

# **Appendix C**

## Supplemental Site Screening Report

# **Solid Waste Management Facility Supplemental Site Screening Report**

*Prepared for*  
Deschutes County Department of Solid Waste



November 2025

**ParametriX**



# **Solid Waste Management Facility Supplemental Site Screening Report**

*Prepared for*

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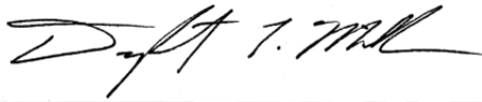
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# Certification

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



Prepared by Ryan Rudnick, PE



Checked and Approved by Dwight Miller, PE

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# Acronyms and Abbreviations

ACSC	Area of Critical State Concern
BCC	Board of County Commissioners
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	Bureau of Land Management
BOCC	Board of County Commissioners
CCAA	Candidate Conservation Agreement with Assurances
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIP	Capital improvement Programs
DCC	Deschutes County Code
DCZO	Deschutes County zoning ordinance
DEQ	Department of Environmental Quality
DOGAMI	Department of Geology and Mineral Industries
DSL	Department of State Lands
EFU	Exclusive Farm Use
EFUHR	Exclusive Farm Use - Horse Ridge
EIS	Environmental impact statement
ESEE	Economic, social, environmental and energy
E/V ratio	Excavation-to-volume ratio
FAA	Federal Aviation Administration
FIRM	Flood insurance rate maps
GIS	Geographic Information System
GSG	Greater sage grouse
HDPE	high-density polyethylene
MBTA	Migratory Bird Treaty Act
MSWLF	Municipal Solid Waste Landfill
NRCS	Natural Resources Conservation Service
OAR	Oregon Administrative Rules

## Acronyms and Abbreviations (Continued)

ODFW	Oregon Department of Fish and Wildlife
OHV	off highway vehicle
ORBIC	Oregon Biodiversity Information Center
OWRD	Oregon Water Resources Department
SBMH	Sensitive Bird and Mammal Habitat
SM	Surface Mining
SWAC	Solid Waste Advisory Committee
SWMF	Solid Waste Management Facility
SWMP	Solid Waste Management Plan
TCP	Traditional Cultural Places
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WA	Wildlife Area

# 1. Summary

## 1.1 Background

Deschutes County continues to advance the process of selecting a replacement Solid Waste Management Facility (SWMF) site for Knott Landfill, which is expected to reach capacity in 2031. The February 2024 Site Screening Report documented the County's Phase I and Phase II screening work, beginning with an evaluation of 31 candidate sites and narrowing the list through broad and focused screening.

Based on that analysis, two sites—Moon Pit and Roth East—were advanced for Final Site Evaluations, which included detailed engineering, hydrogeologic, environmental, operational, land use, and cost analyses. The results were presented to the Solid Waste Advisory Committee (SWAC) in early 2024 and summarized in the SWMF Final Site Evaluation Report.

The SWAC recommended Moon Pit as the preferred site for development of a new solid waste management facility because it had the lowest wildlife mitigation burden, favorable hydrogeologic separation, strong economic indicators, minimal residential impacts, and was already disturbed by prior mining activities. In July 2024, following public input, the Board of County Commissioners (BOCC) voted to select "Moon Pit" as the preferred location for the new facility and authorized County staff to move forward with the process.

However, purchase negotiations ceased in March 2025 at the property owners' request, following unresolved disagreements regarding closing timelines, appraisal requirements, and water rights valuation. At the direction of the BOCC, the SWAC reconvened in June 2025 to reconsider the Roth East finalist site and evaluate other potentially viable alternatives.

## 1.2 Purpose of Supplemental Site Screening

The Supplemental Site Screening process and report serves as an addendum to the 2024 Site Screening Report and the broad & focus screening processes described therein. Its purpose is to:

- Reassess sites whose feasibility changed due to updated habitat mapping, revised landowner positions, and new permitting considerations.
- Evaluate newly viable or previously constrained properties (e.g., Horse Ridge, Roth Northeast).
- Apply the identical 35/35/30 criteria scoring methodology used during earlier screening phases to maintain consistency.
- Provide SWAC and the BOCC with a clear, updated basis for selecting a new preferred site following the cessation of Moon Pit negotiations.

The supplemental screening does not replace prior broad and focused screening processes, but it rather revisits and extends them with newly available information to ensure an up-to-date record of potential landfill siting options.

## 1.3 Scope

The supplemental evaluation applied the existing siting criteria framework—Site Characteristics & Engineering, Natural Environment, and Land Use—to a refined set of candidate sites. The process included:

- Reviewing sites previously removed due to factors that have since changed (e.g., sage-grouse zones, ownership, eagle habitat data).
- Assessing BLM-managed lands newly identified as potentially feasible.
- Updating site feasibility using 2025 data sources, including wildlife and ownership data.
- Quantifying residences within 1-mile and 2-miles of each site.
- Identifying each site's relative development and operational cost factors (excavation, infrastructure, haul distance, utilities).

The supplemental screening process culminated in a comparative evaluation of four feasible sites: **Horse Ridge, Roth East, Roth Northeast (alternate subarea), and Dodds Road.**

## 1.4 Findings and Outcome

The four sites—Horse Ridge, Roth East, Roth Northeast, and Dodds Road—were evaluated during the supplemental screening. After incorporating updated engineering, environmental, land use, public input, and cost information:

- **Horse Ridge** emerged as a highly feasible alternative, with strong geological suitability, low groundwater risk, lower wildlife mitigation burden, limited residential proximity, and the lowest total development/operational cost profile.
- **Roth East** remained feasible but carried the highest wildlife mitigation cost (~\$7.6M) and sustained public and agency opposition.
- **Roth Northeast** did not reduce mitigation costs and offered lower capacity (~80 years).
- The **Dodds Road** site drew significant opposition from nearby residents, posed excavation challenges due to shallow bedrock, and was removed from consideration by its owner (Central Oregon Irrigation District, COID) in August 2025.

On August 19, 2025, SWAC voted unanimously to advance the Horse Ridge site through a Final Site Evaluation. The Final Site Evaluation process for Horse Ridge will occur over approximately six months with results expected in Spring 2026, producing a level of analysis directly comparable to the previously completed Final Site Evaluations for Moon Pit and Roth East.

## 2. Supplemental Screening Process and Sites

### 2.1 Supplemental Screening Approach

Following the cessation of Moon Pit property negotiations in March 2025, the Board of County Commissioners (BOCC) directed the Solid Waste Advisory Committee (SWAC) to reexamine remaining viable landfill siting options using the established evaluation framework from the February 2024 Site Screening Report. The Supplemental Screening effort did not recreate earlier broad or focused screening steps; instead, it revisited and extended them by incorporating new technical information, updated environmental data, and revised landowner positions that emerged after the original Phase II site evaluations and Final Site Evaluation work.

To maintain consistency and comparability, the supplemental screening applied the same three-part siting framework:

- Site Characteristics & Engineering (35%)
- Natural Environment (35%)
- Land Use (30%)

The methodology remained unchanged, but the underlying datasets were updated to reflect 2024–2025 conditions, including:

- Updated Greater Sage-Grouse habitat mapping and revised Habitat Quantification Tool (HQT) scores.
- New wildlife data, including updated eagle nest locations and pinyon jay habitat information.
- Revised landowner willingness and property availability, particularly at Horse Ridge and the Roth properties.
- New permitting considerations, including FAA’s 5-mile landfill–airport buffer and refined understanding of Landscape Management (LM) overlay applicability.
- Updated groundwater depth estimates, soil/rock characteristics, excavation feasibility, blasting requirements, and water-supply strategies.
- Residential proximity counts based on 2025 parcel improvement data.
- Comparative cost-factor analysis (excavation, haul distance, road/power/water infrastructure) using the same weighting applied in the 2024 Final Site Evaluation.

Sites that remained feasible under the updated data—and where ownership or willingness to sell supported continued evaluation—were carried into the supplemental focused screening. This resulted in **four candidate sites** being reevaluated using updated datasets and the original scoring methodology.

### 2.2 Candidate Sites Considered

The supplemental screening reassessed four sites that remained feasible based on updated wildlife information, owner willingness, and permitting considerations. These four sites are shown in Figure 1

and are referred to as the “Horse Ridge”, “Roth East”, “Roth Northeast”, and the “Dodds Road” sites. General details on each of these four sites are described below.

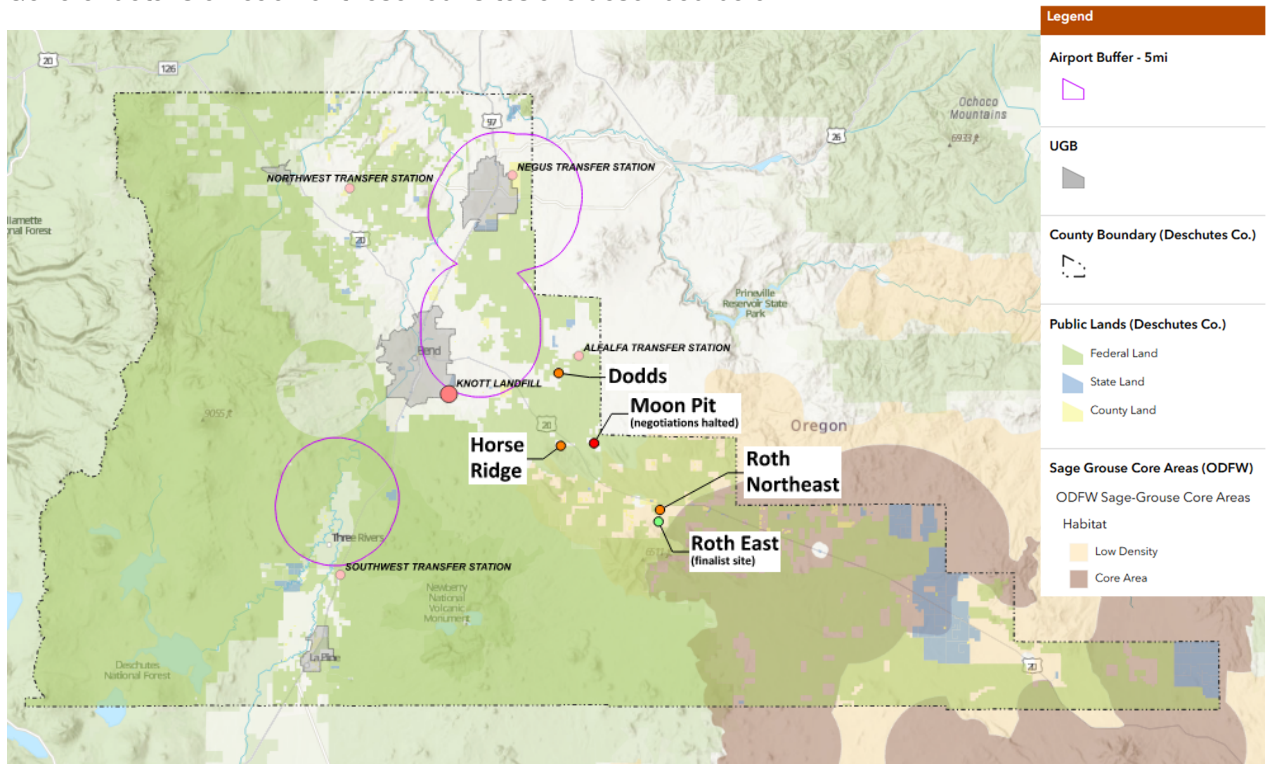


Figure 1. Supplemental Screening Candidate Sites

### 2.2.1 Horse Ridge Site

The Horse Ridge study area encompasses approximately 391 acres distributed across several properties owned by Deschutes County, ODOT, Knife River Corporation, Horse Ridge Pit LLC, and 4-R Equipment. All owners expressed willingness in 2025 to negotiate sale or transfer, and ODOT indicated that it would also be open to transferring ownership and maintenance responsibility for Horse Ridge Frontage Road should the site advance.

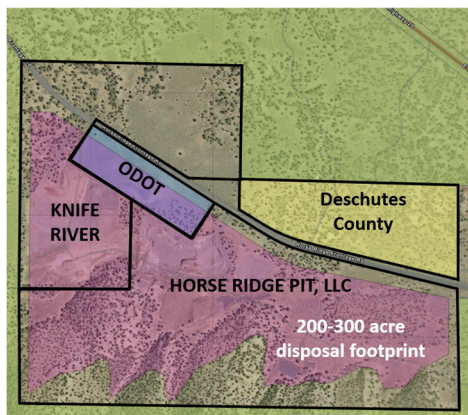


Figure 2. Horse Ridge Ownership Map

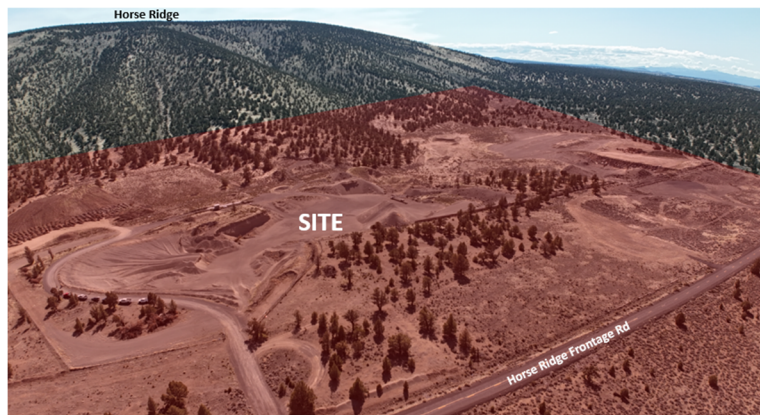


Figure 3. Horse Ridge Drone Photo and Site Location

The site is located southwest of U.S. Highway 20, roughly sixteen miles southeast of Bend, in a landscape characterized by existing surface mines, gently sloping terrain at the base of the Horse Ridge escarpment, and in proximity to recreation areas including the Horse Ridge trail network and the western boundary of the Badlands Wilderness. Zoning within the study area includes Surface Mining (SM) on the active and reclaimed mine areas and Exclusive Farm Use–Horse Ridge Subzone (EFUHR) on surrounding undeveloped parcels.

The estimated disposal footprint ranges from 200 to 300 acres, depending on the extent of access-road realignment and integration of mined areas. Subsurface investigation and well log data indicate alluvial deposits of sand and gravel approximately 30 to 50 feet deep across much of the valley floor, underlain by shallow basalt along the adjacent hillslope (See Figure 4). These materials are expected to meet a wide range of landfill material needs, including daily and intermediate cover, drainage layer aggregate, road base, and potential liner subgrade applications. The site's hillside configuration yields a favorable excavation-to-volume ratio and supports a 100-year disposal capacity.

Groundwater is located at significant depth—approximately 850 to 950 feet below ground surface—providing a high degree of natural hydrogeologic protection. Only three residences lie within one mile of the site, and fewer than five are located along the anticipated haul route. Visibility from Highway 20 is limited to select vantage points, with topography and vegetation screening most of the disposal area from public viewpoints.



Figure 4. Horse Ridge alluvial deposits

### 2.2.2 Roth East Site

The Roth East site occupies the southeastern portion of a large, privately owned 1,706-acre tax lot in the Millican Valley. The property owner has consistently expressed a willingness to sell the entire holding—totaling more than 3,000 acres—and reaffirmed this position during the 2025 supplemental screening process. Situated approximately twenty-five miles east of Bend, the site lies south of U.S. Highway 20 in an area characterized by rangeland, scattered rural residences, and recreation uses including OHV trails, hang-gliding and paragliding launch and landing areas, and the Pine Mountain Observatory several miles to the south.

The property is zoned Exclusive Farm Use – Horse Ridge Subzone (EFUHR) and is overlaid by a combination of resource protection designations, including a Landscape Management (LM) corridor along Highway 20, Wildlife Area Combining Zones associated with deer and antelope winter range habitat, and a Surface Mining Impact Area near the northern portion of the tax lot.

The developable landfill footprint is estimated at approximately 450 acres, supported by substantial depth of alluvial and sedimentary deposits—commonly exceeding 300 feet—providing

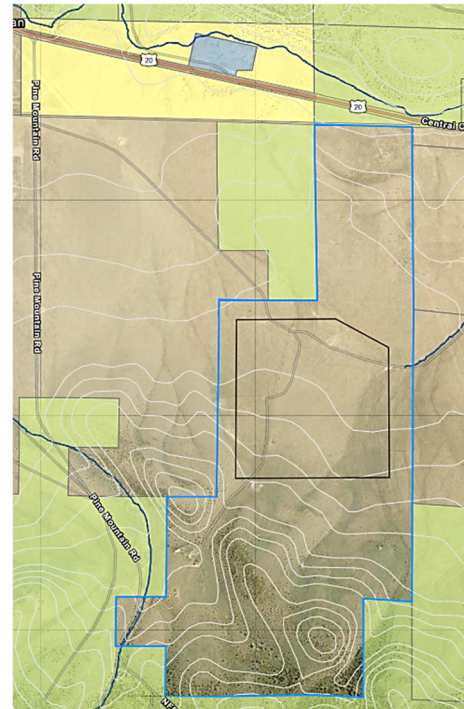


Figure 5. Roth East Property Map

a large volume of easily excavated material for landfill construction. These conditions contribute to an estimated disposal capacity exceeding 100 years. Groundwater in the vicinity is encountered between roughly 460 and 630 feet below ground surface, and stratigraphic logs indicate favorable hydrogeologic conditions dominated by claystone, conglomerate, and fine-grained sediments that can enhance natural containment.

The site lies within Low Density Sage-Grouse Habitat, with mapped Core Habitat located approximately one-half mile to the southeast. Updated 2025 Habitat Quantification Tool results indicate approximately 199 functional acres of sage-grouse impact, the highest mitigation burden of any site considered during the supplemental process.

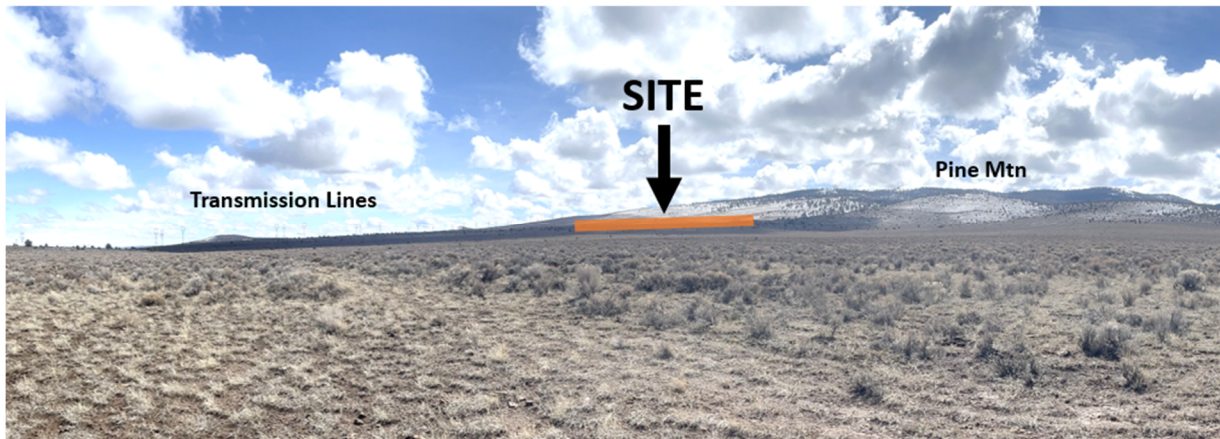


Figure 6. Roth East Site Location Photo

Several homes are located within the viewshed of the Roth East property, including two within roughly three-quarters of a mile and eight within a two-mile radius. Portions of the conceptual disposal area would be visible from US Highway 20 depending on final grading and vegetative screening. Public comment during the 2025 SWAC process reflected substantial concern about wildlife impacts, recreation conflicts, and potential effects on dark-sky conditions near Pine Mountain Observatory.

### **2.2.3 Roth Northeast**

The Roth Northeast site is an alternate disposal area located on the same 1,706-acre tax lot as Roth East. This alternative was introduced to move the landfill footprint farther north to avoid a modeled sage-grouse migration route depicted in earlier habitat analyses. Like Roth East, the northeast portion of the property is under single private ownership, and the owner expressed the same willingness to sell. The area lies closer to U.S. Highway 20 and exhibits greater topographic relief, with the terrain falling north toward the highway. Surrounding land uses include grazing lands, scattered rural residences, and the recreation and astronomical resources associated with Pine Mountain.

Zoning across the northern portion of the tax lot remains EFUHR and includes the same overlay designations applied to Roth East, including the US Highway 20 Landscape Management (LM) corridor, Wildlife Area Combining Zones, and Surface Mining Impact Area mapping. The proximity to the LM corridor heightens visual considerations, as portions of the conceptual disposal footprint fall within the area where development must minimize visible alteration.

The estimated disposal footprint for the Roth Northeast configuration is approximately 197 acres, supporting an estimated landfill life of around 80 years—substantially less than Horse Ridge or Roth East. Although the alternate location avoids the modeled migration corridor, the site remains within Low Density Sage-Grouse Habitat, and 2025 HQT results confirm that the sage-grouse mitigation burden does not decrease relative to Roth East. Groundwater depths appear to increase slightly northward, with first water encountered at approximately 435 feet in nearby logs.

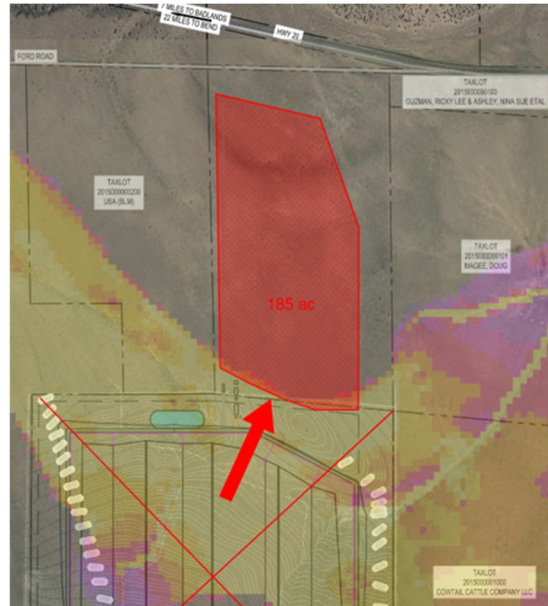


Figure 7. Roth Northeast Site Location Map

Residential interface includes two homes within roughly one-half mile and four homes within two miles of the conceptual footprint. Due to its higher elevation and north-facing slopes, the landfill would be more visible from US Highway 20 than the Roth East alternative. In August 2025, the SWAC voted unanimously to remove the Roth Northeast site from further consideration.



Figure 8. Roth Northeast Site Location Photo

## 2.2.4 Dodds Road Site

The Dodds Road site consists of a 433-acre property owned by COID, located east of Bend near the intersection of Dodds Road and Obernolte Road. The site lies immediately west of the Badlands Wilderness boundary, approximately one-quarter mile from its edge, and is surrounded by irrigated agricultural parcels, rural residential uses, and high desert shrubland. The Central Oregon Canal crosses the property, reflecting the long-standing irrigation function of the surrounding landscape. The property is zoned Exclusive Farm Use – Alfalfa (EFU-Alfalfa) and is mapped as farmland of statewide significance, with portions potentially meeting high-value farmland criteria if irrigated historically.

This site's shallow basalt bedrock and undulating terrain could be a challenge for cost-effective landfill development. A conceptual disposal footprint of approximately 195 acres would support an estimated 80-year landfill life. Achieving a full 100-year design capacity would require constructing a landfill mound 150 to 200 feet above existing grade, creating high visual prominence and increasing the likelihood of height-related land use conditions. Subsurface information indicates limited soil cover material, with thin layers of silty sand overlying fractured basalt, requiring extensive blasting and rock processing to meet landfill construction needs. Groundwater depths in the vicinity range from approximately 621 to 713 feet below ground surface, and no on-site wells or water rights exist.

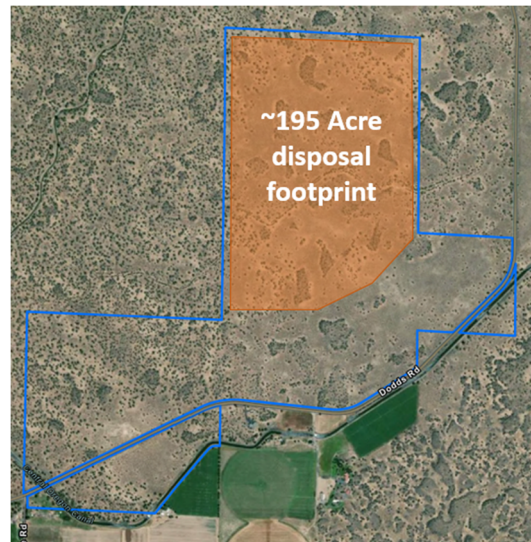


Figure 9. Dodds Road Site Property Map

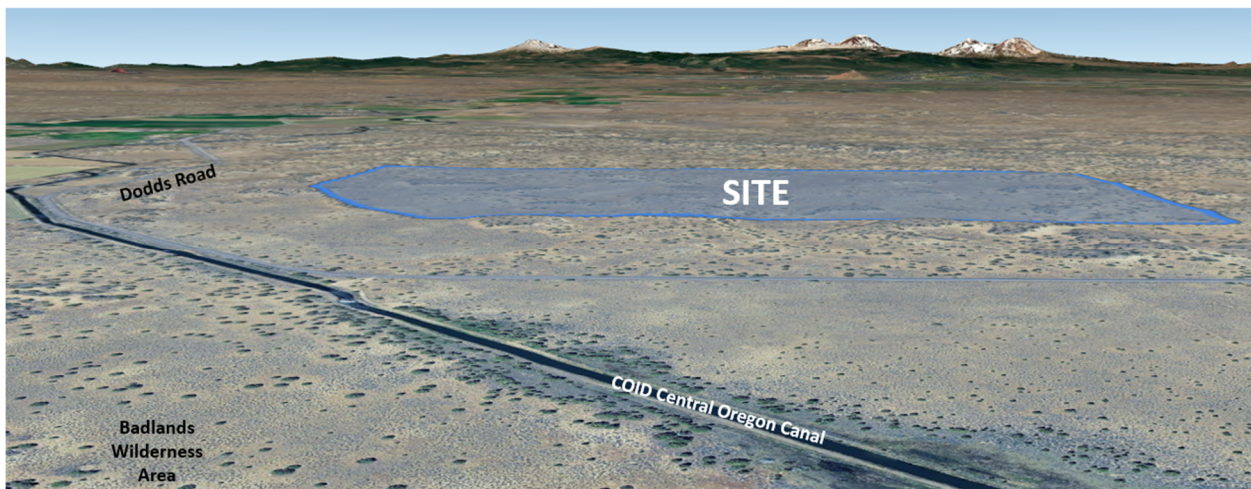


Figure 10. Dodds Road Site Location Image (source: Google Earth)

Residential proximity is greater at Dodds Road than at any other site evaluated during the supplemental process, with 18 dwellings located within one mile, 86 within two miles, and more than 21 homes positioned along the anticipated haul route. Public opposition to this site was significant.

### 3. Supplemental Screening Results

The supplemental screening process applied the County’s established siting criteria and weighting to the four candidate sites—Horse Ridge, Roth East, Roth Northeast, and Dodds Road—using updated 2024–2025 datasets and new information provided through the SWAC deliberations. This section summarizes the comparative results of those evaluations, including engineering and geological findings, environmental and wildlife considerations, land use constraints, residential interface, and the refined cost-factor analysis. Together, these findings informed SWAC’s final recommendation to advance Horse Ridge to a full Final Site Evaluation.

#### 3.1 Site Characteristics and Engineering

Horse Ridge and Roth East emerged as the strongest performers in the site characteristics and engineering category, each benefiting from favorable subsurface materials, deep groundwater, and large developable areas capable of supporting long-term disposal capacity. Horse Ridge’s hillside configuration and 30- to 50-foot alluvial deposits contribute to an excellent excavation-to-volume ratio and provide on-site sources for daily cover, drainage layers, and road base materials. Roth East similarly benefits from deep alluvial and sedimentary deposits, in some areas exceeding 300 feet, resulting in a high level of excavation efficiency and abundant cover material.

Roth Northeast and Dodds Road performed less favorably. The Roth Northeast footprint is substantially smaller and more constrained by topography, limiting long-term capacity to approximately 80 years. Dodds Road is limited by shallow basalt outcrops, thin overburden, and undulating terrain, resulting in a poor excavation-to-volume ratio and the need for extensive blasting and material processing. These engineering limitations reduced both sites’ rankings relative to Horse Ridge and Roth East.

Table 1. Site Characteristics / Engineering Criteria Scoring Comparison

Criteria and weight	Weight	SITE NAME:				
		MOON PIT	HORSE RIDGE	DODDS	ROTH NORTHEAST	ROTH EAST
<b>Site Characteristics/Engineering</b>	<b>35%</b>	<b>3.90</b>	<b>3.70</b>	<b>3.35</b>	<b>3.52</b>	<b>3.79</b>
<b>Site Availability/Acquisition Potential</b>	<b>35%</b>	<b>3.40</b>	<b>3.40</b>	<b>3.80</b>	<b>4.20</b>	<b>4.20</b>
<i>Ownership</i>	40%	3	4	4	3	3
<i>Number of Parcels</i>	20%	5	3	5	5	5
<i>Total Site Acreage</i>	40%	3	3	3	5	5
<b>Geotechnical Location Factors</b>	<b>10%</b>	<b>2.60</b>	<b>2.60</b>	<b>4.20</b>	<b>2.60</b>	<b>2.60</b>
<i>Fault Hazards</i>	25%	3	3	5	3	3
<i>Seismic Impact Zones/Hazards</i>	30%	3	3	5	3	3
<i>Unstable Areas – Mass Movement</i>	25%	3	3	5	3	3
<i>Unstable Areas – Poor Foundation</i>	20%	1	1	1	1	1
<b>Floodplains</b>	<b>5%</b>	<b>3.00</b>	<b>3.00</b>	<b>5.00</b>	<b>3.00</b>	<b>3.00</b>
<b>Groundwater Protection/Hydrogeology</b>	<b>20%</b>	<b>5.00</b>	<b>4.40</b>	<b>3.80</b>	<b>3.90</b>	<b>3.90</b>
<i>Depth to Groundwater</i>	25%	5	5	5	3	3
<i>Proximity to Drinking Water Wells</i>	30%	5	3	1	3	3
<i>Proximity to Wellhead Protection Areas</i>	15%	5	5	5	5	5
<i>Site Hydrogeologic Framework</i>	30%	5	5	5	5	5
<b>Development</b>	<b>15%</b>	<b>5.00</b>	<b>5.00</b>	<b>1.25</b>	<b>3.65</b>	<b>5.00</b>
<i>Soils</i>	45%	5	5	1	5	5
<i>Topography</i>	30%	5	5	1	3	5
<i>Capacity/Site Configuration</i>	25%	5	5	2	2	5
<b>Operation</b>	<b>15%</b>	<b>3.65</b>	<b>3.15</b>	<b>2.65</b>	<b>2.05</b>	<b>2.55</b>
<i>Haul Distance to Waste Centroid</i>	60%	3	3	3	2	2
<i>Annual Precipitation</i>	15%	4	4	4	4	4
<i>Onsite Water Supply and Management</i>	25%	5	3	1	1	3

### 3.2 Natural Environment

Updated habitat and wildlife analyses produced the most pronounced differences among the four sites. Roth East and Roth Northeast exhibited the highest overall wildlife impact due to their location within Low Density Sage-Grouse Habitat immediately adjacent to mapped Core Habitat. Updated Habitat Quantification Tool (HQT) modeling estimated approximately 199 functional acres of sage-grouse habitat impact for both the Roth East and Roth Northeast configurations—the largest mitigation burden identified in the supplemental screening. Additional impacts to deer and antelope winter range and pronghorn habitat further compound the mitigation requirements for both sites.

Horse Ridge performed substantially better in this category. Although the site lies within the North Paulina Deer Winter Range and Category 2 big-game habitat, updated 2025 HQT results show an estimated 19 functional acres of sage-grouse impact—an order of magnitude lower than the Roth sites. The site is located approximately one mile from Low Density GSG Habitat and is not adjacent to Core Habitat, substantially reducing regulatory complexity and mitigation cost. Updated golden eagle nesting data also clarified that previously mapped nest sites were located behind a ridgeline, at greater distance, reducing potential conflict.

Dodds Road received the highest Natural Environment score among the candidate sites due to its separation from sage-grouse habitat, despite its proximity to the Badlands Wilderness boundary and heightened public concern regarding disturbance of a largely natural and undeveloped landscape.

Table 2. Natural Environment Criteria Scoring Comparison

		SITE NAME:	MOON PIT	HORSE RIDGE	DODDS	ROTH NORTHEAST	ROTH EAST
Criteria and weight	Weight	Score:	Score:	Score:	Score:	Score:	
<b>Natural Environments</b>	<b>35%</b>	<b>3.60</b>	<b>3.50</b>	<b>4.70</b>	<b>3.40</b>	<b>3.40</b>	
Wetlands and Waters Impacts	10%	5	5	5	5	5	
Threatened and Endangered Species	20%	5	5	5	5	5	
Wildlife Area Combining Zone	10%	1	1	2	1	1	
Greater Sage-Grouse Area Combining Zone	40%	3	3	5	2	2	
Sensitive Bird and Mammal Habitat Combining Zone and Migratory Birds	20%	4.00	3.50	5.00	5.00	5.00	
Sensitive Bird and Mammal Habitat Combining Zone	50%	5	4	5	5	5	
Migratory Birds, Including Bald and Golden Eagles	50%	3	3	5	5	5	

### 3.3 Land Use Compatibility and Residential Interface

Land use considerations further distinguished the sites. Horse Ridge scored favorably due to minimal residential interface, with three dwellings within one mile and fewer than five along the expected haul route. Its combination of SM- and EFU-zoned parcels, existing disturbance from mining, and distance from major residential clusters enhances compatibility with required conditional use processes. Some visibility from US Highway 20 and nearby trailheads would require mitigation but does not pose a fatal-flaw constraint.

Roth East lies within a more complex regulatory setting, including a Landscape Management (LM) corridor, Wildlife Area Combining Zones, and proximity to recreation and astronomy resources. Residences lie within three-quarters of a mile, and the site is partially visible from US Highway 20. Roth Northeast includes similar constraints but faces greater visibility challenges due to its elevated location within the LM corridor.

Dodds Road has the most significant land use challenges of all evaluated sites. The site is located immediately adjacent to rural residences, with 18 homes within one mile and 86 homes within two miles. The proximity to the Badlands Wilderness boundary further heightens concerns related to visual impact, recreation conflicts, and community values. These land use limitations, coupled with

the COID Board’s decision to withdraw the property from consideration, effectively removed Dodds Road from further evaluation.

Table 3. Land Use Criteria Scoring Comparison

Criteria and weight	Weight	SITE NAME:				
		MOON PIT	HORSE RIDGE	DODDS	ROTH NORTHEAST	ROTH EAST
<b>Land Use</b>	<b>30%</b>	<b>3.40</b>	<b>3.60</b>	<b>3.33</b>	<b>3.55</b>	<b>3.63</b>
Proximity to Airports	15%	5.00	5.00	5.00	5.00	5.00
Site Zoning	20%	3.00	3.00	5.00	5.00	5.00
Adjacent Land Use Impacts	20%	3.00	3.50	1.00	2.50	3.50
Existing Adjacent Use	25%	1	3	1	1	1
Planned Adjacent Use	25%	1	3	1	5	5
Distance to Nearest Residence	25%	5	3	1	3	3
Distance to Nearest Public Road	25%	5	5	1	1	5
Site Visibility/Aesthetic Impact	10%	3.00	1.00	1.00	1.00	2.00
Visibility Based on Topography and/or Vegetation	50%	3	1	1	1	1
Remoteness	50%	3	1	1	1	3
Transportation System Needs/Opportunity	5%	1.00	1.00	1.00	1.00	1.00
Haul Route Impacts	5%	5.00	5.00	1.00	5.00	5.00
On-Site Land Use Impacts	25%	3.40	4.60	4.70	3.60	2.70
Displacement	40%	4	4	5	3	3
Known Cultural Resources	30%	1	5	4	5	2
Potential for Buried Archaeological Sites	30%	5	5	5	3	3

### 3.4 Overall Scoring and Comparative Ranking

The criteria scoring system is intended as a comparative tool to help differentiate site characteristics and highlight relative strengths and constraints; it is not intended to determine the landfill siting decision on its own. Instead, it provides one analytical “lens” among several—alongside landowner willingness, public and agency input, long-term operational feasibility, and acquisition and permitting considerations. The supplemental screening produced the following weighted scores:

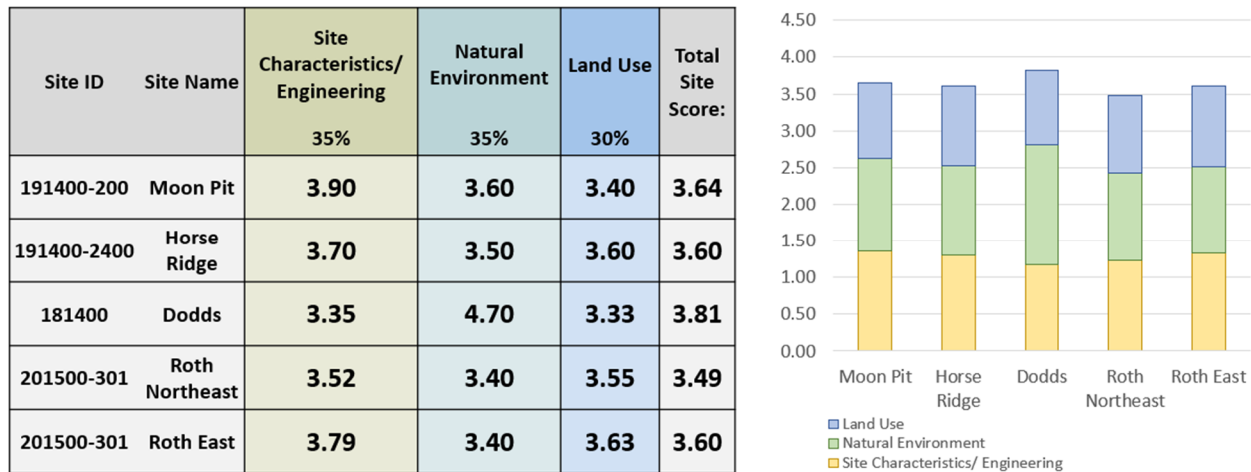


Figure 11. Criteria Scoring Summary

Within this context, the Dodds Road site received the highest overall weighted score due to its strong Natural Environment rating, but it also scored lowest among all sites in the Site Characteristics/Engineering and Land Use categories. Furthermore, it was subsequently removed from consideration by formal action of the COID Board. The Moon Pit site appears in the scoring table only as a reference point for comparison with earlier Phase II evaluations.

Taken together, the updated scoring results indicate that the Horse Ridge site performs on par with the previous Phase II finalist sites—Moon Pit and Roth East—and stands among the strongest overall candidates under the siting criteria framework.

### 3.5 Cost Factor Analysis

Five major cost factors were identified, which influence the costs to develop and operate a SWMF. These cost factors (and weight) include excavation (65%), haul distance (20%), road infrastructure (5%), power infrastructure (5%), and water infrastructure (5%). Each site was given a score of 1 to 5 with respect to each cost factor, where 5 represents the **highest** cost and 1 represents the **lowest** cost. As a result, the sites with higher weighted total scores are anticipated to be relatively more expensive to develop and operate, while the sites with lower weighted total scores are anticipated to be relatively less expensive to develop and operate. The Moon Pit site in this analysis for reference and comparison, as it was previously selected as the preferred SWMF site. See Table 4 and Figure 12 for a comparison of each site with respect to SWMF cost factors.

**Table 4. Cost Factor Scoring**

Cost Factor Weighting:	65%	20%	5%	5%	5%	
Site Name	Excavation Costs	Haul Costs	Road Infrastructure Costs	Power Infrastructure Costs	Water Infrastructure Costs	Weighted Average
Moon Pit	3	1	1	5	1	<b>2.50</b>
Horse Ridge	1	1	1	5	3	<b>1.30</b>
Dodds	5	1	2	1	5	<b>3.85</b>
Roth Northeast	2	3	2	3	5	<b>2.40</b>
Roth East	2	3	3	3	5	<b>2.45</b>

The Horse Ridge site is estimated to be the most cost-effective of the four supplemental candidate sites, with a weighted cost score of 1.30—the lowest among all locations evaluated. Horse Ridge benefits from readily diggable alluvial deposits, extensive past mining that reduces required excavation, one of the shortest haul distances among the sites, and a relatively modest need for new infrastructure. Although a seven-mile three-phase power extension would be required, the dominance of excavation and haul costs in the weighting framework results in Horse Ridge outperforming all other options.

Roth East and Roth Northeast fall in the middle range of cost performance, with weighted scores of 2.45 and 2.40, respectively. Both sites benefit from diggable soils and favorable landfill geometries, but are penalized by long haul distances, moderate driveway and road improvements, and the need to extend three-phase electrical service more than one mile from Highway 20. With no existing onsite wells near the disposal area, greater investment in water infrastructure would be needed relative to other sites.

Dodds Road ranked last overall with a weighted cost score of 3.85, reflecting the most challenging excavation conditions and highest expected capital cost of all candidate sites. Shallow sandy loam over basalt requires significant blasting, rock processing, and earthwork to achieve necessary excavation volumes. Although Dodds benefits from the shortest haul distance in the group and has nearby electrical service, these advantages are outweighed by poor E/V ratios, difficult excavation,

and the need for substantial material processing to meet operational needs. Dodds Road also lacks on-site water sources or water rights, requiring hauled water for initial operations and any future water-rights development.

Taken together, the cost-factor analysis suggests that Horse Ridge is likely to be the lowest-cost option among the supplemental sites, driven primarily by its favorable excavation conditions and shorter haul distance. Dodds Road, despite certain logistical advantages, exhibits the highest expected development and operational cost due to extremely poor excavation conditions. The Roth sites fall between these two extremes.

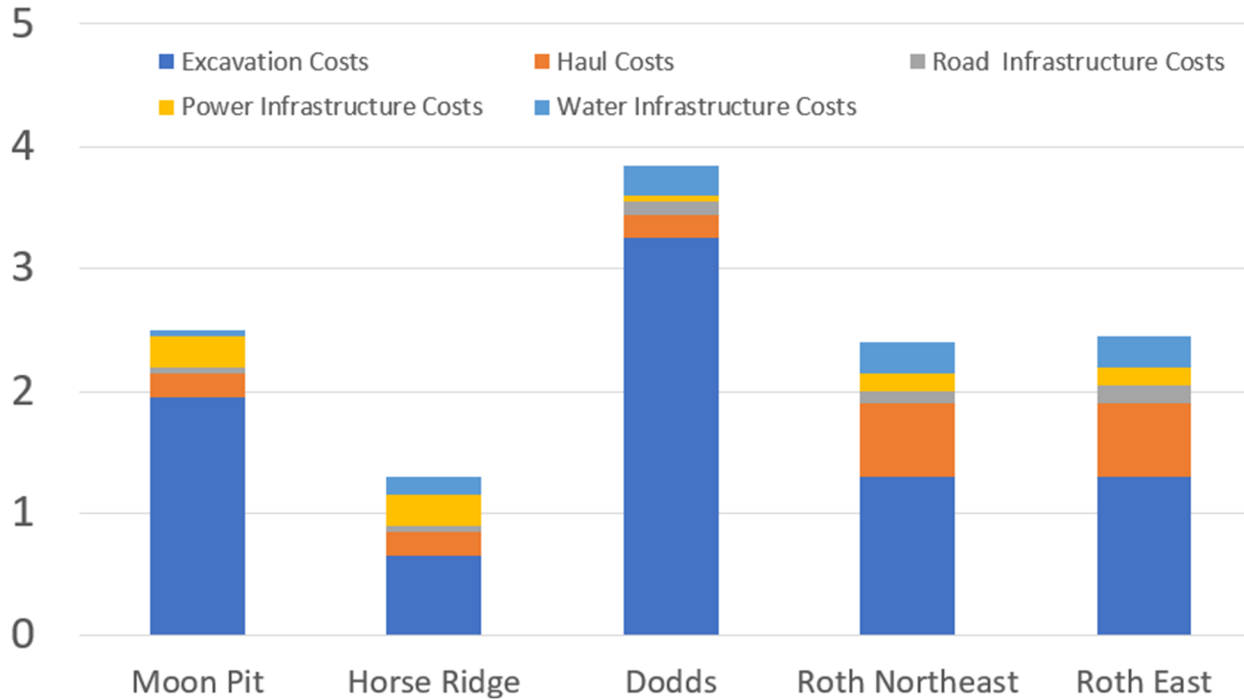


Figure 12. Cost Factor Analysis Graph

**Excavation Cost Notes**

**Horse Ridge**

Three existing gravel pits are present on the site. Excavation volumes are significantly reduced due to past mining activity and favorable hillside topography. Approximately 20–50 feet of sand and gravel alluvium exist at the base of the slope, providing readily excavated material suitable for a variety of landfill construction needs.

**Roth East**

Gently sloped terrain with soils suitable for excavation, including topsoil, sandstone, gravel, and clay. Beneficial topography and deep sediment deposits allow efficient excavation and help balance required cut-and-fill volumes.

**Roth Northeast**

Gently sloped site with soils conducive to excavation, including topsoil, sandstone, gravel, and clay. Terrain provides some beneficial grading opportunities but offers less volumetric efficiency than the Roth East footprint.

### **Dodds Road**

Shallow sandy loam overlies basalt bedrock at depths of up to 10 feet. Excavation-to-volume ratios are poor, and deep rock excavation would be required to minimize landfill mound height and associated visual impacts. Excavation is expected to be difficult and expensive.

### **Haul Cost Notes**

#### **Horse Ridge**

Approximately 18 weighted miles from County transfer stations (17.2 miles from Knott Landfill), representing one of the shortest haul distances among the supplemental sites.

#### **Roth East**

Approximately 28.6 weighted miles from transfer stations. Travel distance is longer than sites located to the west off of Highway 20.

#### **Roth Northeast**

Approximately 28.6 weighted miles from transfer stations, similar to Roth East, reflecting the eastern location relative to the waste centroid.

#### **Dodds Road**

Approximately 18 weighted miles from transfer stations (13.3 miles from Knott Landfill), representing the shortest haul distance of the supplemental sites.

### **Road Infrastructure Cost Notes**

#### **Horse Ridge**

The site lies approximately 300 feet from Horse Ridge Road and roughly one mile from US Highway 20. Both access roads are paved.

#### **Roth East**

Access requires approximately 0.61 miles of travel along Newt Morris Road and about one mile along Ford Road (both gravel). Driveway construction of roughly 1,000 feet may be required. A left-turn lane and acceleration lane may be needed if access connects directly to Highway 20.

#### **Roth Northeast**

Located approximately 0.17 miles from US Highway 20 (paved) and 0.6 miles from Newt Morris Road (gravel). Approximately 1,000 feet of driveway improvements may be required. Left-turn and acceleration lane improvements may also be needed.

#### **Dodds Road**

Directly accessed from Dodds Road (paved). Approximately 1,000 feet of road improvements would be required. A left-turn lane and acceleration lane may be necessary.

### **Power Infrastructure Cost Notes**

#### **Horse Ridge**

No existing three-phase power infrastructure is located in the immediate vicinity. Approximately seven miles of three-phase extension would be required along US Highway 20 from Dodds Road, including 4.5 miles of new line and 2.5 miles of pole upgrades.

#### **Roth East**

Approximately 2.3 miles of three-phase extension from US Highway 20 would be required. Improvements include roughly 1.2 miles of single-phase pole upgrades and 1.1 miles of new three-phase line (overhead or underground).

### **Roth Northeast**

Approximately 1.8 miles of three-phase extension from Highway 20 would be required. Improvements include about 1.2 miles of single-phase pole upgrades and 0.6 miles of new three-phase line.

### **Dodds Road**

Three-phase power is located approximately 0.5 miles away at the Dodds/Oberholte intersection. A short extension would be required, using existing power corridors.

### **Water Infrastructure Cost Notes**

#### **Horse Ridge**

Two existing exempt-use wells are located on the site. The site is close enough to secure hauled water during interim operations while pursuing long-term water rights. One of the landowners holds nearby water rights that could potentially be transferred.

#### **Roth East**

No water rights exist within the property boundary, nor are water rights present on adjacent parcels. Water supply would initially rely on hauled water until a groundwater permit is secured.

#### **Roth Northeast**

No water rights exist within the property boundary or adjacent parcels. Hauled water would be required until new groundwater rights are obtained.

#### **Dodds Road**

No water rights exist within the property boundary, and no adjacent parcels hold water rights. The current property owner (COID) is an irrigation district, but no rights are tied to the site itself.

## **3.6 Residential Proximity Analysis**

Throughout the landfill siting process, residents and property owners near candidate sites have expressed opposition to the prospect of a landfill being sited near their homes. Concerns of nearby residents are generally that a new facility could have several adverse impacts within the vicinity, including haul truck traffic, noise, dust, air pollution, odors, litter, invasive species, groundwater contamination, view impacts, decreased property values, and more. These potential adverse impacts would generally be more severe for residences in closer proximity to the SWMF and have less or no impacts on residences further away.

To better analyze the proximity of residences to each candidate SWMF site, 1-mile (orange) and 2-mile (yellow) buffers were mapped from the proposed disposal area footprints. Known residences listed by County records (DIAL Improvement Reports) were also mapped to visualize the relationship between existing residences and proposed SWMF sites. See Figure 13, Figure 14, and Figure 15 for residential proximity maps for each candidate site.

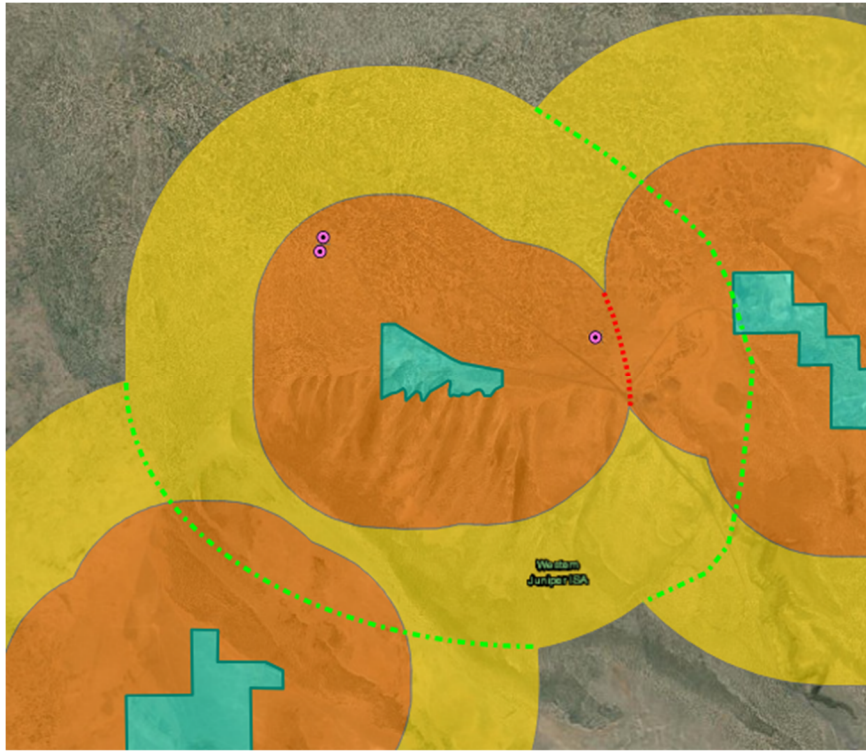


Figure 13. Horse Ridge Site Residential Proximity Map

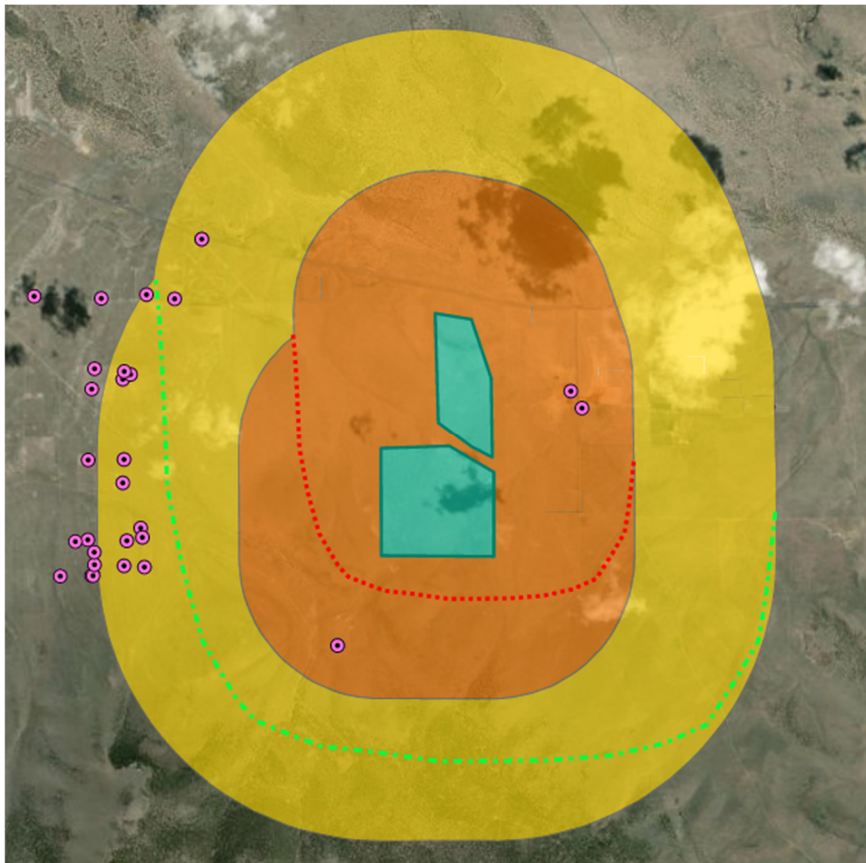


Figure 14. Roth East and Northeast Residential Proximity Map

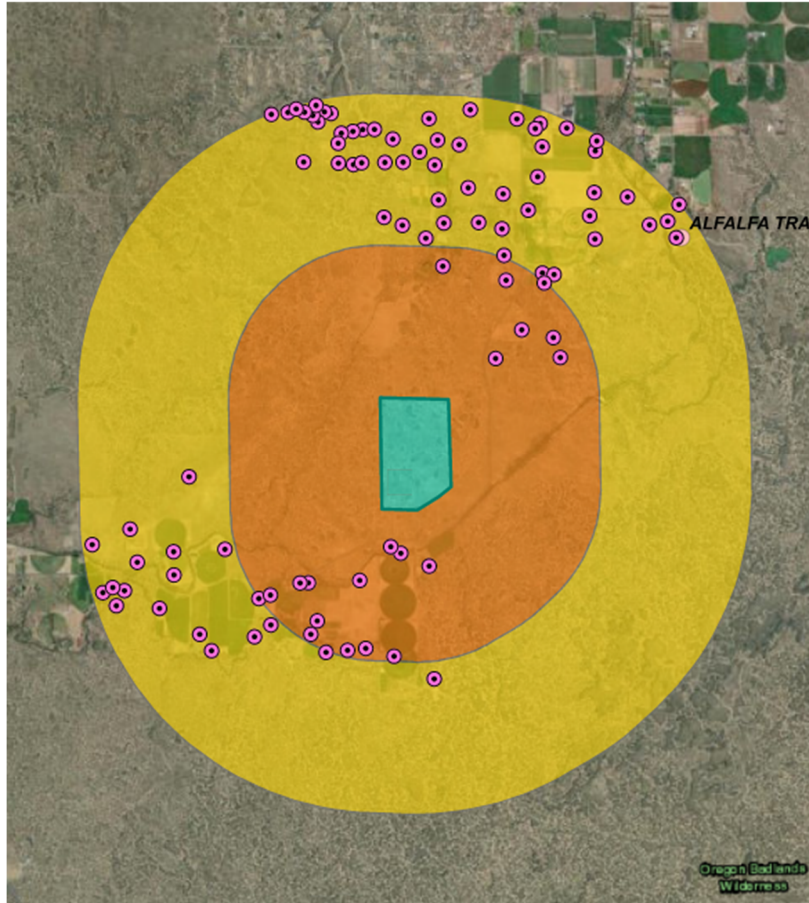


Figure 15. Dodds Site Residential Proximity Map

Residential proximity analysis shows clear differences among the candidate sites. Horse Ridge has the fewest nearby residences, with only three dwellings located within both one and two miles of the proposed footprint. The Roth East and Roth Northeast areas have slightly higher residential presence, with two to three homes within one mile and four to eight within a two-mile radius. Dodds Road has by far the greatest residential interface, with 18 homes within one mile and 86 within two miles—an order of magnitude higher than all other sites. These contrasts highlight the notably lower potential for direct residential impact at Horse Ridge compared to the other supplemental screening sites. See Table 5. Residential Proximity ComparisonTable 5 for a summary of residential proximity information by site.

Table 5. Residential Proximity Comparison

Site ID	Site Name	Known Residences within 1 Mile	Known Residences within 2 Miles
191400-2400	Horse Ridge	3	3
181400	Dodds	18	86
201500-301	Roth Northeast	2	5
201500-301	Roth East	3	8

## 4. Implementation Considerations

### 4.1 Property Acquisition and Owner Willingness

Property ownership and the willingness of landowners to negotiate were essential components of the supplemental screening process and played a significant role in determining which sites remained viable for continued evaluation. As the County sought to reestablish a feasible path toward site selection following the cessation of Moon Pit negotiations in March 2025, the clarity and reliability of acquisition pathways became more important than in earlier screening phases.

Although somewhat complicated by the number of parcels to acquire, Horse Ridge presented a positive acquisition outlook. Between April and July 2025, Deschutes County staff met with all four landowners whose properties comprise the Horse Ridge study area—Horse Ridge Pit LLC, Knife River Corporation, and ODOT. Each owner expressed a willingness to negotiate and conveyed interest in participating should the site advance. ODOT also stated that it was willing to initiate the formal process required to sell or transfer its 20-acre aggregate pit parcel and indicated that it would be open to transferring ownership and maintenance responsibility for Horse Ridge Frontage Road if the site was ultimately selected. Taken together, these commitments provided a high degree of confidence that the entire Horse Ridge footprint could be assembled for landfill development.

The property owner associated with the Roth East and Roth Northeast sites similarly reaffirmed their longstanding interest in selling the full extent of their holdings, which total more than 3,000 acres in the Millican Valley. While acquisition was not a barrier to continued consideration of Roth East or Roth Northeast, the magnitude of wildlife mitigation requirements and public opposition to these sites ultimately influenced their relative standing in the supplemental screening.

In contrast, the Dodds Road site was removed from consideration due to lack of long-term acquisition feasibility. After receiving substantial public comment from nearby residents, the COID Board voted unanimously on August 12, 2025, to withdraw the property from landfill siting consideration. This action eliminated Dodds Road as a feasible alternative and underscored the importance of property owner support in advancing candidate sites.

The availability of Horse Ridge and the Roth properties for acquisition—combined with clearer long-term feasibility for site assembly at Horse Ridge—played a significant role in SWAC’s final recommendation to advance only the Horse Ridge site for a Final Site Evaluation and detailed comparison with the Roth East site.

### 4.2 Public Engagement and Summary of Input Received

Public and stakeholder engagement was a central component of the supplemental screening process and provided important context for SWAC’s deliberation and recommendations. Between June and August 2025, Deschutes County conducted targeted outreach to nearby residents, tribal governments, recreation organizations, environmental advocacy groups, and state and federal agencies. County staff also received and cataloged written comments, responded to inquiries, and presented key themes during SWAC meetings.

#### Representative Comments:

- *"The Roth East site would threaten wildlife, fragment habitat, degrade recreational opportunities, and involve excessive transportation and infrastructure costs"* — Oregon Natural Desert Association & Central Oregon LandWatch

- *"The estimated sage-grouse mitigation cost for Roth East is over \$7.6 million. This site is directly adjacent to Core habitat." -ODFW, June 2025 Letter to SWAC*
- *"The Horse Ridge Site is already a disturbed site, currently used for gravel mining... making it a good candidate for a landfill... Please, no landfill on Pine Mountain." — Steve Wright*
- *"If negotiations with Moon Pit cannot be restarted, please consider Horse Ridge. Again, it is already disturbed." — Skye Kimel*
- *"Compared to Roth East, Horse Ridge is preferable from a wildlife mitigation perspective and would likely incur far lower costs." -ODFW Summary of June 2025 Site Screening*
- *"Horse Ridge trails are popular for winter riding. While we understand landfills must go somewhere, siting here could provoke mountain biker backlash." — Ben Taber, Central Oregon Trail Alliance (COTA)*

Public reaction to the Dodds Road site was highly critical and focused primarily on the site's very close residential proximity, anticipated blasting activity, visibility concerns, and the site's adjacency to the Badlands Wilderness boundary. These comments were also shared with the COID Board of directors and contributed to the decision to withdraw the site from consideration.

Public comments related to the Roth East and Roth Northeast sites were substantial and consistently expressed strong concern. Conservation organizations, including the Oregon Natural Desert Association and Central Oregon LandWatch, emphasized the ecological sensitivity of the sage-grouse habitat complex surrounding the Roth properties, the scale of required mitigation, and potential fragmentation of wildlife corridors. Additional concerns were raised about impacts to dark-sky conditions and scientific research at the Pine Mountain Observatory, as well as conflicts with nearby recreational uses and rural residential areas. Numerous local residents echoed these themes and stressed that the site's proximity to homes and longstanding community recreation assets made it unsuitable for landfill use.

Feedback regarding Horse Ridge was more measured and included a broader spectrum of perspectives. Environmental organizations acknowledged that the site had comparatively lower wildlife impacts and had already been disturbed by decades of authorized surface mining, reducing its relative ecological sensitivity. Recreational users expressed concerns about potential changes to trail access, views, and the experience of Horse Ridge mountain biking routes, but many also noted that trail realignments or design measures could address these concerns. Residents living within one mile of the site were notified by mail, but no comments were received from nearby residents during supplemental screening process. ODFW's written feedback favored Horse Ridge over the Roth properties due to significantly lower sage-grouse impacts and the relative ease of mitigation.

Taken collectively, public engagement reinforced several of the technical conclusions in the supplemental screening. The magnitude of wildlife mitigation required at the Roth sites, combined with strong public and agency opposition, contrasted sharply with the more moderate concerns raised regarding Horse Ridge. This input provided an important non-technical perspective that informed SWAC's August 19, 2025 decision to move forward with a full Final Site Evaluation of the Horse Ridge site.

## 5. Conclusion

The supplemental screening effort was initiated after negotiations with the Moon Pit property owners ceased in March 2025, requiring the County to revisit remaining feasible landfill siting options and incorporate newly available environmental, regulatory, and ownership information. Using the established siting methodology from the 2024 Site Screening Report, the County and its consultant team re-evaluated the Horse Ridge, Roth East, Roth Northeast, and Dodds Road sites with updated technical data and public and stakeholder input.

The results of this supplemental evaluation demonstrated that the Horse Ridge and Roth East sites were the most technically feasible alternatives. However, Horse Ridge consistently outperformed the Roth properties in several key areas, including wildlife mitigation requirements, haul and operational cost efficiency, residential interface, and overall compatibility with surrounding land uses. Although the Roth East property is comparatively easier to acquire due to single ownership and an owner ready to sell, it carries substantially higher sage-grouse mitigation burdens, greater visibility considerations, and stronger public and agency opposition—factors that complicate SWMF permitting. By contrast, the Horse Ridge site requires coordination among multiple owners but each has expressed willingness to negotiate, and ODOT has indicated readiness to initiate its internal disposition process. The Dodds Road site was formally withdrawn from consideration by the property owner, eliminating it as a feasible alternative.

Public engagement reinforced the technical findings of the supplemental screening. Input from environmental organizations, nearby residents, recreation groups, and state agencies consistently highlighted the challenges associated with the Roth sites and acknowledged the relative advantages of Horse Ridge as a previously disturbed landscape with lower long-term ecological impacts. The alignment between technical evaluations and community priorities strengthened the basis for the SWAC's recommendation.

On August 19, 2025, the Solid Waste Advisory Committee voted unanimously to advance the Horse Ridge site to a full Final Site Evaluation and to remove the Roth Northeast and Dodds Road sites from further consideration. Roth East remains a technically feasible alternative and was retained as a comparison to Horse Ridge, using its current level of evaluation.

The next step in the landfill siting process is to conduct a comprehensive Final Site Evaluation for Horse Ridge. This work will include geotechnical drilling and laboratory testing, detailed hydrogeologic characterization, cultural and natural resource assessments, conceptual engineering of landfill development phases, transportation and access analysis, cost estimating, and identification of mitigation measures to address wildlife, recreation, and visual resource considerations. During this period, the County will also begin coordinated property appraisal and negotiation efforts with the Horse Ridge landowners and will expand public outreach to a wider radius around the site. The Final Site Evaluation is expected to take approximately six months, culminating in a report that provides a decision-ready comparison of long-term feasibility,

environmental suitability, and life-cycle costs consistent with the analyses previously completed for Moon Pit and Roth East.

Completion of the Horse Ridge Final Site Evaluation will allow the BOCC and SWAC to identify a preferred site for the new Solid Waste Management Facility and proceed to land acquisition, permitting, engineering design, and ultimately construction of the County's next landfill.

# **Appendix A**

## Scoring Tables

**SITE: HORSE RIDGE**

Criteria and weight	Weight	Wrd. Score:	Focused Site Screening Notes
Site Availability/Acquisition Potential	35%	3.60	
Ownership	35%	3.70	
Number of Parcels	40%	3.40	County, State & Private Ownership. 4 separate owners: Deschutes County, ODOT, Knife River Corporation, 4-R Equipment
Total Site Acreage	20%	3.00	3 separate owners: ODOT, Knife River Corporation, 4-R Equipment
Geotechnical Location Factors	40%	2.60	3391 acres total, including County-owned parcel north of Horse Ridge Frontage Rd
Fault Hazards	25%	3.00	1 mi SW of site boundary
Seismic Impact Zones/Hazards	30%	3.00	Moderate liquefaction susceptibility
Unstable Areas - Mass Movement	25%	3.00	Highly moderate to high susceptibility
Unstable Areas - Poor Foundation	20%	3.00	No data
Floodplains	5%	4.40	Nearest mapped floodplain is over a 1-mile east of site. Site is at the base of steep slope with 6 unnamed ephemeral streams feeding into it
Groundwater Protection/Hydrogeology	20%	3.00	DESC 5751 is located on site. Reported SWI of 950' bgs in 1988. Current SWI at nearby Moon Pit well (DESC 5750) of 850' bgs.
Depth to Groundwater	25%	3.00	DESC 5751 (ODOT owned; industrial use), either onsite or immediately adjacent. Domestic wells DESC 61999 & DESC 63009 are located ~0.55 & 0.75 miles NW of site, respectively.
Proximity to Drinking Water Wells	15%	3.00	5 No wetland protection areas
Proximity to Wetland Protection Areas	30%	3.00	5 Contained aquifer, based on DESC 5751. Material is interbeds of hard lava, fractured lava, and cinders.
Site Hydrogeologic Framework	15%	5.00	
Development	45%	3.00	5 Sand, gravel and basalt
Topography	30%	3.00	5 Avg Slope 7% to 15 percent. Excellent E/V ratio with hillside
Site Configuration	30%	3.15	5 up to 1000M sq available using full 300 acres with road re-alignment, existing mining excavation, hillside landfill
Orientation	15%	3.15	
Soil	60%	3.15	
Annual Precipitation	15%	4.00	3 18" weighted" miles from the various transfer stations
Onsite Water Supply and Management	25%	3.00	4 10-15 inches annual precipitation average
Wetlands and Waters Impacts	35%	3.50	3 2 existing wells onsite, up to 10,000 gpd exempt. No water rights onsite, but one of the site owners also holds water rights nearby. Potential for more exempt wells on included taxlots.
Threatened and Endangered Species	10%	5.00	No wetlands or waters identified.
Wildlife Area Combining Zone	20%	1.00	No ESA species identified
Greater Sage-Grouse Area Combining Zone	40%	3.00	Site occurs within Deschutes County North Paulina Deer Winter Range Wildlife Area Combining Zone. Site also occurs within ODFW Category 2 Habitat for mule deer and elk winter range and essential and limited
Sensitive Bird and Mammal Habitat Combining Zone	20%	3.50	Low Density 656 area occurs 1 mile SW of the site. Site development would result in indirect impacts to GSC low density habitat that can be mitigated for with offsite mitigation, in-lieu fee, or mitigation bank if
Migratory Birds, including Bald and Golden Eagles	50%	3.00	Nearest SBMH zone is approximately 2.5 miles SW of site
Proximity to Airports	15%	3.00	Nearest mapped Golden Eagle nest is 1-2 miles SW of site, with Horse Ridge between. Site development would result in a permanent alteration of habitat and would require submission of an Eagle Incidental Take
Site Zoning	20%	3.00	approx 11.5 mi to Bend airport runway
Adjacent Land Use Impacts	20%	3.50	Mostly SW, with some EFU (farmland or statewide importance and prime farmland if irrigated), wildlife area combining zone (North Paulina Deer Winter Range), Surface Mining Impact Area Overlay
Existing/Adjacent Use	25%	3.00	agricultural, recreation - Horse Ridge Mountain Biking Trails adjacent to site; Badlands/Wilderness (trailhead with horse/ hiking/walking trails about 0.65 miles away), Surface Mining
Planned/Adjacent Use	25%	3.00	agricultural, undeveloped; Badlands Wilderness (recreation); Horse Ridge Mountain Biking Trails; Surface Mining
Distance to Nearest Public Road	25%	3.00	Nearest residence approximately 0.36 mi NW of site
Site Visibility/Aesthetic Impact	10%	1.00	0.42 miles to Hwy 20; Horse Ridge frontage road serves as the access road to the site and is exempt from 0.25 mile setback
Viewing based on topography and/or Vegetation	50%	1.00	Site visible from Horse Ridge Frontage and Highway 20 (in select locations)
Recreation	30%	1.00	Site areas are not impacted by any of the 40.5 mi from site
Recreation System Needs/Opportunity	3%	1.00	more transportation system needs than opportunities, needs and opportunities the same for all supplemental sites along US20 given shared location along the corridor
On-Site Land Use Impacts	25%	4.60	Less than 5 housing units impacted
Disturbance	40%	4.60	
Nonwater Cultural Resources	30%	3.00	3 active & permitted surface mines with separate owners (ODOT, Knife River Corp, 4-R Equipment)
Potential for Buried Archaeological Sites	30%	3.00	Partial prior survey, isolates found, no recorded cultural resource sites
			5 25% existing disturbance; Landforms and lack of natural water sources suggest low overall probability for archaeological resources

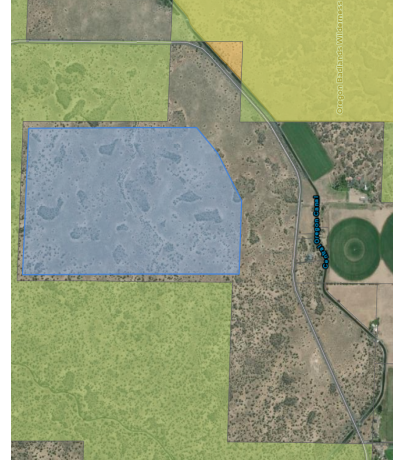
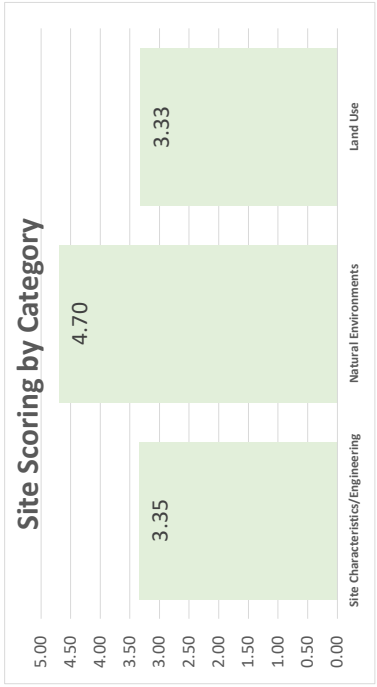
**Site Scoring by Category**



**SITE: DODDS**

Criteria and weight	Weight	Wtd. Score: 3.81 3.35	Focused Site Screening Notes
Site Availability/Acquisition Potential	35%	3.80	Central Oregon Irrigation District
Ownership	35%	4	1 parcel & owner
Number of Parcels	20%	5	3 433 acres
Total Site Acreage	40%	4.20	
Geotechnical Location Factors	10%	5	No nearby faults within USGS Fault and Fold database
Fault Hazards	25%	5	No liquefaction susceptibility
Seismic Impact Zones/Hazards	30%	5	No slope hazard - located in lava field
Unstable Areas - Mass Movement	25%	1	Lava tubes within unit disewhere
Unstable Areas - Poor Foundation	20%	5.00	A small abandoned canal bisects site and central OR Canal nearby. Nearest mapped SFHA is Dry Creek - 3 miles east.
Floodplains	5%	3.80	
Groundwater Protection/Hydrogeology	20%	5	Henges from 621 ft bgs in wells located NE of site to 713 ft bgs SW of site.
Depth to Groundwater	25%	1	Multiple domestic wells located between approx 0.25 and 1 mile, located to the NE, SE, and SW. Exact locations not verified, except for addresses listed on borelog.
Proximity to Drinking Water Wells	30%	5	Wellhead protection areas.
Proximity to Wellhead Protection Areas	15%	5	Continued aquifer, based on nearby domestic wells: DESC 52510, DESC 52982, DESC 57898, DESC 52145, DESC 55188. Material is hard lava, broken lava, and sandstone.
Site Hydrogeologic Framework	30%	1.25	1 up to 10' overburden soils (sandy loam) in low areas over basalt rock bedrock, per welllogs and exposed rock features
Development	45%	1	1 poor EV ratio, average slope under 5% with undulating terrain from rock features, final grade prominent well above surrounding terrain
Topography	30%	2	2 50M CY capacity available, with over 50' excavation depth, and final grade prominent well above surrounding terrain
Capacity/Site Configuration	25%	2.65	3 18 "weighted" miles from the various transfer stations
Operation	15%	4	4 10-15 inches annually
Haul Distance to Waste Centroid	60%	1	1 no well onsite; property owned by irrigation district
Annual Precipitation	15%	5.00	
Onsite Water Supply and Management	25%	5.00	
Wetlands and Waters Impacts	35%	4.70	
Threatened and Endangered Species	10%	5.00	No wetlands or waters identified.
Wildlife Area Combining Zone	10%	2.00	No ESA species identified.
Greater Sage-Grouse Area Combining Zone	40%	5.00	Site does not occur within a Deschutes County Wildlife Area Combining Zone. The site does occur within ODFW Category 2 Habitat for mule deer and elk winter range. However, because the site is not within a Wildlife Area Combining Zone, site development may not require mitigation for impacts to ODFW Category 2 Habitat as ODFW may not have a nexus to comment or enforce their mitigation policy during permitting with the county. This was scored a 2 to reflect impacts would occur to ODFW Category 2 habitat but they may not need to be mitigated for.
Sensitive Bird and Mammal Habitat Combining Zone	20%	5.00	GS5 habitat occurs over 8 miles SE of the site. Site development would not cause any indirect impacts to GS5 habitat.
Migratory Birds, including Bald and Golden Eagles	50%	5	No SBWH zone within 3 miles of the site.
Land Use	30%	3.33	No migratory bird nests within 2 miles of site.
Proximity to Airports	20%	5.00	greater than 5 miles from airport runways listed in the Deschutes County Transportation System Plan
Adjacent Land Use Impacts	20%	1.00	EFU A1a1a Prime Farmland If Irrigated and Not Prime Farmland, not irrigated so non-high value farmland)
Existing Adjacent Use	25%	1	Residential, Wilderness (Badlands - boundary about 0.23 miles from site, trails ~1 mile distant), agricultural, irrigation (canal), undeveloped
Planned Adjacent Use	25%	1	Residence, Agricultural, Wilderness (recreational - horse/bike/walking trails)
Distance to Nearest Residence	25%	1	0.25 miles to the south - additional residences are 0.38 miles (to the south), 0.41 miles (to northeast)
Distance to Nearest Public Road	25%	1	Dodds Road is 0.18 miles south of disposal area, but will serve as the access road to the site
Site Visibility/Aesthetic Impact	10%	1.00	Residence within 0.25 miles to south, Juniper, sage, sloping/rolling terrain from Dodds Road, may be visible from north side residences?
Visibility Based on Topography and/or Vegetation	50%	1	Nearby residences, closest within 0.25 miles
Remoteness	50%	1	more transportation system needs than opportunities, needs and opportunities the same for all supplemental sites along US20 given shared location along the corridor
Transportation System Needs/Opportunity	5%	1.00	Greater than 21 housing units directly adjacent to and accessing the haul route between the site and an existing designated state route or county arterial
Haul Route Impacts	5%	4.70	
On-Site Land Use Impacts	25%	4	5 Vacant land, no displacement of use
Displacement	40%	4	4 One historic built resource present - Central Oregon Canal, not previously surveyed
Known Cultural Resources	30%	5	5 Landforms and lack of natural water sources suggest low overall probability for archaeological resources; Geology: Quaternary; No resources on GLO

do not modify grey cells, which include formulas and calculated values



**SITE: ROTH NORTHEAST**

Criteria and weight	Weight	Wtd. Score: 3.49	Focused Site Screening Notes
<b>Site Characteristics/Engineering</b>	<b>35%</b>	<b>3.52</b>	
Site Availability/Acquisition Potential	35%	4.20	3 Private
Ownership	40%	5	1 Taxlot & 1 owner
Number of Parcels	20%	5	5 taxlot includes 1706 total acres
Total Site Acreage	40%	2.60	3 Fault located 0.7 mi SE (USGS)
Geotechnical Location Factors	25%	3	3 Moderate liquefaction susceptibility
Fault Hazards	30%	3	3 Moderate unstable slopes (DOGAMI)
Seismic Impact Zones/Hazards	25%	1	1 No data
Unstable Areas - Mass Movement	20%	3.00	North end of site within 10 vertical feet and 800 feet along ground from Dry River 100 year SFHA. No mapped 500-year but site could potentially be within that zone if mapped.
Unstable Areas - Poor Foundation	20%	3.90	
<b>Groundwater Protection/Hydrogeology</b>	<b>20%</b>		
Depth to Groundwater	25%	3	Depth to water near site appears to be greater than 435 ft. lbs. Wells located to the south (Roth E) have water greater than of 630 ft lbs. Potentially in the shallow saturated zone in the sedimentary sequence; potential footprint of prehistoric Lake Millican.
Proximity to Drinking Water Wells	30%	3	3 Closest wells are located just over 0.5 miles east.
Proximity to Wetland Protection Areas	15%	3	No wetland protection areas.
Site Hydrographic Framework	30%	3	Potentially in the prehistoric Lake Millican footprint. Bedrock underlying alluvial sediment within this footprint may separate a shallow water bearing zone from the deeper regional aquifer
Development	15%	3.65	
Soils	45%	3	Top Soil: Sandstone Gravel, Clay
Topography	30%	3	EVZ also good, site has slopes and relief that benefit site capacity, but final grade would still rise prominent above surrounding terrain
Capacity/Size Configuration	15%	2	50M CY capacity is available inside limited 197 ac footprint, final grade prominent well above surrounding terrain
Groundwater	45%	2	29 "weighted" miles from the various transfer stations
Proximity to Waste Centroid	40%	4	4 10-15 inches annually
Annual Precipitation	15%	1	1 well on taxlot DESC194 but distance is to far to be of use for this disposal area and no water rights.
On-site Water Supply and Management	25%	3.40	
<b>Natural Environments</b>	<b>35%</b>		
Wetlands and Waters Impacts	10%	5.00	No wetlands or waters identified.
Threatened and Endangered Species	10%	5.00	No ESA species identified.
Wildlife Area Combining Zone	10%	2.00	Site occurs within Deschutes County Antelope Range Wildlife Area Combining Zone. Site also occurs within ODFW Category 2 Habitat for mule deer and elk winter range and essential and limited pronghorn habitat. Site development would result in direct impacts to ODFW Category 2 habitat which can be mitigated for with offsite mitigation.
Greater Sage-Grouse Area Combining Zone	40%	2.00	Site occurs within low density GSG habitat and is 1 mile away from Core Habitat. Site development would result in direct and indirect impacts to GSG habitat that can be mitigated for with offsite mitigation. In-lieu fee, or mitigation bank if available.
Sensitive Bird and Mammal Habitat Combining Zone and Migratory Birds	20%	5.00	5 No SBMH zone within 3 miles of the site.
Sensitive Bird and Mammal Habitat Combining Zone	50%	5	5 No migratory bird nest within 2 miles of site
Migratory Birds, Including Bald and Golden Eagles	50%	3.55	
Land Use	30%	5.00	greater than 5 miles from airport runways listed in the Deschutes County Transportation System Plan
Proximity to Airports	15%	5.00	EFU - Horse Ridge Subzone (farmland of statewide importance), Wildlife Area Combining Zone (Antelope Range), Landscape Management Area Zone, Surface Mining Impact Overlay in northern section of property
Site Zoning	20%	2.50	1 Agricultural, rural residential homes, OHV Recreational Areas/staging areas, hang glider/paraglider landing areas, Pine Mountain Observatory
Adjacent Land Use Impacts	25%	5	5 Ag, forest to the south, SW to the north
Existing Adjacent Use	25%	3	3 0.55 miles
Distance to Nearest Residence	25%	1	1 0.17 miles (Hwy 20); 0.59 miles (New Morris Rd/Fox Tail Butte Rd)
Distance to Nearest Public Road	25%	1	1 Sloping terrain, rolling hills, scattered juniper, sage - some parts more visible than others to Hwy 20. Potentially visible from Pine Mountain. Visible to nearby residence.
Site Visibility/Aesthetic Impact	10%	1.00	1 Nearby residence, close proximity to Hwy 20 (landscape management corridor)
Visibility Based on Topography and/or Vegetation	50%	1.00	1 more transportation system need than opportunities, needs and opportunities the same for all supplemental sites along US20 given shared location along the corridor
Remoteness	5%	5.00	5 less than 5 housing units impacted
Transportation System Needs/Opportunity	25%	3.60	3 cattle grazing/ranching on EFU land
Haul Route Impacts	40%	5	5 No known sites; no previous surveys
Displacement	20%	3	3 Undisturbed landforms is located in close proximity to natural water sources suggest moderate overall probability for archaeological resources
Known Cultural Resources	30%	3	
Potential for Buried Archaeological Sites	30%	3	

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