

Health and Safety Procedure

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1 Purpose

The purpose of this procedure is to provide the minimum requirements needed to execute safe ground disturbance activities in compliance with the ground disturbance standard and COIMS framework.

2 Application

This procedure applies to all COIMS Entities accountable and responsible for planning and/or executing ground disturbance damage prevention activities within Cenovus’ operations in Western Canada. This includes, but is not limited to: Conventional, Cold/EOR, HOG, Thermal, Downstream, and Marketing (Retail).

3 Intended audience and roles

Table 1: Intended audience and roles

Role	Assignment considerations	Possible positions
Functional Group Manager/Project Representative	Accountable individuals providing support where necessary for the correct execution of ground disturbance expectations	Construction Manager Engineering Manager Liability Program Manager Facility & Pipeline Construction Manager Civil Construction & Reclamation Manager Support Group Manager Project Lead Project Manager Project Engineers Exploration Engineers Operations Engineers

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Role	Assignment considerations	Possible positions
Field Supervisor	Individuals accountable and or/ responsible with ensuring correct execution of all aspects of ground disturbance damage prevention.	Field Manager Construction Coordinator Group Team Lead Area Operations Superintendent Construction Superintendent Field Superintendent
Ground Disturbance Supervisor	The primary responsible individual, competent in the execution of Cenovus and industry ground disturbance expectations.	Site Supervisor Operations Personnel Work Site Leader (WSL) Front Line Supervisor (FLS) Construction Site Representative (CSR) Cenovus Representative
Support Personnel	Competent individuals engaged in providing support and information to field personnel to assist in the successful execution and completion of all Cenovus ground disturbance activities.	Construction Technician Support Technician Ground Disturbance Technician Operations Representative Surface Land Representative Drafting Representative Engineering Representative Document Control Representative Cenovus Geographic Information System (GIS) Representative

Role	Assignment considerations	Possible positions
Contractor	Companies and or individuals competent in the execution of the designated responsibilities	General Contractor Line Locator Contractor Excavation Contractor Hydrovac Contractor Excavation Equipment Owners/Operators Involved Personnel
Sub-Contractor	All Personnel or Organizations that are sub-contracted to a Cenovus approved Vendor	

4 Ground disturbance process requirements

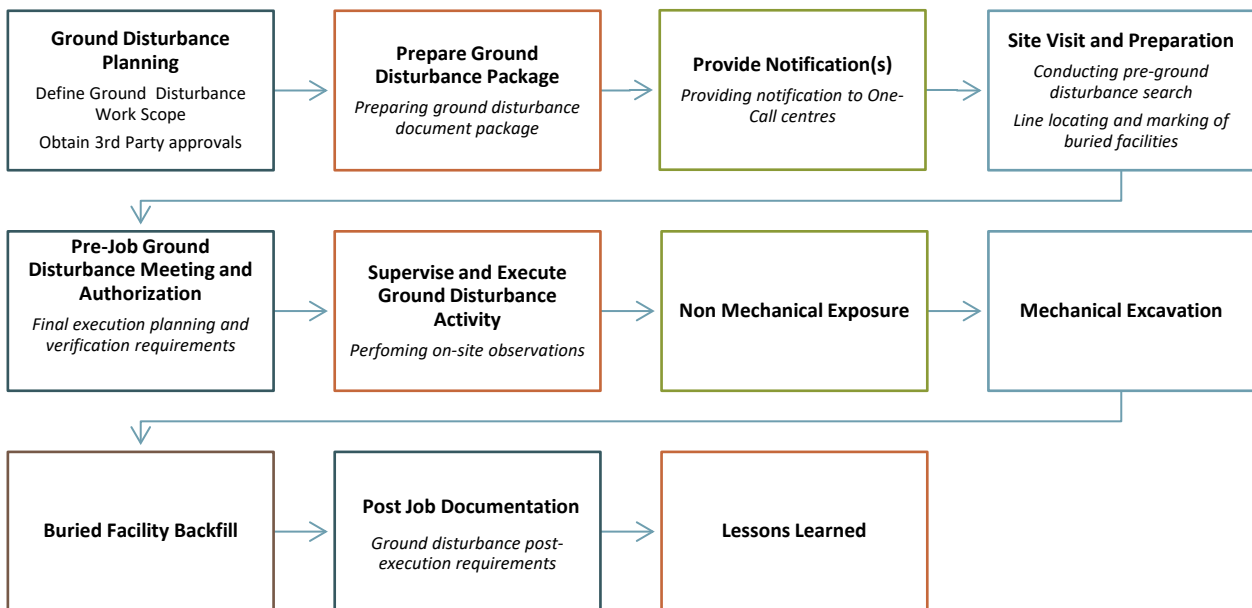


Figure 1: Cenovus ground disturbance process map

4.1 Ground disturbance planning

The Functional Manager is accountable for ensuring that pre-job planning is performed according to this procedure for all ground disturbance activities.

4.1.1 Design

The position of all buried facilities and associated above ground infrastructure shall be considered during design.

When any Cenovus owned buried facility or surface structure falls within the zone of influence of a ground disturbance activity, the Engineering group representing the buried facility owner shall be consulted. This communication shall be documented.

4.1.2 Assign roles and responsibilities

The Functional Manager shall assign and communicate the roles and responsibilities associated with ground disturbance activities.

4.1.3 Written approvals

Prior to commencing any ground disturbance activities, the Ground Disturbance Supervisor or their delegate shall:

- prepare the following project information:
 - surface land package
 - survey plan and disposition approvals
 - construction and/or engineering drawings
- obtain written approvals as applicable, which may include but not limited to:
 - internal operational crossing agreements
 - external crossing agreements
 - historical written approvals
 - environmental approvals and/or permits
 - traffic safety approvals and/or permits
 - pipeline license
 - request to drill (RTD)
 - request to abandon (RTA)
- obtain backfill procedures for affected buried facilities
- obtain agreements and licenses required by federal, provincial/state, municipal and industry agencies

4.2 Ground disturbance package

The field supervisor is accountable for ensuring the ground disturbance package process is performed as per this procedure.

4.2.1 Ground disturbance package request

Ground disturbance packages are prepared by one of the following:

1. by the Cenovus Ground Disturbance Supervisor (or delegate)
2. by McElhanney (formerly Abacas Datagraphics), packages can be requested by:
 - a. completing the ground disturbance package request located at:
<https://abacusdatagraphics.ca/GDWebApp>
 - b. submitting an emergency package request by phone at: 403-346-7555
3. for Oilsands (OSO):
 - a. ground disturbance request can be sent to the respective area by email to:
 - Christina Lake clgd.clgd@cenovus.com
 - Foster Creek
fostercreekgrounddisturbance.fostercreekgrounddisturbance@cenovus.com
 - Sunrise- SRGD.SRGD@cenovus.com

4.2.2 Ground disturbance package contents

The ground disturbance package is compiled from internal and external sources. The following information is required for each ground disturbance package:

The document package shall include (when available), but not limited to:

- applicable approvals
- notification records
- completed field locate records
- AER Pipeline WebMaps
- aerial photography
- Cenovus records related to the task, including as-builts, plot plans, facility maps, engineering drawings, and well or pipeline file records
- clearly defined scope of work
- search area
- work area:
 - non-mechanical excavation areas
 - mechanical excavation areas
- single point excavation areas:
 - the reference location of newly installed/proposed facilities
 - reference distances from above ground infrastructure and buried facilities
- confirmation of third party, pipeline owner, or co-op records

The *Ground Disturbance* standard shall be made available to all workers involved in the ground disturbance activity.

The Ground Disturbance Supervisor shall review the document package for quality and completeness prior to the start of the ground disturbance.

4.3 Ground disturbance notification

The Field Supervisor is accountable for ensuring the ground disturbance notifications are completed and approvals are granted prior to proceeding with ground disturbance activity.

Prior to proceeding with any ground disturbance activity, notification shall be made to all stakeholders, as applicable, which may include but not limited to:

- Provincial and State One-Call Centers
 - Note: The Ground Disturbance Supervisor shall be identified on the one-call ticket
- buried facility owners within 30 meters of the work area
- landowners and occupants
- Cenovus internal groups such as:
 - Engineering
 - Operations/Maintenance
 - Environmental
 - Safety
 - Joint Ventures
- Regulatory agencies
- Site Owners/Operators

When notification is made, the project scope, schedule, and Ground Disturbance Supervisor contact information shall be provided.

Notifications shall be made at least two (2) business days in advance of the ground disturbance activity.

Facilities regulated by the Canadian Energy Regulator (CER) require a minimum notification period of three (3) business days to the buried facility owner.

Provincial or State Occupational Health and Safety may require notification of excavations greater than five (5) meters in depth. Every province is different – Manitoba is 1.5 meters deep need to notify Workplace Safety and Health at least 48 hours before. Must get approval by a Professional Engineer if open excavation exceeds 3 meters in depth or a trench exceeds 4.5 meters in depth.

All notifications shall be cross referenced with the ground disturbance package, line locate information, and the project information to ensure all notifications are made and all requirements in the written approvals are met.

Provincial and State one-call notifications expire. Ensure that the ticket is current and/or refreshed as required.

CAUTION:

Not all buried facility owners subscribe to the Provincial/State one-call service. Consideration should be given to:

- Cable/Internet Providers
- Private and District Irrigation systems
- Gas and Water Co-operatives
- Railway infrastructure
- Municipal Utilities and Departments
- Private Landowner Facilities

4.4 Site visit and preparation

4.4.1 Information review

The Ground Disturbance Supervisor shall review the ground disturbance package and address any deficiencies prior to any ground disturbance package activity taking place. If discrepancies exist between records and the line locate drawing, the Ground Disturbance Supervisor will investigate and determine the source of the discrepancy. The line locate may be performed again by the same vendor or by an independent line locate vendor.

The Ground Disturbance Supervisor will review the line locate drawing. Any discrepancies between as found and existing Cenovus Geographic Information System (GIS) info will be entered into the incident management system as an action assigned to the applicable GIS System Analyst to update the system and will be retained within the corporate document management system for the life of the facility.

The ground disturbance package is valid beginning on the project start-date.

If the search area is unattended for ≥ 30 days or there is evidence of new activity, the ground disturbance package shall be refreshed.

4.4.2 Site visit

The Ground Disturbance Supervisor shall conduct a pre-ground disturbance search to determine whether buried facilities exist within the proposed work, search, controlled, and prescribed areas.

A ground disturbance search includes a combination of desktop and field-based reviews. It shall consist of an analysis using an appropriate set of data sources including, but not limited to:

- one-call centres
- easements and caveats registered against certificates of title
- regulatory agency maps
- commercial data and mapping services
- municipal and rural utility companies
- as-builts, facility plot-plan, and pipeline maps
- survey plans
- landowners and residents
- visual indicators

4.4.3 Ground disturbance hazard assessment and control

Hazard assessments shall be completed in accordance with the COIMS Element 9- *Safe Control of Work* standard.

4.4.4 Identification of project area

Identifying the project area sets out clear parameters for the project scope and ground disturbance activity. The search area and work area shall be discussed in the field and understood by all personnel working on that location.

If the work area changes, the ground disturbance package, line locator information, and scope of work shall be reviewed, updated, and approved. The ground disturbance package authorization and/or permit, and applicable hazard assessments shall be updated or reissued by the Ground Disturbance Supervisor and reviewed by all personnel involved in the ground disturbance activity.

Where the project area contains waste and/or scrap material (below ground), these potential hazards shall be documented on the ground disturbance authorization and/or hazard assessment(s). All efforts shall be made to remove or avoid buried waste and/or scrap material prior to and during the ground disturbance activity.

The constructed location of any abandoned well casings shall be identified within the search area. Historic aerial imagery should be considered as planned coordinates and should be considered approximate and not sufficient in identifying location.

4.4.5 Conduct line locating

All line locating shall be completed by adhering to the requirements of the Cenovus line locator scope of work.

Where physical constraints restrict the full line locating of the search area surrounding the work area, a modified search area may be used, providing this is clearly identified in the line locate information and documented on the ground disturbance authorization. If a visible physical barrier is not already present. A temporary physical barrier shall be installed.

4.4.6 Buried facility marking

All temporary marking devices identifying the approximate location of buried facilities shall be adequate for the project area.

The colour of the temporary marking devices shall be consistent with the American Public Works Association Uniformed Color Code.

A project area specific colour code may be utilized, although specifics shall be documented and clearly communicated to all workers on site.

Temporary marking devices shall be at a maximum of five (5) meter intervals and clearly define bends and loss of signal locations.

Temporary marks within the search area shall be maintained for the duration of the ground disturbance activity. This includes newly installed facilities. Unless the work area is clearly separated by a physical barrier.

Offset marks are restricted for use to identify buried facilities and shall be approved by the Field Supervisor and buried facility owner prior to use. This shall also be clearly communicated to all workers in the project area.

Angled buried facility crossings

Linear work areas that cross a buried facility at any angle other than 90° (+/-10°), in addition to all other requirements:

- temporary marks shall identify the existing buried facility at one (1) meter intervals and
- install a physical barrier parallel to the temporary marks of the buried facility, five (5) meters on either side of the for the width of the work area

Similar protection shall be considered for all buried facility crossings.

4.5 Ground disturbance meeting

The Field Supervisor is accountable for ensuring that the ground disturbance meetings take place for all ground disturbance activity.

4.5.1 Ground disturbance task meeting

The Ground Disturbance Supervisor shall actively contribute to the ground disturbance task meeting and shall formalize and communicate mitigation plans to protect workers, equipment, and buried facilities. As applicable this may include but not limited to:

- ground disturbance authorization including:
 - detailed project scope
 - third-party written approvals
 - findings/mitigation of ground disturbance package review/audit
- ground conditions:
 - soil type
 - ground water conditions
 - water run off
- specific safe work practices
- personal protective equipment (PPE)
- site specific work authorization requirements
- parameters of the excavation
- soil management:
 - mechanical
 - non-mechanical
 - requirements for fencing/barricades and signage
- line locating activities including the Cenovus *Line Locator Scope of Work*, specifically:
 - limits of the search area
 - limits of the work area
 - critical tasks
- hydrovac requirements including the Cenovus *Hydro Vac Scope of Work*, specifically:
 - bonding and the specific areas that bonding will be required
 - water pressure
 - maximum operating temperatures
 - nozzle type & distance from ground
 - safety data sheet (SDS) information
- backfill requirements:
 - backfill procedures
 - all specific requirements identified in the written approvals

Where third-party buried facilities are affected by the project scope, the buried facility owner shall be requested to participate in the ground disturbance task meeting.

Competency checks shall be undertaken validating industry ground disturbance training and any associated competency assessment documentation, etc.

Contractor specific tasks shall have a field level hazard assessment completed by the contractor and be reviewed and documented by the Ground Disturbance Supervisor.

4.6 Ground disturbance authorization

Ground disturbance activities shall not proceed until authorization has been given for the ground disturbance activity.

Ground disturbance authorization shall be in the form of:

- ground disturbance permit or
- ground disturbance authorization form or
- POST checklists (Retail) or
- ground disturbance checklist and one or more of the following:
 - safe work permit (hot or cold)
 - field level hazard assessment
 - task risk assessment

The ground disturbance authorization shall include:

- project title
- project scope
- location
- date
- roles
- risk ranking as established using the Cenovus Corporate *Risk Matrix*
- references to applicable policies, procedures, best practices, and applicable permits
- hazards and controls specific to the ground disturbance activity, over and above the FLHA
- identified discrepancies and controls/plans to address

The ground disturbance authorization shall remain onsite and/or accessible.

4.7 Ground disturbance supervision and execution

4.7.1 Ground disturbance supervision

A Ground Disturbance Supervisor is required for all ground disturbance activities.

Cenovus direct supervision shall be provided by a Ground Disturbance Supervisor when any mechanical equipment is operated within 1.5 meters (horizontally) of a buried facility.

Cenovus direct supervision should be provided when any mechanical equipment is operated within five (5) meters of a buried facility. This responsibility cannot be delegated to a third-party, e.g., contractor undertaking the work.

Contractors shall always provide their own supervision in addition to any required Cenovus Ground Disturbance Supervision. Individuals shall be trained to a level that meets or exceeds Cenovus requirements and be deemed competent to undertake the task.

Third-party representation of the buried facility owner shall provide supervision and inspections. Supervision is to be requested, in writing, on every occasion where exposure, operating mechanical equipment within five (5) meters (horizontally), crossing, and backfilling a third-party

buried facility is involved. The buried facility owner shall provide direct supervision when mechanical equipment is operating within 1.5m of the buried facility.

Additional requirements may be set forth in the written approvals.

If this inspection is refused by the buried facility owner, this shall be documented. No response from the buried facility owner is not a refusal.

Cenovus Operational representation, supervision and inspection is to be requested on every occasion where exposure, operating mechanical equipment within 1.5m (horizontally), crossing and backfilling a Cenovus owned buried facility is involved. This supervision can be delegated by the buried facility owner to any other Cenovus representative that is adequately trained and competent to provide the supervision.

4.7.2 Non-mechanical exposure

All non-mechanical exposure shall be completed by adhering to the requirements of the Cenovus hydro vac scope of work.

All ground disturbance activity shall be consistent with the approved scope of work within the ground disturbance authorization.

Prior to mechanical excavation, all buried facilities within five (5) meters shall be verified using non-mechanical excavation techniques, acceptable to the buried facility owner to allow for a visual confirmation of:

- size
- buried facility material (steel, poly, composite)
- depth
- material
- orientation/alignment/routing
- the correct buried facility

Confirmation of the buried facility shall be maintained during mechanical excavation.

When mechanical excavation takes place within 1.5 meters of a buried facility, the exposure process shall also include a 1.5-meter slot to 30 centimeters greater than construction depth on the mechanical excavation side of the buried facility.

The buried facility need not be exposed if it has been non-mechanically excavated five (5) meters on each side of the marked location to 30 centimeters deeper than the proposed mechanical excavation.

A Cenovus buried facility need not be exposed where its position has been verified by the ground disturbance package, project information, current line locating information (within 30 days) and comparison with recorded measurements taken during a previous exposure that accurately represent the location of the buried facility. This information shall be included on the ground disturbance authorization and approved by the Field Supervisor prior to commencing the work.

Discrepancies if any, shall be verified and mitigated prior to proceeding to the mechanical excavating.

Air-vac is restricted for use to expose a buried facility and shall be approved by the Field Supervisor and buried facility owner prior to use.

Any type or style of probe is restricted for use to determine the location of a buried facility and shall be approved by the Field Supervisor and the buried facility owner prior to use.

When excavating parallel to and within five (5) meters of an existing buried facility, the buried facility shall be exposed at intervals as defined below:

Size (diameter) of existing buried facility	Interval distance
<51 mm (approx. 2")	≤ 7 meters
51 mm - 152 mm (approx. 2-6")	20 meters
152 mm - 203 mm (6"-8")	50 meters
>203 mm (8")	Up to 100 meters

Figure 2:Maximum required exposure intervals

The distance of these exposure intervals shall not exceed one hundred (100) meters and each change of direction shall be confirmed.

Buried facility crossings

In general, exposure to the depth of one (1) meter, directly below the facility is required to confirm facility separation, except where this is not feasible due to the sensitive nature of the line, or a support plug shall be left in place; where possible, this will minimize undue stress being applied to the exposed facility

The one (1) metre below the buried facility can be to the side of the facility leaving a support plug beneath the buried facility.

Horizontal directional drill (HDD)

Prior to operating horizontal directional drill (HDD) equipment and associated tools within 1.5 meters of a buried facility the following shall be verified and documented:

- successful calibration
- existing buried facility
- verification of drill bit position
 - bidirectional horizontal directional drilling requires verification of drill bit position on both sides of the buried facility
- verification of buried facility separation from HDD operation (including Reamer)
 - a minimum of one (1) meter buried facility separation should be maintained

4.7.3 Protective measures

Where necessary precautions shall be put into place to protect the buried facility and survey infrastructure. Additional protection shall be put in place to protect the workers, public, wildlife and environment. This can include, but not limited to:

- fencing
- barricades
- signage
- boarding
- buried facility protection including:
 - partial and/or temporary backfilling
 - support of excavated facilities

4.7.4 Mechanical excavation

Written approvals from the buried facility owner may supersede any requirements in this process step.

A site walk-through shall be conducted as a visual inspection prior to commencing any ground disturbance activity. The Ground Disturbance Supervisor shall conduct a site walk through to verify and identify:

- project scope, including:
 - search area
 - limitations
 - work area
- any obstacles
- complete hazard identification
- temporary marking devices

During the site walk through, any additional finding and mitigations plans shall be documented on the ground disturbance authorization and be included in the ground disturbance task meeting.

The site walk through shall be repeated as the project scope and/or site conditions change.

Mechanical equipment shall not be operated within five (5) meters (horizontally) of a buried facility until the buried facility has been verified, using non-mechanical exposure techniques, acceptable to the buried facility owner, to allow for a visual confirmation. The Ground Disturbance Supervisor may establish additional limitations based on the scope or work.

Mechanical equipment is not operated at any time within 30 centimetres of any buried facility.

Well casing

As abandoned well casings are not regulated facilities, the hand exposure zone is reduced to the workplace regulated distance of one (1) meter, as such; mechanical excavation shall be not undertaken within one (1) meter of the marked position of an abandoned well bore without sufficient exposure.

Where necessary, excavations and trenches require protection. Where such structures are used, they shall:

- be appropriate for the site conditions and risks
- have ongoing maintenance and inspection

During digging, if debris, scrap, and/or construction waste material is contacted and it cannot be verified as debris, report the contact immediately to the Area Authority and/or the Field Supervisor.

4.7.5 Fencing, barricades, and signs

Excavations and trenches require protection, according to local regulatory requirements. Where such structures are used, they shall:

- provide warning of the hazards
- provide worker, bystander, and wildlife protection against the hazards resulting from the trench/excavation
- be inspected and maintained

4.8 Buried facility backfill

4.8.1 Pre-backfill requirements

The buried facility owner shall ensure that the buried facility is locatable. For non-conductive buried facilities this shall include:

- installing or repairing the tracer wire
- addition of an alternative method of identifying the buried facility.

The actual physical location of the buried facility should be recorded using Real Time Kinetic (RTK) Global Positioning System (GPS) prior to backfilling and be provided for update to the corporate document management system including:

- drafting
- engineering
- document control
- geographic information systems (GIS).

4.8.2 Notification of backfill

The Ground Disturbance Supervisor shall ensure that the buried facility owners are notified in writing to conduct required inspections.

A minimum of 24 hours advanced notice is required, or otherwise as stated in crossing agreements.

Following notification, if a third-party buried facility owner fails to provide an inspection, the Ground Disturbance Supervisor can backfill the facility after conducting all applicable process steps above and completing the Cenovus buried facility backfill report. Documentation of the failure/refusal to provide inspection shall be made on the backfill report.

**CAUTION:**

No response from the buried facility owner is not a refusal to provide an Inspection. All reasonable efforts shall be made to obtain the required inspections

4.8.3 Pre-backfill visual inspection

The buried facility owner or Cenovus Representative shall:

- conduct inspections to ensure operational integrity of any external coating system
- inspect buried facility to ensure no damage to the buried facility
- ensure tracer wire is not broken, if applicable
- take photographs from as many different positions/angles as is practical
- take all required measurements to ensure:
 - adequate buried facility separation
 - compliant depth of cover
- record backfill materials used
- record compaction process

4.8.4 Complete backfill

Backfill procedures shall be followed for the specific type of buried facility, according to the Manufacturer, Vendor, and/or Engineering specifications. Procedures shall include:

- backfill material
- soil sampling requirements
- backfill methods

Generic backfill procedures are available for:

- steel pipelines
- high density polyethylene (HDPE)
- spoolable composite pipelines

Written approvals from buried facility owners and/or crossing agreements may provide more requirements for the backfill.

Photos of the backfill shall be taken and filed with the ground disturbance package.

At completion of the backfill:

- all temporary marking devices shall be removed
- all garbage shall be removed
- all fencing/barricades/signs shall be removed
- return surface condition as agreed to in any agreement between the ground disturber and landowner

If the surface clean-up process has been delayed for a period greater than 30 days, it shall be treated as a new ground disturbance project.

4.8.5 Buried facility backfill report

All buried facility backfill reports shall be retained by the Entity, in accordance with document and record retention requirements, for the life of the facility.

All necessary fields on the buried facility backfill report shall be completed, including:

- pictures
- correspondence with the buried facility owner
- any other associated documents

Every effort shall be made to have all involved parties sign off on the buried facility backfill report and document any refusal to sign the document.

4.9 Ground disturbance documentation

4.9.1 Documentation of changes and discrepancies in the field

Upon completion of the ground disturbance activity, the Ground Disturbance Supervisor shall ensure that all buried facility changes and/or discrepancies are identified and communicated to the appropriate Field Manager as defined within this procedure.

Upon receipt of the identified changes and/or discrepancies, the Field Supervisor shall review the submitted changes and update the existing engineering records to include all relevant information.

Upon completion of the ground disturbance activity, the Field Supervisor shall provide the facility owner as-builts drawings capturing additions, changes, or removal of buried utility, equipment, and buildings.

4.10 Lessons learned

The process of regularly conducting a post job review regarding the planning and execution of the ground disturbance activity is a key component for continuous improvement of the ground disturbance damage prevention program. Lessons learned shall be discussed and applied to future ground disturbance activities.

The requirement to complete a post project review is determined by the Field Supervisor and/or Functional Manager.

4.11 Ground disturbance incident management

Enovus has an Operational Integrity Management System (COIMS) that specifically addresses incident management with standards and procedures. The notification process identified in these documents shall be adhered to.

Where an operational group has developed a specific incident management procedure, a ground disturbance incident notification process shall be included, and the process shall facilitate timely notification of reportable incidents to the applicable regulator.

If contact with a buried facility occurs, or facility damage is identified it shall be reported to the buried facility owner and the Field Supervisor within two (2) hours upon discovery.

4.11.1 Notification to buried facility owner

The following individuals shall receive a verbal notification immediately following contact with a buried facility or identification of damage to a buried facility:

- buried facility owner
- immediate supervisor

The following information shall be provided:

- contact information
- location the contact with the buried facility occurred
- buried facility information
- extent of damage
- if a release occurred:
 - status of any such release
 - estimated volume of any release

Based on the information provided further direction and instructions of next steps to take will be undertaken.

If contact with the buried facility occurs and you believe the buried facility to be waste and/or scrap material, you have two (2) hours to determine what was contacted. However, you shall still notify the Field Supervisor immediately.

Where contact with a buried facility results in a personal injury, notification to the Health and Safety group shall also be completed.

4.11.2 Notification to regulatory agencies

All regulatory reporting of contact with a buried facility line will be undertaken by the applicable Field Supervisor or designate in alignment with the Entity specific incident reporting protocol.

Canadian Energy Regulator (CER) reporting

Immediate notification to the Canadian Energy Regulator (CER) and Transportation Safety Board of Canada (TSB) is required where one or more of the following has occurred:

- a death
- a serious injury: as defined by the Onshore Pipeline Regulations (OPR) or Transportation Safety Board (TSB) regulations
- an unintended or uncontrolled LVP hydrocarbon release in excess of 1.5 m³ that leaves company property or occurs on or off the right of way
- an unintended or uncontrolled sweet natural gas or HVP release >30,000 m³
- any unintended or uncontrolled release of sour natural gas or hydrogen sulfide; and/or
- a significant adverse effect on the environment
- a "Rupture": an instantaneous release that immediately impacts the operation of a pipeline segment such that the pressure of the segment cannot be maintained

- a “Toxic plume”: a band of service fluid or other contaminant (e.g., hydrogen sulfide or smoke) resulting from an incident that causes people, including employees, to take protective measures (e.g., muster, shelter-in-place, or evacuation)

The telephone notification and the input of information into Canadian Energy Regulator Event Reporting System are required to occur as soon as possible and **no later than 3 hours of the occurrence being discovered.**

This notification shall be made by telephone:

- direct: +1 819-997-7887
- toll-free in Canada: 1-800-387-3557

All pipeline occurrences shall be reported using the CER Online Event Reporting System (OERS). Except for the specific types of occurrences listed above, telephone notification is not required.

- Canadian Energy Regulator Event Reporting System can be accessed here:
 - Canadian Energy Regulator Event Reporting System
- CER Event Reporting Guidelines can be accessed here:
 - CER Event Reporting Guidelines

Non-immediate notifications to the CER using the OERS specific to ground disturbance events are:

- unauthorized activities under the CER Act and Pipeline Damage Prevention Regulations – Authorizations (DPR-A)
 - damage to CER regulated pipelines caused or identified during construction of a facility across, on, along or under a pipeline
 - any activity that caused a ground disturbance within the prescribed area or the operation of vehicles/mobile equipment across a pipeline that could impair the safety or security of the pipeline
- pipeline damage and consent suspensions under the Pipeline Damage Prevention Regulations – Obligations of Pipeline Companies (DPR-O)

For the events that do not require immediate notification they shall be reported as soon as possible and **no later than twenty-four (24) hours after the event was discovered.**

The CER is aware that all the required information may not be available within the reporting timeframe of “immediately notifiable”. Where this is the case, companies shall still report immediately and provide as much information as possible. If the information is not complete, companies shall provide the remainder of the information within 30 days of the initial report.

Alberta Energy Regulator (AER)

Where contact is made with an Alberta energy regulated pipeline during any ground disturbance, resulting in a puncture of or crack in the pipeline or in a scratch, gouge, flattening or dent on the surface of the pipeline, or in damage to its protective coating:

- the particular ground disturbance that resulted in the contact with the pipeline shall be immediately stopped and the person responsible for the ground disturbance shall immediately advise the licensee of the pipeline of the location where the contact occurred and the kind of damage that resulted from the contact, and

- the licensee of the pipeline shall immediately notify the Regulator of the location where the contact occurred and the kind of damage that resulted from the contact

Where the ground disturbance has been stopped pursuant to subsection (2) it shall not be recommenced without the approval of the licensee of a pipeline with which contact was made or, if approval cannot be reasonably obtained from the licensee, without the approval of the Regulator.

When a leak or break in a pipeline or damage to a pipeline that resulted from a contact described above has been repaired, the regulator may require the submission of reports in writing, in accordance with the rules.

Provincial/State OH&S reportable

Dangerous occurrences and/or potential serious incidents are identified as reportable to the Provincial/State Occupational Health & Safety departments of Alberta, British Columbia, and Saskatchewan.

Specific to Cenovus's ground disturbance damage prevention procedure the following type of incidents shall be notifiable to the Provincial/State OH&S regulators:

- the structural failure or collapse of all or any part of an excavated trench or excavation
- an accidental contact with an energized electrical conductor
- an uncontrolled spill or escape of a; toxic, corrosive, or explosive substance

4.11.3 Corporate incident reporting

Ground disturbance incidents shall be reported according to the COIMS Element 8 corporate incident management procedure.

The Field Supervisor is responsible to enter the incident information into the corporate incident management database.

The Field Supervisor with support from Deployed Health and Safety will determine the severity of each incident based on the corporate incident management procedure.

5 Training

All Cenovus and contract staff who are involved in any ground disturbance activities are required to possess and be readily available to provide proof of valid training certification from a course provider that is endorsed by the Utility Safety Partners (formally Alberta Common Ground Alliance). All other training certificates for ground disturbance are not recognized on a Cenovus worksite.

Training requirements for the ground disturbance procedure are as follows:

Table 2: Training requirements

Role or description of role	Requirement
Workers involved in planning or execution of ground disturbance activities, excluding supervision. Workers with this level of training shall always be working under the direct supervision and guidance of a supervisor who has a valid ground disturbance supervisory (Level 2) certificate.	Ground Disturbance 101 (Level 1)
Anyone who is involved in the supervision of a ground disturbance activity.	Ground Disturbance 201 (Level 2)

6 Related information

6.1 Glossary of terms

Table 3: Terms and abbreviations

Term or abbreviation	Details
abandoned well casings	A well that has been permanently sealed and taken out of service.
buried facility	<p>All below ground infrastructure, including but not limited to:</p> <ul style="list-style-type: none"> • pipelines (regardless of status) • cables • conduit • well bores (slant well path) • abandoned well casing • tanks • piles • foundations • utilities • irrigation <p>Does not include waste and/or scrap material.</p>
buried facility owner	The owner/operator or licensee responsible for the safe operation and integrity of the buried facility.
exposure zone	The area in which a buried facility shall be non-mechanically exposed, prior to any mechanical excavation is undertaken within.
ground disturbance activity	<p>Any work, operation, or activity on or under the existing surface resulting in a disturbance or displacement of material. An activity is not considered shall a disturbance or displacement if it is the result of the following:</p> <ul style="list-style-type: none"> • routine, minor site maintenance • cultivation to a depth of less than 45cm with agricultural equipment below the grounds surface over a pipeline, or • minor surface work not more than 30cm below the grounds surface, where it does not permanently remove cover over a buried facility <p>Minor surface work activities can include grass seeding, minor spill clean-up, and marker post anchor installation.</p>

ground disturbance information	A compilation of all information in the ground disturbance package process step including: <ul style="list-style-type: none"> • ground disturbance package • ground disturbance review/audit • line locate information • project information
ground disturbance package	A collection of information as defined in the Cenovus ground disturbance damage prevention procedure.
historic aerial imagery	A record of current and past photographs taken from an elevated position.
intricate work area	<ul style="list-style-type: none"> • an area within the corporate limits of a city, rural municipality (i.e., Town or Village) • Cenovus owned and/or operated Industrial property with several underground facilities that make the location more complex • other areas where the Functional Manager or Field Supervisor deem the activity complex and the work being undertaken fall under additional regulatory jurisdictions
line locate information	All information provided by the Line Locator during the line locating process.
line locating	The use of industry acceptable methods and principles to identify buried facilities, adhering to the line locator scope of work.
mechanical excavation	Operation of mechanically driven equipment other than acceptable industry methods of non-mechanical excavation equipment.
non-mechanical excavation	The use of non-mechanical equipment to create an excavation. This is not the same as an excavation for the purpose of exposure to verify a buried facility.
non-mechanical exposure	The exposure of buried facilities, using non-destructive techniques acceptable to the Facility Owner. (See AER Pipeline Regulation Section 1(n)).
physical barrier	A clearly defining boundary that can visually prompt the intrusion of people, wildlife, or equipment.
planned coordinates	The originally planned survey measurements forming a plan.
project area	The area consisting of the search area and work area.
project information	All information referred to in the project information process step.
project scope	A fully encompassing register of all information and tasks associated to the ground disturbance activity.
Provincial/State One-Call System	A communications service between people who intend to disturb the ground and the buried facility owners who register their buried facilities (Members).

search area	The work area and a distance of 30 meters surrounding the area of the ground being physically disturbed.
search area - modified	The area where physical constraints restrict the full line locating of the search area surrounding the work area.
temporary marking devices	<p>A device that can clearly identify the approximate horizontal location of buried facilities installed during the line locating process, such as but not limited to:</p> <ul style="list-style-type: none"> • Lath • paint • stake chasers • pin flags <p>The device used shall be appropriate for the situation.</p>
temporary protective structures - trench shield	<p>A professionally engineered device to protect workers from against a collapse of the excavation. The trench shield can withstand a collapse without buckling.</p> <p>A trench shield should not be confused with a shore. While they may serve the same function, trench shoring is a different physical application that holds up the walls of a trench to prevent collapse.</p>
temporary protective structures - trench shoring	A professionally engineered device to prevent against of collapse by maintaining positive pressure on the sides of the excavation, protecting workers the excavation and surrounding structures and foundations.
work area	A physical geographic location the ground disturbance activity is being undertaken.
written approvals	<p>Official written notification of intentions to undertake work within 30 meters of a third-party facility. An agreement allows work shall undertaken within 30 meters of the buried facility; this agreement may or may not be issued by the third-party company. This can consist of:</p> <ul style="list-style-type: none"> • proximity agreement • for purposes of drilling, this may extend to 75 meters • crossing agreement • encroachment agreement
zone of influence	The volume of soil around the excavation where actions may influence the excavation's stability (e.g., vehicles, plant, or spoil) or where the excavation may influence the stability of any nearby structure.

6.2 References

Table 4: Internal governing references

Document name	Description
COIMS Framework	Element 9 Safe Control of Work Requirements
Ground Disturbance Standard	Corporate Ground Disturbance Standard
Ground Disturbance Excavation Procedure	Corporate Excavation Procedure
Line Locator Scope of Work	Corporate Line Locator Scope of Work
Hydrovac Scope of Work	Corporate Hydrovac Scope of Work

Table 5: External governing/normative references

Document name	Description
Alberta Energy Regulator (AER)	Alberta Pipeline Act
Canadian Energy Regulator (CER)	Pipeline Damage Prevention Regulations
WorkSafe BC	Part 20 Construction, Excavation, and Demolition

Table 6: Other references

Document or tool name	Description
Utility Safety Partners	Utility Safety Partners
Canadian Common Ground Alliance	Underground Infrastructure Damage Prevention
Energy Safety Canada	Ground Disturbance and Damage Prevention: A Program Development Guide

Appendix A: Canadian Refined Products (formerly Retail) – intricate work areas

Where the ground disturbance is to take place in an intricate area, the following work instructions may be used as a variance to the specific sections identified within the corporate ground disturbance damage prevention procedure, as defined in the table below.

Examples of intricate work areas include but are not limited to:

- an area within the corporate limits of a city, rural municipality (i.e., town or village)
- Cenovus owned and/or operated industrial property with several underground facilities that make the location more complex
- other areas where the Functional Manager or Field Supervisor deem the activity complex and the work being undertaken fall under additional regulatory jurisdictions

If the Project is classified as an intricate area, it shall be documented on the ground disturbance authorization.

Affected section of procedure	Process step	Description	Responsible
4.1.2	Assign roles and responsibilities	The Functional Manager shall assign and communicate the roles and responsibilities associated with ground disturbance activities.	Functional Manager Or Field Manager
4.1.3	Written approvals	<p>Prepare the following project information:</p> <ul style="list-style-type: none"> • surface land package • survey plan and disposition approvals • construction and/or engineering drawings <p>The following additional information is required:</p> <ul style="list-style-type: none"> • historical ground disturbance records relevant to the work area • list of contacts of stakeholders and third-party buried facility owners contacts with complete and accurate details of phone and email information 	Project Representative, Manager, Ground Disturbance Supervisor

4.2.2	Ground disturbance package	<p>The following is a variance to the corporate ground disturbance damage prevention procedure Section 4.2.2.</p> <p>The following is required as minimum information to be considered a compliant ground disturbance package. If any of these documents are not available, the Project Manager shall address the potential gap(s) in the project information through a hazard assessment and obtain authorization from the Functional Manager:</p> <ul style="list-style-type: none"> • registered survey plan • real property report • as-built or plot plan of the work area • as-built or plot plan of search area • land titles for the work area 	Ground Disturbance Supervisor or otherwise as established during Project Planning
Additional requirement	ground disturbance package audit/LOD1 self verification	A ground disturbance package audit/LOD1 verification is required for any mechanical excavation.	Functional Manager Field Manager H&S Deployed
4.3	Ground disturbance notification	<p>Special consideration shall be given to ensure non-members of the Provincial/State one-call service are contacted.</p> <p>This shall include but not limited to:</p> <ul style="list-style-type: none"> • Urban Traffic Departments • Urban Utilities (Sewer/Water) • Irrigation Providers • Communication and Cable Providers • Low pressure Gas Operators 	Ground Disturbance Supervisor
4.4.1	Information review	<p>The final ground disturbance package shall be reviewed and accepted by the Functional Manager after all information has been complied, and prior to work execution. The review shall be documented.</p> <p>The ground disturbance package review shall be evaluated against the Cenovus Risk Matrix and a decision to conduct a ground disturbance package audit will be determined based on the risk ranking.</p>	Functional Manager Or Field Manager

4.6	Ground disturbance authorization	All required documentation providing authorization to undertake work shall be completed prior to ground disturbance activity commencing. This documentation may be business unit specific, however shall include the ground disturbance authorization.	Ground Disturbance Supervisor
4.7.1	Cenovus ground disturbance supervision	Ground Disturbance Supervisor – shall provide direct supervision to all ground disturbance activities.	Ground Disturbance Supervisor
4.7.1	Cenovus direct supervision	The following is a variance to the corporate ground disturbance. This supervision can be delegated to a vendor, providing the Functional Manager approving the project and scope of work reviews and approves of the training and competency of the Ground Disturbance Supervisor, and the internal authorization process is adhered to. If this level of supervision is delegated full accountability for the project is that of the Functional Manager.	Ground Disturbance Supervisor
4.7.1	Cenovus operational direct supervision	Cenovus operational representation, supervision and inspection is not required to be requested on every occasion where exposure, operating mechanical equipment within 1.5m (horizontally), crossing and backfilling a Cenovus owned buried facility is involved. Variances shall be documented during the pre-job planning stage in the project information package and approved by the Functional Manager.	Ground Disturbance Supervisor
4.7.2	Non-mechanical exposure	The following is a variance to the single requirement of the corporate ground disturbance damage prevention procedure Section 4.7.2. Variance may be given regarding the specific hand-exposure distance of a proposed excavation. All buried facilities within specified distances of proposed excavation shall be exposed utilizing non-destructive means acceptable to the buried facility owner, or as identified in any	Ground Disturbance Supervisor

		<p>formal agreement. The specific distances shall be no less than the following:</p> <table border="1"> <thead> <tr> <th>Type of facility</th> <th>Hand exposure zone</th> </tr> </thead> <tbody> <tr> <td>Provincially/State or Federally Regulated Buried Facility</td> <td>Five (5) Meters</td> </tr> <tr> <td>Non-Regulated Buried Facility (e.g., low-pressure gas line, power cable, communication cable, etc.)</td> <td>One (1) Meter</td> </tr> </tbody> </table> <p>For non-mechanical exposure of non-regulated facilities between one (1) and five (5) meters, the Ground Disturbance Supervisor and Cenovus Project Manager shall conduct a site-specific review to determine if exposure is required. In such cases when reducing the hand exposure zone below 5 meters, the hazards, controls, and resulting risk shall be discussed during the ground disturbance package preparation and review and confirmed immediately before work execution. Written approvals with buried facility owners may supersede the hand exposure zones set out in the previous table.</p>	Type of facility	Hand exposure zone	Provincially/State or Federally Regulated Buried Facility	Five (5) Meters	Non-Regulated Buried Facility (e.g., low-pressure gas line, power cable, communication cable, etc.)	One (1) Meter	
Type of facility	Hand exposure zone								
Provincially/State or Federally Regulated Buried Facility	Five (5) Meters								
Non-Regulated Buried Facility (e.g., low-pressure gas line, power cable, communication cable, etc.)	One (1) Meter								
5.0	<p>ground disturbance training</p> <p>Industry Ground Disturbance Standard 201 Supervisory</p> <p><i>(ABCGA Endorsed)</i></p>	<p>Training for Ground Disturbance Supervisors and involved personnel shall meet the minimum requirements for each provincial or state jurisdiction. It is recommended as a minimum Ground Disturbance Supervisors complete Ground Disturbance 201 Training and other personnel involved in ground disturbance activities complete Ground Disturbance 101 training.</p>	<p>Ground Disturbance Supervisor</p> <p>Involved Personnel</p>						

Appendix B: Third party ground disturbance notifications

Functional Group Manager is accountable for ensuring that response to third-party ground disturbance notifications are performed according to this procedure for all ground disturbance activity.

Where Cenovus Receives notifications of work being conducted within 30 meters of its buried infrastructure Cenovus shall:

- **Provincial/State one-call registration**

All provincially and federally regulated buried facilities shall be registered with the provincial/state one-call system, it is further recommended that all buried facilities are registered provincial/state one-call system.

All buried facilities within specific jurisdictions are legislated to be registered with the provincial/state one-call system.

Each buried facility shall be specifically identified in the one-call registration with the ability to provide documentation for regulatory audit. Project Managers are responsible to register new buried facilities.

When buried facilities as discovered through line locates, are not registered with provincial/state one-call systems, the Entity owning the buried facility (asset) is responsible to register.

Current accurate buried facility information shall be provided by the Senior Management Team.

- **Receiving notification of ground disturbance activity**

Contact shall be made with the party proposing to undertake ground disturbance to confirm project scope and schedule.

- If scope of proposed ground disturbance is within 30 meters of Cenovus buried facility(s) or right-of-way(s):
 - ensure any external party proposing to undertake the ground disturbance contacts Cenovus Surface Land at: Thirdpartyrequests@Cenovusenergy.com
 - initiate the locate and marking of Cenovus buried facility that is within 30 meters of the intended work area
- If scope of proposed ground disturbance is outside of 30 meters:
 - notification that no line locates are required is provided to the party proposing to undertake the ground disturbance

All temporary buried facility markers shall be verified by a Cenovus Ground Disturbance Supervisor prior to ground disturbance activity commencing. The following shall be confirmed:

- All identifying marks meet the requirements of the American Public Works Association (APWA) Uniformed Color code.
- All identifying marks are spaced no farther than five (5) meters apart and clearly define corners, bends, and termination points.
- The line locate information is consistent with the information contained within the one-call package (OCP).

Cenovus may wish to verify the proposed work area and the position of the buried facility by completing a site visit prior to work commencing.

- **Written approvals**

Ensure crossing agreements, encroachment approvals and/or proximity permits are executed where necessary, and issue copies to:

- the party proposing to undertake ground disturbance
- the field representative identified in the approval

Written response shall be provided within 21 days from when the approval is requested.

- **Written safety practices**

Written safety practices shall be provided to 3rd parties when working within 30 meters of buried Cenovus facilities. McElhanney will provide with line locate information upon notification of the intended work.

- **Work authorization**

All required Cenovus documentation providing authorization to undertake work shall be completed as required prior to the work commencing (ground disturbance & line locating) and provided to the vendor, contractor, and/or service provider. This is typically in the form of a safe work permit.

Verify Cenovus approved line locating vendors have access to the Cenovus “scope of work” for their activity.

Persons proposing to undertake the work should have specific documents completed, e.g., task hazard, JSA, tailgate, etc. and involve the Cenovus Ground Disturbance Supervisor in the development of the applicable hazard assessment.

Persons proposing to undertake the work shall have valid industry ground disturbance training, preferably; *ABCGA Standard 201 Ground Disturbance - Supervisory*, for those supervising ground disturbances, conducting line locates, operating non-mechanical and/or mechanical equipment.

- **Identification of buried facilities**

Line locating provided by an approved Cenovus vendor shall be completed by at a minimum, by adhering to the requirements of Cenovus's line locator scope of work.

Complete locating and marking within 2 working days of receiving notification or within a mutually agreed time frame.

Cenovus shall provide to the party proposing to undertake the ground disturbance activity:

- line locate information, where locates have been provided by an approved Cenovus vendor, identifying the buried facility(s) located and marked position
- Cenovus ground disturbance map, for reference to other information Cenovus has knowledge of

The locating and marking may be delegated to the person proposing to undertake the ground disturbance, so long as the marking and locating:

- is validated by a Cenovus Representative using the ground disturbance map and line locate information as documents of reference

Meet the requirements for line locate marking intervals and the American Public Works Association (APWA) Color Code.

- **Supervision and inspection**

In instances of ground disturbance activities performed by third parties, the scope of Cenovus supervision is to ensure all terms and conditions of any Cenovus issued agreement are being fully met, and to ensure protection and integrity of the Cenovus's buried utilities/assets.

Cenovus Ground Disturbance Supervisors shall:

- verify the line locate information and line locate marks provided are accurate
- use the Cenovus ground disturbance map. If not satisfied have the area re-line located by an approved line locating service provider
- have available a copy of the written approval, while on the worksite
- provide direct supervision of all exposures of the affected Cenovus buried facility
- participate in the development of the field level hazard assessment and sign onto applicable field level hazard assessments.
- provide direct supervision when mechanical equipment or operation is within 1.5m (horizontally) of the affected Cenovus buried facility, this will include but not limited to:
 - mechanical excavation
 - horizontal direction drilling (HDD) operations
 - pulling/stringing pipe
- verify that any required Cenovus backfill procedure are in place prior to commencing the back-filling process
- inspect the exposed Cenovus buried facility for damage prior to backfilling, witness the entire backfill process, document this inspection. Retain the record for the life of the facility(s)
- ensure the requirements of Cenovus backfilling procedure are being adhered to, during the backfilling process, including but not limited to:

- CS-CS-02 Generic backfill procedures are required for High Density Polyethylene (HDPE), reinforced thermoplastic and spool-able composite pipelines
- fiberglass backfill procedure
- preliminary steel pipeline backfill procedure
- Carryout any further inspections of the ground disturbance necessary to ensure the continued safety of the Cenovus buried infrastructure, as per the written approval.

Appendix C: Pile installations

Field Supervisor is accountable for ensuring that pile installations are performed according to this procedure for all ground disturbance activity.

Where a pile is to be installed within five (5) meters of a buried facility, the identified buried facility does not need to be exposed if a non-mechanical pilot hole, three (3) meters in depth exceeding the diameter of the pile is excavated prior to pile installation. This diameter shall also exceed the size of the flighting on helical piles.

Visual confirmation shall be undertaken to ensure:

- the non-mechanical pilot-hole for pile installation is free from obstructions, or
- where a pile is to be installed within five (5) meters of a buried facility, and where the buried facilities has been visually confirmed by a minimum of two (2) non-mechanical exposures points and the pile installation will not affect the integrity of the buried facility, a non-mechanical pilot hole will not be required

Pile installation will not take place within one (1) meter from any facility or structure without consultation and approval from the Engineering Group and Technical Services.

All visual confirmations and non-mechanical pilot hole inspections will be documented on the scope of work within the ground disturbance authorization.