Solid Waste Management Facility Site Selection

Board of County Commissioners (BOCC) Hearing

June 12, 2024




Roadmap to opening in 2029

2017-2019

SWMP adopted, identified the need for a new landfill in County to support waste and enhanced recycling streams.

2022-2024

Screen and evaluate potential locations for the new facility with input from the SWAC.

Spring 2024

Preferred Site Identified

Board of County Commissioners Approval Process

2024-2027

Property acquisition, multi-year process of land use permitting and facility design.

2027-2029

Construction of the new SWMF expected to take several years, depending on the site amenities and technologies.

SWAC Siting Study Input
April 2022-April 2024

April-June 2022
Developed siting criteria

July 2022
BOCC approval of siting criteria

July-Dec 2022
Completed broad screening of 31 sites

Jan-March 2023
Completed focus screening of 13 sites

Feb 2023
BOCC approval of FAA recommendation siting criteria

April 2023-April 2024
Completed final site evaluation of 2 sites

SWAC recommend Moon Pit

June 2024
BOCC consideration of preferred site

Finalist Sites
Location and Concept Design

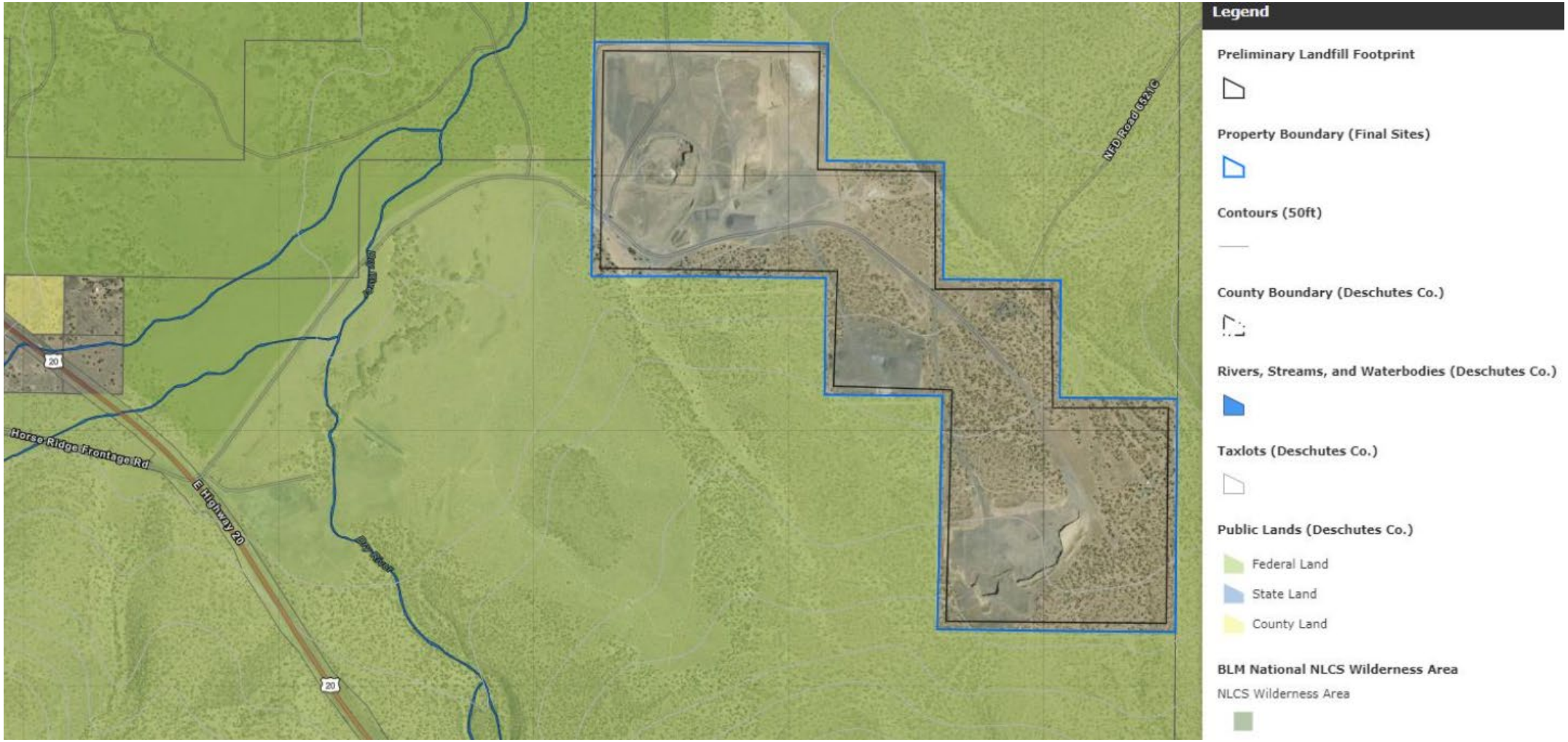
Moon Pit Rendering

Roth East Rendering

Final Site Evaluation Report
Key Topics Overview

1. Conceptual Site Layouts
2. Site Development and Permitting Assessment
3. Transportation System Assessment
4. Water Infrastructure Assessment
5. Electrical Power Supply Review
6. Flood Risk Desktop Review
7. Geology/Hydrogeology Assessment
8. Preliminary Geotechnical Feasibility
9. Environmental Assessment Phase I
10. Weather and Air Quality Desktop Review
11. Natural Resources Assessment
12. Archaeology and Cultural Heritage Assessment
13. Community Assessment
14. Cost Analysis

Moon Pit Site Map



Moon Pit Site Photos

Moon Pit Site Photos

Moon Pit Site Photos

Key Considerations: Moon Pit

Schedule Considerations

- An SM Zone Text Amendment would be required to allow landfilling as surface mine reclamation activity and could take 1-2 years, prior to Conditional Use Permitting which could take another 1-2 years.

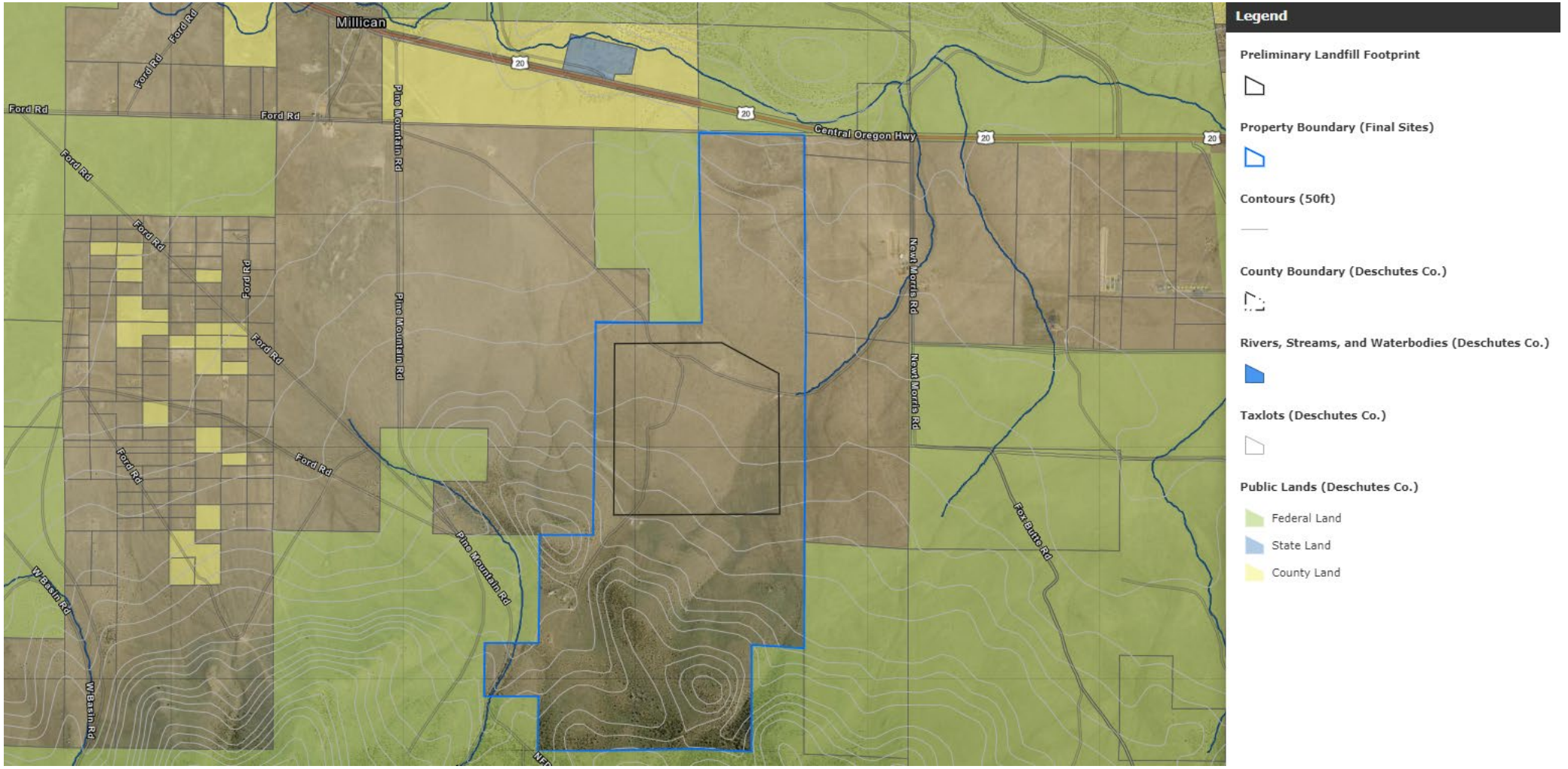
- Securing a BLM ROW is likely to trigger NEPA review, which could require:
  - Environmental Assessment (EA): 1-3 years, or
  - Environmental Impact Statement (EIS): 3-5 years
  - Both of these are subject to appeal

Cost Considerations

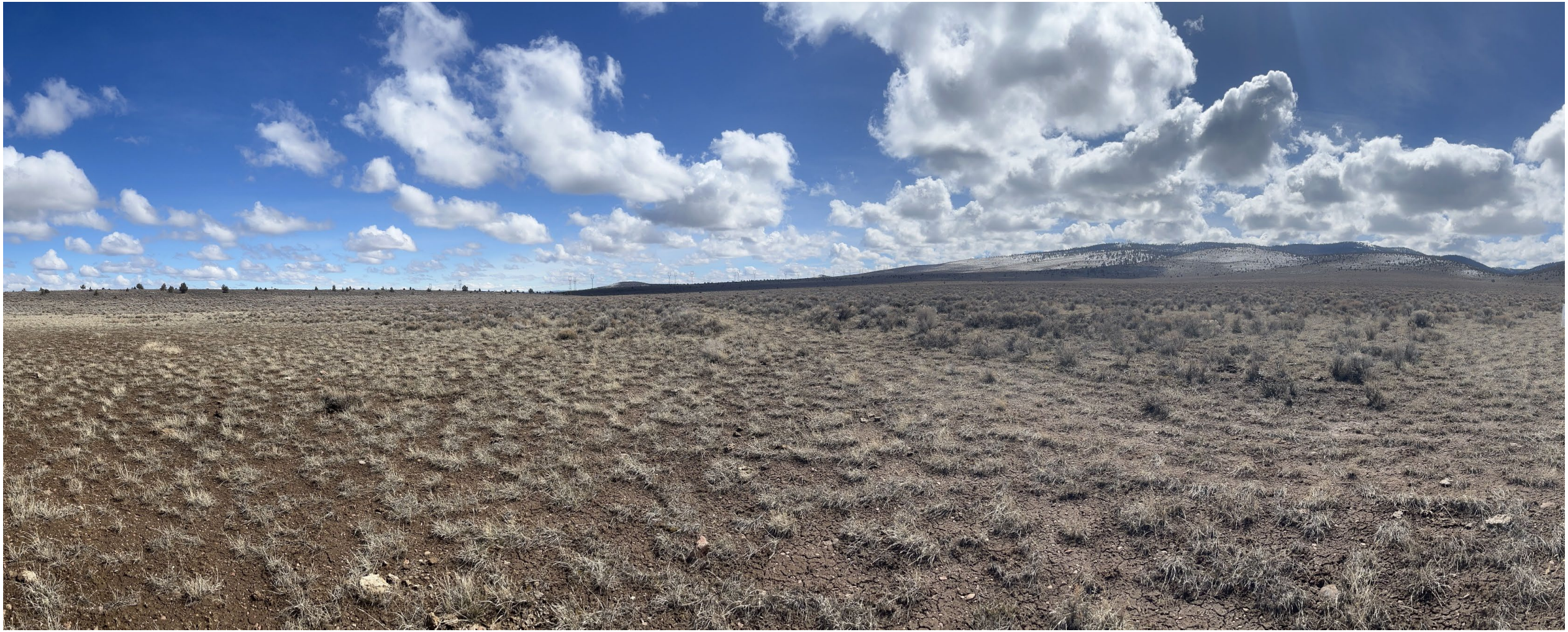
- Acquisition & Initial Development costs could be $15-29 Million more than at Roth East

- The aggregate quality and marketability is variable and not yet confirmed.
  - If timing for cell development is misaligned with market demand for aggregate, subsidized excavation may not be economically viable.
  - If aggregate is not high-value, excavation via mining would be more expensive.

Roth East Site Map



Roth East Site Photos



Roth East Site Photos

Roth East Site Photos

Key Considerations: Roth East

Schedule Considerations

- With EFU Zoning, the Conditional Use Permit requires a Farm Impacts Test, which could lead to lengthy LUBA appeals. This process could take 1-2 years, depending on the extent of appeals.

- Sage Grouse Mitigation Planning and ODFW Approval could take 1-2 years, as a part of the County land use review process. Public & Agency opposition may extend this timeline further.
  - Could involve acquisition and mitigation with additional land.

Cost Considerations

- Additional ~9 mile distance (+18 miles per round trip) results in increased haul costs over the 100+ year life of the facility, initially around $800,000 per year.

- Water rights availability: near-term cost for interim water truck delivery to the site and long-term cost for water rights permitting/ mitigation and well development.

SWMF Site Cost Comparison

Cost Item	Moon Pit			Roth East		
Initial Acquisition & Development Costs	$51,136,900	to	$64,906,900	$36,080,740	to	$44,113,609
Average Cost per Ton over Lifespan	$43	to	$48	$44		
30-yr Cost per Ton[1]	$59	to	$68	$53	to	$55
30-yr Tipping Fee[1]	$106	to	$115	$100	to	$102
Est. Monthly Residential Collection Bill[2]	$28.05	to	$28.83	$27.56	to	$27.73
Monthly Res. Collection Bill $ Increase[2]	$3.05	to	$3.83	$2.56	to	$2.73
Monthly Res. Collection Bill % Increase[2]	12%	to	15%	10%	to	11%

1. Acquisition and development costs financed with 30-yr bond at a 4.75% annual interest rate.
2. Increase of $0.85 for every $10 increase above current $70/ton tipping fee. Residential collection bill assumed at $25/month.

Public Input during Siting Evaluation

Meeting testimony during focus screening

Meeting testimony during final site evaluation

	Broad Screening (31 sites)	**Focus Screening*** (13 sites)	**Final Site Evaluation** (2 sites)
	4/22-12/22	1/23-10/23	2/24-4/24
Meeting Testimony	0	65	12
Written Comments	16	1419	13
Total	**16**	**1484**	**25**

Over **1,500 public comments** received during Siting Process!

Public Comments regarding Final Sites during SWAC Process

	Moon Pit Site	Roth East Site
Total Public Comments	224*	300*
Top Categories (over 100 mentions)	**Wildlife** 218 sage grouse, 218 eagles and raptors, 216 deer **Environment** 218 noise **Recreation** 206 general **Zoning** 206 wildlife	**Wildlife** 274 sage grouse, 227 general, 245 deer, 208 elk, 205 cougar **Environment** 267 noise **Zoning** 243 wildlife **Recreation** 225 general, 131 paragliding

Notes: Some comments identified in this summary referenced the area near the site (e.g., Badlands Wilderness or Millican Valley) not the specific site. The full record is available through the County's project webpage at deschutescounty.gov/managethefuture.

* Approximately 220 of these comments were in reference to both the Moon Pit and Roth East site, 3 were specific to Moon Pit and 45 were specific to Roth East

Comments Received From Agencies and Organizations

- East Cascades Audubon Society
- University of Oregon / Pine Mountain Observatory (Roth East)
- US Hang Gliding & Paragliding Association (Roth East)
- Bureau of Land Management - Prineville Office
- Oregon Natural Desert Association
- Central Oregon LandWatch
- Oregon League of Conservation Voters
- U.S. Department of the Interior & U.S. Fish and Wildlife Service

Final Landfill Site Comparison

Moon Pit

- **Costs:** Higher acquisition and development costs, but lower annual operational costs
- **Infrastructure:** More electrical infrastructure needed, but less water and roadway infrastructure needed.
- **Environmental Impact:** Concerns about cultural resource loss, wildlife, and recreation disruption.
- **Public Concerns:** less concern with visual and residential impacts, but concerns about wildlife and Badlands Wilderness area impacts
- **Risks:** Potential delays and conflicts due to land use approvals and NEPA processes, economic feasibility of aggregate mining to offset rock excavation costs

Roth East

- **Costs:** Lower acquisition and development costs, but higher annual operational costs, largely due to longer haul distance
- **Infrastructure:** More water and road infrastructure needed, but less electrical infrastructure needed
- **Environmental Impact:** Concerns about impacts to cultural resources, groundwater, and wildlife – particularly species considered for ESA listing
- **Public Concerns:** more concern with visual and residential impacts, similar concerns about habitat and wildlife
- **Risks:** Potential delays and appeals due to Farm Impacts Test, and higher susceptibility to high winds

SWAC Recommendation & Rationale

On April 16, 2024, the SWAC unanimously recommended the Moon Pit site for the new Solid Waste Management Facility.

- The site is currently being used as an aggregate surface mine and is already disturbed
- Based on the current use, there is less likelihood of new impacts to area wildlife or recreation
- The site is comparatively closer to existing facilities which will help manage haul costs and greenhouse gas emissions

SWAC Additional Recommendations

The Committee also recommended that the Board of County Commissioners:

- Work with stakeholders to develop and implement a robust and comprehensive mitigation strategy that reflects community values to minimize impacts to area wildlife and recreation
- Prioritize waste prevention and recovery and move as quickly as possible to implement those strategies to reduce the overall costs and greenhouse gas emissions of the new landfill

Next Steps

Preliminary Schedule

Calendar Year:	2024		2025				2026				2027				2028				2029				2030			
Project Task:	2024 Q3	2024 Q4	2025 Q1	2025 Q2	2025 Q3	2025 Q4	2026 Q1	2026 Q2	2026 Q3	2026 Q4	2027 Q1	2027 Q2	2027 Q3	2027 Q4	2028 Q1	2028 Q2	2028 Q3	2028 Q4	2029 Q1	2029 Q2	2029 Q3	2029 Q4	2030 Q1	2030 Q2	2030 Q3	2030 Q4
Property Boundary Survey																										
Property Acquisition [1]																										
Land Use Permitting [2,3]																										
Environmental/Natural Resources Permitting [4,5]																										
Geotechnical Investigations																										
Formal Archaeological Survey																										
Site Characterization Study																										
DEQ Solid Waste Permit																										
Design/Engineering Services																										
Construction [6]																										
Initiation of Operations																										
Public Involvement																										

Notes:

1. For both sites, an option to purchase is anticipated upfront, with full property acquisition later, when permits can be obtained and before construction begins.
2. For Moon Pit, Land Use Permitting involves an SM Zone text amendment to allow landfilling as a reclamation activity, followed by a conditional use permit.
3. For Roth East, Land Use Permitting this involves conditional use permitting and Farm Impacts Test, subject to appeals.
4. For Moon Pit, Env/NR Permitting timeline assumes a NEPA process requiring an EA or BA to access the landfill site through BLM land. This also includes wildlife mitigation.
5. For Roth East, Env/NR Permitting timeline assumes a lengthy process for wildlife mitigation efforts, largely related to sage grouse.
6. Moon pit has potential to begin excavation (as aggregate resource mining) before permits issued are approved for landfill development

Questions?

Key Topics Discussion
Conceptual Site Layouts

Moon Pit

- Challenges: Unfavorable geometry and rocky conditions
- Disposal Area: 346 acres
- Available airspace: 64,000,000 cy

LANDFILL PHASING SUMMARY – MOON PIT			
PHASE	AIR SPACE AVAILABLE	PROJECTED LIFE	FILL PERIOD
PHASE 1	26,000,000 CY	41 YEARS	2029-2070
PHASE 2	17,000,000 CY	26 YEARS	2070-2096
PHASE 3	21,000,000 CY	33 YEARS	2096-2129
TOTAL	64,000,000 CY	100 YEARS	

Roth East

- Advantages: Favorable square geometry and suitable soil
- Disposal Area: 387 acres
- Available airspace: 80,000,000 cy

LANDFILL PHASING SUMMARY – ROTH EAST			
PHASE	AIR SPACE AVAILABLE	PROJECTED LIFE	FILL PERIOD
PHASE 1	21,000,000 CY	33 YEARS	2029-2062
PHASE 2	17,000,000 CY	27 YEARS	2062-2089
PHASE 3	22,000,000 CY	30 YEARS	2089-2119
PHASE 4	20,000,000 CY	23 YEARS	2119-2142
TOTAL	80,000,000 CY	113 YEARS	

Key Topics Discussion
Site Development & Permitting Assessment

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Moon Pit

- Surface Mining base zone, with the following overlays:
  - Wildlife Area combining zone
  - Surface Mining Impact Area combining zone
  - **Current use: active surface mine**
- Surrounding Area
  - Oregon Badlands Wilderness and associated trails/trailheads
  - Public lands

Roth East

- Exclusive Farm Use Horse Ridge base zone, with the following overlays:
  - Landscape Management combining zone
  - Sage Grouse Habitat Area – Low Density
  - Surface Mining Impact Area
  - Wildlife Area Combining Zone
- **Current use: rural undeveloped/grazing**
- Surrounding Area:
  - Rural residential properties
  - Millican Valley OHV trails
  - Deschutes National Forest and Pine Mountain Observatory

Key Topics Discussion
Site Development & Permitting Assessment

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Moon Pit Permitting

- County land use approval permits (Conditional Use Permit and Site Plan Review)
- **BLM Right-of-way subject to the National Environmental Policy Act (NEPA) review process**
- Solid Waste Disposal Permit (Oregon Revised Statutes 459)
- DOGAMI Transfer of Surface Mining Permit or an Operating Permit
- Oregon Title V Air Quality Operating Permit
- **Natural Resource permits or compliance approvals**:
  - Eagle Incidental Take Permit
  - ODFW Wildlife Habitat Mitigation Policy (OAR 635-415-0000)
  - Greater Sage-Grouse Area Combining Zone (DCC 18.89.060)
  - Wildlife Area Combining Zone (DCC 18.88.030)

Roth East Permitting

- County land use approvals or permits (Conditional Use Permit, Site Plan Review, and Landscape Management Review)
  - **Including Farm Impacts Test for EFU Zoning**
- Oregon DEQ Solid Waste Disposal Permit
- Oregon's Title V Air Quality Operating Permit
- **Natural Resource permits or compliance approvals**:
  - ODFW's Wildlife Habitat Mitigation Policy (OAR 635-415-0000)
  - Wildlife Area Combining Zone (DCC 18.88.030)
  - Greater Sage-Grouse Area Combining Zone (DCC 18.89.060)
  - Sage-Grouse (OAR 635-140-0000)

Key Topics Discussion
Transportation System Assessment

Moon Pit

- **Established site access currently used by heavy vehicles for quarry operations (~1.2 miles long). Currently ~20 mining truck round trips per day, on average.**
- Shared access with Badlands
- Current ROW along access road is 30’ wide (28’ wide road) through BLM lands. A ROW amendment and NEPA process would be required if additional ROW is needed.
- Enhanced acceleration lane onto US 20 may be beneficial

Roth East

- Several options for preferred access route to site
- Routes range from:
  - 1.2 – 2.9 miles
  - ~$1.2M - $2.90M to construct
- Relatively flat, with areas to up to 8-10% grade
- Alternate access points to the east would need to consider available sight distance at US 20

Assumes ~7 employee trips + 35 truck trips per day

Key Topics Discussion
Water Infrastructure Assessment

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Moon Pit

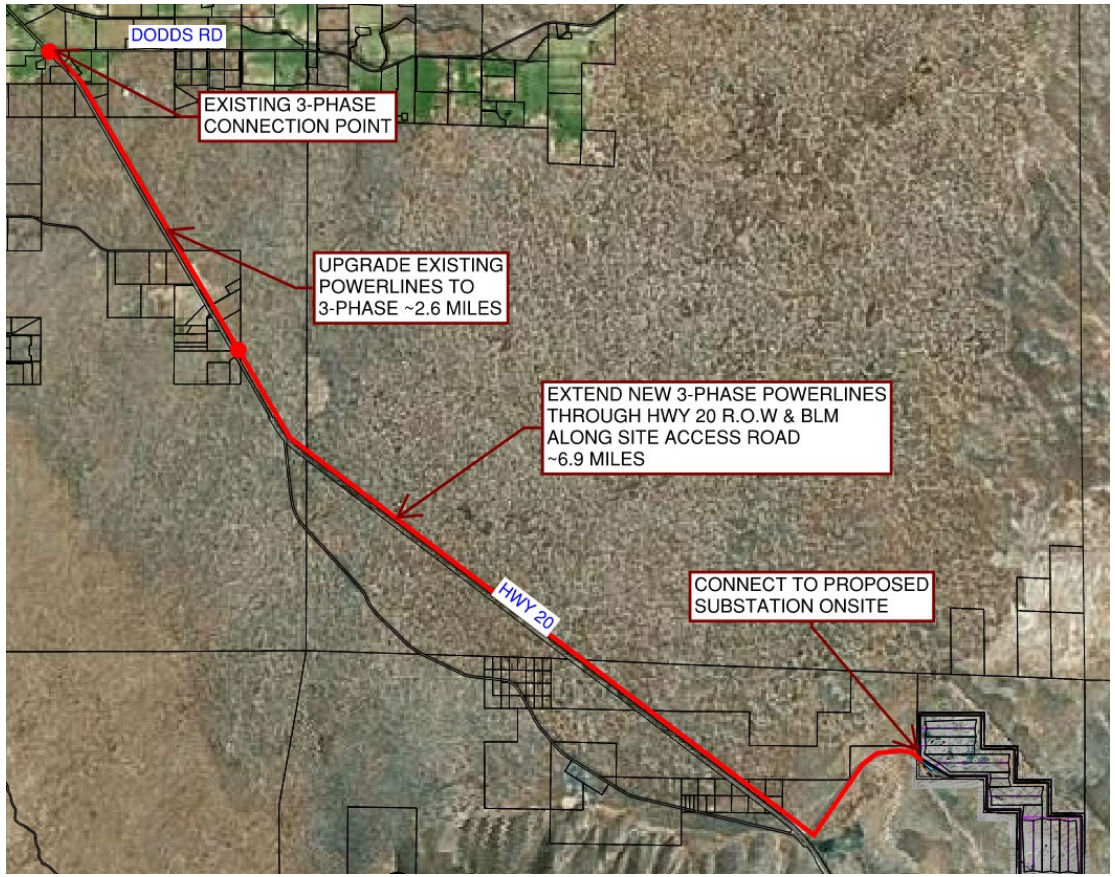
- **2 supply wells (Wells A and B) ~186 feet apart near site's west entrance road.**
- Well depths: 931 ft bgs (Well A) and 1135 ft bgs (Well B) with static water level ~851 ft.
- Well A is not in use; Well B is in use, capable of producing 1,000 gpm.
- Well B has water right permit (G-12860) with priority date of 5/16/1994, for dust control and gravel washing with max use rates of 174,505 gpd and 529,978 gpd.
- Beneficial use area encompasses site tax lot boundary.
- **Water rights not offered with land sale, but Hooker Creek will provide water supplies to County at a reasonable cost until County can secure water rights**

Roth East

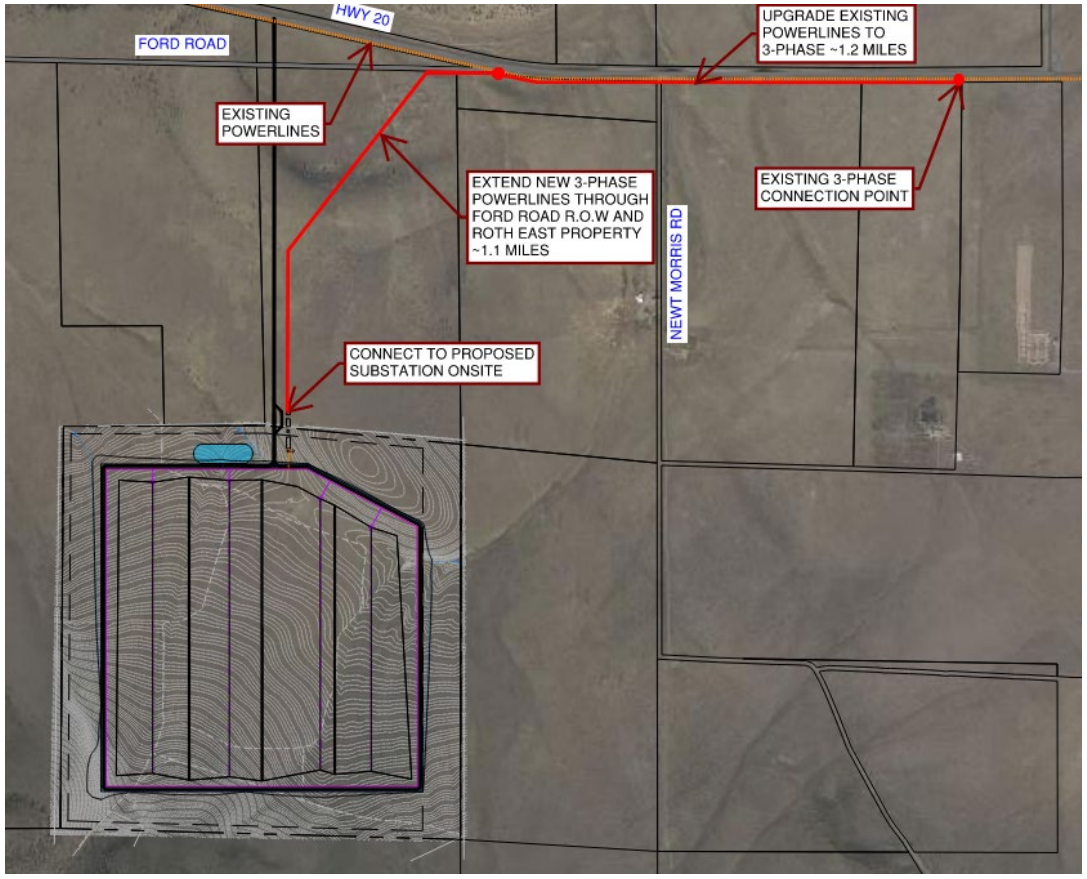
- 1 supply well (the Powell or Deep Well) near SW corner ~1.1 miles SW of proposed development area.
- Deep Well is 995 ft deep with static water level of 970 feet based on a well completion measurement.
- Currently used to supply a residence and stock watering (reportedly ~ 1 water truck per day). Well report from 1990 indicates 50 gpm with no drawdown.
- **The are no water rights appurtenant to the Deep Well or the site tax lot. Closest water right is ~2 miles east.**
- Several wells identified in the northern area of the site with one possibly located on tax lot. Depth to groundwater and productivity appears to vary.
- **New water right and well needed for long-term water supply. Water deliver from Knott assumed in the interim.**

Key Topics Discussion
Electrical Power Supply Review

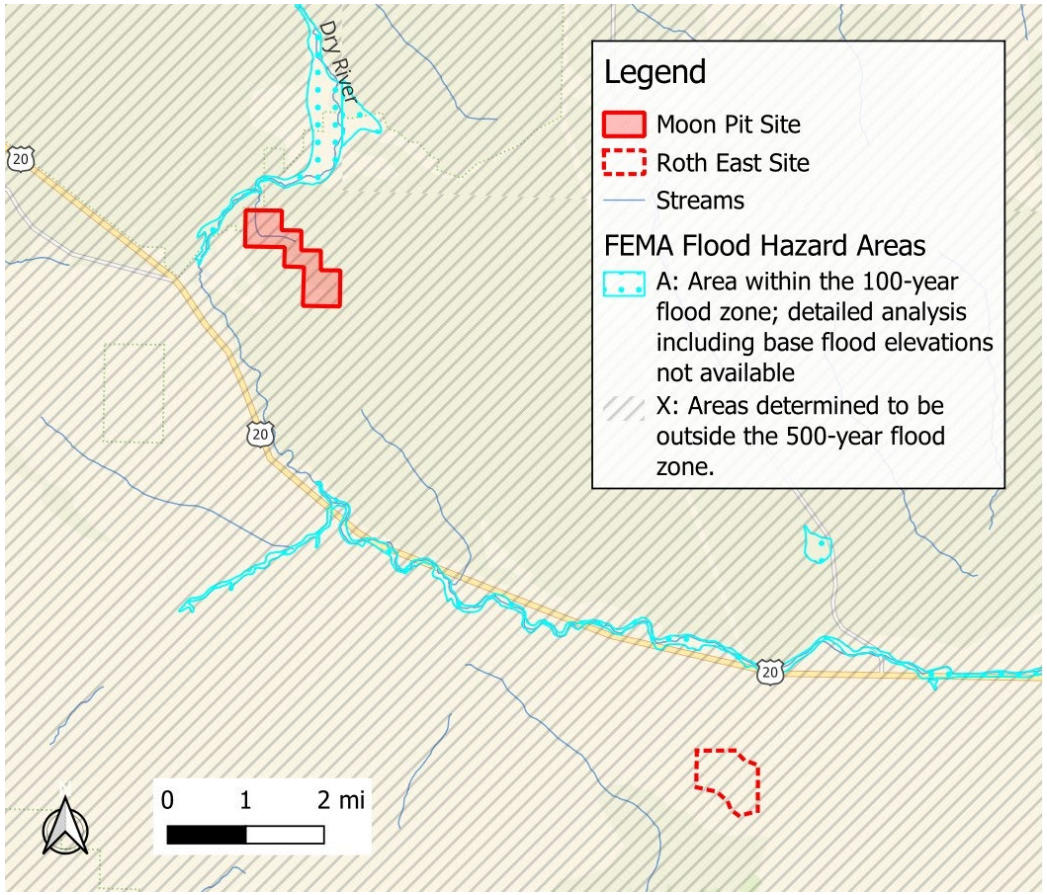
Moon Pit



Roth East



Key Topics Discussion
Flood Risk Desktop Review



Floodplain Mapping

- **Moon Pit** site is 800 feet from 100-year floodplain
  - Flood Zone is "approximate" with detailed analysis unavailable
- **Roth East** site is not near floodplain
- Highway 20 is within the floodplain

Key Topics Discussion
Geology/Hydrogeology Assessment

Moon Pit

- **Shallow depth to bedrock**
- Located within fault-bounded (pre-Holocene) valley
- **Regional groundwater ~850 ft bgs**
- Onsite well has very good yield
- Water quality analysis is good - only one parameter (dissolved iron) slightly exceeds reference level
- **Low risk of groundwater contamination**

Roth East

- **300+ ft of alluvial deposits overlie bedrock (lots of cover material!)**
- Limited potential for low permeability zones above bedrock
- **Regional groundwater expected at 450+ ft**
- Uncertainty if a shallower aquifer extends under site
- Groundwater quality of onsite well (Powell Deep Well 1+ mi SW of site) is very good
- **Yield of regional aquifer not fully known (onsite well - 50 gpm)**

Key Topics Discussion
Preliminary Geotechnical Feasibility

Moon Pit

- Site is within a fault bound graben
- 12 test pits excavated
- Shallow bedrock conditions are persistent throughout the site
- **Blasting will be required**
- Faults are likely inactive within the last 12,000 years
- **Onsite aggregate quality & marketability not analyzed, TBD pending further study**

Roth East

- Site is located on an alluvial fan
- 2 geophysical profiles + 3 geotechnical borings (100-150 ft)
- **~400 ft of sediments underlying the site; primarily gravels (could be used as aggregates for site development pending further investigation)**
- **Conventional equipment is anticipated for excavation and mass grading**
- Inferred fault and offsite faults are likely inactive within the last 12,000 years

Key Topics Discussion
Environmental Assessment Phase I

Moon Pit

- Listed on DEQ Environmental Cleanup Site Information database, for tracking purposes only. No documented releases.
- Boneyard and diesel ASTs (in use); some surface staining noted (de minimis).
- Original 1980s ranch house could contain hazardous building materials.
- No Recognized Environmental Conditions (as defined by ASTM 1527-21) and no further environmental investigation recommended.

Roth East

- Not listed in any environmental databases.
- Two fuel ASTs near other ranch related infrastructure. No staining or other indications of contamination.
- Existing 1990s ranch house is unlikely to contain hazardous building materials.
- No Recognized Environmental Conditions (as defined by ASTM 1527-21) and no further environmental investigation recommended.

Key Topics Discussion
Weather and Air Quality Desktop Review

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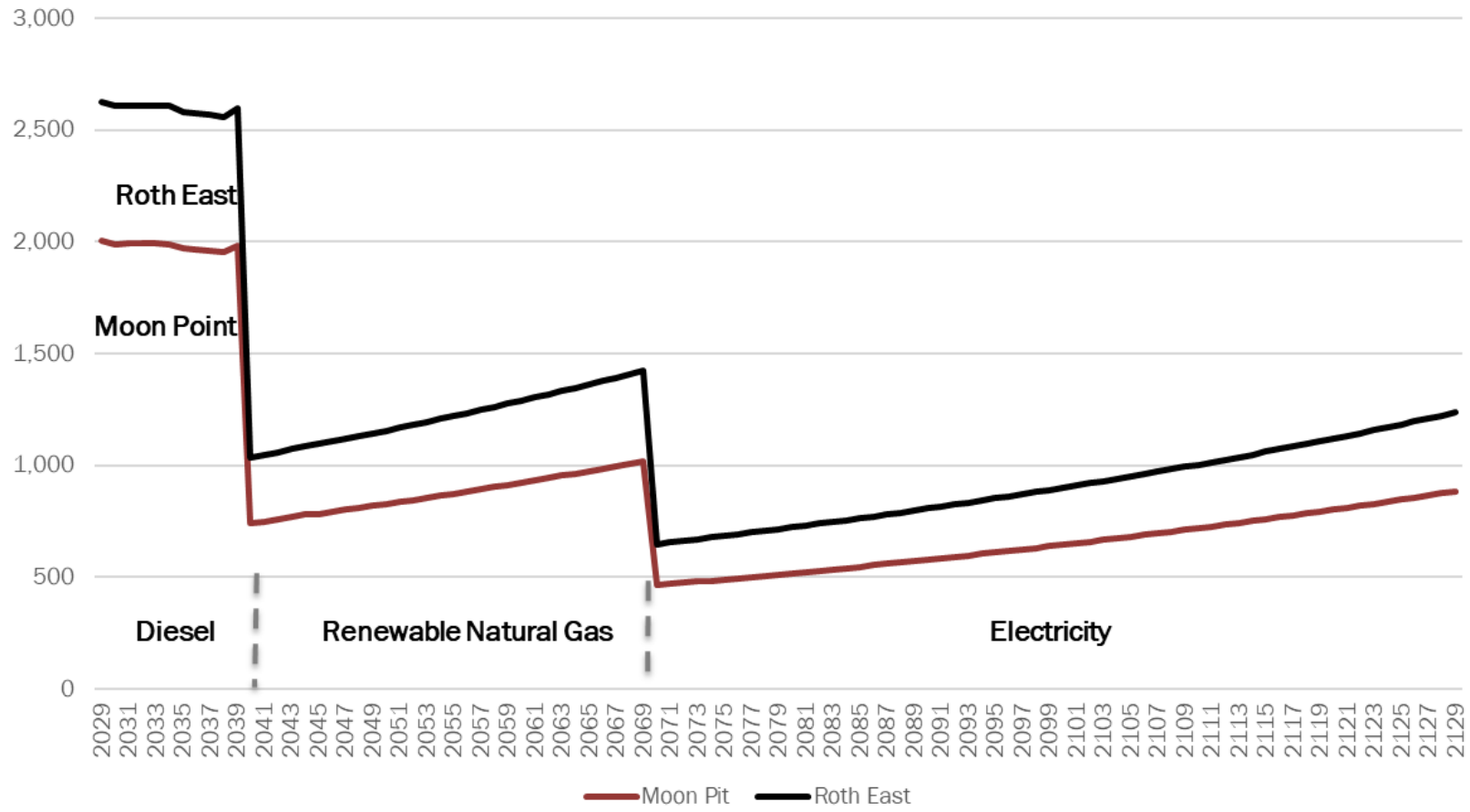
Waste Hauling Greenhouse Gas Emissions Profiles by Landfill Location and Energy Source



Key Topics Discussion
Natural Resources Assessment

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Moon Pit

177.8 acres disturbed juniper woodland and sage brush steppe

- Golden eagle nest within 2 miles
- Direct impacts to 177.8 acres of Big Game Category Habitat 2 for Elk, Mule Deer, and Pronghorn
- Indirect impacts to 7.8 functional acres of sage-grouse habitat. Mitigation requirement of 9.0 functional acres.

Roth East

309.3 acres intact sage brush steppe

- No golden or bald eagle nest within 2 miles
- Direct impacts to 309.3 acres of Big Game Category Habitat 2 for Elk, Mule Deer, and Pronghorn
- Direct and indirect impacts to 173.7 functional acres of sage-grouse habitat. Mitigation requirement of 199.3 functional acres.

Summary of Compensatory Mitigation for Site Development

Habitat	Impacted Habitat (acres)	Quality of Impacted Habitat	Mitigation Amount	Mitigation Options	Estimate Cost
Golden Eagle	Unknown	Moderate	Dependent upon USFWS decision if project would result in take	In-lieu fee, retrofit utility poles	Unknown
Mule deer and elk winter range	167.1 Juniper woodland 10.8 Shrub steppe	Moderate/low	Net benefit of habitat quantity or quality	Acquisition and enhancement of parcel of land	$1,286,700–$1,586,700
Essential and limited pronghorn habitat	167.1 Juniper woodland 10.8 Shrub steppe	Non-habitat. Used for migration	Net benefit of habitat quantity or quality	Fence upgrade and removal	$30,000
Significant sage-grouse habitat	7.8	Non-habitat	9 Functional Acres = 10-26 acres of mitigation	Acquisition and enhancement of land, conservation agreement with landowner, and in-lieu fee payment.	$39,335–$500,000

Total: $1,356,065 – $1,737,579

Key Topics Discussion
Archaeology and Cultural Heritage Assessment

Moon Pit

Reconnaissance Survey Results

- Surveyed 100 of ~560 project acres.
- Identified 5 archaeological resources–3 precontact sites and 2 historic isolates.
- **All areas not impacted by mining/quarry activities have a moderate to high probability for archaeological resources.**

Recommendations

- Conduct formal systematic survey of all areas not directly impacted by mining/quarry activities to identify archaeological resources.

Roth East

Reconnaissance Survey Results

- Surveyed 128 of ~645 project acres.
- Identified 12 archaeological resources–6 sites and 6 isolates, majority precontact.
- **Entire parcel has a high probability for archaeological resources.**

Recommendations

- Conduct formal systematic archaeological survey of the entire project area.

If a resource will be impacted by the project, the resource's significance must be formally evaluated under Oregon state law. Evaluation will require an Oregon SHPO archaeological permit.

Key Topics Discussion
Community Assessment

Moon Pit

Interested Parties:

- Recreation users (hikers, etc); Badlands Wilderness, Bureau of Land Management; environment, wildlife, and other interests

Expressed concerns:

- Traffic and shared access safety
- Disruption to habitat and wildlife

Roth East

Interested Parties:

- Millican Valley residents; Pine Mountain Observatory and University of Oregon; recreation users (paragliders, etc); environment, wildlife, and other interests

Expressed concerns:

- Dust, litter, odor + wind
- Groundwater contamination
- Potential cultural artifacts/sites
- Disruption to habitat and wildlife

Key Topics Discussion
Cost Analysis