P.E. Plans Received

__/__/____

**Mesa County Department of Public Works**
Administration-Building-**Engineering**-Road and Bridge
Traffic-Planning-Solid Waste Management-Fleet

**200 S. Spruce Street•P.O. Box 20,000 Department 5034•Grand Junction, CO 81502**
**Ph (970) 254-4141 Fax (970) 683-4340**

Date Application Received
2/10/17

Permit Denied
__/__/____

# Application for On-Site Wastewater Treatment Permit

Construction Address 6785 KANNAH CREEK ROAD City WHITEWATER Zip 81527

Parcel No. 3199-063-00-017 Parcel size 37.52 acres.

Subdivision _____ Lot ___ Block ___ Filing ___

Owner(print name) BOISE & BRENDA BURGE Phone (970) 210-9385

Applicant(print name) BOB BURGE Phone (970) 210-9385

Installer TO BID Henderle's Email - fourB.Ranch@yahoo.com

Are any wells located within 100 feet of the system? Yes__No X Is the property located in a flood plain? Yes__No X
Is the dwelling or structure located within 400 feet of a sewer system? Yes__No X
Is the property within a municipality or sanitation district (ex. Persigo sewer district)? Yes__No X

| SYSTEM | | USE | WATER SUPPY |
|---|---|---|---|
| X New | __Tank Only | X Year round | __Public Name_____ |
| __Repair | | __Seasonal | __Well __Cistern X Spring __Surface __Non |
| __Modification | | # of Days Per Year___ | __Other_____ |

| SINGLE FAMILY DWELLING | ACCESSORY DWELLING UNIT | COMMERCIAL |
|---|---|---|
| # of Bedrooms 3 | # of Bedrooms___ | Type of Business |
| Sqaure Footage of Basement_____ | | _____ |
| __Basement Plumbing | | _____ |
| Garage? X Attached or ___Detached | | |
| Accessory Out Building(s)_____ Plumbed___ | | |

☐ Observed Perc Test _____

**If your OWTS design requires a pump or any mechanical devices that required maintenance, the state requires a maintenance agreement to be provided. OWNERS MUST INITIAL_____**

**By signing the application form, the owner attests that the information provided herein is true and correct to the best of their knowledge. Any material falsehood or any omission of a material fact made by the owner with respect to this application packet may result in this permit being null and void. I agree to provide access and right of entry to Mesa County and its employees, representatives or agents for the sole purpose of application review and any required later inspection. I agree to install the OWTS in accordance with the above description, design document, and the Mesa County and State of Colorado OWTS Regulations.**

Owner Signature Boise F. Burge III Date 2-8-17

FOR OFFICE USE ONLY

Designed By_____ Date___/___/___

Permit Issued By_____ Date___/___/___

Final Inspection By_____ Date___/___/___

☐ Marked off in Trak It Date ___/___/____ P.E. As-Built Received ___/___/____

| | Permit | Tank Only | Permit Renewal |
|---|---|---|---|
| Fee | $550.00 | $200.00 | $150.00 |
| Reciept # | 84885 | | |
| Date/Int | 2/10/17 | __/__/__ | __/__/__ |

Application #_____

Permit #_____

**CCI ENGINEERING** 1129 -24- Road
*Cronk Construction Inc.* Grand Junction, CO 81505
Grand Junction (970) 245-0577 • Glenwood Springs/Aspen (970) 640-5029 • Montrose/Delta (970) 640-5029
Email: ccigj@msn.com

# ONSITE WASTEWATER TREATMENT SYSTEM DESIGN

Date: February 6, 2017

Prepared by: Thomas A. Cronk, P.E.
Cronk Construction Inc.
1129 -24- Road
Grand Junction, CO 81505
245-0577

Type of Design: Residential System

Client: Boise F. Burge III
6785 Kannah Creek Road
Whitewater, CO 81527
970-210-9385

Property address: 6785 Kannah Creek Road, Whitewater, CO 81527

Tax schedule No.: 3199-063-00-017

Legal Descript.:

## 1.0 Site History

The site consists of approximately 37.52 acres of uncultivated native soil. Drainage varies across the site which has been man-leveled in the area of reference. Slopes range from 5%-50% away from the building envelope elsewhere. A percolation test/soils evaluation was conducted on the property of reference on 02/03/17 by Tom A. Cronk, registered professional engineer (R.P.E.). The *perc* excavation trench (excavation A) was located approximately 674' north of the south property line and approximately 334' west of the east property line. Additional *perc* holes were located 50' northwest of the trench (excavation B and excavation C).

The owner wishes to construct a three bedroom residence at the site. Based on results from the 02/03/17 investigation, an engineered onsite wastewater treatment system (OWTS) design has been prepared for the property. A discussion of developed subsurface design parameters and the engineered OWTS design follows. The 02/03/17 *perc* test/soils evaluation is attached for reference as Appendix A. The location of the perc excavation is shown on the attached plot plan.

## 2.0 Development of Design Parameters

A *perc* excavation trench (excavation A) was extended to a depth of 120" below ground surface (BGS). There was no evidence of ground water or high seasonal water table in the open excavation to a depth of 120" BGS. The soils evaluation indicates two distinct soil horizons underlie the site. A lithological description follows:

| depth (in.) | description |
|---|---|
| 0" – 48" | clayey sand/sandy clay, light brown to tan (USDA-sandy loam, blocky, weak structure) |
| 48" – 120" | basalt cobble to boulders in light brown clayey sand matrix (USDA-sandy loam, blocky, strong structure) |

As based on the results from the 02/03/17 site investigation (Appendix A), a design *perc* rate of 40 min/in. and corresponding long term acceptance rate (LTAR) of 0.50 is chosen for overall system sizing for an infiltrator trench absorption field designed to discharge to subsoils below the 36" depth.

## 3.0 System Design

A *STANDARD INFILTRATOR* absorption trench system is proposed for discharge of septic effluent at the site. Construction of the system will consist of excavating level trenches in the area comprising the absorption field. The initial excavation shall be continued to a maximum depth of 36" BGS (see absorption field cross-section).

Following completion of the trench excavations, *INFILTRATORS* (*STANDARD* model) will be used to construct a septic effluent distribution system in the open excavations. The *INFILTRATOR* effluent distribution system will be installed in accordance with the "Infiltrator Technical Manual", available from Infiltrator Systems Inc., 123 Elm Street, Suite 12, Old Saybrook, Connecticut 06475. Adjacent *INFILTRATORS* shall be fastened with a minimum of four (4) 3/4" x #8 self-tapping sheet metal or bright brass deck screws to prevent movement and separation during backfilling. As shown in the Construction Detail, the bottom of the *INFILTRATOR* seepage trenches will be located a maximum of 36" below ground level.

After the *INFILTRATORS* are installed, synthetic filter fabric (140-200 mesh) will be placed over the trenches and the system will be covered with a soil cap. The soil cap will consist of approximately 24" of native soil backfill. The soil cap will be mounded 5% above the existing ground surface to promote surface run off away from the absorption fields.

The installer should confirm the feasibility of gravity discharge of sewage effluent from the structure to the absorption field by field verification of assumed design parameters. Assumed design parameters with respect to gravity discharge include:

- distance from exit of sewage pipe at the septic tank to absorption field - 60' or less,
- elevation of ground surface at entry to absorption field must be no more than 12" above the invert elevation of sewage pipe at exit from the septic tank.

If field measurements do not confirm these design assumptions, gravity discharge of septic effluent from the proposed structure cannot be assured and a lift station may be required. Please contact the design engineer to address any design modifications necessary if these design assumptions are not upheld.

The installer must also confirm the setbacks from property lines, building envelopes, and existing easements shown in the attached graphics are maintained. Four inch clean outs shall be provided at maximum 100' intervals in all effluent lines exceeding 100' in length. Vehicle traffic and parking is to be prevented over the absorption and repair area. Provide minimum schedule 40 PVC under all traffic areas. Additionally, effluent piping in traffic areas with less than 24" of cover shall be encased in 6" CMP or flow fill and covered with minimum 2" high density blue board insulation. The sewer line shall be encased with minimum 6" PVC with water-tight end caps a minimum of 10' to either side of all domestic and irrigation water line crossings. Finally, any unknown utility lines, easements, or other adverse conditions disclosed during construction must maintain the required setbacks listed on page 5 of this document.

A 1,000 gallon, two compartment, concrete septic tank will be used to provide a minimum of 48 hours retention time for sewage generated from the proposed three bedroom design. A non-corrodible Orenco filter (model # FTW0444-36) shall be installed at the final outlet tee of the existing septic tank or in the

effluent line between the existing septic tank and the absorption field to limit the size of solids and sludge passing into the absorption field. The filter must be accessible for cleaning and replacement from the ground surface. A distribution box is required to provide equal distribution of septic effluent from the septic tank to the absorption field laterals. The distribution box must be placed on stable native soil or compacted structural fill to prevent settling and assure equal distribution of septic effluent. The distribution box must be accessible for cleaning and replacement from the ground surface.

As discussed above, *INFILTRATOR* absorption trenches are proposed to discharge septic effluent to the underlying sub-soils. As shown in the attached graphics, the absorption trenches will consist of three (3) trenches 3' wide x 36" deep x 72' long with eighteen (18) STANDARD *INFILTRATOR* (or equivalent) units each for a total of fifty four (54) units. The absorption field will encompass an effective area of 925.71 sq. ft.

Calculations and design parameters used to size the absorption field follow.

DESIGN CALCULATIONS

DESIGN LOADING RATE OF 3 BEDROOMS x 150 GAL./BEDROOM-DAY = 450 GAL./DAY

DESIGN PERCOLATION RATE = 40 MIN./INCH

DESIGN LONG TERM ACCEPTANCE RATE (LTAR) = 0.50 GAL./DAY-SQ. FT.

$$A = \frac{Q}{LTAR}, \text{ WHERE,}$$

A = ABSORPTION FIELD AREA (SQ. FT.)
Q= DESIGN FLOW (GAL./DAY)
LTAR = LONG TERM ACCEPTANCE RATE (GAL./DAY-SQ. FT.)

$$A = \frac{450}{0.50} = 900$$

ABSORPTION FIELD AREA ADJUSTMENT FACTOR FOR GRAVITY TRENCH DESIGN = 1.0

ABSORPTION FIELD AREA ADJUSTMENT FACTOR FOR USE OF CHAMBERS = 0.7

ADJUSTED ABSORPTION FIELD AREA = 900 X 1.0 X 0.7 = 630 SQ. FT.

USE 54 QUICK4 STANDARD INFILTRATORS AS 3 TRENCHES OF 18 UNITS EACH

ABSORPTION FIELD ADDITION SIZED AT 3 TRENCHES 3 FT. X 72 FT = 648 SQ. FT.

## 4.0 Site Specific Installation/Operation Requirements

The owner and system contractor shall be aware and comply with the following installation and system operation requirements.

### 4.1 Installation - Setbacks, Notifications, and Inspections

- The system contractor must be approved and licensed by the Mesa County Public Works Department for installation of onsite wastewater treatment systems.

- All installation activities shall be conducted in accordance with current Mesa County Public Works Department *OWTS Regulations*. If at any time during construction, subsurface site conditions are encountered which differ from the design parameters developed in Section 2.0, construction activities will stop and the design engineer and Mesa County Public Works Department will be contacted to address any necessary design modifications.

- Installation procedures including grade, location, setbacks, septic tank size, and absorption field size shall conform with the attached graphic details. Construction activities and system components will not encroach upon existing easements or utility corridors. A minimum of 6 ft. of undisturbed soil shall be maintained between individual absorption elements and the septic tank and/or adjacent absorption elements. Minimum site specific setbacks for system components are:

| Source | Septic Tank | Absorption Field | Building Sewer |
|---|---|---|---|
| domestic water line | 10' | 25' | 10' |
| domestic well | 50' | 100' | |
| domestic water cistern | 50' | 100' | |
| property lines | 10' | 10' | |
| dry gulch | 10' | 25' | |
| unoccupied structure | 5' | 5' | |
| occupied structure | 10' | 20' | |
| irrigation ditch | | | |
| open | 50' | 50' | |
| intermittent irrigation | 10' | 25' | |
| gated | 10' | 25' | |
| solid pipe/lined | 10' | 10' | |

- To avoid surface flow infiltration and saturation of the new absorption system, abandonment of irrigation in the vicinity of the disposal system is required. Diversion ditches necessary to divert surface flows around the new absorption bed must maintain the minimum setbacks listed above.

- All sewer lines and effluent distribution piping shall be 4 inches in diameter and have glued joints. All lines discharging sewage from the residence to the septic tank shall maintain fall of between 1/8 in. and 1/4 in. per foot and shall employ sweep 90's or 2-45's at all turns. Sewer lines from the dwelling to the septic tank and at least 6 ft. from the septic tank outlet must meet minimum standard ASTM-3034. Sewer lines under driveways shall always meet minimum Schedule 40 PVC standards. Additionally, effluent piping in traffic areas with less than 24" of cover shall be encased in 6" CMP or flow fill and covered with minimum 2" high

density blue board insulation.

- The sewer line shall be encased with minimum 6" PVC with water-tight end caps a minimum of 10' to either side of all domestic and piped/lined irrigation water line crossings.

- A minimum of 12" of soil cover (18" recommended) shall be maintained over all OWTS components to prevent freezing of septic effluent (excepting septic tank and distribution box access manholes must extend to the ground surface).

- The installer shall not place the Infiltrators in the open excavation until inspected and approved by the design engineer. Additionally, the final cover shall not be placed on sewer lines, septic tank, or the absorption area until the system has been inspected and approved by the design engineer and the Mesa County Public Works Department. The installer shall provide 48 hour notice for all required inspections.

- Four inch clean outs shall be installed at maximum 100' intervals in all effluent lines exceeding 100' in length.

- A non-corrodible Orenco filter (model # FTW0444-36) shall be installed at the final outlet Tee of the septic tank or in the effluent line between the septic tank and the absorption field to limit the size of solids and sludge passing into the absorption field. The filter must be accessible for cleaning and replacement from the ground surface.

- The distribution box shall be set level on undisturbed native soil or a structural pad (e.g., compacted fill or concrete) to prevent settling and promote uniform distribution of flow to the absorption field. A 45 degree bend shall be turned down on the septic influent line to damp surge flows from the septic tank and promote equal distribution. The distribution box must be accessible from ground surface.

- The effluent distribution system shall be constructed in accordance with the "Infiltrator Technical Manual" available from Infiltrator Systems Inc., 123 Elm Street, Suite 12, Old Saybrook, Connecticut 06475.

- The surface cap shall be mounded 5% over the absorption field to promote surface runoff.

- The system contractor shall be aware of the potential for construction activities to reduce soil permeabilities at the site through compaction, smearing, and shearing. The following precautions and construction procedures should be employed during installation to minimize disturbance to native soils:

    i. Excavation should proceed only when the moisture content of the soil is below the plastic limit. If a sample of soil forms a rope instead of crumbling when rolled between the hands it is too wet and should be allowed to dry before excavation continues.
    ii. Excavation and backfill equipment should work from the surface where at all practical to avoid compaction of the soils at depth.
    iii. The bottom and sidewalls of the excavation should be left with a rough, open surface. The appearance should be that of broken or ripped soil as opposed to a

sheared, smeared, or troweled surface. Any smoothed or smeared surfaces should be removed with a toothed rake or shallow ripper taking care to remove loose residues from the bottom of the excavation by hand if necessary.

iv. Care should be taken in placing fill materials in the excavation to avoid damaging the exposed soil surfaces.

4.2 Operation - Maintenance and Inspections

- The owner shall install a structural barrier if necessary and take precautions to prevent vehicular traffic, excessive surface watering, accidental flooding, or other activities in the vicinity of the absorption field which may compact, saturate, or otherwise alter the subsurface soil parameters used in designing the septic system.

- The owner will plant and maintain grass or other shallow rooted cover crop to prevent erosion and promote evapotranspiration over the absorption field.

- The owner will inspect and maintain the required mounding and drainage away from the absorption field to prevent saturation from precipitation and surface flows.

- To mitigate the generation of preferential flow channels which may compromise the operation of the system, the owner will inspect and prevent intrusion of burrowing animals and deep rooted plants into the absorption field.

- The septic effluent filter shall be inspected and cleaned as necessary every six (6) months.

- The owner will conduct periodic maintenance of the septic system by removing accumulated sludge from the septic tank every 3-4 years to prevent clogging of the absorption field.

## 5.0 Limitations

This report is a site specific design for installation of an onsite wastewater treatment system and is applicable only for the client for whom our work was performed. Use of this report under other circumstances is not an appropriate application of this document. This report is a product of CCI Engineering/Cronk Construction Incorporated and is to be taken in its entirety. Excerpts from this report may be taken out of context and may not convey the true intent of the report. It is the owner's and owner's agent's responsibility to read this report and become familiar with the recommendations and design guidelines contained herein.

The recommendations and design guidelines outlined in this report are based on: 1) the proposed site development and plot plan as furnished to CCI Engineering/Cronk Construction Incorporated by the client, and 2) the site conditions disclosed at the specific time of the site investigation of reference. CCI Engineering/Cronk Construction Incorporated assumes no liability for the accuracy or completeness of information furnished by the client. Site conditions are subject to external environmental effects and may change over time. Use of this plan under different site conditions is inappropriate. If it becomes apparent that current site conditions vary from those anticipated, the design engineer and MCPWD should be contacted to develop any required design modifications. CCI Engineering/Cronk Construction Incorporated is not responsible and accepts no liability for any variation in assumed design parameters.

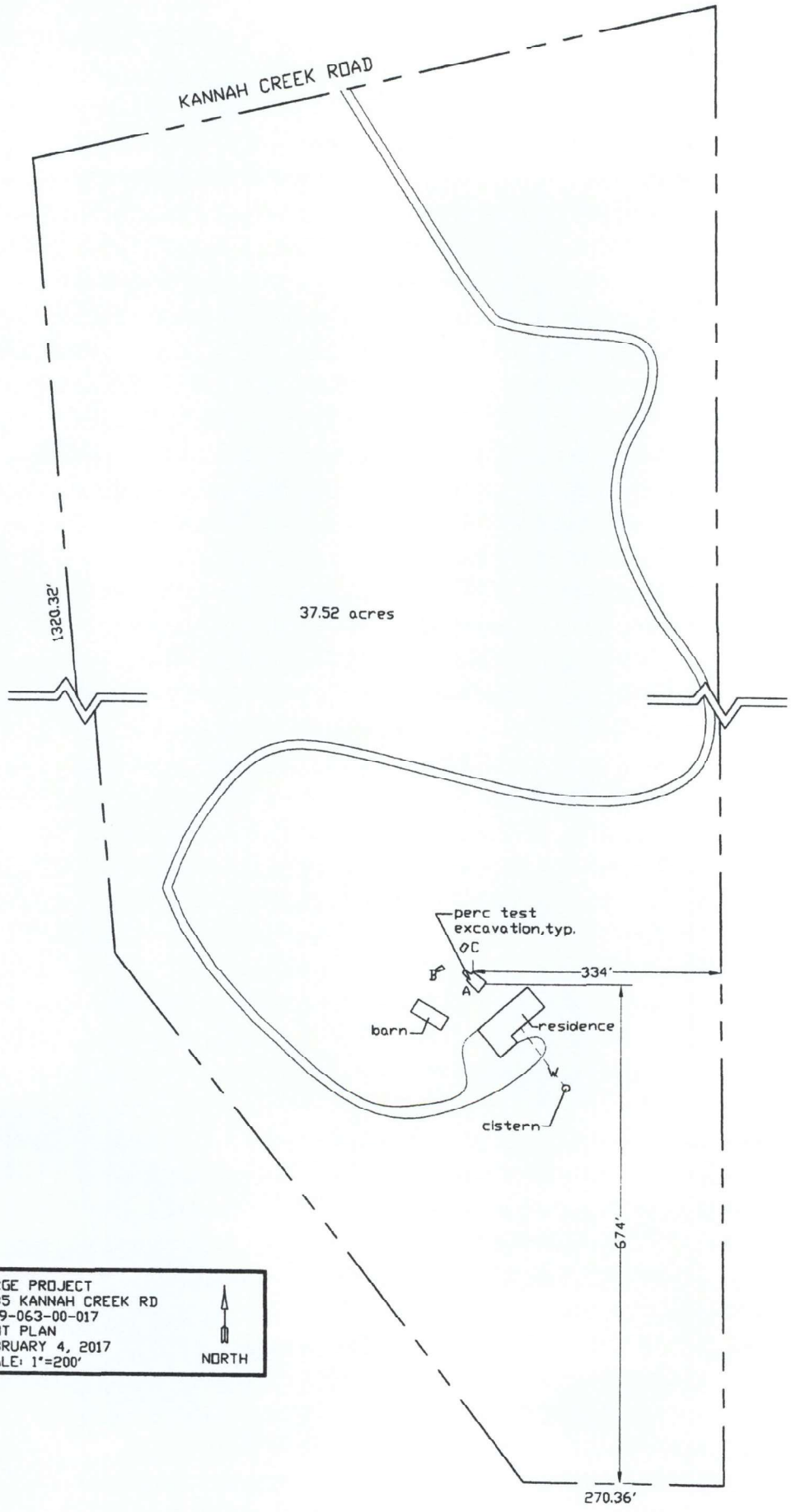
CCI Engineering/Cronk Construction Incorporated represents this report has been prepared within the limits prescribed by the owner and in accordance with the current accepted practice of the civil engineering profession in the area. No warranty or representation either expressed or implied is included or intended in this report or in any of our contracts.

SEAL


Thomas A. Cronk, P.E.

February 6, 2017
Date

**NOTE: This individual sewage disposal plan is meant to include the following four pages of graphics including: 1) plot plan, 2) septic layout plan, 3) absorption field plan view, and 4) absorption field cross section. The plan is not to be implemented in the absence of these related graphics. In addition, results from the percolation test and soils evaluation are included for reference as Appendix A.**


KANNAH CREEK ROAD
1320.32'
37.52 acres
perc test
excavation, typ.
C
B
A
334'
barn
residence
W
cistern
674'
270.36'
BURGE PROJECT
6785 KANNAH CREEK RD
3199-063-00-017
PLOT PLAN
FEBRUARY 4, 2017
SCALE: 1"=200'
NORTH

NOTE

GRAVITY DISCHARGE OF SEWAGE EFFLUENT FROM THE RESIDENCE TO THE DISPOSAL SYSTEM IS BASED ON THE FOLLOWING DESIGN ASSUMPTIONS:

LENGTH OF SEWAGE PIPING FROM EXIT AT FOUNDATION LINE TO ENTRY TO ABSORPTION FIELD = 60' OR LESS

ELEVATION OF GROUND SURFACE AT ENTRY TO ABSORPTION FIELD = NO MORE THAN 12" ABOVE THE INVERT ELEV. OF SEWAGE PIPE AT EXIT FROM FOUNDATION LINE

DISCLAIMER

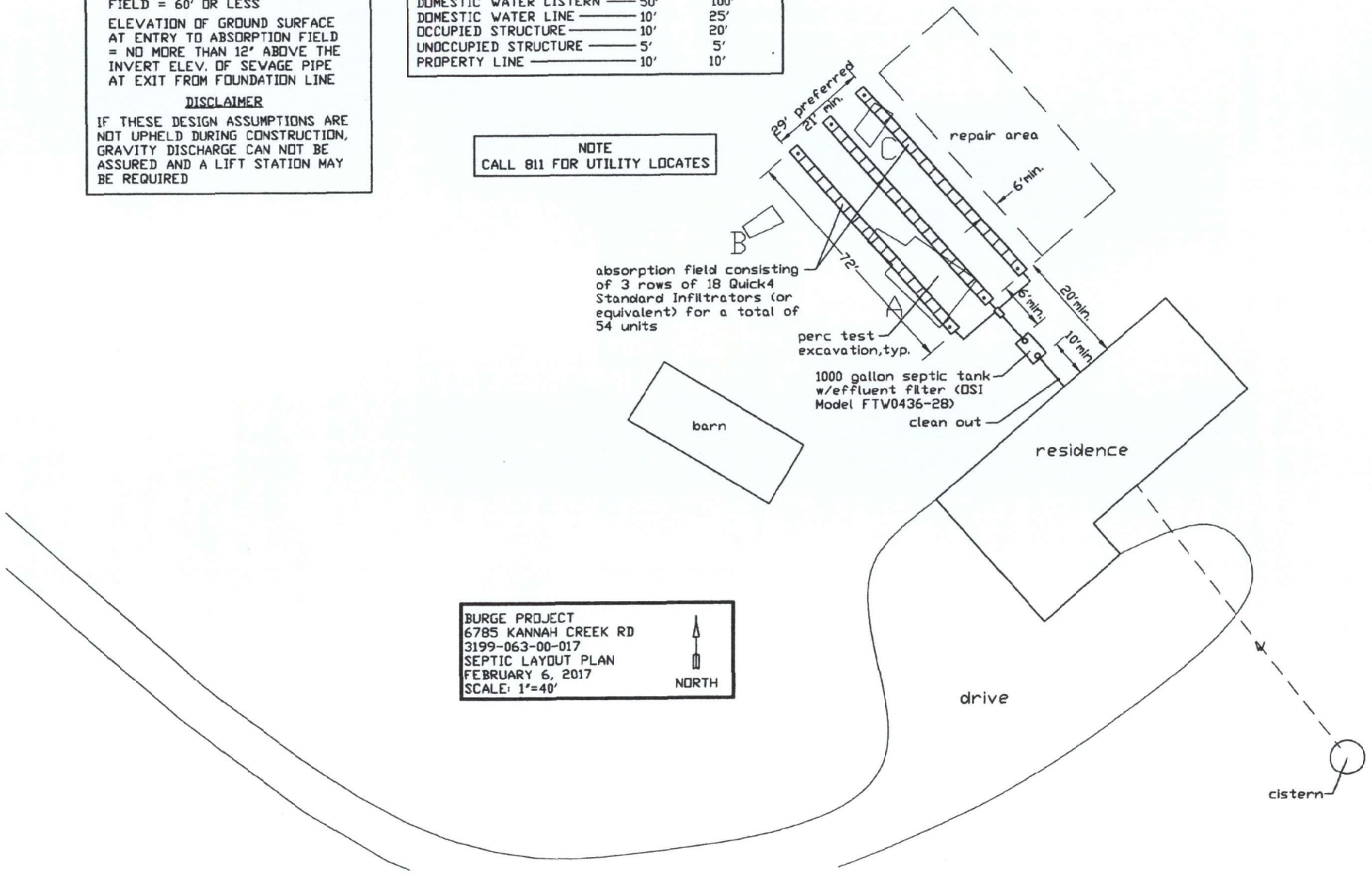
IF THESE DESIGN ASSUMPTIONS ARE NOT UPHELD DURING CONSTRUCTION, GRAVITY DISCHARGE CAN NOT BE ASSURED AND A LIFT STATION MAY BE REQUIRED

NOTE

THE FOLLOWING SETBACKS MUST BE MAINTAINED:

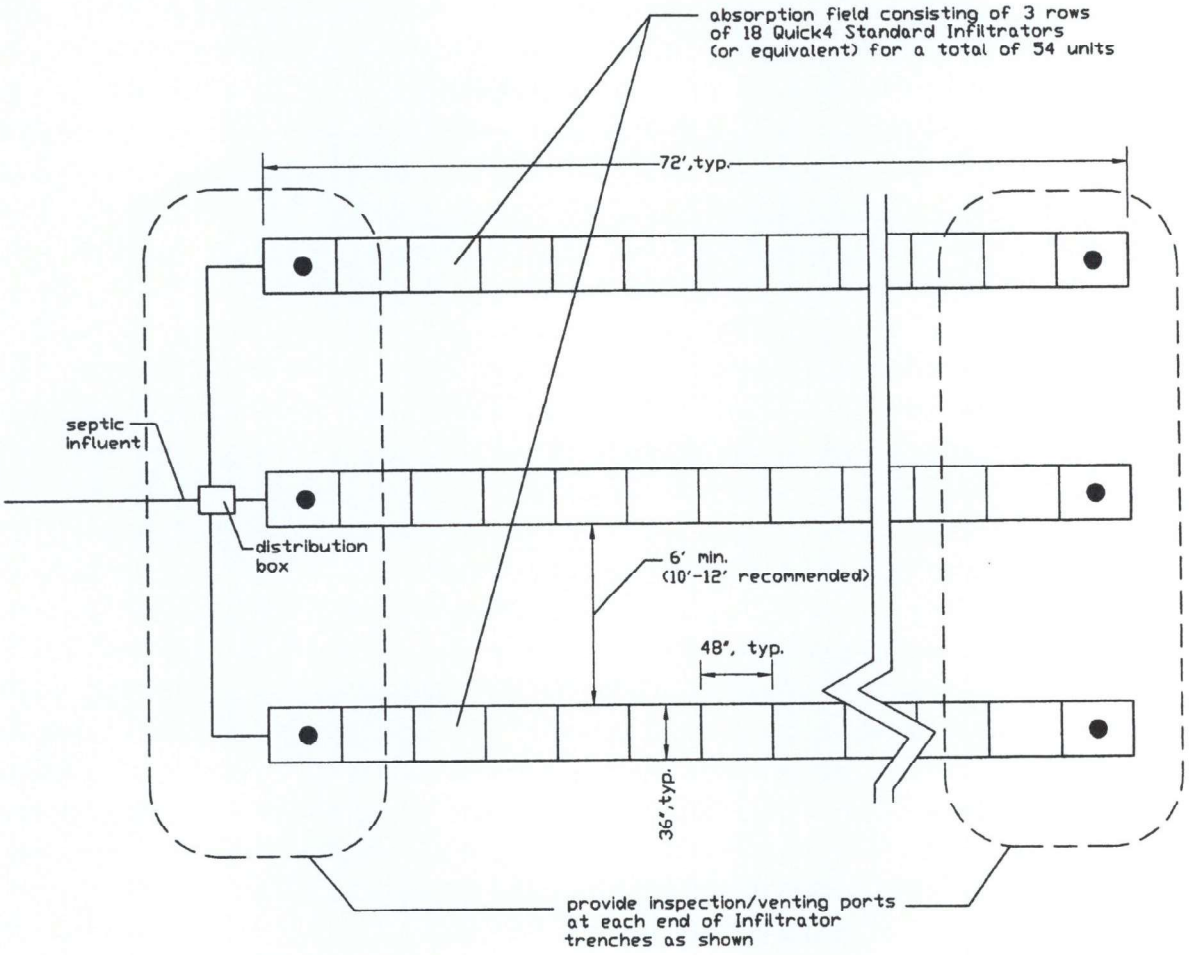
| | SEPTIC TANK | ABSORPTION FIELD |
|---|---|---|
| SPRINGS/WELLS | 50' | 100' |
| LAKE/STREAM/IRRIG. DITCH | 50' | 50' |
| INTERMITTENT IRRIG. DITCH | 10' | 25' |
| GATED PIPE | 10' | 25' |
| SOLID PIPE/LINED DITCH | 10' | 10' |
| DOMESTIC WATER CISTERN | 50' | 100' |
| DOMESTIC WATER LINE | 10' | 25' |
| OCCUPIED STRUCTURE | 10' | 20' |
| UNOCCUPIED STRUCTURE | 5' | 5' |
| PROPERTY LINE | 10' | 10' |

NOTE
CALL 811 FOR UTILITY LOCATES



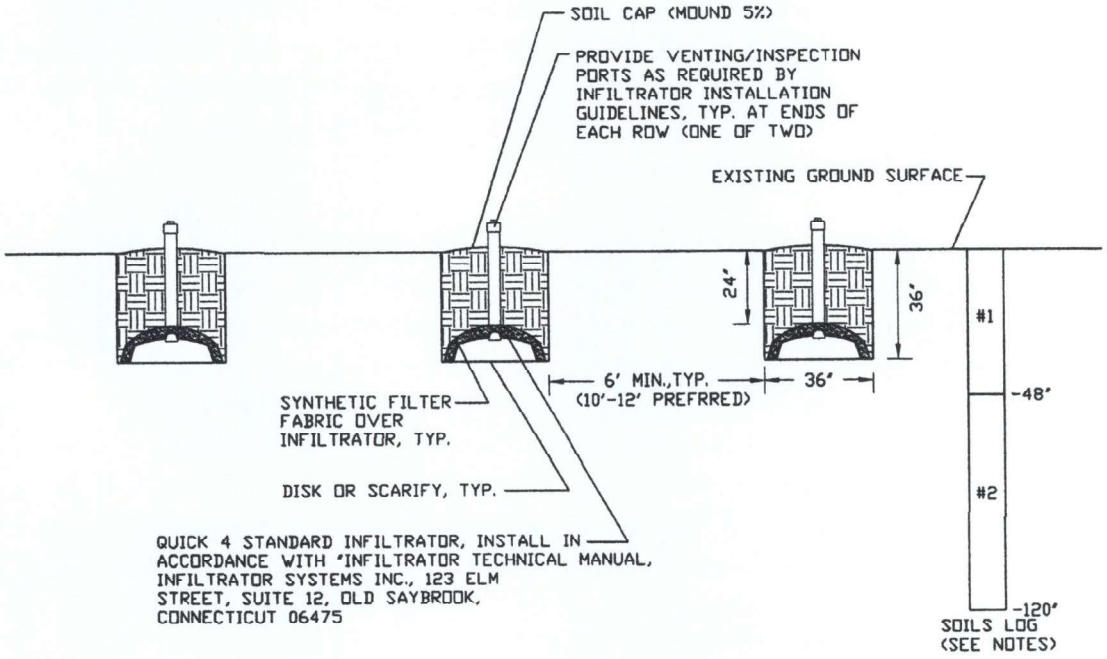

BURGE PROJECT
6785 KANNAH CREEK RD
3199-063-00-017
SEPTIC LAYOUT PLAN
FEBRUARY 6, 2017
SCALE: 1"=40'

NORTH




ABSORPTION FIELD - PLAN VIEW
SCALE: 1"=10'

BURGE PROJECT
6785 KANNAH CREEK ROAD
3199-063-00-017
ABSORPTION FIELD-PLAN VIEW
FEBRUARY 6, 2017
SCALE: 1"=10'

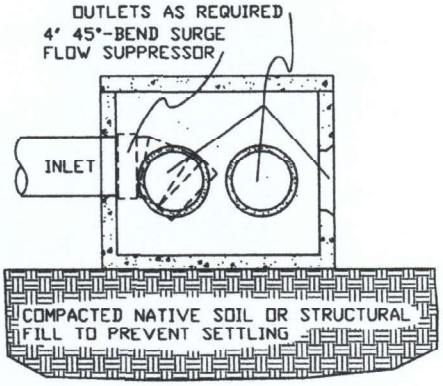



| ELEVATION DESIGN SPECIFICATIONS |
|---|
| DESIGN DISTANCE FROM FOUNDATION LINE TO SEPTIC TANK = 12' |
| DESIGN DISTANCE FROM SEPTIC TANK TO DISTRIBUTION BOX = 10' |
| ASSUMED ELEVATION OF GROUND SURFACE AT ENTRY TO SOIL TREATMENT AREA = 100.00' |
| ELEVATION OF INFILTRATIVE SURFACE OF SOIL TREATMENT AREA = 97.00' |
| INVERT ELEVATION OF SEWAGE LINE AT EXIT FROM DISTRIBUTION BOX = 97.58' |
| INVERT ELEVATION OF SEWAGE LINE AT EXIT FROM SEPTIC TANK = 97.78' |
| INVERT ELEVATION OF SEWAGE LINE AT EXIT FROM FOUNDATION LINE = 98.27' |

## ABSORPTION FIELD - CROSS SECTION

(TYPICAL 3 OF 3)

SCALE: 1"=5'




DISTRIBUTION BOX DETAIL
SCALE: 1"=1'

| SOILS LOG NOTES |
|---|
| #1 - LIGHT BROWN TO TAN SAND CLAY/CLAYEY SAND (USDA-SANDY LOAM, BLOCKY, WEAK STRUC.) |
| #2 - BASALT COBBLE TO BOULDERS IN LIGHT BROWN CLAYEY SAND MATRIX (USDA-SANDY LOAM, BLOCKY, STRONG STRUC.) |
| NO GROUNDWATER OR HIGH SEASONAL WATER TABLE TO 120" BELOW GROUND SURFACE (BGS) |

BURGE PROJECT
6785 KANNAH CREEK ROAD
3199-063-00-017
ABSORPTION FIELD - CROSS SECTION
FEBRUARY 6, 2017
SCALE: AS SHOWN

**APPENDIX A**

**SOILS AND PERCOLATION REPORT**

**CCI ENGINEERING/CRONK CONSTRUCTION INCORPORATED**

**CCI ENGINEERING** 1129 -24- Road
*Cronk Construction Inc.* Grand Junction, CO 81505
Grand Junction (970) 245-0577 • Glenwood Springs/Aspen (970) 640-5029 • Montrose/Delta (970) 640-5029
Email: ccigj@msn.com

# SOILS AND PERCOLATION REPORT

Date: February 3, 2017

Prepared by: Thomas A. Cronk, P.E.
1129 -24- Road
Grand Junction, CO 81505
245-0577

Client: Boise F. Burge III
6785 Kannah Creek Road
Whitewater, CO 81527
(970) 210-9385

Property address: 6785 Kannah Creek Road, Whitewater, CO 81527

Tax schedule No.: 3199-063-00-017

Legal Descript.:

## 1.0 Soils Evaluation

The site consists of approximately 37.52 acres of uncultivated native soil. Drainage varies across the site which has been man-leveled in the area of reference. Slopes range from 5%-50% away from the building envelope elsewhere. A percolation test/soils evaluation was conducted on the property of reference on 02/03/17 by Tom A. Cronk, registered professional engineer (R.P.E.). The *perc* excavation trench (excavation A) was located approximately 674' north of the south property line and approximately 334' west of the east property line. Additional *perc* holes were located 50' northwest of the trench (excavation B and excavation C).

A *perc* excavation trench (excavation A) was extended to a depth of 120" below ground surface (BGS). There was no evidence of ground water or high seasonal water table in the open excavation to a depth of 120" BGS. The soils evaluation indicates two distinct soil horizons underlie the site. A lithological description follows:

| depth (in.) | description |
|---|---|
| 0" – 48" | clayey sand/sandy clay, light brown to tan (USDA-sandy loam, blocky, weak structure) |
| 48" – 120" | basalt cobble to boulders in light brown clayey sand matrix (USDA-sandy loam, blocky, strong structure) |

*Perc* holes were constructed in excavation A at the surface and at depths of approximately 36 in. and 72 in. Additional *perc* holes were constructed in excavations B and C at a depth of 48 in. The holes appeared to be well saturated at the time of the test. Results of the percolation test are shown in Table 1.

**TABLE 1**

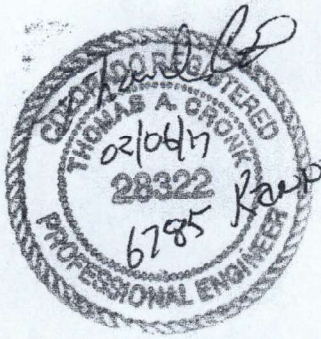
| Percolation Test Results<br>6785 Kannah Creek Road | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Time on 02/03/17 | | | | | | | | Time Drop | *Perc* Rate min/in |
| | 14:33 | 14:55 | 15:13 | 15:33 | | | | | | |
| (A) 0" – 10" | 3.375 | 3.5625 | 3.75 | 3.8125 | | | | | 60/0.4375 | 137 |
| (A) 36" – 44" | 4.5 | 5.25 | 5.75 | 6.125 | | | | | 60/1.625 | 37 |
| (A) 72" – 80" | 4.0625 | 5.625 | 6.625 | 8.0 dry | | | | | 60/3.9375 | 15 |
| (B) 48" – 57" | 4.5625 | 6.25 | 7.375 | | | | | | 40/2.8125 | 14 |
| (C) 48" – 56" | 3.875 | 4.5625 | 4.9375 | 5.375 | | | | | 60/1.5 | 40 |

2.0 Limitations

This document is representative of the site conditions disclosed at the specific time of the site investigation. Site conditions are subject to change from external events both manmade (irrigation or water feature construction) and naturally occurring (flooding or excessive precipitation). CCI Engineering/Cronk Construction Incorporated is not responsible and accepts no liability for any future variation in site conditions.

CCI Engineering/Cronk Construction Incorporated represents this report has been prepared within the limits prescribed by the owner and in accordance with the current accepted practice of the civil engineering profession in the area. No warranty or representation either expressed or implied is included or intended in this report or in any of our contracts.

SEAL




Thomas A. Cronk, P.E.

February 6, 2017
Date