

County of Routt
COLORADO
136 6th Street, 2nd Floor, Steamboat Springs, CO 80487
Phone: (970) 870-5588



* Mark for
Housing

PERMIT FOR ON-SITE WASTEWATER SYSTEM - NEW

Permit No. S-18-101

213
614

OAK CREEK

tem - New

Owner Name: DWAYNE M OSADCHUK TRUST

Owner Address: 23850 TOBIANO TRAIL

OAK CREEK CO 80467

Capacity is 8 (600gpd). 2,000 gallon two compartment concrete septic tank

As authorized and required by 25-10-101, et seq. C.R.S., permission is hereby granted to the owner or a Routt County On-Site Wastewater Treatment System (OWTS) installer to construct or repair an OWTS system at the property indicated above. All work must comply with the specifications on this permit and the Routt County On-Site Wastewater Treatment System Regulations. This permit expires one year from the date of issue.

Applicant: Osadchuk, Nicholas

Phone# (970) 846-5592

Address: 23850 Tobiano Trail

City/State/Zip: Oak Creek CO 80467

NOTICE: All tanks and vaults must meet Design Criteria as specified in Section 43.9 of the Colorado Department of Public Health and Environment Water Quality Control Commission On-Site Wastewater Treatment system Regulation #43 (5 CCR 1002-43). Inspections required (24 hours advanced notice required). Call (970) 870-5588

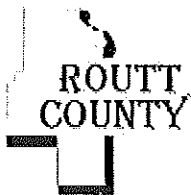
Date

1/11/2018

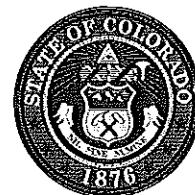
The above individual on-site wastewater system has received a final inspection. The system is hereby approved for use.

Environmental Health Specialist

Date



County of Routt
COLORADO



Environmental Health Department

136 6th Street, 2nd Floor, Steamboat Springs, CO 80487
Phone: (970) 870-5588

Permit No. **S-18-101**

Parcel ID: **946312001**

RECEIPT FOR ON-SITE WASTEWATER SYSTEM

Date: 12/5/2017 Permit For: On-Site Wastewater System - New

Applicant: Osadchuk, nicholas

Address: 23850 Tobiano Trail Oak Creek CO 80467

Phone: (970) 846-5592 Email:

Work Location: 23850 TOBIANO TRL, OAK CREEK

Total amount paid: **300.00**

Payment method: **Check**

combs

APPLICATION FOR ON-SITE WASTEWATER SYSTEM PERMIT

NEW X

REMODEL _____

REPAIR _____

EMERGENCY USE _____

Name of Owner Dwayne Osadchuk

Mailing Address 23850 Tobiano TRL Phone 602-617-1115

Name of Applicant Nicholas Osadchuk

Mailing Address 23850 Tobiano TRL Phone 970-846-5592

LOCATION OF PROPOSED SYSTEM: Street Address 23850 Tobiano TRL, Oak Creek, CO 80467

Legal Description TRS IN N2NE4, S2NE4 SEC 36-5-86, TRS IN NW4NNW4, S

Parcel ID# 946312001

(Lot# and Subdivision if applicable)

(this # can be found in the Assessor's Office)

Size of Lot 120.41

☐ Residential

☐ Commercial

☒ Other (Describe) Temporary Workforce Housing

Number of: Bedrooms 6

Water Supply:

☒ Private Well

☐ Private Spring

☐ Public (give name of supply) _____

An appropriate plot plan must accompany this application showing required information. Perco be arranged with the Routt County Department of Environmental Health after receipt of the app approval of this application may be obtained at the Routt County Department of Environmental

Application for an individual wastewater system is hereby submitted. The on-site wastewater sys operated in accordance with the regulations governing individual sewage disposal systems within applicable State Regulations adopted pursuant to Article 10 of Title 25, C.R.S. 1973, as amended. above information is true and that false information will invalidate the application or subsequent responsibility in case of failure or inadequacy of this sewage disposal system. (*Hot tubs and Jac sewage disposal systems.)

Signature of Applicant

[Signature]

Date 12-5-17

* Okay to approve
- Crest houses
- Design for 8 occupants -
- 2,000 gal tank
* Still waiting on info to
be received by owner on
separate repair permit.

PLOT PLAN

Name Nicholas Osadchuk

Address 23850 Tobiano TRL, Oak Creek, CO 80467

Location of proposed system:

Street Address 23850 Tobiano TRL, Oak Creek, CO 80467

Legal Address _____

PLOT PLAN MUST INCLUDE THE FOLLOWING INFORMATION:

(LOCATE BY MEASURED DISTANCES)

1. Property lines and dimensions.
2. Proposed and existing water wells on subject property and adjacent property.
3. Domestic water service lines.
4. Proposed and existing building, driveways and other structures.
5. Streams, lakes, ponds, irrigation ditches and other water courses.
6. Proposed and existing waste disposal facilities.

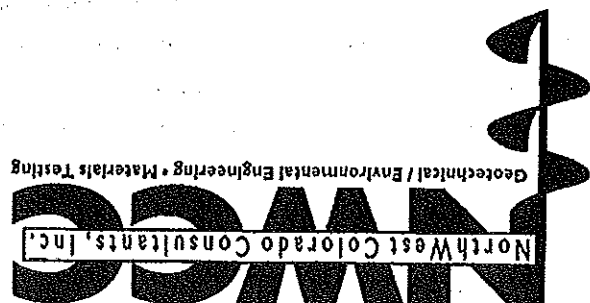
SUBMIT A REVISED PLOT PLAN TO CONSTRUCTION IF INSTALLATION IS TO BE CHANGED FROM ORIGINAL PLAN.

Table 7-1 Minimum Horizontal Distances in Feet Between Components of an On-Site Wastewater Treatment System Installed After November 15, 1973 and Water, Physical and Health Impact Features

	Spring, Well, Suction Line	Potable Water Supply Line	Potable Water Supply Cistern	Dwelling Occupied Building	Property Lines, Piped or Lined Irrigation Ditch	Subsurface Drain, Intermittent Irrigation Lateral, Drywell, Stormwater Infiltration Structure	Lake, Water Course, Irrigation Ditch, Stream, Wetland	Dry Gulch, Cut Bank, Fill Area (from Crest)	Septic Tank
Septic Tank, Higher Level Treatment Unit, Dosing Tank, Vault	50 ²	10 ²	25	5	10	10	50	10	—
Building Sewer or Effluent Lines	50 ²	10 ²	25 ²	0	10 ²	10 ²	50 ²	10 ²	—
STA Trench, STA Bed, Unlined Sand Filter, Sub-surface Dispersal System, Seepage Pit	100 ³	25 ²	25	20	10	25	50 ³	25	5
Lined Sand Filter	60	10 ²	25	15	10	10	25	10	5
Lined Evapo-transpiration Field or Outside of Berm of Lined Wastewater Pond	60	10 ²	25	15	10	10	25	10	5
Unlined Sand Filter in Soil With a Percolation Rate Slower than 60 Minutes per Inch, Unlined or Partially Lined Evapotranspiration System, Outside of Berm of Unlined Wastewater Pond, or System Not Relying on STA for Treatment Other than Aerosol	100	25 ²	25	15	10	25	25	15	10
Vault Privy	50	10 ²	25	15	10	10	25	10	—
Slit Trench Latrine, Pit Privy	100	50 ²	25	N/A	25	25	100	25	N/A
System Not Relying on STA for Treatment and Utilizing Aerosol Methods	100 ³	10 ²	50	125	10	0	25 ³	10	10

NOTE: The minimum distances shown above must be maintained between the OWTs components and the features described. Where soil, geological or other conditions warrant, greater distances may be required by the local board of health or by the Water Quality Control Commission pursuant to section 25-8-206, C.R.S. and applicable regulations. For repair or upgrading of existing OWTs where the size of lot precludes adherence to these distances, a repaired OWTs shall not be closer to setback features than the existing OWTs, as reviewed and approved by the local public health agency. Components that are not watertight should not extend into areas of the root system of nearby trees.

- 1 Includes infiltration galleries permitted as wells by the Division of Water Resources.
- 2 Crossings or encroachments may be permitted at the points as noted above provided that the water or wastewater conveyance pipe is encased for the minimum setback distance on each side of the crossing. A length of pipe shall be used with a minimum Schedule 40 rating of sufficient diameter to easily slide over and completely encase the conveyance. Rigid end caps of at least Schedule 40 rating must be glued or secured in a watertight fashion to the ends of the encasement pipe. A hole of sufficient size to accommodate the pipe shall be drilled in the lowest section of the rigid cap so that the conveyance pipe rests on the bottom of the encasement pipe. The area in which the pipe passes through the end caps shall be sealed with an approved underground sealant compatible with the piping used.
- 3 Add eight feet additional distance for each 100 gallons per day of design flows between 1,000 and 2,000 gallons per day, unless it can be demonstrated by a professional engineer or geologist by a hydrologic analysis or the use of a barrier, consisting of a minimum 30 mil PVC liner or equivalent, that contamination will be minimized. If effluent meets Treatment Level 3N and the local public health agency has a maintenance oversight program in accordance with section 14.D. of this regulation, the distance addition is not required. Flows equal to or greater than 2,000 gallons per day must be hydrologically analyzed for flow, velocity, hydraulic head, and other pertinent characteristics as means of estimating distances required to minimize contamination as part of the Division site application process.



November 30, 2017

Lucky 8 Ranch
23850 Tobiano Trail
Oak Creek, CO 80487

Attn: Nick Osadchuk

Job Number: 17-10928

Subject: On-Site Wastewater Treatment
System Design, Lucky 8 Ranch,
Workforce Housing, 23850 Tobiano
Trail, Routt County, Colorado.

Dear Nick,

This report presents the results of an On-site Wastewater Treatment System (OWTS) design for the Lucky 8 Ranch Workforce Housing to be constructed at 23850 Tobiano Trail in Routt County, Colorado. This design was completed in accordance with Colorado Department of Public Health and Environment-Water Quality Commission On-site Wastewater Treatment System Regulation #43 (Regulation), as adopted by the Routt County Board of Health.

Proposed Construction: It is our understanding, based on our conversations with the client, that three workforce housing trailers will be placed at the site. Each trailer will be constructed with living space for two residents with an anticipated usage of six employees. The OWTS will be designed for a total of 8 residents to accommodate for additional occupants. The soil treatment area (STA) for the OWTS will be placed to the north of the proposed workforce housing units and north of three existing hay/ag storage buildings.

Site Conditions: The property is situated at the east end of Tobiano Trail in Routt County, Colorado. An existing well is located northwest of the existing residence, approximately 800 feet north-northeast of the STA. Potable water will be hauled to the proposed housing units.

The proposed STA is located approximately 185 feet northwest of the proposed housing units. The vegetation in this area consists of grasses, weeds and scattered sagebrush. Deciduous brush is located along a drainage located approximately 50 feet north of the STA. The topography in the area of the proposed STA is variable and generally slopes moderately down to the north-northwest on the order of 5 to 10 percent.

A site plan showing the overall site and approximate locations of the existing features and proposed structures and OWTS is provided in Figure #1. A detailed site plan showing the proposed structure along with the proposed OWTS is shown in Figure #2.

Subsurface Conditions: Two test pits were recently excavated in the area of the proposed STA. The subsurface conditions encountered in the test pits consisted of approximately 24 inches of topsoil and organic materials overlying natural sands to the maximum depth investigated, 7 feet below the existing ground surface (bgs). The natural sands were silty to slightly clayey, fine to coarse grained with gravels, very low to non-plastic, medium dense, slightly moist to moist and brown in color. Groundwater was not encountered in the test pits at the time of excavation and no evidence of a seasonal groundwater table was observed.

Based on soil conditions and percolation testing conducted at adjacent sites, NWCC has estimated that the upper 2 feet of natural topsoil and organic materials will exhibit percolation rates ranging from 15 to 25 minutes per inch (mpi). The natural sands will likely exhibit percolation rates of 10 to 20 mpi. Based on the assumed percolation rates and visual soil classification, NWCC has classified the upper 2 feet of topsoil materials and sands as soil type 2 in accordance with Table 10-1 of the Regulations.

OVS Design: Based on the topography, soils encountered at the site and our understanding of the proposed construction, NWCC recommends the OVS design consist of a trench/chamber soil treatment system constructed in the upper 12 inches of natural topsoil and organic materials.

The OVS design presented below is based on the total anticipated number of occupants (8) for the workforce housing units, as well as the assumed percolation rate and classification for the natural soils. Considering the anticipated construction, NWCC has determined, using Table 6-1 of the Regulations, an effluent design flow of 600 gallons per day (gpd) for the system.

Trench/Chamber System: The OVS will consist of a trench soil treatment area utilizing Standard Infiltrator Chambers. Based on the soil type, design effluent flow, a Long Term Acceptance Rate (LTAR) of 0.60 gpd/ft² (Treatment Level 1) and size adjustment factors of 1.0 for a gravity trench system (Table 10-2) and 0.7 for chambers (Table 10-3), a minimum trench absorption area of 700 square feet is required for this system.

Using information provided by Infiltrator System, Inc., an absorption area of 12ft²/Quick-4 Standard Infiltrator chamber was used in the design. This results in a minimum of fifty-nine (59) Quick-4 Standard Infiltrator chambers. NWCC recommends the system be constructed with sixty (60) Quick-4 Standard Infiltrator chambers. The natural topsoil and organics must be scarified a minimum of 4 inches prior to placement of the Infiltrator chambers. The bases and sides of the chambers must be wrapped with a 1/4-inch galvanized steel or synthetic mesh to help prevent rodent intrusion. A minimum of 18 inches of soil cover must be placed over the chambers in accordance with the manufacturer's recommendations. All finished surfaces should have a minimum of 3 inches of topsoil materials and seeded to prevent erosion. NWCC also recommends that the system be fenced off to livestock. If the system is not activated within 30 days of installation or if extended periods of inactivity occur at the residence, the Infiltrator chambers must be periodically flooded with water, every 30 days, to prevent rodents from nesting and burrowing in the chambers, which could result in another premature failure of the system.

APPENDIX A

SUMMARY OF DESIGN CALCULATIONS

A. Sewage Volume Calculations

1) Number of Occupants: 8 people

2) Design Flow (8 occupants @ 75gpd/occupant) Q = 600 gpd

B. System Sizing

1) Soil Type 2 (Table 10-1)

2) Minimum soil treatment area = $Q/LTAR = 600 \text{ gpd} / 0.60 \text{ gpd/ft}^2 = 1,000 \text{ ft}^2$

3) Infiltrator Area = $1,000 \text{ ft}^2 \times 1.0 \text{ (Gravity Trench-Table 10-2)} \times 0.7 \text{ (Chambers-Table 10-3)} = 700 \text{ ft}^2$.

4) Number of Quick-4 Standard Infiltrator Chambers: $700 \text{ ft}^2 / 12.0 \text{ ft}^2/\text{chamber} = 58.3 \text{ chambers} \Rightarrow$ use 60 Standard Quick-4 chambers.

5) Septic Tank - 2,000-gallon septic tank minimum.

6) Minimum well, spring or cistern setback, per Table 7-2 = 100 feet

7) Minimum water body (Pond, Wetlands, Irrigation Ditch) setback, per Table 7-2 = 50 feet

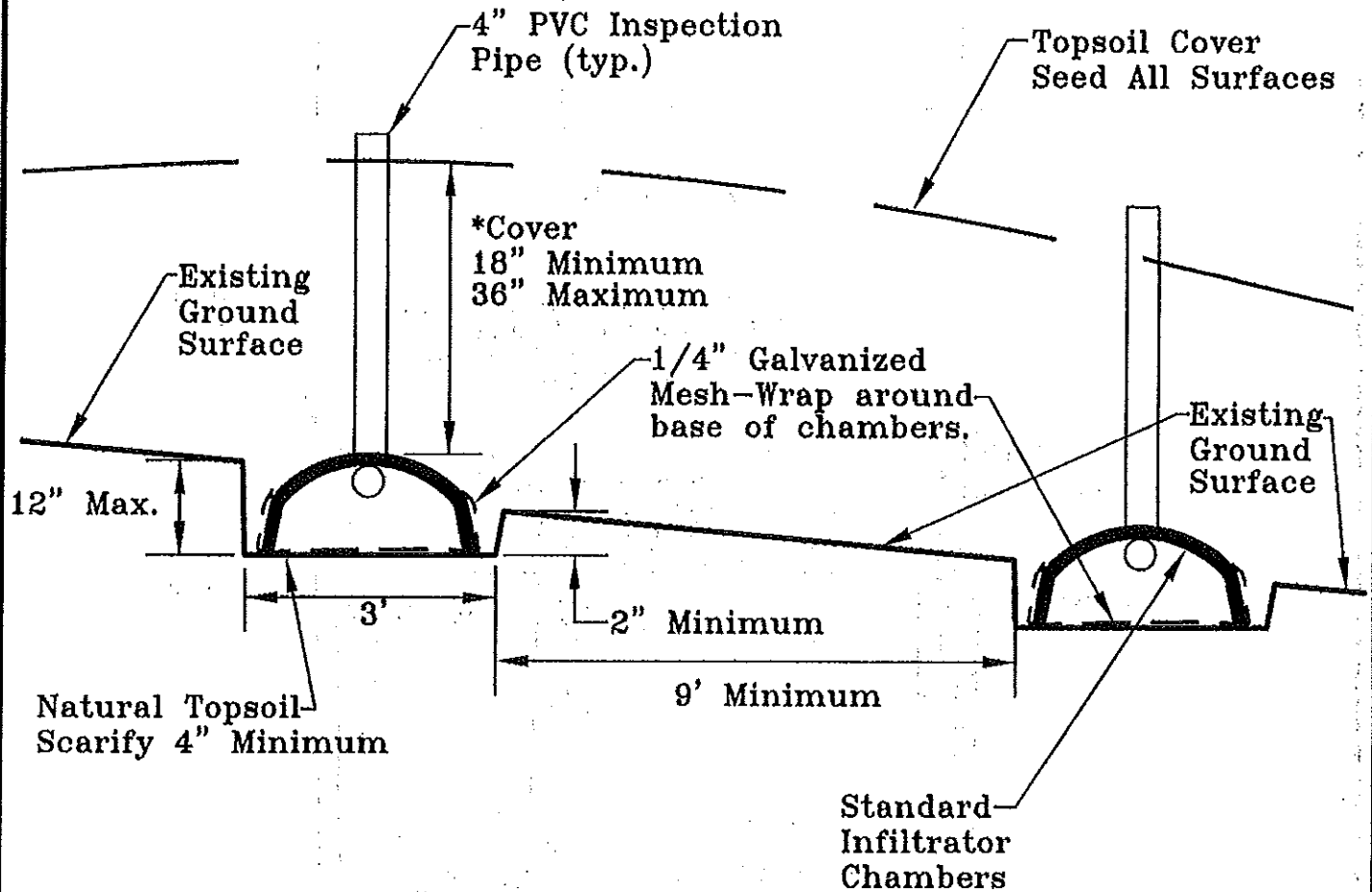
8) Minimum water supply line, dry drainage setback, per Table 7-2 = 25 feet


9) Minimum property line setback, per Table 7-2 = 10 feet

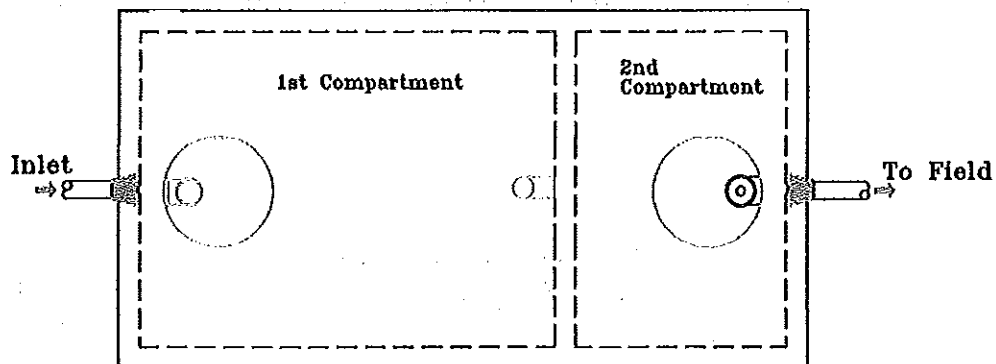
APPENDIX B

- 1) The Rules and Regulations of the CDPHE and Routt County Department of Environmental Health must be complied with during the installation/construction of the system.
- 2) Periodic inspections must be made by NWCC at the following points during construction:
 - a. After subgrade excavation and septic tank and solid PVC pipe installation.
 - b. After placement of chambers, prior to backfilling.
 - c. Upon final completion of the project.
- 3) The 4-inch PVC pipe shall conform to ASTM 3034/SDR 35 or better quality.
- 4) Soils beneath the pipes entering and leaving a septic or dosing tank, which has been excavated, shall be backfilled in 6 inch lifts and mechanically compacted to a minimum of 95% of the maximum standard Proctor density. PVC pipe meeting ASTM 3034-SDR 35 or schedule 40 shall be used for 5 feet on the inlet and outlet sides of the tank.
- 5) Provide a minimum of 12 inches of soil cover over the septic tank, 18 inches of soil over the absorption field and 24 inches of soils cover over all pipes. Any piping placed under a driveway or other plowed areas should have a minimum of 48 inches of soil cover or be protected from freezing using insulation or other approved means. Manhole and distribution box lids must be exposed at final grades. Provide manhole ring or distribution box extensions as needed to reach final grades. Insulated lids are required.
- 6) Special care should be taken when backfilling the system to prevent disturbance/crushing of the distribution lines or chambers. In addition, the distribution lines must be carefully bedded to minimize the settlement in these lines.
- 7) Surface drainage shall be ditched and diverted away from the soil treatment area and all tanks.
- 8) Disturbed surfaces, mounds and berms shall be covered with topsoil and heavily seeded. Heavy farm equipment and livestock should be fenced or kept off of the soil treatment area.
- 9) Inspection pipes to be constructed of PVC pipe with the portion of the pipe penetrating the chambers being perforated. Inspection pipes must be extended to infiltrative surface at bottom of chamber. Cleanouts must be placed in the solid distribution line upstream of the septic tank at maximum intervals of 100' or above any pipe bends 45 degrees or greater.
- 10) It is the responsibility of the owner and the installer to comply with all of the minimum setback requirements in the Regulations.

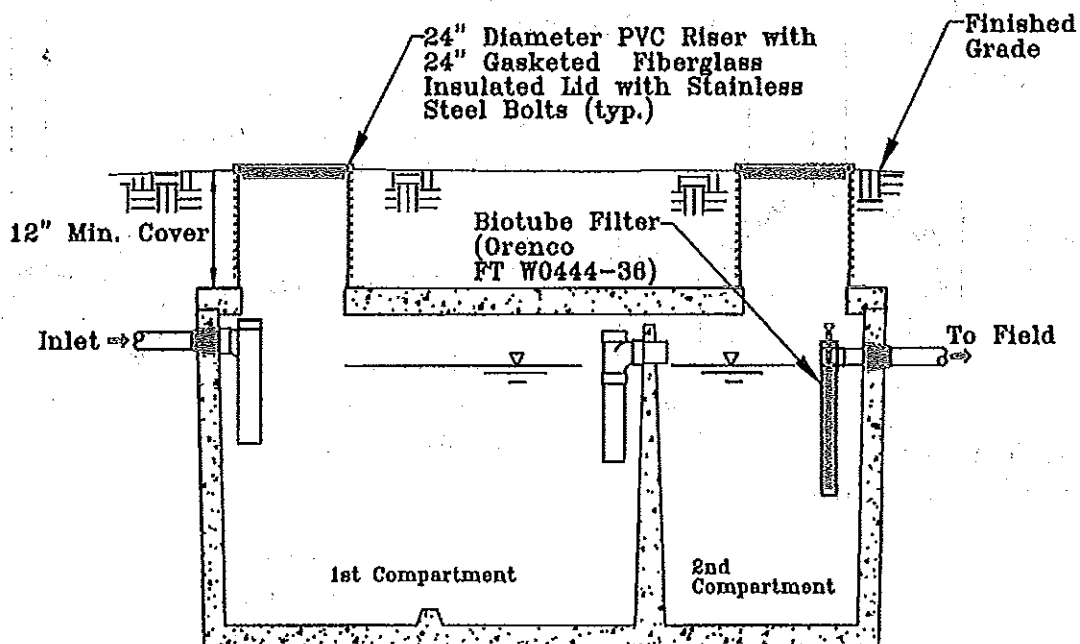
* The chambers should be backfilled in accordance with the manufacturer's recommendations.



Title: INFILTRATOR SYSTEM CROSS SECTION	Date: 11/13/17	 <small>Geotechnical / Environmental Engineering - Water Testing</small> <small>(970) 219-1155 • Fax (970) 219-1151</small> <small>2550 Copper Ridge Drive</small> <small>Steamboat Springs, Colorado 80487</small>
Job Name: Lucky 8 Ranch Workforce Housing	Job No. 17-10028	
Location: 23850 Tobiano Trail, Routt County, CO	Figure #3	




Top View



Section View

* Note: Septic tank shown is a typical 2-compartment septic tank configuration. Installer must submit detail from septic tank manufacturer, for approval by NWCC prior to construction.

Title: O.W.S.-SEPTIC TANK DETAILS	Date: 11/13/17	 NWCC Geological / Environmental Engineering - Earthquake Testing 2553 Copper Ridge Drive Suite 100, Fort Collins, CO 80526
Job Name: Lucky 8 Ranch Workforce Housing	Job No. 17-10928	
Location: 23850 Tobiano Trail, Routt County, CO	Figure #4	



Title:

O.W.T.S. - OVERALL SITE PLAN

Job Name:

Lucky 8 Ranch Workforce Housing

Location:

23850 Tobiano Trail, Routt County, Colorado

Date:

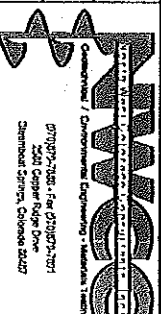
11/13/17

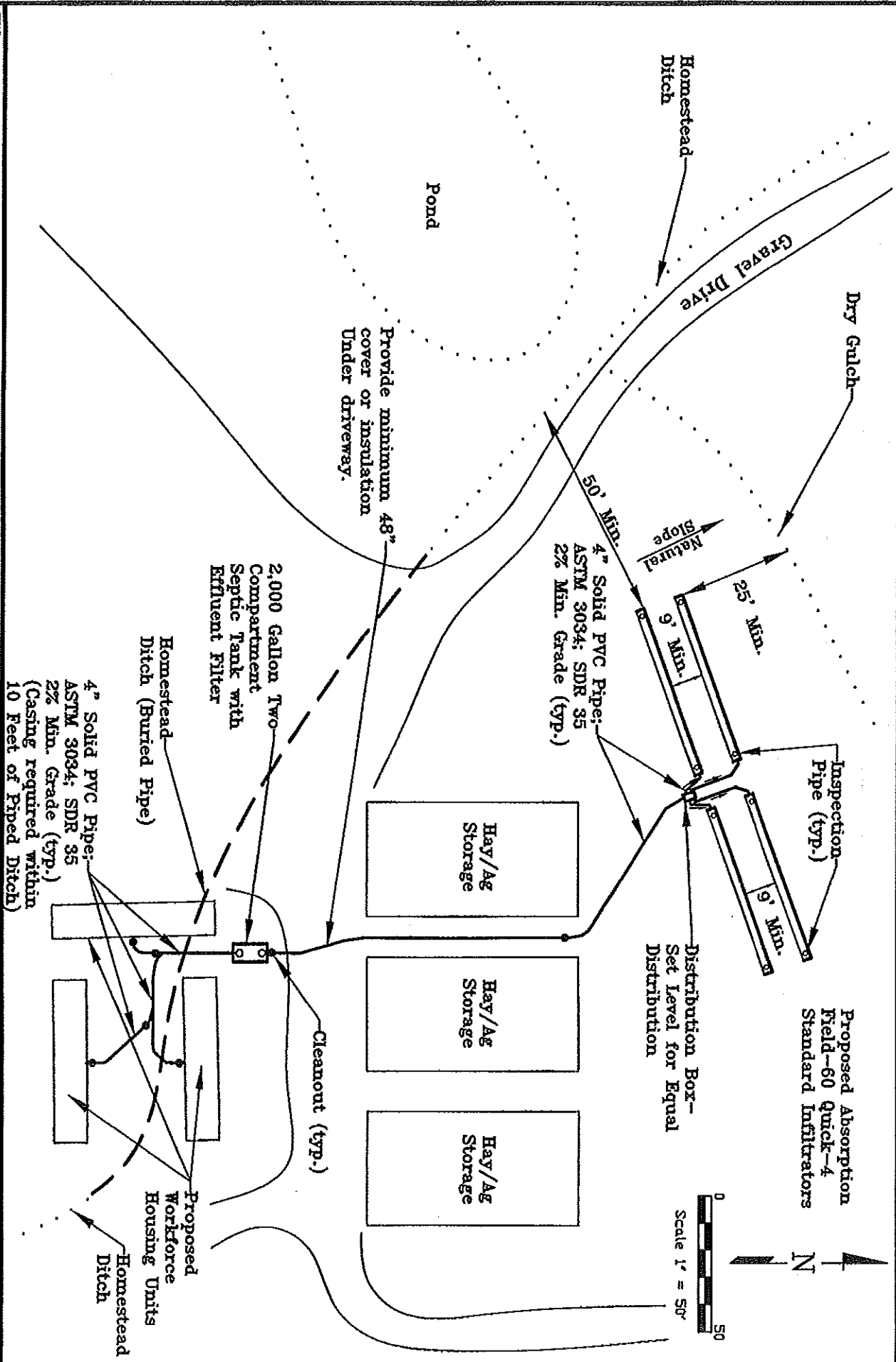
Job No.

17-10928

Figure

#1





Title: **O.W.T.S.-INFILTRATOR SITE PLAN**

Job Name: **Lucky 8 Ranch Workforce Housing**
 Location: **23850 Tobiano Trail, Routt County, Colorado**

Date: 11/13/17	<p>Consulting / Engineering / Construction Services 23850 Tobiano Trail, Suite 200 Routt County, Colorado 81637</p>
Job No. 17-10928 Figure #2	

- 5) General Notes: The owner should be aware that the operation of the OWTS is different from a public sewer service. Plastic and other non-biodegradable materials should not be placed into the system. Water use should be monitored so fixtures are not allowed to run if a seal malfunctions. Allowing fixtures to flow continuously to prevent water lines from freezing or a malfunctioning faucet or toilet can consume in excess of 1,000 gallons per day. Excessive flows could continually flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the soil treatment area.

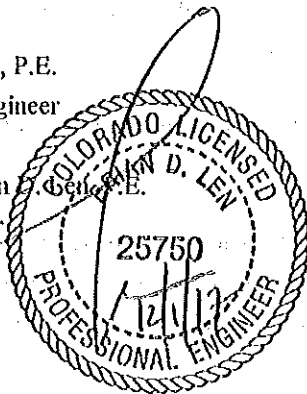
Limitations: The procedures and design criteria used in this design were obtained from the EPA "Design Manual - On-site Wastewater Treatment and Disposal Systems", 1980, as well as the Colorado Department of Public Health and Environment-Water Quality Control Commission, On-site Wastewater Treatment System Regulation, Regulation #43, effective June 30, 2013. The OWTS design presented is based on currently accepted design procedures, the proposed structures and usage of the facilities. If the usage of the structure or addition of new facilities to those currently planned in the building changes, the OWTS design will also most likely change. It should also be noted that all on-site wastewater systems require periodic maintenance as noted above. The failure of the owner to provide periodic inspection and maintenance of the system can lead to premature system failure.

Please be advised that Colorado law requires that a permit must be obtained prior to construction, alteration or use of an on-site wastewater system. In addition, this office must be retained by the client to observe the construction/installation of the OWTS and to provide an as-built report to the Routt County Department of Environmental Health when the construction is completed. If you have any questions concerning this report, or if we may be of further service, please contact this office.

Sincerely,
NWCC, Inc.

Timothy S. Travis, P.E.
Senior Project Engineer

Reviewed by Brian
Principal Engineer



Septic Tank: NWCC recommends a septic tank with a minimum capacity of 2,000-gallons be used for the system. Due to the subsurface conditions encountered at the site, we recommend that a concrete septic tank be used.

If a dosing system is used in the system, the size of the STA can be decreased. NWCC must be consulted to determine the required system size if a dosing system is used.

A Biotube effluent filter (Orenco FT W0444-36) must be installed in the outlet 'T' of the septic tank. The manhole lids must be exposed at final grades. Manhole ring extensions should be used as needed to reach final grades. The tank must be placed to allow access for pumping. Generally a septic tank can be pumped from 100 feet away with a maximum lift of 10 feet; however, a local sewage pumping contractor should be consulted in regards to the tank maintenance access. The construction of an access road to allow for pumping the septic tank may be required.

The system design for the Infiltrator trench system is presented in Figures #2 and #3. Typical septic tank details are presented in Figure #4. The design calculations are shown in Appendix A and the specifications for the system are given in Appendix B. Any variance of equipment/materials specified in this design must be approved by NWCC prior to construction.

Operation and Maintenance: Observing the operation and performing routine maintenance of the OWTS is essential to allow proper, long term functioning of the system. NWCC recommends the operation be monitored and a qualified, licensed maintenance contractor provide maintenance of the system.

- 1) **Septic Tank:** The scum and sludge accumulation in the septic tank should be monitored yearly. Once the scum or sludge thickness reaches 25% of the chamber depth, the septic tank should be pumped. A pumping frequency of 1 to 3 years is likely at the design flows used for this system; however, depending on use, pumping may only be required every 3 to 5 years.
- 2) **Effluent Filter:** The effluent filter at the septic tank outlet should be cleaned when the septic tank is inspected or as required.
- 3) **Soil Treatment Area:** Soil treatment area should be fenced off to livestock. The surface area around the soil treatment area should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels within the gravel bed or chambers should be observed through the observation pipes.
- 4) **Treated Water:** NWCC does not recommend water softeners or water treatment systems be connected to the OWTS. The chemical and hydraulic loading from the backwash of these treatment systems may be detrimental to the OWTS. If a treatment system is used, a separate dry well should be constructed for the backwash waste. In addition, chemically treated water from a swimming pool or spa must not be discharged into the OWTS.