

CHAPTER 18 – Environmental Contamination

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CHAPTER 18 – Environmental Contamination

ARTICLE 1 General

Reference Information

Some of the references found in this chapter have hyperlinks that connect to Caltrans intranet pages which are not displayable to the general public. Until such time that the specific reference becomes available on the internet, the user will have to contact their district liaison, Caltrans project manager, or the appropriate Headquarters division to inquire about the availability of the reference.

Introduction

Contamination must be considered in the project development process because it can impact project alignment, increase project cost, extend the project schedule, and adversely impact worker health and safety. If not properly addressed through planning, contamination can cause budgetary overruns and schedule delays, and endanger lives. The presence of contamination can affect which alternatives or alignments are considered viable to study. Caltrans policy specifies that contaminated properties not be purchased for transportation projects (see Article 3 “Policies”). Project costs increase when contamination is present because proper remediation and management of the contamination must be added to the project in order for it to proceed. Contamination adds time to the schedule simply because of the time required for remediation and/or regulatory oversight. If contamination is present worker health and safety must be considered and measures to eliminate potential harmful worker exposures must be planned for and included in the project.

Definitions

Contamination is defined in both the Water Code, Division 7 Water Quality Section 13050(k), and the Health and Safety Code, Division 5 Sanitation, Section 5410(d), as an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. Contamination includes any equivalent effect resulting from the disposal of

waste, whether or not waters of the state are affected. This expands the definition so that for example contamination can be found in soil or a waste, not just waters of the state. Hazardous waste if found in soil is considered a form of contamination. For the purpose of this discussion, contamination is used to indicate any impurity or substance in soil, water, or air that could have a deleterious effect on human health or the environment.

Hazardous Waste has complex State and federal legal definitions. In general a solid waste is defined as a hazardous waste when it exhibits a hazardous waste characteristic (toxicity, ignitability, reactivity, and/or corrosivity) or when it has been specifically listed as hazardous in federal or State law or regulation. Hazardous waste is regulated by the U.S. Environmental Protection Agency (US EPA) under the Resource Conservation and Recovery Act (RCRA). Federal hazardous wastes are often referred to as RCRA wastes. California hazardous waste law and regulation is in some cases more stringent than the federal and as a result, wastes may be defined as California hazardous wastes but not be RCRA wastes.

Hazardous Material is a related term that includes hazardous waste and is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous Substance refers to a) Any substance or mixture of substances that (1) is toxic, (2) is corrosive, (3) is an irritant, (4) is a strong sensitizer, (5) is flammable or combustible, or (6) generates pressure through decomposition, heat, or other means; if the substance or mixture of substances may cause substantial personal injury or substantial illness during or as a proximate result of any customary or reasonably foreseeable handling or use, including reasonably foreseeable ingestion by children. It also includes certain radioactive substances and certain substances that present an electrical, mechanical, or thermal hazard.

“**Designated Waste**” means either of the following: (a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to

Section 25143 of the Health and Safety Code (such as aeri ally deposited lead) or (b) Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan. The term, designated waste, is used by the State Water Resources Control Board and by the Regional Water Quality Control Boards.

A **Responsible Party** is an entity that either caused contamination on a property or has acquired legal liability for the contamination through property ownership or by spreading the contamination.

Remediation is a term used to mean the cleanup of contamination.

ARTICLE 2 Applicable Laws, Regulations, and Regulatory Agencies

The laws presented in this article represent the current version available on the internet at the time of publishing. It is the user's responsibility to verify the correctness and applicability of specific laws.

Federal

The US EPA regulates federal hazardous waste and oversees the remediation of contaminated sites that have been listed on the National Priority List (NPL). These sites are commonly referred to as Superfund Sites. The two most important federal laws that address environmental contamination and the management of hazardous waste are known as CERCLA and RCRA. US EPA has the authority to protect the general public from exposure to airborne contaminants through the Clean Air Act (CAA).

CERCLA: The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA:

- established prohibitions and requirements concerning closed and abandoned hazardous waste sites;
- provided for liability of persons responsible for releases of hazardous waste at these sites; and
- established a trust fund to provide for cleanup when no responsible party could be identified.

Liability is of particular concern to Caltrans because, under CERCLA, a current or former property owner can be found responsible for remediation even if they did not contaminate the property. The cost of remediation can make it impossible for a transportation project to proceed and the liability itself can make Caltrans vulnerable to future claims by adjacent property owners and others who had access to the property. This is a huge incentive to avoid contaminated property in the planning and design of a project and one of the primary reasons for Caltrans' policy to do so.

RCRA: The Resource Conservation and Recovery Act (RCRA) gave EPA the authority to control hazardous waste from the “cradle-to-grave.” This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes. RCRA focuses only on active and future facilities and does not address abandoned or historical sites. A RCRA waste is a waste that is defined as a hazardous waste under Federal Law. The State of California has RCRA authorization which means that the authority and responsibility for the enforcement of RCRA has been delegated to the State, specifically the Department of Toxic Substances Control.

The up-front and long-term costs associated with the generation of RCRA wastes must be considered when planning transportation projects. At the time of a project there are special management, transportation, and disposal costs and fees to consider. RCRA waste generation can also create significant future liability for Caltrans. RCRA stipulates that the generator of hazardous waste is responsible for that waste even after proper disposal in an appropriately permitted landfill. If the landfill operator goes bankrupt, the original waste generators must take responsibility for the long-term maintenance of the landfill. This is a huge incentive to minimize hazardous waste generation on projects and to avoid contaminated properties because remediation of contaminated properties usually also results in hazardous waste generation.

CAA: The Clean Air Act required US EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to

be hazardous to human health. In response, US EPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP) to protect the public. Asbestos was one of the first hazardous air pollutants regulated. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of asbestos-containing material. This is important because asbestos can be found in building products that may be encountered during structure demolition or retrofit and because naturally occurring asbestos (NOA) exists in many areas of California.

State

The California Environmental Protection Agency includes several departments and boards that have regulatory oversight of contamination and waste issues and. These are the Department of Toxic Substances Control, the State Water Resources Control Board, the Regional Water Quality Control Boards, the Air Resources Board, and the Integrated Waste Management Board. Cal-OSHA oversees health and safety at contaminated sites. A brief introduction to the laws and regulations enforced by these boards and departments follows.

State Laws

Health and Safety Code

- Division 20, Chapters 6.5 through 6.98 provides authority for DTSC and includes laws regarding hazardous waste management and State Superfund. These laws create a framework similar to federal CERCLA and RCRA.
- Division 26 provides authority for the CARB. The CARB is designated as the air pollution control agency for all purposes set forth in federal law. The CARB is designated as the State agency responsible for meeting the requirements of the Clean Air Act.
- Water Code, Division 7, Water Quality (Porter Cologne Water Quality Control Act) provides authority for the State Water Resources Control Board and the Regional Water Quality Control Boards and makes them the principal State agencies with primary responsibility for the coordination and control of water quality. This includes both surface water and ground water.

State Regulations

- Title 8 - Industrial Relations, Division 1 - Department of Industrial Relations, Chapter 3.2 California Occupational Safety and Health (OSHA) Regulations. Title 8 includes requirements as put forth by the California Office of Health and Safety (Cal OSHA) for worker and public protection in general and

- during construction related activities. Regulations include exposure limits and protective clothing required to prevent exposures to hazardous materials. Specific sections cover lead in construction safety standards and asbestos exposure. Accident prevention measures are also included in Title 8.
- Title 17 - Air Resources, Division 3. Title 17, enforced by the California Air Resources Board (CARB), regulates the disturbance and use of material containing naturally occurring asbestos (NOA). Section 93105, “Airborne Toxic Control Measures (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations,” minimizes the emissions of asbestos by requiring the use of dust control practices in areas containing NOA. This regulation defines construction as any activity that disturbs soil or rock containing asbestos in concentrations of 0.25% or greater.
 - Section 93106 of Title 17, “ATCM for Surfacing Applications,” reduces asbestos emissions by prohibiting the use of material containing NOA in concentrations greater than 0.25% for surfacing applications, such as unpaved roads, driveways, pathways, decorative uses, and landscaping.
 - Title 22 - Social Security, Division 4.5 - Environmental Health Standards (Hazardous Waste Regulations). Title 22, primarily enforced by the Department of Toxic Substances Control, defines hazardous and special waste, identifies State and federal hazardous wastes criteria, and regulates the storage, transportation, and disposal of waste. These regulations were created to regulate the waste generated by factories or similar sources, but soil excavated during construction may also be regulated in accordance with these regulations. If soil with contaminants meets Title 22 waste criteria and will be excavated during construction-the soil must be handled in a manner consistent with these regulations. RCRA wastes meet the federal definition of a hazardous waste. A California only hazardous waste is non-RCRA and only considered hazardous in California. In general management of California non-RCRA hazardous waste is less expensive than RCRA waste but can add considerable costs to a project and does have significant long-term liability. These regulations are also found in Title 26.
 - Title 23 - Waters, Division 3 - State Water Quality Control Board (Underground Storage Tanks). Title 23 contains the authority establishing the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards. These regulations govern underground storage tanks (UST's) and placement of waste to land. Transportation projects are affected by these regulations when tanks will be removed as part of right-of-way clearance. If a transportation agency takes control of the tank (removes the tank or buys property with an underground tank) then the agency acquires responsibility for the tank and any associated contamination, whether the agency operated the tank or not. The primary goal of these regulations is to protect ground water. The authority to regulate underground tanks is often delegated to local county environmental health offices.
 - Title 26 - Toxics, Compilation of all environmental and waste regulations. Title 26 is a compilation of toxic regulations issued by State regulatory

agencies and published for the first time in one Title of the California Administrative Code in August 1986. Please note that these toxic regulations are also found in the original Titles assigned to each agency. Title 26 is organized with the agencies listed in numerical sequence according to their original Title assignments. The regulatory sections within each Division of Title 26 also reflect the original section number assignments and are arranged in numerical sequence. The California Department of Toxic Substance Control (DTSC) hazardous waste management regulations found in Title 22 are also found here. The State Water Resources Control Board and Regional Water Quality Control Boards land disposal restrictions and underground tank regulations found in Title 23 are also found here.

- Title 27 - Environmental Protection, Division 2: Solid Waste (Compilation of landfill regulations). Title 27 contains a compilation of landfill regulations. These regulations govern the construction of landfills and the restrictions to landfills for what they can accept from dischargers. Wastes are divided into inert (such as concrete), household, special wastes, and hazardous wastes. Each of these wastes must be disposed of at specific types of landfills that are constructed to contain the waste. Title 27 explains the differences in the different classes of landfills (Class I, II, and III) and what each class of landfill can accept. Class I landfills accept hazardous waste, Class II landfills accept special wastes, and Class III landfills are those which accept household type wastes. For transportation projects, these regulations will determine what class of landfill can accept excavated material from a construction site. These regulations are enforced by the Integrated Waste Management Board, the Regional Water Quality Control Boards, and in the case of landfills accepting hazardous waste, the Department of Toxic Substances Control.

Local

In many jurisdictions, the responsibility and authority to enforce many of the State laws regarding environmental contamination and hazardous waste are delegated to local agencies. Local county or city health departments in certain jurisdictions are responsible for inspecting hazardous waste generators, performing regulatory oversight on tank removals and site closures, responding to complaints of environmental contamination, etcetera. Local fire departments are often responsible for performing regulatory oversight on tank removals and site closures. The Caltrans district hazardous waste specialists will identify which regulatory entities if any have jurisdiction over a property or activity when initial site assessments (ISAs) are performed for the project.

ARTICLE 3 Policies

Compliance with Applicable Laws and Regulations

It is Caltrans policy to comply with all applicable laws and regulations regarding contamination and hazardous waste. Protection of workers, the community and the environment, limits liability and potential future costs, and ensures that Caltrans is a good steward of the resources under Caltrans' control.

Early Identification of Contamination

Properties that may be obtained or utilized for a transportation project must be evaluated early in the project development process so that property conditions do not cause project delays. This conforms to Caltrans policy regarding change control, because identifying serious problems early reduces the need for project modifications later in the process. It is the project manager's (PM) responsibility to involve hazardous waste staff in the project development process as early as possible to ensure that contamination identification and remediation is addressed and completed. Every project must be evaluated by district hazardous waste staff to determine whether a full initial site assessment (ISA) must be completed. Every project that includes excavation, structure demolition or modification, or the purchase of new right-of-way will require a full ISA to determine if known or potential contamination (hazardous waste and or hazardous material) is present within the project limits. Lands and buildings projects, utility relocations, gifts of property, and hardship and protection acquisition must consider possible contamination issues. Projects that include minor soil disturbance may involve contact with soils containing aurally deposited lead or naturally occurring asbestos and therefore require specific worker health and safety measures. The more complex and or severe the contamination problems are, the higher the level of risk they present to the project delivery commitment and therefore the earlier the contamination problems must be investigated and evaluated. (See Article 4 "Procedures" for a detailed explanation of the contamination investigation activities in the project development process). Timely investigation and evaluation of contamination problems will reduce the likelihood of unexpected project delays and cost increases.

Avoidance of Contaminated Properties

It is Caltrans policy to avoid contaminated properties if possible, to have responsible parties accept responsibility for remediation, and to seek reimbursement from

responsible parties when Caltrans must conduct a remediation as part of the project development process. The State should not accept liability for contamination it did not cause nor accept responsibility for the cost of such remediations. It is obvious that this is prudent because it eliminates potentially unnecessary costs to a transportation project. There are additional problems with the purchase of contaminated property that are just as significant but not as obvious:

- Long-term liability – When contaminated property is purchased Caltrans may become responsible for remediation that can take decades to complete. Caltrans acquires permanent responsibility for any hazardous waste that is removed from the contaminated property and disposed at a landfill. Caltrans may also be vulnerable to damage claims by adjacent property owners or individuals who have been exposed to the contaminants at the site.
- Regulatory Interaction – In most cases, the remediation of contaminated property requires oversight by a local, State, or federal regulatory agency that has ultimate responsibility for and control over the manner and timing of remediation activities. As a result, it can be extremely difficult and in some cases impossible to ensure that remediation activities do not cause transportation project delays.

Exception Policy for Acquisition of Contaminated Properties

There are situations where contaminated property must be acquired in order for a project to proceed. In these situations, acquisition of contaminated property may occur only after an adequate site investigation of the property has been conducted and the cost of the remediation has been considered in the appraisal and acquisition process. In these cases every effort must be made to avoid acceptance of legal liability and responsibility for the cost of cleanup. In addition, the approval of the Deputy Director, Project Delivery and the Deputy Director, Planning and Modal Programs is required when any of the following four conditions exist:

1. Remediation costs (excluding investigation costs) relative to the specific parcel are estimated to exceed \$200,000 and:
 - a) The estimated cost of remediation exceeds 50 percent of a parcel's appraised value compared to its uncontaminated value, or
 - b) The estimated cost of parcel remediation exceeds 10 percent of the total project costs (right-of-way and construction).
2. Contamination on the parcel has resulted in groundwater contamination requiring cleanup.
3. The net value of the property after fair market value deduction for hazardous waste cleanup is \$0 (or the cost of the cleanup exceeds the fair market value of the property) and the parcel is to be presented to the CTC for approval of a resolution of necessity.

4. The parcel was previously a mining and/or milling site with associated tailings, drainage and/or processing residues residing on the parcel or mine site which is subject to local, State and/or federal reclamation requirements.

See Article 4 “Procedures” for a detailed description of the requirements of an Exception Request.

Area of Contamination Policy

US EPA allows certain discrete areas of generally dispersed contamination to be considered an individual waste management unit (equivalent to a landfill). These discrete areas are defined as Areas of Contamination or AOCs. An AOC is equated to a single unit, and therefore movement, consolidation, or in-situ treatment of hazardous waste within the AOC does not create a new point of hazardous waste generation. For an AOC, contamination must be contiguous but can have various concentrations. Contaminated materials within an AOC may be handled without the Department of Toxic Substance’s Control’s authorization for treatment, storage, or disposal of hazardous waste if the handling of the contaminated soil meets the requirements of the AOC policy.

In parts of the State such as San Francisco Bay, Los Angeles Harbor and San Diego Harbor certain areas were filled in to create more land. Historically these areas were filled with solid waste that sometimes contained hazardous waste. It is not possible to trace the responsible parties, nor is it practicable or necessary to remediate these entire areas. Therefore in these types of areas contaminated soil excavated for plantings, or to construct footings, foundations or other underground structures such as culverts, irrigation facilities, and utilities will be stockpiled and then used as backfill. Work done in these types of fill areas can fall under the US EPA AOC policy as long as the requirements of the DTSC AOC implementation plan are met. This plan was negotiated in 2000. See Article 4 “Procedures” for a detailed description of Caltrans’ soil management in contaminated fill areas.

Management of Soil Containing Aerially Deposited Lead

Aerially Deposited Lead (ADL) is found along the unpaved areas adjacent to many highways. ADL is the result of tailpipe emissions during the years that lead was used as an additive in gasoline. It is Caltrans policy to evaluate and investigate these unpaved areas when they will be impacted by a project, that workers are properly protected from lead exposure through training and appropriate work practices, and to

manage ADL containing soils in compliance with all applicable laws and regulations while minimizing costs to the project and future liability.

In many areas of the State there are ADL concentration levels along the highway, that are high enough to cause the soil to be defined as a California hazardous waste. Hazardous waste law requires that this material, once excavated be managed, transported and disposed at a Class I disposal facility as a hazardous waste. The associated costs and logistics must be considered when planning transportation projects. Some districts have variances issued by DTSC that allow them to reuse soil containing hazardous waste levels of ADL within projects as long as certain conditions are met and the district has obtained approval from the Regional Water Quality Control Board with jurisdiction. A variance waives certain hazardous waste rules and in the case of the ADL variances, allows Caltrans to reduce costs and potential liability while still managing these soils in a manner that is protective of public health and the environment. The ADL variances expire periodically and must be renegotiated. Each time the variance is renewed, the variance requirements are updated to comply with changing laws and regulations and to incorporate new scientific information about lead and its impact on health and the environment. Therefore it is always necessary to confer with the district hazardous waste staff to determine how soil should be managed on a specific project and to assist in the preparation of project-specific special provisions. See the Article 4 “Procedures” for specific recommendations regarding the management of ADL containing soils in construction projects.

Management of Soil Containing Naturally Occurring Asbestos

Naturally Occurring Asbestos (NOA) is a term used for several types of naturally occurring fibrous minerals found in serpentine and other ultramafic rock. Asbestos can be released from the rock when it is broken or crushed. Releases of asbestos can occur when equipment is driven on unpaved roads, on shoulders, or in areas that are surfaced with serpentine or other ultramafic rock. Asbestos is also released naturally through weathering and erosion. Once released from the rock asbestos fibers can become airborne. Asbestos is a known carcinogen.

It is the Headquarters Division of Design’s responsibility to ensure that appropriate specifications and special provisions addressing NOA issues are included in all projects that will encounter NOA. Construction activities must be performed in compliance with all federal, State, and local statutes and regulations and employees, contractors and the public must be adequately protected. Additional information

regarding Caltrans' NOA policy can be found in *Deputy Directive DD-71 – Management of Naturally Occurring Asbestos (NOA)*. Consult with district hazardous waste staff to determine whether NOA may be present within the project limits, to determine if and when NOA testing should be performed, and to assist in the preparation of special provisions to address NOA. See Article 4 “Procedures” for additional information about the management of NOA containing soils in construction projects.

Remediation of Contaminated Properties Prior to Construction

Even with extensive information about a contaminated property, remediation is often fraught with uncertainty. Therefore it is Caltrans policy to remediate project related contamination prior to PS&E submittal for advertising whenever possible, reasonable, and feasible in order to minimize potential construction delays and change orders. This includes remediation by the responsible party whenever possible or by Caltrans when necessary.

Exception Policy for Remediation During Project Construction

In cases where remediation of project related contamination prior to construction is not feasible, an exception must be approved by the Regional or District Director. Examples of such situations include cases where remediation prior to construction cannot be scheduled or cases where remediation prior to construction would require excavation, backfill and then re-excavation of the backfilled soil during construction. See Article 4 “Procedures” for a detailed description of the exception requirements.

Policy for Special Funded and Jointly Funded Projects

Responsibility for management and funding of contaminant remediation and disposal activities when contamination is encountered in the Caltrans right-of-way during special and jointly funded projects depends upon the nature of the contamination. Contamination, referred to as hazardous material, is categorized as HM-1 or HM-2:

- HM-1 is hazardous material (including but not limited to hazardous waste) that requires removal and disposal pursuant to State or federal law, whether disturbed by the project or not.
- HM-2 is hazardous material (including but not limited to hazardous waste) that requires removal and disposal pursuant to State or federal law, only if disturbed by the project.

HM-1 requires active management, without regard to the project, and therefore any costs associated with remediation of HM-1 are not considered project costs and will be the responsibility of Caltrans. HM-2 requires active management only if disturbed by the project, and therefore any costs arising from management of HM-2 will be considered project costs. For any 100 percent locally funded project, any management costs associated with such HM-2 will be the sole responsibility of the project sponsor. For any jointly funded project, any management costs associated with such HM-2 will be shared in the same proportion as other project costs.

All cooperative agreements for special funded and jointly funded projects must include clauses relating to hazardous material that reflect this policy.

Disposal of Hazardous Waste Within California

Hazardous waste disposal laws vary from state to state. Since it is Caltrans policy to comply with all applicable laws and regulations, State law should not be circumvented by sending hazardous waste to another state that may have less strict requirements. In addition, the Western Governors' Association "Regional Waste Management Protocol" which the Governor of California was a signatory, states, "We will do everything economically and environmentally practical to ensure that wastes generated in our states are treated and disposed of in our own state before resorting to export." Therefore, it is Caltrans policy to dispose of hazardous waste, generated during remediation or construction projects, within California unless there are extenuating circumstances. A situation where a facility, permitted to accept a specific waste, cannot be found within California is an example of an extenuating circumstance. The requirement to dispose hazardous waste within California should be addressed in the special provisions for the project. District hazardous waste staff can be consulted for information about the disposal of specific types of hazardous waste.

ARTICLE 4 Procedures

Addressing Contamination During the Project Development Process

The presence of hazardous waste can present varying degrees of risk to the delivery of a transportation project. Level of risk has been divided into three categories; high, medium, and low. High risk indicates that a contaminated site exists that could be

considered a fatal flaw for the project alternative on which the site lies. It may not be possible to adequately estimate remediation costs or schedule because of the physical and regulatory complexity of the conditions at the site. High-risk sites, such as landfills and junkyards, represent conditions that could be cost prohibitive to investigate and situations where regulatory concurrence on mitigation and cleanup could be impossible to get within the time frame of the transportation project. These may also be sites that require long term monitoring and liability, which must be considered when evaluating project costs. Medium risk indicates a type of contaminated site that Caltrans has significant experience with and remediation cost and schedule can be estimated with an acceptable degree of certainty. Examples of medium risk sites are pre-1980 gas stations, industrial properties (active for less than 20 years and with good management practices), and properties with naturally occurring asbestos. These sites have conditions that will require one-time cleanup activities, design modification or special management but will not be cost prohibitive to the project and can be addressed within a predictable schedule. Low risk issues/sites will not significantly impact the design, cost, scope or schedule of a transportation project. An example of a low risk issue is the presence of asbestos and lead paint in structures. These are conditions that will require special provisions for health and safety during construction, but will not need advance cleanup or design changes. A list of example sites for each level of risk category is in Figure 18-1. The figure is used only as a guide because the cost of investigation and remediation of a site in comparison to the construction costs of the project must also be considered when categorizing sites. As a general rule high-risk sites are expected to cost at least 20 percent of the construction costs to investigate and remediate (clean up). Medium risk sites are expected to cost between 10 percent and 20 percent of the construction costs to investigate and remediate. Low risk sites are expected to cost less than 10 percent of the construction costs to investigate and remediate.

The timing of hazardous waste investigation activities depends upon the risk a site poses to the project. In general, the higher the risk, the earlier it should be evaluated. Figure 18-1 indicates what activities must be taken during the PID, PA&ED, and PS&E phases of a project based upon the risk level of the site. The following sub-articles explain the process in more detail.

Project Initiation Phase

It is recommended that district hazardous waste staff participate in the project kickoff meeting of every project so they can make initial recommendations about the type

and timing of hazardous waste studies based upon the location and type of project. As stated in Article 3 “Policies,” every project must be evaluated to determine whether a full ISA needs to be completed and every project that includes excavation, structure demolition or modification, or the purchase of new right-of-way will definitely require a full ISA to determine if known or potential hazardous waste is present within the project limits. Lands and buildings projects, utility relocations, gifts of property, and hardship and protection acquisition must consider possible hazardous waste/material issues. Projects with the potential for high-risk contamination issues may require a preliminary site investigation at this early stage of the project.

Hazardous waste/material issues, or potential issues, must be discussed in the project initiation document (PID), along with a recommended action for avoiding or mitigating the contamination site. The hazardous waste coordinator will provide an ISA memorandum summarizing potential hazardous waste sites, the level of risk associated with each site, and cost, schedule, and resource estimates will be included in the PID. When a PEAR is required, the ISA process will be incorporated into the PEAR process.

Initial Site Assessment - Project Screening and Evaluation

In an effort to provide accurate information early in the project development process, the design unit responsible for the engineering document must submit the Hazardous Waste Assessment Request Form (HWARF), or equivalent to the district hazardous waste coordinator’s office for all Minor projects prior to the design phase. The assessment request form may be updated and resubmitted to the hazardous waste coordinator as additional information is available and changes to the scope of the project is made.

The hazardous waste coordinator will use the HWARF to conduct an ISA and, if necessary, site investigations for the project. Certain types of projects may not require detailed study. These are usually projects that do not involve any soil disturbance or removal of hazardous materials. Examples are pavement reconstruction, resurfacing, and placement of seal coat or repair and maintenance of the highway and appurtenant facilities.

ISA’s are the responsibility of district hazardous waste staff. An ISA generally includes a visual examination of the property, a regulatory records review, interviews of property owners and property users and employees when appropriate, and

historical research when necessary. The ISA Checklist (see Figure 18-4) is a guide for the work, but does not take the place of an ISA report/memorandum. ASTM standards 1527 and 1528 can also be used as guides and references, especially for ISA's conducted on parcels to be acquired by the State (a historic land use report by a Historian with a Master's degree is also recommended for ISA's for parcel acquisition).

The ISA report/ memorandum provided by the hazardous waste staff will include a risk analysis of potential hazardous waste sites within the project limits and cost, schedule, and resource estimates based on existing information. A flow chart, table of risk analysis, and instructions for completing the HWARF to conduct the hazardous waste risk assessment are included as Figure 18-2, Figure 18-1, and Figure 18-3.

Some projects may require a one line ISA consisting of language referring to the requirement of a site investigation during either the PA&ED, or PS&E phase. Types of projects that may require a site investigation without a formal ISA include landscaping planting on Caltrans right-of-way, sign and guardrail installation, traffic signal/CCTV installation, and structure modification/demolition. In these cases the concerns are issues such as aerially deposited lead and asbestos, which can be identified without a full ISA.

Project Approval and Environmental Document Phase

The environmental document must include complete site characterization information for high and medium risk sites. Therefore site investigations of these sites must be performed and completed well in advance of the preparation of the environmental document. If potential hazardous waste/material problems are identified in the ISA, the Environmental staff including the hazardous waste staff must meet with the project manager and members of the project development team to discuss alternatives, including avoidance. If avoidance is not prudent, justified, or guaranteed at this stage of the project development process, then site investigation(s) will be conducted. Site investigation is often conducted during PA&ED, however the timing of site investigations will be based upon the risk level of the site(s). For details of this timing please see Figure 18-2. In the case of medium risk sites the site investigation will be conducted during the PA&ED phase of the project. However, at high-risk sites preliminary site investigations should be conducted during the PID phase with additional site investigation during PA&ED as needed. Site investigations of low risk

sites may be delayed until PS&E if the site or issue is well understood and will not impact project cost, scope, and schedule.

Site Investigation

Site investigations are performed for Caltrans by on-call consultants at the direction of the district hazardous waste staff and with approval of the project manager. Site investigations are first conducted to determine whether contamination is present. If contamination is detected a detailed site investigation may be conducted to determine the full nature and extent of contamination so that remediation costs can be estimated.

The higher risk a property is, the earlier site investigation work should be approved and conducted. This will better direct the project as alternatives are considered. Subsurface information may be required during the project initiation phase for any high-risk sites within the project limits. This information may be obtained from prior studies or from a Caltrans initiated investigation. Based upon the information collected, a memorandum will be prepared by the hazardous waste staff that explains the subsurface conditions and includes mitigation options, an estimate for cleanup costs and duration, a resource estimate for additional investigations, and a recommendation on the viability of any project alternatives that include the high-risk site(s).

More detailed subsurface information is obtained during the Project Approval and Environmental Document (PA&ED) phase for both high-risk sites on remaining alternatives, and medium risk sites. Information derived from detailed investigations will include the consultants recommended mitigation options, cost estimates, and an estimate of the schedule and duration for remediation. This information will be included in the environmental document. Site investigation memorandums (PA&ED phase) will include the consultant's recommended mitigation options, cost estimates, and estimated clean up schedule.

When a site investigation has identified contamination at an actionable level, the property owner and appropriate regulatory agencies will be notified of the results in accordance with regulatory requirements. The PE (through R/W and with the assistance of the hazardous waste staff) requests the appropriate regulatory agency to notify the owner and any other potentially responsible parties of their obligation under the law for mitigation of the contamination. Thorough site investigation records should be maintained separately for potential use in cost recovery actions.

Project Report and Alternative Evaluations

Following completion of the site investigation and environmental studies, the environmental unit presents the results to the PM and the PDT. If contamination problems have been confirmed, alternatives to avoid the contaminated properties must be identified and evaluated. The problems and avoidance alternatives must be discussed in the project report and environmental document. The reports, as appropriate, must include a discussion of any anticipated site remediation including a cost and schedule estimate.

It is Caltrans' policy to avoid contamination, however it is also Caltrans' policy to select the alternative with the least environmental impact and the most cost-effective solution that best meets the project purpose-and-need. This makes it impossible to avoid contamination in all cases. After the project decision has been made, if the selected alternative contains a known hazardous waste site, the PM has primary responsibility to ensure that the hazardous waste problem is appropriately addressed. Design changes or variations in the selected alternative must be considered to avoid the site. If avoidance is not prudent, additional studies must be conducted to investigate ways to minimize hazardous waste impacts.

Plans, Specifications, and Estimate Phase

Remediation Plans and Approach

After the project decision, the PM arranges a Project Decision Hazardous Waste Meeting with the PDT and appropriate Caltrans functional units (including legal) to discuss the extent of the contamination problem and formulate a plan of action. The FHWA should be involved (as appropriate). The environmental unit will determine if the appropriate regulatory agency has notified the owner and/or other potentially responsible parties of a required cleanup. If not, such notification will be sought. The right-of-way unit will contact the owner of the property to determine whether the owner is able to and intends to investigate and remediate the site such that the project schedule can be met. A hazardous waste strategy meeting with the PDT must be held to evaluate the magnitude of the contamination problem. The meeting should discuss the following possible scenarios:

Case 1 - If the property owner has agreed to accept responsibility for the remediation, and after investigation, decides to accept responsibility for both the execution and expense of the cleanup, then Caltrans will develop a plan of action that incorporates

the owner's intent and that specifies a program schedule that Caltrans expects to be followed. It is also possible in Case 1 for the owner to have investigated the contamination and evaluated remediation options and decided to have Caltrans clean up the problem. If this were to occur, Caltrans would evaluate the owner's investigation and then proceed with remediation as in Case 2. The remediation costs, as well as any additional investigative work required for the remediation, would be deducted from the appraised property value. Case 2 - If the property owner cannot or will not investigate and remediate the site, Caltrans would continue investigating the contamination problem, and would proceed to hold a meeting to discuss remedies for the problem. At this meeting it will be necessary to determine whether time allows for adequate contamination investigation and remediation prior to construction of the transportation facility or whether it will be necessary to remediate during construction. The Headquarters Division of Legal will be requested to seek cost reimbursement from the owner and/or responsible parties.

Case 1 - Remediation by Owner and/or Responsible Party

When the owner and/or responsible party has accepted remediation responsibility, it is Caltrans' responsibility to monitor their investigation and remediation progress and to make appropriate schedule changes. It will be necessary to negotiate with the property owner to ensure that the remediation will be completed prior to property transfer and prior to project construction. In many cases the remediation performed by the property owner will leave some contamination in place that may be encountered during construction of the transportation project. In these cases, Caltrans must prepare a right-of-way report showing estimated cleanup costs that will be incurred by the State.

The report should be sent to the right-of-way unit for appraisal adjustment. If at any point in the monitoring process Caltrans feels the owner's progress is unsatisfactory, the PM must initiate actions that will decide if the schedule slippage is such that Caltrans should take over the investigation and/or remediation process. Such a decision should involve upper district management.

Case 2 - Remediation by Caltrans

If the property owner or responsible party does not perform a remedial investigation or remediate the site, or fails to show satisfactory progress in these activities, then Caltrans may decide to assume such responsibilities.

Prior to the start of the Caltrans remedial investigation, design changes to avoid the site or minimize hazardous waste involvement must be evaluated. If site avoidance is not possible and a Caltrans remedial investigation will be needed, the PM should request the district hazardous waste unit to undertake

the appropriate studies. These studies must be coordinated with the right-of-way unit for necessary rights of entry and required investigation. The remedial investigation must be comprehensive enough to fully characterize the site, by identifying the types of contamination, the extent of contamination and the quantities of impacted soil and/or ground water. The site remedial investigation must also be comprehensive enough for appropriate remediation methods to be identified and evaluated.

Projects with contamination issues are investigated using district on-call hazardous waste investigation contracts through the task order process. A more extensive Remedial Investigation/Feasibility Study (RI/FS) will be required if: (1) substantial contamination is present, or if (2) the site is a listed State or federal Superfund site.

The Remedial Investigation is a site investigation adequate to characterize the site's size and the types and quantities of contamination that are present specifically for the purpose of planning a remediation. The Feasibility Study is an evaluation of the types of remediation that will clean up the site's contamination. Remediation strategies range from digging up the contamination for disposal at an appropriately permitted facility to complex vapor extraction systems or bioremediation techniques.

The RI/FS time frame is difficult to predict because the work may be subject to regulatory agency oversight and therefore subject to changes pursuant to the requirements of the agencies. Therefore, sites requiring an RI/FS are often considered high risk and should be avoided whenever possible. If such a site cannot be avoided it must be addressed as early in the project development process as possible so that costs can be adequately evaluated and every effort can be made to ensure that remediation of the site does not disrupt the transportation project schedule. The regulatory agency with oversight authority must be involved early and consistently through the process in order to avoid regulatory delays. Whenever such sites are acquired for a project, the Headquarters Division of Legal must be contacted regarding retention of the appropriate hazardous waste investigation records for cost recovery actions.

Hazardous Materials Disclosure Document to Clear Property for Acquisition

No property acquisition can take place until hazardous waste/material investigation reports have been completed and appraisals reflect the findings. The Hazardous Materials Disclosure Document – Acquisition form (ENV-0001-A) documents the investigation findings and if appropriate clears a property for acquisition for use in a transportation project. The Hazardous Materials Disclosure Document – Acquisition form is a required attachment to the Certificate of Sufficiency ([Right of Way Manual](#) Chapter 6, Exhibit 6-EX-6). The Certificate of Sufficiency is transmitted by right-of-

way engineering and approved and signed by both the project engineer and the design senior. The Hazardous Materials Disclosure Document – Acquisition form is completed by district hazardous waste staff, is approved and signed by the district hazardous waste coordinator, and transmitted to design. Design staff is responsible for providing the initial right-of-way requirements and any subsequent requirement changes to the district right-of-way engineering unit and district hazardous waste unit. Right-of-way engineering is responsible for providing appraisal maps to the district hazardous waste staff so that they may perform the appropriate investigations in order to complete the Hazardous Materials Disclosure Document – Acquisition form.

The Hazardous Materials Disclosure Document – Acquisition form will identify which parcels can be acquired, which parcels can be acquired where the parcel is impacted by contamination, and which parcels cannot be acquired. Additional details about the disposition of each parcel are included as needed and additional requirements may be identified for parcels impacted by contamination.

Exception Request to Purchase Contaminated Properties

When a contaminated property must be purchased for the completion of a transportation project, the project manager, in coordination with district hazardous waste, right-of-way, project delivery, and legal staff must prepare an Exception Request for Headquarters' approval. The request should be sent to the hazardous waste staff within the Headquarters Division of Environmental Analysis and include at a minimum the following information:

1. Appraised value of the parcel sought to be acquired both “clean” and “as-is.”
2. A summary of the project (including programmed/approved right-of-way and construction costs) and how project construction (including utility relocation within the highway project limits) will impact on the contaminated area. As to the groundwater testing, whether the groundwater is or is not contaminated and whether remediation is or is not required.
3. Type and extent of hazardous waste (summary of the hazardous waste investigation), including source, and responsible parties, if known. Specifically address how the contaminated property will impact the project cost, scope and schedule, and define the risks associated with acquisition.
4. Estimated cost to Caltrans for remediation, including an assessment of future liability (on and possible off site) if Caltrans assumes responsibility for remediation.
5. Why it is not practical to defer the project or to modify the project to avoid the contaminated property(s).

6. Options considered to avoid contamination during the project development process (for example, deleting or delaying portions of the project affected by the contamination until resolution of the problem by others; modification of the project to accommodate the owner's cleanup during and or after project completion; acquisition of permanent or temporary easement rather than fee).
7. Type of remediation proposed, including whether Caltrans has approval from the appropriate regulatory agencies.
8. Why the property owners, or other responsible parties, have not assumed responsibility for remediation.
9. Steps that have been or will be taken to recover remediation costs and an evaluation from Caltrans Legal regarding the chances for success.
10. List of other contaminated or potentially contaminated parcels on the same project.

The approval process is expected to take thirty days from the time that a complete package is received by the Headquarters hazardous waste staff within the Division of Environmental Analysis.

1. A summary of the project (including programmed/approved right-of-way and construction costs) and how project construction (including utility relocation within the highway project limits) will impact on the contaminated area. As to the groundwater testing, whether the groundwater is or is not contaminated and whether remediation is or is not required.
2. Type and extent of hazardous waste (summary of the hazardous waste investigation), including source, and responsible parties, if known. Specifically address how the contaminated property will impact the project cost, scope and schedule, and define the risks associated with acquisition.
3. Estimated cost to Caltrans for remediation, including an assessment of future liability (on and possible off site) if Caltrans assumes responsibility for remediation.
4. Why it is not practical to defer the project or to modify the project to avoid the contaminated property(s).
5. Options considered to avoid contamination during the project development process (for example, deleting or delaying portions of the project affected by the contamination until resolution of the problem by others; modification of the project to accommodate the owner's cleanup during and or after project completion; acquisition of permanent or temporary easement rather than fee).
6. Type of remediation proposed, including whether Caltrans has approval from the appropriate regulatory agencies.
7. Why the property owners, or other responsible parties, have not assumed responsibility for remediation.
8. Steps that have been or will be taken to recover remediation costs and an evaluation from Caltrans Legal regarding the chances for success.

9. List of other contaminated or potentially contaminated parcels on the same project.

The approval process is expected to take thirty days from the time that a complete package is received by the Headquarters hazardous waste staff within the Division of Environmental Analysis.

Hazardous Waste Management Plan

The RI/FS for potential mitigation measures for the contaminated site constitutes the Hazardous Waste Management Plan (HWMP). The Hazardous Waste Management Plan (HWMP) is a decision-making document that describes the management of a contaminated site, including remediation, schedule, etcetera. It summarizes the results of the RI/FS. The RI/FS will include a list of remediation options for cleaning up the site. The type and complexity of the HWMP is determined by the PM. Normally, the HWMP is developed at the conclusion of the hazardous waste investigation. Involvement of potential responsible parties is advised, so that any cost recovery efforts cannot be challenged on the basis that the parties were excluded from the mitigation decision process. The HWMP is usually written by the project manager/project engineer, in coordination with the district hazardous waste unit.

Hazardous Waste Management Plan Decision Meeting

A Hazardous Waste Management Plan (HWMP) Decision Meeting with the PDT is called by the PM. Key team members for this meeting include the district hazardous waste staff, construction staff, and a Headquarters Division of Legal representative. This team reviews the Caltrans investigation and the management plan and selects a remediation strategy based upon the proposals and anticipated schedules provided in the RI/FS. Cost recovery decisions and procedures, if applicable, are decided at this time. The Headquarters Division of Legal is responsible for defining what documentation and support information will be necessary for the cost recovery effort.

Remedial Action Plan

Once a remediation strategy has been selected, a Remedial Action Plan (RAP) needs to be developed to implement the remediation. The RAP specifies the details required to carry out the selected remediation strategy. After the investigation, the RAP will be prepared by a consultant or the district, depending on the type of remediation selected. The RAP will be included in the construction contract that will

be used to implement it. Development of the RAP is the responsibility of the PM, with assistance from the district hazardous waste unit.

Regulatory Agency and Public Involvement

Depending on the type and extent of contamination, the RAP may require approval by appropriate regulatory agencies, as well as necessary public notification. On-site treatments will need permits from various regulatory agencies, which could require several months to secure.

It is advisable to provide the public with early notification of significant hazardous waste investigations and subsequent remediation activities. This often defuses potential adverse public reaction that may otherwise occur when the remediation work begins. The PM is responsible for coordinating the community relations effort but must work with the district's public information unit to design and implement it. Guidance on proactive public involvement in the remediation of contaminated sites is available from DTSC and US EPA.

Remediation - Hazardous Waste Plans, Specifications, and Estimate

It is Caltrans policy and usually preferable to remediate contamination prior to construction of the transportation project. This eliminates potential project delays once construction begins. The remediation will require a contract and a PS&E based on the RAP. The design unit is responsible for the PS&E for the remediation. The construction unit is responsible for administration of the remediation contract.

Exception Request to Remediate Contamination During Construction

When remediation of a contaminated property must be conducted as part of the construction of a transportation project the remediation costs must be included in the cost of the project and an exception request for the Regional or District Director's approval must be prepared. The exception request is prepared by a team that includes the project manager, the district project delivery functional manager and/or staff, and the district hazardous waste and legal staff. In most cases, the district hazardous waste staff will have primary responsibility for preparation of the exemption and the necessary special provisions because they will be most familiar with the contamination issues and remediation requirements. However, they will need significant support from the rest of the team particularly regarding the integration of

the remediation activities into the transportation project. The request must be reviewed by the hazardous waste staff of the Headquarters Division of Environmental Analysis prior to submission to the Regional or District Director for signature.

Exception requests to remediate contamination during construction must at a minimum including the following information:

1. A summary of the project and how the project will impact the area of contamination.
2. The type and extent of contamination (a summary of the hazardous waste investigation), including contamination classification (for example: hazardous or designated waste), contamination source, and responsible party if known.
3. The estimated cost to Caltrans for remediation, including an assessment of future liability if Caltrans assumes responsibility for the remediation.
4. An explanation of why it is not practical to defer the project until after remediation is complete or to modify the project to avoid the contaminated property.
5. The type of remediation proposed, including documentation from all appropriate regulatory agencies if needed.
6. An explanation of why the property owner or other responsible parties have not assumed responsibility for the remediation.
7. The steps that have been or will be taken to recover remediation costs and an evaluation from Caltrans Legal regarding the chance for success of such cost recovery.
8. The draft special provisions for the remediation items of work.

Recovery Actions from Responsible Parties

Whether contamination is encountered prior to construction or during the construction phase, the Headquarters Division of Legal will be responsible for pursuing appropriate cost recovery from potentially responsible parties as appropriate. Support will be provided from all Caltrans functional units that have information for such recovery actions.

Management of Contaminated Soil not Requiring Remediation

There are situations where contaminated soil exists within the footprint of the project but it is not necessary or practicable to remediate it (although excavated soil may require special management and disposal). In these cases an exemption is not needed to manage the soil. Examples of this type of contamination include aerially deposited lead, naturally occurring asbestos (NOA), fill areas that can be defined as Areas of Contamination (AOC), and areas with low levels of petroleum hydrocarbon

contamination. In all of these cases design staff must work closely with hazardous waste staff to plan the project and prepare specifications so that proper precautions are taken to ensure that all regulations and laws are complied with, that all appropriate health and safety precautions are incorporated into the project, and that the design accommodates appropriate and cost effective soil management. In all of these cases excess soil should be minimized because it may be necessary to dispose of it as a hazardous waste, which adds cost to the project and creates long-term legal and financial liability for Caltrans. There are specific issues to consider when dealing with soils containing aerielly deposited lead and NOA, and when using the Area of Contamination policy and so these topics are discussed in greater detail.

Area of Contamination (AOC) Soil Management Procedures

When managing soil in a location defined as an AOC, excavated soil will be temporarily stockpiled on site in an area with contiguous contamination and then placed back into the excavation when the project is completed. The work can be done within the project area, but the soil is not to be moved out of the area of contamination.

Any excess material that cannot be replaced in the original excavation must be classified as required by Title 22 CCR, disposed of in compliance with all laws and regulations, and if appropriate handled as hazardous waste and properly disposed of according to applicable hazardous waste laws and regulations.

The following steps must be taken to ensure that environmental conditions are not materially changed by construction activities:

Pre-excavation activities to be performed by the project manager in coordination with the district hazardous waste staff prior to or during the design phase:

1. Sample the proposed area prior to excavation to assess the presence of contaminants.
2. Identify the boundary of the AOC within the project limits.
3. Consult with appropriate regulatory agencies to ensure that the planned movement, storage, and disposal processes are in compliance with all related rules, laws and regulations. (AOC policy allows the reuse of soils containing hazardous waste (as regulated by DTSC) but does not relieve Caltrans from liability for compliance with other applicable Federal, State, and local laws and regulations enforced by authorities such as the Regional Water Quality Control Board or local county.)

4. Prepare special provisions, based upon the information obtained during the sampling and assessment, to institute appropriate worker health and safety precautions (pursuant to 29 CFR 1910.120 and 8 CCR 5192) during soil excavation, stockpiling, and re-placement activities.
5. Prepare special provisions, based upon the information obtained during the sampling and assessment, to institute the specific excavation, stockpiling, re-placement, and disposal in the case of excess, of the contaminated soils.

During the project the resident engineer, with assistance from the district hazardous waste staff as needed, must:

1. Ensure that the contaminated soils are not moved outside the AOC.
2. Ensure that excess contaminated soil that cannot be utilized within the original excavation is sampled and analyzed. The analytical information must be used to determine appropriate off-site transportation, treatment, and/or disposal of the soil.

Aerially Deposited Lead Soil Management Procedures

When managing soil containing aerially deposited lead, soil is usually sampled and analyzed during the development of the environmental document or in some cases during the design phase of the project. The district hazardous waste staff will provide a recommendation regarding soil management. Districts with an ADL Variance from hazardous waste laws may reuse soils containing hazardous waste levels of lead as long as certain conditions regarding lead concentration, clean cover, placement location, etcetera are met. When the Variance is invoked and soils containing hazardous waste levels of lead will be reused on a project, the location where the ADL soil will be placed should be clearly shown on the project plans unless staging issues prevent such detailed planning.

In all cases where ADL is a concern, hazardous waste staff will analyze the lead concentration data for different depths separately and in combination and will provide specific recommendations for soil management. In some cases, the top two feet of soil will need to be disposed at a Class I landfill, but the rest may be useable in the project. In some situations it may be more cost effective to stockpile soil and resample prior to disposal, but of course this is only feasible when there is enough area within the project to do so. Design staff must work closely with the hazardous waste staff to ensure that the most cost effective approach that works within the project logistics is used. Design staff must confer with the hazardous waste staff if there are any design changes that may impact the soil management plans.

Naturally Occurring Asbestos Soil Management Procedures:

Naturally occurring asbestos (NOA) must be addressed and identified when planning, developing, constructing, maintaining and assessing transportation facilities. When soil or rock is disturbed, there is a potential for exposure to NOA from airborne dust. Areas containing NOA should be managed in a manner that protects workers, the public and the environment. Design staff must coordinate with the hazardous waste staff to develop special provisions to ensure that NOA is properly managed during construction.

NOA is regulated through the “Airborne Toxic Control Measures (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations” and the “ATCM for Surfacing Applications.” These two ATCM measures are regulated by the California Air Resources Board (CARB). In addition to the CARB measures, the California Department of Health Services (DHS) and the Integrated Waste Management Board (IWMB) have issued memoranda that address the transportation and disposal of NOA materials. The DHS states that although they do not regulate releases of NOA to the environment, they could issue a “stop action” order if they believed the release would be harmful to the public or the environment. The IWMB determined that NOA is a hazardous waste based on the friability of the waste- the ability of the material to become airborne through handling, transportation or disposal. Currently, material containing asbestos is defined as a hazardous waste if the material contains 1% or greater friable asbestos by weight. NOA is defined as a hazardous substance if detected at concentrations greater than or equal to 0.25% using ARB Method 435 analysis (Polarizing Light Microscopy).

NOA is generally considered a medium risk issue and site investigation, to determine the presence of NOA, is generally performed during the PA&ED phase. In areas where NOA may be present, precautions should be taken that follow the Asbestos Construction Industry Standard (Title 8 CCR 1529) when conducting work disturbing NOA unless an evaluation by a California Registered Geologist has been conducted and no NOA was identified. The Construction ATCM, found in Title 17, lists three conditions that will require either sampling or the assumption that NOA will be disturbed:

1. The area is in a zone adopted by the ATCM to contain NOA. (See mapping of [Areas Likely to Contain Naturally Occurring Asbestos](#))
2. The Owner/Operator has knowledge that there is NOA in the area to be disturbed, or

3. The Owner/Operator discovers that there is NOA at the project site.

If any of these conditions are met, certain dust control measures must be implemented during construction activities, such as dust suppression, track-out control and stockpile coverage. For projects that disturb one acre or greater, a formal Dust Mitigation Plan must be submitted to the local air pollution control district for approval. For projects less than one acre, dust control measures must be implemented, but a formal plan need not be submitted for approval.

Prior to construction, environmental project managers must know the approximate quantity of NOA soil that will be disturbed and how the soil is to be managed during construction. Through site investigations, hazardous waste should be able to determine how much soil containing NOA will be impacted and what the concentrations of NOA are. There may be special health and safety issues that will require construction personnel and oversight staff to have special awareness training and air monitoring to be performed during construction. These issues must be addressed in the project specifications and their impact to the construction activities considered.

It is important for staff involved in the constructability review of a project to know if there are issues with staging of the NOA-contaminated soil. The Construction ATCM allows for re-use of NOA material on-site as long as stabilization measures (encapsulation) are utilized. If re-use of NOA-contaminated soil is not feasible or there is surplus, design will need to decide how to manage the soil. Alternatives to consider include temporary stockpiling or transportation to a licensed disposal facility.

Figure 18-1 Hazardous Waste Sites for Risk Analysis

<u>High Risk Issues</u>	<u>Medium Risk Issues</u>	<u>Low Risk Issues</u>
Major Hazardous Waste Issues (Require design change)	Moderate (Require mitigation and/or minor design change)	Nominal (No change in design or mitigation)
Landfills <i>Historical/Unpermitted</i> <i>Permitted</i>	ADL Asbestos in Serpentine	Asbestos in Structures Lead in Structures
Underground Storage Tanks <i>Gas Stations (Post 1980 use)</i> <i>History of "noncompliance"</i>	Storage Tanks <i>Gas Stations (Pre 1980 only)</i> <i>Above Ground Storage Tanks</i>	
Industrial property (>20 years of use and with apparent poor best management practices) <i>Geothermal Plant</i> <i>Plating Shops</i> <i>Chemical Plants</i> <i>Refineries</i> <i>Bulk Fuel Facilities</i> <i>Computer Manufacturer</i>	Industrial property (<20 years of use and with apparent good best management practices) <i>Lumber Mills</i> <i>Agricultural Fields</i> <i>Crop Dusting Operations</i> Railroad Property	
Junk Yards	Non Chapter 15 Surface Impoundments	
Former Department of Defense Facilities	Mines/Quarries <i>Class II (ie, clay mining)</i>	
Ship Yards	Debris Laden Fill	
Railroad Yards		
Mines <i>Acid Mine Drainage</i> <i>Class I</i>		
Class I or II Surface Impoundments Metal Recycling Yards NPL Sites		

Figure 18-1 should be used in conjunction with Figure 18-2. High-risk sites are expected to cost at least 20 percent of the construction costs to investigate and remediate (clean up). Medium risk sites are expected to cost between 10 percent and 20 percent of the construction costs to investigate and remediate. Low risk sites are expected to cost less than 10 percent of the construction costs to investigate and remediate. The environmental document must include complete site characterization information for high and medium risk sites.

Figure 18-2 Hazardous Waste Investigation Activities

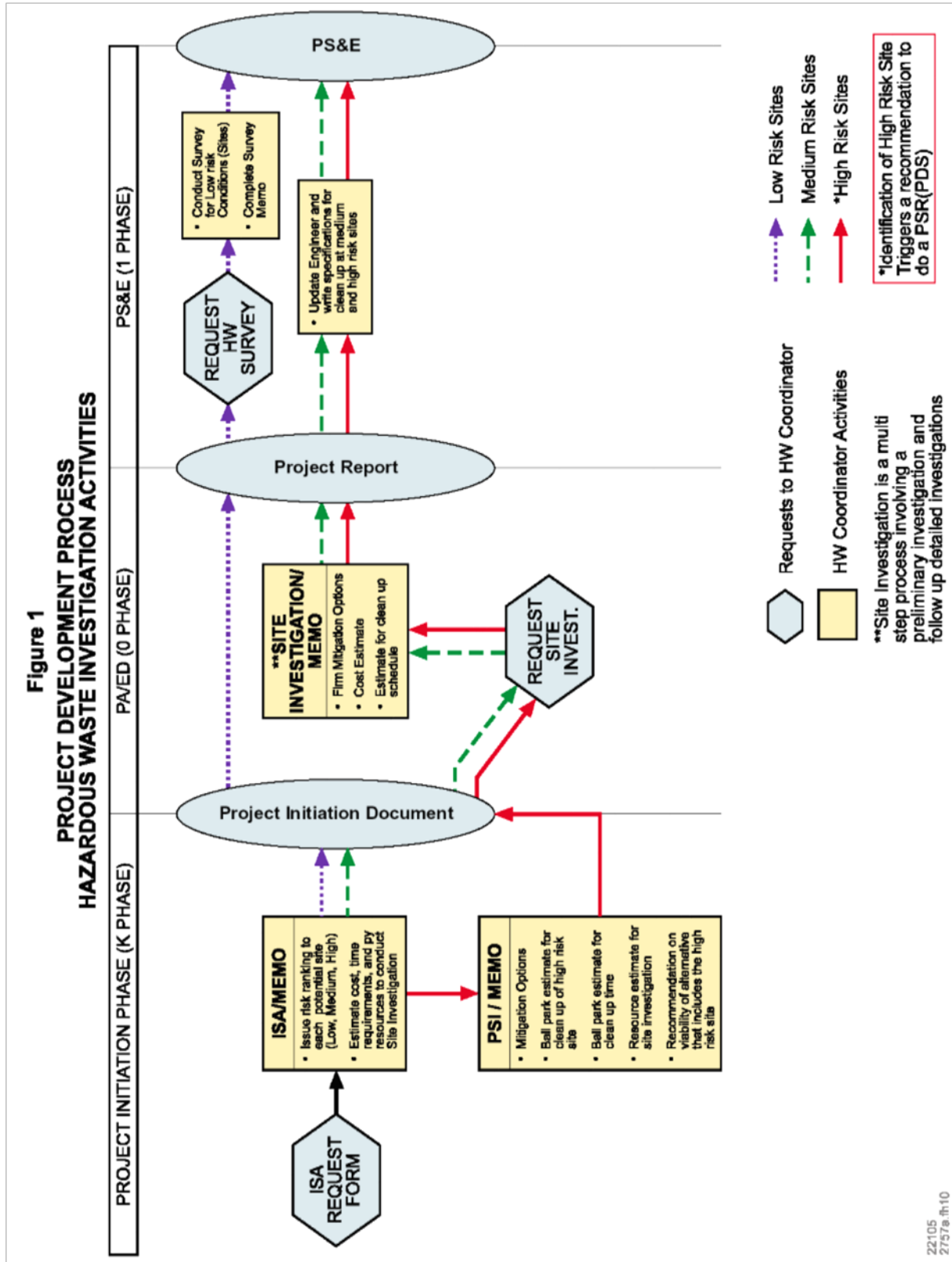


Figure 18-2 Summary

ISA: A regulatory record review, historical research (past land uses), and field review.

- If a parcel is considered to be a high risk to Caltrans subsurface information must be included in the PID.
- If a parcel is considered to be a medium risk to Caltrans further investigations may be delayed until PA&ED.
- If a parcel is considered to be a low risk to Caltrans further investigations may be delayed until PS&E.

The hazardous waste coordinator will include estimated cost, proposed scope of investigation, and schedule for each site/issue in the ISA memorandum to the project engineer.

Conduct detailed site investigation for inclusion in environmental document for high and medium risk sites.

Provide site investigation memorandum to project engineer that includes the consultants recommended mitigation options, cost estimates, and estimated cleanup schedule for each site.

Include subsurface information, preferred mitigation option, and comparison of impact of no build versus cleanup options on site in the environmental document.

Conduct site surveys for low risk sites for inclusion in PS&E package.

Provide survey memorandum to project engineer that includes cleanup options and health and safety concerns.

Update the project engineer and write specifications for cleanup at medium and high-risk sites.

Figure 18-3 Hazardous Waste Assessment Request Form

ATTACHMENT 1

State of California Department of Transportation	HW ASSESSMENT REQUEST FORM	Date of Request _____ Assessment Needed by _____
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Check the type of assessment being requested

PID	PA/ED	PS&E
New ISA PSR <input type="checkbox"/>	Site Investigation Request <input type="checkbox"/>	HW Survey Request <input type="checkbox"/>
New ISA PDS <input type="checkbox"/>	Update Site Investigation <input type="checkbox"/>	Update Site Investigation <input type="checkbox"/>
Updated ISA Request <input type="checkbox"/>	New ISA Investigations <input type="checkbox"/>	New ISA Investigation <input type="checkbox"/>
PDS PSI Request <input type="checkbox"/>		

The items listed below are all necessary for a thorough hazardous waste assessment. The more information provided, the more accurate the assessment, schedule, resources, cost and duration estimates that can be provided. Submit an updated request form as new information becomes available.

District ___ EA _____	Co/Rte/KP(PM) _____	Attach purpose and need statement
Project Description: _____		
Location: _____		
Requestor's Name: _____ Title: _____ Phone & Fax: _____		
Project Manager: _____ Project Engineer: _____		

Background Information

- Is this an oversight project? No ___ Yes ___. Is there any Rail Road involvement? No ___ Yes __.
- Are any previous hazardous waste, geotechnical, or asbestos survey reports available? No ___ Yes ___. (If yes – where/title of report) _____
- Is lead or other contaminated soil known to be present within the project? No ___ Yes ___. (If yes – explain) _____
- Is there any information not mentioned above that the District HW Unit should know? (If yes please attach.) _____

Right of Way

- Are R/W acquisitions or easements needed? No ___ Yes ___. (If yes, attach existing & proposed on plans with assessors parcel numbers and street addresses)
- Are there any known sensitive property owner issues or concerns? No ___ Yes ___. (If yes – explain) _____

Project Information

- Attach geometric, aerial, or other plans with all alternatives clearly shown to this request. Plans not attached will be available on: _____. The plans must show the proposed boundaries of the project and any of the following anticipated design elements: location, depth, and horizontal limits of excavations including those for roadway and structure excavation, drainage elements, and utility relocation. Also show any surface water bodies (i.e., creeks, wetlands, reservoirs, etc.) on plans or other attached maps. Provide typical cross-sections if available.
- Indicate location, type, and composition of utilities and drainage to be relocated, abandoned, or modified.
- Is removal of yellow thermoplastic or paint striping part of project? No ___ Yes __.
- Is groundwater expected during construction ___ and / or post construction ___. Anticipated depth _____

What is the concept to handle groundwater post construction? - Pump Station ___ Boat slab ___ Other _____

- Is disposal of excavation material anticipated? No ___ Yes ___. How much (quantity)? _____. Is reuse possible on the project? No ___ Yes ___. How much (quantity)? _____.

Structure Information

All Structure work for project must be described and plans provided. Provide As-builts. Use separate sheet if necessary.

Any useful information not mentioned above the Hazardous Waste Office should know about?

Instructions

The information on this form will assist the hazardous waste coordinator in developing an ISA and/or sampling plan that will provide an estimated cost, scope, and schedule, and/or health and safety plan for construction workers.

Background Information:

1. Is the project adjacent to railroads, or does it cross railroads?
2. Has any subsurface sampling been done at the project site?
3. Is the project site on, or adjacent to a highway or industrial site? Is there any reason to suspect the presence of contamination?
4. For example, are there any structures present that could have contributed hazardous waste in the past (former gas stations, etcetera) or illegal dumping, etcetera?

Right-of-way:

1. Will Caltrans be acquiring new property?
2. Will any property owners hesitate to grant right of entry permits for sampling activities?

Project Information:

1. Attach any aerial photos or maps that show the properties present and past condition.
2. Show on attached maps where any new utilities will be located with depths and type of material. Also show where existing utilities will be removed with depths and type of material.
3. If yes, indicate if traffic lane will be removed also.
4. Indicate if ground water will be encountered or will have an impact on construction (dewatering, etcetera).
5. Will surplus material be generated, or will fill be needed, or both (move excess from one part of project to another part of project)?

Structure Information:

Will the project include columns? Where will foundations be excavated?
This information will assist the hazardous waste coordinator in determining sample locations.

Other Information:

Other information that will assist the hazardous waste coordinator in developing an ISA and/or sampling plan.

Figure 18-4 Initial Site Assessment (ISA) Checklist

INITIAL SITE ASSESSMENT (ISA) CHECKLIST		
DATE: _____		
PROJECT INFORMATION		
DISTRICT _____	County _____	Route _____ KiloPost(PM) _____ EA _____
Scope of Project: _____ _____ _____		
Project Engineer: _____	Telephone _____	
Environmental Coordinator: _____	Telephone _____	
DATE ISA NEEDED: _____		
Attach the project location map and an aerial photo to this checklist to show the location of proposed RW and all known and/or potential hazardous waste sites.		
1. Project Features: New RW? <input type="checkbox"/> Excavation? <input type="checkbox"/> Railroad Involvement: <input type="checkbox"/> Structure Demolition/Modification? <input type="checkbox"/> Subsurface Utility Relocation <input type="checkbox"/>		
2. Project Setting: Rural <input type="checkbox"/> Urban <input type="checkbox"/> Current Land Uses: _____ Adjacent Land Uses: _____ (Industrial, light industrial, commercial, agriculture, residential, other)		
3. Check Federal, State and local environmental and health regulatory agency records as necessary to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets as needed to provide all information available pertinent to the proposed project. IS PROJECT AFFECTING SITES LISTED ON CORTESE LIST? NO <input type="checkbox"/> YES <input type="checkbox"/> IF YES DESCRIBE SITE: _____ _____		
4. Conduct Field Inspection. _____ Date _____		
Storage Structures/Pipelines:	Contamination: (spill, leaks, illegal dumping, etc.)	Hazardous Materials: (asbestos, lead, etc.)
USTs _____	Surface staining _____	Buildings _____
Surface tanks _____	Oil sheens _____	Sprayed-on _____
sumps _____ ponds _____	Odors _____	fireproofing _____
drums _____ basins _____	Vegetation, carnage _____	Pipe wrap _____
transformers _____	Other _____	friable tile _____
landfill _____	_____	Acoustical plaster _____
other _____	_____	Serpentine _____
_____	_____	paint _____
_____	_____	other _____
5. Other comments and/or observations: _____ _____ _____		
ISA DETERMINATION: Does the project have potential hazardous waste involvement? If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the preliminary Site Investigation? If yes, explain and give estimate of additional time required: _____ _____		
ISA CONDUCTED BY: _____ DATE: _____		