

# SECTION 552:

## Excavation Support & Protection Systems

# The 1998 revisions:

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- EI 98-033 and EI 98-034 issued specs and guidelines respectively for changes to Sections 206 & 552.
- Item 552.05: Safe Operation Sheet Piling was eliminated.
- As per OSHA, excavations greater than 5 feet must provide worker protection.

# Excavation Support or Excavation Protection Systems

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- Lay back Option

- Excavation Protection System

- Designed Support System

# Design Process

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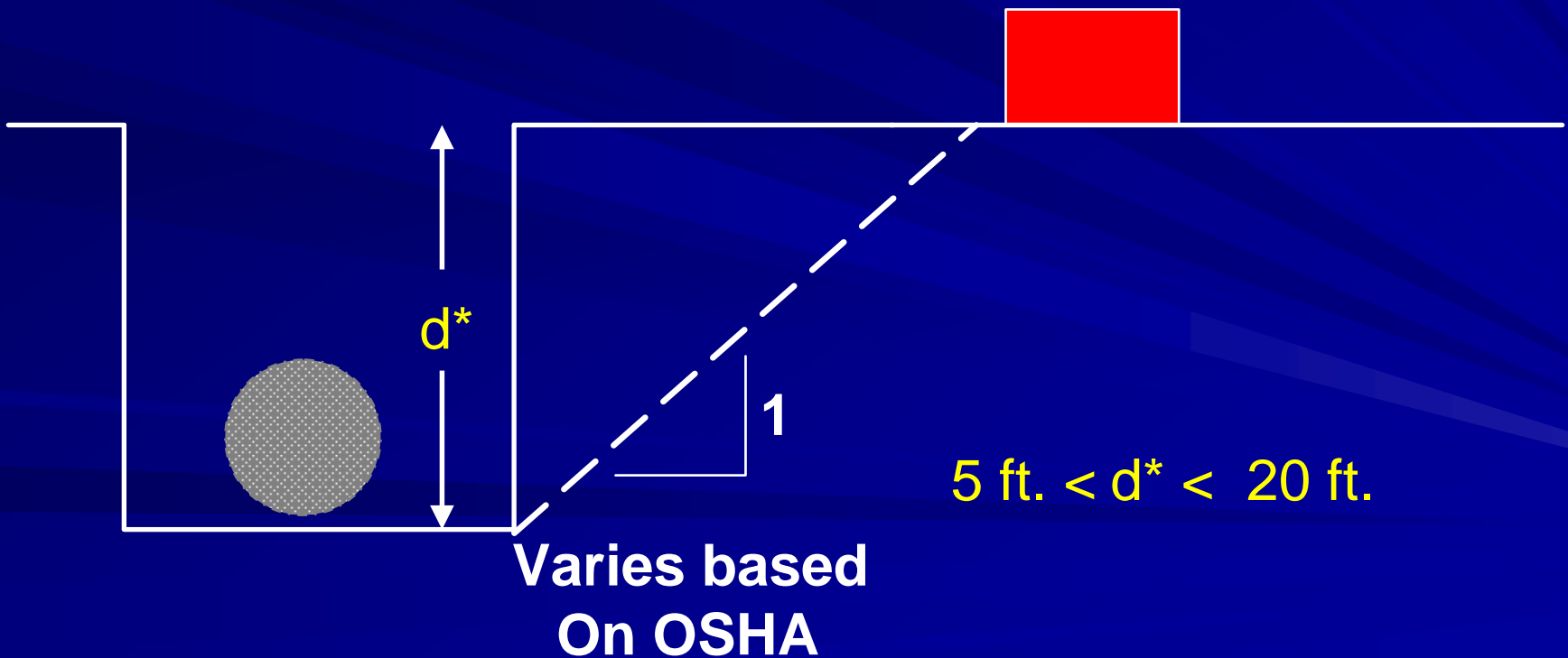
## ■ Layback Option:

1. No structure or interference within the anticipated safe slope.
2. Excavation depth more than 5 feet but less than 20 feet.
3. No additional payment beyond typical excavation and backfill vertical pay lines, which must be shown on the contract plans

■ Layback slopes for an excavation greater than 20 feet require a PE design and slope plus pay items should be shown in the contract plans.

# IS SLOPE LAYBACK AN OPTION?

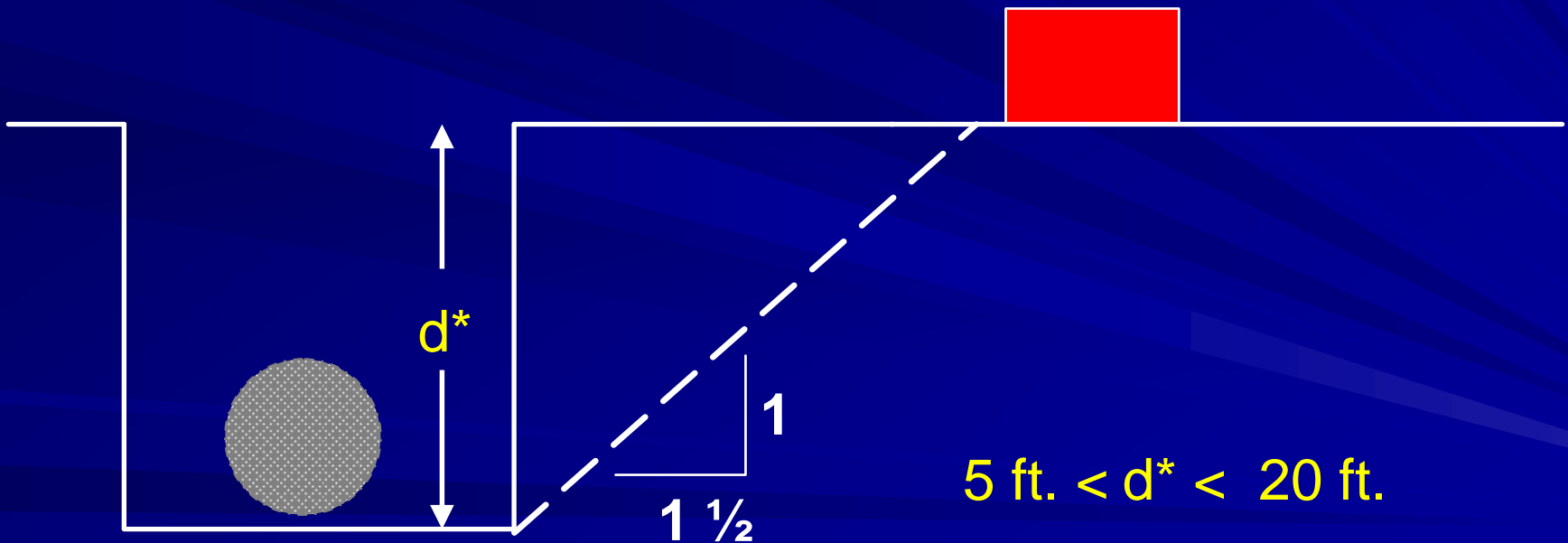
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# IS SLOPE LAYBACK AN OPTION?

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YES

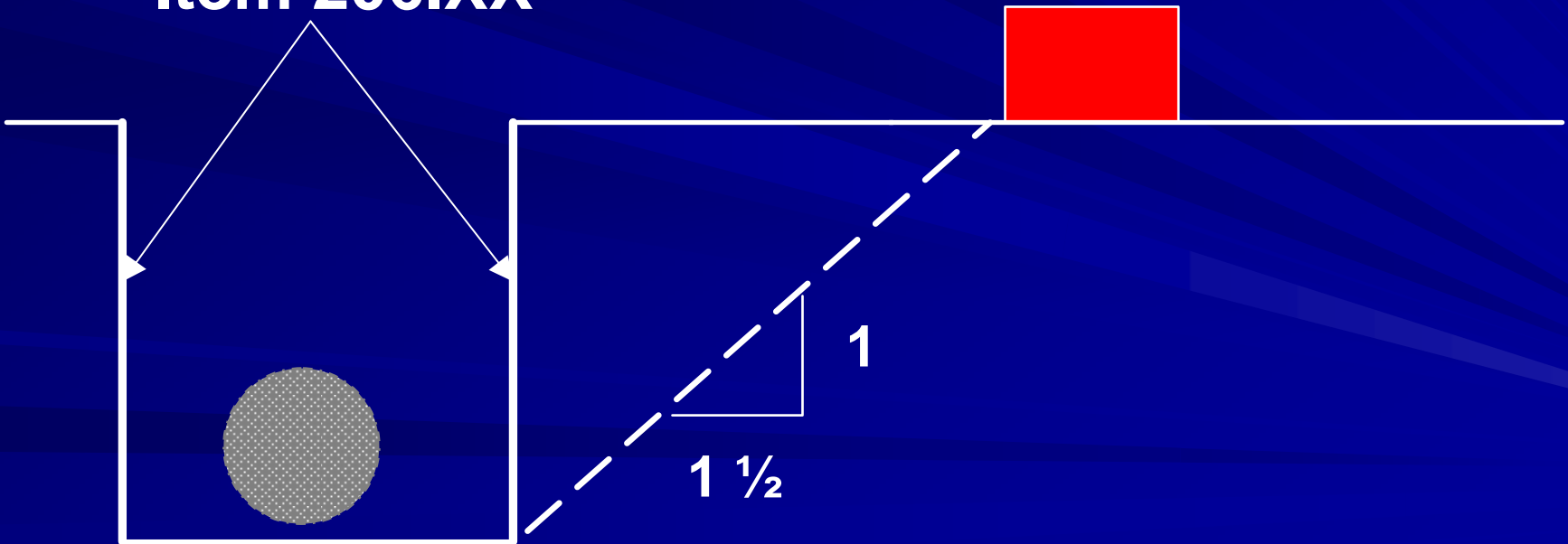


# LAYBACK IS AVAILABLE

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Section 206 Excavation Items provide for worker protection.

Item 206.XX

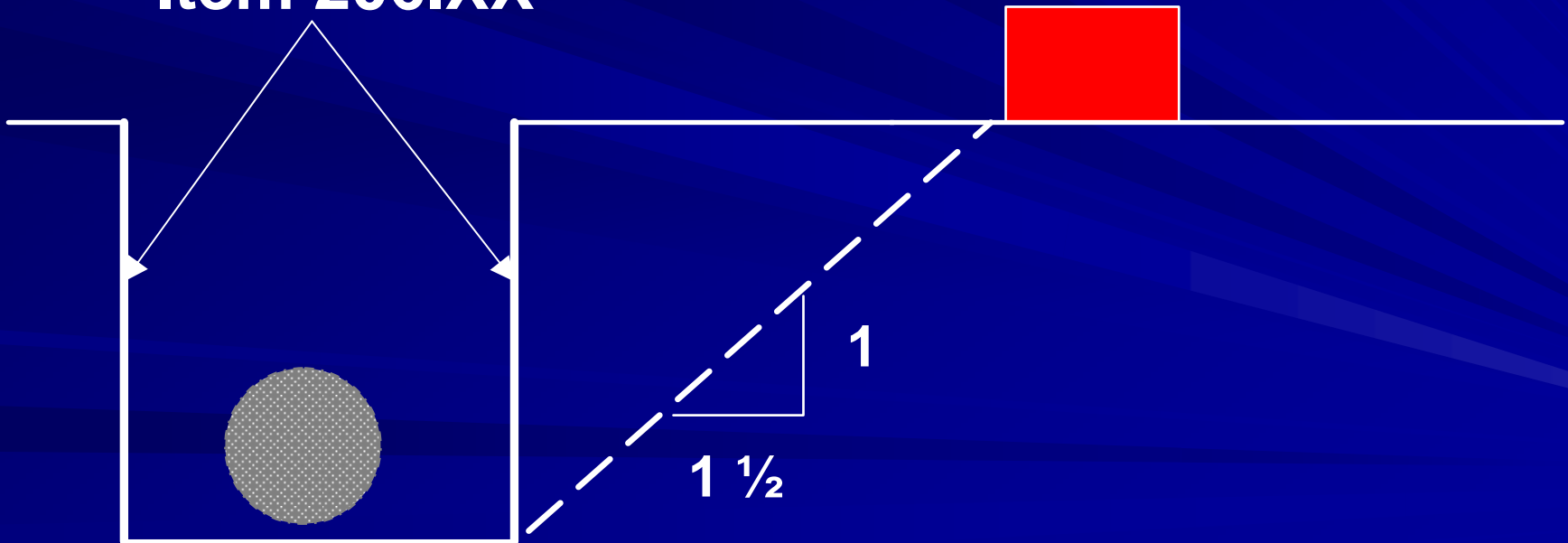


# LAYBACK IS AVAILABLE

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No additional payment beyond typical excavation vertical pay lines that are shown on the plans.

Item 206.XX



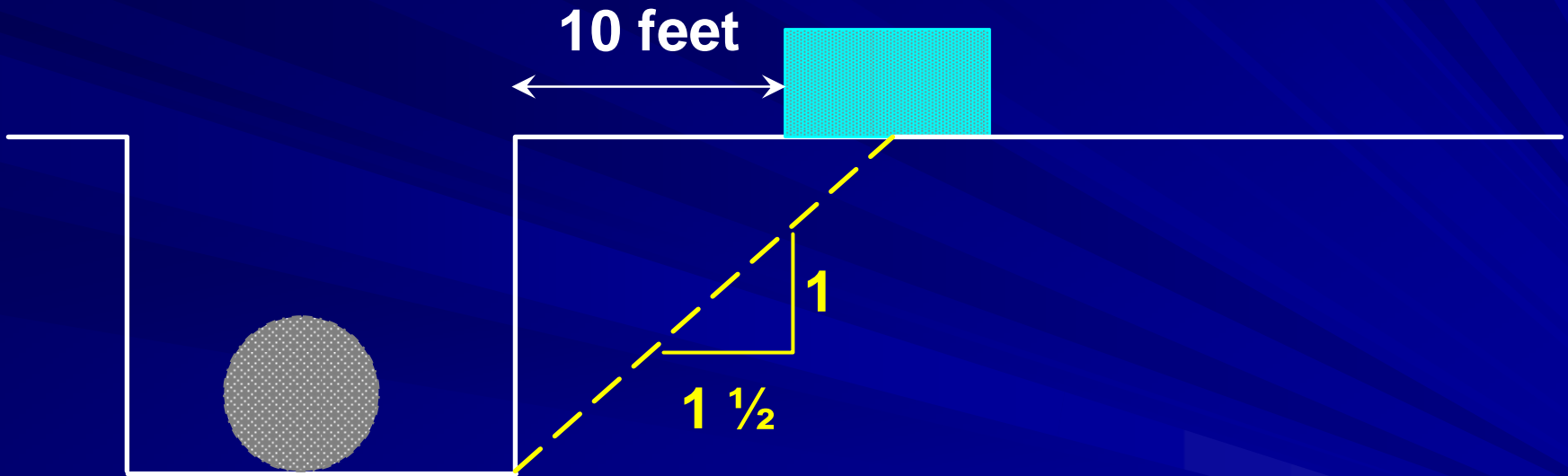




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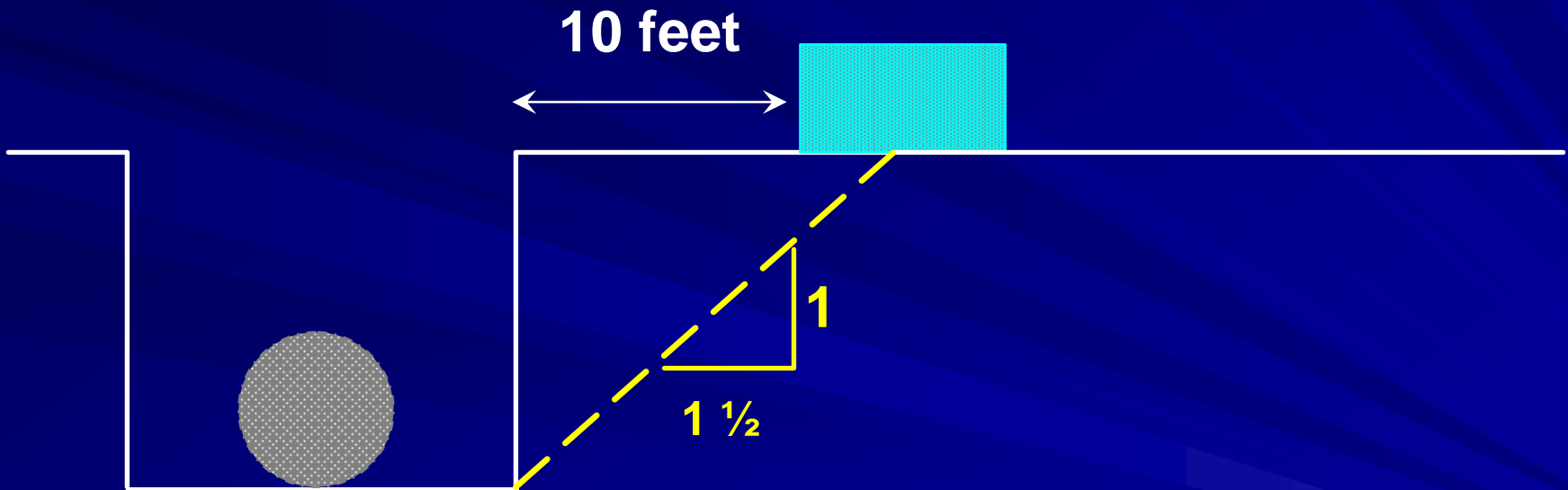


# IS SLOPE LAYBACK AN OPTION?



# IS SLOPE LAYBACK AN OPTION?

NO



Structure/Traffic/Utility/ROW is within 1 on 1 1/2

Can EPS be used?

# EPS: Excavation Protection System, Item 552.16

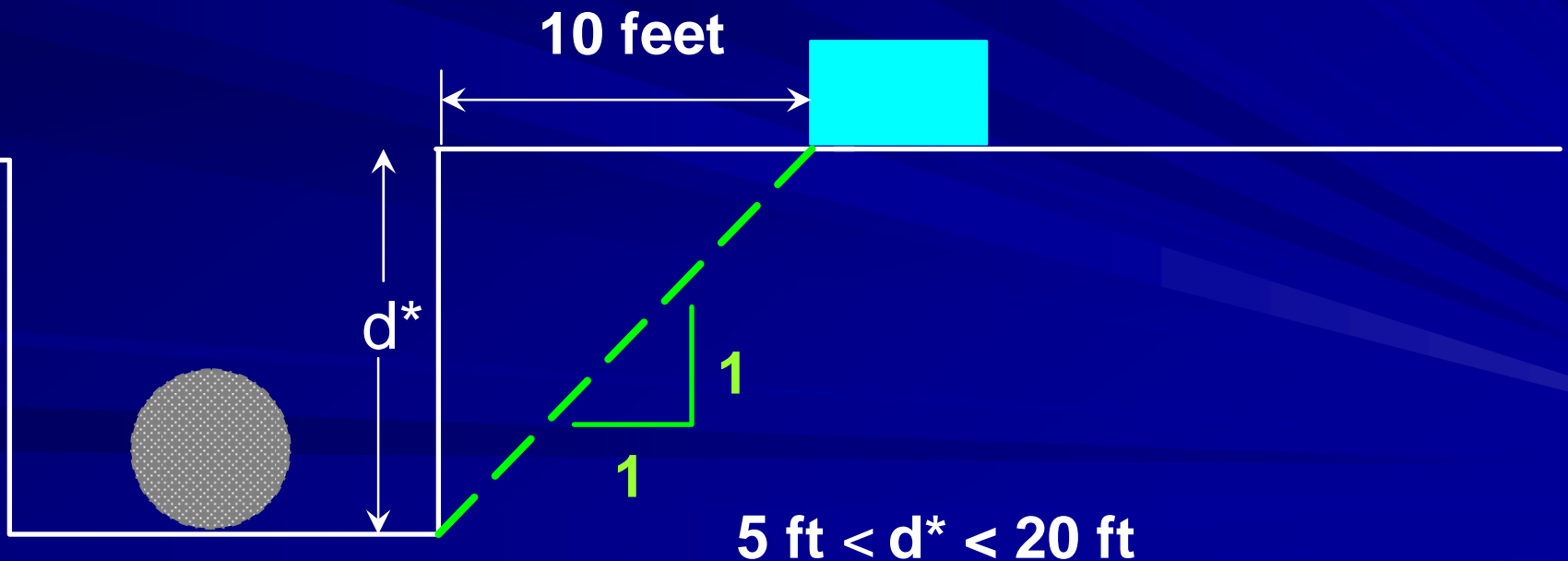
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- Excavation depth between 5 and 20 feet
- Adjacent structures must be:
  - At least 10 feet from edge of excavation
  - or
  - Beyond 1 on 1 from bottom of excavation  
(whichever distance is less)

# CAN EPS BE USED?

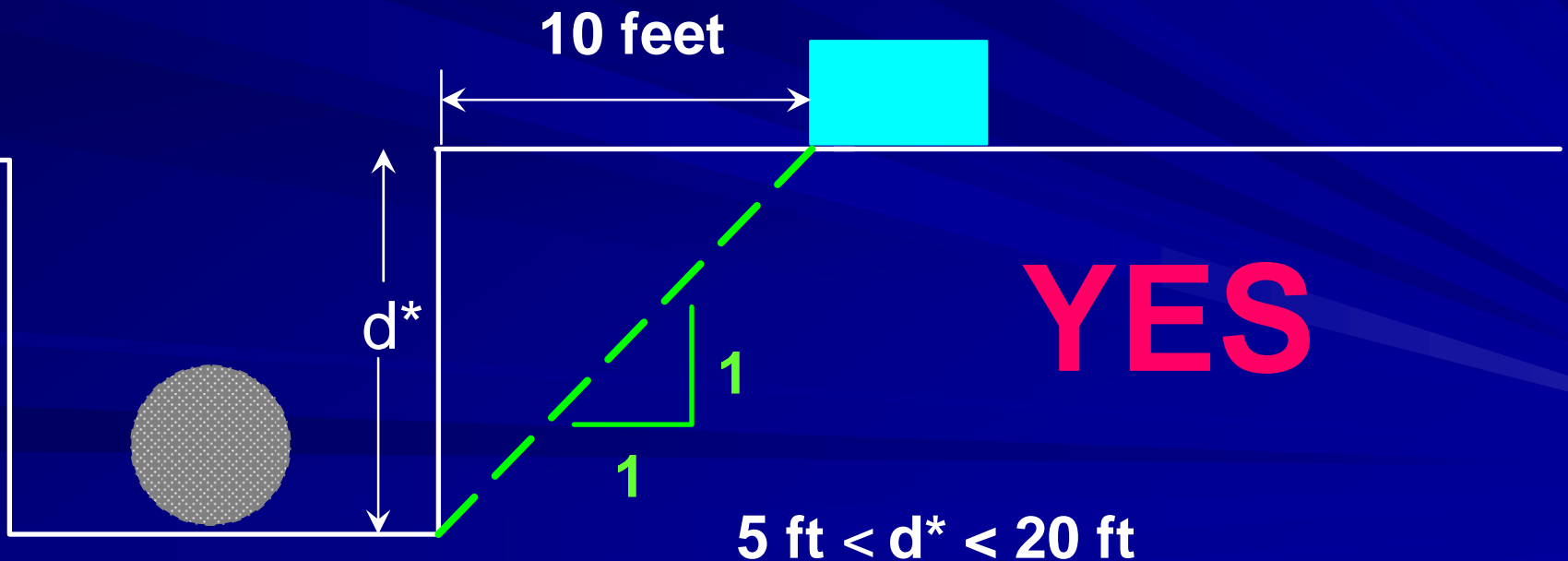
and

- Minor subsidence is determined to be acceptable



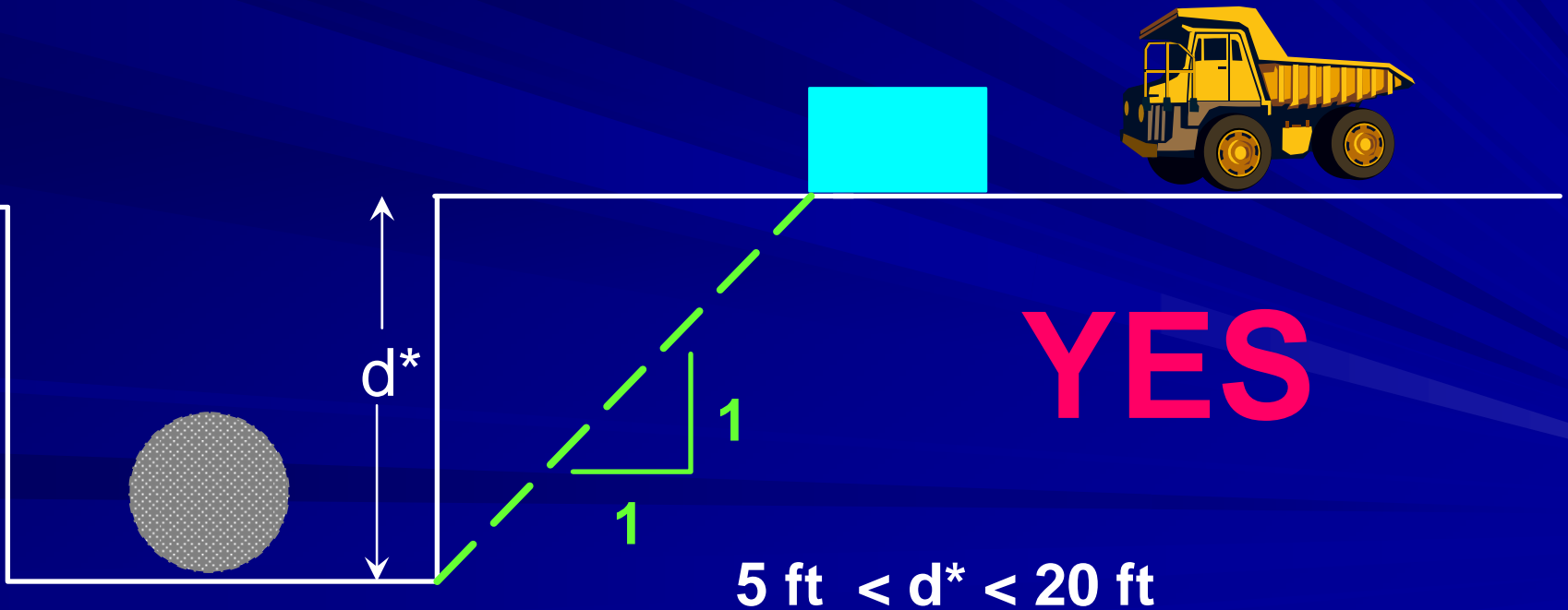
# CAN EPS BE USED?

A table should be shown on the contract plans indicating the locations where EPS is proposed for use.



# CAN EPS BE USED?

EPS submitted for review of OSHA compliance should allow for Construction Equipment.







# EPS: Excavation Protection System, Item 552.16

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## RESTRICTIONS

- EPS cannot be used when layback is possible.
- EPS is not used to support Stage Construction.
- EPS is not an acceptable substitution for designed sheeting.

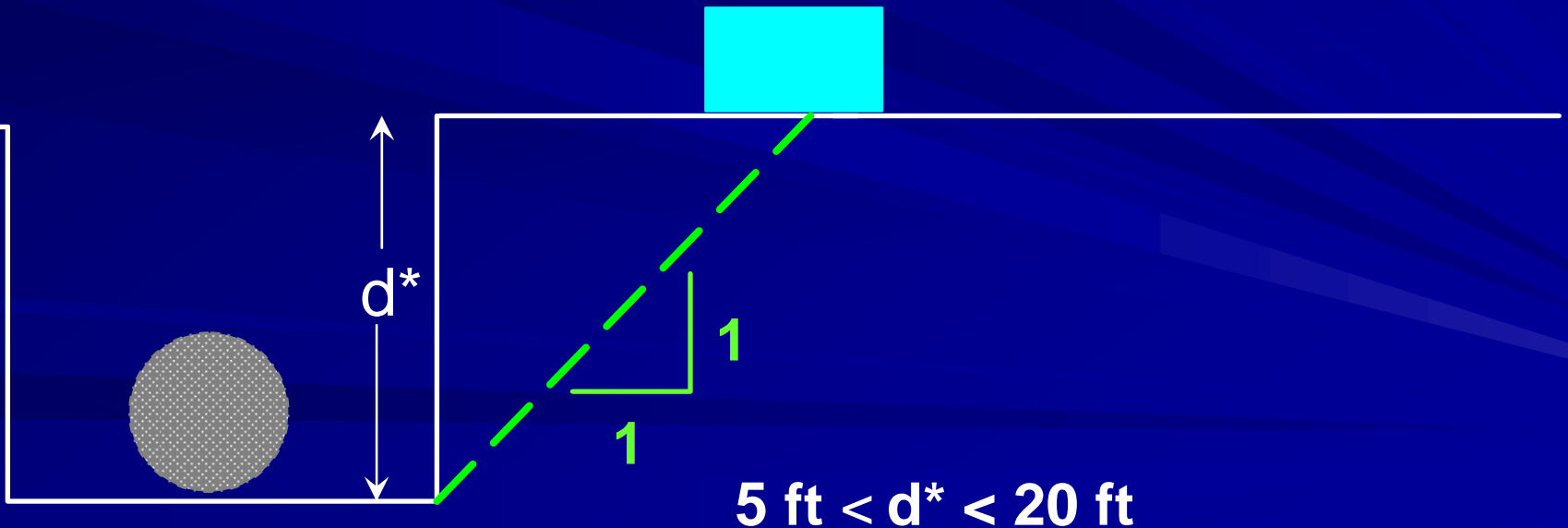
**WORKER PROTECTION ONLY**

# CAN EPS BE USED?

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NO

Designed Support System is Required



# Designed Support System

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Used when one or more of the following applies:

- Excavation exceeds 20 feet.
- Adjacent structure is inside the 1 on 1 from the excavation bottom.
- Minimal subsidence is a problem.

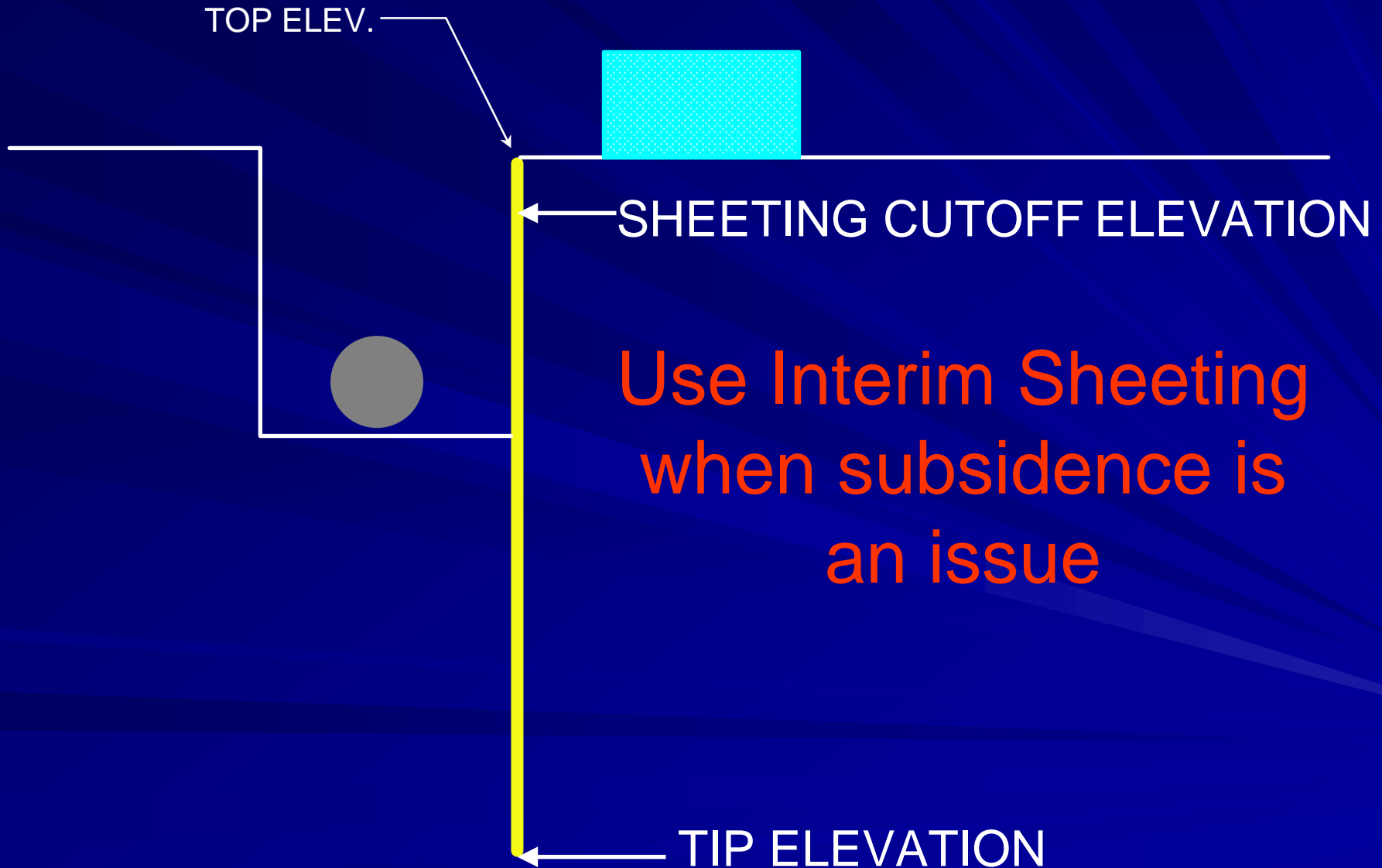
# Designed Support System

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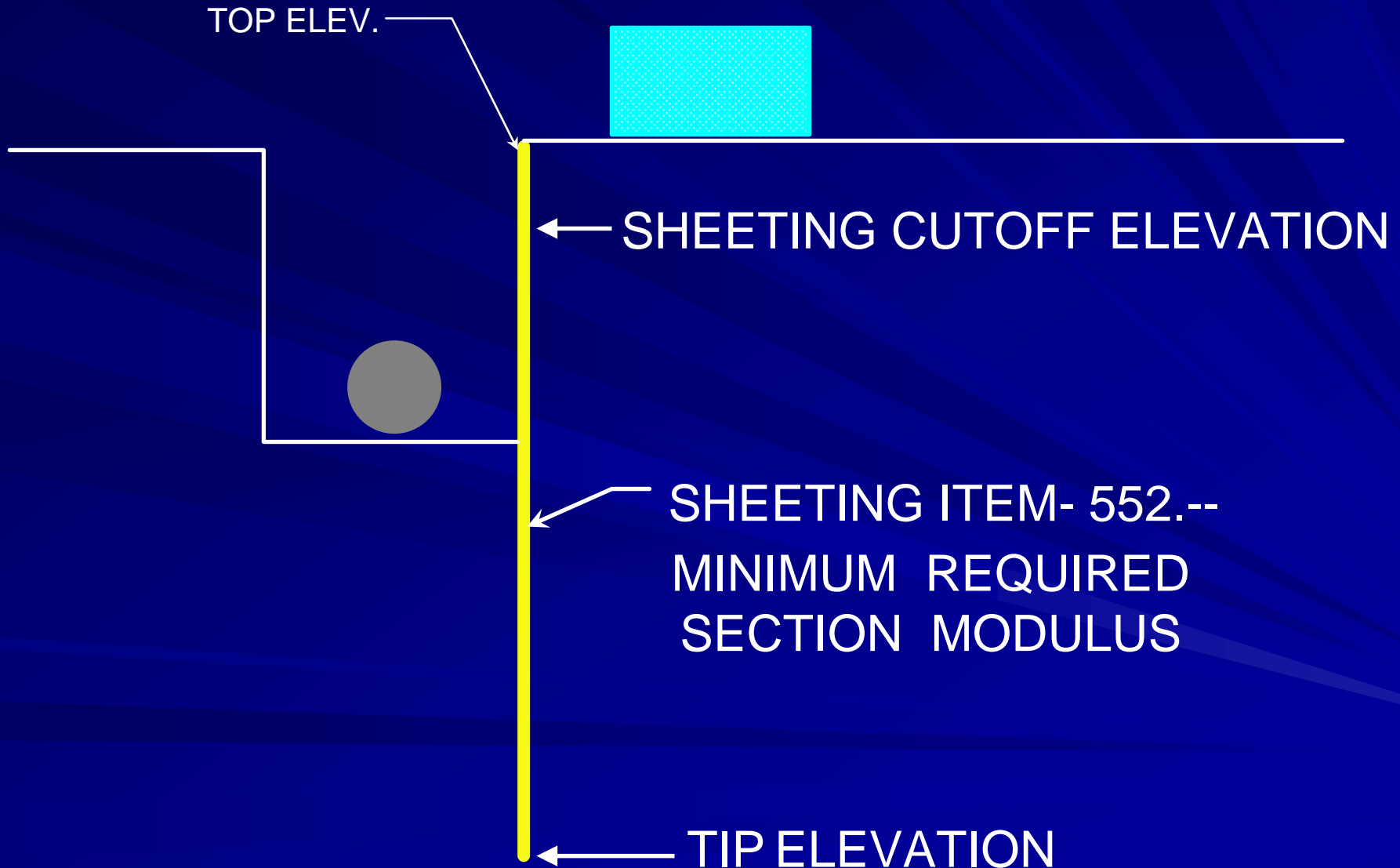
## Types of Sheeting:

- Permanent: new material; remains in place
- Temporary: used material; is removed
- Interim: used material; remains in place

# Designed Support System

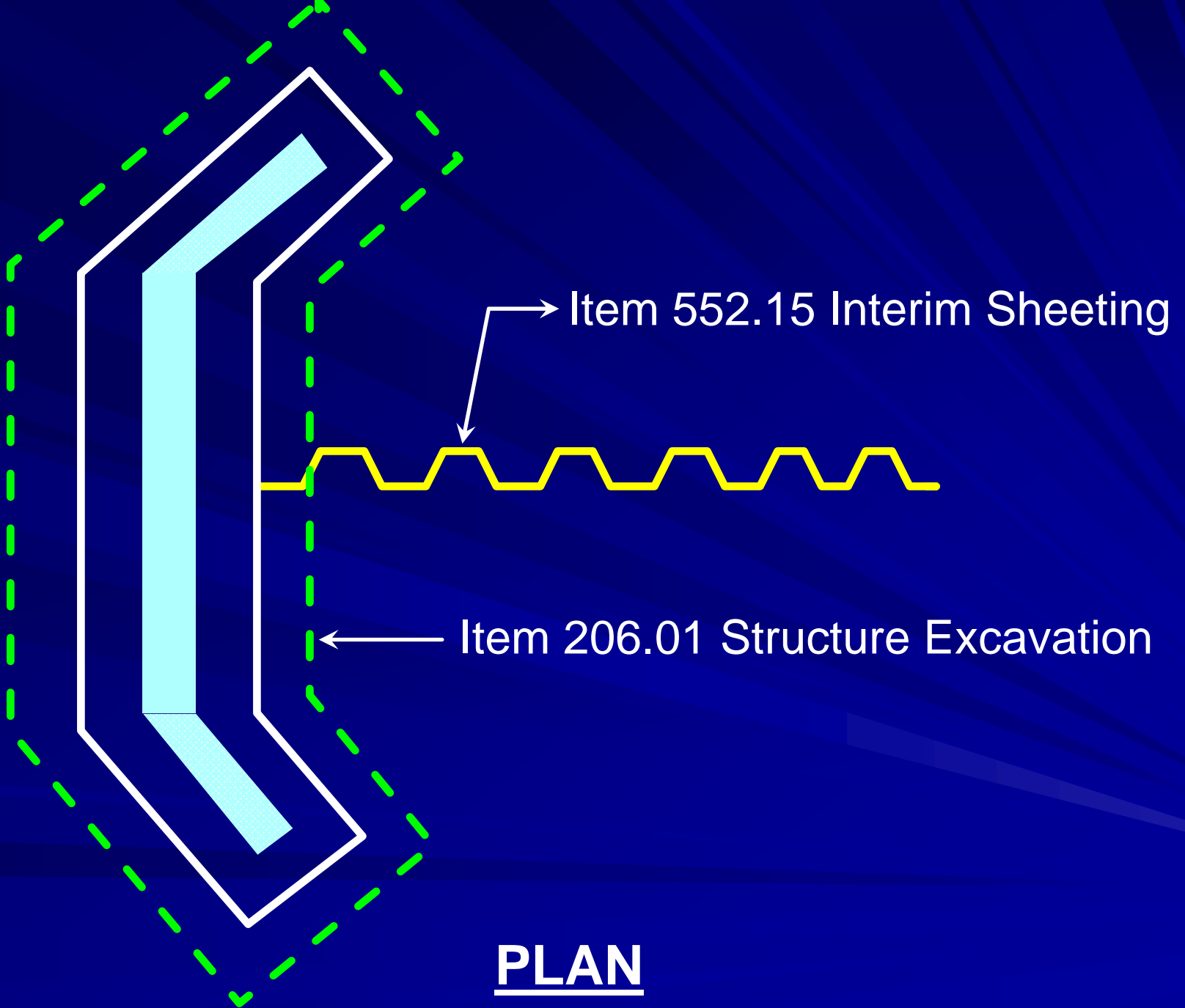


# Designed Support System



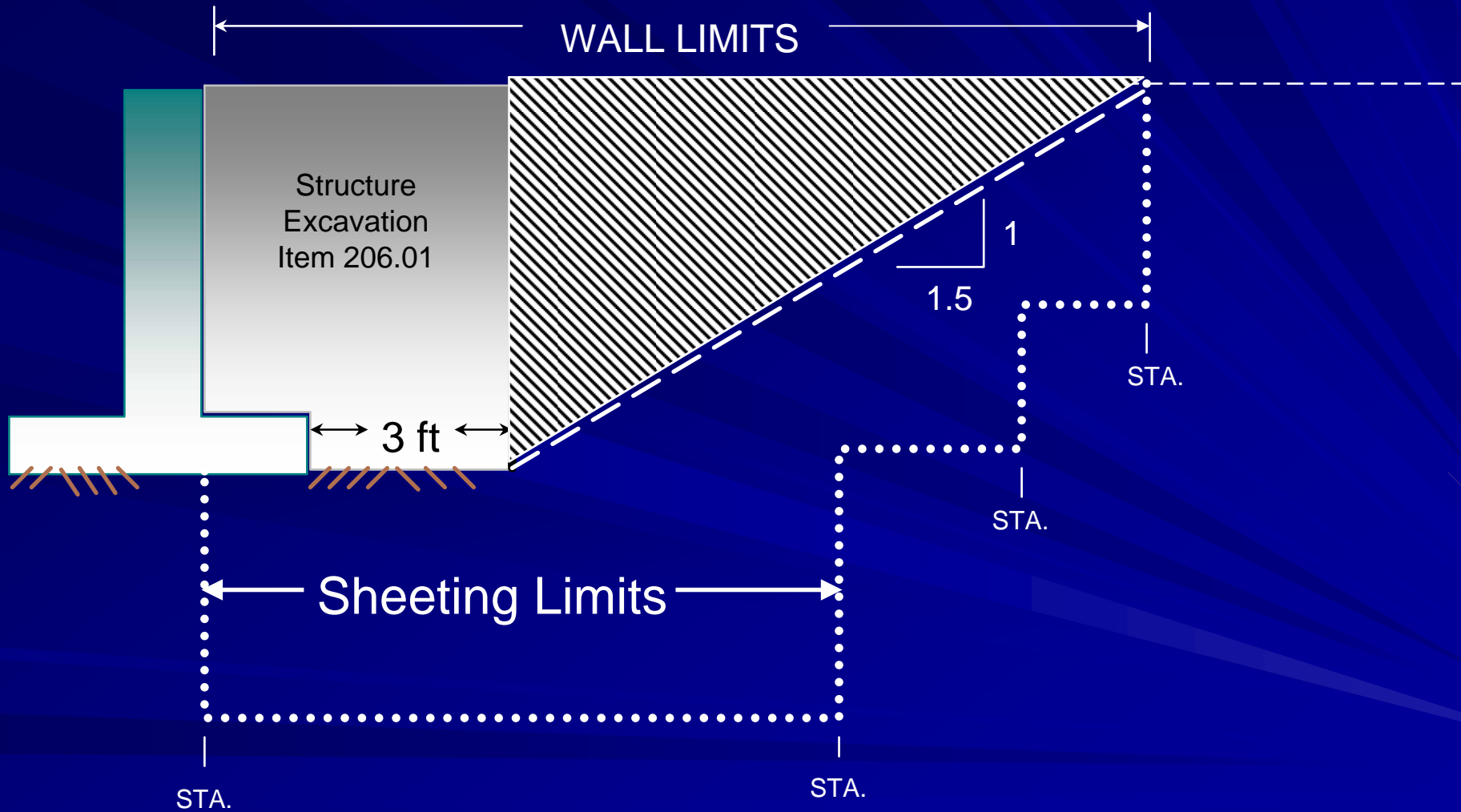






PLAN

# SUPPORT SHEETING FOR STAGE CONSTRUCTION



Typical





# Designed Support System

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Sheeting may not be applicable due to:

- Soil type
- Depth of excavation
- Obstructions such as cobbles and boulders
- Shallow bedrock

We would design other types of support such as soldier pile and lagging wall to maintain the excavation.

















BCP

JFK