



**NAXSA**

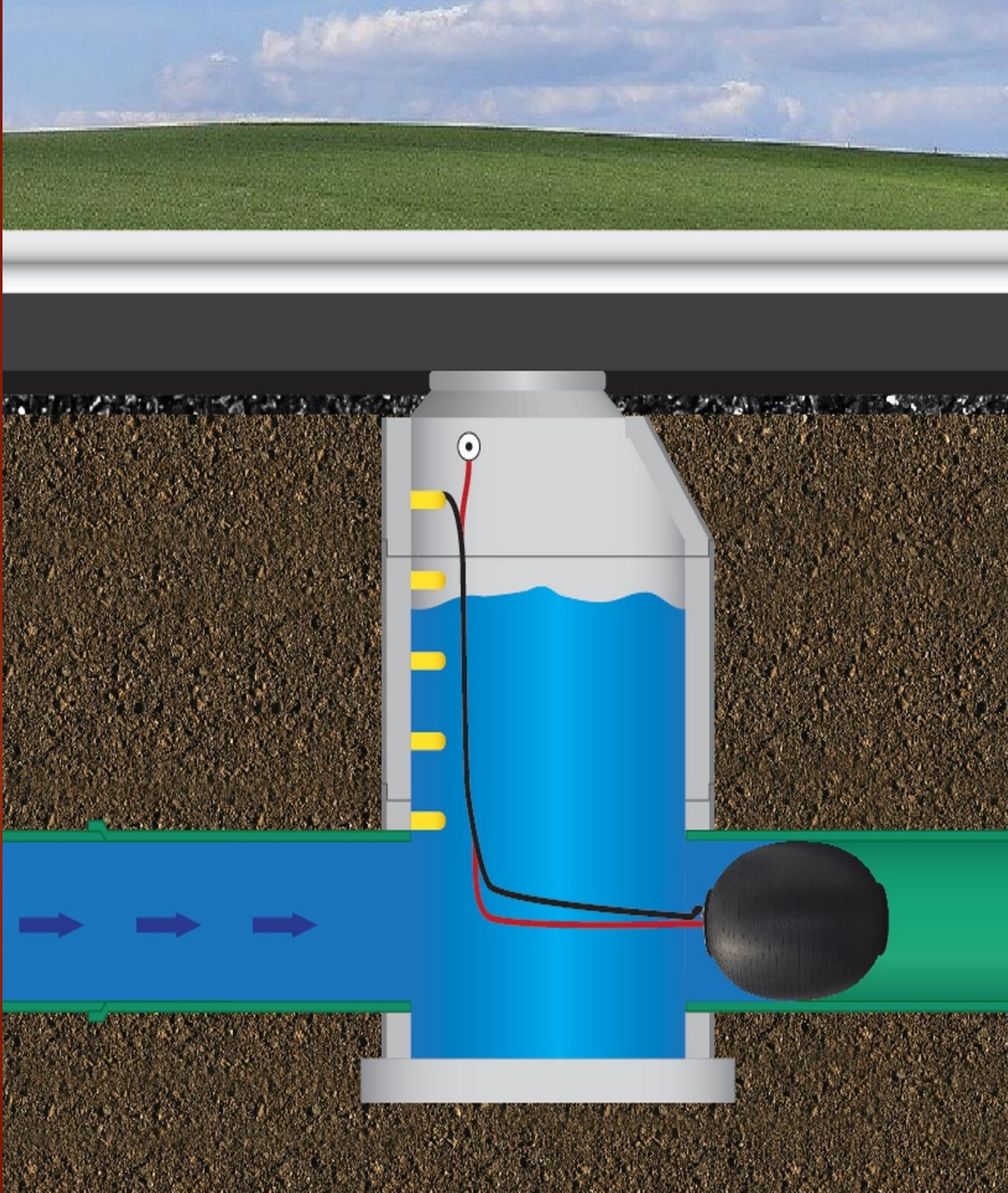
North American  
Excavation Shoring Association

**8<sup>th</sup> Annual Convention May 4-6, 2022**

Manufacturers  
Answers to Questions

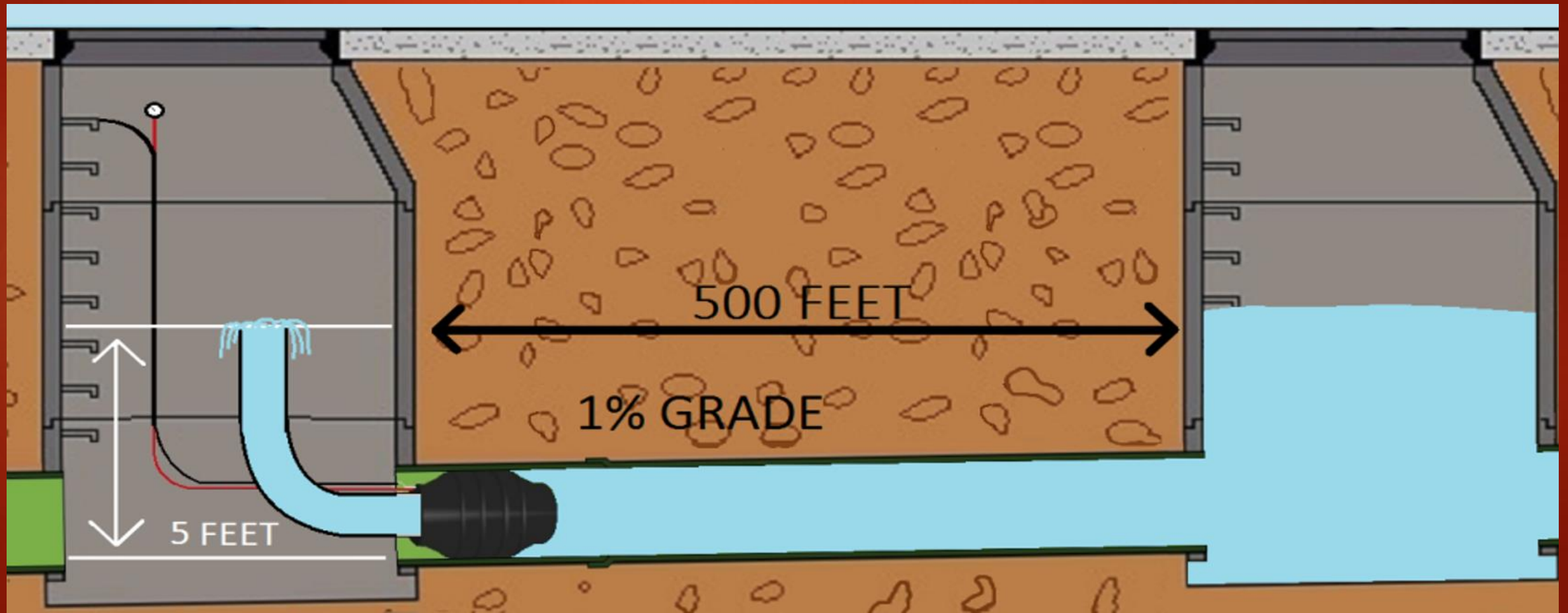
# What is Back Pressure

- ▶ Amount Air or Water the Plug is holding Back



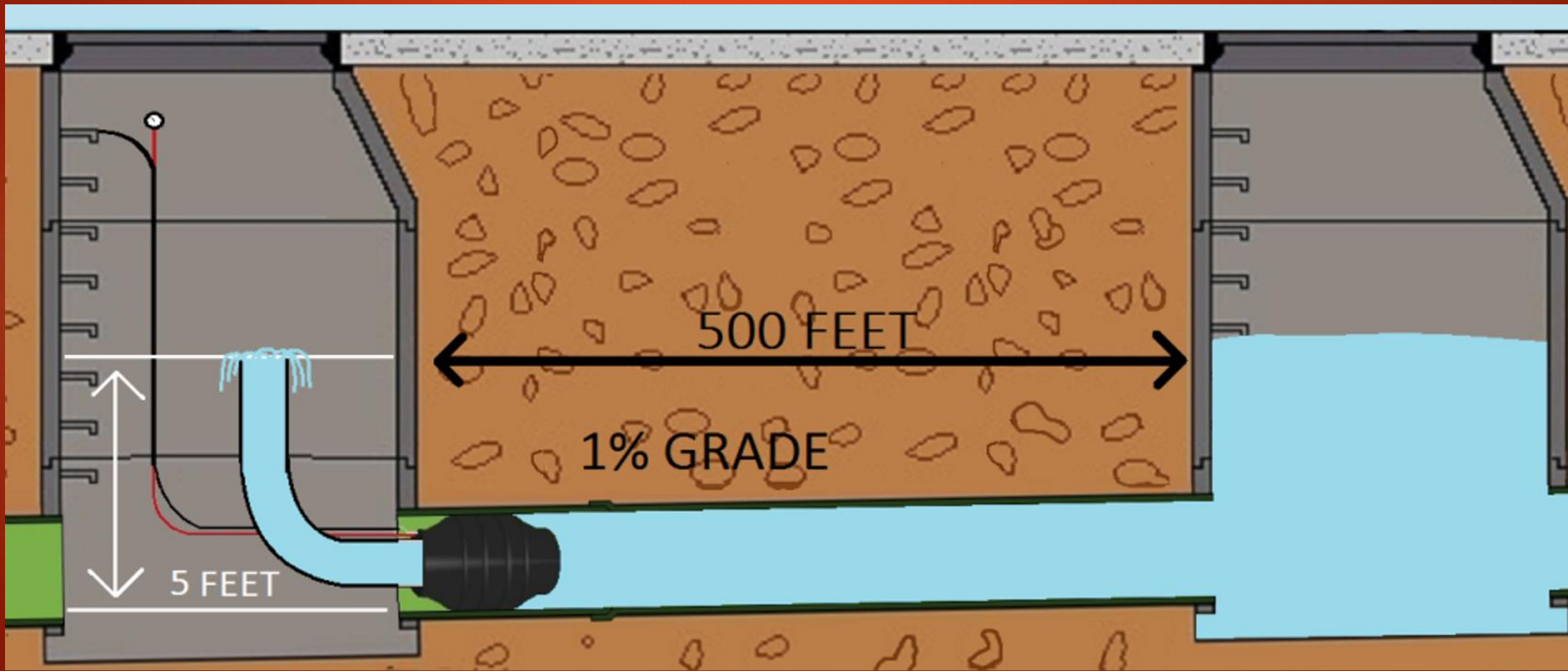
# What is Feet of Head or Head Pressure?

- ▶ Vertical Distance from the Water Level to the Centerline of the plug.



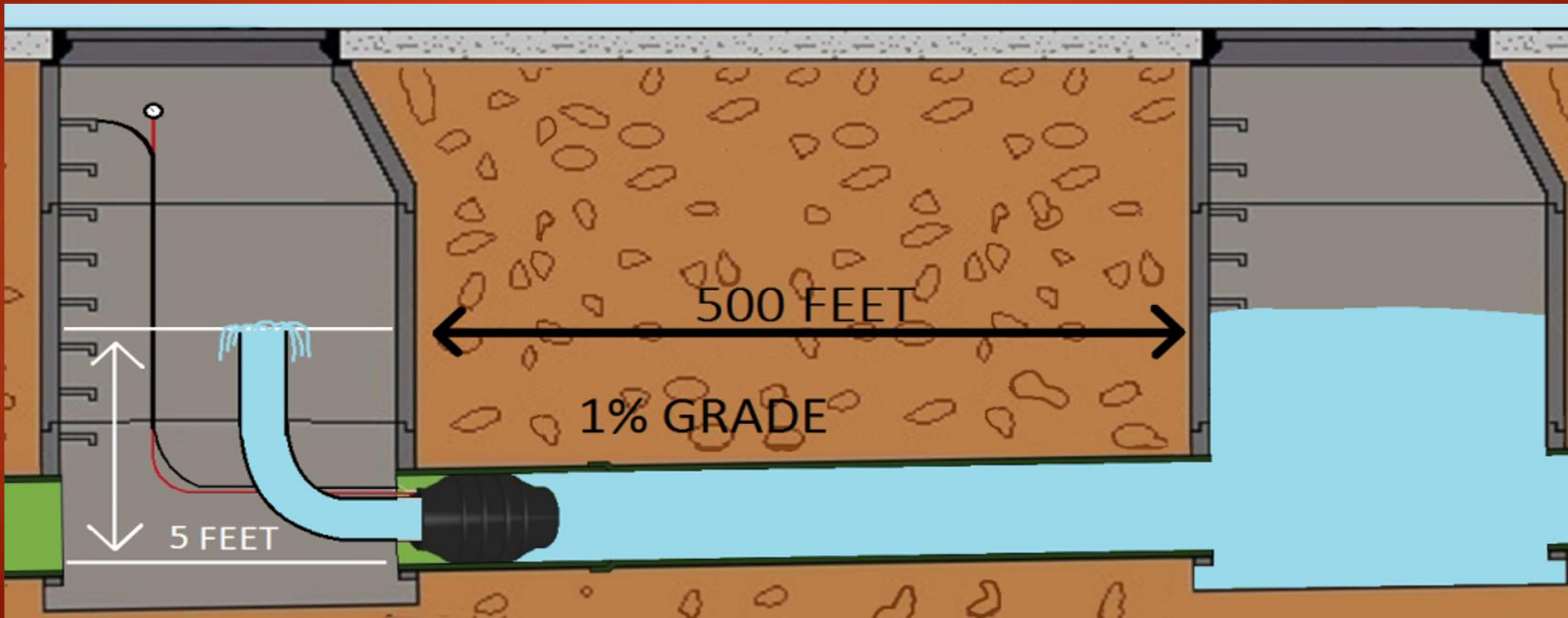
# Calculate Feet of Head

- ▶ Must know the depth of the water behind the plug.
- ▶ Derived from grade of slope and distance water is backing up behind the plug.



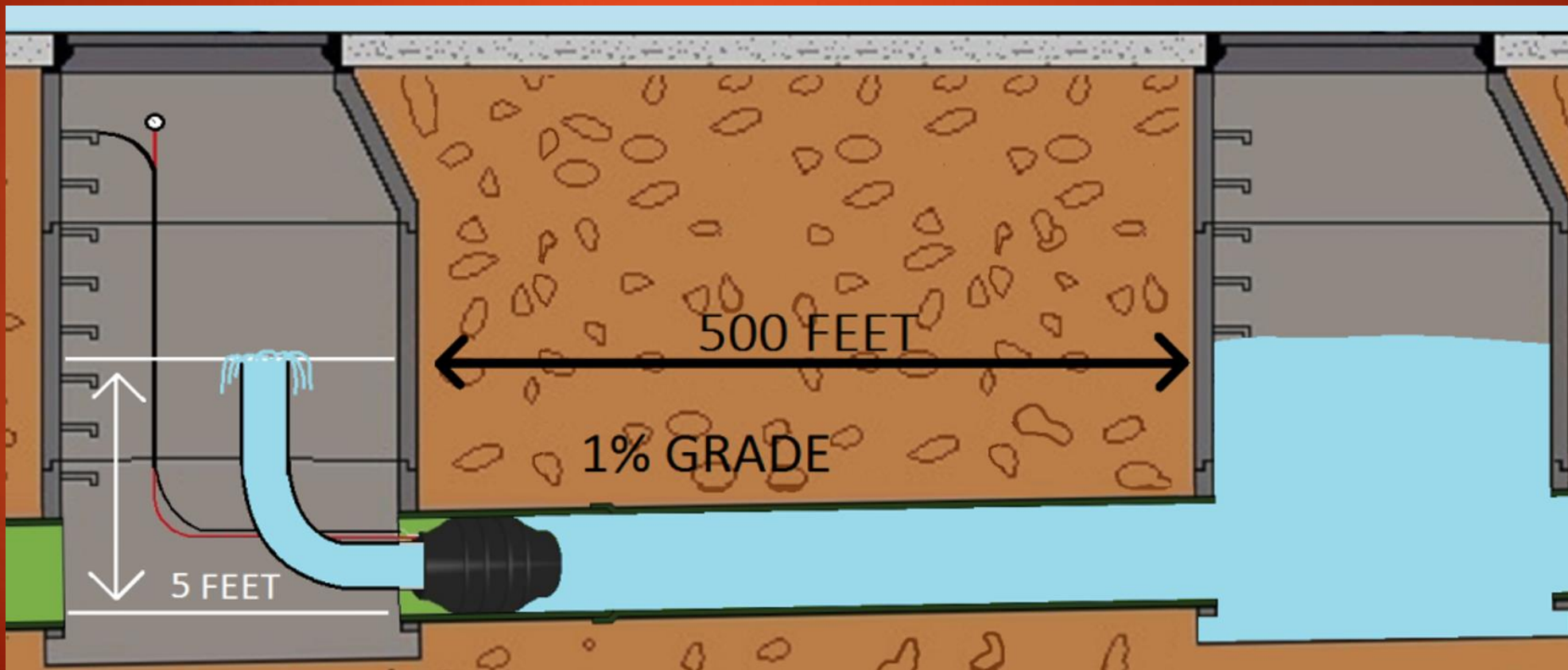
# What is the Grade or Slope of a pipe?

- ▶ Rise / Run
- ▶ 1 % grade that means the pipe slants downward 1 foot every 100 feet of pipe.



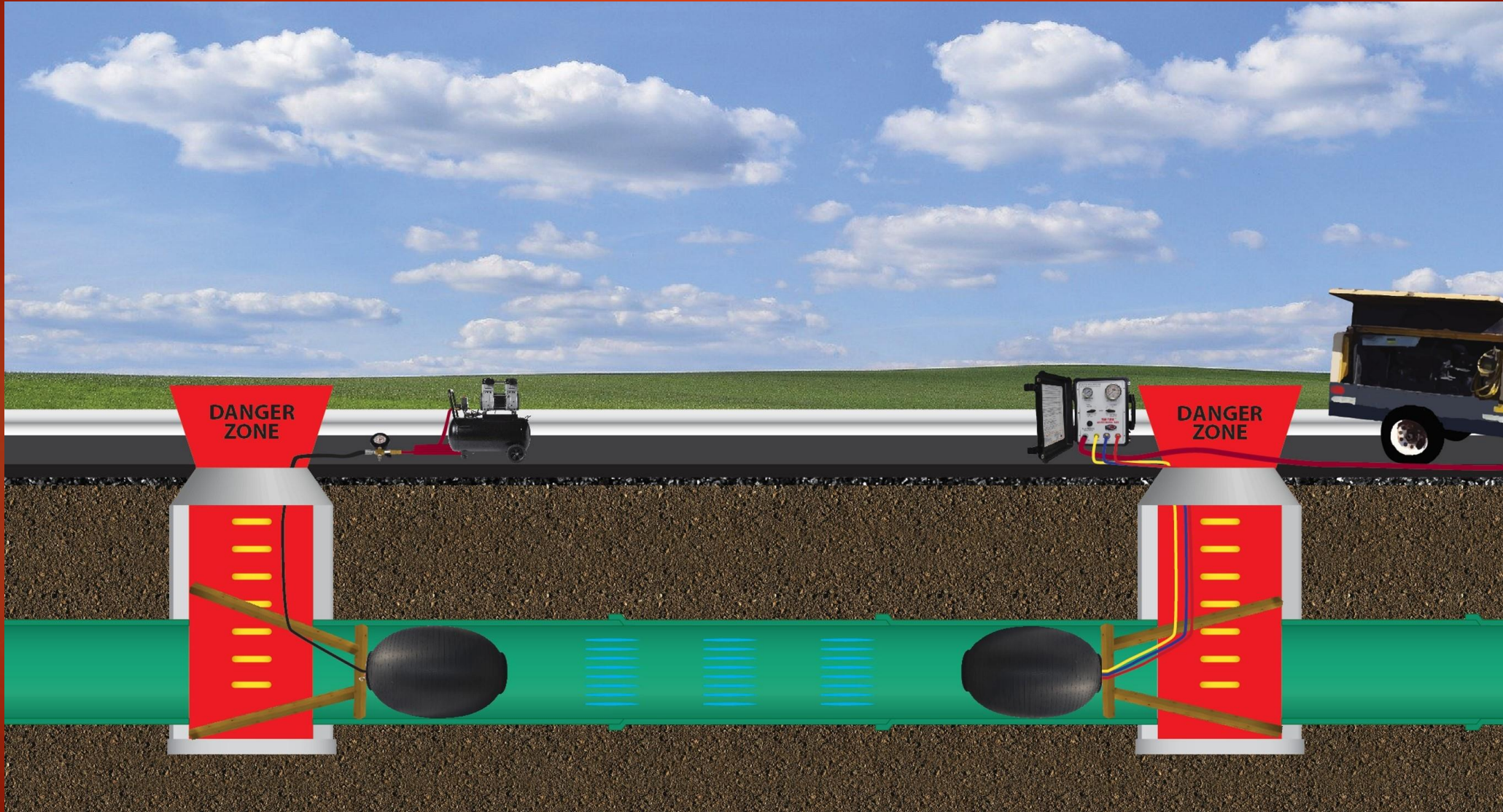
# Calculating Feet of Head in a pipe. Example:

- ▶ 1% grade and water is backed up 500 feet behind the plug then the plug will be holding back five feet of head.
- ▶ 500 Ft multiplied by the slope or grade 1% = 5 feet of head.



# Stay out of the Danger Zone!

Directly in front of plug or Manhole opening



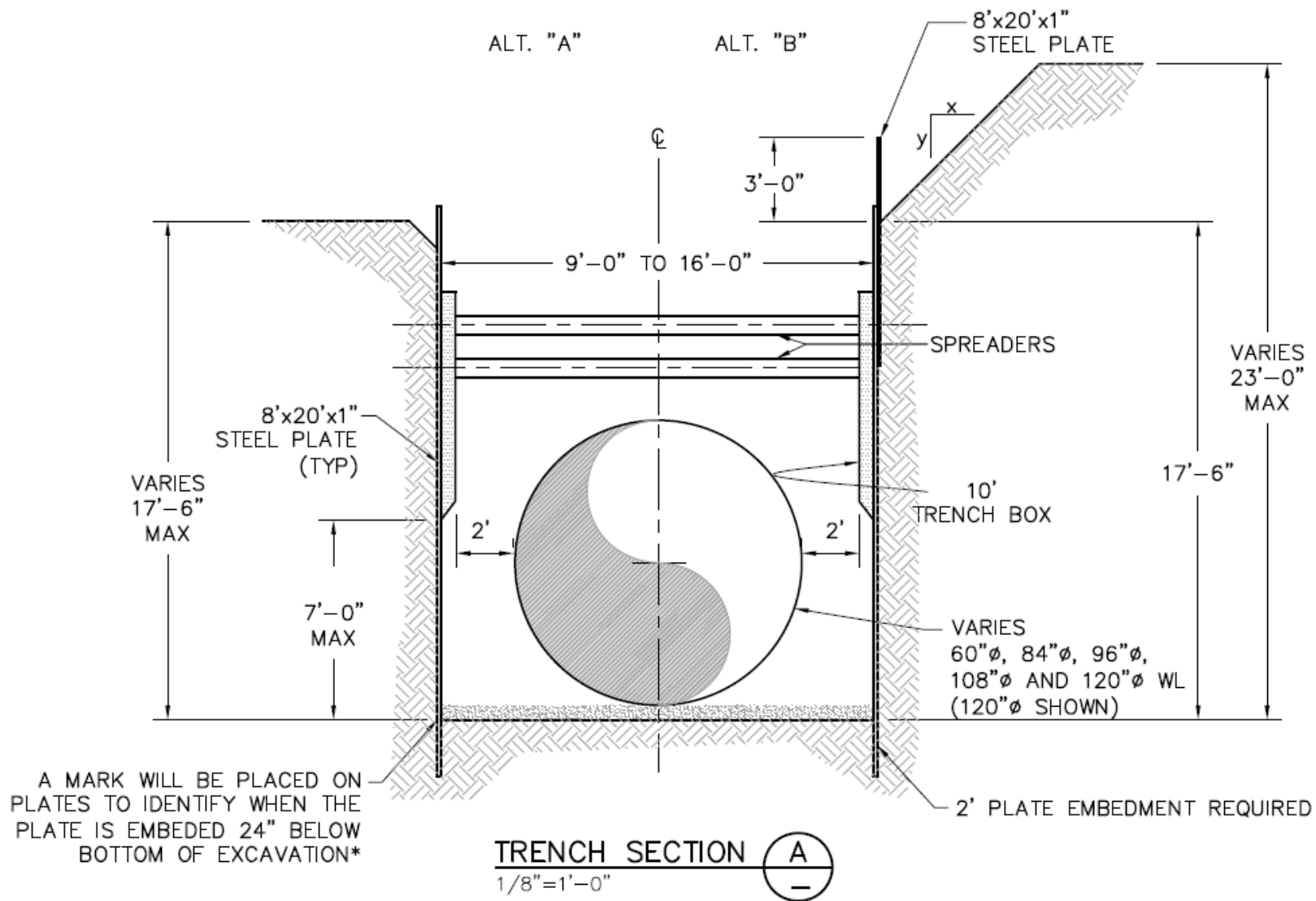
# Can plugs be inflated in the 90° of the pipes?

- ▶ NO.
- ▶ Some Plugs can bend to 90 degrees.
- ▶ Plugs must be installed in a straight section of the pipe as it relies on the wall for support required to hold back pressure plug is rated to.



Can street plates be used to extend the height of the shield?





Only with specific approval from a P.E.

\* FOR COHESIVE SOILS ONLY

# Are stack pockets and pins required when stacking shields?



What is the allowable gap between a trench shield and the dirt?



# Can a contractor repair a trench shield?



1926.652(d)(2)

Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

1926.652(d)(3)

When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.

1926.652(e)

*Installation and removal of support-*

1926.652(e)(1)

*General.*

1926.652(e)(1)(i)

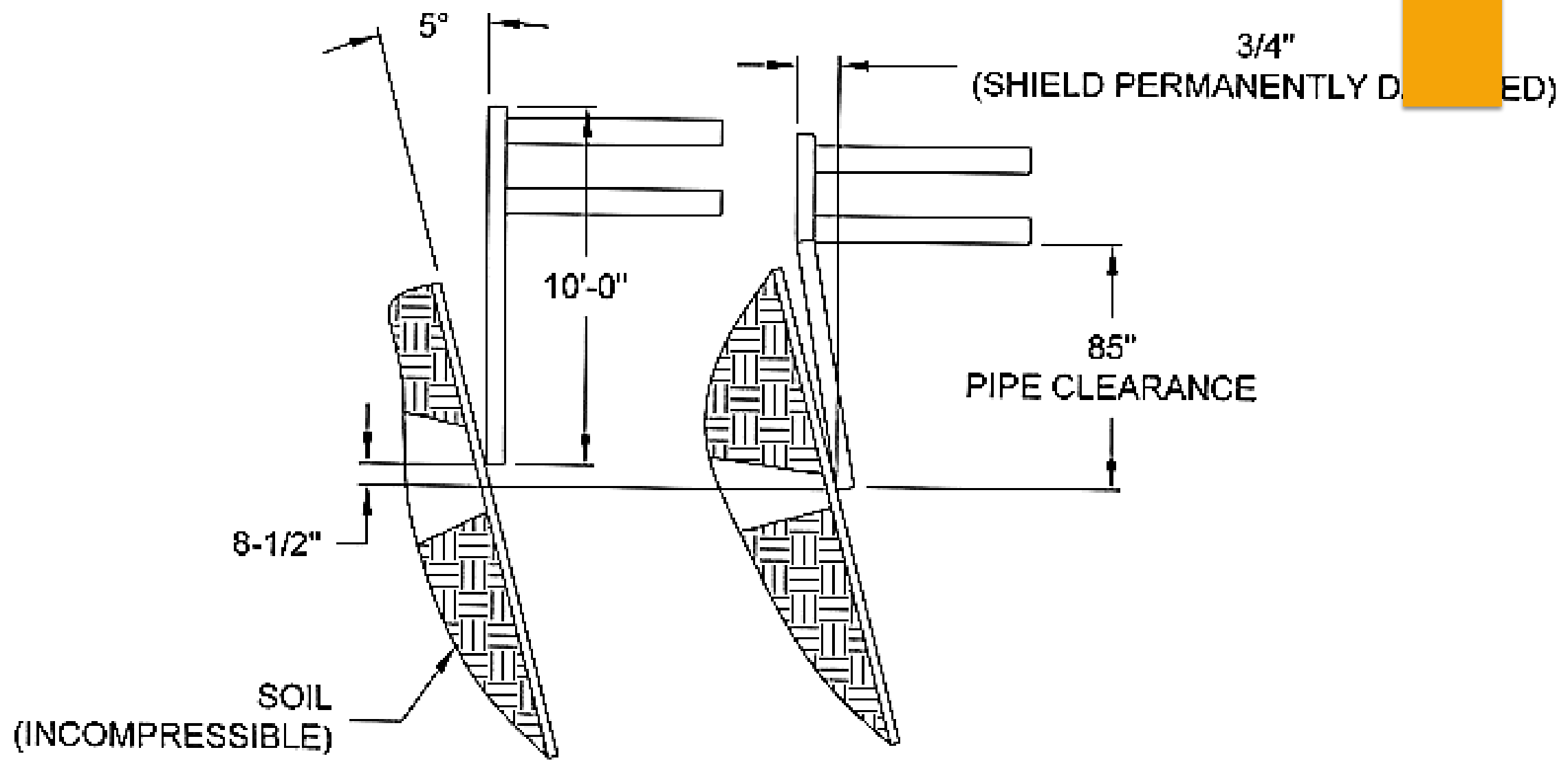
Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

# Can a contractor repair a trench shield?

- ▶ Per OSHA STANDARD INTERPRETATION (1992-03-23) “Shields or other protective systems damaged to the extent that the structural integrity or the ability of the system to perform as designed is affected, cannot be used until repaired and recertified by a Registered Professional Engineer or the manufacturer of the system. Minor repairs or normal maintenance done in accordance with manufacturer’s specifications do not need recertification. (See 1926.652(d)(3).”



Damage  
when  
setting a  
trench  
shield in  
place



SHIELD DRIVEN DOWN AGAINST PLATE



Can a  
Trench  
Shield be  
used  
vertically?