

2024 Certified Installer Training Session 4

Division of Water Engineering Support and Plan Review Section

April 19, 2024



Introduction

- Course Instructor: Ryan Peterson, Environmental Program Specialist, DEC-ESPR
- Course Instructor 2: Tonya Bear, PE, Environmental Program Manager and Engineer, DEC-ESPR
- Training is for the 2024 Certified Installer course for the installation of conventional onsite wastewater disposal systems in accordance with 18 AAC 72.500 and the Onsite Wastewater System Installation Manual (OWSIM)



Agenda

- Total of 4 sessions via Microsoft Teams Webinar
- Session 1 – April 16th
 - Overview of Key Concepts, OWSIM, Pre-planning and Site Evaluation including Soils
- Session 2 – April 17th
 - Soils Part 2, Sizing Wastewater Systems, Programs and Scenario's, Open Discussion and Questions
- Session 3 – April 18th
 - Environmental Data Management System (EDMS) or Ed, Technology and Other Resources
- **Session 4 – April 19th**
 - **Regulation changes overview, Open Discussion and Questions**



Staff Contacts

- Ryan Peterson
 - Lead for onsite wastewater system registrations
 - Grades Exams, issues certifications
 - Specializes in areas covered by the Soldotna and Juneau offices
- Tony Sonoda
 - Manages class registration
 - Specializes in areas covered by the Fairbanks office
- Martha Harrison
 - Specializes in areas covered by the Wasilla office
- Tonya Bear, PE
 - ESPR Section Manager
 - Specializes in all areas in the State of Alaska
- Engineers in the Engineering Support and Plan Review section may also be contacted with questions and will provide any approvals needed for installations that do not meet the prescriptive requirements
 - <https://dec.alaska.gov/water/wastewater/engineering/area-offices>



Agenda

- OWSIM Changes
- 18 AAC 72 Changes
- EDMS Submission Reminders
- DOC Reminders
- Open Discussion and Questions and Answers (there might not be time for this; however, many changes to cover this year!)
- Important!: Most of the changes this year overall were minor to the installation of Onsite Wastewater Systems. There was a multitude of change and format changes; however, the overall impact was considered small as the systems you all install are very similar. What changed this time was the engine that runs the system.



Tests and Course Attendance Forms

- Tests and course attendance forms for homeowner installers will be emailed out after the conclusion of today's class.
- Tests and homeowner attendance forms **must be submitted by April 30th**
- Tests received after the due date will not be graded unless specific exception has been asked for and granted





EDMS Submission Notifications

- This was accidentally not covered yesterday; EDMS provides automatic notifications to users.
 - Automatic notification that your submission was submitted to the State of Alaska (often used for real estate transactions)
 - Notifications upon the 90 day due date for construction paperwork
 - Notifications that your certification term is about to expire
- It is also extremely important to read the emails “EDMS - Schedule Submission Review Notification - DOC-#####, Property Name”.
The two things to note are:
 - **Decision:** Acknowledged or Requires Resubmission
 - **Reviewer Notes to Submitter:** Your submission review has been completed and it was determined that your submission is not approved.



OWSIM Changes

- As noted, the OWSIM changes to the OWSIM Technical Guidance and Approved Best Management Practices
 - The intent of this change was to provide a one stop manual for the installation of onsite wastewater disposal systems for the State of Alaska. This includes pit privies, conventional onsite systems, and alternative onsite wastewater systems installed under an “authorization by rule” (ABR) process
 - Important reminder, when installing an onsite system under the direction of an engineer under the ABR process, you must install that system per their specifications
 - In some situations, there may be multiple possible ways to install the system, in those scenarios you must work with all parties to resolve who will be the qualified person during the installation. If an engineer is to provide direction how the system must be installed, that engineer should then assume the position of the qualified person. Otherwise they are providing **free** guidance and instructions which puts potential liability on you as the installer as the qualified person



OWSIM Changes

- More often and frequent changes in the OWSIM. Important to know where we were and where we are today!
- Change takes time to and learning to grow. It is understood and have an open conversations to facilitate this growth



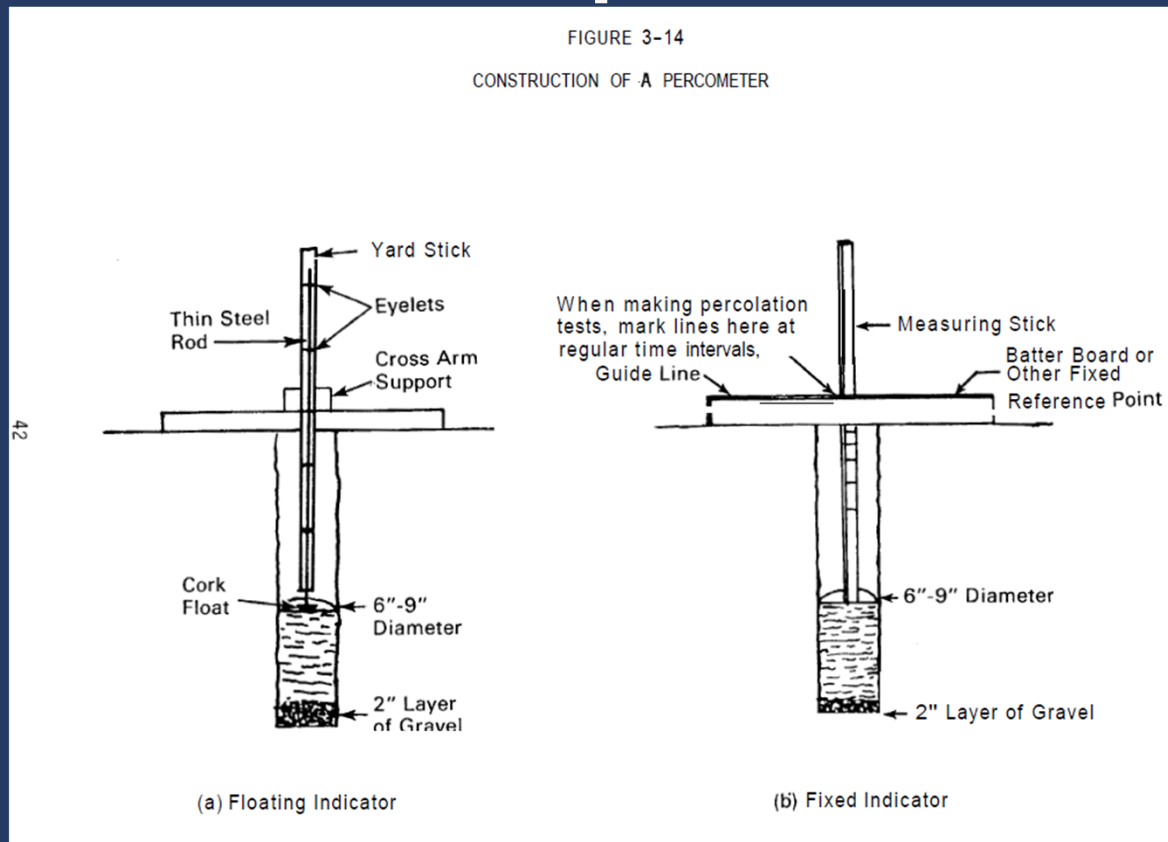
OWSIM Technical Review Committee

- The OWSIM is now managed and developed by a technical review committee. If you have interest in joining the technical review committee (strongly encouraged, counts for test exemption credit for Certified Installers) please contact Tonya Bear the ESPR section manager



Percolation Tests & In person Soil Class

OWSIM 2.8.2



- *NEW: percolation tests may be performed by a CI for systems that are installed under your certification (previously required by DEC regulations to be performed by a registered professional engineer)
- The in-person soils course will teach certified installers how to perform a percolation tests
- The in-person field course is tentatively scheduled for July 15-19 of this year.
- Need volunteers



OWSIM and Changes

- As you may have noticed, the OWSIM was recently restructured to account for the change of regulations. There are many new changes and new additions with many implications. The manual is no longer a “conventional onsite system” manual but includes all manners of systems for the ABR.
- An important note of law that impacts onsite systems is section 1.3 and 1.3.1. Functional Equivalent. As many people in this industry are aware, the impacts of an onsite wastewater system (regardless of whether it was installed properly, improperly, not properly maintained, etc.) may adversely impact nearby surface waters. On April 23, 2020 the Supreme Court of the United States ruled that certain subsurface discharges could be considered a “functional equivalent”. The legal and regulatory impact of this is still being determined



18 AAC 72 Changes

Overview Summary:

- Along with the OWSIM, the legal backside of the OWSIM was changed. The legal side was re-organized and clarified.
- 72.090 now covers what is a system failure and spill
- 72.100 private water systems covers separation distance requirements when a private water system is installed.
- 72.415 changed the way for installers to be exempt from the written examination by completing professional development courses directly related to drinking water or wastewater systems. More information on this to come!
- 72.500 (previously was 72.035)
- 72.600 – prescriptive “ABR” alternative onsite system standards
- 72.990 Reorg and many definition changes



18 AAC 72 Changes

A summary of changes is available at:

<https://dec.alaska.gov/water/wastewater/engineering/2023-regulation-updates>

Summary Crosswalk for 18 AAC 72
Amended through October 1, 2023
Prior Version November 7, 2017

Introduction

The amended 18 AAC 72 Wastewater Treatment and Disposal Regulations effective October 1, 2023 were significantly reorganized, including a major expansion in permit-by-rule or authorization-by-rule processes which allows more wastewater systems to be installed without prior approval from the department as compared to the prior version amendments through November 7, 2017.

This document includes broad summaries of the overall changes, and detailed descriptions of new or revised regulations, as well as providing references in current regulations for comparison. The intent of this document is to help stakeholders navigate in the amended regulations.

Overall

The organization of 18 AAC 72 was revised in order to understand approval requirements by system type. The previous version of the regulations were not structured in a linear manner which had created ambiguity and confusion. The revised regulations will also concentrate department resources on issues and systems of broad concern to public health and the environment at large.

In the tables under “Detailed Changes”, a regulation reference in **bold** type corresponds to the amended regulations effective October 1, 2023.

Article I: General Standards, Requirements, and Limitations

Summary of Major Changes

This article was rewritten to better encompass the overall, broad requirements for both domestic and nondomestic wastewater systems and private water systems. Previously it applied to only domestic wastewater systems and included separation distance requirements for private water systems. Some system specific requirements were moved to different sections of the regulations to better group requirements by system types. Editor’s notes should be clear where material for repealed sections were relocated.

Detailed Changes

2023	2017	Notes on changes and Intent
72.005	72.005	Purpose and applicability: Clarifying language to broadly describe the



18 AAC 72 and OWSIM Changes

- To the point, the changes in the regulatory requirements and the OWSIM are covered in this training briefly and cover the “high points”. As a Certified Installer you must familiarize yourself with the new changes by reading and understanding the new OWSIM. If you need a new copy of the manual to read and review please stop by your local area office. Recommended to call in advance as sometimes staff need to print copies of the manual!



OWSIM Section by Section

OWSIM 1.4

- Systems that do not require an explicit registration or approval such as outhouses, mobile food units, etc.
- As installers you may refer clients to these systems based on your expertise.
- Some clients are looking for an eventual “upgrade”, which you can assist on!



OWSIM Section by Section

OWSIM 1.5

- Existing Systems, Non-conforming systems, and change of use

This section expanded and clarified many of the existing onsite system requirements. If doing an installation in these scenarios (such as a real estate transaction), this is the go to section for the OWSIM Best Management Practices requirements. **Includes updated decommissioning procedures.**



Installation Reminders

- Decommissioning procedures listed in the **OWSIM 1.5.2** are required by the OWSIM and the UPC.



OWSIM Section by Section

OWSIM 1.7

- Underground Injection Control (UIC) Wells
- EPA considers everything a motor vehicle injection well besides a single residential dwelling. For that reason, floor drains are inquired about on every multi-family dwelling, commercial facility, etc. In addition to, this is the reason DEC strongly discourages floor drains in all situations
- Important note: this may impact your own shops system. Please carefully read and understand this section.



Systems that can be done by a CI

OWSIM 2.2.2

- Private Residence Definition
- Multi-Family-Dwellings
 - Single multi-family dwelling with no more than four residential units.
- Small Commercial Facilities (single building daily flows less than 500 gpd) On lot wastewater must be less than 1500 gpd



Certified Installer Scenarios

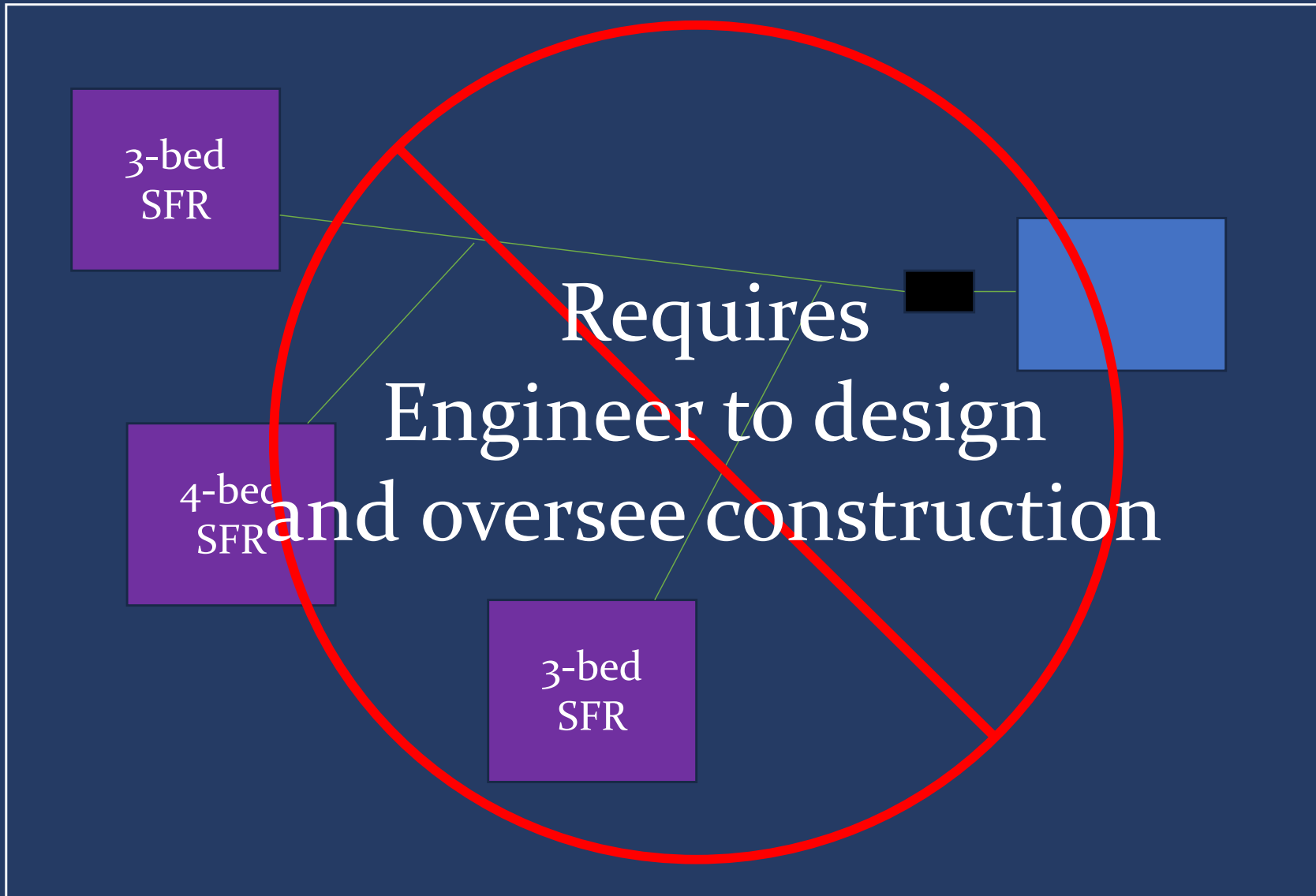
Next slides will go over some of the scenarios encountered in the field. There are always unique property specific considerations, and if you would like to discuss a specific property, please contact the DEC as soon as possible to go over that situation.

A simple conversation/email in advance can save a lot of trouble and misunderstanding later!

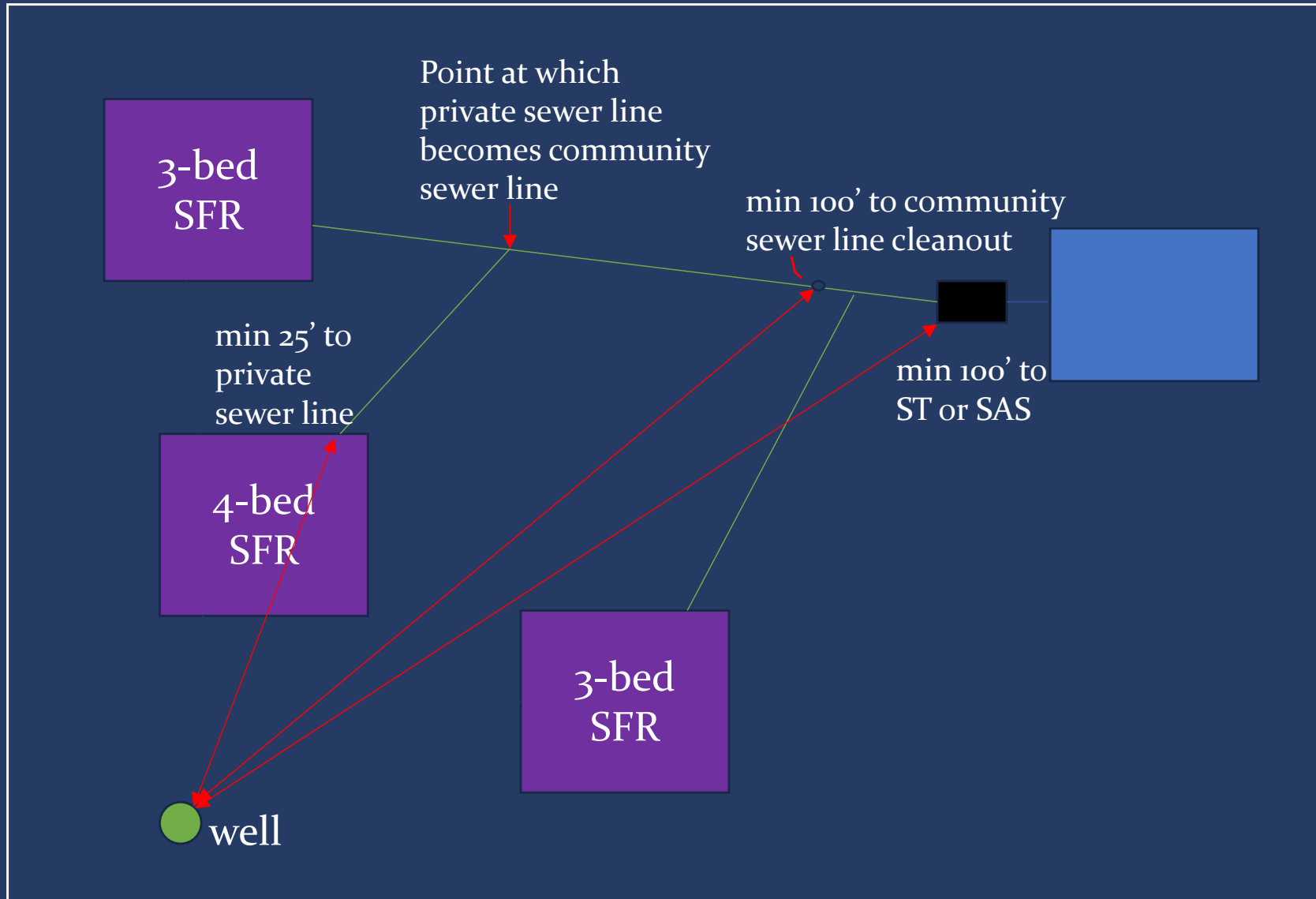
- Summary key points:
 - community sewer lines must be installed with a registered engineer
 - Total on lot peak daily flow must be less than 1,500 gallons per day
 - Commercial facilities must be:
 - single-service connection and
 - The structure must be less than 500 gallons per day! E.g., a **small** commercial facility!



10-beds total = 1500 gpd
more than two families so is NOT a private residence nor a
single service multi-family dwelling

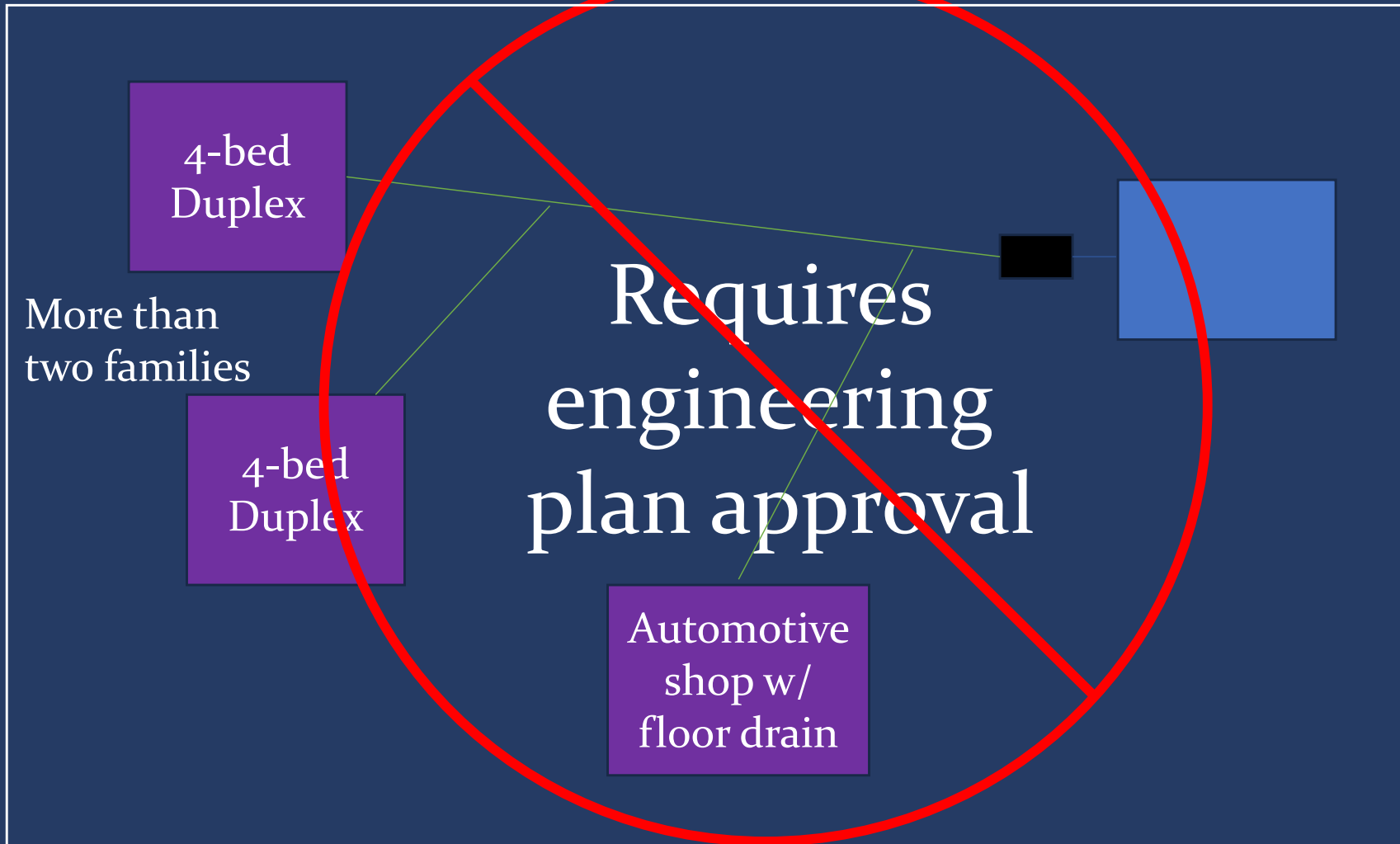


10-beds total = 1500 gpd
But more than two families so is not a private residence nor single building connected to the system. Note the community sewer lines!

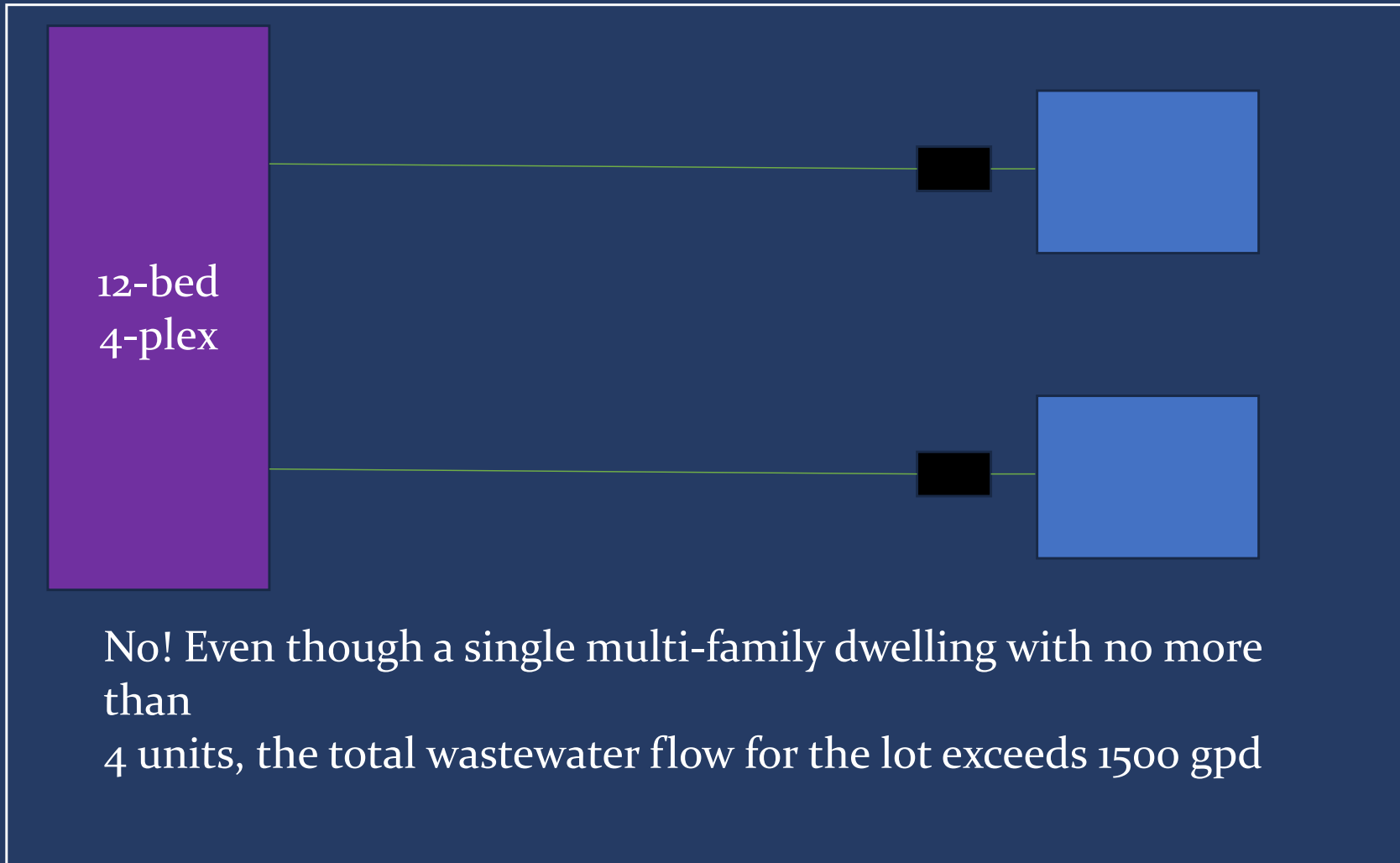


8-beds total = 1200 gpd
Auto Shop = ?
Total Wastewater Flow = ?

Engineer and plan approval required for systems with non-domestic wastewater source. In this case, the automotive shop with floor drains.

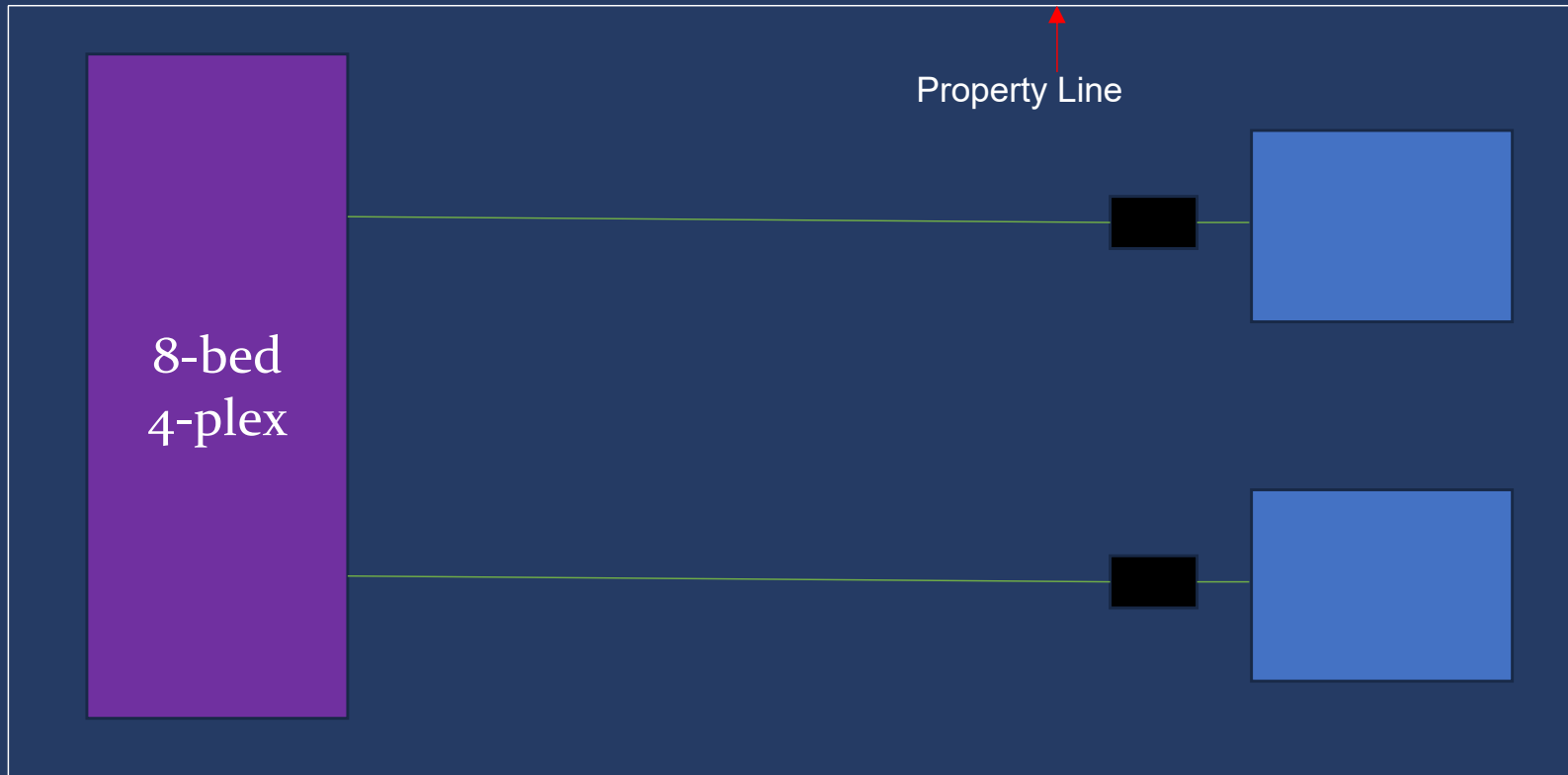


Each system serves half of the building:
Each system serves 6 beds = 900 gpd each
Total wastewater flow = 1800 gpd
Can you do this as a CI?



No! Even though a single multi-family dwelling with no more than 4 units, the total wastewater flow for the lot exceeds 1500 gpd

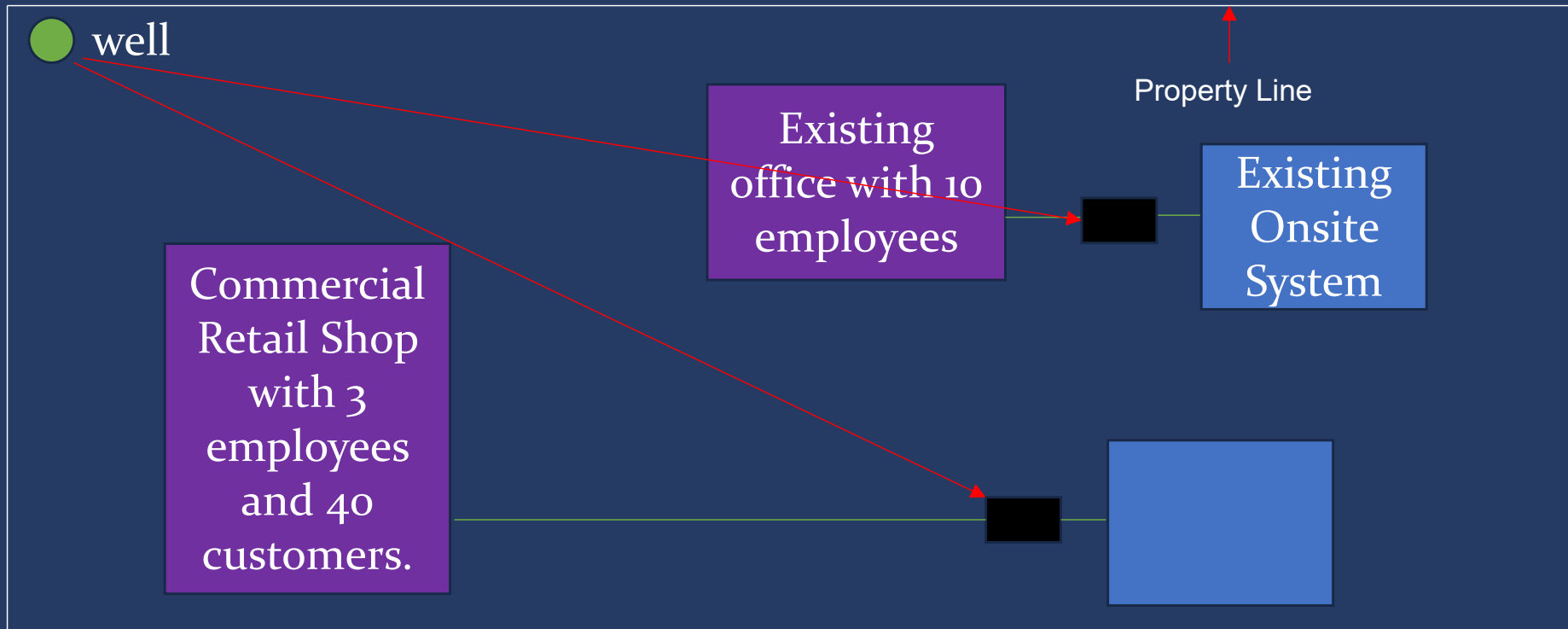
Each system serves half of the building:
Each system serves 4 beds = 600 gpd each
Total wastewater flow = 1200 gpd
Can you do this as a CI?



Yes, because it meets description of a single multi-family dwelling with no more than four residential units with total calculated daily flow less than 1500 gpd



3 employees @ 10 gpd/employee OWSIM 2.4.2
40 customers @ 3 gpd/customer
Total wastewater flow = 150 gpd
Can you do this as a CI?



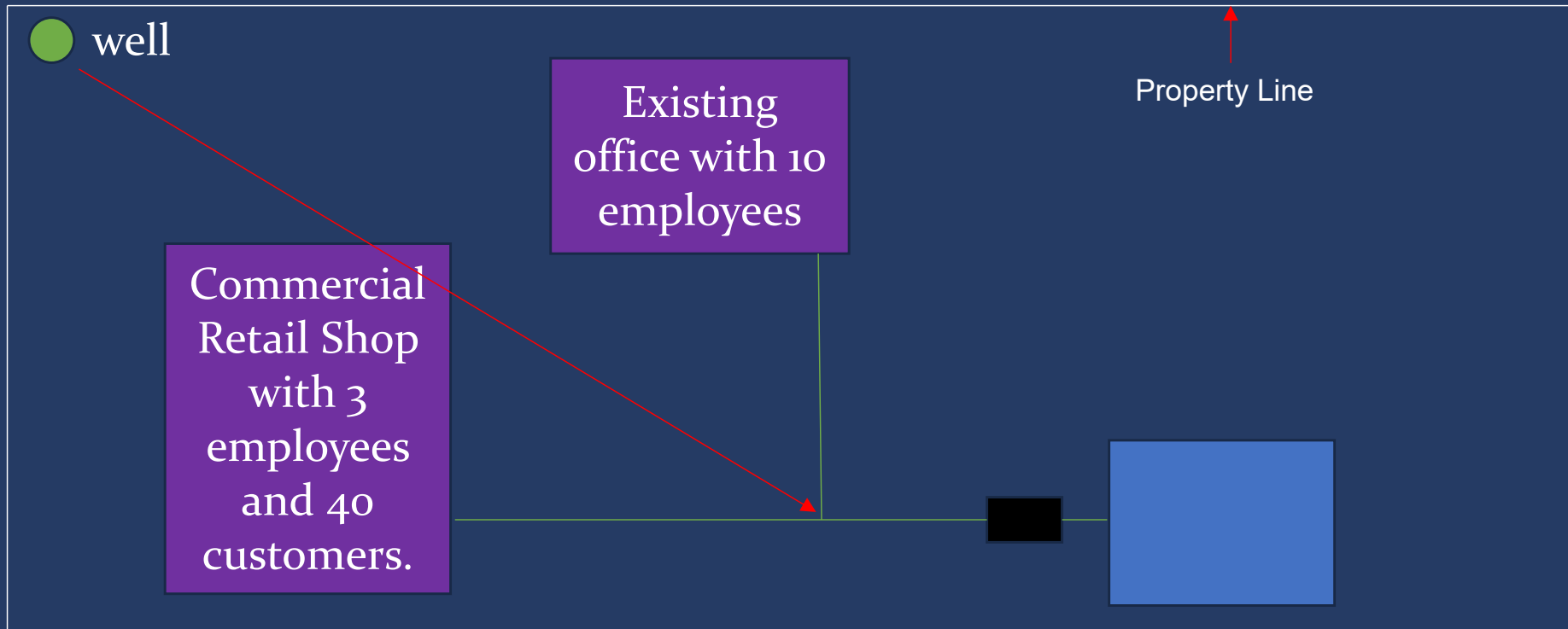
Yes, because it meets the definition of a small commercial facility with on lot wastewater flows less than 1,500 gpd

Note: the number of people, the well serving this property may be a public water well! Obtain a current drinking water system classification!

Note: You must verify some of the information on the existing system to do this system. This must be clarified on the DOC submission



3 employees @ 10 gpd/employee OWSIM 2.4.2
40 customers @ 3 gpd/customer
Total wastewater flow = 150 gpd
Can you do this as a CI?



No, because it includes multiple service connections.

Note the number of people, the well serving this property may be a public water well! Obtain a current drinking water system classification!



Systems that can be installed by an engineer that do not need prior construction approval

OWSIM Section 5

- Historically all alternative onsite systems required a plan approval, which included a application to the Department and a 30 day review timeframe. Now in accordance with this section, the authorization by rule process was expanded to include certain engineered alternative systems.
- This section is included the OWSIM; however, this section is for engineered systems only. When installing a system under the design of a registered engineer, installers must follow that design and work with the engineers per OWSIM 2.2.3.
- In that matter, it is always good to form good working relations with multiple local engineers in situations where an alternative onsite system may be required and/or a plan approval is needed



Systems that can be installed by an engineer that do not need prior construction approval

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Hauled Water Wastewater

OWSIM 2.4.1

- Properties using hauled potable water may reduce wastewater flow to 100 gpd/bedroom. This must be properly recorded with the registration paperwork.
- It is recommended to use the standard 150 gpd/bedroom in most situations as property owners may choose to connect to a piped water system later



Commercial Facility Calculations

OWSIM 2.4.2

- Calculations were added back into the OWSIM and updated.



Evaluating Site Conditions

OWSIM 2.7

- Flooding sites and updated clarifications were added
- A section on evaluation of changing site conditions was added to clarify evaluation of systems and resiliently installed systems.
- In 2019 the Kenai Peninsula was in drought. In 2022/2023 Southcentral has had extremely wet years.



Percolation Tests

OWSIM 2.8.2

- Percolation tests, requirements, and percolation tests done by Certified Installers under their certification

2.4.2 Commercial Facilities

Commercial facilities include any building or services open to the public. Examples of commercial facilities include RV parks, restaurants, office buildings, nightly lodging, residential care facilities, and daycares. The daily flow for commercial facilities must be calculated by using published typical flows from the EPA wastewater system manual, the UPC, or this guidance. Typical flows published by other states may also be used when the use is more specific than the sources provided in the Wastewater Minimum Daily Flows table.

Wastewater Minimum Daily Flows		
Commercial Sources		
Source	Unit	Flow in gpd/unit
Airport	Passenger	3
Assisted Living Homes	Resident	100
	Employee	15
Automobile Service Station	Vehicle Served	12
	Employee	15
Bar	Employee	15
	Guest	3
Day Care Facilities w/ food service	Each Child and Employee	15
		20
Department Store	Employee	10
	Toilet Room	500



Regional exceptions

OWSIM 2.8.2

- Regional exceptions were added to the OWSIM clarifying what they are and how they are administered. Ultimately exceptions must be coordinated still with that local area office staff



Regional exceptions

OWSIM 2.8.2 & 2.11.1

- The only soil types that do not require a percolation test are SP/SW, unless there is a specific exception provided for an area
 - Nikiski Sands
 - Greater Fairbanks Area
- OR, you do not need a percolation test in GP/GW soils IF you install a 2 foot thick sand liner
 - Tok (area-wide sand liner waiver for GP/GW)



Separation distance tables

OWSIM 2.9

- Updated to include now separation distances from sewer components to water lines and private water lines. This was previously in the UPC; however, it was added into the OWSIM and 18 AAC 72 to clarify these separation distances instead of “refer to the UPC”.
- Foundation is now a “recommendation”: however, the UPC Appendix H requires 5' from the tank to the foundation and 8' from the SAS to the foundation.
 - Foundation per UPC does include decks, covered walks. Think about how the system can ever be replaced and/or tank pumped.



MINIMUM HORIZONTAL SEPARATION DISTANCES TO DRINKING WATER SYSTEMS

all horizontal separation distances must be measured from nearest edge to nearest edge

	Private Sewer Line ^a and Cleanouts, Basement Sump	Sewer Line ^b and Cleanouts, Manholes, Lift Station	Septic Tank, Wastewater Holding Tank, Lift Station, Manholes	Pit Privy, Soil Absorption System	Fuel Tank ^c and Lines	Drinking Water Treatment Waste disposal system	Other Sources of Contamination ^d
Public Water System	100 feet	200 feet	200 feet	200 feet	100 feet	100 feet	200 feet
Private Water System	25 feet	100 feet	100 feet	100 feet	25 feet	25 feet	100 feet
Water line	10 feet	10 feet	10 feet	10 feet	10 feet	10 feet	Contact DWP
Private Water Line	1 foot	5 feet	5 feet	5 feet	10 feet	5 feet	--

Additional separation distance requirements may apply for public water systems; 18 AAC 80 must be referenced for all public water system requirements.
 a. A drain pipe buried in the ground below a building is required to meet the same separation distance as a private sewer line to a public water system.
 b. Sewer line includes sewer main, community sewer line, and stormwater sewer lines.
 c. The separation distance to fuel tanks applies to below-ground fuel tanks and fuel lines, and to above-ground tanks greater than 500 gallons.
 d. Other sources of contamination include, but are not limited to, animal byproducts, manure, and agricultural waste. The separation distance to landfills is covered under 18 AAC 60. DWP = Drinking Water Program.

MINIMUM VERTICAL SEPARATION DISTANCES TO DRINKING WATER COMPONENTS

	Private Sewer Line, Building Sewer	Community Sewer Line or Cleanout, Sewer Main	Septic Tank, Wastewater Holding Tank	Soil Absorption System	Fuel Tank** and Lines	Drinking Water Treatment Waste disposal system	Other Sources of Contamination*
Water line	18 inches recommended	18 inches	cannot cross	cannot cross	no crossing recommended	10 feet	Contact DWP
Private Water Line	12-inches	12-inches	cannot cross	cannot cross	no crossing recommended	5 feet	--

Well Classification and Select Abbreviated Definitions (See 18 AAC 80.1990 or 18 AAC 72.990 for complete definitions)

Public Water System: a potable water system serving 25 or more people at least 60 days per year or a system that has at least 15 service connections.

Water Line: is a pipe or conduit used to carry water as part of a public water system but does not include a water service line or private water line.

Private Water System: a potable water system that is not a public water system

Private Water Line: is a line, pipe, or conduit used to carry water as part of a private water system. The department interprets regulations to not include a water service line that is connected to a public water system in the definition of private water line.

Disclaimer: This separation distance table was developed for convenience but may not contain all separation distances required to be met.



MINIMUM HORIZONTAL SEPARATION DISTANCES FROM SEWER COMPONENTS					
	River, Lake, Stream, Spring, Slough^c	Slopes >25%	Soil Absorption System	Lot Line^a	Foundation^a
Septic Tank, Holding Tank, Lift Station	100 feet	need to be stable	5 feet	10 feet	10 feet
Soil Absorption System	100 feet	50 feet ^d	see b. below	10 feet	10 feet
Pit Privy	100 feet	50 feet recommended	see b. below	10 feet	10 feet
<p>a. Recommended minimum horizontal separation distance. All parts, including ground cover for freeze protection must be wholly located on the property with the facility being served. Locating a septic tank or soil absorption system too close to a building foundation may have negative impacts. The septic tank cleanouts or manhole riser must be accessible for maintenance purposes.</p> <p>b. 6 feet or 2 times the distribution media depth, whichever is greater.</p> <p>c. Setbacks is from the mean annual high water level of surface water or the mean higher high water level of tidally influenced water.</p> <p>d. Separation distance applies to the downhill slope; does not apply to mound type soil absorption systems</p>					
MINIMUM VERTICAL SEPARATION DISTANCES FROM SEWER COMPONENTS					
	Seasonal High Water Table		Impermeable Soil, Permafrost, Bedrock		
Septic Tank, Wastewater Holding Tank	need buoyancy protection		--		
Subsurface Soil Absorption System	4 feet		6 feet		
Pit Privy	4 feet		--		

Disclaimer: This separation distance table was developed for convenience but may not contain all separation distances required to be met.



Freeze Protection

OWSIM 2.10

- Updated standard to allow 25 PSI for the installation of onsite systems.



Pipe Joints

OWSIM 3.1

- Solid pipe with no joints shall span 5 feet from the inlet and outlet of septic tanks onto undisturbed earth, or the soil may be backfilled and compacted in six-inch lifts before laying the pipe

OWSIM 2.9

- The separation distance between the septic tank and soil absorption field is now 5 feet

OWSIM 3.2

- The slope of the building sewer 10 feet immediately before the septic tank **is still** required to be 1/8" to 1/4" per foot (not to exceed 2% slope)



Septic Tanks

OWSIM 4.2.1

- If a lift station / sump is located prior to the septic tank, the minimum septic tank size must be increased by 250 gallons for residential dwellings ~~with more than 18 bedrooms or commercial facilities with an estimated daily flow greater than 1250 gallons.~~
 - This is a bit wordy, you may cross out the rest and remember to increase the size of the septic tank!
 - Please be aware, this wording **does apply** for systems for which you work under an engineer!



Septic Tanks in Series/Parallel

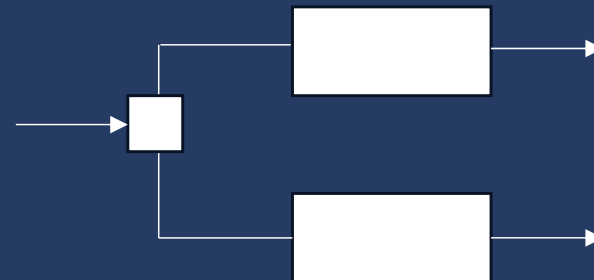
OWSIM 4.2.2 & 4.2.3

- Clarified that tanks in series or in parallel may be used to meet the required tank size.

In series



In parallel



Minimum Application Rates

OWSIM 4.3.1

- The most conservative wastewater application rate from the table below, based on either percolation rate or soil texture (USCS), must be used.



Cut and Fill Systems

OWSIM 4.4

- Clarified a practice that was done for many years by producing a drawing



Engineered Alternative Systems

OWSIM 5

- The engineering section for alternative systems. It is recommended for installers to note this section is applicable for systems when working with an engineer as the qualified person
- It is also important to know how and which systems may not need to go through plan review during an initial site investigation.



Quick Formulas and Updated Examples

Appendix A

- Updated the examples from Appendix A and provided a summary sheet of formulas
 - The five-wide sizing factors have yet to be added to the Appendix, feel free to pen them in on your copy!



Test holes & Soils

Presentation slides and pictures is planned to be updated during this years soils course!



Test holes & Soils

Groundwater Levels and Soils

- GP/GW/SP/SW (gravel and sands) – water level stabilizes quickly
 - Be very careful near rivers, and account for seasonal fluctuations in the water level
- SM/ML (sandy silts and silts) – water level in test hole may take hours to stabilize
- Remember to research local groundwater information. In areas known for groundwater fluctuations, adjust the depth of the system accordingly



Test holes & Soils

Groundwater Seeps

Seeps may or may not indicate the groundwater table

Seeps may be seasonal or based on recent precipitation events

Look at test hole side walls for reason for seep (soil layers, different color, etc.)

Let test hole remain open for several hours if possible to see if groundwater collects in hole

The more fine-grained the soil is, the higher the concern

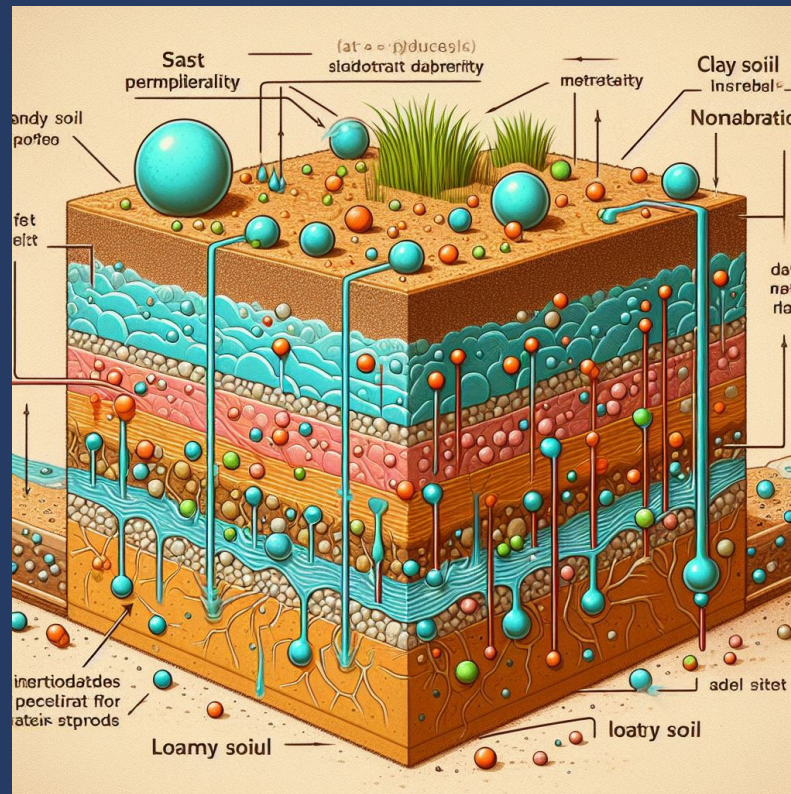


Soils

Soil Permeability

Permeability is the ease with which water will flow through a porous material

- Water flow is **generally** proportional to particle size
 - Gravel → excellent
 - Sand → good
 - Silt → moderate/poor
 - Clay → poor



Soils

The evaluation of site specific soil conditions is one of the most important aspects of septic system construction

- **Gravel** – Best draining, may be too fast and may require a sand liner. Usually only suitable for bed or shallow trench systems.
- **Sand** – Best for treatment and general drainage. Commonly requires a bed, 5-wide, or shallow trench system.
- **Silt** – Common in hills and along river and stream channels in upper layers – slower draining but usually still acceptable. Suitable for 5-wide, leach pits, and deep trench systems
- **Clay** – Very slow draining, likely requires an engineered system.

Soils are not always homogenous. Get to know the local soils well, ask an engineer or a soils lab if you are unsure.



Test holes



Keep a sample!



Soils Part 1

But why classify?

- Soils can be broken down into classifications; however, why?
- All of the classification systems are made to provide a method to describe soils in a way that they are predictable. Sandy soils behave in this matter. Gravel in that matter. And so on and so forth.
- Wastewater application wise:
 - Gravel does not provide adequate treatment of effluent however disposes of wastewater effectively
 - Sand provides adequate treatment and disposes of wastewater effectively
 - Silty soils provides treatment however requires knowledge of the soil whether it is an appropriately receiving soil
 - Clay soils often are not suitable for wastewater disposal



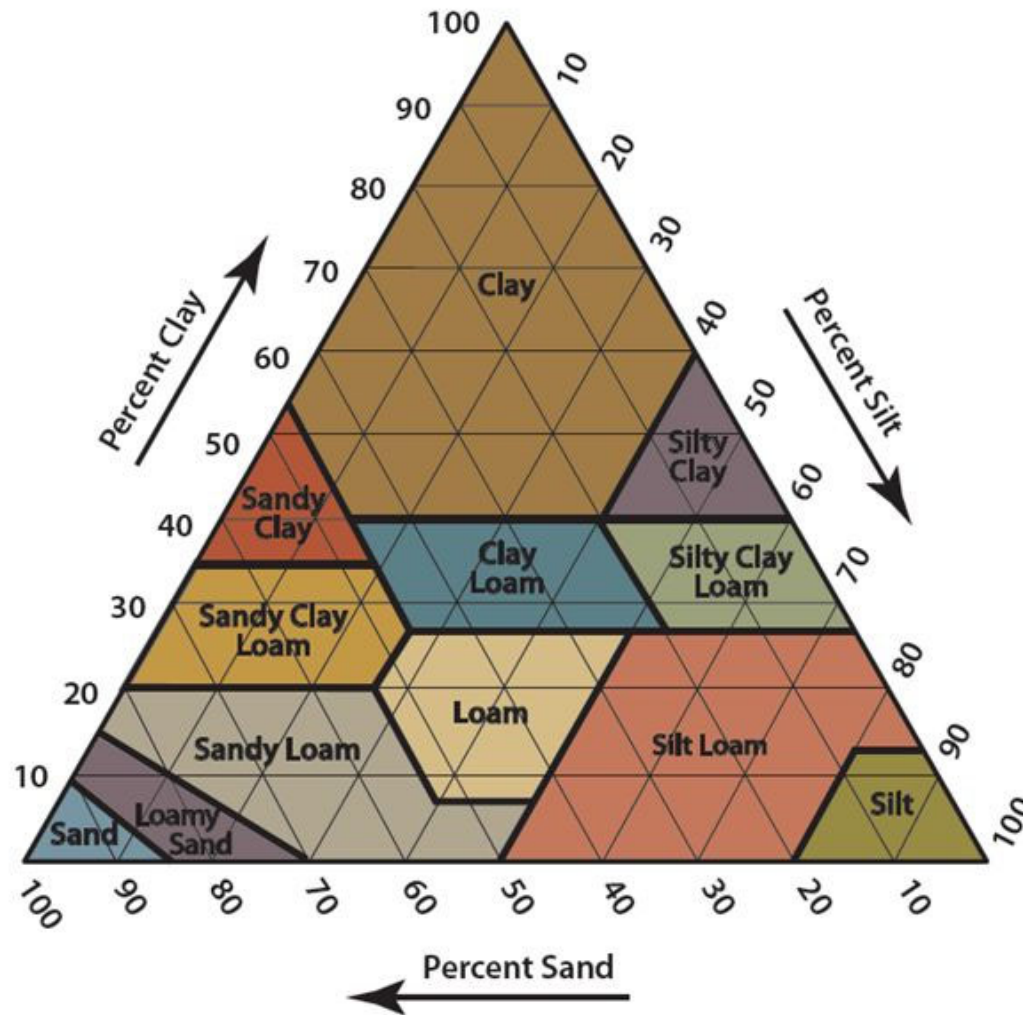
USCS describes soils with a 2-letter symbol based on the gradation of a soil.

- % retained or % passing
- #4 sieve – gravel/sand
- #200 – sand/silt



Primary Divisions			Group Symbol	Descriptions
COARSE GRAINED SOILS Sands/Gravels Over 50% retained on #200 sieve	GRAVELS Over 50% of coarse material retained on #4 sieve	CLEAN GRAVEL Less than 5% passing #200 sieve	GW	Well graded gravel, many different particle sized, little or no fines
			GP	Poorly graded, few different particle sizes, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, fractured schist
			GC	Clay-like gravels, gravel-sand-clay mixtures
	SAND Over 50% of coarse material passed #4 sieve	CLEAN SANDS Less than 5% passing #200 sieve	SW	Well graded sands, many different particle sizes, little or no fines
			SP	Poorly graded, few different particle sizes, little or no fines
		SAND WITH FINES	SM	Silty sands, sand-silt-gravel mixtures, Fairbanks Silt Loam
			SC	Clay-like gravels, gravel-sand-clay mixtures
FINE GRAINED SOILS Silt/Clays Over 50% passing the #200 sieve	SILTS AND CLAYS Liquid limit is less than 50%	ML	Inorganic silts, slight to no plasticity	
		CL	Inorganic clays, low to moderate plasticity	
		OL	Organic silts and clays of low plasticity	
	SILTS AND CLAYS Liquid limit is more than 50%	MH	Inorganic silts, moderate to high plasticity	
		CH	Inorganic clays, high plasticity, fat clays	
		OH	Organic silts and clays of high plasticity	

SOIL TEXTURE TRIANGLE



USDA classification system describes soil texture as the relative amount of sand, clay, silt and combinations thereof



Soil Texture

The “feel” of the soil, when moist how it may be manipulated.

- Sands are gritty like salt or sugar
- Soil with a lot of silt will feel silky, similar to flour
- Clay tends to be greasy and sticky, easily forms a ball

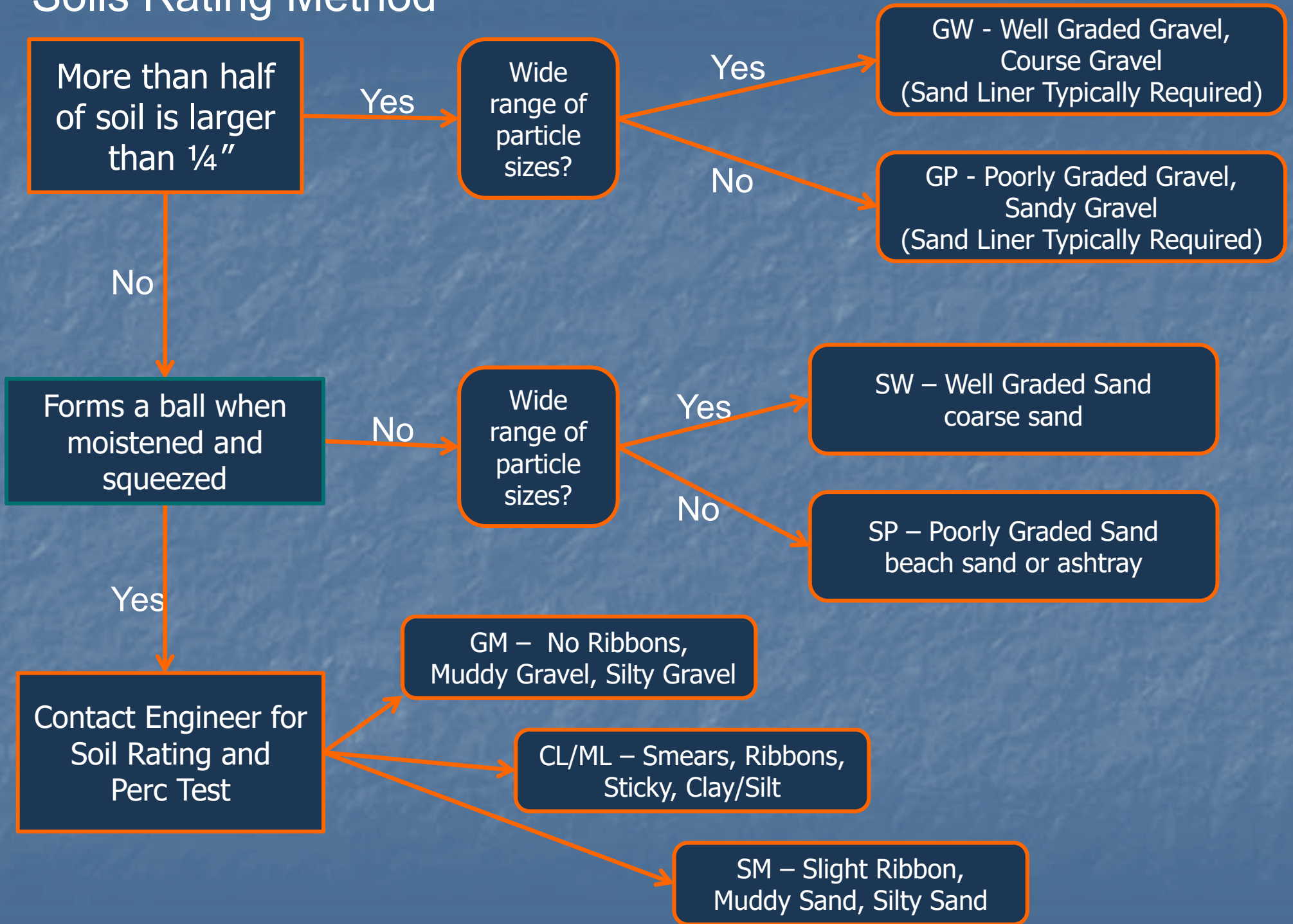
Most soils have a varying amount of these particles and will have a combination of properties



Picture from [Quick Reference Guide: Assessing soil texture](#) | VRO | Agriculture Victoria



Soils Rating Method



DOC Reminders

- Reminder to all installers, standard drawings are listed in the OWSIM for plan view, profile view, and cross-section drawings. Tailoring those standard drawings to site specific installations is what you must do on your drawings!
- Photo requirements: Taking photos is an artform. Remember to zoom out and capture the system component but also where the system is on the lot.



Photo Documentation

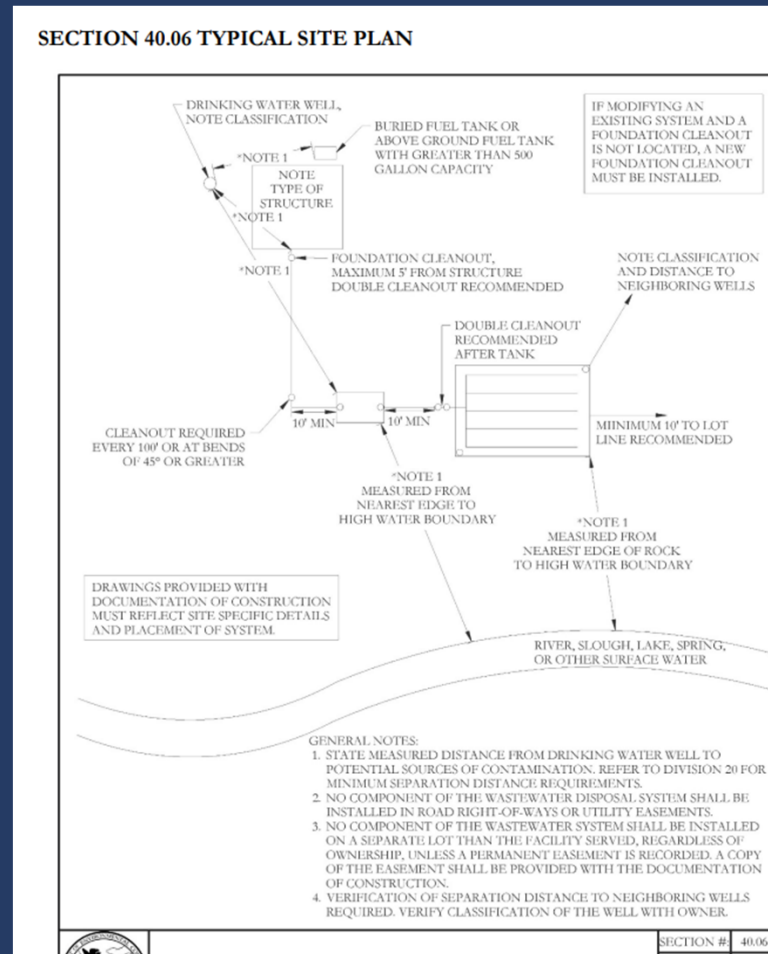


VS

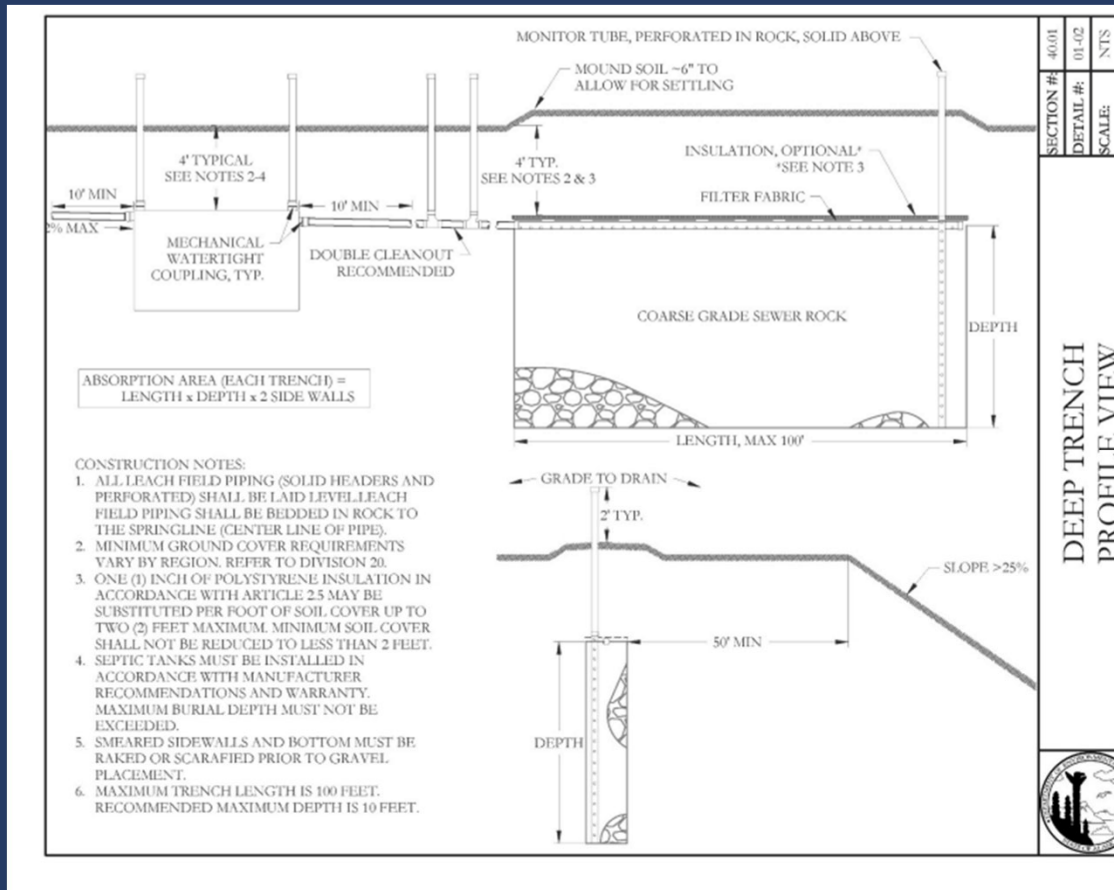


Documentation of Construction Requirements

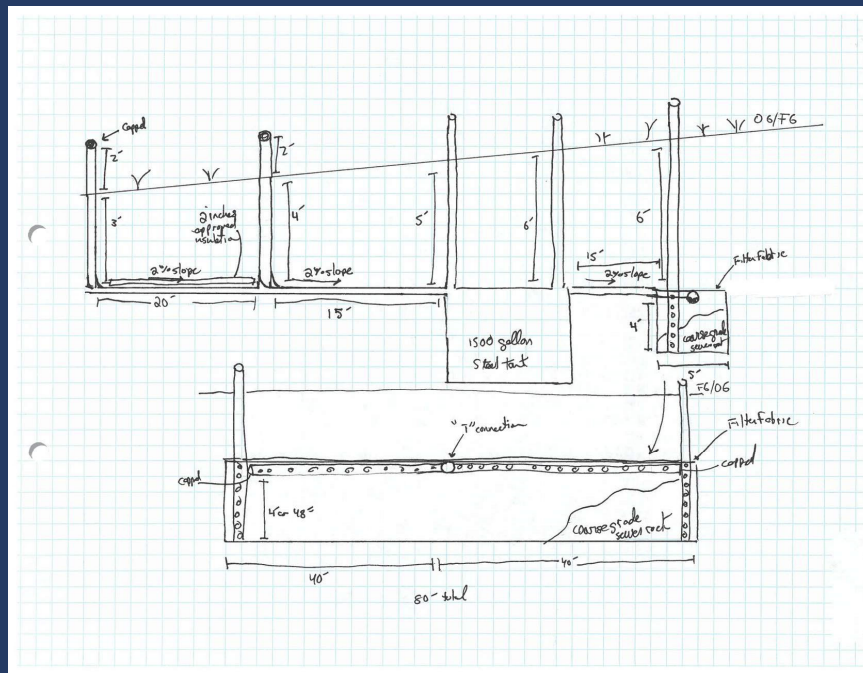
OWSIM Appendix C



Documentation of Construction Requirements



Documentation of Construction Requirements



Legal Description: K-B 2612 LIBA Installer Name: Ry Peterson Date Installed: 4/14/21

Part V. Soil Absorption System Cross Section View Diagram and Testhole Log

Instructions for Diagram: (use space below or attach additional sheets as necessary; engineers may attach separate sealed record drawings)

1. In a CROSS SECTION VIEW of the soil absorption system identify and label the following: Soil Absorption Medium Final Grade Original Grade (inside grade changes) Filter Fabric Isolator Tubes Soil Cover and Insulation Chasferfield Pipe Depth of Sewer Rock and Sand Liners, if applicable, in the Soil Absorption System Vertical Separation Distance Between Soil Absorption Systems and Groundwater/Impermeable Soils

2. In the CROSS SECTION VIEW, the system drawing should be vertically to scale and correspond to the depth indicated by the testhole log. Indicate soil(s) type, groundwater, and impermeable soils encountered in testhole.

Groundwater/Seps: Yes No At (feet below original grade): 2.0'

Impermeable Soils (Clay/Bedrock/Permafrost): Yes No At (feet below original grade):

Testhole Log	Soil Absorption System Cross Section
Testhole Inspected By: <u>REP</u>	
Date: <u>4/11/21</u>	
Original Grade: <u>0 ft</u>	
<u>OL</u>	
<u>SP</u>	
<u>SM</u>	
<u>silty sand above</u>	
<u>above</u>	
<u>above</u>	
<u>above</u>	
<u>above</u>	
<u>above</u>	
<u>above</u>	

Documentation of Construction Form all previous versions obsolete, Effective April 1, 2020



Questions/Open Discussion

