

# Engineered Excavation Work Plan

## L-H #1 Edwards 16U Tank Battery

NESE S16 T5N R67W  
WELD COUNTY, COLORADO

Prepared for:



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Attachment A – Competent Person Certificates

## 1.0 Introduction

This Engineered Excavation Work Plan (Plan) has been developed to guide supplemental soil excavation activities being performed by Tasman Geosciences Inc. (Tasman) as part of a remedial action and assessment to remove petroleum hydrocarbon impacts in the subsurface at the PDC Energy, Inc. (PDC) L-H #1, Edwards 16U Tank Battery in Weld County, Colorado (Figure 1) [Site]. This Plan has been developed by a Professional Engineer (P.E.) to be utilized for earthwork activities conducted deeper than 20 feet below ground surface (bgs). This Plan is designed with the intent that no personnel will be permitted to enter or work within the excavation at any time, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation, during deep (greater than [ $>$ ] 20 feet bgs) excavation activities.

A copy of this Plan will remain on Site for the duration of excavation activities. The procedures detailed in this Plan will be implemented in accordance with PDC internal safety protocols, Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1926 requirements, and Tasman's Site-specific Health and Safety Plan (HASP). Environmental assessment and sampling procedures will be conducted in accordance with the Colorado Oil and Gas Conservation Commission (COGCC) 900 Series regulations.

Implementation of this Plan will be conducted by trained and certified Tasman employees and overseen/supervised by a Competent Person (as defined by OSHA). The on-site Competent Person will continually and diligently monitor site and excavation conditions as well as implementation methodologies while activities progress. If unforeseen subsurface conditions are encountered or conditions appear to become unstable, work will be stopped, and the Competent Person will contact the certifying P.E. to adjust this Plan.

## 2.0 Site Background

The Site is located approximately  $\frac{1}{2}$  mile south of Highway 34 on 131<sup>st</sup> Avenue west of Greeley, Colorado in Weld County, with approximate coordinates of 40.399586 degrees north, -104.888874 degrees west (Figure 1).

On July 14, 2021, PDC discovered a reportable petroleum hydrocarbon release at the Site while decommissioning the production facility. Following the release discovery, excavation and assessment activities of the petroleum impacted soils were initiated. During the initial excavation and assessment activities a soil sample was collected at approximately 20 feet bgs and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylene (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, and total petroleum hydrocarbon (TPH) [C6-C36]. Analytical results exhibited constituent concentrations in exceedance of the applicable COGCC Table 915-1 Protection of Groundwater Soil Screening Levels (SSLs)s. The initial excavation and assessment activities were temporarily postponed so that this Plan could be developed for continued excavation at depths  $>20$  feet bgs.

The current Site conditions including the approximate extent of the initial "deep" soil excavation, the initial "shallow" soil excavation bench, and perimeter soil berm is illustrated on Figure 2. The current excavation perimeter berm is constructed of soil and extends from ground surface to approximately 5 feet

above ground surface. From the interior of the perimeter berm, the former tank battery infrastructure has been removed and shallow soil has been excavated to a depth of approximately 8 feet bgs. Within the soil perimeter berm, a deeper soil excavation exists. The “deep” soil excavation extends to a depth of approximately 22 feet below the top of the surrounding 8 feet deep “shallow” excavation bench, or approximately 30 feet below the original Site ground surface. A cross-section of the remediation area illustrating the current site conditions is provided on Figure 3.

Based on visual observations during the initial excavation and assessment activities, the subsurface soil at the Site is classified as a silty sand (Type C soil). Groundwater has not been observed in the open excavation, and based on a review of regional hydrogeologic conditions, the regional depth to groundwater is estimated to be approximately >50 feet bgs.

Various buried utilities (DCP Midstream pipelines, Platte River Midstream pipeline, and a water line) are present at the Site in the vicinity of the proposed remediation area. The approximate alignments of the existing buried utilities are illustrated on Figure 2. These utilities are anticipated to remain in service during the proposed supplemental soil excavation activities.

### 3.0 Excavation Plan

Supplemental excavation and assessment activities will be implemented in accordance with this Plan to address residual source mass impacts at the Site, to the extent possible, within the constraints of subsurface utilities and active pipelines. The Plan has been developed to support supplemental excavation of impacted soil to depths >20 feet bgs in the vicinity of the former “deep” excavation. The projected lateral extent and dimensions of the anticipated supplemental source mass excavation and sloping plan are illustrated on Figure 4. A cross-section of the projected supplemental vertical excavation extent and proposed sloping plan is provided on Figure 5. Supplemental soil excavation activities will be conducted in accordance with the requirements described in the following subsections.

As illustrated on Figures 4 and 5, Tasman projects that the perimeter of the current “deep” soil excavation area will need to be expanded by approximately 15 feet in all directions to address residual source mass. Tasman projects that the supplemental soil excavation will need to be extended to a depth of approximately 32 feet bgs (or deeper depending upon soil confirmation samples) to address residual soil impacts.

If the projected lateral extent and dimensions of the supplemental excavation expand and encroaches upon the Tolerance Zone of an existing buried utility(ies), then the excavation methodology and sloping plan will require modification to properly secure and protect the utility(ies). A contingency plan to address potential supplemental excavation expansion and/or anticipated excavation within the allowable Tolerance Zone of a buried utility(ies) is provided in the following subsection.

#### 3.1 Personnel Certification

A trained, Competent Person (as defined by the OSHA) must be on-Site to observe and supervise excavation activities at depths >20 feet bgs. The Competent Person will be responsible for monitoring the deep excavation activities, while taking prompt corrective measures to eliminate existing and/or predictable hazards and stopping work if required. The Competent Person must be certified in accordance with OSHA requirements. Tasman’s Competent Person certifications are provided in Attachment A.

A Tasman Competent Person has visually observed and/or reviewed the Site geology and has determined the material classifications that are used to design the safety and sloping requirements for the excavation as discussed in Section 3.2. A Tasman Colorado P.E. has reviewed and stamped this Plan (Section 4.0).

### 3.2 General Field Conditions

The observed subsurface materials in the proposed excavation area generally consist of the following classifications, as defined by OSHA in 29 CFR 1926 Subpart P, Appendix A:

- Surface Material (Ground Surface to 30 feet bgs and deeper): This material primarily consists of a silty sand to a depth of approximately 30 feet bgs which correlates to the base of the current “deep” excavation. Tasman anticipates that this silty sand material will continue to be present at depths >30 feet bgs. This material is considered a **Type C** soil in accordance with OSHA definitions.

The soil classification has been established by a Tasman Competent Person based on field observation of the subgrade materials. A Tasman Competent Person will be required to monitor and determine the soil Type as excavation activities continue below and downgradient of the base of the current “deep” excavation. If the soil Type below the base of the excavation changes based on the Competent Person’s interpretation, the safety and/or sloping requirements for the excavation shall be re-evaluated and verified by the Certifying P.E.

### 3.3 General Excavation Safety Procedures

The excavation procedures to be followed during deep excavation activities are designed to protect personnel, equipment, utilities, and property during deep excavation activities. **No personnel will be permitted to enter or work in the excavation at any time during these activities, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan.** Should the excavator be operated from a lower bench in the excavation, the Equipment Operator will be required to remain in the enclosed cab of the excavator during excavation activities, wear a 4-gas monitor to continuously monitor the breathing zone within the enclosed cab, and abide by the respiratory protection protocols and triggers defined by PDC internal safety protocols and/or Tasman’s Site-specific HASP.

OSHA excavation requirements related to site individuals/personnel entering and working within the excavation do not apply to this project because this is not permitted. Applicable OSHA and general safety procedures are further described in the following subsections.

#### 3.3.1 Surface Encumbrances and Underground Utilities (CFR 1926.651 (a) and (b))

As described previously, there are known buried utilities (DCP Midstream pipeline(s), Platte River Midstream pipeline, and a water line) present at the Site in the vicinity of the remediation area. These utilities are anticipated to remain in service during the proposed supplemental impacted soil excavation and assessment activities. In addition, there is a perimeter berm surrounding the excavation area that is constructed of soil and extends from ground surface to approximately 5 feet above ground surface. The approximate alignments of the existing buried utilities and perimeter berm are illustrated on Figure 2.

Prior to initiating supplemental excavation activities, underground utilities will be located using the Colorado 811 utility location program, as well as other contract locators if appropriate. Utility locating and/or excavation activities within a utility Tolerance Zone must be implemented in accordance PDC

policies as well as Tasman's "Utility Locating Standard Operating Procedure" dated July 2, 2020 (Utility Locating SOP). Receipt and sign-off of all utility location request tickets will be required prior to the initiation of supplemental excavation activities. Copies of utility locate tickets will be kept on-Site during excavation activities. Minimum safe distances from utilities, as defined by 811, PDC, third-party utility owners and/or as defined in Tasman's Utility Locating SOP, whichever is most stringent, will be maintained during excavation activities.

The alignment of known buried utilities present in the vicinity of the excavation area will be clearly marked and the markings will be maintained throughout the excavation activities. The existing and any new potential surface encumbrances mobilized to the Site or unknown subsurface utilities observed during excavation activities will be recorded and the work area will be adjusted to avoid these encumbrances. Surface encumbrances (if mobilized to the site) will be maintained a minimum of 10 feet from the edge of the excavation.

After the utility locates are complete and prior to initiating supplemental excavation activities, Tasman will remove the perimeter soil berm so that excess surcharge loads from this surface encumbrance is eliminated during supplemental excavation activities (Figure 4). The perimeter berm soil is assumed to be clean and therefore may be stockpiled on-site for subsequent re-use as backfill.

As discussed previously, should the projected excavation limits require further expansion, the excavation and sloping plan methodology may require modification and/or a contingency plan to secure and protect the utility(ies) may be required. The following actions shall be implemented if the projected supplemental excavation limits expand to or are anticipated to be within the allowable Tolerance Zone of a buried utility(ies):

- Initiate a tactical pause and engage the Certifying P.E. to further assess and develop a contingency plan specific to excavation limits expansion as it relates to the adjacent utilities and Site conditions. Modify this Plan to accommodate excavation methodology and sloping requirements, and to protect the buried utility(ies).
- Verify the location, type, size, direction-of-run, and depth of the utility(ies). The utility(ies) must be exposed to view. If after a diligent search the utility(ies) cannot be verified in this manner, notify the utility operator.
- For gas and liquid petroleum lines, verification must be completed by means of hand-dug test holes or vacuum excavation. The location of other utilities must also be verified by means of hand-dug test holes or vacuum excavation unless otherwise agreed upon by the utility operator.
- If the ground disturbance is going to cross a Tolerance Zone, dig a test hole or test holes (approximately every 15 to 20 linear feet along the utility line) to expose the utility(ies) at the point or extent of the anticipated crossing. **Note:** Do not assume that buried utilities will be at a certain depth (they may have been originally installed at a prescribed depth, but later erosion or grade changes can cause them to now have a shallower or deeper cover).
- Contact the utility owner(s) to identify and implement any utility protection, supporting, and/or safety protocols the utility owner may require. Depending on the operator, a representative from the utility owner may also be required to be present during ground disturbance (stand-by).
- When excavating close to an underground utility, have a spotter assist and guide the machine operator.
- After you have verified the location of a utility by hand digging test holes (or by vacuum extraction), use due care when excavating around a utility with any type of equipment.

- If the excavation work requires significant spans of the utility to be exposed, support the utility to prevent sagging or collapse. Defer to the utility operator for guidance on support systems and required support span distances.
- Take care not to damage the protective coating or tracer wire of a utility. If you do, leave the damage utility exposed and immediately call the utility operator.

### 3.3.2 Personnel Access and Egress (CFR 1926.651 (c))

Site individuals/personnel will not be permitted to enter the excavation at any time during the activities except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan. As such, personnel access and egress requirements are not established or permitted for this project.

Should excavation be performed from a lower bench in the excavation, a properly sloped ramp with properly sloped ramp sidewalls (using the sloping requirements described in Section 3.4) will be established to walk the excavator down to the lower properly established bench. As described previously, if the excavator is operated from a lower bench in the excavation, the Equipment Operator will be required to remain in the enclosed cab of the excavator during excavation activities, wear a 4-gas monitor, and abide by the PDC safe work protocols and Tasman's Site-specific HASP.

### 3.3.3 Exposure to Traffic (CFR 1926.651 (d))

All personnel in the excavation work area will be required to wear ANSI-certified high-visibility vests or jackets. The high-visibility garment will be worn as the outer layer of the personal protective equipment (PPE) ensemble that is to include long-sleeved and collared fire-resistant clothing (FRC), steel-toed boots, ANSI-certified eyewear, hardhats, and job-appropriate gloves.

### 3.3.4 Exposure to Falling Loads (CFR 1926.651 (e))

No personnel will be permitted below suspended loads or raised equipment or buckets. In addition, all personnel in the work area will be required to remain outside of the swing radius of all equipment, except when both verbal and visual contact have been made and the equipment operator removes their hands from the equipment controls.

### 3.3.5 Equipment Warning Systems (CFR 1926.651 (f))

Both physical barriers and operational controls will be used during the excavation activities to keep personnel and equipment a safe distance away from the edge of the excavation. The following controls will be put in place during deep excavation activities:

- Orange construction fencing will be erected around the perimeter of the excavation, at a distance of at least 2 feet from the edge of the excavation. No personnel will be allowed inside this fencing without the approval of and observation by the Competent Person, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation.
- Equipment will not be permitted within 10 feet of the edge of the excavation without the approval of and observation by the Competent Person while excavation activities are ongoing, which may include an excavator potentially being operated from a lower properly established bench within the excavation. Direct and continuous oversight by the Competent Person will be required for the entire duration when equipment is within 10 feet of the edge of the excavation.

- No personnel will be allowed inside the perimeter construction fencing (located a minimum of 2 feet from the edge of the excavation) when equipment is within 10 feet of the edge of the excavation or while excavation activities are ongoing, which may include an excavator potentially being operated from a lower properly established bench within the excavation.

### 3.3.6 Hazardous Atmospheres and Protection from Water Accumulation (CFR 1926.651 (g) and (h))

Site individuals/personnel will not be permitted to enter or work in the excavation at any time during these activities except for an excavator that may be operated from a lower bench in the excavation. If an excavator is being operated from a lower properly established bench within the excavation, the Equipment Operator will be required to remain in the enclosed cab of the excavator during excavation activities, wear a 4-gas monitor and abide by the PDC safe work protocols and Tasman's Site-specific HASP. Since Site individuals/personnel are not permitted to enter or work in the excavation, requirements have not been established for hazardous atmospheres and protection from water accumulation and therefore are not applicable to this project.

In general, Site individuals/personnel that are working on the Site will be equipped with standard 4-gas monitors as required by PDC safe work protocols and Tasman's Site-specific HASP.

Groundwater is not anticipated to be encountered (groundwater is anticipated to be approximately 50 feet or greater bgs based on regional hydrogeologic conditions) during the supplemental excavation activities and as such groundwater management during excavation activities is not anticipated. Should water accumulate in the bottom of the excavation due to precipitation or other circumstances, excavation activities should be temporarily stopped, and the accumulated water should be removed. Once water is removed, the Competent Person will be required to inspect the integrity of the excavation and verify conditions are stable before excavation activities continue.

### 3.3.7 Stability of Adjacent Structures (CFR 1926.651 (i))

As described previously, after utility locates are complete and prior to initiating supplemental excavation activities, Tasman will remove the perimeter soil berm so that excess surcharge loads from this surface encumbrance are eliminated during excavation activities. Any new potential surface encumbrances mobilized to the Site during excavation activities will be recorded and the work area will be adjusted to avoid these encumbrances. Surface encumbrances (if mobilized to the site) will be maintained a minimum of 10 feet from the edge of the excavation. As such, requirements have not been established for stability of adjacent structures and are not applicable to this project.

### 3.3.8 Protection from Loose Rocks and Soil (CFR 1926.651 (j))

Site individuals/personnel will not be permitted to enter or work within the excavation at any time, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan. The Equipment Operator will be required to remain in the enclosed cab of the excavator if operated from a lower bench in the excavation. As such, requirements for protection from loose rocks and soil have not be established and are not applicable to this project. However, as a precaution to prevent excavated material from falling into the excavation and to reduce the chance of sidewall sloughing, excavated materials and/or surface encumbrances will be stockpiled a minimum of 10-feet outside of the edge of the excavation during deep excavation activities.

### 3.3.9 Daily Inspections (CFR 1926.651 (k))

Site individuals/personnel will not be permitted to enter or work within the excavation, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan and as such daily inspection requirements related to worker safety for individuals/personnel within the excavation have not been established or apply for this project.

The Competent Person will inspect the excavation integrity at the start of each workday before any work is performed and at the end of each workday during supplemental excavation activities. In addition, inspections will be performed after a storm event or after any other event that could impact the integrity of the excavation (i.e., development of surface cracks, etc.), surface encumbrances placed too close to the excavation, and/or change in soil Type in the excavation.

The Competent Person inspections will include, at a minimum, the following items:

- Inspect the entire excavation Site including soil adjacent to the excavation and soil being excavated,
- Inspect the integrity of the orange construction fencing placed around the perimeter of the excavation,
- Inspect the ground surface adjacent to the excavation and equipment for crack-line openings that could indicate tension cracks of a potential failure plane, and
- Inspect the excavation for water, water seepage, bulging at the bottom of the excavation, fissures in the face of the excavation, boiling, sloughing, or undercutting, which may indicate a lessening of the excavation wall integrity.

### 3.3.10 Walkways (CFR 1926.651 (l))

Personnel will not be permitted to enter or work within the excavation at any time, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan. As such, requirements for walkways have not been established and are not applicable to this project.

## 3.4 Sloping and Benching

Excavation sloping and benching, and related personnel protective system requirements are defined in CFR 1926.652 (a) – (g) and have been used to develop the sloping design for the supplemental deep excavation activities (>20 feet bgs) at the Site. During supplemental excavation activities, personnel will not be permitted to enter or work within the excavation, except for an excavator potentially being walked down a properly sloped ramp and operated from a lower properly established bench within the excavation as described in this Plan.

Excavation sloping procedures will be implemented at the Site prior to initiating supplemental excavation activities deeper than 20 feet (e.g., excavation and removing clean backfilled and/or overburden materials) to aid in protection of the integrity of the excavation. Modifications to the prescribed slopes as defined for each material Type in this Plan must be pre-approved by the Certifying P.E. and at the discretion of the Competent Person.

Further, the Competent Person will be required to monitor and determine the soil Type as excavation activities continue below the base of the current “deep” excavation. If the soil Type below the base of

the current excavation changes based on the Competent Person’s interpretation, the sloping requirements for the excavation should be re-evaluated and verified by the Certifying P.E.

### 3.4.1 Excavation Sloping Requirements

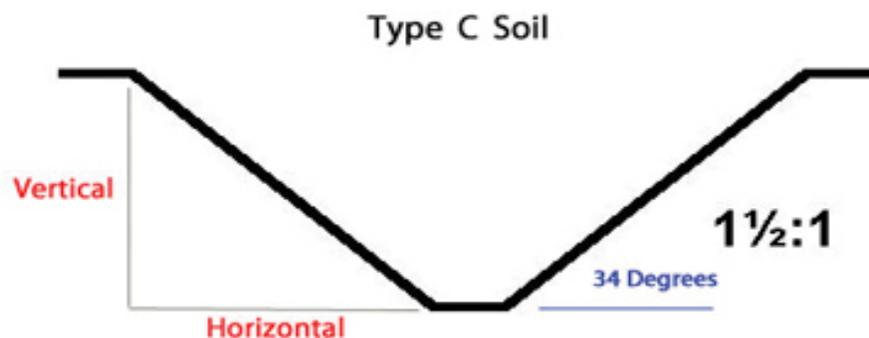
To meet PDC’s internal protocol for excavations extending deeper than 20 feet bgs, the proposed excavation activities will be implemented following this P.E.-stamped Plan. Depending on the type of equipment (reach of the hydraulic excavator arm and bucket) and/or methodology used, an equipment ramp and excavation sidewall sloping may be used. For example, should the selected excavator have relatively limited reach (capable of a 20- to 25-foot reach), an equipment ramp can be constructed perpendicular to the excavation (in which the excavator can slowly and safely be walked down the ramp to within 5 feet of the excavation) to allow equipment placement to achieve greater reach and excavation depth. The equipment ramp sidewalls will also be properly sloped following the sloping protocols established for the site-specific subsurface soils as described below. A Competent Person will be required to continuously direct and monitor these activities along with the sloping and excavation activities.

Sidewall excavation sloping requirements were developed based on the OSHA Simple Slope Excavation System approach for **Type C** soil in which a maximum allowable slope of 1.5 horizontal (H):1 vertical (V) (34-degree slope) would apply to the excavation sidewalls that excavation equipment (hydraulic excavator, trackhoe, etc.) will be working from, and equipment ramp sidewalls should the excavator be operated from a lower properly established bench constructed on a properly sloped excavation sidewall. Lower sloping (e.g., 2H:1V) may be implemented under the following triggering conditions, with approval of the Competent Person and Certifying P.E.:

- A reduced slope is deemed necessary by the Competent Person based on daily inspection or real-time observations.
- Fissures, cracks, or separation are observed on the excavation sidewalls or on the ground surface near the excavation or surrounding the excavator.
- Field observations/measurements indicate the presence of material inconsistency that could affect the slope stability, (e.g., unconfined compressive strength, vertical/lateral heterogeneity, saturated soil conditions, etc.)

The following sketch illustrates the anticipated deep excavation sloping layout for **Type C** soils which represents current known site conditions:

**Generalized Excavation Sketch (Type C Soil)**



Using the generalized excavation sketch above of a Simple Slope Excavation for **Type C** soil, a minimum cut back distance from the bottom edge of the trench (approximately depth of the base of the current “deep” excavation where residual impacted soils remain) to the top edge of the trench should be implemented prior to initiating supplemental excavation activities. The initial sloping for the **Type C** material (assuming an excavation base at 20 feet bgs) should have a minimum cut back distance equal to 1.5 feet times the thickness of the **Type C** material (20 feet), which is 30 feet.

Once the initial sloping is established, the deeper excavation activities (below 20 feet bgs) can proceed following the same OSHA Simple Slope Excavation approach for **Type C** soils in which a 1.5H:1V (34-degree slope) is used to maintain the excavation sloping. As described previously, the projected lateral extent and dimensions of the supplemental excavation remain within the constraints of the existing buried utilities.

As described previously, there are known buried utilities present at the Site in the vicinity of the remediation area (Figure 2). These utilities are anticipated to remain in service during the proposed supplemental soil excavation and assessment activities. Due to the constraints of the known buried utilities, Tasman will establish initial sloping (1.5H:1V or 34-degree slope) and maintain this sloping on the east side of the excavation by which an excavator can safely access the slope and setup on a properly established lower bench adjacent to the current “deep” excavation (Figure 4). Tasman anticipates that the soil removed for proper sloping will be clean and can be stockpiled on-Site for subsequent use as backfill in the open excavation.

It is anticipated that the supplemental excavation activities will be performed by an excavator walked down a properly sloped ramp and operated from a lower properly established bench on the east side of the excavation. Once the excavator is safely positioned on the lower bench of the east side slope, Tasman will initiate supplemental excavation of residual impacted soils starting on the west side of the current “deep” excavation and continuing to east where the excavator resides on the properly established lower bench. The projected lateral extent and dimensions of the anticipated supplemental source mass excavation and sloping plan are illustrated on Figure 4. A cross section of the projected supplemental vertical excavation extent and proposed sloping plan is provided on Figure 5.

Due to the constraints of the buried utilities, the western, northern, and southern sidewalls of the excavation will generally remain vertical during the supplemental excavation activities. As such, excavation will not be permitted from these sidewalls unless the excavation approach and sloping requirements for the supplemental excavation activities as defined in this Plan are re-evaluated and verified by the Certifying P.E.

As described previously, groundwater is not anticipated to be encountered in the projected excavation and as such groundwater management is not expected during excavation activities. Should water accumulation in the bottom of the excavation occur, excavation activities should be temporarily stopped, and the accumulated water should be removed. Once water is removed, the Competent Person will be required to inspect the integrity of the excavation and verify conditions are stable before excavation activities continue.

Should the excavation limits be expanded to address residual source mass, the excavation methodology and sloping plan may require modification and/or a contingency plan to secure and protect the utility(ies) will need to be developed based on actual site conditions and constraints at that time. The contingency plan requirements if the projected supplemental excavation limits expand to or are anticipated to be

within the allowable Tolerance Zone of a buried utility(ies) are described in Section 3.3.1. The excavation approach, sloping requirements and utility projection plan shall be re-evaluated and verified by the Certifying P.E.

Impacted soil are anticipated to be direct loaded into haul trucks and then transported to a landfill for disposal. Tasman will collect confirmation soil samples from the base and sidewalls of the final excavation extent for subsequent laboratory analysis to verify residual soil impacts have been removed. Once the extents of the excavation are verified clean, clean on-site and off-site borrow materials will be backfilled and compacted to grade. Backfilling operations for the deeper excavation (> 20 feet bgs) will occur from the eastern properly sloped excavation sidewall. Backfilling will not be permitted along the western, northern, and southern walls of the excavation (which will generally be vertical walls) when the excavation is deeper than 20 feet bgs or if unstable soil conditions are present along the excavation walls.

#### 4.0 Professional Engineer Certification

I certify that I am the reviewer of this Plan.

Furthermore, I certify the following with respect to applicable OSHA requirements and Site knowledge:

- I am familiar with the applicable requirements in 29 CFR 1926 Subpart B;
- I discussed site conditions with the Competent Person who examined the Site and subsurface soil conditions, and used the soil Type material designations determined by the Competent Person;
- This Plan was prepared in accordance with good engineering practice, and;
- This Plan must be implemented under the supervision of a Competent Person.

This certification in no way relieves the owner or operator of the Facility, the equipment operator, and the Competent Person of his/her duty to fully implement this Plan in accordance with the requirements of 29 CFR 1926 Subpart B.

  
Signature

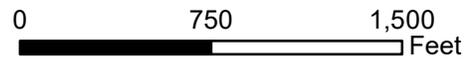
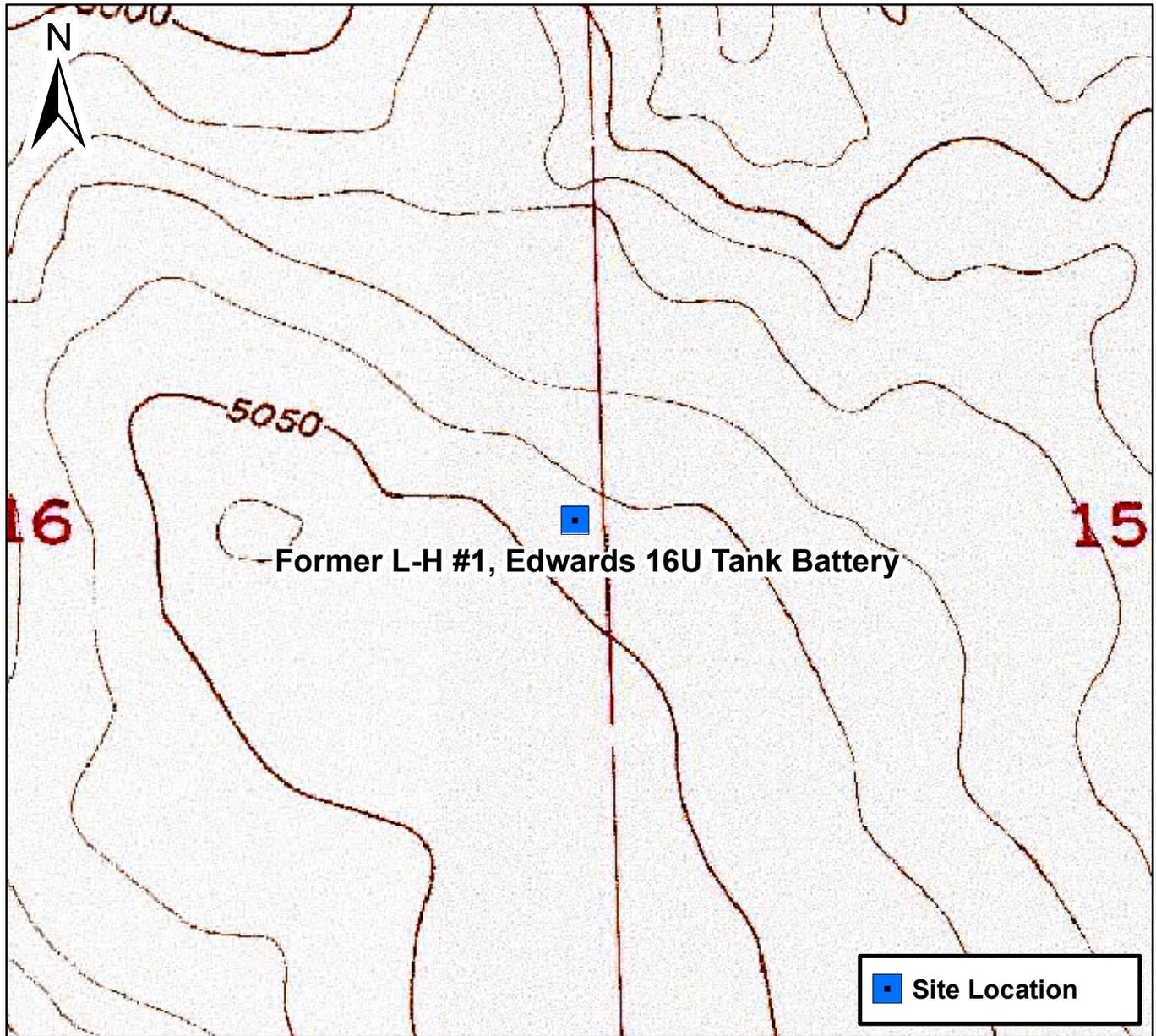
Charles E. Michel, PE - Principle  
Name and Title

30585  
Colorado PE License Number

9/21/21  
Date



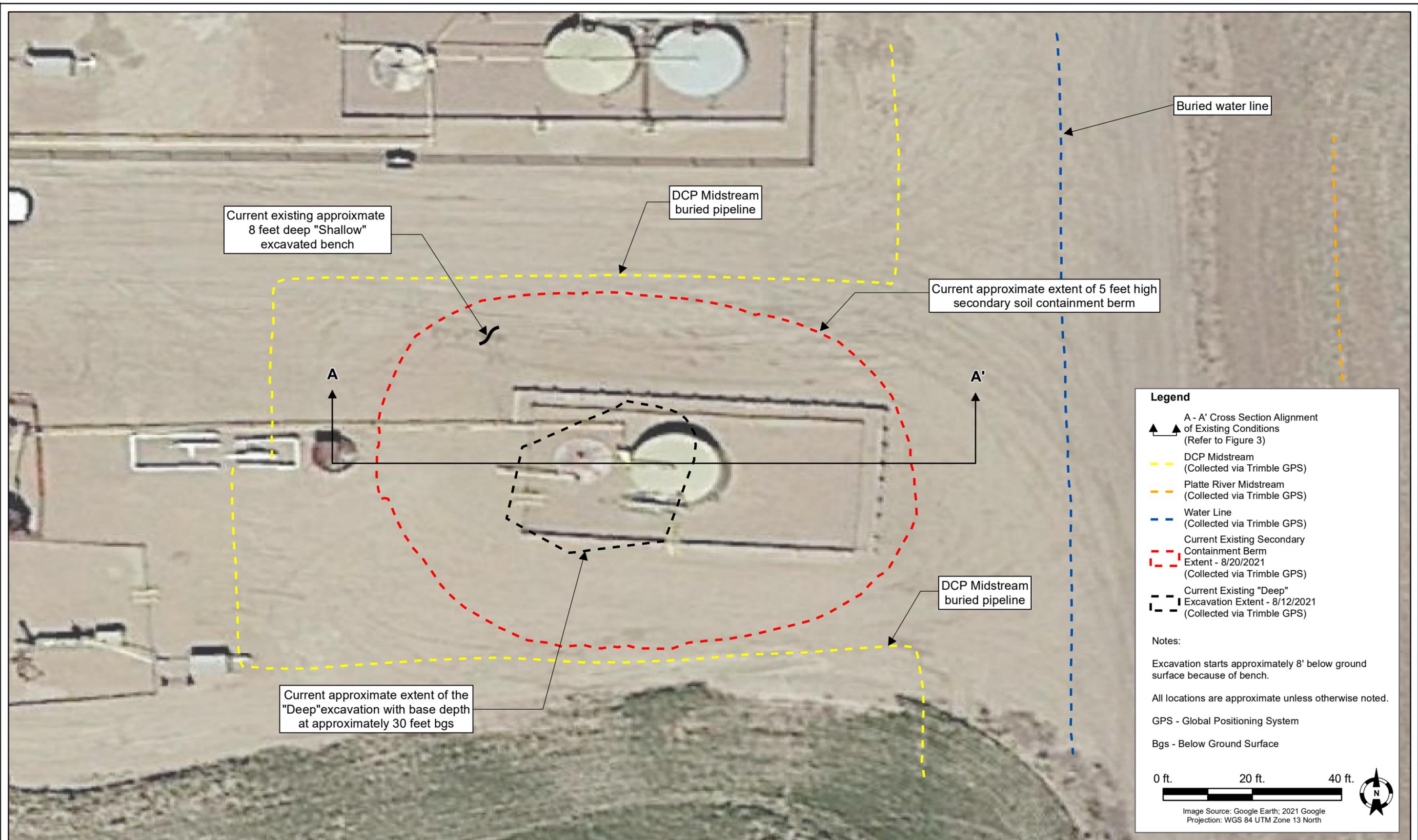
## FIGURES



### Figure 1

Site Location Map  
 Former L-H #1, Edwards 16U Tank Battery  
 NESE S16 T5N R67W  
 Weld County, Colorado





DATE:	September 9, 2021
DESIGNED BY:	B. Nelson
DRAWN BY:	J. Clonts

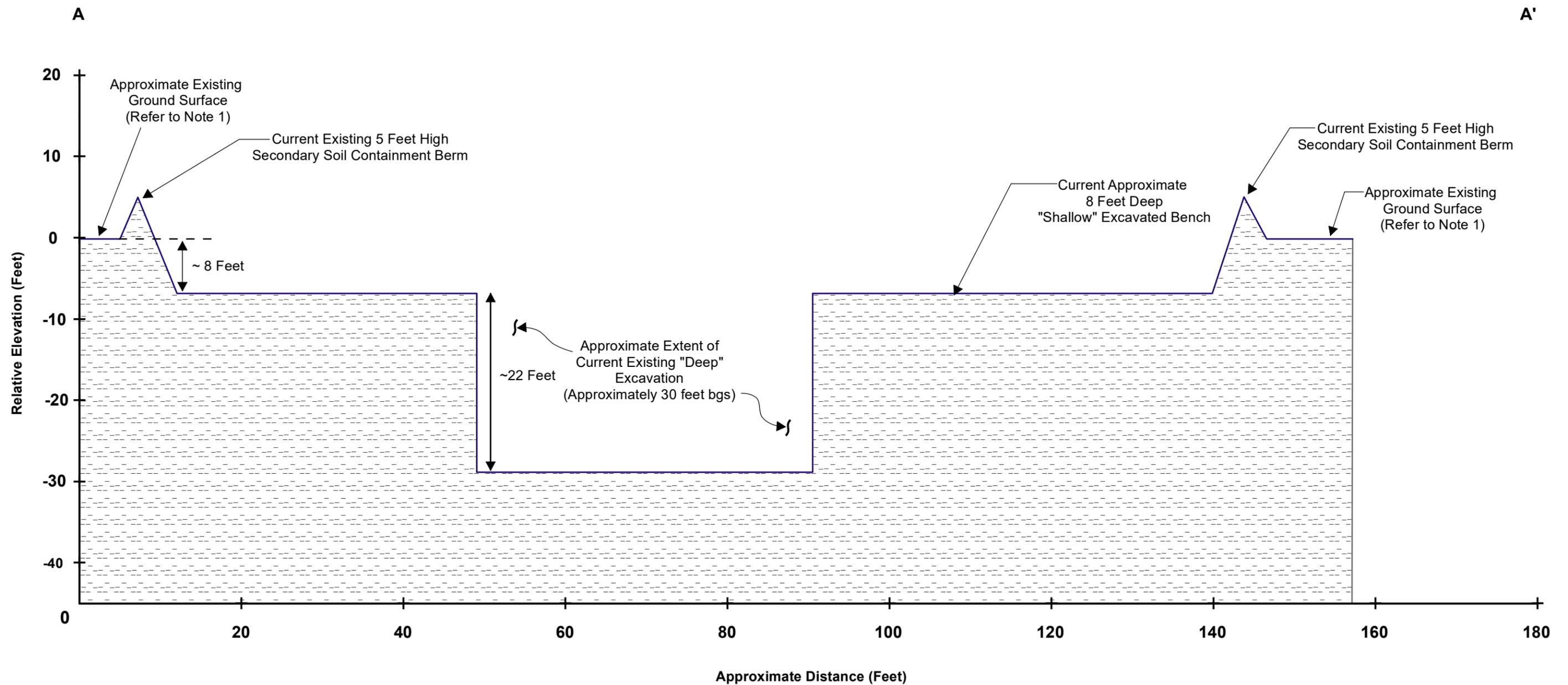

**TASMAN**  
 GEOSCIENCES

Tasman Geosciences, Inc.  
 6855 W. 119th Ave  
 Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**L-H #1, Edwards 16U Tank Battery**  
 NESE, Section 16, Township 5 North, Range 67 West  
 Weld County, Colorado

CURRENT EXISTING SITE  
 CONDITIONS

FIGURE  
 2



**Notes:**

1. A relative elevation of 0 feet was assigned to the approximate existing ground surface.
2. Refer to cross section A-A' alignment on Figure 2.

bgs - Below Ground Surface

DATE: September 9, 2021

DESIGNED BY: B. Nelson

DRAWN BY: J. Clonts

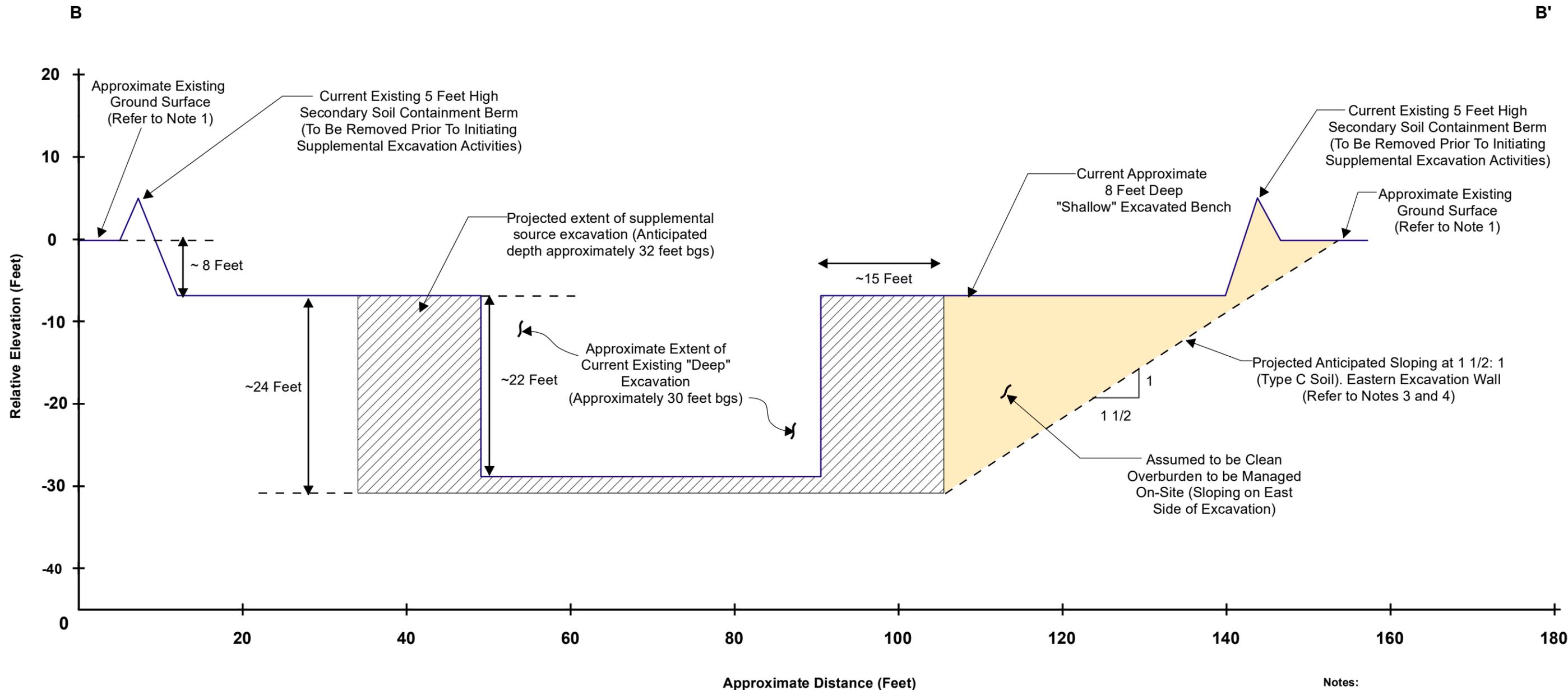


**PDC Energy, Inc. – DJ Basin**  
**L-H #1, Edwards 16U Tank Battery**  
NESE, Section 16, Township 5 North, Range 67 West  
Weld County, Colorado

CROSS SECTION A - A'  
OF CURRENT EXISTING  
SITE CONDITIONS

**FIGURE**  
**3**





- Notes:**
1. A relative elevation of 0 feet was assigned to the approximate existing ground surface.
  2. Refer to cross section B-B' alignment on Figure 4.
  3. Prior to initiating excavation activities, create an initial proper slope (1 1/2 : 1) so that an excavator can be safely walked down the ramp and properly operated from a lower properly established bench in the excavation.
  4. Backfilling operations in the deeper excavation will occur from the eastern properly sloped sidewall.
- bgs - Below Ground Surface

DATE: September 9, 2021

DESIGNED BY: B. Nelson

DRAWN BY: J. Clonts



**PDC Energy, Inc. – DJ Basin**  
**L-H #1, Edwards 16U Tank Battery**  
NESE, Section 16, Township 5 North, Range 67 West  
Weld County, Colorado

**CROSS SECTION B - B' OF**  
**PROJECTED SUPPLEMENTAL**  
**EXCAVATION AND SLOPING**  
**PLAN**

**FIGURE**  
**5**

**ATTACHMENT**



certifies that

**JESSE MARCUS**

has successfully completed ClickSafety's web-based training course:

**Competent Person, Excavations for Construction (UPDATED)**

This course was developed and presented by ClickSafety.com, Inc.



I confirm that I personally took the course listed above.

30332777

SERIAL NUMBER

2/4/2020

COMPLETION DATE

2.75 HOURS

COURSE DURATION

STUDENT SIGNATURE

30332777

*In compliance with 29 CFR Part 1926.650 - .652 Subpart P  
OSHA Construction Standards for Excavations*

**Austin Overman**

*has received Competent Person training in the following:*

- OSHA Standards (Excavations)
- Soil Identification
- Soil Analysis
- Hazcom
- Hazard Identification
- Protective Systems
- Trench Shoring

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