

# PERMIT TO PENETRATE GROUND OR EXCAVATE SURFACES OF LBNL PROPERTY

## ADMINISTRATIVE PROCEDURE – DOCUMENT CONTROL OPERATIONAL PROCEDURE – WORK PROCESS

### 1.0 OBJECTIVE:

This procedure defines the steps necessary for the safe penetration of ground, walls, or other existing surfaces of LBNL properties and covers those institutional requirements that must be completed prior to beginning any penetration action in any surfaces in LBNL. Of particular concern is the prevention of contact with live electrical conductors or other significant hazards (i.e., natural gas, water lines, compressed air lines, etc). The intent of this procedure is to minimize the chance of injury or death to personnel and to protect known or unknown buried utility lines. This will minimize disruption of essential services when penetrating or excavating the ground surface of LBNL property. The objectives of this procedure are to:

- A. Maintain employee health/safety.
- B. Protect the environment and real property.
- C. Ensure operational reliability of concealed utility systems.
- D. Ensure that Penetration Permits are tracked, reviewed, approved, distributed, and revised as necessary.
- E. Improve communication with personnel involved in the permit process.

### 1.1 Application:

This procedure applies to all work that requires penetrations of existing surfaces of LBNL and LBNL property, and leased buildings where the surface penetration work is managed, supervised and controlled by LBNL personnel. The LBNL Permit to Penetrate Ground or Existing Surfaces of LBNL Property (here after known as Penetration Permit) is required for all penetration of any surfaces of a depth greater than 1-5/8 inches.

A Penetration Permit will not be issued if the area cannot be scanned or reliable data on utilities location cannot be obtained.

### 1.2 Scope:

1. The permit is required for all for all concrete surface (walls, floors, ground including asphalt paving, etc) penetration work regardless of depth. For other types of penetrations, this permit is required if the penetration depth is greater than 1-5/8 inches.
2. The permit is valid for 30 calendar days from the time of issuance. The Responsible Individual (RI) may request a 30-day extension provided the Utility Coordinator inspects the site and determines that the work scope, job hazards, and hazard controls of the original permit are still valid. Only one 30-day extension is permitted.

The initial permit can be issued for greater than 30 days, with written permission from the Facilities Deputy Director.

3. The permit must list special conditions and potential hazards and controls, and clearly identify equipment and underground utilities that will be affected.
4. This procedure and Penetration Permit only address the hazards and controls directly related to surface penetration. The permit does not address other hazards such as trench access, shoring, traffic control, exposure to chemicals, confined spaces, utility isolation, LOTO, etc.
5. Exceptions:
  1. Staking in soil using wood stakes no deeper than 6 inches is permitted without a Penetration Permit.

2. No Penetration Permit is required for gypsum board (sheet rock) wall penetrations provided that the area has been swept for active and passive electric current by LBNL Utility Coordinator or his designee, and both sides of the wall have been visually inspected for evidence of repairs and wall cavity has been visually inspection for hidden objects.

Wall cavity shall be inspected by cutting a square opening (not more than 12" square and not more than 3/4" deep) and visually inspect for any hidden objects within the surface penetration area. Multiple opening can be made for complete inspection of the wall cavity if needed. Other hazards such as asbestos are cover under a separate EH&S procedure.

3. No Penetration Permit is required for the LBNL In-House Gardeners Laborers and Telephone Services Installers under the following conditions:
  - a. Gardeners: Routine maintenance such as removal of dead plants or re-planting for excavation 12" or less. All hand tools are to be used.
  - b. Laborers: Clearing of loose soils from the edge of the road using hand tools.
  - c. Telephone Services Installers: Locating telephone boxes in the landscape area by hand tools.
4. No Penetration Permit for concrete shield block surface penetration. However, scanning for the alignment of rebars need to be performed so that the Facilities Structural Engineer can confirm that the structural integrity of the shield block is not compromised. The RI is still responsible for the radiation protection integrity of the shield block.
5. No ground Penetration Permit is required for the LBNL Environmental Services Group's routine site-wide soil and sediment sampling collection program. These samples are collected using a hand trowel penetrates no deeper than 3 inches in the open areas and in the creek beds (Chicken Creek & North Fork of Strawberry Creek).
6. No Penetration Permit is required for cutting asphalt berms provided the cut is less than 1 5/8" into the underlying asphalt pavement.

### 1.3 Training and Qualifications:

1. Responsible Individual (RI) shall be formally trained in the requirements of ADMIN-053. All Responsible Individuals shall demonstrate a thorough understanding of the procedure prior to their designation as an RI. The RI is appointed by Management to have oversight over a project requiring surface penetration based on the individual's demonstrated capabilities and experience.

2. Utility Locator: LBNL and Subcontractor.

The Locator must be trained and must be certified as defined by the professional locator competency standards and performance criteria of the National Utility Locating Contractors Association (NULCA) and instrument manufacturer. The Locator must be competent in the use of a variety of locating technologies.

### 1.4 Method of Performance

1. Any core drilling or saw-cut operations that remove concrete areas greater than 4" in diameter shall require the approval of the LBNL Facilities Structural Engineer.
2. Soil excavation within a 30 inch radius of a marked or exposed utility must be excavated by non-destructive means using appropriate safe technology, such as an air knife, shovel, vacuum, chipping gun with a spade bit (may use a pointed bit to break the concrete surfaces then use spade bit in the soil), breaker bar or high pressure water excavation. Drills, circular saw, jack hammer, boring equipment, coring equipment, concrete saw, pick, backhoe, or any power excavation machine is not allowed.
3. No drilling is allowed within 6" of any marked or exposed utilities. Within the 6" radius, hand chisel and hammer shall be used to expose the utility.

4. Variance Request Authorization Process

Variance request is required for the following conditions:

- a. Requests for permit period of longer than 30 days
- b. Emergency requests for short-time turnaround of permit application.
- c. Requests for using destructive mean for excavations within 30" of exposed or detected utilities.

Exception: No Variance Approval is required for destructive means of asphalt pavement removal and / or cutting, etc provided that a pilot hole is cut at a minimum of 30" from a located utility to determine the actual thickness of the asphalt pavement in order to set the blade so that the penetration into the subgrade is no greater than 1 5/8".

- d. Requests for drilling within 6" of exposed or detected utilities.

RI shall submit a Variance Request (see form in Section 7) along with the Penetration Permit Application. The RI shall provide the justifications that the rule is inapplicable, infeasible, or impossible to conform with and identify appropriate mitigation measures. The RI shall submit the Variance Request to Utility Manager for review. The Utility Manager will provide recommendation to the RI's respective Department Head approval. Once the respective Department Head approved the Variance Request, the Utility Manager will provide recommendation to Facilities Deputy Director for approval. Once the Variance Request is approved by the Facilities Deputy Director, the approved Variance Request shall become part of the Penetration Permit package and shall be posted at the surface penetration work site. At the completion of the surface penetration work, the whole package shall be filed in the Project files.

5. Area of known soil contamination (brown field sites)

For area of known soil contamination as determined by the EH&S, the Penetration Permit approval shall include a representative from the EH&S Environmental Services Group. If requested by the RI, a representative will participate in the pre-start meeting with the subcontractor.

6. Contract Document Requirements

The LBNL Master Specification includes the requirement that the Subcontractor obtains an approved Penetration permit prior to any ground penetration, adhere to the conditions during work, and take financial responsibility for any damage to utilities or other resulting losses.

PM shall ensure that the following sections of the specifications are in place, revise if necessary for specific project needs.

1. Master Specification Section 01020, paragraph 1.19.A, Permit to Penetrate Ground or Existing Concrete Surface.
2. Master Specification Section 01210, paragraph 3.01, Safeguards – Existing Equipment, Underground Utilities and Artifacts.

#### 1.5 Roles and Responsibilities

All LBNL employees, subcontractor employees have the authority and obligation to stop the work when unexpected utilities are encountered or any hazards are observed.

1. Responsible Individual (RI)
  - a. Authorizes work.
  - b. Is responsible for the overall performance of the work.
  - c. Is responsible for the safety of job site.
  - d. Implements ADMIN-053 and permit procedures correctly.
  - e. Confirms that the surface penetration JHA is approved for the work scope detailed in the Penetration Permit.

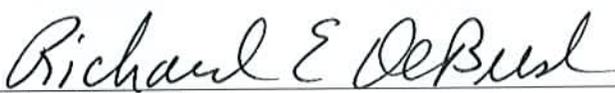
- f. When required, submits Variance Request. The scope of work in the Variance Request shall match exactly with the scope of work detailed in the Penetration Permit application. Both forms are to be submitted together.
  - g. When required, conducts field review of Variance Request with line management (Facilities Department Head or direct supervisor for non-Facilities RI), PM/CM, Utility Coordinator and/or subcontracted utility locator and Utility Manager.
  - h. Conducts Pre-start briefing to all participating workers.
  - i. Initiates, requests and maintains valid Penetration Permit for the duration of the work.
  - j. Provides job information to Utility Coordinator.
  - k. Resolves unusual conditions encountered such as artifacts.
  - l. Requests LBNL Subcontracted Surveyor to determine and record the actual alignment and depth of the located utility line(s).
  - m. Inspects excavation site prior to backfill and confirms that the utility's three-dimension coordinates has been recorded by LBNL Subcontracted Surveyor.
  - n. Arranges soil compaction test.
  - o. Confirms as-built conditions are marked on the subcontractor's set of as-built drawings for LBNL leased buildings.
  - p. Ensures that boundary markings remain visible.
  - q. Posts signed copy of permit and supporting documents as necessary.
  - r. Removes Permit after job completion and file the Permit and supporting documents in the official project files.
2. Utilities Coordinator
- a. Processes permit application.
  - b. Performs field inspection of job site prior to issuing permit.
  - c. Reviews all applicable documents, as-built drawings, area Utility Sheets, historical construction project drawings, etc.
  - d. Attaches as-built drawings, photographs, area Utility Sheet, etc
  - e. Ensures Locator personnel are trained and certified as defined by the professional locator competency standards and performance criteria of the National Utility Locating Contractors Association (NULCA) and instrument manufacturer.
  - f. Coordinates Locator activities and ensures latest technologies and appropriate methods are used to locate underground utilities.
  - g. Reviews Locator results with Responsible Individual.
  - h. Identifies limiting conditions on permit.
  - i. Issues permit to Responsible Individual.
  - j. Confirms with the RI that the selection of tools meets the non-destruction methods of excavation if applicable.
  - k. Participates with the RI in the field review of Variance Request. Contact subcontracted Utility Locator if required.
3. Site Excavation Workers
- a. Attend and understand pre-start briefing.
  - b. Follow the requirements of permit.
  - c. Stop work and alert supervisor of unusual and unexpected conditions.
4. Utility Manager
- a. Approves permit.
  - b. Participates field review of Variance Request.

- c. Approves Variance Request.
    - d. Manages documentation process.
  - 5. Responsible Individual's Line Management (Department Head for Facilities and RI direct supervisor for non-Facilities Division)
    - a. Participates field review of Variance Request
    - b. Approves Variance Request
  - 6. EH&S
    - a. Performs construction safety inspection.
    - b. Monitor compliance with permit conditions.
    - c. Provides training resources
    - d. Environmental Services Group (ESG) approves the Permit for area of known soil contamination (brown field sites) and attends the Pre-start meeting when support is requested by the RI.
  - 7. Facilities Deputy Director
    - a. Approves Variance Request for a) permit period of longer than 30 days, b) emergency requests for short-time turnaround of permit application, c) variances from non-destructive excavation requirements, d) drilling or excavation within 6" of utilities.
- 1.6 Addendum:
- a. Draft Memorandum of Understanding and Request for Pub. 3000 Variance between the LBNL Advance Light Source Division, the Facilities Division, and the EH&S Division, dated March 28, 2005.

1.7 Responsibilities and controls:

1. The responsibility for document control remains with the following listed individuals. Revisions to this document can be submitted with justification to the Facilities Utility Manager for consideration. The Facilities Utility Manager will review the revision submittal and seek concurrence and approval. Upon concurrence and approval signatures, the revision will be accepted, accepted in part, or accepted in principal in part, or rejected.

Managed by:  12/9/09  
 Michael C. Dong  
 Utility Manager, Operations Department  
 Facilities Division  
 Date

Concurred by:  12/9/09  
 Richard DeBusk  
 Manager, Safety Department  
 EH & S Division  
 Date

Concurred by:  12/15/09  
 Jerry Ohearn  
 Capital Projects Department Head  
 Facilities Division  
 Date

Concurred by:  12/15/09  
 Ken Fletcher  
 Operations Department Head  
 Facilities Division  
 Date

Concurred by:  12/15/09  
 Dennis Nielsen  
 Construction Projects Department Head  
 Facilities Division  
 Date

Approved by:  12/14/09  
 Jennifer Ridgeway  
 Division Director  
 Facilities Division  
 Date

## Glossary of Terms

**Non-destructive Means of Soil Removal:** Soil removal by use of vacuum, or excavated with appropriate safe technology, such as an air knife, shovel, vacuum, pneumatic or electric chipping gun (manufactured by Ingersoll Rand, model # 2, weigh less than 20 lbs or similar but no more than 20 lbs, pointed bit for breaking concrete and spade bit for soil), breaker bar or high pressure water excavation.

**Destructive Means of Soil Removal:** Soil removal by use of powered or heavy equipment such as drills, circular saw, jack hammer, boring equipment, coring equipment, concrete saw, pick, backhoe, or any power excavation machine.

**Soil Excavation:** Soil removal by use of non-destructive and /or destructive means.

**Area Utility Sheets (U-sheets):** Drawings that shows the existing underground utilities in an area of 1,000 feet wide in the East-West directions and 400 feet high in the North-South directions.

**Exterior surfaces:** 5' or more from the building exterior wall surfaces.

**Interior surfaces:** All indoor surfaces including up to 5' from the building exterior wall surfaces.

**LBNL Property:** LBNL property is defined to include all properties within the LBNL site and the leased buildings.

**Potholing:** Potholing is the practice of digging a test hole to expose underground utilities to determine the horizontal and vertical locations. Potholing shall be performed using non-destructive means as defined above. Potholing shall be utilized during construction activities as required herein to prevent damage to existing underground utilities. The purposes of potholing are as follow.

- To verify utilities in congested areas where multiple utilities are routed in close proximity and/or crisscrossing each.
- Underground infrastructures interferences where utility locates have greater potential to be less accurate.
- Within the tolerance zone of the utility which is +30" on each side of the located or known utility.
- Within the 6" radius of any marked or known utilities, hand chisel and hammer shall be used to expose the utility.

PERMIT PROCESS

2.0 PERMIT PROCESS:

The following process defines the steps for penetration or excavation of any depth greater than 1-1/2 inches at LBNL. NOTE: The roles and responsibilities of Subcontractor will apply to in-house labor performing penetration / excavation activities.

STEP	RESPONSIBLE PERSON	ACTION
1	<p><b>Responsible Individual (RI)</b></p> <p><b>Subcontractor</b></p> <p><b>RI</b></p> <p><b>RI</b></p> <p><b>RI</b></p>	<p><b>STEP 1: PENETRATION PERMIT REQUEST , FACILITIES WEB SITE</b></p> <p>The RI is the Laboratory representative requesting the permit and shall ensure that subcontractors are informed about LBNL Penetration Permit requirements so that they will allow for these costs in their bids. The requirement for the LBNL Penetration Permit and underground utilities location prior to excavation must be reviewed at Pre-bid meetings.</p> <p>The subcontractor is instructed to obtain the Penetration Permit from the Responsible Individual (RI).</p> <ol style="list-style-type: none"> <li>The Subcontractor requests the RI to initiate the permit request. The request may be made any time after excavation is scheduled, but not so early that conditions may change prior to excavation. For efficiency of scheduling, the request should be made at least 10 working days before Penetration is scheduled to begin. For emergencies, there can be a 3 working day turnaround with Facilities Deputy Director approval. Poor planning does not constitute an emergency. The Subcontractor or RI shall mark on the ground the extent of the excavation with "WHITE" color paint only (per Uniform Paint Color of California Government Code 4216, Underground Service Alert).</li> <li>Note: Once the Penetration Permit is issued, the subcontractor is implicitly granted control of the site. The subcontractor is responsible for all new underground utilities installed. As a result, an additional Penetration Permit will not be required if the excavation is within the original boundaries and consistent with the terms of the initial Penetration Permit. If excavation extends beyond the original boundaries or is not consistent with the terms of the initial Penetration Permit, a new Penetration Permit shall be required.</li> <li>RI shall request the Penetration Permit through the Facilities Web Site (<a href="https://fac.lbl.gov/Facilities/OpMaint/DigApp/">https://fac.lbl.gov/Facilities/OpMaint/DigApp/</a>) by completing the Permit Application form (including the application checklist) online.</li> <li>The RI shall notify the Building Manager or closest Building Managers if the surface penetration activity is exterior in the LBNL site of the upcoming construction activities</li> <li>The RI shall check with EH&amp;S Environmental Services Group (ESP) and Radiation Protection Group if there is any known contamination at the surface penetration site. For known contamination sites, a representative from either one or both of these two groups (depending on type of known contamination) need to approve the Penetration Permit and shall be present during the Pre-start meeting. The RI shall arrange for the Penetration Permit approval and Pre-start meeting.</li> </ol>
2	<p><b>Utilities Coordinator</b></p>	<p><b>STEP 2: WO TO UTILITIES COORDINATOR</b></p> <p>Utilities Coordinator will arrange to have NULCA certified personnel to perform the survey. This will include a firm with expertise in locating underground utilities.</p>
3	<p><b>Utilities Coordinator</b></p>	<p><b>Step 3: Site Drawing Review</b></p> <ol style="list-style-type: none"> <li>Review most current available sub-surface utility maps (Area Utility Sheets (U-sheets) for exterior underground infrastructure utilities and/or building underground</li> </ol>

PERMIT PROCESS *Continued*

STEP	RESPONSIBLE PERSON	ACTION
		<p>utilities if the permit application is for interior surface penetrations.</p> <ol style="list-style-type: none"> <li>2. Review drawings and other historical documentation which are available in Project Stick Files, and microfiche system.</li> <li>3. Collect information from knowledgeable employees based on personal recollection of construction in a particular area.</li> <li>4. Locate, on prints/maps, all underground utilities in work area.</li> <li>5. Make copies of all relevant drawings if applicable and attached to the Penetration Permit.</li> <li>6. Take photographs of the surface penetration area if applicable and attach to the Penetration Permit.</li> <li>7. Mark area defined by work requested on drawings to be included with permit.</li> <li>8. Review any unexpected problems with RI.</li> </ol>
4	Utilities Coordinator	<p><b>STEP 4: SITE LOCATOR SENSING SURVEY</b></p> <ol style="list-style-type: none"> <li>1. Thoroughly sweep work area with appropriate utility sensing locating instruments. Look for signs of recent construction work such as patched asphalt, etc. particularly around nearby mechanical and electrical equipment pads or substations. Any new unrecorded utilities in these areas may extend into the permit area. Disconnected electrical circuits may need to be turned on to provide a flow signal, since they could be crossing the permit area but not be detectable due to lack of current flow. Do not assume anything. If in doubt, inform the RI and have the RI obtain assistance from the appropriate building trades' supervisor and together clear the discrepancies.</li> <li>2. Compare the location and depth of underground utility lines found using appropriate utility sensing locating instruments with the location and depth shown on prints/maps.</li> <li>3. Clear up all discrepancies between Utility Locator findings and locations shown on prints/maps.</li> <li>4. Utility Locator will mark the center line of buried utilities above ground using Uniform Color Code and marking standard consistent with California Government Code, 4216. Extend marks beyond area to be excavated so they will be visible throughout work.</li> <li>5. Clearly indicate utility lines and shut-off valves on prints/maps.</li> <li>6. A Penetration Permit will not be issued if the area cannot be scanned or reliable data on utilities location cannot be obtained.</li> <li>7. Utilities Coordinator shall take photos of utilities locations alignment as surveyed for each surface penetration a site including boundaries and utilities markings.</li> <li>8. Review any unexpected problems with RI.</li> </ol>
5	<p>Utilities Coordinator RI</p> <p>Utilities Coordinator</p>	<p><b>STEP 5: PERMIT PREPARATION</b></p> <p>Utilities Coordinator completes the permit, including:</p> <ol style="list-style-type: none"> <li>1. Fill out the Penetration Permit form in canary color paper.</li> <li>2. Prepare notification list of persons to be notified before penetration begins (if necessary).</li> <li>3. Mark area defined by permit on maps to be included with permit.</li> <li>4. Define requirements during initial survey of specific area with details for concrete excavation and any other special conditions to be met on the Penetration Permit.</li> <li>5. Review any unexpected problems with RI. For areas of known contamination, the RI shall obtain an approval signature on the Penetration Permit from a representative of</li> </ol>

PERMIT PROCESS *Continued*

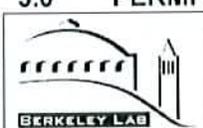
STEP	RESPONSIBLE PERSON	ACTION
	RI Utilities Coordinator	EH&S Environmental Services Group or Radiation Protection Group. 6. Completes the Permit Checklist. 7. Review with Utility Section Manager and obtain approval signature. 8. Notify RI that Permit is ready and print out the Permit in Canary color paper. 9. Utilities Coordinator scans the Permit and electronically file it in the G:\Utilities\PenetrationPermits\PPG 10. Give Penetration Permit, marked-up copy of prints/maps, as-built drawings, photographs and if applicable, approved Variance Request to RI.
6	RI  RI  Utilities Coordinator  RI Utilities Coordinator	<b>STEP 6: PRE-START MEETING AND SIGN-OFF</b> 1. The RI sets up a Pre-Start Meeting at surface penetration site to issue the permit. The Pre-Start Meeting shall include the Utilities Coordinator, RI, workers who will be performing the work, the workers' supervisor and representative from EH&S Environmental Services Group for sites that have been identified to be contaminated. For work performed by a prime construction subcontractor, the subcontractor's superintendent or foreman must be present. 2. RI explain the requirements to all excavation workers including review of site markings, marked-up copy of prints/maps, hold points and, if included, special conditions sheet, and notification list. Workers will read and thoroughly understand all documents. 3. The Utilities Coordinator reviews the permit, discussing details and answering any questions. All verbal directions issued during the site meeting, other than those in the permit, must be recorded in the permit. 4. The Utilities Coordinator and RI sign the permit, completing LBNL approval. 5. The RI issues the permit to the Subcontractors, and obtains the Subcontractor and his employees' signature accepting the terms of the permit. The permit is valid for 30 days from the time of issuance.
7	RI	<b>STEP 7: POSTING OF PERMIT</b> 1. The RI shall post the original Permit (Canary color), pre-start checklist, approved Variance Request and other relevant documents on the job site in a conspicuous location.
8	RI  RI, LBNL Construction Safety Engineer	<b>STEP 8: RI COMPLIANCE</b> 1. Read and thoroughly understand Penetration Permit, marked-up copy of prints/maps, as-built drawings, photographs, approved Variance Request, Pre-start Checklist, hold points if applicable from the Utilities Coordinator. 2. The LBNL Construction Safety Engineer and RI shall confirm permit compliance with signatures, dates, and times. The LBNL Construction Safety Engineer will verify that the approved Penetration Permit is posted conspicuously at the excavation site and readily available to the person (s) doing the work. The LBNL Construction Safety Engineer will inspect the excavation site as necessary to verify Permit conditions are met and safe practices are followed, stopping work and resolving problems as necessary with RI, Utilities Coordinator, and Subcontractor.
9	Subcontractor or In-house Labor Shop	<b>STEP 9: PENETRATION WORK BEGINS</b> <b>HAND DIG ONLY:</b> 1. Excavation within a 30 inch radius of any marked or exposed utility must be excavated by hand using appropriate safe technology, such as an air knife, shovel, vacuum, pneumatic chipping gun with a spade bit (may use a pointed bit to break the concrete

PERMIT PROCESS *Continued*

STEP	RESPONSIBLE PERSON	ACTION
		<p>surfaces then use spade bit in the soil, chipping gun shall be similar to one manufactured by Ingersoll Rand, Model #2, weight 20 lbs or less), breaker bar or high pressure water excavation. Drills, circular saw, jack hammer, boring equipment, coring equipment, concrete saw, pick, backhoe, or any power excavation machine is not allowed.</p> <p>If destructive means are to be used for excavation within 30" after underground utilities are exposed, RI shall submit a Variance Request, identifying appropriate mitigation measures and follow the Variance Request procedures as detailed in Section 1.4.</p> <p><b>NOTE:</b> Where possible, shut-off and / or secure located utilities by lock-out/tag-out (LOTO) before the excavation by destructive process is to start (per the Health &amp; Safety Manual, Pub-3000). The RI shall coordinate the LOTO procedures per Pub-3000 requirements.</p> <p>Potholing shall be utilized during construction activities as required herein to prevent damage to existing underground utilities. Potholing shall be performed at every known crossing underground utility.</p> <p>2. Watch for utility lines and indication of utility lines (sand backfill and warning identification tape) while carefully performing work.</p>
10	<p>Subcontractor , RI, Utilities Coordinator</p> <p>Utilities Coordinator, RI</p>	<p><b>STEP 10: PERMIT/PROGRESS VALIDATION</b></p> <p>1. All modifications to the Penetration Permit shall be written on the permit. No changes to the Permit are allowed without a site visit by the Utilities Coordinator. The specific details of the task and area shall then be authorized by signature (with date and time) of the Utilities Coordinator and other responsible parties involved.</p> <p>2. The permit is valid for 30 calendar days from the time of issuance. The Responsible Individual may request a 30 day extension. The Utilities Coordinator visits the site and evaluates whether the conditions of the Penetration Permit are still valid and applicable. If so, the Utilities Coordinator may issue the extension. Otherwise, a new permit must be initiated.</p>
11	<p>RI</p> <p>Utilities Coordinator</p>	<p><b>STEP 11: PERMIT REMOVED AND CLOSED</b></p> <p>1. The RI will confirm with the Subcontractor that excavation is complete, including backfill, then remove the permit and notify the Utility Coordinator. The original Permit shall be archived in the project file where it can be audited by a third party.</p> <p>2. The Utilities Coordinator will set the electronic permit version to inactive (not current).</p>

PERMIT APPLICATION

3.0 PERMIT APPLICATION

	<p><b>PERMIT APPLICATION</b>                  FACILITIES DIVISION - APPLICATION FOR PERMIT TO PENETRATE OR EXCAVATE SURFACES OF LBNL PROPERTY</p>
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APPLICATION NUMBER: \_\_\_\_\_ DATE: \_\_\_\_\_

**THIS IS NOT A PERMIT.**

This is an application for a permit. After the proposed scope of work and the site have been reviewed, and the proposal found acceptable by the Facilities Division, Utility Coordinator, a permit may be issued.

<p><b>Instructions:</b></p> <ol style="list-style-type: none"> <li>1. This application must be completed by the LBNL Responsible Individual (RI) using LBNL Facilities Web Site, <a href="https://fac.lbl.gov/Facilities/OpMaint/DigApp/">https://fac.lbl.gov/Facilities/OpMaint/DigApp/</a>.</li> <li>2. Submit to the Work Request Center and Utilities Coordinator by clicking SUBMIT.</li> <li>3. The WRC will send confirmation and job number. You will be contacted by the Utilities Coordinator within 24 hours.</li> </ol>
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**Complete the following:**

LBNL Responsible Individual (RI):	Cell Phone No:	Mail Stop:
Project Name:	Project Number:	Work Order Number:
Work to be performed by:	Contact Name:	Phone:
Anticipated Start Date:	Bldg/Room or Nearest Bldg:	

**Description/Scope of Work:** *Penetration or excavation work is to be performed only inside the permit area as marked and defined below by building numbers, room numbers, and attached maps as necessary. Scope of work shall include type of tasks and any utility modifications. The subcontractor's approved JHA must address surface penetration scope of work in detail.*

**Type of Surfaces:** *Answer "yes" to all that apply. Otherwise leave blank.*

Asphalt:	Concrete:	Soil:
Floor:	Wall:	Ceiling:

**Type of Work:** *Answer "yes" to all that apply. Otherwise leave blank.*

Coring:	Saw Cutting:	Anchoring/Drilling:	Digging/Trenching:
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**Surface Penetration Area or Anchor Sizes:**

Width/Diameter:	Length:	Depth:	Number of Surface Penetrations:
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**Equipment/Tools:**

**Potential Hazards:** *List work type, related approved task, all and any potential hazards, all utilities in scope of work and any utility in close proximity and any relevant information.*

4.0 Penetration Permit (format only)

	FACILITIES DIVISION <b>PERMIT TO PENETRATE                  EXISTING SURFACES                  OF LBNL PROPERTY</b>	<b>EMERGENCY NUMBERS</b> (dial 9-911 from designated phones, 911 from cellular phones) LBNL Security 510-486-5472
<b>VALID ONLY WHEN ALL APPROVAL SIGNATURES ON THE LAST PAGE HAVE BEEN OBTAINED</b>		

**Permit No:**  
**Issue Date:**  
**Expiration Date:**  
**Extended Expiration Date/Signature:** \_\_\_\_\_ **Extended Expiration Date:** \_\_\_\_\_

**MUST COMPLY WITH ALL LIMITING CONDITIONS OF THIS PERMIT.  
 ANY DEVIATIONS FROM OR MODIFICATIONS TO THIS PERMIT MUST BE APPROVED,  
 DOCUMENTED AND ATTACHED TO THIS PERMIT.**

*The Responsible Individual (RI) makes the decision to authorize this work. This Permit does not relieve the RI of the responsibility for the health and safety of workers under his/her direction.*

**THIS PERMIT SHALL BE POSTED AT THE JOB SITE PRIOR TO ANY SURFACE  
 PENETRATION OR EXCAVATION OF LBNL PROPERTY**

LBNL Responsible Individual (RI): \_\_\_\_\_ Cell Phone No: \_\_\_\_\_  
 Alternate RI: \_\_\_\_\_  
 Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_ Work Order Number: \_\_\_\_\_  
 Work to be performed by: \_\_\_\_\_ Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

**A. Description/Scope of Work:**

**Note:** See attached photos and/or as-built drawings pertinent to the scope of work.

- B. Utility Isolation / LOTO:**
- C. Variance (if applicable, attach original approved version):**
- D. Location of Work and Type of Surface:**
- E. Hazards, Controls and Limiting Conditions:**

RI must review and approve tool and equipment list at end of section.  
Only use approved tools and equipment.



FACILITIES DIVISION  
**PERMIT TO PENETRATE  
 EXISTING SURFACES  
 OF LBNL PROPERTY**

**EMERGENCY NUMBERS**  
 LBNL On-Site Fire & Medical 7-911  
 LBNL Off-Site Fire & Medical 9-911  
 Campus Fire & Medical 9-911  
 LBNL Security 510-486-5472  
 Facilities Utilities 24-hr 5486-5481

**VALID ONLY WHEN ALL APPROVAL SIGNATURES ON THE LAST PAGE HAVE BEEN OBTAINED**

**Surface Penetration Area or Anchor Sizes:**

Width/Diameter:            Length:            Depth:            Number of Surface Penetrations:

1. Locator markings:

Indicated depths and markings are based on instrument readings. They should only to be used as a guide or indication of approximate location and should not be considered accurate. When performing subsurface penetrations, there is always the potential for undocumented or not indicated items and objects.

2. Potholing shall be performed:

Potholing is the practice of digging a test hole to expose underground utilities to determine the horizontal and vertical locations. Potholing shall be utilized during construction activities as required herein to prevent damage to existing underground utilities. Potholing shall be performed:

- a. To DETERMINE the horizontal and vertical locations of utilities in congested areas where multiple utilities are routed in close proximity and/or crisscrossing each.
- b. Underground infrastructures interferences where electronic and/or radar scanning for utility locations are less accurate.
- c. Within 30" on each side of the exposed or marked utility.

3. Non-destructive method of soil removal & hard surface penetration. Allowable tools are any of the following:

- a. Pneumatic or electric chipping gun (manufactured by Ingersoll Rand, Model #2, weight less than 20 lbs or similar but no more than 20 lbs), pointed bit for breaking concrete and spade bit for soil removal.
- b. Vacuum or compressed air knife.
- c. Hand shovel and/or breaker bar. Hand picks are not allowed.
- d. High pressure water vacuum excavation.

4. Do not penetrate, remove or alter painted, taped, flagged, survey stakings or other markings indicating objects, items or limitations related to your task unless you have approval from the RI.

5. You have the obligation to stop work and must stop the work and notify the RI if you suspect any of the following conditions:

- 1. Safe work practices are not in place,
- 2. Potential hazards may exist,
- 3. You have discovered unanticipated items such as pipes, conduits, re-bar etc., that are within the area of work but not expressly identified in work planning documents, e.g. Penetration Permit, JHA, work procedures.

6. Only the RI or his direct line management can authorize the re-start of work.

	<p>FACILITIES DIVISION  <b>PERMIT TO PENETRATE  EXISTING SURFACES  OF LBNL PROPERTY</b></p>	<p><b>EMERGENCY NUMBERS</b>  LBNL On-Site Fire &amp; Medical 7-911  LBNL Off-Site Fire &amp; Medical 9-911  Campus Fire &amp; Medical 9-911  LBNL Security 510-486-5472  Facilities Utilities 24-hr 5486-5481</p>
<b>VALID ONLY WHEN ALL APPROVAL SIGNATURES ON THE LAST PAGE HAVE BEEN OBTAINED</b>		

**F. Approved Equipment/Tools List:**

Signatures:			
Responsible Individual:	_____	_____	_____
	Print Name	Signature	Date
LBNL Facilities Utilities Coordinator:	_____	_____	_____
	Print Name	Signature	Date
LBNL Utilities Section Manager:	_____	_____	_____
	Print Name	Signature	Date
EH&S Representative  (Environmental Services Group):	_____	_____	_____
	Print Name	Signature	Date
(Required only on known soil contaminated sites)			



FACILITIES DIVISION  
**PERMIT TO PENETRATE  
 EXISTING SURFACES  
 OF LBNL PROPERTY**

**EMERGENCY NUMBERS**  
 LBNL On-Site Fire & Medical 7-911  
 LBNL Off-Site Fire & Medical 9-911  
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 LBNL Security 510-486-5472  
 Facilities Utilities 24-hr 5486-5481

**VALID ONLY WHEN ALL APPROVAL SIGNATURES ON THE LAST PAGE HAVE BEEN OBTAINED**

I have read this permit, (or it has been explained to me) and have been briefed by the RI in the scope, hazards, and controls of this excavation / penetration job.

Subcontractor  
 Representative:

\_\_\_\_\_ Print Name Signature Date

Employee:

\_\_\_\_\_ Print Name Signature Date



**5.0 APPLICATION CHECKLIST**

This checklist is to be completed by the Responsible Individual (RI) and attached to the Permit Application

Responsible Individual:

Date

Permit #:

\_\_\_\_\_

YES	NO	COMMENTS
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**UNDERGROUND INSTALLATION (SEWER, TELEPHONE, FUEL, ELECTRIC, WATER LINES, ETC.)**

1.	Have the excavation boundaries marked with white paint?			
2.	Have program representatives and/or Building Manager been notified of the excavation?			
3.	<p>Have you identified utilities that need to be maintained in operation during excavation? If yes, provide it on a separate sheet with detail description of the utilities affected and the mitigation measures. Submit it separate it to the Utility Manager for review.</p> <p>If saw cutting of the asphalt or concrete is expected, are the identified utilities within 30" radius?</p> <p>If yes, complete a Variance Request and follow the procedure as detailed in Section 1.4 of ADMN 053</p>			
4.	Has an outage request been submitted? Specify:			
5.	If an outage has not been requested, why not?			

**STABILITY OF ADJACENT STRUCTURES**

6.	<p>For excavations that will dig below the level of sidewalks, utilities, foundations, retaining walls, etc do they meet the following criteria?</p> <p>a. Will the excavation adequately supported (i.e., underpinning)?</p> <p>b. Will the excavation be in stable rock?</p> <p>c. Has a registered Structural or Civil professional engineer determined that the structure is at a sufficiently distance from the excavation site so as to be unaffected by the excavation activity?</p> <p>d. Has a registered professional engineer determined that the excavation poses no hazard to employees?</p>			

**INSPECTIONS**

7.	Will there be daily pre-start inspections of the surface penetration site by the RI and subcontractor and/or LBNL Construction Safety Engineer?			
8.	Will there be inspections of each surface penetration site			

	documented on an as-needed basis to check for evidence of the failure of protective systems, or the accumulation of hazardous atmosphere and other hazardous conditions?			
9.	Will there be inspections of each surface penetration site documented after every rainstorm or other occurrence, which may increase hazards?			
10.	Have adequate precautionary measures been implemented to protect workers where there is evidence of a potential hazard to employees working in and around a surface penetration site.			

**SOIL CONTAMINATION EVALUATION**

11.	<p>Contact EH&amp;S to determine if the surface penetration site has any known contamination:</p> <ul style="list-style-type: none"> <li>a. David Baskin @ X5684 of Environmental Services Group (ESG) for surface penetration outside of buildings.</li> <li>b. Is the surface penetration site contaminated?</li> </ul> <p>Reference the email from ESG under the comment column and attach email to the Penetration Permit and file in the Project files.</p>			
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**SURFACE PENETRATION**

12.	Will the working area require barricades? If yes, are they in place?			
13.	Will there be requirements for water dust control?			
14.	Is there adequate ventilation in the work area?			
15.	Is there adequate lighting in the work area?			
16.	Has the subcontractor's approved JHA addressed surface penetration scope of work in detail?			

**VARIANCE REQUEST APPROVAL**

17	Has Facilities Deputy Director approved the Variance Request (if needed)?			
	Attach Variance Request Approval and the mitigation measures listed.			

6.0 PRE-START CHECKLIST

The Pre-Start Checklist items **must** be completed by the **RI** during the Pre-Start meeting at the job site. Keep the Checklist and the original Permit together at the jobsite and the official public project file (files that can be audited by DOE).

Responsible Individual: \_\_\_\_\_ Date Prepared: \_\_\_\_\_ Permit #: \_\_\_\_\_ WO: \_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

YES	NO	COMMENTS
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**SURFACE PENETRATIONS**

1.	Is the subcontractor's <b>approved</b> JHA addressed surface penetration scope of work in detail?			
2.	Have all personnel been briefed on the scope, hazards, controls and limiting conditions in the Penetration Permit?			
3.	Have all personnel been briefed regarding the utility markings?			
4.	Is the hazard mitigation plan in place to adequately guard and support the utilities that need to be maintained in operation?			
5.	Are utility Deactivation Plan(s) and LOTO permit(s) in place?			
	Describe:			

**INSPECTIONS**

6.	Daily <b>pre-start</b> inspections of the surface penetration site by the RI and subcontractor and/or LBNL Construction Safety Engineer will be performed. Inspection must be documented in the Compliance Observation sheet.			
7.	There will be inspections of each surface penetration site documented on an as-needed basis to check for evidence of the failure of protective systems, the presence of hazardous materials in the soil, or confined spaces and other hazardous conditions?			
8.	There will be inspections of each surface penetration site after every rainstorm or other occurrence which may increase hazards?			
9.	Have hazards been identified and mitigation controls been developed and implemented to protect workers where there is evidence of a potential hazard to employees working in and around a surface penetration site.			
	Describe:			

YES	NO	COMMENTS
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**SURFACE PENETRATION**

10.	Circle PPE to be used by personnel performing surface penetration work: a. Safety gloves b. Safety shoes c. Safety glasses d. Respirators e. Portable eye wash f. Others, provide listing			
11.	Does the working area require barricades? If yes, are they in place?			
12.	Have all special requirements for water and dust control been met?			
13.	Is there adequate ventilation in the work area?			
14.	Is there adequate lighting in the work area?			

**HAND DIG ONLY**

15	Is excavation within 30" of a marked or exposed utility?  Excavation within a 30 inch radius of the marked or exposed utility must be excavated by hand using appropriate safe technology, such as an air knife, shovel, vacuum, chipping gun with a spade bit, breaker bar or high pressure water excavation. Drills, circular saw, jack hammer, boring equipment, coring equipment, concrete saw, pick, backhoe, or any power excavation machine is not allowed.			
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**VARIANCE REQUEST APPROVAL**

16	Has Facilities Deputy Director approved the Variance Request (if needed)? If yes, attach the approved Variance Request.			
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