

PRODUCT: STEEL TRENCH BOX

REFERENCE: TDS01-PAGE 1

shorehire.

Shore Hire Pty. Ltd.
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TECHNICAL DATA

Description

Shore Hire's range of steel trench boxes are simple to assemble and robust. They are two sided mechanical excavation support systems designed to be installed by an excavator utilising the dig and push or excavate and lower in place techniques.

Normally selected for installing utility pipes where ground movement is not critical, with the size of system specified dependent upon max depth requirements and size of individual pipe sections and bedding. Max depth and box selection are on a case by case situation. Important information required when assessing each situation are; existing soil conditions, groundwater levels and potential surcharge loads. A geotechnical report or assessment is recommended for each situation.

Fabricated from fully welded Grade C450 box sections to form 50mm to 150mm thick panels, the system comprises utilising lower trench boxes with additional upper boxes connected to achieve full trench depth. Lower and Upper trench boxes are connected using Shore Hire manufactured panel connectors. The panels are then propped off each other by robust struts available in a variety of lengths to suit the required width (refer to page 3 and 4 for further information). All components in the system are connected together via simple pin and clip assemblies.

Shore Hire can supply the systems with a full range of suitable lifting and extraction chains, edge-safe edge protection, ladder-safe access platforms, davitt arms/fall arrest systems, end shoring and trench road plates.

The full range of Shore Hire's steel trench boxes are manufactured and designed in accordance with AS 4744.1-2000 Steel Shoring and Trench Lining Design.

Trench Box Guidelines

1. Trench boxes should only be used in the configurations shown by competent persons following Shore Hire's installation guidelines.
2. Trench boxes are not normally suitable for usage where ground movement is an issue and therefore situations where live carriageways or adjacent existing buildings/structures are a factor. Advice from a qualified civil engineer or similar is recommended.
3. Similarly trench boxes used in very weak ground (especially very soft clays, loose sand/fill and peats) where significant ground water is present, should be assessed by a suitable qualified person prior to installation.
4. Flying or elevating of the box above the base of the excavation is not recommended.
5. Steel trench box systems are heavy and great care must be taken in selecting a suitable excavator for handling, installing and extracting these systems. If stacking panels on site, timber packers must be used to separate the panels.
6. Trench boxes should not be left in-situ for extended periods within cohesive or very weak soils as earth pressures/adhesion on the panel surfaces may increase significantly with time requiring additional extraction forces to release the panels.
7. Always use Shore Hire specified extraction chains to release an in-situ trench box from the ground prior to any attempt to lift the trench box out of the trench. Always use Shore Hire specified lifting chains when lifting and handling the boxes or components.
8. Prior to every lifting operation, all lifting points must be carefully inspected by a competent person for evidence of damage.
9. Always enter the box with appropriate approved ladder systems within the box and never from an unsupported edge.
10. During lift or extracting operations, ensure personnel are well clear of the equipment.
11. At the end of the trench box, the ground should always be battered back to a safe angle or end shoring must be used.

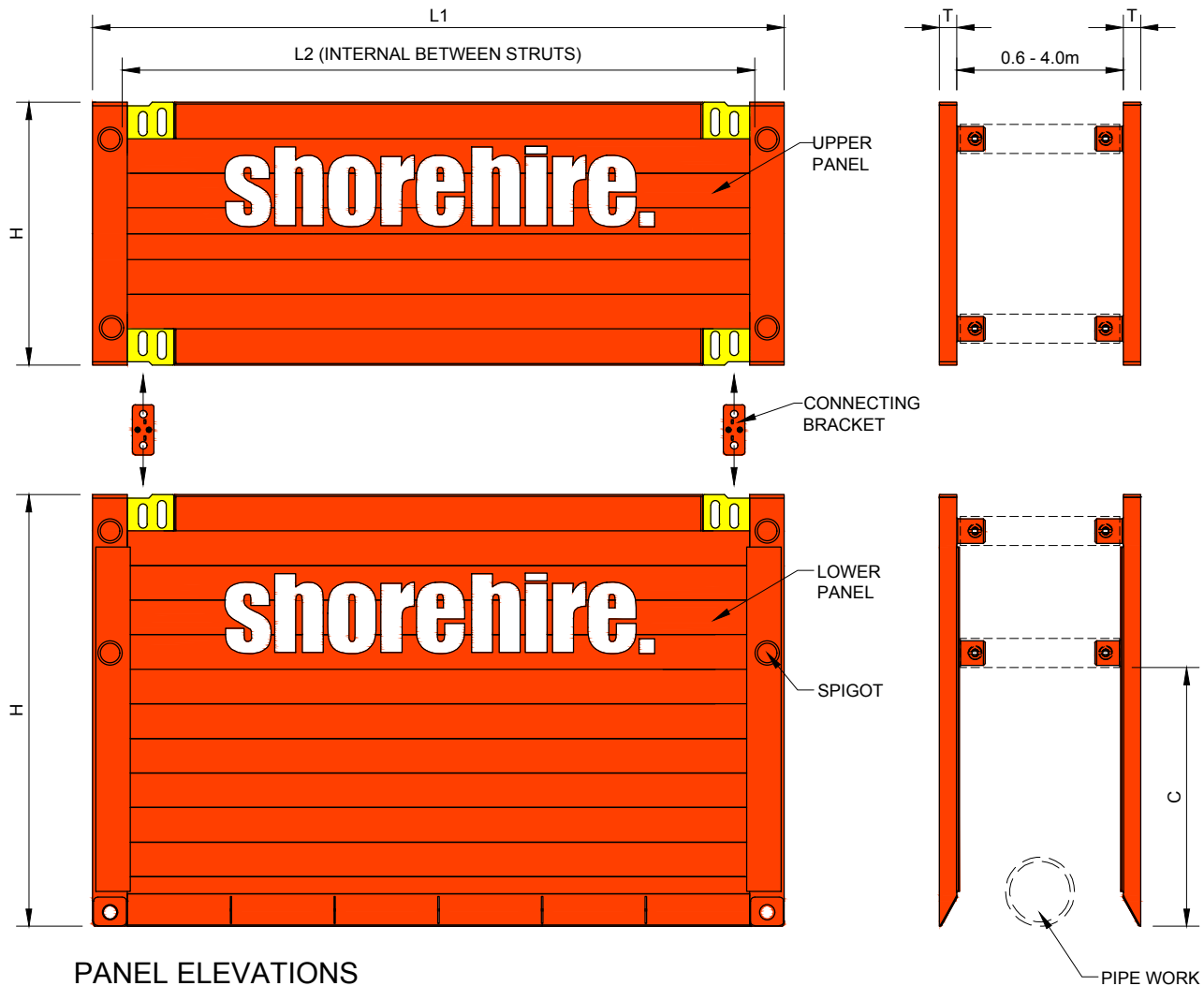
Features

1. Foam filled
2. Reinforced bottom cutting edge.
3. Four reinforced, secured lifting points.
4. All steel construction.
5. Able to add upper box extension with the appropriate connection brackets.
6. High Clear Arch Spreader struts up to 6.5m wide available for 4m and 6m boxes.
7. Reinforced top rail.
8. Internal working widths of 0.6m to 4.0m for all boxes.
9. Certified to AS 4744.1-2000 Steel Shoring and Trench Lining.

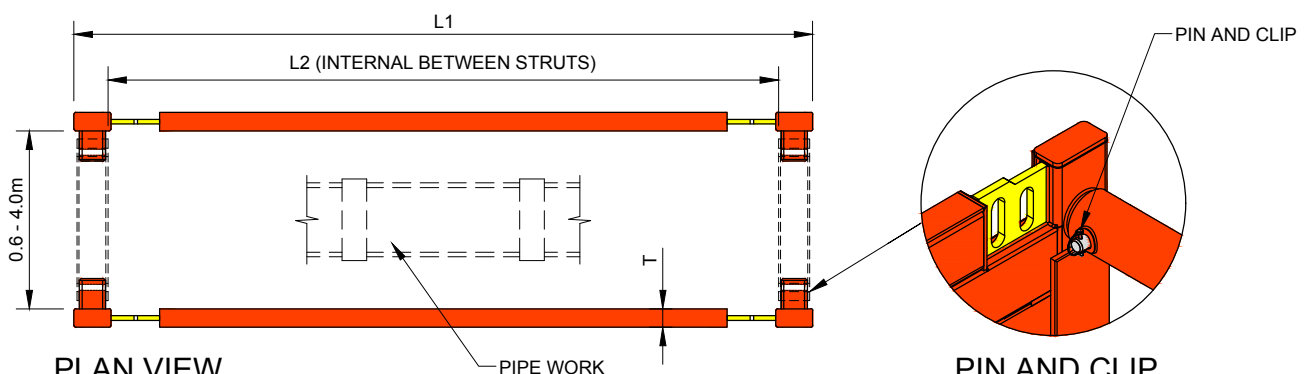


TECHNICAL DATA

Trench Box Dimension Details



PANEL ELEVATIONS



PLAN VIEW

PIN AND CLIP CONNECTION

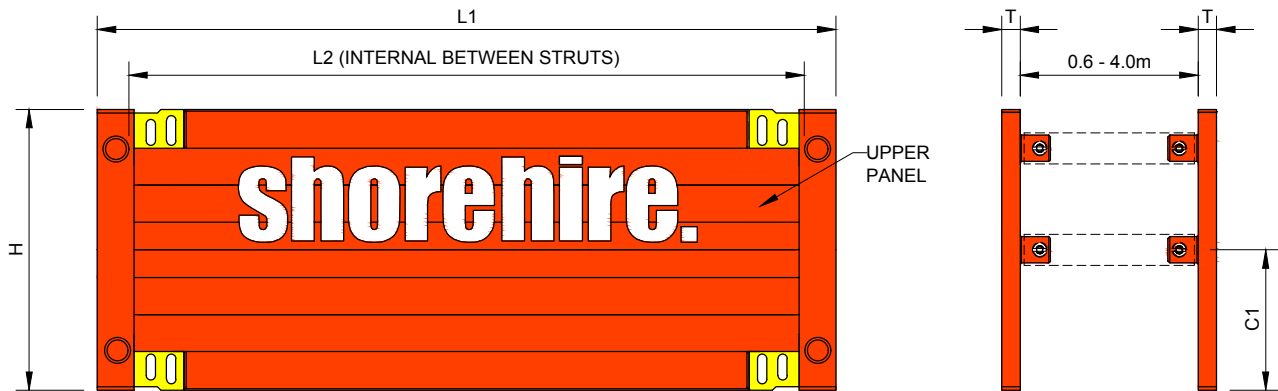
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Trench Box Specifications



PANEL ELEVATIONS

STEEL SHORING BOX SPECIFICATIONS

PRODUCT	WORKING LOAD LIMIT	BOX WEIGHT (kg)	PANEL WEIGHT (kg)	(H) mm	(L1) mm	(L2) mm	(C) mm	(C1)mm	(T) mm
3M-30 - LOWER	30KPa	850*	377	2000	3000	2650	1200	N/A	50
3M-30 - UPPER	30KPa	656*	250	1020	3000	2650	N/A	N/A	50
3M-60 - LOWER	60KPa	1320*	612	2000	3000	2650	1200	N/A	75
3M-60 - UPPER	60KPa	825*	335	1020	3000	2650	N/A	N/A	75
4M-60 - LOWER	60KPa	2840**	1326	2500	4000	3600	1500	N/A	116
4M-60 - UPPER	60KPa	1962**	857	1520	4000	3600	N/A	760	116
6M-40 - LOWER	40KPa	4964**	2388	2500	6100	5700	1500	N/A	150
6M-40 - UPPER	40KPa	3788**	1770	1500	6100	5700	1500	760	150

Refer to pages 4 and 5 for strut specifications

* Trench box weight includes for 4 x 141 struts @ 1m long (21.6kg/m)

** Trench box weight includes for 4 x 168 struts @ 1m long (42.2kg/m)

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TECHNICAL DATA

Shore 141 Struts

The Shore 141 strut is a purpose built light weight pipe strut to suit the Shore 3m Trench Boxes and the 3m Manhole Box. The strut is offered in increments of 250mm from 600mm up to 4000mm. The Shore 141 struts are connected to the side wall of the trench box spigots with connecting pins and locking clips, making assembly and dismantling quick and easy. No bolts and nuts or tools are required and there are no threads to get damaged.

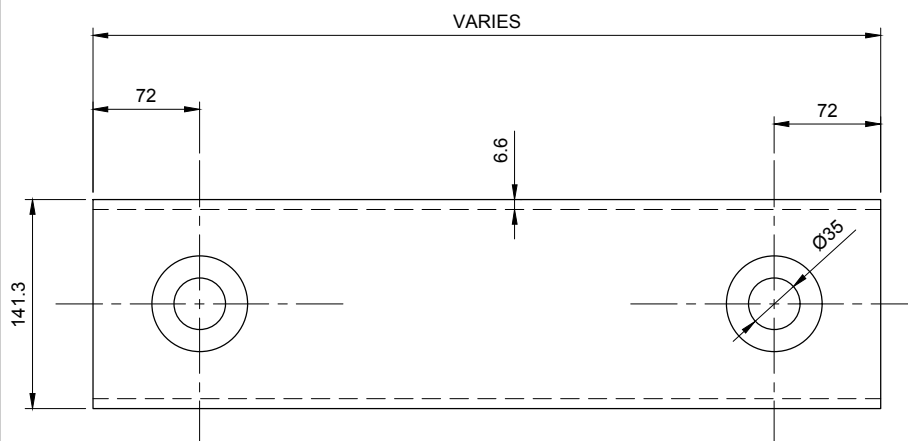
All steel pipe lengths to be grade C350LO Steel to AS 1163 U.N.O.

SHORE 141 IN 3M-30 & 3M-60 TRENCH BOX

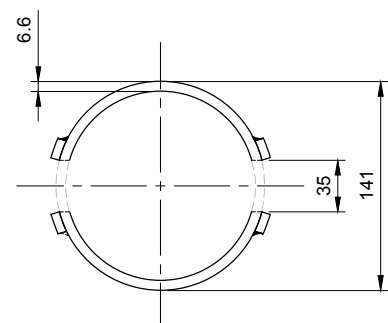
SHORE 141 STRUT LENGTH (mm)	3M-30 INTERNAL WIDTH (mm)	3M-30 EXTERNAL WIDTH (mm)	3M-60 INTERNAL WIDTH (mm)	3M-60 EXTERNAL WIDTH (mm)
600	650	800	600	800
750	800	950	750	950
1000	1050	1200	1000	1200
1250	1300	1450	1250	1450
1500	1550	1700	1500	1700
1750	1800	1950	1750	1950
2000	2050	2200	2000	2200
2250	2300	2450	2250	2450
2500	2550	2700	2500	2700
2750	2800	2950	2750	2950
3000	3050	3200	3000	3200
3250	3300	3450	3250	3450
3500	3550	3700	3500	3700
3750	3800	3950	3750	3950
4000	4050	4200	4000	4200

STRUT WEIGHT

SHORE 141 STRUT LENGTH (mm)	WEIGHT (kg)
600	13
750	16.2
1000	21.6
1250	27
1500	32.4
1750	37.9
2000	43.3
2250	48.7
2500	54.1
2750	59.5
3000	64.9
3250	70.3
3500	75.7
3750	81.1
4000	86.5



SIDE VIEW



END VIEW

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Shore 168 Struts

The Shore 168 strut is a purpose built heavy duty pipe strut to suit the Shore 4m Trench Box and the 6m Trench Box. The strut is offered in increments of 250mm from 600mm up to 4000mm. The Shore 168 struts are connected to the side wall of the trench box spigots with connecting pins and locking clips, making assembly and dismantling quick and easy. No bolts and nuts or tools are required and there are no threads to get damaged.

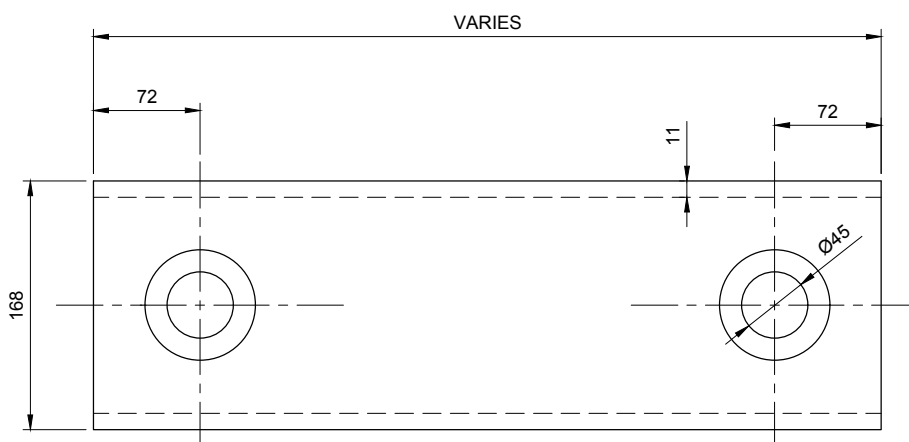
All steel pipe lengths to be grade C350LO Steel to AS 1163 U.N.O.

SHORE 168 IN 4M-60 & 6M-40 TRENCH BOX

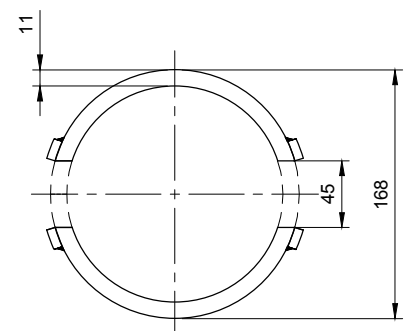
SHORE 168 STRUT LENGTH (mm)	4M-60 INTERNAL WIDTH (mm)	4M-60 EXTERNAL WIDTH (mm)	6M-40 INTERNAL WIDTH (mm)	6M-40 EXTERNAL WIDTH (mm)
600	600	800	600	800
750	750	950	750	1050
1000	1000	1200	1000	1300
1250	1250	1450	1250	1550
1500	1500	1700	1500	1800
1750	1750	1950	1750	2050
2000	2000	2200	2000	2300
2250	2250	2450	2250	2550
2500	2500	2700	2500	2800
2750	2750	2950	2750	3050
3000	3000	3200	3000	3300
3250	3250	3450	3250	3550
3500	3500	3700	3500	3800
3750	3750	3950	3750	4050
4000	4000	4200	4000	4300

STRUT WEIGHT

SHORE 168 STRUT LENGTH (mm)	WEIGHT (kg)
600	25.3
750	31.7
1000	42.2
1250	52.8
1500	63.3
1750	73.9
2000	84.4
2250	95
2500	105.5
2750	116.1
3000	126.1
3250	137.2
3500	147.7
3750	158.3
4000	168.8



SIDE VIEW



END VIEW

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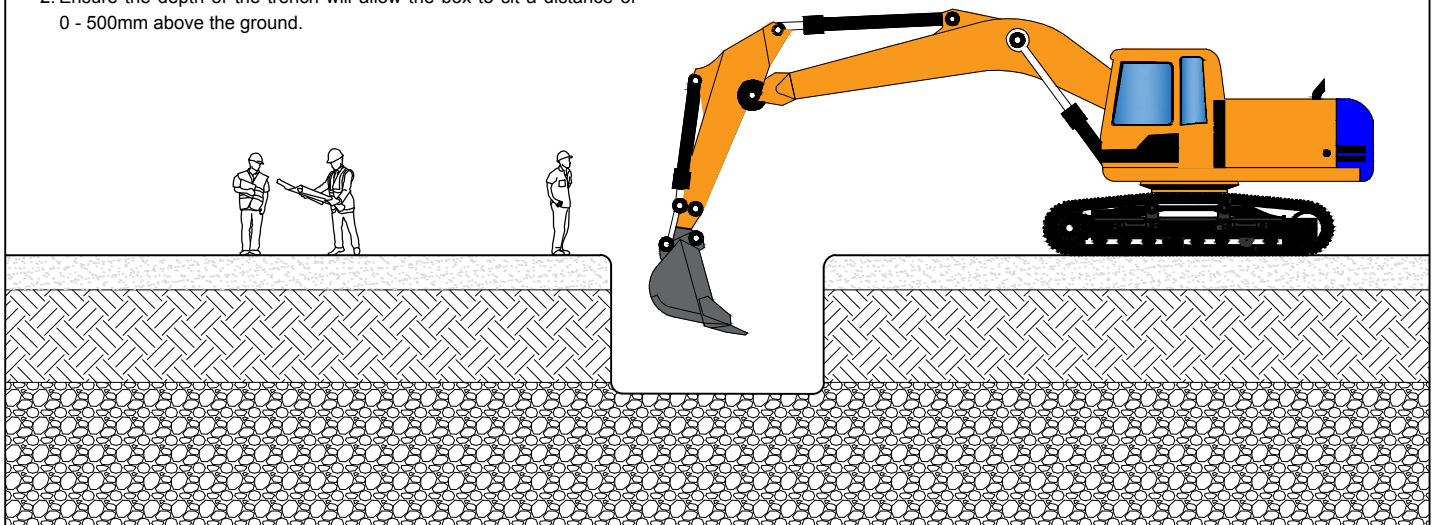
TECHNICAL DATA

Installation of Trench Boxes

Installation in Cohesive Stable Ground:

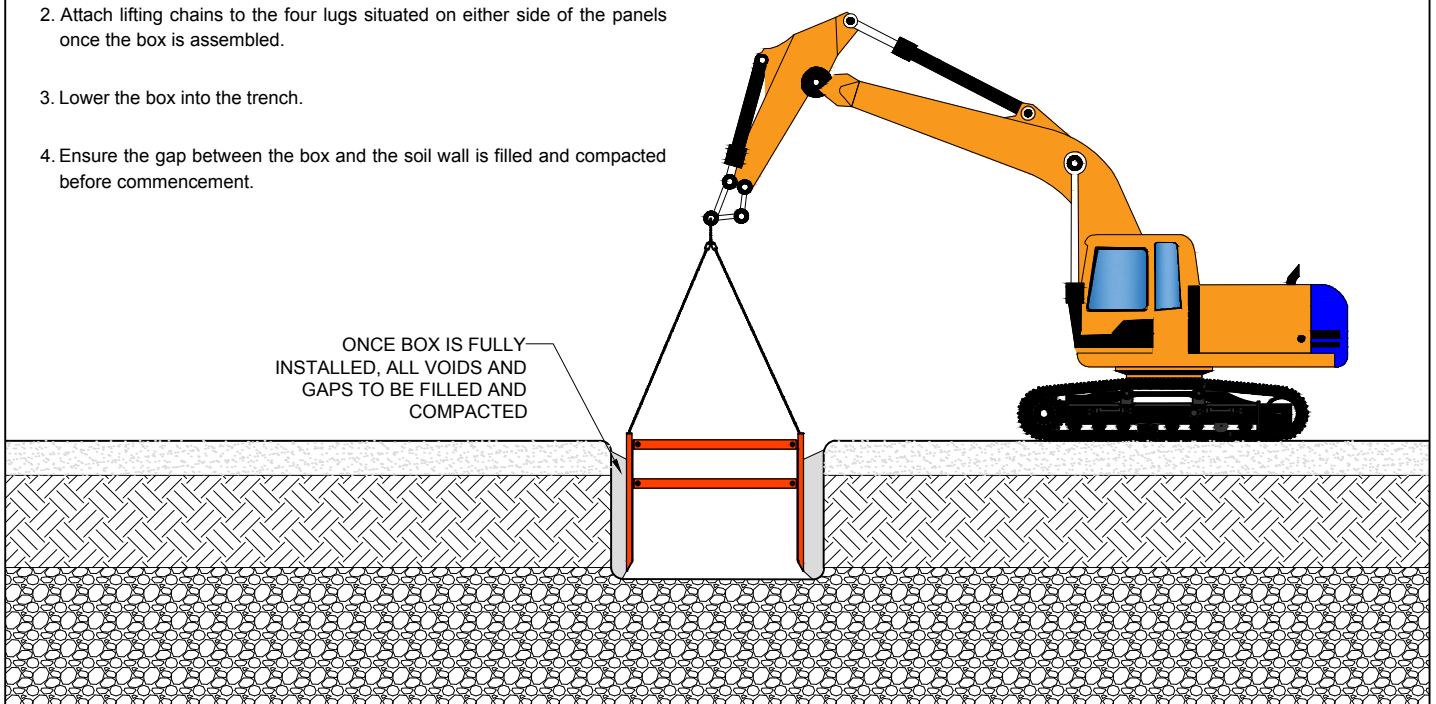
Step 1A;

1. Excavate trench width and breadth slightly larger than the trench box.
2. Ensure the depth of the trench will allow the box to sit a distance of 0 - 500mm above the ground.



Step 1B;

1. Assemble the trench box on ground level outside the trench.
2. Attach lifting chains to the four lugs situated on either side of the panels once the box is assembled.
3. Lower the box into the trench.
4. Ensure the gap between the box and the soil wall is filled and compacted before commencement.



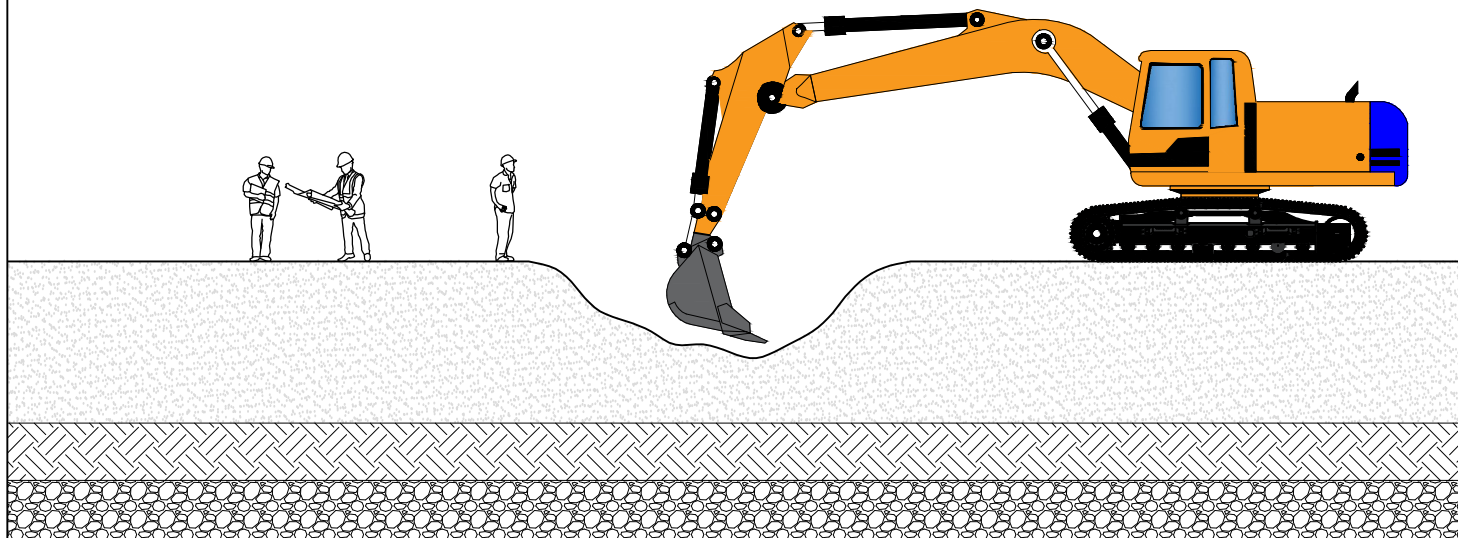
TECHNICAL DATA

Installation of Trench Boxes

Installation in Non-Cohesive Unstable Ground: (Dig and Push Method)

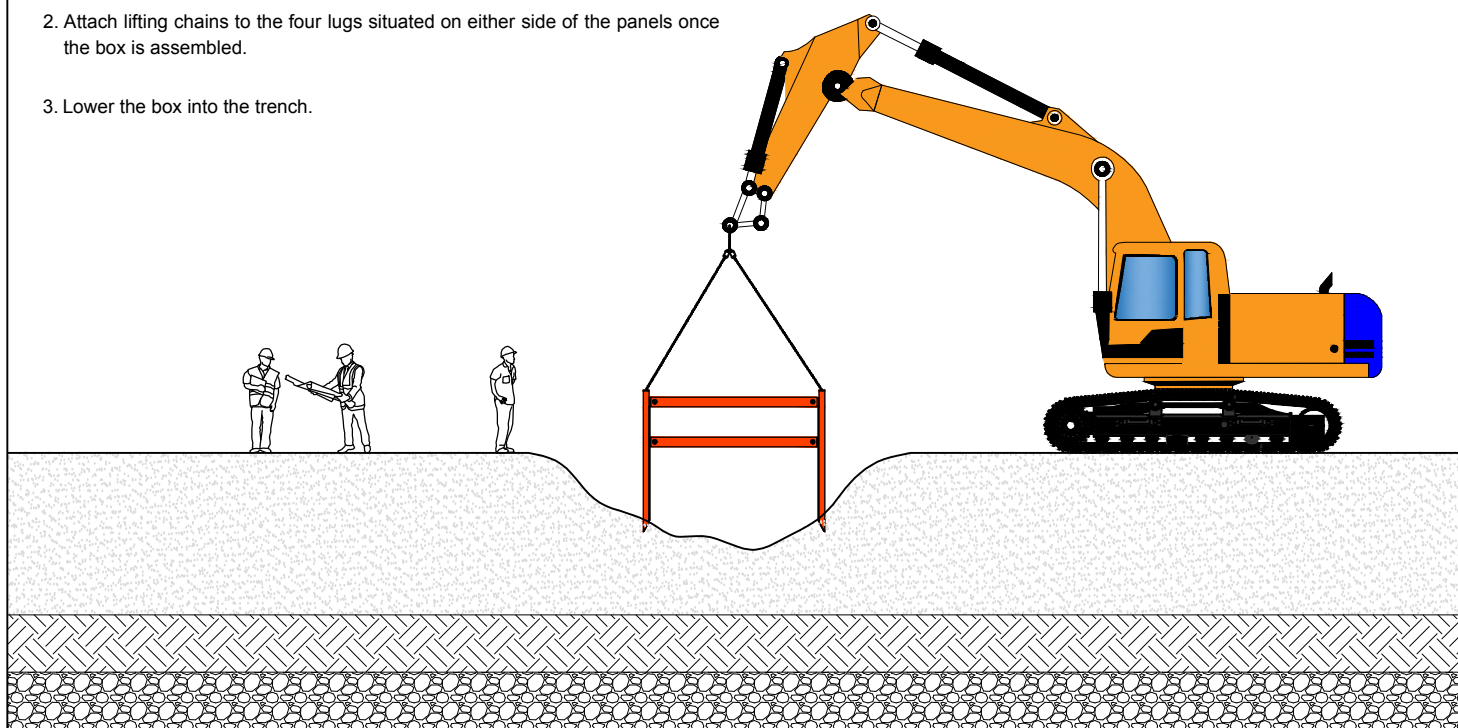
Step 2A;

1. Excavate to a maximum depth of 1.25m or no larger than the depth of one trench panel.



Step 2B;

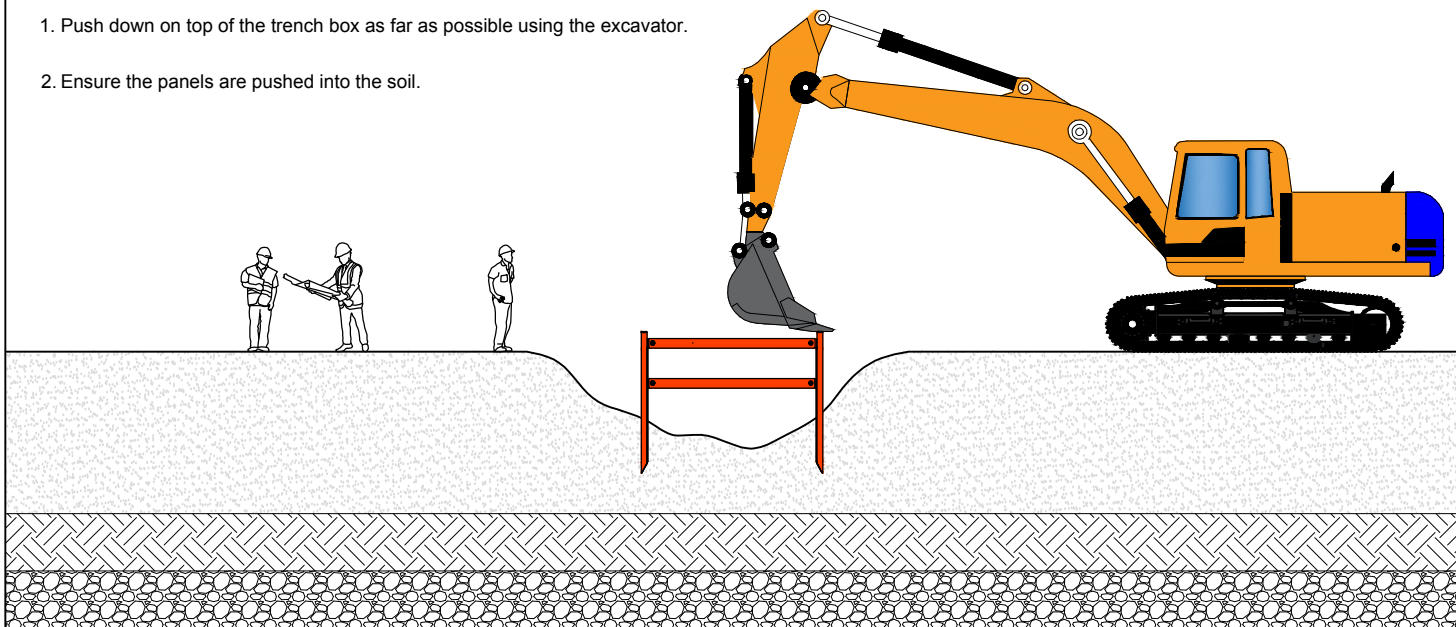
1. Assemble the trench box on ground level outside the trench.
2. Attach lifting chains to the four lugs situated on either side of the panels once the box is assembled.
3. Lower the box into the trench.



TECHNICAL DATA

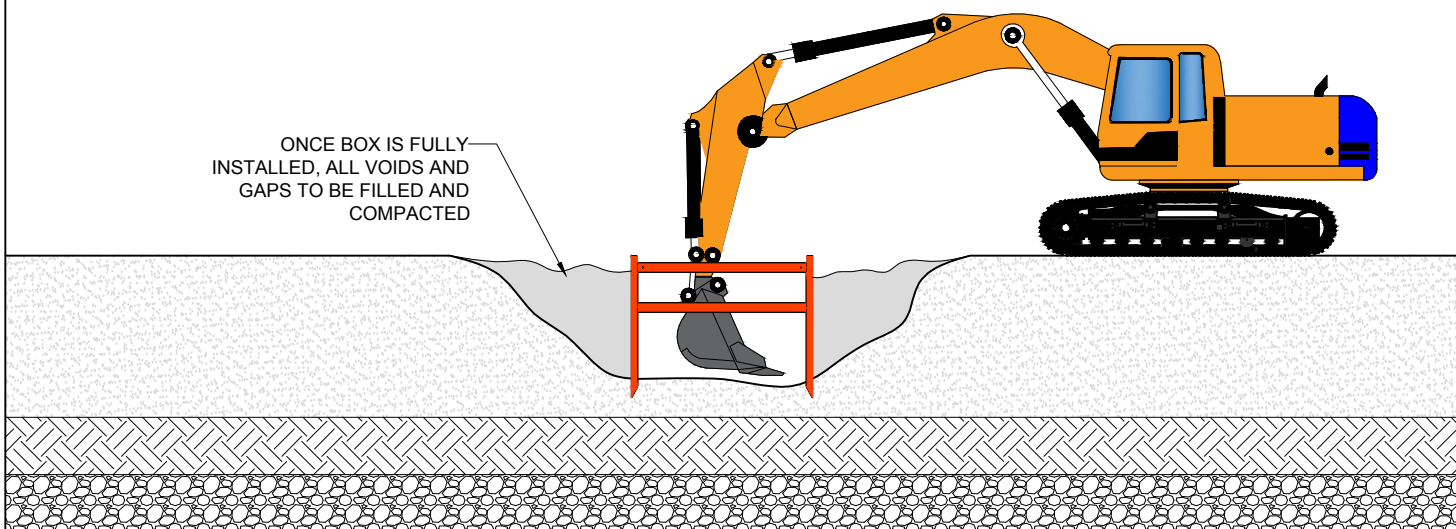
Step 2C;

1. Push down on top of the trench box as far as possible using the excavator.
2. Ensure the panels are pushed into the soil.



Step 2D;

1. Excavate the soil inside of the trench box a further 0.5m.



Step 2E;

1. Repeat the dig and push steps until desired trench depth has been achieved.
2. Ensure the top plate of the trench box is at least 50mm above ground level.
3. Fill the space between box and the soil wall and compact before commencement.