



America's trench box builder™

# Vertical Shoring System

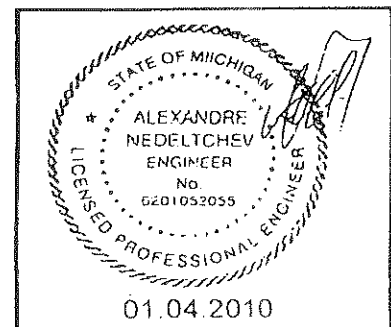
## Selection Guide

Depth of Trench (ft.) SEE NOTE 5	Max. Horizontal Shoring Spacing (ft.) SEE NOTE 6	Maximum Vertical Cylinder Spacing (ft.) SEE NOTE 1	Max. Width of Trench (ft.) Up to 12 ft. - SEE NOTE 1, 2 12-15 ft. - SEE NOTE 2, 7	Sheeting SEE NOTE 2 and:
<b>TYPE "A" SOIL</b>				
Up To 10'	8'	4'	12' to 15'	3
11' To 15'	8'	4'	12' to 15'	3
16' To 20'	8'	4'	12' to 15'	3
21' To 25'	8'	4'	12' to 15'	3
<b>TYPE "B" SOIL</b>				
Up To 10'	8'	4'	12' to 15'	3
11' To 15'	7'	4'	12' to 15'	3
16' To 20'	6'	4'	12' to 15'	3
21' To 25'	5'	4'	12' to 15'	3
<b>TYPE "C-60" SOIL</b>				
Up To 10'	6'	4'	12' to 15'	3
11' To 15'	5'	4'	12' to 15'	4
16' To 20'	4'	4'	12' to 15'	4
21' To 25'	3'	4'	12' to 15'	4
<b>TYPE "C-80" SOIL</b>				
N/A	N/A	N/A	N/A	N/A

### NOTES:

- Utilize Efficiency's 2 in. diameter hydraulic cylinders with standard or heavy duty extension system as required for desired excavation width. Trenches wider than 9'-4" up to 15' (112"-144") require Efficiency's Steel Oversleeves or universal one-piece aluminum extension, extending the full, collapsed length.
- Plywood sheeting shall consist of 1.125 in. CDX plywood or .75 in., 14 ply Arctic Birch.\*
- Plywood sheeting required if raveling or sloughing is likely to occur. (see installation diagrams)\*
- Plywood sheeting shall be used.\*
- Material can stand with unsupported vertical sidewalls long enough for shoring installation.
- Vertical shoring shall be Efficiency's Standard or Heavy Duty vertical rail sections. (see pg 6).
- Extra Heavy Duty Steel-Oversleeve Extensions Required.
- Applies to all 2 in. hydraulic cylinders, standard or with Positive Locking Device (Rescue Shores).

\* See "13" of "General Information" for alternate sheeting.



### Hydraulic Aluminum Shoring - Tabulated Data

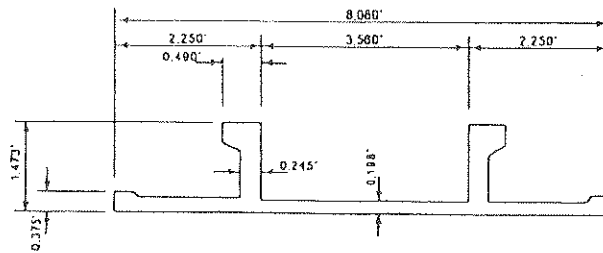
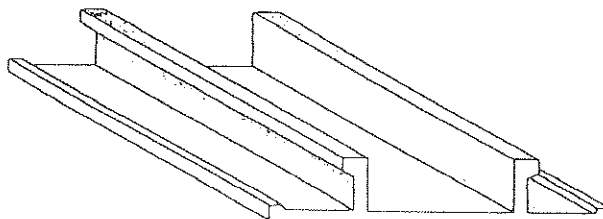
# Vertical Shoring System

## Section Properties

## Vertical Rail Specification Sheet

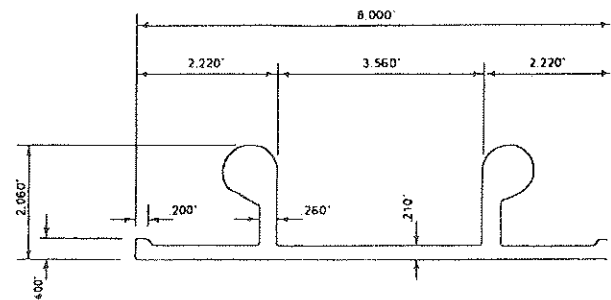
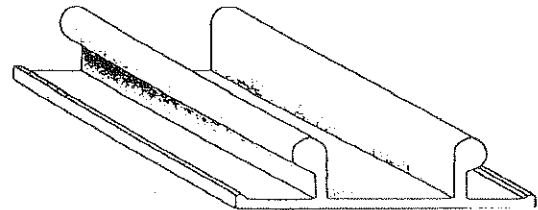
	Standard Rail	Heavy Duty Rail
Material	Aluminum	Aluminum
Alloy	6061-T6	6061-T6
Area	2.45 in. <sup>2</sup>	3.47 in. <sup>2</sup>
Weight	2.94 plf	4.17 plf
Section Modulus - Top (leg side)	$S_x=0.44$ in. <sup>3</sup>	$S_x=1.25$ in. <sup>3</sup>
Section Modulus - Bottom (blade side)	$S_x=1.29$ in. <sup>3</sup>	$S_x=2.38$ in. <sup>3</sup>
Equivalent Timber Size * (#2 Douglas Fir)	3x10 (flat)	4x10 (flat)

### Standard Vertical Rail



Cross Section of Standard Vertical Rail

### Heavy-Duty Vertical Rail



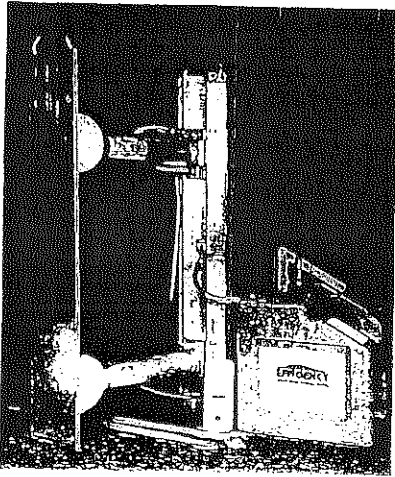
Cross Section of Heavy-Duty Vertical Rail



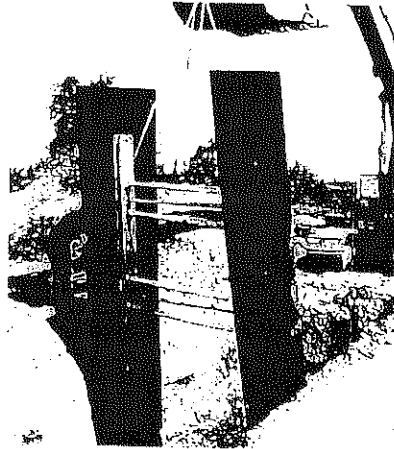
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# Vertical Shoring System

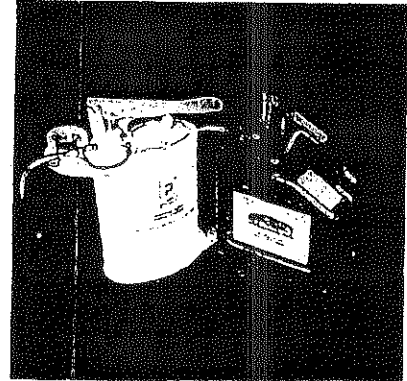
## Vertical Rail Specification Sheet



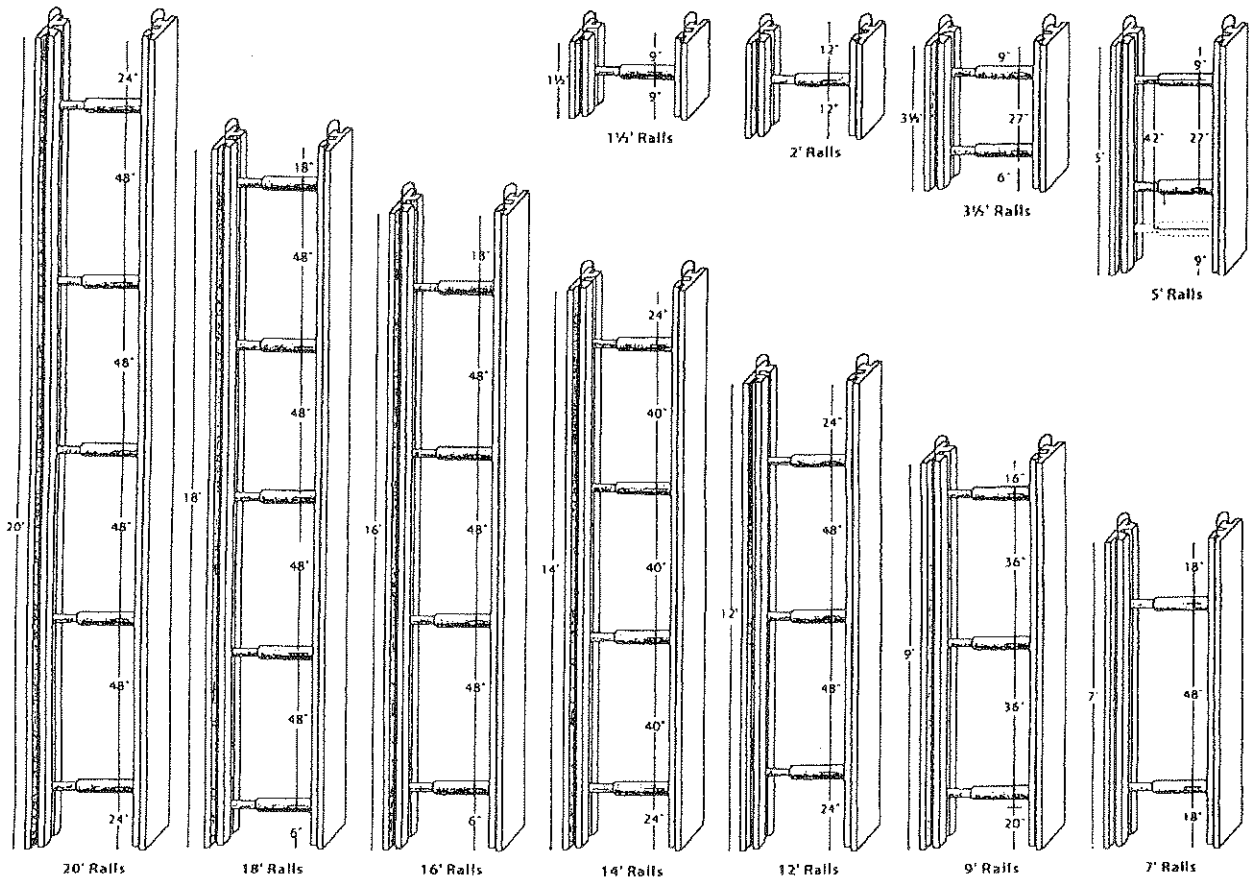
Vertical shore (w/ opt. finger guards), tools, plastic pump can, and fluid.



Rails may be bolted to Finform, etc. (See pg. 1 for alternate sheeting)



5 gal. metal pump can (left), and 5 gal plastic pump can (right).



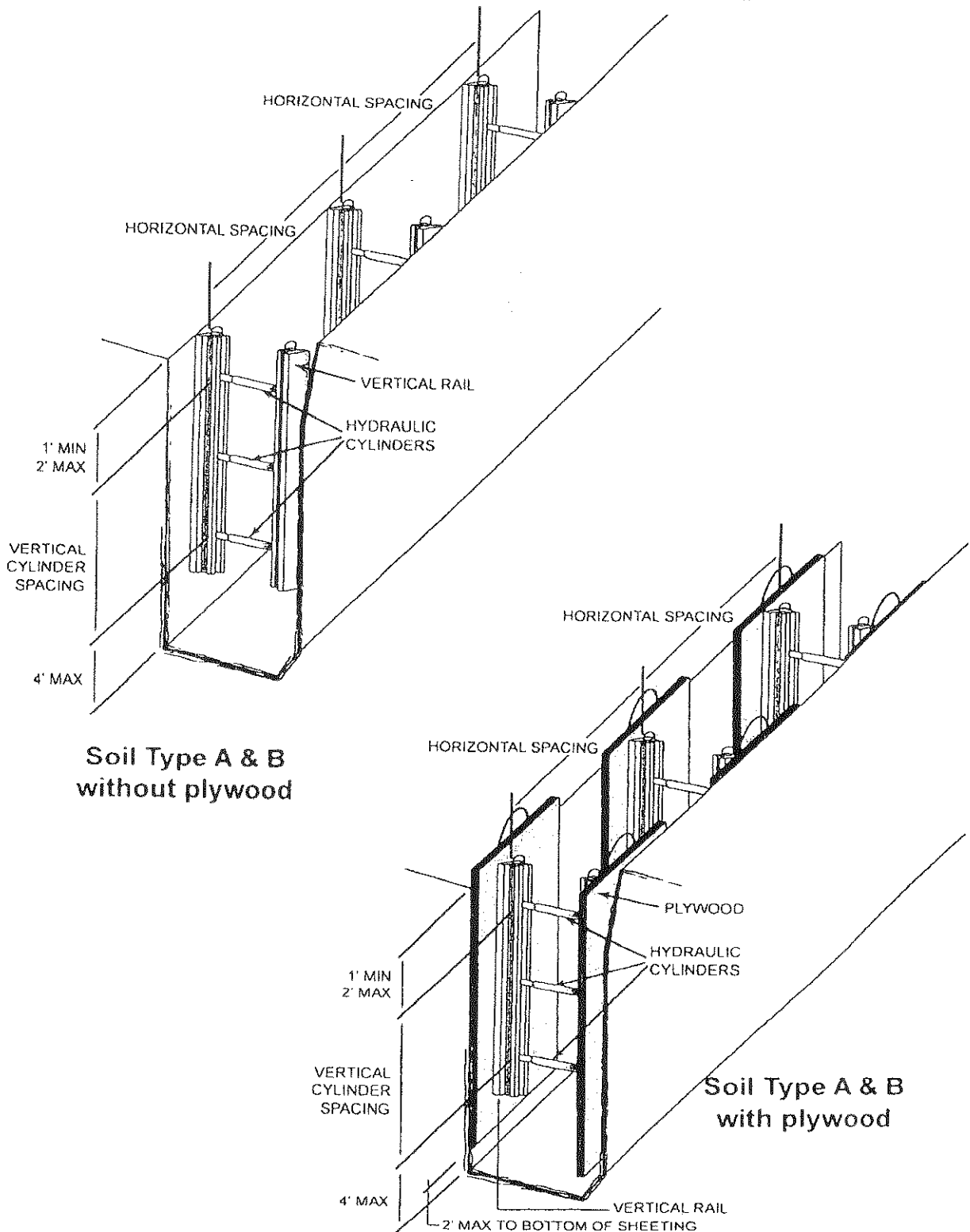
### HYDRAULIC VERTICAL SHORING

(Dimensions are taken from the cylinder's center lines)

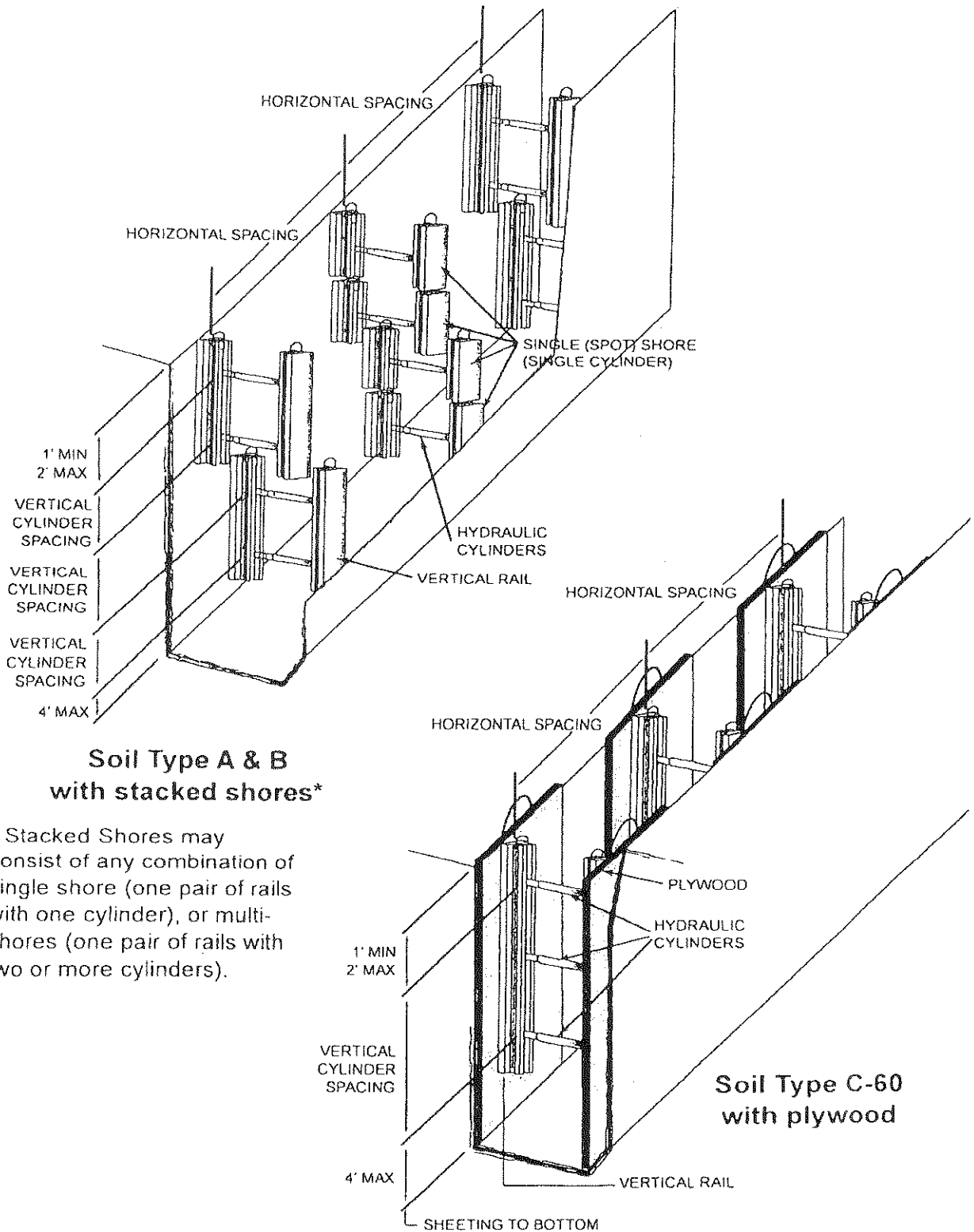
### Hydraulic Aluminum Shoring - Tabulated Data

# Vertical Shoring System

## Typical Installations



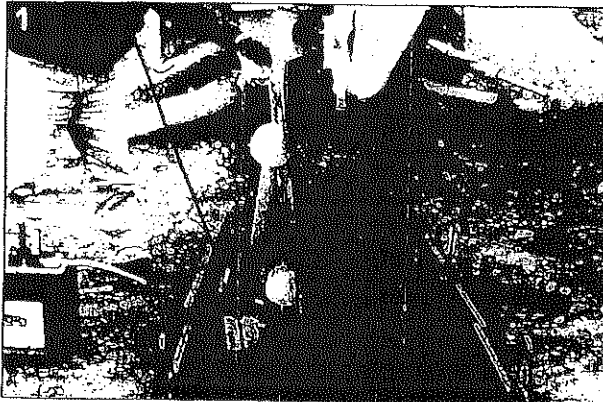
### Hydraulic Aluminum Shoring - Tabulated Data



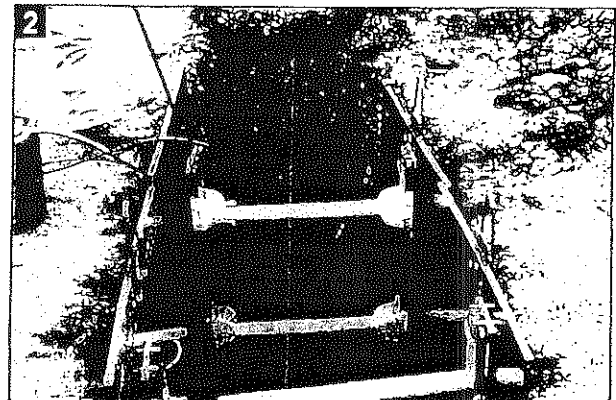
\* Stacked Shores may consist of any combination of single shore (one pair of rails with one cylinder), or multi-shores (one pair of rails with two or more cylinders).

# Vertical Shoring System

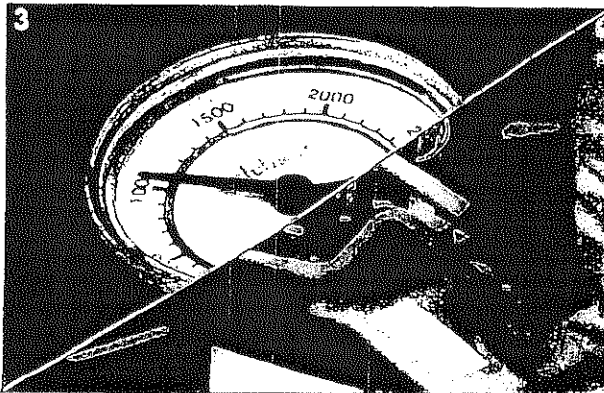
## Installation



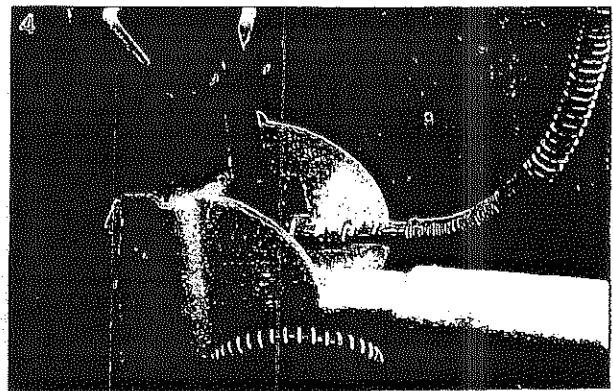
Place the shore near the trench edge in the open position with the "cylinder rail" down. Open the valve on the pump can 1/4 turn. Attach the female quick connect fitting on the pump hose to the male fitting on the top cylinder. Put the release tool through the handle on the lower rail with the hook positioned to grab the handle. Fold the shore by pulling the top rail toward you by hand. Lower the shore into the trench with hook.



Release the top rail and allow shore to completely unfold. The shore will lock itself into open position.



While holding the shore at the desired height, close the 1/4 turn release valve on pump can and pump the handle on the can to build pressure between 750-1500 PSI.

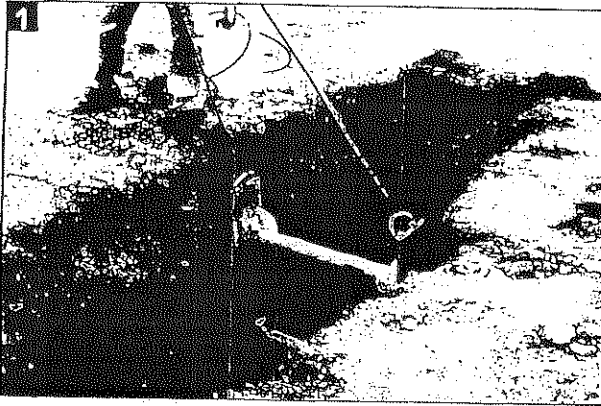


To remove the hose, place the release tool flange behind the collar of the quick disconnect fitting. The hook will be toward you. Pull the tool toward yourself, using the hook as a pivot, the hose will come off. After hose is disconnected, clip hose to the top of pump. Open valve on pump and move to the next shore.

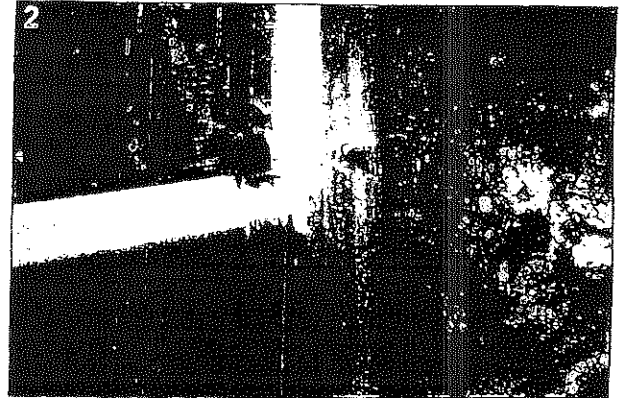
**CAUTION:** Always keep fingers out of the inside channel of rail. The cylinder pivot points can severely cut or pinch when the shore is folded.

# Vertical Shoring System

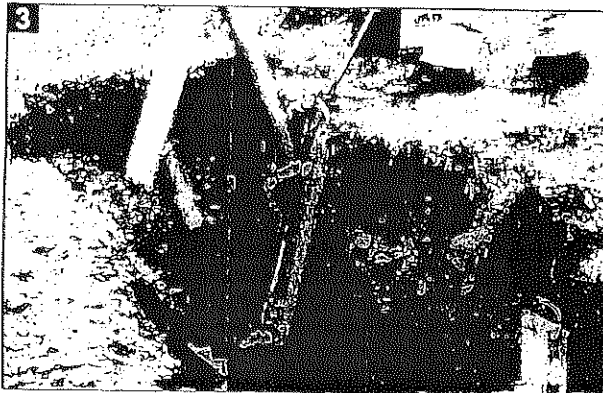
## Removal



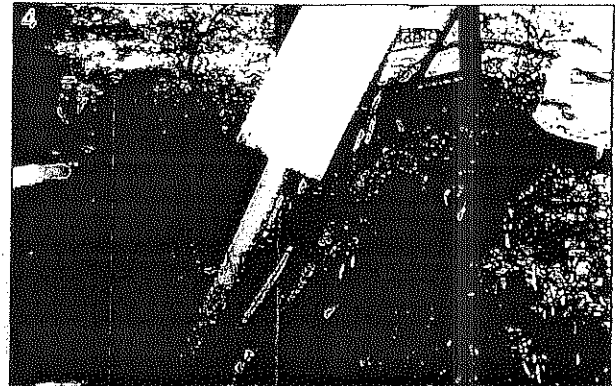
1 To remove the shore, place the removal tool through the handle with the hook facing the trench. Place the end of the tool over the same fitting where hose was hooked.



2 Push the tool away from you against the handle. The tool will depress the fitting and release a small amount of fluid.



3 Remove from trench by pulling one side with release tool and the other side with the removal hook.



4 The shore will fold as it is pulled out. Remove tools, fold shore flat, and carry to the next installation spot.