1.0 PURPOSE

This Standard Operating Procedure is intended for use in determining the precautionary measures and hazard identifications when dealing with underground piping, excavations and trenching.

By following this procedure, Distribution can ensure the safety of:

- Personnel
- The Public
- The Environment

This procedure outlines generic safeguards and legislative requirements as determined by all applicable Provincial construction regulations.

2.0 SCOPE

This Standard Operating Procedure shall apply to all employees and contractors at Suncor Energy Distribution Terminals who are required to perform ground disturbance activities.

The scope of this document is to define and communicate the precautions and requirements for ground disturbance activities to Suncor Personnel and applicable Contractors working within Distribution.
3.0 REFERENCED DOCUMENTS

- OEMS Element 9, Operational & Maintenance Controls
- Distribution Standard Operating Procedure, Mechanical Isolation, SOP Cat A-1, SOP #03
- Distribution Standard Operating Procedure, Work Permitting, Cat A-1, SOP #06
- Distribution Standard Operating Procedure, Confined Space Entry, Cat A-1, SOP #01
- Distribution Standard Operating Procedure, Personal Protective Equipment, Cat A-1, SOP #10
- Distribution Standard Operating Procedure, Fall Protection, Cat A-1, SOP #08.
- Distribution Standard Operating Procedure, Atmospheric Testing, Cat A-2, SOP #01.
- British Columbia WorkSafe Occupational Health & Safety Regulation, Part 20
- Alberta Occupation Health & Safety Code, Part 32,
- Saskatchewan Occupation Health & Safety Code, Part XVIII,
- Ontario Occupation Health & Safety Act, Construction Regulation 213/91, Part III,
- Quebec Safety Code for the Construction Industry Regulation R.S.Q. C S-2.1 r6, Section 3.21.1

4.0 PRECAUTIONARY STATEMENTS

Specific Hazards

Typical hazards that may be encountered while executing ground disturbance activities may include:

*Ergonomic Hazards*
- Awkward Body Position
- Walk area not clear / level
- Prolonged Twisting / Bending Position
Work Environment Hazards

- Exposure to hydrocarbons or other chemicals
- Slips or trips
- Limited access / egress
- Exposure to dust, dirt, mud

Personal Limitations

- Distractions in work area
- Confusing instructions
- No / lack of training
- Fitness for duty

Training

Proper training and demonstrated competency are prerequisites to performing this Standard Operating Procedure. Training shall be provided by a competent person and records shall be maintained.

Suncor Ground Disturbance Representative

- The Suncor Energy Ground Disturbance Representative must receive specific training to ensure they have knowledge of the:
  - Suncor Energy Safety Orientation Material;
  - Suncor Energy Safe Work Permitting SOP, Cat A-1, SOP #06.
  - Ground Disturbance Standard Operating Procedure, Cat A-2, SOP #32. Understanding of Ground Disturbance attachments 1 & 2
  - Third party Level II Ground Disturbance Training
  - Confined Space Entry Standard Operating Procedure, Cat A-1, SOP #01 (as some excavations may be classed as Confined Spaces);
  - Applicable provincial Occupational Health and Safety Regulations which apply.
Personal Protective Equipment
Personal protective equipment as outlined in Distribution Standard Operating Procedure, Cat A-1, SOP #10 or as specified in the Safe Work Permit depending on the work to be completed as per the job scope requirements.

5.0 RESPONSIBILITIES

Terminal Management;
- Are responsible for taking every precaution reasonable to protect the workers.
- Where equipment, protective devices, or safe work practices are required, Terminal Management must ensure that affected Workers comply with the requirements
- Responsible for ensuring full implementation and compliance of this standard operating procedure.
- Responsible for providing all equipment that is required for compliance with this standard.
- Responsible to complete regular audits of ground disturbance activities and document findings in Suncor reporting tool.
- Responsible to ensure all Terminal Employees who are required to utilize ground disturbance activities as part of their normal job function are verified for competency at an interval not to exceed three years.
- Arrange for all line locates.
- Lead pre job meetings with all affected personnel
- Terminal Management must ensure all documents related to Ground Disturbances / Excavations are retained for a period no less than 2 years.

Operating Authority;
- Responsible to ensure all sources of energy are isolated and verify the equipment is at zero energy state.
- Complete atmospheric testing activities if required.
- Visit work site with Performing Authority and review requirements of the safe work permit including the isolation points prior to issuing the work permit.
- Notify the Performing Authority of any changing conditions or potential impacts to the work area.
- Preparing and issuing the safe work permit.
• Attend pre job meeting
• Attend initial excavation and backfilling operations.

Performing Authority;
• Responsible to review and accept the Safe Work Permit on behalf of themselves or on behalf of associated Workers who will be required to complete work under that permit.
• Responsible to verify that all sources of energy are isolated.
• Visit work site with Operating Authority and review requirements of the safe work permit including the isolation points prior to the issuance of a work permit.
• Notify the Operating Authority of any changing conditions or potential impacts to the work area.
• Assign a competent worker to alert the Worker in the trench about the development of any potentially unsafe conditions and to provide assistance in an emergency.
• Abide by all conditions of the work permit.
• Attend pre job meeting
• Perform task as outlined on the Safe Work Permit in a safe and responsible manner.
• Install perimeter barriers to mark the excavation as required under Canadian Criminal Code.

Competent worker;
• Where a Worker is in a trench or excavation that exceeds 1.2 meters deep, an Employer or Contractor shall ensure that a “Competent Worker” is stationed on the surface to alert the Worker in the trench about the development of any potentially unsafe conditions and to provide assistance in an emergency.

Suncor Ground Disturbance Representative;
• A Suncor Energy Ground Disturbance Representative is defined as any person deemed competent to supervise a Ground Disturbance for Suncor Energy. A Ground Disturbance representative may be a Suncor Energy employee, a consultant, or a contractor whom Suncor Energy has deemed to have sufficient knowledge and experience to competently serve as Ground Disturbance Supervisor.
• Must possess copy of crossing agreement if one was created for the excavation.
6.0 DEFINITIONS

crossing agreement – Legal document between two parties, typically the underground facility owner and the party wishing to create the ground disturbance, in which written approvals, rules, and requirements are given for the ground disturbance to take place.

daylighting; is an alternate to hand digging where a hydrovac is used to remove material from around underground services in a way that will not damage them. This method should be used when soil conditions make hand digging impractical, i.e … wet or frozen soil.

excavation: a man made cut, cavity, trench or depression in an earth surface formed by earth removal.

Any work or activity without limitation, that results in a disturbance of the earth to a depth of over 30 cm OR a disturbance less than 30 cm that will effectively reduce the initial cover over underground piping or utilities.

Some examples of ground disturbance / excavation include but are not limited to:

- Trenching
- Installing Protective Bollards
- Pile Driving
- Daylighting
- Digging
- Anchoring

hydrovac; trucks use high pressure water to cut the soil and vacuum to remove the spoil. The trucks tanks contain the spoil until it is full and then the slurry is disposed of at a designated area.

trench: an excavation in which the depth exceeds the width

spoil pile : means material excavated from an excavation or trench

shoring : an assembly of structural members designed to prevent earth or material from falling or sliding into the excavation
soil type: determines the ability of the soils strength and stability

trench box: is an engineered structure meant to protect workers in an excavation from cave ins.

cutting back; sloping; a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away at an angle.

7.0 SUSTAINMENT AND CONTINUAL IMPROVEMENT

This document is classified as a Critical Safe-Work Practice and as such must comply with the Critical Safe-Work Practice Standard as outlined in Distribution Procedure Program, Cat A-3, SOP #01.

Distribution Leadership Team shall initiate document review process.

To ensure this Standard Operating Procedure documents meets all applicable OEMS standards, this document is to be reviewed at a frequency not to exceed 3 years or when conditions change to warrant a review

8.0 PROCEDURAL REQUIREMENTS

a. Soil Types

The type of soil determines the overall strength and stability of trench and excavation walls. Even hard soil may contain faults in seams or layers that make it unstable when excavated. Soil conditions can change over very short distances and is not unusual for soil to change completely over 50 meters.

If an excavation contains soil of more than one soil type, an assumption to be made is to operate as if all the soil is the type with the least stability.
All provincial regulations differ slightly in their definitions of soil type, however for the most part they are graded on their hardness and compactability;

**Type 1**
- Is hard, very dense, and only able to be penetrated with a small sharp object
- Has a low moisture content, no signs of water seepage
- High degree of strength, can only be excavated by mechanical means

**Type 2**
- Is very stiff, dense and can be penetrated with moderate difficulty by a small sharp object
- Has a low to medium water content and a medium degree of internal strength
- Has a damp appearance after excavation

**Type 3**
- Is stiff to firm and compact to loose in consistency
- May be previously excavated soil
- Exhibits signs of surface cracking and water seepage
- Has a low degree of internal strength

**Type 4**
- Is soft to very soft and loose in consistency
- Runs easily or flows unless it is supported
- Has almost no internal strength
- May be wet or muddy

**b. Confined Space Entry**
Excavations and trenching that exceed four feet (1.2 meters) in depth, must be considered a confined space and as such all the requirements of a confined space entry as outlined in Distribution SOP, Cat A1, SOP #01 Confined Space Entry and Distribution SOP, Cat A-2, SOP #01 Atmospheric Testing must be applied, unless the space has been confirmed by EH&S as not being applicable for the confined space requirements.
c. **Fall Protection**
If a worker could fall into an excavation that is more than 1.8 metres in depth, all the requirements of Fall Protection as outlined in Distribution SOP, Cat A1, SOP #08 Fall Protection must be applied.

A control zone shall be established at least 6 feet from the unguarded edge. This control zone shall consist of a guardrail system at least 1.1 m in height which can be permanently installed or temporary. Should the work scope require access beyond the control zone and closer to the unguarded edge a travel restraint system that restricts access to the leading edge must be utilized.

**9.0 EXCAVATION PROCEDURE**

1) **Crossing Agreement:** Special planning may be required for ground disturbances / excavations in cases where pipelines are concerned. Adequate lead time is needed for securing of the appropriate line locates as well as facility owner notifications. These notifications timelines are dependant upon the written Pipeline Crossing Agreement that must exist between the Pipeline Owner and the Property Owner.

A Crossing Agreement is required with each Third Party Facility Owner if the planned ground disturbance is within their right-of-way or within 5m of their facility.

Also note that crossing agreements are required for ground disturbance work occurring within the right-of-way of municipal roadways, highways, railways or on any Third Party Property.
The SEPP Ground Disturbance Supervisor must have a copy of the Approval or Crossing Agreement in their possession and note the following critical information:

- The placement of facilities within the Ground Disturbance area in relation to any existing facilities;
- Proper support of exposed facilities;
- Distances that must be maintained between Underground Facilities;
- Notification time frames for Underground Facilities, if different from regulations;
- Distance that must be maintained with mechanical excavation equipment if different than regulations; and,
- Notification time frame required for an inspection prior to back filling. That a back-fill inspection is performed in writing by every facility owner.

This information must be noted on the Safe Work Permit and/or Pre-Job Safety meeting, and communicated to all necessary personnel on the site. Each company provides different specifications and conditions on Crossing Agreements and as such, Crossing Agreements are legal documents and must be thoroughly read and understood at the site level.

*** CAUTION ***

Crossing Agreements do not provide for changes to be made at the site level. No course of dealings between the two parties can change the agreement unless it is in writing and signed by the same parties who signed the original agreement.
2) **Line Locates:** Unless specified, no excavation work shall proceed until all utilities / piping / underground structures etc have been identified. Line locate requirement may be waived when hydrovac or hand digging method of soil removal is used exclusively to expose the underground facilities.

Identification of utilities / piping / underground structures may be completed using existing site drawings as a reference. Locating activities must be conducted by a “Competent Person” using industry approved scanning methods in the presence of a Suncor Representative who is familiar with the area in question.

3) **Competent Facility Locator:** An experienced locator who has been trained and certified by a qualified body and/or deemed competent through practical and written evaluations to accurately locate a particular facility with little or no supervision.

**Facility Locator Training**
(Based on CAPULC Standard 101 – National Utility Locating Contractor’s Association Standard Committee) suggest the following units of theory based and practical evolutions in determining competency:

- Theory of Electromagnetic Locating
- Use of the receiver / transmitter
- Knowledge of facilities
- Visual observation skills
- Safe work Practices and Regulations
- Locate Request Procedure, Documentation, & Mapping
- Federal, Provincial, and Local Regulations
4) **Marking Facilities:** The designated Ground Disturbance representative must ensure all Underground Facilities are properly identified, located and marked with flags, paint or stakes wherever possible, to show orientation prior to any crossing or Ground Disturbance.

A record of this information must be produced and maintained by completion in writing of the form titled **“Ground Disturbances Excavation Attachment Permit”** by the designated SEPP Ground Disturbance Representative or Operating Authority.

No Ground Disturbance can start until the Ground Disturbance Attachment and Safe Work Permits are fully completed.

The following ‘Color Code’ **must be used** when locating facilities for foreign owners:

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>Electric power lines, cable, conduits and ducts, or lighting wires and cables</td>
</tr>
<tr>
<td>YELLOW</td>
<td>Gas, oil, petroleum, steam or gaseous materials</td>
</tr>
<tr>
<td>ORANGE</td>
<td>Telephone, cable TV, communications, alarm or signal lines, wires, cables, conduits or ducts</td>
</tr>
<tr>
<td>WHITE</td>
<td>Limits of Proposed excavation “White Lining”</td>
</tr>
<tr>
<td>BLUE</td>
<td>Water, irrigation or slurry lines or pipes</td>
</tr>
<tr>
<td>PURPLE</td>
<td>Reclaimed water, Irrigation and slurry lines.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Sanitary sewer, storm sewer, culvert or drain lines</td>
</tr>
<tr>
<td>PINK</td>
<td>Temporary survey marks</td>
</tr>
</tbody>
</table>
***CAUTION***
When locating and marking facilities, it should be ensured that markings for the location of the facility extends off of the SEPP right-of-way or out of the dig zone to provide extra protection should there be additional underground facilities outside the dig zone.

5) **Safe Work Permit:** In conjunction with the pre job meeting, prior to the onset of any excavation or ground disturbance, a safe work permit must be issued and acknowledged by all involved.

6) **Pre Job Meeting:** Using the attached checklist, a pre-job safety meeting is a requirement that must be conducted prior the job commencing. The main purpose of this meeting is to review specific safety and procedural aspects of the job ensuring all personnel have a good understanding of their roles and responsibilities. The following topics (as minimum) should be discussed and meeting minutes recorded and retained on file:

- Review all job safety and procedural aspects, and permit requirements
- Communicate all potential hazards and controls associated with the job.
- Review applicable plot plans or site drawings, the number of facilities being crossed, and/or exposed.
- Colored Markers, Paint, Flagging used to identify various locations.
- Site specific issues, hazards and any mitigation measures.
  - Identification of all hazards and communicate to workers
  - Identify all underground facilities in the excavation area
  - Identify the exposure techniques.
  - Identify minimum distances for mechanical excavation equipment
  - Identify PPE requirements and fire fighting requirements
  - Identify shoring and barricade requirements
  - Establish escape routes and evacuation procedures.
7) **Suncor Ground Disturbance Representative** – No underground facility or utility shall be mechanically excavated without the presence of a Suncor Ground Disturbance Representative. It is the responsibility of this Representative to ensure the Contractor is competent, adheres to the excavation permit and all of Suncor’s rules and regulations.

All Ground Disturbance Representatives must be aware that exceptions to following these Ground Disturbance Protocols can only be authorized after a risk assessment has been completed and documented by the site Management.

8) **Hand Exposing** – is the manual task of removing soil from underground services to prevent damage that could otherwise occur if mechanical equipment were used. Hand exposing includes hand digging with a hand shovel, no picks are allowed.

9) **Mechanical Excavation**: No mechanical excavation is allowed within 5 meters of an underground pipeline, or within 2 meters of any other underground facility, until all buried facilities within these areas have been hand exposed / daylighted to show their actual physical location. Once all underground facilities have been located and marked, and the excavation area has been identified, mechanical ground disturbance may begin. Mechanical removal of material may only continue up to a point 5 meters from the location of the underground facility. Further excavation methods such as hydrovac or hand digging must then be employed in order to “daylight” the facility. Once the underground facility has been daylighted, no further mechanical excavation will be conducted within 2 feet of the facility without the direct ON SITE supervision of a Suncor Representative.

When digging parallel to pipes/cables, machine digging can be carried out to within 0.6 meters (2 feet) of an underground facility after first hand exposing the facility at maximum intervals of 7.6 meters (25 feet).

10) If the hand exposed locations must be backfilled prior to completion of the ground disturbance, all underground facilities that were exposed must be adequately marked and labeled prior to backfilling to indicate their physical location.
11) Protection For People And Equipment

Workers must be protected from cave-ins or sliding materials that could cause personal injury. The listed alternatives reflect industry practice and provide some measure of flexibility in selecting the most appropriate method for the job.

a. Cave-In Protection: Prior to any Worker entering an excavation or trench greater than 1.2 meters in depth, Suncor must ensure the Worker is protected from cave-ins or other sliding material by ensuring one of the following is installed:

b. Engineered Support System: A support system for the walls of an excavation shall be installed progressively in an excavation in Type 1, 2 or 3 soil and in advance of an excavation in Type 4 soil, if practicable.

   - Every prefabricated, hydraulic or engineered support system must meet all applicable regulations, shall be designed by a professional engineer and constructed, installed, used and maintained in accordance with its design drawings and specifications.
   - The constructor shall keep the design drawings and specifications for a prefabricated, hydraulic or an engineered support system at a project while the system is on the project.
   - No prefabricated or hydraulic support system shall be used in type 4 soil;
   - The space between the walls of a prefabricated support system and the walls of the excavation shall be restricted to the minimum clearance required for the forward progression of the support system; and the walls of a hydraulic support system shall touch the walls of the excavation.
A prefabricated or hydraulic support system may be used for repairing underground pipe breaks if the system,

- meets all applicable provincial requirements;
- has four side walls;
- is designed for a maximum depth of 3.6 metres;
- is not used at a greater depth than 3.6 metres;
- is designed to resist all hydrostatic and earth pressures found in type 3 and type 4 soils;
- is installed so as to extend to the bottom of the excavation;
- is installed so that the walls of the system touch the walls of the excavation; and
- is not pulled forward after being installed in the excavation.

Before a support system is used as described the constructor shall submit two copies of its design drawings and specifications to the office of the Ministry of Labour nearest to the project.

Where the excavation is a trench and the depth exceeds 6 meters or the width exceeds 3.6 meters, the support system shall consist of an engineered support system designed for the specific location and project.

- timbering and shoring that meets provincial regulation requirements or
- a prefabricated support system that complies with provincial regulation requirements or
- a hydraulic support system that complies with provincial regulation requirements or
- an engineered support system that complies with provincial regulation requirements
*** DANGER ***
Under no circumstances, shall workers place themselves in the space between the support system and the wall of the excavation

c. Cutting Back the Excavation:

   i) **Type 1 or 2 Soil** – walls are sloped to within 1.2 meters of its bottom with a slope of having a minimum gradient of one horizontal to one vertical, (45 degrees).

   ii) **Type 3 Soil** – walls are sloped from the bottom of the excavation with a slope of having a minimum gradient of one horizontal to one vertical, (45 degrees).

   iii) **Type 4 Soil** - walls are sloped from the bottom of the excavation with a slope of having a minimum gradient of three horizontal to one vertical, (15 degrees).

d. Installing a Temporary Protective Structure:

   o Trench box, meant to protect workers only and not as a support structure. A properly designed trench box is capable of withstanding the maximum lateral load expected at a given depth.
e. **Spoil Piles:**  
   i. Construction materials, excavated soil or rock must be placed in a location that it will not affect the stability of the excavation wall.  
   ii. Must be stripped of loose rock or other material that may slide, roll or fall.  
   iii. Must be supported by rock anchors or wire mesh if necessary.  
   iv. If the average depth of the spoil pile exceeds 2 feet, then the selection of the shoring must take into account the additional lateral increase in soil pressure.  
   v. Leading edge of the spoil piles must be at least 1 meter away from the edge of the excavation.  
   vi. The slope of the spoil pile is no greater than 45 degrees from horizontal.  
   vii. All loose materials are scaled and trimmed from the spoil pile.  

f. **Mechanical Equipment:**  
   i. A level area extending at least one meter from the edge of each wall of an excavation shall be kept clear of vehicles, equipment, construction material and excavated soil and rock. Vehicles and equipment must not be operated or located in such a way as to affect the stability of the wall of an excavation.  

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**Ground Disturbance / Excavations**  
2016-01  
Current Version of Document is Maintained Electronically  
Printed Version is Uncontrolled
j. **Mobile Equipment** - When mobile equipment is operated adjacent to the edge of an excavation, a warning system will be used when the operator does not have a clear and direct view of the edge of the excavation. The warning system may consist of barricades, Excavation Safety Watch, hand or mechanical signals, or suitable barriers.

k. **Protection from Falling Materials** - If falling material could endanger workers
   (a) the danger area must be barricaded or effectively guarded to prevent entry by workers, and conspicuous warning signs must be displayed on all sides and approaches, or
   (b) adequate protective canopies must be installed over the danger area, or
   (c) adequate catch platforms, debris netting or safety nets must be provided to stop materials from falling into areas accessible to workers.

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### *** CAUTION ***

*During the ground disturbance, if any unanticipated hydrocarbons, VOC’s, obstructions, or unknown underground facilities are encountered, ALL WORK MUST CEASE IMMEDIATELY. The Performing Authority shall immediately notify the Suncor Ground Disturbance Representative and Permit Issuer. Any further excavation or repair procedures will not commence until it has been satisfied that hazardous conditions do not apply.*

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12) **Competent Worker** – Where a Worker is in a trench or excavation that exceeds 1.2 meters deep, an Employer or Contractor shall ensure that a “Competent Worker” is stationed on the surface to alert the Worker in the trench about the development of any potentially unsafe conditions and to provide assistance in an emergency.
13) Access & Egress:

i. An Employer must provide workers with a safe means of entering and exiting the excavation.

ii. An Employer must ensure that a Worker does not enter an excavation that does not comply with adequate access / egress requirements.

iii. A Employer must ensure that if a Worker is required to enter an excavation or trench deeper than 1.2 meters, a safe point of entering is located within 8 meters from the Worker.

iv. In cases where a ladder is used as a safe means of entering or exiting, the ladder must extend at least one meter above the ground level of the excavation. In addition, this ladder must be secured from movement and it shall be placed within the area protected by the support system.

v. A secondary means of access must be established and communicated to the Workers.

vi. Ladders shall be installed in such a manner to allow adequate foot clearance behind the rungs for safe climbing.

vii. If a support system is used for the walls of an excavation, a ladder for access or egress from the excavation shall be placed within the area protected by the support system.

14) Marking an Excavation – The Criminal Code of Canada, Section 263(2) states:

“Everyone who leaves an excavation on land that he owns or which he has charge or supervision is under a legal duty to guard it in a manner that is adequate to prevent persons from falling in by accident and is required to warn them if an excavation exists”

The performing authority shall erect and maintain barricades at least 1.1 m in height to prevent accidental non-authorized entry into the excavation area. Snow fences or other substantial barricades shall be used. Yellow caution tape alone is not an acceptable barricade.
15) **Piping / Cables**

   All exposed cables, ducts, sewer lines and piping less than 2 inches in diameter shall be continuously supported across the excavation. Larger piping shall be supported on 15 foot centers.

16) **Water Accumulation:**

   i. The performing authority shall provide, operate and maintain sufficient pumping equipment to keep the excavation free from water at all times. Every excavation that a worker may be required to enter shall be reasonably free of water.
   
   ii. Erosion of slopes by surface water must be prevented if Workers may be endangered.

14) **Backfilling:**

   a. A support system shall not be removed until immediately before the excavation is backfilled.
   
   b. Adequate notification must be given to Owners prior to backfilling.
   
   c. Ensure no workers are inside the excavation when backfilling by machine
   
   d. After notification, Owner must inspect their facility to ensure no damage has occurred. If an Owner is not available, an Independent 3rd Party may be asked to inspect.
   
   e. No backfilling of an excavation or trench may commence until a competent Suncor representative has approved of the backfill material and procedure.
   
   f. Care must be exercised when backfilling to ensure no damage to the utility occurs. Check condition of any protective wrap.
g. When excavations or trenches involve electrical cabling, a protective layer of material should be placed over the cable prior to backfilling.

h. When backfilling, best practice is to “push” the material into the trench or excavation, not to drop it in.

i. Using a hand operated tamper, hand tamp the fill around pipes and conduits for proper support.

j. Select backfill shall be used around plastic coated pipes to prevent damage to coating.

k. Fill shall be compacted in successive layers.

l. A suitable material must be used for initial backfilling. The following list is not considered suitable material:
   - coarse or sharp material,
   - frozen material,
   - scrap,
   - grey, silty clay
   Blotting type of sand is preferred. This material should be backfilled a minimum one foot above the utility.

m. Once the initial backfilling is completed, the remainder of the back fill material can then be sourced from the spoil pile. Spoil pile must be sampled and approved as backfill material by a Suncor representative.

15) **Contaminated Soil:** All contaminated soil must be disposed of as hazardous waste under the direction of Suncor Environmental Health & Safety.
10.0 PROCEDURE DEVIATION

Deviations from this standard operating procedure must be authorized using the Management of Change procedure. Deviations must be documented and documentation must include the relevant facts supporting the deviation decision.
<table>
<thead>
<tr>
<th>DATE</th>
<th>AUTHOR</th>
<th>DESCRIPTION</th>
<th>REVISION</th>
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<tbody>
<tr>
<td>July 2010</td>
<td>R. Rattray</td>
<td>New Document</td>
<td>Initial Issue</td>
</tr>
<tr>
<td>August 2012</td>
<td>R. Rattray</td>
<td>Re-Formatted for PSM</td>
<td>2012-01</td>
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<tr>
<td>November 2012</td>
<td>R. Rattray</td>
<td>Included additional information from OH&amp;S Regulations throughout</td>
<td>2012-02</td>
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<tr>
<td>December 2013</td>
<td>R. Rattray</td>
<td>Changed document owner to Distribution Leadership Team</td>
<td>2013-01</td>
</tr>
<tr>
<td>December 2016</td>
<td>R. Rattray</td>
<td>Changed from LSR to Safe-Work practice. Added requirement for Fall Protection measures in excavations greater than 1.8 m in depth.</td>
<td>2016-01</td>
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# PART 1 PRE JOB PLANNING CHECKLIST

## 1. MANDATORY ATTENDANCE:

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<thead>
<tr>
<th>POSITION</th>
<th>NAME (PRINTED)</th>
<th>SIGNATURE</th>
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<tr>
<td>OPERATING AUTHORITY</td>
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<tr>
<td>PERFORMING AUTHORITY</td>
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<td></td>
<td></td>
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<tr>
<td>OTHER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 2. WORK DESCRIPTION – location, work scope, estimated duration time, start date.


## 4. SOIL TYPE-

- TYPE 1
- TYPE 2
- TYPE 3
- TYPE 4

## 3. PRE JOB CHECKLIST

### PROCEDURAL REVIEW

<table>
<thead>
<tr>
<th>Review of applicable drawings, plot plans, utilities, piping, P&amp; ID’s</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Owner notification – give adequate notification, minimum 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory notification – provincial / municipal regulatory requirements, Aboriginal concerns etc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Procedure – review for understanding and compliance</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Additional Critical Procedure Reviews – mechanical / electrical isolation, permitting, confined space entry etc</td>
<td></td>
<td></td>
<td></td>
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<td>Line Locate – Define responsibility, extent of excavation, method of marking</td>
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<td>Environmental considerations, assess hazards, containment, disposal etc</td>
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<td>Emergency Response considerations – fire extinguishers, access / egress, evacuation notification / procedures</td>
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<td>Exposure technique, (hydovac / hand digging / mechanical excavation)</td>
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<td>Excavation Monitoring – PC representative -</td>
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### SAFE WORK CONSIDERATIONS

- **a. Safe Work Permitting** – type required – duration – use of repetitive permits
- **b. MSDS Review** – all employees / contractors
- **c. PPE Requirements** -
- **d. Fall Protection Requirements** – travel restraint & barriers
- **e. Cave In Protection** – engineered support / soil cutback – temporary protective structure
- **f. Spoil Piles** – assess for adequate slope, distance and additional pressure
- **g. Mechanical Equipment** – need to assess minimum distances from edge – engineer if required
- **h. Surrounding Structures** – evaluate for weakening of stability during excavation
- **i. Access / Egress** - review requirements – method of securing ladders – escape routes
- **j. Water Accumulation** – action plan to mitigate
- **k. Potential for Dropped Objects** – action plan to mitigate

### BACKFILLING

- Adequate Notification prior to backfilling – property inspection by Owner
- Approval of backfill material and procedure by Suncor prior to backfill
- Inspection of excavation during backfill by Suncor – representative must be on site.

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*DATE: ____________________________*
### PART 2 PRE JOB MEETING

#### PRE JOB MEETING MANDATORY ATTENDANCE

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<tr>
<th>POSITION</th>
<th>NAME ( PRINTED )</th>
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<td>OPERATING AUTHORITY</td>
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#### TASK

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<tr>
<th>TASK</th>
<th>YES</th>
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<th>Action Required</th>
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<tbody>
<tr>
<td>1. Identification of Operating Authority</td>
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<td>2. Identification of Performing Authorities</td>
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<td>3. Have all the required sections in Part 1 been completed?</td>
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<td>5. Review and acknowledgement of safe work permit conditions</td>
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<td>6. Review of Emergency Response requirements</td>
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<td>7. Review of Initial Exposure Technique</td>
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<td>8. Review of all Safe Work considerations from Part 1</td>
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<td>9. Review of Backfill requirements</td>
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I have reviewed and understand the requirements for this Ground Disturbance / Excavation

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