

ROCKY FLATS SITE

REGULATORY CONTACT RECORD 2021-05

Purpose: East Trenches Plume Treatment System (ETPTS) Discharge Gallery Replacement

Contact Record Approval Date: January 7, 2022

Site Contacts and Affiliations: Andy Keim, U.S. Department of Energy (DOE); Dana Santi and Ryan Wisniewski, RSI EnTech, LLC (RSI)

Regulatory Contacts and Affiliations: Lindsay Murl, Colorado Department of Public Health and Environment (CDPHE); Jesse Aviles, U.S. Environmental Protection Agency (EPA)

Date of Consultation Meeting: November 8, 2021

Consultation Meeting Participants: Lindsay Murl, CDPHE; Jesse Aviles, EPA; Andy Keim, DOE; Dana Santi, Ryan Wisniewski, John Boylan, George Squib, Jody Nelson, Karin McShea, April Tischer, Harry Bolton, RSI

Related Contact Records: CR 2021-04

Introduction:

At the Rocky Flats Site, Colorado, the East Trenches Plume Treatment System (ETPTS) air stripper treats groundwater from both the Mound Site Plume Collection System (MSPCS) and the ETPTS. The groundwater is contaminated with volatile organic compounds. After passing through the air stripper, the treated water is dispensed into the ETPTS effluent tank, from which it is pumped out at a controlled rate to the below-grade discharge gallery. The ETPTS discharge gallery replacement project will not alter or impact the current air stripping operations or current air emissions. The current treatment operation does not require an Air Pollutant Emissions Notice (APEN).

The ETPTS discharge gallery was installed in 1999. In 2016, the ETPTS was reconfigured to begin treating groundwater collected at the MSPCS.

The ETPTS discharge gallery has already functioned beyond its expected operational life with periodic maintenance. Indicators upstream within the system suggest its functionality might soon begin to fail. One such indicator leading to this determination is the buildup of scale in the form of calcium carbonate within the system's pipes. This buildup has begun to limit effluent water flow and has increased the risk of system failure. DOE, EPA, and CDPHE will continue to discuss operational improvements for effective long term groundwater treatment. This action will mitigate the immediate risk of system failure associated with scale buildup.

Discussion:

The ETPTS discharge gallery is due for periodic maintenance. DOE plans to replace or remove components of the ETPTS. These components include all effluent piping from the flow control vault to and including the discharge gallery (Figure 1). The only component of the system that will be removed and not replaced is the former effluent metering manhole between the flow control vault and the discharge gallery (Figure 1). That manhole was formerly used by workers to make flow measurements; flow measurement is now performed using in-line flow meters at other locations within the system.

During the replacement and removal of the ETPTS components, the treatment system will be turned off. Groundwater collected by the MSPCS and the ETPTS will be held within those systems as designed. No collected groundwater from the MSPCS or ETPTS will bypass the treatment component of the ETPTS. If there is risk that the collected groundwater will exceed the system's storage capacity, temporary lines will be utilized to support short-term, intermittent operation of the treatment system as currently designed. DOE shall ensure any temporary lines used during the performance of this action are in good condition and direct treated effluent to the designated discharge gallery. The field activities for this maintenance project are planned for 5 total working days that could be over a two-week period if inclement weather impacts performance safety. The treatment system shall not be turned off for a period greater than 14 calendar days without 48 hours prior notice to EPA and CDPHE regulators.

With the ETPTS turned off, DOE will excavate and remove the effluent metering manhole and all subsurface piping, which vary in depth from 1.5 to 6 feet (ft) below grade (Figure 2). Based on DOE's review of site records and information, there are no subsurface structures in this area or soil contamination. Once these are removed, the new pipe will be installed at similar depths ranging from 1.5 to 6 ft. The new pipe will follow a similar path as the old piping with some deviations, such as eliminating the use of 90-degree angles and no longer passing through the metering manhole. The path deviations, the elimination of 90-degree angles, and other system improvements are designed to maintain higher flow velocity, which is expected to reduce future scale buildup within the piping.

All soils and old gravel bedding will be temporarily stockpiled in a designated area near the excavation and within the identified disturbance limits (Figure 3). This temporary stockpile will be managed in accordance with all applicable or relevant and appropriate requirements listed in Table 21 of the 2006 *Corrective Action Decision/Record of Decision* and will be consistent with the then in-effect approved *Erosion Control Plan for Rocky Flats Property Central Operable Unit* (currently, DOE-LM/1497-2007). Once the new pipe has been installed, the staged soil and gravel bedding will be used as backfill. The surface area will be restored to the existing grade or higher while matching the surrounding area.

Rainfall and stormwater run-on that enters the excavation will be pumped to the ground surface in a manner that is consistent with the site's approved erosion control plan. If groundwater seeps into the excavation, it will be either (1) pumped to ground upgradient of the ETPTS intercept trench in a manner consistent with the site's approved erosion control plan or (2) containerized, decanted, and pumped through the treatment system once the project activities have concluded.

The only waste expected to be generated from this project is (1) the removed subsurface piping with calcium scale buildup and (2) concrete associated with the removed manhole access point. No hazardous waste is expected to be generated by this project, and initial planning is for all material to be disposed of as nonhazardous solid waste. DOE shall perform a waste determination at the time of excavation and dispose of waste in accordance with applicable regulatory requirements.

At project completion, the disturbed areas will be seeded with a native seed mix, and erosion controls will be installed.

Preble's Meadow Jumping Mouse:

The ETPTS discharge gallery replacement work area is in Unit 6 of the critical habitat of the Preble's meadow jumping mouse (PMJM) (*Zapus hudsonius preblei*). All work activities at the groundwater treatment systems were consulted on in the Rocky Flats Programmatic Biological Assessment (PBA) and the associated Programmatic Biological Opinion. In addition, in 2018, as part of receiving credit for the habitat created in the former Industrial Area in the Central Operable Unit (COU), DOE also established exclusion zones around each of the groundwater treatment systems, including the ETPTS. DOE received approval for these exclusion zones in a concurrence letter from the U.S. Fish and Wildlife Service (USFWS) on July 18, 2018 (TAILS: 06E24000-2018-I-1200). The exclusion zones were established to allow work to be done at the groundwater treatment systems without requiring repeated consultation between DOE and USFWS. The exclusion zones were taken as a permanent loss of habitat, and mitigation was done to account for these areas. No further mitigation is required for work conducted within these exclusion zones, and only a project notification to USFWS is required prior to conducting work within these zones.

Most of the work activities related to the ETPTS discharge gallery project will occur within the exclusion zone at the ETPTS. However, 0.08 acre of PMJM habitat outside the exclusion area will be impacted as part of the project; therefore, USFWS concurrence is required. In accordance with PBA requirements, USFWS was notified of the planned project for the ETPTS discharge gallery replacement, including the intent to include the extra 0.08 acre as part of the work area, on October 21, 2021. DOE received concurrence from USFWS on November 30, 2021. Figure 4 illustrates the existing PMJM exclusion area along with the additional project area for which USFWS was notified.

Wetlands:

As part of the work for the ETPTS discharge gallery project, a narrow band of short marsh consisting of cattails (*Typha angustifolia*) and bulrush (*Scirpus pallidus*) will be impacted. Because this project is a Comprehensive Environmental Response, Compensation, and Liability Act project associated with maintaining the remedy at the Rocky Flats Site, the small amount of wetland impact expected from the project (< 0.008 acres) will be addressed by following the substantive requirements of the appropriate Clean Water Act regulations. In addition, the wetlands are in an upland area and are considered "man-induced" wetlands that are present only because of the release of water from the subsurface ETPTS discharge gallery. If the water from the discharge gallery were stopped, the wetland vegetation would disappear and be replaced by upland vegetation. "Man-induced" wetlands are described in the 1987 U.S. Army Corps of Engineers *Corps of Engineers Wetlands Delineation Manual*, Part IV, "Methods," Section F, "Atypical Situations," Subsection 4, "Man-Induced Wetlands," as follows: "*CAUTION: If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not*

be considered a wetland.” Once the new discharge gallery begins operation, some or all of the existing wetland vegetation is expected to return.

Migratory Bird Treaty Act:

The migratory bird nesting season along the Front Range of Colorado extends from April 1 to August 31. Given that the ETPTS discharge gallery project is scheduled to occur before April 1, 2022, there is little likelihood that the project will impact nesting migratory birds. Should a bird nest be found in the work area, the site ecologist will be contacted immediately. DOE shall comply with applicable requirements of the Migratory Bird Treaty Act.

Institutional Control (IC) Evaluation:

The *Corrective Action Decision/Record of Decision Amendment for Rocky Flats Plant (USDOE 2006) Central Operable Unit* requires specific ICs to ensure the protectiveness of the remedy at the Rocky Flats Site. These ICs are required by and enforceable through the 2017 Restrictive Notice for Rocky Flats, recorded with Jefferson County. The *Rocky Flats Legacy Management Agreement (RFLMA) Attachment 2, Table 4*, lists the Restrictive Notice’s ICs for the COU, including requirements for soil disturbance evaluation.

The soil disturbance work is subject to IC 2, which is shown in Table 1. The required Soil Disturbance Review Plan for IC 2 is included as Attachment 1.

Table 1. Institutional Controls

	Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
IC 2	<p>Objective: Prevent unacceptable exposure to residual subsurface contamination.</p> <p>Rationale: Contaminated structures, such as building basements, exist in certain areas of the Central OU, and the Comprehensive Risk Assessment did not evaluate the risks posed by exposure to this residual contamination. Thus, this restriction eliminates the possibility of unacceptable exposures. Additionally, it prevents damage to subsurface engineered components of the remedy.</p>

Resolution:

CDPHE, after consultation with EPA, has approved the activities described in this contact record (CR). Based on the information provided, CDPHE determined that the proposed activities will not result in an unacceptable release or exposure to residual subsurface contamination and will not damage any component of the remedy. CDPHE has also determined that the proposed activities meet the rationale and objectives of IC 2.

The work will be conducted after approval of this CR, but DOE will not conduct the approved soil disturbance until 10 calendar days after this CR is posted on the Rocky Flats Site website and stakeholders are notified of the posting in accordance with the RFLMA Public Involvement Plan.

Progress and the completion of the work will be reported by DOE in RFLMA quarterly and annual reports of surveillance and maintenance activities for the periods in which these activities occur.

Action Complete:

The activities approved in this CR will be complete when the components of the ETPTS as identified above have been removed or replaced, the excavations have been backfilled to the original grade or higher, post-disturbance reseeding has been performed, and post-disturbance soil erosion controls as identified in the approved *Erosion Control Plan for Rocky Flats Property Central Operable Unit* (DOE-LM/1497-2007) are in place.

Contact Record Prepared by:

Ryan Wisniewski, RSI

Distribution:

Andy Keim, DOE

Lindsay Murl, CDPHE

Jesse Aviles, EPA

Dana Santi, RSI

Rocky Flats Contact Record File

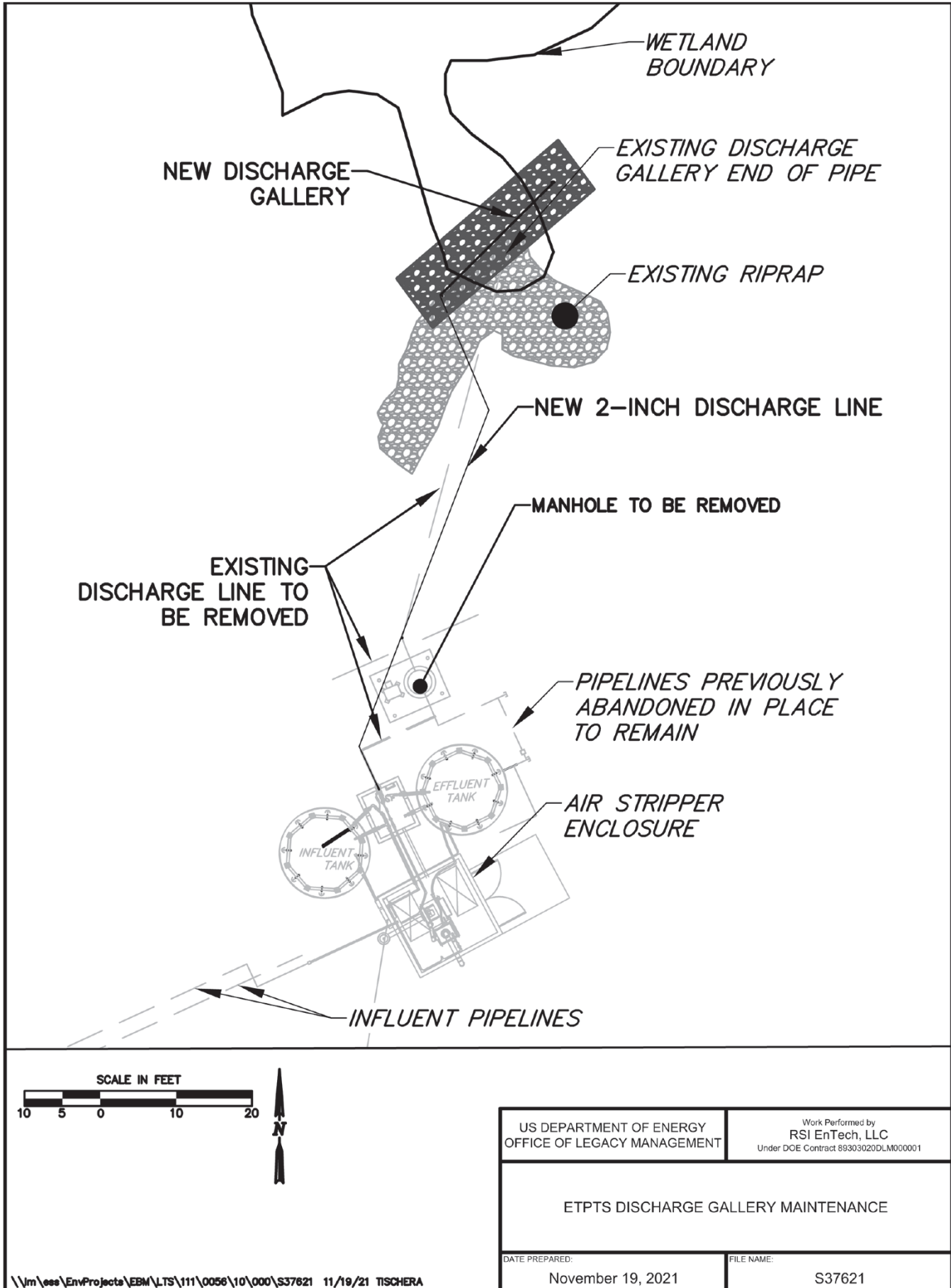
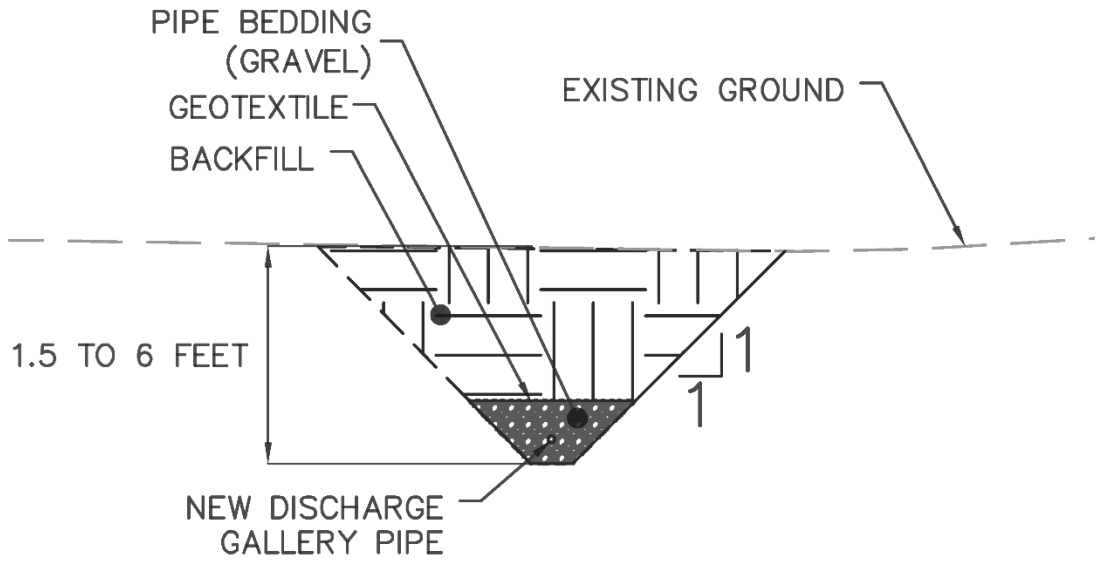
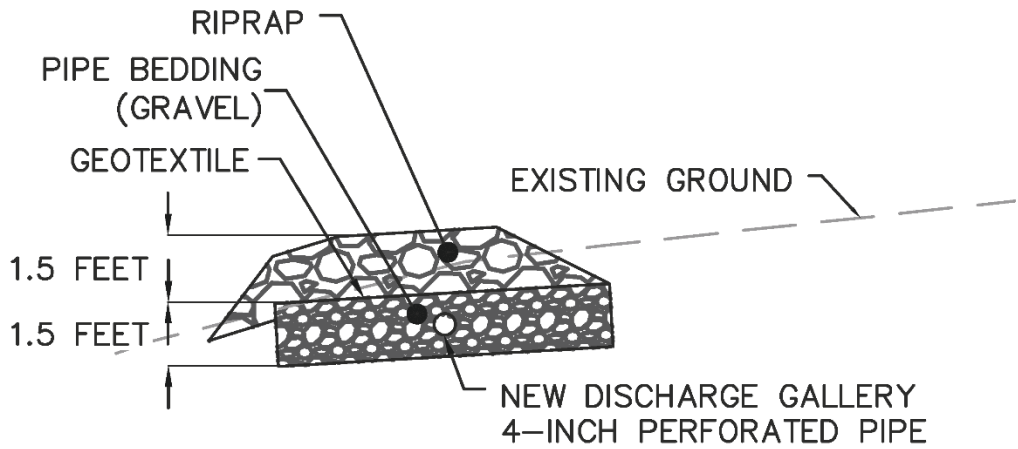


Figure 1. ETPTS Discharge Gallery Overview



TYPICAL DISCHARGE PIPE SECTION

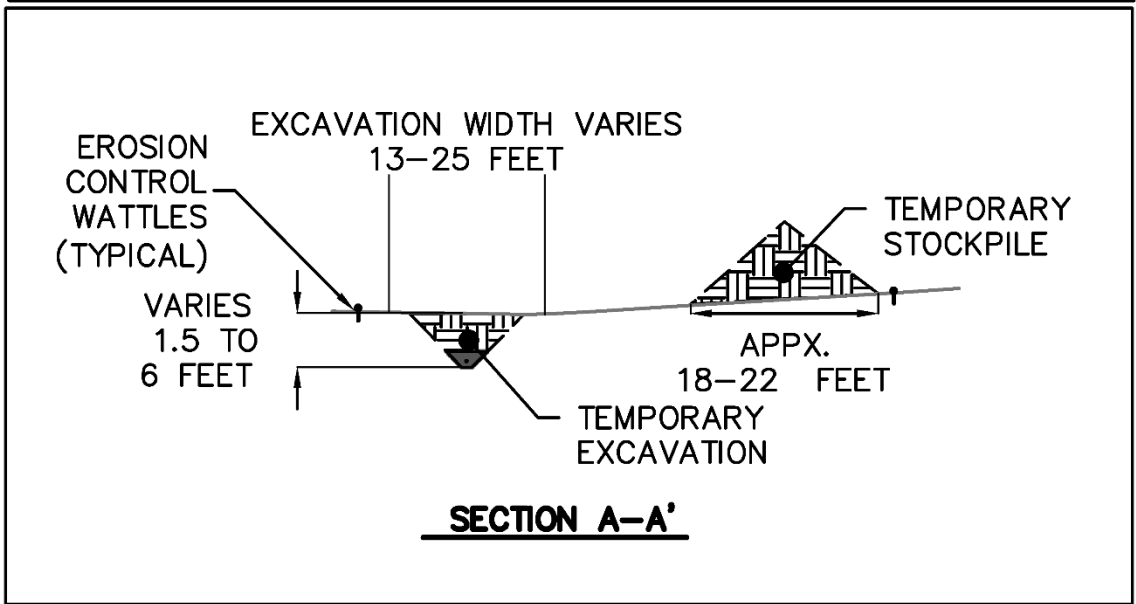
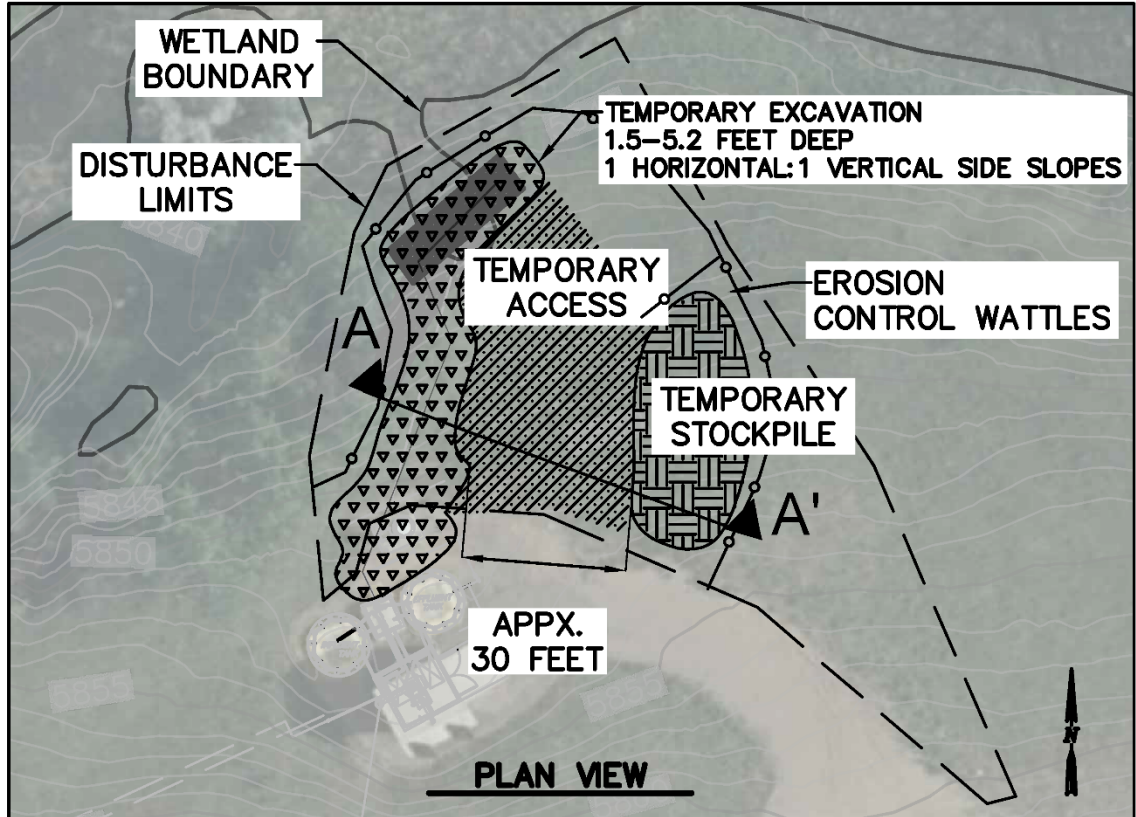


TYPICAL DISCHARGE GALLERY SECTION

US DEPARTMENT OF ENERGY OFFICE OF LEGACY MANAGEMENT	Work Performed by RSI EnTech, LLC Under DOE Contract 89303020DLM000001
ETPTS DISCHARGE GALLERY MAINTENANCE TYPICAL SECTIONS	
DATE PREPARED: November 19, 2021	FILE NAME: S37623

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Figure 2. Project Excavation Cross Sections



US DEPARTMENT OF ENERGY OFFICE OF LEGACY MANAGEMENT	Work Performed by RSI EnTech, LLC Under DOE Contract 89303020DLM000001
ETPTS DISCHARGE GALLERY MAINTENANCE EXCAVATION	
DATE PREPARED: November 19, 2021	FILE NAME: S37622

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Figure 3. Project Activity Layout





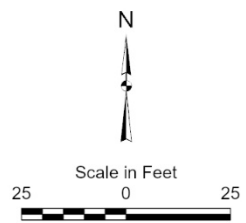
<p> Additional Project Area</p> <p> PMJM Exclusion Area</p>	<p>U.S. DEPARTMENT OF ENERGY OFFICE OF LEGACY MANAGEMENT</p>	<p>Work Performed by RSI EnTech, LLC Under DOE Contract 89303020DLM000001</p>
<p>Aerial Photo: June 15, 2021</p>	<p>ETPTS Discharge Gallery Maintenance Project Rocky Flats Site, Colorado</p>	<p>DATE PREPARED: September 13, 2021</p> <p>FILE NAME: S3654700</p>
<p style="text-align: center;">N</p> <p style="text-align: center;">Scale in Feet</p> <p style="text-align: center;">25 0 25</p> 		

Figure 4. Preble's Meadow Jumping Mouse Exclusion Areas

Attachment 1

Rocky Flats Legacy Management Agreement Soil Disturbance Review Plan

Proposed Project: East Trenches Plume Treatment System (ETPTS) discharge gallery replacement

This Soil Disturbance Review Plan provides information required by *Rocky Flats Legacy Management Agreement* Attachment 2, “Legacy Management Requirements,” Section 4.1, “Soil Disturbance Review Plan,” regarding the work proposed by the U.S. Department of Energy (DOE).

Description of the proposed project, including the purpose, the location, and the lateral and vertical extent of excavation.

DOE is proposing to perform component replacement or removal to the ETPTS as part of the maintenance of the overall system. Specific components to be removed or replaced are identified in CR 2021-05. Recently, parts of the system have begun to fail as a result of scale buildup within the discharge pipe, limiting flow capacity.

The ETPTS component replacement and removal will require excavations ranging from 1.5 to 6 feet. The extent of the required excavations is shown in Figures 2 and 3 of CR 2021-05.

Information about any remaining subsurface structures in the vicinity of the proposed project.

Other than components of the ETPTS, there are no structures near the activity. The eastern end of the B-Pond Bypass Pipeline is a short distance west of the project area but is not at risk from subsurface work conducted within this area.

Information about any former Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern (PACs), or other known or potential soil or groundwater contamination in the vicinity of the proposed project.

This construction area was not an IHSS or PAC. In the *Facility Investigation - Remedial Investigation/Corrective Measures Study - Feasibility Study Report for the Rocky Flats Environmental Technology Site* (June 2006), the figures in Section 3, “Nature and Extent of Soil Contamination,” do not indicate soil contamination in this area. Any groundwater that is encountered in an excavation will be managed as described in CR 2021-05.