

Excavation and Trenching JSA Example

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Learning and planning resource. Adapt with the people doing the work, verify actual controls and follow required authorization. This document supplies no completed field inspections, signatures or work approval.

Work and worksite

A fictional construction crew plans an open-cut utility trench across a closed section of a service yard. An excavator will expose the route; workers may enter a protected portion to check grade and place bedding. Existing utility records are incomplete, delivery traffic continues outside the barrier, and rain is forecast. This example ends at bedding inspection and backfill; pipe connections, manhole entry and contaminated-soil remediation need their own analysis. The proposed controls below are decisions to verify before work, not a record that an actual trench has passed inspection.

- Define the trench route, intended depth, soil and groundwater observations, adjacent foundations, pavement and expected equipment loads before selecting protection.
- Name the excavation competent person, operator and person controlling delivery movements. Give workers an agreed way to stop digging or request reassessment.
- Identify public and private services; a drawing or paint mark does not prove the exact position of a buried installation.
- Keep this open-excavation assessment under construction Subpart P. A separate vault or manhole may require construction confined-space evaluation.

Actual project records needed: Location, crew and responsible people; equipment models and instructions; permits/releases; emergency arrangements; actual checks and approvals.

Task | Hazard | Control | Verification

Define the route and verify utilities

Hazard: The bucket contacts an unverified electrical, gas or water service, exposing the crew to shock, fire or sudden flooding.

Control: The supervisor obtains utility-owner information and required local locate responses. As digging approaches a service's estimated position, determine its exact position by safe, acceptable means. Stop mechanical digging where the route remains unresolved.

Verification: Compare field markings and exposed locations with the proposed trench. Record unresolved services and who will resolve them.

Reasoning: A locate ticket starts coordination; it is not evidence that every service is where the drawing shows it.

Separate equipment, deliveries and pedestrians

Hazard: A reversing vehicle or swinging excavator strikes a person; edge loading contributes to ground failure.

Control: The supervisor sets a physical work boundary and delivery route. The operator and designated spotter agree on signals and stop when communication is lost. Position equipment using the ground evaluation and protective-system limits.

Verification: Walk the route before mobilization; confirm an approaching driver can identify where to stop without entering the excavation zone.

Reasoning: High-visibility clothing improves recognition but does not create separation or stable ground.

Excavate and establish cave-in protection

Hazard: Soil collapses onto a worker or a poorly selected shield fails under the actual loads.

Control: The employer selects a compliant protective system for the depth, ground and loads. The competent person checks conditions and installation against the applicable design or tabulated data. Workers remain out until required protection is established.

Verification: Match the installed arrangement, components and limits to the supporting data; investigate cracks, sloughing or movement.

Reasoning: A trench box on site is useful only when it protects the actual work and access positions.

Prepare the entry and work position

Hazard: Workers cannot exit quickly, are struck by falling spoil, or cross an unprotected area to reach the job.

Control: The foreman establishes protected access. In trenches 4 feet or deeper, arrange safe egress within 25 feet of lateral travel. Keep spoil back or use adequate retaining measures, and keep people out from beneath lifted or excavated loads.

Verification: Trace the worker's complete route into, within and out of the protected zone; verify egress remains usable.

Reasoning: The access route belongs in the JSA because protection at the final work position alone is insufficient.

Check conditions and complete bedding work

Hazard: Water, exhaust or a changed ground condition develops while workers focus on grade measurements.

Control: The competent person inspects before work and as conditions require. Evaluate atmospheric hazards and apply required testing and controls. Control accumulating water before exposure; locate combustion equipment so exhaust does not enter the work area.

Verification: Record actual observations and any required readings. Workers identify the withdrawal signal and accessible exit before entering.

Reasoning: A good morning inspection cannot predict a leaking service or an afternoon storm.

Backfill and remove protection

Hazard: A worker remains in the excavation during an unsafe equipment movement or protection is removed prematurely.

Control: The foreman coordinates withdrawal, backfill and protective-system removal using the system's instructions and applicable design. Account for workers before equipment movements; preserve barriers around any section left open.

Verification: Confirm the work zone is clear and the removal sequence does not expose anyone to unsupported ground.

Reasoning: The excavation remains a changing worksite until restoration and access control are complete.

Pause and reassess

- Withdraw exposed workers for cracks, movement, protective-system damage, unexpected water or other hazardous conditions; have the competent person reassess before reentry.
- Arrange a new inspection after rain or another event that increases hazards, and revise the plan when depth, route, nearby loading or soil conditions change.
- Pause for an unidentified service, unusual odor or suspect soil; do not improvise a utility repair or enter for an attempted rescue.

Correct the condition, revise the analysis, communicate the change and obtain required authorization before restarting.

Improve the control

Needs improvement: Excavate safely; wear a hard hat.

More useful: Identify the required cave-in protection and protected access, then have the competent person verify the actual installation before entry.

Needs improvement: Utilities marked: proceed.

More useful: Resolve actual service locations as the excavation approaches them and stop mechanical digging where the location remains uncertain.

Decisions that change the analysis

The ladder is inside the shield, but the work is beyond its end. What changes?

Stop entry into the unprotected position. Revise the work arrangement and protection so the task and access route are covered; do not treat the ladder's position as permission to leave protection.

A delivery truck is moved closer to the edge. Is this just a traffic change?

No. Reassess the added ground loading as well as vehicle interaction before continuing affected work.

References and adaptation

OSHA 1926.651 — Specific excavation requirements

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.651>

OSHA 1926.652 — Protective systems

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.652>

OSHA 1926.1201 — Construction confined-space scope and excavation exception

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1201>

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This original walkthrough was informed by review of uploaded examples, then rewritten for the stated fictional scenario using current primary references. It does not reproduce a source document or its approval record.

Walkthrough and draft builder: <https://www.toddjeromejenkins.com/jha-jsa-examples/excavation-trenching-jsa>