NEW WESTSIDE MAIN LIFT STATION

FOR THE CITY WATER AND LIGHT
JONESBORO, ARKANSAS

PROJECT NO 018-0054

JANUARY, 2020

CODE ANALYSIS INFORMATION

2012 ARKANSAS FIRE PROTECTION CODE

(CHAPT. 3)	1.	OCCUPANCY CLASSIFICATION	UTILITY/ U
	2.	TYPE OF CONSTRUCTION	
		-PROPOSED	TYPE II B
		-SPRINKLER/NON-SPRINKLER	NON-SPRINKLER
	3.	ALLOWABLE HEIGHT & BUILDING AREA	3 STORY/ 23,000
(CHAPT. 3)	4.	FLOOR AREAS & OCCUPANT LOAD, AS FOLLOWS:	
(TABLE 1044.1.2	4a.	AREA,GROSS FLOOR/ OCCUPANT LOAD -GROSS FLOOR AREA TOTAL	544/--
(TABLE 1044.1.2	4b.	AREA, NET FLOOR/ OCCUPANT LOAD -NET FLOOR TOTAL	544/--
	5.	SEPARATION DISTANCES - EXTERIOR WALLS COMMON PROPERTY LINES	
		-NORTH	
		-SOUTH	
		-EAST	
		-WEST	
	6.	EXIT ACCESS CORRIDOR ENCLOSURE PROTECTION STRATEGY.	N/A
(TABLE 508.4)	7.	RATED CONSTRUCTION ASSEMBLIES *NO SEPARATION REQUIREMENTS	*N HOUR
	8.	FIRESTOP ASSEMBLIES	---
	9.	STATEMENT OF SPECIAL INSPECTIONS	---

ELECTRIC CODE - 2011 NATIONAL ELECTRIC CODE

GAS CODE - ARKANSAS STATE FUEL GAS CODE, 2006 EDITION

MECAHNICAL CODE - 2010 ARKANSAS MECHANICAL CODE

PLUMBING CODE - ARKANSAS STATE PLUMBING CODE

CERTIFICATE OF AUTHORIZATION
Olsson Inc.
No.1010
ARKANSAS ENGINEER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 14497 CHRIS DOUGHERTY 12/20/19

CHRIS DOUGHERTY
ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO.14497

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO. 9240 BRAD B. HAMMOND 12/20/19

BRAD B. HAMMOND
ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO.9240

CWL

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TEL 479.443.3404
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www.olsson.com

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

COVER SHEET

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: C.DOUGHERTY
approved by: C.DOUGHERTY
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET
G101

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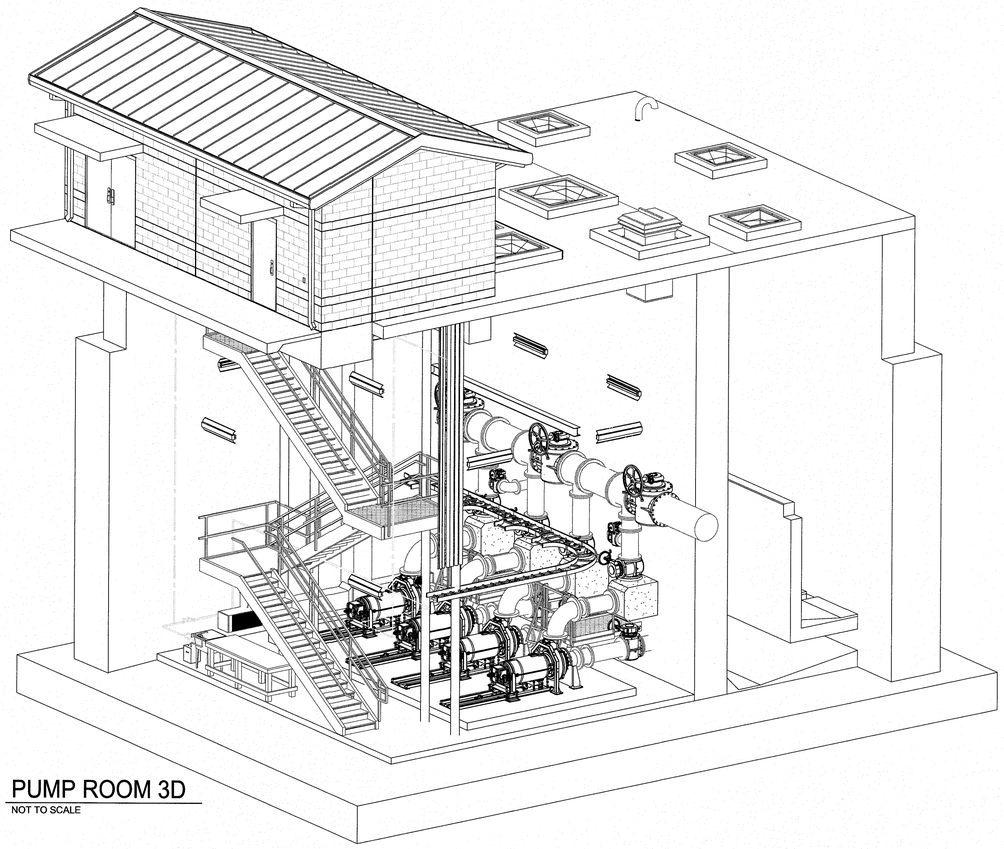
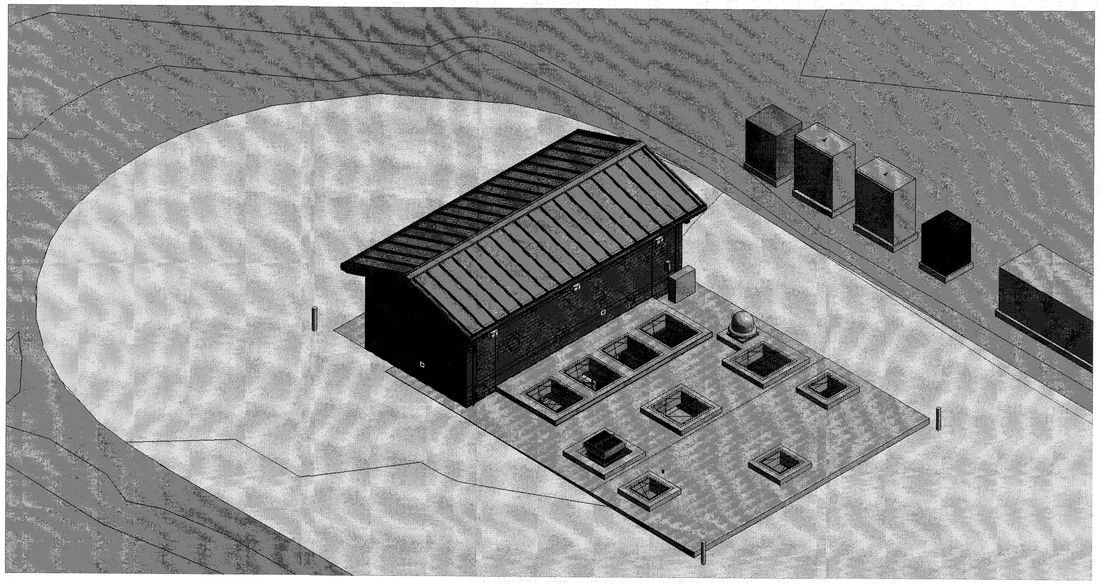
NORTH

VICINITY MAP



PUMP ROOM 3D

NOT TO SCALE



W-E 3D

NOT TO SCALE

SHEET INDEX	
Sheet #	Sheet Name
G101	COVER SHEET
G102	VICINITY MAP & SHEET INDEX
C101	CIVIL SITE, GRADING & DRAINAGE PLAN
C102	YARD PIPING PLAN
C103	YARD PIPING PROFILES
C104	CIVIL DETAILS
C105	CIVIL DETAILS
C106	LANDSCAPE PLAN
GS001	STRUCTURAL NOTES
GS002	STRUCTURAL NOTES
GS003	STRUCTURAL SPECIAL INSPECTION NOTES
GS004	STRUCTURAL SPECIAL INSPECTION
GS005	STANDARD STRUCTURAL DETAILS
GS006	STANDARD STRUCTURAL DETAILS
GS007	STANDARD STRUCTURAL DETAILS
GS008	STANDARD STRUCTURAL DETAILS
GS009	STANDARD STRUCTURAL DETAILS
GS010	STANDARD STRUCTURAL DETAILS
GS011	STANDARD STRUCTURAL DETAILS
S101	FLOOR PLAN, SECTION, SCHEDULES & NOTES
S102	ELEVATIONS
S103	STRUCTURAL PLANS - BELOW GROUND
S104	BUILDING SECTIONS
S105	BUILDING SECTIONS
S106	STRUCTURAL PLANS - BUILDING
S107	WALL SECTIONS
S108	BACKFILL PLAN
P101	PROCESS PIPING PLANS
P102	PLAN AND SECTIONS
P103	SECTIONS
P104	PROCESS DETAILS
M001	GENERAL MECHANICAL INFORMATION
M101	HVAC PLANS
M102	MECHANICAL SCHEDULES AND DETAILS
PL101	PLUMBING PLANS
PL102	PLUMBING DETAILS AND SCHEDULES
GE001	ELECTRICAL GENERAL INFORMATION
E101	ELECTRICAL SITE PLAN
E201	LIFT STATION POWER PLANS
E301	LIFT STATION LIGHTING PLANS
E401	ELECTRICAL DIAGRAMS
E501	ELECTRICAL DETAILS
E502	ELECTRICAL DETAILS
E503	ELECTRICAL DETAILS
E504	ELECTRICAL DETAILS
E505	ELECTRICAL SECTIONS
E601	ELECTRICAL SCHEDULES
I101	INSTRUMENTATION ARCHITECTURE
I102	INSTRUMENTATION DIAGRAMS
I103	INSTRUMENTATION DIAGRAMS

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14407
CHRIS DOUGHERTY

REV. NO.	DATE	REVISION DESCRIPTION	BY
1	09/15/20	ADDED LANDSCAPE PLAN	CBD

REVISIONS

VICINITY MAP & SHEET INDEX

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
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approved by: C.DOUGHERTY
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project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET
G102

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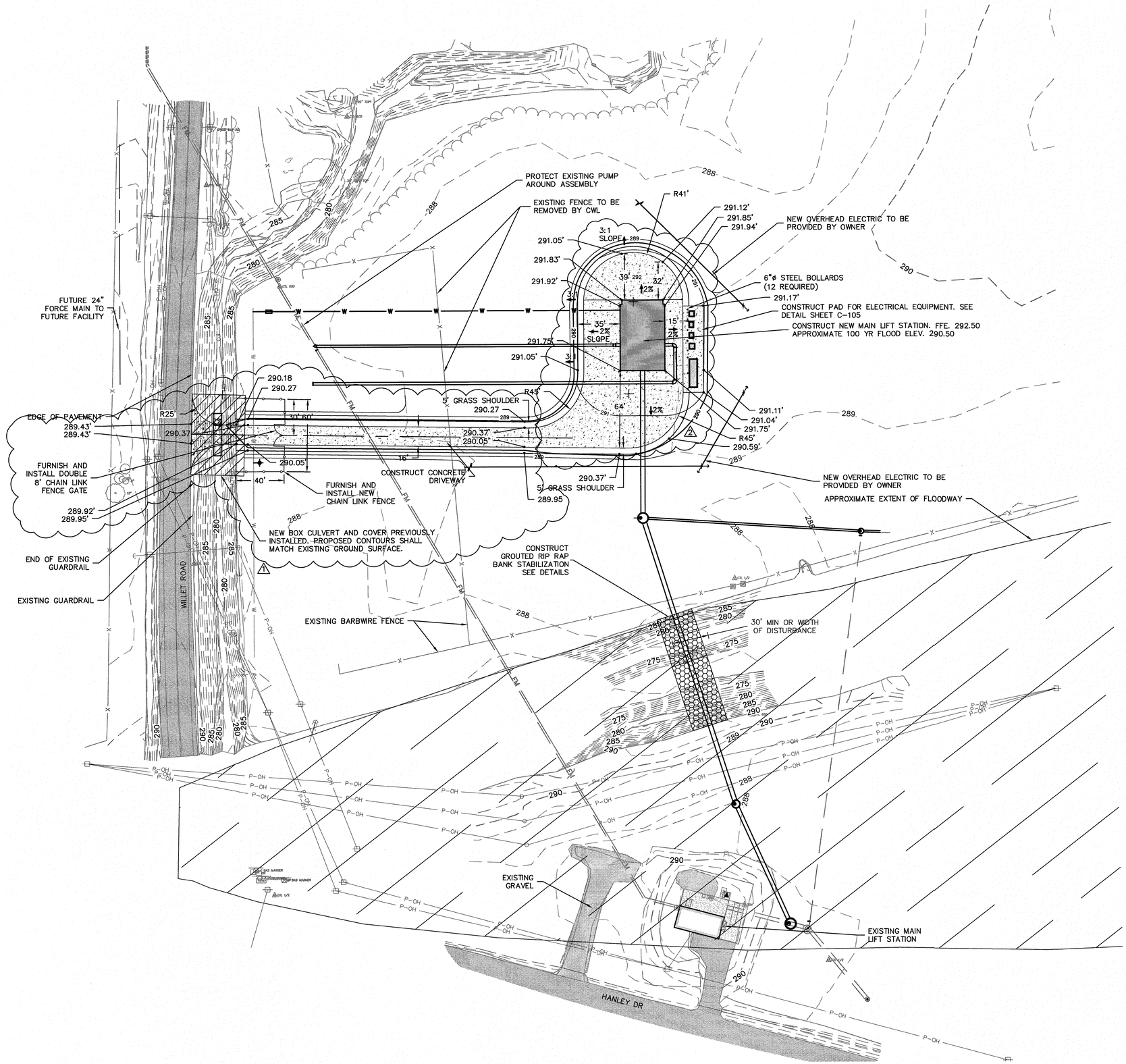

LEGEND

Found Monument (As Noted)	Satellite Dish
Set 1/2" Rebar w/Plastic Cap, "LC 366"	Schedule B-II Exception
Set 5/8" Rebar w/Alum. Cap, "LC 366"	Sign
(D) Deeded	Sprinkler Control Valve
(M) Measured	Sprinkler Head
(P) Platted	Steel Post
Air Conditioner	Storm Manhole
Bollard	Telephone Cabinet
Bush	Telephone Manhole
Cable Box	Telephone Pedestal
Cable Vault	Telephone Riser
Camera	Telephone Vault
Column	Traffic Control Box
Coniferous Tree	Traffic Signal Box
Deciduous Tree	Traffic Signal Pole
Electric Box	Transformer
Electric Cabinet	Vent Pipe
Electric Riser	Water Manhole
Electric Manhole	Water Meter
Electric Meter	Water Valve
Electrical Outlet	Wood Post
Electric Vault	Force Main
Fiber Optic Box	Overhead Electric
Fiber Optic Pedestal	Underground Electric
Fire Dept. Connection	Fiber Optic Line
Fire Hydrant	Fuel Line
Flared End Section	Natural Gas Line
Gas Marker	Sanitary Sewer Line
Gas Meter	Storm Sewer Line
Gas Regulator	Telephone Line
Gas Valve	Water Line
Gas Vault	Barbed Wire Fence
Grate Inlet	Chainlink Fence
Grease Trap	Wood Fence
Guy Wire	Rip Rap
Irrigation Valve	Asphalt Pavement
Light Pole	Concrete Sidewalk
Monitoring Well	Concrete Pavement
Pipe Fitting: Bend	Gravel Pavement
Pipe Fitting: Gland	Lift Station Building
Power Pole	New Gravity Sewer or Force Main
Power Pole w/Light	Floodway
Sanitary Cleanout	
Sanitary Manhole	

GENERAL NOTES:

1.) YARD PIPING SHOWN FOR CLARITY. SEE YARD PIPING PLAN SHEET C-102 FOR CONSTRUCTION.
2.) PROJECT IS WITHIN 100-YEAR FLOOD PLAIN. CONTRACTOR ADVISED TO TAKE PRECAUTION STORING MATERIALS AND EQUIPMENT.
3.) DISPOSAL OF SURPLUS MATERIALS SHALL BE COORDINATED WITH ENGINEER AND OWNER OUTSIDE OF FLOODWAY AND IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
4.) ALL NEW MANHOLES SHALL BE EPOXY LINED IN-PLACE PER SPECIFICATION 09 96 00 EPOXY PROTECTIVE COATING SYSTEM FOR CONCRETE WASTEWATER STRUCTURES.

N

0' 20' 40' 80'
SCALE IN FEET

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STATE OF ARKANSAS
CHRIS DOUGHERTY
REGISTERED PROFESSIONAL ENGINEER
No. 14437
7/16/20

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	8/12/2020	RAISED GRADE OF DRIVEWAY	
2	9/04/2020	GRAVEL DRIVE CHANGED TO CONCRETE	

REVISIONS

CIVIL SITE AND GRADING PLAN

NEW WESTSITE MAIN LIFT STATION
CITY WATER & LIGHT

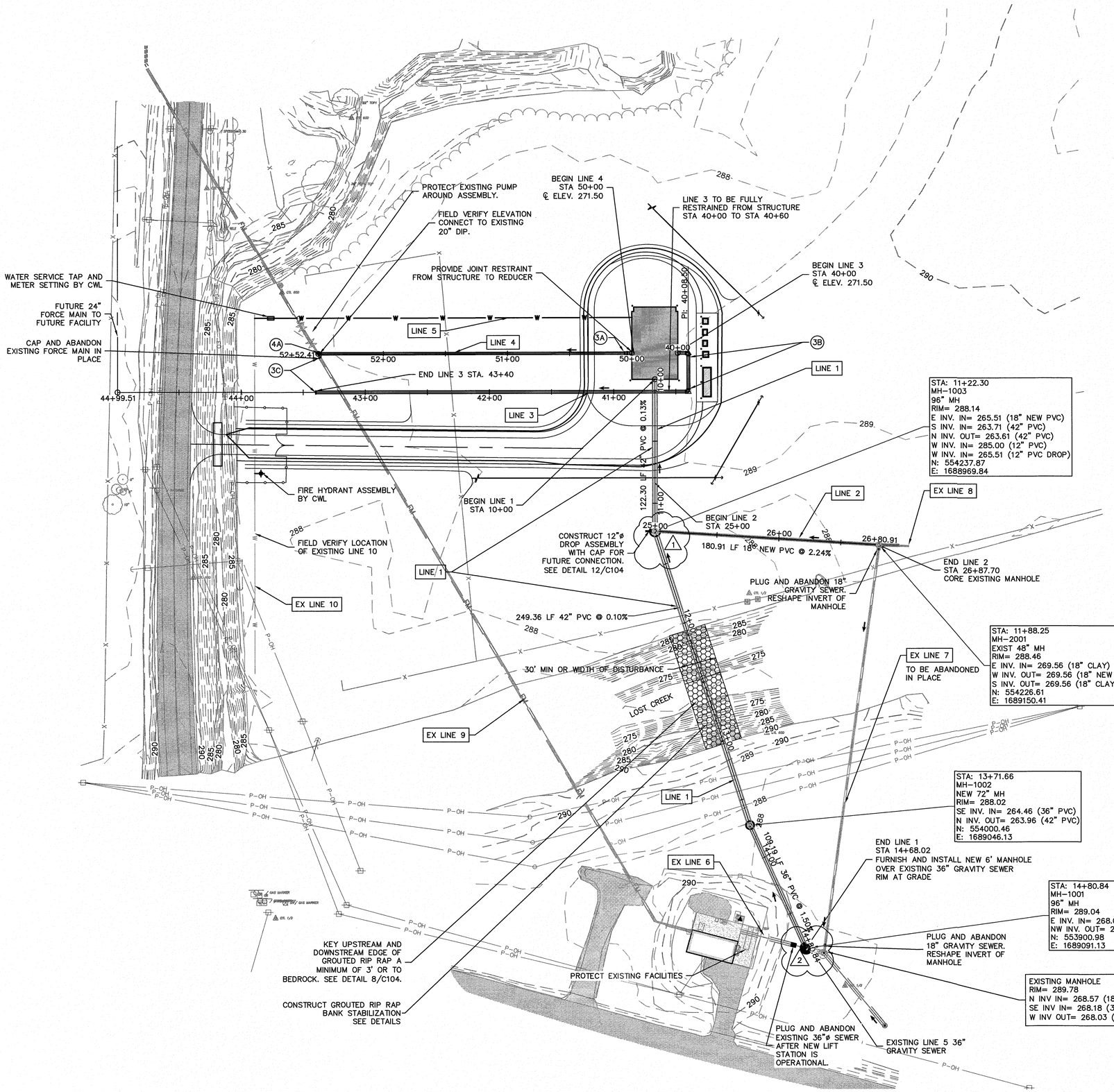
JONESBORO, ARKANSAS

2020

drawn by: MES
checked by: CBD
approved by: CBD
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
C-101

DWG: F:\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\C_SIT_0180054.dwg USER: jkutter
DATE: Sep 17, 2020 8:20am XREFS: Y_topo_80054 C_base_0180054 OA_811 Arkansas Call Before You Dig



PIPE SCHEDULE		
ITEM	DESCRIPTION	REMARKS
LINE 1	CONSTRUCT APPROX. 385 L.F. OF 36"/42" PVC GRAVITY SEWER, SLOPE VARIES.	SEE PROFILE
LINE 2	CONSTRUCT APPROX. 188 L.F. OF 18" PVC GRAVITY SEWER, SLOPE 3.14%	SEE PROFILE
LINE 3	CONSTRUCT APPROX. 340 L.F. 24" AWWA C900 PVC DR-18 FORCE MAIN, CAPPED @ LINE END	SEE PROFILE
LINE 4	CONSTRUCT APPROX. 253 L.F. 20" AWWA C900 PVC DR-18 FORCE MAIN	SEE PROFILE
LINE 5	CONSTRUCT 304 L.F. 1"ø WATER SERVICE LINE. TIE INTO EXISTING WATERLINE	SERVICE TAP AND METER SETTING BY CWL
EX LINE 6	EX. 36" GRAVITY SEWER	
EX LINE 7	EX. 18" TO BE ABANDONED.	
EX LINE 8	EX. 18" GRAVITY SEWER	
EX LINE 9	EX. 20" FORCE MAIN FROM EX LIFT STATION. LINE 4 TIES IN @ STA 52+53	
EX LINE 10	EX. 8" WATERLINE (VERIFY LOCATION)	

FITTING SCHEDULE		
ITEM	DESCRIPTION	REMARKS
3A	20"X24" MJ REDUCER	
3B	24"ø MJ 90° BEND	
3C	24"ø MJ CAP	
4A	20"ø MJ 45° BEND	JOINT RESTRAINT REQUIRED WITHIN 5' OF FITTING

FITTING NOTES:
1. DUCTILE IRON FITTINGS AND VALVES SHALL BE CERAMIC EPOXY LINED IN ACCORDANCE WITH SPECIFICATIONS.
2. ALL VALVES AND FITTINGS SHALL HAVE MEGALUG RETAINER GLANDS.
3. ALL BENDS AND TEES SHALL HAVE CONCRETE REACTION BACKING IN ADDITION TO MEGALUG RETAINER GLANDS.

NOTES:
1. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SEWER SERVICE AT LIFT STATION. CONTRACTOR SHALL SEQUENCE WORK SUCH THAT CONSTRUCTION OF NEW LIFT STATION IS COMPLETE AND OPERATIONAL PRIOR TO CONNECTING TO EXISTING SEWER AND FORCE MAIN. TESTING TO BE PERFORMED BEFORE TIE-INS. CWL HAS PUMP AROUND ASSEMBLY ON EXISTING FORCE MAIN LINE THAT WILL BE USED TO BYPASS PUMP.
2. PROTECT EXISTING UTILITIES AND FACILITIES.
3. CONSTRUCTION WITHIN BANK OF LOST CREEK SHALL BE PERFORMED IN ACCORDANCE TO APPLICABLE PERMITS AND REGULATIONS
4. ALL NEW MANHOLES SHALL BE EPOXY LINED IN-PLACE PER SPECIFICATION 09 96 00 EPOXY PROTECTIVE COATING SYSTEM FOR CONCRETE STRUCTURES.

LEGEND

Found Monument (As Noted)	Satellite Dish
Set 1/2" Rebar w/Plastic Cap, "LC 366"	Schedule B-II Exception
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Power Pole w/Light	Floodway
Sanitary Cleanout	
Sanitary Manhole	

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14497
CHRIS DOUGHERTY
9/1/18

REVISIONS			
REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	8/14/20	MH-1003 MOVED 40 L.F. SOUTH	CJK
2	8/25/20	MH-1001 MOVED 20 L.F. EAST	CJK

YARD PIPING PLAN
NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS
2020

drawn by: MES
checked by: CBD
approved by: CBD
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
C-102

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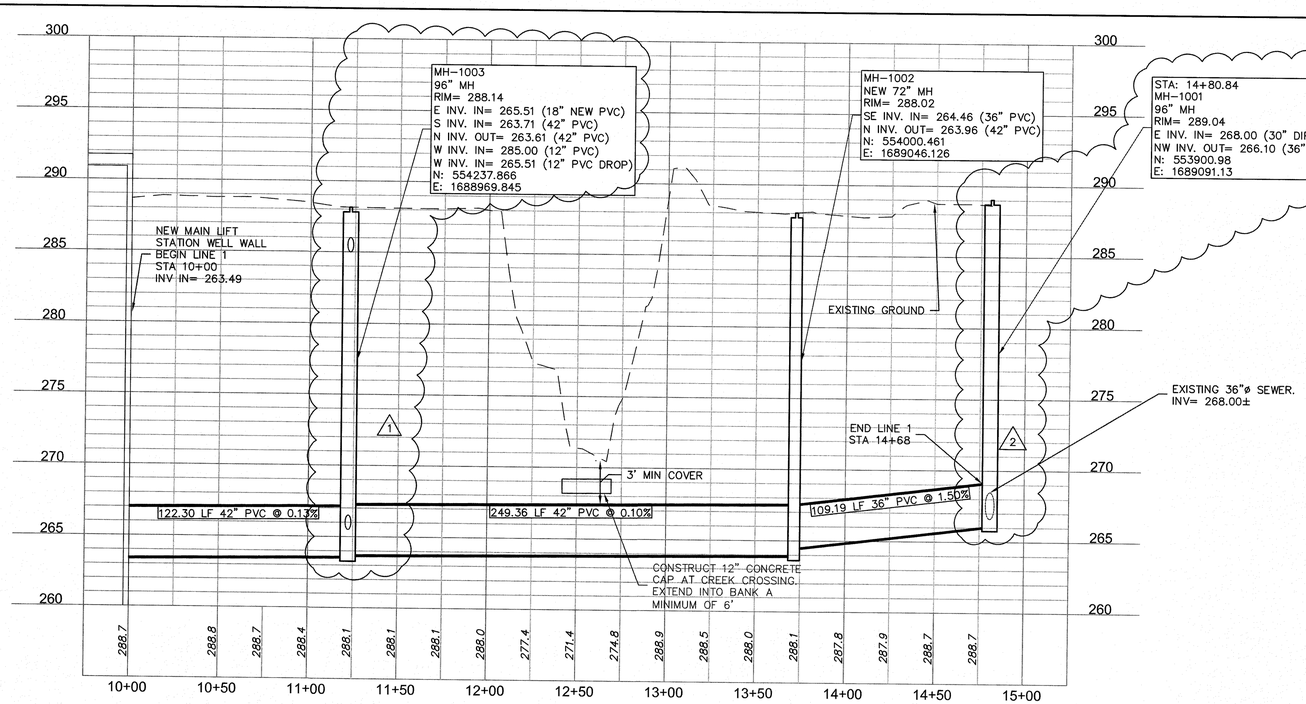
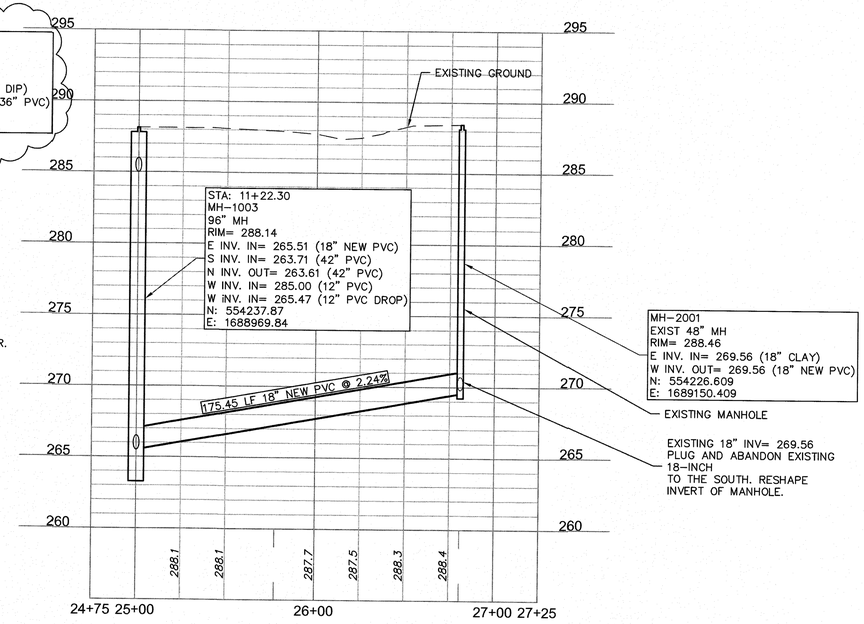


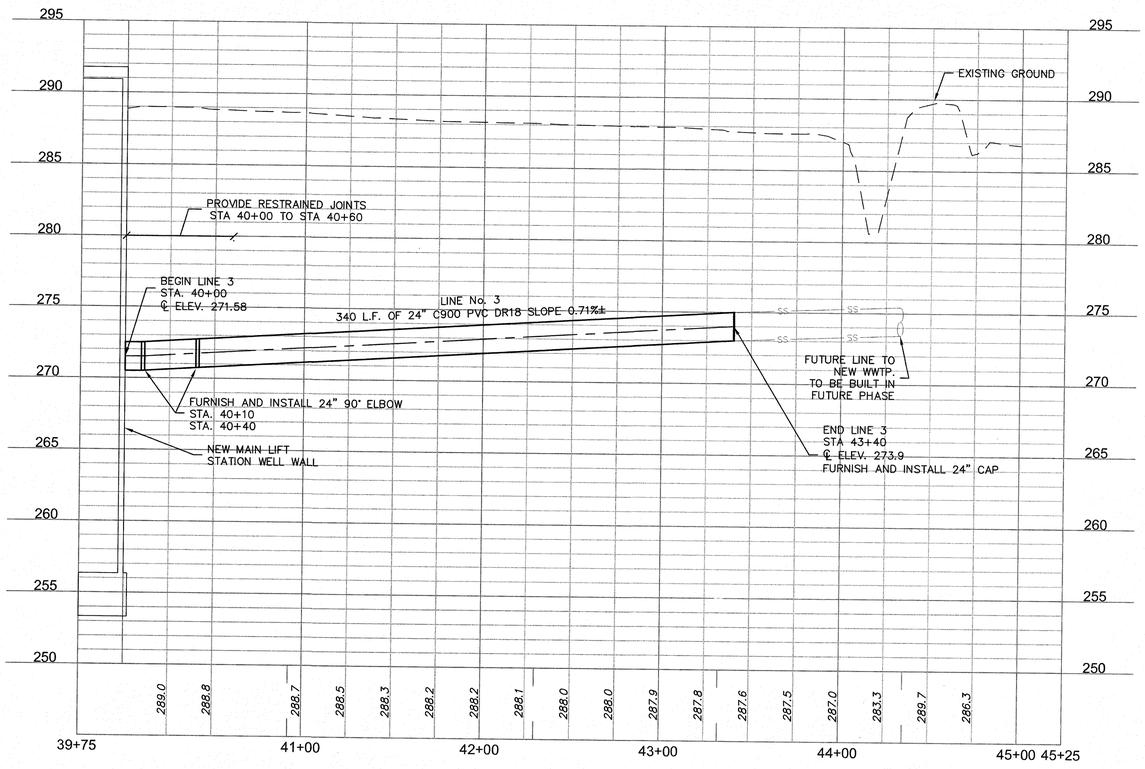
NEW GRAVITY SEWER-LINE 1

VERT: 1"=50'
HORZ: 1"=40'



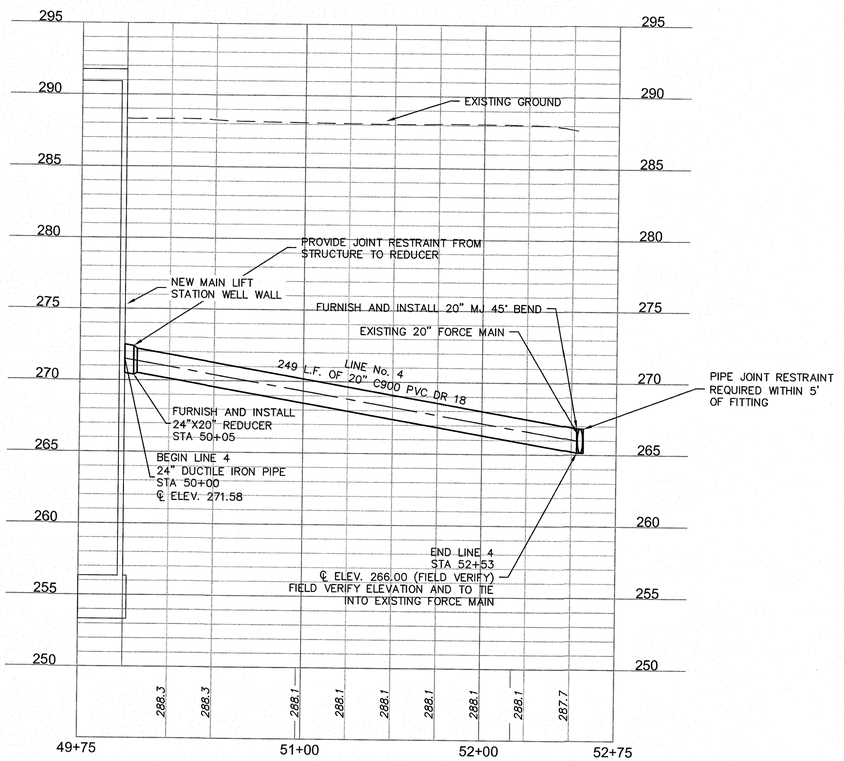
NEW GRAVITY SEWER-LINE 2

VERT: 1"=50'
HORZ: 1"=40'



NEW FORCE MAIN-LINE 3

VERT: 1"=50'
HORZ: 1"=40'



NEW FORCE MAIN-LINE 4

VERT: 1"=50'
HORZ: 1"=40'

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14497
CHRIS DOLKHERT
4/1/20

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	8/14/20	MH-1003 MOVED 40 LF. SOUTH	CJK
2	9/22/20	MH-1001 MOVED 20 LF. EAST	

REVISIONS

PIPING PROFILES

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

Jonesboro, ARKANSAS

2020

drawn by: MES
checked by: CBD
approved by: CBD
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
C-103

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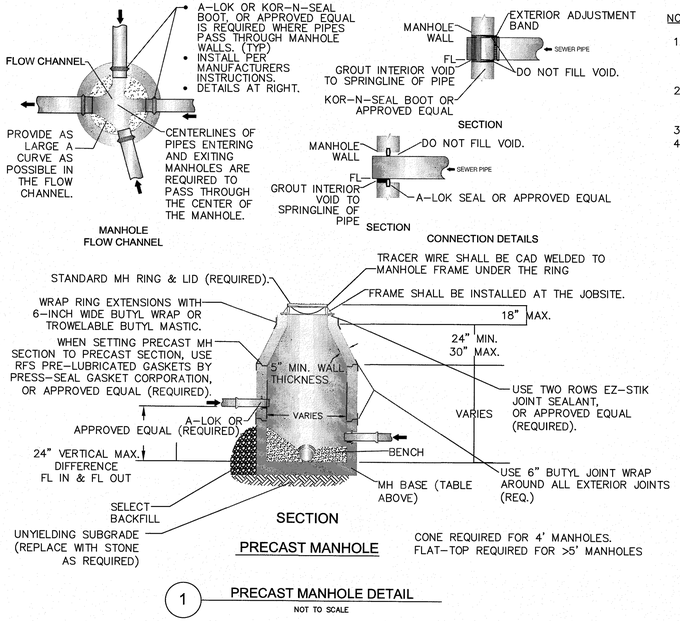
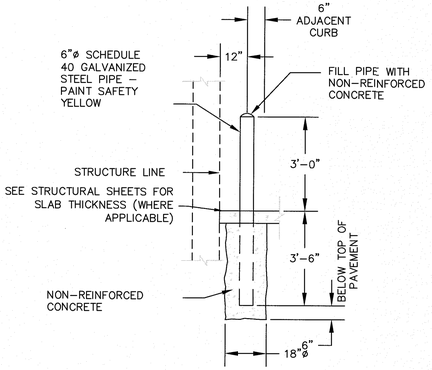


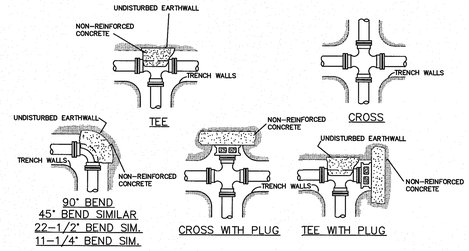
1 PRECAST MANHOLE DETAIL
NOT TO SCALE

NOTE:

1. BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO WALL.
2. MINIMUM WALL THICKNESS:
   2.1. 96" ID – 9" WALL
   2.2. 72" ID – 7" WALL
3. MINIMUM BASE THICKNESS = 8"
4. MINIMUM RING & COVER SIZE = 24" FOR < OR EQUAL TO 24" PIPES AND 36" FOR >24' PIPE



2 BOLLARD DETAILS
NOT TO SCALE

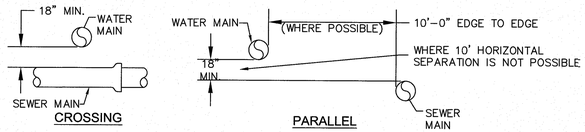


REACTION BACKING TABLE				
SIZE	REQUIRED SQ. FT. OF UNDISTURBED EARTHWALL FOR REACTION BACKING			
	TYPE OF FITTINGS			
	TEE	90°	45°	22.5° OR 11.25°
>2"	1	1	1	1
3"	1	2	1	1
4"	2	2	1	1
6"	3	5	3	2
8"	6	8	4	2
10"	8	12	6	3
12"	12	17	9	5
14"	16	23	12	6
16"	21	29	16	8
18"	26	37	20	10
20"	32	45	25	13
24"	46	65	35	18
30"	70	100	54	27
36"	101	143	77	39
42"	132	186	101	52
48"	171	242	131	67

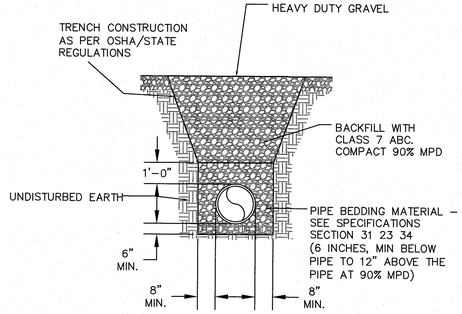
NOTES:

1. ALL BURIED FITTINGS SHALL BE MECHANICAL JOINTS.
2. DO NOT COVER BELLS OR FLANGES WITH CONCRETE.
3. WRAP ALL FITTINGS WITH 8 MIL. POLYETHYLENE FILM
4. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
5. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
6. UNLESS OTHERWISE NOTED, BACKING SHALL NOT BE USED AS AN ACCEPTABLE JOINT RESTRAINT SYSTEM FOR PIPING 4" AND LARGER IN DIAMETER.
7. BACKING SHALL BE ACCEPTABLE FOR USE ON PIPING LESS THAN 4" IN DIAMETER.
8. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL AND VERTICAL, SHALL HAVE A JOINT RESTRAINT SYSTEM AS SET FORTH IN THE SPECIFICATIONS.
9. REACTION BACKING TABLE IS BASED ON 175 PSI AND SOIL BEARING PRESSURE OF 2,000 LB./SQ. FT. ADDITIONAL BACKING MAY BE REQUIRED IN SOME AREAS AS DIRECTED BY THE ENGINEER.

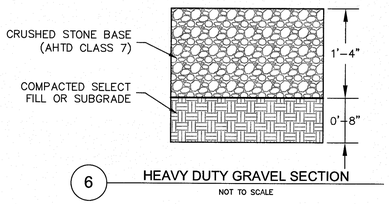
3 REACTION BACKING
NOT TO SCALE



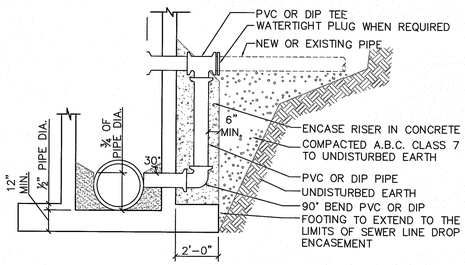
4 RELATIVE LOCATIONS OF WATER AND SEWER LINES
NOT TO SCALE



5 PVC PIPE BEDDING AND COVER DETAIL
NOT TO SCALE



6 HEAVY DUTY GRAVEL SECTION
NOT TO SCALE



10 SEWER LINE DROP ASSEMBLY DETAIL
NOT TO SCALE

FENCE DETAILS

SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS			
ITEM	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
** TERMINAL POSTS	ROUND	2.375	3.65
	*ROUND	2.375	3.12
LINE POSTS	ROUND	1.90	2.72
	*ROUND	1.90	2.28
TOP & BRACE RAILS	ROUND	1.66	2.27
	*ROUND	1.66	1.84
* GRADE B HIGH STRENGTH STEEL			
** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS			

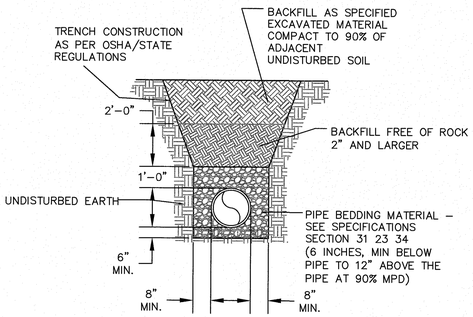
GATE FRAME MEMBERS SIZE AND WEIGHT		
GATE FRAME	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	1.66	2.27
*ROUND	1.66	1.84
* GRADE B HIGH STRENGTH STEEL		

GATE POST SIZE AND WEIGHT		
GATE LEAF WIDTH OF 6 FT. OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	2.875	5.79
*ROUND	2.875	4.64
* GRADE B HIGH STRENGTH STEEL		

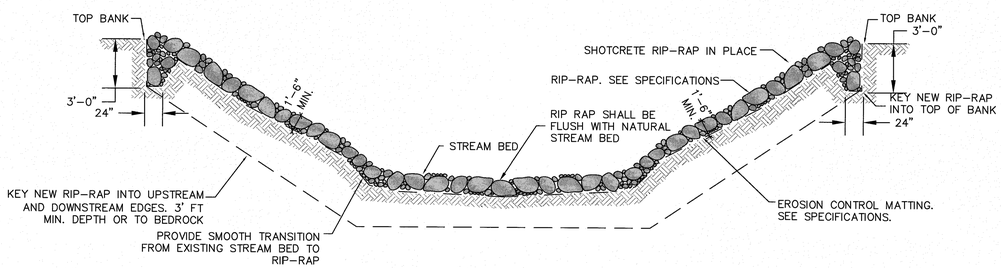
CONSTRUCTION NOTES

1. MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
2. ALL POSTS SHALL BE INSTALLED VERTICALLY. WHERE POSTS ARE INSTALLED ON AN INCLINED SURFACE, THE ANGLE OF THE POST SHALL BE ADJUSTED SO THAT THE POST WILL BE VERTICAL.
3. THE FENCING SHALL BE #9 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH.

9 CHAIN LINK FENCE DETAIL
NOT TO SCALE



7 PVC PIPE BEDDING AND COVER DETAIL
NOT TO SCALE



8 STREAM BANK STABILIZATION
NOT TO SCALE

olsson
302 East Millsap Road
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TEL 479.443.3404
www.olsson.com

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 14497 CHRIS DOUGHERTY 1/1/20

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

CIVIL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

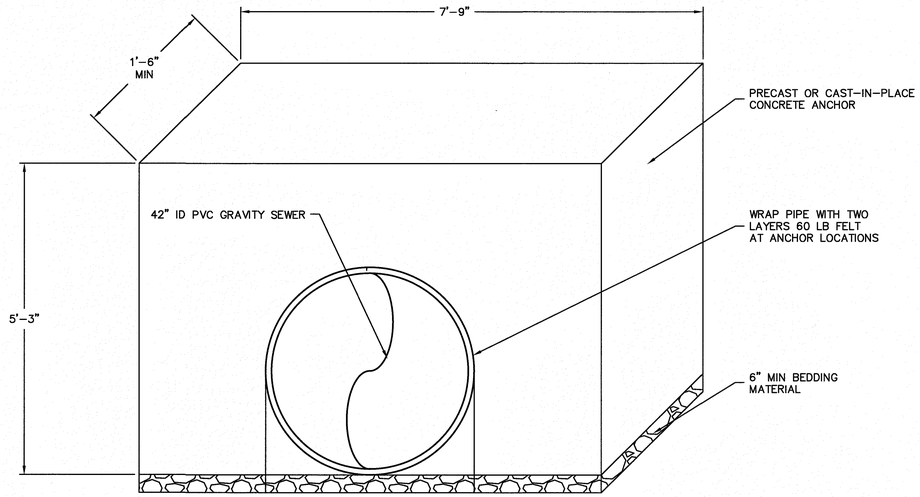
JONESBORO, ARKANSAS

2020

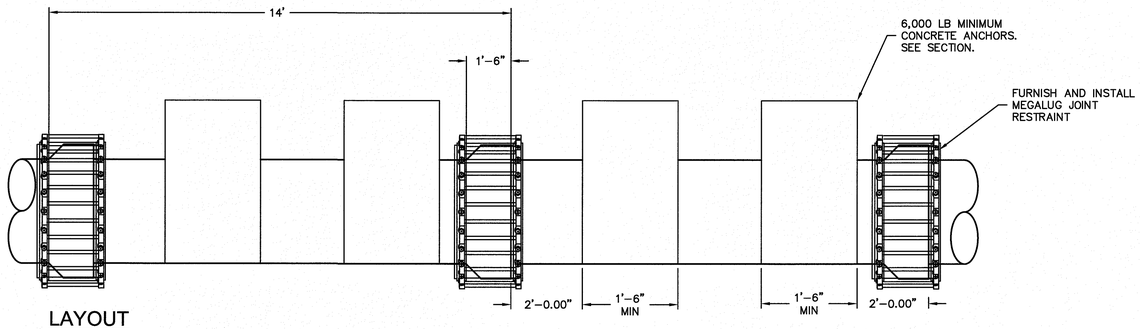
drawn by: MES/CJK
checked by: CBD
approved by: CBD
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET C-104

DWG: F:\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\C_DTL_0180054.dwg USER: mschoelz
DATE: Dec 31, 2019 9:03am XREFS:



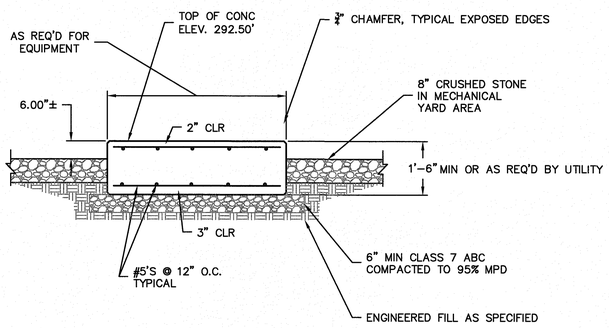
SECTION



LAYOUT

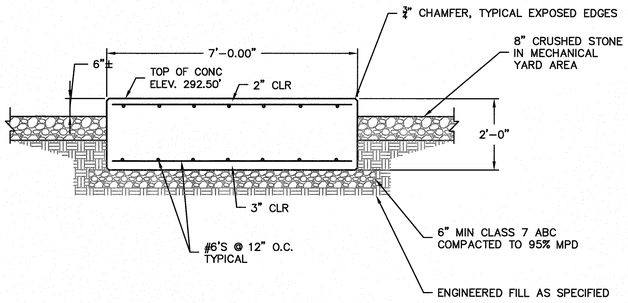
1 **BOUYANCY ANCHOR LAYOUT AND SECTION**

NOT TO SCALE



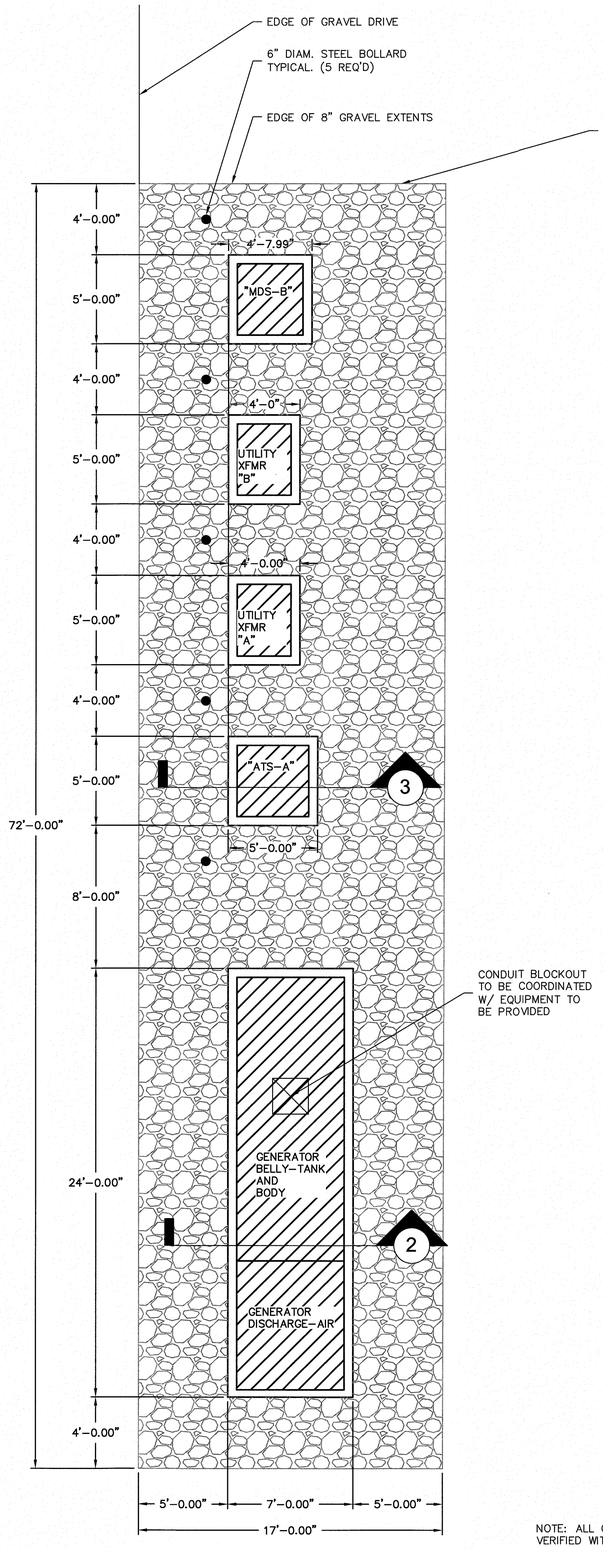
3 **SECTION - EQUIPMENT PAD**

1/2" = 1'-0"



2 **SECTION - GENERATOR PAD**

1/2" = 1'-0"



1 **ELECTRICAL EQUIPMENT PAD LAYOUT**

1/4" = 1'-0"

NOTE: ALL CONCRETE PAD DIMENSIONS SHALL BE VERIFIED WITH EQUIPMENT TO BE PROVIDED

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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 14497 CHRIS DOUGHERTY 1/2/20

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

CIVIL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	MES/CJK
checked by:	CBD
approved by:	CBD
QA/QC by:	M. MILLIUS
project no.:	018-0054
drawing no.:	
date:	01/02/2020

SHEET
C-105

DWG: F:\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\C_DTL_0180054.dwg USER: mscholz
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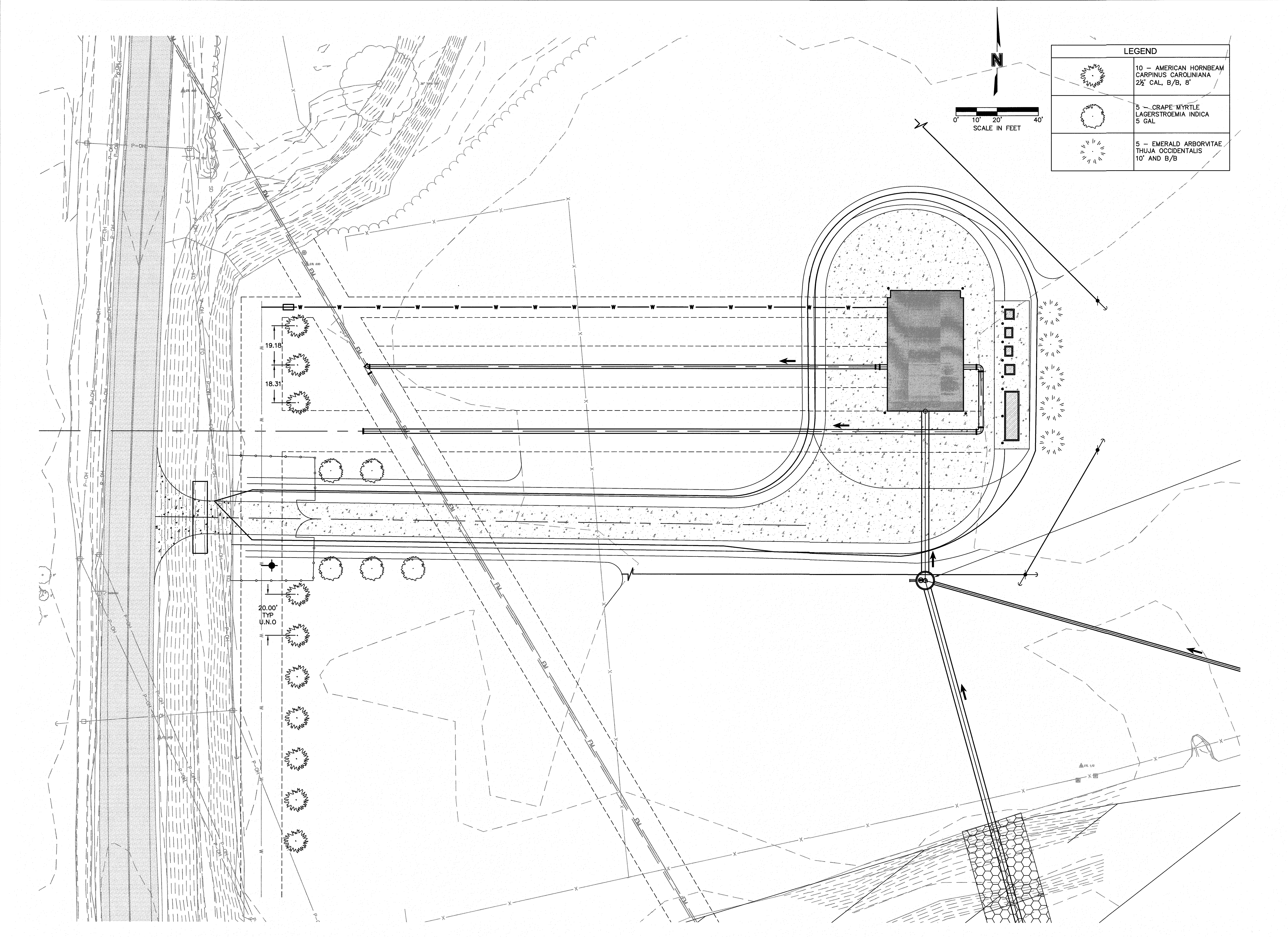

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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 14487 CHRIS DOUGHERTY

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

LANDSCAPE PLAN

NEW WESTSITE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: CJK
checked by: DB
approved by: CBD
QA/QC by:
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
C-106

DWG: F:\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\C_LSC_0180054.dwg USER: jkutter
DATE: Sep 14, 2020 2:27pm XREFS: C_BASE_0180054 V_TOPO_80054

BUILDING CODE AND STANDARDS

2012 INTERNATIONAL BUILDING CODE (IBC 2012) WITH STANDARDS AS REFERENCED IN IBC CHAPTER .

STRUCTURAL DESIGN LOADS:

	UNIFORM (PSF)	CONCENTRATED (LB)
DEAD LOAD - ACTUAL WEIGHT OF MATERIALS USED ADDING THE FOLLOWING		
ALLOWANCE FOR MEP	5	
FLOOR LIVE & MISC LOADS		
1ST FLOOR CORRIDOR	100	
CORRIDOR ABOVE 1ST FLOOR	80	2,000
SIDEWALKS	250	
STAIRS AND EXITS	100	
LIGHT STORAGE	120	
MECHANICAL EQUIMENT ROOM	150 OR EQUIP WT	
CEILING	10	
PARTITION (LATERAL LOAD)	5	
RAILING (LATERAL LOAD AT TOP)	20 PLF	200
	*INDICATES REDUCIBLE LOAD	
ROOF LIVE LOAD	20 PSF	

SNOW DESIGN DATA

GROUND SNOW LOAD, P_G	10 PSF
FLAT ROOF SNOW LOAD, P_F	6.93 PSF
SNOW EXPOSURE FACOR, C_E	0.9
SNOW LOAD IMPORTANCE FACTOR, I_S	1.1
THERMAL FACTOR, C_T	1.0
UNBALANCED SNOW LOAD	11 PSF

WIND DESIGN DATA

BASIC WIND SPEED, V_{ULT}/V_{ASD}	120 MPH/93 MPH
RISK CATEGORY	III
WIND EXPOSURE	C
COMPONENTS AND CLADDING (ULT. PSF)	

	10 SF	50 SF	100 SF
INTERIOR ROOF (ZONE 1)	-23.7 / +18.0	-26.9/ +16.0	-26.0/ +16.0
EDGE ROOF (ZONE 2)	-50.0/ +18.0	-40.7/ +16.0	-36.7/ +16.0
CORNER ROOF (ZONE 3)	-73.8 / +18.0	-62.7/ +16.0	-58.0/ +16.0
INTERIOR WALL (ZONE 4)	-34.0/+31.3	-30.7/+28.1	-29.3+/+26.6
CORNER WALL (ZONE 5)	-42.0 /+31.3	-35.5/ +28.1	-32.5 / +26.6
OVERHANG (ZONES 1 AND 2)	-58.7	-58.7	-58.7
OVERHANG (ZONE 3)	-98.6	-76.2	-66.6
END ZONE DISTANCE (a)	3 FT		

EARTHQUAKE DESIGN DATA

RISK CATEGORY	III
SEISMIC IMPORTANCE FACTOR	1.25
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENTS	$S_S = 1.378g$; $S_1 = 0.480g$
DESIGN SPECTRAL RESPONSE COEFF'S	$S_{DS} = 0.919g$; $S_{D1} = 0.486g$
SEISMIC DESIGN CATEGORY	D
SEISMIC FORCE-RESISTING SYSTEM	Special Reinforced Masonry Shear Walls
DESIGN BASE SHEAR	$V_U = 42.8$ K
SEISMIC RESPONSE COEFFICIENT	$C_S = 0.209$
RESPONSE MODIFICATION COEFFICIENT	R = 5.5
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE

GEOTECHNICAL DESIGN DATA

ALLOWABLE SOIL BEARING PRESSURE	3000 PSF

MATERIAL DATA:

CONCRETE & REINFORCING

CONCRETE WEIGHT	ALL CONCRETE SHALL BE NORMAL-WEIGHT UNLESS NOTED OTHERWISE.
C.I.P. CONCRETE STRENGTH (MIN f'_c at 28 days)	5,000 PSI (AE)
MAX WATER/CEMENT RATIO	0.42 UNLESS OTHERWISE NOTED
CEMENT TYPE	PORTLAND TYPE I/II - ASTM C150
AGGREGATES	REGULAR WEIGHT HARDROCK TYPE - ASTM C33
ADMIXTURES	ASTM C494
AIR-ENTRAINMENT	ASTM C260
REINFORCING STEEL	ASTM A615, GRADE 60, DEFORMED
WELDED WIRE REINFORCEMENT	ASTM A1064, PROVIDE SHEET-TYPE; ROLL-TYPE IS NOT ACCEPTABLE
PREFORMED EXPANSION JOINT(1/2")	ASTM D1751

STEEL

W SHAPES, WT SHAPES	ASTM A992
M AND S SHAPES	ASTM A36
HP SHAPES, PLATES	ASTM A572, GRADE 50
C AND MC SHAPES, ANGLES	ASTM A529, GRADE 50
HSS SQUARE AND RECTANGULAR TUBES	ASTM A500 GRADE C, $F_y = 50$ ksi
HSS ROUNDS	ASTM A500, GRADE C, $F_y = 46$ ksi
PIPES	ASTM A53, GRADE B, $F_y = 35$ ksi
ANCHOR RODS	ASTM F1554, GRADE 36
WASHERS FOR ANCHOR RODS	ASTM F844
HIGH STRENGTH BOLTS	ASTM F3125, GRADE 325 TYPE 1 ASTM F3125, GRADE 490 TYPE 1
WASHERS FOR HIGH STRENGTH BOLTS	ASTM F436
DIRECT-TENSION INDICATING WASHERS	ASTM F959
HEAVY HEX NUTS	ASTM A563
STICK ELECTRODES	AWS CLASS E70XX AWS CLASS E6010 OR E6011 (GALV. SURFACES)
HEADED STUDS	ASTM A108 GRADES C1010 THRU C1020 (Fu = 55 ksi)
METAL DECKING	ASTM A1008 OR ASTM A653
STEEL BAR JOISTS	SJI CRITERIA
LIGHT GAGE STEEL STUDS/JOISTS	ASTM A1003 (G60 GALVANINZING PER ASTM A653 & C955)
18+ GAGE	ST33H (Fy = 33 KSI)

MASONRY

ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH TMS 602/ACI 530.1/ASCE 6.

MASONRY STRENGTH (f'm AT 28 DAYS)	1,500 PSI
CONCRETE MASONRY UNITS (CMU)	ASTM C90 NORMAL WEIGHT
CMU STRENGTH	1,900 PSI (BASED ON NET AREA)
MORTAR TYPE	ASTM C270, TYPE S ABOVE GRADE, TYPE M BELOW GRADE
GROUT TYPE	ASTM C476 - MAX. AGGREGATE SIZE = 3/8"
GROUT STRENGTH (AT 28 DAYS)	2,000 PSI
HORIZONTAL WIRE REINFORCING	ASTM A951, LADDER-TYPE AT 16" O.C VERTICALLY IN 10 FT. LENGTHS 9 GAGE WIRE PER ASTM A1064 HOT DIP GALVANIZED PER ASTM A 153 CLASS B-2
VERTICAL WALL REINFORCEMENT	SPACING AS SHOWN ON THE DRAWINGS, FULL HEIGHT UNLESS OTHERWISE
CONTINUOUS BOND BEAM REINFORCING	(2) #4 BARS CONTINUOUS, MIN, REFERENCE DRAWINGS
CONTRACTION JOINT KEY	RUBBER SHEAR KEY WITH DUROMETER HARDNESS OF 80 MIN

WOOD

SAWN LUMBER

STUDS AND BLOCKING	SPF, HEM FIR, OR DOUGLAS FIR - STUD GRADE

ALL SAWN LUMBER SHALL BE IDENTIFIED WITH GRADE MARK BY AN ENTITY COMPLYING WITH DOC PS 20

WOOD FASTENERS

NAILS AND STAPLES	ASTM F1667
BOLTS, LAG SCREWS	ANSI/ASME STANDARD B18.2.1
WOOD SCREWS	ANSI/ASME STANDARD B18.6.1
FASTENERS FOR TREATED WOOD	ASTM A 153 OR ASTM B 695, CLASS 55 MINIMUM

GENERAL NOTES

1. THE STRUCTURAL DRAWINGS ARE TO BE COORDINATED AND USED IN CONJUNCTION WITH THE CIVIL, ARCHITECTURAL/GENERAL ARRANGEMENT, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL/GENERAL ARRANGEMENT DRAWINGS AND IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.
2. OLSSON SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CHARGE OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES FOR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT AND SHALL NOT BE RESPONSIBLE FOR CONTRACTOR'S FAILURE TO CARRY OUT HIS WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. OLSSON SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CONTROL OVER, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, ANY OF THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR ALL TEMPORARY SHORING AND BRACING REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT. ALL SHORING AND BRACING MEMBERS AND CONNECTIONS SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT THE IMPOSED LOADS. TEMPORARY MEMBERS AND CONNECTIONS SHALL NOT BE REMOVED UNTIL PERMANENT MEMBERS ARE IN PLACE AND FINAL CONNECTIONS ARE MADE.
5. THE CONTRACTOR SHALL VERIFY IN FIELD ALL DIMENSIONS, ELEVATIONS, AND MEMBER SIZES AS SHOWN ON THE CONTRACT DRAWINGS FOR THE EXISTING CONSTRUCTION PRIOR TO THE DETAILING OR FABRICATION OF ANY NEW STRUCTURAL ELEMENT. THE CONTRACTOR SHALL DOCUMENT ANY CONSTRUCTION-RELATED DISCREPANCIES. PRIOR TO THE SCHEDULED START OF ANY DETAILING OR FABRICATION, THE CONTRACTOR SHALL FURNISH THE ABOVE INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW.
6. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND PRECAUTIONS NECESSARY TO PREVENT DAMAGE AND/OR SETTLEMENT OF EXISTING OR NEW CONSTRUCTION INSIDE OR OUTSIDE THE PROJECT LIMITS DURING EXCAVATION AND FOUNDATION CONSTRUCTION. ANY DAMAGE TO NEW OR EXISTING CONSTRUCTION INSIDE OR OUTSIDE OF THE PROJECT LIMITS CAUSED BY CONSTRUCTION TECHNIQUES IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. NO FIELD MODIFICATIONS TO ANY STRUCTURAL COMPONENTS SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER. THIS INCLUDES, BUT IS NOT LIMITED TO, REVISIONS DUE TO MIS-LOCATION, MISFIT, OR ANY OTHER CONSTRUCTION ERRORS.
8. NO OPENING SHALL BE PLACED IN ANY STRUCTURAL MEMBER (OTHER THAN AS INDICATED ON APPROVED SHOP DRAWINGS) UNTIL THE LOCATION HAS BEEN APPROVED BY THE STRUCTURAL ENGINEER.
9. PROVIDE SLEEVE LAYOUTS FOR ALL PENETRATIONS THROUGH STRUCTURAL MEMBERS FOR ALL TRADES. LAYOUTS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
10. ALL ROOF MOUNTED EQUIPMENT OR EQUIPMENT SUSPENDED FROM FLOORS OR THE ROOF SHALL BE SUPPORTED BY BEAMS DESIGNATED FOR SUCH PURPOSE ONLY. IF NO SUPPORT HAS BEEN DESIGNATED, OR IF A QUESTION ARISES, NOTIFY STRUCTURAL ENGINEER PRIOR TO ERECTION OF EQUIPMENT.
11. ALL DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE NOTED. SEE THE ARCHITECTURAL/GENERAL ARRANGEMENT DRAWINGS FOR DETAILS AND DIMENSIONS NOT INDICATED ON THE STRUCTURAL DRAWINGS.
12. MATERIALS AND EQUIPMENT SHALL BE STORED AND TRANSPORTED IN A MANNER SO AS NOT TO EXCEED THE ALLOWABLE CAPACITY OF THE CONSTRUCTION.
13. THE SPECS AND REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL, CONSTRUCTION, AND INSPECTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS MAY BE GIVEN IN THE PROJECT SPECIFICATIONS. IN THE EVENT OF A CONFLICT BETWEEN THE REQUIREMENTS INDICATED ON THIS SHEET AND THOSE IN THE PROJECT SPECS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
14. FOR LOCATIONS AND DIMENSIONS OF SLEEVES, CURBS, OPENINGS, AND DEPRESSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE CIVIL, ARCHITECTURAL/GENERAL ARRANGEMENT, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. CONTRACTOR SHALL VERIFY AND COORDINATE LOCATION OF ABOVE ITEMS WHETHER SHOWN ON THE STRUCTURAL DRAWINGS OR NOT.
15. EMBEDDED ITEMS, SUCH AS PIPE SLEEVES, CONDUITS, AND INSERTS, SHALL BE IN PLACE BEFORE CONCRETE IS POURED.
16. THE CONTRACTOR SHALL FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE DRAWINGS.
17. THE STEEL FRAMING COMPONENTS SHOWN RELY ON BUILDING COMPONENTS OTHER THAN STRUCTURAL STEEL FOR FINAL STRUCTURAL STABILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND PROVISION OF ANY AND ALL TEMPORARY BRACING AND SHORING AGAINST WIND, ERECTION AND ALL CONSTRUCTION LOADS UNTIL ALL ELEMENTS, MEMBERS, AND CONNECTIONS (FLOORS, ROOF, SHEAR WALLS, ETC), AS SHOWN ON THE CONTRACT DOCUMENTS ARE COMPLETELY INSTALLED. THE STRUCTURAL MEMBERS SHOWN ON THE CONTRACT DOCUMENTS ARE DESIGNED FOR THE ANTICIPATED LOADS THAT THE STRUCTURE WILL BE SUBJECTED TO ONLY AFTER ALL STRUCTURAL ELEMENTS ARE IN PLACE AND FINAL CONNECTIONS ARE COMPLETE.

SHOP DRAWINGS

1. ALL SHOP DRAWING SUBMITTALS SHALL BE AS DESCRIBED IN THE PROJECT SPECIFICATIONS OR IN THESE NOTES.
2. SHOP DRAWINGS AND RELATED MATERIALS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE STRUCTURAL ENGINEER.
3. THE GENERAL CONTRACTOR SHALL REVIEW ALL SUBMISSIONS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION, TECHNICAL CONTENT, COORDINATION OF TRADES, DIMENSIONAL ACCURACY, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
4. THE GENERAL CONTRACTOR SHALL APPROVE AND SO STAMP EACH SUBMISSION.
5. SHOP SUBMITTALS SHALL BE SUBMITTED IN A DIGITAL FORMAT. MULTIPLE COPIES OF DRAWINGS WILL NOT BE MARKED-UP WITH REVIEW COMMENTS.
6. THE STRUCTURAL DRAWINGS SHALL NOT BE USED AS BACKGROUNDS FOR THE PRODUCTION OF ANY SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW.
7. ANY DEVIATIONS FROM THE ORIGINAL DESIGN OR DESIGN CRITERIA AS SPECIFIED ON THE "FOR CONSTRUCTION" DESIGN DOCUMENTS OF THE PROJECT SHALL BE BOLDLY NOTED ON THE SHOP DRAWINGS THAT ARE SUBMITTED FOR APPROVAL.
8. ALL CHANGES TO RESUBMITTED SHOP DRAWINGS SHALL BE BUBBLED.

EARTHWORK

1. REFERENCE THE GEOTECHNICAL INVESTIGATION REPORT PREPARED BY ANDERSON ENGINEERING CONSULTANTS, INC., DATED 07-15-2019. CONTRACTOR SHALL OBTAIN A COPY OF SAID REPORT AND ANY AVAILABLE ADDENDA OR SUPPLEMENTS AND FOLLOW ALL REQUIREMENTS SPECIFIED THEREIN.
2. SHALLOW FOUNDATIONS: CONTINUOUS WALL FOOTINGS, ISOLATED SPREAD FOOTINGS, AND GROUND SUPPORTED MAT FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON FIRM NATIVE SOILS OR COMPACTED ENGINEERED FILL . REFER TO THE SOILS REPORT FOR SPECIFIC SOIL PREPARATION REQUIREMENTS.
3. ALL UNSUITABLE SOILS SHALL BE REMOVED WITHIN THE EXCAVATION AREA OF THE FOUNDATIONS. ALL FOOTINGS SHALL BEAR ON VIRGIN SOIL OR PROPERLY PLACED AND COMPACTED ENGINEERED FILL.
4. FOUNDATIONS EXPOSED TO FROST SHALL BE PLACED SUCH THAT THE BOTTOM OF FOUNDATION IS AT LEAST 18" BELOW THE ADJACENT FINISHED GRADE.
5. SHOULD UNSUITABLE BEARING CONDITIONS BE ENCOUNTERED DURING EXCAVATION, NOTIFY THE OWNER, ENGINEER, AND STRUCTURAL ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
6. THE CONTRACTOR MUST PROVIDE SURFACE DRAINAGE AND PUMPS TO PROTECT ALL EXCAVATION FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF THE SUBGRADE WILL BE CAUSE FOR RE-PREPARATION AND RE-APPROVAL OF THE SUBGRADE.
7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY WATER, FROST, OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
8. RECORDS OF ANY EXISTING SUBGRADE INTERFERENCES, OTHER THAN THOSE INTERFERENCES SHOWN OR INDICATED ON THE CIVIL CONSTRUCTION DOCUMENTS, ARE NOT CURRENTLY AVAILABLE. DURING EXCAVATION WORK, INTERFERENCES MAY BE DISCOVERED. CONTRACTOR SHALL DOCUMENT CONSTRUCTION-RELATED DIMENSIONS OF ALL INTERFERENCES. CONTRACTOR SHALL FURNISH THE ABOVE INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW.
9. DO NOT BACKFILL AGAINST FOUNDATION WALLS UNTIL THE PERMANENT BELOW-GRADE LATERAL BRACING SYSTEM IS IN PLACE AND THE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH.
10. ALL SLABS-ON-GRADE SHALL BE PLACED OVER A LOW PERMEANCE VAPOR BARRIER, 10 MIL MINIMUM THICKNESS, OVER A BASE/SUBBASE AS SPECIFIED BY THE GEOTECHNICAL ENGINEER FOR THE PROJECT. EXISTING SUBBASE WILL BE COMPACTED IN PLACE OR WILL BE CUT OUT AND REPLACED WITH AN ENGINEERED FILL AS SPECIFIED BY THE GEOTECHNICAL ENGINEER.
11. FLOWABLE FILL FOR USE AS FOUNDATION SUPPORT IS DEFINED AS CONTROLLED LOW STRENGTH MATERIAL (CLSM)
    A. FLOWABLE FILL IS NOT INTENDED TO BE EXCAVATABLE IN THE FUTURE.
    B. PROVIDE CONCRETE CONTRACTOR'S STANDARD MIX FOR FLOWABLE FILL THAT MEETS THE FOLLOWING REQUIREMENTS:
        a. CONFORM TO THE RECOMMENDATIONS OF ACI 229R.
        b. 28 DAY MINIMUM COMPRESSIVE STRENGTHS OF 300PSI.
        c. MIXTURE SHALL FLOW INTO PLACE AND CONSOLIDATE DUE TO ITS FLUIDITY WITHOUT VIBRATION OR PUDDLING ACTION.
        d. LIMIT SUBSIDENCE OF FLOWABLE FILL TO 1/8" PER FOOT OF DEPTH
        e. CURING PROCEDURES ARE NOT REQUIRED, BUT PROTECT FROM FREEZING UNTIL MIX HAS HARDENED.
12. REFER TO THE TESTING AND INSPECTION SECTION OF THESE NOTES FOR THE FOUNDATION TESTING AND INSPECTION REQUIREMENTS.

STRUCTURAL CONCRETE

1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING REFERNENCE DOCUMENTS UNLESS INDICATED OTHERWISE:
    A. ACI 301 - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
    B. ACI 302 - "RECOMMENDED PRACTICE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"
    C. ACI 304 - "ACI MANUAL OF CONCRETE INSPECTION"
    D. ACI 311 - "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE"
    E. ACI 315 - "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
    F. ACI 318 - "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
    G. ACI 347 - "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK"
2. CONCRETE MIX FOR INTERIOR CONCRETE SLABS-ON-GRADE SHALL ADHERE TO THE FOLLOWING CRITERIA:
    A. FLY ASH MAY REPLACE 15% OF PORTLAND CEMENT MAXIMUM.
        a. DO NOT USE POZZOLANS IN MIXES FOR FINISHED FLOOR SLABS.
    B. AGGREGATE SHALL BE WELL GRADED WITH 1-1/2" MAXIMUM DIAMETER.
    C. THE MIX SHALL CONTAIN NO ADMIXTURES THAT EXACERBATE SHRINKAGE.
3. FLY ASH MAY REPLACE 15% OF PORTLAND CEMENT MAXIMUM IN STRUCTURAL SLABS.
4. CURE SPECIFIC CONCRETE ELEMENTS AS INDICATED BELOW:
    A. SLAB-ON-GRADE: MOISTURE-RETAINING COVER CURING.
    B. STRUCTURAL SLABS: MOISTURE-RETAINING COVER CURING.
5. LABORATORY TEST REPORTS OR MATERIAL CERTIFICATES FOR CONCRETE MATERIALS AND MIX DESIGN TEST DATA, IN CONFORMANCE WITH ACI STANDARDS, SHALL BE SUBMITTED FOR REVIEW FOR EACH TYPE OF CONCRETE TO BE USED. EACH SUBMITTED MIX DESIGN SHALL IDENTIFY THE APPLICATION FOR WHICH THE MIX WILL BE USED.
6. THE CONTRACTOR SHALL SUBMIT CHECKED, DETAILED REINFORCEMENT SHOP DRAWINGS SHOWING THE LOCATIONS AND DETAILING OF ALL FOOTINGS, WALLS, PIERS, BEAMS, COLUMNS, SLABS, CONSTRUCTION JOINTS, CONTROL JOINTS, ETC, PRIOR TO FABRICATION. DETAILS SHALL INCLUDE BAR SIZES, LAPS, SPACING, AND PLACEMENT.
7. WELDED WIRE FABRIC SHALL BE LAPPED TWO PANELS AT EDGES AND ENDS, AND TIED SECURELY.
8. THE MINIMUM CONCRETE COVER FOR CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
    A. CONCRETE CAST AGAINST/PERMANENTLY EXPOSED TO EARTH: 3"
    B. CONCRETE EXPOSED TO EARTH OR WEATHER:
        a. NO 6 THROUGH NO 18 BARS 2"
        b. NO 5 BAR, W31 OR D31 WIRE, AND SMALLER 2"
    C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
        a. SLABS, WALLS, JOISTS:
            - NO 14 AND NO 18 BARS 1 1/2"
            - NO. 11 BAR AND SMALLER 3/4"
        b. BEAMS, COLUMNS:
            - PRIMARY REINFORCEMENT 1 1/2"
        c. TIES, STIRRUPS, SPIRALS 1 1/2"
9. PROVIDE LAP SPLICES AS DETAILED IN THE DRAWINGS.
10. ALL HOOKS SHALL BE "STANDARD" PER ACI SPECIFICATIONS.
11. CONTINUOUS TOP AND BOTTOM BARS SHALL BE SPLICED AS FOLLOWS:
    A. TOP BARS: AT MID SPAN
    B. BOTTOM BARS: CENTERED OVER SUPPORT
12. CORNER BARS MATCHING HORIZONTAL BARS SHALL BE PROVIDED AT ALL WALL CORNERS AND INTERSECTIONS UNLESS INDICATED OTHERWISE.
13. ELECTRICAL CONDUITS AND PLUMBING PIPES IN ELEVATED STRUCTURAL SLABS SHALL BE PLACED BETWEEN THE TOP AND BOTTOM LAYERS OF REINFORCEMENT AND SHALL NOT HAVE AN OUTSIDE DIAMETER GREATER THAN ONE-THIRD THE SLAB THICKNESS. CROSSOVERS OF CONDUITS AND/OR PIPES SHALL NOT BE PERMITTED. THE CENTER-TO-CENTER DISTANCE BETWEEN CONDUITS AND/OR PLUMBING PIPES SHALL NOT BE LESS THAN THREE TIMES THE LARGEST CONDUIT OR PIPE DIAMETER OR WIDTH. NO CONDUITS SHALL BE PLACED WITHIN 12" OF A COLUMN FACE.

STRUCTURAL CONCRETE WATER RETAINING STRUCTURES

1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING REFERENCE DOCUMENTS UNLESS INDICATED OTHERWISE:
    A. ACI 224 - "JOINTS IN CONCRETE CONSTRUCTION"
    B. ACI 301 - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
    C. ACI 302 - "RECOMMENDED PRACTICE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"
    D. ACI 304 - "ACI MANUAL OF CONCRETE INSPECTION"
    E. ACI 311 - "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE"
    F. ACI 315 - "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
    G. ACI 350 - "CODE REQUIREMENTS FOR ENVIORNMENTAL ENGINEERING CONCRETE STRUCTURES AND COMMENTARY"
    H. ACI 347 - "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK"
2. CONCRETE MIX DESIGN REQUIREMENTS:
    A. MINIMUM CONCRETE COMPRESSIVE STRENGTH - 5,000 PSI
    B. MAXIMUM WATER TO CEMENT RATIO - 0.42
    C. MAXIMUM FLY ASH - 15% OF PORTLAND MIX
3. ALL CONCRETE SHALL BE WET CURED FOR A MINIMUM OF 7 DAYS.
4. UTILIZE EXACT CONSTRUCTION JOINT LOCATIONS SHOWN ON PLAN, NO SUBSTITUTIONS OR MODIFICATIONS SHALL BE ACCEPTABLE WITHOUT EOR APPROVAL.
5. ALL PVC WATERSTOP INTERSECTIONS SHALL BE PRE-WELDED BY THE MANUFACTURER.
6. LABORATORY TEST REPORTS OR MATERIAL CERTIFICATES FOR CONCRETE MATERIALS AND MIX DESIGN TEST DATA, IN CONFORMANCE WITH ACI STANDARDS AND AS INDICATED IN THE PROJECT SPECIFICATIONS BOOK, SHALL BE SUBMITTED FOR REVIEW FOR EACH TYPE OF CONCRETE TO BE USED. EACH SUBMITTED MIX DESIGN SHALL IDENTIFY THE APPLICATION FOR WHICH THE MIX WILL BE USED.
7. THE CONTRACTOR SHALL SUBMIT CHECKED, DETAILED REINFORCEMENT SHOP DRAWINGS SHOWING THE LOCATIONS AND DETAILING OF ALL FOOTINGS, WALLS, PIERS, BEAMS, COLUMNS, SLABS, CONSTRUCTION JOINTS, CONTROL JOINTS, ETC, PRIOR TO FABRICATION. DETAILS SHALL INCLUDE BAR SIZES, LAPS, SPACING, AND PLACEMENT.
8. THE MINIMUM CONCRETE COVER FOR CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE SHALL BE IN ACCORDANCE WITH ACI 350.
9. PROVIDE LAP SPLICES OF 1.7xDEVELOPMENT LENGTH UNLESS NOTED OTHERWISE.
10. ALL HOOKS SHALL BE "STANDARD" PER ACI SPECIFICATIONS UNLESS NOTED OTHERWISE.
11. CORNER BARS MATCHING HORIZONTAL BARS SHALL BE PROVIDED AT ALL WALL CORNERS AND INTERSECTIONS UNLESS INDICATED OTHERWISE, SEE TYPICAL DETAILS FOR FURTHER INFORMATION
12. BASIN SHALL BE FILLED WITH WATER AS SOON AS PRACTICAL TO IDENTIFY ANY LEAKS. LEAKING AREAS SHALL BE PATCHED WITH XYPEX CONCENTRATE AND XYPEX PATCH AND PLUG. FOLLOW MANUFACTURERS RECOMMENDATIONS FOR SURFACE PREP AND APPLICATION.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES".
2. THE STEEL FABRICATOR/ERECTOR SHALL DOCUMENT ANY CONSTRUCTION RELATED DISCREPANCIES AND SHALL FURNISH SAID INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW. THERE SHALL BE RESOLUTION TO THE NOTED DISCREPANCIES PRIOR TO FABRICATION OF ANY NEW STRUCTURAL ELEMENTS.
3. THE FABRICATOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW, ENGINEERED AND CHECKED DRAWINGS SHOWING FABRICATION DETAILS, FIELD ASSEMBLY DETAILS, AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL ELEMENTS.
4. ALL BEAMS AND JOISTS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP.
5. THE FOLLOWING INFORMATON IS PRESENTED AS REQUIRED BY AISC 330 SECTION 3.1i:
    A. ALL SHEAR CONNECTIONS, UNLESS SPECIFICALLY DETAILED, SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER EMPLOYED BY THE FABRICATOR FOR THE BEAM END REACTIONS SHOWN ON THE FRAMING PLANS [OPTION 3 PER AISC 330 SECTION 3.1.1 (3)].
    B. ALL END REACTIONS ARE LISTED AT FACTORED LEVELS AND CONNECTIONS SHALL BE DESIGNED USING LRFD METHODS.
    C. ALL MOMENT CONNECTIONS AND SPECIAL SHEAR CONNECTIONS HAVE BEEN DESIGNED BY THE EOR AND ARE INCLUDED IN THESE DRAWINGS. [OPTION 1 PER AISC 330 SECTION3.1.1 (3)].
    D. FABRICATOR SHALL SUBMIT REPRESENTATIVE SAMPLES OF THE THE REQUIRED SUBSTANTIATING CONNECTION INFORMATION EARLY IN THE CONNECTION DESIGN PROCESS FOR REVIEW BY THE EOR.
        a. INFORMATION SHALL INCLUDE A SKETCH OF THE CONNECTION AND CALCULATIONS DETERMINING CONNECTION LIMIT STATE VALUES. THE GOVERNING LIMIT STATE SHALL BE HIGHLIGHTED.
        b. EOR SHALL RESPOND IN WRITING CONFIRMING THAT THE SUBMITTED REPRESENTATIVE SAMPLES ARE CONSISTENT WITH THE REQUIREMENTS IN THE CONTRACT DOCUMENTS, OR SHALL ADVISE WHAT MODIFICATONS ARE REQUIRED TO BRING THE REPRESENTATIVE SAMPLES INTO COMPLIANCE WITH THE REQUIREMENTS IN THE CONTRACT DOCUMENTS.
        c. THE LICENSED PROFESSIONAL ENGINEER IN RESPONSIBLE CHARGE OF THE CONNECTION DESIGN SHALL REVIEW AND CONFIRM IN WRITING AS PART OF THE SUBSTANTIATING CONNECTION INFORMATION, THAT THE SHOP AND ERECTION DRAWINGS PROPERLY INCORPORATE THE CONNECTION DESIGNS.
6. ALL WELDING SHALL BE PERFORMED BY CERTIFIED/QUALIFIED WELDERS AND SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 "STRUCTURAL WELDING CODE - STEEL".
7. ALL BOLTED STEEL CONNECTIONS SHALL UTILIZE HIGH STRENGTH BOLTS IN BEARING-TYPE CONNECTIONS, UNLESS OTHERWISE NOTED. TENSION-CONTROLLED BOLTS (T/C BOLTS) MAY BE USED AT THE ERECTOR'S DISCRETION.
8. BOLTS ARE TO BE TIGHTENED, AT A MINIMUM, TO THE "SNUG TIGHT" CONDITION, UNLESS NOTED AS "PRETENSIONED" OR "SLIP CRITICAL".
9. BOLTS DESIGNATED AS "PRETENSIONED" OR "SLIP CRITICAL" ARE TO BE TIGHTENED IN ACCORDANCE WITH AN APPROVED METHOD OUTLINED IN THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
10. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. REFER TO DRAWINGS FOR MISCELLANEOUS STEEL NOT SHOWN ON STRUCTURAL DRAWINGS.

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NO. 13205
01/02/2020

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

STRUCTURAL NOTES

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K.ROWETT
checked by:	A.STENGEL
approved by:	C.HARDIN
QA/QC by:	M.MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

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MISCELLANEOUS METALS

1. ALL GRATINGS SHALL BE ALUMINUM I-BAR GRATING, UNLESS OTHERWISE NOTED.
2. GRATING SHALL SPAN AS INDICATED ON THE DESIGN DRAWINGS. BEARING AND TWISTED BARS SHALL BE ALIGNED.
3. GRATING SHALL BE BANDED AT OPENINGS IN PLATFORMS AROUND REMOVABLE PANELS OR AT LOCATIONS CALLED FOR ON THE DESIGN DRAWINGS. NOSING SHALL BE PROVIDED AT ALL STAIR TREADS AND TOP OF ALL LANDINGS.
4. GRATING SHALL BE NEATLY CUT AND FITTED AROUND COLUMNS, EQUIPMENT SUPPORT LEGS, PIPING, DUCTION, ETC. TOE PLATE MAY BE REQUIRED AT SPECIFIC LOCATIONS PER IBC AND OSHA REQUIREMENT.
5. STAIRS, LADDERS, HANDRAILS, AND OTHER MISCELLANEOUS DETAILS SHALL CONFORM TO THE STANDARD DETAILS SHOWN ON THE DRAWINGS.
6. ALL CHECKER PLATE SHALL BE 1/4" THICK, UNLESS OTHERWISE NOTED.
   A. FIXED CHECKER PLATE IS TO BE WELDED TO STRUCTURAL MEMBERS WITH 3/16" STITCH WELDS AT EDGES 4" LONG AT 24" OC, PLUS 3/4" SLOT WELDS AT 24" OC FOR ALL INTERIOR SUPPORTS.
   B. REMOVABLE CHECKER PLATE IS TO BE DRILLED AND COUNTERSUNK FOR FASTENING TO STRUCTURAL MEMBERS WITH 3/8"X1" FLAT HEAD SOCKET CAP SCREWS AT 24" OC MAXIMUM PLUS 2" EACH CORNER.
7. PROVIDE MISCELLANEOUS SUPPORT MEMBERS FOR GRATING WHERE GRATING BEARING AREA ON BEAM TOP FLANGE IS OBSTRUCTED BY EQUIPMENT OR OTHER STRUCTURAL MEMBERS.
8. ALL KICK PLATES SHALL EXTEND A MINIMUM OF 4" ABOVE WALKING SURFACE WITH A MAXIMUM OF 1/4" BETWEEN KICKPLATE AND FINISHED FLOOR.
9. PROVIDE GALVANIZED FASTENERS FOR ALL BOLTED CONNECTIONS WHERE ONE OR MORE MEMBERS OR ELEMENTS ARE OF GALVANIZED MATERIAL.
10. MISCELLANEOUS ANCHOR BOLTS, POST-INSTALLED ANCHORS, AND FASTENERS NOT INDICATED, BUT REQUIRED FOR ANCHORAGE OF EQUIPMENT AND MATERIALS, SHALL BE PROVIDED (AS RECOMMENDED BY MANUFACTURER OF ITEMS). ANCHORAGE WILL BE SUBJECT TO REVIEW BY ENGINEER.

POST-INSTALLED ANCHORS

1. ALL POST-INSTALLED ANCHORS SHALL BE STAINLESS STEEL ADHESIVE ANCHORS UNLESS INDICATED OR APPROVED OTHERWISE.
2. ADHESIVE ANCHORS:
   A. EPOXY: HILTI HIT-HY 200 WITH SAFESET APPLICATION OR AUTHORIZED EQUAL, UNLESS OTHERWISE SPECIFIED.
   B. MINIMUM EMBEDMENT SHALL BE 9 TIMES ANCHOR DIAMETER UNLESS OTHERWISE SPECIFIED OR LIMITED BY THICKNESS OF CONCRETE.
3. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED BY QUALIFIED INDIVIDUALS IN STRICT CONFORMANCE TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. ALL POST-INSTALLED ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT VERSIONS OF ACI 355.2 OR ACI 355.4.

REINFORCED MASONRY

1. PLACING CONCRETE MASONRY UNITS:
   A. USE RUNNING BOND. FULLY BOND CORNERS BY OVERLAPPING OF UNITS. BOND WALL INTERSECTIONS WITH CORROSION-RESISTANT 1'-8"X4" STRAP ANCHORS SPACED AT 16" OC VERTICALLY.
   B. PLACE CONTINUOUS HORIZONTAL JOINT REINFORCEMENT EVERY SECOND BED JOINT. PLACE REINFORCEMENT AT FIRST AND SECOND JOINTS ABOVE AND BELOW OPENINGS. LAP SPLICES 6" MINIMUM.
   C. MAINTAIN FLUSH FACE ON EXPOSED MASONRY SURFACES.
   D. FACE SHELLS: FULLY MORTARED.
   E. WEBS: FULLY MORTARED IN PIERS, PILASTERS, STARTING COURSE AT FOUNDATION OR FLOOR LEVEL AND WHERE ADJACENT CELLS OR CAVITIES ARE TO BE GROUTED.
   F. HEAD SHELLS: MORTARED FROM EACH FACE EQUAL TO THE FACE SHELL THICKNESS.
   G. KEEP VERTICAL CELLS THAT ARE TO BE GROUTED ALIGNED AND FREE FROM OBSTRUCTIONS AND MORTAR FINS.
   H. DO NOT LAY DAMAGED UNITS.
   I. PERFORM JOB SITE CUTTING WITH PROPER TOOLS TO PROVIDE STRAIGHT AND TRUE UNCHIPPED EDGES.
   J. TOOL JOINTS WHEN MORTAR IS THUMB PRINT HARD TO FORM CONCAVE JOINTS.
   K. COVER TOP OF UNFINISHED MASONRY WORK.
2. GROUTING:
   A. VERIFY REINFORCEMENT IS PROPERLY PLACED AND SECURED IN POSITION PRIOR TO GROUTING.
   B. ALL BOND BEAMS SHALL BE GROUTED SOLID.
   C. FULLY GROUT CELLS AT EACH SIDE OF OPENINGS AND CONTROL JOINTS WITH (1) #5 BAR PLACED IN CENTER OF CELL, UNLESS OTHERWISE SHOWN ON DRAWINGS.
   D. PLACE GROUT IN LIFTS NOT EXCEEDING 5'-0". CONSOLIDATE AT TIME OF PLACEMENT BY RODDING OR VIBRATING FOLLOWED BY RECONSOLIDATION LATER BEFORE PLASTICITY IS LOST.
3. HOT AND COLD WEATHER CONDITIONS:
   A. COLD WEATHER: CONFORM TO THE REQUIREMENTS OF ACI/ASCE 530 WHEN THE AMBIENT TEMPERATURE FALLS BELOW 40°F.
   B. HOT WEATHER: WHEN AIR TEMPERATURE EXCEEDS 90°F DO NOT SPREAD MORTAR BED MORE THAN 4'-0" AHEAD OF MASONRY. SET MASONRY UNITS WITHIN ONE MINUTE OF SPREADING MORTAR.
4. CONSTRUCTION PRECAUTIONS:
   A. ADEQUATELY BRACE ALL WALLS DURING CONSTRUCTION.
   B. IF INTERIOR WALLS ARE CONSTRUCTED PRIOR TO ENCLOSURE OF STRUCTURE, PROVIDE ADEQUATE TEMPORARY BRACING. REMOVE BRACING AFTER STRUCTURE IS ENCLOSED.
   C. DO NOT EMBED ALUMINUM CONDUIT, PIPE OR ACCESSORIES IN MASONRY.

TESTING AND INSPECTIONS

1. THE TESTING AGENCY SHALL BE RETAINED BY THE OWNER.
2. THE TESTING AGENCY SHALL BE THE "SPECIAL INSPECTOR".
3. THE TESTING AGENCY SHALL SUBMIT TO THE ENGINEER ONE ELECTRONIC COPY OF WEEKLY REPORTS OF THE TESTS AND INSPECTIONS CONDUCTED DURING THE WEEK. THE REPORT SHALL STATE IF THE TESTS AND INSPECTIONS MET THE PROJECT REQUIREMENTS AND, IF NOT, WHAT FOLLOW-UP TESTS OR INSPECTIONS WILL BE MADE.
4. AT THE END OF THE PROJECT, THE TESTING AGENCY SHALL SUBMIT ONE ELECTRONIC COPY OF A SUMMARY REPORT OF ALL TESTS AND INSPECTIONS MADE TO THE ENGINEER. THE SUMMARY REPORT SHALL STATE THAT THE TESTS AND INSPECTIONS MET THE PROJECT REQUIREMENTS. ANY TEST OR INSPECTION THAT FAILED TO MEET PROJECT REQUIREMENTS SHALL BE NOTED. SUBMIT COPIES OF CORRESPONDENCE SHOWING ACCEPTANCE OR REJECTION OF THE MATERIAL OR WORKMANSHIP THAT FAILED TESTS OR INSPECTIONS.

FOUNDATION INSPECTION

1. ALL FOUNDATION EXCAVATIONS SHALL BE OBSERVED AND TESTED BY A REPRESENTATIVE OF A QUALIFIED GEOTECHNICAL ENGINEERING FIRM. DAILY REPORTS OF OBSERVATIONS SHALL BE PREPARED. ALL REPORTS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. THE REQUIRED TEST TYPE AND FREQUENCY SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
2. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.

REINFORCED CONCRETE INSPECTION

1. PROVIDE CONTINUOUS INSPECTION OF THE FOLLOWING:
   A. ANCHOR RODS OR OTHER BOLTS INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.
   B. SAMPLING OF FRESH CONCRETE FOR SLUMP, AIR CONTENT AND TEMPERATURE AT THE TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.
   C. CONCRETE PLACEMENT.
2. PROVIDE PERIODIC INSPECTION AND VERIFICATION OF THE FOLLOWING:
   A. REINFORCING STEEL PLACEMENT INCLUDING REINFORCING SIZE, LENGTHS, POSITION, SHAPES, SPACING, NUMBER OF BARS, REINFORCING TYPE, GRADE, FINISH, CLEANNESS, AND CONCRETE COVER TO FORMWORK AND TO TOP OF SLABS.
   B. BAR SUPPORT TYPE, FINISH, AND LOCATION AND HEIGHT OF BAR SUPPORT.
   C. CONDITION OF REINFORCING AND SUPPORTS, CHECKING FOR DAMAGE INCLUDING BENDS NOT DETAILED, EXCESSIVE RUST, AND REPAIR OF COATINGS.
   D. PLACEMENT OF ADDITIONAL STEEL AS REQUIRED BY DETAILS AT OPENINGS, SLEEVES, EDGE OF SLABS, AND OTHER TYPICAL DETAILS.
   E. USE OF REQUIRED CONCRETE MIX.
   F. MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.
3. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE FOR EACH 50 CUBIC YARDS OR FRACTION THEREOF OF EACH CONCRETE MIX PLACED EACH DAY. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE COMPRESSIVE STRENGTH TESTS FOR EACH CONCRETE MIX, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
4. PERFORM THE FOLLOWING TESTS:
   A. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
   B. AIR CONTENT: ASTM C 231, PRESSURE METHOD, FOR NORMAL WEIGHT CONCRETE; ASTM C 173, VOLUMETRIC METHOD, FOR LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX.
   C. CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW AND WHEN 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
   D. UNIT WEIGHT: ASTM C 567; FRESH UNIT WEIGHT OF LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX.
   E. COMPRESSIVE TEST SPECIMENS: ASTM C 31; CAST AND LABORATORY CURE ONE SET OF FIVE STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE. CAST AND FIELD CURE ONE SET OF THREE STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
   F. COMPRESSIVE-STRENGTH TESTS: ASTM C39; TEST TWO LABORATORY CURED SPECIMENS AT 7 DAYS AND TWO AT 28 DAYS. RESERVE ONE CYLINDER FOR FURTHER TESTING IF NECESSARY. TEST ONE FIELD CURED SPECIMEN AT 7 DAYS AND TWO AT 28 DAYS. WHEN STRENGTH OF FIELD CURED CYLINDERS IS LESS THAN 85% OF COMPANION LABORATORY CURED CYLINDERS, CONTRACTOR SHALL EVALUATE OPERATIONS AND METHODS.
5. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS

TESTING AND INSPECTIONS-CONTINUED

STRUCTURAL STEEL INSPECTION

1. SHOP INSPECTIONS
   A. MATERIAL VERIFICATION OF STRUCTURAL STEEL:
      a. IDENTIFICATION OF MARKINGS TO CONFORM TO STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.
      b. SUBMIT COPIES OF MANUFACTURER'S CERTIFIED MILL TEST REPORTS.
2. WELDING:
   A. REVIEW WELDING PROCEDURES.
   B. VERIFY WELD FILLER MATERIALS.
   C. PROVIDE CONTINUOUS INSPECTIONS AND TESTS OF THE FOLLOWING:
      a. COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.
      b. MULTI-PASS FILLET WELDS.
      c. SINGLE-PASS FILLET WELDS GREATER THAN 5/16".
   D. PROVIDE PERIODIC INSPECTIONS FOR SINGLE-PASS FILLET WELDS LESS THAN 5/16".
   E. TESTS:
      a. PROVIDE VISUAL INSPECTION OF ALL WELDS.
      b. CHECK 15% OF ALL FILLET WELDS AND PARTIAL PENETRATION WELDS WITH MAGNETIC PARTICLE OR DYE PENETRATION TESTS.
      c. PROVIDE ULTRASONIC TESTING ON 100% OF ALL FULL PENETRATION WELDS.
3. BOLTING:
   A. VERIFY HIGH-STRENGTH BOLT, NUT AND WASHER MATERIALS.
      a. IDENTIFY MARKINGS TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.
      b. SUBMIT COPIES OF MANUFACTURER'S CERTIFICATES OF COMPLIANCE.
   B. PROVIDE CONTINUOUS INSPECTION OF SLIP-CRITICAL CONNECTIONS. SLIP-CRITICAL BOLTS SHALL BE TIGHTENED BY THE "TURN OF THE NUT" METHOD.
   C. PROVIDE PERIODIC INSPECTION OF BEARING TYPE CONNECTIONS.
   D. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.
4. FIELD INSPECTION
   A. INSPECTION OF STEEL FRAME FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.
      a. MEMBER LOCATIONS.
      b. DETAILS, INCLUDING BRACING AND STIFFENING ELEMENTS.
      c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
   B. WELDING:
      a. REVIEW WELDING PROCEDURES.
      b. VERIFY WELD FILLER MATERIALS.
      c. PROVIDE CONTINUOUS INSPECTIONS AND TESTS OF THE FOLLOWING:
         - COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.
         - MULTI-PASS FILLET WELDS.
         - SINGLE-PASS FILLET WELDS GREATER THAN 5/16".
      d. PROVIDE PERIODIC INSPECTIONS FOR SINGLE-PASS FILLET WELDS LESS THAN 5/16".
      e. TESTS:
         - PROVIDE VISUAL INSPECTION OF ALL WELDS.
         - CHECK 15% OF ALL FILLET WELDS AND PARTIAL PENETRATION WELDS WITH MAGNETIC PARTICLE OR DYE PENETRATION TESTS.
         - PROVIDE ULTRASONIC TESTING ON 100% OF ALL FULL PENETRATION WELDS.
   C. BOLTING:
      a. VERIFY HIGH-STRENGTH BOLT, NUT, AND WASHER MATERIALS.
         - IDENTIFY MARKINGS TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.
         - SUBMIT COPIES OF MANUFACTURER'S CERTIFICATES OF COMPLIANCE.
      b. PROVIDE CONTINUOUS INSPECTION OF SLIP-CRITICAL CONNECTIONS. SLIP-CRITICAL BOLTS SHALL BE TIGHTENED BY THE "TURN OF THE NUT" METHOD.
      c. PROVIDE PERIODIC INSPECTION OF BEARING TYPE CONNECTIONS.
   D. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.

REINFORCED MASONRY INSPECTIONS

1. PROVIDE SPECIAL INSPECTIONS PER TMS 402/ACI 530/ASCE 5 AND TMS 602/ACI 530.1/ASCE 6 TABLE 3.1.3 - LEVEL B QUALITY ASSURANCE.

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ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

STRUCTURAL NOTES

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
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IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
GENERAL				
CONDUCT WEEKLY VISUAL OBSERVATIONS OF THE STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE TO THE CONSTRUCTION DOCUMENTS AND PREPARE WEEKLY REPORTS OF OBSERVATIONS DESCRIBING WORK PROGRESS AND NON-CONFORMING ITEMS		X		
EARTHWORK				
VERIFY MATERIAL BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X		
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X		ALL FOOTING AND PILE CAP EXCAVATIONS SHALL BE OBSERVED AND APPROVED PRIOR TO CONCRETE PLACEMENT
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X		TEST EACH SOURCE
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X			
OBSERVE PROOF ROLLING OF SUBGRADE PRIOR TO FILL PLACEMENT				
TESTING AND EVALUATION OF IN-PLACE DENSITY OF COMPACTED FILL AS WORK PROGRESSES		X		ONE DENSITY TEST FOR EACH LIFT, DAYS OPERATION, OR 5000 SQ. FT. OF FILL AREA
INSPECT VAPOR RETARDER FOR CONFORMANCE WITH MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS		X		

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
CONCRETE & REINFORCING STEEL				
INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT PRIOR TO CLOSING OF FORMS AND ARRIVAL OF CONCRETE TO THE JOB-SITE		X	IBC: 1908.4 ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	
REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706		X	AWS D1.4 ACI 318: 26.6.4	
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"		X		
c. INSPECT ALL OTHER WELDS	X			
OBSERVE & VERIFY PLACEMENT OF EMBEDDED BOLTS & RODS PRIOR TO CONCRETE PLACEMENT	X			
INSPECT ANCHORS CAST IN CONCRETE		X	ACI 318: 17.8.2	
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY UP UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X		ACI 318: 17.8.2.4	SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE WORK
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE		X	ACI 318: 17.8.2	
VERIFY USE OF REQUIRED MIX DESIGN		X	IBC: 1904.1, 1904.2, 1908.2, 1908.3 ACI 318: CH. 19, 26.4.3, 26.4.4	
PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X		IBC: 1908.10 ASTM: C172, C31 ACI 318: 26.4, 26.12	ADDITIONAL CYLINDERS SHALL BE MADE AS NEEDED FOR EARLY FORM REMOVAL. NOTE: TWO 6X12 OR 4X8 CYLINDERS ARE REQUIRED FOR AN ACCEPTABLE TEST.
SAMPLE CONCRETE SPECIMENS FOR STRENGTH TESTS TO BE PERFORMED IN LAB. A MINIMUM OF FIVE (5) CYLINDERS SHALL BE MADE. TEST TWO AT 7 DAYS AND TWO AT 28 DAYS. THE 5TH CYLINDER SHALL BE HELD IN RESERVE	X			OBTAIN ONE COMPOSITE SAMPLE FOR EACH 100 CUBIC YARDS OR FRACTION THEREOF OF EACH CONCRETE MIX PLACED EACH DAY. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE COMPRESSIVE STRENGTH TESTS FOR EACH CONCRETE MIX, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
PERFORM CONCRETE STRENGTH TESTING		X		
MAINTAIN A SPREADSHEET SHOWING DATE, SEQUENTIAL ORDER OF STRENGTH TEST RESULTS, AND INDICATE RUNNING AVERAGE	X		ACI 318 PAR. 6.2	
INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		IBC: 1908.6, 1908.7, 1908.8 ACI 318: 26.5	
VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	IBC: 1908.9 ACI 318: 26.5.3-26.5.5	
VERIFY THAT THE NECESSARY DESIGN STRENGTH HAS BEEN REACHED PRIOR TO THE REMOVAL OF FORMS		X		
INSPECT PRESTRESSED CONCRETE FOR: a. APPLICATION OF PRESTRESSING FORCES	X		ACI 318: 2610	
b. GROUTING OF BONDED PRESTRESSING TENDONS	X			
INSPECT ERECTION OF PRECAST CONCRETE MEMBERS AND CONNECTIONS		X	ACI 318: CH. 26.8	
VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X	ACI 318: CH. 26.11.2	
INSPECT CONCRETE FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	ACI 318: 26.11.1.2(b)	
VERIFY CORRECT MATERIAL USED, INCLUDING THE USE OF A706 IN WELDED SPLICES, IF ANY		X	AWS: D1.4	
VERIFY FABRICATION/ QUALITY CONTROL PROCEDURES FOR PRECAST CONCRETE MANUFACTURER		X		VERIFY PLANT IS PCI CERTIFIED
MEASURE FLOOR FLATNESS AND LEVELNESS AS DIRECTED		X		

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
STRUCTURAL STEEL				
VISIT FABRICATION SHOP TO OBSERVE FABRICATION PROCEDURES		X		ONLY ONE INSPECTION IS REQUIRED UNLESS ON-SITE EVENTS INDICATE FURTHER INSPECTIONS ARE NECESSARY
VERIFY FABRICATOR CERTIFICATION		X		
VERIFY CORRECT STRUCTURAL STEEL MATERIAL DELIVERED TO JOB SITE.		X		
VERIFY WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	X			
VERIFY MANUFACTURERS CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X			
VERIFY MATERIAL IDENTIFICATIONS (TYPE/GRADE)		X		
OBSERVE WELDER IDENTIFICATION SYSTEM		X		THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
OBSERVE FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) FOR JOINT PREPARATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE AND FIT (IF APPLICABLE)		X		
OBSERVE CONFIGURATION AND FINISH OF ACCESS HOLES		X		
OBSERVE FIT-UP OF FILLET WELDS, DIMENSIONS (ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION)		X		
OBSERVE USE OF QUALIFIED WELDERS		X		
OBSERVE CONTROL AND HANDLING OF WELDING CONSUMABLES, (PACKAGING AND EXPOSURE CONTROL)		X		
VERIFY NO WELDING OVER CRACKED TACK WELDS		X		
OBSERVE ENVIRONMENTAL CONDITIONS (WIND SPEED WITHIN LIMITS, PRECIPITATION, AND TEMPERATURE)		X		
VERIFY WPS FOLLOWED (WELDING EQUIPMENT SETTINGS, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED (MIN/MAX), PROPER POSITION (F, V, H, OH))		X		
OBSERVE WELDING TECHNIQUES (INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITS AND EACH PASS MEETS QUALITY REQUIREMENTS)		X		
VISUALLY INSPECT ALL WELDS FOR SIZE, LENGTH, AND LOCATION OF WELD. PROVIDE CONTINUOUS INSPECTION ON ALL FULL OR PARTIAL PENETRATION WELDS AND FILLET WELDS GREATER THAN 5/16"	X			
PERFORM ULTRASONIC TESTING ON ALL FULL PENETRATION WELDS	X			
VERIFY NO ARC STRIKES EXIST	X			
VISUALLY INSPECT k-AREA, WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES, OR STIFFENERS HAS BEEN PERFORMED IN THE k-AREA, FOR CRACKS WITHIN 3" OF THE WELD	X			
VERIFY REPAIR ACTIVITY ACCEPTABILITY AS APPLICABLE	X			
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINTS OR MEMBERS	X			
PERFORM MAGNETIC PARTICLE TESTING ON 20% OF ALL PARTIAL PENETRATION AND FILLET WELDS GREATER THAN 5/16"		X		
PERFORM MAGNETIC PARTICLE TESTING OR PENETRANT TESTING THERMALLY CUT SURFACES OF ACCESS HOLES WHERE THE FLANGE THICKNESS EXCEEDS 2 IN. FOR ROLLED SHAPES, OR WHEN THE WEB THICKNESS EXCEEDS 2 IN. FOR BUILT-UP SHAPES.		X		ANY CRACK SHALL BE DEEMED UNACCEPTABLE REGARDLESS OF THE SIZE OR LOCATION
VERIFY MANUFACTURER'S CERTIFICATIONS FOR FASTENER MATERIALS ARE AVAILABLE	X			
VERIFY FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		X		
VERIFY PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANE)		X		
VERIFY PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL		X		
VERIFY CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		X		

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
STRUCTURAL STEEL - CONTINUED				
CONFIRM PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED		X		
VERIFY PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS		X		
VERIFY FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED		X		
VERIFY JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		X		
VERIFY FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		X		
VERIFY FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES		X		
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS		X		
OBSERVE AND TEST ALL FIELD APPLIED HEADED STUDS	X			VERIFY CORRECT NUMBER, LOCATION, AND WELDING
DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	X			

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/20

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

STRUCTURAL SPECIAL INSPECTION NOTES

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: A.STENGEL
approved by: C.HARDIN
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

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IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
WOOD				
PREFABRICATED WOOD STRUCTURAL ELEMENTS AND ASSEMBLIES SHALL BE IN ACCORDANCE WITH IBC SECTION 1704.2.5			IBC SECTION 1704.2.5	INSPECTION PER CODE REQUIREMENTS
VERIFY THAT WOOD STRUCTURAL PANEL SHEATHING IS OF THE GRADE AND THICKNESS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS	X			
VERIFY THE NOMINAL SIZE OF FRAMING MEMBERS ADJOINING PANEL EDGES, NAIL OR STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES AND THE SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS IS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS	X			
WHERE TRUSS CLEAR SPAN IS 60 FEET OR GREATER, VERIFY TEMPORARY INSTALLATION RESTRAINT/BRACING AND PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE	X			
METAL DECK				
VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL, PROPERTIES, AND BASE METAL THICKNESS	X			
DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	X			
VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS		X		
VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILLS CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS		X		
DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	X			
OBSERVE WELDING PROCEDURE SPECIFICATIONS (WPS), MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES, MATERIAL IDENTIFICATION (TYPE/GRADE), AND WELDING EQUIPMENT TO BE USED.		X		
OBSERVE USE OF QUALIFIED WELDERS, CONTROL AND HANDLING OF WELDING CONSUMABLES, ENVIRONMENTS CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE), AND WPS FOLLOWED		X		
VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS		X		
VERIFY WELDS MEET VISUAL INSPECTION CRITERIA		X		
VERIFY REPAIR ACTIVITIES AS APPLICABLE		X		
DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	X			
OBSERVE MANUFACTURER INSTALLATION INSTRUCTIONS, PROPER TOOLS, AND PROPER STORAGE FOR MECHANICAL FASTENERS		X		
VERIFY FASTENERS POSITIONED AS REQUIRED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS		X		
VERIFY SPACING, TYPE, AND INSTALLATION OF SUPPORT, SIDELAP, AND PERIMETER FASTENERS		X		
VERIFY REPAIR ACTIVITIES AS APPLICABLE		X		
DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	X			

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
MASONRY - QUALITY ASSURANCE LEVEL B				
VERIFY SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5.B.1.b.3 FOR SELF-CONSOLIDATING GROUT		X	ACI 530.1: ART. 1.5 b.1.B.3	
VERIFY f'_m AND f'_{AAC} IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED		X	ACI 530.1: ART. 1.4B	
VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		X	ACI 530.1: ART. 1.5	
AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. PROPORTIONS OF SITE-PREPARED MORTAR		X	ACI 530.1: ART. 2.1, 2.6A	
b. CONSTRUCTION OF MORTAR JOINTS		X	ACI 530.1: ART. 3.3B	
c. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES		X	ACI 530.1: ART. 2.4B, 2.4H	
d. LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES		X	ACI 530.1: ART. 3.4, 3.6A	
e. PRESTRESSING TECHNIQUE		X	ACI 530.1: ART. 3.6B	
f. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	X	ACI 530.1: ART. 2.1C	CONTINUOUS FOR THE FIRST 5,000 SQUARE FEET, PERIODIC THEREAFTER
PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. GROUT SPACE		X	ACI 530.1: ART. 3.2D, 3.2F	
b. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES		X	ACI 530: SEC.1.16 ACI 530.1: ART. 2.4, 3.4	
c. PLACEMENT OF REINFORCEMENT, CONNECTORS AND PRESTRESSING TENDONS AND ANCHORAGES		X	ACI 530: SEC.1.16 ACI 530.1: ART. 3.2E, 3.4, 3.6A	
d. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS		X	ACI 530.1: ART. 2.6B, 2.4G.1.b	
e. CONSTRUCTION OF MORTAR JOINTS		X	ACI 530.1: ART. 3.3B	
VERIFY DURING CONSTRUCTION:				
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X	ACI 530.1: ART. 3.3F	
b. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION		X	ACI 530: SEC. 1.16.4.3, 1.17.1	
c. WELDING OF REINFORCEMENT	X		ACI 530: SEC.2.1.7.7.2, 3.3.3.4 (c), 8.3.3.4 (b)	
d. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)		X	ACI 530.1: ART 1.8C, 1.8D	
e. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X		ACI 530.1: ART. 3.6B	
f. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X		ACI 530.1: ART. 3.5, 3.6C	
g. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	X	ACI 530.1: ART. 3.3B.8	CONTINUOUS FOR THE FIRST 5,000 SQUARE FEET, PERIODIC THEREAFTER
OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X	ACI 530.1: 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3 1.4B.4	

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
COLD-FORMED STEEL				
WHERE TRUSS SPAN IS 60 FEET OF GREATER, VERIFY THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE		X		IBC 2207.1
VERIFY COMPLIANCE OF COLD-FORMED STEEL STRUCTURAL MEMBERS	X			
VERIFY COMPLIANCE OF CONNECTORS	X			
DOCUMENT ACCEPTANCE OR REJECTION OF COLD-FORMED STEEL STRUCTURAL MEMBERS AND CONNECTORS	X			
VERIFY WELDING PROCEDURE SPECIFICATION AVAILABLE		X		
VERIFY MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		X		
VERIFY MATERIAL IDENTIFICATION (TYPE/GRADE)		X		
VERIFY USE OF QUALIFIED WELDERS		X		
VERIFY CONTROL AND HANDLING OF WELDING CONSUMABLES		X		
VERIFY ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)		X		
VERIFY WELDING PROCEDURE SPECIFICATIONS FOLLOWED		X		
VERIFY COMPLIANCE OF WELDS	X			
VERIFY WELDS MEET VISUAL ACCEPTANCE CRITERIA	X			
VERIFY REPAIR ACTIVITIES AS APPLICABLE	X			
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED CONNECTIONS	X			
VERIFY MECHANICAL FASTENER MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS		X		
VERIFY PROPER TOOLS AVAILABLE FOR MECHANICAL FASTENER INSTALLATION		X		
VERIFY PROPER STORAGE FOR MECHANICAL FASTENERS		X		
VERIFY MECHANICAL FASTENERS ARE POSITIONED AS REQUIRED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS		X		
VERIFY COMPLIANCE OF MECHANICAL FASTENERS WITH CONSTRUCTION DOCUMENTS	X			
VERIFY REPAIR ACTIVITIES AS APPLICABLE	X			
DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICALLY FASTENED CONNECTIONS	X			
VERIFY COMPLIANCE OF COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION	X			
DOCUMENT ACCEPTANCE OR REJECTION OF COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION	X			
VERIFY COMPLIANCE OF SHEAR WALL AND DIAPHRAGM SHEATHING, DIAGONAL STRAP BRACING, AND HOLD-DOWNS	X			
DOCUMENT ACCEPTANCE OR REJECTION OF SHEAR WALL AND DIAPHRAGM SHEATHING, DIAGONAL STRAP BRACING, AND HOLD-DOWNS	X			
OBSERVE WELDER IDENTIFICATION SYSTEM FOR LATERAL FORCE-RESISTING SYSTEM PRIOR TO WELDING		X		A SYSTEM MAINTAINED BY THE COMPONENT MANUFACTURER OR INSTALLER, AS APPLICABLE, BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED
OBSERVE FIT-UP OF WELDS (ALIGNMENT, GAPS, CONDITION OF STEEL SURFACES) FOR LATERAL FORCE-RESISTING SYSTEM PRIOR TO WELDING		X		
VERIFY PROPER FASTENERS SELECTED FOR LATERAL FORCE-RESISTING SYSTEM PRIOR TO INSTALLATION		X		
VERIFY PROPER INSTALLATION PROCEDURE SELECTED FOR LATERAL FORCE-RESISTING SYSTEM PRIOR TO INSTALLATION		X		
VERIFY JOINT BROUGHT TIGHT (e.g., CLAMPED) TO AVOID GAPS BETWEEN PLIES FOR SCREW CONNECTIONS		X		
VERIFY TOOL ADJUSTED TO AVOID STRIPPED AND OVERDRIVEN FASTENERS FOR SCREW CONNECTIONS		X		
VERIFY INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR POST-INSTALLED CONNECTIONS TO CONCRETE	X			
VERIFY COMPLIANCE OF COLD-FORMED STEEL LATERAL FORCE-RESISTING SYSTEM INSTALLATION	X			
DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF COLD-FORMED STEEL LATERAL FORCE-RESISTING SYSTEM	X			

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/2020

REVISIONS

REV NO.	DATE	REVISION DESCRIPTION	BY

STRUCTURAL SPECIAL INSPECTION

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: A.STENGEL
approved by: C.HARDIN
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

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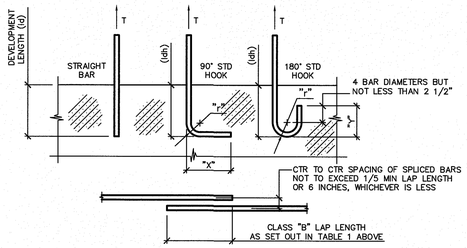
TABLE 1 - REINFORCING BARS IN TENSION

CONCRETE: f 'c = 4000 PSI @ 28 DAYS
REINFORCING STEEL: ASTM A615 GRADE 60

BAR SIZE		DIAMETER (d_b) (INCHES)	DEVELOPMENT LENGTH (l_d) (INCHES)		CLASS B TENSION LAP SPLICE (LL) (INCHES)		STANDARD HOOK			
METRIC	IN-LB		"TOP" BARS	OTHER	"TOP" BARS	OTHER	90° STD. HOOK "X" (MIN)	180° STD HOOK "Y" (MIN.)	OUTSIDE RADIUS "r"	Idh
#10	#3	0.375	18	14	24	18	6	4"	1.5"	8"
#13	#4	0.5	25	19	32	25	8	5"	2.0"	10"
#16	#5	0.625	31	24	40	31	10	5"	2.5"	12"
#19	#6	0.75	37	28	48	37	12	6"	3.0"	15"
#22	#7	0.875	54	42	70	54	14	7"	3.5"	17"
#25	#8	1.0	62	47	80	62	16	8"	4.0"	19"
#29	#9	1.128	70	54	90	70	20	12"	5.64"	22"
#32	#10	1.27	78	60	102	78	22	13"	6.35"	24"
#36	#11	1.41	87	67	113	87	24	14"	7.05"	27"
#43	#14	1.693	104	80	136	104	31	21"	10.16"	32"



NOTES:

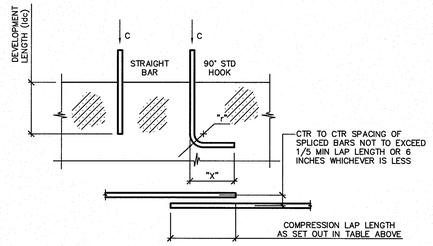
1. "TOP" BARS SHALL BE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
2. CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED SHALL 1.) NOT BE LESS THAN d_b, HAVE CLEAR COVER NOT LESS THAN d_b, AND STIRRUPS OR TIES THROUGHOUT l_d NOT LESS THAN THE CODE MINIMUM OR; 2.) CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN $2d_b$ AND CLEAR COVER NOT LESS THAN d_b. WHERE d_b=DIAMETER OF REINFORCING BAR AND l_d=DEVELOPMENT LENGTH.
3. ALL LAP SPLICES SHALL BE CLASS B UNO.

1 STANDARD DEVELOPMENT LENGTH & LAP SPLICES IN TENSION
NOT TO SCALE

TABLE 2 - REINFORCING BARS IN COMPRESSION

CONCRETE: f 'c = 4000 PSI @ 28 DAYS
REINFORCING STEEL: ASTM A615 GRADE 60

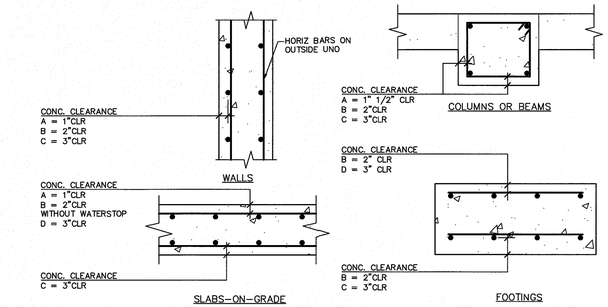
BAR SIZE		DIAMETER (d_b) (INCHES)	DEVELOPMENT LENGTH (ld_c) (INCHES)	COMPRESSION LAP SPLICE (LL_c) (INCHES)
METRIC	IN-LB			
#10	#3	0.375	8	12
#13	#4	0.5	10	15
#16	#5	0.625	12	19
#19	#6	0.75	15	23
#22	#7	0.875	17	27
#25	#8	1.0	19	30
#29	#9	1.128	22	34
#32	#10	1.27	24	38
#36	#11	1.41	27	43
#43	#14	1.693	32	51



NOTES:

1. IF BARS OF DIFFERENT SIZE ARE LAP SPLICED, SPLICE LENGTH SHALL BE THE LARGER OF EITHER DEVELOPMENT LENGTH OF LARGER BAR, OR SPLICE LENGTH OF SMALLER BAR.

2 STANDARD DEVELOPMENT LENGTH & LAP SPLICES IN COMPRESSION
NOT TO SCALE

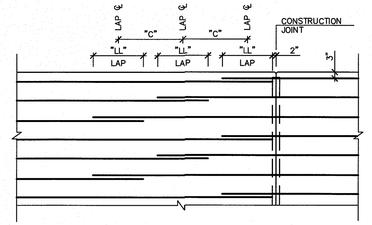


A = NO EXPOSURE TO GROUND, WEATHER OR WATER AFTER FORM REMOVAL.
B = EXPOSURE TO GROUND, WEATHER OR WATER AFTER FORM REMOVAL.
C = CONCRETE PLACED AGAINST GROUND.
D = FOR INSTALLATION OF WATERSTOP

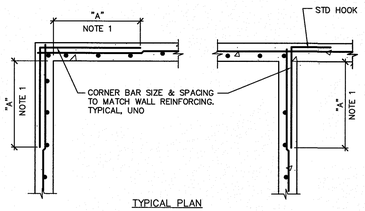
3 STANDARD CLEARANCE FOR REINFORCING STEEL (UNO)
NOT TO SCALE

TYPICAL BAR LAP LENGTHS

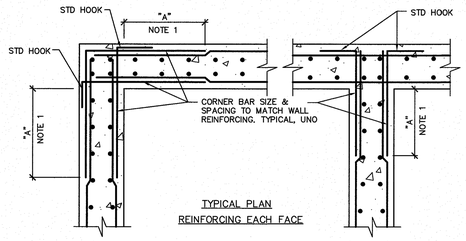
BAR SIZE		℄ TO ℄ LAP "C"	LAP LENGTH "LL"
METRIC	IN-LB		
#10	#3	4'-0"	SEE TABLE 1 - DETAIL 1/GS005
#13	#4	5'-2"	SEE TABLE 1 - DETAIL 1/GS005
#16	#5	6'-8"	SEE TABLE 1 - DETAIL 1/GS005
#19	#6	8'-0"	SEE TABLE 1 - DETAIL 1/GS005
#22	#7	11'-8"	SEE TABLE 1 - DETAIL 1/GS005
#25	#8	13'-4"	SEE TABLE 1 - DETAIL 1/GS005
#29	#9	15'-0"	SEE TABLE 1 - DETAIL 1/GS005



4 REINFORCING LAP SPLICE LAYOUT - WALLS
NOT TO SCALE



TYPICAL PLAN
SINGLE LAYER REINFORCING

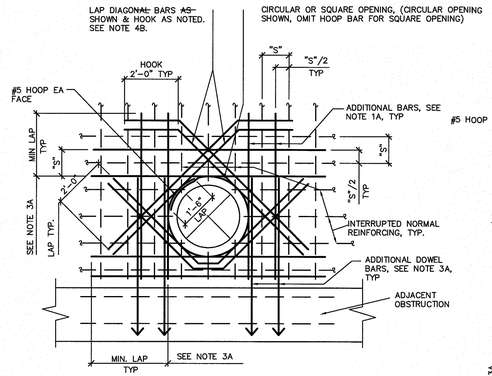


TYPICAL PLAN
REINFORCING EACH FACE

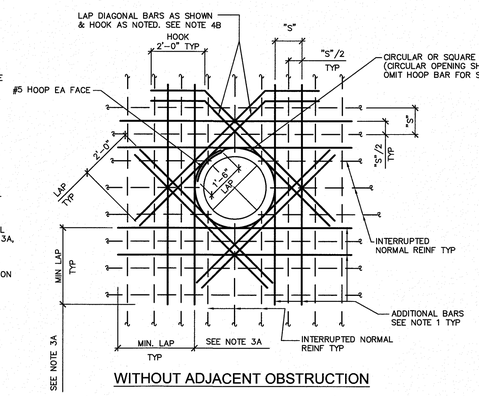
NOTES:

1. UNLESS OTHERWISE NOTED ON THE DRAWINGS, DIMENSION "A" SHALL BE THE MINIMUM CLASS B TENSION LAP SPLICE LENGTH AS REQUIRED IN TABLE 1 - DETAIL 1, SHEET S2. IF BAR SIZES DIFFER, USE THE MINIMUM LAP LENGTH AS REQUIRED FOR THE LARGER OF THE TWO BARS BEING SPLICED.
2. ALL GRADE BEAMS AND FOUNDATIONS SHALL HAVE CORNER BARS.

5 TYPICAL REINFORCING - HORIZONTAL WALL, GRADE BEAM, AND FOUNDATION INTERSECTION/CORNER REINFORCING
NOT TO SCALE



WITH ADJACENT OBSTRUCTION



WITHOUT ADJACENT OBSTRUCTION

NOTES:

GENERAL

1. ALL REINF TO CLEAR OPENING OR FLANGE COLLARS BY 2".
2. "S" = NORMAL BAR SPACING SHOWN ON PLANS.

MAIN VERT. AND HORIZ. REINFORCING

1A. NUMBER OF ADDITIONAL REINF BARS AT EACH SIDE OF OPENING SHALL EQUAL HALF THE NUMBER OF INTERRUPTED BARS IN EACH LAYER OF REINF.
2A. SIZE OF ADDITIONAL REINF BARS TO EQUAL SIZE OF INTERRUPTED REINF BARS.
3A. PROVIDE STANDARD LAP LENGTH FOR BARS BEYOND OPENING (UNO). PROVIDE ADDITIONAL DOWELS WITH STD HOOKS FOR BARS TO BE LAP SPLICED IF LAP LENGTH EXTENSION CANNOT BE OBTAINED AT JOINTS OR OTHER OBSTRUCTIONS. LAP SPLICES SHALL BE CLASS B (UNO).
4A. PLACE ADDITIONAL BARS IN SAME PLANES AS INTERRUPTED REINF.

DIAGONAL REINFORCING

1B. UNLESS NOTED OTHERWISE, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINF BAR CUT. LOCATE DIAGONALS IN EACH LAYER OF REINF.
2B. PLACE DIAGONAL BARS INSIDE NORMAL REINF.
3B. PROVIDE 2 DIAGONAL BARS EACH LAYER OR FACE, EACH WAY AS SHOWN.
4B. PROVIDE LAP LENGTH FOR BARS AS INDICATED (UNO). PROVIDE HOOKS OR BENT BARS AS INDICATED IF LAP LENGTH EXTENSION CANNOT BE OBTAINED AT JOINTS OR OTHER OBSTRUCTIONS.

6 ADDITIONAL REINFORCING AT OPENINGS
NOT TO SCALE

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/2020

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REVISIONS

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NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K. ROWETT
checked by: A. STENGEL
approved by: C. HARDIN
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
GS005

DWG: \\oa.ad.oaconsulting.com\te-nst\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-GS005-0180054.dwg USER: krowett
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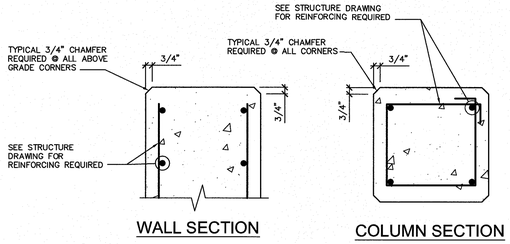
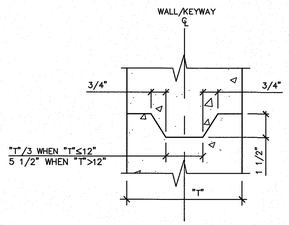


NOTE: ALL EXPOSED EDGES OF CONCRETE SURFACES ABOVE GRADE SHALL HAVE 3/4" CHAMFER UNLESS NOTED OTHERWISE

1 STANDARD CHAMFER IN CONCRETE

NOT TO SCALE



NOTES:

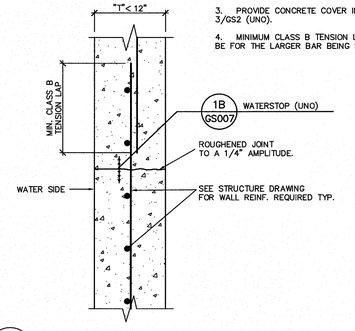
1. "T" = WALL OR SLAB THICKNESS
2. WHEN WALL THICKNESSES DIFFER USE THE SMALLER WALL THICKNESS OF THE TWO WALLS TO DETERMINE KEYWAY WIDTH.

4 KEYWAY DETAIL

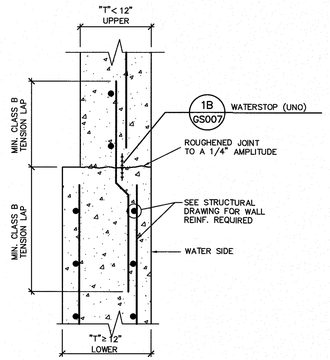
NOT TO SCALE

NOTES:

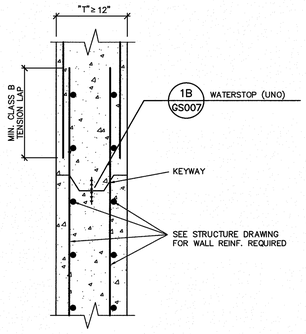
1. "T" = WALL THICKNESS
2. FLATSTRIP WATERSTOP SHOWN ON THESE DRAWINGS FOR THIS TYPE OF JOINT. CONTRACTOR MAY SUBSTITUTE CONT. 6" CENTER BULB WATERSTOP IN CONFORMANCE WITH THE DRAWINGS FOR THIS LOCATION.
3. PROVIDE CONCRETE COVER INDICATED ON DETAIL 3/GS2 (UNO).
4. MINIMUM CLASS B TENSION LAP SPLICE LENGTH SHALL BE FOR THE LARGER BAR BEING SPLICED.



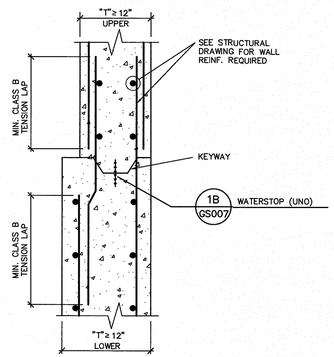
2A WALL THICKNESS LESS THAN 12"



2B DIFFERING WALL THICKNESSES



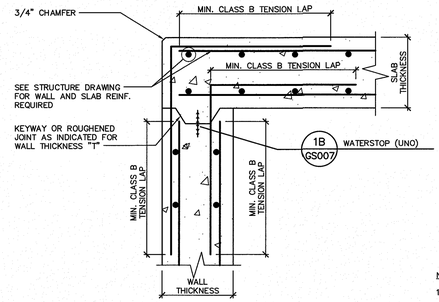
2C WALL THICKNESS GREATER THAN OR EQUAL TO 12"



2D DIFFERING WALL THICKNESSES

2 WALL JOINT - HORIZONTAL

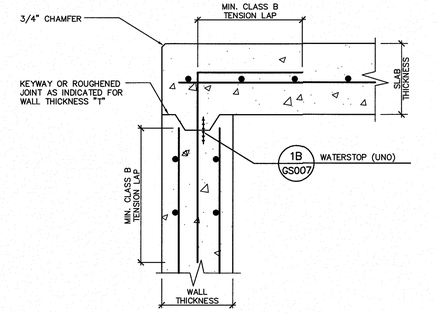
NOT TO SCALE



3A WALL TO ELEVATED SLAB JOINT

NOTES:

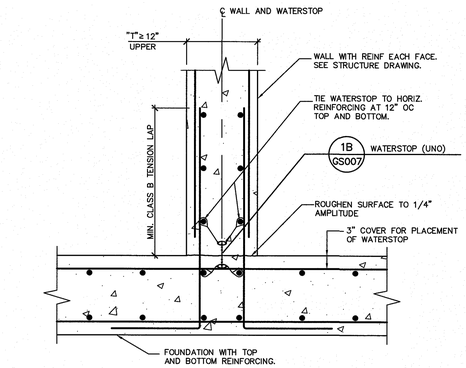
1. IF WATERSTOP IS NOT REQUIRED, A ROUGHENED JOINT AT TOP OF WALL MAY BE SUBSTITUTED FOR THE KEYWAY INDICATED.
2. FLATSTRIP WATERSTOP SHOWN ON THESE DRAWINGS FOR THIS TYPE OF JOINT. CONTRACTOR MAY SUBSTITUTE CONT. 6" CENTER BULB WATERSTOP IN CONFORMANCE WITH THE DRAWINGS FOR THIS LOCATION.
3. PROVIDE CONCRETE COVER INDICATED ON DETAIL 3/GS2 (UNO).
4. MINIMUM CLASS B TENSION LAP SPLICE LENGTH SHALL BE FOR THE LARGER BAR BEING SPLICED.



3B WALL TO ELEVATED SLAB JOINT

3 WALL TO ELEVATED SLAB JOINT

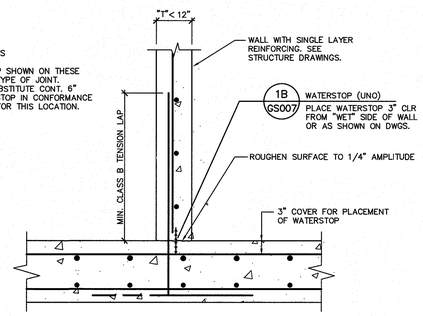
NOT TO SCALE



5A WALL THICKNESS GREATER THAN OR EQUAL TO 12"

NOTES:

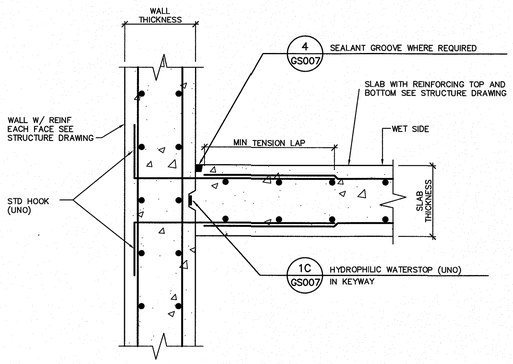
1. "T" = WALL THICKNESS
2. FLATSTRIP WATERSTOP SHOWN ON THESE DRAWINGS FOR THIS TYPE OF JOINT. CONTRACTOR MAY SUBSTITUTE CONT. 6" CENTER BULB WATERSTOP IN CONFORMANCE WITH THE DRAWINGS FOR THIS LOCATION.



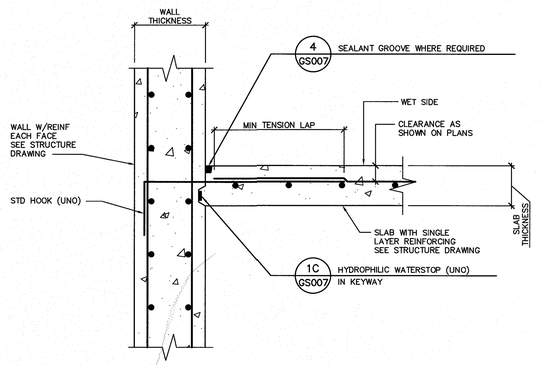
5B WALL THICKNESS LESS THAN 12"

5 CONSTRUCTION JOINT - WALL TO FOUNDATION

NOT TO SCALE



6A WITH DOUBLE MAT IN SLAB



6B WITH SINGLE MAT IN SLAB

6 CONSTRUCTION JOINT - SLAB TO WALL

NOT TO SCALE

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ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY C. HARDIN NO. 13205 01/02/2020

REV NO.	DATE	REVISIONS DESCRIPTION	BY

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CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

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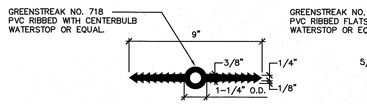
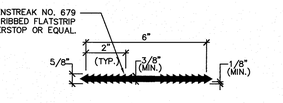
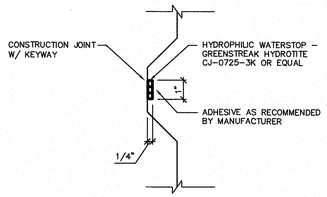
DATE: Dec 30, 2019 4:51pm XREFS: S_TBLK_0180054



1A CENTER BULB WATERSTOP
NOT TO SCALE

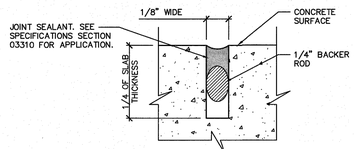


1B FLATSTRIP WATERSTOP
NOT TO SCALE

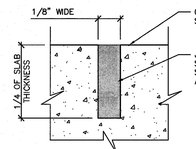


1C HYDROPHILIC
NOT TO SCALE

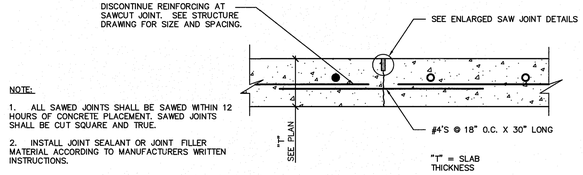
1 WATER STOP
NOT TO SCALE



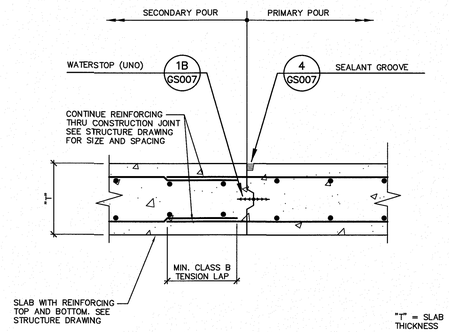
2A SEALED JOINT
NOT TO SCALE



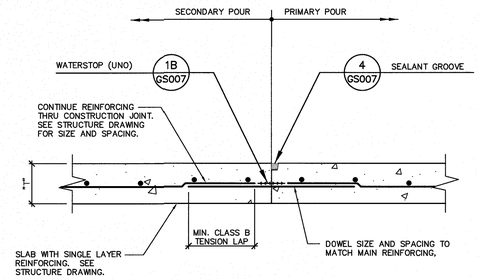
2B FILLED JOINT
NOT TO SCALE



2 SLAB ON GRADE SAWED JOINT (SJ)
NOT TO SCALE

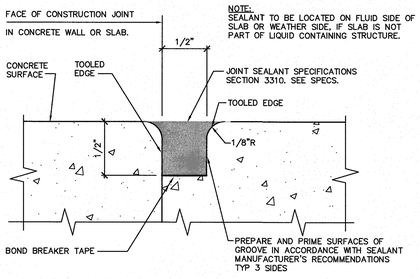


3A SLAB ON GRADE - TWO LAYERS OF REINF.
NOT TO SCALE

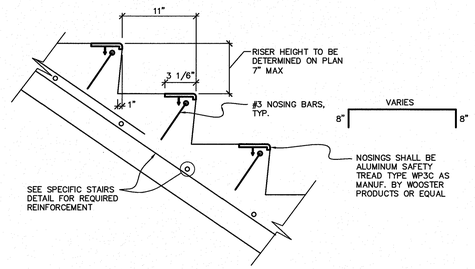


3B SLAB ON GRADE - ONE LAYER OF REINF.
NOT TO SCALE

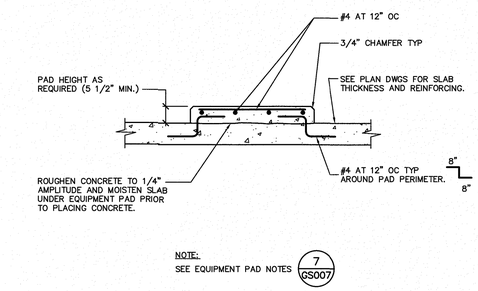
3 FOUNDATION CONSTRUCTION JOINT-WITH WATERSTOP
NOT TO SCALE



4 CONSTRUCTION JOINT SEALANT GROOVE
NOT TO SCALE



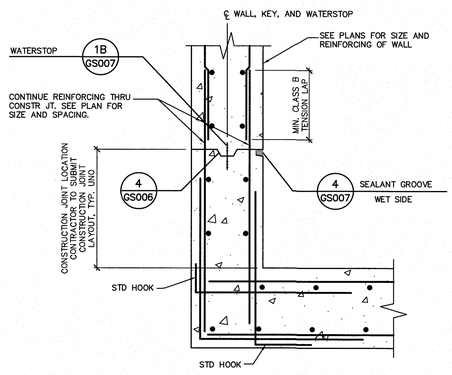
5 CONCRETE STAIRS DETAIL
NOT TO SCALE



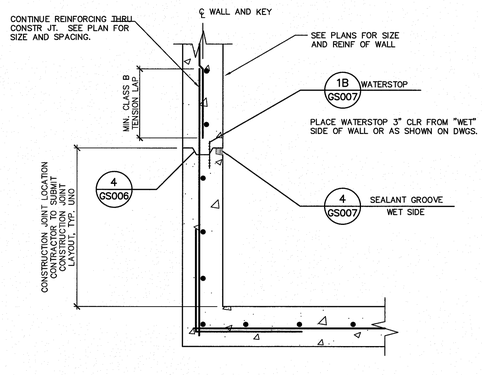
6 HOUSEKEEPING PAD
NOT TO SCALE

1. THE MINIMUM PAD SIZE PLAN DIMENSIONS SHALL BE AS INDICATED OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER.
2. THE SIZE, NUMBER, TYPE, LOCATION AND THE THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER. HOLD CONCRETE ANCHOR BOLTS IN POSITION WITH A TEMPLATE WHILE PAD IS BEING PLACED.
3. USE PIPE SLEEVES TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT AFTER EQUIPMENT IS INSTALLED.
4. PIPE SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN THE ANCHOR BOLT DIAMETER.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS NOTED OTHERWISE ON THE PLANS.
6. PROVIDE WEDGES OR SHIMS TO SUPPORT THE EQUIPMENT BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. THE WEDGES OR SHIMS THAT REMAIN IN PLACE SHALL NOT BE EXPOSED TO VIEW.

7 EQUIPMENT PAD NOTES
NOT TO SCALE



8A WITH DOUBLE MAT OF STEEL
NOT TO SCALE



8B WITH SINGLE MAT OF STEEL
NOT TO SCALE

8 CONSTRUCTION JOINT - WALL TO WALL
NOT TO SCALE

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SHEET
GS007

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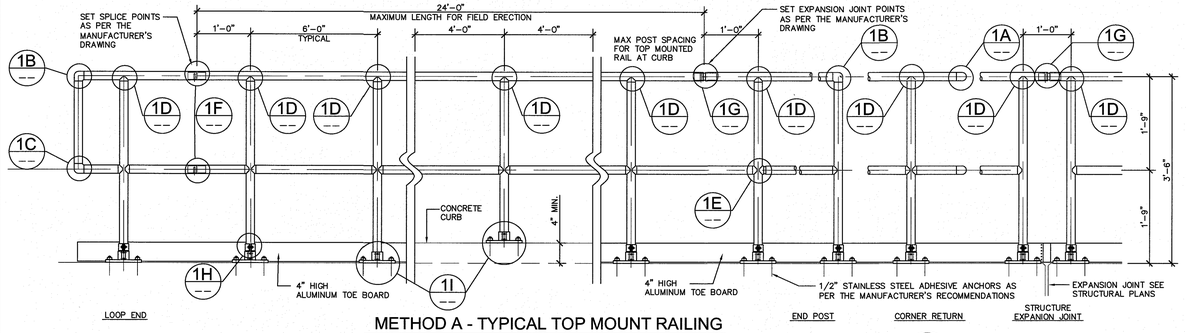
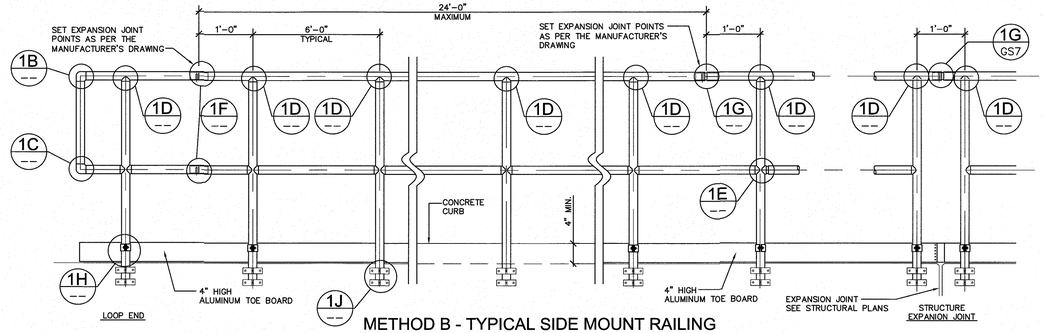
DATE: Dec 30, 2019 4:50pm XREFS: S_TBLK_0180054



METHOD A - TYPICAL TOP MOUNT RAILING

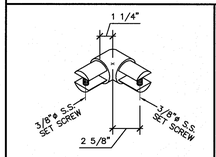
SEE GENERAL NOTE 5



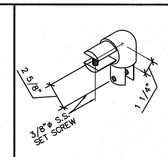
METHOD B - TYPICAL SIDE MOUNT RAILING

1 IBC FACTORY INDUSTRIAL TYPE GUARDRAIL/HANDRAIL DETAILS

NOT TO SCALE



1A DETAIL — NOT TO SCALE



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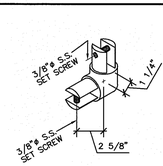
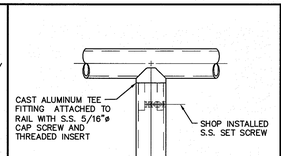
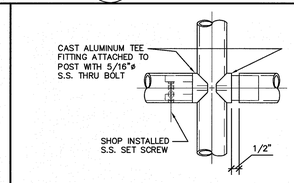


1C DETAIL — NOT TO SCALE

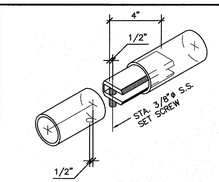


1D DETAIL TEE FITTING — NOT TO SCALE

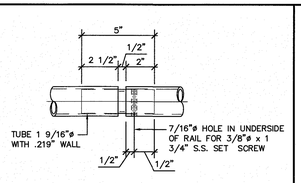


1E MIDRAIL EXPANSION SPLICE — NOT TO SCALE

MIDRAIL EXPANSION SPLICE LOCATED AT 60'-0" MAXIMUM INTERVALS

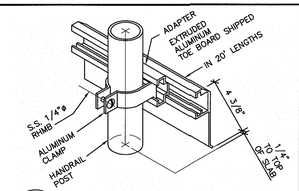


1F SPLICE LOCK — NOT TO SCALE

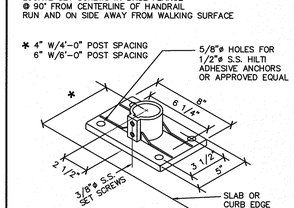


1G EXPANSION JOINT SLICE — NOT TO SCALE

LOCATED AT 60'-0" MAXIMUM INTERVALS AND AT STRUCTURAL EXPANSION JOINTS

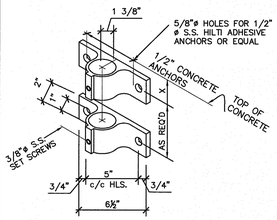


1H TOE BOARD DETAIL — NOT TO SCALE



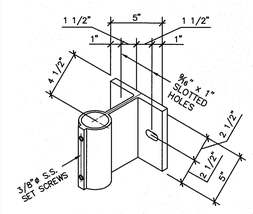
1I BASE FLANGE DETAIL — NOT TO SCALE

SEE GENERAL NOTE 5

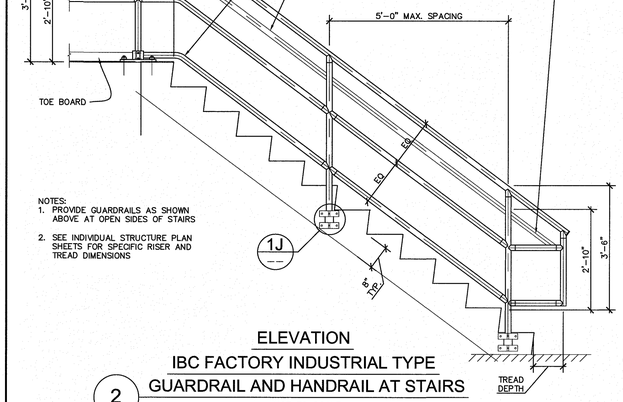


1J SIDEMOUNT BRACKET — NOT TO SCALE

DIMENSION "X", EDGE DISTANCE SHALL COMPLY WITH FASTENER CALCULATIONS

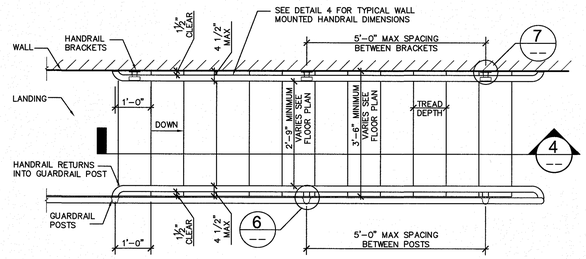


1J.1 EXTENDED SIDEMOUNT BRACKET — NOT TO SCALE



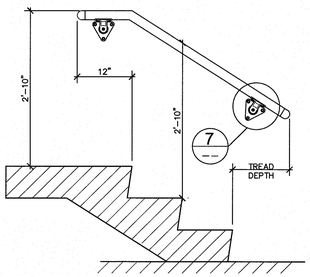
ELEVATION
IBC FACTORY INDUSTRIAL TYPE GUARDRAIL AND HANDRAIL AT STAIRS

NOT TO SCALE



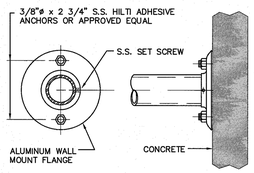
PLAN
GUARDRAIL AND HANDRAIL AT STAIRS

NOT TO SCALE



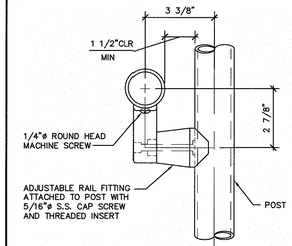
TYPICAL WALL MOUNTED HANDRAIL ELEVATION

NOT TO SCALE

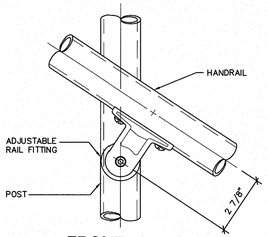


TYPICAL WALL FLANGE DETAIL

NOT TO SCALE



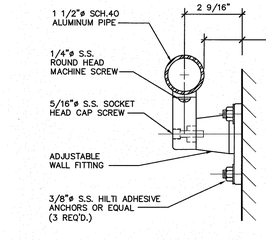
SIDE VIEW



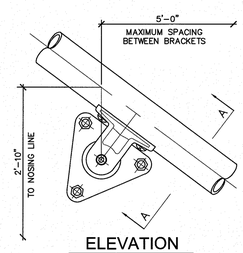
FRONT VIEW

ADJUSTABLE RAIL FITTING

NOT TO SCALE



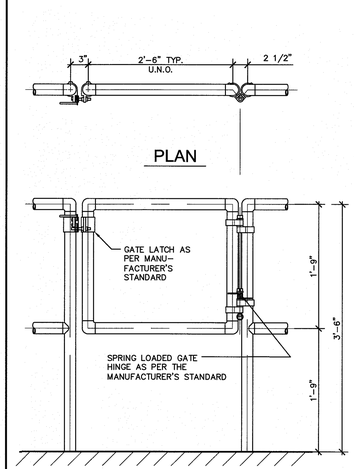
SECTION A-A



ELEVATION

TYPICAL WALL RAIL

NOT TO SCALE



PLAN

NOTE:
LEFT HAND GATE IS SHOWN SEE THE PLANS FOR CORRECT GATE SWING

ELEVATION

TYPICAL GATE

NOT TO SCALE

GENERAL NOTES - GUARDRAIL/HANDRAIL

1. ADDITIONAL REQUIREMENTS PER SPECIFICATIONS.
2. TOE PLATE SHALL CONFORM TO INTERNATIONAL BUILDING CODE (IBC) AND OSHA STANDARDS. TOE PLATE SHALL BE A MINIMUM OF 4" HIGH AND SHALL BE AN EXTRUSION THAT ATTACHES TO THE POSTS WITH CLAMPS WHICH WILL ALLOW FOR EXPANSION AND CONTRACTION BETWEEN POSTS. TOE PLATES SHALL BE SET 1/4" ABOVE THE WALKING SURFACE. TOE PLATES SHALL BE PROVIDED ON GUARDRAILS AS REQUIRED BY IBC, OSHA STANDARDS AND/OR AS SHOWN ON DRAWINGS. TOE PLATES SHALL BE SHIPPED LOOSE IN STOCK LENGTHS WITH PRE-MANUFACTURED CORNERS FOR FIELD INSTALLATION.
3. FINISH SHALL BE ALUMINUM ASSOCIATION M10-C22-A41 (215-R1). THE PIPE SHALL BE PLASTIC-WRAPPED. THE PLASTIC WRAP IS TO BE REMOVED AFTER ERECTION.
4. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS SHAILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
5. ALUMINUM TOE BOARD NOT REQUIRED WHERE HANDRAIL INSTALLED ON A 4" HIGH CONCRETE CURB.
6. FOR TOP MOUNT GUARDRAIL/HANDRAIL THE MINIMUM EDGE DISTANCE (EDGE OF CONCRETE TO CENTERLINE OF RAILING) SHALL BE 4". FOR AN EDGE DISTANCE OF LESS THAN 6", THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 4'-0" O.C. FOR A 6'-0" SPACING BETWEEN POSTS, THE MINIMUM EDGE DISTANCE SHALL BE 6".
7. SEE DRAWINGS FOR LOCATIONS OF IBC FACTORY INDUSTRIAL TYPE AND PUBLIC TYPE GUARDRAIL/HANDRAILS.
8. POSTS SHALL BE SCHEDULE 80 MINIMUM.
9. HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS.

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ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13205
LARRY C. HAFFIN
01/01/2020

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

STANDARD STRUCTURAL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

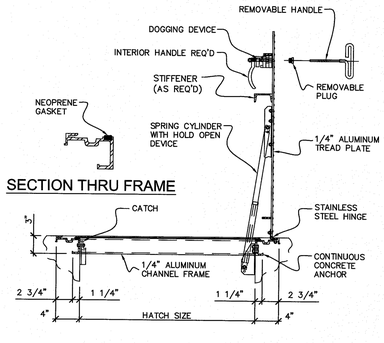
JONESBORO, ARKANSAS

2020

drawn by: K. ROWETT
checked by: A. STENGEL
approved by: C. HARDIN
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

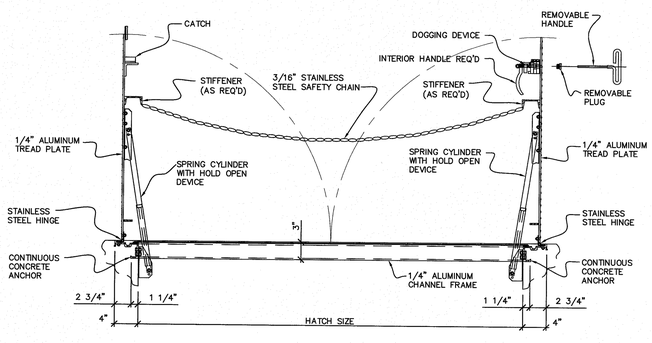
SHEET
GS008

DWG: \\oa.od.oaconsulting.com\fs-nst\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-GS008-0180054.dwg USER: krowett
DATE: Dec 30, 2019 4:50pm XREFS: S_TBLK_01800054



1A SINGLE ALUMINUM HATCH

NOT TO SCALE



1B DOUBLE ALUMINUM HATCH

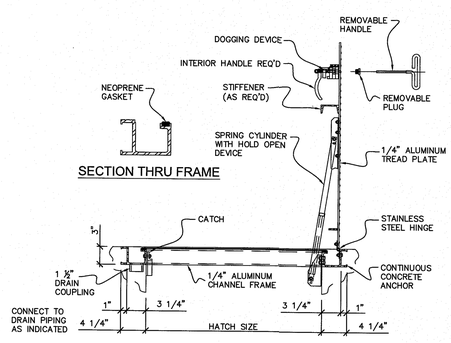
NOT TO SCALE

NOTES:

1. PROVIDE INTEGRAL SAFETY GRATING ONLY WHERE SPECIFICALLY INDICATED ON PLANS.
2. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
3. ADDITIONAL REQUIREMENT AND LOADS PER SPECIFICATIONS.

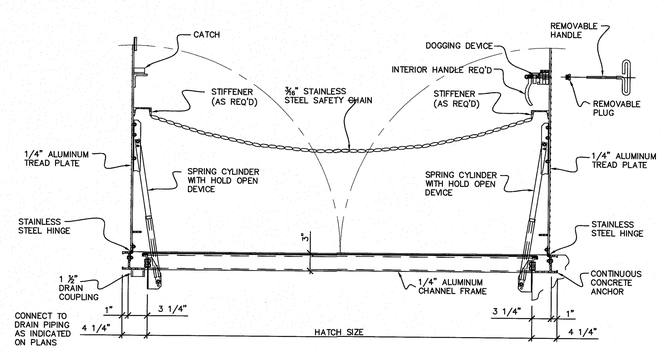
1 DETAIL - ALUMINUM ACCESS HATCH

NOT TO SCALE



2A SINGLE ALUMINUM HATCH (WITH GUTTER)

NOT TO SCALE



2B DOUBLE ALUMINUM HATCH (WITH GUTTER)

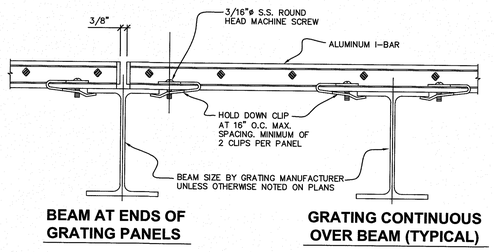
NOT TO SCALE

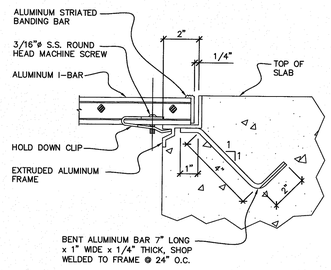
NOTES:

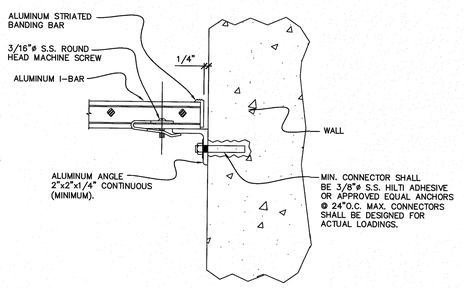
1. PROVIDE INTEGRAL SAFETY GRATING ONLY WHERE SPECIFICALLY INDICATED ON PLANS.
2. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
3. ADDITIONAL REQUIREMENT AND LOADS PER SPECIFICATIONS.
4. PROVIDE 1½" PVC DRAIN PIPING. SLOPE PIPING TO DRAIN. COORDINATE LOCATION WITH ENGINEER.

2 DETAIL - WATERTIGHT ALUMINUM ACCESS HATCH

NOT TO SCALE







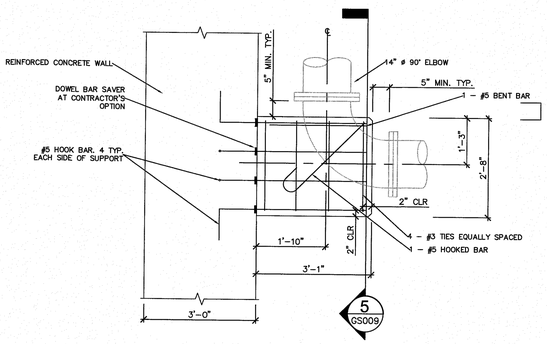
NOTE: ALUMINUM GRATING(S) SHOWN.

3 TYPICAL GRATING AND FRAME DETAILS

NOT TO SCALE

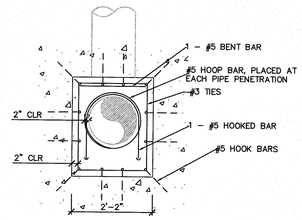
ALUMINUM GRATING NOTES:

1. UNLESS SHOWN OR NOTED OTHERWISE, ALL GRATING, HATCHES AND/OR ACCESS HATCHES SHALL BE ALUMINUM. SUPPORTING STRUCTURAL SYSTEM SHALL BE ALUMINUM OR TYPE 304 STAINLESS STEEL.
2. ALL ALUMINUM GRATING, INCLUDING ALL SUPPORT MEMBERS, REINFORCING RIBS, STIFFENERS, EDGE MEMBERS, EDGE SUPPORTS, CORNER AND/OR INTERSECTION SUPPORTS AND ALL STRUCTURAL REQUIREMENTS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ARKANSAS AND PROVIDED BY THE MANUFACTURER OF THE APPLICABLE GRATING. SUCH DESIGN FOR THE GRATING, INCLUDING ALL SUPPORTS AND INTEGRAL MEMBERS SHALL BE FOR THE ACTUAL DEAD LOAD AND A UNIFORM LIVE LOAD OF 200 LBF/SQ. FT. OR THE UNIFORM LIVE LOAD OF THE ADJACENT FLOOR UNLESS NOTED OTHERWISE, WHICHEVER LOADS PRODUCES THE GREATER EFFECT, WITH TOTAL LOAD DEFLECTION LIMITED TO L/180 NTE ¼ INCH BETWEEN SUPPORTING MEMBERS MAXIMUM. THE CONTRACTOR SHALL SUBMIT THE DESIGN OF THE GRATING, AND/OR CHECKERED PLATE COVERING, INCLUDING ALL SUPPORTS AND INTEGRAL MEMBERS, COMPLETE WITH DETAILS AND CALCULATIONS TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO FABRICATION OF THE APPLICABLE GRATING.
3. ALL ENDS AND OPENINGS SHALL BE BANDED.
4. THE WEIGHT OF ANY ONE GRATING SECTION SHALL NOT EXCEED 80 LBS. UNLESS SPECIFICALLY NOTED OTHERWISE.
5. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
6. ADDITIONAL REQUIREMENTS PER SPECIFICATIONS.



4 PIPE SUPPORT ELEVATION

NOT TO SCALE



5 PIPE SUPPORT SECTION

NOT TO SCALE

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/2020

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

STANDARD STRUCTURAL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS
2020

drawn by: K. ROWETT
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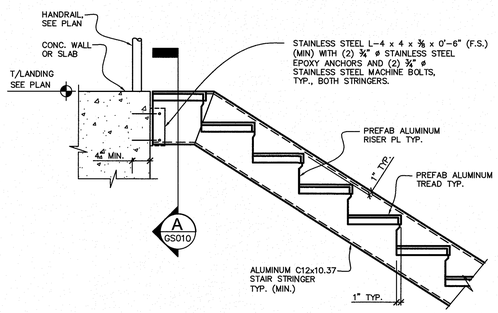
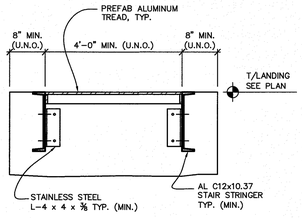
SHEET
GS009

DWG: \\oa-ad.oasconsulting.com\ita-nst\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-GS009-0180054.dwg USER: krowett
DATE: Dec 30, 2019 4:49pm XREFS: S_TBLK_080054

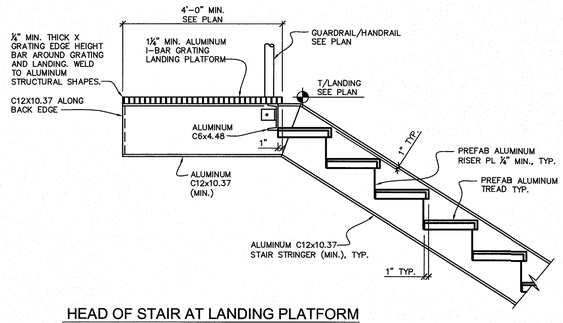


HEAD OF STAIR AT CONCRETE WALL OR SLAB



A SECTION

NOT TO SCALE

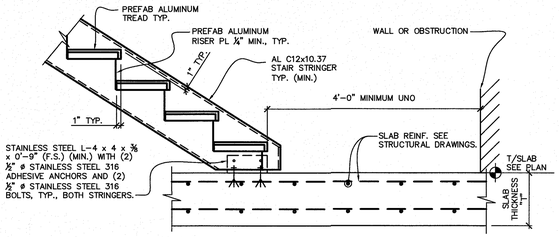


HEAD OF STAIR AT LANDING PLATFORM

1 PRE-ENGINEERED ALUMINUM STAIRS

NOT TO SCALE

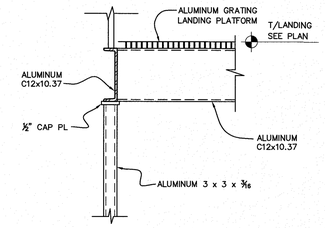
NOTES:
1. MEMBER SIZES SHOWN ARE MINIMUM ACCEPTABLE UNLESS INDICATED OR INDIVIDUALLY DETAILED OTHERWISE.
2. ALL OTHER REQUIREMENTS PER SPECIFICATIONS.
3. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR INSULATORS OR OTHER APPROVED MATERIAL.



2 FOOT OF STAIR AT CONCRETE SLAB OR LANDING PAD

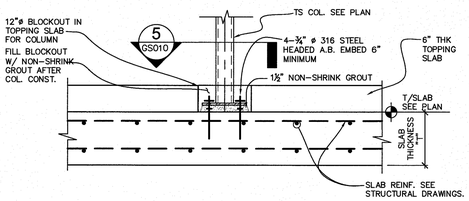
NOT TO SCALE

NOTES:
1. ALUMINUM STAIR MEMBER SIZES SHOWN ARE MINIMUM ACCEPTABLE UNLESS INDICATED OR INDIVIDUALLY DETAILED OTHERWISE.
2. ALL OTHER REQUIREMENTS PER SPECIFICATIONS.
3. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR INSULATORS OR OTHER APPROVED MATERIAL.
4. SEE STRUCTURAL DRAWINGS FOR SLAB THICKNESS "T".



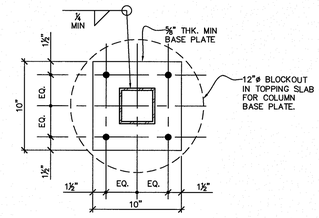
3 COLUMN TO BEAM CONNECTION

NOT TO SCALE



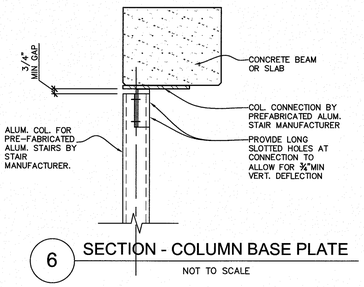
4 COLUMN, BASEPLATE AND FOOTING

NOT TO SCALE



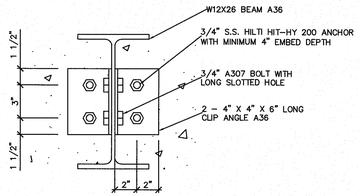
5 SECTION - COLUMN BASE PLATE

NOT TO SCALE



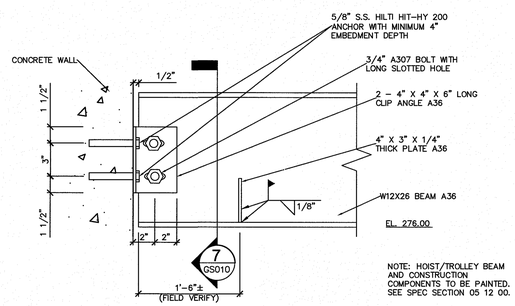
6 SECTION - COLUMN BASE PLATE

NOT TO SCALE



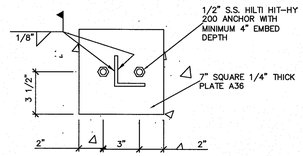
7 RUNWAY BEAM SECTION

NOT TO SCALE



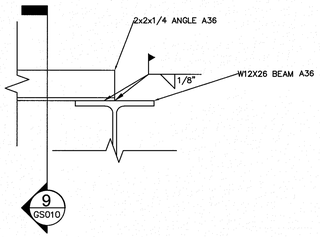
8 RUNWAY BEAM ELEVATION

NOT TO SCALE



9 LATERAL BRACE SECTION

NOT TO SCALE



10 LATERAL BRACE ELEVATION

NOT TO SCALE

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Fayetteville, AR 72703
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ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/2020

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

STANDARD STRUCTURAL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

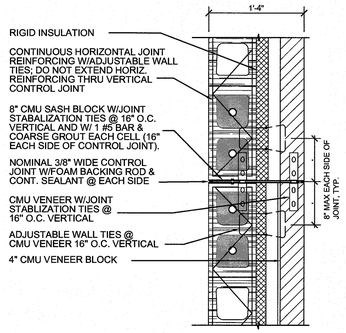
JONESBORO, ARKANSAS

2020

drawn by:	K. ROWETT
checked by:	A. STENGEL
approved by:	C. HARDIN
QA/QC by:	M. MILIUS
project no.:	018-0054
drawing no.:	-
date:	01/02/2020

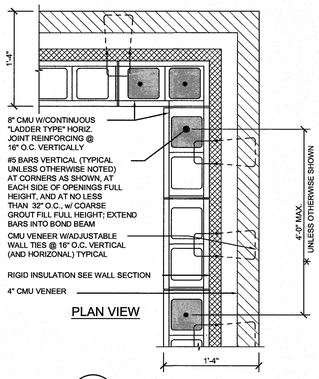
SHEET
GS010

DWG: \\oa.ad.oaconsulting.com\ite-nas1\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-GS010-0180054.dwg USER: krowett
DATE: Dec 30, 2019 4:48pm XREFS: S_TBLK_0180054



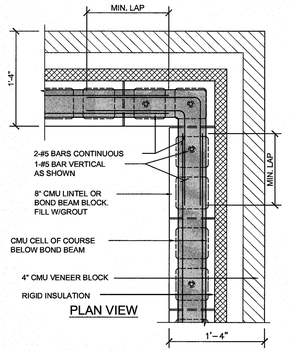
PLAN VIEW

1 EXPANSION JOINT DETAIL
NOT TO SCALE



PLAN VIEW

2 WALL/CORNER DETAIL
NOT TO SCALE

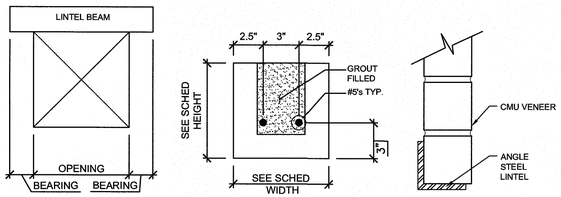


PLAN VIEW

3 BOND BEAM DETAIL
NOT TO SCALE

LINTEL SCHEDULE

MARK	TYPE	SIZE WIDTH x HEIGHT	REINFORCING	BEARING LENGTH	LINTEL MATERIAL
L1	A	8" x 8"	2 - #5	16"	MASONRY
L2	A	8" x 16"	2 - #5	16"	MASONRY
L3	N/A	8" x 48"	SEE DETAIL	16"	CONCRETE
L4	B	VARIES SEE ARCH. SHEETS	--	8" MIN.	A36 STEEL GALV.
L5	A	6" x 8"	1 - #5	16" MIN.	MASONRY



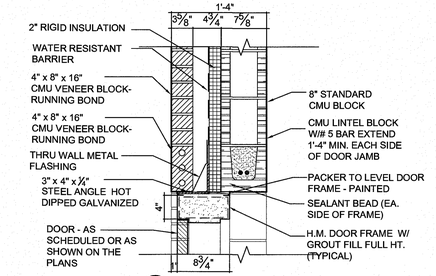
NOTES:
1. SCHEDULE APPLIES UNLESS INDICATED OTHERWISE.
2. BEARING LENGTH GIVEN IN LINTEL SCHEDULE SHALL BE PROVIDED ON EACH SIDE OF OPENING.
3. ALL EXTERIOR STEEL LINTELS SHALL BE HOT-DIPPED GALVANIZED. SEE SPECIFICATIONS.

4 LINTEL DETAILS AND SCHEDULE
NOT TO SCALE

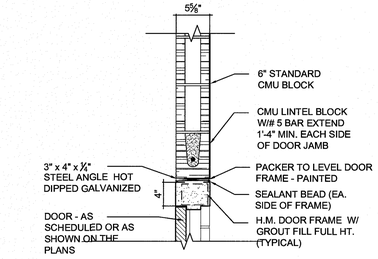
MINIMUM LAP SPLICE LENGTHS FOR REINFORCED GROUTED MASONRY REINFORCING STEEL: ASTM A615 GRADE 60	
REINFORCEMENT (SIZE)	LAP LENGTH (INCHES)
#4	26
#5	32
#6	54

NOTES:
1. APPLICABLE UNLESS OTHERWISE NOTED (UNO) ON PLAN OR DETAILS.
2. REFER TO DETAIL 1 SHEET GS005 FOR REINFORCEMENT LAP SPLICES FOR REINFORCED CONCRETE.

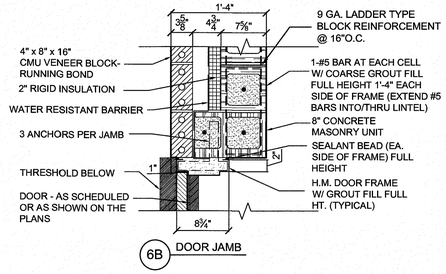
5 STANDARD LAB LENGTHS FOR GROUTED MASONRY
NOT TO SCALE



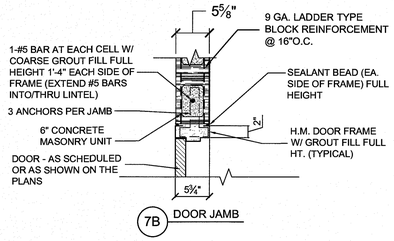
6A DOOR HEAD



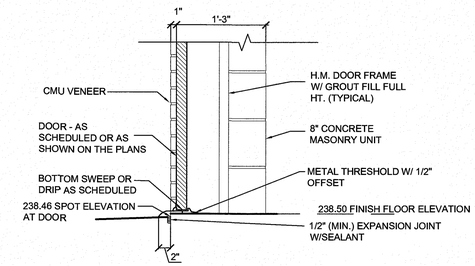
7A DOOR HEAD



6B DOOR JAMB



7B DOOR JAMB



6C DOOR SILL (TYPICAL)

6 EXT H.M. DOOR FRAME (TYP.)
1 1/2" = 1'-0"

7 INT H.M. DOOR FRAME (TYP.)
1 1/2" = 1'-0"

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www.olsson.com

ARKANSAS REGISTERED PROFESSIONAL ENGINEER LARRY C. HARDIN NO. 13205

REVISIONS			
REV. NO.	DATE	REVISIONS DESCRIPTION	BY

STANDARD STRUCTURAL DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

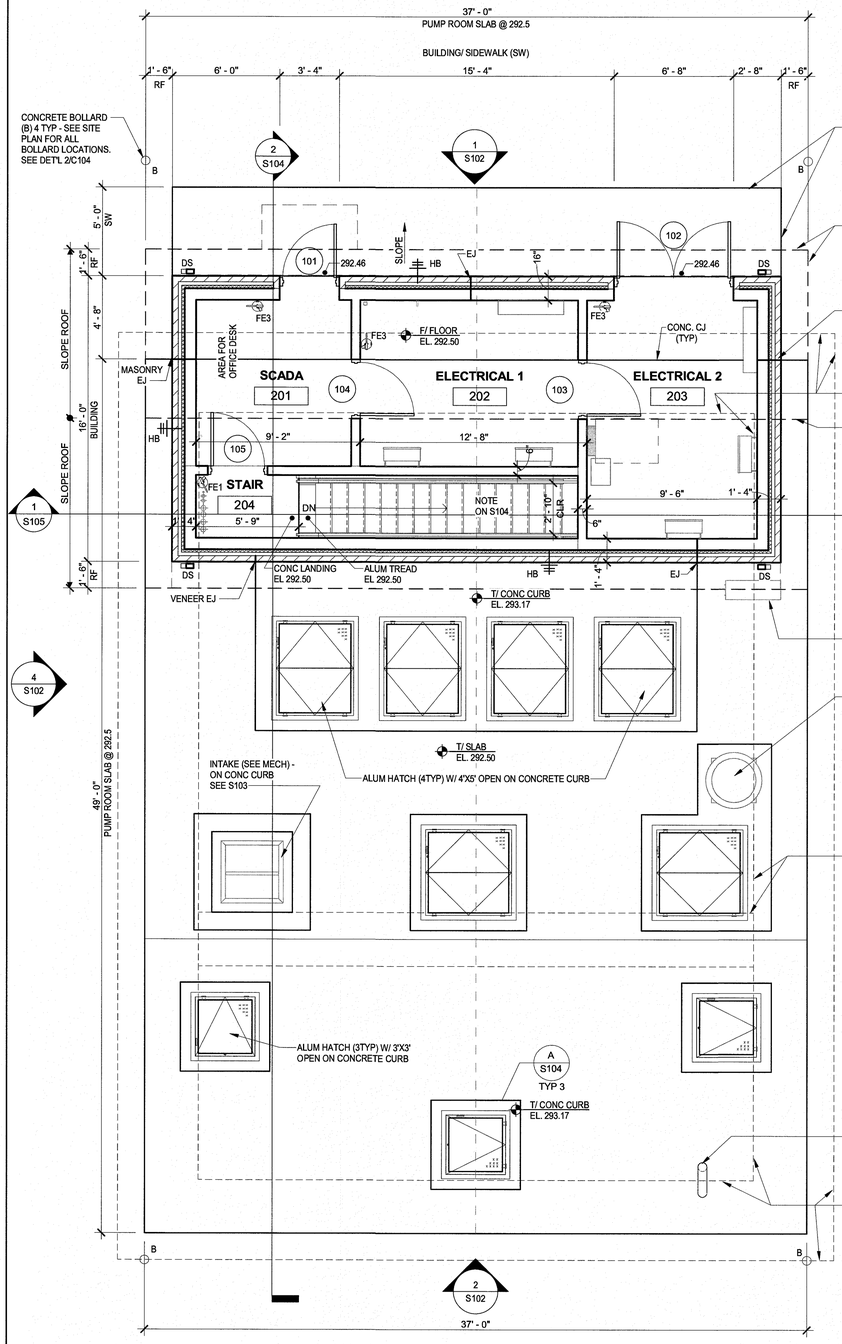
JONESBORO, ARKANSAS

2020

drawn by: K. ROWETT
checked by: A. STENGEL
approved by: C. HARDIN
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

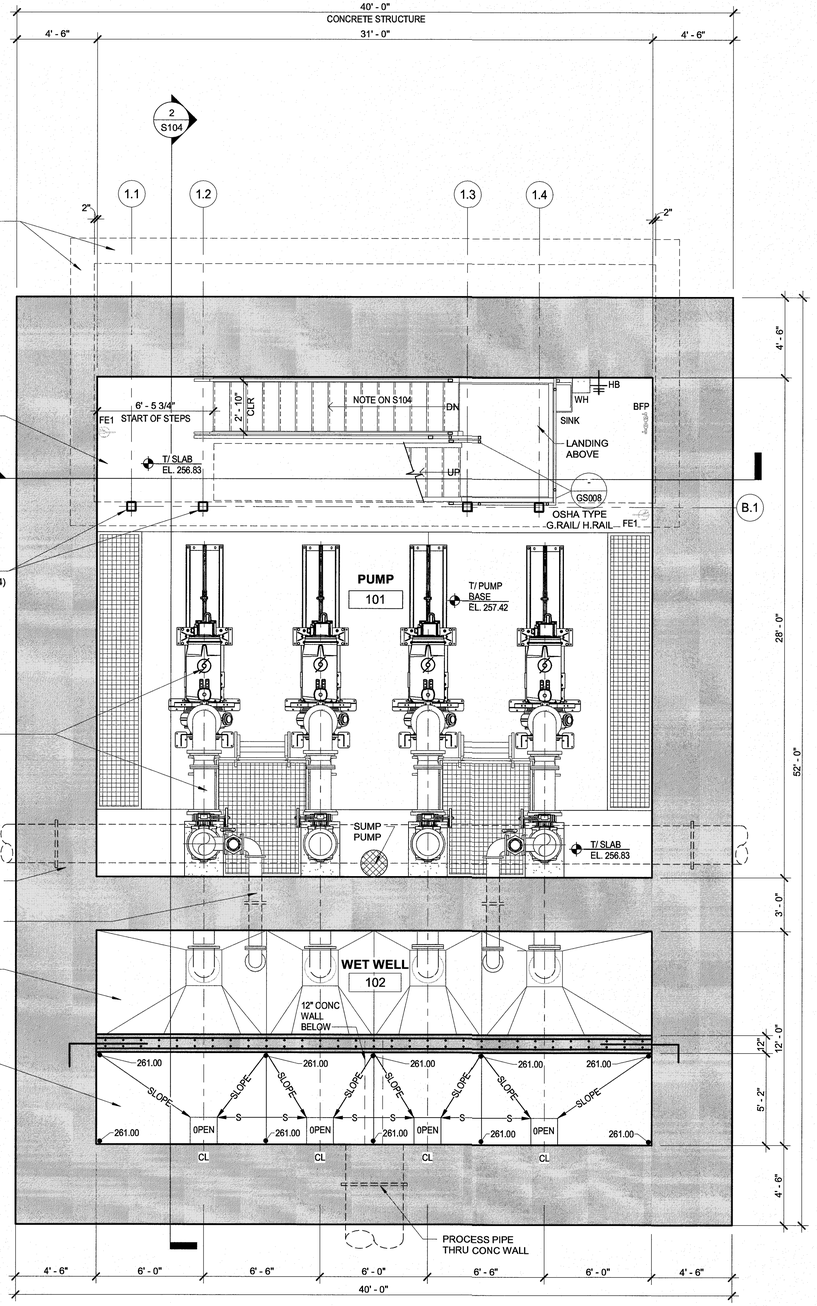
SHEET
GS011

DWG: \\oa.ad.oaconsulting.com\fte-nst\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-GS011-0180054.dwg USER: krowett
DATE: Jan 02, 2020 11:32am XREFS: S_TBLK_0180054



1 FLOOR PLAN @ ELEC ROOM

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



2 BUILDING SECTION @ ELEV 261.50

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

NORTH

FINISH SCHEDULE

NO.	ROOM	FLOOR	BASE	WALLS N	WALLS E	WALLS S	WALLS W	CEIL	REMARKS
101	PUMP ROOM	F1	--	--	--	--	--	--	FORMED FINISHED CONC. W REBAR
102	WET WELL	F2	--	W2	W2	W2	W2	W2	
201	SCADA	F1	--	W1	W1	W1	W1	C1	METAL DECKING - NOT PAINTED
202	ELECTRICAL 1	F1	--	W1	W1	W1	W1	C1	METAL DECKING - NOT PAINTED
203	ELECTRICAL 1	F1	--	W1	W1	W1	W1	C1	METAL DECKING - NOT PAINTED
204	STAIRS	F1	--	W1	W1	W1	W1	C1	PLYWOOD CLG. - PAINTED

FINISH MATERIALS LEGEND

FLOORS	F1	- CURE AND SEAL CONCRETE
	F2	- GROUTED
BASE	B1	- ----
WALLS	W1	- CMU - PAINTED
	W2	- EPOXY PROTECTIVE LINING SYSTEM
CEILINGS	C1	- EXPOSED STRUCTURE - PRIMED AND PAINTED
	C2	- EPOXY PROTECTIVE LINING SYSTEM

DOOR SCHEDULE

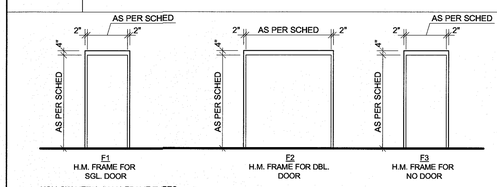
MAIN LIFT STATION

NO.	DOOR SIZE	DOOR TYPE	FRAME TYPE	HARDWARE SET	REMARKS
101	3'-0" x 7'-0"	D1/HM	HMF1	E-1	
102	(2) 3'-0" x 7'-0"	D1/HM	HMF2	E-2	
103	3'-0" x 7'-0"	D2/HM	HMF1	I-1	
104	3'-0" x 7'-0"	D2/HM	HMF1	I-1	
105	3'-0" x 7'-0"	D2/HM	HMF1	I-2	

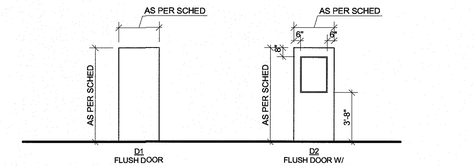
HARDWARE SET SCHEDULE

EXTERIOR

SET E-1	BB HINGES-HW w/(N.R.P.); MORTISE LOCK EXIT DEVICE (WITH EXTERIOR LEVER HANDLE AND KEY CYLINDER); CLOSER W/ HOLD OPEN & POSITIVE STOP, KICKPLATE, H.D. FLOOR STOP, WEATHERSTRIP, BOTTOM SWEEP AND OFFSET THRESHOLD.
SET E-2	BB HINGES-HW w/(N.R.P.); MORTISE LOCK EXIT DEVICE (WITH EXTERIOR LEVER HANDLE AND KEY CYLINDER) @ ACTIVE LEAF; CLOSER WITH HOLD OPEN & POSITIVE STOP;OVERHEAD STOP @ACTIVE LEAF; "I" ASTRAGAL @ ACTIVE LEAF; FLUSH BOLTS @ INACTIVE LEAF; HD KICK STOP & KICK PLATES (EACH DOOR); WEATHERSTRIP, BOTTOM SWEEP AND OFFSET THRESHOLD.
SET I-1	BB HINGES-HW; MORTISE LOCK SET; CLOSER WITH HOLD OPEN & POSITIVE STOP; HD KICK STOP & KICK PLATES.
SET I-2	BB HINGES-HW; MORTISE LATCH SET; CLOSER WITH HOLD OPEN & POSITIVE STOP; HD KICK STOP & KICK PLATES, WEATHERSTRIPS, BOTTOM SWEEP,OFFSET THRESHOLD.



HOLLOW METAL (H.M.) FRAME TYPES
1. ALL FRAMES SHALL BE 5 ¾" DEPTH. FIELD PAINTED GALVANIZED HOLLOW METAL UNLESS OTHERWISE NOTED.



HOLLOW METAL (H.M.) DOOR TYPES
1. ALL DOORS TO BE 1 ¾" THK. FIELD PAINTED GALVANIZED HOLLOW METAL UNLESS OTHERWISE NOTED.
2. ALL INTERIOR DOOR GLAZING SHALL BE ¼" THICK LAMINATED CLEAR SAFETY GLASS UNLESS OTHERWISE NOTED. SAFETY GLASS SHALL BE TWO (2) LAYERS OF ¼" THICK GLASS BONDED TO A 0.030 POLY ISO-BUTYLENE INTERLAYER.

SPECIFICATION

10523 FIRE EXTINGUISHERS
1. FE-1: MULTIPURPOSE EXTINGUISHERS SHALL BE 10-POUND NOMINAL CAPACITY, W/ UL RATING OF 4A-60B:C
2. FE-2: HALOTRON EXTINGUISHERS SHALL BE 15-POUND NOMINAL CAPACITY, HALOTRON 1 TYPE, WITH UL RATING OF 2A-10B:C.
   2.1. DESIGN STANDARD: LARSEN'S HT SERIES (OR EQUAL)
3. FE-3: CARBON DIOXIDE EXTINGUISHERS SHALL BE 15-POUND NOMINAL CAPACITY, W/ UL RATING OF 10B:C.
   3.1. DESIGN STANDARD: LARSEN'S CD SERIES (OR EQUAL)
4. MOUNTING BRACKETS: SURFACE MOUNTING BRACKETS SHALL BE THE SIZE AND TYPE DESIGNED FOR EACH EXTINGUISHER TYPE.
   4.1. DESIGN STANDARD: LARSEN'S MOUNTING BRACKET #862/864.

LEGEND

FD	- FLOOR DRAIN
FE-???	- FIRE EXTINGUISHER - SURFACE MOUNTED
CJ	- CONTROL JOINT
EJ	- EXPANSION JOINT
B	- BOLLARD
HB	- FROST PROOF HOSE BIBB
	- 4" X 8" X 16" CMU VENEER
	- RIGID INSULATION
	- REINFORCED CMU WALL

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302 E. Millsap Road
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www.olsson.com

REGISTERED PROFESSIONAL ENGINEER
STATE OF ARKANSAS
NO. 13205
JERRY C. HARDIN
01/02/2020

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

FLOOR PLAN, SECTION, SCHEDULES & NOTES

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS
2020

drawn by: K.ROWETT
checked by: C.HARDIN
approved by: C.HARDIN
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET
S101

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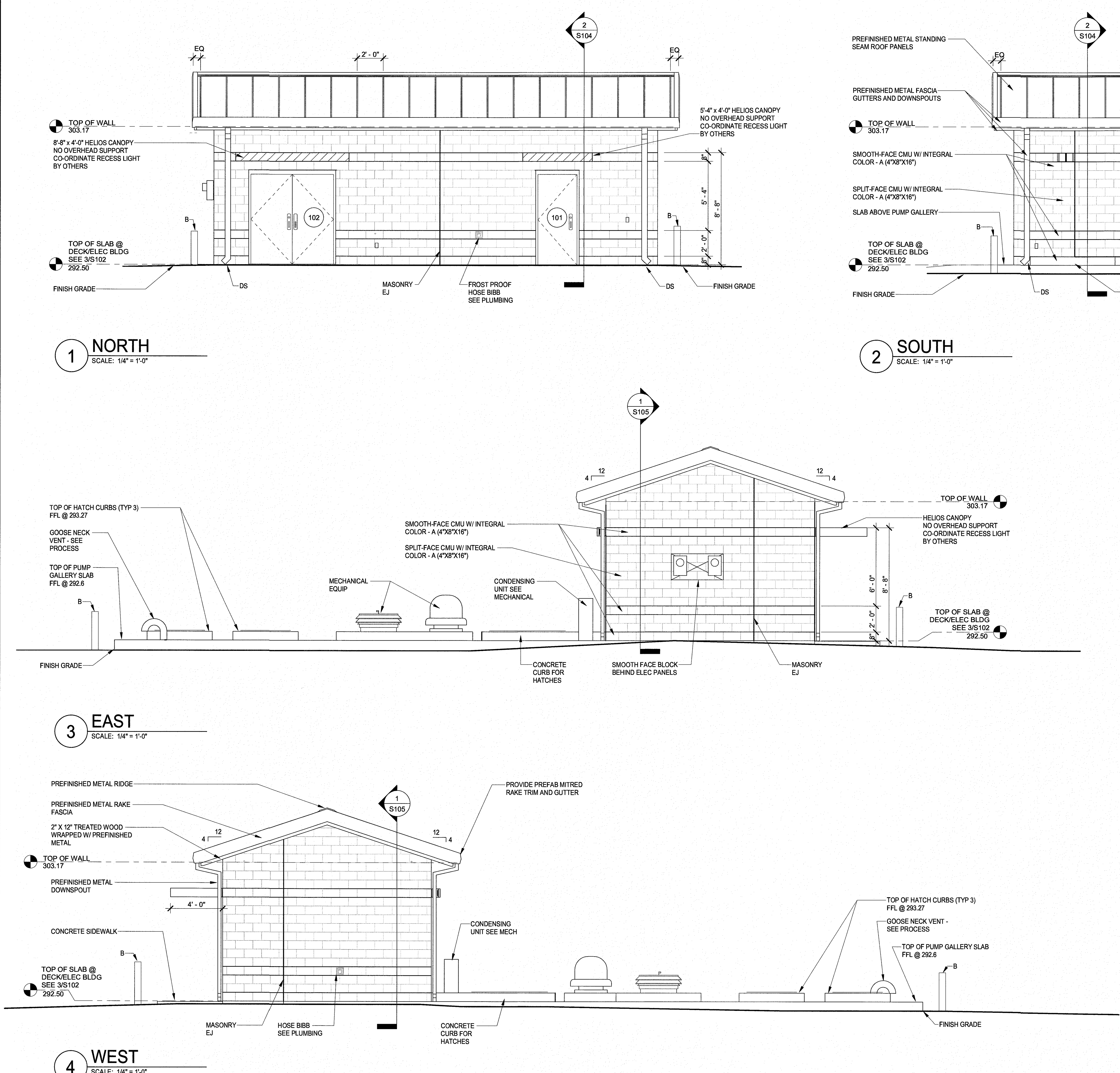

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STATE OF ARKANSAS
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No. 13205
C. HARDIN

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

ELEVATIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS

2020

drawn by:	K.ROWETT
checked by:	C.HARDIN
approved by:	C.HARDIN
QA/QC by:	M.MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
S102

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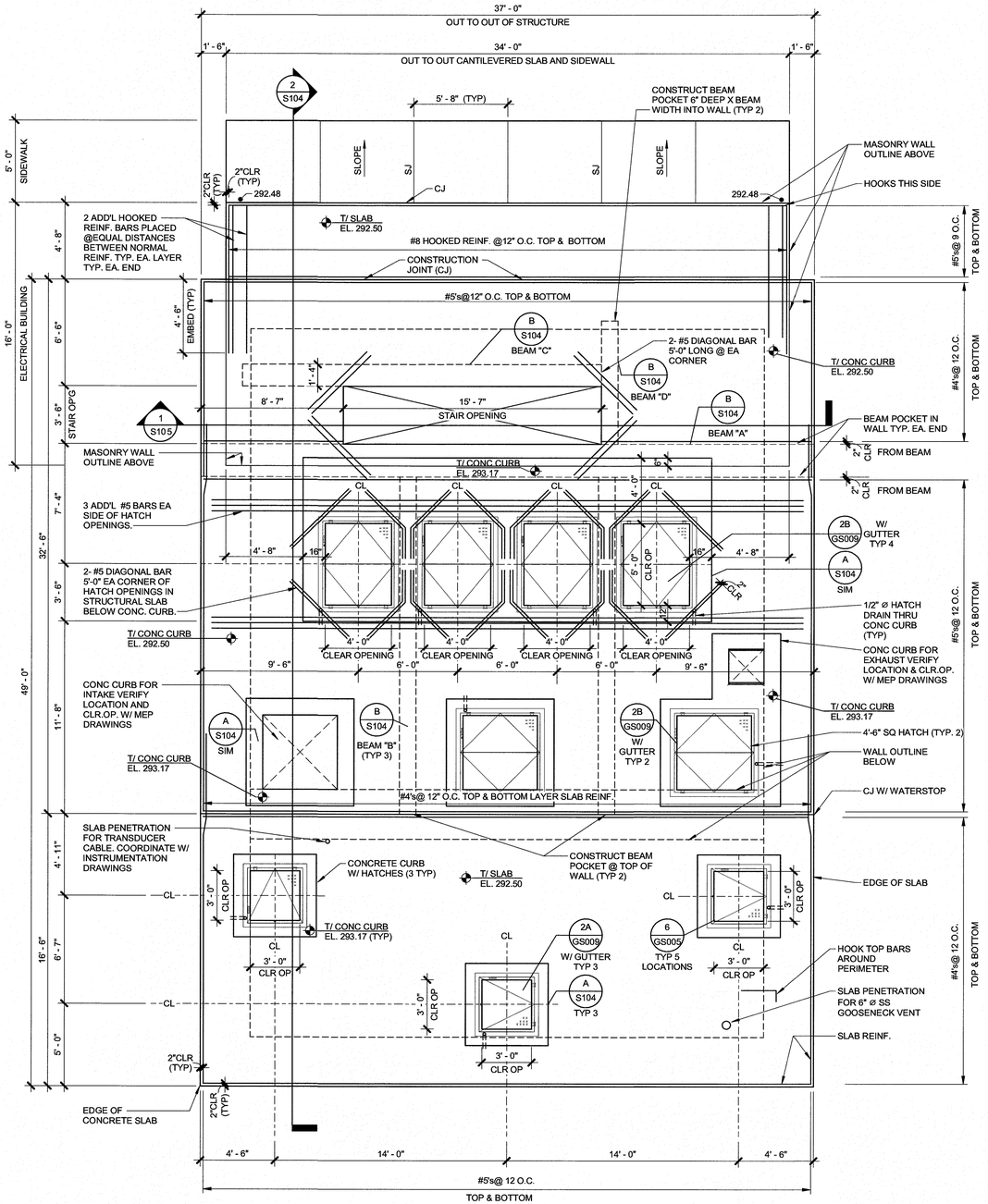
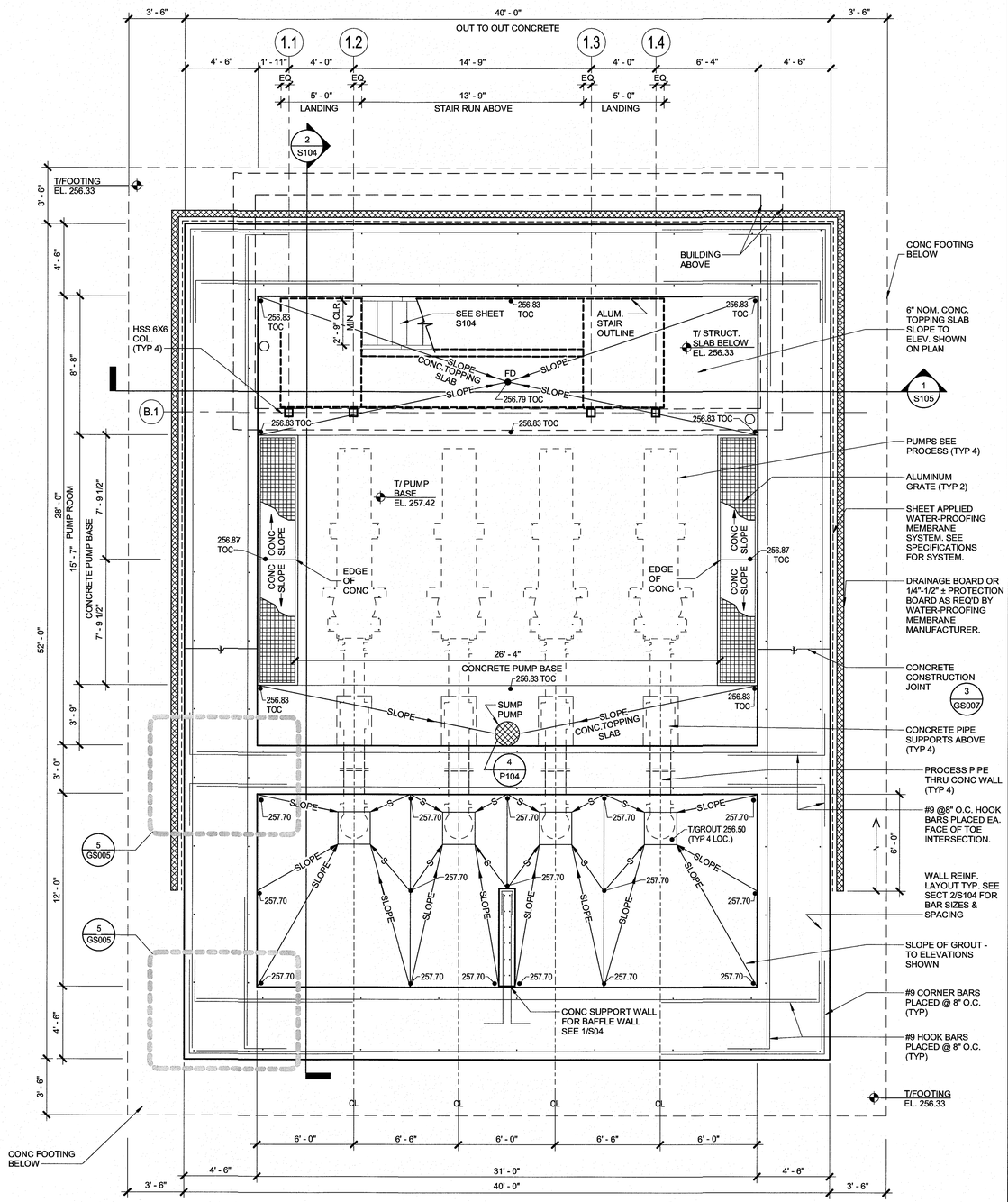


NORTH

3 TOP OF SLAB @ FFL 292.5

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



NORTH

4 BUILDING SECTION @ ELEV 259.50

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

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ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
CARY C. HARDIN
01/02/20

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

STRUCTURAL PLANS - BELOW GROUND

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K.ROWETT
checked by:	A.STENGEL
approved by:	C.HARDIN
QA/QC by:	M.MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
S103

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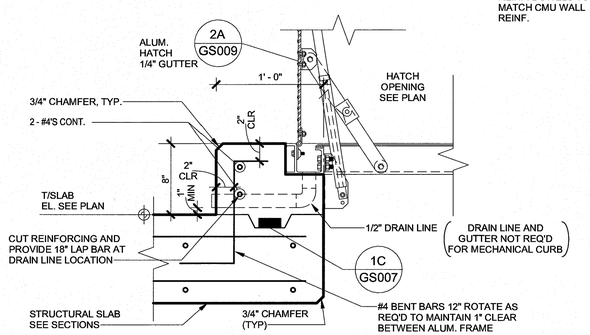
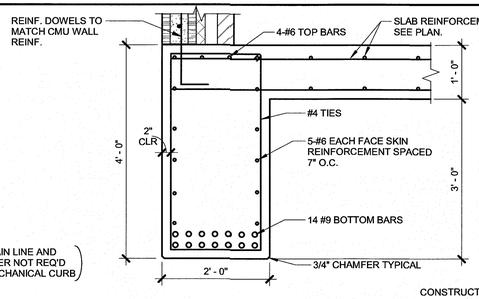


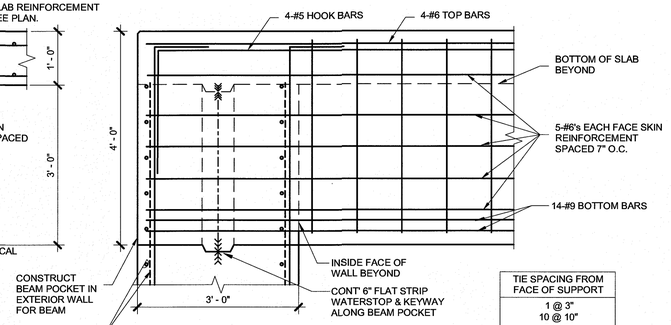
A CONCRETE CURB @ HATCH

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

MECHANICAL CONCRETE CURB SIM



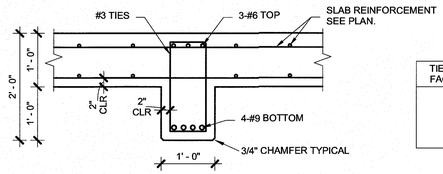
SECTION



ELEVATION

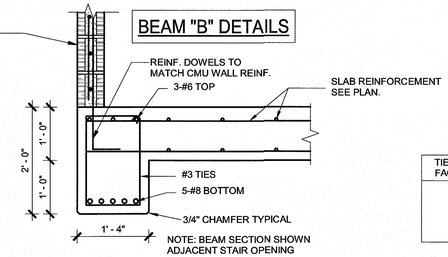
BEAM "A" DETAILS

TIE SPACING FROM FACE OF SUPPORT
1 @ 3"
10 @ 10"
5 @ 6"
5 @ 21"
5 @ 6"
10 @ 10"
1 @ 3"



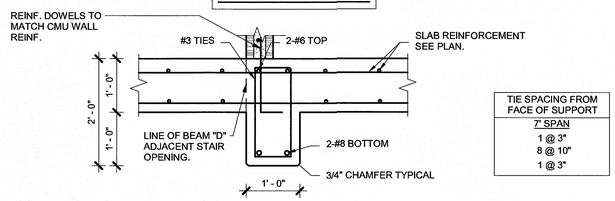
TIE SPACING FROM FACE OF SUPPORT
1 @ 3"
17 @ 4"
10 @ 10"
17 @ 4"
1 @ 3"

BEAM "B" DETAILS



TIE SPACING FROM FACE OF SUPPORT
1 @ 3"
8 @ 10"
4@ 22"
8 @ 10"
1 @ 3"

BEAM "C" DETAILS

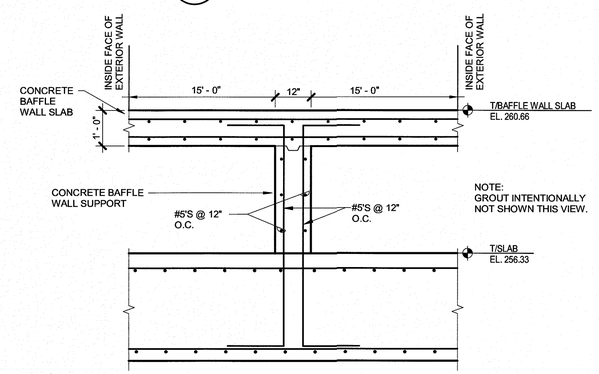


TIE SPACING FROM FACE OF SUPPORT
7' SPAN
1 @ 3"
8 @ 10"
1 @ 3"

BEAM "D" DETAILS

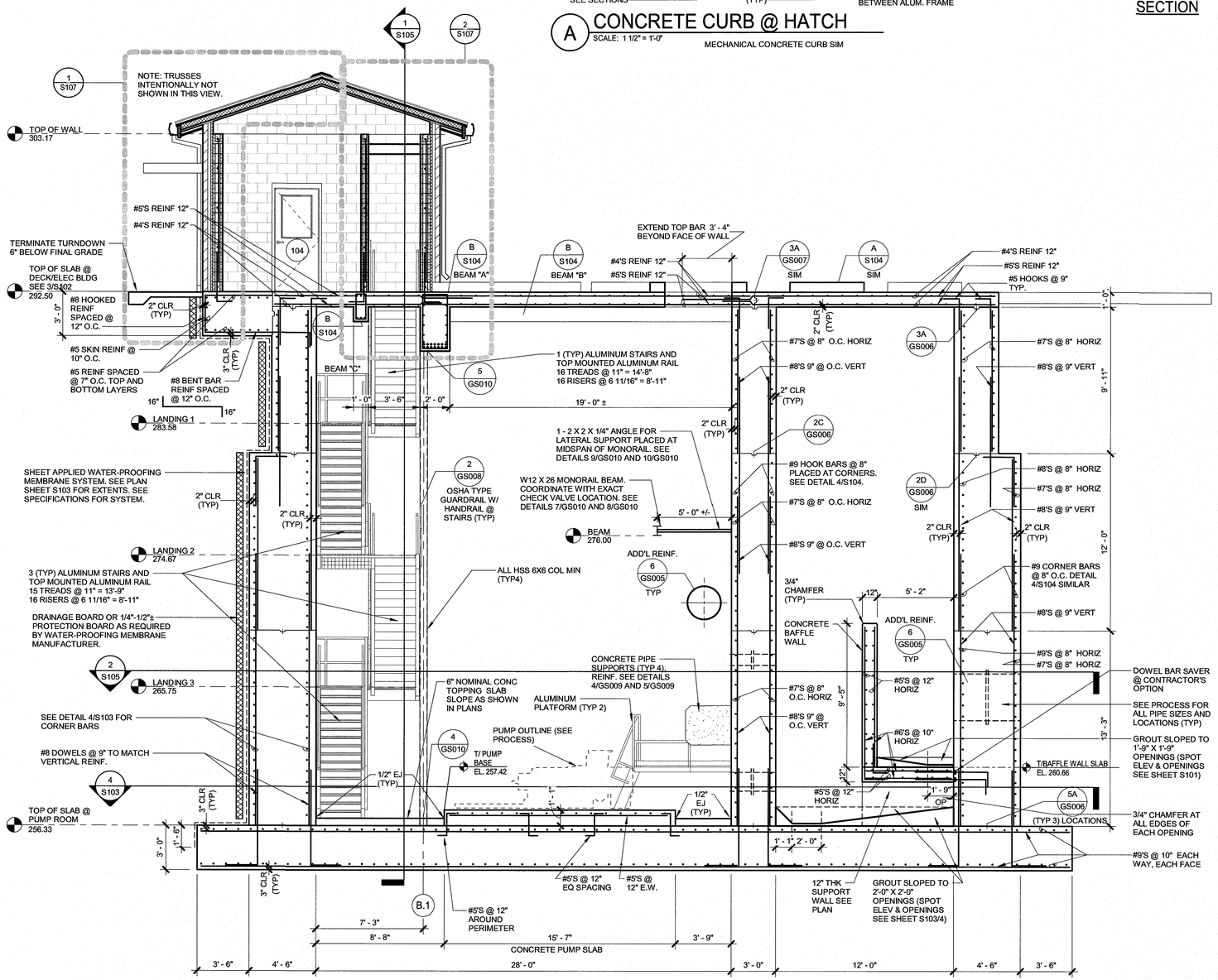
B BEAM DETAILS

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



1 BAFFLE WALL

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



2 BUILDING SECTION N-S

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

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STATE OF ARKANSAS
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NO. 13205
LARRY C. HARDIN
01/02/2020

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

BUILDING SECTIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K. ROWETT
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SHEET S104

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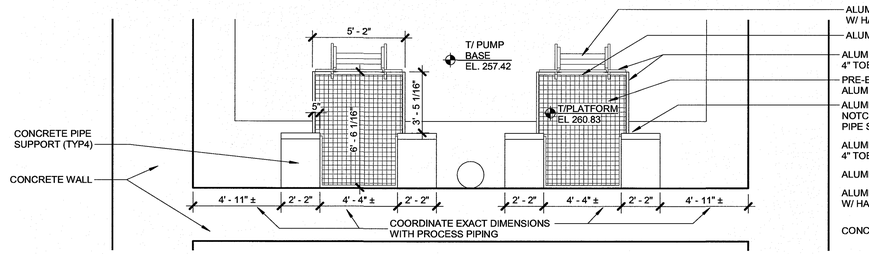
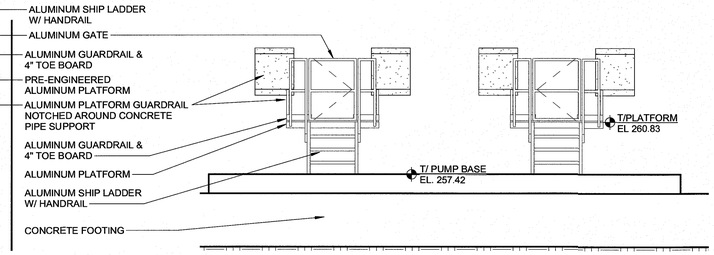


2 PREFAB ALUMINUM PLATFORM - PLAN

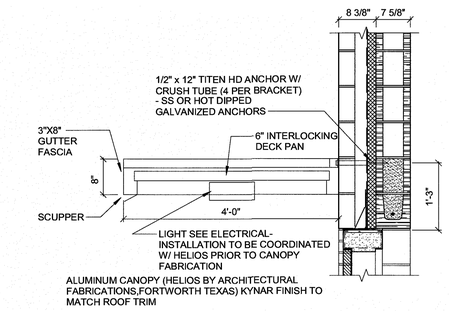
SCALE: 1/4" = 1'-0"

ALUMINUM PLATFORM GRATING SURFACE INSET STRUCTURAL MEMBERS AS REQUIRED FOR CLEARANCES. GUARDRAIL AS REQ'D BY OSHA (TYP 2)



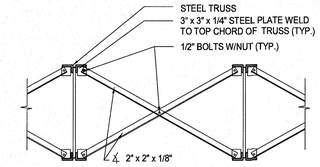
3 PREFAB ALUMINUM PLATFORM-ELEV

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



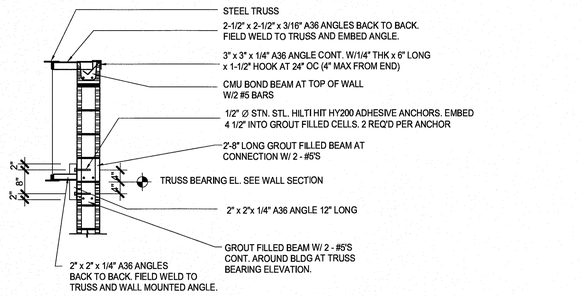
4 PREFABRICATED CANOPY DETAIL

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



A TRUSS X - BRACING DETAIL

1/2" = 1'-0"

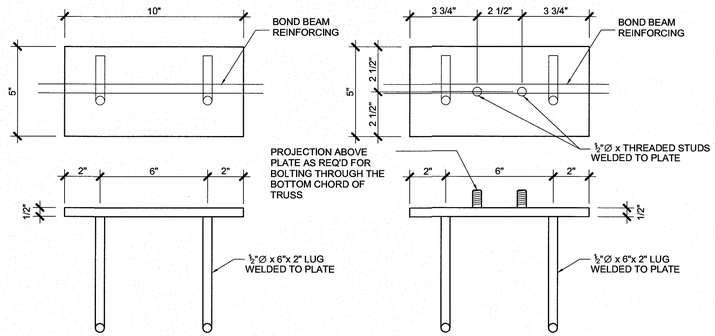


B BRACING DETAIL

1/2" = 1'-0"

5 TRUSS BRACING

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



A TRUSS BEARING PLATE BP1

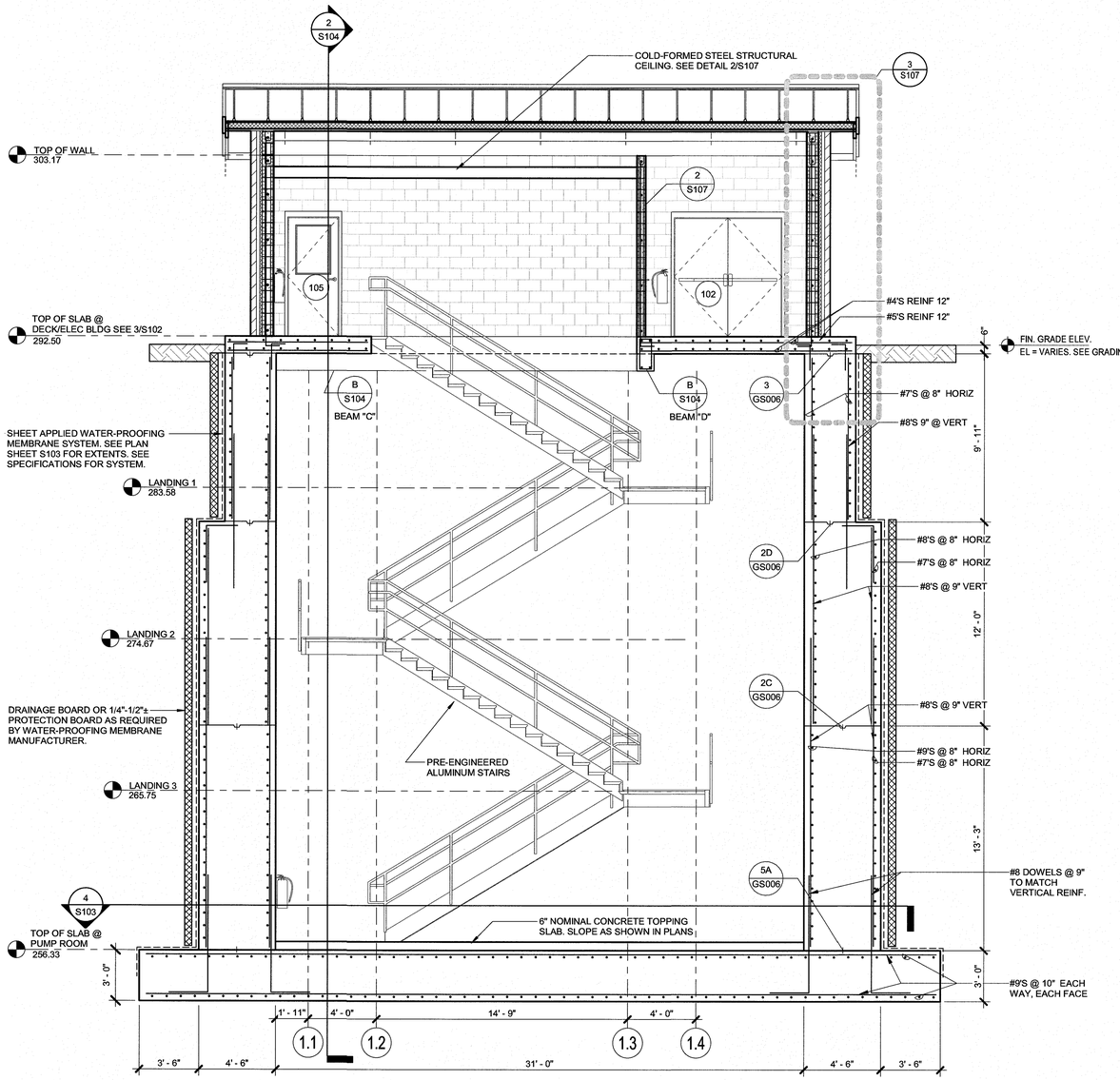
3" = 1'-0"

B TRUSS BEARING PLATE BP2

3" = 1'-0"

6 TRUSS BEARING

SCALE: 3" = 1'-0"



1 BUILDING SECTION E-W

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

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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO. 13205 LARRY C. HARDIN 01/02/2020

REVISIONS			
REV. NO.	DATE	REVISION DESCRIPTION	BY

BUILDING SECTIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K. ROWETT
checked by:	A. STENGEL
approved by:	C. HARDIN
QA/QC by:	M. MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET S105

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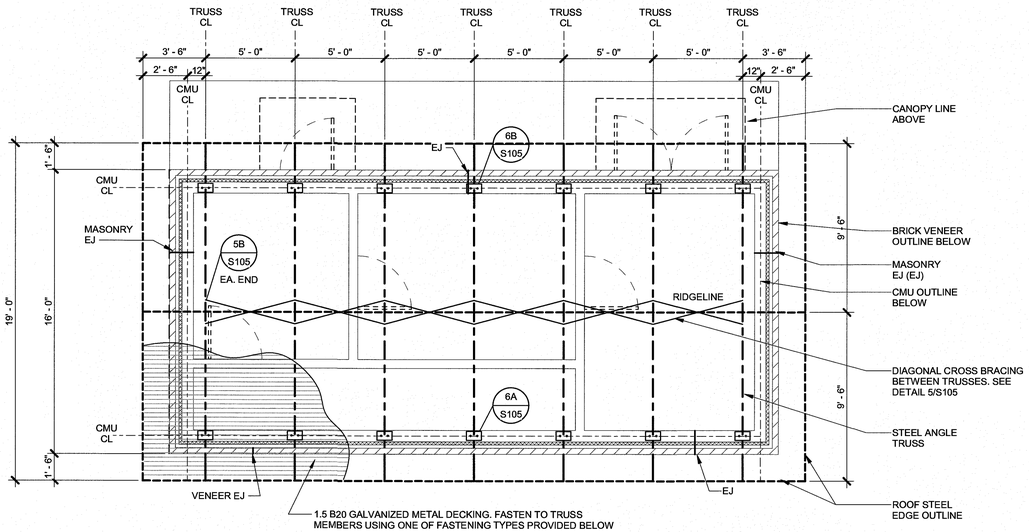


1.5 B20 GALVANIZED METAL DECKING. FASTEN TO TRUSS MEMBERS USING ONE OF FASTENING TYPES PROVIDED BELOW

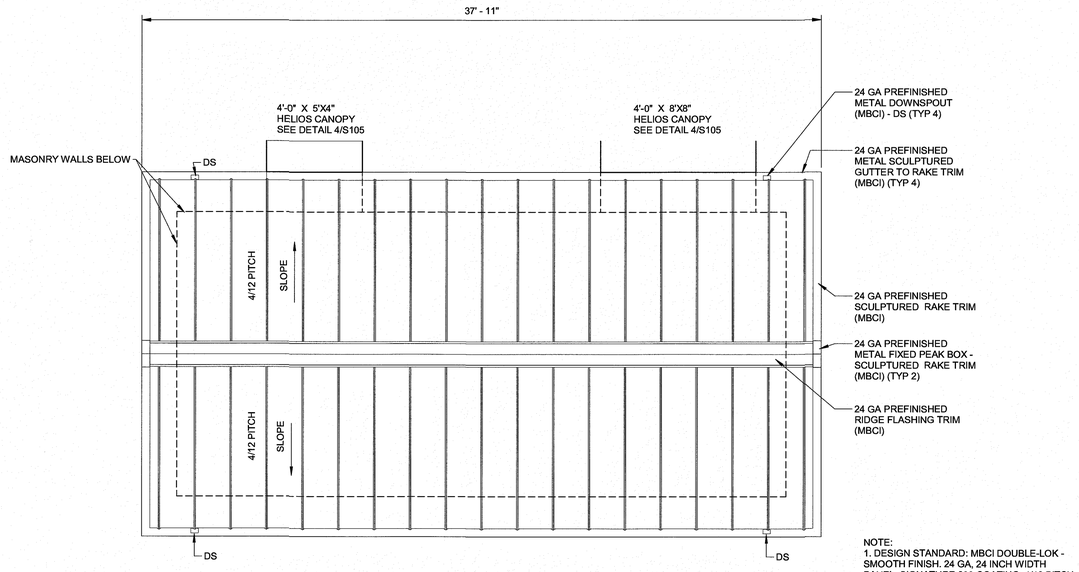
TYPE 1: 5/8" PUDDLE WELD ON A 36-4 PATTERN WITH 2-#10 TEK SCREW SIDELAP FASTENERS PER SPAN. EQUALLY SPACE TEK SCREWS BETWEEN TRUSS SUPPORTS.

TYPE 2: AT HILTI X-HSN FASTENERS ON A 36-4 PATTERN AND 2-#10 TEK SIDELAP FASTENERS PER SPAN. EQUALLY SPACE TEK SCREWS BETWEEN TRUSS SUPPORTS.

NORTH

2 ROOF FRAMING PLAN

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



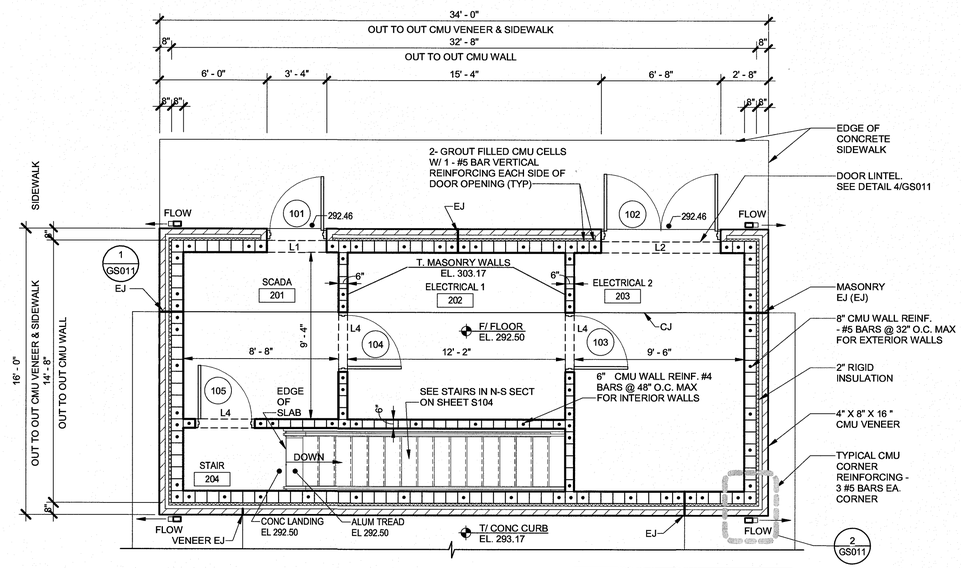
NOTE:
1. DESIGN STANDARD: MBCI DOUBLE-LOK - SMOOTH FINISH. 24 GA, 24 INCH WIDTH PANEL, SIGNATURE 300 COATING. 4/12 PITCH ROOF, CONCEALED FASTENING.

2. ALL GUTTER, RAKE, DOWN SPOUTS & SPECIAL TRIM TO BE PRESHAPED FROM MANUFACTURER. MATERIAL GAUGE, FINISH & COLOR TO BE EQUAL TO & MATCH ROOF PANELS.

NORTH

3 ROOF PLAN

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



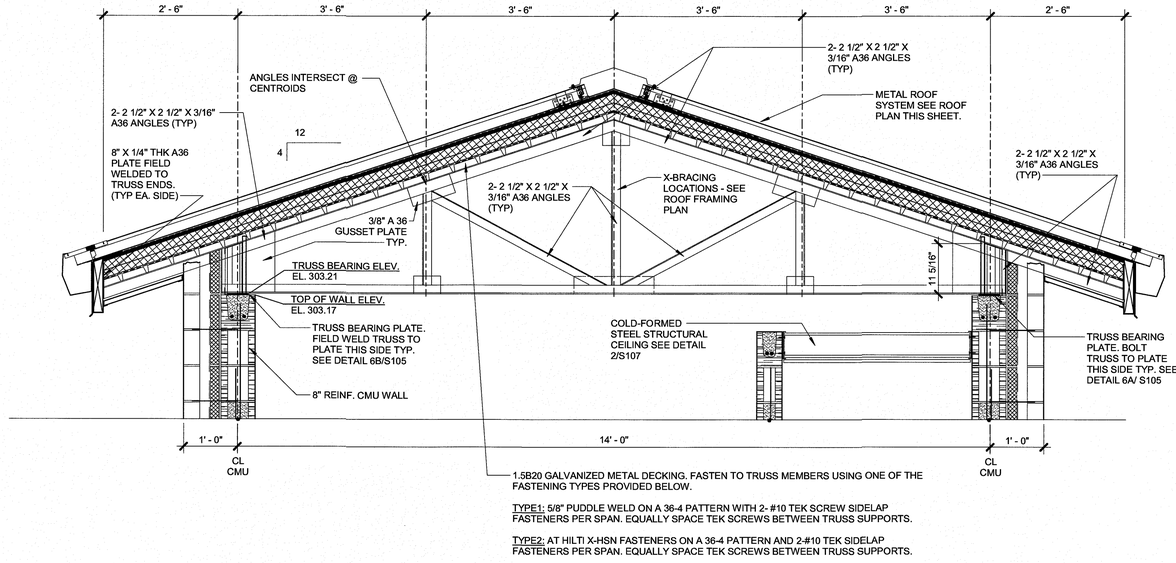
NORTH

1 BUILDING CMU PLAN

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

LEGEND

	4" X 8" X 16" CMU VENEER
	RIGID INSULATION
	REINFORCED CMU WALL



1.5B20 GALVANIZED METAL DECKING. FASTEN TO TRUSS MEMBERS USING ONE OF THE FASTENING TYPES PROVIDED BELOW.

TYPE1: 5/8" PUDDLE WELD ON A 36-4 PATTERN WITH 2- #10 TEK SCREW SIDELAP FASTENERS PER SPAN. EQUALLY SPACE TEK SCREWS BETWEEN TRUSS SUPPORTS.

TYPE2: AT HILTI X-HSN FASTENERS ON A 36-4 PATTERN AND 2-#10 TEK SIDELAP FASTENERS PER SPAN. EQUALLY SPACE TEK SCREWS BETWEEN TRUSS SUPPORTS.

4 ROOF TRUSS

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

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN
01/02/2020

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

STRUCTURAL PLANS - BUILDING

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K. ROWETT
checked by:	A. STENGEL
approved by:	C. HARDIN
QA/QC by:	M. MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
S106

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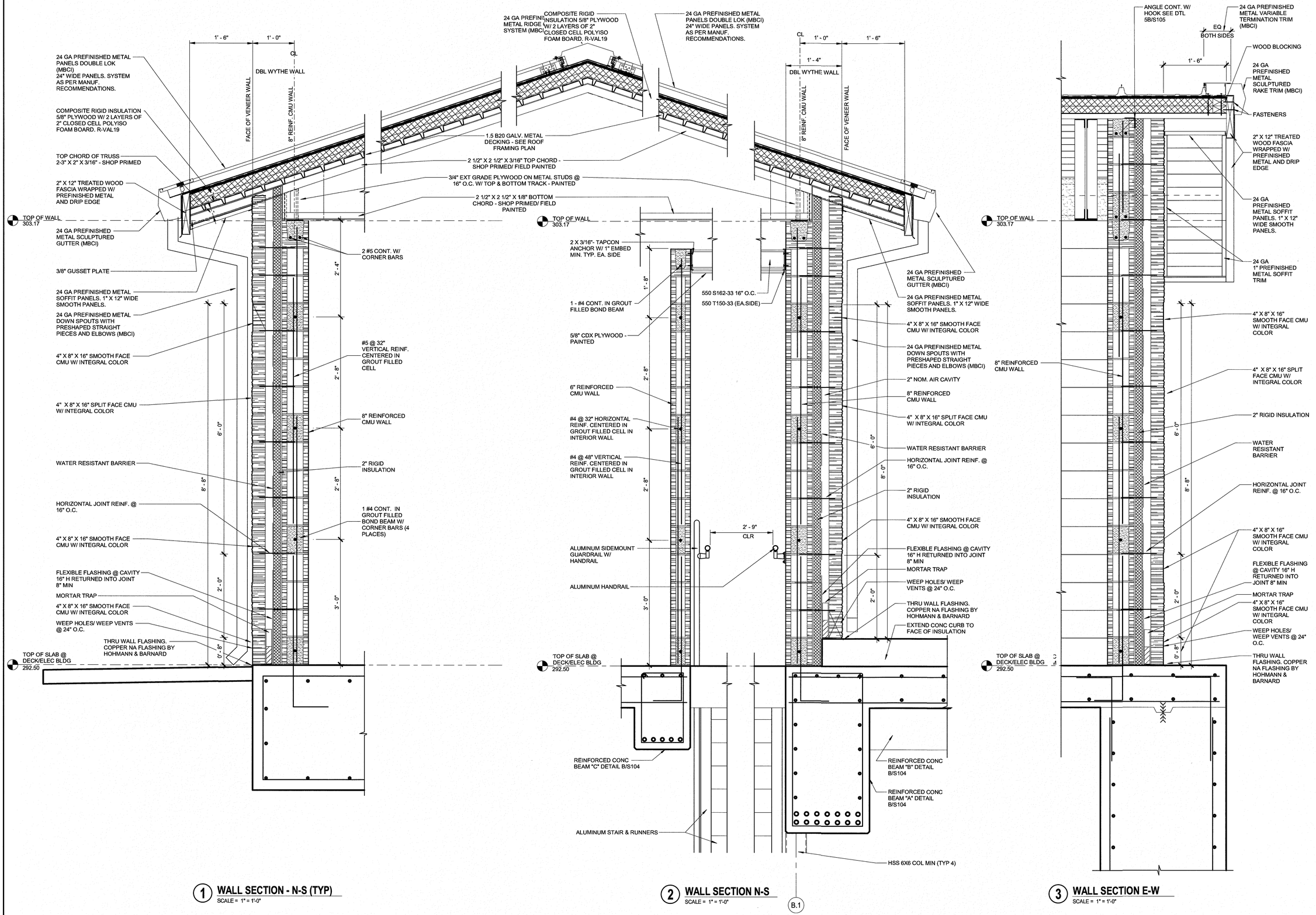

1 **WALL SECTION - N-S (TYP)**
SCALE = 1" = 1'-0"

2 **WALL SECTION N-S**
SCALE = 1" = 1'-0"

3 **WALL SECTION E-W**
SCALE = 1" = 1'-0"

B.1

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REGISTERED PROFESSIONAL ENGINEER
NO. 13205
LARRY C. HARDIN

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

WALL SECTIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	K.ROWETT
checked by:	A.STENGEL
approved by:	C.HARDIN
QA/QC by:	M.MILIUS
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
S107

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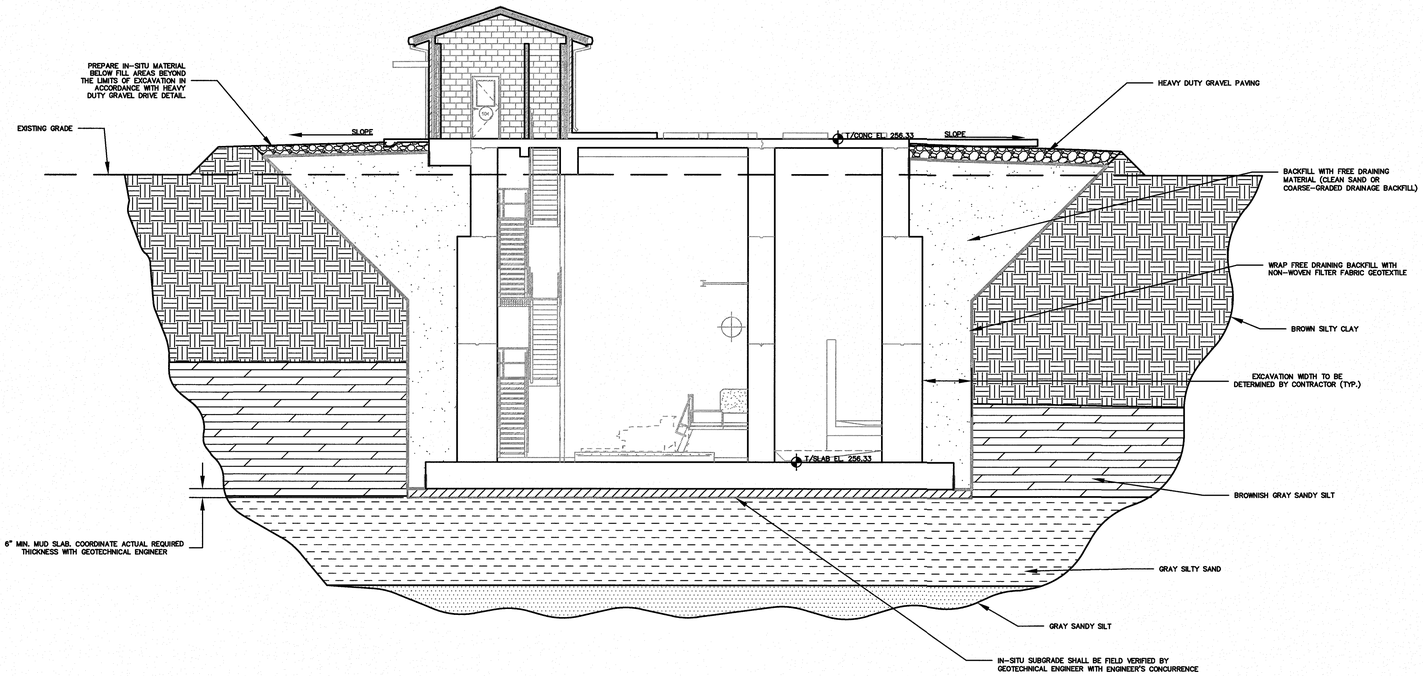

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13205
LARRY C. HARDIN
01/10/2020

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

BACKFILL PLAN

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

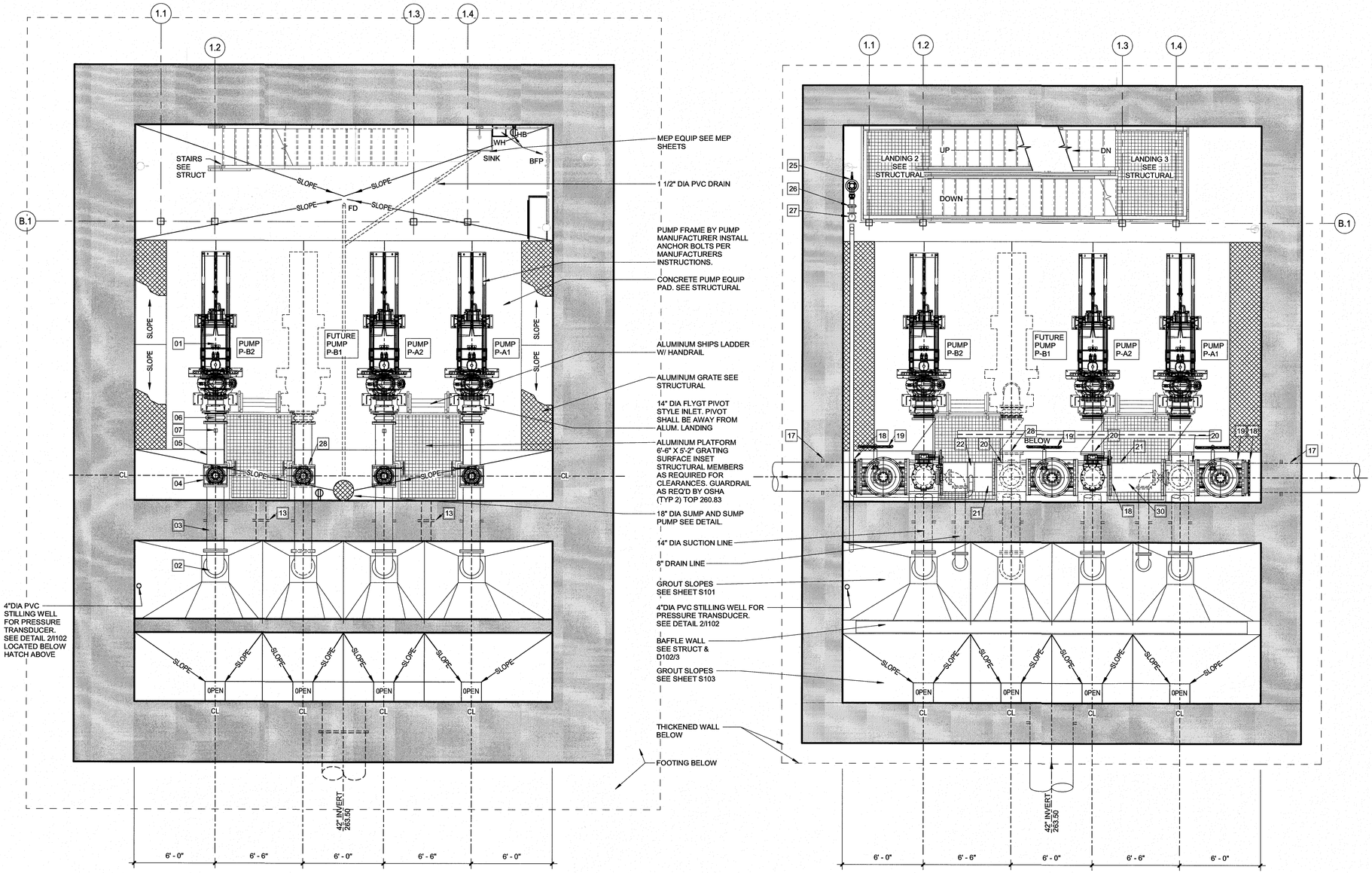
JONESBORO, ARKANSAS

2020

drawn by: K. ROWETT
checked by: A. STENGEL
approved by: C. HARDIN
QA/QC by: M. MILIUS
project no.: 018-0054
drawing no.:
date: 01/02/2020

SHEET
S108

DWG: \\oa.ad.oaconsulting.com\ite-rns1\projects-direct\2018\0001-0500\018-0054\40-Design\AutoCAD\Final Plans\Sheets_Main Lift Station\Structural\S-S108-0180054.dwg USER: krowett
DATE: Dec 31, 2019 8:58am XREFS: S_TBLK_0180054



NORTH

1 PROCESS PIPING PLAN @ EL 261.50

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

NORTH

2 PROCESS PIPING PLAN @ EL 280.00

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

PIPING SCHEDULE

ITEM #	DESCRIPTION	QUANTITY
1	FLYGT NP3312/766 HORIZONTAL SUBMERSIBLE DRY PIT PUMP	3
2	14"Ø FL X FLARE 90°, SHORT RADIUS	4
3	14"Ø FL X FL WALL PIPE	4
4	14"Ø FL X FL PLUG VALVE W/ HANDWHEEL	8
5	14"Ø FL X FL SPOOL	3
6	14"Ø FILLED ARCH EXPANSION JOINT	6
7	PRESSURE GAUGE/ VALVE ASSEMBLY	8
8	12" X 14" Ø FL X FL REDUCING 90° ELBOW	3
9	14"Ø FL X FL CHECK VALVE	3
10	14"Ø FL X FL LONG RADIUS 90° ELBOW	4
11	14" MEGAFLANGE, EBAA SERIES 2100	4
12	14"Ø X 8" FL X FL TEE	2
13	8"Ø FL X FL WALL PIPE	2
14	8"Ø FL X FL SHORT RADIUS 90° ELBOW	4
15	8"Ø FL X FL PLUG VALVE	2
16	SUMP PUMP AND DISCHARGE VALVING & PIPING. SEE DETAIL ON SHEET P104.	1
17	24"Ø WALL PIPE PE X PE	2
18	24"Ø MEGA FLANGE, EBAA SERIES 2100	3
19	24"Ø FL X FL PLUG VALVE W/ CHAINWHEEL	3
20	24"Ø X 14"Ø FL X FL TEE	4
21	24"Ø FL X FL SPOOL	1
22	3"Ø X 24"Ø SS SERVICE SADDLE, STYLE 305 BY ROMAL INDUSTRIES	1
23	3"Ø BALL VALVE, SS	2
24	3"Ø UNION, SS	1
25	3"Ø THREADED ARI D23 COMBINATION SEWAGE AIR/ VACUUM VALVE W/ NON SLAM, SS	1
26	3"Ø UNION, PVC	1
27	3"Ø BALL VALVE, PVC	1
28	14"Ø BLIND FLANGE	2
29	14" Ø FL X PE SPOOL	4
30	24" Ø FL X PE SPOOL	1

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14487
CHRIS DOUGHERTY
1/2/20

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

PROCESS PIPING PLANS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: C.DOUGHERTY
approved by: C.DOUGHERTY
QA/QC by: M.MILLIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET
P101

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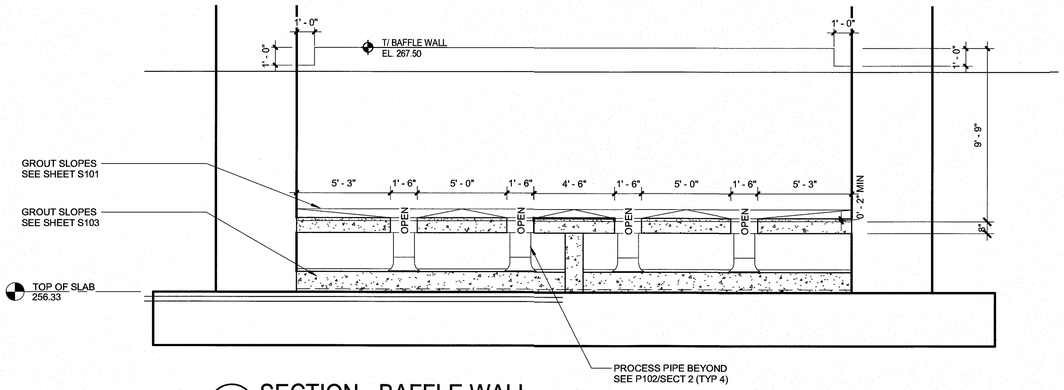
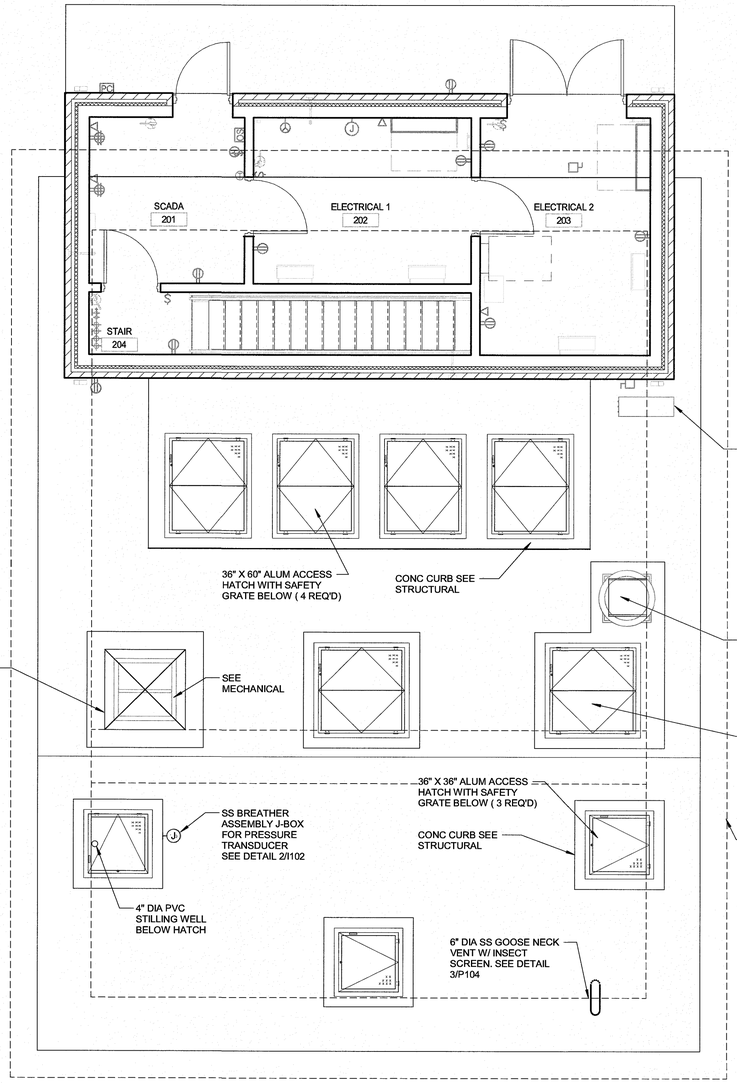
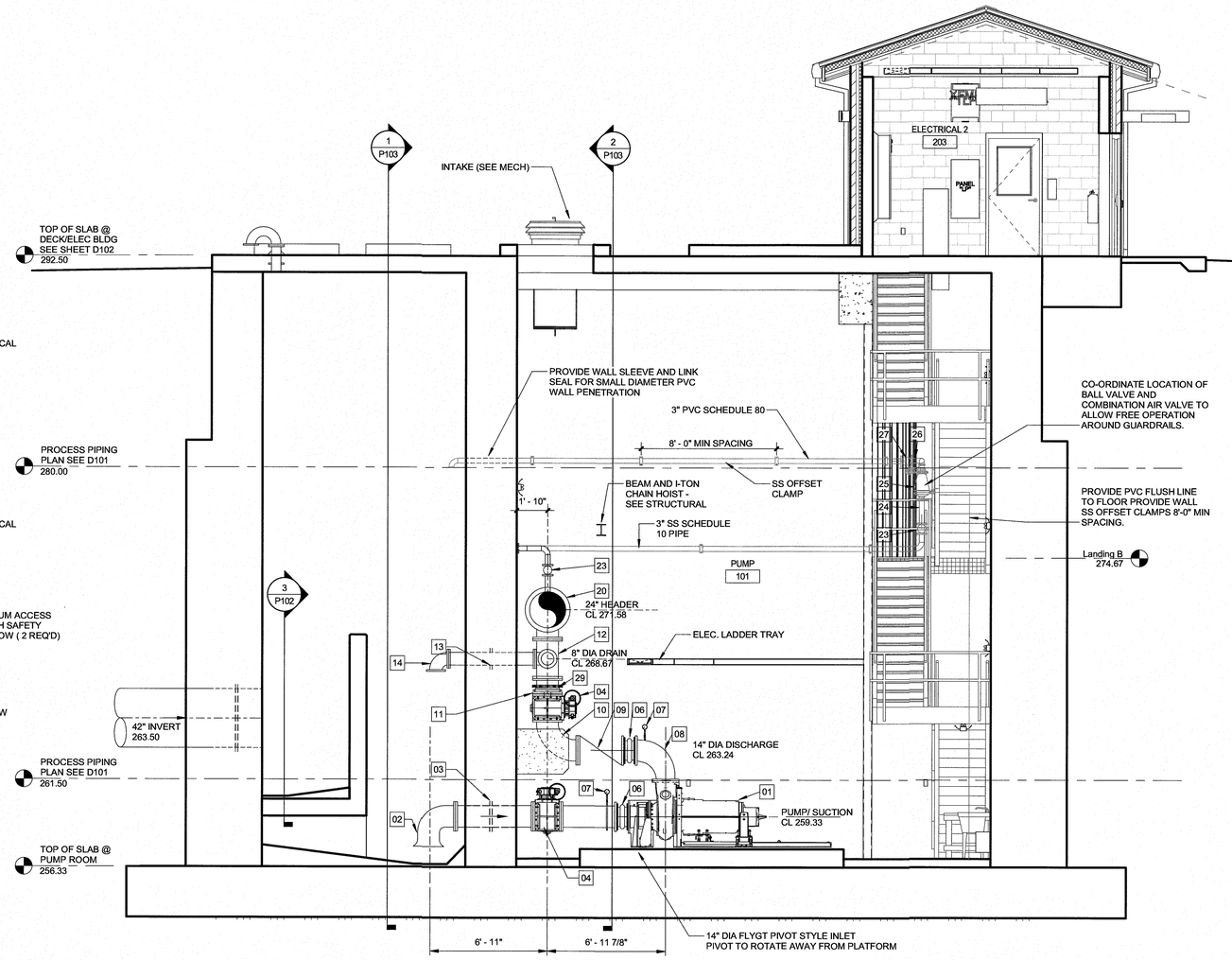


3 SECTION - BAFFLE WALL
SCALE: 1/4" = 1'-0"



1 TOP OF SLAB @ DECK/ ELECTRICAL BUILDING
SCALE: 1/4" = 1'-0"



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

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STATE OF ARKANSAS
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No. 14497
CONSTRUCTION DOCUMENTS
12/20

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

PLAN AND SECTIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: C.DOUGHERTY
approved by: C.DOUGHERTY
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

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P102

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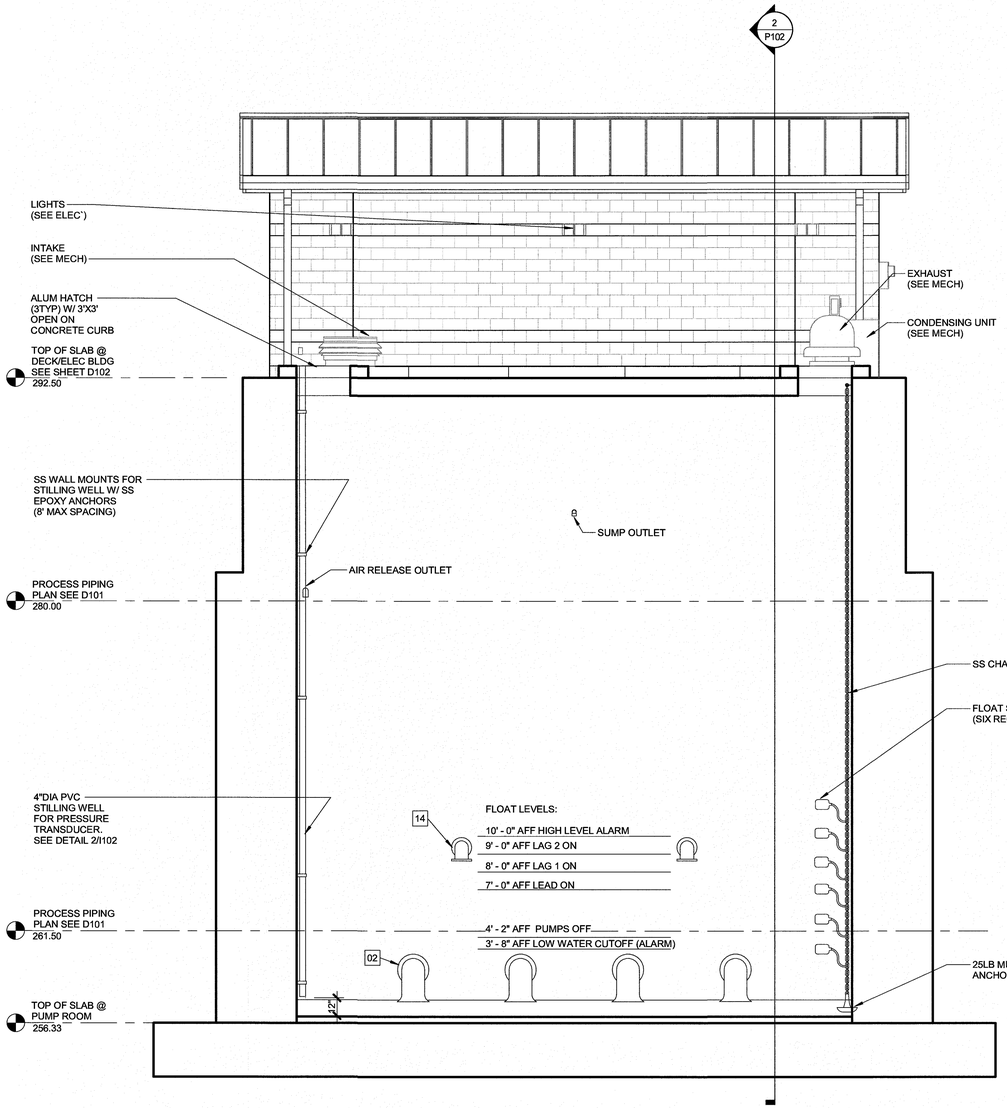
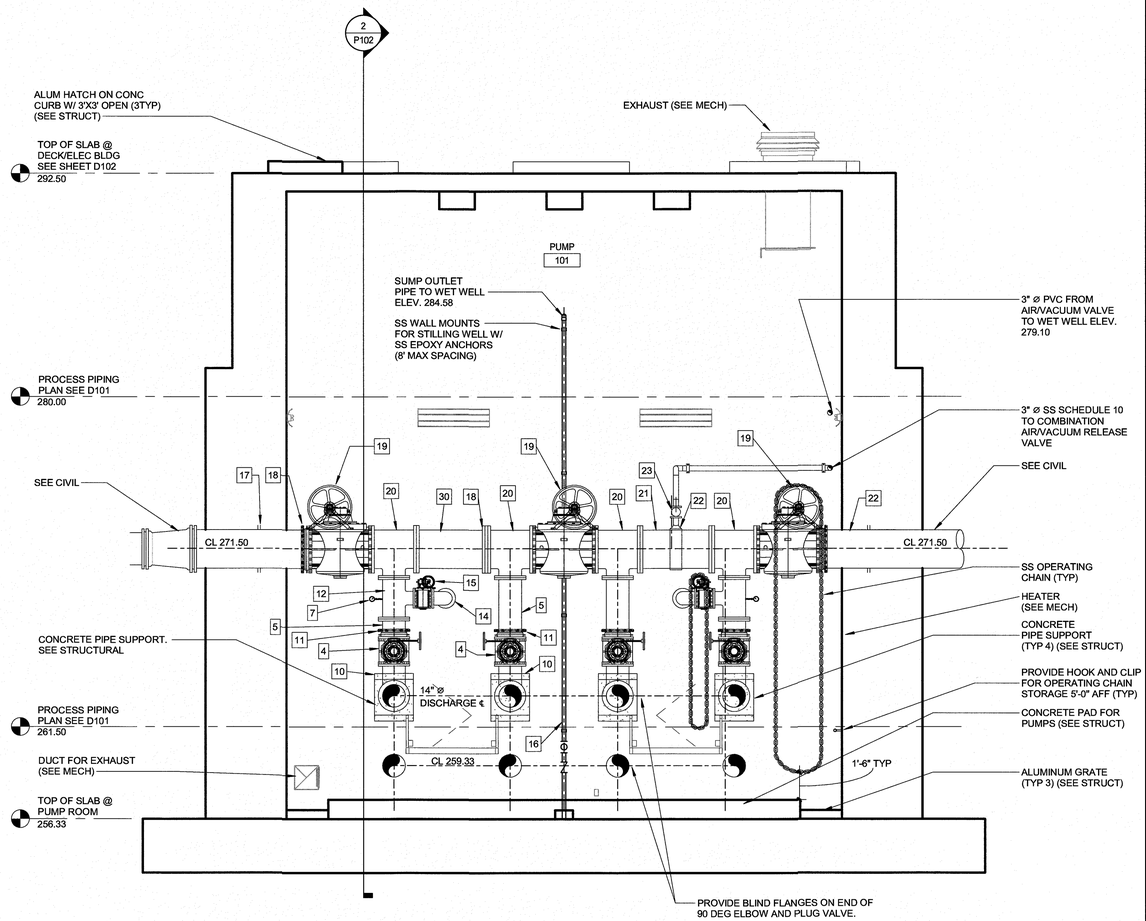


1 SECTION W-E
SCALE: 1/4" = 1'-0"



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

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STATE OF ARKANSAS
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No. 14487
C. DOUGHERTY
1/1/20

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

SECTIONS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: C.DOUGHERTY
approved by: C.DOUGHERTY
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project no.: 018-0054
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SHEET
P103

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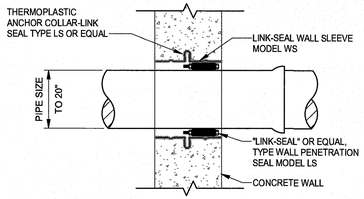
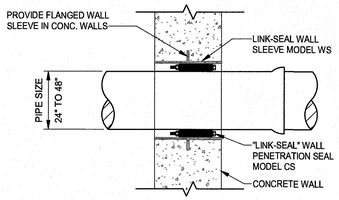
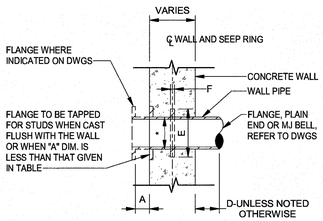


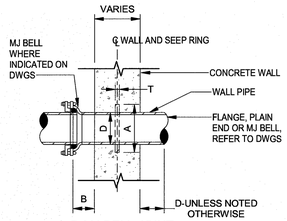
TYPE A
FOR PIPE DIAMETERS TO 20"



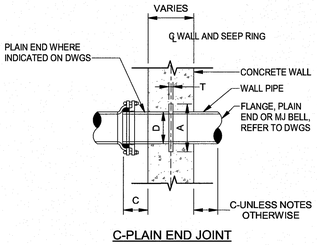
TYPE B
FOR PIPE DIAMETERS 20" TO 48"



A-FLANGED JOINT



B-MJ BELL JOINT



C-PLAIN END JOINT

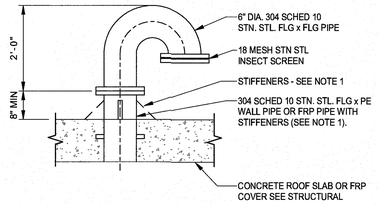
TABLE 1

* PIPE SIZE	JOINT TYPE			CLR. DIM.	WALL COLLAR	
NOMINAL	A	B	C	D(MIN)	E(MIN)	F
4	2.25	5.75	6	6	8	.5
6	2.75	5.75	6	8	10	.5
8	2.75	6.25	6.5	9	12.5	.5
10	3	6.5	6.5	9	14.5	.5
12	3	6.5	6.5	9	16.5	.5
14	3.5	7	7.75	9	19.5	.75
16	3.5	7.25	7.75	9	21.75	.75
18	3.75	7.5	7.75	9	23.75	.75
20	3.75	7.5	7.75	9	25.75	.75
24	4	8	8.25	12	30.25	.75
30	5	9.5	9.75	12	36.5	1.0
36	5.25	9.75	9.75	12	43	1.0
42	5.5	10	10	12	49.5	1.25
48	6	10	10	12	56.5	1.25
54	6.25	-	-	-	63	1.5
60	6.5	-	-	-	70.25	1.5
64	6.75	-	-	-	74.88	1.5

NOTE: ALL DIMENSIONS SHOWN ARE INCHES.

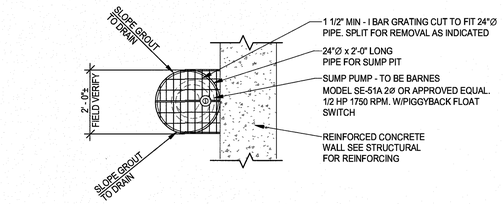
1 P104 PIPE PENETRATION DETAIL - "LINK SEAL"
NOT TO SCALE

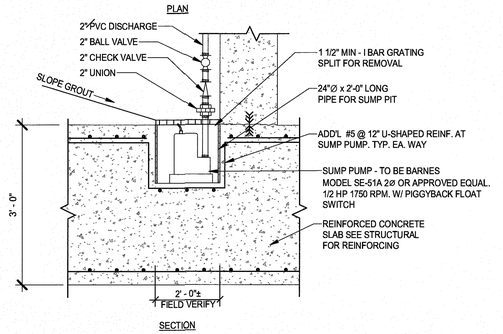
2 P104 PIPE PENETRATION DETAIL D.I. WALL OR FLOOR PIPE
NOT TO SCALE



NOTES:
1. FOR CONNECTION WITH FRP COVERS ONLY, COVER MANUFACTURER SHALL PROVIDE FLANGED FRP CONNECTION INSTEAD OF STN STL. WALL PIPE SHOWN. CONNECTION SHALL BE DESIGNED BY COVER MANUFACTURER AND REINFORCED WIITH FRP STIFFENERS.

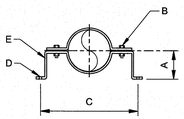
3 P104 GOOSAENECK VENT PIPE DETAIL
NOT TO SCALE





4 P104 SUMP PUMP DETAIL - ITEM 16
NOT TO SCALE

NOTE: 110V ELECTRICAL RECEPTACLE FOR SUMP PUMP NOT SHOWN, SEE ELECTRICAL.

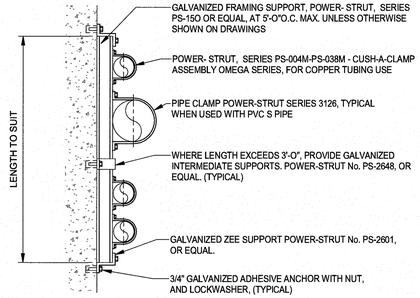


OFFSET CLAMP

* PIPE SIZE	OFFSET DISTANCE	BOLT SIZE	ANCHOR HOLES		STEEL SIZE
NOMINAL	A	B	C	DØ	E
1/2	2 1/2	3/8-16 x 1 1/2	6	7/16	3/16 x 1 1/4
3/4	2 1/2	3/8-16 x 1 1/2	7 5/16	7/16	3/16 x 1 1/4
1	2 5/8	3/8-16 x 1 1/2	7 9/16	7/16	3/16 x 1 1/4
1 1/4	2 13/16	3/8-16 x 1 1/2	7 7/8	7/16	3/16 x 1 1/4
1 1/2	2 15/16	3/8-16 x 1 1/2	8 1/4	7/16	3/16 x 1 1/4
2	3 3/16	3/8-16 x 1 3/4	9 1/8	7/16	1/4 x 1 1/4
2 1/2	3 7/16	3/8-16 x 1 1/2	10 1/2	7/16	1/4 x 1 1/4
3	3 3/4	3/8-16 x 1 1/2	11 1/8	7/16	1/4 x 1 1/4
4	4 1/4	1/2-13 x 2	12 1/2	9/16	1/4 x 1 1/2
5	4 3/4	1/2-13 x 2 1/4	13 3/4	9/16	1/4 x 1 1/2
6	5 5/16	1/2-13 x 2 1/4	16 1/2	9/16	3/8 x 1 1/2
8	6 5/16	1/2-13 x 2 1/2	18 5/8	9/16	3/8 x 1 1/2
10	7 3/4	3/4-10 x 3	23	13/16	3/8 x 3
12	8 3/4	3/4-10 x 3	25	13/16	3/8 x 3

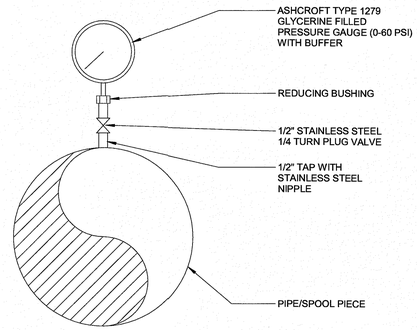
NOTE: ALL DIMENSIONS SHOWN ARE INCHES.

5 P104 OFFSET PIPE CLAMP
NOT TO SCALE



NOTE:
ALL UNISTRUT AND UNISTRUT FITTINGS, CLAMPS AND BOLTS, ARE TO BE TYPE 316 STAINLESS STEEL IN CHEMICAL FEED AREAS

6 P104 TYPE "A" - FLUSH MOUNT PIPE SUPPORT
NOT TO SCALE



7 P104 DETAIL PRESSURE GAUGE
NOT TO SCALE

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Chris Dougherty
No. 14437
CHRIS DOUGHERTY
1/2/20

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

PROCESS DETAILS

NEW WESTSIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: K.ROWETT
checked by: C.DOUGHERTY
approved by: C.DOUGHERTY
QA/QC by: M.MILIUS
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET
P104

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MECHANICAL SYMBOL LEGEND

STEAM

- BBD — BOILER BLOW DOWN
- CD — STEAM CONDENSATE DRAIN ABOVE GRADE
- CD — STEAM CONDENSATE DRAIN BELOW GRADE
- HPC — HIGH PRESSURE CONDENSATE
- HPS — HIGH PRESSURE STEAM
- MPC — MEDIUM PRESSURE CONDENSATE
- MPS — MEDIUM PRESSURE STEAM
- LPC — LOW PRESSURE CONDENSATE
- LPS — LOW PRESSURE STEAM
- STEAM TRAP

HYDRONIC

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- MU — MAKE-UP WATER
- HHWR — HEATING WATER RETURN
- HHWS — HEATING WATER SUPPLY
- HCWR — HOT/CHILLED WATER RETURN
- HCWS — HOT/CHILLED WATER SUPPLY
- HPR — HEAT PUMP RETURN
- HPS — HEAT PUMP SUPPLY
- CTR — COOLING TOWER RETURN
- CTS — COOLING TOWER SUPPLY
- CR — CONDENSER WATER RETURN
- CS — CONDENSER WATER SUPPLY
- ERR — ENERGY RECOVERY RETURN
- ERS — ENERGY RECOVERY SUPPLY
- AUTOMATIC AIR VENT
- MANUAL AIR VENT

SITE

- W — WATER SERVICE
- CURB STOP VALVE
- SAN — SANITARY SEWER (SITE)
- POST INDICATOR VALVE
- PIV — POST INDICATOR VALVE WITH TAMPER SWITCH
- F — BUILDING SPRINKLER FIRE MAIN
- SS — STORM SEWER (SITE)
- SD — STORM DRAIN
- THRUST BLOCK
- LS — LAWN SPRINKLER
- W — WATER MAIN
- W — WELL
- YHT — YARD HYDRANT
- TREE
- X — X — WIRE FENCE
- GAR — GAS RISER
- [GM] — GAS METER
- [ER] — ELECTRICAL RISER
- [SB] — SWITCH BOX
- PRP — PROPERTY CORNER
- CONTROL POINT
- BENCHMARK
- MLB — MAIL BOXES
- WDP — WOODEN POST
- TIE DOWN
- CONCRETE
- GRAVEL

GENERAL

- EXISTING
- DEMOLITION
- NEW
- NEW TO EXISTING
- # — SHEET KEYNOTE
- # — REVISION DELTA
- PIPE UP OR DUCT UP
- PIPE OR DUCT DOWN
- PIPE OR DUCT CAP
- PIPE ANCHOR
- PIPE GUIDE
- PIPE ROLLER SUPPORT
- FLOW DIRECTION ARROW
- PIPE EXPANSION JOINT
- FLEXIBLE CONNECTOR
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER

VALVES

- T&P RELIEF VALVE
- ISOLATION VALVE
- ISOLATION VALVE IN VERTICAL POSITION
- CHECK VALVE
- BALANCING VALVE
- AUTOMATIC 2-WAY VALVE
- AUTOMATIC 3-WAY VALVE
- PRESSURE REDUCING & REGULATING VALVE
- PRESSURE REGULATING VALVE
- DIAPHRAGM VALVE
- ANGLE VALVE
- STRAINER
- UNION

SPECIALTY SYSTEMS

- RO — REVERSE OSMOSIS
- OX — OXYGEN PIPING
- RD — REFRIGERANT DISCHARGE
- FOR — FUEL OIL RETURN
- FOS — FUEL OIL SUCTION
- FOV — FUEL OIL VENT
- G — NATURAL GAS
- LPG — LIQUID PETROLEUM GAS
- A — COMPRESSED AIR
- LR — LIQUID REFRIGERANT
- SR — SUCTION REFRIGERANT
- RL — PAIR REFRIGERANT LINES (SUCTION, LIQUID)
- P — PROPANE
- CO2 — CARBON DIOXIDE
- N — NITROGEN
- A — AIR OUTLET
- VAC — VACUUM (AIR)
- DI — DISTILLED WATER
- LV — LABORATORY VACUUM
- MV — MEDICAL VACUUM
- N2O — NITROUS OXIDE
- LOX — LIQUID OXYGEN
- LA — LABORATORY COMPRESSED AIR
- MA — MEDICAL COMPRESSED AIR
- DE — DEIONIZED WATER

SANITARY & DOMESTIC

- SANITARY DRAIN BELOW GRADE (PLAN)
- SANITARY DRAIN ABOVE GRADE (PLAN)
- COLD WATER (CW)
- HOT WATER (HW)
- HOT WATER CIRCULATING (HWC)
- SCW — SOFT COLD WATER
- SHW — SOFT HOT WATER
- 140 HW — 140°F DOMESTIC HOT WATER
- T — TEMPERED WATER
- TC — TEMPERED WATER CIRCULATING
- V — VENT
- VBF — VENT BELOW FLOOR
- AV — ACID VENT
- AW — ACID WASTE
- CD — CONDENSATE DRAIN PIPING
- RD — ROOF DRAIN (ABOVE GRADE)
- RD — ROOF DRAIN (BELOW GRADE)
- OD — OVERFLOW DRAIN (ABOVE GRADE)
- OD — OVERFLOW DRAIN (BELOW GRADE)
- SS — SUB-SOIL DRAIN (DRAIN TILE)
- FM — FORCE MAIN (PUMP DISCHARGE)

FIRE

- F — FIRE PROTECTION PIPING
- FIRE DEPARTMENT CONNECTION
- S — DUCT SMOKE DETECTOR AND RELAY
- TS — TAMPER SWITCH
- FS — FLOW SWITCH
- SPRINKLER HEAD, PENDANT
- SPRINKLER HEAD, SIDE WALL

FIXTURES

- WATER CLOSET AND TYPE
- URINAL AND TYPE
- LAVATORY OR SINK AND TYPE
- BATHTUB AND TYPE
- SHOWER AND TYPE
- SERVICE SINK OR MOP SINK AND TYPE
- ELECTRIC WATER COOLER AND TYPE
- VTR — VENT THRU ROOF
- RD-1 — ROOF DRAIN
- OD-1 — OVERFLOW DRAIN
- GCO — GRADE CLEAN OUT
- FCO — FLOOR CLEAN OUT
- WCO — WALL CLEAN OUT
- CO — HORIZ. CLEAN OUT
- FD-1/FS-1 — FLOOR DRAIN OR SINK AND TYPE
- HB-1 — HOSE BIBB
- WH-1 — WALL HYDRANT
- YH-1 — YARD HYDRANT
- DOWNSPOUT NOZZLE
- M — WATER/GAS METER

HVAC

- CD-1 8"ø 200 — CEILING DIFFUSER — DESIGNATION, NECK SIZE, CFM
- LD-1 4'-0" 300 — LINEAR DIFFUSER — DESIGNATION, DIFFUSER LENGTH, CFM
- R-1 10x6 250 — SUPPLY REGISTER — DESIGNATION, SIZE, CFM
- RG-1 12x12 250 — RETURN AIR GRILLE — DESIGNATION, SIZE, CFM (OPTIONAL)
- RG-1 12x6 250 — RETURN AIR GRILLE — DESIGNATION, SIZE, CFM (OPTIONAL)
- EG-1 12x8 300 — EXHAUST AIR GRILLE — DESIGNATION, SIZE, CFM
- T — THERMOSTAT
- H — HUMIDISTAT
- CO2 — CARBON DIOXIDE SENSOR
- 12x8 — RECTANGULAR DUCT (WxH)
- 12"ø — ROUND DUCT (DIA.)
- 12/8 — OVAL DUCT (W/H)
- SUPPLY AIR/OUTSIDE AIR UP AND DOWN
- RETURN AIR UP AND DOWN
- EXHAUST AIR UP AND DOWN
- MANUAL VOLUME DAMPER
- MOTORIZED DAMPER
- BACKDRAFT DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- COMBINATION FIRE AND SMOKE DAMPER
- TURNING VANES
- VOLUME EXTRACTOR

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TIMOTHY W. DANNER
No. 12584
1/2/2020

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

GENERAL MECHANICAL INFORMATION

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	TS
checked by:	MM
approved by:	CW
QA/QC by:	MS
project no.:	018-0054
drawing no.:	
date	01/02/2020

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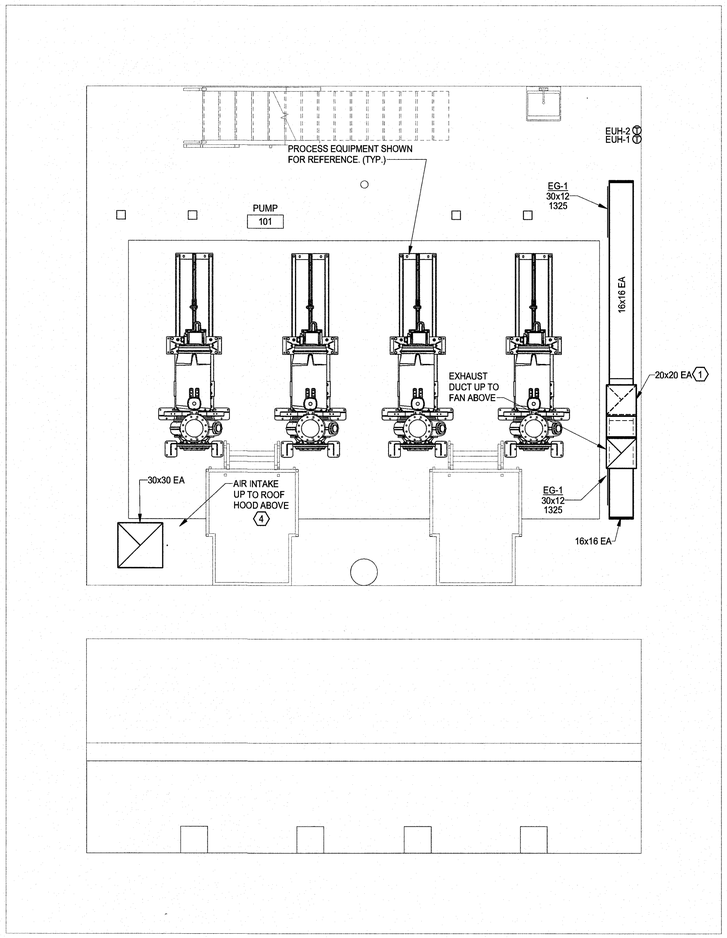
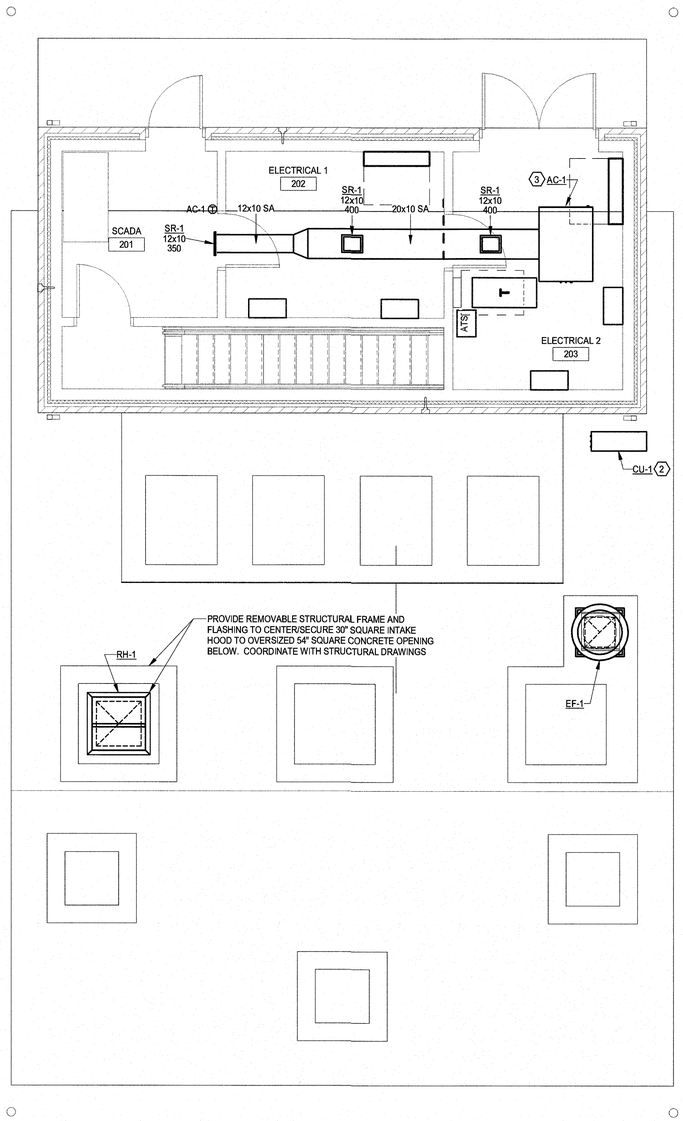


NORTH

1 MECHANICAL PLAN PUMP ROOM

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



NORTH

2 MECHANICAL PLAN UPPER LEVEL

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

GENERAL NOTES

A. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.

B. COORDINATE UNDERGROUND PIPING WITH STRUCTURAL FOOTINGS, SITE UTILITIES SERVICES, AND BUILDING SERVICES. FIELD VERIFY LOCATION OF ALL UTILITIES AND EXACT DIMENSIONS DURING BIDDING PORTION OF PROJECT. NOTIFY ANY DISCREPANCY OR INTERFERENCE TO ENGINEER.

C. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.

D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW, AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.

E. ROUTE ALL PIPING AND DUCT IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF DUCT, PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.

F. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.

G. ALL DUCT FITTINGS WHERE TURN IS GREATER THAN 30-DEGREES SHALL BE PROVIDED WITH TURNING VANES UNLESS NOTED OTHERWISE.

H. PROVIDE MINIMUM 12"x12" ACCESS DOORS (AD) AT ALL FIRE DAMPERS (FD) &/OR SMOKE DAMPERS (SD) LOCATIONS UNLESS ACCESS SHALL BE OBTAINED THROUGH A DEVICE.

I. COORDINATE MASONRY WALL LINTEL LOCATIONS WITH STRUCTURAL PLANS.

J. PROVIDE A MASONRY WALL LINTEL AT ALL BLOCK OR BRICK WALL PENETRATIONS WIDER THAN 12".

K. NEW THERMOSTATS AND SENSORS SHALL BE LOCATED ON WALL NEAR LOCATION SHOWN. LOCATE ON WALL WITH CENTER AT 3'-8" A.F.F. TO CENTER OF T-STAT (MATCHING LIGHT SWITCH HEIGHT). IF WALL IS LOAD BEARING OR WILL NOT ALLOW WIRE DOWN INSIDE, CONTRACTOR SHALL MOUNT SENSOR IN WIRE MOLD. VERIFY WIRE MOLD INSTALLATIONS WITH ENGINEER PRIOR TO INSTALLATION. CONTRACTOR MAY ROUTE WIRE IN CONDUIT EXPOSED IN STORAGE AREAS WHERE POSSIBLE.

L. ALL DUCT SEAMS SHALL BE SEALED.

M. DO NOT HANG DUCTWORK OR PIPING DIRECTLY FROM ROOF DECKING.

N. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.

O. KEEP ALL DUCT OPENING AND AIR DEVICES COVERED, AIR-TIGHT, UNTIL ALL DUST CREATING ACTIVITIES HAVE BEEN COMPLETED AND EQUIPMENT IS READY FOR START-UP.

SHEET KEYNOTES

1. EXHAUST DUCT DOWN TO 12" AFF, COORDINATE ROUTING WITH PROCESS PIPING.
2. CONDENSING UNIT ON 6" CONCRETE PAD, ROUTE REFRIGERANT PIPING PER MANUFATURER'S RECOMMENDATIONS.
3. INDOOR AIR CONDITIONING UNIT HUNG FROM THE STRUCTURE, ROUTE CONDENSATE OUTSIDE AND DISCHARGE AT GRADE.
4. AIR INTAKE DUCT DOWN TO 12" BELOW ROOF STRUCTURE.

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 12584
TIMOTHY W. DANNER
12/20/19

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

HVAC PLANS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: TS
checked by: MM
approved by: CW
QA/QC by: MS
project no.: 018-0054
drawing no.:
date 01/02/2020

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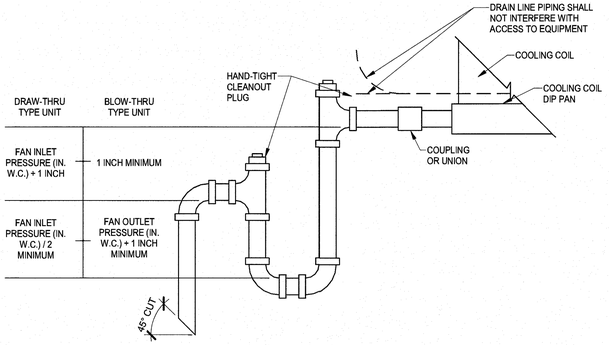
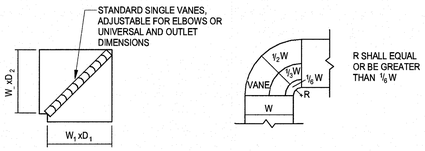
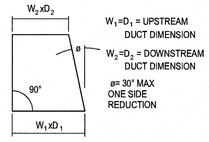


NOTES:
1. FOR EQUIPMENT WITHOUT INTERNAL CONDENSATE TRAPS.
2. PIPING TO BE COPPER, TYPE L.
3. PIPING LOCATED INDOORS TO BE INSULATED, SEE SPECS.
4. PROVIDE STANDS FOR FLOOR MOUNTED UNITS THAT NEED TO BE RAISED TO ALLOW TRAP TO BE INSTALLED.

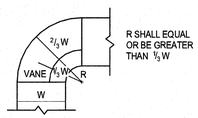
6 CONDENSATE TRAP DETAIL
SCALE: NOT TO SCALE



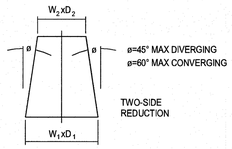
SQUARE THROAT 90° ELBOW



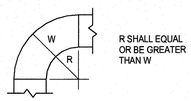
SHORT RADIUS ELBOW WITH TWO VANES



ECCENTRIC REDUCING FITTING



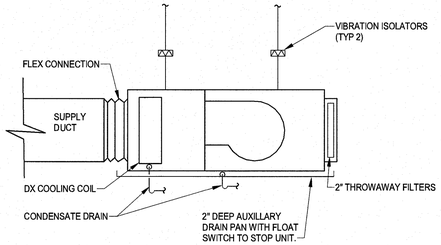
SHORT RADIUS ELBOW WITH ONE VANE



CONCENTRIC REDUCING FITTING

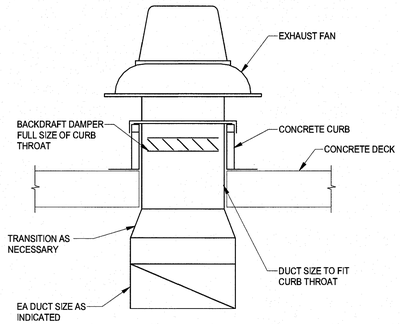
STANDARD RADIUS ELBOW

5 SHEET METAL FITTINGS DETAIL
SCALE: NOT TO SCALE

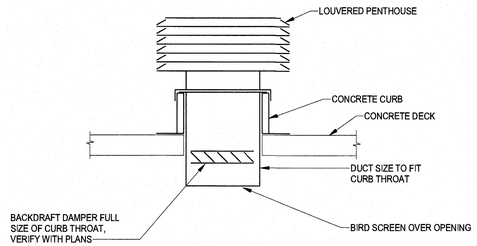


*REFER TO MANUFACTURER FOR REFRIGERANT PIPE SIZE AND ROUTING.

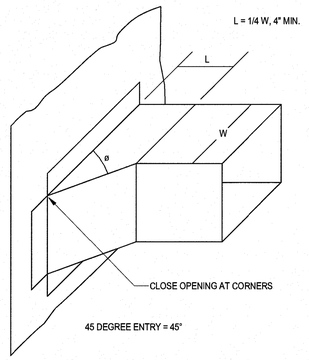
3 FAN COIL UNIT
SCALE: NOT TO SCALE



2 EXHAUST FAN DETAIL
SCALE: NOT TO SCALE



4 ROOF HOOD DETAIL
SCALE: NOT TO SCALE



1 45° TAKE-OFF FITTING DETAIL
SCALE: NOT TO SCALE

SPLIT SYSTEM SCHEDULE

INDOOR UNITS

MARK	MFG.	MODEL #	UNIT TYPE	BLOWER CFM	BLOWER E.S.P.	COOLING (MBH)	HEATER (MBH)	ELECTRICAL VOLT/PH/HZ	ELECTRICAL MCA	ELECTRICAL MOCP	WEIGHT	BLOWER COIL ACCESSORIES
AC-1	MITSUBISHI	PEAD-A36AA7	HORIZONTAL DUCTED	1150	0.7	36.0	27.0	208/1	3.3	30	86	PS, AFR, CP

HEAT PUMP UNIT

MARK	MFG.	CLG. CAPACITY (MBH)	HEAT PUMP MODEL #	EFF	EDB	EWB	APD	STAGE	V/PH	MCA	MOCP	WEIGHT	COND./HEAT PUMP ACCESSORIES
CU-1	MITSUBISHI	36	PUZ-A36NKA7	19.1 SEER	100	77.0	NA	-	208-230/1	25	30	214	CUB, LA, RF

ABBREVIATIONS:
- CH - CRANKCASE HEATER
- LA - LOW AMBIENT CONTROL (0°F)
- RAB - RETURN AIR BASE
- CUB - 4" CONCRETE BASE UNDER OUTDOOR UNITS
- PS - 7-DAY PROGRAMMABLE TOUCHSCREEN THERMOSTAT WITH WIFI CAPABILITIES.
- VB - VARIABLE SPEED BLOWER
- AFR - AIR FILTER AND RACK KIT
- RF - REFRIGERANT DEHUM. ACCESSORIES (TEES, FLOW RESTRICTOR, CHARGE COMPENSATOR, ETC). REFER TO REF. PIPING DIAGRAM PRIOR TO INSTALLATION OF PIPING BETWEEN EVAP, CONDENSING UNIT AND EDA COIL.
- TRAN - FIELD INSTALLED TRANSITION FROM EVAP TO EDA
- CP - CONDENSATE PUMPING KIT

EXHAUST FANS

MARK	LOCATION	SERVES	CFM	EXT. SP	HP	VOLT/PH	RPM	MANUFACTURER & MODEL	REMARKS
EF-1	ABOVE PUMP RM	PUMP ROOM	2650	0.75"	3/4	120/1	1155	LOREN COOK 180C10D	1,2

REMARKS:
1. PROVIDE MANUFACTURER'S BACKDRAFT DAMPER.
2. UNIT TO BE MOUNTED ON CONCRETE CURB. SEE STRUCTURAL DETAILS.

AIR DISTRIBUTION DEVICES

MARK	SERVES	COLOR	MOUNTING	FACE SIZE	PATTERN	MAX NC	MAX PD IN WC	MANUFACTURER & MODEL	REMARKS
SR-1	SUPPLY	WHITE	DUCT	SEE PLAN	LOUVERED	25	0.1	TITUS - 300	1,2
EG-1	EXHAUST	WHITE	DUCT	SEE PLAN	LOUVERED	25	0.1	TITUS - 350	1,2

REMARKS:
1. VERIFY BORDER TYPE REQUIRED.
2. PROVIDE ALUMINUM AIR DEVICE.

HVAC PIPING MATERIAL SCHEDULE

PIPING SYSTEM	SIZE	MATERIAL	TYPE	SCH	GRD	ASTM	FITTINGS MAT.	FITTINGS TYPE	MAX. WORKING PRESS (PSI)	MAX. WORKING TEMP (°F)	FIELD TEST PRESS (PSI)	FIELD TEST TIME
CONDENSATE DRAIN ABOVE GRADE	ALL	CP	M	--	--	B88	CP	DRS	10FT	40-70	-	-
TEMPERATURE & PRESSURE RELIEF DRAIN	ALL	CP	M	--	--	B88	CP	DRS	10FT	40-70	10FT	1 HR
REFRIGERANT PIPING	ALL	CP	ACR	--	--	B280	CP	SJ	150	40-140	450	4 HR

- ATP - ARMCO TRUSS PIPE
- BLK - BLACK
- BS - BELL & SPIGOT
- CI - CAST IRON
- CP - COPPER
- CS - CARBON STEEL
- CW - CONTINUOUS WELD
- DI - DUCTILE IRON
- DR - DRAINAGE FITTING
- GLV - GALVANIZED
- LC - LEAD CAULKING
- MI - MALLEABLE IRON
- MJ - MECHANICAL JOINT
- NG - NEOPRENE GASKET
- NH - NO-HUB
- PE - POLYETHYLENE
- PVC - POLYVINYL CHLORIDE
- S - BRAZED JOINT - SILVER BRAZING ALLOY
- SJ - SOLDER JOINT 95-5 TIN-ANTIMONY
- SL - SEAMLESS STEEL
- SS - STANDARD STRENGTH - SERVICE WEIGHT
- SW - SOLVENT WELD
- THRD - THREADED
- WELD - WELDED

NOTE: NO "PULLED TEES" ALLOWED ON COPPER PIPING.

ROOF HOODS SCHEDULE

MARK	SERVES	CFM	MAX PD IN WC	THROAT SIZE (LxW)	APPROX HOOD SIZE (LxWxH)	ACCESSORIES DAMPER	ACCESSORIES BIRD SCREEN	MANUFACTURER & MODEL	REMARKS
RH-1	PUMP ROOM	3000	0.1	30X30	42X42X13	BACKDRAFT	YES	LOREN COOK TRE	1

REMARKS:
1. PROVIDE MANUFACTURER'S MOUNTING CURB.

olsson
302 E. Millsap Road
Fayetteville, AR 72703
TEL 479.443.3404
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www.olsson.com

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 12584
TIMOTHY W. DANNER

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

MECHANICAL SCHEDULES AND DETAILS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT
JONESBORO, ARKANSAS

2020

drawn by: TS
checked by: MM
approved by: CW
QA/QC by: MS
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET M102

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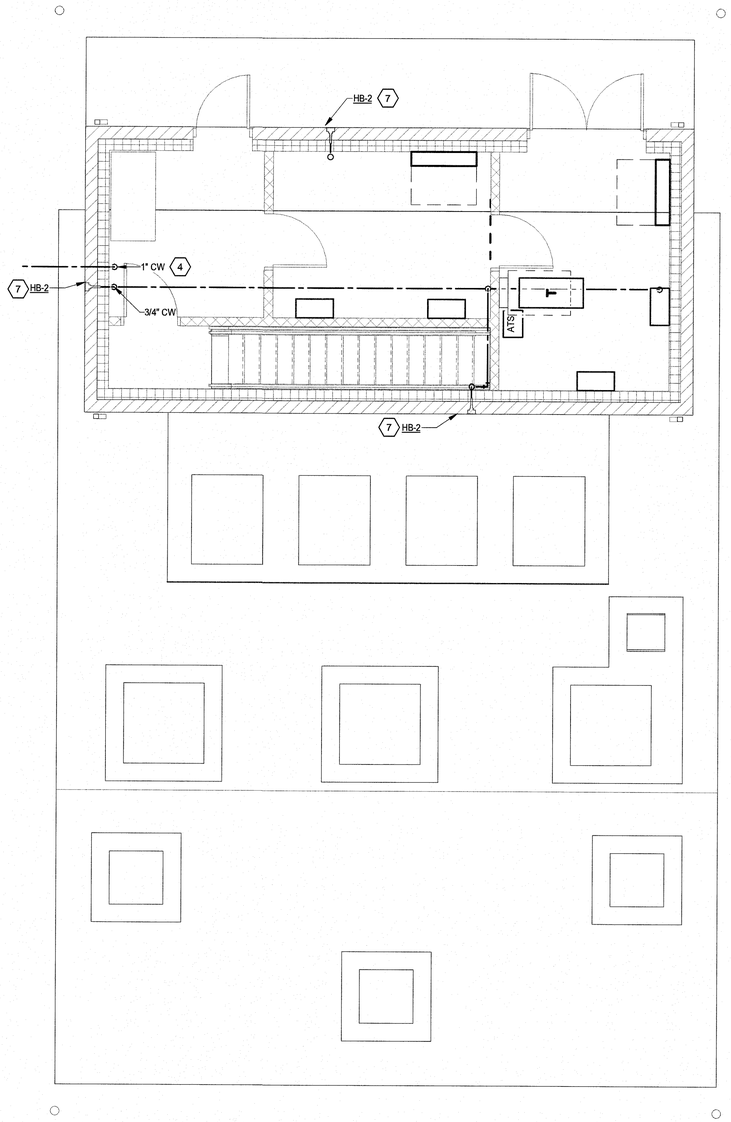
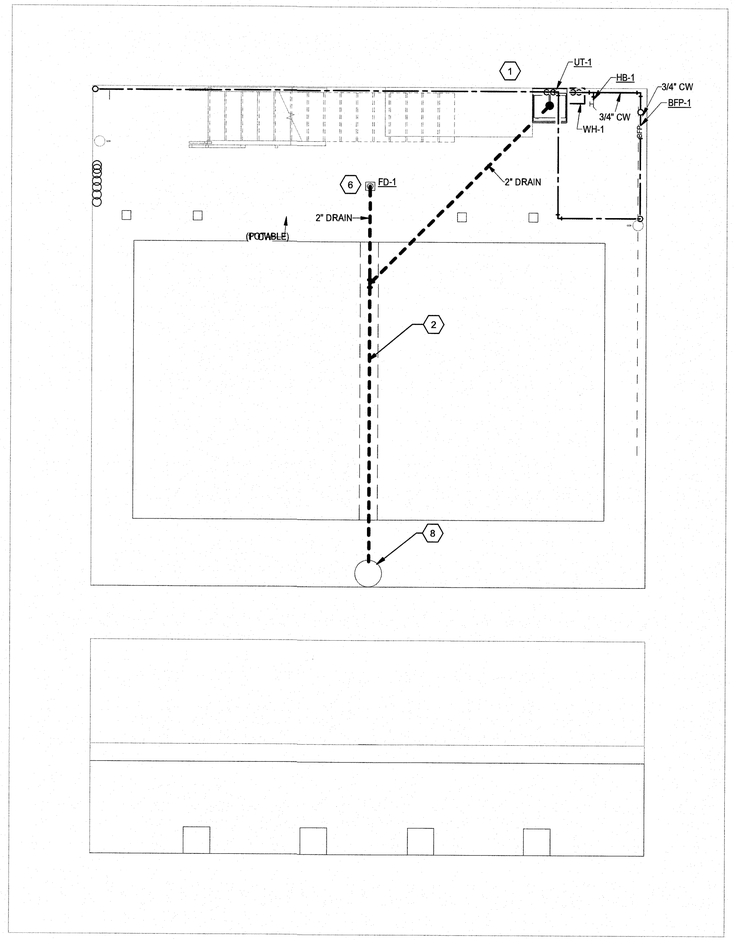
SHEET KEYNOTES

1. CONNECT TO INSTANTANEOUS WATER HEATER AND TO UTILITY TUB FAUCET.
2. ROUTE 2" DRAIN LINE TO SUMP SEE PROCESS DRAWINGS FOR EXACT LOCATION.
3. WATER SERVICE FROM CIVIL PLANS, COORDINATE EXACT LOCATION.
4. WATER SERVICE DOWN TO FLOOR BELOW.
5. DOMESTIC WATER UP FROM FLOOR BELOW.
6. FLOOR DRAIN AT LOW POINT OF FLOOR. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
7. LOCATE HOSE BIBB IN CENTER OF A BLOCK AND NOT ON A SEAM.
8. SUMP PUMP AND PIPING, SEE PROCESS DRAWINGS.





NORTH

2 PLUMBING PLAN UPPER LEVEL
SCALE: 1/4" = 1'-0"

NORTH

1 PLUMBING PLAN PUMP ROOM
SCALE: 1/4" = 1'-0"

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PLUMBING PLANS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

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SHEET
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PLUMBING FIXTURE SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	DESCRIPTION	ACCESSORIES	CONNECTIONS [1,2]			
						WASTE	VENT	CW	HW
UT-1	UTILITY TUB	FIAT	SF-1-F	PLASTIC POLYMELAUNDRY TUB WITH HEAVY DUTY MOUNTING BRACKETS AND STEEL ANGLED LEGS.	PROVIDE DECK MOUNTED FAUCET 4" ON CENTER CONNECTION AND ALL WASTE PIPING TO DRAIN INTO SUMP.	OUTLET SIZE PER PLAN	PER PLAN	1/2"	1/2"
HB-1	HOSE BIBB	WOODFORD	MODEL 24	ANTI-SIPHON WALL FAUCET	SURFACE MOUNT FIXTURE, PROVIDE SUPPORT	--	--	3/4"	--
HB-2	FREEZE-PROOF HOSE BIBB	WOODFORD	MODEL 65	FREEZE PROOF ANTI-SIPHON WALL FAUCET	PROVIDE LOCKABLE WALL BOX	--	--	3/4"	--
FD-1	FLOOR DRAIN	ZURN	Z-415	CAST IRON TWO PIECE BODY WITH DOUBLE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, NICKEL BRONZE ADJUSTABLE STRAINER.	PROVIDE 6" TOP STRAINER.	2"	--	--	--

REMARKS:
1. VERIFY ALL CONNECTIONS & MOUNTING HEIGHTS WITH CODES, MANUFACTURERS, AND PLANS.
2. SIZES LISTED INDICATE MIN. SIZE ONLY. SEE PLUMBING RISERS AND FLOOR PLANS FOR LARGER SIZES.
3. ACCEPTABLE ALTERNATE MANUFACTURERS INCLUDE HAWS, CHICAGO FAUCET, HALSEY TAYLOR, JOSAM, JR SMITH, WADE, ROCKFORD, TOTO, AND OASIS

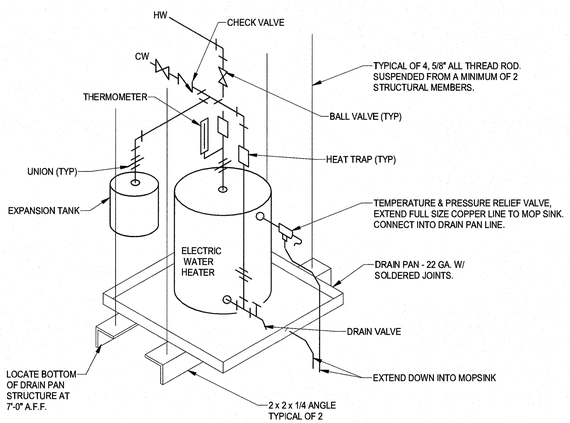
WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL NO.	LOCATION	TYPE	GALLON CAP.	GPH @ 60°F	OUTPUT (KW)	VOLT/PH	ACCESSORIES
WH-1	AO SMITH	DEL-30	PUMP ROOM	ELEC.	30	10	1.5 KW	120/1	--

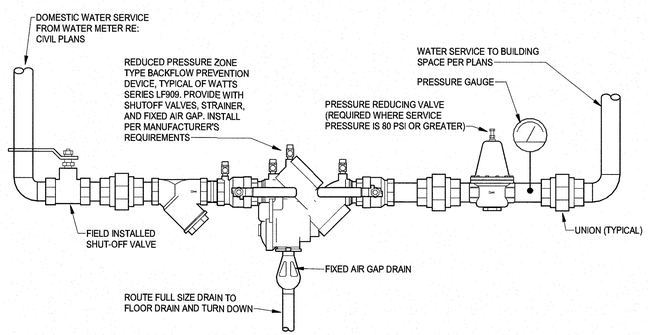
BACKFLOW PREVENTOR SCHEDULE

MARK	LOCATION	MFG	MODEL	TYPE	SERVES	BFP SIZE	DRAIN SIZE	LINE SIZE	REMARKS
BFP-1	PUMP ROOM	WATTS	909	REDUCED PRESSURE ZONE	DOMESTIC WATER SERVICE	1"	NOTE 1	1"	1

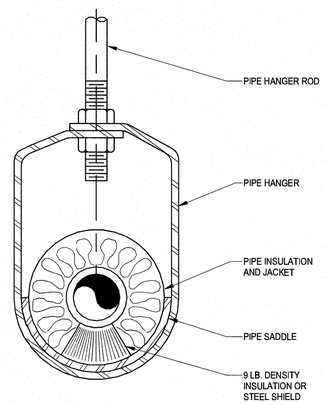
REMARKS:
1. PROVIDE WITH MANUFACTURER REQUIRED AIRGAP, EXTEND FULL SIZE DRAIN PIPING TO TERMINATE AT NEAREST FLOOR DRAIN.



3 ELECTRIC WATER HEATER CONNECTIONS
SCALE: NOT TO SCALE



2 DOMESTIC WATER SERVICE ENTRANCE DETAIL
SCALE: NOT TO SCALE



1 PIPE HANGER SUPPORT
SCALE: NOT TO SCALE

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ELECTRICAL SYMBOL LEGEND

POWER DEVICES

- DUPLEX RECEPTACLE; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
- SINGLE RECEPTACLE; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
- FOUR PLEX RECEPTACLE; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED.
- GFI GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE. ON EMERGENCY CIRCUIT
- FOUR PLEX RECEPTACLE. ON EMERGENCY CIRCUIT
- WP WATERPROOF RECEPTACLE
- IG ISOLATED GROUND RECEPTACLE
- 220V RECEPTACLE
- SPECIAL-PURPOSE OUTLET. LETTER DESIGNATES TYPE, SEE SPECIAL CONNECTION SCHEDULE FOR REQUIREMENTS
- SURFACE RACEWAY WITH OUTLETS AS INDICATED ON PLANS,MOUNTED AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
- WALL MOUNTED JUNCTION BOX
- CEILING MOUNTED JUNCTION BOX
- J FLOOR MOUNTED JUNCTION BOX
- FLOOR MOUNTED DUPLEX RECEPTACLE
- FLOOR MOUNTED FOUR PLEX RECEPTACLE
- CEILING MOUNTED DUPLEX RECEPTACLE
- CEILING MOUNTED FOUR PLEX RECEPTACLE
- ELECTRICAL DISTRIBUTION PANEL
- RECESSED MOUNTED ELECTRICAL PANEL
- SURFACE MOUNTED ELECTRICAL PANEL
- T ELECTRICAL POWER TRANSFORMER
- FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- COMBINATION MAGNETIC STARTER AND DISCONNECT SWITCH
- STARTER/MOTOR CONTROLLER
- ELECTRICAL MOTOR - SINGLE PHASE
- ELECTRICAL MOTOR - THREE PHASE
- R RELAY
- B BATTERY PACK
- MOTORIZED DAMPER

LIGHTING

- CEILING MOUNTED OR RECESSED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- PENDANT MOUNTED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- WALL MOUNTED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- 2'x4' LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- 2'x2' FIXTURE; LABEL INDICATES FIXTURE TYPE
- 1'x4' TYPICAL CEILING MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
- 1'x4' TYPICAL PENDANT MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
- 1'x4' TYPICAL WALL MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
- 1'x2' TYPICAL WALL MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
- INDUSTRIAL STRIP LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- STRIP LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
- UNDER CABINET FIXTURE; LABEL INDICATES FIXTURE TYPE
- 2'x4' TYPICAL FIXTURE - NORMAL/EMERGENCY
- 2'x2' TYPICAL FIXTURE - NORMAL/EMERGENCY
- 1'x4' TYPICAL CEILING MOUNTED FIXTURE - NORMAL/EMERGENCY
- CEILING MOUNTED OR RECESSED TYPICAL FIXTURE - NORMAL/EMERGENCY
- BRANCH CIRCUIT WIRING CONCEALED IN WALLS OR CEILING
- BRANCH CIRCUIT WIRING EXPOSED
- OS CEILING OR WALL-MOUNTED OCCUPANCY SENSOR
- PC CEILING OR WALL-MOUNTED PHOTO CELL
- DS CEILING OR WALL-MOUNTED DAYLIGHT SENSOR
- DOUBLE FACED CEILING OR WALL-MOUNTED, EXIT SIGN WITH EMERGENCY POWER BACK UP
- SINGLE FACED CEILING OR WALL MOUNTED, EXIT SIGN WITH EMERGENCY POWER BACK UP
- COMBINATION EXIT AND EMERGENCY LIGHT
- DIRECTION ARROW FOR EMERGENCY LIGHT
- CEILING OR WALL MOUNTED, SELF-CONTAINED EMERGENCY LIGHT UNIT; FIXTURE SHALL MONITOR LIGHTING CIRCUIT IN AREA
- $ SINGLE-POLE SWITCH
- $2 DOUBLE-POLE SWITCH
- $3 3-WAY SWITCH
- $4 4-WAY SWITCH
- $P SINGLE-POLE SWITCH AND PILOT LIGHT
- $TE SINGLE POLE MANUAL MOTOR STARTER WITH THERMAL ELEMENT
- $D SINGLE-POLE DIMMER SWITCH
- $K SINGLE-POLE KEYED SWITCH
- $L LOW VOLTAGE SWITCH
- $F FAN SWITCH
- $M MOMENTARY CONTACT SWITCH
- PUSHBUTTON SWITCH
- COMBINATION PUSHBUTTON SWITCH
- MUSHROOM EMERGENCY SHUT-OFF SWITCH
- LC LIGHTING CONTACTOR
- TC TIME CLOCK, AS INDICATED ON PLANS
- PC PHOTO CELL, AS INDICATED ON PLANS

SPECIAL SYSTEMS

- DATA/TELEPHONE OUTLET, FLOOR MOUNTED
- COMBINATION DATA/TELEPHONE OUTLET
- TELEPHONE
- DATA OUTLET; NUMBER INDICATES QUANTITY, BLANK INDICATES SINGLE OUTLET. MOUNTED AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
- DATA, CEILING MOUNTED
- DATA, FLOOR MOUNTED
- TV TELEVISION OUTLET, CEILING MOUNTED
- TV TELEVISION CABLE OUTLET; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
- WAP WIRELESS ACCESS POINT, CEILING MOUNTED
- FB MULTI-OUTLET FLOOR BOX, SEE FLOOR BOX SCHEDULE FOR REQUIREMENTS
- S SPEAKER, WALL MOUNTED
- S SPEAKER, CEILING MOUNTED
- E ELECTRIC VALVE
- I INSTRUMENT DEVICE
- INTERIOR SIREN ALARM
- C CLOCK, WALL MOUNTED
- C CLOCK, CEILING MOUNTED
- CABLE TRAY
- GROUND BAR

FIRE ALARM

- M MAGNETIC DOOR HOLD DEVICE
- FS SPRINKLER FLOW SWITCH
- TS SPRINKLER TAMPER SWITCH
- EXTERIOR REMOTE FLASHING STROBE LIGHT
- [F] MANUAL PULL STATION; MOUNT ACCORDING TO MOUNTING HEIGHT DETAIL AT 46" TO CENTER OF DEVICE AFF. ADA COMPLIANT
- [F] HORN & STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
- [F] STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
- [F] SPEAKER & STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
- S FIRE ALARM VOICE WALL MOUNT SPEAKER
- FIRE ALARM VOICE CEILING MOUNT SPEAKER
- SMOKE DETECTOR
- DUCT MOUNTED SMOKE DETECTOR
- THERMAL HEAT DETECTOR
- PIV POST INDICATOR VALVE
- BELL
- R SHUTDOWN RELAY WITH REMOTE TEST SWITCH
- R SHUTDOWN RELAY AND TEST SWITCH
- FACP FIRE ALARM CONTROL PANEL
- RAP REMOTE ANNUNCIATOR PANEL
- SMOKE DAMPER
- FIRE DAMPER
- COMBINATION FIRE AND SMOKE DAMPER

SECURITY DEVICES

- DCM DOOR CONTROL MODULE
- ACP ACCESS CONTROL PANEL
- ES ELECTRIC DOOR STRIKER
- VIDEO CAMERA, WITH MOUNTING HARDWARE
- VM VIDEO MONITOR
- VR VIDEO RECORDER
- ML ELECTRIC MAGNETIC LOCK
- CL ELECTRIC CYLINDER LOCK
- CR CARD READER
- REX REQUEST TO EXIT
- DOOR CONTACT - RECESSED
- DOOR CONTACT - SURFACE MOUNT
- M MOTION DETECTOR, CEILING MOUNTED
- M MOTION DETECTOR, WALL MOUNTED
- EMERGENCY DOOR RELEASE BUTTON
- PANIC BUTTON
- SECURITY BUZZER HORN
- INTERCOM SUBSTATION
- INTERCOM SUBSTATION WITH CAMERA
- INTERCOM MASTER STATION
- GLASS BREAK SENSOR
- POWER TRANSFER HINGE

ABBREVIATIONS/MODIFIERS

(X)	SHEET NOTE TAG, LABEL INDICATES NOTE NUMBER
XX	FEEDER TAG
*	ABOVE COUNTER
A	AMPERE
AD	AUTOMATIC DAMPER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
C/B	CIRCUIT BREAKER
CIR	CIRCUIT
CUH	CABINET UNIT HEATER
E	EXISTING DEVICES TO REMAIN
EF	EXHAUST FAN
EMT	ELECTRIC METALLIC TUBING
ER	NEW LOCATION OF EXISTING RELOCATED
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FB	FLOOR BOX
FMC	FLEXIBLE METALLIC TUBING
GFI	GROUND FAULT INTERRUPTER
HD	HAND DRYER
IG	ISOLATED GROUND
MAU	MAKE-UP AIR UNIT
MD	MOTORIZED DAMPER
NF	NON-FUSED
NL	NIGHT LIGHT
NR	NEW TO REPLACE EXISTING
P	POLE
PE	PRIMARY ELECTRIC SERVICE
PTD	ELECTRIC PAPER TOWEL DISPENSER
PVC	POLYVINYL CHLORIDE CONDUIT
RE	REMOVE EXISTING
REF	ROOF EXHAUST FAN
RL	RELOCATE EXISTING
RMC	RIGID METALLIC CONDUIT
RR	REMOVE AND REPLACE ON NEW SURFACE
RTU	ROOFTOP UNIT
SD	SMOKE DAMPER
SE	SECONDARY ELECTRIC SERVICE
S&P	SPACE AND PROVISION
T	TELEPHONE SERVICE
TCP	TEMPERATURE CONTROL PANEL
TP	TAMPER PROOF
TV	TELEVISION
UGE	UNDERGROUND ELECTRICAL
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WG	WIRE GUARD
WP	WEATHERPROOF
WR	WEATHER RESISTANT
XFMR	TRANSFORMER

NEW & FUTURE LEGEND

- FUTURE DEVICES (LIGHT LINEWEIGHT)
- NEW DEVICES
- CONDUIT WIRE/BELOW GRADE OR HIDDEN (DARK LINEWEIGHT)

GENERAL NOTES

1. CIRCUITING SHOWN IS DIAGRAMMATIC ONLY. EXACT ROUTING MAY VARY AND MAY REQUIRE ADDITIONAL J-BOXES AND/OR SPECIAL FITTINGS.
2. ALL EMPTY CONDUITS INDICATED SHALL BE FURNISHED AND INSTALLED WITH PULLWIRES, INSULATED BUSHINGS ON EACH END AND HAVE IDENTIFICATION FLAG AT EACH END LABELED FOR INTENDED USE.
3. VERIFY ALL OUTLETS, J-BOXES, FLOOR BOXES, ETC. LOCATIONS WITH DRAWINGS OF OTHER TRADES PRIOR TO INSTALLATION. REFER TO SPECIFICATIONS AND ELECTRICAL DETAILS FOR DEFAULT DEVICE MOUNTING HEIGHTS.
4. FIRE STOPPING REQUIRED AT ALL FIRE WALL PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF WALLS AND PROVIDE APPROPRIATE RATED SEALANT AS REQUIRED.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL DEVICES SHOWN ON ELECTRICAL CONSTRUCTION DOCUMENTS WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS PRIOR TO FINAL PLACEMENT.
6. ALL ELECTRICAL PENETRATIONS THROUGH CONCRETE SHALL BE SPACED TO HAVE A MINIMUM OF 3" OF CONCRETE ON ALL SIDES.
7. WHERE DEVICES OR POWER ROUGH-IN IS SHOWN TO BE INSTALLED IN A MASONRY WALL, PROVIDE MASONRY BOXES AND INSTALL CONDUIT WITHIN WALL.
8. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRIC CODE BY THE CITY OF JONESBORO, AR. CURRENTLY 2017 NEC.
9. COOPERATE CLOSELY WITH ALL OTHER TRADES TO EXPEDITE CONSTRUCTION AND AVOID INTERFERENCES AND CONFLICTS PRIOR TO ANY INSTALLATION. ELECTRICAL CONDUIT SHALL NOT BLOCK ACCESS TO OTHER EQUIPMENT REQUIRING REGULAR MAINTENANCE OR ACCESS.
10. CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, ACCESSORIES, AND MATERIAL FURNISHED BY HIM FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS.
11. ALL WIRING SHALL BE INSTALLED IN CONDUIT. REFERENCE SPECIFICATION SECTION 26 05 33 "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS" FOR APPLICATION OF RACEWAY MATERIALS AND OTHER REQUIREMENTS.
12. ALL CIRCUITS SHALL HAVE A SEPARATE GROUNDING CONDUCTOR.
13. CONTRACTOR SHALL COORDINATE ALL SCHEDULING, ELEVATIONS, SIZES, QUANTITIES, AND ROUTING OF WORK WITH OTHER TRADES.
14. SWITCHES AND RECEPTACLES SHALL BE GRAY WITH STAINLESS STEEL FACEPLATES UNLESS NOTED OTHERWISE. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
15. THE COVERS OF ALL BOXES SHALL BE LABELED PER ELECTRICAL IDENTIFICATION SPECIFICATION SECTION 260553. PROVIDE CIRCUIT # AND PANEL LABELING ON ALL FINAL DEVICES. ALL PANELBOARDS SHALL BE PROVIDED WITH AN UPDATED TYPED CIRCUIT DIRECTORY WITH CIRCUIT NUMBER AND EQUIPMENT SERVED. ALL LABELING TO BE STENCILED ADHESIVE ON RECEPTACLES, SWITCHES, OR EQUIPMENT TERMINATIONS.
16. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY RATED SAFETY SWITCHES.
17. WHERE A BOX IS TO BE MOUNTED ON A BLOCK OR CONCRETE WALL, PROVIDE SURFACE MOUNTED BOX AND RACEWAY (UNLESS NOTED OTHERWISE).
18. PROVIDE BACKBOX AND CONDUIT FOR LINE VOLTAGE AND/OR LOW VOLTAGE THERMOSTATS. COORDINATE ROUGH-IN LOCATION WITH MECHANICAL CONTRACTOR. COORDINATE INSTALLATION OF ASSOCIATED CONTROL WIRING WITH MECHANICAL CONTRACTOR.
19. ALL CONDUCTORS SHALL BE #12 AWG MINIMUM COPPER THHN/THWN UNLESS NOTED OTHERWISE.
20. ALL WIRING SHALL BE CONTINUOUS WITHOUT SPLICES UNLESS NOTED OTHERWISE.
21. INTERIOR CONDUIT SHALL BE 3/4" MINIMUM. EMT CONDUIT CONNECTORS SHALL BE COMPRESSION TYPE.
22. NO POWER AND CONTROL WIRING SHALL BE INSTALLED IN THE SAME CONDUIT.
23. ALL LIGHT FIXTURES EQUIPPED WITH AN EMERGENCY BALLAST SHALL RECEIVE AND UNSWITCHED HOT TO SUPPLY RECHARGE AND POWER FAILURE INDICATION TO THE EMERGENCY BALLAST.
24. MOUNT EXIT SIGNS AT 8" ABOVE DOOR HEADER WHERE SHOWN MOUNTED ON WALL.
25. REFER TO MANUFACTURER WIRING DIAGRAMS FOR ALL LOW VOLTAGE AND LINE VOLTAGE OCCUPANCY SENSORS. ALL LINE OR LOW VOLTAGE OCCUPANCY SENSOR WIRING SHALL BE IN CONDUIT.
26. PROVIDE GANGED FACEPLATES AS REQUIRED FOR LIGHTING, POWER, AND DATA DEVICES LOCATED NEXT TO EACH OTHER.

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ELECTRICAL GENERAL INFORMATION

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

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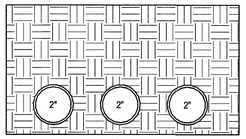
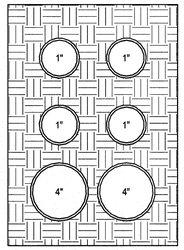


NOTE:
1. REFERENCE THE DUCTBANK INSTALLATION DETAIL 1/E502 FOR ADDITIONAL INFORMATION ON DUCTBANK INSTALLATION REQUIREMENTS.

6 E101 DUCTBANK SECTION - UTILITY TRANSFORMER FEEDS
SCALE: NOT TO SCALE



NOTE:
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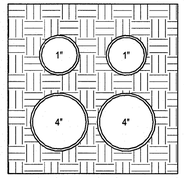
4 E101 DUCTBANK SECTION - "MDPA" FEED
NOT TO SCALE



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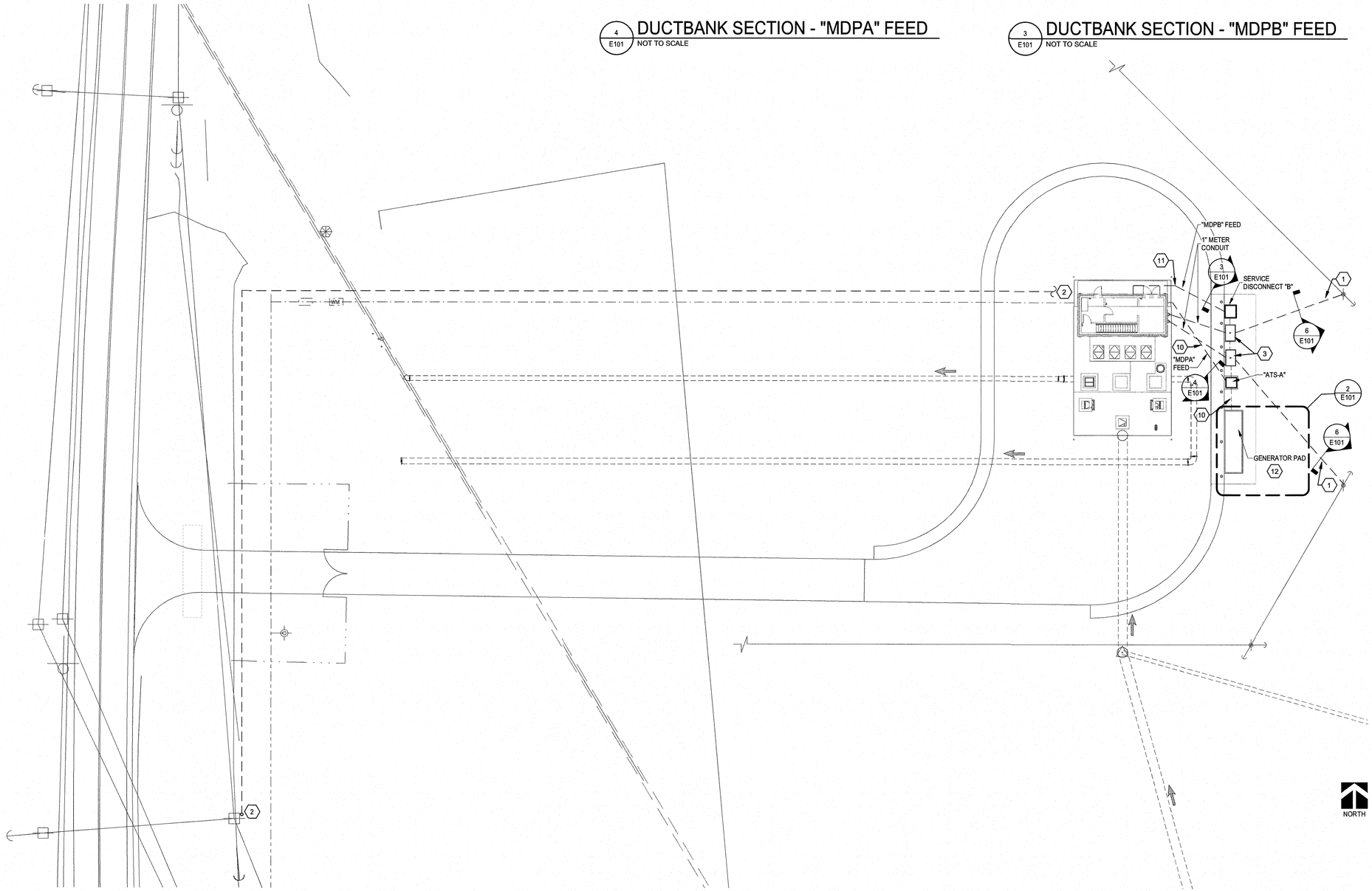
3 E101 DUCTBANK SECTION - "MDPB" FEED
NOT TO SCALE



NORTH

5 ELECTRICAL SITE POWER PLAN
SCALE: 1" = 20'-0"

GENERAL NOTES

A. INSTALL UTILITY TRANSFORMER PAD PER CWL REQUIREMENTS. CONTACT KEVAN INBODAN WITH CWL FOR TRANSFORMER PAD DESIGN. (KINBODEN@JONESBOROCWL.COM).

B. INSTALL (3) 2" SCHEDULE 40 PVC CONDUITS FROM THE UTILITY TRANSFORMER PRIMARY TO THE BASE OF OVERHEAD ELECTRIC POLES SHOWN. COORDINATE EXACT LOCATION OF PRIMARY POLE DROP WTH CWL. INSTALL LONG-SWEEP RADIUS 90 DEGREE BENDS AT THE TRANSFORMER PAD AND THE BASE OF THE OVERHEAD POLE.

C. CONTRACTOR SHALL PROVIDE ALL SECONDARY CONDUIT, WIRE, AND CONNECTORS AND MAKE ALL SECONDARY CONNECTIONS. CWL WILL SET THE UTILITY TRANSFORMER ON THE PAD AND PROVIDE PRIMARY CONDUCTORS AND TERMINATE AT PRIMARY LUGS.

D. CONTRACTOR SHALL INSTALL A 1" RIGID PVC CONDUIT FROM TRANSFORMER PAD TO METER LOCATION. INSTALL METER BASE (COORDINATE METER BASE REQUIREMENTS WITH CWL). CWL WILL INSTALL METER AND METER WIRE TO TRANSFORMER CTS. CWL WILL PROVIDE CT'S AT TRANSFORMERS.

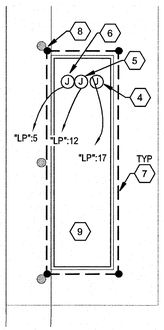
E. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMIT FEES WITH THE CITY OF JONESBORO.

F. REFERENCE 1-LINE DIAGRAM ON DRAWING E401 FOR ALL EQUIPMENT, WIRE, AND CONDUIT SIZING.

G. CONTACT CRITTCO CABLE AND FIRE, INC. FOR INSTALLATION AND TERMINATION OF FIBER BACK TO CWL COMMUNICATION HUB LOCATED AT ADMINISTRATION BUILDING. CRITTCO SHALL PROVIDE, INSTALL AND TERMINATE ALL SERVICE FIBER TO LIFT STATION. CRITTCO SHALL COORDINATE ALL WORK WITH CWL.

SHEET KEYNOTES

1. PROVIDE (3) 2" SCHEDULE 40 PVC CONDUIT BELOW GRADE TO THIS POLE FOR POWER TO NEW LIFT STATION. PROVIDE LONG-SWEEP 90 DEGREE ELBOWS AT STUB UP LOCATIONS (POLE AND TRANSFORMER PAD). STUB UP AND CAP AT UTILITY POLE AND TRANSFORMER PAD(S). PRIMARY VOLTAGE CABLE AND TERMINATION BY CWL. CONFIRM EXACT UTILITY POLE LOCATION WITH CWL PRIOR TO ANY INSTALLATION.
2. PROVIDE 2" CONDUIT BELOW GRADE FROM UTILITY POLE TO FIBER PATCH PANEL TO BE INSTALLED WITHIN PUMP STATION BUILDING. STUB CONDUIT UP AT EXISTING POLE AND CAP. COORDINATE EXACT LOCATION OF STUB UP WITH CWL PRIOR TO ANY INSTALLATION. REFERENCE E201 FOR CONTINUATION OF CONDUIT INTO BUILDING.
3. INSTALL UTILITY TRANSFORMER PAD PER CWL REQUIREMENTS. CONTACT KEVAN INBODEN WITH CWL FOR TRANSFORMER PAD DESIGN. (KINBODEN@JONESBOROCWL.COM).
4. PROVIDE 120V CIRCUIT FOR 2500W GENERATOR BLOCK HEATER. CIRCUIT SHALL BE (2)#10 AND (1)#10 GROUND IN 3/4" CONDUIT.
5. PROVIDE (SPARE) 120V CIRCUIT FOR GENERATOR BATTERY CHARGER.
6. PROVIDE 120V CIRCUIT FOR GENERATOR LIGHTING AND RECEPTACLES.
7. PROVIDE CU BONDING JUMPER CONDUCTOR AT 30" MINIMUM BELOW GRADE.
8. PROVIDE 10'x3/4" COPPER CLAD STEEL GROUND ROD TO FORM GROUNDING ELECTRODE. CAD WELD A COPPER BONDING JUMPER TO EACH ROD. INSTALL CONDUCTOR AT 30" MINIMUM BELOW GRADE. INSTALL A GROUND WELL AT THE NORTHEAST CORNER. REFERENCE DETAIL 2E5.02 FOR ADDITIONAL INFORMATION.
9. GENERATOR BASE AND SLAB. REFERENCE DETAIL 5/E503 FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL SUBMIT DIMENSIONED SHOP DRAWINGS OF GENERATOR INSTALLATION ONTO SLAB FOR REVIEW/APPROVAL.
10. INSTALL (3) 1" CONDDUIT FROM GENERATOR TO ATS AND INTO BUILDING FOR CONTROL WIRING AND (1) 1" CONDUIT FOR 120V CIRCUITS IN ADDITION TO STANDBY POWER FEEDS. REFERENCE DRAWING E401 ELECTRICAL 1-LINE DIAGRAM AND INSTRUMENTATION AND CONTROL DRAWINGS I101-I103 FOR ADDITIONAL INFORMATION.
11. INSTALL (1) 1" CONDUIT FOR CONTROL WIRING AND (1) 1" CONDUIT SPARE FOR FUTURE 120V CIRCUIT TO POWER RELAY/MONITORING IN ADDITION TO POWER FEEDS INDICATE ON E4.01.
12. EXISTING 300KW GENERATOR OWNED BY CWL SHALL BE RELOCATED TO SITE AND SET IN PLACE BY CONTRACTOR. NEW PAD, CONDUIT, AND CONDUCTORS REFLECT FURURE INSTALLATION OF 475KW GENERATOR. COORDINATE ALL RELOCATION REQUIREMENTS WITH CWL.



NORTH

2 GENERATOR AND PAD ENLARGED PLAN
SCALE: 1/8" = 1'-0"

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302 E. Millsap Road
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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TIMOTHY W. DANNER
No. 12584

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

ELECTRICAL SITE PLAN

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	DB
checked by:	MM
approved by:	CW
QA/QC by:	DB
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
E101

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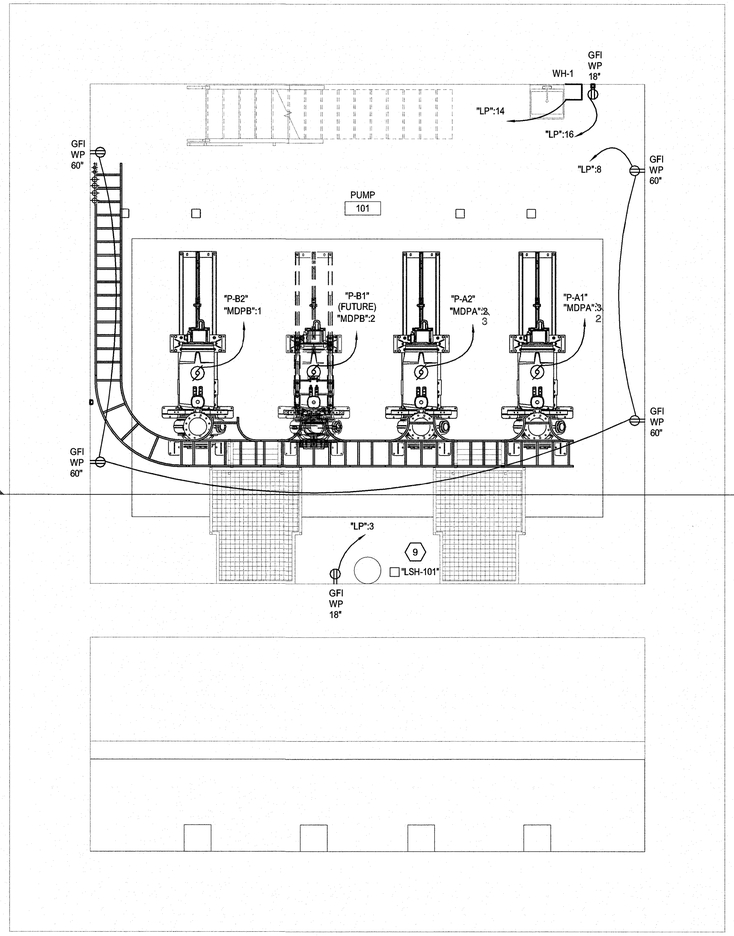
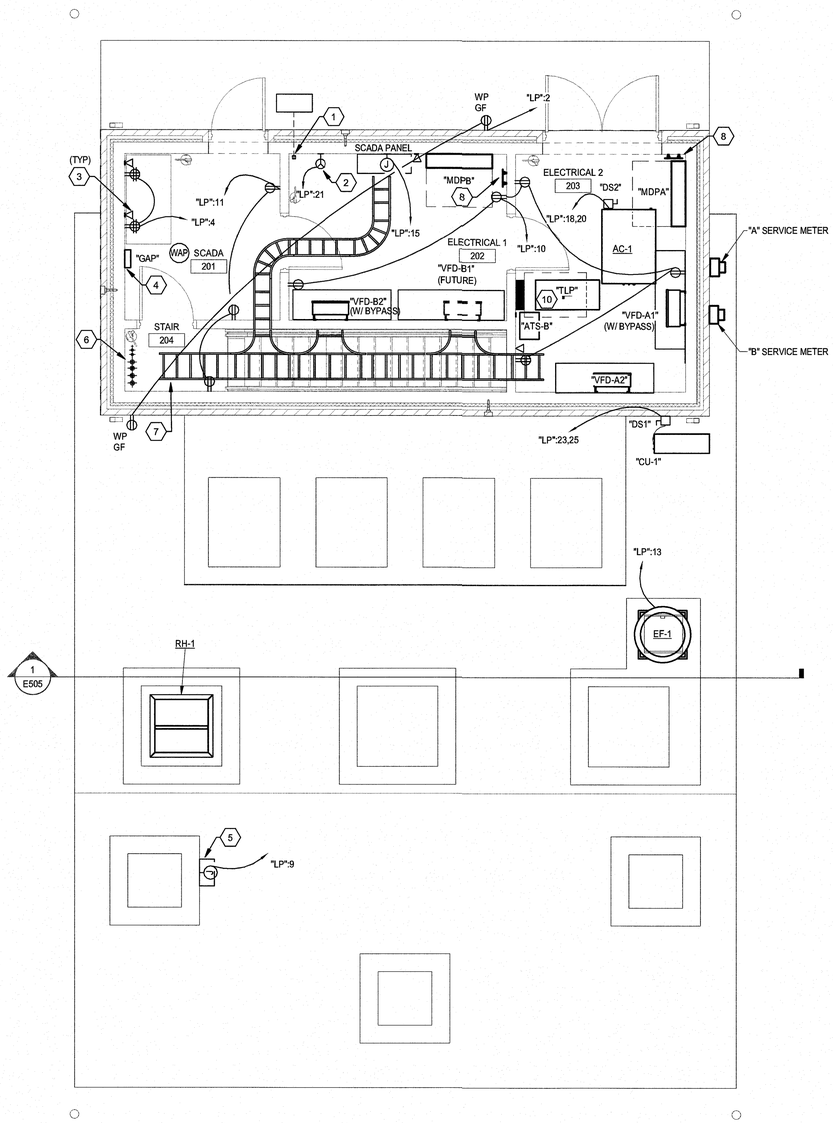
SHEET KEYNOTES

1. PROVIDE (2) 2" CONDUIT STUBBED UP IN ELECTRICAL 202 FOR COMMUNICATIONS. EXTEND CONDUIT TO HANDHOLE LOCATED 12" BEYOND BUILDING FOR INSTALLATION OF HANDHOLE IN SIDEWALK..
2. PROVIDE 5-30R (120V, 30A) RECEPTACLE FOR SERVER POWER. SERVER IS BY OTHERS AND ANTICIPATED TO CONTAIN A 120V, 30A MULTI-OUTLET PDU FOR POWER TO SERVER EQUIPMENT.
3. PROVIDE A 4"X4"X2-1/8" OUTLET BOX WITH SINGLE GANG COVERPLATE FOR DATA OUTLETS. INSTALL NYLON PULL STRING WITHIN WITH TAG AT EACH END OF THE CONDUIT.
4. INSTALL GENERATOR ANNUNCIATOR PANEL PROVIDED WITH RELOCATED GENERATOR AT LOCATION SHOWN WITH NFPA 110 ALARMS (MINIMUM). INSTALL CONDUIT FROM PANEL TO GENERATOR FOR CONNECTION TO BATTERY POWER AND CONTROLLER SIGNAL(S).
5. PROVIDE PRESSURE TRANSDUCER CONTROL PANEL MOUNTED ON UNI-STRUT RACK. REFERENCE DETAIL 2/I-102 SUBMERSIBLE PRESSURE TRANSDUCER FOR FURTHER INFORMATION.
6. INSTALL (4) 3" CONDUIT AND (2) 2" CONDUIT THROUGH FLOOR TO BELOW FOR POWER AND CONTROLS TO PUMPS BELOW. CABLE SHALL RUN FROM (EACH) VFD AND SCADA PANEL ON CABLE TRAY, TRANSITION TO FLOOR BELOW IN CONDUIT AND LAND IN TRAY IN PUMP ROOM AT 12'-0" AFF FOR DISTRIBUTION TO PUMPS. PROVIDE (1) 3/4" CONDUIT FOR LEVEL SWITCH "LSH-101".
7. INSTALL CABLE TRAY AS SHOWN AT 11'-0" TO BOTTOM OF TRAY. CABLE TRAY SHALL BE 18" WIDE FOR POWER WITH A DIVIDER FOR SCADA/LOW VOLTAGE CABLING. REFERENCE CABLE TRAY SPECIFICATIONS.
8. INSTALL MAIN SERVICE GROUND BAR AND ASSOCIATED GROUNDING PER SERVICE GROUND DETAILS.
9. PROVIDE LEVEL SWITCH. LEVEL SWITCH SHALL BE EQUAL TO CONTEGRA MODEL FS 202.OR AS INDICATED IN BOOK SPECIFICATIONS. INSTALL AS LOW AS POSSIBLE TO FLOOR.
10. SUSPEND TRANSFORMER "TLP" FROM STRUCTURE PER DETAIL 1/E5.01.



2 PUMP ROOM POWER PLAN
SCALE: 1/4" = 1'-0"

NORTH



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

NORTH

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LICENSED PROFESSIONAL ENGINEER
No. 12584
TIMOTHY W. DANNER
12/31/19

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

LIFT STATION POWER PLANS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	DB
checked by:	MM
approved by:	CW
QA/QC by:	DB
project no.:	018-0054
drawing no.:	
date	01/02/2020

SHEET
E201

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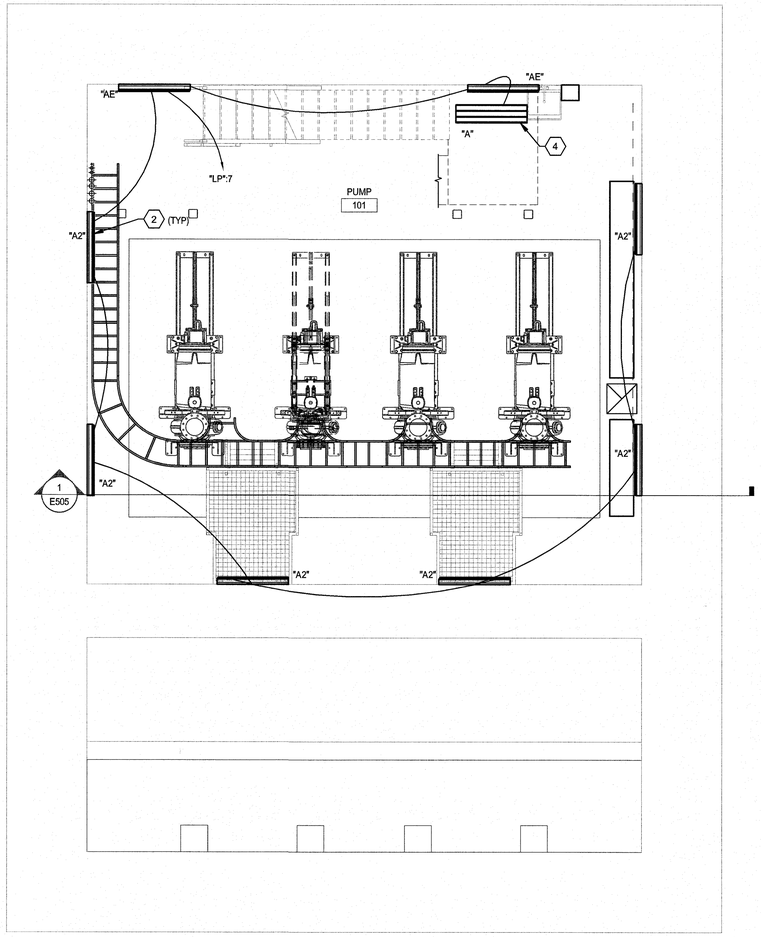
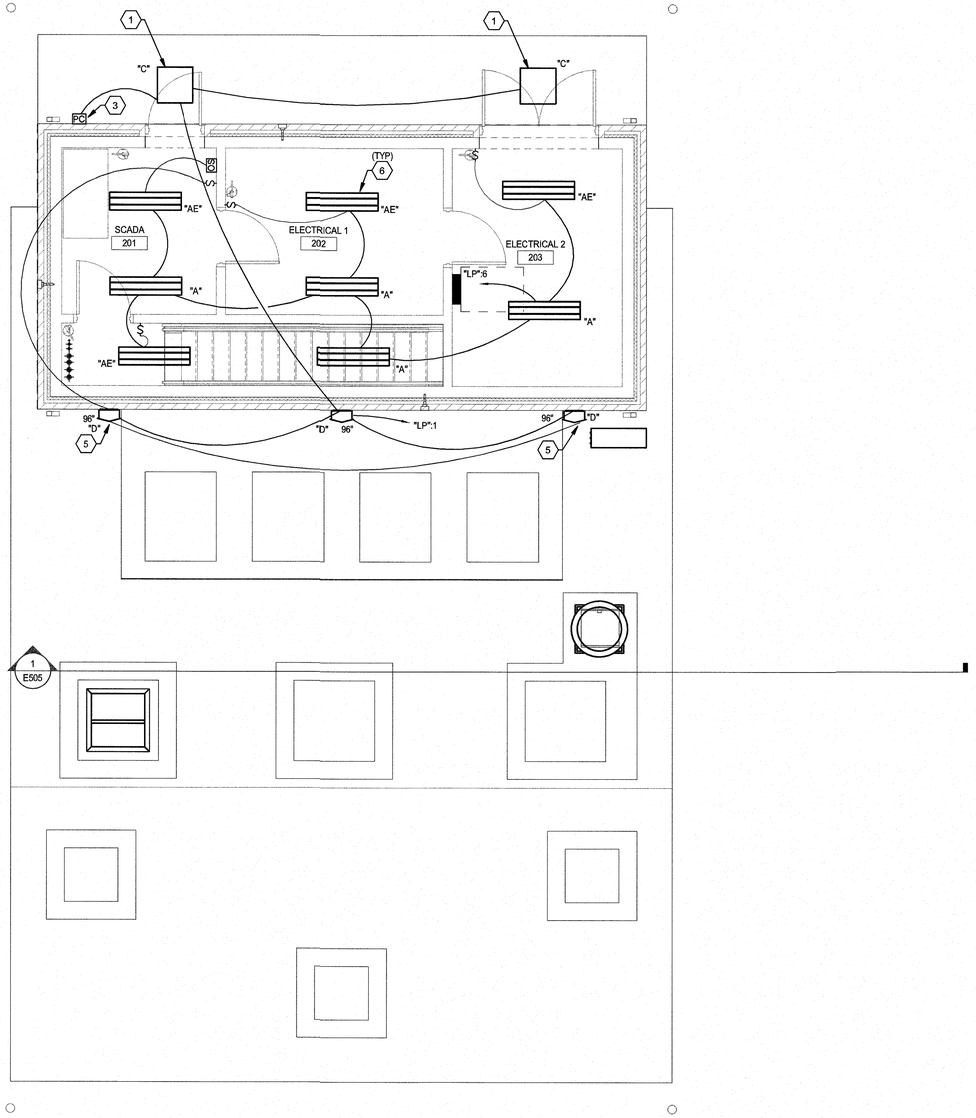
SHEET KEYNOTES

1. SURFACE MOUNT LIGHT FIXTURE RECESSED WITHIN CANOPY.
2. SURFACE MOUNT TYPE "A2" FIXTURES AT 22'-6" AFF AT LOCATIONS SHOWN.
3. INSTALL PHOTOCELL EQUAL TO INTERMATIC EK4036S ON NORTH EXTERIOR WALL OF LIFT STATION. ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH PHOTOCELL.
4. SURFACE MOUNT FIXTURE TO THE BOTTOM OF STAIRWELL LANDING.
5. EAST AND WEST EXTERIOR TYPE "D" LIGHT FIXTURES SHALL BE SWITCHED AS SHOWN AND CONTROLLED V/A PHOTOCELL. CENTER LIGHT SHALL BE CONTROLLED V/A PHOTOCELL ONLY.
6. MOUNT LIGHT FIXTURES AT 9'-8" TO BOTTOM OF FIXTURE.



1 PUMP ROOM LIGHTING PLAN
SCALE: 1/4" = 1'-0"



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

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TIMOTHY W. DANNER
No. 12584

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

LIFT STATION LIGHTING PLANS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	DB
checked by:	MM
approved by:	CW
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project no.:	018-0054
drawing no.:	
date	01/02/2020

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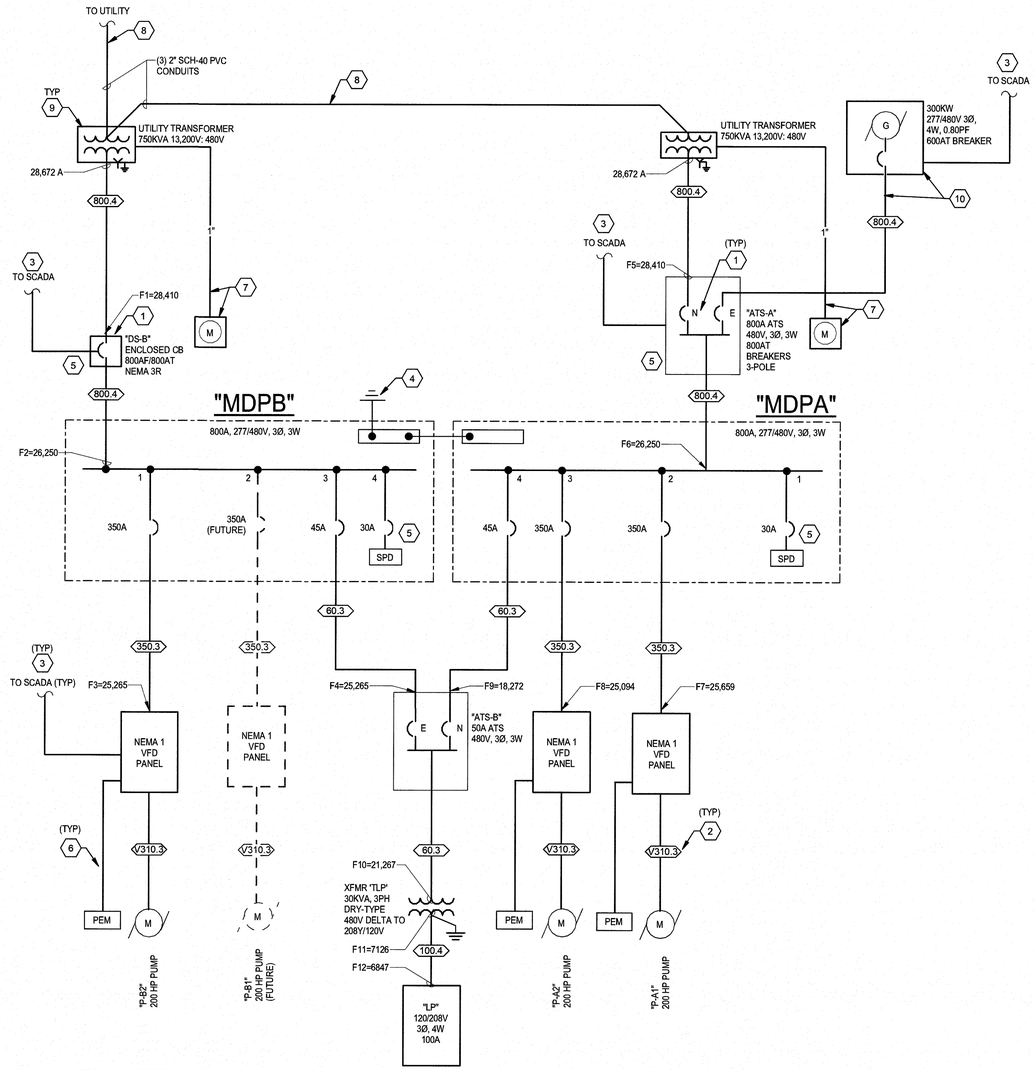

1 ONE-LINE DIAGRAM
NOT TO SCALE

GENERAL NOTES

A. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRING.

SHEET KEYNOTES

1. PROVIDE STATIC TRIP ELECTRICALLY OPERATED CIRCUIT BREAKER WITH ELECTRONIC TRIP UNIT EQUAL TO POWERPACT P-FRAM, ET 6.0. WIRE BREAKER INTO SCADA SYSTEM FOR REMOTE CONTROL AND MONITORING (OPEN, CLOSE, BREAKER POSITION, TRIP ALARM).
2. CABLE FROM VFD TO PUMP MOTOR SHALL BE PROVIDED BY PUMP EQUIPMENT MANUFACTURER, INSTALLED BY E/C.
3. REFERENCE INSTRUMENTATION AND CONTROL (I-SERIES) DRAWINGS FOR ADDITIONAL INFORMATION.
4. REFER TO SERVICE GROUND DETAIL 6/E503 FOR ADDITIONAL INFORMATION.
5. PROVIDE SURGE PROTECTION DEVICE IN SERVICE EQUIPMENT PER SPECIFICATION 26 43 13. VERIFY RATING OF OVERCURRENT PROTECTION WITH EQUIPMENT MANUFACTURER.
6. INSTALL (FLYGT) SUBCAB CABLE FOR BUS COMMUNICATION BETWEEN BASE UNIT AND PUMP ELECTRONIC MODULE PROVIDED BY PUMP MANUFACTURER. CABLE SHALL BE A SCREENED VERSION FOR VFD APPLICATIONS AND TOLERANT TO ELECTROMAGNETIC INTERFERENCE.
7. CONTRACTOR SHALL PROVIDE METER BASE AND CONDUIT. METER AND WIRE BY OTHERS. COORDINATE WITH CWL.
8. CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRING THESE CONDUITS ONLY.
9. UTILITY TRANSFORMERS FURNISHED AND INSTALLED BY OTHERS (CWL).
10. CONTRACTOR SHALL RELOCATE EXISTING GENERATOR OWNED BY CWL TO SITE. COORDINATE ALL REQUIREMENTS WITH CWL FOR RELOCATION. GENERATOR TO BE RELOCATED IS 300KW WITH AN 80% RATED, 600AT BREAKER. INSTALL OVERSIZED FEEDER(S) FORFUTURE INSTALLATION OF 475KW GENERATOR.

FEEDER SCHEDULE

FEEDER	NO. SETS	CONDUCTOR SIZES (AWG or kcmil)			CONDUIT SIZE
		PHASE	NEUTRAL	GROUND	
60-3	1	3 - #6	-	1 - #10	1"
100-4	1	3 - #2	1 - #2	1 - #8	1-1/2"
350-3	1	3 - 400 KCMIL	-	1 - #3	3"
400-3	1	3 - 600 KCMIL	-	1 - #3	3"
800-4	2	3 - 600 KCMIL	1 - 600 KCMIL	1 - #1/0	4"

ONE-LINE DIAGRAM SYMBOL LEGEND

- (A) AMMETER
- [AS] AMMETER SWITCH
- AUTOMATIC TRANSFER SWITCH
- BUSPLUG CIRCUIT BREAKER
- BUSPLUG FUSE & SWITCH
- CIRCUIT BREAKER
- CURRENT TRANSFORMER
- DRAW OUT CIRCUIT BREAKER
- MEDIUM VOLTAGE DRAW OUT CIRCUIT BREAKER
- FUSE
- FUSE & SWITCH
- FUSE CUTOUT
- GROUND
- LIGHTNING ARRESTER
- (M) MOTOR
- (G) GENERATOR
- N.C. CONTACT
- N.O. CONTACT
- PANEL 'NAME' PANELBOARD
- POTENTIAL TRANSFORMER
- POTHEAD
- (C) RELAY COIL
- SINGLE THROW SWITCH
- STRESSCONE
- SWTICHBOARD
- THERMAL OVERLOAD
- TRANSFORMER
- PADMOUNT TRANSFORMER
- (V) VOLTMETER
- [VS] VOLTMETER SWITCH
- (WHD) WATTHOUR DEMAND METER
- (WM) WATT METER
- (WHM) WATTHOUR METER
- XXX FEEDER TAG

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★ ★ ★
No. 12584
TIMOTHY W. DANNER
12/20/19

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

ELECTRICAL DIAGRAMS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: DB
checked by: MM
approved by: CW
QA/QC by: DB
project no.: 018-0054
drawing no.:
date 01/02/2020

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E401

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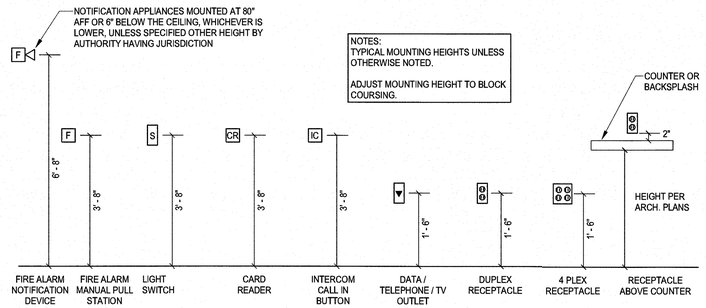

3 TYPICAL DEVICE MOUNTING HEIGHTS

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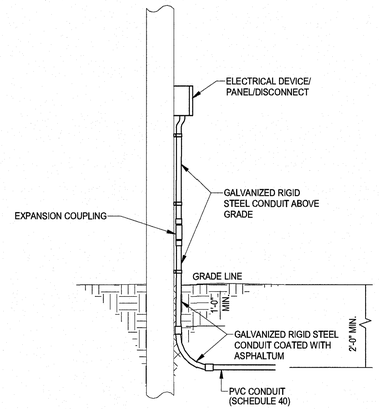

2 EXPOSED CONDUIT DETAIL

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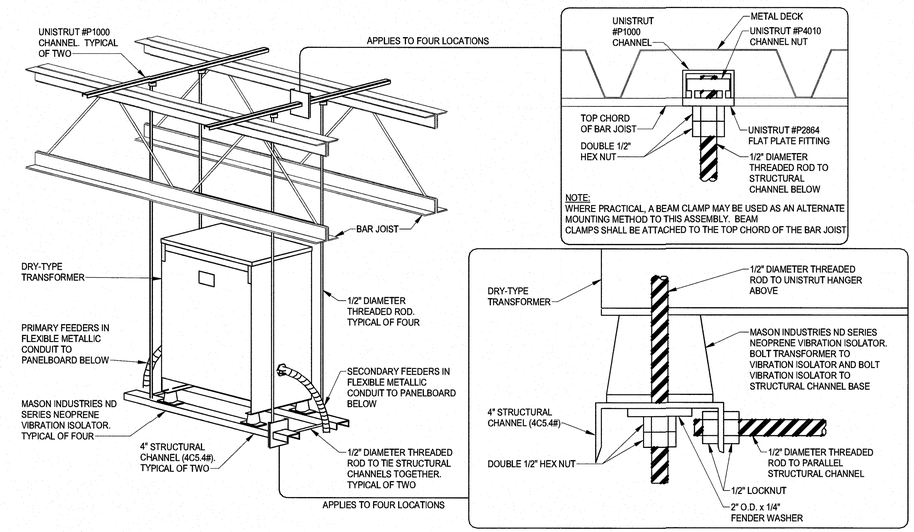

GENERAL NOTES APPLICABLE TO THIS DETAIL:
A. THIS DETAIL APPLIES ONLY TO DRY-TYPE TRANSFORMERS RATED 50 KVA OR LESS.

1 TRANSFORMER MOUNTING DETAIL

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No. 12584
TIMOTHY W. DANNER

REV. NO.	DATE	REVISION DESCRIPTION	BY

REVISIONS

ELECTRICAL DETAILS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	DB
checked by:	MM
approved by:	CW
QA/QC by:	DB
project no.:	018-0054
drawing no.:	
date	01/02/2020

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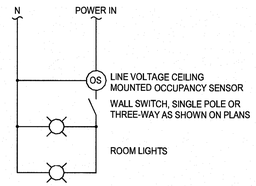
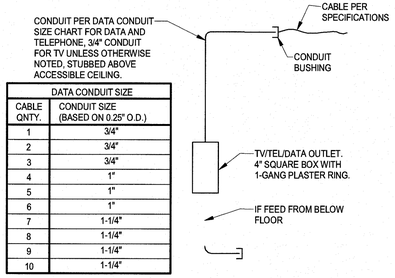


9 LINE VOLTAGE OCCUPANCY SENSOR SWITCHING DETAIL

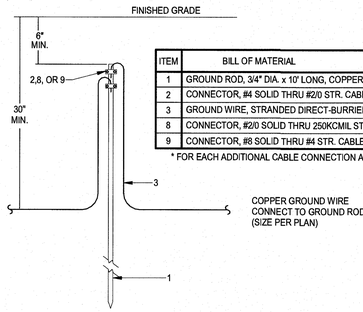
NOT TO SCALE



DATA CONDUIT SIZE	
CABLE QNTY.	CONDUIT SIZE (BASED ON 0.25" O.D.)
1	3/4"
2	3/4"
3	3/4"
4	1"
5	1"
6	1"
7	1-1/4"
8	1-1/4"
9	1-1/4"
10	1-1/4"

8 TELEVISION / TELEPHONE / DATA DETAIL

NOT TO SCALE

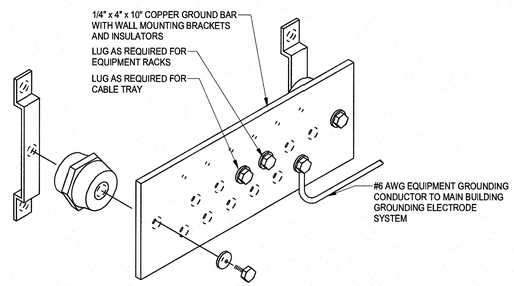


ITEM	BILL OF MATERIAL
1	GROUND ROD, 3/4" DIA. x 10' LONG, COPPER CLAD STEEL
2	CONNECTOR, #4 SOLID THRU #2/0 STR. CABLE TO GND. ROD, BURNDY #GAR-6426
3	GROUND WIRE, STRANDED DIRECT-BURRIED COPPER
8	CONNECTOR, #2/0 SOLID THRU 250KCMIL STR. CABLE TO GND. ROD, BURNDY #GAR-6429
9	CONNECTOR, #8 SOLID THRU #4 STR. CABLE TO GND. ROD, BURNDY #GAR-644C

* FOR EACH ADDITIONAL CABLE CONNECTION ADD 1 CONNECTOR.

7 GROUND ROD INSTALLATION DETAIL

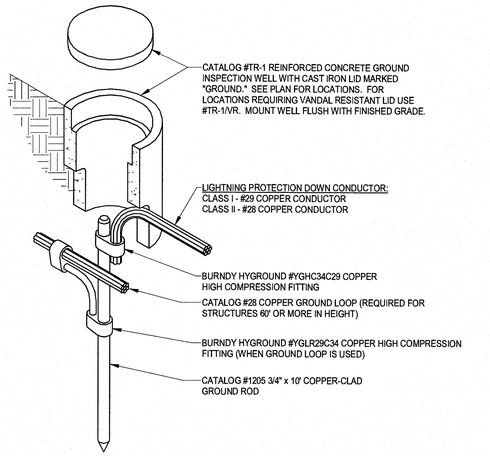
NOT TO SCALE



GENERAL NOTES APPLICABLE TO THIS DETAIL:
A. NOT ALL PARTS AND PART NUMBERS ARE SHWON IN THE DETAIL. THE ELCTRICAL CONTRACTOR IS RESPONSIBLE FOR A COMPLETE WORKING INSTALLATION, INCLUDING MISCELLANEOUS APPURTENANCES REQUIRED BUT NOT SHOWN.

6 GROUND BUS DETAIL

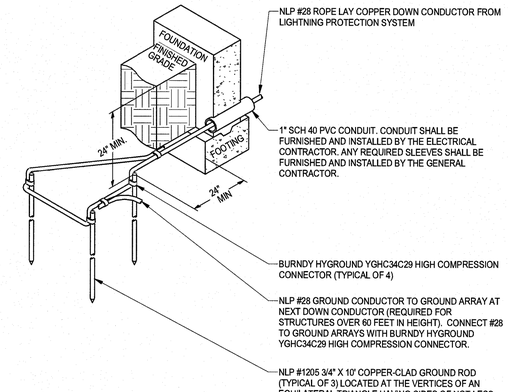
NOT TO SCALE



GENERAL NOTES APPLICABLE TO THIS DETAIL:
A. ALUMINUM LIGHTNING CONDUCTORS SHALL NOT COME INTO DIRECT CONTACT WITH EARTH.
B. WHERE MATERIAL COMPATIBILITY REQUIRES THE USE OF ALUMINUM DOWN CONDUCTORS, THEY SHALL BE TERMINATED AT A UL LISTED BIMETALLIC FITTING A MINIMUM OF 18" ABOVE GRADE . A COPPER LIGHTNING CONDUCTOR SHALL BE UTILIZED BETWEEN THE BIMETALIC FITTING AND THE GROUND SYSTEM CONNECTION .
C. CLEARLY MARK ALL OTHER SYSTEMS LOCATED BELOW GRADE PRIOR TO THE COMMENCEMENT OF THE GORUND SYSTEM INSTALLATION.

5 GROUND CONNECTION DETAIL

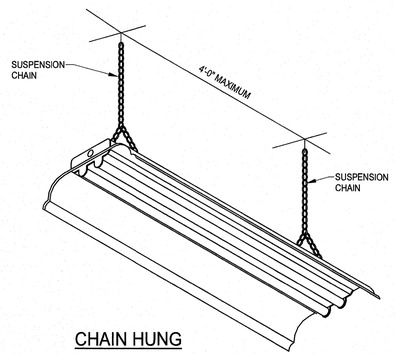
NOT TO SCALE



NOTE:
THE GENERAL CONTRACTOR SHALL CLEARLY MARK ALL OTHER SYSTEMS BELOW GRADE PRIOR TO THE COMMENCEMENT OF THE GROUND SYSTEM INSTALLATION.

4 DELTA GROUND OR GROUND ARRAY

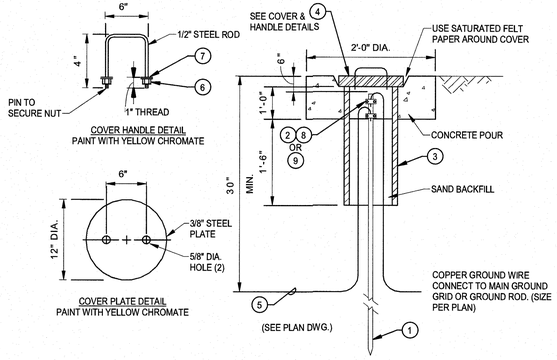
NOT TO SCALE



CHAIN HUNG

3 LUMINAIRE DETAIL

NOT TO SCALE

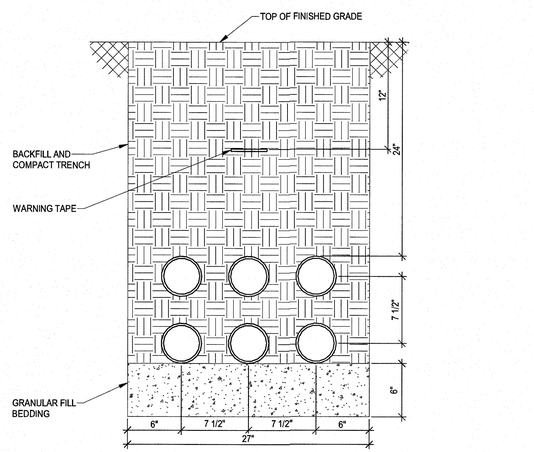


ITEM	BILL OF MATERIAL
1	GROUND ROD, 3/4" DIA. x 10' LONG, COPPER CLAD STEEL
2	CONNECTOR, #4 SOLID THRU #2/0 STR. CABLE TO GND. ROD, BURNDY #GAR-6426
3	PVC PIPE, 10" DIA. x 2'-6" LONG, SCHEDULE 40
4	COVER PLATE & HANDLE, FIELD FABRICATE PER DETAIL
5	GROUND WIRE, SDB COPPER
6	SQUARE NUT, 1/2", UNISTRUT #HSQN050EG
7	FLAT WASHER, 1/2", UNISTRUT #HFLW050EG
8	CONNECTOR, #2/0 SOLID THRU 250KCMIL STR. CABLE TO GND. ROD, BURNDY #GAR-6429
9	CONNECTOR, #8 SOLID THRU #4 STR. CABLE TO GND. ROD, BURNDY #GAR-644C

* FOR EACH ADDITIONAL CABLE CONNECTION ADD 1 CONNECTOR.

2 GROUND TEST WELL

NOT TO SCALE



GENERAL NOTES APPLICABLE TO THIS DETAIL FOR CONDUITS 2" AND LARGER:
A. ALL CONDUIT BENDS WITHIN THE DUCT BANK MUST HAVE A 36" MINIMUM BENDING RADIUS.
B. AT NO TIME SHALL WIRE OF ANY KIND BE WRAPPED AROUND THE DUCTS TO ANCHOR THE DUCT BANK.
C. PROVIDE DUCT SPACERS EVERY 5 TO 7 FEET AND DUCT ANCHORS EVERY 20 FEET.
D. PROVIDE WARNING TAPE ABOVE DUCT BANK PRIOR TO BACKFILLING.
E. UTILITY COMPANY REQUIREMENTS SHALL SUPERSEDE INFORMATION CONTAINED WITHIN THIS DETAIL.

1 TYPICAL DUCTBANK DETAIL

NOT TO SCALE

olsson
302 E. Millsap Road
Fayetteville, AR 72703
TEL 479.443.3404
FAX 479.443.4340
www.olsson.com

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 12584
TIMOTHY W. DANNER

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY

ELECTRICAL DETAILS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: DB
checked by: MM
approved by: CW
QA/QC by: DB
project no.: 018-0054
drawing no.:
date 01/02/2020

SHEET E502

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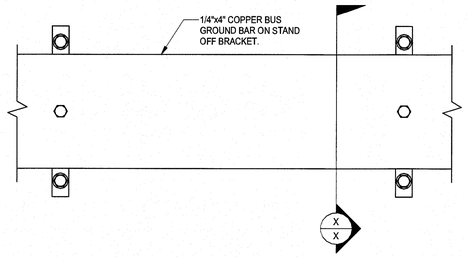
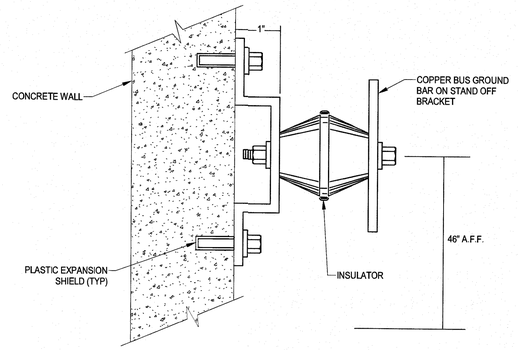
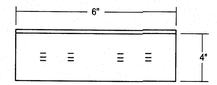
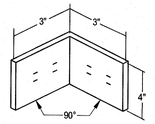


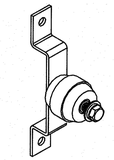




COPPER SPLICE PLATE

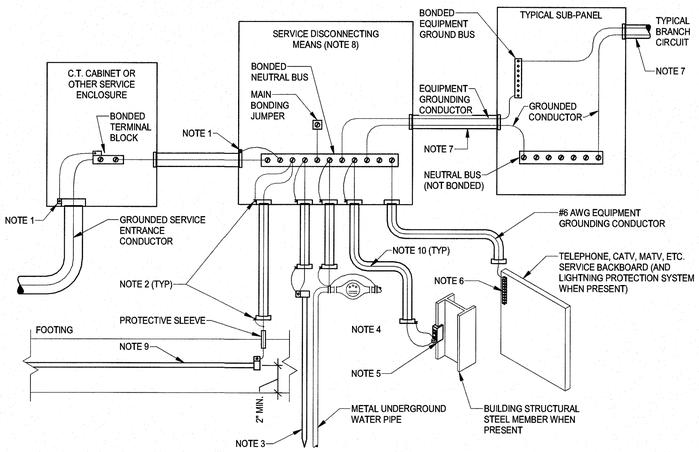


90° COPPER ELBOW



BRACKET AND INSULATOR

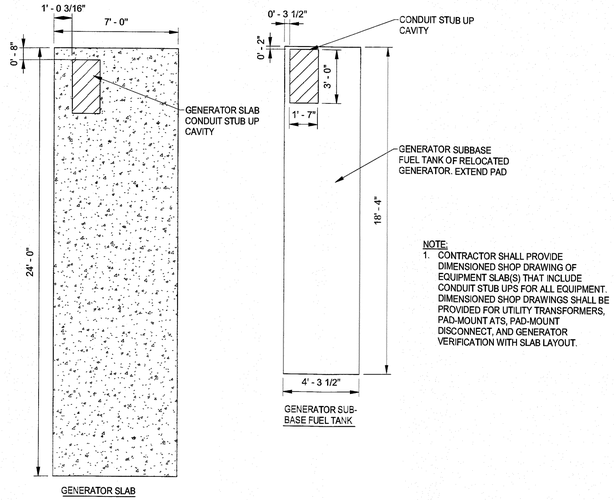
2 GROUNDING BUS DETAIL
NOT TO SCALE



GENERAL NOTES APPLICABLE TO THIS DETAIL:
A. FOR CLARITY, PHASE CONDUCTORS ARE NOT SHOWN.

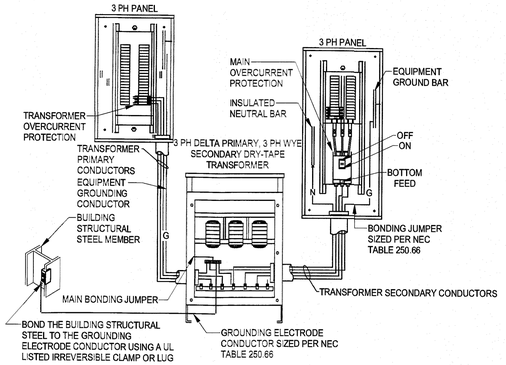
NOTES APPLICABLE TO THIS DETAIL:
1. ALL METAL CONDUITS ENCLOSING ANY SERVICE CONDUCTORS SHALL BE FITTED WITH A BONDING BUSHING. SIZE THE JUMPER PER NEC ARTICLE 250.
2. ALL METAL CONDUITS ENCLOSING ANY GROUNDING ELECTRODE CONDUCTOR SHALL BE FITTED WITH A BONDING BUSHING AT EACH END. SIZE THE JUMPER PER NEC ARTICLE 250.
3. PROVIDE AT LEAST ONE SUPPLEMENTAL GROUNDING ELECTRODE PER NEC IN THE FORM OF A 10'-0" x 3/4" COPPER CLAD GROUND ROD INSTALLED PER CURRENT NEC ARTICLE 250 REQUIREMENTS.
4. CONNECT TO THE BUILDING'S METAL UNDERGROUND WATER PIPE WITHIN 5' - 0" OF ITS ENTRANCE IN TO THE BUILDING AND JUMPER ANY WATER METER PER NEC REQUIREMENTS.
5. IF STRUCTURAL STEEL MEMBER IS AVAILABLE, BOND IT TO THE SERVICE USING A UL LISTED IRREVERSIBLE CLAMP OR WELDED LUG.
6. PROVIDE AN EQUIPMENT GROUND BAR AND ATTACH IT TO THE PHONE BOARD.
7. ALL BRANCH CIRCUIT AND FEEDER CONDUITS ARE TO HAVE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR REGARDLESS OF THE CONDUIT MATERIAL.
8. WHEN THE SERVICE CONSISTS OF MULTIPLE DISCONNECTING MEANS IN SEPARATE ENCLOSURES. CONNECT A TAP CONDUCTOR FROM THE MAIN GROUNDING ELECTRODE CONDUCTOR TO EACH DISCONNECTING MEANS. SIZE THIS TAP BASED ON THE LARGEST SERVICE CONDUCTOR IN THAT SERVICE DISCONNECTED ENCLOSURE.
9. PROVIDE A GROUNDING ELECTRODE ENCASED IN AT LEAST 2" OF CONCRETE AND LOCATED NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS INDIRECT CONTACT WITH EARTH. GROUNDING ELECTRODE SHALL CONSIST OF AT LEAST 20' - 0" OF ONE OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2" IN DIAMETER OR AT LEAST 20' - 0" OF #4 AWG BARE COOPER CONDUCTOR. THIS CONCRETE ENCASED GROUNDING ELECTRODE IS ALSO KNOWN AS A "UFER" GROUND.
10. WHERE A GROUNDING ELECTRODE CONDUCTOR IS SPECIFIED ELSEWHERE IN THE DRAWINGS, THAT SIZE SHALL APPLY TO ALL GROUNDING ELECTRODE CONDUCTORS SHOWN ON THIS DETAIL.

4 SERVICE ENTRANCE GROUND DETAIL
NOT TO SCALE

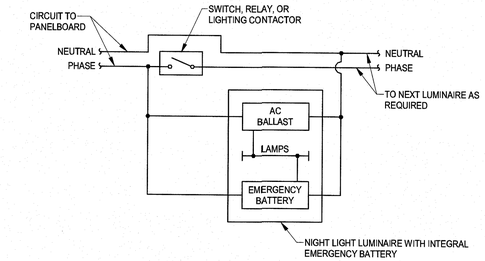


NOTE:
1. CONTRACTOR SHALL PROVIDE DIMENSIONED SHOP DRAWING OF EQUIPMENT SLAB(S) THAT INCLUDE CONDUIT STUB UPS FOR ALL EQUIPMENT. DIMENSIONED SHOP DRAWINGS SHALL BE PROVIDED FOR UTILITY TRANSFORMERS, PAD-MOUNT ATS, PAD-MOUNT DISCONNECT, AND GENERATOR VERIFICATION WITH SLAB LAYOUT.

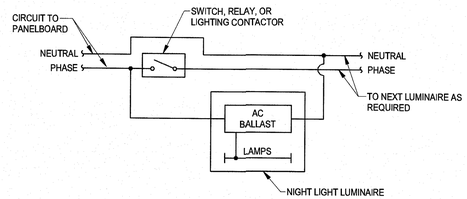
5 GENERATOR SUB-BASE FUEL TANK DIMENSIONS
SCALE: NOT TO SCALE



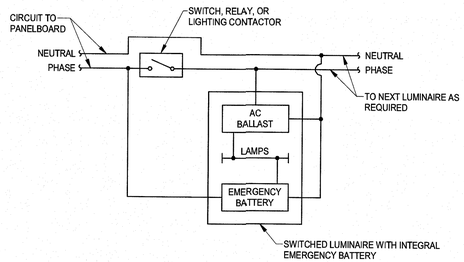
3 DRY-TYPE TRANSFORMER GROUND DETAIL
NOT TO SCALE



EMERGENCY AND NIGHT LIGHT



NIGHT LIGHT ONLY



EMERGENCY LIGHT ONLY

1 EMERGENCY AND NIGHT LIGHT WIRING DIAGRAMS
NOT TO SCALE

olsson
302 E. Millsap Road
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TEL 479.443.3404
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www.olsson.com

ARKANSAS LICENSED PROFESSIONAL ENGINEER
No. 12584
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NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by:	DB
checked by:	MM
approved by:	CW
QA/QC by:	DB
project no.:	018-0054
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date	01/02/2020

SHEET E503

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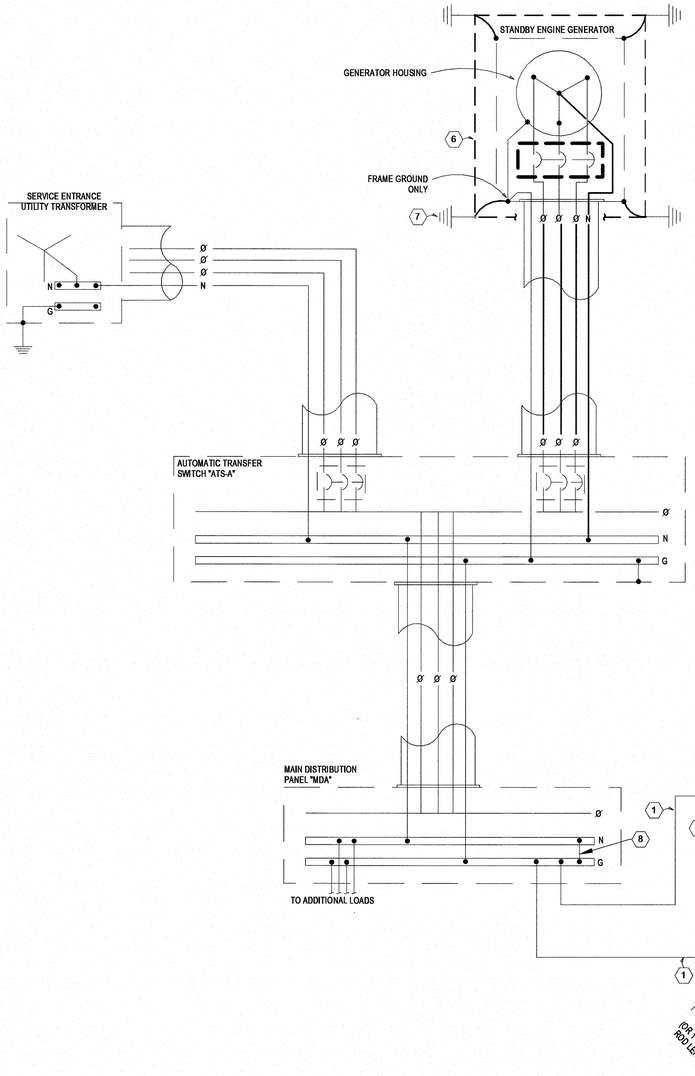


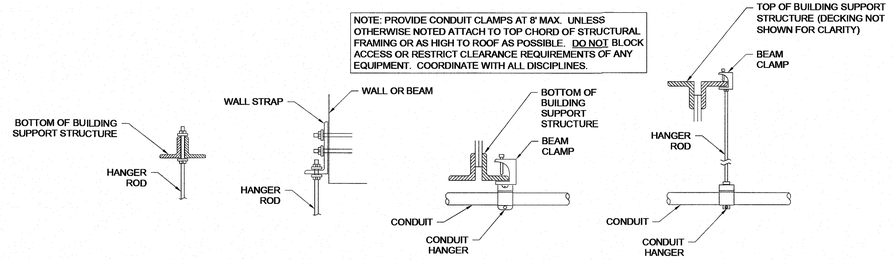
GROUNDING NOTES

1. INSTALL GROUNDING ELECTRODE CONDUCTOR SIZED PER NEC 250.66. GROUNDING ELECTRODE CONDUCTOR SIZE FOR GENERATOR AND UTILITY SERVICE IS 3/0.
2. INSTALL 10' X 5/8" COPPER CLAD STEEL GROUNDING RODS SPACED A MINIMUM OF 6'-0" APART. CONNECT GROUNDING RODS WITH A EQUIPMENT BONDING JUMPER SIZED THE SAME AS THE GROUNDING ELECTRODE CONDUCTOR (ACCORDING TO TABLE 250.66). REFERENCE NEC 250.53(B) AND 250.53(G) FOR GROUND ROD INSTALLATION REQUIREMENTS. REFERENCE NEC 250.53(C) FOR BONDING JUMPER REQUIREMENTS.
3. UTILIZE METAL UNDERGROUND WATER PIPE IN ACCORDANCE WITH NEC 250.52(A)(1) AS A GROUNDING ELECTRODE.
4. UTILIZE CONCRETE ENCASED ELECTRODE IN ACCORDANCE WITH NEC 250.52(A)(3) AS A GROUNDING ELECTRODE.
5. BOND TO BUILDING STEEL.
6. INSTALL GROUNDING ELECTRODE CONDUCTOR SIZED PER NEC 250.66. GROUNDING ELECTRODE CONDUCTOR SIZE FOR GENERATOR AND UTILITY SERVICE IS #3/0.
7. INSTALL 10'X5/8" COPPER CLAD STEEL GROUNDING RODS AT EACH CORNER OF THE GENSET. CONNECT GROUNDING RODS WITH AN EQUIPMENT BONDING JUMPER SIZED THE SAME AS THE GROUNDING ELECTRODE CONDUCTOR (ACCORDING TO TABLE 250.66). REFERENCE NEC 250.53(B) AND 250.53(G) FOR GROUND ROD INSTALLATION REQUIREMENTS. REFERENCE NEC 250.53(C) FOR BONDING JUMPER REQUIREMENTS.
8. MAIN (SYSTEM) BONDING JUMPER SIZED ACCORDING TO NEC TABLE 250.66. INSTALL A SYSTEM BONDING JUMPER AT EACH MAIN DISTRIBUTION PANEL "MDPA" AND "MDPB". REFERENCE AND INSTALL IN ACCORDANCE WITH NEC 250.28(A-D).

4 GENERATOR GROUNDING DETAIL

NOT TO SCALE

NOTE: PROVIDE CONDUIT CLAMPS AT 8' MAX. UNLESS OTHERWISE NOTED ATTACH TO TOP CHORD OF STRUCTURAL FRAMING OR AS HIGH TO ROOF AS POSSIBLE. DO NOT BLOCK ACCESS OR RESTRICT CLEARANCE REQUIREMENTS OF ANY EQUIPMENT. COORDINATE WITH ALL DISCIPLINES.

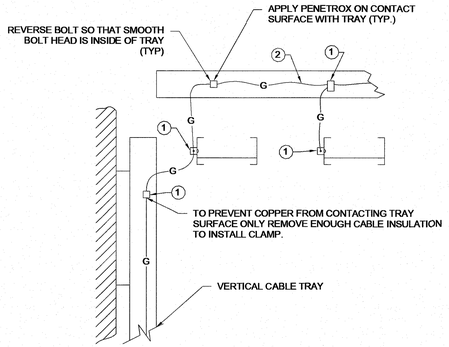


3 MISC ATTACHMENT DETAIL

NOT TO SCALE

MARK NO.	DESCRIPTION	VENDOR/CAT. NO. OR SERIES *		
		ANDERSON		
1	BRONZE GROUND CLAMP, CABLE TO FLAT WITH SILICON BRONZE HARDWARE	GC-141 **		
2	#4AWG CONDUCTOR-GREEN INSULATED, SOFT DRAWN COPPER GROUND CABLE			

* OR APPROVED EQUAL
** PER CABLE SIZE



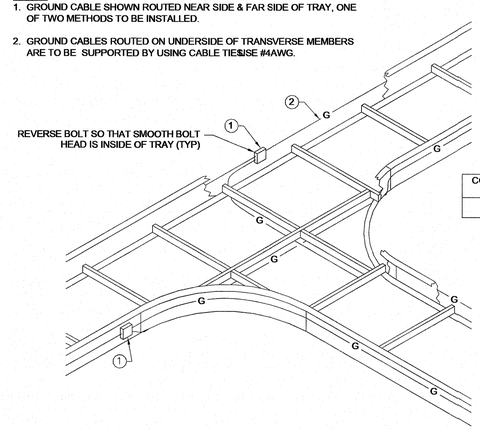
2 CABLE TRAY VERTICAL & HORIZONTAL TRANSITION GROUNDING DETAIL

NOT TO SCALE

MARK NO.	DESCRIPTION	VENDOR/CAT. NO. OR SERIES *
		BURNDY
1	CONNECTOR-MECHANICAL TYPE CABLE TO FLAT BAR	"GB" SEE CHART
2	#4AWG CONDUCTOR-SOFT DRAWN BARE COPPER	

* OR APPROVED EQUAL

NOTES:
1. GROUND CABLE SHOWN ROUTED NEAR SIDE & FAR SIDE OF TRAY, ONE OF TWO METHODS TO BE INSTALLED.
2. GROUND CABLES ROUTED ON UNDERSIDE OF TRANSVERSE MEMBERS ARE TO BE SUPPORTED BY USING CABLE TIES USE #4AWG.



CONDUCTOR SIZE	CAT. #	TYPE
#4AWG	GB26	GB

1 CABLE TRAY "T" FITTINGS INSTALLATION GROUNDING DETAIL

NOT TO SCALE

olsson
302 E. Millsap Road
Fayetteville, AR 72703
TEL 479.443.3404
FAX 479.443.4340
www.olsson.com

STATE OF ARKANSAS
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TIMOTHY W. DANNER

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NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: Author
checked by: Checker
approved by: Approver
QA/QC by: DB
project no.: 018-0054
drawing no.:
date 01/02/2020

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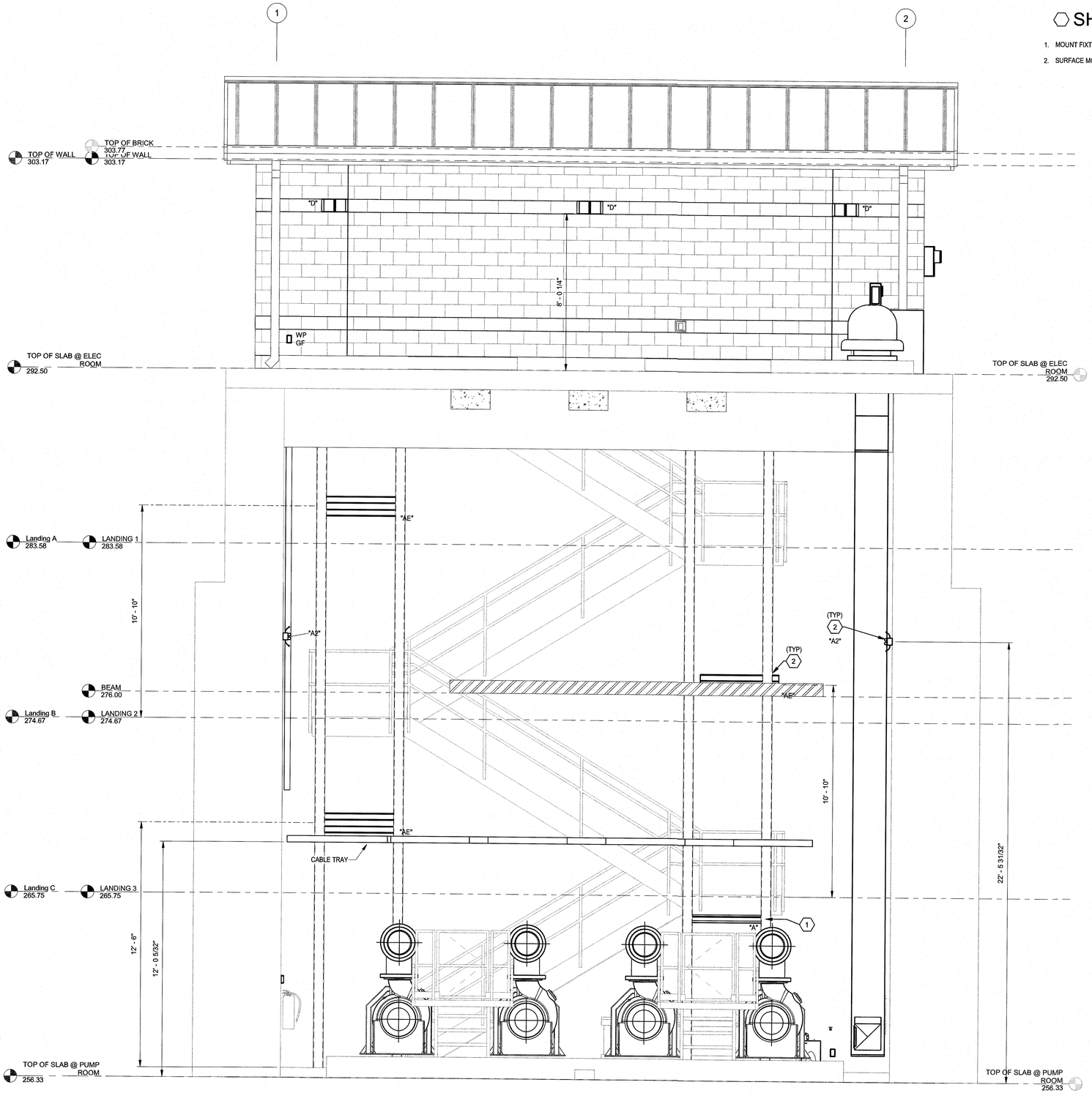
SHEET KEYNOTES

1. MOUNT FIXTURE BELOW STAIRWELL LANDING
2. SURFACE MOUNT FIXTURE TO WALL AT HEIGHT SHOWN.



1 STAIRWELL LIGHTING SECTION
NOT TO SCALE

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302 E. Millsap Road
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TEL 479.443.3404
FAX 479.443.4340
www.olsson.com

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CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

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date 01/02/2020

SHEET
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Distribution: "MDPA"

MAINS TYPE: COPPER
MCB:
BUS RATING: 800 A
AIC RATING: 65KAIC
SERVICE VOLTAGE: 480/277 Wye, 3-Phase, 4-Wire

LOCATION: ELECTRICAL 2 203
MOUNTING: FLOOR
DRAWING NO.:
FED FROM ITEM TYPE:
FED FROM ID: "ATS-A"

NOTES:

LOAD DESCRIPTION	CKT NO.	P	A (VA)	B (VA)	C (VA)	FRAME SIZE	BREAKER TRIP	NOTES
SPD	1	1	0.0			--	0 A	
PUMP "A1" "A2"	2	3	66480.0	66480.0	66480.0	400 A	350 A	
PUMP "A2" "A1"	3	3	66480.0	66480.0	66480.0	400 A	350 A	
"TLP"	4	3	7539.5	7540.0	7559.5	400 A	45 A	
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
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	17							
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	20							
	21							
	22							
	23							
	24							
	25							
	26							
	27							
	28							
	29							
	30							
Total Load:			140.5 kVA	140.5 kVA	140.5 kVA			
Total Amps:			507.2 A	507.2 A	507.3 A			

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
HVAC	199440 VA	125.00%	249300 VA		
Heating	3900 VA	125.00%	4875 VA	Total Conn. Load:	421.5 kVA
Lighting	992 VA	125.00%	1240 VA	Total Conn. Current:	507.0 A
Motor	205127 VA	124.31%	254987 VA	Total Est. Demand:	522.46 kVA
Other	9000 VA	100.00%	9000 VA	Total Est. Demand Current:	628.4 A
Power	0 VA	0.00%	0 VA	Future Load Growth:	
Receptacle	3060 VA	100.00%	3060 VA	Min. Panel Rating (Amps):	628 A
				Adjusted Demand Factor	125.00%
				Total Adjusted Demand...	653.0775

Distribution: "MDPB"

MAINS TYPE: COPPER
MCB:
BUS RATING: 800 A
AIC RATING: 65KAIC
SERVICE VOLTAGE: 480V 3PH Delta, 3-Phase, 3-Wire

LOCATION: ELECTRICAL 1 202
MOUNTING: FLOOR
DRAWING NO.:
FED FROM ITEM TYPE:
FED FROM ID: SERVICE DISCONNECT "B"

NOTES:

LOAD DESCRIPTION	CKT NO.	P	A (VA)	B (VA)	C (VA)	FRAME SIZE	BREAKER TRIP	NOTES
PUMP "B2"	1	3	66480.0	66480.0	66480.0	400 A	350 A	
FUTURE	2	3	66480.0	66480.0	66480.0	400 A	350 A	PREPARED SPACE ONLY
	3							
	4							
	5							
	6							
	7							
	8							
	9							
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	11							
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	25							
	26							
	27							
	28							
	29							
	30							
Total Load:			133.0 kVA	133.0 kVA	133.0 kVA			
Total Amps:			479.8 A	479.8 A	479.8 A			

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
HVAC	199440 VA	125.00%	249300 VA		
Motor	199440 VA	125.00%	249300 VA	Total Conn. Load:	398.9 kVA
				Total Conn. Current:	479.8 A
				Total Est. Demand:	498.60 kVA
				Total Est. Demand Current:	599.7 A
				Future Load Growth:	
				Min. Panel Rating (Amps):	600 A
				Adjusted Demand Factor	125.00%
				Total Adjusted Demand...	623.25

PANEL "LP"
VOLTAGE 120/208 Wye
MCB OR MLO MCB
FED FROM "TLP"

PHASE BUS RATING 100 A
AIC RATING
AVAILABLE SHORT CKT....

LOCATION ELECTRICAL 2 203
MOUNTING SURFACE
NO. OF POLES 42

NOTE	LOAD DESCRIPTION	AMP	P	CKT. NO.	A		B		C		CKT. NO.	P	AMP	LOAD DESCRIPTION	NOTE
	LIGHTING - EXTERIOR	20 A	1	1	146	360					2	1	20 A	RECEPTACLE - ELECTRICAL BUILDIN...	
	RECEPTACLE - SUMP PUMP	20 A	1	3			180	360			4	1	20 A	RECEPTACLE - SCADA 201 DESK	
	GENERATOR LIGHT/RECEPTACLE	20 A	1	5					300	376	6	1	20 A	LIGHTING - SCADA, ELECTRICAL 1 & 2	
	LIGHTING - PUMP 101	20 A	1	7	470	720					8	1	20 A	RECEPTACLE - PUMP 101	
	LEVEL TRANSDUCER PANEL	20 A	1	9			500	900			10	1	20 A	RECEPTACLE - ELECTRICAL 1 & 2	
	RECEPTACLE - SCADA 201	20 A	1	11					540	1000	12	1	20 A	GENERATOR BATTERY CHARGER	
	EF-1	35 A	1	13	3000	0					14	1	20 A	WATER HEATER	
	SCADA PANEL	20 A	1	15			1200	1400			16	1	20 A	RECEPTACLE	
	GENERATOR JACKET HEATER	30 A	1	17					2500	344	18	2	20 A	AC-1	
				19		344					20	--	--	--	--
	SERVER OUTLET	30 A	1	21			3000				22				
	CU-1	30 A	2	23					2500		24				
--	--	--	--	25	2500						26				
				27							28				
				29							30				
				31							32				
				33							34				
				35							36				
				37							38				
				39							40				
				41							42				

LOAD CLASSIFICATIONS	CONNECTED (VA)	DEMAND FACTOR	DEMAND (VA)
Heating	3900 VA	125.00%	4875 VA
Lighting	992 VA	125.00%	1240 VA
Motor	5687 VA	121.98%	6937 VA
Other	9000 VA	100.00%	9000 VA
Power	0 VA	0.00%	0 VA
Receptacle	3060 VA	100.00%	3060 VA

	KVA	AMPS
TOTAL PHASE A	7.54	63
TOTAL PHASE B	7.54	63
TOTAL PHASE C	7.56	63
CONNECTED LOAD:	22.639	63
MAXIMUM DEMAND:	25.112	70

NOTES:
AFCI - ARC FAULT CIRCUIT INTERRUPTION TYPE CIRCUIT BREAKER
CZ# - CONTROL ZONE NUMBER FOR REMOTE CONTROL
BMS# - ROUTE CIRCUIT THROUGH BUILDING MANAGEMENT SYSTEM
GFCI - GROUND FAULT CIRCUIT INTERRUPTING TYPE CIRCUIT...
GFPE - GROUND FAULT PROTECTION EQUIPMENT CIRCUIT BREAKER
HLO - HANDLE LOCK ON DEVICE FOR CIRCUIT BREAKER
HPL- PADLOCK ATTACHMENT TO LOCK C/B HANDLE IN OPEN POSITION

CONDUIT APPLICATION SCHEDULE

APPLICATION	MATERIAL	FITTING TYPE (IF APPLICABLE)	NOTES
SERVICE ENTRANCE CONDUIT ABOVE GRADE ONLY	RIGID STEEL (RGS)	-	2
FEEDERS ABOVE GRADE	EMT	COMPRESSION	1,4
BRANCH CIRCUITS FOR LIGHTING AND POWER ABOVE GRADE	EMT	COMPRESSION	1,4
HVAC EQUIPMENT, SUPPLY/ EXHAUST FANS AND MOTORS ABOVE GRADE	EMT	COMPRESSION	1,4
LIGHT FIXTURE WHIPS LIMITED TO 5'-0" IN LENGTH	MC CABLE		CU ONLY
SERVICE ENTRANCE CONDUIT BELOW GRADE WHERE NOT BELOW PAVED AREA	SCH 40 PVC	-	2
BRANCH CIRCUITS BELOW GRADE	SCH 40 PVC	-	1
UNDERGROUND TELEPHONE SERVICE	SCH 40 PVC		
DATA/TELEPHONE CABLING WHERE CEILINGS INSTALLED	OPEN/CABLE TRAY	-	3
LINE VOLTAGE THERMOSTAT/CONTROL WIRING	EMT	COMPRESSION	4

NOTES:
1. TRANSITION TO RIGID STEEL SHALL BE MADE PRIOR TO COMING UP FROM BELOW GRADE
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN UTILITY COMPANY REQUIREMENTS FOR PRIMARY SERVICE AND ENCASING IN CONCRETE IF REQUIRED
3. WHERE CEILINGS EXIST, WIRING CAN BE OPEN, PLENUM-RATED WIRING. IN AREAS WITHOUT A CEILING, EMT CONDUIT IS REQUIRED.
4. ALL CONDUITS INSTALLED IN OR TO THE PUMP ROOM SHALL BE RIGID STEEL WITH THREADED FITTINGS. APPLY CORROSION RESISTANT COATING AT FITTINGS.

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP WATTS	LAMP TYPE	LAMP CCT	LAMP CRI	APPARENT LOAD INPUT POWER	APPARENT LOAD VA/LF	VOLTAGE	MOUNTING	APPROVED MANUFACTURER	COMMENTS
"A2"	4' INDUSTRIAL STRIP	COLUMBIA	LXEM-4-40-VL-RA-E-U	47 W	LED	4000 K	80	47 VA		120 V	CHAIN HUNG 10'-0"AFF		
"A"	4' INDUSTRIAL STRIP	COLUMBIA	LXEM-4-40-ML-RFA-E-U-XEHC	47 W	LED	4000 K	80	47 VA		120 V	CHAIN HUNG 10'-0"AFF		
"AE"	4' INDUSTRIAL STRIP	COLUMBIA	LXEM-4-40-ML-RFA-E-U-XEHC	47 W	LED	4000 K	80	47 VA		120 V	CHAIN HUNG 10'-0"AFF		DO NOT PROVIDE CHAIN HANGER KIT FOR SURFACE MOUNTED FIXTURES
"C"	SURFACE MOUNT 2X2 TROFFER	HUBBELL	LSQ1-40-4K7-UNV-DB	40 W	LED	4000 K	70	40 VA		120 V	SURFACE		
"D"	EXTERIOR WALL MOUNT	HUBBELL	LNC-9L-U-4K-4-2	22 W	LED	4000 K	70	22 VA		120 V	WALL/SURFACE		

VARIABLE FREQUENCY DRIVE

NAME	LOAD SERVED	MANUFACTURER	VOLTAGE	FEEDER	PHASE	OCPD	HP	ENCLOSURE	FEEDER PANEL	LOCATION	NOTES
VFD-A1	PUMP "A1"	ALLEN BRADLEY	480	SEE 1-LINE DIAGRAM	3	350	200	NEMA 1	"MDPA"	ELECTRICAL 2 (203)	1,2,3,4
VFD A2	PUMP "A2"	ALLEN BRADLEY	480	SEE 1-LINE DIAGRAM	3	350	200	NEMA 1	"MDPA"	ELECTRICAL 2 (203)	1,2,4
VFD-B2	PUMP "B2"	ALLEN BRADLEY	480	SEE 1-LINE DIAGRAM	3	350	200	NEMA 1	"MDPB"	ELECTRICAL 1 (202)	1,2,3,4

NOTES:
1. VFD SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING AND CONDUIT, INCLUDING MOUNTING AND INSTALLING THE VFD. REFERENCE PLANS FOR MOUNTING LOCATION.
2. E/C SHALL PROVIDE ALL CONTROL WIRING AND CONDUIT. REFERENCE INSTRUMENTATION DRAWINGS FOR REQUIREMENTS.
3. PROVIDE DRIVE WITH BYPASS/ACROSS THE LINE STARTER.
4. PROVIDE DRIVE WITH ETHERNET COMMUNICATION CARD

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZE * **

PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2-WIRE + GND. CONDUIT SIZE	SINGLE PHASE 3-WIRE + GND. CONDUIT SIZE	SINGLE PHASE 4-WIRE + GND. CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1-1/4"
70	4 AWG	10 AWG	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"

* = UNLESS OTHERWISE NOTED ON THE DRAWINGS.

* * = ALL CONDUCTORS SHOWN IN THIS TABLE ARE BASED ON THREE CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.

* ** = THE CONDUCTORS SHOWN IN THIS TABLE ARE BASED ON AN AMBIENT TEMPERATURE OF 86°F. FOR TEMPERATURES ABOVE 86°F THE CONDUCTOR AMPACITY SHALL BE DERATED IN ACCORDANCE WITH THE NEC.

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No. 12584
TIMOTHY W. DANNER

REVISIONS

REV NO.	DATE	REVISION DESCRIPTION	BY

ELECTRICAL SCHEDULES

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: DB
checked by: MM
approved by: CW
QA/QC by: DB
project no.: 018-0054
drawing no.:
date 01/02/2020

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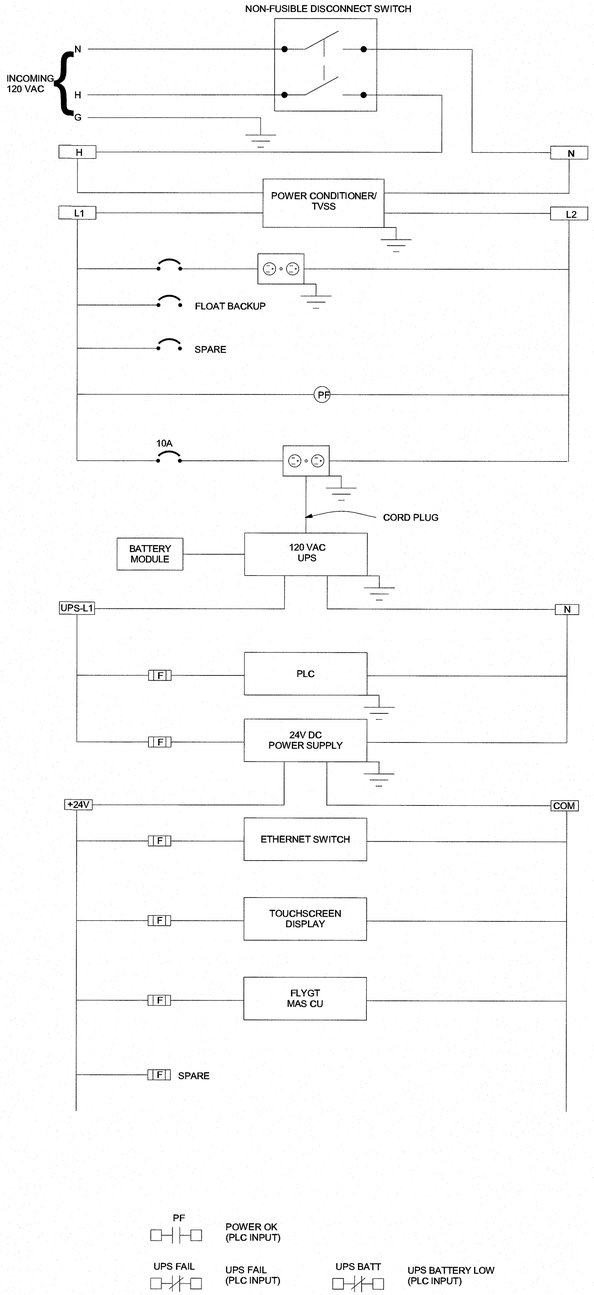


PF — POWER OK (PLC INPUT)

UPS FAIL — UPS FAIL (PLC INPUT)

UPS BATT — UPS BATTERY LOW (PLC INPUT)

2 SCADA PANEL POWER DISTRIBUTION

SCALE: 12" = 1'-0"

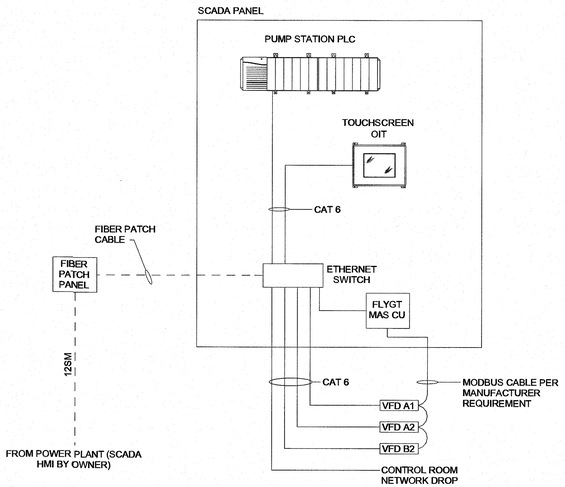
NOTES:

1. PANEL LAYOUTS SHOWN ARE GENERAL ARRANGEMENTS ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEASUREMENTS , CLEARANCES, AND VERIFICATION OF EXISTING DEVICES.
2. PROVIDE PANCUIT OR EQUIVALENT CABLE MANAGEMENT SYSTEMS. WIREWAY CONTAINING FIELD WIRING SHALL BE 4" DEPTH MINIMUM. UTILIZE WIREWAY WHERE POSSIBLE.
3. INSTALL DEVICES AND WIREWAY ON BACKPANEL.

LEGEND

CAT 6 NETWORK CABLE ETHERNET

FIBER OPTIC (SINGLE MODE)



1 SCADA ARCHITECTURE

SCALE: 12" = 1'-0"

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INSTRUMENTATION ARCHITECTURE

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

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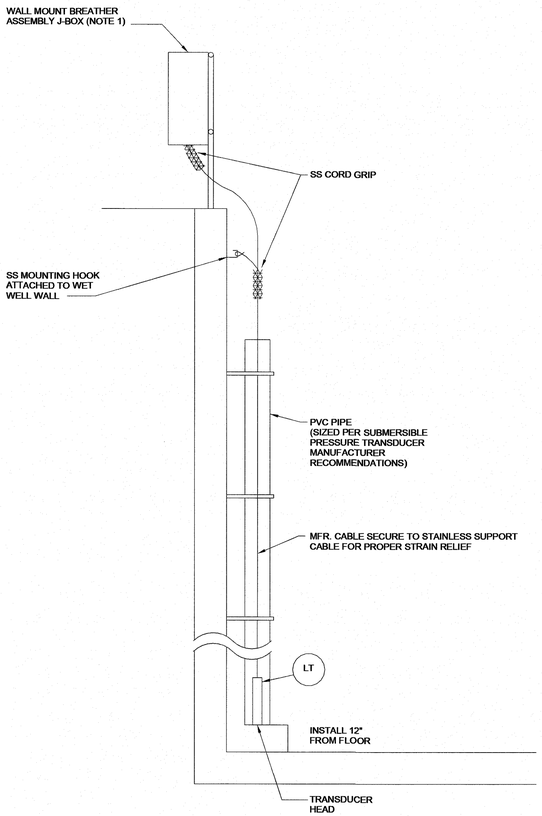
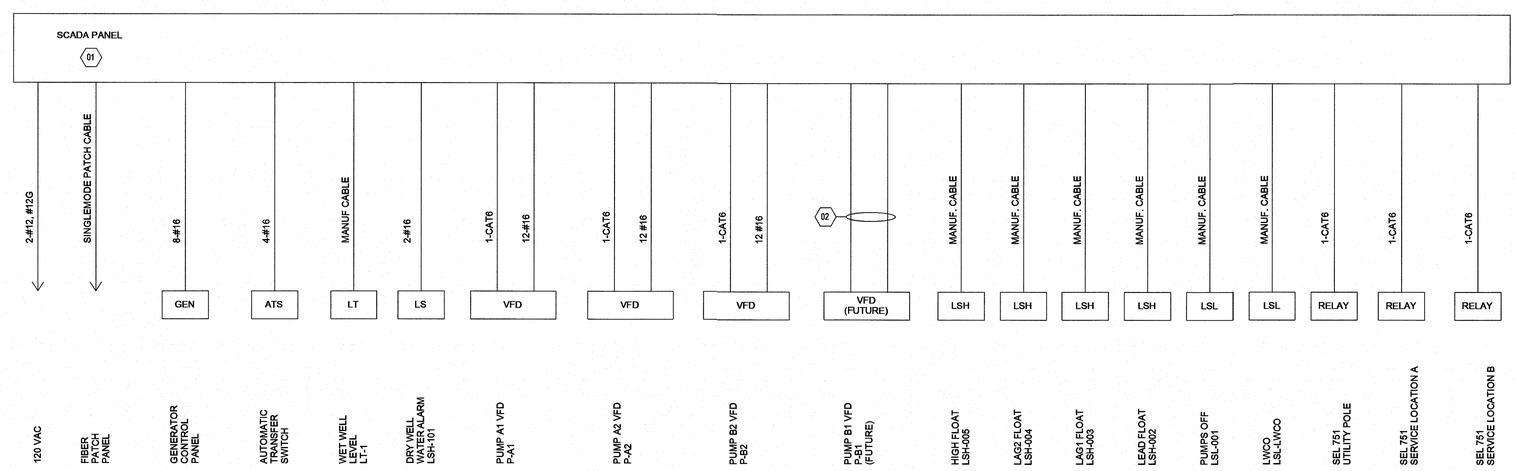


TYPICAL FOR LT-1

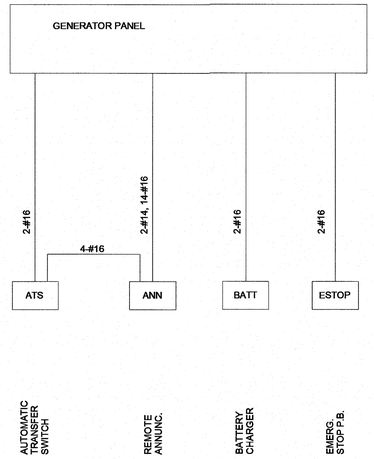
NOTE:

1. INSTALL BREATHER ASSEMBLY PER MANUFACTURER RECOMMENDATIONS.
2. MANUFACTURER CABLE SHALL BE CONTINUOUS FROM TRANSDUCER TO JUNCTION BOX. SPLICING OF MANUFACTURER CABLE SHALL NOT BE ALLOWED.

2 SUBMERSIBLE PRESSURE TRANSDUCER
SCALE: 12" = 1'-0"



1 CONTROLS ONE-LINE : SCADA
SCALE: 12" = 1'-0"



3 CONTROLS ONE-LINE : GENERATOR
SCALE: 12" = 1'-0"

SHEET KEYNOTES

01 ALL LOW VOLTAGE CABLE SHALL BE INSTALLED IN SEPARATE CONDUIT FROM 120V AC AND ABOVE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUIT SIZING PER APPLICABLE CODES.

02 INSTALL ONLY CONDUIT TO FUTURE PUMP VFD LOCATION. STUB AND CAP.

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INSTRUMENTATION DIAGRAMS

NEW WEST SIDE MAIN LIFT STATION
CITY WATER & LIGHT

JONESBORO, ARKANSAS

2020

drawn by: TS
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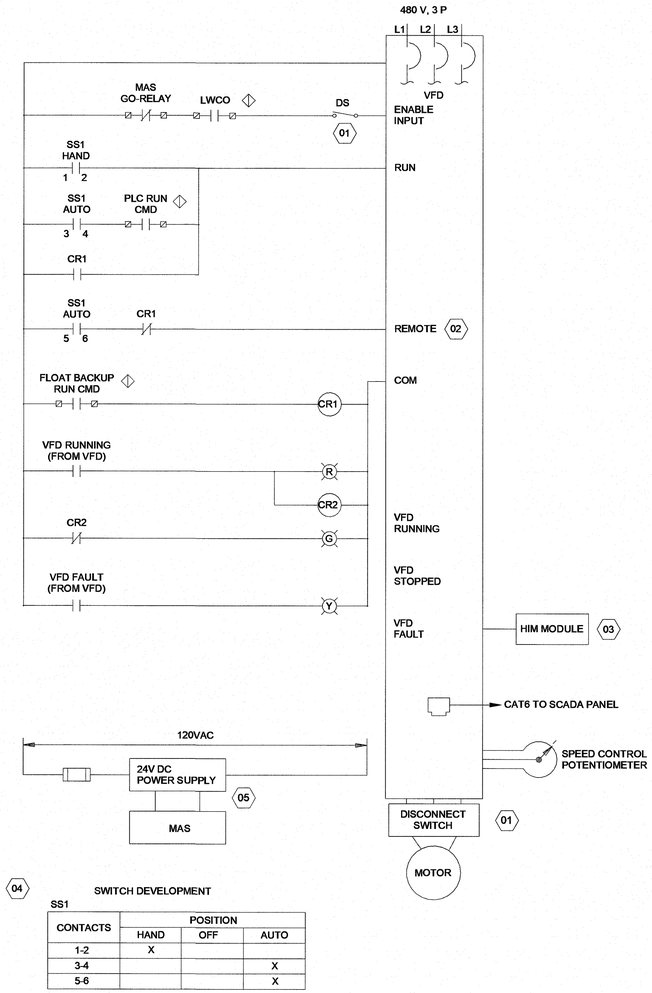
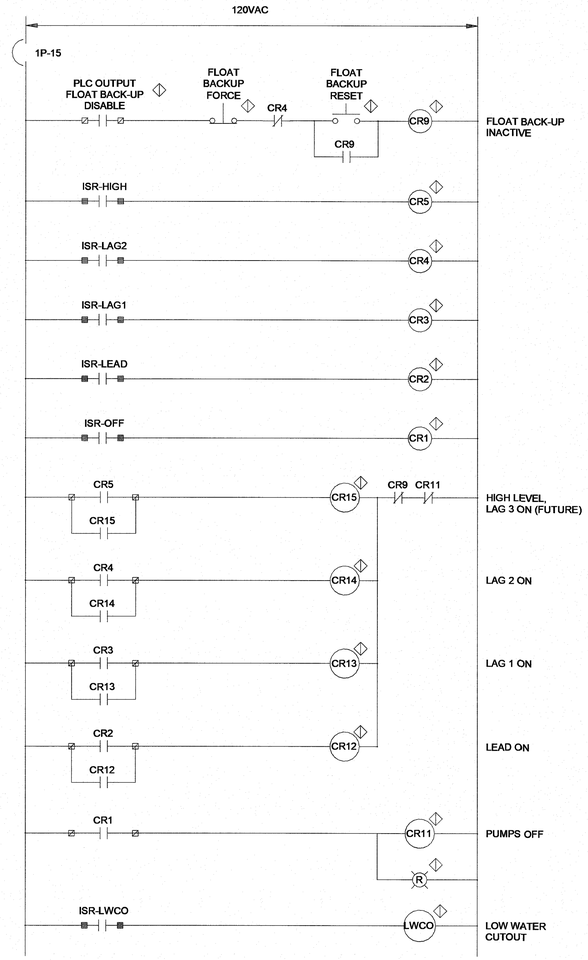
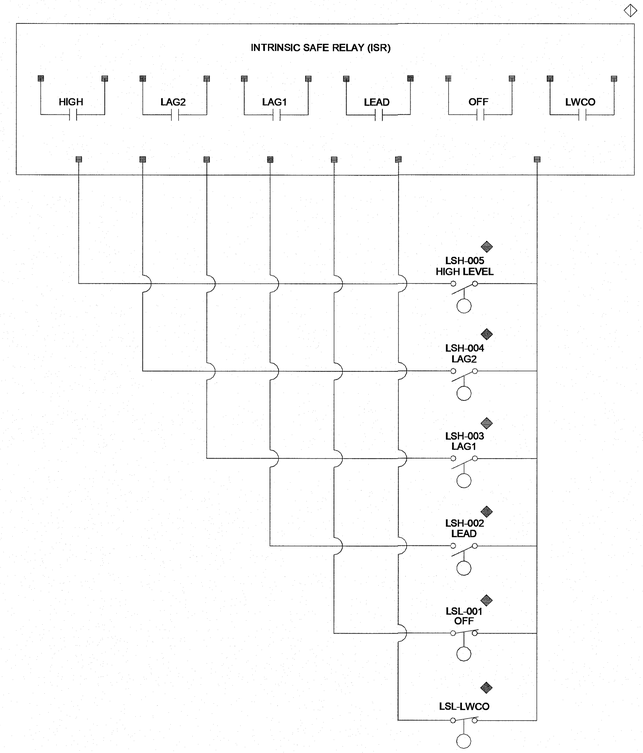


04 SWITCH DEVELOPMENT

SS1

CONTACTS	POSITION		
	HAND	OFF	AUTO
1-2	X		
3-4			X
5-6			X





CR9 FLOAT MODE ACTIVE (PLC INPUT)

CR5 HIGH LEVEL (PLC INPUT)

CR4 LAG2 FLOAT (PLC INPUT)

CR3 LAG1 FLOAT (PLC INPUT)

CR2 LEAD FLOAT (PLC INPUT)

CR15 HIGH LEVEL FUTURE LAG3 PUMP (PUMP B1) RUN CMD

CR14 LAG 2 PUMP (PUMP B1) RUN CMD

CR13 LAG 1 PUMP (PUMP A2) RUN CMD

CR12 LEAD PUMP (PUMP A1) RUN CMD

CR11 PUMPS OFF (PLC INPUT)

LWCO LWCO (PLC INPUT)

LWCO PUMP A1 LWCO (PLC INPUT)

LWCO PUMP A2 LWCO (PLC INPUT)

LWCO PUMP B1 LWCO (PLC INPUT)

LWCO PUMP B2 LWCO (PLC INPUT)

SYMBOL LEGEND

- REMOTE FROM STARTER AND DRIVEN EQUIPMENT
- AT SCADA PANEL
- AT VFD
- INTRINSICALLY SAFE BARRIER TERMINAL BLOCK
- VFD TERMINAL BLOCK
- FIELD TERMINAL BLOCK

SHEET KEYNOTES

01 WHERE DISCONNECT SWITCH IS PROVIDED, VFD ENABLE CIRCUIT SHALL BE INTERLOCKED WITH DISCONNECT SWITCH EARLY BREAK CONTACT.

02 CONFIGURE VFD TO USE PLC SPEED REFERENCE WHEN IN REMOTE MODE AND LOCAL SPEED POTENTIOMETER WHEN NOT IN REMOTE OR IN FLOAT MODE.

03 PROVIDE DOOR MOUNTED HIM MODULE.

04 HIM MODULE MAY BE USED IN LIEU OF HOA SWITCH. CONTRACTOR IS RESPONSIBLE FOR MATCHING SAME FUNCTIONALITY.

05 CONTRACTOR SHALL BE RESPONSIBLE FOR POWER TO MAS DEVICE USING POWER SUPPLY OR OTHER MEANS.

A VFD (TYPICAL)
SCALE: 1" = 20'-0"

B FLOAT BACKUP
SCALE: 1" = 20'-0"

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