September 5, 2025
File No. 27223270.26

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: Monitoring Well Construction Documentation
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Dear Brian:

SCS Engineers, on behalf of Guthrie County Environmental Health, is submitting the attached documentation for a newly installed background monitoring well at the Guthrie County Sanitary Landfill (Landfill) as required in Iowa Department of Natural Resources correspondence dated January 3, 2025 (Doc #111665).

The attached Figure 1 shows the approximate location of the new background monitoring well MW-21. A boring log and well construction form for MW-21 are attached. Pre-packed monitoring well screens for metal testing from ECT Manufacturing were used. Surveying data is not yet available; the data will be provided when available

The clay and sand layers encountered in the boring are typical of the area, as described in the excerpts below from the Hydrogeological Investigation and Monitoring System Plan for the Landfill dated December 1991 (Doc #34517):

> *The glacial drift aquifers occur locally throughout the region. The drift is composed of predominantly clay-rich glacial till and, to a lesser degree, thin discontinuous lenses of sand and gravel. The sand and gravel lenses are typically 1 to 3 feet thick and seldom exceed 5 feet. They are most commonly encountered at depths of less than 50 feet.*
>
> *Surficial geology at the site consists of 4 to 16 feet of loess over 31 to 98 feet of glacial till. The character of the till is predominantly sand-rich but varies with location and depth to clay-rich. Thin lenses of sand occur within the till unit but do not appear to be continuous across the site.*

If you have any questions regarding this documentation, please contact Nathan Ohrt at (319) 331-9613.

Sincerely,

Nathan Ohrt
Senior Project Professional
SCS Engineers

Sean Marczewski
Senior Project Professional
SCS Engineers

NPO/SAM

Copies: Mr. Jotham Arber, Guthrie County Environmental Health

SCS ENGINEERS
environmental consultants and contractors

Site Map

Legend

- Approximate Monitoring Well Location
- Approximate Methane Monitoring Point Location
- Approximate Leachate Piezometer Location
- Approximate Waste Boundary
- Approximate Property Boundary

Guthrie County
Sanitary Landfill
Guthrie Center, Iowa
Project No: 27223270.26
Drawing Date: September 2025

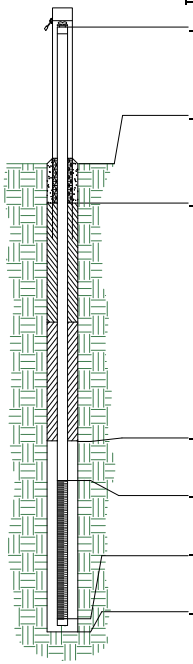
N
W E
S

0 65 130 260 390
Feet

Figure 1

BORING LOG/PIEZOMETER CONSTRUCTION DETAIL

Monitoring Well Detail



Material	Elevation Depth
TOC	~3.0 ft
Ground	0.00
	NA
Bentonite Seal	-1.50
	NA
Sand Pack	-18.00
	NA
Well Screen	-20.00
	NA
Well Bottom	-30.00
	NA
Bottom of Boring	-30.00
	NA

Boring Log Detail

Sample Method	Sample Interval	Drill Method	Recovery (inches)	Strata Depth (ft)	Description
		HS		0-20	Brown dense clay
				20-25	Gray dense clay
				25-30	Gray sand

AR-Air Rotary
AS-Auger Sample
GS-Grab Sample
HA-Hand Auger
HS-Hollow Stem Auger
PA-Power Auger (solid stem)
SS-Split Spoon
WB-Wash Boring

Date:	8/1/2025
Time:	3:00 PM
Water Level:	~25 feet
Elevation:	NA

Driller:	Jordan Lowry
Logged By:	Calvin Harris
Date/Time Start:	8/1/2025 9:00 AM
Date/Time End:	8/1/2025 2:30 PM

Borehole Diameter:	7.25 inches
Well Casing Diameter:	2 inch
Well Screen Size:	0.010 inch
LUST/SLF Permit No.:	39-SDP-01-73C
Project No.:	27223270.26

Project:	**Guthrie County Sanitary Landfill**
Location:	**Guthrie Center, Iowa**
Client:	**Guthrie County**
Owner:	**Guthrie County**
Boring/Well No:	**MW-21**

MONITORING WELL/PIEZOMETER CONSTRUCTION FORM

Disposal Site Name	Guthrie County Sanitary Landfill			Permit #	39-SDP-01-73C
Well or Piezometer #	MW-21	Date Started	8/1/2025	Date Completed	8/1/2025
Project No.	27223270.26				

A. Surveyed Locations and Elevations

Locations (+/-0.5 ft.):

Specify corner of site	
Distance and Direction along boundary	See map
Distance and Direction from boundary to well	See map

Elevation(+/-0.01 ft. MSL):

Ground surface	NA
Top of Protective Casing	NA
Top of Well Casing	NA
Benchmark Elevation	_____
Benchmark Description	_____

B. Soil Boring Information

Name and Address of Construction Company
EcoSource, LLC
1001 Raccoon Street
Des Moines, Iowa 50309

Name of Driller	Jordan Lowry
Drilling Method	Hollow Stem Auger
Drilling Fluid	None
Bore hole Diameter	7.25 inches
Soil Sampling Method	continuous sampler
Depth of Boring *	30 feet

C. Monitoring Well Installation

Casing Material	PVC
Length of Casing	20.00
Outside Casing Diameter	2.375 inch
Inside Casing Diameter	2.0 inch
Casing Joint Type	threaded
Casing/Screen joint type	threaded
Screen material	PVC
Screen opening size	0.010 inch
Screen length	10
Depth of Well **	~33 feet

Well Installation, continued:

Filter pack:

Material	Silica Sand
Grain Size	0.65 mm
Volume	3.07 ft^3

Seal (minimum 3 ft. length above filter pack):

Material	Bentonite grout
Placement Method	Tremie
Volume	4.22 ft^3

Backfill (if different from seal):

Material	NA
Placement Method	NA
-20 Volume	NA

Surface seal design:

Material of Protective Casing:
Metal
Material of grout between protective casing and well casing
Cement
Protective cap material
Metal
Vented? (Y/N) N Locking? (Y/N) Y
Well cap material
PVC
Vented? (Y/N) Y

D. Groundwater Measurement

Water level (+/-0.01 ft. below top of inner well casing)	~25 feet
Stabilization time	< 24 hrs.
Well development method	NA

Upgradient or downgradient well?
Background
Average Depth of Frostline
3 feet

* Depth of boring measured from ground surface.

** Depth of well measured from Top of Casing (TOC).