**Municipality of Anchorage**
Development Services Department
On-Site Water & Wastewater Section

# ***C***ertificate of
# ***O***n-Site
# ***S***ystems
# ***A***pproval

# Guidelines

Revised April 2025

# Introduction

The goal of the COSA process is to identify any potential health or safety risks to the public and/or the environment. It is also an opportunity to give the potential buyer an assessment of the condition of the well and/or septic system.

As of August 18, 1998, a Certificate of On-Site Systems Approval (COSA) is required for all title transfers (except between spouses or to a family trust) within the Municipality of Anchorage (MOA) involving properties served by an on-site water supply system and/or on-site wastewater disposal system as regulated by 15.55 and 15.65. Single-family dwellings may include an ADU as defined by Anchorage Municipal Code (AMC) Title 21.

During the COSA process, a registered professional engineer certifies that any on-site potable water supply system and/or on-site wastewater disposal system meet the code requirements in place at the time of construction and are adequate for the dwelling they serve. The On-site Water & Wastewater Section (On-site) staff review the engineer's COSA submittal and issues the COSA once they agree the system is in general conformance with AMC Chapters 15.55 and 15.65.

On-site systems documentation can be viewed at www.muni.org/onsite. Select the HISTORICAL RECORDS from the On-Site home page. On-Site staff members are available to assist in interpreting records.

# Field Inspection

Regardless of inspection reports on file or previous inspections by other engineers, the department requires that the field inspection include verification of all separation distances. Frequently errors in original measurements are discovered during field inspections, thus it is an important part of the process. In addition, the installation of a new well or septic system on the subject lot or on an adjacent lot will require alteration of existing file information.

At a minimum, the following items should be addressed:

## A. Well

1. For wells drilled prior to January 1997, the well casing is required to extend at least 12" above ground level. Casings of wells drilled after January 1997 are required to extend a minimum of 18" above grade. There may be no depression around the casing. The ground is required to slope away from the casing to provide positive drainage (15.55.060C).
2. The well must be capped with an approved sanitary seal in good condition. A proper sanitary seal requires a rubber gasket for a secure fit. Pre-molded well covers that do not contain a gasket are not considered a proper seal, but may be used over the sanitary seal to accommodate electrical wires (15.55.060D).
3. The point of entry of the electrical wires into the well casing should be sealed and protected per the National Electrical Code.
4. Hand dug wells will not be approved, regardless of their construction.
5. Since adoption of the 1996 water well code, construction of pit wells has been prohibited. Since adoption of the 2025 water well code, at time of COSA, all existing well pits are to be backfilled and the well retrofitted to meet current code. (15.55.060A).
6. The oldest record the MOA has that regulates well depth is the 1977 AMC 15.55. This required a minimum well depth of 40'. Prior to this date, wells were only required to be a minimum of 30' deep per the ADEC. If a well log is not available and nitrates are greater than 5.0 mg/L, for a well drilled prior to January 2006, a minimum unperforated casing depth of 40 feet or that the well casing is seated into bedrock shall be verified. Should the casing terminate into bedrock at a depth less than 40 feet from ground level, report the total casing depth.
7. It is recommended that the well produce 150 gallons per bedroom per day. The well yield test should accurately determine the well's sustained productivity from test data including but not limited to, static water level,

pumping water level, drawdown rate, recovery rate or any other information useful in determining the sustained producing rate (15.55.060F.1). The department will issue an advisory for wells producing less than 1 gallon per minute.

8. Water samples for arsenic, coliform bacteria and nitrates are required. The samples should be collected and delivered to a state-certified laboratory in accordance with requirements established by the laboratory. The department will not accept tests that are over 365 days old, nor test results from samples taken by someone other than the engineer or his employee or certified well driller or pump installer.
    a. Coliform bacteria results must be “Negative”. At times the initial water samples will test positive for bacteria. When this happens, well shall be disinfected and flushed in accordance with AWWA standards or ADEC recommendations.
    b. Arsenic results greater than 10 micrograms per liter (ug/L) and nitrate results between 5 and 10 milligrams per liter (mg/L) will be so noted on the final approval form and will receive an advisory letter with the COSA. The COSA shall not be denied if an arsenic concentration of greater than 10 ug/L is reported.
    c. If sampling results show that the nitrate concentration in the well water is greater than 10.0 mg/L, the engineer is required to complete at a minimum the steps outlined in (15.55.055 I):
9. If there is a shared well between multiple properties than the owner must record an ingress/egress easement for the maintenance of the well.
10. If the water well is located in an easement or ROW, then Letters of Non Objection must be obtained from the utilities or an encroachment permit from the agency who owns the ROW.

## B. Septic Tanks and Holding Tanks

1. Septic and holding tanks are defined as “Watertight Receptacles”. A malfunction of tanks is defined as “collapse or structural deterioration of a tank, lift station or pump vault degraded to a point that it is no longer “water tight” (15.65.010). If during the process of engineering investigation observations are made indicating the tank integrity is compromised, the tank shall be replaced.
2. An advisory will be issued on Sunset fiberglass tanks over 20 years old. Please refer to Policy W.05 for the Standard of Care for asphalt coated steel septic tanks.
3. A depression is not allowed above any septic or holding tank.
4. A 4-inch diameter cleanout with an air tight cap is required on each tank compartment. Septic tanks installed after 1980 require two cleanouts. After

May 1, 2019, septic tanks will require an access manway riser (minimum 20" diameter) on the first compartment and a 4-inch diameter or larger cleanout on the second compartment (15.65.205F). Holding tanks installed after September 18, 1990 require a 6-inch diameter cleanout (15.65.215G).

5. Septic systems installed after May 20, 1986 require a cleanout 1 to 4 feet downstream of the tank. After September 18, 1990, two opposing cleanouts are required within 10 feet of the tank outlet (15.65.205F).
6. Every system is required to have a foundation cleanout. Until the late 1970's, this cleanout could be located either immediately inside or outside the foundation. After June of 1986 the department required a separate outside cleanout be accessible for possible line snaking (15.65.205F). In determining whether a cleanout is required, refer to the inspection report, which will show the original construction.
7. Holding tanks shall be equipped with a functional high-water alarm, audible and visual within the dwelling. The float mechanism shall be set at a level that allows an additional 150 gallons per bedroom, but not less than 300 gallons, after the alarm has been activated (15.65.215I).
8. The engineer should be satisfied that the holding tank is being pumped on a routine basis and that overflows have not occurred (15.65.215J).
9. A septic tank is required to have been pumped within the past 12 months (15.65.060B.3 and 15.65.235B).
10. A septic tank or holding tank shall not be located under a driveway or parking area unless the engineer provides a design, including calculations, demonstrating its structural and thermal integrity (15.65.205B.3 and 15.65.215D.3).

## C. Lift Stations (15.65.235B)

1. A qualified maintenance provider is required to perform maintenance on a lift station. Provide a LIFT STATION/PUMP VAULT MAINTENANCE LOG to the On-Site section demonstrating that maintenance has been completed within the last twelve months. As a minimum, the following shall be addressed:
   a. Remove and clean the pump basket and effluent filter.
   b. Clean float controls and other components to ensure system performance.
   c. Ensure float controls are in compliance with Manufacturer's/MOA settings.
   d. Ensure alarm system is functional, audible and visual inside the residence.
   e. Inspect the manhole riser to tank connection and manhole riser penetrations for groundwater intrusion.
   f. Ensure the manhole lid is functional, insulated, and properly secured.
   g. Ensure the outlet (pressure) piping weep hole if required is functional so as to protect the piping from freezing.

h. Check that there are two separate circuits for the alarm and the pumps.

## D. Advanced Wastewater Treatment Systems (AWWTS)

1. A qualified maintenance provider is required to perform maintenance on an AWWTS. Documentation shall be submitted to On-Site. As a minimum, the following shall be addressed:
   a. Evaluation of sludge build-up or system pumped.
   b. An AWWTS Maintenance Agreement between the system owner and the MOA is required to be submitted to On-site (15.65.365B).
   c. The property owner shall enter into a service agreement with an AWWTS service provider approved by the manufacturer / manufacturer's representative (15.65.365C).
   d. If the AWWTS is an Intermittent Dosing Sand Filter (IDSF), please complete the MOA provided IDSF Maintenance Log located at the On-site webpage.

## E. Drainfields

The following information is required:

1. On the day of the absorption drainfield adequacy test, verify if the house is occupied or vacant. Occupied is defined for a COSA as at least one person continuously residing and sleeping in the house. Section 15.65.060B.5 requires the drainfield be presoaked if not occupied within previous 30 days. Department may require verification. The system is required to be tested within 48 hours of the presoak.
2. Verify if the field has adequate soil cover (15.65.210E.8).
3. Verify that all cleanouts and monitoring tubes are present and in working order per Inspection Reports on file and as required by code in effect at time of construction (15.65.060B.4):
   a. Trenches – Prior to 1986, one cleanout per trench, located at the farthest extremity from the tank. A six-inch cleanout (sump) is acceptable if installed during the mid 70's and shown on the inspection report. If a six-inch sump pipe is solid (not perforated) then a monitoring tube shall be installed. After May 20, 1986 there must be a cleanout at each end of each trench segment, and a monitoring tube in each segment. After January 23, 2018 additional monitor tubes shall be located at any angle points of a disposal field and pressurized trenches that do not have cleanouts shall have a monitor tube within one foot of each end of individual trench segments (15.65.210E).
   b. Bed Systems – Prior to 1982, one cleanout per bed at the farthest extremity from the tank. From 1982 until May 20, 1986 at least one cleanout and one monitoring tube shall be present. After May 1986, there

must be a cleanout at each end of the bed, and a monitoring tube in the bed. After January 23, 2018 there must be a cleanout at both ends of each perforated pipe segment. In addition, pressurized beds that do not have cleanouts shall have a monitoring tube within one foot of each corner of the bed (15.65.210E). If in doubt about the number or placement of risers in a drainfield, the system must still have in place all tubes shown on the original inspection report.

4. Verify that no portion of the field is under a driveway, parking area or structures or provide engineer's evaluation demonstrating that the septic system will function in compliance with code requirements for freeze protection, structural stability and access to cleanout/inspection pipes (15.65.210B). Prior to 1986, the field could be located under a driveway.
5. Verify there is no depression over the drainfield (15.65.210E.9).
6. If multiple fields are connected via a splitter valve, verify that all fields are receiving effluent.
7. Verify if the monitoring tube is set to the proper elevation to allow for accurate determination of the fluid depth. If the elevation is not at the designed depth, the engineer shall note actual depth (15.65.060B.4).
8. A measured quantity of water consisting of 150 gallons per bedroom shall be introduced in to the disposal field while monitoring fluid levels in the tank and disposal field monitor tubes before, during, and after the addition of water. If the monitoring tube does not extend to the bottom of sewer rock, the quantity of water shall be sufficient to cause the fluid depth in the monitor tubes to increase enough to allow accurate measurement of the subsequent re-absorption. At no time during the test can the system be surcharged with fluid above the crown of the distribution pipe (15.65.060B). An advisory will be issued on drainfields when standing water level exceeds 90 percent of effective depth.
9. All failed adequacy tests shall be reported to On-site (15.65.060B).
10. All drainfield rejuvenation treatments, including, but not limited to peroxide, Septiclear chemical treatment and Terralift, shall be reported to On-site. An adequacy test may be run a minimum of 30 days after the procedure.
11. Cesspools will not be approved for installation or operation under any circumstances (15.65.035C).
11. If there is a shared septic system between multiple properties then the owner must record an ingress/egress easement for the maintenance of the septic system.
12. If the septic system is located in an easement or ROW, then Letters of Non Objection must be obtained from the utilities or an encroachment permit from the agency who owns the ROW.

### F. Separation Distances and Waivers

1. Verify that all separation distances shown on the inspection report and any previous COSA's or HAA's are accurate. A number of errors have been found in measurements recorded on original inspection reports as well as in subsequent engineers' inspections.
2. Prior to 1973 a separation distance of 50 feet was required between a septic tank and a well. Existing, structurally sound tanks may remain in place. Since October 1973, code has required 100 feet between either a septic tank or a drainfield and a private well. A separation of less than 100 feet requires a waiver. However, tanks located less than 100 feet from a well may be replaced in place, with justification, without the requirement for a new waiver. As of January 23, 2018, AWWTS's are allowed a reduced 50-foot separation (15.65.355H and 15.65.355I).
3. Prior to 1973 there was no separation required by state statute between surface waters and absorption areas. Municipal code required a 25-foot separation. After October 1973, state statute required a 100-foot separation from either a septic tank or a drainfield to surface water. As of January 23, 2018, AWWTS's are allowed a reduced 50-foot separation (15.65.355H and 15.65.355I).

## Problem Resolution

Inevitably, there will be problems found in the inspection that are difficult to overcome. In these instances, the engineer should consult with On-Site staff as soon as the problem is recognized. Staff will assist you in reaching a satisfactory resolution of the problem. A few commonly encountered problems are discussed below.

### A. Undocumented Systems

Several systems within the municipality have been installed without the benefit of a permit and/or inspection. At a later date an owner of an undocumented system will seek an approval from the department, usually at the time of sale. Since conditions vary from case to case, please consult with On-site on minimum requirements, which may include the following:

1. Notify On-site of undocumented system prior to beginning investigative work. On-site may require the opportunity to be present during various stages of the investigative process.
2. Perform a soils test near the existing system and determine the percolation rate of the accepting strata and depths to groundwater and bedrock.

3. Determine the total depth of the system. The total depth of the system may not be within four feet of the groundwater table, or within six feet of bedrock.
4. Determine the type, materials used and dimensions of the existing system. The size of the constructed system must meet the required design size based on the percolation test.
5. Perform an adequacy test on the system.
6. Provide the department with an as-built drawing of the system and its relationship to adjacent wells, wastewater systems, surface water, etc.
7. Pay applicable permit fees.
8. Non-compliant systems may require complete replacement.

**B. Inadequate Wastewater Disposal System**

On-site wastewater disposal systems may be found to be inadequate through visual inspection, testing, or water monitoring. In these cases, the solution may be an upgrade of the system prior to the issuance of a final COSA. Upgrading an inadequate system must be accomplished in accordance with AMC 15.65.

# _____ Approvals_____

On-site may issue either a full approval or a conditional approval, or may even disapprove the COSA application. Conditional approvals are granted only under special circumstances, such as winter conditions prohibiting excavation, and after the conditional COSA fee has been paid. In these cases, the following criteria apply (15.65.060E.2):

1. There is no eminent health hazard created or prolonged by granting the conditional approval.
2. There is no obvious code violation, such as overflowing sewage or an unsealed well.
3. The engineer certifies that there will be no adverse effect as a result of granting the conditional approval.
4. There is a date set for compliance, and funds (1.5 times the highest of three bids) are escrowed for completion of the work. If estimate is less than $2,000, funds are not required to be escrowed.
5. The institution holding the escrow money submits a letter to On-Site stating, “The money shall be held in escrow until such time as a final unconditional Certificate of On-Site Systems Approval is issued by the On-Site Water & Wastewater Section.”

When the engineer notifies On-site that all requirements of the conditional approval have been met, the department will issue a full unconditional approval.

## _____ Expired COSAs_____

A COSA may be reissued if the following requirements are met:

- Adequacy test is less than two years old. Engineer should check fluid level in field and note on report if test is over one year old.
- Well yield test is less than two years old.
- Septic tank has been pumped within the past year.
- Lift station/pump vault maintenance has been completed within the past two years.
- AWWTS maintenance is current.
- Arsenic, nitrate and bacteria water sample are less than one year old.

A COSA may be reissued to the same owner at no charge, provided the above requirements are met.

A new COSA may be issued to a new seller at a renewal fee, provided the above requirements are met.

# _____For Additional Information Contact_____


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