



# Solid Waste Management Facility Siting Study

Solid Waste Advisory Committee (SWAC) Meeting

August 15, 2023





# Agenda

1. Welcome
2. Review/ Approve June Meeting Minutes
3. Final Site Evaluations – Progress Updates
4. BLM Site Focused Screening Results
5. Public Comment
6. SWAC Discussion
7. Adjourn



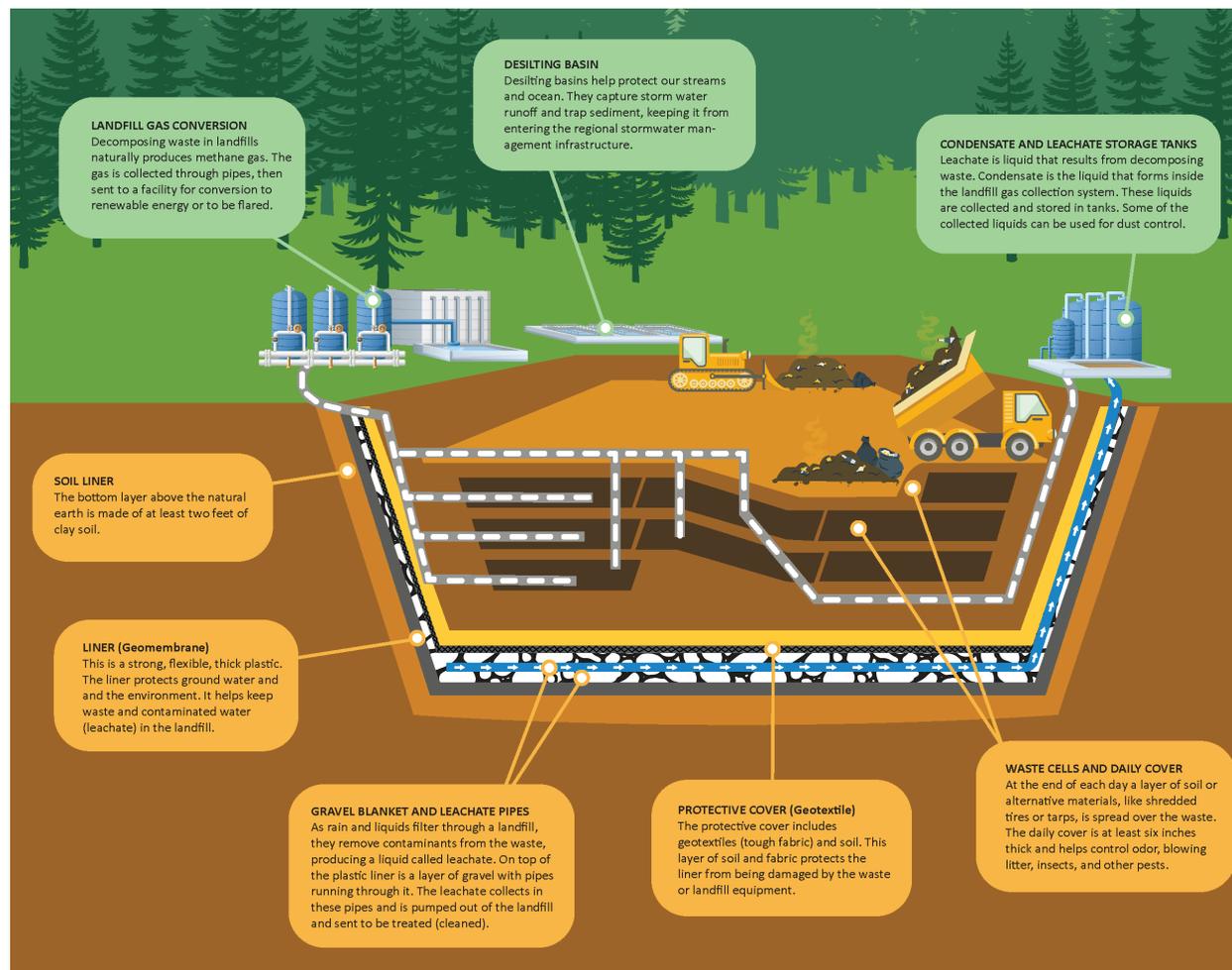
# Final Site Evaluations: Progress Updates



# Final Site Evaluations: Progress Updates

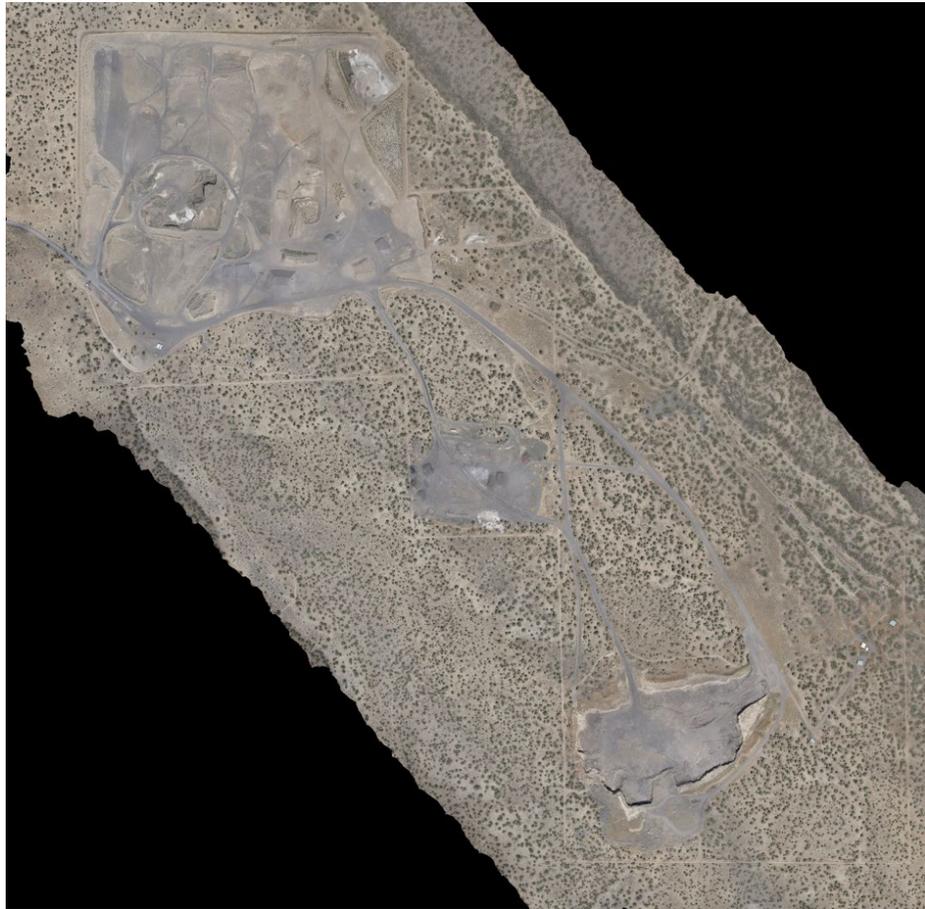
SWAC recommended further study of Moon Pit & Roth East Sites in June 2023. Updates:

- Drone survey complete
- Conceptual design beginning this week
- Additional field work is being scheduled:
  - Geophysical survey
  - Geotechnical drilling
  - Cultural resources fieldwork
  - Natural resources field work
  - Transportation onsite assessment



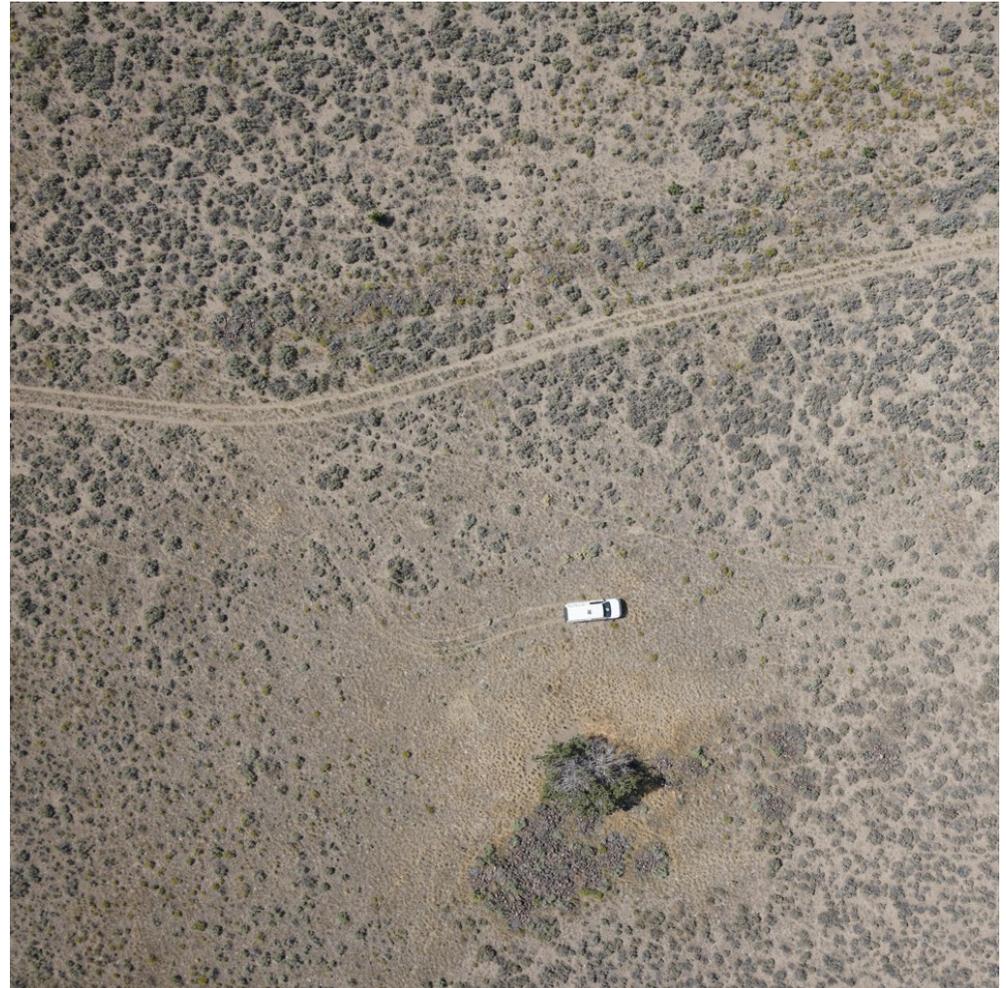


# Moon Pit Site Drone Survey





# Roth East Site Drone Survey





# BLM Sites Focused Screening Updates & Comparison to Other Sites



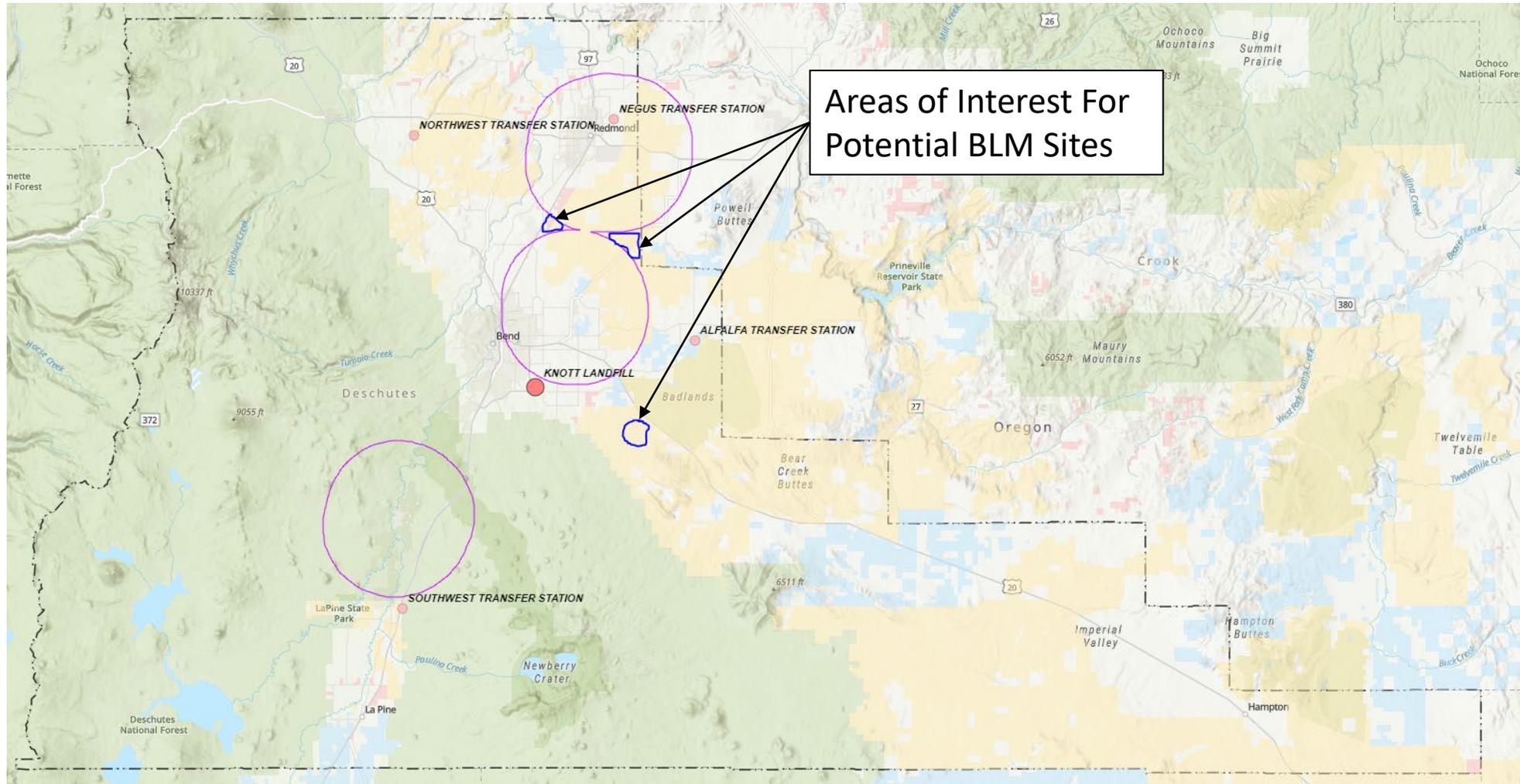


# Public Comments in Opposition to Powell Butte Hwy BLM Site

- **Environmental Impacts**
- **Health and Safety Concerns**
- **Aesthetic Impact**
- **Use of BLM Land**
- **Landfill Site Alternatives**
- **Proximity to Residential Areas**
- **Wildlife and Wildflower Conservation**
- **Traffic and Infrastructure Concerns**
- **Airport Safety**
- **Property Values and Financial Impacts**

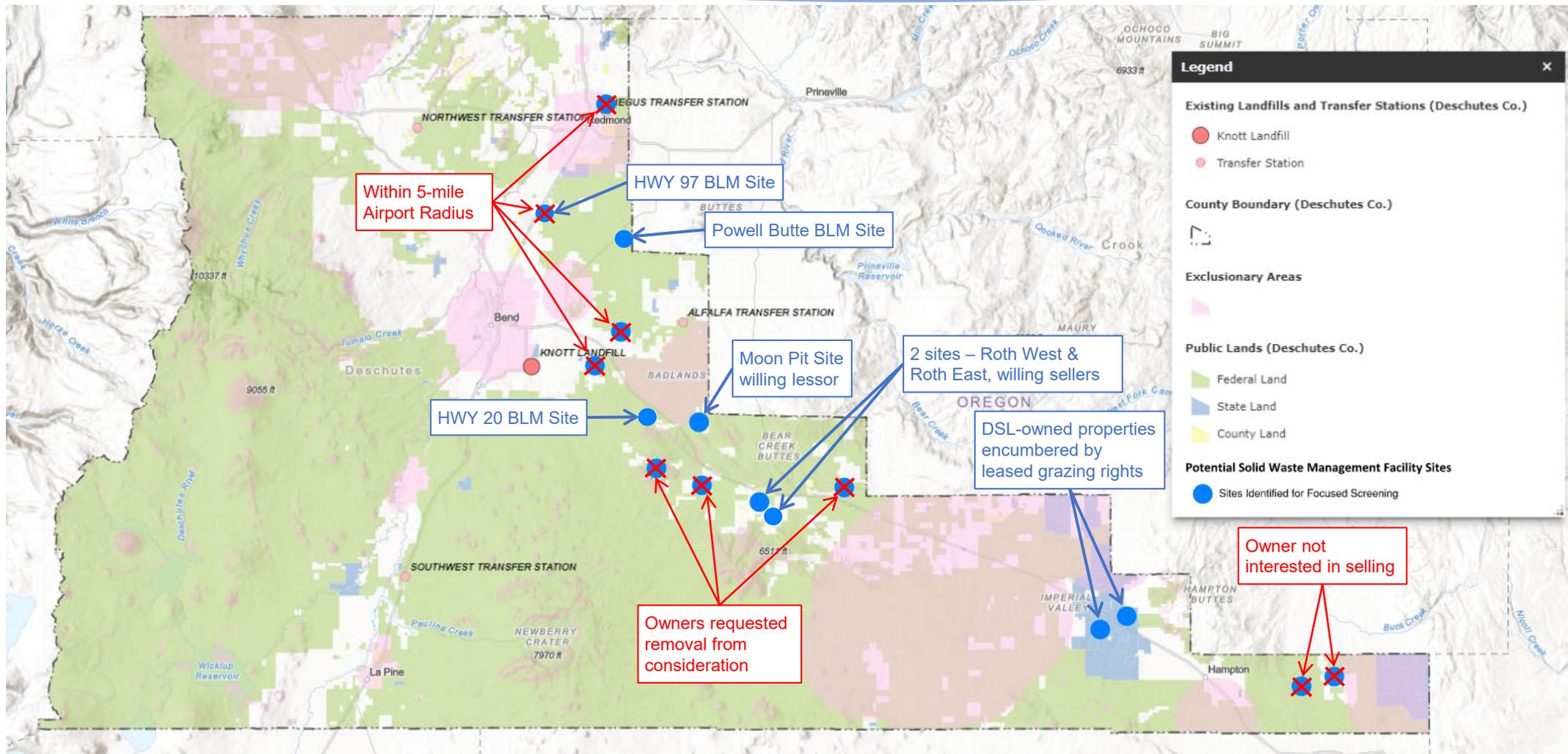


# BLM Areas of Interest (presented in February 2023 SWAC Meeting)



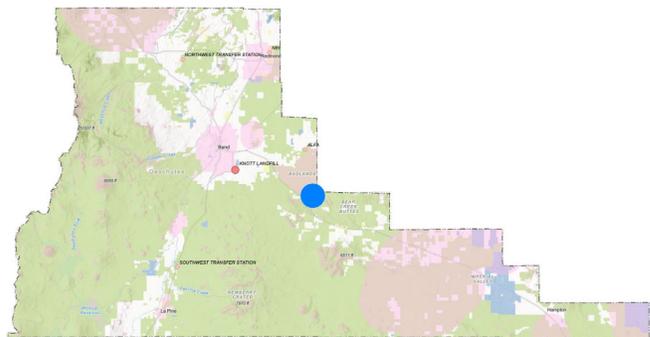


# Focused Screening Site Overview

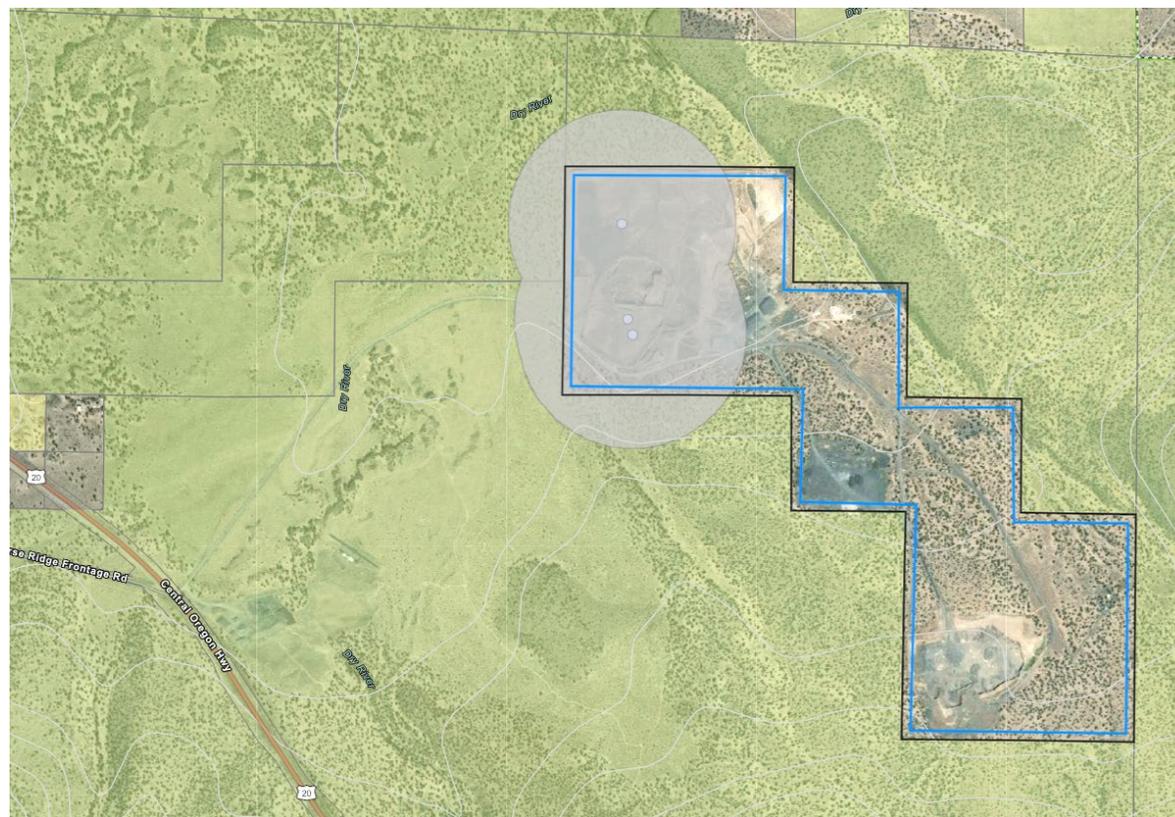




# Moon Pit Site (191400-200)



(Finalist site approved by SWAC for further study)



Site Scoring by Category



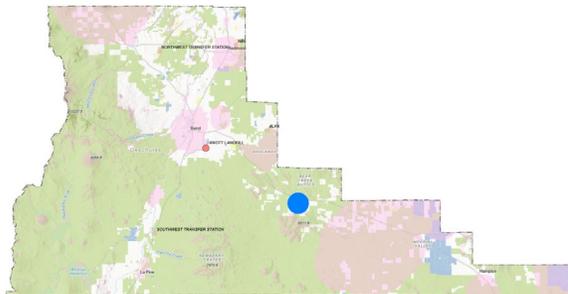
## Considerations:

- Existing surface mine site
- Onsite industrial wells
- Paved Rd from Highway 20
- Deep groundwater ~1000' BGS
- Owner willing to lease land for SWMF operations
- 0 residences within 1 mile
- 1 residence within 2 miles
- Potential for landfill cells to be excavated by gravel mining operations
- Reclamation by landfill
- Environmental & cultural resources and related impacts already studied and monitored
- Adjacent to Badlands Wilderness Area & trailhead
- Established prior to designation of Badlands Wilderness Area
- Not visible from Highway 20
- 20 miles from waste centroid

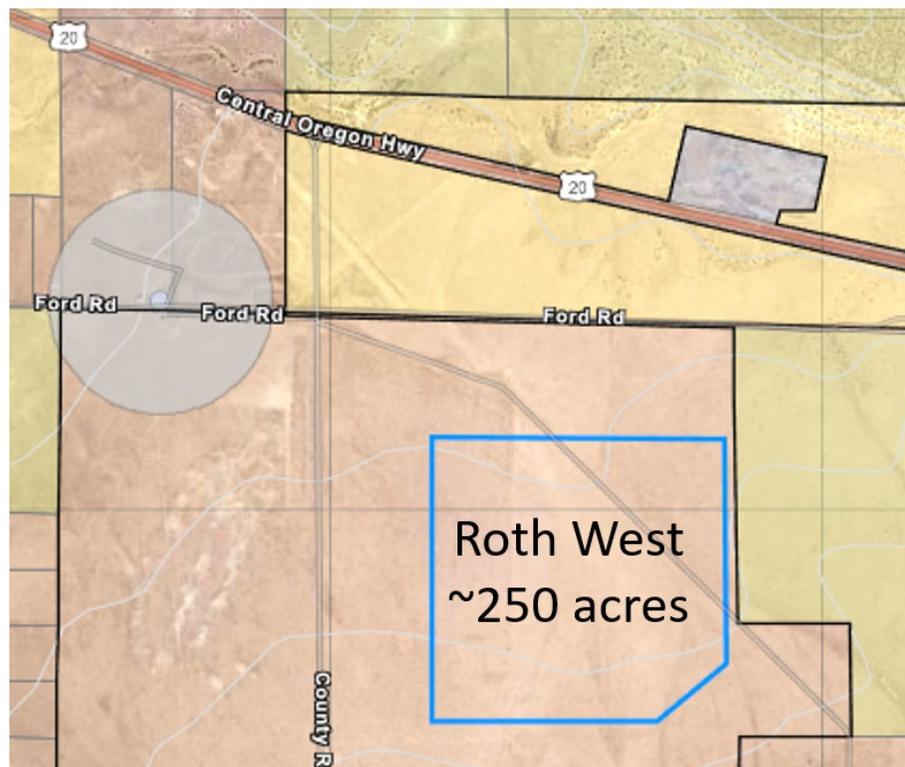
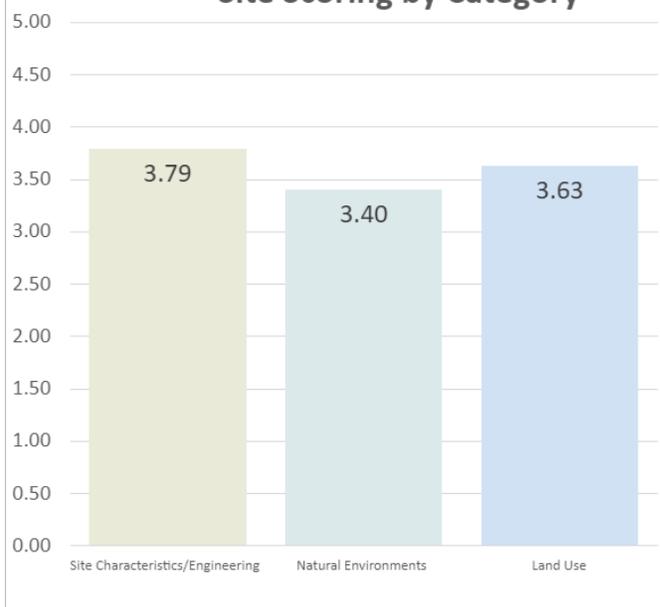


# Roth West Site (201500-300)

(SWAC recommended removal from further consideration)



Site Scoring by Category



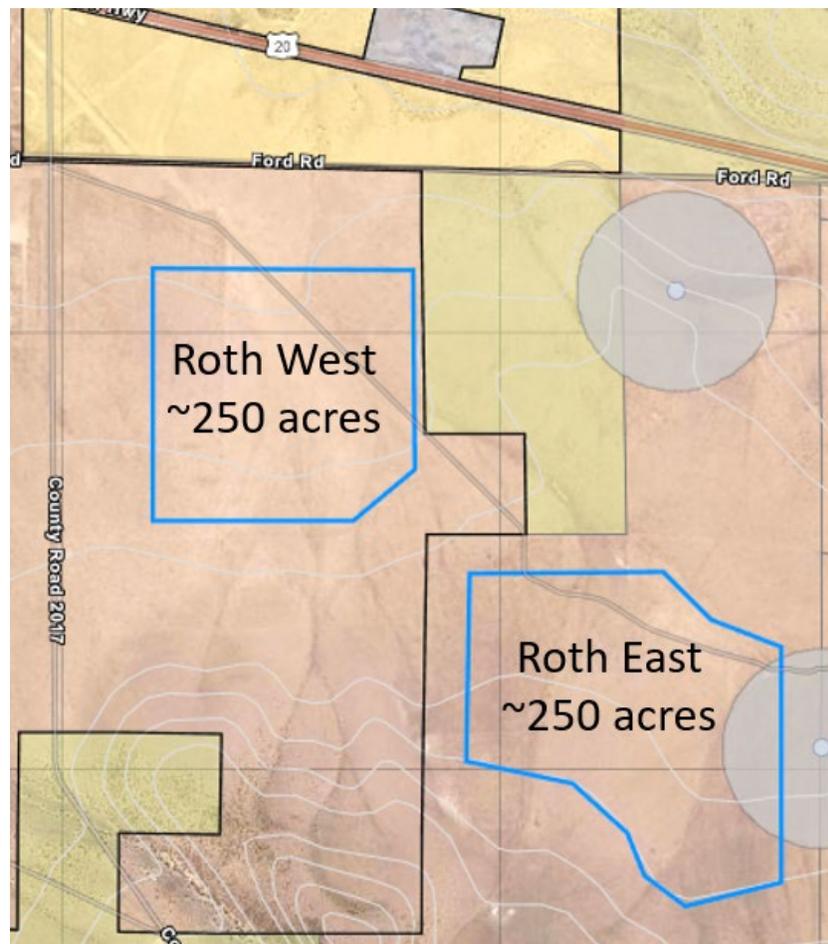
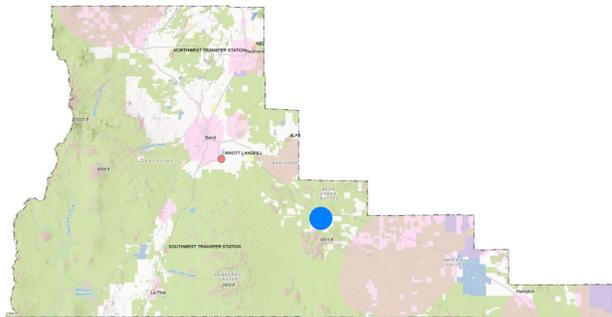
## Considerations:

- Parcel area: 1,783 acres
- Owner is interested in selling
- Within Millican Valley / Plateau
- Within Low Density Sage Grouse Habitat Area
- Variety of recreational uses in broad vicinity
- Millican airstrip decommissioned in 1992 by County at request of State
- 3 residences within 1 mile
- 26 residences within 2 miles
- Highly visible from Hwy 20 and Pine Mountain Road
- 28 miles from waste centroid



# Roth East Site (201500-301)

(Finalist site approved by SWAC for further study)

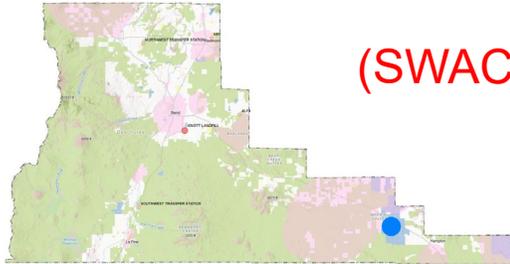


## Considerations:

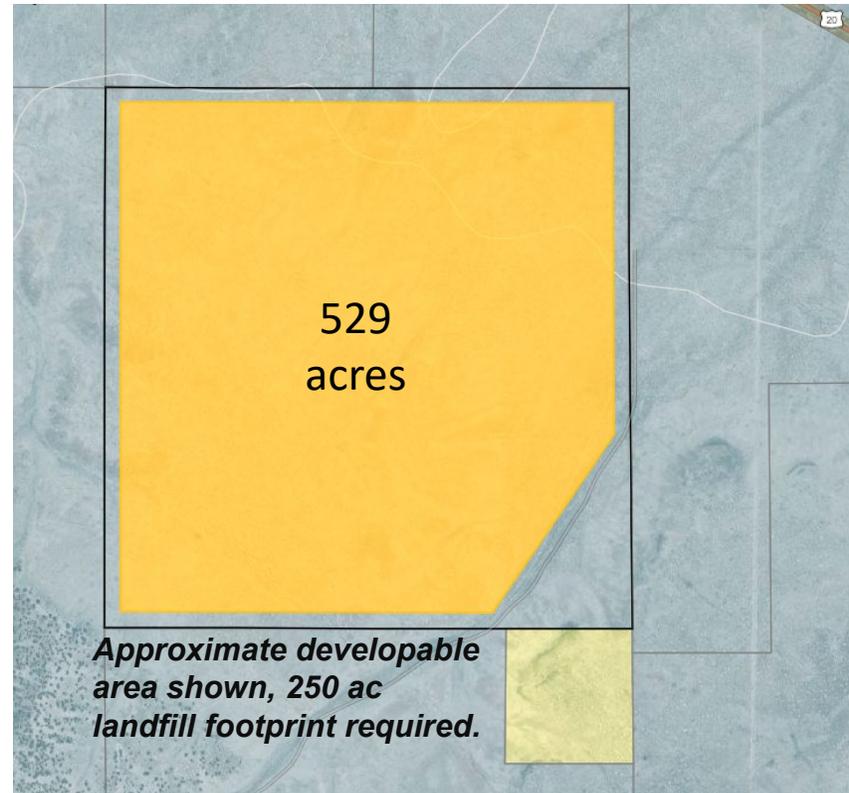
- Parcel area: 1,706 acres
- Owner is interested in selling
- Within Millican Valley / Plateau
- Within Low Density Sage Grouse Habitat Area
- Variety of recreational uses in broad vicinity
- 2 residences within 1 mile
- 8 residences within 2 miles
- Less visual impacts from Pine Mountain Rd and Hwy 20 (compared to Roth West) due to distance and topographic screening in some directions.
- 29 miles from waste centroid



# DSL South Site (211900)



(SWAC recommended removal from further consideration)



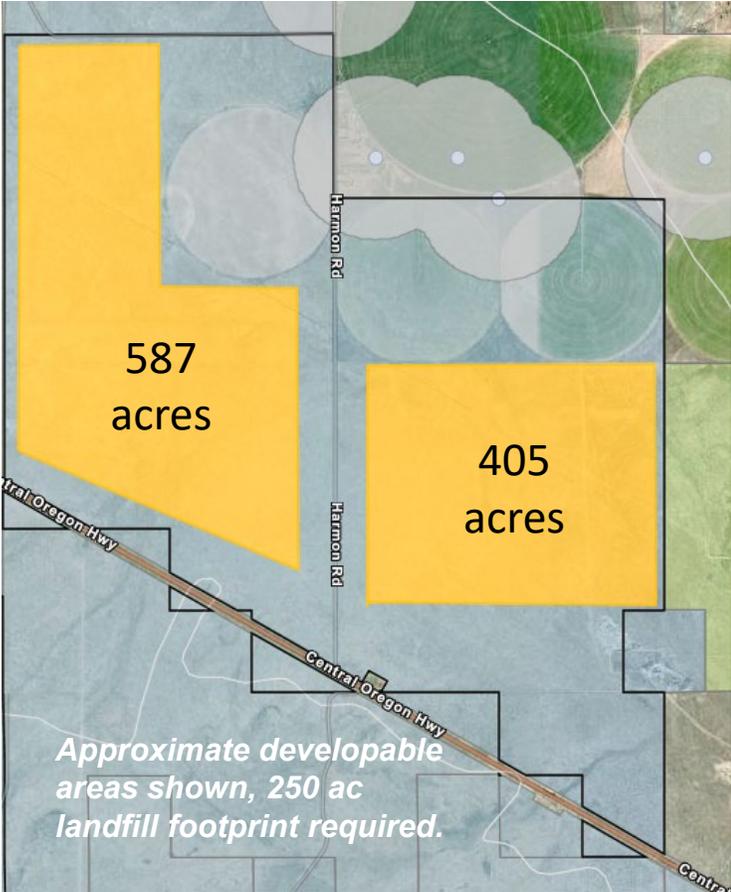
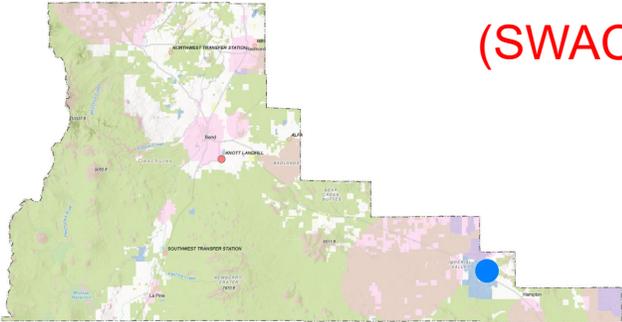
## Considerations:

- Acquisition Potential is challenging due to ownership by Division of State Lands (DSL)
- Property encumbered by existing grazing land leases and Sage Grouse Candidate Conservation Agreement w/ Assurances with USF&W
- Property area is 625 acres
- Access easement required for truck access from Hwy 20
- 0 residences within 1 mile
- 1 residence within 2 miles
- No known existing wells or water rights onsite
- Powerline along Highway 20
- 52-56 miles from waste centroid



# DSL North Site (212000)

(SWAC recommended removal from further consideration)



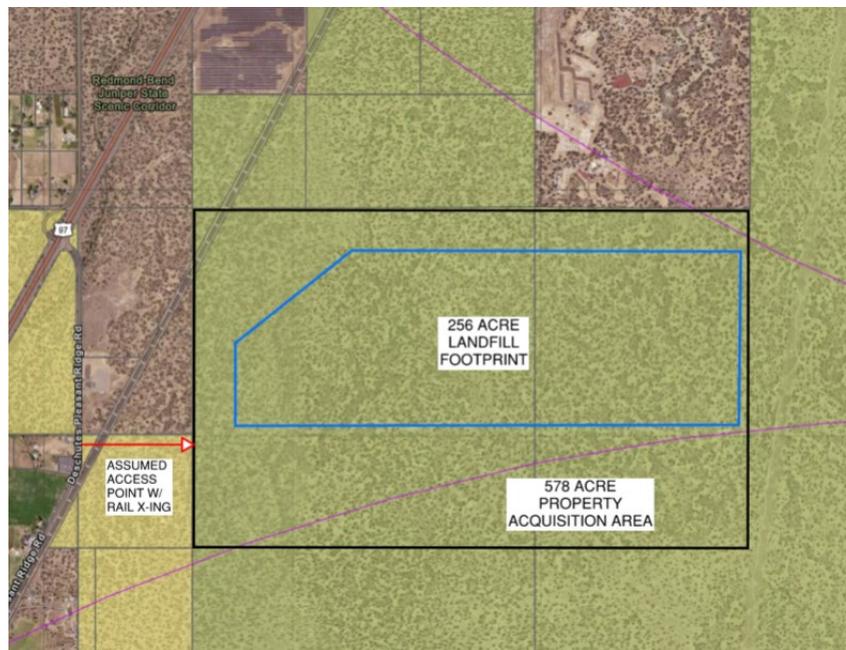
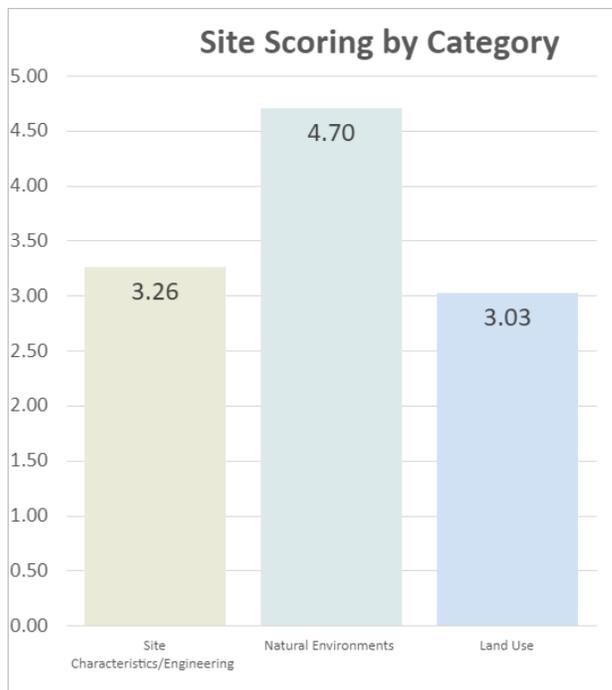
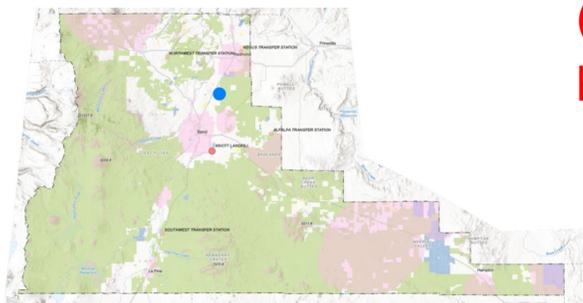
### Considerations:

- Acquisition Potential is challenging due to ownership by Division of State Lands (DSL)
- Property encumbered by existing grazing land leases and Sage Grouse Candidate Conservation Agreement w/ Assurances with USF&W
- Property area is 2117 acres, with multiple options for potential disposal site
- Existing access via Hwy 20 and gravel road
- 2 residences within 1 mile
- 3 residences within 2 miles
- Existing wells and residences nearby
- Adjacent to alfalfa farming
- No known wells or water rights onsite
- No nearby power infrastructure
- 52-56 miles from waste centroid



# HWY 97 BLM Site (161244)

(SWAC recommended removal from consideration due to <5 mile proximity to Redmond Airport Masterplan Boundary)

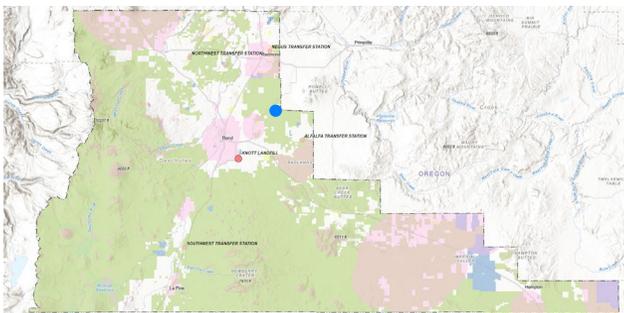


## Considerations:

- Acquisition Potential is challenging due to ownership by Bureau of Land Management (BLM), but possible to expedite via congressional action
- Property area is 578 acres, with 256-acre footprint possible
- Access via Deschutes Pleasant ridge Rd crosses railroad tracks
- 72 residences within 1 mile
- 895 residences within 2 miles
- Existing wells and residences nearby
- Adjacent to solar farm and Redmond Rod and Gun Club
- No known wells or water rights onsite
- Power infrastructure to South and West near site periphery
- 11 miles from waste centroid



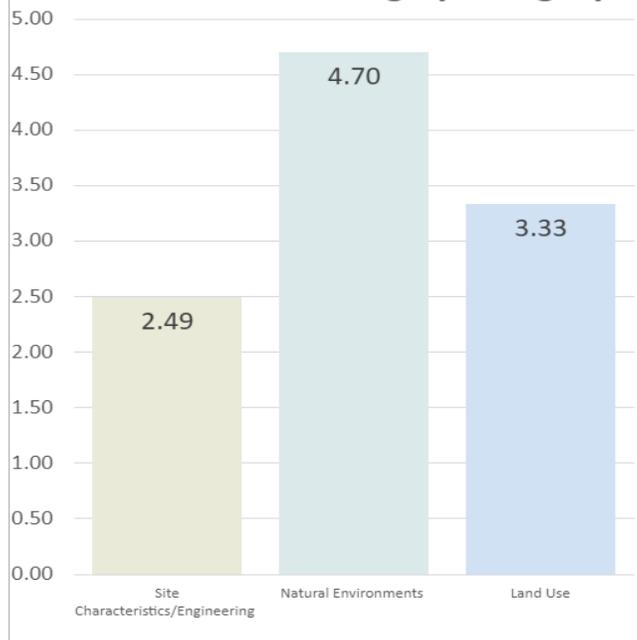
# Powell Butte BLM Site (161300)



## Considerations:

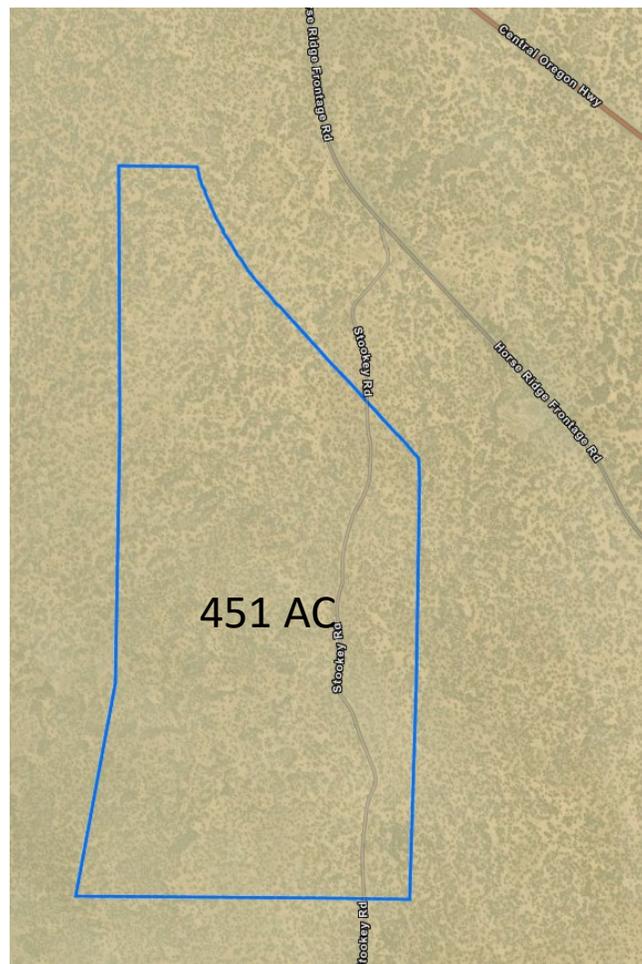
- Acquisition Potential is challenging due to ownership by BLM, but possible to expedite via congressional action
- Property area is 2929 acres, with 329-acre footprint possible
- Access via Powell Butte Highway and Morrill Rd
- ~10 residences within 1 mile
- ~40 residences within 2 miles
- Two major resort communities (Juniper Reserve, Brasada Ranch) within 3 miles
- Closest existing well ~0.4 miles
- Abuts county border with Crook County
- No Sage Grouse zones within 3.1 miles
- No known wells or water rights onsite
- Power infrastructure to North along Majestic View Lane
- 17.5 weighted miles from waste centroid
- *Substantial public opposition to site*

Site Scoring by Category





# HWY 20 BLM Site (181300)



## Considerations:

- Acquisition Potential is challenging due to ownership by Bureau of Land Management (BLM), but possible to expedite via congressional action
- 451-acre footprint being evaluated within large BLM parcel
- Access via Horse Ridge Frontage Rd
- 0 residences within 1 mile
- 18 residences within 2 miles
- Existing wells nearby
- Variety of recreational uses in vicinity
- No known wells or water rights onsite
- Power infrastructure over 1 mile to the North along Hwy 20
- 1.2 miles from draft Low Density Sage Grouse Habitat.
- 11 miles from waste centroid
- No public opposition on record



# Focused Site Scoring Results (Site Characteristics & Engineering)

	SITE ID: NAME:	191400-200 MOON PIT	201500-300 ROTH WEST	201500-301 ROTH EAST	211900 DSL SOUTH	212000 DSL NORTH	161244*** HWY 97 BLM	161300 POWELL BUTTE BLM	181300 HWY 20 BLM
<b>Site Characteristics/Engineering</b>	<b>35%</b>	<b>3.90</b>	<b>3.72</b>	<b>3.79</b>	<b>3.10</b>	<b>3.08</b>	<b>3.26</b>	<b>2.49</b>	<b>3.20</b>
<b>Site Availability/Acquisition Potential</b>	<b>35%</b>	<b>3.40</b>	<b>4.20</b>	<b>4.20</b>	<b>3.40</b>	<b>3.40</b>	<b>3.80</b>	<b>1.80</b>	<b>3.00</b>
<i>Ownership</i>	40%	3	3	3	1	1	2	1	1
<i>Number of Parcels</i>	20%	5	5	5	5	5	5	3	5
<i>Total Site Acreage</i>	40%	3	5	5	5	5	5	2	4
<b>Geotechnical Location Factors</b>	<b>10%</b>	<b>2.60</b>	<b>2.60</b>	<b>2.60</b>	<b>3.60</b>	<b>3.60</b>	<b>3.70</b>	<b>4.20</b>	<b>3.10</b>
<i>Fault Hazards</i>	25%	3	3	3	5	5	5	5	3
<i>Seismic Impact Zones/Hazards</i>	30%	3	3	3	3	3	5	5	3
<i>Unstable Areas – Mass Movement</i>	25%	3	3	3	5	5	3	5	5
<i>Unstable Areas – Poor Foundation</i>	20%	1	1	1	1	1	1	1	1
<b>Floodplains</b>	<b>5%</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>
<b>Groundwater Protection/Hydrogeology</b>	<b>20%</b>	<b>5.00</b>	<b>3.90</b>	<b>3.90</b>	<b>3.40</b>	<b>2.20</b>	<b>2.70</b>	<b>3.20</b>	<b>5.00</b>
<i>Depth to Groundwater</i>	25%	5	3	3	1	1	3	5	5
<i>Proximity to Drinking Water Wells</i>	30%	5	3	3	5	1	1	1	5
<i>Proximity to Wellhead Protection Areas</i>	15%	5	5	5	5	5	5	5	5
<i>Site Hydrogeologic Framework</i>	30%	5	5	5	3	3	3	3	5
<b>Development</b>	<b>15%</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>	<b>2.65</b>	<b>4.15</b>	<b>1.25</b>	<b>1.00</b>	<b>1.25</b>
<i>Soils</i>	45%	5	5	5	3	5	1	1	1
<i>Topography</i>	30%	5	5	5	1	3	1	1	1
<i>Capacity/Site Configuration</i>	25%	5	5	5	4	4	2	1	2
<b>Operation</b>	<b>15%</b>	<b>3.65</b>	<b>2.05</b>	<b>2.55</b>	<b>1.45</b>	<b>1.45</b>	<b>3.85</b>	<b>2.65</b>	<b>2.65</b>
<i>Haul Distance to Waste Centroid</i>	60%	3	2	2	1	1	5	3	3
<i>Annual Precipitation</i>	15%	4	4	4	4	4	4	4	4
<i>Onsite Water Supply and Management</i>	25%	5	1	3	1	1	1	1	1

\*\*\*: REMOVED FROM CONSIDERATION DUE TO PROXIMITY TO RDM AIRPORT MASTERPLAN BOUNDARY



# Focused Site Scoring Results (Natural Environment)

SITE ID: 191400-200    201500-300    201500-301    211900    212000    161224\*\*\*    161300    181300

NAME: MOON PIT    ROTH WEST    ROTH EAST    DSL SOUTH    DSL NORTH    HWY 97 BLM    POWELL BUTTE BLM    HWY 20 BLM

<u>Natural Environment</u>	<u>35%</u>	<u>3.60</u>	<u>3.40</u>	<u>3.40</u>	<u>3.40</u>	<u>3.60</u>	<u>4.70</u>	<u>4.70</u>	<u>3.70</u>
Wetlands and Waters Impacts	10%	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Threatened and Endangered Species	20%	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Wildlife Area Combining Zone	10%	1.00	1.00	1.00	1.00	1.00	4.00	2.00	2.00
Greater Sage-Grouse Area Combining Zone	40%	1.00	1.00	1.00	1.00	2.00	5.00	5.00	3.00
Sensitive Bird and Mammal Habitat Combining Zone and Migratory Birds	20%	4.00	5.00	5.00	5.00	4.00	4.00	5.00	4.00
<i>Sensitive Bird and Mammal Habitat Combining Zone</i>	50%	5	5	5	5	5	4	5	4
<i>Migratory Birds, Including Bald and Golden Eagles</i>	50%	3	5	5	5	3	4	5	4

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# Focused Site Scoring Results (Land Use)

	SITE ID:	191400-200	201500-300	201500-301	211900	212000	161224***	161300	181300
	NAME:	MOON PIT	ROTH WEST	ROTH EAST	DSL SOUTH	DSL NORTH	HWY 97 BLM	POWELL BUTTE BLM	HWY 20 BLM
Land Use	30%	3.40	3.53	3.63	2.93	2.45	3.03	3.33	3.63
Proximity to Airports	15%	5.00	5.00	5.00	5.00	5.00	0.00	5.00	5.00
Site Zoning	20%	3.00	5.00	5.00	1.00	1.00	5.00	5	5.00
Adjacent Land Use Impacts	20%	3.00	3.50	3.50	4.00	2.50	4.50	2.50	3.00
Existing Adjacent Use	25%	1	1	1	1	1	5	1	1
Planned Adjacent Use	25%	1	5	5	5	5	5	5	5
Distance to Nearest Residence	25%	5	3	3	5	3	3	3	5
Distance to Nearest Public Road	25%	5	5	5	5	1	5	1	1
Site Visibility/Aesthetic Impact	10%	3.00	1.00	2.00	3.00	2.00	1.00	1.00	3.00
Visibility Based on Topography/Vegetation	50%	3	1	1	1	1	1	1	1
Remoteness	50%	3	1	3	5	3	1	1	5
Transportation System Needs/Opportunity	5%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Haul Route Impacts	5%	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
On-Site Land Use Impacts	25%	3.40	2.70	2.70	2.30	2.00	2.90	2.70	2.70
Displacement	40%	4	3	3	2	2	5	3.00	3.00
Known Cultural Resources	30%	1	2	2	2	1	2	2	2
Potential for Buried Archaeological Sites	30%	5	3	3	3	3	1	3	3

\*\*\*: REMOVED FROM CONSIDERATION DUE TO PROXIMITY TO RDM AIRPORT MASTERPLAN BOUNDARY



# Focused Site Scoring Results

Site ID	Site Name	Site Characteristics / Engineering 35%	Natural Environment 35%	Land Use 30%	Total Weighted Site Score:
191400-200	Moon Pit	3.90	3.60	3.40	<b>3.64</b>
201500-300	Roth West	3.72	3.40	3.53	<b>3.55</b>
201500-301	Roth East	3.79	3.40	3.63	<b>3.60</b>
211900	DSL South	3.10	3.40	2.93	<b>3.15</b>
212000	DSL North	3.08	3.60	2.45	<b>3.07</b>
161224***	HWY 97 BLM	3.26	4.70	3.78	<b>3.69</b>
161300	POWELL BUTTE BLM	2.49	4.70	3.33	<b>3.51</b>
181300	HWY 20 BLM	3.2	3.70	3.63	<b>3.50</b>



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# Comparative Cost Factor Analysis

Five major cost factors were identified, which influence the costs to develop and operate a solid waste management facility.

These cost factors include (with estimated weighting):

- Excavation (30%)
- Waste hauling (25%)
- Road infrastructure (15%)
- Power infrastructure (15%)
- Water infrastructure (15%)



# Comparative Cost Factor Analysis

Cost Factor Weighting:		30%	25%	15%	15%	15%	
Site ID	Site Name	Excavation Costs	Haul Costs	Road Infrastructure Costs	Power Infrastructure Costs	Water Infrastructure Costs	Weighted Average
191400-200	Moon Pit	5	4	5	1	5	4.15
201500-300	Roth West	3	3	3	3	1	2.70
201500-301	Roth East	4	3	3	3	1	3.00
211900	DSL South	1	1	2	4	1	1.60
212000	DSL North	2	1	4	5	1	2.35
161224***	HWY 97 BLM	1	5	3	5	1	2.90
161300	Powell Butte BLM	1	4	4	3	1	2.5
181300	HWY 20 BLM	1	5	3	1	1	2.3

\*\*\*: REMOVED FROM CONSIDERATION DUE TO PROXIMITY TO RDM AIRPORT MASTERPLAN BOUNDARY

Each site was given a score of 1 to 5 with respect to each cost factor, where 1 represents the *highest* cost and 5 represents the *lowest* cost.

As a result, the sites with higher weighted total scores are anticipated to be relatively less expensive to develop and operate, while the sites with lower weighted total scores are anticipated to be relatively more expensive to develop and operate.



# Comparative Cost Factor Analysis



Based on this cost factor analysis, it is estimated that SWMF development and operational costs could likely be the lowest for the Moon Pit site and highest for the DSL and BLM sites.

The SWMF development and operational costs related to the Roth sites are expected to fall between these two extremes, being more expensive than the Moon Pit site and less expensive than the DSL and BLM sites.



# Residential Proximity Analysis

It is well understood that a new solid waste management facility could negatively impact nearby residences.

Unsurprisingly, residents and property owners near candidate sites have expressed opposition to the prospect of a new SWMF site near their homes.



# Residential Proximity Analysis

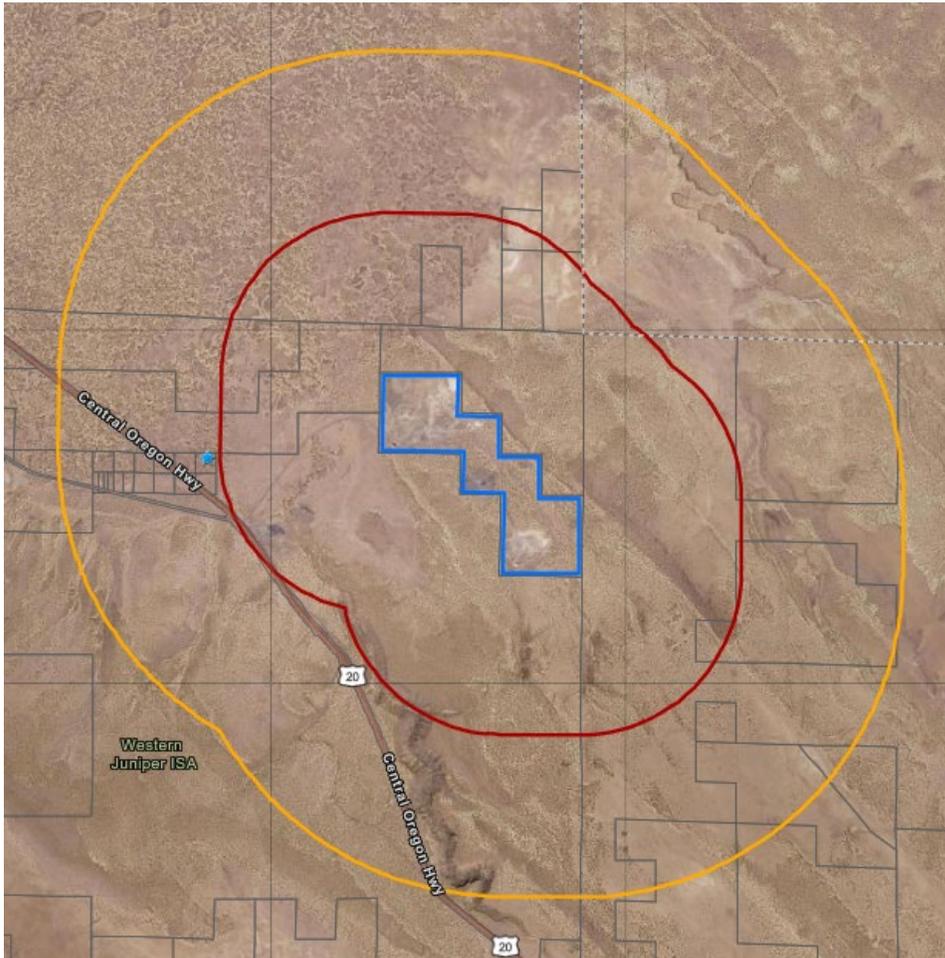
Concerns of nearby residents are generally that a new SWMF facility could have several adverse impacts within the vicinity, including:

- Haul truck traffic
- Noise
- Dust
- Air pollution
- Odors
- Litter
- Invasive species
- Groundwater contamination
- Scenic impacts
- Decreased property values

Note: Mitigating potential impacts is a key component to site development and operations.



# Residential Proximity Analysis



## Moon Pit Site (191400-200)

### Known Residences



### Workable Site Area (Focus Screen)



### Workable Site Area Distance Buffers



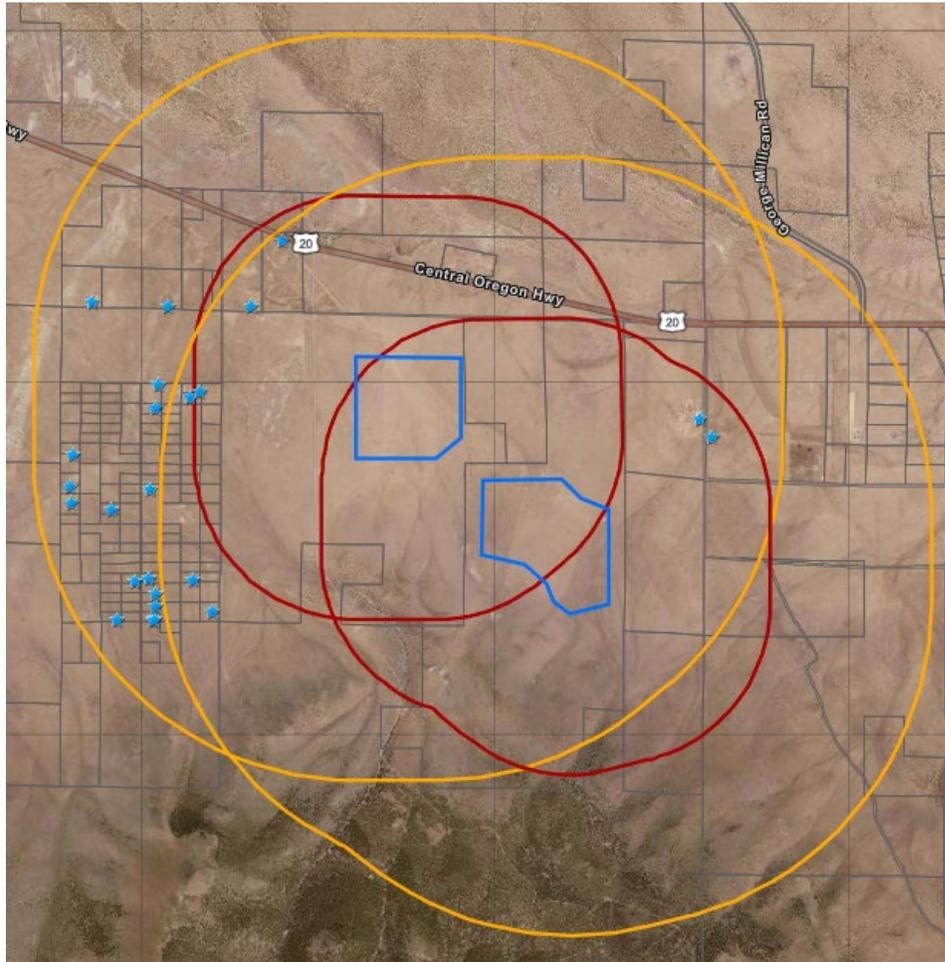
1 mile



2 miles



# Residential Proximity Analysis



**Roth West Site (201500-300)**

**Roth East Site (201500-300)**

**Known Residences**



**Workable Site Area (Focus Screen)**



**Workable Site Area Distance Buffers**



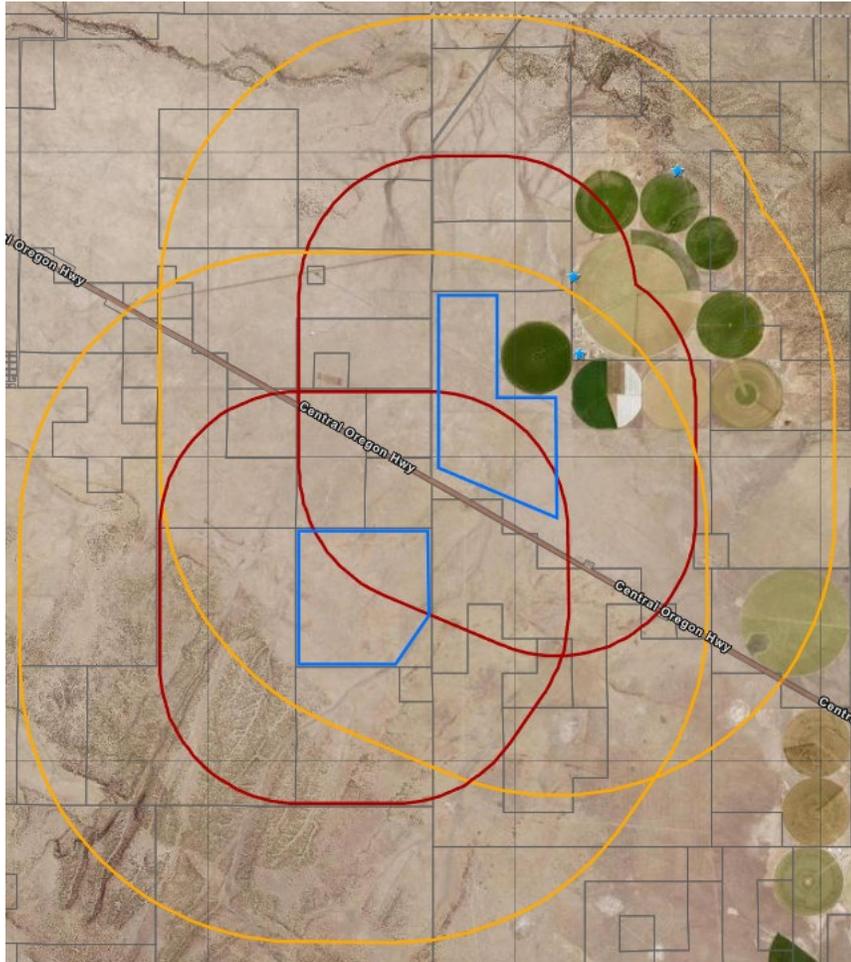
1 mile



2 miles



# Residential Proximity Analysis



**DSL South Site (211900)**

**DSL North Site (212000)**

Known Residences



Workable Site Area (Focus Screen)



Workable Site Area Distance Buffers



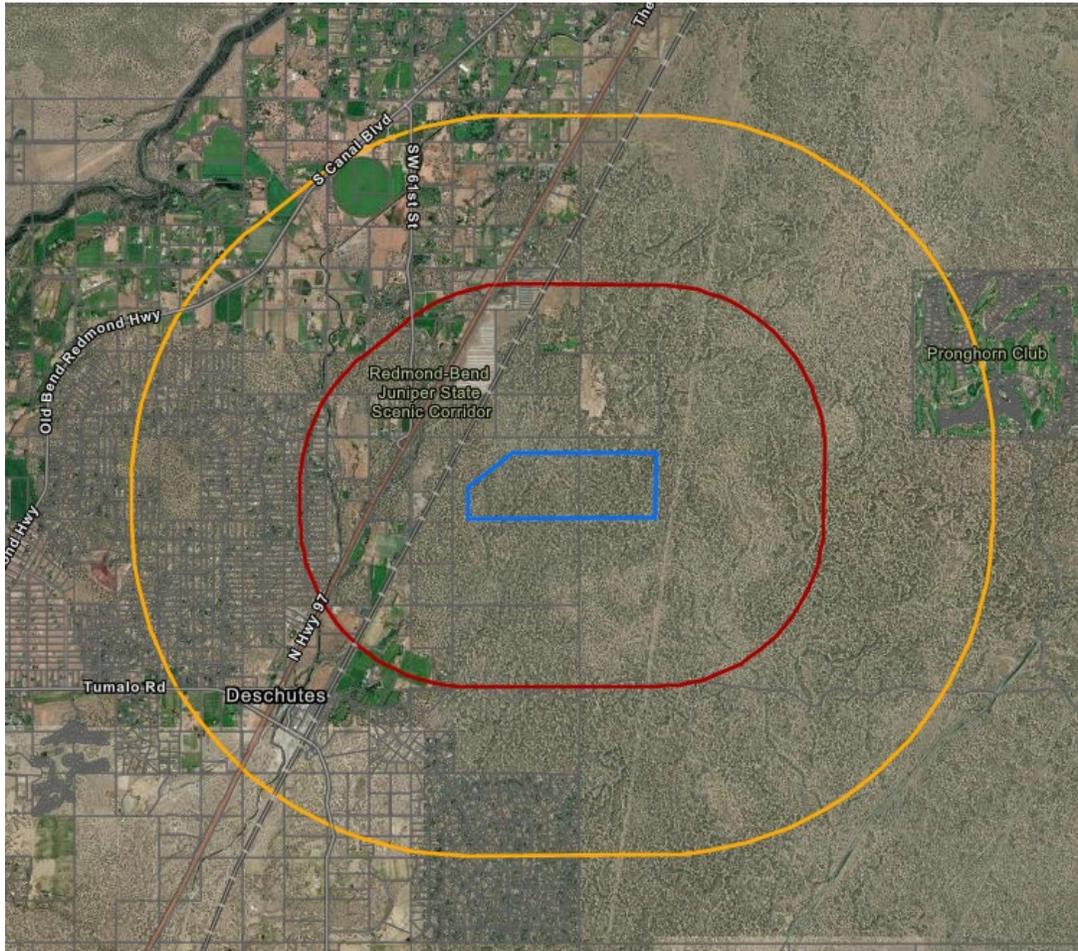
1 mile



2 miles



# Residential Proximity Analysis



## HWY 97 BLM Site (161224)

REMOVED FROM CONSIDERATION DUE TO PROXIMITY TO RDM AIRPORT MASTERPLAN BOUNDARY

### Known Residences

(not mapped individually for this site, 50+ residences within 1 mile and 300+ residences within 2 miles)

### Workable Site Area (Focus Screen)



### Workable Site Area Distance Buffers



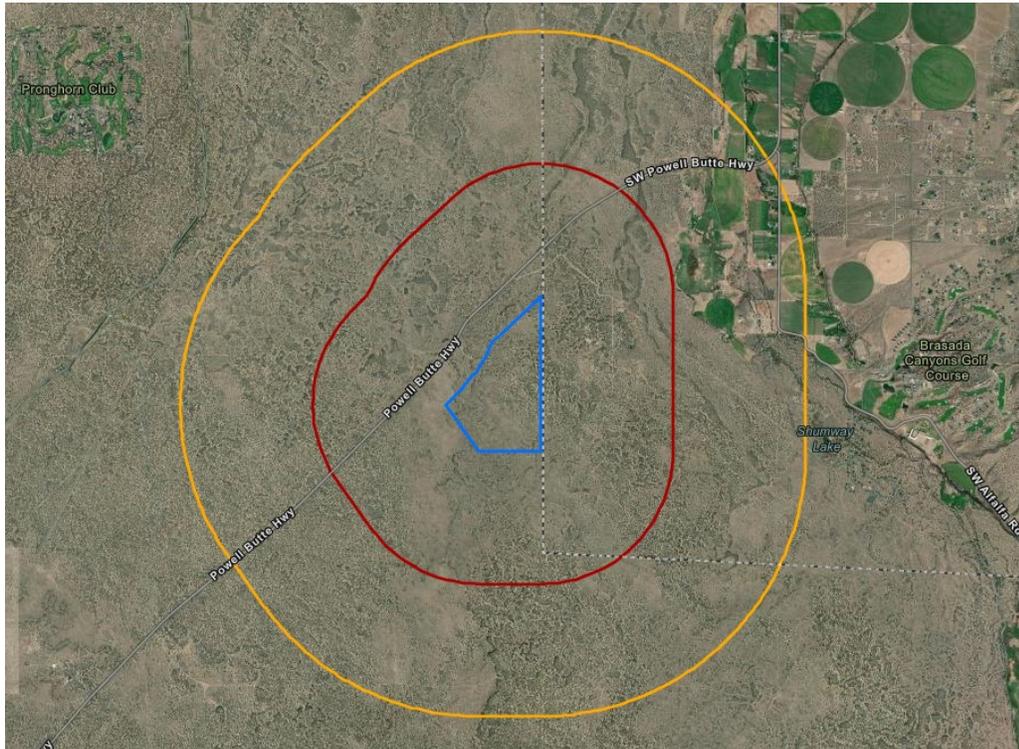
1 mile



2 miles



# Residential Proximity Analysis



## POWELL BUTTE BLM Site (161224)

### Known Residences

(not mapped individually for this site, approx. 10 residences within 1 mile and 40 residences within 2 miles based on aerial imagery, two major resort communities within 3 miles of the site)



### Workable Site Area Distance Buffers



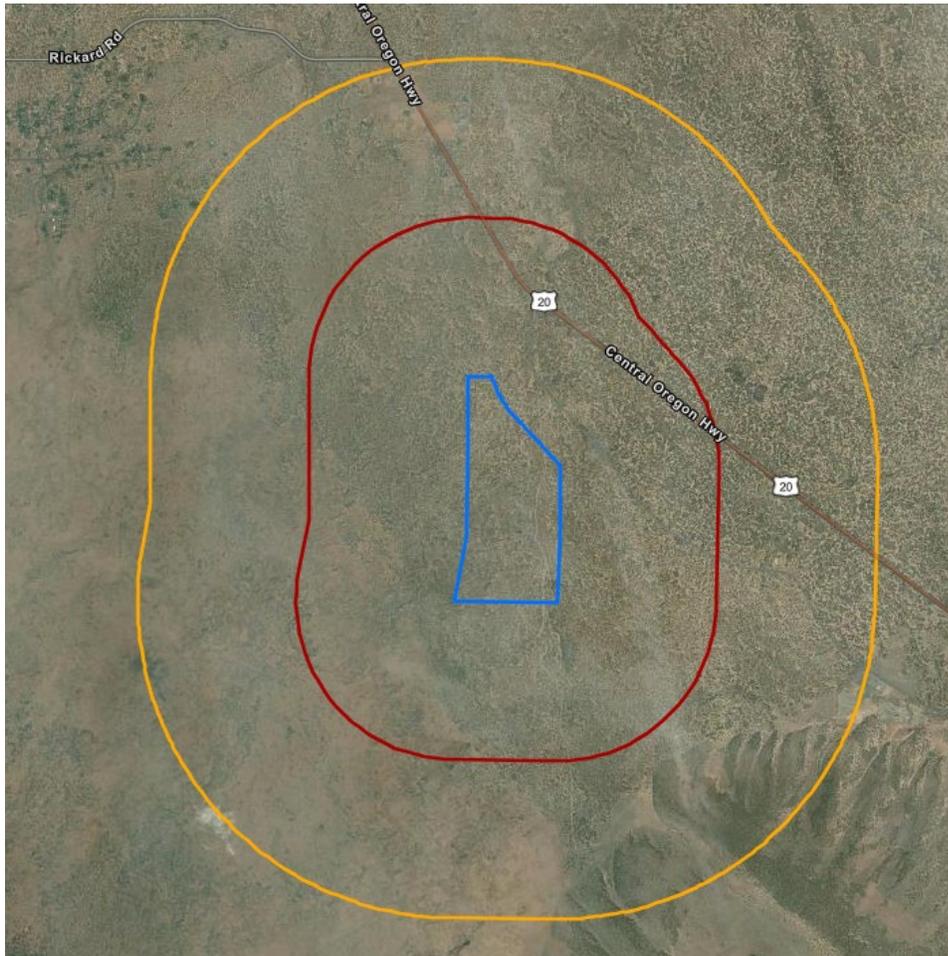
1 mile



2 miles



# Residential Proximity Analysis



## HWY 20 BLM Site (181300)

### Known Residences

(not mapped individually for this site, no known residences within 1 mile and approximately 18 residences within 2 miles based on aerial imagery)



### Workable Site Area Distance Buffers



1 mile



2 miles



# Residential Proximity Analysis

Site ID	Site Name	Known Residences	
		within 1 Mile	within 2 Miles
191400-200	Moon Pit	0	1
201500-300	Roth West	3	26
<b>201500-301</b>	<b>Roth East</b>	<b>2</b>	<b>8</b>
211900	DSL South	0	1
212000	DSL North	2	3
161224***	HWY 97 BLM	50+	300+
161300	Powell Butte BLM	10	40
181300	HWY 20 BLM	0	18

\*\*\*: REMOVED FROM CONSIDERATION DUE TO PROXIMITY TO RDM AIRPORT MASTERPLAN BOUNDARY



# County Solid Waste Department Recommendation



# Public Comments



# Public Comments

3 minutes per person

Based on number of people wishing to comment

Written comments can also be sent to:

[managethefuture@deschutescounty.gov](mailto:managethefuture@deschutescounty.gov)



# SWAC Discussion



# Adjourn

