

• I.S.D.S. PERMIT •
TO INSTALL, CONSTRUCT, ALTER OR REPAIR
AN INDIVIDUAL SEWAGE DISPOSAL SYSTEM

Permit: EH-12-031

New: Y
Repair: N
Alteration: N
Addition: N

ROUTT COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH • P.O. BOX 770087 • STEAMBOAT SPRINGS, CO • 970-870-5588

This permit effective only on premises located at: **56990 GOLDEN TIDE PLACE C**

Legal description of property: LOT 1 REPLAT LOTS 77-83 STEAMBOAT LAKE, FILING #1

Parcel Id.: 186800001 Lot No.: 001

Owner: BURNS, TIMOTHY J. & MICHAELA

Address: 103 PLANTATION RD

HOUSTON TX 77024-6215

Phone: 281-467-0695

Applicant: RALSTON & ASSOC

Address: ATTN: ROBERT RALSTON P.O. BOX 773627

STEAMBOAT SPRINGS CO 80477

Phone: 970-879-2727

As authorized and required by Chapter 25, Article 10 C.R.S., permission is hereby granted to the owner or a Routt County licensed ISDS installer to construct or repair an I.S.D.S. system at the property indicated above. All work must comply with the specifications on this permit and the Guidelines on Individual Sewage Disposal Systems - Revised 1988 - Colorado State Board of Health, 5 CCR 1003-6. This permit expires one year from date of issue.

SPECIFICATIONS

Y Residential Commercial Other:

Percolation Rate: 27 MPI

Minimum Septic Tank Capacity: 1000 gallon

Tank Material: Y Concrete Polyethylene

Design: 1: Engineer shall certify that construction complies with permitted design.

Comments:

Notice: All Sewage *HOLDING* Tanks must be Concrete. Inspections required (24 hour advanced notice required).

Number of bedrooms: 3

Environmental Health Specialist:

J. J. J.

Date of Issue:

9/20/12

The above individual sewage disposal system installed by _____ has received a final inspection. The system is hereby approved for use.

Environmental Health Specialist:

J. J. J.

Date

2/14/13

State fee \$23.00

Fee: Percolation \$0.00

Permit \$277.00

\$300.00

RECEIPT

RECEIPT NUMBER: R120001145

Routt County Environmental Health Department
P.O. Box 770087 Phone 970-5588
Steamboat Springs, CO 80477

APD #: EH-12-031
SITE ADDRESS: 56990 GOLDEN TIDE PLACE C
PARCEL: 186800001
TYPE: EH-Ind. Sewage Disp Sys

May include fees collected within the jurisdiction.

TRANSACTION DATE: 09/20/2012

TOTAL PAYMENT: 300.00
TOTAL PAID FROM TRUST: .00
TOTAL PAID FROM CURRENCY: 300.00

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	#5996	300.00
TOTAL:			300.00

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
I.S.D.S. Permit Fee	01-20-22-000-568	277.00
State Surcharge for ISDS	01-20-22-000-546	23.00
TOTAL:		300.00

RECEIPT ISSUED BY: SG
INITIALS: SAG
ENTERED DATE: 09/20/2012
TIME: 09:42 AM

EA-12-031 CB-12-258
BUILDING PERMIT # CB-258
PERMIT PD 300.00 charged
PERC PD 9/17/12

300.00
ROUTT COUNTY TREAS.

CL# 5996
Timothy Burns

APPLICATION FOR ON-SITE WASTEWATER SYSTEM PERMIT

NEW ☒ REMODEL _____ REPAIR _____ EMERGENCY USE _____

Name of Owner TIMOTHY J. & MICHAELA BURNS 103 PLANTATION ROAD HOUSTON, TX Phone 281-467-0695
77024-6215

Name of Applicant ROBERT G. KANTON Mailing Address P.O. BOX 773627 Phone 817-472-7727
56990 STEAMBOAT SPRINGS, CO 80477

LOCATION OF PROPOSED SYSTEM: Street Address 56990 GOLDEN TIDE PLACE
per Emily 9/17/12

Legal Description LOT 1 RE PLAT LOTS 77-83 STEAMBOAT Parcel ID# 186800001
(Lot# and Subdivision if applicable) LAKES HUNNY 1 (this # can be found in the Assessor's Office)

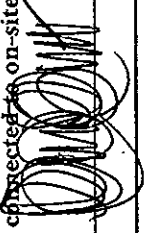
Size of Lot 5.32 AC. (X) Residential () Commercial () Other (Describe) _____

Number of: Bedrooms 3

Water Supply: ☒ Private Well OK per Heather 9/20/12
() Public (give name of supply) _____

An appropriate plot plan must accompany this application showing required information. Percolation tests and an on-site inspection must be conducted by a Colorado Registered Professional Engineer, P.E. or the Routt County Department of Environmental Health after receipt of the application and plot plan. The permit, upon approval of this application may be obtained at the Routt County Department of Environmental Health with payment of the required fee.

Application for an individual wastewater system is hereby submitted. The on-site wastewater system will be constructed, installed and operated in accordance with the regulations governing individual sewage disposal systems within Routt County and will comply with applicable State Regulations adopted pursuant to Article 10 of Title 25, C.R.S. 1973, as amended. The undersigned acknowledges that the above information is true and that false information will invalidate the application or subsequent permit. The owner assumes all responsibility in case of failure or inadequacy of this sewage disposal system. (*Hot tubs and Jacuzzi's shall not be connected to on-site sewage disposal systems.)



Signature of Applicant _____ Date 8/24/12

September 1, 2012

Routt County Treasurer

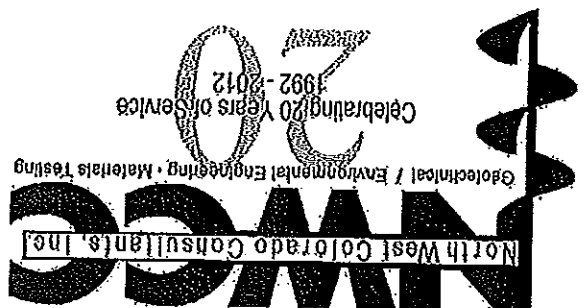
The enclosed checks are from Tim and Michaela Burns for our property at 56969 Golden Tide Place in Clark, CO.

- Check #5996 for the amount of \$300.00 is for the septic design review
- Check #5997 for the amount of \$6969.61 is for the building permit

Also enclosed is a completed application worksheet.

Thank you for your help and please contact me 281-467-0695 with any questions.





July 12, 2012

Tin & Michaela Burns
103 Plantation Road
Houston, TX 77024-6125
Job Number: 12-92229

Subject: On-Site Wastewater System Design,
Proposed Burns Residence, 56965 Golden Tide Place,
Routt County, Colorado.

Gentlemen:

As requested, NWCC, Inc. (NWCC) has completed an On-site Wastewater System (OWS) design for the proposed Burns Residence to be constructed at 56965 Golden Tide Place in the Steamboat Lakes Subdivision, Filing 1 in Routt County, Colorado.

Proposed Construction: NWCC understands the proposed residence will be constructed with a total of three bedrooms.

Site Conditions: The proposed building site is located east of Golden Tide Place in Routt County, Colorado. The proposed absorption field site is located approximately 40 feet northwest of the proposed building site in undisturbed, vacant land well vegetated with grasses, weeds, deciduous brush, aspen and spruce trees. An existing water well head is located approximately 125 feet to the south of the proposed absorption field site.

Topography at the proposed absorption field site is fairly consistent and generally slopes moderately to strongly down to the north on the order of 5 to 10 percent. A site plan showing the approximate location of proposed structures, features and proposed OWS absorption field is shown on Figure 1.

Subsurface Conditions: To investigate the subsurface conditions at the proposed absorption field site, one profile pit was excavated on June 25, 2012. The subsurface conditions encountered in the profile pit consisted of approximately 12 inches of topsoil and organic materials overlying gravely sand to the maximum depth investigated, 7 feet. The gravely sand was silty, non-plastic, medium dense, fine to coarse grained with scattered cobbles, moist and brown in color. Groundwater seepage was not encountered in the profile pit at the time of excavation and no evidence of a seasonal high groundwater table was observed.

Percolation testing was conducted at the proposed absorption field site on June 28, 2012. Tests indicate the upper 36 inches of natural soils displayed percolation rates varied from 10 to 40 minutes per inch (mpi) with an average percolation rate of 27 mpi.

System Design: Based upon percolation test results, subsurface conditions and site topography, NWCC recommends the OWS consist of a seepage trench soil absorption system utilizing Infiltrator® chambers placed in the upper 12 inches of natural topsoil and organics and soils.

The OWS design presented below is based upon the proposed construction and usage and the average percolation rate for the natural soils. Considering the anticipated usage, a peak effluent flow of 788 gallons per day (gpd) is anticipated for the system. Based upon percolation test results, an absorption area of 819 square feet is required for a conventional trench absorption system. A 40% area reduction for use of Infiltrator® chambers results in a required absorption area of 491 square feet. The installation of either 50 Standard Infiltrator® chambers or 46 EQ36 Infiltrator® chambers will satisfy minimum area requirements. A schematic system layout is shown in Figure 1; however, system layout will likely vary due to variations in site topography and vegetation.

The base of all chambers should be wrapped or covered with a ¼ inch galvanized steel or other approved, durable mesh material to prevent rodent intrusion. If the system is not in regular use, NWCC recommends periodic flooding of the system to reduce rodent intrusion.

All manufacturer installation and backfill requirements should be observed. A minimum of 18 inches of topsoil fill should be provided over installed chambers.

Effluent pretreatment should be accomplished by a 1,000-gallon concrete septic tank. NWCC recommends an effluent filter be installed at the septic tank outlet tee to limit infiltration of solids into the absorption field. Both tank access manholes should be extended as required and exposed at final grades.

The system design is presented in Figures 1 and 2. The design calculations are shown in Appendix A and the specifications for the system are given in Appendix B. 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 Health "Guidelines on Individual Sewage Disposal Systems", revised 2000, and the Routt County Individual Sewage Disposal Regulations, February 1999.

Operation and Maintenance: Observing the operation and performing routine maintenance of the OWS is essential to allow proper, long term functioning of the system. We recommend the operation be monitored and a qualified, licensed maintenance contractor performs 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 2 to 4 years is likely at the design flows. Depending on use, pumping may only be required every 3 to 7 years.

2) *Effluent Filter*: The effluent filter at the septic tank outlet should be cleaned when the septic tank is inspected or as required. NWCC recommends a minimum annual filter inspection.

3) *Absorption Field*: The absorption field should be fenced off to vehicular traffic and livestock. The surface area around the absorption field should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels in the seepage trench should be observed through the inspection pipe.

4) *Treated Water*: NWCC does not recommend water softeners or water treatment systems be connected to the OWS. The chemical and hydraulic loading from the backwash of these treatment systems may be detrimental to the OWS. 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 OWS.

5) *General Notes*: The owner should be aware that the operation of the OWS 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 malfunction. 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 flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the absorption field.

Limitations: The procedures and design criteria used in this design were obtained from the BPA "Design Manual - On-site Wastewater Treatment and Disposal Systems", 1980, as well as the Colorado Department of Health "Guidelines on Individual Sewage Disposal Systems", revised 2000, and the Routt County Individual Sewage Disposal Regulations, February 1999. The OWS design presented is based on currently accepted design procedures, the proposed structure and usage of the facility. If the usage of the structure or addition of new facilities to those currently planned in the building changes, the OWS 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 OWS and to provide an as-built report to the Routt County Department of Environmental Health.

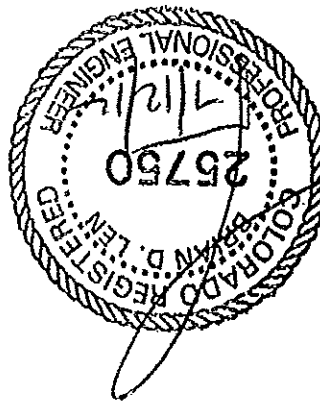
If you have any questions concerning this report, or if we may be of further service, please contact this office.

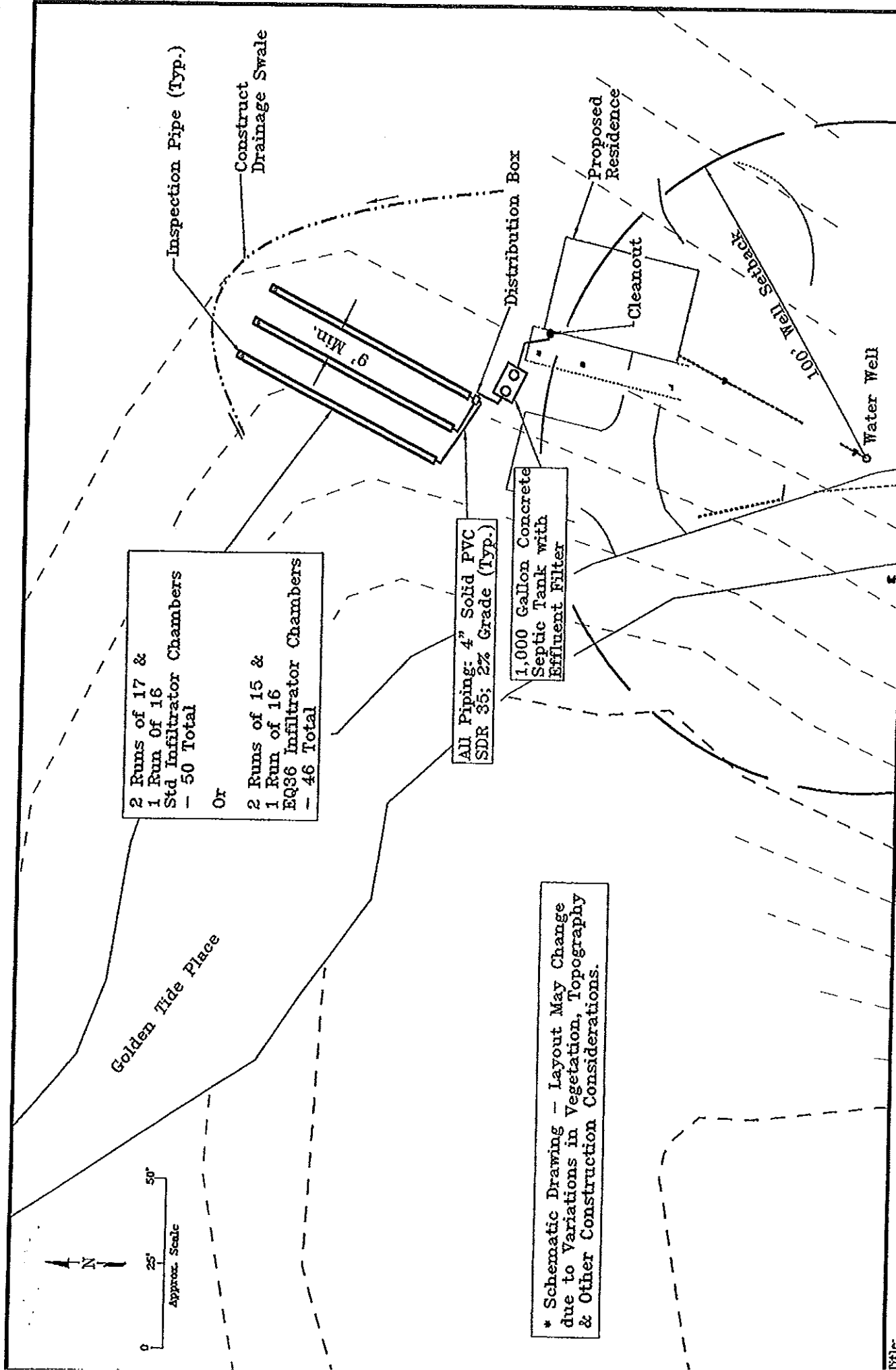
Sincerely,
NWCC, Inc.

Harold N. Schlicht, P.E.

Reviewed by Brian D. Len, P.E.

cc: Robert Ralston





OWS SITE PLAN		North West Consulting 2500 Capital Blvd. Suite 100 Colorado Springs, Colorado 80907 (719) 575-7500 Fax (719) 575-7501
Job Name:	Proposed Burns Residence	Date: 7/11/12
LOCATION:	56965 Golden Tide Place, Routt County, CO	Job No. 12-9229
		Figure 1

APPENDIX A

SUMMARY OF DESIGN CALCULATIONS

A. Sewage Volume Calculations

- 1) Number of Bedrooms: 3 x 150 gpd/bedroom
- 2) Total Average Flow 450 gpd
- 3) Peak Factor..... x 1.75
- 4) Peak Flow for Design..... Q = 788 gpd

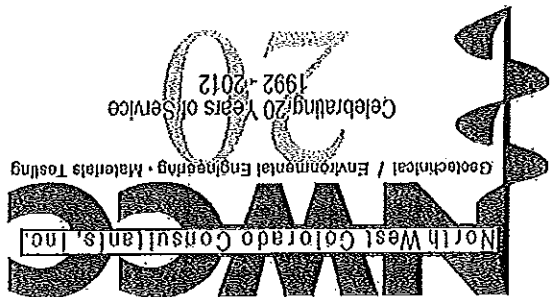
B. System Sizing

- 1) Minimum absorption area = $Q (t^{1/2})/5 = (788)(27)^{1/2}/5 = 819 \text{ ft}^2$
- 2) Less 40% for Standard or Quick-4 Infiltrator® Chambers: $819 \times 0.60 = 491 \text{ ft}^2$
- 3) No. of Quick-4 Std. Infiltrator® Chambers: $491 \text{ ft}^2/10 \text{ ft}^2/\text{chamber} = 49.1 \text{ chambers} \Rightarrow \text{use } 50 \text{ Quick-4 Standard Infiltrator® chambers.}$
- 3A) No. of Quick-4 BQ36 Infiltrator® Chambers: $491 \text{ ft}^2/10.67 \text{ ft}^2/\text{chamber} = 46.0 \text{ chambers} \Rightarrow \text{use } 46 \text{ Quick-4 BQ36 Infiltrator® chambers.}$

- 4) Septic Tank-per Routt County Regulations: Minimum 1,000-gallon tank for a three-bedroom residence.
- 5) Minimum well, watershed and open water setback-per Routt County Regulations: 100 Feet Minimum.
- 6) Minimum property line setback-per Routt County Regulations: 10 Feet Minimum (25 Feet Recommended)
- 7) Minimum Building setback-per Routt County Regulations: 5 Feet Minimum (10 Feet Recommended)

APPENDIX B

- 1) Construction and installation must meet Routt County Department of Environmental Health and the Colorado Department of Health regulations.
- 2) Periodic inspections must be made by NWC at the following points during construction:
 - a. After infiltration chamber and distribution piping placement, but before pipes are covered.
 - b. Upon final completion of the project.
- 3) PVC pipe shall meet or exceed ASTM 3034/SDR35 requirements. Special care should be taken when backfilling the system to prevent disturbance/crushing of distribution lines and chambers. Chamber manufacturer's recommendations should be closely followed when backfilling the chambers. All building sewer and distribution piping should be carefully bedded and shaded to minimize settlement and protect piping.
- 4) Tank excavation backfill may consist of suitable on-site or imported materials and shall be backfilled in 6 to 8-inch loose lifts mechanically compacted to at least 95% of the maximum standard Proctor density. NWC recommends the use of washed or screened rock backfill beneath inlet and outlet piping. Rock fill should be compacted to at least 80% of the maximum relative density (ASTM D4253/4254).
- 5) Provide a minimum of 12 inches of soil cover over the septic tank and 24 inches of soils cover over all pipes. Any piping placed under a driveway or other ploved areas should have a minimum of 48 inches of soil cover or be protected from freezing using insulation or other approved means. Manhole lids should be exposed at final grades. Provide manhole ring extensions as needed to final grades. Provide non-shrink grout at all plumbing connections for water-tightness.
- 6) Surface drainage shall be ditched and diverted away from wastewater disposal areas.
- 7) Disturbed surfaces, mounds and berms shall be covered with topsoil and heavily seeded.
- 8) Washed rock shall be covered with synthetic filter fabric before topsoil placement. Washed rock shall consist of clean gravel from 0.5 to 2.5 inches in size.
- 9) Inspection pipes to be constructed of PVC pipe with the portion of the pipe penetrating absorption trench being perforated. Cleanouts must be placed in the solid distribution line at maximum intervals of 100' downstream of the septic tank and at a maximum interval of 50' upstream of the septic tank.
- 10) It is the responsibility of the owner and the installer to comply with all minimum setback requirements.



February 14, 2013

Tim & Michaela Burns
103 Plantation Road
Houston, TX 77024-6125
Job Number: 12-9229

Subject: On-site Wastewater System Observations,
Burns Residence, 56965 Golden Tide Place, Routt
County, Colorado.

Dear Tim & Michaela,

As requested, NWCC, Inc. (NWCC) visited the project site on October 11 and 12 and November 20, 2012 to observe the On-site Wastewater System (OWS) being constructed for the Burns Residence under construction at 56965 Golden Tide Place in Routt County, Colorado. Our firm previously provided the OWS Design Report for the residence under this job number and dated July 12, 2012.

At the time of our site visit on October 11, 2012, the contractor, K.L. Wilderness Excavating, had placed a 1,000-gallon concrete septic tank to the north of the residence, currently under construction. The contractor was in the process of placing the Infiltrator chambers for the absorption field. We advised the contractor that wire mesh was required on the bottom and the sides of the chambers. The contractor advised us that they did not have any mesh on-site. The distribution lines for the lower runs of chambers were also planned to be run over the upper run of chambers. We advised the contractor that the system should be constructed with four runs and the pipe should not be placed on top of the Infiltrator chambers.

At the time of our site visit on October 12, 2012, the contractor had placed the piping (ASTM 3034/SDR 35) from the septic tank to a concrete distribution box above the absorption field. The piping appeared to meet the minimum grade requirement. The piping from the residence to the septic tank had not been placed at the time of our site visit. The outlet "T" connection in the septic tank visually appeared to have been constructed properly at the time of our visit. An effluent filter was placed in the outlet "T" of the septic tank.

The contractor had placed runs of 9, 12, 14 and 15 chambers for a total of 50 Quick-4 Standard Infiltrator chambers. The piping (ASTM 3034/SDR 35) from the distribution box to each of the Infiltrator runs had been placed and appeared to meet the minimum grade requirements. It appeared that the Infiltrator chambers were placed a maximum of 12 inches below the natural ground surface. The contractor had placed galvanized mesh on the bottom of the Infiltrator chambers. The mesh was also wrapped up the sides

of the chambers. Inspection pipes had been placed at the end of the Infiltrator runs at the time of our visit. An as-built drawing taken from field measurements of the system is presented in Figure #1.

We advised the contractor that they should backfill the system in accordance with the chamber manufacturer's recommendations. We also advised them that a minimum of 18 inches and a maximum of 36 inches of soil cover should be placed over the tops and sides of the chambers and a minimum of 24 inches of soil cover over the distribution lines. If sufficient amounts of fill are not placed over the chambers, seepage may occur during high usage periods. The disturbed areas should be heavily seeded with a drought tolerant grass.

At the time of our site visit on November 20, 2012, the absorption field and piping had been backfilled. The septic tank had not been backfilled and the piping between the residence and tank had not been placed at this time. It appeared that sufficient amount of fill had been placed over the distribution pipes and chambers. The risers on the septic tank had been raised to the finished ground surface. The lids should be properly secured or locked to prevent unauthorized access. It did not appear that the disturbed areas had been re-seeded at the time of our visit.

Based on our part time observations, it appears that the portions of the system, which were completed at the time of our site visits, had been constructed in general accordance with the design previously completed by our firm with the noted exceptions. We believe that the system should function properly with proper care and maintenance if the components not completed at the time of our visits were properly constructed.

Operation and Maintenance: Observing the operation and performing routine maintenance of the OVS is essential to allow proper, long term functioning of the system. We recommend that the operation be monitored and a qualified, licensed maintenance contractor performs 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. Depending on use, pumping may only be required every 3 to 7 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) Absorption Field: If the system is not activated within 30 days of installation or is inactive for an extended period of time, we recommend that water be run into the Infiltrator chambers periodically (once every 30 days) to prevent rodents from nesting and burrowing in the chambers, which could result in premature failure of the system. We also recommend that the system be fenced off to vehicular traffic and livestock. The surface area around the absorption field should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels within each run of Infiltrators should be observed through the observation/vent pipes.

4) Treated Water: We do not recommend that the water softeners or water treatment systems be connected to the OVS. The chemical and hydraulic loading from the backwash of these treatment

systems may be detrimental to the OWS. 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 OWS.

5)

General Notes: The owner should be aware that the operation of the OWS 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 malfunctioning. 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 flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the absorption field.

If you have any questions regarding this report, our observations or recommendations or if we may be of further service, please contact this office. A copy of this report has been submitted to the Routt County Department of Environmental Health.

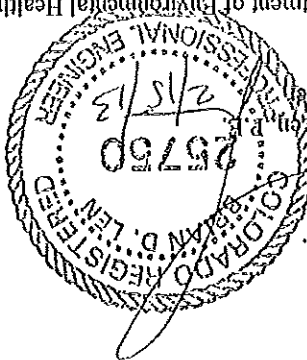
Sincerely,
NWCC, Inc.,

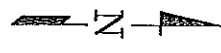
Timothy S. Travis, P. E.
Sr. Project Engineer

Reviewed by Brian D. Lem, P.
Senior Principal Engineer

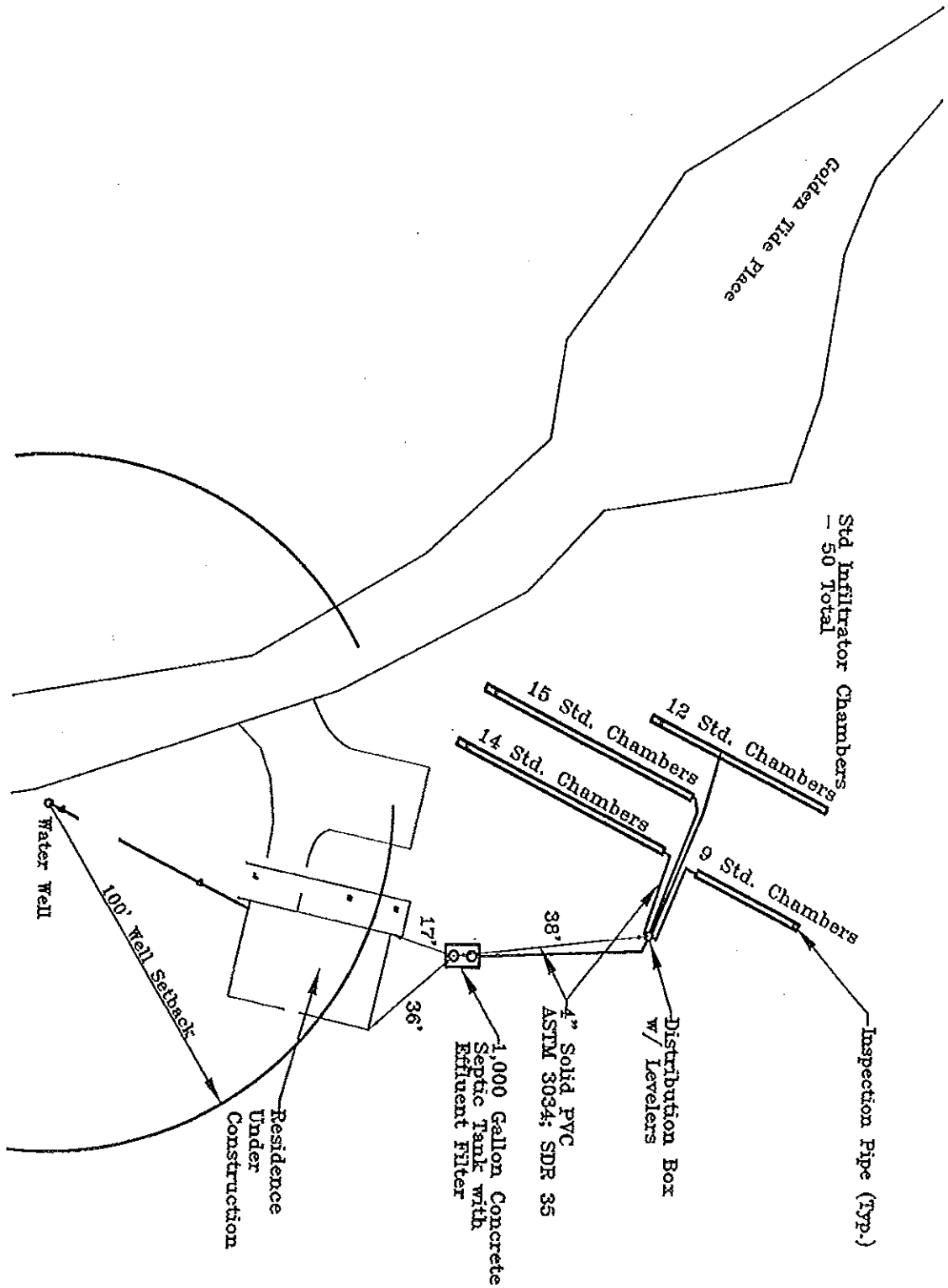
cc: Routt County Department of Environmental Health

Robert Ralston





NOT TO SCALE



Title: **O.W.S.-AS BUILT**

Job Name: **Burns Residence**

Location: **56965 Golden Tide Place, Routt County, CO**

Date: **2/8/13**

Job No. **12-9229**

Figure **#1**

