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T E C H N I C A L M E M O R A N D U M

TO: Kevin Dana, Oregon Department of Environmental Quality

CC: Robert Bobosky, Wolverine Financial, LLC and Lone Oak Land and Investment Company, LLC

FROM: Craig Ware, R.G., Principal Hydrogeologist

DATE: August 15, 2022

RE: **DAIRY CREEK MITIGATION BANK ASSESSMENT AND REMEDIATION APPROACH**
42580 NORTHWEST CEDAR CANYON ROAD
BANKS, OREGON
FARALLON PN: 1826-001

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum to summarize the proposed approach to further assessing, and mitigating as warranted, lead impacts resulting from the former trap range on the Banks Sunset Park Property (former trap range property) to shallow soil at the planned Dairy Creek Mitigation Bank (DCMB) at 42580 Northwest Cedar Canyon Road in Banks, Oregon (herein referred to as the Site). The location of the Site is shown on Figure 1.

BACKGROUND

The Site comprises approximately 170 acres consisting of Washington County Tax Lot 800 on the western and southern portions, and Tax Lot 600 on the eastern portion. Tax Lot 800 is lower in elevation than Tax Lot 600 and adjacent to West Fork Dairy Creek, and includes areas delineated as wetlands. Tax Lot 800 is being permitted as the DCMB, which will total approximately 132 acres, excluding approximately 0.5 acre closest to the southeast-adjacent former trap range on the Banks Sunset Park Property. Tax Lot 600 ultimately will consist of both residential and light industrial properties. The southern portion of Tax Lot 600 is to be developed for light industrial use based on its location in areas of known surface soil impact from the former trap range. Tax Lot 603, north-adjacent to the Site and under separate ownership, is being incorporated into the DCMB (Attachment A).

The Site is enrolled in the Oregon Department of Environmental Quality (DEQ) Voluntary Cleanup Program (DEQ Site ID 5918). Various investigations have been completed to date, which have largely defined the extent and magnitude of contamination in connection with the former trap range. Permitting associated with the DCMB is underway, with construction anticipated to commence in 2023. Although no date for commencement of residential and light industrial development of Tax Lot 600 has been established, development planning is ongoing, and development is anticipated to commence within the next 2 to 3 years. Both the development of the DCMB on Tax Lot 800 and residential and light industrial development on Tax Lot 600 are being conducted under DEQ oversight to ensure that future uses of the Site are protective of human and ecological receptor populations once fully developed as planned.

Given the permitting and development schedule for the DCMB, the purpose of this Technical Memorandum is to engage with and obtain concurrence from DEQ on planned activities and response actions specific to the DCMB on Tax Lot 800 to ensure that, upon completion, the DCMB is protective of both human and ecological receptor populations. Additional investigative and/or remedial activities at Tax Lot 600 will be conducted at a later date, also under DEQ oversight to ensure that planned developments are protective of human receptor populations.

SUMMARY OF WETLAND MITIGATION BANK PROJECT

The DCMB is proposed on a project area that includes 132 acres of Tax Lot 800 and 1.76 acres of Tax Lot 603. The project is proposed to be constructed in two phases: Phase 1 on the northern portion of Tax Lot 800 and Tax Lot 603 involving 99.26 acres, and Phase 2 on the southern portion involving 34.5 acres (Attachment A).

Much of the project area is within the Federal Emergency Management Agency 100-year floodplain of the West Fork Dairy Creek. The northern to northwestern edge of Tax Lot 800 is bound by the West Fork Dairy Creek.

The DCMB project area has been in agricultural use for over 100 years, primarily in grass seed and grain production. The land historically was dominated by wetland and upland forests, with lesser amounts of shrub and emergent wetlands. Land alterations that occurred to make the land suitable for agricultural use included: clear-cutting and removing historical forests, leveling the ground, installing agricultural drain-tile and ditching, and berming and armoring the West Fork Dairy Creek top-of-bank to reduce the frequency of flooding. These land alterations have degraded the functionality of the historical wetlands and waters, disconnected the West Fork Dairy Creek from its floodplain, and caused a loss of aquatic and terrestrial habitat, providing an exceptional opportunity for ecological restoration.

The DCMB proposes to generate wetland and stream mitigation credits. Enhancement of the perennial channel of the West Fork Dairy Creek and the intermittent “Straight Channel” and creation of intermittent side-channels will generate stream mitigation credits. Restoration, creation, and enhancement of wetlands and upland buffers will generate wetland mitigation credits.

Site preparation for Phase 1 began in the fall of 2021 with the removal of non-native blackberry bushes dominating the northern and northwestern portions of the Site (furthest away from impacts to shallow soil associated with the former trap range property. Subject to permit approvals, construction earthwork is scheduled to begin in 2023. Site preparation for the Phase 2 area to the south will commence approximately 3 years after completion of the Phase 1 area.

SITE CHARACTERIZATION SUMMARY

Environmental investigations have been conducted at the Site since 2011. As discussed in the September 12, 2019 Farallon letter report presenting subsurface investigation results for the Site,[1] lead has been detected at concentrations exceeding DEQ risk-based concentrations (RBCs) in soil samples collected at the Site; therefore, lead has been identified as a chemical of potential concern (COPC) for the Site. The source of lead contamination is the trap range formerly located on the southeast-adjacent Banks Sunset Park Property. The metals antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc have been detected at concentrations generally within published background concentrations in soil samples collected from the Site; therefore, these metals are not COPCs for the Site. Similarly, organochlorine pesticides, organophosphate pesticides, or chlorinated pesticides have not been detected at a concentration exceeding DEQ screening levels in soil samples collected during investigations evaluating historical agricultural use of the Site; therefore, these compounds are not COPCs for the Site.

Soil with lead concentrations exceeding DEQ RBCs (lead-contaminated soil) is limited to an approximately 2.81-acre portion of the Site outside the DCMB project area, mostly on the southern portion of Tax Lot 600 (Figure 2). Lead contamination exceeding DEQ RBCs within the top 2 feet of soil has been fully delineated on approximately 2.81 acres at the Site. The lead impact is on the southern portion of Tax Lot 600, which ultimately will be developed for light industrial use (Figure 2). Lead concentrations exceeding DEQ RBCs for residential, occupational, construction worker, and excavation worker receptor scenarios have been detected only in soil at depths within 2 feet of the ground surface in this area.

Lead concentrations in soil within the DCMB project area are less than DEQ RBCs for soil ingestion, dermal contact, and inhalation for residential, occupational, excavation worker, and construction worker receptor pathways. The eastern boundary of the DCMB was established to intentionally exclude a small portion of Tax Lot 600 where lead-contaminated soil is present. This lead-contaminated soil will be addressed under the DEQ Voluntary Cleanup Program during development of the southern portion of Tax Lot 600 for light industrial use.

Concentrations of lead exceeded the most-conservative DEQ RBCs for plants, invertebrates, and wildlife in some of the surface soil samples collected from the DCMB project area. However, as shown on Figure 2, concentrations slightly exceeding the relevant DEQ default background

[1] Letter Regarding Subsurface Investigation Results, 42580 Northwest Cedar Canyon Road, Banks, Oregon dated September 12, 2019 from Jennifer Whaler and Craig Ware of Farallon to Kevin Dana of the DEQ Northwest Division.

concentration for lead of 34 milligrams per kilogram[2] were detected in only two of the surface soil samples collected in the DCMB project area.

OVERVIEW OF MITIGATION BANK REMEDIAL APPROACH

Prior to soil disturbance or earthwork conducted as part of Phase I of the DCMB project area west-adjacent to Tax Lot 600, additional investigation will be conducted to evaluate risk to ecological receptors, and to inform the DCMB development of potential mitigation efforts. Additional investigation efforts, subject to DEQ approval of a detailed Work Plan prior to implementation, are summarized below.

ADDITIONAL INVESTIGATION

Farallon will conduct additional investigation using an Incremental Sampling Methodology (ISM) approach to further evaluate whether impacts from the former trap range represent a potential risk to ecological receptors in the portion of the DCMB project area west-adjacent to the area of lead-contaminated soil on Tax Lot 600. ISM is a structured composite sampling and processing protocol that reduces data variability and provides a reasonable estimate of a chemical's mean concentration for the volume of soil being sampled.

Although subject to final verification and to be presented in an ISM Work Plan to be submitted to DEQ, it is estimated that the area requiring assessment will be approximately 80,000 square feet (approximately 2 acres). According to the DEQ *Decision Unit Characterization* guidance document dated September 14, 2020, DEQ has set the minimum size of an Ecological Decision Unit (EDU) at 0.5 acre, equating to approximately four EDUs requiring assessment in the DCMB. The EDUs would be segmented into 30 subunits; a single subsample location will be randomly selected within each subunit. The 30 subsample locations will be randomly selected in an effort to achieve sample representativeness. Discrete subsamples will be collected at a depth of 0 to 0.5 foot below ground surface using a stainless steel hand-auger at each subsample location. One discrete background soil sample also will be collected distal to the four EDUs. The 30 subsamples from each EDU and the single background sample will be submitted under chain-of-custody procedures to Apex Laboratory of Tigard, Oregon. The laboratory will create a composite sample from the subsamples to represent each EDU. The composite EDU samples and the background sample will be analyzed for the Resource Conservation and Recovery Act eight metals arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver by U.S. Environmental Protection Agency Method 200/600.

To evaluate the risk to terrestrial ecological receptors, soil sample data will be compared against the DEQ RBCs for plants, invertebrates, and wildlife exposed to soil, and the default background concentration for lead in soil for the Coast Range physiographic province. The portions of the

[2] DEQ background concentration corresponds to the 98 percent upper prediction limit concentration for lead in soil listed for the Coast Range physiographic province in Table 4 of the DEQ guidance document *Development of Oregon Background Metals Concentrations in Soil Technical Report* dated March 2013.

discrete subsamples not used to develop composite EDU samples will be held pending determination of need for future laboratory analysis.

Results from the ISM sampling, including laboratory analytical results, sampling locations, and screening tables will be submitted to DEQ for review. The results will be included in a Technical Memorandum that will present conclusions pertaining to the environmental conditions and ecological risk in the area of the DCMB west-adjacent to known impacts at Tax Lot 600.

SUMMARY OF REMEDIAL ALTERNATIVE OUTCOMES

The goal of the additional assessment in the area of the DCMB west-adjacent to lead-contaminated soil on Tax Lot 600 is to ensure that after the DCMB is completed, the area is protective of ecological receptors. The final approach to mitigating risk to ecological receptors in the DCMB will be based on the results from the additional investigation described above. It is anticipated that the mitigation alternatives may include the following:

- Alternative 1: No Action

  If the results from the ISM assessment at each of the EDUs identifies no unacceptable risk to ecological receptors, then no mitigation in the DCMB would be required. Under this alternative, once earthwork commences under Phase 1 of the DCMB, erosion and sediment control measures would be implemented to mitigate potential migration of impacted soil to the DCMB during construction. Such control measures would remain in-place until remediation of upland areas on Tax Lot 600 is completed to the satisfaction of DEQ.

- Alternative 2: Partial or Complete Removal and Relocation

  If one or more of the EDUs demonstrate unacceptable risk, the discrete samples from the affected EDUs will be analyzed to determine the aerial extent of surface soil requiring mitigation. If detected concentrations in an EDU are less than DEQ RBCs for residential or occupational receptors, surface soil in the affected EDU(s) will be excavated and relocated to appropriate areas on Tax Lot 600. Although unlikely, if contaminant concentrations in an EDU exceed human health RBCs, such impacted soil would be disposed of off the Site at an appropriate permitted facility. As for Alternative 1, appropriate erosion and sediment control measures would be implemented to mitigate potential migration of impacted soil to the DCMB during construction, and would remain in-place until remediation of upland areas on Tax Lot 600 was completed to the satisfaction of DEQ.

SUMMARY

The purpose of this Technical Memorandum is to engage with and obtain concurrence from DEQ on planned activities and response actions specific to the DCMB to be constructed on Tax Lot 800 to ensure that, upon completion, the DCMB is protective of both human and ecological receptor populations. The project approach and the information provided herein are conceptual in nature, and intended to provide sufficient information to enable DEQ to concur with the overall planned

approach. The proposed additional assessment activities described above and any remedial action that may be warranted will be completed prior to any disturbance of soil proximate to impacts related to the former trap range as part of Phase 1of the DCMB.

Project-specific scopes of work for assessment and remediation activities described herein would be prepared and submitted to DEQ for review and approval prior to implementation.

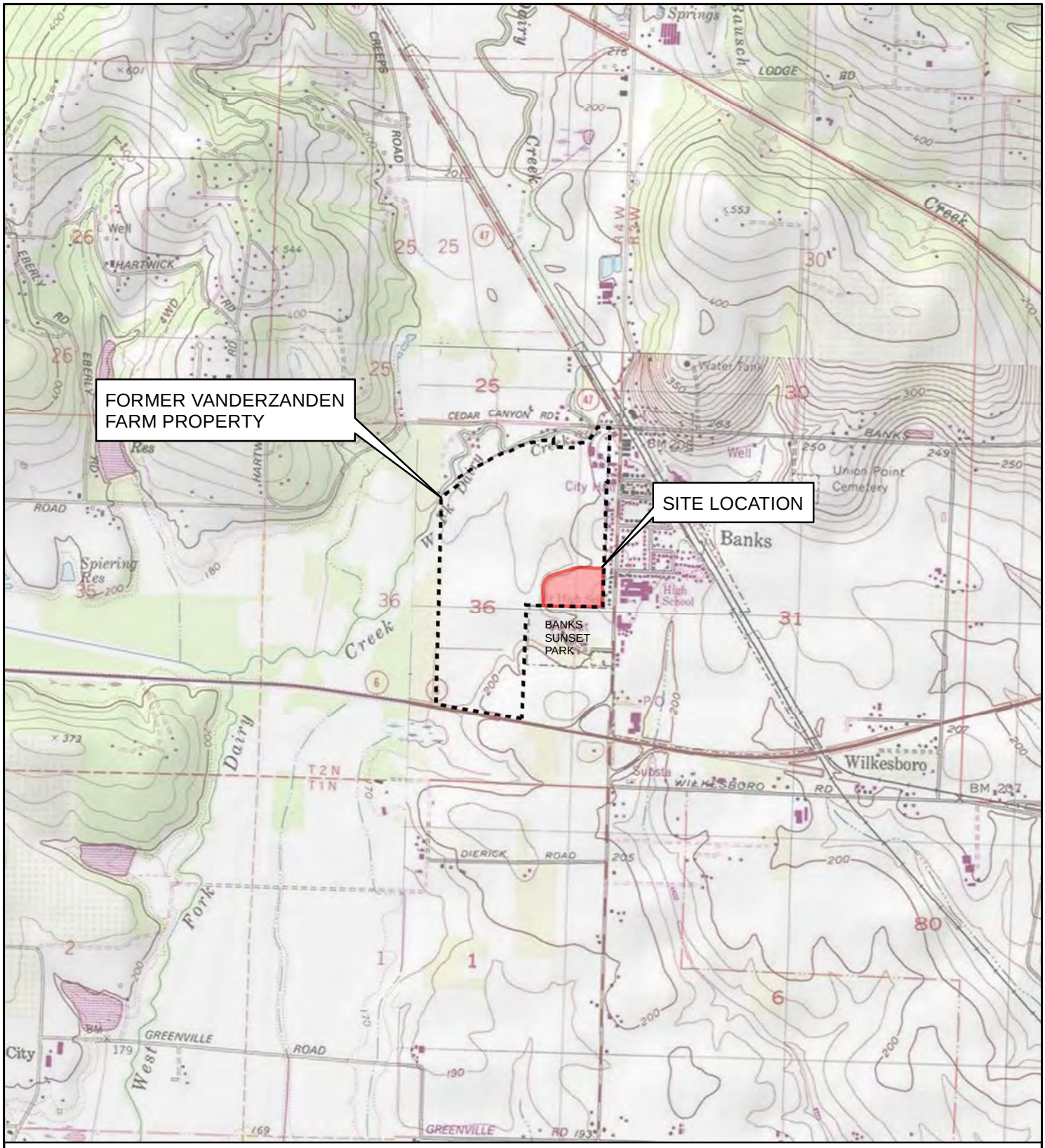
Attachments: Figure 1, *Site Vicinity Map*
Figure 2, *Extent of Lead Exceeding RBCs in Soil; Geosyntec, AMEC, and Farallon Sample Results*
Attachment A, Greenbanks Exhibit B

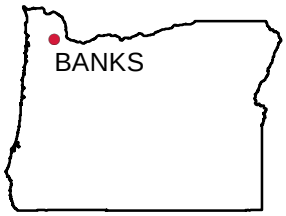
CW:bjj

FIGURES

MITIGATION BANK ASSESSMENT AND
REMEDIATION APPROACH
42850 Northwest Cedar Canyon Road
Banks, Oregon

Farallon PN: 1826-001





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NOTES:
1. ALL LOCATIONS ARE APPROXIMATE
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 1

SITE VICINITY MAP
42580 NORTHWEST CEDAR CANYON ROAD
BANKS, OREGON

FARALLON PN: 1826-001

Drawn By: sgaynier | Checked By: JW | Date: 8/3/2022 | Disc Reference:

Path: Q:\Projects\1826 Wolverine\Mapfiles\2019 Summary Memo\Figure 1_Site Vicinity Map.mxd

TAX LOT 600

TAX LOT 800

FUTURE RESIDENTIAL

FUTURE LIGHT INDUSTRIAL

SITE

TAX LOT 600

FORMER TRAP RANGE PROPERTY

SS19 1-2' | 16 SS19 0-0.5' | 51

SS18 0-0.5' | 30 SS18 1-2' | 15

SS17 1-2' | 7.9 SS17 0-0.5' | 38

SS16 1-2' | 16 SS16 0-0.5' | 97

SS15 1-2' | 14 SS15 0-0.5' | 87

SS14 1-2' | 9.4 SS14 0-0.5' | 12

SS13 1-2' | 14 SS13 0-0.5' | 43

SS12 1-2' | 11 SS12 0-0.5' | 130

L-6 0' | 221

N-6 0' | 1,410

P-6 0' | 441

R-6 0' | 228

SS11 1-2' | 14 SS11 0-0.5' | 60

K-5 0' | 350

M-5 0.95' | 167

O-5 0.5' | 1,590

Q-5 0.5' | 1,150

S-5 0' | 476

SS10 1-2' | 15 SS10 0-0.5' | 160

Q-5

J-4 1' | 24.9 J-4 0' | 393

L-4 0' | 1650

SS09 0-0.5' | 4,000

2' | 1,200

R-4 0' | 1,500

R-4 0.5' | 1,050

SS08 0-0.5' | 450

SS21 1-2' | 8.9 SS21 0-0.5' | 13

SS07 1-2' | 11 SS07 0-0.5' | 35

I-3 0' | 417

SS24 0-0.5' | 5,400

SS24 1-2' | 3,400

SS09 1-2' | 15

R-4

0.95' | 51.1

SS08 1-2' | 16

SS23 2-3' | 16 SS23 1-2' | 290

S-3 0' | 1,330

SS32 0-1' | 234

SS33 0-1' | 107

SS20 1-2' | 11 SS20 0-0.5' | 89

J-2 2.1' | 87.7 J-2 0' | 370

L-2 2.35' | 233

N-2 0' | 114,000

SS22 1-2' | 17

R-2 1.4' | 197

SS04 0-0.5' | 23 SS04 2-3' | 8.3 SS04 1-2' | 14

I-1 0' | 1,040

K-1 2.4' | 104

M-1 2' | 162

O-1 3.5' | 77

Q-1 36.1' | 36.1

SS22 2-3' | 18

S-1 2' | 2,700

SS05 0-0.5' | 490

SS05 1-2' | 16

S-1 0' | 1,900

SS01 0-0.5' | 700

FORMER TRAP RANGE PROPERTY

LEGEND

- DAIRY CREEK MITIGATION BANK BOUNDARY
- DAIRY CREEK MITIGATION BANK
- PROPERTY BOUNDARY
- EXTENT OF LEAD ABOVE OCCUPATIONAL RBC <1 FOOT (2.69 ACRES)
- EXTENT OF LEAD ABOVE OCCUPATIONAL RBC 1-2 FEET (0.65 ACRES)
- WASHINGTON COUNTY TAX LOT BOUNDARY

NOTES:
SAMPLE ID
DEPTH IN FEET BGS | LEAD CONCENTRATION
THE OCCUPATIONAL, CONSTRUCTION WORKER, AND EXCAVATION WORKER RBC FOR SOIL INGESTION, DERMAL CONTACT, AND INHALATION IS 800 PPM.
RBC = RISK BASED CONCENTRATION
PPM = PARTS PER MILLION
SQFT = SQUARE FEET
ALL LOCATIONS ARE APPROXIMATE
FIGURES WERE PRODUCED IN COLOR.
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FIGURE 2

EXTENT OF LEAD EXCEEDING RBCs IN SOIL
GEOSYNTEC, AMEC, AND FARALLON SAMPLE RESULTS
42580 NORTHWEST CEDAR CANYON ROAD
BANKS, OREGON

FARALLON PN: 1826-001

Drawn By: sgaynier | Checked By: JW | Date: 8/5/2022 | Disc Reference:

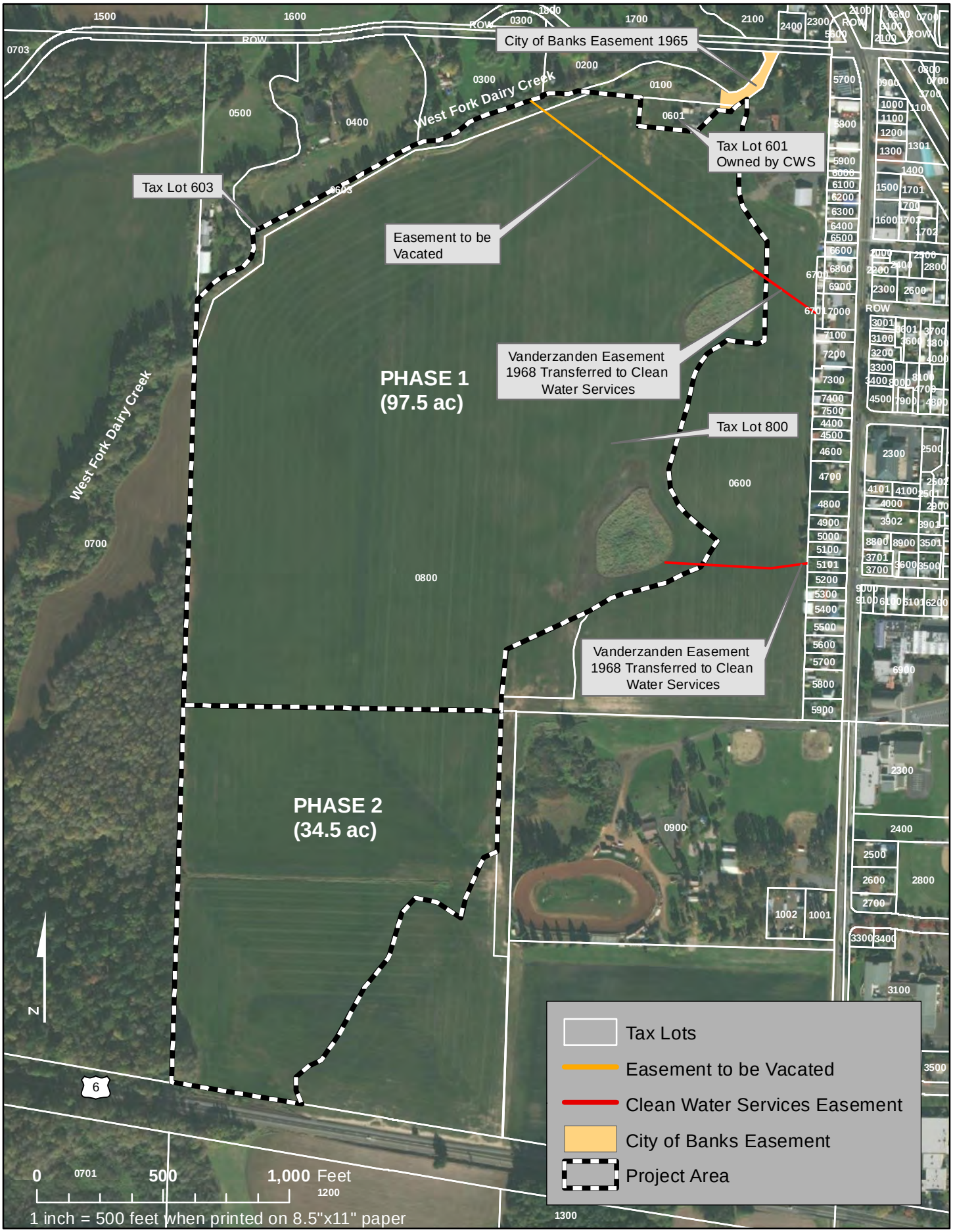
Document Path: Q:\Projects\1826 Wolverine\Mapfiles\202208\Figure 2_Lead Soil RBCs_FARALLON2018.mxd

ATTACHMENT A
GREENBANKS EXHIBIT B

MITIGATION BANK ASSESSMENT AND REMEDIATION APPROACH
42850 Northwest Cedar Canyon Road
Banks, Oregon

Farallon PN: 1826-001

Exhibit B



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Tax Lot Layer provided by RLIS.

\\gb-server\GB-Network\wetland banking\washington county\ Dairy Creek Bank\GIS\Instrument\2022_January_DRAFT_Instrument Maps\ mxds\Exhibit B 220127.mxd

Map created by Miles Eubanks.
Ver. 1.22

greenbanks