**Summary of Burnham Yard Environmental Site Investigations – Colorado Transportation Investment Office (CTIO) - 2020**

In 2020, the Colorado Department of Transportation (CDOT) and the Colorado Transportation Investment Office (CTIO) commissioned a Phase I Environmental Site Assessment (ESA) on the Burnham Yard property to complete the necessary due diligence prior to the purchase of the property.

The site was formerly operated as the Burnham Rail Yard from approximately 1871 until 2016, when active operations ceased. The Phase I ESA identified Recognized Environmental Conditions (RECs) associated with historical effects on the site from nearly 150 years of continuous railroad operations. Activities performed on the site included bulk fuel storage as well as locomotive refueling, maintenance, repair and washing.

Other RECs included oil released from pad and pole-mounted electrical transformers and likely groundwater and surficial soil effects from adjoining commercial and industrial facilities. The results of that investigation were presented in a Draft Phase I ESA report (April 2020) and was used to inform a targeted subsurface investigation at the site.

This investigation was targeted to assess the identified RECs and those areas of most likely environmental contamination. Investigation activities included:

- Geophysical and underground utility surveys utilizing ground penetrating radar,
- A high-resolution site characterization (HRSC) field effort, which consisted of a soil probe that was hooked up to 5 or 6 different monitors to get quick readings of the subsurface to assist CDOT in examining a larger area with a grid of borings and get an idea of the extent of environmental impacts
- Correlation soil boring and temporary monitoring well installation,
- Soil and groundwater sampling.

The HRSC field effort included 135 borings across the 62-acre site to depths ranging between 13 and 45 feet below the ground surface. The semi-quantitative HRSC field data was supplemented and evaluated against quantitative soil and groundwater sampling and laboratory analytical data collected from 34 soil borings and 30 groundwater monitoring wells.

In November of 2020, an Interim Draft Limited Site Investigation Report (LSI) that assessed the environmental conditions of the soils and groundwater at the former Burnham Yard site was completed.

This investigation has found:

- Evidence of diesel and fuel oil contamination was observed in soil and groundwater both on and off-site.

- Other hydrocarbons and chemicals of concern observed in soils and groundwater were consistent with fuel oils and the historical use of the site.

- Heavy metal contamination was present in surface soils and groundwater. Heavy metals present in soils are consistent with coal and coal ash waste and are most heavily concentrated on the southern portions of the site between 6th and 8th Ave.

**Conclusion Summary:**

Overall, the LSI evaluated the majority of RECs identified in the Draft Phase I ESA. While this investigation was limited to targeted areas of concern, the findings do provide insight into the general condition of the former Burnham Yard site, which appears to be better than initially anticipated given the use and age of the site. Several pockets of residual petroleum were identified in soil and groundwater from previous fuel releases but limited to specific areas.

Heavy metals and other chemicals of concern were detected in soil and groundwater on site at concentrations exceeding their respective regulatory threshold values, however these exceedances did not appear to be widespread and were limited to specific areas. Additionally, impacts identified at the former Burnham Yard property did not appear to be a threat to human health and the environment, and therefore immediate cleanup or further characterization were not recommended.

Following these initial investigations, clean-up efforts have been initiated to remove trash and debris from the surface of the property. No subsurface clean up or excavation have since been conducted to address the report findings, however more extensive investigation and/or cleanup will be dictated by the final use of the site.

**Summary of Burnham Yard Environmental Site Investigations – Department of Personnel and Administration (DPA) - 2025**

## Background

A series of environmental evaluations were completed across the Burnham Yard property to evaluate soil, groundwater, soil gas, and subsurface conditions prior to redeveloping the site. The work included high-resolution site characterization (HSRC), soil and groundwater sampling, soil gas testing, geophysical surveys, and laboratory analysis. These studies focused on potential contaminants commonly associated with historical railroad and industrial activities, including:

- Lead-impacted and asbestos-containing shallow soils
- Petroleum hydrocarbon and light non-aqueous phase liquids (LNAPL)
- Volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs)
- PFAS compounds
- Chlorinated solvents
- Soil vapor conditions related to potential vapor intrusion
- Radiation screening
- Former tank areas and subsurface structures

The work was completed under multiple tasks that collectively provide a comprehensive view of environmental conditions across the site. Because future redevelopment scenarios can vary significantly in terms of exposure assumptions, occupancy duration, and structure type, environmental mitigation strategies will ultimately need to be refined to match the final land-use plan.

## Key Findings

### Lead and Asbestos in Shallow Soil

Lead-impacted soil and asbestos-containing materials were confirmed in various parts of the shallow soil. These impacts have been considered widespread as 36.5% of the asbestos samples collected detected asbestos, and 95% of the lead samples collected detected lead. These materials are manageable but will require proper handling procedures during any earthwork and redevelopment activities to ensure compliance with

worker protections and future exposures post-redevelopment. The degree of exposure risk will vary based on the depth of disturbance and the type of future surface cover or structural development in each area.

Petroleum-Related Impacts and LNAPL

Three previously identified petroleum-impacted areas were further evaluated using HRSC tools and while impacts remain, data collected indicate that these areas are stable and contamination plumes are not actively migrating. Further soil and groundwater samples generally showed low-level petroleum-related constituents, mostly below regulatory standards, consistent with weathered, residual conditions typical of long-historic releases.

VOCs, PAHs, and Other Organic Compounds

Soil and groundwater samples showed low concentrations of VOCs and PAHs, with most results below screening standards, and the few slight exceedances were localized and not indicative of widespread contamination.

PFAS in Soil and Groundwater

A limited evaluation of PFAS compounds identified concentrations above regulatory standards in one shallow soil location and in one groundwater sample. The detections suggest the need for an additional targeted investigation to understand and define the extent.

Chlorinated Solvents

Chlorinated solvent concentrations in soil and groundwater were low and below applicable standards, although some chlorinated solvents (TCE, PCE) were detected in soil gas (see below).

Soil Gas (Vapor Intrusion Potential)

Soil gas testing identified benzene, TCE, PCE, and other VOCs exceeding their respective EPA-risk-based screening levels at multiple locations at levels that warrant consideration in future building design. These conditions are primary relevant for enclosed, regularly

occupied structures, but are manageable with standard engineering controls that can be addressed during planning.

Radiation Screening

Radiation testing across the site showed levels consistent with background conditions. No radiological concerns were identified.

Subsurface Structures and Former Tank Areas

Investigations into suspected underground storage tanks confirmed that no tanks remain in place. Only inactive utilities and concrete structures were found.

**Conclusion Summary**

Environmental impacts identified across the site are consistent with those expected for a long-term rail and industrial property.

Key Points:

- Lead and asbestos in shallow soil will require proper determination and management during construction but do not represent redevelopment barriers.
- Petroleum impacts are stable and non-mobile.
- VOCs, PAHs, and chlorinated solvents in soil and groundwater are generally low and localized.
- PFAS impacts appear limited, with isolated exceedances requiring further definition.
- Soil gas conditions will influence building design for enclosed or frequently occupied buildings but are readily mitigated with standard engineering controls.
- Taken together, no findings prohibit redevelopment, though the type and extent of required mitigation will depend on the final land-use configuration, including building design, enclosure, occupancy duration, and depth and scale of construction activities.