

From: [REDICK Daniel](#)
To: [Benton County Talks Trash](#)
Subject: FW: crg draft comments 12-6-2022 Nietfeld 120222 Subcommittee a1
Date: Thursday, December 8, 2022 8:20:13 AM
Attachments: [nietfeld_120222_subcommittee_a.1_report_initial_draft_crg_draft_comments_12-6-2022.docx](#)

From: crgilbert@comcast.net <crgilbert@comcast.net>
Sent: Tuesday, December 6, 2022 8:44 PM
To: REDICK Daniel <daniel.redick@Co.Benton.OR.US>
Subject: crg draft comments 12-6-2022 Nietfeld 120222 Subcommittee a1

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Hi Daniel,

Here are my comments shaded in green so far.

I had a problem with the tracking changes, so I had to highlight my comments in green.

I will be in the field tomorrow but hopefully will be back in time for the SWAC/DSAC meeting.

I will probably add more comments later this week.

Thanks.

Chuck

Benton County Solid Waste Process Workgroup

Subcommittee A.1 Landfill Size/Capacity/Longevity

Subcommittee Report to Workgroup

Revision 1-a crg – DRAFT crg 12-6-2022

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Section 0: Background

A. Charge

i. Workgroup charter and bylaws 8-23-2022

From the [Benton County Talks Trash" Workgroup Charter and Bylaws](#) document, Topic A:

A. Develop Common Understandings to form the basis of the work.

1) A chronological history of key Coffin Butte Landfill topics:

- a. Size;
- b. Specific locations;
- c. Conditions of past land use approvals;
- d. Compliance with prior land use approvals and SWMP;
- e. Reporting requirements;
- f. Assumptions (e.g. when will the landfill close;)
- g. Economics (i.e. Benefit – Cost, etc.) and
- h. Examples from other jurisdictions hosting landfills, e.g.:
 - i. Typical land use conditions of approval; and
 - ii. Issue sequencing, (e.g. in what order are landfill versus hauling approvals done, etc.

ii. Subcommittee A.1 charge

The A.1 subcommittee was charged with a subset of the tasks listed above. Specifically, per the [A.1 Subcommittee web page](#):

Charge A: Common Understandings Tasks

1) A chronological history of key Coffin Butte Landfill topics:

1. Size;
2. Specific locations;
3. Assumptions (e.g. when will the landfill close;)

Thus the A.1 subcommittee addresses components 1(a), 1(b) and 1(f) of the workgroup charter Topic A tasks.

Charge 3 “Assumptions” is interpreted to mean estimation of the landfill operational lifetime including the assumptions behind this estimation.

[Landfill means a facility for the disposal of solid waste involving the placement of solid waste on or beneath the land surface. ORS 459.005\(14\)](#)

[Sanitary landfills are intended as biological reactors \(bioreactors\) in which microbes will break down complex organic waste into simpler, less toxic compounds over time.](#)

Disposal site means land and facilities used for the disposal, handling or transfer of, or energy recovery, material recovery and recycling from solid wastes, including but not limited to dumps, landfills, sludge lagoons, sludge treatment facilities, disposal sites for septic tank pumping or cesspool cleaning service, transfer stations, energy recovery facilities, incinerators for solid waste delivered by the public or by a collection service, composting plants and land and facilities previously used for solid waste disposal at a land disposal site. ORS 459.005 (8)

Regional disposal site means a disposal site that receives, or a proposed disposal site that is designed to receive more than 75,000 tons of solid waste a year from outside the immediate service area in which the disposal site is located. As used in this subsection, “immediate service area” means the county boundary of all counties except a county that is within the boundary of the metropolitan service district. For a county within the metropolitan service district, “immediate service area” means the metropolitan service district boundary. ORS 459.005 (22)

From all particular measures, a landfill is a subset of a disposal site.

Landfill cell means a discrete volume of a landfill which uses a liner system to provide isolation of solid waste from adjacent cells of solid waste. (RI 250-RICR=140-05-1)

Coffin Butte is a regional disposal site and an engineered sanitary landfill in Benton County, north of Corvallis, located off of Coffin Butte Road.

Note that for the A.1 subcommittee, “chronological history” is limited specifically to these three topics; a more general history of the landfill will be addressed by another body.

B. Membership Composition

The A.1 Subcommittee membership is composed of four primary representative groups:

1. Franchisee: 3 members (Ian Macnab, Ginger Rough, Bill Bromann, all of Republic Services)
2. Benton County members and SWAC & DSAC members : 3 members (Chuck Gilbert, Mark Yeager, Ken Eklund)
3. County governments: 3 members (Daniel Redick (Benton County), Brian May (Marion County), Shane Sanderson (Linn County))
4. Private citizens: 1 member (Paul Nietfeld)

Daniel Redick, a Benton County Community Development Department staff member, acts as Chair of this subcommittee.

Sam Imperati, the workgroup facilitator, normally attends subcommittee meetings and provides guidance in regard to aligning with workgroup objectives.

C. Document Organization

This document is organized into sections that correspond to the “Charge” items assigned to the A.1 Subcommittee (i.e. Sections 1, 2, 3 correspond to Charges 1, 2, 3).

References to specific sections in this document are in the format <Section #>. <Subsection Letter>. <Subpart Designation>. Thus this location would be referenced as O.C, and the A.1 Subcommittee Charge may be found in O.A.ii.

Section 1: Landfill Size

A. Physical Real Estate Footprint

Other topics required in addition to those noted below?

i. History

Per the 2002 MOU [Benton County & Valley Landfills MOU Relating to Land Use Issues \(2002\)](#):

- 1974 CUP approved landfill activities on 184 acres north of Coffin Butte Road.
- 1983 rezoning added 10 acres for landfill activities north of Coffin Butte Road, for a total of 194 acres.
- Franchisee (VLI) agrees that the approximately 56-acre parcel south of Coffin Butte Road, while zoned LS, would not be used for disposal of solid waste unless approved by a conditional use permit and Department of Environmental Quality permit for solid waste landfill use.
- Total acreage owned by landfill franchisee unstated.

Include: snapshots of footprint over time and a table of landfill property area over time.

DANIEL: *Do you have any historical data on this?*

ii. Current footprint

Summary of current configuration (total footprint and breakdown by zoning type (acres), specific taxlots with zoning designations, working area of active landfill (“working face” area) to address historic limitations on this parameter (e.g. 1983 CUP: “not exceed 2 acres during the periods of October 15 to June 1 and to not exceed 3/4 of an acre during all other periods.”).

B. Permitted Disposal Capacity

i. Historical permitted capacity benchmarks

Date	Capacity (yd ³)	Notes
1995	18,000,000	1995 Annual Report, estimated total capacity of Cells 1-5
2003	35,531,000	2003 Site Development Plan, based on October 1999 cell volumes and adding West and East triangles, with Cell 6 estimated at 13,397,000 yd ³
2021	38,997,848	2021 Coffin Butte Annual Report

Table 1

Discuss at this point theoretical Cell 6 volume vs. currently available vs. likely scenario? Ian provided guidance recently; is this still valid?

DANIEL: *Do you have other datapoints that should be included in the table above?*

ii. Capacity utilization TBD – 2021

A plot of available/used capacity over time may be a useful reference. See Daniel's Reported Airspace (2014-2021) plot as an example:

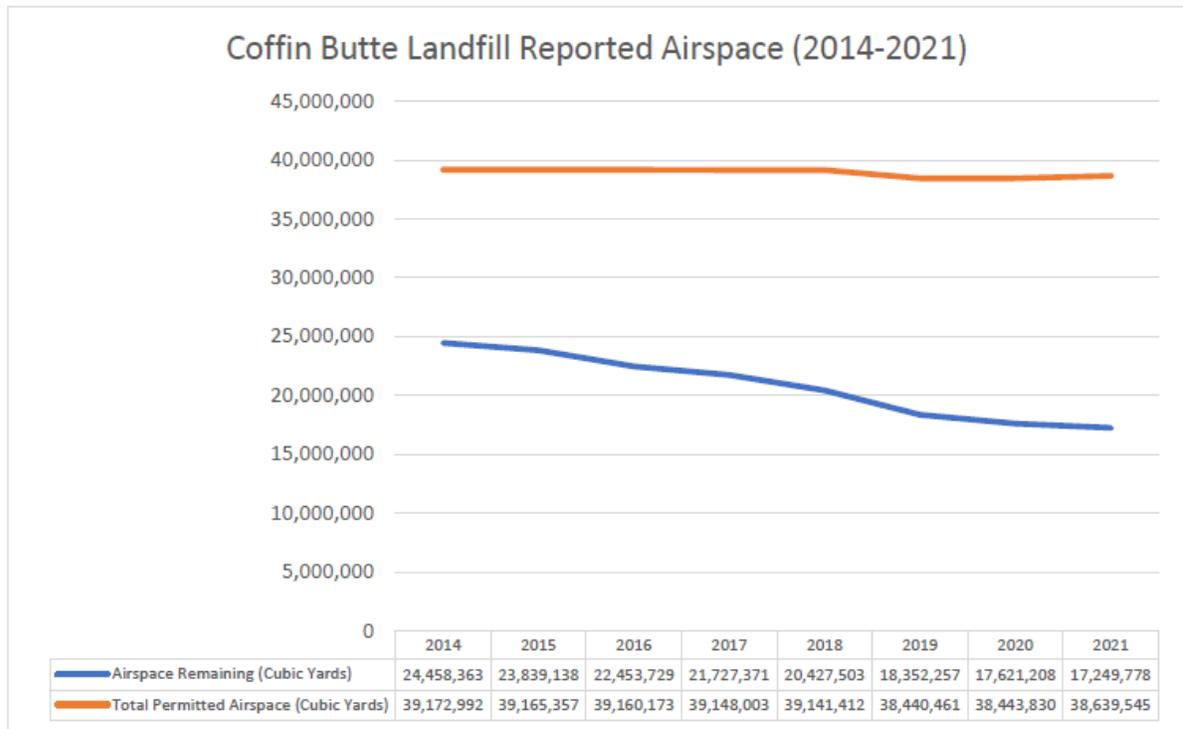


Figure 1

Note that as of end 2021 approximately 44% of permitted capacity remained unused.

iii. Near-term (circa 2025) capacity adjustments for 5-year operating plan.

Provide simple overview of Cell 5 -> Cell 6 transition issue in terms that can be understood by the general public. State that as of the time of this report (Q4 2022) potential solutions are being explored? Note this as the driving factor in LU21-047?

REPUBLIC SERVICES: *guidance/input on phrasing and/or extent to which this should be flagged as an issue.*

C. Intake Volume

Coffin Butte intake volume is documented in the annual reports produced by the landfill franchisee. Benton County has annual reports on file for years 1993 – 2021 (inclusive) with the exception of year 2000; intake data for 2000 is available in the 2021 report. Note that with older (pre-2008) reports, the annual intake volume figure is sometimes difficult to determine precisely due to inconsistent values stated within a given annual report (e.g. narrative summary vs. intake volume table) and/or discrepancies in values referenced in subsequent annual reports (e.g. historical

comparisons). Where discrepancies exist within a given annual report, the figure documented in the intake volume table is used. See Appendix A for a detailed listing of the annual intake volumes used in this document.

i. Recent intake volume: 1993 – 2021

Annual intake volume for 1993 – 2021 is shown below.

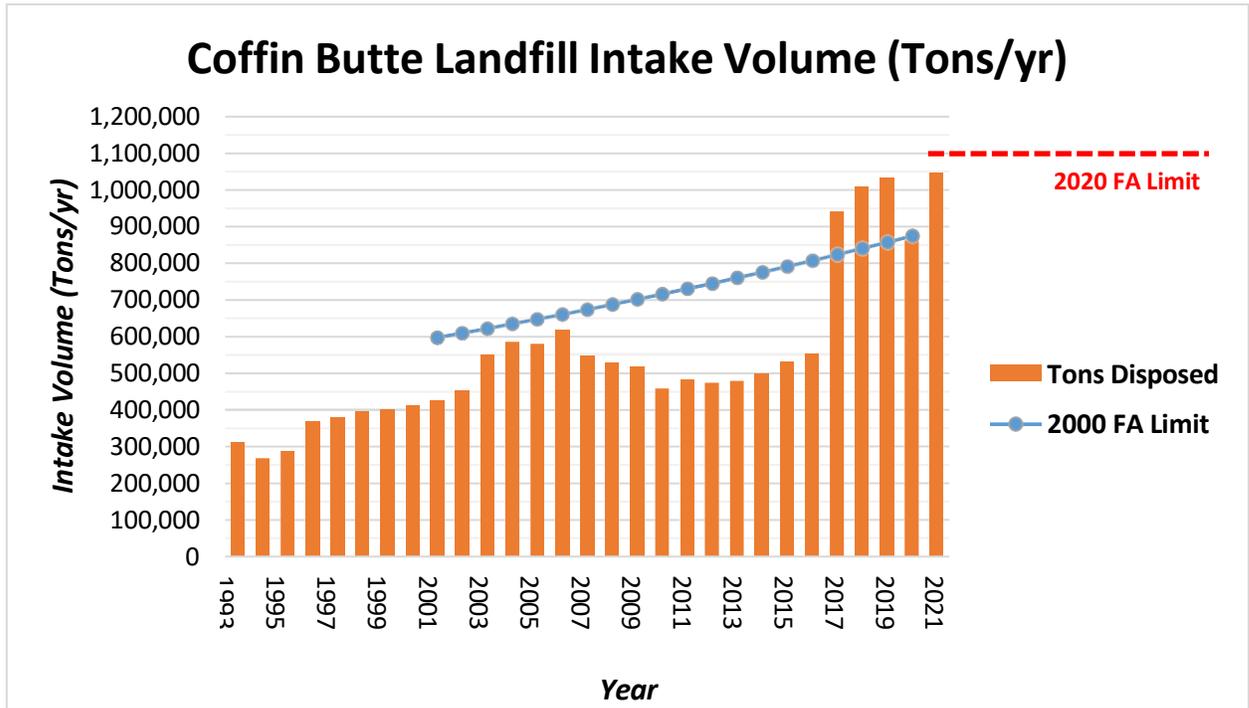


Figure 2

Comments/discussion:

1. The 2000 Landfill Franchise Agreement imposed a ramping intake limit (cap) to be applied during the term of the agreement (CY2001-2019), denoted in the chart by the blue line ("2000 FA Limit").
2. Due to an expected additional influx of volume in 2017 resulting from the waste flow disruption into Riverbend landfill in Yamhill County, in December 2016 the franchisee and Benton County executed a MOU agreeing to an expected increase in Coffin Butte intake volume "for a term of 1-2 years."
3. In documents provided to the A.1 Subcommittee, representatives of the franchisee have indicated that the approximately 70% year-over-year increase in CY2016-2017 was due to redirected flow from Riverbend to Coffin Butte.
4. The 2020 Landfill Franchise Agreement defined a flat intake limit (cap) of 1.1M Tons/yr. unless expansion was fully permitted onto the "expansion parcel" (i.e. the lot south of Coffin Butte Road zoned LS in 1983 but at that time restricted to non-disposal activities); upon this expansion approval the intake limit would be eliminated. The 2020 intake limit is denoted in the chart by the dashed red line ("2020 FA Limit").

5. The slow downward trend in intake volume in the 2017-2012 period is explained by the franchisee as resulting from the economic downturn of 2008.
6. The decreased intake volume in 2020 is attributed to the Covid-19 outbreak.

ii. Intake volume by source 2016 – 2021

A stacked bar chart may be helpful for a) analyzing the source flow changes that occurred in 2016-2017, and b) addressing questions regarding the extent to which the disruption of inflow to Riverbend accounts for the 2016-2017 increase.

***DANIEL** or **REPUBLIC SERVICES**: can you supply this chart? Alternatively, data could be extracted from the annual reports.*

iii. Long-term intake volume TBD – 2021

A long-term intake volume plot (from circa early 1980s to present) may be useful, in keeping with the “chronological history” aspect of the A.1 charge, and this could provide useful perspective for all concerned. For reference, in the approximately 80 years of landfill activity to date, 21,389,767 yd³ have been consumed per the 2021 annual report, for an average volume of about 267,000 yd³ per year.

This plot will require intake volume data and/or estimates that predate the available annual reports. Paul to investigate; any data input from others would be welcome.

D. Landfill Structure

i. Overview

The disposal area and surrounding lots are shown in Figure 3 below. This drawing is reproduced from the 2021 Site Development Plan, Appendix A, Drawing No. G03, and is reproduced here for convenience.

Drawing below imported from pdf; quality degraded. Better means of importing into Word?

ii. Cell detail

Detail on individual disposal cells and the active dates for these cells is shown in Figure 4 below.

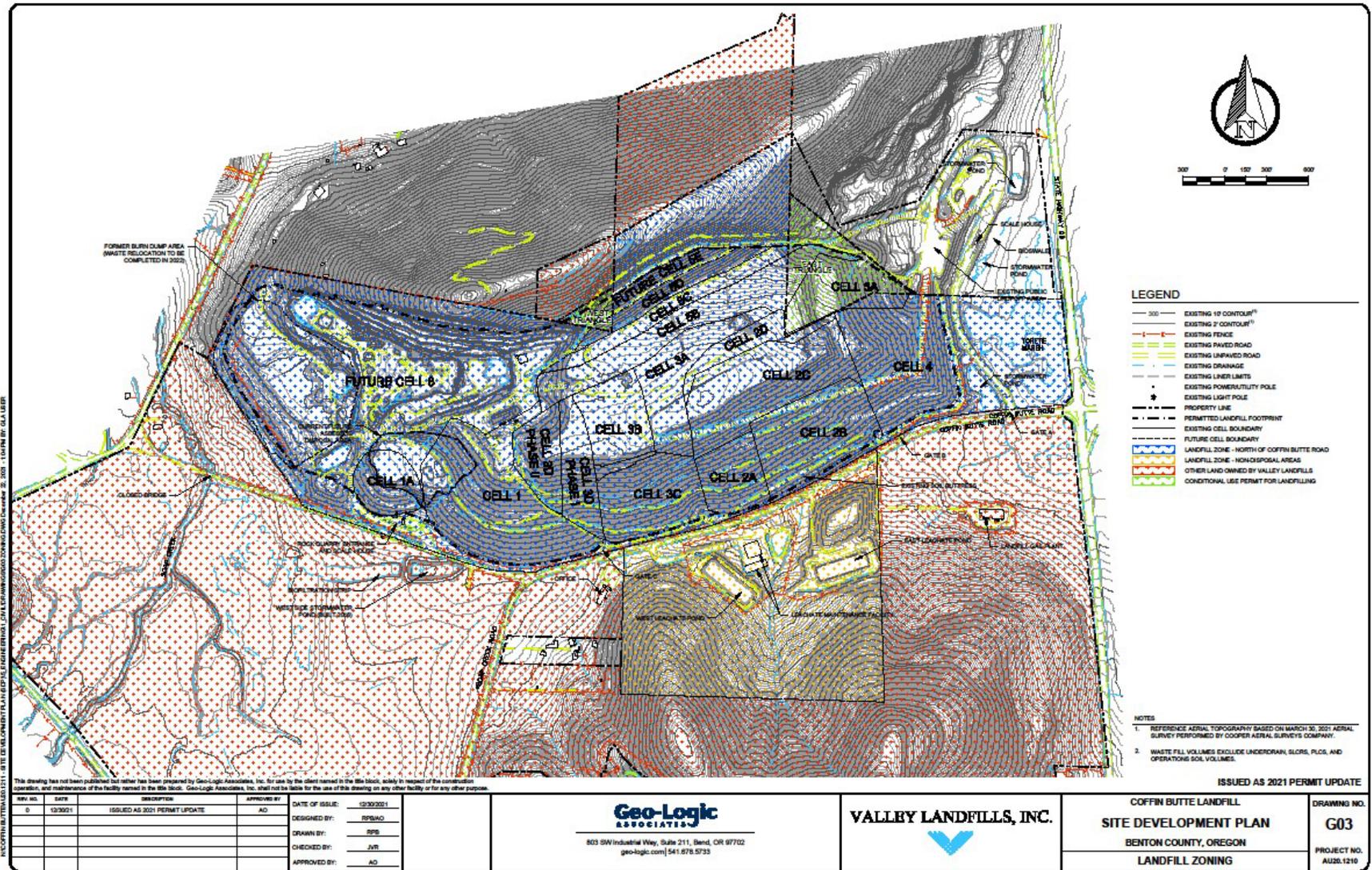


Figure 3

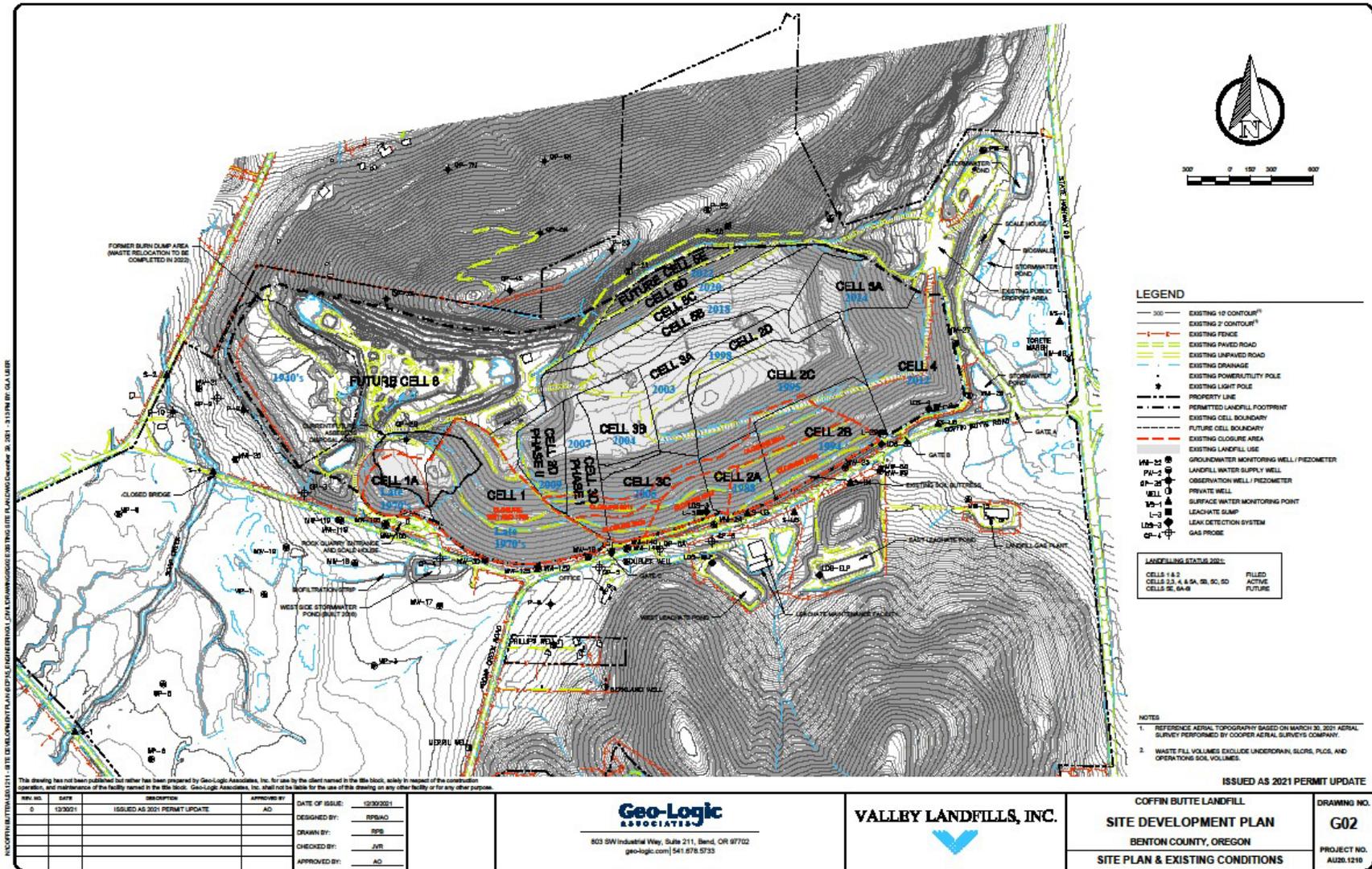


Figure 4

Section 2: Specific Locations

Per Benton County PC-83-07-C, in 1938 a new zoning category (“LANDFILL SITE”) was created for Benton County and approximately 266 acres of land owned by Valley Landfill, Inc. were rezoned with this classification. Of these 266 acres, 194 acres, all on the north side of Coffin Butte Road, were approved for waste disposal.

Figure 5 denotes the originally proposed outline for land to be rezoned as Landfill Site (LS). Note that the northernmost section of the proposed area, extending north from the ridgeline of Coffin Butte, was ultimately not rezoned as LS due to concerns from neighbors.

The overview map included in the [Benton County & Valley Landfills MOU Relating to Land Use Issues \(2002\)](#) document, included here as Figure 6, clarifies the zoning boundaries.

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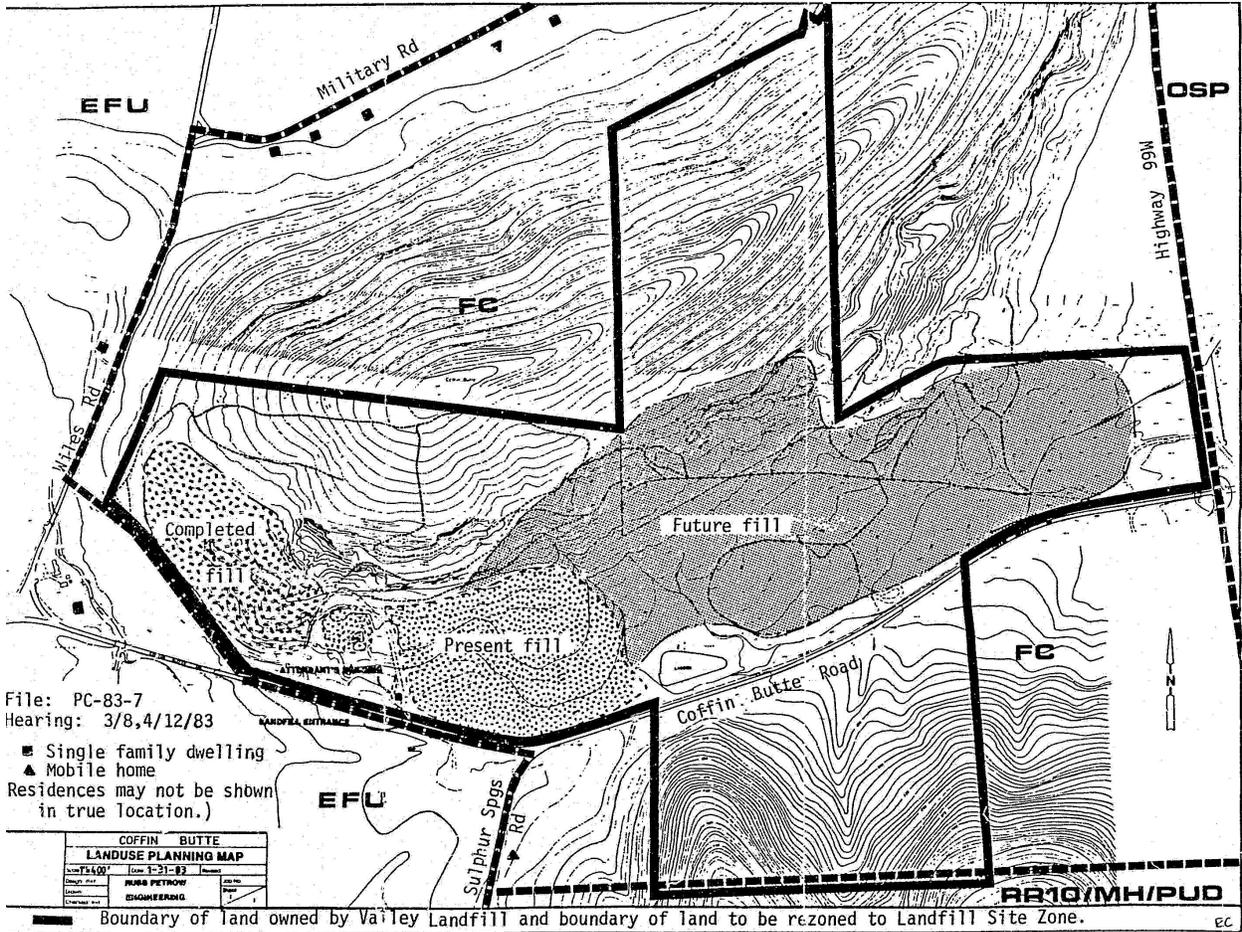


Figure 5

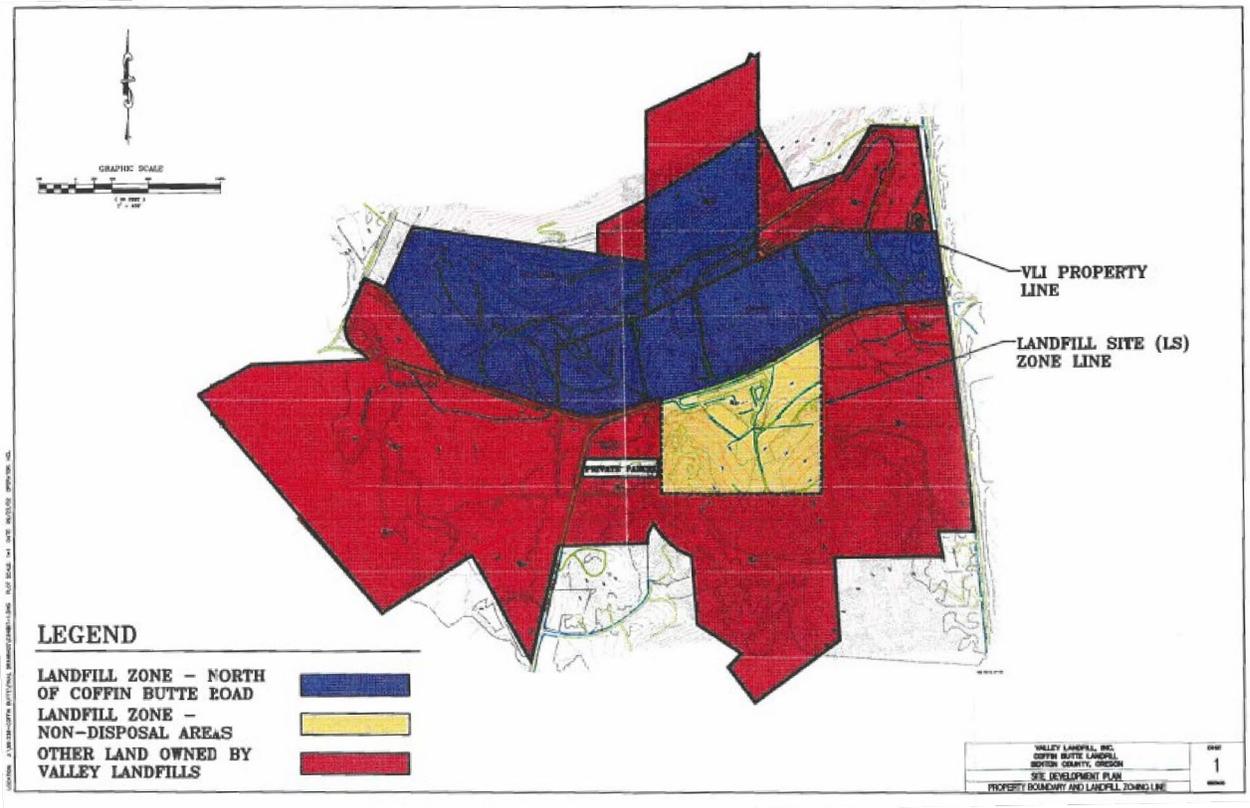


Figure 6

Other information required/useful in this section?

Section 3: Landfill Life Projections

A. Baseline: Projection to End 2022

Document calculations leading from used/available volumes quoted in 2021 Annual Report to projected End 2022 values.

B. Nominal Life Projection CY 2023 to End of Life

Incorporate Ian's life projection from macnab_112222_coffin_butte_capacity.pdf.

Comments re: Scenario 1 vs. Scenario 2?

C. Events and Factors with Potential Lifetime Impact

Consider possible disruptions impacting life (e.g. recession, wildfire, other landfill closure, regulatory (e.g. methane))?

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Appendix A: Intake Volume Data

Coffin Butte annual intake volume, derived from 1993-2021 Coffin Butte Annual Report (CBAR) documents. CY 2000 is highlighted to indicate this value was derived from the 2001 report because the 2000 report document is unavailable.

Year	CBAR Volume (Tons)
1993	310,648
1994	268,472
1995	287,932
1996	369,835
1997	378,919
1998	395,751
1999	401,408
2000	413,493
2001	425,723
2002	453,261
2003	550,506
2004	586,076
2005	580,275
2006	618,340
2007	546,996
2008	528,396
2009	519,058
2010	458,590
2011	482,951
2012	473,550
2013	479,160
2014	499,687
2015	530,971
2016	552,979
2017	941,430
2018	1,010,879
2019	1,034,934
2020	863,210
2021	1,046,067

Appendix B: Capacity Data

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Year	Annual CBR Tons Scaled Intake	CBR Density Aerials	CBR Annual Airspace Used (CY) Landfilled	CBR Remaining Airspace (CY)	Geo Logic 2021 Plan Consumed Airspace (YD)	Geo Logic 2021 Plan Remaining Airspace (YD)
2010	458,590	0.892 tons/cy	514,111	39,594,002		
2011	482,951	0.1.0375 tons/cy	465,495	24,807,718		
2012	473,440	0.83 tons/cy	572,825	23,741,813		
2013	479,160	0.92 tons/cy	523,100	24,458,567		
2014	499,687	0.92 tons/cy	545,510	24,458,363		
2015	530,971	0.89 tons/cy	595,593	23,839,138		
2016	552,979	0.93 tons/cy	592,689	22,453,729		
2017	941,430	0.97 tons/cy	969,048	21.727,371		
2018	1,010,879	0.99 tons/cy	1,021,090	20,427,503		
2019	1,034.934	0.80 tons/cy	1,293.668	18,352,257		
2020	863,210	1.0 tons/cy	863,210	17,621,208		
2021	1,046,067	0.98 tons/cy	1,046,415	17,249,778	1,072,037	4,834,330
2022					1,057,700	3,776,631
2023					1,057,700	2,718,931
2024					1,057,700	1,661,232
2025					1,057,700	603,532
2026					1,057,700	1,028,093
2027					1,057,700	999,823
2028					1,057,700	1,685,254
2029					1,057,700	626,554
2030					1,057,700	1,428,675
2031					1,057,700	370,975
2032					1,057,700	391,696
2032					1,057,700	1,020,066
2034					1,057,700	1,977,627
2035					1,057,700	919,927

2036					1,057,700	1,157,678
2037					1,057,700	99,978
2038					664,409	664,409

Each year Republic Services produces an annual report for Coffin Butte Landfill & Pacific Region Compost (CBR).

In particular, during year of 2021 the landfill accepted 1,046,067 tons of solid waste. Based on historical aerial fly-over data, the average effective density of the in-place waste at the Coffin Butte Landfill is 0.98 tons/cy (1,961 lbs. /cy – 2021 Operational Density). Therefore, an estimated 1,067,415 cubic yards of airspace was used for the year. A total of 21,389,767 cubic yards has been consumed as of December 31, 2021. The remaining capacity for the entire permitted landfill footprint as of the end of 2021 was approximately 17,249,778 cubic yards. This information is updated annually with aerial flyovers. Using 0.80 tons/cy, the remaining available landfill space expressed in tons is about 13,799,822 tons. Using an average disposal rate of approximately 750,000 tons per year, there are about 18.40 years of landfill space available. If we use our 3-year density average of 0.93 tons/cy, the site life extends to 21.38 years.

This illustrates the importance of density on landfill site life.

As the density is lowered per ton of solid waste, then more headspace is consumed in the landfill thereby lowering landfill space available.

Simply put one ton of feathers has a higher capacity of volume with less density than one ton of bricks.

In the early years, the density of reporting by aerial survey technologies was not yet developed.

Year	Annual CBR (Tons) scaled Intake	CBR Density Aerials	CBR Annual Airspace Used (CY) Volume
1993	310,648		
1994	268,472		
1995	287,932		
1996	369,835		
1997	378,919 Averaged		
1998	395,751		
1999	403,697		
2000			
2001	426,000	0.9 tons/cy	473,000
2002	457,000	0.98 tons/cy	461,000
2003	550,360	0.98 tons/cy	561,592
2004	589,147	0.80 tons/cy	736,434
2005	580,275	0.80 tons/cy	725,334
2006	624,875	0.80 tons/cy	781,094
2007	546,996	0.80 tons/cy	683,746
2008	528,395	0.80 tons/cy	660,494
2009	519,058	0.80 tons/cy	648,823