



**MIDWEST  
MOLE**  
TRENCHLESS SPECIALIST

**Indianapolis, Indiana**  
[www.midwestmole.com](http://www.midwestmole.com)

## **Trenchless Installations from a Construction Perspective**

**Presented By: Daniel L. Liotti, P.E.**

### **Trenchless Technology**

**Auger Boring  
Guided Boring  
Pipe Jacking**

**Utility Tunneling  
Microtunneling  
EPB Tunneling**

# Auger Boring

# Auger Boring



# Auger Boring



# Robbins Small Boring Unit (SBU) For Rock Auger Bores



# Rock Disc Cutters



# **AXIS Guided Boring**

# **AXIS Guided Boring**



# AXIS Guided Boring



# AXIS Guided Boring



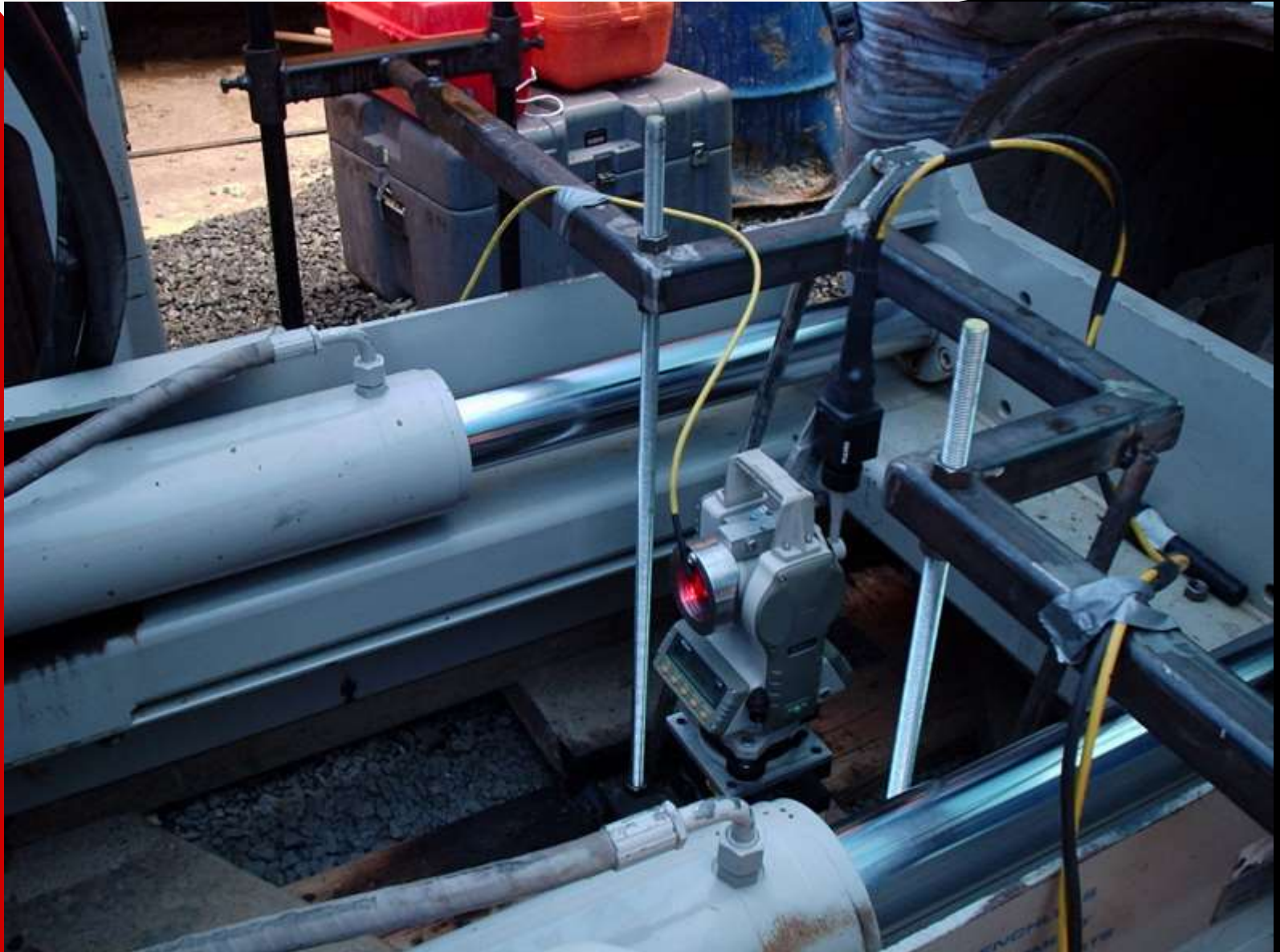
# AXIS Guided Boring



# AXIS Guided Boring



# Guided Boring



# Guided Boring



# Guided Boring



# Guided Boring





# Guided Boring



# **Pipe Jacking Video**

# **Pipe Jacking – TBM Video**

# **Pipe Jacking – Closed Face TBM**

# Pipe Jacking



# Pipe Jacking



# Utility Tunneling



# Utility Tunneling – Handmine





# Steel Liner Plates



# Steel Ring Beam and Wood Lagging



# Excavator Shield



# Rock Tunnel Boring Machine



# 72" Robbins Rock TBM



# 72" Robbins Rock TBM



# 72" Robbins Rock TBM



# 72" Robbins Rock TBM

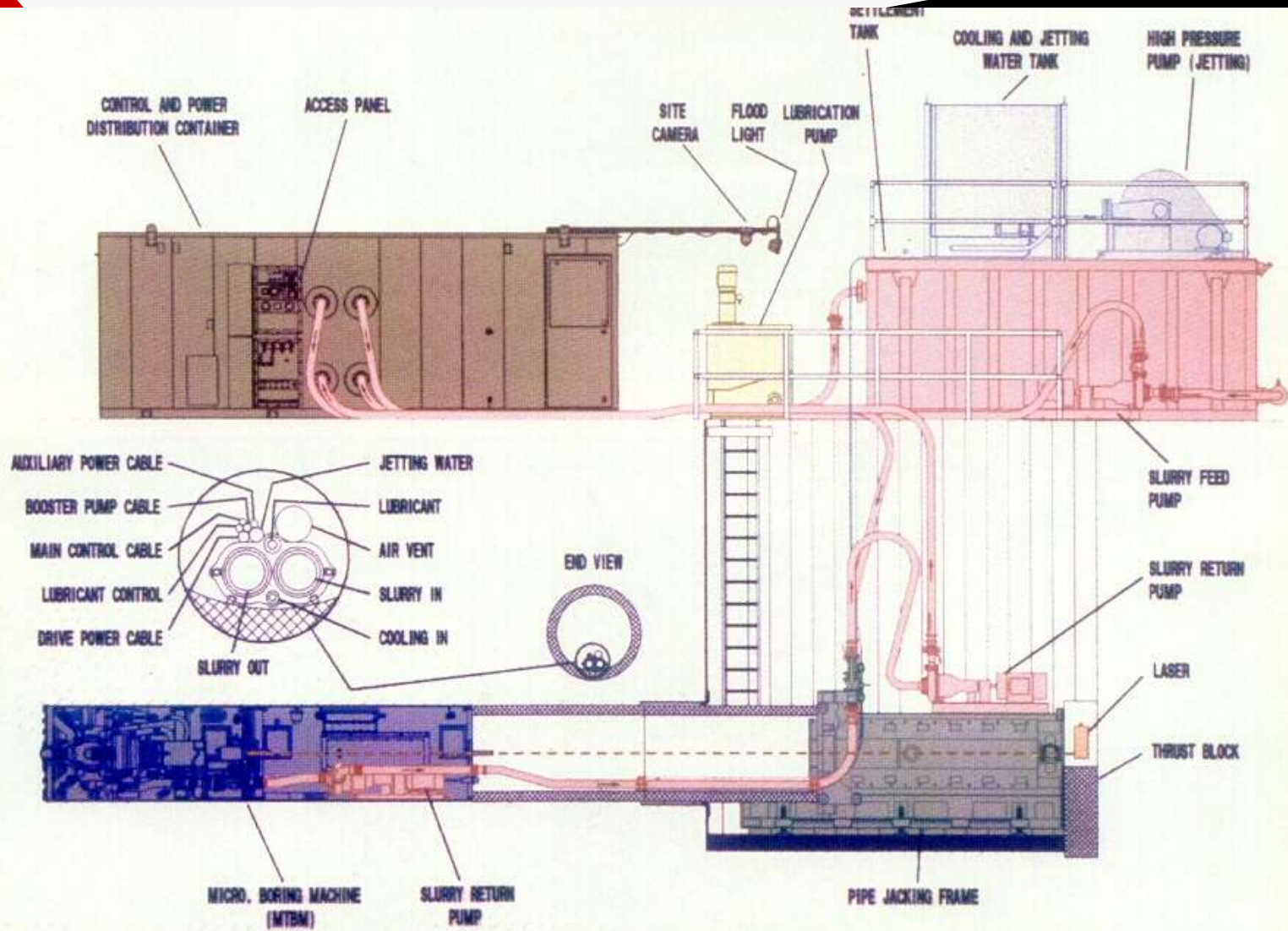




# **72” Robbins Rock TBM**

# Microtunneling

# Microtunneling



# Microtunneling



# Microtunneling

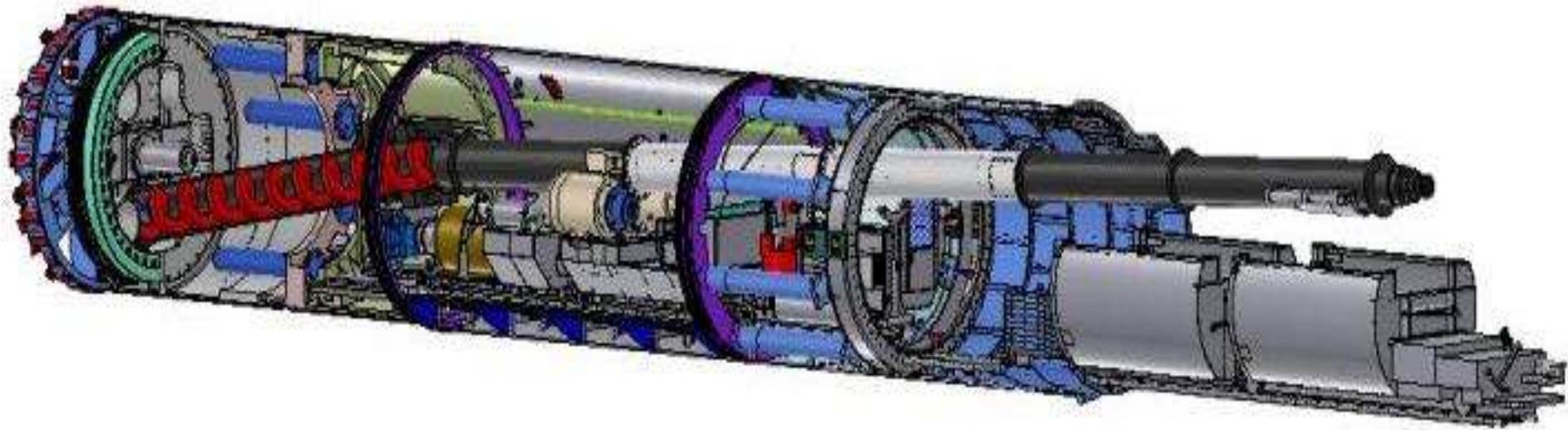


# **EARTH PRESSURE BALANCED TUNNELING (EPB)**

# EARTH PRESSURE BALANCED TUNNELING (EPB)



# EARTH PRESSURE BALANCED TUNNELING (EPB)





# Control Panel (EPB)



# Cutter Head EPB



# Screw Auger (EBP)



# Screw Auger (EPB)



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## Indianapolis Airport Utility Connector Tunnel



Results of Annual Sewer Survey  
Innovative HDD Project in Florida

**Inside Cover:** ▶  
Rehabilitation Winner  
Milwaukee CIPP Sewer Rehab Project