

February 3, 2020

Materials Management Plan

**Pikes Peak Heights Development Site
Colorado Springs, Colorado**

Prepared For:

Pikes Peak Heights, LLC.
c/o Schuck Communities, Inc.
2 North Cascade Ave., Suite 1280
Colorado Springs, Colorado 80903

Pinyon Project No.:

1/18-I236-01.REM007

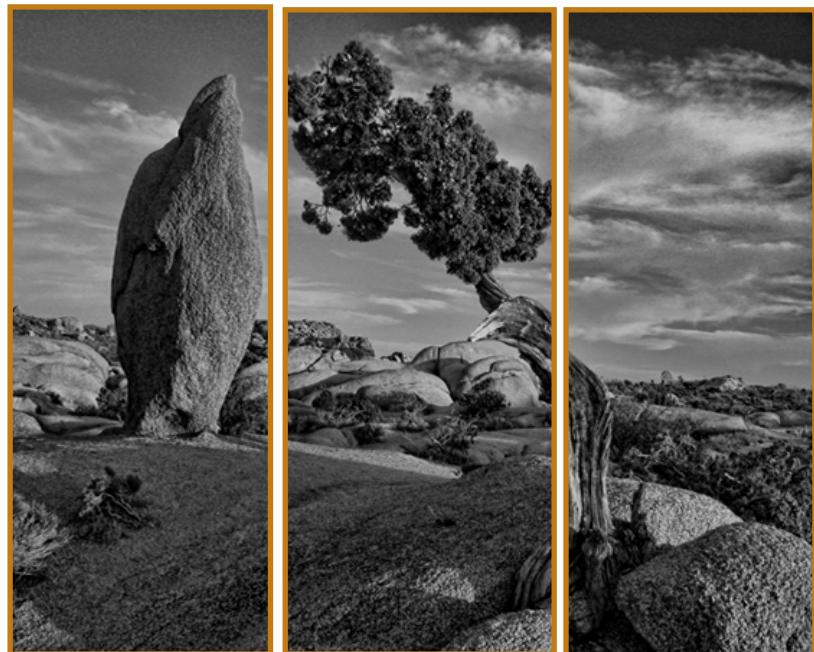


FIGURE 11



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Prepared by:

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Kristen Hill
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Table of Contents

1. Introduction.....	1
1.1 Proposed Action.....	2
1.1.1 Assumptions.....	3
1.2 Roles and Responsibilities.....	4
1.3 Site History and Physical Conditions.....	4
1.3.1 Adjacent Properties.....	5
1.4 Site Environmental Conditions.....	5
1.4.1 Historical Urban Fill (HUF)	6
1.4.2 Construction and Demolition Debris and Artificial Fill	6
1.5 Types of Potentially Impacted Materials	7
1.6 Voluntary Cleanup Program (VCUP).....	7
1.6.1 Verification of Debris Removal for NAD	7
2. Health and Safety.....	9
3. Requirements and Training.....	10
3.1 Contractor Requirements.....	10
3.1.1 QPM and MMP Supervisor Requirements and Training.....	10
3.1.2 Certified Asbestos Building Inspector	11
3.1.3 Health and Safety Officer Requirements.....	12
3.1.4 Environmental Professional Requirements and Training.....	13
3.1.5 Worker Requirements	13
3.1.5.1 Tier 1 – Front-Line Workers.....	13
3.1.5.2 Tier 2 – Excavation Workers	13
3.1.5.3 Tier 3 – Other Workers.....	14
4. Soil Evaluation Criteria.....	15
5. Reuse Criteria.....	17
5.1 Use of Soil with Construction and Demolition Debris.....	17
5.1.1 Environmental Covenant or Restrictive Notice.....	17
5.2 Non-Impacted/Unrestricted Reuse Soil.....	17
5.3 Impacted Soil.....	18
5.4 Non-Hazardous and Solid Waste Disposal.....	18
5.5 Hazardous Waste Disposal.....	18
6. Soil Handling Procedures	19
6.1 General Procedures.....	19
6.2 Field Screening.....	21
6.3 Historic Urban Fill Areas.....	22
6.4 Asbestos in Soils	22
7. Construction Water.....	24

Table of Contents (continued)

7.1	Stormwater	24
7.2	Groundwater	24
7.3	Saturated Soils	25
8.	Special Wastes	26
8.1	Drums or Waste Containers.....	26
8.2	Slag, Coal, Ash.....	27
8.3	Electrical Equipment (PCBs)	27
8.4	Biological Waste	27
9.	Additional Requirements.....	28
9.1	Dust Control	28
9.2	Windblown Debris.....	28
9.3	Decontamination of Heavy Equipment	28
9.4	Soil Stockpiles.....	28
9.4.1	Stockpiles Containing RACS.....	29
9.5	Monitoring Wells.....	29
9.6	Site Security	29
9.7	Nuisance Conditions.....	29
10.	Imported Materials.....	30
10.1	Sample Analysis and Frequency.....	30
11.	Reporting.....	31
12.	References.....	32

Figures

Figure 1 Site Location

Figure 2 Site Development

Tables

Table I-1 Key Parties and Responsibilities

Table of Contents (continued)

Appendices

- Appendix A CTL Thompson North Parcel Location of Exploratory Borings Map (Figure 1) and Surficial Geological Conditions Map (Figure 2) and RMG South Parcel Boring Locations (Figure 2)
- Appendix B EPA Regional Screening Levels, CDPHE Groundwater Protection Values, EPA Toxicity Maximum Concentrations of Contaminants
- Appendix C CDPHE Table 3 – Pre-Approved Beneficial Reuses
- Appendix D Daily Field Documentation Log

Acronyms

ACM	Asbestos-Containing Material
APEN	Air Pollution Emissions Notice
AQCC	Air Quality Control Commission
AST	Above Ground Storage Tank
bgs	Below Ground Surface
BMPs	Best Management Practices
CABI	Certified Asbestos Building Inspector
CCR	Code of Colorado Regulations
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
City	City of Colorado Springs
CSU	Colorado Springs Utilities
CWRSL	Composite Worker Regional Screening Level
DABARBET	DABARBET, LLC
EDO	Engineering Design and Operations
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
FID	Flame Ionization Detector
HASP	Health and Safety Plan
HAZWOPER	OSHA, Hazardous Waste Operations and Emergency Response
HMWMD	Hazardous Materials Waste Management Division
HSO	Health and Safety Officer
HUF	Historical Urban Fill
HWSG	Hazardous Waste Site Generator
mil	Millimeter
mg/kg	Milligrams per kilogram
LEL	Lower Explosive Limit
LST	Leaking Storage Tank
MMP	Materials Management Plan
MSW	Municipal Solid Waste
NAD	No-Action Determination

NPL	National Priorities List
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
Pinyon	Pinyon Environmental, Inc.
PID	Photoionization Detector
Pikes	Pikes Peak Heights
PPE	Personal Protective Equipment
ppm	Parts Per Million
PSRMP	Project Specific RACS Management Plan
QA	Quality Assurance
QPM	Qualified Project Monitor
RACS	Regulated Asbestos Contaminated Soil
RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
ROW	Right of Way
RRSL	Environmental Protection Agency Residential Regional Screening Level
Schuck	Schuck Communities, Inc.
SWF	Solid Waste Facility
SWMP	Stormwater Management Plan
TCLP	Toxicity Characteristic Leaching Procedure
UEL	Upper Explosive Limit
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
VCUP	Volunteer Cleanup Program
WQCD	Water Quality Control Division

I. Introduction

Pinyon Environmental, Inc. (Pinyon), was retained by Pikes Peak Heights, LLC (Pikes) of Schuck Communities, Inc. (Schuck) to prepare this Materials Management Plan (MMP) for subsurface excavation and potential fill removal activities during the construction of single and multifamily residential structures. The future development is to be named Pikes Peak Heights at Sand Creek (Site), in Colorado Springs, Colorado (Figure 1).

The approximate 67-acre Site will consist of 193 housing units, open space, greenway tracts, and two detention basins, located east of Wooten Road, south of Town Center Drive, and west and north of Sand Creek (Figure 2). Pikes also plans to donate approximately 36 acres of land that borders both banks of Sand Creek and will be an open space and greenway for drainage and public trail usage (Figure 2). The current Site is vacant with no physical structures present (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d). The proposed development is to consist of two detention ponds and access roadway on the south end of the Site (CTL Thompson, 2018d). However, a construction and demolition landfill operated on a portion of the property from an unknown date up until 1996 (CTL Thompson, 2018a). For further historical information refer to Section I.3. The area is to be developed into duplexes, single-family dwellings, greenway tracts adjoining to open space, and water detention areas.

The purpose of this MMP is to provide guidance for the management of potentially impacted soils which may be encountered during excavation activities, and buried construction and demolition debris which is known to be present and must be removed from under planned building footprints. Construction and demolition debris will consist of inert materials. “Inert material” means non-water soluble and non-putrescible solids together with such minor amounts and types of other materials as will not significantly affect the inert nature of such solids. The term includes, but is not limited to, earth, sand, gravel rock, concrete which has been in a hardened state for at least sixty days, masonry, asphalt paving fragments, and other inert solids. The debris will NOT include any of the following:

- Organic components (being defined as no plant, wood, paper or other biodegradable substances)
- Material that would qualify as suspect asbestos containing material (ACM) under state regulations (e.g. floor tile, transite, insulation, etc.)
- Materials such as concrete or brick that have associated material suspected of being ACM (such as sealants, adhesives, mastics, coatings, adhered materials, or resins).
- Metal will not be included in the waste stream that will be buried on Site; per CDPHE guidance, metal is not considered inert and will be salvaged and removed.

Throughout the MMP, the debris listed above will be referenced as “construction and demolition debris”. Construction and demolition debris is defined by the CDPHE as, “waste that is generated from construction, remodeling, repairs, or demolition of buildings, pavements, and other structures which includes but is not limited to lumber, bricks, carpets, ceramics, sheetrock, metals, drywall, window glass, metal and plastic piping, paint and any other non-hazardous materials resulting from construction and demolition operations.” Note that metal will not be included in the waste stream that will be buried on Site; per CDPHE guidance, metal is not considered inert and will be salvaged and removed. In addition, if unexpected solid waste is identified, defined by the CDPHE as “any garbage, refuse, ... or other discarded material,” that is not classified as construction and demolition debris then the waste will be disposed of at an appropriate landfill off site. The MMP addresses the potential presence of hazardous substances and/or petroleum products, in addition to known construction and demolition debris, otherwise known as “Recognized Environmental Conditions (RECs),” in, on, or at the Site. Site-specific and adjacent RECs are further described and listed in CTL

Thompson's Phase I Environmental Site Assessments (ESA) for the Site (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d) and are also addressed throughout this MMP.

This MMP has been developed to detail the Standard Operating Procedures for handling suspect materials, including potentially impacted soil, construction and demolition debris and asbestos containing materials (ACM). The MMP has been prepared to ensure that work activities will be completed in such a way as to minimize potential worker exposure to suspect materials, prevent releases to the environment, and ensure proper disposal of suspect materials. Further, this MMP has been prepared to minimize potential delays, and to develop approved standard procedures that will be implemented for (1) the handling, disposal and/or potential relocation of expected construction and demolition debris and unexpected solid waste and (2) as needed in the event that suspect materials are encountered during construction. It is the responsibility of the future-selected Contractor (Contractor) to adhere to the MMP, follow all appropriate regulations, obtain the proper permits, and have the trained field personnel to identify suspect materials. Pinyon recommends that this MMP be attached to the project Plans and Specifications, and that bidding Contractors have an opportunity to review this document as they prepare bids for construction.

I.I Proposed Action

Pikes Peak Heights, LLC is a partnership of Schuck and DABARBET, LLC (DABARBET). DABARBET is managed by Mr. Don Bates, who has owned the 39.1-acre southern parcel for over 40 years (Figure 2). This south parcel previously was used as a construction and demolition landfill. Pikes plans to move the construction and demolition debris and build on this parcel in addition to the north 22-acre parcel, also owned by DABARBET (Figure 2). Additional parcels were acquired to obtain better access to street and utility connections. The final parcel is owned by First Presbyterian Church (Presbyterian) of Raton, is 5.58 acres, and will be acquired by Pikes at a later date.

Per information obtained from Pikes, in 1983, Mr. Bates worked with Colorado Springs Utilities (CSU) to create the landfill for CSU to dispose of construction and demolition debris. In 1996, DABARBET created an agreement with Schooler and Associates to manage the landfill until 2002. Currently, the landfill facility is listed as an active solid waste facility, but Phase I ESA observations suggest the facility has been closed since approximately 1996 (CTL Thompson, 2018b). As stated previously, this MMP will outline fill handling, disposal and/or relocation activities to clear roadway and building footprints for construction. The current plan is to move the fill to open space, pending approval by the Colorado Department of Public Health and Environment (CDPHE). This MMP is required by the CDPHE to further the approval process.

Negotiations between Pikes Peak Heights and the City of Colorado Springs (the City), have resulted in agreements pertaining to ownership of land parcels at the completion of the project. Pikes Peak Heights Metropolitan District (PPH Metro District) is defined as "an independent unit of local government, separate and distinct from the City, to provide a part or all of the public improvements for the use and benefit of all anticipated inhabitants and taxpayers of the district. The primary purpose of the district will be to finance the construction of these public improvements and to maintain certain open space tracts, open space, parks and drainage detention pond." Figure 2 shows Pikes Peak Avenue at Sand Creek Site Development Layout Graphic which includes the intended final distribution of area as it relates to debris. The grey-green colored area, labeled "Parcel to be donated to PPH Metro District" will be donated to the PPH Metro District and indicates locations where the debris is planned to be reburied. The sage-green colored area, labeled "Parcel to be gifted to City" will be gifted to the Metro District which will then gift it to the City and will not include buried debris.

Colorado Springs Utilities has design plans in place for utility and channel improvements for the West Fork of Sand Creek, located near the northern boundary of the Site. Colorado Springs Water Resources is designing improvements to the main channel of Sand Creek.

1.1.1 Assumptions

Pinyon has reviewed three Phase I ESAs completed by CTL Thompson for the north parcel, south parcel, and the Presbyterian 5.58-acre parcel comprising the Site. The MMP will be modified, as needed, pending CDPHE approval of fill reuse on Site.

1.2 Roles and Responsibilities

The key parties, their contact information and project responsibilities, are outlined below:

Table I-1 Key Parties and Responsibilities

Organization	Role/Responsibility	Contact Information
Schuck Communities, Inc.	Project Manager	Mike DeGrant Phone: 716-633-4500 Email: MKD@schuckcommunities.com
Drexel, Barrel & Co.	Civil Engineer	Tim McConnell Phone: 719-260-0887 Email: tmcconnell@drexelbarrell.com
Colorado Department of Public Health and Environment	Regulatory Guidance	Jill Parisi 4300 Cherry Creek Drive South, B-2 Denver, CO 80246 Phone: 303-692-2880 Email: jill.parisi@state.co.us
Monks Construction	Health and Safety Officer/Construction	George Wehner Phone: TBD Email: TBD
CTL Thompson	Qualified Project Monitor (QPM) and Environmental oversight quality assurance to identify potentially contaminated soil and potential asbestos	TBD
Pinyon Environmental, Inc.	Certified Asbestos Building Inspector (CABI)/ Offsite MMP Supervisor	Kristen Hill Phone: 770-344-7791 Email: Hill@pinyon-env.com
Pinyon Environmental, Inc.	Environmental Professional	Karlene Thomas Phone: 719-331-2172 Email: Thomas@pinyon-env.com

1.3 Site History and Physical Conditions

According to documents reviewed, the proposed work area is vacant with no physical structures and there was no obvious evidence indicating past development of the Site (CTL Thompson, 2018a). A railroad grade is present on the south portion of Site in an east and west direction; the previously existing railroad bridge crossed Sand Creek near the south parcel boundary of the Site and north of the Presbyterian parcel (CTL Thompson, 2018b; CTL Thompson, 2018d). According to aerial photographs, the railroad grade ran in an east and west direction from 1893 to 1942 (CTL Thompson, 2018d). Site grading or surface disturbance took place around the middle portion, west side, northern edge, and heavily in the southern portions of the Site (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d).

Materials Management Plan

Pikes Peak Heights Development Site
Colorado Springs, Colorado

For an unknown amount of years, up until 1996, portions of both the northern and southern parcels were used as a construction debris landfill, strictly for disposing of asphalt, gravel, soil and concrete (expected debris) for CSU (Figure 2). However, the landfill accepted public solid waste in 1996 for an unknown period of time (CTL Thompson, 2018a; CTL Thompson, 2018b). Crushed concrete, storage containers, semi-truck trailers, and wood frame trusses were present in an area of the Site covered with crushed concrete between 2006 to 2011 (CTL Thompson, 2018a). The storage containers and semi-truck trailers were no longer present by 2013 and no other significant changes were observed in aerial photographs (CTL Thompson, 2018a). Unexpected solid waste, artificial fill, and possible chemicals of concern may be encountered during construction activities. The Site has also been occupied by homeless camps whose occupants left trash and other debris in the area (CTL Thompson, 2018b). The owner hired a contractor to remove the trash and debris, but it is unknown what kind, how much, and in what areas the trash exists on Site (CTL Thompson, 2018b). Presbyterian of Raton, the current owner of the Presbyterian parcel, is aware of an existing environmental lien on the Site (CTL Thompson, 2018d). The lien is related to cleaning of the property of transient debris and trash. Presbyterian is planning to pay the fine at bill of Sale to Schuck (CTL Thompson, 2018d). If abundant trash remains on Site, further cleanup should commence and should be disposed of to the proper solid waste facility.

The Site topography generally slopes toward the north and east in the northern half of the Site, the Site topography generally slopes toward the east and south in the southern portion of Site, and the Site topography generally slopes down toward the south, southwest and west in the Presbyterian parcel of the Site as presented in the topographic map (Figure 1). CTL Thompson performed exploratory borings extending to a depth of 45 feet below ground surface (bgs) and groundwater was not encountered (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson 2018c). However, no exploratory borings occurred on the Presbyterian parcel (CTL Thompson, 2018d). There are no known water wells on Site, but there are adjacent domestic wells (CTL Thompson, 2018a; CTL Thompson, 2018b).

1.3.1 Adjacent Properties

Present day adjacent properties are developed or vacant land and drainages in the southern portion (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d). A utility easement for natural gas, communication, and electric utilities is present along the south and west boundaries of the Site (CTL Thompson, 2018a). In summary, one spill, one underground storage tank (UST), three leaking storage tanks (LST), one above ground storage tank (AST), six solid waste facilities (SWF), one Resource Conservation and Recovery Act, and one hazardous waste site – generator (HWSG) are present adjacent to the Site or within one-half mile of the Site (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d). The Sand Creek is also adjacent to Site. The upgradient locations and/or distance from these instances do not pose a concern where operations would be affected during soil movement and disturbing activities. For further information on the Site's adjacent properties, refer to CTL Thompson's Phase I ESAs (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d).

1.4 Site Environmental Conditions

CTL prepared three Phase I ESAs (north parcel, south parcel, and the Presbyterian parcel (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d)), a Geologic Hazards Evaluation (CTL Thompson, 2018c), and a Subsurface Investigation (RMG, 2002). Pinyon applied the findings and sought the imbedded historical information from CTL's reports to complete this MMP. Site features include the following (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson 2018c; CTL Thompson, 2018d):

- Stockpiles of soil or construction and demolition debris
- Construction and demolition debris along the banks of Sand Creek

- Construction and demolition debris where random dumping occurred on the Presbyterian parcel (may include yard waste and lumber as well)
- High power transmission lines
- Natural gas pipelines
- Uncontrolled or artificial soil fill

The following subsections describe the general environmental concerns identified for the Site.

1.4.1 Historical Urban Fill (HUF)

The Colorado Department of Public Health and Environment (CDPHE) records indicate landfill activities that occurred from 1983 – 1999 on the Wilde Landfill property, which resided in portions of the northern and southern parcels (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d). Under a Certificate of Designation and an Engineering Design and Operations (EDO) report of file, the Wilde Landfill property was a construction and demolition landfill, accepting soil, concrete and asphalt from the City until 1996 (CTL Thompson, 2018a). However, contaminated soils from leaking underground storage tanks (USTs) was accepted for an unknown period of time (CTL Thompson, 2018a). Areas of impacted soil may be present in the landfill.

In 1996, the Wilde Landfill property began accepting waste from the general public without regulation (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018d). Due to possible unknown waste, other chemicals of concern may be present on Site. To Pinyon's knowledge, methane in soil has not been thoroughly evaluated on Site. Methane can travel laterally from a landfill through the path of least resistance, including loose or porous soil and utility corridors. Methane can become explosive if it is present in sufficient concentration and comes into contact with an ignition source. Methane has a Lower Explosive Limit (LEL) of 5% by volume, and an Upper Explosive Limit (UEL) of 15% by volume. More information on methane field screening is provided in Section 6.2.

1.4.2 Construction and Demolition Debris and Artificial Fill

Throughout the north and south parcels, concrete and asphalt debris and piles of roofing, shingles and brick were observed (CTL Thompson, 2018a; CTL Thompson, 2018b). Concrete and asphalt debris and transient debris (e.g. yard waste and lumber) were observed on the Presbyterian parcel (CTL Thompson, 2018d)). On-Site debris could be from a different Site where asbestos assessment was not required. Due to the Wilde Landfill acceptance of public waste for a portion of time, there is potential for discovering buried debris and undocumented filling. Areas of construction debris, remnant foundations, or other undocumented or uncontrolled (artificial) filling have the potential to contain Regulated Asbestos Contaminated Soil (RACS) and other contaminants or universal wastes. Further, buried debris may result in unstable building platforms, where voids or settlement could occur.

Three exploratory borings (CTL Thompson), eight exploratory test pits (CTL Thompson), and seven test holes (RMG Engineers) were drilled or excavated on Site (Figure 2 in Appendix A). Debris and artificial fill were present in the test pits and borings. The predicted locations of the artificial fill, af_1 and af_2 , is presented in Figure 2 of Appendix A. Borings extended to depths 20 - 45 feet bgs. Test pits extended to depths 6 - 14 feet bgs (CTL Thompson, 2018a; CTL Thompson, 2018b, CTL Thompson, 2018c, RMG, 2002). Borings, test pits and test holes were not conducted on the Presbyterian parcel but placed fill or imported soils and stockpiles were observed, with additional soil placed for possible site grading (CTL Thompson, 2018d).

1.5 Types of Potentially Impacted Materials

As part of the proposed project, excavation activities will be required. Based on a review of previous environmental documents and the proposed improvements for the project, the following materials may be encountered and may be impacted.

- **Construction and demolition debris:** Construction and demolition debris was buried on the Site in the past. In addition, the Site accepted unregulated material for a period of time. Construction and demolition debris were identified during the previous on-Site geotechnical investigation, and construction and demolition debris, as well as transient debris (e.g. yard waste and lumber debris) were observed on the surface (CTL Thompson, 2018c; CTL Thompson, 2018d).
- **Asbestos-containing materials:** Due to the Site's history involving construction debris storage and dumped surface solid waste, ACM may be encountered.
- **Impacted soils:** Based on the industrial activities near the project area and acceptance of contaminated soils from leaking underground storage tanks and landfilling on the property, impacted soils may be encountered.
- **Water:** Groundwater was not encountered at depths down to 45 feet bgs in some areas of the Site. Seasonal groundwater shifts are possible. The Site is near the Sand Creek.

1.6 Voluntary Cleanup Program (VCUP)

This project will pursue inclusion in the CDPHE Voluntary Cleanup Program (VCUP) and is in the process of submitting an application. The VCUP is being pursued to improve the property, to further investigate current conditions, to further address possible concerns and then achieve a No Action Determination (NAD) petition from CDPHE. Criteria for inclusion in the VCRA Program includes:

- The applicant is the current property owner. Three of the parcels are owned by Pikes Peak Heights. One parcel is currently owned by Presbyterian Church of Raton; however, completion of the sale to Pikes will be completed at a later date. The property is not the subject of a corrective action order or agreements issued pursuant to neither the voluntary cleanup provisions nor those of the Resource Conservation and Recovery Act (RCRA).
- This property is not subject to an order issued by, or an agreement with, the Water Quality Control Division.
- A facility that has or should have a permit or interim status for treatment, storage or disposal of hazardous waste is not known to have operated on the property.
- The property is not subject to the UST regulations of RCRA.
- The Site is not listed or proposed for listing on the National Priorities List (NPL) of Superfund Sites established under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

1.6.1 Verification of Debris Removal for NAD

At the conclusion of the implementation of this MMP and VCUP activities, a NAD petition will be completed and submitted to the CDPHE. In order to better achieve the NAD, the QPM or MMP Supervisor will provide daily written and photo documentation of site construction activities, construction and demolition debris,

suspect material, and relevant observations that are related to this MMP and the VCUP. It is anticipated that it will be visually apparent when the bottom of the debris layer and top of native material is encountered during excavation. Additionally, it is possible there may be evidence of former vegetation due to the nature of the original, uncontrolled fill placement on native vegetation. Bottom of debris depth will be documented in daily logs by the QPM through visual observations and photographs. If the presence of native material and/or absence of fill debris is uncertain, the QPM will direct excavation activities to continue until there is a greater confidence that native material is present.

Daily field documentation logs and the minimum requirements are further explained in Section 3.1.1 (QPM and MMP Supervisor Requirements and Training).

2. Health and Safety

There is a potential for increased risk to the health and safety of workers during the proposed activities at the Site. Awareness by Site personnel of these hazards is of the highest priority. Therefore, a Health and Safety Plan (HASP) must be developed by the Contractor. The Contractor's field personnel must conduct work, at a minimum, in Level D attire according to the Occupational Safety and Health Administration (OSHA) Standard 1910.120 App B until the Contractor's Health and Safety Officer (HSO) determines that additional protection is required. If impacted materials are encountered, the MMP Supervisor will provide the HSO with information, as available, to assist in that evaluation. It is the responsibility of the on-site QPM, in addition to the Contractor, to comply with the provisions in this plan. At any point that unknown or potentially impacted materials are encountered, the QPM will immediately call the MMP Supervisor.

If necessary, additional training for existing staff or new staff with increased training will be used to continue the work, including appropriate personal protection equipment (PPE). Work at the Site will be covered by the HASP developed by the Contractor. The Contractor will be required to employ and train the proper personnel, monitoring equipment, and PPE to provide a safe working environment for its employees, consultants, and sub-contractors. The provisions of this MMP are summarized below and will be incorporated into the HASP. In no way shall the HASP be limited to these provisions:

- The work will be performed in accordance with 29 Code of Federal Regulations (CFR) 1910 (Occupational Safety and Health Standards) while also following the requirements of the OSHA 29 CFR 1926 (Safety and Health Regulations for Construction).
- It is the Contractor's responsibility to employ workers with the appropriate level of training when implementing this MMP, in accordance with 29 CFR 1910.120 (Hazardous Materials) for the task being completed. Workers who may come into contact with suspect materials will provide documentation of appropriate OSHA safety training, in accordance with 29 CFR 1910.120, to the HSO.
- The potential to encounter asbestos warrants additional training. Site personnel responsible for excavation activities, in addition to the QPM, will complete, at a minimum, 2-hour asbestos awareness training so that workers are trained sufficiently to avoid asbestos hazards, if encountered during the project. When demolition debris or suspected ACMs is encountered, the QPM and all workers will stop work and contact the CABI to inspect materials during excavation.
- The general Contractor may share its HASP with its subcontractors or require each subcontractor to prepare its own plan.

3. Requirements and Training

The following sections outline responsibilities and training requirements for contractors, supervisors, front-line workers, excavation workers, and other workers.

3.1 Contractor Requirements

The Contractor will be responsible for the following:

- Designating a HSO, QPM, MMP Supervisor and/or primary CABI. The QPM will always be on-site during excavation and placement activities of construction and demolition debris. The CABI may be on-call and should also have the same qualifications as the MMP Supervisor. If multiple roles are filled by the same individual, the individual must meet all requirements outlined for each role.
- Inspecting all excavated soil and construction and demolition debris for suspect materials such as solid waste, impacted soil, debris, and materials suspected of containing asbestos. This is one of the primary responsibilities of the QPM.
- Providing necessary equipment and personnel to implement the MMP.
- Coordinating review of MMP requirements with the MMP Supervisor, the Project Manager, Project Design Professional, and other support personnel.
- Providing asbestos awareness training, in accordance with Section 5.5.3(A) and (B) of the Regulation Pertaining to Solid Waste Site and Facilities 6 Code of Colorado Regulation (CCR) 1007-2 [Solid Waste Regulations] (CDPHE, 2015), to Project personnel who will conduct soil work.
- Ensuring that subcontractors adhere to the MMP during Project work.
- Ensuring that proper procedures for material reuse or disposal are followed. This includes ensuring that suspect material that has been disturbed is not reused on-Site unless it meets the designated reuse criteria or is disposed via proper channels and not in storm drains, sanitary sewers, streams, waterways, or off-site to a location not in compliance.
- When asbestos is encountered (or suspected), the Contractor will complete work in accordance with Section 5.5 (Management of Regulated Asbestos-Contaminated Soil [RACS]) of the Colorado Department of Public Health and Environment (CDPHE) Hazardous Materials and Waste Management Division Regulations Pertaining to Solid Waste Sites and Facilities, 6 CCR 1007-2, Part I (the Section 5.5 Regulation; CDPHE, 2015). The Contractor's primary CABI will coordinate with the Environmental Professional and Project Manager, who will coordinate as needed with the CDPHE, including providing adequate notification.
- Ensuring that the QPM is qualified to verify implementation of this MMP.
- Contacting the Project Manager for conditions resulting in schedule or budget impacts to the project.

3.1.1 QPM and MMP Supervisor Requirements and Training

Prior to implementation of the MMP, the Contractor will retain an MMP Supervisor and QPM to independently verify that the requirements of this plan are followed. The QPM must have training and/or experience necessary to identify materials suspected of containing asbestos and have authority to make prompt decisions relating to the management of such materials, and meet the qualifications of a QPM as outlined in Section 5.5.3 of the Solid and Hazardous Waste Commission/Hazardous Materials and Waste Management Division, 6 CCR

1007-2, Part I - Regulations Pertaining to Solid Waste Sites and Facilities. The QPM will work closely with the MMP Supervisor if any suspect materials are uncovered. The MMP Supervisor will work with the Environmental Professional to identify proper waste disposal procedures. The QPM and MMP Supervisor will be capable of identifying environmental impacts addressed in this MMP. Either the QPM or a certified CABI will be on site during all excavation activities. If the QPM comes across suspect asbestos material, they will stop work and will immediately contact a CABI, further explained in Section 3.1.2. It is the responsibility of the QPM to:

- Complete daily field documentation logs detailing:
 - environmental conditions
 - responses to suspect materials
 - volume and origin of debris removed and subsequent placement
 - observation of native material and/or absence of debris indicating extent of HUF
- Photo documentation should also be included where applicable; required photo documentation is noted in the Daily Field Documentation Log provided in Appendix D
- Provide regular updates to the HSO and Project Manager.
- Ensure adherence to the MMP by identifying suspect materials, contacting the appropriate personnel, and applying proper procedures outlined herein.
- Notify the HSO and MMP Supervisor immediately of any unexpected environmental conditions or potentially impacted material.
- Be on-site during excavation activities.
- Track and/or document tickets and manifests for material hauled off-site for either reuse or disposal.
- Complete logs that thoroughly detail Project Quality Assurance (QA) activities.

The MMP Supervisor will support the QPM upon discovery of any suspect materials:

- Verify or perform field screening of soil in adherence to this plan (see Section 6.0).
- Provide assistance on characterization of suspect materials.
- Work with the CABI if suspect asbestos containing material is found:
 - If RACS is suspected, a CABI will complete confirmation sampling. If the material is confirmed to be RACS the CABI will file a notification to the CDPHE and a copy must be submitted to the Project Manager within 24 hours. The MMP Supervisor can only complete this task if she/he is a CABI (requirements listed in Section 3.1.2).

3.1.2 Certified Asbestos Building Inspector

Oversight and documentation of RACS shall be conducted by a CABI who meets the training requirements of Section 5.5.3(D) of the Regulation Pertaining to Solid Waste Work Sites and Facilities. The CABI will also be trained and certified in accordance with Air Quality Control Commission (AQCC) Regulation No. 8 (5 Colorado Code of Regulations (CCR 1001-10, Part B)), for the identification of ACM and the collection of samples to evaluate asbestos content. All CABIs must have worked on at least three different asbestos-in-soil

projects and have a minimum of 40 hours of experience as a CABI. The CABI must have sufficient experience to identify solid waste, and associated RACS in the field. Depending on the project schedule, a minimum of one CABI will be on-call during excavation work in case suspect materials are encountered by the MMP Supervisor. It may be necessary to engage multiple CABIs if areas of known historical fill or debris are identified at multiple excavation areas. If the designated CABI cannot conduct the two-hour awareness, a contractor who is a certified CABI and who also meets the training requirements of Section 5.5.3(D) of the Solid Waste Regulations can provide the two-hour awareness training by request of the Project Manager.

Note: Personnel, including the CABI, in the Regulated Work Area need to have annual awareness (general awareness), site specific awareness per project chain of command, and hands on training

For this project, the CABI will complete the following:

- **Be on-Site when suspect materials are identified** (the QPM will stop work when suspect materials are identified and call the CABI).
- Conduct Two-Hour Asbestos Awareness Training to all Project workers that engage in subsurface excavation work, such as equipment operators and laborers. If Project personnel change for any reason during Project work (i.e., additional or replacement personnel), the CABI will conduct additional Two-Hour Asbestos Awareness Training as needed. Two-hour Asbestos Awareness Training should include such topics as:
 - Background information on asbestos
 - Health effects of asbestos
 - Worker protection programs
 - Recognition of suspect materials, including HUF, debris, or other materials where there would be reason to believe that RACS may be present
 - Site-specific concerns related to asbestos and HUF
 - Immediate actions should RACS be suspected
- Collect samples of suspect materials as needed.
- If RACS is managed during the project, it is the responsibility of the Contractor and CABI to ensure that the subcontractor performing RACS disturbance is capable of meeting the state requirements.
- Provide field notes of sampled or suspect materials to the QPM.

3.1.3 Health and Safety Officer Requirements

Prior to the initiation of Project work, the Contractor will designate an HSO. The HSO must:

- Prepare the Contractor's HASP
- Complete health and safety monitoring during subsurface work
- Evaluate the appropriate level of PPE based on health and safety monitoring to be completed during subsurface work
- Ensure that Project activities and personnel adhere to the HASP set in place by the Contractor

The Site is considered a non-hazardous waste Site. However, if any hazardous materials are discovered during excavation of the property, the personnel and workers on Site exposed to potential or actual hazardous waste will need 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) and/or HAZWOPER 8-hour refresher training. The Health and Safety Officer can make this determination at any time under guidance from an Environmental Professional.

3.1.4 Environmental Professional Requirements and Training

Prior to the initiation of Project work, the Project Manager will designate an Environmental Professional in the event suspect materials or suspicious soils are encountered on Site. During instances where the MMP Supervisor discovers soil that "looks bad or smells bad", an Environmental Professional must:

- Evaluate the encountered materials, provide field screening, decide if laboratory analysis is appropriate and decide on proper disposal steps or measures as further explained throughout sections 4 – 9 of the MMP
- The Environmental Professional must meet the following qualification:
 - Hold a current professional engineer's license or professional geologist's license or registration from a state, tribe or U.S. territory and have the equivalent of three years of full-time relevant experience; or be licensed or certified by the federal government, a state, tribe or U.S. territory to perform environmental inquiries and have the equivalent of three years of full-time relevant experience; or have a baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five years of full-time experience; or have the equivalent of ten years of full-time relevant experience
 - Be under the supervision of one with the above bulleted qualifications

3.1.5 Worker Requirements

Tier 1, Tier 2 and Tier 3 workers will be utilized during project activities. Worker responsibilities are as follows.

3.1.5.1 Tier 1 – Front-Line Workers

Tier 1 workers include personnel that would be responsible for mitigating suspect materials and include equipment operators and laborers actually handling materials in accordance with this MMP. These workers must:

- Complete two-hour asbestos awareness training conducted by the CABI.
- Complete work as directed by the QPM, and in accordance with this MMP and HASP requirements.
- Complete training in accordance with the HASP. The level of training in accordance shall be the decision of the HSO.

3.1.5.2 Tier 2 – Excavation Workers

Tier 2 workers include personnel that could encounter potentially impacted materials during the course of work but will not be responsible for management of these materials. These employees include, but are not limited to front-line equipment operators, foremen, and operators that will complete typical excavation activities during the Project but will not complete handling of these materials after discovery. These personnel must:

- Complete two-hour asbestos awareness training conducted by a CABI.
- Complete work as directed by the QPM, and in accordance with this MMP and HASP requirements.
- Immediately stop work if potentially suspect materials are identified and notify the QPM of the discovery who will immediately contact the CABI.
- Complete training in accordance with the HASP. The level or training in accordance shall be the decision of the HSO.

3.1.5.3 Tier 3 – Other Workers

Tier3 workers include personnel that will not complete sub-surface work activities. As the potential for these workers to encounter impacted materials on this Project is low, MMP training requirements do not apply.

4. Soil Evaluation Criteria

CDPHE Groundwater Protection Values (CDPHE, 2014), US Environmental Protection Agency (EPA) Regional Screening Levels (EPA, 2019; Appendix B) and other state/federal guidance will be used for comparison to soil data. The following guidance is applicable for evaluating soil concentrations for varying exposure scenarios:

CDPHE Groundwater Protection – These are often the most protective values and were developed to protect groundwater; these values are the maximum chemical concentration in soil that will not leach into groundwater. The CDPHE-Hazardous Materials and Waste Management Division Groundwater Protection Values Soil Cleanup Table (Appendix B) values will be used for comparison to soil data.

EPA RRSL Residential Protection – These are the second most protective values and are typically the soil concentrations that would be considered appropriate for reuse in residential areas and parks without restriction (except where values do not meet groundwater protection values as described above). These are the Residential Regional Screening Levels (RRSLs, Appendix B).

EPA CWRSL Composite Worker Protection – These are the third most protective values and are the acceptable concentrations that would be protective for workers on Right of Ways (ROW's) (e.g., roads, sidewalks, bike paths), utilities corridors (e.g., stormwater, wastewater, water), or worker-occupied facilities (e.g., maintenance garages, office buildings, safety buildings) (Appendix B). Soil that is lab analyzed to have concentrations that exceed the CWRSL will be removed from the Site, and disposed of at an appropriate landfill, following proper waste profile and manifest procedures. These are the Composite Worker Regional Screening Levels (CWRSLs, Appendix B).

Arsenic Standards (exception to RSLs) - In Colorado, arsenic occurs naturally, and often at concentrations greater than the RSLs. The CDPHE has state-specific guidance related to evaluating arsenic concentrations in soil, specifically regarding screening data collected from sites where historical use does not indicate the potential for arsenic impacts (CDPHE, 2011). The guidance is based on the collection of over 2,700 samples from 44 counties in Colorado. The average concentration of arsenic in soils based on this sampling was 11 milligrams per kilogram (mg/kg). The CDPHE has adopted a policy that if arsenic concentrations are lower than 11 mg/kg, and releases of arsenic could not have occurred at the site, the CDPHE will require no further action to address arsenic in soil.

Hazardous Waste – A material can be defined as hazardous based on definition (i.e., EPA F-Listed wastes) or based on characteristics such as corrosivity, ignitable, reactivity, or toxicity characteristics. A material is defined as hazardous if any of the following criteria are met:

- The material contains a listed hazardous waste (discussed in 6 CCR 1007-3 Part 261 Subpart D)
- The pH is less than or equal to 2.0 or greater than or equal to 12.5; this material would be considered corrosive
- The flashpoint is less than 140 degrees Fahrenheit; this material would be considered ignitable
- The material is reactive
- Toxicity Characteristic Leaching Procedure (TCLP) results exceed the hazardous waste threshold

20 Times Rule – Solid waste landfills will likely accept solid material where concentrations are less than 20 times the EPA Toxicity Maximum Concentrations of Contaminants (Appendix B); this is referred to as the “20 Times Rule”. The EPA Toxicity Maximum Concentrations of Contaminants utilizes a 20 times dilution and

therefore it is not possible to exceed TCLP values unless the total concentration is greater than 20 times the TCLP concentration. As an example, the regulatory level for lead provided by the EPA Toxicity Maximum Concentrations of Contaminants is 5.0 milligrams per liter (mg/L) when analyzed by TCLP. The Waste Management acceptable limit, when analyzed by totals analysis, would then be less than 100 mg/kg, using the 20 Times Rule. If concentrations of a contaminant exceed the 20 Times Rule by totals analysis, then analysis for TCLP is required. If the TCLP results exceed the toxicity characteristic maximum concentration, then the material would require disposal at a hazardous waste disposal site in accordance with CDPHE requirements. Polychlorinated biphenyls (PCBs) are an exception to this rule, as discussed in Section 8.3.

5. Reuse Criteria

Details regarding various categories of soil use are presented in the sections below. Pending approval from the CDPHE, the construction and demolition debris (including only asphalt, concrete, unaffected soil, and gravel already present on the Site) will be moved from its current location and buried in the designated open space area (designated area). The designated area is located under the future open space trail, located north of the southern detention pond and to the south of the east to west utility gas line (Figure 2). The designated area is located outside the 100-year floodplain. Any solid waste, other than construction and demolition debris, that is characterized as non-hazardous and meets waste acceptance criteria will be taken to a licensed landfill. No solid waste including garbage, refuse, or other organic material will be reused on Site.

5.1 Use of Soil with Construction and Demolition Debris

Pending approval from the CDPHE, construction and demolition debris will be moved from its current location and buried in the designated area.

Soil with solid waste, including any garbage, refuse or other organic material and that is characterized as non-hazardous and meets waste acceptance criteria will be taken to a licensed landfill. It is prohibited to bury any organic or typical municipal waste such as wood, paper, vegetation, trash, plastic, etc., on Site.

Certain materials are pre-approved by the CDPHE for beneficial use (Appendix C), such as reclaimed asphalt and reclaimed concrete, brick, and stone (non-asbestos bearing materials). If these materials are identified, and are considered for reuse, confirmation with the Environmental Professional and Project Manager about the end use must be obtained before reuse of these materials may occur.

5.1.1 Environmental Covenant or Restrictive Notice

The consolidated waste area is identified in this MMP as the “designated area” and defined as the open space where approved construction and demolition debris will be transported and buried. Following the completion of closure of the designated area, in accordance with Section 3.4.1 of the Regulations, the project will record a notation on the deed and create an environmental covenant (EC) or restrictive notice (RN). The notation and EC or RN shall, in perpetuity, notify and potential purchaser of the property that the land has been used as a solid waste landfill and that its use is restricted under Section 3.6.1(A)(7) of the Solid Waste Regulation and the environmental covenant statute, §25-15-320 C.R.S.

5.2 Non-Impacted/Unrestricted Reuse Soil

Soil with constituents of concern at concentrations below EPA RSLs may be reused at residential, commercial, or industrial locations (off-site), assuming:

- The receiving facility has knowingly agreed to accept this material
- The receiving facility has been provided and understands the analytical data
- The soil is free of all non-soil debris (for off-site reuse)

For on-site reuse, and pending CDPHE's approval, construction/demolition debris in soil that specifically includes only asphalt, concrete or gravel may be reused on the Site. This material must not contain other solid wastes such as, but not limited to, municipal solid waste (i.e., trash), dimensional lumber, ACM, RACS, or soil with chemical impacts.

5.3 Impacted Soil

Soil with chemical concentrations above EPA RSLs, must be disposed at a licensed landfill.

5.4 Non-Hazardous and Solid Waste Disposal

The Contractor, QPM, Environmental Professional and CDPHE must coordinate before the project begins to obtain landfill approval/waste profile, and waste manifests. As of the date of this report, Pinyon is aware of soil sampling being completed by CTL Thompson for the project via a Phase II ESA; therefore, the property will not require soil sampling prior to a waste profile being approved and waste manifests issued, if needed as long as the Phase II soil sampling fully covers the site in a representative way.

Pending CDPHE's approval, non-RACS solid waste (except for construction and demolition debris already present on the Site), including municipal solid waste and debris, and non-hazardous waste including geotechnically unsuitable soils or soils with constituents of concern at concentrations above EPA RSLs (not characterized as hazardous or liquids, see Section 5), must be transported off-Site to a licensed landfill. **These materials may not be reused on-Site.**

Note: Certain waste streams are specifically excluded in the Solid Waste Regulations (CDPHE, 2015). The Environmental Professional will be responsible for ultimate classification for disposal.

5.5 Hazardous Waste Disposal

If sample analysis indicates that the soil is designated as hazardous waste, the soil will be containerized immediately in a lined roll-off box, labeled, and transported to a designated storage area (either on-Site or off-Site) pending off-Site disposal at a hazardous waste disposal facility. Waste manifests must be completed for the material prior to transportation to the disposal facility in accordance with state and federal regulations. Once identified as hazardous waste, this material may not be stored on-Site longer than 90 days and should be removed as soon as practicable.

The Deer Trail Landfill operated by Clean Harbors Environmental at 108555 East Highway 36 in Deer Trail, Colorado is the only facility within Colorado licensed to accept hazardous waste. The next closest licensed hazardous waste disposal facilities are in Nebraska, Utah and Texas. Manifestation and transportation of these waste materials on public highways, streets, or roadways will be in accordance with 49 CFR and any applicable Department of Transportation regulations.

6. Soil Handling Procedures

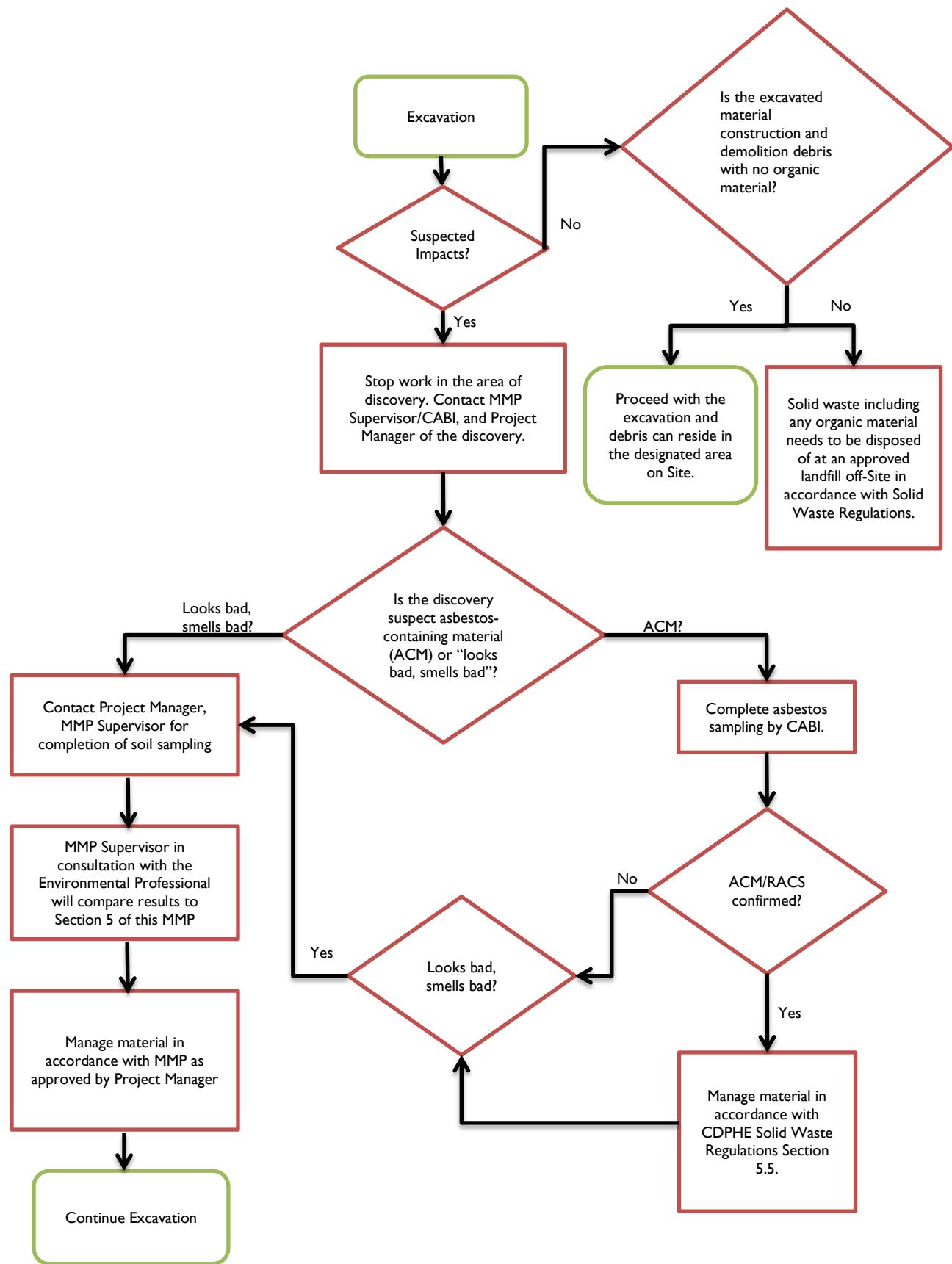
Project activities include excavation in areas where soil with contaminated media could be encountered. Additionally, because of the heterogeneous nature of the soil, it is important that the Contractor be aware of the possibility of encountering suspect materials and understand how to manage those materials, which is a key purpose of this MMP.

6.1 General Procedures

This MMP is intended to be appended to the construction plans and be made part of the contract documents. The following procedures apply to all excavation activities including:

- The Contractor will be responsible for providing the necessary equipment and personnel (including health and safety officers, equipment operators, foremen, laborers, etc.) to implement this MMP.
- The Contractor will be responsible for providing the QPM, MMP Supervisor and CABI. The Contractor's staff will be required to coordinate with CDPHE, the waste disposal facility, and the Engineer prior to work commencement, to verify that provisions of this MMP are implemented.
- In suspect areas of the project where Solid Waste, Non-Hazardous Waste, Special Waste, or Hazardous Waste may be excavated, the MMP Supervisor, shall be on Site on a full-time basis to verify that provisions of this plan are followed.

The following process-flow chart presents a general flow of procedures that will be followed during excavation activities at the project:



6.2 Field Screening

Construction and Demolition Debris/Solid Waste – Visual monitoring of excavated soils must be completed during Project construction and will be completed by the QPM. Construction and demolition debris or solid waste that is encountered with suspect or unknown asbestos containing materials will be assessed for the presence of suspect ACM or RACS by a CABI.

Staining/Odors – The QPM and all project personnel will assess excavated soils for visual and olfactory indications of potential impacts. Soils where visual or olfactory impacts are observed may be screened with field instrumentation but must be sampled to allow it to be designated for unrestricted use or disposal.

If potentially impacted soil is identified, excavation within proximity to the impacted area will then only continue under the observation of an Environmental Professional or the MMP Supervisor. The utmost care should be taken to separate “clean” soils from potentially impacted soils. Any petroleum-impacted soils will not be reused, therefore a Beneficial Use Determination (BUD) will not be required. Field screening (as defined below) may be used as an initial screening tool for the “looks bad, smells bad” classification but this is not a sufficient method for unrestricted use designation. Laboratory analysis will be used to further classify petroleum-impacted soils including analysis for one or all the following, depending on the impacts and field screening results:

- BTEX and MTBE (EPA Method 8260B)
- VOCs (EPA Method 8260)
- TPH (EPA Method 8015)
- PAH (EPA Method 8270) if TPH threshold is exceeded

Field Instruments – Field instruments will be utilized on an as-needed basis, particularly if petroleum- or solvent-impacted soil is suspected. A photoionization detector (PID) or flame ionization detector (FID) (related to heavy petroleum hydrocarbons such as oil or grease) may be used in the field to screen for non-specific Volatile Organic Compounds (VOCs). If PID/FID concentrations exceed 50 parts per million (ppm), sampling will be required.

Landfill Gas – Field monitoring for landfill gases (such as methane) will be required; previous monitoring has not been performed on the Site. Monitoring using a four-gas meter should be performed anytime work is being conducted below grade. If initial monitoring shows no evidence of methane, the QPM may make a decision on future monitoring requirements.

General Soil Stockpiling Requirements - If uncharacterized materials are encountered, the material must be temporarily stockpiled on 6 mil plastic sheeting and covered pending receipt of the results of laboratory analysis. Stormwater best-management practices (BMPs) as identified in the Storm Water Management Plan (SWMP) will be applied to the stockpiles of potentially impacted material to prevent contact with stormwater runoff and erosion. Stockpiles of potentially impacted soil will be limited to a maximum of 500 cubic yards each. All other soils must be handled in accordance with the SWMP. This general stockpiling requirement does not apply if RACS is suspected or confirmed to be present (see Section 6.4). Non-asbestos inert waste that has been inspected by a CABI may be left uncovered overnight as long as nuisance conditions can be controlled pursuant to Sections 1.2, 2.1.3, 2.1.6, 3.3.5 and 3.3.6 of the Solid Waste Regulations.

6.3 Historic Urban Fill Areas

The Site itself is a HUF area and is considered a recognized environmental condition that may impact the Project. Although asbestos has not been specifically identified, the presence of HUF in the area indicates that RACS may be encountered during subsurface work. All HUF and debris, unless clearly identified as solely construction and demolition debris (with no suspect coating or layers) regardless of location, must be screened by a CABI for potential RACS.

6.4 Asbestos in Soils

As described in Section 5.5 of the Solid Waste Regulations:

- Non-RACS is soil or debris that contains intact, non-damaged ACM, or damaged non-friable ACM that does not have a high probability to release fibers as determined by a CABI.
- RACS is soil, ash, or debris (plus 6 inches in all directions) containing friable ACM, non-friable ACM that has been rendered friable, or deteriorated ACM that has a high potential to release fibers due to weathering or other processes.
- RACS also includes soil where there is documented evidence of asbestos fibers (at any concentration).

Essentially, Non-RACS material contains ACM that is unlikely to release asbestos fibers, and RACS is material that contains ACM that is likely to release asbestos fibers. Although Non-RACS is technically not subject to the provisions of Section 5.5 of the Solid Waste Regulations, disposal requirements still apply per Section 5.2 of the regulation. Further, the presence of Non-RACS still requires special attention during management activities, as there is a high potential that RACS and Non-RACS may be co-located, or that management activities may result Non-RACS releasing asbestos fibers, and thus creating RACS. If suspect RACS, or Non-RACS material is identified by the QPM, then a CABI, who meets the training requirements as defined in Section 3.1.2 of this MMP, will be requested on Site to investigate the material.

If suspect asbestos-containing debris, waste, RACS, or Non-RACS is encountered, the Contractor shall immediately stop work, secure the work area, and implement the following.

- Stop work and implement access controls (secure the work area).
- Submit a Notification of RACS Disturbance form to the Department's Hazardous Materials and Waste Management Division (the Division) within 24 hours of identifying RACS during soil disturbing activity.
- Stabilize the RACS materials in accordance with Section 5.5.4(A)(3) of Regulation 5.5.
- Equipment that may have come into contact with RACS will likely have to be decontaminated before it moves to another area of the Site.
- A minimum of one CABI will be present if general excavation activities expose suspect asbestos materials. A QPM must be present during all excavation activities. All RACS management will be performed by a Contractor capable of meeting the requirements in Section 5.5 of the Solid Waste Regulations, as documented by a CABI. Non-RACS contains asbestos and cannot be managed as general solid waste. Non-RACS must be declared and disposed of as non-friable asbestos waste.
- If suspect RACS is discovered, the critical requirement is to avoid cross contamination and generating or being in direct contact with airborne dust; work shall stop immediately upon discovery. Notification must be made to the QPM and the Project Manager immediately, and a CABI must be called to inspect the material.

- RACS must be characterized and managed in accordance with Section 5.5 of the Colorado Solid Waste Regulations. Alternatively, the Contractor may choose to prepare a Project-Specific RACS Management Plan (PSRMP), which will be subject to review and acceptance by CDPHE. Only after approval from the Division can a management plan be implemented.
- ACM associated with buried utilities may be addressed under provisions of the CDPHE Regulation No. 8 – Part B, Asbestos. Confirmation with Schuck and CDPHE will be required to address how facility components containing asbestos will be mitigated, if encountered.

7. Construction Water

Construction water may consist of stormwater, surface water, groundwater, and leachate and will be addressed using the following procedures.

7.1 Stormwater

The Contractor shall obtain a Colorado Discharge Permit System (CDPS) permit for stormwater discharges associated with construction. The Contractor shall comply with the SWMP for construction of this project as required by the permit. As part of the SWMP, the Contractor is responsible for water control facilities as required to promptly remove and properly dispose of stormwater that may impact the project Site. The Contractor should exclude any stormwater from entering any open excavation to the maximum extent possible.

7.2 Groundwater

According to CTL, Groundwater was not encountered during previous investigations down to 45 feet bgs (CTL Thompson, 2018a; CTL Thompson, 2018b; CTL Thompson, 2018c). Groundwater samples were collected on May 28, 2019 and June 7, 2019. Concentrations of detected contaminants were generally below the Colorado groundwater standard, with the exception of Arsenic (91.1 [micrograms per liter] µg/l and 67.6 µg/l), Selenium (86.7 µg/l) and Heptachlor (0.01 µg/l 0.02 µg/l). On August 19, 2019, additional groundwater samples were collected by CTL Thompson from wells MW-2 and MW-3 and analyzed for heptachlor (by EPA Method 505) and arsenic (by EPA Method 200.8). Laboratory results from these samples, reported concentrations of heptachlor less than the laboratory reporting limit. Groundwater from wells MW-2 and MW-3 had concentrations of arsenic of 1.9 µg/L and 7.4 µg/L, respectively. An amended Phase II ESA is forthcoming from CTL Thompson with discussion of these results.

Groundwater was not sampled on the Presbyterian parcel. In addition, seasonal groundwater level changes may increase the odds of encountering groundwater during project activities. Groundwater that may be encountered during subsurface construction activities will require sampling and analysis prior to discharge as part of the CDPHE-Water Quality Control Division (WQCD) permitting process. Water from dewatering operations shall not be directly discharged into any waters of the State, including wetlands, irrigation ditches, canals, or storm sewers, unless allowed by a permit. Unless prohibited by law or otherwise specified in the Contract, the water from dewatering operations shall be contained in basins in locations approved by the engineer, treated for discharge in accordance with the CDPHE-WQCD permit(s), or shall be hauled away from the project for proper disposal in accordance with applicable laws and regulations.

The Contractor will implement the most cost-effective method of groundwater handling and disposal that meets all state and federal regulations. If the Contractor intends to treat groundwater for discharge into waters of the State, the Contractor must abide by the standards set forth in the dewatering permit. If dewatering is necessary, the Contractor will be responsible for ensuring that an approved permit is in place prior to initiating dewatering activities.

The following are some general provisions; however, requirements noted on the permit(s) take precedence over this MMP:

- Untested groundwater or groundwater that does not meet the discharge standards will not be discharged onto the ground, or into sanitary or storm sewer, or any waters of the State.
- Groundwater that does meet discharge standards as evaluated by the Environmental Professional may be discharged in accordance with applicable federal, state and local regulations, or may be used on-Site for

moisture treatment of engineered fill material, or for dust suppression (assuming it meets Colorado Ground Water Standards). Use of groundwater for moisture treatment or dust suppression must be confirmed to be in compliance with water rights before implementation.

- Where chemical concentrations in groundwater are above permit limits, the water will be either be permitted and treated on-Site or transported off-Site and disposed at a licensed treatment facility.
- The Environmental Professional will discuss treatment and/or disposal options with the CDPHE-WQCD, and the CDPHE-WQCD will provide direction to the Contractor, who will be responsible for water treatment and/or disposal in accordance with the Contractor's approved permits

7.3 Saturated Soils

Materials excavated from below the groundwater table, such as soil that is saturated, may have the potential to generate liquids. If saturated materials are encountered, stockpile areas will be constructed to drain material before re-use as engineered fill, or transport for off-Site disposal.

Generated liquids will drain to a central sump which must be of sufficient capacity to prevent overtopping. The sump will be excavated into the ground and sloped to a central location. It will also be lined with 10-mil polyethylene sheeting; a layer of gravel will be implemented to hold the sheeting in place and will extend beyond the edge of the sheeting. A berm will be placed around the sump to prevent surface water from commingling with the water generated from the saturated soil. Liquids accumulated within the sump will be submitted for analysis by the Contractor and coordinated with the Environmental Professional. If constituents in the water exceed the surface water standards or CDPHE-WQCD permit limits (if applicable), the water must either be disposed at a licensed disposal facility with appropriate waste profiles and manifests or be treated to meet those standards before discharge (in accordance with the discharge permit). Solid wastes generated during this process must also be evaluated in accordance with sampling procedures prior to disposal; if this material will require disposal off-site, it must pass the paint filter test (EPA Method 9095A) prior to disposal at a licensed solid waste disposal facility.

8. Special Wastes

Although not anticipated, other special wastes could include items such as drums, chemical or fuel containers, slag, coal, ash, biological waste, potential PCB containing electrical equipment (transformers, light ballasts, voltage regulators, capacitors and circuit breakers), batteries, tar, and sludge. These materials may be present in small quantities and can be difficult to characterize. Upon identification of special wastes, excavation at that location will cease until additional assessment by the Environmental Professional can be completed, and Project Manager contacts the CDPHE- Hazardous Materials and Waste Management Division (HMWMD). The Environmental Professional will attempt to assess special wastes based on prudent and safe observation of the following:

- Handling of any special wastes will only be conducted under the direction of the Environmental Professional and will be minimized whenever possible.
- If it is safe to move, special waste will be containerized or be placed on polyethylene plastic sheeting and covered, until additional assessment has been completed by the Environmental Professional. Note: the time frame will allow for laboratory testing and obtaining a profile and manifest for disposal.
- The special waste will remain covered or containerized until final removal.
- Stockpile requirements as described in Section 6.3 will apply and stockpile areas will be secured to prevent contact with unauthorized personnel and the public.
- The material will be characterized by the Environmental Professional and manifests will be obtained before it is disposed of off-site, and the material will be disposed of as soon as possible. If additional assessment of this material indicates that the material does not meet applicable regulatory requirements for disposal as a non-hazardous waste, the Environmental Professional will arrange for off-site disposal at a licensed hazardous waste facility, or other appropriate disposal site.
- Special wastes that are generated will be managed in accordance with applicable local, state, and federal regulations.
- Where special waste is determined to be non-hazardous by the MMP Supervisor or Environmental Professional, the material may be disposed of as non-hazardous solid waste at a licensed landfill.

8.1 Drums or Waste Containers

When drums or waste containers are identified, the Contractor will make note of any of the following conditions and notify the Environmental Professional and Project Manager.

- Indications of unsafe conditions, including swelling drums, leaking, fumes, odors, etc.
- Markings or labels on containers/drums, condition of the containers/drums (e.g., rust, holes, damage, corrosion), and other indications of contents.
- Pressurized/swelling drums, suspected explosives, potentially shock-sensitive materials, or other potentially dangerous items will not be handled until a person with appropriate experience with these situations has been consulted.

8.2 Slag, Coal, Ash

Slag, coal, or ash cannot be reused on the Project. These materials will be disposed at a licensed landfill. These materials should be sampled in accordance with the requirements to dispose of the material at the landfill. If the material cannot be accepted at the landfill, additional sampling may be required by an alternate receiving facility. Ash is frequently associated with RACS and must be managed in accordance with Section 5.5 of the Solid Waste Regulations, or PSRMP, should the Contractor decide to produce one.

8.3 Electrical Equipment (PCBs)

If any potential electrical equipment (including transformers, light ballasts, voltage regulators, capacitors, and circuit breakers) suspected of containing PCBs is identified, it will be segregated, analyzed, and depending on PCB concentrations, transported off-site for disposal at a PCB-permitted disposal facility, if necessary. Until testing is completed, any electrical equipment visually identified during excavation will be assumed to contain PCBs. Equipment where the absence of PCBs has been verified may then be disposed as solid waste or recycled. The Contractor and Environmental Professional must verify that the selected landfill accepts PCB impacted wastes prior to transporting the material to the disposal facility.

8.4 Biological Waste

Previous homeless camps were present on the Site (CTL Thompson, 2018a; CTL Thompson, 2018d). There is a potential for biological wastes. Biological waste includes the following types of waste specified in Colorado Solid Waste Regulations 6 CCR 1007-2, Section 13:

- Biohazardous waste
- Blood and body fluids
- Infectious waste
- Medical waste
- Pathological waste
- Pharmaceutical waste
- Potentially infectious waste

Biological wastes are regulated as solid waste under Colorado Solid Waste Regulations 6 CCR 1007-2 Section 13. Biological wastes should not be handled, and work should be shut down upon discovery of biological waste. The Contractor will contact the MMP Supervisor and wait for the appropriate support personnel and evaluation prior to continuing work.

9. Additional Requirements

In addition to material handling requirements discussed in this MMP, the Contractor must comply with following requirements.

If there are discrepancies between the below stated requirements and Section 5.5 of the Solid Waste Regulations, in areas where ACM/RACS is suspected, Section 5.5 of the Solid Waste Regulations shall govern.

9.1 Dust Control

In accordance with 5 CCR 1001 – AQCC Regulations, the Contractor will obtain an Air Pollution Emissions Notice (APEN) and Application for Construction Permit, if required. The Contractor will take reasonable measures to prevent particulate matter from becoming airborne and to prevent the visible discharge of fugitive particulate emissions beyond the property boundary on which the emissions originate. The Contractor shall provide sufficient quantities of equipment and personnel for dust control sufficient to prevent dust nuisance on and about the Site. Blowing dust and airborne particulates shall be controlled by wetting or other means, if approved by the MMP Supervisor and HSO. Dust control agents shall be applied in accordance with manufacturer's recommendations. The measures taken must be effective in the control of fugitive emissions at all times on the site, including periods of inactivity such as evenings, weekends, and holidays as well as any other periods of inactivity.

9.2 Windblown Debris

Work on Site will be conducted to minimize windblown debris and cease operations during periods of high wind warnings, in accordance with Section 2.1.11 of the Solid Waste Regulations. As defined by the National Weather Service, a high wind warning is issued when sustained winds of 40 miles per hour (mph) or higher for at least one hour or winds gusts of 58 mph or higher are expected. Debris which accumulated along the fence line will be collected and disposed of regularly.

9.3 Decontamination of Heavy Equipment

Equipment that has come into contact with waste will be decontaminated prior to leaving the project Site to prevent potentially impacted material or nuisance weed seeds from spreading off-Site. Gross removal of material from equipment will be completed using hand tool methods such as shovels, tools, and brushes. If the MMP Supervisor finds it necessary, more thorough decontamination may be required such as pressure washing. Spent decontamination water will be collected and pumped into water containers. The Contractor will be responsible for analyzing the wastewater and working with the MMP Supervisor to resolve final disposal options in accordance with all applicable federal, state, and local regulations.

9.4 Soil Stockpiles

If soils require stockpiling due to the discovery of suspect materials or solid waste with possible asbestos, the material must be placed on and covered with 6-mil plastic. Stockpiles for suspect materials must be less than 500 cubic yards and have erosion control measures in place to reduce the amount of soil transported by wind and runoff. Additional requirements may be included in the SWMP; however, best management practices (BMPs) to mitigate potential stockpile erosion include, but are not limited to:

- Minimizing the amount of soil disturbed at one time
- Prevent runoff from off-Site areas from flowing across disturbed areas

- Slow down the runoff flowing across the Site
- Remove sediment from the Site runoff before it leaves the Site

9.4.1 Stockpiles Containing RACS

There are specific requirements for the staging, stockpiling, and storage of RACS in the Solid Waste Regulation. Staging means the accumulation of RACS for twelve (12) hours or less. Stockpiling, as defined in the Solid Waste Regulation 5.5 means the accumulation of RACS that will exist for more than twelve (12) hours, up to and including ten (10) calendar days. Storage means the accumulation of RACS greater than ten (10) days, but not exceeding six (6) months unless a longer timeframe is approved by the Department and complies with local governing authority requirements. The Contractor shall follow the requirements of Section 5.5.7(H) if staging, stockpiling, or the storage of RACS will occur on Site. The storage of RACS for longer than 10 days will additionally require CDPHE approval of a RACS Storage Plan.

9.5 Monitoring Wells

If groundwater monitoring wells are encountered during excavation and construction activities, then the following procedures will be followed.

- Work will be conducted around monitor wells so as not to disturb their construction. If this is not possible, the well will be properly abandoned and if needed, replaced after construction, as coordinated and conducted by the Environmental Professional (which could be the MMP Supervisor if meet the qualifications in Section 3.1.4).
- The Environmental Professional (which could be the MMP Supervisor if meet the qualifications in Section 3.1.4), the WQCD, and CDPHE shall be notified and will coordinate abandonment of monitoring wells.

9.6 Site Security

The Contractor will be responsible for maintaining effective project access control in accordance with Section 2.1.7 and 2.1.8 of the Solid Waste Regulations. Effective access controls should minimize or eliminate illegal dumping of wastes, unauthorized traffic on the Site, and prevent waste materials and debris from leaving the Site.

9.7 Nuisance Conditions

Nuisance conditions are possible during excavation activities, including the generation of odors and attraction of vermin. These conditions will be managed using the following in accordance with Section 2.1.3 of the Solid Waste Regulations:

- Municipal Solid Waste (MSW) stockpiling will be minimized to the extent practical or MSW will be directly loaded into trucks for transportation to a Subtitle D disposal facility, to discourage nuisance conditions from developing.
- Stockpiles that are necessary due to need for characterization or other requirements will be placed on and covered by 6-mil plastic and will be disposed of as soon as possible.
- Backfill activities will be expedited where possible to discourage vermin and prevent odors.

10. Imported Materials

Any soils, including embankment and/or topsoil, imported to the Site must be considered “clean” and meet the Non-Impacted/Unrestricted Reuse criteria as described in Section 5.2. Imported material shall meet the Project specification and must be approved by the Project’s engineer.

If Contractor source material for embankment or topsoil, originating outside of the project limits, is placed on the project and is at any time found to be contaminated with unacceptable levels of hazardous waste or substances, the Contractor shall remove the contaminated material from the project, dispose of it in accordance with applicable laws and regulations, and make necessary restoration.

The cost of complying with these requirements, including sampling, testing, and corrective action by the Contractor, will not be paid for separately, and shall be included in the work.

10.I Sample Analysis and Frequency

In general, the person or entity requesting to reuse the soil shall pay all costs associated with the sampling and analysis of the soil. Representative samples of proposed import fill shall be collected to properly characterize the imported fill with additional sampling required if the characteristics of the import fill change or a different location of import fill is selected. Samples shall be analyzed for the following constituents:

- Volatile organic constituents
- Semi-volatile organic constituents
- Total petroleum hydrocarbons
- Pesticides
- Herbicides
- PCBs
- Arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver
- Asbestos – if debris is found and if suspect asbestos-containing material is found in the debris (e.g., transite, ash, brick mortar, asphalt shingles, etc.)

CDPHE may adjust the frequency of sample analysis, and analysis requirements, at its discretion.

II. Reporting

Upon project completion, the contractor's MMP Supervisor/Environmental Professional will prepare a summary report detailing the work performed at the project specifically related to the implementation of this MMP or as required by the CDPHE. Pursuant to Section 3.5.8 of the Solid Waste Regulations, the report must be signed by a Colorado registered Professional Engineer.

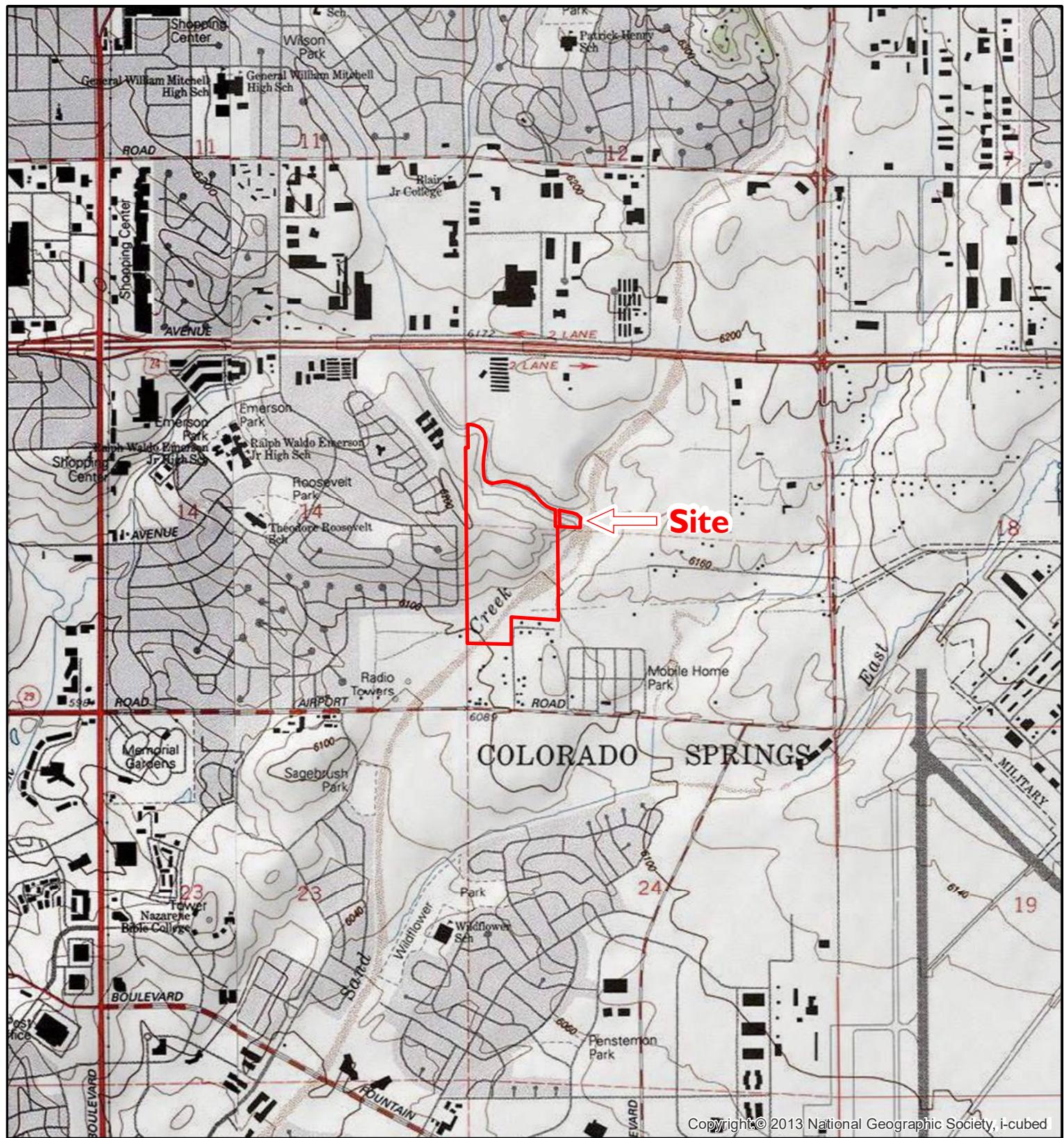
Detailed documentation of the on- or off-Site disposition will be maintained by the QPM. Documentation will include:

- Maps showing the locations of Site features related to this MMP, including sample locations, location of suspect materials discovered, and any other important features identified during the course implementation of this MMP
- Field Screening and analytical data
- Summary and copies of analytical results/reports and geotechnical testing results
- Summary of quantities materials that were managed and the procedures used
- Location and manner (i.e., embankment fill, surface soil, etc.,) of soil use including any cover materials (soil, asphalt, etc.,)
- Location of any waste left in place within the area of disturbance, as may be known by the Contractor
- An as-built topographic survey
- Daily logs
- Construction Record Drawings
- Site photographs of relevant Site activities
- A reference to the proximity to groundwater if groundwater is reached
- Waste profiles and waste manifests for all solid waste, soil, water or other material transported off-Site for disposal
- Any other documentation detailing important features of the project

12. References

- CDPHE, 2011. "Risk Management Guidance for Evaluating Arsenic Concentrations in Soil," Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, June 2011.
- CDPHE, 2014. "Groundwater Protection Values Soil Cleanup Table," Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, March 2014.
- CDPHE, 2015. "Regulations Pertaining to Solid Waste Sites and Facilities, 6 CCR 1007-2, Part I," Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, December 30, 2015.
- Colorado Springs Utilities, 1993. "Certificate of Designation Compliance Summary and Waiver Request: Solid Waste Disposal Sites and Facilities 6 CCR 1007-2. The Wilde Landfill Colorado Springs, Colorado," Colorado Springs Utilities, dated October 9, 1993.
- CTL Thompson, 2018a. "Phase I Environmental Site Assessment Pikes Peak at Sand Creek 22 Acre Parcel 4420 East Pikes Peak Colorado Spring, Colorado," CTL Thompson, Incorporated, dated January 29, 2018.
- CTL Thompson, 2018b. "Phase I Environmental Site Assessment Pikes Peak at Sand Creek 40 Acre Parcel 150 Karr Road Colorado Spring, Colorado," CTL Thompson, Incorporated, dated January 29, 2018.
- CTL Thompson, 2018c. "Geologic Hazards Evaluation Pikes Peak Heights Town Center Drive and Wooten Road Colorado Springs, Colorado," CTL Thompson, Incorporated, dated July 3, 2018.
- CTL Thompson, 2018d. "Phase I Environmental Site Assessment Pikes Peak Heights 5 Acre Parcel Karr Road Colorado Springs, Colorado," CTL Thompson, Incorporated, dated June 13, 2018.
- EPA, 2019. "Regional Screening Level (TSL) Summary Table (TR=IE-06, HQ=1) November 2019," United States Environmental Protection Agency, November 2019.
- RMG, 2002. "Preliminary Subsurface Soil Investigation: 40 Acre Parcel East Pikes Peak Avenue Colorado Springs, Colorado," RMG Engineers, Inc., dated September 24, 2002.

Figures



N Legend



 Site Boundary

USGS 7.5' Topographic Map
Elsmere, Colorado 1961 (Revised 1994)

0 1,000 2,000
Feet

Pinyon
Environmental, Inc.

SITE LOCATION

Pikes Peak Heights - Wilde Landfill 0008140
Colorado Springs, Colorado

Site Location: Section 13, T 14S, R 66W, 6th Principal Meridian

Drawn By: SJA Figure: I

Pinyon Project Number: I/18-1236-01.REM007

Reviewed By: KKH

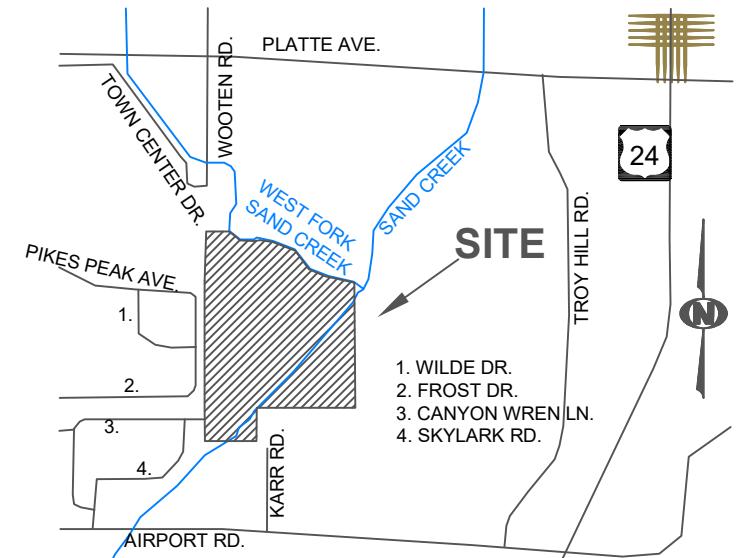
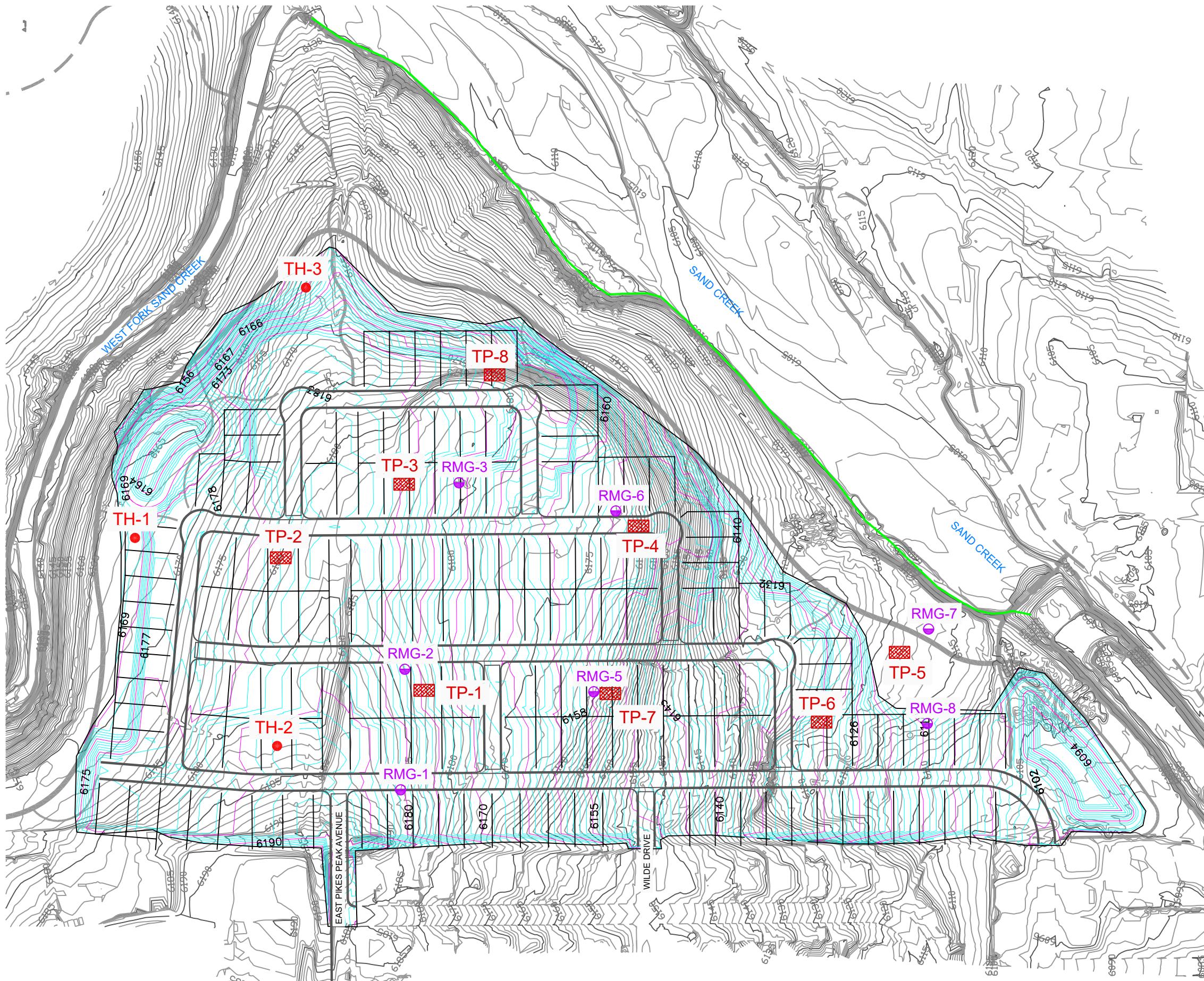
Date: 7/12/2018



Appendices

Appendix A

CTL Thompson North Parcel Location of Exploratory Borings Map (Figure 1) and Surficial Geological Conditions Map (Figure 2) and RMG South Parcel Boring Locations (Figure 2)

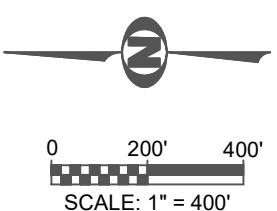


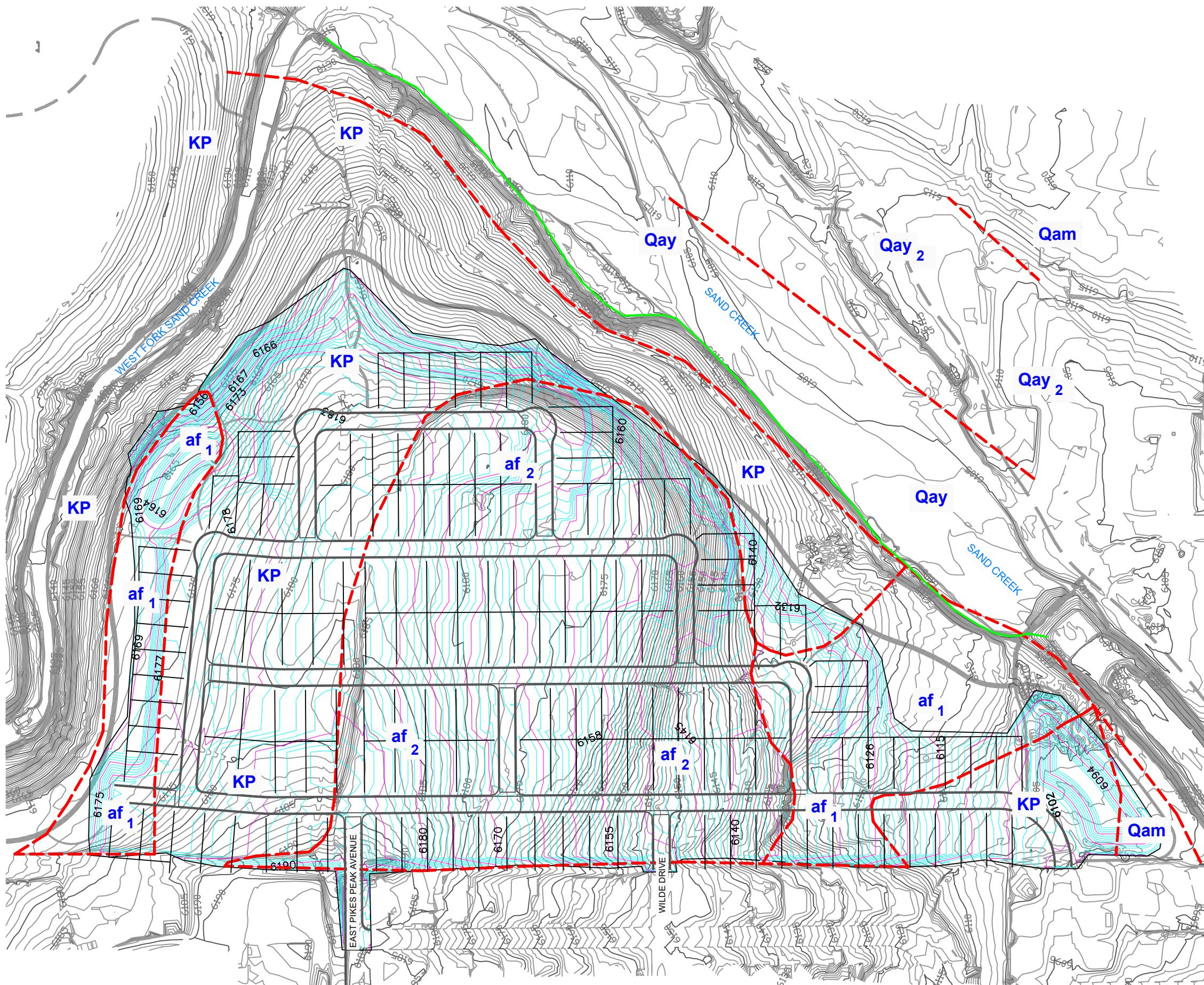
VICINITY MAP

(NOT TO SCALE)

LEGEND:

- TH-1** ● APPROXIMATE LOCATION OF EXPLORATORY BORING FROM CTLT PROJECT NO. CS18868.000-115
- TP-1** ■ APPROXIMATE LOCATION OF EXPLORATORY TEST PIT.
- RMG-1** ● APPROXIMATE LOCATION OF TEST HOLE DRILLED UNDER RMG ENGINEERS.
- PROJECT BOUNDARY
- ~~~~ EXISTING TOPOGRAPHY
- ~~~~ PROPOSED GRADING CONTOURS
- 6155 EXISTING TOPOGRAPHY VALUES
- 6155 PROPOSED TOPOGRAPHY VALUES
- 100 YEAR FLOODPLAIN





LEGEND:

- — — PROJECT BOUNDARY
 - == == == EXISTING TOPOGRAPHY
 - ~~ ~~ PROPOSED GRADING CONTOURS
 - 6155 EXISTING TOPOGRAPHY VALUES
 - 6155 PROPOSED TOPOGRAPHY VALUES
 - 100 YEAR FLOODPLAIN.
- GEOLOGIC UNITS AND (MODIFIERS)**
- — SURFICIAL GEOLOGIC CONTACTS
 - af₁** ARTIFICIAL FILL, UP TO 39 FEET THICK.
 - af₂** ARTIFICIAL FILL, UP TO 39 FEET THICK. (RUBBLE)
 - Qay** YOUNG ALLUVIUM ONE (LATE HOLOCENE) THAT EXISTS ON THE FLOORS OF CURRENT STREAM CHANNELS.
 - Qay₂** YOUNG ALLUVIUM TWO (LATE TO MIDDLE HOLOCENE).
 - Qam** MIDDLE ALLUVIUM (LATE PLEISTOCENE).
 - Kp** PIERRE SHALE (UPPER CRETACEOUS).



0 200' 400'
SCALE: 1" = 400'

NOTES:

1. BASE DRAWING WAS PROVIDED BY NES, INC AND DREXEL, BARRELL AND CO.
2. ALL BOUNDARIES SHOWN SHOULD BE CONSIDERED APPROXIMATE. THEY ARE BASED UPON A SUBJECTIVE INTERPRETATION OF PUBLISHED MAPS, AERIAL PHOTOGRAPHS AND AN INITIAL FIELD RECONNAISSANCE. CHANGES IN THE MAPPED BOUNDARIES SHOWN ARE POSSIBLE AND SHOULD BE EXPECTED WITH MORE DETAILED WORK AND FURTHER INFORMATION. ALL INTERPRETATIONS AND CONDITIONS SHOWN ARE PRELIMINARY AND FOR LAND-USE PLANNING ONLY.

**Surficial
Geologic
Configurati**

FIGURE 11





EAST PIKES PEAK AVENUE

COLORADO SPRINGS, COLORADO

DATE: 9/27/02

ENGINEER: MC

DRAWN BY:

REVISED:

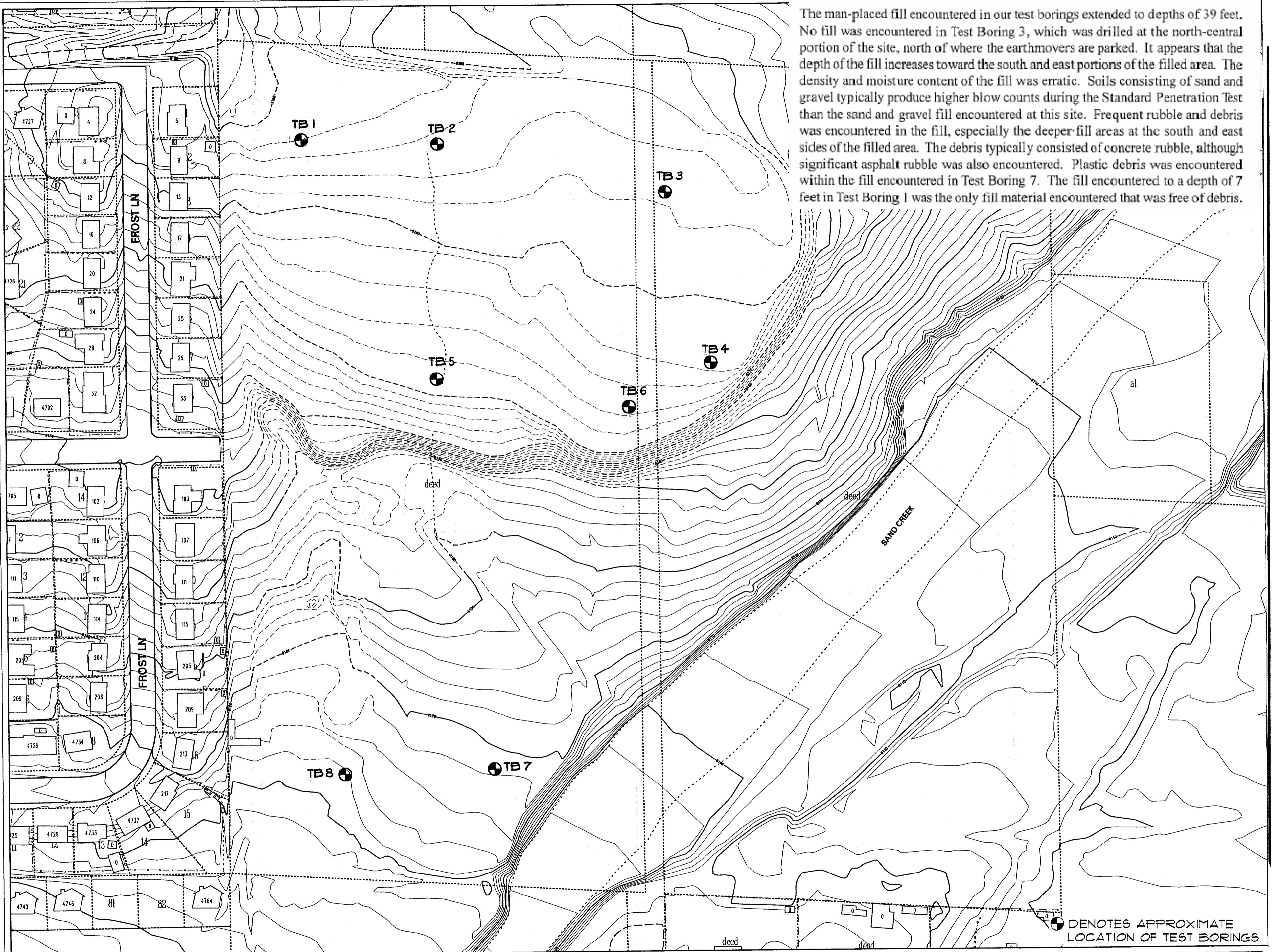
TEST BORING AND
TOPOGRAPHIC
PLAN

FIGURE

2

JOB No. 61870

denotes approximate
location of test borings



The man-placed fill encountered in our test borings extended to depths of 39 feet. No fill was encountered in Test Boring 3, which was drilled at the north-central portion of the site, north of where the earthmovers are parked. It appears that the depth of the fill increases toward the south and east portions of the filled area. The density and moisture content of the fill was erratic. Soils consisting of sand and gravel typically produce higher blow counts during the Standard Penetration Test than the sand and gravel fill encountered at this site. Frequent rubble and debris was encountered in the fill, especially the deeper fill areas at the south and east sides of the filled area. The debris typically consisted of concrete rubble, although significant asphalt rubble was also encountered. Plastic debris was encountered within the fill encountered in Test Boring 7. The fill encountered to a depth of 7 feet in Test Boring 1 was the only fill material encountered that was free of debris.



Facilities Information Management System (FIMS)

Combination Public Access Map Pikes Peak

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Curb	Building	Golf Course	Intermediate Contour	Lakes and Ponds
Paved Road	Foundation	Subdivision Boundary	Intermediate Indefinite Contour	Streams and Creeks
Unpaved Road	Lined Channel	Lot Line with Lot Number	Intermediate Depression Contour	Perks
New Street (ROW)	Ditch or Open Channel	Index Contour	Index Indefinite Contour	
Alley	Fence	Index Indefinite Contour	Index Depression Contour	
Paved Parking	Hedge			
Bridge	Wall			
Railroad Track	Trails			

State Plane Coordinates

Horizontal Datum: Central CO Zone - NAD83

Vertical Datum: NGVD29 - US Survey Feet

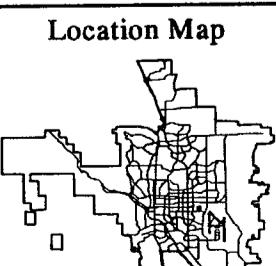
Lower Left: 3216503, 1363403

Upper Right:

3218503, 1364903

PLOT FILE CREATED: 09-26-2002

Scale 1" = 100'
0 25 50 100 200



M-34	N-34	O-34
M-35	N-35	O-35

Map ID
RMG Engineers

FIGURE 11

Appendix B

EPA Regional Screening Levels, CDPHE Groundwater Protection Values, EPA Toxicity Maximum Concentrations of Contaminants

Toxicity Characteristic - Maximum Concentration of Contaminants
(Determine Levels using TCLP, Test Method 1311, EPA SW-846)
40CFR 261.24

USEPA Hazardous Waste Number	Constituent	CAS Number	Regulatory Level (mg/l)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018 vol	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019 vol	Carbon Tetrachloride	56-23-5	0.5
D020 pest	Chlordane	57-74-9	0.03
D021 vol	Chlorobenzene	108-90-7	100.0
D022 vol	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023 semivol	o-Cresol	95-48-7	200.0*
D024 semivol	m-Cresol	108-39-4	200.0*
D025 semivol	p-Cresol	106-44-5	200.0*
D026 semivol	Cresol	-----	200.0*
D016 herbicide	2,4-D	94-75-7	10.0
D027 vol	1,4-Dichlorobenzene	106-46-7	7.5
D028 vol	1,2-Dichloroethane	107-06-2	0.5
D029 vol	1,1-Dichloroethylene	75-35-4	0.7
D030 semivol	2,4-Dinitrotoluene	121-14-2	0.13
D012 pest	Endrin	72-20-8	0.02
D031 pest	Heptachlor, and its epoxide	76-44-8	0.008
D032 semivol	Hexachlorobenzene	118-74-1	0.13
D033 semivol	Hexachloro-1,3-butadiene	87-68-3	0.5
D034 semivol	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013 pest	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014 pest	Methoxychlor	72-43-5	10.0
D035 vol	Methyl Ethyl Ketone (MEK) (2-Butanone)	78-93-3	200.0
D036 semivol	Nitrobenzene	98-95-3	2.0
D037 semivol	Pentachlorophenol	87-86-5	100.0
D038 semivol	Pyridine	110-86-1	5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039 vol	Tetrachloroethylene	127-18-4	0.7
D015 pest	Toxaphene	8001-35-2	0.5
D040 vol	Trichloroethylene	79-01-6	0.5
D041 semivol	2,4,5-Trichlorophenol	95-95-4	400.
D042 semivol	2,4,6-Trichlorophenol	88-06-2	2.0
D017 herbicide	2,4,5-TP (Silvex)	93-72-1	1.0
D043 vol	Vinyl Chloride	75-01-4	0.2

* If the o-, m-, and /or p-Cresol concentrations cannot be differentiated, then the total cresol (D026) concentration (200 ppm) is used.

Compounds presented in blue are the RCRA eight priority metals

Vol – Volatile organic compound

Semivol – Semi volatile organic compound

Pest - Pesticide

Colorado Department of Public Health and Environment (CDPHE)
Hazardous Materials and Waste Management Division

Groundwater Protection Values Soil Cleanup Table

Class	Analyte (CDPHE Preferred Name)	CAS No.	Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
Inorganics	Aluminum	7429-90-5	NA		110		5	1,3
	Antimony	7440-36-0	NA		0.13		0.006	1
	Arsenic	7440-38-2	NA		0.22		0.01	1
	Barium	7440-39-3	NA		44		2	1
	Beryllium	7440-41-7	NA		0.088		0.004	1
	Cadmium and compounds	7440-43-9	NA		0.11		0.005	1
	Chromium(III)	16065-83-1	NA		2.2	6	0.1	1,6
	Chromium(VI) particulates	18540-29-9	NA		0.015		0.0007	2
	Cobalt	7440-48-4	NA		1.1		0.05	1,3
	Copper and compounds	7440-50-8	NA		4.4		0.2	1,3
	Iron	7439-89-6	NA		6.6		0.3	1
	Lead (inorganic)	7439-92-1	NA		1.1		0.05	1
	Lead (tetraethyl)	78-00-2	NA		0.000015		7E-07	2
	Manganese	7439-96-5	NA		1.1		0.05	1
	Mercury (elemental)	7439-97-6	NA		0.025		0.0011	2
	Mercury compounds (i.e., HgCl)	7487-94-7	NA		0.044		0.002	1
	Nickel (soluble salts)	7440-02-0	NA		2.2		0.1	1
	Selenium	7782-49-2	NA		0.44		0.02	1,3
	Silver	7440-22-4	NA		1.1		0.05	1
	Thallium (sulfate etc.)	7440-28-0	NA		0.044		0.002	1
	Vanadium	7440-62-2	NA		2.2		0.1	1,3
	Zinc	7440-66-6	NA		44		2	1,3
Organics	1,1,1,2-Tetrachloroethane	630-20-6	0.16		NA		0.013	2
	1,1,1-Trichloroethane	71-55-6	62		NA		0.2	1,4
			1,000	5	NA		14	1,4
	1,1,2,2-Tetrachloroethane	79-34-5	0.0024		NA		0.00018	1
	1,1,2-Trichloroethane	79-00-5	0.038		NA		0.0028	1
	1,1-Dichloroethane	75-34-3	1.8		NA		0.061	2
	1,1-Dichloroethylene	75-35-4	12		NA		0.007	1
	1,2,3-Trichloropropane	96-18-4	4.80E-04		NA		3.70E-07	1
	1,2,4-Trichlorobenzene	120-82-1	13		NA		0.07	1
	1,2-Dibromo-3-chloropropane	96-12-8	0.002		NA		0.0002	1
	1,2-Dibromoethane	106-93-4	0.00018		NA		0.00002	1
	1,2-Dichlorobenzene	95-50-1	57		NA		0.6	1
	1,2-Dichloroethane	107-06-2	0.0036		NA		0.00038	1
	1,2-Dichloropropane	78-87-5	0.0087		NA		0.00052	1
	1,3,5-Trimethylbenzene	108-67-8	23		NA		0.07	2
	1,3-Dichlorobenzene	541-73-1	8.5		NA		0.094	1
	1,3-Dichloropropene	542-75-6	0.084		NA		0.0035	2
	1,4-Dichlorobenzene	106-46-7	7.8		NA		0.075	1
	1-Methylnaphthalene	90-12-0	0.81		NA		0.012	2
	2-Butanone	78-93-3	18		NA		4.2	2
	2-Chlorophenol	95-57-8	1.2		NA		0.035	1
	2-Hexanone	591-78-6	0.21		NA		0.035	1
	2-Methylnaphthalene	91-57-6	7.4		NA		0.028	2
	4-Methyl-2-pentanone	108-10-1	3.3		NA		0.56	2
	Acenaphthene	83-32-9	1000	5	NA		0.42	1
	Acetone	67-64-1	32		NA		6.3	1
	Acetophenone	98-86-2	5.2		NA		0.7	2
	Anthracene	120-12-7	1000	5	NA		2.1	1
	Benzene	71-43-2	0.17		NA		0.005	1

Class	Analyte (CDPHE Preferred Name)	CAS No.	Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
VOCs	beta-Chloronaphthalene	91-58-7	1000	5	NA		0.56	1
	Bis(2-chloroisopropyl)ether	108-60-1	0.037		NA		0.005	2
	Bromobenzene	108-86-1	3		NA		0.056	2
	Bromodichloromethane	75-27-4	0.007		NA		0.00056	1
	Bromomethane	74-83-9	0.16		NA		0.01	2
	Carbon disulfide	75-15-0	1000	5	NA		0.7	2
	Carbon tetrachloride	56-23-5	1.704		NA		0.0005	1
	Chlorobenzene	108-90-7	5.3		NA		0.1	1
	Chloroform	67-66-3	0.085		NA		0.0035	1
	cis-1,2-Dichloroethene	156-59-2	0.261		NA		0.014	1
	Cumene	98-82-8	700		NA		0.7	2
	Dibenzofuran	132-64-9	4.1		NA		0.007	2
	Dibromochloromethane	124-48-1	0.11		NA		0.014	1
	Dichlorodifluoromethane	75-71-8	390		NA		1.4	2
	Ethyl ether	60-29-7	11		NA		1.4	2
	Ethyl methacrylate	97-63-2	1000	5	NA		0.63	2
	Ethylacetate	141-78-6	35		NA		6.3	2
	Ethylbenzene	100-41-4	100		NA		0.7	1
	Fluorene	86-73-7	1000	5	NA		0.28	1
	Hexane	110-54-3	100		NA		0.42	2
	Methylene chloride	75-09-2	0.06		NA		0.005	1
	Naphthalene	91-20-3	23		NA		0.14	1
	Nitrobenzene	98-95-3	0.239		NA		0.014	1
	n-Propylbenzene	103-65-1	77		NA		0.7	2
	Styrene	100-42-5	14		NA		0.1	1
	Tetrachloroethylene	127-18-4	1.9		NA		0.005	1,4
			6.35		NA		0.017	1,4
	Toluene	108-88-3	50		NA		0.56	1
	Total 1,2-dichloroethene	540-59-0	1.9		NA		0.063	2
	Xylenes (total)	1330-20-7	75		NA		1.4	1
	trans-1,2-Dichloroethene	156-60-5	5.4		NA		0.1	1
	Trichloroethylene	79-01-6	0.68		NA		0.005	1
	Trichlorofluoromethane	75-69-4	1000	5	NA		2.1	2
	Trichlorotrifluoroethane	76-13-1	1000	5	NA		210	2
	Vinyl acetate	108-05-4	51		NA		7	2
	Vinyl chloride	75-01-4	0.11		NA		0.000023	1
SVOCs	1,2-Dinitrobenzene	528-29-0	0.014		NA		0.0007	2
	1,4-Dinitrobenzene	100-25-4	0.005		NA		0.0007	2
	1,4-Dioxane	123-91-1	0.0016		NA		3.50E-04	1
	2,4,5-Trichlorophenol	95-95-4	88		NA		0.7	1
	2,4,6-Trichlorophenol	88-06-2	0.28		NA		0.0032	1
	2,4-Dichlorophenol	120-83-2	0.33		NA		0.021	1
	2,4-Dimethylphenol	105-67-9	2.7		NA		0.14	1
	2,4-Dinitrophenol	51-28-5	0.4		NA		0.014	1
	2-Methylphenol	95-48-7	1.2		NA		0.35	2
	3,3'-Dichlorobenzidine	91-94-1	0.041		NA		0.000078	1
	3-Methylphenol	108-39-4	1.2		NA		0.35	2
	4-Methylphenol	106-44-5	0.27		NA		0.035	2
	4-Nitrophenol	100-02-7	2.1		NA		0.056	1
	Benz[a]anthracene	56-55-3	1000	5	NA		4.8E-06	1
	Benzo[a]pyrene	50-32-8	1000	5	NA		4.8E-06	1
	Benzo[b]fluoranthene	205-99-2	1000	5	NA		4.8E-06	1
	Benzo[k]fluoranthene	207-08-9	1000	5	NA		4.8E-06	1
	Benzoic acid at pH 6.8	65-85-0	110		NA		28	2
	Benzyl alcohol	100-51-6	3.9		NA		0.7	2
	Bis-2-ethylhexyl phthalate	117-81-7	1000	5	NA		0.0025	1
	Bromoform	75-25-2	0.048		NA		0.004	1
	Butylbenzylphthalate	85-68-7	1000	5	NA		1.4	1
	Chlordane	57-74-9	1000	5	NA		0.0001	1
	Chrysene	218-01-9	1000	5	NA		4.8E-06	1

Class	Analyte (CDPHE Preferred Name)	CAS No.	Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
Organic Compounds	Cyclohexanone	108-94-1	200		NA		35	2
	Dibenzo[a,h]anthracene	53-70-3	1000	5	NA		4.8E-06	1
	Diethylphthalate	84-66-2	140		NA		5.6	1
	di-n-Butyl phthalate	84-74-2	1000	5	NA		0.7	1
	diphenylamine	122-39-4	32		NA		0.18	2
	Ethylene glycol	107-21-1	70		NA		14	2
	Fluoranthene	206-44-0	1000	5	NA		0.28	1
	Hexachlorobenzene	118-74-1	0.009		NA		0.000022	1
	Hexachlorobutadiene	87-68-3	0.17		NA		0.00045	1
	Hexachlorocyclopentadiene	77-47-4	1000	5	NA		0.042	1
	Hexachloroethane	67-72-1	0.019		NA		8.80E-04	1
	Indeno[1,2,3-cd]pyrene	193-39-5	1000	5	NA		4.8E-06	1
	N-nitrosodimethylamine	62-75-9	0.000005		NA		6.9E-07	1
	N-Nitrosodipropylamine	621-64-7	2.8E-07		NA		0.000005	1
	N-Nitrosodiphenylamine	86-30-6	0.67		NA		0.0071	1
	Pentachlorophenol	87-86-5	0.021		NA		8.80E-05	1
	Phenol	108-95-2	47		NA		2.1	1
	Pyrene	129-00-0	1000	5	NA		0.21	1
	Pyridine	110-86-1	0.38		NA		0.007	2
PCBs	Aroclor 1016	12674-11-2	1000	5	NA		0.000017	1
	Aroclor 1254	11097-69-1	1000	5	NA		0.000017	1
	Aroclor 1260	11096-82-5	1000	5	NA		0.000017	1
	PCBs	1336-36-3	1000	5	NA		0.000017	1
Pesticides	2,4,5-T	93-76-5	0.54		NA		0.07	2
	2,4,5-TP	93-72-1	0.48		NA		0.05	1
	2,4-D	94-75-7	2.5		NA		0.07	1
	2,4-DB	94-82-6	2.1		NA		0.056	2
	4,4'-DDD	72-54-8	1000	5	NA		0.00015	1
	4,4'-DDE	72-55-9	1000	5	NA		0.0001	1
	4,4'-DDT	50-29-3	1000	5	NA		0.0001	1
	Aldicarb sulfone	1646-88-4	0.035		NA		0.007	1
	Aldrin	309-00-2	1000	5	NA		2.1E-06	1
	alpha-BHC	319-84-6	0.0017		NA		5.6E-06	1
	beta-BHC	319-85-7	0.046		NA		0.00019	2
	Dalapon	75-99-0	1.1		NA		0.2	1
	Dieldrin	60-57-1	1000	5	NA		0.000002	1
	Dinoseb	88-85-7	0.62		NA		0.007	1
	Endosulfan I	115-29-7	1000	5	NA		0.042	1
	Endosulfan II	33213-65-9	1000	5	NA		0.042	1
	Endosulfan Sulfate	1031-07-8	1000	5	NA		0.042	1
	Endrin	72-20-8	1000	5	NA		0.002	1
	Endrin aldehyde	7421-93-4	4.9		NA		0.0021	1
	gamma-BHC	58-89-9	0.017		NA		0.0002	1
	Heptachlor	76-44-8	1000	5	NA		0.000008	1
	Heptachlor epoxide	1024-57-3	1000	5	NA		0.000004	1
	Isophorone	78-59-1	1.3		NA		0.14	1
	MCPA	94-74-6	0.028		NA		0.0035	2
	CPP	93-65-2	0.054		NA		0.007	2
	Methoxychlor	72-43-5	1000		NA		0.035	1
	Phorate	298-02-2	0.15		NA		0.0014	2
	Terbufos	13071-79-9	0.031		NA		0.00018	2
	Toxaphene	8001-35-2	1000	5	NA		0.000032	1
Explosives	2,4,6-Trinitrotoluene	118-96-7	1.7		NA		0.012	2
	2,4/2,6-Dinitrotoluene mix	25321-14-6	0.015		NA		0.00051	2
	2,4-Dinitrotoluene	121-14-2	0.0032		NA		0.00011	1
	2,6-Dinitrotoluene	606-20-2	0.2		NA		0.007	2
	2-Amino-4,6-dinitrotoluene	35572-78-2	0.16		NA		0.014	2
	4-Amino-2,6-dinitrotoluene	19406-51-0	0.16		NA		0.014	2
	4-Nitrotoluene	99-99-0	0.59		NA		0.022	2
	Tetryl	479-45-8	0.6		NA		0.028	2

Class	Analyte (CDPHE Preferred Name)	CAS No.	Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
Anions	Cyanide (free)	57-12-5	NA		4.4		0.2	1
	Cyanide (hydrogen)	74-90-8	NA		3.1		0.14	2
	Nitrate	14797-55-8	NA		220		10	1
	Nitrite	14797-65-0	NA		22		1	1

NOTES:

1. Water standard based on current state groundwater standard or federal Maximum Concentration Level (MCL).
2. Water standard based on Maximum Concentration Level (MCL)-equivalent calculation.
3. Water standard based on state agricultural standard.
4. When two groundwater protection levels are listed for the same constituent, the division will determine the applicable protection level based upon current and potential future uses of groundwater.
5. Table value is capped at a maximum concentration of 1,000 mg/kg to account for the possibility that at high concentrations free phase material may be present and to protect against acute health impacts.
6. Based on total chromium.

NA - Not applicable.

VOCs - Volatile organic carbons

SVOCs - Semi-volatile organic carbons

PCBs - Polychlorinated biphenyls

Toxicity and Chemical-specific Information														Contaminant		Screening Levels						Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k _e	IUR (ug/m ³) ⁻¹	k _e	RFD _o (mg/kg-day)	k _e	RC _i (mg/m ³)	k _v	mutagen	GIABS	ABS _d	C _{ss} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg) key	Industrial Soil (mg/kg) key	Resident Air (ug/m ³) key	Industrial Air (ug/m ³) key	Tapwater (ug/L) key	MCL (ug/L)	Risk-based SSL (mg/kg) key	MCL-based SSL (mg/kg)			
2.2E-01 P 1.6E-02 P	1.0E-04 X 9.0E-04 P 4.0E-03 P	9.0E-04 P V	1	1	1	1.5E+03	1	0.1	Nitrotoluene, m- Nitrotoluene, o- Nitrotoluene, p-	99-08-1 88-72-2 99-99-0	6.3E+00 n 3.2E+00 c* 3.4E+01 c**	8.2E+01 n 1.5E+01 c* 1.4E+02 c*	1.7E+00 n 3.1E-01 c* 4.3E+00 c*	1.7E+00 n 3.1E-01 c* 4.3E+00 c*	1.6E-03 n 3.0E-04 c* 4.0E-03 c*	n								
	3.0E-04 X 1.5E-02 O 3.0E-03 I	2.0E-02 P V	1	1	1	6.9E+00	1	0.1	Nonane, n- Norflurazon Octabromodiphenyl Ether	111-84-2 27314-13-2 32536-52-0	1.1E+01 n 9.5E+02 n 1.9E+02 n	7.2E+01 ns 1.2E+04 n 2.5E+03 n	2.1E+01 n n n	8.8E+01 n n n	7.5E-02 n 1.9E+00 n 6.0E+01 n	n								
	5.0E-02 I 2.0E-03 H 1.4E-01 O	1	1	1	1	0.006	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) Octamethylpyrophosphoramide Oryzalin	2691-41-0 152-16-9 19044-88-3	3.9E+03 n 1.3E+02 n 7.0E+01 c	5.7E+04 n 1.6E+03 n 2.9E+02 c	1.0E-03 n 4.0E+01 n 7.9E+00 c	1.3E+00 n 9.6E-03 n 1.5E-02 c	n											
7.8E-03 O 7.3E-02 O	5.0E-03 I 2.5E-02 I 3.0E-02 O	1	1	1	1	0.1	Oxadiazon Oxamyl Oxyfluorfen	19666-30-9 23135-22-0 42874-03-3	3.2E+02 n 1.6E+03 n 7.4E+00 c	4.1E+03 n 2.1E+04 n 3.1E+01 c	4.7E+01 n 5.0E+02 n 5.4E-01 c	4.8E-01 n 1.1E-01 n 4.3E-02 c	n											
	1.3E-02 I 4.5E-03 I 6.0E-03 H	1	1	1	1	0.1	Paclobutrazol Paraquat Dichloride Parathion	76738-62-0 1910-42-5 56-38-2	8.2E+02 n 2.8E+02 n 3.8E+02 n	1.1E+04 n 3.7E+03 n 4.9E+03 n	2.3E+02 n 9.0E+01 n 8.6E+01 n	4.6E-01 n 1.2E+00 n 4.3E-01 n	n											
	5.0E-02 H 3.0E-01 O 2.0E-03 I	V V	1	1	1	3.1E-01	Pentabromodiphenyl Ether	1114-71-2 40487-42-1 32534-81-9	3.9E+03 n 1.9E+04 n 1.6E+02 ns	5.8E+04 n 2.5E+05 nm 2.3E+03 ns	5.6E+02 n 1.4E+03 n 4.0E+01 n	4.5E-01 n 1.6E+01 n 1.7E+00 n	n											
9.0E-02 P 8.0E-04 I	1.0E-04 I 8.0E-04 I	1	1	1	1	0.1	Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99) Pentachlorobenzene	60348-60-9 608-93-5	6.3E+00 n 6.3E+01 n	8.2E+01 n 9.3E+02 n 3.6E+01 c	2.0E+00 n 3.2E+00 n 6.5E-01 c	8.7E-02 n 2.4E-02 n 3.1E-04 c	n											
	2.6E-01 H 4.0E-01 I 4.0E-03 X	3.0E-03 I 5.0E-03 I 2.0E-03 P	1	1	1	0.25	Pentachloronitrobenzene Pentachlorophenol Pentaerythritol tetranitrate (PETN)	82-68-8 87-86-5 78-11-5	2.7E+00 c* 1.0E+00 c 1.3E+02 n	1.3E+01 c 4.0E+00 c 5.7E+02 c**	1.2E-01 c 2.4E+00 c 1.9E+01 c**	1.5E-03 c 5.7E-05 c 2.8E-02 c**	n											
	1.0E+00 P 7.0E-04 I	V V	1	1	1	3.9E+02	Pentane, n- Perchlorates ~Ammonium Perchlorate	109-66-0 7790-98-9	8.1E+02 ns 5.5E+01 n	3.4E+03 ns 8.2E+02 n	1.0E+03 n n	4.4E+03 n 1.4E+01 n	n											
7.0E-04 I 7.0E-04 I 7.0E-04 I 7.0E-04 I	1	1	1	1	1	1	~Lithium Perchlorate ~Perchlorate and Perchlorate Salts ~Potassium Perchlorate	7791-03-9 14797-73-0 7778-74-7	5.5E+01 n 5.5E+01 n 5.5E+01 n	8.2E+02 n 8.2E+02 n 8.2E+02 n	1.4E+01 n 1.4E+01 n 1.4E+01 n	1.5E+01(G)	n											
	7.0E-04 I 2.0E-02 P 2.0E-02 P	1	1	1	1	0.1	~Sodium Perchlorate Perfluorobutane sulfonic acid (PFBS) Perfluorobutanedisulfonate	7601-89-0 375-73-5 45187-15-3	5.5E+01 n 1.3E+03 n 1.3E+03 n	8.2E+02 n 1.6E+04 n 1.6E+04 n	1.4E+01 n 4.0E+02 n 4.0E+02 n	1.3E-01 n 1.3E-01 n	n											
	5.0E-02 I 2.4E-01 O	1	1	1	1	0.1	Permethrin Phenacetin Phenmedipham	52645-53-1 62-44-2 13684-83-4	3.2E+03 n 2.5E+02 c 1.5E+04 n	4.1E+04 n 1.0E+03 c 2.0E+05 n	1.0E+03 n 3.4E+01 c 3.8E+03 n	2.4E+02 n 9.7E-03 c 2.1E+01 n	n											
2.2E-03 C 2.2E-03 C	3.0E-01 I 4.0E-03 I 5.0E-04 X	2.0E-01 C 1	1	1	1	0.1	Phenol Phenol, 2-(1-methylethoxy)-, methylcarbamate Phenothiazine	108-95-2 114-26-1 92-84-2	1.9E+04 n 2.5E+02 n 3.2E+01 n	2.5E+05 nm 3.3E+03 n 4.1E+02 n	2.1E+02 n 7.8E+01 n 4.3E+00 n	5.8E+03 n 2.5E-02 n 1.4E-02 n	n											
	2.0E-04 X 6.0E-03 I 4.0E-03 P	V 1	1	1	1	1.3E+02	Phenyl Isothiocyanate Phenylenediamine, m- Phenylenediamine, o-	103-72-0 108-45-2 95-54-5	1.6E+01 n 3.8E+02 n 4.5E+00 c*	2.3E+02 ns 4.9E+03 n 1.9E+01 c	2.6E+00 n 1.2E+02 n 6.5E-01 c	1.7E-03 n 3.2E-02 n 1.7E-04 c	n											
	1.9E-03 H	1.0E-03 X	1	1	1	0.1	Phenylenediamine, p- Phenylphenol, 2- Phorate	106-50-3 90-43-7 298-02-2	6.3E+01 n 2.8E+02 c 1.3E+01 n	8.2E+02 n 1.2E+03 c 1.6E+02 n	2.0E+01 n 3.0E+01 c 3.0E+00 n	5.4E-03 n 4.1E-01 c 3.4E-03 n	n											
1.2E-01 P 2.0E-04 H	3.0E-04 I 2.0E-02 I	V 1	1	1	1	1.6E+03	Phosgene Phosmet Phosphates, Inorganic	75-44-5 732-11-6	3.1E+01 n 1.3E+03 n	1.3E+00 n 1.6E+04 n	3.1E-01 n 3.7E+02 n	6.3E-01 n 1.6E-04 n 8.2E-02 n	n											
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Aluminum metaphosphate ~Ammonium polyphosphate ~Calcium pyrophosphate	13776-88-0 68333-79-9 7790-76-3	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E-05 n 9.7E-05 n 9.7E-05 n	n												
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Diammonium phosphate ~Dicalcium phosphate ~Dimagnesium phosphate	7783-28-0 7757-93-9 7782-75-4	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	1	~Dipotassium phosphate ~Disodium phosphate ~Monoaluminum phosphate	7758-11-4 7558-79-4 13530-50-2	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Monoammonium phosphate ~Monocalcium phosphate ~Monomagnesium phosphate	7722-76-1 7758-23-8 7757-86-0	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Monopotassium phosphate ~Monosodium phosphate ~Polyprophoric acid	7788-77-0 7558-80-7 8017-16-1	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	1	~Potassium tripolyphosphate ~Sodium acid pyrophosphate ~Sodium aluminum phosphate (acidic)	13845-36-8 7758-16-9 7785-88-8	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Sodium aluminum phosphate (anhydrous) ~Sodium aluminum phosphate (tetrahydrate) ~Sodium hexametaphosphate	10279-59-1 10305-76-7 10124-56-8	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
	4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	~Sodium polyphosphate ~Sodium trimetaphosphate ~Sodium tripolyphosphate	68915-31-1 7785-84-4 7758-29-4	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												
4.9E+01 P 4.9E+01 P 4.9E+01 P	1	1	1	1	1	1	~Tetrapotassium phosphate ~Tetrasodium pyrophosphate ~Triallylumium sodium tetra decahydrogenoctaorthophosphate (dihydrate)	7320-34-5 7722-88-5 15136-87-5	3.8E+06 nm 3.8E+06 nm 3.8E+06 nm	5.7E+07 nm 5.7E+07 nm 5.7E+07 nm	9.7E+05 n 9.7E+05 n 9.7E+05 n	n												

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.															Screening Levels							
Toxicity and Chemical-specific Information										Contaminant		Screening Levels						Protection of Ground Water SSLs				
SFO (mg/kg-day) ⁻¹	k _e	IUR (ug/m ³) ⁻¹	k _e	RfD _o (mg/kg-day)	k _e	RfC _i (mg/m ³)	k _v	C _{sat} (mg/kg)	GIABS	ABS _d	Analyte	CAS No.	Resident Soil (mg/kg) key	Industrial Soil (mg/kg) key	Resident Air (ug/m ³) key	Industrial Air (ug/m ³) key	Tapwater (ug/L) key	MCL (ug/L)	Risk-based SSL (mg/kg) key	MCL-based SSL (mg/kg)		
											Vernolate	1929-77-7	7.8E+01	n	1.2E+03	n		1.1E+01	n	8.9E-03	n	
											Vinclozolin	50471-44-8	7.6E+01	n	9.8E+02	n		2.1E+01	n	1.6E-02	n	
											Vinyl Acetate	108-05-4	9.1E+02	ns	3.8E+03	2.1E+02	n	8.8E+02	n	4.1E+02	n	
											Vinyl Bromide	593-60-2	1.2E-01	c*	5.2E-01	8.8E-02	c*	3.8E-01	c*	1.8E-01	c*	
											Vinyl Chloride	75-01-4	5.9E-02	c	1.7E+00	1.7E-01	c	2.8E+00	c	1.9E-02	c	
											Warfarin	81-81-2	1.9E+01	n	2.5E+02	n		5.6E+00	n	2.0E+00	5.9E-03	
											Xylene, m-	108-38-3	5.5E+02	ns	2.4E+03	1.0E+02	n	4.4E+02	n	1.9E+02	n	
											Xylene, o-	95-47-6	6.5E+02	ns	2.8E+03	1.0E+02	n	4.4E+02	n	1.9E+02	n	
											Xylene, p-	106-42-3	5.6E+02	ns	2.4E+03	1.0E+02	n	4.4E+02	n	1.9E+02	n	
											Xylenes	1330-20-7	5.8E+02	ns	2.5E+03	1.0E+02	n	4.4E+02	n	1.9E+02	n	
											Zinc Phosphide	1314-84-7	2.3E+01	n	3.5E+02	n		6.0E+00	n	1.0E+04	1.9E-01	
											Zinc and Compounds	7440-66-6	2.3E+04	n	3.5E+05	nm		6.0E+03	n	3.7E+02	n	
											Zineb	12122-67-7	3.2E+03	n	4.1E+04	n			9.9E+02	n	2.9E+00	n
											Zirconium	7440-67-7	6.3E+00	n	9.3E+01	n			1.6E+00	n	4.8E+00	n

TR=1E-06

HQ=1.0

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied; c = cancer; n = noncancer; * = where: n SL < 1000 c SL; ** = where n SL < 10 c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.															Carcinogenic Target Risk (TR) = 1E-06											
Contaminant															Carcinogenic Target Risk (TR) = 1E-06											
SFO (mg/kg-day) ⁻¹	k _e	IUR (ug/m ³) ⁻¹	k _e	RfD _o (mg/kg-day)	k _e	RfC _i (mg/m ³) ⁻¹	k _e	v _o	mutagen	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	GIABS	ABS _d	Analyte	CAS No.	Ingestion SL TR=1E-06 (mg/kg)	Dermal SL TR=1E-06 (mg/kg)	SL TR=1E-06 (mg/kg)	Carcinogenic SL TR=1E-06 (mg/kg)	Ingestion SL THQ=1 (mg/kg)	Dermal SL THQ=1 (mg/kg)	SL THQ=1 (mg/kg)	Noncarcinogenic SL THQ=1 (mg/kg)		

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied; c = cancer; n = noncancer; * = where: n SL < 100x c SL; ** = where n SL < 10x c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.																	
Contaminant																	
Toxicity and Chemical-specific Information																	
SFO (mg/kg-day) ⁻¹	K _e IUR (ug/m ³) ⁻¹	k _e	RfD _e (mg/kg-day)	k _e	RfC _e (mg/m ³)	k _v	o	mutagen	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	GIABS	ABS _d	Analyte	CAS No.		
7.0E-03	I	V	2.8E+04	1.4E+09	1.6E+04	1									Triethylamine	121-44-8	
2.0E+00	P		2.0E+01	P	V	4.8E+03	1.4E+09	7.1E+02	1						Triethylene Glycol	112-27-6	
7.7E-03	I		7.5E-03	I	V	1.4E+09	5.1E+05	1							Trifluoroethane, 1,1,1-Trifluorin	420-46-2	
2.0E-02	P		1.0E-02	P	I	1.0E-02	I	V	1.4E+09	9.4E+03	1				Trimethyl Phosphate	512-56-1	
			1.0E-02	P	I	6.0E-02	I	V	2.9E+02	1.4E+09	9.4E+03	1			Trimethylbenzene, 1,2,3-	526-73-8	
			1.0E-02	I	I	6.0E-02	I	V	2.2E+02	1.4E+09	7.9E+03	1			Trimethylbenzene, 1,2,4-	95-63-6	
			1.0E-02	I	I	6.0E-02	I	V	1.8E+02	1.4E+09	6.6E+03	1			Trimethylbenzene, 1,3,5-	108-67-8	
			1.0E-02	X		V			3.0E+01	1.4E+09	1.0E+03	1			Trimethylpentene, 2,4,4-	25167-70-8	
			3.0E-02	I					1.4E+09			1	0.019		Trinitrobenzene, 1,3,5-	99-35-4	
3.0E-02	I		5.0E-04	I		1.4E+09			1	0.032					Trinitrotoluene, 2,4,6-	118-96-7	
			2.0E-02	P		1.4E+09			1	0.1					Triphenylphosphine Oxide	791-28-6	
			2.0E-02	A		1.4E+09			1	0.1					Tri(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	
			1.0E-02	X		1.4E+09			1	0.1					Tris(1-chloro-2-propyl)phosphate	13674-84-5	
2.3E+00	C	6.6E-04	C		V	4.7E+02	1.4E+09	9.0E+05	1						Tris(2,3-dibromopropyl)phosphate	126-72-7	
2.0E-02	P		7.0E-03	P		1.4E+09			1	0.1					Tris(2-chloroethyl)phosphate	115-96-8	
3.2E-03	P		1.0E-01	P		1.4E+09			1	0.1					Tungsten	78-42-2	
			8.0E-04	P		1.4E+09			1						Uranium	7440-33-7	
			2.0E-04	A	4.0E-05	A			1.4E+09		1					7440-61-1	
1.0E+00	C	2.9E-04	C		M	1.4E+09			1	0.1					Urethane	51-79-6	
8.3E-03	P	9.0E-03	I	7.0E-06	P	1.4E+09		0.026							Vanadium Pentoxide	1314-62-1	
		5.0E-03	G	1.0E-04	A	1.4E+09		0.026							Vanadium and Compounds	7440-62-2	
			1.0E-03	I	V	1.4E+09	1.2E+05	1						Vermolate	1929-77-7		
			1.2E-03	O		1.4E+09			1	0.1				Vinclozolin	50471-44-8		
			1.0E+00	H	2.0E-01	I	V	2.8E+03	1.4E+09	4.4E+03	1			Vinyl Acetate	108-05-4		
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	3.9E+03	1.4E+09	9.6E+02	1			Vinyl Bromide	593-60-2
			3.0E-04	I	I	1.4E+09			1	0.1				Vinyl Chloride	75-01-4		
									1.4E+09		1				Warfarin	81-81-2	
			2.0E-01	G	1.0E-01	G	V	3.9E+02	1.4E+09	5.5E+03	1				Xylene, m-	108-38-3	
			2.0E-01	G	1.0E-01	G	V	4.3E+02	1.4E+09	6.5E+03	1				Xylene, o-	95-47-6	
			2.0E-01	G	1.0E-01	G	V	3.9E+02	1.4E+09	5.6E+03	1				Xylene, p-	106-42-3	
			2.0E-01	I	1.0E-01	I	V	2.6E+02	1.4E+09	5.7E+03	1					1330-20-7	
			3.0E-04	I	I	1.4E+09			1	0.1				Zinc Phosphide	1314-84-7		
			3.0E-01	I	I	1.4E+09			1					Zinc and Compounds	7440-66-6		
			5.0E-02	I		1.4E+09			1	0.1					Zineb	12122-67-7	
			8.0E-05	X		1.4E+09			1					Zirconium	7440-67-7		

FIGURE 11

Appendix C CDPHE Table 3 – Pre-Approved Beneficial Reuses



[Back to CDPHE Recycling and Beneficial Use](#)

Table 3

Pre-Approved Beneficial Uses		Conditions on Use
Newly-Generated Coal Fly Ash	- component of concrete, mortar, brick, concrete masonry, wall grout, or manufactured stone	The beneficial use of coal fly ash must meet the engineering specification for the end use as well as specifications detailed in ASTM C618. Section 4 of Beneficial Use Table 2: Beneficial Use By Category and note 2 below also apply.
Solid Waste Regulations Section 10: Beneficial Use of Whole Waste Tires on Ag Land	- anchors - blowout stabilization - building material - bumpers for poles - corrals - drainage media substitute - effluent pond bank stabilization - equipment bumpers - feed source ballasts - fencing material - flower pots - irrigation line markers - livestock bumpers - livestock feeders - livestock scratcher - livestock sheds - pallet - pond and lake erosion control (calm water) - property boundaries - push carts - silage covers - tire drag or tire harrow - trespass signs - vegetation protection - water tanks - windbreaks	The beneficial use of whole waste tires on ag land must comply with Section 10.1.3(A)(5) of the Solid Waste Regulations 6 CCR 1007-2, Part 1.
Tire Bales	- containment - livestock sheds - windbreaks	The integrity of tire bales must be maintained while in use.
Waste Tire Treads	- matting	
Waste Tire Sidewalls	- construction barrel weights - feed source ballasts - silage covers	



[Back to CDPHE Recycling and Beneficial Use](#)

Shredded Waste Tires	<ul style="list-style-type: none">- drainage media substitute- landscape mulch- playground mulch- molded products <p><ul style="list-style-type: none">- fuel source (with appropriate air permitting)- landfill alternative daily cover (when approved in D&O Plan)- lightweight aggregate (with an engineered plan)</p>	
Waste Mining Tires	<ul style="list-style-type: none">- livestock feeders- water tanks	
Waste Mining Tire Sidewalls	<ul style="list-style-type: none">- ballasts- windbreaks	
Waste tire with one sidewall removed	<ul style="list-style-type: none">- retaining wall- low volume gravel road- drainage control along gravel road- bike or walking path	Use of aggregate (rock, crushed concrete, reclaimed asphalt) inside a waste tire where only one sidewall is removed. Must meet an engineered specification or other specification for end use. Must meet all local ordinances and approvals, when required. Permits must be approved prior to construction, when required. Integrity of wall, road, drainage control, or path must be maintained at all times.
Reclaimed Asphalt	<ul style="list-style-type: none">- road base- component of hot or cold mix asphalt- recompacted asphalt- roadside dressing- chip seal material- culvert cover- base stabilization- structural fill- mine backfill	The beneficial use of reclaimed asphalt must meet the engineering specification or other appropriate specification for the end use. See note 4. Mine backfill may only occur under a reclamation permit from the Division of Reclamation, Mining and Safety with the Colorado Department of Natural Resources.
Reclaimed Concrete, Brick, and Stone (non-asbestos bearing materials)	<ul style="list-style-type: none">- road base- concrete aggregate- component of engineered structural backfill- aggregate substitute- engineered rip rap- road side dressing- mine backfill	The beneficial use of reclaimed concrete, brick, and stone must meet the engineering specification or other appropriate specification for the end use. See note 4. Mine backfill may only occur under a reclamation permit from the Division of Reclamation, Mining and Safety with the Colorado Department of Natural Resources.
Non chemically treated Wood	<ul style="list-style-type: none">- mulch- bio-filter	

FIGURE 11



[Back to CDPHE Recycling and Beneficial Use](#)

Glass (lead free)	- concrete aggregate - pavement aggregate - aggregate substitute - filter pavement	The beneficial use of lead-free glass must meet the engineering specification or other appropriate specification for the end use.
Clean reclaimed porcelain	- aggregate substitute	The beneficial use of clean reclaimed porcelain must meet the engineering specification or other appropriate specification for the end use.
Steel Slag	- aggregate substitute	The beneficial use of steel slag must meet the engineering specification or other appropriate specification for the end use.
Autofluff	- alternative daily cover for landfills (when approved in D&O Plan)	
Shredded paper/cardboard	- animal bedding - insulation	
Notes: 1. The Department has approved the beneficial uses specified in this table. A person may use wastes specified on this Pre-Approved Beneficial Use Table and meet the performance and storage standards listed in 6 CCR 1007-2, Part 1, Section 8.6.2 without prior approval from the Department, unless there is reason to believe the waste contains contaminants that exceed the Department approved unrestricted use concentrations that are protective of ground and surface water, or background constituent concentrations, or alternative criteria if required by the Department. Section 8.6.2, Performance and Storage Standards also specifies that " <i>The weight or volume of recyclable materials that are recycled shall be at least 90% of the total weight or volume (determined using a consistent measure) of recyclable materials received and currently in storage over a 3-year rolling average.</i> "		
2. The beneficial use of coal fly ash as a component of concrete must still be tested for metals from the beneficial use table 1B using the Synthetic Precipitation Leaching Procedure (SPLP) or Toxicity Characteristic Leaching Procedure (TCLP) and analytical results must be kept for 5 years at minimum. These results do not need to be reported to the Division annually but must be made available to the Division upon request. The pre-approved beneficial use of coal fly ash does not apply to historic stockpiles. The pre-approved uses identified in this table only apply to newly-generated ash.		
3. All beneficial uses must meet all other local, state and federal requirements.		
4. See the Division's compliance bulletin on the beneficial use and recycling of asphalt, brick, and concrete, available here: https://www.colorado.gov/pacific/cdphe/swguidance		

Appendix D Daily Field Documentation Log

Pinyon Field Documentation Log

[Add or delete tables and rows as needed]

Work Area:	
On Site QMP:	
Company:	
Date:	
Weather:	
CABI (y/n)?	
CABI Cert#:	
Time Arrived:	
Time Departed:	
Work Area Location Description:	

Work Area Photo and GPS Coordinates:	
Photo	Location
Insert Photo Here	Insert GPS Coordinates Here

Work Area Photo and GPS Coordinates:	
Photo	Location
Insert Photo Here	Insert GPS Coordinates Here

General Observations:	

Description of Work Activities, Photos, and GPS Coordinates:		
Description of Work Activities	Work Activity Photo	Work Activity Location
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here

Description of Work Activities, Photos, and GPS Coordinates:

Description of Work Activities	Work Activity Photo	Work Activity Location
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here
Insert work activity descriptions, associated with work activity photo to the right	Insert Photo Here	Insert GPS Coordinates Here

Field Screening Equipment Used:

Equipment and Model Number	Calibration Method (if applicable)	Date/Time Calibrated	Calibration Successful?

Impacted Soil Observed:

Were soil impacts observed?	
Describe the soil impacts and location(s):	
Elevated PID readings observed? If yes, note the reading and location the material was encountered:	
If soil impacts are observed, note the response to the finding and the mitigation measures completed:	

Photos and GPS Coordinates of Observed Impacted Soil:

Insert Photo Here	Insert GPS Coordinates Here
Insert Photo Here	Insert GPS Coordinates Here

Debris Encountered:

List of non-suspect debris (if applicable):	
List of suspect or confirmed RACS (if applicable):	

Bulk Sampling:

Sample ID	Sample Description	Photo	Sample Date and Time	Sample Location	Sample Depth	Analytical Results
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		
		Insert Photo Here		Insert GPS Coordinates Here		

RACS: [complete if RACS is identified]	
Is the material friable? [If yes, the RWA Field Documentation must be completed if abatement was completed.]	
Greater than or equal to 10 separate pieces of material in a 10-foot diameter? [If yes, the RWA Field Documentation must be completed if abatement was completed.]	
[If you answered no to the previous two questions, hand removal of ACM may be completed. Provide description of hand removal activities (quantity, where material was placed, whether or not ACM was fully removed in the area, etc.)]	

Photo(s) of RACS:	
Photo	Work Activity Location
NA	NA

Soil(s) Stockpiled on Site:	
Are there any soil stockpiles on the site?	
Where and what approximate quantity of soil stockpiled?	
What are the management practices being implemented to prevent erosion/runoff from the site?	
General description of stockpiled material:	
Were any samples of the stockpile collected?	

Soil(s) Stockpiled on Site: [complete this section only if soils were exported from the site]

Are there any soil stockpiles on the site? [If yes, complete the following section.]	
Where and what approximate quantity of soil stockpiled?	
What are the management practices being implemented to prevent erosion/runoff from the site?	
General description of stockpiled material:	
Were any samples of the stockpile collected?	

Stockpile Samples:

Date and Time of Sample Collection	Analysis	Location
NA	NA	NA

Material Reuse I [complete this section only if materials were reused/moved at the site]

Initial Material Location:	
Final Destination Location:	
Is Debris Present?	

Looks bad or smells bad?	
Quantity of Material Transported:	
Material Characterization Information	

Material Reuse 2 [complete this section only if materials were reused/moved at the site]	
Initial Material Location:	
Final Destination Location:	
Is Debris Present?	
Looks bad or smells bad?	
Quantity of Material Transported:	
Material Characterization Information	

Material Reuse 3 [complete this section only if materials were reused/moved at the site]	
Initial Material Location:	

Final Destination Location:	
Is Debris Present?	
Looks bad or smells bad?	
Quantity of Material Transported:	
Material Characterization Information	

Material Reuse 4 [complete this section only if materials were reused/moved at the site]	
Initial Material Location:	
Final Destination Location:	
Is Debris Present?	
Looks bad or smells bad?	
Quantity of Material Transported:	
Material Characterization Information	

Materials Exported from Site: [complete this section only if materials were exported from the site]

What material was exported from the site?	
Was there any debris or impacted materials?	
Where is the material being taken to?	
Quantity of material exported?	
Are each of the signed manifests accounted for?	
Photos of Manifests	

Close Out:

Is today the last day of soil disturbing activities?	
If yes, do any debris remain on site?	
If debris do remain on site, explain further:	