

City of Taunton, Massachusetts

Wastewater Treatment Facility Improvements

Solids Handling

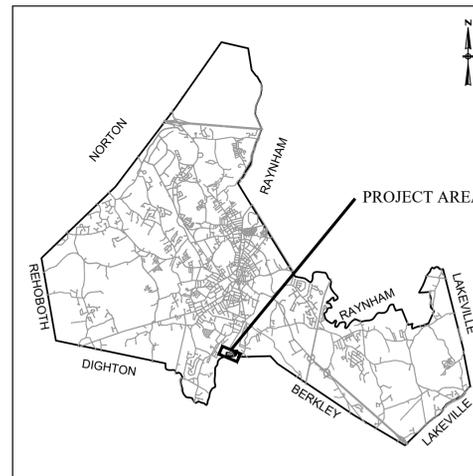


Mayor
Shaunna O'Connell

Department of Public Works
Frederic J. Cornaglia - Commissioner
Anthony Abreau - Assistant Commissioner

City Engineer
Michael Patneau, P.E.

City Council
Deborah Carr
Donald L. Cleary
Chris Coute
Gerald Croteau
Phillip Duarte
John M. McCaul
Jeff Postell
David W. Pottier
Barry Sanders



LOCATION MAP
NOT TO SCALE



Project
Location

PROJECT LOCATION

LOCUS MAP
NOT TO SCALE

Contract S-2020-3
CWSRF No. 6690

Issue Date:
March 24, 2021



Prepared By:



PREPARED BY



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REGISTERED PROFESSIONAL



SUBCONSULTANT

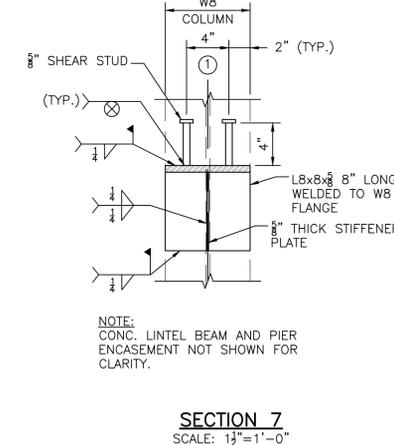
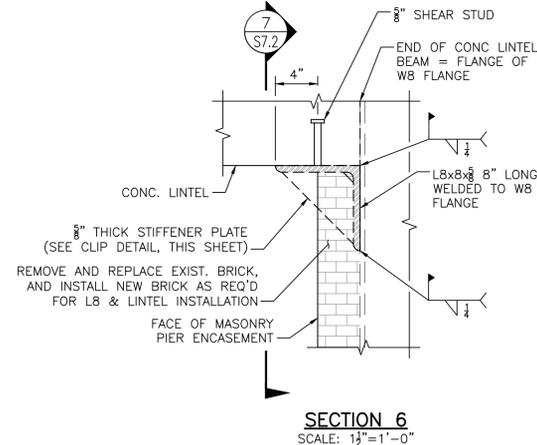
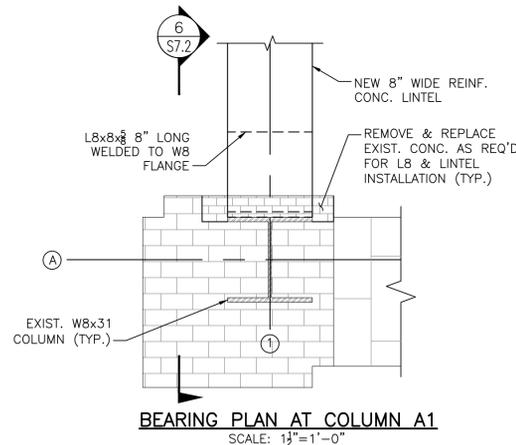
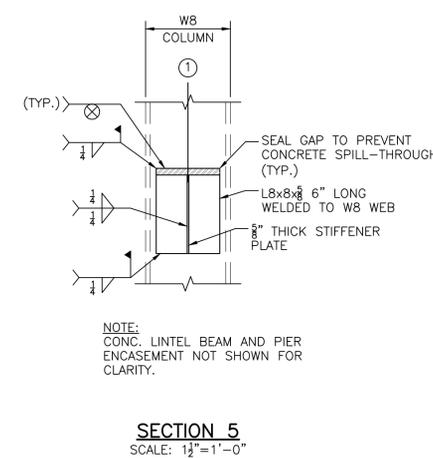
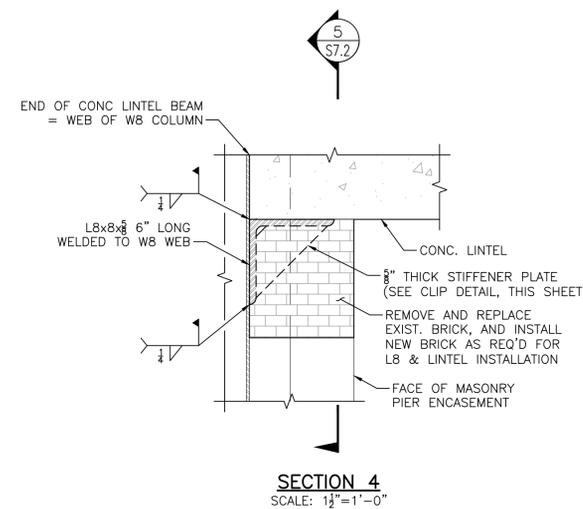
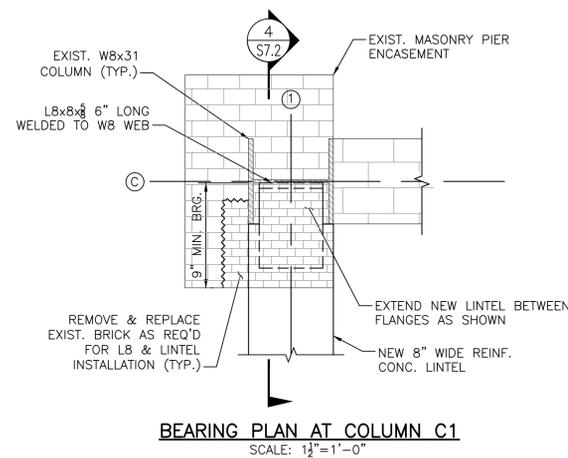
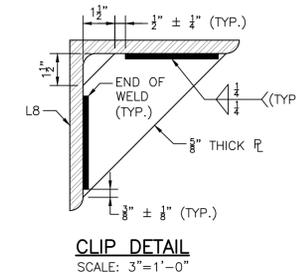
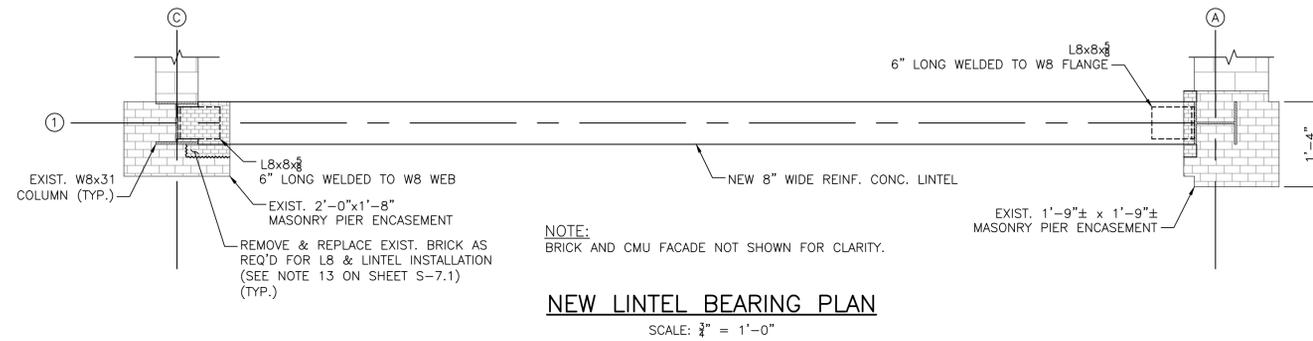
PROJECT

Taunton Wastewater Treatment Facility Improvements Solids Handling

Taunton, MA

TITLE

Solids Handling Lintel Bearing Details



3/24/2021 3:38 PM N:\60605\6060 - TAUNTON WWTF\DRAWING FILES\PLANSET\PHASE 1\6060_SRT.2 - P1.DWG (BETA-STD B.W./C.TB)

NO. REVISIONS DATE

DRAWN BY: BN

DESIGNED BY: BN

CHECKED BY: TMW

ISSUE DATE: 3/24/2021

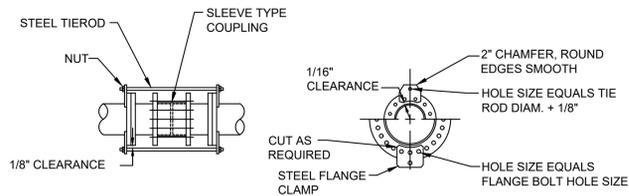
BETA JOB NO.: 6050

SCALE

AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO. S-7.2



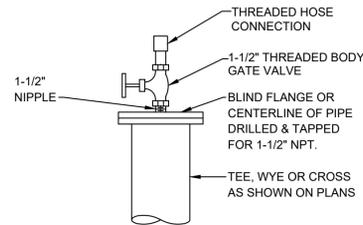
NOTE: TIERODS SHALL BE EQUALLY SPACED AROUND PIPE.

PIPE SIZE	TIERODS		FLANGE CLAMP			
	NO.	DIA.	THICKNESS	NO. OF FLANGE BOLTS PER CLAMP	"A"	"B"
6"	2	1/2"	1/2"	2	2"	7-3/4"
8"	2	5/8"	1/2"	2	2"	8-5/8"
10"	2	3/4"	1/2"	2	2"	7-3/4"
12"	2	1"	1/2"	2	2"	8-1/2"
14"	2	1-1/8"	3/4"	2	2"	9"
16"	2	1-1/4"	7/8"	2	2"	12-1/4"
18"	2	1-3/8"	7/8"	3	2-1/2"	13"
20"	2	1-3/8"	1"	3	2-1/2"	8"
24"	3	1-3/8"	1"	2	2-1/2"	8-3/4"
30"	4	1-3/4"	1"	2	2-1/2"	12-1/4"
36"	4	1-3/4"	1-1/4"	3	2-1/2"	8-1/2"
42"	6	1-3/4"	1-1/4"	2	2-1/2"	12-3/4"
48"	6	1-3/4"	1-1/4"	3	2-1/2"	12-1/2"

SLEEVE COUPLING RESTRAINT (150 PSI FLANGE CLAMP ASSEMBLY)

SCALE: NOT TO SCALE

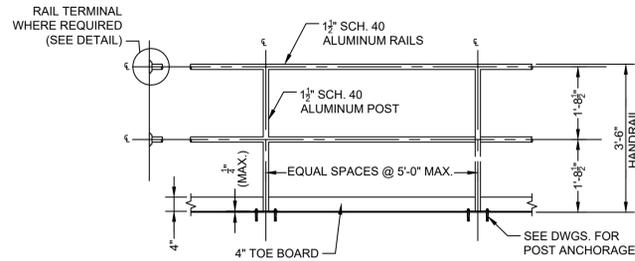
432



FLUSHING CONNECTION

SCALE: NOT TO SCALE

435

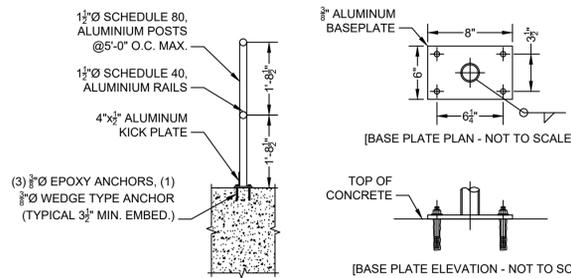


NOTE:

- COAT SURFACE IN CONTACT WITH DISSIMILAR MATERIALS WITH BITUMASTIC COATING AS PER THE SPECIFICATIONS.
- FASTEN RAIL TERMINAL TO WALL BRACKET PER MFR'S RECOMMENDATIONS.
- WALL FLANGE TO BE MOUNTED TO WALL W/ (2) 3/8" S.S. EPOXY ANCHORS.

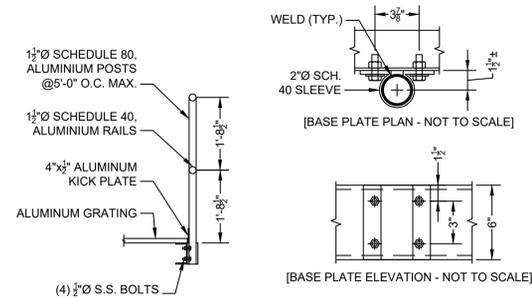
TWO-BAR HANDRAIL DETAIL

SCALE: NOT TO SCALE



TOP MOUNTED HANDRAIL DETAIL

SCALE: NOT TO SCALE



FACE MOUNTED HANDRAIL DETAIL

SCALE: NOT TO SCALE

PREPARED BY



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REGISTERED PROFESSIONAL



Joseph Federico, Jr.

SUBCONSULTANT

PROJECT

Taunton Wastewater Treatment Facility Improvements Solids Handling

Taunton, MA

TITLE

Mechanical Details III

NO. REVISIONS DATE

DRAWN BY: BM

DESIGNED BY: BM

CHECKED BY: RM

ISSUE DATE: 3/24/2021

BETA JOB NO.: 6050

SCALE

AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

MD-3

11/2/2020 1:25 PM W:\YEAR-2018\18009.00 - TAUNTON WWTF UPGRADE\HVAC DEPARTMENT\PHASE 1\18009.00 HVAC LEGEND AND DETAILS\PHASE 1A.DWG (BETA STB BWI.STB)

GENERAL NOTES

- 1. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EXISTING DUCTS, PIPING OR EQUIPMENT INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. EXACT LOCATIONS MUST HAVE THE APPROVAL OF THE ARCHITECT.

DEMOLITION NOTES

- 1. EXISTING WORK INDICATED TO BE DEMOLISHED SHALL BE REMOVED AND DISPOSED OF.

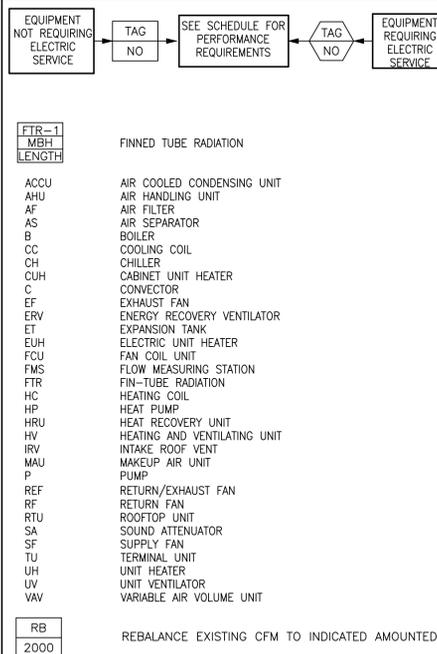
ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes entries like ACD (AUTOMATIC CONTROL DAMPER), AFF (ACCESS DOOR), and VAV (VARIABLE AIR VOLUME).

PIPING LEGEND

Table with 2 columns: Symbol and Description. Includes CD (CONDENSATE DRAIN), HWS (HOT WATER SUPPLY), and RL (REFRIGERANT LIQUID).

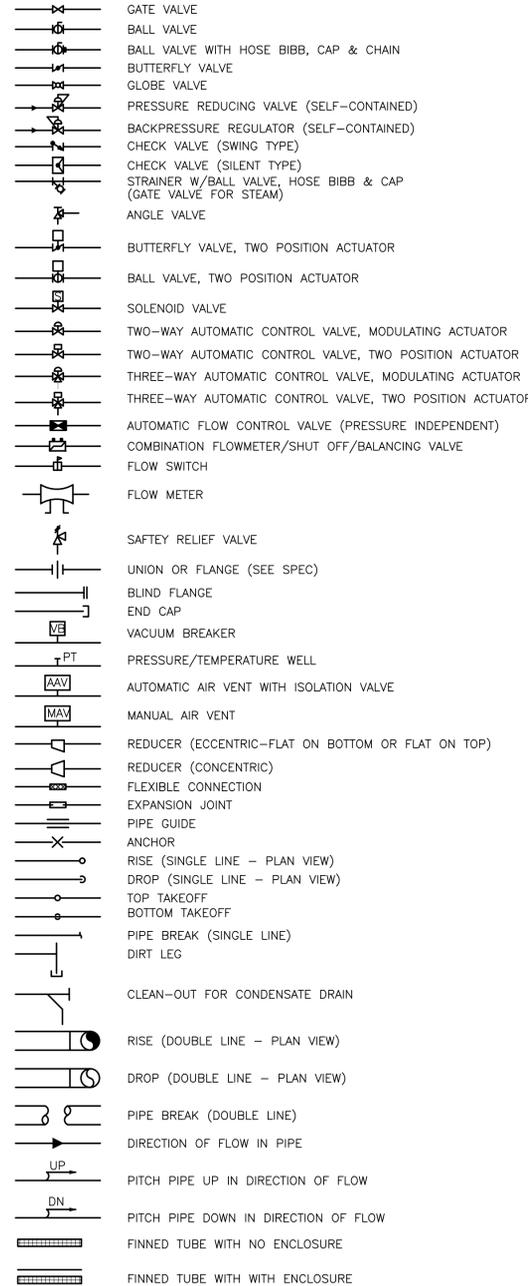
EQUIPMENT TAG SYMBOLS & ABBREVIATIONS



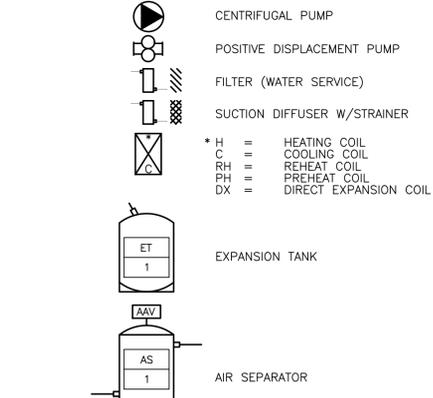
INSTRUMENTATION

Table with 2 columns: Symbol and Description. Includes PI (LOCAL PRESSURE GAUGE), TI (LOCAL TEMPERATURE INDICATION), and CO2 (CARBON DIOXIDE DETECTOR).

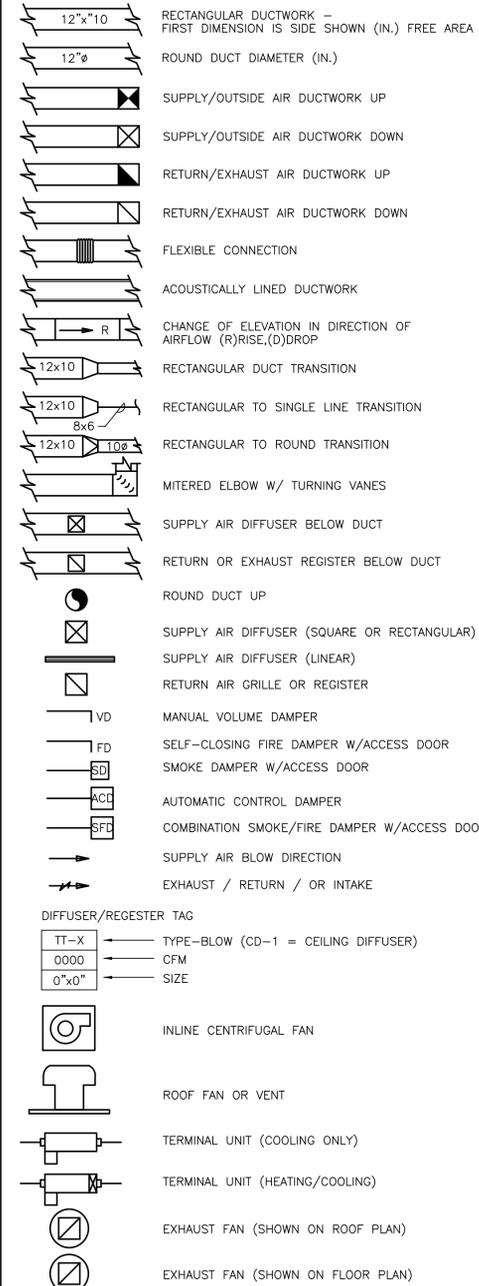
VALVES AND ACCESSORIES



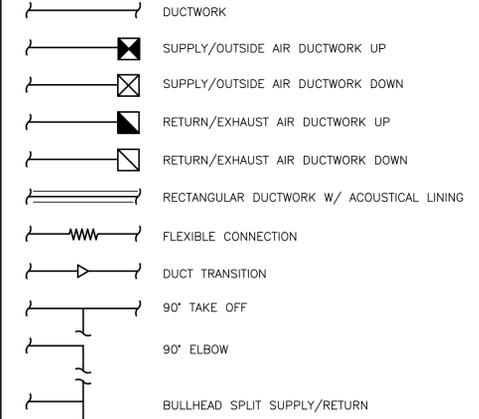
FLOW DIAGRAM EQUIPMENT SYMBOLS



DUCTWORK LEGEND/SYMBOLS



SINGLE LINE DUCTWORK



PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617.328.9215
web: www.sar.com

PROJECT

Taunton Wastewater Treatment Facility Improvements Solids Handling

Taunton, MA

TITLE

Hvac Legend and General Notes

Table with 3 columns: NO., REVISIONS, DATE. Contains revision history information.

DRAWN BY: RLB

DESIGNED BY: RHB

CHECKED BY: RHB

ISSUE DATE: 10/16/2020

BETA JOB NO.: 6050

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

H-0.1

ENERGY RECOVERY UNIT SCHEDULE (PART 1)

TAG NO.	BUILDING	SUPPLY AIR PERFORMANCE							EXHAUST AIR NORMAL PERFORMANCE					DX COOLING COIL							HEATING COIL							ELECTRICAL DATA					WEIGHT LBS	SUPPLY FILTER	OUTDOOR FILTER			
		SUPPLY IN CFM	MIN. OA IN CFM	ESP (IN WC)	TSP (IN WC)	FAN RPM	OPERATING POWER HP	MOTOR SIZE HP	EXH./RET. OUT CFM	E.S.P. IN (W.C.)	TOTAL SP IN (W.C.)	FAN RPM	OPERATING POWER HP	MOTOR SIZE HP	REFRIG TYPE	TOTAL MBH	SENSIBLE MBH	ROWS	EAT (DB °F)	EAT (WB °F)	LAT (DB °F)	LAT (WB °F)	CAPACITY (MBH)	GPM	EAT (DB °F)	LAT (DB °F)	EWT (DB °F)	LWT (DB °F)	% GLYCOL	WPD (FT)	APD (IN WC)	MCA				MOCV	V	PHASE
7ERV-1	SOLID HANDLING BLDG. 1ST FLOOR	13,500	13,500	1.5	3.76	2265	(2) 7.46	(2) 7.5	13,500	1.5	3.282	2465	(2) 9.39	(2) 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	787.9	84.7	46.7	100.6	180	160	40% P.G.	9.4	0.144	48.2	60	480	3	60	5,307	MERV-6	MERV-8
7ERV-2	SOLID HANDLING BLDG. 1ST FLOOR	11,900	11,900	1.5	3.385	2120	(2) 6.29	(2) 7.5	11,900	1.5	3.006	2252	(2) 7.18	(2) 7.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	717.6	77.2	48.8	104.5	180	160	40% P.G.	7.9	0.12	41.9	50	480	3	60	5,259	MERV-6	MERV-8
7ERV-3	SOLID HANDLING BLDG. 2ND FLOOR	9,100	9,100	0.90	2.7	2197	(2) 3.52	(2) 5	9,100	0.60	2.521	2342	(2) 4.24	(2) 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	343.6	37.0	53.1	87.9	180	160	40% P.G.	6.2	0.037	28.7	35	480	3	60	5,089	MERV-6	MERV-8
7ERV-4	SOLID HANDLING BLDG. 2ND FLOOR	9,100	9,100	0.90	2.7	2197	(2) 3.52	(2) 5	9,100	0.60	2.521	2342	(2) 4.24	(2) 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	343.6	37.0	53.1	87.9	180	160	40% P.G.	6.2	0.037	28.7	35	480	3	60	5,089	MERV-6	MERV-8

ENERGY RECOVERY UNIT SCHEDULE (PART 2)

TAG NO.	ENERGY RECOVERY WHEEL PERFORMANCE										MANUFACTURER MODEL NUMBER	REMARKS
	WINTER CONDITIONS DESIGN					SUMMER CONDITIONS DESIGN						
	OUTDOOR DB °F	WB °F	DB °F	RH%	ESP (IN WC)	OUTDOOR DB °F	WB °F	DB °F	RH%	ESP (IN WC)		
7ERV-1	7.4	5.3	46.7	50	90.8	76.2	80.7	50			GREENHECK RVE-120-74-30H	①②③④⑤⑥⑦⑧⑨⑩
7ERV-2	7.4	5.3	48.8	50	90.8	76.2	80.2	50			GREENHECK RVE-120-74-30H	①②③④⑤⑥⑦⑧⑨⑩
7ERV-3	7.4	5.3	53.1	50	90.8	76.2	79.2	50			GREENHECK RVE-120-74-30H	①②③④⑤⑥⑦⑧⑨⑩
7ERV-4	7.4	5.3	53.1	50	90.8	76.2	79.2	50			GREENHECK RVE-120-74-30H	①②③④⑤⑥⑦⑧⑨⑩

- ① BASE RAILS ② LOW LEAKAGE DAMPERS ③ RECIRC. DAMPER ④ FACTORY SUPPLY & EXHAUST FAN VFD ⑤ ENERGY BYPASS WHEEL DAMPER
- ⑥ FACTORY MOUNTED DISCONNECT ⑦ SINGLE POINT POWER CONNECTION ⑧ COORDINATE SUPPLY & EXHAUST DISCHARGE WITH FLOOR PLANS
- ⑨ INSTALLED INDOORS ⑩ AIR FLOW STATIONS

MAKE-UP AIR UNIT SCHEDULE

TAG NO.	LOCATION	SUPPLY BLOWER							HEATING COIL							ELECTRICAL DATA					WEIGHT LBS	MANUFACTURER MODEL NUMBER	REMARKS
		OA CFM	TSP (IN WC)	ESP (IN WC)	FAN BHP	FAN HP	CAPACITY (MBH)	GPM	EAT (DB °F)	LAT (DB °F)	EWT (DB °F)	LWT (DB °F)	% GLYCOL	WPD (FT)	FLA	MOP	V	PH	HZ				
7MUA-1	SOLID HANDLING BLDG. 1ST FLOOR	4,000	1.71	1.4	3.29	5	372.7	32.6	7	83	180	160	40% P.G.	13	7.6	20	480	3	60	-	GREENHECK LFC-85-FC-50	①②③④⑤⑥	

- ① BASE RAILS ② FACTORY MOUNTED DISCONNECT ③ SINGLE POINT POWER CONNECTION ④ VFD RATED MOTOR ⑤ INSTALLED INDOORS ⑥ AIR FLOW STATION

BOILER SCHEDULE

TAG NO.	BUILDING	OUTPUT CAPACITY (NET IBR)	FIRING RATE	EFFICIENCY		OPERATING PRESSURE (PSIG)	WATER				ELECTRICAL DATA				WEIGHT (LBS)	MANUFACTURER MODEL NUMBER	REMARKS	
				MBH	OIL (GPH)		COMBUSTION	THERMAL	EWT (°F)	LWT (°F)	GPM	% GLYCOL	WPD (FT)	HP				V
7 B-1	SLUDGE HANDLING	2506	20.7	88.4	88.4	-	180	160	300	40% P.G.	-	2	208	1	60	-	BURHAM MPC15	POWER FLAME C3-0

PUMP SCHEDULE

TAG NO.	BUILDING	SYSTEM SERVED	TYPE	GPM	HEAD (FT.)	GLYCOL	FLUID TEMP °F	RPM	ELECTRICAL DATA				MANUFACTURER MODEL NUMBER	REMARKS
									MOTOR HP	V	PH	HZ		
7HWP-1	SLUDGE HANDLING	H.W.	END	300	60	40% P.G.	180	1725	7.5	480	3	60	TACO 2510C	①
7HWP-2	SLUDGE HANDLING	H.W.	END	300	60	40% P.G.	180	1725	7.5	480	3	60	TACO 2510C	①

- ① VFD RATED MOTOR

EXPANSION TANK SCHEDULE

TAG NO.	BUILDING	SERVICE	SYS TEMP (°F)		SYS PRESS (PSIG)		TANK ACCEPTANCE VOLUME (GAL)	TANK AIR CHARGE (PSIG)	MANUFACTURER MODEL NUMBER	REMARKS
			MIN	MAX	MIN	MAX				
7 ET-1	SLUDGE HANDLING	H.W.	50	180	15	150	61	12	TACO CBX-425	-

PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617.328-9215
web: www.sar.com

PROJECT

Taunton Wastewater Treatment Facility Improvements Solids Handling

Taunton, MA

TITLE

Hvac Schedules

NO. REVISIONS DATE

DRAWN BY: RLB

DESIGNED BY: RHB

CHECKED BY: RHB

ISSUE DATE: 10/16/2020

BETA JOB NO.: 6050

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

H-0.2

11/2/2020 1:33 PM W:\YEAR - 2018\18009.00 - TAUNTON\WWT\UPGRADE\ELECTRICAL\DEPARTMENT\PHASE 1A.DWG (BETA STB BIV.STB)

ELECTRICAL SYMBOLS

Table of electrical symbols including linear lighting fixtures, wall mounted lighting, surface or pendant mounted fixtures, pole mounted site light fixtures, emergency exit signs, emergency lighting battery units, remote emergency lighting units, single pole switches, 2-pole switches, 3-way switches, 4-way switches, digital time clock switches, mechanical timer switches, wall mounted dual technology occupancy sensors, low voltage switches, ceiling mounted dual technology occupancy sensors, lighting control panels, duplex receptacles, simplex receptacles, fused disconnect switches, 3-phase receptacles, wall mounted combination motor starters, motor starters, enclosed variable frequency drives, manual motor starters, junction boxes, hand holes, alarm relays, control relays, motor start relays, timing relays, normally open and closed relay contacts, operator push buttons, and pressure switches.

ELECTRICAL SYMBOLS

Table of electrical symbols including underground conduit duct banks, homerun designations, surge protection devices, utility poles, molded case circuit breakers, dry type transformers, electric hand holes, copper clad ground rods, building grounding systems, motors, cable/conduit designations, operator stations, generator emergency stops, occupied/unoccupied selector switches, thermostats, motor operated dampers, electric unit heaters, and equipment circuit number designations.

TELE/DATA LEGEND

Table for TELE/DATA LEGEND including wall mounted data outlets, wall mounted data connectors, and ceiling mounted wireless access points.

DEMOLITION NOTES

- 1. UNLESS OTHERWISE NOTED, ALL EXISTING ELECTRICAL SYSTEMS WITHIN HATCH MARKS (POWER, LIGHTING, LOW VOLTAGE, CONTROLS, ETC) AND ASSOCIATED EQUIPMENT IS TO BE DEMOLISHED OR SALVAGED. DISCONNECT AND DE-ENERGIZE THE EQUIPMENT. REMOVE THE EQUIPMENT TO BE DEMOLISHED OR SALVAGED PER SECTION 02050. ALL CONTROL DEVICES, CONDUIT, CABLING, BOXES, SUPPORTS, ETC, ASSOCIATED WITH THE DEMOLISHED EQUIPMENT SHALL BE REMOVED. THE CONDUIT AND CABLING SHALL BE REMOVED BACK TO SOURCE.
2. NO DEVICE OR EQUIPMENT INDICATED FOR DEMOLITION WILL BE REUSED OR SALVAGED UNLESS SPECIFICALLY NOTED AS SUCH. ALL EQUIPMENT REMOVED SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF, PRIOR TO REMOVAL OF EQUIPMENT COORDINATE WITH OWNER FOR ANY EQUIPMENT THE OWNER WILL KEEP.
3. EXISTING EQUIPMENT INDICATED ON THE DEMOLITION PLANS ARE BASED ON SITE OBSERVATIONS AND IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT AND MATERIALS TO BE DISCONNECTED AND/OR REMOVED.
4. DEMOLITION ONE LINE DIAGRAMS ONLY INDICATE CURRENT ACTIVE EQUIPMENT AND DO NOT INDICATE ABANDONED EQUIPMENT NO LONGER IN SERVICE. DEMOLITION PLAN DRAWINGS INDICATE BOTH ACTIVE AND ABANDONED EQUIPMENT THAT IS REQUIRED TO BE DEMOLISHED.
5. RING OUT CIRCUITS PRIOR TO DEMOLITION TO DETERMINE ACTIVE CIRCUITS AND DEMOLISH ACTIVE CIRCUITS IN ACCORDANCE TO PHASING PLAN.

ELECTRICAL SYMBOLS

Table of electrical symbols for gas detection systems including control panels, gas sensor detectors, amber alarm beacons, and alarm horns.

FIRE ALARM SYSTEM SYMBOLS

Table of fire alarm system symbols including manual fire alarm stations, fire alarm audio/visual devices, fire alarm visual only devices, fire alarm beacons, smoke detectors, duct smoke detectors, remote test stations, heat detectors, carbon monoxide detectors, input monitoring modules, relay control modules, fire alarm control panels, fire alarm annunciator panels, remote alarm indicating lights, master boxes, and key depositories.

GENERAL NOTES

- 1. GENERAL CONTRACTOR TO PROVIDE CONCRETE HOUSEKEEPING PADS ON ALL FLOOR AND GRADE MOUNTED ELECTRICAL EQUIPMENT, THE FOLLOWING EQUIPMENT IS THE MINIMUM REQUIREMENT FOR HOUSEKEEPING PADS. ADDITIONAL PADS MAYBE REQUIRED BASED ON THE ELECTRICAL CONTRACTORS MOUNTING METHODS, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL HOUSEKEEPING PAD SIZES AND LOCATIONS.
1.1. DISTRIBUTION PANELBOARDS
1.2. DRY TYPE TRANSFORMERS
1.3. FREE STANDING VFDS AND CONTROL PANELS
2. ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
3. BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
4. EQUIPMENT & CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
5. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
6. NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
7. RECEPTACLES AND SWITCHES SHALL BE MOUNTED 45" ABOVE FINISHED FLOOR.
8. THE WIRING AND BLOCK DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL AND PROCESS EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

TEMPORARY WORK NOTES

- 1. WORK INDICATED AS TEMPORARY SHALL BE DONE ACCORDANCE WITH NEC ARTICLE 590, INSTALLED IN A NEAT MANNER AND WORKMAN LIKE MANNER.
2. THE USE OF PVC CONDUIT, SE CABLE, AND TRAY CABLE WHERE ALLOWED BY NEC SHALL BE ACCEPTABLE FOR TEMPORARY WORK.
3. SE CABLE AND TRAY CABLE FOR INTERIOR TEMPORARY WORK SHALL BE PROPERLY FASTENED TO BUILDING STRUCTURES AND INSTALLED IN SUCH A MANNER NOT TO INHIBIT ACCESS TO AND AROUND EQUIPMENT.
4. SE CABLE FOR EXTERIOR TEMPORARY WORK SHALL BE PROPERLY FASTENED TO BUILDING EXTERIOR SURFACES AND PROPERLY PROTECTED FROM VEHICLE DAMAGE WHERE RUN BETWEEN BUILDINGS.

ABBREVIATIONS

Table of abbreviations including (2)1" C, 3#8, #10GND, 3/4" CE, AFF, AFG, AR, ATS, CR, CP, DRG. DWG., EC, ETM, FE, FIT, FS, FT, FVNR, GND, GRD, HOA, HH, J OR JB, JPB, LE, LIT, LL, LS, LT, MC, MCC, MH, MFR, MS, NTS, OEM, OH, OL, OS, PB, PBE, PBL, PBM, PIT, PL, PS, PT, RGS, RVNR, SPD, SOV, S/S, TB, TD, TR, TS, TSP, TSTW, TYP, UG, UNO, VFD, WP, WSH, XFMR, 2, 1-INCH CONDUITS EACH CONDUIT CONTAINING 3-#8 AWG WIRES AND 1-#10 GROUND CONDUCTOR, EMPTY CONDUIT, NUMERAL DENOTES SIZE, ABOVE FINISHED FLOOR, ABOVE FINISHED GRADE, ALARM RELAY, AUTOMATIC TRANSFER SWITCH, CONTROL RELAY, CONTROL PANEL, DRAWING, EXCEPT AS NOTED, ELECTRICAL CONTRACTOR, ELAPSED TIME METER, FLOW ELEMENT, FLOW INDICATOR TRANSMITTER, FLOW SWITCH, FLOW TRANSMITTER, FULL VOLTAGE NON-REVERSING, GROUNDING CONDUCTOR (EQUIPMENT), HAND-OFF-AUTOMATIC, HANDHOLE, JUNCTION BOX, JOG PUSHBUTTON, LEVEL ELEMENT, LEVEL INDICATOR TRANSMITTER, LOW LEVEL, LEVEL SWITCH, LEVEL TRANSMITTER, MOTOR CONTROLLER (STARTER), MOTOR CONTROL CENTER, MANHOLE, MANUFACTURER, MOTION SENSOR, NOT TO SCALE, ORIGINAL EQUIPMENT MANUFACTURE SUPPLIED, OVERHEAD, MOTOR OVERLOAD HEATER, OPERATOR STATION, PUSHBUTTON CONTROL STATION MOMENTARY CONTACT TYPE, STOP START, PUSHBUTTON CONTROL STATION MAINTAINED EMERGENCY STOP TYPE, TWIST TO RELEASE, PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP-START, PUSHBUTTON CONTROL STATION MAINTAINED CONTACT TYPE, STOP START, PRESSURE INDICATOR TRANSMITTER, PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP, PRESSURE SWITCH, PRESSURE TRANSMITTER, RIGID GALVANIZED STEEL, REDUCED VOLTAGE NON-REVERSING, SURGE SUPPRESSOR DEVICE, SOLENOID VALVE, SOFT STARTER, TERMINAL BOX, MOTOR TEMPERATURE DETECTOR, TIMING RELAY, TEMPERATURE SWITCH, TWISTED SHIELDED PAIR, TWO SPEED TWO WINDING, TYPICAL, UNDERGROUND, UNLESS OTHERWISE NOTED, VARIABLE FREQUENCY DRIVE, WATER PROOF, HIGH TORQUE SWITCH, TRANSFORMER.

PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617.328.9215
web: www.sar.com

PROJECT

Taunton Wastewater Treatment Facility Improvements Solids Handling

Taunton, MA

TITLE

ELECTRICAL LEGEND AND NOTES

Table with columns NO., REVISIONS, DATE

DRAWN BY: RB

DESIGNED BY: MC

CHECKED BY: MC

ISSUE DATE: 10/16/2020

BETA JOB NO.: 6050

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO. E-0.1

PANELBOARD SCHEDULE

NO. 7LP1										LOCATION: ELECTRIC ROOM									
120/208 V, 3 PH, 4 W, 200 A MAINS										200 A SOLID NEUTRAL									
10,000 AIC AT 120 V										200 A GROUND BUS									
										150 A MCB									
										- A MLO SURFACE MOUNTING									
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		BREAKER		LOAD (KVA)			DESCRIPTION OF LOAD	CIRCUIT						
		Aφ	Bφ	Cφ	TRIP	POLE	POLE	TRIP	Aφ	Bφ	Cφ								
1	FIRST FLOOR LIGHTING	0.79			20	1	1	20	0.50			SLUDGE FLOW METERS	2						
3	FIRST FLOOR LIGHTING		1.31		20	1	1	20	0.50			PLANT WATER FLOW METERS	4						
5	2ND FLOOR LIGHTING			1.58	20	1	1	20	1.07			FIRST FLOOR UNIT HEATERS	6						
7	EXTERIOR LIGHTING	0.30			20	1	1	20	1.25			SECOND FLOOR UNIT HEATERS	8						
9	1ST FLR RECEPTACLES		1.0		20	1	1	20	0.10			DOMESTIC WATER HEATER	10						
11	1ST FLR RECEPTACLES			1.00	20	1	1	20	0.20			DOMESTIC RECIRC PUMP	12						
13	1ST FLR RECEPTACLES	1.20			20	1	1	20	0.50			FIRE ALARM CONTROL PANEL 7FACP	14						
15	1ST FLR RECEPTACLES		1.20		20	1	1	20	0.50			POLYMER FLOW METERS	16						
17	1ST FLR RECEPTACLES			1.20	20	1	1	20	0.10			EYEWASH/SHOWER ALARM	18						
19	2ND FLR RECEPTACLES	1.00			20	1	1	20	0.50			FUTURE CIRCUIT FOR SCADA CONTROL PANEL RTU-7	20						
21	2ND FLR RECEPTACLES		1.20		20	1	1	20	1.20			SHED FEEDER	22						
23	2ND FLR RECEPTACLES			1.0	20	1	1	20	1.0			BOILER CONTROL PANEL	24						
25	GRAVITY THICKENERS LIGHTING	0.27			20	1	1	20	0.20			EXISTING POLYMER LEVEL CONTROL PANEL	26						
27	EXTERIOR RECEPTACLES		0.8		20	1	1	20	1.20			EXISTING POLYMER TRANSFER PUMP & SPEED CONTROLLER	28						
29	GRAVITY THICKENING TANKS RECEPTACLES			0.8	20	1	1	20	-			SPARE	30						
31	SPARE	-	-	-	20	1	1	20	-			SPARE	32						
33	SPARE	-	-	-	20	1	1	20	-			SPARE	34						
35	SPARE	-	-	-	20	1	1	20	-			SPARE	36						
31	SPARE	-	-	-	20	1	1	20	-			SPARE	32						
33	SPARE	-	-	-	20	1	1	20	-			SPARE	34						
35	SPARE	-	-	-	20	1	1	20	-			SPARE	36						
31	SPARE	-	-	-	20	1	1	20	-			SPARE	32						
33	SPARE	-	-	-	20	1	1	20	-			SPARE	34						
35	SPARE	-	-	-	20	1	1	20	-			SPARE	36						
37	SPACE	-	-	-	-	-	-	-	-			SPACE	38						
39	SPACE	-	-	-	-	-	-	-	-			SPACE	40						
41	SPACE	-	-	-	-	-	-	-	-			SPACE	42						
43	SPACE	-	-	-	-	-	-	-	-			SPACE	44						
45	SPACE	-	-	-	-	-	-	-	-			SPACE	46						
47	SPACE	-	-	-	-	-	-	-	-			SPACE	48						
49	SPACE	-	-	-	-	-	-	-	-			SPACE	50						
51	SPACE	-	-	-	-	-	-	-	-			SPACE	52						
53	SPACE	-	-	-	-	-	-	-	-			SPACE	54						
55	SPACE	-	-	-	-	-	-	-	-			SPACE	56						
57	BOILER		1.4		20	2	3	50	1.15			HEAD WORKS BLDG. LIGHTING PANEL 1LP1 (FUTURE)	58						
59				1.4	20	2	3	50	1.0				60						
SUB-TOTAL CONNECTED		3.56	6.91	6.98			4.1	3.75	3.37	SUB-TOTAL CONNECTED									
* PROVIDE GFCI BREAKER																			
SUB-TOTAL CONNECTED										KVA Aφ = 7.66									
SUB-TOTAL CONNECTED										KVA Bφ = 10.66									
SUB-TOTAL CONNECTED										KVA Cφ = 10.35									
TOTAL CONNECTED										KVA = 28.67									

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER & CATALOG SERIES	LAMPS		VOLTS	WATTS	MOUNTING		REMARKS
			TYPE	LUMENS			TYPE	HEIGHT	
F1	96" LED ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE.	LITHONIA FEM-L96-900LM-IMAFL-MVOLT-35K-80CRI	LED 3500K	8124lm	120	54	PENDANT	13'-5" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED	
F2	48" LED ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE.	LITHONIA FEM-L48-4000LM-IMAFL-MVOLT-35K-80CRI	LED 3500K	3615lm	120	24	PENDANT	13'-5" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED	
F3	48" LED ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE.	LITHONIA FEM-L48-4000LM-IMAFL-MVOLT-35K-80CRI	LED 3500K	3615lm	120	24	SURFACE		
F4	CLASS I DIV.1 EXPLOSION PROOF LED GLOBE LIGHT FIXTURE WITH 30 DEGREE REFLECTOR	HUBBEL HLEML-45-30-D4-AN-ERA30	LED 5000K	2880lm	120	45	RAIL MOUNTED		
W1	EXTERIOR BUILDING MOUNTED LED WALL PACK LIGHT FIXTURE	LITHONIA TWP-LED-20C-700-50K-T3M-120-PE-DDXB	LED 5000K	4233lm	120	45	WALL	13'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED	FIXTURE CIRCUIT TO BE CONNECTED TO AND CONTROLLED BY A TIME CLOCK SWITCH
W2	EXTERIOR BUILDING MOUNTED LED MINI WALL PACK LIGHT FIXTURE	LITHONIA TWS-LED-P1-50K	LED 5000K	1476lm	120	25	WALL	9'-5" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED	FIXTURE CIRCUIT TO BE CONNECTED TO AND CONTROLLED BY A TIME CLOCK SWITCH
⚡	SELF CONTAINED EMERGENCY LIGHTING BATTERY UNIT NEMA 4 WITH TWO LIGHTING HEADS	REFER TO SPECIFICATIONS	LED	-	120	8W	WALL		INSTALL 3/4" C, 2#12, 1#12GND TO REMOTE HEADS
⚡	SEALED-BEAM WEATHERPROOF REMOTE LIGHTING FIXTURE WITH TWO LIGHTING HEADS	REFER TO SPECIFICATIONS	LED	-	120	8W	WALL		
⚡	EMERGENCY EXIT SIGN LED TYPE WITH BATTERY BACK-UP NEMA 4X	REFER TO SPECIFICATIONS	LED	-	120	3W	WALL		

LIGHTING FIXTURE SCHEDULES NOTES:

- THE CATALOG NUMBERS LISTED ARE GIVEN AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS, MATERIALS, DIMENSIONS, COEFFICIENT OF UTILIZATIONS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS WILL BE ACCEPTABLE.

POWER CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE*	CONDUCTORS*	GND*
P22	3/4"	(2)#12	(1)#12
P23	3/4"	(3)#12	(1)#12
P32	3/4"	(2)#10	(1)#10
P33	3/4"	(3)#10	(1)#10
P53	3/4"	(3)#8	(1)#10
P54	3/4"	(4)#8	(1)#10
P63	1"	(3)#6	(1)#8
P64	1"	(4)#6	(1)#8
P83	1 1/4"	(3)#4	(1)#8
P84	1 1/4"	(4)#4	(1)#8
P103	1 1/2"	(3)#3	(1)#6
P104	1 1/2"	(4)#3	(1)#6
P113	1 1/2"	(3)#2	(1)#6
P114	1 1/2"	(4)#2	(1)#6
P133	2"	(3)#1	(1)#6
P134	2"	(4)#1	(1)#6
P153	2"	(3)#1/0	(1)#6
P154	2"	(4)#1/0	(1)#6
P173	2 1/2"	(3)#2/0	(1)#6
P174	2 1/2"	(4)#2/0	(1)#6
P203	2 1/2"	(3)#3/0	(1)#4
P204	2 1/2"	(4)#3/0	(1)#4
P233	3"	(3)#4/0	(1)#4
P234	3"	(4)#4/0	(1)#4
P404	4"	(4)500KCMIL	(1)#2/0

SIGNAL CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS
S	1"	VENDOR SPECIFIED
S1	3/4"	1-2/C#16 TSP
S13	3/4"	1-3/C#16 TSP
S2	3/4"	2-2/C#16 TSP
S23	3/4"	2-3/C#16 TSP
S3	1"	3-2/C#16 TSP
S33	1"	3-3/C#16 TSP
S4	1"	4-2/C#16 TSP
S43	1"	4-3/C#16 TSP
S5	1"	5-2/C#16 TSP
S6	1 1/2"	6-2/C#16 TSP
S7	1 1/2"	7-2/C#16 TSP
S8	1 1/2"	8-2/C#16 TSP
S9	1 1/2"	9-2/C#16 TSP
S10	2"	10-2/C#16 TSP
S12	2"	12-2/C#16 TSP

TELE/DATA CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS
TD1	1"	1-CAT6 CABLE
TD2	1"	2-CAT6 CABLE

CONTROL CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS
C2	3/4"	2#14
C4	3/4"	4#14
C5	3/4"	5#14
C6	3/4"	6#14
C7	3/4"	7#14
C8	3/4"	8#14
C9	3/4"	9#14
C10	3/4"	10#14
C12	3/4"	12#14
C16	1"	16#14
C20	1"	20#14
C30	1"	30#14

NOTE: CONDUIT AND CONDUCTOR SIZES ARE TO BE PER THE ABOVE SCHEDULES UNLESS OTHERWISE NOTED.

PREPARED BY



www.BETA-Inc.com

REGISTERED PROFESSIONAL



SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617.328.9215
web: www.sar.com

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