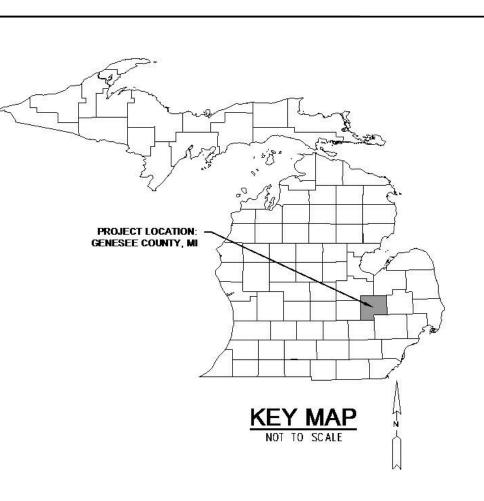
CITY OF FLINT

GENESEE COUNTY, MICHIGAN CONSTRUCTION PLANS FOR

WPCF WASTE UNLOADING STATION



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CITY OF FLINT WATER

PROJECT LOCATION:

G-4652 BEECHER RD

FLINT, MI 48532

COF1076-01F



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, MICHIGAN 48502 CONTACT: JOHN DALY PHONE: 810.766.7343
CABLE TV COMCAST CABLEVISION 6095 WALL STREET STERLING HEIGHTS, MICHIGAN 48312 CONTACT: TOM DICKINSON PHONE: 586.883.7412	CITY OF FLINT WATER SERVICE CENTER 3310 EAST COURT STREET FLINT, MICHIGAN 48506 CONTACT: 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, MICHIGAN 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, MICHIGAN 48532 CONTACT: MARK STEPHENS PHONE: 810.732.7870

2023.07.07 ADDENDUM 1 2023.06.14 ISSUED FOR BID

COVER SHEET

COF1076-01F

G-001

SHEET







FAX: 810.235.4975







Know what's below. Call before you dig.

GENERAL NOTES

- 1. LOCATION OF UTILITIES OR OTHER STRUCTURES SHOWN ON THE PLANS ARE TAKEN FROM UTILITY COMPANY OR OTHER RECORDS BELIEVED TO BE RELIABLE. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR ANY OMISSIONS OR VARIATIONS IN THE LOCATION OF THE UTILITIES ENCOUNTERED IN THE WORK.
- 2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN THE INTEGRITY OF EXISTING UTILITIES AT ALL TIMES. ALL UTILITIES INCLUDING UTILITY POLES, IN THE VICINITY OF CONSTRUCTION SHALL BE PROTECTED BY BRACING, SUPPORTING, BY THE USE OF TRENCH BOXES OR OTHER ACCEPTABLE MEANS AS DETERMINED BY THE OWNER OF THE UTILITY. ALL COSTS FOR PROTECTION OF UTILITIES SHALL BE INCIDENTAL TO THE PROJECT.
- 3. ALL UTILITIES, MAINS, SERVICES, EDGE DRAINS, OIL LINES, OR OTHER SIMILAR ITEMS DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY OF FLINT OR IN A MANNER ACCEPTABLE TO THE CITY OF FLINT. ALL COSTS FOR REPAIR OR REPLACEMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND INCIDENTAL TO THE PROJECT.
- 4. THE CONTRACTOR SHALL LIMIT CONSTRUCTION TRAFFIC AND EQUIPMENT TO THE AREA DIRECTLY UNDER CONSTRUCTION TO PREVENT DAMAGE TO ANY EXISTING IMPROVEMENTS. AND SHALL PREVENT THE SPREAD OF CONSTRUCTION DEBRIS OUTSIDE OF THE CONSTRUCTION AREA.
- 5. ALL TREES, SHRUBS AND LANDSCAPING NOT DESIGNATED TO BE REMOVED SHALL BE PROTECTED DURING CONSTRUCTION. ALL TREES, SHRUBS OR LANDSCAPING DAMAGED IN ANY WAY BY THE CONTRACTOR (INCLUDING DAMAGING ROOTS) SHALL BE REPLACED WITH LIKE SPECIES AND SIZE AT THE EXPENSE OF THE CONTRACTOR.
- 6. THE CONTRACTOR SHALL HAVE AN OPERATING VACUUM TYPE PICKUP SWEEPER ON THE JOB AT ALL TIMES. THE PAVEMENT SHALL BE SWEPT A MINIMUM OF TWICE A DAY OR MORE FREQUENTLY AS NECESSARY. THE CONTRACTOR SHALL ALSO COMPLY WITH LOCAL AGENCY FUGITIVE DUST ORDINANCE.
- 7. THE CONTRACTOR SHALL MAINTAIN EXISTING STORM WATER DRAINAGE AT ALL TIMES DURING THE WORK. ALL COSTS FOR MAINTAINING DRAINAGE SHALL BE INCIDENTAL TO THE PROJECT EXCEPT AS MAY BE OTHERWISE PROVIDED FOR IN THE PROPOSAL.
- 8. RESTORATION SHALL BE WITH 4-INCHES OF TOPSOIL.THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY THE CONTRACTORS OPERATION. RESTORATION OUTSIDE THE AREAS INDICATED SHALL BE AT THE EXPENSE OF THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN ESTABLISHED TURF ACCEPTABLE TO THE ENGINEER.
- 9. PROJECT DATUM INFORMATION IS IN NAVD88.

PAVING CONSTRUCTION NOTES

- 1. PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PAID FOR THE AREA SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER. PAVEMENT REMOVAL SHALL INCLUDE REMOVAL OF AGGREGATE BASE AND SUBBASE TO DEPTH REQUIRED TO PROVIDE AGGREGATE AND PAVEMENT IN ACCORDANCE WITH STANDARD HMA DETAIL ON SHEET C-502. PAVEMENT REMOVAL THAT THE CONTRACTOR CAUSES TO BE REMOVED OUTSIDE THE AREA SPECIFIED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- 2. THE CONTRACTOR SHALL SAWCUT AND REMOVE THE EXISTING PAVEMENT CLEANLY WHERE PROPOSED PAVEMENT MEETS EXISTING PAVEMENT. SAWCUTTING SHALL BE INCIDENTAL TO
- 3. THE CONTRACTOR SHALL USE PAVEMENT BREAKING AND REMOVAL EQUIPMENT THAT WILL NOT DAMAGE EXISTING STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL IMMEDIATELY CEASE PAVEMENT BREAKING OR REMOVAL OF PAVEMENT, WITH THE OFFENDING EQUIPMENT, IF COLLATERAL DAMAGE BECOMES EVIDENT.
- 4. WHENEVER ANY AGGREGATE BASE COURSE OR SUBBASE BECOMES CONTAMINATED BASED ON OBSERVATION AND LAB TESTING, THE CONTRACTOR SHALL REMOVE AND REPLACE THE CONTAMINATED MATERIAL AT THE CONTRACTOR'S EXPENSE.
- 5. CONTRACTOR SHALL PROTECT ANY EXISTING UTILITY OR STRUCTURES FRAMES AND COVERS REMAINING IN PLACE. ANY UTILITY FRAMES AND COVERS WHICH ARE DAMAGED SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- 6. SIDEWALK SHALL BE 4-INCH THICKNESS OF CONCRETE, SIDEWALK RAMPS SHALL BE 4-INCH THICKNESS OF CONCRETE.
- 7. THE EDGE OF THE EXISTING PAVEMENT SHALL BE CLEANED OF EARTH AND OTHER FOREIGN MATERIAL WITH A WIRE BROOM BEFORE ADJACENT PAVEMENT IS PLACED.
- 8. CONTRACTOR TO ADJUST ALL EXISTING AND PROPOSED MANHOLE, UTILITY, AND STRUCTURE FRAME AND COVERS TO FINAL GRADE.

SOIL EROSION AND SEDIMENTATION CONTROL (SESC) NOTES

- 1. ALL SOIL EROSION AND SEDIMENTATION CONTROL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF WAYNE COUNTY DEPARTMENT OF ENVIRONMENT, LAND RESOURCE MANAGEMENT DIVISION, CONTRACTOR SHALL PAY ALL FEES, AND POST ANY BONDS REQUIRED TO OBTAIN A PERMIT FROM WAYNE COUNTY DEPARTMENT OF ENVIRONMENT, LAND RESOURCE MANAGEMENT DIVISION.
- 2. ALL TRUCKS LEAVING THE CONSTRUCTION SITE SHALL PASS THROUGH A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT DRIVE TO REMOVE DIRT AND SEDIMENT. ANY DIRT AND ACCUMULATED SEDIMENT ON ROADS AND STREETS IN THE VICINITY OF THE PROJECT OR OUTSIDE OF THE PROJECT VICINITY, BUT ATTRIBUTABLE TO THE PROJECT SHALL BE SWEPT CLEAN AT LEAST TWICE DAILY WITH A VACUUM TYPE PICKUP BROOM. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO THE EXISTING ROADS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
- 3. STABILIZE SLOPES STEEPER THAN 1 ON 4, CHANNELS AND SWALES WITHIN 7 DAYS OF EARTH DISTURBANCE. INSTALL PERMANENT STABILIZATION MEASURES WITHIN 5 DAYS OF FINAL
- 4. DURING STORM SEWER INSTALLATION, ALL NEWLY CONSTRUCTED DRAINAGE STRUCTURES SHALL BE PROTECTED WITH A DRAINAGE STRUCTURE FILTER. THIS WORK WILL BE INCLUDED IN THE DRAINAGE STRUCTURE COST.
- 5. INSTALL TOPSOIL, SEED AND MULCH / TOPSOIL AND SOD HYDROSEED ON DISTURBED RIGHT-OF-WAY WITHIN 5 DAYS OF COMPLETING UTILITY INSTALLATION.
- 6. PLACE RIPRAP WITHIN 24 HOURS OF PLACING CULVERTS, HEADWALLS OR OTHER DRAINAGE
- 7. CLEAN ALL ACCUMULATED SEDIMENT FROM CATCH BASINS, SEWERS AND PAVEMENT AREAS AS REQUIRED FOLLOWING COMPLETION OF CONSTRUCTION.
- 8. IMMEDIATELY REMOVE ALL EXCESS EXCAVATED MATERIAL FROM SITE OR STABLIZE SOIL STOCKPILES SO EROSION AND SEDIMENTATION DOES NOT OCCUR.
- 9. SHOULD IT BE NECESSARY FOR THE CONTRACTOR TO DO ANY DEWATERING DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL FILTER ALL DISCHARGE THROUGH A DISCHARGE FILTER BAG OR OTHER SEDIMENT CONTROL DEVICE THAT WILL FILTER ALL DISCHARGE WATER. NO DEWATERING DISCHARGE SHALL BE ALLOWED TO FLOW UNFILTERED FROM THE CONSTRUCTION SITE OR INTO GLWA STORM/SANITARY SEWERS.
- 10. THE CONTRACTOR SHALL CONTROL THE DUST CREATED ON THE CONSTRUCTION SITE AT ALL TIMES. DUST CONTROL SHALL BE ACCOMPLISHED BY THE APPLICATION OF DUST CONTROL MATERIALS AND APPLICATION METHODS ACCEPTABLE TO THE AGENCY HAVING JURISDICTION. ALL COSTS FOR DUST CONTROL SHALL BE INCIDENTAL TO THE PROJECT.
- 11. ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) DEVICES SHALL BE INSTALLED PRIOR TO CONTRACTOR BEGINNING ANY WORK OR IMMEDIATELY FOLLOWING THE PHASE OF CONSTRUCTIONALLOWING OR REQUIRING (SESC) DEVICES. ALL SESC DEVICES SHALL BE MAINTAINED IN AN EFFECTIVE, FUNCTIONING CONDITION AT ALL TIMES DURING THE COURSE OF THE WORK. ALL TEMPORARY SESC DEVICES SHALL BE REMOVED AND THE AREA RESTORED AFTER THE PERMANENT SESC MEASURES ARE INSTALLED AND FUNCTIONING.
- 12. SHOULD THE SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS OR THE DUST CONTROL REQUIREMENTS BE NEGLECTED, THE OWNER OR AGENCY HAVING JURISDICTION CAN REQUIRE THE CONTRACTOR TO CEASE ALL CONSTRUCTION OPERATIONS UNTIL THE REQUIREMENTS ARE SATISFACTORILY MET.
- 13. SOIL EROSION AND SEDIMENTATION CONTROL SHALL BE IN ACCORDANCE WITH PART 91 OF ACT 451 OF PA 1994.
- 14. ALL SOIL EROSION CONTROL MEASURES SHALL BE CHECKED A MINIMUM OF ONCE PER WEEK AND WITHIN A MINIMUM OF 24 HOURS AFTER EVERY 0.5" OF RAINFALL. ANY SOIL EROSION CONTROL MEASURES DAMAGED OR RENDERED INEFFECTIVE SHALL BE IMMEDIATELY REPAIRED OR REMOVED AND REPLACED AT NO ADDITIONAL COST.
- 15. AS SOON AS POSSIBLE, COMPLETE FINAL GRADING AND PLACING OF PERMANENT SOIL EROSION CONTROL DEVICES. AFTER ESTABLISHMENT OF PERMANENT VEGETATION, REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES.

MISCELLANEOUS STATIONING BOLLARD <u>PATTERNS</u> HMA PAVEMENT (EXISTING) HMA REMOVAL

LEGEND

WATER (DOMESTIC)

YARD HYDRANT

FIRE HYDRANT

GATE VALVE & BOX

SANITARY SEWER

SANITARY MANHOLE

TO BE DEMOLISHED

UNDERGROUND ELECTRIC

LINE WORK

BUILDING

FORCEMAIN

SILT FENCE

SANITARY SEWER

DOMESTIC WATER

PROPOSED SEEDING

CONCRETE REMOVAL PROPOSED HMA

EXISTING

EXISTING

 $\cdot \hspace{0.1cm} \times \hspace{0.1cm$

——UE——UE——UE——UE——

PROPOSED

PROPOSED

PROPOSED CONRETE







OF FLINT E UNLOADING

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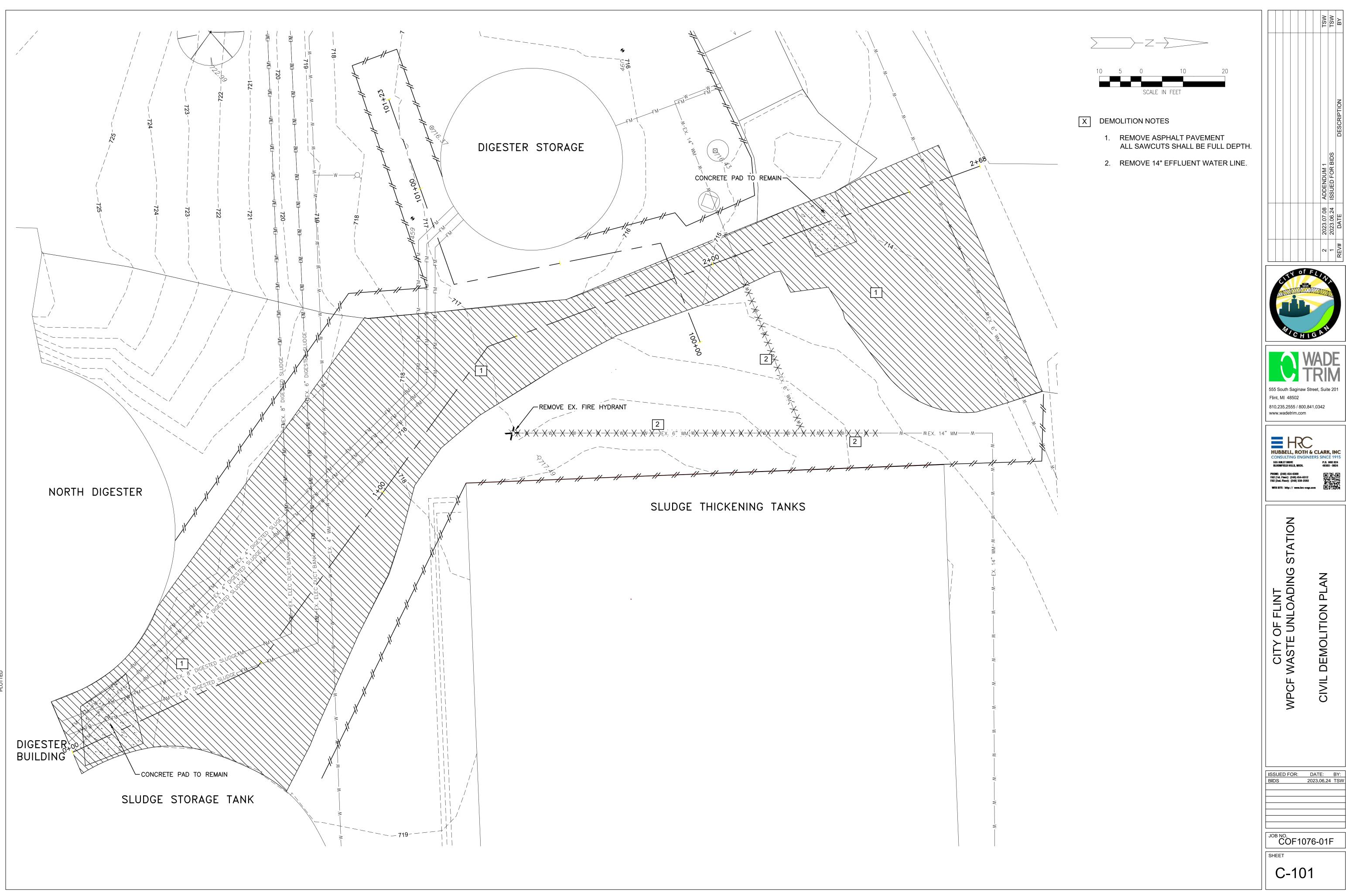
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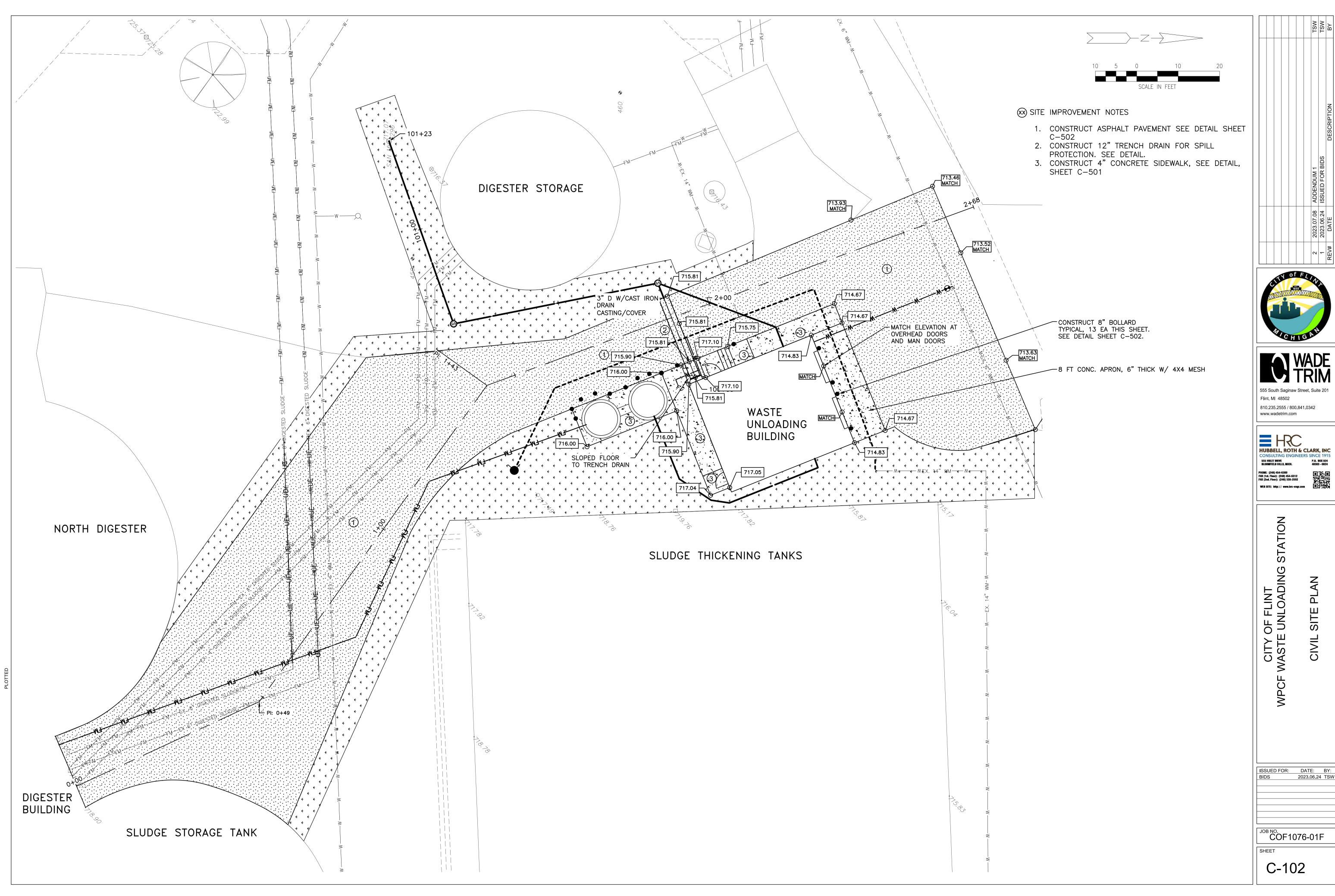
MICHIGAN UNIFIED KEYING SYSTEM

KEY	DETAIL	CHARACTERISTICS
4	VECETATIVE STABLIZATION	MAY UTILIZE A VARIETY OF PLANT MATERIAL STABILIZES SOU, SLOWS RUNOFF VELOCITY FILTERS SEDMENT FROM RUNOFF
15	PAYING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNCEF, VOLUME AND VELOCITY RREGULAR SURFACE WILL HELP SLOW VELOCITY
54	SLT FENCE	USES GEOTEXTILE FABRIC AND POSTS OR POLES EASY TO CONSTRUCT AND LOCATE AS NECESSARY

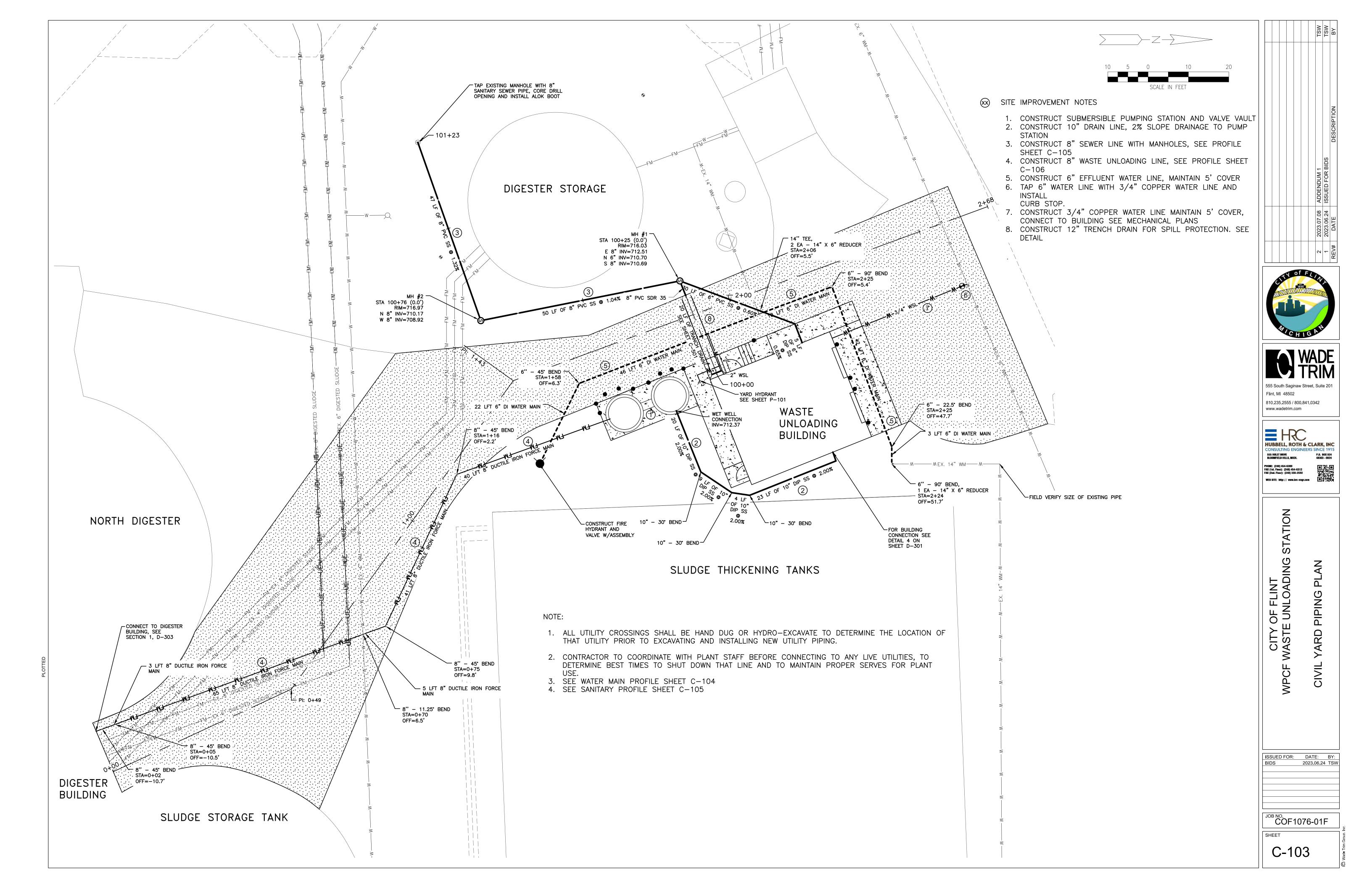
SOIL EROSION AND SEDIMENTATION CONTROL SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
TEMPORARY SESC MEASURES												
STRIP AND STOCKPILE												
DEMOLITION												
ROUGH GRADING												
UNDERGROUND UTILITIES												
ROAD INSTALLATION												
BUILDING CONSTRUCTION												
PERMANENT SESC MEASURES												
FINAL GRADE												
LANDSCAPING												
MAINTENANCE SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
STREET SWEEPING												
SILT FENCING												
MAINTAIN BUFFER STRIPS												
MAINIAIN DUITEN SINIFS												
INLET STRUCTURES												
INLET STRUCTURES												
INLET STRUCTURES SEEDING AND MULCH												









2+00

1+00

STATION WASTE UNLOADING PIPE PROFILE CITY OF FLINT WASTE UNLOADING PROPOSED V WPCF

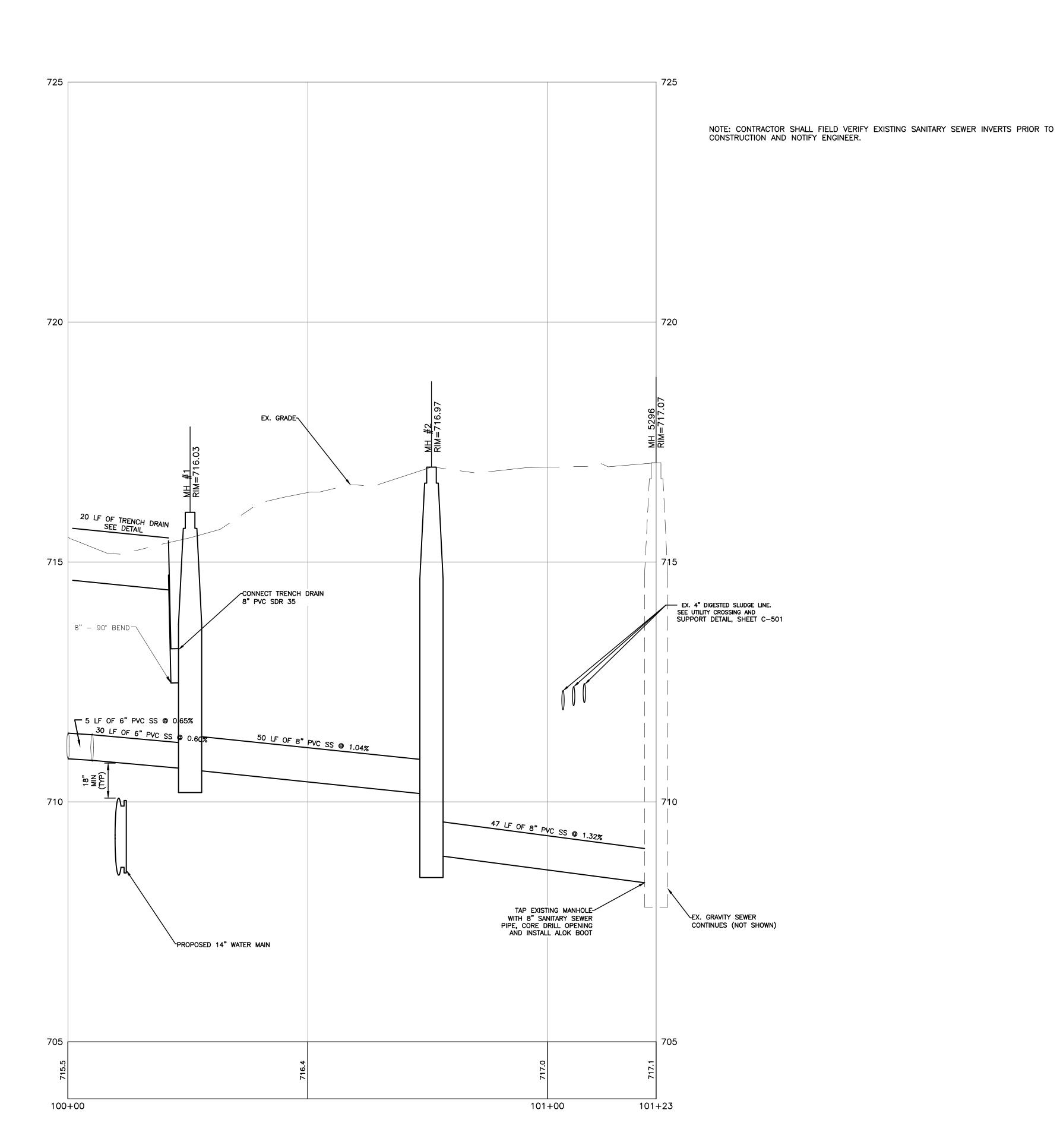
ISSUED FOR: DATE: BY: 2023.06.24 TSW

JOB NO. **COF1076-01F**

2+68

C-104

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555 South Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 / 800.841.0342 www.wadetrim.com



PHONE: (248) 454-6300

FAX (1st. Floor): (248) 454-6312

FAX (2nd. Floor): (248) 338-2592

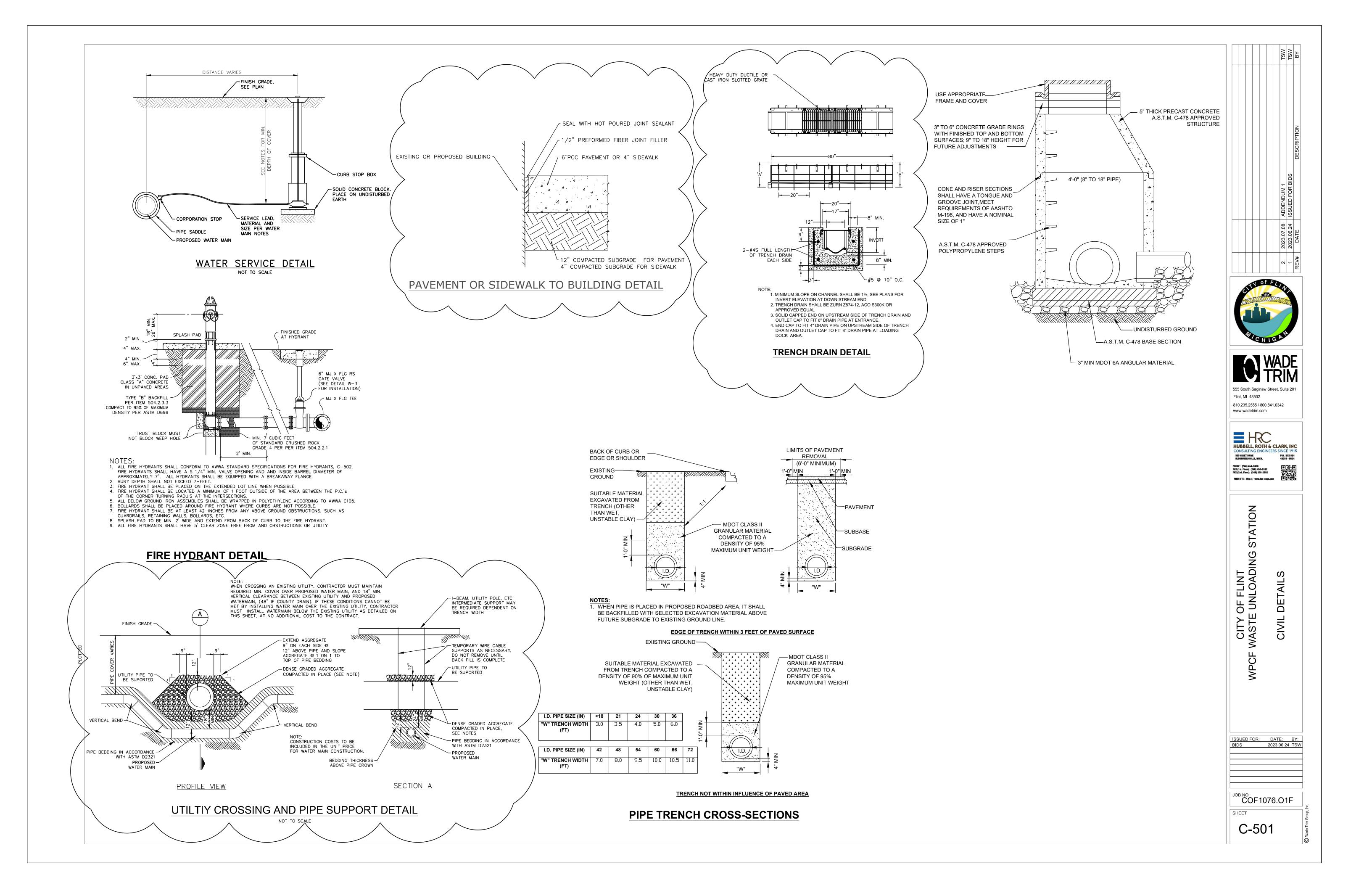
WEB SITE: http://www.hrc-engr.com

STATION PROFILE CITY OF FLINT WASTE UNLOADING PROPOSED WPCF

ISSUED FOR: DATE: BY:
BIDS 2023.06.24 TSW

JOB NO. COF1076-01F

C-105



GRO	OUND BURI					HEDULE ENCASED DUCT	LE IRON PIPE
PIPE DIAMETER	TEES, 90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4" BENDS	DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*	REDUCERS (TWO SIZE REDUCTION)*
4	13	5	3	1	40		and the
6	19	8	4	2	58	31	<u>1990-19</u>
8	24	10	5	2	75	30	70
12	34	14	7	3	107	57	116
16	43	18	9	4	139	59	137
20	52	22	10	5	169	59	134
24	61	25	12	6	199	60	132
30	73	30	15	7	242	85	168
36	84	35	17	8	281	84	188

LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.

IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.

THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER. FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.

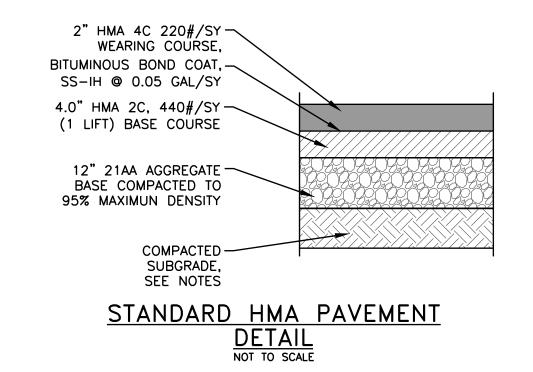
THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.

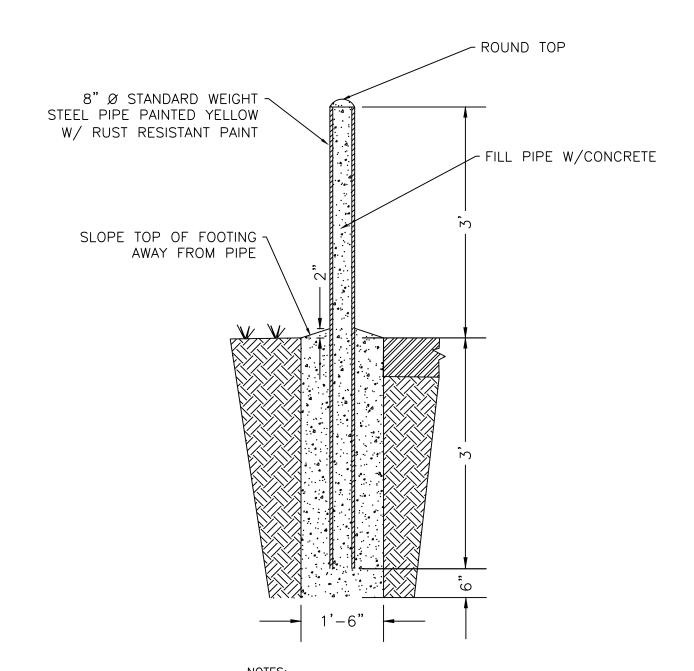
* SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.

BASED UPON:

INTERNAL PRESSURE: PIPE DEPTH: BEDDING CLASS: SOIL TYPE: SAFETY FACTOR:

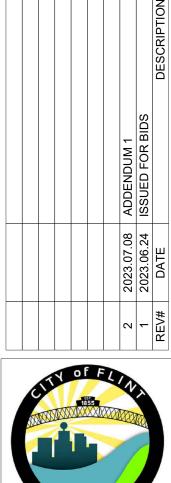
TYPE 4 GOOD SAND





NOTES: 1. SUBMIT PRODUCT DATA AND/OR SHOP DRAWINGS. 2. INSTALL BOLLARDS AS SHOWN ON PLANS. ALL LOCATIONS TO BE FIELD VERIFIED WITH OWNER'S REP. PRIOR TO INSTALLATION. USE CAUTION REGARDING UNDERGROUND UTILITIES.

BOLLARD DETAIL





Flint, MI 48502 810.235.2555 / 800.841.0342 www.wadetrim.com

HUBBELL, ROTH & CLARK, INC

OF FLINT E UNLOADING DETAIL CITY (

JOB NO. COF1076.O1F

C-502

ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL, ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.

ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK "*" SHALL BE DETERMINED OR VERIFIED WITH EQUIP. MFR. CERTIFIED SHOP DRAWINGS OR FIELD MEASUREMENTS OF EXISTING CONSTRUCTION BEFORE FABRICATION AND CONSTRUCTION.

ALL ADHESIVE ANCHORING SYSTEMS FOR POST-INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE OR MASONRY SHALL BE "HIT-HY 200 ADHESIVE ANCHORING SYSTEM" BY HILTI AT SIZE AND SPACING INDICATED

CODES AND LOADS

ALL STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:

> CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES - AMERICAN CONCRETE ASSOCIATION ACI 350 (2006)

DESIGN LOADS (GENERAL)

ELEVATED SLAB & SLABS ON GRADE - LIVE LOADS - 300 PSF

ELEVATED PLATFORM LIVE LOADS - 150 PSF SNOW LOADS, PER ASCE 7-16 (OCCUPANCY CATEGORY III) 1. GROUND SNOW LOAD - 30 PSF 2. SNOW EXPOSURE FACTOR - Ce = 0.9 3. SNOW THERMAL FACTOR - Ct = 1.0

4. SNOW IMPORTANCE FACTOR - I = 1.1 5. FLAT ROOF SNOW LOAD - Pf = 21.0 PSF

D. WIND LOADS 1. BASIC WIND SPEED (3-SECOND)=120 MPH 2. WIND EXPOSURE CATEGORY C 3. HEIGHT AND EXPOSURE FACTOR: 1.4

LATERAL EARTH PRESSURES DRAINED CONDITION 1. ACTIVE PRESSURE - Pa = 40.0 PSF; Ka = 0.32 2. AT REST PRESSURE - Po = 60.0 PSF; Ko = 0.48 3. PASSIVE PRESSURE - Pp = 375 PSF; Kp = 3.12

LATERAL EARTH PRESSURE - UNDRAINED CONDITION 1. ACTIVE PRESSURE - Pa = 84.0 PSF 2. AT REST PRESSURE - Po = 94.0 PSF 3. PASSIVE PRESSURE - Pp = 267 PSF

100 YEAR FLOOD ELEVATION - GRADE

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/ ALTERATION 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.

ANY REMAINING EXPOSED REINFORCING STEEL AFTER DEMO SHALL BE COATED WITH CORROSION INHIBITING COMPOUND. USE SIKA ARMATEC 110 EPOCEM OR

MASONRY

HOLLOW CONCRETE BLOCK (MASONRY UNITS) SHALL CONFORM TO ASTM C90, GRADE N (MEDIUM WEIGHT) WITH A MINIMUM COMMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA (f'm=1,500 PSI)

ALL MORTAR SHALL BE TYPE N AND COMPLY WITH ASTM C476, WITH MINIMUM COMPRESSIVE STRENGTH AT 2500 PSI.

REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60.

VERTICAL REINFORCEMENT TO BE CONTINUOUS AND LAPPED A MINIMUM OF 48 BAR

DOWEL ALL VERTICAL REINFORCEMENT FROM FOUNDATIONS AS SHOWN ON PLANS.

PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN REINFORCING AND MASONRY UNITS.

PRECAST CONCRETE

DESIGN OF PRECAST MEMBERS (ROOF PLANKS) SHALL CONFORM TO ACI 318-14 AND SHALL 4. BE PRESTRESSED TO SUSTAIN THE SUPERIMPOSED LOADS INDICATED.

ALL PRECAST, PRESTRESSED ROOF PLANKS SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT RELEASE OF PRESTRESS CABLES AND 5000 PSI AT 28 DAYS.

PROVIDE 1/2" THICK BEARING PADS WHERE INDICATED.

ALL PRE-STRESSED STRANDS SHALL BE UNCOATED, 7 WIRE LOW RELAXATION STRANDS CONFORMING TO ASTM A4 16.

PRECAST MANUFACTURER SHALL DESIGN PRECAST HOLLOW CORE ROOF PLANK SYSTEM INCLUDING ALL REQUIRED STEEL HANGERS, WHICH SHALL BE HOT DIPPED GALVANIZED STEEL. DESIGN CALCULATION FOR ALL PRECAST MEMBERS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN AND SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.

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 PLANS, EXCEPT AS APPROVED BY THE ENGINEER, UNLESS NOTED

ALL STIRRUPS AND TIES SHALL BE CLOSED TYPE WITH 135 DEGREE HOOKS, U.N.O.

ALL COLD JOINTS IN CONCRETE STRUCTURES SHALL HAVE A CONTINUOUS WATERSTOP CREATING A WATERTIGHT JOINT AS DETAILED. WHERE NOT SPECIFIED ALL COLD JOINTS SHALL HAVE A HYDROPHILIC WATERSTOP PER

THE LENGTH OF ALL LAP SPLICES SHALL BE AS SPECIFIED IN "REINFORCING TENSION SPLICE TABLE" ON THIS SHEET UNLESS OTHERWISE INDICATED IN DRAWINGS. WHEN BARS OF DIFFERENT SIZE ARE BEING LAPPED, THE LENGTH SHALL BE THE SPECIFIED LAP LENGTH OF THE LARGER BAR.

BOTTOM AND TOP REINFORCING BARS FOR ALL DISCONTINUOUS ENDS OF BEAMS AND SLABS SHALL HAVE HOOKS AND SPLICES CONFORMING TO ACI MANUAL OF STANDARD PRACTICE.

ALL FILLET AND TOPPING CONCRETE SHALL BE HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 6000 PSI. FILLET CONCRETE, SHALL BE PLACED TO PRODUCE CONTOURS INDICATED ON PLANS, AND SHALL RECEIVE SMOOTH FLOAT FINISH.

CONCRETE COVER OVER REINFORCEMENT SHALL BE 2 INCHES MINIMUM, UNLESS NOTED OTHERWISE, AND 3-INCHES MINIMUM WHERE CAST AGAINST EARTH.

METALS

STRUCTURAL STEEL AND MISCELLANEOUS METALS DESIGN SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC/ANSI 360.

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

ALL GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123, UNO.

ALL STAINLESS STEEL BEAMS AND MISCELLANEOUS SHAPES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A1637 TYP 316/316L GRADE A OR BETTER, HOT ROLLED AND ANNEALED FINISH.

ALUMINUM

ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "ALUMINUM CONSTRUCTION MANUAL" OF THE ALUMINUM ASSOCIATION.

ALL ALUMINUM SHALL BE ALLOY 6061-T6 MEETING THE REQUIREMENTS OF ASTM B 308 UNO.

ALL ALUMINUM IN CONTACT WITH CONCRETE AND MASONRY SHALL HAVE THE CONTACT

ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIA A316 BOLTS UNO.

SURFACES COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT.

ALL ALUMINUM SHAPES SHALL MEET THE MINIMUM SECTION PROPERTIES LISTED IN THE "2005 ALUMINUM DESIGN MANUAL" PUBLISHED BY THE ALUMINUM ASSOCIATION.

ALL 1-1/2" DEEP ALUMINUM GRATING INDICATED ON PLANS SHALL BE 15-SGI-4 BY OHIO GRATINGS INC, OR APPROVED EQUAL. GRATING SHALL HAVE A MINUMUM ALLOWABLE WORKING STRESS OF 12,000 PSI WITH THE FOLLOWING MINIMUM SECTION PROPERTIES: $Ix = 0.675 IN^4/FT$

ALL GRATING SHALL HAVE STRIATED SURFACES ON TOP FLANGE OF BEARING BARS.

ALL GRATING PENETRATIONS SHALL BE CUT NEATLY AND IN A RECTANGULAR BAND BAR OF THE SAME HEIGHT AND MATERIAL SHALL BE INSTALLED BY WELDING.

ALL GRATING SHALL BE SECURED TO FRAMING MEMBERS USING STAINLESS STEEL SADDLE CLIPS AND 1/4" DIA STAINLESS STEEL TEK SCREWS AS SPECIFIED BY THE GRATING MANUFACTURER.

FOUNDATIONS

CONTRACTOR SHALL BE AWARE OF AND VERIFY LOCATION OF ALL UNDERGROUND UTILITIES, TANKS, FOUNDATIONS, ETC. DUE CARE SHALL BE EXERCISED DURING CONSTRUCTION ACTIVITIES SUCH THAT THE EXISTING UTILITIES ARE NOT DAMAGED.

ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN AN APPROVED MANNER. ALL EXCAVATIONS SHALL CONFORM TO OSHA REQUIREMENTS.

ALL EXCAVATION, FILLING, BACKFILLING, FOUNDATION AND COMPACTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH REQUIREMENTS NOTED ON THE DRAWINGS, PROJECT SPECIFICATIONS, AND THE PROJECT GEOTECHNICAL REPORT.

BARRICADE ALL OPEN EXCAVATIONS OCCURING AS PART OF THE WORK AND POST WITH WARNING

EXISTING FILL BELOW THE FOUNDATIONS FOR THE WASTE UNLOADING STATION IS NOT SUITABLE AND SHOULD BE OVEREXCAVATED TO COMPETENT MATERIAL AND REPLACED WITH COMPACTED 21AA AGGREGATE, PER RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT. CONTRACTOR SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER DURING THE EXCAVATION AND SUBGRADE IMPROVEMENTS PHASE TO TEST AND VERIFY THE SUBGRADE IS PREPPED AND SUITABLE FOR SUPPORTING THE NEW FOUNDATIONS.

STRUCTURAL ABBREVIATIONS

ALTERNATE HIGH PERFORMANCE COATING ALUMINUM ALUM HK HOOK HT HEIGHT BOTTOM **INSIDE DIAMETER** BLDG BUILDING **INVERT ELEVATION** BEAM **BSMT** BASEMENT **INSIDE FACE** CONSTRUCTION JOINT INCHES CENTERLINE INT **INTERIOR** CLR CLEAR JOINT COL THOUSAND POUNDS COLUMN CONC CONCRETE KIPS PER SQUARE INCH CONST CONSTANT **KNEE BRACE** CONSTR CONSTRUCTION LENGTH CONT CONTINUOUS **LOW POINT** CLSM CONTROLLED LOW STRENGTH MATERIAL LGHT LENGTH CMU CONCRETE MASONRY UNIT MAX **MAXIMUM** COR CORNER MIN **MINIMUM** CY CUBIC YARD MCP MULTIPLE CORROSION PROTECTION DOWEL BAR REPLACEMENT DBR MO MASONRY OPENING DET DETAIL NA NOT APPLICABLE DIA DIAMETER NEAR FACE DIAG DIAGONAL **NEAR SIDE** DISC NTS DISCONTINUOUS NOT TO SCALE **DWLS** NIC DOWELS NOT IN CONTRACT OC EJ **EXPANSION JOINT** ON CENTER EACH END OD **OUT SIDE DIAMETER** EACH FACE OUT SIDE FACE OPNG EACH SIDE ES OPENING PSF EQ **EQUAL** POUNDS PER SQ. FEET **EACH WAY** PSI POUNDS PER SQUARE INCH EACH PT PRESSURE TREATED **ELEVATION** REINF REINFORCEMENT **EXISTING** REFER TO EXT EXTERIOR/ EXTENSION REM **REMOVABLE** FILLET CONCRETE SHTS SHEETS FLOOR DRAIN SIM SIMILAR FAR FACE SJ SLAB CONTROL JOINT FAR SIDE STAINLESS STEEL STIR FINISH STIRRUPS **FLOOR** STRUCT STRUCTURAL FND FOUNDATION **TERS** TEMPORARY EARTH RETENTION SYSTEM FEET **GALV** GALVANIZED THK TOS **ELEVATION TOP OF STRUCTURAL STEEL** GRADE TYP GVW **GROSS VEHICLE WEIGHT** TYPICAL **UNLESS NOTED OTHERWISE** HORIZONTAL UNO **HOLLOW CORE**

HIGH POINT

VERTICAL

WORK POINT

WIDTH

REINFORCING TENSION SPLICE TABLE

	of LIGE TABLE	•
BAR SIZE	TENSION LAP	* TOP
	LENGTH	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'c=5,000 PSI AND REINFORCING STEEL; fy=60,000 PSI.

2. ALL SPLICES SHALL BE CONSIDERED TENSION SPLICES USING LAP LENGTHS IN TABLE ABOVE UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.

3. LENGTHS ARE BASED ON LAP CLASS B SPLICES WITH CENTER TO CENTER SPACING OF BARS EQUAL TO OR GREATER THAN 6 DIAMETERS.

4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST UNDER THEM.

5. USE TENSION LAP LENGTHS FOR HORIZ & VERT WALL BARS.



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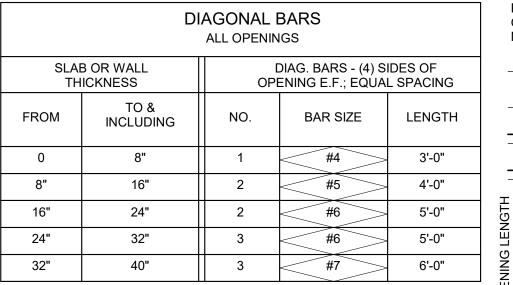
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WASTE UNLOADING ISO VIEW

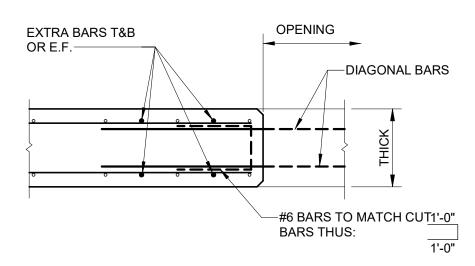


LENGTH OF EXTRA BARS	
CENTERED ON Q OF OPENING	

		_	
BAR SIZE	LENGTH = OPENING PLUS	BAR SIZE	LENGTH = OPENING PLUS
#4	3'-0"	#8	10'-0"
#5	4'-0"	#9	12'-0"
#6	6'-0"	#10	16'-0"
#7	8'-0"	#11	20'-0"

OPENING REINFORCEMENT SCHEDULE

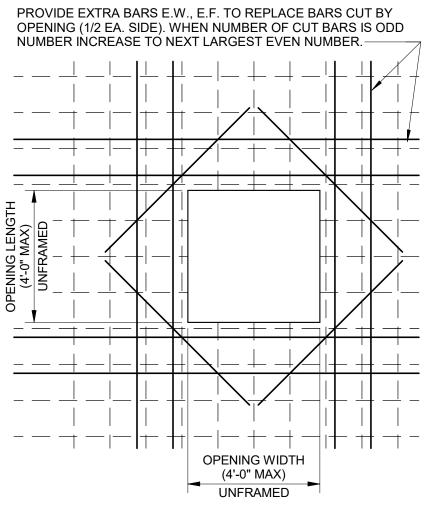
	TYPE OF	THICKNESS	REINFORCEMENT REQUIRED				
	OPENING	111101414200	EXTRA	DIAGONAL	[-BARS		
	UNFRAMED	16" OR LESS	YES	YES	NO		
		16" TO 4'-0"	YES	YES	YES		
	FRAMED (BEAMS)	ALL	NO	YES	NO		



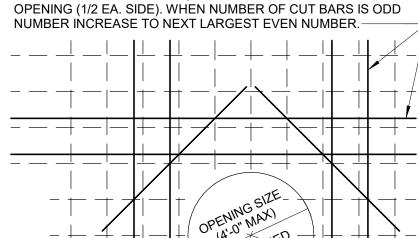
SLAB OPENING DETAIL OR WALL JAMB PLAN

SCALE: 3/8" = 1'-0"

ADDITIONAL REINFORCING DETAILS

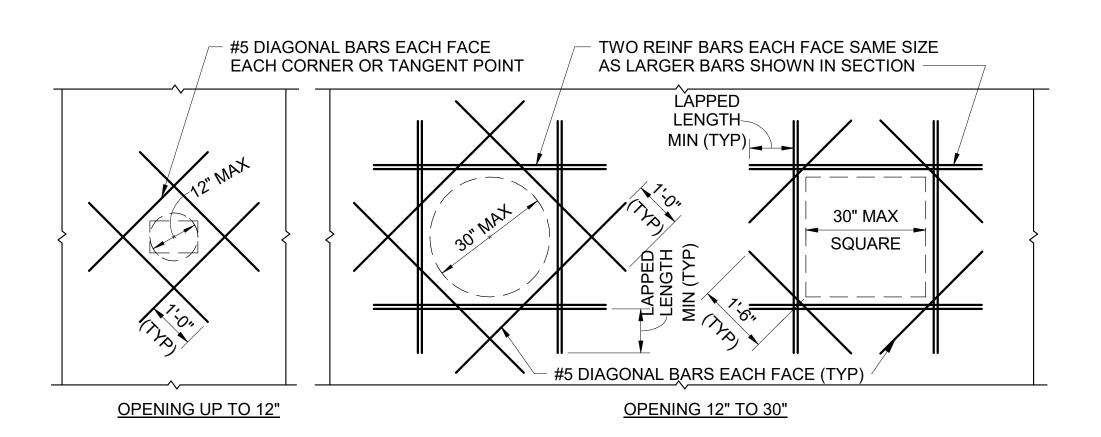


UNFRAMED OPENING DETAIL PLAN-RECTANGULAR SLAB OPENING ELEV. **RECTANGULAR WALL OPENING**

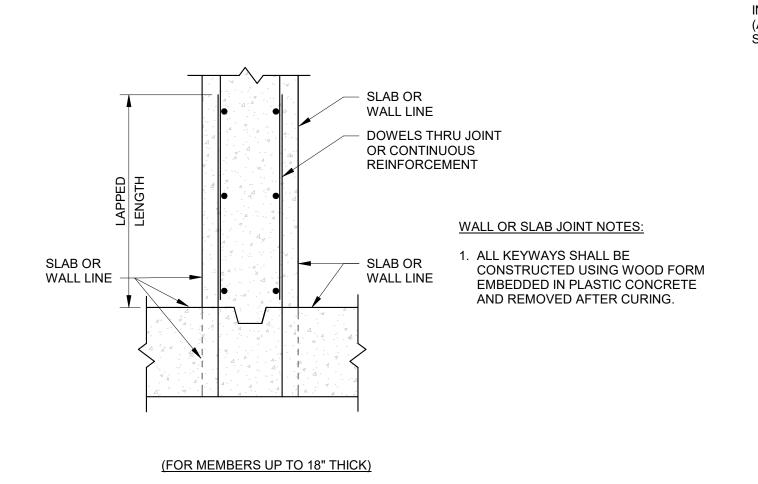


PROVIDE EXTRA BARS E.W., E.F. TO REPLACE BARS CUT BY

UNFRAMED OPENING DETAIL PLAN-CIRCULAR SLAB OPENING ELEV.-CIRCULAR WALL OPENING

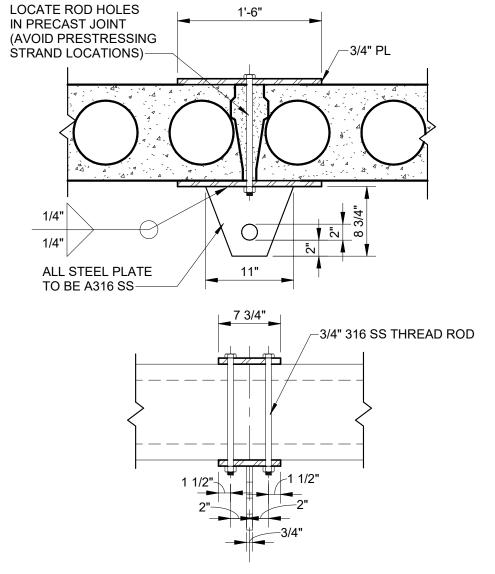


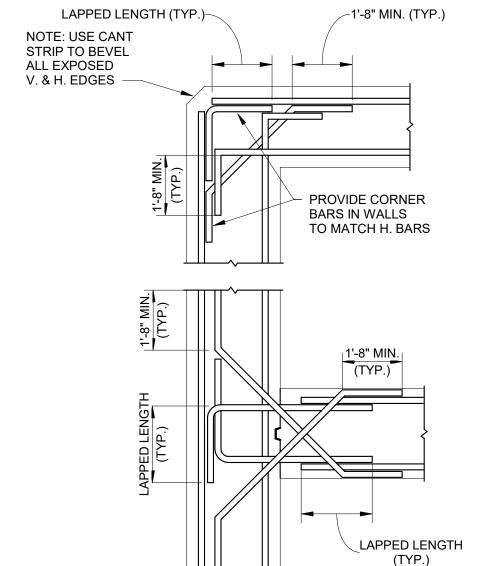
REINF. DETAILS FOR SMALL OPENINGS SCALE: 1/2" = 1'-0"



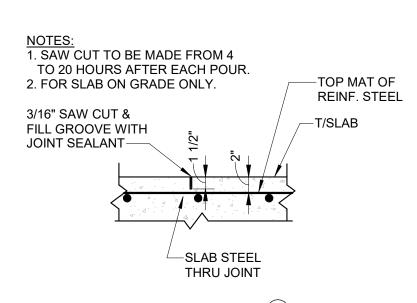
STANDARD WALL TO WALL OR WALL TO 4 SLAB JOINT DETAIL

SCALE: 1" = 1'-0"





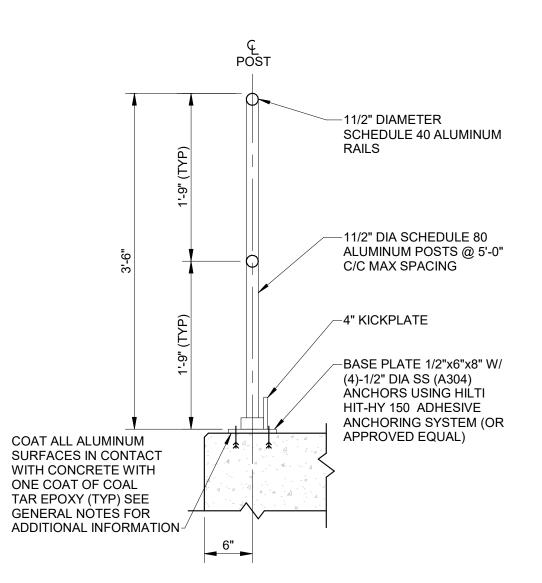


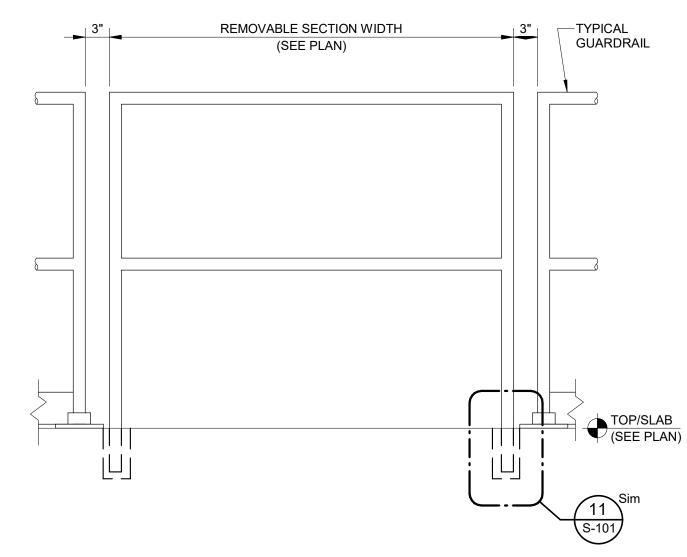


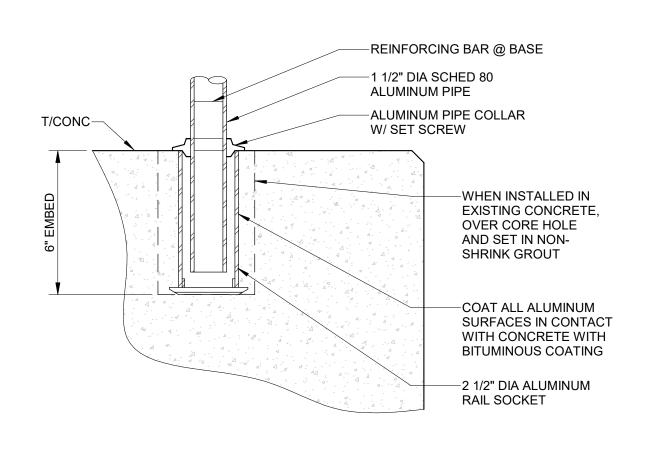
INDICATED BY SYMBOL (S)

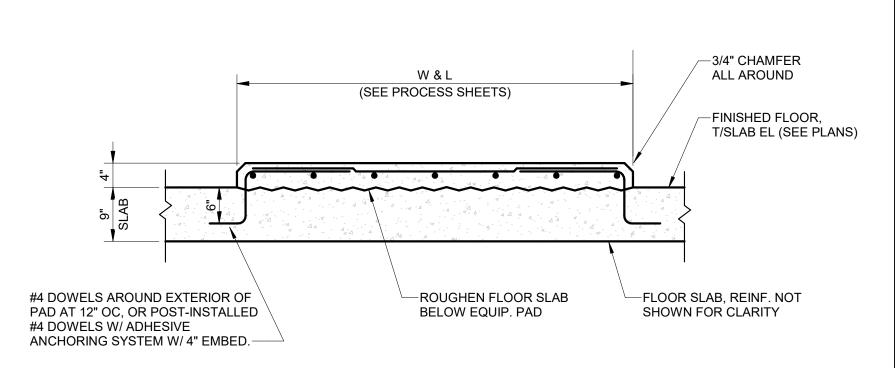












8 ALUM. GUARDRAIL DETAIL-TOP MOUNT SCALE: 1" = 1'-0"

(10) REMOVABLE ALUM. GUARDRAIL DETAIL SCALE: 1" = 1'-0"

(11) REMOVABLE GUARDRAIL ANCHOR DETAIL S-101 SCALE: 3" = 1'-0"

7 EQUIPMENT PAD DETAIL SCALE: 3/4" = 1'-0"

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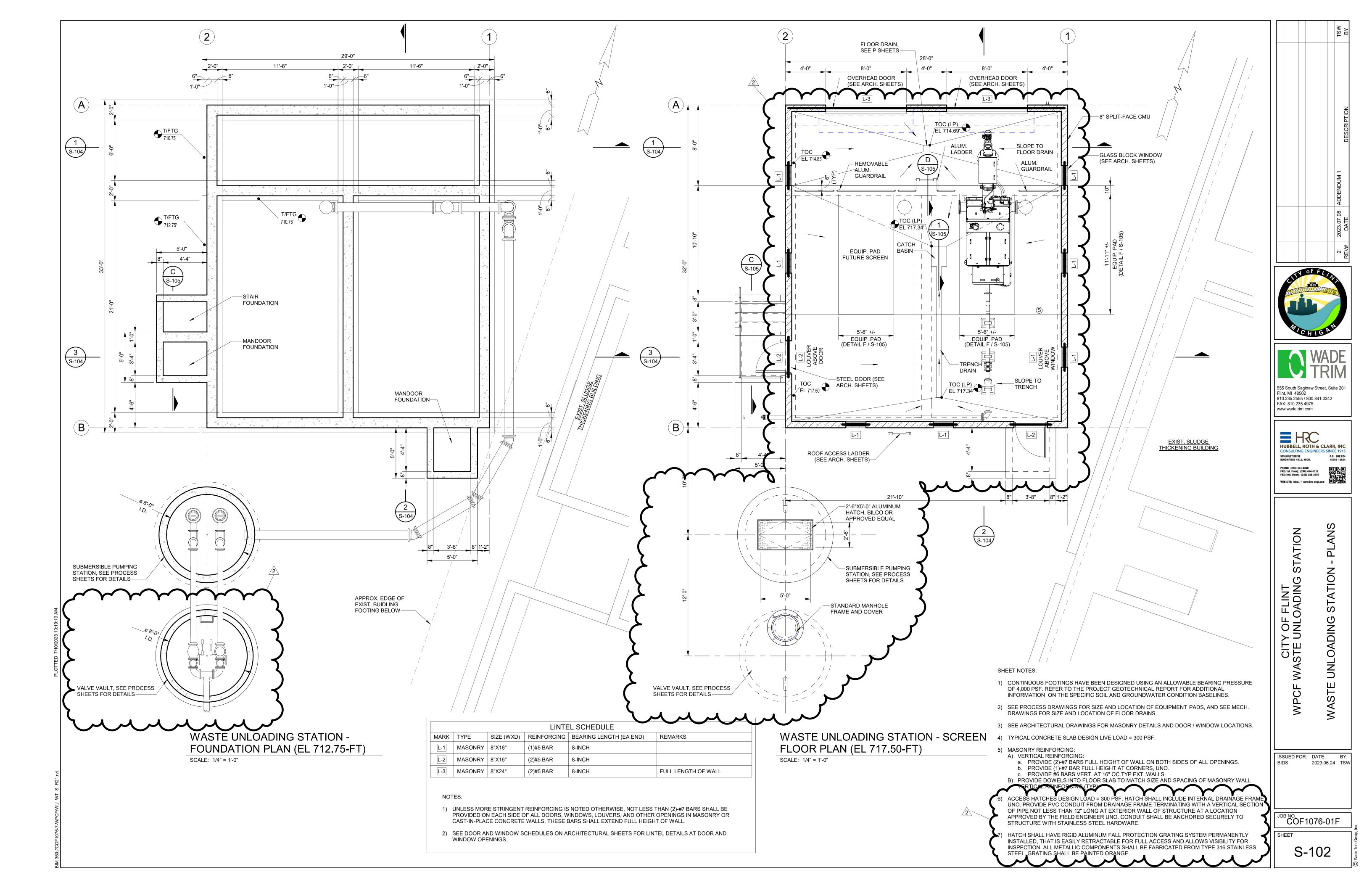
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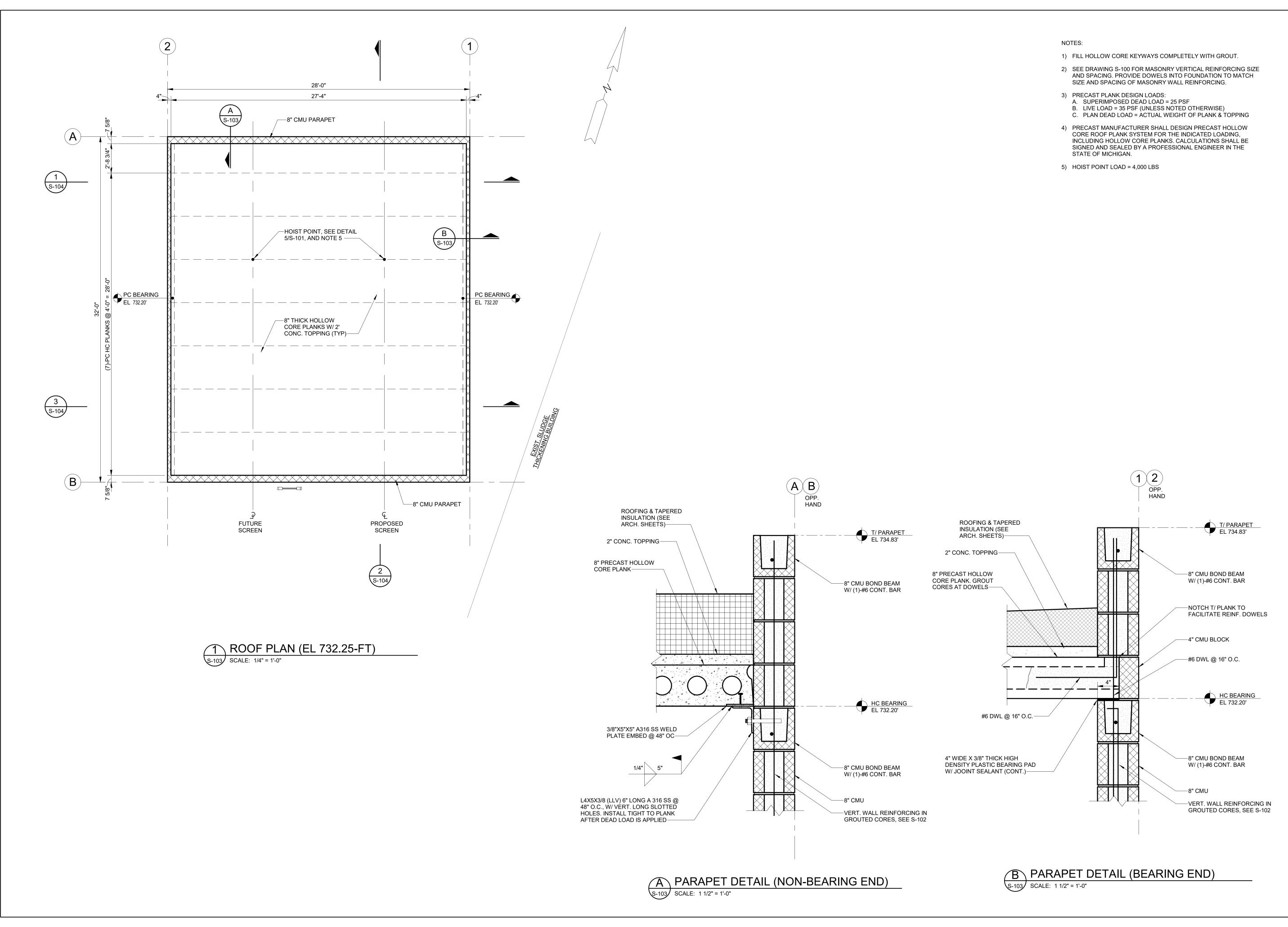
WEB SITE: http:// www.hrc-engr.com

YPICAL STATION UNLOADING STATION DETAILS CITY OF FLINT ASTE UNLOADING

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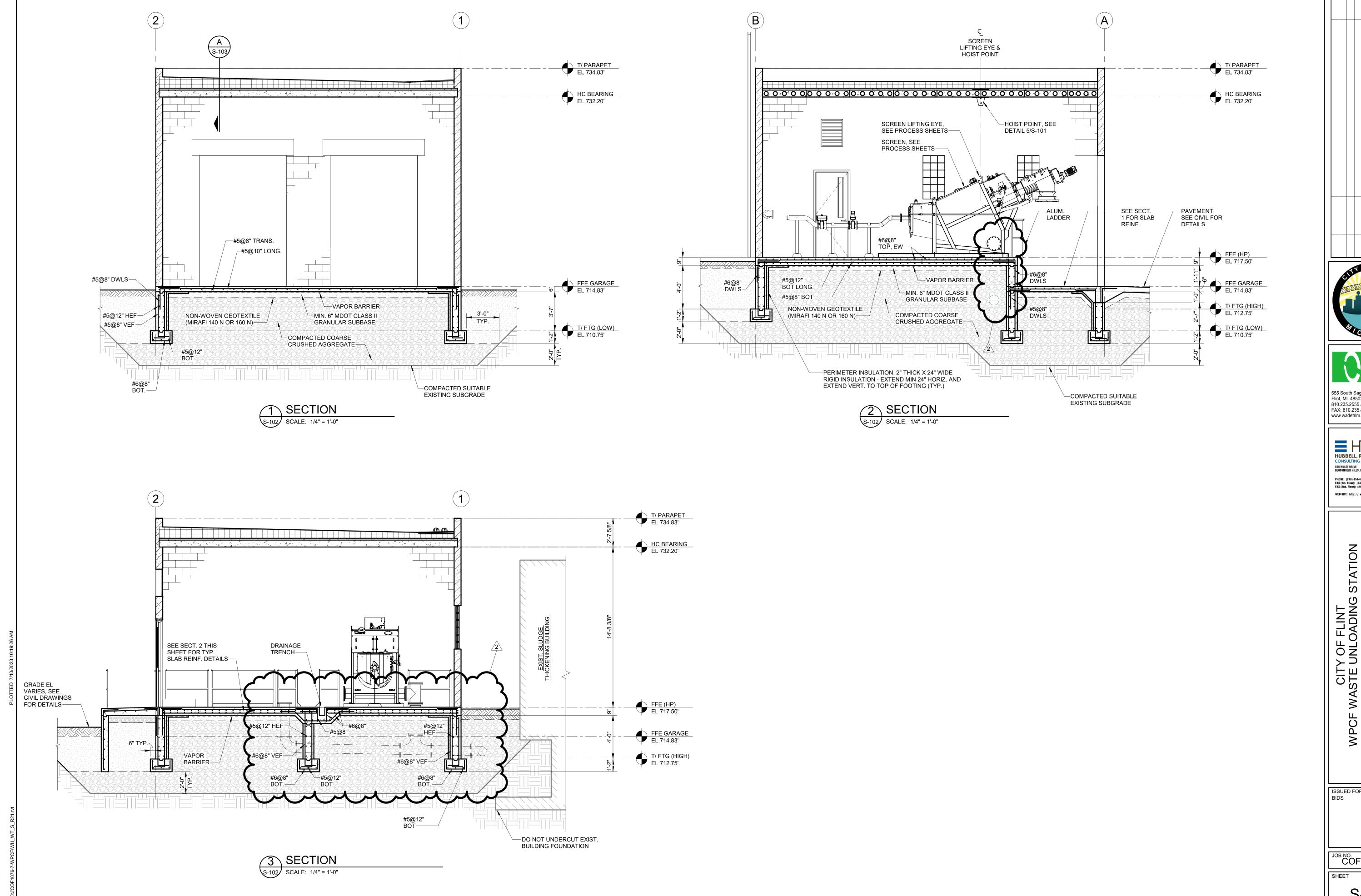
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STATION ROOF CITY OF FLINT WASTE UNLOADING UNLOADING STATION AND DETAILS WASTE

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2 2023.07.08 ADDENDUM 1 DESCRIPTION





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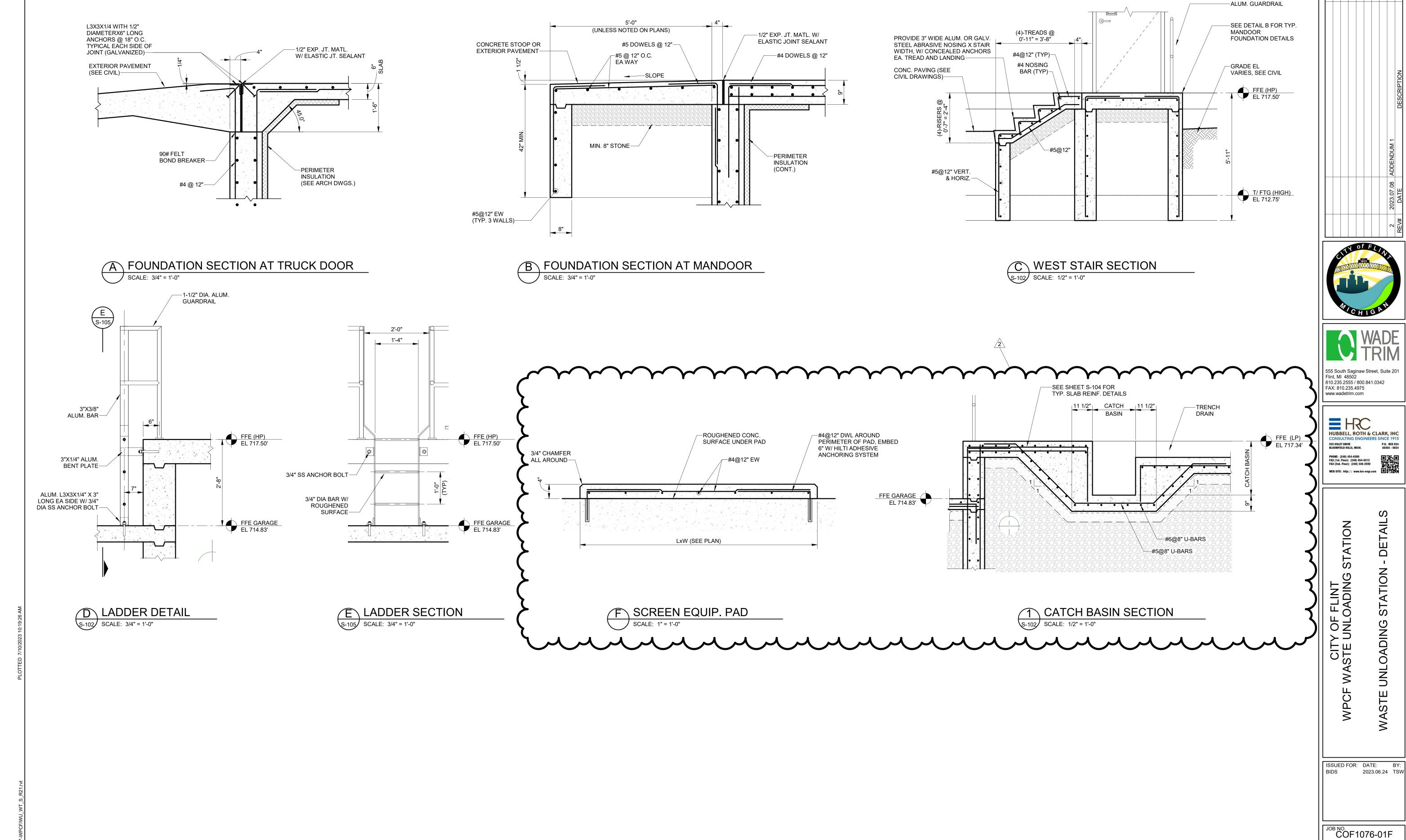
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F WASTE UNLOADING STATION
UNLOADING STATION - SECTIONS

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

ASTE

JOB NO. COF1076-01F



2. ALL WORK MUST CONFORM TO ALL STATUTES OF THE MICHIGAN BUILDING CODE (EDITION IN EFFECT AT THE TIME OF PERMIT), ALL STATE, COUNTY AND LOCAL ORDINANCES, CURRENT BARRIER FREE REGULATIONS, MIOSHA STRUCTURAL GUIDELINES, ASTM STANDARD TESTING PROCEDURES, OWNER'S PRACTICES AND GENERALLY ACCEPTED DESIGN PRACTICES. IF DISCREPANCIES IN DRAWING APPEAR, WORK MUST BE DONE PER CODE. CITY WILL COVER THE COST OF BUILDING, ELECTRICAL, MECHANICAL, AND PLUMBING PERMITS. CONTRACTOR MUST STILL APPLY FOR THE PERMITS.

3. EXISTING CONDITIONS OF BUILDING SHOWN ON CONSTRUCTION DOCUMENTS ARE ILLUSTRATIVE OF CONDITIONS VISIBLE TO ARCHITECT AND BASED ON EXISTING DRAWINGS. ALL EXISTING DIMENSIONS, CONDITIONS, SIZES & LOCATIONS ARE TO BE FIELD VERIFIED.

4. THE CONTRACTOR SHALL PROVIDE NEW OPENINGS AND SUPPORTS AS NOTED. FINAL OPENING DIMENSIONS, CONNECTION SIZES, CLEARANCES, ETC. MUST BE COORDINATED DURING CONSTRUCTION WITH APPROVED COMPONENTS. SEAL TIGHT ALL OPENINGS (ROOF, WALL AND CEILING), EQUIPMENT AND/OR PENETRATIONS - FROM AIR AND MOISTURE.

5. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND APPROVED

6. ALL INSTALLATIONS TO BE COORDINATED WITH EXISTING CONDITIONS FOR PROPER SIZE, LOCATION AND PROVISIONS REQUIRED TO INSTALL COMPONENTS

7. PIPING & CONDUIT HANGERS AND SUPPORT LOCATION ARE NOT SHOWN ON DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE PIPING AND CONDUIT

8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TRANSITIONS, FITTINGS AND APPURTENANT CONNECTIONS.

HANGERS AND SUPPORTS NECESSARY AS REQUIRED PER CODE.

9. THE CONTRACTOR SHALL KEEP THE SITE IN A NEAT AND ORDERLY CONDITION AND SHALL REMOVE RUBBISH DAILY OR AS DIRECTED BY OWNER. DUST CONTROL MEASURES ARE TO BE ERECTED BY THE CONTRACTOR TO PROTECT PATRONS AND VEHICLES DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. ALL STAGING AND MATERIALS STORAGE IS TO BE COORDINATED WITH THE OWNER. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ISOLATE CONSTRUCTION ACTIVITIES FROM ADJACENT AREAS THAT ARE TO REMAIN IN OPERATION DURING CONSTRUCTION - CONFIRM SCHEDULE AND REQUIRED BARRICADES WITH OWNER PRIOR TO COMMENCEMENT.

10. CONFIRM ANY COLOR SELECTIONS WITH OWNER. COLORS TO COORDINATE WITH EXISTING BUILDINGS ON SITE.

11. PREVENT GALVANIC ACTION AND OTHER FORMS OF CORROSION BY INSULATING METALS OR OTHER MATERIALS FROM DIRECT CONTACT WITH INCOMPATIBLE MATERIALS.

12. SHOP DRAWINGS AND PRODUCT DATA - THE CONTRACTOR SHALL SUBMIT TO THE OWNER AND PROJECT ENGINEER, SHOP DRAWINGS & PRODUCT DATA SUBMITTALS FOR ALL PRODUCTS AND COMPONENTS TO BE USED ON THIS PROJECT. MAINTAIN ONE COPY OF ALL APPROVED SUBMITTALS AT THE SITE FOR THE OWNER'S REFERENCE.

13. "RECORD" DRAWINGS - THE CONTRACTOR SHALL MAINTAIN A SET OF "AS-BUILT" PRINTS, MARKED UP AT THE SITE, CONTAINING ALL "AS-BUILT" INFORMATION. TURN SET OVER TO ENGINEER UPON COMPLETION OF THE WORK

14. INSTALL ALL MATERIALS IN COMPLIANCE W/ MFR. RECOMMENDATIONS AND CODE REQUIREMENTS.

15. CONTRACTOR MUST VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO START OF DEMOLITION AND MAKE EVERY EFFORT TO PROTECT THEM OR RELOCATE AS REQUIRED.

16. ALL PERMANENT WOOD BLOCKING, SHEATHING, FRAMING, ETC. UTILIZED IN CONSTRUCTION TO BE FIRE RETARDANT TREATED.

17. PROVIDE ADDITIONAL BLOCKING TO MATCH EXISTING AT WALLS/ CEILINGS TO ACCOMMODATE NEW INSTALLATIONS. MAINTAIN FIRE RATED ASSEMBLIES AND FIRE STOPPING PER LOCAL GOVERNING CODES AND ORDINANCES.

18. ALL DEMO'D COMPONENTS TO BE PROTECTED AND CAREFULLY REMOVED FOR SALVAGE/ REUSE AS NOTED. DEMOLISHED ITEMS THAT ARE NOT TO BE REUSED ARE TO BE REMOVED FROM PROJECT SITE PROMPTLY AND DISPOSED OF IN ACCORDANCE WITH OWNER STANDARDS. PROTECT EXISTING FACILITIES IN A MANNER AS TO NOT ADVERSELY AFFECT THE EXISTING FACILITY'S OPERATIONS.

19. WORKING HOURS AT BUILDING ARE AT THE DISCRETION OF THE OWNER. CONFIRM AND ABIDE BY ALL SECURITY RESTRICTIONS AND LOGISTICS PRIOR TO START OF CONSTRUCTION.

20. COORDINATE ANY INTERRUPTIONS OF FACILITY OPERATIONS WITH OWNER PRIOR TO INTERRUPTION.

FIRE EXTINGUISHERS: FIRE EXTINGUISHERS & ACCESSORIES: DRY CHEMICAL TYPE, UL299, HEAVY DUTY STEEL CYLINDER W/ PRESSURE GAGE; RECHARGEABLE UNIT; TYPE 10-A-120-B:C; PAINTED FINISH, COLOR RED. PROVIDE CHROMED STEEL MOUNTING BRACKETS & ALUM. WALL SIGNAGE (WHITE GOTHIC LETTERS ON RED BACKGROUND), BRADY SIGNAGE NO. 43294, 14X10, ALUM. PROVIDE WITH SIGNAGE ABOVE EXTINGUISHER. EXACT LOCATION TO BE DETERMINED BY FIRE MARSHALL & OWNER IN FIELD. PROVIDE (1) EXTINGUISHER WALL MOUNTED ON VALVE VAULT BLDG. INTERIOR ADJACENT TO THE EXTERIOR MANDOOR, WITH SIGNAGE ABOVE EXTINGUISHER - TOTAL OF (2) FIXTURES.

GENERAL NOTES:

PROVIDE TEMPORARY OPENING PROTECTION TO PREVENT FALLS AND WEATHER INTRUSION AT ALL HATCHES/ACCESS COVERS AND FLOOR/ROOF OPENINGS THAT ARE TO BE REMOVED OR MODIFIED AS PART OF THIS WORK.

2. REFER TO PLANS AND ELEVATIONS FOR ALL BUILDINGS TO DETERMINE SCOPE OF EXTERIOR AND INTERIOR MASONRY REPOINTING. VERIFY EXACT EXTENT OF REPAIR EFFORTS IN THE FIELD.

3. INTERIOR SPACES OF BUILDINGS AFFECTED BY THIS WORK SCOPE ARE TO BE CLEANED OF ALL DUST AND DEBRIS PRIOR TO FINAL CLOSE OUT OF JOB.

4. CONTRACTORS TO REFER TO ENTIRE SET OF DRAWINGS AND SPECIFICATIONS FOR FULL SCOPE OF WORK. CROSS COORDINATION BETWEEN CIVIL, PROCESS, MECHANICAL, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL DRAWINGS IS REQUIRED.

ROOFING NOTES:

1. ONLY MAJOR ROOF PENETRATIONS & EQUIP. ARE SHOWN. THE ROOF PLAN REPRESENTS THE GENERAL WORK AREA ONLY. THE CONTRACTOR SHALL REFER TO DEMO SHEET, REFERENCE DWGS. & FIELD VERIFY ALL CONDITIONS, OPENINGS, ETC. PRIOR TO BEGINNING WORK, WHETHER OR NOT THEY ARE SPECIFICALLY SHOWN ON THIS PLAN OR REF DWGS.

2. WOOD USED IN ROOFING SHALL BE ACQ TREATED, SEE SPECS. FASTENERS SHALL BE TYPE 304 STAINLESS STEEL OR HOT DIPPED GALV. STEEL. ZINC OR CADMIUM PLATED NOT ACCEPTABLEF OR USE WITH ACQ TREATED LUMBER.

3. PROVIDE WALKWAY PADS FROM ROOF HATCH OR LADDER TO ALL H&V UNITS, FANS, ROOF SUMPS, ETC. IN THE MOST DIRECT ROUTE OF TRAVEL. VERIFY EXACT LAYOUT/LOCATIONS IN FIELD WITH OWNER.

4. NEW METAL PERIMETER EDGING SHALL BE INSTALLED. METALS FOR NEW FLASHING SHALL BE AS SPECIFIED IN SECTION 07 6000. REFER TO SECTIONS FOR WOOD NAILER LOCATIONS, ROOF EDGE CONDITIONS, ETC.

5. ALL CURBS SHALL BE INSTALLED TO MIN. 8" ABOVE TOP OF NEW ROOFING INSTALL NEW MEMBRANE UP AND OVER CURBS, FASTEN TO INSIDE FACE OF CURBS PER ROOFING MFR. STANDARD DETAIL. ALL VENT PIPING TO BE INSTALLED AS REQ'D TO ACCOMMODATE SIM. FLASHING REQ'MENTS. (TYP.)

6. TAPERED INSULATION REQ'D IN AREAS INDICATED ON ROOF DWG. MAINTAIN MIN. SLOPE PER ROOFING MFR. WARRANTY REQUIREMENTS.

7. ROOF SADDLES ARE TO HAVE A MIN. SLOPE OF 1/2" PER FT. SLOPE (U.N.O.) PER ROOFING MFR. WARRANTY REQUIREMENTS.

8. PROVIDE CRICKETS ON HIGH SIDE OF <u>ALL</u> CURBED ITEMS. MIN 1/2" PER FOOT (U.N.O.) PER ROOFING MANUFACTURERS WARRANTY REQUIREMENTS.

9. ALL PENETRATIONS THROUGH ROOF ARE TO BE INSTALLED SUCH THAT THERE IS A MINIMUM OF 8" CLEAR HEIGHT ABOVE THE FINISHED ROOF SURFACE AVAILABLE FOR INSTALLIGN ROOFING FLASHINGS & TERMINATIONS PER MFR.

BUILDING DATA

APPLICABLE CODES

2015 MICHIGAN BUILDING CODE (MBC) 2017 NATIONAL ELECTRIC CODE (NEC) WITH MICHIGAN AMENDMENTS

2015 MICHIGAN MECHANICAL CODE

2018 MICHIGAN PLUMBING CODE 2015 MICHIGAN UNIFORM ENERGY CODE

2015 MICHIGAN REHAB CODE FOR EXISTING BUILDINGS (MRCEB)

ICC ANSI A117.1 - 2009 2015 INTERNATIONAL FIRE CODE

DISTANCE TO AN EXIT ACCESS DOES NOT EXCEED 75 FEET FOR AREAS CONSTRUCTED UNDER THIS WORK WITH 1 EXIT.

THIS BUILDING IS EXEMPT FROM ACCESSIBILITY REQUIREMENTS UNDER 1103.2.9. BUILDING IS AN UNOCCUPIED STRUCTURE FOR PROCESS EQUIPMENT, PART OF A SEWAGE TREATMENT SYSTEM. DOOR HARDWARE SHALL BE PROVIDED AS SPECIFIED AND INSTALLED IN ACCORDANCE WITH DIVISION 8 SPECIFICATIONS.

OCCUPANCY GROUP (306.3): FACTORY INDUSTRIAL F-2 LOW HAZARD OCCUPANCY

CONSTRUCTION TYPE (TABLE 601): IIB UNSPRINKLED

ALLOWABLE HEIGHT/AREA:

MAXIMUM PROVIDED FOOTPRINT AREA 23,000 SF 823 SF HEIGHT 55' (3 STORIES) 20'-0" (1 STORY)

FLOOR AREA - GROSS S.F. (1002.1)

WASTE ROOM

OCCUPANCY LOAD: OCCUPANCY CLASSIFICATION PER TABLE 1004.1.2 IS MECHANICAL EQUIPMENT, 300 GROSS S.F. PER OCCUPANT.

NO. OF OCCUPANTS

COMPLIES

8" CMU WALL

SOLID (TYP.)-

GROUT CORES

DOOR FRAME

ANCHORS PER

MFR. GUIDLINES-

SOLID-

#5 BAR. GROUTED

OCCUPANT LOAD MAY BE REDUCED BY CODE OFFICIAL TO REFLECT ACTUAL OCCUPANCY.

BUILDING IS A NORMALLY UNOCCUPIED SPACE USED TO HOUSE PROCESS EQUIPMENT.

ENERGY CODE REQUIREMENTS (ASHRAE 90.1: 2013): SEMI-HEATED

823 / 300 =

PROVIDED **ROOF INSULATION** R-30 R-30 MASS WALLS CORE INSUL COMPLIES DOORS U-0.7 U-0.45

U-0.62

SLAB R-11.4 (PER EX. B, FILL UNGROUTED CORES w/ MAT'L HAVING MAX. THERMAL CONDUCTIVITY OF

CLASS 1 / DIVISION 1 SPACE

0.44 BTU-IN/H-FT2-F)

FINISH NOTES:

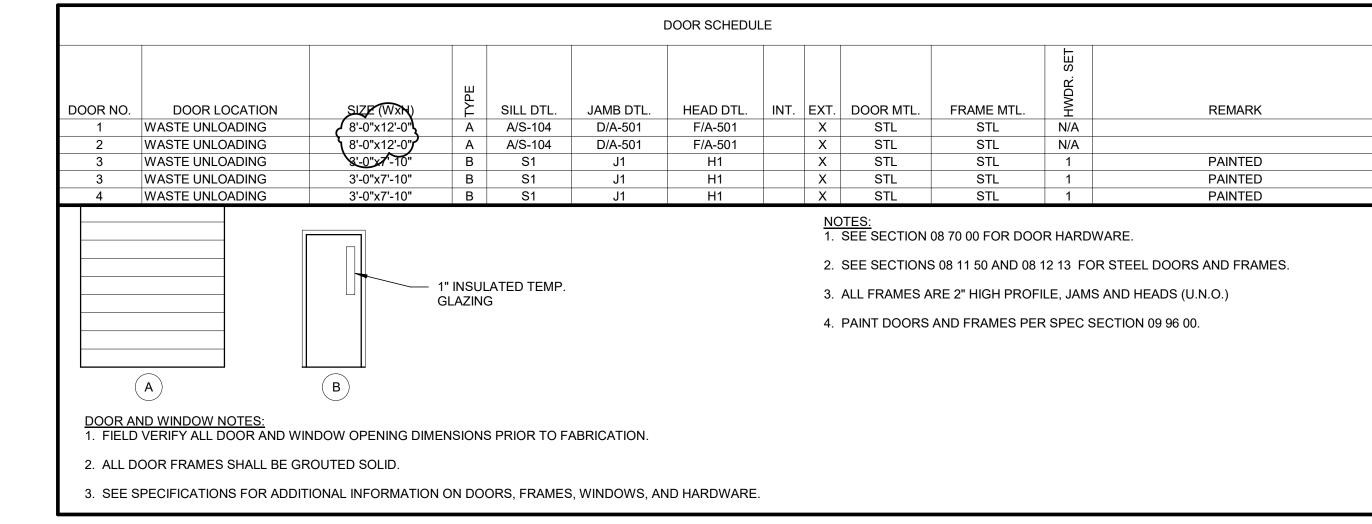
WINDOWS

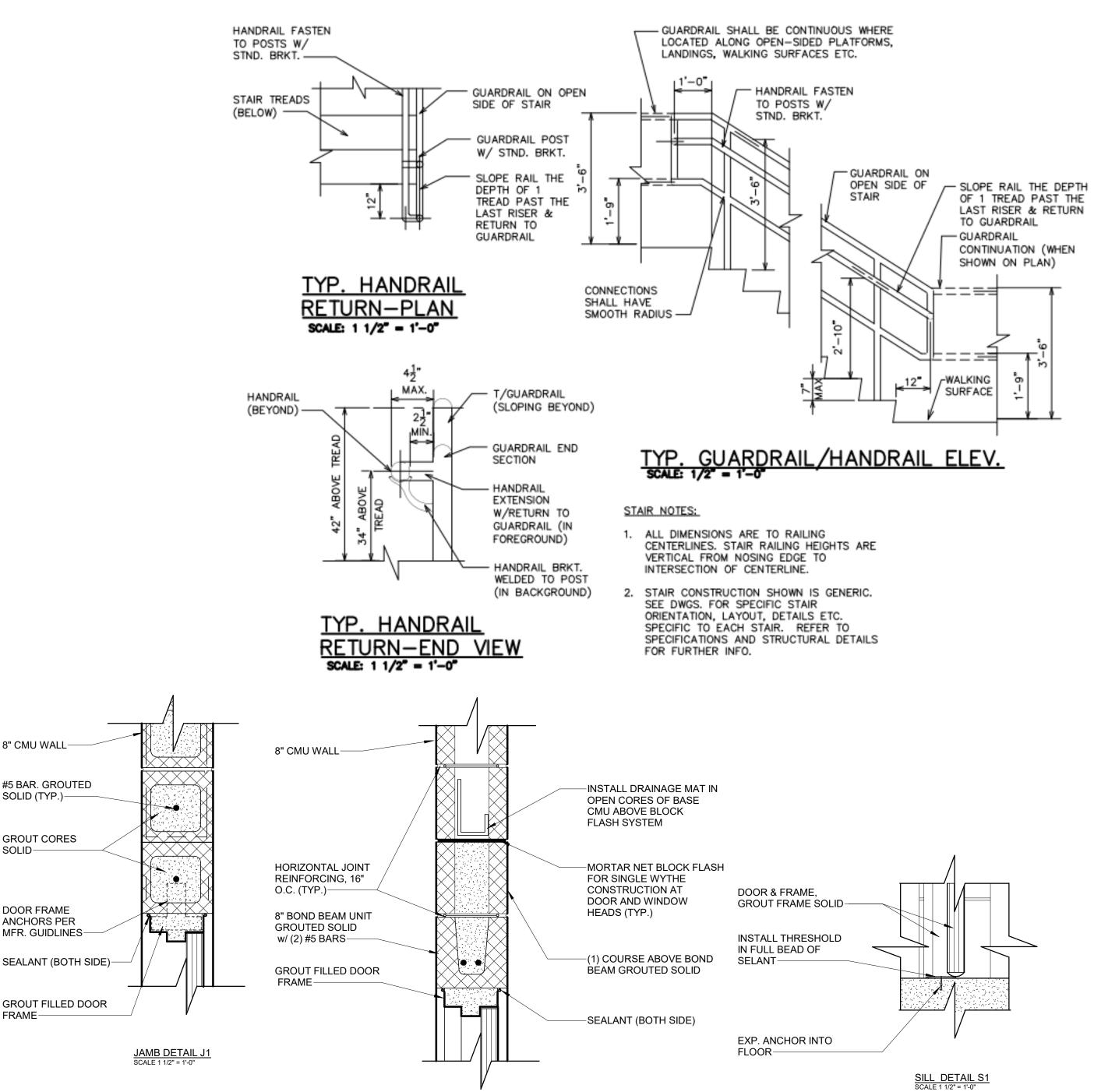
1. AT GRAE LEVEL, PAINT EXPOSED CMU, PRECAST CEILINGS, EXPOSED STRUCTURAL STEEL, ANGLES, ETC.

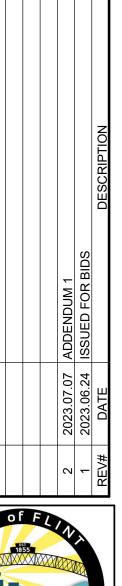
2. PROVIDE CONCRETE FLOOR SEALER FOR BLDG. INTERIOR FLOOR SURFACES, CURBS ETC. SEALER SHALL BE EUCO-GUARD 100 BY EUCLID CHEMICAL COMPANY OR ENGINEER APPROVED EQUAL.

3. SEE SECTION 09 96 00 FOR PAINTING RQUIREMENTS.

4. EXTERIOR SIDE OF CMU WALLS TO BE SEALED PER SPEC SECTION 07 19 00.











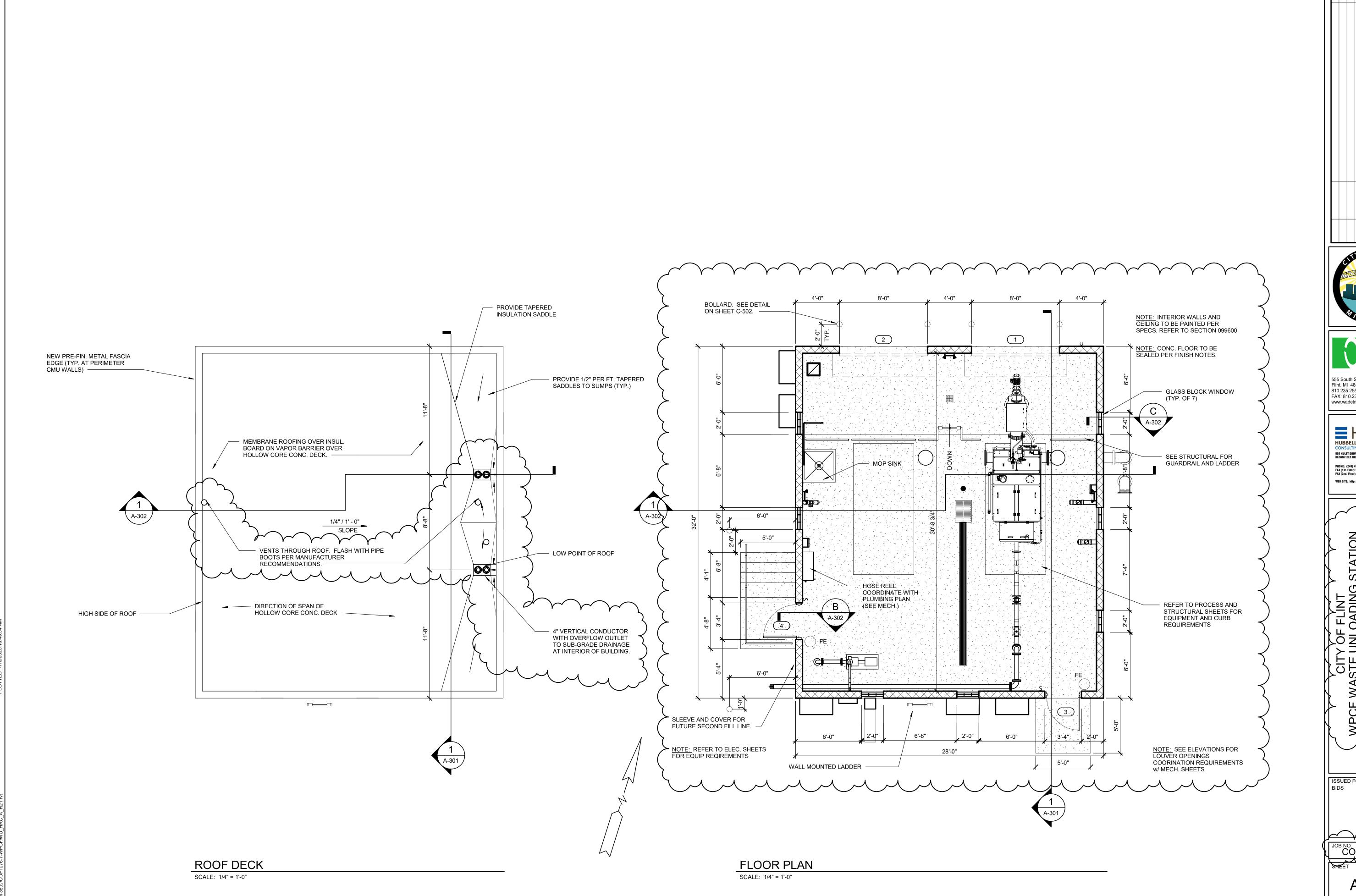
Flint, MI 48502 810.235.2555 / 800.841.0342 FAX: 810.235.4975 www.wadetrim.com

= HRC **HUBBELL, ROTH & CLARK, INC**

PHONE: (248) 454-6300 FAX (1st. Floor): (248) 454-6312 FAX (2nd. Floor): (248) 338-2592 WEB SITE: http://www.hrc-engr.com

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ISSUED FOR: DATE: BY: 2023.06.24 TSW





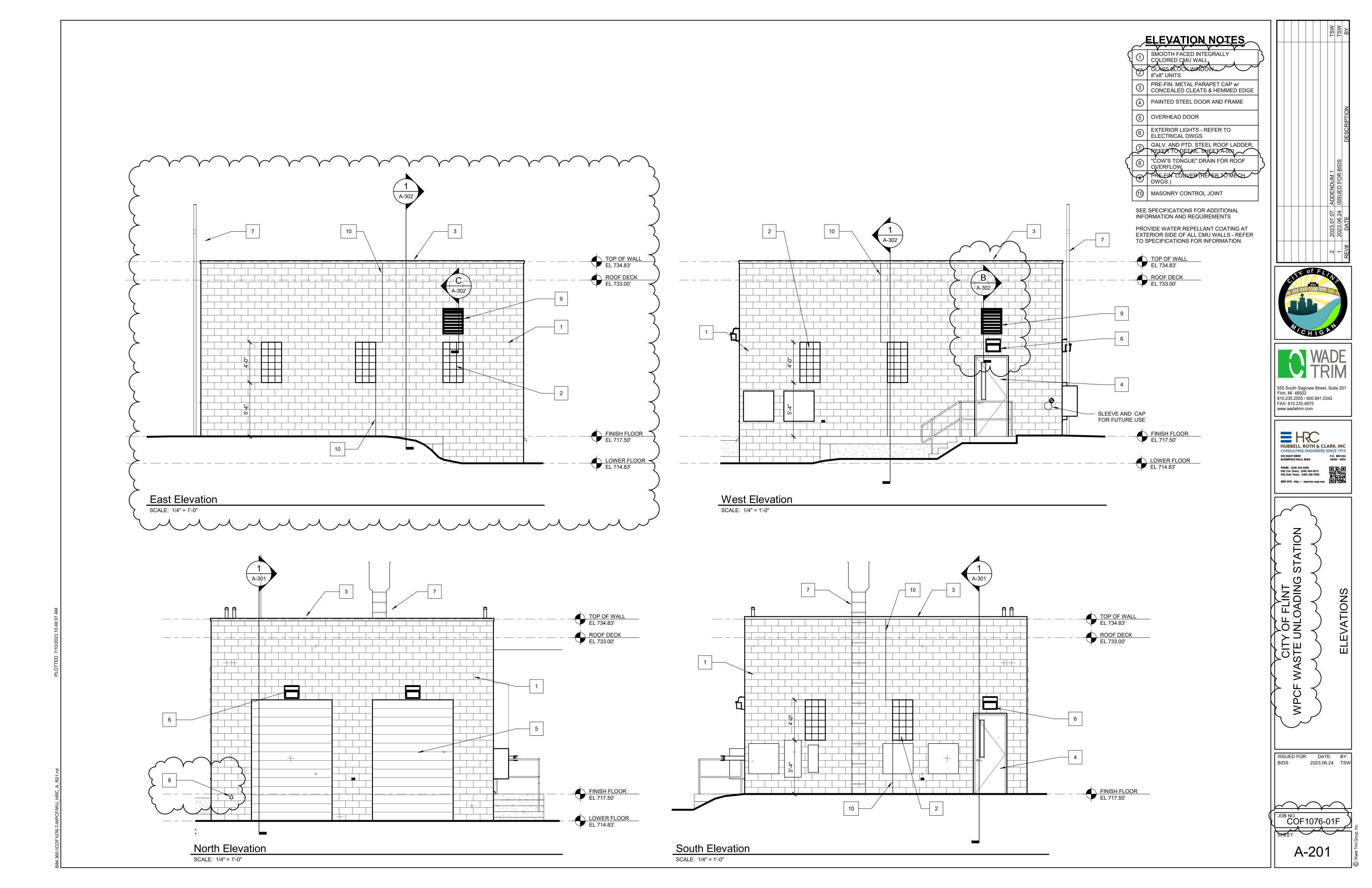
555 South Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 / 800.841.0342 FAX: 810.235.4975 www.wadetrim.com

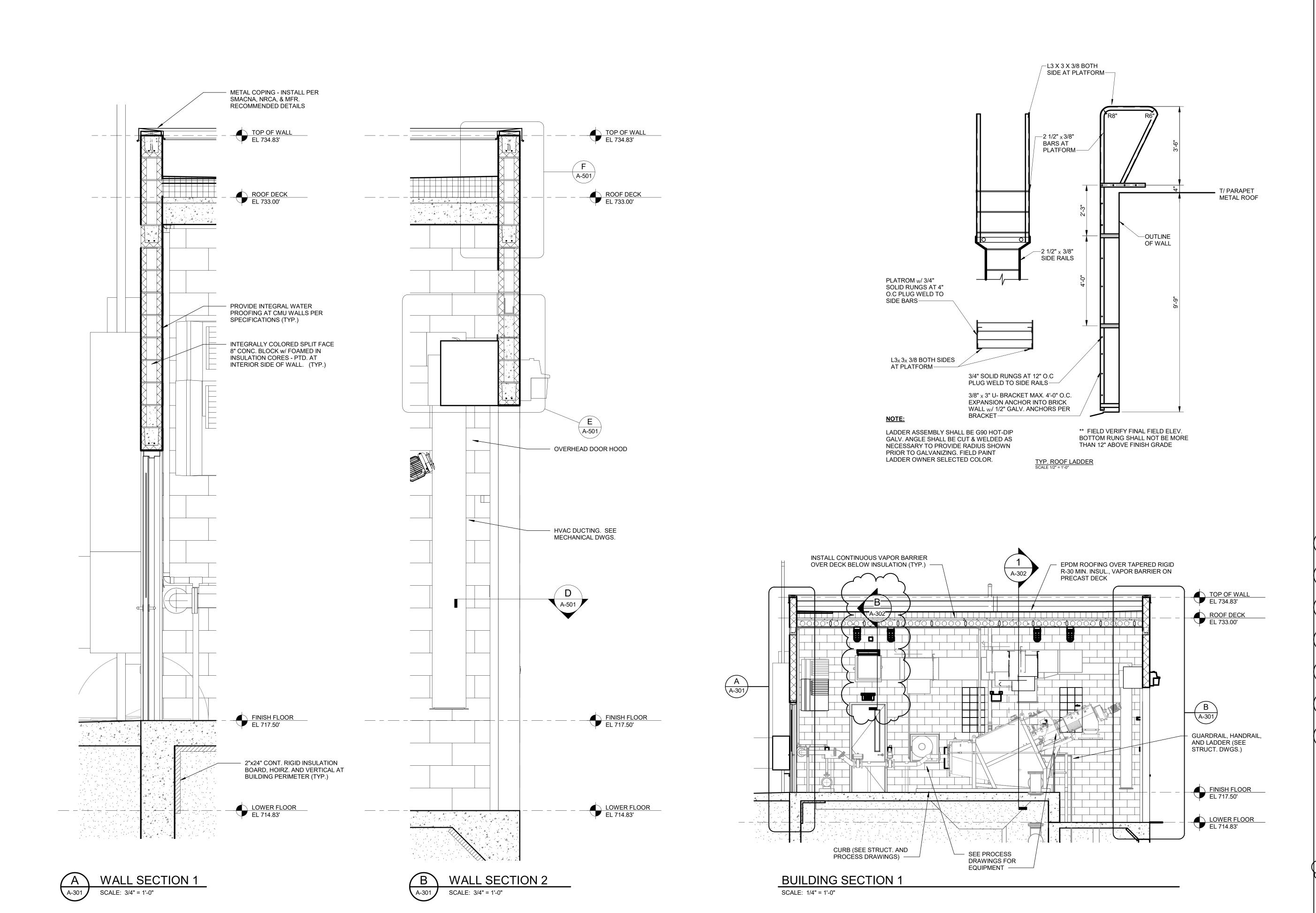
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555 HULET DRIVE
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FAX (1st. Floor): (248) 454-6312
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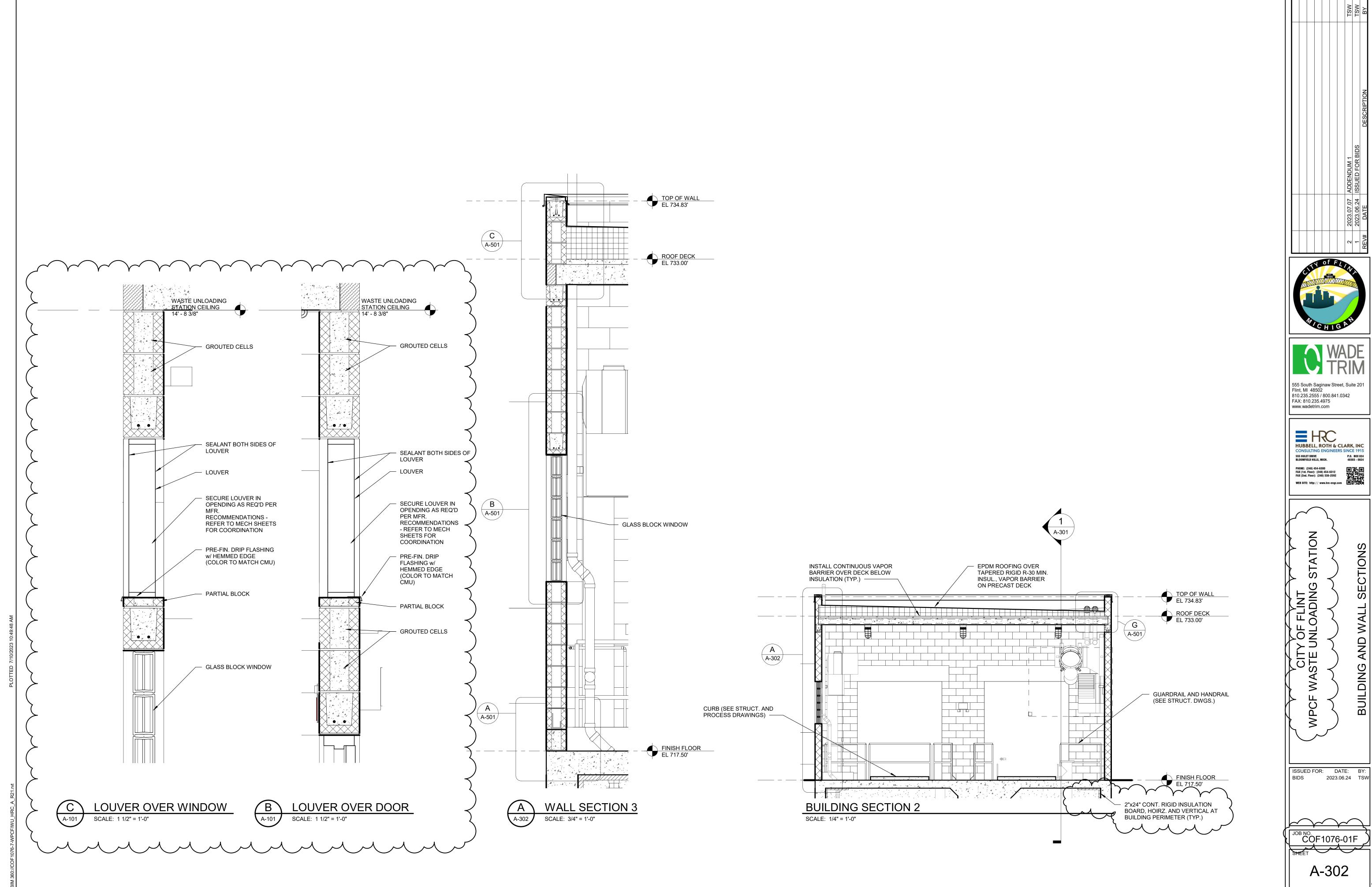
WPCF WASTE UNLOADING STATION

BUILDING AND WALL SECTIONS

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

JOB NO. COF1076-01F

A-301







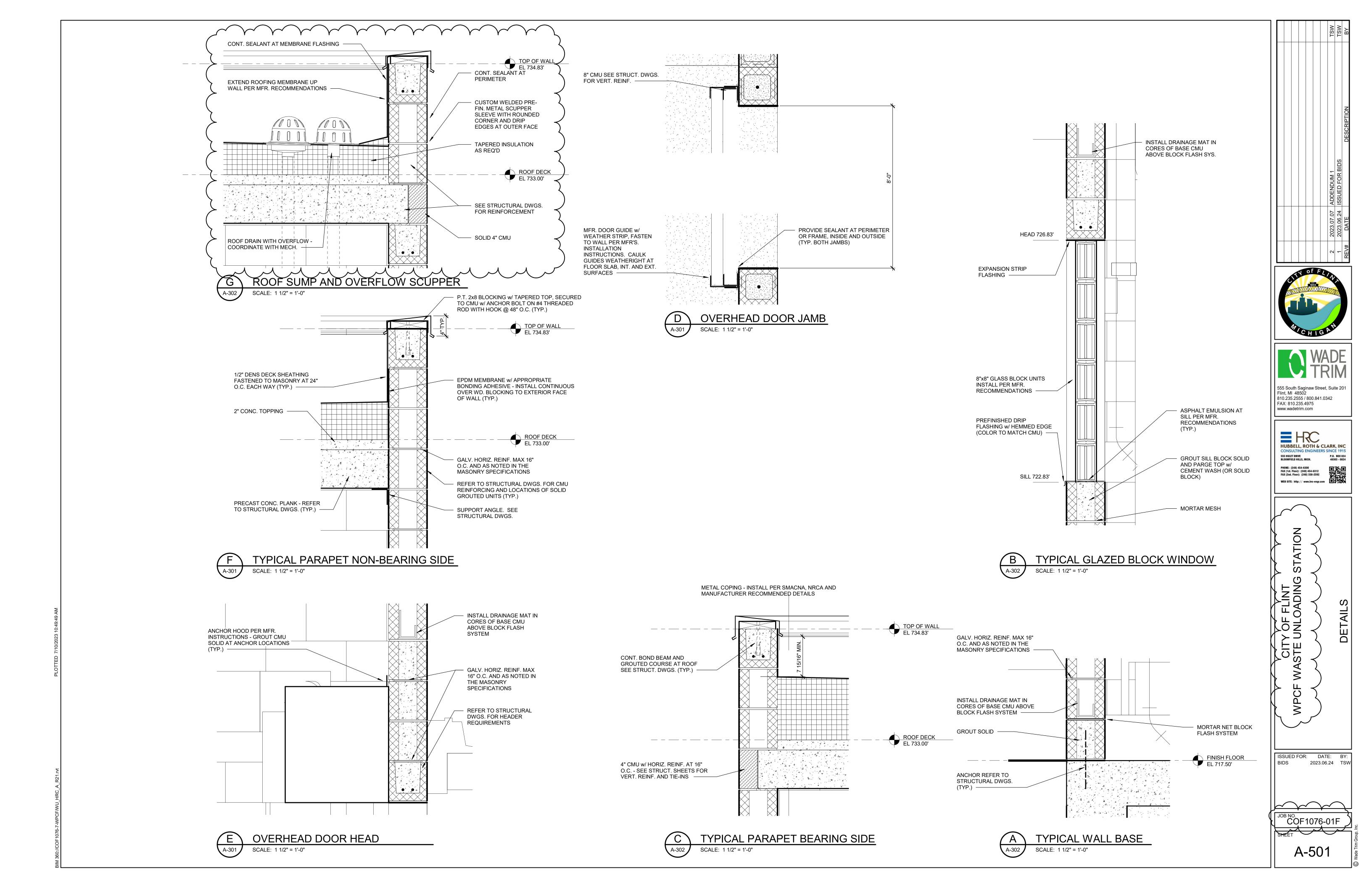


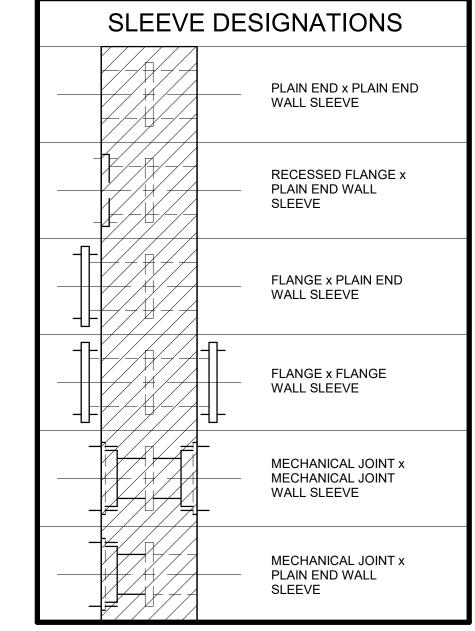
ABB	REVIATIONS - PIPING
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ARV	AIR RELIEF VALVE
BCE	BIOLOGICAL CONTACTOR EFFLUENT
BF	BLIND FLANGE
BP	BYPASS
С	CENTRATE
CA	COMPRESSED AIR
CDS	CHEMICAL DOSING
CE	CHLORINATED EFFLUENT
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CL	CENTER LINE
CON	CONCENTRATE
CON RED	CONCENTRIC REDUCER
CONC	CONCRETE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CUP	COPPER PIPE
CM	COLD WATER
D	DRAIN
DE	DECANT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE DISMANTLING JOINT
DMJ DS	DIGESTED SLUDGE
ECC	ECCENTRIC ECCENTRIC
ECC RED	ECCENTRIC REDUCER
ED ED	EQUIPMENT DRAIN
EFF	EFFLUENT
El	EQUALIZATION TANK INFLUENT
EL	ELEVATION
ELB	ELBOW
ER	EQUALIZATION TANK RETURN
ES	EQUALIZATION TANK SLUDGE
FA	FOUL AIR
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FE	FINAL EFFLUENT
FFWD	FEED FORWARD
FLG	FLANGE
FM	FORCE MAIN
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FRP	FIBERGLASS REINFORCED PIPE
FS	FINAL TANK SLUDGE
FTW	FILTER TO WASTE
GRS	GREASE
GRT	GRIT
GRV	GROOVED JOINT
GSP	GALVANIZED STEEL PIPE
GW	GLAND WATER
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HS	HEATED SLUDGE
INF	INFLUENT
INV	INVERT
IR	INFRARED
LPA	LOW PRESSURE AIR
LR	LONG RADIUS
MBR	MEMBRANE BIOREACTOR

MFR MANUFACTURER MH MANHOLE MJ MECHANICAL JOINT ML MIXED LIQUOR MLP MAIN LIFT PUMP NAOCI SODIUM HYPOCHLORITE NC NORMALLY CLOSED NO NORMALLY OPEN NPW NON-POTABLE WATER OVERFLOW PA PROCESS AIR PE PRIMARY TANK EFFLUENT PEP POLYETHYLENE PIPE PERM PERMEATE PEW PLANT EFFLUENT WATER PI PRIMARY TANK INFLUENT PL PLATE POA PULLOUT ASSEMBLY PP POLYPROPYLENE PIPE PS PRIMARY TANK SLUGGE PVC POLYVINYL CHLORIDE PW POTABLE WATER RAS RETURN ACTIVATED SLUDGE RC RECYCLED RCP REINFORCED CONCRETE PIPE RDMJ RESTRAINED DISMANTLING JOINT RECYC INTERNAL RECYCLE RED REDUCER REW REUSE WATER R RAS RAW SEWAGE RW RAW SWAGE RW RAW WATER S SCUM SAM SAMPLE SE SECONDARY EFFLUENT SP SECONDARY FINAL EFFLUENT SP SECONDARY WATER - HIGH PRESSURE SWIP SECONDARY WATER - HIGH PRESSU	ABB	REVIATIONS - PIPING
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I ——∏——	FLOW ELEMENT
	PIPE GUIDE
—•—> үн	YARD HYDRANT
PRS	PRESSURE REDUCING STATION
SEAL]	PUMP SEALING WATER CONNECTION
—— ———————————————————————————————————	SAMPLE FUNNEL
	AIR SET ASSEMBLY
A-TH]	AIR TO VALVE OPERATOR (THROTTLING SERVICE)
	AIR TO VALVE OPERATOR
MIX —	(OPEN SHUT SERVICE) IN LINE STATIC MIXER
MIX (E)	
_ m	EDUCTOR
	INJECTOR
₩	TRAP (STEAM OR AIR MOISTURE)
QD	QUICK DISCONNECT (AIR) (3/4")
—-ю	ELBOW UP
1 5	ELBOW DOWN
	TEE UP
	TEE DOWN
─ □	REDUCER-CONCENTRIC
	REDUCER-ECCENTRIC
***	WYE STRAINER
	BASKET STRAINER
<u></u>	UNION
м	METER (TOTALIZING)
	ROTAMETER
	STEEL WALL SLEEVE
	EMERGENCY SHOWER AND EYEWASH
	PIPING (BELOW SLAB)
— — — FD	FLOOR DRAIN
— — — FD/SB	FLOOR DRAIN W/SEDIMENT BUCKET
FS	FLOOR SINK
— — РВО	PUMP BASE DRAIN
— — — ED	EQUIPMENT DRAIN
Oco	CLEANOUT-FLOOR
— co	CLEANOUT-HORIZONTAL
— — RD	ROOF DRAIN
D	PIPE TO DRAIN
+(p)+	IN-LINE PUMP
	INSTRUMENT AIR PNEUMATIC SIGNAL
	ELECTRIC
	INSTRUMENT CAPILLARY TUBING
BFP D	BACKFLOW PREVENTER
	CONNECTION TO EXISTING
	PIPE CAP OR PLUG
	DIRECTION OF FLOW

DIRECTION OF FLOW

ELBOW FLOW METER



_			
	VALVE SYMBOLS		
	TRIPLE DUTY VALVE		
$\longrightarrow\!$	GATE VALVE		
	GLOBE VALVE		
─ ₩	BALL VALVE		
	BUTTERFLY VALVE		
—XX	CORPORATION COCK		
$-\!$	BALANCING VALVE		
─ ▼	PET COCK		
	CHECK VALVE		
─	PLUG VALVE		
$\longrightarrow \!$	STOP AND CHECK VALVE		
$-\!$	PINCH VALVE		
\longrightarrow	DIAPHRAGM VALVE		
─ ₩	AUTO-FLOW CONTROL VALVE		
	ANGLE OR NEEDLE VALVE		
	PRESSURE RELIEF VALVE		
	THREE WAY VALVE		
	TEMPERING VALVE		
<u>s</u>	SOLENOID OPERATED VALVE		
<u> </u>	PRESSURE REGULATING VALVE (SELF CONTAINED)		
(M)	MOTORIZED CONTROL VALVE (OPEN-SHUT, THROTTLING)		
	PNEUMATIC OPERATED CONTROL VALVE (OPEN-SHUT, THROTTLING)		
BP	BACKPRESSURE VALVE		
——————————————————————————————————————	HOSE BIBB (3/4")		
——————————————————————————————————————	HOSE REEL (3/4")		
——————————————————————————————————————	FLUSHING HOSE BIBB (1-1/2")		
	SILL COCK (3/4")		
FC FC	FLUSHING CONNECTION (ON PIPE) 1-1/2"		
ASV	ANTISIPHON VALVE		
0-100 PSI 0-1	100 PSI PUMP/BLOWER INCLUDING PRESSURE GAUGES PI = PRESSURE GAUGE		
PI	PI-D = PRESSURE GAUGE W/ DIAPHRAGM SEAL		
	PI-P = PRESSURE GAUGE W/ PULSATION DAMPER		

GENERAL PIPING NOTES

- A LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- B UNLESS NOTED OTHERWISE, PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF PIPE.
- C SUBMIT THE ROUTING OF PIPING NOT SHOWN IN THE DRAWINGS FOR APPROVAL, INCLUDING PIPING SMALLER THAN 3 INCHES. D SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS NOTED
- OTHERWISE. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE. E LOCATIONS AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DESIGN
- F ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL OR THROUGH WATERTIGHT STRUCTURE.
- G ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS NOTED OTHERWISE. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
- H NOT ALL OF THE GRAPHICS, ABBREVEATIONS, ETC., SHOWN ON THIS SHEET ARE USED ON THE PROJECT. I NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO
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- FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
- K LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
- L LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES. M LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.

AND PROVIDE PIPE SUPPORTS AS SPECIFIED.

- N INSTALL ALL PLUG, BUTTERFLY, AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS NOTED OTHERWISE.
- O ALL MECHANICAL AND PROCESS EQUIPMENT SHALL BE PLACED ON CONCRETE HOUSEKEEPING PADS, WHETHER INDICATED OR NOT. SEE STRUCTURAL SHEETS FOR TYPICAL DETAILS.
- P VERTICAL ELEVATIONS ARE PROVIDED IN THE CITY OF DETROIT DATUM. ALL OTHER ELEVATIONS ARE PROVIDED IN NAVD88. THE CONVERSION FROM THE CITY OF DETROIT DATUM TO NAVD88 IS 479.20'.





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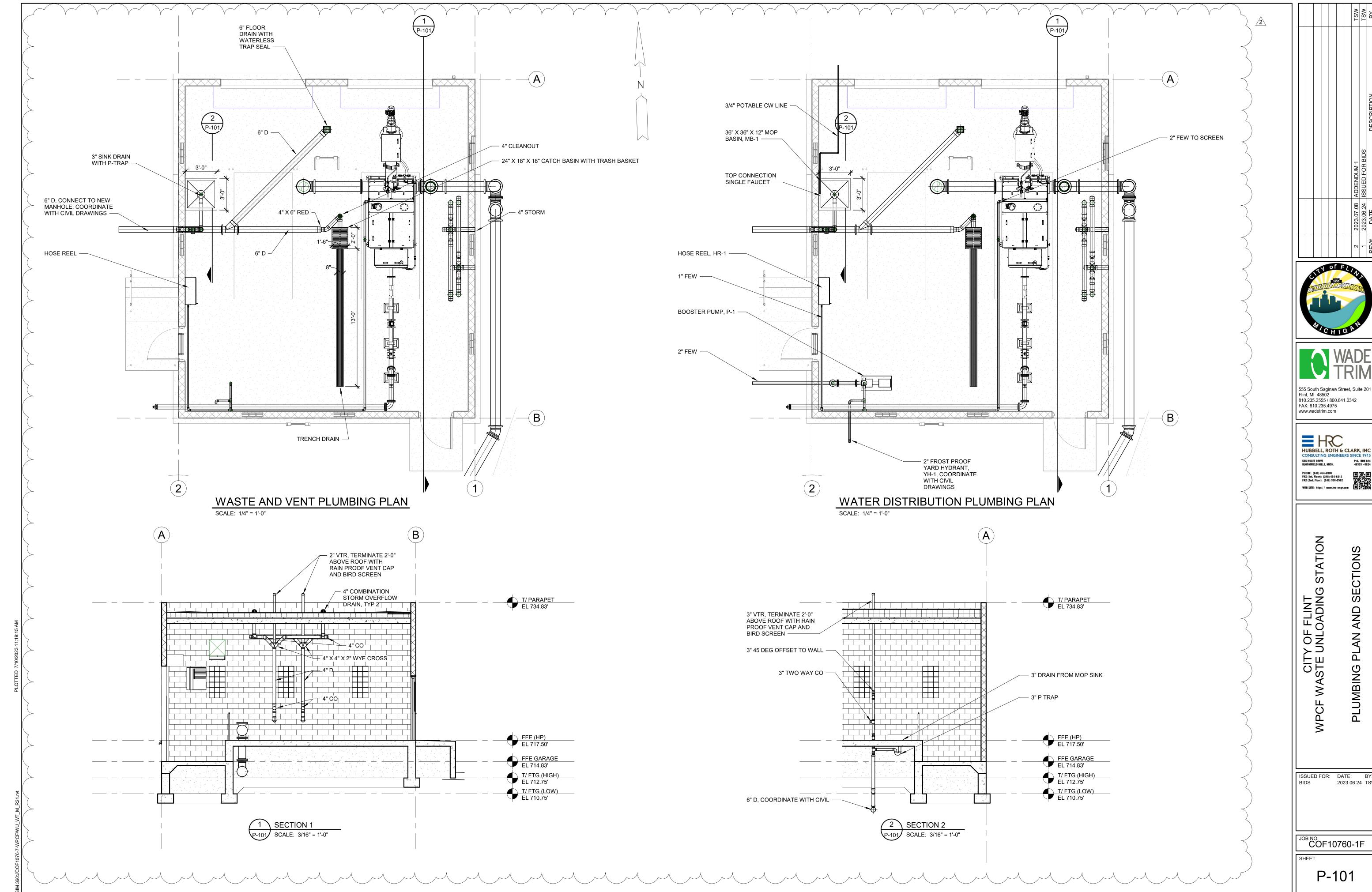


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CITY OF FLINT WASTE UNLOADING GENERAL NOTES, ABBREVIATION

ISSUED FOR: DATE: BY: 2023.06.24 TSW

COF10760-1F

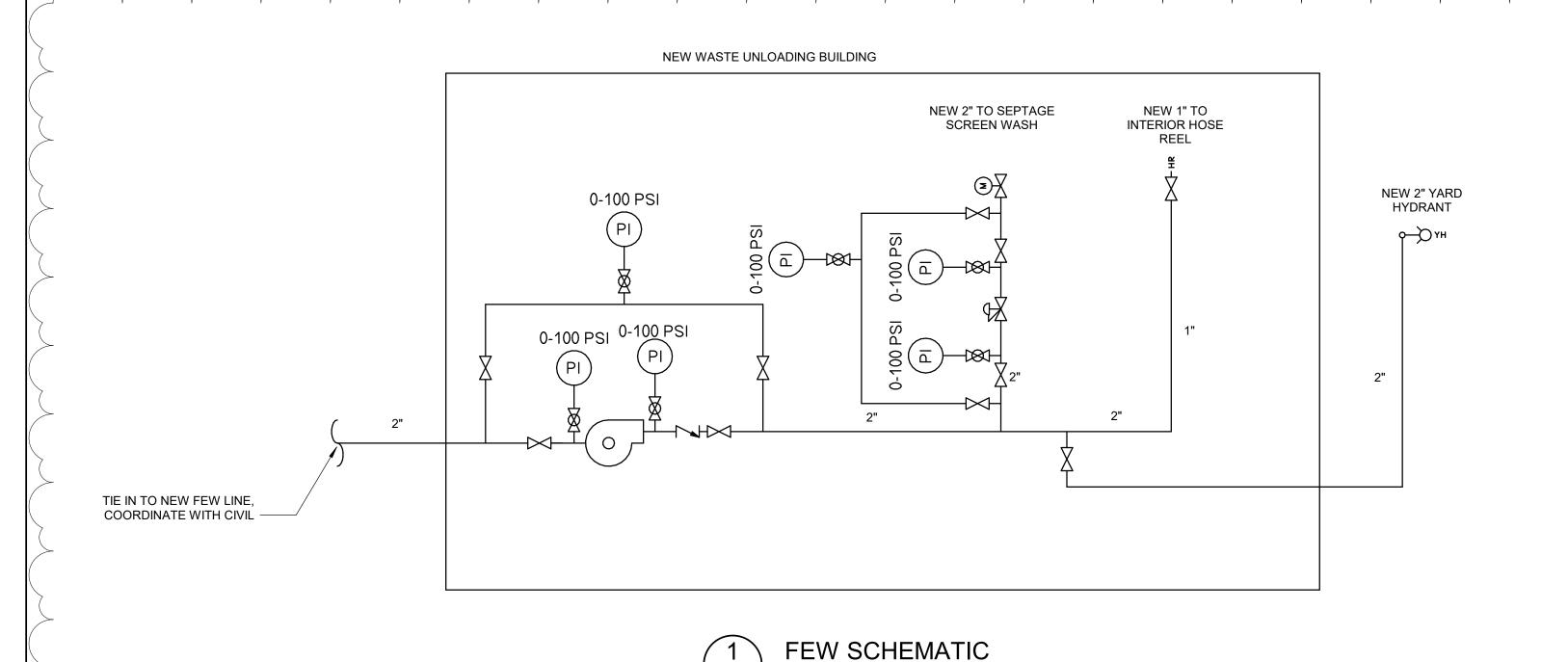


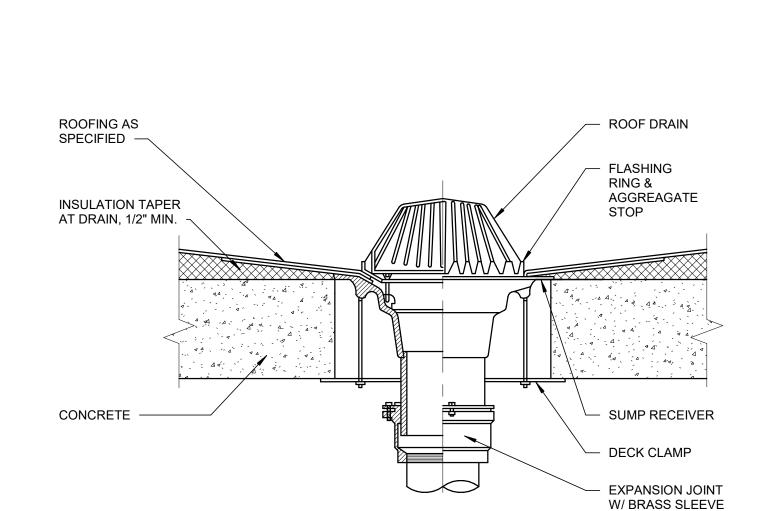




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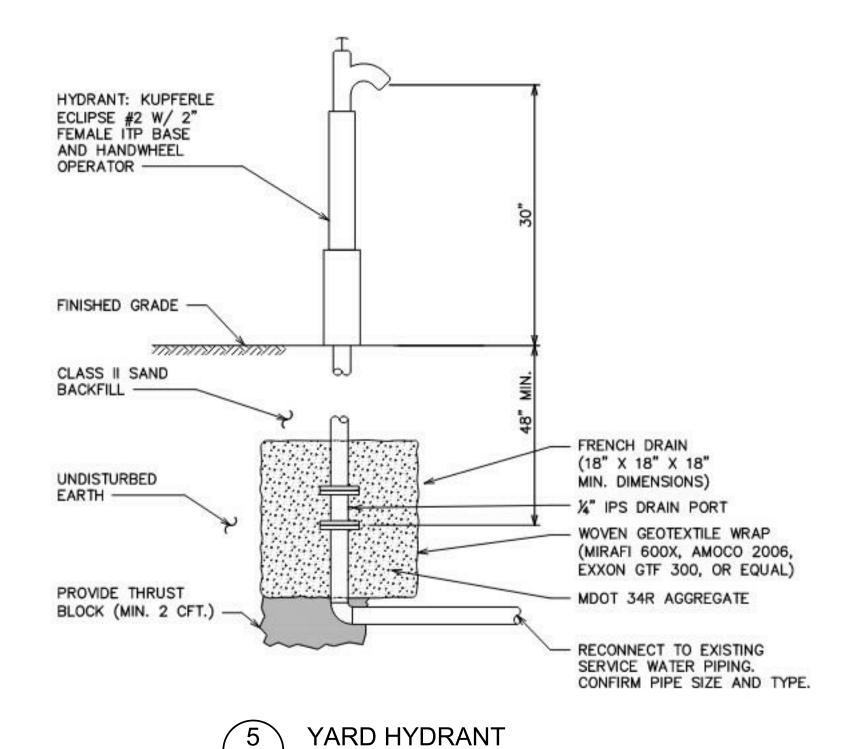
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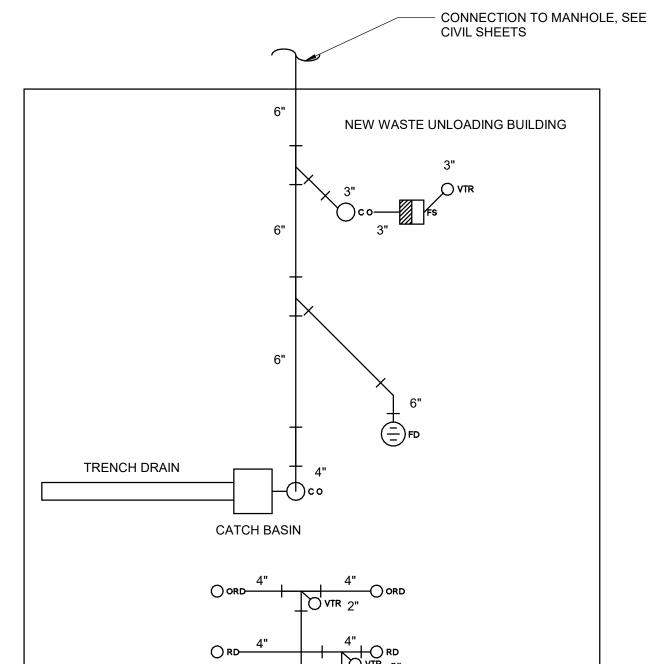




COORDINATE WITH ARCHITECTURAL AND STRUCTURAL



NOT TO SCALE





	PUMP SCHEDULE						
TAG	LOCATION	VOLTS/PHASE	HP	PRESSURE (BOOST) AND GPM	MANUFACTURER	MODEL	REMARKS
P-1	WASTE UNLOADING	480/3	5	58 PSI / 80 GPM	FRANKLIN ELECTRIC	A1 X 1.5-7	VFD, EXPLOSION PROOF

PLUMBING EQUIPMENT SCHEDULE						
TAG	LOCATION	MANUFACTURER	MODEL	REMARKS	<	
MB-1	WASTE UNLOADING	FIAT PRODUCTS	TSB-500	PRECAST TERAZZO MADE OF BLACK AND WHITE MARBLE CHIPS IN GRAY PORTLAND CEMENT TO PRODUCE A COMPRESSIVE STRENGTH NOT LESS THAN 3000 PSI SEVEN DAYS AFTER CASTING, SURFACE GROUND AND POLISHED SMOOTH WITH ALL AIR HOLES OR PITS GROUTED AND EXCESS REMOVED. SHOULDERS SHALL BE NOT LESS THAN 12" HIGH OUTSIDE AND 10" HIGH INSIDE AT LOWEST WALL. SHOULDER WIDTH NOT LESS THAN 2" ALL SIDES WITH 1/4" PITCH TOWARDS THE INSIDE. STAINLESS STEEL DRAIN BODY CAST INTEGRALLY AND CAULKED LEAD CONNECTION NOT LESS THAN 1" DEEP TO 3" PIPE. STAINLESS STEEL STRAINER. PROVIDE SEPERATE 24"X3" WIDE STAINLESS STEEL MOP HANGER WITH 3 RUBBER TOOL GRIPS, 30 INCHES LONG FLEXIBLE, HEAVY DUTY, 5/8" CLOTH REINFORCED RUBBER HOSE WITH 3/4" CHROME COUPLING AT ONE END, 5"X3" WIDE STAINLESS STEEL HOSE BRACKET WITH RUBBER TOOL GRIP. PROVIDE FAUCET. ROUGH CHROME PLATED CAST BRASS WITH VACUUM BREAKER, 3/4 INCH THREADED HOSE SPOUT, METAL LEVER HANDLE, WALL BRACE PAIL HOOK, AND FLANGED FEMALE SUPPLY ARMS ADJUSTABLE FROM 4 INCH TO 8 3/8 INCH CENTERS AND HAVING INTEGRAL STOPS.		
HR-1	WASTE UNLOADING	REELCRAFT	HS37000 L	STAINLESS STEEL HAND CRANK HOSE REEL EPOXY COATED RETRACTABLE HOSE REEL. STAINLESS STEEL HEAVY DUTY HOSE REEL, 1" NPT(F) INLET AND OUTLET, 500 PSI MAX, INCLUDE 50' EPDM RUBBER HOSE AND SPRAYER	_	
YH-1	WASTE UNLOADING	KUPFERLE	ECLIPSE #2	2" FEMALE ITP BASE AND HANDWHEEL OPERATOR	T ~	

PLUMBING PIPING NOTES

- 1. ALL ABOVE GRADE WASTE AND VENT PIPING TO BE CAST IRON. 2. ALL BELOW GRADE/BURIED WASTE AND VENT PIPING TO BE PVC.
- 3. ALL WATER DISTRIBUTION PIPING TO BE COPPER.
- 4. REFER TO SPECIFICATIONS FOR PIPE TYPE SPECIFICS.
- 5. COORDINATE WITH CIVIL DRAWINGS FOR YARD PIPING.
- 6. CONTRACTOR TO SUBMIT PLUMBING PIPING LAYOUT DRAWINGS INCLUDING BUT NOT LIMITED TO:
- A. ARRANGMENT OF PLUMBING EQUIPMENT, VALVES AND FIXTURES
 B. ALL PENETRATIONS COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS
- C. LINE SIZES AND PIPE TYPES



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ATION CHEDUL CITY OF FLINT ASTE UNLOADING လ လ PLUMBIN

ISSUED FOR: DATE: BY: 2023.06.24 TSW

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P-601

	BREVIATIONS - PIPING
AFF AL	ABOVE FINISHED FLOOR ALUMINUM
ARV	AIR RELIEF VALVE
BCE	BIOLOGICAL CONTACTOR EFFLUENT
BF	BLIND FLANGE
BP	BYPASS
BWST	BURIED WASTE
BWTR	BURIED WATER
С	CENTRATE
CA	COMPRESSED AIR
CDS	CHEMICAL DOSING
CE	CHLORINATED EFFLUENT
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CL	CENTER LINE
CLK	CAMLOCK CONNECTOR
CLK	CONCENTRATE
CON RED	CONCENTRIC REDUCER
CONC	CONCRETE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CUP	COPPER PIPE
CW	COLD WATER
D	DRAIN
DE	DECANT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DMJ	DISMANTLING JOINT
DS	DIGESTED SLUDGE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
ED	EQUIPMENT DRAIN
EFF	EFFLUENT
EI	EQUALIZATION TANK INFLUENT
EL	ELEVATION
ELB	ELBOW
ER	EQUALIZATION TANK RETURN
ES	EQUALIZATION TANK SLUDGE
EWST	EXPOSED WASTE
FA	FOUL AIR
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FE	FINAL EFFLUENT
FFWD	FEED FORWARD
FLG	FLANGE
FM	FORCE MAIN
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FRP	FIBERGLASS REINFORCED PIPE
FS	FINAL TANK SLUDGE
FTW	FILTER TO WASTE
GRS	GREASE
GRT	GRIT
GRV	GROOVED JOINT
GSP	GALVANIZED STEEL PIPE
GSP	GLAND WATER
	HIGH DENSITY POLYETHYLENE PIPE
HDPE	
HS	HEATED SLUDGE
INF	INFLUENT
INV	INVERT
LPA	LONG PARILIS
LR	LONG RADIUS

ABE	BREVIATIONS - PIPING
MBR	MEMBRANE BIOREACTOR
MFR	MANUFACTURER
MH	MANHOLE
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MLP	MAIN LIFT PUMP
NaOCI	SODIUM HYPOCHLORITE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPW	NON-POTABLE WATER
OVRFL	OVERFLOW
PA	PROCESS AIR
PE	PRIMARY TANK EFFLUENT
PEP	POLYETHYLENE PIPE
PERM	PERMEATE
PEW	PLANT EFFLUENT WATER
PI	PRIMARY TANK INFLUENT
PLT	PLATE
POA	PULLOUT ASSEMBLY
PP	POLYPROPYLENE PIPE
PS	PRIMARY TANK SLUDGE
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RC	RECYCLED
RCP	REINFORCED CONCRETE PIPE
RDMJ	RESTRAINED DISMANTLING JOINT
RECYC	INTERNAL RECYCLE
RED	REDUCER
REW	REUSE WATER
RFCA	RESTRAINED FLANGED COUPLING ADAPTER
RO	REVERSE OSMOSIS
RS	RAW SEWAGE
RW	RAW WATER
S	SCUM
SAM	SAMPLE
SE	SECONDARY EFFLUENT
SFE	SECONDARY FINAL EFFLUENT
SN	SUPERNATANT
SPD	SUMP PUMP DISCHARGE
SS or SST	STAINLESS STEEL
STL	STEEL PIPE
SW	SECONDARY WASTE
SWHP	SECONDARY WATER - HIGH PRESSURE
SWLP	SECONDARY WATER - HIGH PRESSURE
SWMP	SECONDARY WATER - LOW PRESSURE
SWP	SEAL WATER PANEL
TE	TERTIARY EFFLUENT
	<u></u>
THD	THICKENED SLUDGE
THS	THICKENED SUUDGE
TO	THICKENER OVERFLOW
TOR	THERMAL OIL RETURN
TOS	THERMAL OIL SUPPLY
TS	TRANSFER SLUDGE
UNO	UNLESS NOTED OTHERWISE
UWF	UNFILTERED WATER FLUSH
V	VENT
VIF	VERIFY IN FIELD
WAS	WASTE ACTIVATED SLUDGE
WM	WATER MAIN
WWD	WASHWATER DRAIN
WWS	WASHWATER SUPPLY

,	VALVE SYMBOLS
	TRIPLE DUTY VALVE
$-\!$	GATE VALVE
\	GLOBE VALVE
—	BALL VALVE
	BUTTERFLY VALVE
—M—	CORPORATION COCK
$-\!$	BALANCING VALVE
─ Ā—	PET COCK
	CHECK VALVE
$\neg \neg \neg \neg \vdash \neg$	PLUG VALVE
	STOP AND CHECK VALVE
	PINCH VALVE
	DIAPHRAGM VALVE
	AUTO-FLOW CONTROL VALVE
	ANGLE OR NEEDLE VALVE
	PRESSURE RELIEF VALVE
	THREE WAY VALVE
	TEMPERING VALVE
<u>s</u>	SOLENOID OPERATED VALVE
`	PRESSURE REGULATING VALVE (SELF CONTAINED)
	MOTORIZED CONTROL VALVE (OPEN-SHUT, THROTTLING)
	PNEUMATIC OPERATED CONTROL VALVE (OPEN-SHUT, THROTTLING)
BP	BACKPRESSURE VALVE
——————————————————————————————————————	HOSE BIBB (3/4")
——————————————————————————————————————	FLUSHING HOSE BIBB (1-1/2")
sc	SILL COCK (3/4")
——————————————————————————————————————	FLUSHING CONNECTION (ON PIPE) 1-1/2"
ASV	ANTISIPHON VALVE
0-100 PSI 0-1	OO PSI PUMP/BLOWER INCLUDING PRESSURE GAUGES PI = PRESSURE GUIDE
	PI-D = PRESSURE GAUGE W/ DIAPHRAGM SEAL
	PI-P = PRESSURE GAUGE W/ PULSATION DAMPER

	GENERAL NOTES PROCESS PIPING
Α	LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
В	UNLESS NOTED OTHERWISE, PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF PIPE.
С	SUBMIT THE ROUTING OF PIPING NOT SHOWN IN THE DRAWINGS FOR APPROVAL, INCLUDING PIPING SMALLER THAN 3 INCHES.
D	SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS NOTED OTHERWISE. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE
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K	LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
L	LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
М	LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
N	INSTALL ALL PLUG, BUTTERFLY, AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS NOTED OTHERWISE.
0	ALL MECHANICAL AND PROCESS EQUIPMENT SHALL BE PLACED ON CONCRETE HOUSEKEEPING PADS, WHETHER INDICATED OR NOT. SEE STRUCTURAL SHEETS FOR TYPICAL DETAILS.
Р	ALL ELEVATIONS ARE PROVIDED IN NAVD88.

_			
VTR	VENT TO ROOF		
	PIPE ANCHOR		
W	EXPANSION JOINT		
── ₩	EXPANSION COMPENSATOR		
	FLEXIBLE CONNECTOR		
FE —	FLOW ELEMENT		
——————————————————————————————————————	PIPE GUIDE		
— Учн	YARD HYDRANT (SEE DETAIL)		
PRS SEAL	PRESSURE REDUCING STATION (SEE DETAIL) PUMP SEALING WATER CONNECTION (SEE		
——————————————————————————————————————	DETAIL)		
	SAMPLE FUNNEL (SEE DETAIL)		
	AIR SET ASSEMBLY (SEE DETAIL) AIR TO VALVE OPERATOR (SEE DETAIL)		
	(THROTTLING SERVICE) AIR TO VALVE OPERATOR (SEE DETAIL) (OPEN SHUT SERVICE)		
MIX —	IN LINE STATIC MIXER		
	EDUCTOR		
	INJECTOR		
	TRAP (STEAM OR AIR MOISTURE)		
QD	QUICK DISCONNECT (AIR) (3/4")		
	ELBOW UP		
 +	ELBOW DOWN		
	TEE UP		
	TEE DOWN		
<u> —</u> Д—	REDUCER-CONCENTRIC		
	REDUCER-ECCENTRIC		
	WYE STRAINER		
	BASKET STRAINER		
 	UNION		
м	METER (TOTALIZING)		
	ROTAMETER		
	STEEL WALL SLEEVE		
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— — — FD	FLOOR DRAIN		
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F\$	FLOOR SINK		
— — — PBD	PUMP BASE DRAIN		
•	EQUIPMENT DRAIN		
——————————————————————————————————————			
co	CLEANOUT-FLOOR		
— — — co — — — ∩ RD	CLEANOUT-HORIZONTAL ROOF DRAIN		
D	PIPE TO DRAIN		
+(P)+	IN-LINE PUMP		
	INSTRUMENT AIR PNEUMATIC SIGNAL		
	ELECTRIC		
	INSTRUMENT CAPILLARY TUBING		
- BFP D	BACKFLOW PREVENTER		
<u> </u>	CONNECTION TO EXISTING		
-			

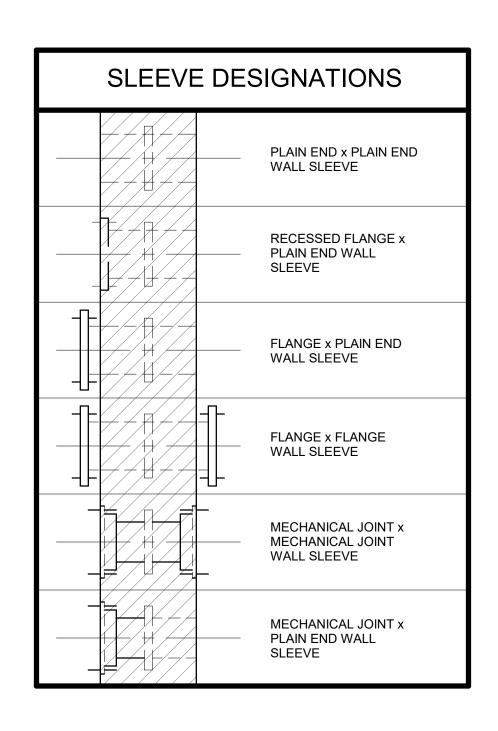
PIPE CAP OR PLUG

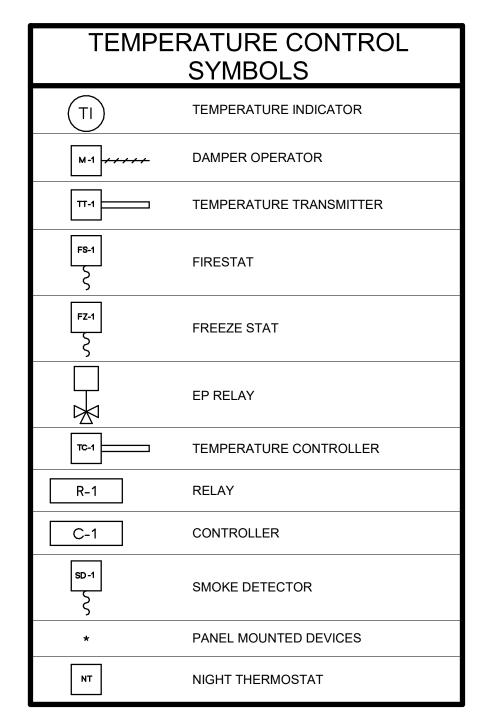
──── DIRECTION OF FLOW

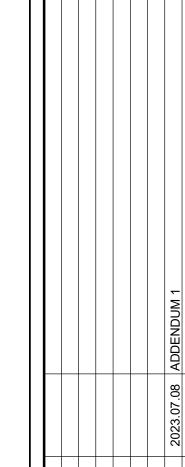
PIPING & EQUIPMENT

SYMBOLS

INSTRUMENTATION SYMBOLS			
\ominus	PANEL MOUNTED INSTRUMENT (INSIDE)		
\bigcirc	PANEL MOUNTED INSTRUMENT (FACE)		
\bigcirc	LOCALLY MOUNTED INSTRUMENT		
FE	FLOW ELEMENT		
FI	FLOW INDICATOR		
LE	LEVEL ELEMENT		
LWC	LOW WATER CUT-OFF		
PS	PRESSURE SWITCH		
TI	TEMPERATURE INDICATOR		
TIC	TEMPERATURE INDICATOR CONTROLLER		
TT	TEMPERATURE TRANSMITTER		











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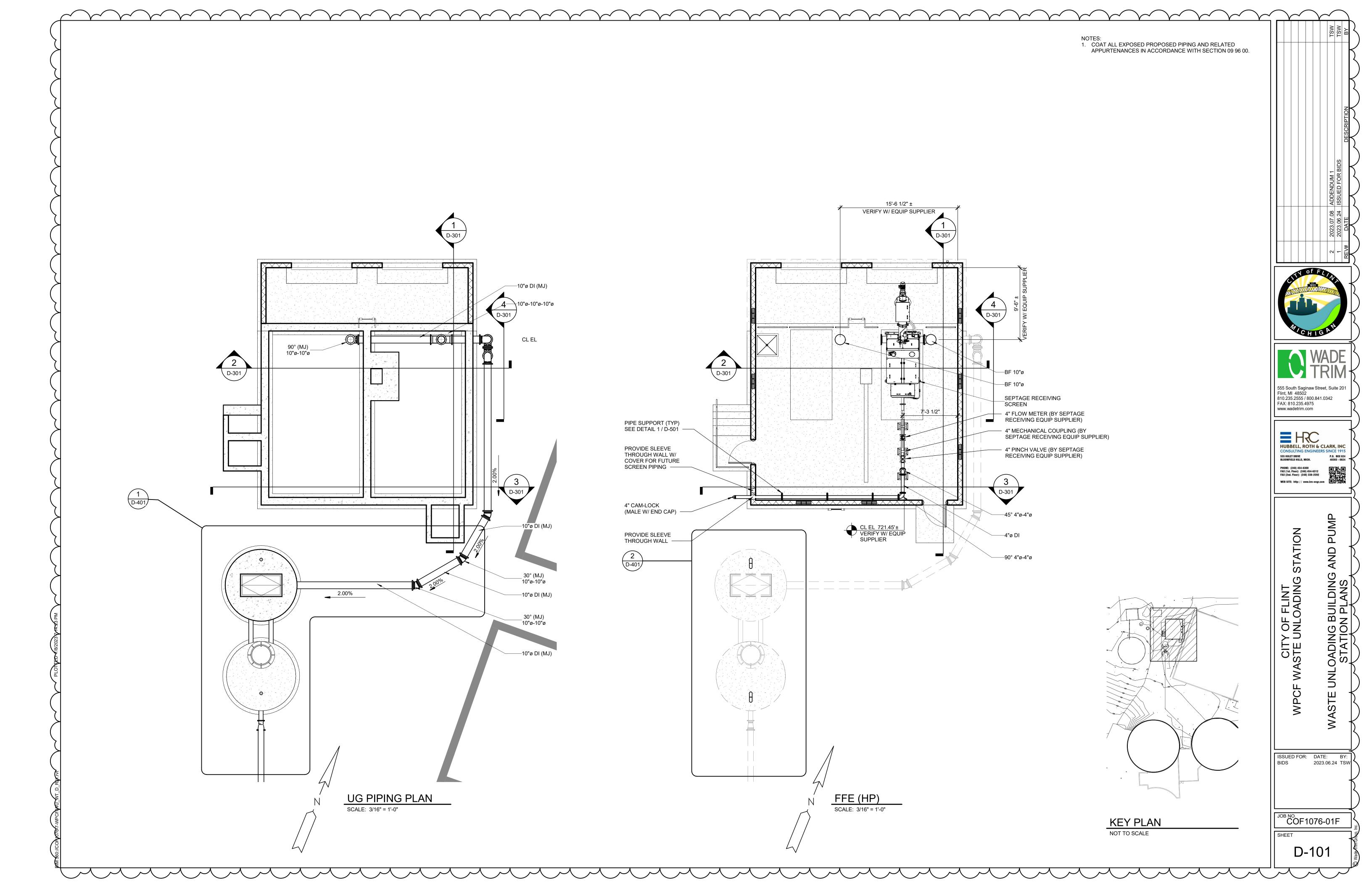
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CITY OF FLINT
F WASTE UNLOADING STATION
SS SYMBOLS AND ABBREVIATIONS

ISSUED FOR: DATE: BY: BIDS 2023.06.14 TSW

JOB NO. COF1076-01F



NOTES:

1. EXISTING PIPING AND EQUIPMENT IS NOT ALL SHOWN.
FIELD VERIFY EXISTING CONDITIONS AND SUBMIT PIPE FABRICATION / LAYOUT FOR REVIEW.

2. COAT ALL EXPOSED PROPOSED PIPING AND RELATED APPURTENANCES IN ACCORDANCE WITH SECTION 09 96 8"ø DI– D-102 - 8" MECHANICAL COUPLING PIPE SUPPORTS - FIELD VERIFY LOCATION FROM FLOOR (TYP) FL EL 718.90' LINE OF WALL ON LOWER LEVEL --8"ø DI —90° 8"ø-8"ø LINE OF WALL ON LOWER LEVEL 1'-7 1/2" ± 5'-6" ± DIGESTER BUILDING - NORTH / GROUND LEVEL PLAN SCALE: 1/4" = 1'-0" PIPE SUPPORTS (TYP) 1'-7 1/2" ±_____ VIF 90° 8"ø-8"ø-—8"ø-8"ø-8"ø REMOVE EXISTING 90° BEND. PROVIDE NEW TEE AS SHOWN D-303 8" MECHANICAL COUPLING —— FL EL 706.83' DIGESTER BUILDING - NORTH / LOWER LEVEL PLAN SCALE: 1/4" = 1'-0" KEY PLAN

NOT TO SCALE

CUT EX 6" STAINLESS STEEL PIPE NEAR FLANGE AND WELD TO CUT END OF PIPE NEAR FLOOR. REMOVE EX 6" STAINLESS STEEL PIPE AND STEEL PIPE STAND. CUT PIPE 6" ABOVE TEE.



DIGESTER BUILDING - NORTH / GROUND LEVEL - LOOKING SOUTH D-102 NOT TO SCALE

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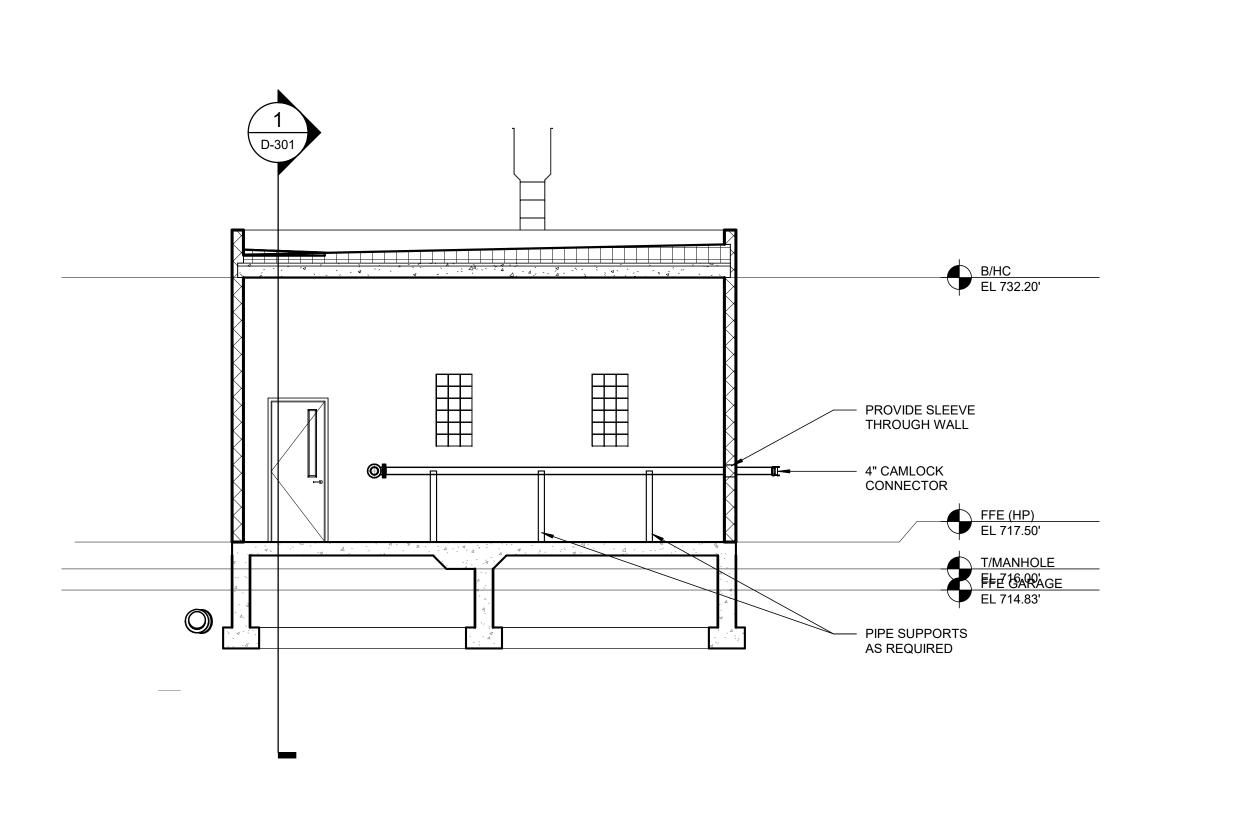
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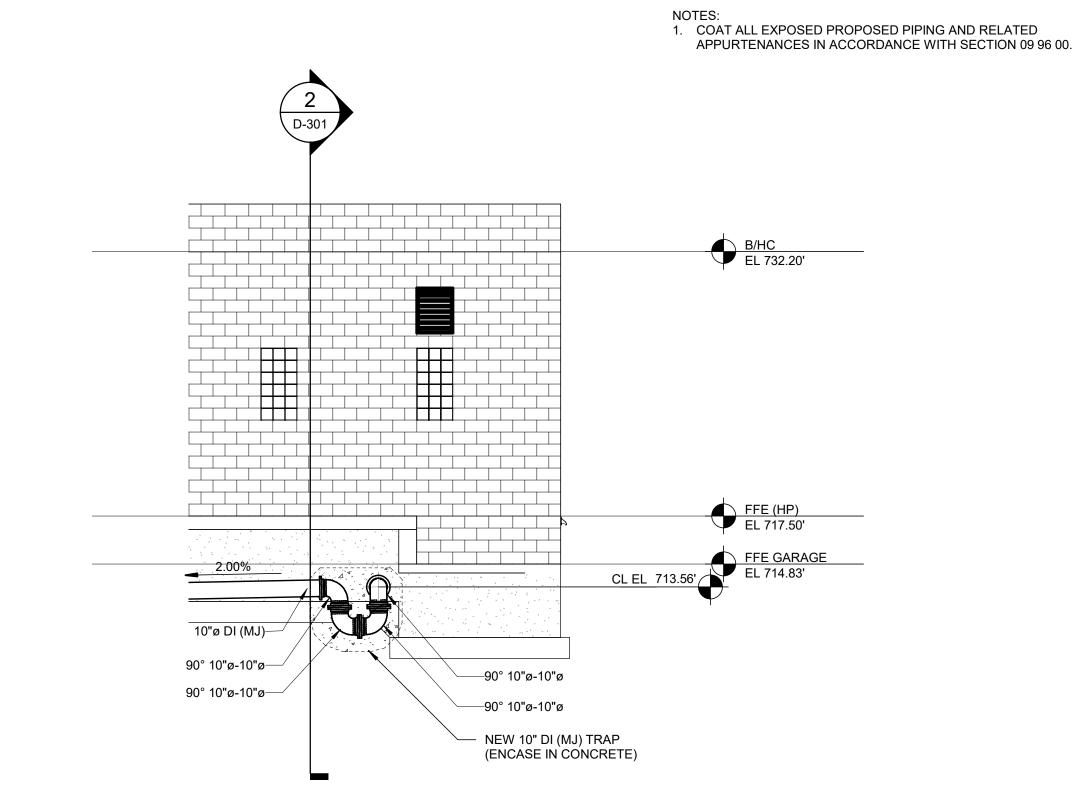
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CITY OF FLINT ASTE UNLOADING

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

COF1076-01F



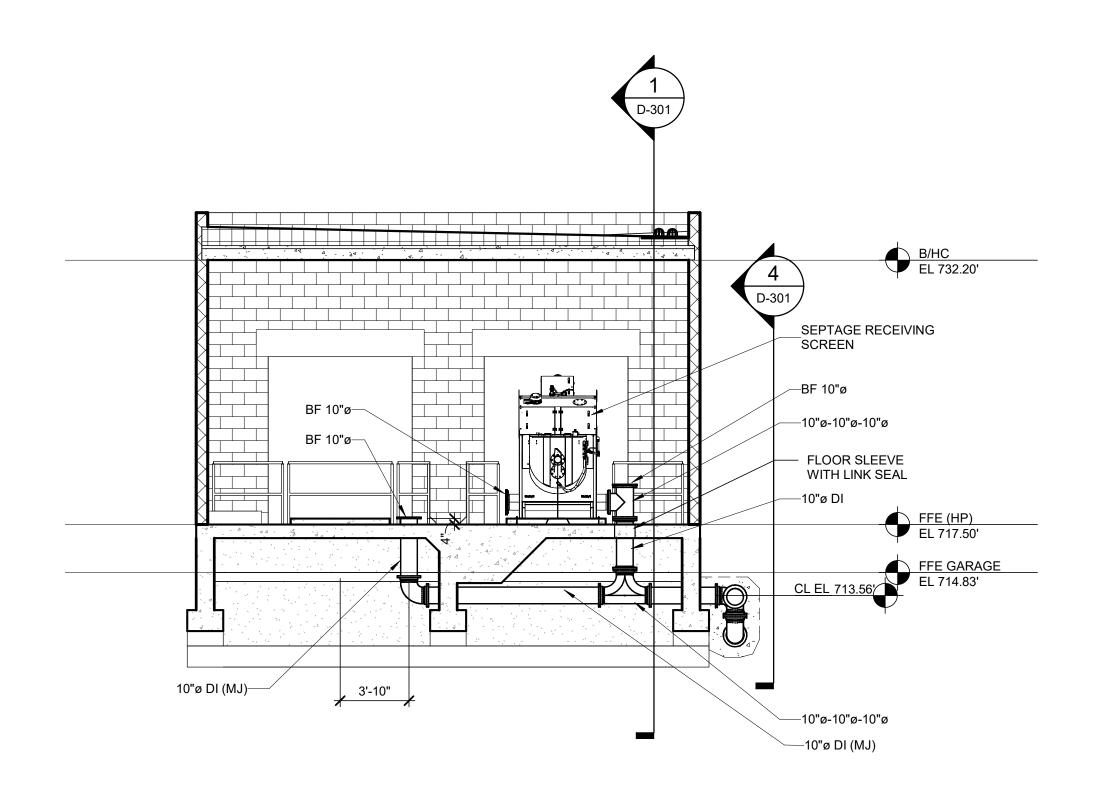


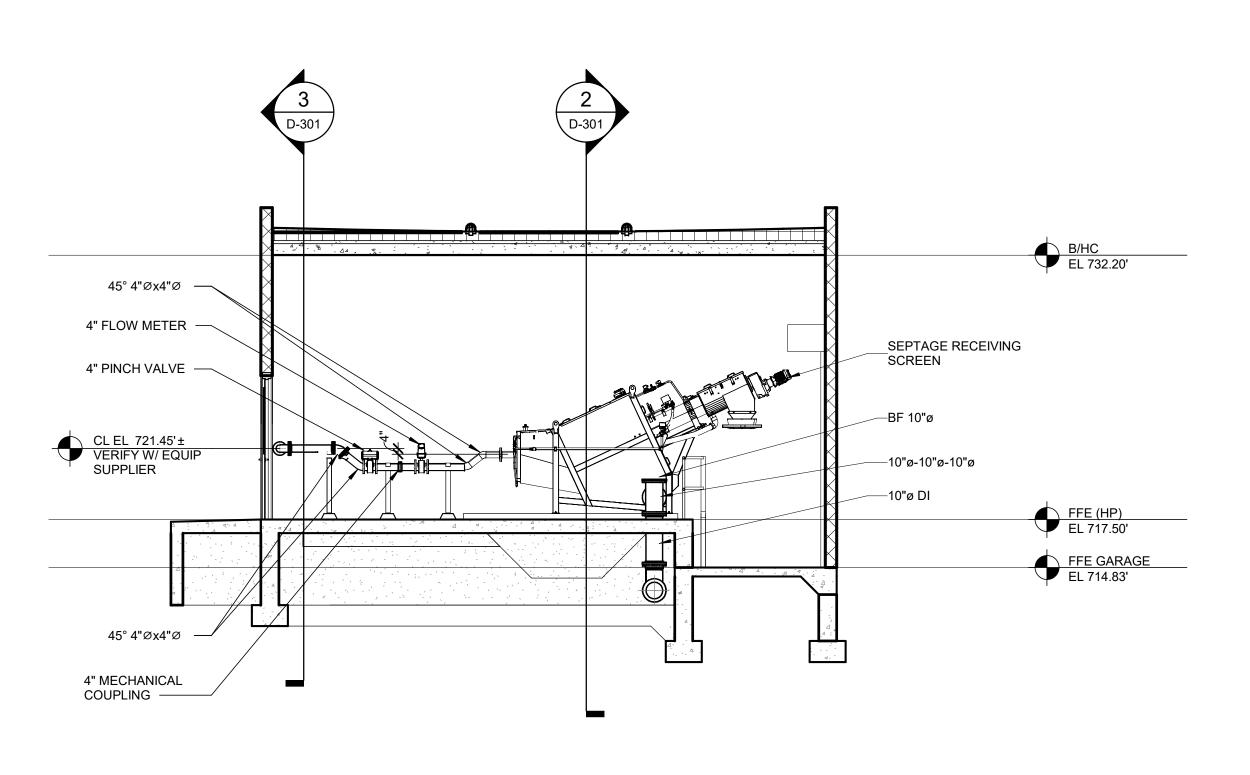
WASTE UNLOADING BUILDING - SECTION LOOKING SOUTH

SCALE: 3/16" = 1'-0"

WASTE UNLOADING BUILDING - SECTION LOOKING EAST AT NEW TRAP

SCALE: 3/16" = 1'-0"





WASTE UNLOADING BUILDING - SECTION LOOKING NORTH

SCALE: 3/16" = 1'-0"

1 WASTE UNLOADING BUILDING - SECTION LOOKING EAST

SCALE: 3/16" = 1'-0"

2 2023.07.08 ADDENDUM 1 1 2023.06.24 ISSUED FOR BIDS REV# DATE DESCRIPTION



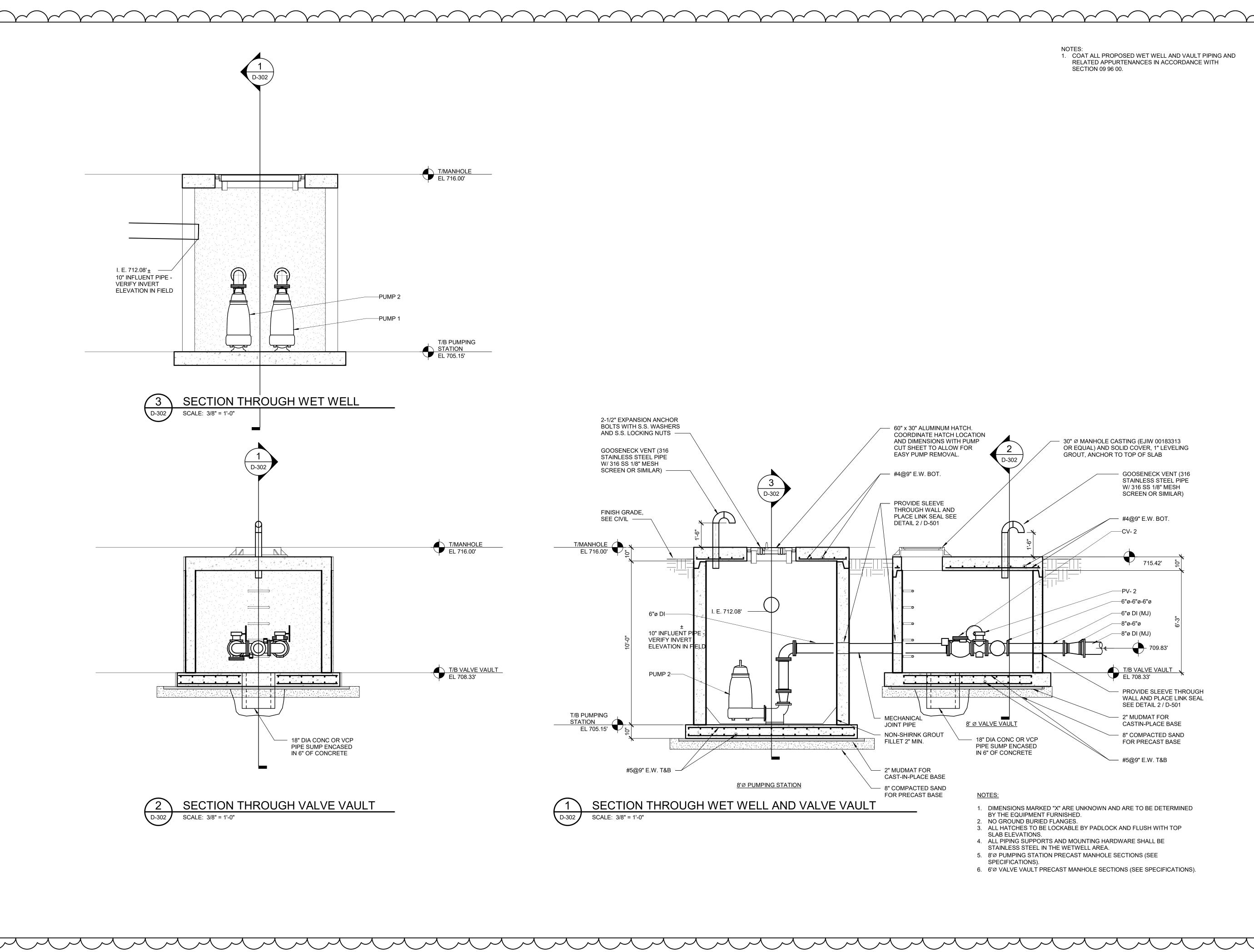


HUBBELL, ROTH & CL CONSULTING ENGINEERS	
555 HULET DRIVE Bloomfield Hills, Mich.	P.O. BOX 824 48303 - 0824
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WPCF WASTE UNLOADING STATION

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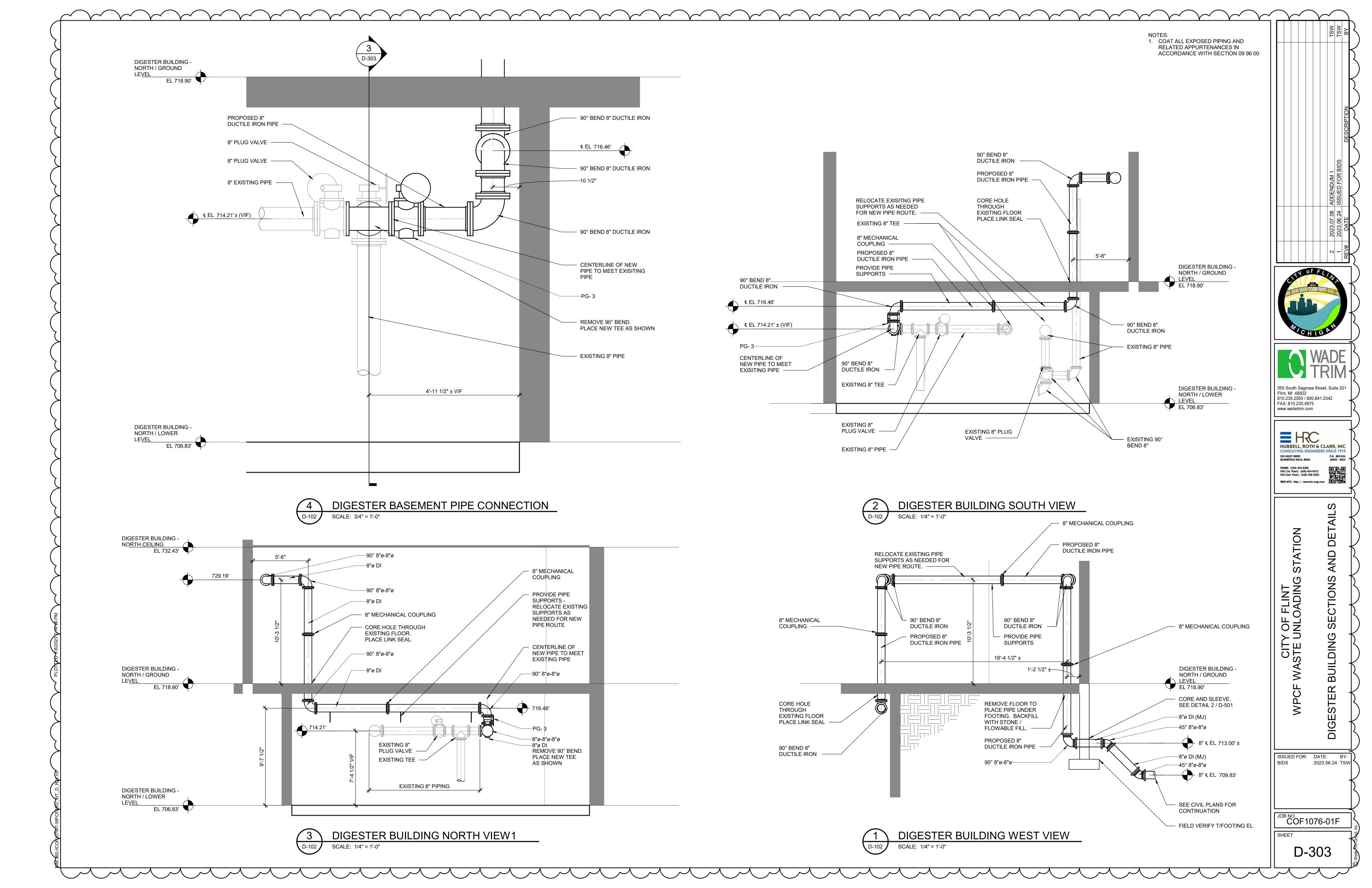
HUBBELL, ROTH & CLARK, INC 555 HULET DRIVE Bloomfield Hills, Mich.

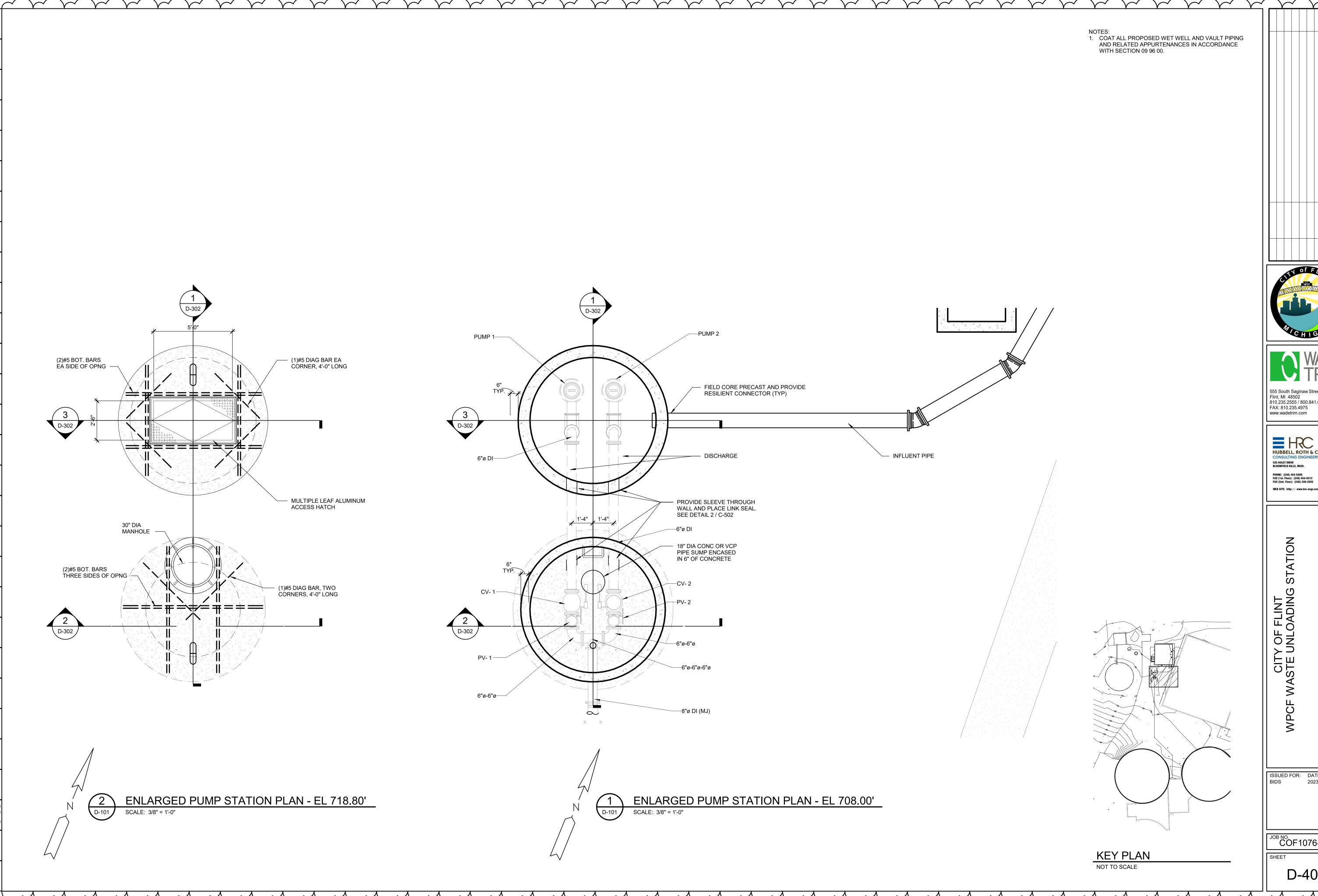
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ATION CITY OF FLINT ASTE UNLOADING VALVE DETAIL

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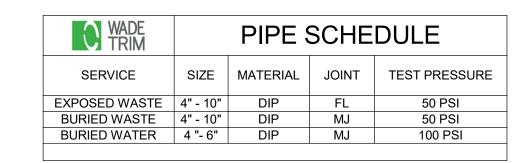
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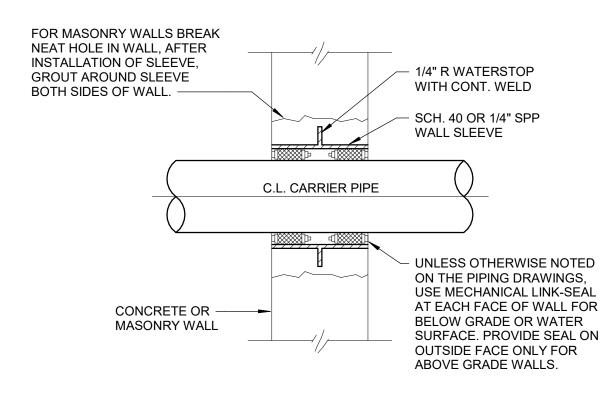
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WADE TRIM	VALVE SCHEDULE				
TYPE	SIZE	QUANTITY	JOINT	OPERATOR	LOCATION
PLUG	6"	2	FL	HANDWHEEL / GEAR	SUBMERSIBLE PUMP STATION
PLUG	8"	1	FL	CHAINWHEEL / GEAR	DIGESTER BUILDING - LOWER LEVEL
SWING CHECK	6"	2	FL	OUTSIDE LEVER	SUBMERSIBLE PUMP STATION
PINCH	4"	1	FL	MOTOR	SCREEN ROOM - BY SCREEN MANUFACTURER

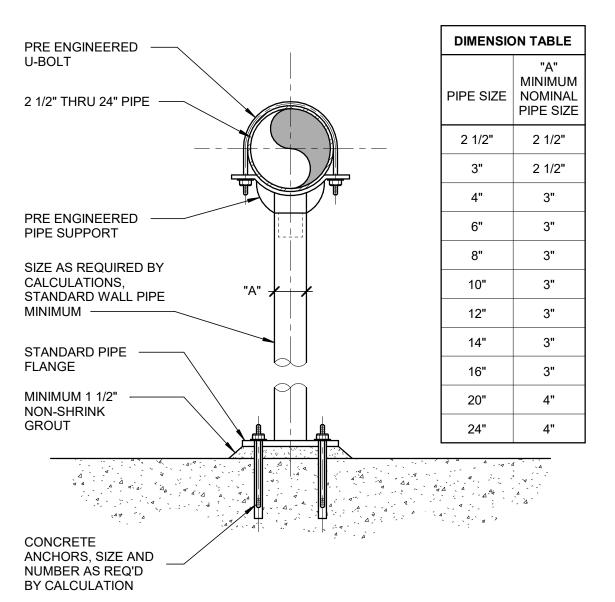


TYPICAL PIPE/DUCT SLEEVE IN EXTERIOR WALL NO SCALE

$\binom{2}{\text{TYP}}$

TYPICAL PIPE/DUCT SLEEVE IN EXTERIOR WALL

NOT TO SCALE



NOTE: SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED



2 2023.07.08 ADDENDUM 1 1 2023.06.24 ISSUED FOR BIDS DEV# DATE DATE





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CITY OF FLINT
ASTE UNLOADING STATION
AILS AND SCHEDULES

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

JOB NO. COF1076-01F

D-501

1. THE CONCRETE FOUNDATION WITH ANCHOR BOLTS SHOWN IS DESIGNED FOR SMALL EQUIP W/O TENSION OPENING SIZE -VERIFY W/ PLANS FORCES ON THE ANCHOR BOLTS. 2. SIZE, NUMBER, TYPE, LOCATION, AND THREAD & EQUIP MFR FORM TO RETAIN PROJECTION OF THE ANCHOR BOLTS SHALL BE GROUT — DETERMINED BY THE EQUIP MFR AND AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING BASE PLATE, WHILE PAD IS BEING PLACED. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE MIN ANCHOR BOLT MOVEMENT OF 1/2" IN ALL HORIZONTAL DIRECTIONS. THE MIN SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIA. ANCHOR SLEEVES SHALL HAVE A MIN INTERNAL DIAMETER 1" GREATER THAN BOLT DIA AND A MAX **EQUIPMENT BASE PLATE** INTERNAL DIA OF 3" GREATER THAN BOLT DIA. EQUIP BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE 1" CHAMFER (TYP.) WEDGES, SHIMS, OR LEVELING NUTS SHALL BE USED TO <u>PLAN</u> SUPPORT THE BASE WHILE THE GROUT IS PLACED. 3" MIN. ALL AROUND WEDGES OR SHIMS SHALL BE REMOVED AFTER GROUT IS SET. PACK VOID WITH GROUT. - EQUIPMENT BASE PLATE METAL PIPE OR PLASTIC SLEEVE -INJECTION ADHESIVE 6" MIN. FILL SLEEVE W/ ANCHOR, OR OWNER GROUT AFTER EQUIP APPROVED EQUAL IS IN PLACE 1" CHAMFER (TYP.) 1" MIN. NONSHRINK GROUT (TYP) #4 AT 8" V. E.F. ABOVE STRUCTURAL #4 AT 10" H. E.W. SLAB OR FINISH FLOOR OR AS NOTED DRILL 1 1/4" DIA. x 4" DEEP HOLES ON LONG SIDE OF BASE FILL HOLES W/ NONSHRINK GROUT BEFORE INSERTING DWLS. OR USE "HILTI" HVA ADHESIVE ANCHOR SYSTEM W/ HEA CAPSULES.

> (3) TYP

ROUGHEN

SURFACE OF EX. CONC. & APPLY

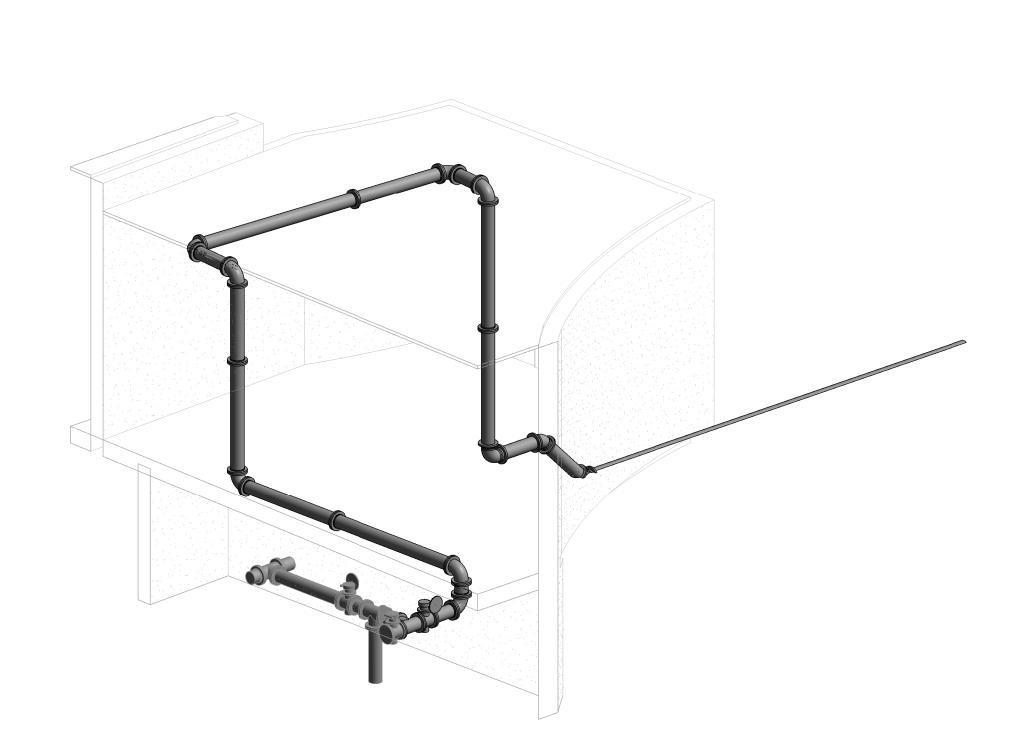
EPOXY BOND -

TYPICAL CONCRETE EQUIPMENT PAD

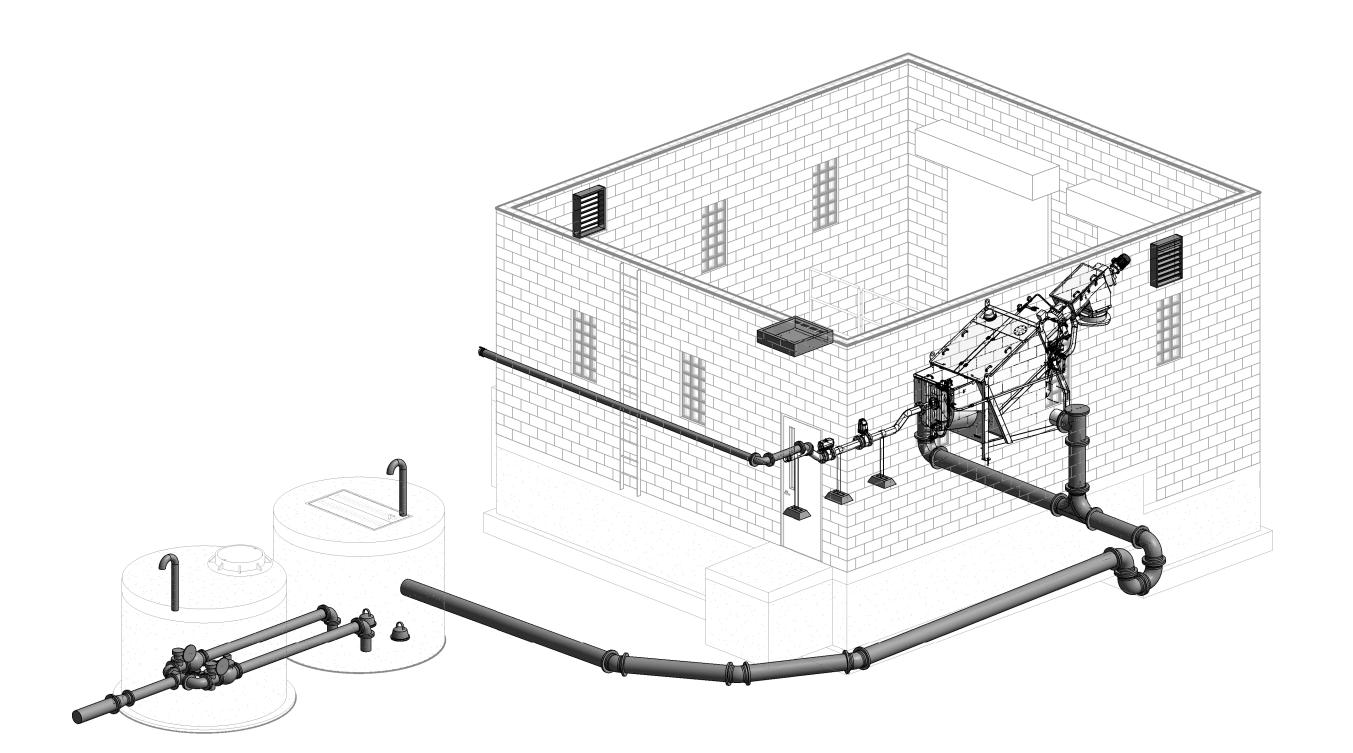
NOT TO SCALE

<u>SECTION</u>

(1) TYP



3D ISO VIEW - DIGESTER BUILDING
NOT TO SCALE



3D ISO VIEW - SOLIDS UNLOADING AND PUMP STATION
NOT TO SCALE

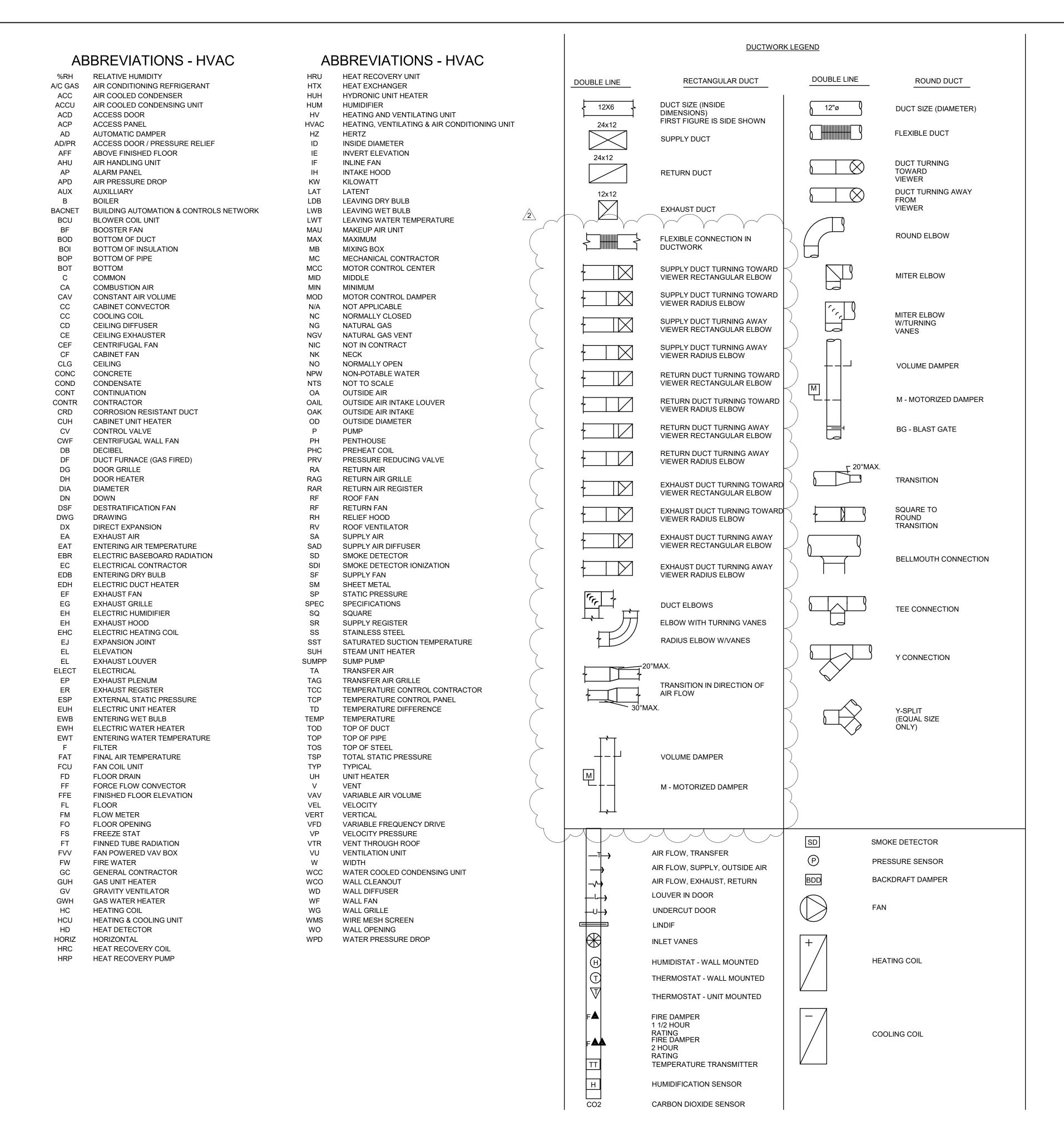
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JOB NO. COF1076-01F



GENERAL HVAC NOTES

A REFER TO SPECIFICATION SECTIONS FOR SPECIFIC MATERIAL AND INSTALLATION DATA

B COORDINATE THIS WORK WITH WORK BY OTHER CONTRACTORS

- COORDINATE ALL WALL AND ROOF PENETRATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS
- D COORDINATE AIR DEVICE PLACEMENT WITH LIGHTS AND CEILINGS
- E │MODIFICATIONS IN DUCT ROUTINGS MUST BE APPROVED BY OWNER'S REPRESENTATIVE F INSTALL VOLUME DAMPERS AT ALL AIR DEVICE BRANCH CONNECTIONS
- G COORDINATE WITH TEST AND BALANCE CONTRACTOR TO ENSURE PROPER PLACEMENT OF VOLUME DAMPERS H PROVIDE ACCESS DOORS AT ALL FIRE DAMPERS AND OUTSIDE AIR FLOW MEASURING STATIONS
- J DUCT ELBOWS: . RECTANGULAR DUCT ELBOWS MAY BE RADIUS OR MITERED AND SHALL COMPLY WITH SMACNA'S "HVAC DUCT
- CONSTRUCTION STANDARDS METAL AND FLEXIBLE", FIGURE 4-2, "RECTANGULAR ELBOWS". 2. ROUND DUCT ELBOWS MAY VARY IN RADIUS-TO-DIAMETER RATIO, BUT MUST COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", FIGURE304, "ROUND DUCT ELBOWS".
- K APPROXIMATE. SEE EQUIPMENT CERTIFIED DRAWINGS FOR EXACT DIMENSIONS
- L PROVIDE FIRE STOPPING AROUND ALL PENETRATIONS THROUGH FIRE RATED WALLS AND ROOFS
- M DUCTWORK SHALL BE STAINLESS STEEL, CONSTRUCTED PER LATEST EDITION OF THE SMACNA AND ASHRAE STANDARDS. ALL DUCTWORK JOINTS AND LONGITUDUNAL SEAMS SHALL BE SEALED SMACNA CLASS "A". INSULATED, CLASS 1 FLEXIBLE DUCTWORK SHALL BE USED FOR CONNECTIONS FROM LOW AND MEDIUM PRESSURE TRUNK DUCTWORK TO ALL FAN TERMINAL UNITS AND DIFFUSERS.
- . PROVIDE END CAPS, AS REQUIRED, NOT SPECIFICALLY CALLED OUT ON DRAWINGS 2. ALL DUCT SIZES ARE IN INCHES

LINE ALL SUPPLY AND RETURN DUCT THE FIRST 15' FROM THE AIR HANDLER

- N COORDINATE AND FIELD VERIFY LOCATION AND SIZES OF DUCTWORK. LOUVER AND DUCT ACCESSORIES WITH ACTUAL
- OPENINGS PROVIDED BY OTHERS VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF PLENUMS, DUCTWORK, DUCT HANGERS/ SUPPORTS
- Q DENOTES EQUIPMENT, PIPE & DUCT AREAS OF DEMOLITION.
- R UNIT HEATERS TO BE INSTALLED 8'-0" A.F.F. UNLESS NOTED OTHERWISE S ALL UNUSED PORTIONS OF LOUVERS FOR MECHANICAL EQUIPMENT OPENINGS SHALL BE BLOCKED-OFF USING INSULATED
- SHEET METAL PANELS UNLESS OTHERWISE INDICATED.

U COORDINATE LOCATION OF THERMOSTATS WITH LIGHT SWITCHES. LOCATE THERMOSTAT ON SAME WALL AS SWITCH.





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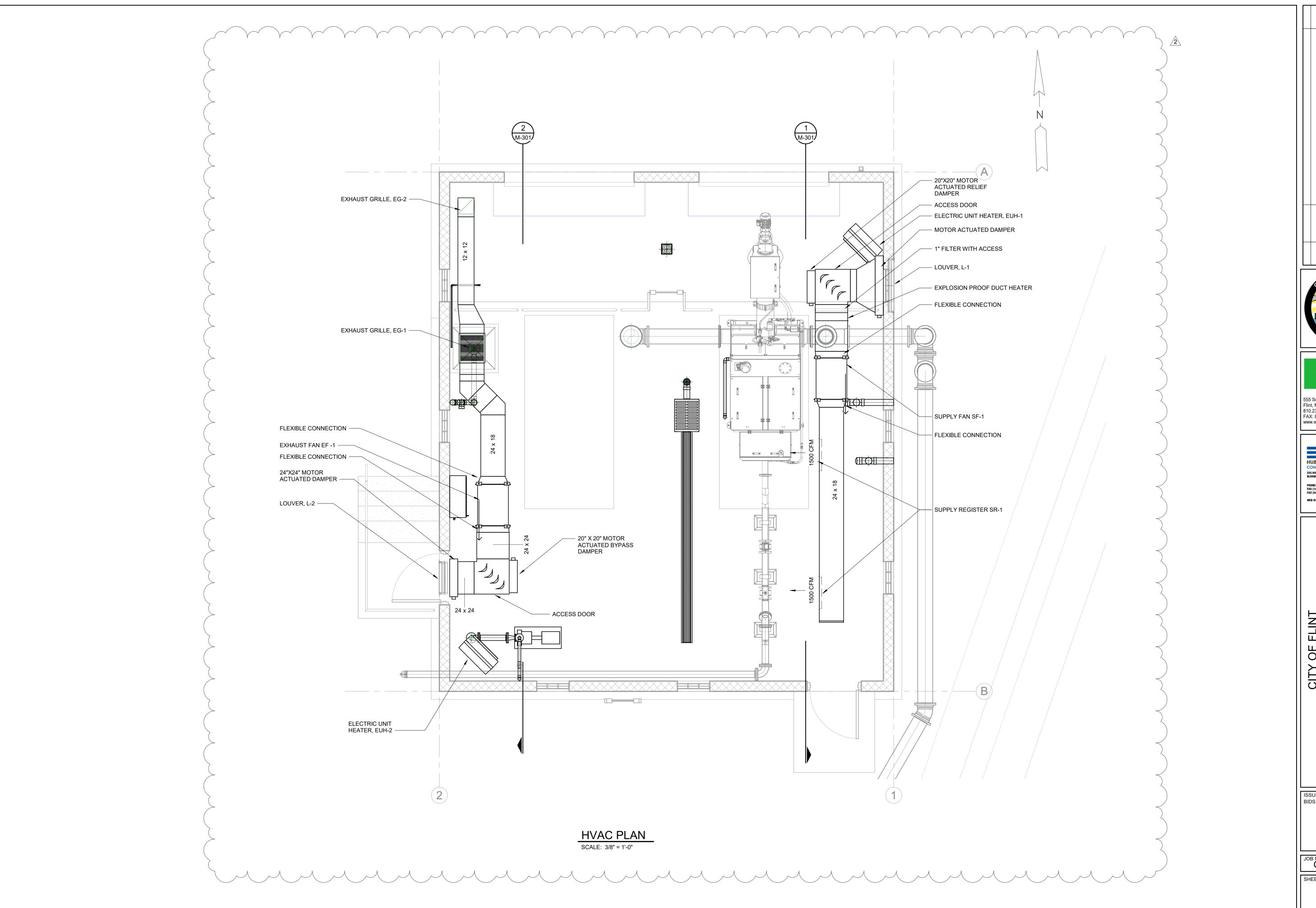
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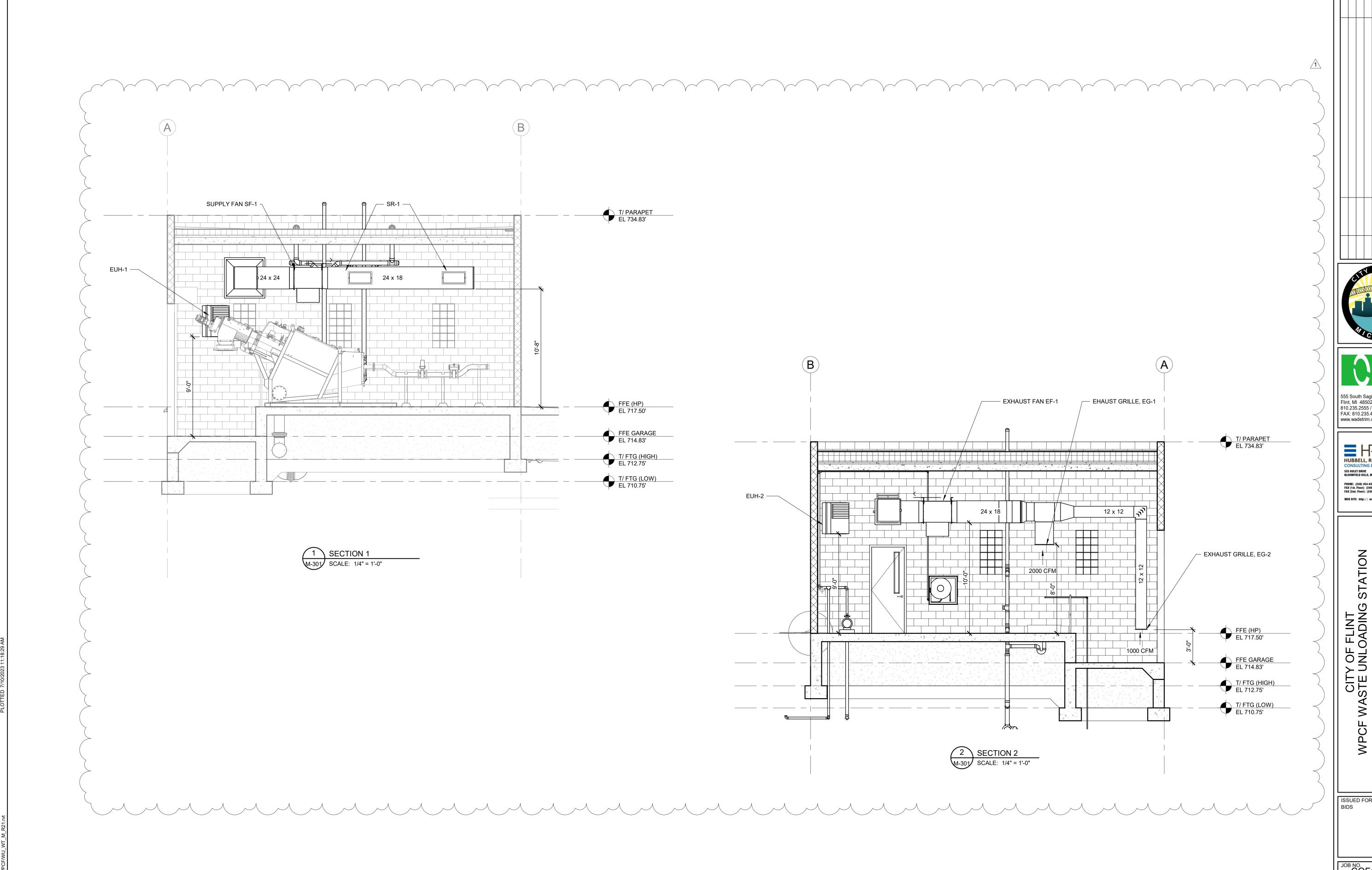
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CITY OF FLINT WASTE UNLOADING STATION

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

OF10760-1F

M-101



1 2023.07.08 ADDENDUM 1 DESCRIPTION



WADE TRIM

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F WASTE UNLOADING STATION HVAC SECTIONS

ISSUED FOR: DATE: BY: BIDS 2023.06.24 TSW

JOB NO. COF10760-1F

M-301

					FAN SCI	HEDUL	E			
TAG	QUANTITY	LOCATION	SERVICE	CFM	ESP (IN W.G.)	DRIVE	MOTOR	MANUFACTURER	MODEL	REMARKS
EF-1	1	WASTE UNLOADING	EXHAUST	3000	1.0	BELT	3 HP 460V, 3 PHASE	GREENHECK	QEI-16	ALL
SF-1	1	WASTE UNLOADING	SUPPLY	3000	1.0	BELT	3 HP 460V, 3 PHASE	GREENHECK	QEI-16	ALL

1. PROVIDE NEMA 7 AND 9 DISCONNECT SWITCH PREWIRED.

- 2. PROVIDE INDUSTRIAL EPOXY COATING, GRAY
- 3. ALUMINUM MOTOR COVER 4. STAINLESS STEEL SHAFT
- 5. ALUMINUM HOUSING
- 6. TEFC PREMIUM EFFICIENCY MOTOR
- 7. GRIP NOTCH BELTS 8. ONE SPARE SET OF BELTS
- 9. BEARING AND GREASE FITTING
- 10. WIRING PIGTAIL 11. SPRING ISOLATORS
- 12. EXTENDED LUBE LINES
- 13. 2 YEAR WARRANTY
- 14. ALL STAINLESS STEEL FASTENERS 15. AUTO BELT TENSIONER

EXHAUST AIR GRILLE

1/2" X 1/2" X 1/2"

EXHAUST AIR

GRILLE

. PROVIDE SILL EXTENSION. 3. PROVIDE ALUMINUM BIRD SCREEN.

EGGCRATE TYPE

EG-2

16. DUCT MOUNTED SMOKE DETECTOR, 120V

	AIR DISTRIBUTION SCHEDULE								
TAG	DESCRIPTION	SIZE	MATERIAL	SS DAMPER	BORDER FRAME TYPE	MAX. PRESSURE DROP	MAX N.C.	MANUFACTURERER	MODEL
SR-1	RECTANGULAR SUPPLY REGISTER SHALL BE OPERABLE FROM FACE OF DIFFUSER	24" X 12"	316 SS	YES	DUCT MOUNT	0.10	30	TITUS	300RS-SS
EG-1	1/2" X 1/2" X 1/2" EGGCRATE TYPE	20" X 18"	316 SS	YES	DUCT MOUNT	0.10	30	TITUS	50R-SS

DUCT MOUNT

					WALL M	OUNTED LOU	VER SCI	HEDULE				
TAG	QUANTITY	SIZE	MATERIAL	CFM	MAX VELOCITY	MAX. PRESSURE DROP (IN W.G.)	FREE AREA (SQ FT)	BLADE ANGLE	FRAME DEPTH	MANUFACTURER	MODEL	REMARKS
L-1	1	36" x 38"	EXTRUDED ALUMINUM	2860	1120	0.10	2.69	45	4"	RUSKIN	ELF445DXH	1,2,3,4
L-2	1	36" X 36"	EXTRUDED ALUMINUM	2860	1120	0.10	2.69	45	4"	RUSKIN	ELF445DXH	1,2,3,4

TITUS

50R-SS

Е	LECTRIC	CAL UNIT I	HEATER	SCHEDUL	.E
TAG	LOCATION	VOLTS/PHASE	HEATING	MANUFACTURER	REMARKS
EUH-1,2	WASTE UNLOADING	480/3	20 kW (EACH)	MODINE	EXPLOSION PROOF

I. FINISH COLOR SELECTED BY OWNER. COORDINATE WITH ARCHITECT.

12" X 12" 316 SS

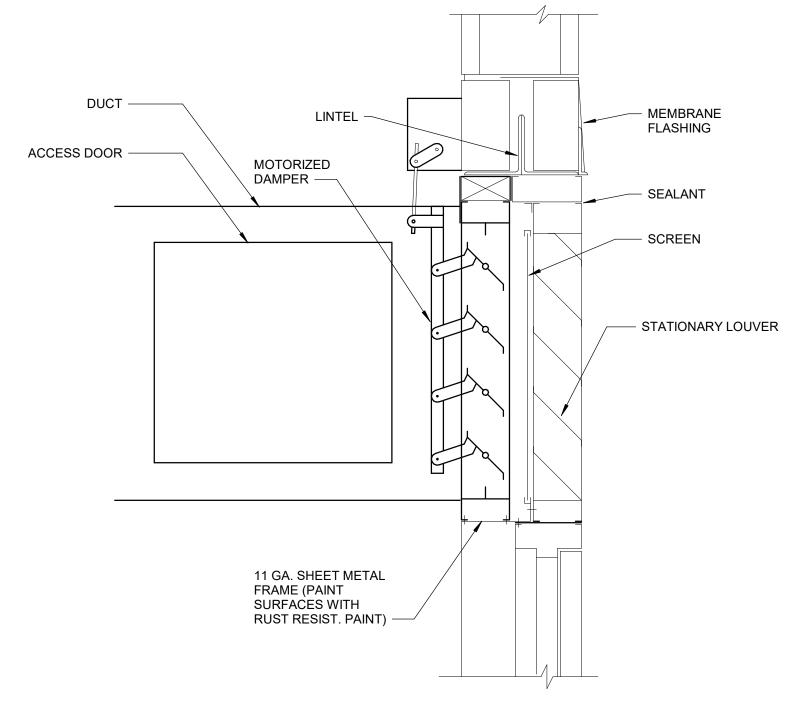
HEATING AND VENTILATING SEQUENCE

- SF-1 AND EF-1 WILL PROVIDE 12 ACH WHEN OCCUPIED.
- 2. SF-1 AND SF-1 MOTOR ACTUATED DAMPER ARE INTERLOCKED WITH EF-1 AND EF-1 MOTOR ACTUATED DAMPER. 3. SF-1 AND EF-1 SET TO AUTO: SF-1 AND EF-1 MOTOR ACTUATED DAMPERS OPEN, SF-1 AND EF-1 ENERGIZE.
- 4. IN THE EVENT SF-1 OR EF-1 IS NOT FUNCTIONAL, THE CORRESPONDING BYPASS MOTOR ACTUATED DAMPER WILL OPEN, ALLOWING AIR TO ENTER OR EXIT THE SPACE WITH ONLY ONE FAN BEING OPERATIONAL.
- . WHEN THE SPACE IS UNOCCUPIED, SF-1 AND EF-1 WILL ENERGIZE WHEN THE TEMPERATURE IN THE ROOM REACHES 90 DEG F
- WHEN THE SPACE DROPS TO 55 DEG F, EUH-1, EUH-2, AND THE DUCT HEATER WILL ENERGIZE, PROVIDING HEATING. 7. $\,$ EUH-1, EUH-2 AND THE DUCT HEATER WILL TURN OFF WHEN THE TEMPERATURE IN THE SPACE RISES TO 70 DEG F.

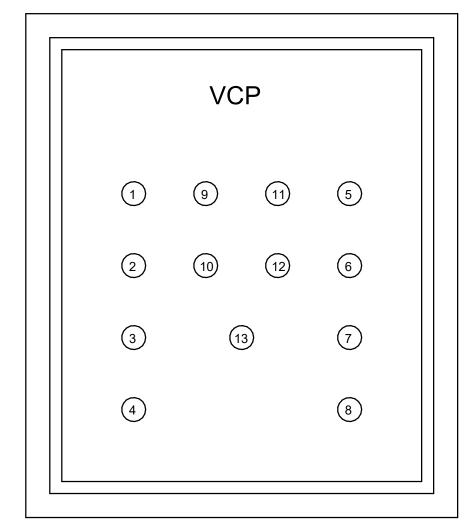
HEATING AND VENTILATING NOTES

- CONTRACTOR TO SUBMIT DUCTWORK LAYOUT DRAWING.
- CONTRACTOR TO SUBMIT PROPOSED WALL OPENING AND WALL SEALING DETAIL, COORDINATING WITH ARCHITECTURAL AND

CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL COMPONENTS LISTED IN SCHEDULES AND DRAWINGS.



WALL LOUVER DETAIL COORDINATE WITH ARCHITECTURAL AND STRUCTURAL



- 1. SF-1 SMOKE 2. SF-1 FAULT
- SF-1 RUN
- 4. SF-1 HOA
- 5. EF-1 SMOKE 6. EF-1 FAULT
- 7. EF-1 RUN 8. EF-1 HOA
- 9. EXHAUST RELIEF OPEN 10. EXHAUST RELIEF CLOSED
- 11. SUPPLY RELIEF OPEN 12. SUPPLY RELIEF CLOSED
- 13. ALARM RESET







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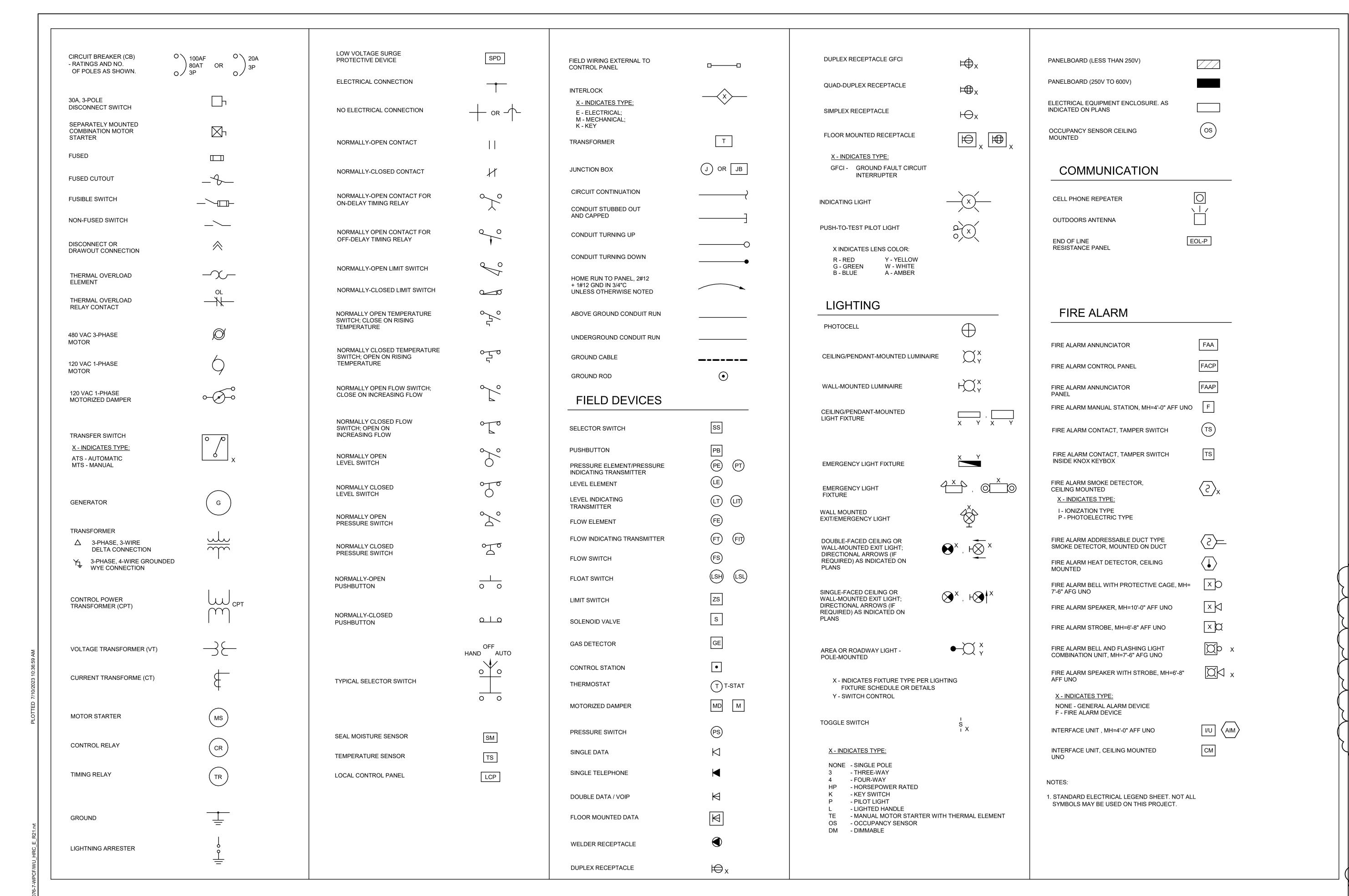
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GENERAL ELECTRICAL NOTES:

(APPLY TO ALL DRAWINGS)

- 1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE FIELD CONDITIONS AND THE EXISTING ELECTRICAL INSTALLATION AND UTILITIES PRIOR TO SUBMITTING HIS BID.
- 2. OTHER PROJECTS ARE, OR MAY BE, UNDER CONSTRUCTION AT THIS SITE, AND THIS CONTRACTOR SHALL COORDINATE WITH THEM SO AS NOT TO DELAY THEIR SCHEDULES OR IMPEDE THEIR WORK.
- 3. COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES BEFORE INSTALLATION.
- 4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A FISH LINE.
- 5. ALL UNDERGROUND CONDUITS SHALL BE P.V.C., EXCEPT WHERE ENTERING MANHOLES, HANDHOLES, BUILDINGS, LIGHT POLE BASES, AND TRANSFORMER PAD. UNDERGROUND CONDUITS AND/OR DUCTS SHALL BE RIGID GALVANIZED ALUMINUM WITHIN 5'-0" OF THE STRUCTURE. ALL CONDUITS AND/OR DUCTS UNDER BUILDINGS SHALL BE RIGID GALVANIZED STEEL.
- 6. PROVIDE WATERTIGHT HUBS AT CONDUIT ENTRANCES TO ALL ENCLOSURES MOUNTED OUTDOORS AND AT ALL WATERTIGHT (NEMA TYPE 4 & 4X) ENCLOSURES MOUNTED INDOORS. ALL NEMA TYPE 4 & 4X ENCLOSURES, EXCEPT THOSE IN CORROSIVE AREAS, SHALL BE EQUIPPED WITH A DRAIN/BREATHER FITTING.
- 7. EXPANSION OR EXPANSION/DEFLECTION FITTINGS SHALL BE PROVIDED FOR ALL CONDUITS CROSSING BUILDING EXPANSION JOINTS.
- 8. ALL POWER FEEDERS SHALL BE RUN IN INDIVIDUAL CONDUITS, FROM SOURCE TO LOAD, AS INDICATED IN SCHEDULES, WIRING DIAGRAMS, OR BY HOME RUNS ON THE PLANS.
- 9. ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
- 10. ALL CONDUITS FOR 480VAC POWER FEEDERS, BRANCH CIRCUITS, AND INSTRUMENTATION SHALL BE RUN EXPOSED OVERHEAD, UNLESS SHOWN OTHERWISE ON THE PLANS.
- 11. ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS. AND METALLIC SUPPORT RACKS SHALL HAVE A #2 (UNLESS OTHERWISE NOTED) BARE GROUND CONDUCTOR TIE BETWEEN THE MOTOR FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
- 12. GROUND CONDUCTOR SPLICING AND BONDING SHALL BE ACCOMPLISHED BY THE USE OF EXOTHERMIC WELDING.
- 13. PROVIDE A GREEN GROUND CONDUCTOR IN ALL SYSTEMS CONDUITS, EXCEPT INSTRUMENT SIGNAL AND ALARM CONDUITS, INCLUDING BRANCH CIRCUIT CONDUITS FOR LIGHTING AND RECEPTACLES. GROUND CONDUCTOR SIZING SHALL BE PER N.E.C. TABLE 250.122 (MINIMUM) WHERE NOT SIZED ON THE DRAWINGS.
- 14. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES WITH MECHANICAL PIPING AND DUCTWORK BEFORE INSTALLATION.
- 15. ALL THREADED MECHANICAL CONNECTIONS ON ELECTRICAL EQUIPMENT (CONDUIT, COUPLINGS, JUNCTION BOXES, ETC.) INSTALLED WITHIN WET AREAS, HAZARDOUS AREAS, OR OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
- 16. ALL WALL AND RACK MOUNTED DISCONNECT SWITCHES, CONTROL PANELS, AND LIGHTING PANELS SHALL BE 5'-6" TO TOP, ABOVE FINISHED FLOOR.
- 17. ALL WEATHERPROOF (W.P.) DUPLEX RECEPTACLES SHALL BE INSTALLED SUCH THAT COVER DOORS OPEN UPWARD.
- 18. ALL EXPOSED METALLIC ELECTRICAL EQUIPMENT, PULL BOXES, JUNCTION BOXES, CONDUITS, SUPPORTS, BRACKETS, HANGERS, NUTS, BOLTS, ETC. LOCATED WITHIN HAZARDOUS OR CORROSIVE AREAS, SHALL BE P.V.C. COATED WITH 40 MILS (MIN.) COVERING. WHERE FACTORY P.V.C. COATING IS NOT AVAILABLE OR WHERE P.V.C. COATING WOULD VOID U.L.LISTING OR LABELING, FACTORY OR FIELD COATING WITH A CORROSION RESISTANT, EPOXY PAINT SHALL BE
- 19. ALL PENETRATIONS OF FIRE WALLS OR FLOORS SHALL BE SEALED AFTER INSTALLATION OF CONDUIT WITH A FIRE RETARDANT SEALANT THAT IS RATED THE SAME AS THE FIRE WALL OR FLOOR.
- 20. ALL CONDUITS AND/OR SLEEVES THAT PASS THROUGH WALLS OR FLOORS SEPARATING HAZARDOUS AREAS FROM NON-HAZARDOUS AREAS SHALL BE SEALED GAS-TIGHT WITH NON-METALLIC, NON SHRINK GROUT AFTER CONDUIT
- 21. ALL WALL MOUNTED ELECTRICAL EQUIPMENT SHALL HAVE A 1/2" (MINIMUM) AIR SPACE BETWEEN WALL AND EQUIPMENT (PROVIDE NON-CORROSIVE SPACERS OR BRACKETS AS REQUIRED).
- 22. FOR ALL WALL MOUNTED EQUIPMENT WITHIN HAZARDOUS OR CORROSIVE AREAS USE STAINLESS STEEL ANCHORS AND 1/2" STAINLESS STEEL SPACERS ON STAINLESS STEEL ANCHOR BOLTS TO PROVIDE A 1/2" AIR SPACE BETWEEN THE EQUIPMENT AND THE WALL.
- 23. ALL FLOOR OR PAD MOUNTED ELECTRICAL ENCLOSURES SHALL BE SPACED 1" OUT FROM EXTERIOR WALLS (MINIMUM).
- 24. FOR ALL 120 VAC LIGHTING AND RECEPTACLE CIRCUITS, RUN 2-#12 (MINIMUM) + #12 GRD., 3/4"C. TO THE LIGHTING PANELBOARD INDICATED, UNLESS NOTED OTHERWISE. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR BRANCH CIRCUIT WIRING.

- 25. FOR EACH INTRINSICALLY SAFE CIRCUIT, RUN 2-#14 AWG (MINIMUM), OR 1 PAIR-#18 FOIL SHIELDED, IN 3/4" R.G.S. (MINIMUM). INTRINSICALLY SAFE (I.S.) CIRCUITS MAY BE RUN WITH OTHER I.S. CIRCUITS IN THE I.S. CONDUIT SYSTEM, BUT SHALL NOT BE RUN IN THE SAME CONDUIT, RACEWAY, WIRE DUCT, ETC., WITH ANY NON-INTRINSICALLY SAFE CIRCUITS, NOR SHALL I.S. CONDUCTORS COME IN CONTACT IN ANY FASHION WITH NON-INTRINSICALLY SAFE CONDUCTORS. I.S. CIRCUIT INSTALLATION SHALL MEET ALL REQUIREMENTS OF THE LATEST REVISIONS OF N.E.C. ARTICLE 504, ANSI/ISA RP-12.06, AND ANSI/UL 913.
- 26. 4-20 MA, INSTRUMENT SIGNAL AND DC TOTALIZED PULSE CABLES, MAY BE RUN WITH OTHER INSTRUMENT SIGNAL CABLES IN THE INSTRUMENT CONDUIT SYSTEM. INSTRUMENT SIGNALS SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE OF ALARM, CONTROL AND/OR POWER WIRING.
- 27. DC ALARM WIRING SHALL BE #14 AWG AND MAY BE RUN WITH OTHER ALARM WRING IN THE ALARM CONDUIT SYSTEM. ALARM WIRING SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE INSTRUMENT SIGNAL, CONTROL, OR POWER WIRING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- 28. IN AREAS WHERE ELECTRICAL WORK DISTURBS EXISTING SOD, GROUND SHALL BE REGRADED AS REQUIRED AND SOD SHALL BE REPAIRED OR REPLACED. AS REQUIRED, TO RETURN THE SITE TO A CONDITION MEETING OR EXCEEDING THAT PRIOR TO THE BEGINNING OF WORK.
- 29. ALL SALVAGED MATERIALS SHALL BE TURNED OVER TO THE OWNER OR DISPOSED OF AS DIRECTED BY THE OWNER.

ELECTRICAL ABBREVIATIONS LIST

HTR

INCAND

HZ

HEATER

HFRT7

HIGH VOLTAGE

INCANDESCENT

AMPERE, AUTO, OR

AIR CONDITIONING

ALTERNATING CURRENT

AMBER

A/C AF	CIRCUIT BKR FRAME SIZE	IND	INDICATION
A/G	ABOVE GROUND	INST	INSTANTANEOUS
AIC	AMPS INTERRUPTING	INSTR	INSTRUMENT
	CAPACITY	I/O	INPUT/OUTPUT
AL	ALUMINUM	ISO	ISOLATION
AM	AMMETER	JB	JUNCTION BOX
AMP	AMPERES	JCT	JUNCTION
ANN	ANNUNCIATOR	KA	THOUSAND AMPER
AS	AMMETER SWITCH	KAIC	THOUSAND AMPER
AT	CIRCUIT BREAKER TRIP SETTING		INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER	KCMIL	THOUSAND CIRCU
AIS	SWITCH	KCIVIIL	MILS
AWG	AMERICAN WIRE GAUGE	KVA	KILOVOLT AMPERE
BATT	BATTERY	KW	KILOWATT
BKR	BREAKER	L	LOCAL
BL	BLUE	LCP	LOCAL CONTROL F
BLK	BLOCK OR BLACK	LCS	LOCAL CONTROL
BLWR	BLOWER		STATION
BRN	BROWN	LOC	LOCAL
С	CONDUIT OR CLOSED	LOR	LOCAL-OFF-REMO
CAD	CONDUCTOR CAPACITOR	LOS	LOCKOUT STOP PUSHBUTTON
CAP CB	CIRCUIT BREAKER	LP	LIGHTING PANEL
CKT	CIRCUIT	LRA	LOCKED ROTOR A
CLF	CURRENT LIMITING FUSE	LS	LEVEL SWITCH
CMPT	COMPARTMENT	LT	LEVEL TRANSMITT
COM	COMMON	LTG	LIGHTING
COMM	COMMUNICATION	LTS	LIGHTS
COMP	COMPRESSOR	LV	LOW VOLTAGE
COND	CONDUCTOR	M	MOTOR CONTACTO
CONT	CONTINUED		COIL
CP	CONTROL PANEL OR	MA	MILLIAMPERE
	CHEMICAL PUMP	MCC	MOTOR CONTROL
CPT	CONTROL POWER XFMR		CENTER
CR	CONTROL RELAY	MCM	THOUSAND CIRCU
СТ	CURRENT		MILS
CL	TRANSFORMER	MCP	MOTOR CIRCUIT PROTECTOR
CH	CONTROL LOOP CHANNEL	MFG	MANUFACTURER
DCS	DISTRIBUTED CONTROL	MH	METAL HALIDE,
DC3	SYSTEM	14111	MOUNTING HEIGH
			MANHOLE
DISC	DISCONNECT		
DISC DEMO	DISCONNECT DEMOLITION	MLO	MAIN LUGS ONLY
DISC DEMO DISTR	DISCONNECT DEMOLITION DISTRIBUTION	MLO MOV	MAIN LUGS ONLY MOTOR OPERATEI
DEMO	DEMOLITION		MOTOR OPERATED VALVE
DEMO DISTR DISCHG DM	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER	MOV MPZ	MOTOR OPERATED VALVE MINI-POWER ZONE
DEMO DISTR DISCHG DM DP	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL	MOV MPZ MS	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER
DEMO DISTR DISCHG DM	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE	MOV MPZ MS MTR	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR
DEMO DISTR DISCHG DM DP DPDT	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW	MOV MPZ MS	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE
DEMO DISTR DISCHG DM DP	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE	MOV MPZ MS MTR MTS	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH
DEMO DISTR DISCHG DM DP DPDT DPST	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW	MOV MPZ MS MTR MTS	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE
DEMO DISTR DISCHG DM DP DPDT DPST	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR	MOV MPZ MS MTR MTS MV N	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL
DEMO DISTR DISCHG DM DP DPDT DPST DSD E	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY	MOV MPZ MS MTR MTS MV N	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY	MOV MPZ MS MTR MTS MV N	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL
DEMO DISTR DISCHG DM DP DPDT DPST DSD E	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY ELECTRICAL METALLIC	MOV MPZ MS MTR MTS MV N N/A NC	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY	MOV MPZ MS MTR MTS MV N N/A NC NEMA	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING	MOV MPZ MS MTR MTS MV N N/A NC NEMA	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE	MOV MPZ MS MTR MTS MV N N/A NC NEMA	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN	MOV MPZ MS MTR MTS MV N N/A NC NEMA	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT
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DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OL	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OL ORN	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OL ORN P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OL ORN	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OL ORN P PA	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON-	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O ORN P PA PB PC	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR FVNR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O OCR P PA PB PC PF	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR FVNR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O ORN P A PB PC PF PH	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR FVNR G GEN GFCI	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O ORN P PA PB PC PF PH PL	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FO FT FVR FVNR G GEN GFCI GND	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND	MOV MPZ MS MTR MTS MV N N/A NC NEMA NF NIC NL NO NP NTS O ORN P A PB PC PF PH	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ENCL ETM EP EF EWS F FDR FLA FLUOR FV FV FV R G GEN GFCI GND GRN	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC NL NO NP NTS O ORN P PA PB PC PF PH PL PLC	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER
DEMO DISTR DISCHG DM DP DPDT DPST DSD E MERG EMT ETM EP EF EWS F DR FLA FLUOR FVNR G GEN GFCI GND GRN H	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC NL NO NP NTS O ORN P PA PB PC PF PH PL PL PNL	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL
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DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EF EWS F FDR FLUOR FVNR G GEN G GRN H HC HD	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND GENERATOR GROUND GREEN HAND HAND CONTROL HEAT DETECTOR	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC NL NO NP NTS O ORN P PA PB PC PF PH PL PL PNL	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EFWS FDR FLAOR FVNR GGEN H HC HD HH	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND GENERATOR GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC NO NP NTS O O O R P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR PROCESSOR PANE
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EF EWS F FDR FLUOR FVNR G GEN G GRN H HC HD	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC NO NP NTS O O RN P PA PB PC PF PH PL PMP	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EWS FDR FLAOR FT FVNR GGEN H HC HD HH HID	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC ND NTS O O O R P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR PROCESSOR PANE POSITION
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EFWS FDR FLAOR FVNR GGEN H HC HD HH	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC ND NTS O O O R P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR POCESSOR PANE POSITION POTENTIAL
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ENCL ETM EP EF EWS FDR FLAOR FT FVNR GGEN H HC HD HHH HID HOA	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC	MOV MPZ MS MTR MTS MV N/A NC NEMA NF NIC ND NTS O O O R P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR POSITION POTENTIAL PAIR
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG EMT ETM EP EF EWS F FLA FLUOR FVR FVNR G GERI HC HD HHD HOA HOR	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC HAND-OFF-REMOTE	MOV MPZ MS MTR MTS MV N/A NC NEMA NFC NIC NO NPS OOR P P P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR PROCESSOR PANE POSITION POTENTIAL PAIR PRIMARY PRESSURE SWITC POWER SUPPLY
DEMO DISTR DISCHG DM DP DPDT DPST DSD EMERG EMT ETM EP EF EWS F DR FLUOR FVNR G GECI GNN H CD HHD HOA HOR HP	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC HAND-OFF-REMOTE HORSEPOWER	MOV MPZ MS MTR MTS MV N/A NC NEMA NFC NL NO NPS OOR NPA PB PC PFH PLC PMP PP POS PRI	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE ICONTROLLER PANEL PUMP POWER PANEL OR POSITION POTENTIAL PAIR PRIMARY PRESSURE SWITC POWER SUPPLY POTENTIAL
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG ENT ETM EP EF EWS F FDR FLUOR FVNR G GEN H CHD HHD HOA HP HPS	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC HAND-OFF-REMOTE HORSEPOWER HIGH PRESSURE SODIUM	MOV MPZ MS MTR MTS MV N/A NC NEMA NFC NIC NO NPS OOR P P P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE I CONTROLLER PANEL PUMP POWER PANEL OR POSITION POTENTIAL PAIR PRIMARY PRESSURE SWITC POWER SUPPLY POTENTIAL TRANSFORMER OF
DEMO DISTR DISCHG DM DP DPDT DPST DSD E EMERG ENT ETM EP EF EWS F FDR FLUOR FVNR G GEN H CHD HHD HOA HP HPS	DEMOLITION DISTRIBUTION DISCHARGE DEMAND METER DISTRIBUTION PANEL DOUBLE POLE, DOUBLE THROW DOUBLE POLE, SINGLE THROW DUCT SMOKE DETECTOR EMERGENCY EMERGENCY ELECTRICAL METALLIC TUBING ENCLOSURE ELAPSED TIME METER EXPLOSION EXHAUST FAN EYE WASH STATION FREQUENCY OR FUSE FEEDER FULL LOAD AMPERES FLUORESCENT FIBER OPTIC FLOW TRANSMITTER FULL VOLT. REVERSING FULL VOLTAGE NON- REVERSING GROUND GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND GREEN HAND HAND CONTROL HEAT DETECTOR HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC HAND-OFF-REMOTE HORSEPOWER HIGH PRESSURE SODIUM	MOV MPZ MS MTR MTS MV N/A NC NEMA NFC NIC NO NPS OOR P P P P P P P P P P P P P P P P P P	MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFE SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSE NATIONAL ELECTR MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE ICONTROLLER PANEL PUMP POWER PANEL OR POSITION POTENTIAL PAIR PRIMARY PRESSURE SWITC POWER SUPPLY POTENTIAL

	NSTRUMENT	RECPT	RECEPTACLE
	NPUT/OUTPUT	REF	REFERENCE
	SOLATION UNCTION BOX	REG RGS	REGULATOR RIGID GALVAN
	UNCTION BOX	RMS	ROOT MEAN S
	HOUSAND AMPERES	RTU	REMOTE TELE
	HOUSAND AMPERES		UNIT
	NTERRUPTING	RVA	REDUCED VO
	APACITY		AUTO TRANSI
	HOUSAND CIRCULAR	RVSS	REDUCED VO
	1ILS	_	SOFT START
	ILOVOLT AMPERE	S	SPARE
	ILOWATT	S.S.	STAINLESS ST
	OCAL CONTROL BANEL	SA SEQ	SURGE ARRE SEQUENCE
	OCAL CONTROL PANEL OCAL CONTROL	SEQ	SUPPLY FAN
	TATION	SH	SODIUM HYPO
	OCAL	SHLD	SHIELD
	OCAL-OFF-REMOTE	SIG	SIGNAL
	OCKOUT STOP	SP	SPARE
	USHBUTTON	SP HTR	SPACE HEATE
	IGHTING PANEL	SPD	SPEED, SURG
	OCKED ROTOR AMPS		PROTECTIVE
	EVEL SWITCH	SPDT	SINGLE POLE
	EVEL TRANSMITTER	CDCT	THROW
	IGHTING IGHTS	SPST	SINGLE POLE THROW
	OW VOLTAGE	SS	SOLID STATE
	OW VOLTAGE OTOR CONTACTOR	SSL	SPEED SWITC
	OIL	SSW	SELECTOR SV
	1ILLIAMPERE	STR	STARTER
M	IOTOR CONTROL	SW	SWITCH
	ENTER	SWBD	SWITCHBOAR
	HOUSAND CIRCULAR	SWGR	SWITCHGEAR
	IILS	SYS	SYSTEM
	IOTOR CIRCUIT ROTECTOR	TACH	TACHOMETER
	IANUFACTURER	TB TD	TERMINAL BLO
	IETAL HALIDE,	TEL	TELEPHONE
	OUNTING HEIGHT OR	TERM	TERMINAL OR
	IANHOLE	121111	TERMINATION
M	IAIN LUGS ONLY	TL	TWIST LOCK
	OTOR OPERATED	TR	TIMING RELAY
	ALVE	TS	TEMPERATUR
	IINI-POWER ZONE	TSP	TWISTED, SHI
	OTOR STARTER	TSTAT	THERMOSTAT
	IANUAL TRANSFER	TTC	TELEPHONE 1 CABINET
	WITCH	TVSS	TRANSIENT V
	1EDIUM VOLTAGE	1 400	SURGE SUPP
	IEUTRAL	TYP	TYPICAL
Ν	OT APPLICABLE	UC	UNDER COUN
	ORMALLY CLOSED	UG	UNDERGROU
	ATIONAL ELECTRICAL	UH	UNIT HEATER
	IANUFACTURER'S	UNO	UNLESS NOTE
	SSOCIATION ION-FUSIBLE	LIDO	OTHERWISE
	OT IN CONTRACT	UPS	UNINTERRUP POWER SUPP
	IIGHT LIGHT	UTIL	UTILITY
	ORMALLY OPEN	V	VOLTAGE OR
	IAMEPLATE	VA	VOLT AMPERI
Ν	OT TO SCALE	VAR	VOLT-AMPER
	PEN OR OFF	VFD	VARIABLE FRI
	VERLOAD		DRIVE
	RANGE	VM	VOLTMETER
	OLE UBLIC ADDRESS	VS	VOLTMETER S
	USHBUTTON OR	VP W	VAPOR PROO WATT OR WIF
	ULLBOX	W/	WATTOR WIR
	HOTOCELL	W/O	WITHOUT
	OWER FACTOR	WH	WHITE
Р	HASE	WHM	WATT HOUR I
	ILOT LIGHT	WP	WEATHER-PR
	ROGRAMMABLE LOGIC	WT	WEIGHT
	ONTROLLER	WTR	WATER
	ANEL UMP	XFMR	TRANSFORME
	OWER PANEL OR	XMTR	TRANSMITTER
	ROCESSOR PANEL	XP Y	EXPLOSION P YELLOW
	OSITION	r ZS	POSITION (LIN
	OTENTIAL	23	ANGLE
Ρ	AIR	@	AT
	RIMARY	Δ	DELTA
	RESSURE SWITCH OR	•	DEGREES
	OWER SUPPLY	"	FEET
	OTENTIAL RANSFORMER OR	#	INCHES
	RESSURE	# Ø	NUMBER PHASE
	RANSMITTER	CL	CENTER LINE
•		P	PLATE

PTZ

PWR

QTY

RAC

RECPT

PAN-TILT-ZOOM

REMOTE OR RED

RIGID ALUMINUM

POWER

QUANTITY

CONDUIT

RECEPTACLE

REG	REGULATOR
RGS	RIGID GALVANIZED STEEL ROOT MEAN SQUARE
RMS RTU	REMOTE TELEMETRY
KIU	UNIT
RVA	REDUCED VOLTAGE
NVA	AUTO TRANSFORMER
RVSS	REDUCED VOLTAGE
	SOFT START
S	SPARE
	STAINLESS STEEL
SA	SURGE ARRESTOR
SEQ	SEQUENCE
SF	SUPPLY FAN SODIUM HYPOCHLORITE
SH SHLD	SHIELD
	SIGNAL
SP	SPARE
	SPACE HEATER
SPD	SPEED, SURGE
	PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE
	THROW
SPST	SINGLE POLE, SINGLE
	THROW
SS	SOLID STATE
SSL SSW	SPEED SWITCH LOW SELECTOR SWITCH
STR	STARTER
SW	SWITCH
	SWITCHBOARD
	SWITCHGEAR
SYS	SYSTEM
TACH	TACHOMETER
ТВ	TERMINAL BLOCK
TD	TIME DELAY
TEL	TELEPHONE
TERM	TERMINAL OR
TL	TERMINATION TWIST LOCK
TR	TIMING RELAY
TS	TEMPERATURE SWITCH
TSP	TWISTED, SHIELDED PAIR
TSTAT	THERMOSTAT
TTC	TELEPHONE TERMINAL
	TELEPHONE TERMINAL CABINET
TTC TVSS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE
TVSS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR
TVSS TYP	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL
TVSS TYP UC	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER
TVSS TYP UC UG	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND
TVSS TYP UC UG UH	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER
TVSS TYP UC UG	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND
TVSS TYP UC UG UH	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED
TVSS TYP UC UG UH UNO	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE
TVSS TYP UC UG UH UNO UPS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY
TVSS TYP UC UG UH UNO UPS UTIL	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS
TVSS TYP UC UG UH UNO UPS UTIL V	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE
TVSS TYP UC UG UH UNO UPS UTIL V	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VAPOR PROOF WATT OR WIRE
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VVFD VM VS VP W W/	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VVFD VM VS VP W W/O WH	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VVFD VM VS VP W W/ W/O WH	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W W/O WH WHM WP	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W W/O WH WHM WP WT	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W W/O WH WHM WP	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W W/O WH WHM WP WT	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VVA VVAR VFD W W W W W W W W W W W W W W W W W W W	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF
TVSS TYP UC UG UH UNO UPS UTIL V VA VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP Y	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW
TVSS TYP UC UG UH UNO UPS UTIL V VA VAR VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP Y ZS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH
TVSS TYP UC UG UH UNO UPS UTIL V VAR VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP Y ZS L	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE
TVSS TYP UC UG UH UNO UPS UTIL VA VAR VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP Y ZS @	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT
TVSS TYP UC UG UH UNO UPS UTIL V VAR VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP Y ZS L	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA
TVSS TYP UC UG UH UNO UPS UTIL VA VAR VFD VM VS VP W W/O WH WHM WP WT WTR XFMR XMTR XP YZS @	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT
TVSS TYP UC UH UNO UPS UTIL VA VAR VFD VM VS VP W W/O WHM WP WT WTR XFMR XMTR XP Y ZS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES
TVSS TYP UC UG UH UNO UPS UTIL VAR VFD VM VS VP W/O WHM WP WTR XFMR XP XMTR XP ZS @\Delta color "#	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES FEET INCHES NUMBER
TVSS TYP UC UG UH UNO UPS UTIL VAR VFD VM VS VP W/O WHM WP WTR XFMR XP XMTR XP ZS @\Delta color "#	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES FEET INCHES NUMBER PHASE
TVSS TYP UC UG UH UNO UPS UTIL VAR VFD VM VS VP W/O WHM WP WTR XFMR XP XMTR XP ZS @\Delta color "#	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES FEET INCHES NUMBER PHASE CENTER LINE
TVSS TYP UC UH UNO UPS UTIL VA VAR VFD VM VS VP W W/O WHM WP WT WTR XFMR XMTR XP Y ZS	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WOLTMETER SWITCH VAPOR PROOF WATT OR WIRE WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES FEET INCHES NUMBER PHASE
TVSS TYP UC UG UH UNO UPS UTIL VAR VFD VM VS VP W/O WHM WP WTR XFMR XP XMTR XP ZS @\Delta color "#	TELEPHONE TERMINAL CABINET TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDER COUNTER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY UTILITY VOLTAGE OR VOLTS VOLT AMPERES VOLT-AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VOLTMETER VOLTMETER WITH WITHOUT WHITE WATT HOUR METER WEATHER-PROOF WEIGHT WATER TRANSFORMER TRANSMITTER EXPLOSION PROOF YELLOW POSITION (LIMIT) SWITCH ANGLE AT DELTA DEGREES FEET INCHES NUMBER PHASE CENTER LINE





Flint, MI 48502 810.235.2555 / 800.841.0342 FAAXV: V84 0e205149075 www.wadetrim.com

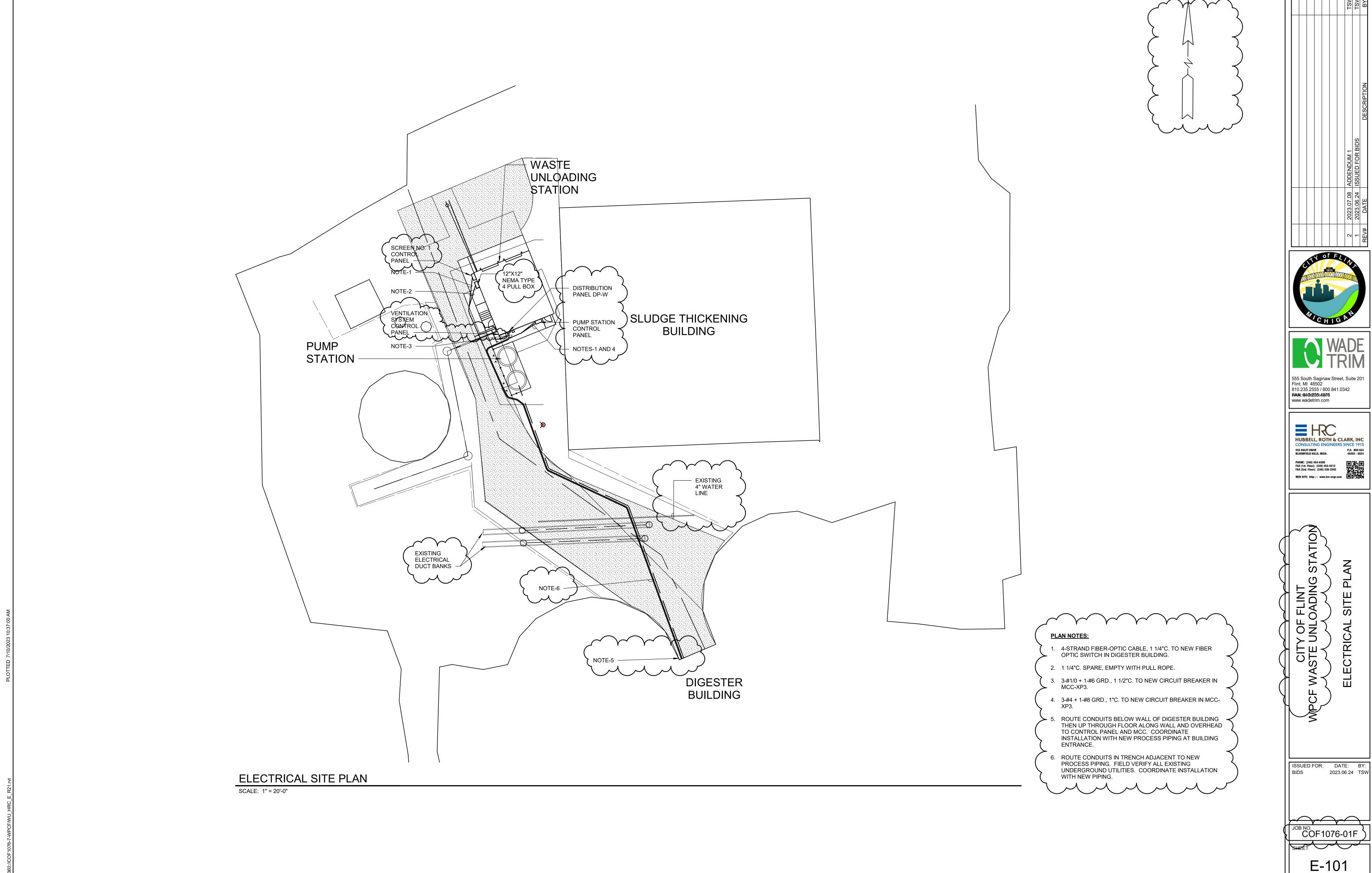
= HRC **HUBBELL, ROTH & CLARK, INC** 555 HULET DRIVE Bloomfield Hills, Mich.

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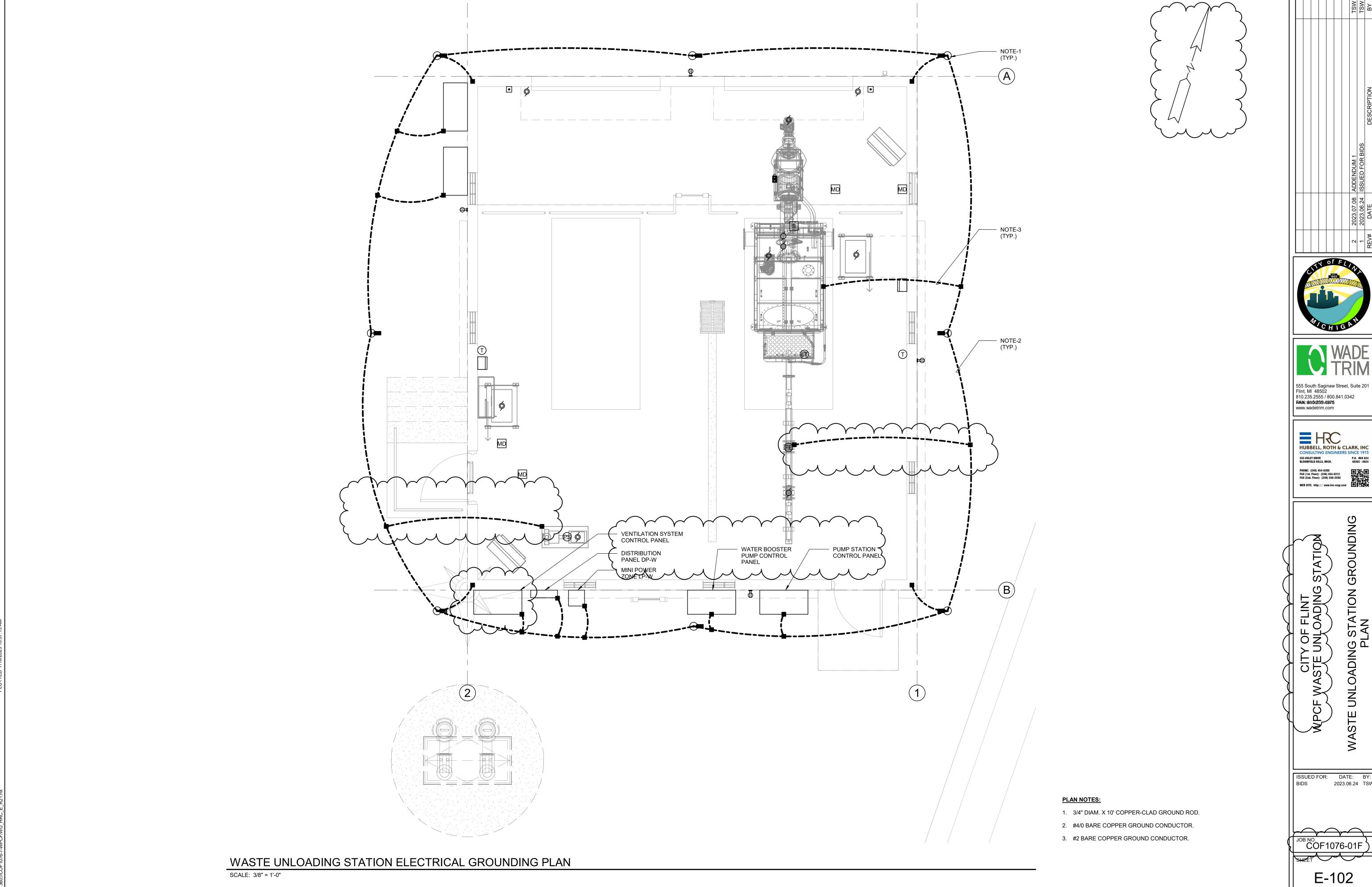
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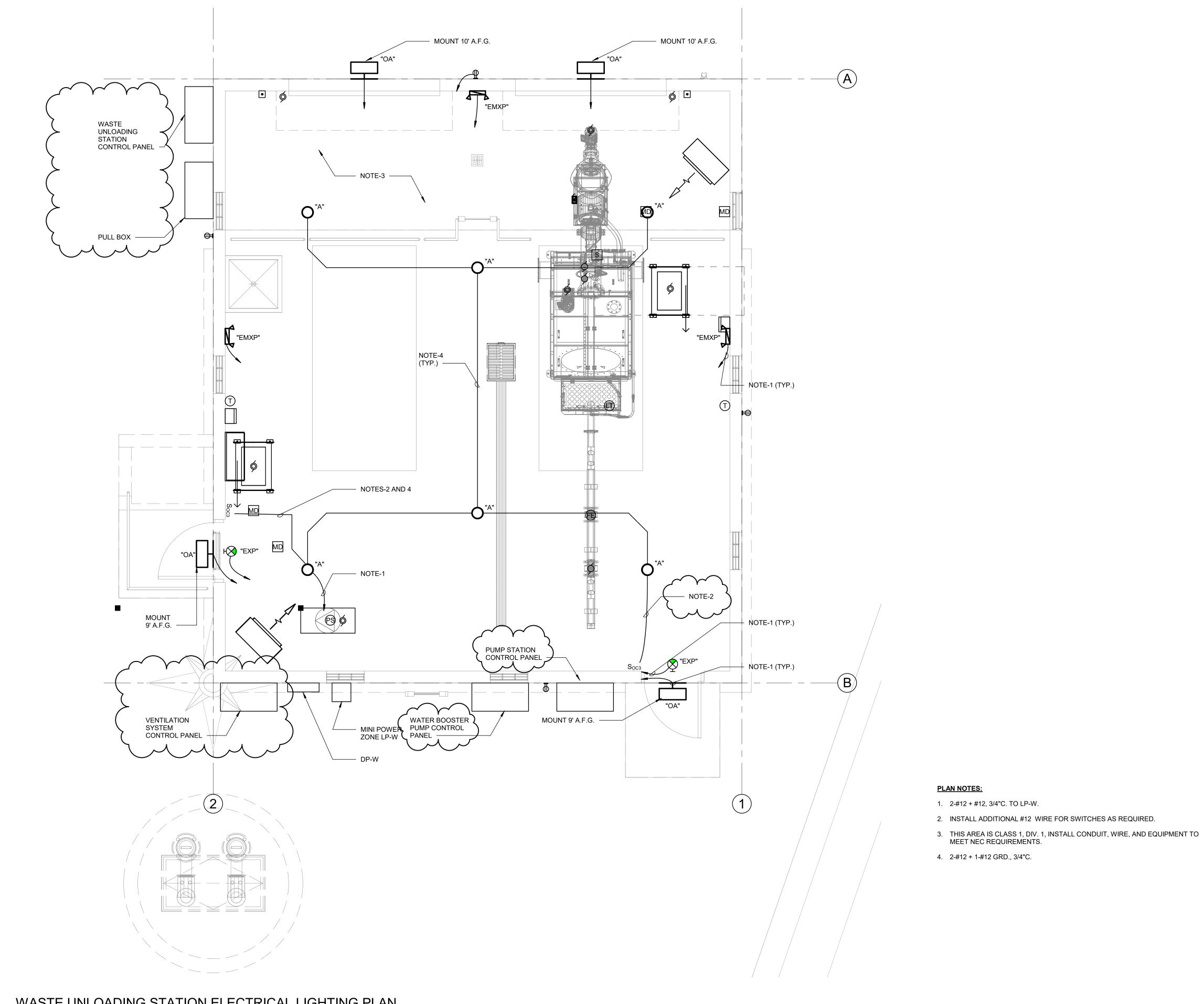


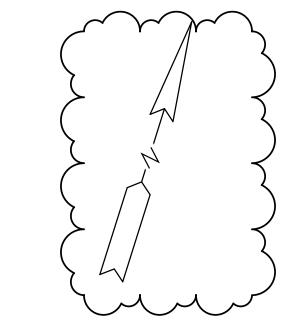


HUBBELL, ROTH & CLARK, INC CONSULTING ENGINEERS SINCE 1915

GROUNDING

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PLAN NOTES:

1. 2-#12 + #12, 3/4"C. TO LP-W.





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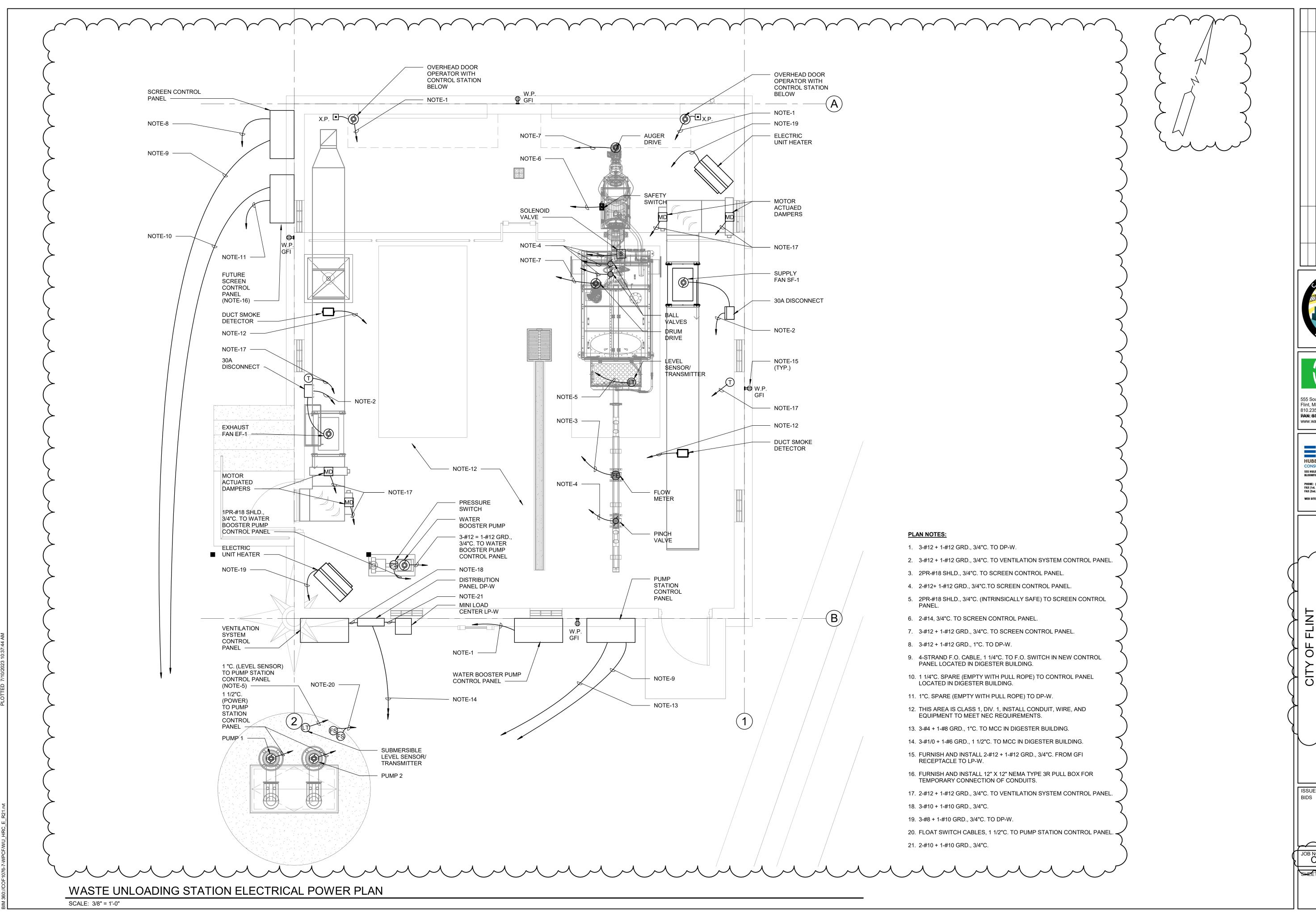
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E-103

WASTE UNLOADING STATION ELECTRICAL LIGHTING PLAN

SCALE: 3/8" = 1'-0"







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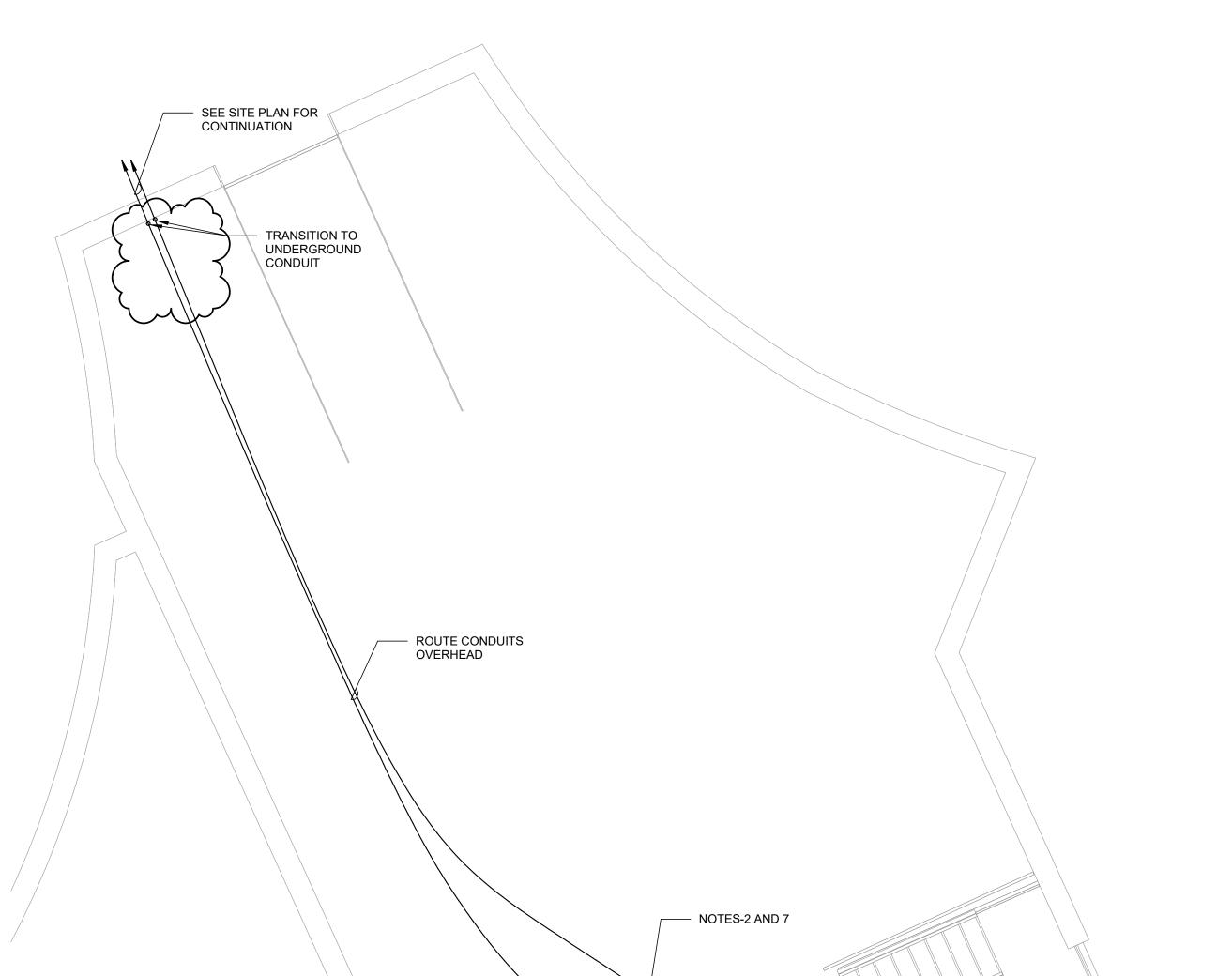
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PLAN NOTES:

- 1. 2-1 1/4"C. WITH 4-STRAND FIBER OPTIC CABLE IN EACH + 1 -1 1/4"C. SPARE, EMPTY WITH PULL ROPE.
- 2. 3-#4 + 1-#8 GRD., 1"C. + 3-#1/0 + 1-#6 GRD., 1 1/2"C.
- 3. IN MCC-XP3, FURNISH AND INSTALL NEW MCC BUCKET WITH NEW 75A, 3-POLE CIRCUIT BREAKER TO FEED SUBMERSIBLE PUMP STATION.
- 4. IN MCC-XP3, FURNISH AND INSTALL NEW MCC BUCKET WITH NEW 150A, 3-POLE CIRCUIT BREAKER TO FEED DP-W.
- 5. CONNECT NEW FIBER OPTIC CABLES TO NEW FIBER OPTIC-TO-ETHERNET SWITCH IN NEW CONTROL PANEL.
- 6. IN EXISTING CONTROL PANEL REMOVE AND REPLACE EXISTING FIBER OPTIC-TO-ETHERNET SWITCH. NEW SWITCH TO HAVE 8-ETHERNET AND 8-FIBER OPTIC PORTS MINIMUM.
- 7. CORE THROUGH WALL FOR INSTALLATION OF NEW CONDUITS. SEAL AROUND CONDUITS WITH NON-METALLIC NON-SHRINK GROUT TO MATCH
- 8. CAT. 6 CABLE, 3/4"C. CONNECT NEW FIBER-TO-ETHERNET SWITCH TO
- FURNISH AND INSTALL CAT6 JUMPER, 3/4"C. TO EXISTING ETHERNET SWITCH IN EXISTING PANEL.
- 10. INSTALL 2-#12 + 1-#12 GRD., 3/4"C. FROM EXISTING POWER DISTRIBUTION IN EXISTING C.P. TO NEW FIBER-TO-ETHERNET SWITCH PANEL.
- 11. INSTALL NEW MCC BUCKET AND 80A, 3-POLE CIRCUIT BREAKER FOR SUBMERSIBLE PUMP STATION IN THIS SECTION.
- 12. INSTALL NEW MCC BUCKET AND 150A, 3-POLE CIRCUIT BREAKER IN THIS SECTION, TO FEED DP-W.



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Y OF FLINT UNLOADING

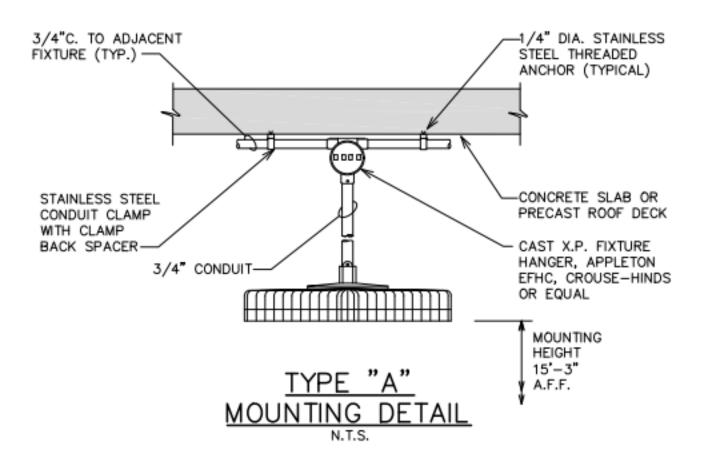
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E-105

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

NOTE-7 NOTES-1 AND 7 EXISTING CONTROL PANEL (NOTES-5 AND 6) NOTE-11 NOTE-8 AND 10 - NOTE-12 NEW FIBER-TO-ETHERNET SWITCH - EXISTING MCC-XP3 DIGESTER MCC (NOTES-3 AND 4) IN NEW PANEL -EXISTING MCC BIO GAS

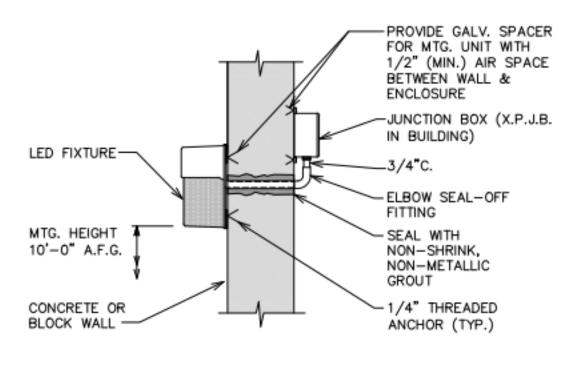
> EXISTING MAIN DISCONNECT SWITCH



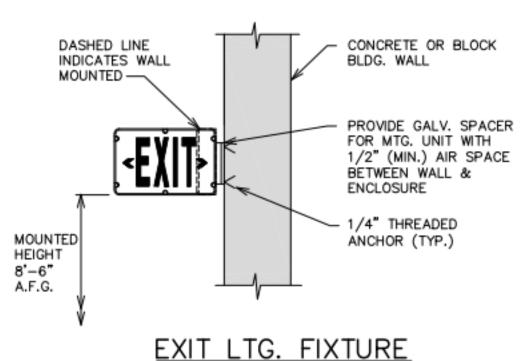
			LIGHTING FIXTURE SCHEDULE	
TYPE	LAMP	OPERATING VOLTAGE	DESCRIPTION	MFR. CAT. NO.
"A"	90 WATT LED 4,500K	120V.	INDUSTRIAL HGH BAY LED FIXTURE, CAST ALUMINUM, PENDANT MOUNTED RATED FOR HAZARDOUS AREA, CLASS 1, DIVISION 1 AND APPROVED BY INDEPENDENT TESTING AGENCY FOR THAT AREA	DIALIGHT-SAFESIGHT SERIES HE HEC-7MC2AD
"OA"	32 WATT LED 5000K	120V.	WALL MOUNTED OUTDOOR LED FIXTURE, DIE CAST ALUMINUM, CONSTANT VOLTAGE DRIVER, REMOVABLE HINGED DOOR FRAME WITH CAPTIVE FASTENERS. TYPE IV DISTRIBUTION, BRONZE POLYESTER POWDER COAT FINISH, UL LISTED FOR WET LOCATIONS, PHOTO CONTROL, IP66 RATED, WITH SURGE SUPPRESSION	HUBBELL: PGM3-180L-5K-035-U-DB-PG OR APPROVED EQUAL
"EXP"	LED	120V.	LED EXIT SIGN SUITABLE FOR USE IN CLASS 1, DIVISION 1, HAZARDOUS AREA WITH ALUMINUM BODY, ACRYLIC EDGE LIT SIGN, BATTERY BACKED WITH SELF DIAGNOSTICS	AZZ: XPEX-1-R-DT-WP-EM-SD OR APPROVED EQUAL
"EMXP"	LED	120V.	EMERGENCY LIGHTING UNIT WITH TWO (2) LED ADJUSTABLE HEADS SUITABLE FOR USE IN CLASS 1, DIVISION 1, HAZARDOUS AREA, WITH ALUMINUM BODY, STAINLESS STEEL HARDWIRE, SUITABLE FOR WET LOCATIONS	AZZ: XPEL-U-2-O-M OR APPROVED EQUAL

FIXTURE SCHEDULE NOTES:

- * ALL LED FIXTURES MUST HAVE SURGE SUPPRESION
- ** IF CATALOG NUMBER DOES NOT MEET THE FOLLOWING CRITERIA, THE CONTRACTOR OR MFR. SHALL REVISE CATALOG NUMBER AS REQUIRED.



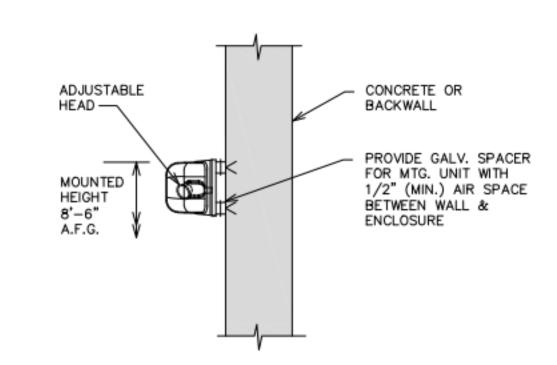




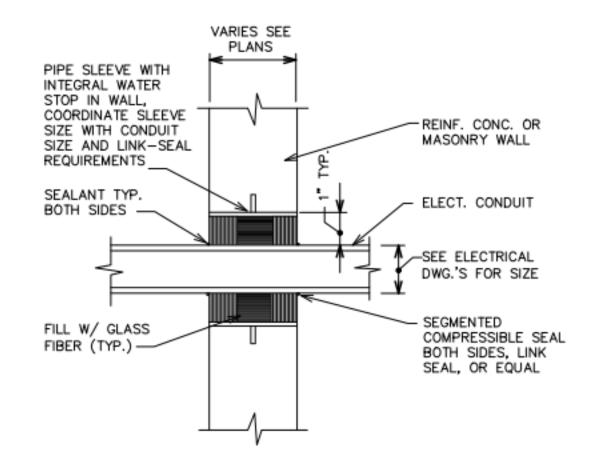
EXIT LTG. FIXTURE

TYPE "EXP" MOUNTING DETAIL

N.T.S.



EMERGENCY LIGHTING FIXTURE TYPE "EMXP" MOUNTING DETAIL N.T.S.

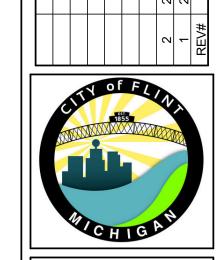


TYPICAL CONDUIT

PENETRATION THRU NEW

WALL ABOVE & BELOW GRADE

N.T.S.



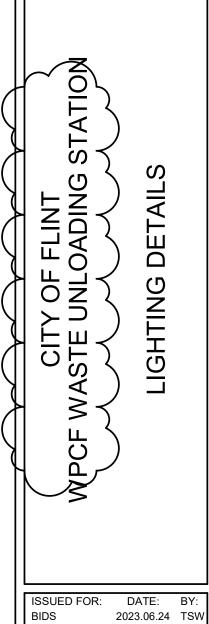


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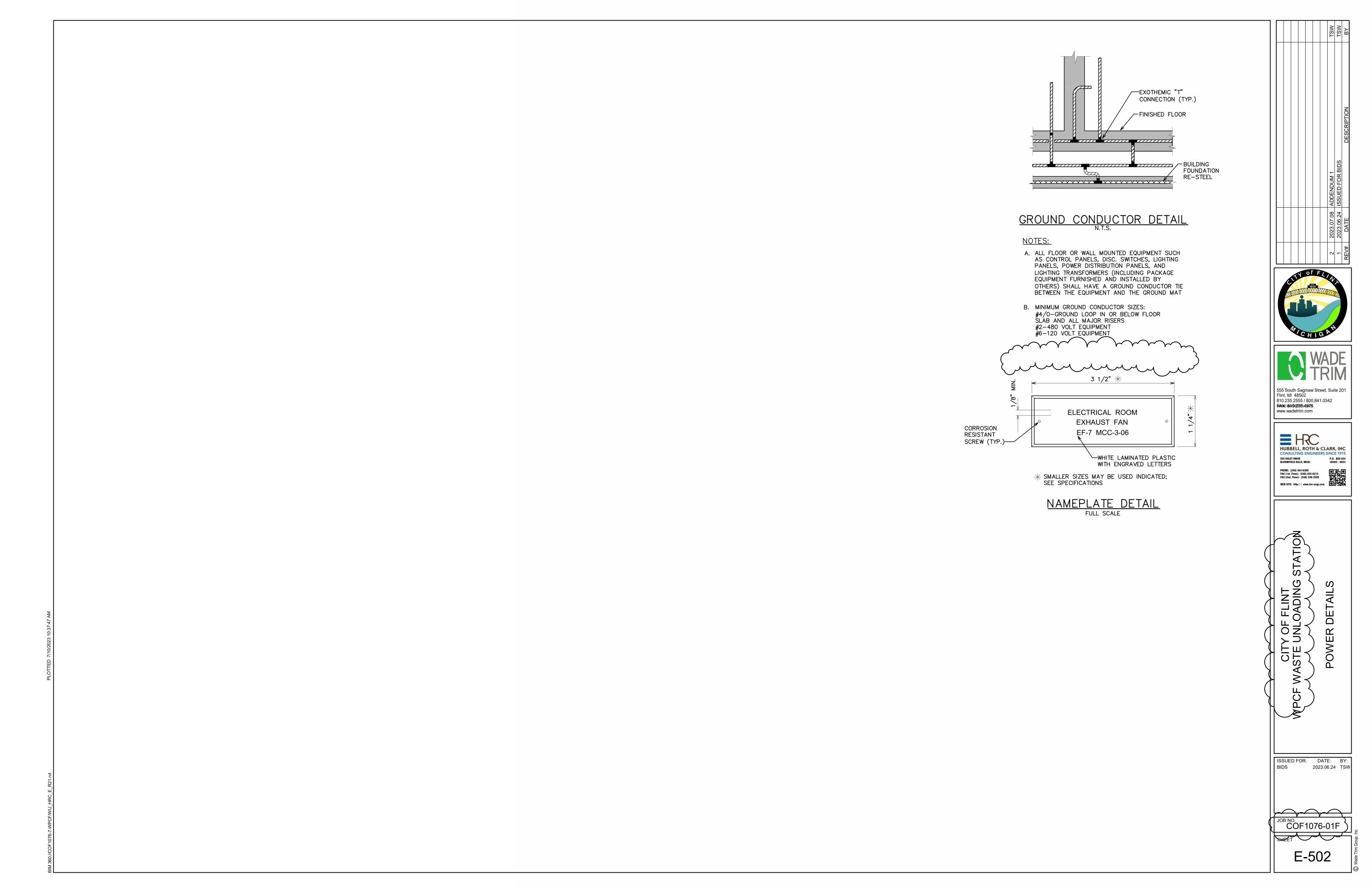
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BLOOMFIELD HILLS, MICH.

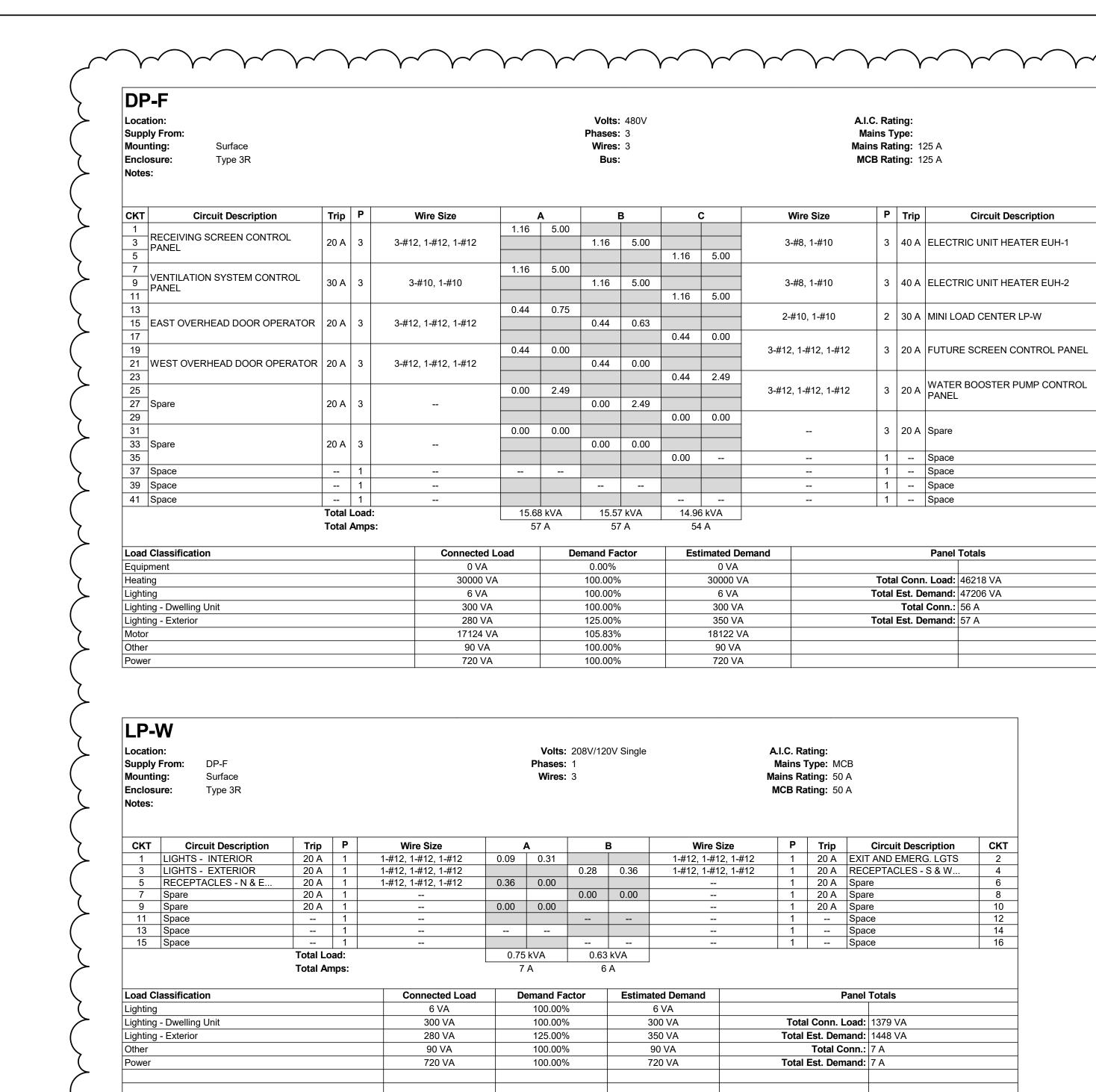
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WEB SITE: http://www.hrc-engr.com



JOB NO. COF1076-01F





MICHIGA

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555 South Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 / 800.841.0342 FAANV: V84 0e205149975 www.wadetrim.com

= HRC **HUBBELL, ROTH & CLARK, INC** 555 HULET DRIVE Bloomfield Hills, Mich.

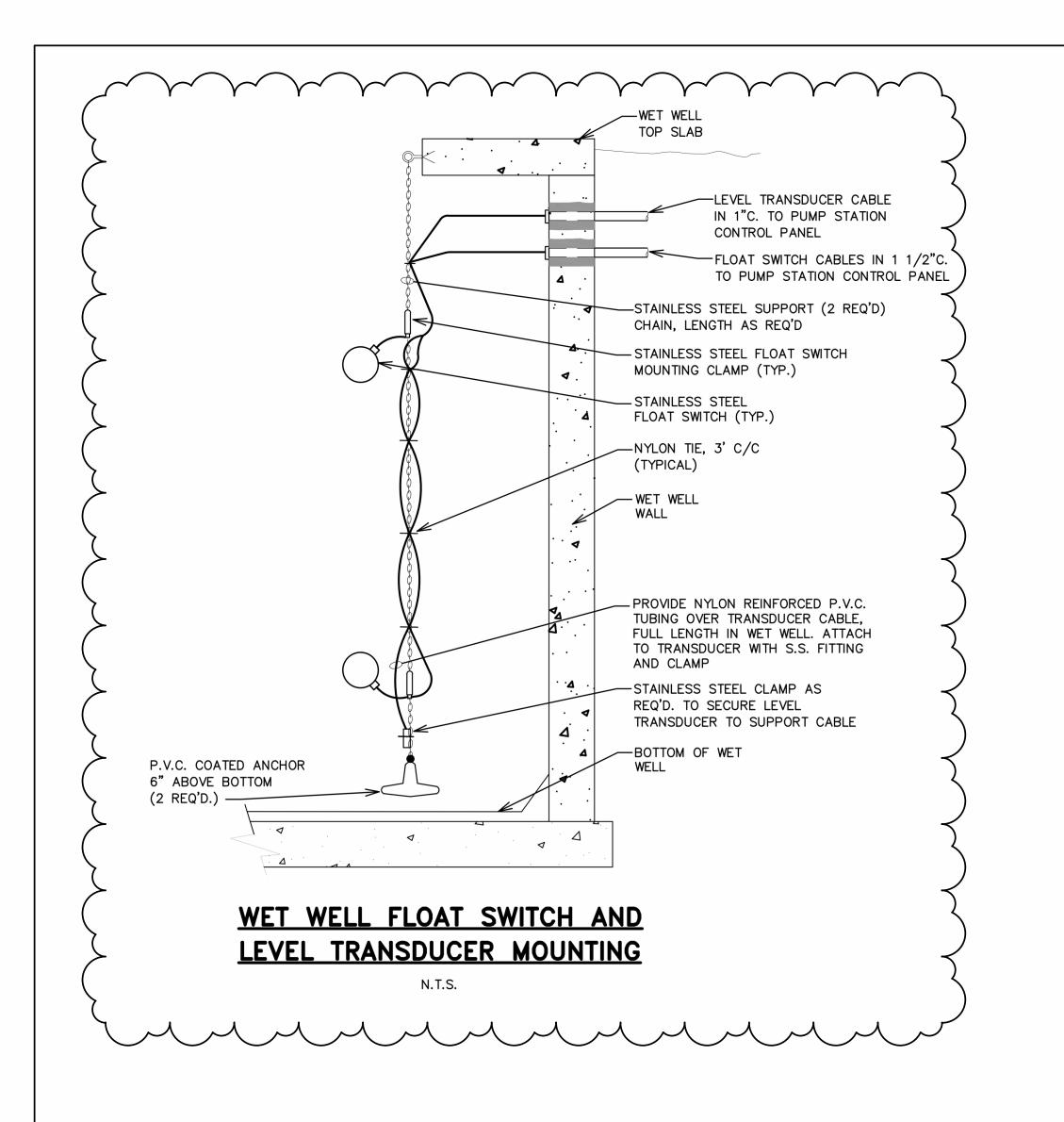
PHONE: (248) 454-6300 FAX (1st. Floor): (248) 454-6312 FAX (2nd. Floor): (248) 338-2592

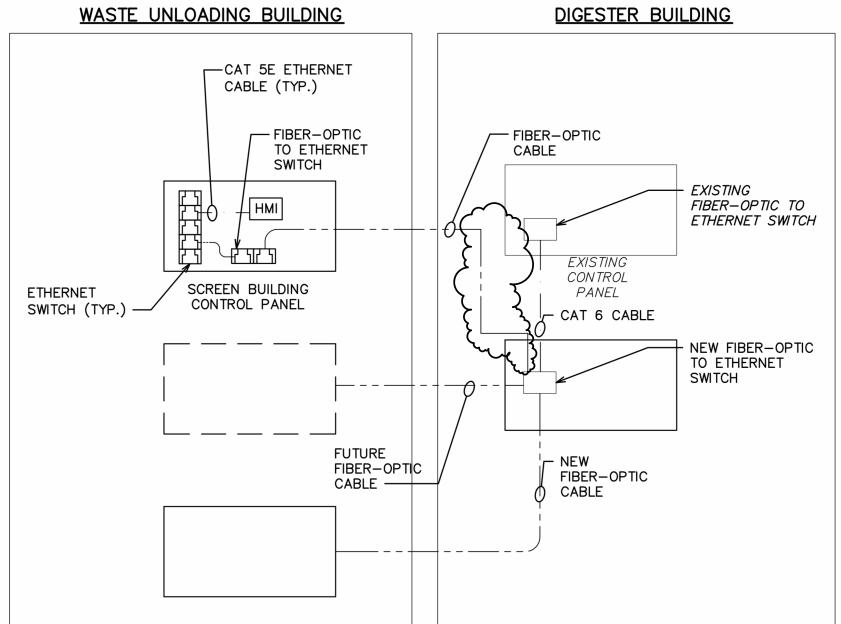
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SCHEDULES

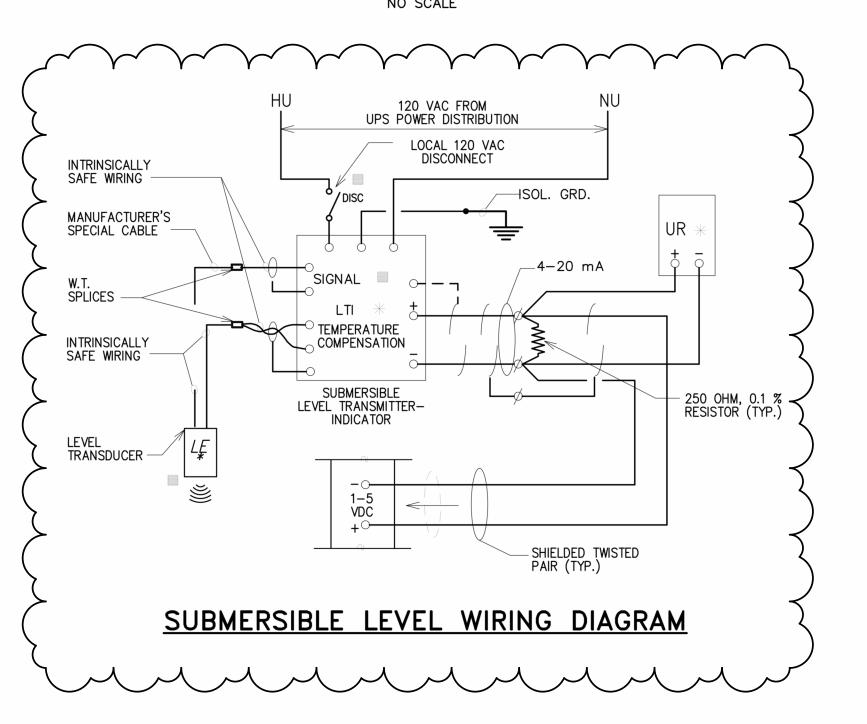
CITY OF FLINT WASTE UNLOADING PANEL

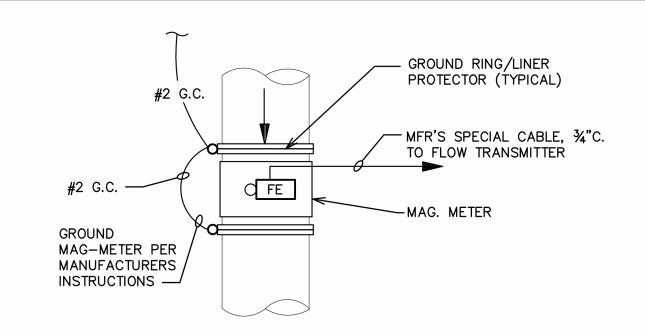
ISSUED FOR: DATE: BY: 2023.06.24 TSW



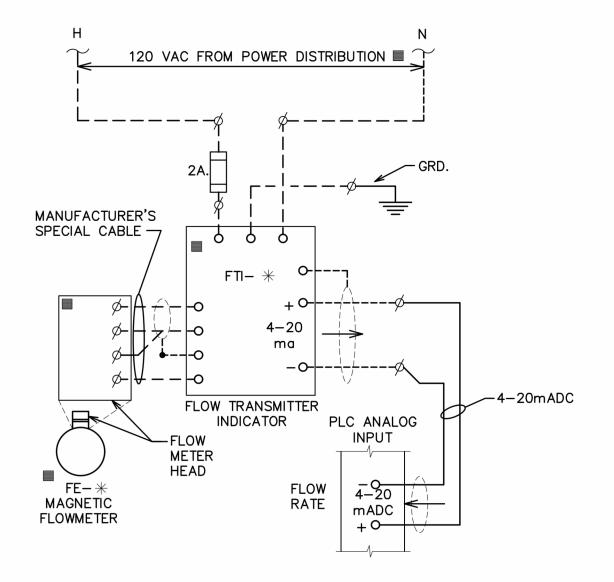


COMMUNICATIONS RISER DIAGRAM





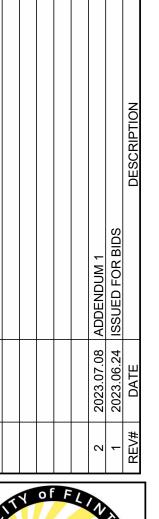
TYPICAL MAGNETIC FLOW METER INSTALLATION DETAIL N.T.S.



MAGNETIC FLOWMETER WIRING DIAGRAM (TYPICAL)

ALL DEVICES LOCATED IN CONTROL PANEL UNLESS OTHERWISE INDICATED BY

(MAGNETIC FLOWMETERS INSTALLED BELOW GRADE SHALL
HAVE POTTED/SEALED HEADS, AND BE RATED SUITABLE
FOR OCCASIONAL SUBMERGENCE; AS NOTED ON THE







555 South Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 / 800.841.0342 FAM: ง8404265.4975 www.wadetrim.com

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