West Sacramento GRR EIS/EIR
Appendix E

HTRW Phase 1 Environmental Site Assessment

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PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

WEST SACRAMENTO LEVEE
GENERAL REEVALUATION REPORT (GRR)

West Sacramento, CA

Prepared by:

US Army Corps of Engineers

May 2012

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ACRONYMS

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CESPK	US Army Corps of Engineers, Sacramento District
COCs	Contaminates of Concern
DCA	Di-chloro Ethane
DCE	Di-chloro Ethylene
DoD	Department of Defense
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
DWSC	Deep Water Ship Channel
EDR	Environmental Data Resources Inc.
ER	Engineering Regulation (US Army Corps of Engineers)
ESA	Environmental Site Assessment
FUDS	Formerly Used Defense Sites
GRR	General Reevaluation Report
HTRW	Hazardous, Toxic or Radioactive Waste
IAW	In accordance with
KMEP	Kinder Morgan Energy Partners
LUST	Leaking Underground Storage Tank
MTBE	Methyl tert-butyl ether
NEPA	National Environmental Policy Act
NFA	No further Action
NGVD29	National Geodetic Vertical Datum of 1929
NPL	National Priority List (Superfund Site)
PCB	Polychlorinated Biphenyl
PCE	Tetra-chloro ethylene
RCRA	Resource Conservation and Recovery Act
RD900	State of California Reclamation District 900
SVE/AS	Soil Vapor Extraction/Air Sparging
SWRCB	State Water Resources Control Board
TARP	Tesoro ARCO Remediation Project
TBA	Tert-butyl Alcohol
TCA	Tri-chloro ethane
TCE	Tri-chloro ethylene
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-g	Total Petroleum Hydrocarbons as Gasoline
TSCA	Toxic Substance Control Act
USACE	United States Army Corps of Engineers
USEPA	US Environmental Protection Agency
USGS	US Geological Survey

1.0 EXECUTIVE SUMMARY

The West Sacramento Levee General Reevaluation Report (GRR) project is currently performing a study along approximately 50.5 miles of the levee system that surround the City of West Sacramento and the Deep-Water Ship Channel.

The GRR is in the Feasibility Study phase of the Civil Works process, which requires a Phase 1 Environmental Site Assessment (ESA) be performed to identify environmental contamination at or near the project construction site. Contaminated sites have the potential to significantly impact future construction activities and need to be identified as early as possible.

Records review identified 788 environmental sites including nine sites that have the Hazardous, Toxic, Radiologic Waster (HTRW) concerns with the potential to affect future construction activities and eight sites with HTRW concerns that should not affect future construction activities. Regional contaminants from historic agriculture and mining sources are present and should be considered on a site specific basis if future construction activity generates soil for reuse or disposal.

This Phase 1 ESA identifies and generally describes locations where environmental conditions exist in proximity to the project levee. The purpose of the GRR is to identify deficiencies in the levee system and perform feasibility analysis on potential remedies for these deficiencies. Separate reports and construction plans will be developed for the chosen remedial alternatives. As the West Sacramento GRR project schedule approaches actual construction, an additional Phase 1 ESA may be necessary to provide up-to-date information necessary to comply with USACE Civil Works process.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Phase 1 ESA is to identify recognized HTRW environmental conditions, including the presence or likely presence of any hazardous substances or petroleum products under conditions that indicate an existing release, a past release, or the material threat of a release into structures, the ground, and groundwater or surface waters of the project site.

A Phase 1 ESA is required by the United States Army Corps of Engineers (USACE) *Engineering Regulation (ER) 1165-2-132; HAZARDOUS, TOXIC AND RADIOACTIVE (HTRW) GUIDANCE FOR CIVIL WORKS PROJECTS. ASTM 1527-05 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* is widely used in the environmental industry and will be followed as applicable in this report.

The West Sacramento GRR will analyze the levee system surrounding the City of West Sacramento (hereafter referred to as "the City") and the Deep Water Ship Channel for areas that need repair. These areas will be addressed in the future by using a range of alternatives developed from past levee construction and repair. The range of possible future construction activities may use techniques and methods that require soil and/or groundwater extraction, thereby creating possible contaminant exposure concerns.

2.2 Detailed Scope-of-Services

The scope of this ESA is limited to assessing the environmental condition of the property associated with the levees surrounding the City of West Sacramento and reaches of the Deep Water Ship Canal West Levee to the south of the City. It also is concerned with identifying HTRW sites within the project boundaries and the surrounding area using commonly known and reasonably ascertainable information.

2.3 Limitations and Exceptions

The ESA does not include any sampling or testing of soil, air, water or building materials.

2.4 Special Terms and Conditions

The current West Sacramento GRR project does not involve purchase of property for commercial purposes, and as such, the conditions for the ASTM specifications are not completely applicable. The ASTM standard is used as a guide and sections that are not applicable are deleted or modified to meet the requirements of the project. Where applicable, the format and guidance recommended by ASTM is followed as stated in standard E 1527-05.

2.5 Site Definition

The approach of this report is to search environmental databases and produce a list of sites that have recognized environmental concerns in proximity to the project levee. Sites identified from the environmental database search are classified using the following criteria. The criteria are based on site characteristics that affect the potential of the site to impact future levee construction and repair activities.

Table 1 - Site Characterization Definitions

Type	Definition
1	Site with significant HTRW concerns that may impact future construction activities
2	Site with HTRW concerns that are not likely to have an impact on future construction activities
3	Site with no apparent HTRW concerns or concerns that have been remediated and closed in the past
4	Site location separated from project levee by hydraulic divide (Sacramento River)

Type 1 sites have current, significant HTRW concerns that may impact future construction activities. A significant HTRW concern for the West Sacramento GRR

study and future levee construction projects include soil contamination within the footprint of levee construction activities, or groundwater contamination present on the site that extends to areas of levee construction. Sites with currently undefined or ill-defined contaminant plumes that have the possibility to affect future activities are also included in this category. Most of these sites are currently undergoing assessment, active remediation, or monitoring activities that are under the regulation of the California State Water Resources Control Board (SWCRB), or the California Department of Toxic Substances Control (DTSC).

Type 2 sites have identified HTRW concerns that present a low potential to impact future construction activities. These sites are removed from the levee centerline and will not be included in future areas of construction activity. Current remediation measures on these sites have stabilized a groundwater contaminant plume, or removed a significant amount of the soil contamination present on the site. The combination of remediation measures and distance from the project centerline lead to the lower risk categorization of the site.

Type 3 sites have either been closed by a regulatory agency or have no historical evidence of potential HTRW problems. Sites located outside of the "Approximate Minimum Search Distance" defined in ASTM section 8.2.1 but included in the EDR records report are included in this site category as well.

Type 4 sites are not thought to affect project construction because of the presence of the Sacramento River which acts as a hydraulic divide barring the migration of contaminants in groundwater. It is the consensus of geologists and engineers at the Corps of Engineers that the Sacramento River does act as a hydraulic divide. The type of boundary condition used to model the interaction between ground and surface water varies with the stage in the river and whether the river acts as a losing or gaining stream. When the Sacramento River acts as a gaining stream at low stages (i.e. when groundwater flows in to the river from surrounding areas), groundwater flow gradients would prevent any surface water in the river from causing a significant impact to the project sites. During high stage periods the Sacramento River acts as a losing stream, where the water from the river flows

outward and recharges the groundwater in surrounding areas. At this point it may be possible for contaminants from sites across the river to affect the study area but delineation of contaminant sources would prove difficult.

The best reasonably ascertainable data available to evaluate potential impacts of surface water on the project sites comes from regional water quality boards. Review of the most recent water quality information showed that COCs in the Sacramento River included PCBs, mercury, and other agricultural related chemicals. Environmental impacts from PCBs was observed in fish tissue and seems to be a river wide problem that is regional (agriculture and mining) and best represented as area sources. Mercury contamination originates from the historic uses of the river basin for mining purposes. In general the Sacramento River should act as boundary for the site that would prevent the migration of contaminants across the river to the project site.

2.6 Guidance

This report was prepared in accordance with ASTM E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; and ER 1165-2-132, HTRW Guidance for Civil Works Projects. Deviations from the approved guidance procedures are noted where appropriate in the report. Reasons for the deviations generally include the unavailability of required information and feasibility concerns associated with the study. All reasonably ascertainable information has been reviewed in the preparation of this report.

An electronic database search and field observations were conducted in order to compile information for this Phase 1 ESA. This assessment did not include sampling or analysis of environmental media.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The West Sacramento Levee system is a levee system that completely surrounds the City of West Sacramento separating the City into two basins. Levees "reaches" have been assigned to segments of the levee to assist with identification of specific locations (see Figure 1). Typically, a levee reach has name that corresponds to the geographic attribute of that particular levee segment.

3.2 Site Vicinity General Characteristics

The City is in San Joaquin Valley located immediately west of the City of Sacramento. The two cities are separated by the Sacramento River, which flows from north to south. The City contains a mix of residential, commercial, and industrial properties. Approximately 47,000 people reside in the City.

The City is separated into two distinct basins that are formed by the West Sacramento levee system, which protects the City from high water in the Sacramento River, the Yolo Bypass, and the Port of West Sacramento. The Deep Water Ship Channel (DWSC) divides the City into the northern and southern sub-basins.

The northern sub-basin is bordered by the Port North Area and DWSC North Levee on the south, the Sacramento River North Levee on the east, the Sacramento River North Levee and the Sacramento Bypass South Levee on the north, and the Yolo Bypass Levee on the west. Approximately 6100 acres are enclosed in the sub-basin including the majority of the industrial and commercial areas of the city. Large residential areas are also present in the central and northern parts of the sub-basin. Ground elevations in the sub-basin range from approximately elevation 34.0 ft (NGVD29) in the northeast to approximately 16.0-18.0 ft along the DWSC. Levee reaches in the basin include:

- **Sacramento River North Levee** extends for approximately 5.5 miles along the Sacramento River right bank from the Sacramento Bypass south to the confluence of the Barge Canal and the Sacramento River.
- **Sacramento Bypass Levee** extends for approximately 1.1 miles along the Sacramento Bypass left bank from the Sacramento Weir west to the Yolo Bypass Levee.
- **Yolo Bypass Levee** extends for approximately 3.7 miles along the Yolo Bypass left bank from the confluence of the Sacramento Bypass and the Yolo Bypass south to the Navigation Levee (DWSC West).
- **Port North Area** extends for approximately 4.9 miles along the DWSC right bank from the Barge Canal west to the bend in the Navigation Levee.

The southern sub-basin consists of approximately 6900 acres encircled by the Port South Levee on the north, the Sacramento River South Levee on the east, the South Cross Levee on the south, and the DWSC East Levee on the west. The southern sub-basin is primarily comprised of residential neighborhoods in the north and agricultural lands in the south. A large portion of the DWSC West Levee is also included in the study area.

- **Port South Levee** extends for approximately 4 miles along the DWSC left bank from the Barge Canal west past the bend in the DWSC.
- **DWSC West Levee** extends for approximately 21.4 miles along the DWSC right bank from the bend in the DWSC at the intersection of Port North Levee and Yolo Bypass Levee south to Miners Slough.
- **DWSC East Levee** extends for approximately 2.8 miles along the DWSC left bank from the end of Port South Levee south to South Cross Levee.
- **Sacramento River South Levee** extends approximately 5.9 miles along the Sacramento River right bank from the confluence of the Barge Canal and the Sacramento River south to the South Cross Levee.

- **South Cross Levee** extends along the South Cross levee for approximately 1.2 miles from Jefferson Boulevard to the Sacramento River where it intersects the southern end of Sacramento River South Levee.

3.3 Current Use of Property

The West Sacramento Levee system property is a currently used a flood protection levee for the City of West Sacramento.

3.4 Descriptions of Structures, Roads, Other Improvements on the Site

Roads along the West Sacramento levee system are a mix of gravel and paved roads that can be found along the levee crest and at the base of the levee. The levee system is crossed by six bridges at Interstate 80, I Street, Capitol Avenue, U.S. Highway 50 (Capitol City Freeway), South Jefferson Boulevard, and Industrial Boulevard. There are numerous residences and businesses built on the project site within the developed areas of the City.

3.5 Current Uses of Adjoining Properties

Landside adjacent properties are a mix of light industrial, commercial properties, and residential housing in the northern sub-basin; the southern sub-basin includes residential subdivisions and agricultural lands near the southern edge of the study area. Waterside adjacent property is the undeveloped Sacramento River; the Yolo Bypass, which is a diversionary floodwater channel used during periods of high water; and the Deep Water Ship Channel which provides access to the Port of Sacramento from the Bay Area. There are several parks and recreational areas located between portions of the levee and the Sacramento River.

3.6 Completed Study Work

At this point in the GRR process, a without project condition has been evaluated. During this phase an analysis was completed identifying specific deficiencies in the current levee system. Problems observed by levee reach include:

- **Sacramento River North Levee -** The levee in this reach has issues with seepage, stability, erosion, over-topping and vegetation.
- **Yolo Bypass Levee -** The levee in this reach has issues with seepage and stability.
- **Sacramento Bypass Levee -** The levee in this reach has issues with seepage, stability, and erosion.
- **Port North Area -** The reach has issues with overtopping and vegetation.
- **Sacramento River South Levee -** The levee in this reach has issues with seepage, stability, erosion, and vegetation.
- **Port South Levee -** The reach has issues with underseepage, levee overtopping and vegetation.
- **DWSC East Levee –** The levee in this reach has issues with seepage, stability and erosion.
- **DWSC West Levee –** The levee in this reach has issues with seepage, overtopping, and erosion.

3.7 Possible Remedial Alternatives

There are several remedial actions being considered to fix the deficiencies observed on each levee reach. The majority of the deficiencies in the northern sub-basin will most likely be addressed by fix-in-place methods due to the limited availability of space surrounding the levees. Remedial alternatives used to address levee underseepage and overtopping will have the greatest potential to be affected by the presence of HTRW. Possible remedies to reduce underseepage include construction of a cut-off wall, installation of relief wells, construction of seepage berms, and installation of sheet pile walls.

Cut-off wall construction requires removal of the dam crest to construct a 30 foot wide workspace, trenching or drilling to remove unsuitable material, and replacement of this material. Trenching or drilling activities may proceed to great depths to find suitable foundation material. The deep excavations required for this method may encounter

potentially contaminated groundwater. The cutoff wall itself can either be constructed of a cement-bentonite-soil mixture, a bentonite-soil mixture, or a cement-bentonite mix.

Sheet pile walls require minimal removal of crown material and vegetation, reducing the area of environmental impact for a site. The walls consist of interlocking steel sheets driven in to a sound foundation material.

Relief wells are located on the landside toe of the levee and operate during flood conditions to reduce built-up pore water pressures that could cause instability in the levee. Drilling these wells would require evaluation of the proposed sites in relation to potential HTRW sites.

Seepage berms would be constructed on the land side of the levee and would extend the footprint of the levee by at least an additional 80 to 300 feet. Additional land would need to be acquired in many places for the installation of seepage berms. Because of this land requirement seepage berms are only a plausible alternative in the undeveloped areas around the Sacramento River South levee where additional land is available.

Levee overtopping may be prevented by the installation of a flood wall on the top of the levee or adjacent levee structures that increase the crest height. Construction of adjacent levees would raise the levee crest height to three feet above the 200-year flood elevation and would significantly increase the footprint of the levee section.

Any construction activities that include the disturbance of soil or removal of groundwater may encounter HTRW and project alternatives would need to consider the presence of contamination near the site. The current proposed and possible remedial alternatives for levee reaches were used to evaluate the likelihood of an identified HTRW site posing a risk to future construction activities.

4.0 User Provided Information

4.1 Title Records

Title records are not provided because the project site, including the levees and waterways, is essentially public land.

4.2 Environmental Liens or Activity and Use Limitations

There are no NPL or proposed NPL sites located within the study area. There is one delisted NPL site, Jibboom Junkyard, located across the Sacramento River from the Site. Three CERCLIS sites are located within the study area including: La Quinta Inn and Jibboom Junkyard Super Fund Site across the Sacramento River; and Van Waters & Rogers, Inc. near the present site of Raley Field. There are no DoD sites within the study area. Two FUDS sites, the Sacramento District Engineer Yard and the Sacramento Army Depot, are included in the study area. There are no tribal lands included in the search area. No sites with state environmental liens are located within the study area.

4.3 Reason for Performing Phase 1

A Phase 1 ESA for HTRW is required by USACE ER 1165-2-132 for all civil works projects during the reconnaissance phase. A Phase 1 ESA is also required by National Environmental Protection Act (NEPA) for all construction activities.

4.4 Other

This ESA will follow the environmental industry practice of using the guidelines set forth in the USEPA rule concerning "All Appropriate Inquiries," the *ASTM E 1527-05* standard, and USACE *Engineering Regulation (ER) 1162-2-132*. *ASTM E 1527-05* was designed to protect persons purchasing property from liability arising from adverse environmental conditions, but also may be used for other situations per section 4.2.1 of the standard.

5.0 RECORDS REVIEW

5.1 Standard Environmental Record Sources

Environmental Data Resources (EDR) conducted a records research of the study area consisting of 71 federal, state, public, and proprietary available data bases.

Figure 2 shows the EDR map used with the one mile buffer around the project levee. A complete copy of the EDR Report is included as Appendix A.

The report generated by EDR searched the following Federal environmental record sources:

- National Priority List (NPL), including current, proposed, de-listed, liens
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), including archived sites (CERC-NFRAP) and CERCLA Lien Information (LIENS 2)
- Resource Conservation and Recovery Act (RCRA), including transporters, storage and disposal (TSDF), large quantity generators (LQG), small quantity generators (SQG), conditionally exempt small quantity generators (CESQG), non-generators (NonGen) and the RCRA Administration Action Tracking System (RAATS)
- The Emergency Response Notification System (ERNS)
- The Hazardous Materials Incident Report System (HMIRS)
- The EPA's listing of brownfields properties (US BROWNFIELDS)
- Department of Defense sites (DOD) and Formerly used defense sites (FUDS)
- The Toxic Chemical Release Inventory (TRIS)
- Integrated Compliance Information System (ICIS)
- PCB Activity Database (PADS)

The following State and Local environmental record sources were searched:

- California Department of Health Services (CA BOND EXP. PLAN)
- Solid Waste Facilities/Landfill Sites (SWF/LF)
- California Water Resources Control Board Waste Discharge System (CA WDS)
- Water Management Database System (WMUDS/SWAT)
- Leaking Underground Storage Tank Incident Reports (LUST), Facility Inventory Database (CA FID UST), Underground Storage Tank Database (UST), Historical

Underground Storage Tank Database (HIST UST) and the Aboveground Storage Tank Database (AST)
- California Regional Water Quality Control Board (SLIC)
- DTSC Liens (LIENS)
- California Hazardous Material Incident Report System (CHMIRS)
- Confirmed release sites involving DTSC (RESPONSE)
- Pollutant emissions data (AIRS)
- The DTSC database that identifies sites that have known contamination or sites that require further investigation (ENVIROSTOR)

There were no tribal records found that applied to the area in question.

5.2 Additional Environmental Records Sources

Federal Sources:

- Corrective Action Report (CORRACTS)
- A listing of sites with engineering controls in place (USENG CONTROLS)
- A listing of sites with institutional controls in place (US INST CONTROL)
- Department of Transportation Office of Pipeline Safety incident and accident data (DOT OPS)
- A listing of clandestine drug lab locations (US CDL)
- Land Use Control Information System (LUCIS)
- A listing of sites that cleanup responsibility and standards have been established by U.S. District Courts (CONSENT)
- Uranium Mill Tailings sites (UMTRA)
- Open Dump Inventory (ODI)
- Torres Martinez Reservation Illegal Dump Site Locations (DEBRIS REGON 9)
- Mines Master Index File (MINES)
- Administrative cases and pesticide enforcement actions (FTTS) and (HIST FTTS)
- FIFRA-related reporting (SSTS)
- Material Licensing Tracking System (MLTS) and Radiation Information Database (RADINFO)
- Facility Index System (FINDS)

State and Local Sources:

- Known and potential hazardous substance sites (HIST Cal-Sites, formerly ASPIS and replaced by ENVIROSTOR)
- School Property Evaluation Program (SCH)

- Toxic Pits CEANUP Act Sites (Toxic Pits)
- Sites designated by LUST, SWF/LS and Cal-Sites (Cortese)
- Recycling facilities (SWRCY)
- Statewide Environmental Evaluation and Planning System (SWEEPS UST)
- Proposition 65 Database (Notify 65)
- Recorder Land Use Restrictions (DEED)
- DTSC low threat level properties (VCP)
- Dry cleaning-related facilities with EPA ID numbers (DRYCLEANERS)
- Clandestine Drug Labs (CDL)
- Well Investigation Program Case List (WIP)
- Extracts from hazardous waste manifests (HAZNET)
- List of waste tire haulers (HAULERS)

5.3 Historical Record Review

Historic aerial, topographic, and fire maps were not obtained for this property due to the large scope of the project and the overwhelming amount of information that would be generated during a search of this magnitude. To fit within the scope and feasibility of this project maps would had to have been produced on so large of a scale that they would not produce useful information.

5.4 Regional Contaminant Considerations During Future Construction

Environmental records searches are efficient ways to identify and track sites where past releases have occurred. Other types of contaminants unlikely to be picked up in an environmental records database search are considered in this report because they are associated with significant industries that were historically active in the region. Gold mining and large-scale agricultural activities are two historic activities that have produced regional contaminants in the project area and should be considered when future levee construction occurs.

The levee system around West Sacramento lies in a region that has a history of gold mining. The regional history of gold mining coupled with the regional agriculture land use and the historic use of dredge material from the rivers as levee construction material,

suggests there are some chemicals for which data collection would be useful to confirm if contaminants from these historic process are present. These include arsenic, mercury, pesticides and herbicides.

Additionally, based on the vehicular use of the existing levee crown, lead and petroleum hydrocarbons may have been released to the upper 3 feet of the roadway shoulder on the existing levee.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

The study area site visit was conducted for the Phase 1 ESA by staff from the Environmental Engineering Section of the United States Army Corps of Engineers – Sacramento District.

The objective of the site visit was to identify recognizable environmental concerns in connection with the property. Common environmental concerns that were looked for include the following: asbestos; construction and demolition debris; drums; landfill or solid waste disposal sites; pits, ponds or lagoons; wastewater; fill dirt, depressions, mounds, or any artificial structures; PCB containing transformers; and the presence or likely presence of any hazardous substance or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release on the property or into the ground, groundwater, or surface water of the property.

Although no obvious environmental concerns were noted from the site visit, it should be noted that a significant amount of the project levees exists in close proximity to industrial and commercial areas of West Sacramento and the ports.

6.2 Hazardous Materials Associated with Property Use

No hazardous material(s) were encountered during the site visit.

6.3 Hazardous Substances Associated with Storage Containers

No storage container(s) were encountered during the site visit.

6.4 Storage Tanks

No Aboveground Storage Tank(s) (ASTs) was encountered during the site visit. Several ASTs at adjacent commercial and industrial properties were noted, but are outside the project boundary.

6.5 Indications of PCBs

No electrical transformer(s) were encountered during the site visit

6.6 General Site Reconnaissance Report

Access to the general public is controlled by a locked gate along the main access road. Trespassers on foot can gain entry to the areas and appeared to do so mainly for fishing in the slough on the waterside of the levee. The fence separating the landside property boundary from the commercial/industrial area was well maintained.

No evidence of solid waste disposal was noted.

This section of the levee had only grass and shrubs. No large trees were growing on the levee.

7.0 Interviews

Ken Ruzich, the manager of Reclamation District 900 (RD 900), completed a questionnaire by email on April 20th 2012. Reclamation District 900 is responsible for the regular maintenance and upkeep of the levees in the majority of the City. RD 900 routinely applies herbicides to level in accordance with a Yolo County permit and has not had any spills while Mr. Ruzich has been with RD 900. Over the years a few barrels and cans have been observed on the levee but they were either empty or self-contained and are not thought to be a concern. Miscellaneous items including trash and mattresses are sometimes observed on the levee and are properly disposed of by RD 900. Transformers replaced by RD 900 at the levee pumping station were originally placed in service and contained mineral oil as an insulator so PCB's were not thought to be present on any levee sites operated by RD 900 a copy of the interview questions and answers are included in Appendix C of this report.

8.0 Findings

The EDR search identified 788 records of possible HTRW concerns within the study area. All of these sites were identified in the EDR search by a site identification-focus map number identifier. Many of the Site ID's had multiple records of possible HTRW associated with them so the total number of identified sites in the EDR report was 183.

Appendix B provides a summary of each site including its distance from the levee center line, levee station and reach, location in relation to the hydraulic divide, whether or not the site may affect future construction, and links to regulatory information. This information was used to focus the Phase 1 ESA to the potential effects of the identified HTRW sites on future construction activities. Further investigation in to potentially hazardous sites included review of available site information in the EnviroStor and GeoTracker databases maintained by the California Department of Toxic Substance Control (DTSC) and California State Water Resources Control Board (SWRCB) respectively. Reports from these databases were used to determine the possible impact identified sites may have on future construction activities. Characteristics used to classify the site included the suspected mass and volume of contaminants, their mobility within the soil-groundwater-air matrix, and the likelihood of traditional levee remediation measures impacting contaminated media.

Additionally there are numerous species of plants and animals that have been identified in the study area and are listed on federal or state watch lists. A complete listing of these identified species is included in a separate appendix to the planning document.

As previously discussed, sites were classified in one of four types according to the potential for harmful impacts on future construction activities. Tables 2 & 3 below provide a listing of all the Type 1 and Type 2 sites, respectively. Figure 3 provides a map showing the location of all Type 1 HTRW sites. The remaining Type 3 and 4 sites are identified in Appendix A and B.

Table 2 - Type 1 HTRW Sites

Type 1 Sites – HTRW concerns that may impact future activities						
Site Name	**EDR ID #**	**Distance from Centerline (miles)**	**Closest Levee Reach**	**Stationing Along Closest Reach**	**Address**	**Summary**
Bryte Landfill	7-1	0.5	Sacramento Bypass	0+00	50035 CR 126/ CR 126/ RD 124, West Sacramento, CA	Landfill used from the 1950's through the 1970's
State Department of Water Resources Maintenance Yard	11-2	0.00	Sacramento River North Levee	50+00	1450 Riverbank Rd., West Sacramento, CA 95605	Leaky underground storage tank with hydrocarbon plume located under the levee
Capitol Plating	27-2	0.13	Sacramento River North Levee	180+00	319 3rd St., West Sacramento, CA 95605	Heavy metals and chlorinated solvents in the soil around the former facility
Van Waters and Rogers Inc./UNIVAR USA	44-5	0.00	Sacramento River North Levee	220+00	800-850 South River Rd., West Sacramento, CA 95691	Former chemical handling and storage facility with solvent contamination in soil and groundwater
Chevron #9-6726 and Epoch Truck Stop	70-4	0.13	Yolo Bypass	100+00	4790-4800 West Capitol Ave, West Sacramento, CA 95691	Co-mingled fuel plume located beneath to fuel dispensers
Shell Oil, Ramos Environmental, KMEP	86-5	0.13	Sacramento River North Levee	260+00	1509-1570 South River Road, West Sacramento, CA 95691	Previous storage, distribution, and recycling facilities for hydrocarbon compounds. Current soil and groundwater contamination
Port of Sacramento	94-5 & 99-5	0.25	Port North Area	160+00	2895 Industrial Blvd., West Sacramento, CA 95691	Ammonia and Nitrate plume associated with previous fertilizer storage and transport
Tesoro-ARCO Remediation Project (TARP)	101-5	0.13	Sacramento River North Levee	270+00	1700-1701 South River Road, West Sacramento, CA 95691	Large fuel storage and distribution terminal with associated hydrocarbon and VOC plume
Agrium U.S. Inc.	132-4	0.13	Port North Area	35+00	3961 Channel Drive, West Sacramento, CA 95691	Nitrogen contamination of groundwater related to previous storage and production of fertilizers

Table 3 - Type 2 HTRW Sites

Type 2 Sites – HTRW concerns that are not likely to impact future activities						
Site Name	**EDR ID #**	**Distance from Centerline (miles)**	**Closest Levee Reach**	**Stationing Along Closest Reach**	**Address**	**Summary**
Sacramento Stucco Company	56-5	0.25	Sacramento River North Levee	230+00	860 Riske Lane, West Sacramento, CA 95691	Heavy metal soil contamination on site from previous use as a reclamation factory for lead in batteries
Wabash National Trailer Company	57-5	0.38	Port North Area	140+00	3600 West Capitol Avenue, West Sacramento, CA 95691	Hydrocarbon and VOC contamination located beneath a former trailer wash rack located on the northwest corner of the site
4201-4275 West Capitol Avenue	60-4	0.19	Yolo Bypass	130+00	4201-4275 West Capitol Avenue, West Sacramento, CA 95691	Former junkyard and automotive repair facilities with possible soil contamination
Penske Truck Leasing	66-5	0.5	Port North Area	140+00	3009 Evergreen Ave, West Sacramento, CA 95691	Leaking underground storage tank site
West Sacramento CardLock	67-5	0.38	Port North Area	140+00	3022 Evergreen Ave, West Sacramento, CA 95691	Leaking underground storage tank site
Rick's ARCO	75-5	0.38	Sacramento River North Levee	260+00	1015 Jefferson Blvd, West Sacramento, CA 95691	Leaking underground storage tank site
7-Eleven #14,093	107-5	0.19	Sacramento River North Levee	265+00	1552 Jefferson Blvd, West Sacramento, CA 95691	Leaking underground storage tank site
USPS Vehicle Maintenance Facility	113-4	0.38	Port North Area	55+00	3780 Seaport Blvd, West Sacramento, CA 95799	Leaking underground storage tank site

9.0 Opinions

All information used to form the following opinions was gathered from the most recent reporting information available in the Envirostor or GeoTracker databases. If no citation is given general information on the website was used.

9.1 Type 1 Sites

EDR Site 7-1 the former Bryte Landfill will be included in the construction area for the possible Sacramento Bypass enlargement. This site served as a landfill and burn site for commercial and residential wastes collected in eastern Yolo County. Waste was reportedly dumped, burned, and leveled at the 16.69 acre site. Previous soil sampling at the site has shown elevated levels of lead, dioxins and PCBs (DTSC 2010). Further investigation will be required at this site to evaluate effects on the construction of the expanded Sacramento Bypass.

EDR Site 11-2 is a maintenance yard used by the State of California Department of Water Resources, Division of Flood Management. In September 2004 a leaking underground storage tank (LUST) was removed from the site. Subsequent sampling showed elevated levels of total petroleum hydrocarbons as gas and diesel, BTEX compounds, and MTBE. The plume currently exists directly below the maintenance yard and extends 500 feet to the east along the Sacramento River. The entire plume volume is located beneath the current levee in a coarse grained alluvium soil. There are currently 21 monitoring wells in place to gather data about the plume (DWR 2010). Any future construction work would be impacted by the presence of this plume and monitoring system.

EDR Site 27-2 consists of the former Capitol Metal Plating facility located at 319 Third Street in West Sacramento. Prior to 2004 a building was present on site where metal stripping and plating activities took place. Previous investigations on the site revealed the presence of chromium, nickel, lead, copper, and cadmium at 0-5 feet bgs. Several soil removal activities have been completed at this location to remove significant

amounts of heavy metals that were causing health problems for workers on site. 1,2-DCA (Di-chloro ethane) was detected in shallow groundwater samples on site but was not observed offsite in the shallow aquifer material; however, 1,2 DCA was detected in groundwater samples taken from the deeper aquifers at approximately 40 and 60 feet bgs (URS 2004). The exact extent of the 1,2-DCA plume in the groundwater was not known in the 2005 report but does not appear to have a significant potential to affect future construction activities on the site. Additional investigations may be needed to review other available records and determine the current state of the Capitol Plating facility.

EDR Site 44-5 is located on the premises of Raley Field in West Sacramento. The site was previously used as a chemical storage and distribution center by Van Waters and Rogers, Inc. and Univar USA, Inc. Typical chemicals stored on site included PCE, 1,1,1 TCA, acetic acid, acetone, Texanol, diesel, and propylene glycol. Some spilling of these chemicals during repackaging and distribution occurred leading to contamination of the soil and groundwater by PCE, TCE, vinyl chloride, cis-1,2 DCE, and trans-1,2 DCE. A soil vapor extraction and air sparging system was installed and operated on the site from 1995 to 1997; current remedial measures on the site include bioremediation paired with a pump and treat groundwater system (Nichols 2012). The contaminant plume on the site appears to be contained by the current ground water pumping system in the upper stratigraphic layer and is located approximately 600 feet from the current levee site. The contaminants of concern on this site appear to be stable and located outside of the proposed levee construction impact area but additional testing may be prudent during forthcoming investigations.

EDR Site 70-4 is located just off of Interstate 80 in West Sacramento and is composed of a co-mingled hydrocarbon contaminant plume released by a LUST at the Chevron and former Epoch Truck stops along West Capitol Avenue. Contaminants of Concern (COCs) on this site include TPH-g, TPH-d, benzene, and MtBE. Remedial actions are proposed to start on this site in early 2012 (CWRQCB 2012). The contaminant plume on this site is located approximately 300 feet from the Yolo Bypass levee and does not appear to be migrating towards the levee. The prevailing groundwater flow gradient has

been observed to point to the southeast, or away from the levee. Currently this site does not pose a significant potential threat to construction activities but may need to be evaluated with respect to proposed construction measures.

EDR Site 86-5 is composed of sites owned by Shell Oil Company, Ramos Environmental, and Kinder Morgan Energy Partners (KMEP). Ramos Environmental currently has a permit to handle, consolidate, and store oily wastes and other hazardous materials. KMEP operates an oil pumping facility on the west side of South River Road near the western edge of the current levee embankment; a plume is associated with this site that is currently under monitored natural attenuation. COCs on the KMEP site include TPH-g, benzene, and MtBE. The contaminant plume appears to be contained to the central portion of the KMEP property in the upper stratigraphic layer and appears to be stable. (Arcadis 2002) This site is currently under monitored natural attenuation and the plume appears to be stable. The Shell Oil Company operates a fuel distribution facility between South River Road and the Sacramento River. This site is located almost entirely on the constructed levee embankment and includes 12 large above ground storage tanks. A contaminant plume consisting of TPH-g, TPH-d, benzene, MtBE, and tert-butyl alcohol (TBA) has been delineated below the site; this plume appears to be stable and is currently under monitored natural attenuation. Groundwater extraction occurred on site from 1996 until 2007 and passive product skimmers have been in operation since 2008. The groundwater flow gradient radiates out from the center of the site due to the weight of the fuel tanks and is partially directed towards the Sacramento River on the eastern portion of the site (CRA 2012). The effects of this contaminant plume would need further investigation in relation to proposed construction activities due to the proximity to the levee and groundwater flow conditions.

EDR Site 99-5 and Site 94-5 consists of a nitrogen associated contaminant plume located in the Port of Sacramento. Site 99-5 is listed as the Port of Sacramento Terminal and Site 94-5 is listed as the Fertilizer Washrack and Railcar Loading; both of the sites are associated with the nitrogen plume described in this section. COCs in this plume include ammonia and nitrate resulting from fertilizer spills associated with the railcar loading and

washing area at the Port. Nitrate has been observed in the perched aquifer to a depth of approximately 25 feet below ground surface(bgs); ammonia and nitrate have been observed in the semi-confined aquifer from a depth of 30 feet bgs to greater than 100 feet bgs. A large ground water extraction system is currently in place which conveys groundwater to a constructed wetland for treatment (GeoTrans 2009). The site may pose a concern to future levee construction activities near the Port due to the size of the plume and groundwater flow patterns directed towards the Deep Water Ship Channel on the south side of the site.

EDR Site 101-5 consists of the combined Tesoro ARCO Remediation Project (TARP) adjacent to the Sacramento River and the Tesoro fuel terminal located on the west side of South River Road. COCs associated with this site include TPH-g, TPH-d, benzene, and MtBE in the upper unconfined aquifer; along with TPH-g, TPH-d, benzene, and MtBE in the lower aquifer. Thousands of gallons of free product have been removed from the site and various remedial measures have been used on this site in the past including dual phase extraction, oxygen injection, and SVE/AS systems (Stantec 2011). The contaminant plume on this site currently appears to be stable and contained to the west of the Sacramento River, but additional investigation will be needed to identify impacts the site may have on future construction activities.

EDR Site 132-4 consists of a nitrate and ammonia plume at the Agrium U.S. nitrogen fertilizer production plant adjacent to the DWSC. There are ongoing extraction and disposal services occurring on this site but elevated concentrations of nitrate and ammonia are still observed near the DWSC. A total of 32 wells and piezometers have been installed in the shallow, perched and deeper confined aquifer on the site. The prevailing groundwater flow gradient in the deeper confined aquifer is directed towards the DWSC (HDR 2011). The effects of the nitrogen plume on any levee related construction activities would need to be investigated further.

9.2 Type 2 Sites

EDR Site 56-5 is located on property owned by the Sacramento Stucco Company. This site was previously used as a lead battery reclamation facility in the 1970's. The use of this site as a reclamation facility resulted in significant amounts of soil contamination by lead and other heavy metals. Several remedial actions have been completed over the years to remove contaminated soils with a final removal activity scheduled to have been completed in 2008. There is limited current information available about this site but the contamination appears to be contained to the site and does not pose a concern to future levee construction activities (DTSC 2008).

EDR Site 57-5 consists of the Wabash National Trailer Company located on West Capitol Avenue. There is a plume of PCE and TCE located on the site that most likely originated from the cleaning of trailers in a wash rack on the northwest portion of the site that occurred until the late 1980's. Currently there are detectable concentrations of PCE, TCE and TPH which appear to be confined to the northern portion of the site. There are very small groundwater gradients and flows observed on the site. The contaminants observed on this site appear to be contained to the localized area and should not be of concern during future levee construction (Raney 2008).

EDR Site 60-4 consists of several former junk yards and automotive repair facilities located on the southern side of 4300 block of Capitol Avenue. Prior investigations found some concentrations above background of lead in the soil but these appear to be minor and localized within the site. This site should not pose any concern for future levee construction activities.

EDR Site 66-5 consisted of a small hydrocarbon plume on a Penske Truck Leasing, Co. property. This leak was small in nature and the LUST case is currently in the process of being closed by the Water Resources Control Board. This site is located approximately one half mile from the levee sites and should not be of concern during construction.

EDR Site 67-5 consists of a hydrocarbon plume located beneath the West Sacramento CardLock facility on Evergreen Avenue. The contaminant plume associated with this site appears to be confined to the site and immediate surrounding area and should not be of concern during future levee construction.

EDR Site 75-5 consists of a small hydrocarbon plume located under Rick's ARCO on Jefferson Boulevard. The main COC on this site is MTBE but the overall plume is small in extent and appears to be contained within the immediate vicinity of the site. This site should not be of concern to future construction activities on the levee.

EDR Site 107-5 consists of a hydrocarbon plume located under the 7-Eleven at 1552 Jefferson Boulevard. There have been SVE and groundwater water extraction systems operating on the site that appear to removing the contaminant mass on the site. Some of the contamination observed on this site may originate at the Tesoro fuel terminal located to the east of the site. Any contamination on this site will comingle with hydrocarbon plumes beneath the Tesoro and TARP sites before reaching possible areas of levee construction so this site itself will most likely not be a concern to future construction.

EDR Site 113-4 consists of a small hydrocarbon plume located beneath a United States Postal Service vehicle maintenance facility on Seaport Boulevard. High MtBE concentrations have also been observed on this site. The contaminant plume on this appears to be stable and should not impact future construction activities.

10.0 CONCLUSIONS

A Phase 1 Environmental Site Assessment was performed in accordance with the scope and limitations of ASTM E 1527-05 and USACE ER 1165-2-132 for the West Sacramento Levee GRR project. Any exceptions to, or deletions from, these practices have been outlined within the report. This assessment has identified sites with recognized environmental conditions at the locations shown in Table 4 below.

Table 4 - Sites with Recognized Environmental Conditions

Site Name	EDR ID #
Bryte Landfill	7-1
State Department of Water Resources Maintenance Yard	11-2
Capitol Plating	27-2
Van Waters and Rogers Inc./UNIVAR USA	44-5
Chevron #9-6726 and Epoch Truck Stop	70-4
Shell Oil, Ramos Environmental, KMEP	86-5
Port of Sacramento	94-5 & 99-5
Tesoro-ARCO Remediation Project (TARP)	101-5
Agrium U.S. Inc.	132-4

The historical land uses of the region may also contribute to residual contamination of the entire project area with agricultural fertilizers, herbicides, and pesticides as well as arsenic and mercury from mining operations in the region. Additional sampling will be required during subsequent investigations to determine if project areas have been impacted by these historical contaminants.

Due to the GRR process being a parent project that identifies the need for future actions, a Phase 1 ESA will need to be performed again, either at the appropriate GRR phase planning milestone, or at the beginning of actual construction activity. The subsequent Phase 1 ESA(s) will investigate if new sites have emerged and if existing sites still pose a threat to planned construction.

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12.0 Signatures of Environmental Professionals

Rick McComb 22 May 2012

Rick McComb, P.E.
Environmental Engineer, Environmental Engineering Section

13.0 Qualifications of Environmental Professional

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR, Section 321.10.

Rick McComb 22 May 2012

Rick McComb, P.E.
Environmental Engineer, Environmental Engineering Section

Figure 1: West Sacramento GRR Levee Reaches and Project Area

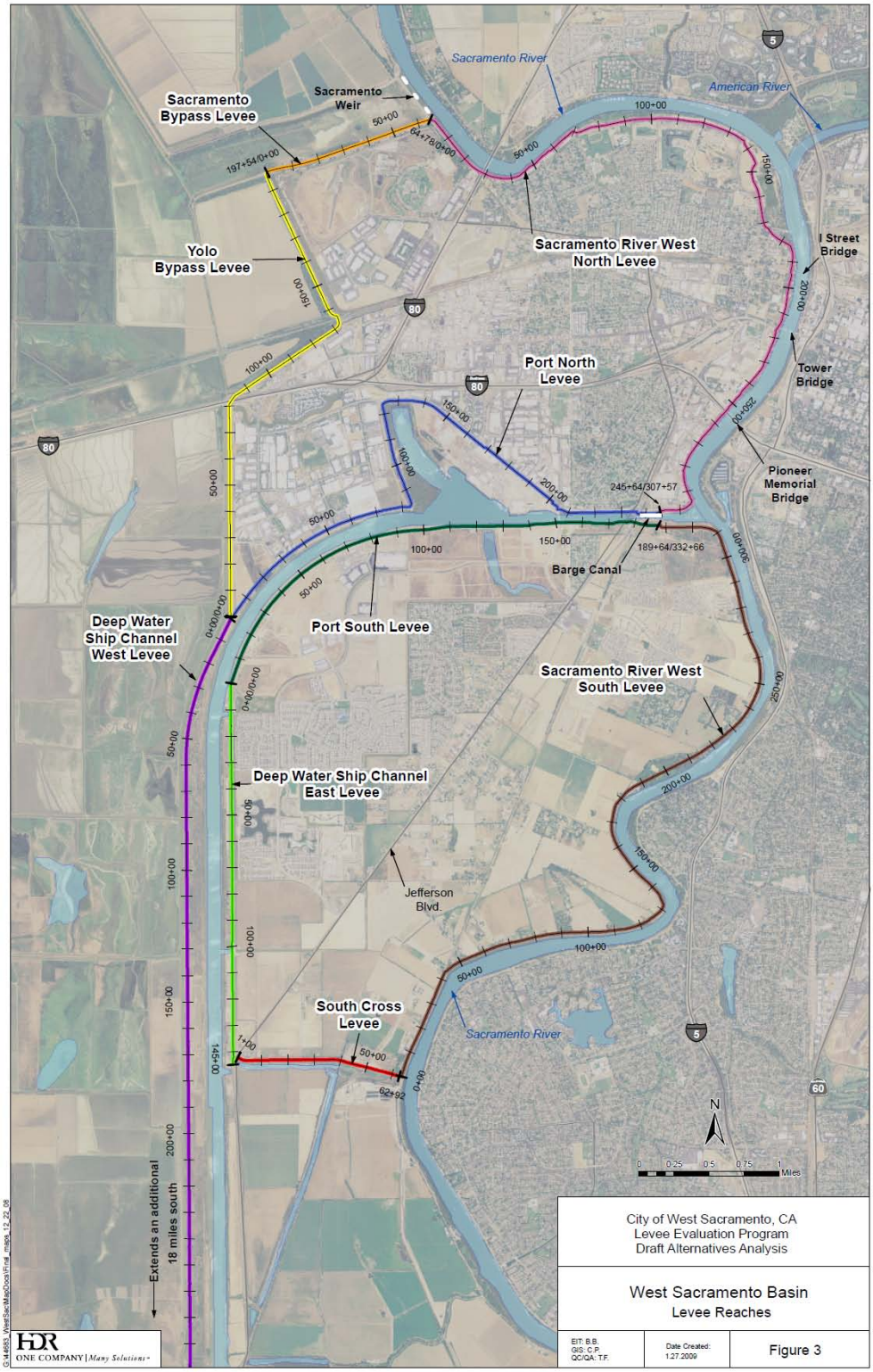

Figure 2: EDR Site Map with Search Radius

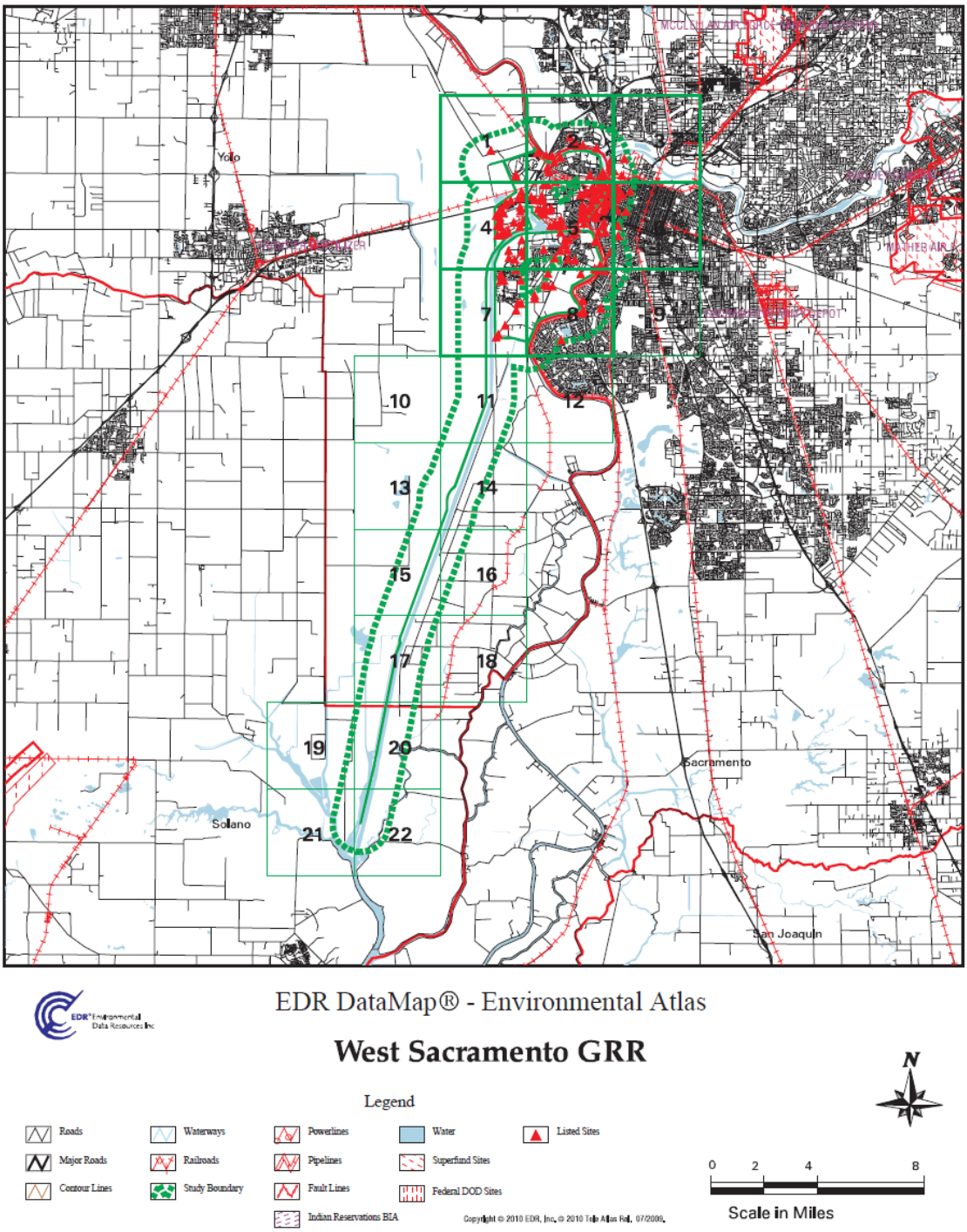
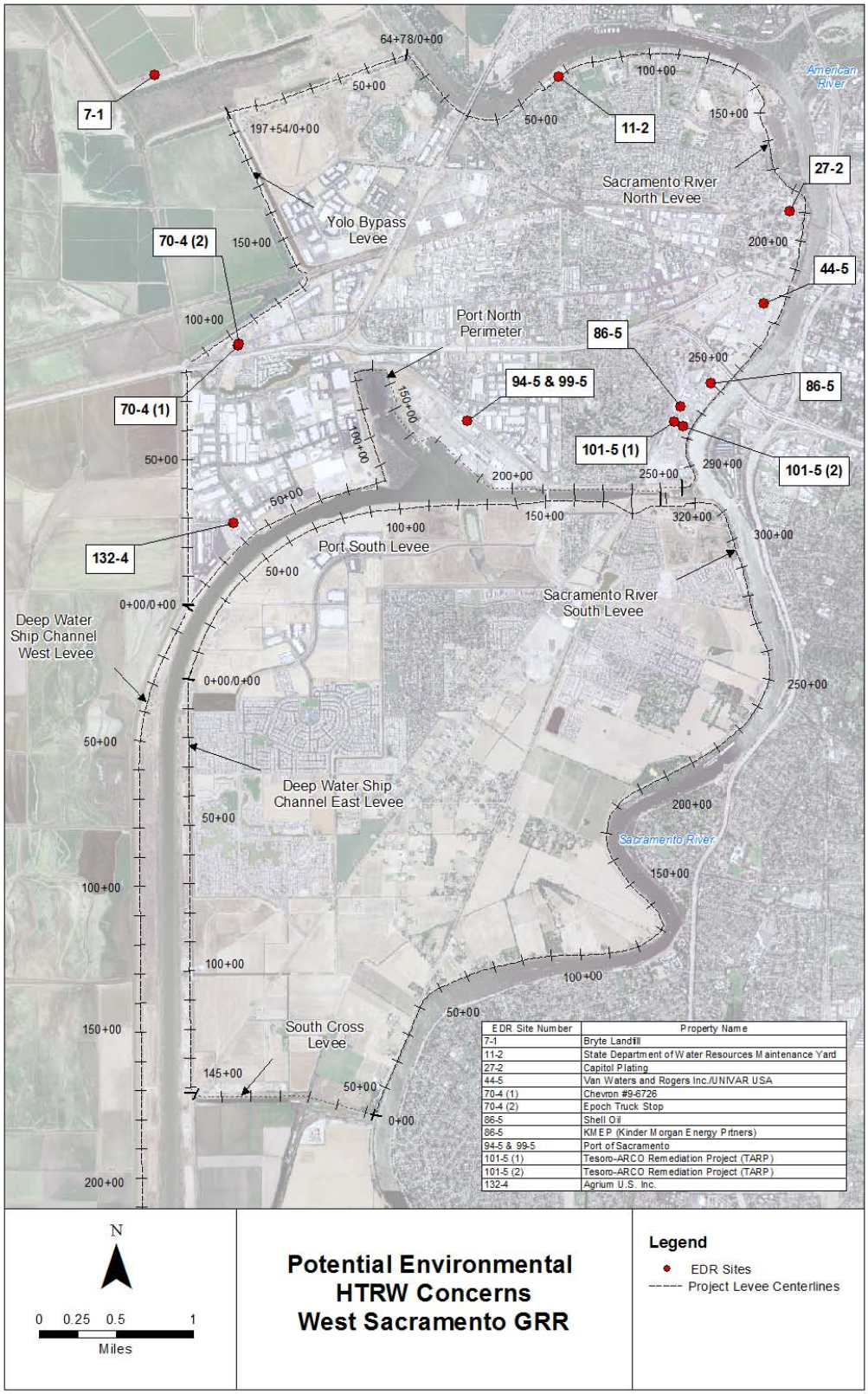
Figure 3: Potential Environmental HTRW Concerns