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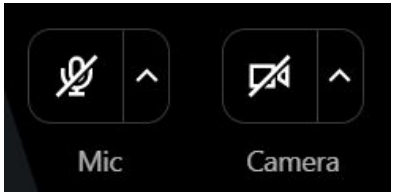
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Onsite Wastewater Treatment Systems Program Update – Proposed Changes

Presented by:
Linneth Lopez, Associate Environmental Engineer
Raymond Morgan, P.E., Contractor

November 18, 2026

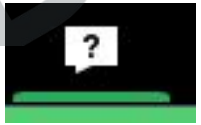
Online Tools

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Raise hands 

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Use the Question tool 
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Agenda

- Introductions
- Rulemaking Overview
- Discussion on the following topics:
  1. Distribution Boxes
  2. Septic Tanks in Series
  3. Reserve Areas
  4. Alternating Disposal Fields
  5. Equalization Tanks

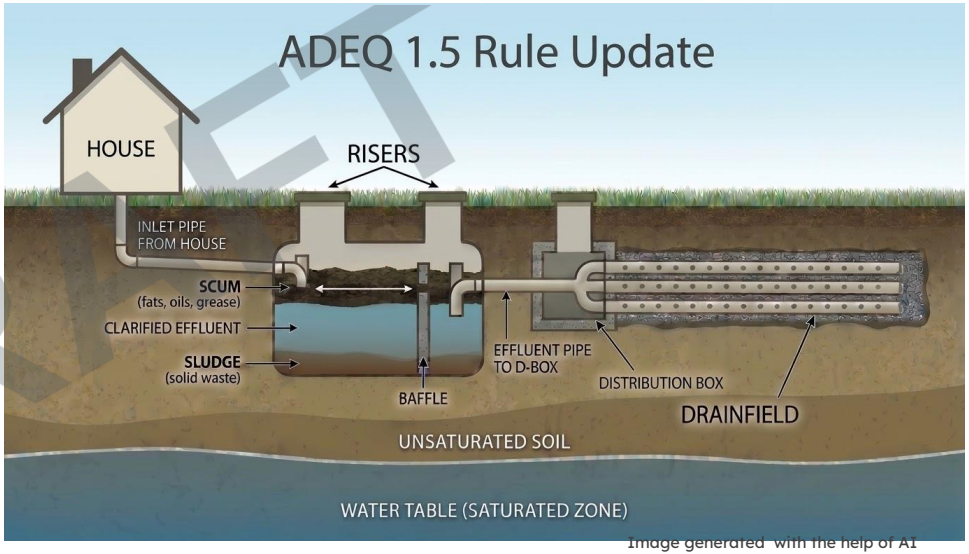


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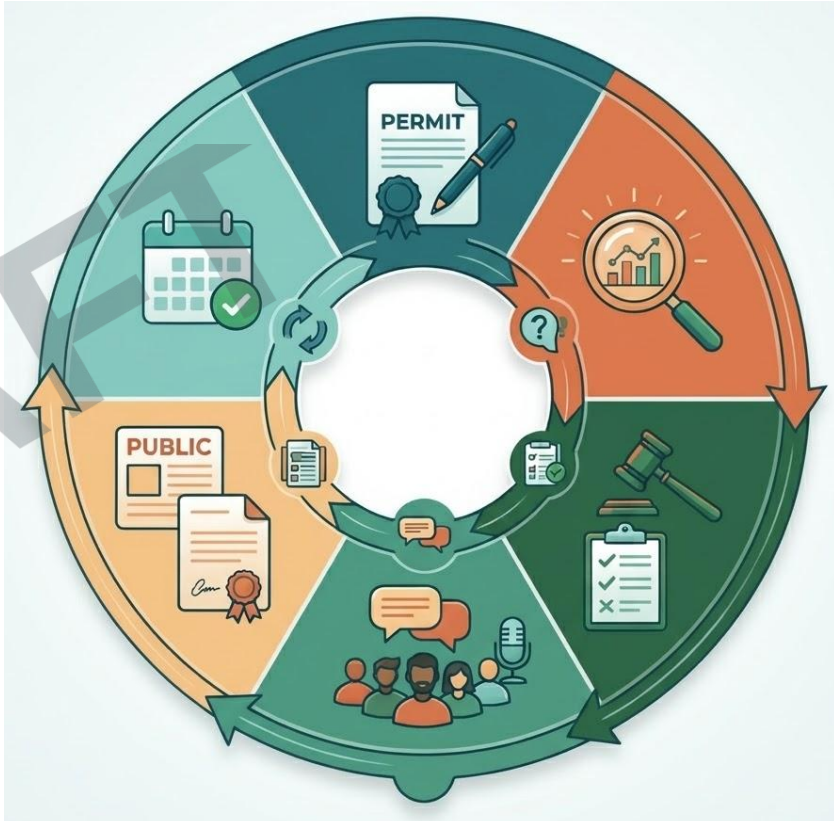
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Rulemaking Overview

What: Onsite Wastewater Treatment Facilities Rulemaking (18 A.A.C. 9).

Why: Achieve stakeholder-identified objectives of program modernization and simplification.

Where: Early rulemaking “Design Phase”.



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General Requirements for Distribution Boxes

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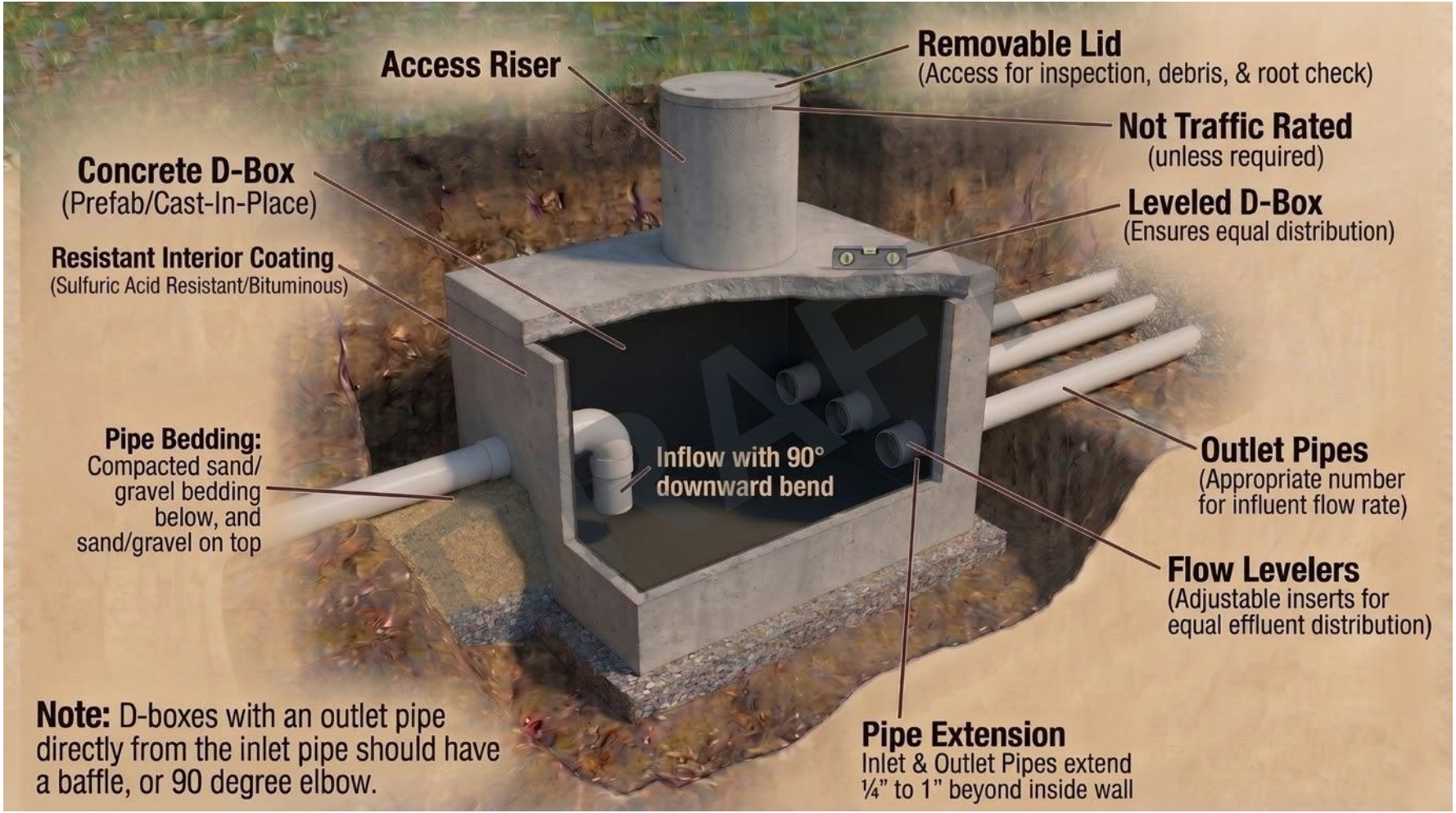


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Pressure Discharge to a Distribution Box

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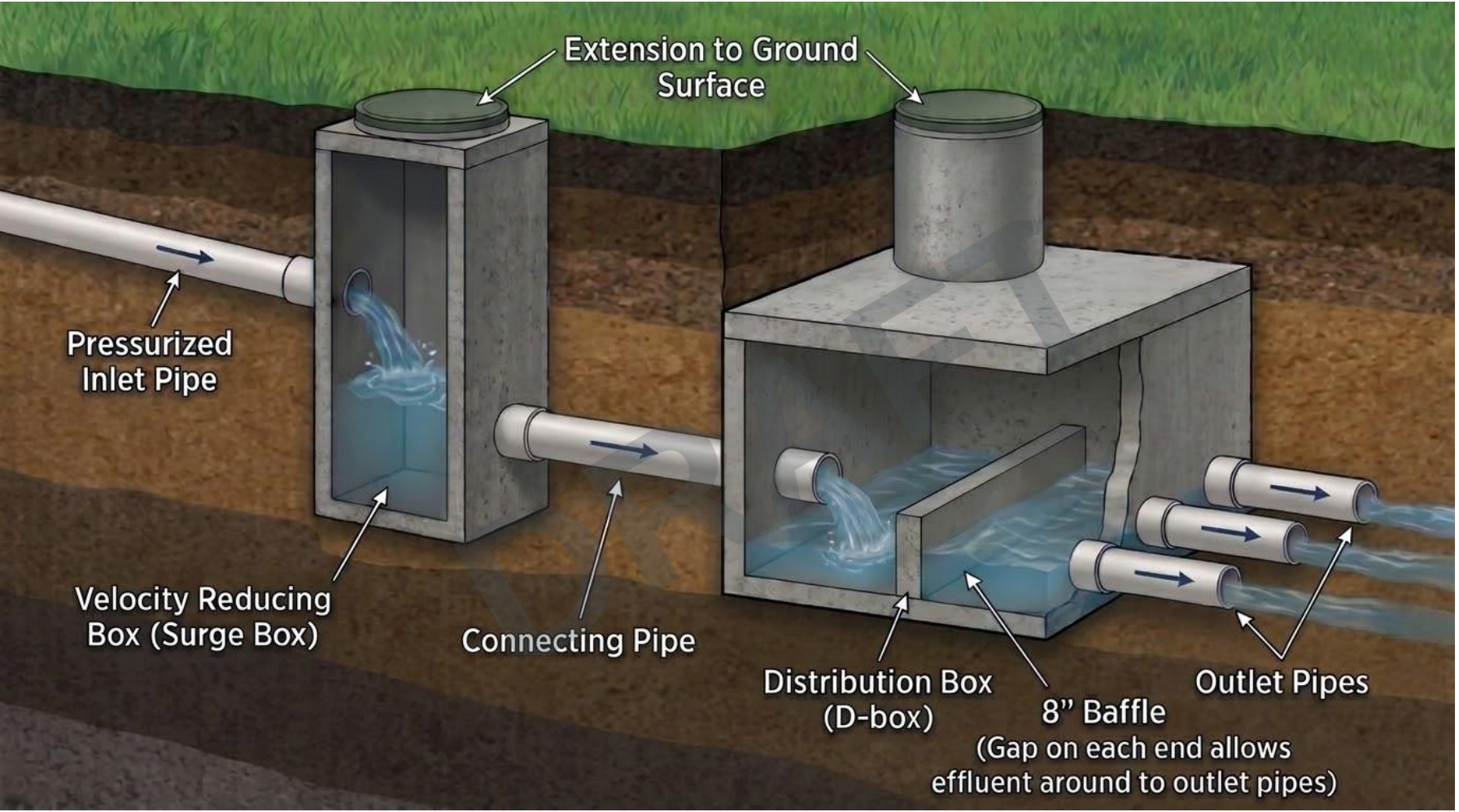


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Fiberglass or Thermoplastic Distribution Boxes

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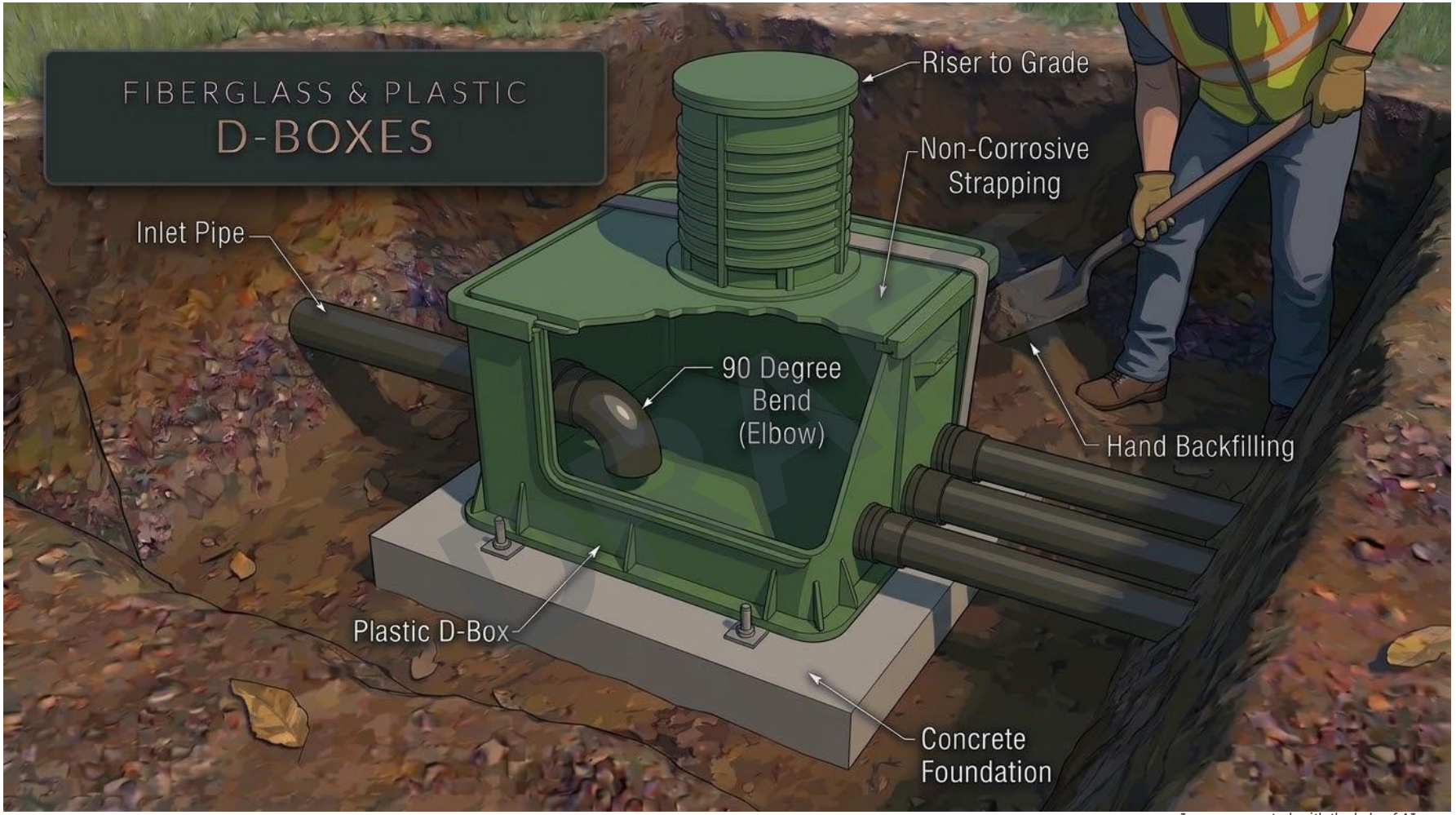


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Septic Tanks in Series



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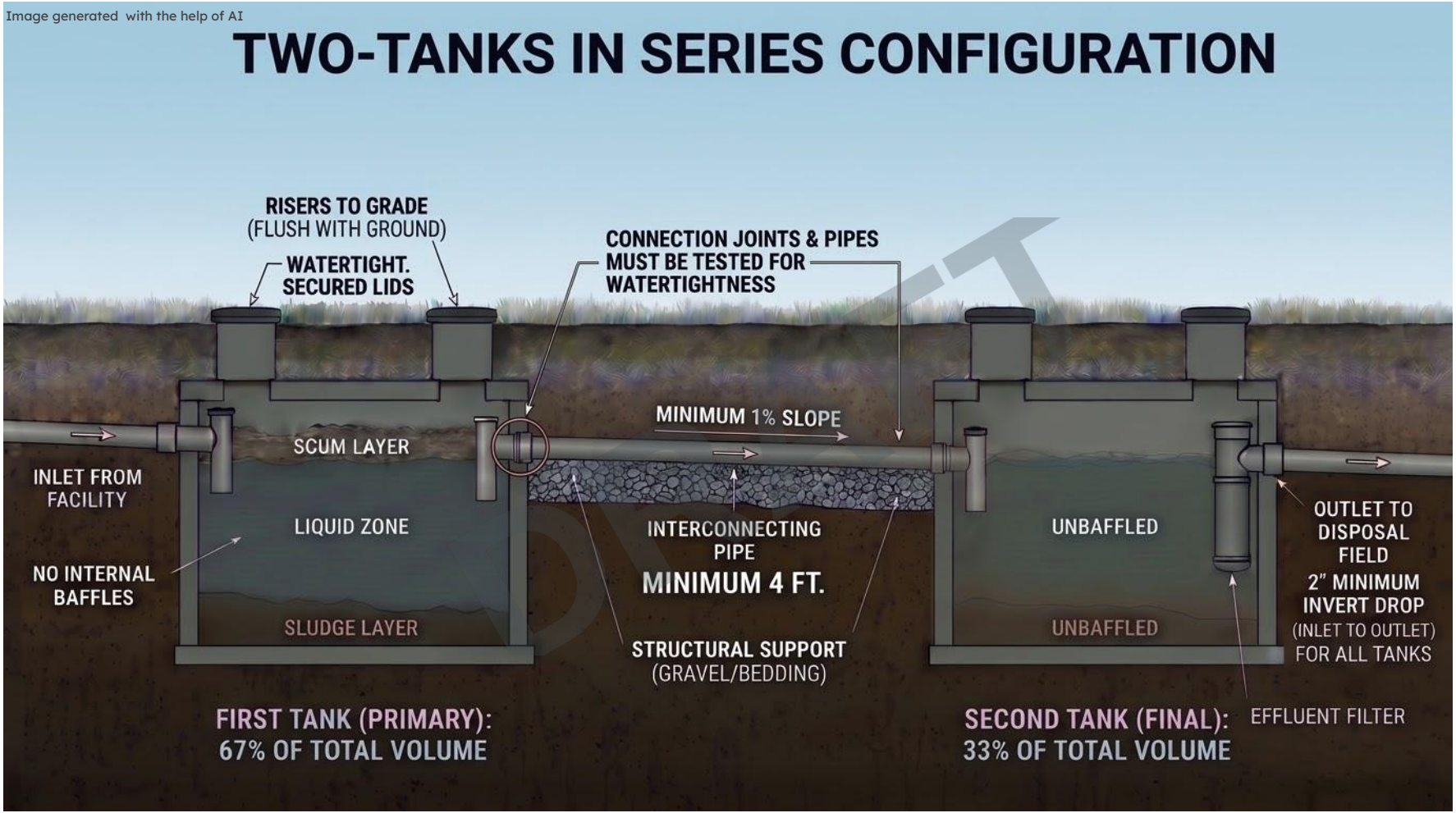


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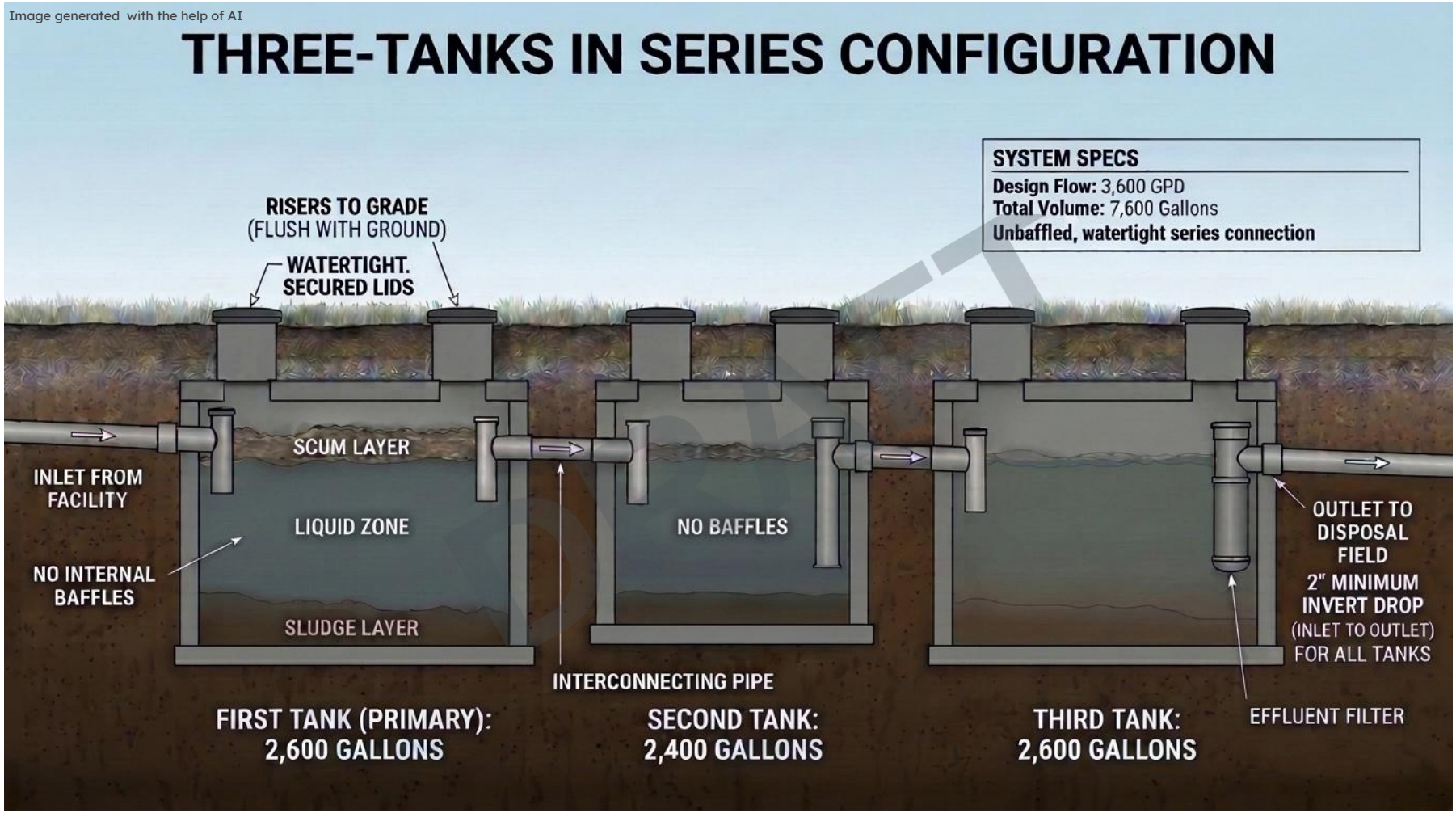
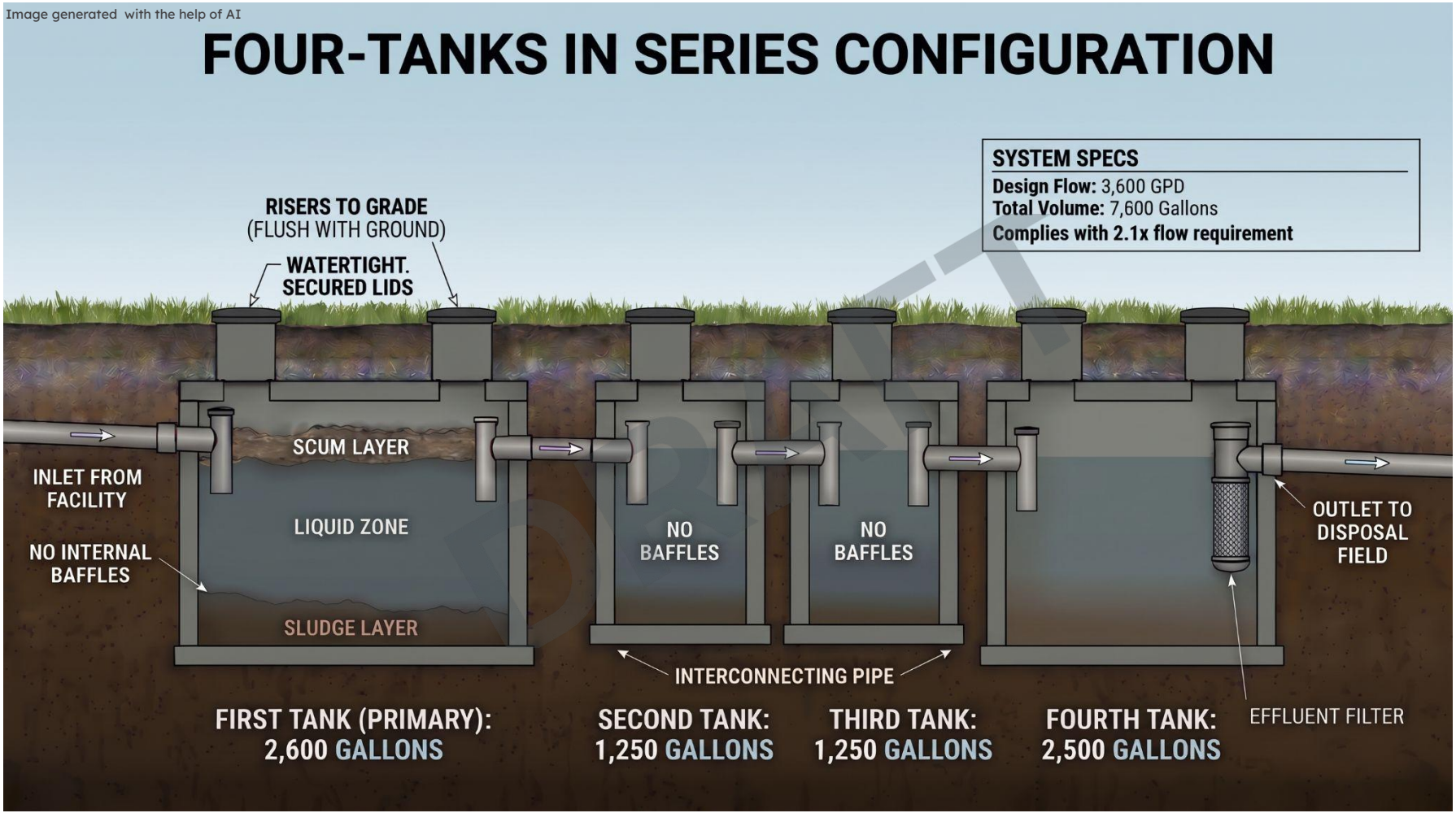


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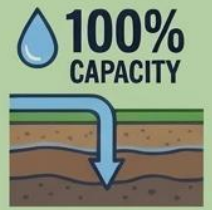
Reserve Areas



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PROPOSED RESERVE AREA REQUIREMENTS

1 100% DAILY DESIGN FLOW



Must account for 100% of the primary system's daily design flow without any adjustment to the soil absorption rate.

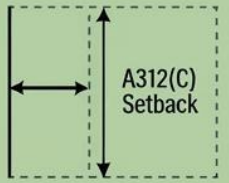
2 NO DEVELOPMENT OR PAVING

Cannot be used for garages, tennis courts, paving, parking, or driveways.



3 MUST MEET SETBACKS

The reserve area must meet setbacks as required by A312(C).



4 NO IMMEDIATE CONSTRUCTION



Build Later OK

Does not have to be constructed when obtaining a permit for the primary dispersal area. Design and plans do not have to be supplied if not being constructed at the time of primary construction.

5 CONTIGUOUS, USABLE SHAPE



Must be a single, contiguous, usable shape. Piecing together several smaller pieces of land to add up to 100% is prohibited.

6 AGENCY APPROVAL REQUIRED

The use of a reserve area requires approval from the agency.



7 EXEMPTION: ALTERNATING FIELD

A reserve area is not required if the design is an alternating field.



Alternating Field
(Reserve Exempt)

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Alternating Dispersal Fields



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Proposed Alternating Dispersal Field Requirements

1 NEW vs. EXISTING SITES

NEW CONSTRUCTION



Both fields must be constructed at the same time for new construction.

EXISTING SITES

Alternating field requirements for existing sites:

- Submit a Notice of Intent (NOI) and necessary documents
- ADEQ will reissue the permit for the facility and include the alternating dispersal field activity

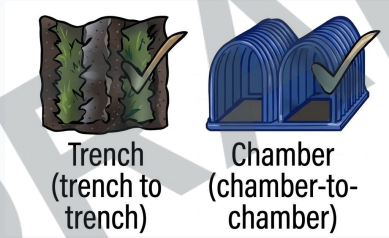
2 SYSTEM & TECHNOLOGY

SINGLE USE

Only one field can be used at a time.

SAME TECHNOLOGY

Alternating fields must be the same dispersal technology (e.g., both trench or both chamber).



DESIGN FLOW

Alternating fields cannot be used to accommodate a higher design flow.

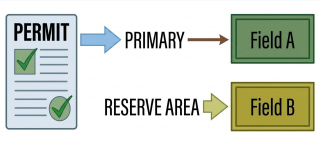
SEEPAGE PITS

Alternating fields can be used for seepage pits.

3 PERMITTING & COMPLIANCE

RESERVE REQUIREMENT

Permit is issued for construction of both fields—one must act as a reserve area.



100% SIZING & DESIGNATION

Both primary and reserve areas must meet minimum size based on 100% of design flow and SAR.

RULES & PERMITS

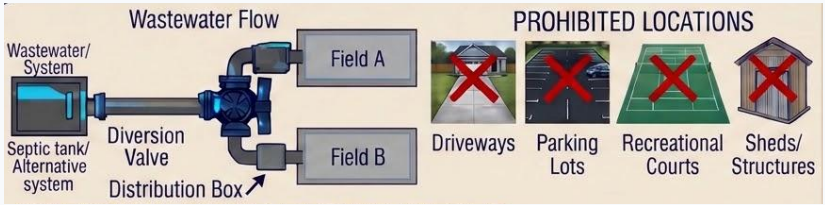
- Permit explicitly states that fields are alternating.
- Alternating between fields does not require notification to State.
- A repair permit CANNOT be used to design, construct, permit, or use alternating fields.

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Proposed Alternating Dispersal Field Requirements

4 Diversion Valve and Infrastructure



Diversion Valve Requirements

- Diversion valve should be placed at the junction of the main effluent line with the two laterals going to the distribution boxes.
- The diversion valve has to be easily accessible from the ground surface for routine switching.
- The diversion valve should be a three-port, two-way valve of approved materials.

5 Operation and Maintenance (O&M)

Resting Time Period

Minimum resting time for a field is 12 months.

Field Switching Protocol

Alternating between fields does not require notification to the state once approved.

Regulatory Rules

O&M requirements added in rule.

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Flow Equalization Tanks

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Flow Equalization System

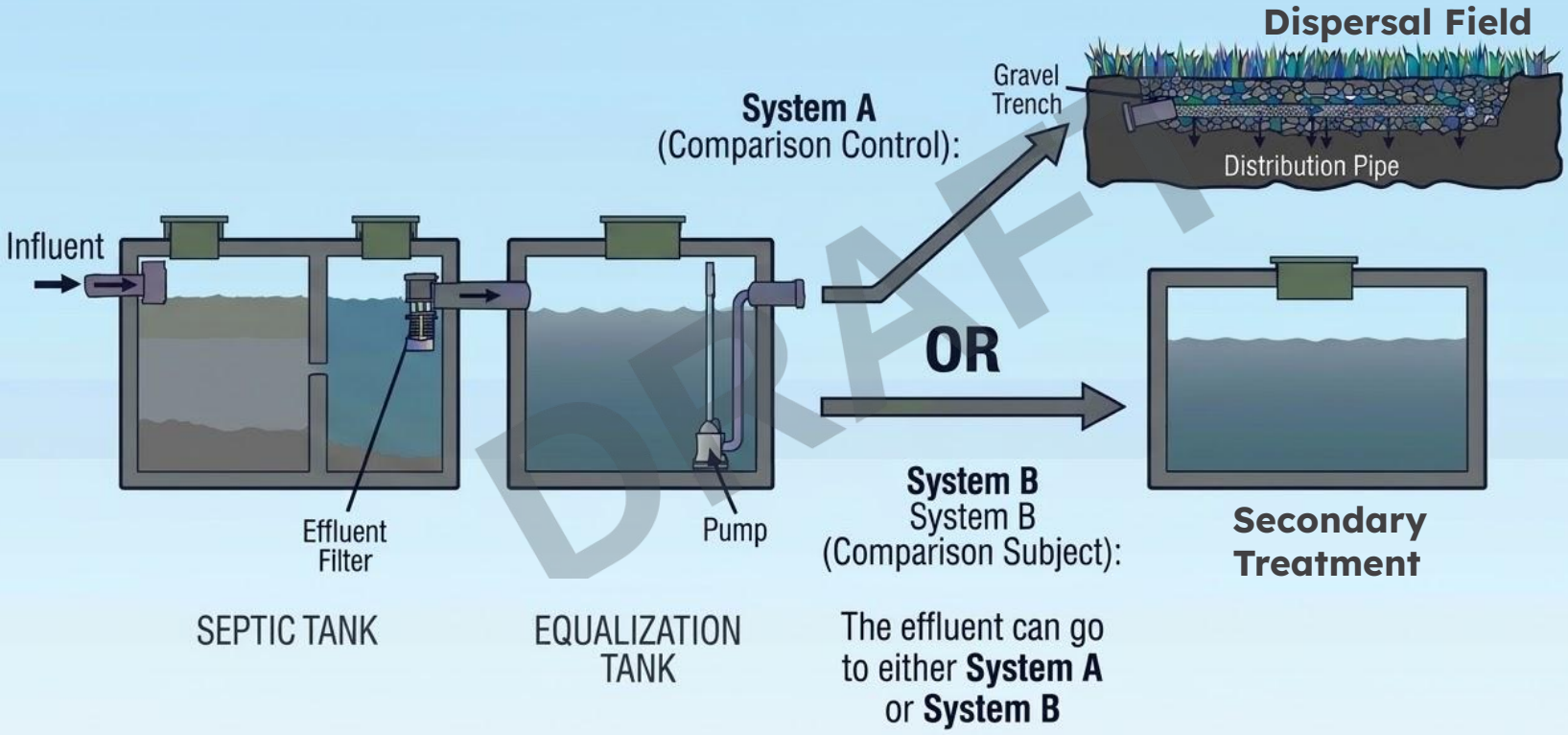


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PART 1 OF 2

FLOW EQUALIZATION TANK SIZING: SIZING METHODOLOGY

To establish the proper capacity for a flow equalization tank, the design must follow a seven-step methodology:

STEP 1 - Identify Periodicity

Identify periodicity by determining the time period over which flow variability is most pronounced, such as a representative peak operating week.

STEP 2 - Estimate Inflow Volumes

Estimate inflow volumes by calculating daily wastewater inflow volumes using the applicable unit design flows in Table 1.

STEP 3 - Calculate Average Flow

Calculate average flow by calculating the sum of the daily inflow volumes for the analysis period and divide by the number of days to determine the average daily flow, which will serve as the average daily flow.

STEP 4 - Analyze Peak Flow

Analyze peak flow by identifying the highest single-day wastewater flow and compare it to the average daily flow to determine the peak-to-average ratio.

1 of 2

Continued on Part 2

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Church Example



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Step	Parameter / Day	Calculation	Result
1: Identify Periodicity	Analysis Period	N/A	7-day operating week (Sun-Sat)
	Peak Variable	N/A	Sunday (high patron + staff presence)
2: Estimate Inflow Volumes	Sunday	(15 staff × 20) + (150 patrons × 7)	**1,350 GPD**
(Office: 20 GPD/staff) (Church w/ Kitchen: 7 GPD/patron)	Monday	Closed	**0 GPD**
	Tuesday	10 staff × 20	**200 GPD**
	Wednesday	75 patrons × 7	**525 GPD**
	Thursday	10 staff × 20	**200 GPD**
	Friday	10 staff × 20	**200 GPD**
	Saturday	10 staff × 20	**200 GPD**
3: Calculate Average Flow	Total Weekly Flow	Sum of daily volumes (Sun - Sat)	**2,675 gal**
	Average Daily Flow	2,675 gal ÷ 7 days	**382.14 GPD**
4: Analyze Peak Flow	Highest Single-Day Flow	Identified from Step 2 (Sunday)	**1,350 GPD**
	Peak-to-Average Ratio	1,350 ÷ 382.14	**3.53**

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PART 2 OF 2

FLOW EQUALIZATION TANK SIZING: SIZING METHODOLOGY

Sizing methodology continued (Steps 5 through 7):

STEP 5 - Determine the Timed Dose

Determine the timed dose by using the calculated average daily flow as the controlled timed dose volume for each day.

STEP 6 - Calculate Daily Surge Volume

Calculate the daily surge volume by adding the previous day's surge to the current day's inflow, then subtracting the timed dose volume.

STEP 7 - Calculate Final Tank Volume

Calculate the final tank volume by combining the following:

- **Surge & Equalization:** The difference between the maximum surge volume and the minimum surge volume.
- **Safety Factor:** A minimum 20% safety factor applied to the surge storage and equalization volume to account for operational uncertainty and flow fluctuations.
- **Emergency Storage:** A 24-hour emergency storage to account for the maximum anticipated daily volume, placed the high operating level to accommodate a 24-hour outage.
- **Pump Submergence:** The pump submergence volume required to maintain adequate pump depth.

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2 of 2

Day	Inflow (gal)	Timed Dose (gal)	Net Daily Surge (gal)	Cumulative Tank Surge Level (gal)
Sunday	1,350.00	**-382.14**	+967.86	**967.86 (Maximum)**
Monday	0.00	**-382.14**	-382.14	585.72
Tuesday	200.00	**-382.14**	-182.14	403.58
Wednesday	525.00	**-382.14**	+142.86	546.44
Thursday	200.00	**-382.14**	-182.14	364.30
Friday	200.00	**-382.14**	-182.14	182.16
Saturday	200.00	**-382.14**	-182.14	**0.02 (Minimum ~ 0)**

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STEP 7: FINAL FLOW EQUALIZATION TANK VOLUME

Church Facility Example

Surge & Equalization Max 968 gal - Min 0 gal	**967.86 gal**
Average Timed Dose Calculated daily average	**382.14 gal**
Safety Factor 20% of surge volume	**270 gal**
Emergency Storage 24-hour peak reserve (Sunday)	**1,350 gal**
Pump Submergence Estimated depth requirement	**200 gal**

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TOTAL REQUIRED

3,170

Gallons (Tank Capacity)

Sum of all 5 volume components

Next Steps

Today (Fall 2026)



Round 1: Contractor Recommendations & Stakeholder Feedback

Present Recommendations; Collect Feedback

Winter 2027



Round 2: Contractor Recommendations & Stakeholder Feedback

Present Recommendations; Incorporate Final Feedback

Fall 2027



Formal Rulemaking Public Participation

Notice of Proposed Rulemaking; Formal Comment Period; Rule Adoption Process

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Q & A

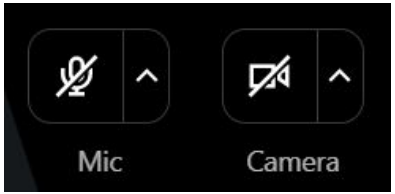
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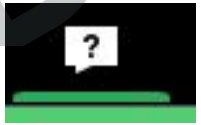
Online Tools

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Raise hands 

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Use the Question tool 
(top, right)

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Kyle Uptergrove, Unit Manager
On-site General Permits

Onsitewastewater@azdeq.gov

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