

10 February 2026

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via email: shdmnb@co.snohomish.wa.us

**RE: Recommended Stormwater Evaluation
Baxter South Woodwaste Landfill, Arlington, Washington**

This memo is being submitted to describe how stormwater is interacting with the former J.H. Baxter Company south woodwaste landfill in Arlington, Washington. The landfill, currently owned by Jeff Lervick, is under the jurisdiction of the Snohomish County Health Department (SCHD), with technical oversight provided by the Washington Department of Ecology (Ecology). The SCHD has been advised by Ecology to inspect the landfill stormwater system and ascertain its efficacy in preventing stormwater infiltration through the landfill cap. A site reconnaissance was performed in December 2025 during significant rainfall to monitor stormwater runoff and assess its influence on the landfill. Results of the field reconnaissance are presented below.

BACKGROUND

The landfill is approximately 4.7 acres in size and was previously a sand and gravel pit. The woodwaste disposed in the pit was primarily untreated bark and wood shavings from the adjacent J.H. Baxter Company wood preserving facility. The woodwaste was subsequently covered with granular soil. The landfill was closed in 1989 and its final closure design is described in Sweet-Edwards/EMCON (1989).

The final grade of the landfill proposed for closure in 1989 promoted overland sheetflow of stormwater to a “v”-shaped ditch. Flowing south along the east margin of the landfill before turning west, the ditch was designed to intercept the sheetflow and convey runoff to an infiltration basin located to the southwest of the landfill (Figure 1. Source: Sweet-Edwards/EMCON 1989). The stormwater would then infiltrate the soil and recharge groundwater. Given the northwesterly groundwater flow direction, the infiltration is expected to recharge the shallow aquifer cross-gradient from the woodwaste in the landfill (Sweet-Edwards/EMCON 1989).

CURRENT CONDITIONS

The Baxter wood preserving facility and associated wood storage areas lie east and south of the landfill. The grounds are primarily dirt exposed to regular construction traffic involving the transport and staging of raw and treated logs. Private gravel roads are located between the landfill and Baxter grounds.

Currently, the landfill cap is densely vegetated to perimeter roads with grass and other herbaceous vegetation. The vegetated soil cap has effectively protected the ground as no

soil erosion from stormwater runoff is evident. The cap is fairly flat and slightly higher than surrounding ground. The “v”-shaped ditch is shorter than depicted in Figure 1 and instead bisects the southern half of the site from the northeast to the southwest and is directed toward the infiltration basin (Figure 2). The ditch is well vegetated. The infiltration basin seems to consist of a small, pre-treatment cell and second, larger cell. The basin also has a well-vegetated base and side slopes.

In addition to protecting the ground from erosion, landfill cap vegetation seems to be affectively intercepting rainfall and managing runoff. While present, the “v”-shaped ditch does not appear to be collecting stormwater or conveying any to the infiltration basin as there is no physical evidence of water flow. In addition, there is currently no stormwater run-on reaching the landfill from the south or east. Ditches along the east and south side of perimeter roads intercept stormwater from Baxter grounds and deliver it to the infiltration basin while bypassing the landfill.

Figure 2 shows the direction of stormwater flow in these ditches on 11 December 2025 following a prolonged storm (referred to by local meteorologists as an “atmospheric river”). Conditions on 11 December reflected significant rainfall for the month (~1.8 inches thru the 11th, as measured at Paine Field). The east and southeast margins of the landfill and the “v”-shaped ditch bisecting the southern half contained no stormwater during this time, although some rainwater had collected in small pockets in the ditch. Figure 3 shows stormwater in the infiltration basin from photos taken on the 11th. Photos depict unusually high-water levels that had accumulated and show stormwater was present at the southwest margin of the landfill but did not extend onto the higher cap. The reconnaissance showed that even during very wet periods, stormwater does not infiltrate the landfill cap except for possibly the southwest corner where the infiltration basin encourages it.

Stormwater in the infiltration basin on December 17th was very turbid (199 NTUs) owing to runoff from active bare grounds of the Baxter facility. Stormwater samples collected from the infiltration basin revealed most arsenic, iron and manganese were in total form, so likely adsorbed to the particulate matter in the water (Table 1). Hallock (2007) found infiltration can, on average, remove 85 percent of total suspended solids from stormwater. Thus, the particulate matter would likely settle in the basin and/or be physically filtered by vegetated surface soil during infiltration. Metals adsorbed to these particles would reasonably be trapped in the basin and likely not transmit to groundwater (well BXS-3 is ~200 feet to the north and depth to water is at least 25 feet).

Table 1. Total and dissolved metals in stormwater collected from the infiltration basin near the former Baxter south woodwaste landfill on 17 December 2025.

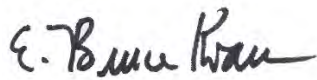
Parameter	Total form	Dissolved form	Percent in total form	Turbidity (NTUs)
Arsenic ($\mu\text{g/L}$)	9.040	1.451	83.95	199
Iron (mg/L)	16.7	0.077	99.54	199
Manganese (mg/L)	0.304	0.013	95.72	199

In summary, although runoff might not be managed with the “v”-shaped ditch as originally designed, stormwater is still being delivered to an infiltration basin in the southwest corner

of the landfill. As currently routed in roadside ditches, stormwater bypasses the landfill as it is delivered to the infiltration basin, where it is treated. Thus, stormwater is not infiltrating the landfill cap except possibly in the southwest corner. Given the effective retention of total metals provided by the infiltration basin and distance to the nearest monitoring well, stormwater is unlikely contributing significantly to high metal concentrations observed in well BXS-3.

If you have any questions related to the site reconnaissance or this memo, please call me at (206) 953-6904.

Sincerely,



Kvam Aquatic Sciences, LLC
Bruce Kvam
Principal Biologist

EC: O'Connor, Tim (ECY), Noell, Alan L (ECY).

Hallock, D. 2007. Efficiency of urban stormwater best management practices: a literature review. Washington State Department of Ecology. Olympia, WA. Available at: www.ecy.wa.gov/biblio/0703009.html

Sweet-Edwards/EMCON. 1989. Closure and post closure plan J.H. Baxter South Woodwaste landfill Arlington, Washington. Prepared for J.H. Baxter Company, Arlington, WA. Available at: <https://apps.ecology.wa.gov/cleanupsearch/site/17109>

FIGURES

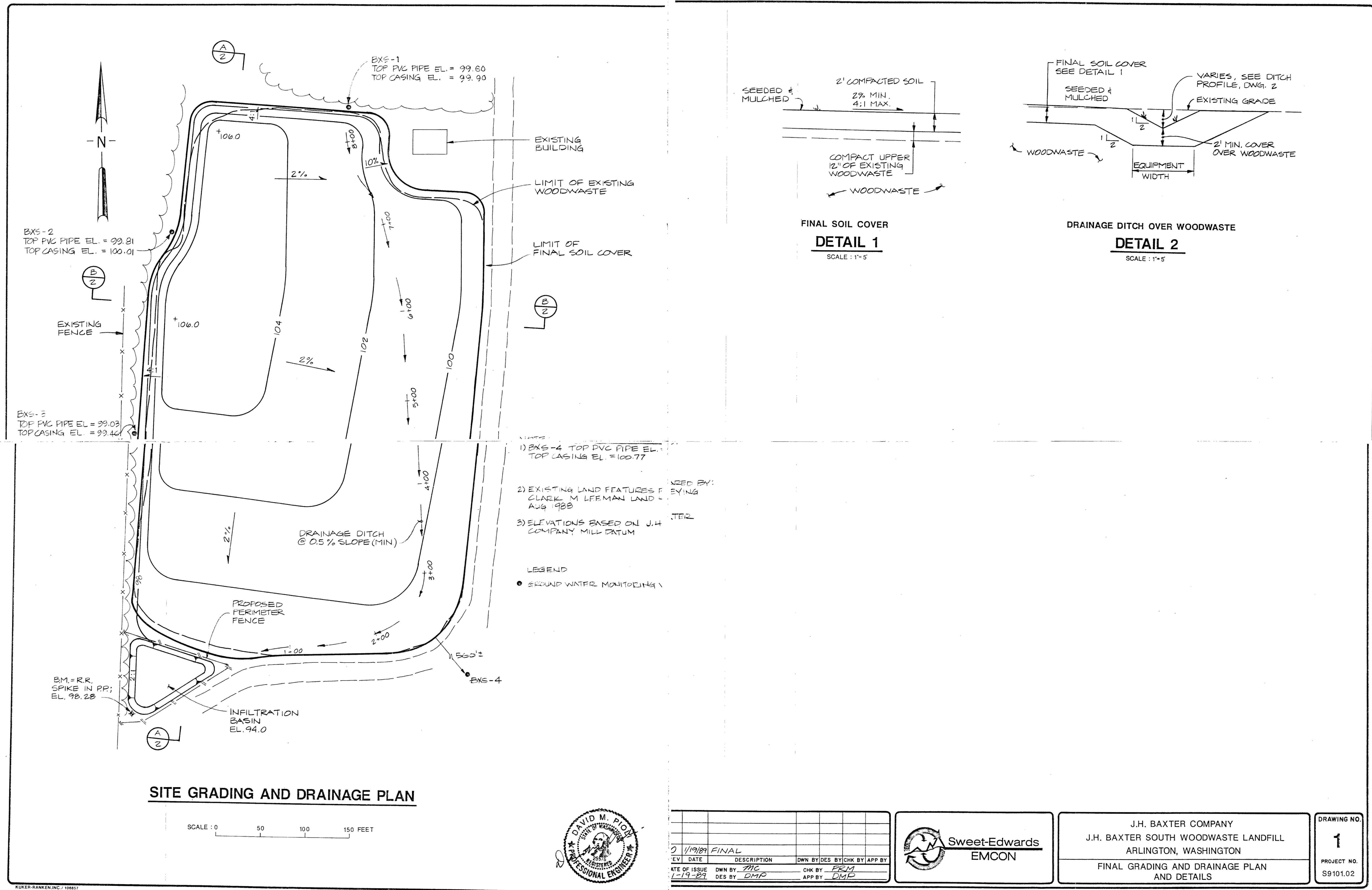


Figure 1. Site grading and drainage plan for the Baxter Company south woodwaste landfill, post closure. (Source: Sweet-Edwards EMCOM 1989).



Figure 2. Baxter South woodwaste landfill, stormwater routing to infiltration basin.

Map Generated On: 01/08/2026



Legend

Cadastral

Easements



Parcels



Addresses

Aerial Imagery

Road Labels (white)

Aerial 2024

Red: Band_1

Green: Band_2

Blue: Band_3

Snohomish County Planning and Development Services (PDS)

0 50 100 ft

Scale 1 : 2168

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Figure 3. Baxter South woodwaste landfill, small and large cell of infiltration basin, w/photo points.

Legend

Map Generated On: 01/08/2026

Cadastral

Easements



Parcels



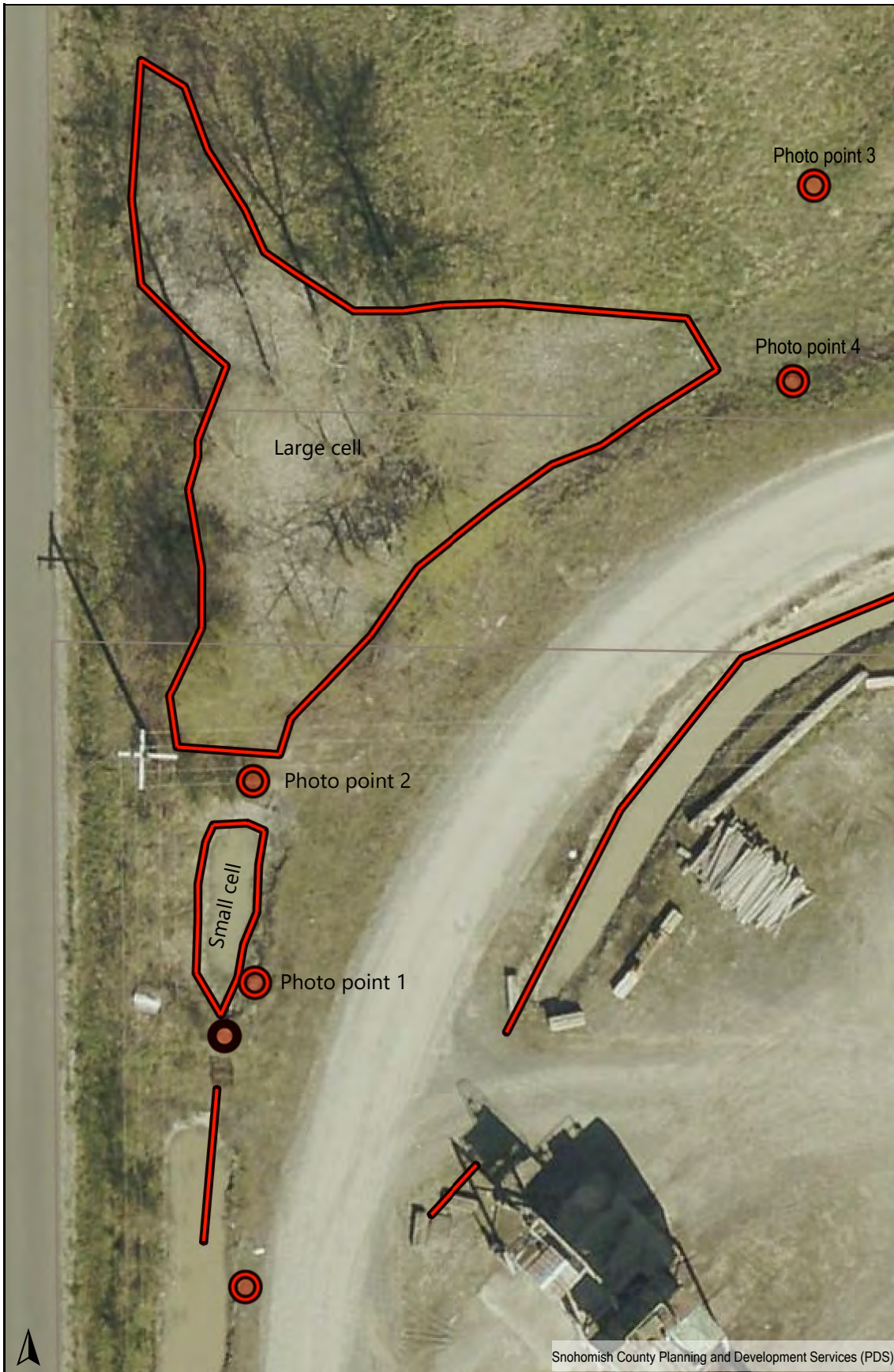
Addresses

Aerial Imagery

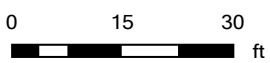
Road Labels (white)

Aerial 2024

- Red: Band_1
- Green: Band_2
- Blue: Band_3



Snohomish County Planning and Development Services (PDS)



Scale 1 : 468

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Photo Log of Baxter South Woodwaste Landfill

Stormwater Evaluation, 11 December 2025



Photo point 1 Looking west at stormwater outfall into smaller cell of infiltration basin.



Photo point 1 Looking south at stormwater outfall and ditch from the south.



Photo point 1 Looking north at smaller cell of infiltration basin.



Photo point 2 Looking north at larger cell of infiltration basin.



Photo point 3 Looking southwest showing NE extent of stormwater infiltration.



Photo point 3 Looking southeast showing NE extent of stormwater infiltration.



Photo point 4 Looking northeast and up "v"-shaped drainage ditch.