DEC Identification Number	SPDES Permit Number	Facility Name	Form Approved: 9/25/2020
4-0199-00059/00005	NY0312924	Marmen-Welcon Tower	

Form NY-2C PART I SPDES

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

New York State Department of Environmental Conservation
Application for SPDES Permit to Discharge Wastewater
GENERAL INFORMATION

SECTION 1. PERMIT ACTION REQUESTED

Permit Action Requested

1.1 What is the reason for submitting this application?

- ☑ A NEW proposed Discharge
- ☐ A RENEWAL of an existing permit
- ☐ An EXISTING discharge currently without permit
- ☐ An EBPS REQUEST FOR INFORMATION response
- ☐ A MODIFICATION of the existing permit (describe below)

1.2 Increased Discharge Request

Is this application a request for an increase in the quantity of water discharged from your facility to the waters of the State?

- ☑ Yes ➔ Describe the increase: New Sanitary Package Treatment plant proposed to discharge effluent into
- ☐ No ➔ Skip to Item 2.1

SECTION 2. PERMITTEE & FACILITY NAME, LEGAL STATUS, MAILING ADDRESS, AND LOCATION (40 CFR 122.21(f)(2))

Permittee & Facility Name, Legal Status, Mailing Address, and Location

2.1 Permittee Name

Albany Port District Commission

2.2 Permittee Mailing Address

Street or P.O. box		
106 Smith Blvd		
City or town	**State**	**ZIP code**
Albany	NY	12202

2.3 Permittee Legal Status

- ☐ Public—federal
- ☐ Public—state
- ☑ Other public (specify) Port Commission
- ☐ Private
- ☐ Other (specify) _____

2.4 Facility Name

Marmen-Welcon Manufacturing Plant

2.5 NYSDEC Identification Number

New Facility

2.6 Facility Contact

Name (first and last)	Title	Phone number
Richard Hendrick	CEO	(518) 463-8763

Email address: Rhendrick@portofalbany.us

2.7 Facility Location

Street, route number, or other specific identifier		
309 River Road		
County name	**County code (if known)**	
Albany	001	
City or town	**State**	**ZIP code**
Bethlehem	NY	12077

SECTION 3. SIC AND NAICS CODES (40 CFR 122.21(f)(3))

SIC and NAICS Codes

3.1	SIC Code(s)	Description (optional)
	3499	Fabricated Metal Products, Not Elsewhere Classified
	3449	Miscellaneous Structural Metal Work
	3999	Manufacturing Industries, Not Elsewhere Classified

3.2	NAICS Code(s)	Description (optional)
	331221	Cold rolling steel shapes made from purchased steel
	332114	Custom Roll Forming
	332312	Fabricated structural metal manufacturing

SECTION 4. OPERATOR INFORMATION (40 CFR 122.21(f)(4))

Operator Information

4.1 **Name of Operator**

Albany Port District Commission

4.2 Is the name you listed in Item 4.1 also the owner?

☑ Yes ➔ Skip to Item 5.1 ☐ No

4.3 **Operator Status**

☐ Public—federal ☐ Public—state ☐ Other public (specify)_____

☐ Private ☐ Other (specify) _____

4.4 **Phone Number of Operator**

Operator Information Continued

4.5 **Operator Address**

Street or P.O. Box

City or town	State	ZIP code

Email address of operator

SECTION 5. INDIAN LAND (40 CFR 122.21(f)(5))

Indian Land

5.1 Is the facility located on Indian Land?

☐ Yes ☑ No

SECTION 6. EXISTING ENVIRONMENTAL PERMITS (40 CFR 122.21(f)(6))

Existing Environmental Permits

6.1 **Existing Environmental Permits** (check all that apply and print or type the corresponding permit number for each)

☑ SPDES GP-0-20-001	☐ RCRA (hazardous wastes)	☐ UIC (underground injection)
☐ PSD (air emissions)	☐ Nonattainment program (CAA)	☐ NESHAPs (CAA)
☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☐ Other (specify)

SECTION 7. MAP (40 CFR 122.21(f)(7))

Map

7.1 Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.)

☑ Yes ☐ No

SECTION 8. NATURE OF BUSINESS (40 CFR 122.21(f)(8))

Nature of Business

8.1 Describe the nature of your business.

Fabrication and manufacturing of off-shore wind tower sections and transition piece sections. The process includes receiving raw materials on the site, primarily steel plates and metal products in Building E. In Building A, cold rolling of the steel plates to form arched pieces of steel which are welded together to for cylindrical tower sections ranging in diameter form 6 meters to 10 meters and length of 40 to 60 meters in both Buildings A and B. The towers and transition pieces are then blasted and prepped for painting and then painted in Building C. The tower and transition pieces complete the final assembly of all internal components in Building D.

SECTION 9. WATER SUPPLY & COOLING WATER INTAKE STRUCTURES (40 CFR 122.21(f)(9))

Water Supply Source(s)

9.1 What water supply source(s) does your facility use? Identify the name or owner of each source. (check all that apply)

☑ Municipal ☐ Private Intake ☐ Private Well ☐ Other (specify)

Owner: Town of Bethle

9.2 Provide the amount of water typically consumed from each of these sources.

Municipal	11,000.00	GPD	Private Well		MGD
Private Intake		MGD	Other		MGD

9.3 Is the facility located within a sole source aquifer as shown on Exhibit 2C-6?

☐ Yes ➔Complete Application Supplement B (see SPDES website) ☑ No

Cooling Water Intake Structures

9.4 Does your facility use any of these water sources for cooling water?

☐ Yes ☑ No ➔SKIP to Item 10.1.

9.5 Identify the sources used for cooling water. (Note that facilities that use a cooling water intake structure as described at 40 CFR 125, Subparts I and J and NYSDEC Commisioner's Policy 52 (CP-52) may have additional application requirements. Consult with NYSDEC to determine if additional information is needed.)

Thermal Discharges

9.6 If your industry group is listed (see instructions), or the temperature of your discharge exceeds the receiving water temperature by greater than 3°F, provide the following data in (°F):

Avg. Temp. Max Temp. Avg. Delta T Max Delta T

SECTION 10. VARIANCE REQUESTS (40 CFR 122.21(f)(10))

Variance Requests

10.1 Do you intend to request or renew one or more variances pursuant to 6 NYCRR 702.17 or authorized at 40 CFR 122.21(m)? (Check all that apply). Consult with NYSDEC to determine what information is needed.

☐ Fundamentally different factors (CWA Section 301(n))

☐ Water quality related effluent limitations (CWA Section 302(b)(2))

☐ Non-conventional pollutants (CWA Section 301(c) and (g))

☐ Thermal discharges (CWA Section 316(a))

☐ NYS WQBEL (6 NYCRR 702.17)

☑ Not applicable

DEC Identification Number	SPDES Permit Number	Facility Name
4-0199-00059/00005	NY0312924	Marmen-Welcon Tower

SECTION 11. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Part I Checklist

11.1 In Column 1 below, mark the sections of Form NY-2C Part I that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert NYSDEC. Note that not all applicants are required to provide attachments.

Column 1	Column 2
☑ Section 1: Permit Action Requested	☐ w/ attachments
☑ Section 2: Name, Mailing Address, and Location	☐ w/ attachments
☑ Section 3: SIC Codes	☐ w/ attachments
☑ Section 4: Operator Information	☐ w/ attachments
☑ Section 5: Indian Land	☐ w/ attachments
☑ Section 6: Existing Environmental Permits	☐ w/ attachments
☑ Section 7: Map	☑ w/ topographic map ☐ w/ additional attachments
☑ Section 8: Nature of Business	☑ w/ attachments
☑ Section 9: Water Supply & CWIS	☐ w/ attachments ☐ w/ Sole Source Aquifer Supplement
☑ Section 10: Variance Requests	☐ w/ attachments
☑ Section 11: Checklist	☐ w/ attachments

PART II of Form NY-2C begins on the next page.

DEC Identification Number	SPDES Permit Number	Facility Name	Form Approved: 9/25/2020
4-0199-00059/00005	NY0312924	Marmen-Welcon Tower	

Form NY-2C PART II SPDES

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

New York State Department of Environmental Conservation Application for SPDES Permit to Discharge Wastewater

NEW AND EXISTING INDUSTRIAL OPERATIONS DETAILED INFORMATION

SECTION 1. OUTFALL LOCATION (40 CFR 122.21(g)(1)) & RECEIVING WATER DESCRIPTION (6 NYCRR 750-1.7(a))

Outfall Location & Receiving Water Description

1.1 Provide information on each of the facility's outfalls and the receiving waters in the table below.

	Outfall 001	Outfall 001A	Outfall _____
Latitude	42 ° 36 ′ 24.4 ″ N	42 ° 36 ′ 18.6 ″ N	° ′ ″
Longitude	73 ° 45 ′ 48.6 ″ W	73 ° 46 ′ 3.06 ″ W	° ′ ″
Receiving Water Name	Hudson River	Hudson River	
Water Index Number (WIN)	H (portion 5)	H (portion 5)	
Waterbody Inventory/ Priority Waterbodies List (WI/PWL) Segment	1301-0002	1301-0002	
Water Classification	C	C	
Groundwater Discharges Only:			
Soil Type			
Depth to Water Table	ft	ft	ft

SECTION 2. LINE DRAWING (40 CFR 122.21(g)(2))

Line Drawing

2.1 Have you attached a line drawing to this application that shows the water flow through your facility with a water balance? (See instructions for drawing requirements. See Exhibit 2C–3 at end of instructions for example.)

☑ Yes ☐ No

SECTION 3. AVERAGE FLOWS AND TREATMENT (40 CFR 122.21(g)(3))

Average Flows and Treatment

3.1 For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.

****Outfall Number**** 001

Operations Contributing to Flow

Operation	Average Flow	Maximum Flow
Manufacturing Plant Domestic Sanitary Waste Water	0.01 MGD	0.01 MGD
	MGD	MGD
	MGD	MGD
	MGD	MGD

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
Waste Water Package Treatment Plant - Solid Handling	1-T, 1-U	Wet Sludge Hold & Haul
Waste Water Package Treatment Plant - Aeration	3-A, 4-A, 5-A	Wet Sludge Hold & Haul
Waste Water Package Treatment Plant - Clarification	1-U	Wet Sludge Hold & Haul
Waste Water Package Treatment Plant - Disinfection	2-H, 4-A	Wet Sludge Hold & Haul

Average Flows and Treatment Continued

3.1 cont.

****Outfall Number**** 001A

Operations Contributing to Flow

Operation	Average Flow	Maximum Flow
Compressor Condensation & Power Washer Drain	0.00 MGD	0.00 MGD
	MGD	MGD
	MGD	MGD
	MGD	MGD

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
Oil Water and Grit Separator - 2,090 GPD max	1-M	O/W Separator Clean Out
Oil Water and Grit Separator - 2,090 GPD max	1-U	O/W Separator Clean Out

****Outfall Number**** _____

Operations Contributing to Flow

Operation	Average Flow	Maximum Flow
	MGD	MGD
	MGD	MGD
	MGD	MGD
	MGD	MGD

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge

WTCs

3.2 Does the facility utilize or plan to utilize any water treatment chemicals that can potentially be discharged from one or more outfalls?

☐ Yes ➔ Complete Table F ☑ No ➔SKIP to Section 4.

Mixing Zone Form

3.3 Has a Mixing Zone Analysis Form been completed and attached? All applicants must complete at least the Simple Form for each wastewater outfall to surface waters. Indicate which form was completed and is attached to this application.

☐ Yes ➔ Simple Form ☑ Yes ➔Detailed Form

SECTION 4. INTERMITTENT FLOWS (40 CFR 122.21(g)(4))

Intermittent Flows

4.1 Except for storm runoff, leaks, or spills, are any discharges described in Sections 1 and 3 intermittent or seasonal?

☐ Yes ☑ No ➔ SKIP to Section 5.

4.2 Provide information on intermittent or seasonal flows for each applicable outfall. Attach additional pages, if necessary.

Outfall Number	Operation (list)	Frequency		Flow Rate		Duration
		Average Days/Week	Average Months/Year	Long-Term Average	Maximum Daily	
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days
		days/week	months/year	MGD	MGD	days

SECTION 5. PRODUCTION (40 CFR 122.21(g)(5))

Applicable ELGs

5.1 Do any effluent limitation guidelines (ELGs) promulgated by EPA under Section 304 of the CWA apply to your facility?

☐ Yes ☑ No ➔ SKIP to Item 5.5.

5.2 Provide the following information on applicable ELGs.

ELG Category	ELG Subcategory	Regulatory Citation

Production-Based Limitations

5.3 Are any of the applicable ELGs expressed in terms of production (or other measure of operation)?

☐ Yes ☐ No ➔ SKIP to Item 5.5.

5.4 Provide an actual measure of daily production expressed in terms and units of applicable ELGs.

Outfall Number	Operation, Product, or Material	Quantity per Day	Unit of Measure

Specific Industry

5.5 Is your industry type listed as a specific industry requiring submission of a supplemental application form (see instructions)?

☒ Yes, supplemental form attached ☐ No ➔ SKIP to Section 6.

SECTION 6. SCHEDULED IMPROVEMENTS (40 CFR 122.21(g)(6))

Upgrades and Improvements

6.1 Are you presently voluntarily improving or required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application?

☐ Yes ☑ No ➔ SKIP to Item 6.3.

6.2 Briefly identify each applicable project in the table below.

Brief Identification and Description of Project	Affected Outfalls (list outfall number)	Source(s) of Discharge	Final Compliance Dates	
			Required	Projected

6.3 Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? *(optional item)*

☐ Yes ☑ No ☐ Not applicable

SECTION 7. EFFLUENT AND INTAKE CHARACTERISTICS (40 CFR 122.21(g)(7))

Effluent and Intake Characteristics

See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.

Table A. Conventional and Non-Conventional Pollutants

7.1 Are you requesting a waiver from NYSDEC for one or more of the Table A pollutants for any of your outfalls?

☐ Yes ☑ No ➔ SKIP to Item 7.3.

7.2 If yes, indicate the applicable outfalls below. Attach waiver request and other required information to the application.

Outfall Number _____ Outfall Number _____ Outfall Number _____

7.3 Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package?

☑ Yes ☐ No;a waiver request has been attached for all pollutants at all outfalls.

Table B. Toxic Metals, Cyanide, Total Phenols, and Organic Toxic Pollutants

7.4 Do any of the facility's processes that contribute wastewater fall into one or more of the primary industry categories listed in Exhibit 2C-5?

☐ Yes ☑ No ➔SKIP to Item 7.8.

7.5 Have you checked "Testing Required" for all toxic metals, cyanide, and total phenols in Section 1 of Table B?

☐ Yes ☐ No

7.6 List the applicable primary industry categories and check the boxes indicating the required GC/MS fraction(s) identified in Exhibit 2C-5.

Primary Industry Category	Required GC/MS Fraction(s) (Check applicable boxes.)			
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide

Effluent and Intake Characteristics Continued

7.7	Have you checked "Testing Required" for all required pollutants in Sections 2 through 5 of Table B for each of the GC/MS fractions checked in Item 7.6? ☐ Yes ☐ No
7.8	Have you checked "Believed Present" or "Believed Absent" for all pollutants listed in Sections 1 through 5 of Table B where testing is not required? ☑ Yes ☐ No
7.9	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing is required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
7.10	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
Table C. Certain Conventional and Non-Conventional Pollutants	
7.11	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed on Table C for all outfalls? ☑ Yes ☐ No
7.12	Have you completed Table C by providing (1) quantitative data for those pollutants that are limited either directly or indirectly in an ELG and/or (2) quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"? ☑ Yes ☐ No
Table D. Certain Hazardous Substances and Asbestos	
7.13	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table D for all outfalls? ☑ Yes ☐ No
7.14	Have you completed Table D by (1) describing the reasons the applicable pollutants are expected to be discharged and (2) by providing quantitative data, if available? ☑ Yes ☐ No
Table E. 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (2,3,7,8-TCDD)	
7.15	Does the facility use or manufacture one or more of the 2,3,7,8-TCDD congeners listed in the instructions, or do you know or have reason to believe that TCDD is or may be present in the effluent? ☐ Yes ➔ Complete Table E. ☑ No ➔ SKIP to Section 8.
7.16	Have you completed Table E by reporting *qualitative* data for TCDD? ☐ Yes ☐ No

SECTION 8. USED OR MANUFACTURED TOXICS (40 CFR 122.21(g)(9))

Used or Manufactured Toxics

8.1	Are any other pollutants, substances, or components of substances, not already listed in Tables A-E, used or manufactured at your facility as an intermediate or final product or byproduct? ☑ Yes ☐ No ➔ SKIP to Section 9.		
8.2	List the pollutants below.		
	1. See Attachment to Part II, Section	4.	7.
	2.	5.	8.
	3.	6.	9.

SECTION 9. BIOLOGICAL TOXICITY TESTS (40 CFR 122.21(g)(11))

Biological Toxicity Tests

9.1 Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) on a receiving water in relation to your discharge?

☐ Yes ☑ No ➔ SKIP to Section 10.

9.2 Identify the tests and their purposes below.

Test(s)	Purpose of Test(s)	Submitted to NYSDEC?	Date Submitted
		☐ Yes ☐ No	
		☐ Yes ☐ No	
		☐ Yes ☐ No	

SECTION 10. CONTRACT ANALYSES (40 CFR 122.21(g)(12))

Contract Analyses

10.1 Were any of the analyses reported in Section 7 performed by a contract laboratory or consulting firm?

☐ Yes ☑ No ➔ SKIP to Section 11.

10.2 Provide information for each contract laboratory or consulting firm below.

	Laboratory Number 1	Laboratory Number 2	Laboratory Number 3
Name of laboratory/firm			
ELAP Cert No.			
Laboratory address			
Phone number			
Pollutant(s) analyzed			

SECTION 11. ADDITIONAL INFORMATION (40 CFR 122.21(g)(13))

Additional Information

11.1 Does your facility use, produce, store, distribute, or otherwise dispose of any significant quantity of substances listed in Tables B, C, D, E or those substances identified in Item 8.2?

☑ Yes ➔ Complete Table G. ☐ No ➔ SKIP to Item 11.2.

11.2 Does your facility utilize pumping stations to convey wastewaters on the site and/or in wastewater treatment?

☑ Yes ➔ Complete Table H. ☐ No ➔ SKIP to Item 11.3.

11.3 Has NYSDEC requested additional information?

☑ Yes ☐ No ➔ SKIP to Section 12.

11.4 List the information requested and attach it to this application.

1. Sanitary Engineering Report
2. Manufacturing Process Descriptions
3. Building/Site/WWTP Design Plans & Shop Drawings
4. Plant Operator Score Card

DEC Identification Number	SPDES Permit Number	Facility Name
4-0199-00059/00005	NY0312924	Marmen-Welcon Tower

Form Approved: 9/25/2020

SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Checklist and Certification Statement

12.1 In Column 1 below, mark the sections of Form NY-2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert NYSDEC. Note that not all applicants are required to complete all sections or provide attachments.

Column 1	Column 2
☑ Section 1: Outfall Location	☑ w/ attachments
☑ Section 2: Line Drawing	☑ w/ line drawing ☑ w/ additional attachments
☑ Section 3: Average Flows and Treatment	☐ w/ attachments ☐ w/ Simple MZ Form ☐ w/ Table F ☐ w/ Detailed MZ Form
☑ Section 4: Intermittent Flows	☐ w/ attachments
☑ Section 5: Production	☐ w/ attachments
☑ Section 6: Improvements	☐ w/ attachments ☐ w/ optional additional sheets describing any additional pollution control plans
☑ Section 7: Effluent and Intake Characteristics	☐ w/ request for a waiver and supporting information ☐ w/ explanation for identical outfalls ☐ w/ primary industry supplemental form ☐ w/ additional attachments ☑ w/ Table A ☑ w/ Table B ☑ w/ Table C ☑ w/ Table D ☑ w/ Table E ☐ w/ analytical results as an attachment
☑ Section 8: Used or Manufactured Toxics	☑ w/ attachments
☑ Section 9: Biological Toxicity Tests	☐ w/ attachments
☑ Section 10: Contract Analyses	☐ w/ attachments
☑ Section 11: Additional Information	☑ w/ attachments ☑ w/ Table G ☑ w/ Table H
☐ Section 12: Checklist and Certification Statement	☐ w/ attachments

12.2 **Certification Statement**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
Megan E. Daly	C.C.O.
Signature	**Date signed**
Megan Daly	5/17/23

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1

TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii)) 1

	Pollutant	Waiver Requested (input "Yes" when applicable)	Units (specify)		Effluent: Maximum Daily Discharge (required)	Effluent: Maximum Monthly Discharge (if available)	Effluent: Long-Term Average Daily Discharge (if available)	Effluent: Number of Analyses	Intake (Optional): Long-Term Average Value	Intake (Optional): Number of Analyses
	Mark "X" in Cell A6 if you have attached a request to NYSDEC for a waiver for *all* of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD5)		Concentration	mg/L	30.00				280.00	
			Mass	lbs	23.40					
2.	Chemical oxygen demand (COD)		Concentration							
			Mass							
3.	Total organic carbon (TOC)		Concentration							
			Mass							
4.	Total suspended solids (TSS)		Concentration	mg/L	30				300.00	
			Mass	lbs	25.00					
5.	Ammonia (as N)		Concentration							
			Mass							
6.	Flow		Rate	GPD	11,200.00				11200	
7.	Temperature (winter)		°C	°C	20.00					
	Temperature (summer)		°C	°C	20.00					
8.	pH (minimum)		Standard units	SU	7.00					
	pH (maximum)		Standard units	SU	7.10					

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))1

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence		Units (specify)		Effluent				Intake (optional)	
			Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
	Mark "X" in Cell A7 if you believe all pollutants on Table B to be absent in your discharge from the noted outfall. You need not check the "Believed Absent" box for each pollutant.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	Yes		Yes	Concentration							
					Mass							
1.2	Arsenic, total (7440-38-2)	Yes		Yes	Concentration							
					Mass							
1.3	Beryllium, total (7440-41-7)	Yes		Yes	Concentration							
					Mass							
1.4	Cadmium, total (7440-43-9)	No		Yes	Concentration							
					Mass							
1.5	Chromium, total (7440-47-3)	No		Yes	Concentration							
					Mass							
1.6	Copper, total (7440-50-8)	No		Yes	Concentration							
					Mass							
1.7	Lead, total (7439-92-1)	No		Yes	Concentration							
					Mass							
1.8	Mercury, total (7439-97-6)	Yes		Yes	Concentration							
					Mass							
1.9	Nickel, total (7440-02-0)	No		Yes	Concentration							
					Mass							
1.10	Selenium, total (7782-49-2)	Yes		Yes	Concentration							
					Mass							
1.11	Silver, total (7440-22-4)	Yes		Yes	Concentration							
					Mass							
1.12	Thallium, total (7440-28-0)	Yes		Yes	Concentration							
					Mass							
1.13	Zinc, total (7440-66-6)	No		Yes	Concentration							
					Mass							
1.14	Cyanide, total (57-12-5)	Yes		Yes	Concentration							
					Mass							
1.15	Phenols, total	No		Yes	Concentration							
					Mass							
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein (107-02-8)	Yes		Yes	Concentration							
					Mass							
2.2	Acrylonitrile (107-13-1)	Yes		Yes	Concentration							
					Mass							
2.3	Benzene (71-43-2)	No		Yes	Concentration							
					Mass							
2.4	Bromoform (75-25-2)	Yes		Yes	Concentration							
					Mass							
2.5	Carbon tetrachloride (56-23-5)	Yes		Yes	Concentration							
					Mass							
2.6	Chlorobenzene (108-90-7)	Yes		Yes	Concentration							
					Mass							
2.7	Chlorodibromomethane (124-48-1)	Yes		Yes	Concentration							
					Mass							
2.8	Chloroethane (75-00-3)	Yes		Yes	Concentration							
					Mass							
2.9	2-chloroethylvinyl ether (110-75-8)	Yes		Yes	Concentration							
					Mass							
2.10	Chloroform (67-66-3)	Yes		Yes	Concentration							
					Mass							
2.11	Dichlorobromomethane (75-27-4)	Yes		Yes	Concentration							
					Mass							
2.12	1,1-dichloroethane (75-34-3)	Yes		Yes	Concentration							
					Mass							
2.13	1,2-dichloroethane (107-06-2)	Yes		Yes	Concentration							
					Mass							
2.14	1,1-dichloroethylene (75-35-4)	Yes		Yes	Concentration							
					Mass							
2.15	1,2-dichloropropane (78-87-5)	Yes		Yes	Concentration							
					Mass							
2.16	1,3-dichloropropylene (542-75-6)	Yes		Yes	Concentration							
					Mass							
2.17	Ethylbenzene (100-41-4)	No		Yes	Concentration							
					Mass							
2.18	Methyl bromide (74-83-9)	Yes		Yes	Concentration							
					Mass							
2.19	Methyl chloride (74-87-3)	Yes		Yes	Concentration							
					Mass							
2.20	Methylene chloride (75-09-2)	Yes		Yes	Concentration							
					Mass							
2.21	1,1,2,2- tetrachloroethane (79-34-5)	Yes		Yes	Concentration							
					Mass							
2.22	Tetrachloroethylene (127-18-4)	Yes		Yes	Concentration							
					Mass							
2.23	Toluene (108-88-3)	No		Yes	Concentration							
					Mass							
2.24	1,2-trans-dichloroethylene (156-60-5)	Yes		Yes	Concentration							
					Mass							
2.25	1,1,1-trichloroethane (71-55-6)	Yes		Yes	Concentration							
					Mass							

2.26	1,1,2-trichloroethane (79-00-5)	Yes		Yes	Concentration								
					Mass								
2.27	Trichloroethylene (79-01-6)	Yes		Yes	Concentration								
					Mass								
2.28	Vinyl chloride (75-01-4)	Yes		Yes	Concentration								
					Mass								
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)													
3.1	2-chlorophenol (95-57-8)	Yes		Yes	Concentration								
					Mass								
3.2	2,4-dichlorophenol (120-83-2)	Yes		Yes	Concentration								
					Mass								
3.3	2,4-dimethylphenol (105-67-9)	Yes		Yes	Concentration								
					Mass								
3.4	4,6-dinitro-o-cresol (534-52-1)	Yes		Yes	Concentration								
					Mass								
3.5	2,4-dinitrophenol (51-28-5)	Yes		Yes	Concentration								
					Mass								
3.6	2-nitrophenol (88-75-5)	Yes		Yes	Concentration								
					Mass								
3.7	4-nitrophenol (100-02-7)	Yes		Yes	Concentration								
					Mass								
3.8	p-chloro-m-cresol (59-50-7)	Yes		Yes	Concentration								
					Mass								
3.9	Pentachlorophenol (87-86-5)	Yes		Yes	Concentration								
					Mass								
3.10	Phenol (108-95-2)	Yes		Yes	Concentration								
					Mass								
3.11	2,4,6-trichlorophenol (88-05-2)	Yes		Yes	Concentration								
					Mass								
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)													
4.1	Acenaphthene (83-32-9)	Yes		Yes	Concentration								
					Mass								
4.2	Acenaphthylene (208-96-8)	Yes		Yes	Concentration								
					Mass								
4.3	Anthracene (120-12-7)	Yes		Yes	Concentration								
					Mass								
4.4	Benzidine (92-87-5)	Yes		Yes	Concentration								
					Mass								
4.5	Benzo (a) anthracene (56-55-3)	Yes		Yes	Concentration								
					Mass								
4.6	Benzo (a) pyrene (50-32-8)	Yes		Yes	Concentration								
					Mass								
4.7	3,4-benzofluoranthene (205-99-2)	Yes		Yes	Concentration								
					Mass								
4.8	Benzo (ghi) perylene (191-24-2)	Yes		Yes	Concentration								
					Mass								
4.9	Benzo (k) fluoranthene (207-08-9)	Yes		Yes	Concentration								
					Mass								
4.10	Bis (2-chloroethoxy) methane (111-91-1)	Yes		Yes	Concentration								
					Mass								
4.11	Bis (2-chloroethyl) ether (111-44-4)	Yes		Yes	Concentration								
					Mass								
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	Yes		Yes	Concentration								
					Mass								
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	Yes		Yes	Concentration								
					Mass								
4.14	4-bromophenyl phenyl ether (101-55-3)	Yes		Yes	Concentration								
					Mass								
4.15	Butyl benzyl phthalate (85-68-7)	Yes		Yes	Concentration								
					Mass								
4.16	2-chloronaphthalene (91-58-7)	Yes		Yes	Concentration								
					Mass								
4.17	4-chlorophenyl phenyl ether (7005-72-3)	Yes		Yes	Concentration								
					Mass								
4.18	Chrysene (218-01-9)	Yes		Yes	Concentration								
					Mass								
4.19	Dibenzo (a,h) anthracene (53-70-3)	Yes		Yes	Concentration								
					Mass								
4.20	1,2-dichlorobenzene (95-50-1)	Yes		Yes	Concentration								
					Mass								
4.21	1,3-dichlorobenzene (541-73-1)	Yes		Yes	Concentration								
					Mass								
4.22	1,4-dichlorobenzene (106-46-7)	Yes		Yes	Concentration								
					Mass								
4.23	3,3-dichlorobenzidine (91-94-1)	Yes		Yes	Concentration								
					Mass								
4.24	Diethyl phthalate (84-66-2)	Yes		Yes	Concentration								
					Mass								
4.25	Dimethyl phthalate (131-11-3)	Yes		Yes	Concentration								
					Mass								
4.26	Di-n-butyl phthalate (84-74-2)	Yes		Yes	Concentration								
					Mass								
4.27	2,4-dinitrotoluene (121-14-2)	Yes		Yes	Concentration								
					Mass								
4.28	2,6-dinitrotoluene (606-20-2)	Yes		Yes	Concentration								
					Mass								
4.29	Di-n-octyl phthalate (117-84-0)	Yes		Yes	Concentration								
					Mass								
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	Yes		Yes	Concentration								
					Mass								
4.31	Fluoranthene (206-44-0)	Yes		Yes	Concentration								
					Mass								
4.32	Fluorene (86-73-7)	Yes		Yes	Concentration								

4.32	Fluorene (86-73-7)	Yes		Yes	Mass							
4.33	Hexachlorobenzene (118-74-1)	Yes		Yes	Concentration							
					Mass							
4.34	Hexachlorobutadiene (87-68-3)	Yes		Yes	Concentration							
					Mass							
4.35	Hexachlorocyclopentadiene (77-47-4)	Yes		Yes	Concentration							
					Mass							
4.36	Hexachloroethane (67-72-1)	Yes		Yes	Concentration							
					Mass							
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	Yes		Yes	Concentration							
					Mass							
4.38	Isophorone (78-59-1)	Yes		Yes	Concentration							
					Mass							
4.39	Naphthalene (91-20-3)	No		Yes	Concentration							
					Mass							
4.40	Nitrobenzene (98-95-3)	Yes		Yes	Concentration							
					Mass							
4.41	N-nitrosodimethylamine (62-75-9)	Yes		Yes	Concentration							
					Mass							
4.42	N-nitrosodi-n-propylamine (621-64-7)	Yes		Yes	Concentration							
					Mass							
4.43	N-nitrosodiphenylamine (86-30-6)	Yes		Yes	Concentration							
					Mass							
4.44	Phenanthrene (85-01-8)	Yes		Yes	Concentration							
					Mass							
4.45	Pyrene (129-00-0)	Yes		Yes	Concentration							
					Mass							
4.46	1,2,4-trichlorobenzene (120-82-1)	Yes		Yes	Concentration							
					Mass							
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)												
5.1	Aldrin (309-00-2)	No		Yes	Concentration							
					Mass							
5.2	α-BHC (319-84-6)	No		Yes	Concentration							
					Mass							
5.3	β-BHC (319-85-7)	No		Yes	Concentration							
					Mass							
5.4	γ-BHC (58-89-9)	No		Yes	Concentration							
					Mass							
5.5	δ-BHC (319-86-8)	No		Yes	Concentration							
					Mass							
5.6	Chlordane (57-74-9)	No		Yes	Concentration							
					Mass							
5.7	4,4'-DDT (50-29-3)	No		Yes	Concentration							
					Mass							
5.8	4,4'-DDE (72-55-9)	No		Yes	Concentration							
					Mass							
5.9	4,4'-DDD (72-54-8)	No		Yes	Concentration							
					Mass							
5.10	Dieldrin (60-57-1)	No		Yes	Concentration							
					Mass							
5.11	α-endosulfan (115-29-7)	No		Yes	Concentration							
					Mass							
5.12	β-endosulfan (115-29-7)	No		Yes	Concentration							
					Mass							
5.13	Endosulfan sulfate (1031-07-8)	No		Yes	Concentration							
					Mass							
5.14	Endrin (72-20-8)	No		Yes	Concentration							
					Mass							
5.15	Endrin aldehyde (7421-93-4)	No		Yes	Concentration							
					Mass							
5.16	Heptachlor (76-44-8)	No		Yes	Concentration							
					Mass							
5.17	Heptachlor epoxide (1024-57-3)	No		Yes	Concentration							
					Mass							
5.18	PCB-1242 (53469-21-9)	No		Yes	Concentration							
					Mass							
5.19	PCB-1254 (11097-69-1)	No		Yes	Concentration							
					Mass							
5.20	PCB-1221 (11104-28-2)	No		Yes	Concentration							
					Mass							
5.21	PCB-1232 (11141-16-5)	No		Yes	Concentration							
					Mass							
5.22	PCB-1248 (12672-29-6)	No		Yes	Concentration							
					Mass							
5.23	PCB-1260 (11096-82-5)	No		Yes	Concentration							
					Mass							
5.24	PCB-1016 (12674-11-2)	No		Yes	Concentration							
					Mass							
5.25	Toxaphene (8001-35-2)	No		Yes	Concentration							
					Mass							

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

2 Analysis for Total Recoverable Mercury must be performed utilizing the low-level, USEPA Method 1631E.

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1

TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))1

	Pollutant/Parameter (and CAS Number, if available)	Presence or Absence: Believed Present (Input "Yes" or "No" only)	Presence or Absence: Believed Absent (Input "Yes" or "No" only)	Units (specify)		Effluent: Maximum Daily Discharge (required)	Effluent: Maximum Monthly Discharge (if available)	Effluent: Long-Term Average Daily Discharge (if available)	Effluent: Number of Analyses	Intake (Optional): Long-Term Average Value	Intake (Optional): Number of Analyses
☐	Check here if you believe all pollutants on Table C to be ***present*** in your discharge from the noted outfall. You need *not* check the "Believed Present" box for each pollutant.										
☐	Check here if you believe all pollutants on Table C to be ***absent*** in your discharge from the noted outfall. You need *not* check the "Believed Absent" box for each pollutant.										
1.	Bromide (24959-67-9)		Yes	Concentration							
				Mass							
2.	Chlorine, total residual		Yes	Concentration							
				Mass							
3.	Color		Yes	Concentration							
				Mass							
4.	Fecal coliform		Yes	Concentration							
				Mass							
5.	Fluoride (16984-48-8)		Yes	Concentration							
				Mass							
6	Nitrate-nitrite		Yes	Concentration							
				Mass							
7.	Nitrogen, total organic (as N)		Yes	Concentration							
				Mass							
8.	Oil and grease		Yes	Concentration							
				Mass							
9.	Phosphorus (as P), total (7723-14-0)		Yes	Concentration							
				Mass							
10.	Sulfate (as SO4) (14808-79-8)		Yes	Concentration							
				Mass							
11.	Sulfide (as S)		Yes	Concentration							
				Mass							
12.	Sulfite (as SO3) (14265-45-3)		Yes	Concentration							
				Mass							
13.	Surfactants		Yes	Concentration							
				Mass							
14.	Aluminum, total (7429-90-5)		Yes	Concentration							
				Mass							
15.	Barium, total (7440-39-3)		Yes	Concentration							
				Mass							
16.	Boron, total (7440-42-8)		Yes	Concentration							
				Mass							
17.	Cobalt, total (7440-48-4)		Yes	Concentration							
				Mass							
18.	Iron, total (7439-89-6)		Yes	Concentration							
				Mass							
19.	Magnesium, total (7439-95-4)		Yes	Concentration							
				Mass							
20.	Molybdenum, total (7439-98-7)		Yes	Concentration							
				Mass							
21.	Manganese, total (7439-96-5)		Yes	Concentration							
				Mass							
22.	Tin, total (7440-31-5)		Yes	Concentration							
				Mass							
23.	Titanium, total (7440-32-6)		Yes	Concentration							
				Mass							
24.	**Radioactivity**										
	Alpha, total		Yes	Concentration							
				Mass							
	Beta, total		Yes	Concentration							
				Mass							
	Radium, total		Yes	Concentration							
				Mass							
	Radium 226, total		Yes	Concentration							
				Mass							

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))1

	Pollutant	Presence or Absence		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)		
1.	Asbestos		Yes		
2.	Acetaldehyde		Yes		
3.	Allyl alcohol		Yes		
4.	Allyl chloride		Yes		
5.	Amyl acetate		Yes		
6.	Aniline		Yes		
7.	Benzonitrile		Yes		
8.	Benzyl chloride		Yes		
9.	Butyl acetate		Yes		
10.	Butylamine		Yes		
11.	Captan		Yes		
12.	Carbaryl		Yes		
13.	Carbofuran		Yes		
14.	Carbon disulfide		Yes		
15.	Chlorpyrifos		Yes		
16.	Coumaphos		Yes		
17.	Cresol		Yes		
18.	Crotonaldehyde		Yes		
19.	Cyclohexane		Yes		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)		Yes		
21.	Diazinon		Yes		
22.	Dicamba		Yes		
23.	Dichlobenil		Yes		
24.	Dichlone		Yes		
25.	2,2-dichloropropionic acid		Yes		
26.	Dichlorvos		Yes		
27.	Diethyl amine		Yes		
28.	Dimethyl amine		Yes		
29.	Dintrobenzene		Yes		
30.	Diquat		Yes		
31.	Disulfoton		Yes		
32.	Diuron		Yes		
33.	Epichlorohydrin		Yes		
34.	Ethion		Yes		
35.	Ethylene diamine		Yes		
36.	Ethylene dibromide		Yes		
37.	Formaldehyde		Yes		
38.	Furfural		Yes		
39.	Guthion		Yes		
40.	Isoprene		Yes		
41.	Isopropanolamine		Yes		
42.	Kelthane		Yes		
43.	Kepone		Yes		
44.	Malathion		Yes		
45.	Mercaptodimethur		Yes		
46.	Methoxychlor		Yes		
47.	Methyl mercaptan		Yes		
48.	Methyl methacrylate		Yes		
49.	Methyl parathion		Yes		
50.	Mevinphos		Yes		
51.	Mexacarbate		Yes		
52.	Monoethyl amine		Yes		
53.	Monomethyl amine		Yes		
54.	Naled		Yes		
55.	Naphthenic acid		Yes		
56.	Nitrotoluene		Yes		
57.	Parathion		Yes		
58.	Phenolsulfonate		Yes		
59.	Phosgene		Yes		
60.	Propargite		Yes		
61.	Propylene oxide		Yes		
62.	Pyrethrins		Yes		
63.	Quinoline		Yes		
64.	Resorcinol		Yes		
65.	Strontium		Yes		
66.	Strychnine		Yes		
67.	Styrene		Yes		
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)		Yes		
69.	TDE (tetrachlorodiphenyl ethane)		Yes		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic		Yes		
71.	Trichlorofon		Yes		

72.	Triethanolamine		Yes		
73.	Triethylamine		Yes		
74.	Trimethylamine		Yes		
75.	Uranium		Yes		
76.	Vanadium		Yes		
77.	Vinyl acetate		Yes		
78.	Xylene		Yes		
79.	Xylenol		Yes		
80.	Zirconium		Yes		

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1

TABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))

Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence		Results of Screening Procedure
		Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)	
2,3,7,8-TCDD	No		Yes	

DEC Identification Number	SPDES Permit Number	Facility Name
New Facility	New Facility	Marmen-Welcon Manufacturing Plant

TABLE G. INDUSTRIAL CHEMICAL SURVEY

Complete this table for all substances that have been used, produced, stored, distributed or otherwise disposed of in significant quantity AND for any quantity of BCCs, chemicals for which FDA fish flesh limits exist, or restricted pesticide products listed in Part 326, Section 2 of the ECL. Restricted pesticides also include those products whose labeling bears the statement "Restricted Use Pesticide." Do not include chemicals that are present as de minimus concentrations as listed in the SDS for that substance.

For any substance listed that is used in a manner which could cause them to come into contact with a wastewater that is ultimately discharged to the waters of the State through an outfall controlled by this permit application, identify it as "Present" and the Outfall(s) by which it may be discharged. Sampling results for these pollutants should also be included with Tables B-E.

Substance Name (CAS Number, if availble)	Purpose of Use Code	Annual Usage (lbs)	Amount on Hand (lbs)	Presence in Discharge	Discharge Outfall
1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether) (107-98-2)	OTH - Other	1.41E+04	1.17E+03	No	
1,6-Hexanediol diglycidylether (16096-31-4)	OTH - Other	2.86E+04	2.38E+03	No	
2,4,6-tris(Dimethylaminomethyl)phenol (90-72-2)	OTH - Other	1.27E+04	1.06E+03	No	
Acrylic resin (None)	OTH - Other	4.16E+04	3.46E+03	No	
Barium sulfate (7727-43-7)	OTH - Other	1.78E+04	1.48E+03	No	
Benzyl alcohol (100-51-6)	OTH - Other	1.66E+04	1.39E+03	No	
Carbon (1333-86-4)	OTH - Other	5.13E+05	4.28E+04	No	
Chromium (7440-47-3)	OTH - Other	4.36E+04	3.63E+03	No	
Copper (7440-50-8)	OTH - Other	7.00E+04	5.83E+03	No	
Epoxy Resin (25068-38-6)	OTH - Other	2.75E+05	2.30E+04	No	
Ethylbenzene (100-41-4)	OTH - Other	2.30E+04	1.91E+03	No	
Glass beads (65997-17-3)	OTH - Other	3.38E+04	2.82E+03	No	
Hexamethylene-1,6-diisocyanate homopolymer (HDI Homopolymer) (28182-81-2)	OTH - Other	1.49E+04	1.24E+03	No	
Iron (7439-89-6)	OTH - Other	4.62E+07	3.85E+06	No	
Limestone (1317-65-3)	OTH - Other	1.33E+05	1.11E+04	No	
Manganese (7439-96-5)	OTH - Other	6.09E+05	5.08E+04	No	
Methyl Ethyl Ketone (78-93-3)	OTH - Other	4.03E+04	3.36E+03	No	
n-Butanol (N-Butyl Alcohol) (71-36-3)	OTH - Other	4.20E+04	3.50E+03	No	
n-Butyl acetate (123-86-4)	OTH - Other	1.74E+04	1.45E+03	No	
Nepheline syenite (37244-96-5)	OTH - Other	1.53E+05	1.27E+04	No	
Nickel (7440-02-0)	OTH - Other	1.07E+05	8.88E+03	No	
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	OTH - Other	4.94E+04	4.12E+03	No	
Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	2.56E+04	2.14E+03	No	
Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	1.15E+04	9.60E+02	No	
Polymer of: triethylenetetramine, polymer of C18-unsatd. fatty acids dimers with tall-oil fatty acids and triethylenetetramine and bisphenol A-(epichlorhydrin) epoxy resin and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	4.19E+04	3.49E+03	No	
Polyoxypropylenediamine (9046-10-0)	OTH - Other	1.89E+04	1.58E+03	No	
Silicon (7440-21-3)	OTH - Other	5.26E+05	4.39E+04	No	
Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic) (64742-95-6)	OTH - Other	2.45E+04	2.04E+03	No	
Talc (non-asbestiform) (14807-96-6)	OTH - Other	4.33E+04	3.61E+03	No	
Titanium dioxide (13463-67-7)	OTH - Other	1.31E+05	1.09E+04	No	
Xylene (1330-20-7)	OTH - Other	1.04E+05	8.63E+03	No	
Zinc (7440-66-6)	OTH - Other	3.83E+06	3.19E+05	No	
Zinc oxide (1314-13-2)	OTH - Other	2.13E+04	1.78E+03	No	

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1A

TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii)) 1

	Pollutant	Waiver Requested (input "Yes" when applicable)	Units (specify)		Effluent: Maximum Daily Discharge (required)	Effluent: Maximum Monthly Discharge (if available)	Effluent: Long-Term Average Daily Discharge (if available)	Effluent: Number of Analyses	Intake (Optional): Long-Term Average Value	Intake (Optional): Number of Analyses
	Mark "X" in Cell A6 if you have attached a request to NYSDEC for a waiver for *all* of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD5)		Concentration	mg/L						
			Mass	lbs						
2.	Chemical oxygen demand (COD)		Concentration							
			Mass							
3.	Total organic carbon (TOC)		Concentration							
			Mass							
4.	Total suspended solids (TSS)		Concentration	mg/L						
			Mass	lbs						
5.	Ammonia (as N)		Concentration							
			Mass							
6.	Flow		Rate	GPD	2,090.00				2090	
7.	Temperature (winter)		°C	°C	20.00					
	Temperature (summer)		°C	°C	20.00					
8.	pH (minimum)		Standard units	SU	7.00					
	pH (maximum)		Standard units	SU	7.10					

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1A

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))1

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence		Units (specify)		Effluent				Intake (optional)	
			Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
	Mark "X" in Cell A7 if you believe all pollutants on Table B to be absent in your discharge from the noted outfall. You need not check the "Believed Absent" box for each pollutant.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	Yes		Yes	Concentration							
					Mass							
1.2	Arsenic, total (7440-38-2)	Yes		Yes	Concentration							
					Mass							
1.3	Beryllium, total (7440-41-7)	Yes		Yes	Concentration							
					Mass							
1.4	Cadmium, total (7440-43-9)	No		Yes	Concentration							
					Mass							
1.5	Chromium, total (7440-47-3)	No		Yes	Concentration							
					Mass							
1.6	Copper, total (7440-50-8)	No		Yes	Concentration							
					Mass							
1.7	Lead, total (7439-92-1)	No		Yes	Concentration							
					Mass							
1.8	Mercury, total (7439-97-6)	Yes		Yes	Concentration							
					Mass							
1.9	Nickel, total (7440-02-0)	No		Yes	Concentration							
					Mass							
1.10	Selenium, total (7782-49-2)	Yes		Yes	Concentration							
					Mass							
1.11	Silver, total (7440-22-4)	Yes		Yes	Concentration							
					Mass							
1.12	Thallium, total (7440-28-0)	Yes		Yes	Concentration							
					Mass							
1.13	Zinc, total (7440-66-6)	No		Yes	Concentration							
					Mass							
1.14	Cyanide, total (57-12-5)	Yes		Yes	Concentration							
					Mass							
1.15	Phenols, total	No		Yes	Concentration							
					Mass							
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein (107-02-8)	Yes		Yes	Concentration							
					Mass							
2.2	Acrylonitrile (107-13-1)	Yes		Yes	Concentration							
					Mass							
2.3	Benzene (71-43-2)	No		Yes	Concentration							
					Mass							
2.4	Bromoform (75-25-2)	Yes		Yes	Concentration							
					Mass							
2.5	Carbon tetrachloride (56-23-5)	Yes		Yes	Concentration							
					Mass							
2.6	Chlorobenzene (108-90-7)	Yes		Yes	Concentration							
					Mass							
2.7	Chlorodibromomethane (124-48-1)	Yes		Yes	Concentration							
					Mass							
2.8	Chloroethane (75-00-3)	Yes		Yes	Concentration							
					Mass							
2.9	2-chloroethylvinyl ether (110-75-8)	Yes		Yes	Concentration							
					Mass							
2.10	Chloroform (67-66-3)	Yes		Yes	Concentration							
					Mass							
2.11	Dichlorobromomethane (75-27-4)	Yes		Yes	Concentration							
					Mass							
2.12	1,1-dichloroethane (75-34-3)	Yes		Yes	Concentration							
					Mass							
2.13	1,2-dichloroethane (107-06-2)	Yes		Yes	Concentration							
					Mass							
2.14	1,1-dichloroethylene (75-35-4)	Yes		Yes	Concentration							
					Mass							
2.15	1,2-dichloropropane (78-87-5)	Yes		Yes	Concentration							
					Mass							
2.16	1,3-dichloropropylene (542-75-6)	Yes		Yes	Concentration							
					Mass							
2.17	Ethylbenzene (100-41-4)	No		Yes	Concentration							
					Mass							
2.18	Methyl bromide (74-83-9)	Yes		Yes	Concentration							
					Mass							
2.19	Methyl chloride (74-87-3)	Yes		Yes	Concentration							
					Mass							
2.20	Methylene chloride (75-09-2)	Yes		Yes	Concentration							
					Mass							
2.21	1,1,2,2- tetrachloroethane (79-34-5)	Yes		Yes	Concentration							
					Mass							
2.22	Tetrachloroethylene (127-18-4)	Yes		Yes	Concentration							
					Mass							
2.23	Toluene (108-88-3)	No		Yes	Concentration							
					Mass							
2.24	1,2-trans-dichloroethylene (156-60-5)	Yes		Yes	Concentration							
					Mass							
2.25	1,1,1-trichloroethane (71-55-6)	Yes		Yes	Concentration							
					Mass							

2.26	1,1,2-trichloroethane (79-00-5)	Yes		Yes	Concentration							
					Mass							
2.27	Trichloroethylene (79-01-6)	Yes		Yes	Concentration							
					Mass							
2.28	Vinyl chloride (75-01-4)	Yes		Yes	Concentration							
					Mass							
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)												
3.1	2-chlorophenol (95-57-8)	Yes		Yes	Concentration							
					Mass							
3.2	2,4-dichlorophenol (120-83-2)	Yes		Yes	Concentration							
					Mass							
3.3	2,4-dimethylphenol (105-67-9)	Yes		Yes	Concentration							
					Mass							
3.4	4,6-dinitro-o-cresol (534-52-1)	Yes		Yes	Concentration							
					Mass							
3.5	2,4-dinitrophenol (51-28-5)	Yes		Yes	Concentration							
					Mass							
3.6	2-nitrophenol (88-75-5)	Yes		Yes	Concentration							
					Mass							
3.7	4-nitrophenol (100-02-7)	Yes		Yes	Concentration							
					Mass							
3.8	p-chloro-m-cresol (59-50-7)	Yes		Yes	Concentration							
					Mass							
3.9	Pentachlorophenol (87-86-5)	Yes		Yes	Concentration							
					Mass							
3.10	Phenol (108-95-2)	Yes		Yes	Concentration							
					Mass							
3.11	2,4,6-trichlorophenol (88-05-2)	Yes		Yes	Concentration							
					Mass							
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)												
4.1	Acenaphthene (83-32-9)	Yes		Yes	Concentration							
					Mass							
4.2	Acenaphthylene (208-96-8)	Yes		Yes	Concentration							
					Mass							
4.3	Anthracene (120-12-7)	Yes		Yes	Concentration							
					Mass							
4.4	Benzidine (92-87-5)	Yes		Yes	Concentration							
					Mass							
4.5	Benzo (a) anthracene (56-55-3)	Yes		Yes	Concentration							
					Mass							
4.6	Benzo (a) pyrene (50-32-8)	Yes		Yes	Concentration							
					Mass							
4.7	3,4-benzofluoranthene (205-99-2)	Yes		Yes	Concentration							
					Mass							
4.8	Benzo (ghi) perylene (191-24-2)	Yes		Yes	Concentration							
					Mass							
4.9	Benzo (k) fluoranthene (207-08-9)	Yes		Yes	Concentration							
					Mass							
4.10	Bis (2-chloroethoxy) methane (111-91-1)	Yes		Yes	Concentration							
					Mass							
4.11	Bis (2-chloroethyl) ether (111-44-4)	Yes		Yes	Concentration							
					Mass							
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	Yes		Yes	Concentration							
					Mass							
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	Yes		Yes	Concentration							
					Mass							
4.14	4-bromophenyl phenyl ether (101-55-3)	Yes		Yes	Concentration							
					Mass							
4.15	Butyl benzyl phthalate (85-68-7)	Yes		Yes	Concentration							
					Mass							
4.16	2-chloronaphthalene (91-58-7)	Yes		Yes	Concentration							
					Mass							
4.17	4-chlorophenyl phenyl ether (7005-72-3)	Yes		Yes	Concentration							
					Mass							
4.18	Chrysene (218-01-9)	Yes		Yes	Concentration							
					Mass							
4.19	Dibenzo (a,h) anthracene (53-70-3)	Yes		Yes	Concentration							
					Mass							
4.20	1,2-dichlorobenzene (95-50-1)	Yes		Yes	Concentration							
					Mass							
4.21	1,3-dichlorobenzene (541-73-1)	Yes		Yes	Concentration							
					Mass							
4.22	1,4-dichlorobenzene (106-46-7)	Yes		Yes	Concentration							
					Mass							
4.23	3,3-dichlorobenzidine (91-94-1)	Yes		Yes	Concentration							
					Mass							
4.24	Diethyl phthalate (84-66-2)	Yes		Yes	Concentration							
					Mass							
4.25	Dimethyl phthalate (131-11-3)	Yes		Yes	Concentration							
					Mass							
4.26	Di-n-butyl phthalate (84-74-2)	Yes		Yes	Concentration							
					Mass							
4.27	2,4-dinitrotoluene (121-14-2)	Yes		Yes	Concentration							
					Mass							
4.28	2,6-dinitrotoluene (606-20-2)	Yes		Yes	Concentration							
					Mass							
4.29	Di-n-octyl phthalate (117-84-0)	Yes		Yes	Concentration							
					Mass							
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	Yes		Yes	Concentration							
					Mass							
4.31	Fluoranthene (206-44-0)	Yes		Yes	Concentration							
					Mass							
4.32	Fluorene (86-73-7)	Yes		Yes	Concentration							

4.32	Fluorene (86-73-7)	Yes		Yes	Mass							
4.33	Hexachlorobenzene (118-74-1)	Yes		Yes	Concentration							
					Mass							
4.34	Hexachlorobutadiene (87-68-3)	Yes		Yes	Concentration							
					Mass							
4.35	Hexachlorocyclopentadiene (77-47-4)	Yes		Yes	Concentration							
					Mass							
4.36	Hexachloroethane (67-72-1)	Yes		Yes	Concentration							
					Mass							
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	Yes		Yes	Concentration							
					Mass							
4.38	Isophorone (78-59-1)	Yes		Yes	Concentration							
					Mass							
4.39	Naphthalene (91-20-3)	No		Yes	Concentration							
					Mass							
4.40	Nitrobenzene (98-95-3)	Yes		Yes	Concentration							
					Mass							
4.41	N-nitrosodimethylamine (62-75-9)	Yes		Yes	Concentration							
					Mass							
4.42	N-nitrosodi-n-propylamine (621-64-7)	Yes		Yes	Concentration							
					Mass							
4.43	N-nitrosodiphenylamine (86-30-6)	Yes		Yes	Concentration							
					Mass							
4.44	Phenanthrene (85-01-8)	Yes		Yes	Concentration							
					Mass							
4.45	Pyrene (129-00-0)	Yes		Yes	Concentration							
					Mass							
4.46	1,2,4-trichlorobenzene (120-82-1)	Yes		Yes	Concentration							
					Mass							
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)												
5.1	Aldrin (309-00-2)	No		Yes	Concentration							
					Mass							
5.2	α-BHC (319-84-6)	No		Yes	Concentration							
					Mass							
5.3	β-BHC (319-85-7)	No		Yes	Concentration							
					Mass							
5.4	γ-BHC (58-89-9)	No		Yes	Concentration							
					Mass							
5.5	δ-BHC (319-86-8)	No		Yes	Concentration							
					Mass							
5.6	Chlordane (57-74-9)	No		Yes	Concentration							
					Mass							
5.7	4,4'-DDT (50-29-3)	No		Yes	Concentration							
					Mass							
5.8	4,4'-DDE (72-55-9)	No		Yes	Concentration							
					Mass							
5.9	4,4'-DDD (72-54-8)	No		Yes	Concentration							
					Mass							
5.10	Dieldrin (60-57-1)	No		Yes	Concentration							
					Mass							
5.11	α-endosulfan (115-29-7)	No		Yes	Concentration							
					Mass							
5.12	β-endosulfan (115-29-7)	No		Yes	Concentration							
					Mass							
5.13	Endosulfan sulfate (1031-07-8)	No		Yes	Concentration							
					Mass							
5.14	Endrin (72-20-8)	No		Yes	Concentration							
					Mass							
5.15	Endrin aldehyde (7421-93-4)	No		Yes	Concentration							
					Mass							
5.16	Heptachlor (76-44-8)	No		Yes	Concentration							
					Mass							
5.17	Heptachlor epoxide (1024-57-3)	No		Yes	Concentration							
					Mass							
5.18	PCB-1242 (53469-21-9)	No		Yes	Concentration							
					Mass							
5.19	PCB-1254 (11097-69-1)	No		Yes	Concentration							
					Mass							
5.20	PCB-1221 (11104-28-2)	No		Yes	Concentration							
					Mass							
5.21	PCB-1232 (11141-16-5)	No		Yes	Concentration							
					Mass							
5.22	PCB-1248 (12672-29-6)	No		Yes	Concentration							
					Mass							
5.23	PCB-1260 (11096-82-5)	No		Yes	Concentration							
					Mass							
5.24	PCB-1016 (12674-11-2)	No		Yes	Concentration							
					Mass							
5.25	Toxaphene (8001-35-2)	No		Yes	Concentration							
					Mass							

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

2 Analysis for Total Recoverable Mercury must be performed utilizing the low-level, USEPA Method 1631E.

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1A

TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))1

	Pollutant/Parameter (and CAS Number, if available)	Presence or Absence: Believed Present (Input "Yes" or "No" only)	Presence or Absence: Believed Absent (Input "Yes" or "No" only)	Units (specify)	Effluent: Maximum Daily Discharge (required)	Effluent: Maximum Monthly Discharge (if available)	Effluent: Long-Term Average Daily Discharge (if available)	Effluent: Number of Analyses	Intake (Optional): Long-Term Average Value	Intake (Optional): Number of Analyses
☐	Check here if you believe all pollutants on Table C to be ***present*** in your discharge from the noted outfall. You need *not* check the "Believed Present" box for each pollutant.									
☐	Check here if you believe all pollutants on Table C to be ***absent*** in your discharge from the noted outfall. You need *not* check the "Believed Absent" box for each pollutant.									
1.	Bromide (24959-67-9)		Yes	Concentration						
				Mass						
2.	Chlorine, total residual		Yes	Concentration						
				Mass						
3.	Color		Yes	Concentration						
				Mass						
4.	Fecal coliform		Yes	Concentration						
				Mass						
5.	Fluoride (16984-48-8)		Yes	Concentration						
				Mass						
6	Nitrate-nitrite		Yes	Concentration						
				Mass						
7.	Nitrogen, total organic (as N)		Yes	Concentration						
				Mass						
8.	Oil and grease		Yes	Concentration						
				Mass						
9.	Phosphorus (as P), total (7723-14-0)		Yes	Concentration						
				Mass						
10.	Sulfate (as SO4) (14808-79-8)		Yes	Concentration						
				Mass						
11.	Sulfide (as S)		Yes	Concentration						
				Mass						
12.	Sulfite (as SO3) (14265-45-3)		Yes	Concentration						
				Mass						
13.	Surfactants		Yes	Concentration						
				Mass						
14.	Aluminum, total (7429-90-5)		Yes	Concentration						
				Mass						
15.	Barium, total (7440-39-3)		Yes	Concentration						
				Mass						
16.	Boron, total (7440-42-8)		Yes	Concentration						
				Mass						
17.	Cobalt, total (7440-48-4)		Yes	Concentration						
				Mass						
18.	Iron, total (7439-89-6)		Yes	Concentration						
				Mass						
19.	Magnesium, total (7439-95-4)		Yes	Concentration						
				Mass						
20.	Molybdenum, total (7439-98-7)		Yes	Concentration						
				Mass						
21.	Manganese, total (7439-96-5)		Yes	Concentration						
				Mass						
22.	Tin, total (7440-31-5)		Yes	Concentration						
				Mass						
23.	Titanium, total (7440-32-6)		Yes	Concentration						
				Mass						
24.	**Radioactivity**									
	Alpha, total		Yes	Concentration						
				Mass						
	Beta, total		Yes	Concentration						
				Mass						
	Radium, total		Yes	Concentration						
				Mass						
	Radium 226, total		Yes	Concentration						
				Mass						

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1A

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))1

	Pollutant	Presence or Absence		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)		
1.	Asbestos		Yes		
2.	Acetaldehyde		Yes		
3.	Allyl alcohol		Yes		
4.	Allyl chloride		Yes		
5.	Amyl acetate		Yes		
6.	Aniline		Yes		
7.	Benzonitrile		Yes		
8.	Benzyl chloride		Yes		
9.	Butyl acetate		Yes		
10.	Butylamine		Yes		
11.	Captan		Yes		
12.	Carbaryl		Yes		
13.	Carbofuran		Yes		
14.	Carbon disulfide		Yes		
15.	Chlorpyrifos		Yes		
16.	Coumaphos		Yes		
17.	Cresol		Yes		
18.	Crotonaldehyde		Yes		
19.	Cyclohexane		Yes		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)		Yes		
21.	Diazinon		Yes		
22.	Dicamba		Yes		
23.	Dichlobenil		Yes		
24.	Dichlone		Yes		
25.	2,2-dichloropropionic acid		Yes		
26.	Dichlorvos		Yes		
27.	Diethyl amine		Yes		
28.	Dimethyl amine		Yes		
29.	Dintrobenzene		Yes		
30.	Diquat		Yes		
31.	Disulfoton		Yes		
32.	Diuron		Yes		
33.	Epichlorohydrin		Yes		
34.	Ethion		Yes		
35.	Ethylene diamine		Yes		
36.	Ethylene dibromide		Yes		
37.	Formaldehyde		Yes		
38.	Furfural		Yes		
39.	Guthion		Yes		
40.	Isoprene		Yes		
41.	Isopropanolamine		Yes		
42.	Kelthane		Yes		
43.	Kepone		Yes		
44.	Malathion		Yes		
45.	Mercaptodimethur		Yes		
46.	Methoxychlor		Yes		
47.	Methyl mercaptan		Yes		
48.	Methyl methacrylate		Yes		
49.	Methyl parathion		Yes		
50.	Mevinphos		Yes		
51.	Mexacarbate		Yes		
52.	Monoethyl amine		Yes		
53.	Monomethyl amine		Yes		
54.	Naled		Yes		
55.	Naphthenic acid		Yes		
56.	Nitrotoluene		Yes		
57.	Parathion		Yes		
58.	Phenolsulfonate		Yes		
59.	Phosgene		Yes		
60.	Propargite		Yes		
61.	Propylene oxide		Yes		
62.	Pyrethrins		Yes		
63.	Quinoline		Yes		
64.	Resorcinol		Yes		
65.	Strontium		Yes		
66.	Strychnine		Yes		
67.	Styrene		Yes		
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)		Yes		
69.	TDE (tetrachlorodiphenyl ethane)		Yes		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic		Yes		
71.	Trichlorofon		Yes		

72.	Triethanolamine		Yes		
73.	Triethylamine		Yes		
74.	Trimethylamine		Yes		
75.	Uranium		Yes		
76.	Vanadium		Yes		
77.	Vinyl acetate		Yes		
78.	Xylene		Yes		
79.	Xylenol		Yes		
80.	Zirconium		Yes		

1 Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

DEC Identification Number	SPDES Permit Number	Facility Name	Outfall Number
New Facility	New Facility	Marmen-Welcon Manufacturing Plant	1A

TABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))

Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence		Results of Screening Procedure
		Believed Present (Input "Yes" or "No" only)	Believed Absent (Input "Yes" or "No" only)	
2,3,7,8-TCDD	No		Yes	

DEC Identification Number	SPDES Permit Number	Facility Name
New Facility	New Facility	Marmen-Welcon Manufacturing Plant

TABLE G. INDUSTRIAL CHEMICAL SURVEY

Complete this table for all substances that have been used, produced, stored, distributed or otherwise disposed of in significant quantity AND for any quantity of BCCs, chemicals for which FDA fish flesh limits exist, or restricted pesticide products listed in Part 326, Section 2 of the ECL. Restricted pesticides also include those products whose labeling bears the statement "Restricted Use Pesticide." Do not include chemicals that are present as de minimus concentrations as listed in the SDS for that substance.

For any substance listed that is used in a manner which could cause them to come into contact with a wastewater that is ultimately discharged to the waters of the State through an outfall controlled by this permit application, identify it as "Present" and the Outfall(s) by which it may be discharged. Sampling results for these pollutants should also be included with Tables B-E.

Substance Name (CAS Number, if availble)	Purpose of Use Code	Annual Usage (lbs)	Amount on Hand (lbs)	Presence in Discharge	Discharge Outfall
1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether) (107-98-2)	OTH - Other	1.41E+04	1.17E+03	No	
1,6-Hexanediol diglycidylether (16096-31-4)	OTH - Other	2.86E+04	2.38E+03	No	
2,4,6-tris(Dimethylaminomethyl)phenol (90-72-2)	OTH - Other	1.27E+04	1.06E+03	No	
Acrylic resin (None)	OTH - Other	4.16E+04	3.46E+03	No	
Barium sulfate (7727-43-7)	OTH - Other	1.78E+04	1.48E+03	No	
Benzyl alcohol (100-51-6)	OTH - Other	1.66E+04	1.39E+03	No	
Carbon (1333-86-4)	OTH - Other	5.13E+05	4.28E+04	No	
Chromium (7440-47-3)	OTH - Other	4.36E+04	3.63E+03	No	
Copper (7440-50-8)	OTH - Other	7.00E+04	5.83E+03	No	
Epoxy Resin (25068-38-6)	OTH - Other	2.75E+05	2.30E+04	No	
Ethylbenzene (100-41-4)	OTH - Other	2.30E+04	1.91E+03	No	
Glass beads (65997-17-3)	OTH - Other	3.38E+04	2.82E+03	No	
Hexamethylene-1,6-diisocyanate homopolymer (HDI Homopolymer) (28182-81-2)	OTH - Other	1.49E+04	1.24E+03	No	
Iron (7439-89-6)	OTH - Other	4.62E+07	3.85E+06	No	
Limestone (1317-65-3)	OTH - Other	1.33E+05	1.11E+04	No	
Manganese (7439-96-5)	OTH - Other	6.09E+05	5.08E+04	No	
Methyl Ethyl Ketone (78-93-3)	OTH - Other	4.03E+04	3.36E+03	No	
n-Butanol (N-Butyl Alcohol) (71-36-3)	OTH - Other	4.20E+04	3.50E+03	No	
n-Butyl acetate (123-86-4)	OTH - Other	1.74E+04	1.45E+03	No	
Nepheline syenite (37244-96-5)	OTH - Other	1.53E+05	1.27E+04	No	
Nickel (7440-02-0)	OTH - Other	1.07E+05	8.88E+03	No	
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	OTH - Other	4.94E+04	4.12E+03	No	
Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	2.56E+04	2.14E+03	No	
Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	1.15E+04	9.60E+02	No	
Polymer of: triethylenetetramine, polymer of C18-unsatd. fatty acids dimers with tall-oil fatty acids and triethylenetetramine and bisphenol A-(epichlorhydrin) epoxy resin and bisphenol A-(epichlorhydrin) epoxy resin (None)	OTH - Other	4.19E+04	3.49E+03	No	
Polyoxypropylenediamine (9046-10-0)	OTH - Other	1.89E+04	1.58E+03	No	
Silicon (7440-21-3)	OTH - Other	5.26E+05	4.39E+04	No	
Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic) (64742-95-6)	OTH - Other	2.45E+04	2.04E+03	No	
Talc (non-asbestiform) (14807-96-6)	OTH - Other	4.33E+04	3.61E+03	No	
Titanium dioxide (13463-67-7)	OTH - Other	1.31E+05	1.09E+04	No	
Xylene (1330-20-7)	OTH - Other	1.04E+05	8.63E+03	No	
Zinc (7440-66-6)	OTH - Other	3.83E+06	3.19E+05	No	
Zinc oxide (1314-13-2)	OTH - Other	2.13E+04	1.78E+03	No	

TABLE H. FACILITY & COLLECTION SYSTEM RESILIENCY

Pump Station Name	PS Owner	General Location	Latitude (DMS)	Longitude (DMS)	Floor Elevation (ft, NAVD88)
Complete this table for all pump stations that exist at the wastewater treatment facility and within the collection system. Identify the name of the pump station, the owner of the pump station (if different than the SPDES permittee), the general location of the pump station (e.g. intersection of Green St. & Water St.), the latitude and longitude of the pump station in degrees-minutes-seconds (DMS) format, and the elevation in feet of the pump station floor (per the NAVD88 datum).					
☐ The wastewater treatment facility and collection system do not contain any pump stations.					
Lift Station #1 - SM5	APDC	Adjacent to Building B	42 ° 36 ' 10.0("	73 ° 46 ' 2.00 "	9.88
Lift Station #2 - SM1	APCD	Adjacent to WWTP, Influent	42 ° 36 ' 26.0("	73 ° 46 ' 2.00 "	8.12
			° ' "	° ' "	
			° ' "	° ' "	
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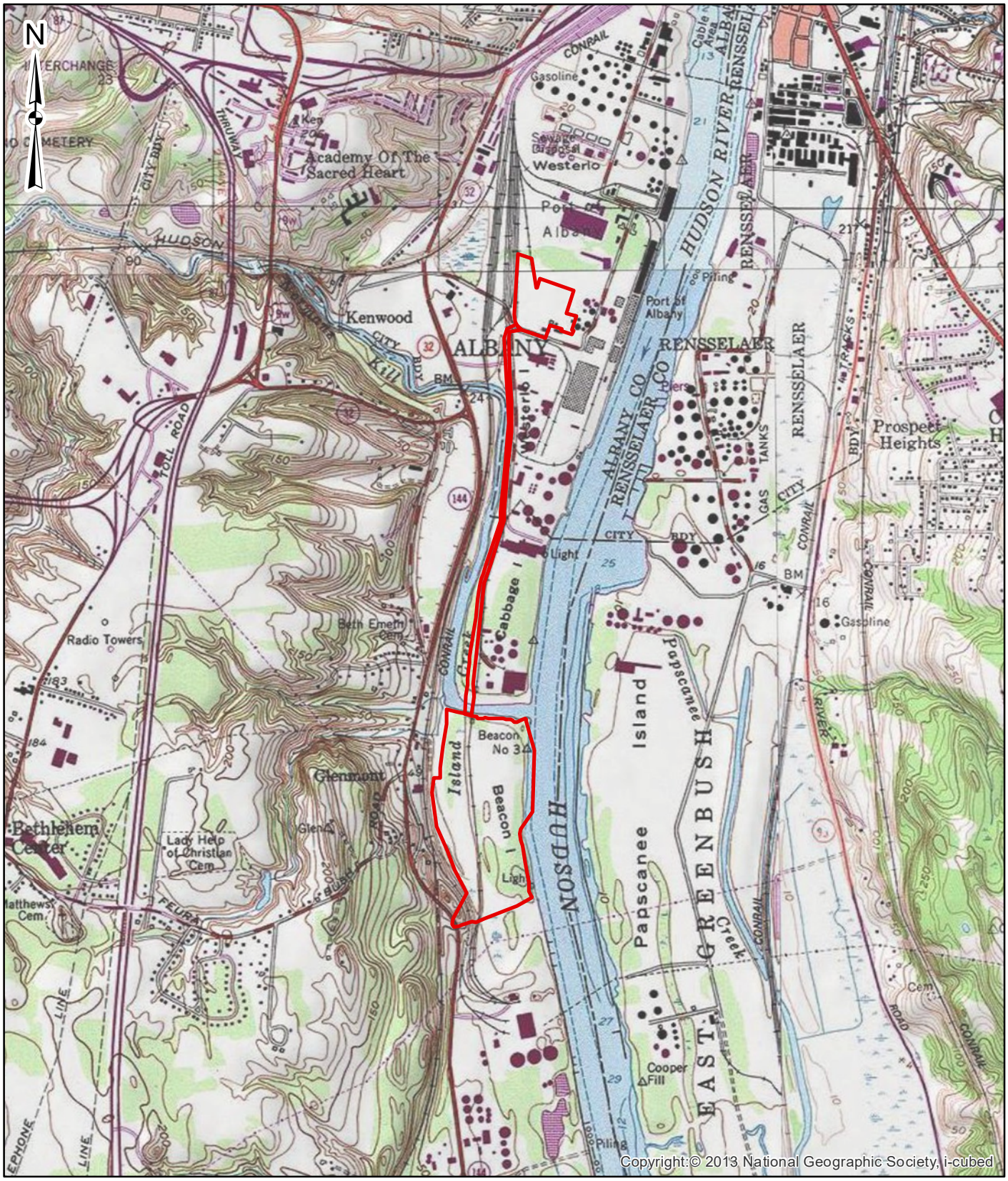


Legend

Project Site

Notes:
1) Project boundary is approximate
2) All areas are approximate

PORT OF ALBANY DEVELOPMENT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

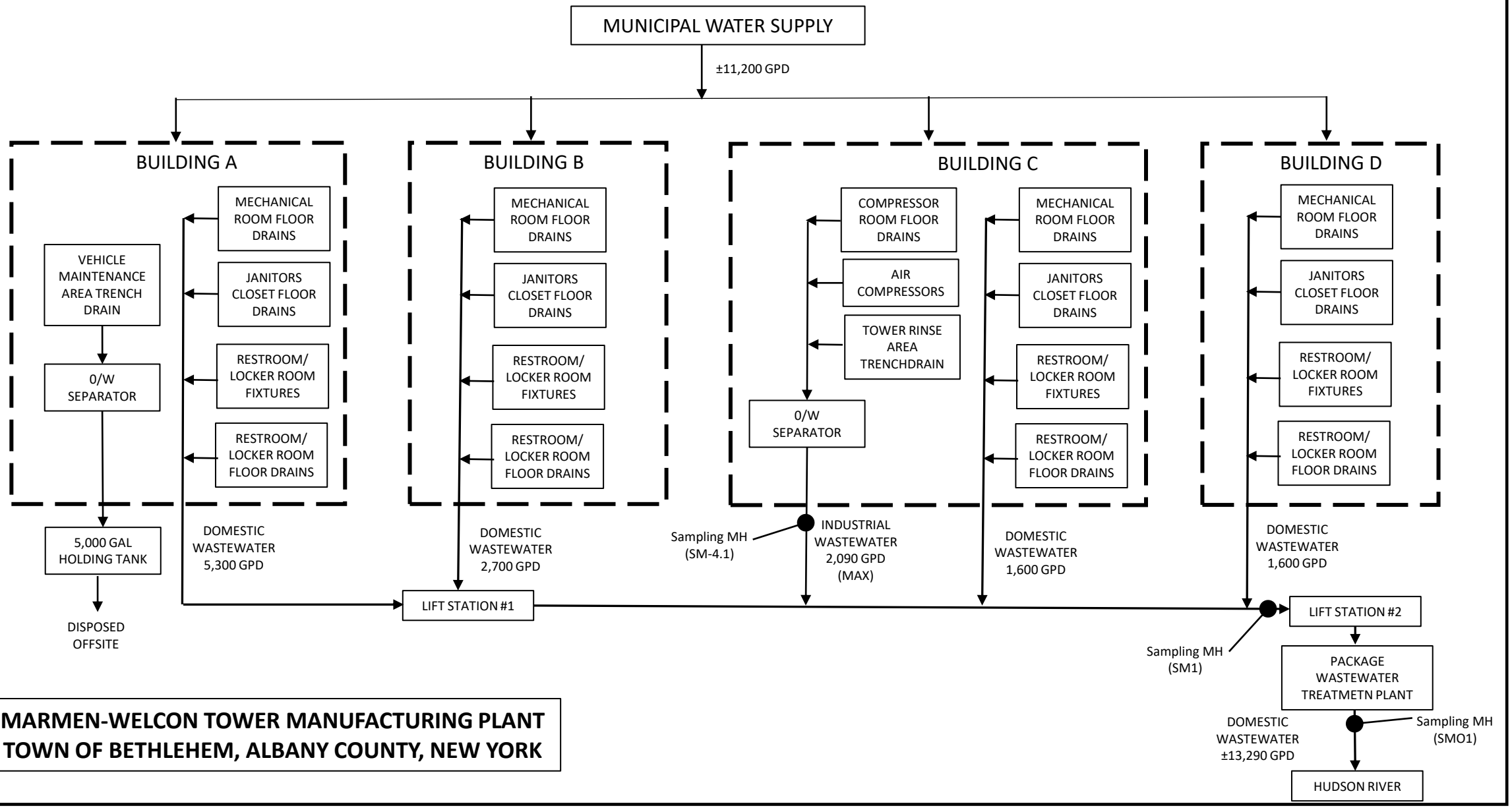
USGS TOPOGRAPHIC MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	JULY 2021	2-1

McFarland Johnson

N:\18641.00 Albany Port Expansion\Draw\GIS\Supplemental Enviro 2021\Figure 2-1 - USGS Topo.mxd

SANITARY LINE DRAWING



MARMEN-WELCON TOWER MANUFACTURING PLANT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

Marmen Welcon LLC
1820 North Plum Avenue
Brandon, South Dakota 57005
USA

Technical Description of Manufacturing Process

This document serves as a high-level description of the operations involved in Wind Tower (WT) and Offshore Wind Tower (OWT) manufacturing. The purpose is to highlight the processes and the anticipated air emissions and the associated controls that are anticipated to be installed to complete the full scope of the activities planned in the new Marmen Welcon Albany, NY Facility.

Marmen and Welcon produce Wind Tower Sections used in the onshore and offshore wind tower industry. The various offshore manufacturing processes are very similar to those used in the well-established Onshore WT business, with the primary difference being the size of the equipment and the tower sections themselves.

The manufacturing process starts with the receiving of the raw material. This can be grouped into Steel Plates, Steel Flanges and mechanical & electrical components. Transformation of the raw material begins with the cutting and beveling of the steel plates. These are cut to size using oxyfuel cutting CNC machines and are scribed using a plasma marker. Steel plates vary in size depending on the Tower model. The thicknesses can range from ½'' to over 2''. The beveling (cutting of the weld preparation) will be done as part of the oxy cutting. Once cut to size, plates go thru a descaling process with a machine / piece of equipment (also referred as a plate blast) where steel abrasive media is used to remove oxides from the surface. The plates are then taken to the forming area.

Forming of the plate into a circular shell is performed using hydraulic rolling machines. The plates are turned into cylindrical forms before being welded at the longitudinal seam. Some shells then go thru another welding phase where a connecting flange is being welded to the shell. These Shell & Flange assemblies are going to become the ends of a tower section. The drilled steel flange allows for a mechanical (bolted) connection of each individual tower section to create a full height complete Tower. The quantity of Sections to form a complete tower can vary from model to model but will usually be around 2 to 5.

Manufacturing of a section involves assembling, thru different circular welding stations, a given quantity of shells to one another. The number will also vary from 4 to 12 shells depending on the section length. Once the section has been assembled, fully welded and inspected, it is now ready for finishing.

The finishing processes are composed of abrasive blasting, metallizing and painting. These steps are common operations involved in coating metal components. Just like for plates, descaling of the section uses metal abrasive media to remove rust, oxides and gives the steel a profile (roughness) to which the coating (paint) can adhere to. Metallization (also known has thermal spray coating) has the purpose of applying a zinc coating to the section (or parts of) in order to offer a greater protection against corrosion. As a final step of the finishing process, a coating system (paint system) is applied to both the inside and outside of the section. These systems can vary from model to model

but will usually be composed of an epoxy primer coating followed by a polyurethane coating. Some could have a zinc rich primer instead of the metallization.

Once the section has gone thru the finishing process, it is ready for its final manufacturing step comprising of internals (components) assembly. This involves installing mechanical (ladders, platform, etc.) and electrical (cables, lights, lift, etc.) components so the tower can be easily erected and maintained throughout its service life. Fully completed and inspected sections are then taken into the storage yard until they are taken out to sea. Once erected on an offshore foundation structure and topped with a machine head and rotor (turbine), a wind tower turbine provides renewable energy for decades.

The above described global processes would also apply to Transition Piece (TP) manufacturing. A TP serves as the connecting component between a monopile foundation (manufactured by others) and a Wind Tower.

The Marmen Welcon Albany, NY facility is designed to produce 150 Towers per year or a combination of 100 Towers and 100 Transition Pieces. Of course, there will be a ramp-up period stretching over many months before achieving full production rate. Total yearly production could also vary with the project demands fluctuating in time.

The Anticipated Emissions and Anticipated Control systems, please note that:

- the oxy cutting is conducted indoors and any fumes from this process will vent inside the building;
- the descaling and abrasive blasting processes each have dust collectors to control particulate emissions, the materials used in blasting are recycled;
- the various welding stations utilize several processes (MIG, SAW, TIG, etc.). The emissions from all welding processes vent inside the facility (indoor fugitive emissions);
- the metallizing system is equipped with an emission capture and control system venting indoors. It has both a filtration and ventilation stages;
- the four (4) paint rooms contain both ventilation and filtration to capture and control particulate emissions. VOC emissions will be minimized by using coatings which are compliant with NY State VOC content limits, or by use of an add-on control system. They will use a combination of filter booth, add-on control system (as may be required) and an exhaust stack system.

This manufacturing facility anticipates the emission of VOC and certain HAP, as well as particulates (PM_{10}, $PM_{2,5}$) from process manufacturing related operations. In addition, we expect there will be emissions (NO_x, CO, VOC, SO_2, Pb, PM_{10}, $PM_{2,5}$, GHG and HAP) associated with miscellaneous site operations that involve fuel combustion.

	Pollutant/Parameter (CAS Number, if availble)
1	1-Chloro-2,3-epoxypropane (Epichlorohydrin) (106-89-8)
2	1-Ethyl-2-methylbenzene (611-14-3)
3	1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether) (107-98-2)
4	1,2,3-Trimethylbenzene (526-73-8)
5	1,2,4-Trimethylbenzene (95-63-6)
6	1,3-bis(12-Hydroxyocta-decanamide-N-methyle) benzene (None)
7	1,6-Hexanediol diglycidylether (16096-31-4)
8	2-Methoxy-1-methylethyl acetate (Methoxypropylacetate) (108-65-6)
9	2-Methoxypropanol (1589-47-5)
10	2-Methoxypropyl acetate (70657-70-4)
11	2-Methylpropan-1-ol (Isobutyl Alcohol) (78-83-1)
12	2-Methylstyrene (611-15-4)
13	2-Phenylpropene (Methyl Styrene) (98-83-9)
14	2,4,6-tris(Dimethylaminomethyl)phenol (90-72-2)
15	2,6-Dimethylheptan-4-one (Diisobutyl Ketone) (108-83-8)
16	3-(2,3-Epoxypropoxy) propyl trimethoxy silane (2530-83-8)
17	3,6-Diazaoctanethylenediamin (Triethylenetetramine) (112-24-3)
18	4,4'-Isopropylidenediphenol (80-05-7)
19	4,6-Dimethyl-2-heptanone (19549-80-5)
20	Acrylic resin (None)
21	Alkyd resin (None)
22	Allyl glycidyl ether (106-92-3)
23	Aluminium hydroxide (21645-51-2)
24	Aluminum oxide (1344-28-1)
25	Amorphous silica (68611-44-9)
26	Barium sulfate (7727-43-7)
27	Benzaldehyde (100-52-7)
28	Benzyl alcohol (100-51-6)
29	bis (1,2,2,6,6-Pentamethyl-4-piperidyl) sebacate (41556-26-7)
30	bis[(Dimethylamino)methyl]phenol (71074-89-0)
31	Block copolymer (None)
32	C10-C13 hydrocarbons (n-alkanes, isoalkanes, cyclics) <2% aromatics (Naphtha Hydrotreated Heavy) (64742-48-9)
33	C12-14 Alcohols (80206-82-2)
34	Calcium Carbonate (filler) (16389-88-1)
35	Carbon (1333-86-4)
36	Cryolite (filler) (13775-53-6)
37	Cumene (98-82-8)
38	Cured Phenolic Resin (bonding) (9003-35-4)
39	Decamethylcyclopentasiloxane (D5) (541-02-6)

	Pollutant/Parameter (CAS Number, if availble)
40	Dibenzyl ether (103-50-4)
41	Dibutyltin dilaurate (77-58-7)
42	Dipotassium oxide (12136-45-7)
43	Dodecamethylcyclohexasiloxane (D6) (540-97-6)
44	Epoxy Resin (25068-38-6)
45	Ethanol + Ethanol (formed by reaction) (64-17-5)
46	Ethylpolysilicate (11099-06-2)
47	Fatty acids, c18-unsatd., dimers, polymers with triethylenetetramine, reaction products with poly (bisphenol a diglycidyl ether) (68424-41-9)
48	Feldspar-group minerals (68476-25-5)
49	Fluoro polysiloxane (None)
50	Glass beads (65997-17-3)
51	Heptan-2-one (Methyl Amyl Ketone) (110-43-0)
52	Hexamethylene-1,6-diisocyanate homopolymer (HDI Homopolymer) (28182-81-2)
53	Hexamethylene-di-isocyanate (HDI) (822-06-0)
54	Hydrogen chloride (7647-01-0)
55	Hydrogenated castor oil (8001-78-3)
56	Iron hydroxide oxide (20344-49-4)
57	Kaolin (Clay) (1332-58-7)
58	Lecithin (8002-43-5)
59	Limestone (1317-65-3)
60	m-Xylylene-diamine (Xylene Diamine, Meta-) (1477-55-0)
61	Methanol + Methanol (formed by reaction) (67-56-1)
62	Methyl Ethyl Ketone (78-93-3)
63	Methyl-1,2,2,6,6-pentamethyl-4-piperidylsebacate (82919-37-7)
64	Methylstyrenated phenol (68512-30-1)
65	Mica (12001-26-2)
66	n-Butanol (N-Butyl Alcohol) (71-36-3)
67	n-Butyl acetate (123-86-4)
68	Nepheline syenite (37244-96-5)
69	Nonane (111-84-2)
70	Octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine (100545-48-0)
71	Octamethylcyclotetrasiloxane (D4) (556-67-2)
72	Oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)
73	Phosphorus pentoxide (1314-56-3)
74	Pigment black 10, 77265 (Graphite) (7782-42-5)
75	Polyamineamide salt (None)
76	Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorhydrin) epoxy resin (None)

	Pollutant/Parameter (CAS Number, if availble)
77	Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorhydrin) epoxy resin (None)
78	Polymer of: triethylenetetramine, polymer of C18-unsatd. fatty acids dimers with tall-oil fatty acids and triethylenetetramine and bisphenol A-(epichlorhydrin) epoxy resin and bisphenol A-(epichlorhydrin) epoxy resin (None)
79	Polyolefins (None)
80	Polyoxypropylenediamine (9046-10-0)
81	Potassium Floroborate (filler) (14075-53-7)
82	Precipitated silica (112926-00-8)
83	Propan-2-ol (Isopropyl Alcohol) (67-63-0)
84	Propyleneglycol (Propanediol, 1,2-) (57-55-6)
85	Quartz (14808-60-7)
86	Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlorides, compds. with bentonite and bis(hydrogenated tallow alkyl)dimethylammonium chlorides (71011-25-1)
87	Quaternary ammonium modified bentonite (121888-68-4)
88	Reaction mass of N, N'-hexane-1,6-diylbis[12-Hydroxyoctadecanamide] and 12-hydroxy-N-[6-[1-oxoalkyl)amino] hexyl] octadecanamide (None)
89	Salicylic acid (69-72-7)
90	Silicon (7440-21-3)
91	Silicon dioxide (7631-86-9)
92	Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic) (64742-95-6)
93	Stearic acid (57-11-4)
94	Sulfur (7704-34-9)
95	Talc (non-asbestiform) (14807-96-6)
96	Titanium dioxide (13463-67-7)
97	Trimethylolpropane (77-99-6)
98	Trizinc bis(orthophosphate) (7779-90-0)
99	Water (7732-18-5)
100	White spirit (Naphtha Medium Aliphatic) (64742-88-7)
101	Zeolites (1318-02-1)
102	Zinc chloride (7646-85-7)
103	Zinc oxide (1314-13-2)
104	Zirconium dioxide (1314-23-4)

State Pollutant Discharge Elimination System (SPDES)
INDUSTRIAL APPLICATION FORM NY-2C
Supplement J
IRON AND STEEL MANUFACTURING INDUSTRIES (40 CFR Part 420)

Facility Name:	SPDES Number:
Marmen-Welcon Tower Manufacturing Facility	NY0312924

Complete the appropriate sections of the table below, and submit this form with your SPDES application. See attached definitions.

Subpart	Sub-Category	Production (1000 #/day)	Outfall
A	Cokemaking (40 CFR 420.10) a. By product cokemaking - iron & steel b. By product cokemaking - merchant c. Beehive cokemaking - No discharge allowed		
B	Sintering (40 CFR 420.20)		
C	Ironmaking (40 CFR 420.30) a. Iron blast furnace b. Ferromanganese blast furnace (reserved)		
D	Steelmaking (40 CFR 420.40) a. Basic oxygen furnace steelmaking - semi-wet; and electric arc furnace steelmaking - semi-wet (no discharge allowed) b. Basic oxygen furnace steelmaking - wet suppressed combustion c. Basic oxygen furnace steelmaking - wet open combustion; open hearth furnace steelmaking - wet; and electric arc furnace steelmaking - wet		
E	Vacuum Degassing (40 CFR 420.50)		
F	Continuous Casting (40 CFR 420.60)		
G	Hot Forming (40 CFR 420.70) a. Primary mill, carbon & specialty 1. without scarfing 2. with scarfing b. Section mills 1. carbon 2. specialty c. Flat mills 1. Hot strip sheet mills, carbon & specialty 2. Carbon plate mills 3. Specialty plate mills d. Pipe & tube mills, carbon & specialty		
H	Salt Bath Descaling (40 CFR 420.80) a. Salt bath descaling, oxidizing 1. Batch, sheet & plate 2. Batch, rod & wire 3. Batch, pipe & tube 4. Continuous b. Salt bath descaling, reducing 1. Batch 2. Continuous		

Supplement J
IRON AND STEEL MANUFACTURING INDUSTRIES (40 CFR 420) - (continued)

Subpart	Sub Category	Production (1000 #/day)	Outfall
I	Acid Pickling (40 CFR 420.90) a. Sulfuric acid pickling (spent acid solution & rinse waters) 1. Rod, wire & coil 2. Bar, billet & bloom 3. Strip, sheet & plate 4. Pipe, tube & other product 5. Fume scrubbers b. Hydrochloric acid pickling (spent acid solution & rinse waters) 1. Rod, wire & coil 2. Strip, sheet & plate 3. Pipe, tube & other products 4. Fume scrubbers 5. Acid regeneration (absorber vent scrubber) c. Combination acid pickling (spent acid solution & rinse waters) 1. Rod, wire & coil 2. Bar, billet and bloom 3. Strip, sheet & plate - continuous 4. Strip, sheet & plate - batch 5. Pipe, tube & other product 6. Fume scrubbers		
J	Cold Forming (40 CFR 420.100) a. Cold rolling mills 1. Recirculation - single stand 2. Recirculation - multiple stands 3. Combination 4. Direct application - single stand 5. Direct application - multiple stands b. Cold Worked pipe & tube 1. Using water 2. Using oil solution	500	001
K	Alkaline Cleaning (40 CFR 420.110) a. Batch b. Continuous		
L	Hot Coating (40 CFR 420.120) a. Galvanizing, terne coating and other coatings 1. Strip, sheet & miscellaneous products b. Galvanizing & other coating 1. Wire products and fasteners c. Fume scrubbers		

INDUSTRIAL APPLICATION FORM NY-2C
Supplement J
IRON AND STEEL MANUFACTURING INDUSTRIES (40 CFR 420)
Definitions

Subpart A-Cokemaking

COKEMAKING shall mean those operations from by-product and beehive cokemaking operations.

BY PRODUCT COKEMAKING shall mean those cokemaking operations in which coal is heated in the absence of air to produce coke.

MERCHANT shall mean those by-product cokemaking operations which provide more than fifty percent of the coke produced to operations, industries, or processes other than iron making blast furnaces associated with steel production.

IRON AND STEEL shall mean those by-product cokemaking operations other than merchant cokemaking operations.

BEEHIVE COKEMAKING shall mean those operations in which coal is heated with the admission of air in controlled amounts for the purpose of producing coke.

Subpart B-Sintering

SINTERING shall mean those operations conducted by the heating of iron bearing wastes (mill scale and dust from blast furnaces and steeling making furnaces) together with fine iron ore, limestone, and coke fines in an ignition furnace to produce an agglomerate for charging to the blast furnace.

Subpart C-Iron Making

IRON MAKING shall mean those operations in which iron ore is reduced to molten iron in a blast furnace.

FERROMANGANESE BLAST FURNACE shall mean those blast furnace which produce molten iron containing more than fifty percent manganese.

IRON BLAST FURNACE shall mean all blast furnaces except ferromanganese.

Subpart D-Steelmaking

STEELMAKING shall mean those operations conducted in basic oxygen, open hearth and electric arc furnaces.

BASIC OXYGEN FURNACE shall mean the production of steel from molten iron, steel scrap, fluxes and various combinations thereof, in refractory lined furnaces by adding oxygen.

OPEN HEARTH FURNACE shall mean the production of steel from molten iron, steel scrap, fluxes, and various combinations thereof, in refractory lined fuel-fired furnace equipped with regenerative chambers to recover heat from the flue and combustion gases.

ELECTRIC ARC FURNACE shall mean the production of steel principally from steel scrap and fluxes in refractory lined furnaces by passing an electric current through the scrap or steel bath.

WET shall mean those steelmaking air cleaning systems that primarily use water for furnace gas cleaning.

SEMI-WET shall mean those steelmaking air cleaning systems that use water for the sole purpose of conditioning the temperature and humidity of furnace gases such that the gases may be cleaned in dry air pollution control system.

SUPPRESSED COMBUSTION shall mean those basis oxygen furnace steelmaking wet air cleaning systems which air designed to limit or suppress the carbon monoxide in furnace gases by restricting the amount of excess air entering the air pollution control system.

Subpart E-Vacuum Degassing

VACUUM DEGASSING shall mean these operations conducted by applying a vacuum to molten steel.

Subpart F-Continuous Casting

CONTINUOUS CASTING shall mean those operations of the continuous casting of molten steel into intermediate or semi-finished steel products through water cooled molds.

Subpart G-Hot Forming

HOT FORMING shall mean those steel operations in which solidified, heated steel is shaped by rolls.

PRIMARY MILL shall mean those steel hot forming operations that reduce ingots to blooms or slabs by passing the ingots between rotating steel rolls. The first hot forming operation performed on solidified steel after it is removed from ingot molds is carried out on a "primary mill".

SECTION MILL shall mean those steel hot forming operations that produce a variety of finished and semi-finished steel products other than the products of those mills specified in "flat mill", "pipe and tube mill", "plate mill", and "hot-strip and sheet mill".

FLAT MILL shall mean those steel hot forming operations that reduce heated slabs to plates, strip and sheet or skelp.

PIPE AND TUBE MILL shall mean those steel hot forming operations that produce butt welded or seamless tubular steel products.

SCARFING shall mean those steel surface conditioning operations in which flumes generated by the combustion of oxygen and fuel are used to remove surface metal imperfections from slabs, billets or blooms.

PLATE MILL shall mean those steel hot forming operations that produce flat hot-rolled products which are (1) between 8 and 48 inches wide and over 0.23 inches thick; or (2) greater than 48 inches wide and over 0.18 inches thick.

HOT STRIP AND SHEET MILL shall mean those steel hot forming operations that produce flat hot-rolled products other than plates.

SPECIALTY STEEL shall mean steel products containing alloying elements which are added to enhance the properties of the steel produced when individual alloying elements (e.g. aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium, zirconium) exceed 3% or the total of all alloying elements exceed 5%.

CARBON STEEL shall mean those steel products other than specialty steel products.

CARBON HOT FORMING OPERATION (or "carbon") shall mean those hot forming operations which produce a majority, on a tonnage basis, of carbon steel products.

SPECIALTY HOT FORMING shall mean all hot forming operations other than "carbon hot forming operations".

Subpart H-Salt Bath Descaling

SALT BATH DESCALING shall mean scale removal from semi-finished steel products by immersing the steel in molten salt baths of oxidizing and reducing.

SALT BATH DESCALING OXIDIZING shall mean the removal of scale from semi-finished steel products by the action of molten salt baths other than those containing sodium hydride.

SALT BATH DESCALING REDUCING shall mean the removal of scale from semi-finished steel products by the action of molten sal baths containing sodium hydride.

BATCH, SHEET AND PLATE shall mean those descaling operations that remove surface scale from sheet and plate products in batch processes.

BATCH, ROD AND WIRE shall mean those descaling operations that remove surface scale from rod and wire products in batch processes.

BATCH, PIPE AND TUBE shall mean those descaling operations that remove surface scale from pipe and tube products in batch processes.

Subpart I-Acid Pickling

ACID PICKLING shall mean the process of chemically removing oxides and scale from the surface of steel using dilute inorganic acids.

SULFURIC ACID PICKLING shall mean those operations which steel products are immersed in sulfuric acid solutions to chemically remove oxides and scale, and those rinsing operations associated with such immersions.

HYDROCHLORIC ACID PICKLING shall mean those operations in which steel products are immersed in hydrochloric acid solutions to chemically remove oxides and scale, and those rinsing operations associated with such immersions.

COMBINATION ACID PICKLING shall mean those operations in which steel products are immersed in solutions of more than one acid to chemically remove scale and oxides, and those rinsing steps associated with such immersions.

FUME SCRUBBER shall mean those pollution control devices used to remove and clean fumes originating in pickling operations.

ACID RECOVERY shall mean those sulfuric acid pickling operations that include processes for recovering and unreacted acid from spent pickling acid solutions.

ACID REGENERATION shall mean those hydrochloric acid pickling operations that include processes for regenerating acid from spent pickling acid solutions.

NEUTRALIZATION shall mean those acid pickling operations that do not include acid recovery or acid regeneration processes.

SPENT ACID SOLUTION (or "spent pickle liquor") shall mean those solutions of steel pickling acids which have been used in the pickling process and are discharged or removed therefrom.

ROD, WIRE AND COIL shall mean those acid pickling operations that pickle rod, wire or coiled rod and wire products.

BAR, BILLET AND BLOOM shall mean those acid pickling operations that pickle bar, billet or bloom products.

STRIP, SHEET AND PLATE shall mean those acid pickling operations that pickle strip, sheet or plate products.

PIPE, TUBE AND OTHER shall mean those acid pickling operations that pickle pipes, tubes or any steel product other than those included in "rod, wire and coil", car, billet and bloom" and "strip, sheet and plate".

Subpart J-Cold Forming

COLD FORMING shall mean those operation of cold rolling and cold working pipe and tube operations in which unheated steel is passed through rolls or otherwise produced a smooth surface, or to develop controlled mechanical properties in the steel.

RECIRCULATION shall mean those cold rolling operations which include recirculation of rolling solutions at all mill stands.

COMBINATION shall mean those cold rolling operations which include recirculation of rolling solutions at one or more mill stands, and once-through use of rolling solutions at the remaining stand or stands.

DIRECT APPLICATION shall mean those cold rolling operations which include once-through use of rolling solutions at all mill stands.

SINGLE STAND shall mean those recirculation or direct application cold rolling mills which include more than one stand of work rolls.

MULTIPLE STANDS shall mean those recirculation direct application cold rolling mills which include more than one stand of work rolls.

COLD WORKED PIPE AND TUBE shall mean those cold forming operations that process unheated pipe and tube products using either water or oil solutions for cooling and lubrication.

Subpart K-Alkaline Cleaning

ALKALINE CLEANING shall mean those operations in which steel and steel products are immersed in alkaline cleaning baths to remove mineral and animal fats or oils from the steel, and those rinsing operations which follow such immersion. The removal can be enhanced by the electrolysis of the steel in an alkaline solution.

Subpart L-Hot Coating

HOT COATING shall mean those operations in which steel is coated with zinc, terne metal, or other metals by the hot dip process, and those rinsing operations associated with that process.

GALVANIZING shall mean coating steel products with zinc by the hot dip process including the immersion of the steel products in a molten bath of zinc metal, and the related operations preceding and subsequent to the immersion phase.

TERNE COATING shall mean coating steel products with terne metal by the hot dip process including the immersion of the steel product in a molten bath of lead and tin metals, and the related operations preceding and subsequent to the immersion phase.

OTHER COATING shall mean coating steel products with metals other than zinc or terne metals by the hot dip process including the immersion of the steel product in a molten bath of metal, and the related operations preceding the subsequent to the immersion phase.

FUME SCRUBBER shall mean wet air pollution control devices used to remove and clean fumes originating from hot coating operation.

STRIP, SHEET AND MISCELLANEOUS PRODUCTS shall mean steel products other than wire products and fasteners.

WIRE PRODUCTS AND FASTENERS shall mean steel wire, products manufactured from steel wire, and steel fasteners manufactured from steel wire or other steel shapes.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SPDES DISCHARGE PERMIT
Simple Mixing Zone Form

Clear Form

Purpose & Instructions

The following information will inform the Department's review of your SPDES permit and the resulting effect on the receiving waterbody. Complete the information (one form for each outfall) based on either field observations or schematics/design drawings to the best of your ability. Please see the Mixing Zone Guidance for additional instructions. If an item is unavailable or non-applicable, please describe. Submit with the NY-2A or NY-2C Application Form to SPDESapp@dec.ny.gov.

Facility Name: Marmen-Welcon Tower Manufacturing Facility SPDES No.: NY0312924 Outfall #: 001

NYSDEC Permit Writer: Adam J. Frosino P.E. Receiving Waterbody Class: C

Email: afrosino@mjinc.com Phone No.: (585) 905-0970

Observation Information

Name & Title of Observer: Adam J. Frosino, P.E. - Project Manager Date of Observation: 04/23/2023

Phone Number: (585) 905-0970 Email: afrosino@mjinc.com

Name of Receiving Waterbody: Hudson River

Weather conditions at time of observation (describe any recent rain/melt events):

45-50 Degrees and Sunny, roughly 0.25 inches of rain the previous day.

Avg. Width (ft): 720.00 Avg. Depth (ft): 35.00 Local Depth at Outfall (ft): 30.00

Has the receiving waterbody run dry in the last 5 years? ☐ Yes ☒ No

Are tidal conditions present? ☒ Yes ☐ No

Outfall Location & Configuration

Outfall #: 001 Location at end of pipe: Latitude: 42 Deg.36' 24" N Longitude: 73 Deg. 46' 3" W

Describe outfall (location, size, configuration, condition of the structure):

Sanitary system is not constructed but proposed to be 8" diameter PVC outlet at elevation 6.79' along the rip-rap lined River Bank to be constructed as part of the project's Wharf construction. Outlet will be roughly 3' higher the the Rivers MHHW elevation of 3.78'.

☒ **Option #1**: Bank Discharge (outfall pipe/channel does not extend very far into waterbody)

- ☒ Outfall pipe (8.00 in diameter) discharges to waterbody at 5.00 feet from bank
  OR
- ☐ Channel/Ditch (____ft wide x ____ft deep x ____ft long) discharges to waterbody at bank

☐ **Option #2**: Extended Pipe Discharge (outfall pipe extends into waterbody)

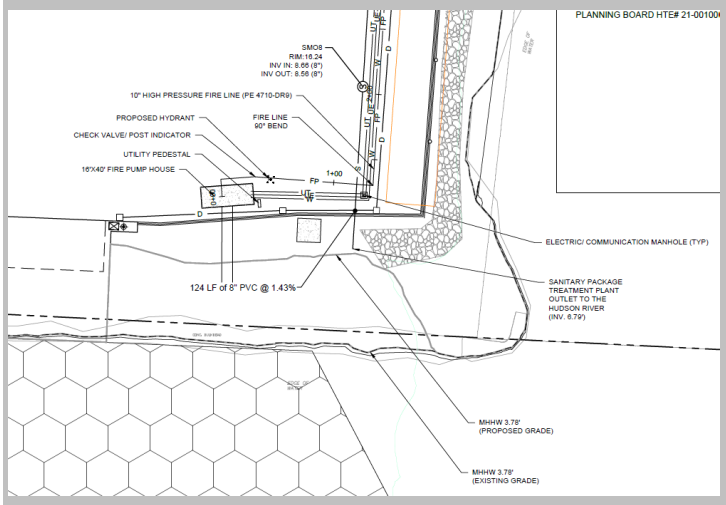
- ☐ Outfall pipe (____in diameter) is a single pipe with an open end or no diffuser
  OR
- ☐ Outfall pipe (____in diameter) has a diffuser with _____ port(s)

Outfall Photos & Schematics

Upload or attach photos/schematics that depict the location of the outfall (i.e. photo of outfall pipe/channel, satellite image with location of outfall, hand sketch, design schematic, view upstream, view downstream).
You will be prompted twice to select your photo/schematic.

Description:

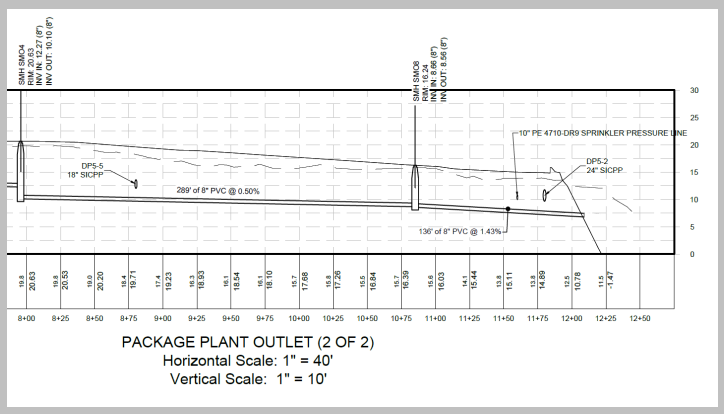
Design Plans - Plan View Drawing



Click to Upload Photo

Description:

Design Plans - Profile View Drawing



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APPENDIX D. CONDITIONAL EXCLUSION CERTIFICATION

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

CONDITIONAL EXCLUSION CERTIFICATION
for Exclusion from Mercury Permit Limitations

Instructions: Complete this Conditional Exclusion Certification. Submit completed form to the Regional Water Engineer and DOWmercury@dec.ny.gov.

I. Permittee/Facility Information

Permittee/Facility Name: Albany Port District Commission			
Mailing Address: 106 Smith Blvd.		City/State/Zip: Albany, New York 12202	
Contact Name: Richard Hendrick - CEO		Phone No.: (518) 463-8763	
Facility Name: Marmen-Welcon Tower Manufacturing Facility			
Street Address: 309 River Road		City/State/Zip: Bethlehem, NY 12077	
County: Albany	Latitude: 42 Deg. 36' 18" N	Longitude: 73 Deg. 46' 3" W	SIC Code: 3449
Is there a Conditional Exclusion Certification currently on file with the Department? Yes ☒ No		Enter SPDES ID #: NY 0312924	

II. Exclusion Checklist

	Does the facility have any of the following mercury sources? Please check either "Yes" or "No" in the appropriate box. If you answer "Yes" to any of these questions (1) through (8), you are not eligible for the conditional exclusion.	YES	NO
1	The facility is or receives discharge from 1) individually permitted combined sewer overflow (CSOs) communities and/or 2) Type II sanitary sewer overflow (SSO) facilities		X
2	One or more effluent samples which exceed 12 ng/L, including samples taken as a result of the SPDES application process		X
3	1)Internal or tributary waste stream samples exceed the GLCA effluent limitation AND 2) the final effluent samples are less than the GLCA due primarily to dilution by uncontaminated or less contaminated waste streams. Both components of this criterion may include samples taken as a result of the SPDES application process		X
4	A permit application or other information indicates that mercury is handled on site and could be discharged through outfalls		X
5	Outfalls which contain legacy mercury contamination		X
6	The facility's collection system receives discharges from a dental and/or categorical industrial user (CIU) that may discharge mercury		X
7	The facility accepts hauled wastes		X
8	The facility is defined as a categorical industry that may discharge mercury. This may also include dentists, universities, hospitals, or laboratories which have their own SPDES permit		X

III. Certification

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "exclusion" and obtaining an exclusion from mercury permit limitations. I certify under penalty of law that there are no mercury sources at and/or discharging to the facility. I understand that I am obligated to submit a conditional exclusion certification form once every five years to the SPDES permitting authority. I understand that I must allow the SPDES permitting authority to perform inspections to confirm the condition of exclusion and to make such inspection reports publicly available upon request.

Printed Name: ~~Richard Hendrick~~ Megan DALY - Albany Port District Commission	Title/Position: Chief ~~Executive~~ Commerce Officer
Signature: Megan Daly	Date: 5/17/23

(12/30/20)

Sanitary Engineer's Report

For

Port of Albany Expansion Project

309 River Road

Glenmont, NY 12077

FEBRUARY 9, 2023

(Revised MARCH 29, 2023)

PREPARED FOR:
ALBANY PORT DISTRICT COMMISSION
106 SMITH BLVD.
ALBANY, NY 12202

PREPARED BY:
MCFARLAND JOHNSON
90 EAST AVENUE
SARATOGA SPRINGS, NY 12866
PH: (518) 580-9383
FX: (585) 905-0882

MJ PROJECT NO. 18641.00

Table of Contents

Section 1: Project Description

A. Introduction

The purpose of this Report is to provide the engineering information used to design the proposed sanitary sewer system at the Port of Albany Expansion site located at 309 River Road, Town Bethlehem, New York. The site is owned and being developed by the Albany Port District Commission (APDC) for use by Marmen-Welcon to manufacture off-shore wind tower components.

B. Existing Conditions

The Project Site is located on the east side of River Road/Route 144 along the Hudson River. The project parcel is located immediately south of the point where Normans Kill discharges to the Hudson River within the Town of Bethlehem, Albany County, New York. The Project Site also includes an existing access easement located at the southwest corner of the property provided by National Grid for crossing rights to connect lower portion of the property to River Road/NYS Route 144. The project area is isolated from the existing public sewer system in the existing Albany Port District to the north by the Normans Kill as well as the existing sanitary mains from the Town of Bethlehem system.

The Project Site lies within an undeveloped, industrial, and rural/suburban context with limited access. The site's is generally forested coverage throughout. The neighboring land uses to the north and south are industrial. The Project Site at one time was used for fly ash and bottom ash disposal. Further to the west of River Road, the area is generally rural in character with sparse minor roads and with low-density residential housing. In terms of access, although River Road/Rt. 144 and Port Road South are the closest to the Project Site, neither have a direct connection to the Project Site.

Currently, most of the Project Site is relatively flat with a slight slope towards the Hudson River, with an abandoned elevated railway bed that traverses the Project Site in a north-south direction. A portion of the southwestern access easement (west of the utility corridor) is a ridge. Bedrock outcrops were noted at the side and top of this ridge. The whole site is roughly 30-50 feet lower then the NYS Route 144 (River Road) corridor to the west.

C. Proposed Project

The proposed development is an offshore wind (OSW) manufacturing operation that will produce wind turbine tower components. The site development includes 625,000 +/- square feet of OSW manufacturing facilities spread over four (4) main buildings with ancillary impervious areas including parking for automobiles and trucks, roadway, bridge, and a maritime wharf. The remainder of the site will be used for tower storage and be made up of dense graded aggregate (compacted gravel). There will also be small pervious areas of grass and unaltered brush and trees.

There will be two (2) access points to the site; one dedicated driveway for employees and one dedicated driveway for trucks. The employee entrance will be off River Road/Route 144. The truck access will be provided via Normanskill Street with a bridge over the Normans Kill. A security gate will be provided at the truck entrance to restrict access from the general public. Additional detailed technical information on the manufacturing processes proposed within the buildings is provided by Marmen Welcon in Appendix E.

The Project Site is currently zoned Heavy Industrial (I) as shown on the Town of Bethlehem Zoning Map. The proposed manufacturing use is allowed by the Town zoning code and is compatible with the existing facilities located in the project vicinity. Site plan and SEQR approval has been granted by the Town of Bethlehem Planning Board. Development of the parcel, as it is currently zoned, will require the provisions of public utilities including sanitary sewer. Since the parcel is outside the serviceable area of existing sanitary sewer infrastructure, several options were considered for the disposal of site generated wastewater.

The site will connect to the existing Town of Bethlehem water system with a service lateral from the existing water main infrastructure on River Road; however, no sanitary sewer main exists in this roadway corridor. The proposed means of wastewater disposal was determined to be an on-site wastewater treatment package plans with effluent outlet piping into the Hudson River. The construction and operation of the wastewater package treatment plant will be completed by the project applicant and property owner, the Albany Port District Commission.

Section 2: Sanitary System

A. Description of Existing Sanitary System

No previous development or sanitary sewer infrastructure is present on, or near, the project site. The site is a vacant property commonly known as Beacon Island as historically the Normans Kill had traversed on the west side of the land while the Hudson River shoreline was along the east side. The closest existing public sanitary infrastructure is discussed below in the alternatives for wastewater disposal from the site.

B. Wastewater Treatment Alternatives Analysis

During the 2019 Generic Environmental Impact Statement (GEIS) approval process, various alternatives were considered to efficiently treat and/or dispose of the proposed wastewater produced by the site. Those alternatives are summarized below:

Option A: Sanitary service to the project site by connecting to the existing sewer infrastructure owned and maintained by the Albany County Water Purification District just north of the project as set forth below.

The South Wastewater Treatment Plant (hereinafter the SWTP), owned and operated by the Albany County Water Purification District, is located at the north end of the Port of Albany, a point approximately 9,500 linear feet north of the project site. Because the project site is outside the jurisdiction of the Albany County Water Purification District, authorization to treat waste from this project site would have required approval of the Albany County Legislature. The APDC has coordinated with the Albany County Water Purification District to determine the capacity to treat waste from the project. The treatment plant has the capacity; however conveyance to the plant would be a challenge.

It was concluded that there are currently no connection points to the Albany County Water Purification District sewer system in the vicinity of the project. Existing sewer lines located north of the project boundary line are privately owned and convey waste to the SWTP. Therefore, the entire sewer line force

main system from the project site to the SWTP, would be constructed by the APDC and be privately owned.

Option B: Construction of a tie-in to the existing Town of Bethlehem sewer system to the north. On April 1st, 2019, McFarland Johnson met with the Town of Bethlehem to identify and assess the provision of sewer service to the project by connecting to existing sewer line infrastructure owned by the Town of Bethlehem Department of Public Works. An existing Town of Bethlehem 8-inch gravity sewer line is located along Glenmont Road, approximately 1,800 feet west of the intersection of Glenmont Road and Route 144 (some 2,200 LF from the project site). The proposed site sits roughly 30-50 feet lower than the surrounding areas to the west. The Port of Albany could run a force main approximately 4,000 feet from an onsite pump station to the existing 8-inch gravity line on Glenmont road. Further analysis would be needed if this option was proposed to determine the capacity of the existing facilities downstream of the intended connection point, including the existing Glenmont pump station and an 8-inch force main over I-87.

Option C: Construction of a tie-in to the existing Town of Bethlehem sewer system to the south, located on NYS Route 144, approximately 6,000 feet south of the southern access point of the project site. This point is the farthest of the potential tie-in points from the project site and would require installation through bedrock. It is the Port of Albany's understanding that if Town of Bethlehem sewer facilities are used to service the project, the Town will extend its sewer district, as needed.

Option D: Wastewater to be treated onsite through a septic system, depending on content of the wastewater. A raised mound system was analyzed for site suitability. A condition of a mound system is separation distance between the trench bottom and groundwater. Soil boring logs indicate groundwater is 18-inches below existing grade, which meets the 12-inch minimum requirement required by the New York State Department of Health. However, the existing underlying fly ash fill material is not considered favorable with this system and would likely affect the longevity of the system. The entire site is also within the 100-year Floodplain.

The size of the raised mound basal area would need to be 16,950 SF, which would require 100 trenches at 100 linear feet lengths, a 20,000-gallon septic tank and a pump rated for over 2,000 gallons per minute (GPM) in order to properly dose the system. Based on the soil condition and size of the required system, it is not our recommendation to use this type of wastewater treatment facility on this site.

Option E: Wastewater to be treated onsite through a package wastewater treatment plant. To treat the demands of the proposed building(s), an onsite package treatment plant (PTP) requiring an area of only around 1,500 SF would be required. The PTP shall be designed such that the effluent is safe to release directly into the Normans Kill or Hudson River. A certified operator to inspect and monitor the system and send samples to the Environmental Protection Agency is likely required. Of the two onsite wastewater treatment options, the PTP is more feasible for development of the site. Based on the proposed Marmen-Welcon facility, the PTP is the only on-site treatment system that is feasible.

C. Description of Proposed Sanitary System

The proposed onsite sanitary system flow process for the project is summarized in the attached Sanitary Line Drawing in Appendix A. The proposed facility is intended to be operational 24-hour during peak demand periods, as such there is not any anticipated fluctuation in wastewater flow volumes throughout a typical day unlike other uses that may see significant peaks within each day.

Onsite Sanitary Sewer Infrastructure: The detailed site design engineering plans for the proposed sanitary sewer system, provided in Appendix B to this report, were reviewed and approved by the Town of Bethlehem during their site plan review process. The proposed on-site, privately owned sanitary sewer system includes the following primary components:

- 8" PVC gravity sanitary sewer mainlines to convey influent to the treatment plant
- Concrete precast sanitary sewer manhole structures are proposed along all gravity lines with a maximum spacing of 300'
- 4" PVC service laterals from each proposed building (Buildings A, B, C & D) to mainline manholes
- On-site Lift Station #1
    - Located within Structure SM5 downstream of service laterals from Buildings A and B.
    - See Appendix B drawing UT-15
    - Pump cut sheets and lift station calculations have also been provided in Appendix B.
- 2.5" Forcemain Line from the Pump Station (Structure SM5) to Structure SM4, where it converts back to gravity at Manhole SM4
- SM4.1 to provide a sampling point immediately downstream of the proposed Building C oil water separator.
- Proposed Package Treatment Plant – Detailed in Appendix C – PTP Report, Submittal Drawings
    - Collected waste enters Influent Lift Station (Lift Station #2) which will also serve as the influent sampling point.
    - From Lift Station, waste enters Primary Clarification, where solids are separated for hauling and liquid waste is separated for further processing.
    - Liquid waste is then aerated, then clarified for a second time. Solids from the secondary clarification process are separated for hauling.
    - Liquid waste is further processed in secondary clarification.
    - Liquid is disinfected through an ultraviolet array.
    - Effluent passes through an effluent flow measurement vault before discharging from the Plant. This vault will also serve as the effluent sampling point.
    - 8" PVC gravity sanitary sewer outlet line from the Package Treatment Plant to the Hudson River
        - After coordination with NYSDEC, the Normans Kill was not an allowable outlet for the package treatment plant.
- 5,000 gallon underground storage tank (UST)
    - Wastewater from the Vehicle Maintenance Area of Building shall be processed through an oil-water separator prior to exiting the building.
    - Upon existing the building, the wastewater will be stored in a 5,000-gallon, double-wall, steel, underground tank.

- Fluid level in the tank will be continuously monitored through a level monitoring panel connected to the facility's Building Management System (BMS). The monitoring system will be connected to two sensors within the tank.
  - Sensor 1 will alarm at 50%.
  - Sensor 2 will alarm at 75%.
- When Sensor 2 is triggered, the facility shall contract with an agency to evacuate the tank and dispose of the wastewater at a municipal wastewater treatment plant.
- The tank shall be registered and monitored in accordance with the NYSDEC Petroleum Bulk Storage program.
- All disposal activities shall be done in accordance with the NYSDEC regulations.
- See Appendix B drawing UT-17A

Package Treatment Plant: Based on the alternatives analysis completed as part of the 2019 GEIS process, the following description was included in the project's SEQR Approval as the approved wastewater treatment system by the SEQR Lead agency:

> *"The Proposed Project will be serviced with a private onsite package treatment system. A pre-engineered manufactured package treatment system capable of treating up to 20,000 gallons/day (projected demand is 16,960) of wastewater will be installed on site and discharged directly to the Hudson River; as such the system applicant will obtain a State Pollution Discharge Elimination System (SPDES) permit from the NYSDEC as part of the Site Plan approval when an actual project is proposed. The Port has coordinated with the NYSDEC Region 4 Water Engineer to confirm the requirements of the proposed system and the SPDES permit. The system will be designed to comply with the New York State Design Standards for Intermediate Sized Wastewater Treatment Facilities (March 5, 2014) specifically table B-4A, Typical Effluent Limits for Non-Intermittent Streams."*

Since the SEQR approval process in 2019, a Supplemental EIS approval process was completed for the specific proposed project and end user based on detailed building designs and operations. The project-specific PTP design was developed in accordance with the hydraulic information detailed in the following section. The proposed PTP will require an certified operator to monitor the facility. Based on the Wastewater Treatment Plant Rating Worksheet for Wastewater Treatment Plant Certification completed and included in Appendix C, the PTP will require a grade 2A Chief Operator and a Grade 1A Assistant/Shift Operator. The Port of Albany will be hiring the appropriate personnel to operate the plant prior to the plant going into operation. Appendix C to this report includes the detailed Engineering Design Report and plans for the proposed Package Treatment Plant.

D. Wastewater Hydraulic Calculations

Domestic Water: The domestic water demand for the four buildings was calculated based on the projected number of daily occupants and the anticipated water use per occupant. For reference, the table below breaks down of each building's consumption, based on the 2014 NYS Design Standards for Intermediate Sized Wastewater Treatment Services:

Building	Occupants	Supply Flow (GPD)	Total Daily Demand (Gallons)	Estimated Average Demand (GPH)	Estimated Peak Demand (GPH)
A	170	31.25	5,312	147.55	590.2
B	85	31.25	2,656	73.77	295.08
C	50	31.25	1,562	43.38	173.52
D	50	31.25	1,562	43.38	173.52
			Total	**308 GPH**	**1,231 GPH**
				5.2 gpm	**20.5 gpm**

* The peak hourly use is based on 4 peak hours/day; two shift changes/day and two meal breaks/day.

Based on the summation of the estimated peak demand, the Town of Bethlehem will have the capacity to provide approximately 20.5 gpm to satisfy the domestic plumbing demand, with this same flow rate conservatively assume to all become wastewater to be treated.

Floor Drains: There are floor drains within each building, primarily associated with bathroom and locker room areas which, have been accounted for in the estimated daily employee load rate of 31.25 gallons/employee noted above. There are also additional floor drains within the buildings as shown on the Sanitary Line Drawing in Appendix A and the Building Plumbing Plans in Appendix D which are summarized below:

- Vehicle Trench Drain: This trench drain is located in a vehicle maintenance area of Building A. The storage and disposal of this wastewater is described in the previous Section C of this report. See Drawing P-410A and P-411A in Appendix D.
- Mechanical Room/Janitor Closet Floor Drains for All Building: These drains will not be used on a regular basis and is only intended to receive wastewater should water accidentally be spilled in this room. These floor drains will be treated by the onsite PTP. See P-400 Series drawings for each building in Appendix D for specific locations.
- Building C Compressor Room Floor Drains: These drains will convey condensate waste discharged from air compressor equipment. These floor drains will go through a Watts OI-ST-35 Oil Interceptor with Integral Storage Tank (cut sheet provided in Appendix B) prior to entering the main sanitary sewer line,. These floor drains will be treated by the onsite PTP. See drawing P-011C and P-111C in Appendix D.
- Building C Perimeter Trench Drain: This drain is associated with the wash water pressurized by a power washer with a capacity of 4.0 gpm used rinse dirt/grit off the tower sections before they

are painted. The operators (Marmen) noted that it takes roughly 30 minutes to thoroughly rinse a full tower section and that 9 towers per week will be rinsed with this system. This totals 120 gallons per wash for a total of 1,080 gallons per week with a maximum of 240 gallons per day for the days which two tower sections are washed. Marmen-Welcon has agreed that only cold wash water without detergent will be used. This trench drain will go through the same Watts OI-ST-35 Oil Interceptor with Integral Storage Tank (cut sheet provided in Appendix B) prior to discharge into the main sanitary sewer line. This trench drain will be treated by the onsite PTP. See drawing P-011C in Appendix D.

Air Compressor Condensation: Based on the air compressor models being specified each compressor generates a maximum of 12.89 gallons per hour based on 80 degrees F ambient temperature and 75% humidity. There are six (6) compressors within the buildings for a total of 77 gallons/hour or roughly 1,850 gallons per day, when conservatively assumed to be run 24 hours a day. While the dryers and filters are connected to the condensate treatment system, those volumes are negligible in comparison to the compressor's condensation. This condensation fluid will be conditioned within each unit and then conveyed through the same Watts OI-ST-35 Oil Interceptor with Integral Storage Tank (cut sheet provided in Appendix B) prior to discharge to the main sanitary sewer line and treated by the onsite PTP.

The onsite PTP is designed to accommodate this potential maximum increase of non-BOD contained compressor condensation such that the treatment process will continue to maintain the required 85% BOD removal even in this extreme scenario.

See drawing UT-03 in Appendix B and P-111C in Appendix D for location of the Air Compressors and associated floor drain lines.

E. Site Characteristics

Soils: The following soil type(s) and hydrologic group(s) are present within the project area of disturbance based on the USGS database:

Table 2 – Soil Types

Symbol	Soil Name	Hydrologic Soil Group
HuE	Hudson silt loam, 25 to 45 percent slopes	C/D
NrD	Nassau very channery silt loam, hilly, very rocky	D
Ug	Udorthents, loamy	A
Ur	Urban land	
Wo	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	B/D

As a result of onsite soil testing over the years within the site, it has been revealed that coal ash was deposited onsite over the years as part of the adjacent power plant operations.

Topography: The project site parcel includes the shorelines of Hudson River along the east side and the Normans Kill along the north side, both are the receiving waterbodies for runoff from the current site. The middle area of the site is generally flat with elevations ranging from 12 feet to 14 feet above sea

level. The western side of the site gradually slopes down to a wetland located in the northwest corner of the site (Wetland 1). Immediately west of the proposed site/existing wetland is a National Grid infrastructure corridor with steep slopes including roach outcrops. There is a minor high point that is aligned with and offset from the Hudson River shoreline where it then slopes at a greater rate down to the Hudson shoreline. The existing land has undulations within the site creating pockets of low laying areas that temporarily pond water during storm events until it infiltrates into the soil as well as evaporates. Access to the site is to NYS Route 144 to the west through the National Grid property which is approximately 30 feet higher than the development site.

Floodplain: All building structures including the 60' X 20' wastewater package treatment plant structural concrete pad will be constructed at a finished floor of at least elevation 21.0 feet (NAVD 88). This elevation places the buildings and PTP 3.0 feet above the current FEMA 100-year Base Flood Elevation (BFE of 18.0'), and 2.0 feet above the FEMA 100-year BFE modified for the projected sea level rise.

F. Backup Power

Two natural gas generators are proposed for the project to provide backup power for the entire site. One natural gas generator shall serve buildings A and B while the other natural gas generator serves buildings C and D. In conjunction, the generators shall provide backup power to NFPA 110, level 1, emergency life safety loads of the site such as emergency egress lighting and the fire pump building. The generators shall also provide backup power to NFPA 110, level 2 standby loads such as the lift stations and the wastewater treatment plant. The generators, automatic transfer switches, and associated power distribution equipment are designed in accordance with the requirements of the currently adopted editions of NFPA 110 and the National Electrical Code in New York State (2016 and 2017 respectively). The emergency and standby power system design results in a minimal interruption of power to the lift stations and the wastewater treatment plant during a power outage.

Section 3: Regulatory Approvals

The proposed sanitary sewer system will require the following regulatory approvals prior to construction/certification:

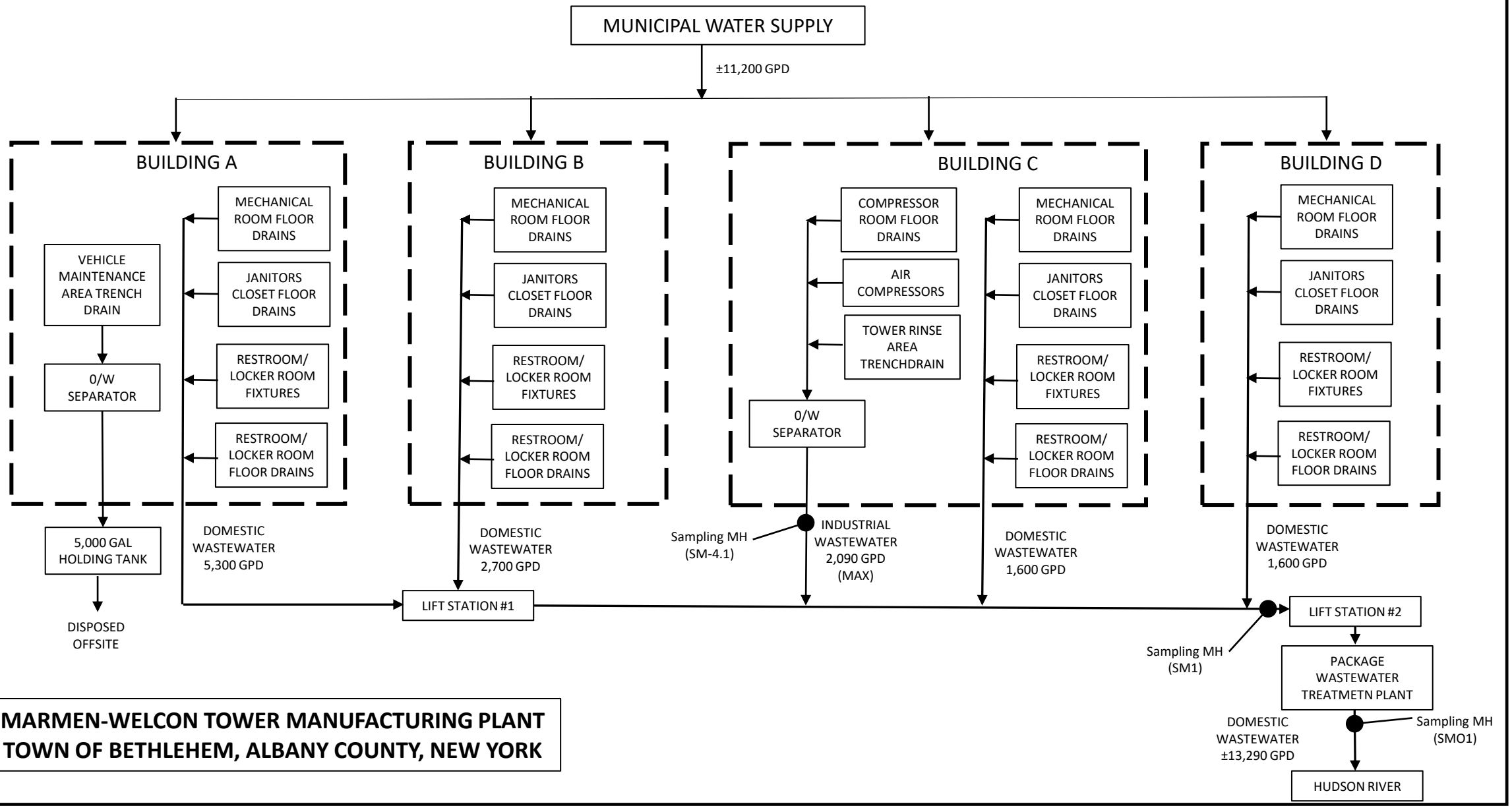
1. New York State Dept. of Environmental Conservation
    a. State Pollution Discharge Elimination System (SPDES) permit (NY-2C Form)
    b. Petroleum Baulk Storage Program – For Sanitary Holding Tank
2. Town of Bethlehem Department of Public Works
    a. Approval of Plans & Report
3. Town of Bethlehem Planning Board
    a. SEQR and Site Plan Approvals

Section 4: Conclusion

This report concludes that the proposed wastewater package treatment plant has the capacity to treat the wastewater demand estimated to be generated by the proposed Port of Albany Expansion project. At the completion of construction, the on-site sanitary sewer system will include gravity sewer lines, an intermediate lift station (Lift Station #1), a force main, oil water separators, a package treatment plant and effluent piping with outlet to the Hudson River. The parallel a 5,000 gallon wastewater storage tank system is also included in the proposed project for the vehicle maintenance area wastewater. All onsite sanitary infrastructure will be owned, operated and maintained by the APDC. The construction of the proposed sanitary sewer system is the responsibility of the APDC with oversight and inspection by the NYSDEC as well as the Town of Bethlehem.

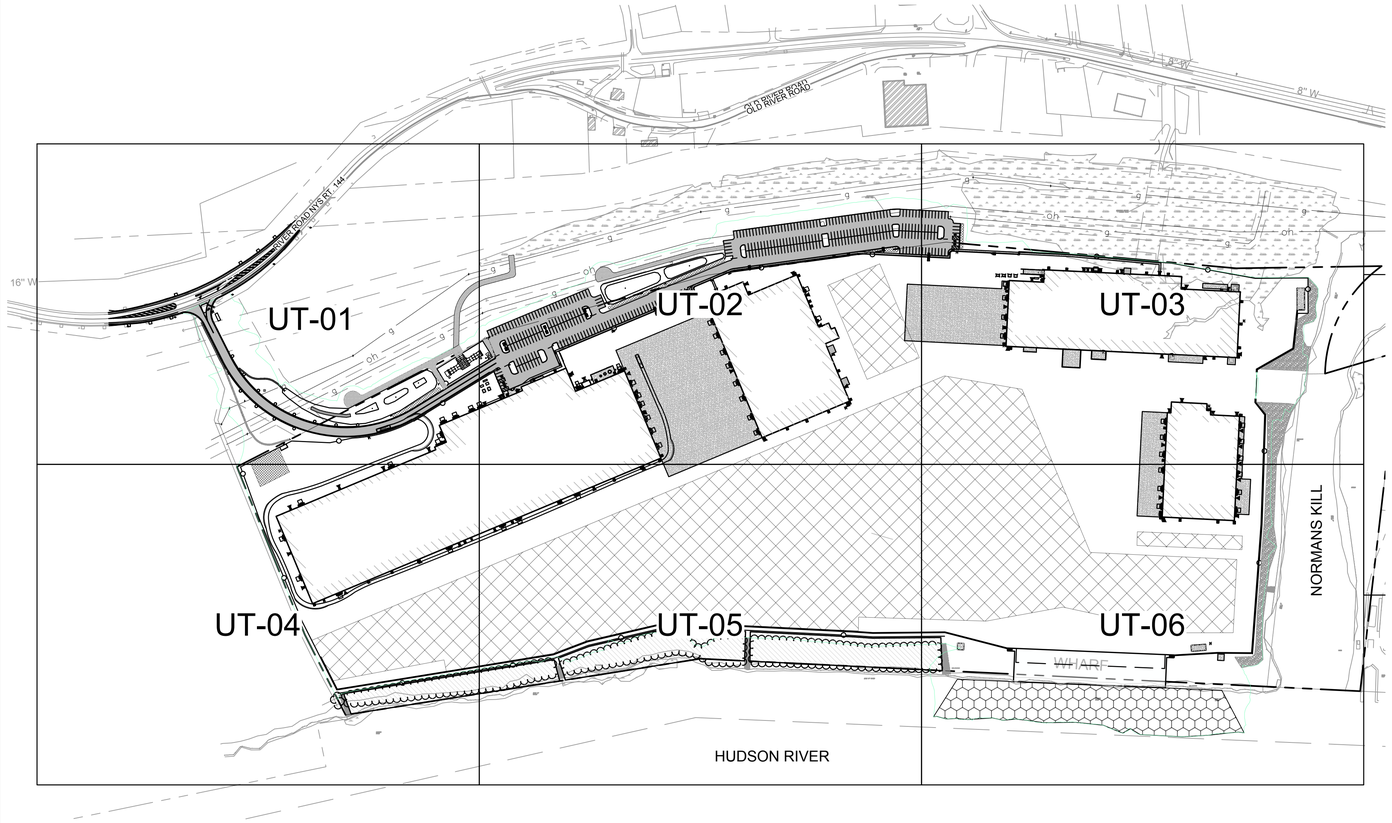
APPENDIX A – SANITARY LINE DRAWING

SANITARY LINE DRAWING



MARMEN-WELCON TOWER MANUFACTURING PLANT
TOWN OF BETHLEHEM, ALBANY COUNTY, NEW YORK

APPENDIX B – SITE SANITARY UTILITY DRAWINGS & CUT SHEETS



LEGEND

- PROPERTY LINE
- WETLAND AREA
- STORAGE AREA
- DREDGING AREA
- PAVEMENT AREA
- CONCRETE AREA

PLANNING BOARD HTE# 21-00100006

WATER MAIN INSTALLATION:

1. WATER SERVICE LINE (LATERALS) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGULATIONS AND SPECIFICATIONS OF THE ALBANY COUNTY HEALTH DEPARTMENT, AND THE LOCAL WATER AUTHORITY.
2. ALL EROSION CONTROL MEASURES SHALL BE EMPLOYED DURING ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH ALL APPROPRIATE STANDARDS AND REQUIREMENTS. BEST MANAGEMENT PRACTICES ARE TO BE FOLLOWED.
3. WATER MAINS AND ALL WATER SERVICE LINES SHALL HAVE A MINIMUM OF 5 FEET OF COVER FROM FINISH GRADE TO TOP OF PIPE.
4. LOCATIONS WHERE THERE ARE 90° BENDS SHALL BE CONSTRUCTED WITH 2 - 45° FITTINGS.
5. THE MINIMUM VERTICAL SEPARATION BETWEEN WATER MAINS AND SEWER MAINS SHALL BE 18" MEASURED FROM THE OUTSIDE OF THE PIPES AT THE POINT OF CROSSING. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SEWER MAINS SHALL BE 10 FEET MEASURED FROM THE OUTSIDE OF THE PIPES. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED UNDER OR OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE, WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT (COMPACTED SELECT FILL) SHALL BE PROVIDED FOR THE SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING ON AND BREAKING THE WATER MAINS.
6. HYDRANT TYPE SHALL BE AS NOTED ON THE PLANS OR AS REQUIRED BY THE TOWN OF BETHLEHEM. GUARD VALVES SHALL BE USED AND ALL HYDRANT STUB PIPING SHALL BE MECHANICAL JOINT. FIRE HYDRANT WEEP HOLES (DRAINS) SHALL BE PLUGGED WHEN GROUND WATER IS ENCOUNTERED WITHIN 7 FEET OF THE FINISHED GRADE. ALL PLUGS SHALL BE MECHANICAL METAL PLUGS. ALL HYDRANTS WITH PLUGGED WEEP HOLES SHALL BE APPROPRIATELY TAGGED.
7. ALL MECHANICAL JOINTS, FITTINGS (TEES, BENDS, PLUGS), ETC. SHALL BE BACKED WITH 3,000 P.S.I. CONCRETE THRUST BLOCKS OR APPROVED MECHANICAL RESTRAINTS.
8. WHERE PIPING IS TO BE PLACED WITHIN FILL AREAS, THE FILL SHALL BE PLACED AND COMPACTED TO AT LEAST 95% MODIFIED PROCTOR PRIOR TO TRENCH EXCAVATION.
9. SHUTDOWN OF EXISTING WATER MAINS SHALL BE IN ACCORDANCE WITH THE LOCAL WATER AUTHORITY. THE TOWN OF BETHLEHEM WATER AND SEWER MANAGER MUST BE NOTIFIED IN ADVANCE OF ALL PROPOSED SHUTDOWNS IN ACCORDANCE WITH THEIR DIRECTION. WATER MUST BE TURNED BACK ON AS SOON AS POSSIBLE. ALL ENDS OF WATER MAINS MUST BE PROVIDED WITH ADEQUATE PLUG, BLOCK, AND BLOW-OFF AS INDICATED ON THE PLANS.
10. WATER SERVICE LINES SHALL BE SEPARATED AT LEAST 10 FEET, MEASURED FROM OUTSIDE OF THE PIPES, FROM SEWER MAINS AND SEPTIC SYSTEMS.
11. BACKFLOW PREVENTION SHALL BE PROVIDED IN BUILDING. (SEE BUILDING PLANS)
12. BACKFLOW PREVENTION APPLICATION MUST BE SUBMITTED TO AND APPROVED BY THE SUPPLIER WHO WILL FORWARD THE PLANS TO THE NYS DEPARTMENT OF HEALTH FOR THEIR APPROVAL. THE APPROVAL PROCESS MUST BE COMPLETED PRIOR TO INSTALLATION. THE APPROVAL PROCESS SHOULD BE STARTED EARLY TO AVOID UNNECESSARY DELAYS OR CONFLICTS WITH OTHER HEALTH DEPARTMENT APPROVALS.

WATER MAIN MATERIALS:

1. POLYETHYLENE (PE) PRESSURE PIPE MUST BE PE 3408-DR9 (DOMESTIC) PE 4710-DR11 (FIRE PROTECTION) MATERIAL MINIMUM. CONFORMING TO THE LATEST REVISION OF AWWA C901 AND C906.

WATER SYSTEM TESTS:

1. SOIL TEST. THE CONTRACTOR SHALL PROVIDE A SOIL TEST EVALUATION TO DETERMINE THE NEED FOR POLYETHYLENE ENCASEMENT PER ANSI/AWWS C105/AZ1.5-82 PRIOR TO WATER MAIN INSTALLATION. SOIL TESTING SHALL BE CONDUCTED BY AN APPROVED SOIL TESTING LABORATORY IN ACCORDANCE WITH LOCAL WATER AUTHORITY STANDARDS.
2. WATER PIPING SHALL BE FLUSHED AND TESTED IN CONFORMANCE WITH THE LATEST REVISION OF ANSI/AWWA C600 STANDARD FOR DUCTILE IRON PIPE, C605 FOR PVC PIPE, OR EQUIVALENT OF C600 AND/OR C605 FOR PE PIPE.
3. THE PROPOSED WORKS MUST CONFORM TO THE LATEST REVISION OF ANSI/AWWA C651 STANDARD, TABLET METHOD EXCEPTED. FOLLOWING FLUSHING AND TESTING, THE ENGINEER SHALL OVERSEE COLLECTION OF AN APPROPRIATE NUMBER OF BACTERIOLOGICAL SAMPLES FOR THE TOTAL AND FECAL COLIFORM AND FOR STANDARD BACTERIAL PLATE COUNT AFTER THE FIELD FREE CHLORINE RESIDUAL IS LESS THAN 1.5 PPM AND THE SAMPLING POINTS HAVE BEEN DECONTAMINATED. PRIOR TO SAMPLING, THE ENGINEER SHALL COORDINATE THE APPROPRIATE NUMBER AND LOCATION OF SAMPLES TO BE COLLECTED WITH THE ALBANY COUNTY HEALTH DEPARTMENT.
4. THE COMPLETED WORKS SHALL BE VERIFIED WITH ALBANY COUNTY HEALTH DEPARTMENT. PRIOR TO ISSUANCE, A NYS-LICENCED PROFESSIONAL ENGINEER MUST SUBMIT CERTIFICATION TO THE HEALTH DEPARTMENT THAT: THEY OR THEIR DESIGNATED REPRESENTATIVE WITNESSED THAT CONSTRUCTION WAS IN CONFORMANCE WITH THE PLANS AS APPROVED; FLUSHING, TESTING, AND DISINFECTION PROCEDURES NOTED HEREIN HAD BEEN PROPERLY PERFORMED; AND, MICROBACTERIAL SAMPLE RESULTS FROM THE COMPLETED WORKS WERE ACCEPTABLE. COPIES OF THE OFFICIAL LABORATORY RESULTS ARE TO BE INCLUDED WITH THE CERTIFICATION.
5. FIRE HYDRANTS ARE NOT ACCEPTABLE TESTING/SAMPLING POINTS.
6. WATER SERVICE LINES SIZED 4-INCHES OR GREATER SHALL BE:

   - PRESSURE TESTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE LOCAL WATER AUTHORITY. THE PRESSURE TEST SHALL BE WITNESSED BY A REPRESENTATIVE FROM THE LOCAL WATER AUTHORITY.

   - DISINFECTION BY USING THE CONTINUOUS FEED METHOD ACCORDING TO AWWA STANDARD SPECIFICATIONS. AFTER FLUSHING AND DISINFECTING THE SERVICE LINE, WATER SAMPLES SHALL BE COLLECTED BY THE ALBANY COUNTY HEALTH DEPARTMENT. APPROVAL AND NOTIFICATION BY THE HEALTH DEPARTMENT MUST BE RECEIVED BEFORE THE LATERAL IS PLACED IN SERVICE.

SANITARY SEWER NOTES:

1. ONLY DOMESTIC WASTE FROM THE PROJECT SHALL BE DISCHARGED INTO THE SANITARY SEWER.
2. ALL SANITARY LATERALS SHALL BE 6" PVC SDR-21 ASTM D2241 UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL 8" PVC SANITARY MAINS SHALL BE SDR 35. UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL 4" PVC SANITARY LINES SHALL BE SDR-21 UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL 3.5" PVC SANITARY FORCE MAIN PIPING SHALL BE SDR-21.
3. A MINIMUM OF 4 FEET OF COVER SHALL BE PROVIDED OVER ENTIRE LENGTH OF ALL SANITARY LATERALS.
4. THE TOWN OF BETHLEHEM WATER AND SEWER MANAGER SHALL BE NOTIFIED FORTY-EIGHT HOURS IN ADVANCE OF CONNECTION OR TAP. [518-439-4955].
5. SANITARY SEWER LATERAL(S) AND APPURTENANCES SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE REQUIREMENTS OF THE TOWN OF BETHLEHEM.
6. FLOOR DRAINS, IF CONSTRUCTED, SHALL BE CONNECTED TO THE SANITARY SEWER. FLOOR DRAINS DO NOT INCLUDE FOUNDATION/FOOTER DRAINS. NOTE: ALL DISCHARGES TO THE SANITARY SEWER MUST COMPLY WITH THE EFFLUENT LIMITS OF THE LOCAL AND/OR ALBANY COUNTY SEWER USE LAW.
7. MAXIMUM SPACING BETWEEN CLEANOUTS ON SANITARY LATERALS MAY NOT EXCEED SEVENTY-FIVE (75) FEET.
8. MAXIMUM SPACING BETWEEN SANITARY MANHOLES MAY NOT EXCEED FOUR-HUNDRED (400) FEET.
9. EXFILTRATION AND/OR INFILTRATION FOR SANITARY SEWERS SHALL BE LIMITED TO 100 GALLONS PER DAY, PER MILE OF PIPE, PER INCH DIAMETER, AND SHALL BE PERFORMED IN ACCORDANCE WITH DISTRICT PROCEDURES.
10. UPON COMPLETING CONSTRUCTION AND AFTER THE PIPE BACKFILL HAS BEEN IN PLACE FOR A PERIOD OF 30 DAYS, THE NEW SANITARY SEWER SHALL BE SUBJECT TO THE FOLLOWING TESTS AND PROCEDURES. FLUSH AND CLEAN THE SYSTEM, SEWER MAIN AIR PRESSURE/ EXFILTRATION TESTING, SEWER MANHOLE VACUUM/INFILTRATION TESTING (PERFORMED ONLY AFTER INVERTS AND BENCHES ARE FORMED), AND SEWER MAIN DEFLECTION TEST. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE. THE TEST SHALL BE CONDUCTED AFTER ALL FINAL BACKFILL HAS BEEN IN PLACE AT LEAST THIRTY (30) DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF FIVE PERCENT (5%). IF THE DEFLECTION TEST IS RUN USING A RIGID BALL OR MANDREL, IT SHALL HAVE A MINIMUM DIAMETER EQUAL TO NINETY-FIVE PERCENT (95%) OF THE INSIDE DIAMETER OF THE PIPE. TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
11. MANHOLES SHALL BE 4' INSIDE DIAMETER UNLESS OTHERWISE SPECIFIED ON PLANS. MANHOLE FRAMES AND COVERS SHALL BE CAMPBELL MODEL NO. 1009, NEENAH FOUNDRY, INC. MODEL NO. R-1556, OR APPROVED EQUAL.
12. MIN DEFLECTION OF 3" PVC SDR21 ASTM D2241 FORCE MAIN SEWER LINE IS 0.7' FOR 20' LENGTHS.

0 250 500 750 FT
SCALE

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
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PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/22	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK · ADAM J FROSINA · 088870 · LICENSED PROFESSIONAL ENGINEER

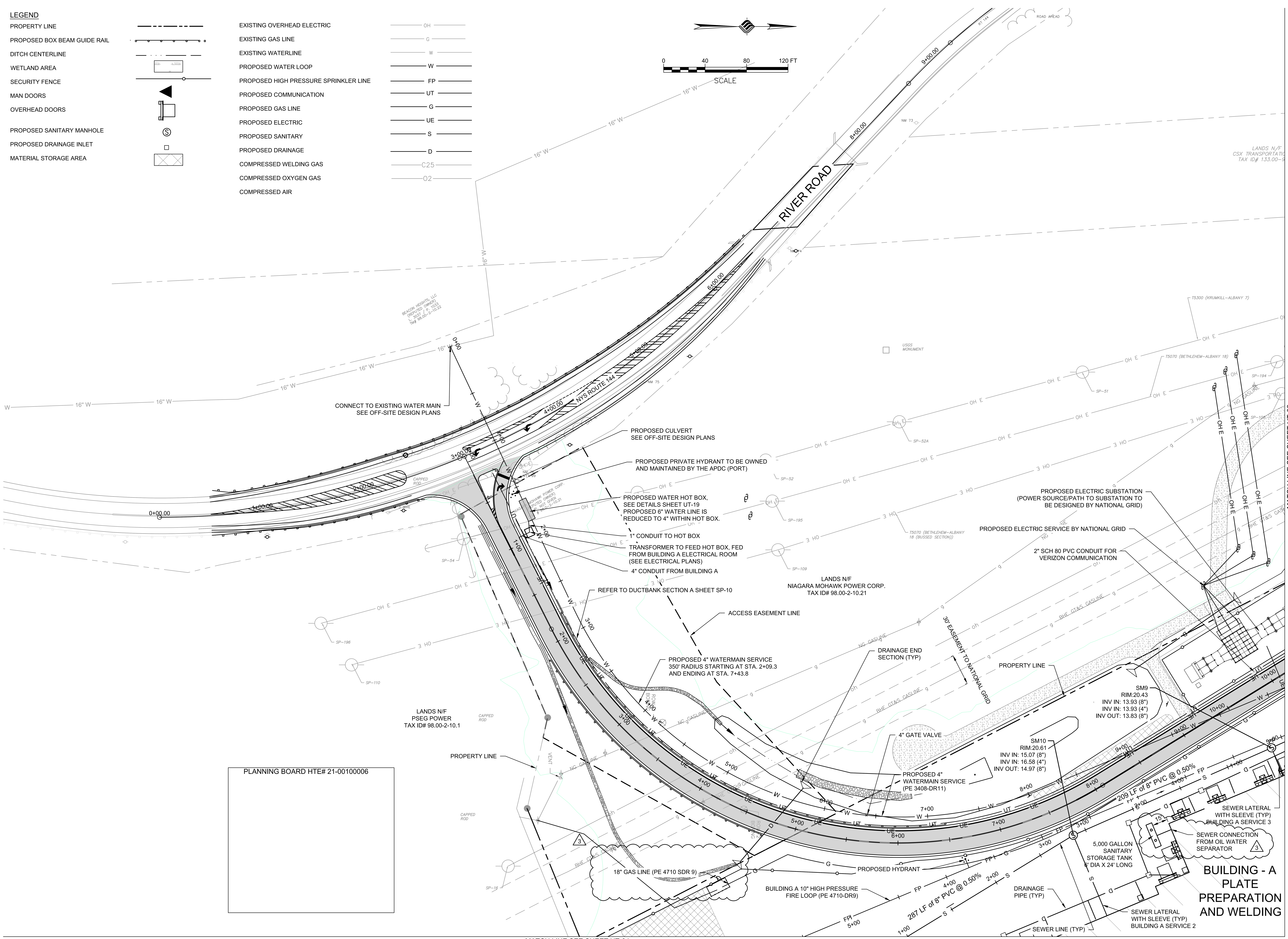
DRAWING TITLE
UTILITY NOTES & INDEX

DRAWING NUMBER
UT-00

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\SHEET FILES\18641.00-GEN-UTIL.DWG

LEGEND

PROPERTY LINE	
PROPOSED BOX BEAM GUIDE RAIL	
DITCH CENTERLINE	
WETLAND AREA	
SECURITY FENCE	
MAN DOORS	
OVERHEAD DOORS	
PROPOSED SANITARY MANHOLE	Ⓢ
PROPOSED DRAINAGE INLET	□
MATERIAL STORAGE AREA	
EXISTING OVERHEAD ELECTRIC	OH
EXISTING GAS LINE	G
EXISTING WATERLINE	W
PROPOSED WATER LOOP	W
PROPOSED HIGH PRESSURE SPRINKLER LINE	FP
PROPOSED COMMUNICATION	UT
PROPOSED GAS LINE	G
PROPOSED ELECTRIC	UE
PROPOSED SANITARY	S
PROPOSED DRAINAGE	D
COMPRESSED WELDING GAS	C25
COMPRESSED OXYGEN GAS	O2
COMPRESSED AIR	



PLANNING BOARD HTE# 21-00100006

N:\18641.00 ALBANY PORT EXPANSION\DRAW\DRAWINGS\SHEET FILES\18641.00-UTIL.DWG

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ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK

PROJECT:
PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE

UTILITY PLAN

DRAWING NUMBER

UT-01

LEGEND

PROPERTY LINE	EXISTING OVERHEAD ELECTRIC
PROPOSED BOX BEAM GUIDE RAIL	EXISTING GAS LINE
DITCH CENTERLINE	EXISTING WATERLINE
WETLAND AREA	PROPOSED WATER LOOP
SECURITY FENCE	PROPOSED HIGH PRESSURE SPRINKLER LINE
MAN DOORS	PROPOSED COMMUNICATION
OVERHEAD DOORS	PROPOSED GAS LINE
	PROPOSED ELECTRIC
PROPOSED SANITARY MANHOLE	PROPOSED SANITARY
PROPOSED DRAINAGE INLET	PROPOSED DRAINAGE
MATERIAL STORAGE AREA	COMPRESSED WELDING GAS
	COMPRESSED OXYGEN GAS
	COMPRESSED AIR

UTILITY CORRIDOR VIEW

- HIGH PRESSURE FIRE LINE (10")
- DOMESTIC WATER LINE (4")
- UNDERGROUND COMMUNICATIONS LINE
- UNDERGROUND GAS LINE
- UNDERGROUND ELECTRIC LINE
- SECURITY FENCE
- UNDERGROUND COMPRESSED AIR LINE (PE 4710-DR9)
- UNDERGROUND WELDING GAS LINE (PE 4710-DR9)
- UNDERGROUND OXYGEN LINE (PE 4710-DR9)
- SANITARY LINE

EXISTING WETLANDS

LANDS N/F
NIAGARA MOHAWK POWER CORP.
TAX ID# 98.00-2-10.21

LANDS N/F
NIAGARA MOHAWK POWER CORP.
L.2701, P.296
TAX ID# 98.00-2-10.21

LANDS N/F
ALBANY PORT DISTRICT COMMISSION
TAX ID# 98.00-2-10.23

PROPERTY LINE

EASEMENT
L.2516 P.311

BASIS OF DESIGN:
LITHONIA LIGHTING RSX2 LED P4 50K R3 MVOLT SPA
SF NLTAIR2 PIRHN (FINISH TO BE DETERMINED)
POLE: LITHONIA SSA 25 6G DM19AS/DM29AS UL
(FINISH TO MATCH FIXTURE HEAD),
(TYPICAL FOR ALL LIGHT POLES)

REFER TO DUCTBANK SECTION B SHEET SP-10

REFER TO DUCTBANK SECTION C SHEET SP-10

REFER TO DUCTBANK SECTION D SHEET SP-10

(2) #10, #8G IN 1" CONDUIT

PROPOSED ELECTRIC SUBSTATION SHELTER

2 EV LEVEL 2 CHARGING STATIONS
(2 PORTS PER PEDESTAL)

PROPOSED 10" HIGH PRESSURE FIRE LINE (PE 3408-DR11)

PROPOSED 4" DOMESTIC LINE (PE 3408-DR11)

PROPOSED UNDERGROUND COMMUNICATION LINE

PROPOSED UNDERGROUND COMPRESSED AIR LINE (PE 4710-DR9)

PROPOSED HYDRANT

ELECTRIC/ COMMUNICATION MANHOLE (TYP)

14 LF of 4" PVC @ 0.50%

11.5° BEND

10"X10"X10" TEE

4"X4"X2" TEE

12" GAS LINE (PE 4710 SDR9)

170 LF of 8" PVC @ 0.50%

84 LF of 4" PVC @ 0.50%

COMPRESSED WELDING GAS (PE 4710-DR9)

PROPOSED 2.5" SANITARY FORCE MAIN

4" GATE VALVE (TYP.)

10" GAS LINE (PE 4710 SDR9) NATURAL GAS CONNECTION

14"X12"X10" GAS TEE (BLDG B)

SANITARY CLEANOUT

SANITARY SEWER LATERAL BUILDING B SERVICE 1

COMPRESSED AIR FROM BUILDING C (PE4710-DR9)

2" DOMESTIC WATER SERVICE CONNECTION (PE 3408-DR11)

10" HIGH PRESSURE SPRINKLER LINE (PE 3408-DR11)

168 LF of 4" PVC @ 0.50%

SM5
RIM:20.60
INV IN: 9.88 (8")
INV IN: 14.93 (4")

BUILDING B ELECTRIC TRANSFORMER

(2) #10, #8G IN 1" CONDUIT

14" GAS LINE (PE 4710 SDR9)

SANITARY SEWER LIFT STATION #1

SM6
RIM:20.34
INV IN: 10.83 (8")
INV OUT: 10.73 (8")

PROPOSED SEWER LINE

PROPOSED HYDRANT

BUILDING - B
WELDING FINISHING

DRAINAGE PIPE (TYP)

SM7
RIM:20.19
INV IN: 16.04 (4")
INV IN: 12.05 (8")
INV OUT: 12.05 (8")

18"X14"X12" GAS TEE (BLDG A)

SANITARY SEWER LATERAL WITH SLEEVE (TYP)
BUILDING A SERVICE 7

COMPRESSED AIR FROM BUILDING C (PE4710-DR9)

222 LF of 8" PVC @ 0.55%

4" GATE VALVE

18" GAS LINE (PE4710 SDR 9)

4"X4"X4" TEE

ELECTRIC HANDHOLE

PROPOSED HYDRANT

PROPOSED 4" DOMESTIC LINE (PE 3408-DR11)

10"X10"X10" TEE

SANITARY SEWER LATERAL WITH SLEEVE (TYP)
BUILDING A SERVICE 6

120 LF of 8" PVC @ 0.50%

MAIN EMPLOYEE ENTRANCE

SM8
RIM:19.86
INV IN: 13.18 (4")
INV IN: 13.18 (8")
INV OUT: 13.08 (8")

SANITARY SEWER LATERAL WITH SLEEVE (TYP)
BUILDING A SERVICE 5

62 LF of 8" PVC @ 0.50%

4" DOMESTIC WATER SERVICE CONNECTION (PE 3408-DR11)

SANITARY SEWER LATERAL WITH SLEEVE (TYP)
BUILDING A SERVICE 4

10" HIGH PRESSURE SPRINKLER LINE (PE 4710-DR9)

3" GAS LINE (PE4710 SDR 9)
SEE DRAWING P-411A, DETAIL 3
FOR GAS PIPING TO EMERGENCY GENERATOR

BUILDING A ELECTRIC TRANSFORMERS

68 LF of 8" PVC @ 0.50%

GAS TANK STORAGE AREA

NATURAL GAS CONNECTION
12" GAS LINE (PE 4710 SDR9)

86 LF of 8" PVC @ 0.50%

BUILDING A 10" WATER LOOP (PE 4710-DR9)

BUILDING - A
PLATE PREPARATION AND WELDING

PROPOSED HYDRANT

FIRE DEPARTMENT CONNECTION

PROPOSED HYDRANT

PLANNING BOARD HTE# 21-00100006

0 40 80 120 FT
SCALE

MATCH LINE SEE SHEET UT-01

MATCH LINE SEE SHEET UT-03

MATCH LINE SEE SHEET UT-05

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\SHEET FILES\18641.00-UTIL.DWG

McFarland Johnson
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SARATOGA SPRINGS, NEW YORK 12866
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PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION

PROJECT: PORT OF ALBANY EXPANSION SITE

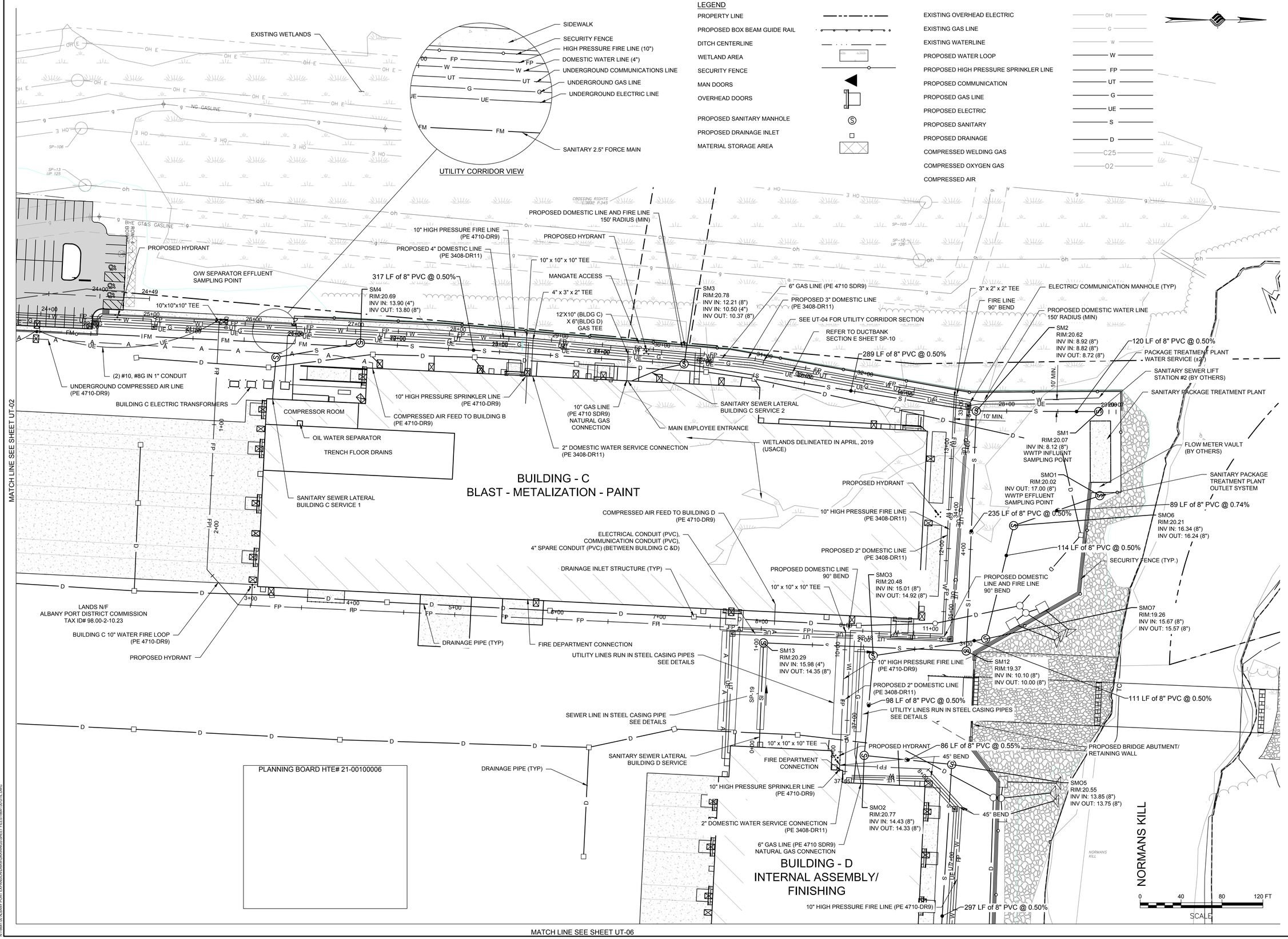
ALBANY, NEW YORK

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK · ADAM J FROSINA · 088870 · LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE
UTILITY PLAN

DRAWING NUMBER
UT-02



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IFC SET

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2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION

PROJECT: PORT OF ALBANY EXPANSION SITE
ALBANY, NEW YORK

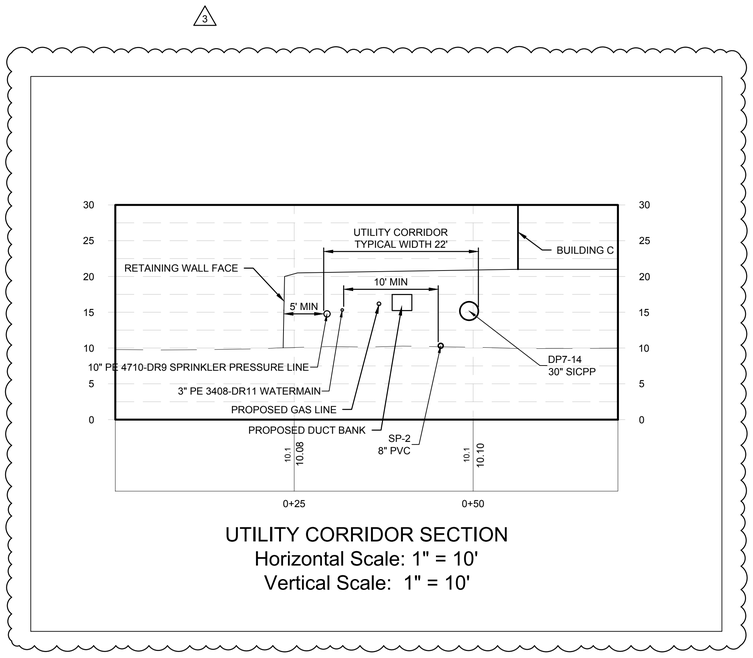
DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK ADAM J FROSINA 088870 LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE
UTILITY PLAN

DRAWING NUMBER
UT-03

MATCH LINE SEE SHEET UT-01



UTILITY CORRIDOR SECTION
Horizontal Scale: 1" = 10'
Vertical Scale: 1" = 10'

PLANNING BOARD HTE# 21-00100006

MATCH LINE SEE SHEET UT-05

LEGEND

PROPERTY LINE		EXISTING OVERHEAD ELECTRIC	OH
PROPOSED BOX BEAM GUIDE RAIL		EXISTING GAS LINE	G
DITCH CENTERLINE		EXISTING WATERLINE	W
WETLAND AREA		PROPOSED WATER LOOP	W
SECURITY FENCE		PROPOSED HIGH PRESSURE SPRINKLER LINE	FP
MAN DOORS		PROPOSED COMMUNICATION	UT
OVERHEAD DOORS		PROPOSED GAS LINE	G
		PROPOSED ELECTRIC	UE
PROPOSED SANITARY MANHOLE	Ⓢ	PROPOSED SANITARY	S
PROPOSED DRAINAGE INLET	□	PROPOSED DRAINAGE	D
MATERIAL STORAGE AREA		COMPRESSED WELDING GAS	C25
		COMPRESSED OXYGEN GAS	O2
		COMPRESSED AIR	

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT:
ALBANY PORT DISTRICT COMMISSION

PROJECT:
PORT OF ALBANY EXPANSION SITE
ALBANY, NEW YORK

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE
UTILITY PLAN

DRAWING NUMBER
UT-04

N:\18641.00 ALBANY PORT EXPANSION\DRAWING\SHEET FILES\18641.00-UTIL.DWG

MATCH LINE SEE SHEET UT-02

BUILDING - A
PLATE PREPARATION AND WELDING

FIRE DEPARTMENT CONNECTION

10" BUILDING A WATER FIRE LOOP
(PE 4710-DR9)

DRAINAGE PIPE (TYP)

PLANNING BOARD HTE# 21-00100006

ROCK BULKHEAD

EDGE OF WATER

HUDSON RIVER

MATCH LINE SEE SHEET UT-04

MATCH LINE SEE SHEET UT-06

LEGEND

PROPERTY LINE	EXISTING OVERHEAD ELECTRIC — OH
PROPOSED BOX BEAM GUIDE RAIL	EXISTING GAS LINE — G
DITCH CENTERLINE	EXISTING WATERLINE — W
WETLAND AREA	PROPOSED WATER LOOP — W
SECURITY FENCE	PROPOSED HIGH PRESSURE SPRINKLER LINE — FP
MAN DOORS	PROPOSED COMMUNICATION — UT
OVERHEAD DOORS	PROPOSED GAS LINE — G
PROPOSED SANITARY MANHOLE	PROPOSED ELECTRIC — UE
PROPOSED DRAINAGE INLET	PROPOSED SANITARY — S
MATERIAL STORAGE AREA	PROPOSED DRAINAGE — D
	COMPRESSED WELDING GAS — C25
	COMPRESSED OXYGEN GAS — O2
	COMPRESSED AIR

0 40 80 120 FT
SCALE

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PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK

PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK · ADAM J FROSINA · 088870 · LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE
UTILITY PLAN

DRAWING NUMBER
UT-05

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\DRAWINGS\SHEET FILES\18641.00-UTIL.DWG

MATCH LINE SEE SHEET UT-03

MATCH LINE SEE SHEET UT-05

BUILDING - D
INTERNAL ASSEMBLY/
FINISHING

SANITARY PACKAGE
TREATMENT PLANT
OUTLET SYSTEM

SMO4
RIM:20.63
INV IN: 12.27 (8")
INV OUT: 10.10 (8")

289 LF of 8" PVC @ 0.50%

DRAINAGE PIPE (TYP)

1" WATER (PE 3408-DR11),
REFER TO DUCTBANK SECTION F SHEET SP-10

NORMANS KILL

PLANNING BOARD HTE# 21-00100006

SMO8
RIM:16.24
INV IN: 8.66 (8")
INV OUT: 8.56 (8")

10" HIGH PRESSURE FIRE LINE (PE 4710-DR9)

PROPOSED HYDRANT

CHECK VALVE/ POST INDICATOR

UTILITY PEDESTAL

16'X40' FIRE PUMP HOUSE

FIRE LINE
90° BEND

1+00

0+00

SHED

ELECTRIC/ COMMUNICATION MANHOLE (TYP)

PROPOSED WHARF
(SEE SEPARATE WHARF
DESIGN PLANS BY OTHERS)

124 LF of 8" PVC @ 1.43%

SANITARY PACKAGE
TREATMENT PLANT
OUTLET TO THE
HUDSON RIVER
(INV. 6.79')

CONC. BULKHEAD

HUDSON RIVER

EDGE OF WATER

MHHW 3.78'
(PROPOSED GRADE)

MHHW 3.78'
(EXISTING GRADE)

HUDSON RIVER

LEGEND

PROPERTY LINE	EXISTING OVERHEAD ELECTRIC — OH
PROPOSED BOX BEAM GUIDE RAIL	EXISTING GAS LINE — G
DITCH CENTERLINE	EXISTING WATERLINE — W
WETLAND AREA	PROPOSED WATER LOOP — W
SECURITY FENCE	PROPOSED HIGH PRESSURE SPRINKLER LINE — FP
MAN DOORS	PROPOSED COMMUNICATION — UT
OVERHEAD DOORS	PROPOSED GAS LINE — G
	PROPOSED ELECTRIC — UE
PROPOSED SANITARY MANHOLE	PROPOSED SANITARY — S
PROPOSED DRAINAGE INLET	PROPOSED DRAINAGE — D
MATERIAL STORAGE AREA	COMPRESSED WELDING GAS — C25
	COMPRESSED OXYGEN GAS — O2
	COMPRESSED AIR

0 40 80 120 FT
SCALE

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\DRAWINGS\SHEET FILES\18641.00-UTIL.DWG

McFarland Johnson
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PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

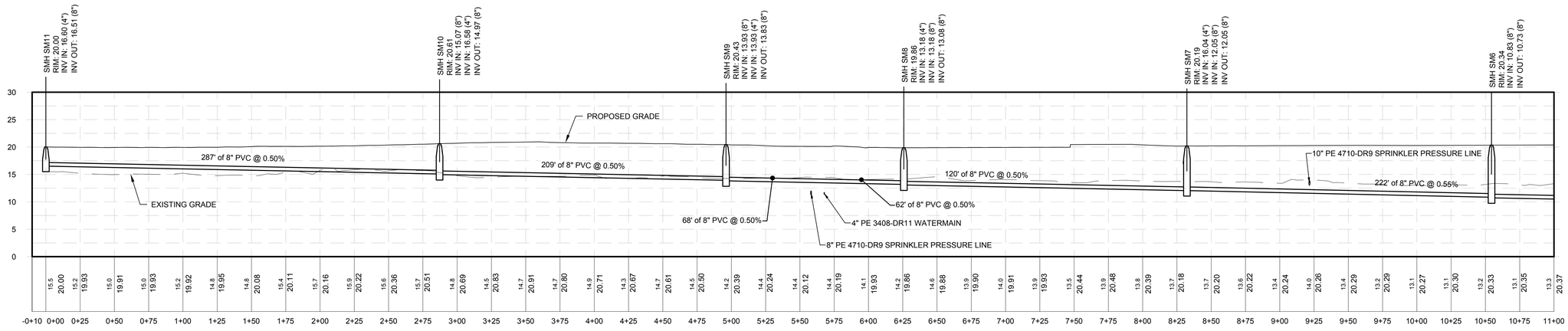
CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK
ADAM J FROSINO
088870
LICENSED PROFESSIONAL ENGINEER

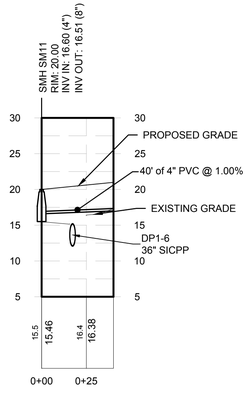
DRAWING TITLE
UTILITY PLAN

DRAWING NUMBER
UT-06

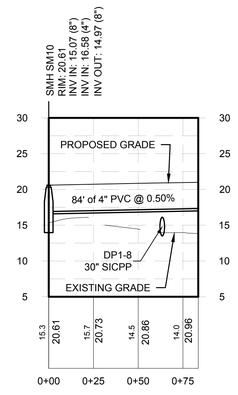


SM11 TO SM6
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

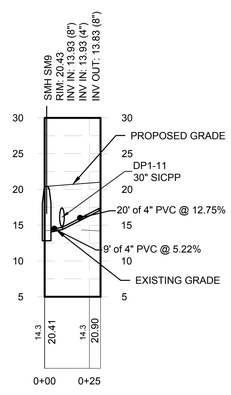
PLANNING BOARD HTE# 21-00100006



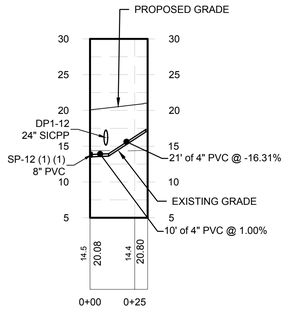
Bldg A service 1
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



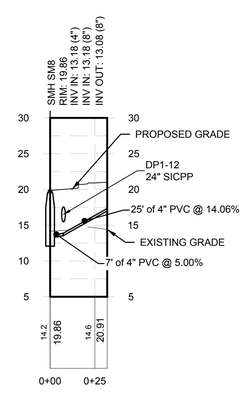
Bldg A service 2
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



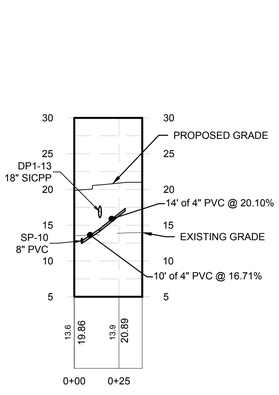
Bldg A- Service 3
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



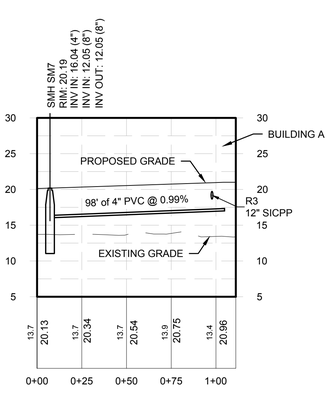
Bldg A- Service 4
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



Bldg A service 5
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



Bldg A- Service 6
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



Bldg A- Service 7
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

0 40 80 120 FT
SCALE

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
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SaratogaROM@mjinc.com

PROJECT MILESTONE
IFC SET

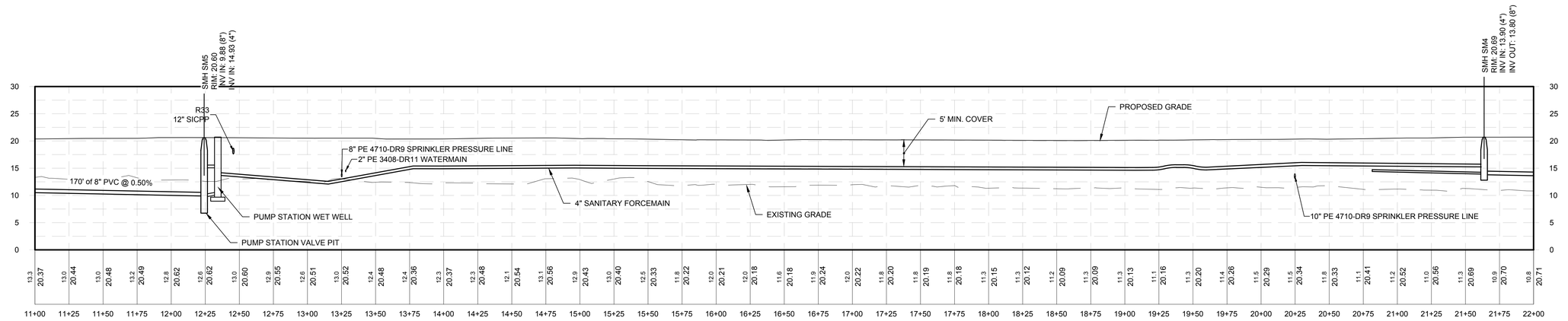
NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

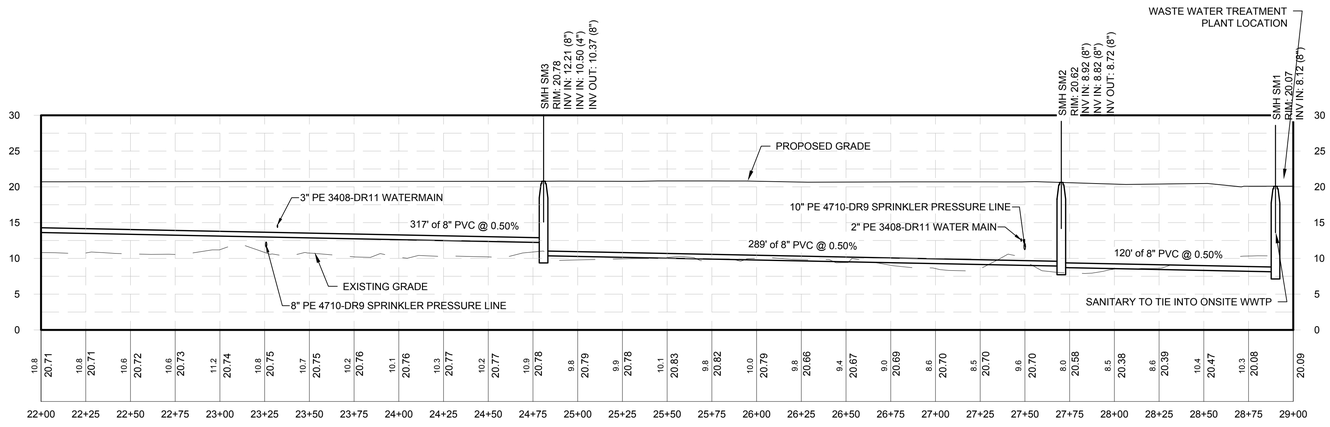
DRAWING TITLE
SANITARY SYSTEM PROFILE

DRAWING NUMBER
UT-07

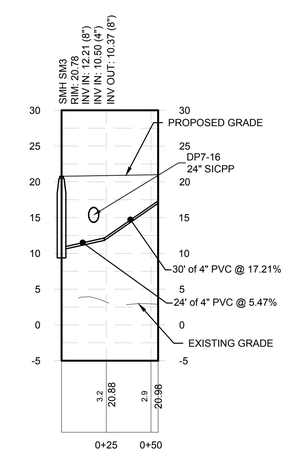


SM5 TO SM4
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

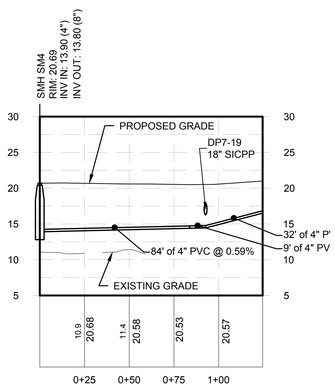
PLANNING BOARD HTE# 21-00100006



SM3 TO SM1
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



Bldg C service 2
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



Bldg C service 1
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

0 40 80 120 FT
SCALE

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
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SaratogaROM@mjinc.com

PROJECT MILESTONE
IFC SET

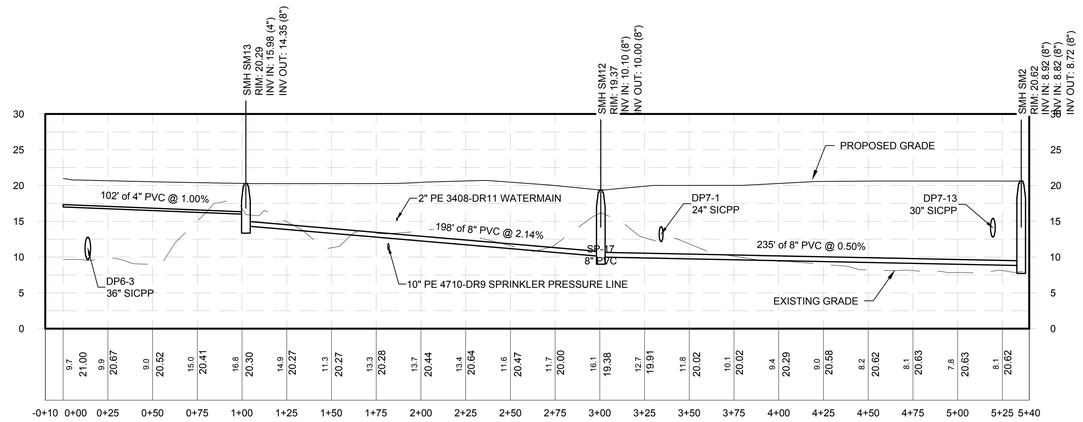
NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

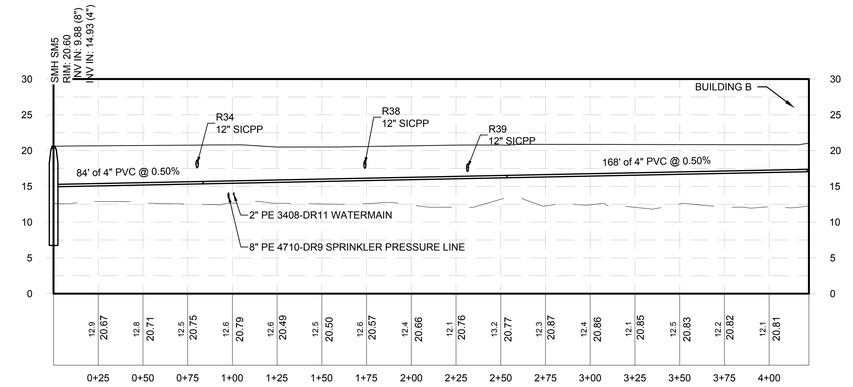
DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE
SANITARY SYSTEM PROFILE

DRAWING NUMBER
UT-08



SM13 TO SM2
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

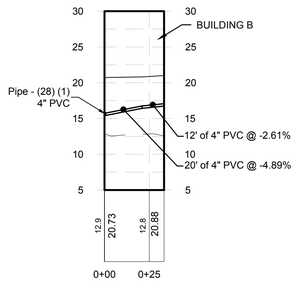


Bldg B - Service
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	TYPE	NORTHING	EASTING
SM1	20.07	8.12		Concentric Cylindrical Structure	1375683.82	689363.05
SM2	20.62	8.92 8.82	8.72	Concentric Cylindrical Structure	1375564.09	689362.45
SM3	20.78	12.21 10.50	10.37	Concentric Cylindrical Structure	1375278.37	689316.37
3 * SM4	20.69	13.90	13.80	Concentric Cylindrical Structure	1374961.80	689295.77
SM5	20.60	9.88 14.93		Concentric Cylindrical Structure	1374035.04	689372.69
SM6	20.34	10.83	10.73	Concentric Cylindrical Structure	1373885.22	689452.44
SM7	20.19	16.04 12.05	12.05	Concentric Cylindrical Structure	1373682.78	689544.02
SM8	19.86	13.18 13.18	13.08	Concentric Cylindrical Structure	1373494.56	689628.88
SM9	20.43	13.93 13.93	13.83	Concentric Cylindrical Structure	1373376.33	689682.17
SM10	20.61	15.07 16.58	14.97	Concentric Cylindrical Structure	1373185.17	689766.52
SM11	20.00	16.60	16.51	Concentric Cylindrical Structure	1372940.09	689916.22
SM12	19.37	10.10	10.00	Concentric Cylindrical Structure	1375554.26	689597.25
SM13	20.29	15.98	14.35	Concentric Cylindrical Structure	1375356.04	689589.29
Structure - (27)	14.22	13.49 13.52	13.49	Null Structure	1373438.09	689654.33
Structure - (29)	13.20	12.48 12.48	12.48	Null Structure	1373604.41	689579.35
Structure - (30)	14.52	14.15	14.15	Null Structure	1373608.27	689588.58
Structure - (31)	13.92	13.55	13.55	Null Structure	1373497.39	689635.65
Structure - (32)	15.72	15.35	15.35	Null Structure	1374114.45	689346.57
Structure - (33)	16.57	16.20	16.20	Null Structure	1374282.54	689322.39
Structure - (34)	12.18	11.81	11.81	Null Structure	1375254.89	689321.47
Structure - (35)	13.99		13.62 13.62	Null Structure	1373441.76	689663.12
Structure - (36)	15.79	15.42	15.42	Null Structure	1374127.90	689344.63
Structure - (47)	16.79	16.42	16.42	Null Structure	1374142.86	689363.11
Structure - (49)	14.82			Null Structure	1374878.83	689318.99
Structure - (50)	14.76	14.39	14.39	Null Structure	1374879.25	689310.09
Structure - (51)	14.77	14.40	14.39	Null Structure	1373379.75	689690.35

PIPE TABLE						
NAME	SIZE	LENGTH	SLOPE	MATERIAL	FROM STRC	TO STRC
Pipe - (22)	4"	8.87'	5.22%	PVC	Structure - (51)	SM9
Pipe - (23)	4"	9.52'	1.00%	PVC	Structure - (35)	Structure - (27)
Pipe - (24)	4"	10.00'	16.71%	PVC	Structure - (30)	Structure - (29)
Pipe - (25)	4"	14.18'	20.10%	PVC	Structure - (30)	
Pipe - (26)	4"	24.56'	14.06%	PVC		Structure - (31)
Pipe - (27)	4"	83.59'	0.50%	PVC	SM5	Structure - (32)
Pipe - (28)	4"	13.60'	0.50%	PVC	Structure - (32)	Structure - (36)
Pipe - (28) (1)	4"	156.23'	0.50%	PVC	Structure - (36)	Structure - (33)
Pipe - (29)	4"	167.83'	0.50%	PVC	Structure - (33)	
Pipe - (30)	4"	30.13'	17.21%	PVC		Structure - (34)
Pipe - (31)	4"	20.73'	-16.31%	PVC	Structure - (35)	
Pipe - (32)	4"	20.43'	-4.89%	PVC		Structure - (47)
Pipe - (33)	4"	12.25'	-2.61%	PVC	Structure - (47)	
Pipe - (40)	4"	31.84'	-6.45%	PVC		
Pipe - (41)	4"	8.92'	0.59%	PVC		Structure - (50)
Pipe - (42)	4"	20.39'	12.75%	PVC	Structure - (51)	
SP-1	8"	119.73'	0.50%	PVC	SM2	SM1
SP-2	8"	289.42'	0.50%	PVC	SM3	SM2
SP-3	4"	24.03'	5.47%	PVC	Structure - (34)	SM3
SP-4	8"	317.24'	0.50%	PVC	SM4	SM3
SP-5	4"	83.79'	0.59%	PVC	Structure - (50)	SM4
SP-6	8"	169.72'	0.50%	PVC	SM6	SM5
SP-8	8"	222.19'	0.55%	PVC	SM7	SM6
SP-9	4"	97.55'	0.99%	PVC		SM7
SP-10	8"	120.49'	0.50%	PVC	SM8	Structure - (29)
SP-10 (1)	8"	85.97'	0.50%	PVC	Structure - (29)	SM7
SP-11	4"	7.34'	5.00%	PVC	Structure - (31)	SM8
SP-12 (1)	8"	67.75'	0.50%	PVC	SM9	Structure - (27)
SP-12 (1) (1)	8"	61.95'	0.50%	PVC	Structure - (27)	SM8
SP-13	8"	208.94'	0.50%	PVC	SM10	SM9
SP-14	4"	83.57'	0.50%	PVC		SM10
SP-15	8"	287.18'	0.50%	PVC	SM11	SM10
SP-16	4"	40.18'	1.00%	PVC		SM11
SP-17	8"	235.00'	0.50%	PVC	SM12	SM2
SP-18	8"	198.38'	2.14%	PVC	SM13	SM12
SP-19	4"	102.15'	1.00%	PVC		SM13

PIPE TABLE						
NAME	SIZE	LENGTH	SLOPE	MATERIAL	FROM STRC	TO STRC
SPO-1	8"	89.17'	0.74%	PVC	SMO1	SMO6
SPO-2	8"	114.22'	0.50%	PVC	SMO6	SMO7
SPO-3	8"	111.23'	0.50%	PVC	SMO7	SMO3
SPO-4	8"	97.90'	0.50%	PVC	SMO3	SMO2
SPO-5	8"	86.00'	0.55%	PVC	SMO2	SMO5
SPO-6	8"	297.19'	0.50%	PVC	SMO5	SMO4
SPO-7	8"	289.33'	0.50%	PVC	SMO4	SMO8
SPO-8	8"	135.97'	1.43%	PVC	SMO8	



BLDG B SERVICE 1
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	TYPE	NORTHING	EASTING
SMO1	20.02		17.00	Concentric Cylindrical Structure	1375684.85	689445.30
SMO2	20.77	14.43	14.33	Concentric Cylindrical Structure	1375454.50	689699.41
SMO3	20.48	15.01	14.92	Concentric Cylindrical Structure	1375463.28	689601.90
SMO4	20.63	12.27	10.10	Concentric Cylindrical Structure	1375521.43	690004.82
SMO5	20.55	13.85	13.75	Concentric Cylindrical Structure	1375540.04	689708.21
SMO6	20.21	16.34	16.24	Concentric Cylindrical Structure	1375600.63	689474.56
SMO7	19.26	15.67	15.57	Concentric Cylindrical Structure	1375573.29	689585.46
SMO8	16.24	8.66	8.56	Concentric Cylindrical Structure	1375503.31	690293.58

3 * CONCRETE ADDITIVE FOR HYDROGEN SULFIDE PROTECTION SHALL BE ADDED TO THE CONCRETE MIX FOR THE RECEIVING SANITARY STRUCTURE SM4. THE STRUCTURE SHALL BE LINED WITH TAR COATING.

PLANNING BOARD HTE# 21-00100006

0 40 80 120 FT
SCALE

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
IFC SET

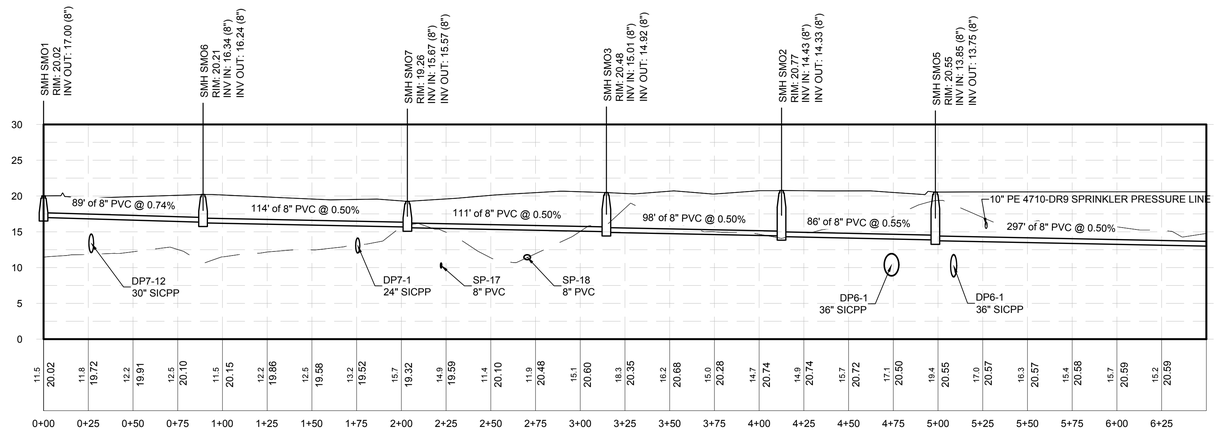
NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION
PROJECT: PORT OF ALBANY EXPANSION SITE
ALBANY, NEW YORK

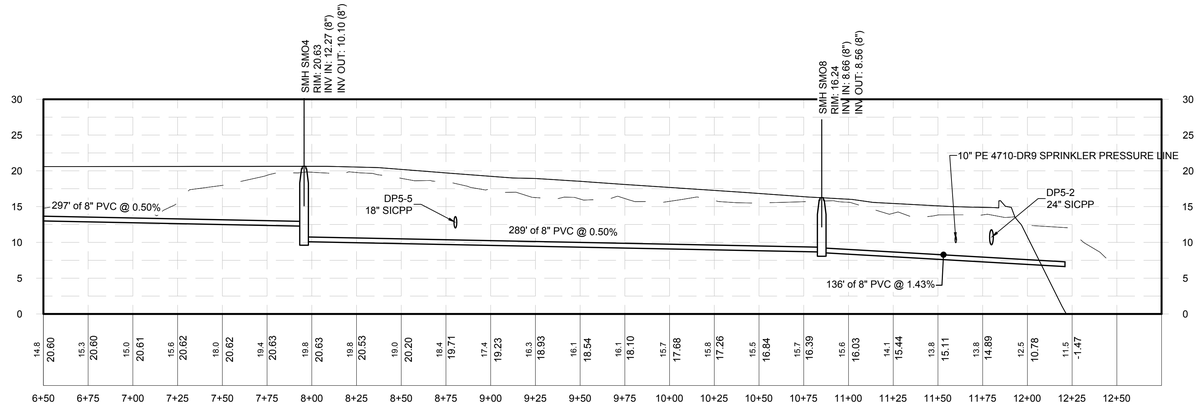
DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE
SANITARY SYSTEM PROFILE & TABLES

DRAWING NUMBER
UT-09



PACKAGE PLANT OUTLET (1 OF 2)
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



PACKAGE PLANT OUTLET (2 OF 2)
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

PLANNING BOARD HTE# 21-00100006

0 40 80 120 FT
SCALE

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

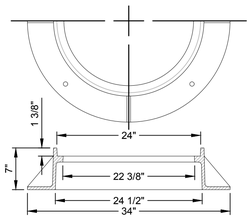
CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	1"=40'
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK
ADAM J FROSINA
088870
LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE
SANITARY SYSTEM PROFILE

DRAWING NUMBER
UT-09A



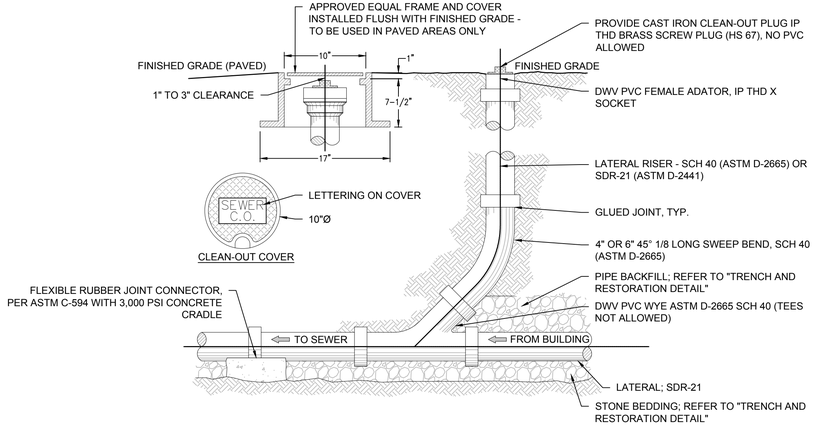
FRAME SECTION

COVER SECTION

NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON CONFORMING TO A.S.T.M. A48 (LATEST REVISION) CLASS 30B.
2. UNITS DESIGNED HEAVY DUTY FOR A.A.S.H.T.O. HS20-44 WHEEL LOADS.
3. EACH FRAME AND COVER SHALL HAVE MACHINED HORIZONTAL BEARING SURFACES.

SANITARY SEWER MANHOLE FRAME & COVER

N.T.S.



NOTES:

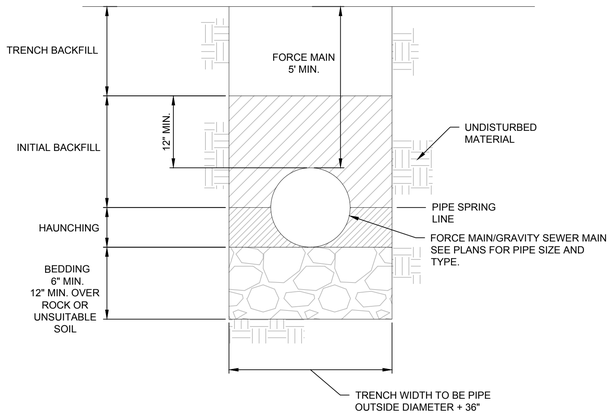
1. IT IS RECOMMENDED THAT ALL SOLVENT WELD JOINTS BE MADE AS FOLLOWS:
   - CLEAN DRY HUBS AND SPOTS
   - PRIMER APPLIED TO PARTS BEING CONNECTED
   - PVC SOLVENT WELD CEMENT APPLIED DIRECTLY OVER PRIMER
   - PVC TYPE I IS COMPATIBLE FOR SOLVENT WELDING TO SDR-21 OR ANY OTHER PVC TYPE I PIPE MADE TO "STEEL PIPE" OUTSIDE DIMENSIONS
2. FILL SHALL BE PLACED IN 6" LIFTS AND TAMPED AFTER EACH LIFT.
3. AVAILABLE LATERAL/CLEANOUT CONFIGURATIONS:
   - 4" x 4" x 4"
   - 6" x 6" x 6"
   - 6" x 6" X 4"

SANITARY SEWER LATERAL CLEAN-OUT

N.T.S.

PLANNING BOARD HTE# 21-00100006

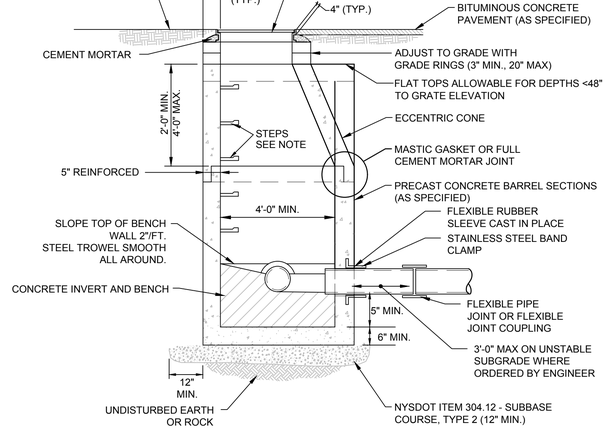
PIPE MATERIALS
SEE UTILITY PLANS FOR
PIPE SIZE AND MATERIAL



NOTES:
1. ALL TRENCHING TO BE IN ACCORDANCE WITH OSHA STANDARDS AND NYS DEPT. OF LABOR INDUSTRIAL CODE 23
2. BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL CONSIST OF #1 AND #2 CRUSHED STONE BEDDING PER NYSDOT SPECIFICATION 703-02
3. TRENCH BACKFILL - BACKFILL UNDER ROADS, DRIVES, SIDEWALKS, CURBS AND UTILITIES SHALL BE SELECT GRANULAR FILL PER NYSDOT SPECIFICATION 203-2.06, PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6". BACKFILL IN OTHER AREAS SHALL BE A SUITABLE EXCAVATED MATERIAL (NO STONES LARGER THAN 6"), PLACED AND COMPACTED IN LIFTS NO GREATER THAN 6" TO SAFETY COVER.

GRAVITY SEWER MAIN AND FORCE MAIN TRENCH

N.T.S.

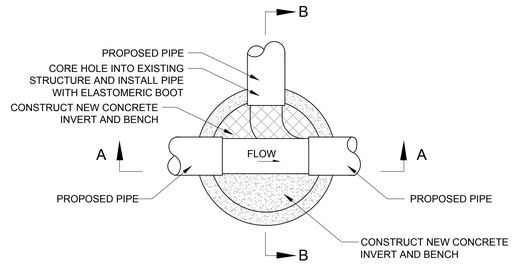


NOTES:

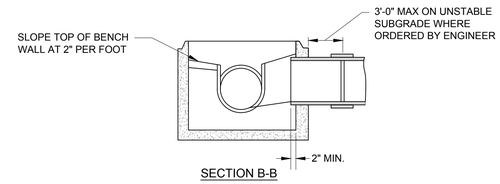
1. ALUMINUM OR PLASTIC MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
2. PRECAST REINFORCED CONCRETE MANHOLE SHALL CONFORM TO ASTM C478.
3. CONCRETE SHALL BE 4000 PSI AT 28 DAYS, 5% AIR ENTRAINED, AND MEET AASHTO H-20 LOADING AS MANUFACTURED BY FORT MILLER CO. OR APPROVED EQUAL.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615 - A497.

PRECAST CONCRETE GRAVITY SEWER MANHOLE

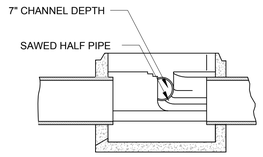
N.T.S.



PLAN



SECTION B-B



SECTION A-A

NOTE:
1. CARE SHALL BE TAKEN TO ENSURE THAT THE INVERTS ARE A SMOOTH CONTINUATION.
2. INVERT AND SHELF SHALL BE CAST-IN-PLACE CONCRETE 3000 PSI MIN. AND AIR ENTRAINED.

SEWER BOTTOM WITH CHANNEL

N.T.S.

McFarland Johnson
60 RAILROAD PLACE
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SARATOGA SPRINGS, NEW YORK 12866
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PROJECT MILESTONE
IFC SET

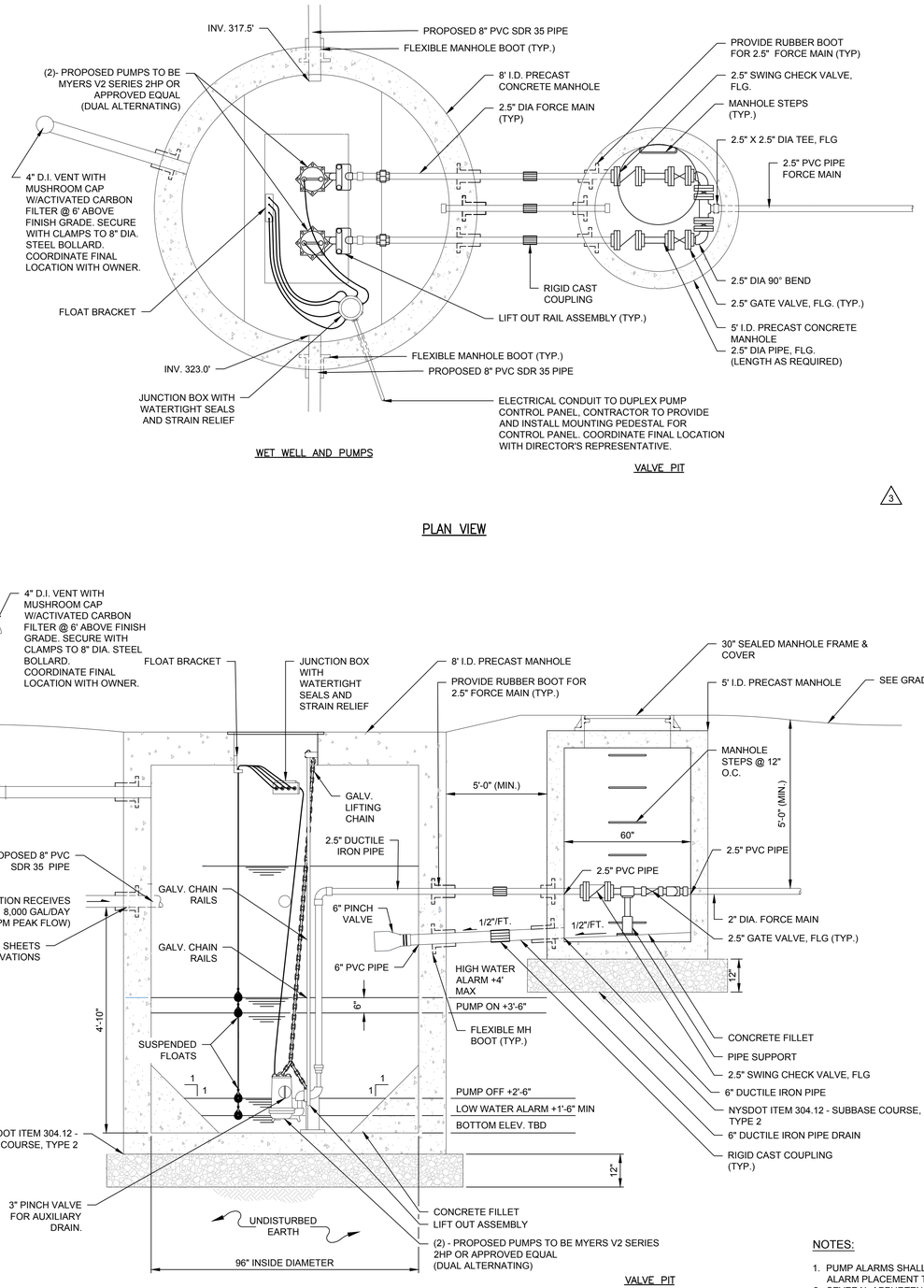
NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE
SANITARY SYSTEM DETAILS

DRAWING NUMBER
UT-14

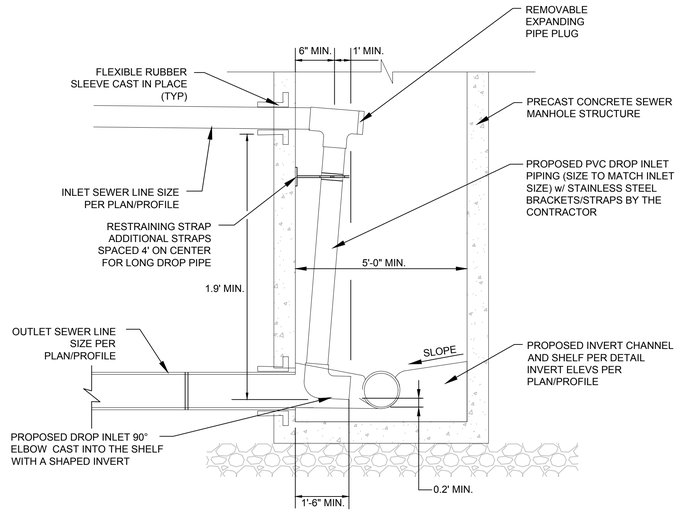


NOTES:

1. PUMP ALARMS SHALL BE BOTH AUDIBLE AND VISUAL. ALARM PLACEMENT TO BE COORDINATED WITH OWNER.
2. SEVERAL APPURTENANCES IN SECTION MAY BE SHOWN OUT OF LOCATION FOR INFORMATIONAL PURPOSES.
3. PUMPS SHALL BE SIZED TO BE DUAL ALTERNATING PUMPS, EACH CAPABLE OF HANDLING PEAK HOURLY FLOWS WITH ONE UNIT OUT OF SERVICE.
4. CONCRETE ADDITIVE FOR HYDROGEN SULFIDE PROTECTION SHALL BE ADDED TO THE CONCRETE MIX FOR THE RECEIVING SANITARY STRUCTURE SM4.
5. RECEIVING SANITARY STRUCTURE SM4 SHALL BE LINED WITH TAR COATING.

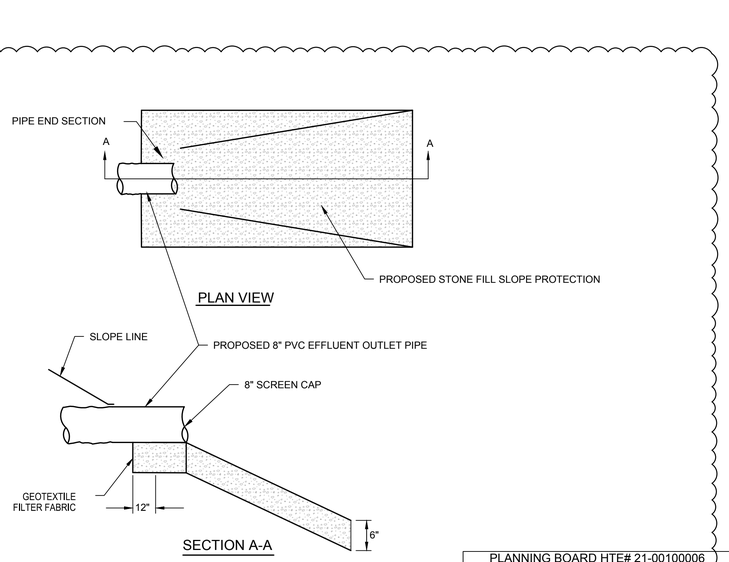
SANITARY SEWER LIFT STATION #1

N.T.S.



DROP MANHOLE

N.T.S.



PLANNING BOARD HTE# 21-00100006

WASTEWATER TREATMENT PLANT OUTLET TO HUDSON RIVER

N.T.S.

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS
3	01/31/23	IFC SET

CLIENT: ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

DRAWING TITLE

SANITARY SYSTEM DETAILS

DRAWING NUMBER

UT-15

PROCESS DIAGRAM NOTES

1. THE DRAWINGS DEPICTED HEREIN REPRESENT PRELIMINARY LAYOUT(S) OF A WASTEWATER TREATMENT SYSTEM CAPABLE OF TREATING THE DESIGN INFLUENT FLOW AND LOAD TO THE EFFLUENT WATER QUALITY DENOTED IN THE EFFLUENT WASTELOAD SUMMARY.
2. THE PROCESS SCHEMATIC SHOWS THE GENERAL FLOW LAYOUT. SPECIFIC REACTOR COMPONENTS, SIZES, AND CONFIGURATIONS MAY DIFFER. REFER TO ARRANGEMENT DRAWINGS FOR DETAILS.
3. PRELIMINARY BASIN SIZING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. FINAL DESIGN VALUES SHALL BE ESTABLISHED BY THE ENGINEER OF RECORD.
4. SEE THE PROJECT SPECIFIC QUOTE FOR MORE INFORMATION REGARDING SCOPE OF SUPPLY AND CORRESPONDING TERMS AND CONDITIONS.

- DIAPHRAGM VALVE
- GLOBE/NEEDLE VALVE
- BALL VALVE
- CHARACTERIZED BALL VALVE
- BALL CHECK VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- GATE VALVE
- 3-WAY VALVE
- CHECK VALVE
- B — BLOWER
- P — MECHANICAL PUMP
- AL — AIR LIFT PUMP
- M — MIXER
- M — FLOW METER
- C — CHEMICAL DOSING PUMP
- F — FILTER
- UV — ULTRAVIOLET DISINFECTION UNIT
- BAR SCREEN
- MECHANICAL BAR SCREEN
- CL — TABLET FEEDER

TANK SIZES

TANK	QTY	WIDTH (FT)	LENGTH (FT)	HEIGHT (FT)	SWD (FT)	VOLUME (GAL)
PRIMARY CLARIFIER	1	10	5	11.17	9.67	2,400 (APPROX.)
AERATION	1	10	19	11.17	9.42	13,400
SECONDARY CLARIFIER	1	10	5	11.17	9.42	2,300 (APPROX.)
SOLIDS HOLDING	1	10	8	11.17	9.67	5,800
LIFT STATION	1	4 (DIA.)	4 (DIA.)	17.5	1.5 MIN. 4 MAX.	380 TOTAL 240 OPERATIONAL

ALL DIMENSIONS ARE INSIDE OF TANK UNLESS NOTED OTHERWISE.

MOTOR LOADS

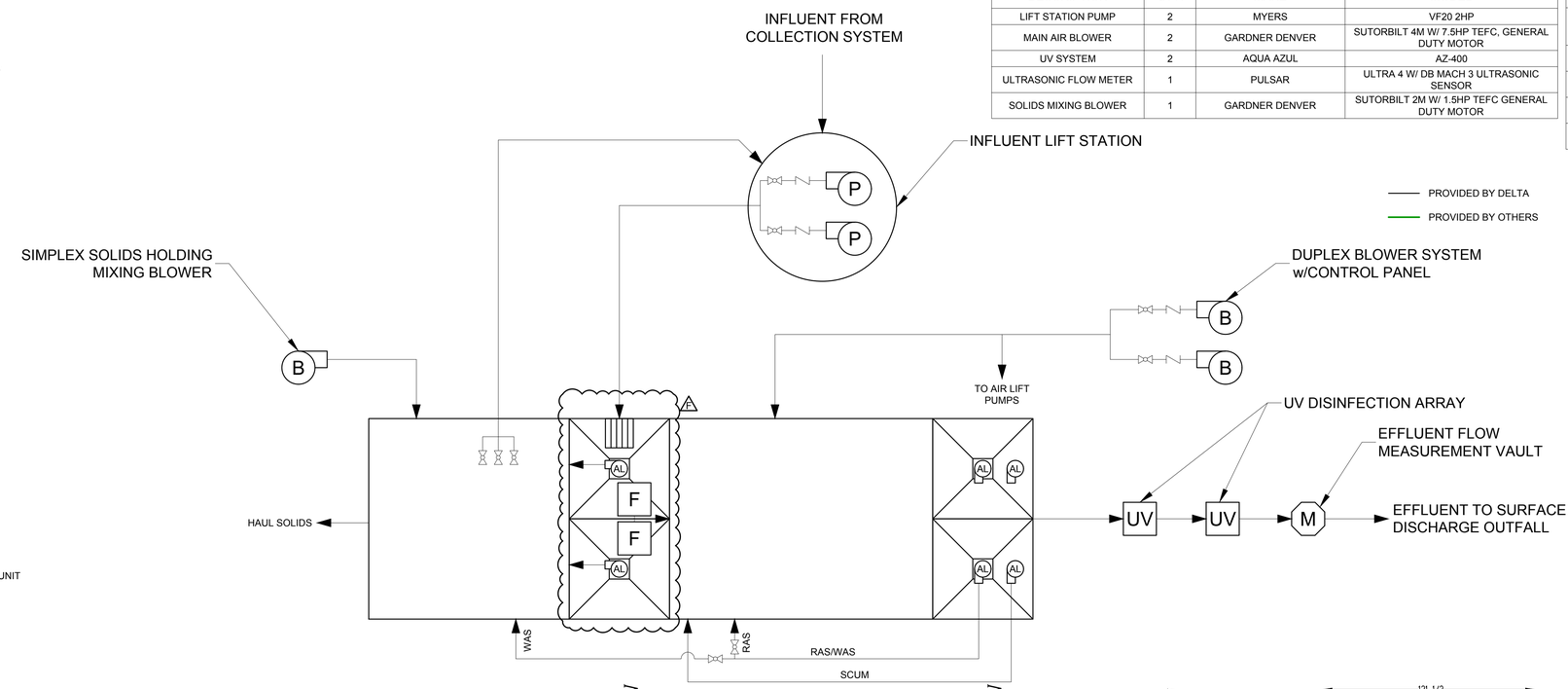
DEVICE	QTY	CONCURRENTLY OPERATING	POWER (HP)	VOLTAGE (V)	STARTING CURRENT (A)	FULL LOAD CURRENT (A)
LIFT STATION PUMP	2	1	0.5	460 V-3 PH	23	4.2
MAIN AIR BLOWER	2	1	7.5	460 V-3 PH	46	6.5
UV SYSTEM	2	2	TBD	230 V-1 PH	TBD	TBD
ULTRASONIC FLOW METER	1	1	< 0.1	230 V-1 PH	TBD	TBD
SOLIDS HOLDING BLOWER	1	1	1.5	460 V-3 PH	17.1	2.2

EQUIPMENT LIST

DESCRIPTION	QTY.	MAKE	MODEL
LIFT STATION PUMP	2	MYERS	VF20 2HP
MAIN AIR BLOWER	2	GARDNER DENVER	SUTORBILT 4M W/ 7.5HP TEFC, GENERAL DUTY MOTOR
UV SYSTEM	2	AQUA AZUL	AZ-400
ULTRASONIC FLOW METER	1	PULSAR	ULTRA 4 W/ DB MACH 3 ULTRASONIC SENSOR
SOLIDS MIXING BLOWER	1	GARDNER DENVER	SUTORBILT 2M W/ 1.5HP TEFC GENERAL DUTY MOTOR

FLOW SUMMARY

Flow Parameter	GPD	GPH	GPM
AVERAGE DAILY FLOW (ADF)	11,200	470	7.8
PEAK DAILY FLOW (PDF)	28,000	1,200	19
PEAK HOURLY FLOW (PHF)	44,800	1,900	31
0.5 x ADF	5,600	230	3.9
1.5 x ADF	16,800	700	12



PROVIDED BY DELTA
PROVIDED BY OTHERS

SANITARY PACKAGE TREATMENT PLANT - PROCESS DIAGRAM

N.T.S.

WASTELOAD SUMMARY:

INFLUENT WASTELOAD AS PROVIDED BY ENGINEER OF RECORD
280 mg/L (26 LB/D) BOD_5
300 mg/L (28 LB/D) TSS
7.0-7.1 pH (ASSUMED)
68 F (20 C) WATER TEMPERATURE (ASSUMED)

EFFLUENT TARGETS
30 mg/L BOD_5 30-D AVERAGE
30 mg/L TSS 30-D AVERAGE
200 N/100 mL FCB 30-D GEO. MEAN

ORGANIC LOADING

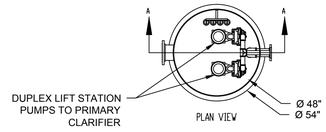
14.3 LB BOD/D/KCF
DELTA MODEL BASIS A-13.0

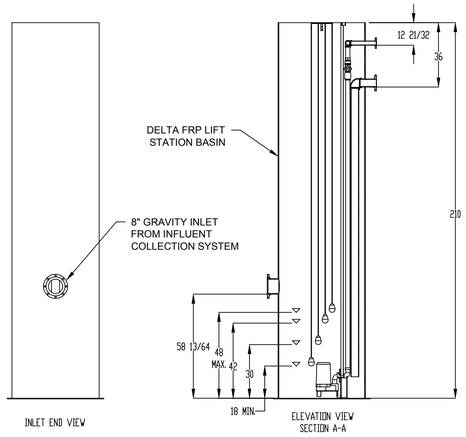
AERATION SYSTEM DESIGN

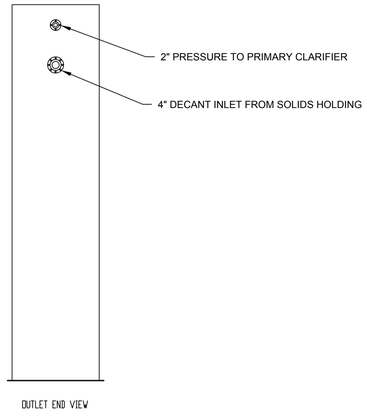
AOR: 59 LB O_2/D
SOTR: 114 LB O_2/D

PROCESS AIR DEMAND: 76 SCFM
RAS/WAS AIRLIFT PUMP AIR DEMAND: 40 SCFM
SCUM AIRLIFT PUMP AIR DEMAND: 32 SCFM
TOTAL MAIN AIR BLOWER DEMAND: 148 SCFM
SITE ELEVATION: 50 FT AMSL (ASSUMED)
MAXIMUM AIR TEMPERATURE: 115 F (ASSUMED)
PROCESS AIR INLET FLOW: 176 ICFM
BLOWER AIRFLOW: 1 DUTY/1 STANDBY, 176 ICFM @ 4.6 PSIG
SELECTED BLOWER: GARDNER DENVER MODEL 4M @ 1,920 RPM
SELECTED MOTOR: 7.5 HP

SOLIDS HOLDING MIXING AIR DEMAND:
30 SCFM / 1,000 CF x 0.77 KCF = 23 SCFM :: 28 ICFM @ 4.7 PSIG
SELECTED BLOWER: GARDNER DENVER MODEL 2M @ 2,760 RPM
SELECTED MOTOR: 1.5 HP

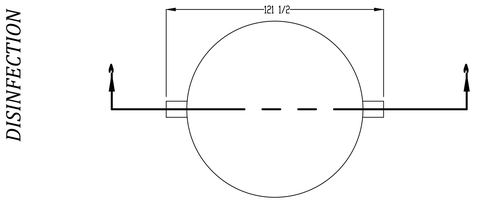


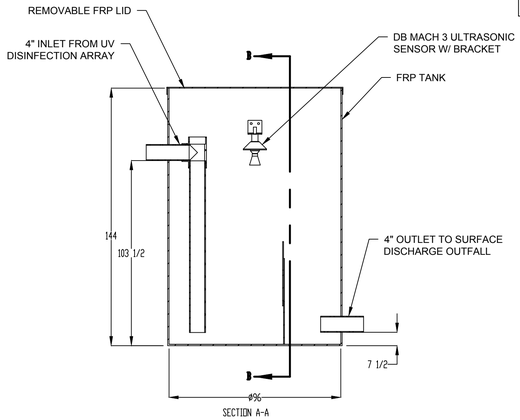


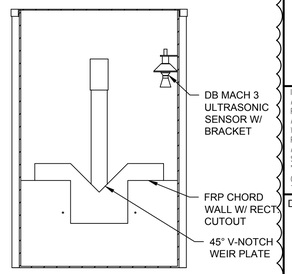


INFLUENT LIFT STATION

N.T.S.







EFFLUENT FLOW MEASURMENT VAULT

N.T.S.

PLANNING BOARD HTE# 21-00100006

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
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PROJECT MILESTONE
IFC SET

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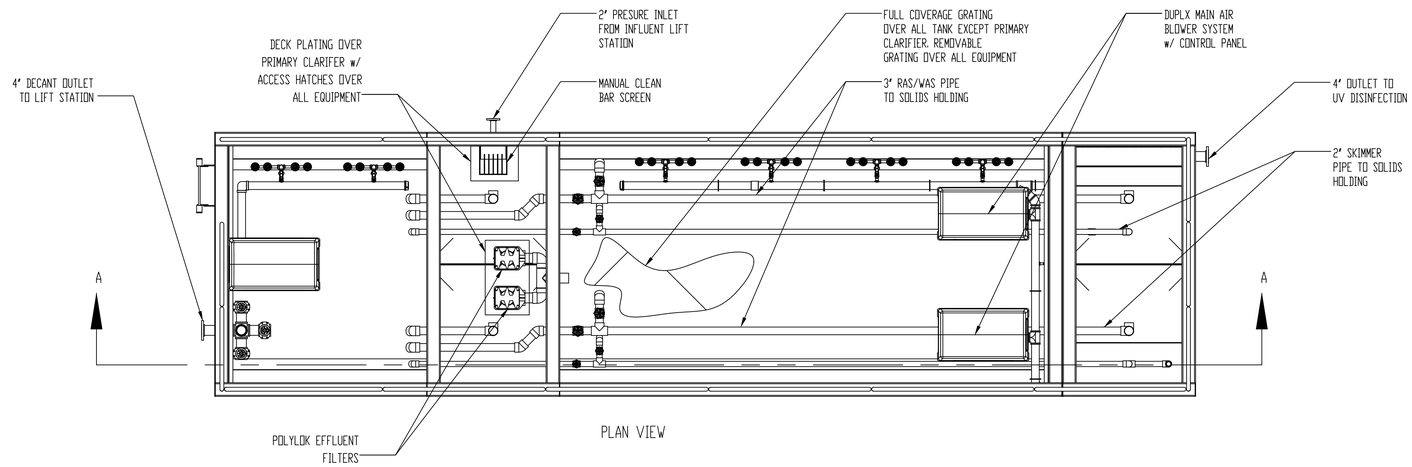
ALBANY, NEW YORK
PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

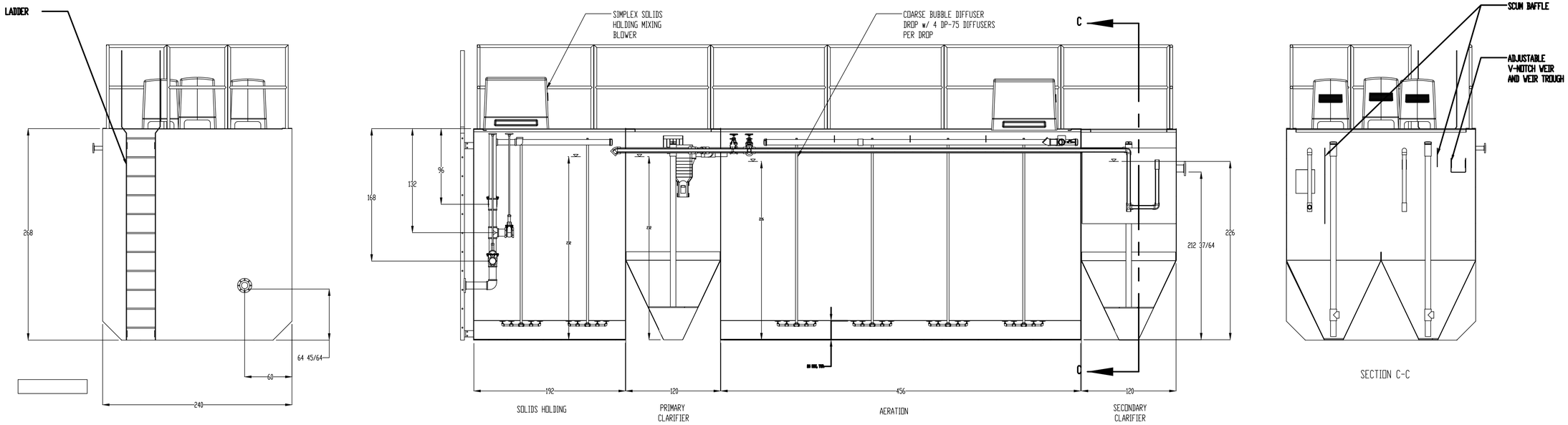
DRAWING TITLE
SANITARY SYSTEM DETAILS

DRAWING NUMBER
UT-16

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\SHEET FILES\18641.00-UTILDETS.DWG



PLAN VIEW



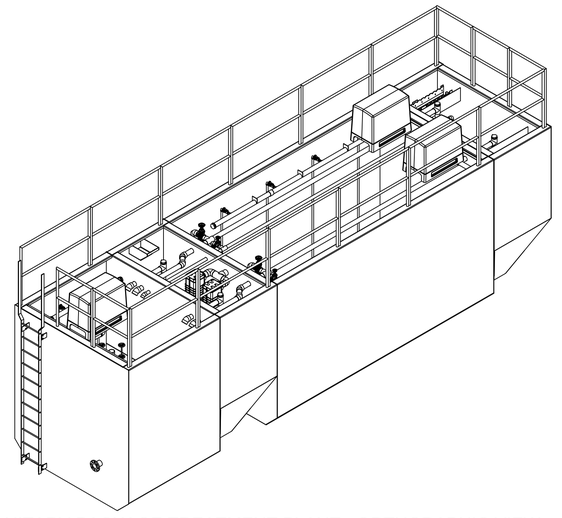
SECTION C-C

SECTION A-A
ELEVATION VIEW

SANITARY PACKAGE TREATMENT PLANT - GENERAL ARRANGEMENT

N.T.S.

PLANNING BOARD HTE# 21-00100006



SANITARY PACKAGE TREATMENT PLANT - ORTHGRAPHIC VIEW

N.T.S.

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
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ALBANY, NEW YORK

PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
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SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

STATE OF NEW YORK
ADAM J FROSINOS
088870
LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE

SANITARY SYSTEM DETAILS

DRAWING NUMBER

UT-17

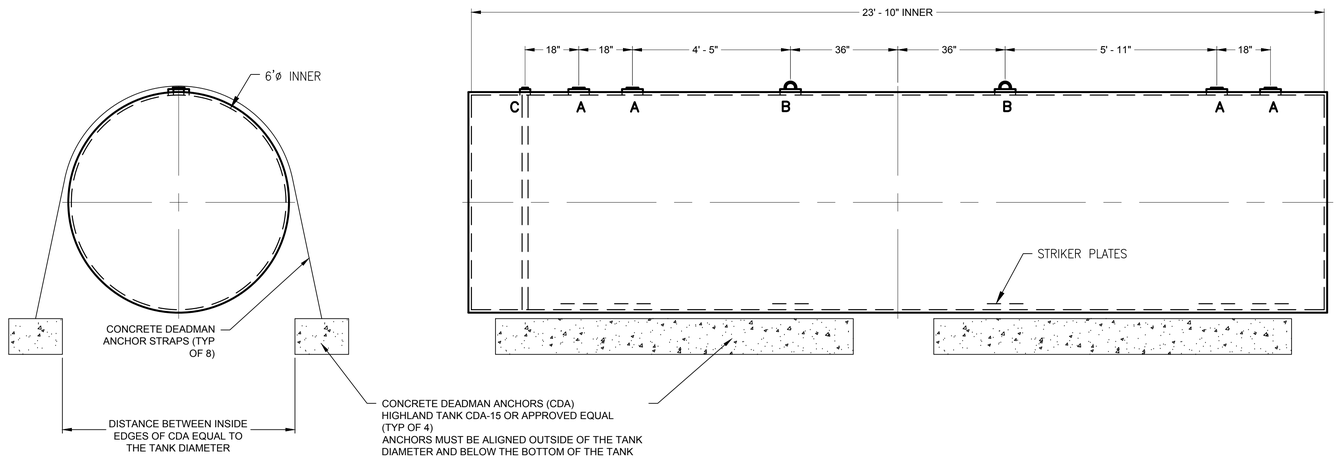
N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\SHEET FILES\18641.00-UTIL.DETS.DWG

STRIKER PLATES ROLLED & SEAL WELDED TO THE TANK, 1/4" X 12" x 12" MIN.

DESIGN DATA
CAPACITY - 5000 GALLONS
TYPE - DOUBLE WALL - 360° TYPE II
NO. REQ. - -
OPERATING PRESSURE - ATMOSPHERIC
TANK MATERIAL - MILD CARBON STEEL
THICKNESS - HEADS- 7 GAUGE THICKNESS - SHELL - 7 GAUGE *GA THK. BASED ON 60" MAX. BURIAL DEPTH
CONSTRUCTION - LAP WELD OUTSIDE ONLY -
TANK TEST - INNER: 5 PSIG OUTER: FULL VACUUM
INT. FINISH - NONE -
EXT. FINISH - GREEN TITAN WRAP (OR APPROVED EQUAL)
LABEL - UL-58/UL-1746 PART III

NOTE: DOUBLE RING MANWAYS CAN NOT BE USED ON THIS SIZE TANK (TANK MUST BE 8'Ø OR LARGER)

LEGEND	
A	4" CLOSE OFF FITTING
B	4" CLOSE OFF FITTING WITH REMOVABLE LIFT LUG
C	2" CLOSE OFF FITTING WITH INTERNAL INTERSTICE MONITOR PIPE
D	-
E	-
F	-



5000 GALLON 72" DIA TANK

N.T.S.

UNDERGROUND STORAGE TANK (UST) NOTES:

FURNISH AND INSTALL A 5000 GALLON UNDERGROUND STEEL STORAGE TANK, 6'0" INCHES IN DIAMETER BY 23'10" INCHES LONG WITH THE CORROSION CONTROL AND SECONDARY CONTAINMENT SYSTEM AS MANUFACTURED BY HIGHLAND TANK OR APPROVED EQUAL. THE TANK SHALL BE BUILT IN ACCORDANCE WITH UL-58, UL-1746, AND TITAN™ SPECIFICATIONS (OR APPROVED EQUAL). THE TANK WILL HAVE:

a) (6) 4" DIA., AND (1) 2" DIA. THREADED NPT FITTINGS AS LOCATED ON DRAWING.
b) STRIKER PLATES REQUIRED UNDER EACH OPENING.
c) TITAN™ CORROSION CONTROL SYSTEM. (OR APPROVED EQUAL)
d) TITAN™ HMW POLYMER SECONDARY CONTAINMENT SYSTEM (OR APPROVED EQUAL)
e) 8 HOLD-DOWN STRAPS FOR TITAN™ TANKS (OR APPROVED EQUAL). STRAP PACKAGE SHALL CONSIST OF NYLON STRAP FOR USE WITH DEADMAN (NO TURNBUCKLE, CLAMPS, OR WIRE CABLE INCLUDED);
f) 4 CONCRETE DEADMAN ANCHORS (HIGHLANDS CDA-15 OR APPROVED EQUAL)

THE SECONDARY CONTAINMENT TANK WALL SHALL BE MADE OF HIGH MOLECULAR WEIGHT (HMW) POLYMER EXTRUDED AND APPLIED AT THE TANK FACTORY.

BOTH THE PRIMARY STORAGE TANKS AND SECONDARY CONTAINMENT JACKET SHALL BE COMPATIBLE WITH GASOLINE, GASOHOL, ETHANOL, METHANOL, JET FUEL, AV-GAS, KEROSENE, DIESEL FUEL, AND MOTOR OIL AT AMBIENT UNDERGROUND TEMPERATURE OR FUEL OIL STORED AT TEMPERATURES NOT TO EXCEED 100 F.

THE PRIMARY STORAGE TANK SHALL BE CONTAINED IN A 360 , AIR-PRESSURE TESTABLE AND UNBREAKABLE JACKET, BONDED TOGETHER AND SEALED OFF AT THE FITTINGS.

THERE SHALL BE AN INTERSTITIAL SPACE BETWEEN THE PRIMARY AND SECONDARY CONTAINMENT JACKET TO ALLOW 100% FLUID MIGRATION BETWEEN THE WALLS UNDER MAXIMUM LOAD CONDITIONS.

THE CORROSION CONTROL SYSTEM SHALL BE IN STRICT ACCORDANCE WITH UL-1746 AND SHALL HAVE A LIMITED 30-YEAR WARRANTY AGAINST FAILURE DUE TO EXTERIOR CORROSION AND INTERNAL CORROSION WHEN USED WITH PETROLEUM PRODUCTS OR ALCOHOL. TANK SHALL BEAR UL-1746 LABELS.

THE TANK EXCAVATION SHALL BE FREE FROM MATERIAL THAT MAY CAUSE DAMAGE TO THE TANK. CARE SHALL BE TAKEN DURING INSTALLATION THAT FOREIGN MATTER IS NOT INTRODUCED INTO EXCAVATION OR BACKFILL. THE BOTTOM OF THE EXCAVATION SHALL BE COVERED WITH CLEAN SAND OR GRAVEL TO DEPTH OF 12" SUITABLY GRADED AND LEVELED.

TANKS SHALL BE SHIPPED, DELIVERED, INSTALLED AND 3/4 BACKFILLED WHILE MAINTAINING A CONSTANT VACUUM (12 INCHES OF MERCURY VACUUM) ON THE INTERSTITIAL SPACE TO ASSURE INTEGRITY OF BOTH THE PRIMARY STORAGE TANK AND SECONDARY CONTAINMENT TANK WALL SIMULTANEOUSLY.

SITE INTEGRITY TEST: THE VACUUM MAY BE RELEASED AT THE SITE AND A 5 PSI AIR PRESSURE TEST MAY BE PERFORMED TO THE PRIMARY STORAGE TANK AND AN AIR PRESSURE/SOAP TEST MAY BE PERFORMED ON THE SECONDARY TANK (PRESSURE NOT TO EXCEED 1 PSI IN ACCORDANCE WITH THE LABEL INSTRUCTIONS ON THE TANK).

BEFORE PLACING THE TANK IN THE EXCAVATION, ALL DIRT CLODS AND SIMILAR FOREIGN MATTER SHALL BE CLEANED FROM THE TANK.

EQUIPMENT TO LIFT THE TANK SHALL BE OF ADEQUATE SIZE TO LIFT AND LOWER THE TANK WITHOUT DRAGGING AND DROPPING TO ENSURE NO DAMAGE TO THE TANK OR THE COATING. TANKS SHALL BE CAREFULLY LIFTED AND LOWERED BY USE OF CABLES OR CHAINS OF ADEQUATE LENGTH (NOT LESS THAN 30 INCLUDING ANGLE) ATTACHED TO THE LIFTING LUGS PROVIDED. A SPREADER BAR SHOULD BE USED WHERE NECESSARY. UNDER NO CIRCUMSTANCES ARE CHAINS OR SLINGS AROUND THE TANK SHELL PERMITTED.

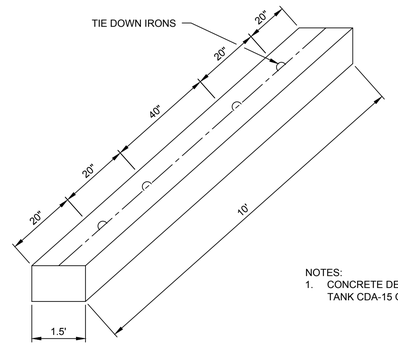
SPECIAL CARE SHOULD BE EXERCISED WHEN INSTALLING HOLD DOWN STRAPS. ENSURE THAT THE STRAPS ARE SEPARATED FROM THE TANKS BY SEPARATING PADS MADE OF AN INERT, INSULATION DIELECTRIC MATERIAL. THE SEPARATING PAD SHOULD BE AT LEAST 2" WIDER THAN THE HOLD DOWN STRAP WIDTH AND MUST BE CAREFULLY PLACED ANYWHERE ON THE TANK WHERE HOLD DOWN STRAPS WOULD COME INTO DIRECT CONTACT WITH THE TANK SHELL.

BACKFILL CONSISTING OF SAND, #8 CRUSHED STONE (#8 CRUSHED AGGREGATE ASTM D-448) OR FINE GRAVEL, SHALL BE PLACED ALONG BOTTOM SIDE OF TANK BY SHOVELING AND TAMPING TO ENSURE THE TANK IS FULLY AND EVENLY SUPPORTED AROUND BOTTOM QUADRANT. THE BACKFILL SHALL BE DEPOSITED CAREFULLY AROUND TANK AND TO A MINIMUM DEPTH (12" - PEI/RP100-97) OVER TANK TO AVOID DAMAGE TO THE SECONDARY CONTAINMENT JACKET.

TANK MONITORING AND LEAK DETECTION SYSTEM

PROVIDE AND INSTALL VEEDER-ROOT TLS_450 (OR APPROVED EQUAL) TANK MONITORING CONSOLE WITH RELATED PROBES, SENSORS, AND ALARMS. THE SYSTEM SHALL INCLUDE:

- VEEDER ROOT TLS-450 CONSOLE WITH PRINTER.
- MAGNETOSTRICTIVE PROBES: SIZED FOR TANK DIAMETER, INCLUDING FLOATS FOR FUELS AND WATER. ONE UST PROBES REQUIRED -
  - PRIMARY WASTEWATER STORAGE CHAMBER
- FUEL SENSORS: ONE UST SENSOR -
  - WASTEWATER TANK INTERSTITIAL SPACE
- OVERFILL ALARM:
  - AUDIBLE ALARM: 78-103 DB AT 10 FEET.
  - AUDIBLE ALARM DURATION: 0-60 SECONDS, ADJUSTABLE.
  - VISUAL ALARM: 25 WATTS, 120 VAC
  - VISUAL ALARM FLASHING RATE: 75 PULSES PER MINUTE.
  - OPERATING TEMPERATURE: -40 DEGREES F TO +150 DEGREES F.
  - POWER SUPPLY VOLTAGE: 120 VAC, 60 HZ.
  - DESIGN BASED ON VEEDER ROOT, PART NUMBER 790091-001.
- ACKNOWLEDGEMENT SWITCH:
  - ACKNOWLEDGEMENT LAMP: AMBER LENS.
  - RESET BUTTON: RED BUTTON ON FRONT FACE.
  - TEST BUTTON: BLACK BUTTON ON SIDE.
  - OPERATING TEMPERATURE: -40 DEGREES F TO +150 DEGREES F.
  - POWER SUPPLY VOLTAGE: 120 VAC, 60 HZ.
- MOUNT CONSOLE INSIDE PROPOSED BUILDING A IN LOCATION SELECTED BY OWNER.
- MOUNT REMOTE ALARM AND ACKNOWLEDGEMENT SWITCH ON THE BUILDING EXTERIOR WALL ADJACENT TO THE UST.
- ALL PROBE AND SENSOR WIRING SHALL BE 2/18-CONDUCTOR SHIELDED, IN SINGLE RUN WITHOUT SPLICES BACK TO CONSOLE.
  - PROBE WIRING MAY BE COMBINED IN A SINGLE CONDUIT BUT MAY NOT SHARE CONDUITS WITH ANY SENSOR WIRING.
  - SENSOR WIRING MAY BE COMBINED IN A SINGLE CONDUIT BUT MAY NOT SHARE CONDUITS WITH ANY PROBE WIRING.
  - OVERFILL ALARM WIRING SHALL BE IN A SEPARATE CONDUIT FROM THE PROBE AND SENSOR WIRES.
- VEEDER-ROOT CONSOLE SHALL BE ON A DEDICATED CIRCUIT.
- VEEDER-ROOT ALARM SHALL BE ON A SEPARATE DEDICATED CIRCUIT.
- CONSOLE REQUIRES TWO SEPARATE GROUNDS.



NOTES:
1. CONCRETE DEADMAN ANCHOR (HIGHLAND TANK CDA-15 OR APPROVED EQUAL)

CONCRETE DEADMAN ANCHOR

N.T.S.

PLANNING BOARD HTE# 21-00100006

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

IFC SET

NO.	DATE	DESCRIPTION
1	06/08/22	GMP BID SET
2	10/28/22	GMP BID SET REVISIONS

CLIENT: ALBANY PORT DISTRICT COMMISSION
ALBANY, NEW YORK

PROJECT: PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	1"=40'
DATE	05/10/2022
PROJECT	18641.00

ADAM J FROSINI — STATE OF NEW YORK — 088870 — LICENSED PROFESSIONAL ENGINEER

DRAWING TITLE

WASTEWATER STORE & HAUL TANK

DRAWING NUMBER

UT-17A

N:\18641.00 ALBANY PORT EXPANSION\DRAWINGS\SSM\18641.00-UTIL-DETS-UST.DWG

Q21-0161 Port of Albany WWTF
Lift Station 1 Calculations

INFLUENT LIFT STATION

Inputs		@ ADF	@ PDF	@PHF
Flow	gpd	8,000	20,000	32,000
	gph	333	833	1,333
	gpm	5.6	13.9	22.2
	cfs	0.012	0.031	0.050
	m3d	30.3	75.7	121.1
Size, Inside Diameter	ft	8		
	m	2.44		
		HEIGHT, ft	VOLUME, cf	VOLUME, gal
Float Settings Above Basin Floor	LO/OFF	1.5		
			50.3	376
	LEAD	2.5		
			50.3	376
	LAG	3.5		
			25.1	188
	HI/ALARM	4		
Single Pump Flow Rate	gpm	35	See Pump Curve[1]	
Duplex/Parallel Pump Flow Rate[2]	gpm	56	1.6x Single Pump[3]	

Notes		
	1	Assumed if pump curve not provided
	2	For LEAD+LAG pump flow
	3	Assumed

Performance		@ ADF	@ PDF	@PHF
LEAD Cycle Time	min	80.4	44.9	46.3
LEAD Starts	per hr	0.7	1.3	1.3
LEAD Run Time per Cycle	min	12.8	17.8	29.4
LEAD+LAG Cycle time	min	150.3	72.0	56.1
LEAD+LAG Starts	per hr	0.4	0.8	1.1
LEAD+LAG Run Time per Cycle	min	14.9	17.9	22.3

Q21-0161 Port of Albany WWTF
Lift Station 1 Calculations

INFLUENT LIFT STATION

		Scenario 1	Scenario 2	Current Des
FM Nominal Diameter	in	2.5	3	4
FM Inner Diameter	in	2.445	3.042	3.998
Pipe Pump to FM Nominal Dia	in	2	2	2
Pipe Pump to FM Inner Dia	in	2.047	2.047	2.047
Flow	gpm	35	35	35
Velocity	ft/s	2.4	1.5	0.9
Static Headloss				
Influent Elevation	ft	1.22	1.22	1.22
Effluent Elevation	ft	13.90	13.90	13.90
Δz	**ft**	**12.68**	**12.68**	**12.68**
FM Fittings Equivalent Lengths of Pipe				
90 Elbow	ea	2	2	2
	ft	12.3	15.3	20.2
45 Elbow	ea	2	2	2
	ft	6.58	8.18	10.74
Total FM Fittings Eq. Length	ft	18.9	23.5	30.9
Pump to FM Fittings Equivalent Lengths of Pipe				
Enlargement from Pump to FM Dia.	d/D	0.8	0.67	0.50
	ea	0	1	1
	ft	0.00	1.88	3.25
Tee	ea	2	2	2
	ft	20.6	20.6	20.6
90 Elbow	ea	1	1	1
	ft	5.2	5.2	5.2
Gate Valve	ea	1	1	1
	ft	1.38	1.38	1.38
Check Valve	ea	1	1	1
	ft	17.2	17.2	17.2
Total Pump to FM Fittings Eq. Length	ft	44.4	46.2	47.6
Frictional Headloss				
FM Length	ft	950	950	950
FM Fittings Equivalent Length	ft	18.9	23.5	30.9
Pump to FM Length	ft	21	21	21
Pump to FM Fittings Eq. Length	ft	44.4	46.2	47.6
Pipe Material		PVC	PVC	PVC
Hazen-Williams Factor		120	120	120
FM Headloss	ft/100ft	1.39	0.48	0.13
Pump to FM Headloss	ft/100ft	3.29	3.29	3.29
Headloss through Pipe	**ft**	**15.6**	**6.9**	**3.5**
TDH	**ft**	**28.3**	**19.6**	**16.2**

PENTAIR

Customer :
Project name :

Pump Performance Datasheet

Encompass 2.0 - 22.4.2

Item Number / Tags	: Default	Size	: Myers - VF20
Service	:	Stages	: 1
Quantity	: 1	Based on curve number	: SUB_G_O_AH_00012_B_2 Rev 2018-06-19
Quote number	:	Date last saved	: 26 Jan 2023 1:42 PM

Operating Conditions

Flow, rated	: 35.00 USgpm
Differential head / pressure, rated (requested)	: 82.00 ft
Differential head / pressure, rated (actual)	: 82.83 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed criteria	: Synchronous
Speed, rated	: 3500 rpm
Impeller diameter, rated	: 4.50 in
Impeller diameter, maximum	: 4.50 in
Impeller diameter, minimum	: 4.50 in
Efficiency	: -
NPSH required / margin required	: - / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 22 / - Metric units
Minimum Continuous Stable Flow	: -
Head, maximum, rated diameter	: 104.8 ft
Head rise to shutoff	: 26.52 %
Flow, best eff. point	: -
Flow ratio, rated / BEP	: -
Diameter ratio (rated / max)	: 100.00 %
Head ratio (rated dia / max dia)	: 100.00 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Liquid

Liquid type	: Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids diameter limit	: 0.00 in
Solids concentration, by volume	: 0.00 %
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

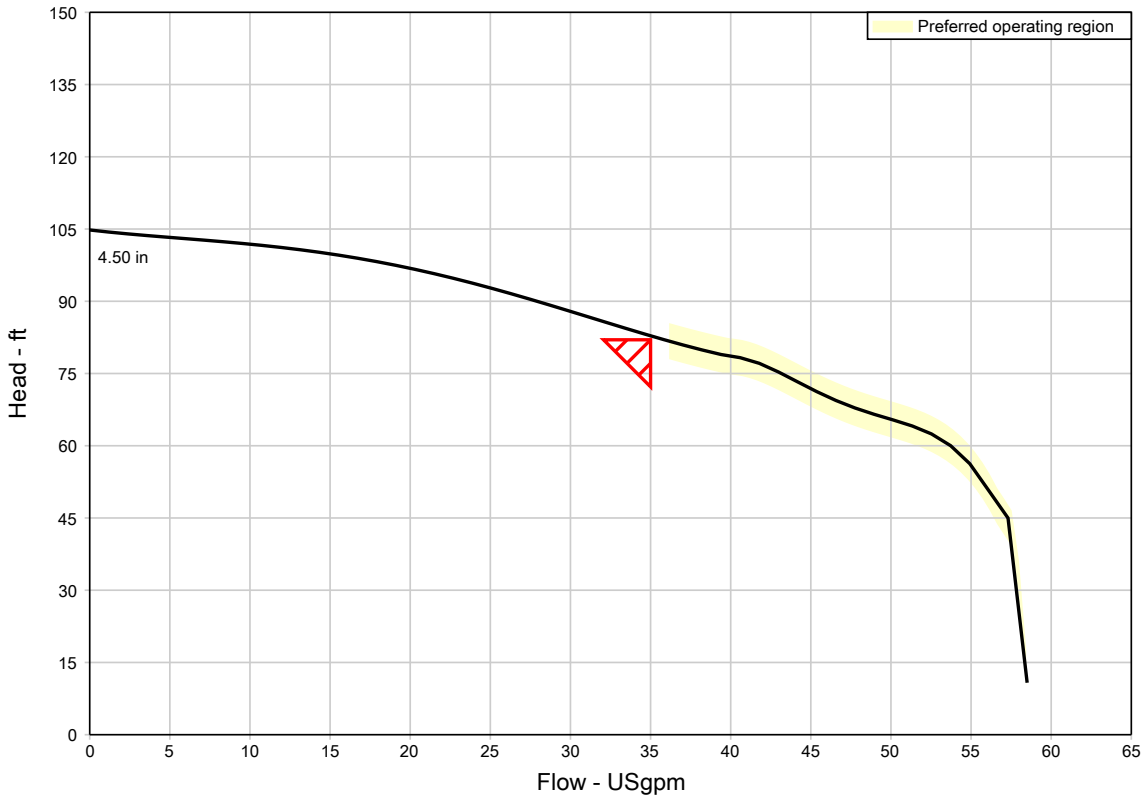
Material selected	: Standard

Pressure Data

Maximum working pressure	: 45.36 psi.g
Maximum allowable working pressure	: N/A
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: N/A

Driver & Power Data (@Max density)

Driver sizing specification	: Maximum power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 0.73 hp
Power, rated	: 1.89 hp
Power, maximum, rated diameter	: 1.92 hp
Motor rating	: 2.00 hp / 1.49 kW (Fixed)



PENTAIR
MYERS

V2 GRINDER SERIES

SHREDDING WASTEWATER CHALLENGES

PATENTED AXIAL
CUTTER TECHNOLOGY

ADVANCED HYDRAULICS

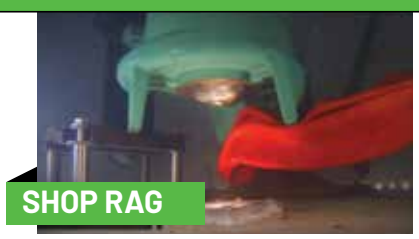
LEGENDARY SEAL
LEAK DETECTION

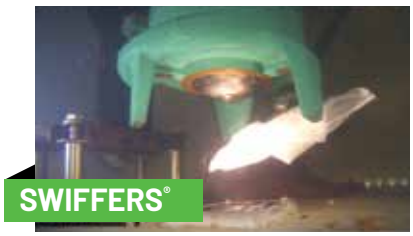
pentair.com

MYERS® V2 SERIES SUBMERSIBLE GRINDER PUMPS

The Myers V2 series grinder is engineered from the ground up, in order to overcome the increased debris and higher pressure required in today's wastewater environment. It features a patented axial cutter design and semi-open impeller to effectively macerate challenging sewage solids into a fine slurry.

Watch the video at **www.Femyers.com**





PATENTED AXIAL CUTTER TECHNOLOGY

Easily slices through solids and trash found in domestic wastewater without roping or clogging.

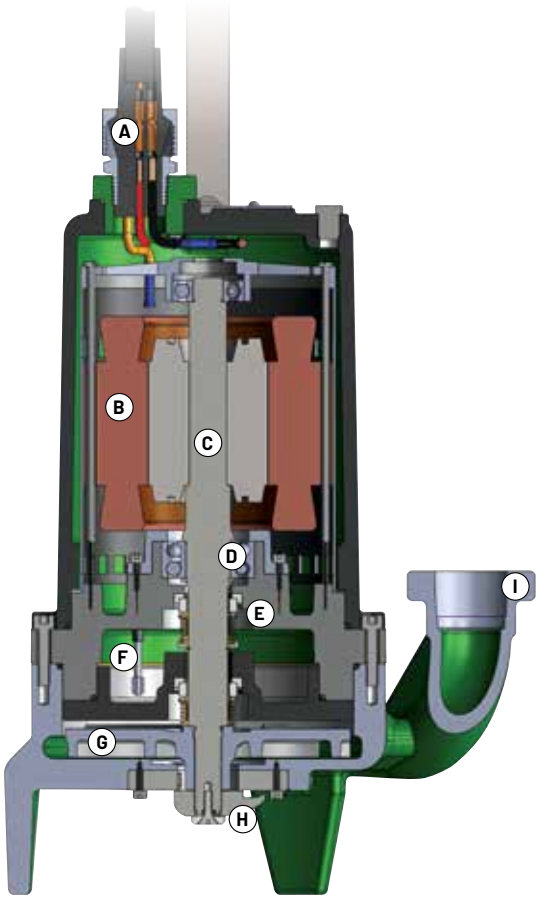
ADVANCED HYDRAULICS

The only single stage 2 HP grinder that can deliver up to 185' of lift for superior performance and reliability.

LEGENDARY SEAL LEAK DETECTION

True early warning system for reduced downtime and maintenance costs.

Features



A. Cable Entry System

- NEW! Optional quick disconnect cord available for ease of maintenance
- Cable jacket sealed by compression fitting; individual wires sealed by compression grommet for double seal protection against water ingress
- Replace power cord without disturbing motor for ease of maintenance

B. Oil-Filled Motor

- Maximizes heat dissipation; provides constant bearing lubrication for long life
- High torque start/run capacitor for single or three-phase motors, assured starting under heavy loads

C. Heavy 416 SST Shaft

- Corrosion resistant, reduces shaft deflection for long life

D. Lower Double Row Ball Bearings

- Absorb both axial and radial loads for increased durability

E. Double Mechanical Shaft Seals

- In oil-filled seal chamber for continuous lubrication, superior motor protection

F. Seal Leak Probe

- Located in seal chamber instead of motor area for true early warning of water leaks. Allows corrective action before costly motor or bearing failure occurs.
- Activates warning light in control panel

G. SST Semi-Open Impeller

- Provides improved performance, resists clogging
- Pump-out vanes help keep trash from seal, reduces pressure at seal face for longer life

H. Axial Cutter System

- Constructed of 440 SST hardened to 57-60Rc for long life
- Easily replaceable without dismantling pump

I. Volute Case

- Cast iron 1-1/4" NPT vertical flanged discharge

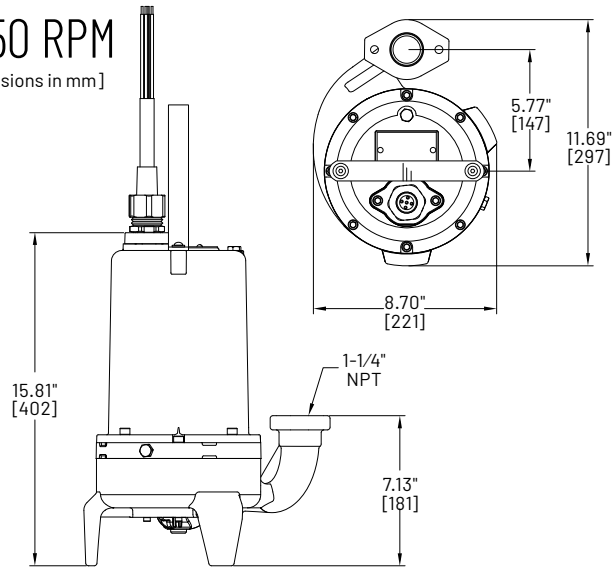
Electrical Data

	V/Ph/Hz	HP	Start Amps	FL Amps	Full Load kW	Start KVA	FL KVA	NEC Code Letter	Service Factor	Model	Standard Cord 20'	Standard Cord 35'
High Head	230/1/60	2	49	18.5	4.2	11.27	4.26	G	1	Catalog	VH20-21-20	VH20-21-35
										Eng	28148D000	28148D004
	200/3/60	2	53	12.5	3.9	18.3	4.33	L	1	Catalog	VH20-03-20	VH20-03-35
										Eng	28148D001	28148D005
	230/3/60	2	46	12	3.9	18.3	4.77	L	1	Catalog	VH20-23-20	VH20-23-35
										Eng	28148D002	28148D006
	460/3/60	2	23	6	3.9	18.3	4.77	L	1	Catalog	VH20-43-20	VH20-43-35
										Eng	28148D003	28148D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VH20-53-20	VH20-53-35
										Eng	28148D020	28148D021
Standard Flow	200/1/60	2	66	16	3.2	13.2	3.2	G	1	Catalog	VS20-01-20	VS20-01-35
										Eng	28151D020	28151D021
	230/1/60	2	49	13.5	3.2	11.27	3.12	G	1	Catalog	VS20-21-20	VS20-21-35
										Eng	28151D000	28151D004
	200/3/60	2	53	10	3.2	18.3	3.46	L	1	Catalog	VS20-03-20	VS20-03-35
										Eng	28151D001	28151D005
	230/3/60	2	46	9	3.2	18.3	3.58	L	1	Catalog	VS20-23-20	VS20-23-35
										Eng	28151D002	28151D006
	460/3/60	2	23	4.2	3.2	18.3	3.35	L	1	Catalog	VS20-43-20	VS20-43-35
										Eng	28151D003	28151D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VS20-53-20	VS20-53-35
										Eng	28151D022	28151D023
High Flow	200/1/60	2	66	16	3.2	13.2	3.2	G	1	Catalog	VF20-01-20	VF20-01-35
										Eng	28247D020	28247D021
	230/1/60	2	49	13.5	3.2	11.27	3.12	G	1	Catalog	VF20-21-20	VF20-21-35
										Eng	28247D000	28247D004
	200/3/60	2	53	10	3.2	18.3	3.46	L	1	Catalog	VF20-03-20	VF20-03-35
										Eng	28247D001	28247D005
	230/3/60	2	46	9	3.2	18.3	3.58	L	1	Catalog	VF20-23-20	VF20-23-35
										Eng	28247D002	28247D006
	460/3/60	2	23	4.2	3.2	18.3	3.35	L	1	Catalog	VF20-43-20	VF20-43-35
										Eng	28247D003	28247D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VF20-53-20	VF20-53-35
										Eng	28247D022	28247D023

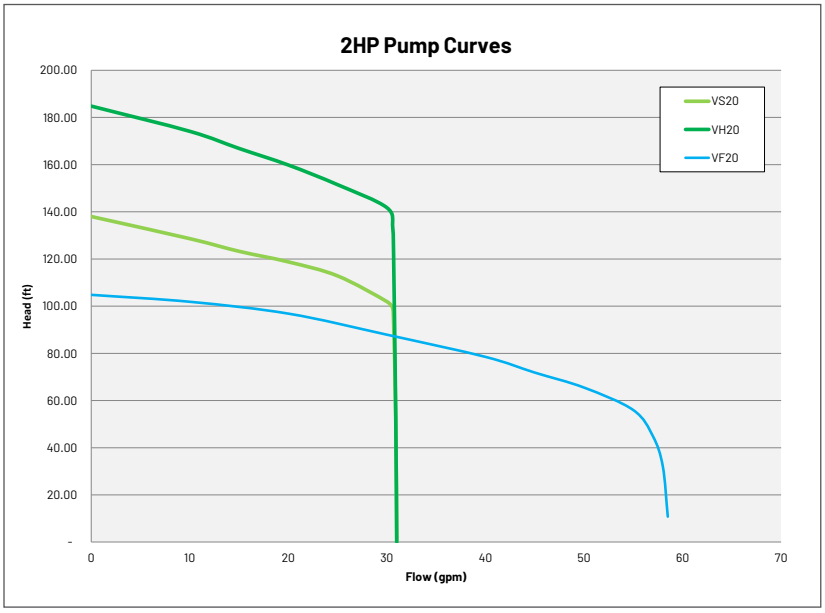
Performance Data and Dimensions

3450 RPM

[Dimensions in mm]



Product Capabilities		
Capacities To	58.5 gpm	221.4 lpm
Heads To	185 ft.	56.34 m
Liquids Handling	domestic raw sewage	
Intermittent Liquid Temp.	up to 140˚F	up to 60˚C
Winding Insulation Temp. (Class F)	311˚F	155˚C
Motor Electrical Data (Single phase motors are capacitor start type. Myers control panels or capacitor kits are recommended for proper operation and warranty.)	2 hp, 3450 rpm 1 ph – capacitor start/run. 230 volts; 60 Hz 3 ph – induction run 200, 230, 460 volts, 60 Hz	
Std. Third Party Approvals	CSA	
Acceptable pH Range	6 – 9	
Specific Gravity	.9 – 1.1	
Viscosity	28 – 35 SSU	
Discharge (Flange Dia.)	1-1/4 in.	31.75 mm
Min. Sump Diameter Simplex Duplex	 24 in. 36 in.	 61.0 cm 91.4 cm



Construction Materials	
Motor Housing, Seal Housing, Cord Cap and Volute Case	Cast Iron, Class 30, ASTM A48
Impeller	Semi-Open, Stainless Steel
Mechanical Seals: Standard Optional	 Double Tandem Carbon and Ceramic Lower Tungsten Carbide
Pump, Motor Shaft	416 SST
Fasteners	300 Series SST
Rotating Cutter, Stationary Cutter	440 SST 57-60 Rockwell

PENTAIR

1101 Myers Parkway | Ashland, OH 44805 | Ph: 855.274.8948 | pentair.com/pentair-myers

Engineering Specification

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

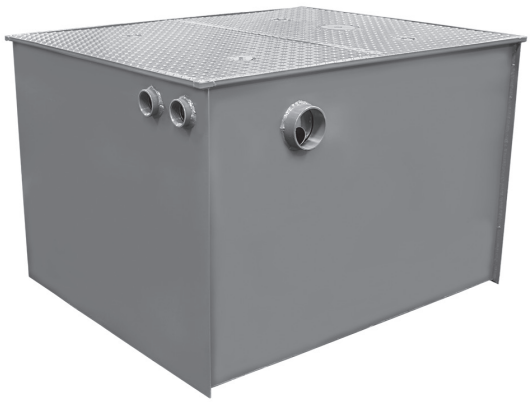
Tag _____

OI-ST

Oil Interceptor with Integral Storage Tank

Specification

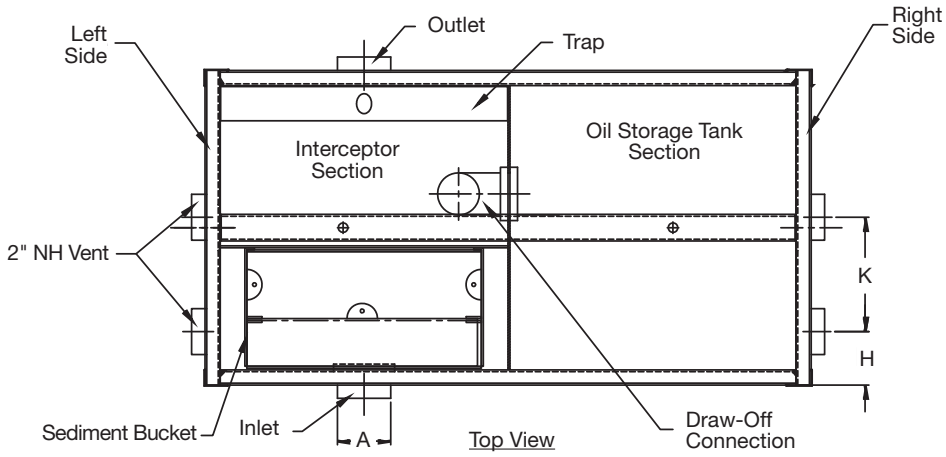
Watts OI-ST Series recessed or floor mounted epoxy coated steel oil interceptor with integral storage tank, gasketed epoxy coated steel skid-proof cover secured with hex head center bolt(s), deep seal trap with cleanout, draw-off connection and dual vent connections, sediment bucket, integral stainless steel flow control plate, and no hub (standard) connections.



Size	Flow Rate Description	
10	10 GPM	☐
15	15 GPM	☐
20	20 GPM	☐
25	25 GPM	☐
35	35 GPM	☐
50	50 GPM	☐
75	75 GPM	☐
100	100 GPM	☐
125	125 GPM	☐
150	150 GPM	☐
200	200 GPM	☐
250	250 GPM	☐
300	300 GPm	☐
350	350 GPM	☐
400	400 GPM	☐
450	450 GPM	☐
500	500 GPM	☐

Size	Options Description	
-E	Extension	☐
-HD	Heavy Duty (10,000 Lb.) Traffic Cover	☐
-O	Inlet & Outlet	☐
-SS	Stainless Steel	☐
-THD	Threaded Connections	☐

* HD Option Requires Minimum 3" Ext.



*Note: See next page for Elevation, Side View & Dimensional Chart

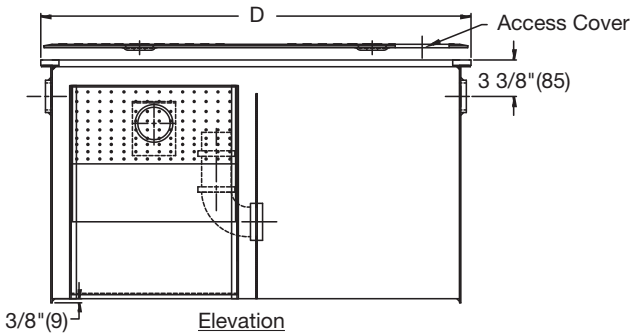
NOTICE

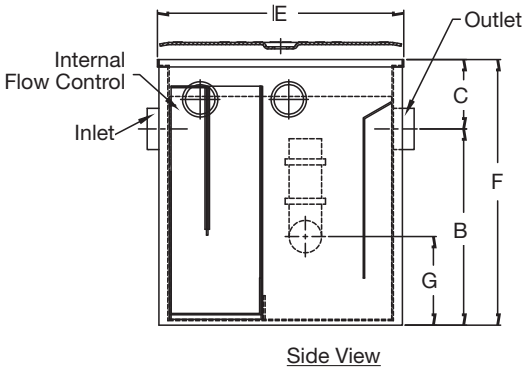
The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Check local plumbing code for oil storage requirements prior to installation.

WATTS®





Dimensional Chart

MODEL NO.	RATE GPM	TANK OIL CAPACITY USG	COM BINED VOLUME USG	A INLET & OUTLET	B BASE TO CENTER	C TOP TO CENTER	D LENGTH	E WIDTH	F HEIGHT	G	H	K	J
OI-10-ST	10	5	9	2"(51)	8.5"(216)	6"(152)	24"(610)	18"(457)	14.5"(368)	3"(76)	4.5"(114)	5.5"(140)	6"(152)
OI-15-ST	15	14	26	2"(51)	12.5"(318)	6"(152)	33.75"(857)	20.875"(530)	18.5"(470)	5"(127)	4.5"(114)	7.5"(191)	9"(229)
OI-20-ST	20	19	34	3"(76)	14.5"(368)	6"(152)	39.75"(1010)	20.875"(530)	20.5"(521)	6"(152)	4.5"(114)	7.5"(191)	10.4"(265)
OI-25-ST	25	22	40	3"(76)	16.5"(419)	6"(152)	39.75"(1010)	20.875"(530)	22.5"(572)	7"(178)	4.5"(114)	7.5"(191)	10.5"(265)
OI-35-ST	35	39	65	4"(102)	14.5"(368)	6"(152)	49.75"(1264)	32.875"(835)	20.5"(521)	6"(152)	12"(305)	6"(152)	13"(329)
OI-50-ST	50	51	90	4"(102)	18.5"(470)	6"(152)	49.75"(1264)	32.875"(835)	24.5"(622)	8"(203)	12"(305	6"(152)	13"(329)
OI-75-ST	75	96	176	4"(102)	26.5"(673)	6"(152)	49.75"(1264)	40.875"(1038)	32.5"(826)	16"(406)	12"(305)	12"(305)	13"(329)
OI-100-ST	100	185	337	4"(102)	24"(610)	10"(254)	72"(1829)	54"(1372)	34"(864)	17.5"(445)	20"(508)	13"(330)	22.5"(572)
OI-150-ST	150	266	494	4"(102)	29"(737)	10"(254)	76"(1930)	60"(1524)	39"(991)	22.5"(572)	22"(559)	15"(381)	19"(483)
OI-200-ST	200	372	694	4"(102)	31"(787)	10"(254)	86"(2184)	69"(1735)	41"(1041)	24.5"(622)	26"(660)	18"(457)	22.5"(572)
OI-250-ST	250	505	951	4"(102)	37"(940)	10"(254)	90"(2286)	74"(1880)	47"(1194)	30"(762)	26"(660)	20"(508)	22.5"(572)
OI-300-ST	300	553	1011	6"(152)	38"(965)	10"(254)	96"(2438)	76"(1930)	48"(1219)	30.5"(775)	27"(686)	20"(508)	21.5"(546)
OI-350-ST	350	616	1129	6"(152)	39"(991)	10"(254)	100"(2540)	79"(2007)	49"(1245)	31.5"(800)	28"(711)	21"(533)	23.5(597)
OI-400-ST	400	771	1423	6"(152)	42"(1067)	10"(254)	110"(2794)	83"(2108)	52"(1321)	34.5"(876)	30"(762)	23"(584)	22.75"(578)
OI-500-ST	500	1182	2222	6"(152)	53"(1346)	10"(254)	120"(3048)	91"(2311)	63"(1600)	45.5"(1156)	32"(815)	25"(635)	20.75"(527)

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APPENDIX C –WASTEWATER PACKAGE TREATMENT PLANT DESIGN REPORT

CBC ENGINEERS
A KBJW Company

Dayton Office

ENGINEERING REPORT

TO: Delta Treatment Systems, LLC.
4 Business Park Road
Old Saybrook, CT 06475

ATTN: Mr. Hugh B. Mickel, P.E.
Engineered Systems Sales Director

DATE: February 1, 2023

NO: 22-25410-001-01-1122
Revision No. 1

Re: Review of Manufacturer's Design Calculations and Submittal Drawings for an Extended Aeration Package Wastewater Treatment System (21-0161), Port of Albany WWTF, Bethlehem, New York; CBC Report No. 22-25410-001-01-1122, Revision No. 1

CBC Engineers and Associates, Ltd. is pleased to submit our report for the above referenced project. The purpose of this report is to provide a peer review of the manufacturer's design calculations and submittal drawings for a proposed extended aeration package wastewater treatment system at the above referenced project location. This work was authorized by Delta Treatment Systems, LLC. in an executed service agreement and was to be performed in accordance with CBC Quotation No. 22-08736-25410-001-005, November 11, 2022, and under the terms and conditions of the purchase agreement between Delta Treatment Systems, LLC. and the end user. We have reviewed the design calculations and submittal drawings, and agree they conform to the applicable requirements of the Ten States Standards for Wastewater Facilities, and to accepted industry practices for this type of engineered system. We have not made an independent verification of the input parameters used to perform the calculations, and understand all initial assumptions and data are correct as presented to us.

The package wastewater treatment system consists of an initial bar screen that empties the lift station provided wastewater influent into the primary clarifier out of which wastewater is control pumped into and detained in the aeration basin for activated sludge treatment including organic material consumption and associated nitrification, after which the treated influent flows over a weir into the secondary clarifier. The settled secondary clarifier sludge is then pumped into the solids holding tank or back into the aeration basin at the discretion of the plant operator. It is understood that the retained solids and mixed liquor are periodically removed by the plant operator to off-site facilities. It is also understood the treated water from the clarifier will then be further treated by UV disinfection prior to discharge. Routine testing of the untreated influent and the treated effluent will be performed by the plant operator in order to ensure proper operation and maintenance of the unit and to verify the influent and effluent qualities are maintained within acceptable ranges.

The calculations indicate that the design of the various components of the proposed system are of sufficient size and configuration to treat the reported influent flow (ADF) of 11,200 gpd, with the reported influent qualities indicated, including 280 mg/L biochemical oxygen demand (BOD5), and 300 mg/L total suspended solids (TSS). The calculations indicate that the resulting design

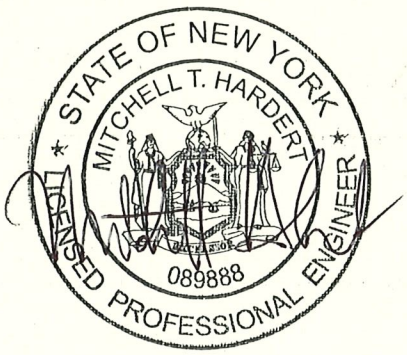
parameters of the treated effluent meet the indicated maximum acceptable target levels, including mean 30-day requirements of 30 mg/L BOD5, 30 mg/L TSS, and 200 N/100 mL for fecal coliform bacterial (FCB). The Ten States Standards acceptable ranges for organic loading rate, food-to-mass/microorganism ratio (F/M), and mixed liquor suspended solids (MLSS) are also indicated to be met in the design calculations. The submittal drawings have been reviewed and found to be in agreement with the parameters and results of the design calculations. No structural, pipe flow, mechanical, or electrical design calculations or details have been reviewed in conjunction with this project, and others than CBC are responsible for all other aspects of this project. The system must be operated, monitored and maintained in accordance with the recommended specifications and procedures of the manufacturer, and in accordance with accepted standard industry practices. We have accordingly signed and sealed this report containing the design calculations and submittal drawings, and they are attached in Appendix A and B of this report, respectively.

Our professional services have been performed and our findings obtained in accordance with generally accepted engineering principles and practices. No other warranty, express or implied, is made. This report has been prepared for the exclusive use of Delta Treatment Systems, LLC. and its designees for specific application to the project herein described. The report shall be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. CBC is not responsible for the independent conclusions, opinions or recommendations made by others.

Thank you for the opportunity to provide these support services. If you have any questions, please contact us.

Respectfully submitted,

CBC Engineers and Associates, Ltd.



Mitchell T. Hardert, P.E.
Chief Engineer

MTH/mth
ec: Client (hmickel@infiltratorwater.com)
1-File

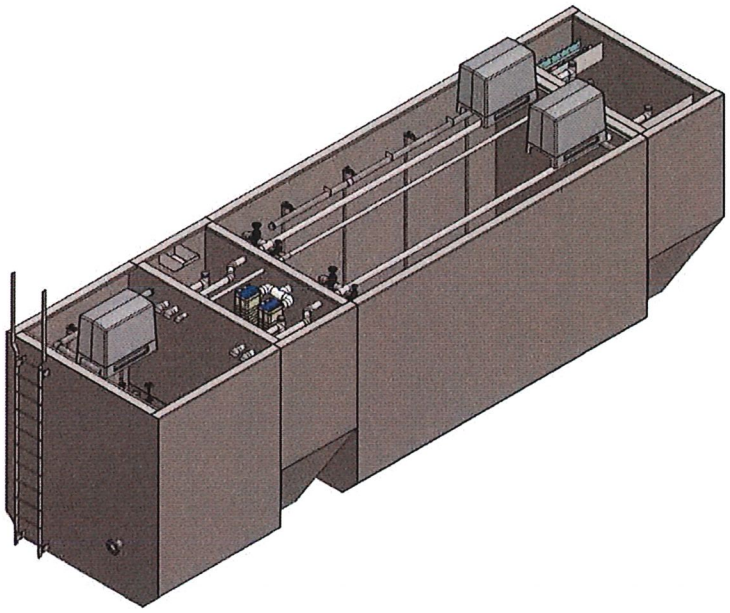
APPENDIX A

CALCULATIONS

INFILTRATOR® water technologies

delta™ treatment systems

An Infiltrator Water Technologies Company



Calculations Package

Owner: Port of Albany
106 Smith Blvd
Albany, NY 12202
(518) 463-8763

Project Name: Port of Albany WWTF
Design Flow: 11,200 gpd
Date: 01/27/2023
DTS P/N: Q21-0161

Engineer: McFarland-Johnson, Inc.
Adam Frosino
16 Fishers Rd
Suite 200
Pittsford, NY 14534
(585) 905-0970
afrosino@mjinc.com

Site: Bethlehem, NY

Calculations Version 1.5.4
Project Design Revision J

Delta Base Model A-13.0

SYSTEM SUMMARY

Flow Summary

ADF	gpd	11,200	
PDF	gpd	28,000	
PHF	gpd	44,800	
Approximate EDUs	units	36	*1*
Population Equivalent	capita	112	
Notes	1	Equivalent Dwelling Units	

Assembly Sizes

Vessel 1, Length	ft	37.00	
Vessel 1, Height	ft	11.17	*1*
Vessel 2, Length	ft	0.00	
Vessel 2, Height	ft	0.00	*1*
Vessel 3, Length	ft	0.00	
Vessel 3, Height	ft	0.00	*1*
Vessel 4, Length	ft	0.00	
Vessel 4, Height	ft	0.00	*1*
Vessel 5, Length	ft	0.00	
Vessel 5, Height	ft	0.00	*1*
Vessel 6, Length	ft	0.00	
Vessel 6, Height	ft	0.00	*1*
Vessel 7, Length	ft	0.00	
Vessel 7, Height	ft	0.00	*1*
Vessel 8, Length	ft	0.00	
Vessel 8, Height	ft	0.00	*1*
Vessel 9, Length	ft	0.00	
Vessel 9, Height	ft	0.00	*1*
Vessel 10, Length	ft	0.00	
Vessel 10, Height	ft	0.00	*1*
Total System Length	ft	37.00	*2*
Notes	1	Not including handrail	
	2	See dwgs for arrangement	

Influent Wasteloads

BOD5	mg/L	281	
	lb/day	26.2	
Population Equivalent	capita	119	*1*
TSS	mg/L	300	
	lb/day	28	
TKN	mg/L	0	
	lb/day	0	
NH3-N	mg/L	0	
	lb/day	0.0	
TP	mg/L	0	
	lb/day	0.0	
Nutrient Ratios (C:N:P)		100 : 0 : 0	
Notes	1	at 0.22 lb/d/cap	

Effluent Targets

BOD	mg/L	30.0
TSS	mg/L	30.0
TKN	mg/L	0.0
NH3-N	mg/L	0.0
TN	mg/L	0.0
TP	mg/L	0.0
DO	mg/L	0.0
pH	mg/L	6.0-9.0

Treatment Objectives

Reactor Type		Extended Aeration
Treatment Objective		BOD
Phosphorus Removal?		No

Activated Sludge Process[1]

No. Act. Sludge Reactors	ea	1
Aerated HRT	hr	28.7
Max Organic Loading	lb/d/kcf	14.6
Design SRT	days	25.0
Design MLSS	mg/L	4000
Estimated Solids Production	lb/day	18.3
AOTR	lb O2/day	59.0
SOTR	lb O2/day	113.7
Air Required	scfm	76
Return Sludge Range	% ADF low	50%
	% ADF high	150%
Return/Recycle Pump Type		Air Lift
Speed Adjustment		Valve, Manual
Return Metering		None
Internal Recycle Range	% ADF low	N/A
	% ADF high	N/A
IR Pump Type		None
IR Speed Adjustment		N/A
IR Metering		N/A
Facilities to Isolate Units		No
Facilites for Flow Split		No

Clarifier Performance[1]

Side Water Depth	ft	9.42
Surface Overflow Rate		896
Post-EQ SOR		N/A
Solids Loading Rate		18.7
Weir Loading Rate	gpd/lft	7,467
Post-EQ Weir Loading Rate	gpd/lft	N/A

EcoPod Process[1]

Block Stack Configuration		N/A
Secondary Treatment Blocks	ea	N/A
Denitrification Blocks	ea	N/A
Polishing Blocks	ea	N/A
Total Media Blocks	ea	N/A
No. Parallel Flow Trains	ea	N/A

Phosphorus Removal System

Chemical Type		N/A
Location of Chem. Injection		N/A
Dosing Rate	gph	N/A
Daily Consumption	gpd	N/A
No. Chemical Feed Pumps	ea	N/A
Feed Pump Capacity, Max	gph	N/A
Feed Pump Capacity, Min	gph	N/A

UV Disinfection

Lamp Type		N/A
Wavelength	nm	N/A
Transmittance	%	N/A

Unit Operations	
Screening	Yes
Grit Removal	No
Primary Clarification	Yes
Flow Equalization	No
Anaerobic Selector	No
Pre-Anoxic Basin	No
Activated Sludge	Yes
EcoPod BAF	No
Membrane Bioreactor	No
Post-Anoxic Basin	No
Polishing Reactor	No
Secondary Clarification	Yes
Phosphorus Chemical	No
Tertiary Filtration	No
Disinfection	Yes
Post Aeration	No
Dosing	No
Solids Holding	Yes
	No

Plant Site Lift Station		
Basin Provided By		Infiltrator Water
Pump Equip. Provided By		Infiltrator Water
Pump Type		Submersible
Pump Qty	ea	2
Constant/Variable Speed	C/V	
Capacity	gpm	
Design Speed	rpm	
Total Dynamic Head, TDH	ft	
Wet Well Volume	cf	
Detention Time	hr	

Screening		
Type		Coarse
Bar Spacing, c-c	in	2
Bar Opening	in	1.75
Bar Angle	deg	N/A
Total Bar Area	ft2	1.48
Cleaning Method		Manual
Disposal Method		Dumpster

Flow Equalization		
Length	ft	N/A
Volume	gal	N/A
Target Flow Rate	gpm	N/A
Mixing		No
Mixing Method		N/A

Degradation Factor	%	N/A
Min Dosage		N/A
Intensity Monitoring		N/A
Bypass		N/A
Alarm		N/A

Chlorine Tablet Disinfection		
Reactor Type		N/A
CL2 Contact Time @ ADF	min	N/A
CL2 Contact Time @ PHF	min	N/A
Dechlorination		N/A
Dechlor Contact Time @ ADF	min	N/A
Dechlor Contact Time @PHF	min	N/A

Solids Holding		
Total Solids Holding Volume	gal	5,787
Decant Cycle Time	days	5.5
Pump and Haul Frequency	days	60
Mixing Method		CB Diffusers
Decant Method		Valve/Gravity
Decant To Location		Site L.S.

Estimated Annual Operations and Maintenance		*x*
Energy	$/yr	N/A
Material	$/yr	N/A
Labor	$/yr	N/A
Testing & Lab	$/yr	N/A
Total	$/yr	N/A
Labor Effort	MH	N/A

DESIGN PARAMETERS

Plant Flow Summary

Design Average Daily Flow (ADF)	gpd	11,200	Peak Daily Flow (PDF)	gpd	28,000	Peak Hourly Flow (PHF)	gpd	44,800
	gph	467		gph	1,167		gph	1,867
	gpm	7.8		gpm	19.4		gpm	31.1
	cfs	0.0173		cfs	0.0433		cfs	0.0693
	m3d	42.4		m3d	106.0		m3d	169.6
Typical Daily Flow	gpd		Peak Inst. Flow	gpd	7,200	Post-EQ Flow	gpd equiv	#DIV/0!
	gph			gph	300		gph equiv	#DIV/0!
	gpm			gpm	5		gpm	#DIV/0!
	cfs			cfs	0.011		cfs	#DIV/0!
	m3d			m3d	27.3		m3d	#DIV/0!

Notes 1 From EQ Basin calculation sheet

Internal Flow Summary

Min RAS Rate	50%	of ADF	Max RAS Rate	150%	of ADF
	5,600	gpd		16,800	gpd
	233	gph		700	gph
	3.9	gpm		11.7	gpm
Min IR Rate	200%	of ADF	Max IR Rate	400%	of ADF
	22,400	gpd		44,800	gpd
	933	gph		1,867	gph
	15.6	gpm		31.1	gpm

Standard Conditions for Process Design[1,2]

Pressure	14.696	psi	1	atm	1.01	bar
Air Temperature	68.0	F	527.67	R	20.0	C
Saturated Vapor Press. of Water, PVsat	2.3383	kPa	0.339	psi		
Relative Humidity	0.0	%				
Elevation	0.0	ft AMSL	0	m AMSL		

Notes 1 These values identify standard conditions for process design
2 See 'Blower Des' sheet to input different mfr. standard conditions

Site Conditions[1]

Site Elevation	50	ft	15.2	m	
Atmospheric Pressure	101145	Pa	761	mmHg	14.67 psi

	Max	Avg	Min	
Air Temperature	115	60	-20	F
	575	520	440	R
	46.1	15.6	-28.9	C
Saturated Vapor Press. of Water, PVsat	1.473	0.256	0.008	psi

	Max	Avg	Min	
Relative Humidity	80	50	10	%

Notes 1 These values identify site conditions for aeration and blower design

Effluent Data	Required Conc. (mg/L)	Required Load (lb/day)	Target Conc. (mg/L)	Target Load (lb/day)	
BOD5	30	2.8	30.0	2.80	
TSS	30	2.8	30.0	2.80	
TKN	0	0.0	0.0	0.000	← INPUT ONE

NH3-N	0	0.0	0.0	0.000
TN	0	0.0	0.0	0
TP	0	0.0	0.0	0.000
DO	0	0.0	0.0	0.00

Influent Wasteload Summary

		Custom Scenario 1	Influent Scenario 2	Influent Scenario 3 Design ADF	Influent Scenario 4 Design PDF	Custom Scenario 5
Mark "X" if used in Analysis				**X**		
Flow	**gpd**	**25,000**	**1,100**	**11,200**	**28,000**	**75,000**
RAS Op. Factor	**xQ**	**0.60**	**0.60**	**0.60**	**0.60**	**0.60**
RAS Op. Flow Rate	gpm	10.4	0.5	4.7	11.7	31.3
Design Aerobic SRT	**days**	**25**	**25**	**25**	**25**	**25**
Aeration HRT	hr	12.9	292.1	28.7	11.5	4.3
MLSS	**mg/L**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**
Assumed MLVSS:MLSS		**0.65**	**0.65**	**0.65**	**0.65**	**0.65**
MLVSS	mg/L	2,600	2,600	2,600	2,600	2,600
Estimated F/M		0.22	0.01	0.09	0.24	0.65
COD	mg/L	550	550	0	450	550
	lb/d	114.7	5.0	0.0	105.1	344.0
sCOD	mg/L	200	200	250	200	200
	lb/d	41.7	1.8	23.4	46.7	125.1
bCOD	mg/L	480.0	400.0	449.0	480.0	480.0
	lb/d	100.1	3.7	41.9	112.1	300.2
nbCOD	mg/L	70.0	150.0	-449.0	-30.0	70.0
	lb/d	14.6	1.4	-41.9	-7.0	43.8
nbsCODe	mg/L	40.0	40.0	90.0	40.0	40.0
	lb/d	8.3	0.4	8.4	9.3	25.0
nbpCOD	mg/L	30.0	110.0	-539.0	-70.0	30.0
	lb/d	6.3	1.0	-50.3	-16.3	18.8
rbCOD	mg/L	100	100	150	100	100
	lb/d	20.9	0.9	14.0	23.4	62.6
rbCOD/bCOD		0.21	0.25	0.33	0.21	0.21
BOD5	mg/L	300	250	280.6	300	300
	lb/d	62.6	2.3	26.2	70.1	187.7
Primary Tank Provided?		No	No	No	No	No
10SS Removal Efficiency, R		0.33	0.33	0.33	0.33	0.33
M&E Removal Efficiency, R	Note 1	0.43	0.43	0.43	0.43	0.43
Consider Primary Reduction?		No	No	No	No	No
Post-Primary BOD5	mg/L	300	250	281	300	300
	lb/d	62.6	2.3	26.2	70.1	187.7
Post-Primary Organic Loading	lb/d/kcf	34.9	1.3	14.6	39.1	104.8
Hourly BOD Peak	x	1.50	1.50	1.50	1.50	1.50
sBOD	mg/L	100	100	100	100	100
	lb/d	20.9	0.9	9.3	23.4	62.6
COD/BOD		1.8	2.2	0.0	1.5	1.8
sCOD/sBOD		2.0	2.0	2.5	2.0	2.0
bCOD/BOD		1.6	1.6	1.6	1.6	1.6
TSS	mg/L	250	300	300	250	250

TSS	lb/d	52.1	2.8	28.0	58.4	156.4
Primary Tank Provided?		No	No	No	No	No
M&E Removal Efficiency, R	Note 1	0.65	0.65	0.65	0.65	0.65
Consider Primary Reduction?		No	No	No	No	No
Post-Primary TSS	mg/L	250	300	300	250	250
	lb/d	52.1	2.8	28.0	58.4	156.4
Sludge Age	days	8.6	162.3	15.9	7.7	2.9
VSS	mg/L	150	150	200	150	150
	lb/d	31.3	1.4	18.7	35.0	93.8
VSS_{COD}	COD/g VS	2.3	2.3	-1.3	1.7	2.3
nbVSS	mg/L	12.9	47.1	431.2	-42.0	12.9
	lb/d	2.7	0.4	40.3	-9.8	8.0
iTSS = TSS-VSS	mg/L	100.0	150.0	100.0	100.0	100.0
	lb/d	20.9	1.4	9.3	23.4	62.6
TKN	mg/L	45	100	0	65	25
	lb/d	9.4	0.9	0.0	15.2	15.6
Hourly N. Peak	x	1.25	1.30	1.50	1.30	1.25
Design TKN	mg/L	56.25	130	0	84.5	31.25
	lb/d	11.7	1.2	0.0	19.7	19.5
NH3-N	mg/L	35	70	0	50	15
	lb/d	7.3	0.6	0.0	11.7	9.4
Design NH3-N	mg/L	43.75	91	0	65	18.75
	lb/d	9.1	0.8	0.0	15.2	11.7
TP	mg/L	6	10	0	7	6
	lb/d	1.3	0.1	0.0	1.6	3.8
Alkalinity in Influent	mg/L	150	600	0	140	150
Min. Alk for 7.0 pH	mg/L	70	70	70	70	70
Max. Water Temp	F	68	68	68	68	68
	C	20.0	20.0	20.0	20.0	20.0
Min. Water Temp	F	45	50	0	45	45
	C	7.2	10.0	-17.8	7.2	7.2

Notes *1* Per M&E 5th Ed., Eqn 5-45

PACKAGE BASIN UNIT OPERATIONS SIZING

Base Delta System: A-13.0

			DIMENSION		STANDARD	VESSEL 1	VESSEL 2	VESSEL 3	VESSEL 4	VESSEL 5	VESSEL 6	VESSEL 7	VESSEL 8	VESSEL 9	VESSEL 10	UNIT OP TOTALS
Vessel Length Summary				ft		37.0	0	0	0	0	0	0	0	0	0	
				m		11.28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PRIMARY	PRIMARY/TT	No	Width	ft	10	10										
				m	3.05	3.05	0	0	0	0	0	0	0	0	0	
			Length	ft		5										5
				m		1.52	0	0	0	0	0	0	0	0	0	1.5
		Is Included? ---->	SWD	ft	9.67	9.67										
				m	2.95	2.95	0	0	0	0	0	0	0	0	0	
			Total Unit Op. Liquid Volume	ft3		322	0	0	0	0	0	0	0	0	0	322
				m3		9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1
				gal		2411	0	0	0	0	0	0	0	0	0	2411
			x' if Hopper Bottom		x										HRT @ ADF	5.2 hr
	FLOW EQ/SURGE	No	Width	ft	10											
				m	3.05	0.00	0	0	0	0	0	0	0	0	0	
			Length	ft												0
				m		0.00	0	0	0	0	0	0	0	0	0	0.0
		Is Included? ---->	SWD	ft	9.67											
				m	2.95	0.00	0	0	0	0	0	0	0	0	0	
			Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0
				m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				gal		0	0	0	0	0	0	0	0	0	0	0
															HRT @ ADF	0.0 hr
SECONDARY	ANAEROBIC SELECTOR	No	Width	ft	10											
				m	3.05	0.00	0	0	0	0	0	0	0	0	0	
			Length	ft												0
				m		0.00	0	0	0	0	0	0	0	0	0	0.0
		Is Included? ---->	SWD	ft	9.67											
				m	2.95	0.00	0	0	0	0	0	0	0	0	0	
			Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0
				m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				gal		0	0	0	0	0	0	0	0	0	0	0
			% of A.S.	0%											HRT @ ADF	0.0 hr
	PRE-ANOXIC	No	Width	ft	10											
				m	3.05	0.00	0	0	0	0	0	0	0	0	0	
			Length	ft												0
				m		0.00	0	0	0	0	0	0	0	0	0	0.0
		Is Included? ---->	SWD	ft	9.67											
				m	2.95		0	0	0	0	0	0	0	0	0	
			Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0
				m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				gal		0	0	0	0	0	0	0	0	0	0	0
			% of A.S.	0%											HRT @ ADF	0.0 hr
	AEROBIC	Yes	Width	ft	10	10										
				m	3.05	3.05	0	0	0	0	0	0	0	0	0	
			Length	ft	19	19										19
				m	5.79	5.79	0	0	0	0	0	0	0	0	0	5.8
		ded? ---->	SWD	ft	9.67	9.42										
				m	2.95	2.87	0	0	0	0	0	0	0	0	0	
			Total Unit Op.	ft3		1790	0	0	0	0	0	0	0	0	0	1790

	Is Incl	Total Unit Op. Liquid Volume	m3		50.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.7	
			gal		13388	0	0	0	0	0	0	0	0	0	13388	
		% of A.S.	100%											HRT @ ADF	28.7	hr
	POST-ANOXIC	Width	ft	10												
	No		m	3.05	0.00	0	0	0	0	0	0	0	0	0		
		Length	ft												0	
			m		0.00	0	0	0	0	0	0	0	0	0	0.0	
	Is Included? ---->	SWD	ft													
			m		0.00	0	0	0	0	0	0	0	0	0		
		Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
			m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			gal		0	0	0	0	0	0	0	0	0	0	0	
		% of A.S.	0%											HRT @ ADF	0.0	hr
	SECONDARY CLARIFIER	Width	ft	10	10											
	Yes		m	3.05	3.05	0	0	0	0	0	0	0	0	0		
		Length	ft	5	5										5	
			m	1.52	1.52	0	0	0	0	0	0	0	0	0	1.5	
	Is Included? ---->	SWD	ft	9.67	9.42											
			m	2.95	2.87	0	0	0	0	0	0	0	0	0		
		Total Unit Op. Liquid Volume	ft3		314	0	0	0	0	0	0	0	0	0	314	
			m3		8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	
			gal		2349	0	0	0	0	0	0	0	0	0	2349	
		x' if Hopper Bottom		x										HRT @ ADF	5.0	hr
TERTIARY	FILTER	Width	ft													
	No		m		0.00	0	0	0	0	0	0	0	0	0		
		Length	ft												0	
			m		0.00	0	0	0	0	0	0	0	0	0	0.0	
	Is Included? ---->	SWD	ft													
			m		0.00	0	0	0	0	0	0	0	0	0		
		Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
			m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			gal		0	0	0	0	0	0	0	0	0	0	0	
	DISINFECTION	Width	ft													
	Yes		m		0.00	0	0	0	0	0	0	0	0	0		
		Length	ft												0	
			m		0.00	0	0	0	0	0	0	0	0	0	0.0	
	Is Included? ---->	SWD	ft													
			m		0.00	0	0	0	0	0	0	0	0	0		
		Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
			m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			gal		0	0	0	0	0	0	0	0	0	0	0	
														HRT @ ADF	0.0	hr
	POST-AERATION	Width	ft													
	No		m		0.00	0	0	0	0	0	0	0	0	0		
		Length	ft												0	
			m		0.00	0	0	0	0	0	0	0	0	0	0.0	
	Is Included? ---->	SWD	ft													
			m		0.00	0	0	0	0	0	0	0	0	0		
		Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
			m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			gal		0	0	0	0	0	0	0	0	0	0	0	

															HRT @ ADF	0.0	hr
	DOSING	No	Width	ft													
				m		0.00	0	0	0	0	0	0	0	0	0		
			Length	ft												0	
				m		0.00	0	0	0	0	0	0	0	0	0	0.0	
		Is Included? ---->	SWD	ft													
				m		0.00	0	0	0	0	0	0	0	0	0		
			Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
				m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				gal		0	0	0	0	0	0	0	0	0	0	0	
															HRT @ ADF	0.0	hr
RESIDUALS	SOLIDS HOLDING	Yes	Width	ft		10											
				m		3.05	0	0	0	0	0	0	0	0	0		
			Length	ft		8										8	
				m		2.44	0	0	0	0	0	0	0	0	0	2.4	
		Is Included? ---->	SWD	ft		9.67											
				m		2.95	0	0	0	0	0	0	0	0	0		
			Total Unit Op. Liquid Volume	ft3		774	0	0	0	0	0	0	0	0	0	774	
				m3		21.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.9	
				gal		5787	0	0	0	0	0	0	0	0	0	5787	
MISCELLANEOUS		No	Width	ft													
				m		0.00	0	0	0	0	0	0	0	0	0		
			Length	ft												0	
				m		0.00	0	0	0	0	0	0	0	0	0	0.0	
		Is Included? ---->	SWD	ft													
				m		0.00	0	0	0	0	0	0	0	0	0		
			Total Unit Op. Liquid Volume	ft3		0	0	0	0	0	0	0	0	0	0	0	
				m3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				gal		0	0	0	0	0	0	0	0	0	0	0	
Vessel Full Volume				ft3		2886	0	0	0	0	0	0	0	0	0		
				m3		82	0	0	0	0	0	0	0	0	0		
				gal		21585	0	0	0	0	0	0	0	0	0		
Vessel Weight of Water				lb		180070	0	0	0	0	0	0	0	0	0		
				kg		81678	0	0	0	0	0	0	0	0	0		

MODEL CALCULATIONS

Base Package	A-13.0	
Optimum Package	A-13.0	Per Ten States Standards Maximum BOD Organic Loading
Optimum Package	B-50.0	Per Modeled Minimum Aeration Volume

Activated Sludge Model Results		Min Value		@ ADF		Max Value	
Treatment Objective				BOD			
Target SRT	days	25		**25**		25	
Minimum Model SRT	days	3.7		3.7		3.7	
Apply TKN FS for loading?				Yes			
TKN Factor of Safety (if appl.)		1.50	*1*	1.50	*1*	1.50	*1*
MCRT, Aeration Only	days	9.0	*2*	9.0	*2*	9.0	*2*
Aerated Sludge Age	days	15.9	*3*	15.9	*3*	15.9	*3*
Design MLSS	mg/L	4,000		**4,000**		4,000	
Model Est. Min. MLVSS	mg/L	3,282		3,282		3,282	
Aeration HRT	hr	28.7		**28.7**		28.7	
Solids Prod. Estimate Factor	lb/d / lb BOD			0.7			
Solids Prod. by Estimate	lb/day	0.0		18.3		0.0	
Solids Prod. by Model	lb/day	52.6		52.6		52.6	
Observed Yield by Model	g TSS/g BOD	3.83		3.83		3.83	
Observed Yield by Model	g VSS/g BOD	3.15		3.15		3.15	
Organic Load	lb BOD/d/kcf	14.6		14.6		14.6	
F/M by Estimate		0.09		0.09	*4*	0.09	
F/M by Model		0.07		0.07	*5*	0.07	

Reactor Volume Checks							
Provided Act. Sludge Volume	gal	**13,388**					
Minimum Required Activated Slude Volume per 10SS	gal m3	**13,070** 49.5	*6*	Check-->		OK	*6*

Compare to Ten States Standards		Range Min		@ ADF		Range Max	
Selected Process Values				Extended Aeration			
Org. Load, Literature Range	lb BOD/d/kcf	0		*14.6*		15	*1*
Check Min. Volume		OK		OK		OK	
F/M, Literature Range		0.05	*1*	*0.09*		0.1	*1*
Check F/M		OK		OK		OK	
MLSS, Literature Range	mg/L	3,000	*1*	*4000*		5,000	*1*
Check MLSS		OK		OK		OK	

Notes *1* See Ten States Standards part 92.31

Compare to Metcalf & Eddy		Range Min		@ ADF		Range Max	
Selected Process Values				Extended Aeration			
SRT, Literature Range	lb/d/kcf	20		*25.0*		40	
Check Design SRT		OK		OK		OK	
HRT, Literature Range	hr	20		*28.7*		30	
Check HRT				OK			
Org. Load, Literature Range	lb BOD/d/kcf	5		*14.6*		15	
Check Min. Volume		OK		OK		OK	
F/M, Literature Range		0.04		*0.07*	*5*	0.1	
Check F/M		OK		OK		OK	
MLSS, Literature Range	mg/L	2,000		*4000*		5,000	
Check MLSS		OK		OK		OK	

Notes *1* See M&E 4th. Ed. Tables 8-16 and 8-22

Notes
1 For model based analysis only
2 Incl. aeration + 1/4 vol. clarifier solids, assumes effl. TSS = permit/2 and wasting = daily solids oberved model yield
3 Aeration Basin only, based on influent TSS
4 Daily Incoming lb. BOD/lb. MLVSS (estimated) in Aeration Basin only
5 Daily Incoming lb. BOD/lb. MLSS (design) in Aeration Basin only, based on model calcs
6 Based on maximum organic loading per Ten States Standards

SCREENING

Screen Data			
Bar Height	in	1	
Bar Length	in	11.88	
Bar Thickness	in	0.25	
Bar Spacing	in	2	
Bar Opening Ratio		0.88	
Bar Opening Width	in	1.75	
Bar Angle	deg	45.00	*1*
Bar Screen Width	in	18.00	
No. Bars		8	
Screen Area	in2	214	
	ft2	1.5	
Screen Open Area	in2	187	
	ft2	1.3	
Screen Flux Rate	gpd/in2	38.5	*2*

Notes
1 Angle noted from vertical
2 Based on peak inst. Influent flow rate

PRIMARY CLARIFIER

Traditional Gravity Clarifier Design		
Clarifier Quantity	ea	1
Clarifier Shape		Rect. Prism
Clarifier Surface Area	ft2	50
Weir Trough Length	ft	5
Weir Length	ft	10

Clarifier Parameters		@ ADF		@ PDF	@ PHF	
Side Water Depth (SWD)	**ft**	**9.42**				
Ten States Standards MIN	ft	10	*1*			
Check		REVIEW				
		Lower SWD is allowed for pkg plants per 10SS 72.1.				
Surface Overflow Rate (SOR)	**gpd/ft2**	**224**			**896**	
Ten States Standards MAX	gpd/ft2	1000	*2*		2,000	*2*
Check		OK			OK	
Weir Loading Rate (WLR)	**gpd/lft**				**4,480**	
Ten States Standards MAX	gpd/lft				20,000	*3*
Check					OK	

Notes
1 Ten States Standards 2014, Section 72.1
2 Ten States Standards 2014, Section 72.21
3 Ten States Standards 2014, Section 72.43

ACTIVATED SLUDGE AERATION DIFFUSER DESIGN

Reactor Parameters

Water Level (SWD)	ft	9.42	
	m	2.87	
STP Diffuser Height	ft	1	
Above Reactor Floor	m	0.30	
Diffuser Submergence	ft	8.42	
	in	101.0	
	m	2.57	
Diffuser Static Water Pressure	psi	3.65	
	kPa	25.2	
Reactor Influent DO	mg/L	0.0	
Reactor Effluent DO	mg/L	2.0	
Aeration Factors	α	0.7	*1,2*
	β	0.95	*1,2*
	F	1.00	*3*

Notes
1 α, (typically) used for BOD removal only
2 β, used for BOD & nitrification
3 F, diffuser fouling factor

Diffuser Data

Diffuser Bubble Type		CB	
Diffuser Model		DP-75	
Per Diffuser Active SA	ft2	-	
Initial Diffuser Flux Rate	scfm/ft2	#VALUE!	
Initial Air Rate per Diffuser	scfm	6	
	std. m3/h	10.19	
Std. Oxygen Transfer Efficiency, E	%	**6.0%**	*1*
Diffuser OTE	%/ft	0.71%	

Process Air Requirements		Minimum	ADF		Maximum
Process Objective			BOD		
Apply Hourly Peak Factors to Model?			Yes	*1*	
Apply Primary Clar. BOD Reduction?			No	*2*	
Apply Pre-Anoxic O2 Credit?			No	*3,4*	
Model Based Actual Oxygen Requirement (AOR)	AOR, lb/d	36.5	36.5		36.5
Ten States Standards Actual Oxygen Requirement (AOR)	AOR, lb/d	59.0	59.0		59.0
Select AOR Method for STP	**Mod/10SS**		**10SS**		
lb O2/lb peak BOD			1.5		
Standard Oxygen Transfer Rate	SOTR, lb/d	113.7	113.7		113.7
Select Method for Plant Airflow			**STP**		
Air Flow at Standard Conditions	**scfm**	**75.8**	***75.8***		**75.8**
	std. m3/h	128.8	128.8		128.8

Mixing Limited Aeration Threshold	cfm/ft2		0.12	
	cfm		22.8	
Ten States Standards Mixing Limitation	cfm/kcf		30	
	cfm		53.7	
Mixing Limited?		No	No	No

Notes
1 Optional only to Model calcs, automatically applied on 10SS calcs
2 1/3 reduction allowed by 10SS if Primary Clarifier is used
3 10SS does not state if pre-anoxic O2 credit is allowed
4 O2 credit is not applicable on BOD-only designs

Diffuser Final Design

# Diffusers (Orifices)	ea			**13**			
Air Flow per Diffuser	scfm/ea	5.8		5.8		5.8	
Actual Diffuser Flux Rate	scfm/ft2	**#VALUE!**	1	**#VALUE!**	1	**#VALUE!**	1
Dynamic Wet Pressure Losses	in H2O	2.0	1	2.0		2.0	
	psi	0.07		0.07		0.07	
Water & Diffuser Pressure Losses	psi	3.72	1	3.72	1	3.72	1

Notes
1 Applies only to nitrification & denitrification calculations
2 Iterate 'E' until these values convege on the diffuser curves

Supporting Air Demands		Qty		Size	Max Air.
RAS/WAS		4		3"	40
Scum		4		2"	32
				TOTAL	**72.0**
Post Aeration	scfm/kcf	0	1	0.0	0.0
Solids Holding Mixing (30 scfm/kcf)	scfm/kcf	30	1	0.77	23.2

Notes
1 Provided by secondary blowers

Total Air Provided				
Process	scfm	75.8	75.8	75.8
Supporting	scfm	72.0	72.0	72.0

AERATION DISCHARGE PIPING LOSSES

Air System Summary			Minimum		Maximum	
Air Supplied to Pipe Run		**icfm**	**175.6**		**175.6**	
Active Number Blowers		ea	1		1	
Airflow per Blower		icfm	175.6		175.6	
Disch. Pressure Rise		psi	4.62	*3*	4.62	*3*
Number Drops		ea	10		10	
Airflow per Drop		icfm	17.6		17.6	
Number Diffusers		ea	13			
Airflow per Diffuser		icfm	13.51		13.51	
Diffuser Submergence		ft	8.42			
Static Pressure		in H2O	101.0			
		psi	3.65			
Diffuser Headloss		in H2O	2.0		2.0	
		psi	0.072		0.072	
Inlet Filter Losses (i.e. Dirty Inlet Filter)		in H2O	11.1		11.1	
		psi	0.400		0.400	
Estimated Pipe, Valve, & Fitting Losses		in H2O	13.8		13.8	
(Input Total Minor Losses)		psi	0.500		0.500	
(Optional) Detailed Minor Losses	Use?	in H2O	0.000		0.000	
	N	psi	0.000		0.000	
Total Minor Losses		in H2O	26.92		26.92	
		psi	0.972		0.972	
Blower Discharge Pressure Rise, Pd		in H2O	128.0	*4*	128.0	*4*
		psig	4.62	*4*	4.62	*4*
Check Discharge Pressure Convergence			OK		OK	

1 Minimum based on Blower Design OP1
2 Maximum based on Blower Design OP2
3 First pass estimate, iterate to match Pd
4 Final pass used for Blower Design

MAIN AIR BLOWER SIZING

Blower Manufacturer Standard Conditions

Pressure	psia	14.696
	atm	1.00
	bar	1.01
	in Hg	29.92
Temperature	F	68.0
	R	527.67
	C	20.0
Sat. Vapor Press. of Water, PVsat	psia	0.339
Relative Humidity	%	36%
Elevation	ft AMSL	0.0
	m AMSL	0
Assumed Approx. Inlet Pressure Drop	psig	0.4
Net Temp Change After Inlet Devices	F	0
	R	0.00
	C	0.0

Performance Requirements		OP 1 (Min)		OP 2 (Max)	
Standard Airflow (from A.S. Design)	scfm	147.8	*1*	147.8	*1*
Standard Airflow (adjusted to Manufacturer Std.)	scfm	149.0		149.0	
Design Max Airflow on Warmest/Most Humid Day	**icfm**	**175.6**		**175.6**	*2*
# Blowers to Provide Design Capacity	ea	1			
Each Blower Design Capacity	**icfm**	**175.6**		**175.6**	
Inlet Airflow on Coldest Day	icfm	N/A		210.4	*2*
Blower Type	C or RPD			RPD	
Blower Efficiency, n_b				0.69	
Density of Air on Coldest Day	pcf			0.0903	
Pressure Adjust at Site Elevation (Pa/Ps)				0.998	
Weight Flow of Air on Coldest Day, w	lb/s			0.316	
Minimum Blower HP on Coldest Day	hp			5.6	*2*
Motor Efficiency, n_e				0.00	
Minimum Motor HP on Coldest Day	**hp**			**#DIV/0!**	
Check Motor HP				#DIV/0!	
Required Operating Discharge Pressure Rise	**psig**	**4.62**	*1*	**4.62**	*1*
	in H2O	**127.9**		**127.9**	
Absolute Discharge Pressure	psia	19.29		19.29	

Notes
1 See Aeration Summary
2 See M&E 5th Ed., Eqn 5-77b

Blower Selection

Blower Manufacturer		Gardner Denver
Frame Model		Sutorbilt
Frame Size		4M
Shaft Diameter	in	7/8

Shaft Key Size	in	0
Maximum Allowable Shaft Load	lb-in	0
Minimum Sheave Diameter	in	0
Inlet Configuration	in	2.5 NPT
Discharge Configuration	in	2.5 NPT
Frame Max. Pressure Rise	psi	10
Frame Max. Speed	rpm	3600
Frame Min. Speed	rpm	1760
Frame Displacement	cfm/rev	0.1181
Design Maximum Speed @ Operating Pressure (OP2)	**rpm**	**1920**
Airflow @ Design Speed	icfm	176
Check Airflow vs. Max. Warm Day		OK
Temp. Rise @ Design Speed		57
Brake Hp @ Design Speed	hp	5.02
Blower Efficiency @ Design Speed		0.69
Design Minimum Speed@ Operating Pressure (OP1)	**rpm**	**1800**
Airflow @ Min. Speed	icfm	162.2
Check Airflow vs. Min. Hot Day		OK
Temp. Rise @ Min. Speed		58
Brake Hp @ Min. Speed	hp	4.72
Blower Efficiency @ Min. Speed		0.67
Design Blower Turndown Ratio		1.06:1

SECONDARY CLARIFIER

Traditional Gravity Clarifier Design		
Clarifier Quantity	ea	1
Clarifier Shape		Rect. Prism
Clarifier Surface Area	ft2	50
Weir Trough Length	ft	3
Weir Length	ft	6

Clarifier Parameters		@ ADF	@ PDF	@ PHF
Side Water Depth (SWD)	**ft**	**9.42**		
Ten States Standards MIN	ft	12 *1*		
Check		REVIEW		
		Lower SWD is allowed for pkg plants per 10SS 72.1.		
Surface Overflow Rate (SOR)	**gpd/ft2**			**896**
Ten States Standards MAX	gpd/ft2			1,000 *2*
Check				OK
MLSS from Act. Sludge	mg/L	4,000		
Solids Loading Rate (SLR)	**lb/d/ft2**		**18.7**	
Ten States Standards MAX	lb/d/ft2		35.0 *2*	
Check			OK	
Weir Loading Rate (WLR)	**gpd/lft**			**7,467**
Ten States Standards MAX	gpd/lft			20,000 *3*
Check				OK

Notes
1 Ten States Standards 2014, Section 72.1
2 Ten States Standards 2014, Section 72.232
3 Ten States Standards 2014, Section 72.43

SOLIDS HOLDING

Solids Holding Summary		Min		Max	
Max Water Level (SWD)	ft	9.67		9.67	
	m	2.95		2.95	
Length	ft	8	*1*	8	*1*
	m	2.44		2.44	
Volume	ft3	773.6		773.6	
	m3	21.91		21.91	
	gal	5787		5787	
Select Solids Production Value		Estimate		Estimate	
Solids Production	lb/d / lb BOD	18.3	*2,4*	18.3	*2,4*
Aeration Basin MLSS	mg/L	4000	*1*	4000	*1*
Anticipated SVI	mL/g	120		80	
Resultant SDI		0.83		1.25	
RAS/WAS MLSS	mg/L	8333	*3*	12500	*3*
Daily Wasting Volume	**gal**	**264**		**176**	
Mass Wasted at Steady State	lb/day	18.3	*4*	18.3	*4*
Target 24 hr Wasting Rate	**gpm**	**0.18**		**0.12**	
Intermittent Target Wasting Rate	hr/day	0.5		2.0	
	gpm	8.8		1.5	
Initial Fill Time	days	21.9		32.9	
Decant Cycle Volume	% tank	25	*5*	25	*5*
	gal removed	1447		1447	
	gal remain	4340		4340	
EQ Tank Total Volume	gal	0		0	
Decant Cycle Interval	**days**	**5.5**		**8.2**	
Solids Conc. Change per Cycle	Prop.	1.33		1.33	
Haul After Number Decant Cycles	N	7		7	
Pump and Haul Frequency	**days**	**60**		**90**	
Theoretical Hauled Concentration	mg/L	16667	*6*	25000	*6*
	% solids	1.7		2.5	
Hauled Volume	gal	1500		1500	
Remaining Volume	gal	4287	*7*	4287	*7*
Post-Haul Filled Concentration	mg/L	14506		21760	
	% solids	1.5		2.2	
Decant Pipe Nominal Size, Sch80 PVC	in	4.0		4.0	
Decant Pipe ID	in	3.79		3.79	
Decant Pipe Length	ft	50		50	
Hazen Williams 'C' Value		140		140	
ΔH, Difference in WSEL or Pipe Entrance/Exit	ft	3		3	
Entrance Equivalent Length	ft	6.0		6.0	
Decant Pipe SR90 Bends, Equivalent Length	ft	13.1		13.1	
Qty SR90 Bends	ea	4		4	
Decant Pipe 45 Bends, Equivalent Length	ft	5.1		5.1	
Qty 45 Bends	ea	0		0	
Decant Pipe Ball Valve, Equivalent Length	ft	0.0		0.0	
Qty Valves	ea	1		1	

Total Equivalent Length	ft	108.4	108.4
Decant Pipe Max. Velocity	ft/s	25.7	25.7
Decant Pipe Max. Flow	gpm	36.1	36.1
Average Pipe Flow	gpm	18.0	18.0
Decant Time	**min**	**80.3**	**80.3**

Notes

1 See 'Basin Sizing' calculation template

2 Based on maximum scenario solds yield calculated on 'Basin Sizing'

3 Secondary clarifier RAS concentration btw 4,000 and 12,000 mg/L (M&E, 4th Ed.)

4 Should be equal

5 Assumes tank is completely filled before decanting

6 Assumes no cellular growth in solids holding basin

7 Assumes tank is hauled at full condition

SOLIDS MIXING BLOWER SIZING

Blower Manufacturer Standard Conditions

Pressure	psia	14.696
	atm	1.00
	bar	1.01
	in Hg	29.92
Temperature	F	68.0
	R	527.67
	C	20.0
Sat. Vapor Press. of Water, PVsat	psia	0.339
Relative Humidity	%	36%
Elevation	ft AMSL	0.0
	m AMSL	0
Assumed Approx. Inlet Pressure Drop	psig	0.4
Net Temp Change After Inlet Devices	F	0
	R	0.00
	C	0.0

Performance Requirements		OP 1 (Min)		OP 2 (Max)	
Standard Airflow (from A.S. Design)	scfm	23.2	*1*	23.2	*1*
Standard Airflow (adjusted to Manufacturer Std.)	scfm	23.4		23.4	
Design Max Airflow on Warmest/Most Humid Day	**icfm**	**27.6**		**27.6**	*2*
# Blowers to Provide Design Capacity	ea	1			
Each Blower Design Capacity	**icfm**	**27.6**		**27.6**	
Inlet Airflow on Coldest Day	icfm	N/A		33.0	*2*
Blower Type	C or RPD			RPD	
Blower Efficiency, n_b				0.49	
Density of Air on Coldest Day	pcf			0.0903	
Pressure Adjust at Site Elevation (Pa/Ps)				0.998	
Weight Flow of Air on Coldest Day, w	lb/s			0.050	
Minimum Blower HP on Coldest Day	hp			1.2	*2*
Motor Efficiency, n_e				0.00	
Minimum Motor HP on Coldest Day	**hp**			**#DIV/0!**	
Check Motor HP				#DIV/0!	
Required Operating Discharge Pressure Rise	**psig**	**4.62**	*1*	**4.62**	*1*
	in H2O	**127.9**		**127.9**	
Absolute Discharge Pressure	psia	19.29		19.29	

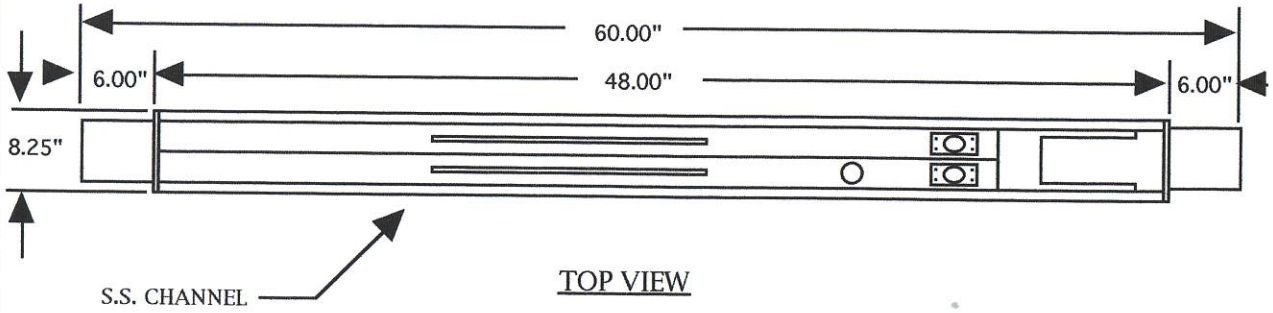
Notes
1 See Aeration Summary
2 See M&E 5th Ed., Eqn 5-77b

Blower Selection

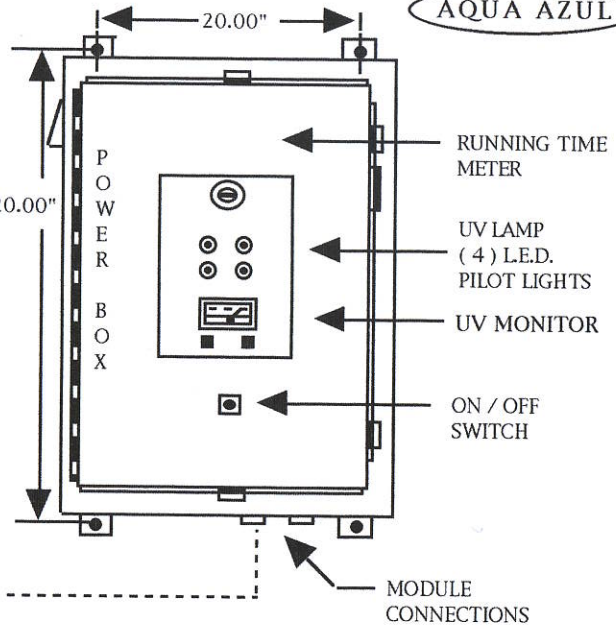
Blower Manufacturer		Gardner Denver
Frame Model		Sutorbilt
Frame Size		2M
Shaft Diameter	in	5/8

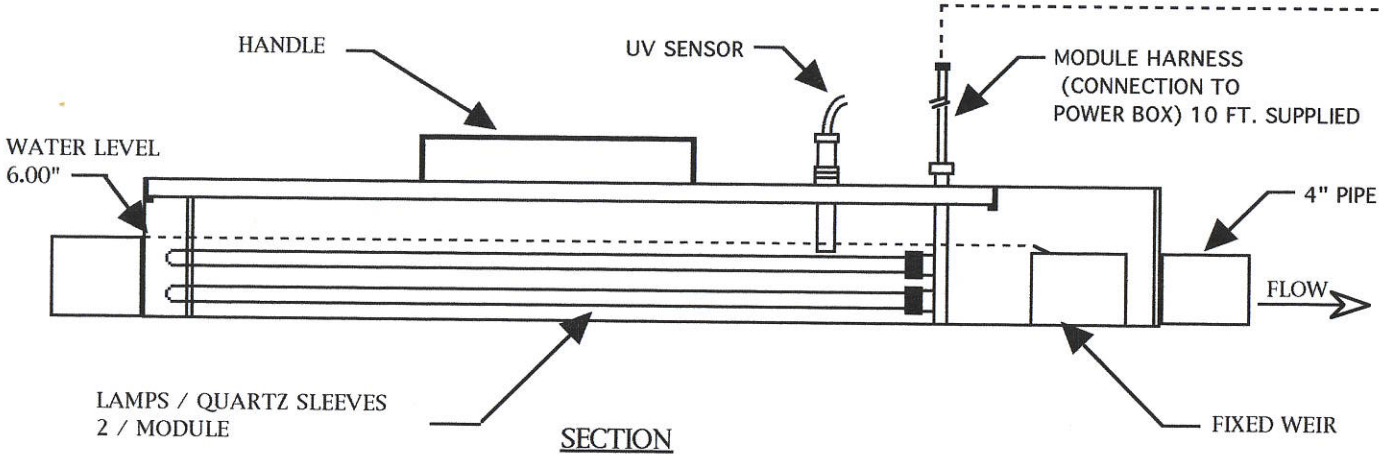
Shaft Key Size	in	3/16
Maximum Allowable Shaft Load	lb-in	0
Minimum Sheave Diameter	in	0
Inlet Configuration	in	1 NPT
Discharge Configuration	in	1 NPT
Frame Max. Pressure Rise	psi	12
Frame Max. Speed	rpm	5275
Frame Min. Speed	rpm	2080
Frame Displacement	cfm/rev	0.0172
Design Maximum Speed @ Operating Pressure (OP2)	**rpm**	**2760**
Airflow @ Design Speed	icfm	29
Check Airflow vs. Max. Warm Day		OK
Temp. Rise @ Design Speed		81
Brake Hp @ Design Speed	hp	1.17
Blower Efficiency @ Design Speed		0.49
Design Minimum Speed@ Operating Pressure (OP1)	**rpm**	**2100**
Airflow @ Min. Speed	icfm	18.1
Check Airflow vs. Min. Hot Day		OK
Temp. Rise @ Min. Speed		106
Brake Hp @ Min. Speed	hp	0.92
Blower Efficiency @ Min. Speed		0.39
Design Blower Turndown Ratio		1.31:1

AQUA AZUL

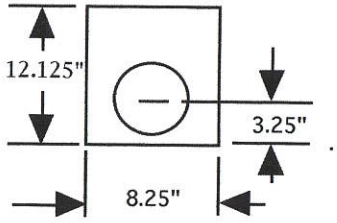


TOP VIEW





SECTION



END VIEW

SPECIFICATION:

1. TYPE OF LIQUID: WASTE WATER
2. PEAK FLOW RATE: 35 GPM
3. HEAD LOSS: LESS THAN 6" AT RATED FLOW
4. TRANSMISSION: 65%
5. QUALITY: 30 BOD / 30 TSS MAX.
6. ELECTRICAL: 120 VAC / 60 HZ
7. POWER SUPPLY BOX: NEMA ENCLOSURE (OUTDOOR)

AQUA AZUL
13701 6TH STREET, SUITE C1
ARMONA, CA 93202
PHONE: 559-589-1430 FAX: 559-589-1185

MODEL: AZ - 400

DRAWN BY: DA	DATE: 12/11	APPR: JM	MATERIAL: 304 S.S.

Q21-0161 Port of Albany WWTF
Lift Station 2 Calculations

INFLUENT LIFT STATION

Inputs		@ ADF	@ PDF	@PHF
Flow	gpd	11,200	28,000	44,800
	gph	467	1,167	1,867
	gpm	7.8	19.4	31.1
	cfs	0.017	0.043	0.069
	m3d	42.4	106.0	169.6
Size, Inside Diameter	ft	4		
	m	1.22		
		HEIGHT, ft	VOLUME, cf	VOLUME, gal
Float Settings Above Basin Floor	LO/OFF	1.5		
			12.6	94
	LEAD	2.5		
			12.6	94
	LAG	3.5		
			6.3	47
	HI/ALARM	4		
Single Pump Flow Rate	gpm	35	See Pump Curve[1]	
Duplex/Parallel Pump Flow Rate[2]	gpm	56	1.6x Single Pump[3]	

Notes		
	1	Assumed if pump curve not provided
	2	For LEAD+LAG pump flow
	3	Assumed

Performance		@ ADF	@ PDF	@PHF
LEAD Cycle Time	min	15.5	10.9	27.2
LEAD Starts	per hr	3.9	5.5	2.2
LEAD Run Time per Cycle	min	3.5	6.0	24.2
LEAD+LAG Cycle time	min	28.1	14.8	13.6
LEAD+LAG Starts	per hr	2.1	4.1	4.4
LEAD+LAG Run Time per Cycle	min	3.9	5.1	7.6

Q21-0161 Port of Albany WWTF
Lift Station 2 Calculations

INFLUENT LIFT STATION

		Scenario 1	Scenario 2	Scenario 3
FM Nominal Diameter	in	1.5	2	2.5
FM Inner Diameter	in	1.59	2.047	2.445
Pipe Pump to FM Nominal Dia	in	2	2	2
Pipe Pump to FM Inner Dia	in	2.047	2.047	2.047
Flow	gpm	35	35	35
Velocity	ft/s	5.7	3.4	2.4

Static Headloss

Influent Elevation	ft	4.82	4.82	4.82
Effluent Elevation	ft	30.49	30.49	30.49
Δz	**ft**	**25.67**	**25.67**	**25.67**

FM Fittings Equivalent Lengths of Pipe

90 Elbow	ea	2	2	2
	ft	8.1	10.3	12.3
45 Elbow	ea	2	2	2
	ft	4.3	5.52	6.58
Total FM Fittings Eq. Length	ft	12.4	15.9	18.9

Pump to FM Fittings Equivalent Lengths of Pipe

Enlargement from Pump to FM Dia.	d/D	1.3333333	1.00	0.80
	ea	0	1	1
	ft	0.00	0.00	0.96
Tee	ea	2	2	2
	ft	20.6	20.6	20.6
90 Elbow	ea	1	1	1
	ft	5.2	5.2	5.2
Gate Valve	ea	1	1	1
	ft	1.38	1.38	1.38
Check Valve	ea	1	1	1
	ft	17.2	17.2	17.2
Total Pump to FM Fittings Eq. Length	ft	44.4	44.4	45.3

Frictional Headloss

FM Length	ft	25	25	25
FM Fittings Equivalent Length	ft	12.4	15.9	18.9
Pump to FM Length	ft	20	20	20
Pump to FM Fittings Eq. Length	ft	44.4	44.4	45.3
Pipe Material		PVC	PVC	PVC
Hazen-Williams Factor		120	120	120
FM Headloss	ft/100ft	11.22	3.29	1.39
Pump to FM Headloss	ft/100ft	3.29	3.29	3.29
Headloss through Pipe	**ft**	**6.3**	**3.5**	**2.8**

TDH	**ft**	**32.0**	**29.1**	**28.4**

PENTAIR

Customer :
Project name :

Pump Performance Datasheet

Encompass 2.0 - 22.4.2

Item Number / Tags	: Default	Size	: Myers - VF20
Service	:	Stages	: 1
Quantity	: 1	Based on curve number	: SUB_G_O_AH_00012_B_2 Rev 2018-06-19
Quote number	:	Date last saved	: 26 Jan 2023 1:42 PM

Operating Conditions

Flow, rated	: 35.00 USgpm
Differential head / pressure, rated (requested)	: 82.00 ft
Differential head / pressure, rated (actual)	: 82.83 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed criteria	: Synchronous
Speed, rated	: 3500 rpm
Impeller diameter, rated	: 4.50 in
Impeller diameter, maximum	: 4.50 in
Impeller diameter, minimum	: 4.50 in
Efficiency	: -
NPSH required / margin required	: - / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 22 / - Metric units
Minimum Continuous Stable Flow	: -
Head, maximum, rated diameter	: 104.8 ft
Head rise to shutoff	: 26.52 %
Flow, best eff. point	: -
Flow ratio, rated / BEP	: -
Diameter ratio (rated / max)	: 100.00 %
Head ratio (rated dia / max dia)	: 100.00 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Liquid

Liquid type	: Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids diameter limit	: 0.00 in
Solids concentration, by volume	: 0.00 %
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

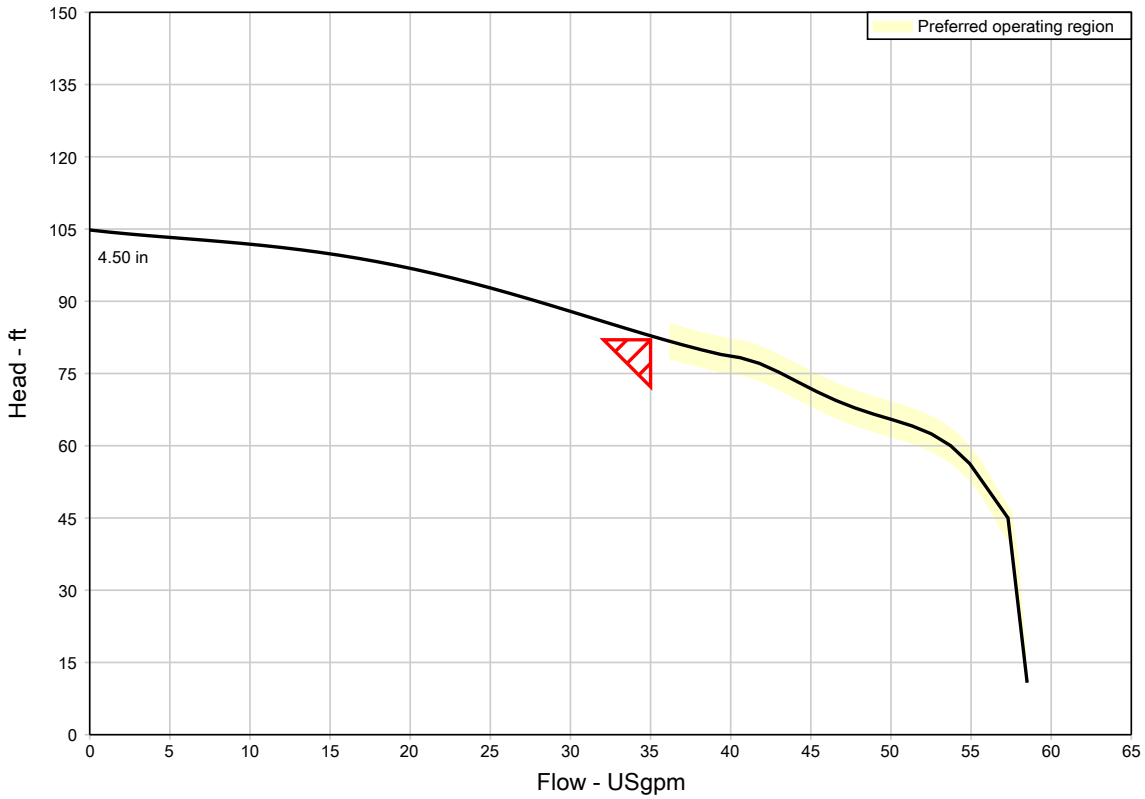
Material selected	: Standard

Pressure Data

Maximum working pressure	: 45.36 psi.g
Maximum allowable working pressure	: N/A
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: N/A

Driver & Power Data (@Max density)

Driver sizing specification	: Maximum power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 0.73 hp
Power, rated	: 1.89 hp
Power, maximum, rated diameter	: 1.92 hp
Motor rating	: 2.00 hp / 1.49 kW (Fixed)



PENTAIR
MYERS

V2 GRINDER SERIES

SHREDDING WASTEWATER CHALLENGES

PATENTED AXIAL
CUTTER TECHNOLOGY

ADVANCED HYDRAULICS

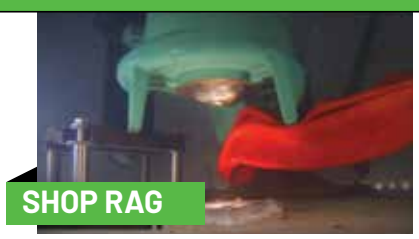
LEGENDARY SEAL
LEAK DETECTION

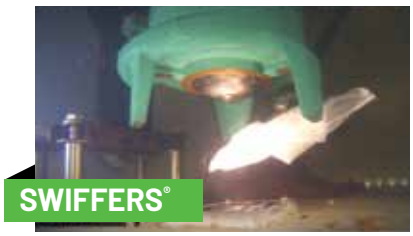
pentair.com

MYERS® V2 SERIES SUBMERSIBLE GRINDER PUMPS

The Myers V2 series grinder is engineered from the ground up, in order to overcome the increased debris and higher pressure required in today's wastewater environment. It features a patented axial cutter design and semi-open impeller to effectively macerate challenging sewage solids into a fine slurry.

Watch the video at **www.Femyers.com**





PATENTED AXIAL CUTTER TECHNOLOGY

Easily slices through solids and trash found in domestic wastewater without roping or clogging.

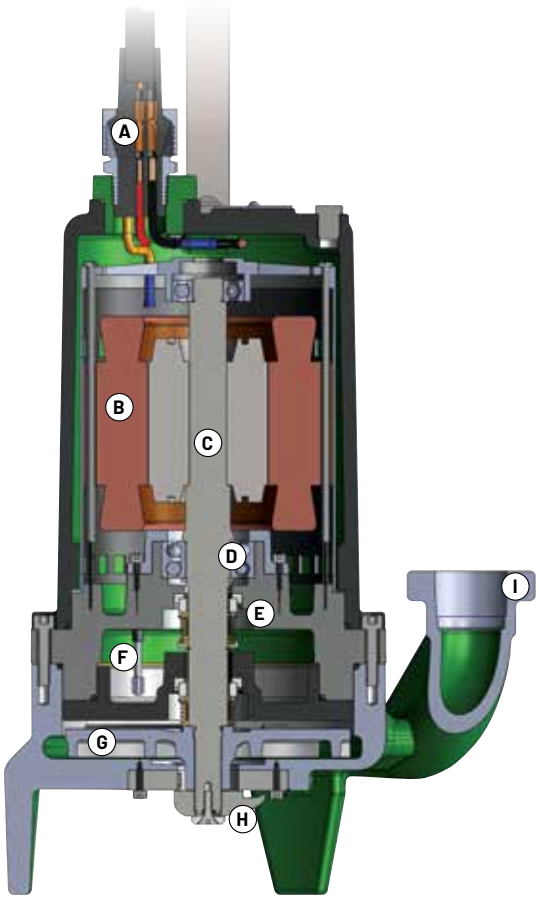
ADVANCED HYDRAULICS

The only single stage 2 HP grinder that can deliver up to 185' of lift for superior performance and reliability.

LEGENDARY SEAL LEAK DETECTION

True early warning system for reduced downtime and maintenance costs.

Features



A. Cable Entry System

- NEW! Optional quick disconnect cord available for ease of maintenance
- Cable jacket sealed by compression fitting; individual wires sealed by compression grommet for double seal protection against water ingress
- Replace power cord without disturbing motor for ease of maintenance

B. Oil-Filled Motor

- Maximizes heat dissipation; provides constant bearing lubrication for long life
- High torque start/run capacitor for single or three-phase motors, assured starting under heavy loads

C. Heavy 416 SST Shaft

- Corrosion resistant, reduces shaft deflection for long life

D. Lower Double Row Ball Bearings

- Absorb both axial and radial loads for increased durability

E. Double Mechanical Shaft Seals

- In oil-filled seal chamber for continuous lubrication, superior motor protection

F. Seal Leak Probe

- Located in seal chamber instead of motor area for true early warning of water leaks. Allows corrective action before costly motor or bearing failure occurs.
- Activates warning light in control panel

G. SST Semi-Open Impeller

- Provides improved performance, resists clogging
- Pump-out vanes help keep trash from seal, reduces pressure at seal face for longer life

H. Axial Cutter System

- Constructed of 440 SST hardened to 57-60Rc for long life
- Easily replaceable without dismantling pump

I. Volute Case

- Cast iron 1-1/4" NPT vertical flanged discharge

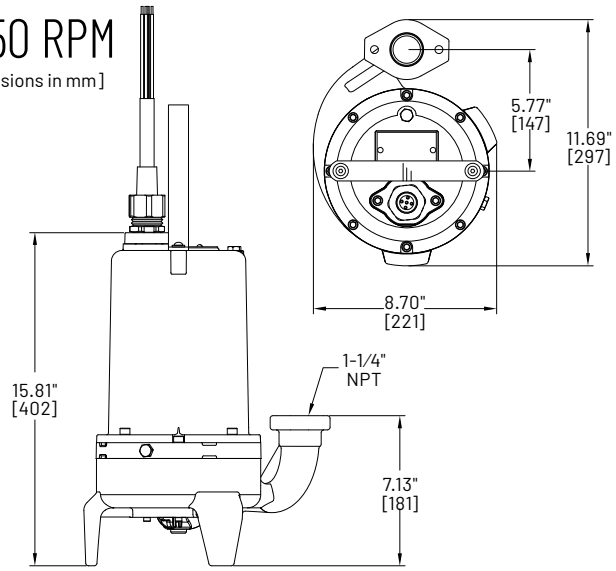
Electrical Data

	V/Ph/Hz	HP	Start Amps	FL Amps	Full Load kW	Start KVA	FL KVA	NEC Code Letter	Service Factor	Model	Standard Cord 20'	Standard Cord 35'
High Head	230/1/60	2	49	18.5	4.2	11.27	4.26	G	1	Catalog	VH20-21-20	VH20-21-35
										Eng	28148D000	28148D004
	200/3/60	2	53	12.5	3.9	18.3	4.33	L	1	Catalog	VH20-03-20	VH20-03-35
										Eng	28148D001	28148D005
	230/3/60	2	46	12	3.9	18.3	4.77	L	1	Catalog	VH20-23-20	VH20-23-35
										Eng	28148D002	28148D006
	460/3/60	2	23	6	3.9	18.3	4.77	L	1	Catalog	VH20-43-20	VH20-43-35
										Eng	28148D003	28148D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VH20-53-20	VH20-53-35
										Eng	28148D020	28148D021
Standard Flow	200/1/60	2	66	16	3.2	13.2	3.2	G	1	Catalog	VS20-01-20	VS20-01-35
										Eng	28151D020	28151D021
	230/1/60	2	49	13.5	3.2	11.27	3.12	G	1	Catalog	VS20-21-20	VS20-21-35
										Eng	28151D000	28151D004
	200/3/60	2	53	10	3.2	18.3	3.46	L	1	Catalog	VS20-03-20	VS20-03-35
										Eng	28151D001	28151D005
	230/3/60	2	46	9	3.2	18.3	3.58	L	1	Catalog	VS20-23-20	VS20-23-35
										Eng	28151D002	28151D006
	460/3/60	2	23	4.2	3.2	18.3	3.35	L	1	Catalog	VS20-43-20	VS20-43-35
										Eng	28151D003	28151D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VS20-53-20	VS20-53-35
										Eng	28151D022	28151D023
High Flow	200/1/60	2	66	16	3.2	13.2	3.2	G	1	Catalog	VF20-01-20	VF20-01-35
										Eng	28247D020	28247D021
	230/1/60	2	49	13.5	3.2	11.27	3.12	G	1	Catalog	VF20-21-20	VF20-21-35
										Eng	28247D000	28247D004
	200/3/60	2	53	10	3.2	18.3	3.46	L	1	Catalog	VF20-03-20	VF20-03-35
										Eng	28247D001	28247D005
	230/3/60	2	46	9	3.2	18.3	3.58	L	1	Catalog	VF20-23-20	VF20-23-35
										Eng	28247D002	28247D006
	460/3/60	2	23	4.2	3.2	18.3	3.35	L	1	Catalog	VF20-43-20	VF20-43-35
										Eng	28247D003	28247D007
	575/3/60	2	25	5	3.9	24.9	4.98	L	1	Catalog	VF20-53-20	VF20-53-35
										Eng	28247D022	28247D023

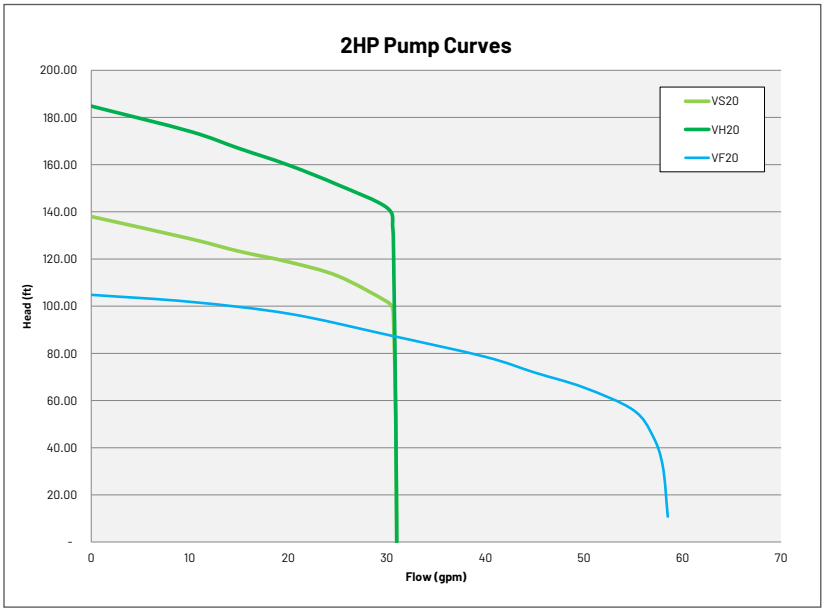
Performance Data and Dimensions

3450 RPM

[Dimensions in mm]



Product Capabilities		
Capacities To	58.5 gpm	221.4 lpm
Heads To	185 ft.	56.34 m
Liquids Handling	domestic raw sewage	
Intermittent Liquid Temp.	up to 140˚F	up to 60˚C
Winding Insulation Temp. (Class F)	311˚F	155˚C
Motor Electrical Data (Single phase motors are capacitor start type. Myers control panels or capacitor kits are recommended for proper operation and warranty.)	2 hp, 3450 rpm 1 ph – capacitor start/run. 230 volts; 60 Hz 3 ph – induction run 200, 230, 460 volts, 60 Hz	
Std. Third Party Approvals	CSA	
Acceptable pH Range	6 – 9	
Specific Gravity	.9 – 1.1	
Viscosity	28 – 35 SSU	
Discharge (Flange Dia.)	1-1/4 in.	31.75 mm
Min. Sump Diameter Simplex Duplex	 24 in. 36 in.	 61.0 cm 91.4 cm



Construction Materials	
Motor Housing, Seal Housing, Cord Cap and Volute Case	Cast Iron, Class 30, ASTM A48
Impeller	Semi-Open, Stainless Steel
Mechanical Seals: Standard Optional	 Double Tandem Carbon and Ceramic Lower Tungsten Carbide
Pump, Motor Shaft	416 SST
Fasteners	300 Series SST
Rotating Cutter, Stationary Cutter	440 SST 57-60 Rockwell

PENTAIR

1101 Myers Parkway | Ashland, OH 44805 | Ph: 855.274.8948 | pentair.com/pentair-myers

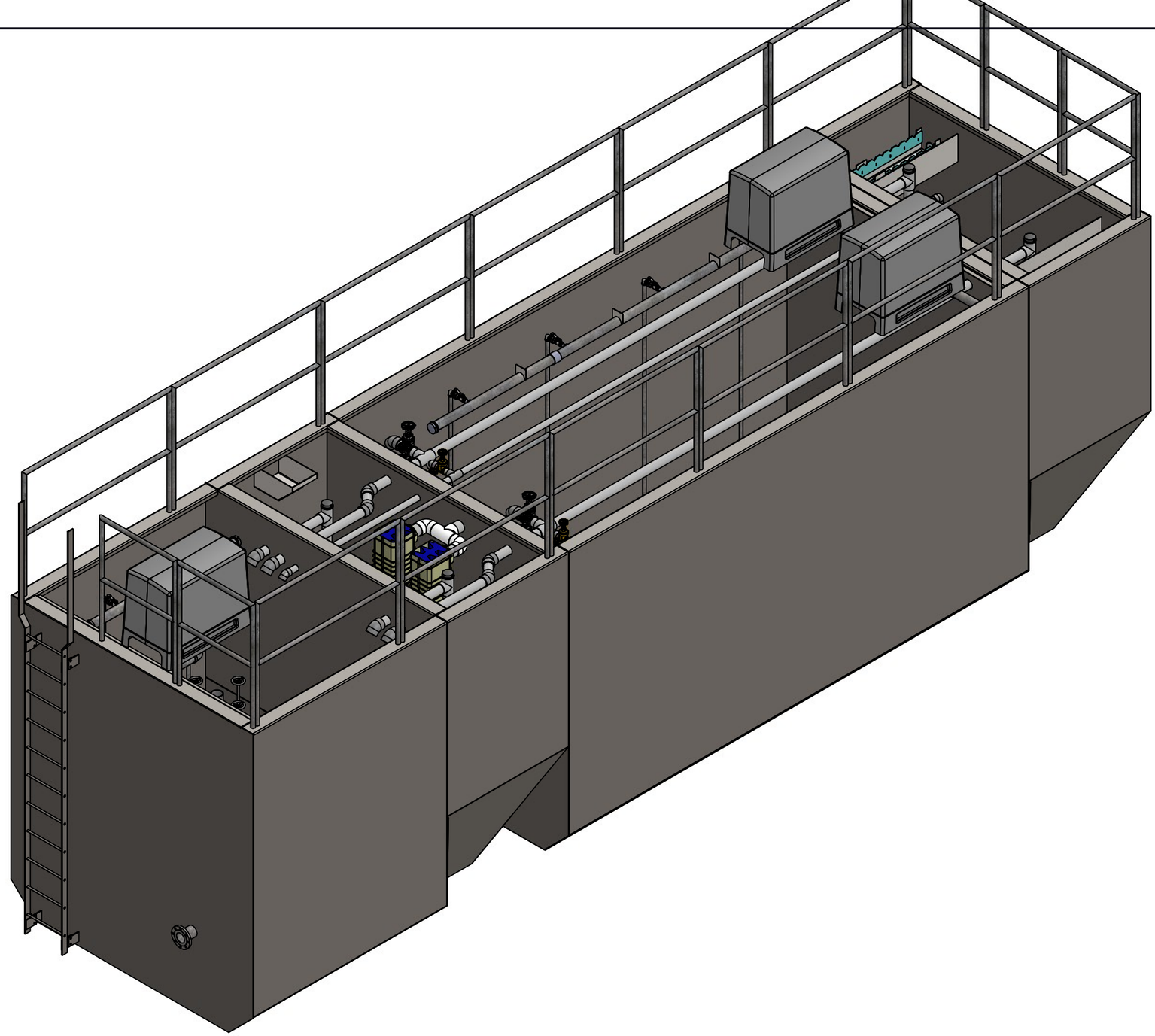
APPENDIX B

SUBMITTAL DRAWINGS

OWNER:
ALBANY PORT DISTRICT COMMISION
106 SMITH BOULEVARD
ALBANY, NY 12202
(518) 463-8763

SITE LOCATION:
BETHLEHEM, NY

ENGINEER:
MCFARLAND JOHNSON
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NY 12866



SHEET INDEX		
SHEET	DRAWING	TITLE
01	G1.0	COVER
02	P1.0	PROCESS
03	C1.0	GENERAL ARRANGEMENT
04	C1.1	LIFT STATION
05	C1.2	FLOW METER VAULT

3D MODEL AND ISOMETRIC VIEWS ARE SHOWN AS TYPICAL OF DELTA TREATMENT SYSTEMS PRODUCTS. THE MODEL ON THIS PROJECT MAY VARY SLIGHTLY FROM THE IMAGE SHOWN ON THE COVER SHEET. REFERENCE THE PROCESS AND GENERAL ARRANGEMENT SHEETS FOR ADDITIONAL DETAIL.

NO.	DATE	INITIALS	DESCRIPTION
A	01/25/23	KJS	REV'D PER DEC COMMENTS.

delta treatment systems
An InfiltrAator Water Technologies Company

DELTA TREATMENT SYSTEMS, LLC

PORT OF ALBANY EXPANSION WWTF
BETHLEHEM, NY

COVER

HORIZ. SCALE 1:40	PROJECT NO. 21-0161
VERT. SCALE 1:40	DATE 07/30/2021
DRAWN BY KJS	DESIGNED BY AOB
DRAWING NO. G1.0	SHEET NO. 01 OF 05

PROCESS DIAGRAM NOTES
1. THE DRAWINGS DEPICTED HEREIN REPRESENT PRELIMINARY LAYOUT(S) OF A WASTEWATER TREATMENT SYSTEM CAPABLE OF TREATING THE DESIGN INFLUENT FLOW AND LOAD TO THE EFFLUENT WATER QUALITY DENOTED IN THE EFFLUENT WASTELOAD SUMMARY.
2. THE PROCESS SCHEMATIC SHOWS THE GENERAL FLOW LAYOUT. SPECIFIC REACTOR COMPONENTS, SIZES, AND CONFIGURATIONS MAY DIFFER. REFER TO ARRANGEMENT DRAWINGS FOR DETAILS.
3. PRELIMINARY BASIN SIZING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. FINAL DESIGN VALUES SHALL BE ESTABLISHED BY THE ENGINEER OF RECORD.
4. SEE THE PROJECT SPECIFIC QUOTE FOR MORE INFORMATION REGARDING SCOPE OF SUPPLY AND CORRESPONDING TERMS AND CONDITIONS.

DIAPHRAGM VALVE
GLOBE/NEEDLE VALVE
BALL VALVE
CHARACTERIZED BALL VALVE
BALL CHECK VALVE
PLUG VALVE
BUTTERFLY VALVE
GATE VALVE
3-WAY VALVE
CHECK VALVE
B — BLOWER
P — MECHANICAL PUMP
AL — AIR LIFT PUMP
M — MIXER
M — FLOW METER
C — CHEMICAL DOSING PUMP
F — FILTER
UV — ULTRAVIOLET DISINFECTION UNIT
BAR SCREEN
MECHANICAL BAR SCREEN
CL — TABLET FEEDER

WASTELOAD SUMMARY:

INFLUENT WASTELOAD AS PROVIDED BY ENGINEER OF RECORD
280 mg/L (26 LB/D) BOD_5
300 mg/L (28 LB/D) TSS
7.0-7.1 pH (ASSUMED)
68 F (20 C) WATER TEMPERATURE (ASSUMED)

EFFLUENT TARGETS
30 mg/L BOD_5 30-D AVERAGE
30 mg/L TSS 30-D AVERAGE
200 N/100 mL FCB 30-D GEO. MEAN

ORGANIC LOADING

14.3 LB BOD/D/KCF
DELTA MODEL BASIS A-13.0

AERATION SYSTEM DESIGN

AOR: 59 LB O_2/D
SOTR: 114 LB O_2/D

2
PROCESS AIR DEMAND: 76 SCFM
RAS/WAS AIRLIFT PUMP AIR DEMAND: 40 SCFM
SCUM AIRLIFT PUMP AIR DEMAND: 32 SCFM
TOTAL MAIN AIR BLOWER DEMAND: 148 SCFM
SITE ELEVATION: 50 FT AMSL (ASSUMED)
MAXIMUM AIR TEMPERATURE: 115 F (ASSUMED)
PROCESS AIR INLET FLOW: 176 ICFM
BLOWER AIRFLOW: 1 DUTY/1 STANDBY, 176 ICFM @ 4.6 PSIG
SELECTED BLOWER: GARDNER DENVER MODEL 4M @ 1,920 RPM
SELECTED MOTOR: 7.5 HP

SOLIDS HOLDING MIXING AIR DEMAND:
30 SCFM / 1,000 CF x 0.77 KCF = 23 SCFM :: 28 ICFM @ 4.7 PSIG
SELECTED BLOWER: GARDNER DENVER MODEL 2M @ 2,760 RPM
SELECTED MOTOR: 1.5 HP

2
TANK SIZES

TANK	QTY	WIDTH (FT)	LENGTH (FT)	HEIGHT (FT)	SWD (FT)	VOLUME (GAL)
PRIMARY CLARIFIER	1	10	5	11.17	9.67	2,400 (APPROX.)
AERATION	1	10	19	11.17	9.42	13,400
SECONDARY CLARIFIER	1	10	5	11.17	9.42	2,300 (APPROX.)
SOLIDS HOLDING	1	10	8	11.17	9.67	5,800
LIFT STATION	1	4 (DIA.)	4 (DIA.)	17.5	1.5 MIN. 4 MAX.	380 TOTAL 240 OPERATIONAL

ALL DIMENSIONS ARE INSIDE OF TANK UNLESS NOTED OTHERWISE.

MOTOR LOADS

DEVICE	QTY	CONCURRENTLY OPERATING	POWER (HP)	VOLTAGE (V)	STARTING CURRENT (A)	FULL LOAD CURRENT (A)
LIFT STATION PUMP	2	1	0.5	460 V-3 PH	23	4.2
MAIN AIR BLOWER	2	1	7.5	460 V-3 PH	46	6.5
UV SYSTEM	2	2	TBD	230 V-1 PH	TBD	TBD
ULTRASONIC FLOW METER	1	1	< 0.1	230 V-1 PH	TBD	TBD
SOLIDS HOLDING BLOWER	1	1	1.5	460 V-3 PH	17.1	2.2

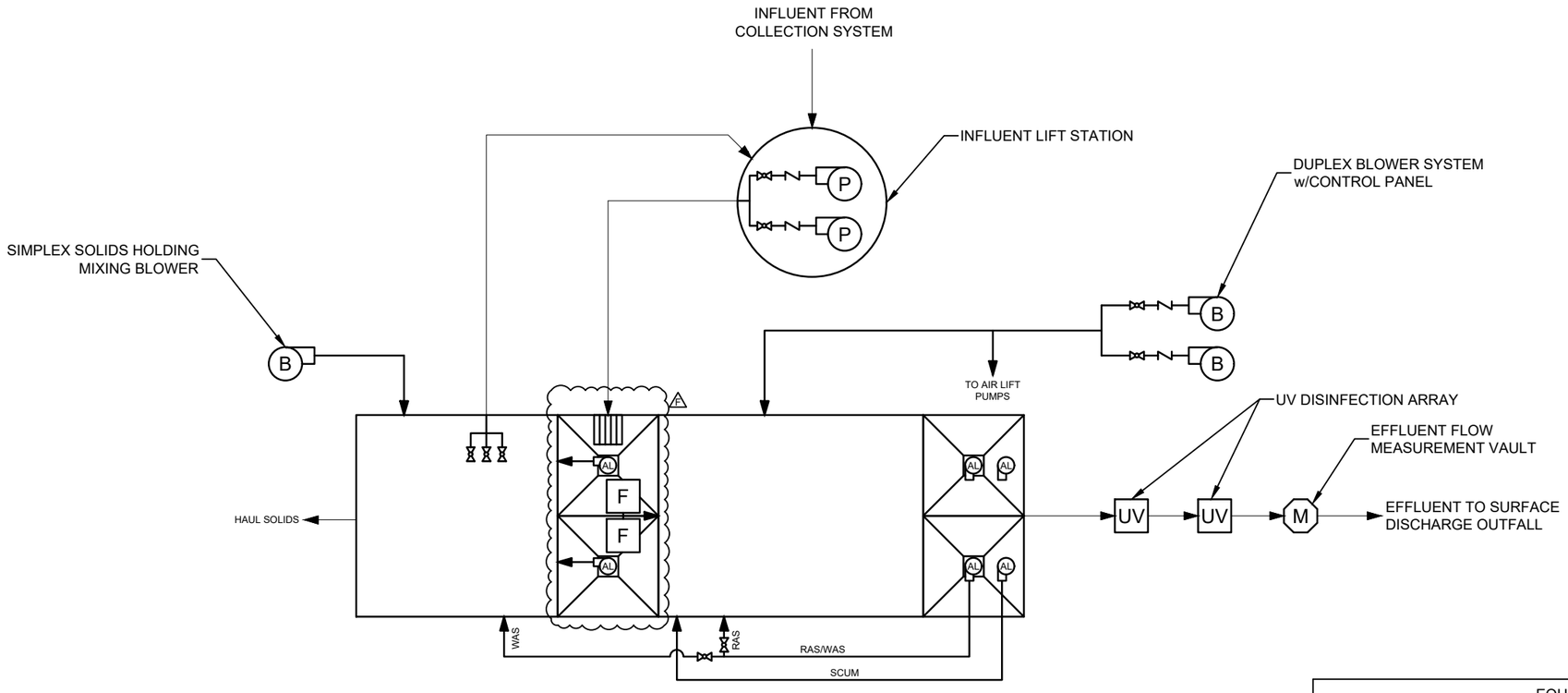
2 2

FLOW SUMMARY

Flow Parameter	GPD	GPH	GPM
AVERAGE DAILY FLOW (ADF)	11,200	470	7.8
PEAK DAILY FLOW (PDF)	28,000	1,200	19
PEAK HOURLY FLOW (PHF)	44,800	1,900	31
0.5 x ADF	5,600	230	3.9
1.5 x ADF	16,800	700	12

2

PROVIDED BY DELTA
PROVIDED BY OTHERS



EQUIPMENT LIST

DESCRIPTION	QTY.	MAKE	MODEL
LIFT STATION PUMP	2	MYERS	VF20 2HP
MAIN AIR BLOWER	2	GARDNER DENVER	SUTORBILT 4M W/ 7.5HP TEFC, GENERAL DUTY MOTOR
UV SYSTEM	2	AQUA AZUL	AZ-400
ULTRASONIC FLOW METER	1	PULSAR	ULTRA 4 W/ DB MACH 3 ULTRASONIC SENSOR
SOLIDS MIXING BLOWER	1	GARDNER DENVER	SUTORBILT 2M W/ 1.5HP TEFC GENERAL DUTY MOTOR

NO.	DATE	INITIALS	DESCRIPTION
A	06/30/21	AOB	QA/QC REVISIONS
B	07/01/21	AOB	EFFLUENT UNIT OPS ADDED
C	04/06/22	KJS	REVISED FLOW PER EOR
D	04/27/22	KJS	MOTOR LOAD/EQUIP. TABLE ADDED
E	06/16/22	JLS	REVISED SITE POWER TO 3PH 460V.
F	01/25/23	JLS	REV'D PER DEC COMMENTS.

delta treatment systems — An Infiltrator Water Technologies Company
Delta Treatment Systems, LLC

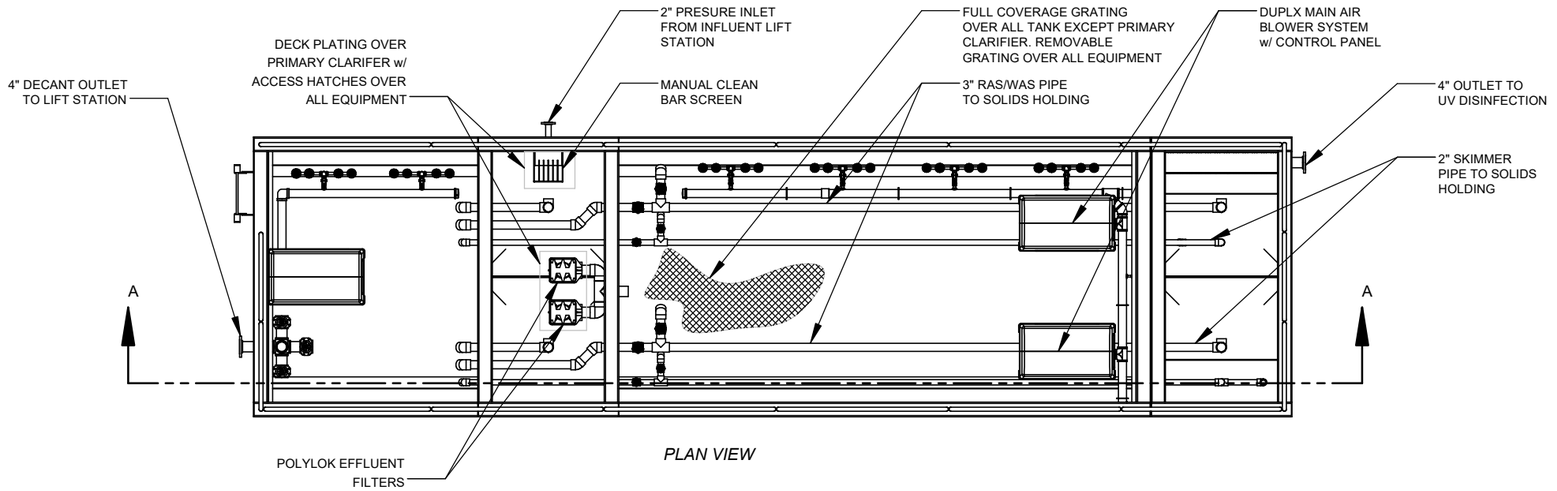
PORT OF ALBANY EXPANSION WWTF
BETHLEHEM, NY

PROCESS DIAGRAM

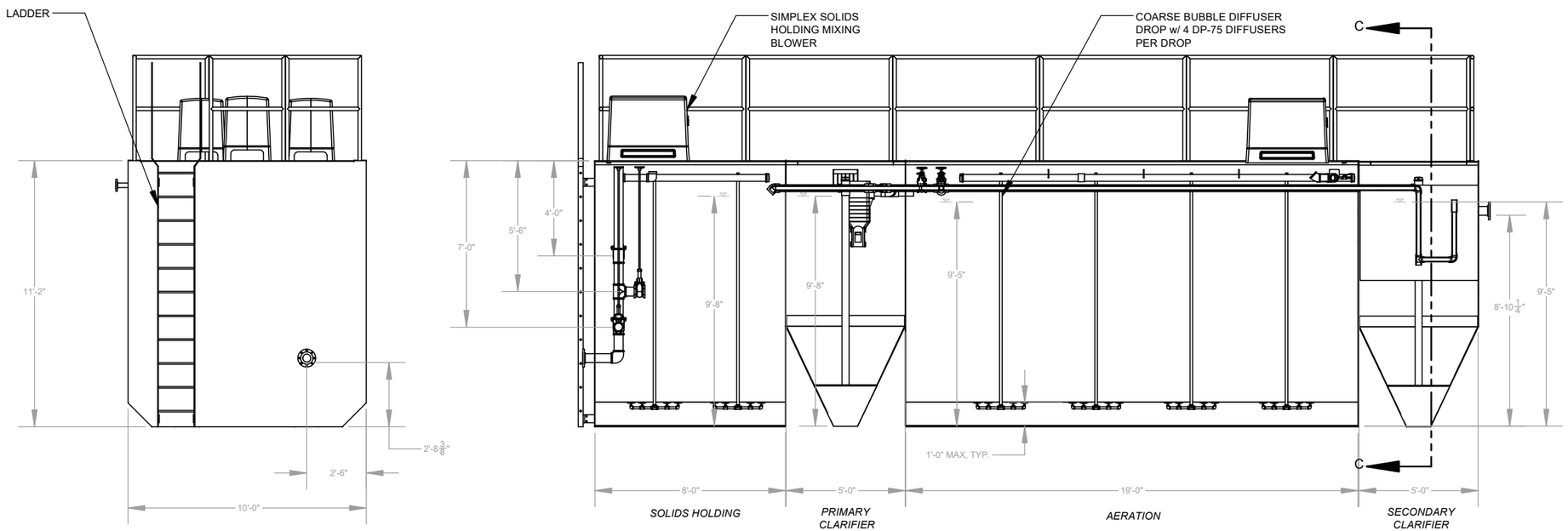
HORIZ. SCALE	PROJECT NO.
N/A	21-0161
VERT. SCALE	DATE
N/A	06/29/2021
DRAWN BY	DESIGNED BY
AOB	AOB
DRAWING NO.	SHEET NO.
P1.0	02 of 05

GENERAL ARRANGEMENT NOTES

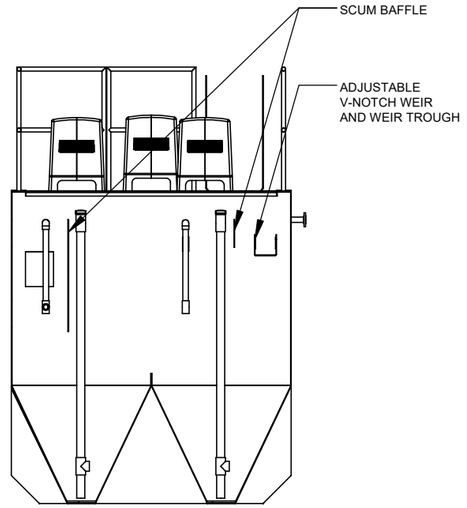
1. THESE DRAWINGS DEPICT PRELIMINARY LAYOUT(S) OF A WASTEWATER TREATMENT SYSTEM CAPABLE OF TREATING THE DESIGN AVERAGE INFLUENT FLOW AND LOAD TO THE EFFLUENT WATER QUALITY DENOTED IN THE WASTELOAD SUMMARY.
2. THE EQUIPMENT ARRANGEMENT/LAYOUT IS SCHEMATIC IN NATURE AND SOME OBJECTS MAY NOT BE DRAWN TO SCALE. REFER TO THE ENGINEER-OF-RECORD PROJECT DOCUMENTS FOR FINAL SITE AND/OR EQUIPMENT ARRANGEMENT.
3. ALL REACTORS SHALL BE CONSTRUCTED OF A36 CARBON STEEL, MINIMUM 1/4" THICKNESS, PER ENGINEER-OF-RECORD REQUIREMENTS.
4. BLOWERS, WEIRS, CONTROL PANELS, AND VARIOUS SMALL PARTS SHALL BE SHIPPED UNASSEMBLED AND SECURELY PACKAGED, TO BE INSTALLED BY CONTRACTOR. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL DETAIL.
5. CONTRACTOR TO PROVIDE AND INSTALL ALL FIELD PIPING AND SECURE ALL EQUIPMENT CONNECTIONS AS SHOWN IN THE ENGINEER OF RECORD'S PROJECT DOCUMENTS.
6. REACTORS AND INTERNAL DEVICES SHALL BE INSTALLED PLUMB AND LEVEL.
7. SEE THE PROJECT SPECIFIC QUOTE FOR MORE INFORMATION REGARDING SCOPE OF SUPPLY AND CORRESPONDING TERMS AND CONDITIONS.



PLAN VIEW



SECTION A-A
ELEVATION VIEW



SECTION C-C

NO.	DATE	INITIALS	DESCRIPTION
A	04/07/2022	KJS	REVISED FLOW PER EOR
B	01/25/2023	KJS	REV'D PER DEC COMMENTS

DELTA TREATMENT SYSTEMS, LLC

PORT OF ALBANY EXPANSION WWTF
BETHLEHEM, NY

GENERAL ARRANGEMENT

HORIZ. SCALE 1:65	PROJECT NO. 21-0161
VERT. SCALE 1:65	DATE 08/02/2021
DRAWN BY KJS	DESIGNED BY AOB
DRAWING NO. C1.0	SHEET NO. 03 OF 05

GENERAL ARRANGEMENT NOTES

1. THESE DRAWINGS DEPICT PRELIMINARY LAYOUT(S) OF A WASTEWATER TREATMENT SYSTEM CAPABLE OF TREATING THE DESIGN AVERAGE INFLUENT FLOW AND LOAD TO THE EFFLUENT WATER QUALITY DENOTED IN THE WASTELOAD SUMMARY.
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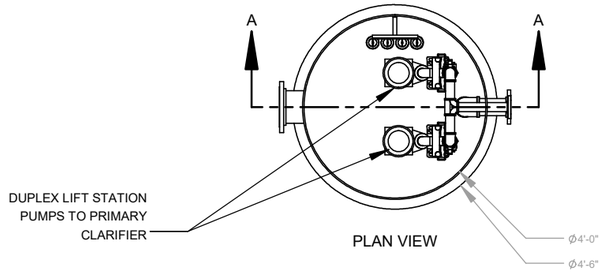
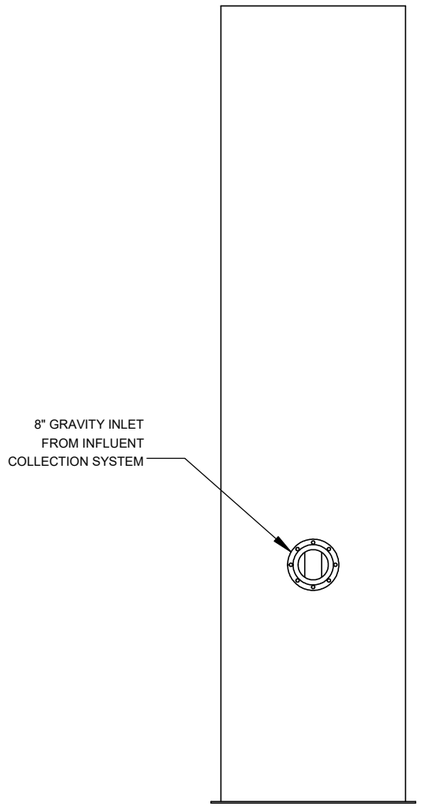
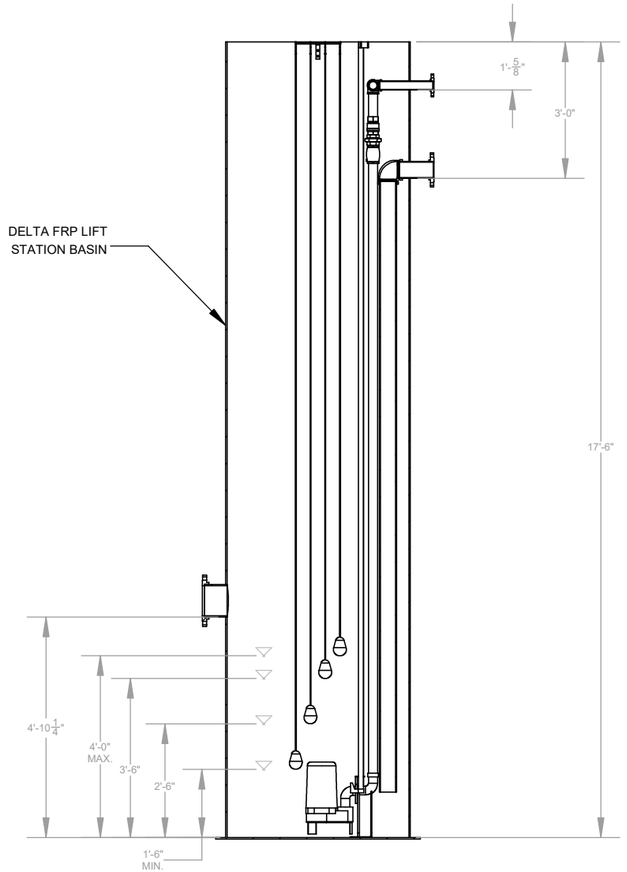


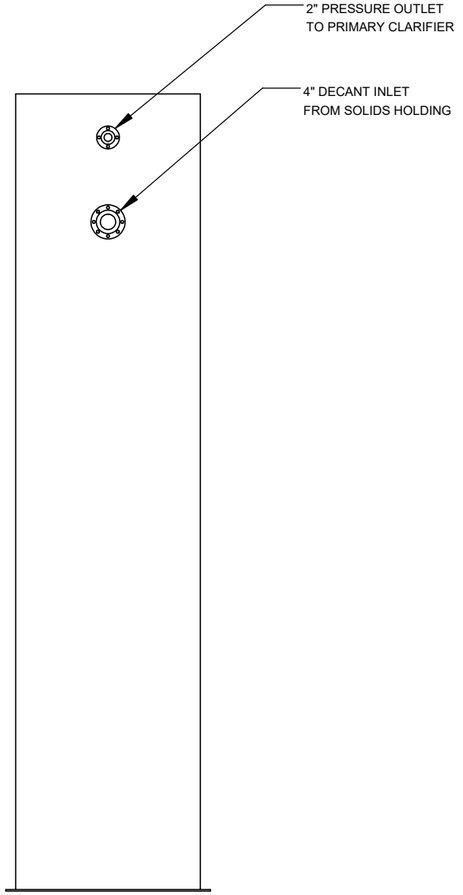
PLAN VIEW



INLET END VIEW



ELEVATION VIEW
SECTION A-A



OUTLET END VIEW

NO.	DATE	INITIALS	DESCRIPTION

DELTA TREATMENT SYSTEMS, LLC

PORT OF ALBANY EXPANSION WWTF
BETHLEHEM, NY

LIFT STATION

HORIZ. SCALE 1:40	PROJECT NO. 21-0161
VERT. SCALE 1:40	DATE 01/25/2023
DRAWN BY KJS	DESIGNED BY AOB
DRAWING NO. C1.1	SHEET NO. 04 OF 05

GENERAL ARRANGEMENT NOTES

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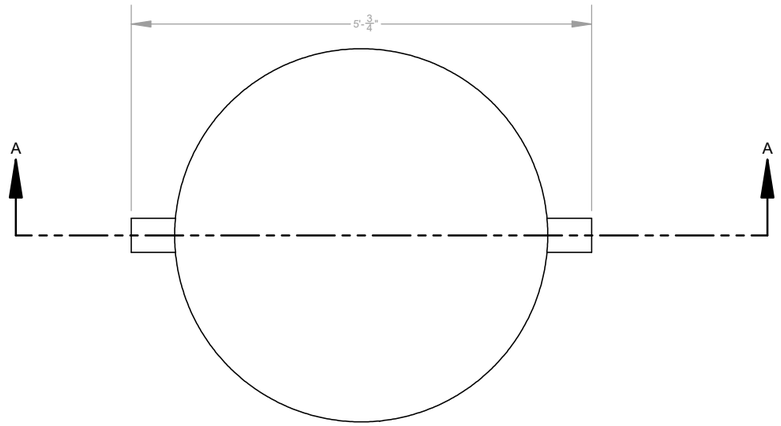
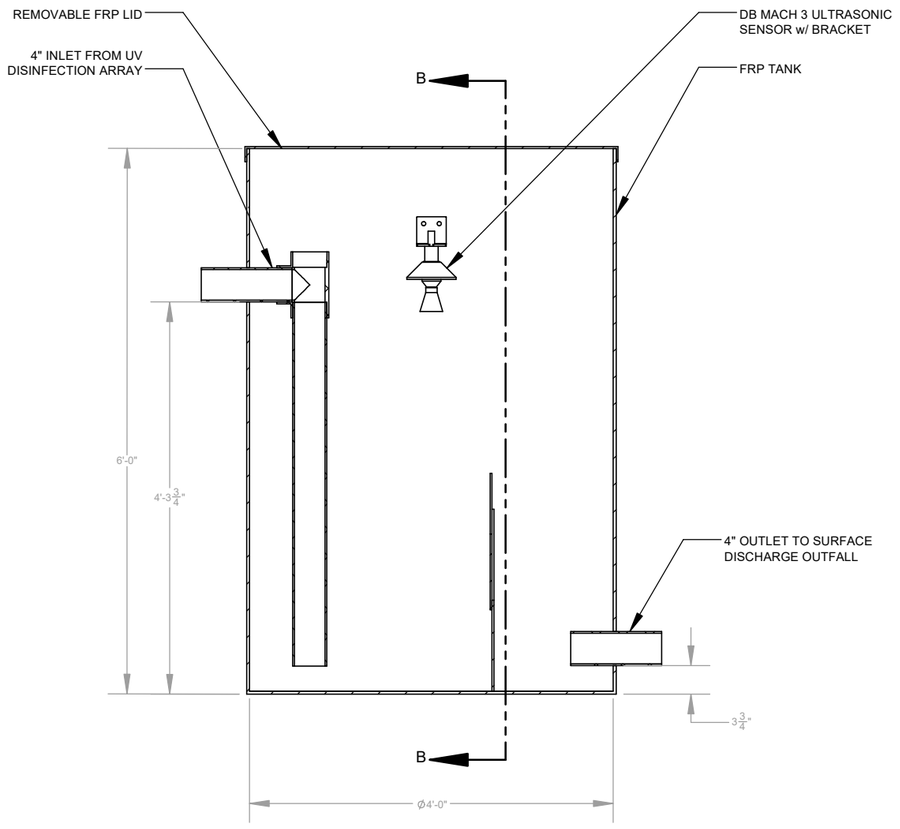
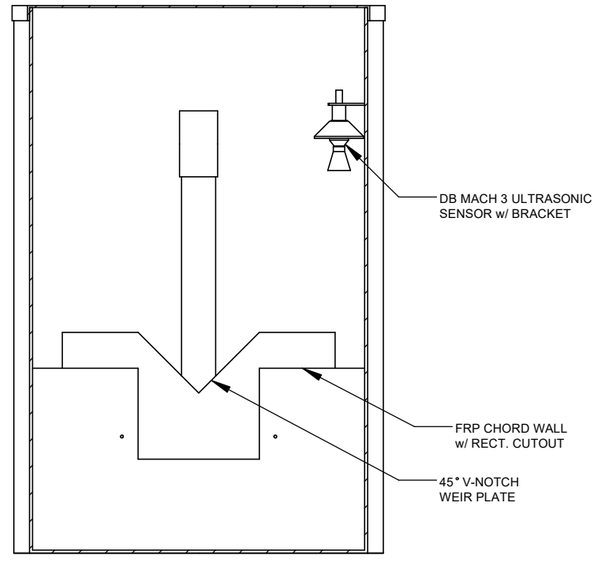




SECTION A-A



SECTION B-B

NO.	DATE	INITIALS	DESCRIPTION
A	01/25/23	KJS	REV'D PER DEC COMMENTS

DELTA TREATMENT SYSTEMS, LLC

PORT OF ALBANY EXPANSION WWTF
BETHLEHEM, NY

FLOW METER VAULT

HORIZ. SCALE 1:20	PROJECT NO. 21-0161
VERT. SCALE 1:20	DATE 08/04/2021
DRAWN BY KJS	DESIGNED BY AOB
DRAWING NO. C1.2	SHEET NO. 05 OF 05

Facility Name Marmen-Welcon Tower Manufacturing Plant **SPDES #**_____ **Facility Operator** Albany Port District Commission FOAS 100-4/95

Facility phone number (___) _____ **Date Completed** 03/20/23 **Regional Reviewer**_____ **Circle units/items that apply**

Design Flow - 3 points per MGD or part (Minimum 1 point - Maximum 50 points) **3 points x** 0.0112 **MGD =** 1 **Flow Points**

Unit or Item	Points	Unit or Item	Points
Preliminary Treatment (Maximum 8 points)		Phosphorus Removal (required by permit), 4K	8
Bar Screens and/or Comminutor, 1A	2	Chemical Addition for neutralization, 4L	3
Manual Grit Removal, 1B	2	**Advanced Treatment Subtotal$_4$**	
Mechanical or Aerated Grit Removal, 1C	3	**Disinfection (Maximum 8 points)**	
Pre-aeration, 1D	2	Chlorination:	
Raw sewage or Effluent pumping, 1E	3	Gas Chlorination, 5A	5
Flow equalization basin, 1F	3	Other Chlorination, 5B	2
(Preliminary Score) Subtotal$_1$	5	Dechlorination, 5C	3
Primary Treatment (Maximum 5 points)		Ultraviolet, 5D	5
Primary Treatment Including: Primary Clarifiers, Imhoff tanks, Spirogesters, Clarigesters, Fixed Screens, and Hydroscreens, 2A	5	Ozonization, 5E	5
		Bromine Chloride, 5F	5
Primary Treatment Subtotal$_2$	5	**Disinfection Subtotal$_5$**	5
Secondary Treatment (Maximum 25 points)		**Solids Handling / Disposal (Maximum 25 points)**	
Lagoon (unaerated), 3B	3	Gravity Thickener, 6A	5
Intermittent sand filters without recirculation, 3C	3	Dissolved air floatation thickener, 6B	8
Intermittent sand filters with recirculation, 3D	5	Centrifugation, (includes all modifications) 6C	8
Aerated Lagoon, 3E	7	Aerobic Digestion, 6D	5
Trickling Filter / Biological Filter without recirculation, 3F	9	Single Stage Anaerobic Digestion (unheated), 6E	5
Trickling Filter / Biological Filter with recirculation, 3G	11	Single Stage Anaerobic Digestion (heated), 6F	8
Rotating Biological Contactors, 3H	11	Two Stage Anaerobic Digestion, 6G	10
Activated Sludge (includes all process modifications), 3I	20	Sludge Drying Beds, except vacuum assisted drying bed, 6H	3
Chemical Coagulation with rapid mix, flocculation, clarification, 3J	20	Belt Filter Press, 6I	8
Secondary Treatment Subtotal$_3$	20	Plate & Frame Press, 6O	8
Advanced Waste Treatment / Tertiary Treatment (Maximum 20 points)		Vacuum Filters, 6P	8
Polishing pond, 4A	2	All other dewatering units, 6J	5
Microscreens, 4B	3	Land Application, 6K	5
Intermittent sand filter, 4C	3	Composting:	
Rapid sand filter, 4D	5	Invessel, 6L	10
Activated carbon columns or beds, 4E	5	Static Pile, 6M	5
Reverse osmosis, electrodialysis, ion exchange, 4F	5	Solids Reduction (incineration, wet oxidation), 6N	15
Nitrification required by permit (Ammonia, TKN, or UOD limit):		**Solids Handling/Disposal Subtotal$_6$**	5
by Activated Sludge, 4G	8	**Miscellaneous**	
Nitrification by other process, 4H	5	Nutrient addition (nitrogen and/or phosphorus), 7A	3
Denitrification required by permit (Nitrate or Total Nitrogen limit):		Carbon Regeneration (onsite), 7B	10
Nitrification by Activated Sludge and Denitrification, 4I	13	**Miscellaneous Subtotal$_7$**	
Nitrification by other process and Denitrification, 4J	10	**Total Score (add subtotals 1 thru 7 plus Flow Points)**	41

Wastewater Treatment Plant Rating Worksheet for Wastewater Treatment Plant Certification (Ref: Part 650.3, 650.6)

Attached is the scoring system for wastewater treatment plants in New York State. Scoring will be done to determine the certification grade of the chief operator and the assistant/shift operator needed at each wastewater treatment plant. The operator grades are divided into two designations, a number (1, 2, 3, or 4 with 1 being the lowest and 4 the highest grade), and the letter "A" for wastewater treatment plant operators working at facilities using the activated sludge process. All other treatment processes have no letter designation.

The scoring system is based on types of treatment processes at the wastewater treatment plant and flow. **Generally the treatment unit receives points only for its designed purpose or function** (example - a spare aerobic digester being used as a gravity thickener only receives points for an aerobic digester). Below are some basic guidelines for completing the scoring sheet. These guidelines are intended to cover most but not all possible options. DEC, specifically FOAS, will make the final determination regarding scoring questions. No additional points will be given for units/items not listed in the scoring system.

1) **Flow Scoring** - Flow scoring should be based on the 30 day average design flow limit of the treatment plant. If the 30 day average design flow is not known, the SPDES permit 30 day average flow limit should be used. If the average design flow is not known and there is no SPDES permit flow limit, flow points will be based on actual flow measurements - the flow points will be calculated from the maximum recorded 30 day average flow. The calculated flow point score should be rounded to the nearest whole number.
   Example; 3 pts x 6.4 MGD = 19.2 or 19 Flow Points.

2) **Raw sewage or effluent pumping** - can be onsite, or offsite such as a pump station if there are no connections between the pump station and the plant.

3) An **aerated grit chamber** is not a preaeration unit.

4) A **flow equalization basin** must be a unit designed for flow equalization, not a sewer or an empty tank.

5) **Secondary Treatment** - Secondary Clarifier scoring is included in the secondary treatment processes. No additional points are given for secondary clarifiers.

6) **Lagoons** - No double scoring for lagoons. Example; the first lagoon is aerated and subsequent lagoons are unaerated, scores 7 points for the aerated lagoon, no additional points for the unaerated lagoon.

7) **A lagoon or pond is not an activated sludge process** unless it meets the following definition; A mixture of wastewater and activated sludge is agitated and aerated. The activated sludge is then separated from the treated wastewater by sedimentation and returned or wasted to the process as needed.

8) **Trickling Filters** - No double scoring for trickling filters. Two trickling filters in series or parallel are 1 unit regardless of differences in size, media or recirculation capability. If one or more units has recirculation, the facility receives 11 points (TF with recirculation).

9) **Polishing Pond** - to be considered a polishing pond, the pond must directly follow a settling unit that has sludge withdrawal. Example; Two lagoons in series do not receive points for a lagoon and a polishing pond even if the second lagoon is unaerated. A trickling filter followed by a secondary clarifier then a pond or lagoon will receive points for the polishing pond.

10) **Multiple Treatment Units** - Two treatment units may be scored if they exist at the WWTP, (see exceptions above), but the maximum scoring for secondary treatment is still 25 points. Example #1; Activated Sludge 20 points + Trickling Filter 11 points = 31 points, would receive 25 points for secondary treatment. Example #2; Trickling Filter with recirculation 11 points followed by an RBC 11 points = 22 points.

11) **Chemical Coagulation with Rapid mix, flocculation, & clarification** - To receive credit for this option, there must be separate rapid mix, flocculation and clarification units that are independent of primary or biological treatment systems. Chemical coagulation processes following biological treatment are ineligible.

12) **Rapid Sand Filter** - any filter with backwash capability is considered a rapid sand filter.

13) **Advanced Waste Treatment, Nitrification** - To get points for nitrification the WWTP must have a permit limit for Ammonia, TKN, or UOD. Monitoring alone does not receive the points. Credit for Nitrification is limited to one treatment process (activated sludge or other processes, not both).

14) **Denitrification points** - the WWTP must have a permit limit for Nitrates or Total Nitrogen. Denitrification is limited to one treatment process (activated sludge or other processes, not both).

15) **Nitrification/Denitrification** - No plant can receive points in both the nitrification and denitrification categories. The nitrification fraction is built into the denitrification points.

16) **Chemical Addition for Neutralization** - To receive credit, the chemical addition must be performed for metals removal or be necessary to meet effluent pH limits .

17) **Solids Handling Aerobic Digester** - To be considered an aerobic digester the unit must have a volume of at least 5% of the design flow of the plant and have aeration and decant capability.

18) **Sludge Lagoons, Sludge Holding Tanks** and/or **Wet hauling sludge** to another facility does not receive points.

19) **Solids Handling** - To receive points for composting or land application, it must be the primary stabilization/solids disposal process of the WWTP (more than 50 percent of the sludge produced by the WWTP must be composted or land applied) and have a valid Part 360 Permit. Example; pilot composting projects do not receive points.

20) **Spray Irrigation** of waste is considered the same as raw sewage or effluent pumping and receives 3 points. There is no double scoring for pumping. Example; Influent pumping and spray irrigation only receives 3 points not 6.

21) **Miscellaneous** - Nutrient addition, nitrogen or phosphorus, must have permanently installed equipment with the proper tanks and metering pumps to receive points.

22) **Out-of-Service Equipment or Equipment not being used** - If a piece of equipment is at the WWTP and not regularly used, but is operable if needed, it does receive points. If a piece of equipment has been abandoned, or disconnected from the flow scheme, or is inoperable, it does not receive points.

23) **Overland Treatment** does not receive points.

When each subtotal and the Flow Points are determined, they are all added together to reach the Total WWTP Score. This score, with the following table, establishes the minimum grade of Chief Operator and the Assistant/shift Operator needed at the WWTP.

Total Treatment Plant Score	30 and less	31 - 55	56 - 75	76 and greater
Grade of Chief Operator Required	1/1A	2/2A	3/3A	4/4A
Grade of Assistant/Shift Operator Required	1/1A	1/1A	2/2A	3/3A

If you have any questions please contact the Bureau of Water Compliance, at (518) 402-8177.

APPENDIX D – BUILDING PLUMBING PLANS

GENERAL NOTES:

1. THESE GENERAL PLUMBING NOTES SHALL APPLY TO ALL P SERIES DRAWINGS, IN COORDINATION WITH DIVISION 22 SECTIONS, AND FRONT END (DIVISION 0 AND 1) REQUIREMENTS. ALL WORK ASSOCIATED WITH THE P SERIES DRAWINGS SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID CONFLICTS.

2. ALL WORK SHALL BE PERFORMED IN COOPERATION WITH THE OWNER (AND/OR OWNER'S REPRESENTATIVE) AND THE ARCHITECT/ENGINEER THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CONSTRUCTION SCHEDULE ESTABLISHED BY THE OWNER AND ARCHITECT, AND SHALL IMMEDIATELY REPORT ANY DELAYS IN MATERIALS RECEIPT INCLUDING CIRCUMSTANCES CAUSING DELAYS.

3. CONTRACT DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF EQUIPMENT, PIPING, AND ACCESSORIES. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL CONDITIONS, DIMENSIONS, AND LOCATIONS PRIOR TO BIDDING PROJECT. CHECK PROJECT DRAWINGS PRIOR TO INSTALLATION FOR INTERFERENCES WITH OTHER TRADES. SHOULD THE CONTRACTOR FIND SUCH INTERFERENCES, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHERS. THE OWNER RESERVES THE RIGHT TO MAKE REASONABLE CHANGES PRIOR TO ROUGH-IN WITHOUT ADDED EXPENSE. DIMENSIONS INDICATED ARE SUBJECT TO VERIFICATION OF EXACT SITE CONDITIONS AT THE TIME OF INSTALLATION.
- THE CONTRACTOR SHALL INSTALL ALL PIPING, EQUIPMENT, FIXTURE, ETC. IN A WORKMAN MANNER WITH QUALIFIED PLUMBERS.

4. ALL PLUMBING WORK SHALL BE INSTALLED PER LOCAL PLUMBING CODE, HEALTH CODE, FIRE CODE, ENERGY CONSERVATION CODE, AND BUILDING CODE. ALL WORK SHALL COMPLY TO ACCORDANCE OF LOCAL, STATE AND FEDERAL REGULATIONS AND OTHER AUTHORITIES HAVING JURISDICTION.

5. CONTRACTOR RESPONSIBLE FOR PAYING FOR ALL FEES ASSOCIATED WITH OBTAINING PERMITS, INSPECTIONS, ETC.

6. THE PLUMBING CONTRACTOR SHALL BE LICENSED IN THE LOCAL JURISDICTION PRIOR TO BIDDING ON PROJECT. CONTRACTOR TO CONTACT CITY/TOWNSHIP TO VERIFY LICENSE TO ENSURE THEY ARE CURRENT.

7. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. ANY CONFLICTS WITH INSTALLATION AND MANUFACTURER RECOMMENDATIONS SHALL BE REPORTED TO ENGINEER.

8. CUTTING AND PATCHING - ALL NOTES BELOW HOLD THE COMMON CONDITION "UNLESS OTHERWISE NOTED".
- ***FOR NEW CONSTRUCTION:*** ALL CUTTING AND PATCHING THROUGH ALL WALL, CEILING, ETC. SHALL BE PROVIDED BY PLUMBING CONTRACTOR IN COORDINATION WITH THE GENERAL WORK. ALL PAINTING AND FINISHING SHALL BE DONE BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH GENERAL CONTRACTOR.
- ***OPENINGS MADE POST-FINISH:*** IF ANY OPENING IS REQUIRED IN A FINISHED SURFACE, AFTER COMPLETION, DUE TO LACK OF COORDINATION OR PROPER SCHEDULE MAINTENANCE, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED TO FINISH SPECIFIC PLUMBING WORK AND RESTORE THE FINISHED SURFACE TO PREVIOUS CONDITION.

9. FURNISH AND INSTALL ALL NEW EQUIPMENT AND MATERIALS AS DESCRIBED HEREIN. ANY MATERIAL, OPERATION, METHOD, OR DEVICE MENTIONED, LISTED OR NOTED WITHIN THIS SPECIFICATION SHALL BE FURNISHED BY THIS CONTRACTOR UNLESS SPECIFICALLY MENTIONED AS BEING FURNISHED OR INSTALLED BY OTHERS.

10. ALL PIPING PENETRATING ALL FIRE-RATED WALLS, CEILINGS, FLOORS, ROOFS, ETC. SHALL BE FIRE STOPPED IN ACCORDANCE WITH DIVISION 7.

11. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE AND OPERABLE SYSTEMS, INCLUDING OPERATIONAL PROPERTIES TO THE EXTEND NECESSARY TO LINK MULTIPLE COMPONENTS OF THE SYSTEMS TOGETHER AND TO INTERFACE WITH SYSTEMS PROVIDED BY OTHERS. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL SYSTEMS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL PROVIDE OWNER WITH ALL NECESSARY OPERATION AND MAINTENANCE MANUALS, SHOP DRAWINGS, WIRING DIAGRAMS, AND WARRANTY PAPERWORK UPON COMPLETION OF THE PROJECT.

12. THE CONTRACTOR SHALL LOCATE ACCESS PANEL IN NON-ACCESSIBLE CEILING AND WALLS FOR ALL VALVES, SHOCK ABSORBERS, CLEANOUTS AND ALL OTHER ITEMS THAT REQUIRE ACCESS TO PROPERLY MAINTAIN OR SERVICE.

13. THE CONTRACTOR IS RESPONSIBLE FOR TESTING, AND ADJUSTING ALL PLUMBING EQUIPMENT INDICATED IN THE PLUMBING DRAWINGS.

14. THE MINIMUM SLOPE OF ALL INTERIOR SEWER LINES SHALL BE 1/4 INCH PER FOOT FOR SIZES 2-1/2" AND SMALLER, 1/8 INCH PER FOOT FOR SIZES 3"-6", AND 1/16 INCH PER FOOT FOR SIZES 8" AND GREATER. SEE SCHEDULE LOCATED ON DRAWING FOR CONNECTION SIZES FOR SANITARY, VENT, COLD, AND HOT WATER PIPING. SEE SCHEDULE FOR PIPING MATERIALS.

15. ALL PIPING PENETRATIONS THROUGH EXPOSED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS AND SEAL TO WALL OR CEILING.

16. ALL NATURAL GAS PIPING SHALL BE INSTALL PER NEW YORK FUEL GAS CODE AND AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHUT OFF GAS VALVE FOR ALL EQUIPMENT UTILIZING GAS. CONTRACTOR SHALL PROVIDE 6" DIRT LEG (MINIMUM) FOR ALL EQUIPMENT UTILIZING GAS.

17. ALL NATURAL GAS PIPING SHALL BE TESTED PER THE LIST BELOW. ALL TESTING SHALL CONFORM TO NEW YORK STATE FUEL GAS CODE.
- PRESSURE UP TO AND INCLUDING 12" W.C.: 15 PSI FOR ONE (1) HOUR.
- PRESSURE ABOVE 12" W.C.: 1-1/2 TIMES THE WORKING PRESSURE, OR 50 PSI (MINIMUM) FOR ONE (1) HOUR.
- COATED OR WRAPPED PIPING: 100 PSIG FOR ONE (1) HOUR

18. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL FLUSH AND SANITIZE THE DOMESTIC HOT, RECIRCULATION AND COLD WATER PIPING IN ACCORDANCE WITH LOCAL AND NEW YORK STATE, PLUMBING CODE.

19. EQUIPMENT CONNECTIONS:
- ALL EQUIPMENT SHALL BE PROVIDED WITH UNIONS AND SHUT-OFF VALVES WHETHER DETAILED OR NOT.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED WITH SHUT OFF VALVES.
- THIS CONTRACTOR SHALL MAKE FINAL PLUMBING CONNECTIONS TO PIPING/EQUIPMENT FURNISHED BY OTHERS, UNLESS OTHERWISE NOTED.

20. ALL PENETRATIONS THROUGH ROOFING MEMBRANE AND ROOF DECKING SHALL BE PERFORMED BY AN INSTALLER CERTIFIED BY THE ROOFING SYSTEM MANUFACTURER TO MAINTAIN ROOF SYSTEM WARRANTY.

21. NATURAL GAS REGULATOR VENT PIPING SHALL EXTEND TO THE EXTERIOR OF THE BUILDING AND TERMINATE IN ACCORDANCE WITH NFPA 54 AND/OR NFPA 58.

22. EXTERIOR PIPING SHALL BE PAINTED WITH TWO COATS OF PRIMER AND ONE COAT OF FINISH PAINT. COLOR TO BE DETERMINED BASED COLOR OF SURROUNDING SURFACES.

23. FOR PROJECTS WITH APPROVED USE OF PVC AND CPVC PIPING, SUCH PIPING SHALL BE PROHIBITED IN THE FOLLOWING LOCATIONS.
- AREAS OF ASSEMBLY.
- RETURN AIR PLENUMS.
- EXIT DISCHARGE CORRIDORS.
- STAIRS.

24. RODENTPROOFING - IN OR ON STRUCTURES WHERE OPENINGS HAVE BEEN MADE IN FLOORS CEILINGS, OR WALLS FOR THE PASSAGE OF PIPE, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED WITH APPROVED METAL COLLARS THAT ARE SECURELY FASTENED TO THE ADJOINING STRUCTURE.

25. STRUCTURAL SAFETY - IN THE PROCESS OF INSTALLING OR REPAIRING ANY PART OF A PLUMBING OR DRAINAGE SYSTEM, THE FINISHED FLOOR, WALLS, CEILINGS, TILE OR ANY OTHER PART OF THE BUILDING OR PREMISES THAT MUST BE CHANGED OR REPLACED SHALL REMAIN IN A STRUCTURALLY SAFE CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

26. PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS - PIPING AND OTHER SYSTEM COMPONENTS SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT CORROSION, BREAKAGE, FREEZING, AND PHYSICAL DAMAGE BY OTHER BUILDING COMPONENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

27. PROTECTION OF WATER QUALITY - A POTABLE WATER SUPPLY SYSTEM SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN SUCH A MANNER SO AS TO PREVENT CONTAMINATION FROM NON-POTABLE LIQUIDS, SOLIDS, OR GASES BEING INTRODUCED INTO THE POTABLE WATER SYSTEM THROUGH CROSS-CONTAMINATION OR ANY OTHER PIPING CONNECTIONS TO THE SYSTEM.

28. FLOODPROOFING - PLUMBING SYSTEMS AND EQUIPMENT IN STRUCTURES ERECTED IN AREAS PRONE TO FLOODING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE COMPONENTS OF THE SYSTEM SHALL BE CAPABLE OF RESISTING HYDROSTATIC LOADS AND STRESSES IN THE EVENT OF FLOODING.

29. EXISTING SITE UTILITIES - UNDERGROUND UTILITY LOCATIONS ARE NOT GUARANTEED, NOR IS THERE ANY GUARANTEE THAT ALL EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED, WITHIN THE PROJECT AREA ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM THE CONTRACTOR'S WORK. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (DSNY) - 800-962-7962 FOR STAKEOUT REQUESTS.

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PIPING TESTING REQUIREMENTS:

NYS PLUMBING CODE - 312.2 DRAINAGE AND VENT WATER TEST
A WATER TEST SHALL BE APPLIED TO THE DRAINAGE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. IF APPLIED TO THE ENTIRE SYSTEM, ALL OPENINGS IN THE PIPING SHALL BE TIGHTLY CLOSED, EXCEPT THE HIGHEST OPENING, AND THE SYSTEM SHALL BE FILLED WITH WATER TO THE POINT OF OVERFLOW. IF THE SYSTEM IS TESTED IN SECTIONS, EACH OPENING SHALL BE TIGHTLY PLUGGED EXCEPT THE HIGHEST OPENINGS OF THE SECTION UNDER TEST, AND EACH SECTION SHALL BE FILLED WITH WATER, BUT SECTIONS SHALL NOT BE TESTED WITH LESS THAN A 10-FOOT HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, NOT LESS THAN THE UPPER 10 FEET OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT NO JOINT OR PIPE IN THE BUILDING, EXCEPT THE UPPERMOST 10 FEET OF THE SYSTEM, SHALL HAVE BEEN SUBMITTED TO A TEST OF LESS THAN A 10-FOOT HEAD OF WATER. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE SYSTEM SHALL THEN BE TIGHT AT ALL POINTS.

NYS PLUMBING CODE - 312.3 DRAINAGE AND VENT AIR TEST
PLASTIC PIPING SHALL NOT BE TESTED USING AIR. AN AIR TEST SHALL BE MADE BY FORCING AIR INTO THE SYSTEM UNTIL THERE IS A UNIFORM GAUGE PRESSURE OF 5 PSI OR SUFFICIENT TO BALANCE A 10-INCH COLUMN OF MERCURY. THIS PRESSURE SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES. ANY ADJUSTMENTS TO THE TEST PRESSURE REQUIRED BECAUSE OF CHANGES IN AMBIENT TEMPERATURES OR THE SEATING OF GASKETS SHALL BE MADE PRIOR TO THE BEGINNING OF THE TEST PERIOD.

NYS PLUMBING CODE - 312.4 DRAINAGE AND VENT FINAL TEST
THE FINAL TEST OF THE COMPLETED DRAINAGE AND VENT SYSTEM SHALL BE VISUAL AND IN SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE PROVISIONS OF THIS CODE. WHERE A SMOKE TEST IS UTILIZED, IT SHALL BE MADE BY FILLING ALL TRAPS WITH WATER AND THEN INTRODUCING INTO THE ENTIRE SYSTEM A PUNGENT, THICK SMOKE PRODUCED BY ONE OR MORE SMOKE MACHINES. WHEN THE SMOKE APPEARS AT STACK OPENINGS ON THE ROOF, THE STACK OPENINGS SHALL BE CLOSED AND A PRESSURE EQUIVALENT TO A 1-INCH WATER COLUMN SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES.

NYS PLUMBING CODE - 312.5 WATER SUPPLY SYSTEM TEST
UPON COMPLETION OF A SECTION OF OR THE ENTIRE WATER SUPPLY SYSTEM, THE SYSTEM, OR PORTION COMPLETED, SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM; OR, FOR PIPING SYSTEMS OTHER THAN PLASTIC, BY AN AIR TEST OF NOT LESS THAN 50 PSI. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE WATER UTILIZED FOR TESTS SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY. THE REQUIRED TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION.

NYS PLUMBING CODE - 312.6 GRAVITY SEWER TEST
GRAVITY SEWER TESTS SHALL CONSIST OF PLUGGING THE END OF THE BUILDING SEWER AT THE POINT OF CONNECTION WITH THE PUBLIC, FILLING THE BUILDING SEWER WITH WATER, TESTING WITH NOT LESS THAN A 10-FOOT HEAD OF WATER AND MAINTAINING SUCH PRESSURE FOR 15 MINUTES.

NYS PLUMBING CODE - 312.9 SHOWER LINER TEST – NOT APPLICABLE BECAUSE PREFABRICATED RECEPTORS ARE SPECIFIED.
WHERE SHOWER FLOORS AND RECEPTORS ARE MADE WATER TIGHT BY THE APPLICATION OF MATERIALS REQUIRED BY SECTION 421.5.2, THE COMPLETED LINER INSTALLATION SHALL BE TESTED. THE PIPE FROM THE SHOWER DRAIN SHALL BE PLUGGED WATER TIGHT FOR THE TEST. THE FLOOR AND RECEPTOR AREA SHALL BE FILLED WITH POTABLE WATER TO A DEPTH OF NOT LESS THAN 2 INCHES MEASURED AT THE THRESHOLD. WHERE A THRESHOLD OF 2 INCHES HIGH OR GREATER DOES NOT EXIST, A TEMPORARY THRESHOLD SHALL BE CONSTRUCTED TO RETAIN THE TEST WATER IN THE LINED FLOOR OR RECEPTOR AREA TO A LEVEL NOT LESS THAN 2 INCHES DEEP MEASURED AT THE THRESHOLD. THE WATER SHALL BE RETAINED FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES, AND THERE SHALL NOT BE EVIDENCE OF LEAKAGE.

OSHA STANDARD 1910.253 – OXYGEN-FUEL GAS WELDING AND CUTTING
1910.253(D)(5)(II) - PIPING SYSTEMS SHALL BE TESTED AND PROVED GASTIGHT AT 1½ TIMES THE MAXIMUM OPERATING PRESSURE, AND SHALL BE THOROUGHLY PURGED OF AIR BEFORE BEING PLACED IN SERVICE. THE MATERIAL USED FOR TESTING OXYGEN LINES SHALL BE OIL FREE AND NONCOMBUSTIBLE. FLAMES SHALL NOT BE USED TO DETECT LEAKS.

WHILE OSHA 1910.253 IS SPECIFIC TO OXYGEN-FUEL GAS WELDING AND CUTTING, THE TESTING REQUIREMENT ABOVE SHALL BE FOLLOWED FOR ALL COMPRESSED GASES.

PIPE AND FITTING MATERIALS PERMITTED

WATER SERVICE PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER-ALLOY PIPE	ASTM B42, ASTM B302	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
POLYETHYLENE (PE) PLASTIC TUBING	ASTM D 2737; CSA B137.1	ASTM F 2389; CSA B137.11
DUCTILE IRON WATER PIPE	AWWA C151; AWWA C115	AWWA C110; AWWA C153

WATER DISTRIBUTION PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER ALLOY TUBING (TYPE L)	ASTM B75; ASTM B88; ASTM B251, ASTM B447	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
CPVC	ASTM D 2846; ASTM F441; ASTM F 442	ASSE 1061; ASTM F 437; ASTM F 438; ASTM F 439
CROSS-LINKED POLYETHYLENE PLASTIC TUBING - PEX (FOR UNDERSLAB PIPING TO TRAP PRIMERS ONLY)	ASTM F 1281, CSA B 137.10M	ASSE 1061; ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2159; CSA B137.8

UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301

ABOVE-GROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COEXTRUDED COMPOSITE PVC DWV SCHEDULE 40 IPS PIPE (SOLID)	ASTM F 1488	ASTM D 2665; ASTM D 3311; ASTM F 891
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301
COPPER OR COPPER-ALLOY TUBING (TYPE K, L, M OR DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306	ASME B16.15; ASME B 16.18; ASME B 16.22; ASME B 16.23; ASME B 16.26; ASME B 16.29
POLYVINYL CHLORIDE (PVC) PLASTIC PIPE (TYPE DWV)	ASTM D 2665; ASTM D 2949; ASTM F 1488; CSA B181.2	ASTM D 2665; ASTM D 3311; ASTM F 1866

ABOVE-GROUND NATURAL GAS PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	THREADED, WELDED, OR PRESS FITTINGS PER FUEL GAS CODE OF NEW YORK STATE

UNDER-GROUND NATURAL GAS PIPE - BEYOND BUILDING FOOTPRINT

MATERIAL	PIPE STANDARD	FITTING STANDARD
HIGH DENSITY POLYETHYLENE	ASTM D 2513, MARKED "GAS"	HEAT FUSION - ASTM D 2513

BELOW-GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

BELOW-GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

ABOVE GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
GALVANIZED STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

ABOVE GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES (2020 PC OF NYS, TABLE 604.4)

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
LAVATORY, PRIVATE	1.5 GPM AT 60 PSI
LAVATORY, PUBLIC (METERING)	0.25 GALLON PER METERING CYCLE
LAVATORY, PUBLIC (OTHER THAN METERING)	0.5 GPM AT 60 PSI
SHOWER HEAD	2.0 GPM AT 80 PSI
SINK FAUCET	2.2 GPM AT 60 PSI
URINAL	0.5 GALLON PER FLUSHING CYCLE
WATER CLOSET	1.28 GALLONS PER FLUSHING CYCLE

NOTES:

1. HAND-HELD SHOWER SPRAY IS A SHOWER HEAD.
2. CONSUMPTION TOLERANCES SHALL BE DETERMINED FROM REFERENCED STANDARDS.
3. REFER TO PLUMBING FIXTURE SCHEDULES FOR ACTUAL FLOW RATES TO BE PROVIDED.

ABBREVIATIONS

AD	AREA DRAIN
AR	ARGON GAS
AR-(X)	AIR RECEIVER
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
ARCH	ARCHITECT/ARCHITECTURE/ARCHITECTURAL
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNITS
BV	BALL VALVE
(C25)	25% CARBON DIOXIDE AND 75% ARGON GAS
(CO2)	CARBON DIOXIDE GAS
CA	COMPRESSED AIR
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CP	CIRCULATION PUMP
CS	CIRCUIT SETTER/BALANCE VALVE
CV	CHECK VALVE
CWS	COLD WATER SUPPLY
F	DEGREES FAHRENHEIT
DCV	DOUBLE CHECK VALVE BACKFLOW PREVENTER
DF	DRINKING FOUNTAIN
DN	PIPE DOWN, PASSING THROUGH FLOOR
DROP	PIPE DOWN, NOT PASSING THROUGH FLOOR
DSN	DOWNSPOUT NOZZLE
DWH	DOMESTIC WATER HEATER
DWV	DRAIN, WASTE, AND VENT
EC	ELECTRICAL CONTRACTOR
EFF	EFFICIENCY
ELEV	ELEVATION
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EW	EYE-WASH/FACE-WASH
EWC	ELECTRIC WATER COOLER
EWS	EMERGENCY WASH STATION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOOR SINK
FT	FOOT/FEET
FW	FILTERED WATER
GAS	NATURAL GAS OR LP (BELOW 14" W.C.)
GAS-5PSI	NATURAL GAS - 5 PSI*
GAS-15PSI	NATURAL GAS - 15 PSI*
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GT	GREASE TRAP
HB	HOSE BIBB
HP	HORSEPOWER
HPG	HIGH PRESSURE GAS OR LP (GREATER THAN 10 PSI, DEFINED BY PROJECT)
HWR	DOMESTIC HOT WATER RETURN
HWS	DOMESTIC HOT WATER SUPPLY
INV	PIPE INVERT
IN	INCHES
IN W.C.	INCHES WATER COLUMN
IPS	INTERNATIONAL PIPE STANDARD
IW	INDIRECT WASTE
KW	KILOWATT
L	LAVATORY
LS	LAUNDRY SINK
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIX	MIXING VALVE
MPG	NATURAL GAS OR LP (GREATER THAN 14 IN W.C., DEFINED BY PROJECT)
MS	MOP SINK
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
O	OXYGEN GAS
OWS	OIL WATER SEPARATOR
OST	STORM DRAIN – OVERFLOW/SECONDARY
PC	PLUMBING CONTRACTOR
PD	PUMPED DISCHARGE
PDD	POOL DECK DRAIN
PF	PRISON/SECURITY COMBI-FIXTURE
PG	PRESSURE GAUGE
PH	PHASE (ELECTRICAL)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
RD	ROOF DRAIN
RISE	PIPE UP, NOT THROUGH FLOOR/ROOF DECK ABOVE
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RTU	ROOF TOP UNIT
S	SINK
SAN	SANITARY PIPE
SAN-G	SANITARY PIPE – GREASE LADEN
SE	SEWAGE EJECTOR
SF	SQUARE FEET
SH	SHOWER
SP	SUMP PUMP
ST	STORM DRAIN
STR	STRAINER
T	THERMOMETER
T&P	TEMPERATURE AND PRESSURE
TD	TRENCH DRAIN
TP	TRAP PRIMER
TWS	TEPID WATER SUPPLY (65-90F)
TYP	TYPICAL
U	URINAL
UOI	UNLESS OTHERWISE INDICATED
V	SANITARY VENT
VB	VACUUM BREAKER
VIR	VALVE IN RISER
VOLT	VOLTAGE
VTR	SANITARY VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WM	WATER METER

PLUMBING LEGEND

SYMBOLS	DESCRIPTION
FCO	FLOOR PLATE CLEANOUT
WCO	WALL PLATE CLEANOUT
RD	ROOF DRAIN (RD)
FD	FLOOR DRAIN (FD)
	BALL VALVES
	PIPE DOWN/DROP
	PIPE UP/RISE
	CHECK VALVE
	BALANCE VALVE

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

DRAWING TITLE

Plumbing Legend, Notes & Abbreviations

DRAWING NUMBER

P-001A

2/6/2023 11:32:03 AM
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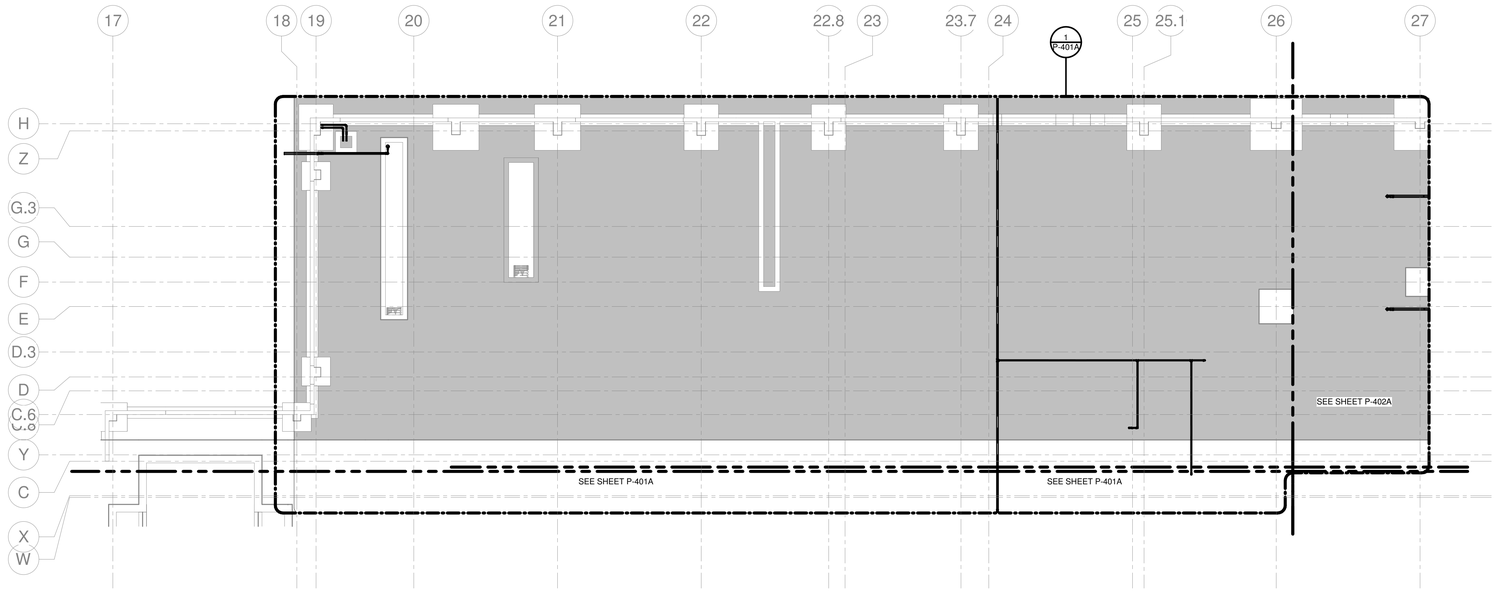
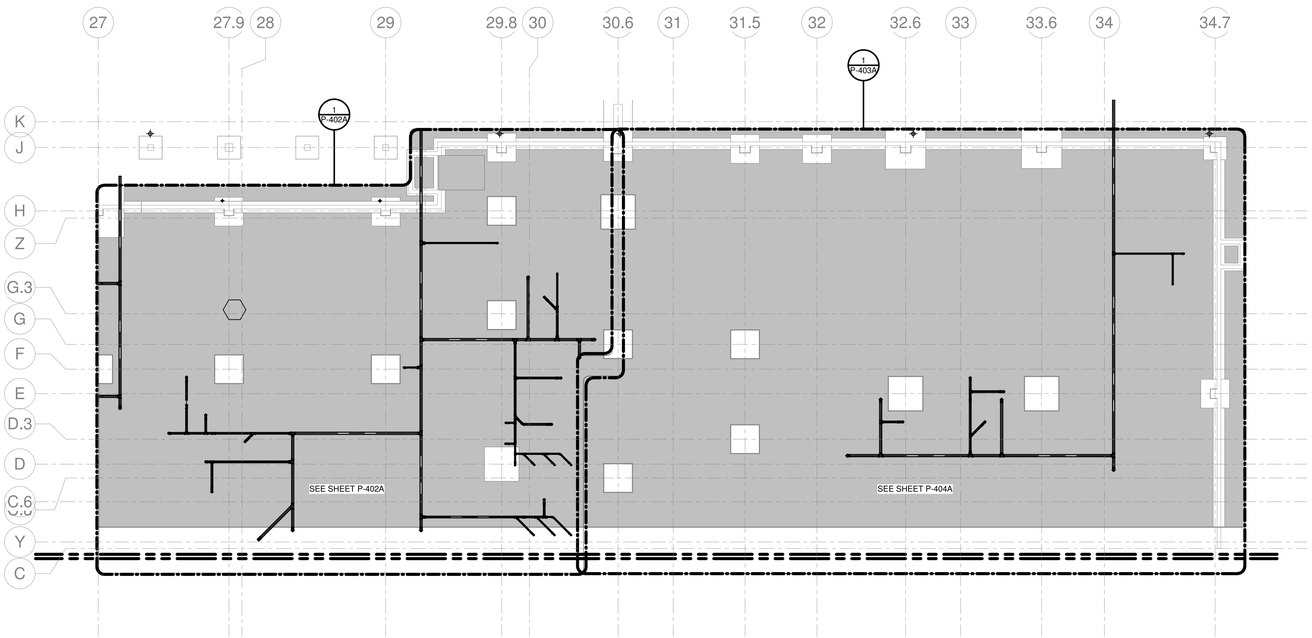


1 P-011A **Sub-Slab New - Area 1.1**

0' 10' 16' 21' 32'

3/32" = 1'-0"



2 P-011A **Sub-Slab New - Area 1.2**

0' 10' 16' 21' 32'

3/32" = 1'-0"

1

2 3 4

PROJECT NORTH

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022

NO.	REVISIONS	DATE

DRAWING TITLE

Underground Plan - Area 1

DRAWING NUMBER

P-011A

2/8/2023 11:32:13 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A P-21.rvt

KEYED NOTES

1. PROVIDE 3" GAS-15 PSI RISER UP FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-113A FOR CONTINUATION. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
2. PROVIDE 1-1/4" GAS-C25 RISER UP FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-113A FOR CONTINUATION. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
3. PROVIDE 2" GAS-O2 RISER UP FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-113A FOR CONTINUATION. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
4. PROVIDE 2" CA RISER UP FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-113A FOR CONTINUATION. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
5. PROVIDE 2" SAN UP TO WALL. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
6. PROVIDE 2" UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A. **[KEYED NOTE APPLIES TO SHEETS P-013A & P-014A]**
7. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK. SEE DETAIL 5/P-500A. **[KEYED NOTE APPLIES TO SHEET P-013A]**
8. PROVIDE 1-1/2" V UP TO WALL. **[KEYED NOTE APPLIES TO SHEET P-013A]**
9. PROVIDE 3" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A. **[KEYED NOTE APPLIES TO SHEET P-013A]**
10. SEE C-SERIES DRAWINGS FOR CONTINUATION. **[KEYED NOTE APPLIES TO SHEET P-013A & P-014A]**.
11. PROVIDE 4" SAN THROUGH EXTERIOR FOOTER. 4" SAN CARRIER PIPING SHALL BE SLEEVED THROUGH A 6" SUPPORT PIPE. SLEEVE SHALL EXTEND 2'-6" BEYOND FOOTER. MODULAR SLEEVE SEAL SHALL BE INSTALLED AT EACH OF THE SLEEVE AND AT 5'-0" INTERVALS INSIDE THE SLEEVE TO SUPPORT CARRIER PIPE. **[KEYED NOTE APPLIES TO SHEET P-013A & P-014A]**

4

T2 UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-302A

[KEY NOTE APPLIES TO SHEETS P-113A & P-114A]

1 / P-012A **Sub-Slab New - Area 2**

0' 10' 16' 21' 32'

3/32" = 1'-0"

1
2 3 4
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SEAL

PORT OF ALBANY

MARMEN

WELCON

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
4	IFC SET	1/30/2023

DRAWING TITLE

Underground Plan - Area 2

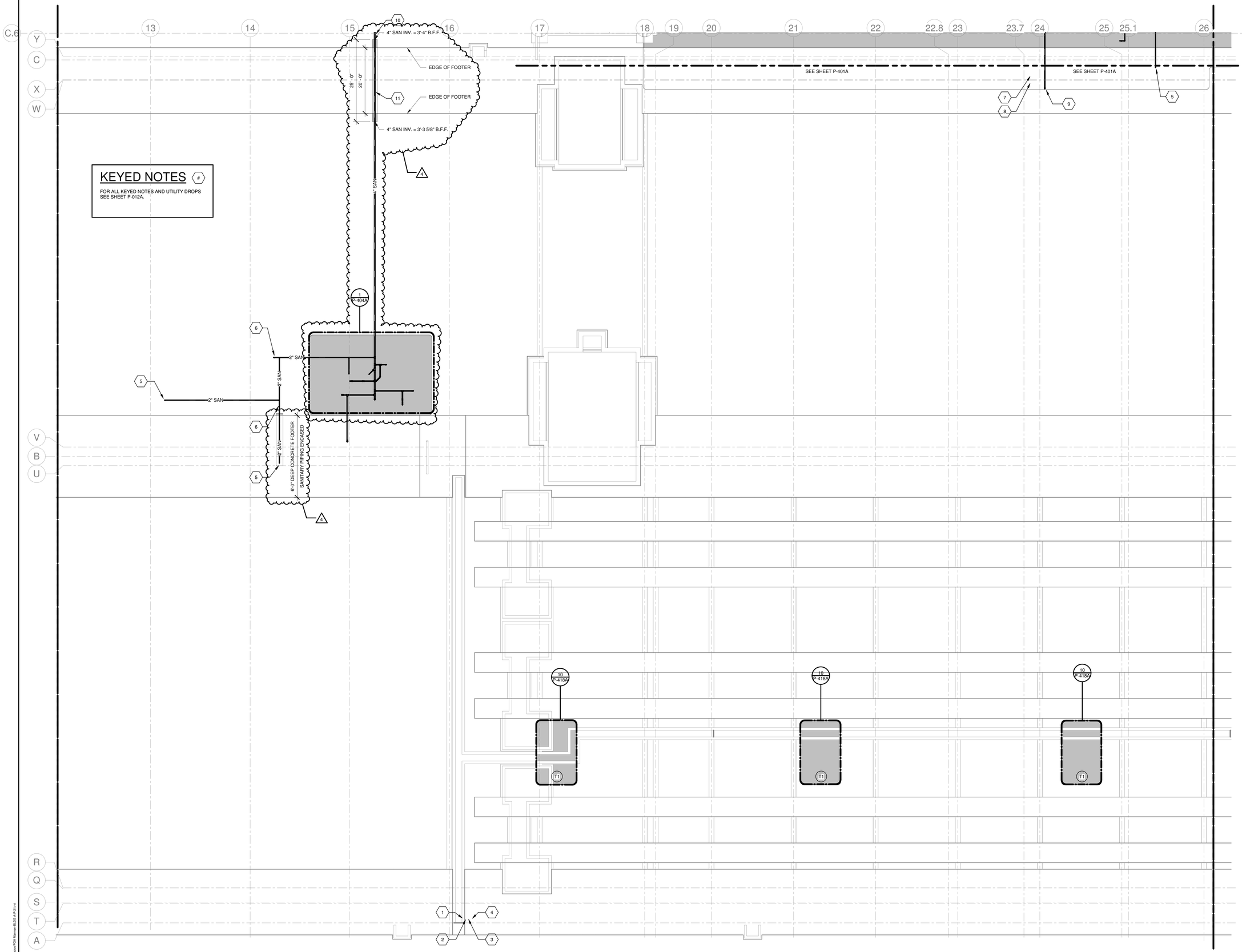
DRAWING NUMBER

P-012A

2/8/2023 11:52:16 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A P-012.rvt

KEYED NOTES

FOR ALL KEYED NOTES AND UTILITY DROPS SEE SHEET P-012A.



1 P-013A **Sub-Slab New - Area 3**

0' 10' 16' 21' 32'

3/32" = 1'-0"

1

2 3 4

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SEAL

PORT OF ALBANY

MARMEN

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

NO.	REVISIONS	DATE

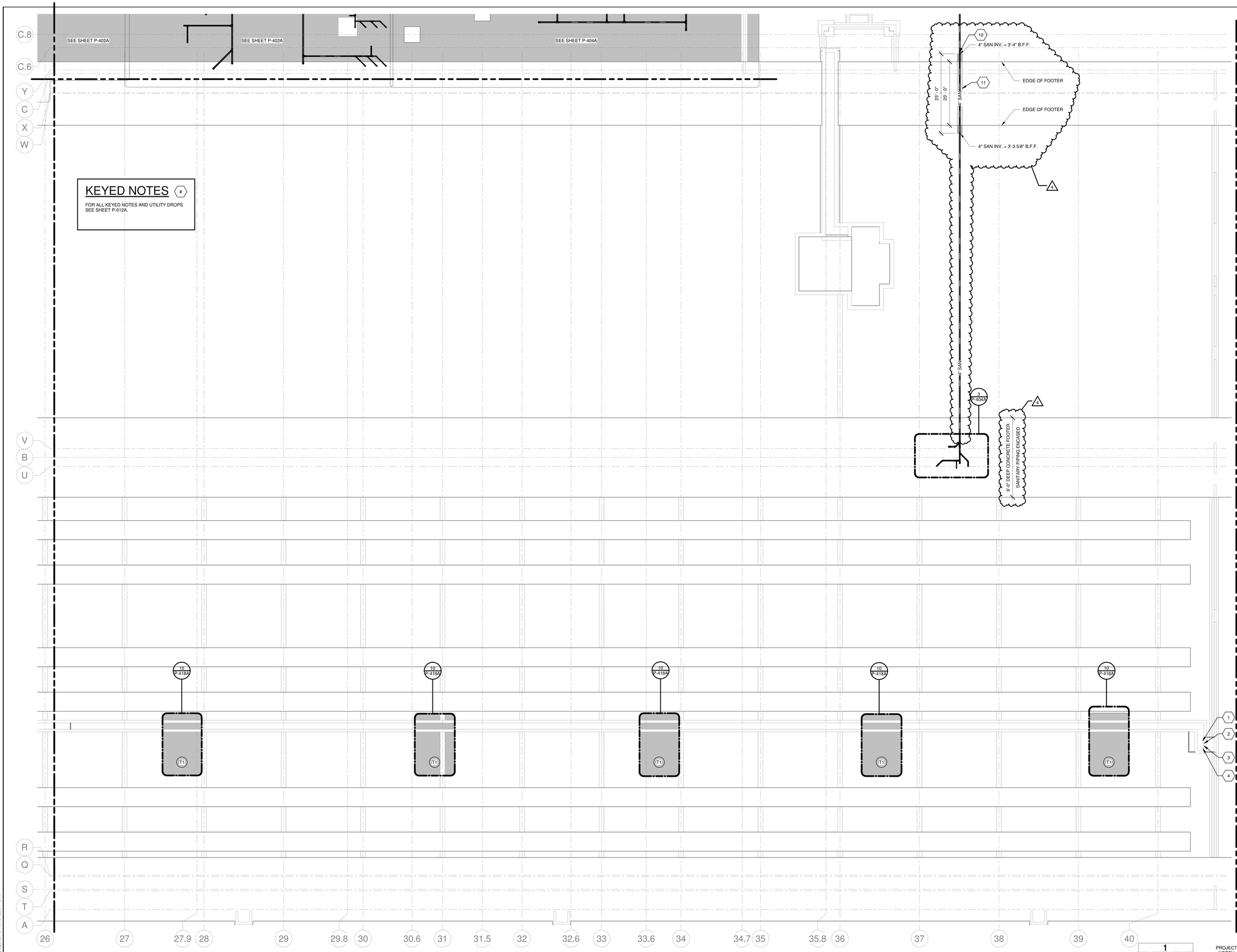
DRAWING TITLE

Underground Plan - Area 3

DRAWING NUMBER

P-013A

2/6/2023 11:32:09 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A P21.rvt



1 P-014A **Sub-Slab New - Area 4**

0' 10' 16' 21' 32'

3/32" = 1'-0"

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
4	IFC SET	1/30/2023

DRAWING TITLE

Underground Plan - Area 4

DRAWING NUMBER

P-014A

2/6/2023 11:32:06 AM
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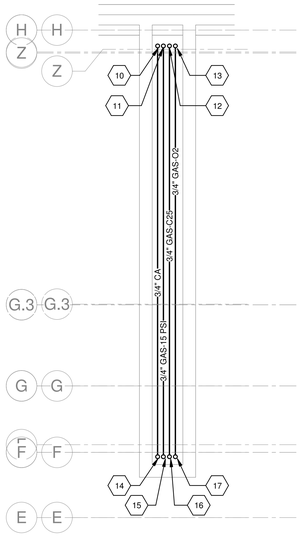
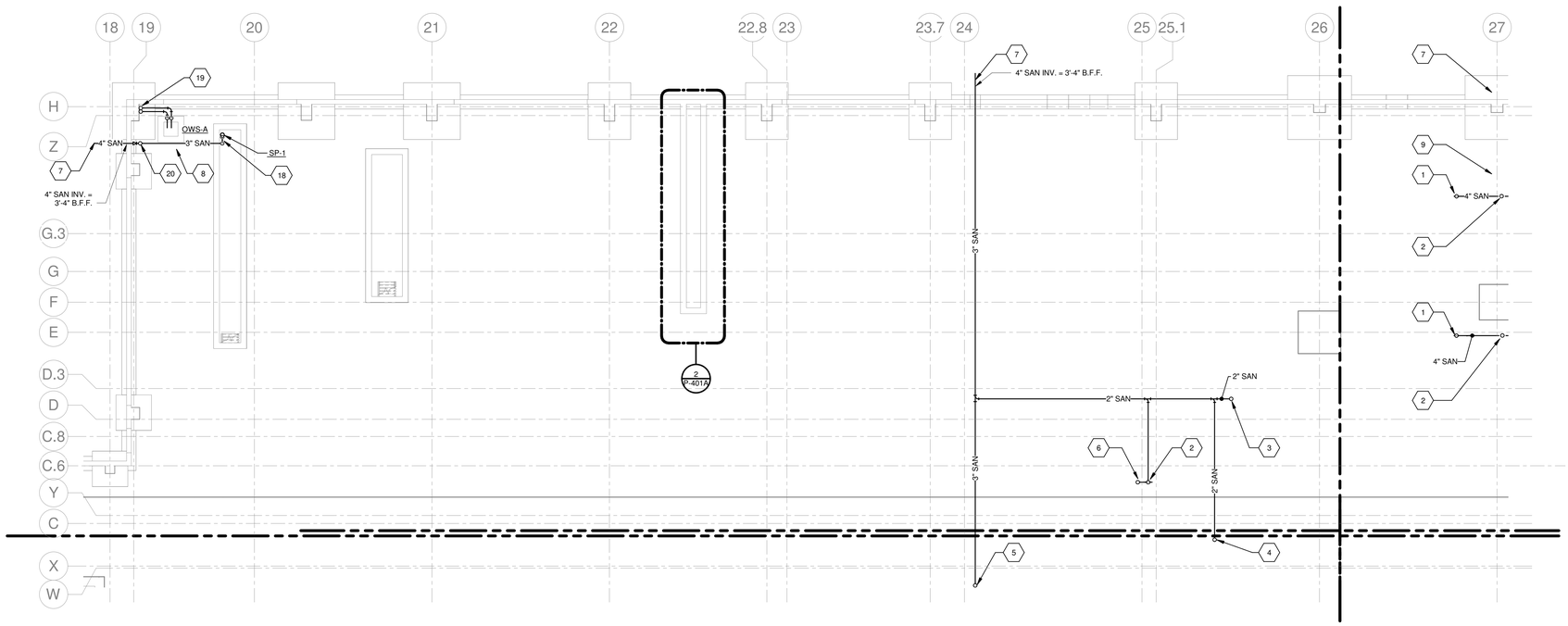


2 P-401A **Enlarged Annex A - Sub-Slab Trench 1**

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



1 P-401A **Enlarged Annex A - Sub-Slab Area 1.1**

0' 2' 4' 8' 16'
1/8" = 1'-0"

1

2 3 4

PROJECT NORTH

KEYED NOTES

1. PROVIDE 4" TRAPPED SAN CONNECTION TO FLOOR DRAIN. SEE DETAIL 6/P-500A.
2. PROVIDE 1-1/2" V UP TO WALL.
3. PROVIDE 2" UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
4. PROVIDE 2" SAN UP TO WALL.
5. PROVIDE 3" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
6. PROVIDE 2" SAN UP TO WALL TO WORK SINK.
7. SEE C-SERIES DRAWINGS FOR CONTINUATION.
8. PROVIDE OIL WATER SEPARATOR (OWS-A) TO SERVE VEHICLE MAINTENANCE STORAGE AREA ABOVE.
9. 4" CWS WATER SERVICE ENTERING BUILDING A. 4" CWS UP TO SPRINKLER/PLUMBING ROOM. SEE P-411A FOR CONTINUATION.
10. PROVIDE 3/4" CA RISER UP FROM UNDERGROUND TRENCH TO MAIN. SEE P-410A & P-418A FOR CONTINUATION.
11. PROVIDE 3/4" GAS-15 PSI RISER UP FROM UNDERGROUND TRENCH TO MAIN. SEE P-410A & P-418A FOR CONTINUATION.
12. PROVIDE 3/4" GAS-C25I RISER UP FROM UNDERGROUND TRENCH TO MAIN. SEE P-410A & P-418A FOR CONTINUATION.
13. PROVIDE 3/4" GAS-O2 RISER UP FROM UNDERGROUND TRENCH TO MAIN. SEE P-410A & P-418A FOR CONTINUATION.
14. PROVIDE 3/4" CA RISER UP FROM UNDERGROUND TRENCH TO SERVE VEHICLE MAINTENANCE STORAGE AREA. SEE P-410A FOR CONTINUATION.
15. PROVIDE 3/4" GAS-15 PSI RISER UP FROM UNDERGROUND TRENCH TO SERVE VEHICLE MAINTENANCE STORAGE AREA. SEE P-410A FOR CONTINUATION.
16. PROVIDE 3/4" GAS-C25 RISER UP FROM UNDERGROUND TRENCH TO SERVE VEHICLE MAINTENANCE STORAGE AREA. SEE P-410A FOR CONTINUATION.
17. PROVIDE 3/4" GAS-O2 RISER UP FROM UNDERGROUND TRENCH TO SERVE VEHICLE MAINTENANCE STORAGE AREA. SEE P-410A FOR CONTINUATION.
18. PROVIDE SUMP PUMP (SP-1) AT BOTTOM OF PIT. EXTEND 1-1/2" PUMPED DISCHARGE UP TO 3" SAN LEAVING PIT.
19. PROVIDE 2" V (QTY. 2) UP THROUGH FLOOR SLAB.
20. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022

NO.	REVISIONS	DATE

DRAWING TITLE

Enlarged Sub-Slab Plans & Views

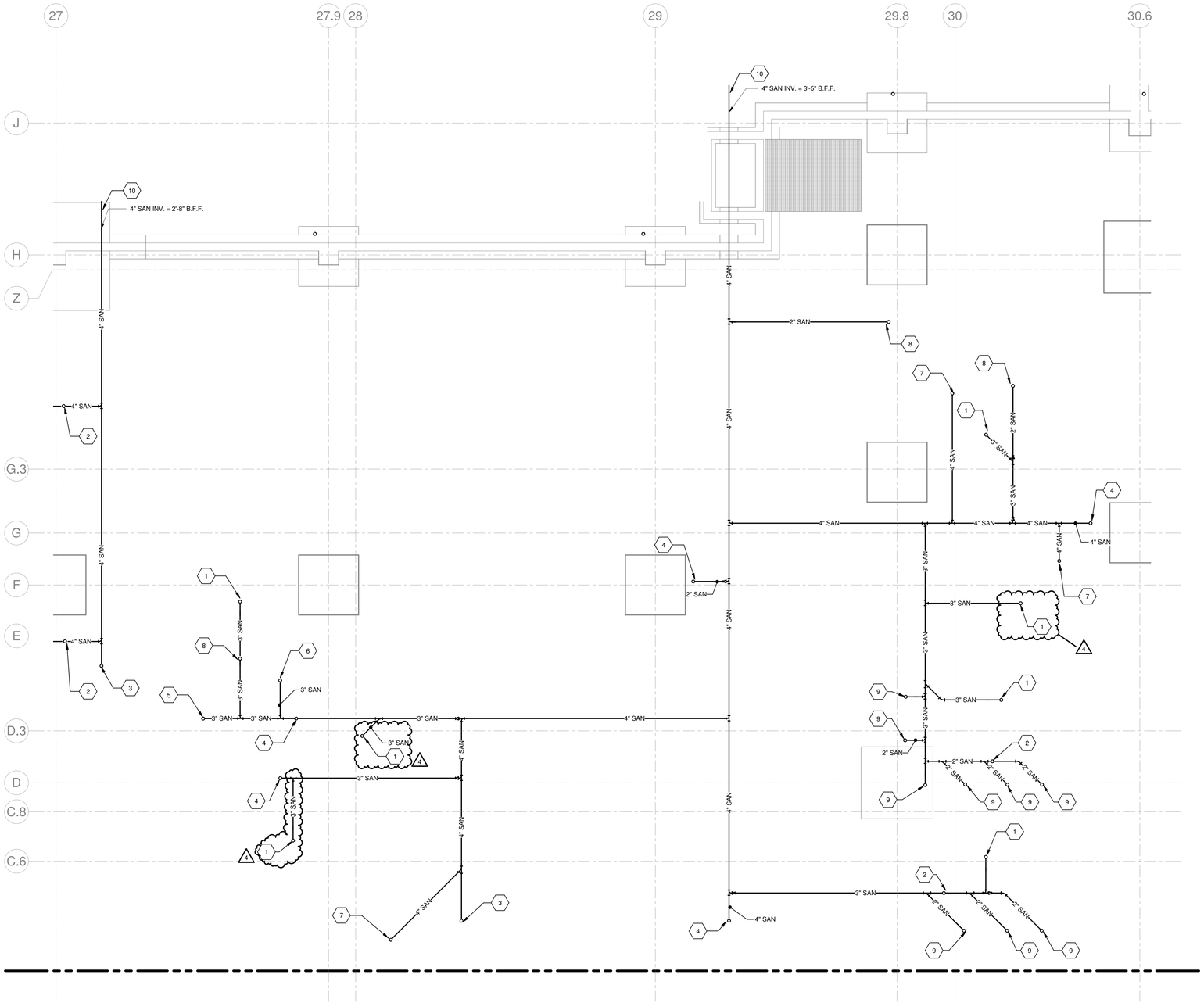
DRAWING NUMBER

P-401A

2/8/2023 11:34:01 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A-P-21.rvt

KEYED NOTES (XX)

1. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN. SEE DETAIL 6/P-500A.
2. PROVIDE 1-1/2" V UP TO WALL.
3. PROVIDE 4" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
4. PROVIDE 2" SAN UP TO CHASE.
5. PROVIDE 3" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
6. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK. SEE DETAIL 5/P-500A.
7. PROVIDE 4" SAN UP TO CHASE.
8. PROVIDE 2" SAN UP TO WALL..
9. PROVIDE 2" TRAPPED SAN CONNECTION TO SHOWER DRAIN. SEE DETAIL 6/P-500A.
10. SEE C-SERIES DRAWINGS FOR CONTINUATION.



1 P-402A **Enlarged Annex A - Sub-Slab Area 1.2.1**

0' 1' 2' 4' 8'

1/4" = 1'-0"

1 | 2 | 3 | 4

PROJECT NORTH

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SEAL

PORT OF ALBANY

MARMEN

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
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4	IFC SET	1/30/2023

NO.	REVISIONS	DATE

DRAWING TITLE

Enlarged Sub-Slab Plans & Views

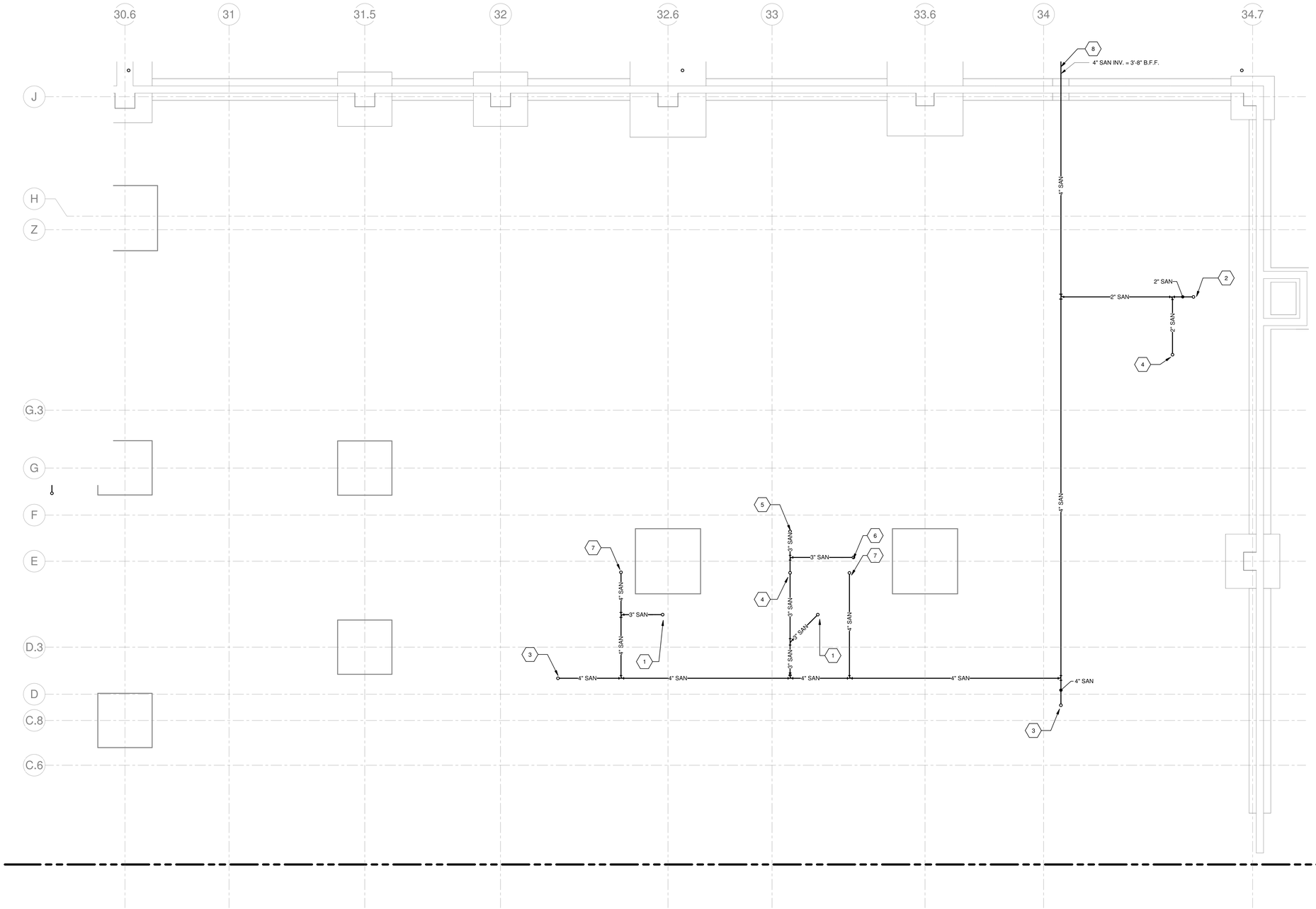
DRAWING NUMBER

P-402A

2/6/2023 11:34:03 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A P21.rvt

KEYED NOTES (XX)

1. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN. SEE DETAIL 6/P-500A.
2. PROVIDE 2" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
3. PROVIDE 4" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
4. PROVIDE 2" SAN UP TO CHASE.
5. PROVIDE 3" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
6. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK. SEE DETAIL 5/P-500A.
7. PROVIDE 4" SAN UP TO CHASE.
8. SEE C-SERIES DRAWINGS FOR CONTINUATION.



1 P-403A **Enlarged Annex A - Sub-Slab Area 1.2.2**

0' 1' 2' 4' 8'

1/4" = 1'-0"

2	1	3	4

PROJECT NORTH

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SEAL

PORT OF ALBANY

MARMEN

WELCON

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022

NO.	REVISIONS	DATE

DRAWING TITLE

Enlarged Sub-Slab Plans & Views

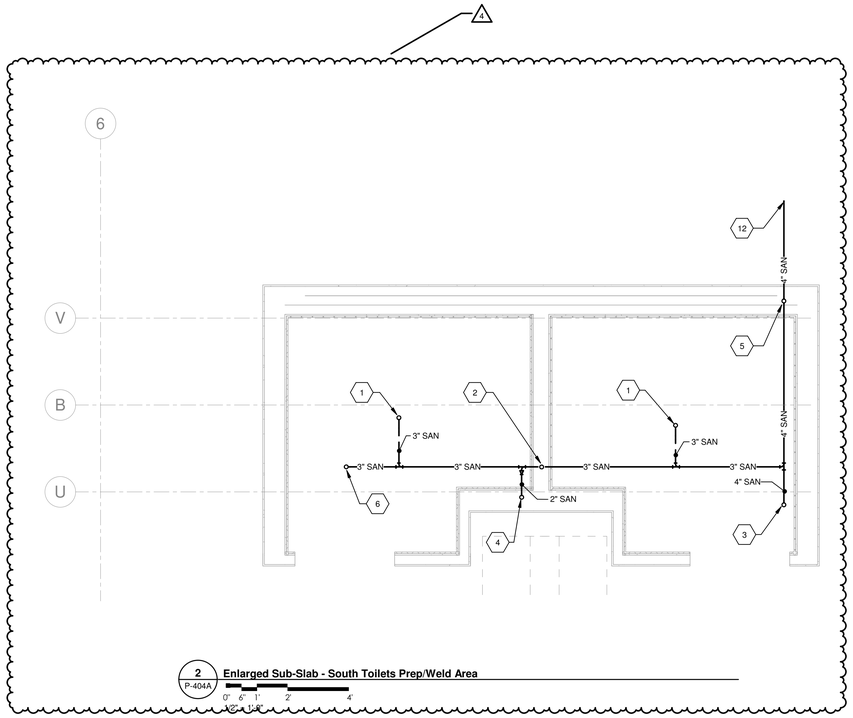
DRAWING NUMBER

P-403A

2/8/2023 11:34:05 AM
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A-P-21.rvt

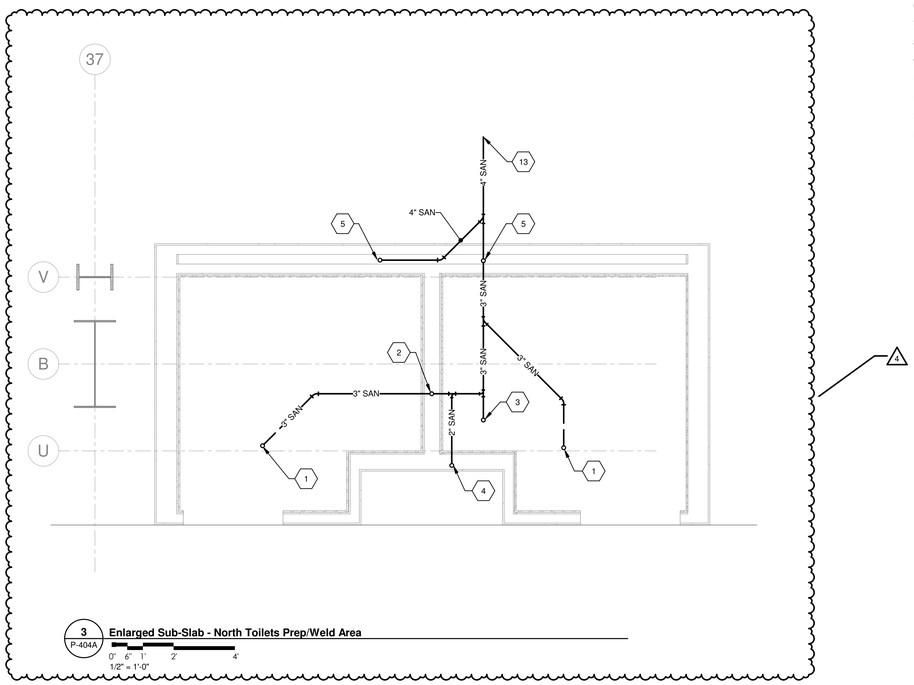
KEYED NOTES (XX)

1. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN. SEE DETAIL 6/P-500A.
2. PROVIDE 1-1/2" V UP TO WALL.
3. PROVIDE 4" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
4. PROVIDE 2" SAN UP TO WALL/CHASE.
5. PROVIDE 4" SAN UP TO CHASE.
6. PROVIDE 3" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
7. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK. SEE DETAIL 5/P-500A.
8. PROVIDE 2" SAN UP TO FLOOR CLEANOUT. SEE DETAIL 3/P-500A.
9. PROVIDE 2" SAN UP TO WALL.
10. SEE P-013A FOR 2" SAN. CONTINUATION.
11. SEE P-012A FOR SANITARY MAIN CONTINUATION.
12. SEE P-013A FOR SANITARY MAIN CONTINUATION.
13. SEE P-014A FOR SANITARY MAIN CONTINUATION.



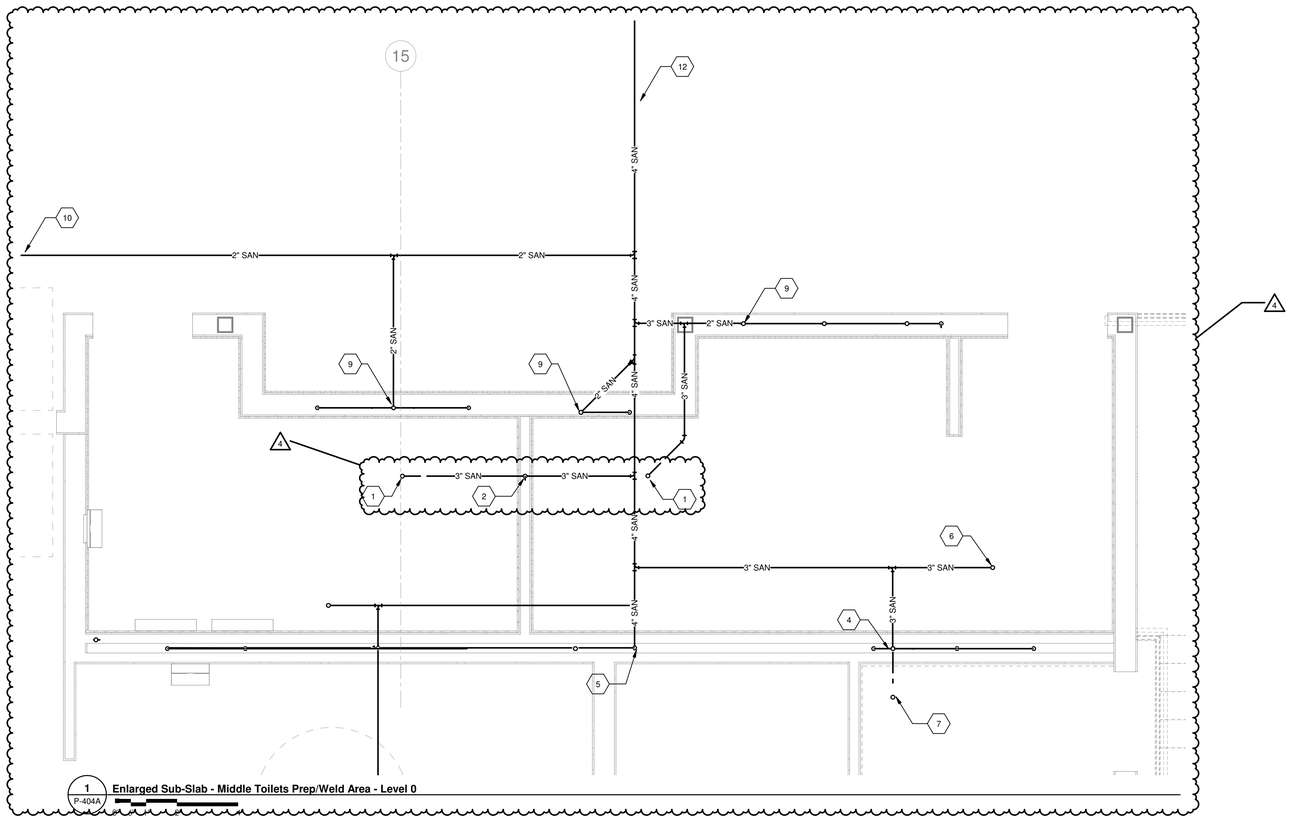
2 P-404A **Enlarged Sub-Slab - South Toilets Prep/Weld Area**

0" 6" 1' 2' 4'
1/2" = 1'-0"



3 P-404A **Enlarged Sub-Slab - North Toilets Prep/Weld Area**

0" 6" 1' 2' 4'
1/2" = 1'-0"



1 P-404A **Enlarged Sub-Slab - Middle Toilets Prep/Weld Area - Level 0**

1/2" = 1'-0"

1
2 3 4

PROJECT NORTH

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SEAL

PORT OF ALBANY

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

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4	IFC SET	1/30/2023

NO.	REVISIONS	DATE

DRAWING TITLE

Enlarged Sub-Slab Plans & Views

DRAWING NUMBER

P-404A

2/6/2023 11:34:56 AM
Autodesk Docs://Port of Albany Explosion/POA Marmen BLDG A P-21.rvt

KEYED NOTES ⟨#⟩

1. PROVIDE 2-1/2" GAS-2PSI DROP TO GAS PRESSURE REGULATOR AT 30'-0" A.F.F. SEE GAS PIPING SCHEMATIC ON SHEET P-600A.
2. PROVIDE 2-1/2" GAS FROM GAS PRESSURE REGULATOR AT 30'-0" A.F.F. UP TO ROOF STRUCTURE. SEE GAS PIPING SCHEMATIC ON SHEET P-600A.
3. PROVIDE 3" GAS-2PSI DROP TO GAS PRESSURE REGULATOR AT 30'-0" A.F.F. SEE GAS PIPING SCHEMATIC ON SHEET P-600A.
4. PROVIDE 3" GAS FROM GAS PRESSURE REGULATOR AT 30'-0" A.F.F. UP TO ROOF STRUCTURE. SEE GAS PIPING SCHEMATIC ON SHEET P-600A.
5. PROVIDE 1" GAS TO RADIANT HEATING BURNER.
6. PROVIDE 3/4" CWS DROP TO 10' A.F.F.
7. PROVIDE 3/4" GAS-O2 RISER FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-401A FOR CONTINUATION.
8. PROVIDE 3/4" GAS-C25 RISER FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-401A FOR CONTINUATION.
9. PROVIDE 3/4" GAS-15 PSI RISER FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-401A FOR CONTINUATION.
10. PROVIDE 3/4" CA RISER FROM UNDERGROUND TRENCH BELOW SLAB. SEE P-401A FOR CONTINUATION.
11. PROVIDE 2" CA RISER UP. SEE SHEET P-113A FOR CONTINUATION.
12. PROVIDE 3" GAS-15PSI RISER UP. SEE SHEET P-113A FOR CONTINUATION.
13. PROVIDE 1-1/4" GAS-C25 RISER UP. SEE SHEET P-113A FOR CONTINUATION.
14. PROVIDE 2" GAS-O2 RISER UP. SEE SHEET P-113A FOR CONTINUATION.
15. PROVIDE 2" CWS RISER UP. SEE SHEET P-113A FOR CONTINUATION.
16. PROVIDE 3/4" CWS DROP TO WALL WATER HEATER (DWH-A2). PROVIDE 1-1/4" TWS FROM (DWH-A2) TO SERVE OWNER PROVIDED EMERGENCY WASH STATION.
17. PROVIDE OIL WATER SEPARATOR (OWS-A) TO SERVE VEHICLE MAINTENANCE STORAGE. SEE SHEET P-401A FOR SANITARY CONNECTION.
18. SEE CONTINUATION ON P-411A.
19. PROVIDE 1-1/4" GAS-15PSI DROP TO GAS PRESSURE REGULATOR (GPR-A10).
20. PROVIDE 1-1/2" GAS RISER FROM GAS PRESSURE REGULATOR (GPR-A10) TO ABOVE MAKEUP AIR UNITS.
21. PROVIDE 1-1/2" GAS DROP TO MAKEUP AIR UNIT. SEE DETAIL 5/P-500A.
22. PROVIDE 2" V (QTY. 2) FROM BELOW SLAB. MANIFOLD VENT RISERS TO A SINGLE 2" V AND EXTEND VERTICALLY TO ROOF STRUCTURE.
23. AT ELBOW FROM HORIZONTAL TO VERTICAL, EXPAND 2" V TO 3" V AND EXTEND THROUGH ROOF.

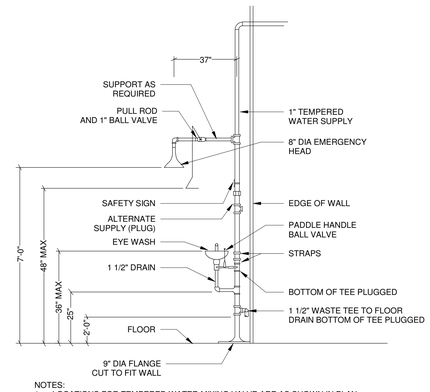
(D1) UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-301A

(D4) UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-302A

(T2) UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-302A

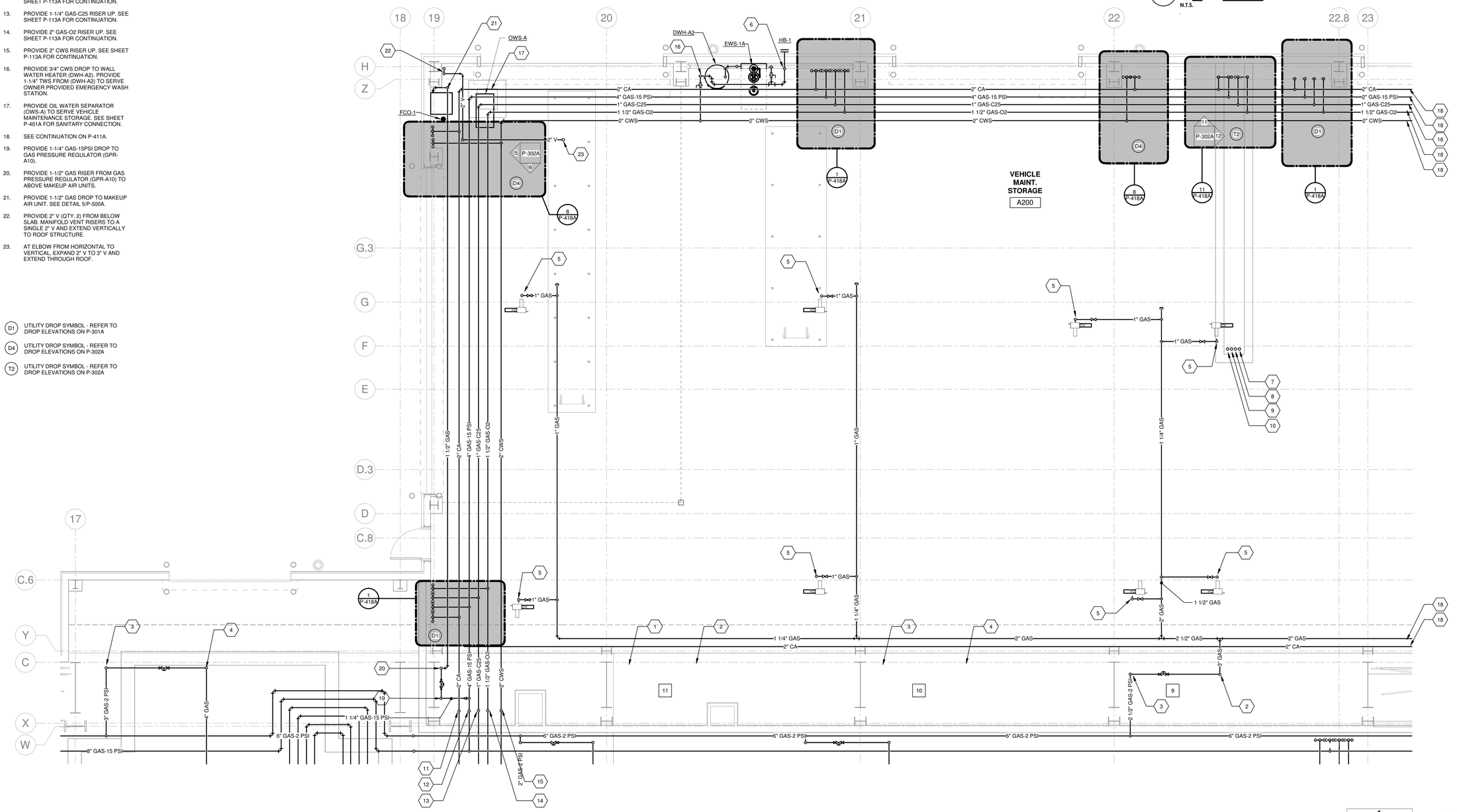
EMERGENCY FIXTURE SCHEDULE

TAG	ACCESSIBILITY DESIGNATION	BOWL MATERIAL	MOUNTING	MANUFACTURER	MODEL	FACE SPRAY HEIGHT	SHOWER HEIGHT	SUPPLY SIZE	NOTES
EWS-1A	ADA	PLASTIC	FLOOR MOUNTED	BRADLEY	S19314AA2ABAE00	41"	86"	1-1/4"	



NOTES:
1. LOCATIONS FOR TEMPERED WATER MIXING VALVE ARE AS SHOWN IN PLAN

2 P-410A **DETAIL - EMERGENCY EYEWASH SHOWER**
N.T.S.



1 P-410A **Enlarged Annex A - Area 1.1.1**
1/4" = 1'-0"

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022

NO.	REVISIONS	DATE

DRAWING TITLE

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P-410A

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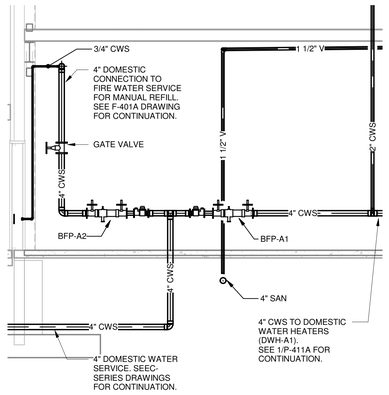
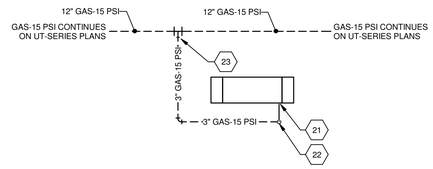
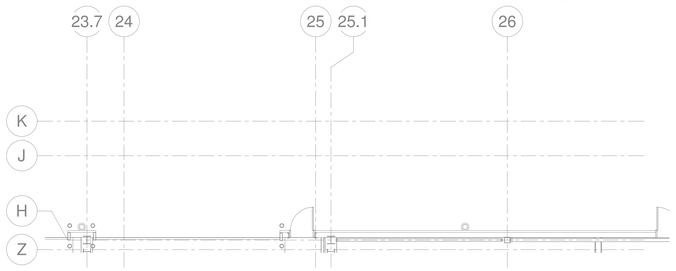


2 P-411A **17.PLUMBING ELEVATION - WATER SERVICE ENTRY**

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





3 P-411A **Enlarged Annex A - Emergency Generator**

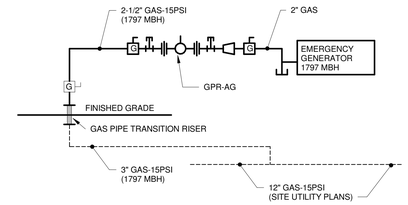
0' 2' 4' 8' 16'
1/8" = 1'-0"

KEYED NOTES (XX)

1. PROVIDE 4" WATER SERVICE WITH TEE FITTING FOR FIRE PROTECTION SERVICE CONNECTION. PROVIDE BALL VALVE 12" A.F.F. PROVIDE 4" BACKFLOW PREVENTER (RPZ-1).
2. SEE FIRE PROTECTION PLANS FOR DOMESTIC CONNECTION. (F-401A)
3. PROVIDE 2" V FROM BELOW FLOOR TO BELOW SPRINKLER ROOM CEILING.
4. PROVIDE 2" CWS UP ABOVE SPRINKLER CEILING TO DISTRIBUTE TO OTHER LOCATIONS.
5. PROVIDE 3" VENT THROUGH ROOF. SEE DETAIL 7/P-500E.
6. PROVIDE 1-1/4" GAS DROP TO BOILER. BOILER BY M.C. FINAL CONNECTION BY P.C.
7. PROVIDE 1" GAS DROP TO DOMESTIC WATER HEATER (DWH-A). SEE ELEVATIONS FOR MORE DETAILS.
8. PROVIDE 1-1/2" HWS DROP TO OUTLET OF MIXING VALVE (MIX-A).
9. PROVIDE 1-1/4" HWR DROP TO INLET OF MIXING VALVE (MIX-A).
10. PROVIDE 1/2" CWS & 1/2" HWS DROP INTO CHASE TO SERVE BACK-TO-BACK FIXTURES.
11. PROVIDE 1-1/2" V UP TO ABOVE CEILING AND THROUGH ROOF. SEE DETAIL 7/P-500A.
12. PROVIDE WORK SINK (WS-1). PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DROP IN WALL, EXTENDING TO 2" AT SLAB.
13. NOTE DELETED.
14. NOTE DELETED.
15. PROVIDE 1" GAS CONNECTION TO RADIANT HEATER BURNER. HEATER BY M.C. FINAL CONNECTION BY P.C. SEE DETAIL 6/P-600A.
16. PROVIDE 3" GAS-2 PSI DROP TO GAS PRESSURE REGULATOR.
17. PROVIDE 3" GAS RISE FROM GAS PRESSURE REGULATOR TO ROOF STEEL. SEE CONTINUATION ON P-113A.
18. PROVIDE HOSE BIBB (HB-2) 18" A.F.F. PROVIDE 3/4" CWS DOWN IN WALL TO HOSE BIBB.
19. SEE CONTINUATION ON P-411A.
20. SEE CONTINUATION ON P-413A.
21. PROVIDE 2" GAS-15PSI TO GAS PRESSURE REGULATOR **(GPR-AG)**. EXTEND GAS TO EMERGENCY GENERATOR.
22. AT PENETRATION THROUGH GRADE SURFACE, PROVIDE GAS PIPE TRANSITION RISER TO TRANSITION FROM UNDERGROUND HDPE TO ABOVE GROUND STEEL PIPE.
23. CONNECT 3" GAS-15PSI TO GAS MAIN SHOWN ON SITE UTILITY PLANS.

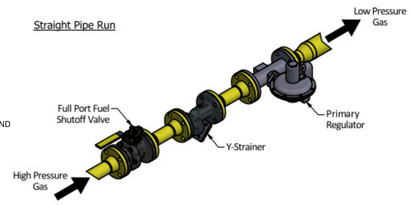
D2 UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-301A

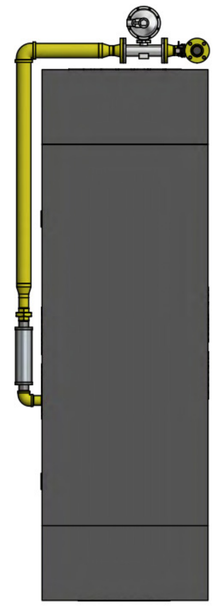
D4 UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-302A



5 P-411A **GAS PIPING SCHEMATIC - EMERGENCY GENERATOR**

N.T.S.





Installation Notes:

1) Recommended Natural Gas Regulator Manufacturers:
Sensus
Emerson
Fisher Itron

2) The primary regulator shall be an internal positive lockup type regulator. This drawing applies for the use of internally registered regulators only.

3) A standard HVAC type or regular appliance type regulator is prohibited.

4) The generator set must have its own dedicated fuel supply. DO NOT connect any other loads to the outlet of the primary regulator.

5) The primary regulator must be sized to provide the required flow at the rated pressure to the generator at its full load capacity.

6) The primary regulator spring shall be sized for required generator operating pressure.

7) Use black iron piping rigidly mounted and protected against vibration.

8) The flexible fuel line is to be installed as straight as possible with no kinks, bends or curves.

9) The flexible fuel line is not intended to correct misaligned pipe sections or act as an elbow.

10) The primary regulator vents must be oriented downwards to prevent insects and water from entering the regulator case.

11) The primary regulator vent lines are to be kept as short as possible to prevent affecting the regulators response time.

12) Properly purge and leak test installed piping.

13) Pipe over-sizing to be no more than one-inch larger than the inlet on the generator

14) Set the primary regulator pressure for the generator while running at NO LOAD.

15) The pressure should be set 0.5-1.0 inches of Water Column BELOW the maximum generator operating pressure. For units configured for 7-11 inches of water column, set the primary generator regulator to 10.0-10.5 inches of water column at NO LOAD. For units configured for 11-14 inches of water column, set the primary generator regulator to 13.0-13.5 inches of water column at NO LOAD.

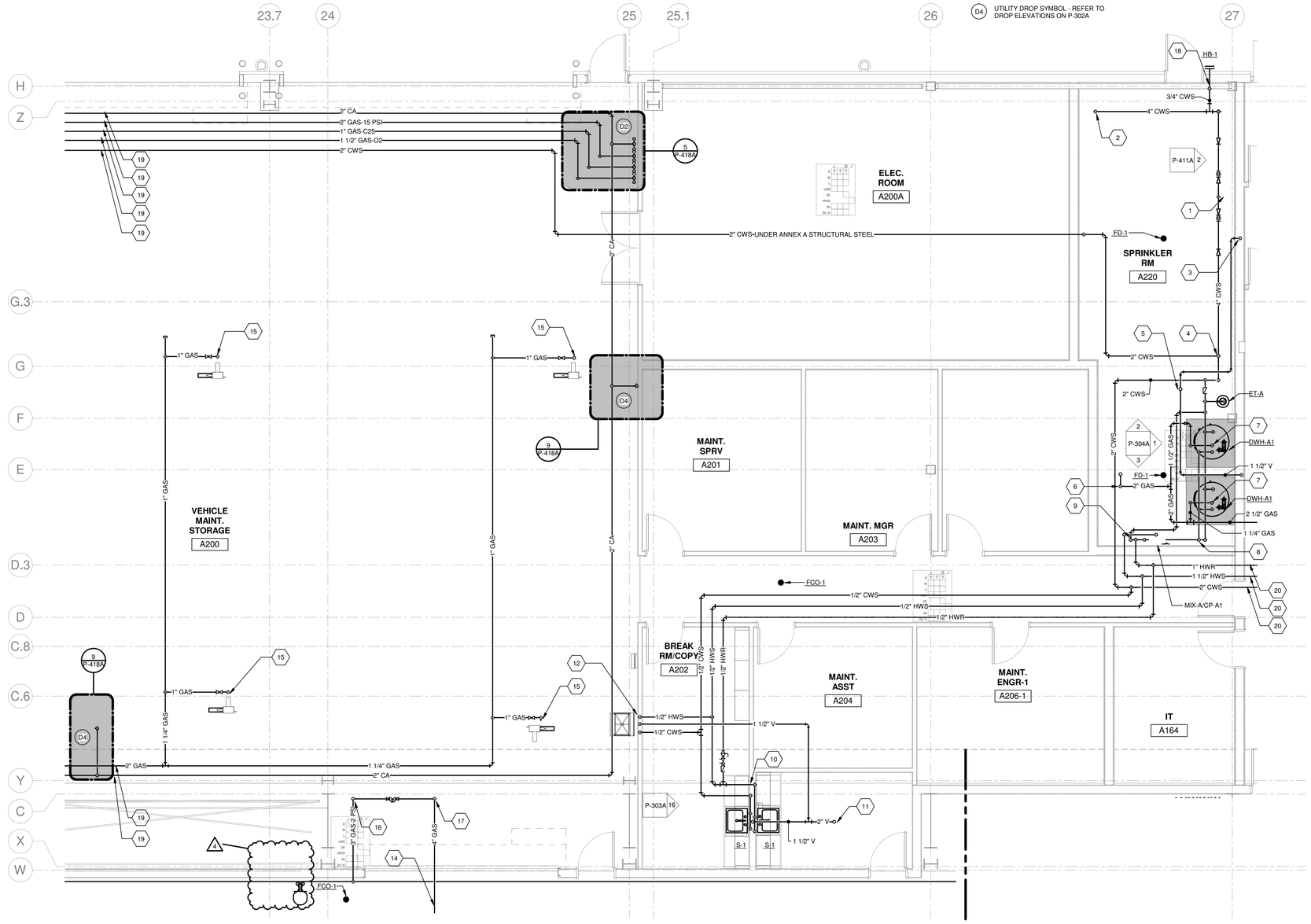
16) Measurements shall be taken at the generator fuel pressure test port on the inside of the generator frame.

17) Install a full port fuel shutoff valve and sediment trap on the high pressure side of the primary generator regulator as shown on the drawing.

18) Please reference Generac Natural Gas Design Guidelines for any additional information.

4 P-411A **EMERGENCY GENERATOR PIPING**

N.T.S.



1 P-411A **Enlarged Annex A - Area 1.1.2**

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

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

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DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

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	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

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P-411A

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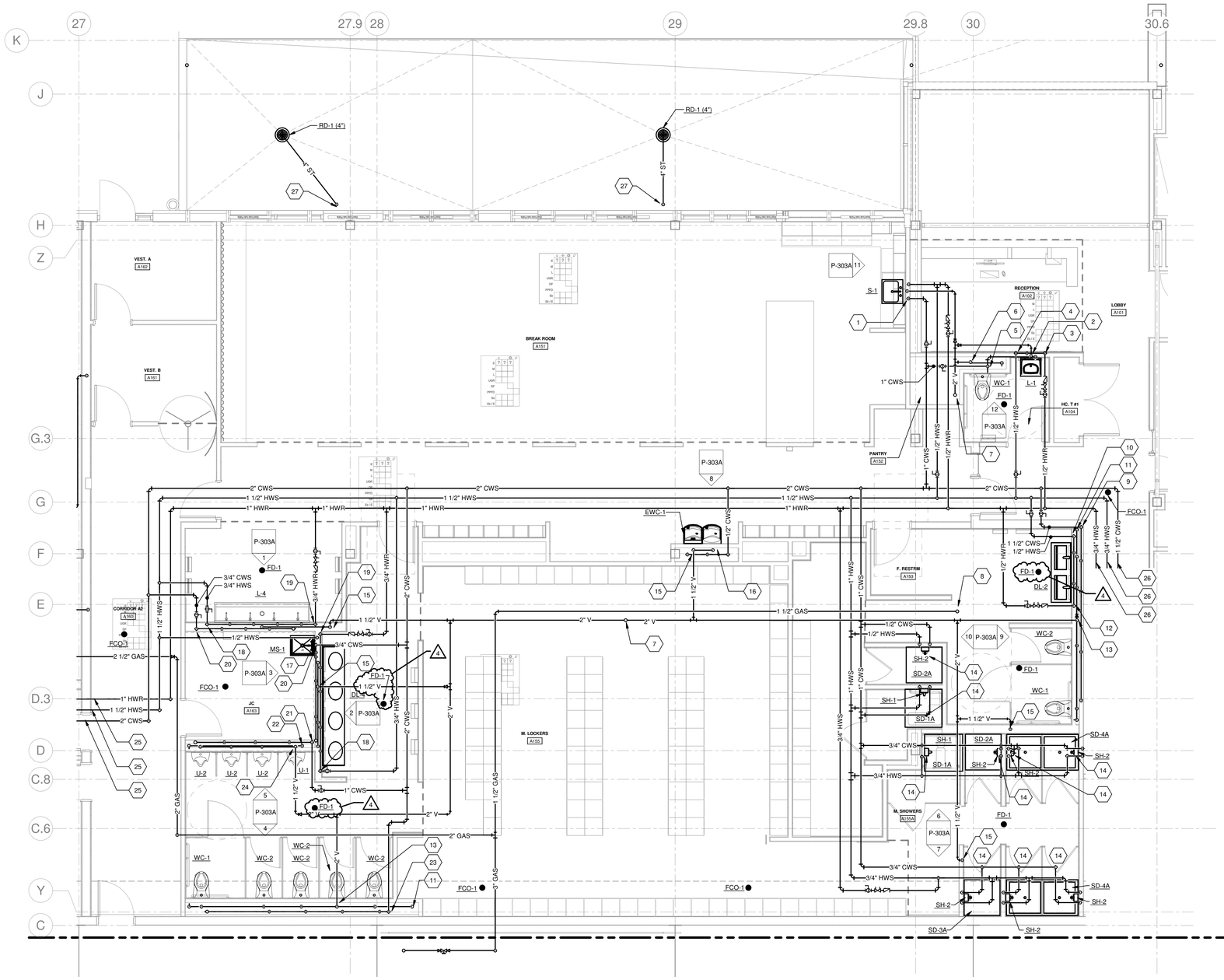
KEYED NOTES (XX)

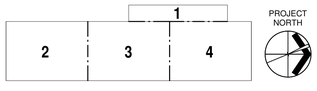
1. PROVIDE SINK (S-1) IN G.C. COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL. EXPANDING TO 2" SAN AT FLOOR.
2. PROVIDE 1-1/2" V DROP IN WALL TO LAVATORY. PROVIDE 1-1/2" SAN DOWN IN WALL. EXPANDING TO 2" SAN AT FLOOR.
3. PROVIDE 1/2" HWR DROP FROM LAVATORY AND EXTEND TO 3/4" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
4. PROVIDE 1/2" HWS DROP IN CHASE/WALL TO SERVE LAVATORY.
5. PROVIDE 1" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. CONTINUE 1/2" CWS TO LAVATORY.
6. PROVIDE 2" V DROP IN WALL TO WATER CLOSET. PROVIDE 4" SAN AT FLOOR.
7. PROVIDE 2" V UP TO HIGH ROOF. SEE DETAIL 7/P-500A.
8. PROVIDE 2" GAS UP TO ROOF TO SERVE ROOFTOP HVAC ROOF TOP EQUIPMENT.
9. PROVIDE 1-1/2" CWS DROP IN CHASE TO SERVE LAVATORIES AND WATER CLOSETS.
10. PROVIDE 1/2" HWS DROP IN CHASE/WALL TO SERVE LAVATORIES.
11. PROVIDE 4" SAN DROP AT FLOOR.
12. PROVIDE 1/2" HWR DROP FROM LAVATORIES AND EXTEND TO 3/4" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
13. PROVIDE 2" V DROP IN CHASE/WALL.
14. PROVIDE SHOWER (SH-1 OR SH-2, AS INDICATED). PROVIDE 1/2" CWS AND 1/2" HWS DROPS IN WALL TO FIXTURE.
15. PROVIDE 1-1/2" V DROP IN WALL.
16. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DOWN TO FLOOR, EXPANDING TO 2" SAN AT FLOOR.
17. PROVIDE MOP SINK (MS-1). PROVIDE 1/2" CWS AND 1/2" HWS DROPS IN WALL TO FAUCET. SEE DETAIL 5/P-500A.
18. PROVIDE 3/4" HWS DROP IN CHASE/WALL.
19. PROVIDE 3/4" HWR DROP FROM LAVATORIES AND EXTEND TO 1" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
20. PROVIDE 3/4" CWS DROP IN CHASE/WALL TO SERVE FIXTURES.
21. PROVIDE 1" CWS DROP IN CHASE/WALL TO SERVE URINAL.
22. PROVIDE 2" SAN DROP AT FLOOR.
23. PROVIDE 2" CWS DROP IN CHASE/WALL TO SERVE WATER CLOSET.
24. PROVIDE 1-1/2" V UP TO ABOVE CEILING.
25. SEE CONTINUATION ON P-411A.
26. SEE CONTINUATION ON P-413A.
27. PROVIDE 4" ST DOWN TO TRANSITION BOOT AT GRADE. SEE SITE UTILITY PLANS FOR UNDERGROUND CONTINUATION.



1 / P-412A **Enlarged Annex A - Area 1.2.1**

0' 1' 2' 4' 8'

1/4" = 1'-0"



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SEAL

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

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SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

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	SET FOR PERMIT	7/28/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

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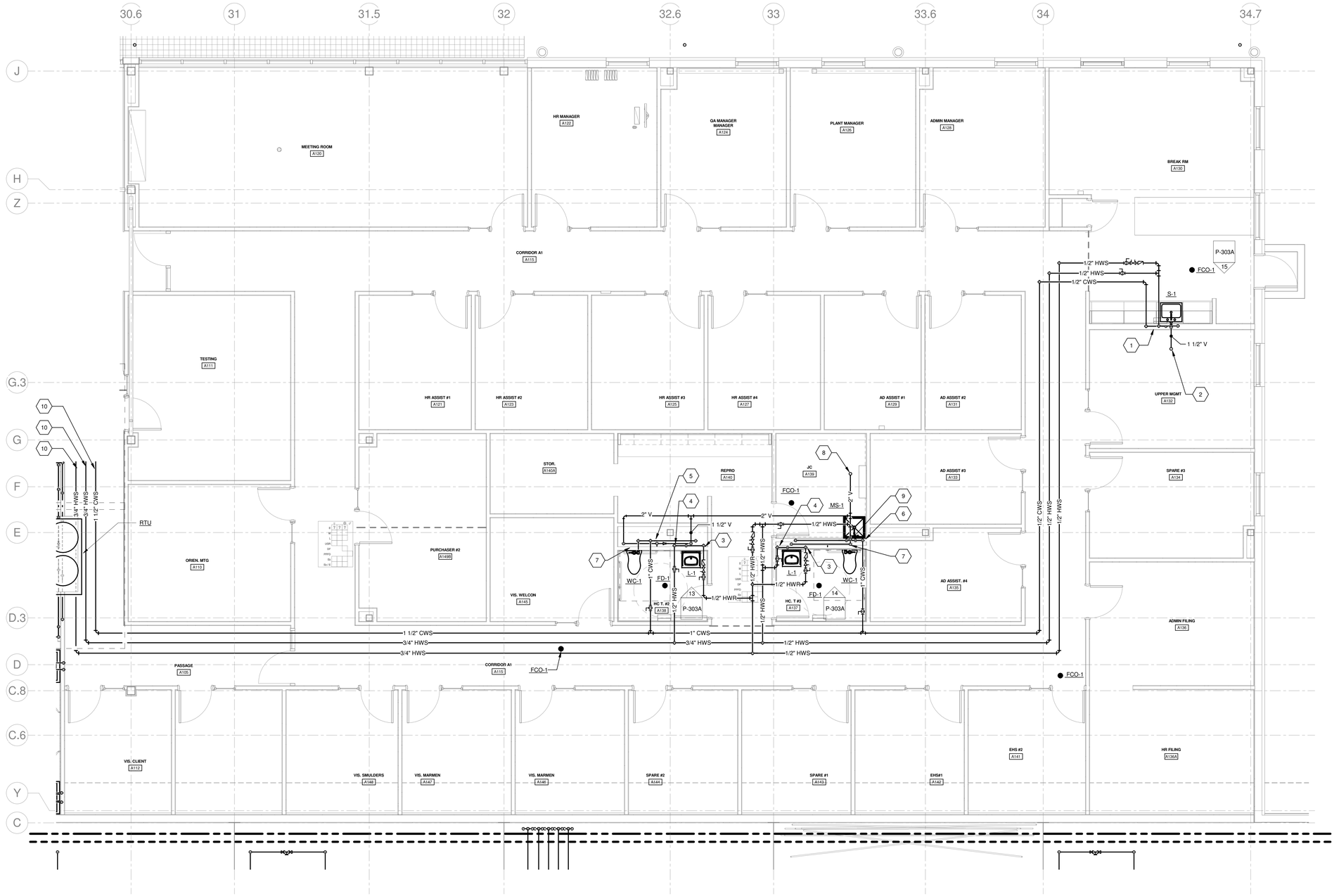
KEYED NOTES (XX)

1. PROVIDE SINK (S-2) IN G.C. COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL. EXPANDING TO 2" SAN AT FLOOR.
2. PROVIDE 1-1/2" V UP TO ABOVE CEILING. EXPAND TO 2" V AND PENETRATE THROUGH ROOF. SEE DETAIL 7/P-500A.
3. PROVIDE 1/2" HWR DROP FROM LAVATORY AND EXTEND TO 1/2" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
4. PROVIDE 1/2" HWS DROP IN CHASE/WALL TO SERVE LAVATORY.
5. PROVIDE 1" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. CONTINUE 1/2" CWS TO LAVATORY.
6. PROVIDE 1" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. PROVIDE 1/2" CWS TO MOP SINK. CONTINUE 1/2" CWS TO LAVATORY.
7. PROVIDE 2" V DROP IN WALL TO WATER CLOSET. PROVIDE 4" SAN AT FLOOR.
8. PROVIDE 2" V UP TO HIGH ROOF. SEE DETAIL 7/P-500A.
9. PROVIDE MOP SINK (MS-1). PROVIDE 1/2" HWS DROPS IN WALL TO FAUCET. SEE DETAIL 5/P-500A.
10. SEE CONTINUATION ON P-412A.



1 P-413A **Enlarged Annex A - Area 1.2.2**

1/4" = 1'-0"

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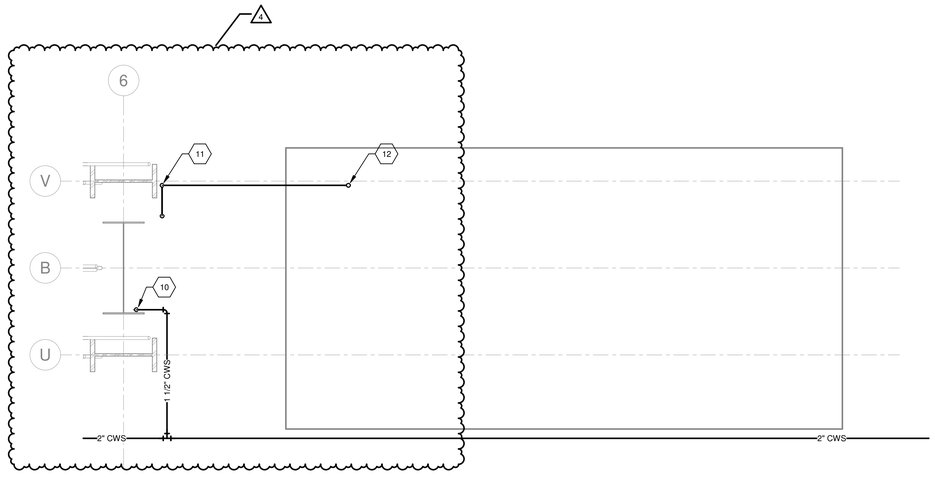
KEYED NOTES (XX)

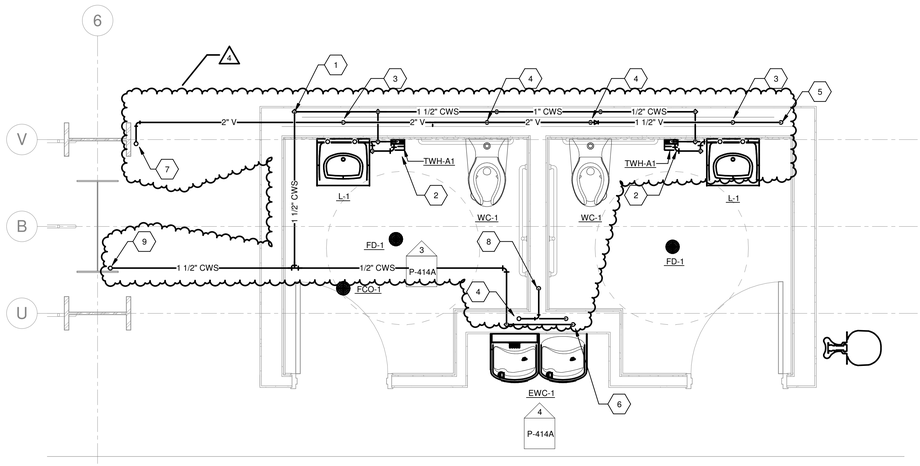
1. PROVIDE 1-1/2" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. CONTINUE 1/2" CWS TO LAVATORIES.
2. PROVIDE 1/2"CWS TO TANKLESS WATER HEATER (TWH-A1). 1/2" HWS TO LAVATORY (L-1).
3. PROVIDE 1-1/2" V DROP TO LAVATORY.
4. PROVIDE 2" V DROP TO WATER CLOSET.
5. PROVIDE 4" SAN IN CHASE DROP AT FLOOR.
6. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DOWN TO FLOOR, EXPANDING TO 2" SAN AT FLOOR.
7. PROVIDE 3" V RISER ALONG STEEL COLUMN.
8. PROVIDE 1-1/2" V DOWN TO FLOOR.
9. PROVIDE 1-1/2" CWS UP TO MEZZANINE FLOOR.
10. PROVIDE 1-1/2" CWS DROP ALONG STEEL COLUMN. TURN HORIZONTAL AT 10'-0" A.F.F. AND EXTEND TO CEILING OF TOILET ROOMS.
11. CONTINUE 3" V UP ALONG COLUMN. OFFSET AROUND BEAM AT 55'-0", THEN OFFSET BACK TO ORIGINAL ALIGNMENT. TURN HORIZONTAL AT 18" BELOW ROOF STRUCTURE.
12. EXTEND 3" VENT THROUGH ROOF.



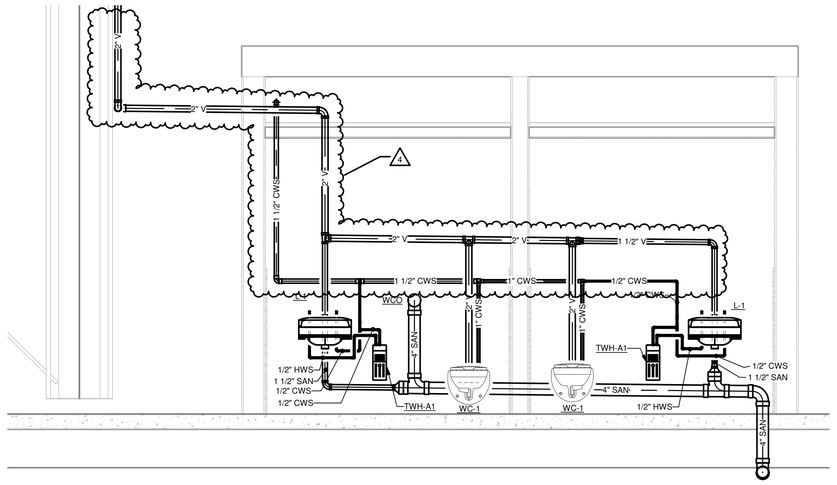
2 Enlarged Plan - South Toilets Prep/Weld Area Mezzanine
P-414A
0" 6" 1' 2' 4'
1/2" = 1'-0"

TANKLESS WATER HEATER SCHEDULE

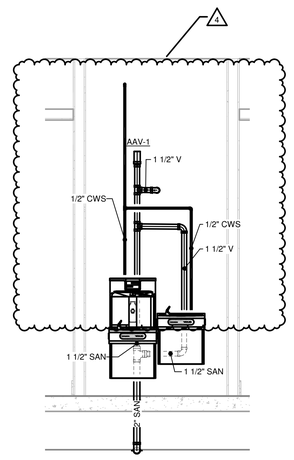
GENERAL			UNIT PERFORMANCE				ELECTRICAL REQUIREMENTS				DESIGN BASIS			
LABEL	LOCATION	TYPE	HEAT SOURCE	OUTPUT TEMP. (DEG F)	RECOVERY TEMP. RISE (DEG F)	FLOW RATE (GPM)	FLA AMPS	VOLTS	PHASE	Hz	MANUFACTURER	LINE	MODEL	NOTES
TWH-A1	VARIOUS	TANKLESS	ELECTRICITY	105	56	15	15	277	1	60	EEMAX	ACCUMIX II	AM004277T	
NOTES:														



1 Enlarged Plan - South Toilets Prep/Weld Area
P-414A
0" 6" 1' 2' 4'
1/2" = 1'-0"



3 HC.T #6 AND 7 ELEVATION - WC & LAVATORIES
P-414A
0" 6" 1' 2' 4'
1/2" = 1'-0"



4 HC.T #6 AND 7 ELEVATION - EWC
P-414A
0" 6" 1' 2' 4'
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P-414A

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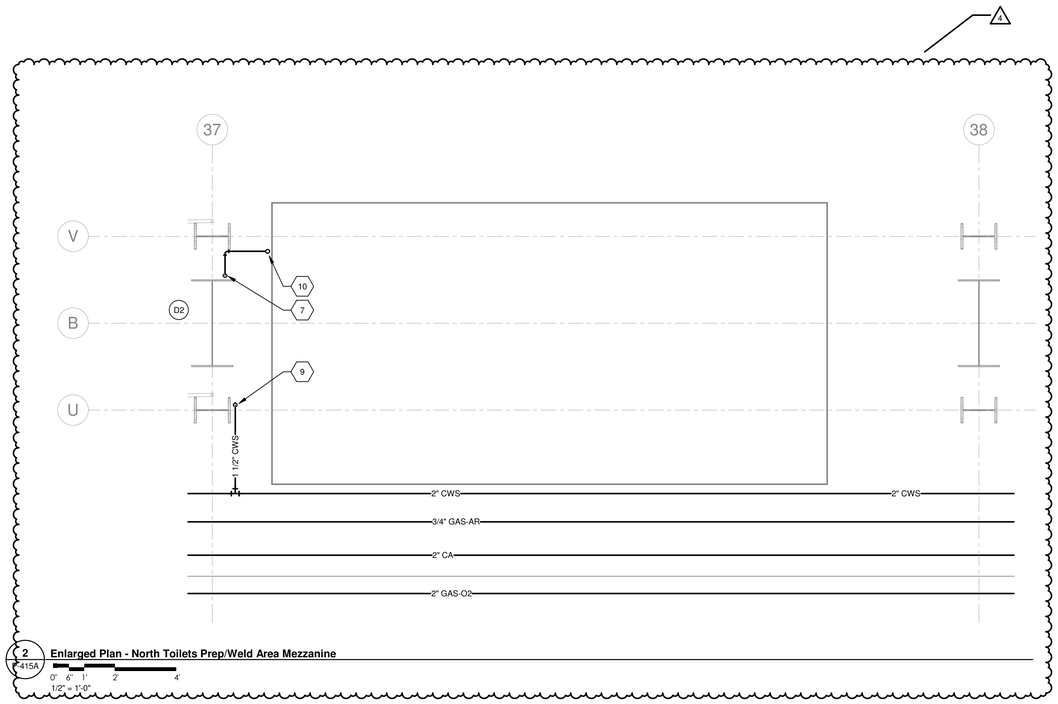
Autodesk Docs://Port of Albany Expansion/POA Marmen BLDG A P21.rvt

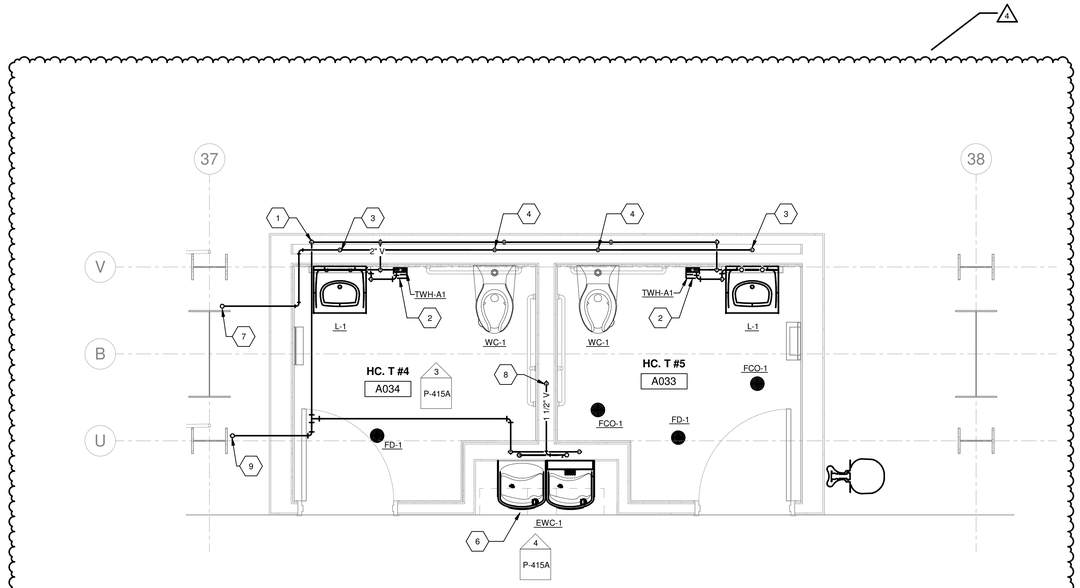
KEYED NOTES (XX)

1. PROVIDE 1-1/2" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. CONTINUE 1/2" CWS TO LAVATORIES.
2. PROVIDE 1/2" CWS TO TANKLESS WATER HEATER (TWH-A1). 1/2" HWS TO LAVATORY (L-1).
3. PROVIDE 1-1/2" V DROP TO LAVATORY.
4. PROVIDE 2" V DROP TO WATER CLOSET. PROVIDE 4" SAN DOWN THROUGH FLOOR.
5. PROVIDE 4" SAN IN CHASE DROP AT FLOOR.
6. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DOWN TO FLOOR, EXPANDING TO 4" SAN AT FLOOR.
7. PROVIDE 3" V RISER ALONG STEEL COLUMN.
8. PROVIDE 1-1/2" V DOWN TO FLOOR.
9. PROVIDE 1-1/2" CWS DROP ALONG STEEL COLUMN. TURN HORIZONTAL AT 10'-0" A.F.F. AND EXTEND TO CEILING OF TOILET ROOMS.
10. CONTINUE 3" V UP ALONG COLUMN. OFFSET AROUND BEAM AT 55'-0", THEN OFFSET BACK TO ORIGINAL ALIGNMENT. TURN HORIZONTAL AT 18" BELOW ROOF STRUCTURE.
11. EXTEND 3" VENT THROUGH ROOF.

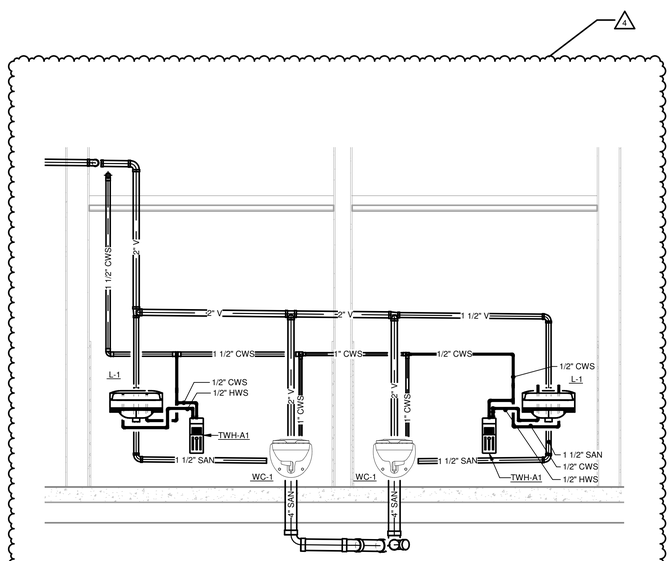
(D2) UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-301A



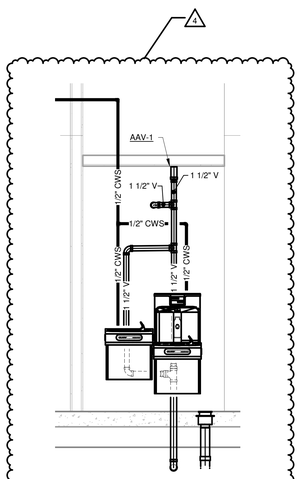
2 / P-415A **Enlarged Plan - North Toilets Prep/Weld Area Mezzanine**
1/2" = 1'-0"



1 / P-415A **Enlarged Plan - North Toilets Prep/Weld Area**
1/2" = 1'-0"



3 / P-415A **HC.T #4 AND 5 ELEVATION - WC & LAVATORIES**
1/2" = 1'-0"



4 / P-415A **HC.T #4 AND 5 ELEVATION - EWC**
1/2" = 1'-0"

1 | 2 | 3 | 4

PROJECT NORTH

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
4	IFC SET	1/30/2023

NO. REVISIONS DATE

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Enlarged Plans & Views

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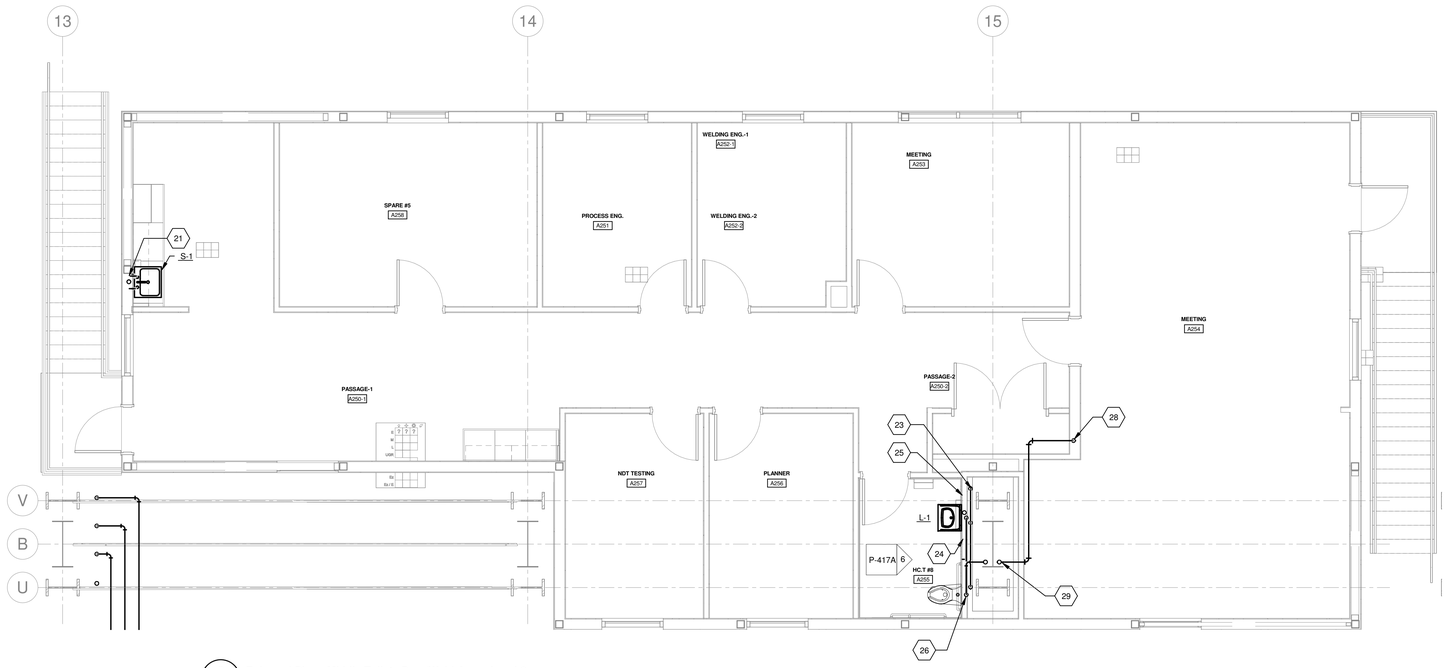
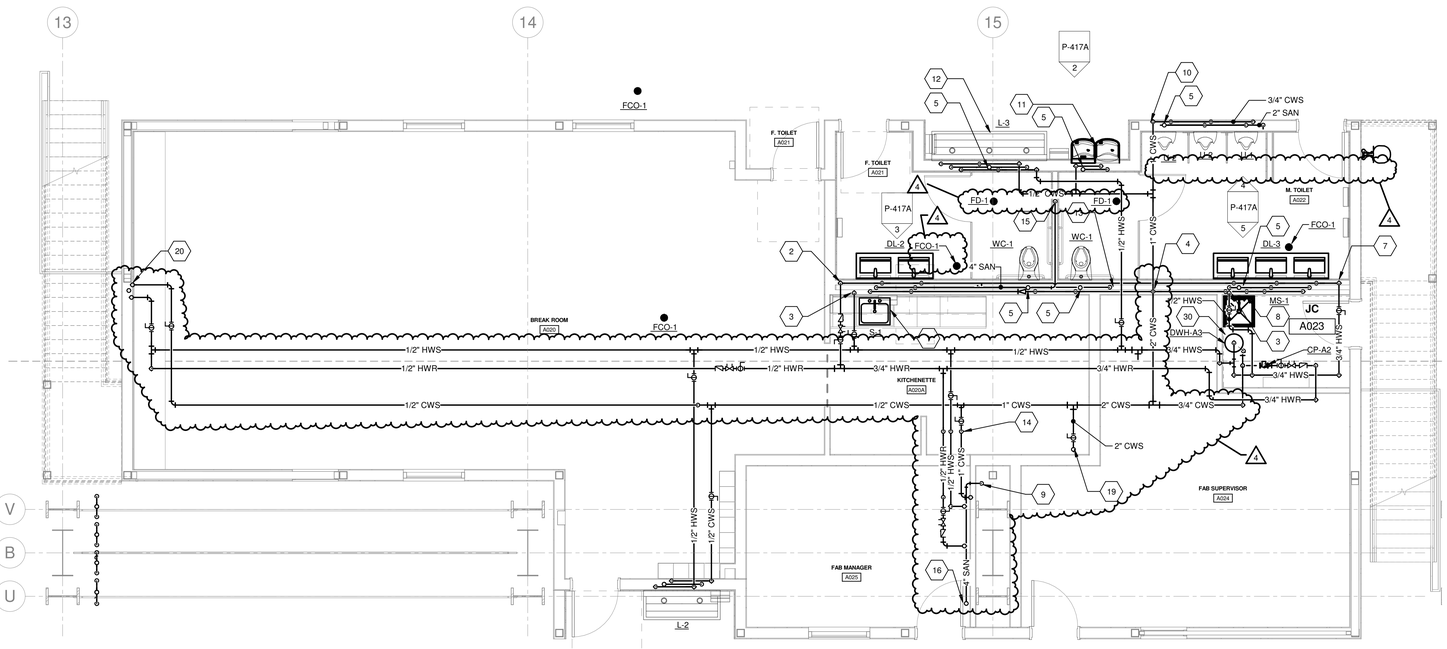


2 P-416A **Enlarged Plan - Middle Toilets Prep/Weld Area - Level 2**

0' 1' 2' 4' 8'

1/4" = 1'-0"



1 P-416A **Enlarged Plan - Middle Toilets Prep/Weld Area - Level 1**

0' 1' 2' 4' 8'

1/4" = 1'-0"

KEYED NOTES (XX)

1. PROVIDE SINK (S-1) IN G.C. COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL CHASE.
2. PROVIDE 3/4" HWR DROP FROM LAVATORY AND EXTEND TO 3/4" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
3. PROVIDE 1/2" HWS DROP IN CHASE/WALL.
4. PROVIDE 2" CWS DOWN IN CHASE/WALL. PROVIDE 1" CWS TO WATER CLOSET. CONTINUE 3/4" CWS TO LAVATORIES.
5. PROVIDE AIR ADMITTANCE VALVE (AAV-1) IN CHASE/WALL.
6. PROVIDE 1-1/2" CWS DROP IN CHASE TO SERVE BACK TO BACK FIXTURES. SEE ELEVATION FOR MORE DETAILS.
7. PROVIDE 3/4" HWS DROP IN CHASE/WALL TO SERVE LAVATORIES AND SINKS.
8. PROVIDE MOP SINK (MS-1). PROVIDE 1/2" CWS AND 1/2" HWS DROPS IN WALL TO FAUCET. SEE DETAIL 5/P-500A.
9. PROVIDE 4" SAN DOWN THROUGH SLAB.
10. PROVIDE 1" CWS DROP IN CHASE/WALL TO SERVE URINAL.
11. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DOWN TO FLOOR, EXPANDING TO 2" SAN AT FLOOR.
12. PROVIDE LAVATORY (L-3). PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL, EXPANDING TO 2" SAN AT FLOOR.
13. PROVIDE 4" SAN DROP AT FLOOR.
14. PROVIDE PIPE DROPS ON 1" CWS, 1/2" HWS, AND 1/2" HWR TO OFFSET BELOW STEEL ALONG WALL OF ADJACENT ROOM
15. PROVIDE 1-1/2" V DOWN TO FLOOR.
16. PROVIDE 4" SAN UP IN CHASE TO SECOND FLOOR.
17. PROVIDE 3/4" HWR UP IN CHASE TO SECOND FLOOR
18. PROVIDE 3/4" HWS UP IN CHASE TO SECOND FLOOR.
19. PROVIDE 1-1/2" CWS UP IN CHASE TO SECOND FLOOR.
20. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" SAN UP TO SECOND FLOOR. PROVIDE 2" SAN DROP AT FLOOR.
21. PROVIDE SINK (S-1) IN G.C. COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS IN WALL FROM BELOW. PROVIDE 1-1/2" V DROP IN WALL WITH (AAV-1) TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL CHASE.
22. DELETED
23. PROVIDE 1" CWS DOWN IN CHASE/WALL. PROVIDE 1/2" CWS TO LAVATORY. CONTINUE 1" CWS TO WATER CLOSET.
24. PROVIDE 1/2" HWR DROP FROM LAVATORY AND EXTEND TO 1/2" HWR MAIN AT CEILING. BALANCE VALVE SHALL BE SET TO 0.5 GPM.
25. PROVIDE 1/2" HWS DROP IN CHASE/WALL.
26. PROVIDE 4" SAN IN CHASE AND DROP AT FLOOR. PROVIDE 3" V RISER AND OFFSET TO EXTEND TO ROOF ALONG STEEL COLUMN. CONNECT 1-1/2" SAN FROM LAVATORY AND SINK TO AUXILIARY CONNECTION ON WATER CLOSET CARRIER. CONNECT 1-1/2" V FROM LAVATORY TO 3" V RISER.
27. NOTE DELETED.
28. PROVIDE 2" CWS DOWN TO FIRST FLOOR.
29. PROVIDE 2" CWS UP TO HIGH BAY STEEL.
30. SEE DETAIL 2/P-500 FOR SHELF MOUNTING OF WATER HEATER (DWH-A3).

(D2) UTILITY DROP SYMBOL - REFER TO DROP ELEVATIONS ON P-301A

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SEAL

PORT OF ALBANY

MARMEN

WELCON

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CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building A - 309 River Road, Glenmont, NY 12077

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

NO.	REVISIONS	DATE

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P-416A

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PROJECT NORTH

2/8/2023 11:34:37 AM
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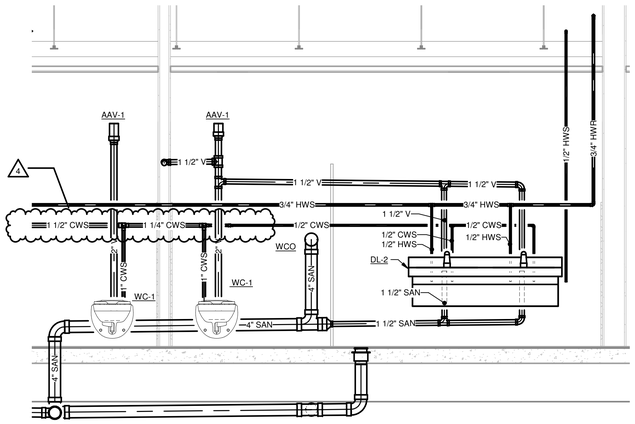
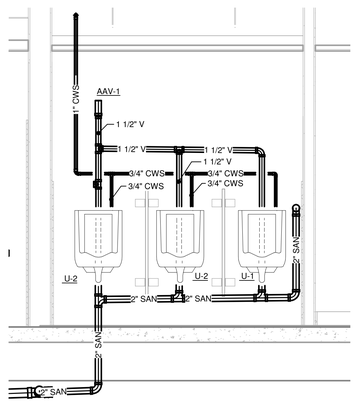
KEYED NOTES

1. PROVIDE 2" CWS FROM HIGH STEEL, DOWN ALONG STRUCTURAL STEEL, TO LOWER OFFICE LEVEL
2. PROVIDE 3" V UP TO HIGH STEEL.
3. PROVIDE 3" VENT THROUGH ROOF.



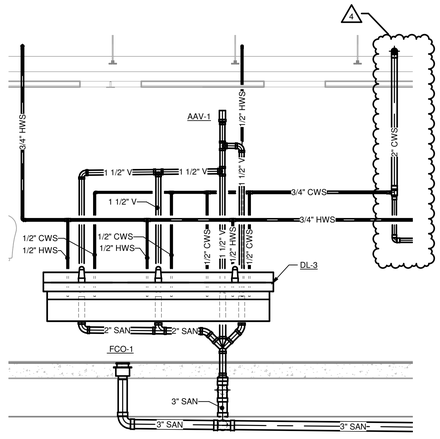
3 P-417A **F.TOILET ELEVATION - WC & LAVATORIES**

0" 6" 1' 2' 4'
1/2" = 1'-0"



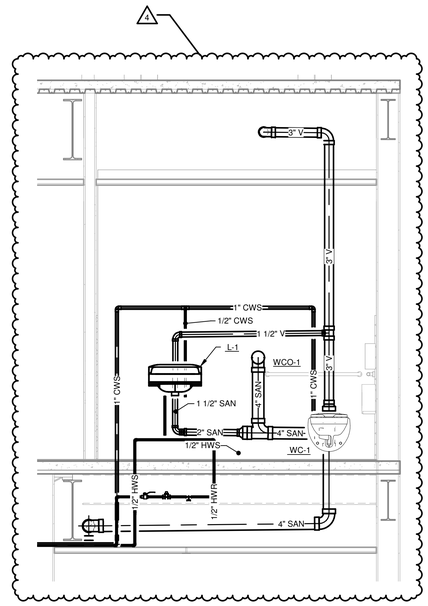
4 P-417A **M.TOILET ELEVATION - URINALS**

0" 6" 1' 2' 4'
1/2" = 1'-0"



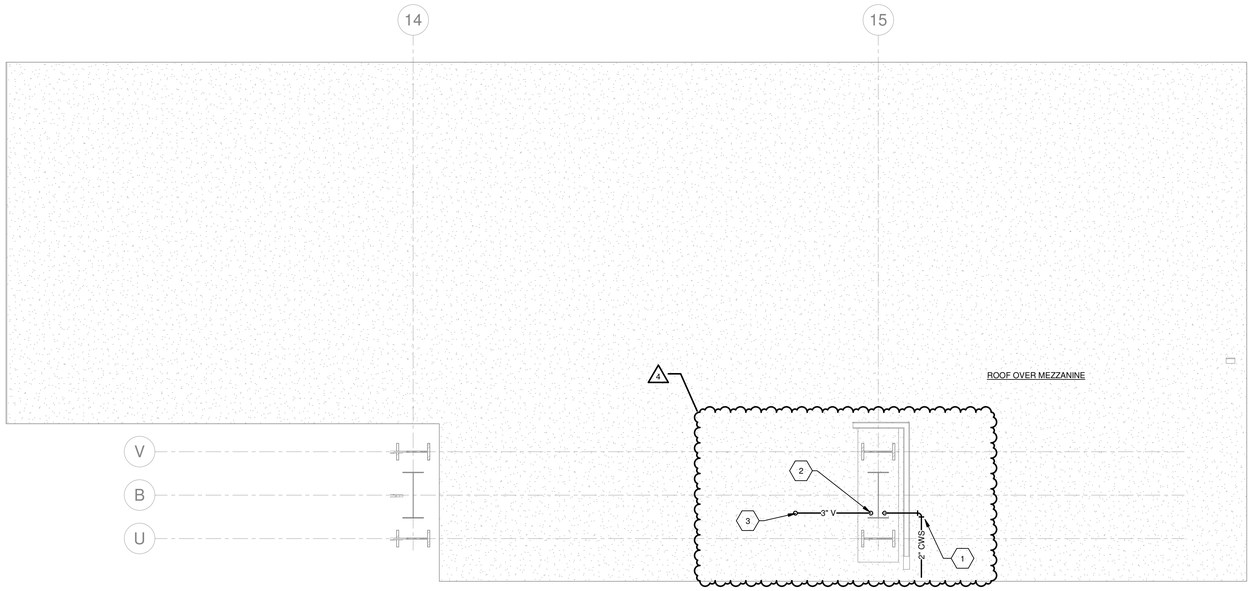
5 P-417A **M.TOILET ELEVATION - LAVATORIES**

0" 6" 1' 2' 4'
1/2" = 1'-0"



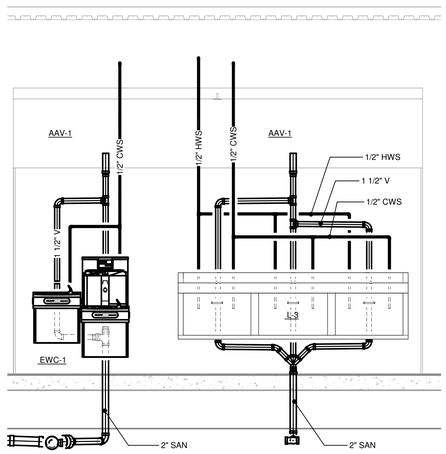
6 P-417A **HC.T #8 ELEVATION - WC & LAVATORY**

0" 6" 1' 2' 4'
1/2" = 1'-0"



1 P-417A **Enlarged Plan - Middle Toilets Prep/Weld Area - Mezzanine**

0" 6" 1' 2' 4'
1/4" = 1'-0"



2 P-417A **M./F.TOILET ELEVATION - EWC**

0" 6" 1' 2' 4'
1/2" = 1'-0"

1
2 3 4

PROJECT NORTH

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SEAL

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P-417A

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GENERAL NOTES:

1. THESE GENERAL PLUMBING NOTES SHALL APPLY TO ALL P SERIES DRAWINGS, IN COORDINATION WITH DIVISION 22 SECTIONS, AND FRONT END (DIVISION 0 AND 1) REQUIREMENTS. ALL WORK ASSOCIATED WITH THE P SERIES DRAWINGS SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID CONFLICTS.

2. ALL WORK SHALL BE PERFORMED IN COOPERATION WITH THE OWNER (AND/OR OWNER'S REPRESENTATIVE) AND THE ARCHITECT/ENGINEER THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CONSTRUCTION SCHEDULE ESTABLISHED BY THE OWNER AND ARCHITECT, AND SHALL IMMEDIATELY REPORT ANY DELAYS IN MATERIALS RECEIPT INCLUDING CIRCUMSTANCES CAUSING DELAYS.

3. CONTRACT DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF EQUIPMENT, PIPING, AND ACCESSORIES. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL CONDITIONS, DIMENSIONS, AND LOCATIONS PRIOR TO BIDDING PROJECT. CHECK PROJECT DRAWINGS PRIOR TO INSTALLATION FOR INTERFERENCES WITH OTHER TRADES. SHOULD THE CONTRACTOR FIND SUCH INTERFERENCES, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHERS. THE OWNER RESERVES THE RIGHT TO MAKE REASONABLE CHANGES PRIOR TO ROUGH-IN WITHOUT ADDED EXPENSE. DIMENSIONS INDICATED ARE SUBJECT TO VERIFICATION OF EXACT SITE CONDITIONS AT THE TIME OF INSTALLATION.
- THE CONTRACTOR SHALL INSTALL ALL PIPING, EQUIPMENT, FIXTURE, ETC. IN A WORKMAN MANNER WITH QUALIFIED PLUMBERS.

4. ALL PLUMBING WORK SHALL BE INSTALLED PER LOCAL PLUMBING CODE, HEALTH CODE, FIRE CODE, ENERGY CONSERVATION CODE, AND BUILDING CODE. ALL WORK SHALL COMPLY TO ACCORDANCE OF LOCAL, STATE AND FEDERAL REGULATIONS AND OTHER AUTHORITIES HAVING JURISDICTION.

5. CONTRACTOR RESPONSIBLE FOR PAYING FOR ALL FEES ASSOCIATED WITH OBTAINING PERMITS, INSPECTIONS, ETC.

6. THE PLUMBING CONTRACTOR SHALL BE LICENSED IN THE LOCAL JURISDICTION PRIOR TO BIDDING ON PROJECT. CONTRACTOR TO CONTACT CITY/TOWNSHIP TO VERIFY LICENSE TO ENSURE THEY ARE CURRENT.

7. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. ANY CONFLICTS WITH INSTALLATION AND MANUFACTURER RECOMMENDATIONS SHALL BE REPORTED TO ENGINEER.

8. CUTTING AND PATCHING - ALL NOTES BELOW HOLD THE COMMON CONDITION "UNLESS OTHERWISE NOTED".
- ***FOR NEW CONSTRUCTION:*** ALL CUTTING AND PATCHING THROUGH ALL WALL, CEILING, ETC. SHALL BE PROVIDED BY PLUMBING CONTRACTOR IN COORDINATION WITH THE GENERAL WORK. ALL PAINTING AND FINISHING SHALL BE DONE BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH GENERAL CONTRACTOR.
- ***OPENINGS MADE POST-FINISH:*** IF AN OPENING IS REQUIRED IN A FINISHED SURFACE, AFTER COMPLETION, DUE TO LACK OF COORDINATION OR PROPER SCHEDULE MAINTENANCE, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED TO FINISH SPECIFIC PLUMBING WORK AND RESTORE THE FINISHED SURFACE TO PREVIOUS CONDITION.
- ***UNDERGROUND PIPING (NEW CONSTRUCTION):*** TRENCHING SHALL BE BY GENERAL CONTRACTOR. PIPE INSTALLATION WITH APPROPRIATE BEDDING MATERIAL SHALL BE BY THE PLUMBING CONTRACTOR. BACKFILL ABOVE PIPE AND BEDDING SHALL BE BY THE GENERAL CONTRACTOR BASED ON REQUIREMENTS OF THE STRUCTURAL PLANS AND SPECFICATIONS.
- ***EQUIPMENT OPENINGS:*** OPENINGS REQUIRED FOR REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE CUT AND PATCHED BY THIS CONTRACTOR.

9. FURNISH AND INSTALL ALL NEW EQUIPMENT AND MATERIALS AS DESCRIBED HEREIN. ANY MATERIAL, OPERATION, METHOD, OR DEVICE MENTIONED, LISTED OR NOTED WITHIN THIS SPECIFICATION SHALL BE FURNISHED BY THIS CONTRACTOR UNLESS SPECIFICALLY MENTIONED AS BEING FURNISHED OR INSTALLED BY OTHERS.

10. ALL PIPING PENETRATING ALL FIRE-RATED WALLS, CEILINGS, FLOORS, ROOFS, ETC. SHALL BE FIRE STOPPED IN ACCORDANCE WITH DIVISION 7.

11. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE AND OPERABLE SYSTEMS, INCLUDING OPERATIONAL PROPERTIES TO THE EXTEND NECESSARY TO LINK MULTIPLE COMPONENTS OF SYSTEMS TOGETHER AND TO INTERFACE WITH SYSTEMS PROVIDED BY OTHERS. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL SYSTEMS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL PROVIDE OWNER WITH ALL NECESSARY OPERATION AND MAINTENANCE MANUALS, SHOP DRAWINGS, WIRING DIAGRAMS, AND WARRANTY PAPERWORK UPON COMPLETION OF THE PROJECT.

12. THE CONTRACTOR SHALL LOCATE ACCESS PANEL IN NON-ACCESSIBLE CEILING AND WALLS FOR ALL VALVES, SHOCK ABSORBERS, CLEANOUTS AND ALL OTHER ITEMS THAT REQUIRE ACCESS TO PROPERLY MAINTAIN OR SERVICE.

13. THE CONTRACTOR IS RESPONSIBLE FOR TESTING, AND ADJUSTING ALL PLUMBING EQUIPMENT INDICATED IN THE PLUMBING DRAWINGS.

14. THE MINIMUM SLOPE OF ALL INTERIOR SEWER LINES SHALL BE 1/4 INCH PER FOOT FOR SIZES 2-1/2" AND SMALLER, 1/8 INCH PER FOOT FOR SIZES 3"-6", AND 1/16 INCH PER FOOT FOR SIZES 8" AND GREATER. SEE SCHEDULE LOCATED ON DRAWING FOR CONNECTION SIZES FOR SANITARY, VENT, COLD, AND HOT WATER PIPING. SEE SCHEDULE FOR PIPING MATERIALS.

15. ALL PIPING PENETRATIONS THROUGH EXPOSED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS AND SEAL TO WALL OR CEILING.

16. ALL NATURAL GAS PIPING SHALL BE INSTALL PER NEW YORK FUEL GAS CODE AND AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHUT OFF GAS VALVE FOR ALL EQUIPMENT UTILIZING GAS. CONTRACTOR SHALL PROVIDE 6" DIRT LEG (MINIMUM) FOR ALL EQUIPMENT UTILIZING GAS.

17. ALL NATURAL GAS PIPING SHALL BE TESTED PER THE LIST BELOW. ALL TESTING SHALL CONFORM TO NEW YORK STATE FUEL GAS CODE.
- PRESSURE UP TO AND INCLUDING 12" W.C.: 15 PSI FOR ONE (1) HOUR.
- PRESSURE ABOVE 12" W.C.: 1-1/2 TIMES THE WORKING PRESSURE, OR 50 PSI (MINIMUM) FOR ONE (1) HOUR.
- COATED OR WRAPPED PIPING: 100 PSIG FOR ONE (1) HOUR

18. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL FLUSH AND SANITIZE THE DOMESTIC HOT, RECIRCULATION AND COLD WATER PIPING IN ACCORDANCE WITH LOCAL AND NEW YORK STATE, PLUMBING CODE.

19. EQUIPMENT CONNECTIONS:
- ALL EQUIPMENT SHALL BE PROVIDED WITH UNIONS AND SHUT-OFF VALVES WHETHER DETAILED OR NOT.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED WITH SHUT OFF VALVES.
- THIS CONTRACTOR SHALL MAKE FINAL PLUMBING CONNECTIONS TO PIPING/EQUIPMENT FURNISHED BY OTHERS, UNLESS OTHERWISE NOTED.

20. ALL PENETRATIONS THROUGH ROOFING MEMBRANE AND ROOF DECKING SHALL BE PERFORMED BY AN INSTALLER CERTIFIED BY THE ROOFING SYSTEM MANUFACTURER TO MAINTAIN ROOF SYSTEM WARRANTY.

21. NATURAL GAS REGULATOR VENT PIPING SHALL EXTEND TO THE EXTERIOR OF THE BUILDING AND TERMINATE IN ACCORDANCE WITH NFPA 54 AND/OR NFPA 58.

22. EXTERIOR GAS PIPING SHALL BE PAINTED WITH TWO COATS OF PRIMER AND ONE COAT OF FINISH PAINT. COLOR TO BE DETERMINED BASED COLOR OF SURROUNDING SURFACES.

23. FOR PROJECTS WITH APPROVED USE OF PVC AND CPVC PIPING, SUCH PIPING SHALL BE PROHIBITED IN THE FOLLOWING LOCATIONS.
- AREAS OF ASSEMBLY.
- RETURN AIR PLENUMS.
- EXIT DISCHARGE CORRIDORS.
- STAIRS.

24. RODENTPROOFING - IN OR ON STRUCTURES WHERE OPENINGS HAVE BEEN MADE IN FLOORS CEILINGS, OR WALLS FOR THE PASSAGE OF PIPE, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED WITH APPROVED METAL COLLARS THAT ARE SECURELY FASTENED TO THE ADJOINING STRUCTURE.

25. STRUCTURAL SAFETY - IN THE PROCESS OF INSTALLING OR REPAIRING ANY PART OF A PLUMBING OR DRAINAGE SYSTEM, THE FINISHED FLOOR, WALLS, CEILINGS, TILE OR ANY OTHER PART OF THE BUILDING OR PREMISES THAT MUST BE CHANGED OR REPLACED SHALL REMAIN IN A STRUCTURALLY SAFE CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

26. PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS - PIPING AND OTHER SYSTEM COMPONENTS SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT CORROSION, BREAKAGE, FREEZING, AND PHYSICAL DAMAGE BY OTHER BUILDING COMPONENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

27. PROTECTION OF WATER QUALITY - A POTABLE WATER SUPPLY SYSTEM SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN SUCH A MANNER SO AS TO PREVENT CONTAMINATION FROM NON-POTABLE LIQUIDS, SOLIDS, OR GASES BEING INTRODUCED INTO THE POTABLE WATER SYSTEM THROUGH CROSS-CONTAMINATION OR ANY OTHER PIPING CONNECTIONS TO THE SYSTEM.

28. FLOODPROOFING - PLUMBING SYSTEMS AND EQUIPMENT IN STRUCTURES ERECTED IN AREAS PRONE TO FLOODING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE COMPONENTS OF THE SYSTEM SHALL BE CAPABLE OF RESISTING HYDROSTATIC LOADS AND STRESSES IN THE EVENT OF FLOODING.

29. EXISTING SITE UTILITIES - UNDERGROUND UTILITY LOCATIONS ARE NOT GUARANTEED, NOR IS THERE ANY GUARANTEE THAT ALL EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED, WITHIN THE PROJECT AREA ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM THE CONTRACTOR'S WORK. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (DSNY) - 800-962-7962 FOR STAKEOUT REQUESTS.

1

PIPING TESTING REQUIREMENTS:

NYS PLUMBING CODE - 312.2 DRAINAGE AND VENT WATER TEST
A WATER TEST SHALL BE APPLIED TO THE DRAINAGE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. IF APPLIED TO THE ENTIRE SYSTEM, ALL OPENINGS IN THE PIPING SHALL BE TIGHTLY CLOSED, EXCEPT THE HIGHEST OPENING, AND THE SYSTEM SHALL BE FILLED WITH WATER TO THE POINT OF OVERFLOW. IF THE SYSTEM IS TESTED IN SECTIONS, EACH OPENING SHALL BE TIGHTLY PLUGGED EXCEPT THE HIGHEST OPENINGS OF THE SECTION UNDER TEST, AND EACH SECTION SHALL BE FILLED WITH WATER, BUT SECTIONS SHALL NOT BE TESTED WITH LESS THAN A 10-FOOT HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, NOT LESS THAN THE UPPER 10 FEET OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT NO JOINT OR PIPE IN THE BUILDING, EXCEPT THE UPPERMOST 10 FEET OF THE SYSTEM, SHALL HAVE BEEN SUBMITTED TO A TEST OF LESS THAN A 10-FOOT HEAD OF WATER. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE SYSTEM SHALL THEN BE TIGHT AT ALL POINTS.

NYS PLUMBING CODE - 312.3 DRAINAGE AND VENT AIR TEST
PLASTIC PIPING SHALL NOT BE TESTED USING AIR. AN AIR TEST SHALL BE MADE BY FORCING AIR INTO THE SYSTEM UNTIL THERE IS A UNIFORM GAUGE PRESSURE OF 5 PSI OR SUFFICIENT TO BALANCE A 10-INCH COLUMN OF MERCURY. THIS PRESSURE SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES. ANY ADJUSTMENTS TO THE TEST PRESSURE REQUIRED BECAUSE OF CHANGES IN AMBIENT TEMPERATURES OR THE SEATING OF GASKETS SHALL BE MADE PRIOR TO THE BEGINNING OF THE TEST PERIOD.

NYS PLUMBING CODE - 312.4 DRAINAGE AND VENT FINAL TEST
THE FINAL TEST OF THE COMPLETED DRAINAGE AND VENT SYSTEM SHALL BE VISUAL AND IN SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE PROVISIONS OF THIS CODE. WHERE A SMOKE TEST IS UTILIZED, IT SHALL BE MADE BY FILLING ALL TRAPS WITH WATER AND THEN INTRODUCING INTO THE ENTIRE SYSTEM A PUNGENT, THICK SMOKE PRODUCED BY ONE OR MORE SMOKE MACHINES. WHEN THE SMOKE APPEARS AT STACK OPENINGS ON THE ROOF, THE STACK OPENINGS SHALL BE CLOSED AND A PRESSURE EQUIVALENT TO A 1-INCH WATER COLUMN SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES.

NYS PLUMBING CODE - 312.5 WATER SUPPLY SYSTEM TEST
UPON COMPLETION OF A SECTION OF OR THE ENTIRE WATER SUPPLY SYSTEM, THE SYSTEM, OR PORTION COMPLETED, SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM; OR, FOR PIPING SYSTEMS OTHER THAN PLASTIC, BY AN AIR TEST OF NOT LESS THAN 50 PSI. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE WATER UTILIZED FOR TESTS SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY. THE REQUIRED TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION.

NYS PLUMBING CODE - 312.6 GRAVITY SEWER TEST
GRAVITY SEWER TESTS SHALL CONSIST OF PLUGGING THE END OF THE BUILDING SEWER AT THE POINT OF CONNECTION WITH THE PUBLIC, FILLING THE BUILDING SEWER WITH WATER, TESTING WITH NOT LESS THAN A 10-FOOT HEAD OF WATER AND MAINTAINING SUCH PRESSURE FOR 15 MINUTES.

NYS PLUMBING CODE - 312.9 SHOWER LINER TEST – NOT APPLICABLE BECAUSE PREFABRICATED RECEPTORS ARE SPECIFIED.
WHERE SHOWER FLOORS AND RECEPTORS ARE MADE WATER TIGHT BY THE APPLICATION OF MATERIALS REQUIRED BY SECTION 421.5.2, THE COMPLETED LINER INSTALLATION SHALL BE TESTED. THE PIPE FROM THE SHOWER DRAIN SHALL BE PLUGGED WATER TIGHT FOR THE TEST. THE FLOOR AND RECEPTOR AREA SHALL BE FILLED WITH POTABLE WATER TO A DEPTH OF NOT LESS THAN 2 INCHES MEASURED AT THE THRESHOLD. WHERE A THRESHOLD OF 2 INCHES HIGH OR GREATER DOES NOT EXIST, A TEMPORARY THRESHOLD SHALL BE CONSTRUCTED TO RETAIN THE TEST WATER IN THE LINED FLOOR OR RECEPTOR AREA TO A LEVEL NOT LESS THAN 2 INCHES DEEP MEASURED AT THE THRESHOLD. THE WATER SHALL BE RETAINED FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES, AND THERE SHALL NOT BE EVIDENCE OF LEAKAGE.

OSHA STANDARD 1910.253 – OXYGEN-FUEL GAS WELDING AND CUTTING
1910.253(D)(5)(i) - PIPING SYSTEMS SHALL BE TESTED AND PROVED GASTIGHT AT 1½ TIMES THE MAXIMUM OPERATING PRESSURE, AND SHALL BE THOROUGHLY PURGED OF AIR BEFORE BEING PLACED IN SERVICE. THE MATERIAL USED FOR TESTING OXYGEN LINES SHALL BE OIL FREE AND NONCOMBUSTIBLE. FLAMES SHALL NOT BE USED TO DETECT LEAKS.

WHILE OSHA 1910.253 IS SPECIFIC TO OXYGEN-FUEL GAS WELDING AND CUTTING, THE TESTING REQUIREMENT ABOVE SHALL BE FOLLOWED FOR ALL COMPRESSED GASES.

PIPE AND FITTING MATERIALS PERMITTED

WATER SERVICE PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER-ALLOY PIPE	ASTM B42, ASTM B302	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
POLYETHYLENE (PE) PLASTIC TUBING	ASTM D 2737; CSA B137.1	ASTM F 2389; CSA B137.11
DUCTILE IRON WATER PIPE	AWWA C151; AWWA C115	AWWA C110; AWWA C153

WATER DISTRIBUTION PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER ALLOY TUBING (TYPE L)	ASTM B75; ASTM B88; ASTM B251, ASTM B447	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
CPVC	ASTM D 2846; ASTM F441; ASTM F 442	ASSE 1061; ASTM F 437; ASTM F 438; ASTM F 439

UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301

ABOVE-GROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COEXTRUDED COMPOSITE PVC DWV SCHEDULE 40 IPS PIPE (SOLID)	ASTM F 1488	ASTM D 2665; ASTM D 3311; ASTM F 891
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301
COPPER OR COPPER-ALLOY TUBING (TYPE K, L, M OR DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306	ASME B16.15; ASME B 16.18; ASME B 16.22; ASME B 16.23; ASME B 16.26; ASME B 16.29
POLYVINYL CHLORIDE (PVC) PLASTIC PIPE (TYPE DWV)	ASTM D 2665; ASTM D 2949; ASTM F 1488; CSA B181.2	ASTM D 2665; ASTM D 3311; ASTM F 1866

ABOVE GROUND NATURAL GAS PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

ABOVE GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
GALVANIZED STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

ABOVE GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

BELOW-GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

BELOW-GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES (2020 PC OF NYS, TABLE 604.4)

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
LAVATORY, PRIVATE	1.5 GPM AT 60 PSI
LAVATORY, PUBLIC (METERING)	0.25 GALLON PER METERING CYCLE
LAVATORY, PUBLIC (OTHER THAN METERING)	0.5 GPM AT 60 PSI
SHOWER HEAD	2.0 GPM AT 80 PSI
SINK FAUCET	2.2 GPM AT 60 PSI
URINAL	0.5 GALLON PER FLUSHING CYCLE
WATER CLOSET	1.28 GALLONS PER FLUSHING CYCLE

NOTES:

1. HAND-HELD SHOWER SPRAY IS A SHOWER HEAD.
2. CONSUMPTION TOLERANCES SHALL BE DETERMINED FROM REFERENCED STANDARDS.
3. REFER TO PLUMBING FIXTURE SCHEDULES FOR ACTUAL FLOW RATES TO BE PROVIDED.

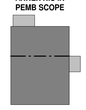
ABBREVIATIONS

AD	AREA DRAIN
AR	ARGON GAS
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
ARCH	ARCHITECT/ARCHITECTURE/ARCHITECTURAL
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNITS
BV	BALL VALVE
(C25)	25% CARBON DIOXIDE AND 75% ARGON GAS
(CO2)	CARBON DIOXIDE GAS
CA	COMPRESSED AIR
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CP	CIRCULATION PUMP
CS	CIRCUIT SETTER/BALANCE VALVE
CV	CHECK VALVE
CWS	COLD WATER SUPPLY
F	DEGREES FAHRENHEIT
DCV	DOUBLE CHECK VALVE BACKFLOW PREVENTER
DF	DRINKING FOUNTAIN
DN	PIPE DOWN, PASSING THROUGH FLOOR
DROP	PIPE DOWN, NOT PASSING THROUGH FLOOR
DSN	DOWNSPOUT NOZZLE
DWH	DOMESTIC WATER HEATER
DWV	DRAIN, WASTE, AND VENT
EC	ELECTRICAL CONTRACTOR
EFF	EFFICIENCY
ELEV	ELEVATION
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EW	EYE-WASH/FACE-WASH
EWC	ELECTRIC WATER COOLER
EWS	EMERGENCY WASH STATION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOOR SINK
FT	FOOT/FEET
FW	FILTERED WATER
GAS	NATURAL GAS OR LP (BELOW 14" W.C.)
GAS (5")	NATURAL GAS - 5 PSI*
GAS (15")	NATURAL GAS - 15 PSI*
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GT	GREASE TRAP
HB	HOSE BIBB
HP	HORSEPOWER
HPG	HIGH PRESSURE GAS OR LP (GREATER THAN 10 PSI, DEFINED BY PROJECT)
HWR	DOMESTIC HOT WATER RETURN
HWS	DOMESTIC HOT WATER SUPPLY
INV	PIPE INVERT
IN	INCHES
IN W.C.	INCHES WATER COLUMN
IPS	INTERNATIONAL PIPE STANDARD
IW	INDIRECT WASTE
KW	KILOWATT
L	LAVATORY
LS	LAUNDRY SINK
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIX	MIXING VALVE
MPG	NATURAL GAS OR LP (GREATER THAN 14 IN W.C., DEFINED BY PROJECT)
MS	MOP SINK
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
O	OXYGEN GAS
OWS	OIL WATER SEPARATOR
OST	STORM DRAIN – OVERFLOW/SECONDARY
PC	PLUMBING CONTRACTOR
PD	PUMPED DISCHARGE
PDD	POOL DECK DRAIN
PF	PRISON/SECURITY COMBI-FIXTURE
PG	PRESSURE GAUGE
PH	PHASE (ELECTRICAL)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
RD	ROOF DRAIN
RISE	PIPE UP, NOT THROUGH FLOOR/ROOF DECK ABOVE
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RTU	ROOF TOP UNIT
S	SINK
SAN	SANITARY PIPE
SAN-G	SANITARY PIPE – GREASE LADEN
SE	SEWAGE EJECTOR
SF	SQUARE FEET
SH	SHOWER
SP	SUMP PUMP
ST	STORM DRAIN
STR	STRAINER
T	THERMOMETER
T&P	TEMPERATURE AND PRESSURE
TD	TRENCH DRAIN
TP	TRAP PRIMER
TWS	TEPID WATER SUPPLY (65-90F)
TYP	TYPICAL
U	URINAL
UOI	UNLESS OTHERWISE INDICATED
V	SANITARY VENT
VB	VACUUM BREAKER
VIR	VALVE IN RISER
VOLT	VOLTAGE
VTR	SANITARY VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WM	WATER METER

PLUMBING LEGEND

SYMBOLS	DESCRIPTION
FCO	FLOOR PLATE CLEANOUT
WCO	WALL PLATE CLEANOUT
RD	ROOF DRAIN (RD)
FD	FLOOR DRAIN (FD)
BALL VALVES	BALL VALVES
	PIPE DOWN/DROP
	PIPE UP/RISE
	CHECK VALVE
	BALANCE VALVE

ANNEX NIC IN PEMB SCOPE



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MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building B - 309 River Road, Glenmont, NY 12207

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
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	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

DRAWING TITLE

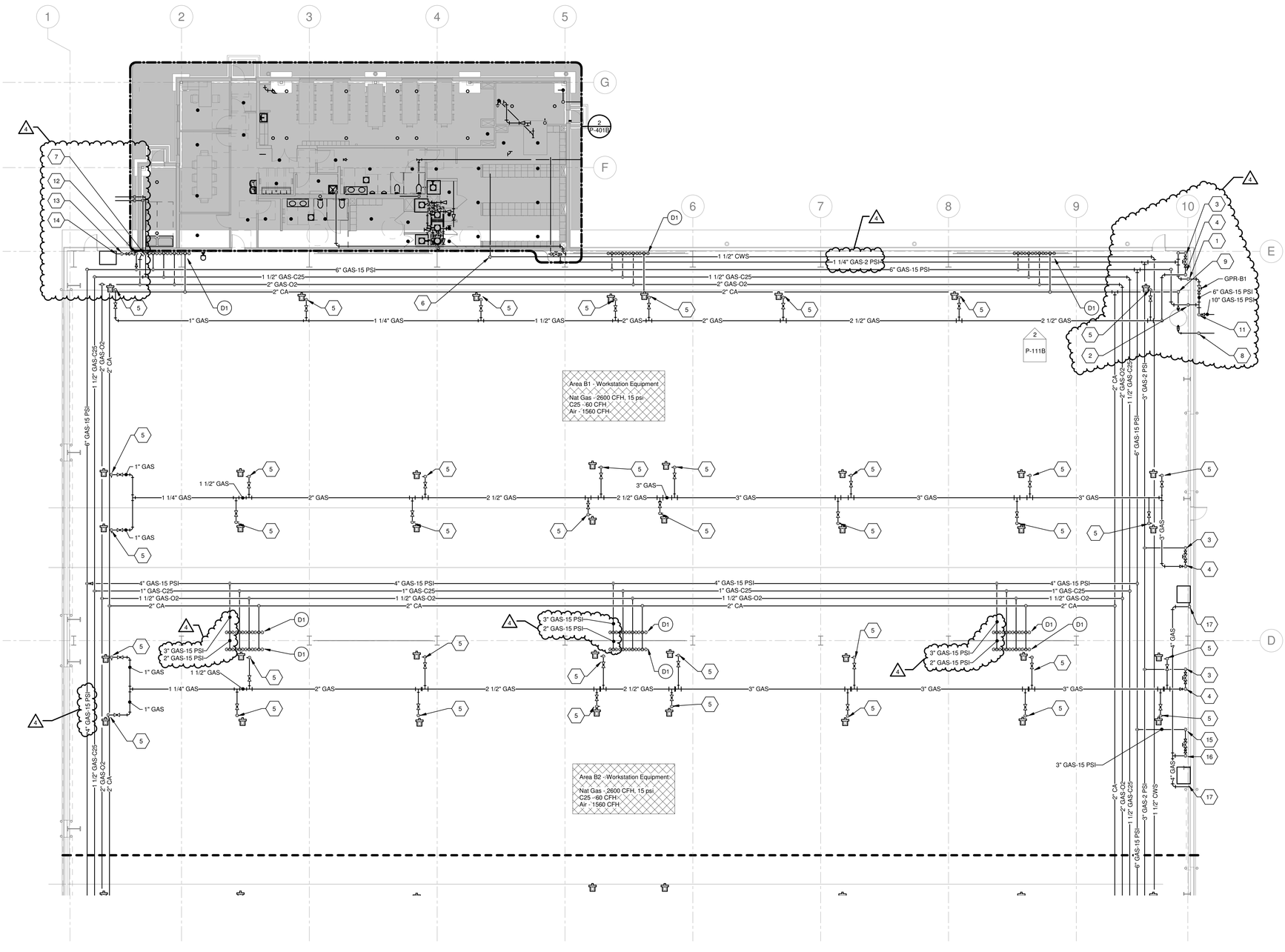
Plumbing Legend, Notes & Abbreviations

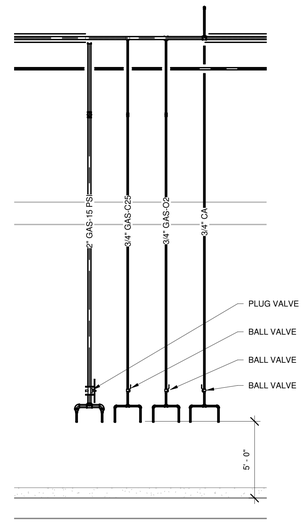
DRAWING NUMBER

P-001B

KEYED NOTES (XX)

1. PROVIDE 4" GAS-2PSI RISE TO 30'-0" A.F.F.
2. PROVIDE 6" GAS-15PSI RISE TO 30'-0" A.F.F.
3. PROVIDE 1-1/2" GAS-2PSI DROP TO GAS PRESSURE REGULATOR.
4. PROVIDE 2-1/2" GAS RISE FROM GAS PRESSURE REGULATOR TO ROOF STEEL.
5. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-600B.
6. PROVIDE 1-1/2" CWS RISE TO 30'-0" A.F.F.
7. PROVIDE 1-1/2" GAS-C2 AND 2" GAS-O2 ELECTRIC ROOM CEILING TO 45'-0" A.F.F.
8. PROVIDE 2" CA FROM PERIMETER DISTRIBUTION PIPING, UP ALONG EXTERIOR WALL AND PENETRATE WALL AT ELEVATION OF INLET CONNECTION TO 1000-GALLON COMPRESSED AIR RECEIVER (BY OWNER). PROVIDE WELD-END TRANSITION RISER AT PENETRATION THROUGH GRADE. PROVIDE ISOLATION VALVE AT OUTLET OF TRANSITION. SEE SITE UTILITY PLANS FOR CONTINUATION.
9. PROVIDE 2" CA UP TO 45'-0" A.F.F.
10. NOTE DELETED.
11. PROVIDE 8" GAS-15PSI DROP TO WELD-END TRANSITION RISER. TRANSITION RISER IS 10" PER PIPING SCHEMATIC ON P-601A.PROVIDE SHUT-OFF VALVE IMMEDIATELY ABOVE TRANSITION RISER. EXTEND 10" PE GAS PIPING TO BELOW GROUND. SEE SITE UTILITY PLANS FOR CONTINUATION.
12. PROVIDE 2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR (GPR-B5).
13. PROVIDE 3" GAS RISER FROM GAS PRESSURE REGULATOR (GPR-B5) TO ABOVE MAKE-UP AIR UNIT.
14. PROVIDE 2" GAS DROP TO MAKEUP AIR UNIT. SEE DETAIL 6/P-600B.
15. PROVIDE 3" GAS-15PSI DROP TO GAS PRESSURE REGULATOR (GPR-B6).
16. PROVIDE 6" GAS RISER FROM GAS PRESSURE REGULATOR (GPR-B6) TO ABOVE MAKEUP AIR UNITS.
17. PROVIDE 4" GAS DROP TO MAKEUP AIR UNIT. SEE DETAIL 6/P-600B.





1 P-111B **First Floor Plan - Area 1**

0' 10' 16' 21' 32'

3/32" = 1'-0"

2 P-111B **UTILITY DROP - D1**

N.T.S.

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First Floor Plan - Area 1

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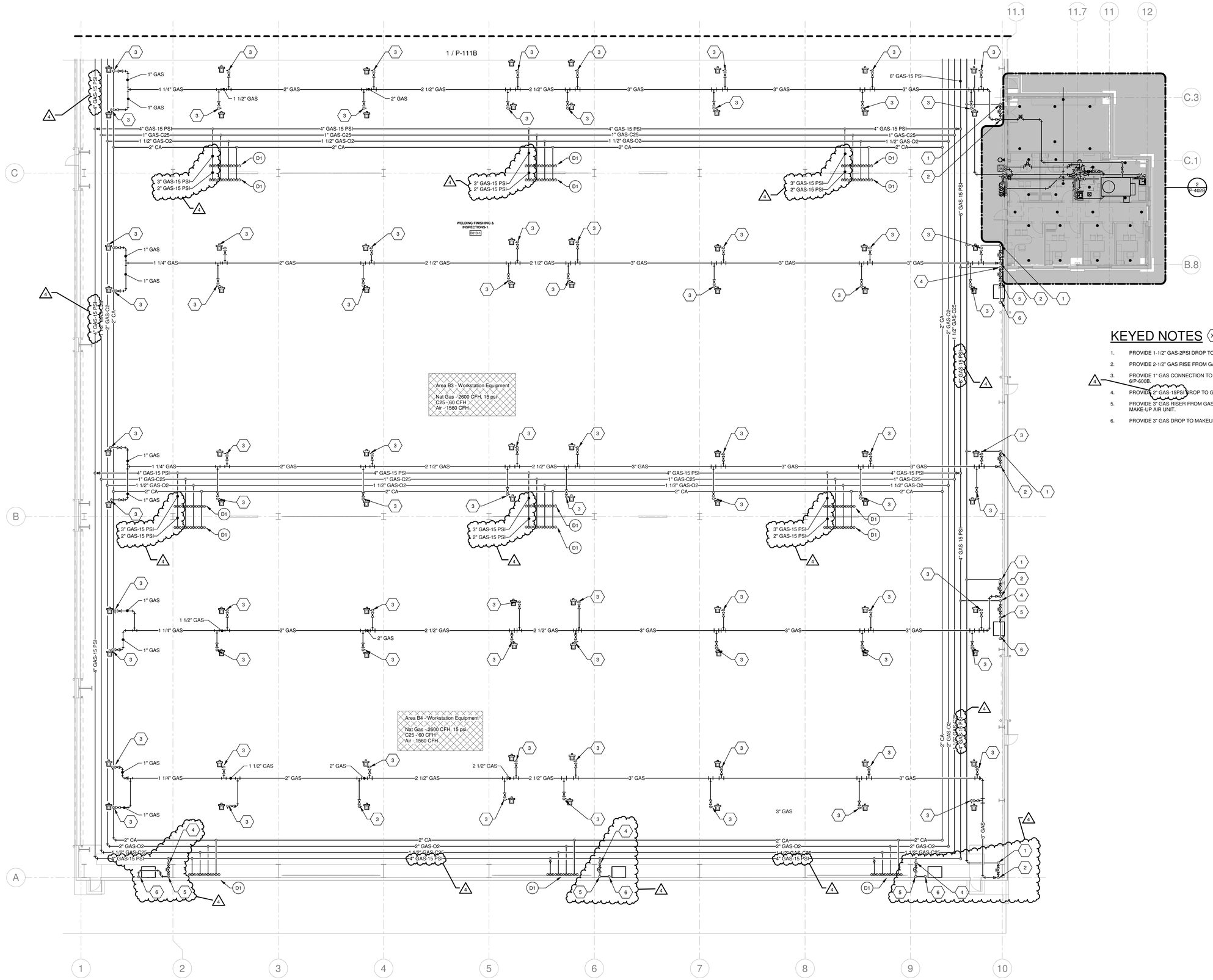

KEYED NOTES

1. PROVIDE 1-1/2" GAS-2PSI DROP TO GAS PRESSURE REGULATOR.
2. PROVIDE 2-1/2" GAS RISE FROM GAS PRESSURE REGULATOR TO ROOF STEEL.
3. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-600B.
4. PROVIDE 2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR (GPR-B5).
5. PROVIDE 3" GAS RISER FROM GAS PRESSURE REGULATOR (GPR-B5) TO ABOVE MAKE-UP AIR UNIT.
6. PROVIDE 3" GAS DROP TO MAKEUP AIR UNIT. SEE DETAIL 6/P-600B.

1 P-112B **First Floor Plan - Area 2**

0' 10' 16' 21' 32'

3/32" = 1'-0"

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First Floor Plan - Area 2

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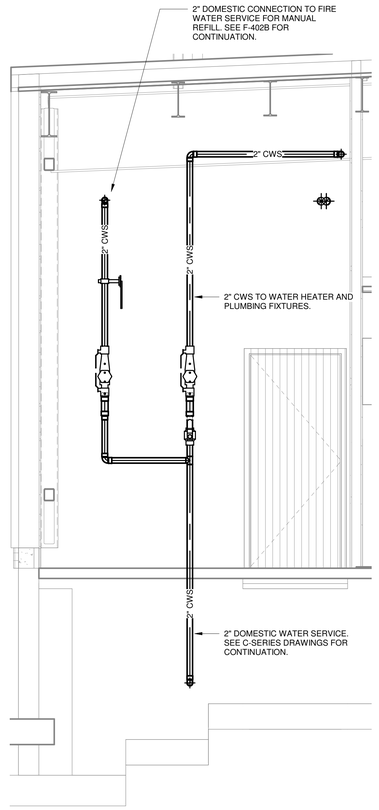
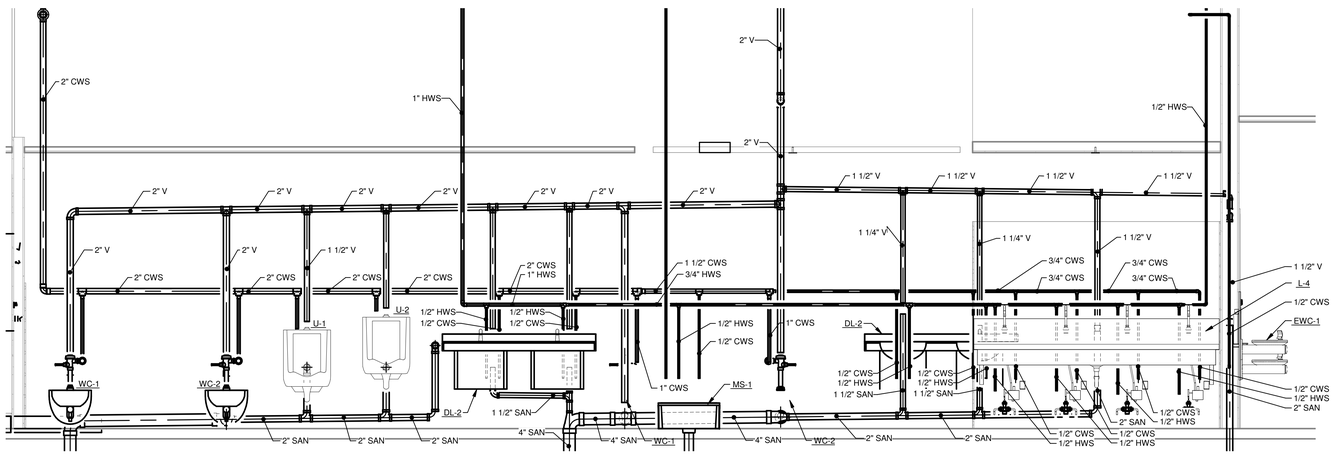


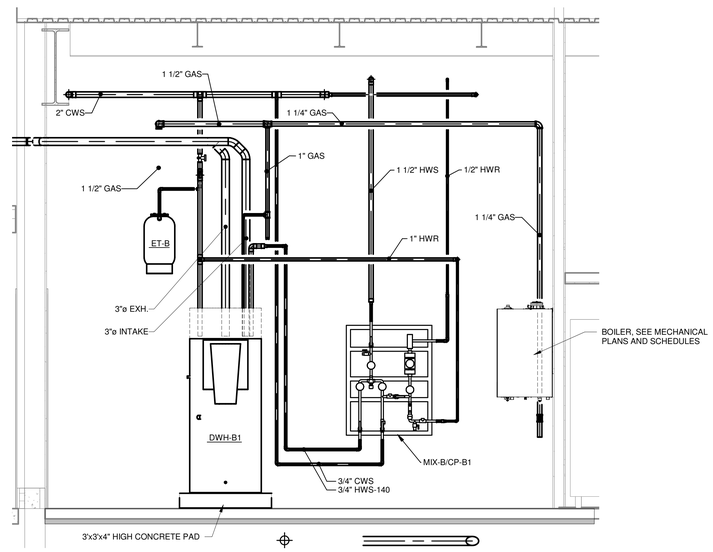
3 P-300B **DOMESTIC WATER SERVICE ENTRY ELEVATION**

0" 6" 1' 2' 4'
1/2" = 1'-0"



1 P-300B **ELEVATION - HALLWAY B100, JC B103, M RESTROOM B102, F RESTROOM B104 (BEYOND), AND F LOCKER ROOM B104A (BEYOND)**

0" 6" 1' 2' 4'
1/2" = 1'-0"



2 P-300B **DOMESTIC WATER HEATING ELEVATION**

0" 6" 1' 2' 4'
1/2" = 1'-0"

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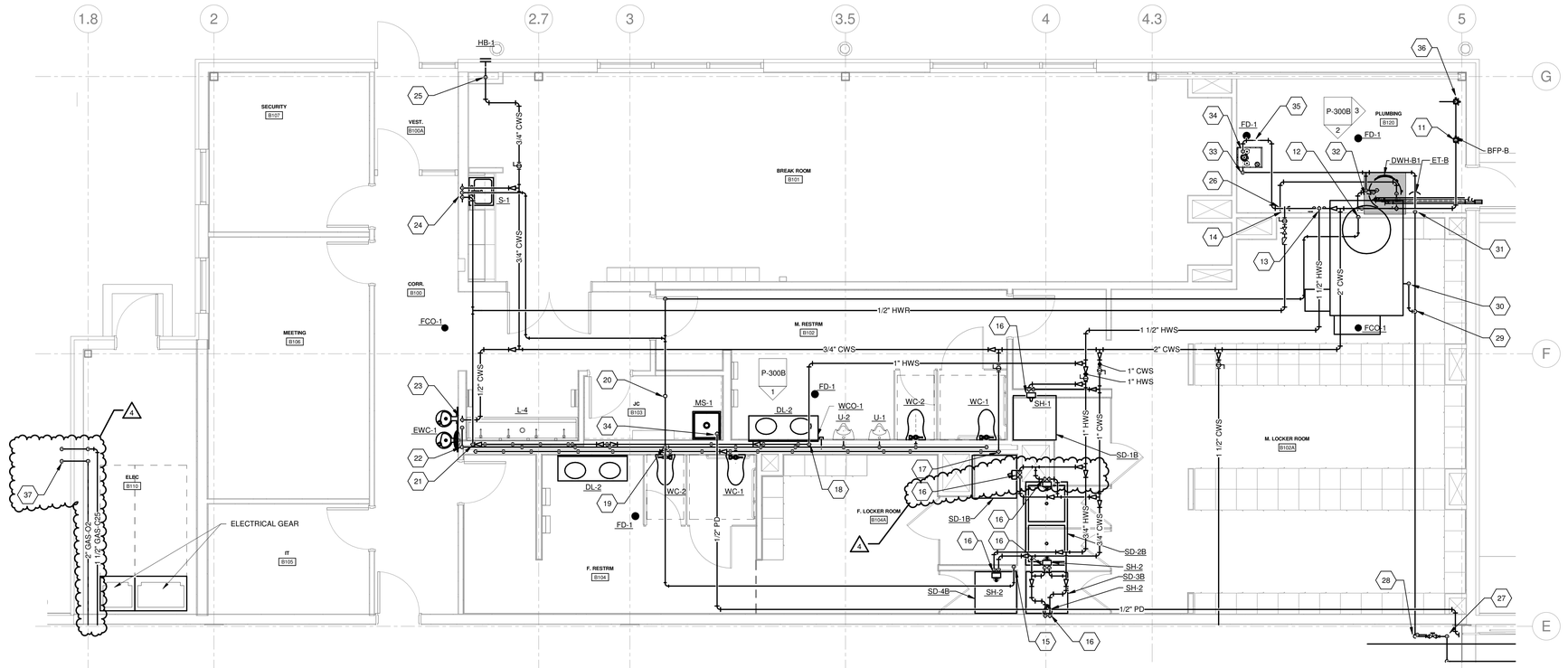
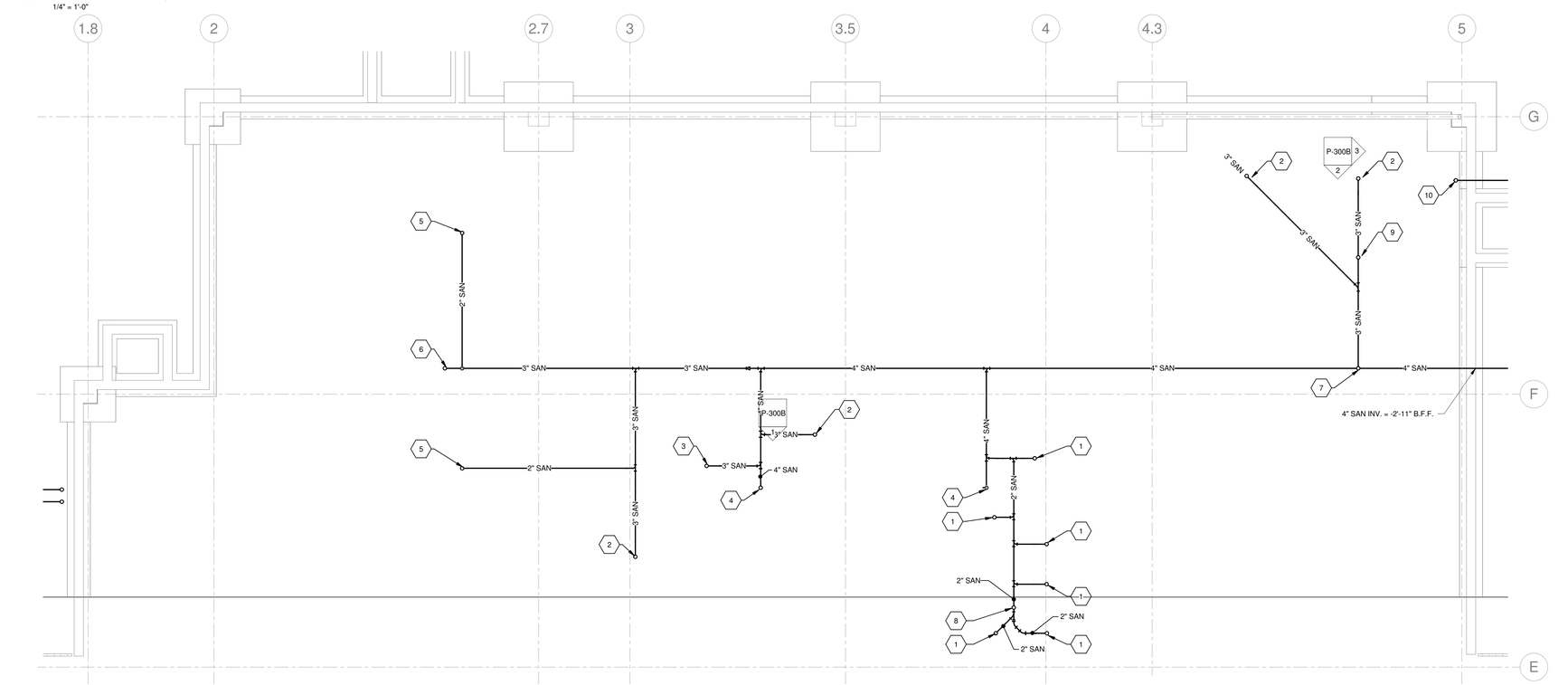


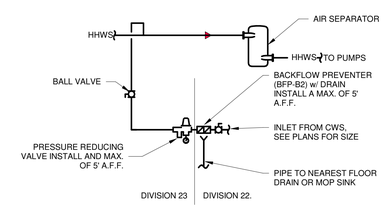
2 P-401B **Enlarged Plan - Annex B1**
0' 1' 2' 4' 8'
1/4" = 1'-0"



1 P-401B **Sub-Slab - Annex B1**
0' 1' 2' 4' 8'
1/4" = 1'-0"

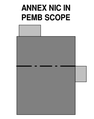
KEYED NOTES (XX)

1. PROVIDE 2" TRAPPED SAN CONNECTION TO SHOWER DRAIN.
2. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN.
3. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK.
4. PROVIDE 4" SAN UP TO CHASE.
5. PROVIDE 2" SAN UP TO WALL.
6. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
7. PROVIDE 4" SAN UP TO FLOOR CLEANOUT. PROVIDE WYE IN RISER TO CONNECT 3" SAN LATERAL.
8. PROVIDE 1-1/2" V UP TO WALL.
9. PROVIDE 2" V UP TO WALL.
10. PROVIDE 2" CWS UP TO THROUGH FLOOR.
11. PROVIDE 2" WATER SERVICE WITH TEE FITTING FOR FIRE PROTECTION SERVICE CONNECTION. PROVIDE BALL VALVE 12" A.F.F. PROVIDE BACKFLOW PREVENTER (BFP-1) 36" A.F.F.
12. PROVIDE 2" V FROM BELOW FLOOR TO ABOVE LOCKER ROOM CEILING.
13. PROVIDE 1-1/2" HWS DROP TO OUTLET OF MIXING VALVE (MIX-B).
14. PROVIDE 1/2" HWR DROP TO INLET OF MIXING VALVE (MIX-B).
15. PROVIDE 1-1/2" V FROM BELOW FLOOR TO ABOVE LOCKER ROOM CEILING.
16. PROVIDE 1/2" CWS AND 1/2" HWS DROPS IN WALL TO SHOWER (SH-1/SH-2 AS IDENTIFIED).
17. PROVIDE 2" CWS DROP INTO CHASE.
18. PROVIDE 1" HWS DROP INTO CHASE.
19. PROVIDE 2" V DROP INTO CHASE.
20. PROVIDE 3" V UP THROUGH ROOF. SEE DETAIL xxx.
21. PROVIDE 1/2" HWS DROP INTO CHASE.
22. EXTEND 1-1/4" V FROM ELECTRIC WATER COOLER TO VENT SYSTEM IN CHASE.
23. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS DROP IN WALL TO FIXTURE. PROVIDE 2" SAN DOWN THROUGH SLAB.
24. PROVIDE SINK (S-1). PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DROP IN WALL, EXPANDING TO 2" AT SLAB.
25. PROVIDE HOSE BIBB (HB-1). PROVIDE 3/4" CWS DROP TO HOSE BIBB.
26. PROVIDE 3/4" HWR PIPING BACK TO INLET OF DOMESTIC WATER HEATER.
27. PROVIDE 1-1/2" GAS-2PSI DROP TO GAS PRESSURE REGULATOR GPR-B1.
28. PROVIDE 1-1/4" GAS RISE TO ANNEX CEILING SPACE.
29. PROVIDE 1-1/4" GAS UP THROUGH ROOF.
30. PROVIDE 1-1/4" GAS TO ROOF TOP HVAC UNIT. SHADING INDICATES LOCATION OF UNIT. SEE DETAIL 6/P-600B.
31. PROVIDE 1-1/4" GAS RISE TO 12'-6" (+/-).
32. PROVIDE 1" GAS DROP TO DOMESTIC WATER HEATER (DWH-B).
33. PROVIDE 1-1/4" GAS DROP TO BOILER.
34. PROVIDE 1/2" PD DROP TO MOP SINK.
35. PROVIDE 3/4" CWS MAKEUP TO HYDRONIC SYSTEM. SEE DETAIL 3/P-401B.
36. SEE FIRE PROTECTION PLANS FOR DOMESTIC CONNECTION (F-402B).
37. PROVIDE 2" GAS-O2 AND 1-1/2" GAS-G25 FROM SITE UTILITY PLANS. EXTEND PIPING FROM BELOW GROUND TO 2'-0" ABOVE FINISHED FLOOR. PROVIDE WELD-END TRANSITION RISER AT PENETRATION THROUGH GRADE. PROVIDE SHUT OFF VALVE IMMEDIATELY DOWNSTREAM OF TRANSITION. AFTER VALVE, ELBOW INTO ELECTRICAL ROOM, THEN ELBOW UP TO CEILING LEVEL AND CONTINUE AS SHOWN.



3 P-401B **DETAIL - BOILER WATER MAKEUP - OPTION 2**
N.T.S.
NOT TO SCALE

ANNEX NIC IN PEMB SCOPE



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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building B - 309 River Road, Glenmont, NY 12207

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

DRAWING TITLE

Enlarged Plans

DRAWING NUMBER

P-401B

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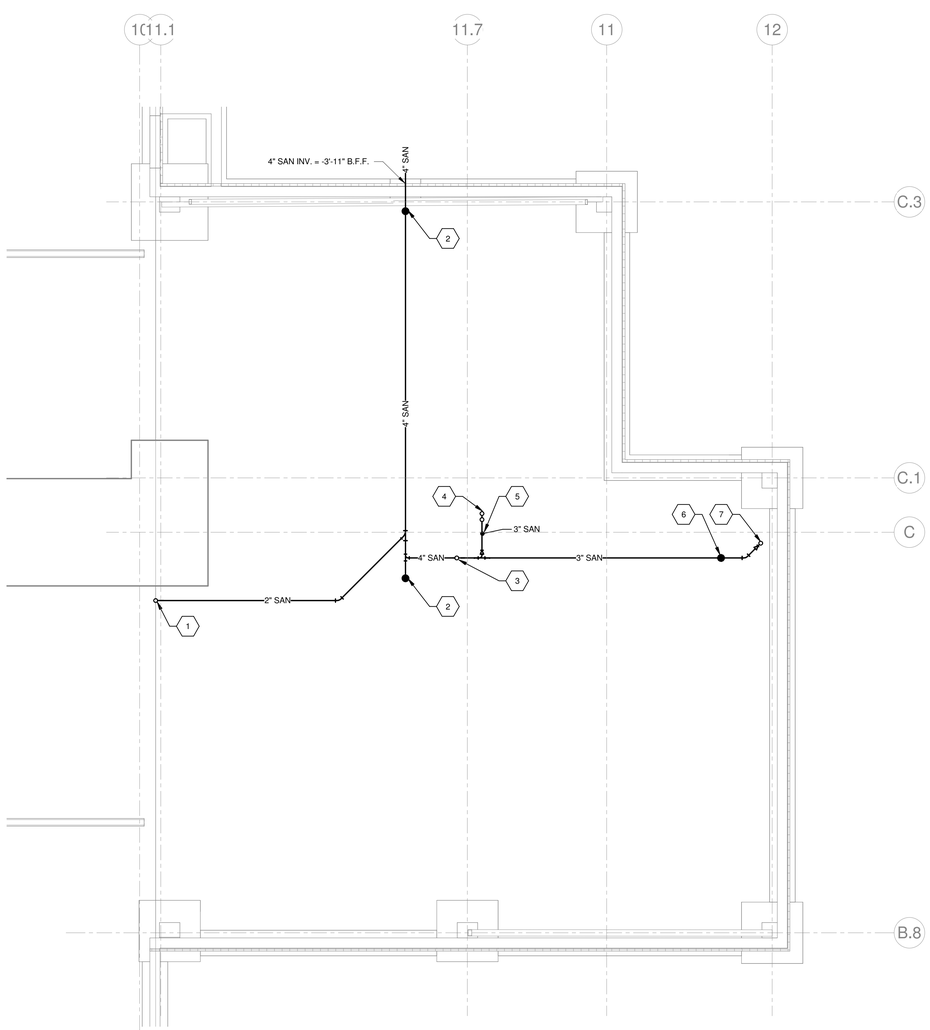
KEYED NOTES (XX)

1. PROVIDE 2" SAN UP TO WALL.
2. PROVIDE 4" SAN UP TO FLOOR CLEANOUT.
3. PROVIDE 4" SAN UP TO CHASE.
4. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK.
5. PROVIDE 1-1/2" V UP TO WALL.
6. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
7. PROVIDE 2" SAN UP TO WALL. EXPAND TO 3" SAN AT TRANSITION TO HORIZONTAL.
8. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 2" SAN DOWN THROUGH SLAB.
9. PROVIDE WORK SINK (WS-1). PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DROP IN WALL, EXPANDING TO 2" AT SLAB.
10. PROVIDE 1-1/2" CWS DROP IN WALL. SERVE WATER CLOSET WITH 1" CWS. SERVE LAVATORY WITH 1/2" CWS. SERVE MOP SINK WITH 1/2" CWS.
11. PROVIDE 4" SAN DOWN AND 2" V RISE TO ABOVE CEILING. CONNECT 1-1/2" SAN FROM LAVATORY TO AUXILIARY CONNECTION ON WATER CLOSET CARRIER. CONNECT 1-1/4" V FROM LAVATORY TO 2" V RISER.
12. PROVIDE 3/4" HWS DROP IN WALL TO SERVE LAVATORY. PIPING SHALL CONTINUE PAST LAVATORY AND DEVELOP A CONTINUOUS RECIRCULATION LOOP.
13. PROVIDE LAVATORY (L-1).
14. PROVIDE 1/2" HWS DROP IN WALL AND CONNECT TO 3/4" HWS BELOW LAVATORY.
15. PROVIDE SINK (S-1) IN COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN PARTITION BESIDE SINK. EXTEND 2" SAN DOWN IN WALL. PIPING SHALL EXIT WALL IN COMPLIANCE WITH ADA CLEARANCE REQUIREMENTS.
16. PROVIDE 1-1/4" GAS UP TO ROOF TO SERVE MECHANICAL UNIT (RTU-2B).
17. PROVIDE GAS CONNECTION TO ROOF TOP UNIT PER DETAIL 6/P-600B.
18. PROVIDE 3" V UP THROUGH ROOF.
19. SEE DETAIL 6/P-500 FOR SHELF MOUNTING OF WATER HEATER (DWH-B2).
20. PROVIDE PRE-MANUFACTURED PIPE LOOP ON PIPING PASSING THROUGH EXPANSION JOINT.



1 P-402B **Sub-Slab - Annex B2**
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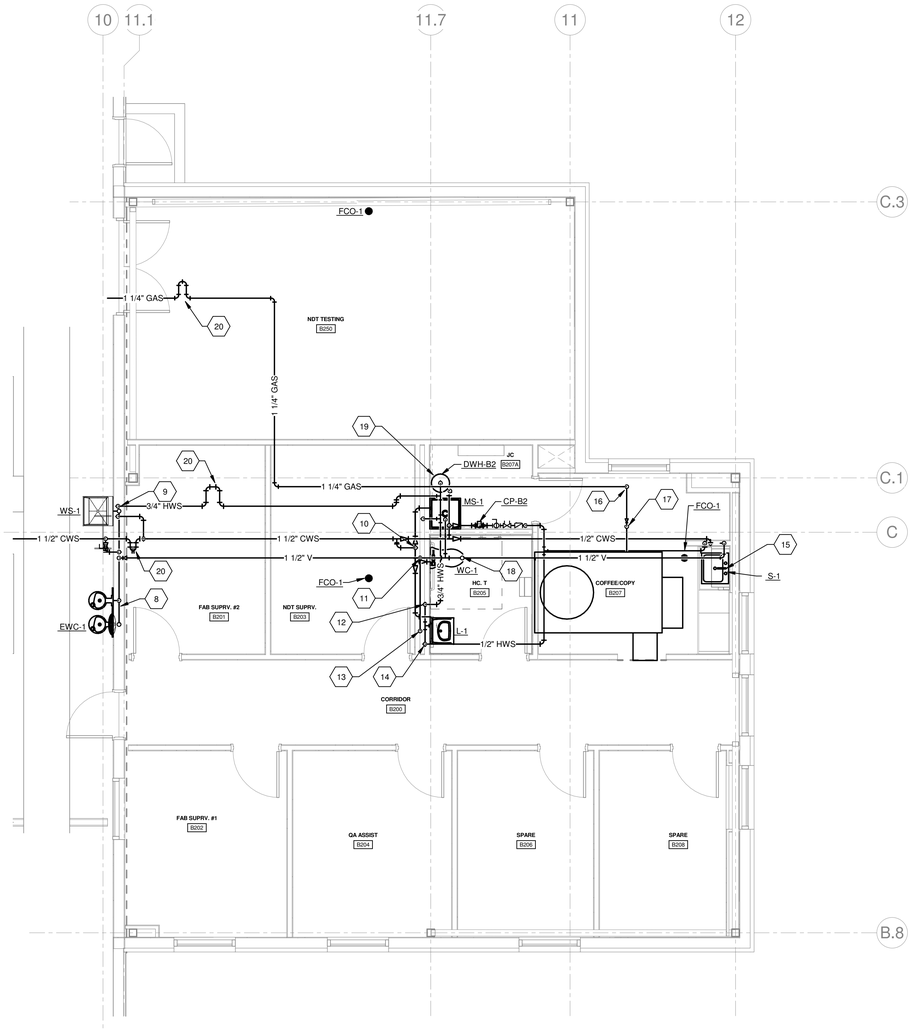
1/4" = 1'-0"



2 P-402B **Enlarged Plan - Annex B2**
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ANNEX NIC IN PEMB SCOPE

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SEAL

PORT OF ALBANY

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DRAWING TITLE

Enlarged Plans

DRAWING NUMBER

P-402B

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GENERAL NOTES:

1. THESE GENERAL PLUMBING NOTES SHALL APPLY TO ALL P SERIES DRAWINGS, IN COORDINATION WITH DIVISION 22 SECTIONS, AND FRONT END (DIVISION 0 AND 1) REQUIREMENTS. ALL WORK ASSOCIATED WITH THE P SERIES DRAWINGS SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID CONFLICTS.

2. ALL WORK SHALL BE PERFORMED IN COOPERATION WITH THE OWNER (AND/OR OWNER'S REPRESENTATIVE) AND THE ARCHITECT/ENGINEER THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CONSTRUCTION SCHEDULE ESTABLISHED BY THE OWNER AND ARCHITECT, AND SHALL IMMEDIATELY REPORT ANY DELAYS IN MATERIALS RECEIPT INCLUDING CIRCUMSTANCES CAUSING DELAYS.

3. CONTRACT DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF EQUIPMENT, PIPING, AND ACCESSORIES. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL CONDITIONS, DIMENSIONS, AND LOCATIONS PRIOR TO BIDDING PROJECT. CHECK PROJECT DRAWINGS PRIOR TO INSTALLATION FOR INTERFERENCES WITH OTHER TRADES. SHOULD THE CONTRACTOR FIND SUCH INTERFERENCES, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHERS. THE OWNER RESERVES THE RIGHT TO MAKE REASONABLE CHANGES PRIOR TO ROUGH-IN WITHOUT ADDED EXPENSE. DIMENSIONS INDICATED ARE SUBJECT TO VERIFICATION OF EXACT SITE CONDITIONS AT THE TIME OF INSTALLATION.
- THE CONTRACTOR SHALL INSTALL ALL PIPING, EQUIPMENT, FIXTURE, ETC. IN A WORKMAN MANNER WITH QUALIFIED PLUMBERS.

4. ALL PLUMBING WORK SHALL BE INSTALLED PER LOCAL PLUMBING CODE, HEALTH CODE, FIRE CODE, ENERGY CONSERVATION CODE, AND BUILDING CODE. ALL WORK SHALL COMPLY TO ACCORDANCE OF LOCAL, STATE AND FEDERAL REGULATIONS AND OTHER AUTHORITIES HAVING JURISDICTION.

5. CONTRACTOR RESPONSIBLE FOR PAYING FOR ALL FEES ASSOCIATED WITH OBTAINING PERMITS, INSPECTIONS, ETC.

6. THE PLUMBING CONTRACTOR SHALL BE LICENSED IN THE LOCAL JURISDICTION PRIOR TO BIDDING ON PROJECT. CONTRACTOR TO CONTACT CITY/TOWNSHIP TO VERIFY LICENSE TO ENSURE THEY ARE CURRENT.

7. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. ANY CONFLICTS WITH INSTALLATION AND MANUFACTURER RECOMMENDATIONS SHALL BE REPORTED TO ENGINEER.

8. CUTTING AND PATCHING - ALL NOTES BELOW HOLD THE COMMON CONDITION "UNLESS OTHERWISE NOTED".
- ***FOR NEW CONSTRUCTION:*** ALL CUTTING AND PATCHING THROUGH ALL WALL, CEILING, ETC. SHALL BE PROVIDED BY PLUMBING CONTRACTOR IN COORDINATION WITH THE GENERAL WORK. ALL PAINTING AND FINISHING SHALL BE DONE BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH GENERAL CONTRACTOR.
- ***OPENINGS MADE POST-FINISH:*** IF AN OPENING IS REQUIRED IN A FINISHED SURFACE, AFTER COMPLETION, DUE TO LACK OF COORDINATION OR PROPER SCHEDULE MAINTENANCE, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED TO FINISH SPECIFIC PLUMBING WORK AND RESTORE THE FINISHED SURFACE TO PREVIOUS CONDITION.
- ***UNDERGROUND PIPING (NEW CONSTRUCTION):*** TRENCHING SHALL BE BY GENERAL CONTRACTOR. PIPE INSTALLATION WITH APPROPRIATE BEDDING MATERIAL SHALL BE BY THE PLUMBING CONTRACTOR. BACKFILL ABOVE PIPE AND BEDDING SHALL BE BY THE GENERAL CONTRACTOR BASED ON REQUIREMENTS OF THE STRUCTURAL PLANS AND SPECIFICATIONS.
- ***EQUIPMENT OPENINGS:*** OPENINGS REQUIRED FOR REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE CUT AND PATCHED BY THIS CONTRACTOR.

9. FURNISH AND INSTALL ALL NEW EQUIPMENT AND MATERIALS AS DESCRIBED HEREIN, ANY MATERIAL, OPERATION, METHOD, OR DEVICE MENTIONED, LISTED OR NOTED WITHIN THIS SPECIFICATION SHALL BE FURNISHED BY THIS CONTRACTOR UNLESS SPECIFICALLY MENTIONED AS BEING FURNISHED OR INSTALLED BY OTHERS.

10. ALL PIPING PENETRATING ALL FIRE-RATED WALLS, CEILINGS, FLOORS, ROOFS, ETC. SHALL BE FIRE STOPPED IN ACCORDANCE WITH DIVISION 7.

11. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE AND OPERABLE SYSTEMS, INCLUDING OPERATIONAL PROPERTIES TO THE EXTEND NECESSARY TO LINK MULTIPLE COMPONENTS OF THE SYSTEMS TOGETHER AND TO INTERFACE WITH SYSTEMS PROVIDED BY OTHERS. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL SYSTEMS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL PROVIDE OWNER WITH ALL NECESSARY OPERATION AND MAINTENANCE MANUALS, SHOP DRAWINGS, WIRING DIAGRAMS, AND WARRANTY PAPERWORK UPON COMPLETION OF THE PROJECT.

12. THE CONTRACTOR SHALL LOCATE ACCESS PANEL IN NON-ACCESSIBLE CEILING AND WALLS FOR ALL VALVES, SHOCK ABSORBERS, CLEANOUTS AND ALL OTHER ITEMS THAT REQUIRE ACCESS TO PROPERLY MAINTAIN OR SERVICE.

13. THE CONTRACTOR IS RESPONSIBLE FOR TESTING, AND ADJUSTING ALL PLUMBING EQUIPMENT INDICATED IN THE PLUMBING DRAWINGS.

14. THE MINIMUM SLOPE OF ALL INTERIOR SEWER LINES SHALL BE 1/4 INCH PER FOOT FOR SIZES 2-1/2" AND SMALLER, 1/8 INCH PER FOOT FOR SIZES 3"-6", AND 1/16 INCH PER FOOT FOR SIZES 8" AND GREATER. SEE SCHEDULE LOCATED ON DRAWING FOR CONNECTION SIZES FOR SANITARY, VENT, COLD, AND HOT WATER PIPING. SEE SCHEDULE FOR PIPING MATERIALS.

15. ALL PIPING PENETRATIONS THROUGH EXPOSED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS AND SEAL TO WALL OR CEILING.

16. ALL NATURAL GAS PIPING SHALL BE INSTALL PER NEW YORK FUEL GAS CODE AND AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHUT OFF GAS VALVE FOR ALL EQUIPMENT UTILIZING GAS. CONTRACTOR SHALL PROVIDE 6" DIRT LEG (MINIMUM) FOR ALL EQUIPMENT UTILIZING GAS.

17. ALL NATURAL GAS PIPING SHALL BE TESTED PER THE LIST BELOW. ALL TESTING SHALL CONFORM TO NEW YORK STATE FUEL GAS CODE.
- PRESSURE UP TO AND INCLUDING 12" W.C.: 15 PSI FOR ONE (1) HOUR.
- PRESSURE ABOVE 12" W.C.: 1-1/2 TIMES THE WORKING PRESSURE, OR 50 PSI (MINIMUM) FOR ONE (1) HOUR.
- COATED OR WRAPPED PIPING: 100 PSIG FOR ONE (1) HOUR

18. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL FLUSH AND SANITIZE THE DOMESTIC HOT, RECIRCULATION AND COLD WATER PIPING IN ACCORDANCE WITH LOCAL AND NEW YORK STATE, PLUMBING CODE.

19. EQUIPMENT CONNECTIONS:
- ALL EQUIPMENT SHALL BE PROVIDED WITH UNIONS AND SHUT-OFF VALVES WHETHER DETAILED OR NOT.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED WITH SHUT OFF VALVES.
- THIS CONTRACTOR SHALL MAKE FINAL PLUMBING CONNECTIONS TO PIPING/EQUIPMENT FURNISHED BY OTHERS, UNLESS OTHERWISE NOTED.

20. ALL PENETRATIONS THROUGH ROOFING MEMBRANE AND ROOF DECKING SHALL BE PERFORMED BY AN INSTALLER CERTIFIED BY THE ROOFING SYSTEM MANUFACTURER TO MAINTAIN ROOF SYSTEM WARRANTY.

21. NATURAL GAS REGULATOR VENT PIPING SHALL EXTEND TO THE EXTERIOR OF THE BUILDING AND TERMINATE IN ACCORDANCE WITH NFPA 54 AND/OR NFPA 58.

22. EXTERIOR GAS PIPING SHALL BE PAINTED WITH TWO COATS OF PRIMER AND ONE COAT OF FINISH PAINT. COLOR TO BE DETERMINED BASED COLOR OF SURROUNDING SURFACES.

23. FOR PROJECTS WITH APPROVED USE OF PVC AND CPVC PIPING, SUCH PIPING SHALL BE PROHIBITED IN THE FOLLOWING LOCATIONS.
- AREAS OF ASSEMBLY.
- RETURN AIR PLENUMS.
- EXIT DISCHARGE CORRIDORS.
- STAIRS.

24. RODENTPROOFING - IN OR ON STRUCTURES WHERE OPENINGS HAVE BEEN MADE IN FLOORS CEILINGS, OR WALLS FOR THE PASSAGE OF PIPE, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED WITH APPROVED METAL COLLARS THAT ARE SECURELY FASTENED TO THE ADJOINING STRUCTURE.

25. STRUCTURAL SAFETY - IN THE PROCESS OF INSTALLING OR REPAIRING ANY PART OF A PLUMBING OR DRAINAGE SYSTEM, THE FINISHED FLOOR, WALLS, CEILINGS, TILE OR ANY OTHER PART OF THE BUILDING OR PREMISES THAT MUST BE CHANGED OR REPLACED SHALL REMAIN IN A STRUCTURALLY SAFE CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

26. PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS - PIPING AND OTHER SYSTEM COMPONENTS SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT CORROSION, BREAKAGE, FREEZING, AND PHYSICAL DAMAGE BY OTHER BUILDING COMPONENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

27. PROTECTION OF WATER QUALITY - A POTABLE WATER SUPPLY SYSTEM SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN SUCH A MANNER SO AS TO PREVENT CONTAMINATION FROM NON-POTABLE LIQUIDS, SOLIDS, OR GASES BEING INTRODUCED INTO THE POTABLE WATER SYSTEM THROUGH CROSS-CONTAMINATION OR ANY OTHER PIPING CONNECTIONS TO THE SYSTEM.

28. FLOODPROOFING - PLUMBING SYSTEMS AND EQUIPMENT IN STRUCTURES ERECTED IN AREAS PRONE TO FLOODING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE COMPONENTS OF THE SYSTEM SHALL BE CAPABLE OF RESISTING HYDROSTATIC LOADS AND STRESSES IN THE EVENT OF FLOODING.

29. EXISTING SITE UTILITIES - UNDERGROUND UTILITY LOCATIONS ARE NOT GUARANTEED, NOR IS THERE ANY GUARANTEE THAT ALL EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED, WITHIN THE PROJECT AREA ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM THE CONTRACTOR'S WORK. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (DSNY) - 800-962-7962 FOR STAKEOUT REQUESTS.

PIPING TESTING REQUIREMENTS:

NYS PLUMBING CODE - 312.2 DRAINAGE AND VENT WATER TEST
A WATER TEST SHALL BE APPLIED TO THE DRAINAGE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. IF APPLIED TO THE ENTIRE SYSTEM, ALL OPENINGS IN THE PIPING SHALL BE TIGHTLY CLOSED, EXCEPT THE HIGHEST OPENING, AND THE SYSTEM SHALL BE FILLED WITH WATER TO THE POINT OF OVERFLOW. IF THE SYSTEM IS TESTED IN SECTIONS, EACH OPENING SHALL BE TIGHTLY PLUGGED EXCEPT THE HIGHEST OPENINGS OF THE SECTION UNDER TEST, AND EACH SECTION SHALL BE FILLED WITH WATER, BUT SECTIONS SHALL NOT BE TESTED WITH LESS THAN A 10-FOOT HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, NOT LESS THAN THE UPPER 10 FEET OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT NO JOINT OR PIPE IN THE BUILDING, EXCEPT THE UPPERMOST 10 FEET OF THE SYSTEM, SHALL HAVE BEEN SUBMITTED TO A TEST OF LESS THAN A 10-FOOT HEAD OF WATER. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE SYSTEM SHALL THEN BE TIGHT AT ALL POINTS.

NYS PLUMBING CODE - 312.3 DRAINAGE AND VENT AIR TEST
PLASTIC PIPING SHALL NOT BE TESTED USING AIR. AN AIR TEST SHALL BE MADE BY FORCING AIR INTO THE SYSTEM UNTIL THERE IS A UNIFORM GAUGE PRESSURE OF 5 PSI OR SUFFICIENT TO BALANCE A 10-INCH COLUMN OF MERCURY. THIS PRESSURE SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES. ANY ADJUSTMENTS TO THE TEST PRESSURE REQUIRED BECAUSE OF CHANGES IN AMBIENT TEMPERATURES OR THE SEATING OF GASKETS SHALL BE MADE PRIOR TO THE BEGINNING OF THE TEST PERIOD.

NYS PLUMBING CODE - 312.4 DRAINAGE AND VENT FINAL TEST
THE FINAL TEST OF THE COMPLETED DRAINAGE AND VENT SYSTEM SHALL BE VISUAL AND IN SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE PROVISIONS OF THIS CODE. WHERE A SMOKE TEST IS UTILIZED, IT SHALL BE MADE BY FILLING ALL TRAPS WITH WATER AND THEN INTRODUCING INTO THE ENTIRE SYSTEM A PUNGENT, THICK SMOKE PRODUCED BY ONE OR MORE SMOKE MACHINES. WHEN THE SMOKE APPEARS AT STACK OPENINGS ON THE ROOF, THE STACK OPENINGS SHALL BE CLOSED AND A PRESSURE EQUIVALENT TO A 1-INCH WATER COLUMN SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES.

NYS PLUMBING CODE - 312.5 WATER SUPPLY SYSTEM TEST
UPON COMPLETION OF A SECTION OF OR THE ENTIRE WATER SUPPLY SYSTEM, THE SYSTEM, OR PORTION COMPLETED, SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM; OR, FOR PIPING SYSTEMS OTHER THAN PLASTIC, BY AN AIR TEST OF NOT LESS THAN 50 PSI. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE WATER UTILIZED FOR TESTS SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY. THE REQUIRED TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION.

NYS PLUMBING CODE - 312.6 GRAVITY SEWER TEST
GRAVITY SEWER TESTS SHALL CONSIST OF PLUGGING THE END OF THE BUILDING SEWER AT THE POINT OF CONNECTION WITH THE PUBLIC, FILLING THE BUILDING SEWER WITH WATER, TESTING WITH NOT LESS THAN A 10-FOOT HEAD OF WATER AND MAINTAINING SUCH PRESSURE FOR 15 MINUTES.

NYS PLUMBING CODE - 312.9 SHOWER LINER TEST – NOT APPLICABLE BECAUSE PREFABRICATED RECEPTORS ARE SPECIFIED.
WHERE SHOWER FLOORS AND RECEPTORS ARE MADE WATER TIGHT BY THE APPLICATION OF MATERIALS REQUIRED BY SECTION 421.5.2, THE COMPLETED LINER INSTALLATION SHALL BE TESTED. THE PIPE FROM THE SHOWER DRAIN SHALL BE PLUGGED WATER TIGHT FOR THE TEST. THE FLOOR AND RECEPTOR AREA SHALL BE FILLED WITH POTABLE WATER TO A DEPTH OF NOT LESS THAN 2 INCHES MEASURED AT THE THRESHOLD. WHERE A THRESHOLD OF 2 INCHES HIGH OR GREATER DOES NOT EXIST, A TEMPORARY THRESHOLD SHALL BE CONSTRUCTED TO RETAIN THE TEST WATER IN THE LINED FLOOR OR RECEPTOR AREA TO A LEVEL NOT LESS THAN 2 INCHES DEEP MEASURED AT THE THRESHOLD. THE WATER SHALL BE RETAINED FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES, AND THERE SHALL NOT BE EVIDENCE OF LEAKAGE.

OSHA STANDARD 1910.253 – OXYGEN-FUEL GAS WELDING AND CUTTING
1910.253(D)(5)(I) - PIPING SYSTEMS SHALL BE TESTED AND PROVED GASTIGHT AT 1½ TIMES THE MAXIMUM OPERATING PRESSURE, AND SHALL BE THOROUGHLY PURGED OF AIR BEFORE BEING PLACED IN SERVICE. THE MATERIAL USED FOR TESTING OXYGEN LINES SHALL BE OIL FREE AND NONCOMBUSTIBLE. FLAMES SHALL NOT BE USED TO DETECT LEAKS.

WHILE OSHA 1910.253 IS SPECIFIC TO OXYGEN-FUEL GAS WELDING AND CUTTING, THE TESTING REQUIREMENT ABOVE SHALL BE FOLLOWED FOR ALL COMPRESSED GASES.

PIPE AND FITTING MATERIALS PERMITTED

WATER SERVICE PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER-ALLOY PIPE	ASTM B42, ASTM B302	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
POLYETHYLENE (PE) PLASTIC TUBING	ASTM D 2737; CSA B137.1	ASTM F 2389; CSA B137.11
DUCTILE IRON WATER PIPE	AWWA C151; AWWA C115	AWWA C110; AWWA C153

WATER DISTRIBUTION PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER ALLOY TUBING (TYPE L)	ASTM B75; ASTM B88; ASTM B251, ASTM B447	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
CPVC	ASTM D 2846; ASTM F441; ASTM F 442	ASSE 1061; ASTM F 437; ASTM F 438; ASTM F 439

UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301

ABOVE-GROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COEXTRUDED COMPOSITE PVC DWV SCHEDULE 40 IPS PIPE (SOLID)	ASTM F 1488	ASTM D 2665; ASTM D 3311; ASTM F 891
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301
COPPER OR COPPER-ALLOY TUBING (TYPE K, L, M OR DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306	ASME B16.15; ASME B 16.18; ASME B 16.22; ASME B 16.23; ASME B 16.26; ASME B 16.29
POLYVINYL CHLORIDE (PVC) PLASTIC PIPE (TYPE DWV)	ASTM D 2665; ASTM D 2949; ASTM F 1488; CSA B181.2	ASTM D 2665; ASTM D 3311; ASTM F 1866

ABOVE GROUND NATURAL GAS PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

ABOVE GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
GALVANIZED STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

ABOVE GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

BELOW-GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

BELOW-GROUND COMPRESSED PROCESS GAS PIPE (O2, C25)

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A53/A53M, SCHEDULE 40, ELECTRIC RESISTANCE WELDED WITH FUSION BOND EPOXY COATING.	ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234M. WELDED AND COATED WITH FIELD APPLIED FUSION BOND EPOXY.

MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES (2020 PC OF NYS, TABLE 604.4)

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
LAVATORY, PRIVATE	1.5 GPM AT 60 PSI
LAVATORY, PUBLIC (METERING)	0.25 GALLON PER METERING CYCLE
LAVATORY, PUBLIC (OTHER THAN METERING)	0.5 GPM AT 60 PSI
SHOWER HEAD	2.0 GPM AT 80 PSI
SINK FAUCET	2.2 GPM AT 60 PSI
URINAL	0.5 GALLON PER FLUSHING CYCLE
WATER CLOSET	1.28 GALLONS PER FLUSHING CYCLE

NOTES:

1. HAND-HELD SHOWER SPRAY IS A SHOWER HEAD.
2. CONSUMPTION TOLERANCES SHALL BE DETERMINED FROM REFERENCED STANDARDS.
3. REFER TO PLUMBING FIXTURE SCHEDULES FOR ACTUAL FLOW RATES TO BE PROVIDED.

ABBREVIATIONS

AD	AREA DRAIN
AR	ARGON GAS
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
ARCH	ARCHITECT/ARCHITECTURE/ARCHITECTURAL
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNITS
BV	BALL VALVE
(C25)	25% CARBON DIOXIDE AND 75% ARGON GAS
(CO2)	CARBON DIOXIDE GAS
CA	COMPRESSED AIR
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CP	CIRCULATION PUMP
CS	CIRCUIT SETTER/BALANCE VALVE
CV	CHECK VALVE
CWS	COLD WATER SUPPLY
F	DEGREES FAHRENHEIT
DCV	DOUBLE CHECK VALVE BACKFLOW PREVENTER
DF	DRINKING FOUNTAIN
DN	PIPE DOWN, PASSING THROUGH FLOOR
DROP	PIPE DOWN, NOT PASSING THROUGH FLOOR
DSN	DOWNSPOUT NOZZLE
DWH	DOMESTIC WATER HEATER
DWV	DRAIN, WASTE, AND VENT
EC	ELECTRICAL CONTRACTOR
EFF	EFFICIENCY
ELEV	ELEVATION
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EW	EYE-WASH/FACE-WASH
EWC	ELECTRIC WATER COOLER
EWS	EMERGENCY WASH STATION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOOR SINK
FT	FOOT/FEET
FW	FILTERED WATER
GAS	NATURAL GAS OR LP (BELOW 14" W.C.)
GAS (5")	NATURAL GAS - 5 PSI"
GAS (15")	NATURAL GAS - 15 PSI"
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GT	GREASE TRAP
HB	HOSE BIBB
HP	HORSEPOWER
HPG	HIGH PRESSURE GAS OR LP (GREATER THAN 10 PSI, DEFINED BY PROJECT)
HWR	DOMESTIC HOT WATER RETURN
HWS	DOMESTIC HOT WATER SUPPLY
INV	PIPE INVERT
IN	INCHES
IN W.C.	INCHES WATER COLUMN
IPS	INTERNATIONAL PIPE STANDARD
IW	INDIRECT WASTE
KW	KILOWATT
L	LAVATORY
LS	LAUNDRY SINK
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIX	MIXING VALVE
MPG	NATURAL GAS OR LP (GREATER THAN 14 IN W.C., DEFINED BY PROJECT)
MS	MOP SINK
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
O	OXYGEN GAS
OWS	OIL WATER SEPARATOR
OST	STORM DRAIN – OVERFLOW/SECONDARY
PC	PLUMBING CONTRACTOR
PD	PUMPED DISCHARGE
PDD	POOL DECK DRAIN
PF	PRISON/SECURITY COMBI-FIXTURE
PG	PRESSURE GAUGE
PH	PHASE (ELECTRICAL)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
RD	ROOF DRAIN
RISE	PIPE UP, NOT THROUGH FLOOR/ROOF DECK ABOVE
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RTU	ROOF TOP UNIT
S	SINK
SAN	SANITARY PIPE
SAN-G	SANITARY PIPE – GREASE LADEN
SE	SEWAGE EJECTOR
SF	SQUARE FEET
SH	SHOWER
SP	SUMP PUMP
ST	STORM DRAIN
STR	STRAINER
T	THERMOMETER
T&P	TEMPERATURE AND PRESSURE
TD	TRENCH DRAIN
TP	TRAP PRIMER
TWS	TEPID WATER SUPPLY (65-90F)
TYP	TYPICAL
U	URINAL
UOI	UNLESS OTHERWISE INDICATED
V	SANITARY VENT
VB	VACUUM BREAKER
VIR	VALVE IN RISER
VOLT	VOLTAGE
VTR	SANITARY VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WM	WATER METER

PLUMBING LEGEND

SYMBOLS	DESCRIPTION
FCO	FLOOR PLATE CLEANOUT
WCO	WALL PLATE CLEANOUT
RD	ROOF DRAIN (RD)
FD	FLOOR DRAIN (FD)
	BALL VALVES
	PIPE DOWN/DROP
	PIPE UP/RISE
	CHECK VALVE
	BALANCE VALVE

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building C - 309 River Road, Glenmont, NY 12207

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/31/2023

DRAWING TITLE

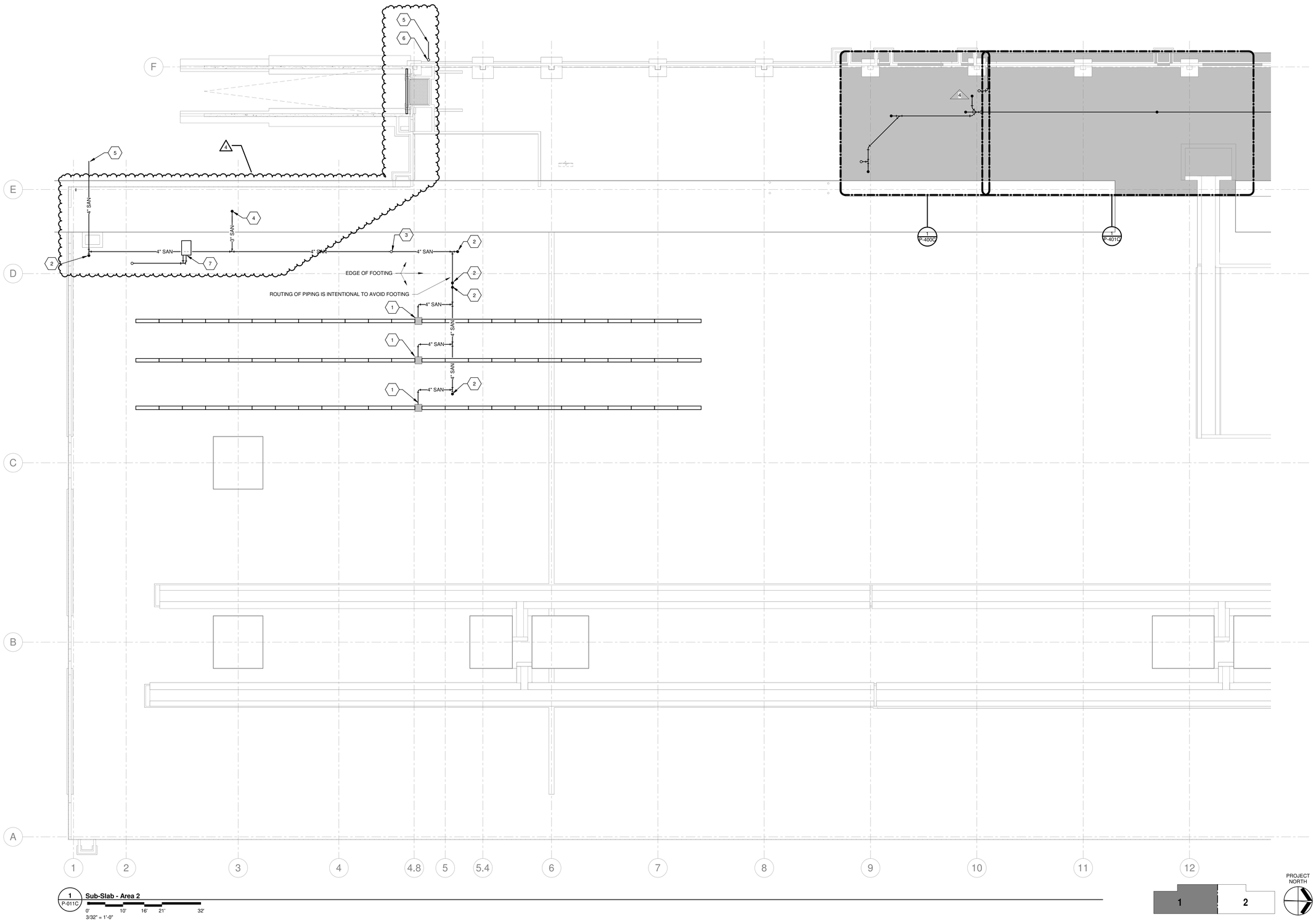
Plumbing Legend, Notes & Abbreviations

DRAWING NUMBER

P-001C

KEYED NOTES (XX)

1. PROVIDE 4" SAN CONNECTION TO TRENCH DRAIN CATCH BASIN.
2. PROVIDE 4" SAN CONNECTION TO FLOOR CLEANOUT.
3. PROVIDE 2" V UP THROUGH SLAB.
4. PROVIDE 3" TRAPPED SAN TO FLOOR DRAIN.
5. SEE C-SERIES DRAWINGS FOR CONTINUATION.
6. PROVIDE 4" CA UP FINISHED GRADE.
7. PROVIDE 2" V CONNECTION TO OIL WATER SEPARATOR (2 CONNECTIONS). MANIFOLD PIPING TOGETHER AND CONTINUE 2" V BELOW SLAB.
8. PROVIDE 2" V UP THROUGH SLAB.



1 P-011C **Sub-Slab - Area 2**

0' 10' 16' 21' 32'

3/32" = 1'-0"

PROJECT NORTH

1 2

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3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/31/2023

NO.	REVISIONS	DATE

DRAWING TITLE

Underground Plan - Area 1

DRAWING NUMBER

P-011C

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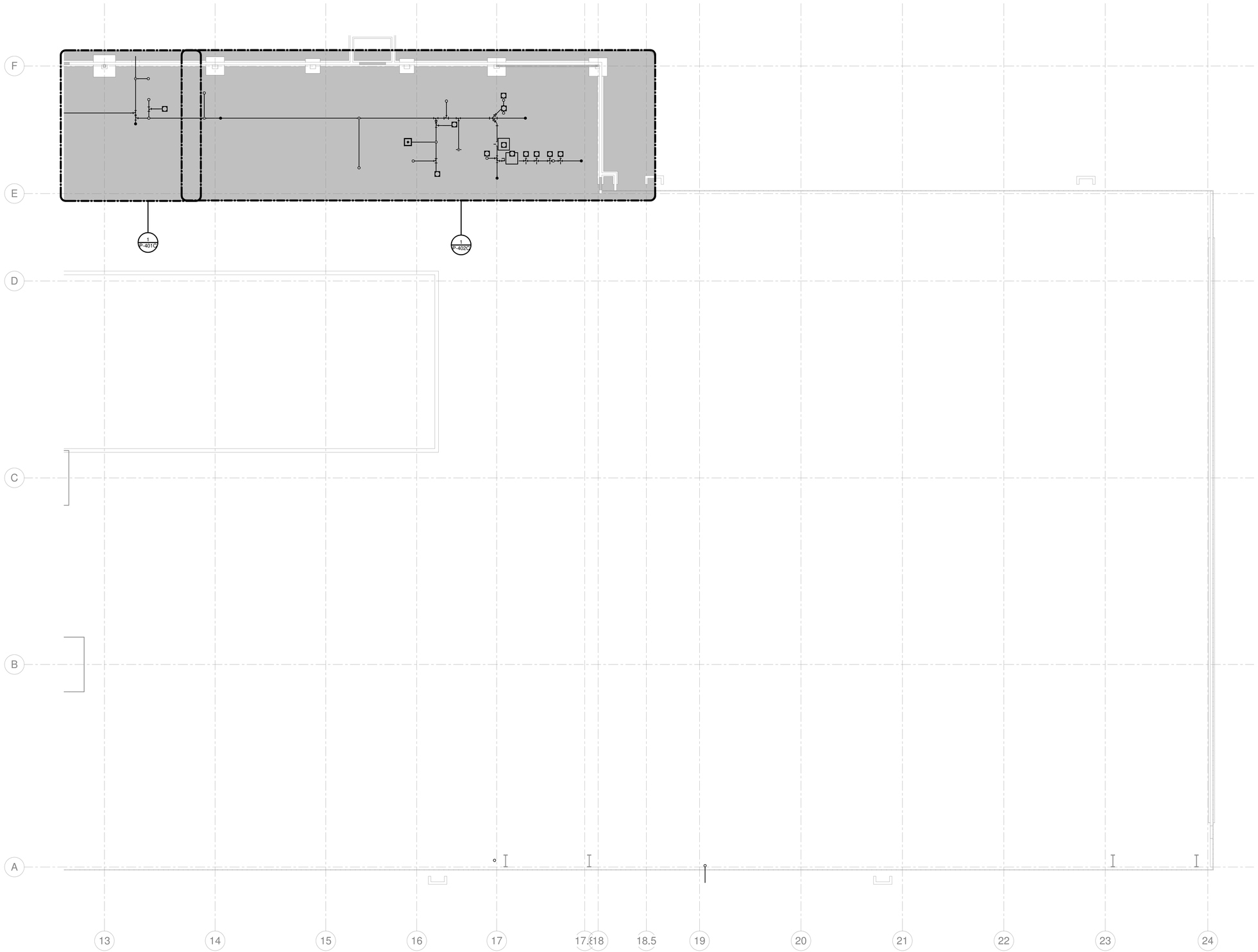

1 P-012C **Sub-Slab - Area 3**

0' 10' 16' 21' 32'

3/32" = 1'-0"

1 2

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Underground Plan - Area 2

DRAWING NUMBER

P-012C

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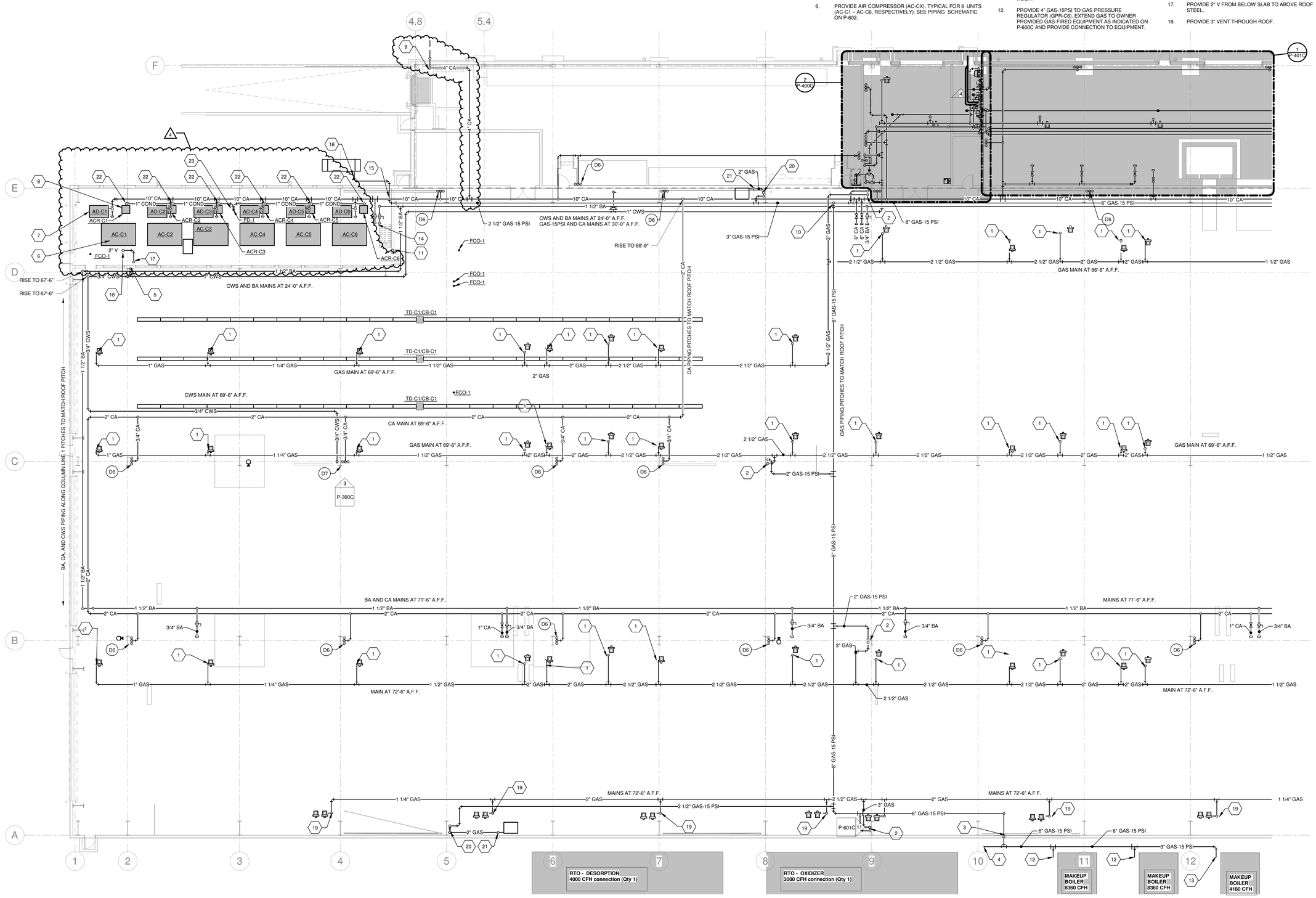
D6 UTILITY DROP 6 - REFER TO DROP ELEVATION ON P-300C, DETAIL 2.

D7 UTILITY DROP 7 - REFER TO DROP ELEVATION ON P-300C, DETAIL 3.

19. PROVIDE 1-1/4" GAS DROP TO STACKED RADIANT HEATING BURNERS (TWO BURNERS). PROVIDE 1" GAS TO EACH RESPECTIVE BURNER. SEE DETAIL 6/P-601C.
20. PROVIDE 2-1/2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 2" GAS RISE FROM REGULATOR. ELEVATION 7/P-601C IS TYPICAL FOR ALL NOTE 20 LOCATIONS.
21. PROVIDE 2" GAS DROP TO MAKE-UP AIR UNIT. SEE DETAIL 6/P-601C.
22. PROVIDE 1/2" COND FROM ACR-XX TO 1" COND HEADER. HIGH POINT OF HEADER TO BE 6" A.F.F. PITCH HEADER AT 1/8" PER FOOT TOWARD FLOOR DRAIN.
23. ELBOW 1" COND DOWN TO FLOOR DRAIN. TYP. FOR TWO.

KEYED NOTES (XX)

1. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-601C.
2. PROVIDE 2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 3" GAS RISE FROM REGULATOR. ELEVATION 11/P-601C IS TYPICAL FOR ALL NOTE 2 LOCATIONS.
3. PROVIDE 6" GAS-15PSI DROP TO 2'-0" A.F.F., THEN EXTEND PIPING THROUGH WALL TO EXTERIOR EQUIPMENT.
4. PROVIDE 4" GAS-15PSI TO GAS PRESSURE REGULATOR (GPR-C5). EXTEND GAS TO OWNER PROVIDED GAS-FIRED EQUIPMENT AS INDICATED ON P-600C AND PROVIDE CONNECTION TO EQUIPMENT.
5. PROVIDE 3/4" CWS DROP TO HOSE BIBB.
6. PROVIDE AIR COMPRESSOR (AC-CX). TYPICAL FOR 6 UNITS (AC-C1 – AC-C6, RESPECTIVELY). SEE PIPING SCHEMATIC ON P-602.
7. PROVIDE COMPRESSED AIR DRYER (AD-CX). TYPICAL FOR 6 UNITS (AD-C1 – AD-C6, RESPECTIVELY). SEE PIPING SCHEMATIC ON P-602. DRYERS MOUNTED ON MEZZANINE ABOVE COMPRESSORS.
8. PROVIDE COMPRESSED AIR CONDENSATE RECEIVER (ACR-CX). TYPICAL FOR 6 UNITS (ACR-C1 – ACR-C6, RESPECTIVELY). SEE PIPING SCHEMATIC ON P-602.
9. PROVIDE 4" CA DROP TO 2'-0" A.F.F., THEN TURN WEST AND PENETRATE EXTERIOR WALL. UPON PENETRATING WALL, TURN VERTICAL DOWNWARD AND PROVIDE WELD END TRANSITION RISER AT PENETRATION THROUGH GRADE. SEE SITE UTILITY PLANS FOR CONTINUATION.
10. PROVIDE 6" GAS-5PSI RISE TO ROOF STEEL.
11. PROVIDE 2" V RISE TO ROOF DECK. EXPAND TO 3" V 12" (MIN) BELOW ROOF DECK AND CONTINUE THROUGH ROOF.
12. PROVIDE 4" GAS-15PSI TO GAS PRESSURE REGULATOR (GPR-C6). EXTEND GAS TO OWNER PROVIDED GAS-FIRED EQUIPMENT AS INDICATED ON P-600C AND PROVIDE CONNECTION TO EQUIPMENT.
13. PROVIDE 3" GAS-15PSI TO GAS PRESSURE REGULATOR (GPR-C7). EXTEND GAS TO OWNER PROVIDED GAS-FIRED EQUIPMENT AS INDICATED ON P-600C AND PROVIDE CONNECTION TO EQUIPMENT.
14. PROVIDE 1-1/2" CA AND 1-1/2" BA DROPS TO OWNER-PROVIDED BREATHING AIR EQUIPMENT INSTALLED BENEATH MEZZANINE AND STAIRS.
15. PROVIDE 2-1/2" GAS-15PSI TO GAS PRESSURE REGULATOR (GPR-C8). EXTEND GAS TO OWNER PROVIDED GAS-FIRED EQUIPMENT AS INDICATED ON P-600C AND PROVIDE CONNECTION TO EQUIPMENT.
16. PROVIDE GAS PIPING TO EMERGENCY GENERATOR MANUFACTURER'S INSTRUCTIONS. GENERATOR INSTALLATION DETAILED AND SPECIFIED ON E-SERIES DRAWINGS. SEE DETAIL 12/P-601C.
17. PROVIDE 2" V FROM BELOW SLAB TO ABOVE ROOF STEEL.
18. PROVIDE 3" VENT THROUGH ROOF.



1 P-111C **First Floor Plan - Area 1**

0' 10' 16' 21' 32'

3/32" = 1'-0"

PROJECT NORTH

1 2

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SEAL

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Building C - 309 River Road, Glenmont, NY 12207

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3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/31/2023

DRAWING TITLE

First Floor Plan - Area 1

DRAWING NUMBER

P-111C

2/9/2023 11:48:39 AM
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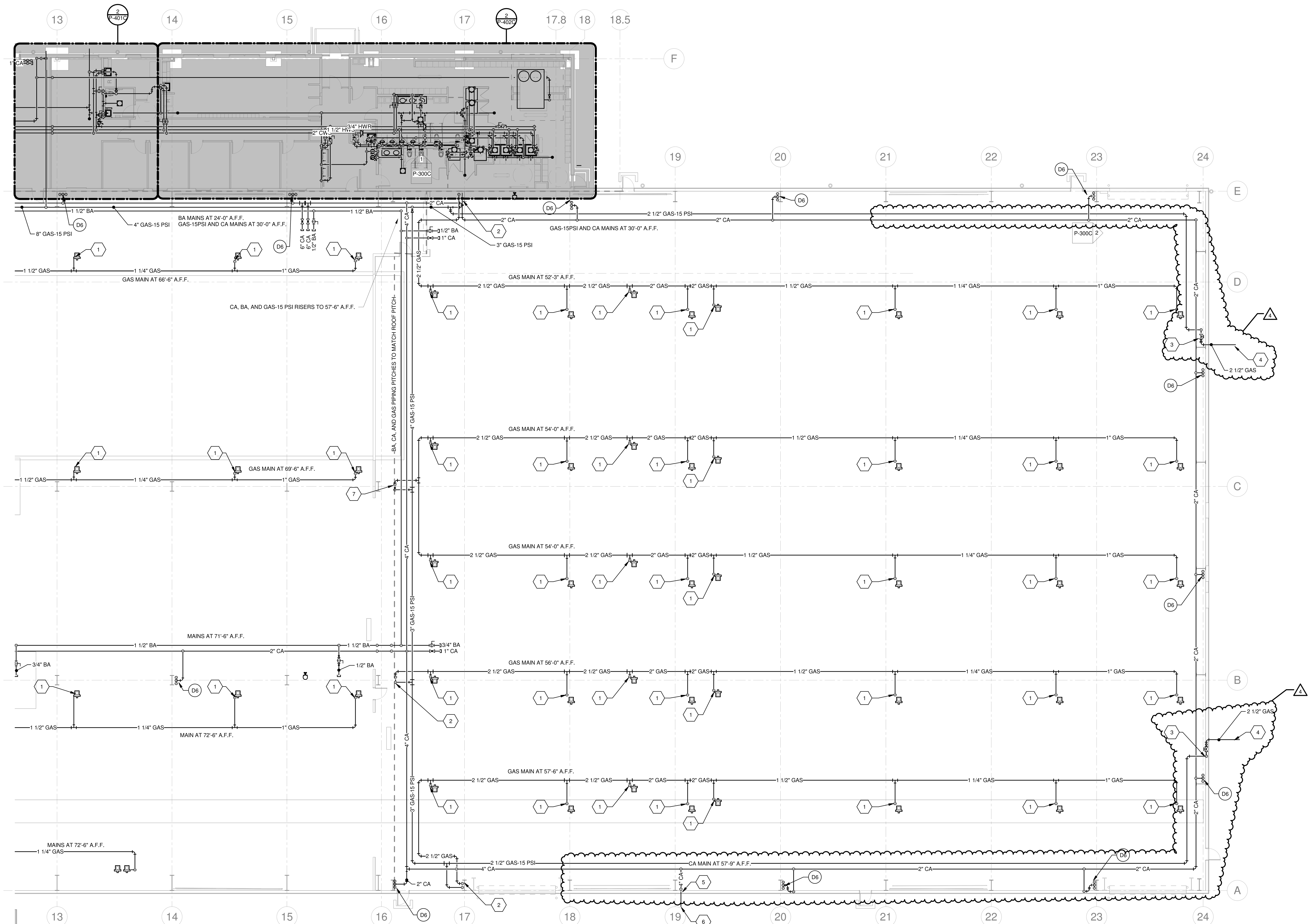
KEYED NOTES ⟨XX⟩

1. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-601C.
2. PROVIDE 1-1/2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 2-1/2" GAS RISE FROM REGULATOR. SEE ELEVATION 7/P-601C, FOR PIPING AND REGULATOR ARRANGE. SIZES IN NOTE ARE CORRECT.
3. PROVIDE 2-1/2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 2-1/2" GAS RISE FROM REGULATOR. EXTEND 2-1/2" GAS THROUGH EXTERIOR WALL TO SERVE EXTERIOR HEATING EQUIPMENT.
4. PROVIDE FINAL GAS CONNECTIONS TO GAS-FIRED EQUIPMENT INDICATED ON M-SERIES DRAWINGS.
5. PROVIDE 4" CA DOWN THROUGH SLAB.
6. PROVIDE 4" CA TO SERVE BUILDING D. SEE C-SERIES DRAWINGS FOR CONTINUATION.
7. PROVIDE 1-1/2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 2-1/2" GAS RISE FROM REGULATOR. SEE ELEVATION 7/P-601C, FOR PIPING AND REGULATOR ARRANGE. SIZES IN NOTE ARE CORRECT.

(D6) UTILITY DROP 6 - REFER TO DROP ELEVATION ON P-300C, DETAIL 2.



MAKEUP BOILER 4180 CFH

1 / P-112C First Floor Plan - Area 2
0' 10' 16' 21' 32'
3/32" = 1'-0"

1 2

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First Floor Plan - Area 2

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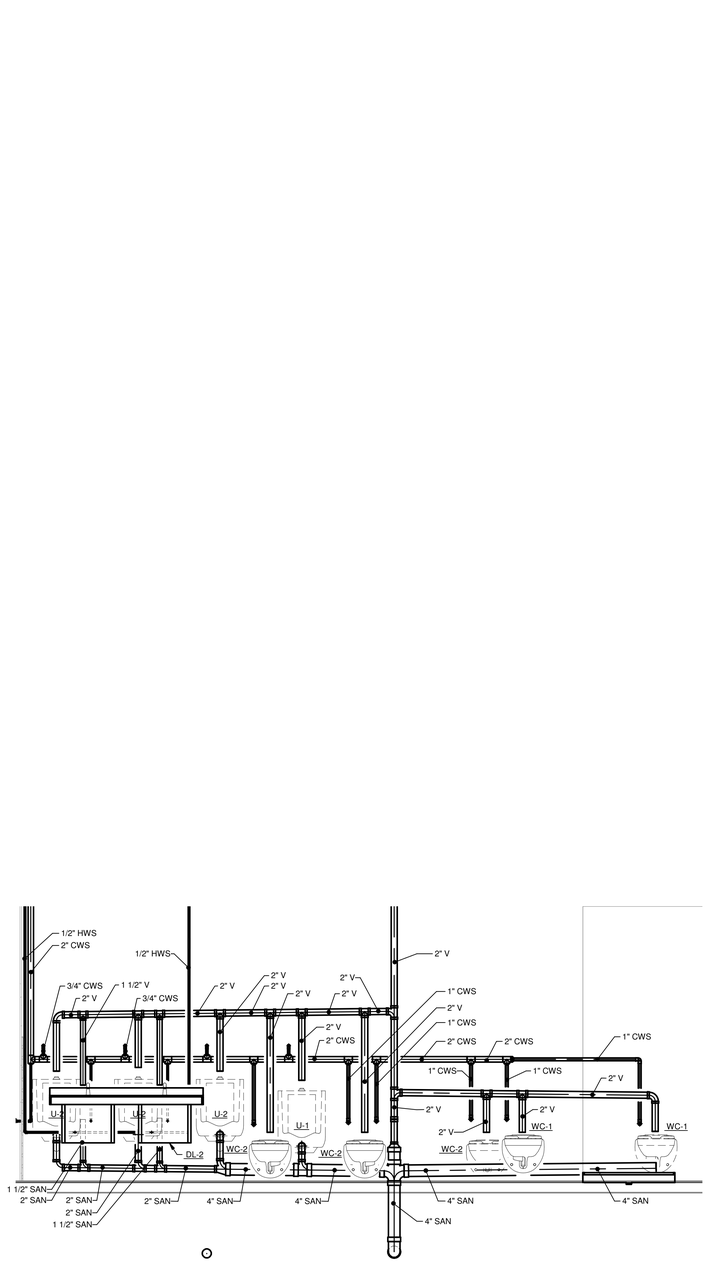
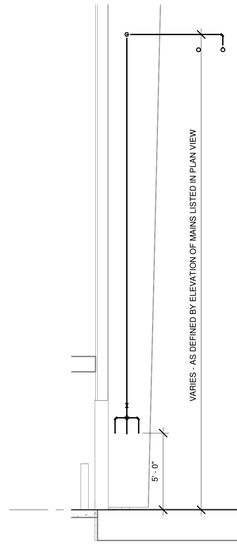
P-112C



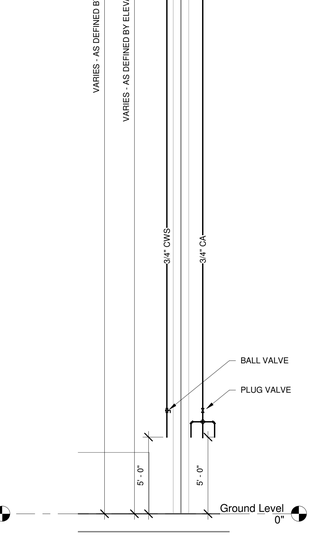
1 P-300C **PIPING CHASE - F RESTRM C104 (M RESTRM C101 BEYOND)**

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



2 P-300C **UTILITY DROP D6**

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



3 P-300C **UTILITY DROP D7**

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

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3	GMP BID SET REVISION	10/28/2022

DRAWING TITLE

Elevations

DRAWING NUMBER

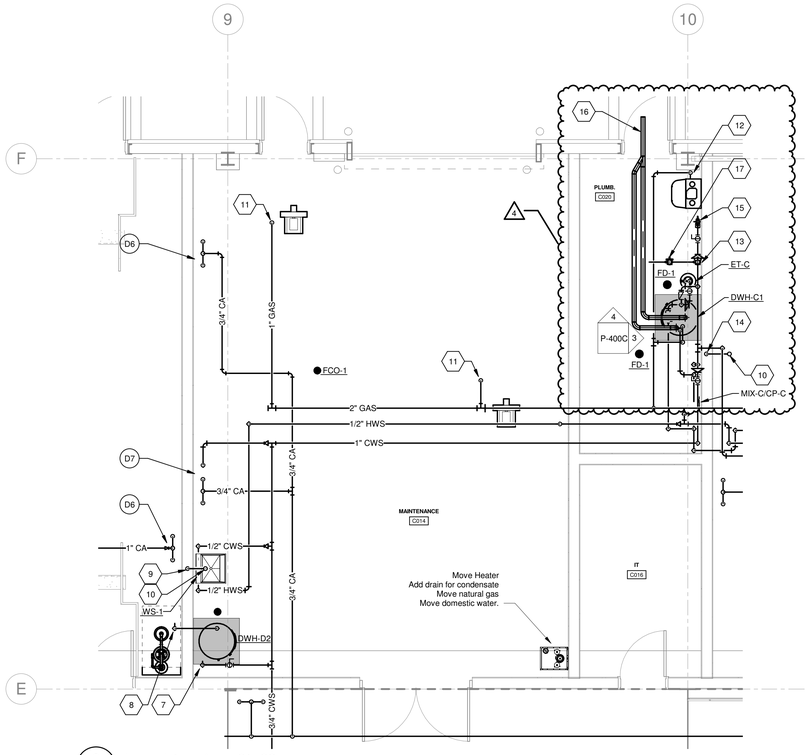
P-300C

EMERGENCY FIXTURE SCHEDULE

TAG	ACCESSIBILITY DESIGNATION	BOWL MATERIAL	MOUNTING	MANUFACTURER	MODEL	FACE SPRAY HEIGHT	SHOWER HEIGHT	SUPPLY SIZE	NOTES
EWS-1	ADA	PLASTIC	FLOOR MOUNTED	BRADLEY	S19314AA2ABAE00	41"	86"	1-1/4"	

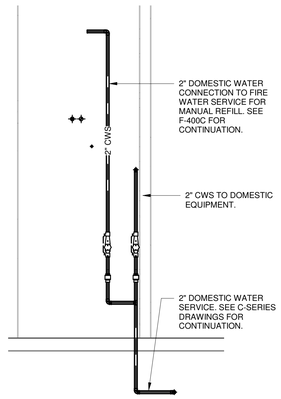
KEYED NOTES (XX)

1. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN.
2. PROVIDE 2" SAN UP TO WALL.
3. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
4. PROVIDE 2" V UP TO WALL.
5. PROVIDE 2" CWS UP TO WATER SERVICE.
6. SEE C-SERIES DRAWINGS FOR CONTINUATION.
7. PROVIDE 3/4" CWS DROP TO WATER HEATER (DHW-C2). PROVIDE 1-1/4" TWS FROM DWH-C2 TO SERVE OWNER PROVIDED EMERGENCY WASH STATION IN ADJACENT ROOM.
8. PROVIDE 1-1/4" TWS CONNECTION TO OWNER PROVIDED EQUIPMENT.
9. PROVIDE WORK SINK (WS-1). PROVIDE 1/2" CWS AND 1/2" HWS DROPS ALONG WALL TO SERVE SINK FAUCET. PROVIDE 2" SAN DOWN THROUGH SLAB AND 2" V RISER IN WALL TO 15'-0" A.F.F.
10. EXTEND 2" V OUT OF WALL AND PROVIDE 2" RISER TO BELOW ROOF DRAIN. AT 12" BELOW ROOF DECK (MIN), EXPAND TO 3" V.
11. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-601C.
12. PROVIDE 1-1/4" GAS DROP TO BOILER. PROVIDE 3/4" BRANCH TEE AND 3/4" GAS CONNECTION TO BOILER. SEE DETAIL 6/P-601C. PR
13. PROVIDE 2" CWS RISER WITH TEE FITTING FOR FIRE PROTECTION SERVICE CONNECTION. PROVIDE BALL VALVE AND BACKFLOW PREVENTER (BFP-C1) ON RISER.
14. PROVIDE 2" V RISER IN WALL TO 15'-0" A.F.F.
15. PROVIDE 3/4" CWS DROP TO BOILER MAKE-UP. PROVIDE BALL VALVE AND BACKFLOW PREVENTER (BFP-C2) ON HORIZONTAL PIPING. HORIZONTAL PIPING TO BE MOUNTED 5'-0" A.F.F.
16. PROVIDE 3" THRU-WALL CONCENTRIC VENT/INTAKE SERVING DOMESTIC WATER HEATER.
17. SEE FIRE PROTECTION PLANS FOR DOMESTIC CONNECTION CONTINUATION (F-400C).



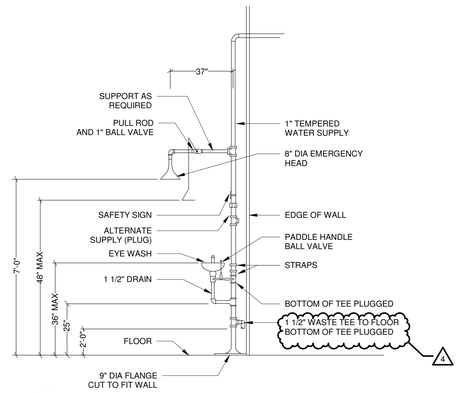
2 P-400C **Enlarged Plan - Annex C1 - SOUTH**

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



4 P-400C **WATER SERVICE ELEVATION**

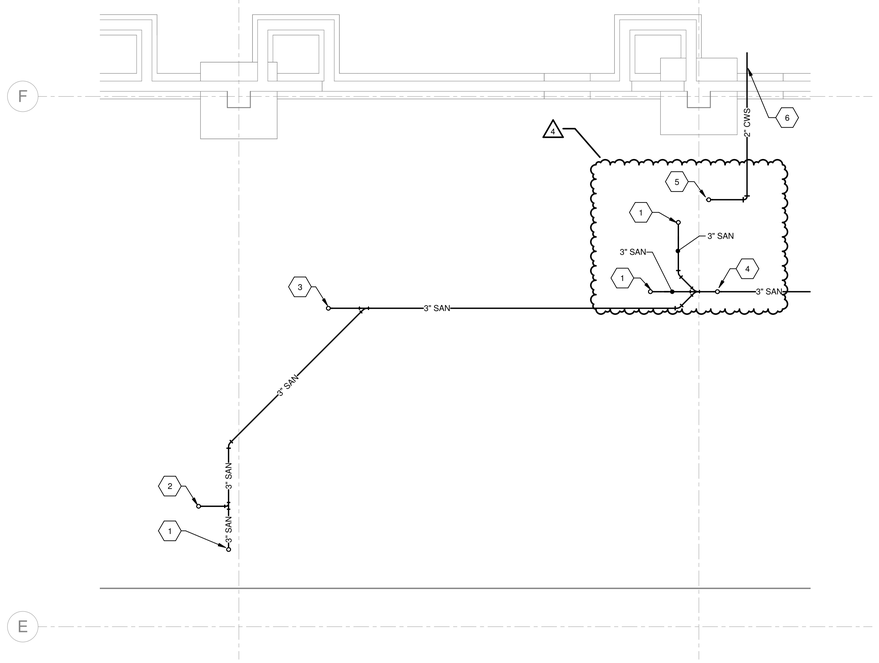
0' 1' 2' 4' 8'
1/4" = 1'-0"



NOTES:
1. LOCATIONS FOR TEMPERED WATER MIXING VALVE ARE AS SHOWN IN PLAN

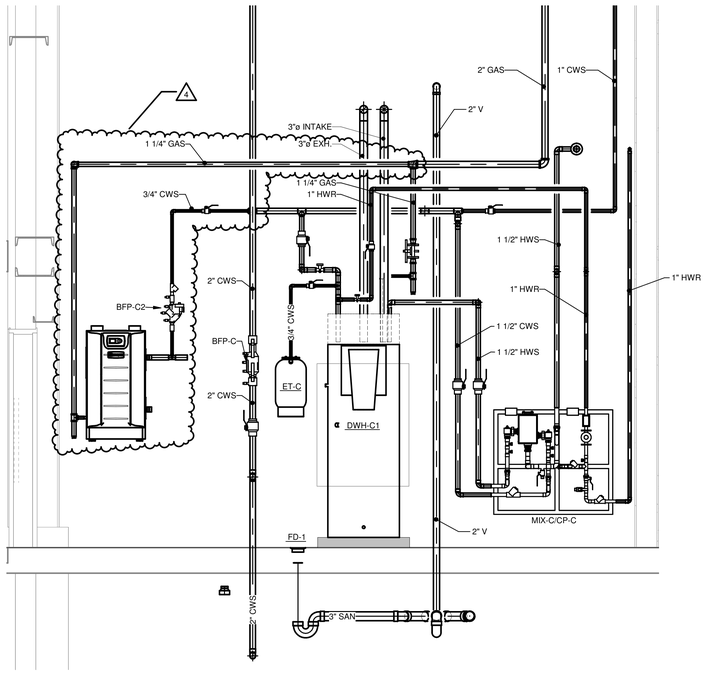
5 P-400C **EMERGENCY EYEWASH SHOWER DETAIL**

N.T.S.
NOT TO SCALE



1 P-400C **Enlarged Sub-Slab Plan - Annex C1 - SOUTH**

N.T.S.
1/4" = 1'-0"



3 P-400C **WATER SERVICE/WATER HEATER ELEVATION**

0' 6" 1' 2' 4'
1/2" = 1'-0"

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building C - 309 River Road, Glenmont, NY 12207

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
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3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/31/2023

NO.	REVISIONS	DATE

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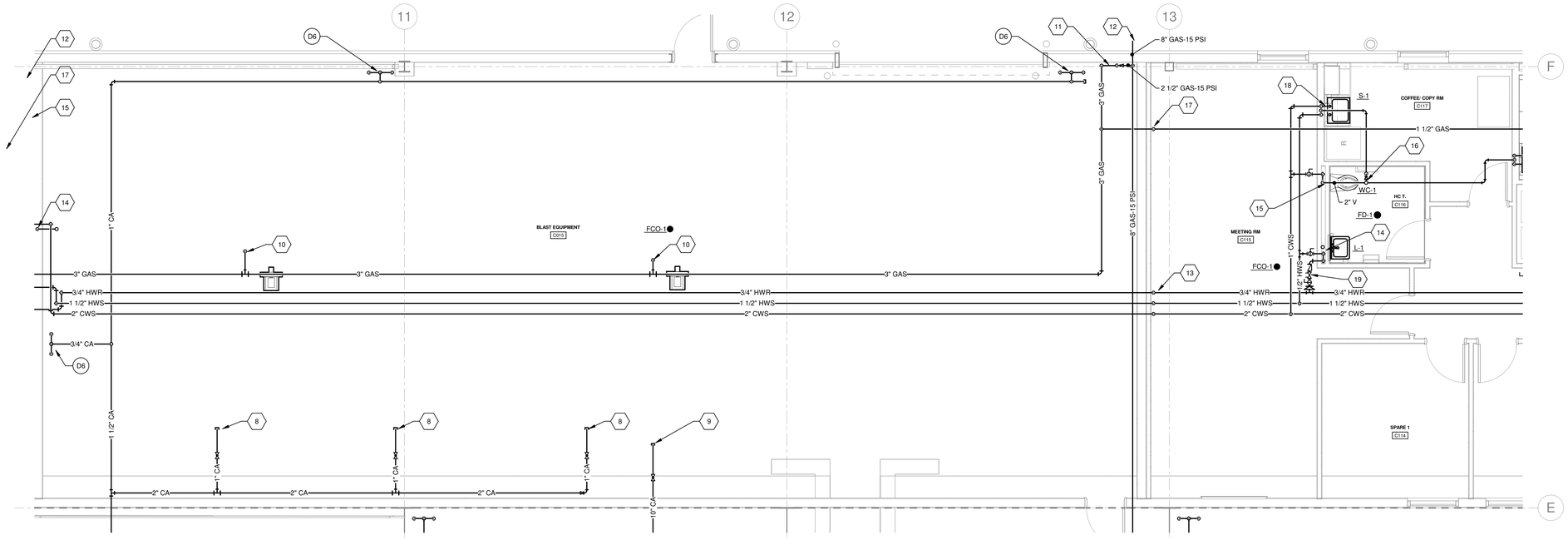
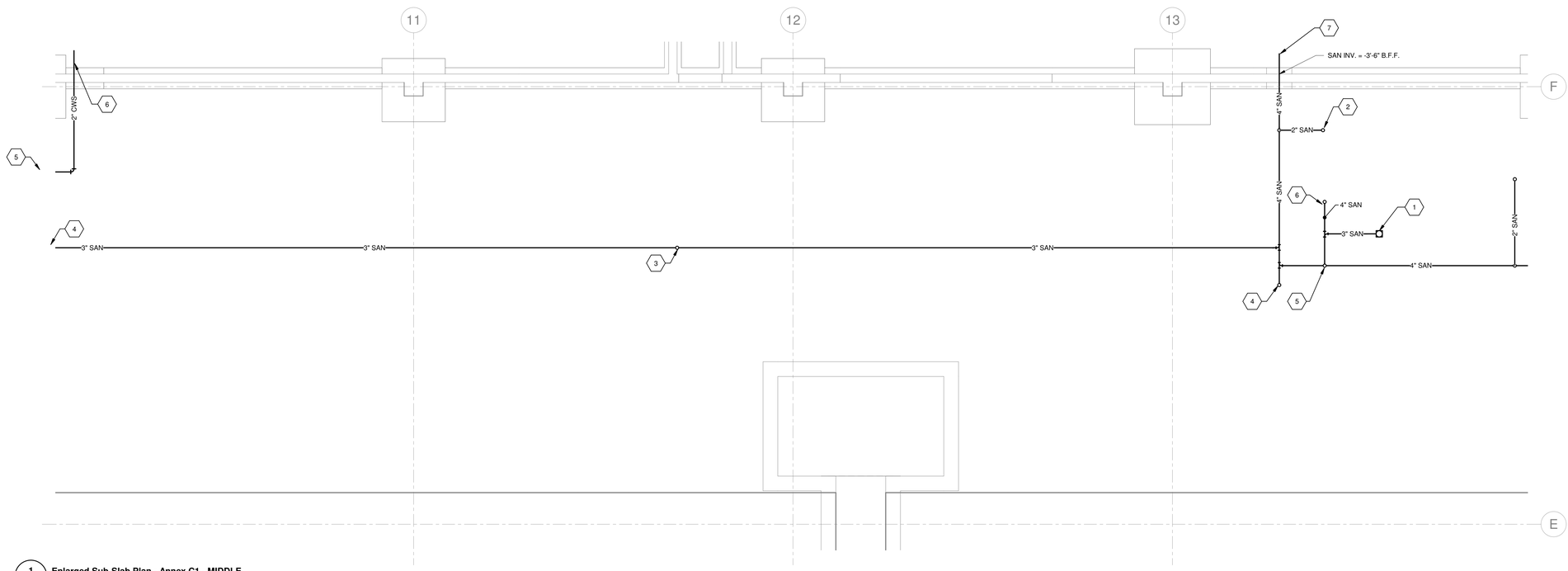
KEYED NOTES (XX)

1. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN.
2. PROVIDE 2" SAN UP TO WALL.
3. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
4. PROVIDE 4" SAN UP TO FLOOR CLEANOUT.
5. PROVIDE 4" SAN DROP TO CONNECT TO 4" SAN LATERAL. PROVIDE 2" SAN UP TO CHASE.
6. PROVIDE 4" SAN UP TO CHASE.
7. PROVIDE 4" SAN TO EXTERIOR. SEE C-SERIES DRAWINGS FOR CONTINUATION.
8. PROVIDE 1" CA CONNECTION TO OWNER PROVIDED EQUIPMENT.
9. PROVIDE 10" CA CONNECTION TO OWNER PROVIDED EQUIPMENT.
10. PROVIDE 1" GAS CONNECTION TO RADIANT HEATING BURNER. SEE DETAIL 6/P-601C.
11. PROVIDE 2-1/2" GAS-15PSI DROP TO GAS PRESSURE REGULATOR. PROVIDE 3" GAS RISE FROM REGULATOR TO HIGH ROOF. SEE ELEVATION 7/P-601C.
12. PROVIDE 8" GAS-15PSI DROP TO BELOW GROUND. PROVIDE SHUT-OFF VALVE ON RISER. PROVIDE WELD-END TRANSITION RISER AT PENETRATION THROUGH GRADE. SEE SITE UTILITY PLANS FOR CONTINUATION.
13. PROVIDE 2" CWS, 1-1/2" HWS, AND 3/4" HWR DROPS FROM BELOW HIGH ROOF TO BELOW LOW ROOF.
14. PROVIDE LAVATORY (L-1). PROVIDE 1/2" HWS AND 1/2" HWR DROPS IN WALL TO PROVIDE CONTINUOUS CIRCULATION LOOP. PROVIDE 2" SAN DOWN. EXTEND 1-1/4" V IN CHASE TO VENT RISER INDICATED IN NOTE 15. PROVIDE 1/2" CWS FROM NOTE 15 TO FIXTURE.
15. PROVIDE WATER CLOSET (WC-1). PROVIDE 1" CWS DROP INTO CHASE TO SERVE WC-1 AND L-1. PROVIDE 4" SAN DOWN AND 2" V RISE TO ABOVE CEILING.
16. PROVIDE 2" V UP TO UNDERSIDE OF ROOF DECK. 12" BELOW ROOF DECK (MIN.) EXPAND TO 3" V AND EXTEND THROUGH ROOF.
17. PROVIDE 1-1/2" DROP FROM BELOW HIGH ROOF. TRANSITION TO HORIZONTAL 2'-0" ABOVE LOW ROOF. EXTEND PIPING THROUGH EXTERIOR WALL, AND CONTINUE PIPING SUPPORTED ABOVE ROOF.
18. PROVIDE SINK (S-1). PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO FIXTURE. PROVIDE 1-1/2" SAN DOWN IN WALL, EXPANDING TO 2" SAN AT PENETRATION THROUGH SLAB.
19. PROVIDE 1/2" BALL VALVE, BALANCE VALVE, AND CHECK VALVE. BALANCE VALVE SHALL BE SET TO 0.5 GPM.



2 P-401C **Enlarged Plan - Annex C1 - MIDDLE**

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



1 P-401C **Enlarged Sub-Slab Plan - Annex C1 - MIDDLE**

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

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building C - 309 River Road, Glenmont, NY 12207

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DESIGNED	MAE
CHECKED	PP
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
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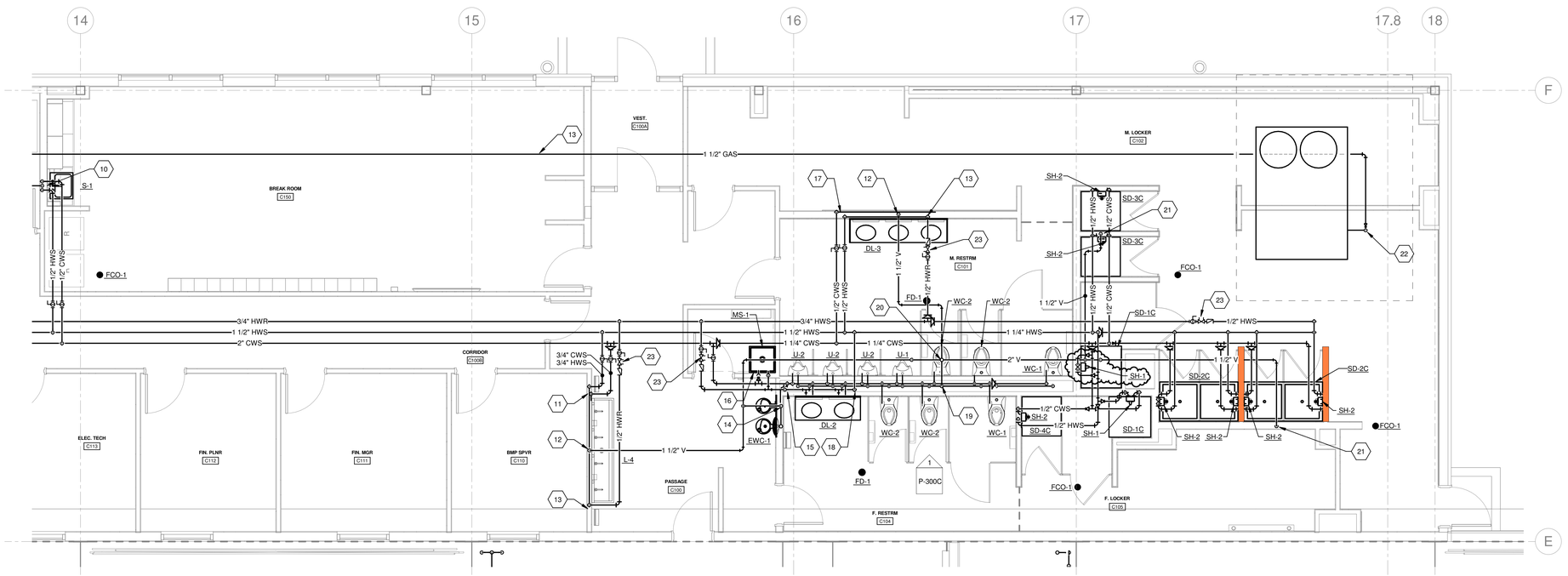
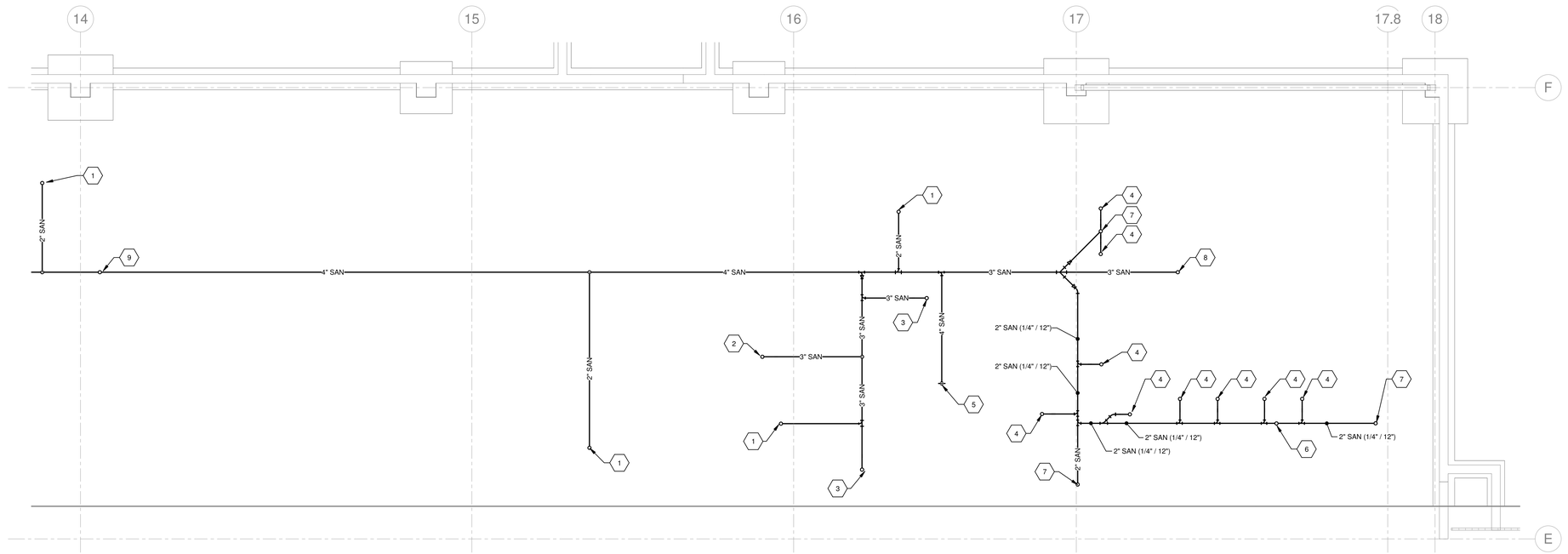
KEYED NOTES (XX)

1. PROVIDE 2" SAN UP TO WALL.
2. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK.
3. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN.
4. PROVIDE 2" TRAPPED SAN CONNECTION TO SHOWER DRAIN.
5. PROVIDE 4" SAN UP TO CHASE.
6. PROVIDE 1-1/2" V UP TO WALL.
7. PROVIDE 2" SAN UP TO FLOOR CLEANOUT.
8. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
9. PROVIDE 4" SAN UP TO FLOOR CLEANOUT.
10. PROVIDE SINK (S-1) IN COUNTERTOP. PROVIDE 1/2" CWS, 1/2" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DOWN IN WALL, EXPAND TO 2" SAN AT FLOOR.
11. PROVIDE 3/4" CWS AND 3/4" HWS DROPS IN WALL TO LAVATORY (L-4).
12. PROVIDE 1-1/2" V UP TO CEILING. PROVIDE 1-1/2" SAN DOWN, EXPAND TO 2" SAN AT FLOOR.
13. PROVIDE 1/2" HWR RISE FROM BELOW LAVATORY TO ABOVE CEILING.
14. PROVIDE ELECTRIC WATER COOLER (EWC-1). PROVIDE 1/2" CWS FROM PLUMBING CHASE. PROVIDE 1-1/2" SAN DOWN, EXPANDING TO 2" SAN AT FLOOR. PROVIDE 1-1/4" V UP TO ABOVE CEILING.
15. PROVIDE 2" CWS AND 1/2" HWS DROPS INTO CHASE.
16. PROVIDE MOP SINK (MS-1). PROVIDE 1/2" CWS AND 1/2" HWS DROPS IN WALL TO FAUCET.
17. PROVIDE 1/2" CWS AND 1/2" HWS DROP IN WALL TO SERVE LAVATORIES (L-1, QTY. 3).
18. PROVIDE 1/2" HWS DROP IN CHASE TO SERVE LAVATORIES (L-1, QTY. 2).
19. PROVIDE 2" V DROP INTO CHASE.
20. PROVIDE 3" V UP THROUGH ROOF.
21. PROVIDE 1-1/2" V FROM BELOW SLAB TO ABOVE CEILING.
22. PROVIDE 1-1/2" GAS CONNECTION TO ROOF MOUNTED MECHANICAL EQUIPMENT. SEE DETAIL 6/P-601C.
23. PROVIDE 1/2" BALL VALVE, BALANCE VALVE, AND CHECK VALVE. BALANCE VALVE SHALL BE SET TO 0.5 GPM.



2 **Enlarged Plan - Annex C1 - NORTH** (P-402C)
0' 2' 4' 8' 16'
1/4" = 1'-0"



1 **Enlarged Sub-Slab Plan - Annex C1 - NORTH** (P-402C)
0' 1' 2' 4' 8'
1/4" = 1'-0"

PROJECT NORTH

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4	IFC SET	1/31/2023

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GENERAL NOTES:

1. THESE GENERAL PLUMBING NOTES SHALL APPLY TO ALL P SERIES DRAWINGS, IN COORDINATION WITH DIVISION 22 SECTIONS, AND FRONT END (DIVISION 0 AND 1) REQUIREMENTS. ALL WORK ASSOCIATED WITH THE P SERIES DRAWINGS SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID CONFLICTS.

2. ALL WORK SHALL BE PERFORMED IN COOPERATION WITH THE OWNER (AND/OR OWNER'S REPRESENTATIVE) AND THE ARCHITECT/ENGINEER THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CONSTRUCTION SCHEDULE ESTABLISHED BY THE OWNER AND ARCHITECT, AND SHALL IMMEDIATELY REPORT ANY DELAYS IN MATERIALS RECEIPT INCLUDING CIRCUMSTANCES CAUSING DELAYS.

3. CONTRACT DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF EQUIPMENT, PIPING, AND ACCESSORIES. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL CONDITIONS, DIMENSIONS, AND LOCATIONS PRIOR TO BIDDING PROJECT. CHECK PROJECT DRAWINGS PRIOR TO INSTALLATION FOR INTERFERENCES WITH OTHER TRADES. SHOULD THE CONTRACTOR FIND SUCH INTERFERENCES, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHERS. THE OWNER RESERVES THE RIGHT TO MAKE REASONABLE CHANGES PRIOR TO ROUGH-IN WITHOUT ADDED EXPENSE. DIMENSIONS INDICATED ARE SUBJECT TO VERIFICATION OF EXACT SITE CONDITIONS AT THE TIME OF INSTALLATION.
- THE CONTRACTOR SHALL INSTALL ALL PIPING, EQUIPMENT, FIXTURE, ETC. IN A WORKMAN MANNER WITH QUALIFIED PLUMBERS.

4. ALL PLUMBING WORK SHALL BE INSTALLED PER LOCAL PLUMBING CODE, HEALTH CODE, FIRE CODE, ENERGY CONSERVATION CODE, AND BUILDING CODE. ALL WORK SHALL COMPLY TO ACCORDANCE OF LOCAL, STATE AND FEDERAL REGULATIONS AND OTHER AUTHORITIES HAVING JURISDICTION.

5. CONTRACTOR RESPONSIBLE FOR PAYING FOR ALL FEES ASSOCIATED WITH OBTAINING PERMITS, INSPECTIONS, ETC.

6. THE PLUMBING CONTRACTOR SHALL BE LICENSED IN THE LOCAL JURISDICTION PRIOR TO BIDDING ON PROJECT. CONTRACTOR TO CONTACT CITY/TOWNSHIP TO VERIFY LICENSE TO ENSURE THEY ARE CURRENT.

7. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. ANY CONFLICTS WITH INSTALLATION AND MANUFACTURER RECOMMENDATIONS SHALL BE REPORTED TO ENGINEER.

8. CUTTING AND PATCHING - ALL NOTES BELOW HOLD THE COMMON CONDITION "UNLESS OTHERWISE NOTED".
- ***FOR NEW CONSTRUCTION:*** ALL CUTTING AND PATCHING THROUGH ALL WALL, CEILING, ETC. SHALL BE PROVIDED BY PLUMBING CONTRACTOR IN COORDINATION WITH THE GENERAL WORK. ALL PAINTING AND FINISHING SHALL BE DONE BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH GENERAL CONTRACTOR.
- ***OPENINGS MADE POST-FINISH:*** IF AN OPENING IS REQUIRED IN A FINISHED SURFACE, AFTER COMPLETION, DUE TO LACK OF COORDINATION OR PROPER SCHEDULE MAINTENANCE, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED TO FINISH SPECIFIC PLUMBING WORK AND RESTORE THE FINISHED SURFACE TO PREVIOUS CONDITION.
- ***UNDERGROUND PIPING (NEW CONSTRUCTION):*** TRENCHING SHALL BE BY GENERAL CONTRACTOR. PIPE INSTALLATION WITH APPROPRIATE BEDDING MATERIAL SHALL BE BY THE PLUMBING CONTRACTOR. BACKFILL ABOVE PIPE AND BEDDING SHALL BE BY THE GENERAL CONTRACTOR BASED ON REQUIREMENTS OF THE STRUCTURAL PLANS AND SPECFICATIONS.
- ***EQUIPMENT OPENINGS:*** OPENINGS REQUIRED FOR REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE CUT AND PATCHED BY THIS CONTRACTOR.

9. FURNISH AND INSTALL ALL NEW EQUIPMENT AND MATERIALS AS DESCRIBED HEREIN. ANY MATERIAL, OPERATION, METHOD, OR DEVICE MENTIONED, LISTED OR NOTED WITHIN THIS SPECIFICATION SHALL BE FURNISHED BY THIS CONTRACTOR UNLESS SPECIFICALLY MENTIONED AS BEING FURNISHED OR INSTALLED BY OTHERS.

10. ALL PIPING PENETRATING ALL FIRE-RATED WALLS, CEILINGS, FLOORS, ROOFS, ETC. SHALL BE FIRE STOPPED IN ACCORDANCE WITH DIVISION 7.

11. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE AND OPERABLE SYSTEMS, INCLUDING OPERATIONAL PROPERTIES TO THE EXTEND NECESSARY TO LINK MULTIPLE COMPONENTS OF THE SYSTEMS TOGETHER AND TO INTERFACE WITH SYSTEMS PROVIDED BY OTHERS. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL SYSTEMS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL PROVIDE OWNER WITH ALL NECESSARY OPERATION AND MAINTENANCE MANUALS, SHOP DRAWINGS, WIRING DIAGRAMS, AND WARRANTY PAPERWORK UPON COMPLETION OF THE PROJECT.

12. THE CONTRACTOR SHALL LOCATE ACCESS PANEL IN NON-ACCESSIBLE CEILING AND WALLS FOR ALL VALVES, SHOCK ABSORBERS, CLEANOUTS AND ALL OTHER ITEMS THAT REQUIRE ACCESS TO PROPERLY MAINTAIN OR SERVICE.

13. THE CONTRACTOR IS RESPONSIBLE FOR TESTING, AND ADJUSTING ALL PLUMBING EQUIPMENT INDICATED IN THE PLUMBING DRAWINGS.

14. THE MINIMUM SLOPE OF ALL INTERIOR SEWER LINES SHALL BE 1/4 INCH PER FOOT FOR SIZES 2-1/2" AND SMALLER, 1/8 INCH PER FOOT FOR SIZES 3"-6", AND 1/16 INCH PER FOOT FOR SIZES 8" AND GREATER. SEE SCHEDULE LOCATED ON DRAWING FOR CONNECTION SIZES FOR SANITARY, VENT, COLD, AND HOT WATER PIPING. SEE SCHEDULE FOR PIPING MATERIALS.

15. ALL PIPING PENETRATIONS THROUGH EXPOSED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS AND SEAL TO WALL OR CEILING.

16. ALL NATURAL GAS PIPING SHALL BE INSTALL PER NEW YORK FUEL GAS CODE AND AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHUT OFF GAS VALVE FOR ALL EQUIPMENT UTILIZING GAS. CONTRACTOR SHALL PROVIDE 6" DIRT LEG (MINIMUM) FOR ALL EQUIPMENT UTILIZING GAS.

17. ALL NATURAL GAS PIPING SHALL BE TESTED PER THE LIST BELOW. ALL TESTING SHALL CONFORM TO NEW YORK STATE FUEL GAS CODE.
- PRESSURE UP TO AND INCLUDING 12" W.C.: 15 PSI FOR ONE (1) HOUR.
- PRESSURE ABOVE 12" W.C.: 1-1/2 TIMES THE WORKING PRESSURE, OR 50 PSI (MINIMUM) FOR ONE (1) HOUR.
- COATED OR WRAPPED PIPING: 100 PSIG FOR ONE (1) HOUR

18. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL FLUSH AND SANITIZE THE DOMESTIC HOT, RECIRCULATION AND COLD WATER PIPING IN ACCORDANCE WITH LOCAL AND NEW YORK STATE, PLUMBING CODE.

19. EQUIPMENT CONNECTIONS:
- ALL EQUIPMENT SHALL BE PROVIDED WITH UNIONS AND SHUT-OFF VALVES WHETHER DETAILED OR NOT.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED WITH SHUT OFF VALVES.
- THIS CONTRACTOR SHALL MAKE FINAL PLUMBING CONNECTIONS TO PIPING/EQUIPMENT FURNISHED BY OTHERS, UNLESS OTHERWISE NOTED.

20. ALL PENETRATIONS THROUGH ROOFING MEMBRANE AND ROOF DECKING SHALL BE PERFORMED BY AN INSTALLER CERTIFIED BY THE ROOFING SYSTEM MANUFACTURER TO MAINTAIN ROOF SYSTEM WARRANTY.

21. NATURAL GAS REGULATOR VENT PIPING SHALL EXTEND TO THE EXTERIOR OF THE BUILDING AND TERMINATE IN ACCORDANCE WITH NFPA 54 AND/OR NFPA 58.

22. EXTERIOR GAS PIPING SHALL BE PAINTED WITH TWO COATS OF PRIMER AND ONE COAT OF FINISH PAINT. COLOR TO BE DETERMINED BASED COLOR OF SURROUNDING SURFACES.

23. FOR PROJECTS WITH APPROVED USE OF PVC AND CPVC PIPING, SUCH PIPING SHALL BE PROHIBITED IN THE FOLLOWING LOCATIONS.
- AREAS OF ASSEMBLY.
- RETURN AIR PLENUMS.
- EXIT DISCHARGE CORRIDORS.
- STAIRS.

24. RODENTPROOFING - IN OR ON STRUCTURES WHERE OPENINGS HAVE BEEN MADE IN FLOORS CEILINGS, OR WALLS FOR THE PASSAGE OF PIPE, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED WITH APPROVED METAL COLLARS THAT ARE SECURELY FASTENED TO THE ADJOINING STRUCTURE.

25. STRUCTURAL SAFETY - IN THE PROCESS OF INSTALLING OR REPAIRING ANY PART OF A PLUMBING OR DRAINAGE SYSTEM, THE FINISHED FLOOR, WALLS, CEILINGS, TILE OR ANY OTHER PART OF THE BUILDING OR PREMISES THAT MUST BE CHANGED OR REPLACED SHALL REMAIN IN A STRUCTURALLY SAFE CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

26. PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS - PIPING AND OTHER SYSTEM COMPONENTS SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT CORROSION, BREAKAGE, FREEZING, AND PHYSICAL DAMAGE BY OTHER BUILDING COMPONENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF NEW YORK STATE.

27. PROTECTION OF WATER QUALITY - A POTABLE WATER SUPPLY SYSTEM SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN SUCH A MANNER SO AS TO PREVENT CONTAMINATION FROM NON-POTABLE LIQUIDS, SOLIDS, OR GASES BEING INTRODUCED INTO THE POTABLE WATER SYSTEM THROUGH CROSS-CONTAMINATION OR ANY OTHER PIPING CONNECTIONS TO THE SYSTEM.

28. FLOODPROOFING - PLUMBING SYSTEMS AND EQUIPMENT IN STRUCTURES ERECTED IN AREAS PRONE TO FLOODING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE COMPONENTS OF THE SYSTEM SHALL BE CAPABLE OF RESISTING HYDROSTATIC LOADS AND STRESSES IN THE EVENT OF FLOODING.

29. EXISTING SITE UTILITIES - UNDERGROUND UTILITY LOCATIONS ARE NOT GUARANTEED, NOR IS THERE ANY GUARANTEE THAT ALL EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED, WITHIN THE PROJECT AREA ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM THE CONTRACTOR'S WORK. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (DSNY) - 800-962-7962 FOR STAKEOUT REQUESTS.

PIPING TESTING REQUIREMENTS:

NYS PLUMBING CODE - 312.2 DRAINAGE AND VENT WATER TEST
A WATER TEST SHALL BE APPLIED TO THE DRAINAGE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. IF APPLIED TO THE ENTIRE SYSTEM, ALL OPENINGS IN THE PIPING SHALL BE TIGHTLY CLOSED, EXCEPT THE HIGHEST OPENING, AND THE SYSTEM SHALL BE FILLED WITH WATER TO THE POINT OF OVERFLOW. IF THE SYSTEM IS TESTED IN SECTIONS, EACH OPENING SHALL BE TIGHTLY PLUGGED EXCEPT THE HIGHEST OPENINGS OF THE SECTION UNDER TEST, AND EACH SECTION SHALL BE FILLED WITH WATER, BUT SECTIONS SHALL NOT BE TESTED WITH LESS THAN A 10-FOOT HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, NOT LESS THAN THE UPPER 10 FEET OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT NO JOINT OR PIPE IN THE BUILDING, EXCEPT THE UPPERMOST 10 FEET OF THE SYSTEM, SHALL HAVE BEEN SUBMITTED TO A TEST OF LESS THAN A 10-FOOT HEAD OF WATER. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE SYSTEM SHALL THEN BE TIGHT AT ALL POINTS.

NYS PLUMBING CODE - 312.3 DRAINAGE AND VENT AIR TEST
PLASTIC PIPING SHALL NOT BE TESTED USING AIR. AN AIR TEST SHALL BE MADE BY FORCING AIR INTO THE SYSTEM UNTIL THERE IS A UNIFORM GAUGE PRESSURE OF 5 PSI OR SUFFICIENT TO BALANCE A 10-INCH COLUMN OF MERCURY. THIS PRESSURE SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES. ANY ADJUSTMENTS TO THE TEST PRESSURE REQUIRED BECAUSE OF CHANGES IN AMBIENT TEMPERATURES OR THE SEATING OF GASKETS SHALL BE MADE PRIOR TO THE BEGINNING OF THE TEST PERIOD.

NYS PLUMBING CODE - 312.4 DRAINAGE AND VENT FINAL TEST
THE FINAL TEST OF THE COMPLETED DRAINAGE AND VENT SYSTEM SHALL BE VISUAL AND IN SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE PROVISIONS OF THIS CODE. WHERE A SMOKE TEST IS UTILIZED, IT SHALL BE MADE BY FILLING ALL TRAPS WITH WATER AND THEN INTRODUCING INTO THE ENTIRE SYSTEM A PUNGENT, THICK SMOKE PRODUCED BY ONE OR MORE SMOKE MACHINES. WHEN THE SMOKE APPEARS AT STACK OPENINGS ON THE ROOF, THE STACK OPENINGS SHALL BE CLOSED AND A PRESSURE EQUIVALENT TO A 1-INCH WATER COLUMN SHALL BE HELD FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES.

NYS PLUMBING CODE - 312.5 WATER SUPPLY SYSTEM TEST
UPON COMPLETION OF A SECTION OF OR THE ENTIRE WATER SUPPLY SYSTEM, THE SYSTEM, OR PORTION COMPLETED, SHALL BE TESTED AND PROVED TIGHT UNDER WATER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM; OR, FOR PIPING SYSTEMS OTHER THAN PLASTIC, BY AN AIR TEST OF NOT LESS THAN 50 PSI. THIS PRESSURE SHALL BE HELD FOR NOT LESS THAN 15 MINUTES. THE WATER UTILIZED FOR TESTS SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY. THE REQUIRED TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION.

NYS PLUMBING CODE - 312.6 GRAVITY SEWER TEST
GRAVITY SEWER TESTS SHALL CONSIST OF PLUGGING THE END OF THE BUILDING SEWER AT THE POINT OF CONNECTION WITH THE PUBLIC, FILLING THE BUILDING SEWER WITH WATER, TESTING WITH NOT LESS THAN A 10-FOOT HEAD OF WATER AND MAINTAINING SUCH PRESSURE FOR 15 MINUTES.

NYS PLUMBING CODE - 312.9 SHOWER LINER TEST – NOT APPLICABLE BECAUSE PREFABRICATED RECEPTORS ARE SPECIFIED.
WHERE SHOWER FLOORS AND RECEPTORS ARE MADE WATER TIGHT BY THE APPLICATION OF MATERIALS REQUIRED BY SECTION 421.5.2, THE COMPLETED LINER INSTALLATION SHALL BE TESTED. THE PIPE FROM THE SHOWER DRAIN SHALL BE PLUGGED WATER TIGHT FOR THE TEST. THE FLOOR AND RECEPTOR AREA SHALL BE FILLED WITH POTABLE WATER TO A DEPTH OF NOT LESS THAN 2 INCHES MEASURED AT THE THRESHOLD. WHERE A THRESHOLD OF 2 INCHES HIGH OR GREATER DOES NOT EXIST, A TEMPORARY THRESHOLD SHALL BE CONSTRUCTED TO RETAIN THE TEST WATER IN THE LINED FLOOR OR RECEPTOR AREA TO A LEVEL NOT LESS THAN 2 INCHES DEEP MEASURED AT THE THRESHOLD. THE WATER SHALL BE RETAINED FOR A TEST PERIOD OF NOT LESS THAN 15 MINUTES, AND THERE SHALL NOT BE EVIDENCE OF LEAKAGE.

OSHA STANDARD 1910.253 – OXYGEN-FUEL GAS WELDING AND CUTTING
1910.253(D)(5)(I) - PIPING SYSTEMS SHALL BE TESTED AND PROVED GASTIGHT AT 1½ TIMES THE MAXIMUM OPERATING PRESSURE, AND SHALL BE THOROUGHLY PURGED OF AIR BEFORE BEING PLACED IN SERVICE. THE MATERIAL USED FOR TESTING OXYGEN LINES SHALL BE OIL FREE AND NONCOMBUSTIBLE. FLAMES SHALL NOT BE USED TO DETECT LEAKS.

WHILE OSHA 1910.253 IS SPECIFIC TO OXYGEN-FUEL GAS WELDING AND CUTTING, THE TESTING REQUIREMENT ABOVE SHALL BE FOLLOWED FOR ALL COMPRESSED GASES.

PIPE AND FITTING MATERIALS PERMITTED

WATER SERVICE PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER-ALLOY PIPE	ASTM B42, ASTM B302	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
POLYETHYLENE (PE) PLASTIC TUBING	ASTM D 2737; CSA B137.1	ASTM F 2389; CSA B137.11
DUCTILE IRON WATER PIPE	AWWA C151; AWWA C115	AWWA C110; AWWA C153

WATER DISTRIBUTION PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COPPER OR COPPER ALLOY TUBING (TYPE L)	ASTM B75; ASTM B88; ASTM B251, ASTM B447	ASSE 1061; ASME B 16.15; ASTM B 16.18; ASTM B 16.22 ASME B 16.23; ASME B 16.26 ASME 16.29
CPVC	ASTM D 2846; ASTM F441; ASTM F 442	ASSE 1061; ASTM F 437; ASTM F 438; ASTM F 439
CROSS-LINKED POLYETHYLENE PLASTIC TUBING - PEX (FOR UNDERSLAB PIPING TO TRAP PRIMERS ONLY)	ASTM F 1281, CSA B 137.10M	ASSE 1061; ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2159; CSA B137.8

UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301

ABOVE-GROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
COEXTRUDED COMPOSITE PVC DWV SCHEDULE 40 IPS PIPE (SOLID)	ASTM F 1488	ASTM D 2665; ASTM D 3311; ASTM F 891
CAST IRON PIPE	ASTM A 74; ASTM A 888; CISPI 301	ASTM B 16.4; ASTM B 16.12; ASTM A 74; ASTM A 888; CISPI 301
COPPER OR COPPER-ALLOY TUBING (TYPE K, L, M OR DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306	ASME B16.15; ASME B 16.18; ASME B 16.22; ASME B 16.23; ASME B 16.26; ASME B 16.29
POLYVINYL CHLORIDE (PVC) PLASTIC PIPE (TYPE DWV)	ASTM D 2665; ASTM D 2949; ASTM F 1488; CSA B181.2	ASTM D 2665; ASTM D 3311; ASTM F 1866

ABOVE-GROUND NATURAL GAS PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	THREADED OR WELDED PER FUEL GAS CODE OF NEW YORK STATE

UNDER-GROUND NATURAL GAS PIPE - BEYOND BUILDING FOOTPRINT

MATERIAL	PIPE STANDARD	FITTING STANDARD
HIGH DENSITY POLYETHYLENE	ASTM D 2513, MARKED "GAS"	HEAT FUSION - ASTM D 2513

ABOVE GROUND COMPRESSED AIR PIPE

MATERIAL	PIPE STANDARD	FITTING STANDARD
GALVANIZED STEEL (SCHEDULE 40)	ASTM A 53, ASTM A 106, OR ASME B 36.10	PRESS-CONNECT FITTINGS IN ACCORDANCE WITH ANSI LC4/CSA 6.32.

MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES (2020 PC OF NYS, TABLE 604.4)

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
LAVATORY, PRIVATE	1.5 GPM AT 60 PSI
LAVATORY, PUBLIC (METERING)	0.25 GALLON PER METERING CYCLE
LAVATORY, PUBLIC (OTHER THAN METERING)	0.5 GPM AT 60 PSI
SHOWER HEAD	2.0 GPM AT 80 PSI
SINK FAUCET	2.2 GPM AT 60 PSI
URINAL	0.5 GALLON PER FLUSHING CYCLE
WATER CLOSET	1.28 GALLONS PER FLUSHING CYCLE

NOTES:

1. HAND-HELD SHOWER SPRAY IS A SHOWER HEAD.
2. CONSUMPTION TOLERANCES SHALL BE DETERMINED FROM REFERENCED STANDARDS.
3. REFER TO PLUMBING FIXTURE SCHEDULES FOR ACTUAL FLOW RATES TO BE PROVIDED.

ABBREVIATIONS

AD	AREA DRAIN
AR	ARGON GAS
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
ARCH	ARCHITECT/ARCHITECTURE/ARCHITECTURAL
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNITS
BV	BALL VALVE
(C25)	25% CARBON DIOXIDE AND 75% ARGON GAS
(CO2)	CARBON DIOXIDE GAS
CA	COMPRESSED AIR
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CP	CIRCULATION PUMP
CS	CIRCUIT SETTER/BALANCE VALVE
CV	CHECK VALVE
CWS	COLD WATER SUPPLY
F	DEGREES FAHRENHEIT
DCV	DOUBLE CHECK VALVE BACKFLOW PREVENTER
DF	DRINKING FOUNTAIN
DN	PIPE DOWN, PASSING THROUGH FLOOR
DROP	PIPE DOWN, NOT PASSING THROUGH FLOOR
DSN	DOWNSPOUT NOZZLE
DWH	DOMESTIC WATER HEATER
DWV	DRAIN, WASTE, AND VENT
EC	ELECTRICAL CONTRACTOR
EFF	EFFICIENCY
ELEV	ELEVATION
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EW	EYE-WASH/FACE-WASH
EWC	ELECTRIC WATER COOLER
EWS	EMERGENCY WASH STATION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOOR SINK
FT	FOOT/FEET
FW	FILTERED WATER
GAS	NATURAL GAS OR LP (BELOW 14" W.C.)
GAS (5")	NATURAL GAS - 5 PSI*
GAS (15")	NATURAL GAS - 15 PSI*
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GT	GREASE TRAP
HB	HOSE BIBB
HP	HORSEPOWER
HPG	HIGH PRESSURE GAS OR LP (GREATER THAN 10 PSI, DEFINED BY PROJECT)
HWR	DOMESTIC HOT WATER RETURN
HWS	DOMESTIC HOT WATER SUPPLY
INV	PIPE INVERT
IN	INCHES
IN W.C.	INCHES WATER COLUMN
IPS	INTERNATIONAL PIPE STANDARD
IW	INDIRECT WASTE
KW	KILOWATT
L	LAVATORY
LS	LAUNDRY SINK
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIX	MIXING VALVE
MPG	NATURAL GAS OR LP (GREATER THAN 14 IN W.C., DEFINED BY PROJECT)
MS	MOP SINK
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
O	OXYGEN GAS
OWS	OIL WATER SEPARATOR
OST	STORM DRAIN – OVERFLOW/SECONDARY
PC	PLUMBING CONTRACTOR
PD	PUMPED DISCHARGE
PDD	POOL DECK DRAIN
PF	PRISON/SECURITY COMBI-FIXTURE
PG	PRESSURE GAUGE
PH	PHASE (ELECTRICAL)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
RD	ROOF DRAIN
RISE	PIPE UP, NOT THROUGH FLOOR/ROOF DECK ABOVE
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RTU	ROOF TOP UNIT
S	SINK
SAN	SANITARY PIPE
SAN-G	SANITARY PIPE – GREASE LADEN
SE	SEWAGE EJECTOR
SF	SQUARE FEET
SH	SHOWER
SP	SUMP PUMP
ST	STORM DRAIN
STR	STRAINER
T	THERMOMETER
T&P	TEMPERATURE AND PRESSURE
TD	TRENCH DRAIN
TP	TRAP PRIMER
TWS	TEPID WATER SUPPLY (65-90F)
TYP	TYPICAL
U	URINAL
UOI	UNLESS OTHERWISE INDICATED
V	SANITARY VENT
VB	VACUUM BREAKER
VIR	VALVE IN RISER
VOLT	VOLTAGE
VTR	SANITARY VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WM	WATER METER

PLUMBING LEGEND

SYMBOLS	DESCRIPTION
FCO	FLOOR PLATE CLEANOUT
WCO	WALL PLATE CLEANOUT
RD	ROOF DRAIN (RD)
FD	FLOOR DRAIN (FD)
	BALL VALVES
	PIPE DOWN/DROP
	PIPE UP/RISE
	CHECK VALVE
	BALANCE VALVE

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building D - 309 River Road, Glenmont, NY 12207

DRAWN IB
DESIGNED IB
CHECKED MAE
SCALE AS NOTED
DATE 06/08/2022
PROJECT 18824.00

NO.	REVISIONS	DATE
	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

DRAWING TITLE

Plumbing Legend, Notes & Abbreviations

DRAWING NUMBER

P-001D

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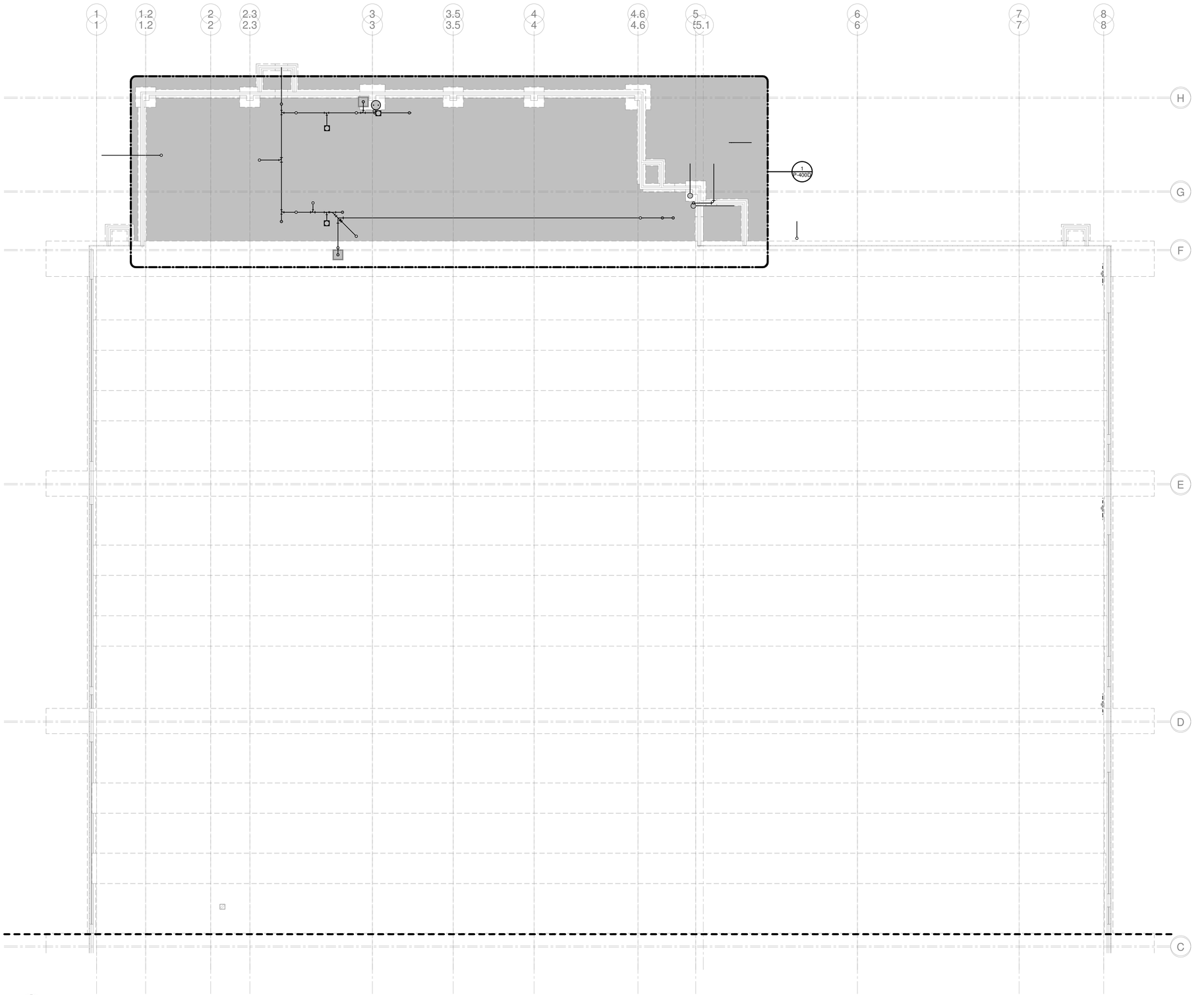

1 P-011D **Sub-Slab - Area 1**

0' 2' 4' 8' 16'

1/8" = 1'-0"

1 / 2

PROJECT NORTH

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SCALE	AS NOTED
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PROJECT	18824.00

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Underground Plan - Area 1

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P-011D

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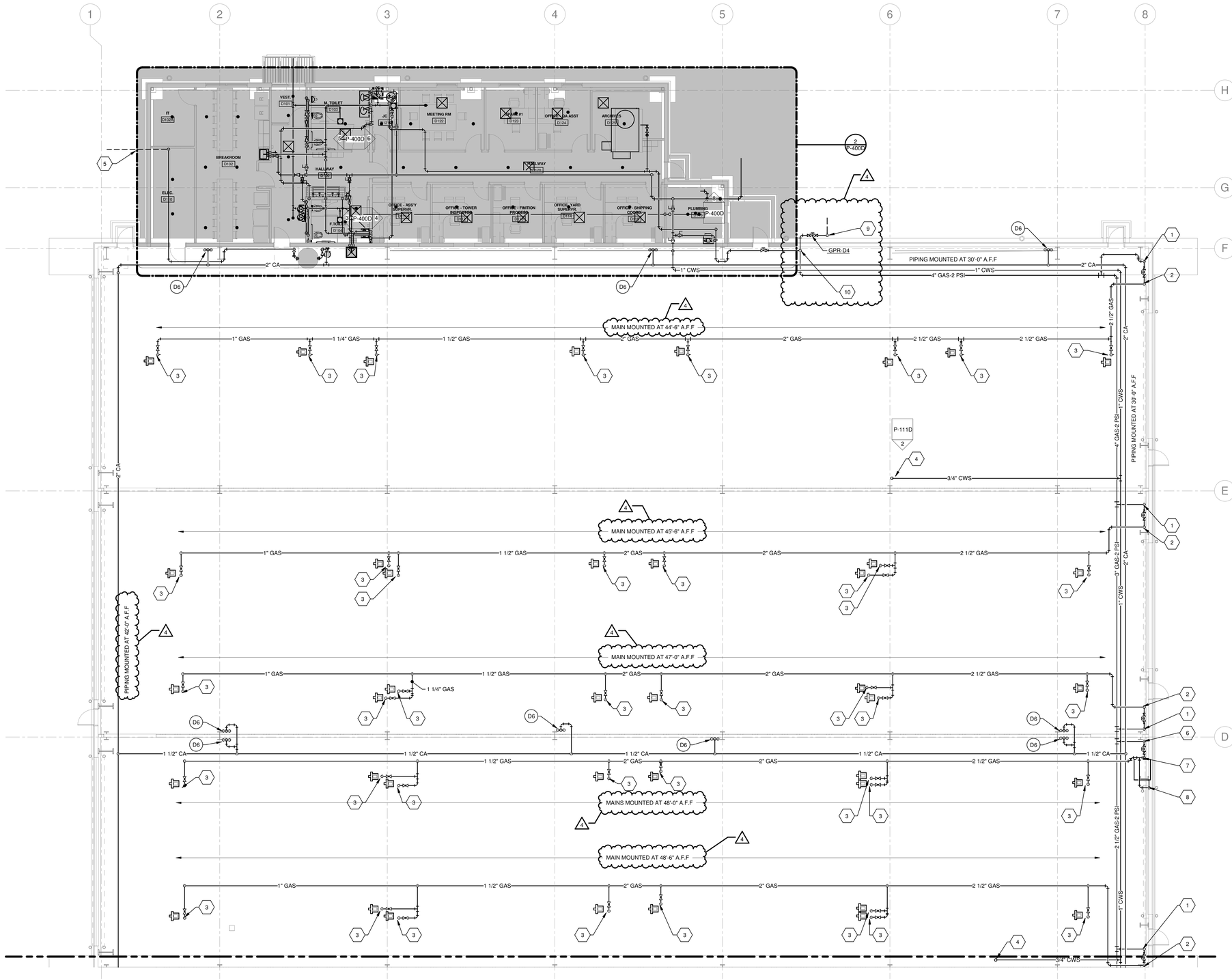
KEY NOTES

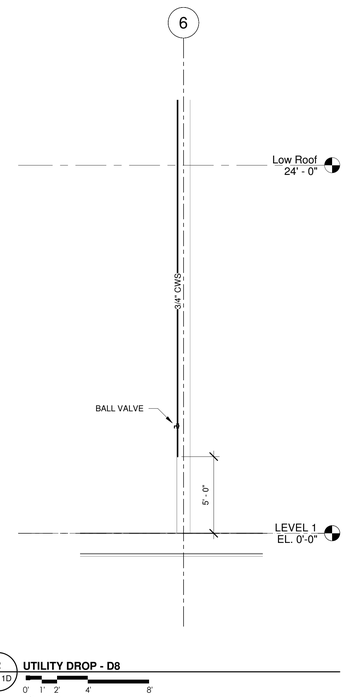
1. PROVIDE 1-1/4" GAS-2PSI DROP TO GAS PRESSURE REGULATOR AT 10'-0" A.F.F. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
2. PROVIDE 2-1/2" GAS FROM GAS PRESSURE REGULATOR AT 10'-0" A.F.F. UP TO ROOF STRUCTURE. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
3. PROVIDE 1" GAS TO RADIANT HEATING BURNER. SEE DETAIL 5/P-600D.
4. PROVIDE 3/4" CWS DROP TO 25' A.F.F.
5. PROVIDE 2" CA THROUGH FROST WALL. SEE P-400D FOR INTERIOR RISER LOCATION.
6. PROVIDE 2" GAS-2PSI DROP TO GAS PRESSURE REGULATOR AT 10'-0" A.F.F. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
7. PROVIDE 4" GAS FROM GAS PRESSURE REGULATOR AT 10'-0" A.F.F. UP TO ROOF STRUCTURE. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
8. PROVIDE 3" GAS TO MAKE-UP AIR UNIT. SEE DETAIL 5/P-600D.
9. PROVIDE 6" GAS-15PSI FROM BELOW GRADE. PROVIDE WELD-END TRANSITION RISER. PROVIDE SHUT OFF VALVE ON OUTLET OF TRANSITION RISER. TURN HORIZONTAL 2'-0" A.F.F AND PROVIDE GAS PRESSURE REGULATOR (GPR-D4).
10. PROVIDE 4" GAS-2PSI RISER TO 30'-0" A.F.F. EXTEND 1-1/4" GAS-2PSI FROM RISER TO ANNEX AT 8'-0" A.F.F.

D6 UTILITY DROP 6 - REFER TO DROP ELEVATION ON P-112D, DETAIL 2.

D7 UTILITY DROP 7 - REFER TO DROP ELEVATION ON P-112D, DETAIL 3.

D8 UTILITY DROP 8 - REFER TO DROP ELEVATION ON P-111D, DETAIL 2.





1 P-111D **First Floor Plan - Area 1**
0' 2' 4' 8' 16'
1/8" = 1'-0"

2 P-111D **UTILITY DROP - D8**
0' 1' 2' 4' 6'
1/4" = 1'-0"

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4	IFC SET	1/30/2023

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First Floor Plan - Area 1

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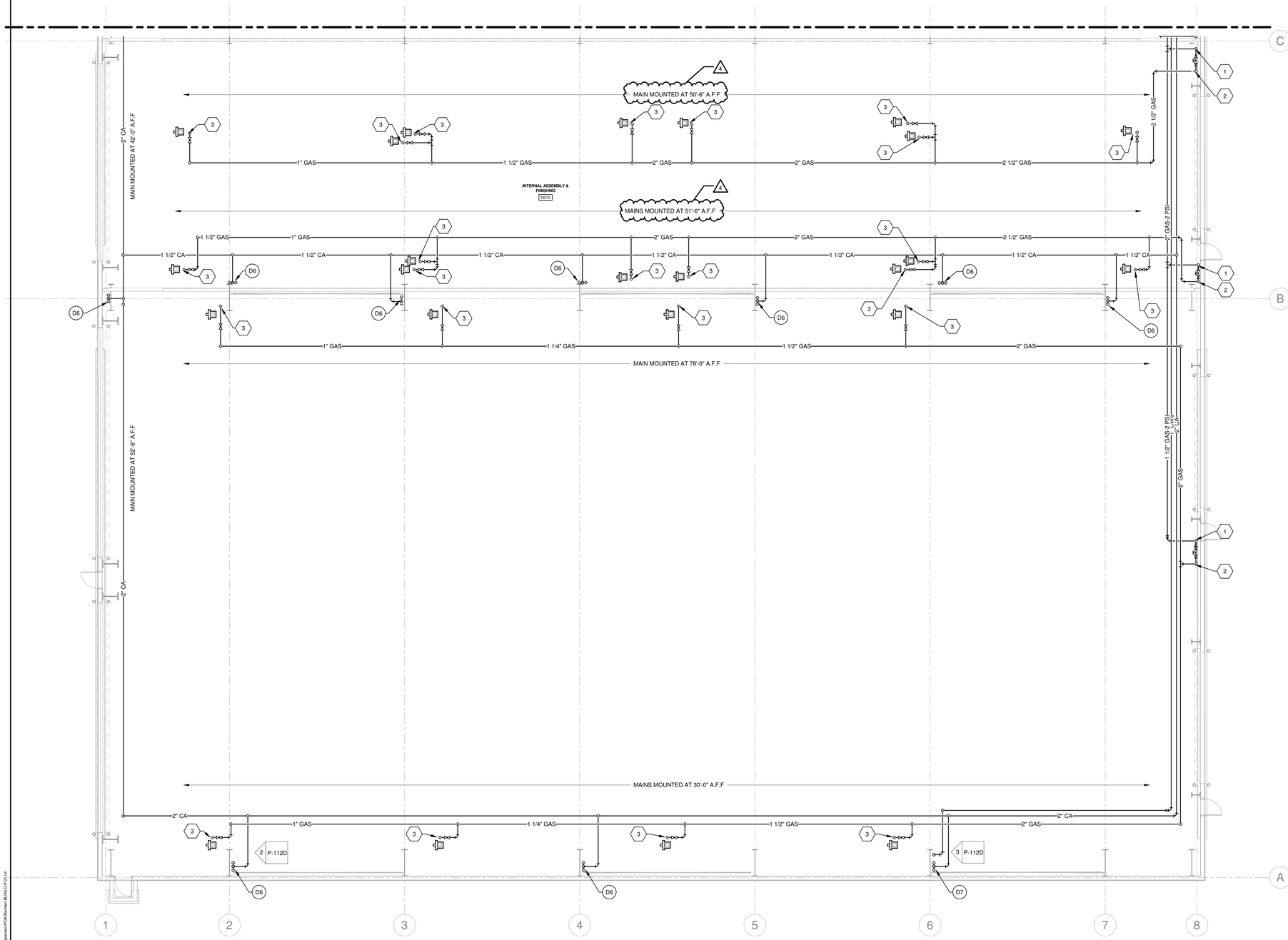
KEY NOTES

1. PROVIDE 1-1/4" GAS-2PSI DROP TO GAS PRESSURE REGULATOR AT 10'-0" A.F.F. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
2. PROVIDE 2-1/2" GAS FROM GAS PRESSURE REGULATOR AT 10'-0" A.F.F. UP TO ROOF STRUCTURE. SEE GAS PIPING SCHEMATIC ON SHEET P-600D.
3. PROVIDE 1" GAS TO RADIANT HEATING BURNER. SEE DETAIL 5/P-600D.

(D6) UTILITY DROP 6 - REFER TO DROP ELEVATION ON P-112D, DETAIL 2.

(D7) UTILITY DROP 7 - REFER TO DROP ELEVATION ON P-112D, DETAIL 3.



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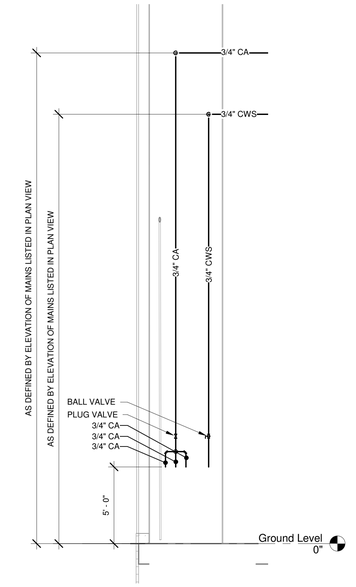

3 P-112D **UTILITY DROP - D7**
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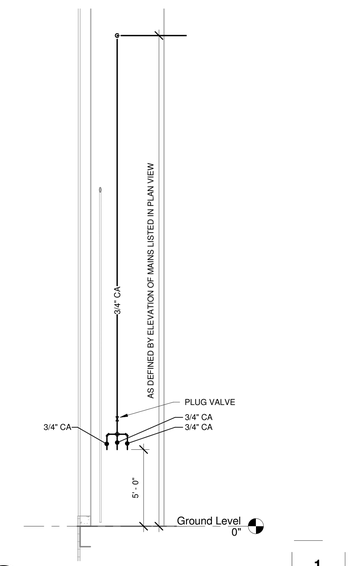
1/4" = 1'-0"



2 P-112D **UTILITY DROP - D6**
0' 1' 2' 4' 8'
1/4" = 1'-0"

1
2

PROJECT NORTH

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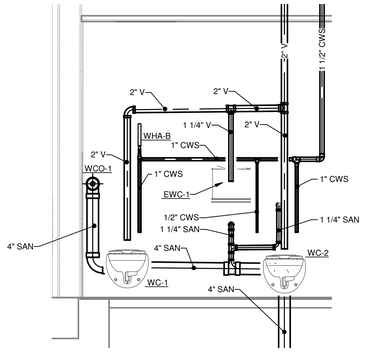
First Floor Plan - Area 2

DRAWING NUMBER

P-112D



3 P-400D **F TOILET D104 - WATER CLOSETS**
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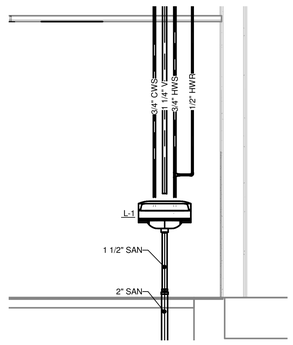

4 P-400D **F TOILET D104 - LAVATORY**
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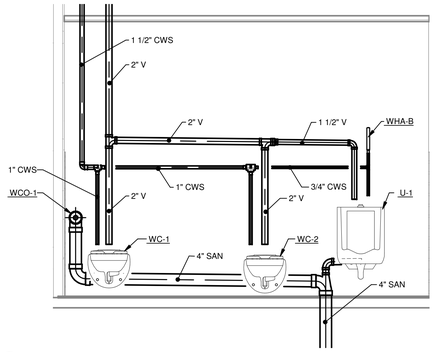
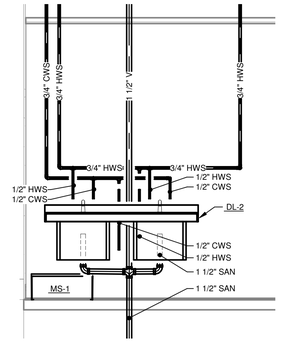
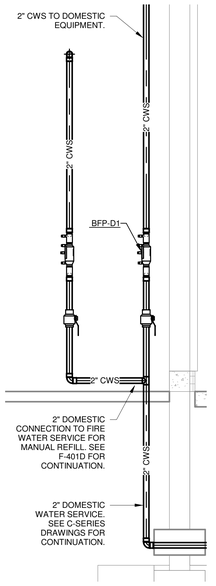
1/2" = 1'-0"



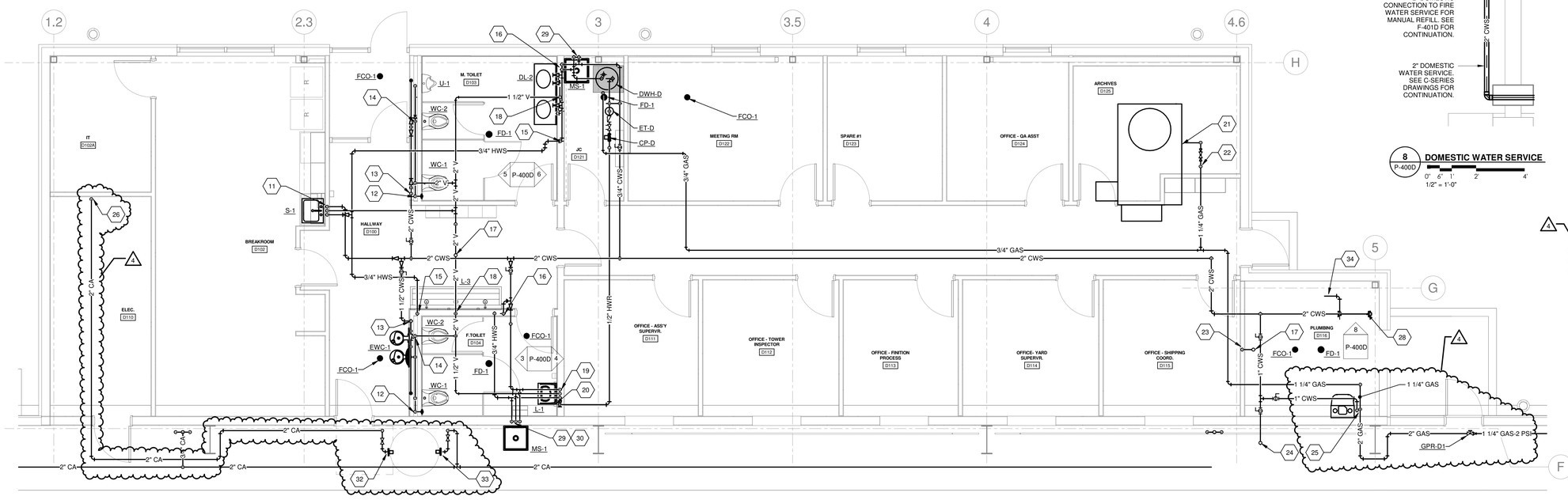
5 P-400D **M TOILET D103 - WATER CLOSETS**
0" 6" 1' 2' 4'
1/2" = 1'-0"



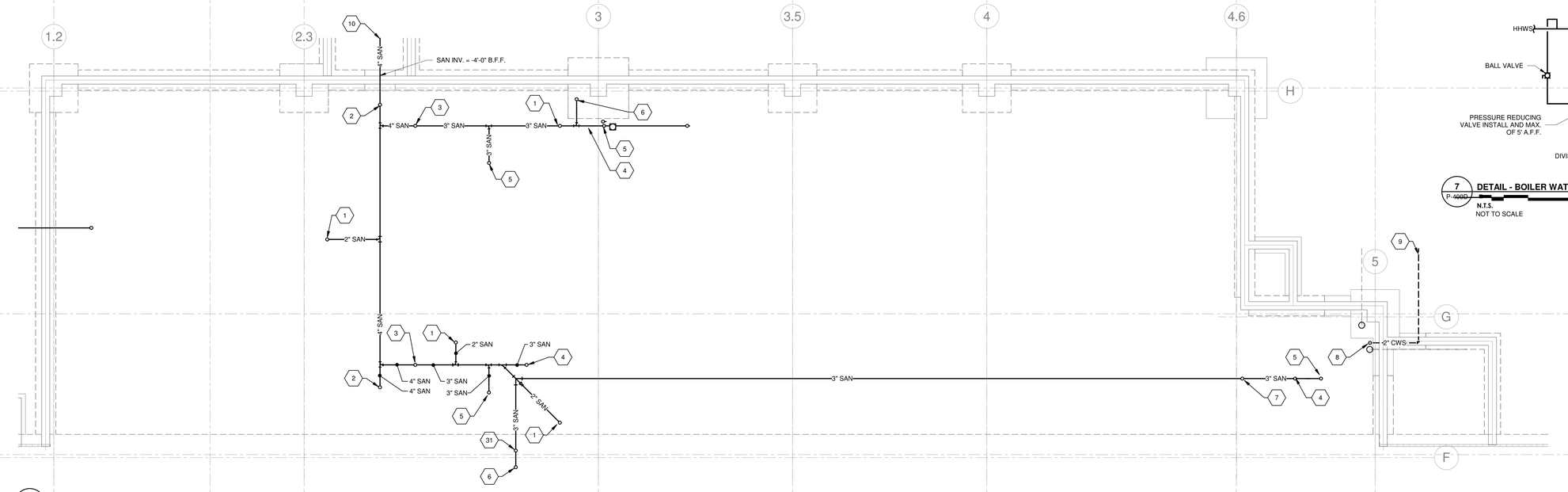
6 P-400D **M TOILETS D103 - LAVATORIES**
0" 6" 1' 2' 4'
1/2" = 1'-0"



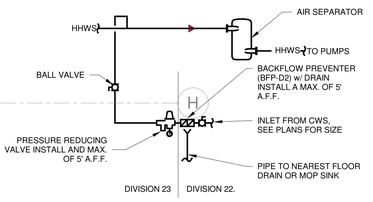
8 P-400D **DOMESTIC WATER SERVICE**
0" 6" 1' 2' 4'
1/2" = 1'-0"



2 P-400D **Enlarged Plan - Annex D1**
0' 1' 2' 4' 8'
1/4" = 1'-0"



1 P-400D **Enlarged Sub-Plan - Annex D1**
0' 1' 2' 4' 8'
1/4" = 1'-0"



7 P-400D **DETAIL - BOILER WATER MAKEUP**
N.T.S.
NOT TO SCALE

PROJECT NORTH

KEY NOTES

1. PROVIDE 2" SAN UP TO WALL.
2. PROVIDE 4" SAN UP TO FLOOR CLEANOUT.
3. PROVIDE 4" SAN UP TO PLUMBING CHASE.
4. PROVIDE 3" SAN UP TO FLOOR CLEANOUT.
5. PROVIDE 3" TRAPPED SAN CONNECTION TO FLOOR DRAIN.
6. PROVIDE 3" TRAPPED SAN CONNECTION TO MOP SINK.
7. PROVIDE 2" V UP TO WALL.
8. PROVIDE 2" CWS UP TO WATER SERVICE.
9. SEE SITE PLANS FOR WATER SERVICE CONTINUATION.
10. SEE SITE PLANS FOR SANITARY CONTINUATION.
11. PROVIDE SINK (S-1). PROVIDE ½" CWS, ½" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DROP IN WALL. EXPAND TO 2" SAN AT PENETRATION THROUGH FLOOR.
12. PROVIDE WALL CLEANOUT (WCO-1). CLEANOUT SHALL BE INSTALLED 12" ABOVE FLOOD RIM OF THE HIGHEST FIXTURE.
13. PROVIDE 1-1/2" CWS DROP INTO PLUMBING CHASE.
14. PROVIDE 4" SAN DOWN THROUGH SLAB.
15. PROVIDE ¾" HWS DROP IN WALL.
16. PROVIDE ½" CWS AND ¾" HWS DROPS IN WALL.
17. PROVIDE 2" SAN UP TO UNDERSIDE OF ROOF DECK. EXPAND TO 3" AND EXTEND THROUGH ROOF. EXPANSION TO 3" SHALL OCCUR 12" BELOW ROOF DECK (MIN.).
18. PROVIDE 1-1/2" V DROP IN WALL. PROVIDE 1-1/2" SAN DROP IN WALL. EXPAND TO 2" SAN AT PENETRATION THROUGH FLOOR.
19. PROVIDE LAVATORY (L-1). PROVIDE ½" CWS, ½" HWS, AND 1-1/2" V DROPS IN WALL TO SINK. PROVIDE 1-1/2" SAN DROP IN WALL. EXPAND TO 2" SAN AT PENETRATION THROUGH FLOOR.
20. PROVIDE ½" HWR DROP IN WALL AND CONNECT TO ½" CWS SERVING LAVATORY.
21. PROVIDE 1-1/4" GAS TO ROOF-MOUNTED HVAC EQUIPMENT. SEE DETAIL 6, P-600D.
22. PROVIDE 1-1/4" GAS UP FROM ABOVE CEILING THROUGH ROOF.
23. PROVIDE 2" V DOWN IN WALL.
24. PROVIDE 1" CWS RISE TO PRODUCTION FLOOR ROOF.
25. PROVIDE 1-1/4" GAS DROP TO BOILER. SEE DETAIL 6, P-600D. PROVIDE 1" CWS MAKE-UP CONNECTION TO BOILER. PROVIDE BACKFLOW PREVENTER (BFP-D2) ON MAKE-UP CONNECTION TO BOILER.
26. PROVIDE 2" CA FROM BELOW GRADE. PROVIDE WELD-END TRANSITION RISER. PROVIDE SHUT-OFF VALVE ON OUTLET OF TRANSITION RISER AND EXTEND 2" CA TO CEILING OF ELEC ROOM.
27. PROVIDE 3" GAS-2PSI RISE UP TO PRODUCTION FLOOR ROOF.
28. PROVIDE 2" WATER SERVICE WITH TEE FITTING FOR FIRE PROTECTION SERVICE CONNECTION. PROVIDE BALL VALVE 12" A.F.F. PROVIDE BACKFLOW PREVENTER (BFP-D1) 36" A.F.F.
29. PROVIDE 1/2" CWS AND 1/2" HWS DROPS TO MOP SINK.
30. PROVIDE 1-1/2" V DOWN THROUGH SLAB.
31. PROVIDE 1-1/2" V UP TO WALL.
32. PROVIDE 2" CA CONNECTION FROM EXTERIOR DISTRIBUTION SYSTEM TO RECEIVER TANK. PROVIDE SHUT OFF VALVE ON INLET TO TANK.
33. PROVIDE 2" CA CONNECTION FROM RECEIVER TANK TO INTERIOR DISTRIBUTION SYSTEM. PROVIDE SHUT OFF VALVE ON INLET TO TANK.
34. SEE FIRE PROTECTION PLANS FOR DOMESTIC CONNECTION (F-401D).

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SEAL

PORT OF ALBANY

MARMEN

WELCON

equinor

CLIENT: Albany Port District Commission
Town of Bethlehem, NY

PROJECT: Marmen-Welcon Tower Manufacturing Plant
Building D - 309 River Road, Glenmont, NY 12207

DRAWN	IB
DESIGNED	IB
CHECKED	MAE
SCALE	AS NOTED
DATE	06/08/2022
PROJECT	18824.00

	GMP BID SET	6/8/2022
	SET FOR PERMIT	7/29/2022
3	GMP BID SET REVISION	10/28/2022
4	IFC SET	1/30/2023

NO. REVISIONS DATE

DRAWING TITLE

Enlarged Plans & Views

DRAWING NUMBER

P-400D

2/6/2023 11:55:57 AM
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APPENDIX E – TECHNICAL DESCRIPTION OF MANUFACTURING PROCESS

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Appendix E

Technical Description of Manufacturing Process

This document serves as a high-level description of the operations involved in Wind Tower (WT) and Offshore Wind Tower (OWT) manufacturing. The purpose is to highlight the processes and the anticipated air emissions and the associated controls that are anticipated to be installed to complete the full scope of the activities planned in the new Marmen Welcon Albany, NY Facility.

Marmen and Welcon produce Wind Tower Sections used in the onshore and offshore wind tower industry. The various offshore manufacturing processes are very similar to those used in the well-established Onshore WT business, with the primary difference being the size of the equipment and the tower sections themselves.

The manufacturing process starts with the receiving of the raw material. This can be grouped into Steel Plates, Steel Flanges and mechanical & electrical components. Transformation of the raw material begins with the cutting and beveling of the steel plates. These are cut to size using oxyfuel cutting CNC machines and are scribed using a plasma marker. Steel plates vary in size depending on the Tower model. The thicknesses can range from ½'' to over 2''. The beveling (cutting of the weld preparation) will be done as part of the oxy cutting. Once cut to size, plates go thru a descaling process with a machine / piece of equipment (also referred as a plate blast) where steel abrasive media is used to remove oxides from the surface. The plates are then taken to the forming area.

Forming of the plate into a circular shell is performed using hydraulic rolling machines. The plates are turned into cylindrical forms before being welded at the longitudinal seam. Some shells then go thru another welding phase where a connecting flange is being welded to the shell. These Shell & Flange assemblies are going to become the ends of a tower section. The drilled steel flange allows for a mechanical (bolted) connection of each individual tower section to create a full height complete Tower. The quantity of Sections to form a complete tower can vary from model to model but will usually be around 2 to 5.

Manufacturing of a section involves assembling, thru different circular welding stations, a given quantity of shells to one another. The number will also vary from 4 to 12 shells depending on the section length. Once the section has been assembled, fully welded and inspected, it is now ready for finishing.

The finishing processes are composed of abrasive blasting, metallizing and painting. These steps are common operations involved in coating metal components. Just like for plates, descaling of the section uses metal abrasive media to remove rust, oxides and gives the steel a profile (roughness) to which the coating (paint) can adhere to. Metallization (also known has thermal spray coating) has the purpose of applying a zinc coating to the section (or parts of) in order to offer a greater protection against corrosion. As a final step of the finishing process, a coating system (paint system) is applied to both the inside and outside of the section. These systems can vary from model to model

but will usually be composed of an epoxy primer coating followed by a polyurethane coating. Some could have a zinc rich primer instead of the metallization.

Once the section has gone thru the finishing process, it is ready for its final manufacturing step comprising of internals (components) assembly. This involves installing mechanical (ladders, platform, etc.) and electrical (cables, lights, lift, etc.) components so the tower can be easily erected and maintained throughout its service life. Fully completed and inspected sections are then taken into the storage yard until they are taken out to sea. Once erected on an offshore foundation structure and topped with a machine head and rotor (turbine), a wind tower turbine provides renewable energy for decades.

The above described global processes would also apply to Transition Piece (TP) manufacturing. A TP serves as the connecting component between a monopile foundation (manufactured by others) and a Wind Tower.

The Marmen Welcon Albany, NY facility is designed to produce 150 Towers per year or a combination of 100 Towers and 100 Transition Pieces. Of course, there will be a ramp-up period stretching over many months before achieving full production rate. Total yearly production could also vary with the project demands fluctuating in time.

The Anticipated Emissions and Anticipated Control systems, please note that:

- the oxy cutting is conducted indoors and any fumes from this process will vent inside the building;
- the descaling and abrasive blasting processes each have dust collectors to control particulate emissions, the materials used in blasting are recycled;
- the various welding stations utilize several processes (MIG, SAW, TIG, etc.). The emissions from all welding processes vent inside the facility (indoor fugitive emissions);
- the metallizing system is equipped with an emission capture and control system venting indoors. It has both a filtration and ventilation stages;
- the four (4) paint rooms contain both ventilation and filtration to capture and control particulate emissions. VOC emissions will be minimized by using coatings which are compliant with NY State VOC content limits, or by use of an add-on control system. They will use a combination of filter booth, add-on control system (as may be required) and an exhaust stack system.

This manufacturing facility anticipates the emission of VOC and certain HAP, as well as particulates (PM_{10}, $PM_{2,5}$) from process manufacturing related operations. In addition, we expect there will be emissions (NO_x, CO, VOC, SO_2, Pb, PM_{10}, $PM_{2,5}$, GHG and HAP) associated with miscellaneous site operations that involve fuel combustion.