

Technical Standards 2024 Updates

Environmental Engineering Program
Environmental Health Section

Code Advisory Committee

- Process revision underway
- Last update 2023
- Current Membership
 - CADH (Directors of Health)
 - CEHA (Sanitarians)
 - COWRA (Installers/Cleaners)
 - DEEP
 - DPH
 - Home Builders and Remodelers Association
 - Professional Engineers
 - Soil Scientist
 - Other invited groups (i.e. CTWWA, CT Precasters)



Environmental Engineering Program (EEP)

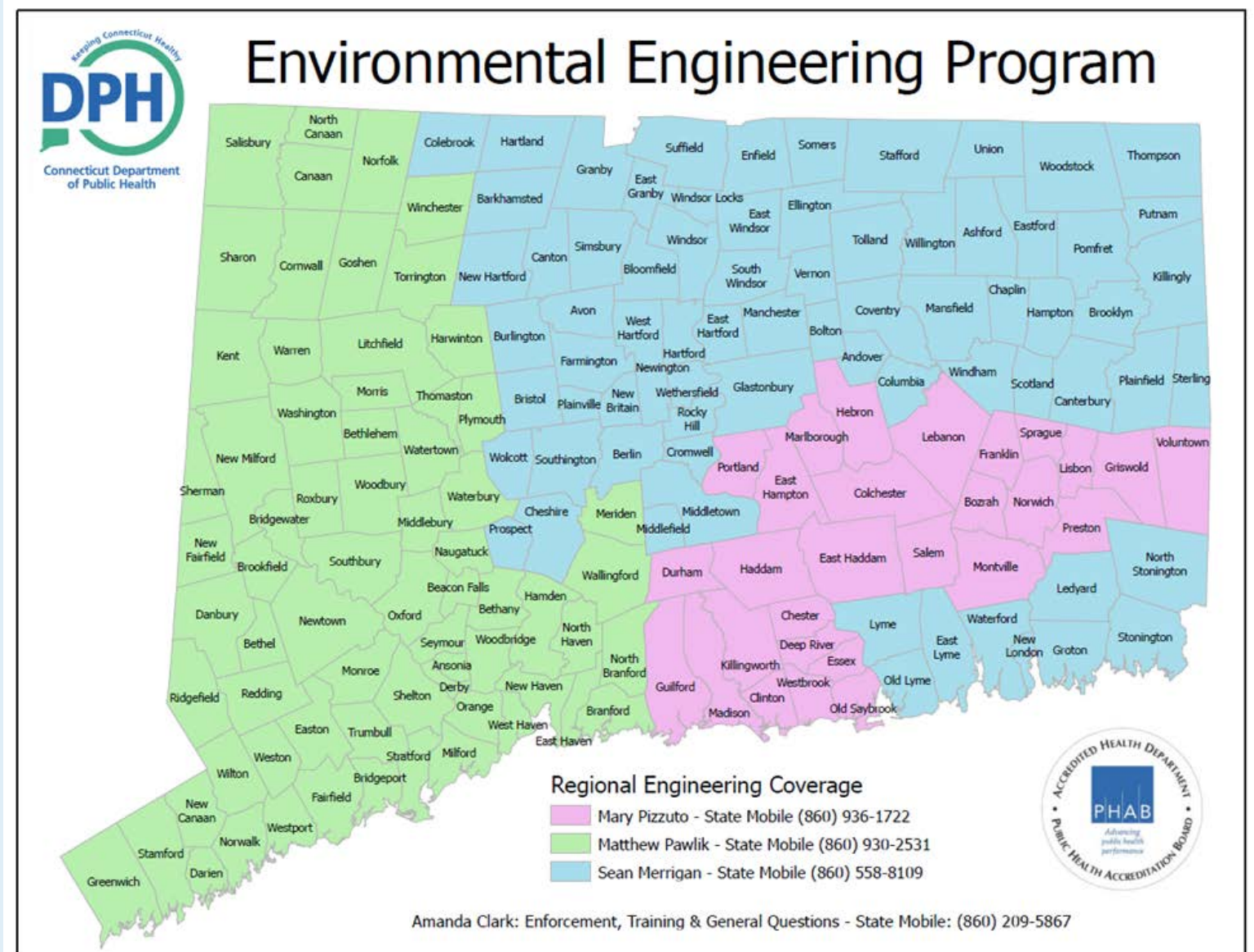
3 Environmental Engineers

- Supervising Environmental Engineer
- Env. Engineer 3
- Env. Engineer 1

2 Environmental Analysts

- Env. Analyst 3
- Env. Analyst 1

Welcome **Rebecca Andranovich!**



2024 Technical Standards

- Added revision date: 1/1/2024
- Removed program phone number
- Final and highlighted versions are available on the website.
- [Environmental Engineering - Subsurface Sewage \(ct.gov\)](https://www.ct.gov/dph/subsurfacesewage)



CONNECTICUT PUBLIC HEALTH CODE

On-site Sewage Disposal Regulations and Technical Standards for Subsurface Sewage Disposal Systems 2024

PHC Section 19-13-B100a (Building Conversions, Changes in Use, Building Additions)

Effective August 3, 1998

PHC Sections 19-13-B103a through 19-13-B103f (Design Flows 5,000 Gallons per Day or Less*)

Effective August 16, 1982

Technical Standards for Subsurface Sewage Disposal Systems

Effective August 16, 1982

Revised January 1, 2024

PHC Sections 19-13-B104a through 19-13-B104d (Design Flows Greater than 5,000 Gallons per Day*)

Effective August 16, 1982

*Note: The 5,000 gallons per day jurisdictional design flow was increased to 7,500 gallons per day by Public Act No. 17-146, Section 30 effective July 1, 2017, which revised CT General Statute Section 22a-430 (g).

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January 2024

Summary of 2024 Changes

- Reduced multi-family building sewage design flows
- Floor drains located in kitchens and bathrooms can discharge to sewage disposal systems
- Defined and clarified requirements for secondary safety devices and lids
- Added language to allow more than 2 septic tanks in series
- New product approvals

Section I: Definitions

- Added definition for **Secondary Safety Lid or Device**:
 - “**Secondary Safety Lid or Device** means a sewage tank access safety device installed below a riser cover that is commercially manufactured for the purpose of preventing accidental entry into sewage tanks. Sewage tank access safety devices can be either a secondary cover on the tank access opening, or a product manufactured and sold as a safety device that is installed below the riser cover. The manufactured device shall be capable of withstanding a minimum 200 pounds of dead load.”
 - Verified by 3rd party testing.

Secondary Safety Lid or Device

- A secondary safety lid or device is required for a riser assembly when the sewage tank cover is removed, and the riser cover is less than **100 lbs**.
- Device installed per manufacturer specifications and be placed shallow in riser to facilitate maintenance.
- Secondary safety device specifications should be included on plans.



A circular letter is forthcoming.

Concrete Covers

Outer Diameter (circular)	Minimum Thickness Required	Approx. weight
18 inches and greater	5 inches	103 lbs
20 inches and greater	4 inches	103 lbs
23 inches and greater	3 inches	101.4 lbs

Cast Iron Cover

- Smaller cast iron manhole covers typically weigh 90-150 lbs. depending on size.
- Manufacturer specifications or other (weighing on site) may be needed to confirm weight.



Section III: Piping

“Drains and Water Supply Piping”

- Floor drains located in kitchen and bathroom areas may be connected to the SSDS, if not receiving hazardous substances. There is no impact on design flow from a floor drain.
- Kitchen floor drain preferred connection to grease inceptor tank.
- All other floor drains, including drains receiving hazardous substances, are not permitted to discharge into the SSDS (DEEP General Permit).



What is hazardous waste?



Connecticut
Department of Energy & Environmental Protection

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[Inspection and Enforcement Process](#) >

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[Used Oil](#) >

[Universal Waste](#) >

[Hazardous Waste](#) >

What is Hazardous Waste?



- [What Kinds of Wastes are "Hazardous?"](#)
- [Characteristically Hazardous Wastes](#)
- [Listed Hazardous Wastes](#)
- [Universal Wastes](#)
- [Used Oil](#)
- [Requirements for Other Wastes/Materials](#)

Section IV: Design Flows

- Reduction to **multi-family** residential building design flows
 - The sewage design flow per bedroom for a multi-family building with more than 3 bedrooms has been reduced to 125 gallons per day (gpd).
 - The first 3 bedrooms are assessed at 150 gallons per day.
 - **150 GPD** per bedroom (up to 3 for all residential buildings)
 - **75 GPD** per bedroom beyond 3 for a single-family building
 - **125 GPD** per bedroom beyond 3 for a multi-family building
 - Residential outbuildings for central SSDS sizing purposes shall utilize a design flow of 150 GPD per bedroom

Updated Tables 5 & 6 to Reflect Design Flow Reduction

- Section V, **Table 5:**
Septic Tank Sizing

	Single-family	Multi-family
1-3 bedrooms	1,000 gallons	1,250 gallons
For Each Bedroom Beyond 3	Add 125 gallons per bedroom	Add 225 gallons per bedroom

(Reduced from 250 GPD/bedroom)

- Section VIII, **Table 6:**
Leaching System Sizing
for Residential Buildings

Percolation Rate (Minutes to Drop One Inch)	Square Feet of Required Effective Leaching Area (ELA)			
	2-Bedroom Building	3-Bedroom Building	For Each Bedroom Above 3	
			Single Family	Multi-family
LESS THAN 10.1	375	495	82.5	137.5
10.1-20.0	500	675	112.5	187.5
20.1-30.0	565	750	125	208.5
30.1-45.0	675	900	150	250
45.1-60.0	745	990	165	275

Updated MLSS Appendix A to Reflect Design Flow Reduction

- **Flow Factor Table** updated for multi-family buildings

FLOW FACTORS (FF)	
Flow Factor = Design Flow/300	
Residential: The design flow for residential buildings is 150 GPD per bedroom up to three. Beyond three bedrooms, the design flow is 75 GPD per bedroom for single-family residential buildings and 125 GPD per bedroom for multi-family residential buildings.	
For a central SSDS serving a single-family residential dwelling and a residential outbuilding, the main dwelling shall utilize the FF based on the single-family criteria and the FF shall be increased by 0.50 for each bedroom in the outbuilding.	
Single-family buildings:	FF
1 Bedroom = 150/300	0.5
2 Bedroom = 300/300	1.0
3 Bedroom = 450/300	1.5
4 Bedroom = 525/300	1.75 Increase FF by 0.25 for each additional bedroom
Multi-family buildings:	
Minimum FF is 1.92 (4 bedrooms) and each additional bedroom increases FF by 0.42.	
Non-Residential: Design Flow (GPD) / 300	

Reduction to Multi-family Building Sewage Flows

Example

- Given:

- 50-bedroom apartment building
- Soil percolation rate of 10 minutes/inch

- **ELA**

- First 3 bedrooms: 495.0 SF
- Bedrooms after 3: $47 \times 137.5 = \underline{+ 6,462.5 \text{ SF}}$
6,957.5 SF

- **Flow Factor**

- First 3 bedrooms: 1.5 FF
- Bedrooms after 3: $47 \times 0.42 = \underline{+ 19.74 \text{ FF}}$
21.24 FF

Reduction to Multi-family Building Sewage Flows Example

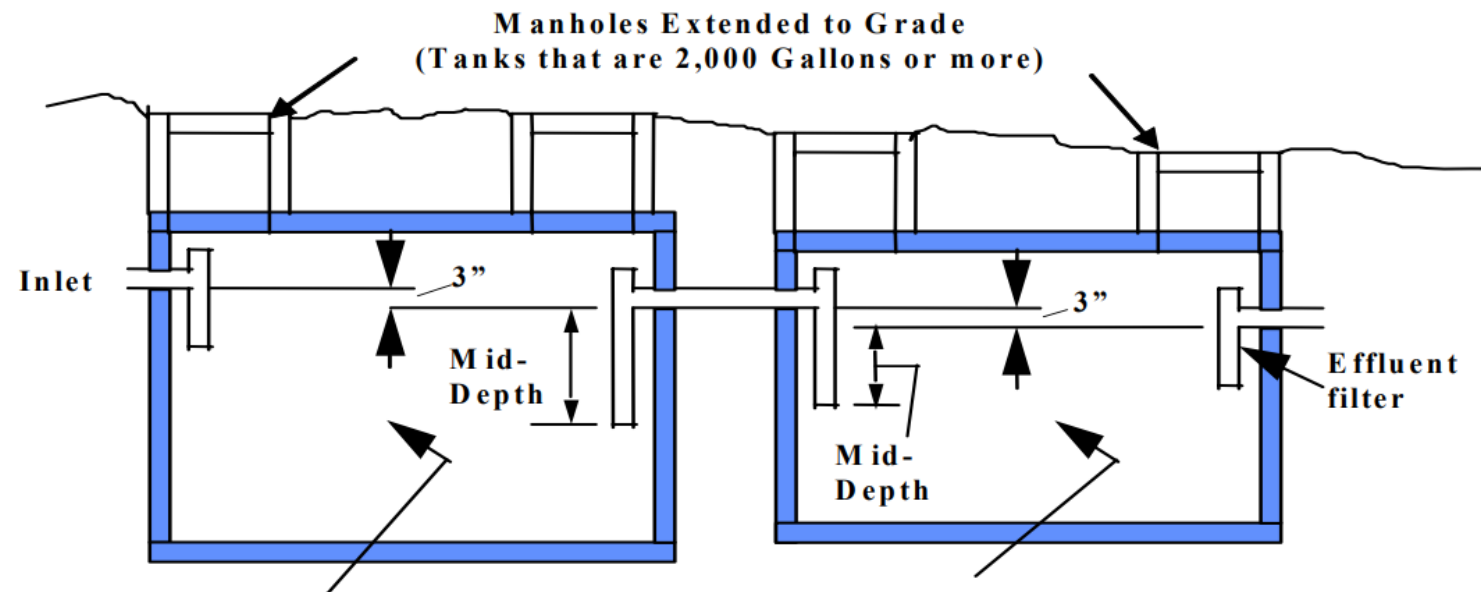
- Given:
 - 50-bedroom apartment building
 - maximum number of bedrooms is increased to 59 (under 7,500 gpd)
 - Soil percolation rate of 10 minutes/inch

	2023	2024	Reduction
Effective Leaching Area (ELA)	8,250 Square Feet	6,957.5 Square Feet	15.67%
MLSS Flow Factor	25.0 FF	21.24 FF	15.04%

Section V: Septic Tanks & Grease Interceptor Tanks

- May use up to **three** tanks in series for septic tank sizing

The required septic tank capacity may be obtained by utilizing up to three tanks in series. Each septic tank placed in series shall be of a single compartment design, and the minimum volumes of the first and second tank shall be $\frac{2}{3}$ and $\frac{1}{3}$, respectively, of the daily design flow. Any tank in series shall be no smaller than a subsequent tank up to the minimum required capacity. Mid-depth baffles shall be provided at the connection of the tanks and an effluent filter shall be provided for the outlet of the last tank (Figure 5).



First Tank Shall have a Minimum
Volume of $\frac{2}{3}$ Daily Design Flow

Second Tank Shall have a Minimum
Volume of $\frac{1}{3}$ Daily Design Flow

Figure 5 – Two Septic Tanks in Series

Example: 59-bedroom apartment building using 3 septic tanks in series

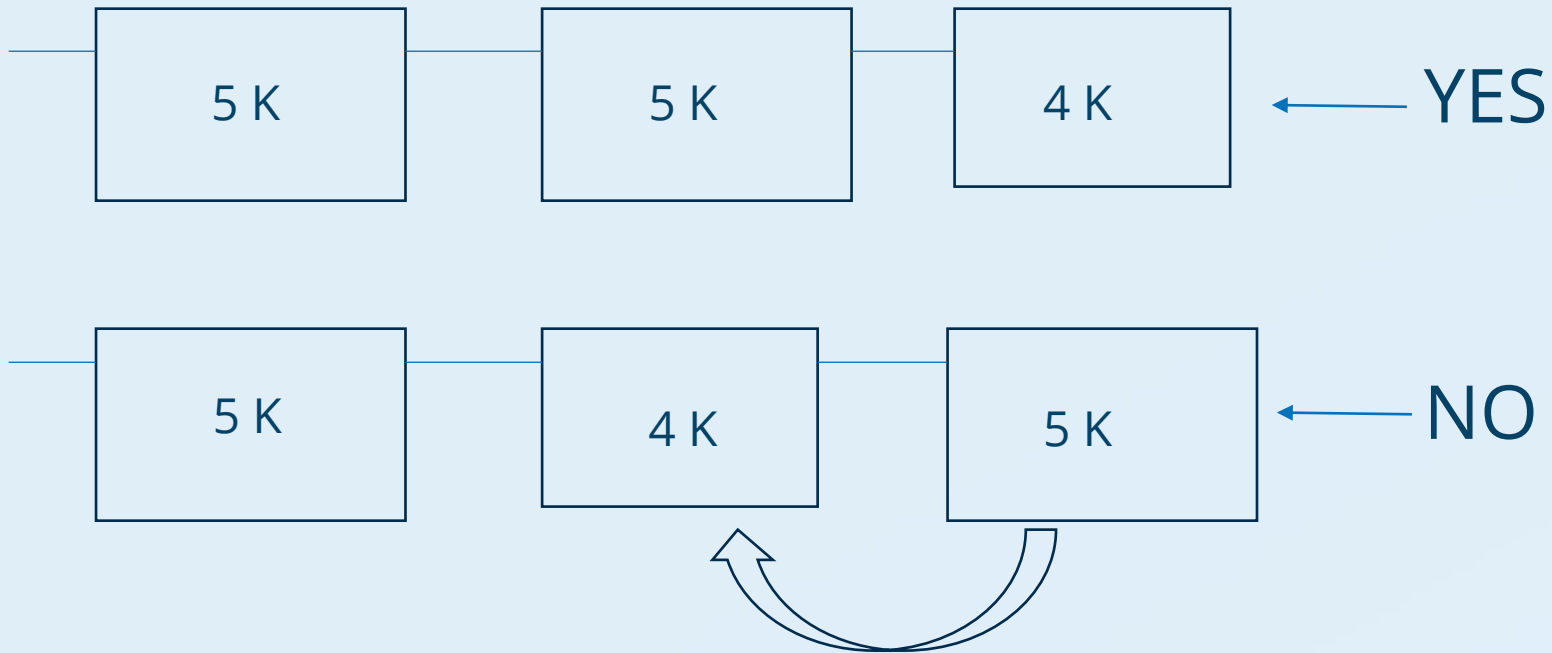
Design Flow = 7,450 GPD (multi-family housing)

Septic Tank sizing based on Table 5 = 13,850 gallons

1st tank = min. 2/3
DF or 4967 gals

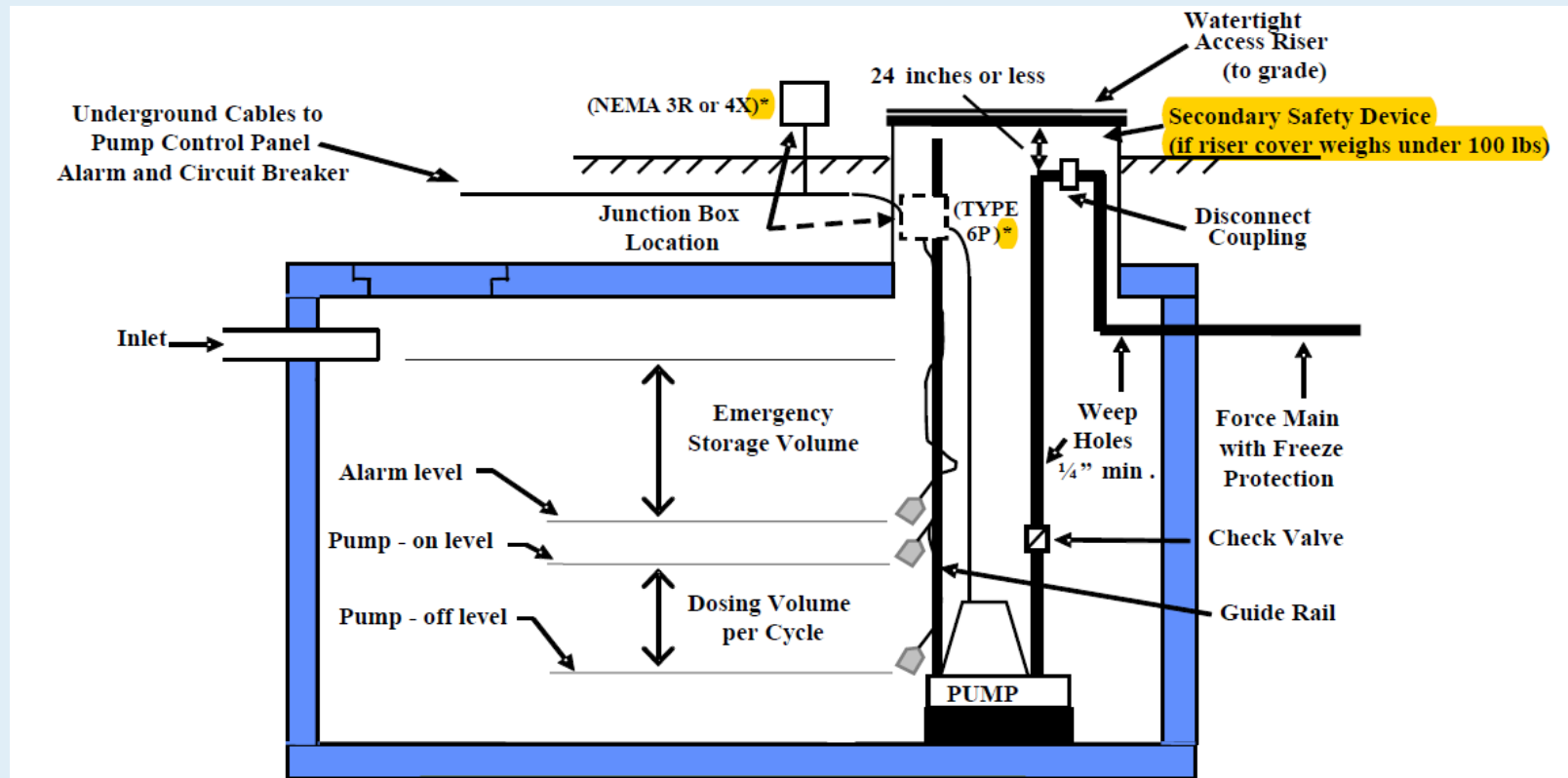
2nd tank = min. 1/3
DF or 2484 gals

Combined tank capacity
14K gals \geq 13,850 gallons



Section VI: Effluent Distribution, Pump Systems and Air Injection Processes

- Noted electrical component must meet minimum building code requirements. Electrical box location is either inside the riser or outside of the tank.



*or approved equal per applicable building code

Figure 11 – Pump Chamber



Recently Approved Products

- Leaching products (Section VIII)
 - **Eljen Mantis Yard Filter**
 - **Infiltrator Quick 5**
- Filter fabric (Appendix C)
 - **Carthage Mills M35**
- Plastic septic tank (Appendix D)
 - **Infiltrator IM-1250**

Questions not answered during the presentation can be sent to the Environmental Engineering Program's email address: DPH.EnviroEng@ct.gov

Thank you for attending!

Questions Asked and Answered

- **Q: Will tank manufacturers provide a list of secondary safety devices that fit their product?** Some precasters are already making modifications to their risers to allow for a secondary safety device. The manufacturer of the safety device will provide installation instructions and the device will need to be installed per those requirements. There are considerations for concrete vs plastic.
- **Q: Are the safety devices a universal fit?** No, check with the product manufacturer for specifications and installation instructions.
- **Q: What is a standard size of a cast iron riser cover?** This depends on the size of the riser. Check with the manufacturer for the weight.
- **Q: Is there any info on the Mantis Yard Filter approval?** Not on the DPH website since it was included in the 2024 TS. Check the product manufacturer's website for specific installation information.

Questions Asked and Answered Cont.

- **Q: Are missing secondary devices meant to be retrofitted during pumping?** Yes, or as they are found.
- **Q: When jurisdiction changes to 10,000 gpd, will the technical standards require evaluation of nitrogen impacts at the downgradient property line where water supply wells may be located?** DEEP and DPH are working closely together to plan for the transfer of jurisdiction of impacted systems. The agencies are coordinating their efforts including updating the relevant regulations and technical standards to meet the statutory requirements for the transfer.
- **Q: For community systems at or below 10,000 gpd, will local WPCA involvement no longer be required?** DEEP and DPH are working closely together to plan for the transfer of jurisdiction.
- **Q: Will separation distances (wells, drains, etc.) change in conjunction with the 10,000 GPD regulations?** Not that we know of but TBD.

Questions Asked and Answered

- **Q: Does the reduced design flow for multi-family mean it would be one building, like an apartment house, or would this also apply for a property with multiple separate houses, condos, based on 7500gpd that would allow 25-2-bedroom units (50 bedrooms) or would the reduced flow allow 59 bedrooms on the property?** Reduced multi-family flows (125 gpd) are only for individual buildings beyond 3 bedrooms. 25 individual 2 bedroom buildings would not be eligible for the multi-family reduction. If it was 25, 2-bedroom units in one building, then the reduction would be applicable. The max flow to the property would be 7,500GPD. The max bedroom count is dependent on the bedroom and buildings layouts.
- **Q: Would 59 multi-family bedrooms be allowed if there are separate buildings/homes?** No, see answer to question above.