

DOUBLE SLIDE RAIL INSTALLATION METHOD

Hirepool SHORING

Introduction
Slide rail shoring systems can be used for trenches up to 12m wide and 6m deep. Module length is determined by panels used which are either 3m long or 4m long. The following document outlines the sequence for installing slide rail systems.

It is important to keep the slide rails vertical and the arrangement square. This can be achieved simply using a spirit level and by measuring diagonals.

SAFETY
Lifting, handling, pulling, dragging
- Handling should be carried out as close to the ground as possible.
- Lifting chains must be chosen to suit the weight being handled and must be certified.
- To prevent the accidental detachment of the load use only load hooks with safety catches.
- The load must be slung in such a way that the shoring is kept in a horizontal position and swinging is kept to a minimum.
- Shoring should be lowered onto level and firm ground.
- Do not stand within the pivoting range of the excavator or crane or beneath suspended loads.
- A load operator must stand to the front of the excavator and be in eye contact with the machine operator.

Measures to reduce hazards
- The safety of persons on site is paramount and should be enhanced with the aid of appropriate signs, cones, warning tapes and safety staff trained and deployed for the purpose of preventing accidents.
- The risk of instability as a consequence of wind loads when setting up or using shoring must be considered.
- Shoring must be secured against accidental impacts and set up in an area of sufficient size and on firm ground.
- Care must be taken to look out for and avoid contact with overhead cables when handling, installing and removing shoring.
- Where the ground is sloping or uneven, the shoring should be set up, if possible, at right angles to the slope.

Reasons for taking parts out of service
Before use, all shoring components must be checked for their correct function. Reasons for taking parts out of service include:
- Missing or broken parts such as nuts, pins or locking pins
- Severely worn or damaged parts, including panels with holes
- Loose nuts and bolts – check and tighten all nuts and bolts before using

Faulty parts must be replaced or repaired. Only original replacement parts from the manufacturer or TSNZ may be used. Repairs must be carried out by TSNZ or carried out by another party only when in authorised in writing by TSNZ.

In all cases of doubt always consult TSNZ or your local officially appointed TSNZ agent.

LIMITATIONS AND GUIDELINES
The slide rail system is designed and certified to operate at maximum loads. If the user or operator is unsure of the loads likely to be encountered at a specific site, professional engineering advice should be sought to determine this.

Typical site conditions which affect lateral loads due to earth pressure are:

- Depth of excavation
- Soil types
- Ground water levels
- Surcharge loads, for example;
  - one or other sides of the excavation may have adjacent ground which slopes down towards the excavation
  - buildings or other structures close to the excavation
  - traffic close to the excavation
- Differential surcharges – where the extra loading is on one side of the trench only.
- The width of the excavation and shoring

Other limitations and recommendations:

- Always use the Plate Protector supplied to ensure that panels are not damaged
- Keep the installation vertical and square at all times
- Ensure that lifting equipment has sufficient capacity to install and recover the system components – generally, a 30 tonne excavator, or bigger, is recommended for primary excavation and installation, together with a smaller excavator or crane to lift components into place..

EQUIPMENT
Checklist:

- Am I trained for the task?
- Am I wearing the correct PPE (Personal Protective Equipment) for this task?
- Do I require assistance from a licensed machinery operator- eg cranes?
- Do I have the correct tools for the task?
- What are the safety devices being used on site – eg chains etc?
- Is the work area cleared of debris, tools etc?

Equipment:
A certified lifting chain with the correct leg lengths for the size of the equipment being lifted must be used. Such a lifting chain must be appropriately rated to lift and handle components and assemblies, which may weigh up to 4.5 tonnes.

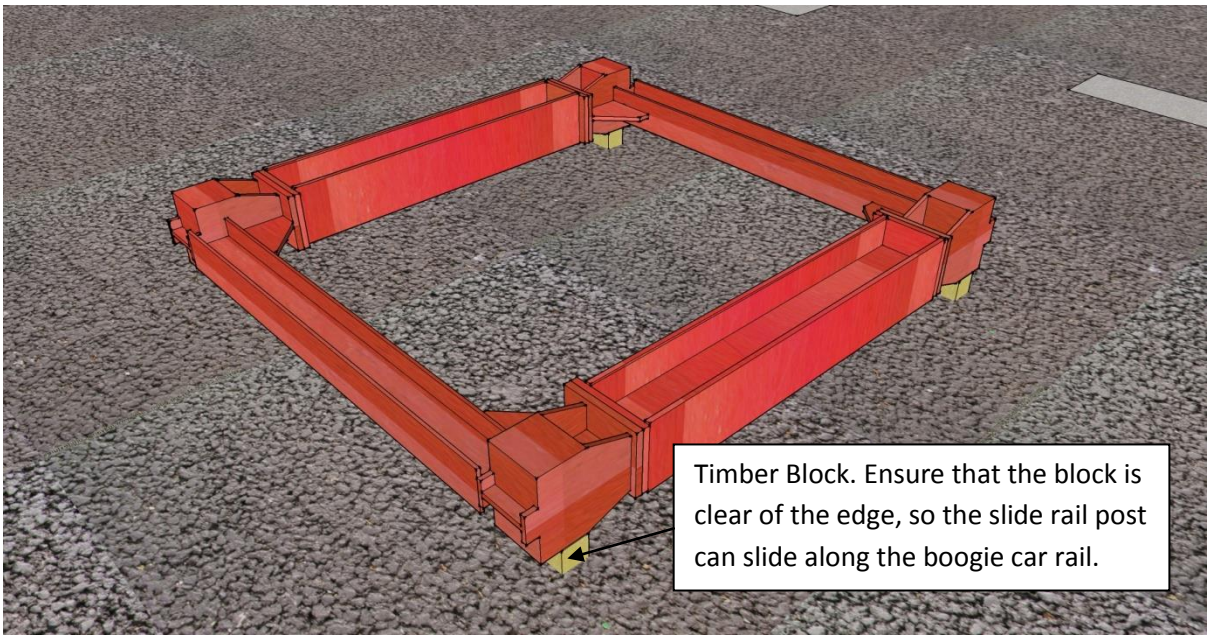
Personal protective equipment (PPE)
Safety boots, gloves, hard hat, gloves, high visibility vest or jacket

Tools recommended
Lifting chains and shackles
Ring spanners to suit nuts and bolts supplied
Spirit level
Tape measure

STEP 1

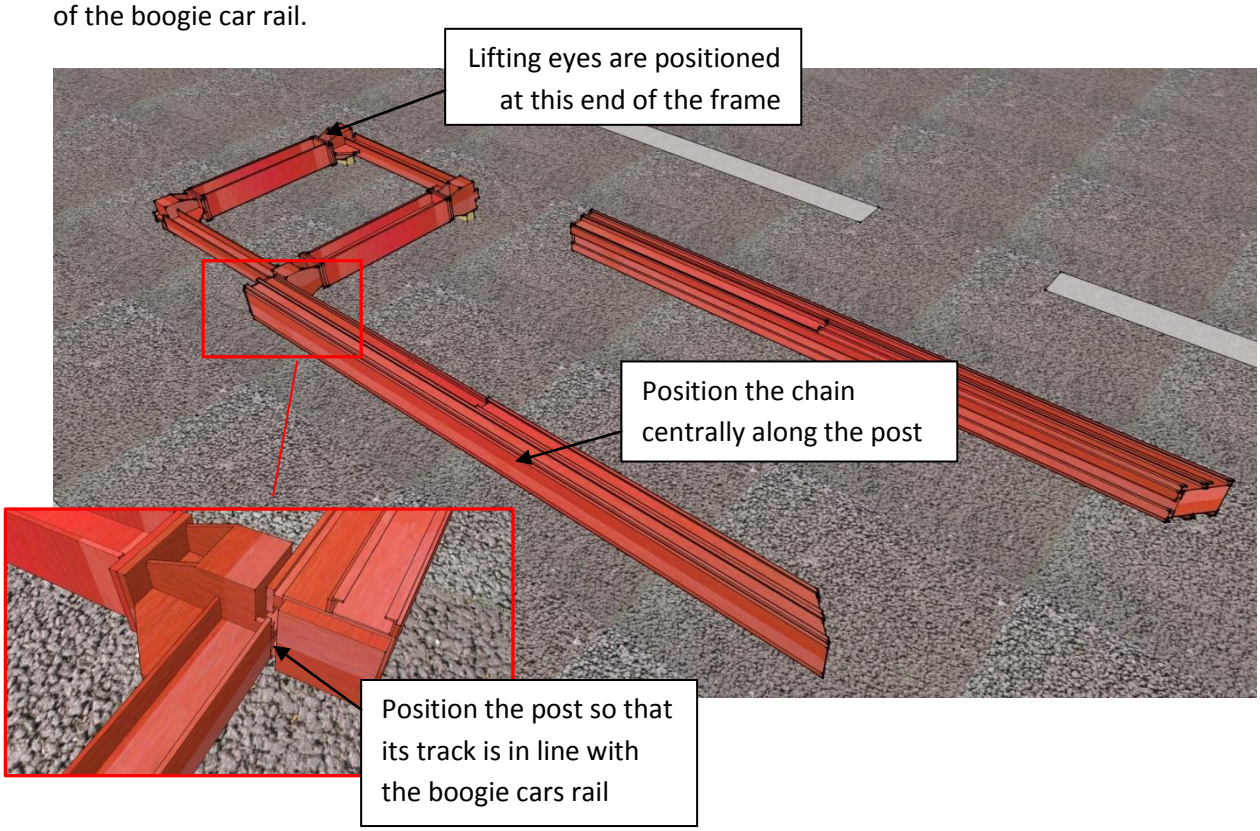
Firstly, the slide rail posts and boogie car will need to be assembled into a frame.

Put timber blocks beneath the corners of the boogie car to give ample clearance to attach the slide rail posts.



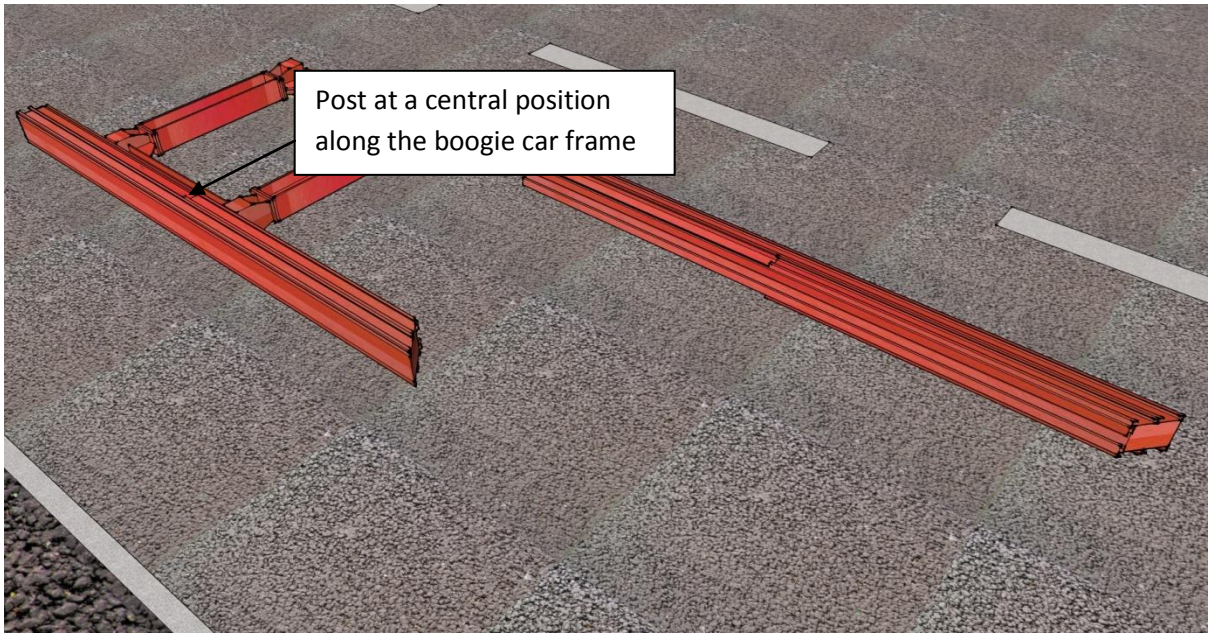
STEP 2

Place a chain around the central part of a slide rail post. Lift and move the slide rail post towards the boogie car, line up the post track and the boogie car rail and begin sliding the post along the length of the boogie car rail.



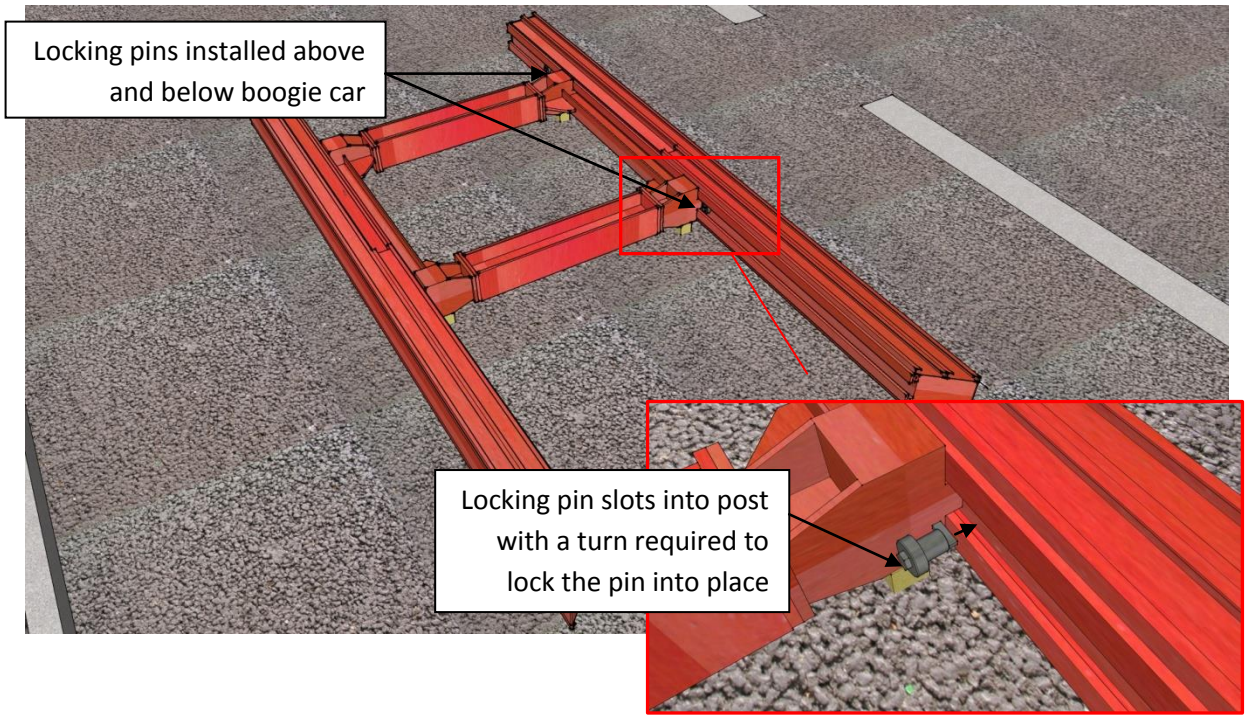
STEP 3

Once the slide rail post is positioned centrally along the boogie car, repeat the process for the remaining post



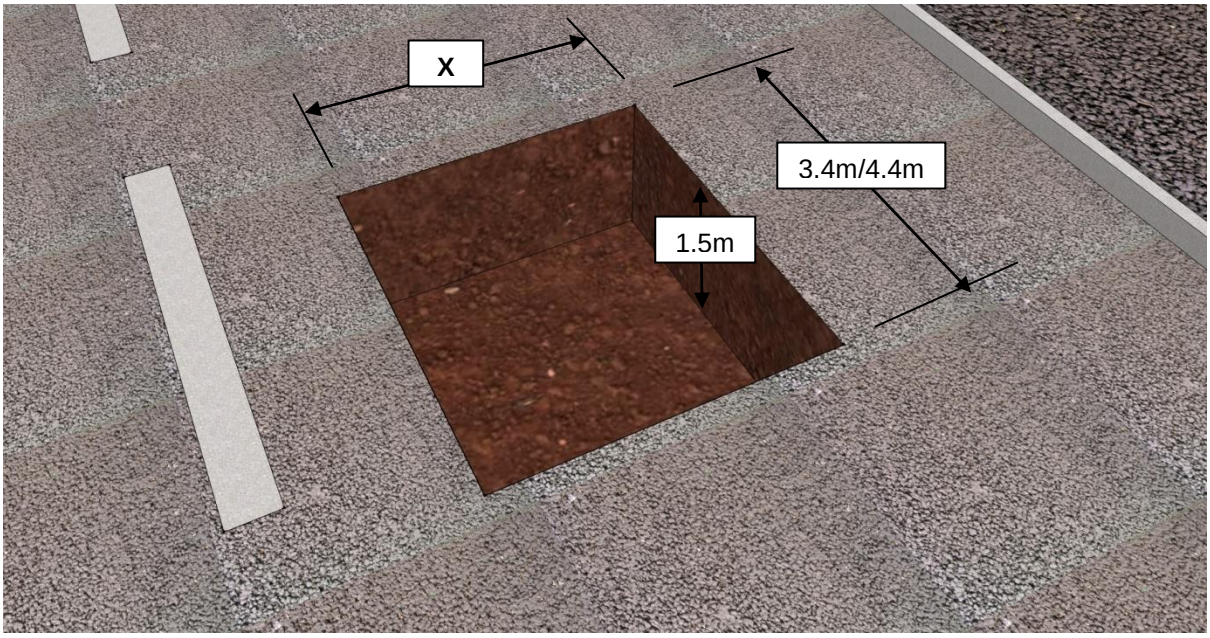
STEP 4

Now that both posts are connected to the boogie car, the locking pins must be placed within the posts, above and below the boogie car



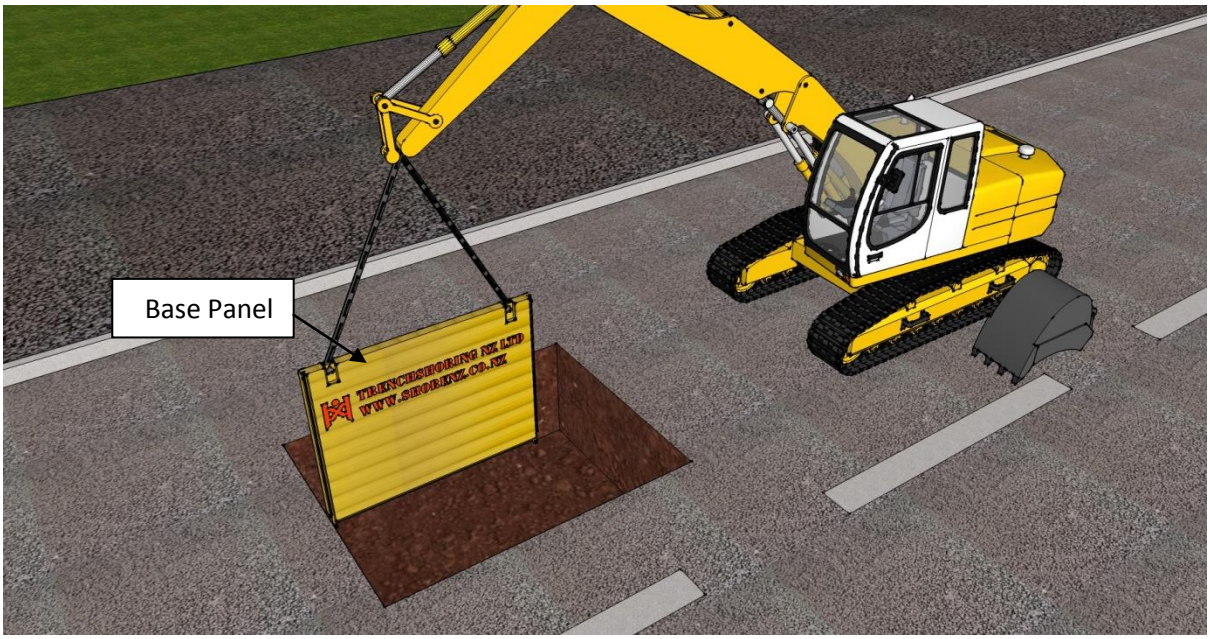
STEP 5

Excavate a trench approximately 3.4m / 4.4m by **X** (overall width of the Slide rails and boogie car assembly) to 1.5m deep, ensuring that the side walls are vertical



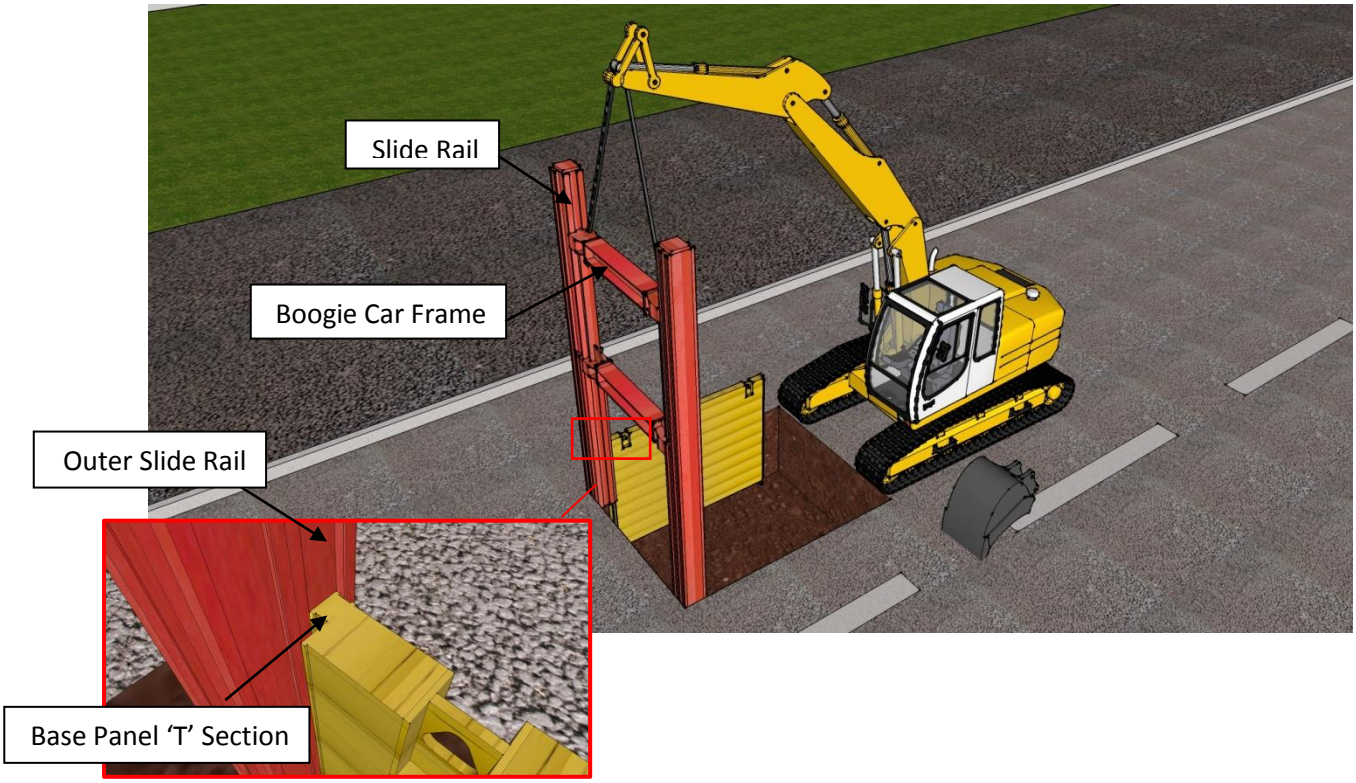
STEP 6

Lift a base panel (2.4m deep) using the lifting eyes into the trench with it being positioned hard up against the side of the trench. Position the panels with the TSNZ logo on the inside.



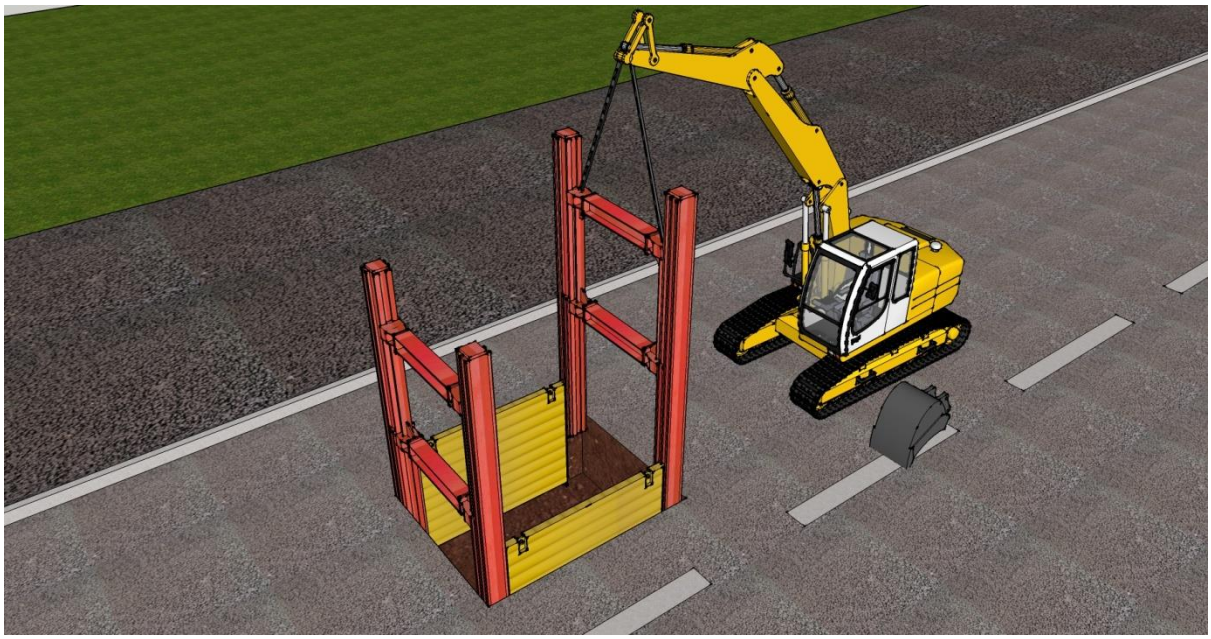
STEP 7

Lower the slide rails complete with boogie car (transverse frame assembly) into the excavation with outside slide rail sliding over the base panel 'T' section. During installation, the boogie car should be set to a lower position within the slide rails to provide the greatest strength and rigidity. Once fully installed, the boogie car can be raised to provide clearance for the installation of pipe or other work in the trench. It is locked at the required height by inserting boogie car locking pins in the double slide rail.



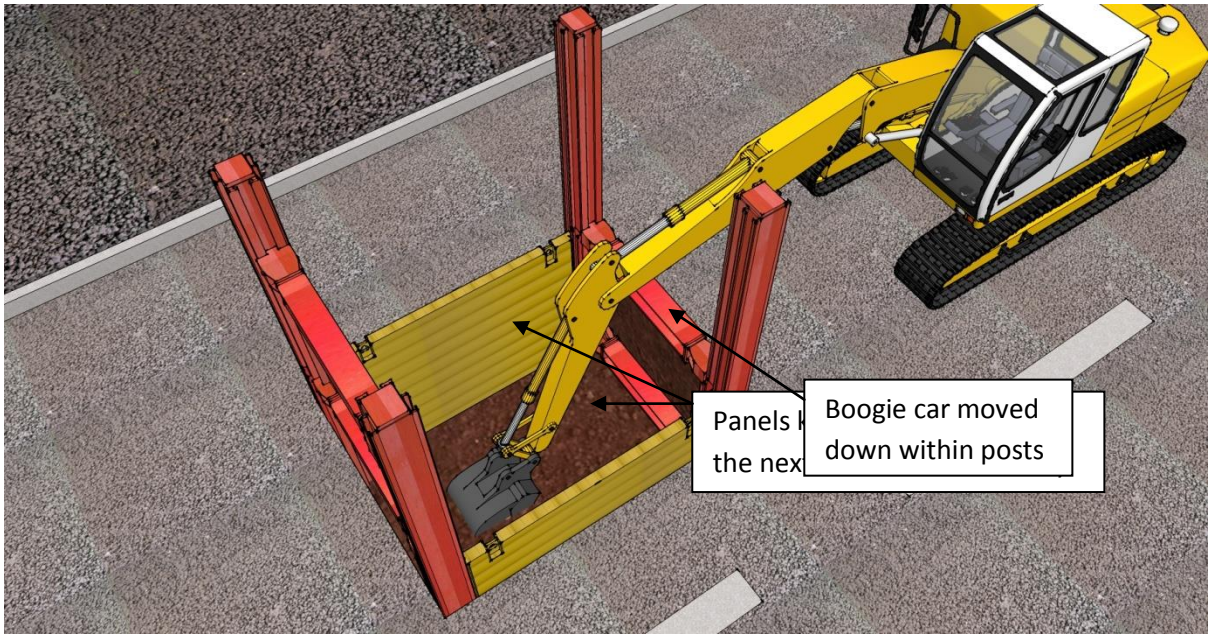
STEP 8

Lower a second base panel into the outer slide rail of the opposite rail of the slide rail frame. The base panels must sit parallel to each other in order for the next slide rail frame to be installed. Do not push these base panels into the ground. Ensure that the branding on the panels faces the inside of the trench. Measure the distance between the free ends of the panels to ensure they are at the correct width to receive the outer slide rails of next frame assembly. Lower the next slide rail assembly, complete with boogie car, into excavation.



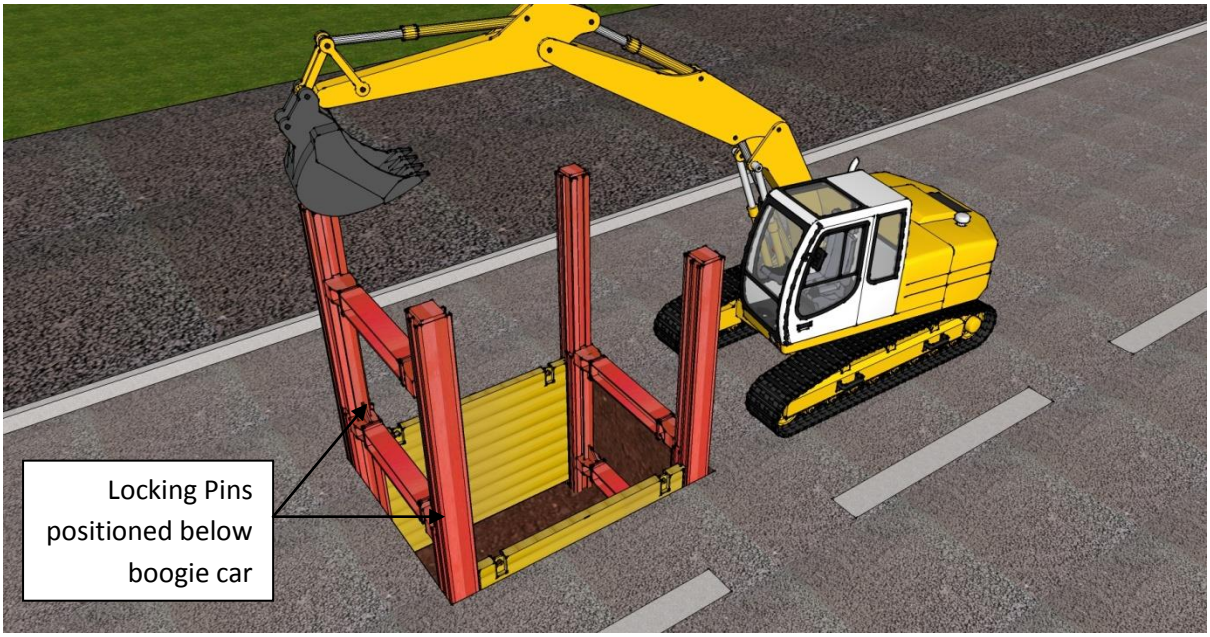
STEP 9

Begin excavating inside the first module.



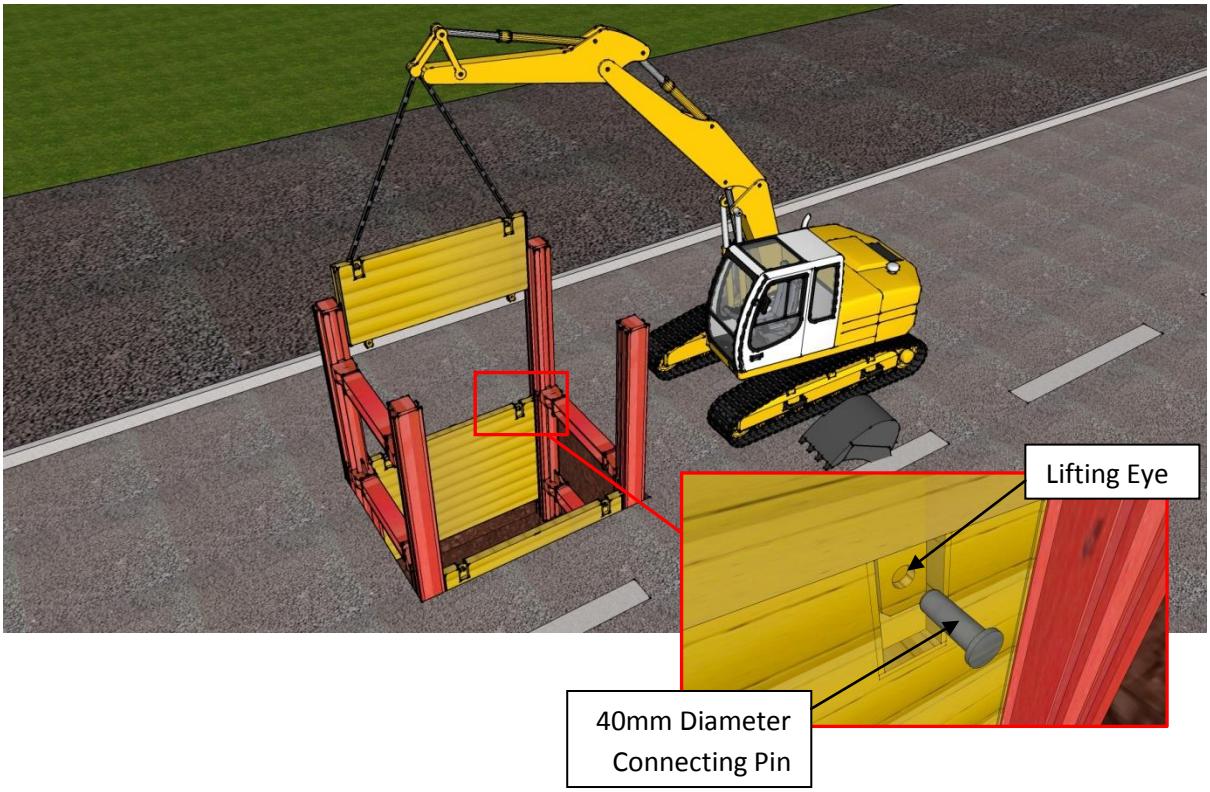
STEP 10

As the excavation proceeds, carefully push down the slide rails and panels using a full excavator bucket. Do not push components below the base of the excavation, but continue the dig and push process as the excavation proceeds. Do not push on the boogie car frame.



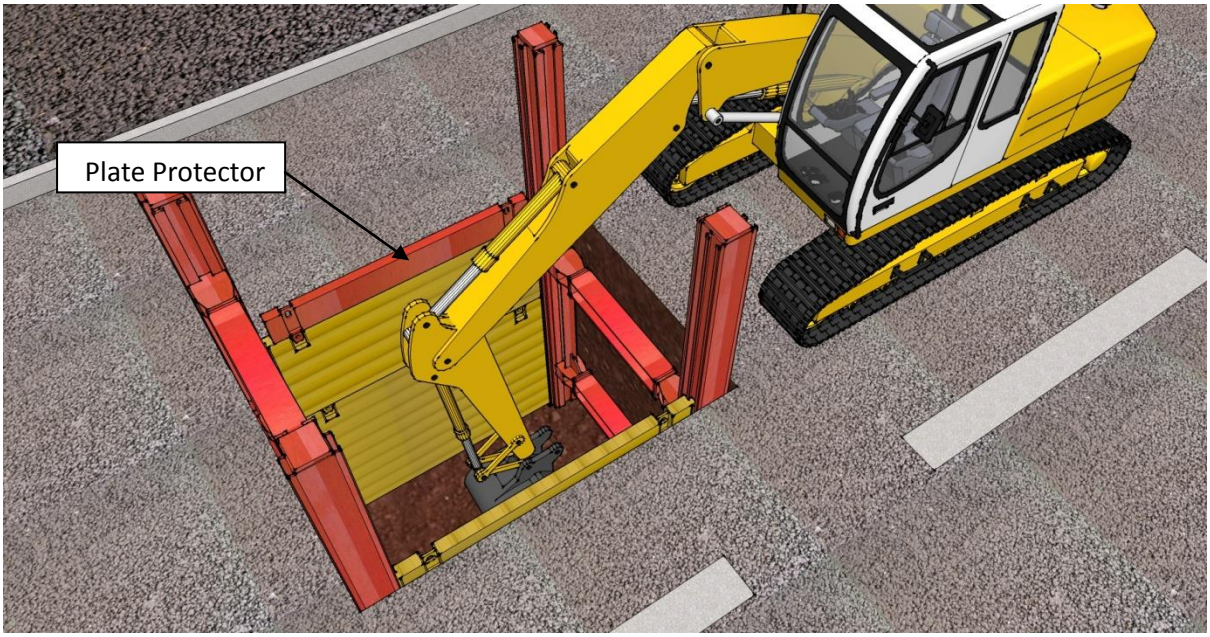
STEP 11

The extension panels (1.3m deep) will need to be dropped in on top of the outside base panels. The extension plates and base plates are connected for the extraction process using connecting pins placed into the lifting points. The pins can be safely installed after the excavation process is complete and it is safe to enter.



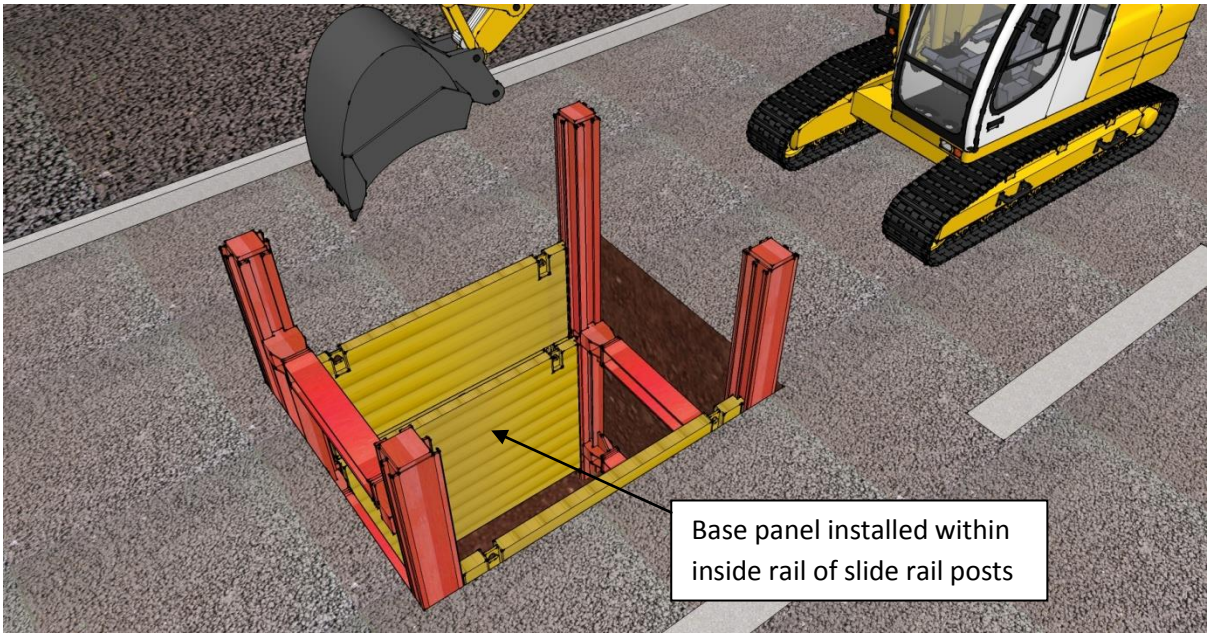
STEP 12

Dig and push the combination of panels to the depth required before inserting panels into the inside slides. Use the plate protector provided to avoid causing damage to the top of the panels as resistance increases.



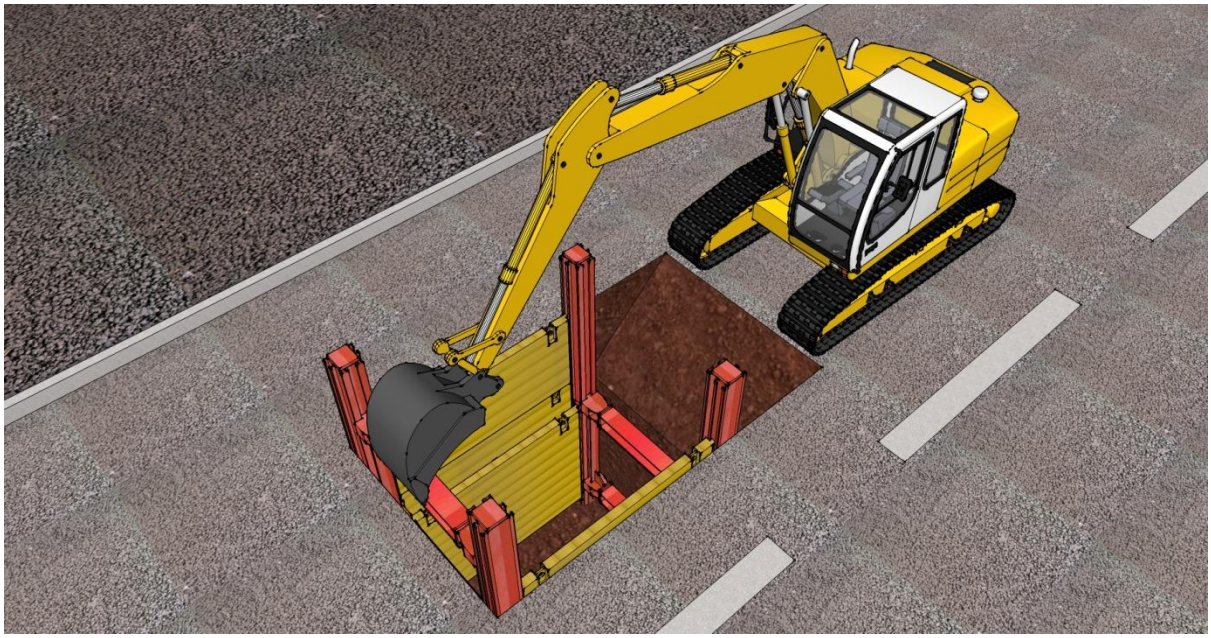
STEP 13

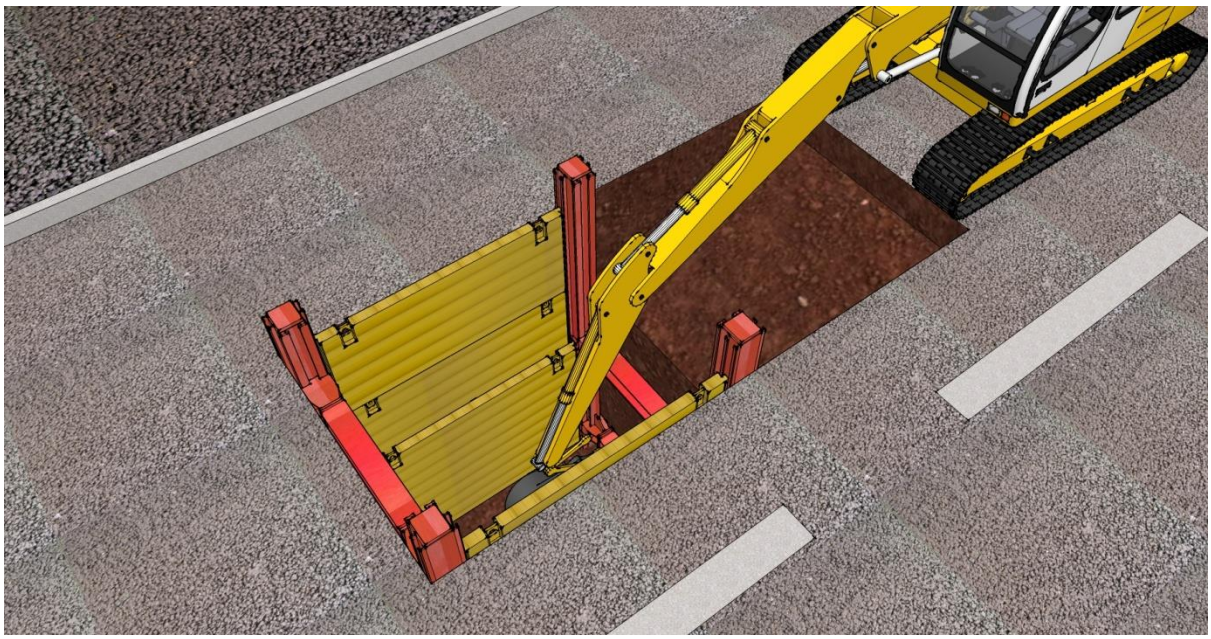
Lower base panels into the inner slide rails and slide them down past the outer panels. They will drop to the full depth of the excavation as the excavation progresses.



STEP 14

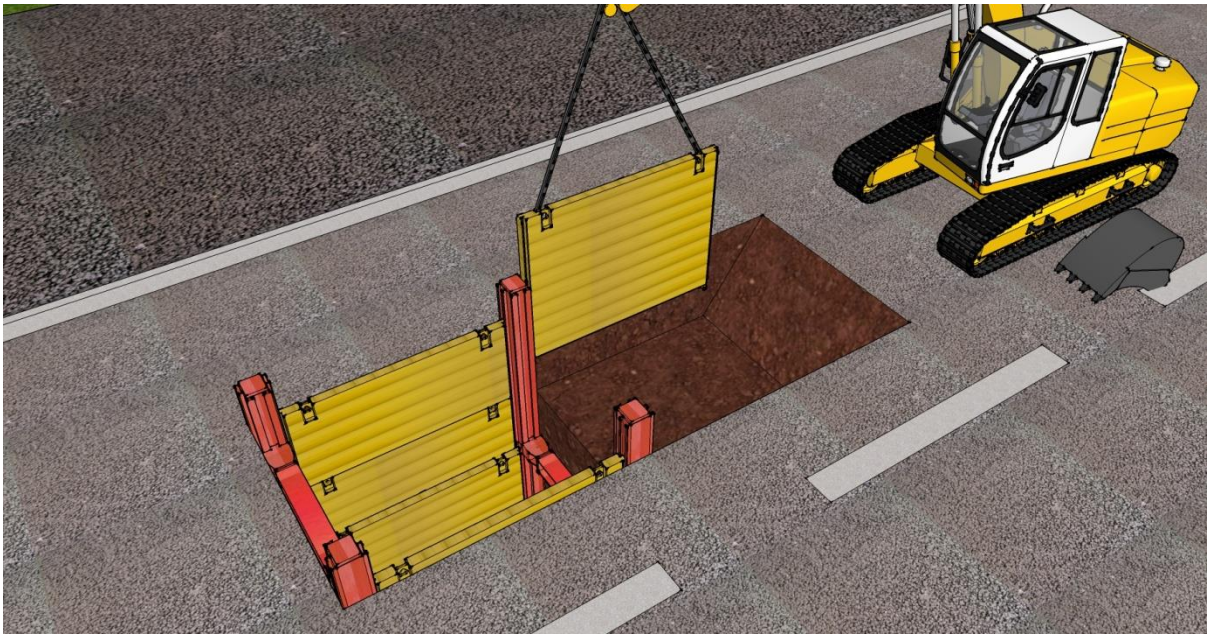
Dig and push slide rail frames along with the base panels positioned within the inner slide rails. During this process the excavation of the next module may proceed.





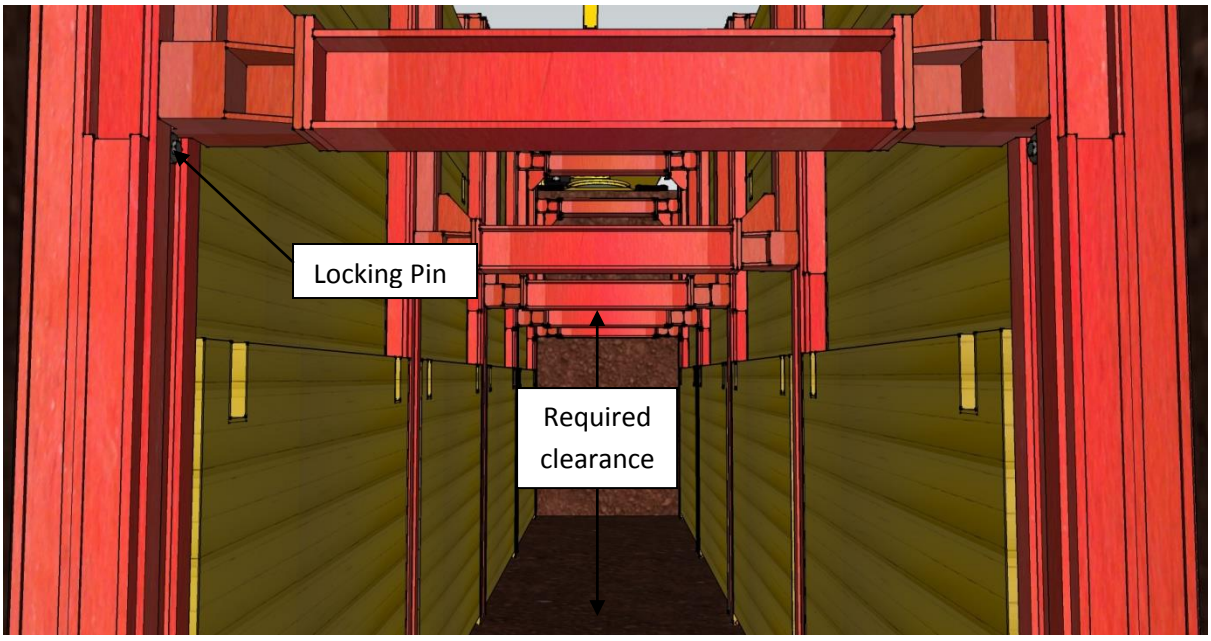
STEP 15

Once the first module of shoring has been installed to the required depth and the second module has been dug out to a depth of 1.5m, a base panel (2.4m deep) can be positioned within the outside slide rail within the intended second module of shoring.



STEP 16

Once installed and excavated to depth, raise the boogie car assembly to allow work to proceed at the required depth. Lock the boogie car into place using the pins provided.



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