Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

A

Permit Number
HS002061

Onsite Wastewater Treatment System
Request for Site Clearance and Permit

Include Form B and C.
Submit correct fee
with this Application

3 acres or more required for: ☒ Septic System ☐ Lagoon ☐ Other (Refer to Form C)

The undersigned hereby requests site clearance and permit to construct a Wastewater Treatment System in conformance with appropriate regulations.

PLEASE PRINT OR TYPE

A. Onsite System Location

Address 5100 Quarry Ledge Rd (no rural route) City Roca, NE Zip 68430

Legal Description SW SE 8 T8 R7 The Quarry 4th Add. 1
(1/4 1/4 Section Township Range Subdivison Addition Block Lot)

PID 15-08-404-001-000 Lat 40.6705 Long -96.6524

B. Owner

Name Don Spaulding Signature

Address 5100 Quarry Ledge Rd City/State/Zip Roca, NE 68430

Home Phone 402-440-3058 Work Phone

C. Certified Installer

Name: Jeff Schoeneck PE Signature Jeff Schoeneck

Address 1291 County Rd V City/State/Zip Fremont, NE 68025

Work Phone 402-720-9209

D. Engineer

☒ Check and complete if engineer designed system P.E. License Number: E8989

Designer Name Jeff Schoeneck PE. Firm Horizon Envirotech, LLC Work Phone 402-720-9209

E. This system will serve a

☒ Residential Dwelling Number of Bedrooms 5 Whirlpool Bathtub? ☒ Yes ☐ No Total Acres 3+
Garbage Grinder? ☒ Yes ☐ No

☐ Commercial Establishment/Other Facility Specify Design flow in gallons per day 600

Type of Wastewater ☐ Domestic ☐ Non-Domestic

DO NOT WRITE BELOW THIS LINE

Approval Process ☐ Municipal Code 24.38 ☐ County Resolution No. 02-30

1. Health Department
Site visits
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

2. Supt. Bldg. Insp. or Village Clerk
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

3. City or County Engineer
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

Installation Final Written Approval
By
Date

Business Office Use Only
Date Received 7-31-20 Amount Paid $430.00
Received By JAO Cash/Check No. 4232 CC

White - Health Department Yellow - Engineer Pink - Building & Safety

Form A Updated: 1/13

NEBRASKA

Good Life. Great Resources.

DEPT. OF ENVIRONMENT AND ENERGY

Construction Permit No. 20OWT014

is hereby issued to

Don Spaulding

for the

600 Gallon per Day Mound Wastewater Treatment System for 5100 Quarry Ledge Road, Roca, NE 68430

Description:

The new replacement system shall be comprised of one existing 1,500 gallon septic tank plus a new 1,500 gallon tank partitioned into 500 gallon septic tank and 1,000 gallon pump tank. A 32 gpm submersible pump will pump to a mound system consisting of three Polystyrene 12 inch diameter bundles at 60 foot length under laid by three feet of 47-B sand. The total infiltration bed will be 1,020 sq. ft. and capped by a two foot loamy cover. The leach field will be recessed into the ground 5.5 ft to reach a more permeable blocky silt clay layer having an estimated 0.6 gallons/sq. ft./day hydraulic loading capacity. The infiltration bed will be dosed 4 times daily at 150 gallons each. The pump will have a high water alarm with effluent filter. Depth to groundwater was found at greater than 10 feet. A maintenance agreement with a certified authorized installer is recommended for the life of the system.

located at

5100 Quarry Ledge Road, Roca, NE 68430
Lat 40.6705, Long 96.6524, Lancaster County

Pursuant to a Delegation Memorandum dated July 1, 2019, and signed by the Director, the undersigned hereby executes this document on behalf of the Director.

Signed 4/10/2020

Shelley Schneider, Water Permits Division Administrator

Suite 400, The Atrium, 1200 "N" Street, P. O. Box 98922, Lincoln, Nebraska, 68509-8922
Phone (402) 471-2186, Fax (402) 471-2909, e-mail ndee.moreinfo@nebraska.gov

Spaulding Residence Septic System Design
5100 Quarry Ledge Rd, Roca, NE
3/18/2020

Site Conditions - Home sits on lot approximately 3.4 acres in size, of which about 2.5 acres is part of a lake, or has an extreme slope down to the lake. The existing laterals are failing. Soil borings indicate a firm clay loam to a depth of about 55". The soil changes to a silty clay loam, with a strong blocky structure, to a depth of approx 90" Limestone rock was encounted below the silty clay loam layer. A soil percolation test was conducted at a depth of 30" below the surface. The average rate was 90 min/in, with a range from 50 to 120 min/in. The results confirmed the reason for conventional lateral failure.

Proposed Repair Plan -

Due to limited space, install a 1,020 Sq Ft Modified Mound (Sand Filter) System - Aerobic Treatment and Absorption System. The soil would be excavated and removed to a depth of 5.5ft and import 47B (medium) sand , and construct the in-ground dosed intermittent sand filter system. This would allow access to the better-suited underlying soils.

Peak Daily Design Load - 5 Bedroom Home - 600 gpd
Soil Type - Underlying Soil-Silty Clay Loam w/moderate to strong Blocky Structure
Propose Soil Absorption Rate - 0.6 gal/Sq Ft/Day @30 mg/l BOD

Modified Mound Sizing -

Sizing of Treatment Media Bed (to use (3)-12" Polystyrene Bundles over medium sand)

Area Required - 600gpd/1.2 gpd/sq ft = 500 sq ft
Propose 180 Ln Ft of Bundles @ 3 sq ft/ft = 540 Sq Ft (3) X 60' Long

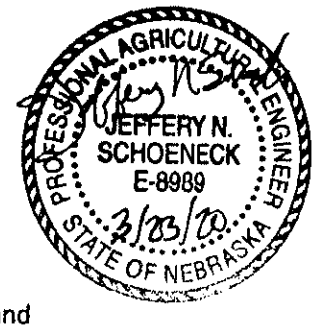
Basal Loading Requirement (Sizing of Sand to Soil Area)

Soil Loading Rate (Pretreated to < 30 mg/l BOD5 & TSS) - 0.6 gal/sq ft/day
Area Required = 600 gpd / 0.6 = 1,000 Sq Ft
Proposed Area - 1,020 Sq FT (15' X 68')

* Contractor to Follow (In-general) Mound Construction Practices per NDEQ Title 124

Septic Tank Sizing - Existing Septic Tank (1,500 gal) is Inadequately Sized for 5-bedroom home with ovesized tub and garbage grinder. The total septic tank capacity will be increased to 2,000 gal.

Dose Tank Size - Propose 1,000 gallons
Dose Volume - 600gpd /4 doses per day = 150 gallons each
Pump Sizing - Minimum 32 gpm @ 15 Ft TDH
Pump Draw-down - Based on Accurate Concrete Septic Tank @ 22.2 gal/in = 6.75"
Set High-water Alarm to Activate @ 3" Above Pump-On Level



Electical Requirements - Requires (1) Dedicated 20 Amp, 120V, 1ph GFI Circuit for Pump and Separate 15 Amp (min),120V, 1ph Circuit for High-water Alarm

Table 4-3. Suggested hydraulic and organic loading rates for sizing infiltration surfaces

Texture	Structure		Hydraulic loading (gal/ft²-day)		Organic loading (lb BOD/1000ft²-day)	
	Shape	Grade	BOD=150	BOD=30	BOD=150	BOD=30
Coarse sand, sand, loamy coarse sand, loamy sand	Single grain	Structureless	0.8	1.6	1.00	0.40
Fine sand, very fine sand, loamy fine sand, loamy very fine sand	Single grain	Structureless	0.4	1.0	0.50	0.25
Coarse sandy loam, sandy loam	Massive	Structureless	0.2	0.6	0.25	0.15
	Platy	Weak	0.2	0.5	0.25	0.13
		Moderate, strong				
	Prismatic, blocky, granular	Weak	0.4	0.7	0.50	0.18
		Moderate, strong	0.6	1.0	0.75	0.25
Fine sandy loam, very fine sandy loam	Massive	Structureless	0.2	0.5	0.25	0.13
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.2	0.6	0.25	0.15
		Moderate, strong	0.4	0.8	0.50	0.20
Loam	Massive	Structureless	0.2	0.5	0.25	0.13
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.4	0.6	0.50	0.15
		Moderate, strong	0.6	0.8	0.75	0.20
Silt loam	Massive	Structureless		0.2	0.00	0.05
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.4	0.6	0.50	0.15
		Moderate, strong	0.6	0.8	0.75	0.20
Sandy clay loam, clay loam, silty clay loam	Massive	Structureless				
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.2	0.3	0.25	0.08
		Moderate, strong	0.4	0.6	0.50	0.15
Sandy clay, clay, silty clay	Massive	Structureless				
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak				
		Moderate, strong	0.2	0.3	0.25	0.08

Source: Adapted from Tyler, 2000.

5100 Quarry Ledge Rd Septic System

Septic System Critical Elevations	
DESCRIPTION	ELEVATION
Top of Concrete Fondation @ Walk-out	100.00
Average Top of Ground @ Absorption Site	99.20
Existing Septic Tank Outlet	97.50
Inlet to 500 gal Septic Tank	97.25
Dose Tank Inlet	97.00
Pump Inlet	93.25
Over-Excavation Level (Approximate)	93.70
Top of Medium Sand Layer	96.80
Pressure Lateral Header	98.05
Finished Ground Elevation Over Modified Mound (Average)	99.20

Notes:

1. Orientation & Location of Dose Tank & Pressure Line May Vary Slightly From Shown
2. Over-excavate mound site to remove and dispose of old laterals and clogged soils. Project Engineer to be present to determine condition of soil at proposed excavated depth.
3. Place 6 to 12" moderately compacted lifts of Medium (47-B) Sand
4. Avoid foot or equipment traffic over excavated soil until min placement of 6'" of sand
5. Contractor Responsible for Contacting 811 for Primary Utilities
6. Septic Permit and Inspections are Required from Lancaster County Health Dept. In addition, contractor to coordinate inspections with design engineer.
7. Septic Installation Shall Also Meet Minimum Requirements of NDEQ Title 124 and Shall Be Registered With NDEE Onsite Department
8. Contractor to Warrant Workmanship Items for a Period of 2-Years (Equipment Warranties Limited To Mfg. Warranty Terms and Coverage)
9. Fine grading & Seeding to be completed soon after completion of construction.
10. Owner To Keep Trees From Growing Within 15 Ft of the Absorption Field Area
11. Absorption Site to be Protected From Any Vehicle Traffic.
12. Effluent Filter is required on septic tank outlet or pressure effluent line.

Prepared By:

Jeffery N. Schoeneck, P.E.
Horizon Envirotech, LLC
1291 County Rd V
Fremont, NE 68025
402-720-9209
jeffhet@1791.com

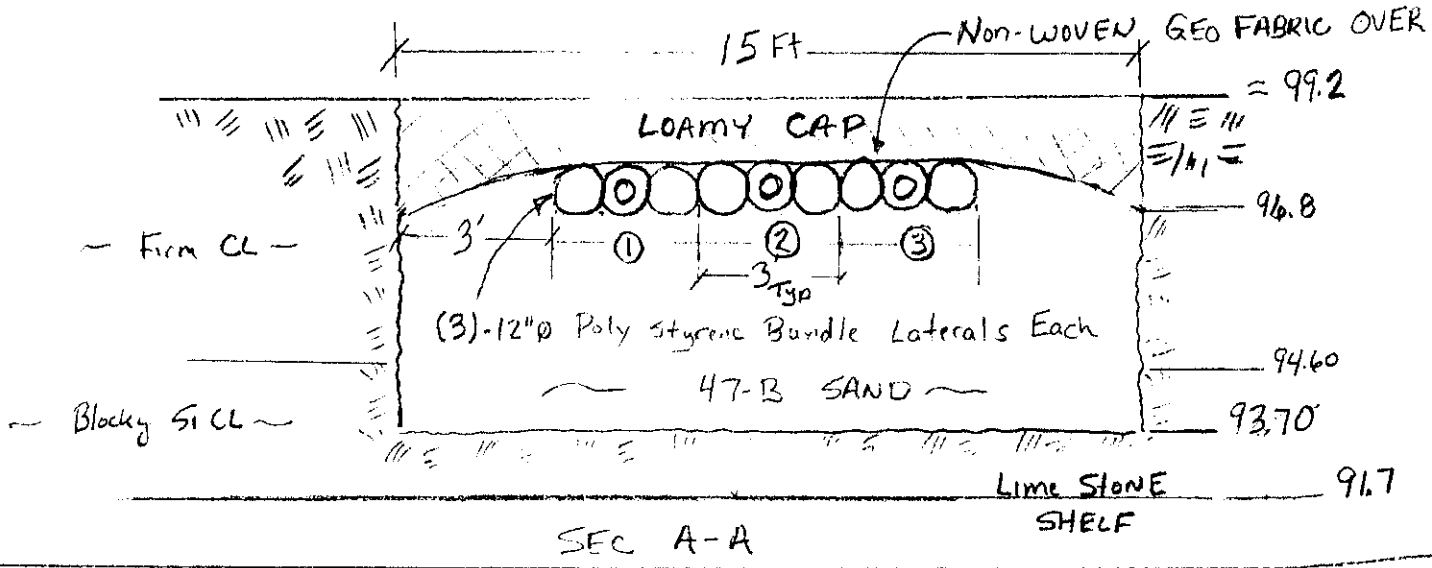
5100 Quarry Ledge Rd Septic System

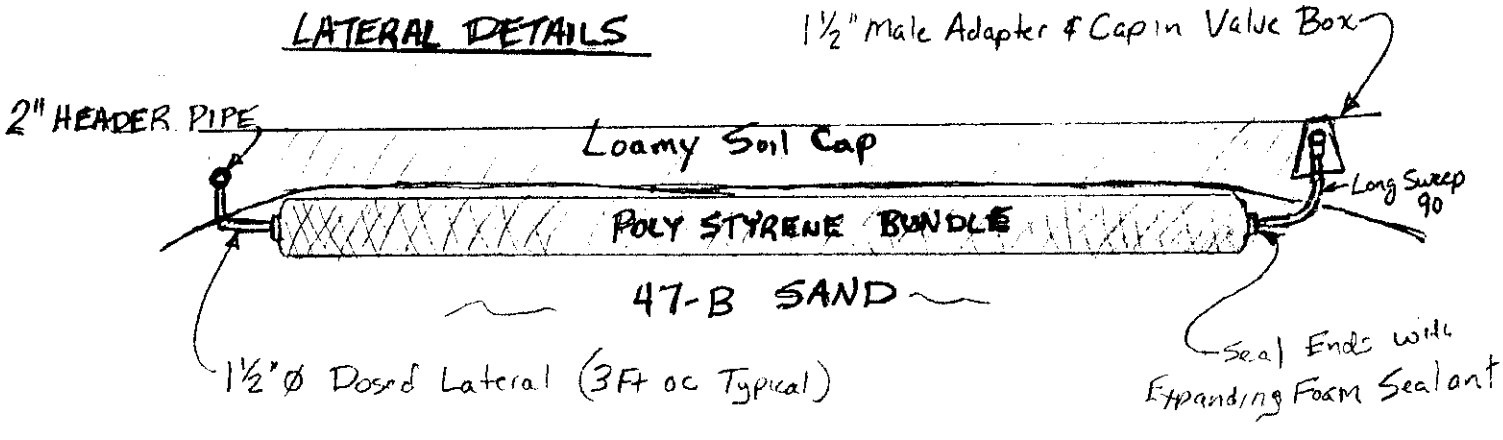
LATERAL LINE SCHEDULE 1-1/2" Diameter

LATERAL	BUNDLE LENGTH ft	PIPE LENGTH FT	HOLE SPACING FT	NO OF HOLES	HOLE SIZE	LATERAL FLOW GPM
1	60	61	2.5	24	3/16"	10.08
2	60	61	2.5	24	3/16"	10.08
3	60	61	2.5	24	3/16"	10.08
				TOTAL FLOW		30.24

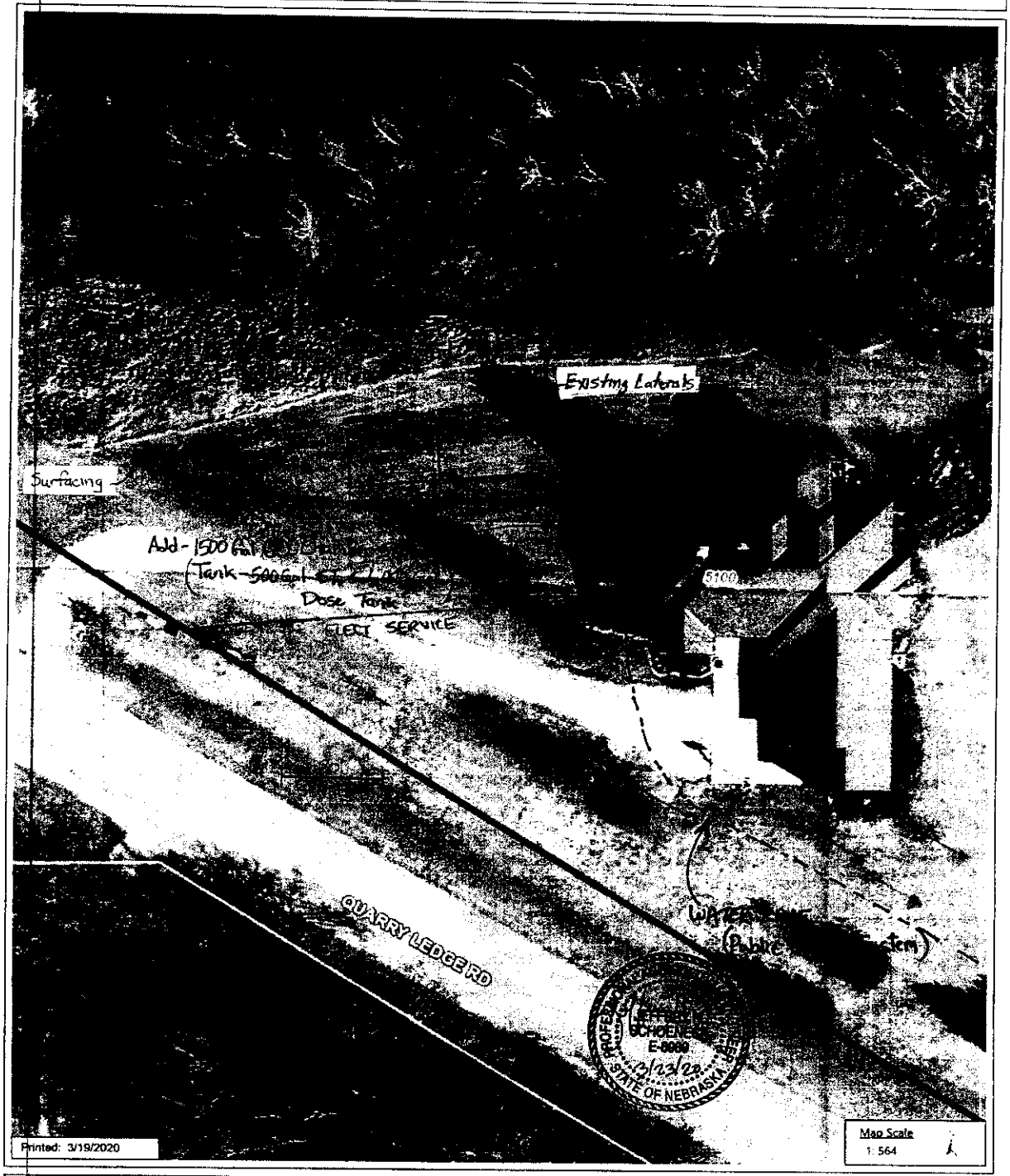
Notes:

1. Drill first hole 21" from end of pipe.
2. Flow Rate Based on 0.42 gpm @ 1Ft Head per Hole
3. Orient Holes in Corrugated Pipe @ 5 or 7 O'clock to Avoid Blockage
4. Use drilled end-caps or foam ends of corrugated pipe to prevent soil intrusion
5. Position Header Pipe to be at high point to drain pipes between dosings





SEPTIC SYSTEM PLAN



DISCLAIMER: The information is presented on a best-efforts basis, and should not be relied upon for making financial, survey, legal or other commitments. If you have questions or comments regarding the data displayed on this map, please email assessor@lancaster.ne.gov and you will be directed to the appropriate department.

Lincoln-Lancaster County Health Department
Environmental Public Health Division (402) 441-8027
3131 O Street Lincoln, Nebraska 68510-1514

ON-SITE WASTE WATER SYSTEM
CONSTRUCTION - INSTALLATION PERMIT
No. HS002061

System Type: Mound System

Situs: No Site Address Specified

Issued: 8/4/2020

Expires: 8/4/2021

Description: THE QUARRY 4TH ADDITION, Lot 1

Owner: SPAULDING, DONALD B & NADEAN L
5100 QUARRY LEDGE RD
ROCA, NE 68430

Patricia D. Lopez

Patricia D. Lopez, RN, MSN, Interim Health Director

Dear Applicant:

The above document is your permit to construct a new On-site Waste Water System at the location listed. Please contact this office once the sytem is complete in order to schedule a final inspection before use.

Patricia D. Lopez

Patricia D. Lopez, RN, MSN
Interim Health Director

JEFF SCHOENECK
1291 COUNTY RD V
FREMONT, NE 68025

Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

Exhibit 5

Permit Number: 1/S 08 2061

Onsite Wastewater Treatment System

Inspection Sheet

Date 8/7/20

Legal Description ____ ¼ ____ ¼ ____ Section/Township/Range

Onsite System Location

Address (no rural route) 5100 Quarry Ledge City ____

Owner ____ Address ____

Mark One: ☒ Dwelling ☐ Non-dwelling

☒ New System ☐ Alteration [☐ Tank Only ☐ Trench Only] ☐ Lateral Only

☐ Temporary modification (Describe problem causing discharge and reason for temporary modification): ____

Drainfield Absorption System:

☐ Lateral ☐ Bed ☒ Non-standard (engineer-designed and NDEQ approved) ☐ Holding Tank ☐ Trench

Total square feet of drainfield ____ Sq. Ft. Tank Size ____ gals

Total length of laterals ____ Type of Distribution: ☐ Chamber ☐ Perforated Pipe ☐ Other (describe) ____

No. of Absorption Laterals ____ Width ____ No. of Drop Boxes ____ Distribution Box ____

Leveling Method Used ____

Setbacks (Check the Boxes Below if the Required Setback has been Satisfied):

Distance From:	Private Well	Public Well	Surface Water	Ground water	Pressure Water Lines	Property Lines
Tank (ft)	50 ☐	500 ☐	50 ☐	NA ☐	10 ☐	5 ☐
Field (ft)	100 ☐	500 ☐	50 ☐	4 ☐	25 ☐	5 ☐

System Constructed and installed as specified in NDEE Permit

Geographical Coordinates to 6 Decimals:

Tank ____

Lateral #1 ____ Lateral #3 ____

Lateral #2 ____ Lateral #4 ____

Comments:

Inspections prior to Final Approval
Initial CT DJ Date 8/6/20

Follow-Up ____ Date ____

Follow-Up ____ Date ____

Installation Final Written Approval
By Doug Ahlschwede

Date 8/7/20

Field Note Drawing (See Reverse Side):

Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

SCAN

A

Permit Number
HS007061

Onsite Wastewater Treatment System
Request for Site Clearance and Permit

Include Form B and C. Submit correct fee with this Application

3 acres or more required for: ☒ Septic System ☐ Lagoon ☐ Other (Refer to Form C)

The undersigned hereby requests site clearance and permit to construct a Wastewater Treatment System in conformance with appropriate regulations.

PLEASE PRINT OR TYPE

A. Onsite System Location

Address 5100 Quarry Ledge Rd (no rural route) City Roca, NE Zip 68430

Legal Description SE TB R7 The Quarry 4th Add. 1
(1/4 1/4 Section Township Range Subdivison Addition Block Lot)

PID 15-08-404-001-000 Lat 40.6705 Long -96.6524

B. Owner

Name Don Spaulding Signature

Address 5100 Quarry Ledge Rd City/State/Zip Roca, NE 68430

Home Phone 402-440-3058 Work Phone

C. Certified Installer

Name: Jeff Schoeneck PE Signature Jeff Schoeneck

Address 1291 County Rd V City/State/Zip Fremont, NE 68025

Work Phone 402-720-9209

D. Engineer

☒ Check and complete if engineer designed system P.E. License Number: E8989

Designer Name Jeff Schoeneck PE. Firm Horizon Envirotech, LLC Work Phone 402-720-9209

E. This system will serve a

☒ Residential Dwelling Number of Bedrooms 5 Whirlpool Bathtub? ☒ Yes ☐ No Total Acres 3+
Garbage Grinder? ☒ Yes ☐ No

☐ Commercial Establishment/Other Facility Specify Design flow in gallons per day 600

Type of Wastewater ☐ Domestic ☐ Non-Domestic

DO NOT WRITE BELOW THIS LINE

Approval Process ☐ Municipal Code 24.38 ☒ County Resolution No. 02-30

1. Health Department
Site visits 8/6/20
Comments
Date rec'd 8/4/20
Date frwd 8/4/20
ACTION ☒ Approved ☐ Disapproved
Signature

2. Supt. Bldg. Insp. or Village Clerk
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

3. City or County Engineer
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

Installation Final Written Approval
By Doug Mark
Date 8/7/20

Business Office Use Only
Date Received 7-31-20 Amount Paid $430.00
Received By MD Cash/Check No. 47332

White - Health Department Yellow - Engineer Pink - Building & Safety

Form A Updated: 1/13