RECORD DOCUMENTS

NORTHERN KENTUCKY WATER DISTRICT
KENTON COUNTY, KENTUCKY

TAYLOR MILL TREATMENT PLANT
BELT FILTER PRESS REPLACEMENT

DRAWINGS FOR:
NKWD PROJECT NO. 184-0488
GRW PROJECT NO. 4384

JULY, 2017

RON LOVAN _____ PRESIDENT/CEO

NORTHERN KENTUCKY WATER DISTRICT BOARD OF COMMISSIONERS

FRED A. MACKE, JR. _____ CHAIRPERSON

CLYDE CUNNINGHAM _____ VICE CHAIRPERSON

DAVID M. SPAULDING, ESQ. _____ SECRETARY

DOUGLAS C. WAGNER, CDT _____ TREASURER

DR. PATRICIA SOMMERKAMP _____ COMMISSIONER

JOSEPH J. KOESTER _____ COMMISSIONER

ENGINEERS - ARCHITECTS - PLANNERS

801 CORPORATE DRIVE
LEXINGTON, KY 40503

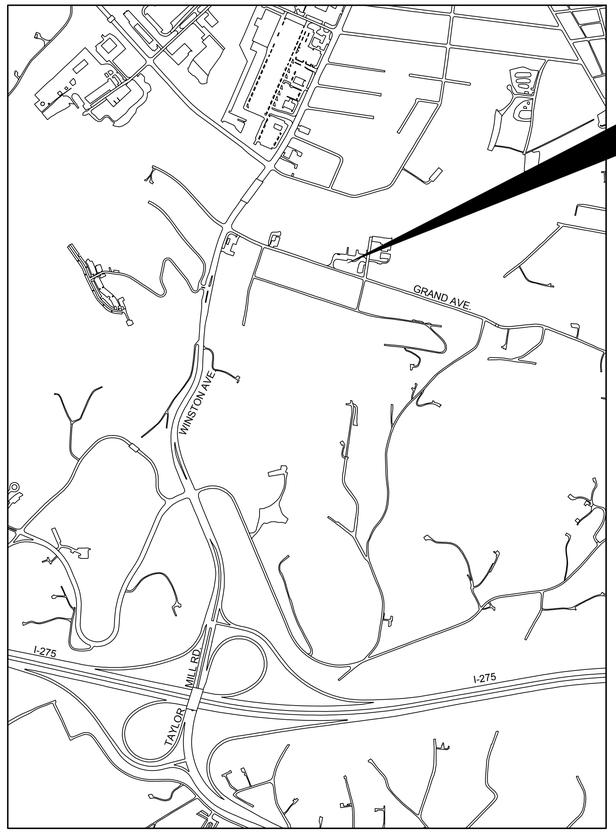
THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

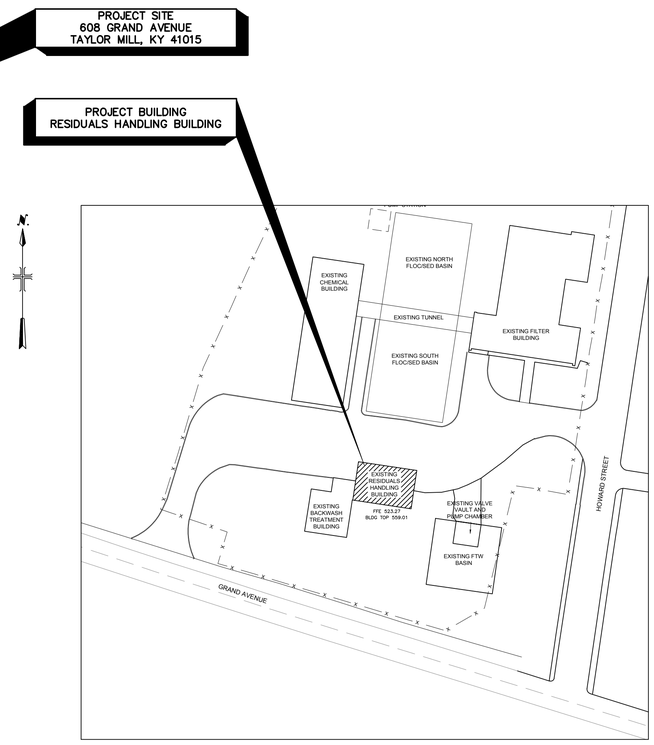
ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19



VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

GENERAL

G-001 DRAWING INDEX

CIVIL

C-010 SITE LOCATION PLAN
C-101 BELT FILTER PRESS REPLACEMENT - DEMOLITION PLAN
C-102 BELT FILTER PRESS REPLACEMENT - PLAN AND SECTION

STRUCTURAL

S-001 GENERAL NOTES
S-002 GENERAL NOTES
S-101 FRAMING PLAN
S-501 SECTIONS
S-502 SECTIONS

ARCHITECTURAL

A-001 GENERAL NOTES AND SYMBOLS
A-101 DEMOLITION PLAN
A-102 CONSTRUCTION PLAN
A-401 SECTIONS AND ELEVATIONS
A-501 DETAILS

LIFE SAFETY

LS-101 LIFE SAFETY PLAN

MECHANICAL

M-001 MECHANICAL LEGEND AND GENERAL NOTES
M-101 HVAC PLANS

PLUMBING

P-101 PLUMBING DEMOLITION PLANS
P-102 PLUMBING NEW WORK PLANS
P-601 PLUMBING SCHEDULES AND DETAILS
P-602 PLUMBING RISER DIAGRAMS

ELECTRICAL

E-001 ELECTRICAL SYMBOLS
E-101 ELECTRICAL DEMOLITION PLAN
E-102 LIGHTING DEMO AND NEW WORK PLAN
E-103 ELECTRICAL NEW WORK PLANS
E-601 ELECTRICAL DETAILS AND SCHEDULES
E-602 ELECTRICAL SCHEDULES
E-701 POINT TO POINT
E-702 POINT TO POINT

SHEET NUMBERING LEGEND

X-X-XXX

- 00X - GENERAL (SYMBOLS LEGEND, NOTES, ETC.)
- 1XX - PLANS
- 2XX - ELEVATIONS
- 3XX - SECTIONS
- 4XX - LARGE-SCALE VIEWS
- 5XX - DETAILS
- 6XX - SCHEDULES AND DIAGRAMS
- 7XX - USER DEFINED
- 8XX - USER DEFINED

- BUILDING DESIGNATOR
- DISCIPLINE DESIGNATOR
  - G - GENERAL
  - C - CIVIL
  - S - STRUCTURAL
  - A - ARCHITECTURAL
  - F - FIRE PROTECTION
  - P - PLUMBING
  - M - MECHANICAL
  - E - ELECTRICAL
  - I - INSTRUMENTATION

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

DRAWING INDEX

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: JAB
DRAWN: JAB
REVIEWED: RCC
APPROVED: RCC

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne
CONSTRUCTION COMPANY: Dugan & Meyers
DATE: 4/23/19

DATE: APRIL, 2019
SCALE: NONE
SHEET NO.

G-001

PLOTTED BY: mwilliamson
PRINTED: 4/23/2019 @ 2:37PM
FILE NAME: U:\4384-NKWD_TMTP_BFP\Working Drawings\AutoCAD\4384 G-001.dwg

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:39PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 C-010.dwg

GENERAL NOTES:

1. CONTRACTOR SHALL NOT USE TOP OF FTW BASIN, TOP OF RESIDUALS HOLDING BASIN OR GRAVEL AREA OUTSIDE 0F THE FENCE BY THE CHURCH FOR OFFICES, LAYDOWN, PARKING ETC. CONTRACTOR SHALL NOT BLOCK ACCESS TO LOADING DOCKS, DUMPSTER BAYS OR CHEMICAL FILL STATIONS AT ANY TIME. OTHER AREAS INSIDE AND OUTSIDE THE FENCE ON NKWD PROPERTY ARE TENTATIVELY ACCEPTABLE PENDING OWNER APPROVAL.

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

SITE LOCATION PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
DCO	DCO	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

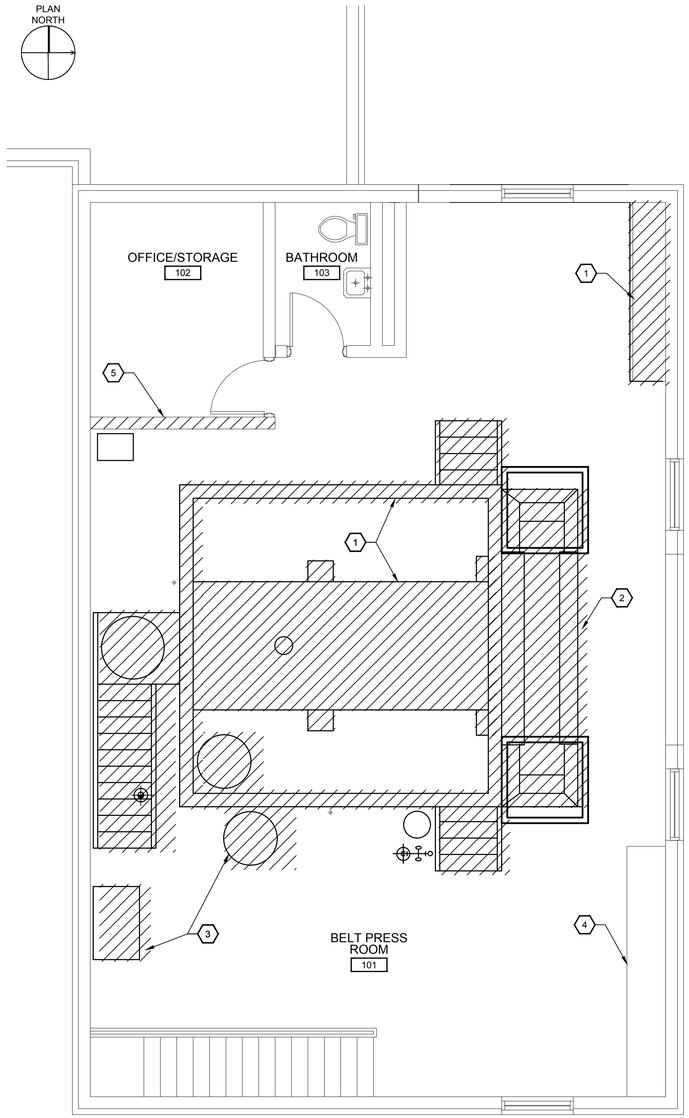
SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

SCALE: 1"=30'

SHEET NO.

C-010



DEMOLITION PLAN

SCALE: 1/4"=1'-0" 0 2' 4' 8'

LEGEND

TO BE DEMOLISHED

SHEET KEYNOTES:

1. REMOVE EXISTING BELT FILTER PRESS AND ASSOCIATED PIPING, MOTORS, CONTROL PANELS, CONDUIT, WIRE, CONCRETE CONTAINMENT AREA, SERVICE PLATFORMS, HANDRAIL, ETC.
2. REMOVE EXISTING CONVEYOR SYSTEM AND ASSOCIATED MOTORS, CONTROL PANELS, CONDUIT, WIRE, ETC.
3. REMOVE EXISTING ABANDONED POLYMER FEED SYSTEM AND ASSOCIATED PUMPS, PIPING, MOTORS, CONTROL PANEL, CONDUIT, WIRE, MIXING TANKS, ETC.
4. EXISTING MOTOR CONTROL CENTER (TO REMAIN)
5. EXISTING OFFICE/STORAGE WALL TO BE REMOVED (SEE ARCHITECTURAL SHEETS)

GENERAL NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE. SEE SPECIFICATION SECTION 013213.
2. NOTES, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
3. SALVAGE OF EQUIPMENT AS INDICATED IN SPECIFICATION SECTION 024100.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

BELT FILTER PRESS REPLACEMENT DEMOLITION PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
DCO	DCO	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

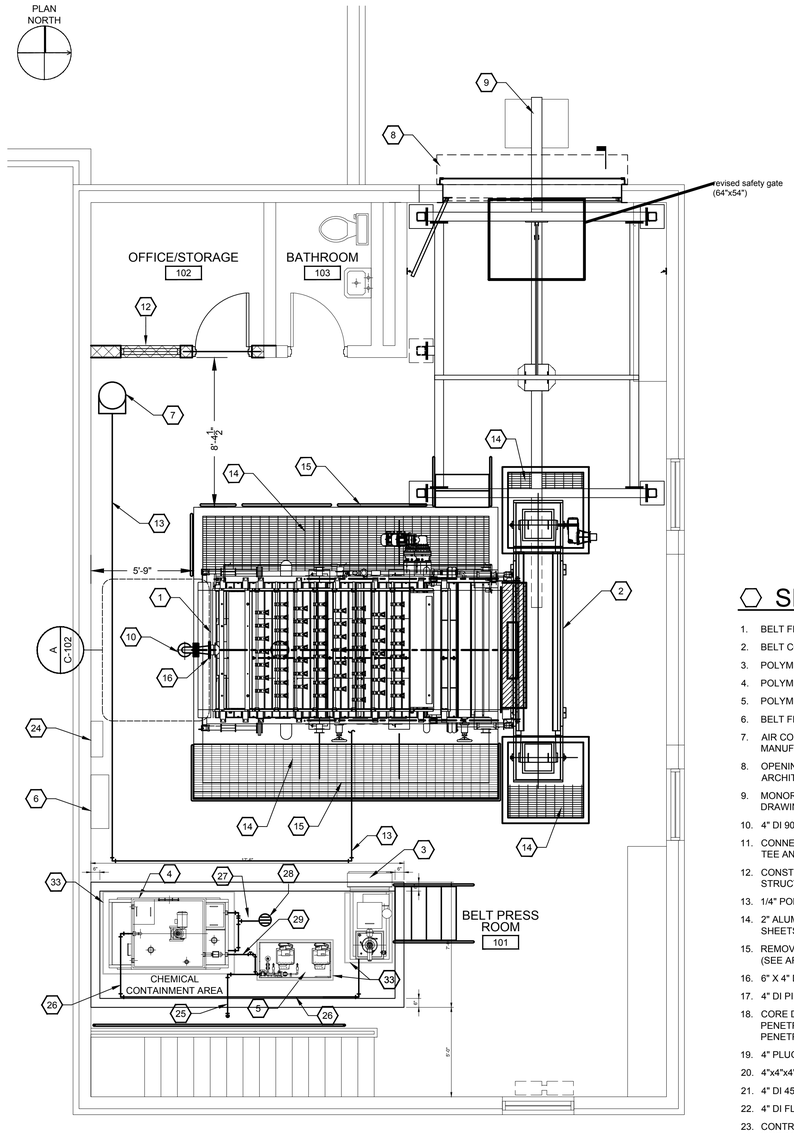
DATE: APRIL, 2019

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

SHEET NO.

C-101

PLOTTED BY: mwilliamson
PRINTED: 4/23/2019 @ 2:39PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 C-101.dwg

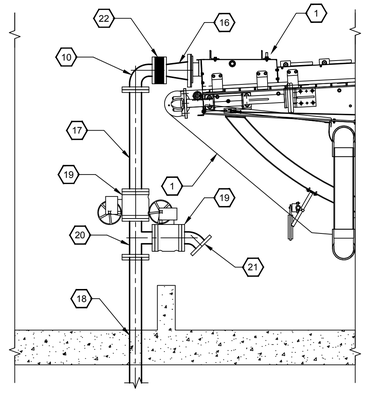


PLAN

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

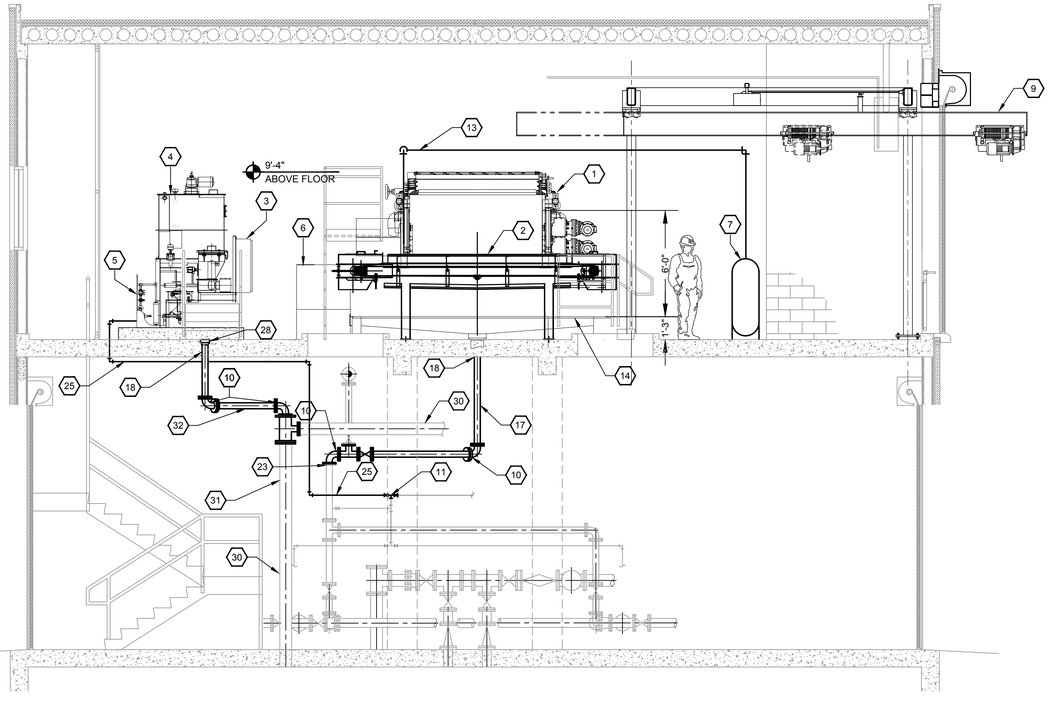
SHEET KEYNOTES:

1. BELT FILTER PRESS
2. BELT CONVEYOR
3. POLYMER PROCESSING MODULE
4. POLYMER MIXING & AGING TANKS
5. POLYMER FEED PUMPS
6. BELT FILTER PRESS CONTROL PANEL
7. AIR COMPRESSOR (SUPPLIED BY PRESS MANUFACTURER)
8. OPENING FOR OVERHEAD COILING DOOR (SEE ARCHITECTURAL DRAWINGS FOR DETAIL)
9. MONORAIL HOIST SYSTEM (SEE STRUCTURAL DRAWINGS FOR DETAIL)
10. 4" DI 90° ELBOW
11. CONNECT TO EXISTING 1/2" POLYMER FEED LINE W/ TEE AND (2) BALL VALVES
12. CONSTRUCT NEW WALL (SEE ARCHITECTURAL & STRUCTURAL SHEETS)
13. 1/4" POLYURETHANE AIR LINE CONDUIT
14. 2" ALUMINUM GRATING (TYP.) (SEE STRUCTURAL SHEETS FOR DETAIL)
15. REMOVABLE 1-1/2" ALUMINUM HANDRAIL SYSTEM (SEE ARCHITECTURAL SHEETS FOR DETAIL)
16. 6" X 4" DI REDUCER
17. 4" DI PIPE
18. CORE DRILL FLOOR SLAB FOR 4" DI PIPE PENETRATION AND SEAL W/ MODULAR EPDM PIPE PENETRATION SEAL ELEMENT
19. 4" PLUG VALVE W/ HANDWHEEL
20. 4"x4"x4" DI TEE
21. 4" DI 45° ELBOW
22. 4" DI FLANGE FILLER
23. CONTRACTOR TO CUT EXISTING 4" DI SLUDGE FEED LINE AND CONNECT VIA 4" FLANGE COUPLING ADAPTOR.
24. EXISTING FIRST FLOOR POLYMER PUMP SPEED CONTROLS TO BE RELOCATED.
25. 1/2" CPVC POLYMER FEED PUMPS DISCHARGE PIPING
26. 1/2" PVC POLYMER TRANSFER PIPING
27. 2" PVC POLYMER DRAIN PIPING
28. PROPOSED POLYMER CONTAINMENT FLOOR DRAIN
29. 1/2" CPVC POLYMER FEED PUMPS SUCTION PIPING (SEE PLUMBING SHEETS FOR SOLENOID VALVES & PIPING)
30. EXISTING 8" DI BELT FILTER PRESS FILTRATE DRAIN PIPING
31. CONTRACTOR TO CUT IN 8"x8"x4" DI REDUCING TEE ON EXISTING 8" DI PRESS FILTRATE DRAIN PIPING
32. 4" DI POLYMER CONTAINMENT DRAIN PIPING
33. CONCRETE EQUIPMENT PAD



DETAIL A
SHEET C-102

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



SECTION

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

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS AND HANGERS AS REQUIRED.
2. NOTES, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
PLAN AND SECTION

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
DCO	DCO	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: APRIL, 2019

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

SHEET NO.

C-102

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:33PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 C-102.dwg

GENERAL

1. THE REQUIREMENTS OF THESE GENERAL NOTES APPLY UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS.
2. ALL DIMENSIONS OF EXISTING CONDITIONS SHALL BE VERIFIED PRIOR TO COMMENCING WORK. DISCREPANCIES BETWEEN EXISTING CONDITIONS OR BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE COMMUNICATED TO THE STRUCTURAL ENGINEER AND ARCHITECT.
3. THIS STRUCTURE IS DESIGNED TO BE STABLE AND SELF-SUPPORTING ONLY WHEN FULLY COMPLETED. STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL NECESSARY TEMPORARY BRACING REQUIRED TO STABILIZE AND SUPPORT THE STRUCTURE DURING ALL CONSTRUCTION PHASES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. IF REQUIRED, TEMPORARY BRACING SHALL BE DESIGNED BY A LICENSED ENGINEER EMPLOYED BY THE CONTRACTOR.
4. CONSTRUCTION LOADS IMPOSED ON THE STRUCTURAL FRAMING SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME SUCH LOADS ARE IMPOSED.
5. NON-STRUCTURAL ELEMENTS OF THE BUILDING (ARCHITECTURAL FINISHES, MASONRY VENEER AND ASSOCIATED TIES, INSULATION, SHEATHING, DUCTWORK, PIPING, ETC.) ARE GENERALLY NOT SHOWN ON THESE STRUCTURAL DRAWINGS. CERTAIN NON-STRUCTURAL ELEMENTS THAT ARE SHOWN ON THE STRUCTURAL DRAWINGS ARE SHOWN FOR REFERENCE ONLY. NON-STRUCTURAL ELEMENTS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL AND TRADE DRAWINGS.
6. ANY MATERIAL ORDERED OR WORK PERFORMED PRIOR TO THE ENGINEER'S REVIEW AND APPROVAL OF THE SHOP DRAWINGS IS AT THE CONTRACTOR'S SOLE RISK.
7. THE ENGINEER DID NOT ANALYZE THE EXISTING BUILDING FOR ITS STRUCTURAL ADEQUACY. THE OWNER SHALL BE RESPONSIBLE FOR STRUCTURAL ADEQUACY OF THE EXISTING BUILDING AND ITS APPURTENANCES.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 301-99, ACI 318-05, ACI 117-06, ACI 308, AND ACI SP-66, THE ACI DETAILING MANUAL-2004. HOT AND COLD WEATHER CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 305 AND ACI 306 AS REQUIRED. SHORING AND RESHORING OF CONCRETE STRUCTURES SHALL BE PERFORMED IN ACCORDANCE WITH ACI 347. STRUCTURAL DESIGN AND REMOVAL OF CONCRETE FORMWORK, SHORES AND RESHORES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. SHOP DRAWINGS SHOWING THE SIZE, LENGTH, QUANTITY, LOCATION AND MARK OF ALL REINFORCING BARS, SUPPORTS AND ACCESSORIES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.
3. MIX DESIGNS AND ADMIXTURE PRODUCT DATA SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING CONCRETE.
4. CONCRETE, REINFORCEMENT AND ACCESSORY MATERIAL PROPERTIES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
5. REINFORCING COMPRESSION SPLICES SHALL BE LAPPED 30 BAR DIAMETERS OF THE LARGER BAR.
6. REINFORCING TENSION SPLICES SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING TABLE:

BAR SIZE	3,000 PSI CONC. LAP LENGTH	4,000 PSI CONC. LAP LENGTH
#3	21"	19"
#4	29"	25"
#5	36"	31"
#6	43"	37"
#7	62"	54"
#8	71"	62"
#9	80"	70"

ADD 30% FOR HORIZONTAL TOP BARS WITH MORE THAN 12" OF CONCRETE BELOW.
ADD 50% FOR BAR SPACING LESS THAN TWO BAR DIAMETERS.
LAP LENGTH ADDS ARE CUMULATIVE.

7. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

CONDITION	CLEAR COVER OVER BARS
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	
#6 THROUGH #18 BARS	2"
#5 BAR, W31 OR D31 WIRE AND SMALLER	1 1/2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS, AND JOISTS	
#14 AND #18 BARS	1 1/2"
#11 BAR AND SMALLER	3/4"

8. THE TYPICAL DETAILS ON THESE DRAWINGS CONTAIN ADDITIONAL GENERAL CONCRETE CONSTRUCTION NOTES AND INFORMATION.
9. ALL CONCRETE SHALL BE REINFORCED UNLESS NOTED OTHERWISE.
10. SUPPORTS TO ADEQUATELY POSITION REINFORCING BARS DURING CONSTRUCTION SHALL BE INSTALLED.
11. FOUNDATION DOWELS OF THE SAME SIZE AND SPACING AS VERTICAL STEEL SHALL BE INSTALLED FOR ALL WALLS, PIERS, AND COLUMNS.
12. ALL REINFORCING AT WALL AND FOOTING CORNERS AND INTERSECTIONS SHALL BE CONTINUOUS BY THE USE OF BENT BARS OR CORNER BARS UNLESS INDICATED OTHERWISE.
13. CONSTRUCTION JOINTS SHALL BE POSITIONED SO AS NOT TO ADVERSELY AFFECT THE STRUCTURAL PERFORMANCE. CONSTRUCTION JOINT LOCATIONS NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
14. PIPE SLEEVES AND INSERTS SHALL BE INSTALLED IN CONCRETE WORK AT ALL PENETRATIONS. PENETRATIONS OF BEAMS, JOISTS, COLUMNS OR STRUCTURAL SLABS NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
15. ONLY WELDABLE REINFORCING BARS MAY BE WELDED.
16. ADMIXTURES CONTAINING CHLORIDE OR OTHER CORROSIVE CHEMICALS SHALL NOT BE USED IN CONCRETE.
17. AGGREGATES SHALL BE FREE OF DELETERIOUS OR NON-DURABLE MATERIALS SUCH AS CHERTS.
18. REINFORCING SHALL BE ADEQUATELY TIED AND SUPPORTED TO HOLD IT IN THE CORRECT POSITION DURING CONSTRUCTION.
19. CONCRETE SHALL BE CONSOLIDATED ADEQUATELY DURING PLACEMENT BY MECHANICAL VIBRATION IN ACCORDANCE WITH PUBLISHED PRACTICES.
20. UNSHORED SLAB CONSTRUCTION SHALL BE FINISHED LEVEL AND HAVE THE MINIMUM REQUIRED THICKNESS OF CONCRETE AT THE THINNEST SECTION. BEAM CAMBER SHALL BE VERIFIED PRIOR TO PLACING UNSHORED CONCRETE SLABS.
21. PLASTIC CHAIRS SHALL BE USED IN ALL CONCRETE THAT WILL BE EXPOSED TO VIEW IN THE COMPLETED STRUCTURE.
22. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED MINIMUM ¾".
23. FILL POCKETS AROUND CONNECTIONS WITH CONCRETE FLUSH AND SMOOTH UNLESS INDICATED OTHERWISE.
18. FORMED SURFACES SHALL HAVE A SMOOTH-FORM FINISH WHERE EXPOSED TO VIEW AND A ROUGH-FORM FINISH WHERE NOT EXPOSED TO VIEW UNLESS INDICATED OTHERWISE.
19. UNFORMED SURFACES SHALL HAVE A TROWEL FINISH WHERE EXPOSED TO VIEW AND A FLOAT FINISH WHERE NOT EXPOSED TO VIEW UNLESS INDICATED OTHERWISE EXCEPT THAT STAIRS AND EXTERIOR WALKING SURFACES SHALL HAVE A BROOM FINISH UNLESS INDICATED OTHERWISE.
20. COMPOSITE FLOOR FLATNESS NUMBER (FF) SHALL BE AT LEAST 35 AND COMPOSITE FLOOR LEVELNESS NUMBER (FL) SHALL BE AT LEAST 25, WITH MINIMUM LOCAL VALUES OF NO LESS THAN 66% OF THE COMPOSITE NUMBERS UNLESS INDICATED OTHERWISE. FLOOR FLATNESS AND LEVELNESS NUMBERS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO CONSTRUCTION.

CONCRETE MASONRY

1. CONCRETE MASONRY WALLS SHOWN ON THE STRUCTURAL DRAWINGS ARE STRUCTURAL WALLS. CONCRETE MASONRY WALLS NOT SHOWN ON THE STRUCTURAL DRAWINGS ARE PARTITIONS. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS OF PARTITIONS UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS.
2. CONCRETE MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 530.1 "SPECIFICATIONS FOR MASONRY STRUCTURES".
3. INSTALLATION DRAWINGS SHALL BE SUBMITTED FOR APPROVAL. THE INSTALLATION DRAWINGS SHALL INDICATE:
   - 3.1. THE MATERIALS USED, THEIR SPECIFICATIONS AND THEIR DESIGN STRENGTHS.
   - 3.2. ELEVATIONS OF ALL STRUCTURAL CONCRETE MASONRY WALLS SHOWING THE LAYOUT, INCLUDING OPENINGS AND JOINTS, REINFORCING, ACCESSORIES, BOND BEAMS, LINTELS AND EMBEDDED ITEMS.
4. PRODUCT DATA AND MATERIAL CERTIFICATIONS FOR MASONRY MATERIALS AND ACCESSORIES SHALL BE SUBMITTED FOR APPROVAL.
5. CONCRETE MASONRY MATERIALS SHALL CONFORM TO THE FOLLOWING:
   - 5.1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 OR C55 WITH A MINIMUM COMPRESSIVE STRENGTH OF 1,900 PSI AND SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH ASTM C 1019.
   - 5.2. MORTAR SHALL CONFORM TO ASTM C 270 TYPE M OR S AND SHALL BE PORTLAND CEMENT - LIME MORTAR.
   - 5.3. MASONRY GROUT SHALL CONFORM TO ASTM C 476 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI DETERMINED IN ACCORDANCE WITH ASTM C1019.
   - 5.4. MASONRY REINFORCING SHALL CONFORM TO ASTM A615 OR A616 OR A706 GRADE 60.
   - 5.5. MASONRY HORIZONTAL JOINT REINFORCING SHALL CONFORM TO ASTM A 951 HOT DIPPED GALVANIZED.
6. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) SHALL BE 1,500 PSI DETERMINED BY THE UNIT STRENGTH METHOD.
7. MORTAR CEMENT SHALL BE PORTLAND-LIME CEMENT. MASONRY CEMENT SHALL NOT BE USED.
8. THE TYPICAL DETAILS ON THE DRAWINGS CONTAIN ADDITIONAL GENERAL MASONRY NOTES AND DETAILS.
9. BEARING WALLS SHALL BE ANCHORED AT INTERSECTIONS BY GALVANIZED STEEL STRAPS 1 1/2" x 1/4" x 24" WITH 2" BEND AT 90 DEGREES EACH END. INSTALL STRAPS INTO GROUTED CORES OF C.M.U. AT 24" MAXIMUM VERTICAL SPACING. DO NOT INSTALL ANCHORS AT CONTROL JOINTS OR WHERE NON-BEARING PARTITIONS ABUT BEARING WALLS.
10. CORNERS OF LOAD BEARING CONCRETE MASONRY WALLS SHALL BE LAID IN RUNNING BOND.
11. PROVIDE SOLID GROUTED CONCRETE MASONRY AROUND BEARING ENDS OF ALL BEAMS AND JOISTS.
12. NO OPENINGS FOR TRADES SHALL OCCUR IN CONCRETE MASONRY WALLS WITHIN 16 INCHES OF BEAM BEARING CENTERLINES.
13. PIPE SLEEVES AND INSERTS SHALL BE INSTALLED IN CONCRETE WORK AT ALL PENETRATIONS.
14. EMBEDDED ITEM LOCATIONS SHALL BE COORDINATED WITH THE APPROVED SHOP DRAWINGS OF THE TRADES.
15. HORIZONTAL JOINT REINFORCEMENT SHALL BE WIRE LADDER ASSEMBLIES WITH 3/16" DIAMETER LONGITUDINAL RODS AND 9 GA CROSS RODS SHALL BE INSTALLED IN ALTERNATING BED JOINTS AT 16" MAX SPACING. SPLICES SHALL BE LAPPED 6" MINIMUM.
16. ONLY WELDABLE REINFORCING BARS MAY BE WELDED.
17. CONCRETE MASONRY IS SUPPOSED TO ABSORB WATER FROM MORTAR AND GROUT. DO NOT PLACE OR GROUT WET CONCRETE MASONRY UNITS.
18. WEBS OF MASONRY UNITS FOR PIERS, COLUMNS, PILASTERS, AND THE STARTER COURSE SHALL BE MORTARED. WEBS OF MASONRY UNITS SHALL ALSO BE MORTARED WHERE REQUIRED TO CONFINE GROUT.
19. CELLS OF MASONRY IN PIERS, COLUMNS, PILASTERS AND WHERE OTHERWISE INDICATED SHALL ALIGN. THIS MAY REQUIRE THE USE OF BLOCK STYLES OTHER THAN STRETCHERS (E.G. SQUARE-END BLOCK).
20. SPACES TO BE FILLED WITH GROUT SHALL BE KEPT CLEAN AND FREE FROM PROTRUSIONS OF MASONRY OR MORTAR.
21. ALL CELLS OF BELOW-GRADE CONCRETE MASONRY UNITS SHALL BE GROUTED .
22. THE MAXIMUM GROUT POUR HEIGHT FOR EACH SPECIFIC TYPE AND SIZE OF CONCRETE MASONRY UNIT SHALL NOT EXCEED THE LIMITS SPECIFIED IN ACI 530.1.
23. GROUT LIFT HEIGHT IS THE HEIGHT TO WHICH GROUT IS PLACED IN ONE CONTINUOUS OPERATION AND SHALL NOT EXCEED 5 FEET. A NEW GROUT LIFT CAN BEGIN ON THE STILL PLASTIC GROUT OF THE PREVIOUS LIFT WHEN THE MASONRY HAS STOPPED ABSORBING WATER FROM IT.
24. GROUT POUR HEIGHT IS THE HEIGHT TO WHICH GROUT IS PLACED BEFORE ALLOWING IT TO HARDEN AND SHALL NOT EXCEED 5 FEET UNLESS APPROVED BY THE ARCHITECT AND ENGINEER AND CLEANOUTS ARE PROVIDED.
25. GROUT SLUMP SHALL BE 8" TO11" AT TIME OF PLACEMENT.
26. GROUT POURS SHALL BE CONSOLIDATED ADEQUATELY DURING PLACEMENT BY MECHANICAL VIBRATION IN ACCORDANCE WITH PUBLISHED PRACTICES.
27. IF PERMITTED, THE LOCATION AND PATCHING METHOD OF CLEANOUTS SHALL BE APPROVED BY THE ARCHITECT.
28. VERTICAL CONTROL JOINTS ARE INDICATED ON THE ARCHITECTURAL DRAWINGS.
29. VERTICAL CONTROL JOINTS SHALL BE INSTALLED BETWEEN ALL NON-LOADBEARING PARTITIONS AND BEARING WALLS.
30. SPACING OF CONTROL JOINTS SHALL NOT EXCEED 24 FEET UNLESS NOTED OTHERWISE.
31. SPLICE LAP LENGTHS FOR REINFORCING SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#3	18"
#4	25"
#5	31"
#6	57"

32. DO NOT EMBED ANY NON-STRUCTURAL ITEMS IN STRUCTURAL MASONRY WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL

1. DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC "SPECIFICATION FOR STRUCTURAL STEEL", (ANSI/AISC 360-05), AISC "CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL BUILDINGS AND BRIDGES", AISC / RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS" AND AWS D1.1 "STRUCTURAL WELDING CODE."
2. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURAL STEEL.
   - 2.1. SHOP DRAWINGS SHALL CONTAIN ERECTION DRAWINGS AND DETAIL DRAWINGS.
   - 2.2. ERECTION DRAWINGS SHALL SHOW THE LAYOUT AND PIECEMARK OF ALL STRUCTURAL STEEL MEMBERS AND ALL CONNECTIONS OF STRUCTURAL STEEL. SHOP-MADE AND FIELD-MADE CONNECTIONS SHALL BE INDICATED ON THE ERECTION DRAWINGS. ERECTION DRAWINGS SHALL INCLUDE SETTING DRAWINGS FOR ALL ANCHORAGES FOR STRUCTURAL STEEL.
   - 2.3. CONNECTIONS BETWEEN STRUCTURAL STEEL AND STEEL JOIST FRAMING SHALL BE COORDINATED ON THE STRUCTURAL STEEL ERECTION DRAWINGS.
   - 2.4. DETAIL DRAWINGS SHALL SHOW THE DIMENSIONS OF EACH PIECE INCLUDING THE DIMENSIONS OF ALL HOLES, SLOTS, COPES, CUTS ETC.
   - 2.5. WHERE PIECES ARE SHIPPED AS ASSEMBLIES, THE ASSEMBLIES SHALL BE DETAILED SHOWING CONNECTIONS BETWEEN THE INDIVIDUAL PIECES. WELDS AND BOLTS SHALL BE INDICATED FOR ALL CONNECTIONS.
   - 2.6. DETAIL DRAWINGS SHALL SHOW THE TYPE AND EXTENT OF PRIME PAINTING FOR EACH PIECE AND/OR ASSEMBLY.
3. STRUCTURAL STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

MEMBER TYPE	SPECIFICATION
WIDE FLANGE	ASTM A 992
STANDARD BEAM	ASTM A 36
CHANNEL	ASTM A 36
ANGLE	ASTM A 36
PLATE	ASTM A 36
BAR AND ROD	ASTM A 36
RECTANGULAR, SQUARE & ROUND TUBE (HSS)	ASTM A 500 GR B
PIPE	ASTM A 53 GR B
THREADED ROD	ASTM A 36
ANCHOR ROD	ASTM F 1554 GR 36
COMMON BOLTS	ASTM A 307 GR A
HIGH STRENGTH BOLTS (TWIST OFF)	ASTM F 1582
HIGH STRENGTH BOLTS (SNUG TIGHT)	ASTM A 325
DIRECT TENSION INDICATING WASHERS	ASTM F 959
HARDENED WASHERS	ASTM F 436
NUTS	ASTM A 563
SHEAR CONNECTORS (STUDS)	ASTM A 108
WELDING ELECTRODE	AWS D1.1 E70XX (EXCEPT AS OTHERWISE REQUIRED)

4. GROUT SHALL BE NON-METALLIC, NON-CORROSIVE, NON-SHRINK, NON-STAINING CONFORMING TO ASTM C 1107 WITH A 28 DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
5. THE TYPICAL DETAILS ON THE DRAWINGS CONTAIN ADDITIONAL GENERAL STEEL CONSTRUCTION NOTES AND DETAILS.
6. HARDENED WASHERS SHALL BE INSTALLED UNDER ALL NUTS FOR FULLY PRETENSIONED BOLTS.
7. HARDENED WASHERS SHALL BE INSTALLED OVER ALL OVERSIZED HOLES, STANDARD SLOTS AND SHORT SLOTTED HOLES. PLATE WASHERS 5/16" THICK SHALL BE WELDED OVER LARGE HOLES AND LONG SLOTS.
8. BOLTED JOINTS WHERE RELATIVE MOVEMENT IS ALLOWED SHALL HAVE JAM NUTS TO PREVENT UNTHREADING.
9. DO NOT RE-USE PREVIOUSLY TENSIONED HIGH-STRENGTH BOLTS.
12. FLAME CUT EDGES SHALL NOT BE PERMITTED ON COMPLETED PIECES.
13. ENDS OF PIECES LOADED IN BEARING SHALL BE MILLED FLAT AND SQUARE.
14. EXISTING STEEL SHALL NOT BE WELDED UNLESS INDICATED OR APPROVED IN WRITING.
15. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER USING QUALIFIED WELDING PROCEDURES.
16. ALL STEEL SURFACES SHALL BE PREPARED ACCORDING TO SSPC SP-3, "POWER TOOL CLEANING" UNLESS NOTED OR REQUIRED OTHERWISE.
17. FABRICATOR'S STANDARD CORROSION-INHIBITING PRIMER SHALL BE APPLIED TO A MINIMUM OF 1.5 MILS D.F.T. TO ALL STRUCTURAL STEEL EXCEPT SURFACES TO BE FIELD WELDED AND SURFACES EMBEDDED IN MORE THAN 2" OF CONCRETE OR MORTAR.
18. PAINTING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE PAINTING SPECIFICATIONS.
19. STEEL EXPOSED TO VIEW SHALL BE FABRICATED WITH SURFACES THAT ARE TRUE, SMOOTH AND FREE OF BLEMISHES IN ACCORDANCE WITH INDUSTRY STANDARDS. COPES AND CUTS SHALL BE TRUE, SQUARE AND PROPERLY RADIUSED AS INDICATED ON THE SHOP DETAIL DRAWINGS.
20. HOT-DIPPED GALVANIZING OF STRUCTURAL STEEL SHALL CONFORM TO ASTM A123, A153 OR A385 AS APPROPRIATE WHERE GALVANIZING IS INDICATED ON THE PLANS.
21. THE STRUCTURAL STEEL FABRICATOR SHALL HAVE BEEN REGULARLY ENGAGED FOR AT LEAST 3 YEARS WITH SUCCESSFUL PERFORMANCE IN FABRICATION OF STRUCTURAL STEEL FOR STRUCTURES SIMILAR TO THIS PROJECT.
22. THE STRUCTURAL STEEL ERECTOR SHALL HAVE BEEN REGULARLY ENGAGED FOR AT LEAST 3 YEARS WITH SUCCESSFUL PERFORMANCE IN ERECTION OF STRUCTURAL STEEL FOR STRUCTURES SIMILAR TO THIS PROJECT.

ALUMINUM BAR GRATING

1. MANUFACTURE, DETAILING, FABRICATION, AND ERECTION OF ALUMINUM BAR GRATING SHALL CONFORM TO NAAM MBG 531 "BAR GRATING MANUAL".
2. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION OF ALUMINUM BAR GRATING:
   - 2.1. SHOP DRAWINGS SHALL CONTAIN ERECTION DRAWINGS AND DETAIL DRAWINGS.
   - 2.2. ERECTION DRAWING SHALL SHOW THE LAYOUT AND PIECEMARK OF ALL ALUMINUM BAR GRATING PIECES AND ALL CONNECTIONS OF BETWEEN THEM AND THE SUPPORT STRUCTURE. SHOP-MADE AND FIELD-MADE CONNECTIONS SHALL BE INDICATED ON THE ERECTION DRAWINGS.
   - 2.3. DETAIL DRAWINGS SHALL SHOW THE DIMENSIONS OF EACH PIECE INCLUDING THE DIMENSIONS OF ALL HOLES, SLOTS, COPES, CUTS ETC.
   - 2.4. WHERE PIECES ARE SHIPPED AS ASSEMBLIES, THE ASSEMBLIES SHALL BE DETAILED SHOWING CONNECTIONS BETWEEN THE INDIVIDUAL PIECES.
   - 2.5. DETAIL DRAWINGS SHALL SHOW THE TYPE AND EXTENT OF PRIME PAINTING FOR EACH PIECE AND/OR ASSEMBLY.
3. ALUMINUM BAR GRATING MATERIALS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

MEMBER TYPE	SPECIFICATION
BEARING BARS	ASTM B 221 ALLOY 6061-T6
CROSS BARS	ASTM B 221 ALLOY 6061-T1
SADDLE CLIPS	GRATING FASTENERS, LLC TYPE F-10, H.D. GALV, OR EQUAL
SELF DRILLING SCREWS	SAE J78

4. THE TYPICAL DETAILS ON THE DRAWINGS CONTAIN ADDITIONAL GENERAL ALUMINUM GRATING CONSTRUCTION NOTES AND DETAILS.
5. ALL EDGES OF ALUMINUM BAR GRATING SHALL BE BANDED WITH AN EQUIVALENT DEPTH BEARING BAR.
6. ALUMINUM BAR GRATING PIECES SHALL BE FABRICATED IN SHOP TO THE FULLEST EXTENT POSSIBLE.
7. ALUMINUM BAR GRATING PIECES SHALL BE FABRICATED TO FIT TOGETHER PRECISELY WITH HAIRLINE JOINTS.
8. BURS SHALL BE REMOVED AND SHARP EDGES SHALL BE EASED TO A RADIUS.
9. CONNECTIONS THAT MAINTAIN THE STRUCTURAL CAPACITY OF THE JOINED PIECES SHALL BE USED.
10. ALUMINUM BAR GRATING PIECES SHALL BE CLEARLY MARKED SO THEY CAN BE ACCURATELY ERECTED USING THE ERECTION DRAWINGS.
11. WELDING MATERIALS AND METHODS SHALL BE USED THAT MINIMIZE DISTORTION AND DEVELOP THE STRENGTH AND CORROSION RESISTANCE OF THE BASE METAL.
12. WELDS SHALL HAVE A QUALITY APPEARANCE WITHOUT EXCESSIVE OVERLAP OR UNDERCUT AND THE WELDING FLUX REMOVED.
13. DIMENSIONS OF EXISTING STRUCTURE WHERE ALUMINUM BAR GRATING INTERFACES SHALL BE VERIFIED IN THE FIELD PRIOR TO FABRICATION.
14. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER USING QUALIFIED WELDING PROCEDURES ACCORDING TO THE APPROPRIATE AWS CODE.
15. ALUMINUM BAR GRATING SHALL HAVE A MILL FINISH.

EXPANSION ANCHORS

1. EXPANSION ANCHORS SHALL BE ONE OF THE FOLLOWING PRODUCTS:
   - KWIK BOLT TZ BY HILTI
   - TRUBOLT+ BY ITW RED HEAD
   - STRONG-BOLT BY SIMPSON STRONG-TIE
2. ALL EXPANSION ANCHORS FOR THE PROJECT SHALL BE PRODUCED BY THE SAME MANUFACTURER UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
3. EXPANSION ANCHOR PRODUCT DATA AND A KEYED PLAN SHOWING THE LOCATION, DIAMETER, LENGTH, MATERIAL AND FINISH OF EACH EXPANSION ANCHOR SHALL BE SUBMITTED FOR APPROVAL.
4. THE EXPANSION ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE STRICTLY FOLLOWED, PARTICULARLY WITH REGARD TO DRILLING AND CLEANING OUT THE HOLE.
5. IF ANY OF THE FOLLOWING MINIMUM DISTANCES ARE NOT INDICATED OR AVAILABLE THEN VERIFY THE DETAIL AND FIELD CONDITIONS WITH THE STRUCTURAL ENGINEER PRIOR TO INSTALLING:

ANCHOR DIA	C TO C DISTANCE	EDGE DISTANCE	EMBED DISTANCE	MAT'L THICKNESS
1/2"	3 1/2"	4"	3 1/2"	5 1/2"
5/8"	4"	5"	4"	6"
3/4"	6"	6"	5"	8"

6. IF ANY OF THE FOLLOWING CONDITIONS ARE INDICATED OR PRESENT THEN VERIFY ACCEPTABILITY OF EXPANSION ANCHOR TYPE, MATERIAL OR FINISH WITH THE STRUCTURAL ENGINEER PRIOR TO INSTALLING:
   - CRACKED CONCRETE OR MASONRY NEAR INSTALLATION (SEE EDGE DISTANCE ABOVE)
   - CORROSIVE, CHEMICAL OR ABNORMAL TEMPERATURE ENVIRONMENT
   - VIBRATORY OR FATIGUE LOADING OF ANCHOR
   - IMPACT OR SHOCK LOADING OF ANCHOR
   - CONTINUOUS TENSION (E.G. HANGING LOADS FROM CEILINGS)

CHEMICAL ADHESIVE AND PROPRIETARY ADHESIVE ANCHORS

1. CHEMICAL ADHESIVES AND PROPRIETARY ADHESIVE ANCHORS SHALL BE PRODUCED BY ONE OF THE FOLLOWING MANUFACTURERS:
   - HILTI, INC.
   - ITW RED HEAD
   - SIMPSON STRONG-TIE
2. ALL CHEMICAL ADHESIVES AND PROPRIETARY ADHESIVE ANCHORS FOR THE PROJECT SHALL BE PRODUCED BY THE SAME MANUFACTURER UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
3. PROPRIETARY ADHESIVE ANCHORS SHALL BE FASTENED WITH COMPATIBLE CHEMICAL ADHESIVE FROM THE SAME MANUFACTURER.
4. CHEMICAL ADHESIVE AND PROPRIETARY ADHESIVE ANCHOR PRODUCT DATA AND A KEYED PLAN SHOWING THE LOCATION, TYPE OF CHEMICAL ADHESIVE AND INSTALLATION CONDITIONS OF EACH ADHESIVE ANCHOR SHALL BE SUBMITTED FOR APPROVAL. INSTALLATION CONDITIONS ARE:
   - DRY, DAMP OR WET HOLE
   - CORED HOLE OR HAMMER DRILLED HOLE
   - STANDARD (PER MANUFACTURER) OR OVERSIZE HOLE
   - HORIZONTAL, VERTICAL OR OVERHEAD SURFACE
   - TEMPERATURE RANGE OF INSTALLATION
5. THE CHEMICAL ADHESIVE AND PROPRIETARY ADHESIVE ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE STRICTLY FOLLOWED, PARTICULARLY WITH REGARD TO DRILLING AND CLEANING OUT THE HOLE AND THE INSTALLATION CONDITIONS.
6. IF ANY OF THE FOLLOWING MINIMUM DISTANCES ARE NOT INDICATED OR AVAILABLE THEN VERIFY THE DETAIL AND FIELD CONDITIONS WITH THE STRUCTURAL ENGINEER PRIOR TO INSTALLING:

ANCHOR DIA	C TO C DISTANCE	EDGE DISTANCE	EMBED DISTANCE	MAT'L THICKNESS
1/2"	3 1/2"	4"	3 1/2"	5 1/2"
5/8"	4"	5"	4"	6"
3/4"	6"	6"	5"	8"

7. IF ANY OF THE FOLLOWING CONDITIONS ARE INDICATED OR PRESENT THEN VERIFY ACCEPTABILITY OF CHEMICAL ADHESIVE OR PROPRIETARY ADHESIVE ANCHOR TYPE, MATERIAL OR FINISH WITH THE STRUCTURAL ENGINEER PRIOR TO INSTALLING:
   - CORROSIVE, CHEMICAL OR ABNORMAL TEMPERATURE ENVIRONMENT
   - VIBRATORY OR FATIGUE LOADING OF ANCHOR
   - IMPACT OR SHOCK LOADING OF ANCHOR
   - CONTINUOUS TENSION (E.G. HANGING LOADS FROM CEILINGS)

RECORD DOCUMENTS

GRW PROJECT NO. 4384
CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
GENERAL NOTES
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: MWC
DRAWN: MWC
REVIEWED:
APPROVED:

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

DATE: APRIL, 2019
SCALE: AS NOTED
SHEET NO. S-001

PLOTTED BY: rwilliamson
PRINTED: 4/23/2019 @ 2:40PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-S-001.dwg

SPECIAL INSPECTION

1. SPECIAL INSPECTION IS REQUIRED ACCORDING TO SECTION1704 OF THE KENTUCKY BUILDING CODE.
2. SPECIAL INSPECTIONS SHALL BE PERFORMED FOR THE FOLLOWING WORK AS REQUIRED IN THE KENTUCKY BUILDING CODE:
    - 2.1. CONTRACTOR'S STATEMENT OF RESPONSIBILITY IN ACCORDANCE WITH SECTION 1704.4
        - 2.1.1. CONTRACTOR SHALL SUBMIT A STATEMENT THAT:
            - 2.1.1.1. ACKNOWLEDGES THE REQUIREMENTS STATED IN THIS STATEMENT OF SPECIAL INSPECTIONS.
            - 2.1.1.2. ACKNOWLEDGES THAT CONTROL WILL BE EXERCISED OVER THE QUALITY OF CONSTRUCTION TO CONFORM TO THE APPROVED CONSTRUCTION DOCUMENTS.
            - 2.1.1.3. ACKNOWLEDGES THAT THERE ARE ORGANIZATIONAL PROCEDURES IN PLACE FOR EXERCISING CONTROL OF QUALITY OF THE CONSTRUCTION INCLUDING:
                - 2.1.1.3.1. APPOINTMENT OF A PERSON WITHIN THE CONTRACTOR'S ORGANIZATION TO EXERCISE CONTROL QUALITY OF CONSTRUCTION
                - 2.1.1.3.2. THE PERSONS WITHIN THE CONTRACTOR'S ORGANIZATION TO WHOM THE QUALITY CONTROL REPORTS ARE DISTRIBUTED
                - 2.1.1.3.3. THE METHOD AND FREQUENCY OF REPORTING THE QUALITY CONTROL RESULTS WITHIN THE CONTRACTOR'S ORGANIZATION
    - 2.2. FABRICATORS IN ACCORDANCE WITH SECTION 1704.2
        - 2.2.1. SUBMIT REPORT OF INSPECTOR'S APPROVAL OF FABRICATOR'S QC PLAN OR FABRICATOR'S NATIONALLY RECOGNIZED QC CERTIFICATION.
        - 2.2.2. SUBMIT FABRICATOR'S CERTIFICATE OF COMPLIANCE STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. SUBMITTED AT THE COMPLETION OF SUCH WORK.
    - 2.3. STEEL CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.3
        - 2.3.1. SUBMIT MILL TEST REPORTS AND MATERIAL CERTIFICATIONS FOR ALL STEEL MEMBERS, FASTENERS, BOLTS, NUTS, WASHERS AND REINFORCEMENT STEEL FOR CONCRETE AND MASONRY.
        - 2.3.2. SUBMIT REPORT OF INSPECTION OF MARKING AND CONNECTION DETAILS FOR ALL MEMBERS AND CONNECTIONS. VERIFY ALL STEEL MEMBERS ARE INSTALLED IN THE CORRECT LOCATIONS AND ARE CONNECTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND APPROVED ERECTION DRAWINGS.
        - 2.3.3. SUBMIT REPORT OF INSPECTION OF BOLT TENSIONING FOR EACH APPLICABLE CONNECTION.
        - 2.3.4. SUBMIT REPORT OF VISUAL INSPECTION OF ALL FIELD WELDS.
    - 2.4. CONCRETE CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.4
        - 2.4.1. SUBMIT REPORT OF COMPRESSIVE STRENGTH, SLUMP AND AIR CONTENT TEST RESULTS. SAMPLE AND TEST CONCRETE AT LEAST ONCE PER DAY AND ONCE FOR EVERY ADDITIONAL 50 CUBIC YARDS OF CONCRETE PER DAY THEREAFTER.
        - 2.4.2. SUBMIT REPORT OF INSPECTION OF FORMS, REINFORCEMENT, AND CONCRETE DELIVERY TICKETS PRIOR TO EACH PLACEMENT OF CONCRETE.
        - 2.4.3. SUBMIT MATERIAL CERTIFICATIONS OF CEMENT, AGGREGATE, ADMIXTURES AND REINFORCEMENT.
    - 2.5. MASONRY CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.5
        - 2.5.1. SUBMIT MATERIAL CERTIFICATIONS OF MASONRY UNITS, CEMENT FOR MORTAR, SAND FOR MORTAR, GROUT, AND REINFORCEMENT.
        - 2.5.2. SUBMIT REPORT OF TEST OF MORTAR AGGREGATE RATIO AND AIR CONTENT AND OBSERVATION OF MORTAR PROPORTIONING. TEST ONCE AT BEGINNING OF PROJECT AND ONCE EVERY 5,000 SF OF WALL THEREAFTER.
        - 2.5.3. SUBMIT REPORT OF PLACEMENT OF MASONRY, REINFORCEMENT AND GROUT PRIOR TO AND DURING EACH PLACEMENT OF GROUT.
        - 2.5.4. SUBMIT REPORT OF INSTALLATION OF CHEMICAL ADHESIVE ANCHORAGE IN CONCRETE AT EDGES OF MASONRY WALLS. INSPECT INSTALLATION OF ALL OF ANCHORAGE INSTALLATIONS.
3. THE TYPE AND EXTENT OF EACH TEST AND INSPECTION REQUIRED FOR EACH TYPE OF WORK SHALL BE AS INDICATED IN THE SPECIFICATIONS AND/OR THE BUILDING CODE AND THE REFERENCES INCORPORATED THEREIN.
4. INSPECTION REPORTS SHALL INCLUDE THE FOLLOWING:
    - 4.1. NAME, ADDRESS, AND TELEPHONE NUMBER OF SPECIAL INSPECTOR PERFORMING THE INSPECTION AND MAKING THE REPORT.
    - 4.2. DATES AND LOCATIONS OF SAMPLES AND TESTS OR INSPECTIONS, DATE OF REPORT.
    - 4.3. RECORD OF TEMPERATURE AND WEATHER CONDITIONS AT TIME OF SAMPLE TAKING AND TESTING AND INSPECTING.
    - 4.4. DESCRIPTION OF THE WORK, IDENTIFICATION OF PRODUCTS, SPECIFICATION SECTION, TESTS, AND INSPECTION METHODS.
    - 4.5. PHOTOGRAPHS OF THE WORK INSPECTED FOR THAT REPORT
    - 4.6. COMPLETE TEST OR INSPECTION DATA.
5. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED INSPECTION AND TESTING AGENCY APPROVED BY THE BUILDING OFFICIAL, THE ARCHITECT AND THE STRUCTURAL ENGINEER.
6. WORK REQUIRING SPECIAL INSPECTION SHALL BE INSPECTED BY THE SPECIAL INSPECTOR FOR CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS. INSPECTION REPORTS INDICATING THE RESULTS OF SPECIAL INSPECTIONS SHALL BE PROMPTLY SUBMITTED TO THE CONTRACTOR, THE ARCHITECT, THE STRUCTURAL ENGINEER.
7. THE SPECIAL INSPECTOR MAY USE REVIEWED SHOP DRAWINGS ONLY AS AN AID TO INSPECTION.
8. THE SPECIAL INSPECTOR SHALL OBSERVE ACTIVITIES, ACTIONS, AND PROCEDURES PERFORMED BEFORE AND DURING EXECUTION OF THE WORK TO GUARD AGAINST DEFECTS AND DEFICIENCIES AND SUBSTANTIATE THAT PROPOSED CONSTRUCTION WILL COMPLY WITH REQUIREMENTS.
9. ALL SPECIAL INSPECTIONS INDICATING NON-CONFORMING WORK SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR, THE ARCHITECT AND THE STRUCTURAL ENGINEER. IMPENDING CONSTRUCTION WORK THAT WOULD IMPEDE ECONOMICAL CORRECTION OF NON-CONFORMING WORK SHALL NOT PROCEED WITHOUT WRITTEN APPROVAL. THE CONTRACTOR SHALL MAINTAIN A DISCREPANCY LOG ON THE SITE. LOG SHALL LIST EACH DISCREPANCY DOCUMENTED BY THE SPECIAL INSPECTOR, STATE THE DATE OF DISCOVERY AND SPECIAL INSPECTOR'S REPORT NUMBER, AND ROOM FOR THE SPECIAL INSPECTOR TO SIGN AND DATE WHEN SAID DISCREPANCY IS CORRECTED. COST OF ADDITIONAL RETESTING THAT ARE REQUIRED DUE TO NON-CONFORMING WORK MAY BE CHARGED TO THE CONTRACTOR.
10. A FINAL REPORT CERTIFYING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY NON-CONFORMING WORK NOTED IN THE INSPECTIONS SHALL BE SUBMITTED BY THE SPECIAL INSPECTOR AT THE COMPLETION OF THE PROJECT, OR IF NOT, DETAILING NON-INSPECTED AND/OR UNRESOLVED NON-CONFORMANCES.
11. THE CONTRACTOR SHALL INCLUDE A CASH ALLOWANCE IN THEIR BASE BID CONTRACT PRICE TO COVER THE COSTS OF SPECIAL INSPECTION, SUCH INSPECTION BEING DIRECTED BY THE OWNER. THE AMOUNT OF THIS ALLOWANCE IS INDICATED IN DIVISION 01 SECTION "ALLOWANCES" OF THE SPECIFICATIONS.
12. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR WHEN CONSTRUCTION IS READY TO BE INSPECTED. CONTRACTOR SHALL GIVE TIMELY AND ADEQUATE NOTICE TO THE SPECIAL INSPECTOR.
13. THE CONTRACTOR SHALL PROVIDE THE SPECIAL INSPECTOR ACCESS TO PLANS, SHOP DRAWINGS, AND CHANGE ORDERS AT THE JOBSITE.
14. THE CONTRACTOR SHALL PROVIDE STORAGE SPACE FOR STRUCTURAL TESTING/INSPECTIOIN AGENCY'S EXCLUSIVE USE, SUCH AS FOR STORING AND CURING CONCRETE TEST SAMPLES.
15. THE CONTRACTOR SHALL RETAIN AT THE JOBSITE ALL SPECIAL INSPECTION RECORDS SUBMITTED BY THE SPECIAL INSPECTOR AND PROVIDE THESE RECORDS FOR REVIEW BY THE ENGINEER/ARCHITECT AND BUILDING INSPECTOR UPON REQUEST.

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
GENERAL NOTES
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: MWC
DRAWN: MWC
REVIEWED:
APPROVED:

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE: APRIL, 2019

SCALE: AS NOTED

SHEET NO.

S-002

PLOTTED BY: mwilliamson
PRINTED: 4/23/2019 @ 2:40PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-S-002.dwg

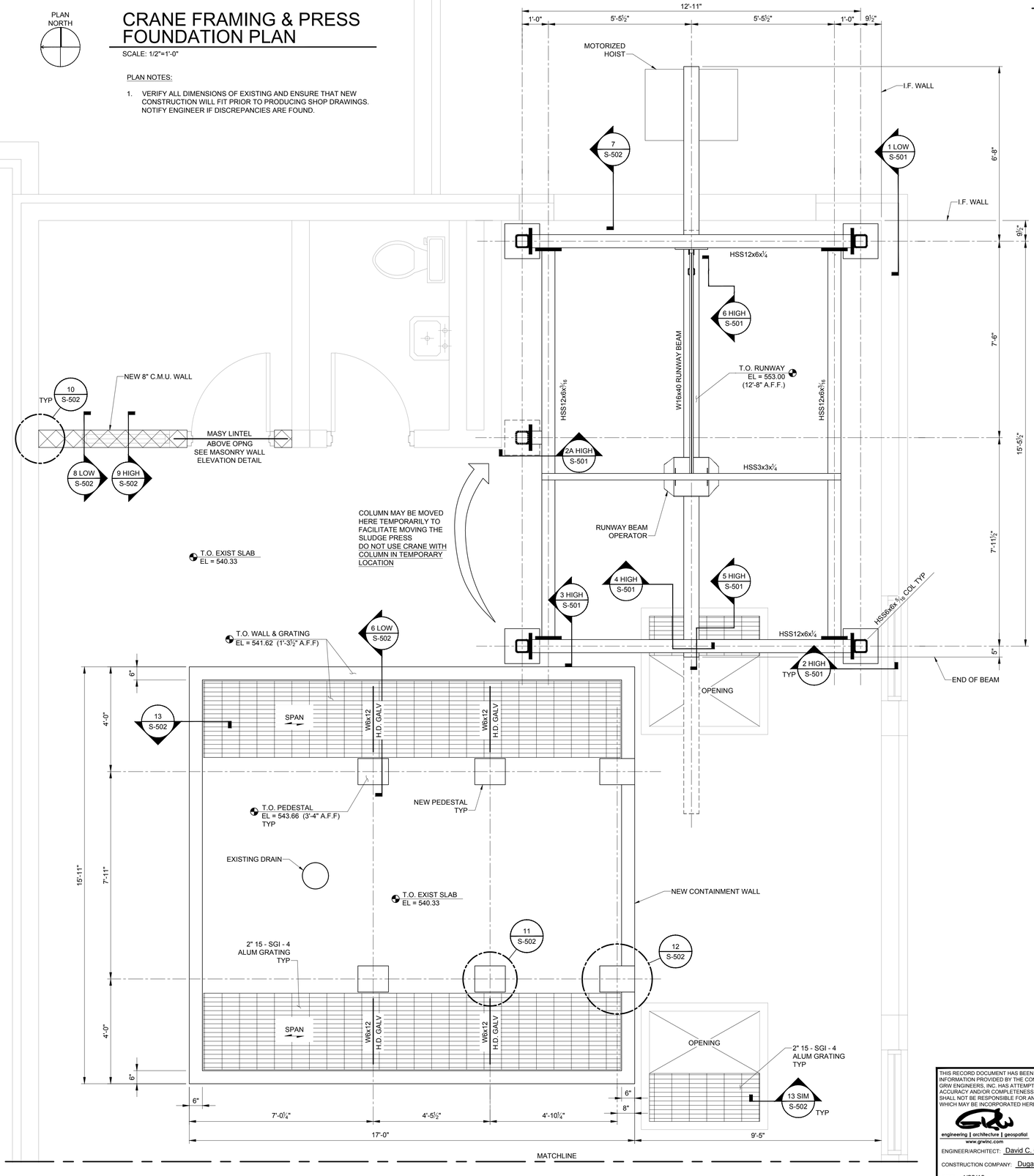
PLAN NORTH

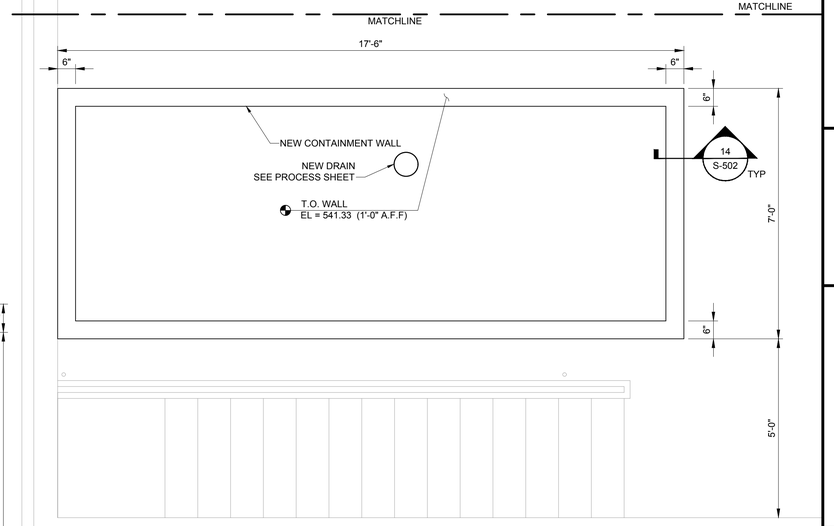
CRANE FRAMING & PRESS FOUNDATION PLAN

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

PLAN NOTES:

1. VERIFY ALL DIMENSIONS OF EXISTING AND ENSURE THAT NEW CONSTRUCTION WILL FIT PRIOR TO PRODUCING SHOP DRAWINGS. NOTIFY ENGINEER IF DISCREPANCIES ARE FOUND.

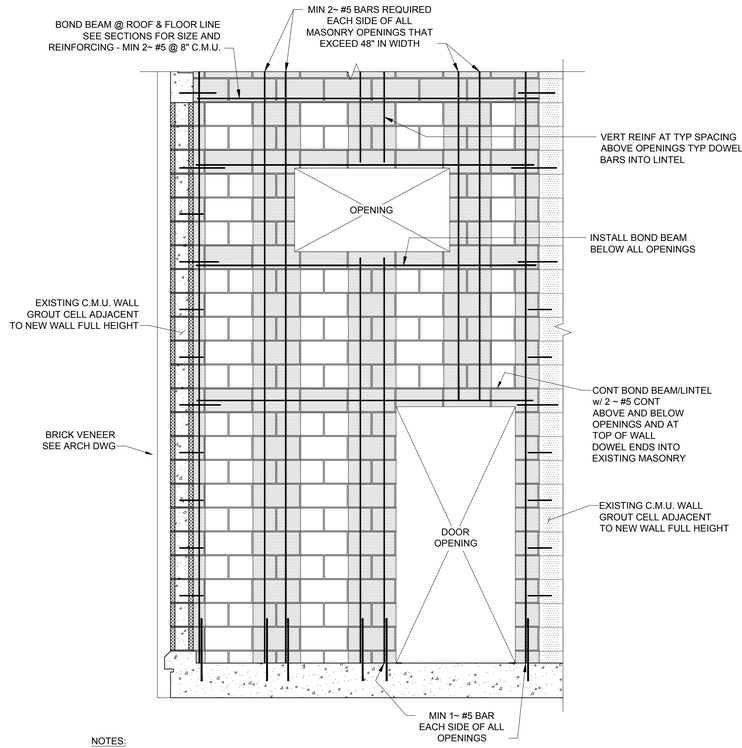




PLAN NORTH

POLYMER MIXING TANK CONTAINMENT FOUNDATION PLAN

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



NOTES:

1. GROUT AND REINFORCE WALL AS SHOWN.
2. SEE DETAILS FOR DOWELS REQUIRED AT BASE OF WALLS.
3. CENTER REINFORCING BARS IN GROUTED CELLS UNLESS NOTED OTHERWISE.
4. USE BAR POSITIONERS AT MINIMUM 4'-0" SPACING TO SUPPORT REINFORCING BARS.
5. FOLLOW SPECIFIED GROUTING PROCEDURES.
6. CLEAN MORTAR FROM EDGES OF CELLS SO GROUT CAN FLOW SMOOTHLY AND FILL ENTIRE CELL.
7. USE LINTEL BLOCK OVER OPENINGS AND CONTINUE WITH OPEN-BOTTOM BOND BEAM FROM EDGE OF OPENING INTO WALL SO THAT VERTICAL REINFORCING AT JAMB CAN PASS.
8. USE OPEN-ENDED BLOCK OR KNOCK OUT WEB ON ONE END TO ALLOW SETTING BLOCK AROUND REINFORCEMENT NEAR TOP OF WALL.

MASONRY WALL ELEVATION DETAIL

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

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT FRAMING PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: MWC
DRAWN: MWC
REVIEWED:
APPROVED:

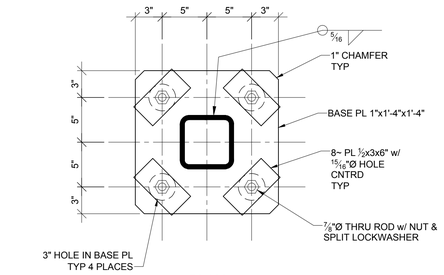
REVISIONS

NO.	DESCRIPTION	DATE	BY

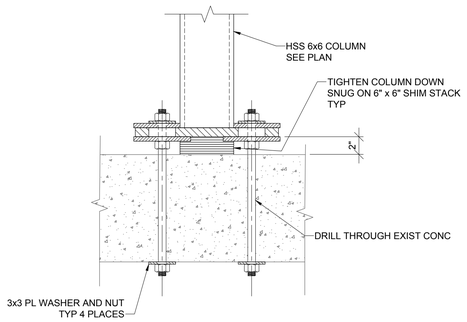
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

DATE: APRIL, 2019
SCALE: AS NOTED
SHEET NO. S-101

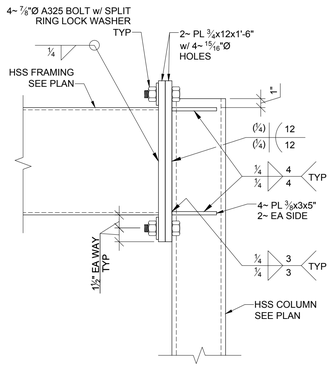
PLOTTED BY: rwilliamson
PRINTED: 4/23/2019 @ 2:41PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-S-101.dwg



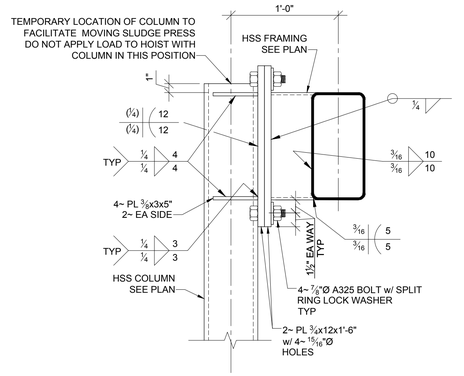
PLAN



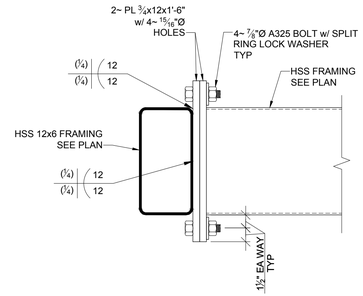
1 LOW SECTION
SCALE: 1 1/2"=1'-0"



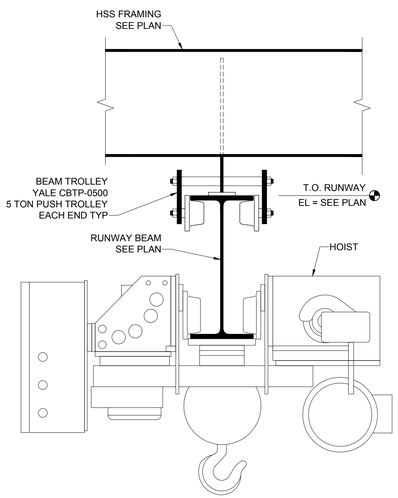
2 HIGH SECTION
SCALE: 1 1/2"=1'-0"



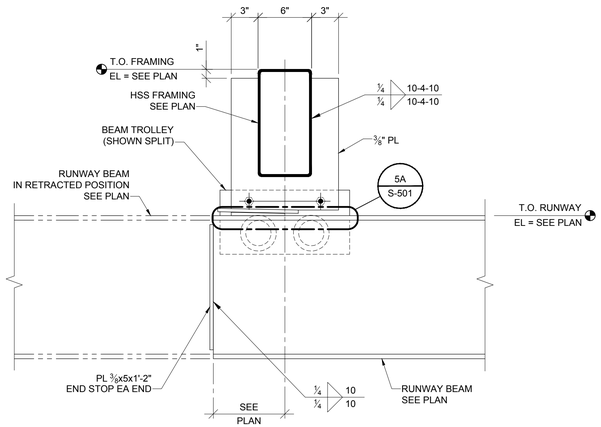
2A HIGH SECTION
SCALE: 1 1/2"=1'-0"



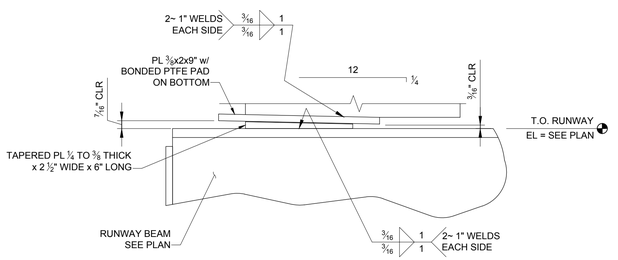
3 HIGH SECTION
SCALE: 1 1/2"=1'-0"



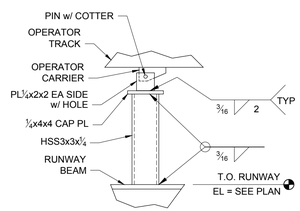
4 HIGH SECTION
SCALE: 1 1/2"=1'-0"



5 HIGH SECTION
SCALE: 1 1/2"=1'-0"



5A DETAIL
SCALE: 3"=1'-0"



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

RECORD DOCUMENTS

BELT FILTER PRESS REPLACEMENT SECTIONS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DESIGNED: MWC
DRAWN: MWC
REVIEWED:
APPROVED:

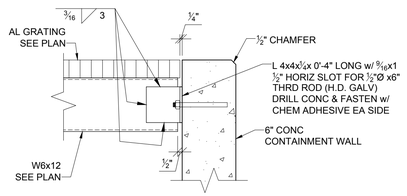
DATE: APRIL, 2019
SCALE: AS NOTED
SHEET NO. S-501

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

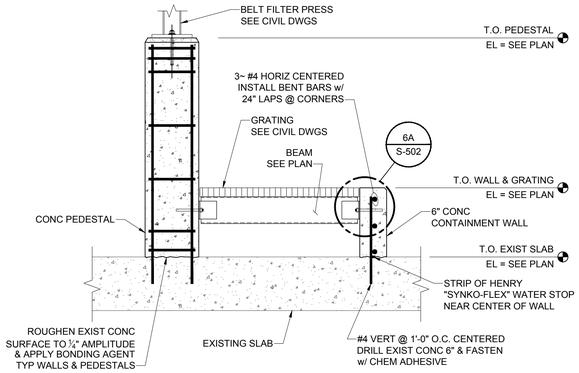
engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne
CONSTRUCTION COMPANY: Dugan & Meyers
DATE: 4/23/19

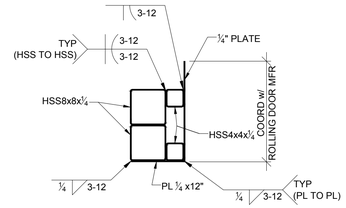
PLOTTED BY: rmwilliamson
PRINTED: 4/23/2019 @ 2:41PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-S-501.dwg



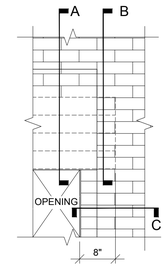
6A DETAIL
SCALE: 1 1/2"=1'-0"



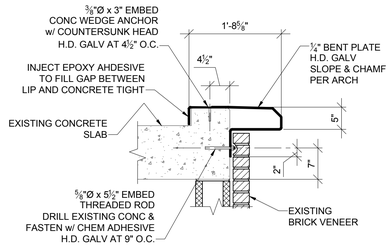
6 LOW SECTION
SCALE: 3/4"=1'-0"



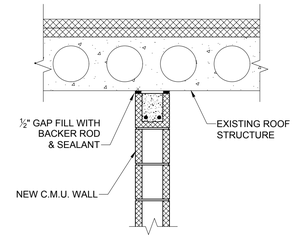
SECTION A



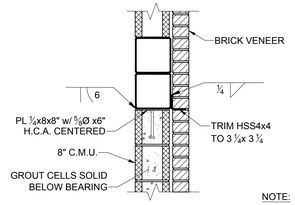
ELEVATION



SECTION AT SILL

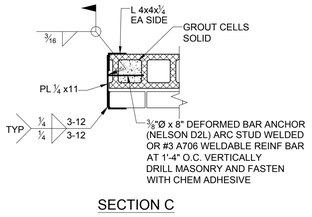


9 HIGH SECTION
SCALE: 3/4"=1'-0"

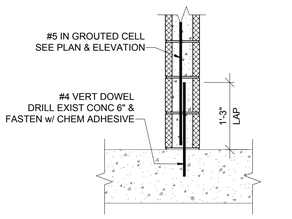


SECTION B

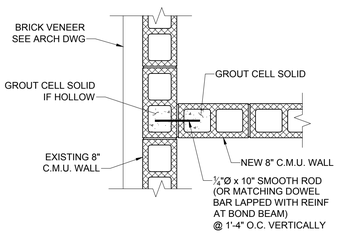
NOTE:
ALL STEEL H.D. GALV.



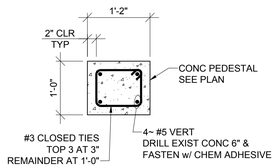
SECTION C



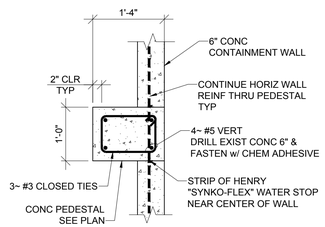
8 LOW SECTION
SCALE: 3/4"=1'-0"



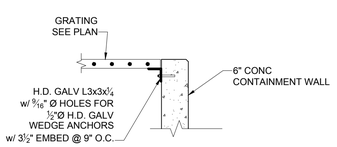
10 DETAIL
SCALE: 3/4"=1'-0"



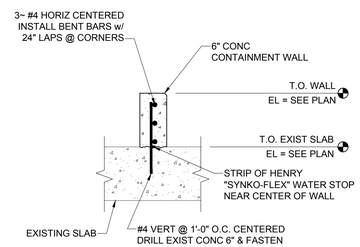
11 DETAIL
SCALE: 3/4"=1'-0"



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



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



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

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT SECTIONS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: MWC
DRAWN: MWC
REVIEWED:
APPROVED:

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK — THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

SCALE: AS NOTED

SHEET NO.

S-502

PLOTTED BY: rwilliamson

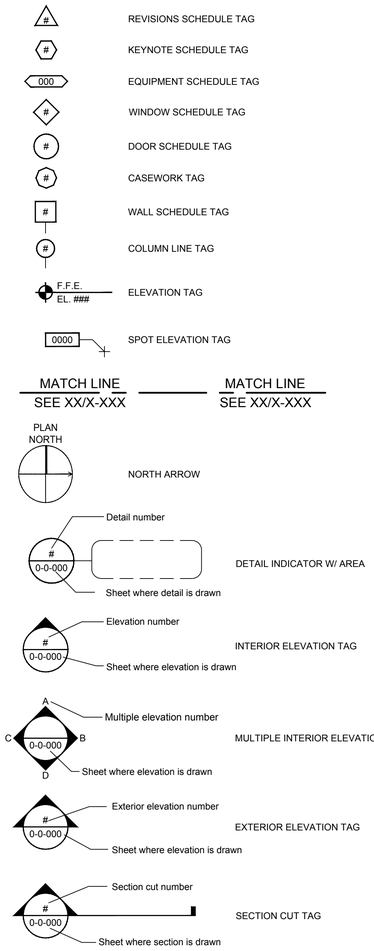
PRINTED: 4/23/2019 @ 2:41PM

FILE NAME: U:\4384-NKWD_TMTP_BFP\Working Drawings\AutoCAD\4384-S-502.dwg

GENERAL ARCHITECTURAL NOTES:

1. DIMENSIONS THAT ARE NOT STATED AS "MAXIMUM" OR "MINIMUM" ARE ABSOLUTE.
2. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR DIMENSIONAL USE. USE ONLY WRITTEN DIMENSIONS.
3. CONTRACTOR SHALL INSTALL ALL BUILDING COMPONENTS WITHIN CURRENT DIMENSIONAL REQUIREMENTS OF THE ABA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.
4. ALL EQUIPMENT SHOWN IN THE DRAWINGS IS TO BE CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED "NIC".
5. CONTRACTOR AND SUB-CONTRACTORS TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OR ORDERING MATERIALS. INQUIRIES AND DISCREPANCIES SHOULD BE DIRECTED TO THE DESIGNER OF RECORD.
6. CONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES, AND REGULATIONS OF FEDERAL, STATE, REGIONAL, AND LOCAL AUTHORITIES REGARDING HANDLING, STORING, TRANSPORTING, AND DISPOSING OF HAZARDOUS MATERIALS. IF THE CONTRACTOR ENCOUNTERS MATERIALS WHICH HAVE NOT BEEN REMOVED OR RENDERED HARMLESS, THEY SHALL STOP WORK IN THE AREA AFFECTED AND REPORT THE CONDITION TO THE CONTRACTING OFFICERS REPRESENTATIVE AND PROPER AUTHORITIES IN WRITING.
7. ALL ROOM NUMBERS ARE FOR CONSTRUCTION PURPOSES ONLY.
8. PROPERLY SEAL ALL CONDUITS, PIPES, DUCTS & OTHER ITEMS OR SYSTEMS THAT PENETRATE FIRE-RATED PARTITIONS, WALLS, AND FLOORS. PROVIDE CLASSIFIED SEALANT SYSTEMS BY UNDERWRITERS LABORATORIES, INC.
9. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE DESIGNER OF RECORD PRIOR TO PROCEEDING WITH WORK.
10. SEPARATE ALL DISSIMILAR METALS TO PREVENT CORROSION CAUSE BY ELECTROLYSIS ACTION OR OTHER CAUSES AS RECOMMENDED BY THE RESPECTIVE PRODUCT MANUFACTURER OR SUPPLIER.
11. THE CONTRACTOR SHALL PROVIDE DUST AND SOUND BARRIERS AS REQUIRED TO REASONABLY CONTAIN DIRT AND NOISE WITHIN THE CONSTRUCTION SITE.

ARCHITECTURAL SYMBOL KEY:



ABBREVIATIONS

A	
A.C.	AIR CONDITIONED
ACOUST	ACOUSTIC TILE CEILING
ACOUST / P	ACOUSTIC WALL PANEL
ACOUST / S	ACOUSTIC TEXTURED SPRAY FINISH
A.D.	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADDIT.	ADDITIONAL
A.H.U.	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM.	ALUMINUM
AMP., A.	AMPERES
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATELY
A.O.	ACCESS OPENING
ARCH.	ARCHITECTURAL
ARGB	ABUSE-RESISTANT GYP. BD.
A.T.	ASPHALT TILE
AV	AUDIO VISUAL
B	
BAL.	BALANCE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLANK
BM.	BEAM
BOT.	BOTTOM
B.O.	BOTTOM OF
BRG.	BEARING
B.T.U.H.	BRITISH THERMO UNIT/HOUR
C	
℄	CENTER LINE
CAB.	CABINET
CAP.	CAPACITY
CARPT	CARPET
C/B	CIRCUIT BREAKER
C.D.	CEILING DIFFUSER
CEM.	CEMENT
CER	CERAMIC
C.F.M.	CUBIC FEET/MINUTE
CIRC.	CIRCULATING
C.J.	CONTROL JOINT
CKT.	CIRCUIT
CL.	CLOSET
CLG.	CEILING
CMD	CORRUGATED METAL DECKING
C.M.U.	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDENSATE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR. JT.	CONTRACTION JOINT
COORD.	COORDINATE
CT	CERAMIC TILE
CTB	CERAMIC TILE BASE
D	
DEMO	DEMOLISH / DEMOLITION
DET.	DETAIL
DF	DRINKING FOUNTAIN
DIA.	DIAMETER

D (CONT'D.)	
DIFF.	DIFFUSER
DIM.	DIMENSION
DISC.	DISCONNECT
D.J.	DUMMY JOINT
DN.	DOWN
DR.	DRAIN
D.S.	DOWN SPOUT
DWG.(S)	DRAWING(S)
E	
EA.	EACH
E.C.	EMPTY CONDUIT
E.F.	EXHAUST FAN
E.J.	EXPANSION JOINT
ELEC.	ELECTRIC
ELEV.	ELEVATION
ENG.	ENGINEER
EP	EPOXY PAINT
EQUIP.	EQUIPMENT
E.W.C.	ELECTRIC WATER COOLER
EXH.	EXHAUST
EXT.	EXTERIOR
EXIST.	EXISTING
F	
F.A.	FIRE ALARM
F.C.	FLEXIBLE CONNECTION
F.D.	FLOOR DRAIN
F.E.C.	FIRE EXTINGUISHER CABINET
F.F.E.	FINISH FLOOR ELEVATION
F.O.	FACE OF
FIN.	FINISH
FLR.	FLOOR
FT.	FOOT, FEET
FTG.	FOOTING
F.V.	FIELD VERIFY
G	
GA.	GAGE
GAL.	GALLON
GALV.	GALVANIZED
GEN.	GENERAL
GL.	GLASS
GLAZ.	GLAZING
GND.	GROUND
G.P.H.	GALLONS/HOUR
G.P.M.	GALLONS/MINUTE
G.W.B.	GYPSUM WALL BOARD
GYP.	GYPSUM
H	
H.	HIGH
H.&V.	HEATING AND VENTILATING
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
HDWR.	HARDWARE
HGHT.	HEIGHT
H.M.	HOLLOW METAL
H.P.	HORSE POWER
HR.	HOUR
HTR.	HEATER
HTG.	HEATING
HYD.	HYDRANT

I	
I.D.	INSIDE DIAMETER
I.E.	INVERT ELEVATION
IN.	INCHES
INCAND.	INCANDESCENT
INSUL.	INSULATION
INT.	INTERIOR
INTL	INTERNATIONAL
J	
JAN.	JANITOR
J.B.	JUNCTION BOX
JCT.	JUNCTION
JT.	JOINT
K	
KVA	KILOVOLT AMPERE
KW	KILOWATT
L	
L.	LONG
LAV.	LAVATORY
LB.,#	POUND
L.P.	LIGHTING PANEL
LTG.	LIGHTING
M	
MAINT.	MOISTURE-RESISTANT GYP.BD. MAINTENANCE
MAX.	MAXIMUM
M.D.P.	MAIN DISTRIBUTION PANEL
MECH.	MECHANICAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MRGB	
M.T.	METAL THRESHOLD
MTD.	MOUNTED
MTG.	MOUNTING
MTL.	METAL
M.V.	MECHANICAL VENTILATION
M.G.T.	MATT GLAZE TILE
N	
N.A., N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
O	
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OH.	OVERHEAD
OPNG.	OPENING
OPP.	OPPOSITE
O.S.D.	OPEN SIGHT DRAIN
P	
P	PAINT
PART.	PARTITION
PER.	PERIMETER
P.I.	POINT OF INTERSECTION
PL.	PLATE
PLBG.	PLUMBING
PLY. WD.	PLYWOOD
PNL.	PANEL
P.O.T.	POINT ON TANGENT
PRE	PREFINISHED
PRESS.	PRESSURE
PRB	PROFILED RUBBER BASE

P (CONT'D.)	
PSF	POUNDS/SQUARE FOOT
PSI	POUNDS/SQUARE INCH
PT.	POINT
PWD	PRE-ENGINEERED WOOD
Q	
QT	QUARRY TILE
QTB	QUARRY TILE BASE
QTR.	QUARTER
QUAN.	QUANTITY
R	
R.	RISER
R.A.	RETURN AIR
RAD.	RADIUS
RB	RUBBER COVE BASE
RD.	ROUND
REC'D.	RECOMMENDED
RECIRC.	RECIRCULATING
RECP.	RECEPTACLE
REG.	REGISTER
REINF.	REINFORCING
REQ.	REQUIRED
RET.	RETURN
R.G.	RETURN GRILLE
RM.	ROOM
R.P.M.	REVOLUTION/MINUTE
S	
S.	SUPPLY
SCH.	SCHEDULE
SECT.	SECTION
SERV.	SERVICE
SHT.	SHEET
S.J.	SLIP JOINT
SPEC.	SPECIFICATIONS
SQ. FT., SF	SQUARE FEET
ST	STAIN
STOR.	STORAGE
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
SV	SHEET VINYL
T	
T	THICK/THICKNESS
TEL.	TELEPHONE
TEMP.	TEMPERATURE
THRESH.	THRESHOLD
T.O.	TOP OF
TYP.	TYPICAL
U	
URIN.	URINAL
UTIL.	UTILITY
V	
V.	VOLT
VCT	VINYL COMPOSITION TILE
VENT.	VENTILATION
VERT.	VERTICAL
W	
W.	WATT
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD
WF	WIDE FLANGE
W.W.F.	WELDED WIRE FABRIC

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

RECORD DOCUMENTS

BELT FILTER PRESS REPLACEMENT
GENERAL NOTES & SYMBOLS
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	JDR
DRAWN:	JDR
REVIEWED:	JKP
APPROVED:	JKP

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

DATE: APRIL, 2019

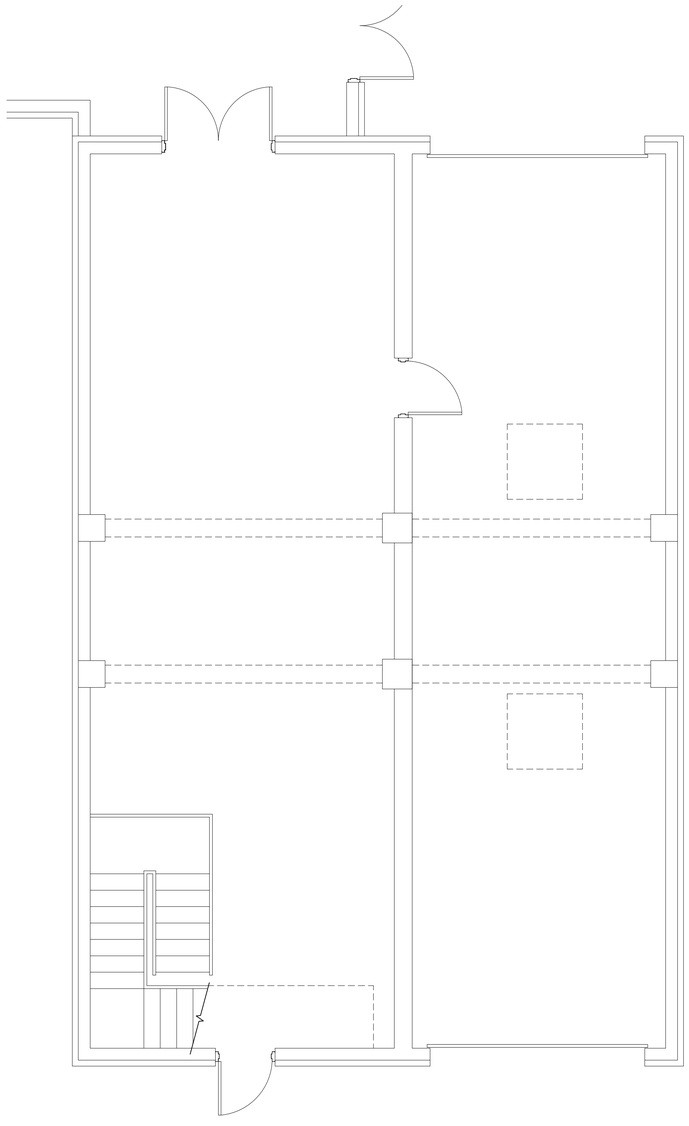
SCALE: 1/4" = 1'-0"

SHEET NO. A-001

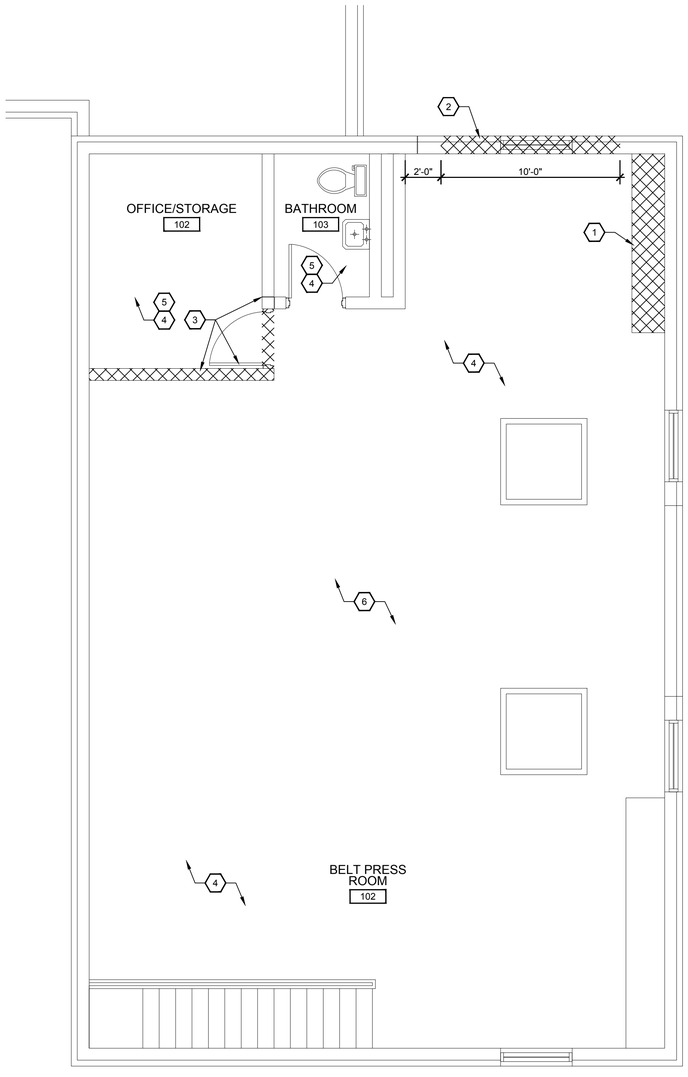
PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:39PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 A-001.dwg



1 1st FLOOR DEMO PLAN
SCALE: 1/4"=1'-0"
0 2' 4' 8'
PLAN NORTH



2 2nd FLOOR DEMO PLAN
SCALE: 1/4"=1'-0"
0 2' 4' 8'
PLAN NORTH

DEMOLITION KEYNOTES:

1. REMOVE CONCRETE PAD.
2. REMOVE PORTION OF THE WALL FOR INSTALLATION OF NEW OVERHEAD DOOR.
3. REMOVE STORAGE DOOR AND WALL. TOOTH EXISTING CMU TO RECEIVE NEW.
4. EXISTING CONCRETE FLOORS AND EDGE CURB TO BE COMMERCIAL BLAST CLEANED (SSPC-SP6). ALL EXISTING PAINT/FINISH TO BE REMOVED.
5. REMOVE VCT FLOORING.
6. SEE OTHER DISCIPLINES FOR ADDITIONAL DEMOLITION ITEMS.

DEMOLITION GENERAL NOTES:

1. DIMENSIONS ON DRAWINGS WERE GATHERED BY EXISTING DRAWINGS OR FIELD MEASUREMENTS - ACTUAL DIMENSIONS MAY VARY FROM THOSE INDICATED - CONTRACTOR SHALL FIELD VERIFY.
2. THE CONDITION OF EACH KEYNOTED ITEM WAS GENERALLY SURVEYED. WORK REQUIRED IS GENERALLY INDICATED BUT DOES NOT INCLUDE ALL CONDITIONS EITHER SEEN OR UNSEEN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE JOBSITE TO DETERMINE THE ACTUAL SCOPE OF EACH ITEM, ITEMS NOT LISTED, AND THE TOTAL WORK REQUIRED TO COMPLETE WORK TO A FINISHED CONDITION.
3. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE. SEE SPECIFICATION SECTION 013213.
4. SALVAGE OF EQUIPMENT AS INDICATED IN SPECIFICATION SECTION 024100.
5. CONTRACTOR SHALL COORDINATE DEMOLITION WITH OWNER DURING SCHEDULED PLANT SHUTDOWN UNLESS OTHERWISE APPROVED BY OWNER.
6. ROOM NUMBERS NOTED ON DRAWING ARE FOR DOCUMENT COORDINATION ONLY. ROOM NUMBERS NOTED ON DRAWINGS MAY NOT REFLECT THE ROOM NUMBERS ON SITE.
7. CONTRACTOR TO COORDINATE WORK WITH OTHER TRADES. PATCH AND REPAIR WORK TO COMMENCE ONLY AFTER INSTALLATION WORK HAS BEEN COMPLETED.
8. CONTRACTOR TO ASSUME RESPONSIBILITY FOR EXISTING PROJECT CONDITIONS.
9. PROVIDE AND MAINTAIN TEMPORARY WEATHER PROTECTION DURING INTERVAL BETWEEN DEMOLITION ON EXTERIOR SURFACES AND NEW CONSTRUCTION TO PREVENT WATER INFILTRATION AND DAMAGE TO STRUCTURE AND INTERIOR AREAS.
10. PROVIDE AND MAINTAIN SHORING, BRACING, AND STRUCTURAL SUPPORTS AS REQUIRED TO PRESERVE STABILITY AND TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF CONSTRUCTION TO REMAIN AND TO PREVENT UNEXPECTED OR UNCONTROLLED MOVEMENT OF CONSTRUCTION BEING DEMOLISHED.
11. PROCEED WITH DEMOLITION SYSTEMATICALLY FROM HIGHER TO LOWER LEVEL. COMPLETE REMOVAL OPERATIONS ABOVE FLOOR LEVEL, SUCH AS REMOVAL OF ITEMS ABOVE CEILINGS AND CEILING REMOVAL BEFORE DISTURBING SUPPORTING MEMBERS BELOW.
12. PROTECT AND MAINTAIN FLOOR AND WALL FINISHES TO REMAIN FOR REUSE.
13. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS AT CONCEALED SPACES. VERIFY CONDITION AND CONTENTS OF HIDDEN SPACES - MAINTAIN FIRE WATCH AND PORTABLE FIRE SUPPRESSION DEVICES.
14. VERIFY ELECTRICAL CIRCUITS ARE DE-ENERGIZED PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
15. VERIFY WATER SERVICE IS SHUT OFF. DISCONNECT AND CAP LINES PRIOR TO BEGINNING DEMOLITION WORK. DO NOT ALLOW WATER SERVICE TO FREEZE DURING THE PROCESS OF SHUTTING DOWN UTILITIES.
16. VERIFY GAS SERVICE IS SHUT OFF.
17. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne
CONSTRUCTION COMPANY: Dugan & Meyers
DATE: 4/23/19

GRW PROJECT NO. 4384
CLIENT PROJECT NO.

RECORD DOCUMENTS

BELT FILTER PRESS REPLACEMENT
DEMOLITION PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

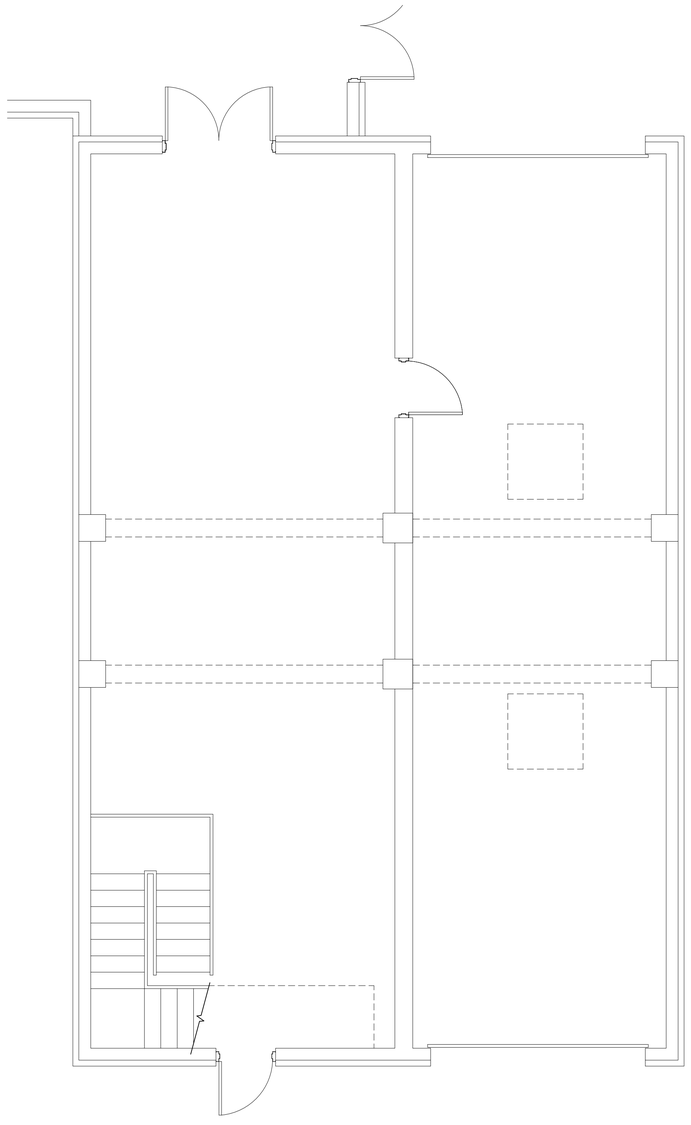
DESIGNED:	JDR
DRAWN:	JDR
REVIEWED:	JKP
APPROVED:	JKP

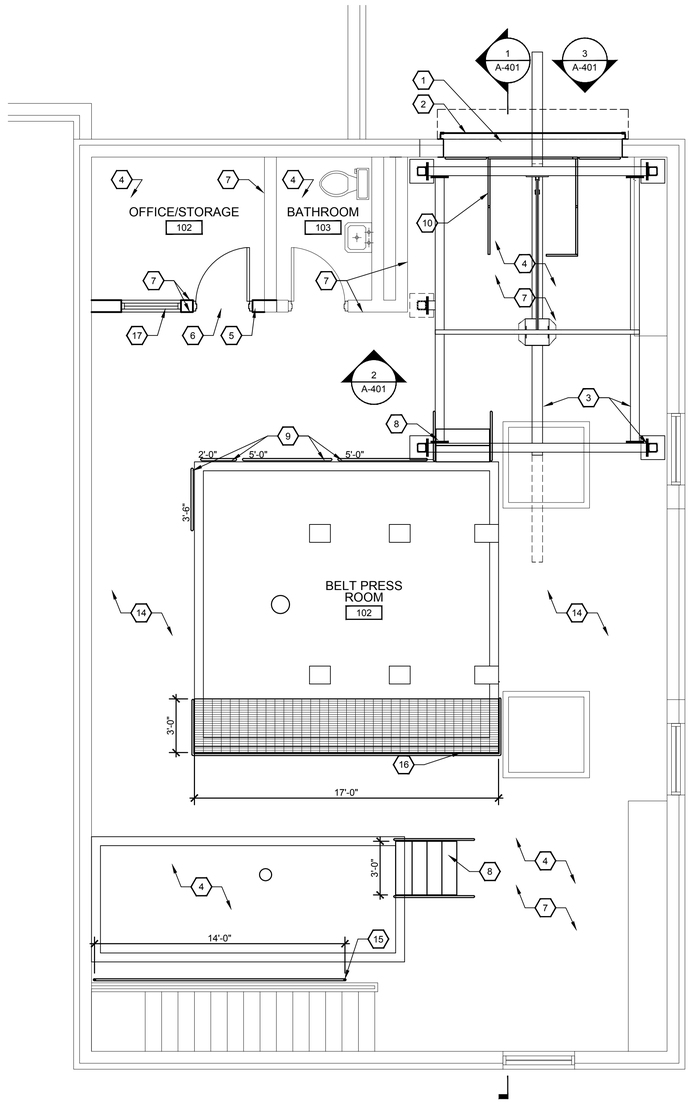
REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

DATE: APRIL, 2019
SCALE: 1/4" = 1'-0"
SHEET NO.
A-101





CONSTRUCTION KEYNOTES:

1. OPENING FOR OVERHEAD DOOR.
2. 10'W x 12'-8"H OVERHEAD COILING DOOR.
3. HOIST SYSTEM - SEE STRUCTURAL.
4. ALL EXISTING FLOORS AND CONCRETE CURB AREAS TO BE FINISHED IN ACCORDANCE WITH SPECIFICATION SECTION 099600.
5. NEW 8" CMU WALL. TOOTH NEW CMU INTO EXISTING WALL. PROVIDE 2'-0"x4'-0" ALUMINUM LOUVERED OPENING NEAR TOP. SEE 2/A-401.
6. NEW 3'-0" x 7'-0" PAINTED METAL DOOR AND FRAME. PROVIDE LEVER HANDLE WITH PASSAGE TYPE HARDWARE. SEE DETAILS ON A-501.
7. PAINT WALLS & PROVIDE TOUCH-UP PAINTING TO MATCH ADJACENT PAINT WHERE FINISH IS DAMAGED OR EQUIPMENT HAS BEEN REMOVED.
8. ALUMINUM STAIRS AND HANDRAILS - SEE DETAIL 4/A-401.
9. REMOVABLE RAILING - SEE DETAIL 7&8/A-501.
10. MZ SERIES CLEAR HEIGHT MEZZANINE SAFETY GATES
11. RELOCATE EXISTING HEATER TO AVOID HOIST STRUCTURE.
12. RETRACTABLE BEAM OPERATOR - SEE SPECIFICATION 083610 - CHAIN DRIVE OPENER.
13. PALLET LIFT - LOW-HEIGHT 'H' FRAME 4 POINT PALLET LIFTING BEAM WITH PALLET LIFTING BARS AND CABLES.
14. PATCH & PAINT ANY PENETRATIONS CREATED FROM OF REMOVAL OF DEMO'D ITEMS - TYPICAL. REFER TO SPECIFICATION 017329-CUTTING AND PATCHING.
15. ALUMINUM POST AND CHAIN LINK SAFETY FENCE. SECURE TO CONCRETE FLOOR AND CEILING WITH MESH TO RUN FULL HEIGHT.
16. * ALUMINUM MEZZANINE AND LADDER.
17. 3'-4"Wx3'-0"H METAL FRAMED WINDOW. SEE A-401 FOR DETAILS.

CONSTRUCTION GENERAL NOTES:

1. NOTES, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
2. ROOM NUMBERS NOTED ON DRAWING ARE FOR DOCUMENT COORDINATION ONLY. ROOM NUMBERS NOTED ON DRAWINGS MAY NOT REFLECT THE ROOM NUMBERS ON SITE.
3. THE CONDITION OF EACH KEYNOTED ITEM WAS GENERALLY SURVEYED. WORK REQUIRED IS GENERALLY INDICATED BUT DOES NOT INCLUDE ALL CONDITIONS EITHER SEEN OR UNSEEN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE JOBSITE TO DETERMINE THE ACTUAL SCOPE OF EACH ITEM, ITEMS NOT LISTED, AND THE TOTAL WORK REQUIRED TO COMPLETE WORK TO A FINISHED CONDITION.
4. CONTRACTOR TO COORDINATE WORK WITH OTHER TRADES. PATCH AND REPAIR WORK TO COMMENCE ONLY AFTER INSTALLATION WORK HAS BEEN COMPLETED.
5. FIRST FLOOR PLAN SHOWN FOR REFERENCE ONLY NO ARCHITECTURAL FINISHES WORK THIS FLOOR.

* MEZZANINE - 3'Wx17'Lx5'-10"H ALUMINUM CONSTRUCTION. DESIGNATED DESIGN BY MANUFACTURER. REFER TO SPEC SECTIONS 055202-ALUMINUM HANDRAILS AND RAILINGS AND 055300-ALUMINUM GRATING FOR MATCHING MATERIAL TYPES TO BE INCLUDED. CONSTRUCTION TO BE COMPLIANT WITH ALL APPLICABLE CODES.

1 1st FLOOR CONST. PLAN
SCALE: 1/4"=1'-0" 0 2' 4' 8'

PLAN NORTH

2 2nd FLOOR CONST. PLAN
SCALE: 1/4"=1'-0" 0 2' 4' 8'

PLAN NORTH

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.gwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.gwinc.com

BELT FILTER PRESS REPLACEMENT CONSTRUCTION PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JDR	JDR	JKP	JKP

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

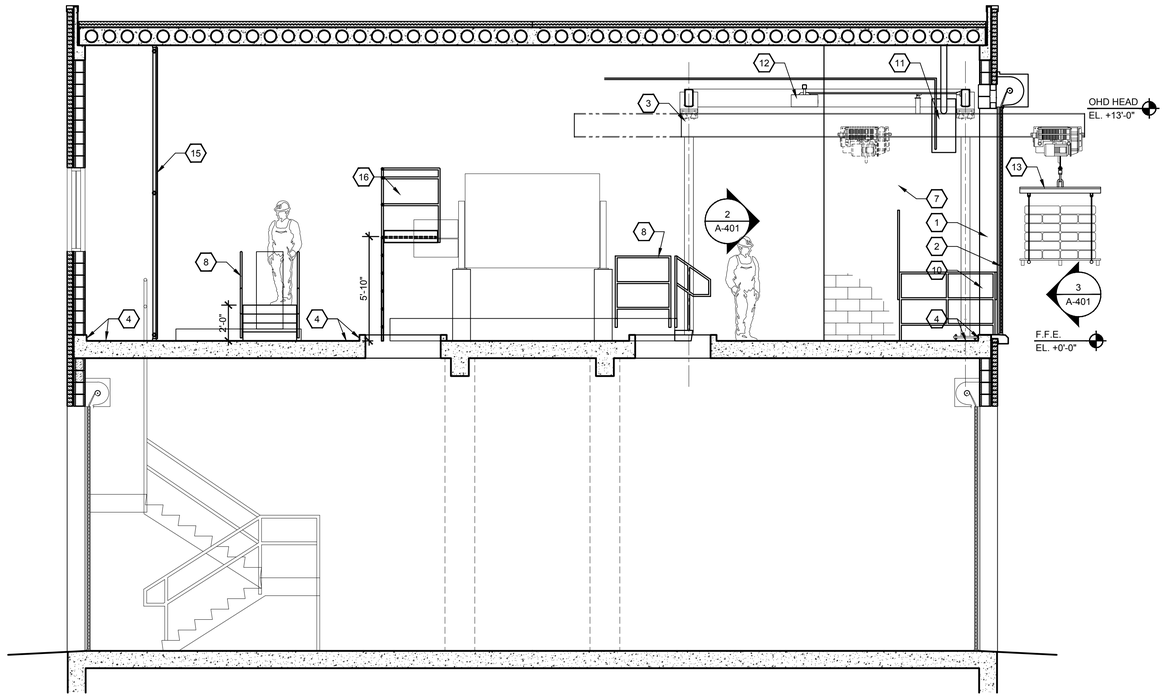
SHEET NO.

A-102

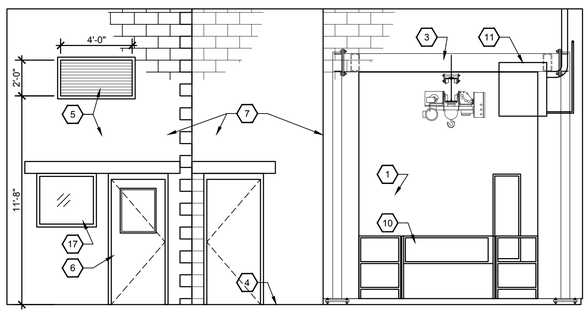
PLOTTED BY: mwilliamson

PRINTED: 4/26/2019 @ 11:24AM

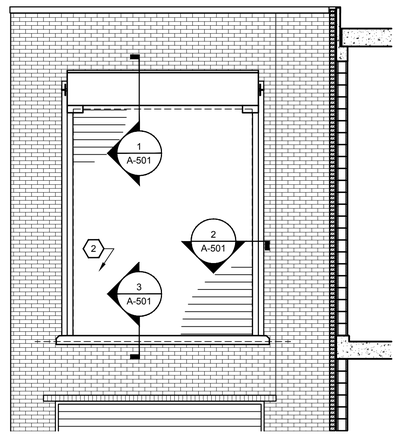
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 A-102.dwg



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



2 INTERIOR ELEVATION
SCALE: 1/4"=1'-0"



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

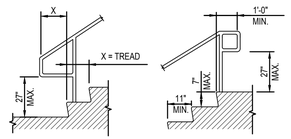
CONSTRUCTION KEYNOTES:

1. OPENING FOR OVERHEAD DOOR.
2. 10'W x 12'-8"H OVERHEAD COILING DOOR.
3. HOIST SYSTEM - SEE STRUCTURAL.
4. ALL EXISTING FLOORS AND CONCRETE CURB AREAS TO BE FINISHED IN ACCORDANCE WITH SPECIFICATION SECTION 099600.
5. NEW 8" CMU WALL. TOOTH NEW CMU INTO EXISTING WALL. PROVIDE 2'-0"x4'-0" ALUMINUM LOUVERED OPENING NEAR TOP. SEE 2/A-401.
6. NEW 3'-0" x 7'-0" PAINTED METAL DOOR AND FRAME. PROVIDE LEVER HANDLE WITH PASSAGE TYPE HARDWARE. SEE DETAILS ON A-501.
7. PAINT WALLS & PROVIDE TOUCH-UP PAINTING TO MATCH ADJACENT PAINT WHERE FINISH IS DAMAGED OR EQUIPMENT HAS BEEN REMOVED.
8. ALUMINUM STAIRS AND HANDRAILS - SEE DETAIL 4/A-401.
9. REMOVABLE RAILING - SEE DETAIL 7&8/A-501.
10. MZ SERIES CLEAR HEIGHT MEZZANINE SAFETY GATES
11. RELOCATE EXISTING HEATER TO AVOID HOIST STRUCTURE.
12. RETRACTABLE BEAM OPERATOR - SEE SPECIFICATION 083610 - CHAIN DRIVE OPENER.
13. PALLET LIFT - LOW-HEIGHT 'H' FRAME 4 POINT PALLET LIFTING BEAM WITH PALLET LIFTING BARS AND CABLES.
14. PATCH & PAINT ANY PENETRATIONS CREATED FROM OF REMOVAL OF DEMO'D ITEMS - TYPICAL. REFER TO SPECIFICATION 017329-CUTTING AND PATCHING.
15. ALUMINUM POST AND CHAIN LINK SAFETY FENCE. SECURE TO CONCRETE FLOOR AND CEILING WITH MESH TO RUN FULL HEIGHT.
16. * ALUMINUM MEZZANINE AND LADDER.
17. 3'-4"Wx3'-0"H METAL FRAMED WINDOW. SEE A-401 FOR DETAILS.

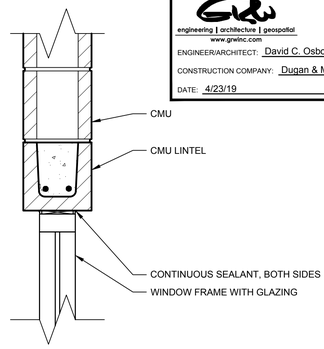
CONSTRUCTION GENERAL NOTES:

1. NOTES, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
2. ROOM NUMBERS NOTED ON DRAWING ARE FOR DOCUMENT COORDINATION ONLY. ROOM NUMBERS NOTED ON DRAWINGS MAY NOT REFLECT THE ROOM NUMBERS ON SITE.
3. THE CONDITION OF EACH KEYNOTED ITEM WAS GENERALLY SURVEYED. WORK REQUIRED IS GENERALLY INDICATED BUT DOES NOT INCLUDE ALL CONDITIONS EITHER SEEN OR UNSEEN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE JOBSITE TO DETERMINE THE ACTUAL SCOPE OF EACH ITEM. ITEMS NOT LISTED, AND THE TOTAL WORK REQUIRED TO COMPLETE WORK TO A FINISHED CONDITION.
4. CONTRACTOR TO COORDINATE WORK WITH OTHER TRADES. PATCH AND REPAIR WORK TO COMMENCE ONLY AFTER INSTALLATION WORK HAS BEEN COMPLETED.
5. FIRST FLOOR PLAN SHOWN FOR REFERENCE ONLY NO ARCHITECTURAL FINISHES WORK THIS FLOOR.

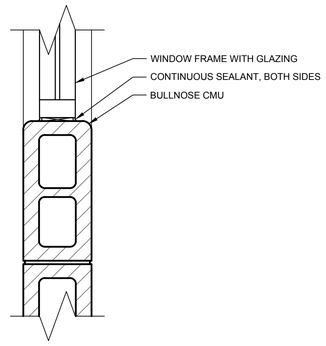
* MEZZANINE - 3'Wx17'Lx5'-10"H ALUMINUM CONSTRUCTION, DESIGNATED DESIGN BY MANUFACTURER. REFER TO SPEC SECTIONS 055202-ALUMINUM HANDRAILS AND RAILINGS AND 055300-ALUMINUM GRATING FOR MATCHING MATERIAL TYPES TO BE INCLUDED. CONSTRUCTION TO BE COMPLIANT WITH ALL APPLICABLE CODES.



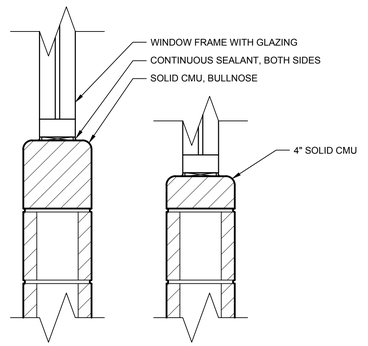
4 STAIR DETAILS
NOT TO SCALE



5 INTERIOR CMU WALL WINDOW HEAD DETAIL
SCALE: 1 1/2"=1'-0"



6 INTERIOR CMU WALL WINDOW JAMB DETAIL
SCALE: 1 1/2"=1'-0"



7 INTERIOR CMU WALL WINDOW SILL DETAIL
SCALE: 1 1/2"=1'-0"

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
SECTIONS AND ELEVATIONS
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JDR	JDR	JKP	JKP

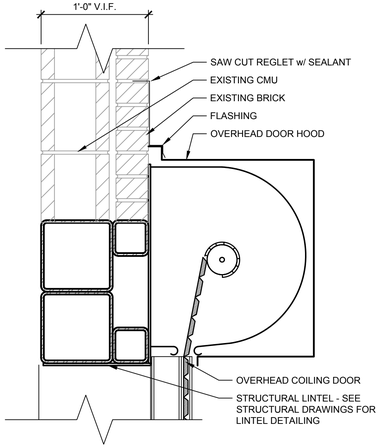
REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

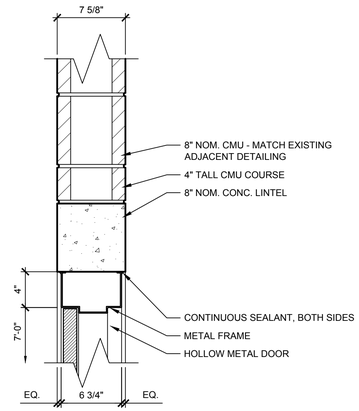
DATE: APRIL, 2019
SCALE: 1/4" = 1'-0"
SHEET NO. A-401

PLOTTED BY: mwilliamson
PRINTED: 4/26/2019 @ 11:13AM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 A-401.dwg



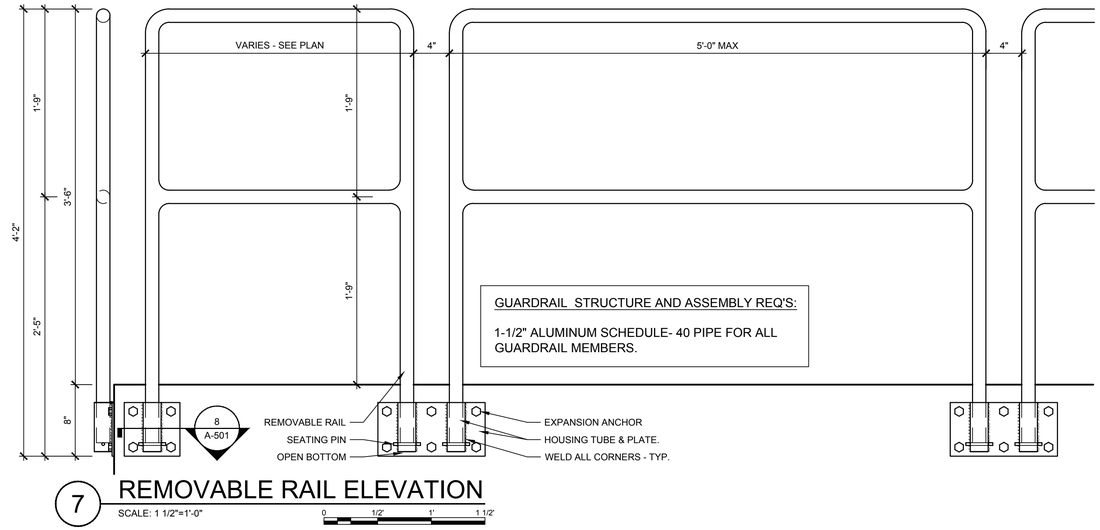
1 EXTERIOR CMU WALL OVERHEAD DOOR HEAD DETAIL

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



4 INTERIOR CMU WALL DOOR HEAD DETAIL

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



7 REMOVABLE RAIL ELEVATION

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

2 EXTERIOR CMU WALL OVERHEAD DOOR JAMB DETAIL

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

5 INTERIOR CMU WALL DOOR JAMB DETAIL

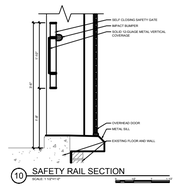
SCALE: 1 1/2"=1'-0"

8 REMOVABLE RAIL DETAIL

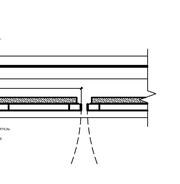
SCALE: 3"=1'-0"

3 EXTERIOR CMU WALL OVERHEAD DOOR SILL DETAIL

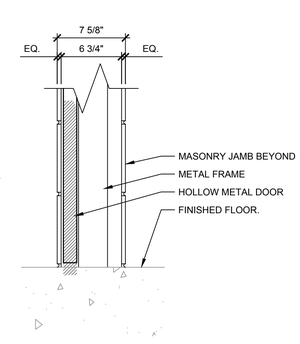
SCALE: 1 1/2"=1'-0"



10 SAFETY RAIL SECTION



9 SAFETY RAIL PLAN



6 INTERIOR CMU WALL DOOR THRESHOLD DETAIL

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

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT DETAILS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JDR	JDR	JKP	JKP

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

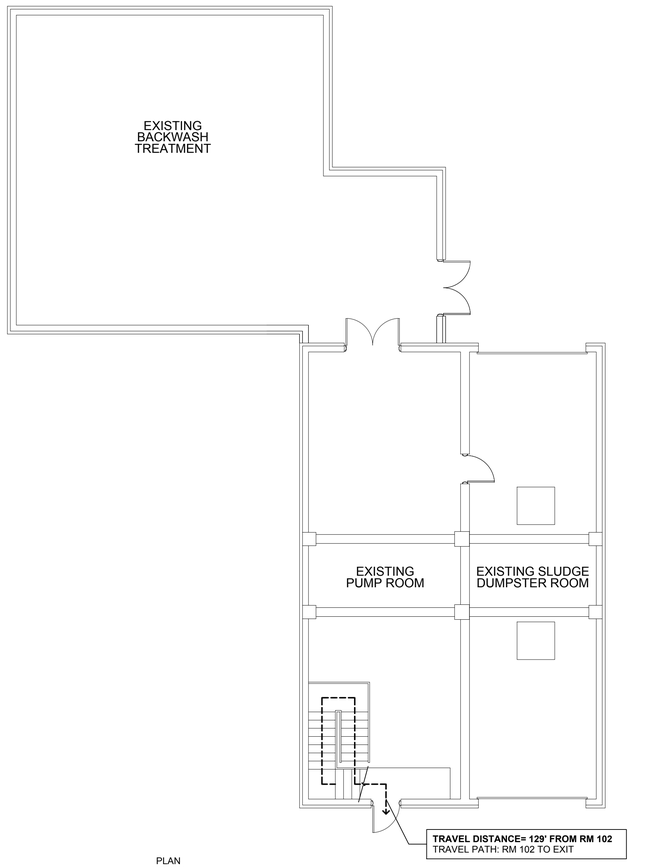
SHEET NO.

A-501

PLOTTED BY: rmwilliamson

PRINTED: 4/23/2019 @ 2:30PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 A-501.dwg

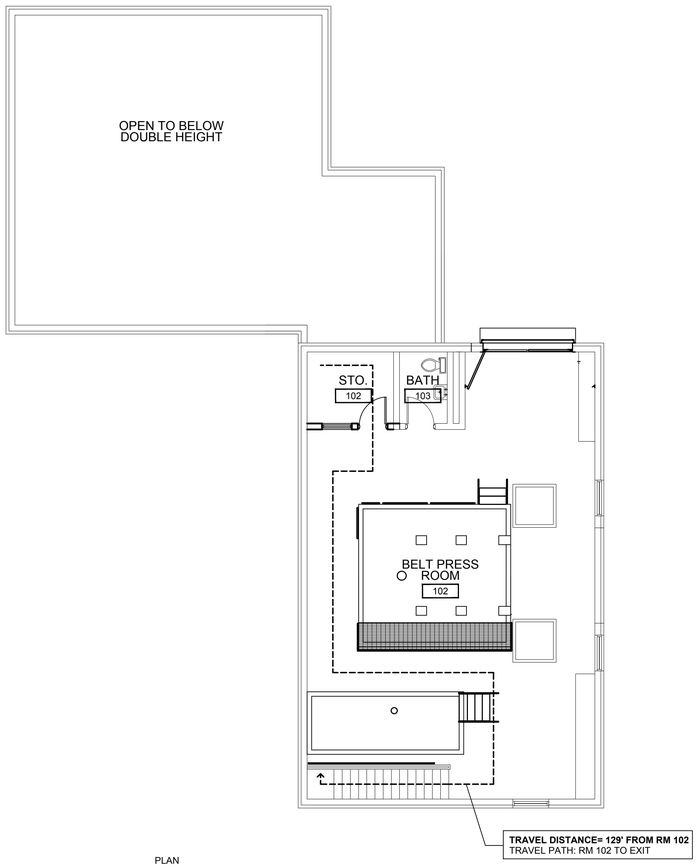


PLAN NORTH

1 1st FLR LIFE SAFETY

SCALE: 1/8"=1'-0"

0 4' 8' 16'



PLAN NORTH

2 2nd FLR LIFE SAFETY

SCALE: 1/8"=1'-0"

0 4' 8' 16'

KENTUCKY BUILDING CODE 2013 / LIFE SAFETY

EXISTING BUILDING ALTERATION			
USE AND OCCUPANCY CLASSIFICATION, EXISTING AND AS ALTERED : F-2 LOW HAZARD FACTORY INDUSTRIAL			
THE ROOMS BELOW CONTAIN CHEMICAL INDICATED IN AMOUNTS LESS THAN THE THRESHOLD INDICATED IN IBC TABLE 307.1			
BACKWASH TREATMENT: SODIUM BISULFATE SOLUTION / CORROSIVE / LESS THAN 500 GAL STORED, 500 GAL CLOSED SYSTEM.			
PUMP RM. CLARIFLOC C-3223 POLYMER: NON HAZARDOUS PER MFR. / (2) 200 GAL STORAGE TANKS.			
BELT PRESS RM.: CLARIFLOC A-3333P POLYMER / NON HAZARDOUS PER MFR. / (1) PALLET OF 40 X 50LB BAGS DRY POWDER.			
CONSTRUCTION TYPE, EXISTING AND AS ALTERED: TYPE IIB			
ALLOWABLE AREA:	23,000 S.F. PER STORY		
SPRINKLER INCREASE:	NOT REQUIRED		
ALLOWABLE STORIES:	3 STORIES		
TOTAL ALLOWABLE AREA:	23,000 S.F. PER STORY		
ALLOWABLE HEIGHT:	55'		
EXISTING AREA / STORIES / HT:	1ST FLR. 3,361 S.F. / 2ND FLR. 1,776 S.F. / 2 STORIES 34'-4"		
FIRE RESISTANCE RATINGS: REQUIRED & EXIST. TYPICAL			
	EXTERIOR / INTERIOR BEARING WALLS: 0 HRS.		
	EXTERIOR / INTERIOR NON-BEARING WALLS: 0 HR.		
	PRIMARY STRUCTURAL FRAME: 0 HR.		
	ROOF / FLOOR CONSTRUCTION AND SECONDARY MEMBERS: 0 HR.		
EGRESS			
CALCULATED OCCUPANT LOAD:			
	1ST FLR. 3,361 GROSS S.F. / 100 S.F. PER PERSON = 34 PERSONS		
	2ND FLR. 1,776 GROSS S.F. / 100 S.F. PER PERSON = 18 PERSONS		
	TOTAL (CALCULATED): 55 PERSONS		
NUMBER OF EXITS REQUIRED:			
	TABLE 1021.2(2) ALLOWS SECOND FLOOR TO HAVE ONE MEANS OF EGRESS		
	1009.3 EXCEPTION 1. ALLOWS THE EXISTING STAIR TO BE OPEN TO BOTH FLOORS		
	*3404 / 3412.2.4 ALTERED BLDGS. CODE COMPLIANCE NOT REQUIRED IF NOT LESS SAFE AFTER ALTERATIONS THAN BEFORE ALTERATIONS.		
	NUMBER OF EXITS REQUIRED & EXIST.:	1ST FLR.: 2	2ND FLR. 1
EGRESS COMPONENTS			
	EXIT TRAVEL DISTANCE:	MAX. 1ST FLR.: 300' MAX. 2ND FLR.: 75'	EXIST. 1ST FLR.: 85' *EXIST. 2ND FLR.: 129'
	COMMON PATH OF TRAVEL DISTANCE:	MAXIMUM: 75'	EXIST.: NA
	CORRIDOR WIDTH:	MINIMUM: 44"	EXIST.: NA
	DOOR CLEAR WIDTH (1008.1.1):	MINIMUM: 32"	EXIST: 36"
	STAIR CLEAR WIDTH (1009.4, EXCEPTION 1.):	MINIMUM: 36"	EXIST.: 36"

GENERAL NOTES

1. LIFE SAFETY ANALYSIS BASED ON 2012 IBC W/ 2013 KBC AMENDMENTS.

REVIEW NOTE:

1. * EXISTING STAIR: IBC TABLE 1021.2(2) ALLOWS THE SECOND FLOOR TO HAVE ONE MEANS OF EGRESS SINCE OCCUPANCY LOAD IS LESS THAN 49 PERSONS. IBC 1009.3 EXCEPTION 1. ALLOWS A STAIR IN A 2 STORY BUILDING TO BE OPEN TO BOTH FLOORS. IBC TABLE 1021.2(2) ALSO REDUCES THE MAX. EGRESS DISTANCE FROM THE SECOND FLOOR TO 75' THE EXISTING ACTUAL MAX. EGRESS DISTANCE IS 129', IBC 3404 /3412.2.4 ALLOWS ALTERED BUILDINGS TO NOT COMPLY WITH CURRENT BUILDING CODE IF THE ALTERED BUILDING IS NOT LESS SAFE THAN THE EXISTING BUILDING.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
LIFE SAFETY PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JAB	JAB	RCC	RCC

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

SHEET NO.

LS-101

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:37PM

FILE NAME: LI\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-LS-101.dwg

GENERAL LEGEND

B E3.1 / B M-4 — APPEARS ON SHEET WHERE SECTION IS CUT; SECTION IDENTIFICATION LETTER; SHEET WHERE SECTION IS DRAWN

B E3.1 / B M-4 — APPEARS ON THE SHEET WHERE SECTION IS DRAWN; SECTION OR DETAIL IDENTIFICATION LETTER; SHEET WHERE DRAWN

B P3.2 — ENLARGED AREA OR PARTIAL PLAN SYMBOL (ON SHEET WHERE INDICATED AND SHEET WHERE DRAWN); IDENTIFICATION LETTER; SHEET WHERE DRAWN

A — PLAN MATCH LINE SYMBOL

CONNECTION OF NEW WORK TO EXISTING

LINE OR EQUIPMENT TO BE REMOVED

123 — ROOM NUMBER

9'-6" — CEILING HEIGHT

AFF	ABOVE FINISHED FLOOR
TOS, BOS	TOP OF STEEL, BOTTOM
TOB, BOB	TOP OF BEAM, BOTTOM
TOJ, BOJ	TOP OF JOIST, BOTTOM
TOC, BOC	TOP OF CONCRETE, BOTTOM
TOP, BOP	TOP OF PIPE, BOTTOM
BOD	BOTTOM OF DUCT

NOTE: LEGENDS ALSO APPEAR ON INDIVIDUAL PLANS, SCHEDULES AND DETAILS.

MECHANICAL LEGEND
HVAC, PLUMBING & FIRE PROTECTION

20x16 — NEW DUCT - 1ST FIGURE IS DIMENSION SHOWN

SUPPLY OR OUTSIDE AIR DUCTWORK; PLAN, UP & DOWN

RETURN OR EXHAUST DUCTWORK

DROP AND RISE IN DIRECTION OF FLOW

SA — SUPPLY AIR DUCT

OA — OUTSIDE AIR DUCT

RA — RETURN AIR DUCT

EA — EXHAUST AIR DUCT

LOW PRESSURE FLEXIBLE DUCT

HIGH PRESSURE FLEXIBLE DUCT

ROUND DUCTWORK; PLAN, UP AND DOWN

AIR FLOW; DIRECTION

MANUAL VOLUME DAMPER; PLAN, ONE LINE DIAGRAM

BDD — BACKDRAFT DAMPER

M M — MOTOR OPERATED DAMPER; PLAN, ONE LINE DIAGRAM

SPLITTER DAMPER: SD; SHOWN IN TEE WITH TURNING VANES.

AIR TURNING VANES; PLAN, ONE LINE DIAGRAM

DUCT BRANCH TAKE OFF WITH RAKE OFF DAMPER; PLAN, ONE DIAGRAM

DUCT TRANSITION; PLAN, ONE LINE DIAGRAM

ACCESS DOOR, VERTICAL OR HORIZONTAL

CEILING DIFFUSERS

DUCT OR PIPE SECTION

SUPPLY DIFFUSER; ONE, TWO, THREE AND FOUR WAY

RETURN, EXHAUST OR TRANSFER GRILLE

RETURN GRILLE WITH ACOUSTIC BAFFLE

S-2 200 — AIR DEVICE DESIGNATION. (S) SUPPLY, (R) RETURN, (E) EXHAUST, (T) TRANSFER, (L) LOUVER; I.E. SUPPLY TYPE 2, 200 C.F.M.

SLOT TYPE LINEAR SUPPLY DIFFUSER

SLOT TYPE LINEAR RETURN GRILLE

FLEXIBLE DUCT CONNECTOR; PLAN, ONE LINE DIAGRAM

A DIRECTION OF PIPE FLOW

DIRECTION OF PIPE PITCH

S — EXISTING SANITARY SEWER PIPING (SITE)

SS — EXISTING STORM SEWER PIPING (SITE)

S — SANITARY SEWER PIPING (SITE)

SS — STORM SEWER PIPING (SITE)

SOIL & WASTE PIPING

DWV VENT PIPING

DCW — DOMESTIC COLD WATER PIPING

140° — DOMESTIC HOT WATER (140°F) PIPING

T — DOMESTIC HOT WATER (TEPID) PIPING

DRW — DOMESTIC RECIRCULATING HOT WATER PIPING

110 — DOMESTIC HOT WATER (110°F) PIPING

W — WATER SERVICE PIPING (EXTERIOR)

VALVE (IN GENERAL - SEE SPECS)

GATE VALVES (GV)

GLOBE VALVES

CHECK VALVE

BALANCING VALVE (WITH READ OUT)

BALANCING COCK ONLY (NON-SHUTOFF)

HOSE CONNECTION, BOILER DRAIN

BALL VALVES (BV)

PLUG COCKS, BALANCING COCKS

SILENT CHECK VALVE

BUTTERFLY VALVES (BFV)

RELIEF VALVE; PLAN, ELEVATION

STRAINER; STRAINER WITH BLOW DOWN.

FLEXIBLE CONNECTOR

BACKFLOW PREVENTER, REDUCED PRESSURE (STRAINER NOT SHOWN) (BFP - RPZ)

REDUCING BUSHING

COUPLING, JOINT

CAP

PLUG

90° ELBOW

90° ELBOW TURNED UP

90° ELBOW TURNED DOWN

45° ELBOW

TEE OR SIDE CONNECTION

TEE OUTLET UP

TEE OUTLET DOWN

CROSS

TOP / BOT. — UNCONNECTED CROSSING PIPES

RISE OR DROP IN PIPE

LPS — RISER ONLY, SERVICE (LPS) SHOWN

BOTTOM CONNECTION TO LINE

TOP CONNECTION TO LINE

RISER IN SLEEVE

UNION

STRUCTURAL PIPE ANCHOR

BUILDING ENTRANCE PIPE ANCHOR

THRUST BLOCK

WALL SLEEVE

CONCENTRIC REDUCER

ECCENTRIC REDUCER

VTR / VTR — VENT THROUGH ROOF, PLAN & RISER

THROUGH ROOF

THROUGH FLOOR

THROUGH WALL

P — PRESSURE GAUGES

V C — VACUUM AND COMPOUND GAUGES

P/T — PRESSURE/TEMPERATURE TEST PLUG

FS — FLOW SWITCH

M — METER: WATER, CONDENSATE OR GAS

T T — THERMOSTAT, OR TEMP. CONTROLLER

P — PRESSURE CONTROLLER

MAV — MANUAL AIR VENT

AAV — AUTOMATIC AIR VENT

AAE — AUTOMATIC AIR ELIMINATOR

VACUUM BREAKER

HORIZONTAL UNIT HEATER

P — PUMP

ROOF EXHAUST HOOD, EXHAUST FAN

ROOF INTAKE HOOD, SUPPLY FAN

PIPE HANGER

VALVE IN PIT

YARD HYDRANT (YH)

AD	ACCESS DOOR
BFP	BACKFLOW PREVENTER
CO	CLEAN OUT
FCO	FLOOR CLEAN OUT
GCO	GRADE CLEAN OUT
WCO	WALL CLEAN OUT
FD-1	FLOOR DRAIN I.D. NUMBER; PLAN & RISER
HB	HOSE BIBB
OR	OPEN RECEPTACLE
P-1	PLUMBING FIXTURE I.D. NUMBER
TMV	TEMPERING VALVE
WH	WALL HYDRANT
WHA-A	WATER HAMMER ARRESTOR: PDI SIZE A
VTR	VENT THRU ROOF; PLAN & RISER

J / M1.4 — RISER SYMBOL ON PLAN SHEET; SHEET WHERE WASTE & WATER RISERS APPEAR

A / P2.1, P2.2 — RISER SYMBOL ON PLAN SHEET; SHEET WHERE WASTE RISER APPEARS; SHEET WHERE WATER RISER APPEARS

A S / A W — RISER SYMBOLS FOR WASTE (SANITARY) AND WATER ON RISER SHEET

GENERAL NOTES

1. GENERAL NOTES, WHEREVER THEY ARE FOUND, APPLY TO ALL WORK IN THE PROJECT, UNLESS OTHERWISE INDICATED. SHEET NOTES, UTILIZING NOTE SYMBOLS, APPLY ONLY TO THE SHEET ON WHICH THEY ARE FOUND, UNLESS OTHERWISE STATED. THE MEANING OF NOTE SYMBOLS AND NUMBERS VARIES FROM SHEET TO SHEET.
2. CONTRACTOR SHALL UTILIZE ALL INFORMATION IN THE CONTRACT DOCUMENTS FOR PROVIDING THE WORK. CONTRACTOR SHALL UTILIZE DETAILS AND FLOW DIAGRAMS FOR THE WORK WHERE APPROPRIATE, WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED ON THE PLANS OR SUPPORTING DRAWINGS.
3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITIONS IS PERFORMED.
4. LEGENDS OR LISTS OF SYMBOLS AND ABBREVIATIONS ARE GENERAL IN NATURE AND MAY CONTAIN ITEMS NOT USED IN THE CONTRACT DOCUMENTS. IF ANY SUCH ITEMS ARE FOUND WHICH ARE NOT DEFINED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER SHALL BE CONTACTED FOR CLARIFICATION BEFORE THE BID.
5. CONTRACTOR SHALL MAINTAIN A SET OF PROJECT RECORD DRAWINGS AT THE JOB SITE AND SHALL BE RESPONSIBLE FOR MAKING CLEAR, NEAT CHANGES TO THE DRAWINGS, REFLECTING CHANGES TO THE WORK AND VARIANCE IN EXISTING CONDITIONS.
6. PROVIDE ALL MISCELLANEOUS STEEL, AS REQUIRED, TO SUPPORT ALL MECHANICAL DUCT AND PIPING SYSTEMS AND EQUIPMENT. HANG ALL EQUIPMENT FROM STRUCTURE WITH MINIMUM OF TWO TRAPEZE ASSEMBLIES OR FOUR INTEGRAL MOUNTING POINTS WITH VIBRATION ISOLATORS ON ALL FOUR SUPPORTS. DO NOT HANG ANYTHING FROM STEEL, COMPOSITION OR WOODEN DECKS. NON-ROOF CONCRETE DECKS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
7. NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER. ALL ROOF OR FLOOR DECK PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THE THIN-SLAB DEPRESSIONS IN THE STRUCTURE UNLESS OTHERWISE SHOWN.
8. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION OF THE ENGINEER.
9. NO WOODEN STRUCTURAL MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATED IN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
10. CONSULT ARCHITECTURAL PLANS FOR DIMENSIONING AND POSITIONS OF WALL LOUVERS.
11. ALL EQUIPMENT, DUCT, PIPING AND ACCESSORIES INSTALLED OUTSIDE OR OTHERWISE EXPOSED TO THE ELEMENTS SHALL BE ADEQUATELY WEATHERPROOFED, IN KEEPING WITH THE SPECIFICATIONS. ALL FERROUS METAL FRAMING COMPONENTS SHALL BE STAINLESS STEEL OR HOT-DIP GALVANIZED.
12. DO NOT CHANGE PATH OF PIPING OR DUCT RUNS, ADD TURNS OR OFFSETS OR CHANGE DUCT DIMENSIONS OR PIPE SIZE WITHOUT FIRST CONSULTING THE ENGINEER. PIPE SIZES SHOWN ON DRAWINGS ARE NOMINAL UNLESS OTHERWISE INDICATED. ALL DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS FOR SHOP OR FIELD-FABRICATED DUCT AND NOMINAL SIZES FOR FACTORY FABRICATED DUCT.
13. SEE ALSO RISER DIAGRAMS OR FLOW/CONTROL DIAGRAMS FOR SIZES NOT SHOWN ON PLANS.
14. ALL COPPER PIPING SHALL BE ASSEMBLED WITH WROUGHT COPPER OR CAST COPPER ALLOY FITTINGS AND 95/5 TIN ANTIMONY SOLDER OR SILVER BRAZING. NO SOLDER CONTAINING LEAD SHALL BE USED.
15. ALL EXTERIOR MECHANICAL UTILITIES SHALL BE IN GENERAL COMPLIANCE WITH APPROPRIATE DIVISIONS 22 AND 23 SPECIFICATION SECTION (FOR CORRESPONDING INTERIOR UTILITIES).
16. CONTRACTOR SHALL CERTIFY AT THE TIME OF OWNER OCCUPANCY THAT ALL BELT-DRIVEN EQUIPMENT HAS BEEN CHECKED FOR BELT TIGHTNESS AFTER WEAR-IN PERIOD.
17. ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICE REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER.
18. PROVIDE LINTELS AS REQUIRED FOR ALL NEW OPENINGS GREATER THAN 12" WIDE IN MASONRY OR LOAD-BEARING WALLS, MATERIAL TO BE APPROVED BY ENGINEER.
19. ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION IS TO BE REPAIRED OR REPLACED AS APPROPRIATE, SUBJECT TO ENGINEER'S APPROVAL, AND AT NO ADDITIONAL COST TO THE OWNER.
20. ALL DUCTWORK AND SHEET METAL SHALL BE PROVIDED AS INDICATED AND SHALL BE MANUFACTURED AND SHOP- OR FIELD-FABRICATED, AS A MINIMUM, IN ACCORDANCE WITH THE RECOMMENDATIONS AND DETAILS OF SMACNA, UNLESS SPECIFICALLY INDICATED OTHERWISE.
21. FANS SHALL BE PROVIDED AS INDICATED BY GREENHECK, CARNES, COOK OR APPROVED EQUAL. LOUVERS SHALL BE PROVIDED AS INDICATED BY GREENHECK, AIRSTREAM, LOUVERS AND DAMPERS, CARNES, RUSKIN OR APPROVED EQUAL.
22. PROVIDE ALL HVAC EQUIPMENT AND ACCESSORIES AS INDICATED. INSTALL IN COMPLIANCE WITH ALL REQUIREMENTS OF THE KENTUCKY BUILDING CODE.
23. MOUNT ALL ROOM THERMOSTATS OR ADJUSTABLE SENSORS AT HEIGHTS ABOVE FINISHED FLOOR, AS DIRECTED BY THE ENGINEER.
24. USE TURNING VANES, PER SMACNA CONSTRUCTION GUIDELINES, FOR ALL MITERED RECTANGULAR TURNS OF 45 DEGREES OR MORE.
25. CONTRACTOR SHALL MAKE MINOR OFFSETS AND LOCATION CHANGES IN PIPE AND DUCT AND IN DUCT ASPECT RATIO AS REQUIRED IN CONGESTED CEILING OR MECHANICAL SPACES. GENERALLY, THESE WILL BE AT NO COST TO THE OWNER AND APPROVED BY THE ENGINEER WITHOUT FORMAL DOCUMENTS. MAJOR REROUTING OF LINES OR MAJOR ADDITION OF FITTINGS WILL BE REVIEWED AND APPROVED AS A CHANGE ORDER OR A FORMAL DIRECTIVE. ENGINEER ALONE SHALL CLASSIFY CHANGES AS MAJOR OR MINOR.
26. ALL EQUIPMENT PROVIDED WITH FILTERS SHALL HAVE FILTERS IN PLACE AT THE TIME OF STARTUP. ALL NEW FILTERS SHALL BE INSTALLED AT THE TIME OF OWNER OCCUPANCY, AND A COMPLETE SET OF EXTRA FILTERS SHALL BE TURNED OVER TO THE OWNER AT THIS TIME. IN THE EVENT THAT CARE IS NOT TAKEN DURING INITIAL OPERATION TO PREVENT CONTAMINATION OF THE FILTERS WITH CONSTRUCTION DUST, ADDITIONAL SETS OF FILTERS SHALL BE PROVIDED TO PROTECT THE EQUIPMENT.
27. PROVIDE ALL CONTROLS NECESSARY TO OPERATE EQUIPMENT AS SHOWN OR DESCRIBED, INCLUDING ACTUATORS, THERMOSTATS, DAMPERS, ALL ACCESSORY DEVICES, POWER AND/OR PNEUMATIC SERVICE.
28. PROVIDE ALL PLUMBING CONNECTIONS, PIPING, FIXTURES AND EQUIPMENT AS INDICATED, NOTED AND SCHEDULED, FOR A COMPLETE WORKING SYSTEM. WORK SHALL BE PROVIDED BY A LICENSED PLUMBING CONTRACTOR, IN ACCORDANCE WITH THE KENTUCKY STATE PLUMBING CODE AND THE KENTUCKY BUILDING CODE, AND SHALL BE ACCOMPANIED BY A CERTIFICATE OF INSPECTION AND APPROVAL. ALL WATER PIPING SHALL BE TYPE L COPPER. ALL DWV PIPING SHALL BE DWV COPPER OR NO-HUB SOIL PIPE ABOVE AND HUB AND SPIGOT SOIL PIPE BELOW GROUND.
29. PROVIDE DISCONNECTS AND MAGNETIC STARTERS (OR RELAYS WITH OVERLOAD PROTECTION FOR SINGLE PHASE) FOR ALL EQUIPMENT SUPPLIED UNDER DIVISION 22 & 23 WHICH IS SPECIFIED TO HAVE FACTORY CONTROL PANEL. POWER WIRING AND CONDUIT TO THESE DEVICES AND BETWEEN THESE DEVICES AND MECHANICAL EQUIPMENT, IF REQUIRED, SHALL BE SUPPLIED UNDER DIVISION 26.

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
MECHANICAL LEGEND AND GENERAL NOTES
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
MAS	MAS	AAT	AAT

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED — SCALE CHECK

DATE: APRIL, 2019

SCALE: NOT TO SCALE

SHEET NO.

M-001

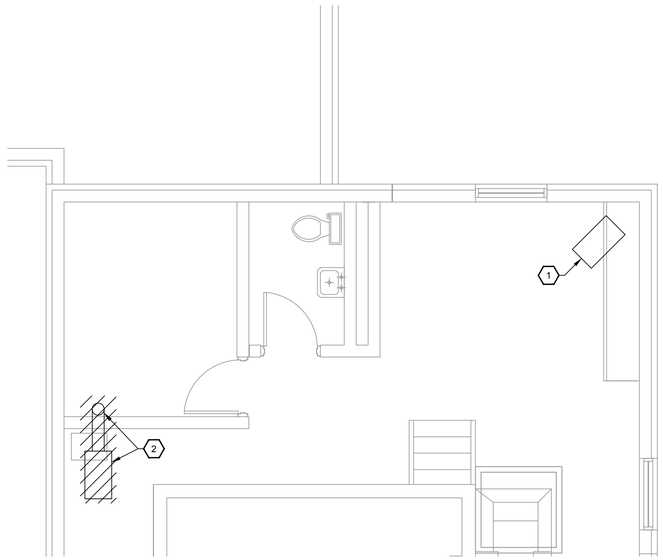
PLOTTED BY: rwilliamson
PRINTED: 4/23/2019 @ 2:37PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 M-001.dwg

GENERAL NOTES:

1. SEE SHEET M-001 FOR LEGEND AND ADDITIONAL GENERAL NOTES.
2. NATURAL GAS PIPING, VENTS, CONNECTIONS AND TERMINATIONS PER NFPA 54 AND THE INTERNATIONAL MECHANICAL CODE (IMC). DEMOLISH BRANCH LINE NATURAL GAS PIPING AND VENTS BACK TO MAIN, CAP AND SEAL.
3. SEE SPECIFICATION SECTION 017329 FOR CUTTING AND PATCHING.

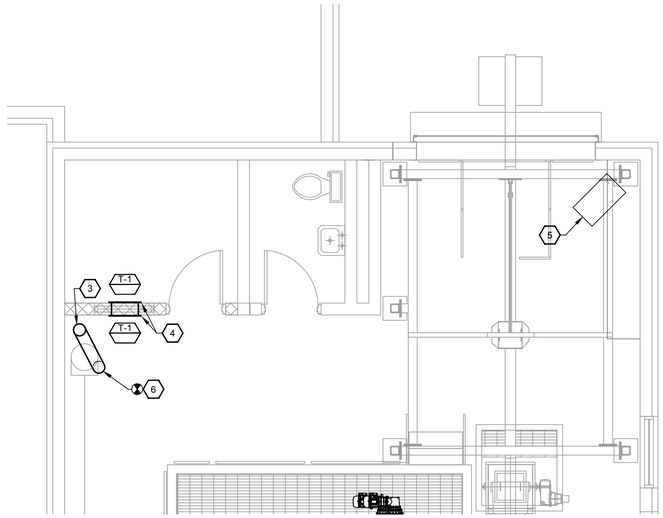
⬡ SHEET KEYNOTES:

1. DISCONNECT UNIT HEATER FROM NATURAL GAS PIPING, UNIT SUPPORTS AND VENTS AND PREPARE FOR REINSTALLATION.
2. DEMOLISH UNIT HEATER AND ASSOCIATED NATURAL GAS PIPING, SUPPORTS AND VENTS INCLUDING VENT EXTENDING DOWN TO UNIT HEATER ON FIRST FLOOR. MAIN VENT ABOVE BRANCH TEE TO REMAIN. PATCH/REPAIR FLOOR WITH IN KIND MATERIAL TO MATCH EXISTING.
3. PROVIDE AND INSTALL MATCHING VENT FROM UNIT HEATER BELOW ON FIRST FLOOR UP TO MAIN VENT ABOVE. CORE DRILL FLOOR SIZED TO ACCEPT VENT AND ASSOCIATED FIRE STOPPING. SEE DETAIL, THIS SHEET. (NOT TO CONFLICT WITH AIR COMPRESSOR)
4. PROVIDE AND INSTALL TRANSFER GRILLES APPROXIMATELY 8'-0" AFF TO BOTTOM OF GRILLES.
5. REINSTALL EXISTING UNIT HEATER AND ASSOCIATED NATURAL GAS PIPING, SUPPORTS AND VENTS PER MANUFACTURER'S REQUIREMENTS MAINTAINING MINIMUM CLEARANCES FROM COMBUSTIBLES. MAINTAIN BOTTOM OF UNIT HEATER CLEAR OF MONORAIL, ROLL-UP DOOR, LIGHTING AND STRUCTURAL COMPONENTS.
6. PROVIDE AND INSTALL VENT FROM FLOOR PENETRATION BELOW UP TO MAIN VENT ABOVE, INCLUDING OFFSET.



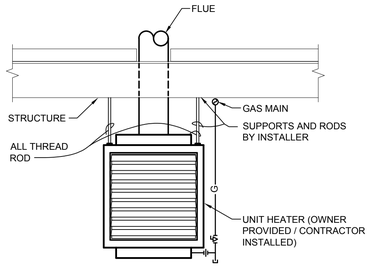
BELT FILTER PRESS - SECOND FLOOR
HVAC DEMOLITION PLAN

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



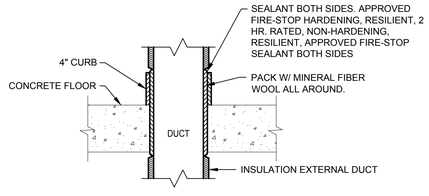
BELT FILTER PRESS - SECOND FLOOR
HVAC NEW WORK PLAN

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



1 TYPICAL GAS UNIT HEATER DETAIL

NOT TO SCALE



2 FIRE/SMOKE RATED DUCT FLOOR PENETRATION DETAIL

NOT TO SCALE

AIR DEVICES SCHEDULE

MARK	SERVICE	TYPE	MODULE SIZE IN	MAX. AIR PD IN WG	MAX. NC	THROW FT @ 50 FPM	PATTERN	MATERIAL	MAX. CFM	MAX CONNECT SIZE IN (DIM)	MOUNTING	REMARKS
T-1	TRANSFER	1	24x24	0.10	30	---	GRILLE	ALUMINUM	250	22x22	SURFACE	1, 2

TYPE:

1. EGG CRATE GRILLES, ½" X ½" X 1" DEEP CORE

REMARKS:

1. EGG CRATE GRILLE BASIS OF DESIGN: TITUS MODEL 50F
2. BRONZ-GLOW SPC CLEAR F-860 COATED OR APPROVED EQUAL

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT HVAC PLANS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AAT	MAS	AAT	AAT

REVISIONS

NO.	DESCRIPTION	DATE	BY
1			

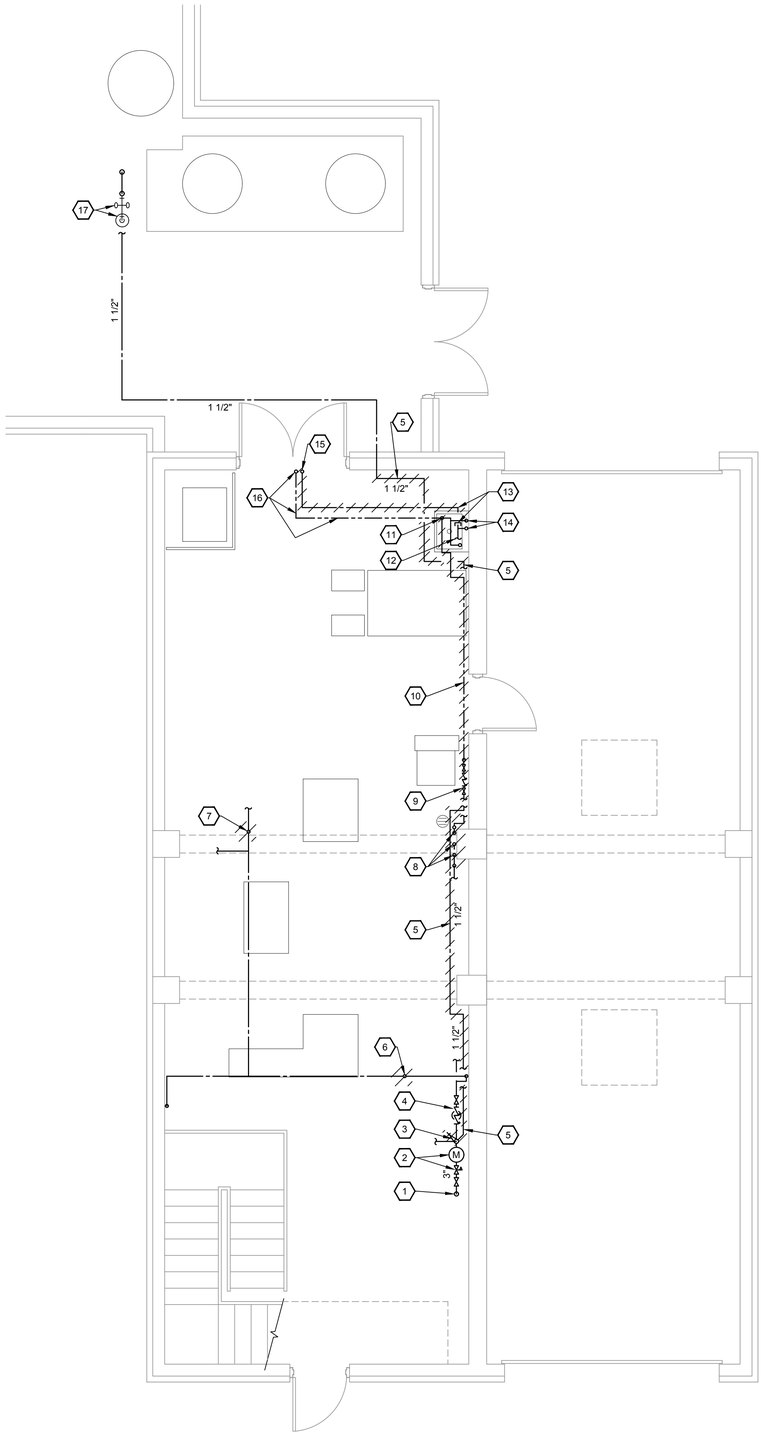
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE: APRIL, 2019

SCALE: AS SHOWN

SHEET NO.

M-101



BELT FILTER PRESS - FIRST FLOOR PLUMBING DEMOLITION PLAN

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

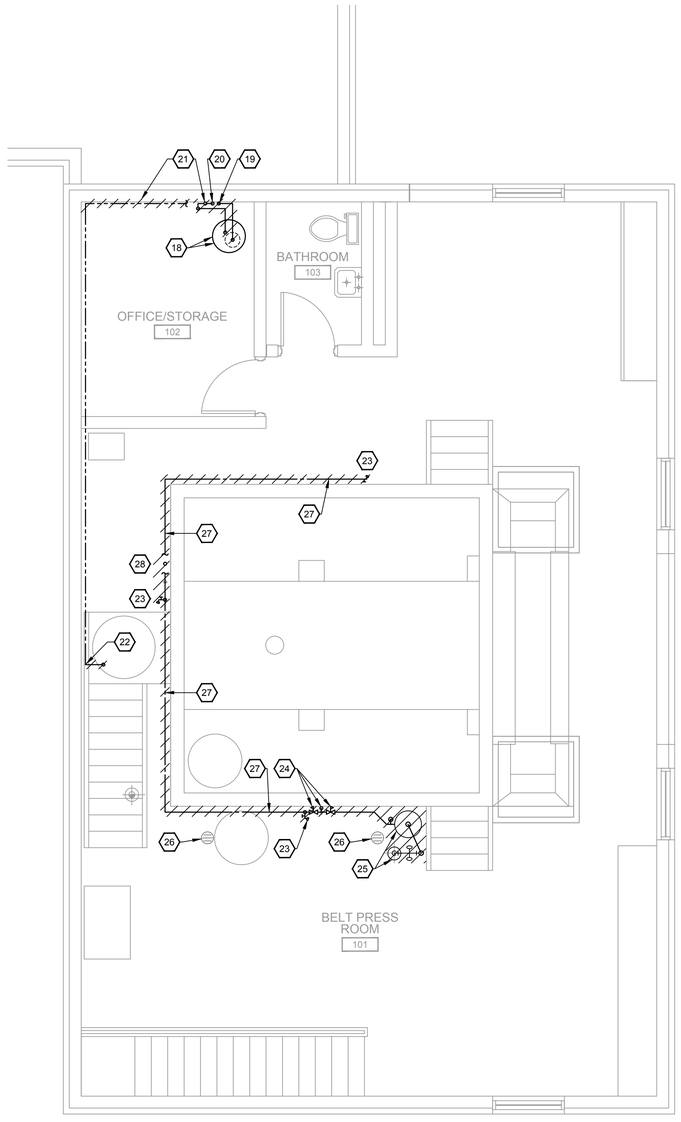
0 2' 4' 8'

GENERAL NOTES:

1. SEE SHEET M-001 FOR LEGEND AND ADDITIONAL GENERAL NOTES.
2. SEE SPECIFICATION SECTION 017329 FOR CUTTING AND PATCHING.
3. ALL WATER PIPE BEING DEMOLISHED SHALL BE REMOVED TO POINT OF ACTIVE USE AND CAPPED. NO WATER FILLED DEAD ENDS ARE TO REMAIN.
4. SALVAGE OF PIPE AND EQUIPMENT AS INDICATED IN SPECIFICATION 024100.

SHEET KEYNOTES:

1. EXISTING 3" DOMESTIC WATER SERVICE ENTRANCE.
2. EXISTING PRV AND WATER METER.
3. REMOVE EXISTING 1 1/2" POTABLE WATER PIPE WITH SHUT-OFF VALVE AND PRV IN RISER. SEE NEW PLAN FOR RECONNECTIONS.
4. EXISTING BACKFLOW PREVENTER FOR PROCESS WATER.
5. REMOVE EXISTING 1 1/2" POTABLE WATER PIPE.
6. REMOVE EXISTING WATER PIPE UP TO SECOND FLOOR HOSE BIBBS AND SAFETY STATION. CAP PIPE AT BRANCH TAKE-OFF.
7. REMOVE EXISTING WATER PIPE UP TO SECOND FLOOR BELT FILTER PRESS. CAP PIPE AT BRANCH TAKE-OFF.
8. REMOVE ALL ABANDONED/UNUSED WATER PIPE AND ALL ASSOCIATED APPURTENANCES.
9. REMOVE EXISTING ABANDONED/UNUSED BACKFLOW PREVENTER.
10. REMOVE EXISTING ABANDONED/UNUSED HOT WATER PIPE.
11. CAP EXISTING HOT WATER PIPE AT BRANCH TAKE-OFF TO EXISTING POLYMER SYSTEM. HOT WATER PIPE TO JANITOR SINK AND SECOND FLOOR LAVATORY TO REMAIN IN USE.
12. REMOVE EXISTING POTABLE DW PIPE BEYOND POINT OF CONNECTION TO JANITOR SINK AND PIPE UP TO TOILET ROOM PLUMBING CHASE. SEE NEW WORK PLAN FOR RECONNECTION.
13. CAP EXISTING POTABLE CW PIPE DOWNSTREAM OF LAST PLUMBING FIXTURE BEING SERVED. REMOVE PIPE BEYOND CAP.
14. EXISTING POTABLE CW & HW PIPING TO REMAIN.
15. REMOVE EXISTING POTABLE CW PIPE UP TO WATER HEATER IN SECOND FLOOR STORAGE ROOM.
16. EXISTING HW PIPE TO REMAIN IN USE.
17. EXISTING SAFETY STATION TO REMAIN.
18. EXISTING WATER HEATER AND EXPANSION TANK TO REMAIN.
19. REMOVE EXISTING POTABLE CW PIPE DOWN TO FIRST FLOOR.
20. EXISTING HW PIPE DOWN TO FIRST FLOOR TO REMAIN.
21. REMOVE EXISTING 3/4" WATER PIPE UP TO BELOW CEILING AND ASSOCIATED SHUT-OFF VALVE. REMOVE PIPE ONLY AS REQUIRED FOR NEW WORK. SEE NEW WORK PLAN FOR RECONNECTIONS.
22. REMOVE EXISTING HW PIPE TO DEMOLISHED TANK. SEE NEW WORK PLAN FOR RECONNECTION.
23. REMOVE EXISTING BALL VALVE, HOSE BIBB AND ALL ASSOCIATED PIPING.
24. REMOVE EXISTING PRV's, BFP AND PIPE DOWN TO FIRST FLOOR.
25. REMOVE EXISTING SAFETY STATION, ASSOCIATED STORAGE TANK, ALL ASSOCIATED PIPES AND APPURTENANCES.
26. EXISTING FLOOR DRAIN TO REMAIN.
27. REMOVE EXISTING CW PIPE INSTALLED ALONG BELT FILTER PRESS RETAINING WALL.
28. REMOVE EXISTING CW PIPE SERVING THE BELT FILTER PRESS AND ALL ASSOCIATED APPURTENANCES. REMOVE PIPE DOWN TO THE FIRST FLOOR.



BELT FILTER PRESS - SECOND FLOOR PLUMBING DEMOLITION PLAN

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

0 2' 4' 8'

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT PLUMBING DEMOLITION PLANS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
MAS	MAS	AAT	AAT

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: APRIL, 2019

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

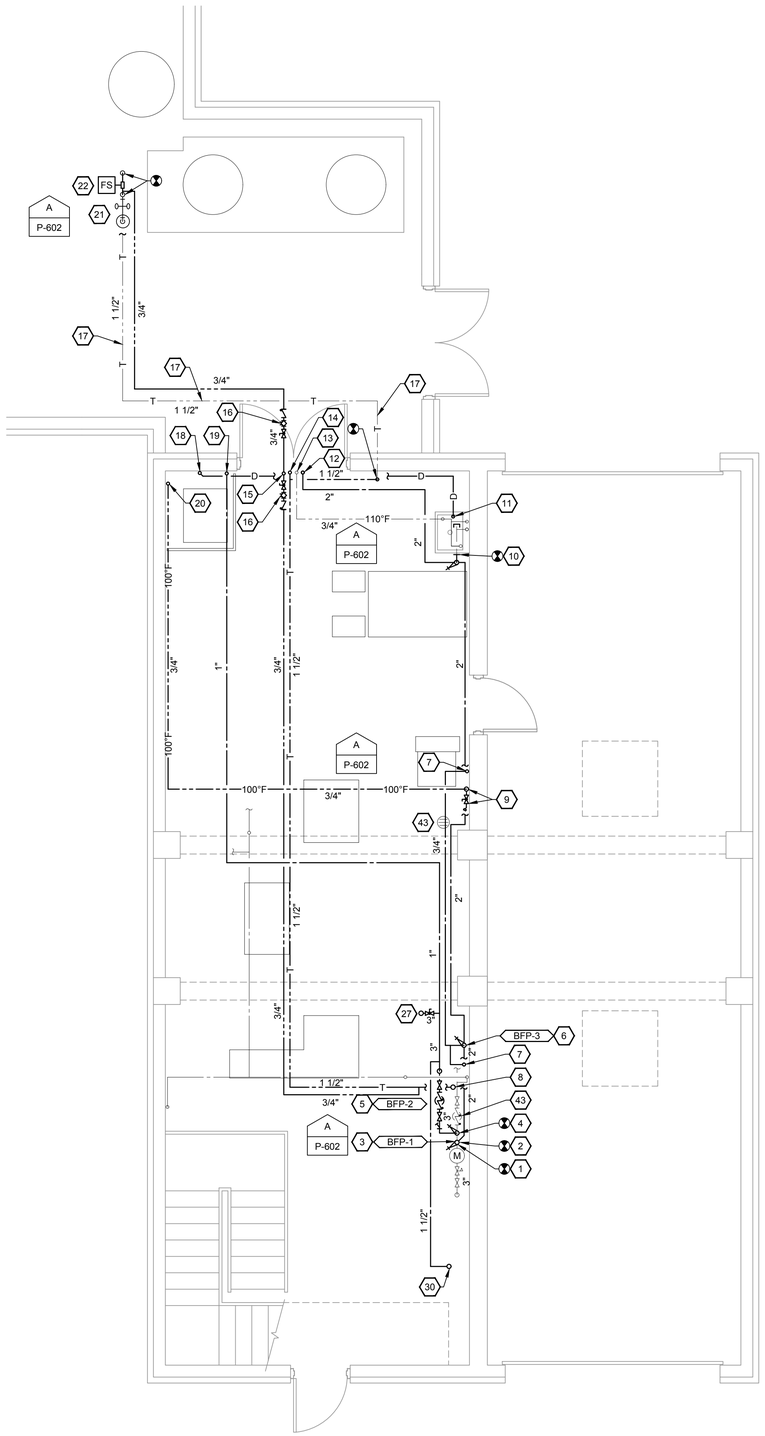
SHEET NO.

P-101

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:39PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 P-101.dwg



BELT FILTER PRESS - FIRST FLOOR PLUMBING NEW WORK PLAN

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

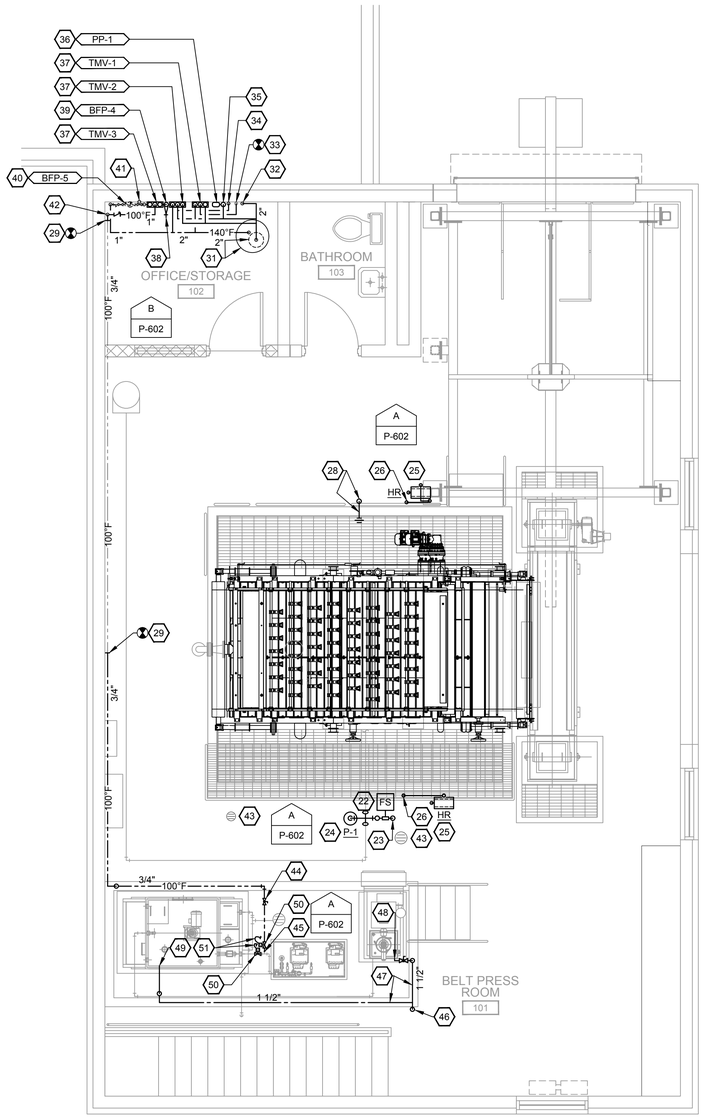
0 2' 4' 8'

GENERAL NOTES:

1. SEE SHEET M-001 FOR LEGEND AND ADDITIONAL GENERAL NOTES.
2. SEE SPECIFICATION SECTION 017329 FOR CUTTING AND PATCHING.
3. SEE DETAILS AND RISER DIAGRAMS FOR VALVES AND APPURTENANCES REQUIRED FOR PUMP, TMV's, BACKFLOW PREVENTERS AND WATER HEATER.

SHEET KEYNOTES:

1. PROVIDE 2" POTABLE WATER RISER AND CONNECT TO EXISTING 3" POTABLE CW HEADER. PROVIDE SHUT-OFF VALVE AND PRV IN RISER.
2. CONNECT TO EXISTING 1 1/4" POTABLE WATER PIPE AS REQUIRED TO SUPPLY REMAINING EXISTING FIXTURES/SPECIALTIES.
3. PROVIDE BFP-1 WITH STRAINER IN RISER. EXTEND DRAIN FROM AIR GAP FITTING TO EXISTING FLOOR DRAIN.
4. PROVIDE 3" CW RISER FOR BELT PRESS FILTER SYSTEM AND POLYMER SYSTEMS. CONNECT TO EXISTING 3" CW HEADER. PROVIDE SHUT-OFF VALVE AND PRV IN RISER. COORDINATE PRV SETTING WITH BELT FILTER MANUFACTURER'S REQUIREMENTS.
5. PROVIDE BFP-2 WITH STRAINER (SHOWN HERE FOR CLARITY) ABOVE EXISTING BFP. INSTALL TO RETAIN ACCESS TO EXISTING BFP. EXTEND DRAIN FROM AIR GAP FITTING TO EXISTING FLOOR DRAIN.
6. PROVIDE SHUT-OFF VALVE AND BFP IN RISER. EXTEND DRAIN PIPE FROM AIR GAP FITTING TO EXISTING FLOOR DRAIN.
7. PROVIDE 3/4" POTABLE CW UP TO HOSE REEL. CORE DRILL FLOOR TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
8. PROVIDE 1 1/2" TEPID WATER PIPE UP TO SAFETY STATION ON SECOND FLOOR.
9. PROVIDE 3/4" HW DOWN TO EXISTING POLYMER SYSTEM. PROVIDE WITH BALL VALVE AND 3/4" HOSE CONNECTION.
10. CONNECT TO EXISTING 1 1/4" POTABLE CW PIPE.
11. PROVIDE 1" DRAIN PIPE FROM BACKFLOW PREVENTERS DOWN TO JANITOR'S SINK.
12. PROVIDE 2" POTABLE CW PIPE UP TO SECOND FLOOR STORAGE ROOM. CORE DRILL AND ENLARGE EXISTING FLOOR OPENING AS REQUIRED TO ACCOMMODATE LARGER PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
13. EXISTING HW PIPE UP TO SECOND FLOOR STORAGE ROOM.
14. PROVIDE 2" TEPID WATER PIPE UP TO SECOND FLOOR STORAGE ROOM. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
15. PROVIDE 3/4" TEPID WATER RECIRCULATING PIPE UP TO SECOND FLOOR STORAGE ROOM. CORE DRILL OPENING AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
16. PROVIDE BALANCING VALVE.
17. REPURPOSE EXISTING POTABLE CW PIPE TO SAFETY STATION FOR TEPID WATER SUPPLY TO SAFETY STATION.
18. PROVIDE 1" DRAIN FROM BACKFLOW PREVENTERS UP TO SECOND FLOOR.
19. PROVIDE 1" CW PIPE UP TO BFP-4 IN SECOND FLOOR STORAGE ROOM.
20. PROVIDE 3/4" HOT WATER UP TO SECOND FLOOR STORAGE ROOM.
21. EXISTING SAFETY STATION.
22. PROVIDE FLOW SWITCH FOR SAFETY STATION.
23. PROVIDE 1 1/2" TEPID WATER PIPE DOWN TO FIRST FLOOR.
24. COORDINATE SAFETY STATION LOCATION WITH BELT PRESS MANUFACTURER'S ACCESSIBILITY REQUIREMENTS. COORDINATE LOCATION WITH OWNER.
25. PROVIDE HOSE REEL MOUNTED ON FLOOR.
26. PROVIDE 3/4" CW DOWN TO FIRST FLOOR. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
27. PROVIDE 2" CW SERVING BELT PRESS SHOWER ASSEMBLY UP TO SECOND FLOOR. COORDINATE LOCATION WITH BELT PRESS MANUFACTURER. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
28. PROVIDE 2" CW SERVING BELT PRESS SHOWER ASSEMBLY DOWN TO FIRST FLOOR. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. INSTALL PIPE THROUGH CONTAINMENT WALL DIRECTLY BELOW GRATING. SEE DETAIL, SHEET P-601.
29. CONNECT TO EXISTING 3/4" HW PIPE.
30. PROVIDE 1 1/2" CW UP TO SECOND FLOOR.
31. EXISTING WATER HEATER AND EXPANSION TANK. RESET WATER HEATER'S OUTGOING TEMPERATURE TO 140°F.
32. PROVIDE 2" POTABLE CW DOWN TO FIRST FLOOR. CORE DRILL AND ENLARGE FLOOR OPENING AS REQUIRED TO ACCOMMODATE LARGER PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
33. PROVIDE 110°F PIPE AND CONNECT TO EXISTING HW PIPE DOWN TO FIRST FLOOR. NEW PIPE SIZED TO MATCH EXISTING PIPE.
34. PROVIDE 2" TEPID WATER DOWN TO FIRST FLOOR. CORE DRILL FLOOR TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
35. PROVIDE 3/4" TEPID WATER RECIRCULATING PIPE DOWN TO FIRST FLOOR. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
36. PROVIDE TEPID WATER RECIRCULATING PUMP MOUNTED TO WALL @ 4'-6" AFF.
37. PROVIDE TEMPERING VALVE MOUNTED TO WALL @ 4'-0" AFF.
38. PROVIDE 1" CW PIPE DOWN TO FIRST FLOOR. PROVIDE SHUT-OFF VALVE AND PRV IN RISER.
39. PROVIDE BFP-4 WITH STRAINER IN RISER. MOUNT PER MANUFACTURER'S REQUIREMENTS. SEE NOTE 41 FOR CONTINUATION OF DRAIN FROM AIR GAP FITTING.
40. PROVIDE BFP-5 WITH STRAINER. MOUNT PER MANUFACTURER'S REQUIREMENTS. SEE NOTE 41 FOR CONTINUATION OF DRAIN FROM AIR GAP FITTING.
41. COMBINE 3/4" DRAINS FROM BFP-4 & BFP-5 AIR GAP FITTINGS INTO 1" DRAIN AND EXTEND DOWN TO FIRST FLOOR (SHOWN HERE FOR CLARITY).
42. PROVIDE 3/4" 100°F WATER DOWN TO BELOW FIRST FLOOR CEILING AND UP TO BELOW SECOND FLOOR CEILING.
43. EXISTING FLOOR DRAIN.
44. PROVIDE MAINTENANCE VALVE (VALVE NORMALLY OPEN).
45. PROVIDE 3/4" HW AND CONNECT TO POLYMER FEED PIPE.
46. PROVIDE 1 1/2" CW PIPE DOWN TO FIRST FLOOR. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING. SEE DETAIL, SHEET P-601.
47. PROVIDE CW PIPE FASTENED TO TOP OF RETAINING WALL.
48. PROVIDE 1 1/2" CW PIPE AND CONNECT TO POLYMER UNIT.
49. PROVIDE 1 1/2" CW PIPE AND CONNECT TO POLYMER TANK.
50. PROVIDE SOLENOID VALVE.
51. CONTROL WIRING FOR SOLENOID VALVES. SEE ELECTRICAL SHEET E-702 FOR SEQUENCING.



BELT FILTER PRESS - SECOND FLOOR PLUMBING NEW WORK PLAN

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

0 2' 4' 8'

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT PLUMBING NEW WORK PLANS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	MAS
DRAWN:	MAS
REVIEWED:	AAT
APPROVED:	AAT

REVISIONS

NO	DESCRIPTION	DATE	BY

SCALE CHECK | THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

SHEET NO.

P-102

PLOTTED BY: mwilliamson

PRINTED: 4/26/2019 @ 1:05PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 P-102.dwg

PLUMBING FIXTURES

MARK NO.	FIXTURE	DESCRIPTION (BASIS OF DESIGN)	PIPE SIZES			
			HW SUPPLY	HW BRANCH	CW SUPPLY	CW BRANCH
P-1	SAFETY STATION	COMBINATION SHOWER AND WIDE AREA EYE/FACE WASH - CORROSION RESISTANT GALVANIZED STEEL COMBINATION SHOWER AND EYE/FACEWASH STATION, 10"Ø ABS PLASTIC SHOWER HEAD AND BOWL, 4 POLYPROPYLENE EYE/FACE WASH LAMINAR FLOW SPRAY HEADS, IN-LINE STRAINER, STAINLESS STEEL STAY-OPEN VALVES, 1 1/4" IPS SUPPLY AND DRAIN, STAINLESS STEEL SHOWER PULL ROD, CAST ALUMINUM POWDER COATED FLAG HANDLE, ANSI COMPLIANT SIGN AND FLOW SWITCH (FLOW SWITCH TO BE FCI FLT 90 SERIES FLEXSWITCH, IFM EFECTOR 300 SAXX OR APPROVED EQUAL) 2	1 1/2" TEPID	1 1/4" TEPID	-	-
HR	HOSE REEL	RETRACTABLE HOSE REEL WITH 50' HOSE - ALUMINUM BASE AND GUARD ARM, STEEL SPRING, FULLY PORTED SHAFT AND SWIVEL, SPOOL MOUNTED ON TWO PERMANENTLY LUBRRICATED/SEALED BALL BEARINGS, SIX ROLLER GUIDE OUTLETS, HOSE GUIDE ARM, 50' LONG X 3/8" NPTM HOSE (MAXIMUM WORKING PRESSURE 2,400 PSI). SAMSON HOSE REEL 506-421 USED AS BASIS OF DESIGN.	-	-	3/8"	3/4"

PLUMBING PUMP (PP) SCHEDULE

MARK	LOCATION	SERVICE	FLUID			PUMP PERFORMANCE		MOTOR				REMARKS
			FLUID	TEMP	SP GR	FLOW GPM	TOTAL HEAD	NOM HP	V/PH/HZ	NOM RPM	TYPE	
PP-1	STORAGE RM 102	DOMESTIC	WATER	80°	1.0	3	6	1/12	115/1/60	1725	BOOSTER	1,2

REMARKS:
1. SEE SPECIFICATIONS FOR EQUIPMENT STANDARDS AND MANUFACTURERS.
2. BELL & GOSSETT - SERIES 100 - 3/4" - LEAD-FREE BRONZE BODY - USED AS BASIS OF DESIGN.

THERMOSTATIC MIXING VALVE (TMV) SCHEDULE

MARK	LOCATION	SERVICE	CAPACITY GPM	MIN. FLOW GPM	COLD WATER EWT (°F)	HOT WATER EWT (°F)	HOT WATER LWT (°F)	REMARKS
TMV-1	STORAGE RM 102	HOT WATER SERVICE	5	.5	40	140	110	1,2,5
TMV-2	STORAGE RM 102	SAFETY STATIONS	40	3	40	140	53	1,3,5
TMV-3	STORAGE RM 102	POLYMER UNITS	20	.5	40	140	100	1,4,5

REMARKS:
1. SEE SPECIFICATIONS FOR EQUIPMENT STANDARDS AND MANUFACTURERS.
2. LEONARD MODEL 170-LF THERMOSTATIC MIXING VALVE USED AS BASIS OF DESIGN.
3. LEONARD TM-5125-LF EMERGENCY MIXING VALVE FOR MULTIPLE SAFETY SHOWERS.
4. WATTS MODEL LF1170 MIXING VALVE USED AS BASIS OF DESIGN.
5. PROVIDE WITH MOUNTING BRACKET.

BACKFLOW PREVENTER (BFP) SCHEDULE

MARK	LOCATION	SERVICE	TYPE	SIZE	REMARKS	ACCESSORIES
BFP-1	1ST FLOOR	POTABLE DOMESTIC SERVICE	1	2"	1	1,2
BFP-2	1ST FLOOR	2ND FL BELT PRESS & POLYMER UNITS	1	3"	1	1,2
BFP-3	1ST FLOOR	2ND FL BELT PRESS HOSE BIBBS	1	3/4"	1	1,2
BFP-4	STORAGE 102	CW SIDE OF TMV-3 SERVING POLYMER UNITS	1	1"	1	1,2
BFP-5	STORAGE 102	140°F SIDE OF TMV-3 SERVING POLYMER UNITS	1	1"	1	1,2

TYPE:
1. REDUCED PRESSURE ZONE
2. DOUBLE CHECK ASSEMBLY.

REMARKS:
1. SEE SPECIFICATIONS FOR VALVE STANDARDS AND MANUFACTURERS.

ACCESSORIES:
1. PROVIDE WITH STRAINER.
2. PROVIDE WITH AIR GAP FITTING.

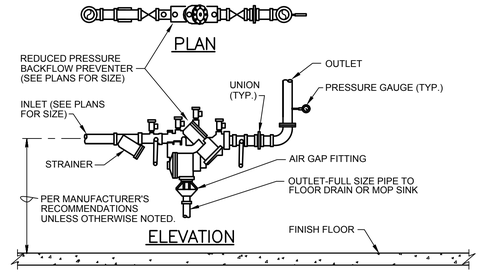
THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

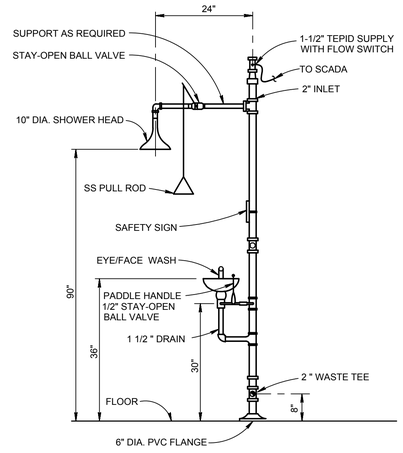
ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

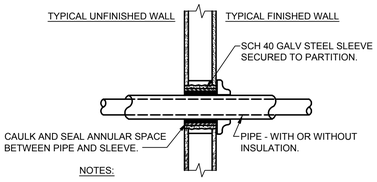
DATE: 4/23/19



1 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER DETAIL
NOT TO SCALE

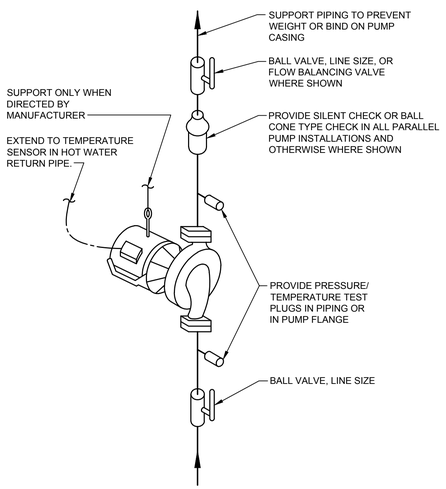


2 SAFETY SHOWER - EYE/FACEWASH DETAIL
NOT TO SCALE

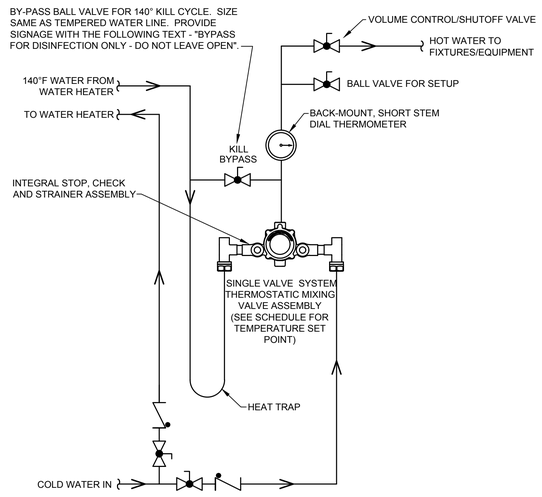


NOTES:
1. TYPICAL FOR NON-INSULATED PIPE AND CONDUIT.
2. ALL CAULKING AND SEALANT SHALL BE FIRE RATED (SEE SPECIFICATIONS).
3. WHERE PIPING IS EXPOSED AT FINISHED FLOOR, FLUSH MOUNT SLEEVE AND PROVIDE ESCUTCHEON PLATE.

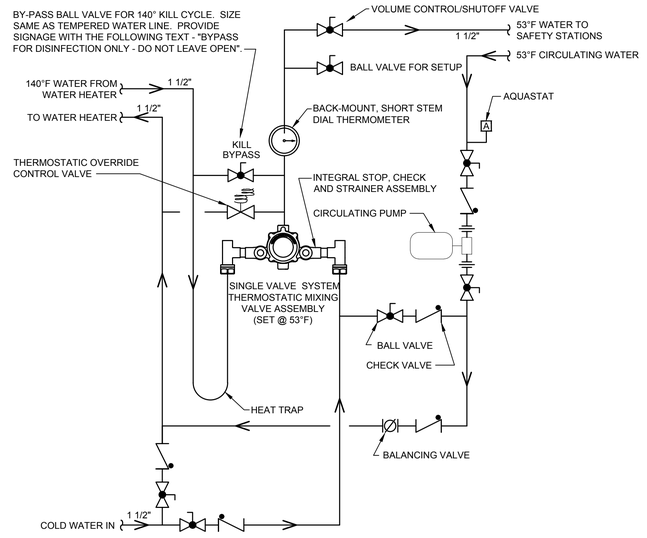
6 PIPE PENETRATION THRU INTERIOR WALL DETAIL
NOT TO SCALE



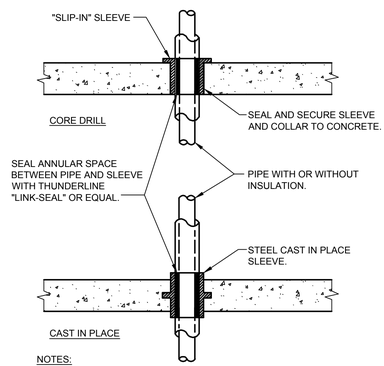
3 TYPICAL IN-LINE CENTRIFUGAL PUMP PIPING DETAIL
NOT TO SCALE



4 THERMOSTATIC MIXING VALVE PIPING DETAIL (TMV-1 & TMV-3)
NOT TO SCALE



5 SAFETY STATION THERMOSTATIC MIXING VALVE PIPING DETAIL (TMV-2)
NOT TO SCALE



NOTES:
1. TYPICAL FOR NON-INSULATED PIPE AND CONDUIT.
2. FOR FLOOR PENETRATIONS WITH FIRE RATING GREATER THAN ONE HOUR, USE THUNDERLINE "PYRO-PAC" SEALS OR EQUAL.
3. WHERE PIPING IS EXPOSED AT FINISHED FLOOR, FLUSH MOUNT SLEEVE AND PROVIDE ESCUTCHEON PLATE.

7 PIPE PENETRATION THRU CONCRETE SLAB DETAIL
NOT TO SCALE

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
PLUMBING SCHEDULES AND DETAILS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
MAS	MAS	AAT	AAT

REVISIONS

NO.	DESCRIPTION	DATE	BY
2	ADDENDUM NO. 2	01-28-17	DCO

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

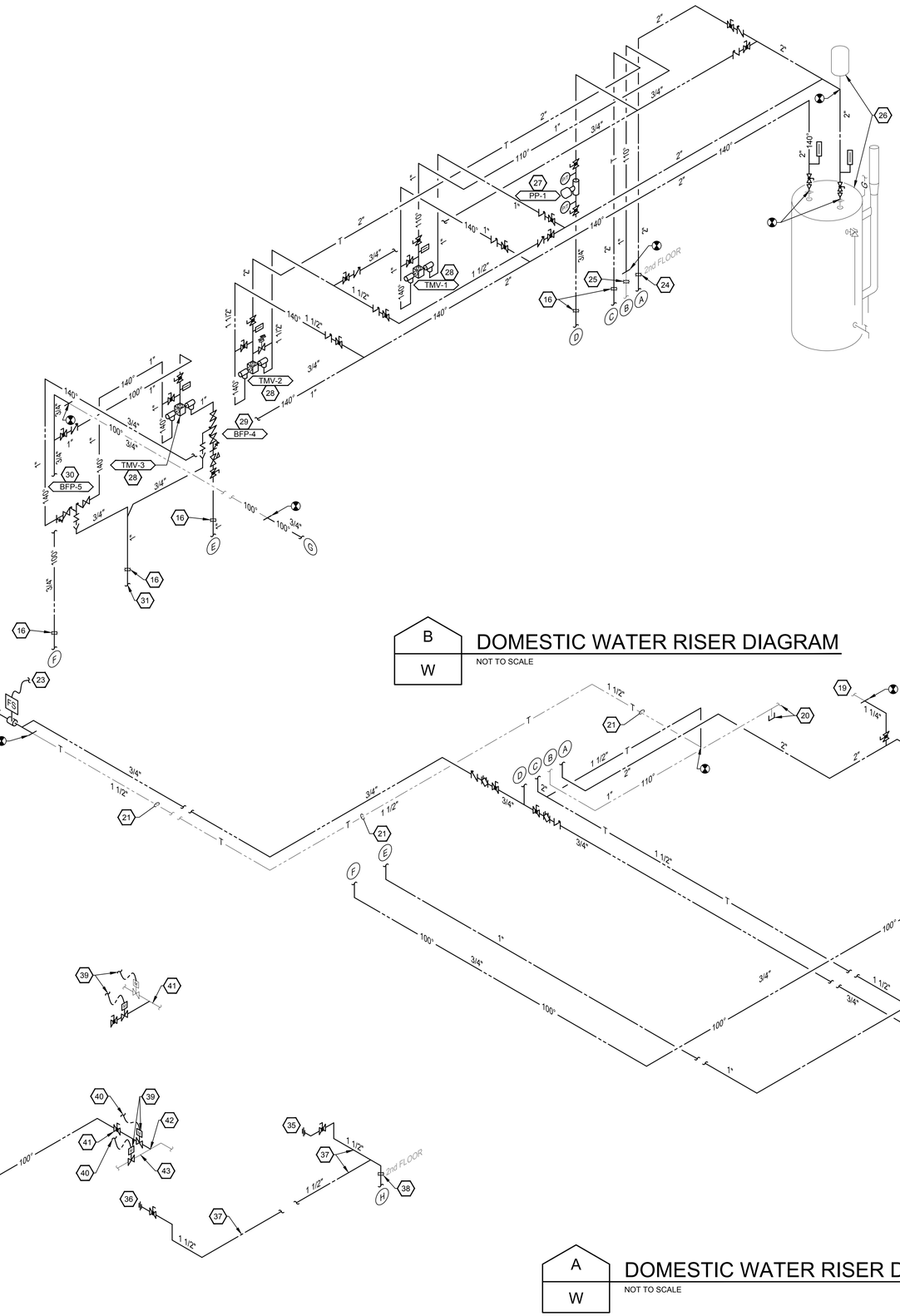
SCALE: NOT TO SCALE

SHEET NO. P-601

PLOTTED BY: mwilliamson

PRINTED: 4/23/2019 @ 2:40PM

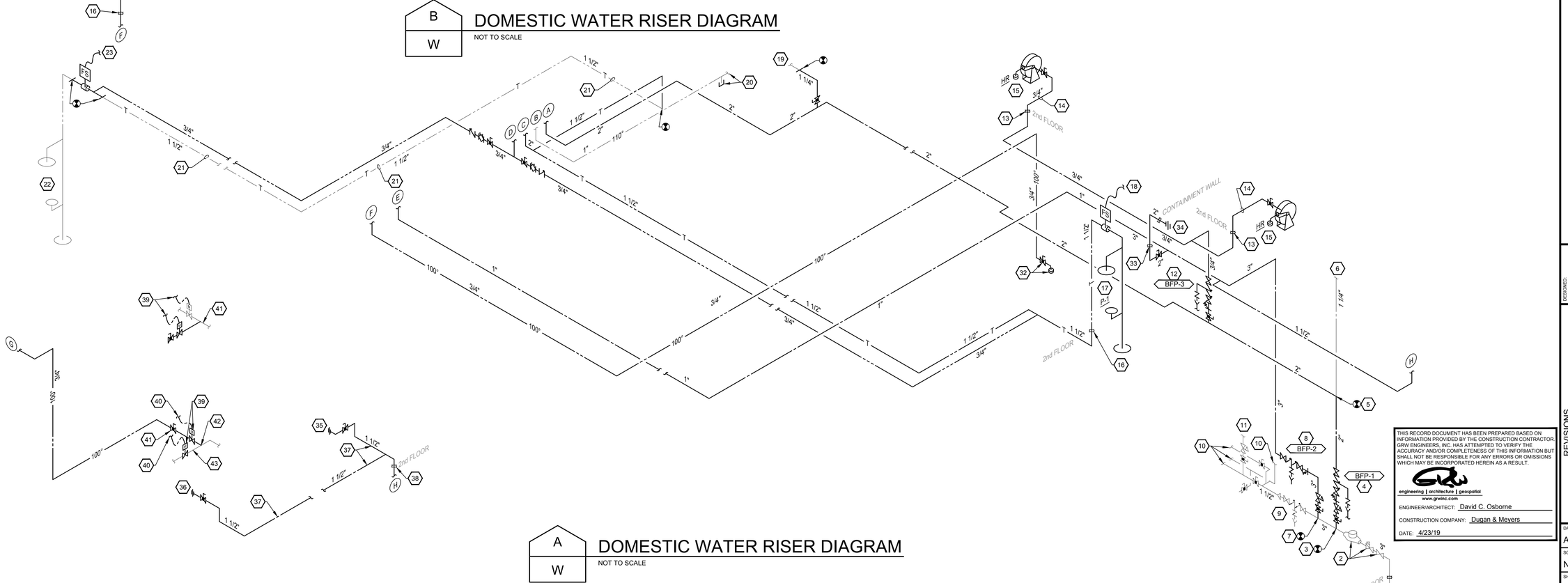
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 P-601.dwg



B
W

DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE



A
W

DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE

GENERAL NOTES:

1. SEE SHEET M-001 FOR LEGEND AND ADDITIONAL GENERAL NOTES.
2. SEE SPECIFICATION SECTION 017329 FOR CUTTING AND PATCHING.
3. ALL WATER PIPE BEING DEMOLISHED SHALL BE REMOVED TO POINT OF ACTIVE USE AND CAPPED. NO WATER FILLED DEAD ENDS ARE TO REMAIN.

SHEET KEYNOTES:

1. EXISTING 3" DOMESTIC WATER SERVICE ENTRANCE.
2. EXISTING SHUT-OFF VALVE, PRV AND WATER METER. RESET PRV OUTLET PRESSURE AS REQUIRED TO ACCOMMODATE NEW BELT FILTER PRESS. VERIFY PRESSURE REQUIREMENT WITH BELT FILTER PRESS MANUFACTURER.
3. REMOVE EXISTING 1 1/2" POTABLE CW PIPE, SHUT-OFF VALVE AND PRV. PROVIDE NEW 2" POTABLE WATER PIPE, SHUT-OFF VALVE, PRV AND CONNECT TO EXISTING 3" MAIN.
4. PROVIDE BFP-1 IN VERTICAL AND EXTEND AIR-GAP FITTING DRAIN PIPE TO EXISTING FLOOR DRAIN.
5. CONNECT NEW POTABLE 2" CW PIPE TO EXISTING 1 1/4" POTABLE CW PIPE.
6. EXISTING 1 1/4" POTABLE CW PIPE SERVING ORIGINAL BUILDING FIXTURES. SEE NOTE 19. DEMOLISH ABANDONED/UNUSED PIPE BETWEEN THIS POINT AND NOTE 19 CONNECTION POINT. COORDINATE PRV SETTING WITH BELT FILTER PRESS MANUFACTURER'S REQUIREMENTS.
7. PROVIDE NEW POTABLE 3" CW PIPE FOR POLYMER FEED SYSTEMS AND BELT FILTER PRESS WASHDOWN. CONNECT TO EXISTING 3" POTABLE CW PIPE. PROVIDE SHUT-OFF VALVE AND PRV.
8. PROVIDE BFP-2 WITH STRAINER ABOVE EXISTING BFP. INSTALL TO RETAIN ACCESS TO EXISTING BFP. EXTEND AIR-GAP FITTING DRAIN PIPE TO EXISTING FLOOR DRAIN.
9. EXISTING BACKFLOW PREVENTER FOR PROCESS WATER.
10. EXISTING CW SUPPLY TO EXISTING BELT FILTER PRESS BUILDING PROCESSES TO REMAIN.
11. EXISTING CW SUPPLY TO 2006 BACKWASH TREATMENT BUILDING PROCESSES TO REMAIN.
12. PROVIDE BFP-3 WITH STRAINER IN VERTICAL AND EXTEND AIR-GAP FITTING DRAIN PIPE TO EXISTING FLOOR DRAIN.
13. PROVIDE 3/4" POTABLE CW UP TO HOSE REEL. CORE DRILL FLOOR TO ACCOMMODATE PIPE AND FIRE STOPPING.
14. PROVIDE 3/4" POTABLE CW MOUNTED TO CURB WALL.
15. PROVIDE HOSE REEL MOUNTED TO FLOOR.
16. CORE DRILL FLOOR AS REQUIRED TO ACCOMMODATE PIPE AND FIRE STOPPING.
17. COORDINATE SAFETY STATION LOCATION WITH BELT PRESS MANUFACTURER'S ACCESSIBILITY REQUIREMENTS. COORDINATE LOCATION WITH OWNER.
18. EXTEND TO SCADA SYSTEM.
19. EXISTING 1 1/4" POTABLE CW PIPE TO TOILET ROOM PLUMBING CHASE AND JANITOR SINK TO REMAIN. SEE NOTE 6 FOR RELATED DEMOLITION.
20. EXISTING HW PIPE TO EXISTING LAVATORY AND JANITOR'S SINK TO REMAIN IN USE. CAP PIPE NO LONGER SERVING POLYMER SYSTEM.
21. REPURPOSE EXISTING PIPE SERVING SAFETY STATION FOR TEPID WATER SUPPLY.
22. EXISTING SAFETY STATION IN 2006 BACKWASH TREATMENT SYSTEM BLDG.
23. PROVIDE FLOW SWITCH FOR EXISTING SAFETY STATION. TIE FLOW SWITCH INTO SCADA SYSTEM.
24. CORE DRILL AND ENLARGE EXISTING FLOOR OPENING AS REQUIRED TO ACCOMMODATE LARGER PIPE AND FIRE STOPPING.
25. EXISTING HW PIPE FLOOR PENETRATION.
26. EXISTING WATER HEATER AND EXPANSION TANK. RESET WATER HEATER'S OUTGOING TEMPERATURE TO 140°F.
27. PROVIDE TEPID WATER RECIRCULATING PUMP MOUNTED TO WALL @ 4'-6" AFF.
28. PROVIDE TEMPERING VALVE MOUNTED TO WALL @ 4'-0" AFF.
29. PROVIDE BFP-4 WITH STRAINER IN VERTICAL.
30. PROVIDE BFP-5 WITH STRAINER PER MANUFACTURER'S RECOMMENDATIONS.
31. EXTEND 1" DRAIN TO EXISTING FIRST FLOOR JANITOR'S SINK.
32. PROVIDE 3/4" HW AND CONNECT TO POLYMER FEED PIPE. PROVIDE BALL VALVE AND 3/4" HOSE CONNECTION FOR EXISTING POLYMER SYSTEM.
33. CORE DRILL FLOOR AS REQUIRED TO INSTALL NEW 2" PIPE. SEAL FLOOR PENETRATION WATERTIGHT.
34. PROVIDE CONNECTION TO NEW BELT PRESS SHOWER ASSEMBLY AT BOTTOM OF GRATING. VERIFY TYPE AND LOCATION OF CONNECTION WITH BELT PRESS MANUFACTURER.
35. PROVIDE 1 1/2" CW TO POLYMER UNIT. SEE SHEET C-102.
36. PROVIDE 1 1/2" CW TO POLYMER TANK. SEE SHEED C-102.
37. FASTEN CW PIPE TO TOP OF CONTAINMENT WALL.
38. CORE DRILL FLOOR AS REQUIRED TO INSTALL NEW 1 1/2" PIPE. SEAL FLOOR PENETRATION WATERTIGHT.
39. PROVIDE SOLENOID VALVE.
40. CONTROL WIRING FOR SOLENOID VALVES. SEE ELECTRICAL SHEET E-702 FOR SEQUENCING.
41. PROVIDE MAINTENANCE VALVE (VALVE NORMALLY OPEN).
42. PROVIDE 3/4" HW AND CONNECT TO POLYMER FEED PIPE. SEE SHEET C-102.
43. POLYMER FEED PIPE SHOWN FOR REFERENCE ONLY. SEE SHEET C-102.

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT PLUMBING RISER DIAGRAMS

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	MAS
DRAWN:	MAS
REVIEWED:	AAT
APPROVED:	AAT

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

SCALE: NOT TO SCALE

SHEET NO.

P-602

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:40PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 P-602.dwg

INTERIOR LIGHTING

CEILING MOUNTED

TWO BY FOUR FOOT LED LIGHTING FIXTURE,
A - INDICATES TYPE
b - DENOTES SWITCH DESIGNATION

TWO BY FOUR FOOT LED LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE

EMERGENCY TWO BY FOUR FOOT LED LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE

EMERGENCY TWO BY FOUR LED LIGHTING FIXTURE, LETTER INDICATES TYPE

LED ONE BY FOUR LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY ONE BY FOUR LED LIGHTING FIXTURE, LETTER INDICATES TYPE

STRIP LED LIGHTING FIXTURE, LETTER INDICATES TYPE

8' STRIP LED LIGHTING FIXTURE,

TWO BY TWO FOOT LED LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY TWO BY TWO FOOT LED LIGHTING FIXTURE LETTER INDICATES TYPE

EMERGENCY SELF CONTAINED LIGHTING UNIT WITH TWO LIGHT FIXTURE HEADS, LETTER INDICATES TYPE

EXIT LIGHT WITH ARROW, LETTER INDICATES TYPE
X1 - SINGLE FACE
X2 - DOUBLE FACE

EMERGENCY REMOTE HEAD

INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE

EMERGENCY INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE

HID LIGHTING FIXTURE WITH QUARTZ RESTRIKE, LETTER INDICATES TYPE

WALL MOUNTED

INTERIOR CONDUIT AND WIRE

CONDUIT CONCEALED IN WALL OR CEILING
TIC MARKS INDICATE NUMBER OF WIRES.
#12 IF NOT OTHERWISE SHOWN. CONDUIT SHALL BE 3/4 " UNLESS OTHERWISE NOTED.
GROUND
PHASE(S)
NEUTRAL

CONDUIT CONCEALED BEHIND CEILING OR WALL FINISH

CONDUIT EXPOSED ON WALL OR STRUCTURE

CONDUIT IN OR UNDER FLOOR SLAB

HOMERUN TO PANEL (PANEL LP1 CIRCUIT 2 INDICATED)

SIGNIFIES MULTIPLE CIRCUITS IN ONE CONDUIT

EXPLOSION PROOF CONDUIT SEAL

CONDUIT WITH END CAPPED

CONDUIT TURNED UP

CONDUIT TURNED DOWN

BLANKED OFF OUTLET BOX

FIRE ALARM/SUPPRESSION SYSTEM DEVICES

END OF LINE RESISTOR

FIRE ALARM CONTROL PANEL

FIRE ALARM ANNUNICATOR PANEL

FIRE ALARM COMMUNICATOR

REMOTE MIC

FIRE ALARM MANUAL STATION
X=H- HALON F- FOAM
C- CARBON DIOXIDE W- WET CHEMICAL
D- DRY CHEMICAL P- MANUAL PULL STATION

FIRE ALARM SPEAKER-HORN/STROBE LIGHT

FIRE ALARM HORN OR SPEAKER

FIRE ALARM BELL/LIGHT

WATER MOTOR GONG

FIRE ALARM STROBE LIGHT

WALL MOUNTED FIRE ALARM STROBE LIGHT

SMOKE DETECTOR
X=P- PHOTOELECTRIC BT- BEAM TRANSMITTER
I- IONIZATION BR- BEAM RECEIVER

DUCT MOUNTED SMOKE DETECTOR

ULTRAVIOLET DETECTOR

HEAT DETECTOR, SUBSCRIPT DENOTES THE FOLLOWING
X=F-FIXED TEMPERATURE
R-RATE OF RISE
R/F-COMBINATION RATE OF RISE AND FIXED

TAMPER SWITCH CONNECTION

FLOW SWITCH CONNECTION

DOOR HOLDER

GAS DETECTOR

PRESSURE SWITCH

LEVEL SWITCH

VALVE WITH TAMPER SWITCH

MUSHROOM HEAD EMERGENCY PUSHBUTTON SWITCH

FIREMANS TELEPHONE STATION

CO_2 FIRE EXTINGUISHER

DRY CHEMICAL FIRE EXTINGUISHER

ADDRESSABLE MONITOR MODULE

CARBON MONOXIDE DETECTOR

INTERIOR POWER EQUIPMENT AND DEVICES

SINGLE RECEPTACLE

PUSHBUTTON STATION

GENERATOR SET

AUTOMATIC TRANSFER SWITCH

DUPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
WP : WEATHERPROOF
GFI : INTEGRAL GROUND FAULT INTERRUPT
IG : ISOLATED GROUND
EXP : EXPLOSION PROOF

SPECIAL PURPOSE RECEPTACLE, NUMBER DENOTES NEMA CONFIGURATION, SUBSCRIPTS DENOTE THE FOLLOWING:
WP : WEATHERPROOF
GFI : INTEGRAL GROUND FAULT INTERRUPT
EXP : EXPLOSION PROOF, PROVIDE TYPE 7 ENCLOSURE

TRIPLEX RECEPTACLE, SUBSCRIPT DENOTES THE FOLLOWING:
WP : WEATHERPROOF
GFI : INTEGRAL GROUND FAULT INTERRUPT

QUADRUPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
WP : WEATHERPROOF
GFI : INTEGRAL GROUND FAULT INTERRUPT

SINGLE SPECIAL PURPOSE RECEPTACLE

FLOOR MOUNTED RECEPTACLE

RANGE OUTLET

JUNCTION BOX WALL OR CEILING MOUNTED FLUSH, 4"X4" SQUARE UNLESS OTHERWISE NOTED

JUNCTION BOX SURFACE MOUNTED ON WALL OR STRUCTURE 4"X4" SQUARE UNLESS OTHERWISE NOTED

PULL BOX-SIZE AS INDICATED ON DRAWINGS

MULTI-OUTLET SURFACE RACEWAY, SIZE AND NUMBER OF RECEPTACLE AS SCHEDULED.
NUMBER INDICATES CIRCUIT NUMBER

WIREWAY

CABLE TRAY

PLUGIN OR FEEDER BUS

WALL MOUNTED SINGLE FACE CLOCK

WALL MOUNTED DOUBLE FACE CLOCK

WALL SWITCH 120-277 VOLT, 20 AMP, SINGLE POLE SUBSCRIPT (X) DENOTES OTHERWISE SWITCH DESIGNATIONS DESIGNATION:
X=EP : EXPLOSIONPROOF
M : MOTOR RATED WITH OVERLOAD PROTECTION
T : TIMER
D,600 : DIMMER SWITCH, 600 WATT NOTED
a : SWITCHING DESIGNATION
L : LOW VOLTAGE
2 : DOUBLE POLE
3 : THREE WAY
4 : FOUR WAY
K : KEY OPERATED
P : PILOT LIGHT
D : DOOR SWITCH
WP : WEATHERPROOF

TWO SINGLE POLE SWITCHES FOR MULTI-LEVEL LIGHTING

MOTOR CONNECTION (5 HP INDICATED)

SWITCHBOARD

PANELBOARD, SURFACE MOUNTED

PANELBOARD, RECESSED

DISCONNECT SWITCH
NON-FUSED
FUSED

NEMA DESIGNATION
FUSE SIZE, UL CLASS (FUSED SWITCH ONLY)
SWITCH AMP RATING
NUMBER OF POLES

ENCLOSED CIRCUIT BREAKER

NEMA DESIGNATION
AIC RATING
TRIP RATING (AMPS)
NUMBER OF POLES

MOTOR CONTROLLER

NOTATION WHEN OTHER THAN ACROSS THE LINE
RVA - REDUCED VOLTAGE AUTO TRANSFORMER
RVR - REDUCED VOLTAGE PRIMARY RESISTER
RVW - REDUCED VOLTAGE WYE/DELTA
RVP - REDUCED VOLTAGE PART WINDING
R - REVERSIBLE
STARTER NEMA SIZE
NUMBER OF POLES

COMBINATION STARTER/FUSED DISCONNECT

NEMA DESIGNATION
FUSE RATING AND UL CLASS
SWITCH AMP RATING
STARTER NEMA SIZE
NUMBER OF POLES

COMBINATION STARTER/CIRCUIT BREAKER

NEMA DESIGNATION
AIC RATING
TRIP AMP RATING
STARTER NEMA SIZE
NUMBER OF POLES

VARIABLE FREQUENCY CONTROLLER

NEMA DESIGNATION
CONTROLLER TYPE:
H - CONSTANT HP
C - CONSTANT TORQUE
V - VARIABLE TORQUE
HP RATING
NUMBER OF POLES

MAGNETIC CONTACT, DOOR MOUNTED

MAGNETIC CONTACT, WINDOW MOUNTED

PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION

ELAPSED TIME METER

TIMER MOTOR

RELAY

SOLENOID VALVE CONNECTION

LIMIT SWITCH CONNECTION

THERMOSTAT CONNECTION

PNEUMATIC/ELECTRIC CONNECTION

PHOTOCELL

PRESSURE SWITCH CONNECTION

EXISTING

NEW

POLE, LENGTH AND CLASS AS INDICATED

DOWN GUY-NOTED AS 8000 POUND STRENGTH. ANCHOR AT 20 FEET FROM POLE

TRANSFORMER BANK POLE MOUNTED-SHOWN AS THREE PHASE 25 KVA TRANSFORMERS

SINGLE PHASE TRANSFORMER, POLE MOUNTED 25 KVA NOTED

PAD MOUNTED TRANSFORMER INDICATED AS 100 KVA

FUSE CUTOUT WITH FUSE SIZE AND TYPE NOTED

DISCONNECT SWITCH OR SECTIONALIZING SWITCH

OVERHEAD PRIMARY-SHOWN AS 4-#6 CONDUCTORS, 4160V

UNDERGROUND PRIMARY

OVERHEAD SECONDARY

UNDERGROUND SECONDARY

UNDERGROUND TELEPHONE CONDUIT

OVERHEAD TELEPHONE

UNDERGROUND COMMUNICATION

POLE MOUNTED LIGHTING FIXTURE

BURIED GROUND WIRE

GROUND WIRE IN OR UNDER FLOOR SLAB

GROUND WIRE EXPOSED

GROUND CONNECTION OR EQUIPMENT BOND

ROOF CONDUCTOR

GROUND ROD. SIZE AS NOTED 10 FT. LENGTH AND 3/4 INCHES DIAMETER NOTED
(W DENOTES INSTALLATION IN WELL)

LIGHTNING ROD, (24 INCHES HIGH NOTED)

MAST TYPE LIGHTNING PROTECTION SYSTEM. 60' CLASS 2 POLE NOTED

MANHOLE, SUBSCRIPT DENOTES THE FOLLOWING:
XXX= EMH=ELECTRICAL TMH=TELEPHONE
CMH=COMMUNICATIONS

WALLPACK EXTERIOR LIGHT FIXTURE

EXTERIOR

COMMUNICATION

TELEPHONE OUTLET. SUBSCRIPT DENOTES THE FOLLOWING:
P - PAY PHONE
±54"-WALL MOUNTED @ 54" A.F.F.

COMBINATION VOICE, DATA & VIDEO, 1 EACH

COMBINATION VOICE & DATA OUTLET, 1 EACH

ONE DATA OUTLET

TWO DATA OUTLETS

THREE DATA OUTLETS

FOUR DATA OUTLETS

ONE VOICE, DATA & VIDEO COMBINED

FLOOR MOUNTED TELEPHONE OUTLET (CAN BE APPLIED TO DATA OUTLET ALSO)

SPEAKER, WALL MOUNTED

SPEAKER, CEILING MOUNTED

FIXED CAMERA

PAN/TILT/ZOOM CAMERA

TV OUTLET- SUBSCRIPT DENOTES MOUNTING HEIGHT
XX=72" OR 24" AFF
X : V=VOICE
D=DATA
T=VIDEO (TV)

CLASSROOM BELL

INTERCOM CALL STATION

ABBREVIATIONS

A, AMP - AMPERES
AF - AMPERE FRAME
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
AHU - AIR HANDLING UNIT
AL - ALUMINUM
AT - AMPERE TRIP
ATRV - AUTOTRANSFORMER REDUCED VOLTAGE
ATS - AUTOMATIC TRANSFER SWITCH
AWG - AMERICAN WIRE GAUGE
BLDG - BUILDING
C - CONDUIT
CB - CIRCUIT BREAKER
CCTV - CLOSED CIRCUIT TELEVISION
CKT - CIRCUIT
C/L - CENTERLINE
CLG - CEILING
COND - CONDUCTOR
CONN - CONNECTION
CTL - CONTROL
CU - COPPER
DACT - DIGITAL ALARM COMMUNICATING TRANSMITTER
DB - DIRECT BURIAL
DET - DETAIL
DP - DISTRIBUTION PANEL
DISC - DISCONNECT
DN - DOWN
DP - DISTRIBUTION PANEL
DPST - DOUBLE POLE SINGLE THROW
EA - EACH
EC - EMPTY CONDUIT
ELEC - ELECTRICAL
ELEV - ELEVATOR
EM, EMERG - EMERGENCY
EMT - ELECTRICAL METALLIC TUBING
EOL - END OF LINE
EUH - ELECTRIC UNIT HEATER
EWC - ELECTRIC WATER COOLER
EWH - ELECTRIC WATER HEATER
EX - EXISTING
F - FUSE
FLA - FULL LOAD AMPS
FLEX - FLEXIBLE
FLR - FLOOR
FLUOR - FLUORESCENT
FOR - FOWARD-OFF-REVERSE
FTG - FITTING
FVNR - FULL VOLTAGE NON-REVERSING
GALV - GALVANIZED
G, GND - GROUND
GFI - GROUND FAULT INTERRUPTING
HID - HIGH INTENSITY DISCHARGE
HP - HORSEPOWER
HT, H - HEIGHT
IG - ISOLATED GROUND
IN - INCH
INC - INCANDESCENT
J-BOX, JB - JUNCTION BOX
KCMIL - 1000 CIRCULAR MILS
KVA - KILOVOLT AMPS
KVAF - KILOVOLT AMPS REACTIVE
KW - KILOWATT
KWH - KILOWATT HOUR
LA - LIGHTNING ARRESTER
LTG - LIGHTING
LV - LOW VOLTAGE
LVDT - LINEAR VARIABLE DIFFERENTIAL TRANSFORMER
MAU - MAKEUP AIR UNIT
MAX - MAXIMUM
MCB - MAIN CIRCUIT BREAKER
MCC - MOTOR CONTROL CENTER
MCP - MOTOR CIRCUIT PROTECTOR
MDP - MAIN DISTRIBUTION PANEL
MFR - MANUFACTURER
MG - MOTOR GENERATOR
MH - MANHOLE, METAL HALIDE, MOUNTING HEIGHT
MIC - MICROPHONE
MIN - MINIMUM
MLO - MAIN LUGS ONLY
MTD - MOUNTED
MV - MEDIUM VOLTAGE
N/A - NOT APPLICABLE
NEC - NATIONAL ELECTRICAL CODE
NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NESC - NATIONAL ELECTRICAL SAFETY CODE
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
NIC - NOT IN CONTRACT
NTS - NOT TO SCALE
NO - NORMALLY OPEN, NUMBER
OH - OVERHEAD
OL - OVERLOAD
P - POLE
PB - PULL BOX, PUSH BUTTON
PH - PHASE
PNL - PANEL
POC - POINT OF CONNECTION
PS - PULL SWITCH OR PRESSURE SWITCH
QTY - QUANTITY
REF - REFERENCE, REFER
RCPT - RECEPTACLE
RGS - RIGID GALVANIZED STEEL
SCH - SCHEDULE
SMR - SURFACE METAL RACEWAY
S/N - SOLID NEUTRAL
SQ FT - SQUARE FOOT
SS - STAINLESS STEEL
STD - STANDARD
STP - SHIELDED TWISTED PAIR
SW - SWITCH
SYS - SYSTEM
TEL - TELEPHONE
TM - THERMAL MAGNETIC
TV - TELEVISION
TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP - TYPICAL
UG - UNDERGROUND
UH - UNIT HEATER
V - VOLTAGE
VFD - VARIABLE FREQUENCY DRIVE
W - WIRE
W/ - WITH
W/O - WITH OUT
WP - WEATHERPROOF
WT - WEIGHT
X'FMR, XFMR - TRANSFORMERS

- LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS IS A STANDARD LIST. NOT ALL SYMBOLS ARE USED ON THIS PROJECT.
- SYMBOLS USED BUT NOT LISTED HERE SHALL BE DEFINED ELSEWHERE IN THE BID DOCUMENTS. IF NOT, CONTACT THE ENGINEER FOR CLARIFICATION PRIOR TO BID OPENING.

KEY NOTE CALL OUT

CONTROLS

AMMETER

DAMPER MOTOR ACTUATOR, SPRING RETURN

EXHAUST FAN MOTOR

VOLTMETER

WATTMETER

WATTHOUR METER

CURRENT TRANSFORMER

POTENTIAL TRANSFORMER

TRANSIENT VOLTAGE SURGE SUPPRESSOR

LIGHTNING ARRESTOR (CROWBAR STYLE)

CAPACITOR

GROUND

TRANSFORMER

RELAY CONTROLS (NORMALLY OPEN)

RELAY CONTROLS (NORMALLY CLOSED)

KEY INTERLOCK

THERMAL OVERLOAD PROTECTION

FUSE

SWITCH, NONFUSED

FUSED SWITCH

DOUBLE THROW SWITCH OR TRANSFER SWITCH

FLOAT SWITCH

THERMOSTATIC SWITCH

PRESSURE SWITCH

LIMIT SWITCH OR TORQUE SWITCH

DOT INDICATES CONNECTION OF WIRES

TERMINALS FOR WIRE CONNECTIONS FROM REMOTE DEVICE

PILOT LIGHT IN CONTROL CIRCUIT

MOTOR STARTER COIL

AUTOTRANSFORMER

TIMER CLUTCH OR SOLENOID

CIRCUIT BREAKER GENERIC

MAGNETIC ONLY CIRCUIT BREAKER (SINGLE POLE SHOWN)

THERMAL-MAGNETIC CIRCUIT BREAKER (SINGLE POLE SHOWN)

BATTERY

GROUND FAULT PROTECTED BREAKER

START-STOP PUSHBUTTON (NON-MAINTAINED CONTACT)

ON-OFF PUSHBUTTON (MAINTAINED CONTACT)

3 POSITION SELECTOR SWITCH
H O A - HAND/OFF/ON AUTOMATIC
L O R - LOCAL/OFF/REMOTE

GENERAL NOTES:

1. THE COLOR OF EXPOSED RUNS OF CONDUIT SHALL CLOSELY MATCH EXISTING BACKGROUND COLOR OF SURFACES IN THE AREA.
2. FIRESTOP ALL CONDUITS PENETRATING FIRE RATED WALLS.
3. CONTRACTOR SHALL VISIT SITE(S) PRIOR TO BIDDING.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
ELECTRICAL SYMBOLS
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JKG	JTR	WLM	WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

SCALE: NOT TO SCALE

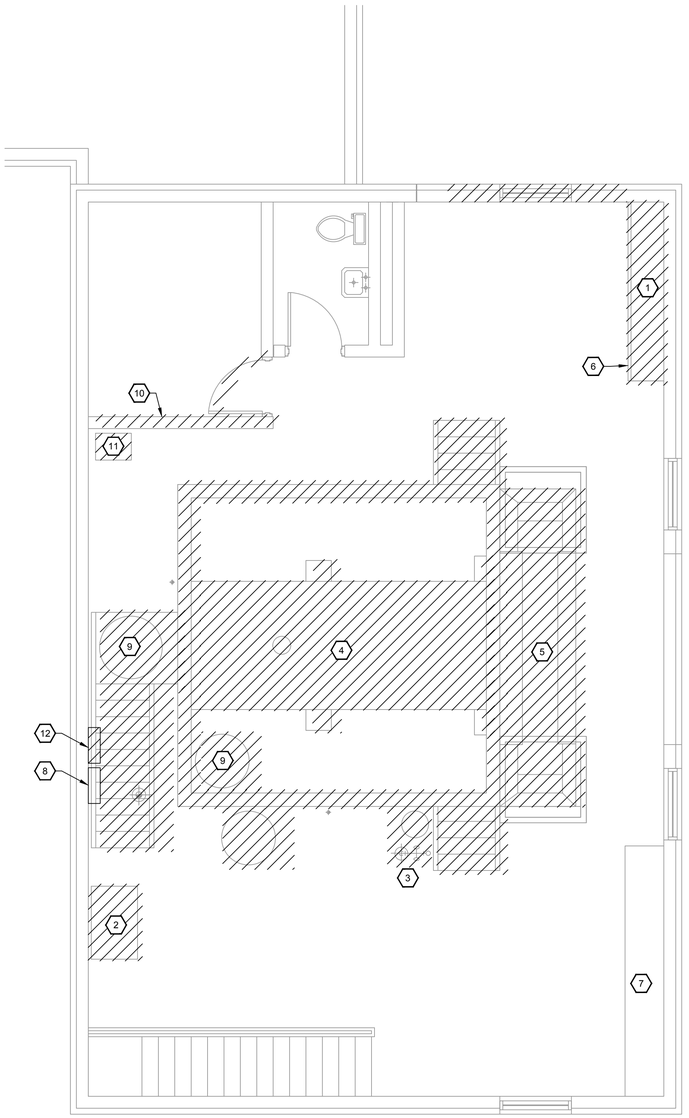
SHEET NO.

E-001

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:33PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-001.dwg



SECOND FLOOR ELECTRICAL PLAN - DEMOLITION

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

0 2' 4' 8'

GENERAL NOTES:

1. REMOVE ALL CONDUIT AND WIRE BACK TO SOURCE. PATCH ALL HOLES TO MATCH ADJOINING CONSTRUCTION AND FINISH. PAINT TO MATCH ADJACENT PAINT COLOR.

⬡ SHEET KEYNOTES:

1. EXISTING CONTROL PANEL TO BE REMOVED.
2. EXISTING POLYMER FEED PUMPS TO BE REMOVED.
3. EXISTING SHOWER/EYE WASH TO BE REMOVED.
4. EXISTING FILTER PRESS TO BE REMOVED.
5. EXISTING BELT CONVEYOR TO BE REMOVED.
6. EXISTING AIR COMPRESSOR TO BE REMOVED.
7. EXISTING MOTOR CONTROL CENTER TO REMAIN. EXISTING BUCKETS AND FEEDER CIRCUITS TO EQUIPMENT BEING REPLACED TO BE REMOVED.
8. EXISTING PUMP SPEED CONTROLS FOR POLYMER SYSTEM ON FIRST FLOOR TO REMAIN AS A BACKUP TO THE NEW POLYMER SYSTEM TO BE INSTALLED. LOWER PANEL TO NO MORE THAN 78" TO TOP OF PANEL FOR EASY ACCESS FROM FLOOR LEVEL (STAIRS TO BE REMOVED) AND RELOCATE TO NEW POSITION SHOWN ON SHEET E-103.
9. EXISTING MIXING TANK TO BE REMOVED.
10. EXISTING WALL TO BE REMOVED. REMOVE ALL ELECTRICAL EQUIPMENT - SWITCHES, RECEPTACLES, ETC.
11. EXISTING NATURAL GAS UNIT HEATER TO BE REMOVED. REMOVE ALL CONDUIT AND WIRING.
12. EXISTING DC MOTOR SPEED CONTROLS FOR POLYMER PUMPS TO BE REMOVED.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
ELECTRICAL DEMOLITION PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: JKG
DRAWN: JTR
REVIEWED: WLM
APPROVED: WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

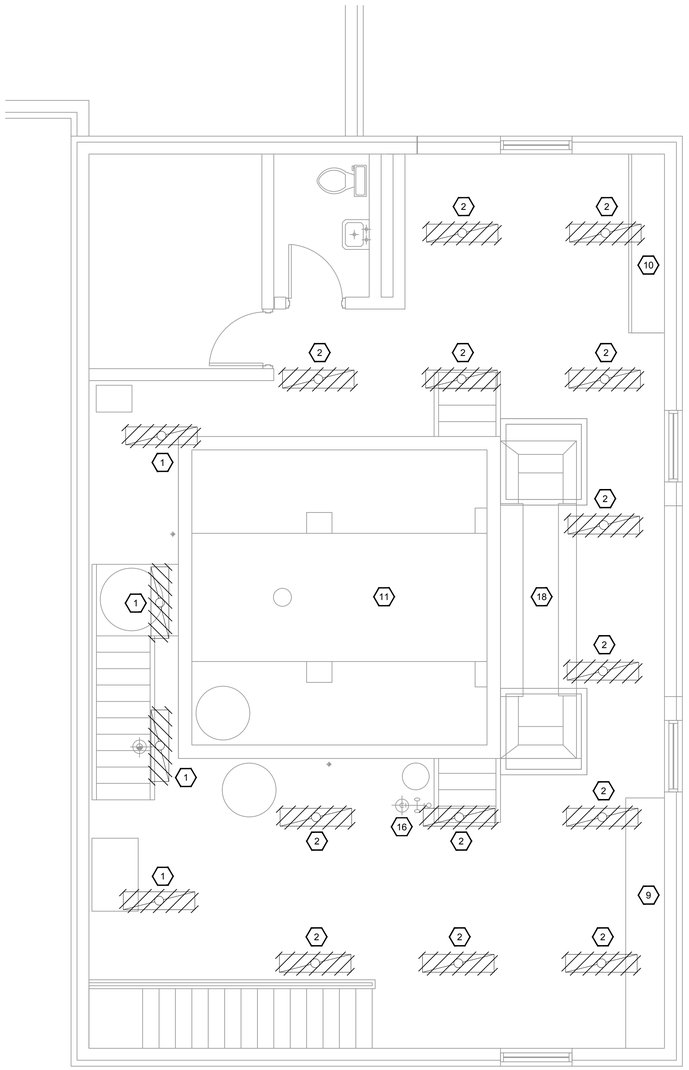
SHEET NO.

E-101

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:33PM

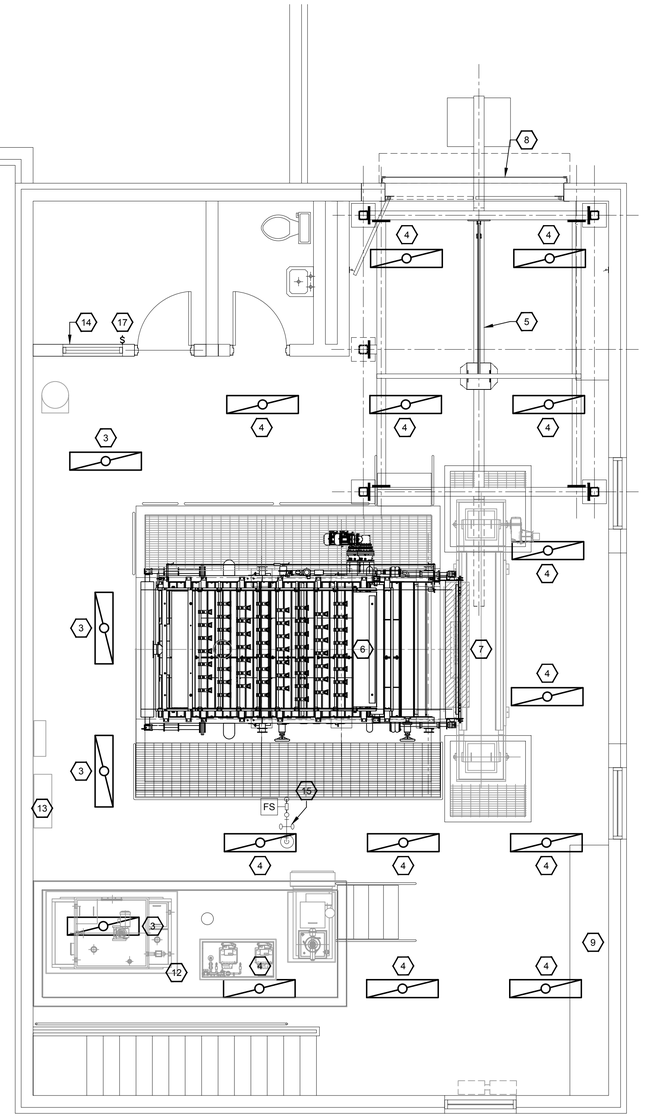
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-101.dwg



SECOND FLOOR LIGHTING PLAN - DEMOLITION

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

0 2' 4' 8'



SECOND FLOOR LIGHTING PLAN - NEW WORK

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

0 2' 4' 8'

GENERAL NOTES:

1. ALL LIGHTING (EXCEPT WALL MOUNTED EMERGENCY EGRESS LIGHTING) IN THE BELT FILTER PRESS ROOM SHALL BE REPLACED.
2. THE EXISTING T-12 LINEAR FLUORESCENTS (BOTH SURFACE MOUNTED AND PENDANT MOUNTED) SHALL BE REPLACED WITH LED LUMINAIRES, BEGHELLI BS100LED-PG-4-HT-80W-WT41-120-277V. LUMINAIRE SHALL BE DOUBLE PENDANT OR SURFACE MOUNTED AS APPROPRIATE.
3. CONTRACTOR SHALL DISPOSE OF REMOVED LUMINAIRES IN A LEGAL MANNER.
4. CEILING SHALL BE PAINTED TO IN ACCORDANCE WITH SPECIFICATION SECTION 099600.
5. EXISTING CIRCUITS (LP1-22 AND LP1-24) AND LIGHTING CONTROLS SHALL BE REUSED. REFER TO E-601 FOR LP1 SCHEDULE.
6. MOUNTING HEIGHTS OF ALL PENDANT MOUNTED LUMINAIRES SHALL BE RAISED TO WITHIN 6" OF CEILING TO CLEAR NEW EQUIPMENT - BELT FILTER PRESS, MONORAIL, ETC. COORDINATE LUMINAIRE INSTALLATION WITH EQUIPMENT INSTALLER.

⬡ SHEET KEYNOTES:

1. EXISTING SURFACE MOUNTED T-12 LINEAR FLUORESCENT LUMINAIRES TO BE REMOVED.
2. EXISTING PENDANT MOUNTED T-12 LINEAR FLUORESCENT LUMINAIRES TO BE REMOVED.
3. NEW SURFACE MOUNTED LED LUMINAIRES TO BE INSTALLED.
4. NEW PENDANT MOUNTED LED LUMINAIRES TO BE INSTALLED.
5. NEW OVERHEAD MONORAIL WITH MOTORIZED HOIST AND TROLLEY.
6. NEW BELT FILTER PRESS.
7. NEW BELT CONVEYOR.
8. NEW COILING DOOR.
9. EXISTING MOTOR CONTROL CENTER (MCC) TO REMAIN. INCLUDES PANELBOARD LP1 CONTAINING EXISTING LIGHTING CIRCUITS.
10. EXISTING BELT FILTER PRESS CONTROL PANEL TO BE REMOVED.
11. EXISTING BELT FILTER PRESS TO BE REMOVED.
12. NEW POLYMER PROCESSING EQUIPMENT.
13. NEW BELT FILTER PRESS CONTROL PANEL.
14. NEW WALL.
15. NEW EMERGENCY SHOWER/EYE WASH STATION.
16. EXISTING EMERGENCY SHOWER/EYE WASH STATION TO BE REMOVED.
17. NEW LIGHT SWITCH. CONNECT TO EXISTING SWITCHED LIGHTING CIRCUIT IN STORAGE ROOM.
18. EXISTING BELT CONVEYOR TO BE REMOVED.

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

RECORD DOCUMENTS

BELT FILTER PRESS REPLACEMENT
LIGHTING DEMO AND NEW WORK PLAN

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JKG	CGT	WLM	WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE: APRIL, 2019

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

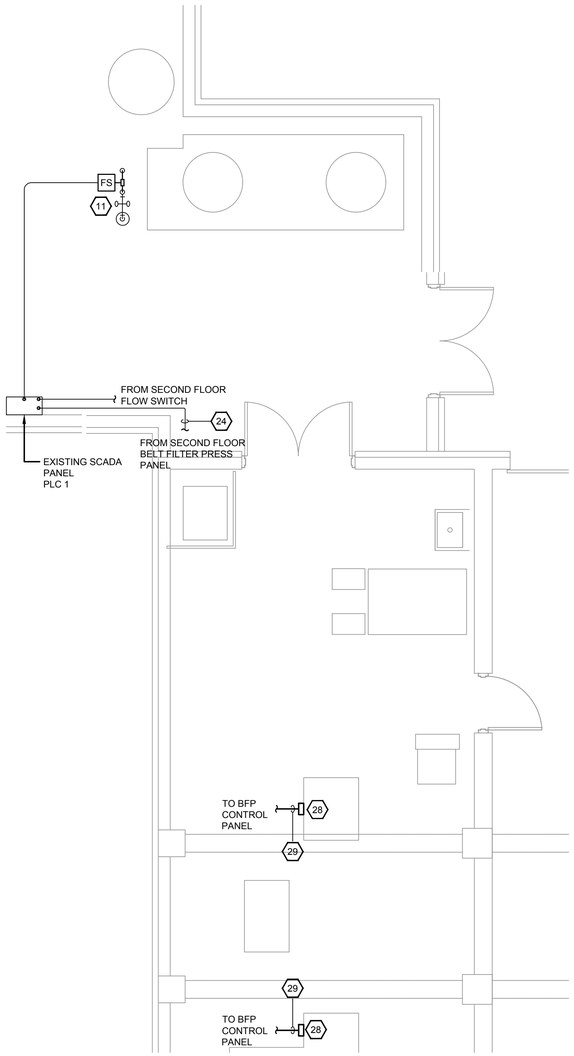
SHEET NO.

E-102

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:35PM

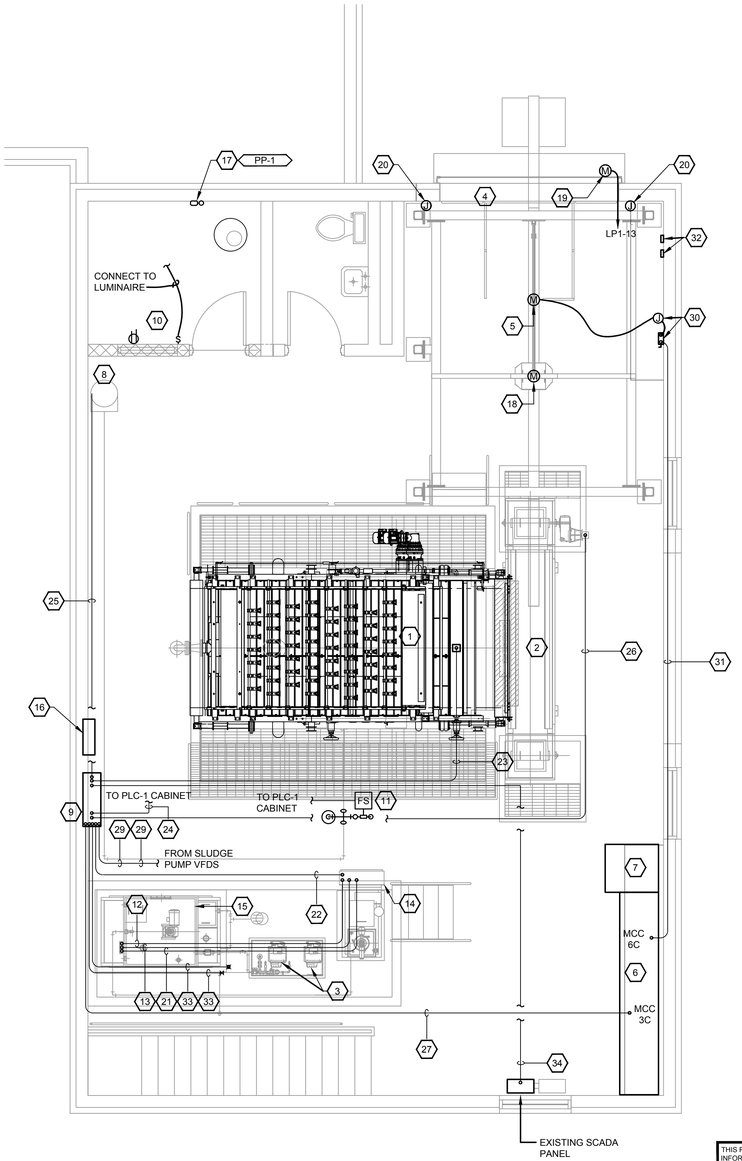
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-102.dwg



PARTIAL FIRST FLOOR NEW WORK PLAN - ELECTRICAL

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

0 2' 4' 8'



SECOND FLOOR ELECTRICAL PLAN - NEW WORK

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

0 2' 4' 8'

SCHEDULE OF ALARMS

BELT FILTER PRESS

NO	DESCRIPTION
1	EMERGENCY STOP
2	LIMIT SWITCH FOR BELT ALIGNMENT
3	LOW WATER PRESSURE
4	LOW AIR OR HYDRAULIC PRESSURE
5	MAIN BELT DRIVE FAIL
6	POLYMER PUMP FAIL
7	SLUDGE PUMP FAIL

CONVEYOR BELT

NO	DESCRIPTION
1	EMERGENCY STOP
2	BELT MIS-ALIGNMENT
3	ZERO SPEED SWITCH
4	BELT SLIP OR BREAK

POLYMER SYSTEM

NO	DESCRIPTION
1	FEEDER HOPPER LEVEL ALARM
2	FEEDER VARIABLE FREQUENCY DRIVE FAIL ALARM
3	MIX TANK HIGH-HIGH LEVEL ALARM
4	MIX TANK LOW-LOW LEVEL ALARM

GENERAL NOTES:

1. REFER TO SCHEDULES ON SHEETS E-601 AND E-602.
2. REFER TO SHEETS E-701 AND E-702 FOR BELT PRESS CONTROL PANEL INTERCONNECTIONS/ POINT TO POINT DRAWING.
3. SHOWN ALARMS ARE DESCRIPTIVE. SCADA PROGRAMMING AND ALARM DESIGN TO BE DONE BY OTHERS. NOTE THAT CONTRACTOR SHALL PROVIDE ADDITIONAL ETHERNET SWITCH AND DIGITAL INPUT CARD FOR EXISTING SCADA CABINETS FOR SCADA CONNECTION.
4. ONLY THE INTERCONNECTIONS TO BE MADE BY CONTRACTOR ARE SHOWN. FOR FULL LIST OF INTERCONNECTIONS, REFER TO MANUFACTURER SCHEMATICS.

⬡ SHEET KEYNOTES:

1. NEW BELT FILTER PRESS.
2. NEW CONVEYOR BELT.
3. NEW POLYMER PUMPS.
4. NEW OUTSIDE OVERHEAD COILING DOOR.
5. NEW ELECTRIC HOIST WITH TROLLEY MOTOR.
6. EXISTING 600 AMPERE, 208/120 VOLT, THREE PHASE,, FOUR WIRE, SQUARE D, MOTOR CONTROL CENTER (MCC), TO REMAIN. FURNISH AND INSTALL NEW BUCKETS FOR NEW EQUIPMENT.
7. EXISTING CONTROL CABINET WITH VFDS TO REMAIN.
8. NEW AIR COMPRESSOR. SEE EQUIPMENT MANUFACTURER RECOMMENDATIONS.
9. NEW BELT FILTER PRESS (BFP) CONTROL PANEL. PROVIDE REQUIRED CONNECTIONS TO EXISTING PLANT SCADA AS DETAILED IN KEYNOTES 24 AND 34.
10. NEW WALL - FURNISH AND INSTALL ALL NEW ELECTRICAL DEVICES - RECEPTACLE, SWITCH, ETC. CONNECT NEW LIGHT SWITCH TO EXISTING LUMINAIRE. CONNECT NEW RECEPTACLE TO EXISTING RECEPTACLE BRANCH CIRCUIT LP1-32. MATCH WIRING DEVICES TO EXISTING.
11. FLOW SWITCH ALARM FURNISHED WITH NEW SHOWER/EYE WASH STATION. PROVIDE (2) #14 IN 3/4"C TO EXISTING SCADA PANEL PLC-1 AS SHOWN FOR MONITORING SHOWER/EYEWASH STATION FLOW SWITCH.
12. TWO RUNS OF EACH OF THE FOLLOWING FROM THE POLYMER SYSTEM JUNCTION BOX TO CONTROL PANEL: (2) #14 IN 3/4" C FOR POWER TO MIXING/AGE TANK TRANSDUCERS, (2) #16 SHIELDED CABLE IN 3/4"C FOR SIGNAL FROM MIXING/AGE TANK TRANSDUCERS.
13. (2) #12, (1) #12 GND IN 3/4" C FOR POWER TO TRANSFER VALVE FROM THE POLYMER SYSTEM CONTROL PANEL TO SYSTEM JUNCTION BOX.
14. NEW POLYMER CONTROL PANEL AND PROCESSING UNIT.
15. POLYMER MIXING AND AGING TANK.
16. PUMP SPEED CONTROLS FOR EXISTING POLYMER SYSTEM ON FIRST FLOOR TO REMAIN AS A BACKUP SYSTEM. RELOCATE TO POSITION SHOWN AND LOWER PANEL TO NO MORE THAN 78" TO TOP OF PANEL AFF.
17. PLUMBING CIRCULATION PUMP - 120 VOLTS, SINGLE PHASE. CONNECT TO NEARBY EXISTING RECEPTACLE CIRCUIT LP1-32.
18. NEW RETRACTABLE BEAM MOTOR. FURNISH AND INSTALL CEILING MOUNTED RECEPTACLE FED FROM COILING DOOR CIRCUIT LP1-13 FOR THIS EQUIPMENT.
19. OVERHEAD DOOR CONTROLLER AND MOTOR. PROVIDE (2) #12, (1) #12 GND IN 3/4"C FOR THIS CIRCUIT. WIRE AUXILIARY CONTACT FOR COLLISION DETECTION TO RETRACTABLE BEAM MOTOR.
20. PHOTO EYE SENSOR. PROVIDE CONDUIT/WIRING TO OVERHEAD DOOR CONTROLLER.
21. (3) #12 AND (1) #12 GND IN 3/4" C FOR POWER TO POLYMER MIXER TANK MOTOR FROM POLYMER CONTROL PANEL.
22. ONE RUN EACH OF THE FOLLOWING: (6) #12 IN 3/4" C FOR CONTROLS SIGNALS TO/FROM BFP PLC TO POLYMER PLC, (4)#14 IN 3/4"C FOR SPEED FEEDBACK FROM POLYMER PUMP VFDS TO BFP PLC, (4)#14 IN 3/4"C FOR SPEED SETPOINT FROM BFP PLC TO POLYMER SPEED PUMP VFDS, (4) #6 AND (1) #10 GND IN 1" C FOR POWER TO POLYMER CONTROL PANEL.
23. ONE RUN EACH OF THE FOLLOWING FROM BELT PRESS JUNCTION BOX TO BFP PANEL PLC: (3) #12, (1) #12 GND IN 3/4" C FOR MAIN BELT MOTOR POWER, (11) #14 IN 3/4" C FOR VARIOUS CONTROL INPUTS.
24. (8) #14 IN 3/4"C (INTERLOCKING RELAYS) FROM BFP CONTROL PANEL TO EXISTING SCADA PANEL PLC-1 (LOGIX 5563 BY ALLEN BRADLEY). REFER TO POINT TO POINT DRAWING ON SHEET E-702 FOR LIST OF RELAYS.
25. (3) #12, (1) #12 GND IN 3/4"C FOR POWER TO AIR COMPRESSOR.
26. ONE RUN EACH OF THE FOLLOWING: (3) #12, (1) #12 GND IN 3/4"C FOR POWER TO CONVEYOR MOTOR, (2) #16 SHIELDED FOR BFP CONVEYOR ZERO SPEED SWITCH INPUT TO BFP PLC, (12) #14 IN 3/4"C FOR VARIOUS CONTROLS SIGNALS BETWEEN BFP PANEL PLC AND BFP CONVEYOR.
27. (4) #6, (1) #10 GND IN 1"C FOR POWER TO BELT FILTER PRESS CONTROL PANEL.
28. EXISTING SLUDGE PUMP VFD.
29. (2) #16 SHIELDED IN 3/4" C FOR SPEED REFERENCE / SPEED SETPOINT SIGNALS BETWEEN EXISTING SLUDGE PUMP VFD AND BELT FILTER PRESS PLC, AND (6) #14 IN 3/4" C FOR VARIOUS CONTROLS SIGNALS BETWEEN SLUDGE PUMP VFD AND BELT FILTER PRESS PLC.
30. PROVIDE 30A, THREE PHASE NON FUSED DISCONNECT SWITCH (NEMA 4X). PROVIDE CONNECTION TO JUNCTION BOX FOR ELECTRIC CABLE REEL SERVING TROLLEY/HOIST MOTORS.
31. (3) #10 AND (1) #10 GND IN 3/4"C FOR POWER TO TROLLEY/HOIST MOTORS FROM MCC 6C.
32. WALL MOUNTED OVERHEAD DOOR AND RETRACTABLE BEAM MOTOR CONTROLS. PROVIDE CONDUIT/WIRING TO RESPECTIVE OPERATING EQUIPMENT.
33. (2) #12 AND (1) #12 GND IN 3/4"C FOR POWER TO SOLENOID VALVES. VALVES OPERATE ON SYSTEM SHUTDOWN FOR 10 MINUTES.
34. CAT-5 CABLE IN 1"C FROM BFP CONTROL PANEL TO EXISTING SCADA CABINET IN PRESS ROOM.

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.gwinc.com

BELT FILTER PRESS REPLACEMENT
ELECTRICAL NEW WORK PLANS
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JKG	JTR	WLM	WLM

REVISIONS

NO	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL, 2019

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

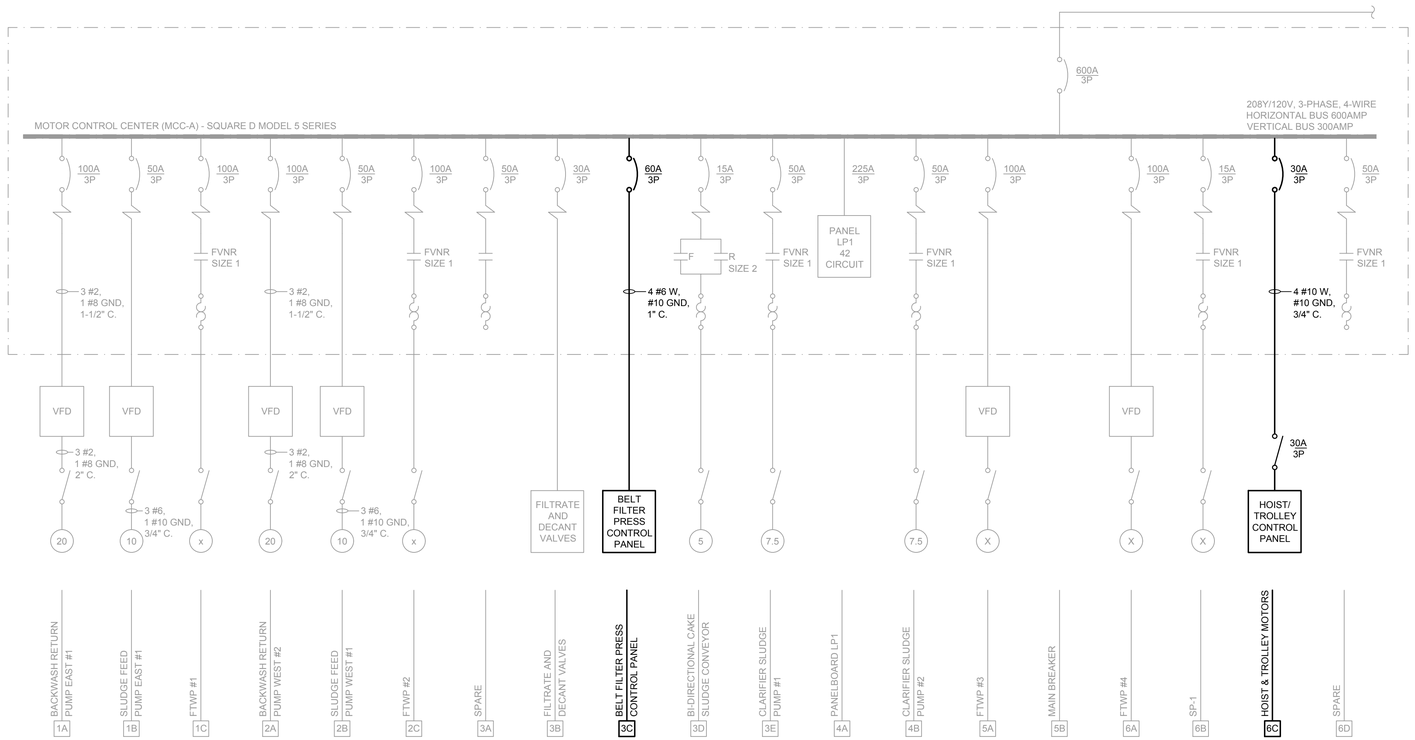
SHEET NO.

E-103

PLOTTED BY: mwilliamson

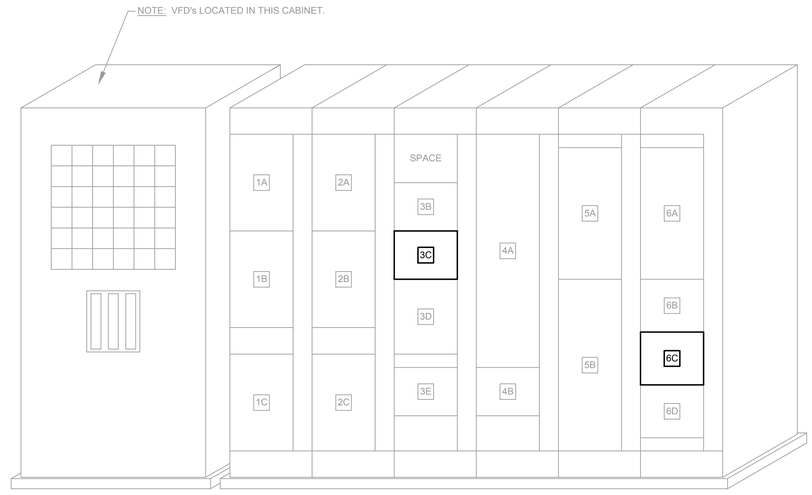
PRINTED: 4/26/2019 @ 1:03PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-103.dwg



EXISTING ONE LINE DIAGRAM MODIFICATIONS (MCC)

NOT TO SCALE



EXISTING MOTOR CONTROL CENTER MODIFICATIONS (MCC-A) - FRONT ELEVATION

NOT TO SCALE

MOTOR CONTROL CENTER - SCHEDULE OF LOADS

NO	LOAD DESCRIPTION	HORSEPOWER	BREAKER SIZE	POLES	CONTROL	LOAD
1A	BACKWASH RETURN PUMP EAST #1	20	100 AMPERES	3	VFD	21,375
1B	SLUDGE FEED PUMP EAST #1	10	50 AMPERES	3	VFD	11,083
1C	FTWP #1	X	100 AMPERES	3	FVNR, SIZE 1	16,553
2A	BACKWASH RETURN PUMP WEST #2	20	100 AMPERES	3	VFD	21,375
2B	SLUDGE FEED PUMP WEST #1	10	50 AMPERES	3	VFD	11,083
2C	FTWP #2	X	100 AMPERES	3	FVNR, SIZE 1	16,553
3A	SPARE	--------	50 AMPERES	3	--------	0
3B	FILTRATE AND DECANT VALVES	VALVES	30 AMPERES	3	--------	5,757
3C	**BELT FILTER PRESS CONTROL PANEL**	**--------**	**60 AMPERES**	**3**	**NEW**	**9,248**
3D	BI-DIRECTIONAL CAKE SLUDGE CONVEYOR	5	15 AMPERES	3	F/R, SIZE 2	4,318
3E	CLARIFIER SLUDGE PUMP #1	7.5	50 AMPERES	3	FVNR, SIZE 1	9,356
4A	PANELBOARD LP1	--------	225 AMPERES	3	--------	64,771
4B	CLARIFIER SLUDGE PUMP #2	7.5	50 AMPERES	3	FVNR, SIZE 1	9,356
5A	FTWP #3	X	100 AMPERES	3	VFD	16,553
5B	MAIN BREAKER	--------	600 AMPERES	3	--------	0
6A	FTWP #4	X	100 AMPERES	3	VFD	16,553
6B	SP-1	X	15 AMPERES	3	FVNR, SIZE 1	5,398
6C	**HOIST & TROLLEY MOTORS**	**2 1/4**	**30 AMPERES**	**3**	**NEW**	**3,366**
6D	SPARE (FULL VOLTAGE, NON-REVERSING), SIZE 1	--------	50 AMPERES	3	FVNR, SIZE 1	0
-----	LAMELLA BUILDING PANEL	--------	200 AMPERES	3	--------	57,575

PANELBOARD SCHEDULE - PANEL LP1
208Y/120 VOLT, THREE PHASE, FOUR WIRE
225 AMP MAIN BREAKER

CKT	AMP	POLE	WIRE	DESCRIPTION	LOAD	A	B	C	LOAD	DESCRIPTION	WIRE	POLE	AMP	CKT
1	15	3	12	SUPPLY & EXHAUST FANS	0.0	0.0	--------	--------	0.0	TRUCK BAY LIGHTS	12	1	20	**2**
3	15	3	12	SUPPLY & EXHAUST FANS	0.0	--------	0.0	--------	0.0	SPARE	12	1	20	**4**
5	15	3	12	SUPPLY & EXHAUST FANS	0.0	--------	--------	0.0	0.0	RECEPT GRINDER PUMP	12	1	20	**6**
7	15	1	12	FTW BASIN CIR BOARD X	0.0	0.0	--------	--------	0.0	SPACE	12	1	15	**8**
9	15	1	12	HTR DUMPSTER EAST END	0.0	--------	0.0	--------	0.0	HEATER #7 2ND FLR	12	1	15	**10**
11	15	1	12	HTR FAR EAST END	0.0	--------	--------	0.0	0.0	HEATER #5 TOP OF STAIRS	12	1	15	**12**
13	**15**	**1**	**12**	**COILING DOOR/BEAM EXTENDER**	**1,127.0**	1,127.0	--------	--------	0.0	HEATER #3 1ST FLOOR	12	1	15	**14**
15	15	1	12	HEATER ABOVE MCC	0.0	--------	0.0	--------	0.0	DOOR OPERATOR EAST	12	3	15	**16**
17	20	1	12	EXTERIOR POLE LIGHTS	0.0	--------	--------	0.0	0.0	DOOR OPERATOR EAST	12	3	15	**18**
19	20	1	12	EXTERIOR LIGHTS/TIME CLOCK	0.0	0.0	--------	--------	0.0	DOOR OPERATOR EAST	12	3	15	**20**
21	20	1	12	LIGHTS PUMP AREA	0.0	--------	631.8	--------	**631.8**	**LGTS 2ND FLR WEST**	**12**	**2**	**20**	**22**
23	20	1	12	ERMG LGTS/BATTERY PACK	0.0	--------	--------	561.6	**561.6**	**LGTS 2ND FLR EAST**	**12**	**1**	**20**	**24**
25	20	1	12	N/L BATHROOM	0.0	0.0	--------	--------	0.0	SPARE	12	1	20	**26**
27	20	1	12	RECEPTACLE BOT STEPS	0.0	--------	0.0	--------	0.0	UNKNOWN	12	2	15	**28**
29	20	1	12	RECEPT DUMPSTER AREA	0.0	--------	--------	0.0	0.0	UNKNOWN	12	2	20	**30**
31	20	1	12	RECEPT PRESS AREA	0.0	0.0	--------	--------	0.0	RECEPT OFF & WALL FAN	12	1	20	**32**
33	15	3	12	GRINDER PUMP STATION	0.0	--------	0.0	--------	0.0	DOOR OPENER WEST	12	3	15	**34**
35	15	3	12	GRINDER PUMP STATION	0.0	--------	--------	0.0	0.0	DOOR OPENER WEST	12	3	15	**36**
37	15	3	12	GRINDER PUMP STATION	0.0	0.0	--------	--------	0.0	DOOR OPENER WEST	12	3	15	**38**
39	20	1	12	SPARE	0.0	--------	0.0	--------	0.0	SPARE	12	3	15	**40**
41	20	1	12	FILTER TO WASTE CNTRL PNL	0.0	--------	--------	0.0	0.0	RECEPT OFF ALARM	12	3	20	**42**

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
ELECTRICAL DETAILS AND SCHEDULES

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: JKG
DRAWN: JTR
REVIEWED: WLM
APPROVED: WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE: APRIL, 2019

SCALE: NOT TO SCALE

SHEET NO.

E-601

PLOTTED BY: rwilliamson
PRINTED: 4/23/2019 @ 2:36PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-601.dwg

NEW LOADS SCHEDULE

NO	LOAD DESCRIPTION		CKT		HP		BKR		POLES		CONDUIT		WIRE		VOLTAGE		LOAD
1	**OVERHEAD COILING & RETRACTABLE BEAM MOTORS**		**LP1-13**		**0.50**		**20**		**1**		**3/4" GRC**		**2 #12 W/#12 GND**		**120**		**1,127**
2	**MONORAIL HOIST MOTOR**		**MCC 6C**		**2.00**		**20**		**3**		**3/4" GRC**		**3 #12 W/#12 GND**		**208**		**2,700**
3	**MONORAIL TROLLEY MOTOR**		**MCC 6C**		**0.25**		**20**		**3**		**3/4" GRC**		**3 #12 W/#12 GND**		**208**		**666**
4	POLYMER FEED PUMPS	*	BFP CNTRL PNL		0.67		20		3		3/4" GRC		3 #12 W/#12 GND		208/120		500
5	COMPRESSOR	*	BFP CNTRL PNL		2.00		-----		3		3/4" GRC		3 #12 W/#12 GND		208/120		2,700
6	FILTER PRESS CONVEYOR	*	BFP CNTRL PNL		1.50		-----		3		3/4" GRC		3 #12 W/#12 GND		208/120		2,375
7	FILTER PRESS MOTOR	*	BFP CNTRL PNL		3.00		-----		3		3/4" GRC		3 #12 W/#12 GND		208/120		3,815
8	POLYMER MIXER	*	BFP CNTRL PNL		1.50		20		3		3/4" GRC		3 #12 W/#12 GND		208/120		2,375
9	POLYMER PROCESS	*	BFP CNTRL PNL		-----		20		3		3/4" GRC		3 #12 W/#12 GND		208/120		?
10	BELT FILTER PRESS CONTROL PANEL	*	3C		-----		60		3		3/4" GRC		4 #6 W/#10 GND		208/120		10,000
															WATTS		26,258

* THESE LOADS ARE REPLACING SIMILAR EXISTING LOADS

POLYMER PROCESS CONTROL PANEL LOADS

NO	LOAD DESCRIPTION		MCC		HP		BKR		POLES		VOLTAGE		LOAD		CONDUIT		WIRE		NOTES
1	TRANSFER PUMP MOTOR	*	-----		---		20		3		208/120				3/4" GRC		3 #12 W/ #12 GND		
2	MIXER MOTOR	*	-----		---		20		3		208/120				3/4" GRC		3 #12 W/ #12 GND		
3	FEED MOTOR	*	-----		---		20		3		208/120				3/4" GRC		3 #12 W/ #12 GND		PER FEED MOTOR (2)
4	TRANSFER VALVE	*	-----		---		20		1		120				3/4" GRC		2 #12 W/ #12 GND		

NOTE:

0 WATTS
0 AMPERES

* THESE LOADS ARE REPLACING SIMILAR EXISTING LOADS

FILTER PRESS CONTROL PANEL LOADS

NO	LOAD DESCRIPTION		MCC		HP		BKR		POLES		VOLTAGE		LOAD		CONDUIT		WIRE		NOTES
1	FILTER PRESS MOTOR	*	-----		3.00		20		3		208/120		3,958		3/4" GRC		3 #12 W/ #12 GND		CNTRL AND PWR
2	AIR COMPRESSOR	*	-----		2.00		20		3		208/120		2,807		3/4" GRC		3 #12 W/ #12 GND		CNTRL AND PWR
3	POLYMER CONTROL PANEL	*	-----		---		60		3		208/120		-----		1" GRC		4 #6 W/ #10 GND		CNTRL AND PWR
4	SLUDGE FEED PUMPS	*	1B & 2B		?		-----		3		208/120		-----		EXISTING		EXISTING		CNTRL ONLY, PWR EXISTING
5	PRESS CONVEYOR	*	-----		1.50		-----		3		208/120		2,483		3/4" GRC		3 #12 W/ #12 GND		CNTRL AND PWR

NOTE: FILTER PRESS, AIR COMPRESSOR, POLYMER CONTROL PANEL & PRESS CONVEYOR ARE ALL FED FROM THE BELT FILTER PRESS CONTROL PANEL.

9,248 WATTS
26 AMPERES

* THESE LOADS ARE REPLACING SIMILAR EXISTING LOADS

RECORD DOCUMENTS

GRW PROJECT NO. 4384
CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
ELECTRICAL SCHEDULES
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED: JKG
DRAWN: JTR
REVIEWED: WLM
APPROVED: WLM

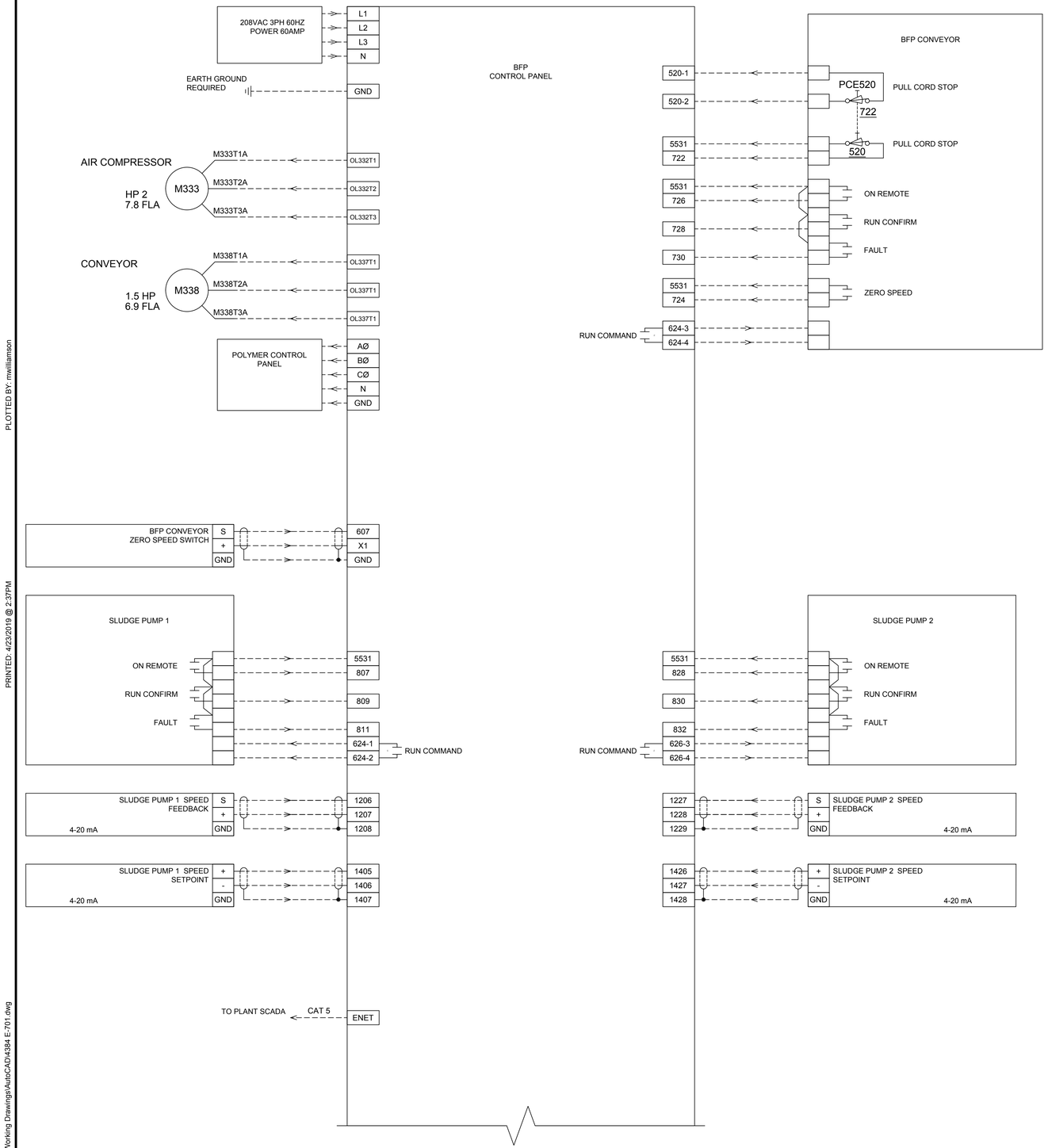
REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM NO. 1 - CHANGE TO GRC	1-16-2017	ACR

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE: APRIL, 2019
SCALE: NOT TO SCALE
SHEET NO.
E-602

PLOTTED BY: rwilliamson
PRINTED: 4/23/2019 @ 2:36PM
FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384-E-602.dwg



NOTES:

1. CONTROL PANEL MUST BE SUPPLIED WITH POWER SOURCE GROUND FOR PROPER OPERATION OF INSTRUMENTS.
2. MOTOR GROUND WIRE MUST GO DIRECTLY TO VFD GROUND TERMINAL (PE).
3. THIS POINT TO POINT DRAWING IS DERIVED FROM MANUFACTURER SCHEMATICS. SHOWN TERMINALS ARE TENTATIVE. REFER TO SCHEMATICS FOR FURTHER CLARIFICATION.

- ARROW DIRECTION INDICATES INPUT OR OUTPUT.

RECOMMENDED MINIMUM WIRE SIZE REQUIRED TO HANDLE LOAD
- POWER WIRE 12 AWG COPPER (SOLID).
- CONTROL WIRE 14 AWG COPPER (STRANDED).

- SHIELDED CABLE 18 AWG. (SIGNAL)
RUN ALL SHIELDED CABLE IN SEPARATE CONDUIT FROM POWER OR CONTROL CONDUCTORS.
ALL SHIELDED CABLE GROUND CONDUCTORS SHOULD BE GROUNDED AT 1 END ONLY, PREFERABLY IN THE FP PANEL.

-DASH LINES ARE FIELD CONNECTIONS BY CONTRACTOR.

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.gwinc.com

BELT FILTER PRESS REPLACEMENT
POINT TO POINT

TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JKG	STAFF	WLM	WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM NO. 1 - SLUDGE FLOW REMOVED	1-18-2019	ACR

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE: APRIL, 2019

SCALE: NOT TO SCALE

SHEET NO.

E-701

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

engineering | architecture | geospatial
www.gwinc.com

ENGINEER/ARCHITECT: David C. Osborne

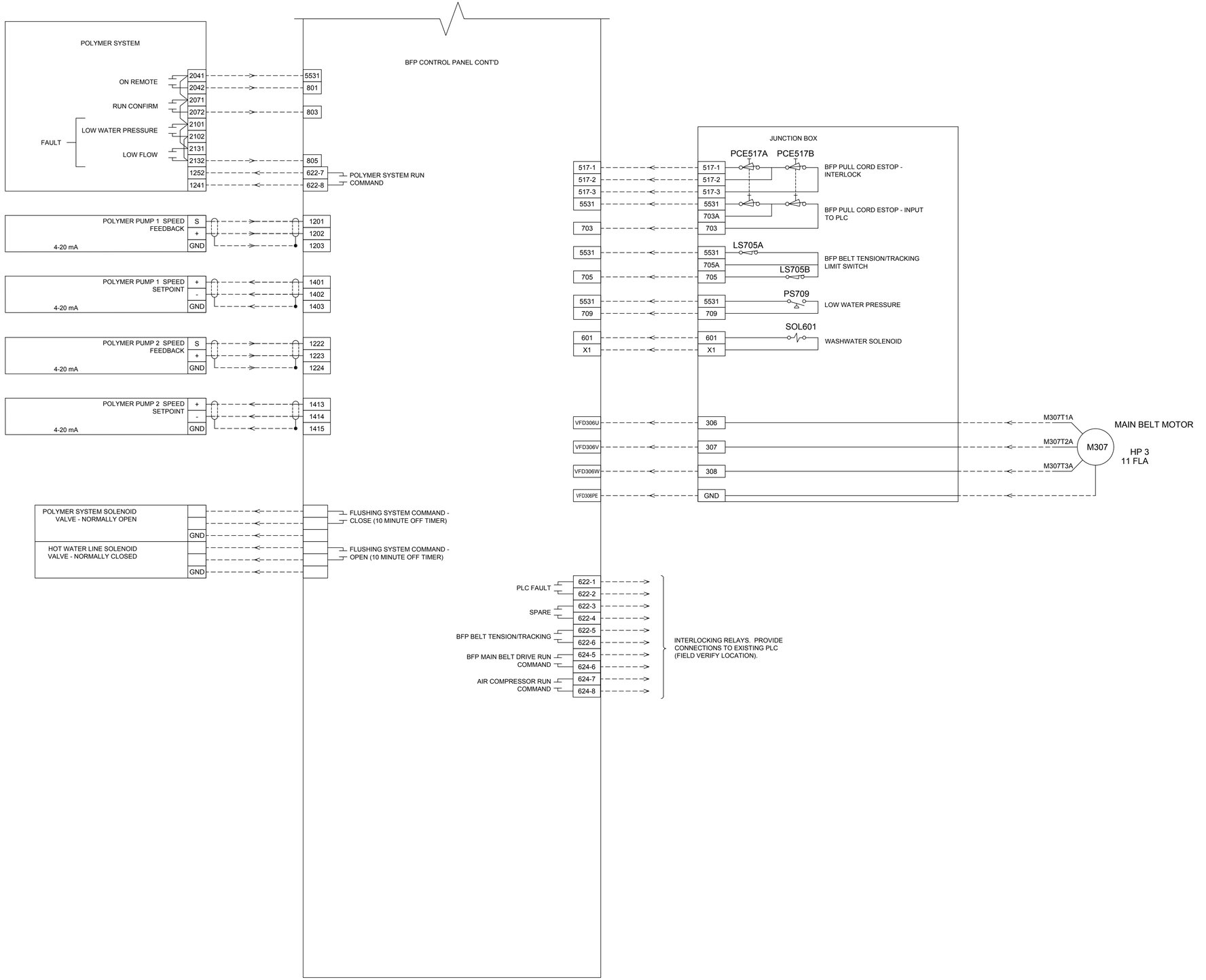
CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

PLOTTED BY: rwilliamson

PRINTED: 4/23/2019 @ 2:37PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-701.dwg



NOTES:

1. CONTROL PANEL MUST BE SUPPLIED WITH POWER SOURCE GROUND FOR PROPER OPERATION OF INSTRUMENTS.
2. MOTOR GROUND WIRE MUST GO DIRECTLY TO VFD GROUND TERMINAL (PE).
3. THIS POINT TO POINT DRAWING IS DERIVED FROM MANUFACTURER SCHEMATICS. REFER TO SCHEMATICS FOR FURTHER CLARIFICATION.

- ARROW DIRECTION INDICATES INPUT OR OUTPUT.

RECOMMENDED MINIMUM WIRE SIZE REQUIRED TO HANDLE LOAD
- POWER WIRE 12 AWG COPPER (SOLID).
- CONTROL WIRE 14 AWG COPPER (STRANDED).

- SHIELDED CABLE 18 AWG. (SIGNAL)
RUN ALL SHIELDED CABLE IN SEPARATE CONDUIT FROM POWER OR CONTROL CONDUCTORS.
ALL SHIELDED CABLE GROUND CONDUCTORS SHOULD BE GROUNDED AT 1 END ONLY, PREFERABLY IN THE FP PANEL.

-DASH LINES ARE FIELD CONNECTIONS BY CONTRACTOR.

RECORD DOCUMENTS

GRW PROJECT NO. 4384

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

BELT FILTER PRESS REPLACEMENT
POINT TO POINT
TAYLOR MILL TREATMENT PLANT
NORTHERN KENTUCKY WATER DISTRICT

DESIGNED:	JKG
DRAWN:	STAFF
REVIEWED:	WLM
APPROVED:	WLM

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

engineering | architecture | geospatial
www.grwinc.com

ENGINEER/ARCHITECT: David C. Osborne

CONSTRUCTION COMPANY: Dugan & Meyers

DATE: 4/23/19

DATE: APRIL, 2019

SCALE: NOT TO SCALE

SHEET NO.

E-702

PLOTTED BY: mwilliamson

PRINTED: 4/23/2019 @ 2:37PM

FILE NAME: U:\4384-NKWD TMTP BFP\Working Drawings\AutoCAD\4384 E-702.dwg