

SCALE: 1"=1'-0"



B S01 S01 SECTION

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

NOTES:

1. SURFACE PREP EXISTING WALLS AS PROVIDED BY REPAIR PRODUCT MANUFACTURER.
2. CONTRACTOR SHALL PROVIDE TYPE 2 OR TYPE 3 CONCRETE REPAIRS WHERE DAMAGE FROM DEMOLITION ACTIVITIES OCCUR AT NO ADDITIONAL COST TO OWNER.
3. COAT ENDS OF EXPOSED REINFORCEMENT WITH SIKA ARMATEC-110 EPOCEM ANTI-CORROSION COATING OR APPROVED EQUAL PRIOR TO SPECIFIED SURFACE CONCRETE REPAIR.
4. FOR TYPE 1 CONCRETE REPAIRS UTILIZE TNEMEC 218/N140/141 COATINGS SYSTEM, OR ENGINEER APPROVED EQUIVALENT, PER THE REQUIREMENTS BELOW:

SURFACE PREPARATION:
REMOVE ALL POORLY ADHERED CONCRETE AND CHIP BACK TO SOUND SUBSTRATE. THE SURFACE SHALL BE CLEAN AND DRY. PRIME ALL EXPOSED REBAR OR OTHER METAL WITH TNEMEC SERIES 1 OMNITHANE PRIMER APPLIED AT 2.5 – 3.5 DRY MILS PRIOR TO THE APPLICATION OF THE CONCRETE REPAIR MORTAR LISTED BELOW.

PATCH & SKIM COAT:
TNEMEC SERIES 218 MORTARCLAD TO FILL AND SMOOTH THE SURFACE OF THE WALL. IF THE DETERIORATION IS GREATER THAN ONE INCH, USE TNEMEC SERIES 217 MORTARCRETE. THE GOAL IS TO SEAL AND PROVIDE A UNIFORM AND SMOOTH SURFACE.

2ND COAT:	SERIES N140-1255 POTA-POX PLUS	4.0 – 6.0
3RD COAT:	SERIES 21 EPOXOLINE	12.0 – 14.0

ISSUED FOR BID

ENGINEER SEAL

GEORGIA REGISTERED No. SE001314 STRUCTURAL Donald J Phillips DONALD J. PHILLIPS

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

FILTERS NO 2 AND NO 8 STRUCTURAL REPAIRS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life AUGUSTA UTILITIES

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PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

FILE SEE LEFT

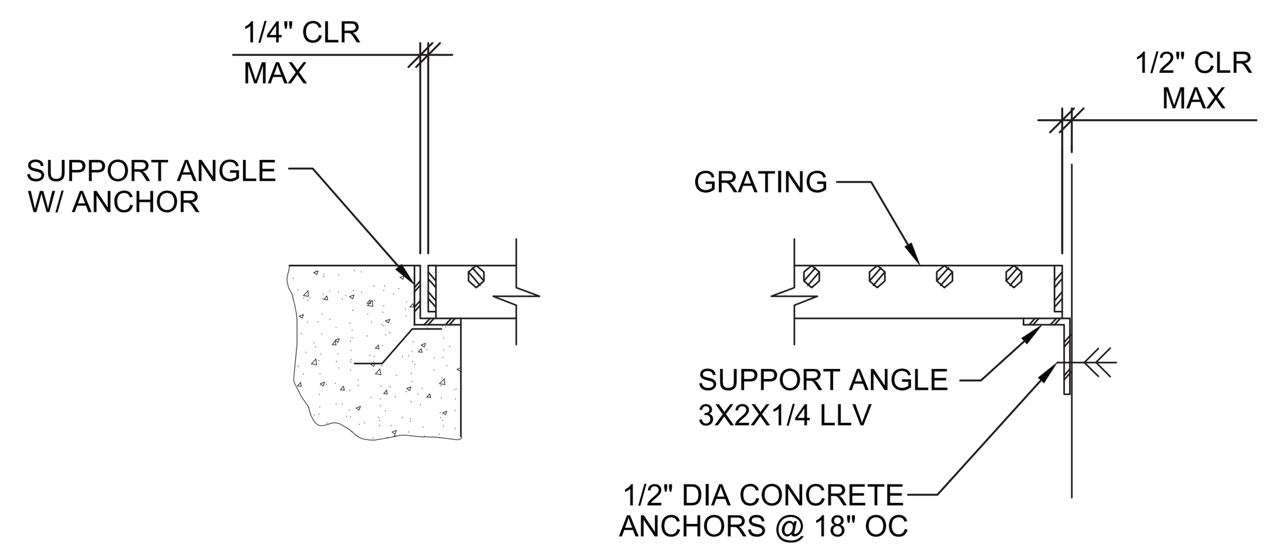
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"

DATE MARCH 2025

PROJ. 100339.11

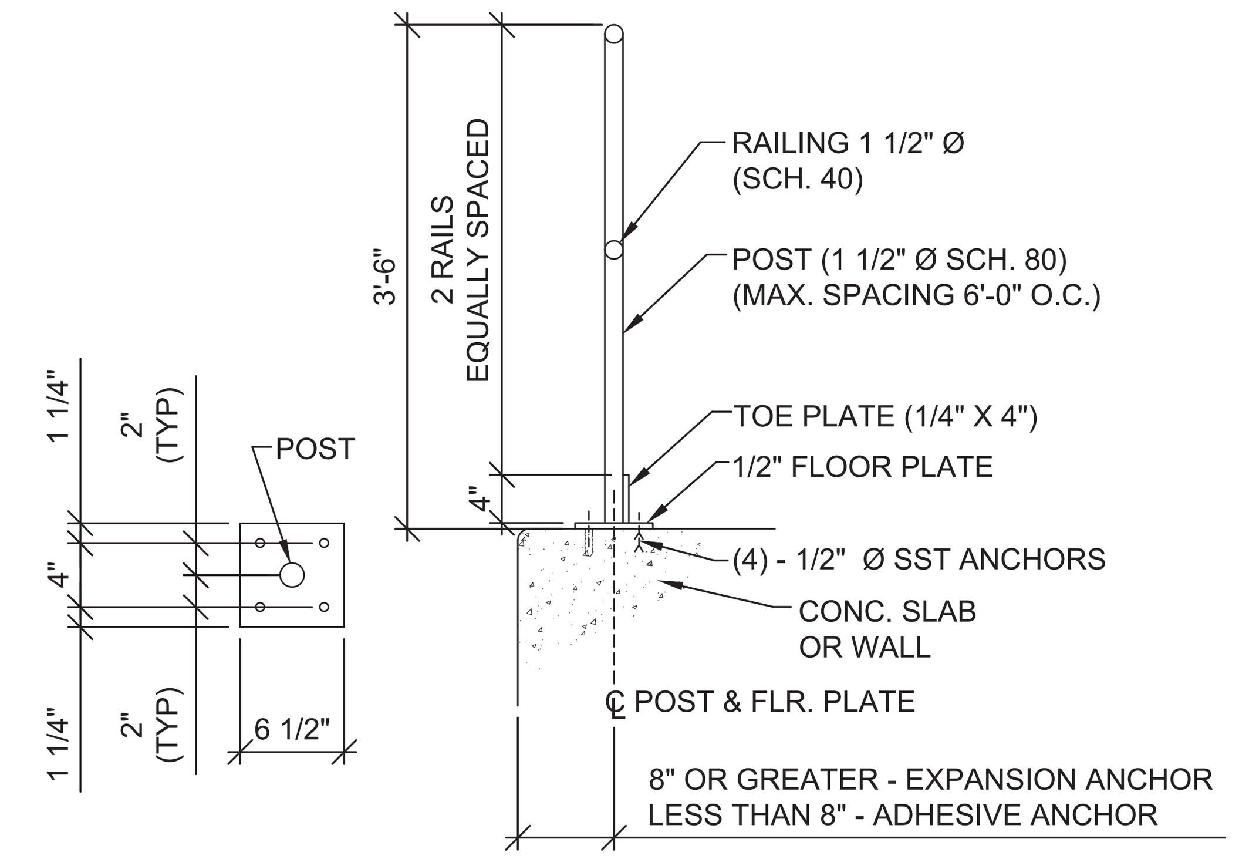
DWG. S01



NOTES:

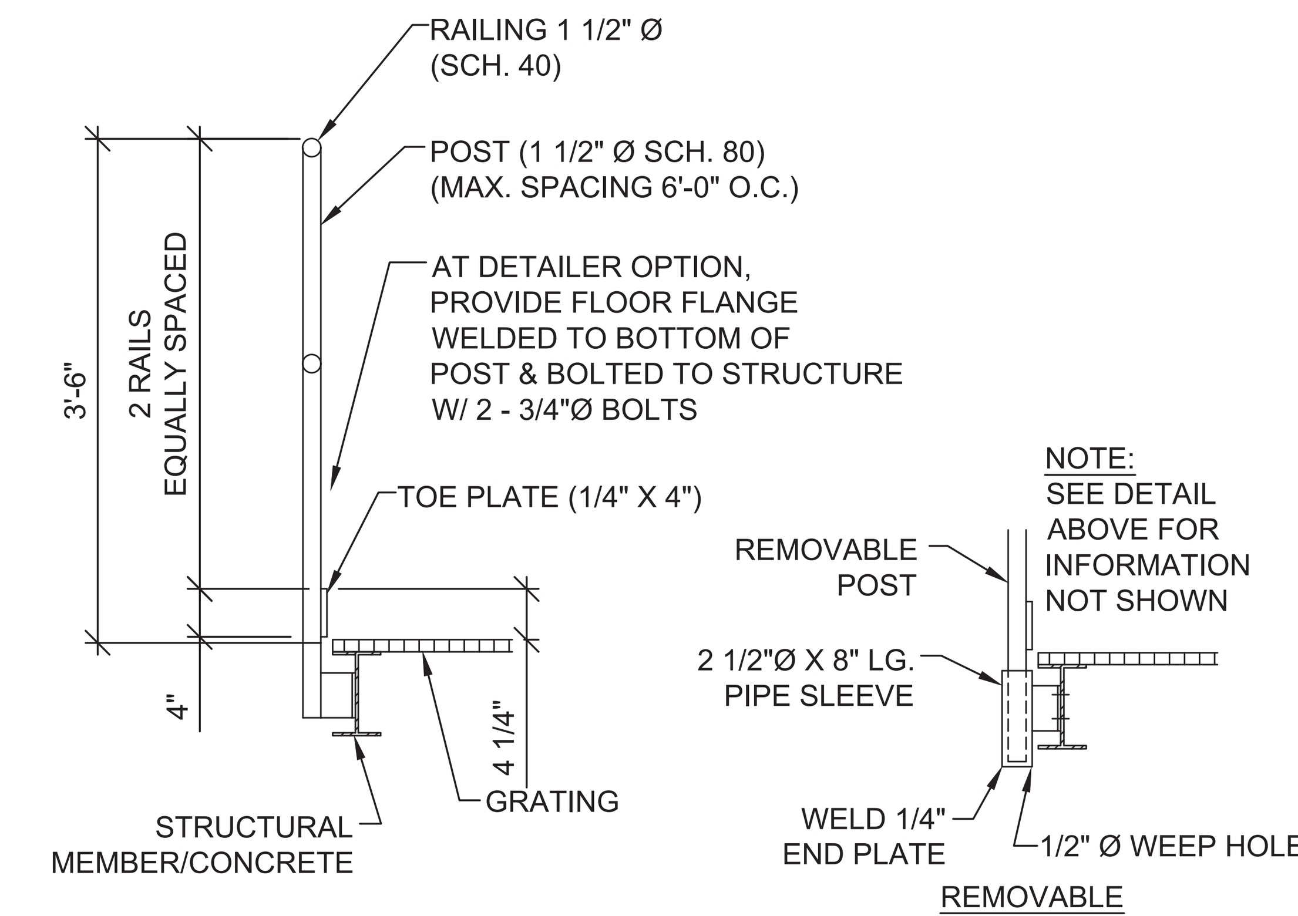
1. SUPPORT MATERIAL TO MATCH GRATING MATERIAL UNLESS OTHERWISE NOTED.
2. PROVIDE GRATING SUPPORTS ALL AROUND OPENING, UNLESS OTHERWISE NOTED.
3. GRATING MAY BE CONTINUOUS OVER INTERIOR SUPPORT, UNLESS OTHERWISE NOTED.
4. COAT ALL ALUM. GRATING, SEATS, AND SUPPORTS IN CONTACT W/ CONCRETE W/ BITUMINOUS PAINTING SYSTEM.

1 S01 S02 GRATING SUPPORT DETAIL
N.T.S.



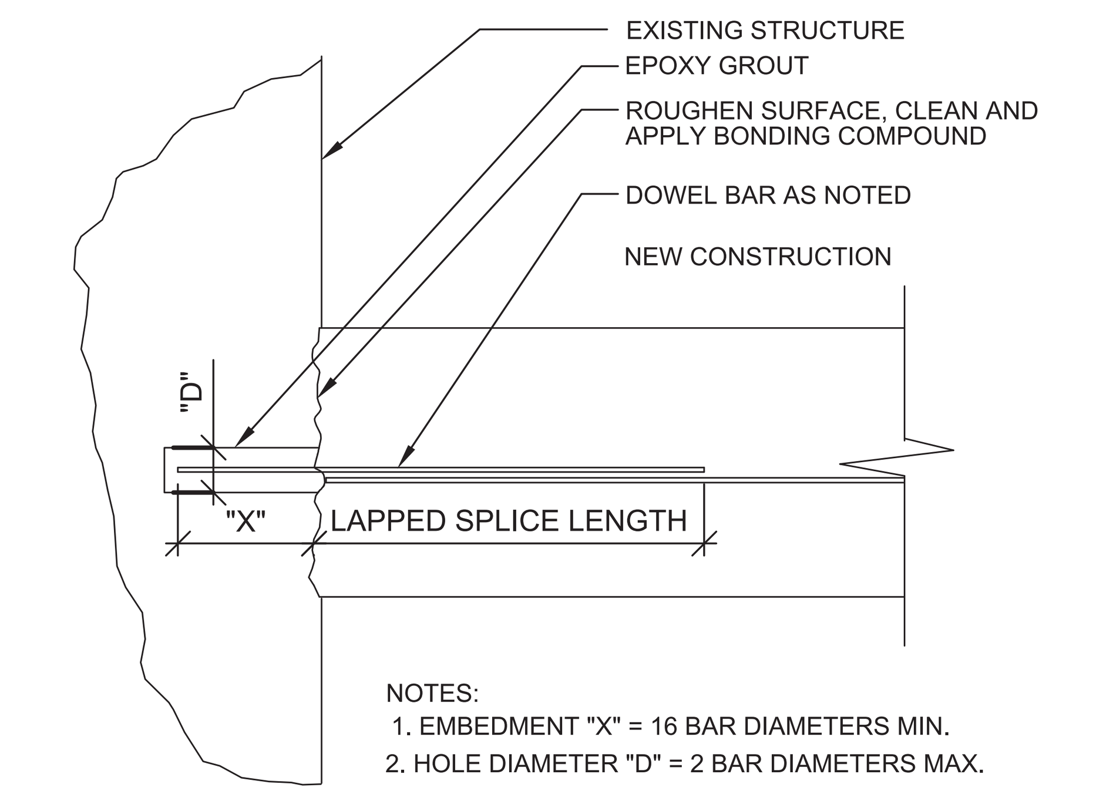
NOTE: ALL MATERIAL SHALL BE ALUMINUM (U.N.O.)

2 S01 S02 GUARDRAIL DETAIL
N.T.S.



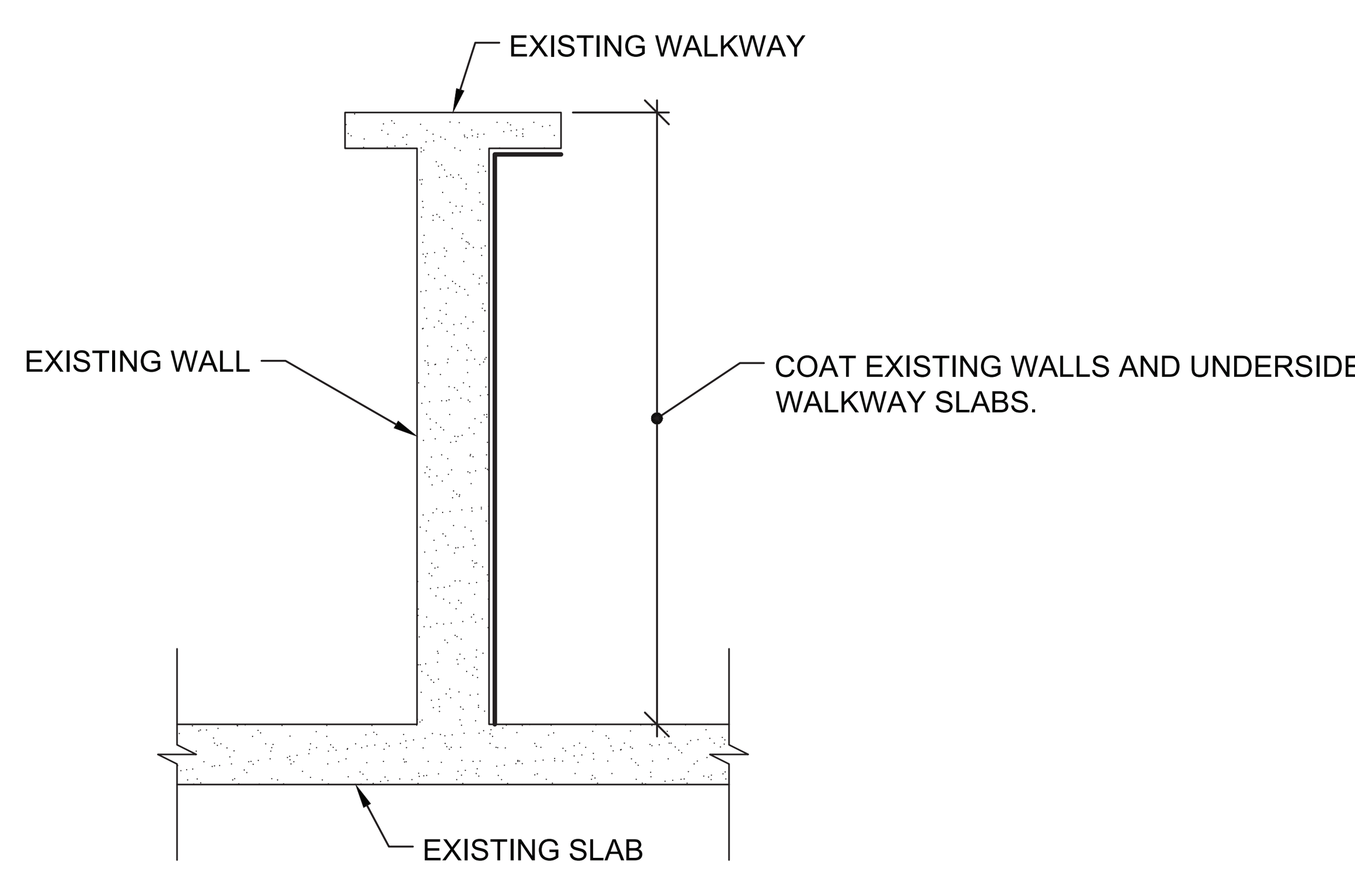
NOTE: ALL MATERIAL SHALL BE ALUMINUM (U.N.O.)

3 S01 S02 GUARDRAIL DETAIL
N.T.S.



NOTES:
1. EMBEDMENT "X" = 16 BAR DIAMETERS MIN.
2. HOLE DIAMETER "D" = 2 BAR DIAMETERS MAX.

4 S01 S02 DRILLED IN DOWEL DETAIL
N.T.S.



SECTION

5 S02 S02 TYPE 1 REPAIR - WALL RESURFACING
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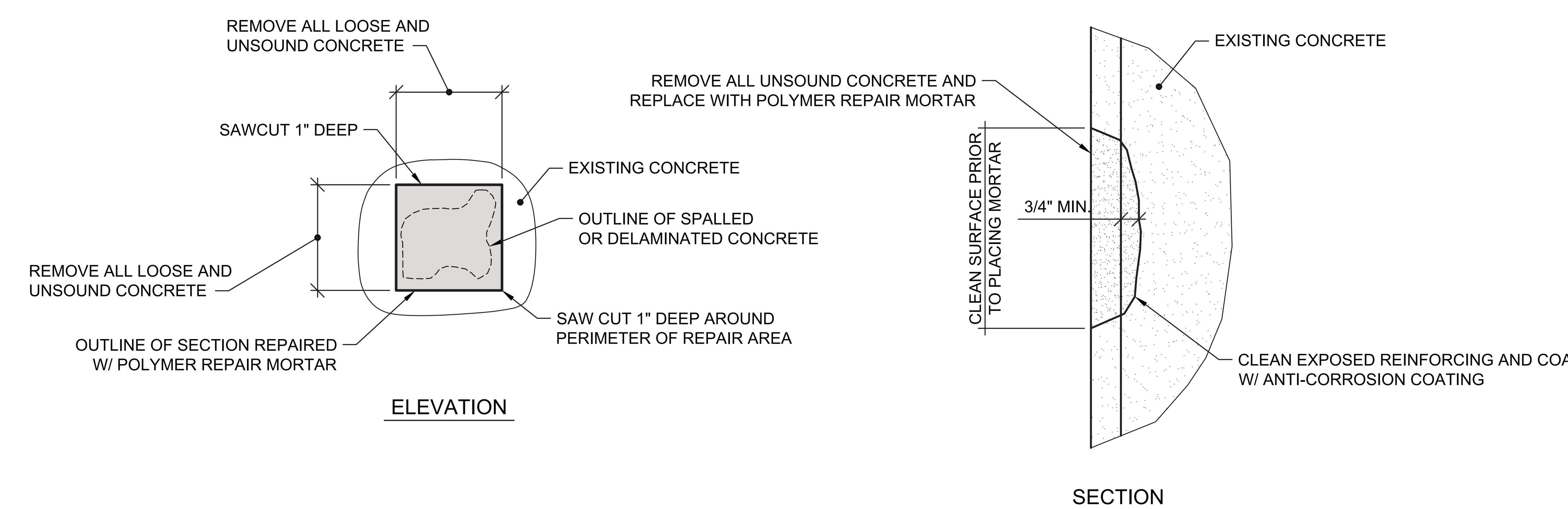
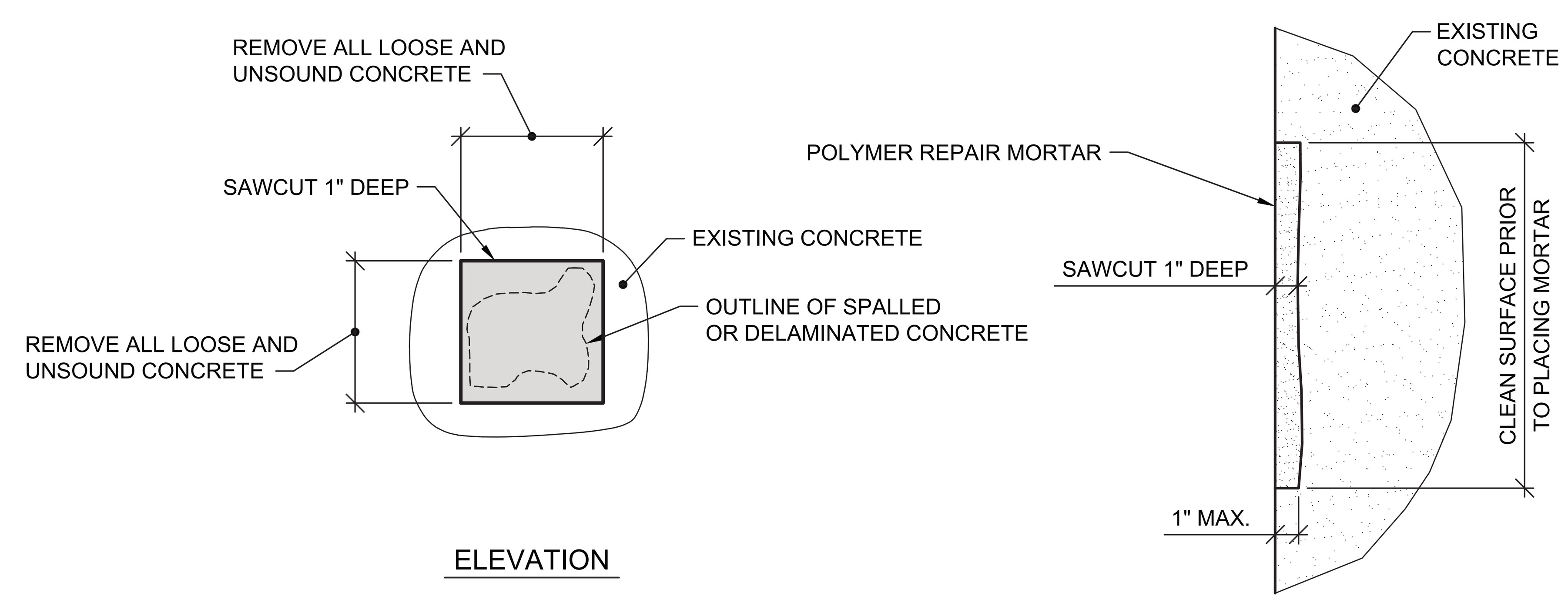


6 S02 S02 TYPE 2 REPAIR - CONCRETE SPALL
N.T.S.



7 S02 S02 TYPE 3 REPAIR - CONCRETE SPALL
N.T.S.

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED No. SE001314 STRUCTURAL PROFESSIONAL ENGINEER Donald J Phillips DONALD J. PHILLIPS

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

FILTERS NO 2 AND NO 8 STRUCTURAL DETAILS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

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973 BROAD STREET, SUITE A
AUGUSTA, GA 30901
PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

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VERIFY SCALE
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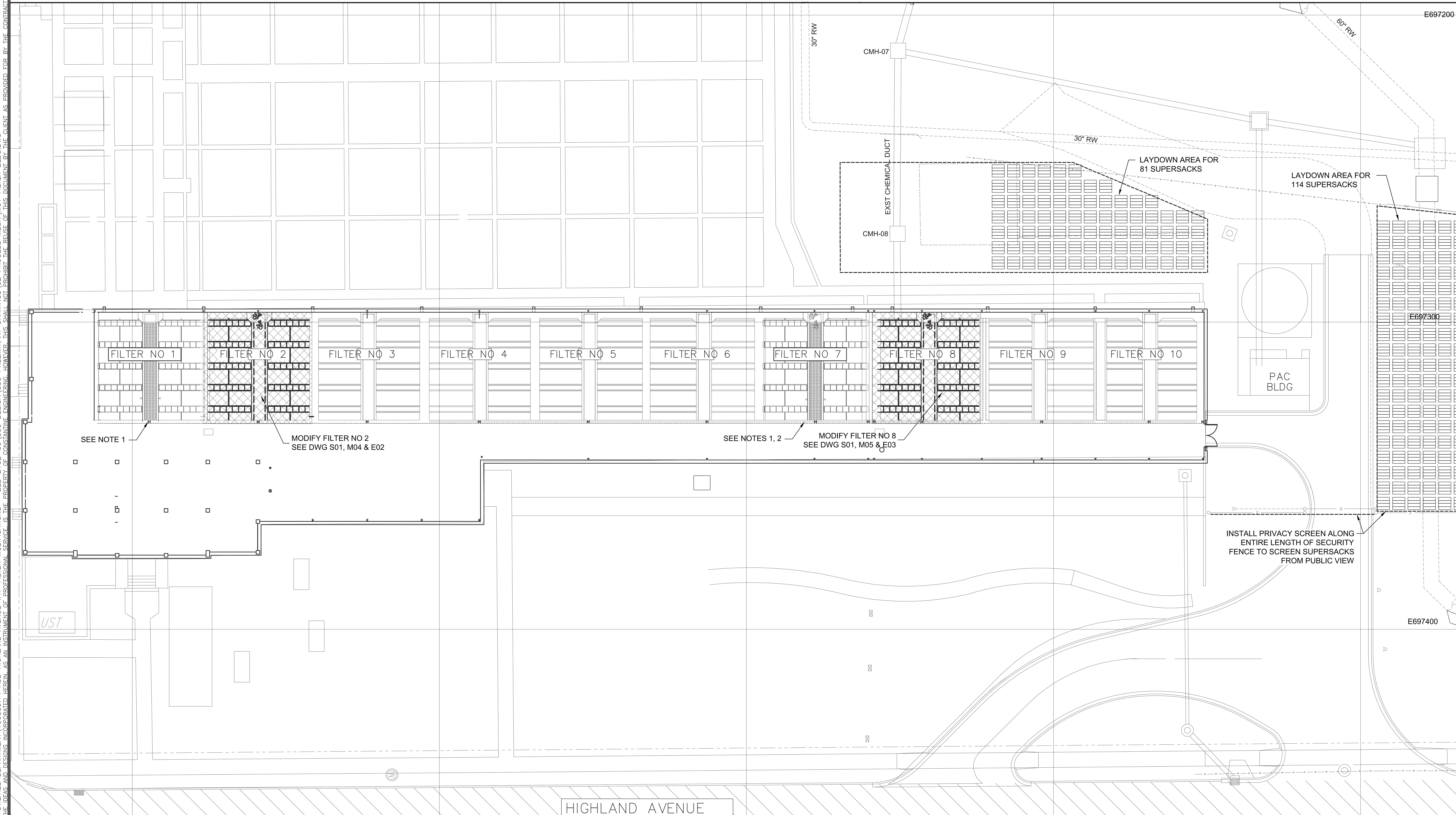
DATE MARCH 2025
PROJ. 100339.11
DWG. S02



N1262700 N1262800 N1263000

EAST FILTER BUILDING FLOOR PLAN

SCALE: 1/16"=1'-0"

NOTES:

1. FILTER REHABILITATION COMPLETED DURING HIGHLANDS AVE. WTP FILTER MODIFICATIONS PHASE I. ONLY FILTERS 2 & 8 ARE TO BE REHABILITATED UNDER THIS PROJECT.
2. CONTRACTOR TO REMOVE FILTER MEDIA FROM FILTER #7 (A & B CELLS). REMOVAL SHOULD NOT CONSIDER SAVING THE EXISTING MEDIA FOR REUSE.

ISSUED FOR BID

ENGINEER SEAL — GEORGIA REGISTERED PROFESSIONAL ENGINEER, AARON C. BAIRD

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

EAST FILTER BUILDING FLOOR PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life — AUGUSTA UTILITIES

ARDURRA — COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA 30901

FILE: SEE LEFT
VERIFY SCALE
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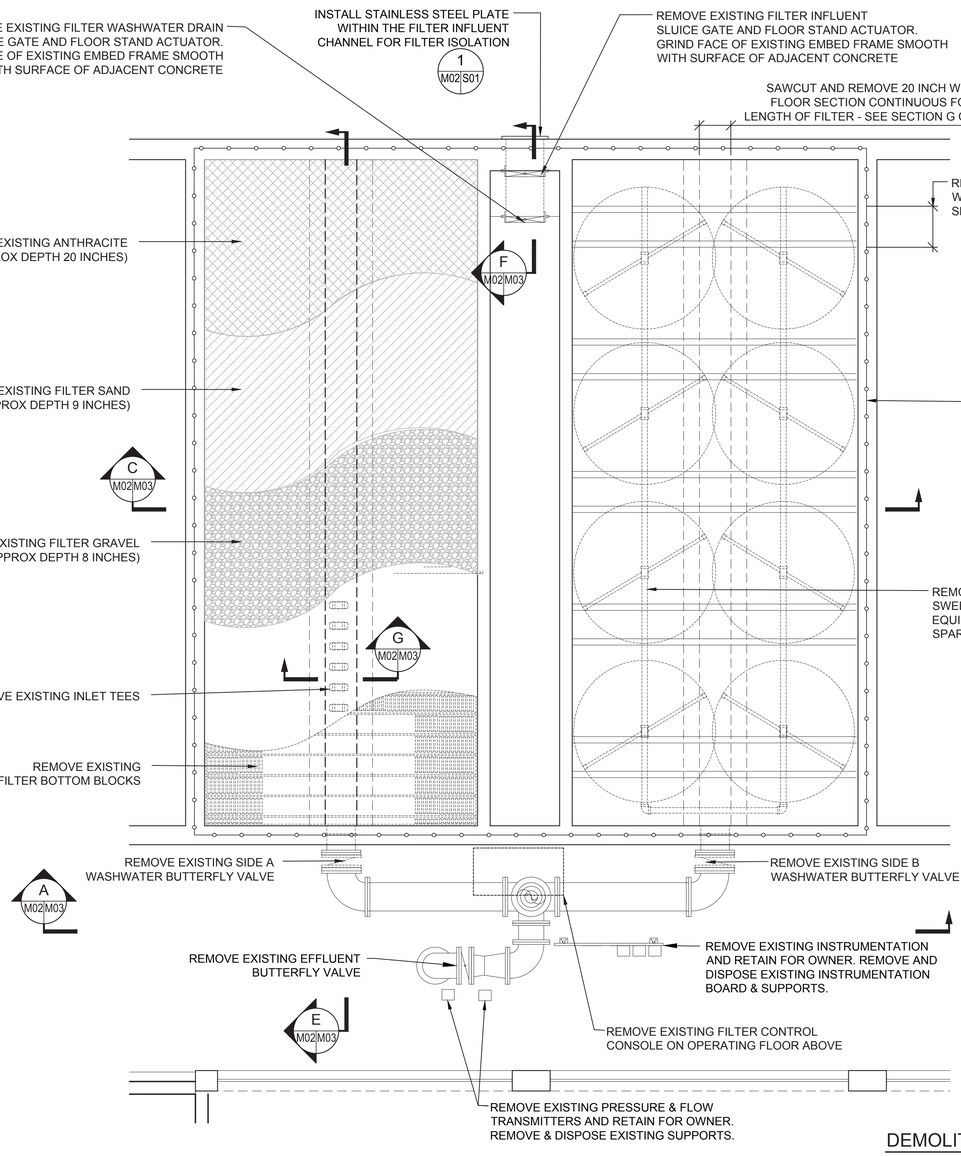
DATE: MARCH 2025
PROJ.: 100339.11
DWG.: M01



FILTER NO. 2 DEMOLITION PLAN

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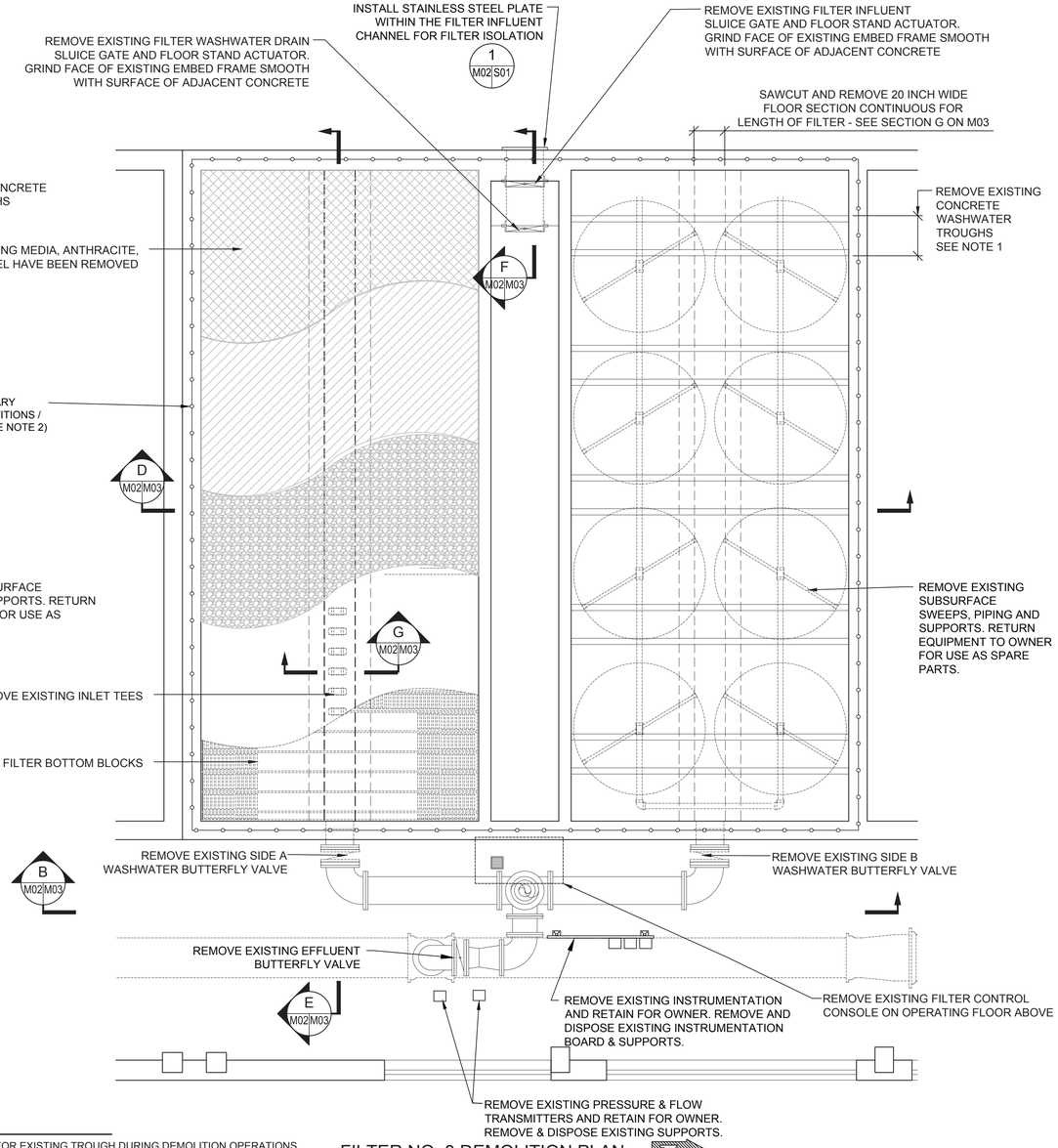

FILTER NO. 8 DEMOLITION PLAN

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

DEMOLITION NOTES:

1. PROVIDE TEMPORARY SUPPORT FOR EXISTING TROUGH DURING DEMOLITION OPERATIONS OR OTHERWISE PROTECT EXISTING WALLS FROM DAMAGE DURING TROUGH DEMOLITION.
2. PROTECT ADJACENT AREAS FROM DUST AND DEBRIS DURING DEMOLITION BY ERECTING AND MAINTAINING TEMPORARY DUST CONTAINMENT SYSTEM. SYSTEM TO INCLUDE AT A MINIMUM FLOOR TO CEILING PARTITIONS/ENCLOSURES AROUND EACH FILTER DURING DEMOLITION ACTIVITIES. PARTITION/ENCLOSURES TO BE FULLY FRAMED, WITH TAPED JOINTS AND WALLS CONSISTING OF A MINIMUM OF 6-MIL THICK WHITE POLYETHYLENE PLASTIC OR 6-MIL FIRE RETARDANT SEMI-TRANSPARENT PLASTIC FILM. PROVIDE A MINIMUM OF TWO ZIPPER ENTRY/EXIT POINTS PER ENCLOSURE AREA.
3. REMOVE AND DISPOSE OF THE EXISTING FILTER MEDIA AND UNDERDRAIN SYSTEMS IN ACCORDANCE WITH LOCAL RULES AND REGULATIONS. ALL OTHER MATERIALS SPECIFIED FOR REMOVAL, INCLUDING FILTER SUBSURFACE SWEEPS AND HYDRAULIC ACTUATORS, SHALL BE SALVAGED, AND RETURNED TO THE OWNER. IF THE OWNER ELECTS NOT TO SAVE RETURNED MATERIALS AND EQUIPMENT THE CONTRACT SHALL DISPOSE OF THEM IN ACCORDANCE WITH LOCAL RULES AND REGULATIONS.
4. FILTER NO. 1 AND NO. 3 WILL CEASE OPERATION DURING DEMOLITION OPERATIONS & STRUCTURAL REPAIR OF FILTER NO. 2.
5. FILTERS NO. 7 AND NO. 9 WILL CEASE OPERATION DURING DEMOLITION OPERATIONS & STRUCTURAL REPAIR OF FILTER NO. 8.
6. IF THE EXISTING VALVES DO NOT SEAT WELL ENOUGH TO ISOLATE EACH FILTER CELL TO FACILITATE THE PROPOSED WORK, A BLIND FLANGE SHOULD BE INSTALLED ON THE DOWNSTREAM SIDE OF EACH VALVES PROPOSED FOR REMOVAL TO FULLY ISOLATE EACH FILTER CELL FROM THE SYSTEM.
7. ALL EXISTING SURFACES, PIPE, VALVES OR EQUIPMENT COATINGS AFFECTED BY DEMOLITION OR SUBSEQUENT CONSTRUCTION ACTIVITIES SHALL BE TOUCHED-UP IN ACCORDANCE WITH SPECIFICATION SECTION 09 90 00

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED No. PE046913 PROFESSIONAL ENGINEER AARON C. BAIRD
2025.03.20 11:18:56-04'00'

NO.	DATE	REVISION	BY
	DESIGNED BY: JB	DRAWN BY: RAM	CHECKED BY: AB	APPROVED BY: JD	APVD

FILTER DEMOLITION PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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PH (706) 664-0664
GA. AUTHORIZATION
EXP. 06/30/2026

FILE	SEE LEFT
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DATE	MARCH 2025
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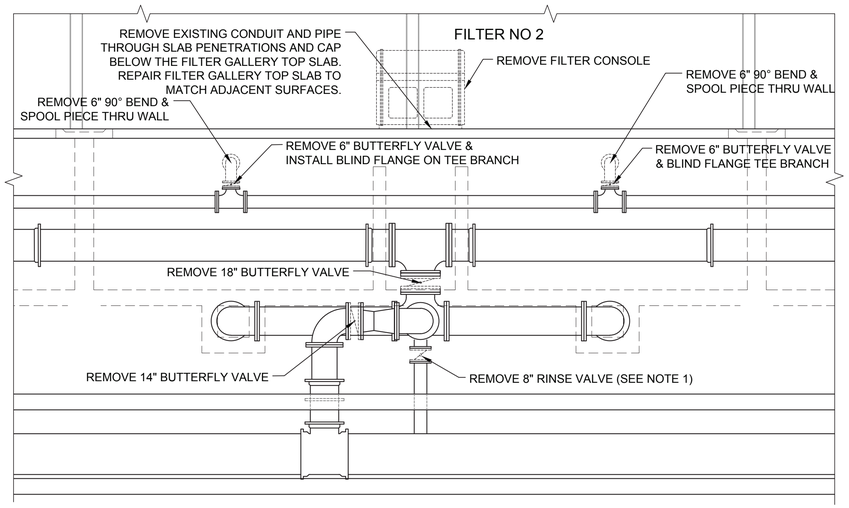
DWG.	M02



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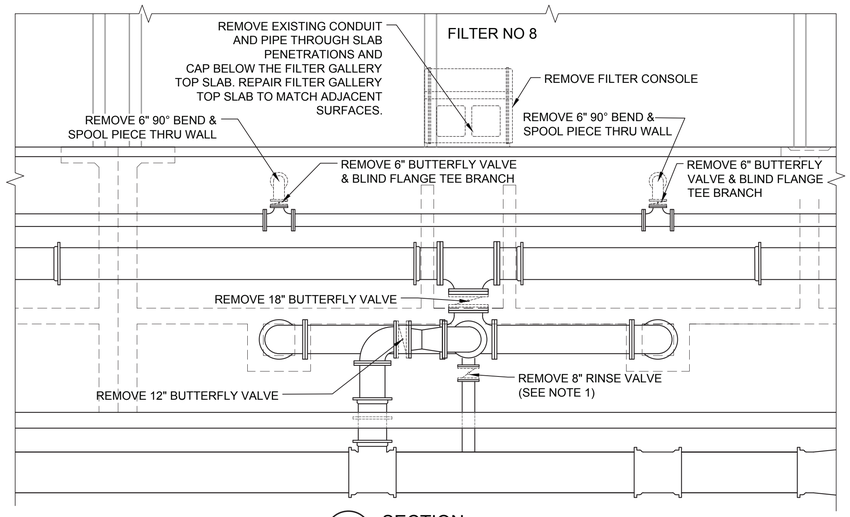

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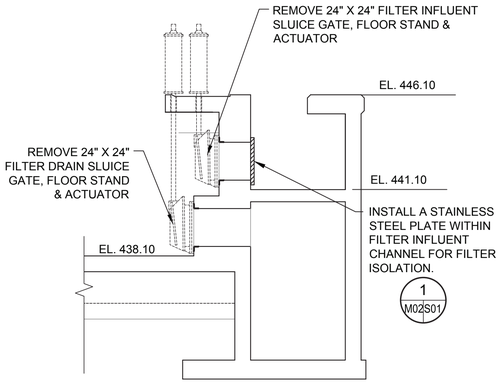

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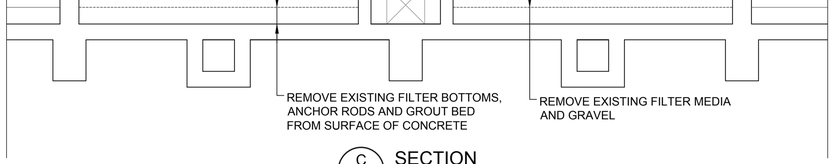

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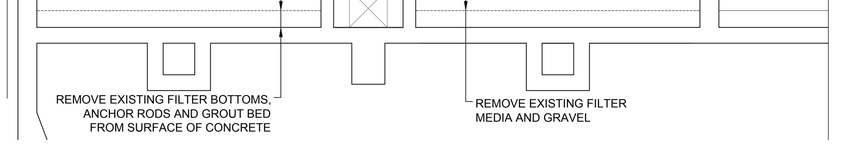

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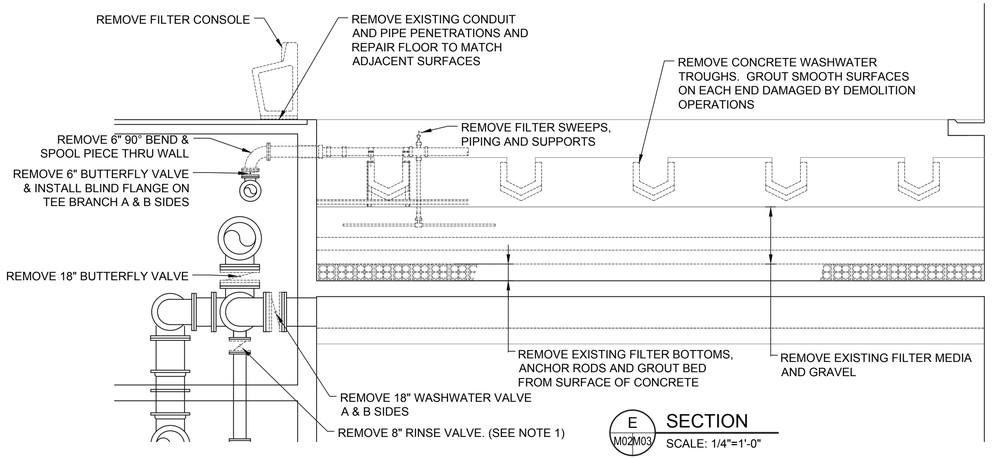
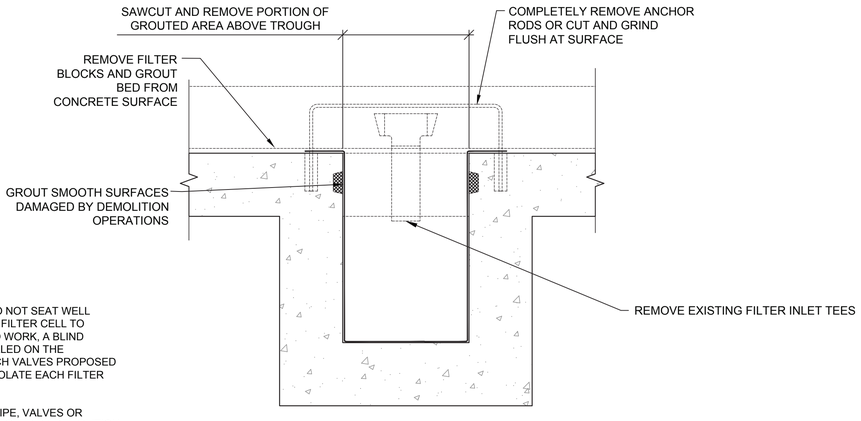


E M02M03 SECTION
SCALE: 1/4"=1'-0"

NOTES:
1. IF THE EXISTING VALVES DO NOT SEAT WELL ENOUGH TO ISOLATE EACH FILTER CELL TO FACILITATE THE PROPOSED WORK, A BLIND FLANGE SHOULD BE INSTALLED ON THE DOWNSTREAM SIDE OF EACH VALVES PROPOSED FOR REMOVAL TO FULLY ISOLATE EACH FILTER CELL FROM THE SYSTEM.
2. ALL EXISTING SURFACES, PIPE, VALVES OR EQUIPMENT COATINGS AFFECTED BY DEMOLITION OR SUBSEQUENT CONSTRUCTION ACTIVITIES SHALL BE TOUCHED-UP IN ACCORDANCE WITH SPECIFICATION SECTION 09 90 00



G M02M03 SECTION
SCALE: 1"=1'-0"

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED No. PE045013 PROFESSIONAL ENGINEER AARON C. BAIRD
2025.03.20 11:18:59-04'00'

NO.	DATE	REVISION	BY	APPROVED	BY
DESIGNED	JB	DRAWN BY:	RAM	CHECKED BY:	AB	APVD.	JD

FILTERS NO 2 & NO 8 DEMOLITION SECTIONS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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FILE	SEE LEFT
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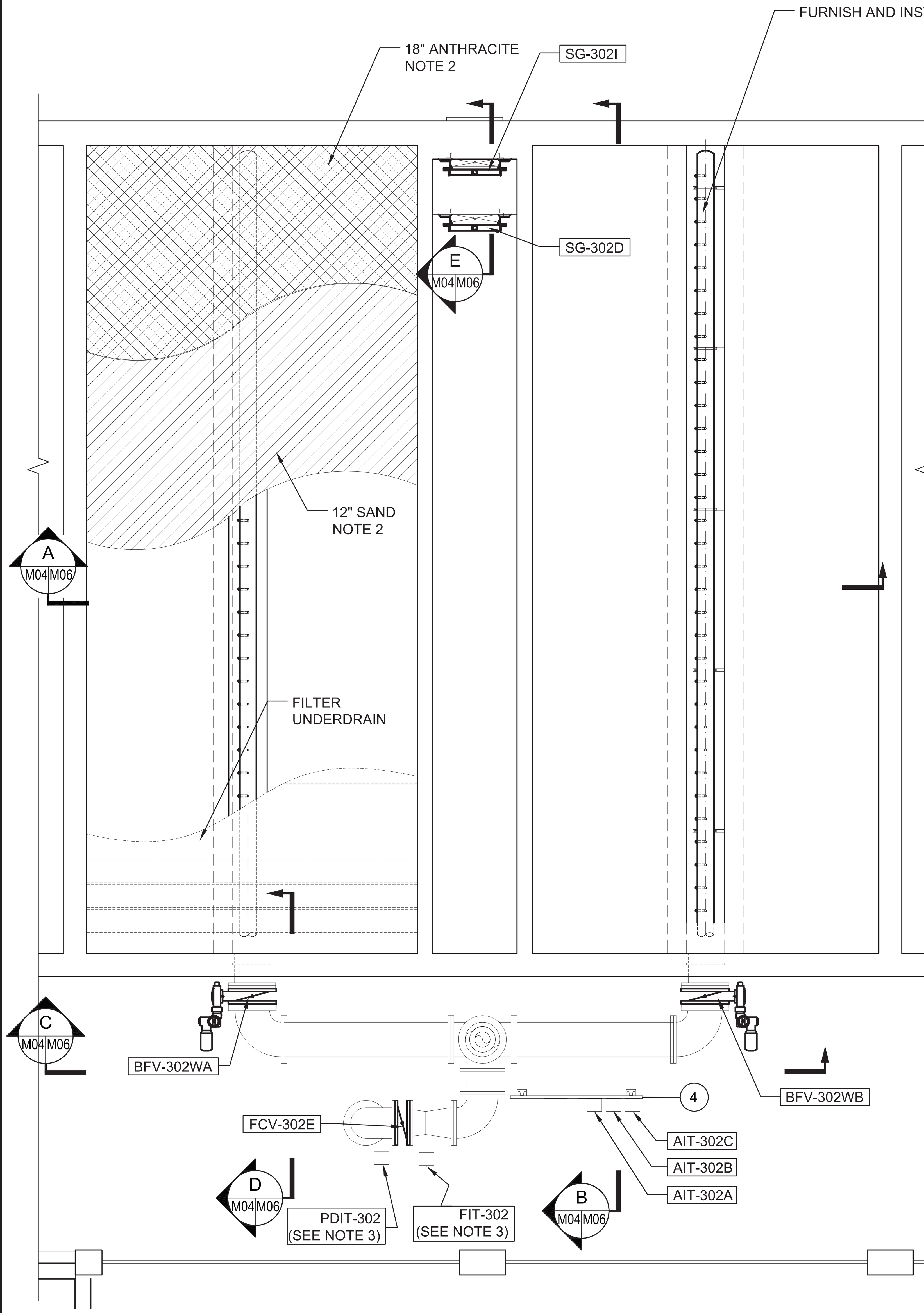
DWG.	M03



FILTER NO. 2 LOWER LEVEL PLAN

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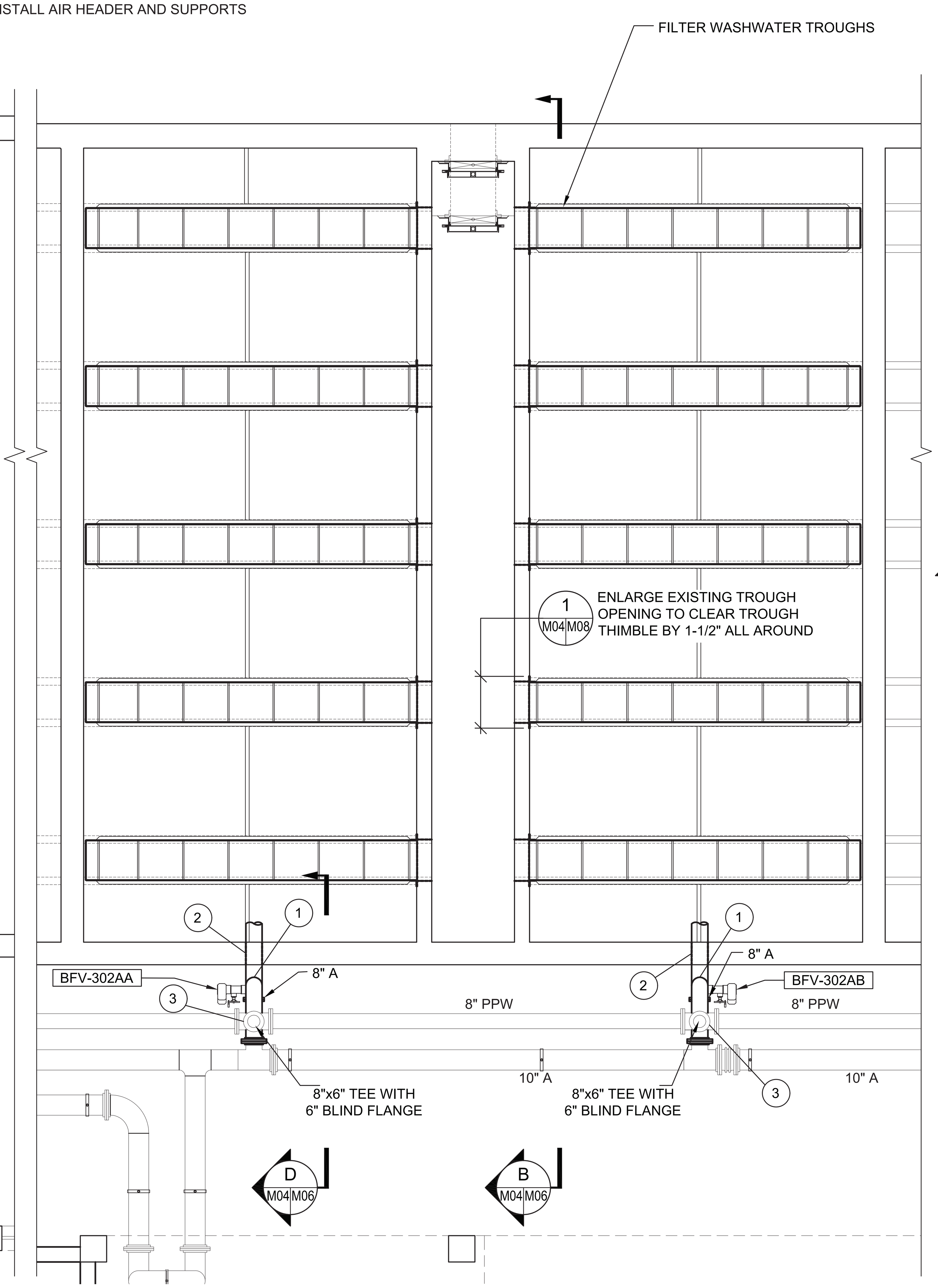

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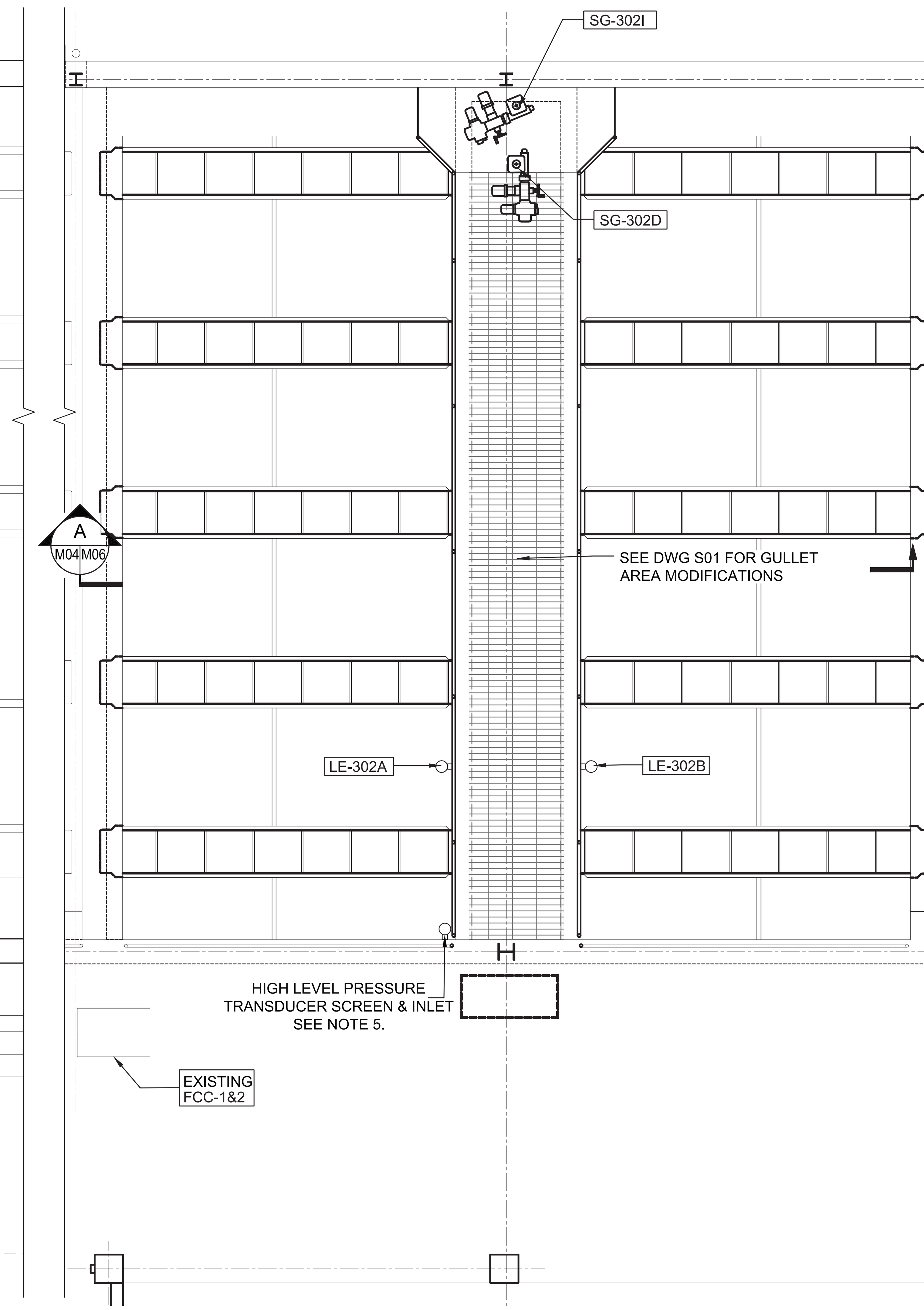


FILTER NO. 2 OPERATING LEVEL PLAN

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

GENERAL NOTES:

1. FIELD VERIFY MEASUREMENTS FOR NEW VALVES. PROVIDE FLANGE FILLERS AS REQUIRED FOR AVAILABLE CLEARANCES.
2. CONTRACTOR SHALL FURNISH AND INSTALL REPLACEMENT SAND AND ANTHRACITE MEDIA FOR THIS FILTER. SEE SPECIFICATION SECTION 46 61 13.
3. FLOW METER AND PRESSURE GAUGE SHALL BE MOUNTED ON A SINGLE SUPPORT COLUMN.
4. FILTER AREA VARIES SLIGHTLY FOR EACH FILTER CELL. CONTRACTOR TO FIELD CONFIRM EXACT DIMENSIONS.
5. CONTRACTOR TO PROVIDE NEW 316 SST INLET SCREEN FOR EACH IN FILTER HIGH-LEVEL PRESSURE TRANSDUCER SENSING LINE. SCREEN SHALL BE 60-MESH OR SMALLER.

EQUIPMENT SCHEDULE

1. 8" 304 SST 90° BEND
2. USE LINK SEAL AT CORED HOLE AROUND AIR PIPE. LINK SEAL TO HAVE 316 STAINLESS STEEL HARDWARE. SEE DETAIL 4 ON M-08
3. 6" DI BLIND FLANGE
4. STAINLESS STEEL INSTRUMENTATION BOARD. SEE SHEET M-09.

ISSUED FOR BID

FILTER NO 2 MODIFICATIONS PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

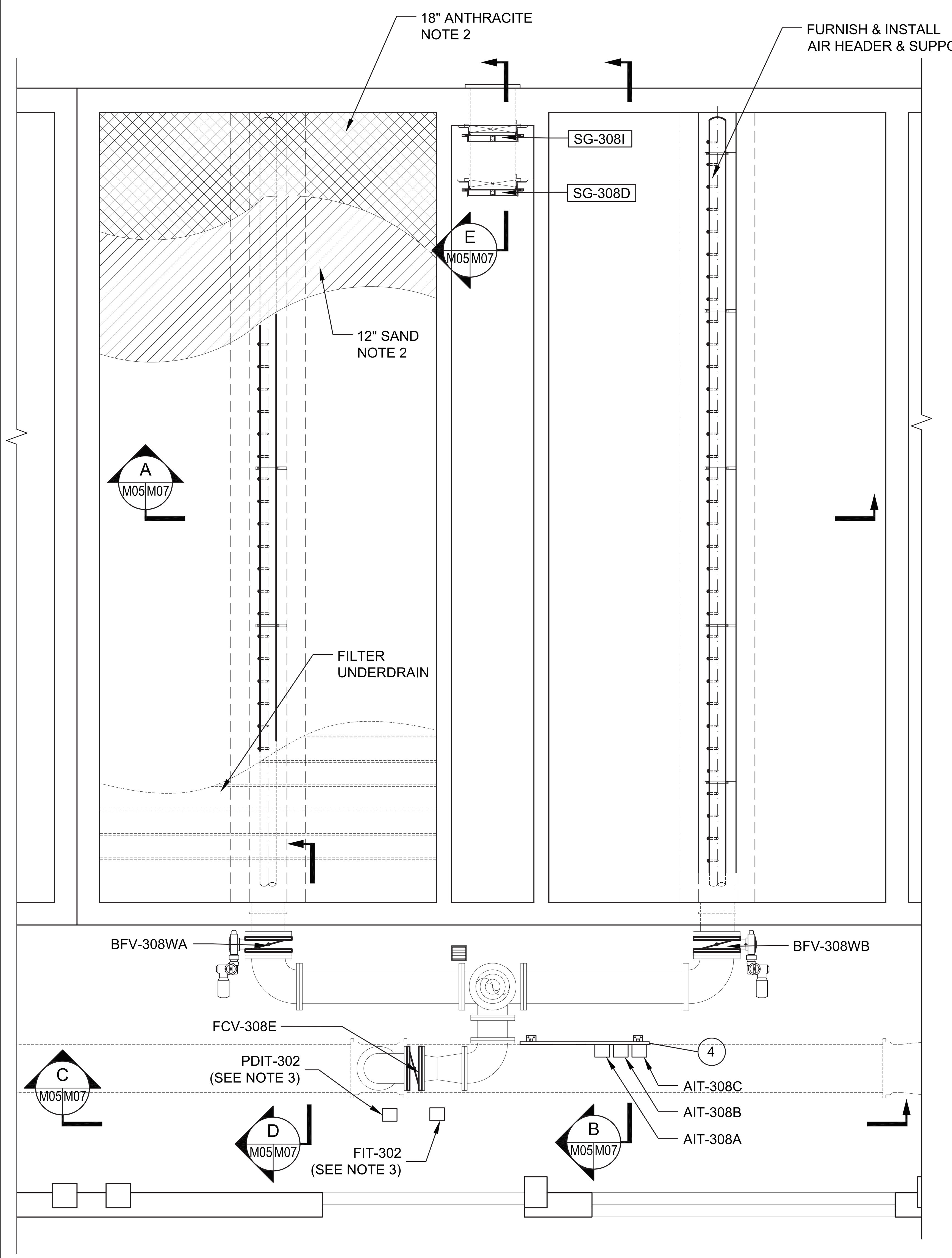
ENGINEER SEAL

NO.	DATE	REVISION	BY:	APVD
DESIGNED BY: JB	DRAWN BY: RAM	CHECKED BY: AB	APPROVED BY: JD	

Water Is Life — AUGUSTA UTILITIES

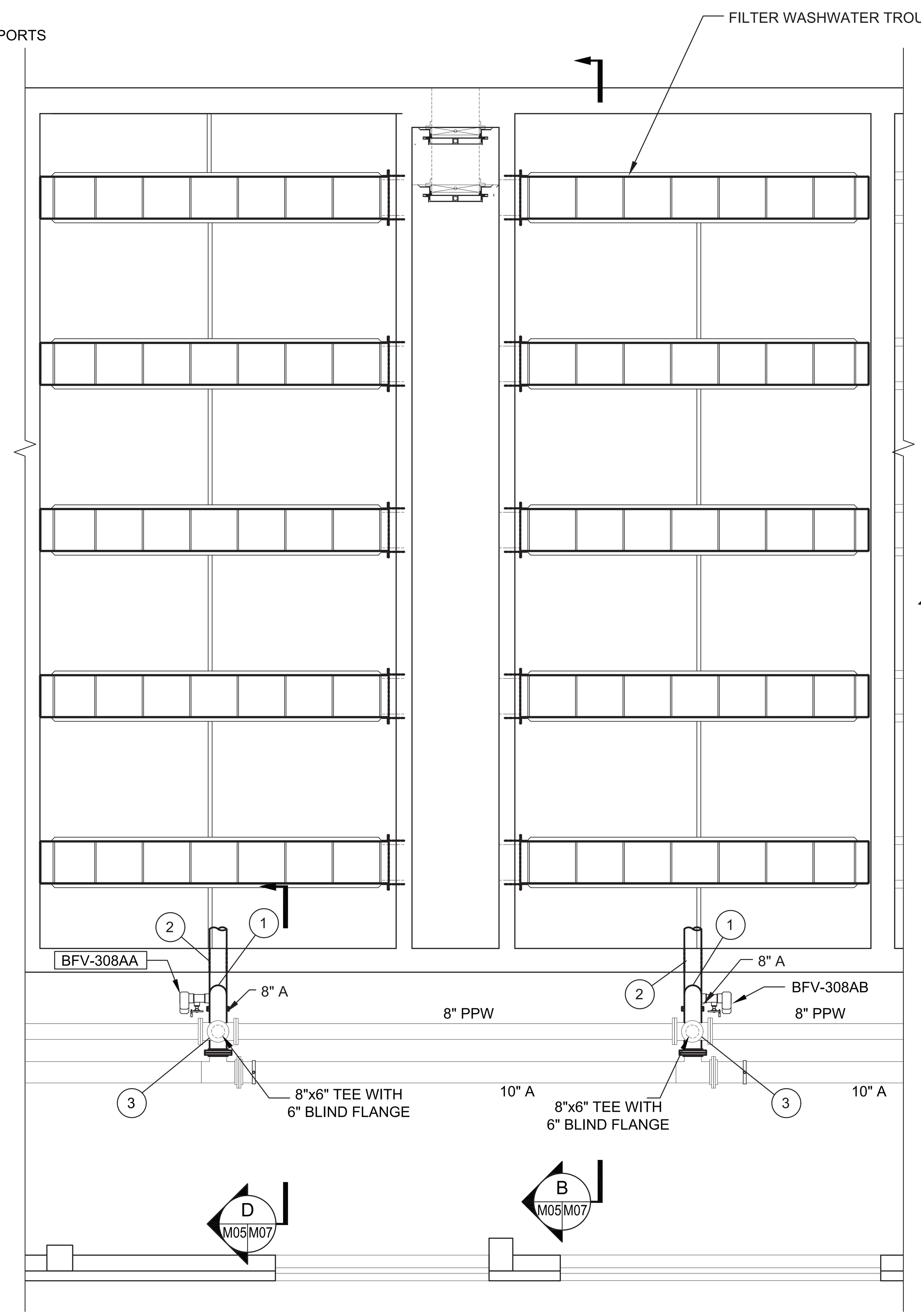
ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

FILE: SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
DATE: MARCH 2025
PROJ.: 100339.11
DWG.: M04



FILTER NO. 8 LOWER LEVEL PLAN

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



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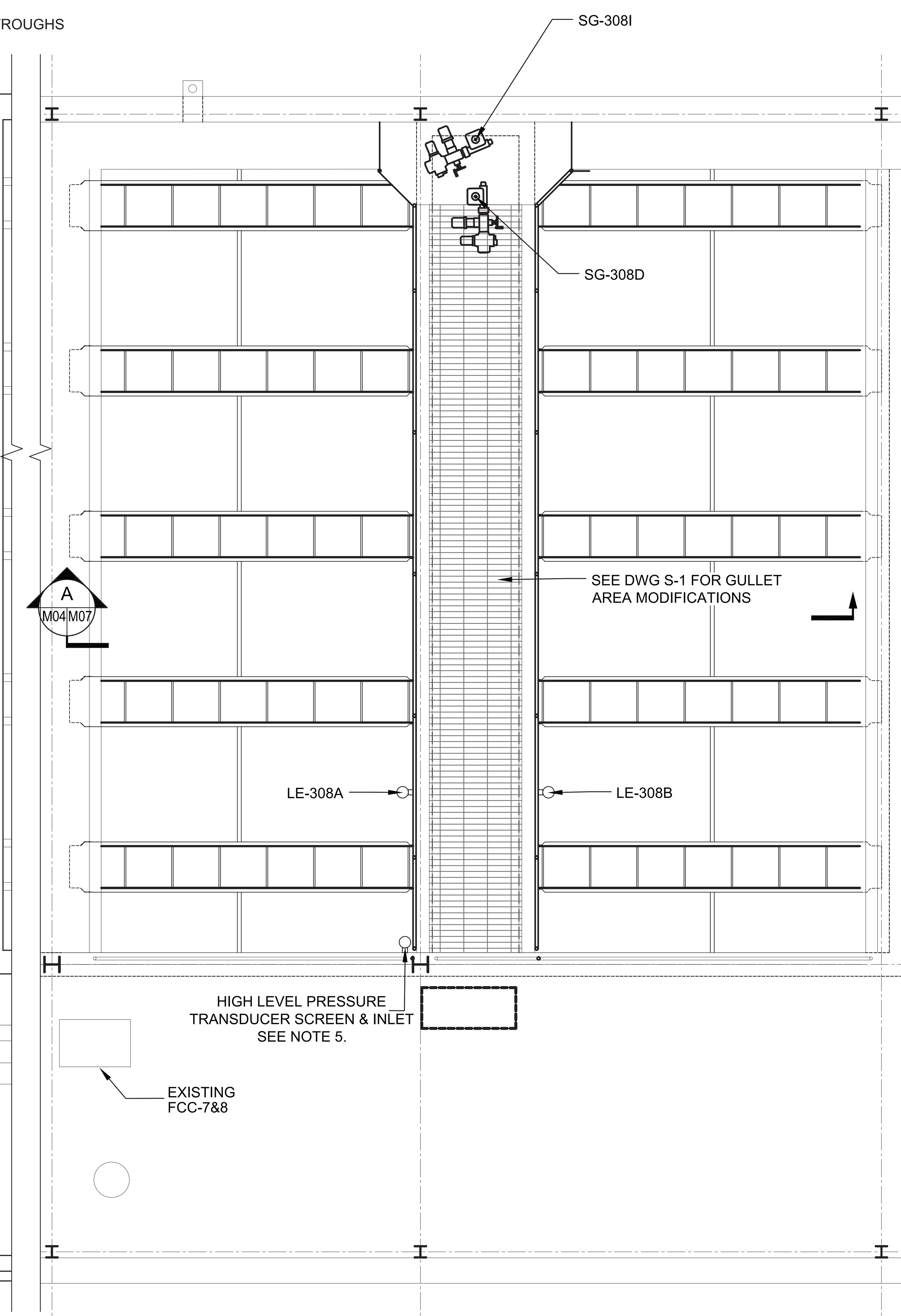

FILTER NO. 8 OPERATING LEVEL PLAN

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

GENERAL NOTES:

1. FIELD VERIFY MEASUREMENTS FOR NEW VALVES. PROVIDE FLANGE FILLERS AS REQUIRED FOR AVAILABLE CLEARANCES.
2. CONTRACTOR SHALL FURNISH AND INSTALL REPLACEMENT SAND AND ANTHRACITE MEDIA FOR THIS FILTER. SEE SPECIFICATION SECTION 46 61 13.
3. FLOW METER AND PRESSURE GAUGE SHALL BE MOUNTED ON A SINGLE SUPPORT COLUMN
4. FILTER AREA VARIES SLIGHTLY FOR EACH FILTER CELL. CONTRACTOR TO FIELD CONFIRM EXACT DIMENSIONS.
5. CONTRACTOR TO PROVIDE NEW 316 SST INLET SCREEN FOR EACH IN FILTER HIGH-LEVEL PRESSURE TRANSDUCER SENSING LINE. SCREEN SHALL BE 60-MESH OR SMALLER.

EQUIPMENT SCHEDULE

1	8" 304 SST 90° BEND
2	USE LINK SEAL AT CORED HOLE AROUND AIR PIPE. LINK SEAL TO HAVE 316 STAINLESS STEAL HARDWARE. SEE DETAIL 4 ON M-08
3	6" DI BLIND FLANGE
4	STAINLESS STEEL INSTRUMENTATION BOARD. SEE SHEET M-09

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE046015 AARON C. BAIRD
2025.03.20 11:19:00-04'00'

NO.	DATE	REVISION	BY	APVD
DESIGNED BY: JB	DRAWN BY: RAM	CHECKED BY: AB	APPROVED BY: JD	

FILTER NO 8 MODIFICATIONS PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life — AUGUSTA UTILITIES

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PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

FILE: SEE LEFT
VERIFY SCALE
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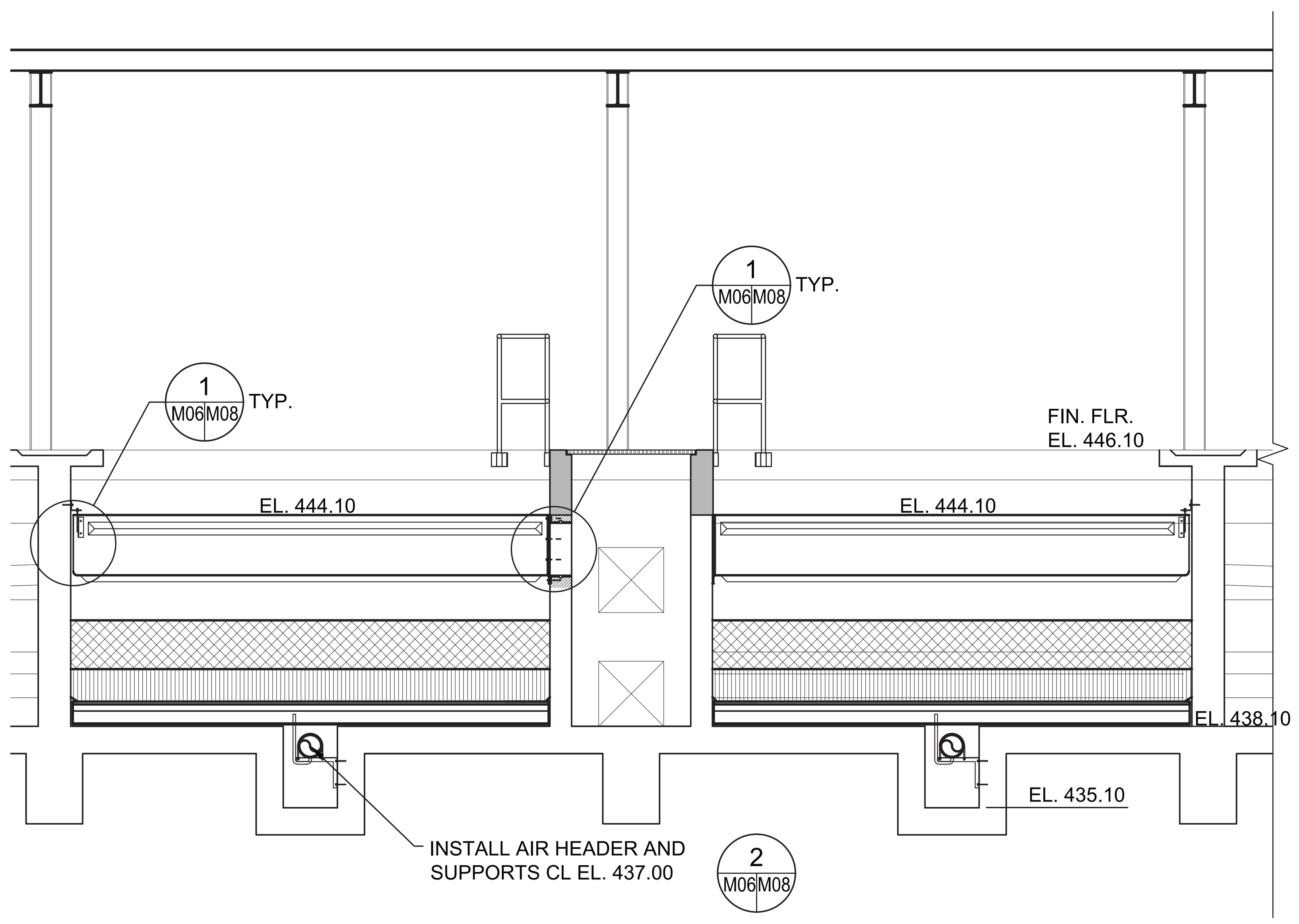
0 1"
DATE: MARCH 2025
PROJ.: 100339.11
DWG.: M05



A SECTION (M04 M06)
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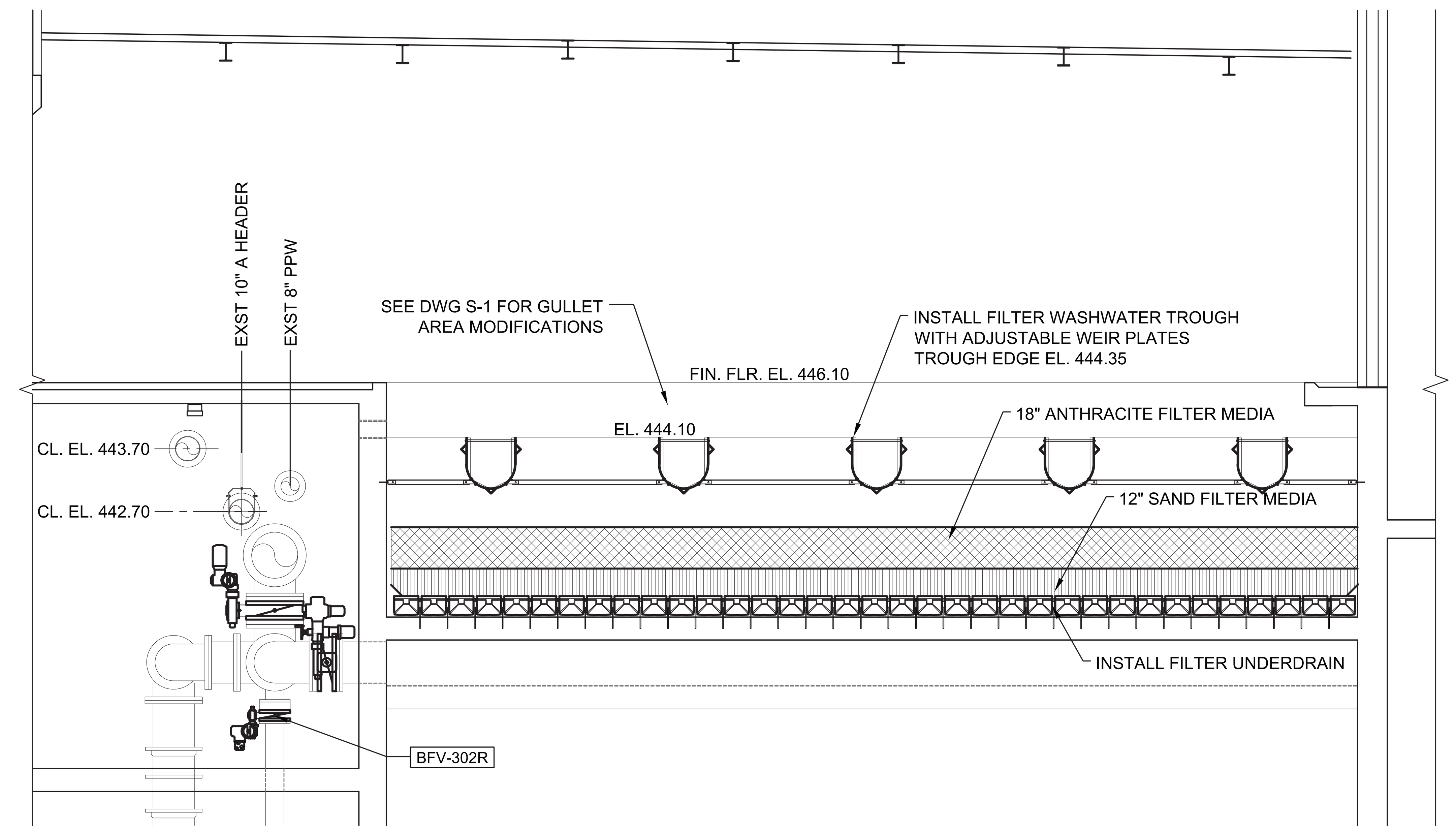

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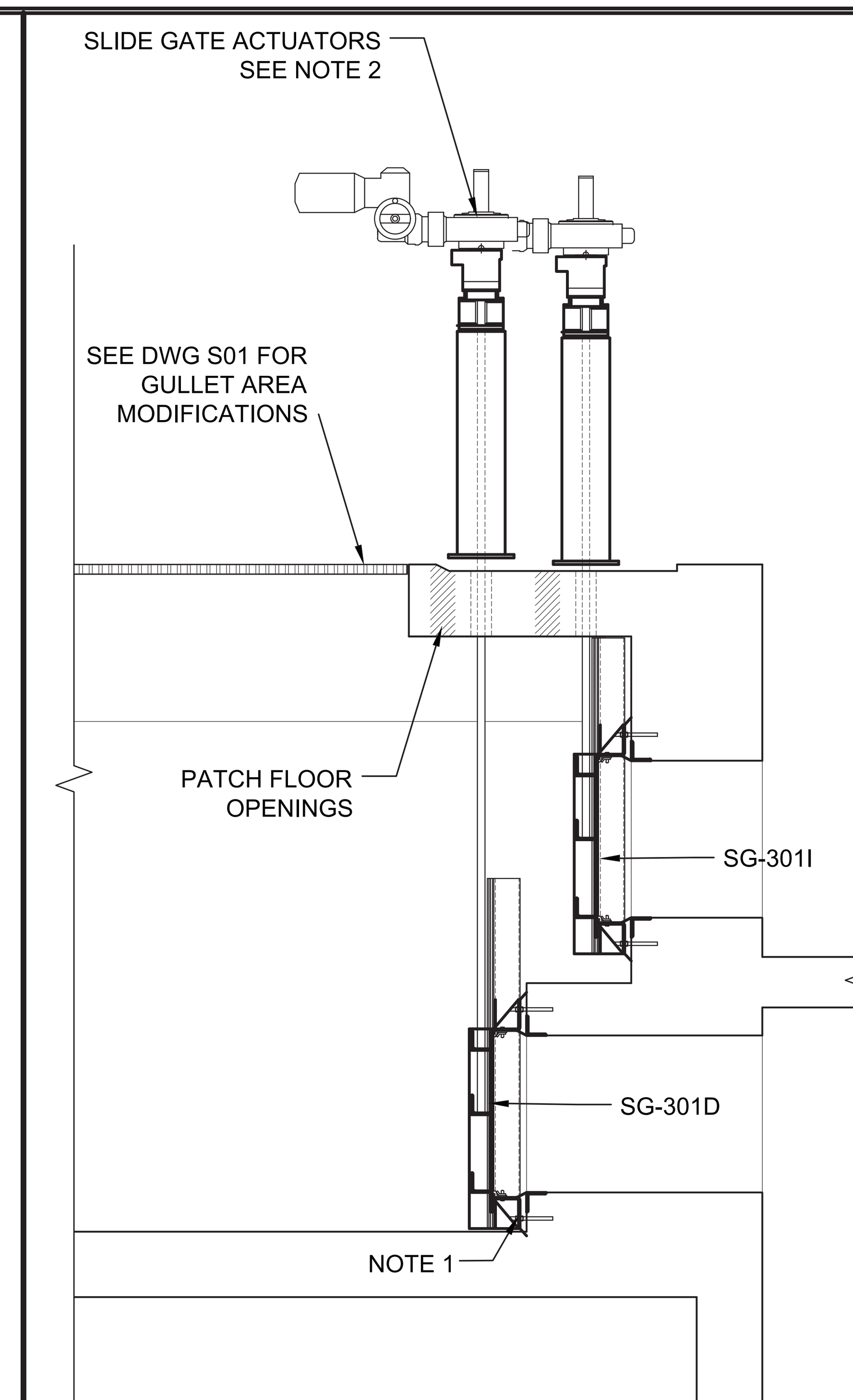

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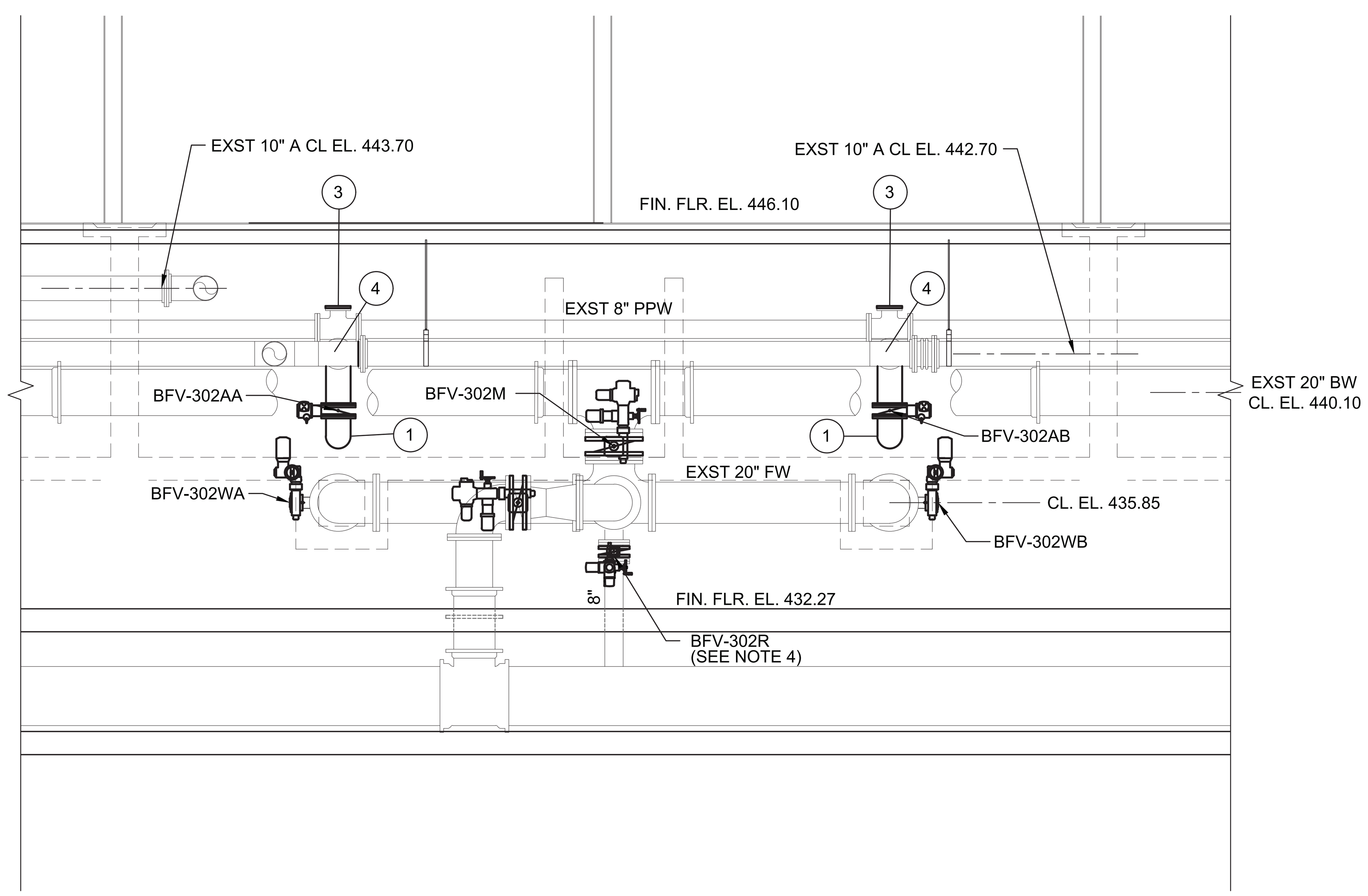

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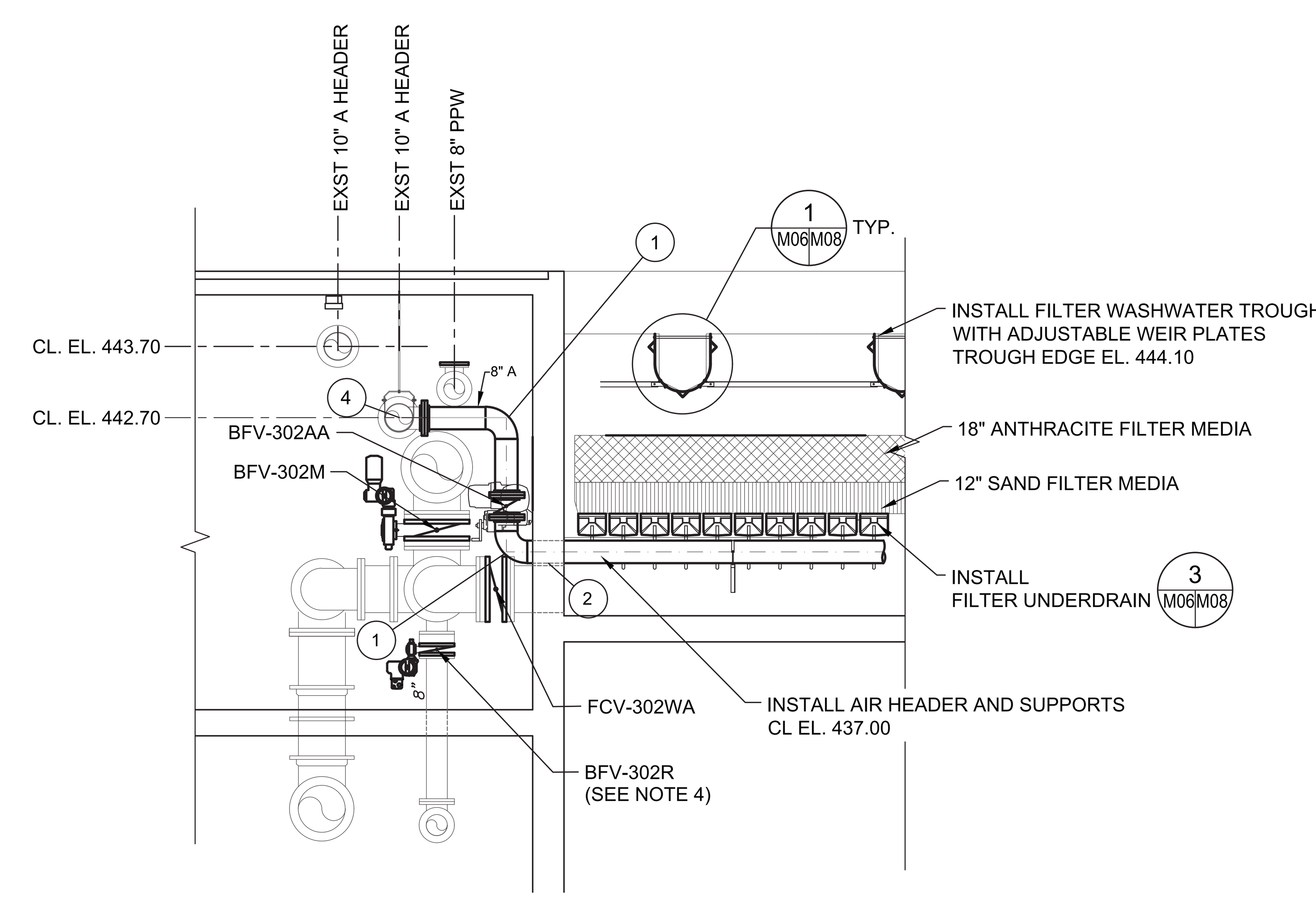
SCALE: 1/4"=1'-0"



D SECTION (M04 M06)
SCALE: 1/4"=1'-0"

EQUIPMENT SCHEDULE

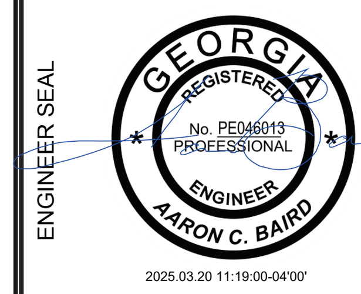
1. 8" 304 SST 90° BEND
2. USE LINK SEAL AT CORED HOLE AROUND AIR PIPE. LINK SEAL TO HAVE 316 STAINLESS STEAL HARDWARE
3. 8"x6" DI TEE W/ 6" BLIND FLANGE.
4. EXISTING 10" X 8" 304 SST TEE

GENERAL NOTES:

1. INSTALL NEW SLIDE GATES WITH CHEMICAL ANCHORS INTO EXISTING CONCRETE PER GATE VENDOR INSTALLATION INSTRUCTIONS.
2. ORIENT ACTUATORS SO AS NOT TO INTERFERE WITH EACH OTHER OR ACCESS FOR MAINTENANCE
3. FIELD VERIFY MEASUREMENTS FOR NEW VALVES. PROVIDE FLANGE FILLERS AS REQUIRED FOR AVAILABLE CLEARANCES.
4. INSTALL AN 8" FLANGED BY PLAIN END SPOOL PIECE W/ MEGA-LUG BELOW THE 8" RINSE BFV.
5. RE-ROUTE EXISTING 2" GALVANIZED WATER LINE AS REQUIRED TO AVOID NEW STAINLESS STEEL PIPING.

ISSUED FOR BID

ENGINEER SEAL



NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

FILTER NO 2 SECTIONS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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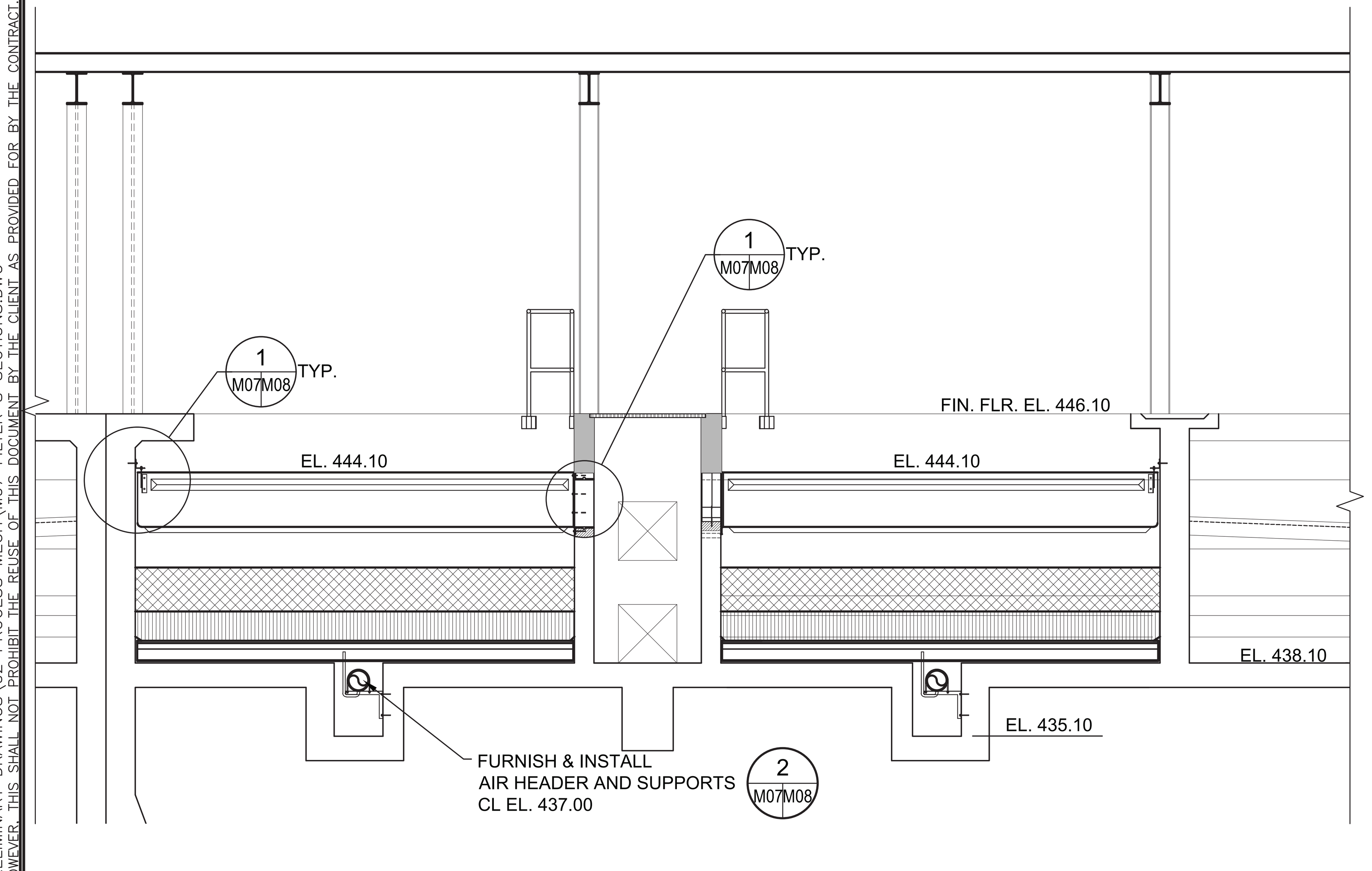
COA: PEF004730
EXP. 06/30/2026

FILE: SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
DATE: MARCH 2025
PROJ.: 100339.11
DWG.: M06



A M05 M07 SECTION
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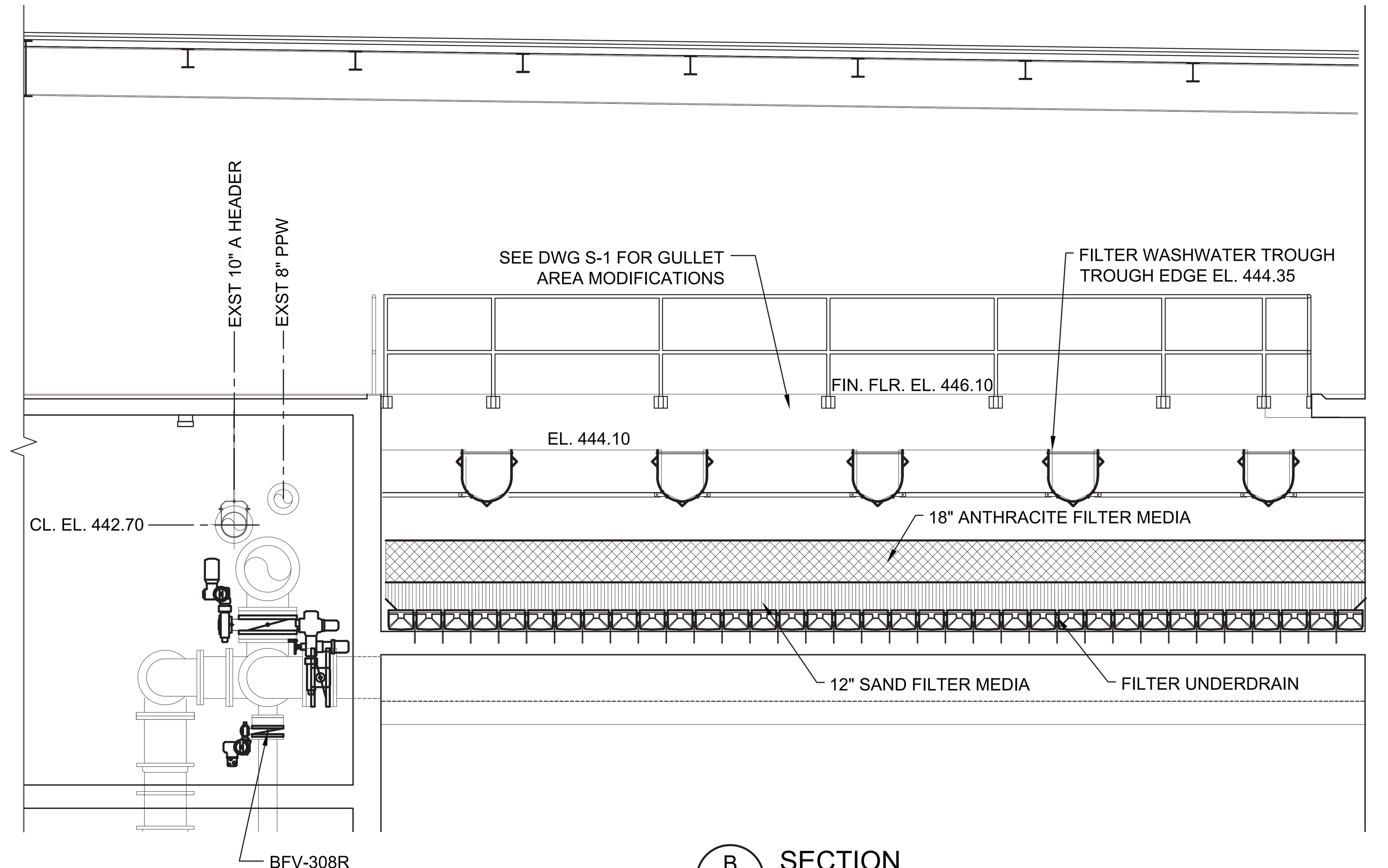

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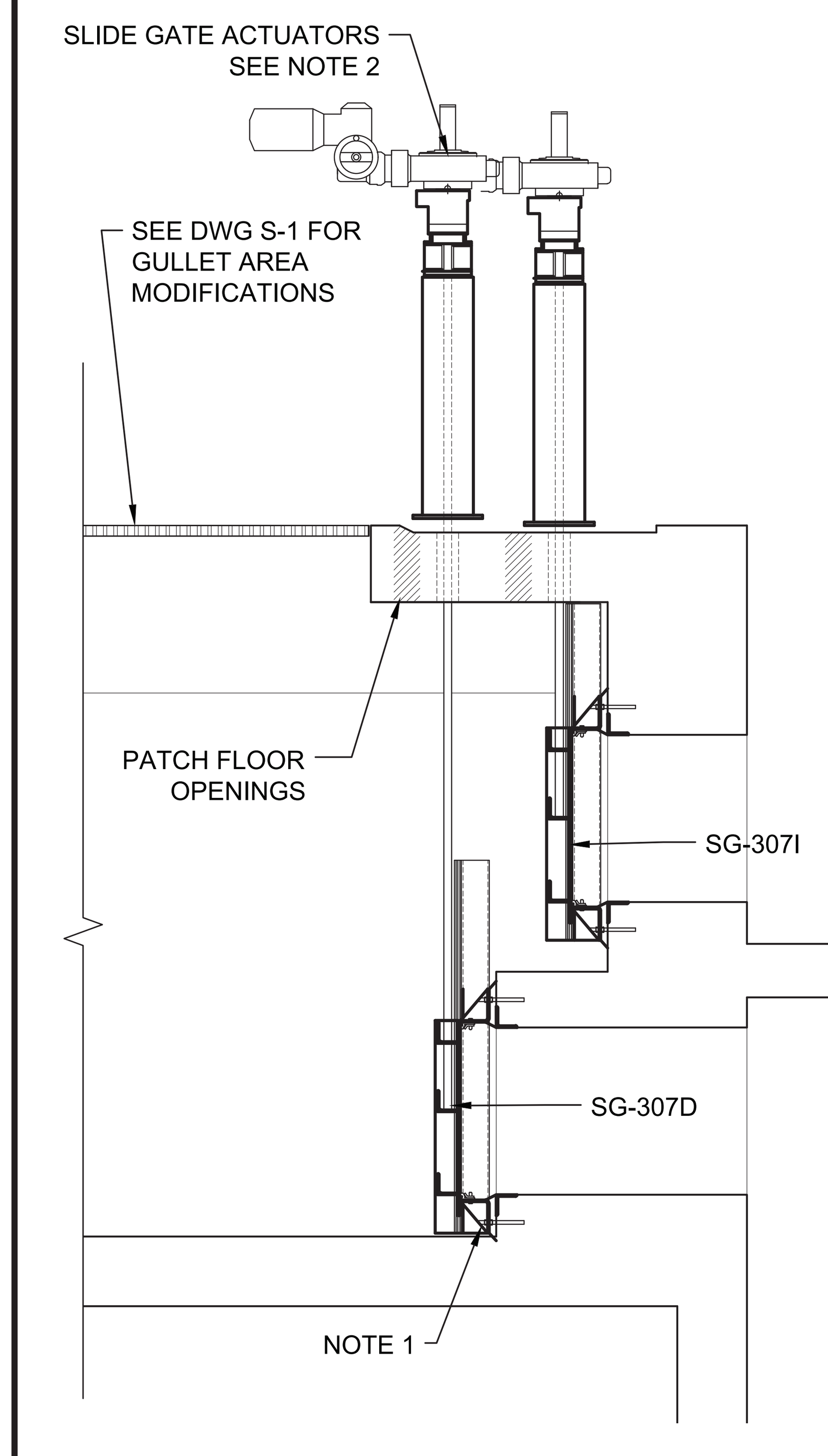

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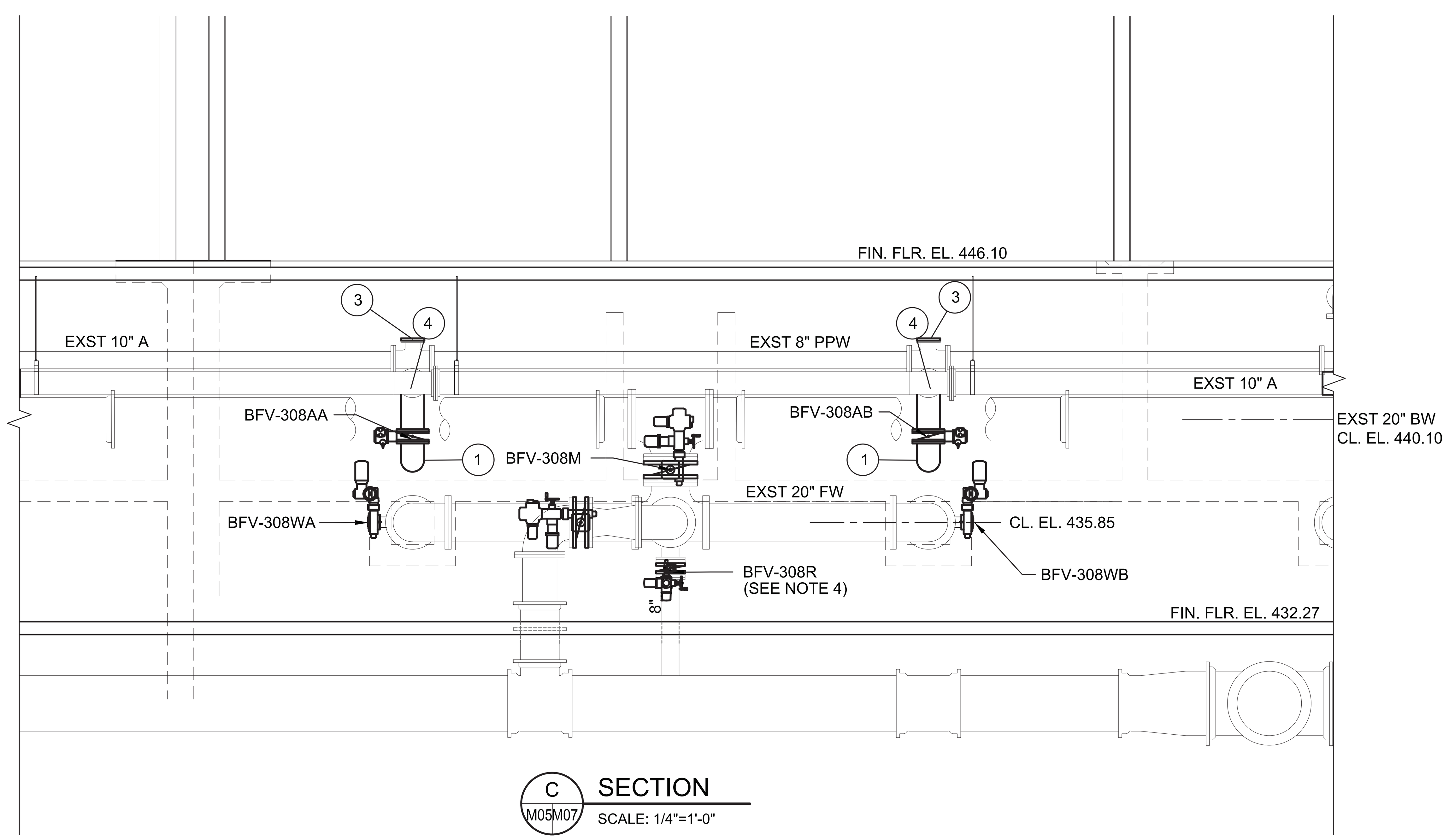

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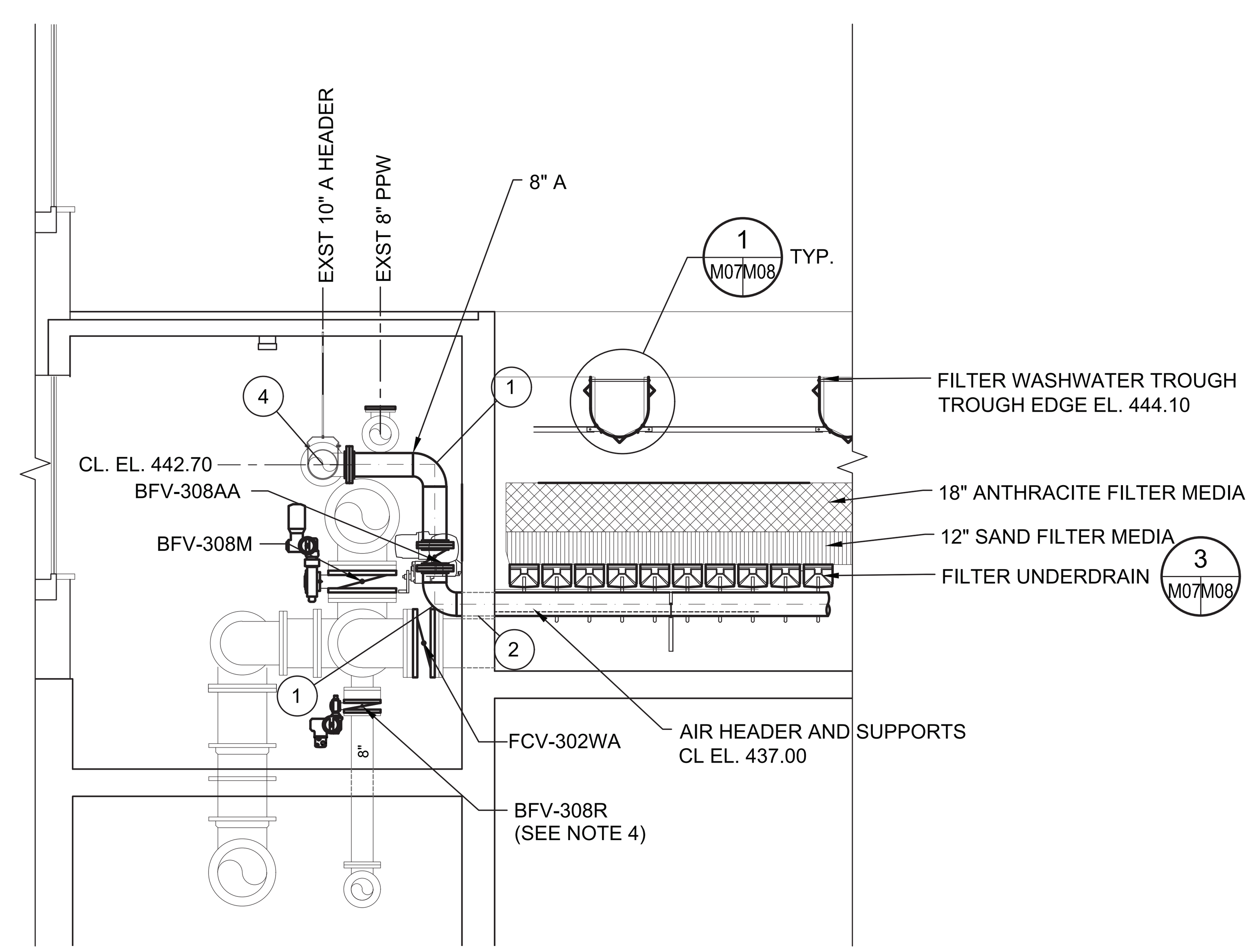

D M05 M07 SECTION
SCALE: 1/4"=1'-0"

EQUIPMENT SCHEDULE

1. 8" 304 SST 90° BEND
2. USE LINK SEAL AT CORED HOLE AROUND AIR PIPE. LINK SEAL TO HAVE 316 STAINLESS STEEL HARDWARE.
3. 8"x6" DI TEE W/ 6" BLIND FLANGE.
4. EXISTING 10" X 8" 304 SST TEE

GENERAL NOTES:

1. INSTALL NEW SLIDE GATES WITH CHEMICAL ANCHORS INTO EXISTING CONCRETE PER GATE VENDOR INSTALLATION INSTRUCTIONS.
2. ORIENT ACTUATORS SO AS NOT TO INTERFERE WITH EACH OTHER OR ACCESS FOR MAINTENANCE
3. FIELD VERIFY MEASUREMENTS FOR NEW VALVES. PROVIDE FLANGE FILLERS AS REQUIRED FOR AVAILABLE CLEARANCES.
4. INSTALL A 8" FLANGED BY PLAIN END SPOOL PIECE W/ MEGA-LUG BELOW THE 8" RINSE BFV.
5. RE-ROUTE EXISTING 2" GALVANIZED WATER LINE AS REQUIRED TO AVOID NEW STAINLESS STEEL PIPING.

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED No. PE046013 PROFESSIONAL ENGINEER AARON C. BAIRD
2025.03.20 11:19:01-04'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

FILTER NO 8 SECTIONS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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AUGUSTA UTILITIES

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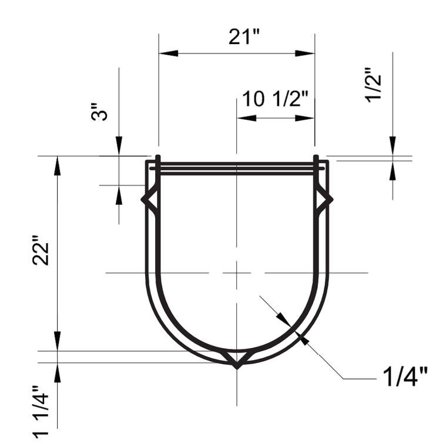
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

FILE SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
DATE MARCH 2025
PROJ. 100339.11
DWG. M07

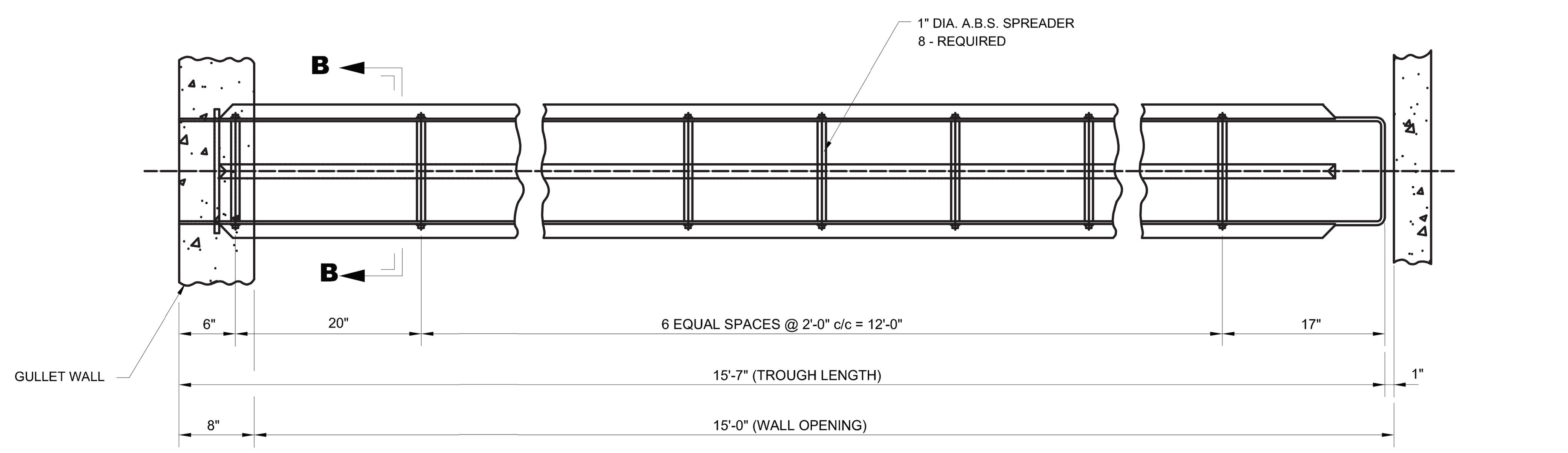
H:\PROJECT FILES\100339 – AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS – ZEL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\02 PROCESS MECH\M07 FILTER 8 SECTIONS.DWG

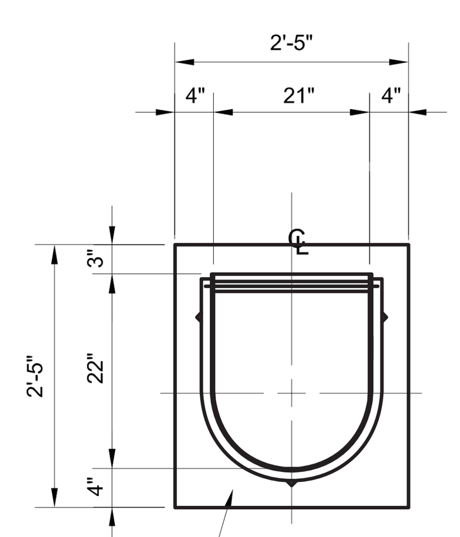
NOTES:

1. INSTALLING CONTRACTOR SHALL FURNISH HARDWARE FOR TROUGH INSTALLATION AS REQUIRED BY TROUGH MANUFACTURER.
2. INSTALLING CONTRACTOR SHALL FURNISH STABILIZER SUPPORTS & HARDWARE AS REQUIRED BY TROUGH MANUFACTURER.

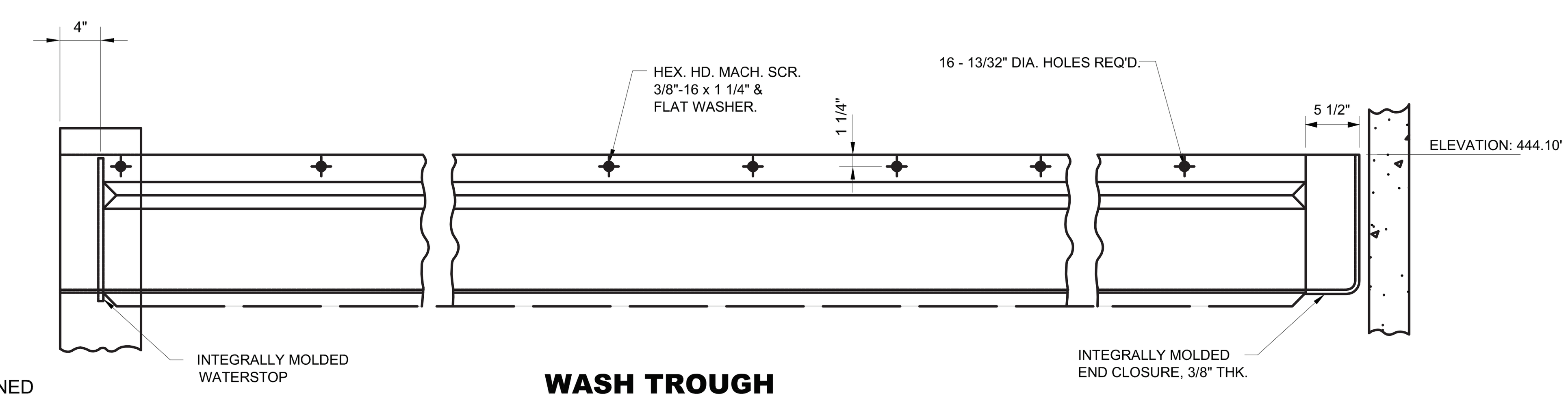


SECTION "B-B"

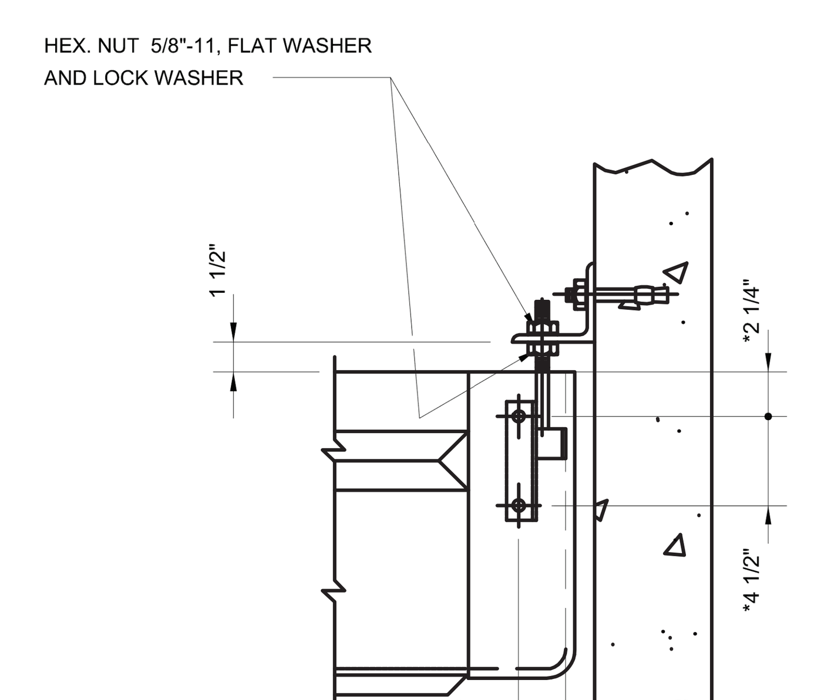


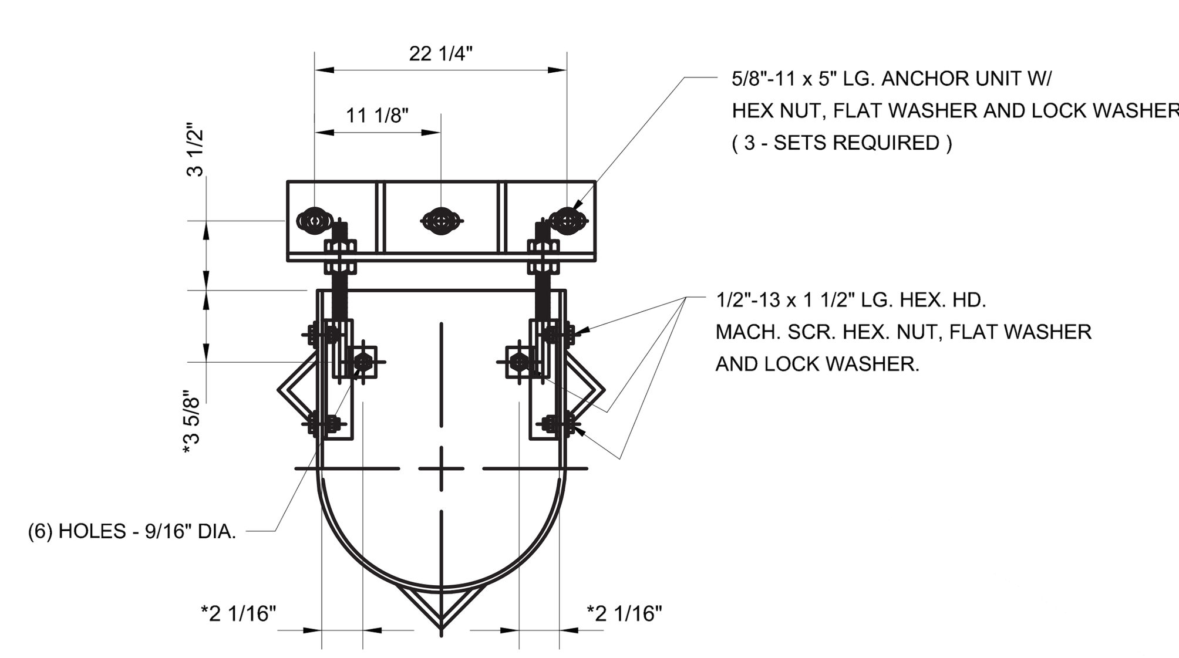


OPENING IN GULLET WALL TO BE FILLED WITH GROUT AFTER TROUGH IS POSITIONED & LEVELED. WALL MUST BE BRIDGED OVER TROUGH FOR PURPOSE OF HOLD DOWN.

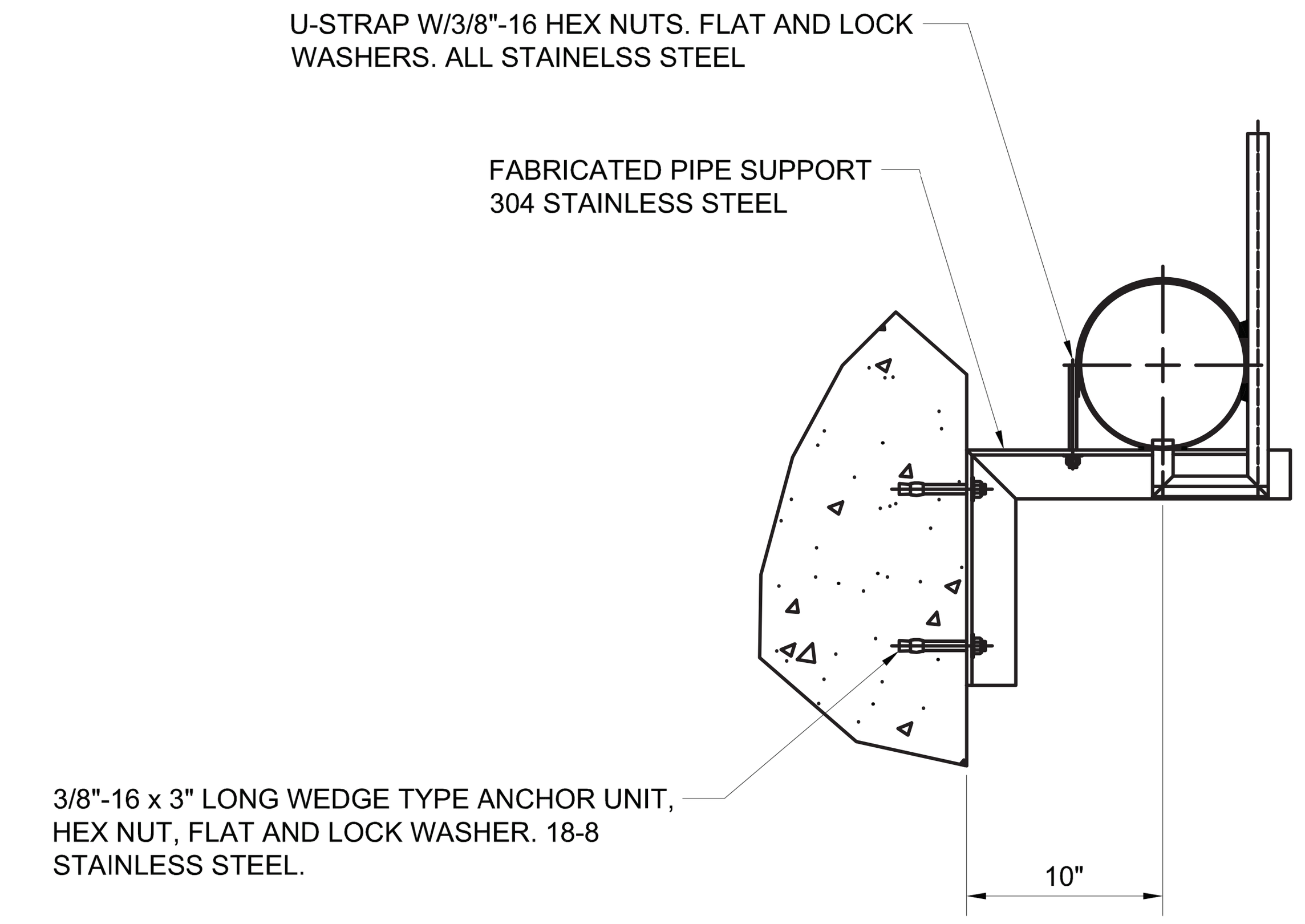


WASH TROUGH
10 - TOTAL REQ'D.
SCALE: NONE

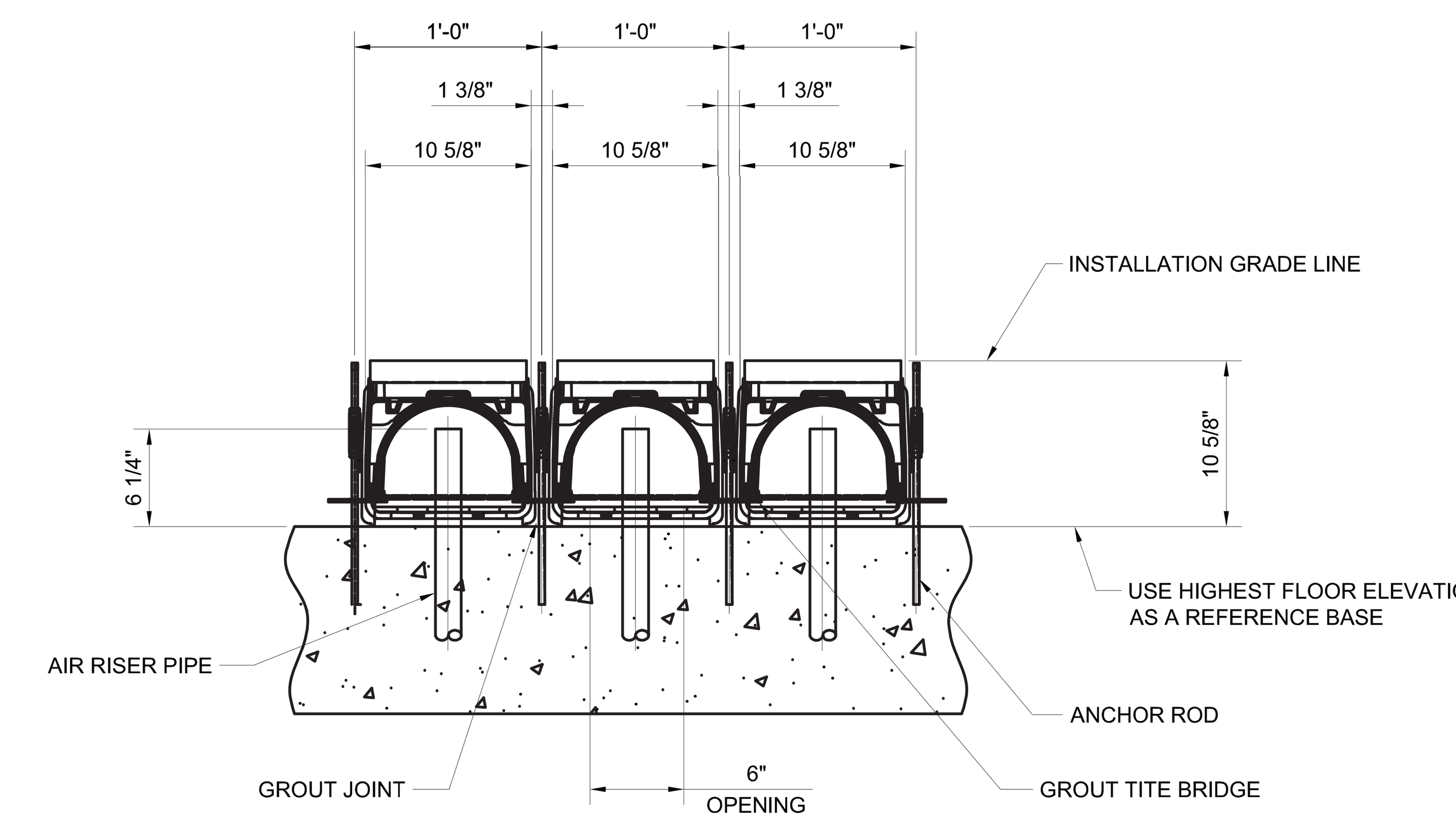




1 TROUGH DETAIL
M06 M08 M07
SCALE: NONE

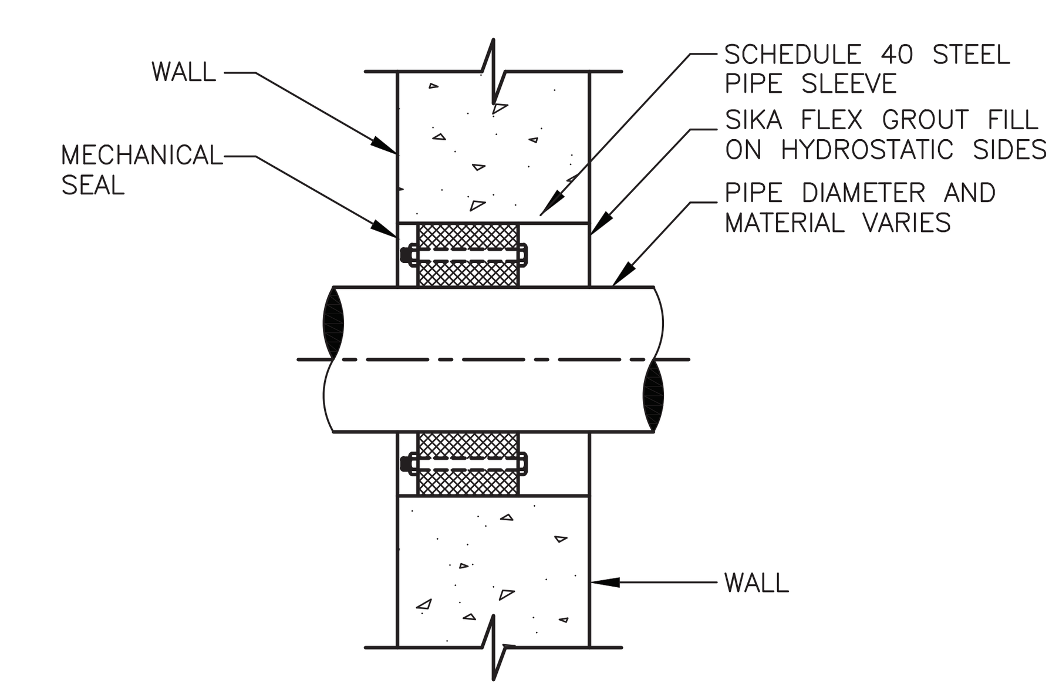


2 AIR SCOUR HEADER DETAIL
M06 M08 M07
SCALE: NONE



3 FILTER UNDERDRAIN DETAIL
M06 M08 M07
SCALE: NONE

NOTES:
1. INSULATED PIPING:
2. INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.
3. SEALS FOR PROCESS AIR SHALL BE HEAT RESISTANT.
4. WALL OPENING DIAMETER AS REQUIRED FOR PASSING PIPE AND THE MECHANICAL SEAL MANUFACTURER REQUIREMENTS.
5. DOUBLE LINK SEAL FOR WALLS 24" THICK AND GREATER



4 WALL PENETRATION SEAL DETAIL
M08
SCALE: NONE

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE046015 AARON C. BAIRD
2025.03.20 11:19:02-04'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB
DRAWN BY: RAM
CHECKED BY: AB
APPROVED BY: JD

MISCELLANEOUS DETAILS 1

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

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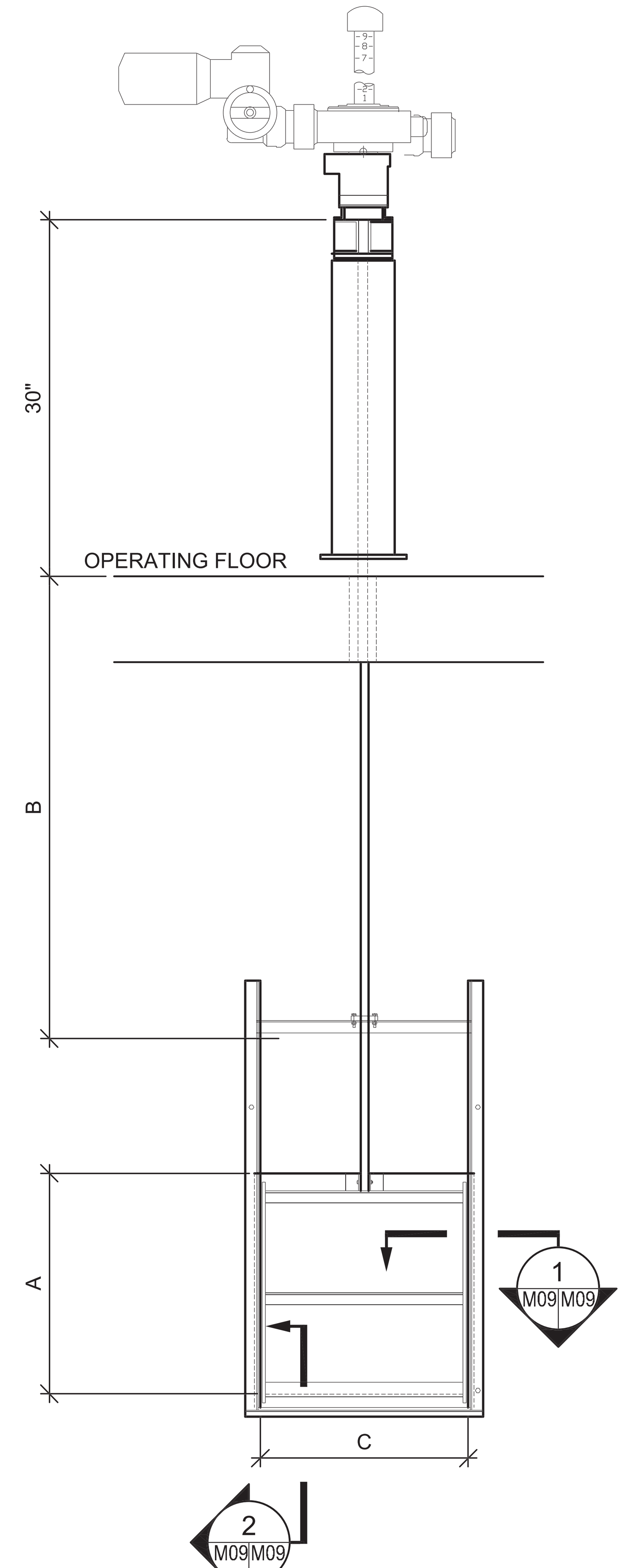
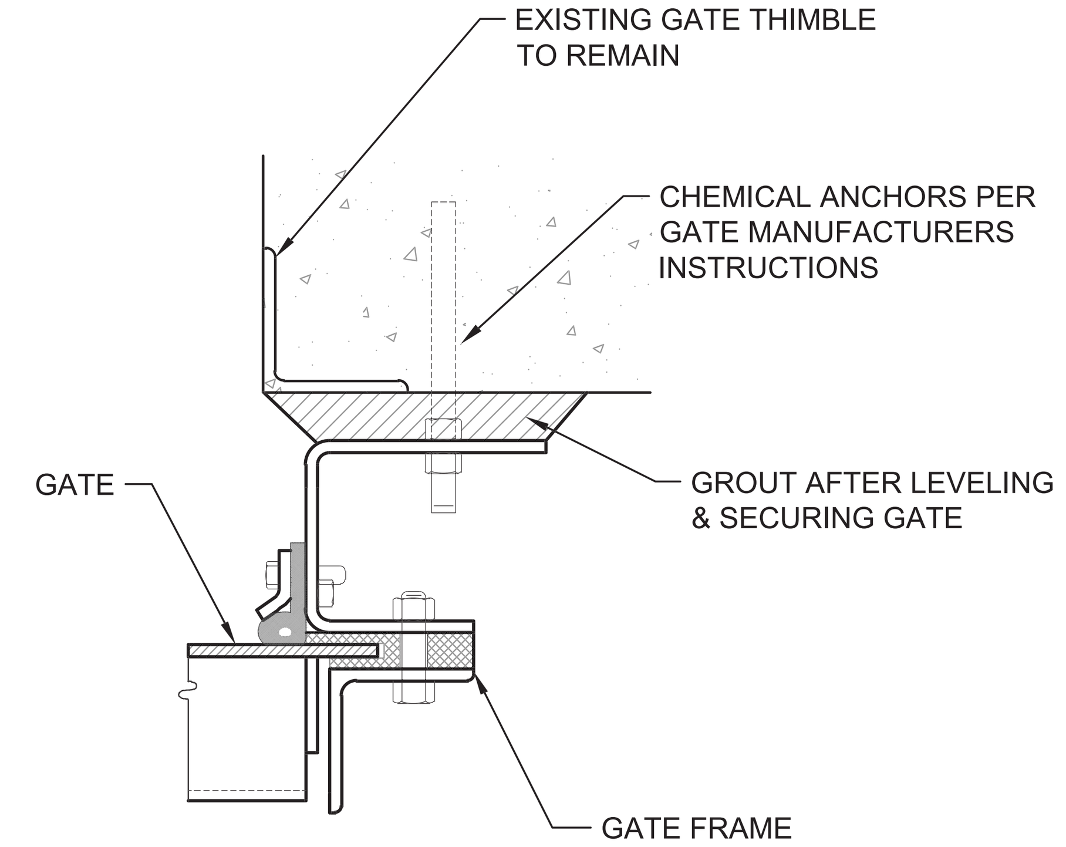
PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

FILE SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
DATE MARCH 2025
PROJ. 100339.11
DWG. M08



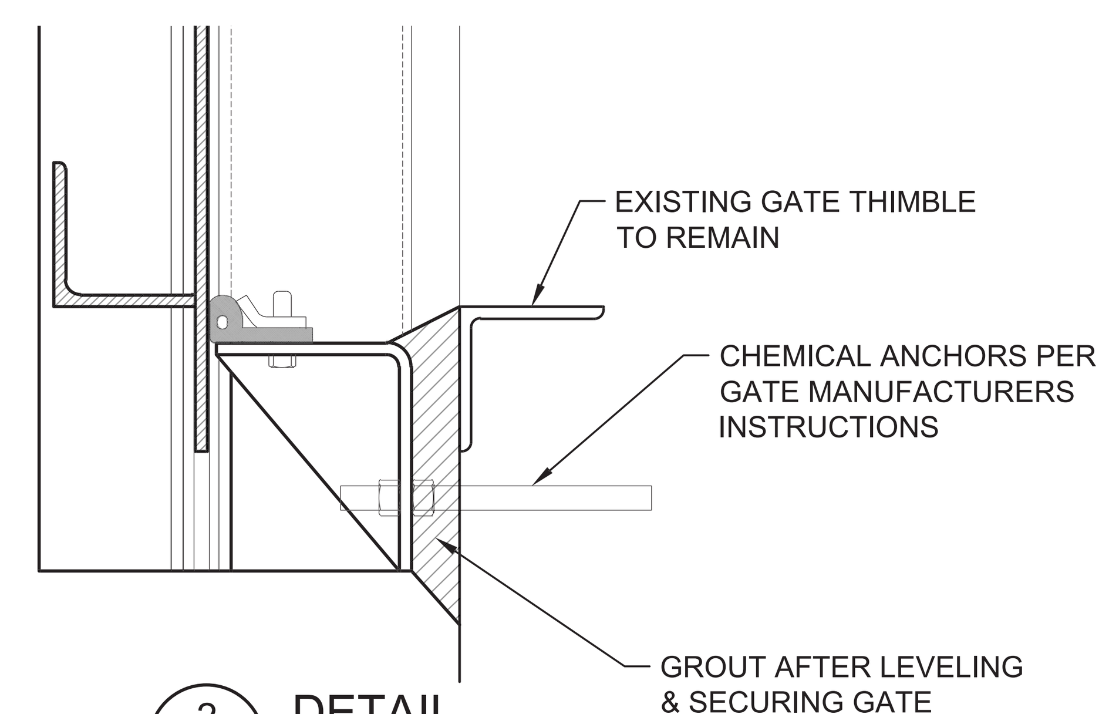
SLIDE GATE ELEVATION

N.T.S.



1 M09 M09 DETAIL

SCALE: 3" = 1'-0"



2 M09 M09 DETAIL

SCALE: 3" = 1'-0"

SLIDE GATE SCHEDULE

GATE ID	TYPE	SERVICE	MOUNT	OPERATION	HEIGHT A (INCHES)	B (INCHES)	WIDTH C (INCHES)	MAXIMUM HEAD SEATING (FEET)	MAXIMUM HEAD UNSEATING (FEET)	VOLTAGE	REMARKS
SG-302I	UPWARD OPENING SLIDE GATE	FILTER NO 2 - INFLUENT	FLUSH MOUNT CONCRETE WALL	OHC	24	30	24	4	4	480	SEE NOTE 1
SG-302D	UPWARD OPENING SLIDE GATE	FILTER NO 2 - DRAIN	FLUSH MOUNT CONCRETE WALL	OHC	24	72	24	9	9	480	SEE NOTE 1
SG-308I	UPWARD OPENING SLIDE GATE	FILTER NO 8 - INFLUENT	FLUSH MOUNT CONCRETE WALL	OHC	24	30	24	4	4	480	SEE NOTE 1
SG-308D	UPWARD OPENING SLIDE GATE	FILTER NO 8 - DRAIN	FLUSH MOUNT CONCRETE WALL	OHC	24	72	24	9	9	480	SEE NOTE 1

CONTROL VALVE SCHEDULE

VALVE ID	TYPE	SERVICE	SIZE (INCHES)	MAX FLOW	MAX PRESS (PSI)	OPERATION	VOLTAGE	REMARKS
BFV-302AA	BFV	FILTER NO 2 - SIDE A AIR SCOUR	8	1590 SCFM	15	OC	120	SEE NOTE 1
BFV-302WA	BFV	FILTER NO 2 - SIDE A WASHWATER	18	19 MGD	70	OC	120	SEE NOTE 1
BFV-302M	BFV	FILTER NO 2 - BACKWASH MANIFOLD	18	19 MGD	15	OC	120	SEE NOTE 1
FCV-302E	BFV	FILTER NO 2 - EFFLUENT	14	2.3 MGD	15	MOD	120	SEE NOTE 1
BFV-302R	BFV	FILTER NO 2 - RINSE	8	2.3 MGD	5	MOD	120	SEE NOTES 1, 4
BFV-302AB	BFV	FILTER NO 2 - SIDE B AIR SCOUR	8	1590 SCFM	15	OC	120	SEE NOTE 1
BFV-302WB	BFV	FILTER NO 2 - SIDE B WASHWATER	18	19 MGD	70	OC	120	SEE NOTE 1
BFV-308AA	BFV	FILTER NO 8 - SIDE A AIR SCOUR	8	1590 SCFM	15	OC	120	SEE NOTE 1
BFV-308WA	BFV	FILTER NO 8 - SIDE A WASHWATER	18	19 MGD	70	OC	120	SEE NOTE 1
BFV-308M	BFV	FILTER NO 8 - BACKWASH MANIFOLD	18	19 MGD	15	OC	120	SEE NOTE 1
FCV-308E	BFV	FILTER NO 8 - EFFLUENT	12	2.3 MGD	15	MOD	120	SEE NOTE 1
BFV-308R	BFV	FILTER NO 8 - RINSE	8	2.3 MGD	5	MOD	120	SEE NOTE 1, 4
BFV-308AB	BFV	FILTER NO 8 - SIDE B AIR SCOUR	8	1590 SCFM	15	OC	120	SEE NOTE 1
BFV-308WB	BFV	FILTER NO 8 - SIDE B WASHWATER	18	1590 SCFM	70	OC	120	SEE NOTE 1
FCV-310E	BFV	FILTER NO 10 - EFFLUENT	12	2.3 MGD	15	MOD	120	SEE NOTE 1, 2

OPERATION LEGEND

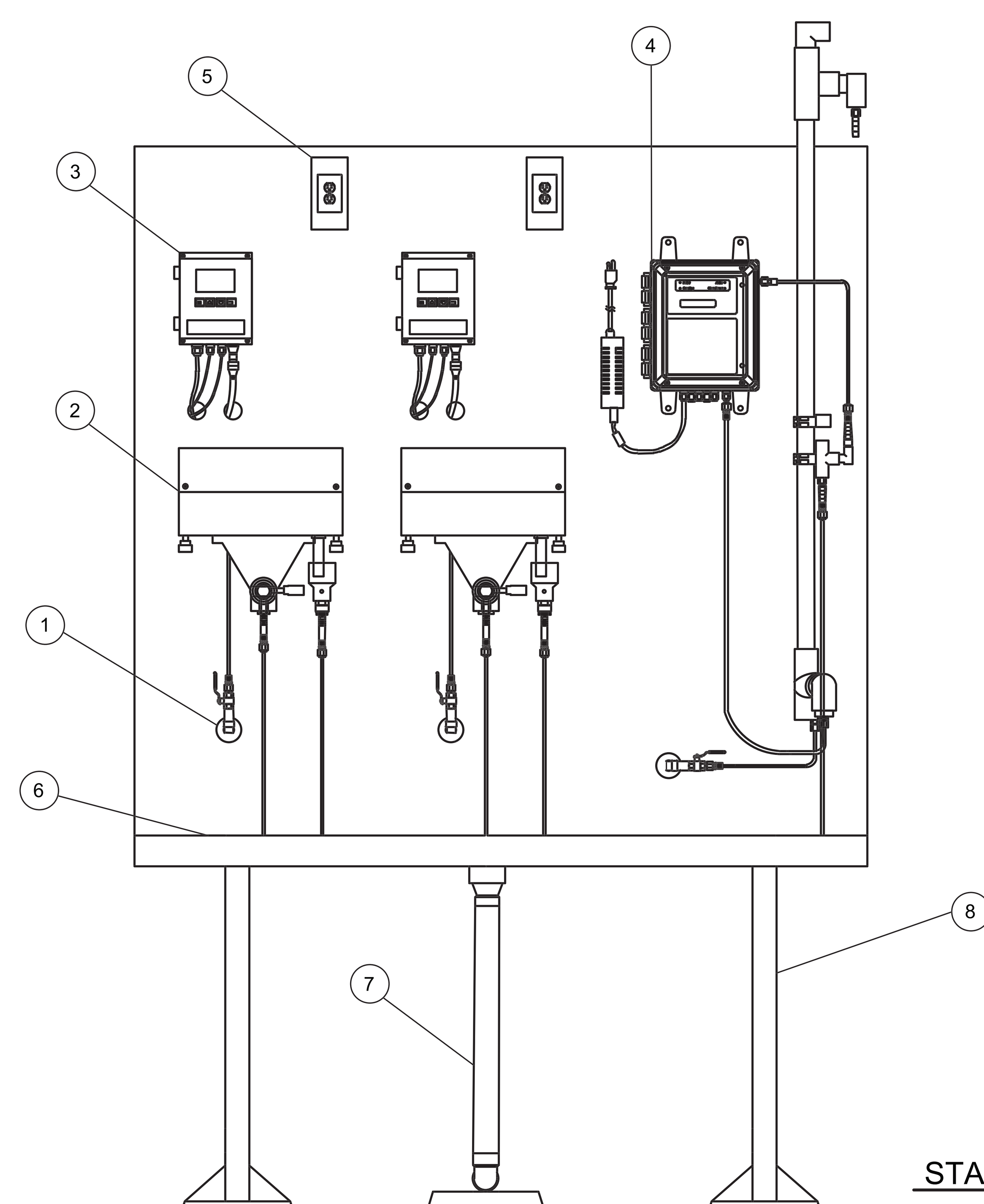
O = OPEN
C = CLOSED
H = HOLD
MOD = MODULATING

PIPELINE SCHEDULE

MEDIA	DESCRIPTION	MATERIAL	SPEC SECTION	INSTALLATION	TEMP DEG F	TEST PRESSURE psig	TEST TYPE (H OR P)	REMARKS
A	AIR SCOUR	SCH 10S, 304L STAINLESS STEEL	40 05 23	EXPOSED	40 - 250	25	P	
IT	INSTRUMENTATION TUBING	COPPER	40 05 00	EXPOSED	40 - 160	125	H	

INSTRUMENTATION BOARD EQUIPMENT SCHEDULE

1. INLET PIPE PENETRATION (TYP 3)
2. TURBIDITY METER (TYP 2)
3. TURBIDITY METER DIGITAL READOUT (TYP 2)
4. PARTICLE COUNTER
5. RECEPTACLE (TYP 2)
6. STAINLESS STEEL DRAIN TROUGH
7. PVC DRAIN PIPING ROUTED TO FLOOR DRAIN ADJACENT TO FILTER WALL
8. STAINLESS STEEL INSTRUMENTATION BOARD SUPPORTS



STAINLESS STEEL INSTRUMENTATION BOARD

N.T.S.

ABBREVIATION LEGEND

H = HYDRAULIC (WATER) PRESSURE TESTING PROCEDURES
P = PNEUMATIC (AIR) PRESSURE TESTING PROCEDURES

NOTES:

1. ALL CONTROL VALVES, GATES, AND ACTUATORS ARE TO BE OWNER PROVIDED EQUIPMENT.
2. CONTRACTOR TO REPLACE FILTER 10 EFFLUENT VALVE UNDER THIS CONTRACT. COORDINATE ISOLATION AND REPLACEMENT WITH THE OWNER.
3. TAPS TO BE USED FOR TURBIDITY ARE LOCATED BETWEEN THE FILTER WALL AND THE WASHWATER BFV. PARTICLE COUNTER AND PRESSURE AND FLOW TRANSMITTER TAPS TO BE USED ARE LOCATED ON THE FINISHED WATER PIPE. AT EACH EXISTING TAP TO BE REUSED, INSTALL A STAINLESS STEEL THREADED NIPPLE FOLLOWED BY A BALL VALVE AND COPPER TUBING TO THE NEW INSTRUMENTS AND/OR GAUGES.
4. CONTRACTOR TO PURCHASE AND INSTALL APT CARDS FOR FILTER RINSE VALVES TO CONVERT FROM O/C OPERATION TO MODULATING. IF APT CARD REPLACEMENT CANNOT BE ACCOMMODATED, CONTRACTOR TO PURCHASE AND INSTALL NEW MODULATING ACTUATORS. CONTACT LEE JONES WITH CHARLES-FINCH (SOUTHERN VALVE & METALS).

ISSUED FOR BID

ENGINEER SEAL

GEORGIA REGISTERED No. PE046013 PROFESSIONAL ENGINEER AARON C. BAIRD

2025.03.20 11:19:02-04'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB
DRAWN BY: RAM
CHECKED BY: AB
APPROVED BY: JD

MISCELLANEOUS DETAILS 2

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

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PROJ. 100339.11
DWG. M09

H:\PROJECT FILES\100339 - AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS - ZEL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\02 PROCESS MECH\M09 MISC DETAILS 2.DWG

ELECTRICAL AND CONTROL SYMBOLS

- INDIVIDUAL STARTER OR CONTROLLER
- STARTER OR CONTROLLER IN MOTOR CONTROL CENTER
- STARTER OR CONTROLLER IN CONTROL PANEL
- STARTER OR CONTROLLER (FURNISHED WITH EQUIPMENT)
- GENERAL CONTROL PANEL OR EQUIPMENT, AS NOTED
- GENERAL CONTROL PANEL OR EQUIPMENT, AS NOTED (FURNISHED WITH EQUIPMENT)
- I — GENERAL INTERLOCK OR CONTROL FUNCTION
- ZC, M — MODULATING OR POSITIONING MOTOR (CONTROLLER FURNISHED WITH MOTOR)
- ZSO, ZSC — OPEN/CLOSE MOTOR (CONTROLLER FURNISHED WITH MOTOR)
- VFD — INDIVIDUAL VARIABLE FREQUENCY DRIVE
- VFD — VARIABLE FREQUENCY DRIVE IN MOTOR CONTROL CENTER
- VFD — VARIABLE FREQUENCY DRIVE (FURNISHED WITH CONTROL PANEL OR EQUIPMENT)
- LEVEL ELEMENT (ULTRASONIC)
- FLOAT SWITCH
- C — STATIONARY CAMERA (BY SECURITY SYSTEM CONTRACTOR)
- C — PAN, TILT, ZOOM CAMERA (BY SECURITY SYSTEM CONTRACTOR)
- J — JUNCTION BOX

ABBREVIATIONS

COND	CONDUCTIVITY
CP	CONTROL PANEL
DIP	DUCTILE IRON PIPE
DO	DISSOLVED OXYGEN
FCP	FACTORY CONTROL PANEL (FURNISHED BY EQUIPMENT MANUFACTURER)
FWE	FURNISHED WITH EQUIPMENT
HMI	HUMAN MACHINE INTERFACE
LCP	LOCAL CONTROL PANEL (FURNISHED BY SYSTEMS INTEGRATOR)
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
ORP	OXIDATION REDUCTION POTENTIAL
PC	PARTICLE COUNT
pH	HYDROGEN ION CONCENTRATION
RW	RAW WATER
SC	STREAMING CURRENT
SLBL	SLUDGE BLANKET LEVEL
TOR	TORQUE
TURB	TURBIDITY
VHC	VOLATILE HYDROCARBONS
VIB	VIBRATION

HAND SWITCH SYMBOLS AND LEGEND

- XXX XXX — FIELD MOUNTED
- XXX XXX — FRONT MCC MOUNTED
- XXX XXX — REAR MCC MOUNTED
- XXX XXX — FIELD MOUNTED (FURNISHED WITH EQUIPMENT)
- XXX XXX — FRONT OF LOCAL PANEL MOUNTED (FURNISHED WITH EQUIPMENT)
- XXX XXX — REAR OF PANEL MOUNTED (FURNISHED WITH EQUIPMENT)

AB	FUNCTION SELECTOR
EO	EMERGENCY OFF
ES	EMERGENCY STOP
FOR	FORWARD/OFF/REVERSE (MAINTAINED)
FSR	FORWARD/STOP/REVERSE (MAINTAINED)
HOA	HAND/OFF/AUTO
LOR	LOCAL/OFF/REMOTE
LR	LOCAL/REMOTE
MA	MANUAL/AUTO
OC	OPEN/CLOSE
OCA	OPEN/CLOSE/AUTO
OCR	OPEN/CLOSE/REMOTE
OO	ON/OFF
OS	OPERATION SWITCH
R	RESET
RS	RUN/STOP (AUTO RESET/RUN @ POWER INTERRUPTION)
RSJ	RUN/STOP/JOG
S	SILENCE
SR	SAFE/RUN
SS	START/STOP (MANUAL RESET @ POWER INTERRUPTION)
T	TEST
UD	UP/DOWN

INSTRUMENTATION LINE SYMBOLS

- ELECTRICAL SIGNAL
- AI — ANALOG INPUT ELECTRICAL SIGNAL
- A0 — ANALOG OUTPUT ELECTRICAL SIGNAL
- DI — DISCRETE INPUT ELECTRIC SIGNAL
- DO — DISCRETE OUTPUT ELECTRIC SIGNAL
- // — PNEUMATIC SIGNAL LINE
- E — EXISTING WIRE
- F — WIRING (FURNISHED WITH EQUIPMENT)
- P — POWER OR EQUIPMENT CONNECTION
- S — SERIAL COMMUNICATION SIGNAL
- ES 120/1 — ELECTRIC SUPPLY - VOLTAGE/PHASE
- SIGNAL LINES NOT CONNECTED
- SIGNAL LINES CONNECTED

PROCESS LINE SYMBOLS

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- EXISTING
- SHEET NUMBER — SHEET CONTINUATION
- XX — CONTINUATION ELSEWHERE, SAME SHEET

INSTRUMENT SYMBOLS AND LEGEND

- XXX WZZO — FIELD MOUNTED
- XXX WZZO — FRONT OF MAIN PANEL MOUNTED
- XXX WZZO — REAR OF MAIN PANEL MOUNTED
- XXX WZZO — FRONT OF LOCAL PANEL MOUNTED
- XXX WZZO — REAR OF LOCAL PANEL MOUNTED
- XXX WZZO — FIELD MOUNTED (FURNISHED WITH EQUIPMENT)
- XXX WZZO — FRONT PANEL MOUNTED (FURNISHED WITH EQUIPMENT)
- XXX WZZO — REAR PANEL MOUNTED (FURNISHED WITH EQUIPMENT)
- XXX WZZO — SOFTWARE DEVICE DISPLAYED (CRT)
- XXX WZZO — SOFTWARE DEVICE NOT DISPLAYED

	FIRST LETTER	SUCCEEDING LETTERS			
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME				
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	CLOSE
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL	DELAY		
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE OR INTERMEDIATE
N	UNCLASSIFIED				
O	UNCLASSIFIED		ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT OR TRANSMITTER	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED			UNCLASSIFIED	
Y	UNCLASSIFIED			RELAY, COMPUTE OR CONVERT	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

INSTRUMENT IDENTIFICATION

XXX WZZO

- XXX — FUNCTIONAL IDENTIFICATION
- WZZO — MULTIPLE UNITS (A, B, C, ETC)
- SEQUENCE NUMBER — LOOP NUMBER
- PROCESS ID NUMBER — LOOP NUMBER

P & ID LEGEND

FLOW, PIPING AND VALVE SYMBOLS

- GATE VALVE
- BALL VALVE
- SWING CHECK VALVE
- BALL CHECK VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- SLUICE, SLIDE OR SHEAR GATE
- AIR RELEASE VALVE
- PRESSURE REDUCING VALVE
- ELECTRIC CHECK VALVE
- ELECTRIC ACTUATED VALVE
- MUD OR FOOT VALVE
- FLOW TUBE (VENTURI)
- PARSHAL FLUME
- MAGNETIC FLOW METER
- ROTAMETER
- SOLENOID ACTUATED VALVE
- SOLENOID ACTUATED DIAPHRAGM VALVE
- PNEUMATIC ACTUATED DIAPHRAGM VALVE
- PRESSURE RELIEF VALVE (SAFETY)
- EDUCTOR
- SILENCER
- ELECTRIC MOTOR
- CAP
- FLANGES
- CALIBRATION COLUMN
- DIAPHRAGM PUMP
- AIR FILTER
- ISOLATION VALVE
- THREE-WAY VALVE
- PRESSURE CONTROL VALVE
- BACK PRESSURE VALVE
- PULSATION DAMPENER
- PUMP
- PERISTALTIC PUMP
- DIAPHRAGM PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- REDUCER
- UNION
- MIXER
- STATIC MIXER
- DRAIN
- DIAPHRAGM OR LOAD CELL
- SPACE HEATER / HEAT TRACING

PROCESS PIPING ABBREVIATIONS

A	AIR
BW	BACKWASH
CA	COMPRESSED AIR
D	DRAIN
FE	FILTER EFFLUENT
FR	FILTER RINSE
FW	FINISHED WATER
PAC	POWDERED ACTIVATED CARBON
PACS	POWDERED ACTIVATED CARBON-SLURRY
PSW	PLANT SERVICE WATER

NOTES:

1. ALL DETAIL WIRING AND ELECTRICAL COMPONENTS ARE NOT SHOWN ON THE PROCESS AND INSTRUMENTATION DIAGRAM DRAWINGS. THE ELECTRICAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE PROCESS AND INSTRUMENTATION DIAGRAMS. THE PROCESS AND INSTRUMENTATION DIAGRAMS ARE PRESENTED AS A COORDINATING TOOL THAT INDICATES THE MAIN CONTROL LOGIC FOR THE PROJECT PROCESS SYSTEMS AND COMPONENTS. ACTUAL DETAIL LOGIC AND CONTROL COMPONENTS MAY DIFFER DEPENDING ON THE MANUFACTURER THAT IS AWARDED THE CONTRACT.
2. SEE CIVIL AND PROCESS DRAWINGS FOR PIPING DETAILS.
3. SOME SYMBOLS AND INFORMATION ON THIS LEGEND MAY NOT BE USED ON THIS PROJECT.

ISSUED FOR BID

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:30:07-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

P & ID LEGEND

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life — AUGUSTA UTILITIES

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COA: PEF004730
EXP. 06/30/2026

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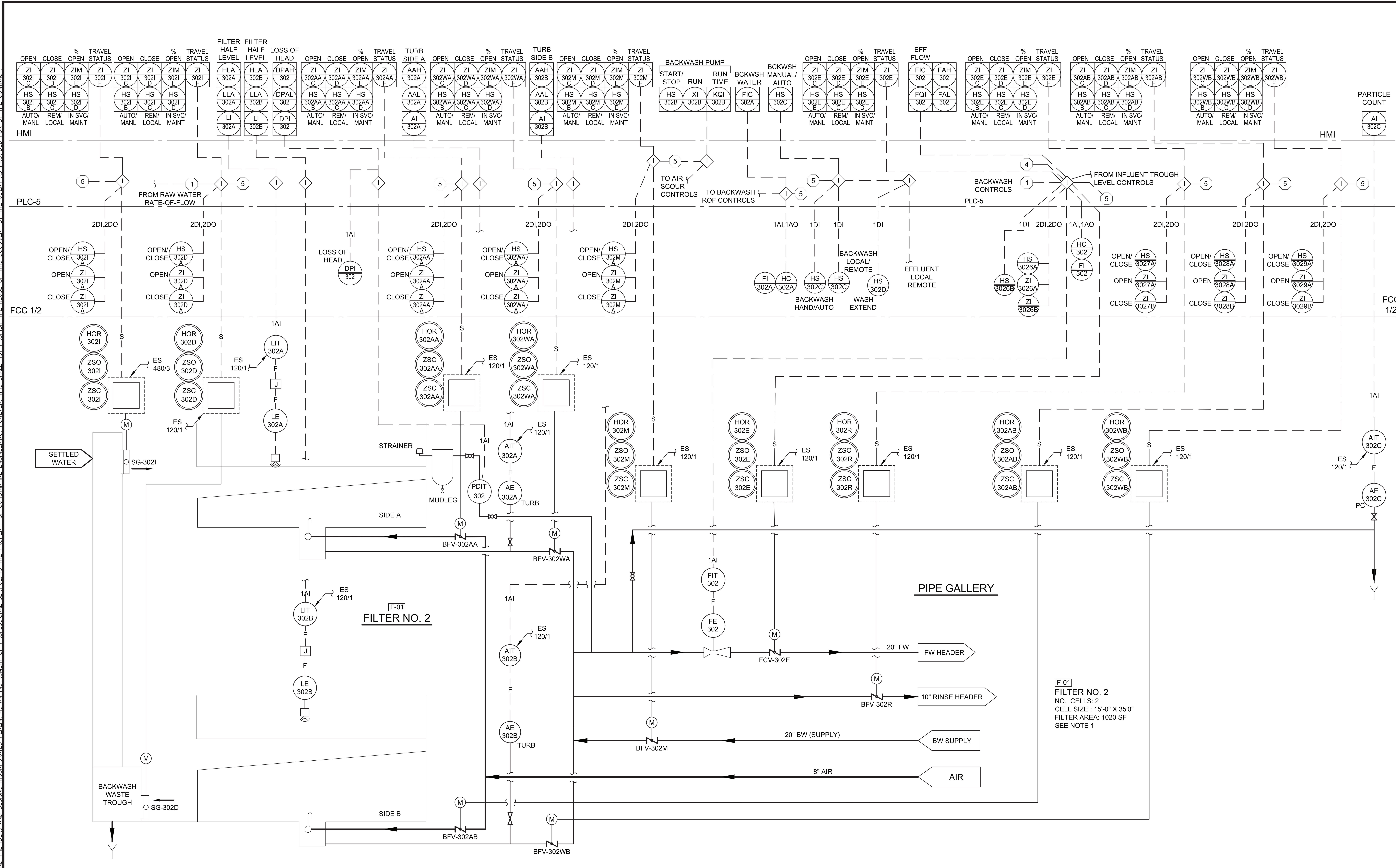

NOTE:

1. FILTER AREA VARIES SLIGHTLY FOR EACH FILTER CELL. CONTRACTOR TO FIELD CONFIRM EXACT DIMENSIONS.

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:30:25-05'00'

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P & ID FILTER NO 2

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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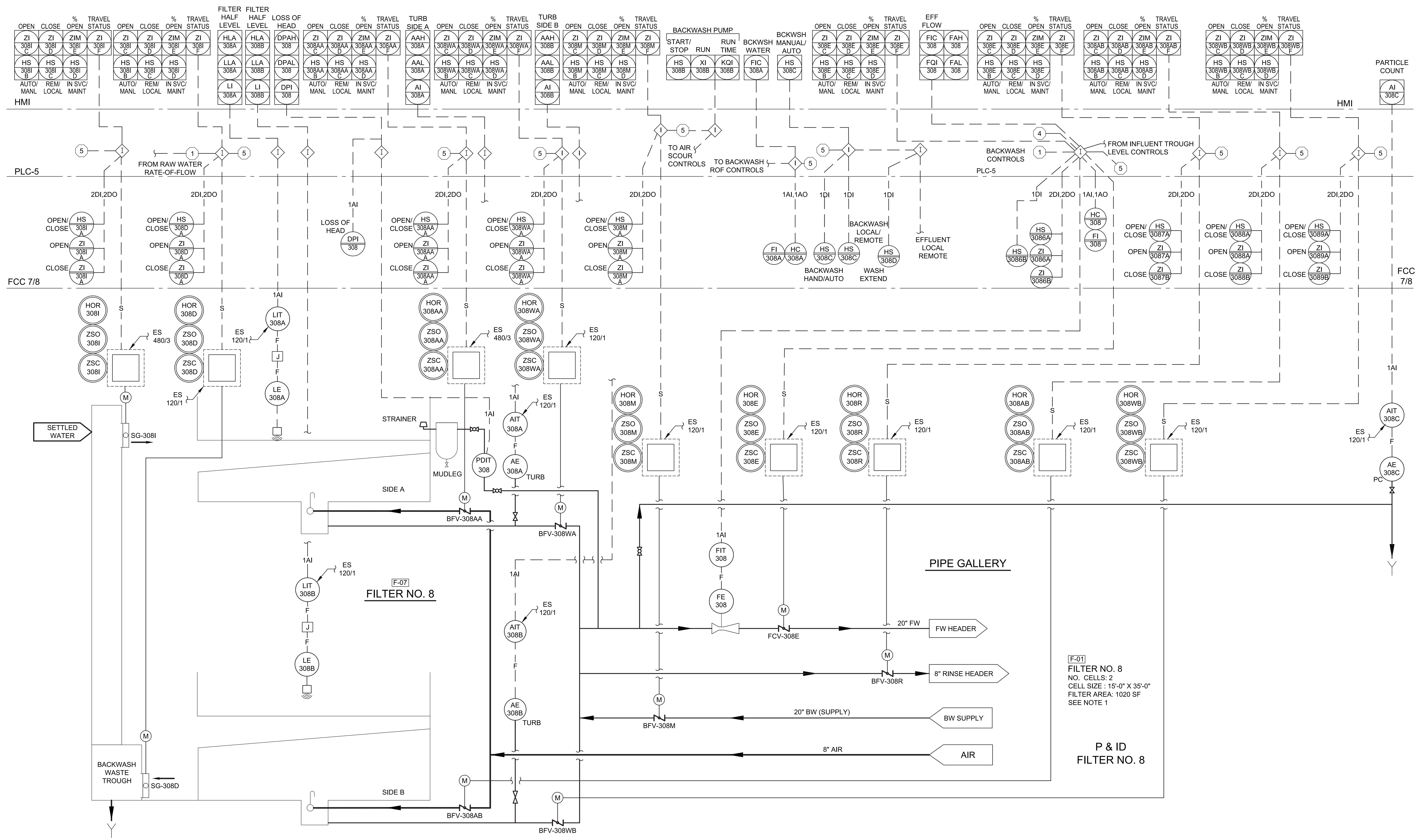

NOTE:

1. FILTER AREA VARIES SLIGHTLY FOR EACH FILTER CELL. CONTRACTOR TO FIELD CONFIRM EXACT DIMENSIONS.

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P & ID FILTER NO 8

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
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APPROVED BY: JD

Water Is Life — AUGUSTA UTILITIES

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ABBREVIATIONS

A OR AMP	AMPERES
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AM	AMMETER
AS	AMMETER SELECTION SWITCH
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AT	AUTOMATIC TRANSFORMER
BCP	BACKUP CONTROL PANEL
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CNTL	CONTROL
CT	CURRENT TRANSFORMER
Δ	DELTA CONNECTION
D	DEPTH
DP	DISTRIBUTION PANELBOARD
DS OR DISC	DISCONNECT SWITCH
DTC	DATA TERMINAL CABINET
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EMCP	ENERGY MANAGEMENT CONTROL PANEL
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
ESTOP	EMERGENCY STOP
ETR	EXISTING TO REMAIN
EX OR EXIST.	EXISTING
EXP	EXPLOSION PROOF
F	FUSE
FA	FIRE ALARM
FCR	FLOAT CONTROL RELAY
FLR	FLOOR
FACP	FIRE ALARM CONTROL PANEL
FMPX	FIRE ALARM MULTIPLEX PANEL
G OR GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTING
H	HEIGHT
HP	HORSEPOWER
HV	HIGH VOLTAGE, 600VAC
HVAC	HEATING, VENTILATION AND AIR
IMC	INTERMEDIATE METAL CONDUIT
JB OR J	JUNCTION BOX
KVA	KILOVOLT – AMPS
KW	KILOWATTS
KWH	KILOWATT–HOUR
L	LENGTH
LA	LIGHTING ARRESTOR
LCP	LIGHTING CONTROL PANEL
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LP	LIGHTING PANELBOARD
LV	LOW VOLTAGE, 240VAC
MCB OR MB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MH OR MTG	MOUNTING HEIGHT
MLO	MAIN LUG ONLY
MMS	MICROPROCESSOR–BASED METERING SYSTEM
MT OR MTD	MOUNT OR MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON–FUSIBLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATES
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P	POLE
PFC	POWER FACTOR CAPACITOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMT	PAD MOUNT TRANSFORMER
PNL	PANEL
PVC	POLYVINYLCHLORIDE CONDUIT
RC	REMOTE CONTROL SWITCH
REC OR RECPT	RECEPTACLE
RGC	RIGID GALVANIZED COUDUIT
RMS	ROOT MEAN SQUARE
RTU	REMOTE TERMINAL UNIT
SS	STAINLESS STEEL, SOFT START
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TBB	TELEPHONE BACKBOARD
TCP	TEMPERATURE CONTROL PANEL
TTC	TELEPHONE TERMINAL CABINET
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITER'S LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VMS	VOLTMETER SELECTOR SWITCH
W	WIDTH
W/	WITH
WHDM	WATT HOUR DEMAND METER
WM	WATTMETER
WP	WEATHER PROOF
XFMR	TRANSFORMER
Y	WYE CONNECTION

GENERAL NOTES

1. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
   - 1.1. NFPA 70, NATIONAL ELECTRICAL CODE.
   - 1.2. NFPA 101 LIFE SAFETY CODE.
   - 1.3. NFPA 820 STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES.
2. ALL ELECTRICAL CIRCUITS SHALL INCLUDE A GREEN GROUNDING CONDUCTOR SIZED PER NEC.
3. CONDUIT AND DEVICE LOCATIONS ARE SHOWN DIAGRAMMATICALLY ONLY, CONTRACTOR SHALL FIELD LOCATE OR ROUTE AS REQUIRED.
4. ALL CONDUIT SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE.
5. ALL PANEL LEGENDS SHALL BE RETYPED TO REFLECT UP TO DATE CONDITIONS. ALL PANEL LEGENDS SHALL INDICATE THE PANEL'S FEEDER CKT. SOURCE PANEL (OR SUBSTATION) AND ITS LOCATION.
6. ELECTRICAL EQUIPMENT AND DEVICES SHALL BE PROVIDED WITH PHENOLIC NAMEPLATES. ALL NAMEPLATES SHALL BE MECHANICALLY FASTENED WITH S.S. SCREWS OR RIVETS. THE USE OF ADHESIVE NAMEPLATES SHALL NOT BE ALLOWED.
7. CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AND MARK–UP DURING CONSTRUCTION TO REFLECT "AS–BUILT" CONDITIONS. PRINTS SHALL BE DELIVERED TO THE ENGINEER UPON COMPLETION OF THE PROJECT AS A COMPLETE SET OF RECORD DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL PROVIDE ELECTRONIC COPIES OF ALL UPDATES "AS–BUILT" DRAWINGS IN AUTOCAD 2007 FORMAT.
8. THE CONTRACTOR SHALL PROVIDE PULL BOXES IN POWER CIRCUIT CONDUIT AS REQUIRED, SO AS TO LIMIT THE NUMBER OF BENDS TO A MAXIMUM OF 360 DEGREES OR FOUR 90 DEGREE TURNS.
9. PROVIDE CONDUIT EXPANSION FITTINGS AS CONDUIT CROSSES BUILDING EXPANSION JOINTS.
10. ALL EXTERIOR ELECTRICAL ENCLOSURES SHALL BE NEMA 4X STAINLESS STEEL UNLESS OTHERWISE NOTED.
11. ALL SUPPORTING AND FASTENING DEVICES SHALL BE STAINLESS STEEL.
12. CONTRACTOR MAY COMBINE HOMERUNS TO ALL PANEL BOARDS PER NEC.
13. ALL RECEPTACLE BRANCH CIRCUITS OVER 75' IN LENGTH SHALL USE #10 AWG CONDUCTOR (FOR VOLTAGE DROP).
14. CONTRACTOR TO PROVIDE ALL REQUIRED POWER AND STARTERS FOR PROCESS EQUIPMENT (COORDINATE WITH PROCESS EQUIPMENT SUPPLIER).
15. CONTRACTOR SHALL PROVIDE 2 SPARE FUSES FOR EACH FUSE INSTALLED INCLUDING ALL EQUIPMENT AND CONTROLS.
16. CONTROL AND POWER CONDUITS SHALL BE SEPARATED BY 12" MIN. AND SHALL BE IN SEPARATE JUNCTION BOXES AND DUCT BANKS. MAINTAIN 12" SEPARATION BETWEEN DUCT BANKS.
17. CONTRACTOR SHALL MAINTAIN OPERATION OF THE ELECTRICAL SERVICE DURING THE UPGRADE.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING ALL PROJECT SPECIFICATIONS AND WILL BE RESPONSIBLE FOR MEETING ALL REQUIREMENTS OUTLINED IN THE SPECIFICATIONS.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DETAILED ELECTRICAL EQUIPMENT LAYOUT DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20 22:30:55-05'00'

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ELECTRICAL NOTES

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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SYMBOL	DESCRIPTION
	CONTACT, NORMALLY OPEN
	CONTACT, NORMALLY CLOSED
*	OPERATING COIL * DESIGNATION: C - CONTACTOR R - CONTROL RELAY M - MAGNETIC MOTOR STARTER - NON REVERSING MF - MAGNETIC MOTOR STARTER - FORWARD MR - MAGNETIC MOTOR STARTER - REVERSE MO - MAGNETIC MOTOR STARTER - OPEN MC - MAGNETIC MOTOR STARTER - CLOSE MH - MAGNETIC MOTOR STARTER - HIGH SPEED ML - MAGNETIC MOTOR STARTER - LOW SPEED SOV - SOLENOID OPERATED VALVE TD - TIME DELAY RELAY T - PROGRAMMABLE TIMER
ETM	METER, ELAPSED TIME
*	INDICATING LIGHT - FULL VOLTAGE TRANSFORMER OR LED * DESIGNATION: A - AMBER R - RED B - BLUE W - WHITE G - GREEN Y - YELLOW
*	INDICATING LIGHT, PUSH -TO-TEST * DESIGNATION: A - AMBER R - RED B - BLUE W - WHITE G - GREEN Y - YELLOW
	SWITCH, PUSHBUTTON, NORMALLY OPEN CIRCUIT
	SWITCH, PUSHBUTTON, NORMALLY CLOSED CIRCUIT
TL	SWITCH, PUSHBUTTON, TAG LINE, NORMALLY CLOSED CIRCUIT WITH MAINTAINED CONTACT
	SWITCH, PUSHBUTTON, TWO CIRCUIT, NORMALLY OPEN AND NORMALLY CLOSED
	SWITCH, EMERGENCY SHUTDOWN, MUSHROOM-HEAD PUSHBUTTON, NORMALLY CLOSED CIRCUIT WITH MAINTAINED CONTACT
H O A	SWITCH, MASTER OR CONTROL X - INDICATES CONTACT CLOSED
	MOMENTARY-CONTACT SWITCH
	SWITCH PRESSURE/VACUUM OPERATED. NORMALLY OPEN. CLOSING ON RISING PRESSURE
	SWITCH PRESSURE/VACUUM OPERATED. NORMALLY CLOSED OPENING ON RISING PRESSURE
	SWITCH, FLOW ACTUATED, NORMALLY OPEN, CLOSING ON INCREASE IN FLOW
	SWITCH, FLOW ACTUATED, NORMALLY CLOSED OPENING ON INCREASE IN FLOW
	SWITCH, TEMPERATURE ACTUATED, NORMALLY CLOSED OPENING ON RISING TEMPERATURE
	SWITCH, TEMPERATURE ACTUATED, NORMALLY OPEN CLOSING ON RISING TEMPERATURE
	CONTACT, TIME DELAY, NORMALLY OPEN WITH TIME DELAY CLOSING
	CONTACT, TIME DELAY, NORMALLY OPEN WITH TIME DELAY OPENING
	CONTACT, TIME DELAY, NORMALLY CLOSED WITH TIME DELAY OPENING
	CONTACT, TIME DELAY, NORMALLY CLOSED WITH TIME DELAY CLOSING
LS	SWITCH, LIMIT
TS	SWITCH, TORQUE
	SWITCH, LIQUID LEVEL ACTUATED, CLOSING ON RISING LEVEL
	SWITCH, LIQUID LEVEL ACTUATED, OPENING ON RISING LEVEL

SYMBOL	DESCRIPTION
25A	FUSE (AMPERE RATING SHOWN)
I * 12KV 1200A 150A	FUSED DISCONNECT SWITCH, 3 POLE * DESIGNATION: LS - LOAD BREAK SWITCH DS - DISCONNECT SWITCH
1200A	POWER CIRCUIT BREAKER, MEDIUM-VOLTAGE, DRAWOUT TYPE (AMPERE RATING SHOWN)
500AT 600AF	CIRCUIT BREAKER, DRAWOUT TYPE, 600VAC OR LESS, 3P (TRIP AND FRAME AMPERE RATING SHOWN)
60AT	CIRCUIT BREAKER, THERMOMAGNETIC, 600 VAC OR LESS, 3P (AMPERE RATING SHOWN)
600AT 1000AF	CIRCUIT BREAKER, THERMOMAGNETIC, 600 VAC OR LESS, 3P ADJUSTIBLE TRIP (TRIP & FRAME AMPERE RATING SHOWN)
7A	MOTOR CIRCUIT PROTECTOR, 600V AC OR LESS, 3P UON (CONTINUOUS AMPERE RATING SHOWN)
3P 20A	CONTACTOR (NUMBER OF POLES AND AMPERE RATING SHOWN)
* **	MAGNETIC MOTOR STARTER * NEMA SIZE ** DESIGNATION: NONE - FULL VOLTAGE, NON-REVERSING FVR - FULL VOLTAGE, REVERSING RVNR - REDUCED VOLTAGE, NON-REVERSING RVR - REDUCED VOLTAGE, REVERSING
M	MANUAL MOTOR STARTER
	VARIABLE FREQUENCY DRIVE / INVERTER
750KVA 4.16/ 0.48KV	POWER TRANSFORMER (KVA RATING, VOLTAGES AND WINDINGS CONNECTIONS SHOWN)
Z=X%	SERIES REACTOR (LINE OR LOAD RATING SHOWN)
(2) 4200/ 120V	VOLTAGE TRANSFORMER (QUANTITY AND VOLTAGE RATIO SHOWN)
(3) 800/5A	CURRENT TRANSFORMER (QUANTITY AND CURRENT RATIO SHOWN)
(3) 2200/5A SET AT 1200/5A	MULTI-RATIO CURRENT TRANSFORMER (QUANTITY, MAXIMUM CURRENT RATIO AND SETTING SHOWN)
800/5A	ZERO SEQUENCE CURRENT TRANSFORMER (CURRENT RATIO SHOWN)
	CAPACITOR
	GROUND CONNECTION
(3)	SURGE ARRESTER (QUANTITY SHOWN)
3P 400A	TRANSFER SWITCH (NUMBER OF POLES AND AMPERE RATING SHOWN)
125VDC	BATTERY (RATING SHOWN)
10	MOTOR, INDUCTION (HORSEPOWER SHOWN)

SYMBOL	DESCRIPTION
750KW 480V 3-PHASE	GENERATOR (KW RATINGS, VOLTAGE AND PHASE SHOWN)
	THERMISTOR
	DIODE, SEMICONDUCTOR
RTD	RESISTANCE TEMPERATURE DETECTOR
	RESISTOR
	SPACE HEATER
500VA 480/120V	CONTROL POWER TRANSFORMER, (VA RATING VOLTAGES)
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
CS	CONTROL SWITCH
*	METER * DESIGNATION: AM - AMMETER VM - VOLTMETER PFM - POWER FACTOR WM - WATTMETER FMM - FREQUENCY METER WHM - WATTHOUR METER PM - POWER MONITORING DEVICE
*	PROTECTIVE RELAY OR DEVICE * DESIGNATION: 11 - MULTIFUNCTION PROTECTIVE RELAY 25 - SYNCHRONIZING OR SYNCHRONISM-CHECK RELAY 26 - APPARATUS THERMAL DEVICE 27 - UNDERVOLTAGE RELAY 32 - DIRECTIONAL POWER RELAY 37 - UNDERCURRENT OR UNDERPOWER RELAY 40 - FIELD RELAY 46 - REVERSE-PHASE OR PHASE-BALANCE CURRENT RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50 - INSTANTANEOUS OVERCURRENT RELAY 50GS- INSTANTANEOUS GROUND FAULT RELAY 51 - AC TIME OVERCURRENT RELAY 51GS- AC TIME GROUND FAULT RELAY 51V - AC TIME OVERCURRENT RELAY (VOLTAGE RESTRAINT) 55 - POWER FACTOR RELAY 59 - OVERVOLTAGE RELAY 60 - VOLTAGE OR CURRENT BALANCE RELAY 63 - PRESSURE SWITCH 64 - GROUND DETECTOR RELAY 67 - AC DIRECTIONAL OVERCURRENT RELAY 81 - FREQUENCY RELAY 86 - LOCKOUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY 87G - GENERATOR DIFFERENTIAL GROUND FAULT RELAY

ISSUED FOR BID

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:31:09-05'00'

NO. DATE REVISION BY APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

ELECTRICAL SYMBOLS

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life AUGUSTA UTILITIES

ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA 30901
PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

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WIRING

J	JUNCTION BOX
PB	PULL BOX
H	HANDHOLE
PX CX	CONDUIT CONDUCTOR WIRE TAG. P–DENOTES POWER C–DENOTES CONTROL CIRCUIT
	COMMUNICATION
D	DATA COMMUNICATION OUTLET
C	CABLE TELEVISION OUTLET
	DATA COMMUNICATION FLOOR OUTLET
	TELEPHONE FLOOR RECEPTACLE
	WALL MOUNTED TELEPHONE
	WALL MOUNTED DATA
S	CEILING MOUNTED SPEAKER

LIGHTING

	EXIT SIGN WALL MOUNTED LIGHT
	ELECTRIC RESISTANCE HEATER
	FLUORESCENT EMERGENCY LIGHT FIXTURE
$	SINGLE POLE SWITCH
$3	THREE–WAY SWITCH
$T	TIMER OPERATED SWITCH
$F	FUSED SWITCH
$P	SWITCH WITH PILOT LIGHT
P	CEILING MOUNTED PULL SWITCH
$2	DOUBLE POLE SWITCH
$4	FOUR–WAY SWITCH
$K	KEY OPERATED SWITCH
L PS	LAMP HOLDER POLE SWITCH

LIGHTING (CONT)

$LM	LOW VOLTAGE MASTER SWITCH
$WP	WEATHER PROOF SWITCH
	INCANDESCENT CEILING MOUNTED LIGHT
	RECESSED FLUORESCENT 2X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X8 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 2X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X8 LIGHT FIXTURE
	STREET LIGHT WITH BRACKET
	EXTERIOR BUILDING LIGHT
	EMERGENCY BATTERY POWERED LIGHTS
	2' X 2' LIGHT FIXTURE
	INDUSTRIAL OR STRIP FIXTURE
	HIGHMAST LIGHTING ASSEMBLY
	AREA LIGHTING ASSEMBLY

POWER

	CLOCK HANGER RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX ON EMERGENCY POWER RECEPTACLE
	DUPLEX WITH GFI RECEPTACLE
	QUADRAPLEX RECEPTACLE
	SINGLE RECEPTACLE
S	SINGLE RECEPTACLE WITH SWITCH
	SPECIAL PURPOSE RECEPTACLE
S	DUPLEX RECEPTACLE WITH SWITCH
	FLUSH MOUNTED PANELBOARD CABINET
	SURFACE MOUNTED PANELBOARD CABINET
T	TRANSFORMER

SINGLE LINE (CONT)

	EARTH GROUND
	FUSED DISCONNECT SWITCH
	UNFUSED DISCONNECT SWITCH
M	METER
DP#_	DISTRIBUTION PANEL
LP#_	LIGHTING PANEL
PP#_	POWER PANEL

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20 22:31:23-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB
DRAWN BY: RAM
CHECKED BY: AB
APPROVED BY: JD

ELECTRICAL SYMBOLS 2

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

ARDURRA
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973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
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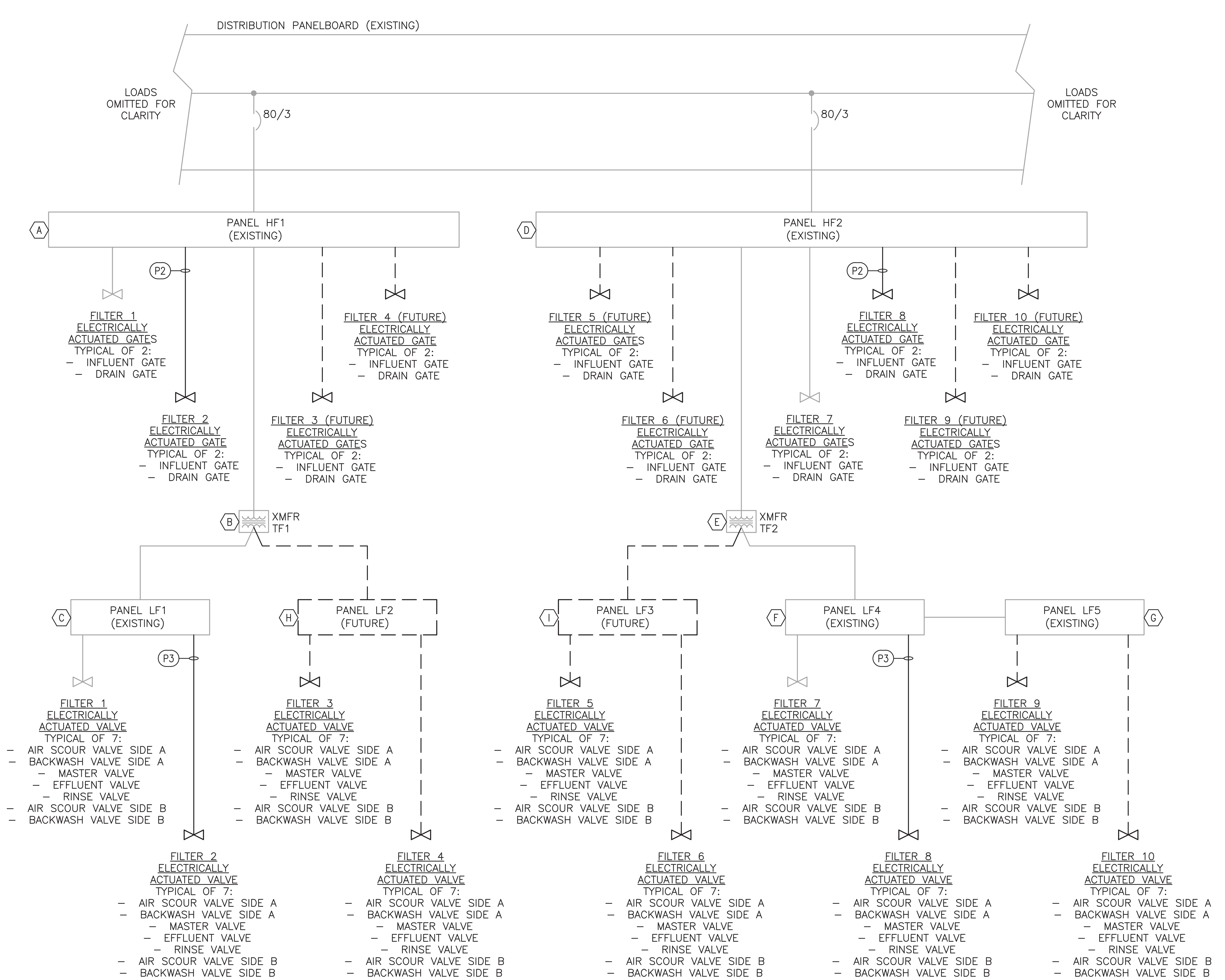

POWER SINGLE LINE
SCALE: NONE

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR REQUIRED FOR THE INSTALLATION OF FILTERS 2 & 8 AS DETAILED ON THE PROJECT PLANS. FILTERS 1 & 7 WERE COMPLETED ON A PREVIOUS PROJECT. FILTERS 3, 4, 5, 6, 9, & 10 ARE NOT INCLUDED IN THIS PROJECT AND HAVE BEEN SHOWN FOR CLARITY. THE MATERIAL TYPES, INSTALLATION METHODS, AND QUALITY OF WORK PERFORMED FOR FILTERS 1 & 7 SHALL BE IMPLEMENTED FOR FILTERS 2 & 8.

KEY NOTES:

(A) PANEL HF1 (EXISTING). 125A, 480/277V, 3ø, 4W, 42 CIRCUIT DISTRIBUTION PANELBOARD. SEE HF PANEL SCHEDULE DRAWING FOR CIRCUIT DETAILS. THE CONTRACTOR SHALL UTILIZE SPARE BREAKERS TO SUPPLY ALL NEW LOADS ASSOCIATED WITH THIS PHASE (FILTERS 2 & 8 ADDITIONS).

(B) TRANSFORMER TF1 (EXISTING). 45KVA, 480–208/120V TRANSFORMER.

(C) PANEL LF1 (EXISTING). 125A, 208/120V, 3ø, 4W, 125A MAIN CIRCUIT BREAKER, 30 CIRCUIT DISTRIBUTION PANELBOARD. SEE LF1 PANEL SCHEDULE FOR CIRCUIT DETAILS. THE CONTRACTOR SHALL UTILIZE SPARE BREAKERS TO SUPPLY ALL NEW LOADS ASSOCIATED WITH THIS PHASE (FILTERS 2 & 8 ADDITIONS).

(D) PANEL HF2 (EXISTING). 125A, 480/277V, 3ø, 4W, 42 CIRCUIT DISTRIBUTION PANELBOARD. SEE HF PANEL SCHEDULE DRAWING FOR CIRCUIT DETAILS. THE CONTRACTOR SHALL UTILIZE SPARE BREAKERS TO SUPPLY ALL NEW LOADS ASSOCIATED WITH THIS PHASE (FILTERS 2 & 8 ADDITIONS).

(E) TRANSFORMER TF2 (EXISTING). 45KVA, 480–208/120V TRANSFORMER.

(F) PANEL LF4 (EXISTING). 125A, 208/120V, 3ø, 4W, 125A MAIN CIRCUIT BREAKER, 30 CIRCUIT DISTRIBUTION PANELBOARD. SEE LF4 PANEL SCHEDULE FOR CIRCUIT DETAILS. THE CONTRACTOR SHALL UTILIZE SPARE BREAKERS TO SUPPLY ALL NEW LOADS ASSOCIATED WITH THIS PHASE (FILTERS 2 & 8 ADDITIONS).

(G) PANEL LF5 (EXISTING). 125A, 208/120V, 3ø, 4W, 125A MAIN CIRCUIT BREAKER, 30 CIRCUIT DISTRIBUTION PANELBOARD. WORK ASSOCIATED WITH PANEL LF5 IS NOT INCLUDED IN THE SCOPE OF THIS PHASE. PANEL LF5 SHALL FEED FUTURE REHABILITATED FILTERS 9 & 10.

(H) PANEL LF2 (FUTURE). 125A, 208/120V, 3ø, 4W, 125A MAIN CIRCUIT BREAKER, 30 CIRCUIT DISTRIBUTION PANELBOARD. WORK ASSOCIATED WITH PANEL LF2 IS NOT INCLUDED IN THE SCOPE OF THIS PHASE. PANEL LF2 SHALL FEED FUTURE REHABILITATED FILTERS 3 & 4.

(I) PANEL LF3 (FUTURE). 125A, 208/120V, 3ø, 4W, 125A MAIN CIRCUIT BREAKER, 30 CIRCUIT DISTRIBUTION PANELBOARD. WORK ASSOCIATED WITH PANEL LF2 IS NOT INCLUDED IN THE SCOPE OF THIS PHASE. PANEL LF2 SHALL FEED FUTURE REHABILITATED FILTERS 5 & 6.

P1	3#8, 1#8 N, 1#10G IN A 1" C
P2	3#12, 1#12G IN A 3/4" C
P3	1#12, 1#12 N, 1#12G IN A 3/4" C

POWER CONDUIT AND CONDUCTOR SCHEDULE
SCALE: NONE

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20 22:31:38-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

POWER SINGLELINE

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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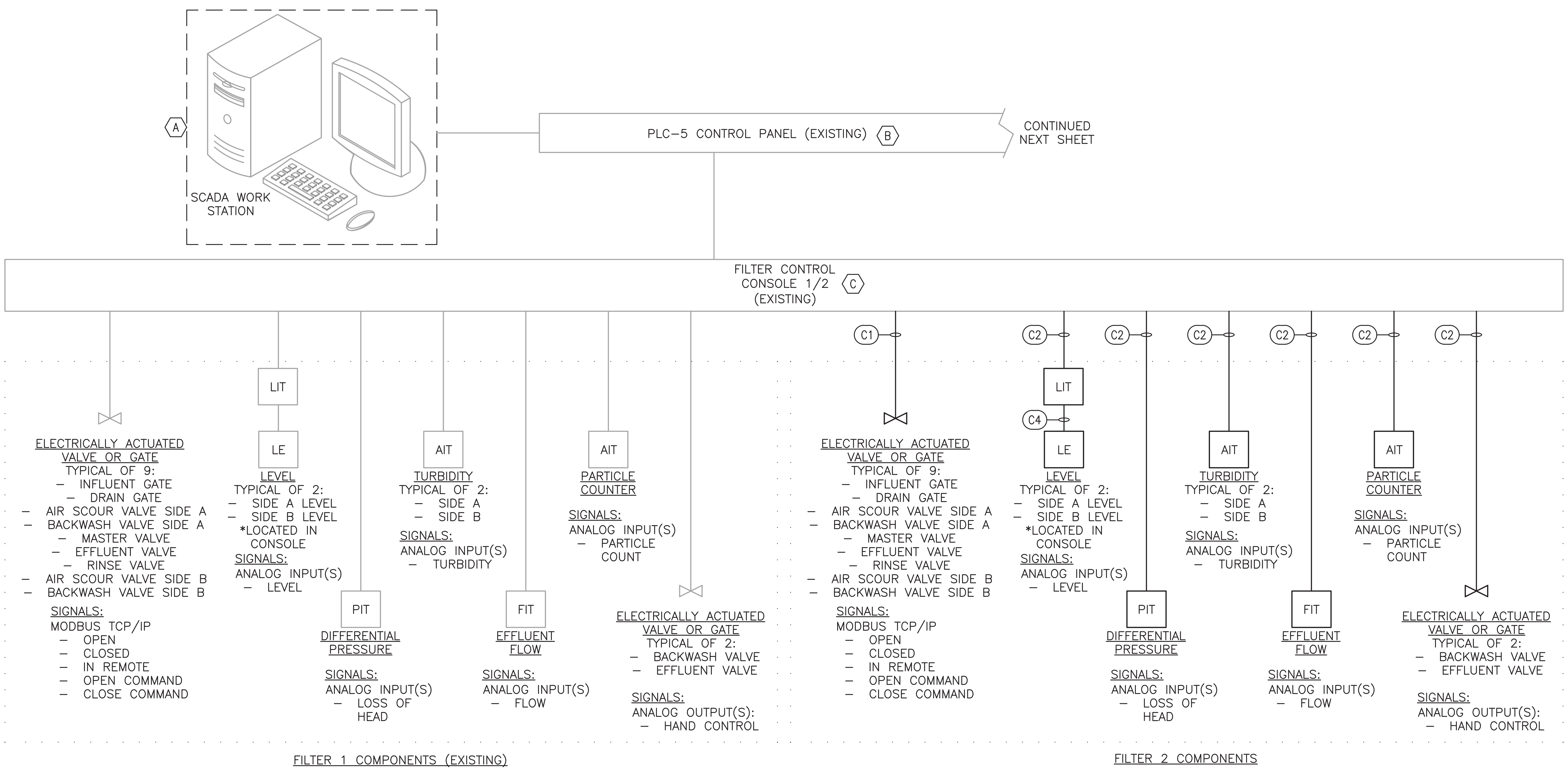

FILTER CONTROL CONSOLE 1/2 CONTROL SINGLE LINE DIAGRAM

SCALE: NONE

KEY NOTES:

(A) PLANT SCADA SYSTEM HMI (EXISTING). THE CONTRACTOR SHALL PROVIDE ALL HMI PROGRAMMING AND CONFIGURATION NECESSARY TO INCORPORATE THE NEW FILTERS INTO THE EXISTING PLANT SCADA SYSTEM HMI. INTEGRATION AND REPRESENTATION OF THE NEW FILTERS INTO THE PLANT HMI SHALL MATCH FILTERS 1 & 7 WHICH WERE RECENTLY REHABILITATED. ANY LICENSE OR TAG COUNT UPGRADES NECESSARY TO HANDLE THE INTEGRATION OF THE NEW FILTERS SHALL BE PROVIDED BY THE CONTRACTOR.

(B) PLC−5 CONTROL PANEL (EXISTING). THE CONTRACTOR SHALL PROVIDE ALL PLC PROGRAMMING NECESSARY TO INCORPORATE THE NEW FILTERS INTO THE OVERALL PLANT OPERATIONAL LOGIC. PROGRAMMING FOR THE NEW FILTERS SHALL MATCH WHAT WAS UTILIZED FOR THE PREVIOUS PROJECT FOR FILTERS 1 & 7.

(C) FILTER CONTROL CONSOLE 1/2 (EXISTING). THE EXISTING FILTER CONTROL CONSOLE SHALL BE MODIFIED BY THE CONTRACTOR TO INCORPORATE ALL OF THE VALVES, INSTRUMENTS, AND DEVICES AS SHOWN TO MONITOR AND CONTROL THE ADDITIONAL FILTER. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MODIFICATIONS, PLC PROGRAMMING, AND LOCAL HMI PROGRAMMING TO FULLY INCORPORATE ADDITIONAL FILTER COMPONENTS INTO THE CONTROL CONSOLE. WITHIN THE CONSOLE, AT A MINIMUM, THE CONTRACTOR SHALL ADD A NETWORK SWITCH TO FACILITATE INTERCONNECTION OF THE ADDITIONAL VALVES, PROVIDE POWER FOR THE LEVEL CONTROLLERS, AND PHYSICAL INSTALLATION OF THE LEVEL CONTROLLERS IN THE CONSOLE. ALL CONFIGURATION AND PROGRAMMING SHALL MATCH WHAT WAS USED IN THE PREVIOUS PROJECT FOR EXISTING FILTERS 1 & 7.

C1	CAT6E CABLE, 3/4" C
C2	2#16 TSP CABLE IN A 3/4" C
C3	FIBER OPTIC CABLE, MATCH EXISTING
C4	MANUFACTURER CABLE, CONDUIT AS REQ.

CONTROL CONDUIT AND CONDUCTOR SCHEDULE

SCALE: NONE

ISSUED FOR BID

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20 22:32:51-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB
DRAWN BY: RAM
CHECKED BY: AB
APPROVED BY: JD

FCC 1-2 CONTROL SINGLELINE

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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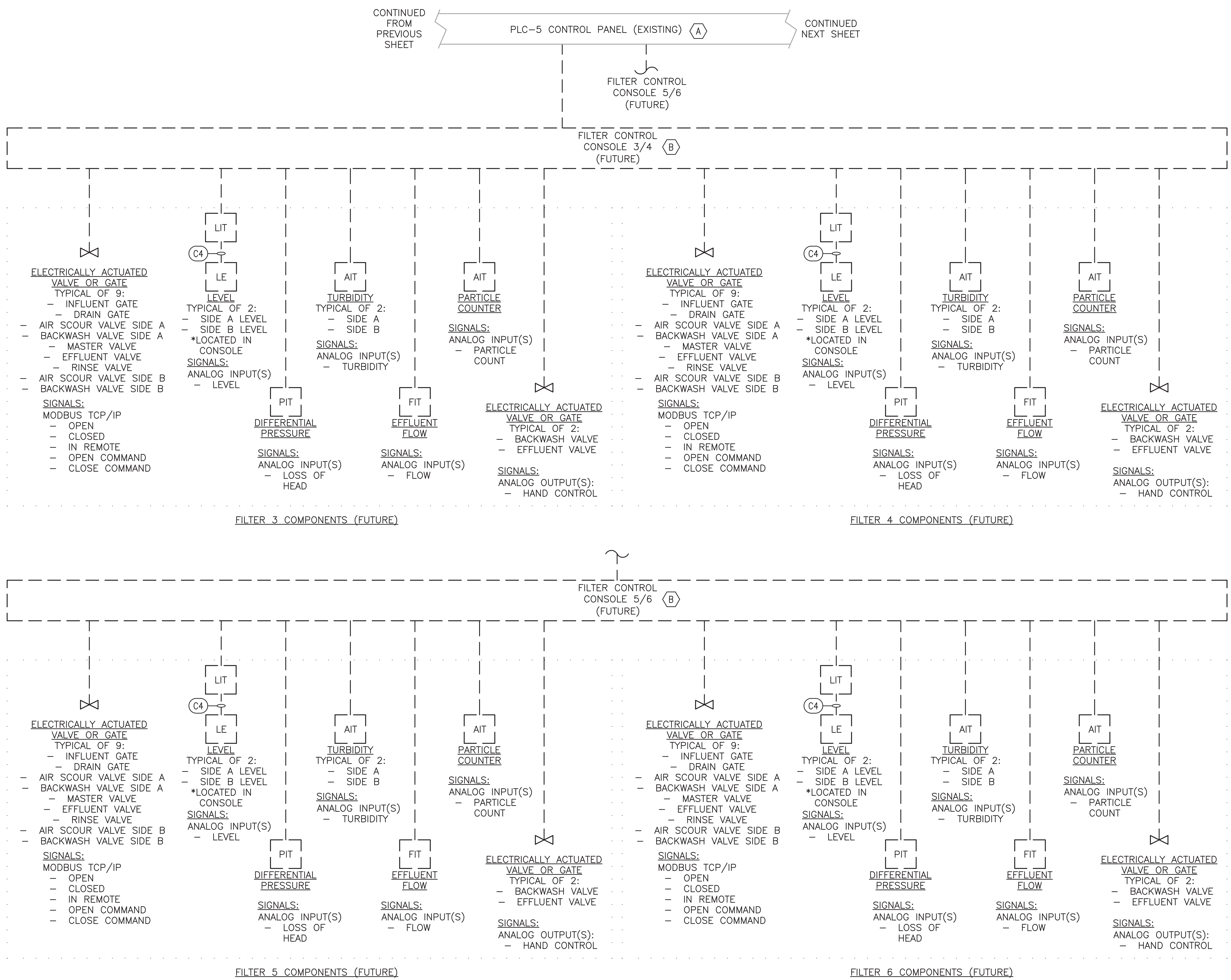

FILTER CONTROL CONSOLES 3/4 & 5/6 CONTROL SINGLE LINE DIAGRAM

SCALE: NONE

KEY NOTES:

(A) PLC-5 CONTROL PANEL (EXISTING). THE CONTRACTOR SHALL PROVIDE ALL PLC PROGRAMMING NECESSARY TO INCORPORATE THE NEW FILTERS INTO THE OVERALL PLANT OPERATIONAL LOGIC. PROGRAMMING FOR THE NEW FILTERS SHALL MATCH WHAT WAS UTILIZED FOR THE PREVIOUS PROJECT FOR FILTERS 1 & 7.

(B) FILTER CONTROL CONSOLE (FUTURE). WORK ASSOCIATED WITH THIS FILTER CONSOLE IS NOT INCLUDED IN THE SCOPE OF THIS PROJECT. IT HAS BEEN SHOWN TO DETAIL THE COMPLETE BUILD OUT FOR FILTER REHABILITATION.

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ENGINEER SEAL — GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON 2025.03.20 22:31:52-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

FCC 3-4 & FCC 5-6 CONTROL SINGLELINE

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life — AUGUSTA UTILITIES

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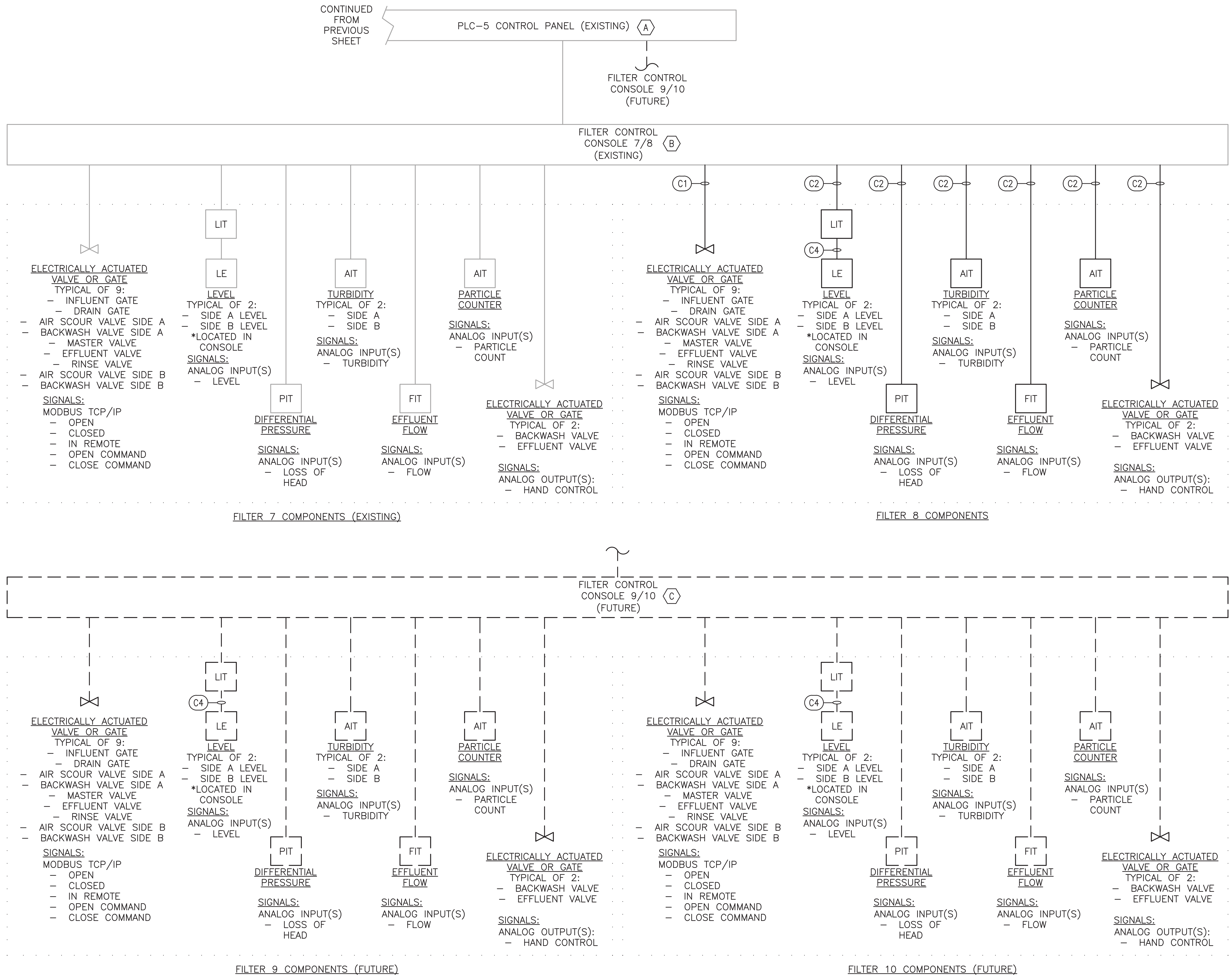

FILTER CONTROL CONSOLES 7/8 & 9/10 CONTROL SINGLE LINE DIAGRAM

SCALE: NONE

KEY NOTES:

(A) PLC-5 CONTROL PANEL (EXISTING). THE CONTRACTOR SHALL PROVIDE ALL PLC PROGRAMMING NECESSARY TO INCORPORATE THE NEW FILTERS INTO THE OVERALL PLANT OPERATIONAL LOGIC. PROGRAMMING FOR THE NEW FILTERS SHALL MATCH WHAT WAS UTILIZED FOR THE PREVIOUS PROJECT FOR FILTERS 1 & 7.

(B) FILTER CONTROL CONSOLE 7/8 (EXISTING). THE EXISTING FILTER CONTROL CONSOLE SHALL BE MODIFIED BY THE CONTRACTOR TO INCORPORATE ALL OF THE VALVES, INSTRUMENTS, AND DEVICES AS SHOWN TO MONITOR AND CONTROL THE ADDITIONAL FILTER. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MODIFICATIONS, PLC PROGRAMMING, AND LOCAL HMI PROGRAMMING TO FULLY INCORPORATE ADDITIONAL FILTER COMPONENTS INTO THE CONTROL CONSOLE. WITHIN THE CONSOLE, AT A MINIMUM, THE CONTRACTOR SHALL ADD A NETWORK SWITCH TO FACILITATE INTERCONNECTION OF THE ADDITIONAL VALVES, PROVIDE POWER FOR THE LEVEL CONTROLLERS, AND PHYSICAL INSTALLATION OF THE LEVEL CONTROLLERS IN THE CONSOLE. ALL CONFIGURATION AND PROGRAMMING SHALL MATCH WHAT WAS USED IN THE PREVIOUS PROJECT FOR EXISTING FILTERS 1 & 7.

(C) FILTER CONTROL CONSOLE 9/10 (FUTURE). WORK ASSOCIATED WITH THIS FILTER CONSOLE IS NOT INCLUDED IN THE SCOPE OF THIS PROJECT. IT HAS BEEN SHOWN TO DETAIL THE COMPLETE BUILD OUT FOR FILTER REHABILITATION.

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:32:07-05'00'

NO.	DATE	REVISION	BY	APVD

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FCC 7-8 & FCC 9-10 CONTROL SINGLELINE

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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AUGUSTA, GA. 30901
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GENERAL NOTES:

1. THE CONTRACTOR SHALL UTILIZE THE EXISTING SPARE BREAKERS LOCATED IN PANELS HF1 & HF2 TO PROVIDE POWER FOR THE LOADS ASSOCIATED WITH FILTERS 2 & 8. FUTURE LOADS FOR FILTERS 3, 4, 5, 6, 9 & 10 HAVE BEEN SHOWN FOR THE SUBSEQUENT PROJECT PHASES.

PANEL: HF1 (EXISTING)

3 PH 4 WIRE VOLTAGE L-L: 480 L-N: 277 MAIN: 125A MLO

LOCATION: FILTER GALLERY MOUNTING: SURFACE

CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	PHASE A	PHASE B	PHASE C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	3	*FILTER 1 SLUICE GATE SG-301I*	305	610			305	FILTER 4 SLUICE GATE SG-304I (FUTURE)	3	20	2
3	-	-		305		610		305		-	-	4
5	-	-		305			610	305		-	-	6
7	20	3	*FILTER 1 SLUICE GATE SG-301D*	305	610			305	FILTER 4 SLUICE GATE SG-304D (FUTURE)	3	20	8
9	-	-		305		610		305		-	-	10
11	-	-		305			610	305		-	-	12
13	20	3	FILTER 2 SLUICE GATE SG-302I	305	305			0	*SPARE*	3	50	14
15	-	-		305		305		0		-	-	16
17	-	-		305			305	0		-	-	18
19	20	3	FILTER 2 SLUICE GATE SG-302D	305	305			0	*SPARE*	3	20	20
21	-	-		305		305		0		-	-	22
23	-	-		305			305	0		-	-	24
25	20	3	FILTER 3 SLUICE GATE SG-303I (FUTURE)	305	8785			8480	*TRANSFORMER TF1*	3	50	26
27	-	-		305		5601		5296		-	-	28
29	-	-		305			5601	5296		-	-	30
31	20	3	FILTER 3 SLUICE GATE SG-303D (FUTURE)	305	305			0	SPACE	-	-	32
33	-	-		305		305		0	SPACE	-	-	34
35	-	-		305			305	0	SPACE	-	-	36
37	-	-	SPACE	0	0			0	SPACE	-	-	38
39	-	-	SPACE	0		0		0	SPACE	-	-	40
41	-	-	SPACE	0			0	0	SPACE	-	-	42
TOTAL LOAD(VA)/PHASE THIS PANEL:					10920	7736	7736					

TOTAL CONNECTED LOAD(VA) THIS PANEL: 26392 TOTAL CONNECTED LOAD (AMPS): 32

TOTAL DEMAND LOAD (VA) THIS PANEL: 21113.6 TOTAL DEMAND LOADS (AMPS): 25

NOTES:

1.

PANEL HF1 (EXISTING)

SCALE: NONE

PANEL: HF2 (EXISTING)

3 PH 4 WIRE VOLTAGE L-L: 480 L-N: 277 MAIN: 125A MLO

LOCATION: FILTER GALLERY MOUNTING: SURFACE

CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	PHASE A	PHASE B	PHASE C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	3	*FILTER 7 SLUICE GATE SG-301I*	305	610			305	FILTER 10 SLUICE GATE SG-310D (FUTURE)	3	20	2
3	-	-		305		610		305		-	-	4
5	-	-		305			610	305		-	-	6
7	20	3	*FILTER 7 SLUICE GATE SG-301D*	305	610			305	FILTER 5 SLUICE GATE SG-305D (FUTURE)	3	20	8
9	-	-		305		610		305		-	-	10
11	-	-		305			610	305		-	-	12
13	20	3	FILTER 8 SLUICE GATE SG-308I	305	610			305	FILTER 5 SLUICE GATE SG-305I (FUTURE)	3	50	14
15	-	-		305		610		305		-	-	16
17	-	-		305			610	305		-	-	18
19	20	3	FILTER 8 SLUICE GATE SG-308D	305	610			305	*SPARE*	3	20	20
21	-	-		305		610		305		-	-	22
23	-	-		305			610	305		-	-	24
25	20	3	FILTER 9 SLUICE GATE SG-309I (FUTURE)	305	8785			8480	*TRANSFORMER TF2*	3	40	26
27	-	-		305		5601		5296		-	-	28
29	-	-		305			5601	5296		-	-	30
31	20	3	FILTER 9 SLUICE GATE SG-309D (FUTURE)	305	610			305	FILTER 6 SLUICE GATE SG-306D (FUTURE)	3	20	32
33	-	-		305		610		305		-	-	34
35	-	-		305			610	305		-	-	36
37	20	3	FILTER 10 SLUICE GATE SG-310I (FUTURE)	305	610			305	FILTER 6 SLUICE GATE SG-306I (FUTURE)	3	50	38
39	-	-		305		610		305		-	-	40
41	-	-		305			610	305		-	-	42
TOTAL LOAD(VA)/PHASE THIS PANEL:					12445	9261	9261					

TOTAL CONNECTED LOAD(VA) THIS PANEL: 30967 TOTAL CONNECTED LOAD (AMPS): 37

TOTAL DEMAND LOAD (VA) THIS PANEL: 24773.6 TOTAL DEMAND LOADS (AMPS): 30

NOTES:

1.

PANEL HF2 (EXISTING)

SCALE: NONE

ENGINEER SEAL

GEORGIA REGISTERED No. 39545 PROFESSIONAL ENGINEER DANIEL C. STEVENSON

2025.03.20
22:33:20-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

HF PANEL SCHEDULES

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

FILE SEE LEFT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

DATE MARCH 2025

PROJ. 100339.11

DWG. E08

ISSUED FOR BID

PANEL:	LF1 (EXISTING)											
3 PH	4 WIRE		VOLTAGE	L-L: 208		L-N: 120		MAIN:	125A MCB			
LOCATION: FILTER GALLERY					PHASE	PHASE	PHASE		MOUNTING: SURFACE			
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	A	B	C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	1	FILTER 2 VALVE ACTUATOR - BFV-302AA	528	1056			528	*FILTER 1 VALVE ACTUATOR - BFV-301AA*	1	20	2
3	20	1	FILTER 2 VALVE ACTUATOR - BFV-302WA	696		1392		696	*FILTER 1 VALVE ACTUATOR - BFV-301WA*	1	20	4
5	20	1	FILTER 2 VALVE ACTUATOR - BFV-302M	696			1392	696	*FILTER 1 VALVE ACTUATOR - BFV-301M*	1	20	6
7	20	1	FILTER 2 VALVE ACTUATOR - FCV-302E	696	1392			696	*FILTER 1 VALVE ACTUATOR - FCV-301E*	1	20	8
9	20	1	FILTER 2 VALVE ACTUATOR - BFV-302R	528		1056		528	*FILTER 1 VALVE ACTUATOR - BFV-301R*	1	20	10
11	20	1	FILTER 2 VALVE ACTUATOR - BFV-302AB	528			1056	528	*FILTER 1 VALVE ACTUATOR - BFV-301AB*	1	20	12
13	20	1	FILTER 2 VALVE ACTUATOR - BFV-302WB	696	1392			696	*FILTER 1 VALVE ACTUATOR - BFV-301WB*	1	20	14
15	20	1	FILTER 2 SIDE A TURBIDITY - AIT-302A	100		200		100	*FILTER 1 SIDE A TURBIDITY - AIT-301A*	1	20	16
17	20	1	FILTER 2 SIDE B TURBIDITY - AIT-302B	100			200	100	*FILTER 1 SIDE B TURBIDITY - AIT-301B*	1	20	18
19	20	1	FILTER 2 PARTICLE COUNTER - AIT-302C	200	400			200	*FILTER 1 PARTICLE COUNTER - AIT-301C*	1	20	20
21	20	1	*SPARE*	0		0		0	*SPARE*	1	20	22
23	20	1	*SPARE*	0			0	0	*SPARE*	1	20	24
25	20	1	*SPARE*	0	0			0	*SPARE*	1	20	26
27	20	1	*SPARE*	0		0		0	*SPARE*	1	20	28
29	20	1	*SPARE*	0			0	0	*SPARE*	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					4240	2648	2648					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					9536	TOTAL CONNECTED LOAD (AMPS):				26		
TOTAL DEMAND LOAD (VA) THIS PANEL:					7628.8	TOTAL DEMAND LOADS (AMPS):				21		
NOTES:												
1.												

PANEL LF1 (EXISTING)

SCALE: NONE

PANEL:	LF2 (FUTURE)											
3 PH	4 WIRE		VOLTAGE	L-L: 208		L-N: 120		MAIN:	125A MCB			
LOCATION: FILTER GALLERY					PHASE	PHASE	PHASE		MOUNTING: SURFACE			
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	A	B	C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	1	FILTER 4 VALVE ACTUATOR - BFV-304AA	528	1056			528	FILTER 3 VALVE ACTUATOR - BFV-303AA	1	20	2
3	20	1	FILTER 4 VALVE ACTUATOR - BFV-304WA	696		1392		696	FILTER 3 VALVE ACTUATOR - BFV-303WA	1	20	4
5	20	1	FILTER 4 VALVE ACTUATOR - BFV-304M	696			1392	696	FILTER 3 VALVE ACTUATOR - BFV-303M	1	20	6
7	20	1	FILTER 4 VALVE ACTUATOR - FCV-304E	696	1392			696	FILTER 3 VALVE ACTUATOR - FCV-303E	1	20	8
9	20	1	FILTER 4 VALVE ACTUATOR - BFV-304R	528		1056		528	FILTER 3 VALVE ACTUATOR - BFV-303R	1	20	10
11	20	1	FILTER 4 VALVE ACTUATOR - BFV-304AB	528			1056	528	FILTER 3 VALVE ACTUATOR - BFV-303AB	1	20	12
13	20	1	FILTER 4 VALVE ACTUATOR - BFV-304WB	696	1392			696	FILTER 3 VALVE ACTUATOR - BFV-303WB	1	20	14
15	20	1	FILTER 4 SIDE A TURBIDITY - AIT-304A	100		200		100	FILTER 3 SIDE A TURBIDITY - AIT-303A	1	20	16
17	20	1	FILTER 4 SIDE B TURBIDITY - AIT-304B	100			200	100	FILTER 3 SIDE B TURBIDITY - AIT-303B	1	20	18
19	20	1	FILTER 4 PARTICLE COUNTER - AIT-304C	200	400			200	FILTER 3 PARTICLE COUNTER - AIT-303C	1	20	20
21	20	1	SPARE	0		0		0	SPARE	1	20	22
23	20	1	SPARE	0			0	0	SPARE	1	20	24
25	20	1	SPARE	0	0			0	SPARE	1	20	26
27	20	1	SPARE	0		0		0	SPARE	1	20	28
29	20	1	SPARE	0			0	0	SPARE	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					4240	2648	2648					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					9536	TOTAL CONNECTED LOAD (AMPS):				26		
TOTAL DEMAND LOAD (VA) THIS PANEL:					7628.8	TOTAL DEMAND LOADS (AMPS):				21		
NOTES:												
1.												

PANEL LF2 (FUTURE)

SCALE: NONE

GENERAL NOTES:

1. THE CONTRACTOR SHALL UTILIZE EXISTING SPARE BREAKERS LOCATED IN PANEL LF1 TO PROVIDE POWER FOR THE LOADS ASSOCIATED WITH FILTER 2.
2. PANEL LF2, WHICH WILL PROVIDE POWER FOR LOADS ASSOCIATED WITH FILTERS 3 & 4 IN A SUBSEQUENT PROJECT PHASE, WILL NOT BE PROVIDED AS PART OF THIS PROJECT.

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:36:03-05'00'

NO.	DATE	REVISION	BY	APVD
DESIGNED BY: JB	DRAWN BY: RAM	CHECKED BY: AB	APPROVED BY: JD	

LF1 & LF2 PANEL SCHEDULES

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
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AUGUSTA, GA 30901
PH (706) 664-0664
COA: PEF004730
EXP. 06/30/2026

FILE	SEE LEFT
	VERIFY SCALE
	BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"
DATE	MARCH 2025
PROJ.	100339.11
DWG.	E09

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H:\PROJECT FILES\100339 - AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS - 2EL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\07 ELECTRICAL\SCHEDULES.DWG

PANEL: LF3 (FUTURE)												
3 PH		4 WIRE	VOLTAGE	L-L: 208			L-N: 120	MAIN:	125A MCB			
LOCATION: FILTER GALLERY					PHASE	PHASE	PHASE		MOUNTING: SURFACE			
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	A	B	C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	1	FILTER 6 VALVE ACTUATOR - BFV-306AA	528	1056			528	FILTER 5 VALVE ACTUATOR - BFV-305AA	1	20	2
3	20	1	FILTER 6 VALVE ACTUATOR - BFV-306WA	696		1392		696	FILTER 5 VALVE ACTUATOR - BFV-305WA	1	20	4
5	20	1	FILTER 6 VALVE ACTUATOR - BFV-306M	696			1392	696	FILTER 5 VALVE ACTUATOR - BFV-305M	1	20	6
7	20	1	FILTER 6 VALVE ACTUATOR - FCV-306E	696	1392			696	FILTER 5 VALVE ACTUATOR - FCV-305E	1	20	8
9	20	1	FILTER 6 VALVE ACTUATOR - BFV-306R	528		1056		528	FILTER 5 VALVE ACTUATOR - BFV-305R	1	20	10
11	20	1	FILTER 6 VALVE ACTUATOR - BFV-306AB	528			1056	528	FILTER 5 VALVE ACTUATOR - BFV-305AB	1	20	12
13	20	1	FILTER 6 VALVE ACTUATOR - BFV-306WB	696	1392			696	FILTER 5 VALVE ACTUATOR - BFV-305WB	1	20	14
15	20	1	FILTER 6 SIDE A TURBIDITY - AIT-306A	100		200		100	FILTER 5 SIDE A TURBIDITY - AIT-305A	1	20	16
17	20	1	FILTER 6 SIDE B TURBIDITY - AIT-306B	100			200	100	FILTER 5 SIDE B TURBIDITY - AIT-305B	1	20	18
19	20	1	FILTER 6 PARTICLE COUNTER - AIT-306C	200	400			200	FILTER 5 PARTICLE COUNTER - AIT-305C	1	20	20
21	20	1	SPARE	0		0		0	SPARE	1	20	22
23	20	1	SPARE	0			0	0	SPARE	1	20	24
25	20	1	SPARE	0	0			0	SPARE	1	20	26
27	20	1	SPARE	0		0		0	SPARE	1	20	28
29	20	1	SPARE	0			0	0	SPARE	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					4240	2648	2648					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					9536		TOTAL CONNECTED LOAD (AMPS):			26		
TOTAL DEMAND LOAD (VA) THIS PANEL:					7628.8		TOTAL DEMAND LOADS (AMPS):			21		
NOTES: 1.												

PANEL LF3 (FUTURE)

SCALE: NONE

PANEL: LF4 (EXISTING)												
3 PH		4 WIRE	VOLTAGE	L-L: 208			L-N: 120	MAIN:	80A MCB			
LOCATION: FILTER GALLERY					PHASE	PHASE	PHASE		MOUNTING: SURFACE			
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	A	B	C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	40	1	*PANEL LF5*	0	528			528	*FILTER 7 VALVE ACTUATOR - BFV-307AA*	1	20	2
3	-	-		0		696		696	*FILTER 7 VALVE ACTUATOR - BFV-307WA*	1	20	4
5	-	-		0			696	696	*FILTER 7 VALVE ACTUATOR - BFV-307M*	1	20	6
7	20	1	FILTER 8 VALVE ACTUATOR - BFV-308AA	528	1224			696	*FILTER 7 VALVE ACTUATOR - BFV-307E*	1	20	8
9	20	1	FILTER 8 VALVE ACTUATOR - BFV-308WA	696		1224		528	*FILTER 7 VALVE ACTUATOR - BFV-307R*	1	20	10
11	20	1	FILTER 8 VALVE ACTUATOR - BFV-308M	696			1224	528	*FILTER 7 VALVE ACTUATOR - BFV-307AB*	1	20	12
13	20	1	FILTER 8 VALVE ACTUATOR - BFV-308E	696	1392			696	*FILTER 7 VALVE ACTUATOR - BFV-307WB*	1	20	14
15	20	1	FILTER 8 VALVE ACTUATOR - BFV-308R	528		628		100	*FILTER 7 SIDE A TURBIDITY - AIT-307A*	1	20	16
17	20	1	FILTER 8 VALVE ACTUATOR - BFV-308AB	528			628	100	*FILTER 7 SIDE B TURBIDITY - AIT-307B*	1	20	18
19	20	1	FILTER 8 VALVE ACTUATOR - BFV-308WB	696	896			200	*FILTER 7 PARTICLE COUNTER - AIT-307C*	1	20	20
21	20	1	FILTER 8 SIDE A TURBIDITY - AIT-308A	100		100		0	*SPARE*	1	20	22
23	20	1	FILTER 8 SIDE B TURBIDITY - AIT-308B	100			100	0	*SPARE*	1	20	24
25	20	1	FILTER 8 PARTICLE COUNTER - AIT-308C	200	200			0	*SPARE*	1	20	26
27	20	1	*SPARE*	0		0		0	*SPARE*	1	20	28
29	20	1	*SPARE*	0			0	0	*SPARE*	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					4240	2648	2648					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					9536		TOTAL CONNECTED LOAD (AMPS):			26		
TOTAL DEMAND LOAD (VA) THIS PANEL:					7628.8		TOTAL DEMAND LOADS (AMPS):			21		
NOTES: 1.												

PANEL LF4 (EXISTING)

SCALE: NONE

GENERAL NOTES:

1. THE CONTRACTOR SHALL UTILIZE EXISTING SPARE BREAKERS LOCATED IN PANEL LF4 TO PROVIDE POWER FOR THE LOADS ASSOCIATED WITH FILTER 8.
2. PANEL LF3, WHICH WILL PROVIDE POWER FOR LOADS ASSOCIATED WITH FILTERS 5 & 6 IN A SUBSEQUENT PROJECT PHASE, WILL NOT BE PROVIDED AS PART OF THIS PROJECT.

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20 22:36:19-05'00'

NO. | DATE | REVISION | BY | APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD

LF3 & LF4 PANEL SCHEDULES

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life AUGUSTA UTILITIES

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AUGUSTA, GA 30901
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COA: PEF004730
EXP: 06/30/2026

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0 1"
DATE MARCH 2025
PROJ. 100339.11
DWG. E10

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PANEL: LF5 (EXISTING)												
3 PH		4 WIRE	VOLTAGE	L-L: 208		L-N: 120		MAIN:	60A MCB			
LOCATION: FILTER GALLERY					PHASE	PHASE	PHASE		MOUNTING: SURFACE			
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	A	B	C	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	1	FILTER 10 VALVE ACTUATOR - BFV-310AA	528	1056			528	FILTER 9 VALVE ACTUATOR - BFV-309AA	1	20	2
3	20	1	FILTER 10 VALVE ACTUATOR - BFV-310WA	696		1392		696	FILTER 9 VALVE ACTUATOR - BFV-309WA	1	20	4
5	20	1	FILTER 10 VALVE ACTUATOR - BFV-310M	696			1392	696	FILTER 9 VALVE ACTUATOR - BFV-309M	1	20	6
7	20	1	FILTER 10 VALVE ACTUATOR - BFV-310E	696	1392			696	FILTER 9 VALVE ACTUATOR - BFV-309E	1	20	8
9	20	1	FILTER 10 VALVE ACTUATOR - BFV-310R	528		1056		528	FILTER 9 VALVE ACTUATOR - BFV-309R	1	20	10
11	20	1	FILTER 10 VALVE ACTUATOR - BFV-310AB	528			1056	528	FILTER 9 VALVE ACTUATOR - BFV-309AB	1	20	12
13	20	1	FILTER 10 VALVE ACTUATOR - BFV-310WB	696	1392			696	FILTER 9 VALVE ACTUATOR - BFV-309WB	1	20	14
15	20	1	FILTER 10 SIDE A TURBIDITY - AIT-310A	100		200		100	FILTER 9 SIDE A TURBIDITY - AIT-309A	1	20	16
17	20	1	FILTER 10 SIDE B TURBIDITY - AIT-310B	100			200	100	FILTER 9 SIDE B TURBIDITY - AIT-309B	1	20	18
19	20	1	FILTER 10 PARTICLE COUNTER - AIT-310C	200	400			200	FILTER 9 PARTICLE COUNTER - AIT-309C	1	20	20
21	20	1	SPARE	0		0		0	SPARE	1	20	22
23	20	1	SPARE	0			0	0	SPARE	1	20	24
25	20	1	SPARE	0	0			0	SPARE	1	20	26
27	20	2	*GATE MOTOR*	1920		1920		0	SPARE	1	20	28
29	-	-		1920			1920	0	SPARE	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					4240	4568	4568					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					13376		TOTAL CONNECTED LOAD (AMPS):			37		
TOTAL DEMAND LOAD (VA) THIS PANEL:					10700.8		TOTAL DEMAND LOADS (AMPS):			30		

NOTES:

1.

PANEL LF5 (EXISTING)

SCALE: NONE

GENERAL NOTES:

1. EXISTING PANEL LF5 WILL PROVIDE POWER FOR LOADS ASSOCIATED WITH FILTERS 9 & 10 IN A SUBSEQUENT PROJECT PHASE. INTERCONNECTION WITH THIS PANEL IS NOT REQUIRED FOR THIS PROJECT.

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:36:33-05'00'

NO.	DATE	BY	REVISION	APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

LF5 PANEL SCHEDULE

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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AUGUSTA, GA 30901
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COA: PEF004730
EXP: 06/30/2026

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BAR IS ONE INCH ON ORIGINAL DRAWING
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DATE MARCH 2025

PROJ. 100339.11

DWG. E11

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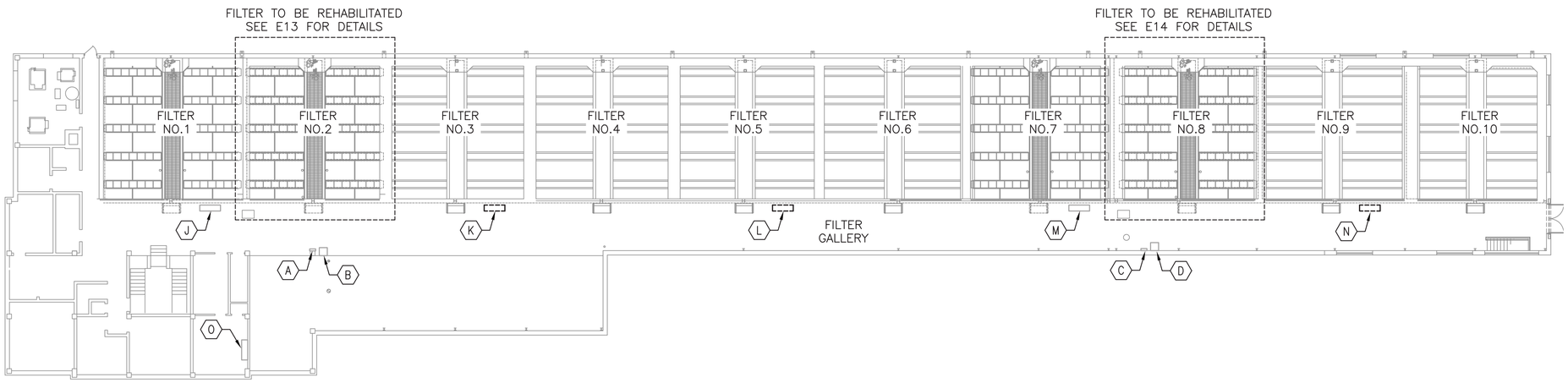
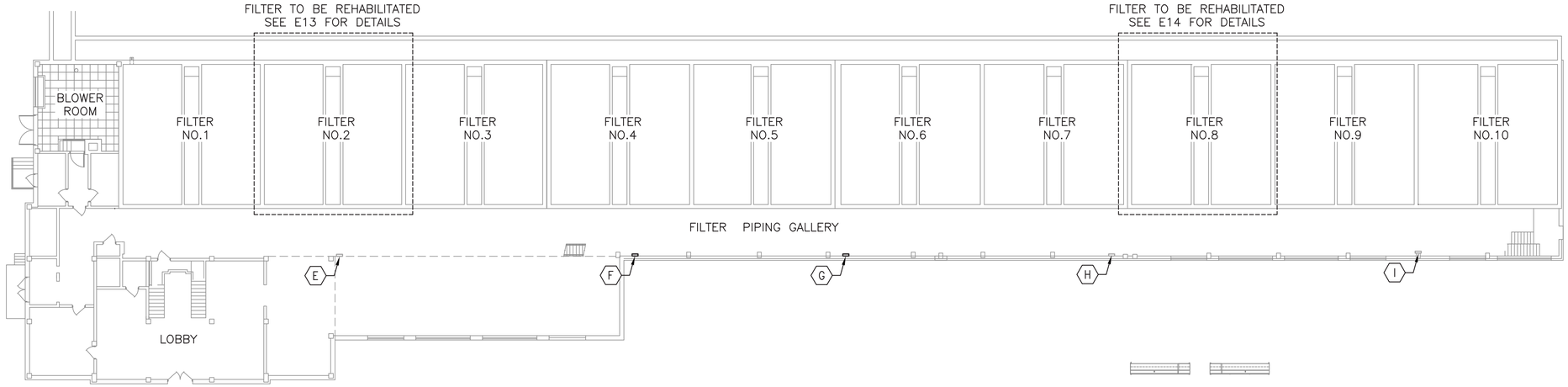
H:\PROJECT FILES\100339 – AUGUSTA UTILITIES DEPARTMENT\100339.11 AUD HIGHLAND AVENUE WTP FILTER MODIFICATIONS – ZEL-2102-00\300 DESIGN\355 PRELIMINARY DRAWINGS\07 ELECTRICAL\SCHEDULES.DWG



EAST FILTER BUILDING OPERATING FLOOR ELECTRICAL PLAN

SCALE: 1/16" = 1'-0"



EAST FILTER BUILDING FIRST FLOOR ELECTRICAL PLAN

SCALE: 1/16" = 1'-0"

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR REQUIRED FOR THE INSTALLATION OF FILTERS 2 & 8 AS DETAILED ON THE PROJECT PLANS. FILTERS 1 & 7 WERE COMPLETED ON A PREVIOUS PROJECT. FILTERS 3, 4, 5, 6, 9, & 10 ARE NOT INCLUDED IN THIS PROJECT AND HAVE BEEN SHOWN FOR CLARITY. THE MATERIAL TYPES, INSTALLATION METHODS, AND QUALITY OF WORK PERFORMED FOR FILTERS 1 & 7 SHALL BE IMPLEMENTED FOR FILTERS 2 & 8.

KEY NOTES:

- (A) PANEL HF1 (EXISTING)
- (B) TRANSFORMER TF1 (EXISTING)
- (C) PANEL HF2 (EXISTING)
- (D) TRANSFORMER TF2 (EXISTING)
- (E) PANEL LF1 (EXISTING)
- (F) PANEL LF2 (FUTURE)
- (G) PANEL LF3 (FUTURE)
- (H) PANEL LF4 (EXISTING)
- (I) PANEL LF5 (EXISTING)
- (J) FILTER CONTROL CONSOLE 1/2 (FCC 1/2) (EXISTING)
- (K) FILTER CONTROL CONSOLE 3/4 (FCC 3/4) (FUTURE)
- (L) FILTER CONTROL CONSOLE 5/6 (FCC 5/6) (FUTURE)
- (M) FILTER CONTROL CONSOLE 7/8 (FCC 7/8) (EXISTING)
- (N) FILTER CONTROL CONSOLE 9/10 (FCC 9/10) (FUTURE)
- (O) PLC-5 CONTROL PANEL (EXISTING)

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ENGINEER SEAL

GEORGIA REGISTERED No. 39545 PROFESSIONAL ENGINEER DANIEL C. STEVENSON

2025.03.20 22:36:46-05'00'

NO.	REVISION	BY	APVD

DESIGNED BY: JB | DRAWN BY: RAM | CHECKED BY: AB | APPROVED BY: JD | DATE

ELECTRICAL FILTER FLOOR PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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AUGUSTA, GA. 30901
PH (706) 664-0664
GA. AUTHORIZATION
EXP. 06/30/2026

FILE	SEE LEFT
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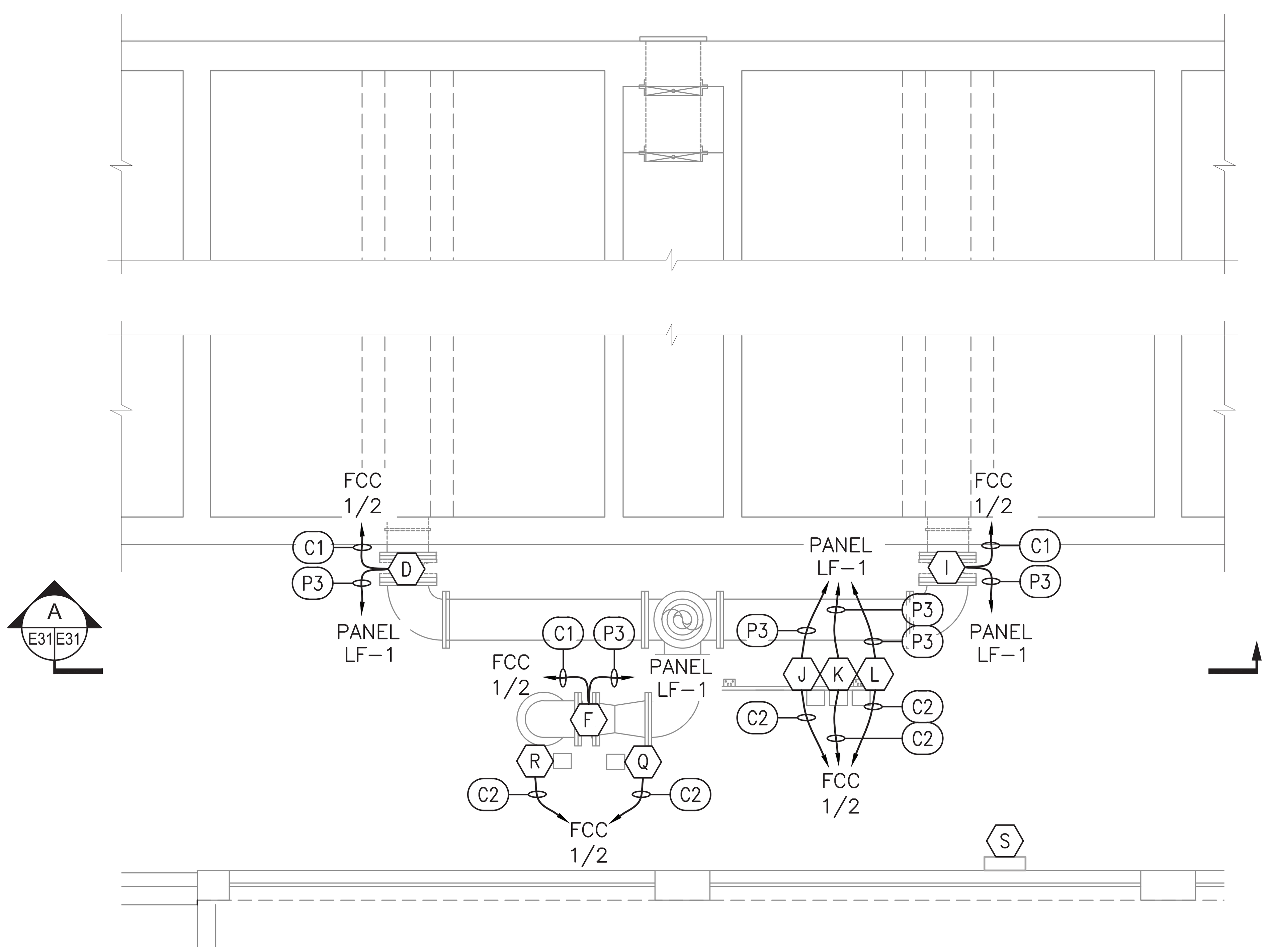
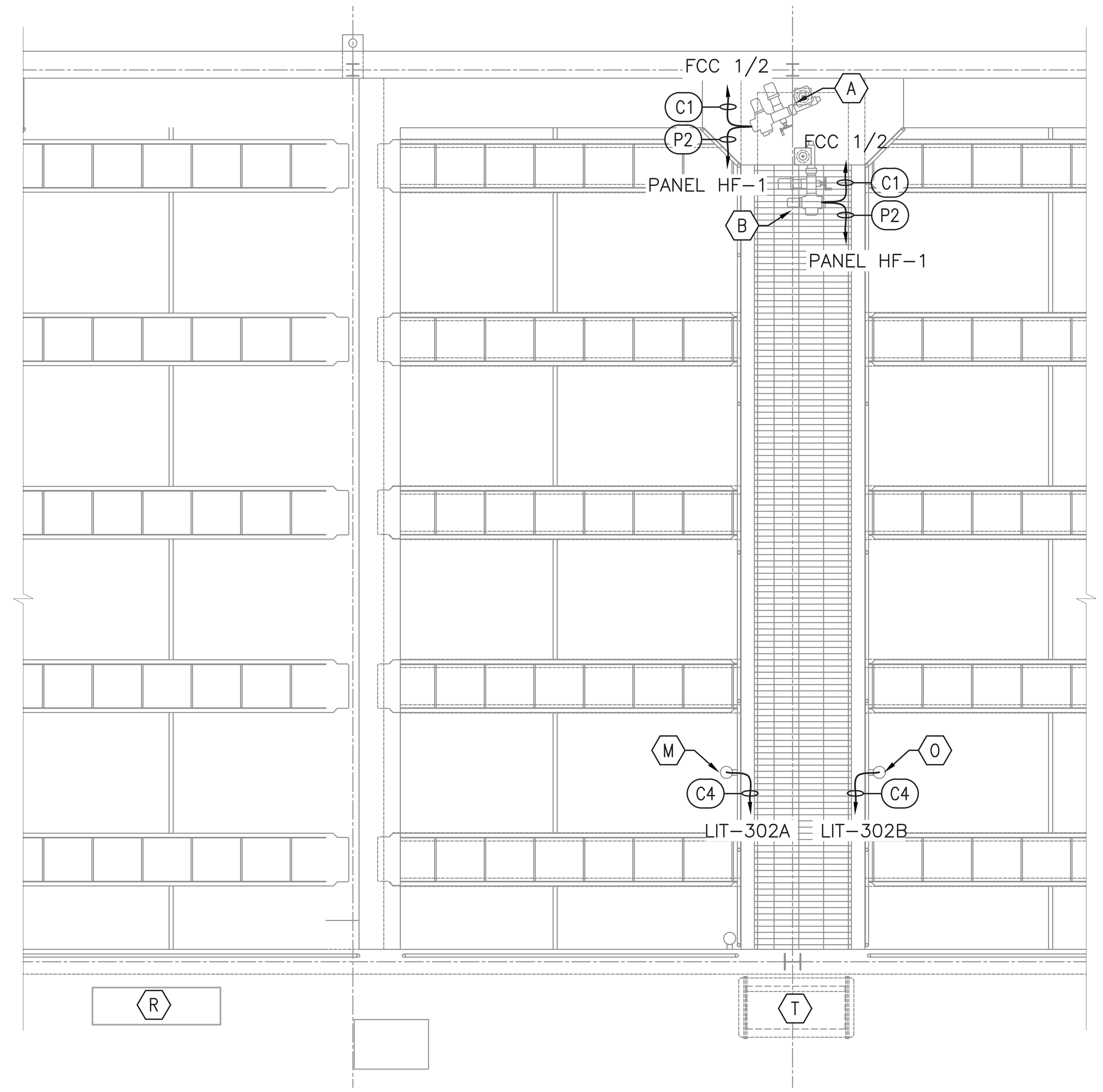
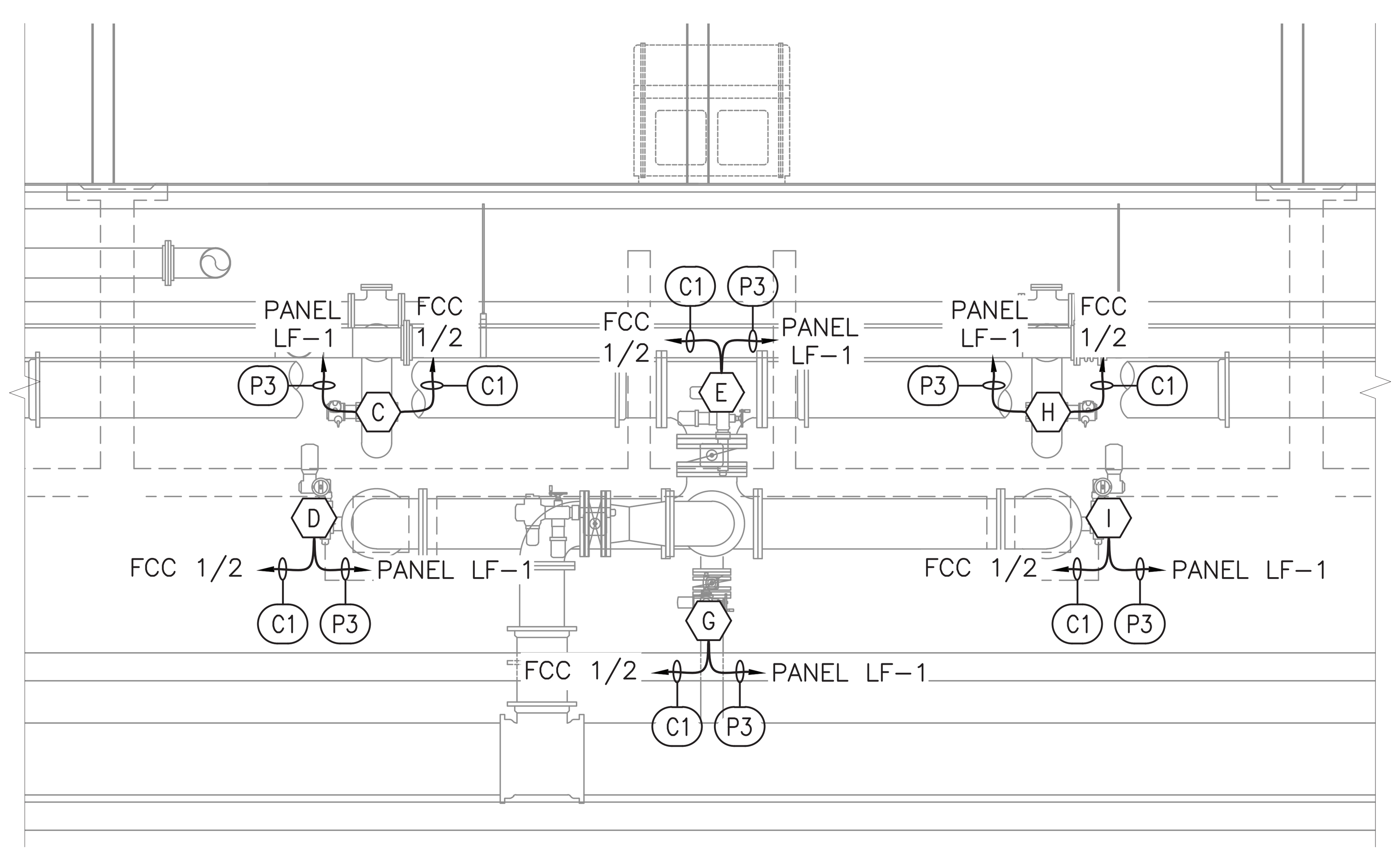
	BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"
DATE	
PROJ.	100339.11
DWG.	E12



FILTER NO.2 LOWER LEVEL ELECTRICAL PLAN
SCALE: 1/4" = 1'–0"



FILTER NO.2 UPPER LEVEL ELECTRICAL PLAN
SCALE: 1/4" = 1'–0"



A FILTER NO.2 SECTION ELECTRICAL PLAN
SCALE: 1/4" = 1'–0"

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR REQUIRED FOR THE INSTALLATION OF FILTER 2 AS DETAILED ON THE PROJECT PLANS.
2. USE STAINLESS STEEL UNISTRUT MOUNTED TO HANDRAILS TO SUPPORT INSTRUMENTATION.
3. THE CONTRACTOR SHALL REMOVE THE EXISTING FILTER 2 CONSOLE AND OLD INSTRUMENTATION. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING DISPOSAL OF ALL MATERIALS ALL MATERIALS.
4. PVC COATED CONDUIT SHALL BE UTILIZED IN THE FILTER GALLERY TO MATCH EXISTING.
5. RIGID INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED IN IN THE FILTER PIPE GALLERY TO MATCH EXISTING.
6. SEE DRAWING M09 FOR TURBIDITY AND PARTICLE COUNTER INSTRUMENTATION RACK DETAIL.

KEY NOTES:

- (A) INFLUENT SLUICE GATE SG–302I
- (B) DRAIN SLUICE GATE SG–302D
- (C) AIR SCOUR VALVE SIDE A BFV–302AA
- (D) BACKWASH VALVE SIDE A BFV–302WA
- (E) MASTER VALVE BFV–302M
- (F) EFFLUENT VALVE FCV–302E
- (G) RINSE VALVE BFV–302R
- (H) AIR SCOUR VALVE SIDE B BFV–302AB
- (I) BACKWASH VALVE SIDE B BFV–302WB
- (J) TURBIDITY METER, SIDE A AIT–302A
- (K) TURBIDITY METER, SIDE B AIT–302B
- (L) PARTICLE COUNTER AIT–302C
- (M) SIDE A LEVEL TRANSDUCER LE–302A
- (N) SIDE A LEVEL CONTROLLER LIT–302A
- (O) SIDE B LEVEL TRANSDUCER LE–302B
- (P) SIDE B LEVEL CONTROLLER LIT–302B
- (Q) EFFLUENT FLOW FIT–302
- (R) DIFFERENTIAL PRESSURE (HEAD LOSS) PDIT–302
- (R) FILTER CONTROL CONSOLE 1/2 (FCC 1/2) (EXISTING)
- (S) PANEL LF–1 (EXISTING)
- (T) EXISTING FILTER CONTROL CONSOLE. TO BE REMOVED.

ENGINEER SEAL
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON
2025.03.20
22:37:00-05'00'

NO.	DATE	REVISION	BY	APVD
DESIGNED BY: JB	DRAWN BY: RAM	CHECKED BY: AB	APPROVED BY: JD	

FILTER 2 ELECTRICAL PLAN

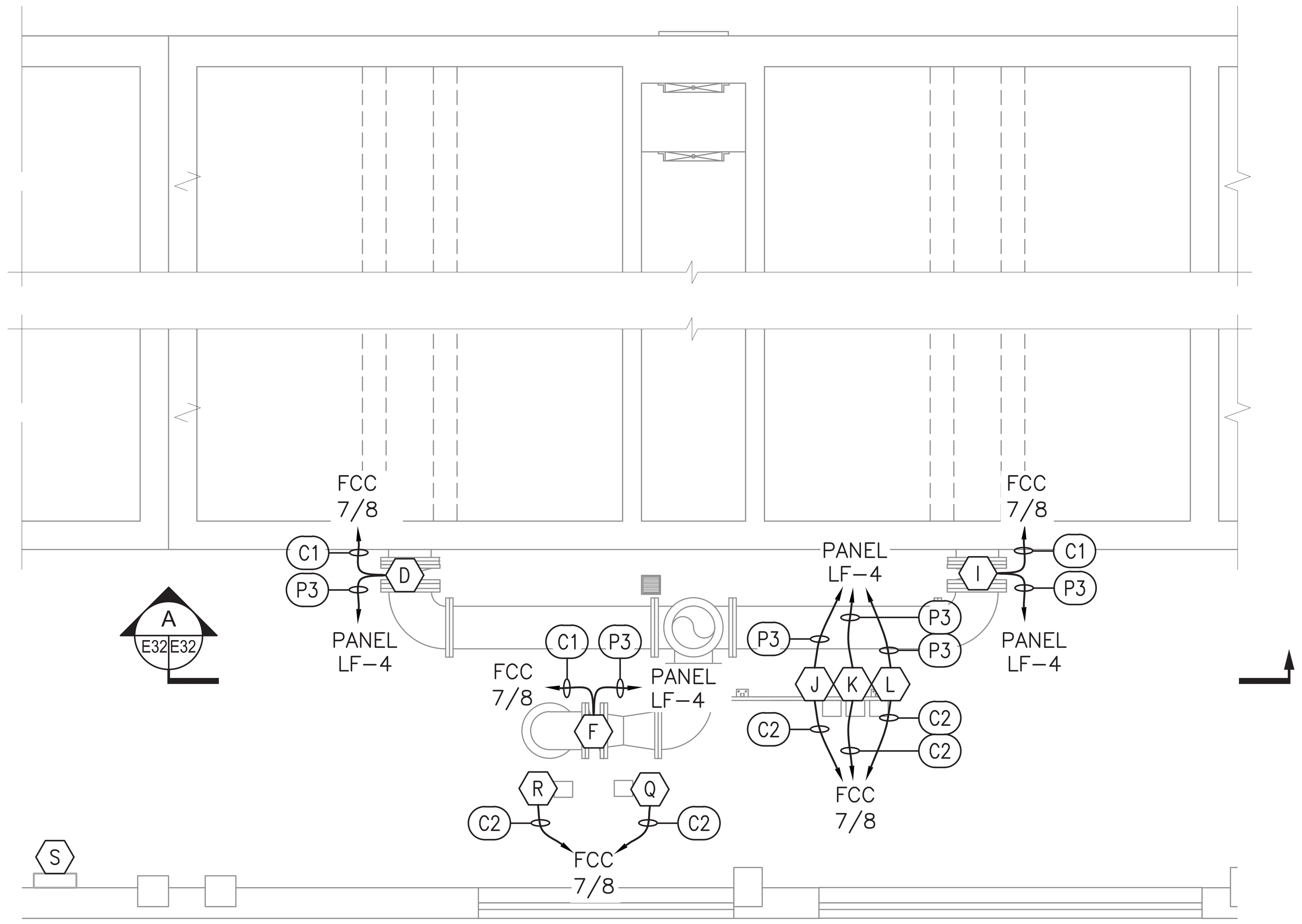
AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

Water Is Life
AUGUSTA UTILITIES

ARDURRA
COLLABORATE. INNOVATE. CREATE.
973 BROAD STREET, SUITE A
AUGUSTA, GA. 30901
PH (706) 664-0664
COA: PEF004730
EXP: 06/30/2026

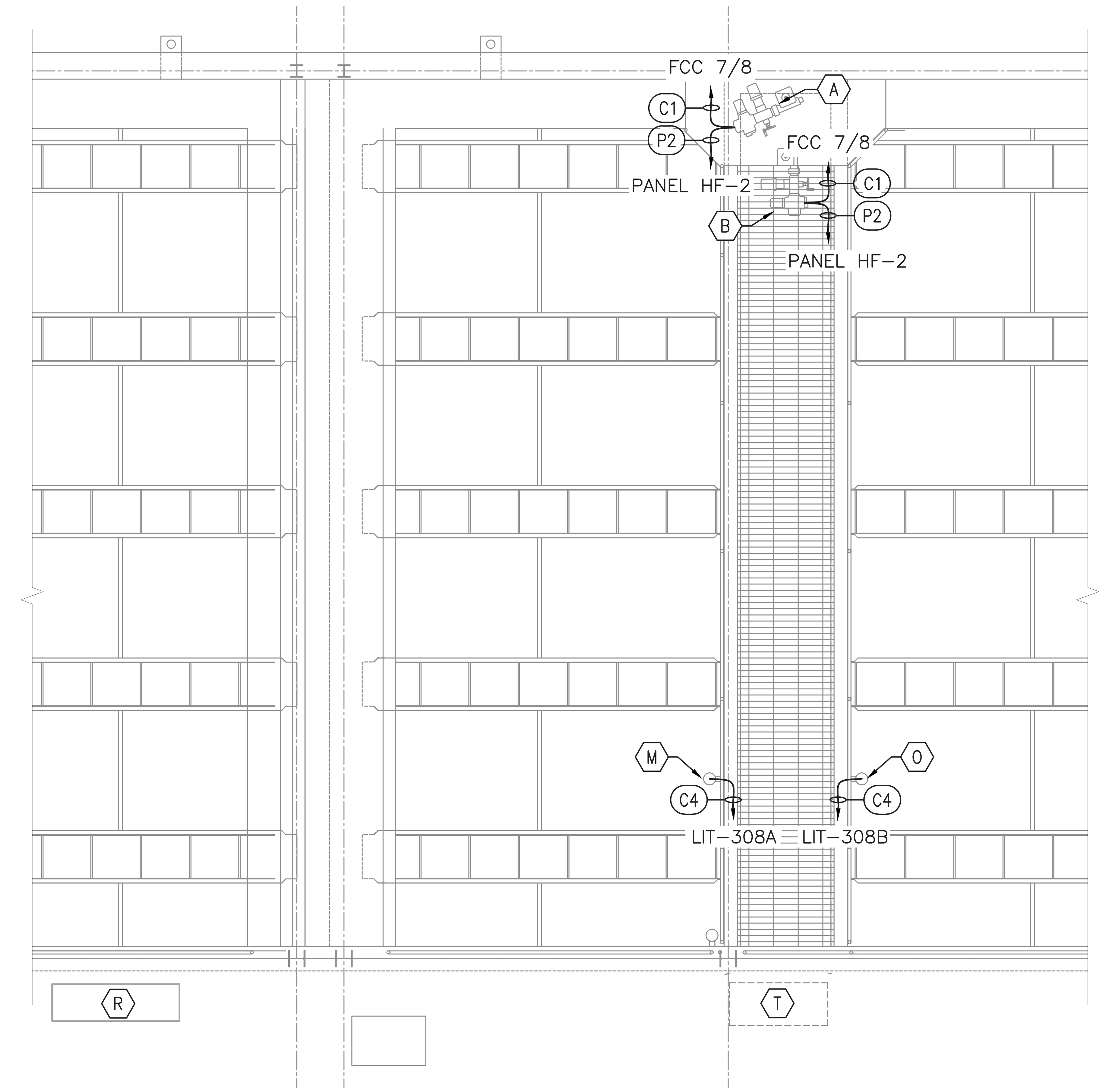
FILE SEE LEFT
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
DATE MARCH 2025
PROJ. 100339.11
DWG. E13

ISSUED FOR BID



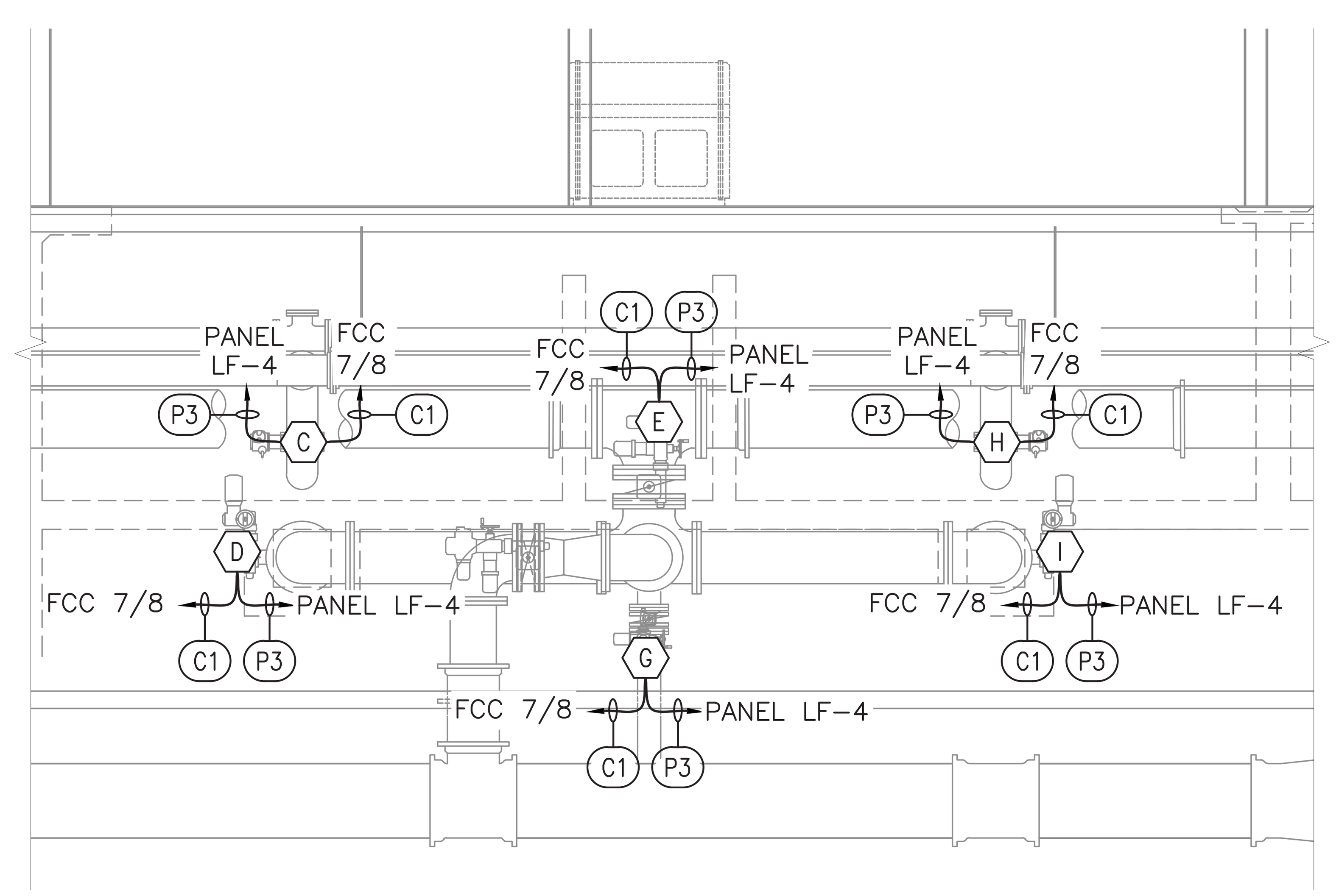
FILTER NO.8 LOWER LEVEL ELECTRICAL PLAN

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



FILTER NO.8 UPPER LEVEL ELECTRICAL PLAN

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



A FILTER NO.8 SECTION ELECTRICAL PLAN

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

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR REQUIRED FOR THE INSTALLATION OF FILTER 8 AS DETAILED ON THE PROJECT PLANS.
2. USE STAINLESS STEEL UNISTRUT MOUNTED TO HANDRAILS TO SUPPORT INSTRUMENTATION.
3. THE CONTRACTOR SHALL REMOVE THE EXISTING FILTER 8 CONSOLE AND OLD INSTRUMENTATION. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING DISPOSAL OF ALL MATERIALS ALL MATERIALS.
4. PVC COATED CONDUIT SHALL BE UTILIZED IN THE FILTER GALLERY TO MATCH EXISTING.
5. RIGID INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED IN IN THE FILTER PIPE GALLERY TO MATCH EXISTING.
6. SEE DRAWING M09 FOR TURBIDITY AND PARTICLE COUNTER INSTRUMENTATION RACK DETAIL.

KEY NOTES:

- (A) INFLUENT SLUICE GATE SG-308I
- (B) DRAIN SLUICE GATE SG-308D
- (C) AIR SCOUR VALVE SIDE A BFV-308AA
- (D) BACKWASH VALVE SIDE A BFV-308WA
- (E) MASTER VALVE BFV-308M
- (F) EFFLUENT VALVE FCV-308E
- (G) RINSE VALVE BFV-308R
- (H) AIR SCOUR VALVE SIDE B BFV-308AB
- (I) BACKWASH VALVE SIDE B BFV-308WB
- (J) TURBIDITY METER, SIDE A AIT-308A
- (K) TURBIDITY METER, SIDE B AIT-308B
- (L) PARTICLE COUNTER AIT-308C
- (M) SIDE A LEVEL TRANSDUCER LE-308A
- (N) SIDE A LEVEL CONTROLLER LIT-308A
- (O) SIDE B LEVEL TRANSDUCER LE-308B
- (P) SIDE B LEVEL CONTROLLER LIT-308B
- (Q) EFFLUENT FLOW FIT-308
- (R) DIFFERENTIAL PRESSURE (HEAD LOSS) PDIT-308
- (R) FILTER CONTROL CONSOLE 7/8 (FCC 7/8) (EXISTING)
- (S) PANEL LF-4 (EXISTING)
- (T) EXISTING FILTER CONTROL CONSOLE. TO BE REMOVED.

ENGINEER SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 39546 DANIEL C. STEVENSON

2025.03.20 22:37:18-05'00'

NO.	DATE	REVISION	BY	APVD

DESIGNED BY: JB DRAWN BY: RAM CHECKED BY: AB APPROVED BY: JD

FILTER 8 ELECTRICAL PLAN

AUGUSTA UTILITIES DEPARTMENT
HIGHLAND AVE WATER TREATMENT PLANT
FILTER MODIFICATIONS - PHASE 2

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BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"

DATE MARCH 2025

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DWG. E14

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