

PURPOSE

To provide guidance in safe trench box assembly/disassembly and use. This safe work practice applies to all Canadian Plains Energy Services (CPES) employees and contractors. For guidance on when trench boxes or shoring is required see CPES SWP-46 Excavations/Trenches.

****Note trench boxes are often classified as restricted or confined spaces. Where shoring has been classified as a confined or restricted space, all provisions outlined in COP-03 Confined Space (including training, rescue plans, and atmospheric monitoring) must be in place before the trench box before entry****

Responsibilities

To provide guidance in safe installation and use. This safe work practice applies to all CPES employees and contractors.

Supervisor

- Ensure the appropriate style of trench box is available and in good condition
- Ensure assembly and disassembly instructions are available to the workers
- Confirm the lifting equipment required to assemble/disassemble and place the trench box
- Confirm operator's competency (picker, crane, telehandler, or track hoe operator, etc.)
- Verify the shoring has been approved by an engineer and is installed according to the manufacturer's instructions (where required)
- Inspect the trench box for deficiencies prior to use
- Supervise all lifts and hydro vac activates as required

Worker

- Confirm all trench box components are on site
- Inspect the trench box panels, spreader bars and pins for cracks or other deficiencies prior to use
- Follow manufacturer's instructions supplied for assembly and disassembly

PPE

- CPES minimum requirements
- Fall Protection (as required)
- Gas detection equipment

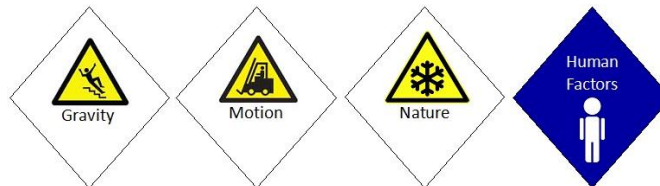
Training

- Fall protection training (as required)
- Confined space entry/monitoring (as require)
- Ground Disturbance Level 2 ABCGA approved (as required)

Note: Verify client/site trench box use requirements and classifications

Hazards & Concerns

- Personal injury
- Property damage
- Ground and surface condition
- Gravity
- Weather (wind/rain/snow)
- Falling objects
- Crush points
- Unsafe atmosphere



GENERAL TRENCH BOX PRECAUTIONS

THE DO'S

- **DO** HIAC your work task.
- **DO** Verify the trench box was designed by are designed, constructed and installed in accordance with the specifications of a professional engineer (where required).
- **DO** Complete a pre-job safety meeting to review the manufactures assembly/disassembly steps.
- **DO** Assess whether fall protection/rescue plan/confined space entry (CF-S-28) is required.
- **DO** Determine if rescue equipment will be required (davit arms, winches, etc.).
- **DO** Follow ladder use SWP 25.
- **DO** Review the manufacturer's assembly/disassembly directions and use recommendations.
- **DO** Choose the appropriate trench box for the site and excavation requirements.
- **DO** Inspect trench box components before use:
 1. Inspect trench box panels, lifting assemblies, separation bars (if applicable), pins for crack or other signs of deficiencies.
 2. Inspect all slings/chains, cables, hooks and shackles for the proper load rating and condition.
 3. Moveable parts must operate freely (shackles or hooks are not side loaded).
 4. Hardware and pins must be securely attached with a keeper in place.
 5. Ladder must be free of corrosion, rust, oxidization, and excessive wear, especially on treads.
- **DO** Inspect soil types and verify they will support the trench box.
- **DO** Confirm if the use of hydrovac to set the trench box will be required.
- **DO** Confirm that loose or falling soil cannot enter over the top or through the end of the shield.
- **DO** Confirm proper placement of supplied attachable ladders.
- **DO** Utilize tag lines when lifting components of the trench box for assembly or when placing the trench box.
- **DO** Ribbon off a safe area during assembly/disassembly or placing the trench box.
- **DO** Plan a path for movements for assembly/disassembly or placing the trench box.
- **DO** Clear the work area of all workers not required for the assembly.

THE DON'Ts

- **DO NOT** Start any assembly or disassembly without first reviewing manufactures specifications.
- **DO NOT** Start the tasks with out a safety meeting being completed.
- **DO NOT** Skip or combine any of manufactures steps in efforts to ease set up or disassembly.
- **DO NOT** Continue task if communication with operator becomes unclear due to background noise, loss of line of sight, or hand signals confusion etc.

TRENCH BOX Assembly/Disassembly:

- **DO** Hold a safety meeting prior to assembly/disassembly of the trench box (involve operators and crew).
- **DO** Check weather/wind forecast, avoid assembly/disassembly in high wind conditions.
- **DO** Ribbon off a safe area as required.
- **DO** Follow the manufactures directions for assembly and disassembly.
- **DO** Place or remove pins for the section of the trench box that is hooked up to the slings/chains or cables.
- **DO** Ensure pins are securely attached with a keeper in place.
- **DO** Ensure the planned path is clear.
- **DO** Have all unnecessary personnel exit the area.
- **DO** Use tag lines when lifting components of the trench box for assembly and disassembly.
- **DO** Determine how many taglines are required due to the size of the load.
- **DO** Use one designated signal person.
- **DO** Keep fingers and other body parts away from all connection areas.
- **DO** Wear appropriate gloves for all tasks.

THE DON'Ts

- **DO NOT** Use a component of a trench box assembly that is visibly damaged (**Tag out of service and notify your supervisor**).
- **DO NOT** Side load shackles.
- **DO NOT** Connect lifting hooks directly to eyebolts or lifting eyes.
- **DO NOT** Remove any pins without the section being hooked to slings/chains with tension on the line.
- **DO NOT** Remove all the pins of the trench box all at once.
- **DO NOT** Walk under any suspended load.
- **DO NOT** Wrap the tagline rope around your hand.
- **DO NOT** Allow more than one person on a ladder at a time.

TRENCH BOX INSTALLATION:

THE DO's

- **DO** Hold a safety meeting prior to installing the trench box (involve operators and crew).
- **DO** Confirm the location and depth of all underground utilities.
- **DO** Confirm the attendance of utility owners as required.
- **DO** Confirm the inspection of all equipment and rigging have been completed.
- **DO** Ribbon off a safe area while placing the trench box as required.
- **DO** Ensure the planned path is clear.
- **DO** Have all personnel not required exit the area.
- **DO** Use the required number of tag lines to control the load when lifting/placing the trench box.
- **DO** Use one designated signal person when lifting/lowering the trench box.
- **DO** Have hydrovac operators tied off as required when lower the trench box into place.
- **DO** Ensure that loose or falling soil cannot enter over the top or through the end of the trench box sides.
- **DO** Ensure the width of the excavation follows the manufactures recommendation (e.g. no more than 12" wider than the trench box).
- **DO** Confirm proper placement of supplied attachable ladders.
- **DO** Ensure adequate access and egress through ends or via extension or attached ladders.
- **DO** Ensure extension ladders are equipped with locks that securely hold sections of the ladder in the extended position.

THE DON'Ts

- **DO NOT** Complete any trench box installation with out all required ground disturbance documents and approvals.
- **DO NOT** Conduct lift in excessive winds.
- **DO NOT** Walk under any suspended loads.
- **DO NOT** Wrap the tagline rope around your hand.
- **DO NOT** Enter the trench box while it is being placed.

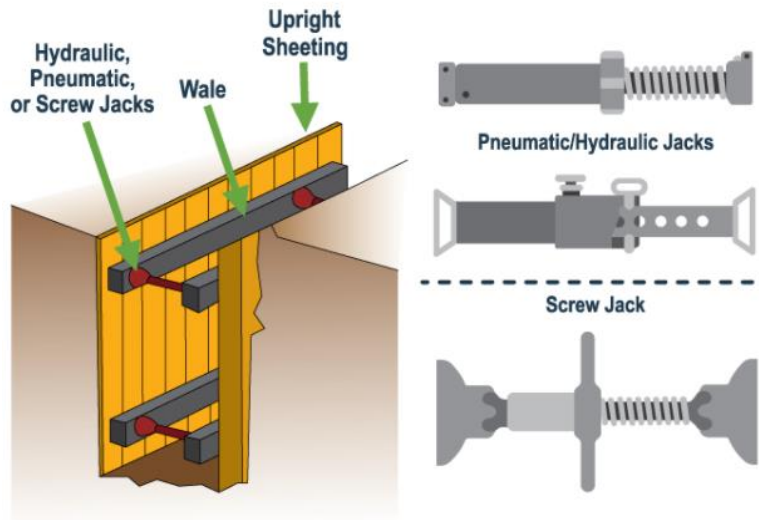


Figure 1 Components of shoring

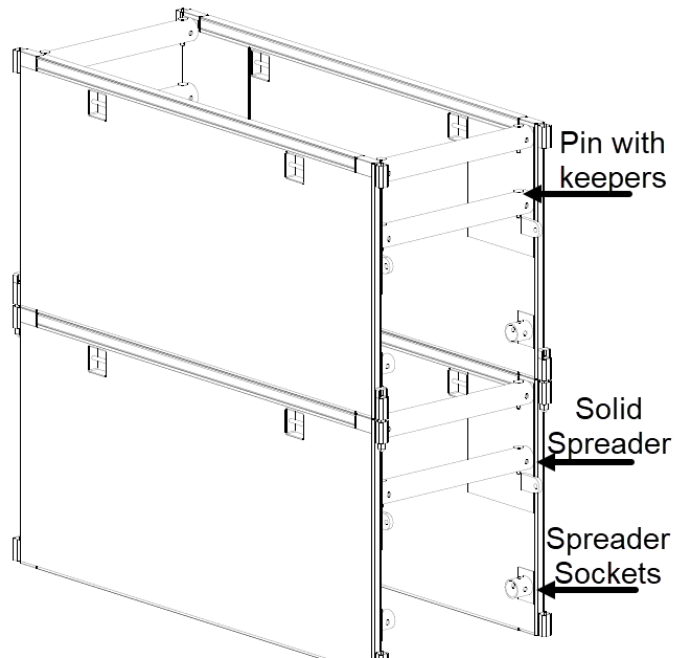


Figure 2 Components of stackable steel trench shield

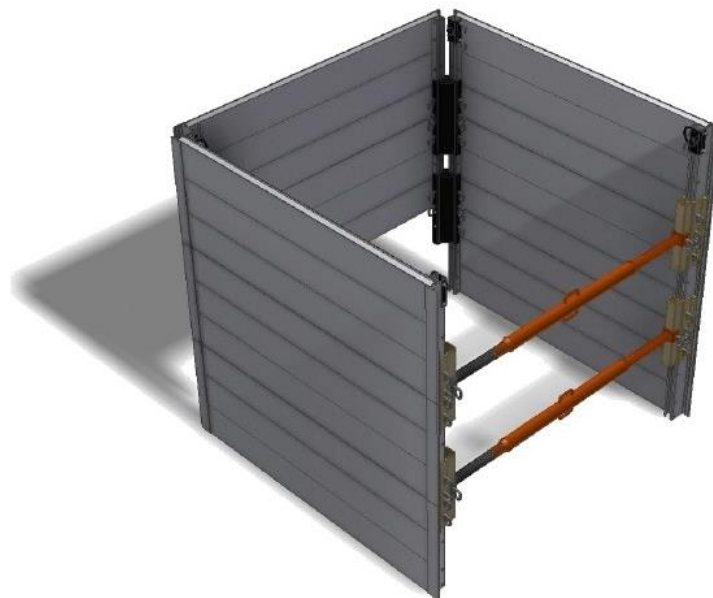


Figure 3 Modular Designed Trench Box

ADDITIONAL INFORMATION:

- CPES COP-07 Ground Disturbance
- CPES COP-03 Confined Space
- CPES SWP-25 Ladder use
- CPES SWP-46 Excavations/Trenches
- CPES SJP-30 Excavating and/or Trenching

REFERENCES:

Alberta OHS Code:

- Part 32: Excavating and Tunnelling
- Part 5: Confined Space

British Columbia Occupational Regulation:

- Part 20: Construction, Excavation and Demolition
- Part 9: Confined Spaces

Saskatchewan Occupational health and Safety Regulations:

- Part 17: Excavations, Trenches, Tunnels and Excavated Shafts
- Part 18: Confined Space Entry

Manitoba WSH Regulations

- Part 26: Excavations and Tunnels
- Part 15: Confined Space

Developed by:	1.	<u>Jim Mast</u>	2.	<u>Vern Hardy</u>	Date:	<u>April 24, 2021</u>
	3.	<u>Brian McConnell</u>	4.	<u>Allen Monk</u>		
	5.	<u>Ryan Obleman</u>	6.	<u>Jon Greeves</u>		
Approved by:	1.	<u>HSE Committee</u>			Date:	<u>April 24, 2021</u>