

**1. Contact Information** v 04.02.2024

Property Owner/Client:  Date Completed:

Site Address:  Project ID:

Email:  Phone:

Mailing Address:  Alt Phone:

Legal Description:

Parcel ID:  SEC:  TWP:  RNG:

**2. Flow and General System Information**

**A. Client-Provided Information**

Project Type:  New Construction  Replacement  Expansion  Repair

Project Use:  Residential  Other Establishment:

Residential use: # Bedrooms:  Dwelling sq.ft.:  Unfinished sq.ft.:

# Adults:  # Children:  # Teenagers:

In-home business (Y/N):  If yes, describe:

Water-using devices: *(check all that apply)*

<input type="checkbox"/> Garbage Disposal/Grinder	<input type="checkbox"/> Dishwasher	<input type="checkbox"/> Hot Tub*
<input type="checkbox"/> Sewage pump in basement	<input type="checkbox"/> Water Softener*	<input type="checkbox"/> Sump Pump*
<input type="checkbox"/> Large Bathtub >40 gallons	<input type="checkbox"/> Iron Filter*	<input type="checkbox"/> Self-Cleaning Humidifier*
<input type="checkbox"/> Clothes Washing Machine	<input type="checkbox"/> High Eff. Furnace*	<input type="checkbox"/> Other: <input type="text"/>

\* Clear water source - should not go into system

Additional current or future uses:

Anticipated non-domestic waste:

*The above is complete & accurate:*

*Client signature & date*

**B. Designer-determined Flow and Anticipated Waste Strength Information**  
*Attach additional information as necessary.*

Design Flow:  GPD      Anticipated Waste Type:

Maximum Concentration    BOD:  mg/L    TSS:  mg/L    Oil & Grease:  mg/L

**3. Preliminary Site Information**

**A. Water Supply Wells**

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	Shallow well						
2							
3							
4							

Additional Well Information:



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### 1. Project Information

Property Owner/Client:  Project ID:   
 Site Address:  Date Completed:

### 2. Utility and Structure Information

Utility Locations Identified  Gopher State One Call #   Any Private Utilities:   
 Locate and Verify (see Site Evaluation map)  Existing Buildings  Improvements  Easements  Setbacks

### 3. Site Information

Vegetation type(s):  Landscape position:   
 Percent slope:  % Slope shape:  Slope direction:   
 Describe the flooding or run-on potential of site:   
 Describe the need for Type III or Type IV system:   
 Note:   
 Proposed soil treatment area protected? (Y/N):  If yes, describe:

### 4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N):   
 If yes, describe:   
 Soil observations were conducted in the proposed system location (Y/N):   
 A soil observation in the most limiting area of the proposed system (Y/N):   
 Number of soil observations:  Soil observation logs attached (Y/N):   
 Percolation tests performed & attached (Y/N):

### 5. Phase I. Reporting Information

	Depth	Elevation	
Limiting Condition*:	50 in	91.00 ft	*Most Restrictive Depth Identified from List Below Soil Texture: <input type="text" value="Fine Sand"/> Percolation Rate: <input type="text"/> min/inch Soil Hyd Loading Rate: <input type="text" value="0.78"/> gpd/sq.ft
Periodically saturated soil:	50 in	91.00 ft	
Standing water:	<input type="text"/> in	<input type="text"/> ft	
Bedrock:	<input type="text"/> in	<input type="text"/> ft	
Benchmark Elevation:	<input type="text" value="100.0"/> ft	Elevations and Benchmark on map? (Y/N): <input type="text" value="Yes"/>	
Benchmark Elevation Location: <input type="text" value="Top of cement slab for new house"/>			
Differences between soil survey and field evaluation: <input type="text" value="None"/>			
Site evaluation issues / comments: <input type="text"/>			
Anticipated construction issues: <input type="text"/>			



1. **SYSTEM SIZING:** Project ID: 017400 v 04.02.2024

- A. Design Flow:  GPD
- B. 7080 Maximum Depth:  inches Designers Maximum Depth:  inches
- C. Soil Loading Rate:  GPD/sq.ft Contour Loading Rate:  gal/ft
- D. Required Bottom Area: Design Flow(1A) ÷ Soil Loading Rate(1C)
- GPD ÷  GPD/sq.ft =  sq.ft

Optional Upsizing of Dispersal Media Area

- E. Larger Bed Area Size or Organic Sizing of Bed Area  sq.ft  
 (see organic loading sheet - 2G)

F. Designed Bottom Area:  sq.ft

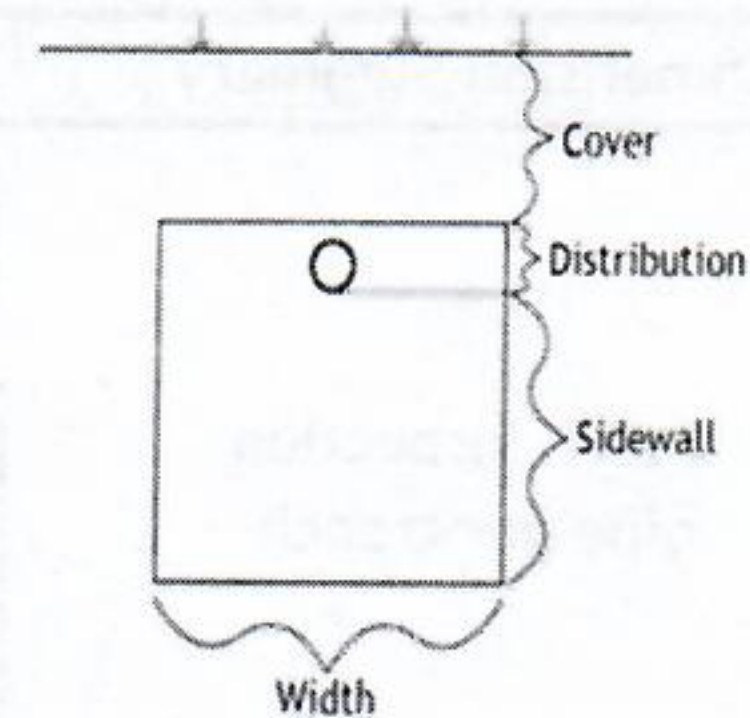
G. Select Dispersal Media:   sq.ft  
 If Registered Media

H. Select Distribution Method:  Notes:

I. Is distribution media installed in contact with sand or loamy sand or with a percolation rate of 0.1 to 5 mpi?  
 If yes, Indicate distribution or treatment method:

2. **TRENCH CONFIGURATION**

A.	Initial required trench bottom area (ft <sup>2</sup> ): (from 1.D)	Sidewall Absorption (inches)	Bottom Area Reduction	Bottom Area Multiplier	Design trench bottom area
	577	6 to 11	0%	1	577
		12 to 17	20%	0.8	462
		18 to 23	34%	0.66	381
		24	40%	0.6	346



*Check registered product information for specific application details and design*

B. Select Sidewall Height:  inches =  ft

C. Design Bottom Area:  sqft

D. Select Trench/Registered Width:  ft

E. Total Designed Trench Length: Bottom Area (2C) ÷ Trench Width(2D)

sq.ft ÷  ft =  ft

F. Calculate Minimum length of each trench based on Contour Loading Rate: Design Flow(1A) ÷ CLR (1C<sub>2</sub>) =

gpd ÷  gal/ft =  ft

G. Rapidly Permeable Soil Design Considerations:

15% Trench Distribution = Required Bottom Area (2C) x 15%.

sq.ft X 15% =  sq.ft

Length Trenches at 15%: Trench area (2G) ÷ Trench Width(2D)

sq.ft ÷  ft =  ft

H. Number of Trenches:  Based on CLR minimum length (2E)/(2F).

Based on 15% sections (2E)/(2G)

Designed Number of Trenches:



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## 1. PROJECT INFORMATION

Property Owner/Client:  Project ID:   
 Site Address:  Date:   
 Email Address:  Phone:

## 2. DESIGN FLOW & WASTE STRENGTH

Design Flow:  GPD Anticipated Waste Type:   
 BOD:  mg/L TSS:  mg/L Oil & Grease:  mg/L  
 Treatment Level:  *Select Treatment Level C for residential septic tank effluent*

## 3. HOLDING TANK SIZING *Holding Tank Sizing: see 7080.2290*

Code Minimum Holding Tank Capacity:  Gallons with  Tanks or Compartments  
 Recommended Holding Tank Capacity:  Gallons with  Tanks or Compartments  
 The holding tank(s) will be:  *Existing tank reuse requires a tank integrity assessment*  
 Type of High Level Alarm:   
 (Alarm Set @ 75% tank capacity measured from inlet to bottom)

Comments:

## 4. SEPTIC TANK SIZING *Sizing: See 7080.1930*

### A. Residential dwellings:

Number of Bedrooms (Residential):   
 Code Minimum Septic Tank Capacity:  Gallons with  Tanks or Compartments  
 Recommended Septic Tank Capacity:  Gallons with  Tanks or Compartments  
 The septic tank(s) will be:  *Existing tank reuse requires a tank integrity assessment*  
 Comments:   
 Effluent Screen & Alarm (Y/N):  Model/Type:

### B. Other Establishments:

Waste received by:   GPD x  Days Hyd. Retention Time  
 7080 Minimum Septic Tank Capacity:  Gallons with  Tanks or Compartments  
 Designed Septic Tank Capacity:  Gallons with  Tanks or Compartments  
 The septic tank(s) will be:  *Existing tank reuse requires a tank integrity assessment*  
 Comments:   
 Effluent Screen & Alarm (Y/N):  Model/Type:

\* Other Establishments Require Department of Labor and Industry Approval and Inspection for Building Sewer \*



Project ID: 017400

**Mound:**

Dispersal Area  sq.ft      Bed Length  ft      Bed Width  ft  
 Absorption Width  ft      Clean Sand Lift  ft      Berm Width (0-1%)  ft  
 Upslope Berm Width  ft      Downslope Berm  ft      Endslope Berm Width  ft  
 Total System Length  ft      System Width  ft      Contour Loading Rate  gal/ft

**At-Grade:**

Dispersal Area  sq.ft      Bed Length  ft      Bed Width  ft  
 Upslope Berm  ft      Downslope Berm  ft      Finished Height  ft  
 System Length  ft      Endslope Berm  ft      System Width  ft

**Level & Equal Pressure Distribution Soil Treatment Area**

No. of Laterals       Lateral Diameter  in      Lateral Spacing  ft  
 Perforation Spacing  ft      Perforation Diameter  in      Drainback Volume  gal  
 Min Dose Volume  gal      Max Dose Volume  gal      Total Dosing Volume  gal

**Non-Level and Unequal Pressure Distribution Soil Treatment Area**

	Elevation (ft)	Pipe Size (in)	Pipe Volume (gal/ft)	Pipe Length (ft)	Perf Size (in)	Spacing (ft)	Spacing (in)	
Lateral 1								Minimum Dose Volume <input type="text"/> gal
Lateral 2								Maximum Dose Volume <input type="text"/> gal
Lateral 3								Total Dosing Volume <input type="text"/> gal
Lateral 4								
Lateral 5								
Lateral 6								

**9. Organic Loading and Additional Info for HSW or Type IV/V Design - See Organic Loading tab**

**Organic Loading to Soil Treatment (Based on Waste Strength Data and Organic Loading Design)**

A. Organic Loading Based on:       B. Minimum required area  sq.ft

**Technology Strength Reduction (Treatment Level or HSW)**

A. Starting Waste Strength       Treatment designed to meet:

Pretreatment Technology:  \*Must Meet or Exceed Target Level  
 Model:       Units:

Disinfection Technology:  \*Required for Levels A & B  
 Model:       Units:

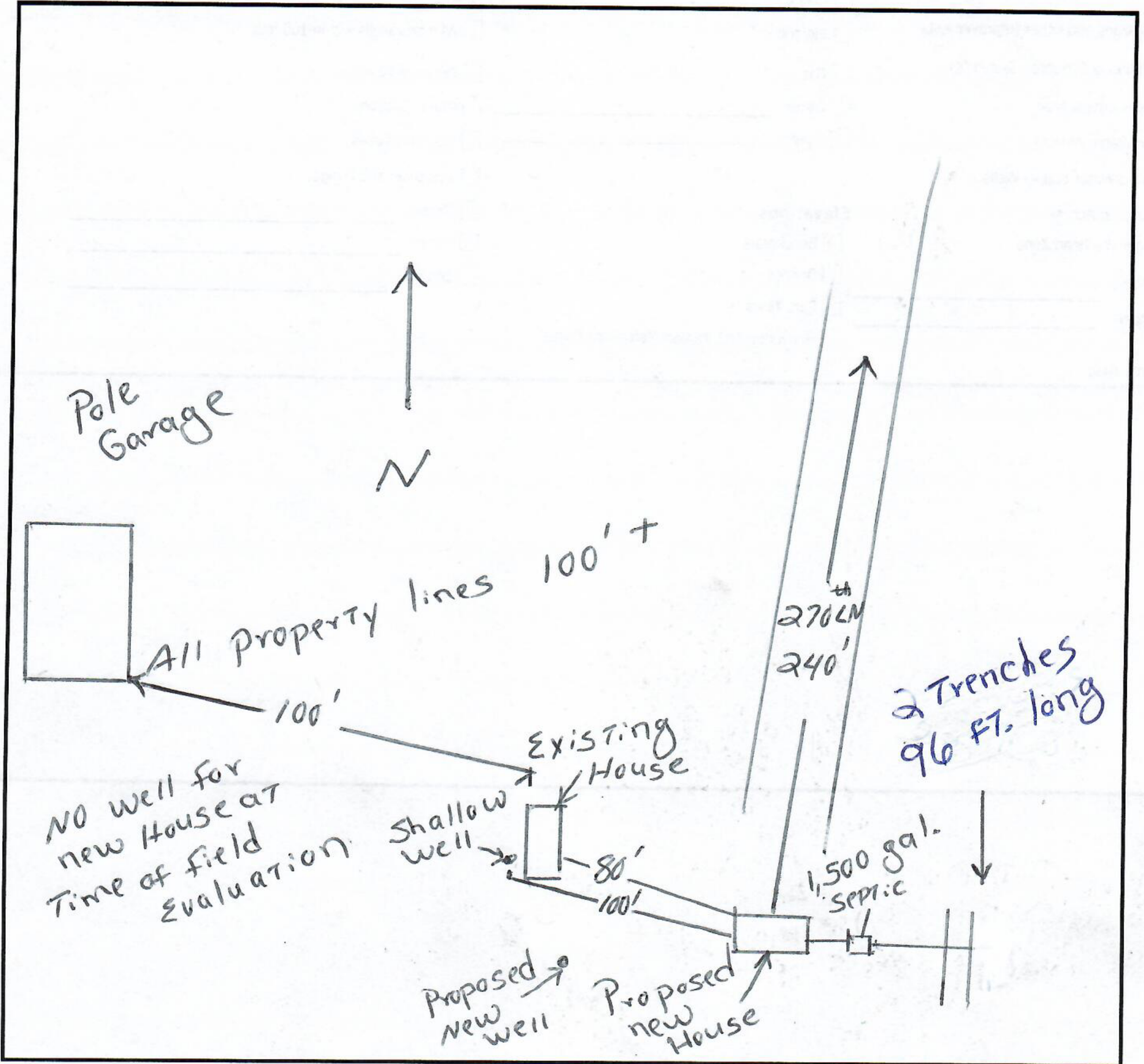
**10. Comments/Special Design Considerations:**

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

(Designer)       (Signature)       (License #)       (Date)



Property Owner/Client: Daniel Elias, Krista Lee C/O Karen Elias



Map scale:

Indicated north

Show slope/contours

**Elevations in feet**

Benchmark Elev:  ft

Benchmark Location:

System Corners:

Corner 1	<input type="text" value="98"/> ft
Corner 2	<input type="text" value="95"/> ft
Corner 3	<input type="text" value="98"/> ft
Corner 4	<input type="text" value="95"/> ft

Soil Observation:

#1:	<input type="text" value="98"/> ft
#2:	<input type="text" value="95"/> ft
#3:	<input type="text" value="98"/> ft
#4:	<input type="text" value="95"/> ft

Tank Outlet:

Other:

Bottom of rock 96.5

**System Corners**

1	2
3	4
↑ N	
	<input type="text" value="98"/> ft
	<input type="text"/> ft
	<input type="text"/> ft

Date Completed:





# Soil Observation Log

Project ID: 017400 v 04.02.2024

**Client:** Daniel Elias, Krista Lee C/O Karen Elias      **Location / Address:** 29391 270th LN Aitkin MN 56431

**Soil parent material(s):** (Check all that apply)     Outwash     Lacustrine     Loess     Till     Alluvium     Bedrock     Organic Matter     Disturbed/Fill

**Landscape Position:** Back/Side Slope      **Slope %:** 5.0      **Slope shape:** Linear, Convex      **Flooding/Run-On potential:** No

**Vegetation:** Grass      **Soil survey map units:** 732B, Bushyville Loam      **Surface Elevation-Relative to benchmark:** 97.00

**Date/Time of Day/Weather Conditions:** 6/21/2023      10:00 AM      **cloudy**      **Limiting Layer Elevation:** 92.50

**Observation #/Location:** Soil Boring #2      **North end of Primary site**      **Observation Type:** Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
5	Medium Loamy Sand	0	10YR				Single grain	Weak	Friable
17	Medium Loamy Sand	0	10YR 4/6				Single grain	Weak	Loose
49	Medium Loamy Sand	0	7.5YR 4/4				Single grain	Weak	Friable
50	Medium Loamy Sand	0		7.5YR 5/2	Depletions	S2	Single grain	Weak	Friable

**Comments:**

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Greg Westerlund      663      7/16/2024  
 (Designer/Inspector)      (License #)      (Date)

**Optional Verification:** I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

\_\_\_\_\_  
 (LGU/Designer/Inspector)      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_  
 (Signature)      (Cert #)      (Date)



