HS001152

Mound System
NDEQ - Engineer

Application to Alter or Repair an Onsite Wastewater Treatment System

Owner (Cheryl Johnson

The applicant is applying for a permit to: ☐ALTER ☐REPAIR an existing Onsite Wastewater Treatment System, and agrees to comply with LMC 24.38 or County Resolution 02-0030.

1. **Street Address (No Rural Route):** 1121 Virginia St

   Legal Description of Property: Township: 10N Range: 6E Section: 14

   Block 6 Lot 3-4 SubDivision Riverside Addition Add:

   *Parcel ID 11 - 14 - 404 - 002 - 000 (i.e. 99-99-999-999-999)

2. **Property use:** ☐ Residential ☑ Commercial ☐ Other use (Describe:)
   Number of bedrooms 6 Does the system have a: ☐ Garbage Grinder ☐ Large Capacity Tub

3. **Type of Present Individual Disposal System** ☐ septic system ☐ lagoon ☑ other

4. **Description of proposed alteration or repair:** Remove old perforated pipe that was clogged and install new pipe with larger holes and orrtec shields

5. **Current Type of Lateral-** Perforated Pipe **Current Linear Ft. Of Lateral -** 76'

   Current Tank Gallonage- 1,750

6. **Print Name** Nathaniel Burnett **Address** 601 Old Cheney Rd. Ste. 'A' **Phone:** 402-484-7342

   Applicant Signature: Nathaniel Burnett

Please contact LLCHD for the current permit fee for this application
Fee must be included before the application will be processed. Incomplete information will delay processing.

HEALTH DEPARTMENT USE ONLY

☐Municipal Code 24.38 ☐County Resolution Number 02-30

Date received ____/____/____ REVIEW: ☐ Approved ☐ Disapproved By: _____

Comments (if any): _____

Site visits
Date ____/____/____ By _____
Date ____/____/____ By _____

Installation final written approval
Date ____/____/____ By _____

Return application to:
Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 "N" Street, Lincoln, NE 68510
Phone: (402) 441-8643

Business Office Use Only
Received: Date: 10/20/15 Amount $210.00 Check No. 1036 Initials SB

Revised 4/8/13

Lincoln-Lancaster County Health Department
Environmental Public Health Division (402) 441-8027
3140 N Street Lincoln, Nebraska 68510-1514

ON-SITE WASTE WATER SYSTEM
ALTERATION PERMIT
No. HS001152

System Type: Standard

Situs: 1121 VIRGINIA ST, LINCOLN, NE

Issued: 10/26/2015

Expires: 10/26/2016

Description: RIVERSIDE ADDITION, BLOCK 6, Lot 3 - 4

Owner: JOHNSON, DANA & CHERYL FAMILY TRUST
PO BOX 67171
LINCOLN, NE 68507

Judith A Halstead
Judith A. Halstead, MS, Health Director

Dear Applicant:

The above document is your permit to alter an existing On-site Waste Water System at the location listed. Please contact this office once the alteration is complete to obtain final approval before use.

Judith A Halstead
Judith A. Halstead, MS
Health Director

TAYLOR CONSTRUCTION INC
2610 S 11TH ST
LINCOLN, NE

LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT

3140 "N" STREET
NON TRANSFERABLE

ENVIRONMENTAL HEALTH DIVISION
Lincoln, NE 68510-1514
PERMIT

(402) 441-8000

Permit

SEWAGE INSTALLATION
MOUND SEPTIC SYSTEM

No. 99380193601

Issued 02/18/99
Expires 08/18/99
Revenue Code 3157

FEES: $150.00

PAID
477-1387

TOTAL $150.00

Establishment

SCOTT ANDERSON
T10N R6E SEC 14
RIVERSIDE BLK 6 LOT 3&4
1121 VIRGINIA ST

Permittee

SCOTT ANDERSON
1048 W SOUTH ST
LINCOLN NE 68522

Issued By Health Director
Lincoln-Lancaster County Health Department

008740

THIS LICENSE OR PERMIT IS ISSUED SUBJECT TO REVOCATION AS PROVIDED BY LAW "POST IN A PROMINENT PLACE"

Lincoln-Lancaster County Health Department
Environmental Health Division
3140 "N" Street • Lincoln, NE 68510-1514
Phone: 402-441-8022

A

Permit Number:

Sewage Disposal System

Request for Site Clearance and Permit

Include Form B, Form C and Applicable Fees with this Application.

☐ Septic System ☐ Lagoon ☒ Other (Refer to Form C) Mound

The undersigned hereby requests site clearance and permit to construct a Sewage Disposal System in conformance with appropriate resolution or ordinance, as described herein:

PLEASE PRINT OR TYPE

A. System Location (Indicate correct number and street)

Address 1121 VIRGINIA St. (no rural route) City LINCOLN NE, Zip 68508

Legal Description 14 10N 6E RIVERSIDE 6 3&4
1/4 1/4 Section Township Range Subdivision Addition Block Lot

Geographical Location (if known): Longitude _____ Latitude _____

☐ Check if system mail address is not the same as the owner's address

B. Owner

Name SCOTT ANDERSON Signature _____

Address 1048 W. SOUTH St. City/State/Zip LINCOLN, NE 68522

☐ Check if owner designed system Home Phone ~~432-0415~~ 477-7387 Work Phone 432-0415

C. Contractor

Name SCOTT ANDERSON Company Name _____

Address 1048 W. SOUTH St City/State/Zip LINCOLN, NE 68522

☐ Check if contractor designed system Work Phone 432-0415

D. Engineer/Installer ☐ Check and complete if engineer designed system

Designer Name TAREK TARAWNEH Firm DESIGN ASSOC. Work Phone 474-3000

E. This System Will Serve a

☒ Residential Dwelling Number of Bedrooms 6 Is there a Whirlpool Bathtub YES NO

☐ Commercial Establishment/Other Facility Specify _____

Design flow in gallons per day _____ Type of Wastewater: ☐ Domestic ☐ Non-Domestic.

DO NOT WRITE BELOW THIS LINE

Approval Process

☒ Municipal Code 24.38 ☐ County Resolution No. 2832 12/23/98 HOLD FOR JOINT USE APPROVAL, Jerry

1. **Health Department**	Date rec'd 12/7/98 Date frwd 12/7/98	**ACTION** ☒ Approved ☐ Disapproved Signature Jerold E. Hood	
2. **Supt. Bldg. Insp. or Village Clerk**	Date rec'd 12/7/98 Date frwd 12/7/98	**ACTION** ☒ Approved ☐ Disapproved Signature Gary Ingin	
3. **City or County Engineer**	Date rec'd 12-7-98 Date frwd 12-7-98	**ACTION** ☒ Approved ☐ Disapproved Signature [illegible]	

9-2-99, mm Sand + excavation
9-3-99, mm raymond area could not see sand
9-8-99 mm rock bed
9-9-99, mm, pressure dose test

Experimental System within delineated area of 100 yr floodplain

Installation Final Written Approval

By PROVISIONAL Ron Hoyt

Date 12-99

Business Office Use Only

Date Rec'd 12/03/98
Amt Paid 150 cc
Rec'd By _____ ~~Cash~~/Check No. 6706

FORM 23-100 10-96 White - Health Dept. Yellow - Engineer Pink - Bldg. Inspector

B

Lincoln-Lancaster County Health Department
Environmental Health Division
3140 'N' Street • Lincoln, NE 68510-1514
Phone: 402-441-8022

Permit Number:

Sewage Disposal System
Soil Absorption Test Data Report
Annex to Application

PLEASE PRINT OR TYPE

System Location (Indicate correct number and street)

Address _____ City _____ NE, Zip _____
(no rural route)

Owner Scott Anderson Address 1121 Virginia St

Soil Type (SCS): Sandy Clay loam Percolation Rate: _____ min/inch

Date of Tests 9-23-98 to 9-24-98 Weather: Precipitation 0 Temperature 75

Percolation Test Data Table

A.	B.	C. D. E. F. Pre-Saturation Period				G. H. I. J. K. Percolation Readings					L. M. N. Results		
		Start		End		Start			End				
Hole No.	Hole Depth (in)	Date (Mo/Da)	Time (Hr/Min)	Date (Mo/Da)	Time (Hr/Min)	Date (Mo/Da)	Time (Hr/Min)	Water Lev (in.)	Date (Mo/Da)	Time (Hr/Min)	Elapsed Time (Min)	Water Level Drop (in)	Percolation Rates (Min/in)
1	36	9-23	600	9-24	830	9-24	830	6	9-24	930	60	1"	10
2	36	9-23	6PM	9-24	830	9-24	830	6	9-24	930	10	3/4"	13.3
3	36	9-23	600	9-24	830	9-24	830	6	9-24	930	10	3/4"	13.3
4	36	9-23	600	9-24	830	9-24	830	6	9-24	930	10	1"	10
5	36	9-23	600	9-24	830	9-24	830	6	9-24	930	10	3/4"	13.3
6	36	9-23	600	9-24	830	9-24	830	6	9-24	930	10	3/4"	13.3
													AVG = 12.22 MIN/INCH

Person Conducting Percolation Tests

Name: Tanam Miller
Phone: 464-0638
Address 2700 Dan

Sum of Percolation Rates: _____
Average of Rates: _____
Rate Used for Calculation: _____

DO NOT WRITE BELOW THIS LINE

Reviewing Action

Remarks: _____

Signature of Reviewing Official _____ Date _____

TOTAL P.02

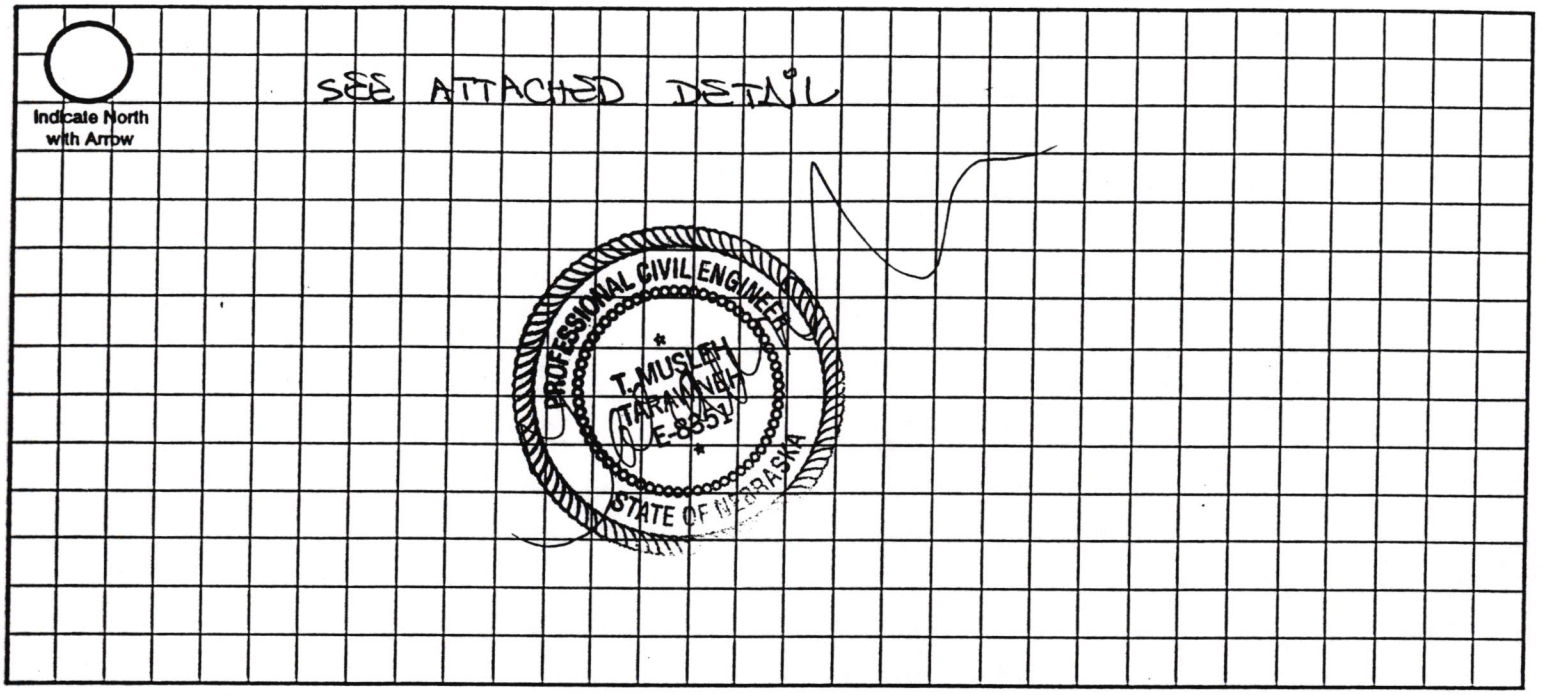
Lincoln-Lancaster County Health Department
Environmental Health Division
3140 "N" Street • Lincoln, NE 68510-1514
Phone: 402-441-8022

C

Permit Number:

Sewage Disposal System
Preliminary Plan Specifications

Draw a plot plan showing system location, lines, distribution box, tank and laterals, percolation test hole locations, well, residence, compass direction and property lines. Indicate on drawing if residence and well are existing or proposed.



Approximate Scale: _____ ft. = _____ grid line/s

A. System Location (Indicate correct number and street)

Address (no rural route) 1121 VIRGINIA STREET City LINCOLN NE, Zip _____

B. Proposed Septic Tank/s

Tank Material: ☑ Concrete ☐ Plastic ☐ Other _____

C. Proposed Absorption System (See Form B for Percolation Information)

Percolation Rate 12.22 (min. per inch) Soil Type: SAND Land Slope: 2.00 %

Type of Absorption System: ☐ Trench ☐ Bed ☒ Other MOUND W/ PERFORATED PIPE

Total Square Feet of Field Required: 750.00 sq. ft.

Type of Lateral: ☐ Half-Moon ☑ Perforated Pipe ☐ Other Lateral Material: _____

Capacity of Septic Tank 1750 gals Number of Absorption Beds: 2 Number of Distribution Laterals per Bed 2

Total Length of Laterals 2@38' ft. Number of Trenches 4 Trench Width _____

D. Setbacks Check the Boxes Below if the Required Setback has been Satisfied

Distance From	Private Well	Public Well	Surface Water	Gound Water	Pressure Water Lines	Property Lines	Foundations Yours	Foundations Neighbors	All Other Setbacks
Tank (ft)	50 ☑	500 ☑	50 ☑	NA ☑	25 ☑	20 ☑	15 ☑	25 ☑	☑
Field (ft)	100 ☑	500 ☑	50 ☑	4 ☑	30 ☑	20 ☑	30 ☑	40 ☑	☑
Lagoon (ft)	100 ☐	500 ☐	50 ☐	N/A ☐	30 ☐	50 ☐	100 ☐	200 ☐	☐

E. Required Signatures

Home Building Contractor _____ Date 11-19-98

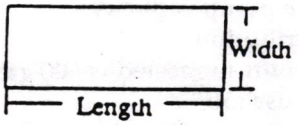
Installer _____ Date _____

Sizing of Pump Station

1. Determine Surface Area

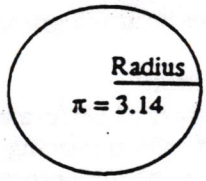
   Rectangle = Area = L x W

   5 x 5 = 25 square feet



   Circle = Area = π x (Radius)²

   3.14 x _____ x _____ = _____ square feet



   Other = Get Surface Area from Manufacturer

   _____ square feet

2. Calculate Gallons Per Inch

   There are 7.5 gallons per cubic foot of volume, therefore you must multiply the area times the conversion factor and divide by 12 inches per foot to calculate gallons per inch

   Area x 7.5 ÷ 12

   25 x 7.5 ÷ 12 = 15.63 gallons/inch

3. Calculate Gallons to Cover Pump (with 2 inches of water covering pump)

   (Height (in) + 2 inches) x gallons/inch

   (12 + 2) x 15.63 = 219 gallons

Estimated Sewage Flow in Gallons per Day (gpd)				
Number of Bedrooms	Type I	Type II	Type III	Type IV
2	300	225	180	60% of the volume in the other columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

4. Calculate Total Pumpout Volume

   A. To maximize pump life select sump size for 4 to 5 pump operations per day.

   900 gpd ÷ 4 = 225 gallons per dose

   B. Calculate drainback

      a. Determine total pipe length, 30 feet.

      b. Determine liquid volume of pipe, 6.39 gallons per 100 feet. (see page F-13)

      c. Multiply length by volume: Drainback quantity =

      30 feet x 6.39 gallons ÷ 100 ft. = 1.92 gallons.

   C. Total pump out volume equals dose volume + drainback

   225 gallons per dose + 1.92 gallons = 226.92 Total gallons

Pipe Diameter (inches)	Gallons per 100 feet
1	4.49
1.25	7.77
1.5	10.58
2	17.43
2.5	24.87
3	38.4
4	66.1

5. Calculate Volume for Alarm (typically 2 to 3 inches)

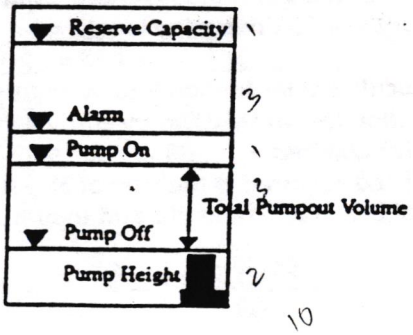
   Depth (in) x gallons/inch =

   2 x 15.63 = 31.26 gallons

6. Calculate Reserve Capacity (75% the daily flow)

   Daily flow (see page D-7) x .75 =

   900 x .75 = ~~31.26~~ 675 gallons



7. Calculate total gallons

   gallons over pump + gallons pumpout + gallons alarm + gallons reserve

   3 + 4 + 5 + 6

   219 + 226.92 + 31.26 + 675 = 1152 gallons

10

8. Total Depth (Total gallon divided by gallon per inch)

   Total Gallon ÷ gallon/inch

   1152 ÷ 15.63 = 73.6 inches

Float Separation Distance (equal total pumpout volume)

Total pumpout volume ÷ gallons/inch

226 ÷ 15.63 = 14.45 inches

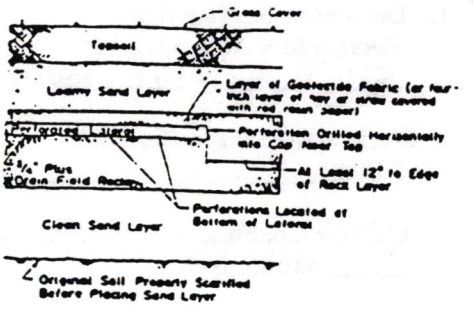
PUMP SELECTION PROCEDURE

A. Determine pump capacity:

Gravity Distribution

1. Minimum suggested is 600 gallons per hour (10 gpm) to stay ahead of water use rate.
2. Maximum suggested for delivery to a drop box of a home system is 2,700 gallons per hour (45 gpm) to prevent build-up of pressure in drop box.

END PERFORATION OF A PERFORATED LATERAL



Pressure Distibution

3. a. Select number of perforated laterals 4
   b. Select perforation spacing = 4 feet.
   c. Subtract 2 ft. from the rock layer length.
   40 (Rock layer length) - 2 ft. = 38 feet.
   d. Determine the number of spaces between perforations.
   Length perf. spacing = 38 ft. ÷ 4 ft. = 9 spaces
   e. 9 spaces + 1 = 10 perforations/lateral
   f. Multiply perforations per lateral by number of laterals to get total number of perforations. 4 (laterals) x 10 (perfs/lateral) = 40 perforations.
   g. 40 (perfs) x 0.74 (gpm/perf) = 29.6 gpm.

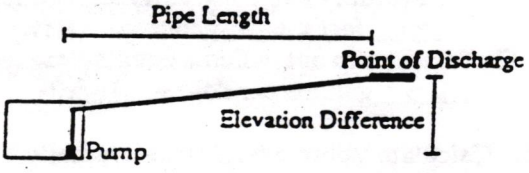
Required Perforation Discharge in gallons per minute (gpm)		
Discharge Head (feet)	3/32 inch perf	1/4 inch perf
1.0a	0.56	0.74
2.0b	0.80	1.04

a. Use for single family homes
b. Use for all other applications

SELECTED PUMP CAPACITY _____ gpm

B. Determine head requirements:

1. Elevation difference between pump and point of discharge.
   8.5 feet
2. If pumping to a pressure distribution system, five feet for pressure required at manifold if gravity system, zero.
   5.00 feet
3. Friction loss
   a. Enter friction loss table with gpm and pipe diameter. Read friction loss in feet per 100 feet from table.
   F.L. = 5.23 ft./100 ft of pipe
   b. Determine total pipe length from pump to discharge point. Add 25 percent to pipe length for fitting loss, or use a fitting loss chart. Equivalent pipe length - 1.25 times pipe length =
   30 x 1.25 = 37.5 feet
   c. Calculate total friction loss by multiplying friction loss in ft/100 ft by equivalent pipe length.
   Total friction loss = 37.5 x 5.23 ÷100 = 1.96 feet
4. Total head required is the sum of elevation difference, special head requirements, and total friction loss.



8.50 (1) + 5.00 (2) + 1.96 (3c)

TOTAL HEAD 15.4 feet

F-18b

gpm	1.5 inch	2.0 inch	3.0 inch
	Friction loss per 100 ft of pipe		
10	0.69	0.20	
12	0.96	0.28	
14	1.28	0.38	
16	1.63	0.48	
18	2.03	0.60	
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	7.90	2.06	0.30
40	11.07	2.64	0.39
45	14.73	3.28	0.48
50		3.99	0.58
55		4.76	0.70
60		5.60	0.82

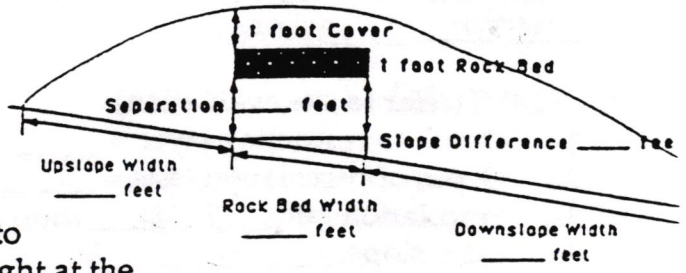
C. Pump selection

1. A pump must be selected to deliver at least _____ gpm (Step A) with at least _____ feet of total head (Step B).

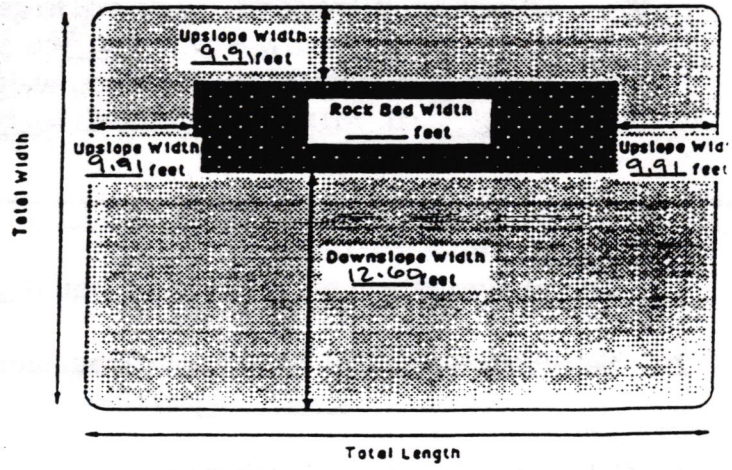
USE ZOELLER MODEL 267 CAST IRON SEWAGE EJECTOR W/ MODEL PENO 53 ALARM PACKAGE.

G. DOWNSLOPE DIKE WIDTH

1. If landslope is **2.9 % or less** adsorption width inculdes both upslope and downslope widths
2. Calculate Minimum mound size bsaed on geometery:
   a. Determine depth of clean sand fill at upslope edge of rock layer:
      Separation 1.5 feet
   b. Multiply rock layer width by landslope to determine drop in elevation;
      Slope Difference
      22.74 x 2 % ÷ 100 = 0.45 feet



   c. Add depth of clean sand for separation (2a) at upslope edge, depth of rock layer (1 foot) to depth of cover (1 foot) to find the mound height at the upslope edge of rock layer; 0.50 ft + 1ft + 1ft = 3.50 feet
   d. Enter table with landslope and upslope dike ratio. Select dike multiplier of 2.83.
   e. Multiply dike multiplier by upslope mound height to find upslope dike width: 2.83 x 3.5 = 9.91 feet
   f. Add depth of clean sand for slope difference (2b) at downslope edge, to the mound height at the upslope edge of rock layer (2c) to find the downslope height; 0.45 ft + 3.5 ft = 3.95 feet
   g. Enter table with landslope and downslope dike ratio. Select dike multiplier of 3.19.
   h. Multiply dike multiplier by downslope mound height to get downslope dike width: 3.19 x 3.95 = 12.60 feet
   i. Minimum mound width is the sum of upslope dike width plus rock layer width plus downslope dike width;
      9.91 ft + 22.74 ft + 12.6 ft = 45.25 feet
   j. Subtract the minimum width (2.i) from the adsorption area (F.4) to find the additional downslope area for adsorption
      _____ ft - _____ ft = _____ feet
   k. Add the additional width (2.j) to the downsolpe width and recalculate the total width
      9.91 ft + 22.74 ft + 12.6 ft = 45.25 feet
   l. Total mound length is the sum of upslope dike width plus rock layer length plus upslope dike width:
      9.91 ft + 40 ft + 9.91 ft = 59.82 feet



% slope	Downslope 3:1	4:1	5:1	6:1	7:1	Upslope 3:1	4:1	5:1	6:1	7:1	8:1
0	3.0	4.0	5.0	6.0	7.0	3.0	4.0	5.0	6.0	7.0	8.0
1	3.09	4.17	5.26	6.38	7.53	2.91	3.85	4.76	5.66	6.54	7.41
2	3.19	4.35	5.56	6.82	8.14	2.83	3.70	4.54	5.36	6.14	6.90
3	3.30	4.54	5.88	7.32	8.86	2.75	3.57	4.35	5.08	5.79	6.45
4	3.41	4.76	6.25	7.89	9.72	2.68	3.45	4.17	4.84	5.46	6.06
5	3.53	5.00	6.67	8.57	10.77	2.61	3.33	4.00	4.62	5.19	5.71
6	3.66	5.26	7.14	9.38	12.07	2.54	3.23	3.85	4.41	4.93	5.41
7	3.80	5.56	7.69	10.34	13.73	2.48	3.12	3.70	4.23	4.70	5.13
8	3.95	5.88	8.33	11.54	15.91	2.42	3.03	3.57	4.05	4.49	4.88
9	4.11	6.25	9.09	13.04	18.92	2.36	2.94	3.45	3.90	4.30	4.65
10	4.29	6.67	10.0	15.00	23.33	2.31	2.86	3.33	3.75	4.12	4.44
11	4.48	7.14	11.11	17.65	30.43	2.26	2.78	3.23	3.61	3.95	4.26
12	4.69	7.69	12.50	21.43	43.75	2.21	2.70	3.12	3.49	3.80	4.08

MOUND DESIGN WORKSHEET
(For Flows up to 1200 gpd)

A. FLOW
Estimated 900 gpd
or measured _____ x 1.5 = _____ gpd.

B. SEPTIC TANK LIQUID VOLUMES
1,750 gallons

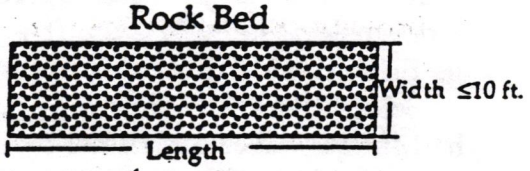
C. SOILS (refer to site evaluation)
1. Depth to restricting layer = _____ inches
2. Depth of percolation tests = _____ inches
3. Percolation rate 12.22 mpi
4. Land slope 2 %

Estimated Sewage Flow in Gallons per Day (gpd)

Number of Bedrooms	Type I	Type II	Type III	Type IV
2	300	225	180	60% of the values in the other columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

Number of Bedrooms	Minimum Septic Tank Liquid Capacity (gallons)	Minimum Capacity with Garbage Disposal (gallons)
2 or less	750	1,125
3 or 4	1,000	1,500
5 or 6	1,500	2,250
7 or 8	2,000	3,000
over 9	See fig. C-6	(x 1.5)

D. ROCK LAYER DIMENSIONS
USE 2 ROCK BEDS @ 40'x9.37' w/4' SEPARATION
1. Multiply flow rate by 0.83 to obtain required area of rock layer: A x 0.83 =
900 gpd x 0.83 sq. ft./gpd = 750 sq. ft.
2. Select width of rock layer (10 feet or less) = 9.37 ft.
3. Length of rock layer = area ÷ width =
750/2 sq. ft. ÷ 9.37 ft. = 40 ft.



E. ROCK VOLUME
1. Multiply rock area by rock depth to get cubic feet of rock;
750 sq. ft. x 1 ft. = 750 cu. ft.
2. Divide cu. ft. by 27 cu. ft./cu. yd. to get cubic yards;
750 cu. ft. ÷ 27 = 28.00 cu. yd.
3. Multiply cubic yards by 1.4 to get weight of rock in tons;
28.00 cu. yd. x 1.4 ton/cu. yd. = 39 tons.

F. ADSORPTION WIDTH
1. Percolation rate in top 12 inches of soil is 12.22 mpi
2. Select allowable soil loading rate from table;
0.79 gpd/ft²
3. Calculate adsorption width ratio by dividing rock layer loading rate of 1.20 gpd/ft2 by allowable soil loading rate;
1.20 gpd/ft² ÷ 0.79 gpd/ft² = 1.52.
4. Multiply adsorption width ratio by rock layer width to get required adsorption width;
1.52 x 22.74 ft = 34.56 ft

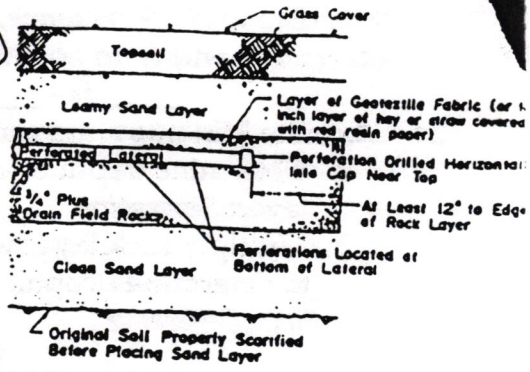
Absorption Width Sizing Table

Percolation Rate Minutes per inch (mpi)	Soil Texture	Gallons per day per square foot	Ratio of rock bed width to absorption width
Faster than 0.1	Coarse Sand	1.20	1.00
0.1 to 5	Sand	1.20	1.00
0.1 to 5	Fine Sand**	0.60	2.00
6 to 15	Sandy Loam	0.79	1.52
16 to 30	Loam	0.60	2.00
31 to 45	Silt Loam	0.50	2.40
46 to 60	Clay Loam	0.45	2.67
61 to 120	Clay	0.24	5.00
Slower than 120	Clay	—	—

** Soil having 50% or more of fine or very fine sand.

PRESSURE DISTRIBUTION SYSTEM

END PERFORATION OF A PERFORATED LAT



1. Select number of perforated laterals 4 (2 PER ROCKBED)

2. Select perforation spacing = 4 feet.

3. Since perforations should not be placed closer than 1 ft. to the edge of the rock layer (see diagram), subtract 2 ft. from the rock layer length.

$$\underset{\text{Rock layer length}}{40} - 2 \text{ ft.} = 38 \text{ feet.}$$

4. Determine the number of spaces between perforations. Divide the length above by perforation spacing and round down to nearest whole number.

Length perf. spacing = $\frac{38}{(3)}$ ft. ÷ $\frac{4}{(2)}$ ft. = 9 spaces

Required Perforation Discharge in gallons per minute (gpm)		
Discharge Head (feet)	[illegible]	[illegible]
1.0a	0.56	0.74
2.0b	0.80	1.04
a. Use for single family homes b. Use for all other applications		

5. Number of perforations is equal to one plus the number of perforation spaces .

9 spaces + 1 = 10 perforations/lateral

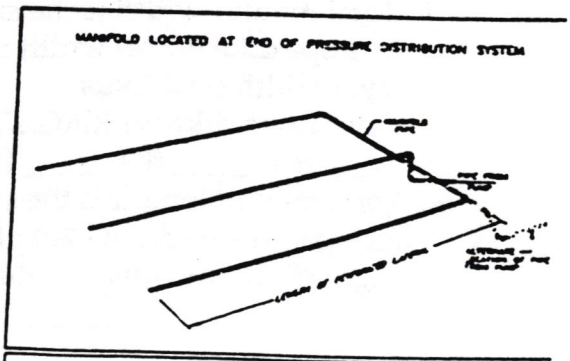
Maximum number of quarter inch perforations per lateral to guarantee < 10% discharge variation			
Perforation Spacing (feet)	1¼	1½	2
2.5	14	18	28
3.0	13	17	26
3.3	12	16	25
4.0	11	15	23
5.0	10	14	22

6. Multiply perforations per lateral by number of laterals to get total number of perforations.

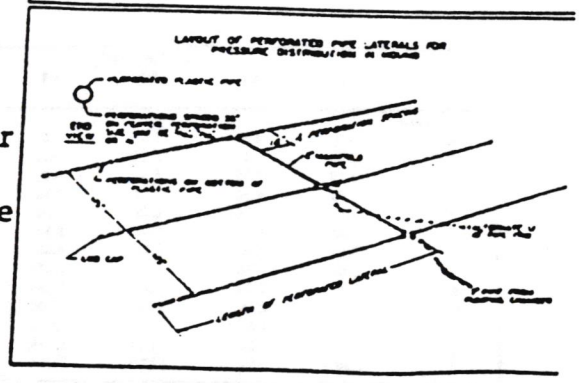
$\underset{\text{laterals}}{4} \times \underset{\text{perfs/lateral}}{10} = 40$ perforations.

7. Determine required flow rate by multiplying number of perforations by flow per perforation

$\underset{\text{perfs}}{40} \times \underset{\text{gpm/perf}}{0.74} = 29.6$ gpm.



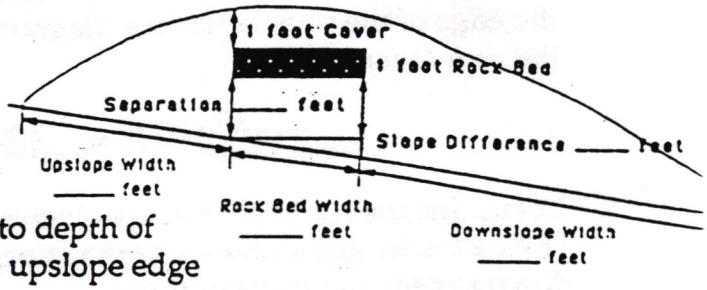
8. If laterals are connected to header pipe as shown on upper example, to select minimum required lateral diameter; enter table with perforation spacing and number of perforations per lateral. Select minimum diameter for perforated lateral = _____ inches.



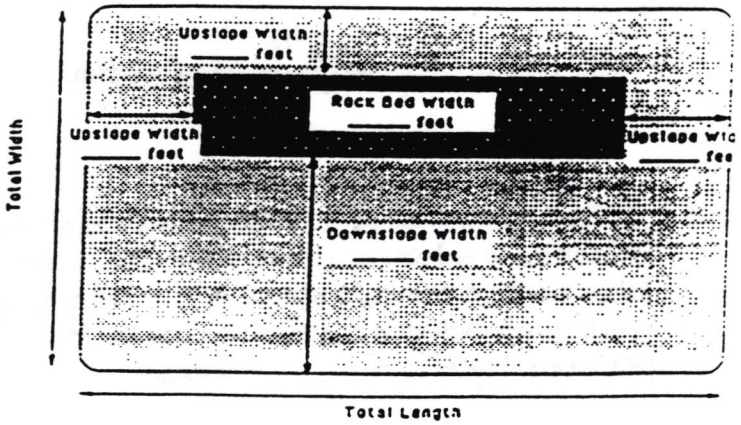
9. If perforated lateral system is attached to manifold pipe near the center, lower diagram, perforated lateral length and number of perforations per lateral will be approximately one half of that in step 8. Using these values, select minimum diameter for perforated lateral = 1.25 inches.

G. DOWNSLOPE DIKE WIDTH

1. If landslope is **3% or more,** subtract rock layer width from adsorption width to obtain minimum downslope dike toe
   _____ ft - _____ ft = _____ feet
2. Calculate Minimum mound size based on geometery:
   a. Determine depth of clean sand fill at upslope edge of rock layer: *Separation* _____ feet
   b. Multiply rock layer width by landslope to determine drop in elevation;
   Slope Difference
   _____ x _____% ÷ 100 = _____ feet



   c. Add depth of clean sand for separation (2a) at upslope edge, depth of rock layer (1 foot) to depth of cover (1 foot) to find the mound height at the upslope edge of rock layer;
   _____ ft + 1ft + 1ft = _____ feet
   d. Enter table with landslope and upslope dike ratio. Select dike multiplier of _____.
   e. Multiply dike multiplier by upslope mound height to find upslope dike width: _____ x _____ = _____ feet
   f. Add depth of clean sand for slope difference (2b) at downslope edge, to the mound height at the upslope edge of rock layer (2c) to find the downslope height;
   _____ ft + _____ ft = _____feet
   g. Enter table with landslope and downslope dike ratio. Select dike multiplier of _____.
   h. Multiply dike multiplier by downslope mound height to get downslope dike width: _____ x _____ = _____ feet
   i. Compare the values of step G.1 and Step G.2h Select the greater of the two values as the downslope dike width;
   _____ feet
   j. Total mound width is the sum of upslope dike (G.2e) width plus rock layer width (D.2) plus downslope dike width(G.2i);
   _____ ft + _____ ft + _____ ft = _____ feet
   k. Total mound length is the sum of upslope dike width (G.2e) plus rock layer length (D.3) plus upslope dike width (G.2e);
   _____ ft + _____ ft + _____ ft = _____ feet

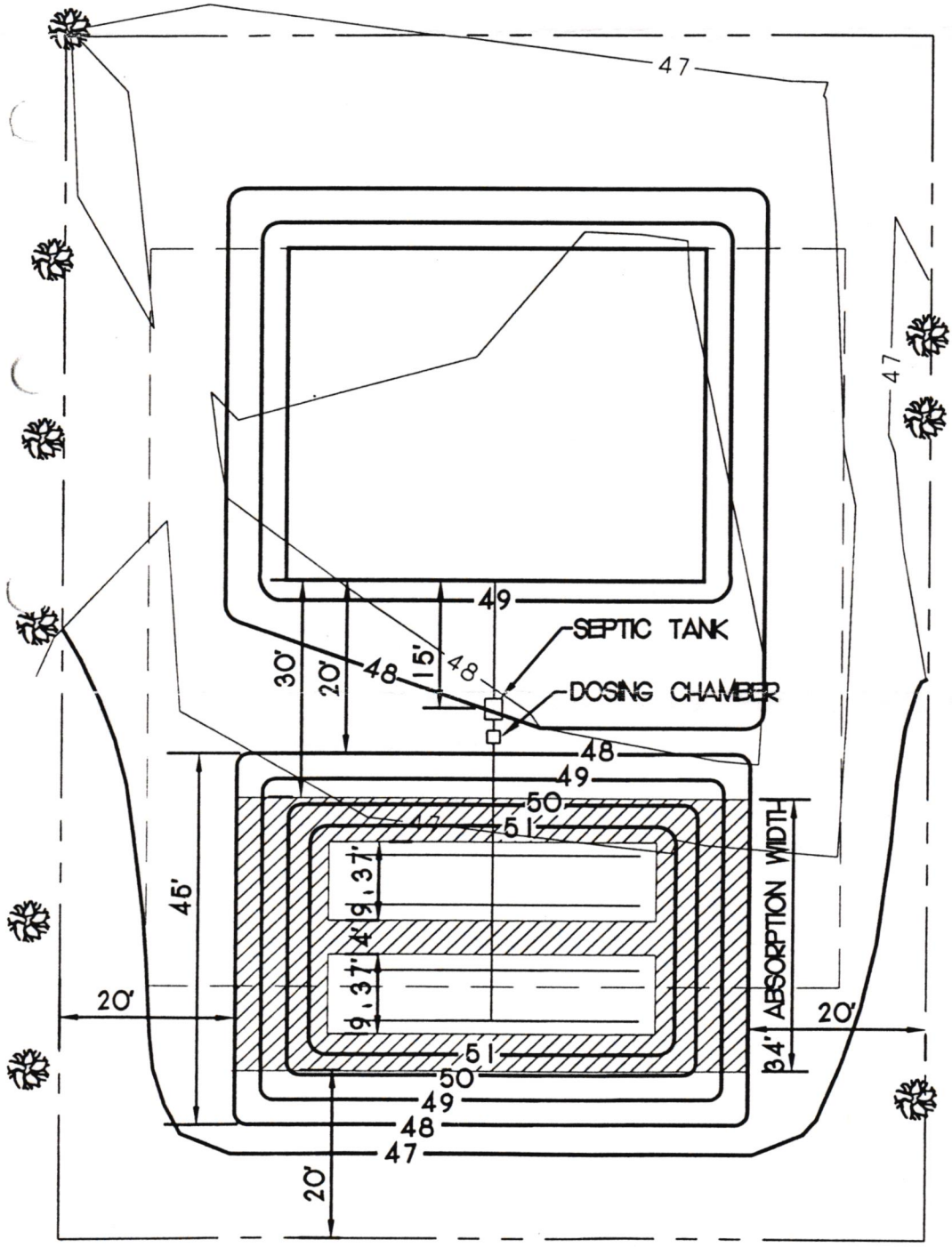


	Downslope					Upslope					
	3:1	4:1	5:1	6:1	7:1	3:1	4:1	5:1	6:1	7:1	8:1
% slope											
0	3.0	4.0	5.0	6.0	7.0	3.0	4.0	5.0	6.0	7.0	8.0
1	3.09	4.17	5.26	6.38	7.53	2.91	3.85	4.76	5.66	6.54	7.41
2	3.19	4.35	5.56	6.82	8.14	2.83	3.70	4.54	5.26	6.14	6.90
3	3.30	4.54	5.88	7.32	8.86	2.75	3.57	4.35	5.08	5.79	6.45
4	3.41	4.76	6.25	7.99	9.72	2.68	3.45	4.17	4.84	5.46	6.06
5	3.53	5.00	6.67	8.57	10.77	2.61	3.33	4.00	4.62	5.19	5.71
6	3.66	5.26	7.14	9.38	12.07	2.54	3.23	3.85	4.41	4.93	5.41
7	3.80	5.56	7.69	10.34	13.73	2.48	3.12	3.70	4.23	4.70	5.13
8	3.95	5.88	8.33	11.54	15.91	2.42	3.03	3.57	4.05	4.49	4.88
9	4.11	6.25	9.09	13.04	18.92	2.36	2.94	3.45	3.90	4.30	4.65
10	4.29	6.67	10.0	15.00	23.33	2.31	2.86	3.33	3.75	4.12	4.44
11	4.48	7.14	11.11	17.65	30.43	2.26	2.78	3.23	3.61	3.95	4.26
12	4.69	7.69	12.50	21.43	43.75	2.21	2.73	3.12	3.49	3.80	4.08

Pollution Control Project

APPROVED

02/17/1999

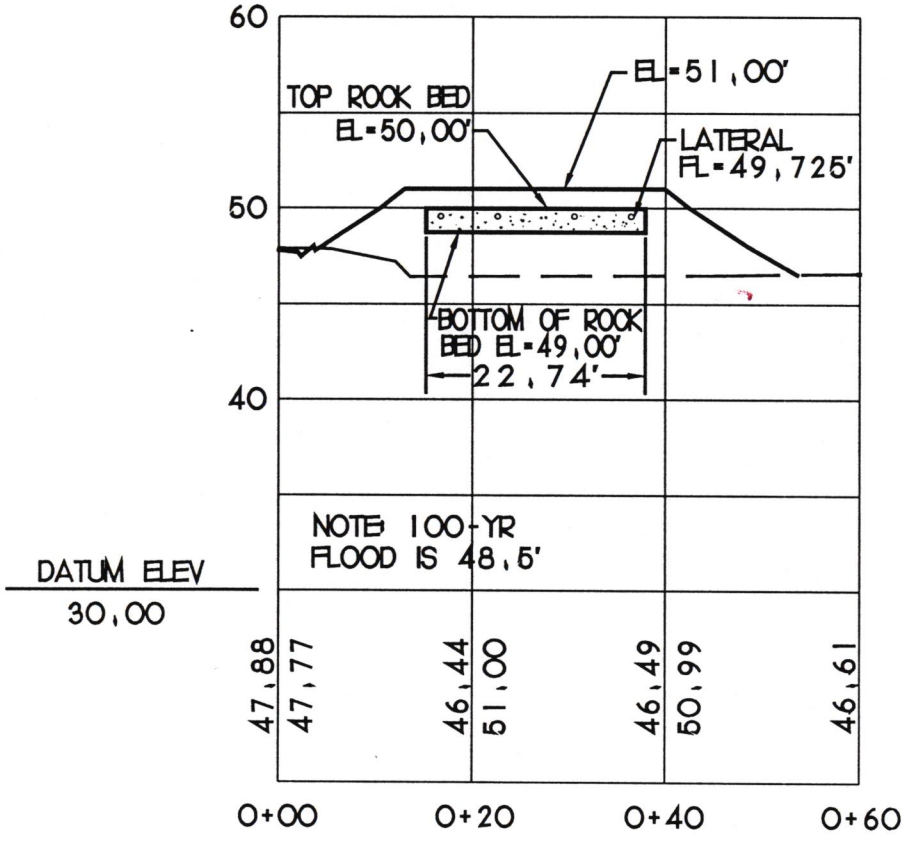


PROFESSIONAL CIVIL ENGINEER
T. MUSLEH
FARAWNEH
E-8351
STATE OF NEBRASKA

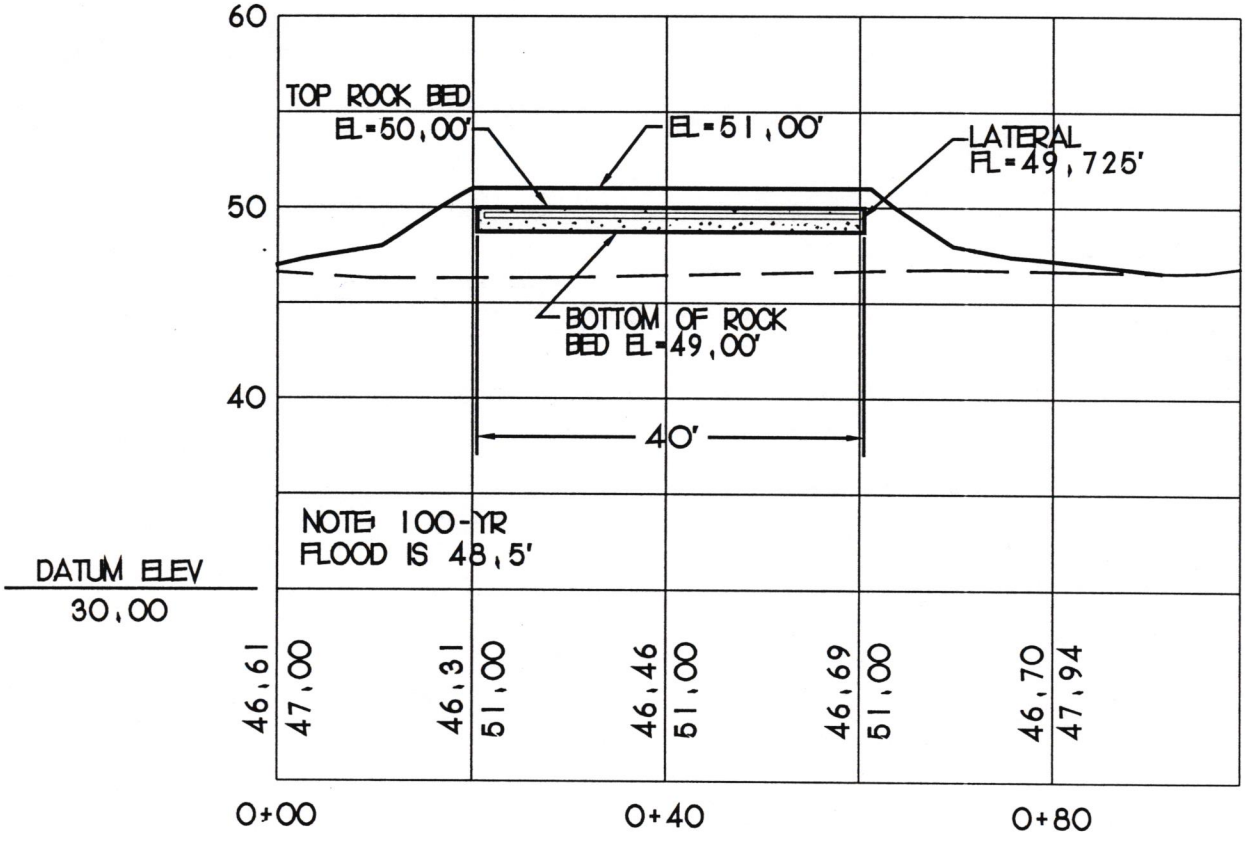
SCALE: 1" = 20'

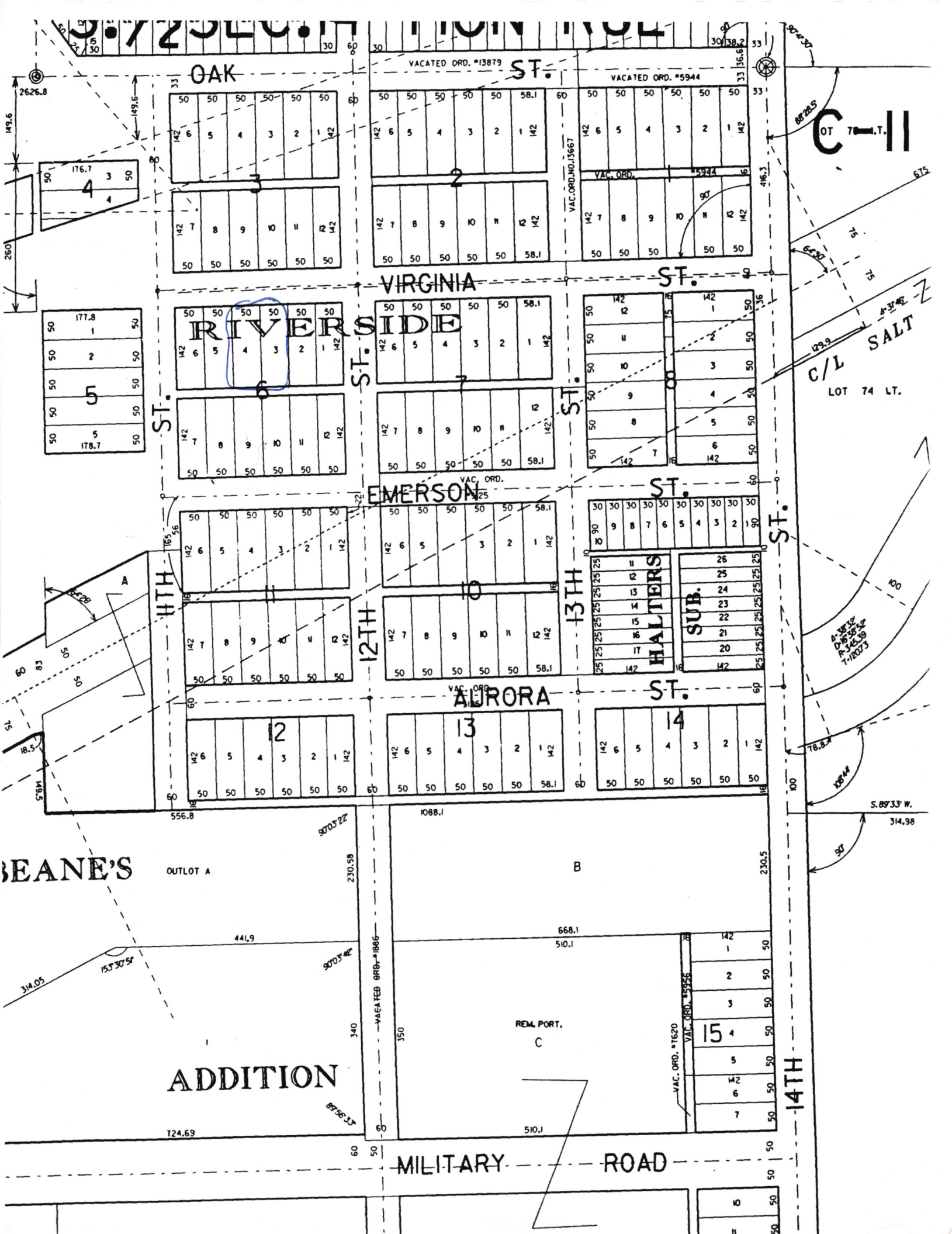
CUT = 0 CUBIC YARD
FILL = 443 CUBIC YARDS
NET FILL = 443 CUBIC YARDS

PROFILE #1 N-S


60
50
40
TOP ROCK BED
EL=50,00'
EL=51,00'
LATERAL
FL=49,725'
BOTTOM OF ROCK
BED EL=49,00'
22,74'
NOTE: 100-YR
FLOOD IS 48,5'
DATUM ELEV
30,00
47,88
47,77
46,44
51,00
46,49
50,99
46,61
0+00
0+20
0+40
0+60

PROFILE #2 W-E


60
50
40
TOP ROCK BED
EL=50,00'
EL=51,00'
LATERAL
FL=49,725'
BOTTOM OF ROCK
BED EL=49,00'
40'
NOTE: 100-YR
FLOOD IS 48,5'
DATUM ELEV
30,00
46,61
47,00
46,31
51,00
46,46
51,00
46,69
51,00
46,70
47,94
0+00
0+40
0+80


OAK ST.
VACATED ORD. #13879
VACATED ORD. #5944
VAC. ORD. NO. 13667
VAC. ORD. #5944
VIRGINIA ST.
RIVERSIDE
ST.
EMERSON ST.
VAC. ORD.
11TH
12TH
13TH
HALTERS SUB.
AURORA ST.
VAC. ORD.
14TH
MILITARY ROAD
BEANE'S ADDITION
OUTLOT A
REM. PORT. C
VAC. ORD. #1620
VAC. ORD. #5956
VACATED ORD. #1886
C/L SALT
LOT 74 LT.
C-11
S. 89°33' W.
314.98

HS001152

SCANNED

mound-system
NDEQ - Engineer

Application to Alter or Repair an Onsite Wastewater Treatment System

Owner (Cheryl Johnson

The applicant is applying for a permit to: ☒ ALTER ☐ REPAIR an existing Onsite Wastewater Treatment System, and agrees to comply with LMC 24.38 or County Resolution 02-0030.

1. **Street Address (No Rural Route):** 1121 Virginia St

Legal Description of Property: Township: 10N Range: 6E Section: 14

Block 6 Lot 3-4 SubDivision Riverside Addition Add:

***Parcel ID** 11 - 14 - 404 - 002 - 000 (i.e. 99-99-999-999-999)

2. **Property use:** ☐ Residential ☒ Commercial ☐ Other use (Describe:)
Number of bedrooms 6 Does the system have a: ☐ Garbage Grinder ☐ Large Capacity Tub

3. **Type of Present Individual Disposal System** ☐ septic system ☐ lagoon ☑ other

4. **Description of proposed alteration or repair:** Remove old perforated pipe that was clogged and install new pipe with larger holes and orifice shields

5. **Current Type of Lateral-** Perforated Pipe **Current Linear Ft. Of Lateral -** 76'

Current Tank Gallonage- 1,750

6. **Print Name** Nathaniel Burnett **Address** 601 Old Cheney Rd. Ste. 'A' **Phone:** 402-484-7342

Applicant Signature: Nathaniel Burnett P.E. 15612

Please contact LLCHD for the current permit fee for this application
Fee must be included before the application will be processed. Incomplete information will delay processing.

HEALTH DEPARTMENT USE ONLY

☒ Municipal Code 24.38 ☐ County Resolution Number 02-30

Date received 10/26/15 REVIEW: ☒ Approved ☐ Disapproved By:

Comments (if any): approval based off of NDEQ correspondence - See attached

Site visits
Date / / By
Date / / By

Installation final written approval
Date 10/24/16 By

* Updates inspection sheet policy -

Return application to:
Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 "N" Street, Lincoln, NE 68510
Phone: (402) 441-8643

* System cover prior to inspection -

Business Office Use Only

Received: Date: 10/20/15 Amount $210.00 Check No. 1036 Initials SB

Revised 4/8/13