Project No. S1894-07-12
October 31, 2022

Alia Roca-Lezra
Siskiyou County Economic Development Council
1512 S. Oregon Street
Yreka, California 96097

Subject: ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES
THE LANDING NEW MILL SOUTH
SOUTH MOUNT SHASTA BOULEVARD
MOUNT SHASTA, SISKIYOU COUNTY, CALIFORNIA

Ms. Roca-Lezra:

In accordance with your request and the *Master Services Agreement* between Geocon Consultants, Inc. (Geocon) and the Siskiyou County Economic Development Council (SCEDC, the Client) dated January 9, 2020, Geocon prepared this *Analysis of Brownfields Cleanup Alternatives* (ABCA) for The Landing New Mill South (the Site) located on South Mount Shasta Boulevard in Mount Shasta, California (Figure 1). The SCEDC requested the ABCA on behalf of the City of Mount Shasta (the City) to support the City's Brownfields Cleanup Grant application to the United States Environmental Protection Agency (USEPA).

The ABCA provides a summary of the site background information including the results of previous environmental investigations, a description of the reuse plan for the Site, discussion of applicable regulations and cleanup standards, and an evaluation of cleanup alternatives including a minimum of two different alternatives plus a "No Action" option. A discussion of the effectiveness, implementability, possible adverse impacts from potential extreme weather events, and costs are also evaluated for each alternative. Finally, the ABCA recommends which alternative is best for the Site.

This ABCA is intended to be a preliminary evaluation of cleanup alternatives. It is not intended to be a comprehensive Feasibility Study or Removal Action Workplan (RAW). Two RAWs and a RAW Addendum for the Site have already been prepared, submitted for public comment, and approved by the California Department of Toxic Substances Control (DTSC).

BACKGROUND AND PLANNED USE

Site Location and Description

The Site consists of 65 acres of vacant land located along the western side of South Mount Shasta Boulevard in the southern portion of Mount Shasta. Approximately 1,400 cubic yards of contaminated soil are stockpiled on the Site from previous soil removal actions related to the cleanup of historical lumber mill operations. The City owns the Site and plans to redevelop it with commercial/industrial and recreational uses. The Site is additionally bounded by Union Pacific Railroad tracks to the west, Interstate 5 to the south, and residential and commercial properties to the north (Figure 2). There is no physical address associated with the Site.

Operational History

The Site was first developed by the Pioneer Box Company in 1900. Lumber mill operations were reportedly conducted by several parties at the Old Mill location in the northern portion of the Site from 1900 until the late 1960s, when operations were moved to the New Mill location in the southern portion of the Site. Historical operations on the Old Mill reportedly included the use of a boiler room, refuse burner, log pond, and a dip tank where lumber was treated with pentachlorophenol (PCP). Former facilities in the New Mill included a PCP dip tank for wood treatment, an 8,000-gallon diesel above-ground storage tank (AST), a 10,000-gallon gasoline underground storage tank (UST), a box factory with refuse burner, a dump area, and an equipment maintenance shed (Figure 2).

Roseburg Forest Products was the last company to operate a lumber mill on the Site. They purchased the Site in 1979 and operated the mill until 1985. The UST and AST were removed prior to 1987. According to the former City Manager, Ted Marconi, the Site was deeded to the City in 1989. The former mill structures at the Site had been removed prior to the property transfer and the Site has been vacant since the City has owned it.

Previous Investigations/Regulatory Agency Involvement

The City has conducted several environmental investigations and cleanups at the Site with oversight from the DTSC. Since the City took ownership of the Site, the City has removed contaminated soil at the Old Mill dip tank, refuse burner, and boiler room and the New Mill equipment shed, box factory transformer area, and refuse burner. Cleanup was conducted under a RAW for the Old Mill (Geocon, April 24, 2018), a RAW for the New Mill (TRC Companies, Inc. (TRC), March 11, 2016), and a RAW Addendum for all the Site (Geocon, March 21, 2022). Soil removal was not required at the Old Mill boiler room or refuse burner areas, or at the New Mill dump, AST, and UST areas because contaminant concentrations in soil in these areas met the project cleanup goals established in the RAW Addendum.

The DTSC will certify closure of the Site once a RACR documenting the removal action performed to date, offsite disposal of the remaining soil stockpiled on the Site, and destruction of nine groundwater monitoring wells on the Site has been submitted to, and reviewed and approved by, the DTSC. However, a land use covenant (LUC) limiting future uses of the Site to commercial/industrial/recreational will be required for the Site. Cleanup at the Site is complete except for removal (i.e., loading, transportation, and offsite disposal) of approximately 1,400 cubic yards of stockpiled non-hazardous soil and recording of the LUC.

Soil Stockpiles

Approximately 600 cubic yards of non-hazardous petroleum-impacted soil and 800 cubic yards of non-hazardous PCP-impacted soil remain on the Site. These soil stockpiles were previously characterized as non-hazardous, although new waste characterization will likely be required by the landfill prior to accepting the soil as a waste for disposal. The characterization results are not anticipated to change. Diesel- and oil-range organics (DRO and ORO) were previously detected in samples of the stockpiled soil at maximum concentrations of 66 and 140 milligrams per kilogram (mg/kg), respectively, which are less than the landfill acceptance criteria for non-hazardous waste of 8,000 and 25,000 mg/kg, respectively. PCP was detected at a maximum concentration of 4.8 mg/kg, which is less than the Title 22 hazardous waste toxicity criteria, or Total Threshold Limit Concentration (TTLC), for PCP of 17 mg/kg, which is also the landfill acceptance criteria for PCP in soil as a non-hazardous waste. Metals were detected at concentrations less than their respective TTLCs and less than ten times their respective Soluble Threshold Limit Concentrations (STLC). Volatile and other semi-volatile organic compounds were not detected in samples from the stockpiled soil.

Project Goal

The goal of site cleanup is to render the Site suitable for redevelopment by mitigating potential health risks to future users of the property from potential exposure to COCs in soil. The City plans to remove the stockpiles from the Site and record an LUC that limits future use of the Site to commercial/industrial or recreational use, which is consistent with the proposed future use of the Site.

APPLICABLE REGULATORY AGENCIES AND STANDARDS

This section provides information regarding the regulations and cleanup standards that are applicable to site cleanup.

Cleanup Oversight Responsibility

The DTSC will oversee the cleanup. The City entered into a Voluntary Cleanup Agreement with the DTSC on July 3, 2013, which was amended in August 30, 2018 and is currently active, to provide regulatory oversight of the cleanup. When the cleanup is complete, the DTSC will issue either a site certification of completion or a no-further-action letter indicating that the cleanup has made the Site suitable for its proposed uses.

Cleanup Goals

Cleanup goals have been established for soil at the Site in the RAWs, which were submitted for public comment and approved by the DTSC. The cleanup goals are based on the applicable DTSC's Human Health Risk Assessment (HHRA) screening levels (DTSC-SL), USEPA Regional Screening Levels (RSL), or San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESL) for COCs in a commercial/industrial setting or recreational setting. The following table lists the cleanup goals for each COC.

PROJECT CLEANUP GOALS

COC	Cleanup Goal	Source
DRO	1,000 mg/kg	ESL commercial/industrial
ORO	5,100 mg/kg	ESL gross contamination
PCP	2.0 mg/kg	RSL commercial/industrial
Aroclor 1254	0.97 mg/kg	RSL commercial/ industrial
Aroclor 1260	0.99 mg/kg	RSL commercial/ industrial
Dioxin/Furans	220 ng/kg*	DTSC, HHRA Note 2

mg/kg – milligrams per kilogram
ng/kg – nanograms per kilogram
* DTSC HHRA Note 2 allows for dioxin to remain in soil at concentrations ranging from 220-700 ng/kg in some instances

However, meeting the project cleanup goals will still require recording of an LUC to restrict future use of the Site and not allowing residential development where contamination remains in place at concentrations exceeding residential screening levels. The LUC will record which COCs are present on the Site and where, and the types of land uses that will be allowed in those areas. The LUC will recognize that the proposed commercial/industrial and recreational land uses are compatible with COCs remaining in soil at concentrations less than the project cleanup goals and will state that unrestricted land uses (e.g., residential development, schools, daycare, hospital, senior care, etc.) will not be allowed on those areas of the Site. The LUC will also recognize that drilling for water, oil, or gas is prohibited.

The LUC will be prepared consistent with the DTSC policy and finalized and recorded after the removal action is complete and before closer of the Site is certified by DTSC. The LUC will "run with the property" and stay in effect as long as the identified COCs are present in soil at concentrations exceeding residential screening levels or until terminated by DTSC. Pursuant to Section 67391.1 of Title 22, Division 4.5, Chapter 39, CCR, the project proponent will pay all costs for DTSC oversight associated with administration of the LUCs. The DTSC has the authority to require modification or removal of any land improvements placed in violation of the restrictions.

Laws and Regulations Applicable to the Cleanup

Laws and regulations that are applicable to the portion of this cleanup funded by the USEPA Brownfields grant include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, State of California environmental law, and City of Mt. Shasta and Siskiyou County by-laws. The City will follow federal, state, and local laws regarding procurement of contractors to conduct the cleanup. Prior to conducting the Site remediation activities, the City will comply with the California Environmental Quality Act (CEQA) including biological resource and cultural resource approvals.

Prior to conducting soil removal activities, the contractor will obtain the appropriate permits from City and County agencies. Although not anticipated, any soil excavation areas (excluding the stockpiles) will be marked with white paint or staked according to Underground Service Alert (USA) requirements. USA will then be notified at least 72 hours prior to commencing any soil excavation.

EVALUATION OF CLEANUP ALTERNATIVES

This section provides a preliminary evaluation of potential cleanup alternatives for the Site. This evaluation considered the effectiveness, implementability, adverse impact from potential extreme weather events, and estimated costs of implementation of each alternative. The level of detail provided herein is commensurate with the complexity of the proposed cleanup. A more detailed evaluation was performed and presented in the previous RAWs (2016, 2018) and RAW Addendum (2022) that have already been approved by the DTSC and submitted for public comment. Based on the development plans for the Site (commercial/industrial and recreational) the proposed cleanup includes: (1) removal of 1,400 cubic yards of stockpiled, contaminated soil and (2) recording of an LUC for portions of the Site that do not meet criteria for residential or other unrestricted uses.

Cleanup Alternatives Considered

We evaluated the following alternatives to address soil contamination at the Site:

1. **No Action:** This alternative does not include any cleanup activities and the soil stockpiles would remain at the Site.
2. **Offsite Disposal:** This alternative would involve the loading, transportation, and offsite disposal of the approximately 1,400 cubic yards of soil stockpiled on the Site.

3. **Consolidation and Containment by Capping:** This alternative would involve the consolidation of the stockpiled soil in a DTSC-approved onsite location (i.e., a containment cell and where depth to groundwater is greater than 20 feet) and capping with clean fill material and/or structures, pavement, and hardscape to minimize the potential for future site users to be exposed to COCs in soil. An LUC would be required to memorialize that the land use of the cap area is not suitable for unrestricted land use. An operation and maintenance agreement (OMA) with DTSC, annual site inspections, and 5-year reviews (site inspections) performed by a qualified consultant are required to ensure the cap over the impacted soil remains viable.

Under any of these alternatives, an LUC will be required for portions of the Site that are not acceptable for future unrestricted land use (i.e., areas where soil contamination remains in place at concentrations exceeding residential criteria).

Comparison of Cleanup Alternatives

Effectiveness

1. **No Action:** Although the soil stockpiles are currently covered and secured, this alternative would not be effective in controlling or preventing the potential for exposure of site users to contamination in the soil (PCP and petroleum) during redevelopment or subsequent use of the Site or for trespassers and is not an acceptable alternative to the DTSC.
2. **Offsite Disposal:** Offsite disposal of the soil stockpiles in an appropriate landfill would be effective in eliminating the health risk associated with potential exposure to COCs at the Site because the soil stockpiles would be removed and potential exposure pathways during site development and future site use and for trespassers would be eliminated.
3. **Consolidation and Containment by Capping:** This alternative will provide good overall protection of human health and the environment for commercial/industrial or recreational uses and trespassers through elimination of the exposure routes to contamination in the soil stockpiles. This alternative would also require long-term administrative controls of the land use on the capped portion through an LUC, as well as long-term monitoring and maintenance of the cap in accordance with an OMA.

Implementability

1. **No Action:** This alternative is easily implemented because it requires no labor, materials or equipment; however, it is not acceptable to the DTSC.
2. **Offsite Disposal:** This alternative is readily implementable. The stockpiled soil will need to be characterized as a waste for submittal to the landfill for acceptance, but the stockpiles have previously been characterized and accepted by a non-hazardous Class II landfill, so recharacterization should again classify the soil as non-hazardous waste.
3. **Consolidation and Containment by Capping:** This alternative would be implementable, but more challenging to do so. Consolidation and containment by capping has not been approved for the Site by the DTSC. The City would need to design a containment cell and submit the design to DTSC for technical review and CEQA review. A location on the Site that is large enough and acceptable to the DTSC would need to be identified and the containment cell constructed. To contain approximately 1,400 cubic yards of soil, an area over 100 feet by 100 feet by 4 feet deep would need to be excavated (possibly more depending on the design of the cap). Displaced soil would need to be removed or reused elsewhere on the Site. This alternative would also require the development of an LUC and an OMA, as well as maintenance and inspection of the cap in accordance with the OMA.

Extreme Weather Considerations

The Site is located in an area that is currently under drought conditions and increased wildfire danger. The Site and surrounding area have medium to heavy vegetation cover that could be susceptible to fires. If no action is taken, the stockpiles could be exposed and/or disturbed during a fire. Additionally, significant winter storms, when they do occur, have the potential to expose the stockpiled soil and could disperse soil via airborne or stormwater routes. Weather is not anticipated to impact the offsite disposal or consolidation and capping alternatives.

Cost

1. **No Action:** There are no costs associated with implementing this alternative. If the contaminated stockpiles remain in place under a no-action alternative, the deterioration of temporary stockpile controls (i.e., plastic sheeting and erosion controls) would result in maintenance costs, and barriers (e.g., fencing) would be required to prevent unauthorized disturbance of the contaminated soil. However, this alternative is not acceptable to the DTSC.
2. **Offsite Disposal:** The estimated cost for this alternative is $365,000. Cost estimates for general categories of work are as follows:
    - DTSC oversight, project management, reporting, etc.: $30,000
    - Field work: loading and air monitoring: $60,000
    - Soil characterization, transportation, and disposal: $250,000
    - LUC for commercial/industrial and recreational areas: $25,000
3. **Consolidation and Containment by Capping:** The estimated cost for this alternative is $985,000. Since this alternative has not yet been specified or approved by the DTSC, this cost estimate should be used for planning purposes only. Estimates for general categories of work are as follows:
    - Remedial Design Implementation Plan, DTSC oversight, CEQA compliance, project management, reporting: $125,000
    - Containment cell excavation and lining, backfilling, and cap construction: $800,000
    - O&M and DTSC 5-year reviews (estimated cost for 30 years): $90,000
    - LUC for commercial/industrial and recreational areas: $25,000

Recommended Cleanup Alternative

Offsite disposal is the recommended alternative because it will remove stockpiled soil from the Site that contains PCP and petroleum at concentrations exceeding the DTSC-approved project cleanup goals and will provide protection of human health and the environment by eliminating routes of exposure to future site users. Unlike consolidation and capping of stockpiled soil, offsite disposal has already been approved by the DTSC. Additionally, the stockpiled soil has previously been characterized and accepted by a non-hazardous Class II landfill (which should remain the case going forward) and is readily implementable. The onsite consolidation alternative is expected to be more costly in both the short term (design, approval and construction of a containment cell) and long term (cap monitoring and maintenance).

We appreciate the opportunity to provide the SCEDC with this ABCA. Please contact the undersigned if you have any questions or if we may be of further service.

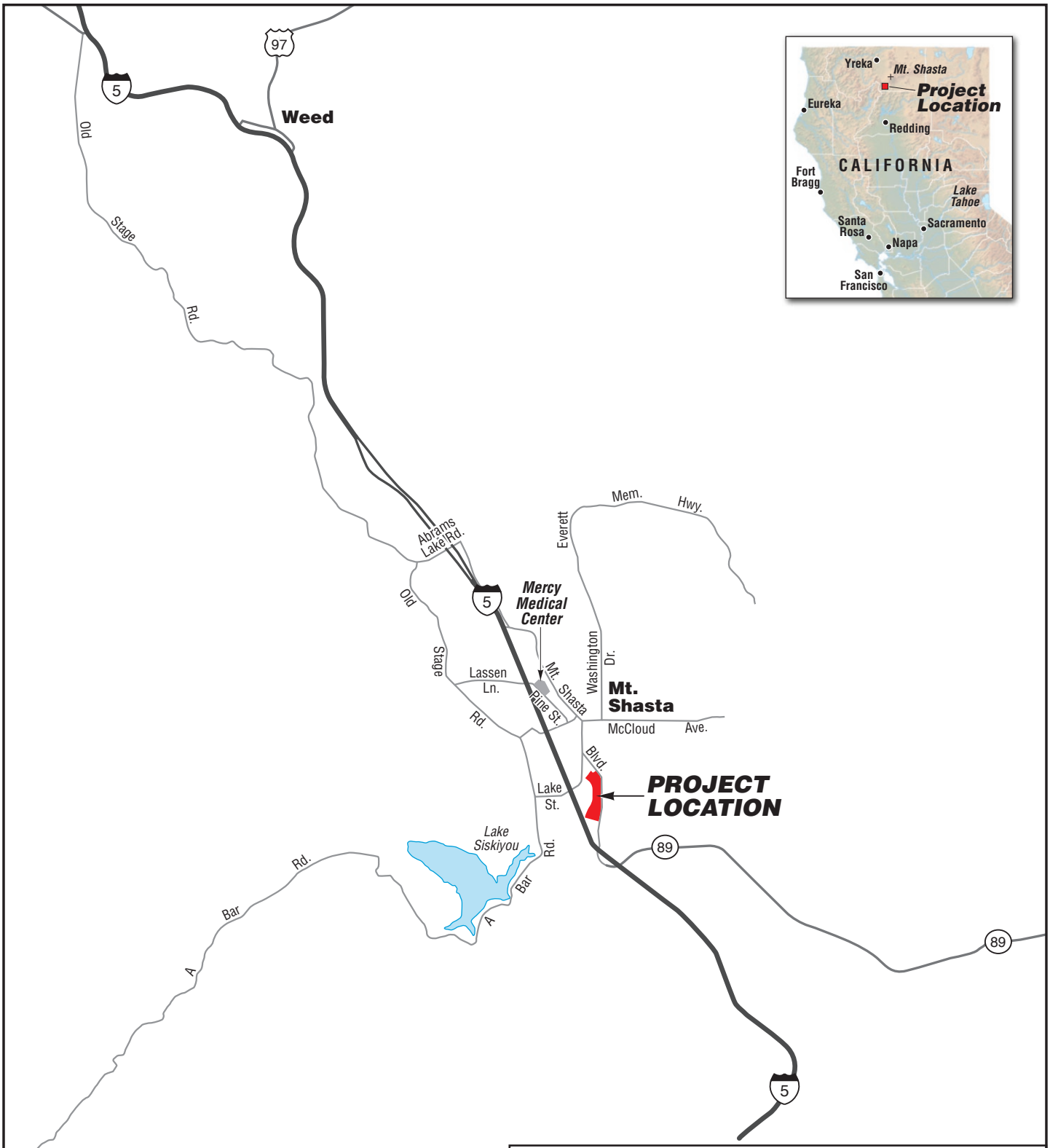
Regards,

GEOCON CONSULTANTS, INC.

Nicole Hastings-Bethel
Project Environmental Scientist

Jim Brake, PG
Senior Geologist

Enclosures: Figure 1, Site Location Map
Figure 2, Site Plan



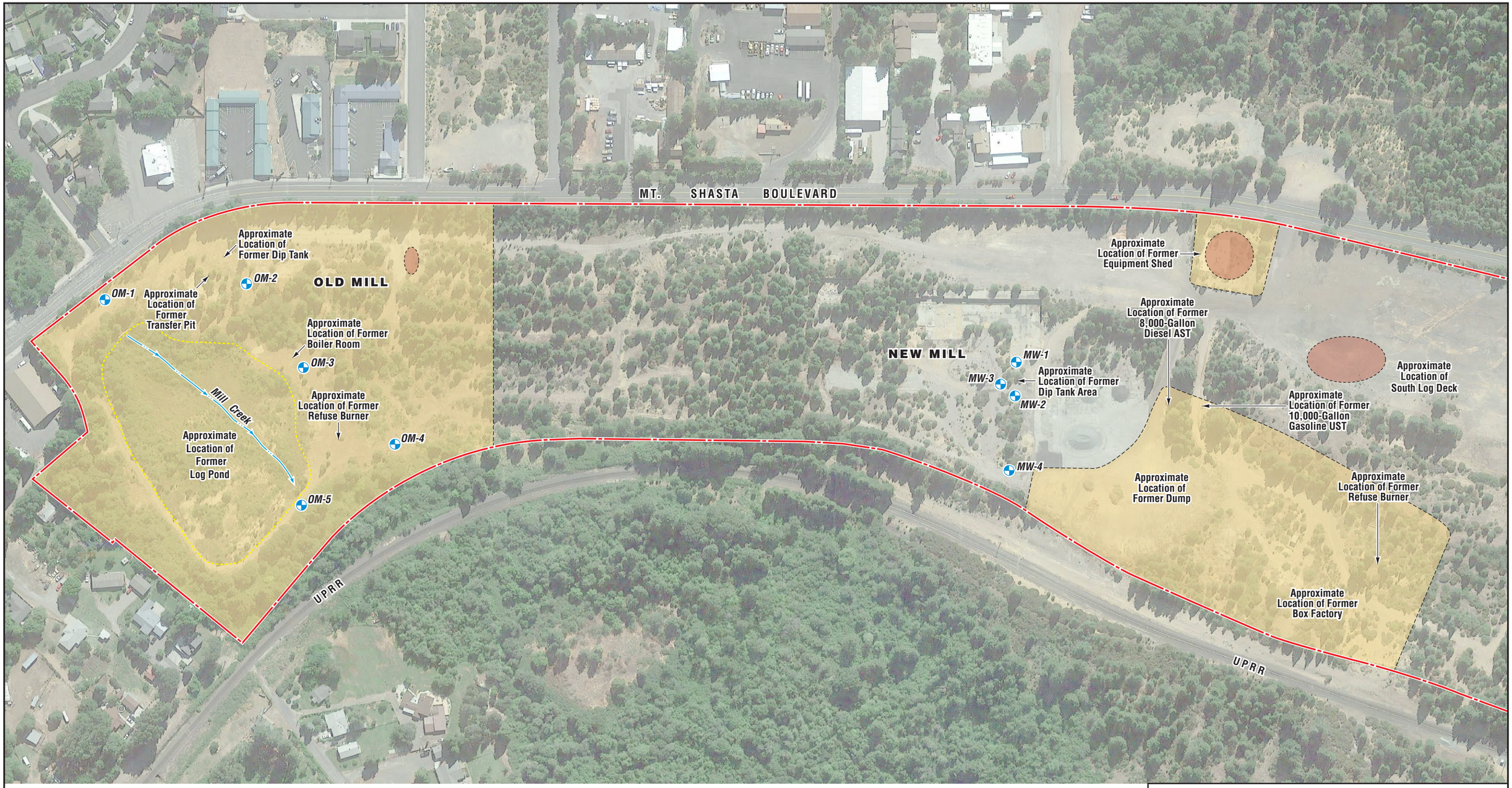
GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

The Landing

Mt. Shasta,
California

SITE LOCATION MAP

S1894-07-12	October 2022	Figure 1



LEGEND:

- Site Location
- OM-5 Approximate Monitoring Well Location
- Intermittent Drainage (Mill Creek)
- Potential Land Use Covenant Boundary
- Approximate Stockpile Location

N

0 200

Scale in Feet

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

The Landing

Mt. Shasta, California

SITE PLAN

S1894-07-12	October 2022	Figure 2