



City and County of Denver Standard Materials Management Plan

Prepared by the Denver Department of Public Health & Environment
Environmental Quality Division

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List Acronyms

Acronym	Definition
ACM	Asbestos-Containing Materials
APEN	Air Pollution Emissions Notice
AST	Above-ground Storage Tank
AQCC	Air Quality Control Commission
BMP	Best Management Practice
CABI	Certified Asbestos Building Inspector
CCD	City and County of Denver
CCR	Colorado Code of Regulations
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
C&D	Construction & Debris
CGI	Combustible gas indicator
CWRSL	Composite Worker Regional Screening Level
DADS	Denver-Arapahoe Disposal Site
DDPHE	Denver Department of Public Health and Environment
DOT	Department of Transportation
EP	Environmental Professional
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
FID	Flame Ionization Detector
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSO	Health and Safety Officer
HUF	Historical Urban Fill
LEL	Lower Explosive Limit
MMP	Materials Management Plan
NPL	National Priority List
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
PCS	Petroleum Contaminated Soil

Acronym	Definition
PO	Purchase order
PID	Photoionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
RACS	Regulated Asbestos Contaminated Soil
REC	Recognized Environmental Condition
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
RRSL	Residential Regional Screening Level
RSL	Regional Screening Levels
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SWMP	Stormwater Management Plan
TCLP	Toxicity Characteristic Leaching Procedure
TSDf	Treatment, Storage, and Disposal Facility
UST	Underground Storage Tank
VCUP	Voluntary Cleanup and Redevelopment Program
VOC	Volatile Organic Compound
WM	Waste Management
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter

1.0 PURPOSE and APPLICABILITY

This Materials Management Plan (MMP) provides general guidance to City and County of Denver (CCD) contractors (the “Contractor”) for the management of contaminated environmental media encountered during soil disturbing activities at CCD-owned properties, easements, and properties planned for acquisition. The primary goals of implementing this MMP are to (a) minimize worker exposure to potentially contaminated material, (b) minimize the potential of releases to the environment, and (c) facilitate appropriate reuse and disposal of materials generated during soil disturbing activities.

This MMP serves as guidance and is not intended to substitute or supersede environmental regulations or applicable permits. If any discrepancy is noted between this MMP and applicable regulations, the regulations will take precedence. It is the responsibility of the Contractor to follow all appropriate regulations, obtain the proper permits, and utilize field personnel trained to identify potential contamination. Implementation of this MMP is optional but, if implemented, must be completed by an Environmental Professional (EP) that meets the qualifications outlined in Section 4.

Prior to implementation of this MMP, a Phase I environmental site assessment (ESA), or similar, shall be completed to determine whether potential recognized environmental conditions (RECs) exist and whether implementation of this MMP is sufficient to appropriately manage identified RECs. If contamination is suspected based on environmental assessments, visual/ olfactory observation, and/or field tests, soil and debris must be characterized for proper disposal or reuse.

If offsite reuse of soil is anticipated, this MMP shall be implemented in conjunction with Denver’s Guidance for Reuse of Soil on City Projects. If debris is encountered, Denver’s Regulated Asbestos-Contaminated Soil (RACS) Standard Operating Procedure (SOP) should be implemented to comply with solid waste regulations.

2.0 EXCLUSIONS FROM THIS MMP

This MMP does not apply to the following:

- Soil that will not be disturbed by construction activities and will remain in place.
- Sites that are subject to state or federal environmental regulatory programs, such as, but not limited to, the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Colorado’s Voluntary Cleanup and Redevelopment Program (VCUP), and Colorado’s petroleum storage tank programs.
- Hazardous materials associated with onsite activities during project construction, such as the waste generated on-site during construction; management of construction materials brought onsite; or onsite handling, storage, and/or disposal of hazardous materials.
- Management of the following materials:
 - Groundwater;
 - Asbestos containing material (ACM) in structures;
 - Regulated Asbestos Contaminated Soils (RACS);
 - Above ground storage tanks (ASTs);
 - Underground storage tanks (USTs);
 - Hazardous materials;
 - Radioactive materials;
 - Biological waste,
 - Historical, prehistorical and archaeological resources, or
 - Structure or infrastructure materials including buildings, roads, and bridges.

As needed, please contact DDPHE for guidance regarding management of materials excluded from this MMP.

3.0 CONTACT INFORMATION

If unexpected, unknown/unidentified USTs, drums, odorous soil, stained soil, asbestos-cement pipe, building debris or waste materials are encountered during soil disturbing activities, the Contractor shall immediately stop work in the area of discovery and shall immediately notify the CCD PM. Denver's Department of Public Health and Environment (DDPHE) shall also be immediately notified of the discovery by either the CCD PM, Contractor, or an EP.

This MMP should be supplemented with additional project specific contact information, such as:

Organization	Contact Information
DDPHE	(720) 460-1706
CCD PM	TBD
Contractor	TBD
EP	TBD

4.0 ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS

The project team, either via CCD or its Contractor, will hire an environmental firm to have an independent and appropriately trained EP onsite to implement this MMP during soil disturbing activities. The EP shall also be onsite to evaluate imported materials.

Per this MMP an EP is defined as follows:

1. A person who possesses sufficient specific education, training, and experience necessary to exercise professional judgement to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, sufficient to meet objectives and performance factors.
2. Such a person must:
 - (i) Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or
 - (ii) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries and have the equivalent of three (3) years of full-time relevant experience; or
 - (iii) 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 (5) years of full-time relevant experience; or
 - (iv) Have the equivalent of ten (10) years of full-time relevant experience.
3. An EP should remain current in his or her field through participation in continuing education or other activities.
4. The definition of an EP provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional.

Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry.

5. A person who does not qualify as an EP under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such a person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Relevant experience, as used in the definition of EP in this section, means participation in the performance of all appropriate inquiry investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgement was used to develop opinions regarding conditions indicative of releases or threatened releases to the subject property.

Additionally, the EP shall have the following training:

- Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and current 8-hour annual refresher; and
- Two-hour asbestos in soil awareness training, at a minimum.

5.0 RESPONSIBILITIES

The following sections detail the responsibilities of the applicable parties that will be associated with implementation of this MMP.

5.1 DDPHE Responsibilities

As Denver's nationally accredited local public health agency, DDPHE is dedicated to advancing Denver's environmental and public health goals. DDPHE provides oversight of environmentally contaminated site cleanup, works to ensure the sites are investigated and cleaned up to protect the health of residents and the environment, and ensures that the cleanup activities comply with applicable regulations.

During preliminary planning of a CCD project, early coordination with DDPHE is strongly encouraged to determine the potential to encounter contaminated environmental media.

During planning and implementation of this MMP, DDPHE will provide overall environmental-related oversight of the work completed by the EP. For soil reuse, disposal and import of fill material, DDPHE is responsible for promptly informing sampling frequency and analysis requirements based on site-specific contaminants of concern and land uses.

5.2 Environmental Professional Responsibilities

- Be onsite when work is conducted within areas of known, suspected, and/or encountered contamination. Be on-call when work is conducted outside of those areas.
- Perform field screening in adherence to this MMP.
- Complete and maintain daily field notes.
- Track tickets and manifests for material hauled offsite for either reuse or disposal.
- Ensure adherence to this MMP.

- Notify DDPHE immediately of any unexpected unknown/unidentified environmental conditions.
- If appropriate for the project, the EP shall also be a Certified Asbestos Building Inspector (CABI) trained and certified in accordance with Air Quality Control Commission Regulation No. 8, (5 CCR 1001-10, Part B) with 40 verifiable hours of on the job asbestos in soils experience on a minimum of three different asbestos soils projects.

5.3 Contractor Responsibilities

- Adhere to this MMP.
- Provide all necessary equipment and personnel (i.e. health and safety officer (HSO), foreman, laborers, etc.) to implement this MMP.
- Coordinate with the EP, DDPHE, and the CCD PM prior to beginning work to review known or suspected site-specific environmental concerns and MMP requirements.
- Coordinate two-hour asbestos awareness training to all employees that may conduct earth-disturbing activities.
- Ensure that its subcontractors adhere to this MMP.
- Ensure that proper procedures for reuse and disposal are followed. This includes ensuring that if the suspect material a) has not been previously characterized during the environmental investigation, or b) appears different from the previously characterized material, then suspect material that has been disturbed is tested and if it does not meet applicable regulatory standards, then it is disposed in accordance with local, state and federal regulations.
- Ensure that non-salvageable, nonhazardous solid waste is disposed at the DADS landfill as coordinated with DDPHE who may have disposal profiles and manifests in place.
- Ensure that waste material is not disposed onsite, in storm drains, sanitary sewers, streams, or other waterways.

6.0 HEALTH AND SAFETY PLANS

Due to the potential to encounter suspect materials, there is a possibility for increased risk to the health of workers during soil disturbing activities. Therefore, the Contractor must develop a project-specific Health and Safety Plan (HASP) in accordance with 29 Code of Federal Regulations (CFR) 1910 (Occupational Safety and Health Standards) and 29 CFR 1926 (Safety and Health Regulations for Construction). The HASP should be reviewed by a certified industrial hygienist prior to implementation.

The Contractor may share its HASP with its subcontractors or require each subcontractor to prepare their own plan. The Contractor will be required to employ the proper personnel, monitoring equipment, and personal protective equipment (PPE) to provide a safe working environment for its employees, consultants, and subcontractors.

7.0 DUST

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 equipment and personnel for dust control sufficient to prevent dust nuisance on and about the Project area. Blowing dust and airborne particulates shall be controlled by wetting or other means, if approved by the EP and the CCD PM. 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 in the Project area, including periods of inactivity such as evenings, weekends, and holidays as well as any other periods of inactivity.

The Contractor must also comply with the requirements put forth in the City and County of Denver Revised Municipal Code, Chapter 4 Air Pollution Control, Article III Stationary Sources, [Section 4-25. Fugitive Particulate Emissions](#), administered by DDPHE. Requirements are as follows:

No person shall allow or cause: (1) any materials to be handled, transported, or stored; (2) a building, including its appurtenances, or a construction haul road to be used, constructed, altered, repaired or demolished; or (3) any unenclosed activity, including demolition, excavation, backfilling, grading, clearing of land, construction or sandblasting without taking all reasonable measures as DDPHE requires to prevent particulate matter from becoming airborne. All persons shall take reasonable measures to prevent the visible discharge of fugitive particulate emissions beyond the lot line of the property on which the emissions originate.

Additionally, the Contractor will determine if the minimum requirements for an Air Pollution Emissions Notice (APEN) in accordance with 5 CCR 1001 – Air Quality Control Commission are met and obtain the permit if required. Such requirements may include whether the project site is less than 25 contiguous acres and whether site work will be less than 6 months in duration.

8.0 POTENTIAL ENVIRONMENTAL CONTAMINANTS

Common urban contaminants that may be encountered during soil disturbing activities include, but are not limited to, petroleum constituents, metals, solvents, poly-chlorinated biphenyls (PCBs), historical urban fill and associated gases, and asbestos. The following are several common urban contaminants which require special management and disposal:

8.1 Regulated Asbestos Contaminated Soil (RACS)

RACS must be managed in compliance with the [Colorado Department of Public Health and Environment \(CDPHE\) Regulations Pertaining to Solid Waste Sites and Facilities \(6 CCR 1007-2, Part 1\), 5.5 - Management of Regulated Asbestos Contaminated Soils \(CSWR §5.5\)](#).

DDPHE has prepared a CDPHE-approved [RACS Standard Operating Procedure](#) for CCD to ensure compliance with CSWR §5.5 and to provide procedures for identification, safe handling, transport, and disposal of Non-RACS or RACS that may be encountered during soil-disturbing activities. Provisions of CSWR §5.5, not specifically referenced within this standard operating procedure, must be followed; therefore, any Contractor working on CCD projects must be familiar with both the standard operating procedure and CSWR §5.5. In the event of any disparity between the two, CSWR §5.5 will supersede provisions included within this document.

RACS means soil, ash or debris (plus six inches in all directions of surrounding soil or other matrix material) containing:

- Friable ACM as determined in the field by a CABI through a RACS determination; Previously non-friable ACM(s) that have been rendered friable as determined in the field by a CABI(s) through a RACS determination.
- Non-friable ACM(s) that have a high probability of releasing fibers based on the forces expected to act upon the material during soil disturbance as determined in the field by a CABI(s) through a RACS determination; deteriorated non-friable ACM(s) that are in poor condition resulting in a high probability to release fibers due to weathering, historical mechanical impact, fire damage (by evidence of ACM within an ash layer) or other factors as determined in the field by a CABI(s) through a RACS determination.
- The following broken, resized, or damaged ACM(s) are predetermined to be RACS:
 - Asbestos cement materials

- Plaster
 - Brittle caulking, glazing and sealants
 - Powdery Concrete Masonry Unit sealant
 - Powdery floor leveling compound
 - Drywall/wallboard and associated joint compound material
 - Firebrick
 - Other material as determined by the Department, at the request of the owner or person disturbing debris, to have a high probability to release fibers.
- Soil or ash known to contain non-visible asbestos based on documented evidence.

If debris is encountered, a RACS determination must be made in the field by a CABI, of the friability of (ACM and the probability of non-friable ACM to release fibers based on the condition of the material and the forces that are expected to act on it during disturbance. Determinations of friability shall be based on the requirements for such determinations set forth in Air Quality Control Commission (AQCC) Regulation No. 8 (5 CCR 1001-10, Part B). Determinations of the probability for non-friable ACM to release fibers during disturbance shall be based on the following:

- 1) The condition of the material prior to disturbance, based on observations of weathering, the integrity of the material, historical mechanical impact, or fire damage;
- 2) The potential for the material to be broken, resized or damaged during planned disturbance;
- 3) The material shall be considered RACS if the planned disturbance includes any of the following:
 - a. Augers
 - b. Rotary style trenchers
 - c. Driving on ACM lying on the surface (vehicles or equipment)
 - d. Blasting or other detonation
 - e. Intentional burning
 - f. Other types of direct mechanical impact which are:
 - i. In direct contact with ACM or result in observation of ACM after disturbance, and
 - ii. Causing damage to the ACM

Oversight and documentation of potential RACS and non-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 Sites and Facilities (6 CCR 1007-2, Part I). The CABI shall have a minimum of forty (40) verifiable hours of on the job asbestos in soils experience on a minimum of three (3) different asbestos in soils projects, conducted under either AQCC Regulation No. 8 or Section 5.5. The CABI shall be independent of the Contractor and/or abatement contractor unless the CABI and the Contractor or abatement contractor are both direct employees of the property owner. However, the Contractor or abatement contractor may hire a subcontractor CABI, but the CABI shall not be a direct employee of the Contractor or abatement contractor.

8.2 Historical Urban Fill (HUF)

HUF can contain a wide variety of debris and waste material including, but not limited to, solid waste, RACS, and soils with elevated polycyclic aromatic hydrocarbons (PAH), PCB and heavy metal concentrations. The generation and transmission of gases, such as methane, are specific health and safety concerns associated with HUF. The primary health and safety concerns of methane are the risks of oxygen depletion and explosion. Field

screening procedures and monitoring requirements for methane and other combustible gases shall be described in the site-specific HASP.

8.3 Petroleum Contaminated Soil

Petroleum contaminated soil (PCS) has been in contact with or otherwise impacted by petroleum constituents. PCS is an environmental concern associated with ASTs and USTs, fuel storage and dispensing facilities, automotive service and mechanical repair facilities, and various industrial operations. PCS may be identified by the visual presence of oil or oil staining, petroleum odor, and laboratory analysis.

8.4 Polycyclic Aromatic Hydrocarbon (PAH) Contaminated Soil

PAHs are a class of chemicals that occur in coal, crude oil and gasoline. They are ubiquitous in urban environments and are produced when incombustible components deposit during burning operations with coal, oil, gas, and other organic matter.

8.5 Solvent Contaminated Soil

Chlorinated and non-chlorinated solvent soil may be encountered during soil disturbing activities. Broad categories of solvent products include paint thinners, mineral spirits, degreasers, dry cleaning chemicals, etc. Solvents may also be mixed in with used oil.

8.6 Metals/Pesticides/Herbicides Contaminated Soil

Metals are naturally occurring in soil throughout Colorado but can also be anthropogenic from ore processing and various other industrial processes. Pesticides and herbicides may be present from agricultural land uses and lawn care application.

8.7 Polychlorinated biphenyls (PCB) Contaminated Soil

PCBs are a group of man-made organic chemicals consisting of carbon, hydrogen, and chlorine atoms. PCBs were domestically manufactured from 1929 until manufacturing was banned in 1979. PCBs were used in hundreds of industrial and commercial applications including, but not limited to:

- Electrical, heat transfer, and hydraulic equipment
- Plasticizers in paints, plastics, and rubber products
- Pigments, dyes, and carbonless copy paper
- Other industrial applications
- Coal-based fill

One of the more common uses of PCBs is an additive to oil found in electrical transformers, motors, and hydraulic systems.

8.8 Radioactive Materials

Few CCD projects have the potential to encounter radioactive materials during project activities. The occurrence of low-level radioactive materials within the Denver Metro area is primarily a result of radium processing activities which occurred along the South Platte River Valley in the early 1900s. Radioactive materials are regulated by a multitude of agencies including the U.S. Environmental Protection Agency (EPA), the U.S. Food and Drug Administration, the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, and state governments. In Colorado, most radioactive material related activities are overseen by CDPHE's Radiation Program within the Hazardous Materials and Waste Management Division.

As indicated in Section 2.0, this MMP shall not be utilized for the management of radioactive materials. If radioactive materials are identified or suspected in a project area, DDPHE shall be contacted to determine appropriate actions.

9.0 FIELD SCREENING OF DISTURBED SOIL

Environmentally impacted soil encountered during soil disturbing activities shall be identified and appropriately managed. Potentially impacted soil will be identified based on visual and olfactory observation and use of field screening instruments.

During soil disturbing activities, the EP will continuously evaluate soil for the presence of potential impacts, specifically for:

- Debris: Visual evidence of man-made fill, particularly soil that contains debris such as concrete, brick, lumber, and other building materials, etc. Any soil that contains evidence of debris must be screened further by a CABI.
- Staining: Visual evidence of discoloration or staining in soil that contains an abundance of substances that are not indicative of native soils in the area. This includes the presence of coal fines.
- Odor: Olfactory (smell) evidence of impacts, such as noticeable petroleum or solvent odors.

Soil where visual or olfactory impacts are observed must be screened with field instrumentation by the EP to determine suitability as onsite backfill, offsite reuse, or disposal. The utmost care should be taken to segregate potentially impacted soil. Refer to Section 10 for more information on stock piling.

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) may be used in the field to screen for non-specific volatile organic compounds (VOCs). If HUF is encountered, a combustible gas indicator (CGI) may be used to measure the percent Lower Explosive Limit (LEL) and an oxygen meter may be used to measure oxygen levels. Screening procedures associated with HUF shall be described in site-specific HASPs.

If debris or impacts are encountered, stop work in the area; work may continue in other areas of the project site while the discovery is resolved.

10.0 GENERAL STOCKPILING GUIDANCE

If disturbed soil containing debris, stains, or odor is encountered, it must be segregated and temporarily stockpiled on impermeable plastic sheeting and evaluated by the EP. Unless previously characterized, soil samples will be collected for laboratory analysis and the stockpile will be covered pending receipt and review of laboratory results. A waste profile and manifest will be obtained following receipt of laboratory data for subsequent disposal.

Appropriate stormwater best-management practices (BMPs) must be applied to the stockpiles of potentially impacted material to prevent contact with underlying clean soil and stormwater runoff, erosion, and particulate matter from becoming airborne. In accordance with the CCD Fugitive Particulate Emissions Ordinance (Section 7.0), all reasonable measures are required to prevent particulate matter from stockpiles from becoming airborne.

Stockpiles of potentially impacted soil will be limited to a maximum of 500 cubic yards each. All other soil must be handled in accordance with the project's Stormwater Management Plan (SWMP). This general stockpiling requirement does not apply if RACS is suspected or confirmed to be present. The accumulation of RACS cannot exist for more than 10 calendar days without the approval of a RACS Storage Plan by CDPHE.

11.0 SOIL COMPARISON CRITERIA

If debris is encountered, a RACS determination must be made in the field by a CABI. If chemical contamination is suspected based on field screening and has not been previously characterized, soil shall be characterized to determine eligibility as onsite backfill or disposal. [EPA Regional Screening Levels \(RSLs\)](#) and other state/federal guidance will be used for comparison to help determine appropriate soil disposition. In addition to the [Denver's Guidance for Reuse of Soil on City Projects](#), the following guidance is applicable for evaluating soil conditions for varying exposure scenarios:

- **EPA Residential Regional Screening Levels (RRSLs)** –The RRSLs apply to properties with recreational uses (e.g., parks and open space) and residential uses (single-family, multi-family, mixed-use with residential component). Soils that meet RRSLs are considered appropriate for reuse without restriction.
- **EPA Composite Worker RSLs (CWRSLS)** – The CWRSLS apply to properties such as right of ways (e.g., roads, sidewalks, bike paths), utilities corridors (e.g., stormwater, wastewater, water), or CCD-owned facilities (e.g., maintenance garages, office buildings, safety buildings). Soil with concentrations that exceed the EPA CWRSLS will be removed from the Site and disposed at DADS.
- **CDPHE Risk-Based Screening Level for Arsenic** – In Colorado, arsenic occurs naturally, and often at concentrations greater than the RRSLs. The CDPHE has state-specific guidance related to evaluating arsenic concentrations in soil. The guidance was developed using a database of over 2,700 samples from 44 counties in Colorado. Soil samples were obtained from locations with varied land uses including native grasslands, agricultural fields, urban mixed land uses and mining. Background arsenic concentrations for urban mixed use soil samples ranged from 6 to 19 milligrams per kilogram (mg/kg) and the average of all land uses was 11 mg/kg. Based on these results, the CDPHE 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 listed wastes) or based on characteristics such as corrosivity, ignitability, reactivity, or toxicity characteristics. A material may be defined as hazardous if any of the following criteria are met:
 - The material contains a listed hazardous waste.
 - 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** - Waste Management, the operator of DADS, accepts solid material where concentrations as determined by the total analysis are less than 20 times the EPA Toxicity Maximum Concentrations of Contaminants; this is referred to as the “20 Times Rule”. 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 any 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 facility in accordance with CDPHE requirements.

Soil that is visibly free from stains, odors and debris and meets the EPA RRSLs will be considered suitable for unrestricted backfill and reuse. Note that all soil evaluation and disposition of soil must be confirmed and approved by DDPHE before disposal and offsite reuse.

12.0 MANAGEMENT OF DISTURBED SOIL

The following sections describe management protocols to determine if disturbed soil is appropriate for onsite use as backfill or for offsite reuse.

12.1 Onsite Backfill of Disturbed Soil

Laboratory analysis is not required for disturbed soil which shall remain onsite unless field screening identifies potential environmental impacts or debris. Disturbed soil with suspected or observed contamination or debris should be segregated and be adequately characterized. DDPHE should be promptly contacted to determine project-specific protocols and an appropriate sampling and analysis plan based on site-specific environmental concerns and land uses.

12.2 Offsite Reuse of Disturbed Soil

If excess soil will be generated for offsite reuse, then DDPHE shall be contacted and DDPHE's [Guidance for Reuse of Soil on City Projects](#) shall be implemented; soil sampling and appropriate laboratory analysis will be required. Disturbed soil that contains stains, odors, or debris, regardless of analytical results, shall not be reused offsite. This reuse guidance applies to excess soil generated from a CCD-owned property that is intended to be exported to another CCD property or to a third-party owned property. The reuse guidance does not apply when soil remains on a CCD project site. Soil sampling will be required for all offsite reuse and determining the soil disposition early in the project planning process is in the best interest of the project since a) the sampling parameters differ depending on planned soil disposition and b) 3rd party reuse will require a contract with that party.

13.0 DISPOSAL OF DISTURBED SOIL

The Contractor shall direct non-recyclable, non-hazardous wastes from CCD-owned or controlled property or facilities to the DADS landfill, operated by Waste Management (WM), for disposal, following the procedural guidance as required by [CCD Executive Order 115](#). Laboratory analytical results will be required prior to DADS acceptance for soil and possibly other materials. Please coordinate with DDPHE to determine the appropriate sampling plan and timing required for soil 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 or drum (for small amounts), labeled, and staged at a designated onsite storage area 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 must be removed as soon as practicable. The Contractor, pending DDPHE approval, must coordinate disposal of any encountered hazardous waste via a licensed hazardous waste disposal Contractor and treatment, storage, and disposal facility (TSDF). The Deer Trail Landfill operated by Clean Harbors Environmental in Deer Trail, Colorado is the only facility currently within Colorado licensed to accept hazardous waste. The next closest licensed hazardous waste disposal facilities are located 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.

13.1 DADS Account Information

As determined by the CCD PM, DADS accounts may be setup by the CCD PM or the Contractor. If the project is established as a CCD account, then WM tracks the volume of material disposed against the dollar amount of the Purchase Order (PO). Once the PO amount is 50% depleted, WM will make contact to verify the remaining volume of material pending disposal. This may require adding funds to the PO or creating a new PO dependent upon purchasing guidelines. WM will make contact again when the PO is 75% depleted to verify the remaining volume of material pending disposal. WM may require confirmation that funds are available. WM will reject loads of material once the PO amount has been depleted.

13.2 Disposal Ticket Books

WM requires ticket books for disposal of non-contaminated material such as yard waste, construction & demolition debris (C&D), and clean soil at the DADS landfill. Ticket books are not required for disposal of municipal solid waste (i.e. standard trash managed by Public Works-Solid Waste).

Requests for ticket books will be preceded by a requirement of a profile. Laboratory analytical results will be required for disposal of clean soil, but not yard waste or C&D. Additional required information includes a WM PO, account number, and the anticipated volume of material. Ticket books will be issued following WM approval of the profile.

13.3 Disposal Manifests

Waste manifests are a regulatory requirement for transportation and disposal of contaminated material. As indicated in Section 2.0, this MMP shall not be utilized to manage or dispose of hazardous waste. Therefore, manifests obtained under this MMP will be for non-hazardous waste. Non-hazardous waste is classified as any solid waste, special waste or seepage that is not considered hazardous, biomedical or radioactive.

Manifests are project and waste specific per regulations and cannot be used for other project sites. Each type of contaminated soil (e.g. petroleum, asbestos, etc.) requires its specific manifest; they are not interchangeable. Since several types of contamination may be present, several types of manifest could be required for a single project or site.

It shall be the responsibility of the EP to ensure that appropriate manifests are used and are properly completed with accurate (to the extent practical) estimates of quantities of impacted soil to be disposed. It shall be the responsibility of the Contractor to verify that the hauling subcontractor(s) meet all U.S. Department of Transportation (DOT) regulations and that the disposal facility receives the appropriate manifest documents. It is the responsibility of the disposal facility to return the original manifests to the generator for retention.

Requests for manifests will be preceded by a requirement of a profile. Laboratory analytical results will be needed to obtain manifests. Additionally, a WM PO and account number along with the anticipated volume of material will be required. Manifest will be issued following WM approval of the profile.

13.4 Disposal Profiles

As indicated, a profile must be submitted and approved by WM before ticket books and manifests can be issued. Please note, it could take up to several weeks to obtain an approved profile. The following information is required to obtain a profile:

- Contact information (CCD PM or Contractor)
- Billing information/PO information
- Material types and volume
- Process generating the waste
- Laboratory analytical data

14.0 IMPORTED SOIL

Any fill material or soil to be moved to and placed on CCD-owned property or placed on real property to be transferred to CCD must be free of contamination (observed or previously documented) and be acceptable for unrestricted residential use (meets EPA Residential RSLs). Imported material that contains stains, odors or debris regardless of analytical results shall not be imported to CCD-owned property.

If the source of imported material is a quarry, then a letter from the quarry shall be submitted to CCD specifying the type of material to be imported. For material to be imported to CCD-owned property from a source other than a quarry, DDPHE's [Guidance for Reuse of Soil on City Projects](#) shall be implemented. To comply with this guidance, submittal of appropriate environmental information will be required, such as a Phase I Environmental Assessment (ESA) and sampling protocol. If available, a Phase II ESA or similar should also be submitted to DDPHE.

For material to be imported to a site, the soil must be adequately characterized by sampling at least every 500 cubic yards to be excavated (or alternative frequency as determined by DDPHE) and analyze those soil samples for, at a minimum:

- Volatile organic constituents;
- Semi-volatile organic constituents;
- Total petroleum hydrocarbons;
- Pesticides;
- Herbicides;
- PCBs and;
- Arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

DDPHE may adjust the frequency and analysis requirements at its discretion. When possible, representative samples should be collected at the fill source area, while the potential fill material is still in place and analyzed prior to removal from the source area.

Should contaminants exceeding acceptance criteria be identified in the imported fill material, that material will be deemed unacceptable and the Contractor will be responsible for removing the material from the CCD-owned property and disposing of it in accordance with applicable regulations. New fill material will need to be obtained, sampled and analyzed. This work will be the sole burden of the Contractor. The cost of complying with these requirements, including hauling, testing, and corrective action by the Contractor, will not be paid for separately, and shall be included in the project work. Therefore, it is best that all sampling and analyses of imported fill be reviewed by DDPHE prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

15.0 REPORTING

Upon project completion, the EP will prepare a summary report detailing the work performed at the project specifically related to the implementation of this MMP. The report will include the following:

- Detailed documentation of the on- or off-site soil disposition;
- Maps showing sample locations, location of wastes discovered, and any other important features identified during the implementation of this MMP;
- Field Screening and analytical data;
- Summary and copies of analytical results/reports;
- Summary of material quantities that were managed and the procedures used;

- Location and manner of soil use (e.g., embankment fill, surface soil, etc.) including any cover materials (soil, asphalt, etc.);
- Representative site photographs showing soil reuse areas;
- A reference to the proximity to groundwater;
- 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 related to this project (e.g., daily field reports); and
- If RACS and/or Non-RACS is encountered during construction, documentation and reporting in accordance with the CDPHE-approved RACS Standard Operating Procedure for the CCD, CDPHE Section 5.5 and Regulation 8.