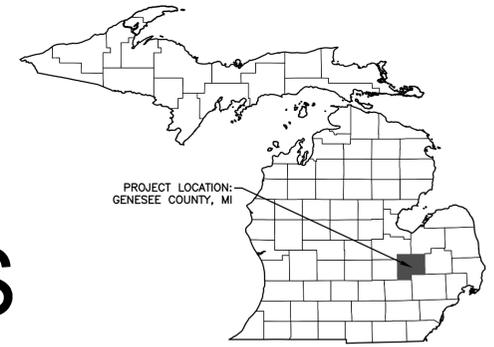


# CITY OF FLINT GENESEE COUNTY, MICHIGAN CONSTRUCTION PLANS FOR WPCF SLUDGE DEWATERING IMPROVEMENTS INVITATION FOR BID SRF #5696-01



PROJECT LOCATION:  
GENESEE COUNTY, MI

KEY MAP  
NOT TO SCALE

SHEET INDEX	
SHEET NAME	SHEET NO.
GENERAL	
COVER SHEET	G-001
CIVIL	
CIVIL LEGEND	C-001
GENERAL CIVIL NOTES	C-002
CITY OF FLINT NOTE SHEET	C-003
EXISTING SITE PLAN	C-004
PROPOSED SITE PLAN	C-005
GENERAL DETAILS	C-006
SOIL EROSION AND SEDIMENT CONTROL DETAILS	C-007
STRUCTURAL	
GENERAL NOTES, CODES, AND ABBREVIATIONS	S-100
GROUND FLOOR PLAN	S-101
PLATFORM FRAMING PLAN	S-102
MONORAIL PLAN / DETAILS	S-103
BUILDING ELEVATIONS	S-201
SECTIONS / DETAILS	S-202
STAIR SECTIONS / DETAILS	S-203
STRUCTURAL DEMOLITION	SD-101
ARCHITECTURAL	
GENERAL NOTES AND DETAIL	A-100
NEW FLOOR PLAN	A-101
ROOF PLAN	A-102
ELEVATIONS	A-103
BUILDING SECTIONS	A-104
SECTIONS AND DETAILS	A-105
SECTIONS AND DETAILS	A-106
DEMOLITION	AD-101
DEMOLITION	AD-102
PROCESS	
PROCESS SYMBOLS AND ABBREVIATIONS	D-000
PLAN VIEWS	D-001
GROUND FLOOR SECTION VIEWS	D-002
LOWER LEVEL SECTION VIEWS	D-003
DETAILS	D-004
SLUDGE PIPING ROUTING DETAILS	D-005
DRAIN PIPING	D-006
MECHANICAL	
HVAC GENERAL NOTES AND LEGENDS	M-001
HVAC DEMOLITION PLAN	MD-101
HVAC FLOOR PLAN	M-101
HVAC ROOF PLAN	M-102
HVAC SCHEDULES AND DETAILS	M-103
ELECTRICAL	
ELECTRICAL SYMBOLS AND ABBREVIATIONS	E-001
ELECTRICAL DEMOLITION PLAN	ED-101
FIRST FLOOR OVERALL POWER PLAN	E-101
MCC ROOM	E-102
SLUDGE DEWATERING ROOM AND WATER SUPPLY AREA	E-103
ELECTRICAL ROOF PLAN	E-104
ONE-LINE DIAGRAMS AND CABLE SCHEDULE	E-105
MCC ELEVATIONS AND PANEL MCP SCHEDULE	E-106
ELECTRICAL DETAILS	E-107
INSTRUMENTATION & CONTROL	
PI&D LEGEND AND ABBREVIATIONS	I-001
CENTRIFUGE P&ID	I-002



LOCATION MAP  
SCALE: 1"=2640'  
CITY OF FLINT  
GENESEE COUNTY, MI  
SECTION 4, 17N, R6E

### UTILITIES & MUNICIPALITIES

TELEPHONE AT&T ENGINEERING 54 NORTH MILL STREET, P.O. BOX 32 PONTIAC, MICHIGAN 48342 CONTACT: JEFF HEATH PHONE: 248.975.4588	CITY OF FLINT 702 WEST 12TH STREET TRANSPORTATION BUILDING FLINT, MI 48502 CONTACT: JOHN DALY PHONE: 810.766.7343
CABLE TV COMCAST CABLEVISION 6095 WALL STREET STERLING HEIGHTS, MI 48312 CONTACT: MARCEY CONN PHONE: 586.883.7412	CITY OF FLINT WATER SERVICE CENTER 3310 EAST COURT STREET FLINT, MICHIGAN 48506 CONTACT: ROB BINCSIK PHONE: 810.766.7202
ELECTRIC CONSUMERS ENERGY - ELECTRIC 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: MARCEY CONN PHONE: 810.760.3506	CITY OF FLINT ENGINEERING 702 WEST 12TH STREET FLINT, MI 48502 CONTACT: MARK ADAS PHONE: 810.766.7135
GAS CONSUMERS ENERGY 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: SALVATORE DELISI PHONE: 810.760.3486	
SOIL EROSION & SEDIMENTATION CONTROL GCDC-WWS G-4610 BEECHER ROAD FLINT, MI 48532 CONTACT: MARK STEPHENS PHONE: 810.732.7870	

CITY OF FLINT  
WATER POLLUTION CONTROL FACILITY  
PROJECT LOCATION



JOB NO.  
**COF107201F**

SHEET  
**G-001**



PREPARED UNDER THE SUPERVISION OF:

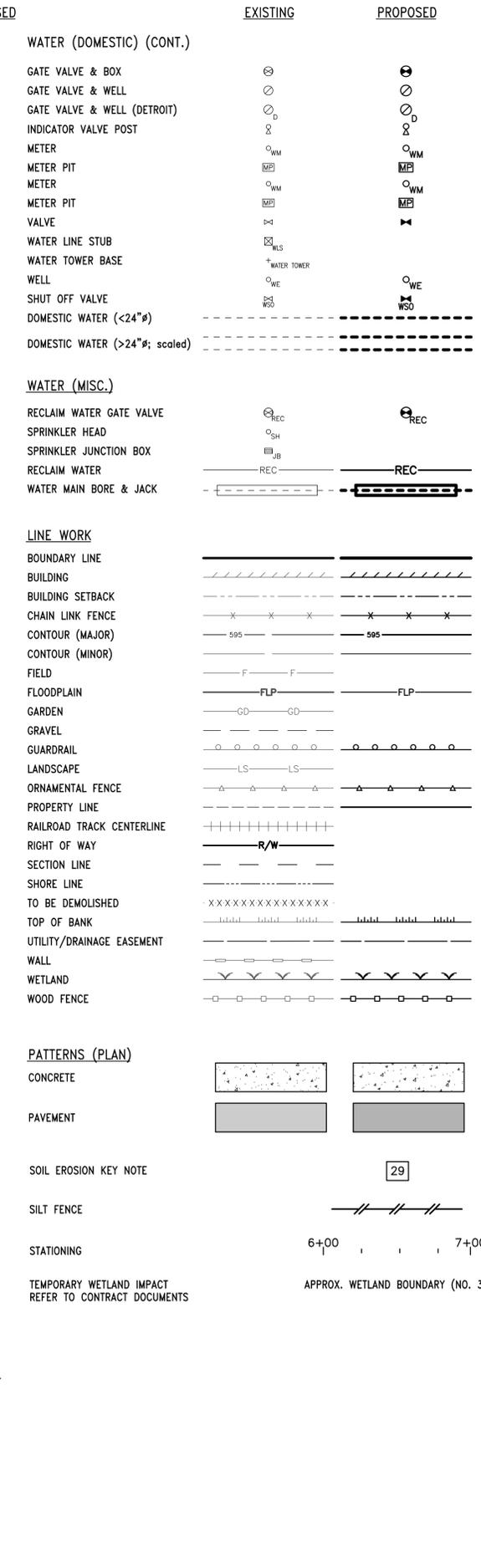
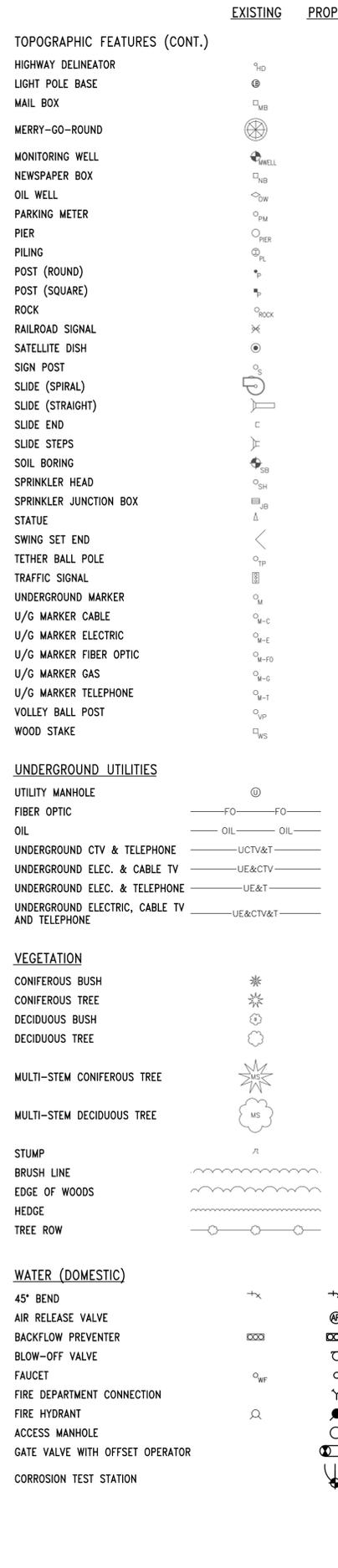
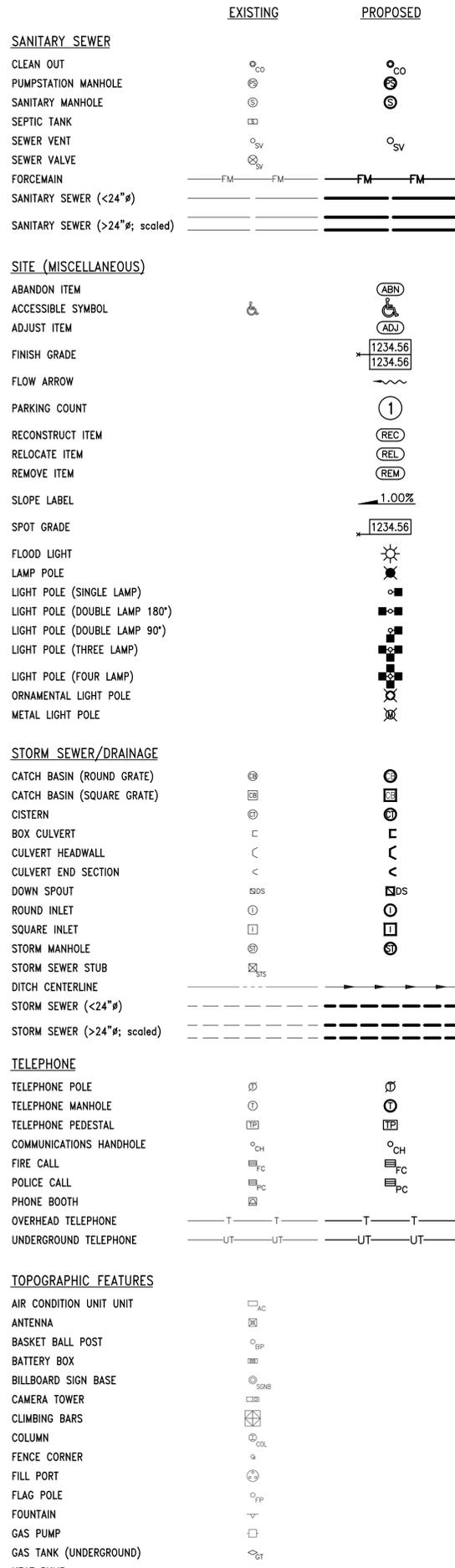
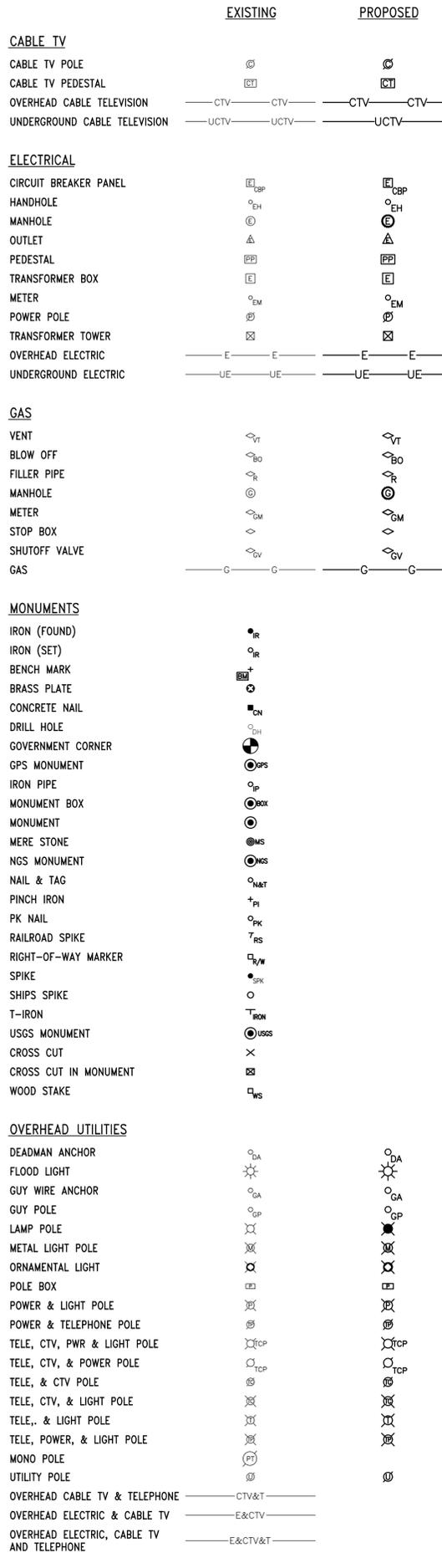
*Tiffany Harrison*

PROJECT MANAGER - TIFFANY L. HARRISON  
C:\PL\WORK\WADE-TRIM\TIDAWDEK\090806\GCS-PLS-COVER-SHEET.DWG - 9.18 - PLOTTED 5/21/2020 10:58 AM BY DAVIDEK, TYLER



© Wade Trim Group, Inc. WPCF SLUDGE DEWATERING IMPROVEMENTS

PROJECT MANAGER: CA:\PW\WORK\2020\03202020\LEGEND\_1\_03202020.DWG -- LEGEND -- PLOTTED 5/22/2020 7:52 AM BY HARRISON, TIFFANY



6+00 | | | 7+00

APPROX. WETLAND BOUNDARY (NO. 36.1)

REV#	DATE	DESCRIPTION



**WADE TRIM**  
 555 S. Saginaw Street, Suite 201  
 Flint, MI 48502  
 810.235.2555  
 www.wadefirm.com

**HRC**  
**HUBBELL, ROTH & CLARK, INC.**  
 CONSULTING ENGINEERS SINCE 1915  
 555 HULET DRIVE  
 BLOOMFIELD HILLS, MI, U.S.A. P.O. BOX 503  
 48303-0503  
 PHONE: (248) 654-4200  
 FAX: (248) 654-4212  
 FAX (Toll Free): (800) 334-2982  
 WEB SITE: http://www.hrc-eng.com

**CITY OF FLINT**  
**1101 S. SAGINAW STREET**  
**FLINT, MI 48502**  
 SLUDGE DEWATERING IMPROVEMENTS  
 CIVIL LEGEND

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20	JJA
90% REVIEW	3/20/20	JJA
100% REVIEW	4/17/20	JJA
IFB	6/01/20	JJA

JOB NO.  
**COF107201F**

SHEET  
**C-001**

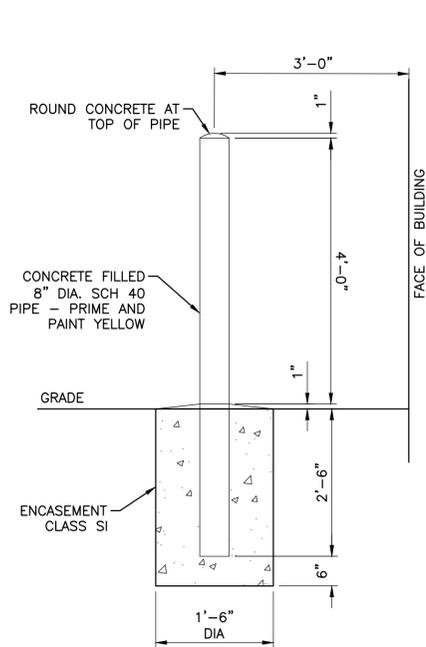
© Wade Trim Group, Inc.



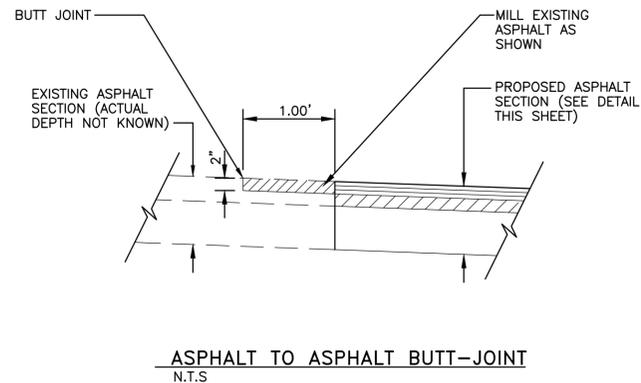




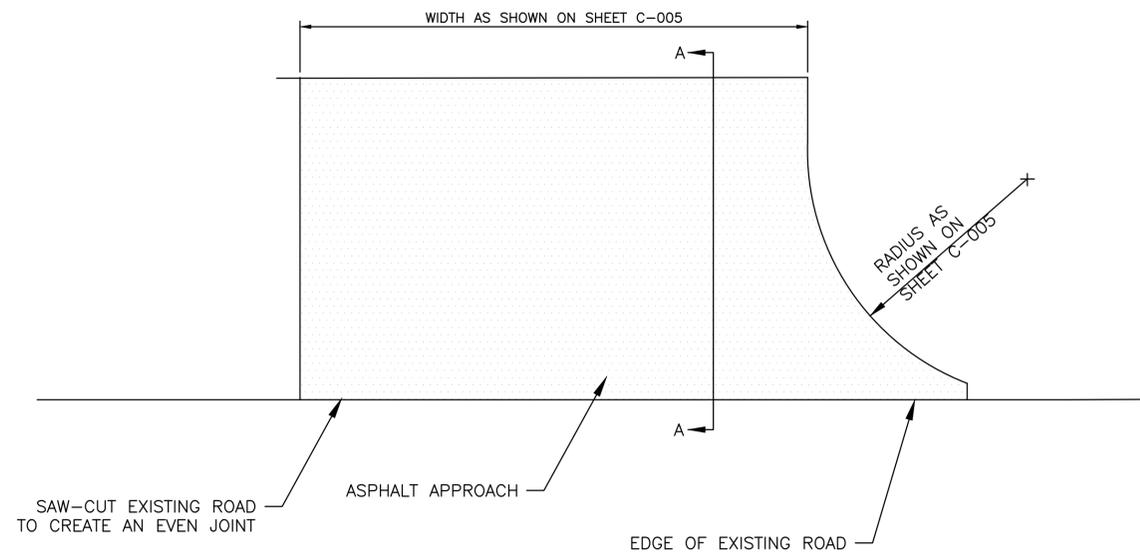




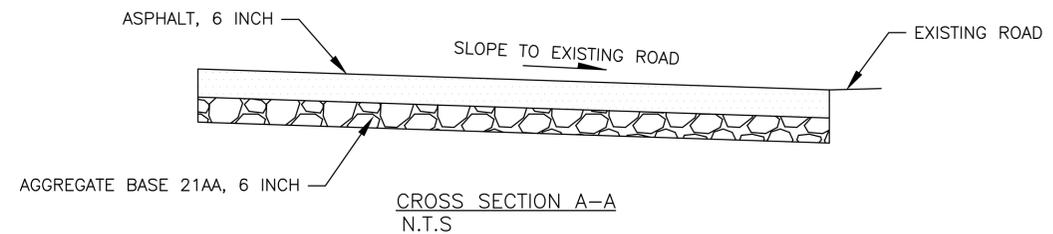
**BOLLARD DETAIL**  
N.T.S.



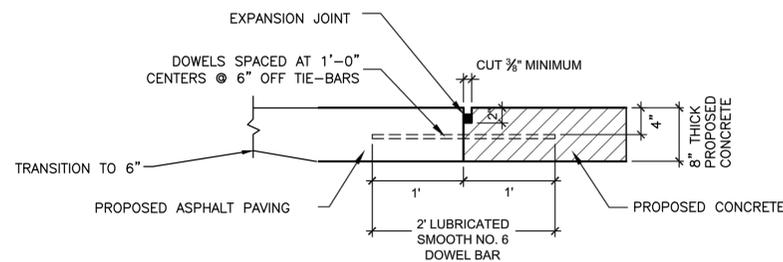
**ASPHALT TO ASPHALT BUTT-JOINT**  
N.T.S.



**ASPHALT APPROACH DETAIL**  
N.T.S.



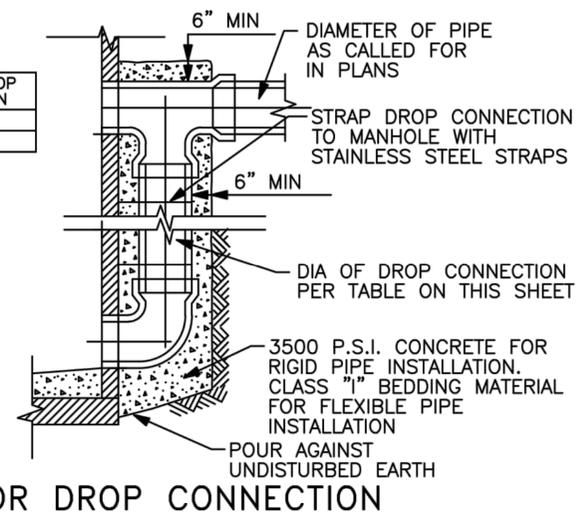
**CROSS SECTION A-A**  
N.T.S.



**CONCRETE TO ASPHALT BUTT-JOINT**  
N.T.S.

DIA OF SEWER	DIA OF DROP CONNECTION
8" & 10"	6"
12", 15" & 18"	10"

PLACE HOOK BOLTS INTO MANHOLE TO BOND CONCRETE ENCASEMENT WHEN DROP CONNECTION EXCEEDS 2 FEET.



**EXTERIOR DROP CONNECTION**

PROJECT MANAGER: C:\PW\WORK\2\039896\GDT-PLTS-DETAILS C-006.DWG - C-006 - PLOTTED 5/22/2020 8:14 AM BY HARRISON, TIFFANY

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 S. Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555  
www.wadefirm.com

**HRC**  
**HUBBELL, ROTH & CLARK, INC.**  
CONSULTING ENGINEERS SINCE 1916  
555 HULET DRIVE  
BLOOMFIELD HILLS, MI 48304  
P.O. BOX 603  
48305 - 0604  
PHONE: (248) 654-4300  
FAX: (248) 654-4312  
FAX (Toll Free): (800) 338-2982  
WEB SITE: http://www.hrc-eng.com

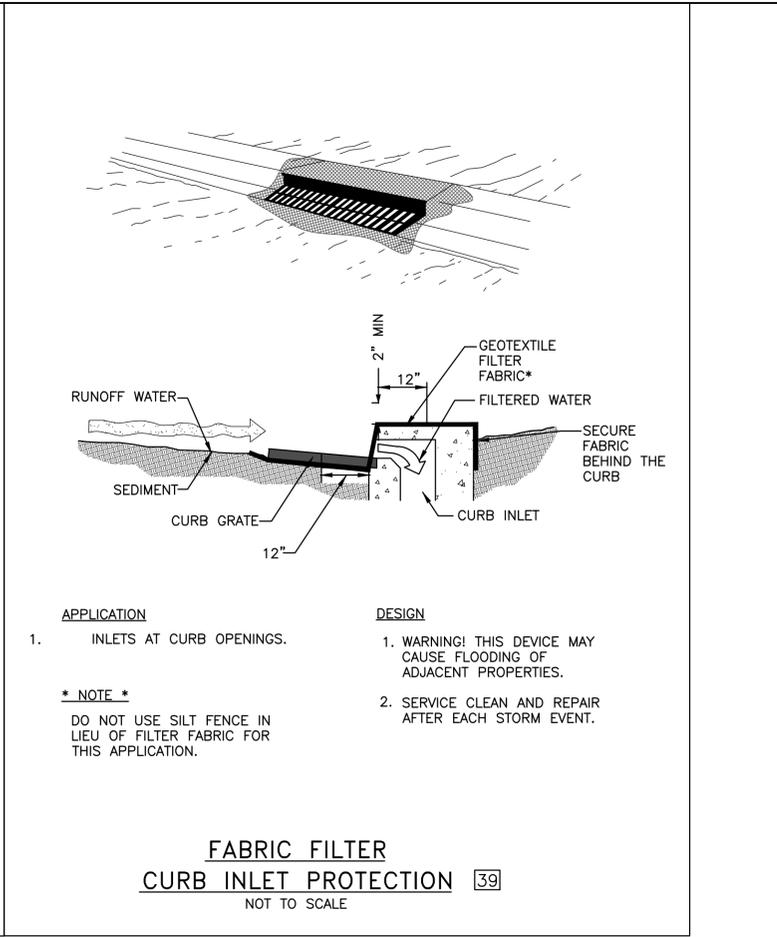
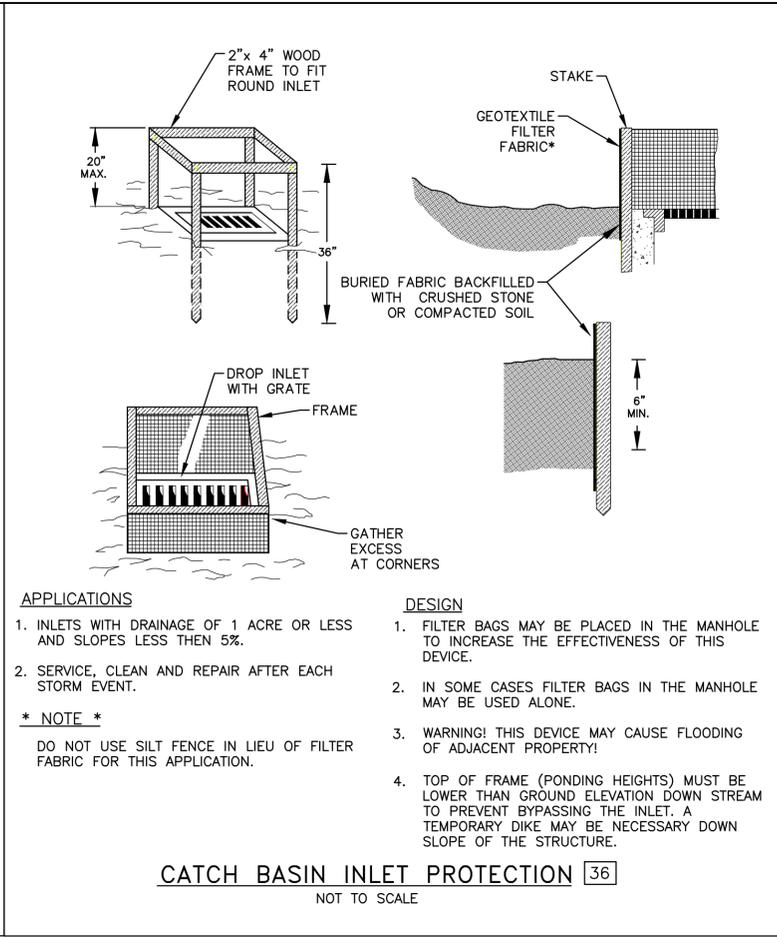
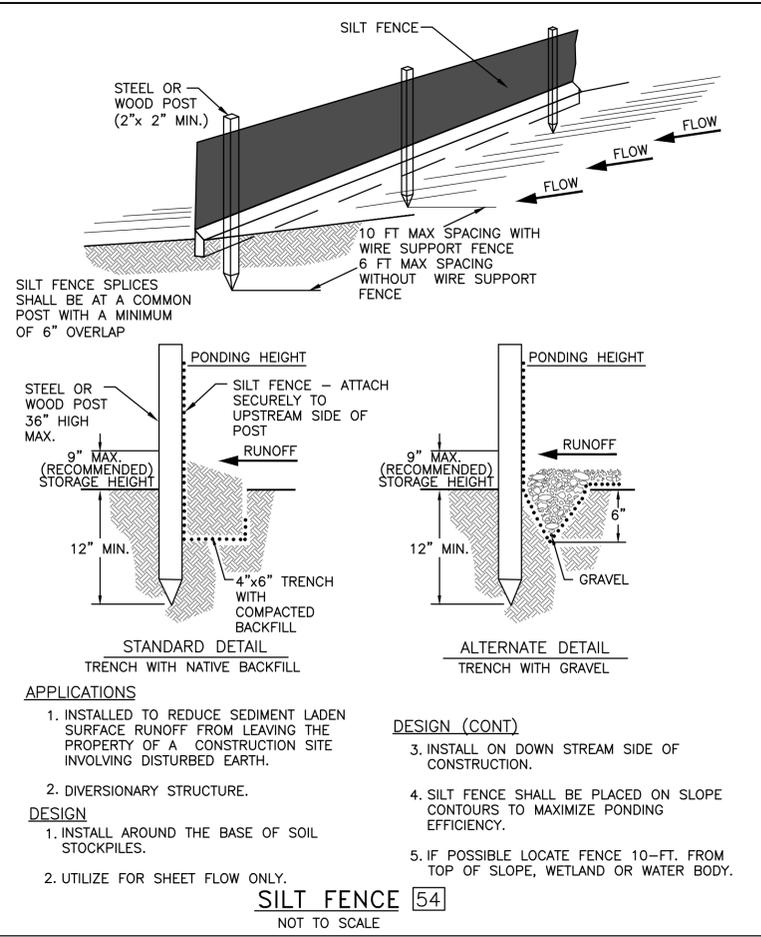
**CITY OF FLINT**  
**1101 S. SAGINAW STREET**  
**FLINT, MI 48502**  
SLUDGE DEWATERING IMPROVEMENTS  
GENERAL DETAILS

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20	JJA
90% REVIEW	3/20/20	JJA
100% REVIEW	4/17/20	JJA
IFB	6/01/20	JJA

JOB NO.  
COF107201F

SHEET  
C-006

© Wade Trim Group, Inc.



PROJECT MANAGER: C:\PW\WORK\2\059896\GDT-PLTS-C-003 CITY DETAILS\_1\_03202020.DWG - C-007 - PLOTTED 5/22/2020 8:02 AM BY HARRISON, TIFFANY

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**

555 S. Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555  
www.wadefirm.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915

555 HULET DRIVE  
BLOOMFIELD HILLS, MI 48304

PHONE: (248) 654-4300  
FAX (248) Home: (248) 654-6312  
FAX (248) Phone: (248) 338-2982  
WEB SITE: http://www.hrc-eng.com

CITY OF FLINT  
1101 S. SAGINAW STREET  
FLINT, MI 48502

SLUDGE DEWATERING IMPROVEMENTS  
SOIL EROSION AND SEDIMENT CONTROL DETAILS

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20	JJA
90% REVIEW	3/20/20	JJA
100% REVIEW	4/17/20	JJA
IFB	6/01/20	JJA

JOB NO.  
COF107201F

SHEET  
C-007

© Wade Trim Group, Inc.

**GENERAL NOTES**

**GENERAL**

- WHERE APPLICABLE FOR CONFINED SPACES, THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF GOVERNING OSHA AND LOCAL SAFETY REGULATIONS.
- MATERIALS FOR THE FOLLOWING FACILITY COMPONENTS SHALL BE AS INDICATED BELOW UNLESS NOTED OTHERWISE:
  - GUARD RAIL & HAND RAIL . . . GALV STEEL (UNO)
  - WALKWAY GRATING . . . GALV STEEL
  - METAL WALKWAY FRAMING . . . GALV STEEL (UNO)
- DESIGN CODES AND GUIDANCE DOCUMENTS:
  - 2018 INTERNATIONAL BUILDING CODE (IBC)
  - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-14.
  - CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES, ACI 350-06.
  - AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS ANS/AISC 360-10
  - AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, AISC 303-10
  - AISC STEEL CONSTRUCTION MANUAL, FOURTEENTH EDITION.
  - AMERICAN WELDING SOCIETY (AWS)
    - AWS D1.1: 2010 STRUCTURAL STEEL
    - AWS D1.3: 2008 SHEET STEEL
    - AWS D1.4: 2001 REINFORCING STEEL
  - OCCUPATIONAL SAFETY AND HEALTH ACT, OSHA REGULATIONS (STANDARDS-29 CFR) PART 1926 SUBPART R-STEEL ERECTION
  - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-16.
- CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION. WHEN ANY UNEXPECTED CONDITION IS ENCOUNTERED, CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER. ANY FIELD MODIFIED DETAIL SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF STRUCTURES DURING CONSTRUCTION. THE ENGINEER TAKES NO RESPONSIBILITY FOR MEANS, METHODS, OR SAFETY DURING CONSTRUCTION.

**STEEL**

- STRUCTURAL STEEL AND MISCELLANEOUS METAL WORK SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANS/AISC 360-10 AND AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES (AISC 303-10).
- ALL STRUCTURAL STEEL W AND WT SHAPES SHALL CONFORM TO ASTM A-992, GRADE 50. MISCELLANEOUS METALS SHALL CONFORM TO ASTM A-36.
- ALL STRUCTURAL STEEL TUBES (HSS) SHALL CONFORM TO ASTM A500, GRADE B.
- ALL STEEL LINTELS SHALL BE EPOXY PAINTED OR GALVANIZED, AS INDICATED ON DRAWINGS.
- BOLTS SHALL BE A MINIMUM 3/4" DIAMETER, ASTM A325N, TYPE 1, GALVANIZED, UNLESS NOTED OTHERWISE. PROVIDE COMPATIBLE A563 GRADE DH, HEAVY HEX NUTS, AND F436 GRADE 1 WASHERS.
- STEEL BAR GRATING INDICATED ON PLANS SHALL BE 1 1/2"x3/16" BEARING BARS AT 15/16" OC. (UNO) ALL STEEL GRATING SHALL BE GALVANIZED, UNO.
- ALL SHOP CONNECTIONS SHALL BE WELDED. ALL PRINCIPAL FIELD CONNECTIONS SHALL BE 3/4"Ø (MIN) HS BOLTS ASTM - A325.
- UNLESS DETAILED OR NOTED OTHERWISE, CONNECTION OF BEAMS SHALL BE CAPABLE OF SUPPORTING 50% OF THE TOTAL ALLOWABLE UNIFORM LOAD CAPACITY AS CALCULATED FROM THE ALLOWABLE UNIFORM LOAD CHART IN THE AISC MANUAL.
- WHERE BOLTED CONNECTIONS ARE USED FOR MOMENT CONNECTIONS (DESIGNATED BY "H" ON PLANS), BOLTS SHALL BE 3/4" DIA (MIN) ASTM A325SC.
- WELDING SHALL CONFORM TO AWS D1.1-1 AND AISC 341-05. ALL ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5, CLASS E70XX.
- ALL GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123 UNLESS NOTED OTHERWISE. BOLTS, NUTS AND WASHERS FOR GALVANIZED CONSTRUCTION SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123.

**MASONRY**

- HOLLOW CONCRETE BLOCK (MASONRY) UNITS SHALL CONFORM TO ASTM C90, GRADE N (MEDIUM WEIGHT) WITH A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA (F<sub>m</sub>=1500).
- ALL MORTAR SHALL BE TYPE S AND COMPLY WITH ASTM C270. ALL GROUT SHALL COMPLY WITH ASTM C475, WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
- REINFORCING BARS TO MEET ASTM A615 GRADE 60.
- VERTICAL REINFORCEMENT TO BE CONTINUOUS AND LAPPED A MINIMUM OF 40 BAR DIAMETERS.
- DOWEL ALL VERTICAL REINFORCEMENT FROM FOUNDATIONS AS SHOWN ON DRAWINGS.
- PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
- PROVIDE 1/4" DIA ADJUSTABLE MASONRY TIES AT 32" OC AT ALL LOCATIONS WHERE MASONRY ABUTS STEEL COLUMNS.

**CAST-IN-PLACE CONCRETE**

- THE DETAILING, BENDING, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 350-06/350R-06 CODE AND ACI DETAILING MANUAL, SP-66 (94). FIELD BENDING WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.
- ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 PSI @ 28 DAY UNLESS OTHERWISE NOTED.
- STEEL REINFORCING SHALL NOT BE SPLICED AT POINTS OTHER THAN SHOWN ON THE DRAWINGS, EXCEPT AS APPROVED BY THE ENGINEER, UNLESS NOTED OTHERWISE.
- THE LENGTH OF ALL LAP SPLICES SHALL BE AS SPECIFIED IN "REINFORCING TENSION SPLICE TABLE" ON THIS SHEET UNLESS OTHERWISE INDICATED IN DRAWINGS.
- CONCRETE COVER OVER PRIMARY REINFORCEMENT SHALL BE 2-INCHES MINIMUM.

**MISCELLANEOUS**

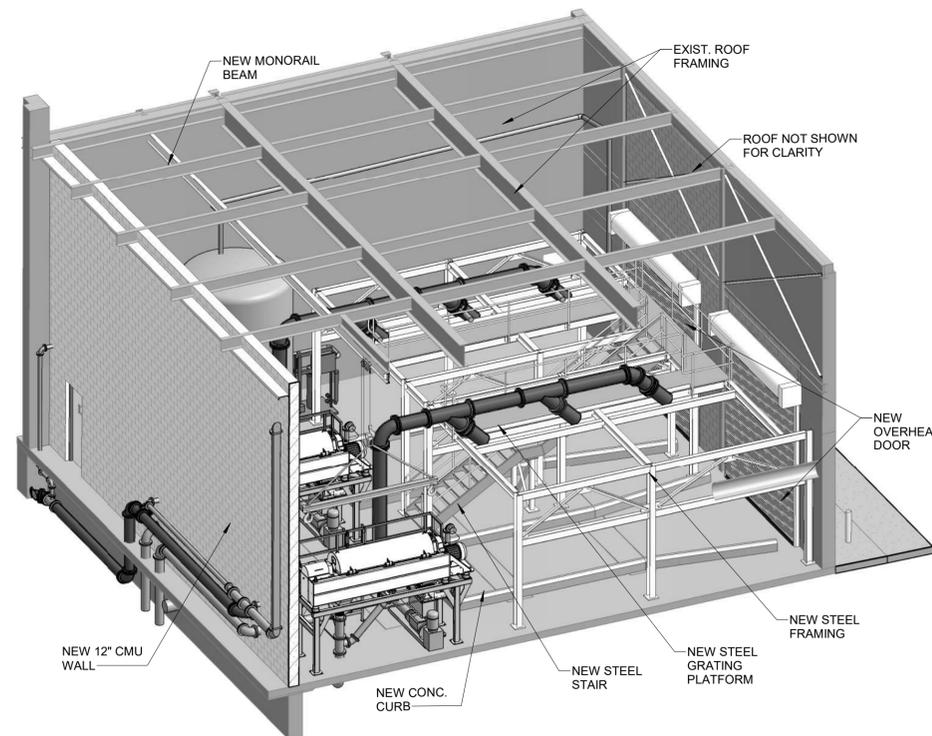
- ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL, ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
- BEFORE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT FOUNDATION, PAD, AND CURB DIMENSIONS, AND THE SIZES AND LOCATIONS OF ANCHOR BOLTS FROM MANUFACTURER'S CERTIFIED SHOP DRAWINGS.
- ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK "\*" SHALL BE DETERMINED OR VERIFIED WITH EQUIP. MFR. CERTIFIED SHOP DRAWINGS BEFORE FABRICATION AND CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND ACCOMMODATE OPENINGS AND EMBEDDED ITEMS SHOWN ON OTHER DRAWINGS.
- ALL ADHESIVE ANCHORING SYSTEMS FOR POST INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE AND MASONRY SHALL BE "HIT-HY 200 ADHESIVE ANCHORING SYSTEM" BY HILTI AT SIZE AND SPACING INDICATED ON DRAWINGS (OR APPROVED EQUAL).
- PROVIDE EXPANDED METAL CLOSURES AND SUPPORT FRAMING, MATCHING MATERIAL AND FINISH OF ADJACENT GUARDRAILS, AT ALL EQUIPMENT OPENING LOCATIONS, AS REQUIRED TO MEET FEDERAL AND LOCAL SAFETY REGULATIONS.

**DESIGN LOADS**

- DESIGN LOADS SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2018 (IBC) AND NFPA 68/69.
- DESIGN LOADS (GENERAL) - RISK CATEGORY III
  - ELEVATED SLABS LIVE LOAD=300 PSF, UNO
  - PLATFORMS, WALKS AND STAIR LIVE LOAD = 100 PSF
- SNOW LOADS
  - FLAT ROOF SNOW LOAD; PF=25.0 PSF
  - SNOW EXPOSURE FACTOR; CE=1.0
  - SNOW LOAD IMPORTANCE FACTOR; I=1.1
  - THERMAL FACTOR; CT=1.0
- WIND LOADS
  - BASIC WIND SPEED (3-SECOND)=120MPH
  - WIND EXPOSURE CATEGORY C
  - HEIGHT AND EXPOSURE FACTOR; λ = 1.40
- EARTHQUAKE LOADS
  - SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS S<sub>s</sub>=0.098
  - SPECTRAL RESPONSE ACCELERATION AT 1-SEC PERIODS S<sub>1</sub>=0.045
  - SITE CLASS D (ASSUMED PENDING FINAL GEOTECHNICAL REPORT)
  - DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS S<sub>ds</sub>= 0.105
  - DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SEC PERIODS S<sub>d1</sub>=0.072.
  - SEISMIC USE GROUP II
  - SEISMIC IMPORTANCE FACTOR I = 1.25
- ALL GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO MEET LOADING CRITERIA CONFORMING TO REQUIREMENTS OF INTERNATIONAL BUILDING CODE 2018.
- THE STRUCTURAL INTEGRITY OF THE BUILDING SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO PLANS AND SPECIFICATIONS. STRUCTURAL MEMBERS ARE NOT SELF BRACING UNTIL PERMANENTLY CONNECTED TO THE STRUCTURE AS INDICATED ON THE PLANS. THE ENGINEER ASSUMES NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION. MEANS AND METHOD OF CONSTRUCTION, TEMPORARY SHORING AND BRACING, AND CONSTRUCTION SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

**DEMOLITION**

- THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING STRUCTURES, WHICH ARE TO REMAIN, DURING DEMOLITION WORK. ALL DAMAGE SHALL BE REPAIRED TO THE COMPLETE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- WHEN REMOVING EXISTING CONCRETE BY CUTTING OR CHIPPING THE CONTRACTOR SHALL ONLY REMOVE REINFORCING BARS WHICH CANNOT BE BENT INTO AREAS WHERE NEW CONCRETE WOULD COMPLETELY COVER THEM.
- IF FRACTURE OF ADJACENT CONCRETE OCCURS DURING DEMOLITION WORK, THE REPAIR SHALL BE WITH AN ENGINEER APPROVED PRESSURE INJECTED EPOXY, TO THE COMPLETE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL PROVIDE WRITTEN PLAN AND DESCRIPTION OF ALL DEMOLITION, MODIFICATION, OR ALTERATION WORK ON EXISTING STRUCTURES FOR REVIEW AND ACCEPTANCE PRIOR TO BEGINNING WORK.



1 ISO VIEW  
SCALE:

**STRUCTURAL ABBREVIATIONS**

ALT	ALTERNATE	HK	HOOK
ALUM	ALUMINUM	HT	HEIGHT
B/	BOTTOM	ID	INSIDE DIAMETER
BLDG	BUILDING	IE	INVERT ELEVATION
BM	BEAM	IF	INSIDE FACE
BOT	BOTTOM	IN	INCHES
BSMT	BASEMENT	INFL	INFLUENT
CHAN	CHANNEL	INT	INTERIOR
CIP	CAST-IN-PLACE	JT	JOINT
CJ	CONSTRUCTION JOINT	KIP	THOUSAND POUNDS
CL	CENTER LINE	KB	KNEE BRACE
CLR	CLEAR	LP	LOW POINT
COL	COLUMN	LGTH	LENGTH
CONC	CONCRETE	MAX	MAXIMUM
CONST	CONSTANT	MECH	MECHANICAL
CONSTR	CONSTRUCTION	MFR	MANUFACTURER
CONT	CONTINUOUS	MIN	MINIMUM
CLSM	CONTROLLED LOW STRENGTH MATERIAL	MO	MASONRY OPENING
COR	CORNER	NF	NEAR FACE
CY	CUBIC YARD	NS	NEAR SIDE
DET	DETAIL	NTS	NOT TO SCALE
DIA / Ø	DIAMETER	NIC	NOT IN CONTRACT
DIAG	DIAGONAL	OC	ON CENTER
DISC	DISCONTINUOUS	OD	OUTSIDE DIAMETER
DIST	DISTANCE	OF	OUTSIDE FACE
DWLS	DOWELS	OPNG	OPENING
EJ	EXPANSION JOINT	PEMB	PRE-ENGINEERED METAL BUILDING
EE	EACH END	PSF	POUNDS PER SQ. FOOT
EF	EACH FACE	PSI	POUNDS PER SQ. INCH
EFF	EFFLUENT	REINF	REINFORCEMENT
ES	EACH SIDE	RE	REFER TO
EW	EACH WAY	RTB	RETENTION TREATMENT BASIN
EA	EACH	SCHED	SCHEDULE
EL/ ELEV	ELEVATION	SET	SETTLING
EX	EXISTING	SHTS	SHEETS
EXT	EXTERIOR/ EXTENSION	SIM	SIMILAR
FD	FLOOR DRAIN	SJ	SLAB CONTROL JOINT
FF	FAR FACE	SS	STAINLESS STEEL
FFE	FINISHED FLOOR ELEVATION	STIR	STIRRUPS
FS	FAR SIDE	STRUCT	STRUCTURAL
FIN	FINISH	TOS	ELEVATION TOP OF STRUCTURAL STEEL
FL	FLOOR	T/	TOP
FND	FOUNDATION	TYP	TYPICAL
FST	FINAL SETTLING TANK	UNO	UNLESS NOTED OTHERWISE
FT	FEET	V	VERTICAL
GALV	GALVANIZED	WP	WORK POINT
GR	GRADE		
H/HORIZ	HORIZONTAL		
HP	HIGH POINT		

**REINFORCING TENSION SPLICE TABLE**

BAR SIZE	TENSION LAP LENGTH	* TOP BARS
#3	16"	22"
#4	20"	29"
#5	24"	36"
#6	29"	43"
#7	42"	63"
#8	48"	72"
#9	54"	81"
#10	61"	91"
#11	67"	101"

- NOTES**
- ABOVE TABLE IS FOR NORMAL WEIGHT CONCRETE; f<sub>c</sub>=5,000 PSI AND REINFORCING STEEL; f<sub>y</sub>=60,000 PSI.
  - ALL SPLICES SHALL BE CONSIDERED TENSION SPLICES USING LAP LENGTHS IN TABLE ABOVE UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
  - LENGTHS ARE BASED ON LAP CLASS B SPLICES WITH CENTER TO CENTER SPACING OF BARS EQUAL TO OR GREATER THAN 6 DIAMETERS.
  - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST UNDER THEM.
  - USE TENSION LAP LENGTHS FOR HORIZ & VERT. WALL BARS.

V:\020928\04\COF107201E\_WPC-SludgeDewateringImprovements\_S-17.rvt PLOTTED: 5/22/2020 11:11:10 AM

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
100 WEST WYOMING  
ROCKFORD, ILL. 60089  
P.O. BOX 634  
ROCKFORD, ILL. 60089-0634  
PHONE: (815) 654-0300  
FAX (Ill. Prev.): (815) 654-0312  
FAX (Ill. Prev.): (815) 338-2302  
WEB SITE: http://www.hrc-eng.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
GENERAL NOTES, CODES, AND ABBREVIATIONS

ISSUED FOR:	DATE:	BY:
50% Review	2/17/20	JA
90% Review	3/20/20	JA
100% Review	4/17/20	JA
IFB	6/01/20	JA

JOB NO.  
**COF1072.01F**

SHEET  
**S-100**

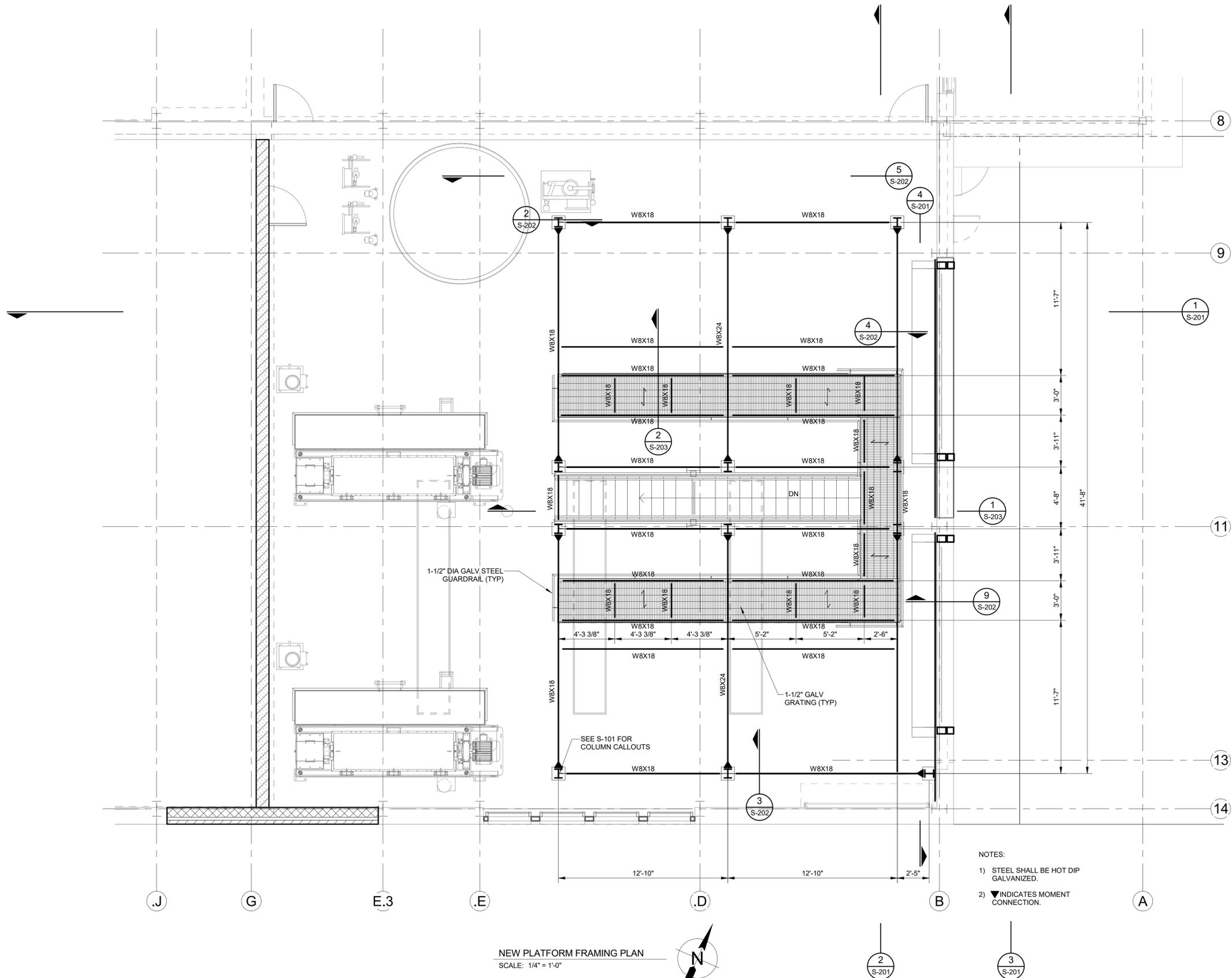


© Wade Trim Group, Inc.



PLOTTED: 5/22/2020 11:11:16 AM

V:\0298348\COF\107201E\_WPC-Studs-Dewatering-Improvements\_S-17.rvt



NEW PLATFORM FRAMING PLAN  
SCALE: 1/4" = 1'-0"



- NOTES:
- 1) STEEL SHALL BE HOT DIP GALVANIZED.
  - 2) ▼ INDICATES MOMENT CONNECTION.

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
P: 810.235.2556/800.841.0342  
F: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
800 WEST BERRY  
FLINT, MICHIGAN 48502  
PHONE: (810) 654-8300  
FAX: (810) 654-8312  
FAX: (810) 654-8312  
WEB SITE: http://www.hrc-engr.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
PLATFORM FRAMING PLAN

ISSUED FOR:	DATE:	BY:
50% Review	2/17/20	JA
90% Review	3/20/20	JA
100% Review	4/17/20	JA
IFB	6/01/20	JA

JOB NO.  
COF1072.01F

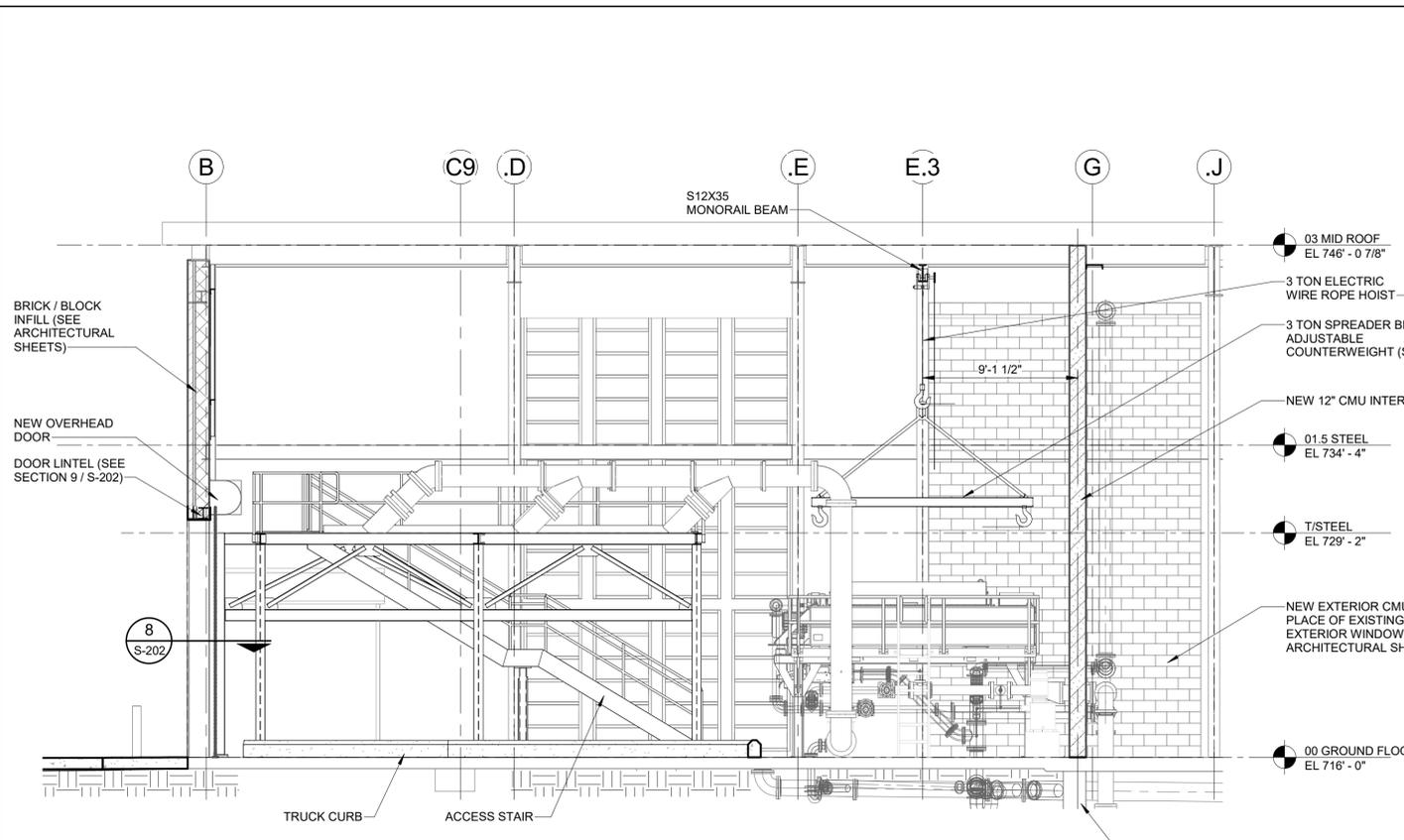
SHEET  
S-102



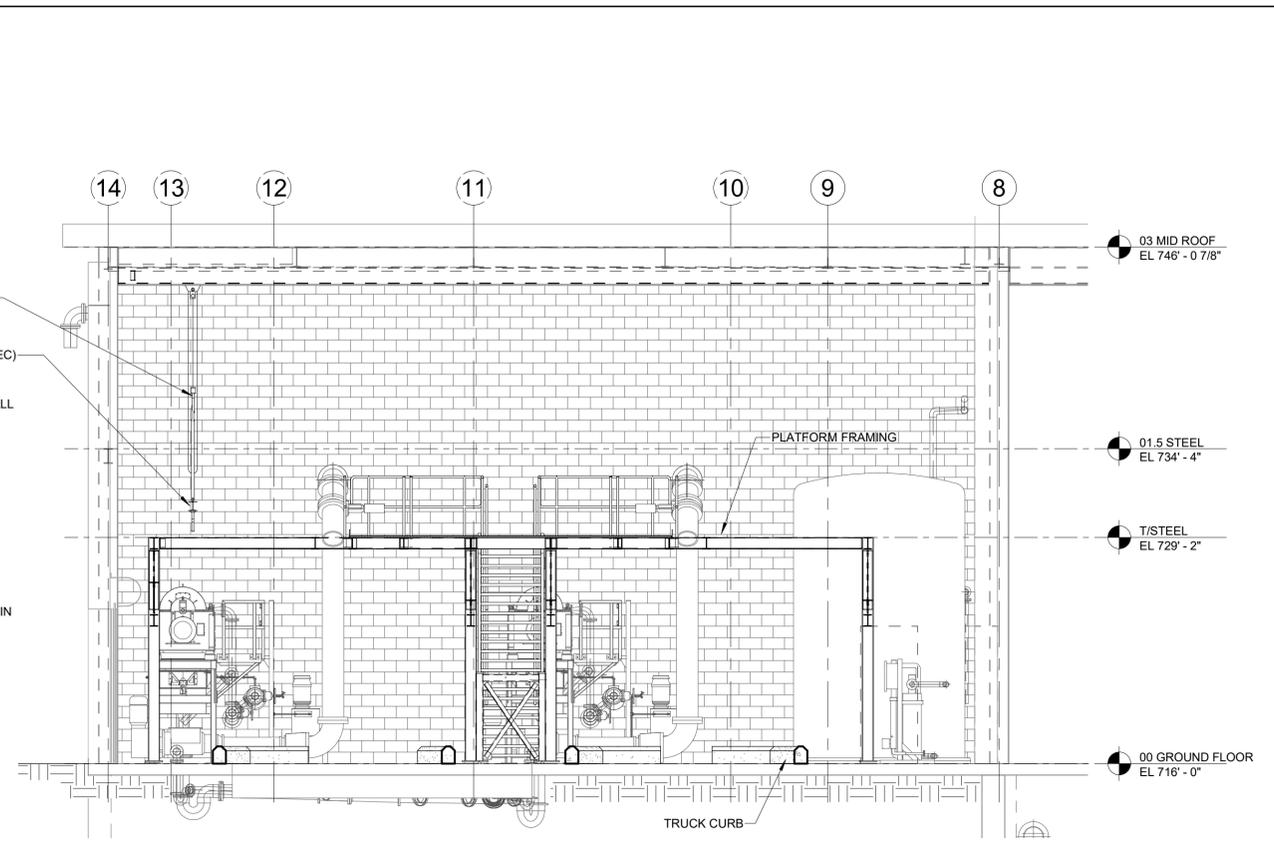
05-22-2020

© Wade Trim Group, Inc.

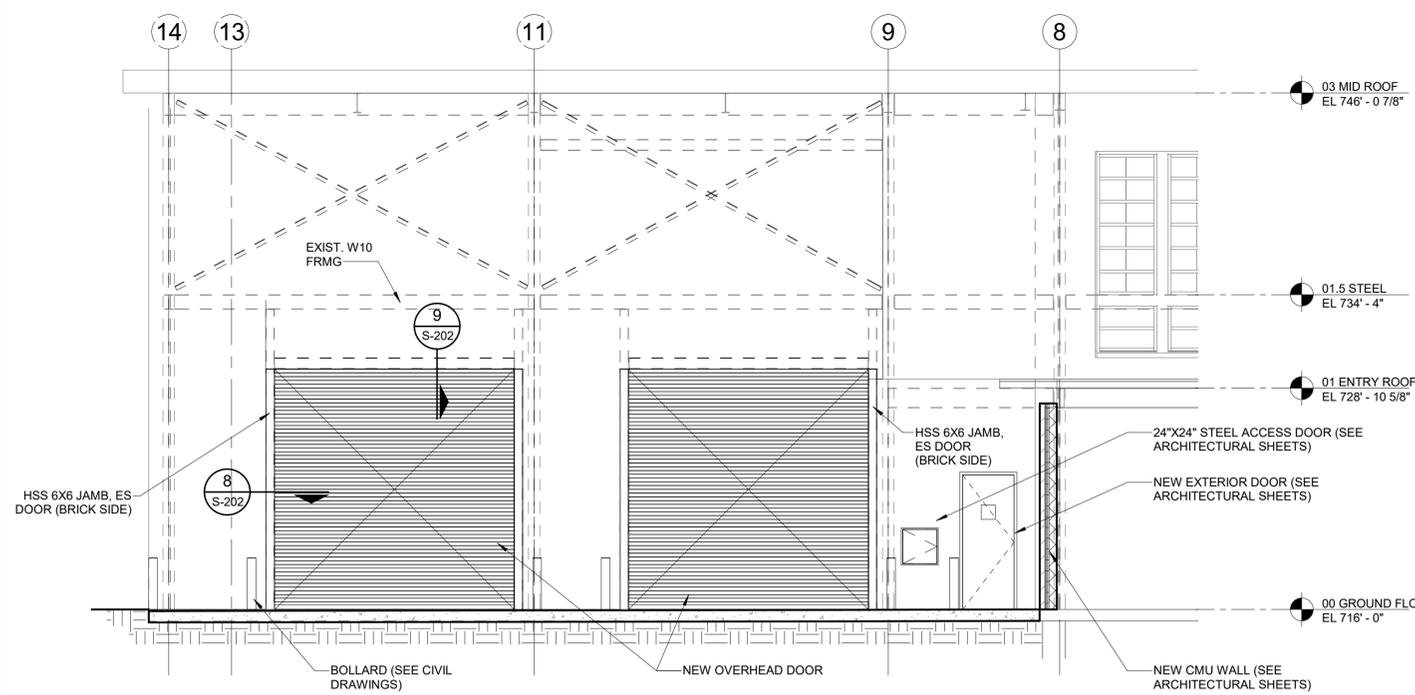




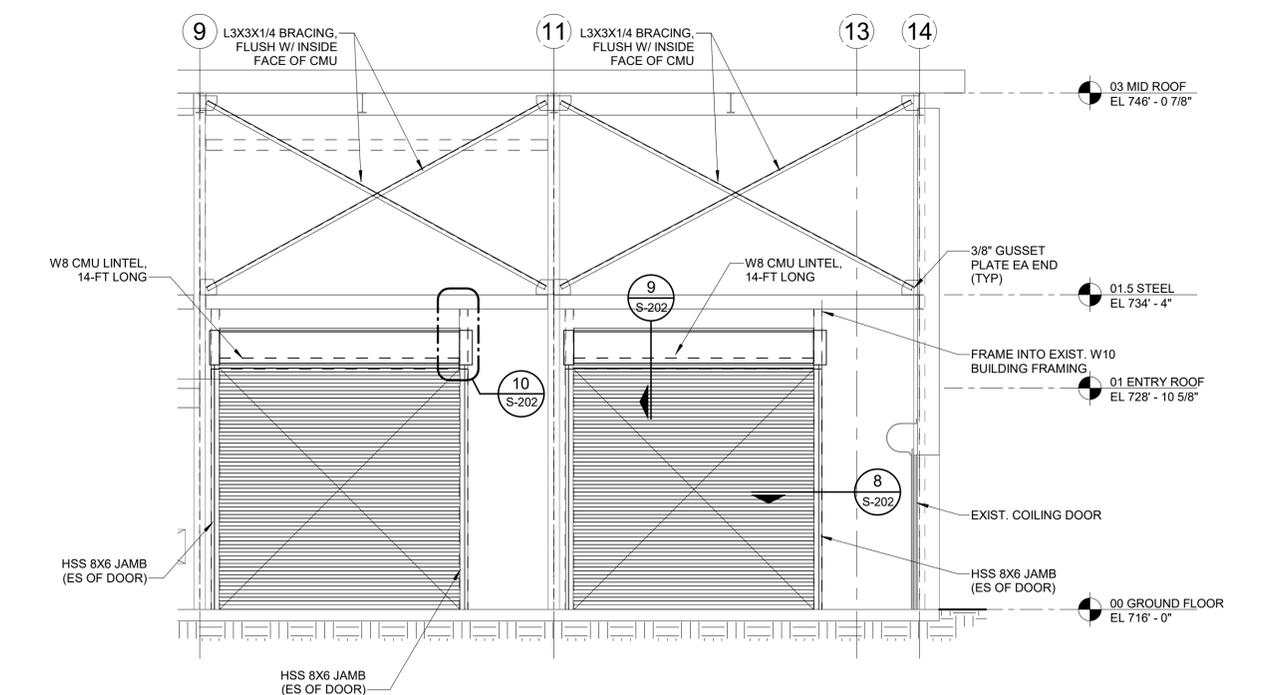
1 NEW BUILDING ELEVATION/SECTION  
S-101 SCALE: 3/16" = 1'-0"



2 NEW BUILDING SECTION  
S-101 SCALE: 3/16" = 1'-0"



3 EAST WALL EXTERIOR ELEVATION  
S-101 SCALE: 3/16" = 1'-0"



4 EAST WALL INTERIOR ELEVATION  
S-101 SCALE: 3/16" = 1'-0"

V:\0209348\COF\07201E\_WPC-Studge-Dewatering-Improvements\_S-17.rvt PLOTTED: 5/22/2020 11:11:27 AM

REV#	DATE	DESCRIPTION	BY



CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
BUILDING ELEVATIONS

ISSUED FOR:	DATE:	BY:
50% Review	2/17/20	JA
90% Review	3/20/20	JA
100% Review	4/17/20	JA
IFB	6/01/20	JA

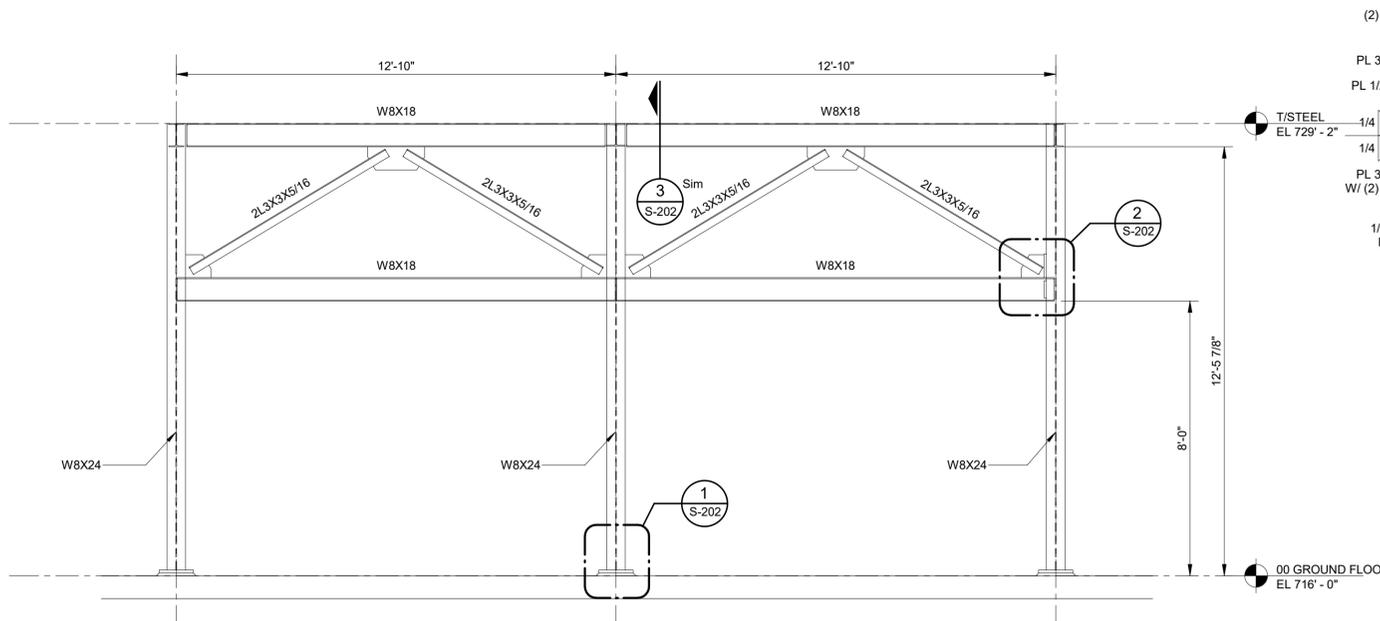
JOB NO.  
COF1072.01F

SHEET

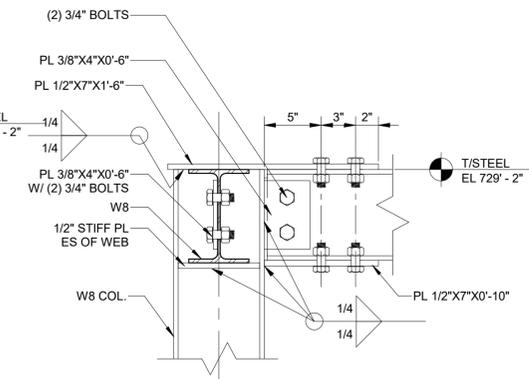
S-201



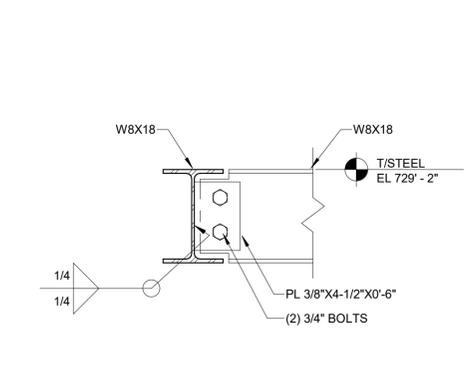
© Wade Trim Group, Inc.



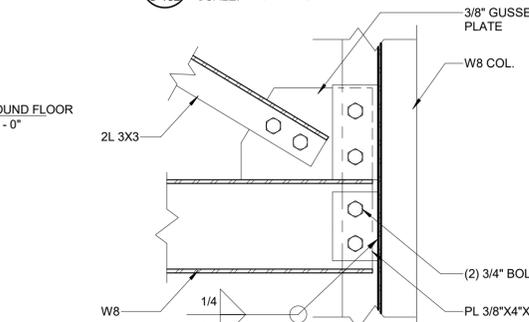
**5 PLATFORM FRAME SECTION**  
S-101 SCALE: 3/8" = 1'-0"



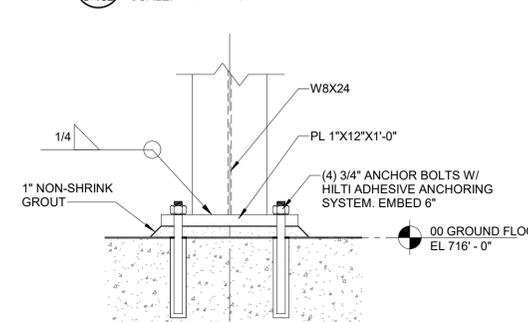
**3 MOMENT CONNECTION DETAIL**  
S-102 SCALE: 1 1/2" = 1'-0"



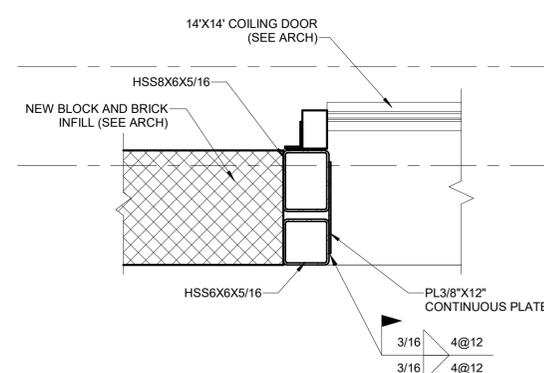
**4 CONNECTION DETAIL**  
S-102 SCALE: 1 1/2" = 1'-0"



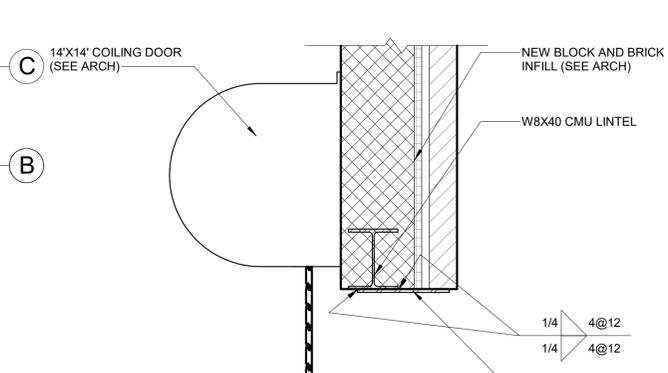
**2 CONNECTION DETAIL**  
S-101 SCALE: 1 1/2" = 1'-0"



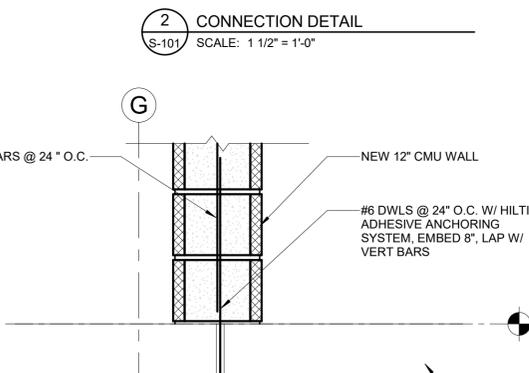
**1 COLUMN BASE CONNECTION DETAIL**  
S-202 SCALE: 1 1/2" = 1'-0"



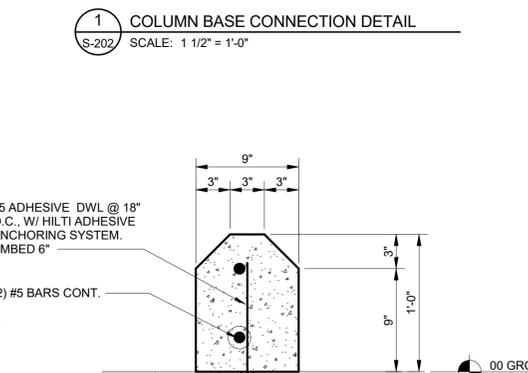
**8 COILING DOOR JAMB DETAIL**  
S-101 SCALE: 1" = 1'-0"



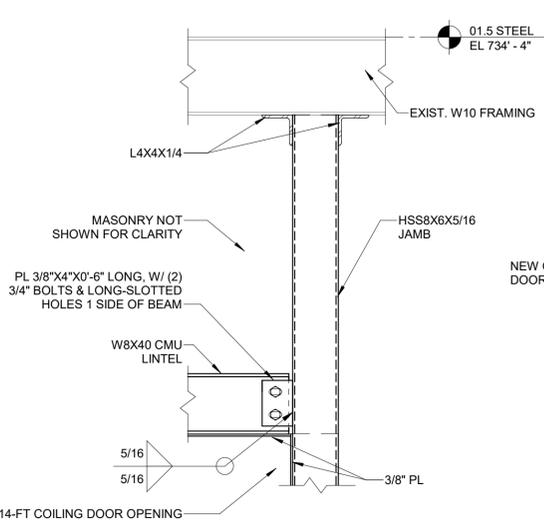
**9 COILING DOOR HEAD DETAIL**  
S-102 SCALE: 1" = 1'-0"



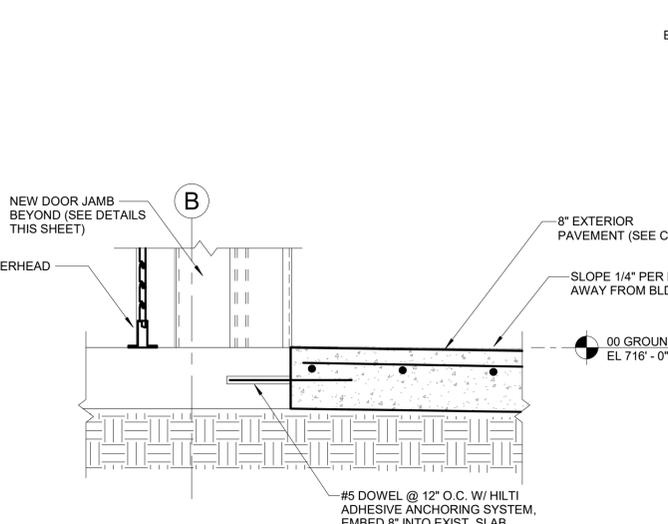
**6 B/CMU WALL CONNECTION DETAIL**  
S-101 SCALE: 1" = 1'-0"



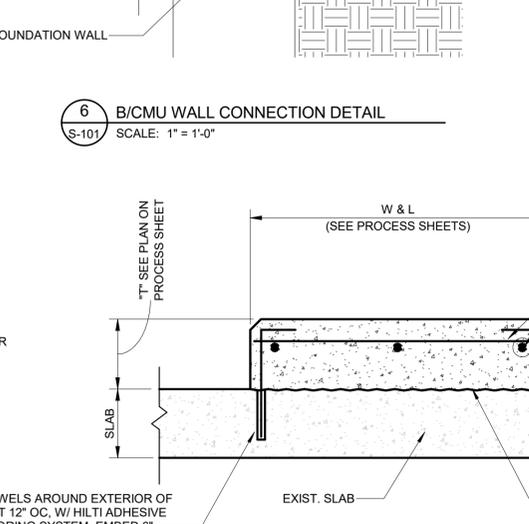
**7 CURB DETAIL**  
S-101 SCALE: 1 1/2" = 1'-0"



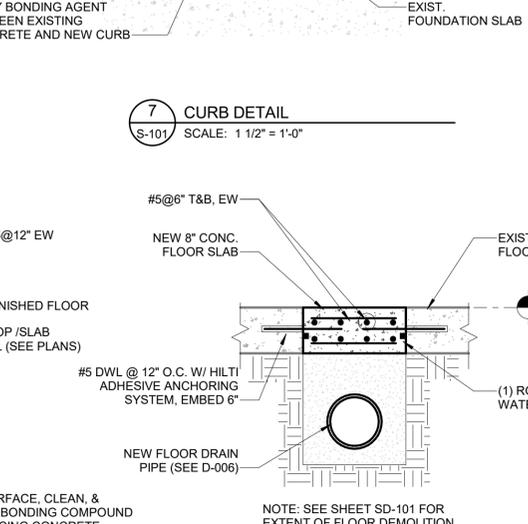
**10 LINTEL CONNECTION DETAIL**  
S-201 SCALE: 1" = 1'-0"



**12 SLAB JOINT DETAIL**  
S-101 SCALE: 1" = 1'-0"



**13 HOUSEKEEPING PAD DETAIL**  
SCALE: 1" = 1'-0"



**14 FLOOR DRAIN DEMO DETAIL**  
S-101 SCALE: 3/4" = 1'-0"

V:\02959346\COF107201E\_WPC-Studge-Dewatering-Improvements\_S-17.rvt PLOTTED: 5/22/2020 11:11:28 AM

REV#	DATE	DESCRIPTION	BY



555 South Saginaw Street, Suite 201  
Flint, MI 48502  
610.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

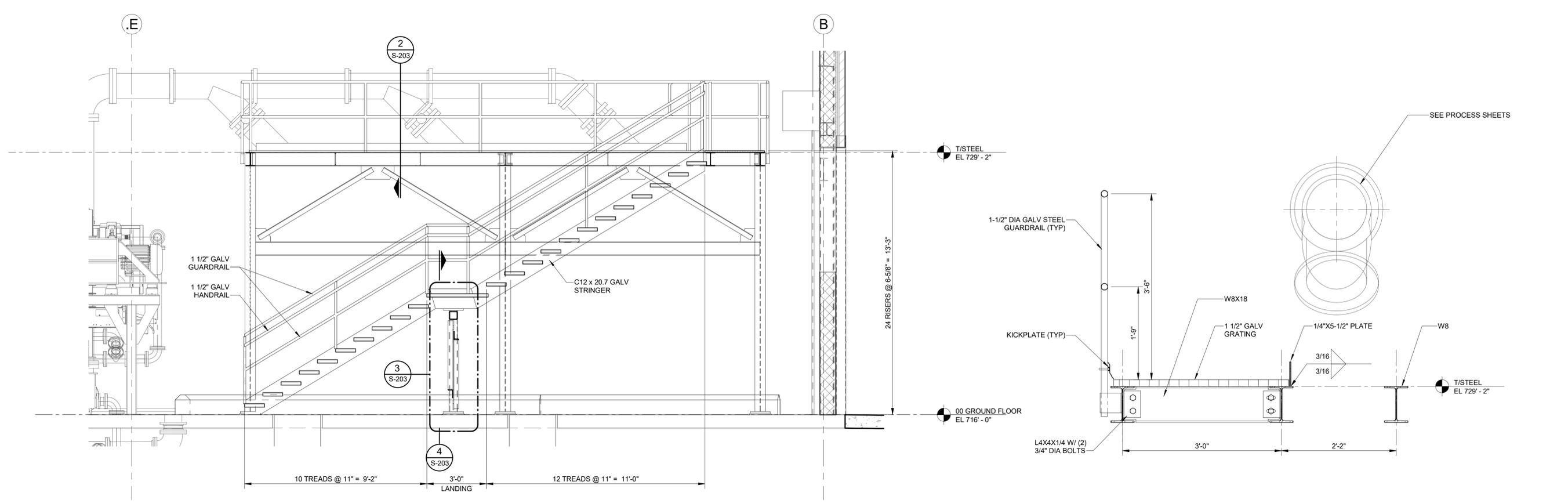


1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
SECTIONS / DETAILS

ISSUED FOR: DATE: BY:  
50% Review 2/17/20 JA  
90% Review 3/20/20 JA  
100% Review 4/17/20 JA  
IFB 6/01/20 JA

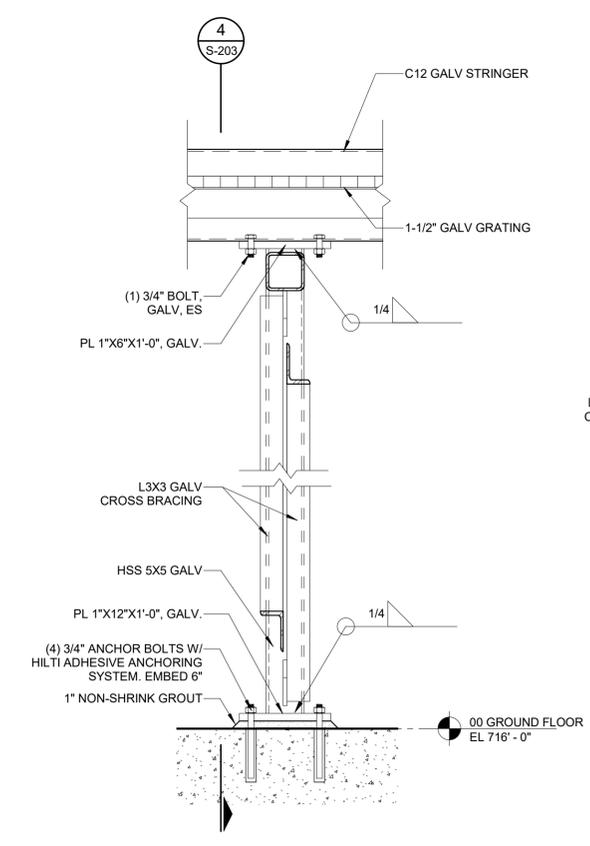
JOB NO. COF1072.01F  
SHEET S-202



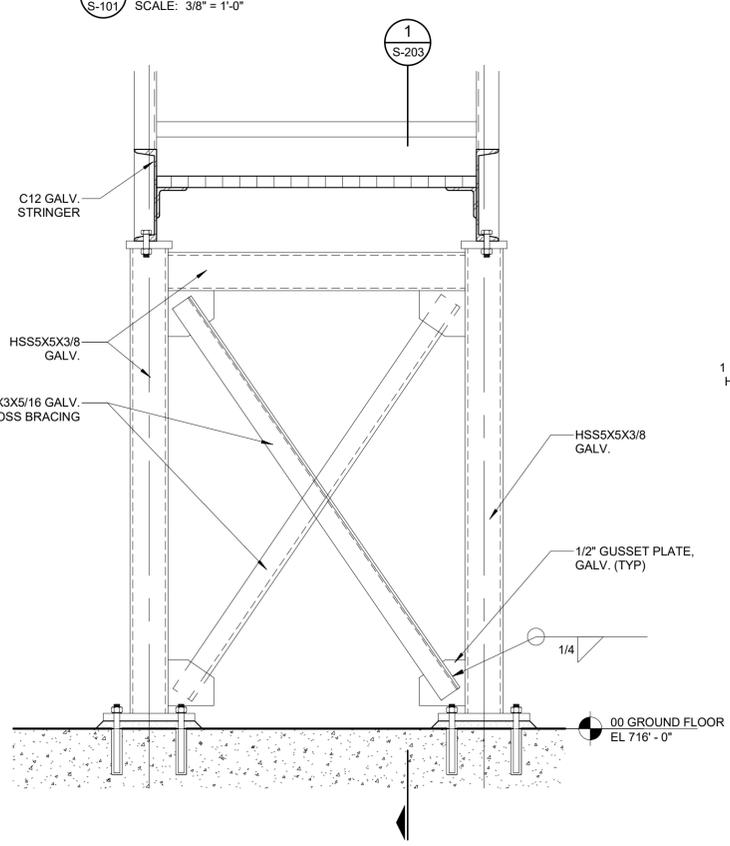


1 STAIR SECTION  
S-101 SCALE: 3/8" = 1'-0"

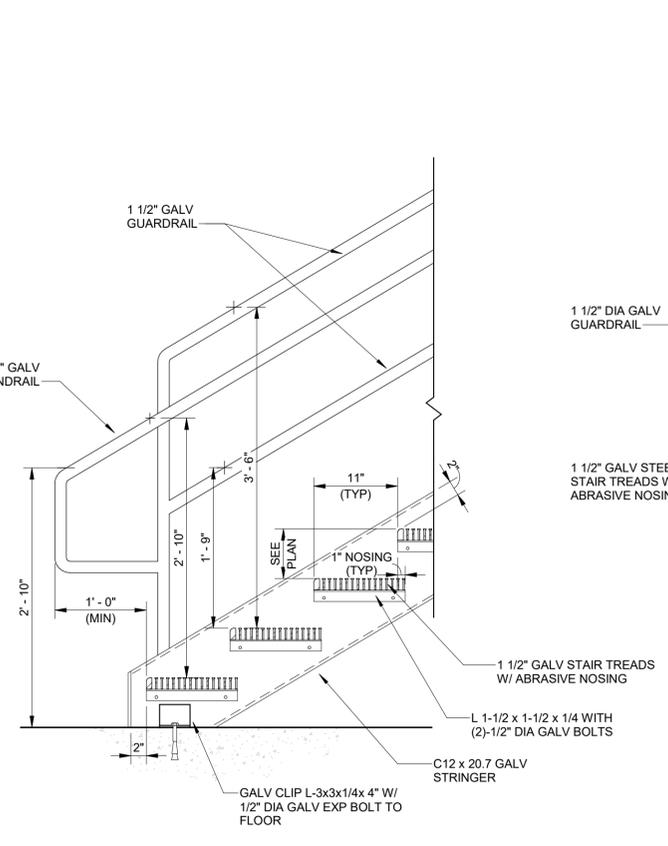
2 WALKWAY SECTION  
S-102 SCALE: 1" = 1'-0"



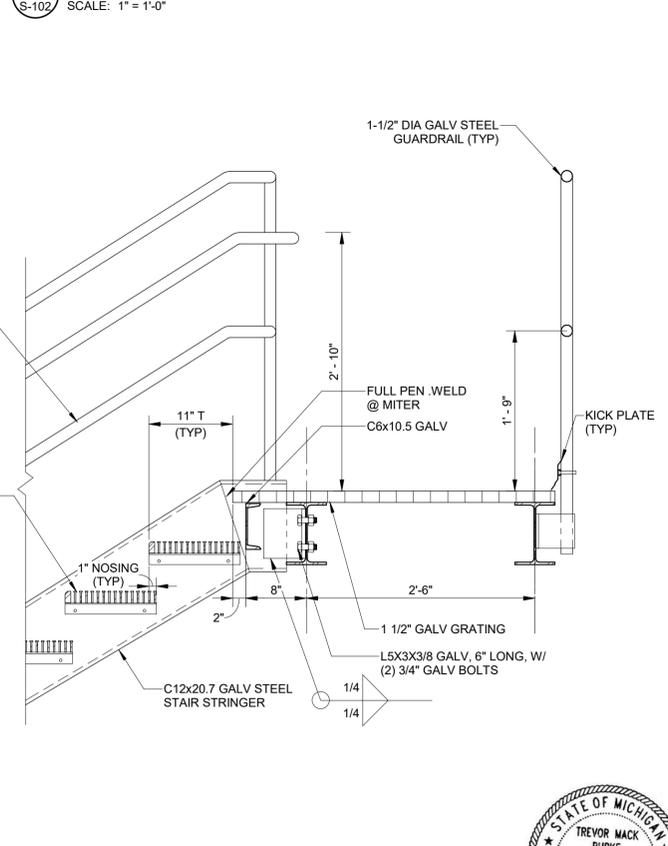
3 LANDING SUPPORT POST DETAIL  
S-203 SCALE: 1" = 1'-0"



4 LANDING SUPPORT BRACING DETAIL  
S-203 SCALE: 1" = 1'-0"



5 STAIR DETAIL  
S-203 SCALE: 1" = 1'-0"



6 STAIR DETAIL  
S-203 SCALE: 1" = 1'-0"

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
P: 810.235.2555/800.841.0342  
F: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
500 WEST BERRY AVE. F.L. 48304  
BLOOMFIELD HILLS, MICH. 48304-0824  
PHONE: (248) 654-8300  
FAX: (248) 654-8312  
FAX CHG. FLOOR: (248) 338-2322  
WEB SITE: http://www.hrc-corp.com

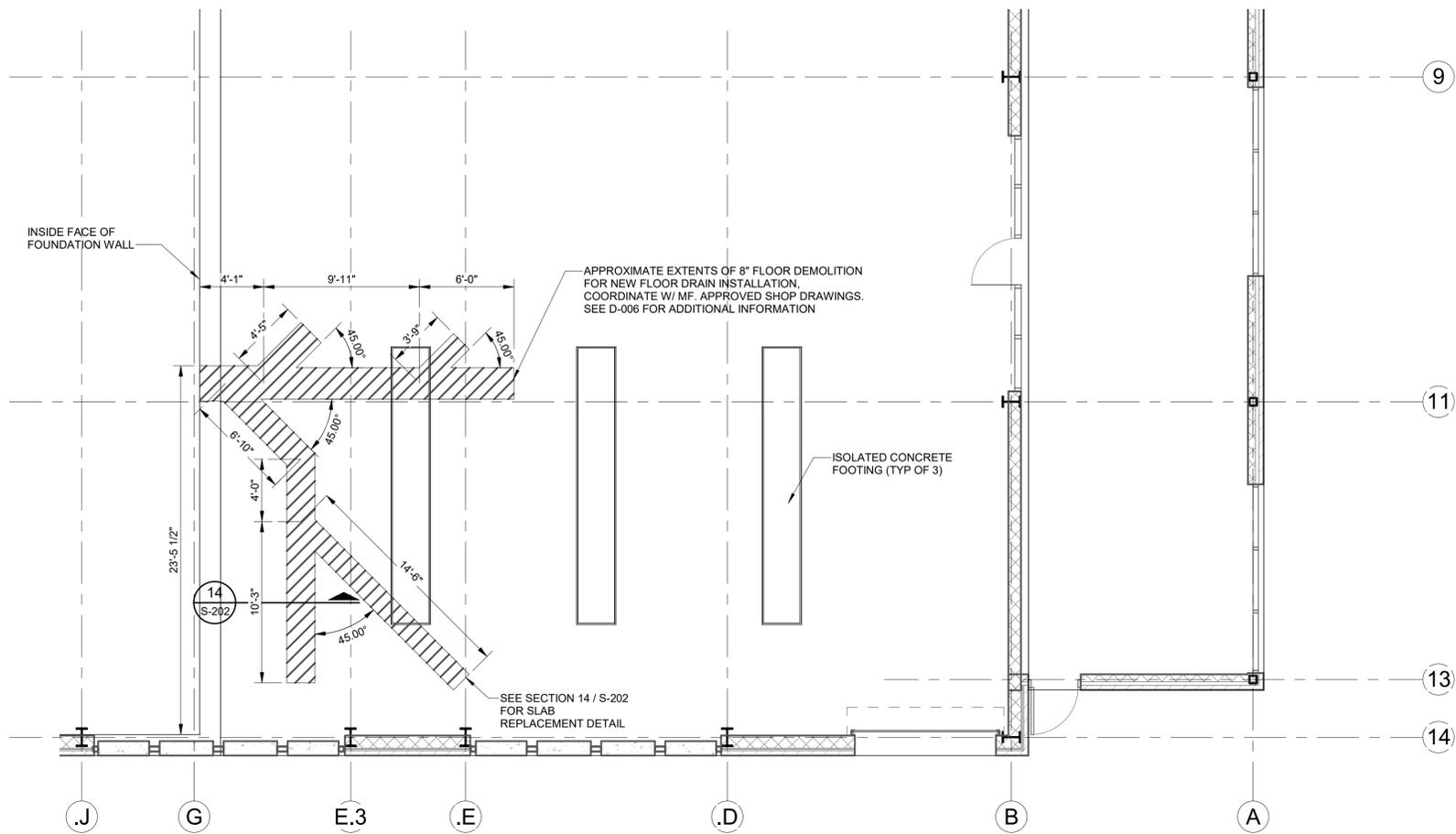
CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
STAIR SECTIONS / DETAILS

ISSUED FOR:	DATE:	BY:
50% Review	2/17/20	JA
90% Review	3/20/20	JA
100% Review	4/17/20	JA
IFB	6/01/20	JA

JOB NO. COF1072.01F  
SHEET S-203



V:\42899348\COF107201E\_VIPC-StudgeDewateringImprovements\_S-17.rvt PLOTTED: 5/22/2020 11:13:00 AM



FLOOR DRAIN DEMO PLAN  
SCALE: 3/16" = 1'-0"



1 EXIST. MONORAIL DEMO  
SCALE: 1/32" = 1'-0"

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**

555 South Saginaw Street, Suite 201  
Flint, MI 48502  
610.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915

500 WEST BOWNE  
FLINT, MICHIGAN 48502

PHONE: (419) 654-8300  
FAX: (419) 654-8312  
FAX: (419) 654-8312  
WEB SITE: http://www.hrc-engr.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
STRUCTURAL DEMOLITION

ISSUED FOR:	DATE:	BY:
50% Review	2/17/20	JA
90% Review	3/20/20	JA
100% Review	4/17/20	JA
IFB	6/01/20	JA

JOB NO.  
COF1072.01F

SHEET  
SD-101



V:\0298348\COF107201F\_WPC-Studge-Dewatering-Improvements\_S-17.rvt PLOTTED: 5/22/2020 11:11:31 AM

© Wade Trim Group, Inc.



**BUILDING DATA:**

**APPLICABLE CODES:**

2015 MICHIGAN BUILDING CODE (MBC)  
2017 NATIONAL ELECTRICAL CODE  
2015 MICHIGAN MECHANICAL CODE  
2015 MICHIGAN PLUMBING CODE  
2015 MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS (MRCEB)  
2015 INTERNATIONAL FIRE CODE  
2015 MICHIGAN UNIFORM ENERGY CODE  
ICC ANSI A117.1 - 2009

**USE GROUP (302, 304):** FACTORY INDUSTRIAL, F-2 LOW HAZARD OCCUPANCY.

**CONSTRUCTION TYPE (TABLE 601 & 602):** II B

**CLASSIFICATION OF WORK (MRCEB CH 5):**

-- NEW WORK AREAS AT THE INTERIOR OF THE EXISTING BUILDING ARE CLASSIFIED AS A "LEVEL 2 ALTERATION" PER SECTION 504.

**AFFECTED FLOOR AREA:**

NEW SLUDGE DEWATERING ROOM, LEVEL 2 - 2,557 S.F.

**BUILDING FLOOR AREA:**

EXISTING BLDG. FLOOR AREA - 25,147 S.F.  
BLDG AREA DEMOLISHED - 682 S.F.  
TOTAL FLOOR AREA - 24,465 S.F.

**OCCUPANT LOAD (TABLE 1004.1.2):**

OCCUPANCY CLASSIFICATION IS INDUSTRIAL, 100 SF GROSS PER OCCUPANT.

**OCCUPANT LOAD CALCULATION:** 2,557 SF/100 = 26 OCCUPANTS

OCCUPANT LOAD MAY BE REDUCED BY CODE OFFICIAL TO REFLECT ACTUAL OCCUPANCY. BUILDING IS A NORMALLY UNOCCUPIED SPACE USED TO HOUSE SEWAGE PROCESSING EQUIPMENT.

**TRAVEL DISTANCE (1006):**

F-2 AREA:  
DISTANCE TO AN EXIT ACCESS DOES NOT EXCEED 75 FEET FOR 1 EXIT.

**ACCESSIBILITY (1103):**

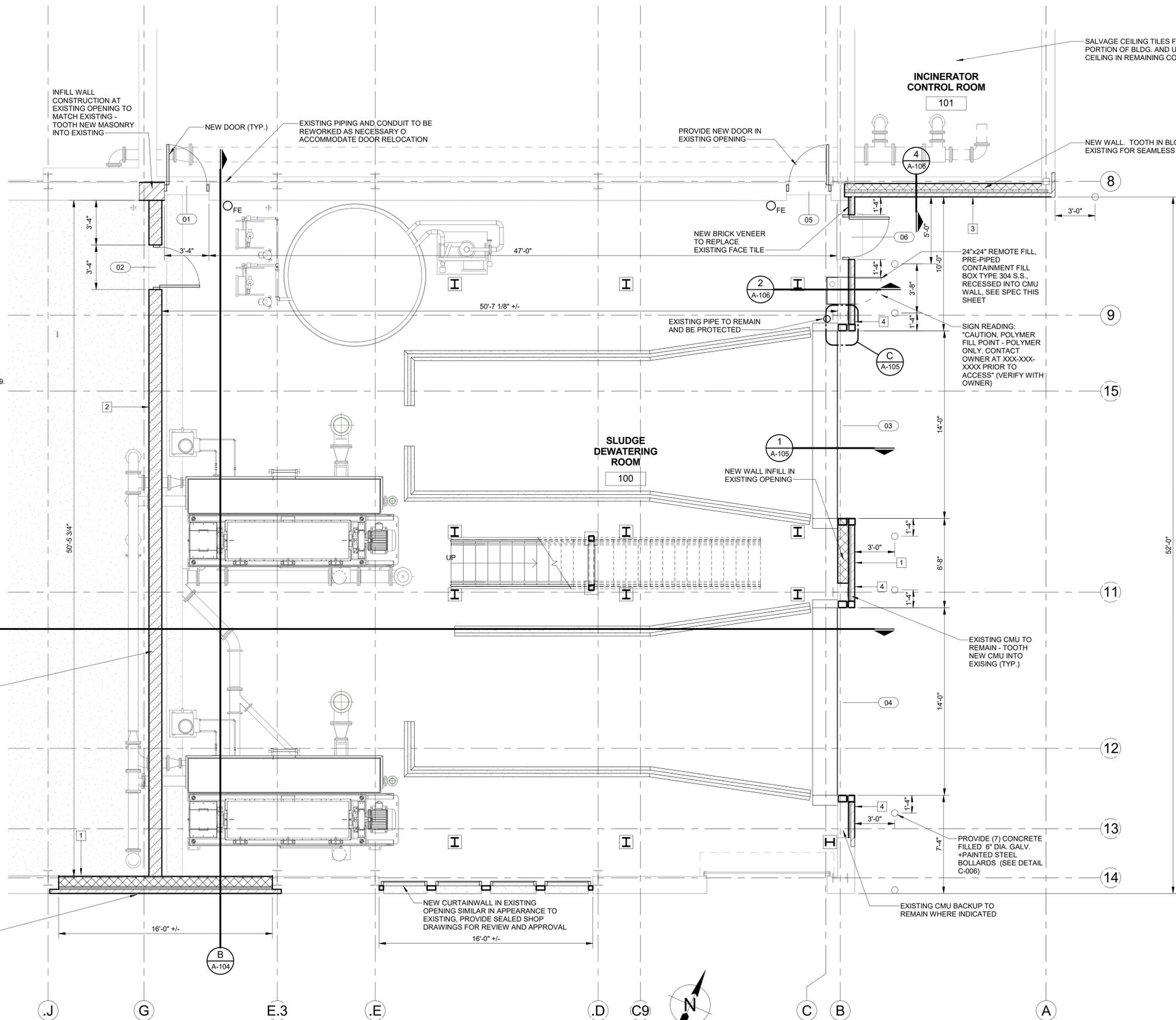
THIS BUILDING IS EXEMPT FROM ACCESSIBILITY REQUIREMENTS UNDER 1103.2.9. BUILDING IS AN UNOCCUPIED STRUCTURE HOUSING PROCESS EQUIPMENT. DOOR HARDWARE SHALL BE PROVIDED AS SPECIFIED AND INSTALLED IN ACCORDANCE WITH DIVISION 8 SPECIFICATIONS.

**ENERGY CODE COMPLIANCE:**

WALLS: 2" R-6 RIGID INSULATION BOARD (OUTSIDE CMU)  
DOOR: LOW-E INSULATED GLAZING

**WALL LEGEND:**

- 1- 10" CMU w/ 1" RIGID INSULATION w/ 1" AIR SPACE w/ 4" BRICK
- 2- 12" CMU
- 3- 6" CMU w/ 2" RIGID INSULATION w/ 3/4" AIR SPACE w/ 4" BRICK
- 4- NEW 4" BRICK w/ 1" INSULATION AND 1" AIR SPACE ON EXISTING CMU AND STRUCTURE



NEW WALL INFILL. AT REMOVED WINDOW OPENING TOOTH IN NEW BRICK AND CMU FOR SEAMLESS TRANSITION.

NEW CURTAINWALL IN EXISTING OPENING SIMILAR IN APPEARANCE TO EXISTING, PROVIDE SEALED SHOP DRAWINGS FOR REVIEW AND APPROVAL

PROVIDE (7) CONCRETE FILLED 6" DIA. GALV. +PAINTED STEEL BOLLARDS (SEE DETAIL C-006)

EXISTING CMU TO REMAIN - TOOTH NEW CMU INTO EXISING (TYP.)

SIGN READING: "CAUTION, POLYMER FILL POINT - POLYMER ONLY. CONTACT OWNER AT XXX-XXX-XXXX PRIOR TO ACCESS" (VERIFY WITH OWNER)

24"x24" REMOTE FILL, PRE-PIPED CONTAINMENT FILL BOX TYPE 304 S.S., RECESSED INTO CMU WALL, SEE SPEC THIS SHEET

SALVAGE CEILING TILES FROM DEMOLISHED PORTION OF BLDG. AND USE TO REPAIR/REPLACE CEILING IN REMAINING CONTROL ROOM.

NEW WALL. TOOTH IN BLOCK AND BRICK INTO EXISTING FOR SEAMLESS TRANSITION.

52'-0" (ALIGN WITH EXISTING INTERIOR WALL)



1 GROUND FLOOR  
A-103 SCALE: 1/4" = 1'-0"

C:\Users\stark\Desktop\FlintSDW\COF107201E\_WPC\SludgeDewateringImprovements\_A-17.rvt PLOTTED: 5/22/2020 9:57:12 PM

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**

555 South Saginaw Street, Suite 201  
Flint, MI 48502  
610.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915

500 WEST BERRY  
BLOOMFIELD HILLS, MICH. 48304-8824

PHONE: (248) 654-9300  
FAX (Out. Prov): (248) 654-9312  
FAX (In. Prov): (248) 338-9392  
WEB SITE: http://www.hrc-corp.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
NEW FLOOR PLAN

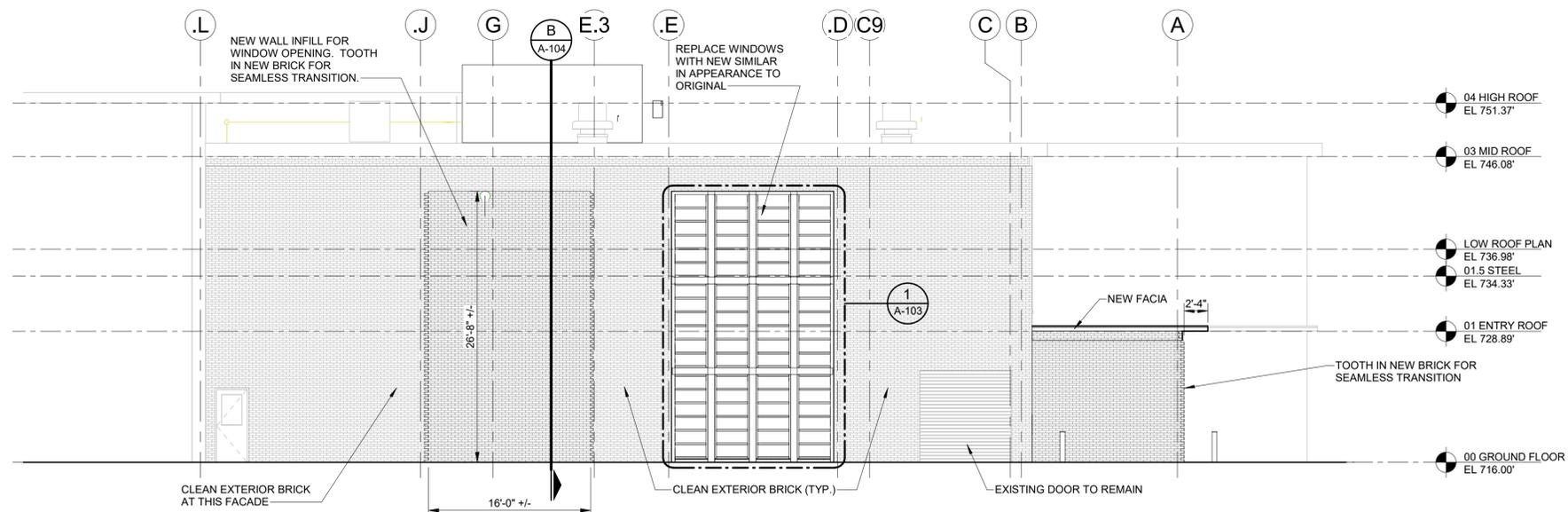
ISSUED FOR: DATE: BY:  
90% REVIEW 03-25-20  
100% REVIEW 4-17-20 JA  
IFB 6-1-20

JOB NO.  
COF107201F

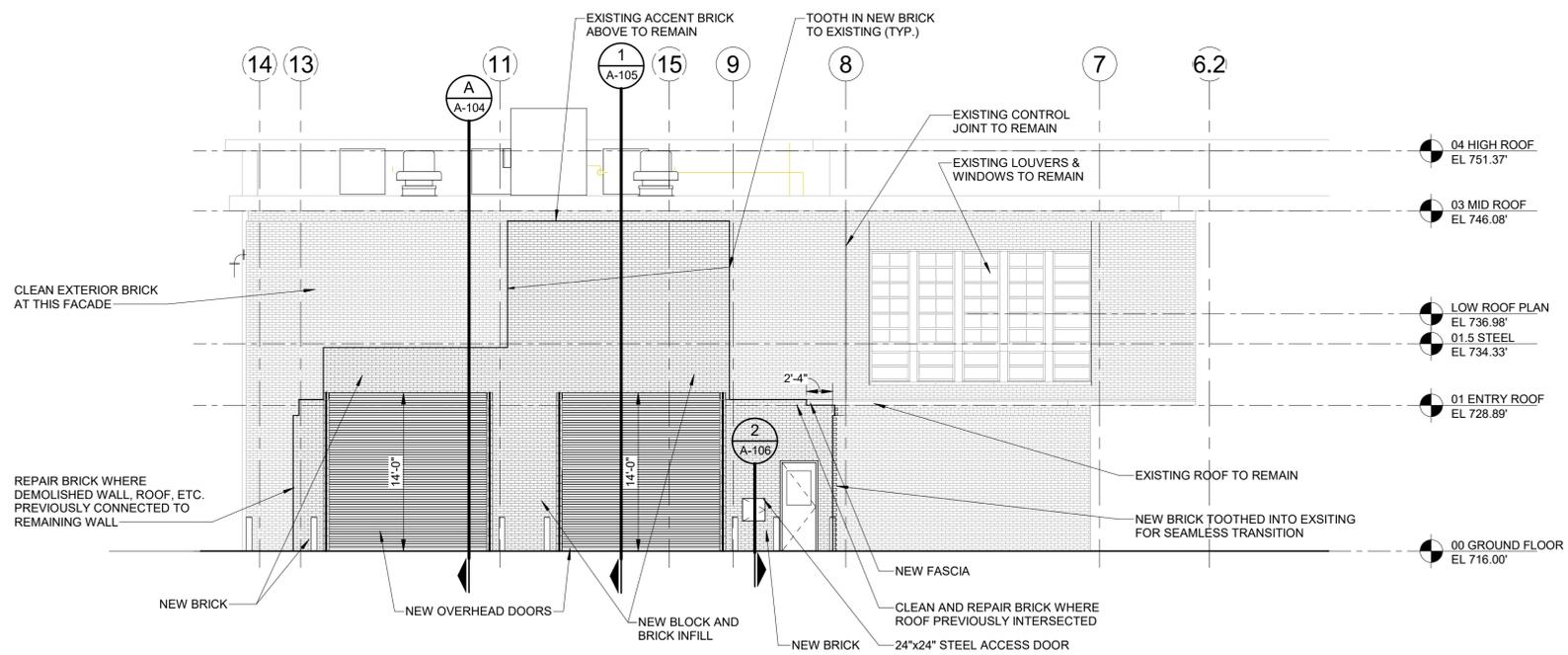
SHEET  
A-101

© Wade Trim Group, Inc.



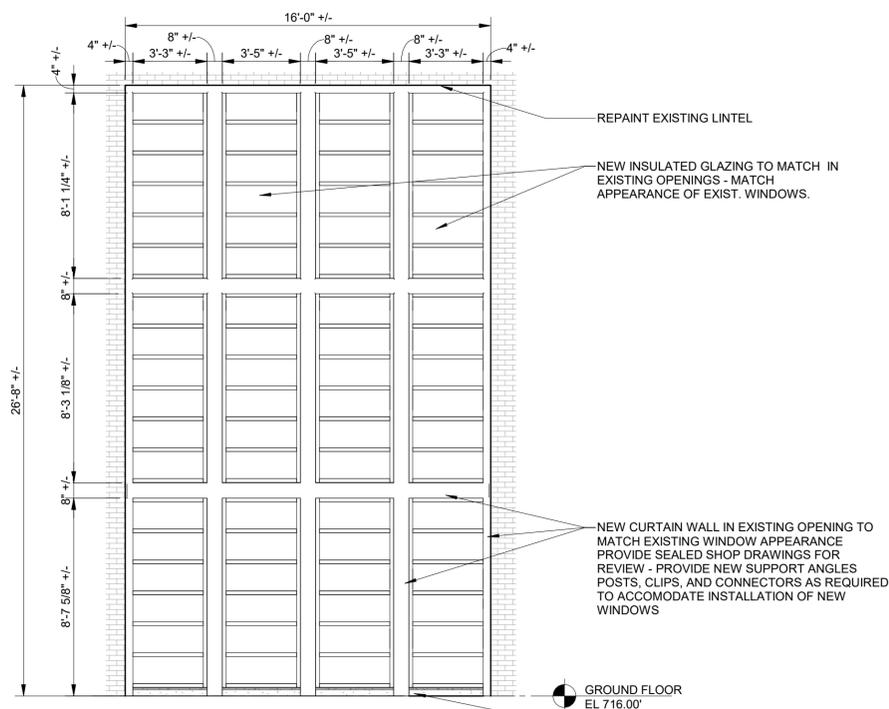


**B SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**A EAST ELEVATION**  
SCALE: 1/8" = 1'-0"

- CURTAINWALL NOTES:**
1. PROVIDE NEW COMPATIBLE FLASHING AT OPENINGS PER MANUFACTURER RECOMMENDATIONS (TYP.)
  2. SEAL ALL HOLES AT REMAINING STRUCTURE.
  3. REPAIR ANY DAMAGED STEEL TUBE SECTIONS OR PROVIDE NEW STRUCTURAL FRAMING SYSTEM AS REQUIRED FOR A COMPLETE STRUCTURAL FRAMEWORK TO SUPPORT NEW WINDOWS.
  4. RECAULK OPENINGS/JOINTS AT FRAMES AND HEADS ONCE NEW WINDOWS HAVE BEEN INSTALLED.
  5. PROVIDE DISSIMILAR METAL SEPARATION BETWEEN ALUMINUM AND STEEL PER MFR. RECOMMENDATIONS AT ALL LOCATIONS.



**1 SOUTH WINDOW ELEVATION**  
A-103 SCALE: 1/4" = 1'-0"

C:\Users\stuck\Desktop\Flint\SDV\COF107201E\_WPC-Sludge-Dewatering-Improvements\_A-17.rvt PLOTTED: 5/22/2020 9:57:16 PM

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2558/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
800 WEST BERRY  
BLOOMFIELD HILLS, MICH. P.O. BOX 654  
48302 - 0854  
PHONE: (248) 654-6300  
FAX (248) 654-6312  
FAX (248) 338-6312  
WEB SITE: http://www.hrc-eng.com

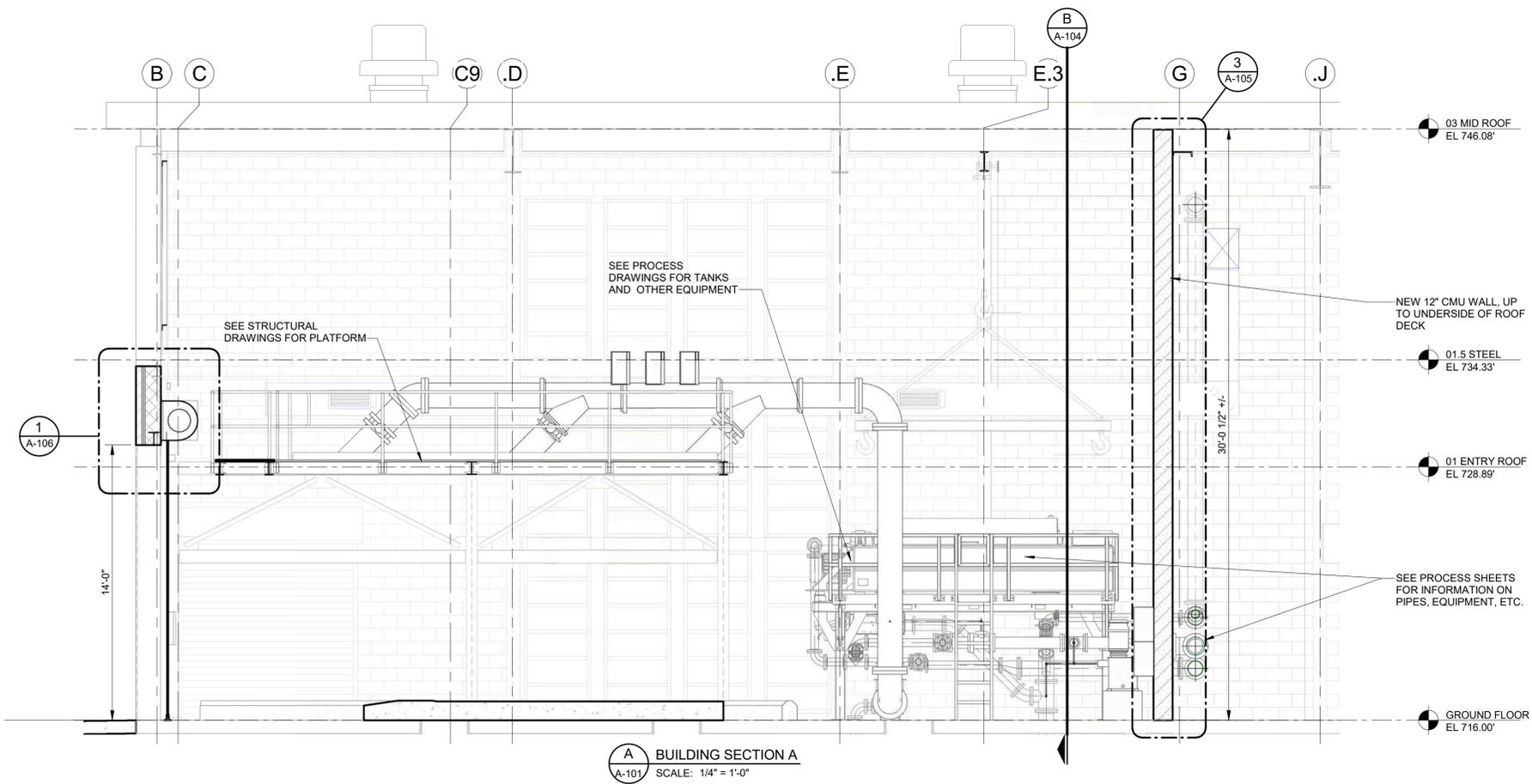
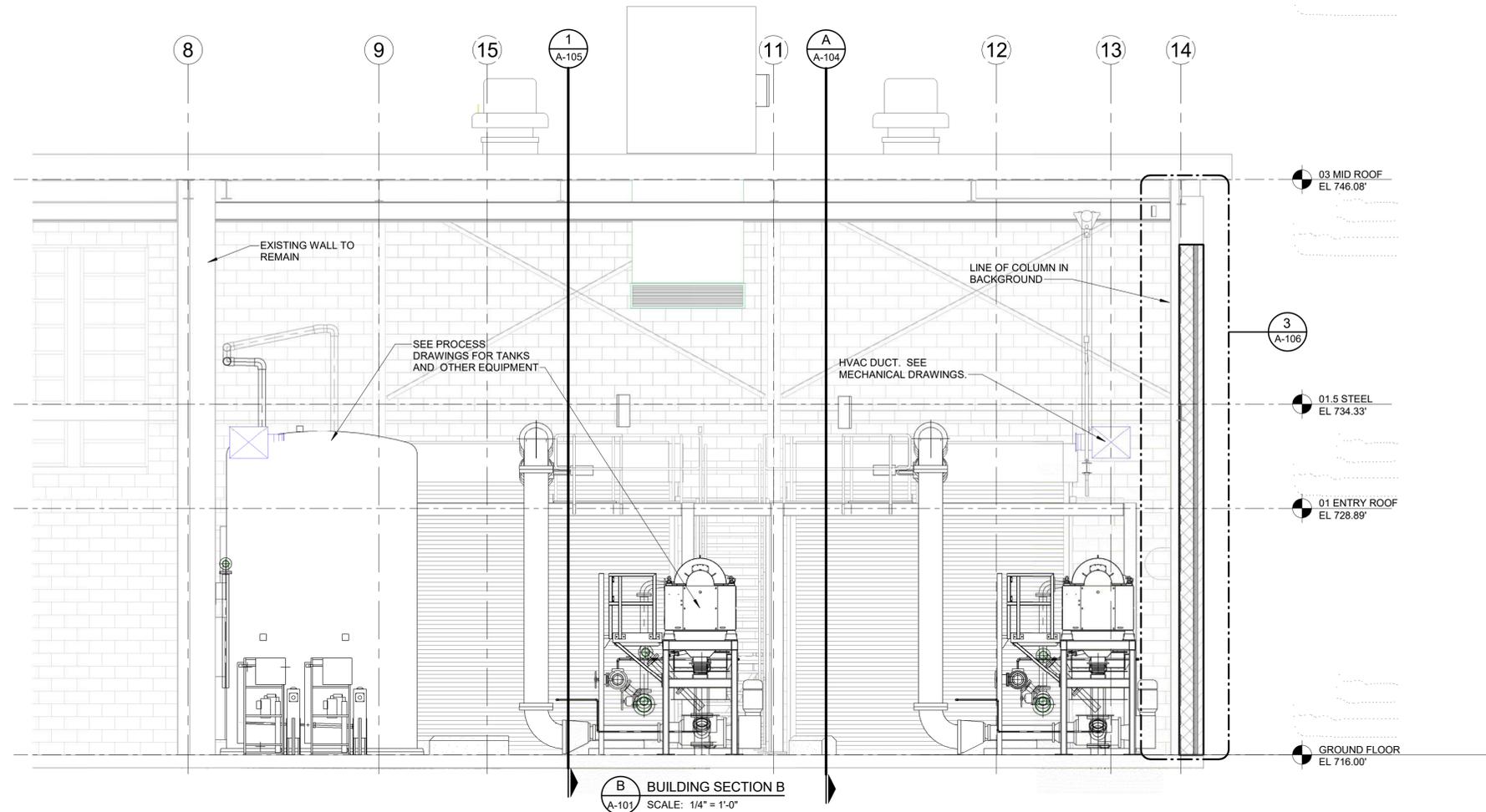
CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
ELEVATIONS

ISSUED FOR:	DATE:	BY:
90% REVIEW	3-25-20	JA
100% REVIEW	4-17-20	JA
IFB	6-1-20	JA

JOB NO.  
**COF107201F**

SHEET  
**A-103**

© Wade Trim Group, Inc.



C:\Users\stark\Desktop\Flint\SDV\COF107201F\_WPC\SludgeDewateringImprovements\_A-17.rvt PLOTTED: 5/22/2020 9:57:22 PM

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**

555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
100 WEST BERRY  
BLOOMFIELD HILLS, MICH. 48304-1824

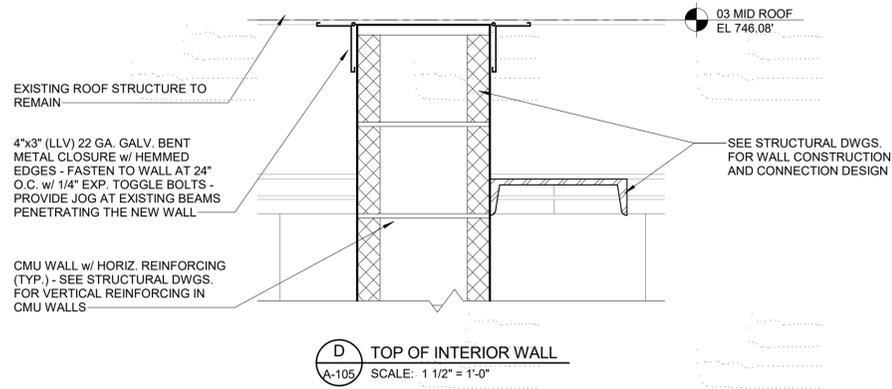
PHONE: (248) 654-9300  
FAX (Out. Prov): (248) 654-9312  
FAX (Int. Prov): (248) 338-2332  
WEB SITE: http://www.hrc-corp.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
BUILDING SECTIONS

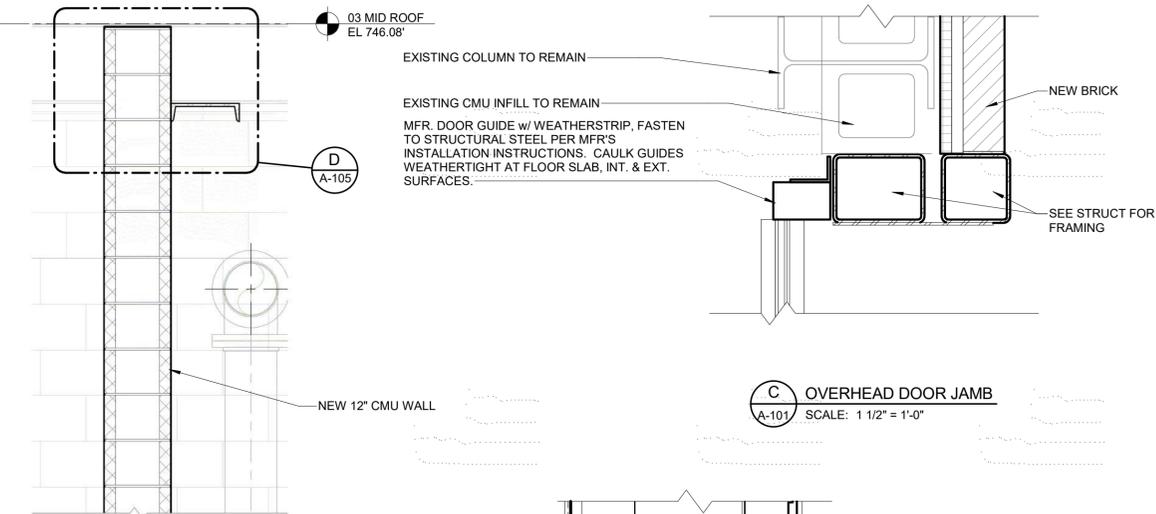
ISSUED FOR:	DATE:	BY:
90% REVIEW	03-25-20	JA
100% REVIEW	4-17-20	JA
IFB	6-1-20	JA

JOB NO.	COF107201F
SHEET	A-104

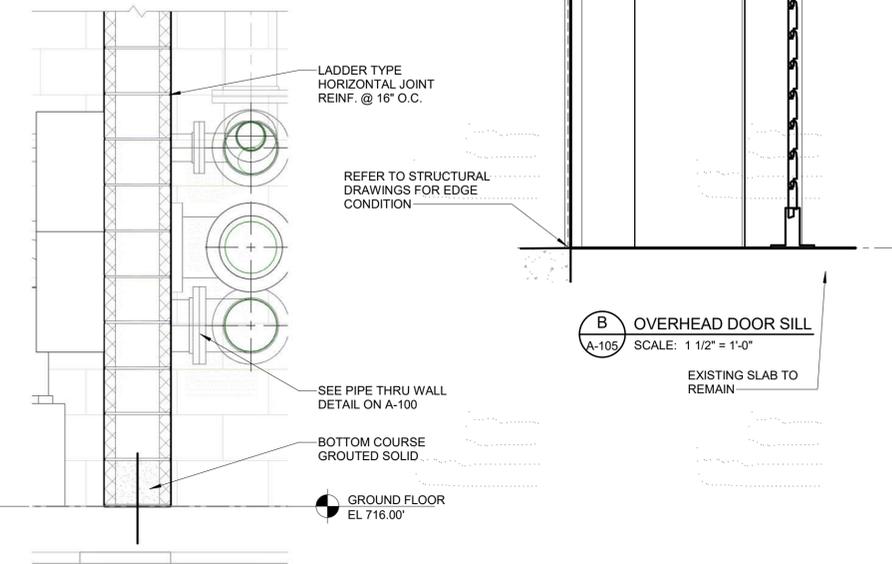
© Wade Trim Group, Inc.



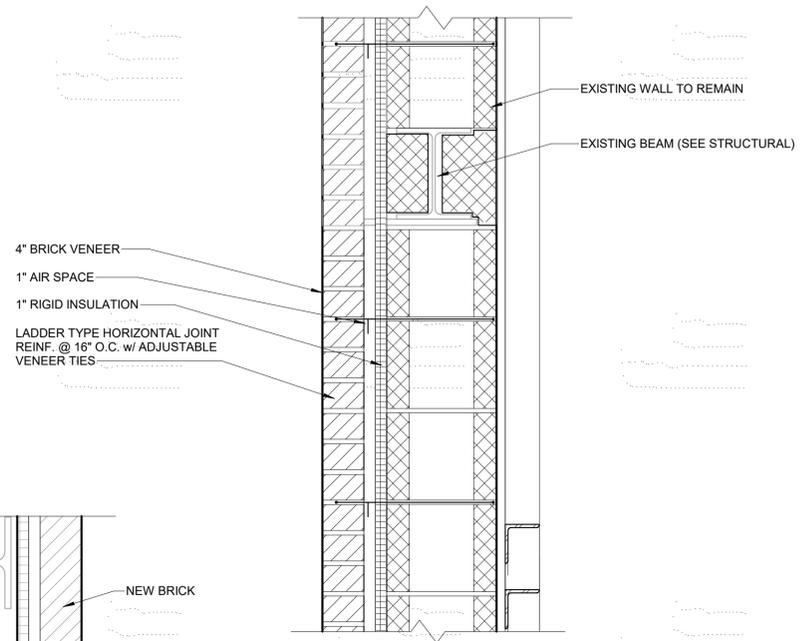
**D TOP OF INTERIOR WALL**  
A-105 SCALE: 1 1/2" = 1'-0"



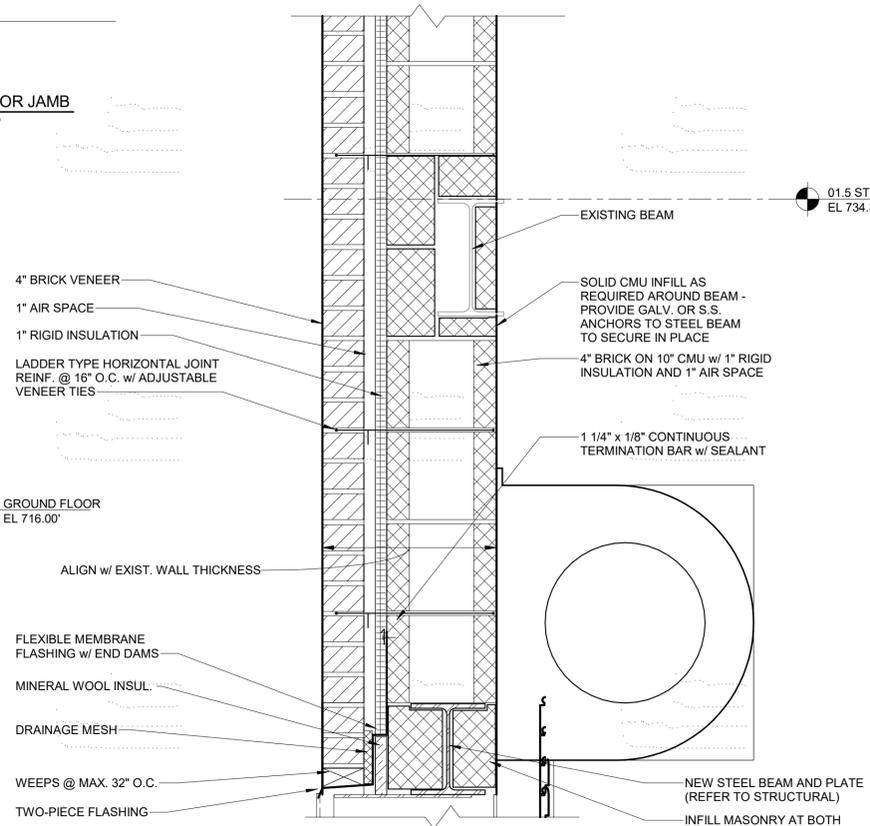
**C OVERHEAD DOOR JAMB**  
A-101 SCALE: 1 1/2" = 1'-0"



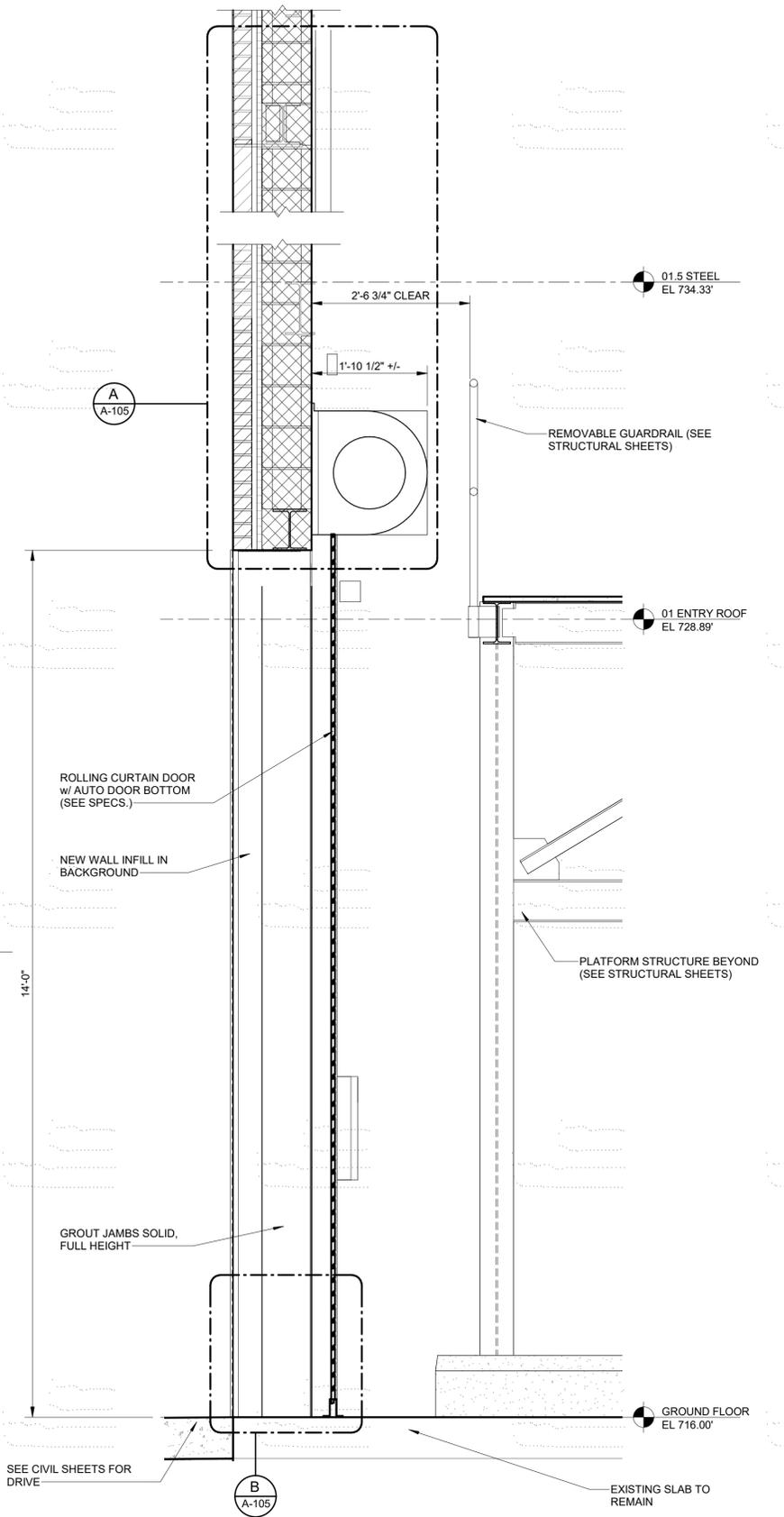
**B OVERHEAD DOOR SILL**  
A-105 SCALE: 1 1/2" = 1'-0"



**A OVERHEAD DOOR HEAD 1**  
A-105 SCALE: 1 1/2" = 1'-0"



**A OVERHEAD DOOR HEAD 2**  
A-105 SCALE: 1 1/2" = 1'-0"



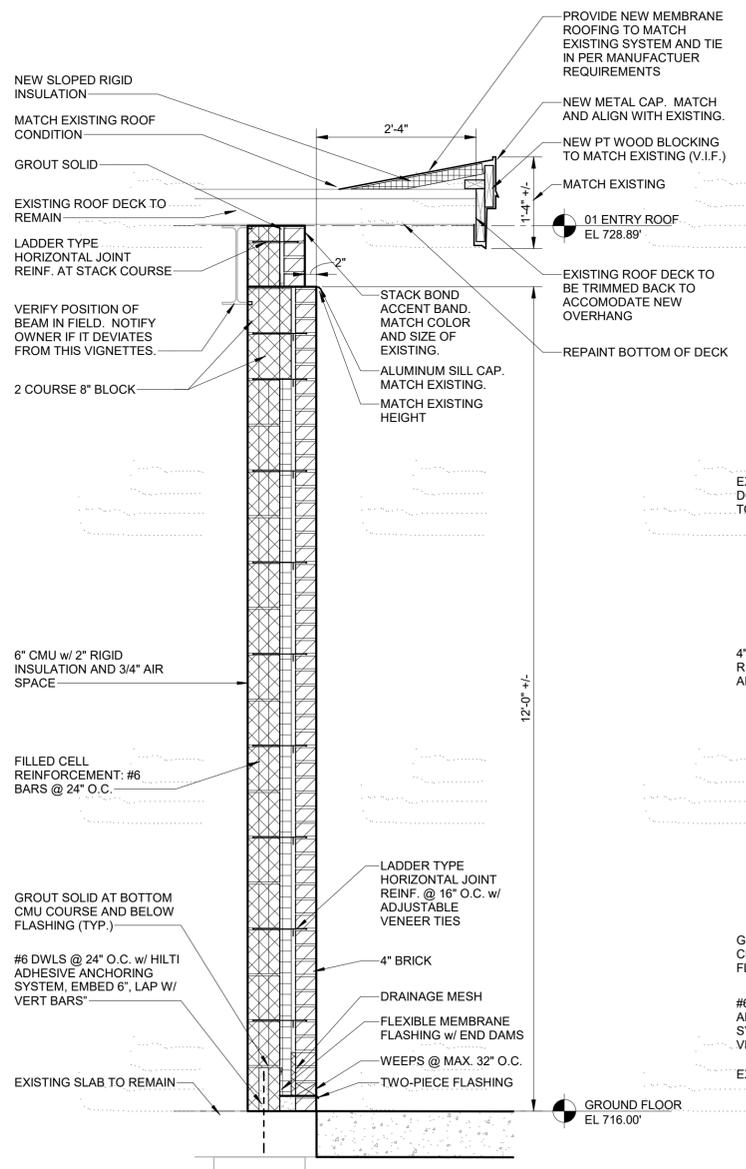
**1 OVERHEAD DOOR WALL SECTION 1**  
A-101 SCALE: 3/4" = 1'-0"

**3 INTERIOR WALL SECTION**  
A-104 SCALE: 3/4" = 1'-0"

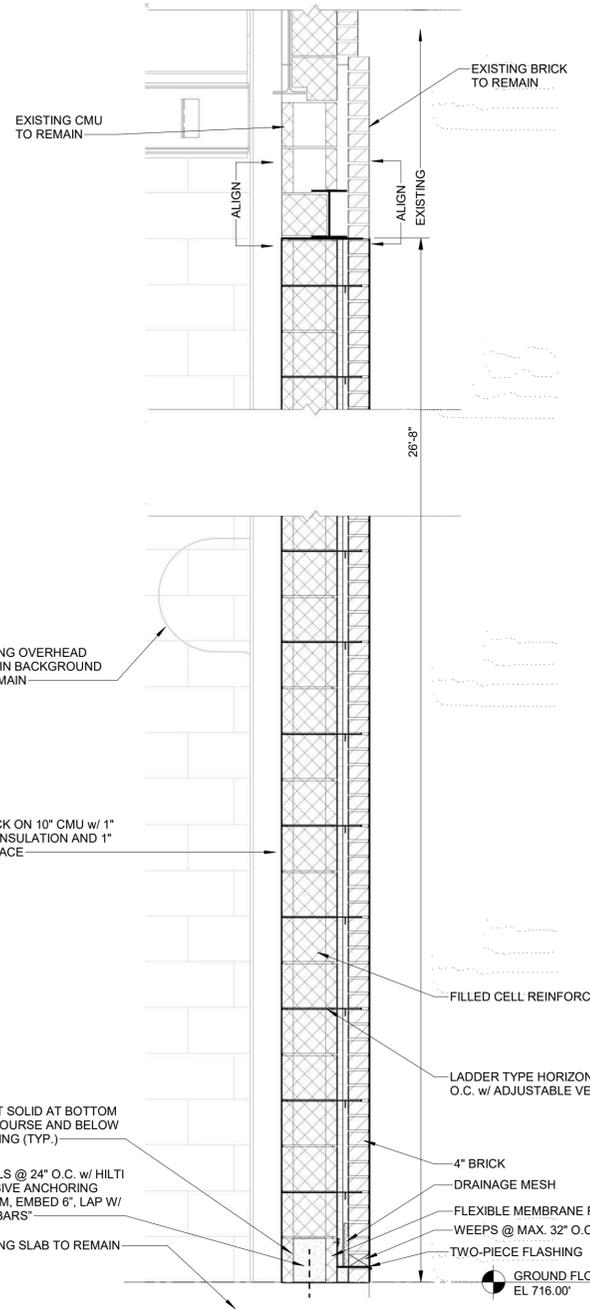
C:\Users\stark\Desktop\Flint\RDV\COF107201F\_WPC\Sludge-Dewatering-Improvements\_A-17.rvt PLOTTED: 5/22/2020 9:57:25 PM

	BY
	DATE
	REV#
	
	
555 South Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555/800.841.0342 FAX: 810.235.4975 www.wadetrिम.com	
	
HUBBELL, ROTH & CLARK, INC. CONSULTING ENGINEERS SINCE 1915 500 WEST BERRY BLOOMFIELD HILLS, MICH. 48304-1824 PHONE: (248) 654-9300 FAX (Out. Prov): (248) 654-9312 FAX (In. Prov): (248) 338-9302 WEB SITE: http://www.hrc-engr.com	
<b>CITY OF FLINT</b> 1101 SAGINAW STREET, FLINT, MICHIGAN 48502 <b>FLINT WASTE WATER TREATMENT PLANT</b> <b>SLUDGE DEWATERING IMPROVEMENTS</b> SECTIONS & DETAILS	
ISSUED FOR: DATE: BY: 90% REVIEW 03-25-20 100% REVIEW 4-17-20 JA I/FB 6-1-20 JA	
JOB NO. <b>COF107201F</b>	
SHEET <b>A-105</b>	

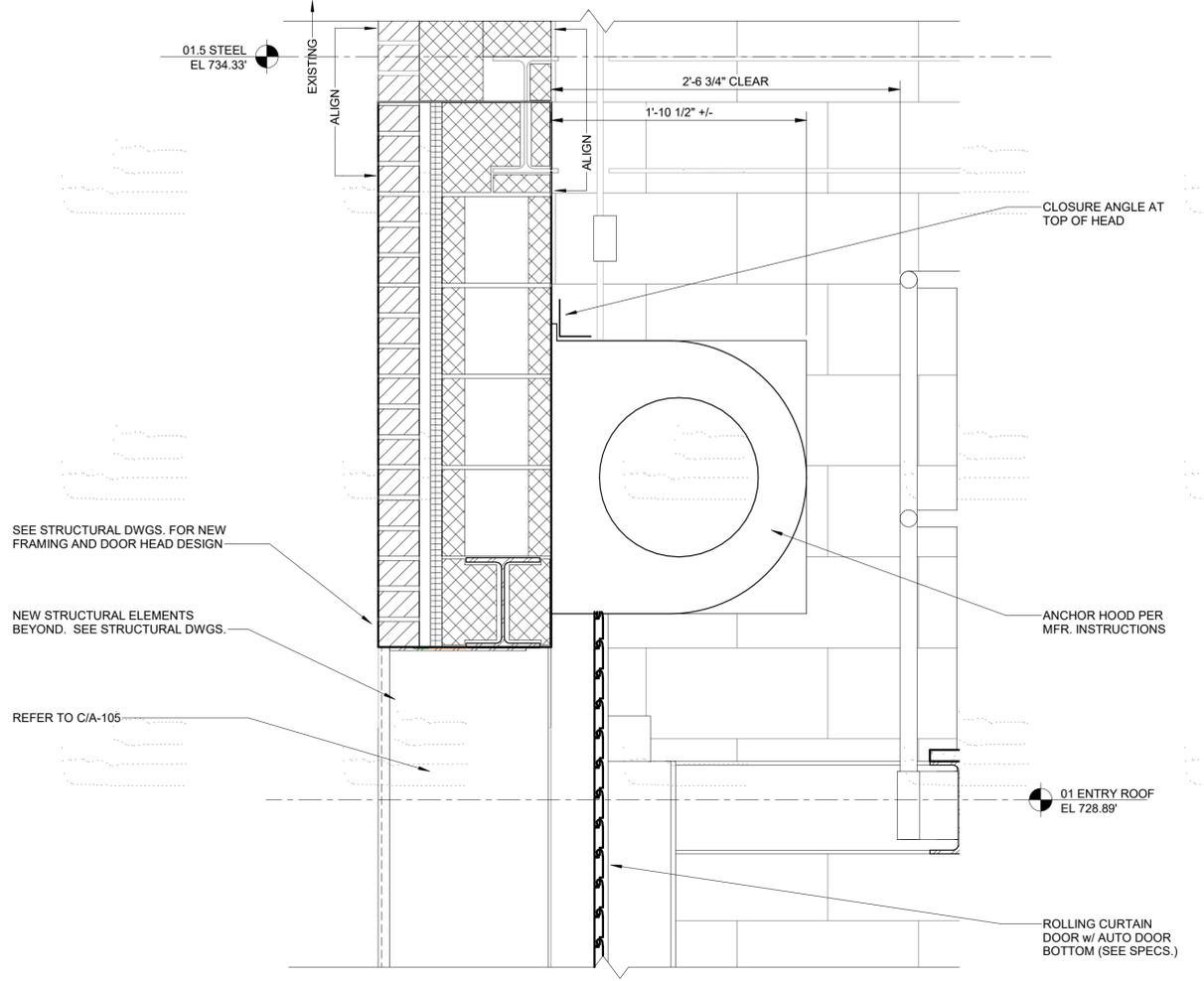
C:\Users\stark\Desktop\Flint\RDV\COF107201F\_WPC\Sludge-Dewatering-Improvements\_A-17.rvt PLOTTED: 5/22/2020 9:57:28 PM



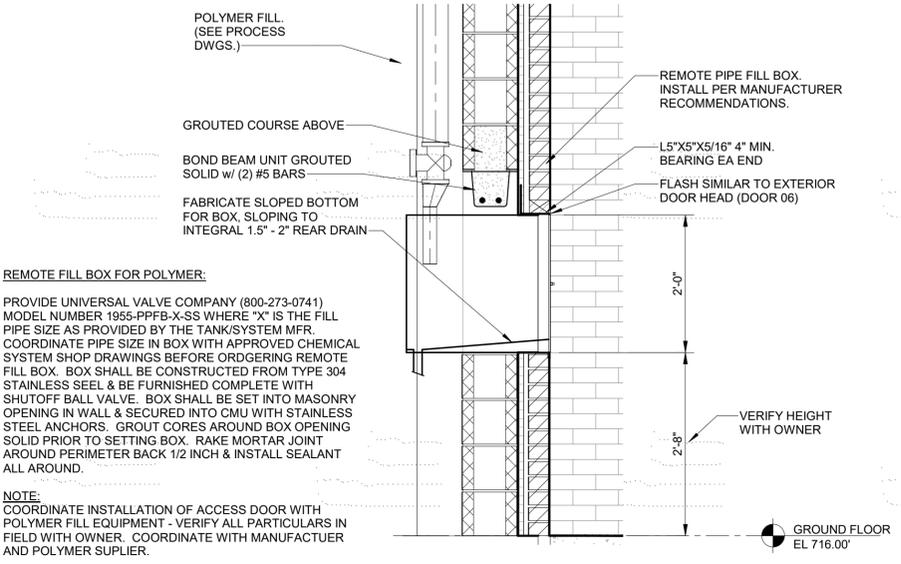
**4 CONTROL ROOM WALL**  
A-101 SCALE: 3/4" = 1'-0"



**3 WINDOW INFILL**  
A-104 SCALE: 3/4" = 1'-0"



**1 OVERHEAD HEAD 2**  
A-104 SCALE: 1 1/2" = 1'-0"



**2 STEEL ACCESS DOOR SECTION**  
A-101 SCALE: 3/4" = 1'-0"

**REMOTE FILL BOX FOR POLYMER:**  
PROVIDE UNIVERSAL VALVE COMPANY (800-273-0741) MODEL NUMBER 1955-PPFB-X-SS WHERE "X" IS THE FILL PIPE SIZE AS PROVIDED BY THE TANK/SYSTEM MFR. COORDINATE PIPE SIZE IN BOX WITH APPROVED CHEMICAL SYSTEM SHOP DRAWINGS BEFORE ORDERING REMOTE FILL BOX. BOX SHALL BE CONSTRUCTED FROM TYPE 304 STAINLESS SEEL & BE FURNISHED COMPLETE WITH SHUTOFF BALL VALVE. BOX SHALL BE SET INTO MASONRY OPENING IN WALL & SECURED INTO CMU WITH STAINLESS STEEL ANCHORS. GROUT CORES AROUND BOX OPENING SOLID PRIOR TO SETTING BOX. RAKE MORTAR JOINT AROUND PERIMETER BACK 1/2 INCH & INSTALL SEALANT ALL AROUND.

**NOTE:**  
COORDINATE INSTALLATION OF ACCESS DOOR WITH POLYMER FILL EQUIPMENT - VERIFY ALL PARTICULARS IN FIELD WITH OWNER. COORDINATE WITH MANUFACTURER AND POLYMER SUPPLIER.

REV#	DATE	DESCRIPTION	BY



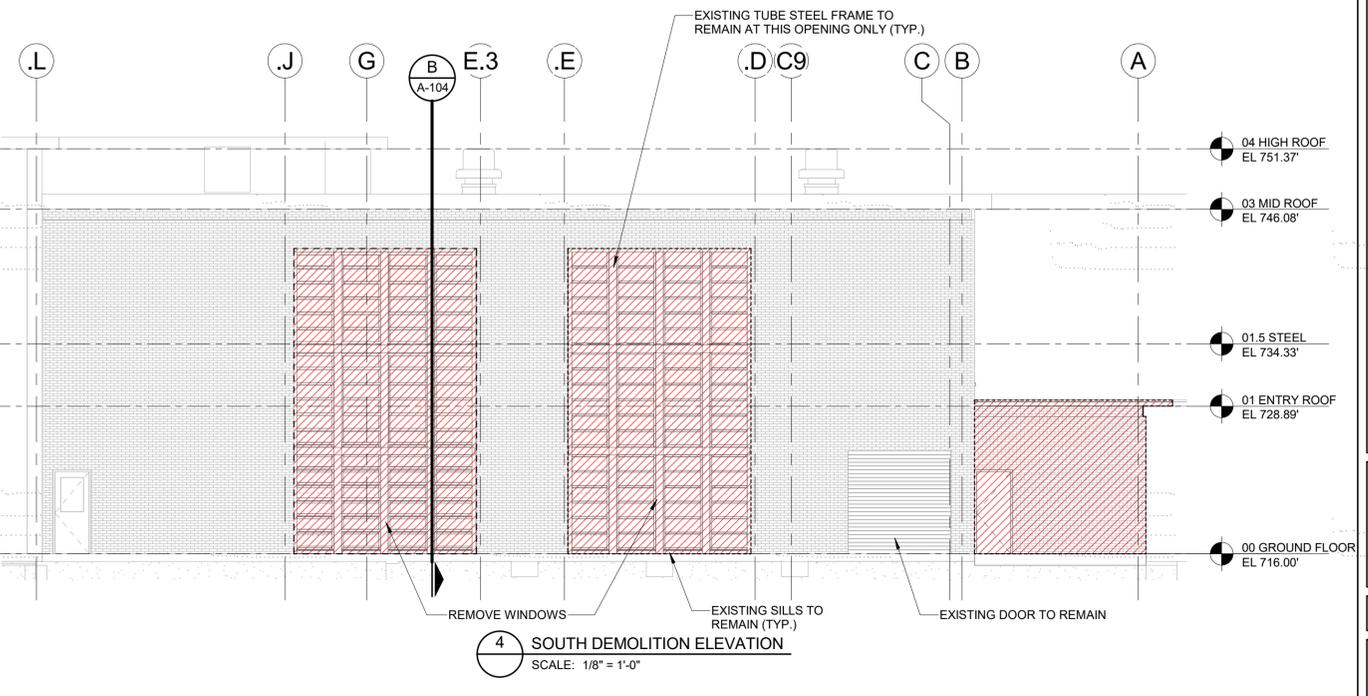
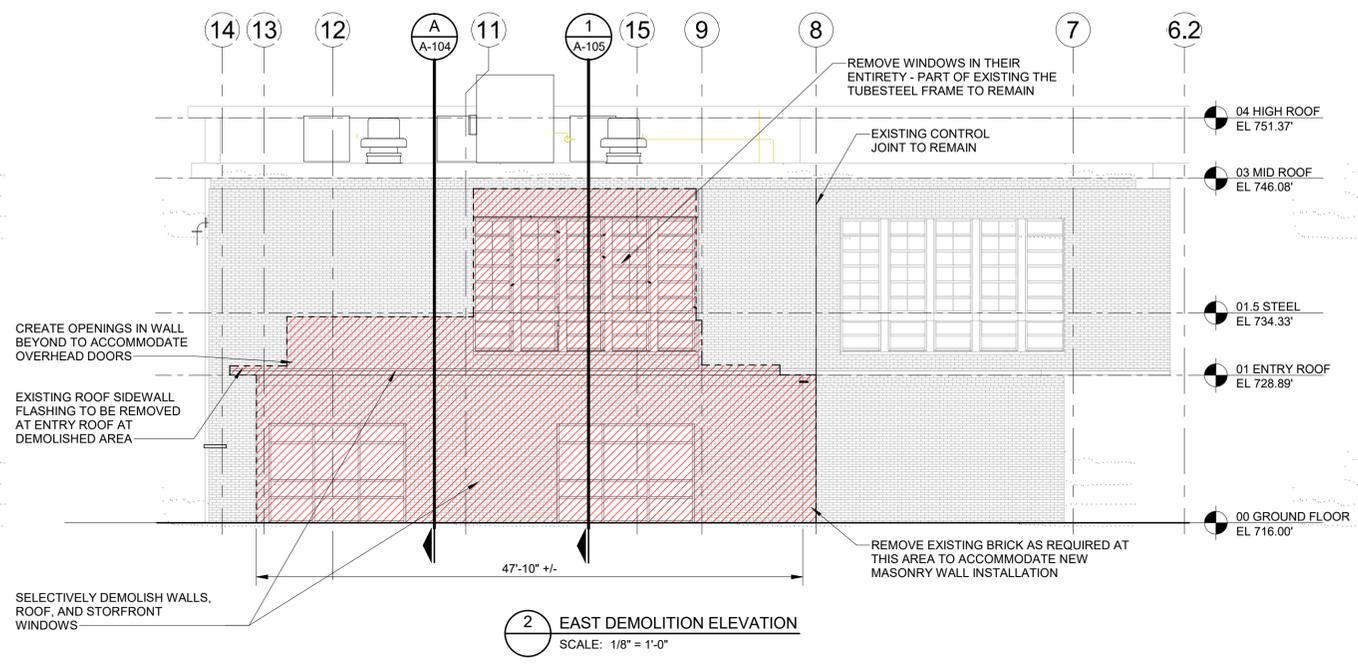
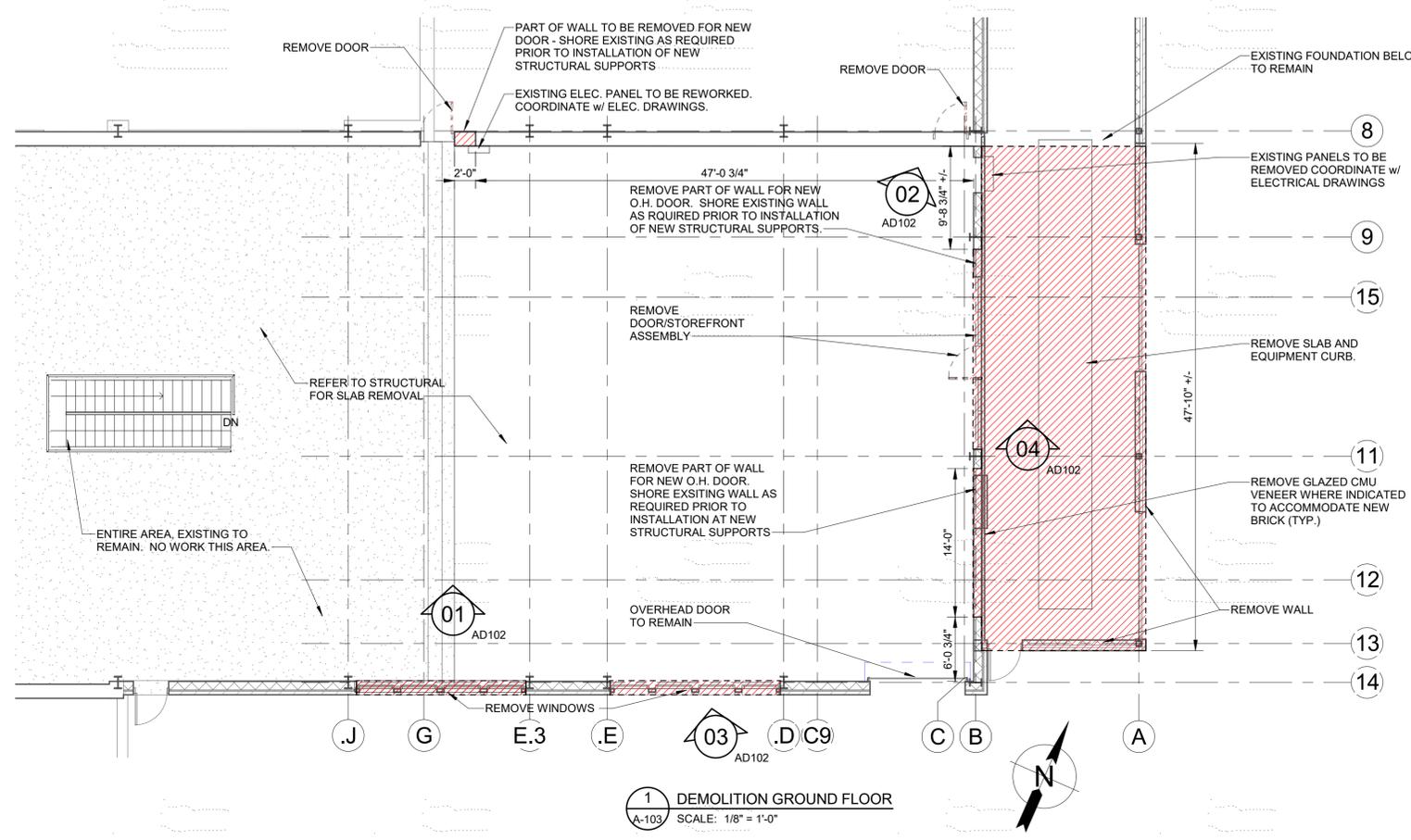
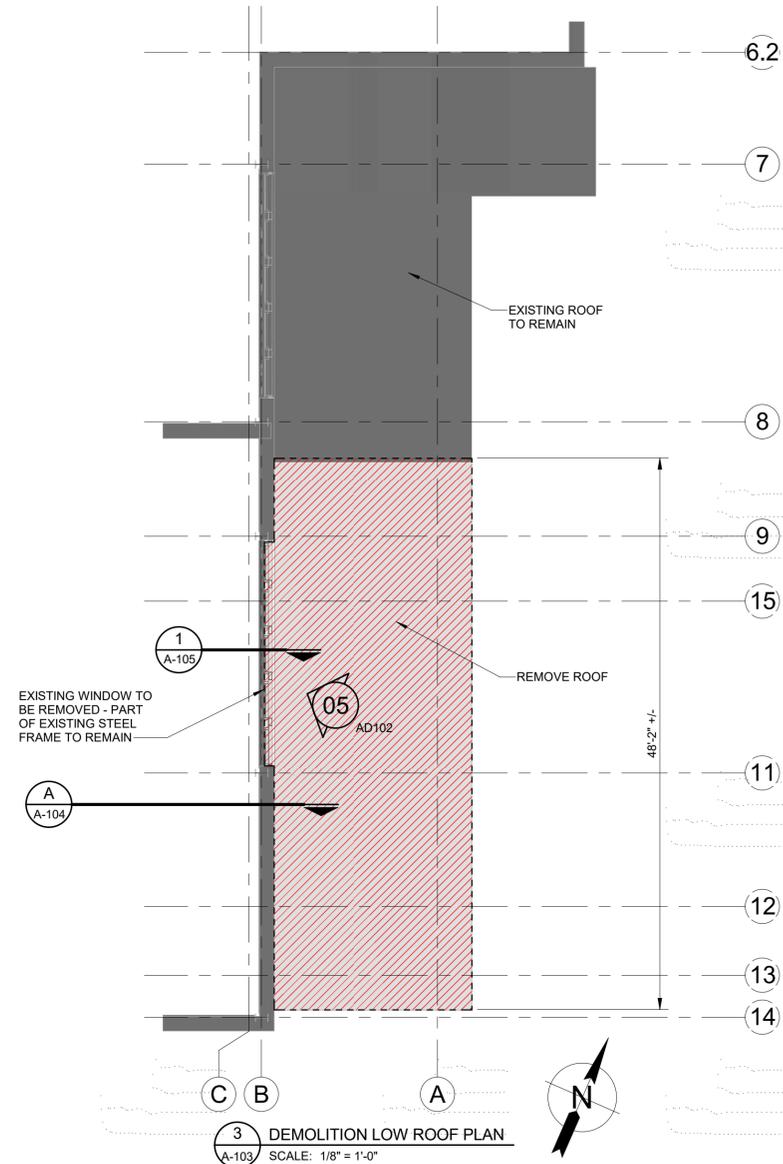
**CITY OF FLINT**  
 1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
**FLINT WASTE WATER TREATMENT PLANT**  
**SLUDGE DEWATERING IMPROVEMENTS**  
**SECTIONS & DETAILS**

ISSUED FOR:	DATE:	BY:
90% REVIEW	03-25-20	JA
100% REVIEW	4-17-20	JA
IFB	6-1-20	JA

JOB NO.  
**COF107201F**

SHEET  
**A-106**

© Wade Trim Group, Inc.



C:\Users\stark\Desktop\Final\RDV\COF107201F\_WPC\_Sludge-Dewatering-Improvements\_A-17.rvt PLOTTED: 5/22/2020 9:57:31 PM

REV#	DATE	DESCRIPTION	BY



CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
DEMOLITION

ISSUED FOR: DATE: BY:  
90% REVIEW 03-25-20  
100% REVIEW 4-17-20 JA  
IFB 6-1-20 JA

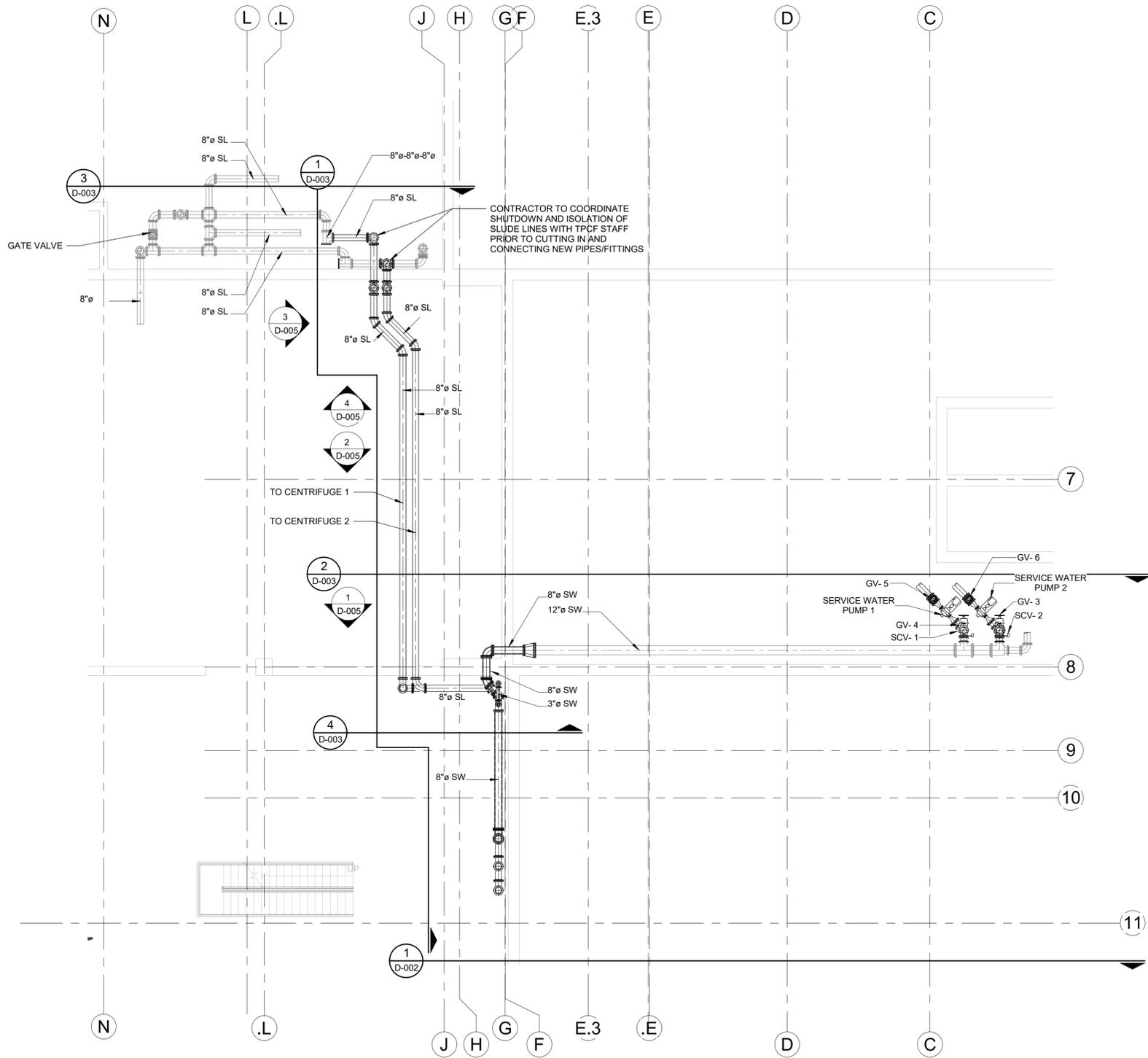
JOB NO.  
COF107201F

SHEET  
AD-101

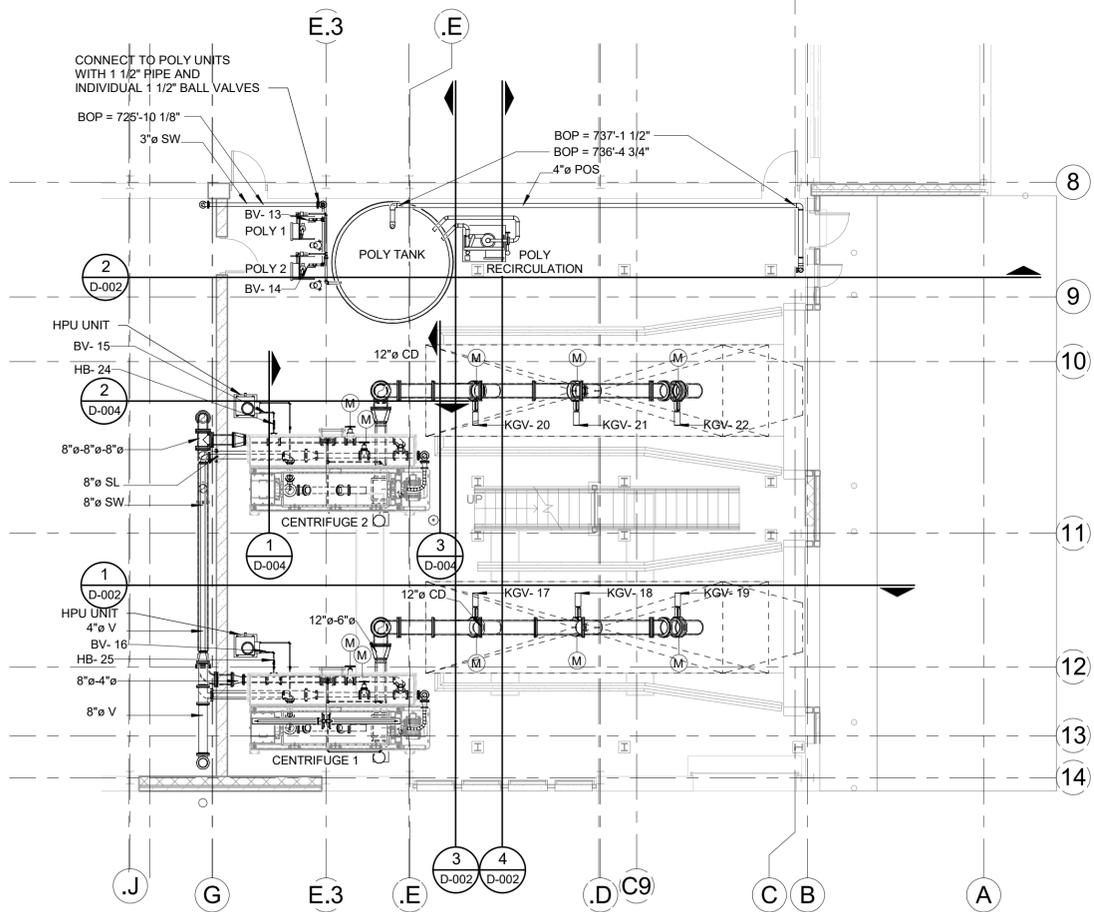
© Wade Trim Group, Inc.







**001 LOWER LEVEL PROCESS**  
SCALE: 1/8" = 1'-0"



**01 GROUND FLOOR PROCESS**  
SCALE: 1/8" = 1'-0"

NOTES:  
ALL REDUCERS ON SLUDGE LINES, CAKE LINES, AND SERVICE WATER LINES SHALL BE ECCENTRIC (TOPS FLAT).  
ALL ELBOWS ON SLUDGE AND CAKE PIPING SHALL BE LONG RADIUS

PLOTTED 2020.05.25 1:45:27 PM

V:\0298348\COF\07201E\_WPC-Sludge-Dewatering-Improvements\_D-17.rvt

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrtrim.com

**HRC HUBBELL, ROTH & CLARK, INC.**  
CONSULTING ENGINEERS SINCE 1915  
500 WEST BERRY  
BLOOMFIELD HILLS, MICH. P.O. BOX 65  
48302 - 0824  
PHONE: (248) 654-6300  
FAX (Toll Free): (248) 654-6312  
FAX (On Site): (248) 338-0302  
WEB SITE: http://www.hrc-corp.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
PLAN VIEWS

ISSUED FOR:	DATE:	BY:
90% REVIEW	03/25/2020	TH
100% REVIEW	04/17/2020	TH
IFB	06/01/2020	TH

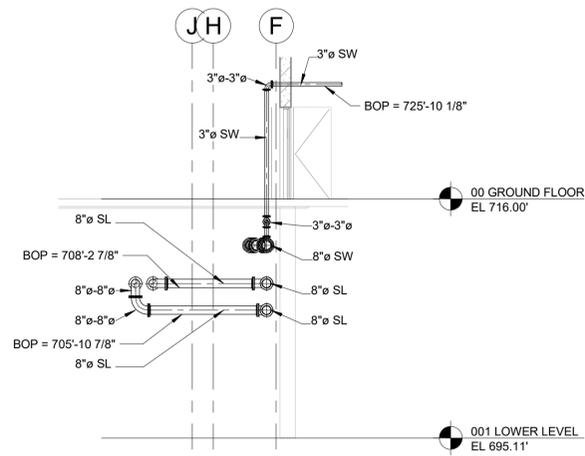
JOB NO.  
**COF107201F**

SHEET  
**D-001**

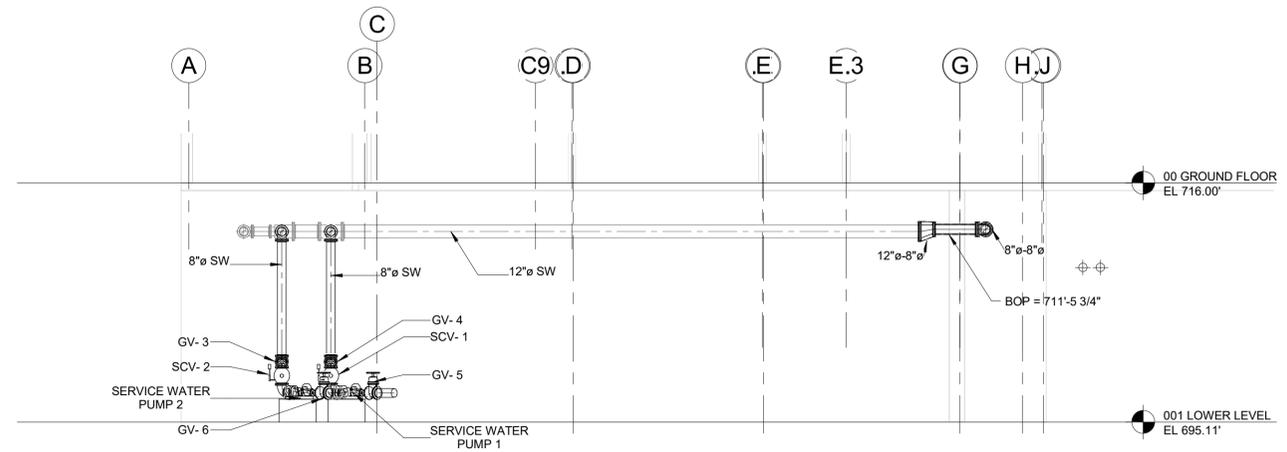


© Wade Trim Group, Inc.

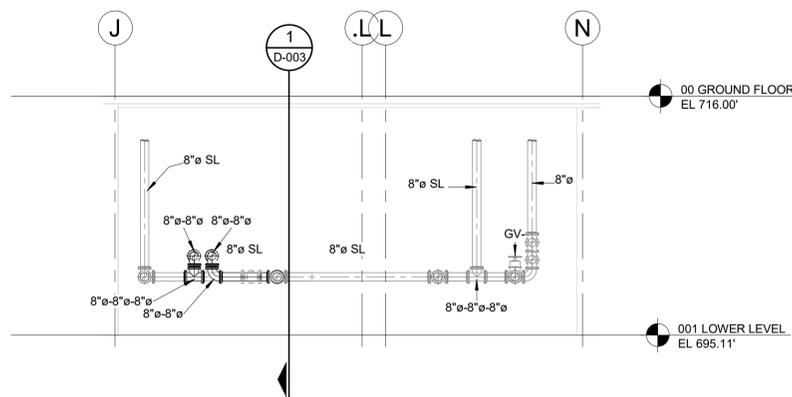




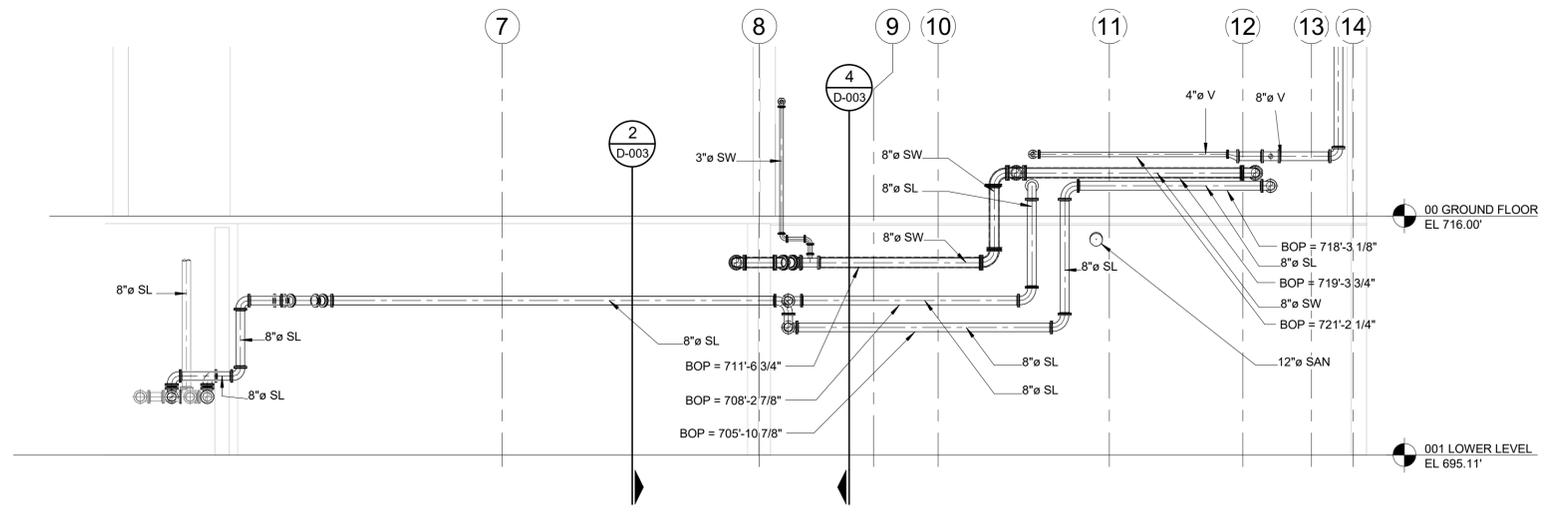
**4 WALL PENETRATION DETAIL**  
D-001 SCALE: 1/8" = 1'-0"



**2 NEW SERVICE WATER PUMP CONNECTION**  
D-001 SCALE: 1/8" = 1'-0"



**3 EXISTING TIE IN LOCATION**  
D-001 SCALE: 1/8" = 1'-0"



**1 NEW CONNECTION PIPING**  
D-001 SCALE: 1/8" = 1'-0"

**NOTES:**

- ALL REDUCERS ON SLUDGE LINES, CAKE LINES, AND SERVICE WATER LINES SHALL BE ECCENTRIC (TOPS FLAT).
- ALL ELBOWS ON SLUDGE AND CAKE PIPING SHALL BE LONG RADIUS



REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
610.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC HUBBELL, ROTH & CLARK, INC.**  
CONSULTING ENGINEERS SINCE 1915  
200 WEST BERRY  
BLOOMFIELD HILLS, MICH. 48304-0824  
PHONE: (248) 654-9300  
FAX (Toll Free): (248) 654-9312  
FAX (On Site): (248) 338-2392  
WEB SITE: http://www.hrc-corp.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
LOWER LEVEL SECTION VIEWS

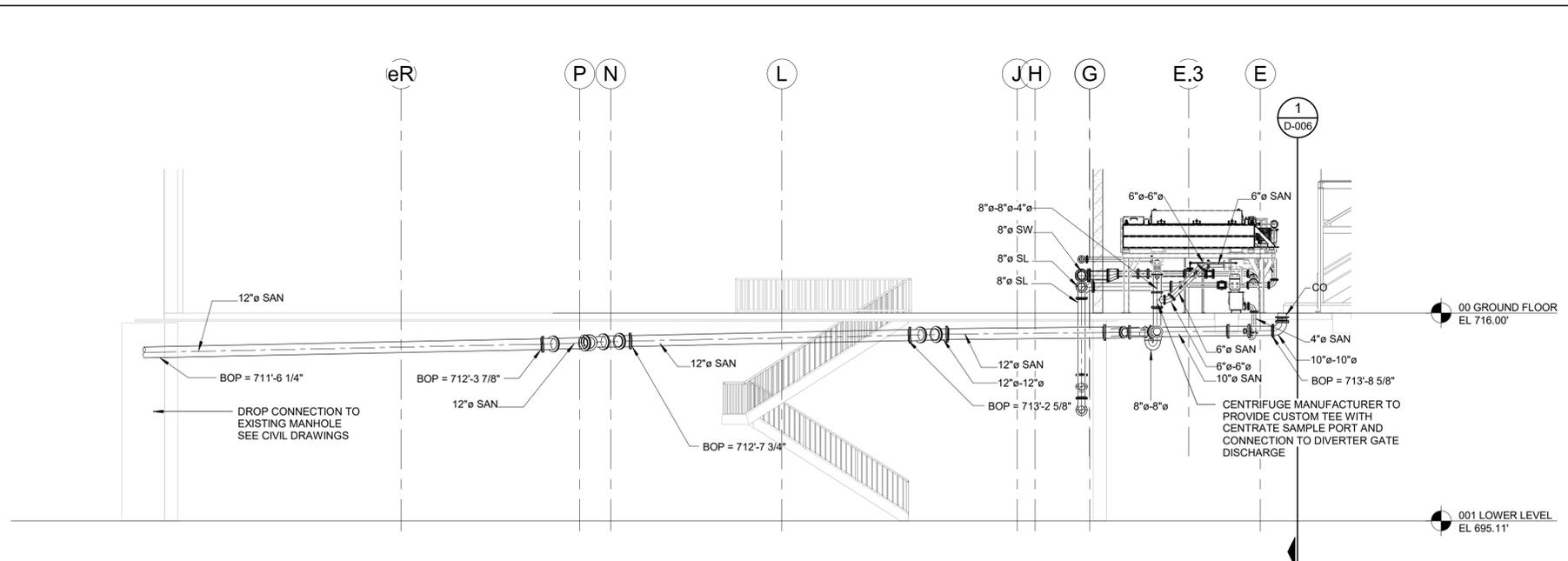
ISSUED FOR:	DATE:	BY:
90% REVIEW	03/25/2020	TH
100% REVIEW	04/17/2020	TH
IFB	06/01/2020	TH

JOB NO.  
**COF107201F**

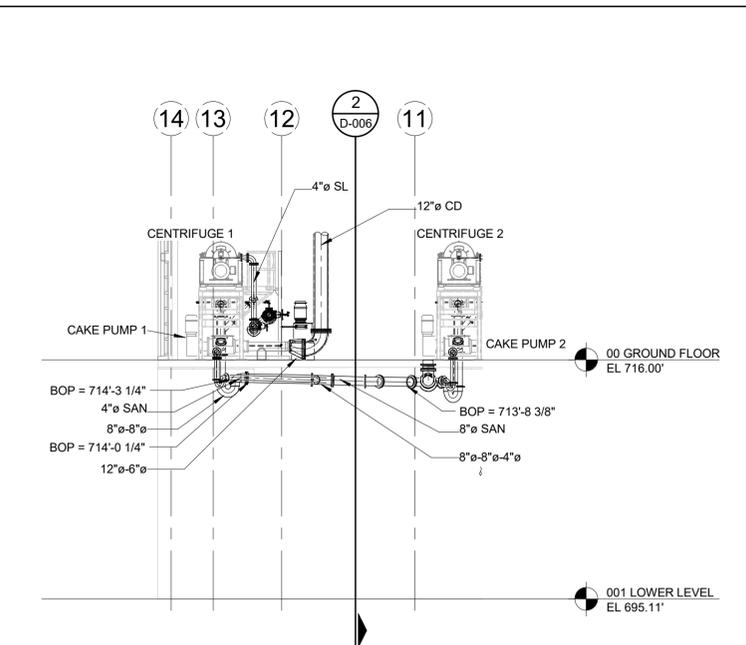
SHEET  
**D-003**



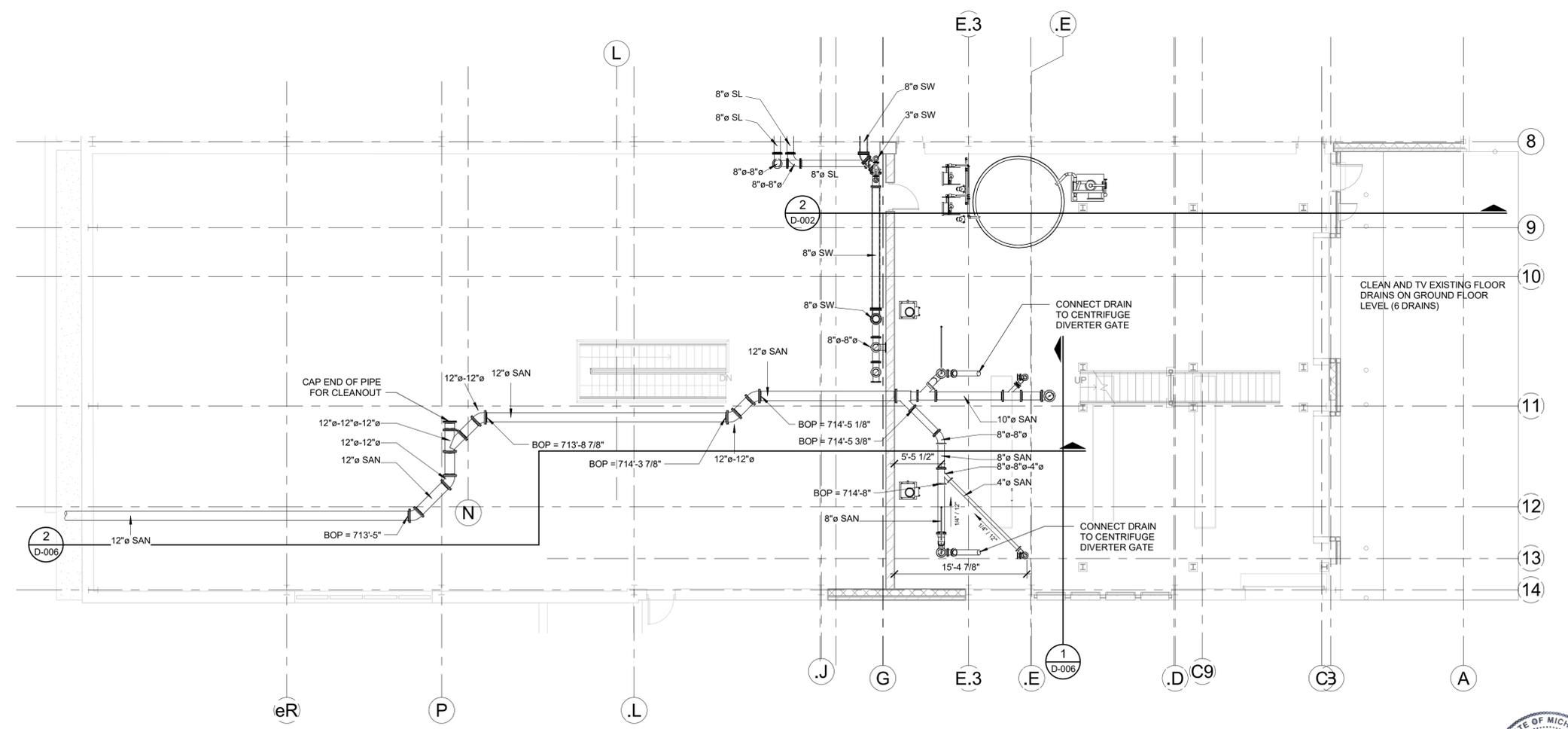




**2 DRAIN DETAIL SECTION 2**  
D-006 SCALE: 1/8" = 1'-0"



**1 DRAIN DETAIL SECTION 1**  
D-006 SCALE: 1/8" = 1'-0"



**01 GROUND FLOOR DRAIN PLAN**  
SCALE: 1/8" = 1'-0"



REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
610.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrtrim.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
300 WEST BERRY  
BLOOMFIELD HILLS, MICH. 48304-1824  
PHONE: (248) 654-6300  
FAX: (248) 654-6312  
FAX: (248) 338-0302  
WEB SITE: http://www.hrc-engr.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
DRAIN PIPING

ISSUED FOR:	DATE:	BY:
90% REVIEW	03/25/2020	TH
100% REVIEW	04/17/2020	TH
IFB	06/01/2020	TH

JOB NO.  
COF107201F

SHEET  
D-006

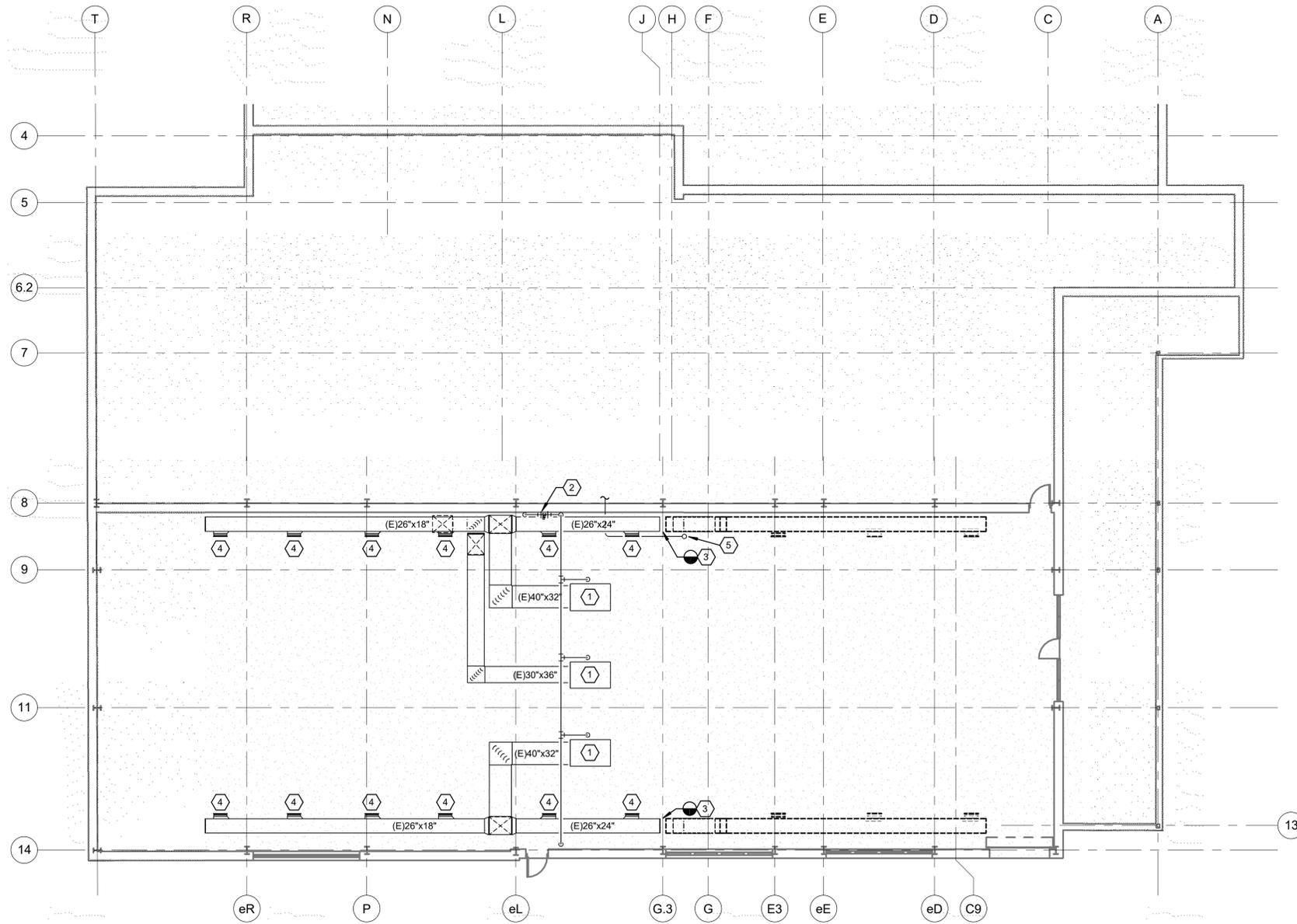
PLOTTED 2020.05.25 1:45:57 PM

V:\02989348\COF\107201F\_WPC-Sludge-Dewatering-Improvements\_D-17.rvt





**2 HVAC DUCTWORK DEMOLITION DETAILS**  
SCALE: NONE



**1 HVAC DEMOLITION PLAN**  
SCALE: 3/32" = 1'-0"

**DEMOLITION NOTES**

1. IN EVERY INSTANCE OF DEMOLITION AND/OR REMODELING, THE CONTRACTOR SHALL FIGURE A COMPLETE JOB AS NONE OTHER SHALL BE ACCEPTED.
2. THE DRAWINGS ARE TO BE USED ONLY AS A GUIDELINE FOR DEMOLITION. THE CONTRACTOR MUST VISIT THE SITE PRIOR TO BIDDING TO VERIFY ALL WORK REQUIRED FOR A COMPLETE JOB & INCLUDE THE COST OF SUCH WORK IN HIS BID.
3. THE CONTRACTOR SHALL MAINTAIN EXISTING SERVICES TO & IN THE EXISTING AREA AS REQUIRED.
4. IF NECESSARY, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES IN THE EXISTING AREAS.
5. ANY MECHANICAL EQUIPMENT & DEVICES SHOWN AS BEING REMOVED SHALL BE REMOVED COMPLETE INCLUDING SUPPORTING STEEL AND TEMPERATURE CONTROLS.
6. ALL WALLS, CEILINGS, FLOORS, ETC., BEING DISTURBED BY THE WORK SHALL BE RETURNED TO FINISHED CONDITIONS TO MATCH EXISTING BY THE CONTRACTOR & HE SHALL DO HIS OWN CUTTING & PATCHING AS NECESSARY UNDER HIS CONTRACT.
7. EXISTING EQUIPMENT AND MATERIALS SHALL BE TURNED OVER TO THE OWNER. IF NOT REQUIRED BY OWNER, THE CONTRACTOR SHALL REMOVE SAID EQUIPMENT AND MATERIALS FROM THE PREMISES DISPOSE OF IN A LEGAL MANNER.

**SHEET KEYNOTES**

1. EXISTING AIR HANDLING UNIT ON MEZZANINE TO REMAIN.
2. EXISTING PRESSURE REDUCING VALVE AND ASSOCIATED NATURAL GAS PIPING ON MEZZANINE TO REMAIN.
3. REMOVE EXISTING DUCTWORK AND ASSOCIATED DIFFUSERS BEYOND NEW DEMISING WALL AND CAP.
4. EXISTING GRILLES TO REMAIN.
5. EXISTING 12" PIPE TO REMAIN.

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2558/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com



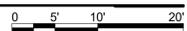
CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
HVAC DEMOLITION PLAN

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20B GK	
90% REVIEW	3/20/20B GK	
100% REVIEW	4/17/20B GK	
IFB	6/1/20 BCK	



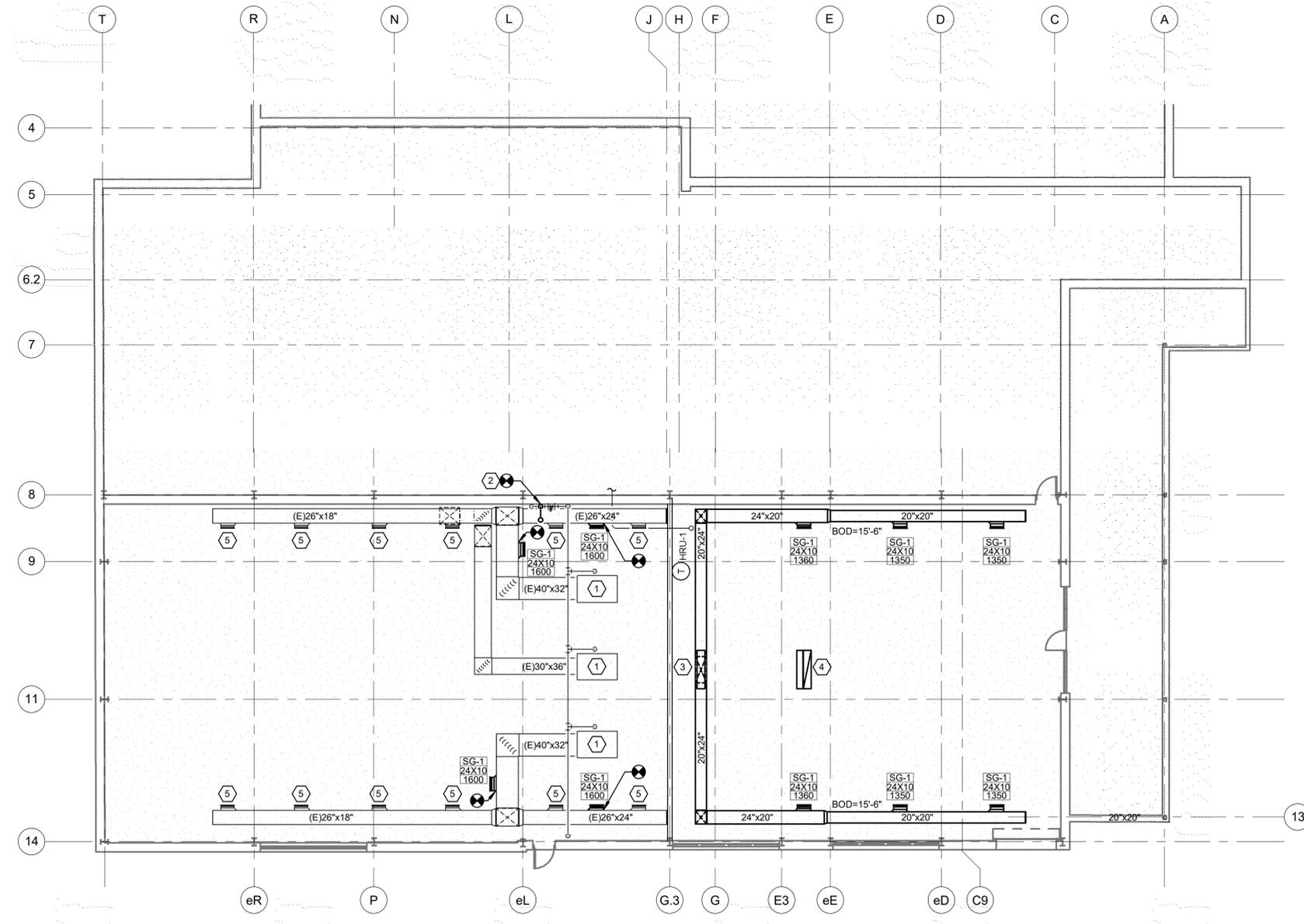
JOB NO.  
**COF107201F**

SHEET  
**MD-101**



C:\Users\morris\Documents\100670000 - Flint Dewatering Improvements - W17\_Architect\2-A.rvt PLOTTED: 5/21/2020 8:16:29 AM

C:\Users\morrison\Documents\100190670000 - Flint Dewatering Improvements -  
 W17\_Architect\2-A.rvt PLOTTED: 5/21/2020 8:18:21 AM



**1 HVAC FLOOR PLAN**  
 SCALE: 3/32" = 1'-0"

**GENERAL NOTES**

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS.
2. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
3. THE CONTRACTOR SHALL COORDINATE FLOOR, WALL AND ROOF PENETRATIONS, LOUVER SIZES, ETC. WITH GENERAL TRADES.
4. THE CONTRACTOR SHALL VERIFY ALL CLEARANCES PRIOR TO FABRICATION OF ANY WORK.
5. DUCTWORK SHALL NOT BE LOCATED OVER THE TOP OF ANY ELECTRICAL PANELS OR EQUIPMENT.
6. ALL MECHANICAL EQUIPMENT, PIPING, VALVES, DAMPERS, SMOKE DETECTORS ETC. WHICH REQUIRE ROUTINE MAINTENANCE OR INSPECTION SHALL BE INSTALLED WITHIN 7FT OF THE FINISHED FLOOR OR PLATFORM.

**SHEET KEYNOTES**

1. EXISTING AIRHANDLING UNIT ON MEZZANINE TO REMAIN. CONNECT NEW 3/4" NATURAL GAS TO 5 PSI SIDE OF REGULATOR. PROVIDE NEW SERVICE VALVE AT NEW CONNECTION AND ROUTE LINE UP THRU ROOF.
2. TRANSITION 70X14 HRU-1 CONNECTION DOWN TO 40X20 VERTICAL SUPPLY AIR DUCT. SPLIT VERTICAL MAIN WITH TURNING VANES.
3. 70X14 RETURN AIR DUCT WITH TURNING VANES UP TO HRU-1 CONNECTION. COVER OPENING WITH 16 GA. GALVANIZED WELDED WIRE SCREEN OVER OPENING. 1"x1" OPENINGS. REBALANCE EXISTING DIFFUSER TO 1550 CFM.

**GAS PIPING SIZING**

NATURAL GAS PIPING IS BASED ON 2015 IFGC, FOR 5 PSI. GAS AT 92 FEET TOTAL DEVELOPED LENGTH.

REV#	DATE	DESCRIPTION	BY



CITY OF FLINT  
 1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
 FLINT WASTE WATER TREATMENT PLANT  
 SLUDGE DEWATERING IMPROVEMENTS  
 HVAC FLOOR PLAN

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20B GK	
90% REVIEW	3/20/20B GK	
100% REVIEW	4/17/20B GK	
IFB	6/1/20 BCK	



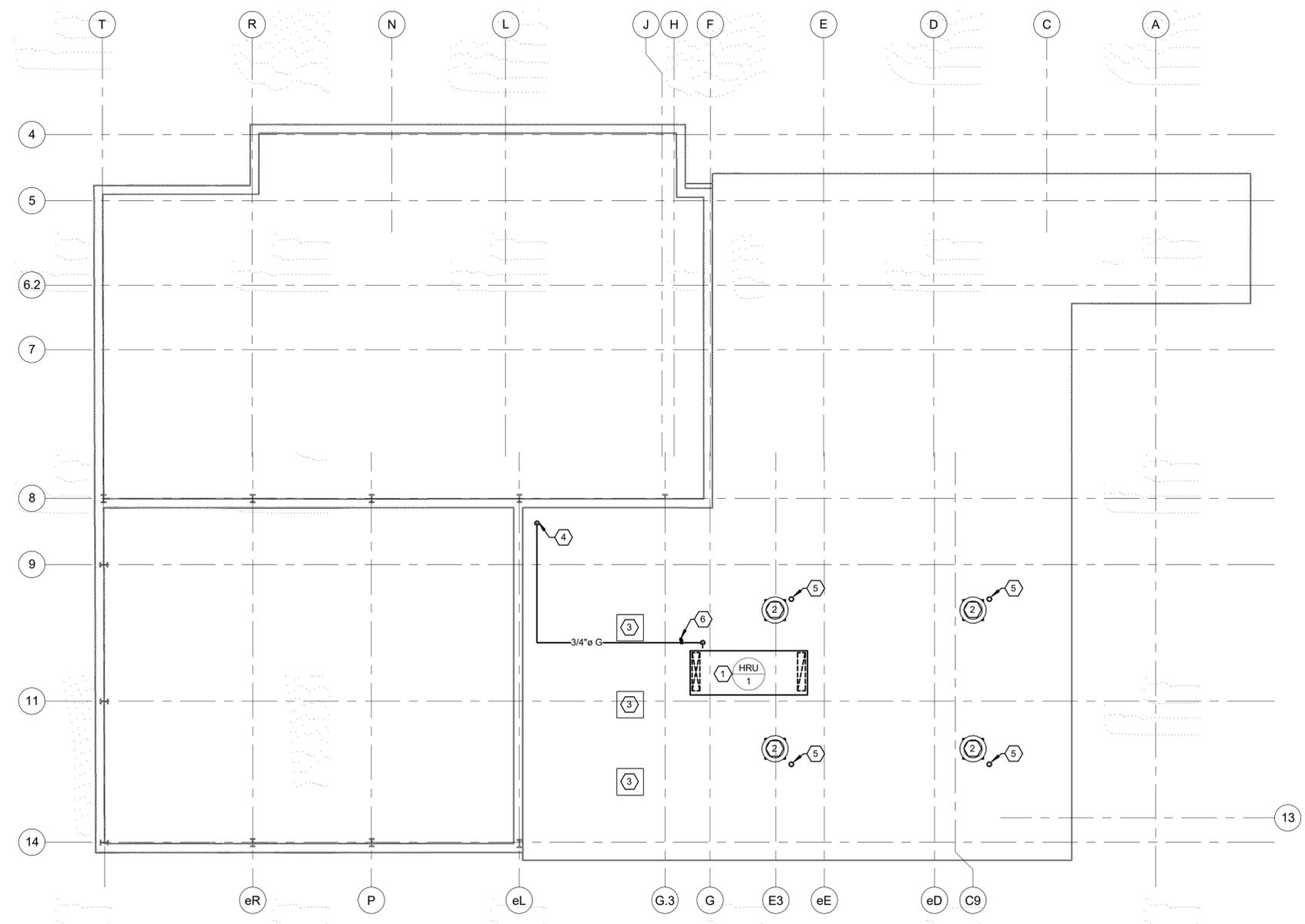
JOB NO.  
**COF107201F**

SHEET  
**M-101**

© Wade Trim Group, Inc.

C:\Users\amorris\Documents\100670000 - Flint Dewatering Improvements -  
 111\_Amorris\2-A-VI  
 PLOTTED: 5/21/2020 8:18:24 AM

**1 HVAC ROOF PLAN**  
 SCALE: 3/32" = 1'-0"



**GENERAL NOTES**

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS.
2. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
3. THE CONTRACTOR SHALL COORDINATE FLOOR, WALL AND ROOF PENETRATIONS, LOUVER SIZES, ETC. WITH GENERAL TRADES.
4. THE CONTRACTOR SHALL VERIFY ALL CLEARANCES PRIOR TO FABRICATION OF ANY WORK.
5. DUCTWORK SHALL NOT BE LOCATED OVER THE TOP OF ANY ELECTRICAL PANELS OR EQUIPMENT.
6. ALL MECHANICAL EQUIPMENT, PIPING, VALVES, DAMPERS, SMOKE DETECTORS ETC. WHICH REQUIRE ROUTINE MAINTENANCE OR INSPECTION SHALL BE INSTALLED WITHIN 7FT OF THE FINISHED FLOOR OR PLATFORM.

**SHEET KEYNOTES**

1. INSTALL NEW HEAT RECOVERY UNIT, HRU-1, ON NEW ROOF CURB.
2. EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE.
3. EXISTING MAKE UP AIR UNITS TO REMAIN.
4. 3/4" 5 PSI NATURAL GAS UP FROM MEZZANINE BELOW.
5. EXISTING ROOF DRAIN.
6. GAS PRESSURE REGULATOR, 5 PSI INLET AND 7" CW OUTLET, 1,000 CFH.

**GAS PIPING SIZING**

NATURAL GAS PIPING IS BASED ON 2015 IFGC, FOR 5 PSI. GAS AT 92 FEET TOTAL DEVELOPED LENGTH.

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
 555 South Saginaw Street, Suite 201  
 Flint, MI 48502  
 810.235.2556/800.841.0342  
 FAX: 810.235.4975  
 www.wadetrिम.com



CITY OF FLINT  
 1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
 FLINT WASTE WATER TREATMENT PLANT  
 SLUDGE DEWATERING IMPROVEMENTS  
 HVAC ROOF PLAN

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20B GK	
90% REVIEW	3/20/20B GK	
100% REVIEW	4/17/20B GK	
IFB	6/1/20 BCK	



JOB NO.  
**COF107201F**

SHEET  
**M-102**

© Wade Trim Group, Inc.

### HEAT RECOVERY UNIT (GAS) SCHEDULE

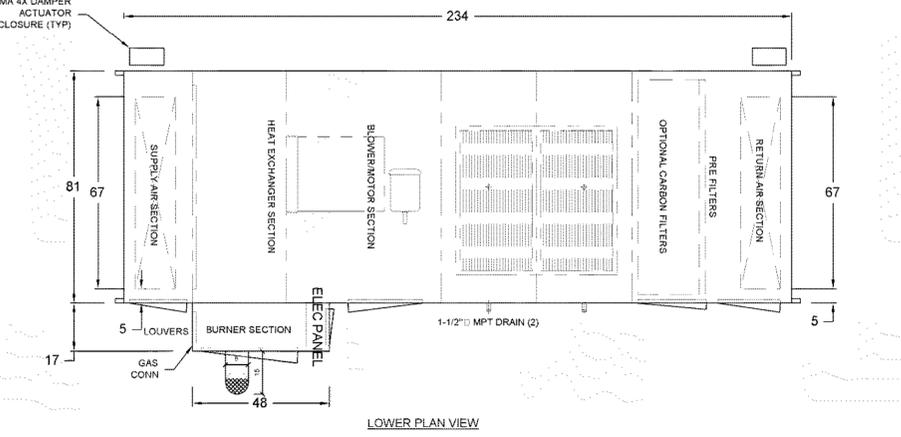
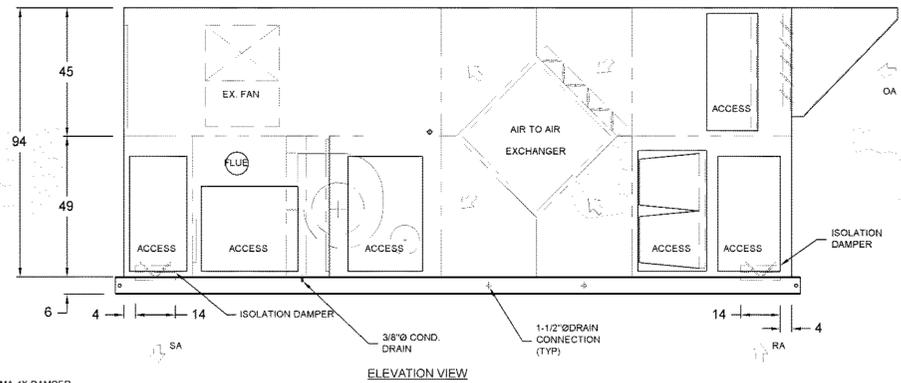
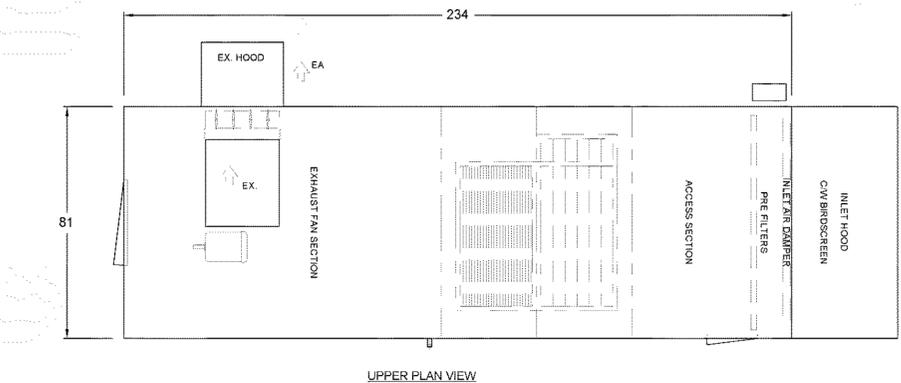
GENERAL				SUPPLY FAN			EXHAUST FAN			ELECTRICAL DATA				HEAT PLATE DATA						HEATING DATA				WEIGHT (LBS)	UNIT SELECTION BASED ON:	NOTES			
MARK	LOCATION	UNIT TYPE	DISCHARGE POSITION	CFM	ESP IN. W.C.	MINIMUM MOTOR HP	CFM	ESP IN. W.C.	MINIMUM MOTOR HP	MCA	MOCP	FLA	UNIT VOLTAGE	HEATING						BURNER TYPE	GAS						TEMP RISE °F		
														TEMP EFF	OA EAT DB/WB °F	SA LAT °F	SAPD IN. W.C.	ENERGY RECOVERY MBH	RA EAT DB °F		EA LAT °F/RH%	EA PD IN. W.C.	INPUT MBH	OUTPUT MBH	PRESSURE IN. W.C.				
HRU-1	ROOF	CONSTANT VOLUME	VERTICAL	8120	0.75	7.5	8120	0.25	7.5	33.3	45	11.9	460/3/60	58%	-2/-3	38.4	0.85	351	65	28.1/100	0.91	INDIRECT (MODULATING)	1000	810	7	92	8,500	ENGINEERED AIR DJS100/O/MV/HRA	1-7

NOTES:

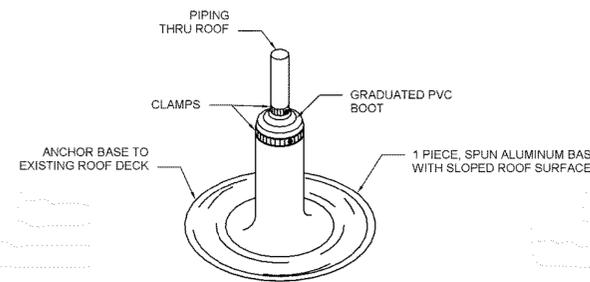
- PROVIDE 304 STAINLESS STEEL SCREWS, HARDWARE, ETC. EPOXY COATED FANS AND HOUSING
- HEAT PLATE TO HAVE CORROSION RESISTANT COATING.
- NEMA 4X ELECTRICAL COMPONENTS TO INCLUDE: CONTROL CABINET, DISCONNECT, VFDS, DAMPER ACTUATOR ENCLOSURES, & LOW LIMIT.
- WIRING TO BE THHN AND RUN IN ALUMINUM CONDUIT WITH LIQUID TIGHT FITTINGS.
- ALL BARE METAL NOT SS TO BE HERESITE OR EPOXY COATED.
- ALL SENSORS NOT PROTECTED TO BE HERESITE OR CONFORMAL COATED.

### AIR DISTRIBUTION DEVICE SCHEDULE

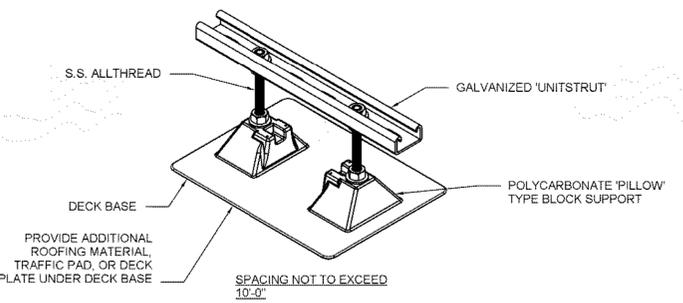
MARK	TYPE	FRAME TYPE	DAMPER TYPE	NOMINAL SIZE IN	UNIT SELECTION BASED ON:
SG-1	LOUVERED FACE	SURFACE-MOUNT	OPPOSED BLADE	24x10	TITUS 300FS



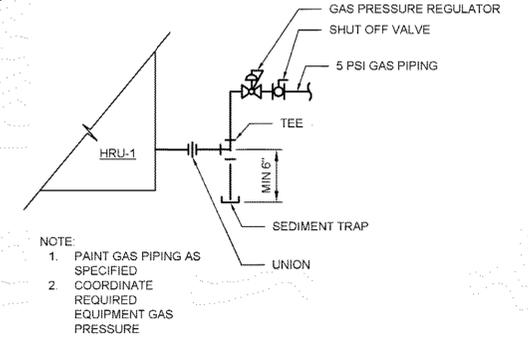
**3 HEAT RECOVERY UNIT SECTIONS**  
NOT TO SCALE



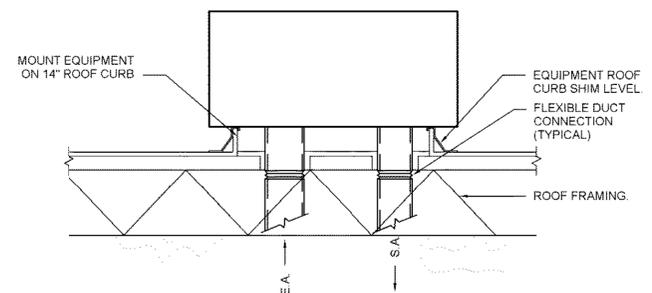
**6 SINGLE PIPE SEAL**  
NOT TO SCALE



**5 ROOF MOUNTED PIPE SUPPORT**  
NOT TO SCALE

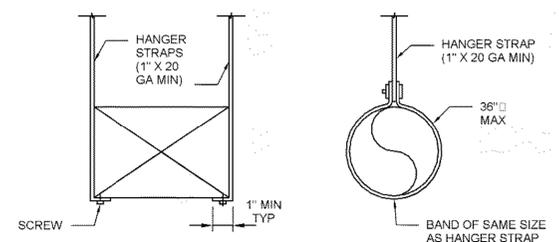


**2 GAS EQUIPMENT CONNECTION**  
NOT TO SCALE



- NOTES:
- HRU-1 INCLUDES UNIT MOUNTED RA SMOKE DETECTOR.
  - TRANSITION SUPPLY AND RETURN UNIT CONNECTION TO SIZES INDICATED ON PLANS.

**4 ROOFTOP UNIT INSTALLATION DETAIL**  
NOT TO SCALE



**1 DUCT HANGERS**  
NOT TO SCALE

C:\Users\normad\Documents\20190670000 - Flint Dewatering Improvements - R17 - 4/11/2019\25A.rvt PLOTTED: 5/21/2020 8:18:27 AM

DESCRIPTION	BY
DATE	REV#




**CITY OF FLINT**  
 1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
 FLINT WASTE WATER TREATMENT PLANT  
 SLUDGE DEWATERING IMPROVEMENTS  
 HVAC SCHEDULES AND DETAILS

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20B GK	
90% REVIEW	3/20/20B GK	
100% REVIEW	4/17/20B GK	
IFB	6/1/20 BCK	

JOB NO. **COF107201F**  
 SHEET **M-103**



**5-21-20**

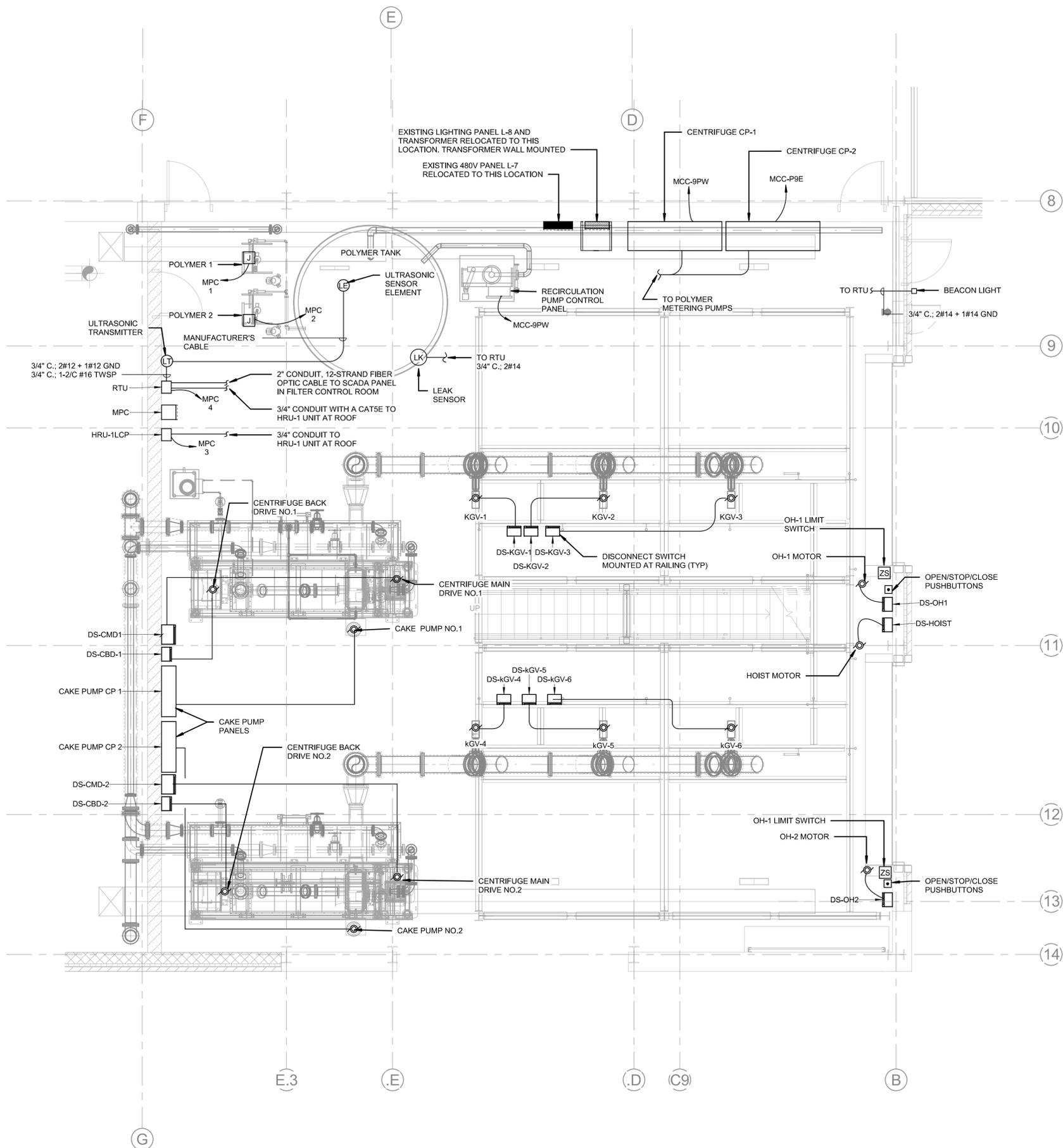




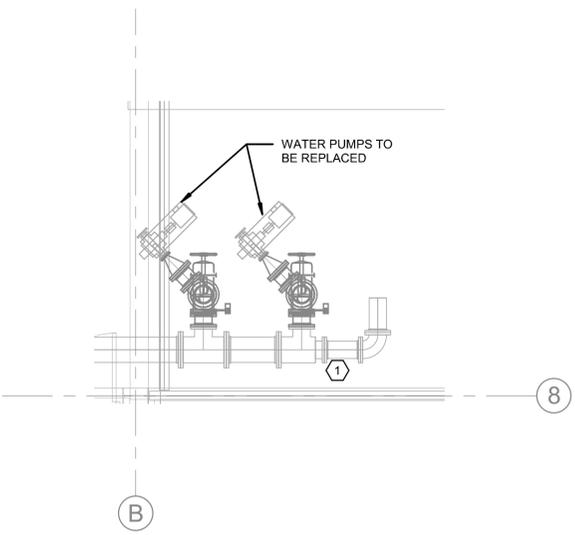




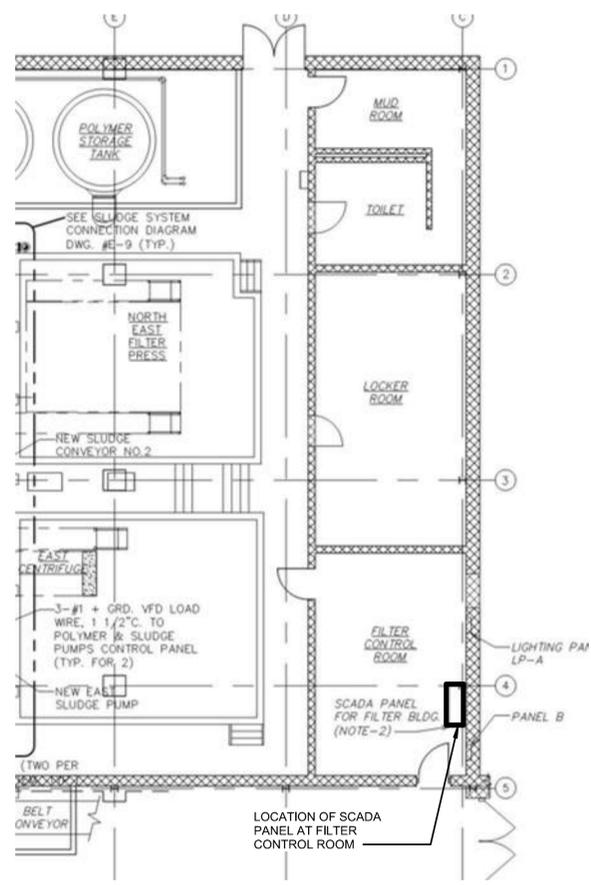
C:\pwwork\CF107201F\MPC-Sludge-Dewatering-Improvements\_E-17\_swesthoff.rvt PLOTTED: 5/1/2020 4:09:32 PM



**1**  
E-101  
**SLUDGE DEWATERING ROOM AND WATER SUPPLY AREA**  
SCALE: 1/4" = 1'-0"



**2**  
E-101  
**WATER SUPPLY PUMPS AREA**  
SCALE: 1/4" = 1'-0"



**EXISTING INCINERATOR BUILDING**  
SCALE: NOT TO SCALE

**GENERAL NOTES:**

A. REFER TO DRAWING E-105 FOR ONE-LINE DIAGRAMS AND CABLE SCHEDULE.

**NOTES:**

1. WATER SUPPLY PUMPS TO BE REPLACED IN KIND. DISCONNECT AND RECONNECT CONDUITS AND WIRES. PROVIDE ALL ANCILLARY MATERIALS AS REQUIRED FOR INSTALLATION.

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadetrtrim.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
800 WEST WYOMING  
BLOOMFIELD HILLS, MICH. P.O. BOX 64  
48302-0064  
PHONE: (248) 654-8300  
FAX: (248) 654-8312  
FAX: (248) 654-8312  
WEB SITE: http://www.hrc-eng.com

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
SLUDGE DEWATERING ROOM AND WATER SUPPLY AREA

ISSUED FOR:	DATE:	BY:
90% REVIEW	2/17/20AS	
100% REVIEW	3/20/20AS	
100% REVIEW	4/17/20AS	
IFB	6/01/20AS	

JOB NO.  
COF107201F

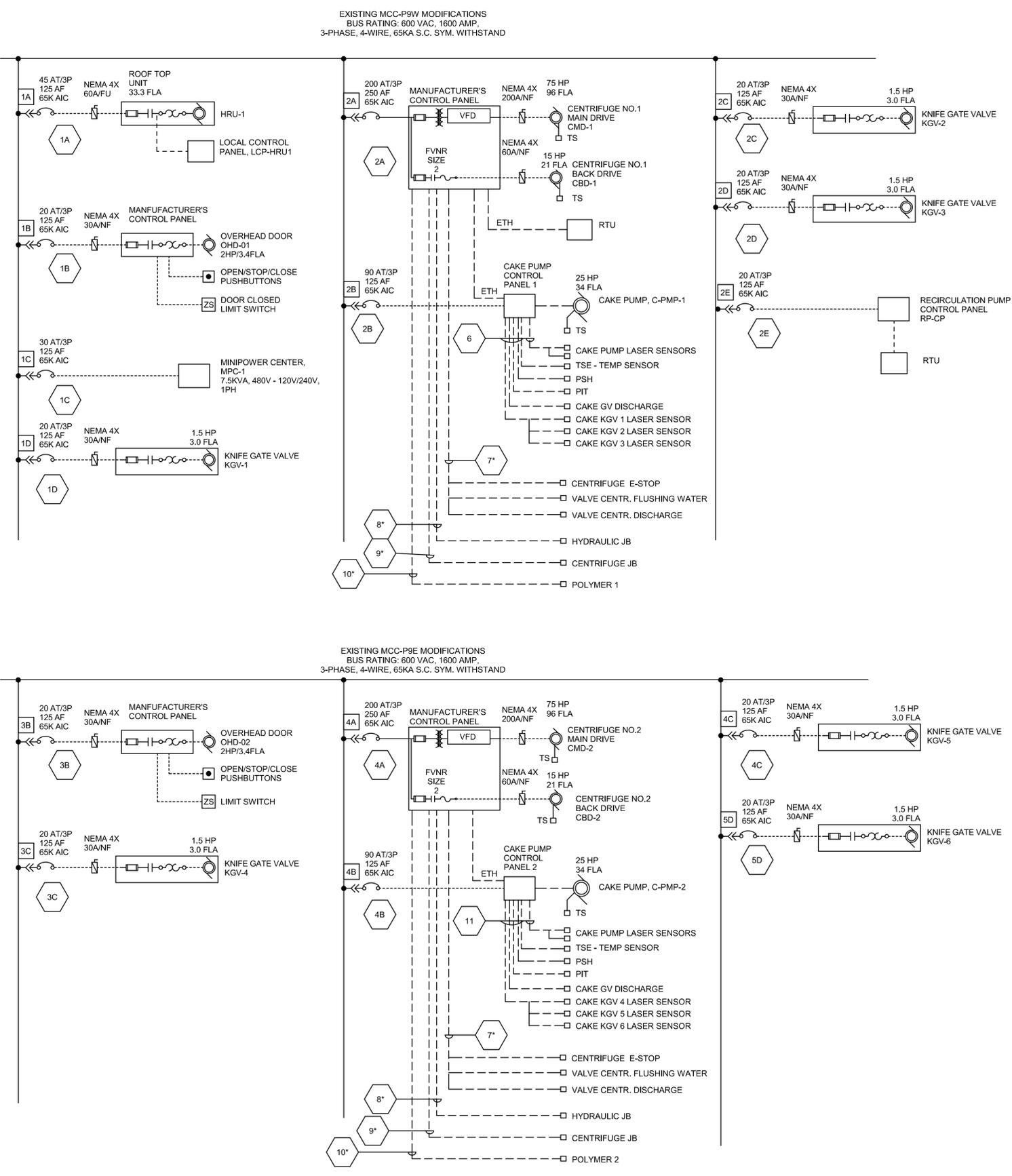
SHEET  
E-103



© Wade Trim Group, Inc.



C:\pwworking\COF\17201\F\_MPC-Sludge-Dewatering-Improvements\_E-17\_sweethoff.plt PLOTTED: 5/21/2020 4:09:38 PM



### CABLE SCHEDULE

NO.	CONDUIT LABEL	FROM	TO	CONDUIT SIZE	CONDUIT TYPE	CABLE QTY AND SIZE	VOLT	INSULATION TYPE	COMMENTS
1A	HRU-1-PWR1 HRU-1-PWR2 HRU-1-ETH1	MCC-P9W 1A DISC SW LCP	DISC SW HRU-1	1" 1" 3/4"	AL AL AL	3#6 & 1#10 GND 3#8 & 1#10 GND 10#14 + 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
1B	OHD1-PWR1 OHD1-PWR2 OHD1-PWR3 OHD1-CTRL1 OHD1-CTRL2	MCC-P9W 1B DISC SW OH CP OH CP OH CP	DISC SW OH CP CONTROL STATION LIMIT SW	3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 3#12 + 2#14 & 1#12 GND 1#14 + 1#14 GND 2#14 + 1#14 GND	600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	
1C	MPC1-PWR1	MCC-P9W 1D	MPC	3/4"	AL	3#10 & 1#10 GND	600V	THWN-2	
1D	MV-1-PWR1 MV-1-PWR2 MV-1-CTRL1	MCC-P9W 2C DISC SW DISC SW CAKE PUMP CP 1	DISC SW DISC SW KGV-1	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
2A	CENTF1-PWR1 CENTF1-PWR2 CENTF1-PWR3 CENTF1-PWR4 CENTF1-PWR5 CENTF1-CTRL1 CENTF1-CTRL2	MCC-P9W 2A CENTRIFUGE CP DISC SW DISC SW DISC SW CENTRIFUGE CP CENTRIFUGE CP	CENTRIFUGE CP DISC SW MOTOR CMD-1 DISC SW MOTOR CBD-1 CAKE PUMP CP 1 RTU	2" 1 1/2" 1 1/2" 3/4" 3/4" 1" 1"	AL AL AL AL AL AL AL	3#3/0 & 1#6 GND 3#1 + 2#14 & 1#8 GND 3#1 + 2#14 & 1#8 GND 3#10 + 2#14 & 1#10 GND 3#10 + 2#14 & 1#10 GND 1" ETHERNET CABLE 1" ETHERNET CABLE	600V 600V 600V 600V 600V 300V 300V	THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 PVC PVC	
2B	PCP-1-PWR1 PCP-1-PWR2	MCC-P9W 2B CAKE PUMP CP 1	CAKE PUMP CP 1 MOTOR C-PMP-1	1" 1"	AL AL	3#3 & 1#8 GND 3#8 + 2#14 & 1#10 GND	600V 600V	THWN-2 THWN-2	
2C	MV-3-PWR1 MV-3-PWR2 MV-3-CTRL1	MCC-P9W 2C DISC SW DISC SW CAKE PUMP CP 1	DISC SW KGV-2 KGV-2	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
2D	MV-5-PWR1 MV-5-PWR2 MV-5-CTRL1	MCC-P9W 2D DISC SW DISC SW CAKE PUMP CP 2	DISC SW KGV-3 KGV-3	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
2E	RCCP-PWR1 RCCP-CTRL1	MCC-P9W 2E RC-CP RTU	RC-CP RTU	3/4" 3/4"	AL AL	3#12 & 1#12 GND 10#14 (6 SPARES)	600V 600V	THWN-2 THWN-2	RUNNING,AUTO,ALARM
3B	OHD2-PWR1 OHD2-PWR2 OHD2-PWR3 OHD2-CTRL1 OHD2-CTRL2	MCC-P9E 3B DISC SW DISC SW OH2 CP OH2 CP OH2 CP	DISC SW DISC SW MOTOR CONTROL STATION LIMIT SW	3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 3#12 + 2#14 & 1#10 GND 6#14 + 1#14 GND 2#14 + 1#14 GND	600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	
3C	MV-2-PWR1 MV-2-PWR2 MV-2-CTRL1	MCC-P9E 3C DISC SW DISC SW CAKE PUMP CP 1	DISC SW KGV-4 KGV-4	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
4A	CENTF2-PWR1 CENTF2-PWR2 CENTF2-PWR3 CENTF2-PWR4 CENTF2-PWR5 CENTF2-CTRL1 CENTF2-CTRL2	MCC-P9E 4A CENTRIFUGE CP DISC SW DISC SW DISC SW CENTRIFUGE CP CENTRIFUGE CP	CENTRIFUGE CP DISC SW MOTOR CMD-2 CENTRIFUGE CP DISC SW MOTOR CBD-2 CAKE PUMP CP 2 RTU	2" 1 1/2" 1 1/2" 3/4" 3/4" 1" 1"	AL AL AL AL AL AL AL	3#3/0 & 1#6 GND 3#1 + 2#14 & 1#8 GND 3#1 + 2#14 & 1#8 GND 3#10 + 2#14 & 1#10 GND 3#10 + 2#14 & 1#10 GND 1" ETHERNET CABLE 1" ETHERNET CABLE	600V 600V 600V 600V 600V 300V 300V	THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 PVC PVC	
4B	PCP-2-PWR1 PCP-2-PWR2	MCC-P9E 4B CAKE PUMP CP 2	CAKE PUMP CP 2 MOTOR C-PMP-2	1" 1"	AL AL	3#3 & 1#8 GND 3#8 + 2#14 & 1#10 GND	600V 600V	THWN-2 THWN-2	
4C	MV-4-PWR1 MV-4-PWR2 MV-4-CTRL1	MCC-P9E 4C DISC SW DISC SW CAKE PUMP CP 2	DISC SW KGV-5 KGV-5	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
5D	MV-6-PWR1 MV-6-PWR2 MV-6-CTRL1	MCC-P9E 5D DISC SW DISC SW CAKE PUMP CP 2	DISC SW KGV-6 KGV-6	3/4" 3/4" 3/4"	AL AL AL	3#12 & 1#12 GND 3#12 & 1#12 GND 12#14 & 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
6	CKLS-PWR1 CKLS-CTRL1 CKTSE-CTRL CKPSH-CTRL CKPIT-CTRL CKVDISCH-PWR CKGVLSPWR1 CKGVLSPWR2 CKGVLSPWR3 CKGVLSPWR4 CKGVLSPWR5 CKGVLSPWR6 CKGVLSPWR7 CKGVLSPWR8 CKGVLSPWR9 CKGVLSPWR10	CAKE PUMP CP 1 CAKE PUMP CP 1	CAKE LASER S CAKE LASER S TSE PSH PIT CAKE VALVE DISCH. CAKE KGV LASER S 1 CAKE KGV LASER S 1 CAKE KGV LASER S 2 CAKE KGV LASER S 2 CAKE KGV LASER S 3 CAKE KGV LASER S 3	3/4" 3/4" 3/4" 3/4" 3/4" 1" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL AL AL AL AL AL AL AL AL AL AL AL AL	(2) 2#14 + 1#14 GND 2#14 + 1#14 GND 2#14 + 1#14 GND 2#14 + 1#14 GND 2#2/C #16 TWSP 2#14 + 10#14 + 1#14 GND 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP	600V 600V 600V 600V 300V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 PVC THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	
7	CENT-ESTOP-PWR CENT-VFW-PWR CENT-VDISCH-PWR	CENTRIFUGE CP * CENTRIFUGE CP * CENTRIFUGE CP *	E-STOP VALVE FLUSH, WATER VALVE DISCHARGE	3/4" 1" 1"	AL AL AL	2#14 + 1#14 GND 2#14 + 10#14 + 1#14 GND 2#14 + 10#14 + 1#14 GND	600V 600V 600V	THWN-2 THWN-2 THWN-2	
8	HYD-JB-PWR HYD-OILL-CTRL HYD-OILL-CTRL HYD-FV-PWR HYD-FV-CTRL HYD-OILPRESS-PWR HYD-OILPRESS-CTRL HYD-SPARE-PWR HYD-SPARE-CTRL	CENTRIFUGE CP * CENTRIFUGE CP *	HYDRAULIC JB * HYDRAULIC JB *	3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL AL AL AL AL	2#14 + 1#14 GND 2#14 2#14 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP	600V 600V 600V 600V 300V 600V 300V 600V 300V	THWN-2 THWN-2 THWN-2 THWN-2 PVC THWN-2 THWN-2 THWN-2 THWN-2	POWER OIL LOW LEVEL OIL HIGH PRESSURE FLOW CTRL VALVE FLOW CTRL VALVE OIL PRESSURE OIL PRESSURE SPARE SPARE
9	CENT-GRSE-PWR CENT-GRSELL-CTRL CENT-BOWL-PWR CENT-BOWL-CTRL CENT-VIB-PWR CENT-VIB-CTRL CENT-SOLBTEMP-PWR CENT-SOLBTEMP-CTRL CENT-LIQTTEMP-PWR CENT-LIQTTEMP-CTRL CENT-SPARE-PWR CENT-SPARE-CTRL	CENTRIFUGE CP * CENTRIFUGE CP *	CENTRIFUGE JB * CENTRIFUGE JB *	3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL AL AL AL AL AL AL AL	2#12 + 1#12 GND 2#14 (2) 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP	600V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	GREASE POWER SYST GREASE SPEED LOW LEVEL BOWL SPEED VIBRATION SENSOR VIBRATION SENSOR SOLIDS END BEAR. TEMP SOLIDS END BEAR. TEMP LIQUID END BEAR. TEMP LIQUID END BEAR. TEMP SPARE SPARE
10	POLY-FS-CTRL POLY-DWP-CTRL POLY-SOL-PWR POLY-RUN-CTRL POLY-SSP-CTRL POLY-RNGN-CTRL POLY-REM-CTRL POLY-ALRM-CTRL POLY-SFBBCK-CTRL POLY-SPRE-CTRL	CENTRIFUGE CP * CENTRIFUGE CP *	FLOW SWITCH DILUT. WATER PRESS SOLENOID POLYMER JB * POLYMER JB * POLYMER JB * POLYMER JB * POLYMER JB * POLYMER JB * POLYMER JB *	3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL AL AL AL AL AL	2#14 2#14 2#14 + 1#14 GND 2#14 2/C#16 TWSP 2#14 2#14 2#14 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP	600V 600V 600V 600V 300V 600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 PVC THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	RUN SPEED SET POINT RUNNING REMOTE COMMON ALARM SPEED FEEDBK & SPARE SPARE
11	CKLS2-PWR1 CKLS2-CTRL1 CKTSE2-CTRL CKPSH2-CTRL CKPIT2-CTRL CKVDISCH2-PWR CKGVLSPWR1 CKGVLSPWR2 CKGVLSPWR3 CKGVLSPWR4 CKGVLSPWR5 CKGVLSPWR6 CKGVLSPWR7 CKGVLSPWR8 CKGVLSPWR9 CKGVLSPWR10	CAKE PUMP CP 2 CAKE PUMP CP 2	CAKE LASER S CAKE LASER S TSE PSH PIT CAKE VALVE DISCH. CAKE KGV LASER S 4 CAKE KGV LASER S 4 CAKE KGV LASER S 5 CAKE KGV LASER S 5 CAKE KGV LASER S 6 CAKE KGV LASER S 6	3/4" 3/4" 3/4" 3/4" 3/4" 1" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	AL AL AL AL AL AL AL AL AL AL AL AL AL AL AL AL	(2) 2#14 + 1#14 GND (2) 2/C #16 TWSP 2#14 + 1#14 GND 2#14 + 1#14 GND 2#14 + 1#14 GND 2#14 + 10#14 + 1#14 GND 2#14 + 1#14 GND 2/C #16 TWSP 2#14 + 1#14 GND 2/C #16 TWSP	600V 600V 600V 600V 300V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V 600V	THWN-2 THWN-2 THWN-2 THWN-2 PVC THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2 THWN-2	

**NOTE:**  
\*\*\* INDICATES SPECIFIC LABEL FOR EQUIPMENT. REPLACE \*\*\* AS INDICATED IN THE TABLE BELOW (E.G. \*POLYMER JB \* WILL BE \*POLYMER JB 1\* AND \*POLYMER JB 2\*)

### EQUIPMENT SPECIFIC LABEL TABLE

FOR	EQUIPMENT	GENERIC LABEL	SPECIFIC LABEL	COMMENTS
	CENTRIFUGE CP 1 & CP 2	REPLACE *** WITH	1 OR 2	POWER, CONTROL
	CENTRIFUGE JB 1 & JB 2			
	HYDRAULIC JB 1 & JB 2			
	POLYMER 1 & POLYMER 2			



**ONE-LINE DIAGRAMS**  
SCALE: NOT TO SCALE



**WADE TRIM**

555 South Saginaw Street, Suite 201  
Flint, MI 48502  
810.235.2555/800.841.0342  
FAX: 810.235.4975  
www.wadeftrim.com



**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915  
800 WEST BOWNE  
BLOOMFIELD HILLS, MICH. P.O. BOX 604  
48303 - 0804

PHONE: (248) 654-8900  
FAX: (248) 654-8912  
FAX (Out. State): (248) 338-0282

WEBSITE: <http://www.hrc-eng.com>

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
ONE-LINE DIAGRAMS AND CABLE SCHEDULE

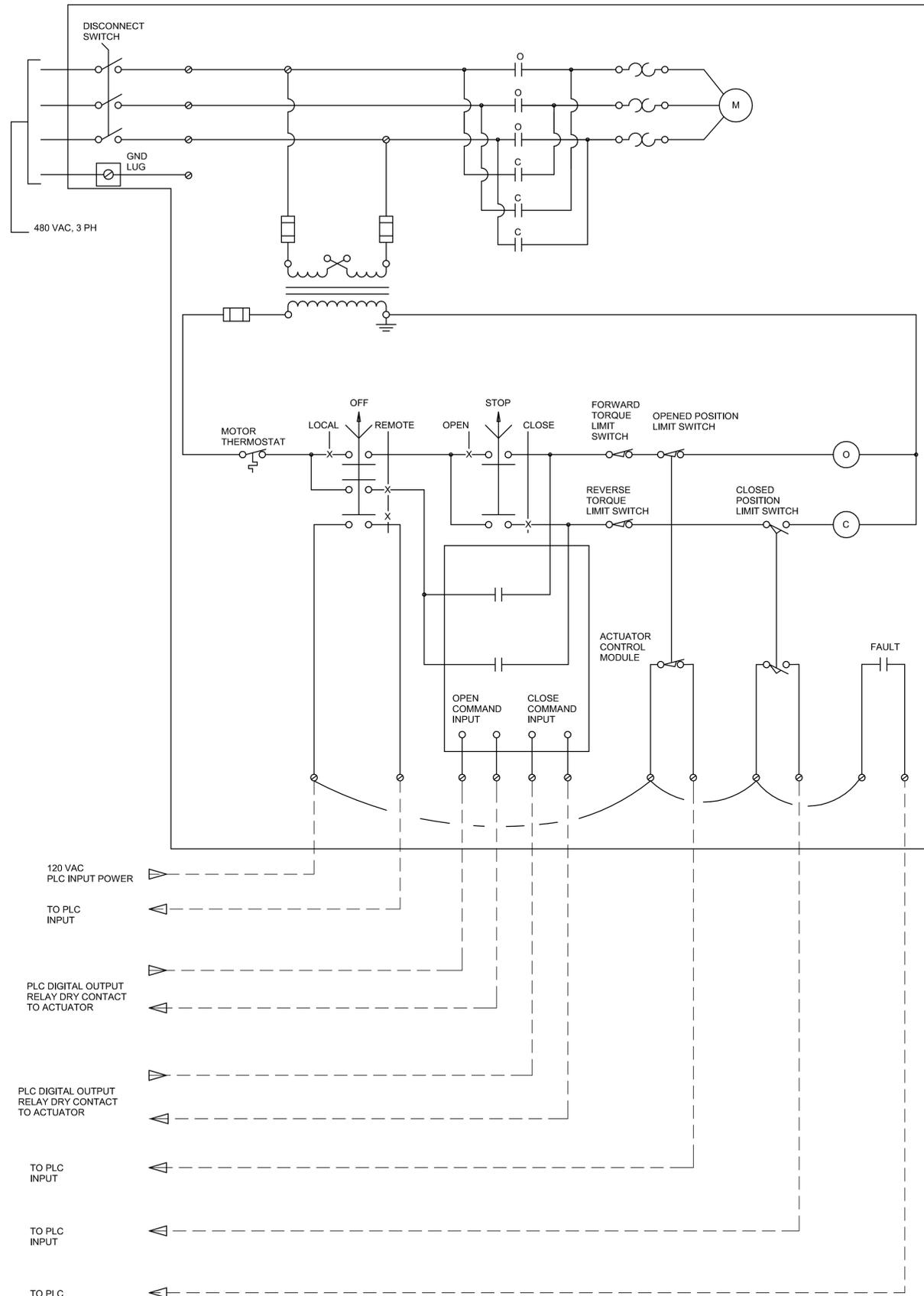
ISSUED FOR:	DATE:	BY:
90% REVIEW	2/17/20AS	2/17/20AS
100% REVIEW	4/17/20AS	4/17/20AS
IFB	6/01/20AS	

JOB NO.  
**COF107201F**

SHEET

**E-105**





**ACTUATED VALVE OPEN/CLOSE**

SCALE: NOT TO SCALE

C:\pwwork\CF107201F\_MPC-Sludge-Dewatering-Improvements\_E-17\_swesthoff.rvt PLOTTED: 5/21/2020 4:00:40 PM

REV#	DATE	DESCRIPTION	BY



**WADE TRIM**  
 555 South Saginaw Street, Suite 201  
 Flint, MI 48502  
 810.235.2555/800.841.0342  
 FAX: 810.235.4975  
 www.wadetrin.com

**HRC**  
**HUBBELL, ROTH & CLARK, INC.**  
 CONSULTING ENGINEERS SINCE 1915  
 800 WEST BERRY  
 BLOOMFIELD HILLS, MICH. P.O. BOX 654  
 48302 - 0624  
 PHONE: (248) 654-8300  
 FAX (Toll Free): (800) 654-8312  
 FAX (On Site): (248) 338-0382  
 WEB SITE: http://www.hrc-engr.com

CITY OF FLINT  
 1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
 FLINT WASTE WATER TREATMENT PLANT  
 SLUDGE DEWATERING IMPROVEMENTS  
 ELECTRICAL DETAILS

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20AS	
90% REVIEW	3/25/20AS	
100% REVIEW	4/17/20AS	
IFB	6/01/20AS	

JOB NO.  
COF107201F

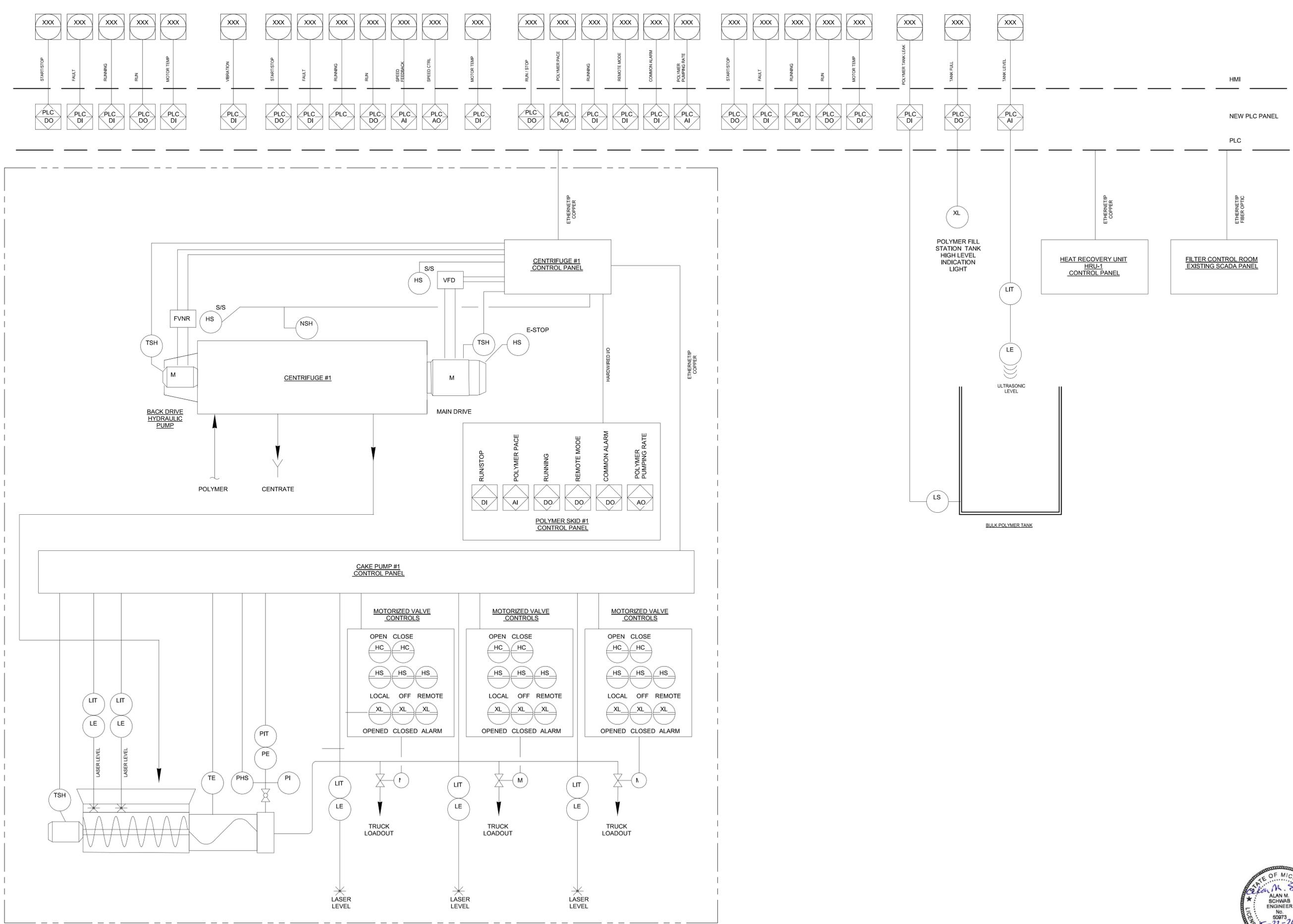
SHEET  
E-107



© Wade Trim Group, Inc.



C:\work\COF17201F\_VPC-Sludge-Dewatering-Improvements\_E-17\_swesthoff.rvt PLOTTED: 5/22/2020 8:53:19 AM



NOTE:  
DEWATERING TRAIN #1 SHOWN. TYPICAL FOR DEWATERING TRAIN #2

REV.#	DATE	DESCRIPTION	BY



**WADE TRIM**

555 South Saginaw Street, Suite 201  
Flint, MI 48502  
310.235.2556/800.841.0342  
FAX: 810.235.4975  
www.wadetrिम.com

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
CONSULTING ENGINEERS SINCE 1915

300 WEST BERRY  
BLOOMFIELD HILLS, MICH. P.O. BOX 64  
48302-0064

PHONE: (248) 654-8300  
FAX: (248) 654-8312  
FAX (Out of State): (248) 338-0382

WEB SITE: <http://www.hrc-eng.com>

CITY OF FLINT  
1101 SAGINAW STREET, FLINT, MICHIGAN 48502  
FLINT WASTE WATER TREATMENT PLANT  
SLUDGE DEWATERING IMPROVEMENTS  
CENTRIFUGE P&ID

ISSUED FOR:	DATE:	BY:
50% REVIEW	2/17/20AS	
90% REVIEW	3/20/20AS	
100% REVIEW	4/17/20AS	

JOB NO.  
**COF107201F**

SHEET  
**1-002**



© Wade Trim Group, Inc.