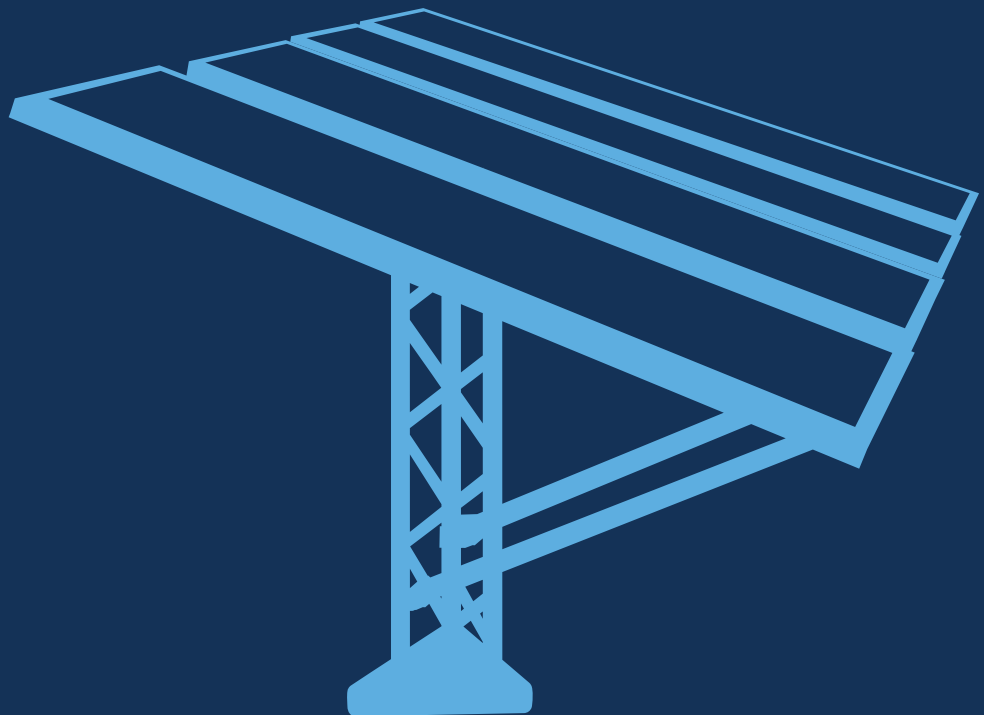




BLUETOWN

INSTALLATION MANUAL

BLUETOWN BLUE ONE SOLAR



INTRODUCTION

This manual describes the installation of the product BLUETOWN BLUE ONE SOLAR and can be setup with the included tools.

Before starting the installation, read this manual and ensure that you follow the required guidelines.

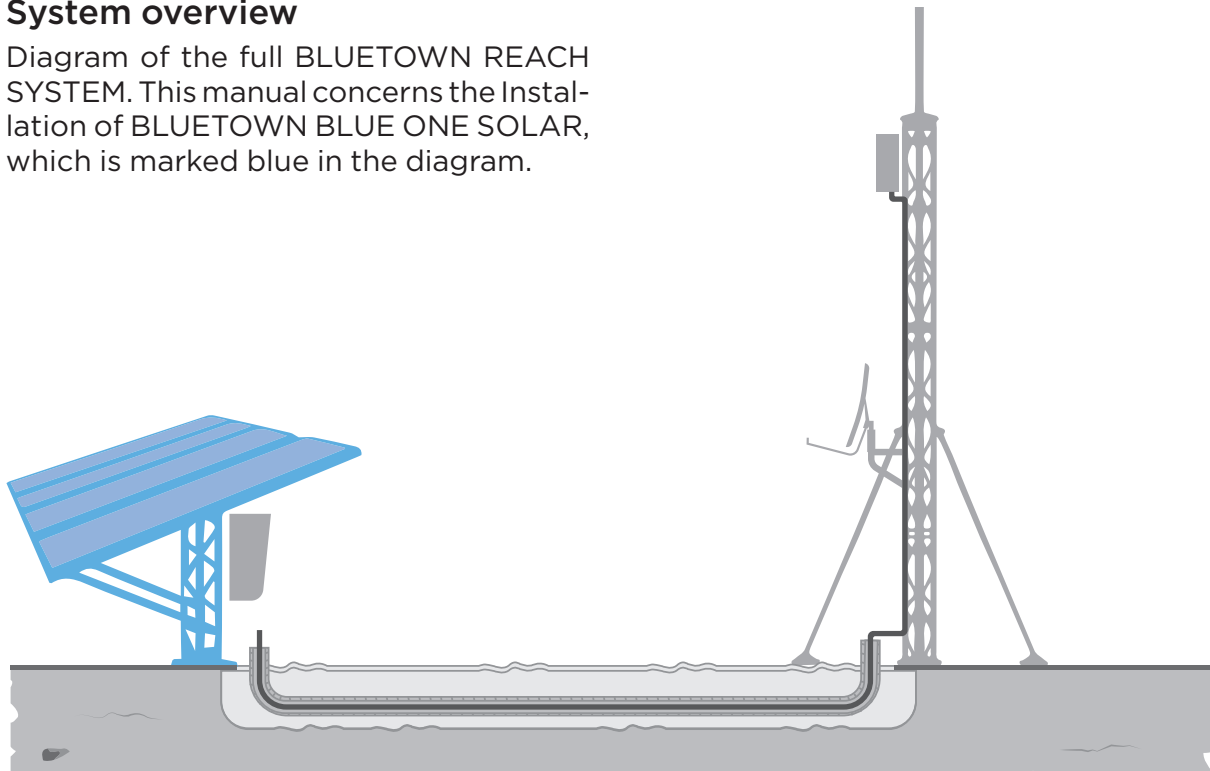
System overview

Diagram of the full BLUETOWN REACH SYSTEM. This manual concerns the Installation of BLUETOWN BLUE ONE SOLAR, which is marked blue in the diagram.

Terms & Conditions

This product is subject to BLUETOWN's general terms and conditions.

Refer to www.bluetown.com



Safety during installation of BLUETOWN BLUE ONE SOLAR

A minimum of two people are required for the installation.

Make sure that the persons performing the installation are experienced installation technicians, holding documented education or certification proving knowledge on safe handling of electrical installation and battery handling.

Make sure that the persons performing the installation have received the necessary training and qualification.

Do not perform the installation during thunder and lightning storms.

Make sure that the installation area is only accessible to people participating in the installation.

Installation of other BLUETOWN REACH modules on site

If other BLUETOWN REACH modules are included (e.g. BLUETOWN REACH TOWER) ensure that there is allocated space before starting the installation.



Planned work sequence at the site

Task description		Time
Reach installation and testing	Persons needed	Approx 5-7 hours
Risk assessment	2	
Preparation of the installation site	2	
Mark up of the Solar infrastructure site	2	
Placement of earth screws for Solar infrastructure	2	
Installation of the Solar support structure	2	
Trench work	2	
Installation of the Solar panels	2	
Connect all cables	1	
As build documentation	2	

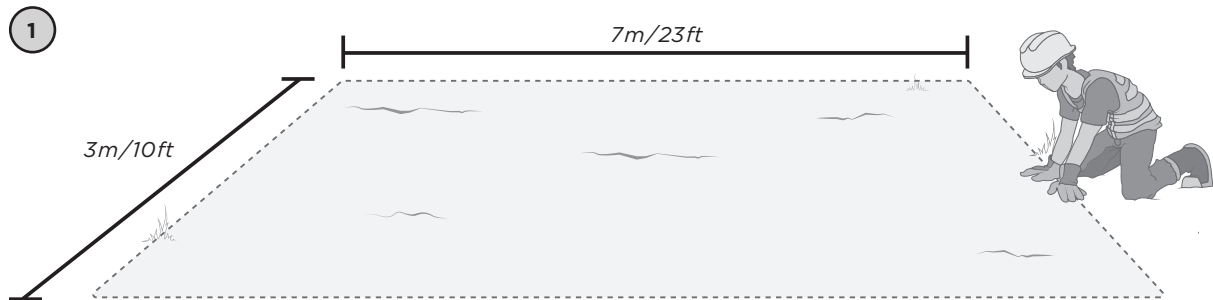
SITE PREPARATION

If the BLUETOWN REACH TOWER is already installed, proceed to step 5.

Make sure that the ground can support the fully installed BLUETOWN REACH system and that the site is not installed in

areas that may be flooded or where the ground may become unstable at a later time.

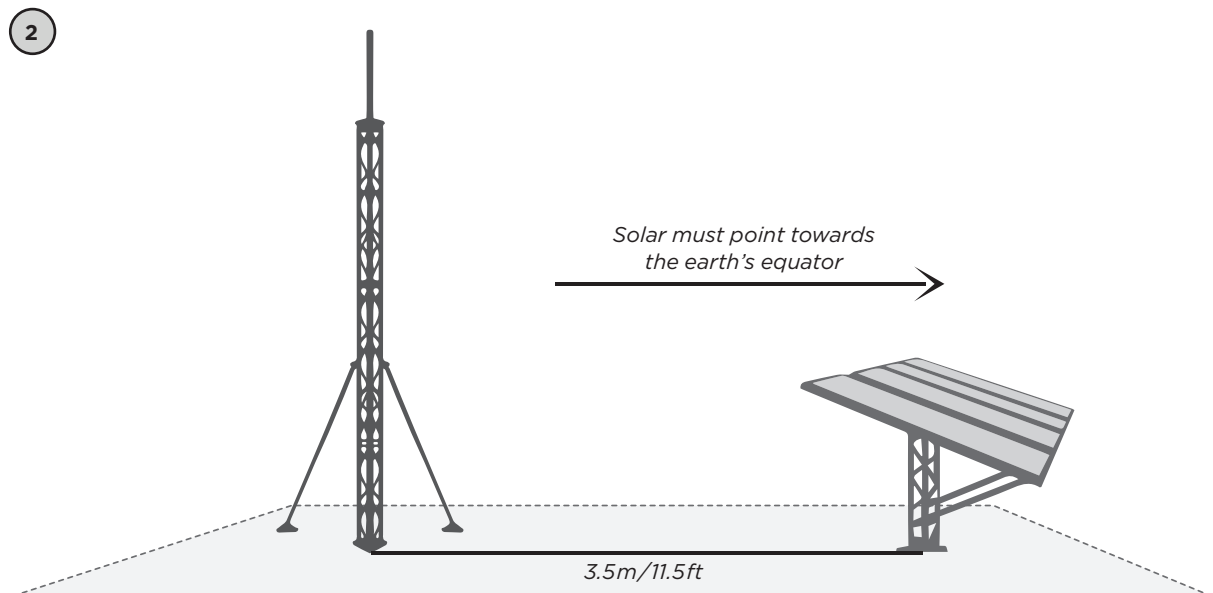
Ensure that there is an area of $21\text{m}^2/230\text{ft}^2$ free of vegetation and with a horizontal surface.



If a BLUETOWN REACH TOWER product is also included, ensure that there is a minimum of 3.5m/11.5 ft between BLUETOWN REACH TOWER and BLUETOWN BLUE ONE SOLAR.

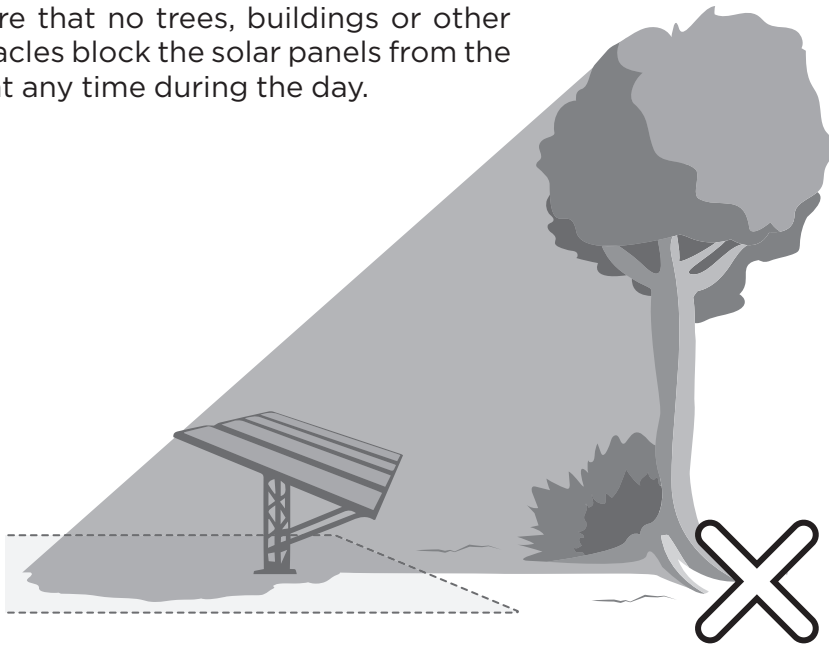
wards equator. Orientation is south if the site is located on the northern hemisphere and north if the site is located on the southern hemisphere. Use the in-box supplied compass to ensure proper orientation of the panels.

The solar panels must be oriented to-



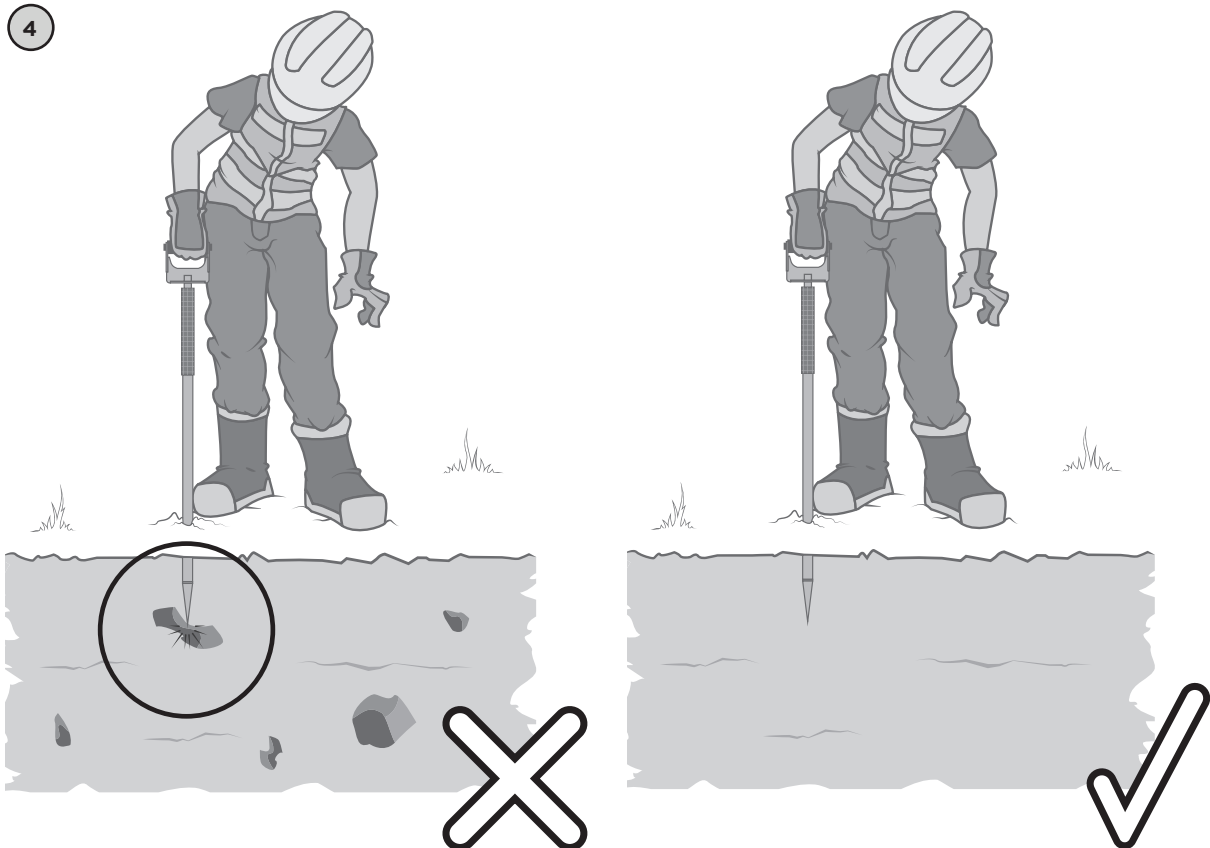
Ensure that no trees, buildings or other obstacles block the solar panels from the sun at any time during the day.

3



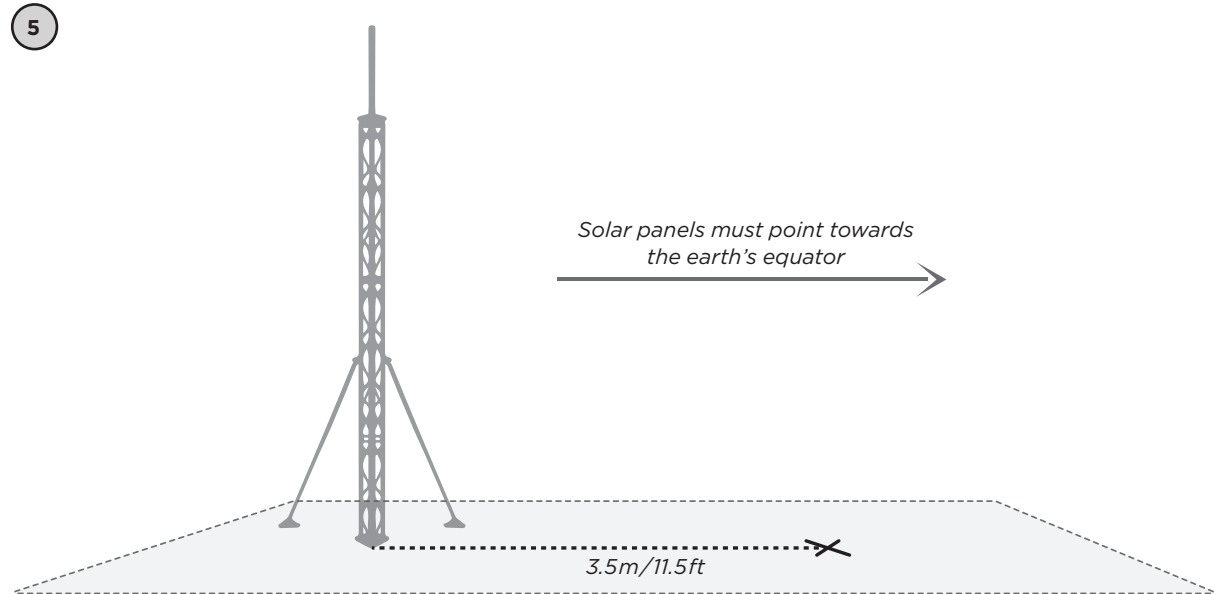
The ground must be free from potential obstacles and dangers such as rocks, cables or pipelines before any ground penetration work is performed.

4



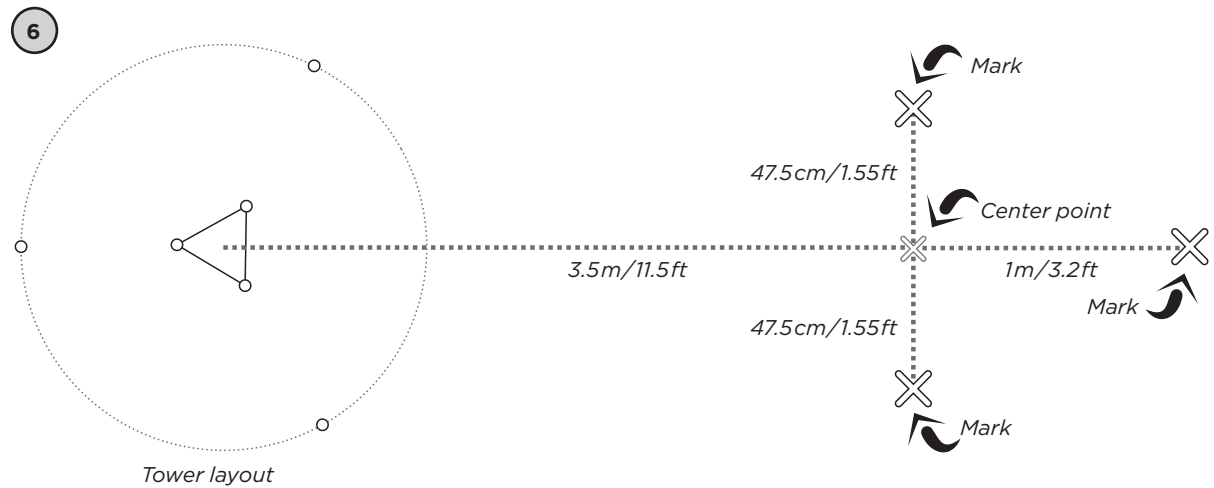
CREATING THE FOUNDATION LAYOUT

In a distance of 3.5m/11.5ft from the tower, mark the center point where the solar infrastructure is to be installed. A string is supplied for this procedure.



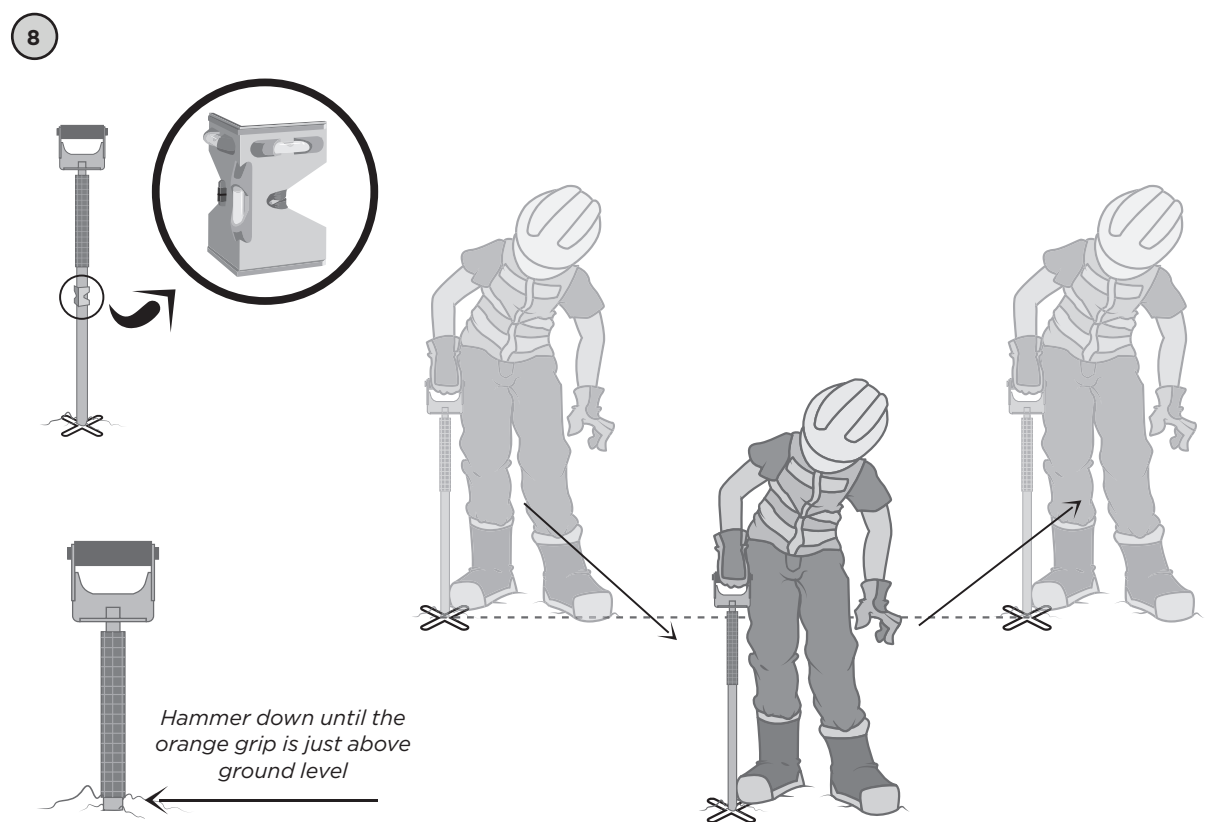
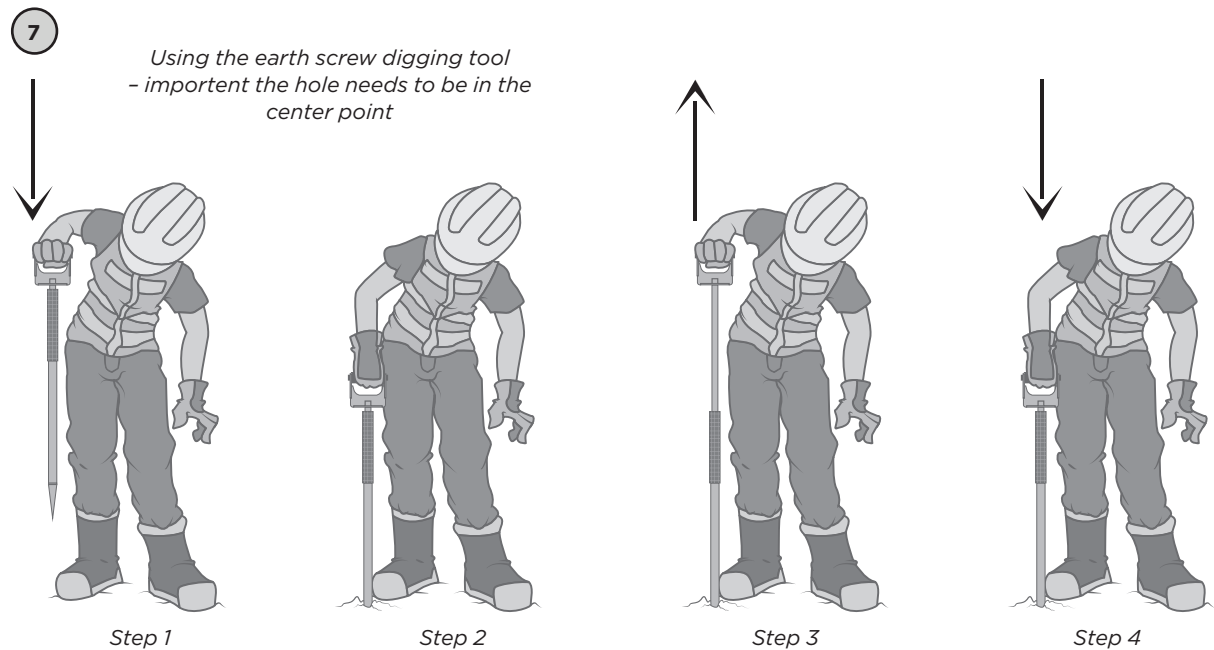
Mark the ground 47.5cm/1.55ft in opposite directions from the center point that was just created. Using the solar

infrastructure center point, mark the ground 1m/3.2ft perpendicular to the two points just created.



Use the earth screw digging tool to make pilot holes straight into the ground at the three markings. Hammer until the orange plastic part is just above the surface of

the soil. Make sure that the pilot hole is straight vertical aligned to the surface by continuously using the supplied spirit level.

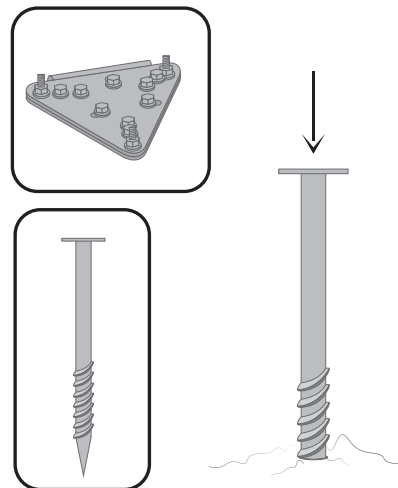


EARTH SCREW INSTALLATION

Before starting the installation of the earth screws, an earth screw installation bracket must be build by using the PV base plate.

Start by placing the earth screw firmly into one of the pilot holes. Turn the earth screw by hand until the windings engage with the sides of the hole.

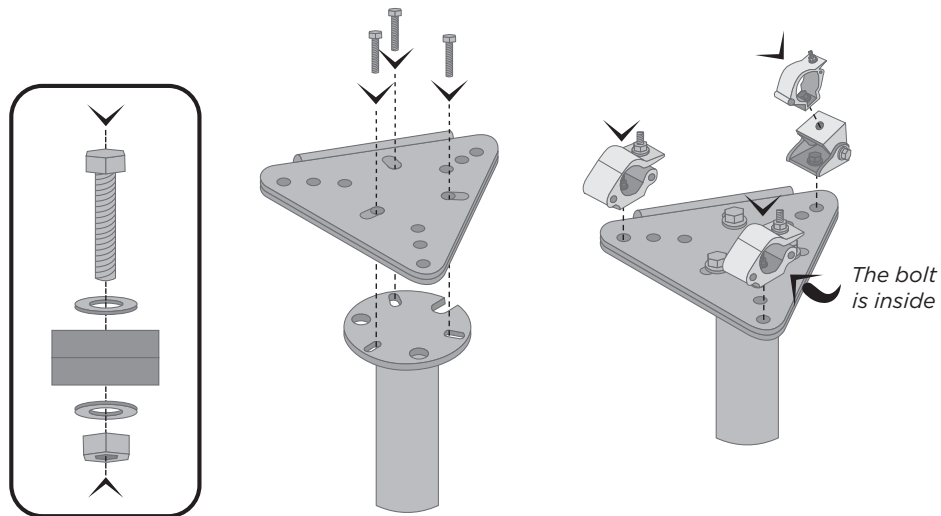
9



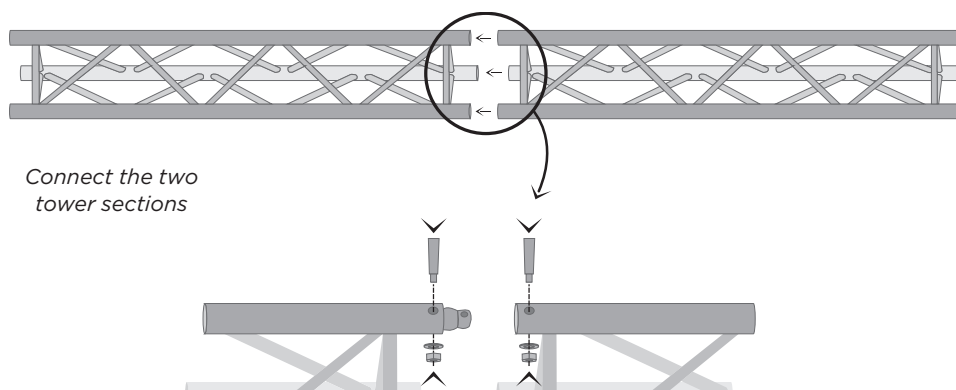
Remove all nuts and bolts from the PV base plate. Make sure to store them in a safe place. Attach the plate to the earth

screw as in the diagram. Attach the clamps at the outermost position of the PV base plate.

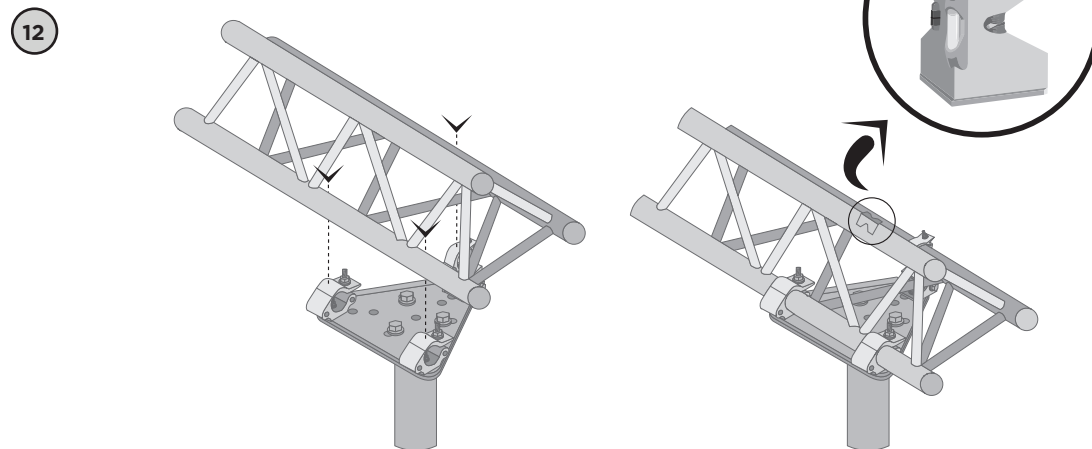
10



11

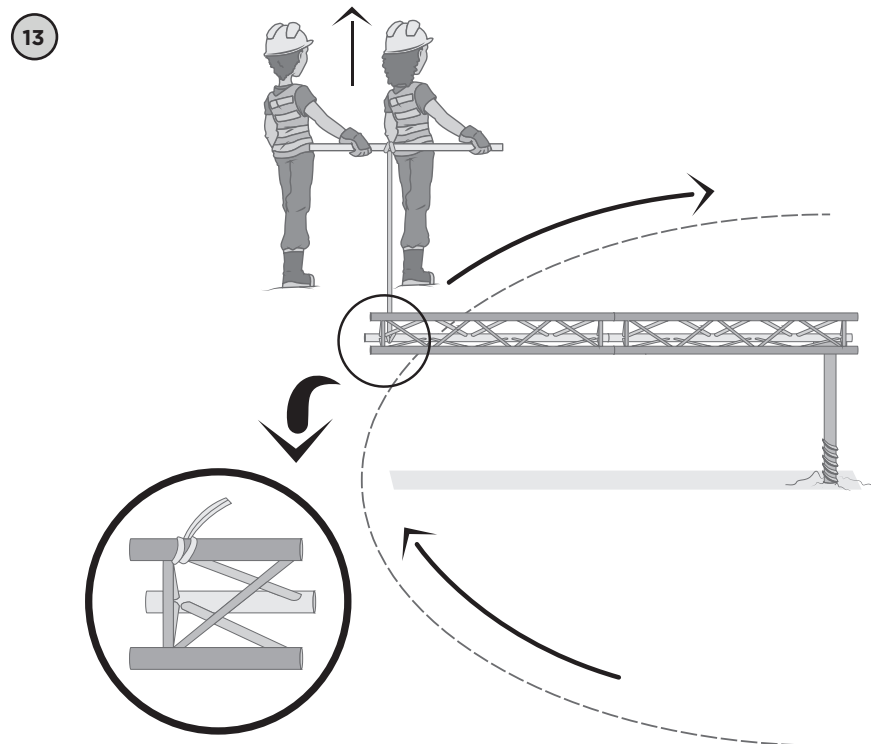


Secure the two truss sections to the clamps of the hinge and place the pole spirit level on top of the tower section as shown in the diagram.



Secure the closed loop sling to the end of the tower sections and attach the other end to a pipe from one of the support legs. The first few rotations of the earth screw should be done by turning the hinge. Check the pole spirit level to

ensure that the earth screw is vertical aligned to the surface. When the load becomes too high, two people can pull on the attached pipe to gain more leverage.

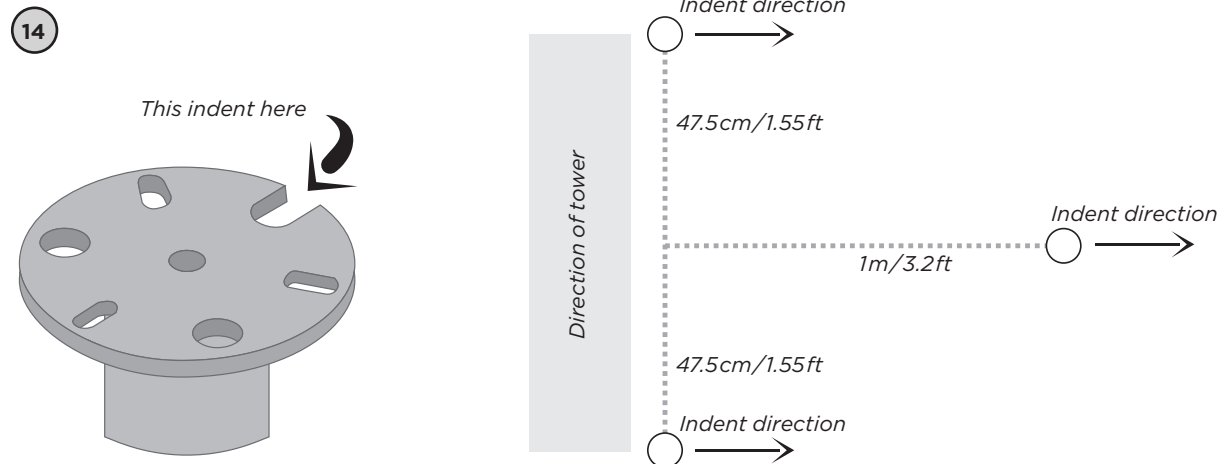


The earth screw is properly installed when a maximum of 10cm/4in of the earth screw flange protrudes from the ground surface.

The indent of the earth screw flange must be oriented as shown below.

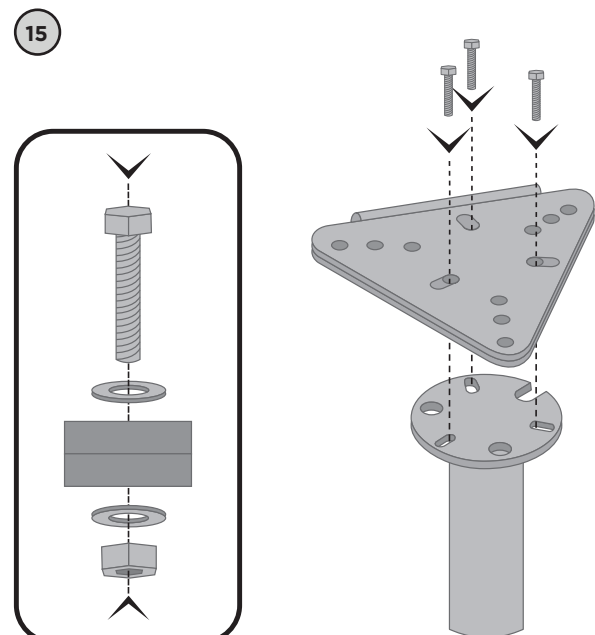
When the center earth screw has been installed, remove the installation bracket

from the earth screw flange and place it on the next earth screw. Repeat step 11-13 until all earth screws are installed. Afterwards, remove and disassemble the installation bracket and the two tower sections.



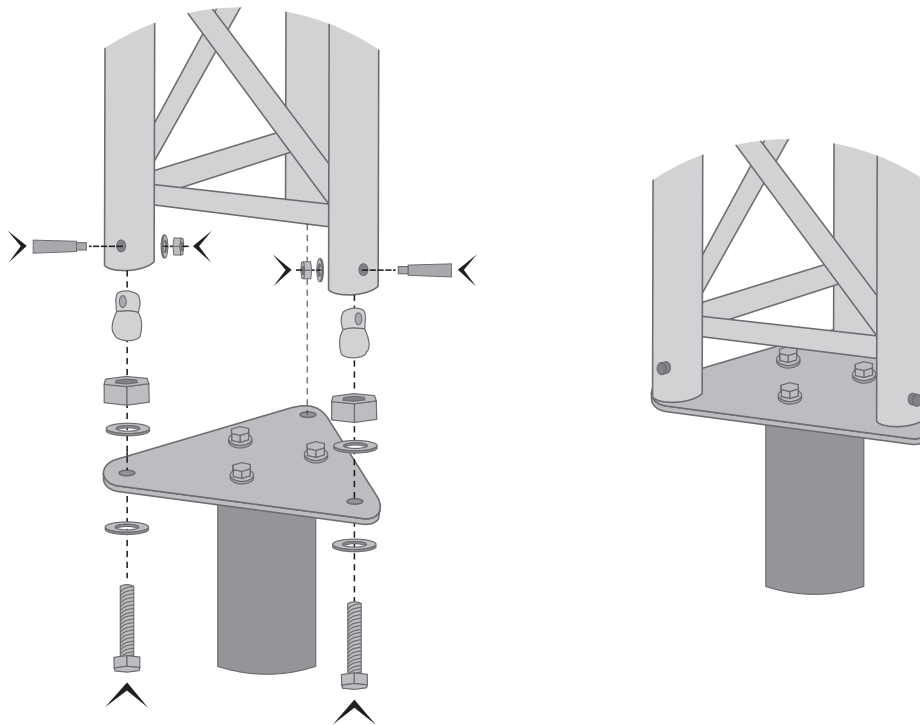
SOLAR INFRASTRUCTURE ASSEMBLY

Attach the two PV base plates to the two earth screws nearest the Tower.



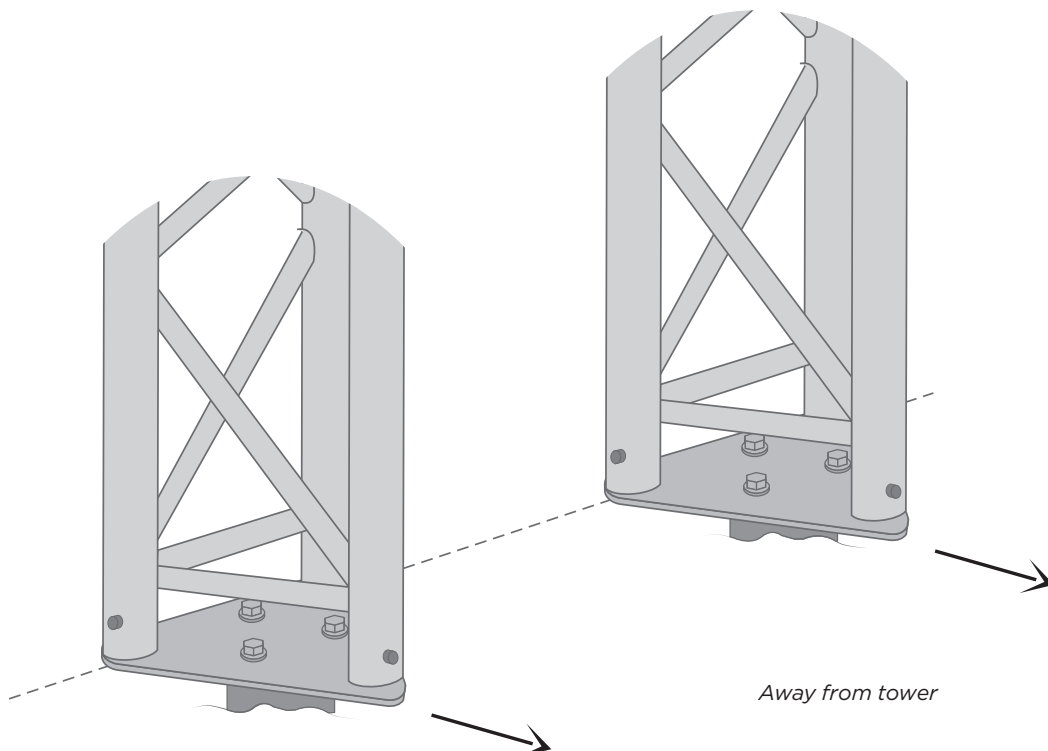
Attach the two tower sections to the PV base plates.

16

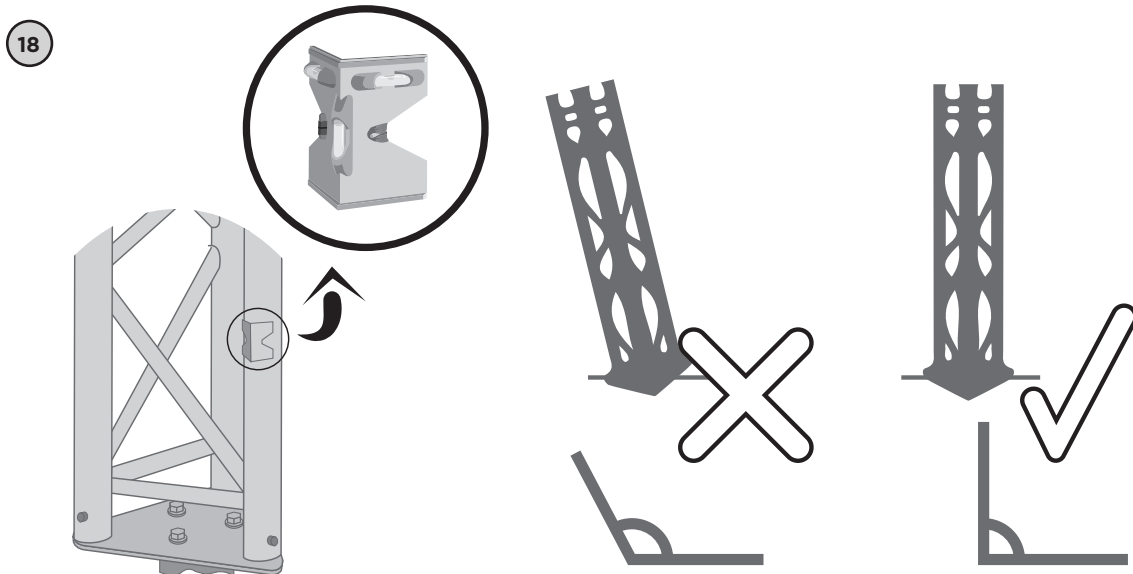


Ensure that the tower sections are oriented in the same direction. The direction is towards the equator.

17

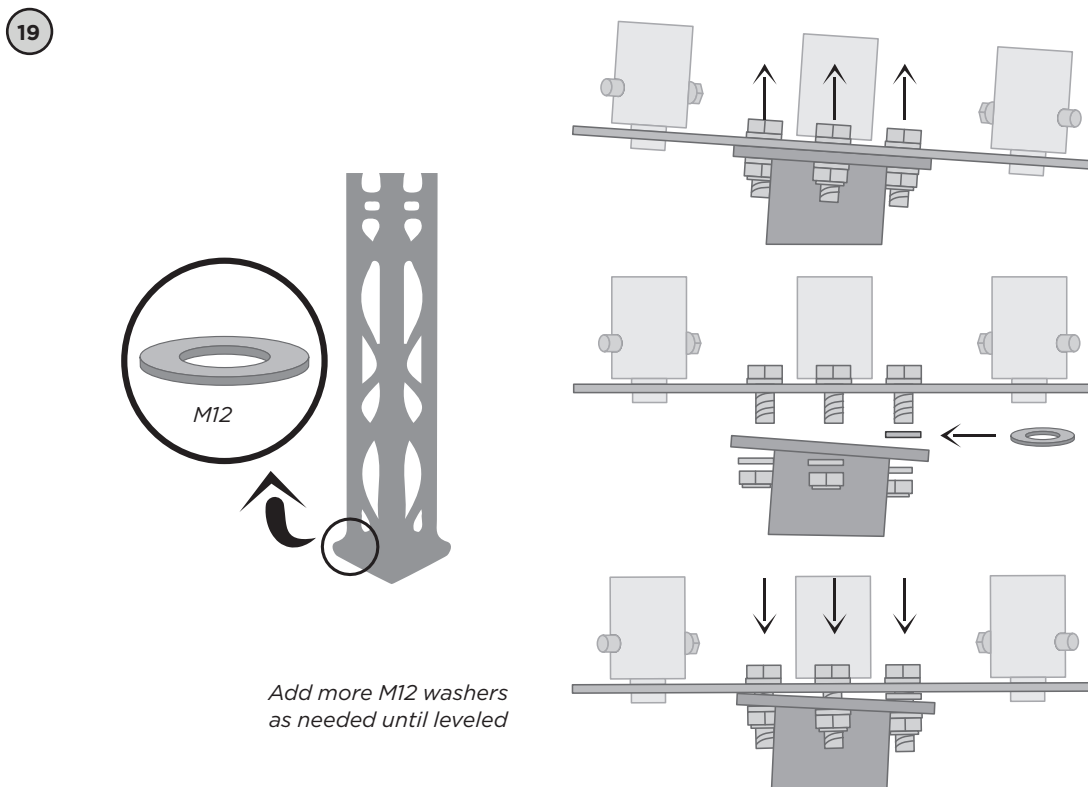


Use the pole spirit level to check if the trusses are vertical aligned and parallel to each other.



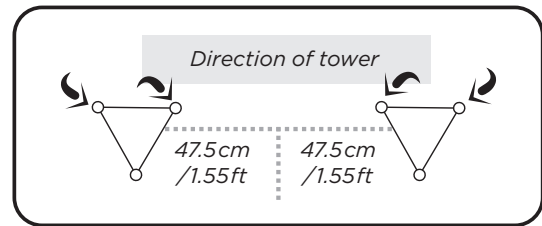
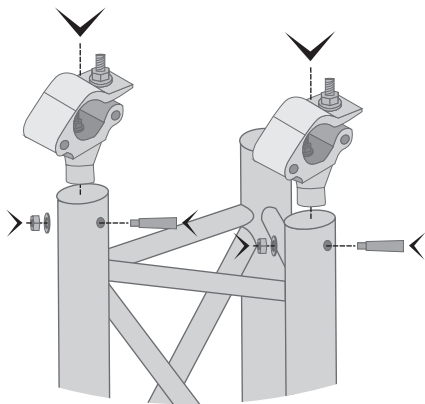
If the tower sections are not vertical aligned, use the supplied M12 washers as shims. The washers must be placed

between the earth screw flange and PV base plate.

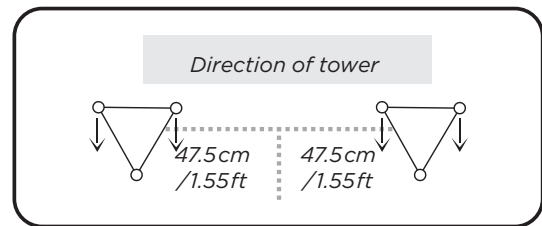


Install the two clamps with brackets and half cone onto the truss tops. The clamps must be installed as shown below.

20



Place the clamps on these couners



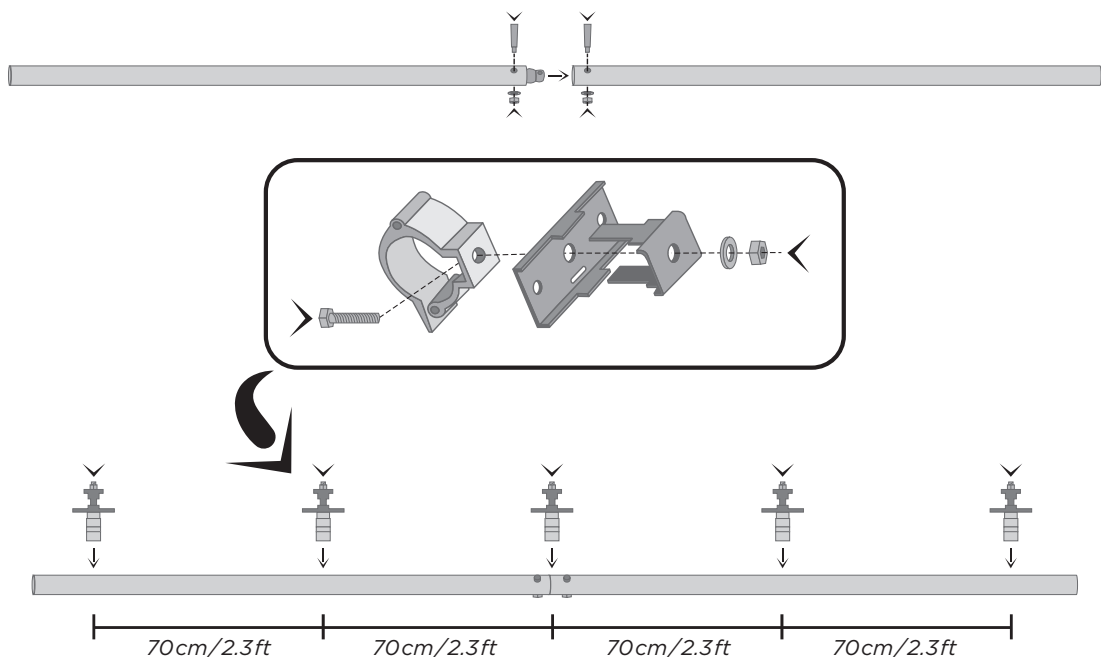
Ensure that the opening ends of the clamps point in the proper direction

SOLAR PANEL FRAME ASSEMBLY

Repeat step 21 so a total of two three meter pipes, each with five PV clamps, are ready for installation.

Connect two 1.5m/4.9ft pipes. Install five PV clamps to the pipes.

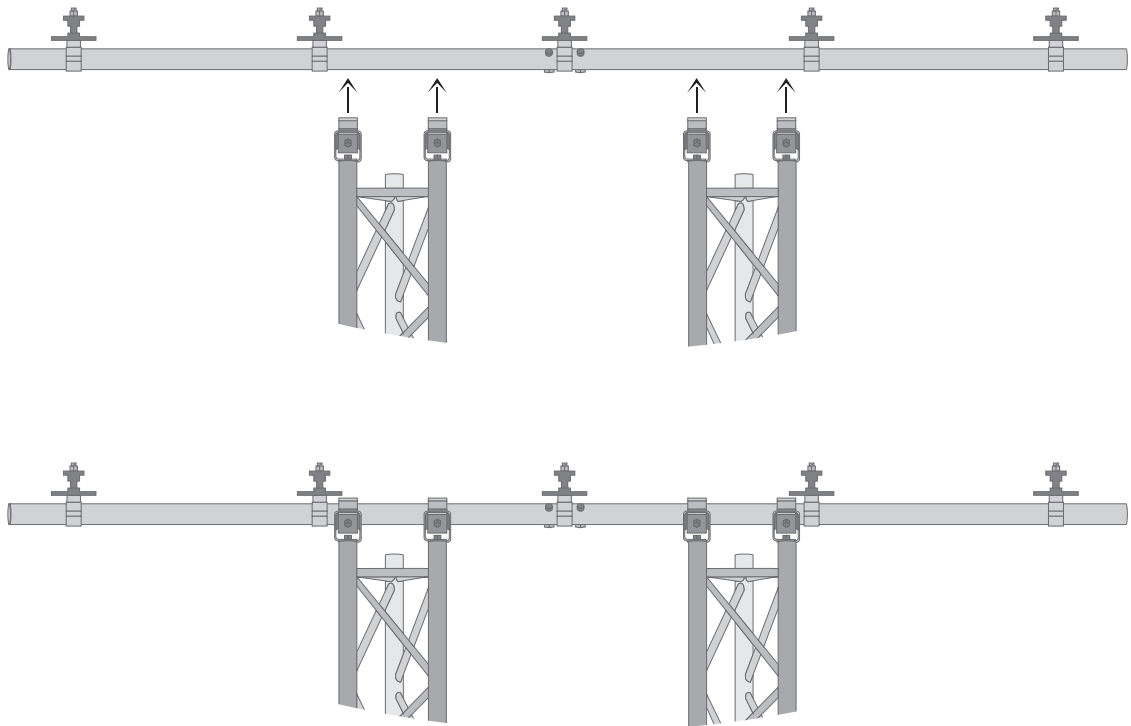
21



Don't tighten the clamps to the pipe fully yet!
Just enough so that they don't move

Attach one of the pipes from step 21 to the four clamps on the tower sections.

22

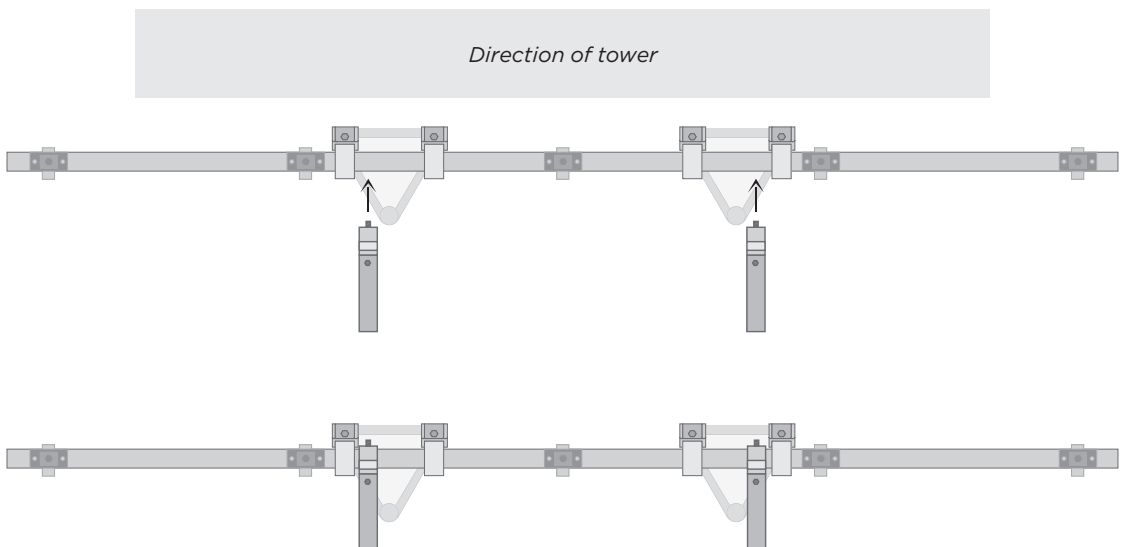


Attach two 1m pipes with preinstalled clamps as shown below. The 1m/3.2ft pipes must be those with no build in hinge.

23

Top view

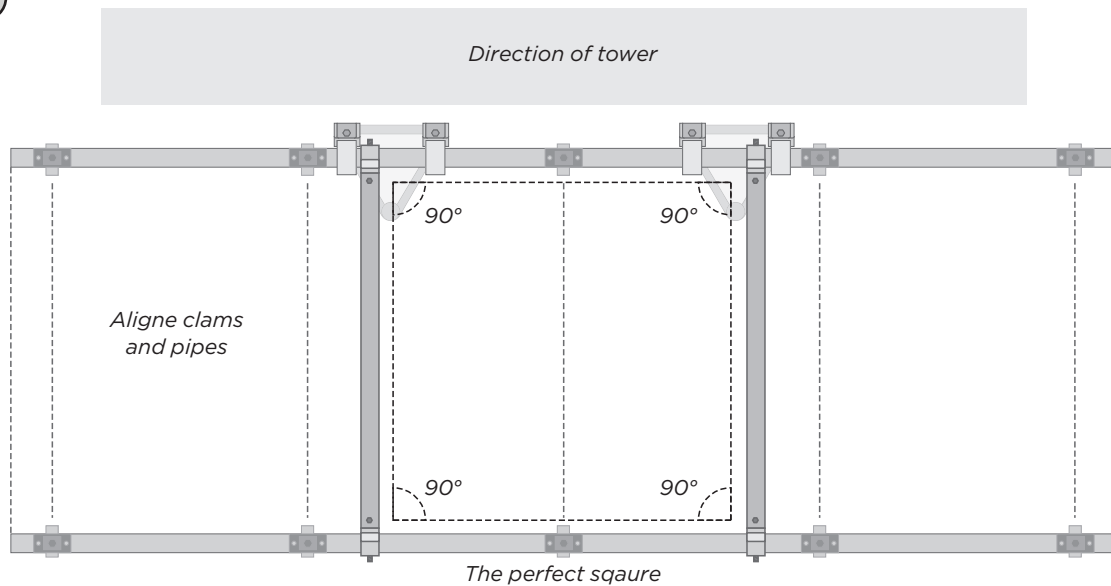
Direction of tower



Attach the other three meter pipe with five PV clamps to the opposite end of

the frame as shown below. Make sure the pipes are perpendicular to each other.

24



Don't tighten the clamps to the pipe fully yet! Just enough so that they don't move

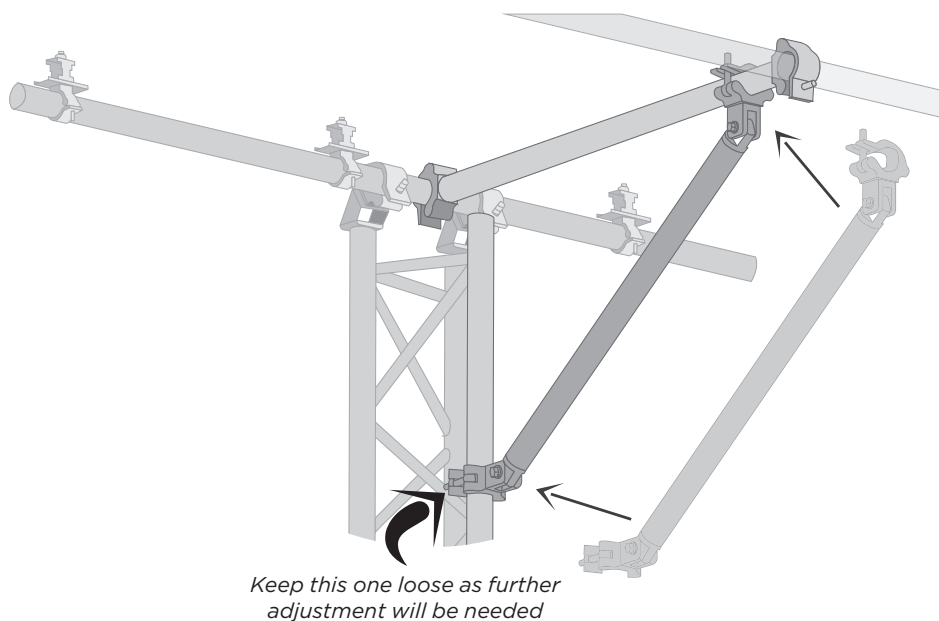
ORIENTING THE SOLAR PANELS

Before installing the solar panels, the correct angle for the panels must be

determined to ensure maximum exposure to the sun.

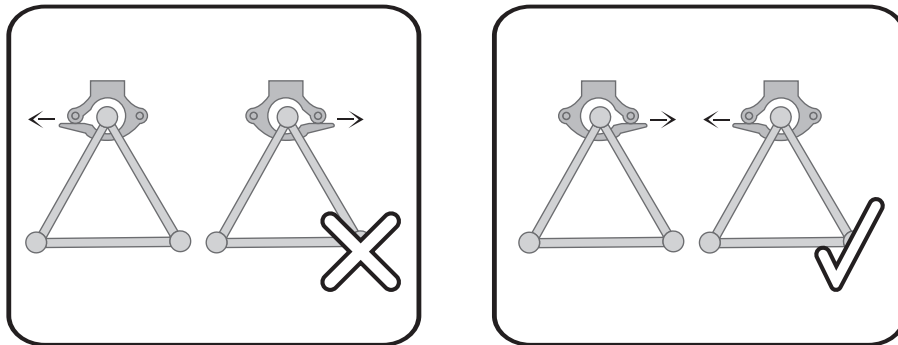
Install two 1m/3.2ft pipes with build in hinges as shown below.

25



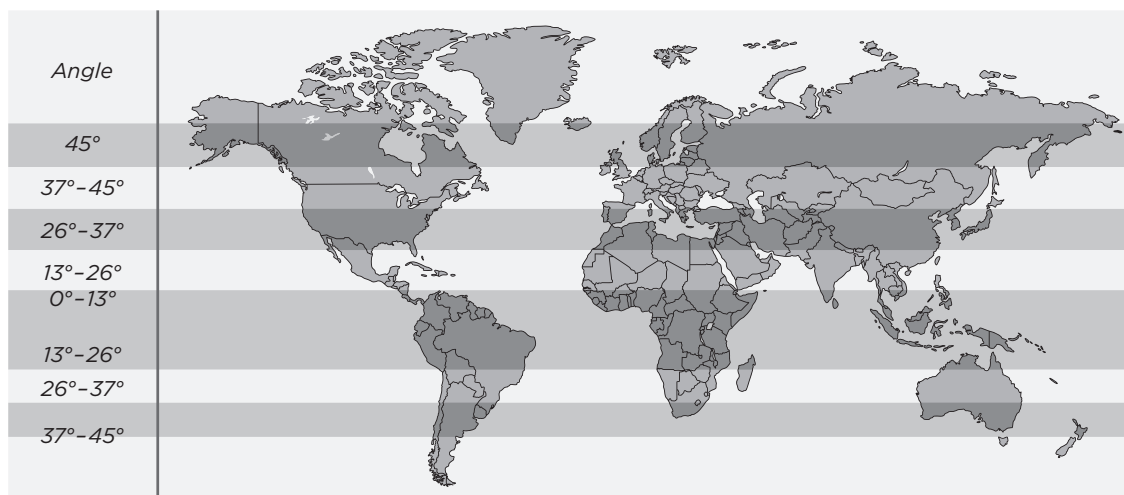
Make sure that the clamps can open outwards.

26



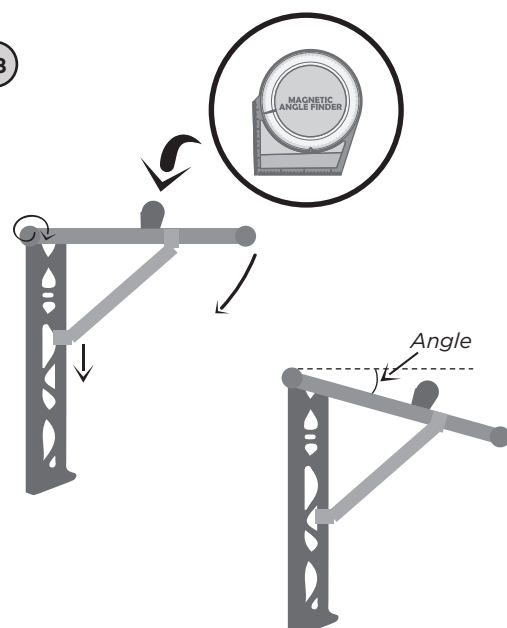
Determine the proper angle of the solar panels using the chart below.

27



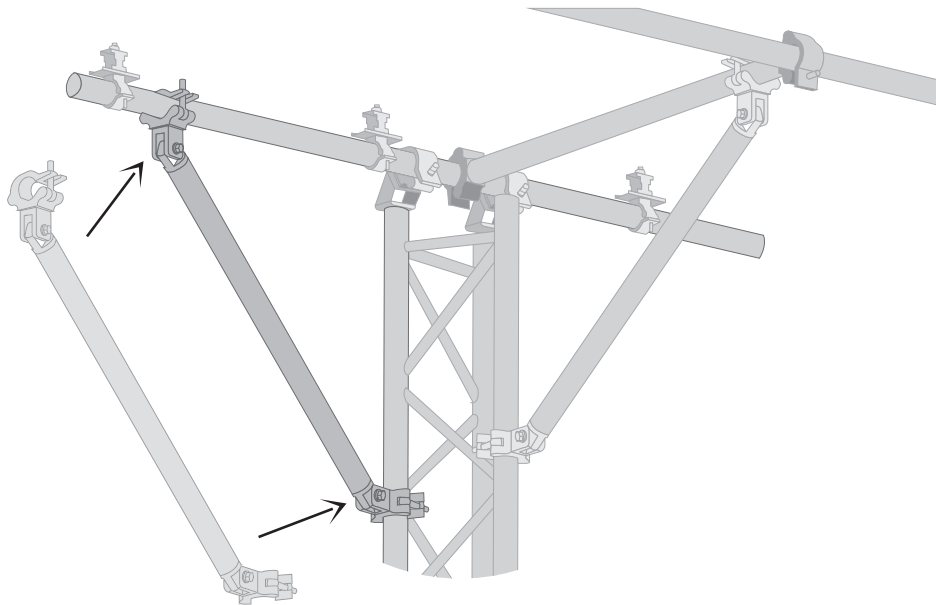
The two pipes are used for adjusting the angle of the solar panel frame and to secure the frame after the correct angle has been determined. An angle finder is supplied in the box and should be placed on the solar infrastructure frame during this procedure. After the solar panel frame has been aligned, secure all nuts and bolts to prevent any movement.

28



Install the two remaining 1m/3.2ft pipes to the outermost section of the solar infrastructure frame.

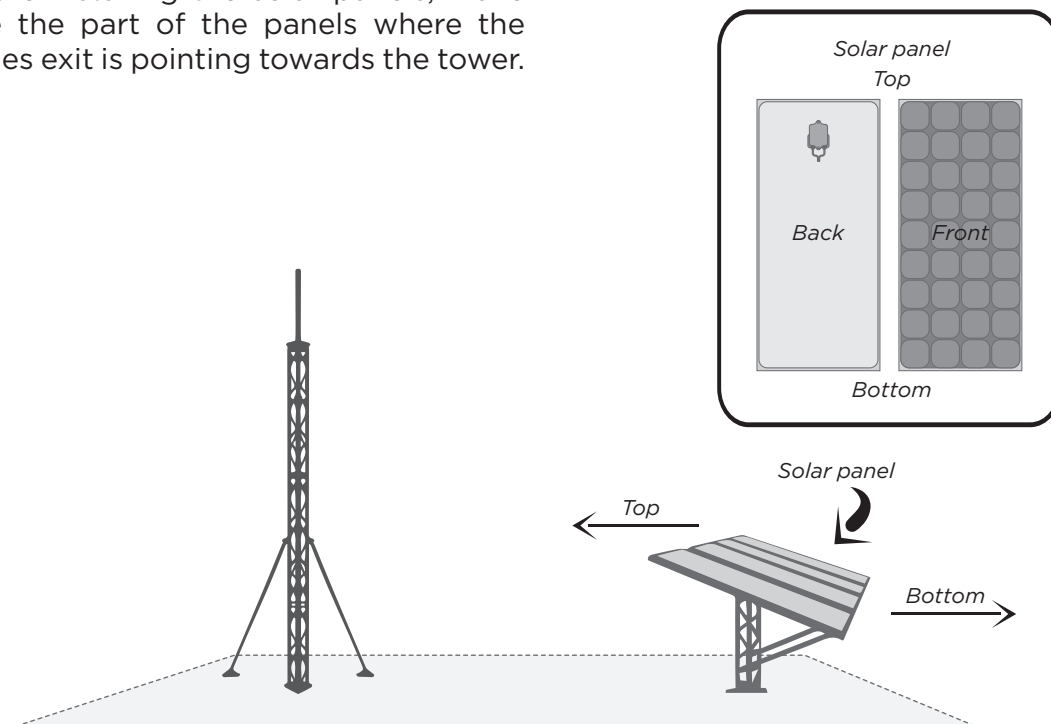
29



INSTALLING THE SOLAR PANELS

Before installing the solar panels, make sure the part of the panels where the cables exit is pointing towards the tower.

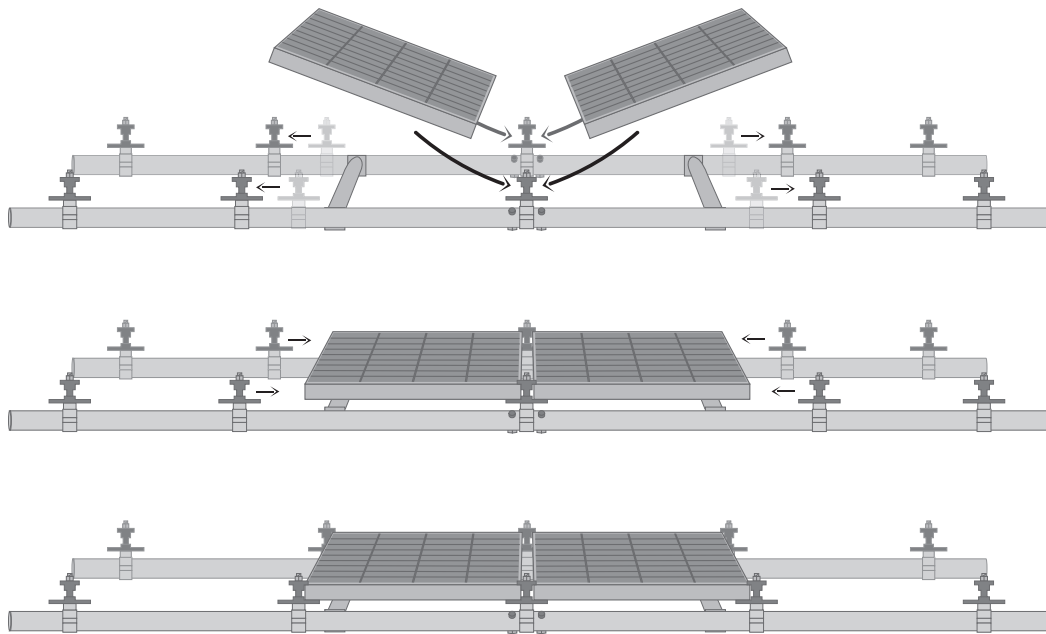
30



Start installing the solar panels by placing the first two panels into the center PV clamps. Move the four outside PV

clamps next to the two panels so they support the panels. Secure the panels by tightening the center PV clamps.

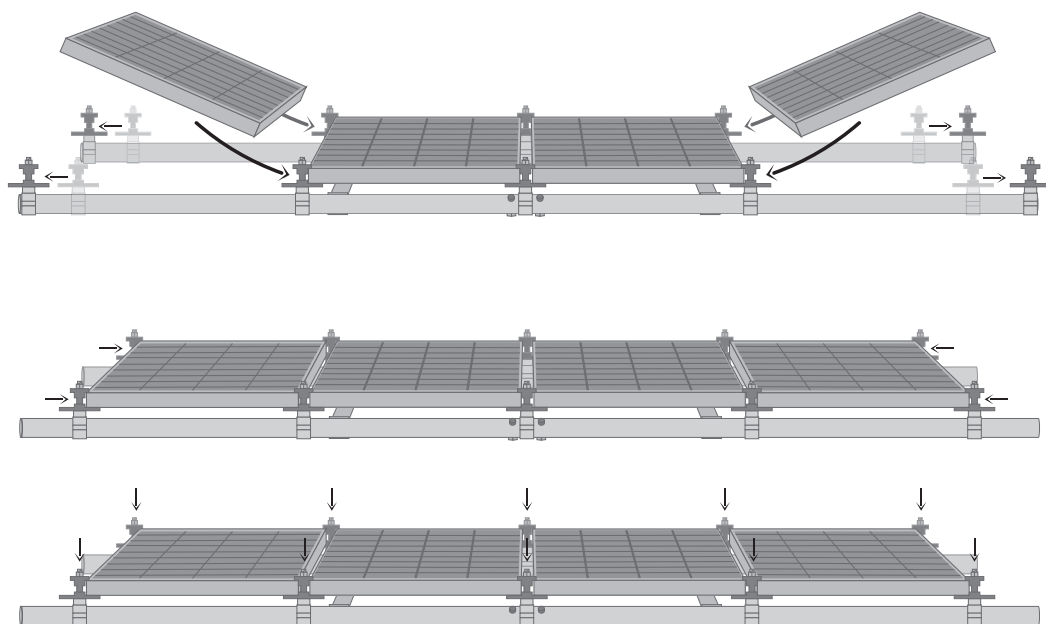
31



Place the two remaining panels into PV clamps and move the outermost PV clamps so the solar panels are supported

close to each corner. Tighten the PV clamp bolts so the panels are locked in place.

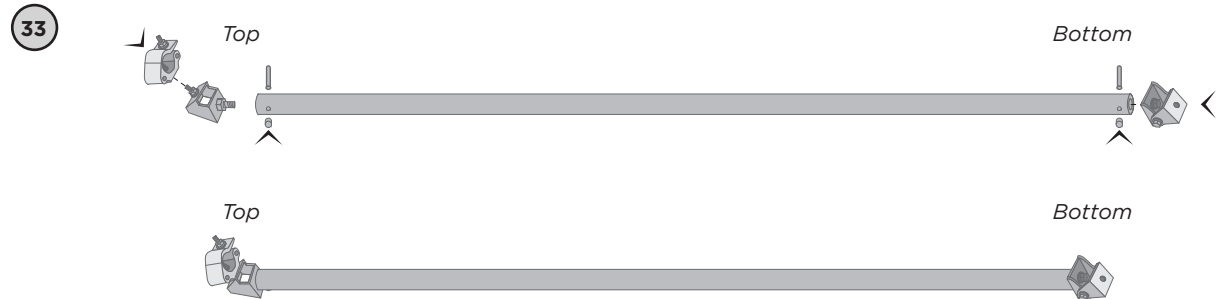
32



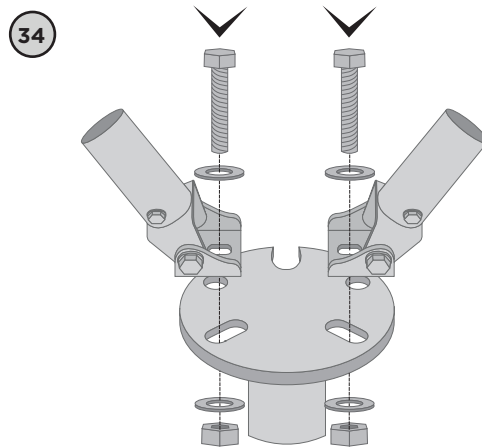
*Tighten all the PV clamps
once they are in place and centered*

INSTALL THE SUPPORT PIPES

Assemble the two support pipes as shown below.

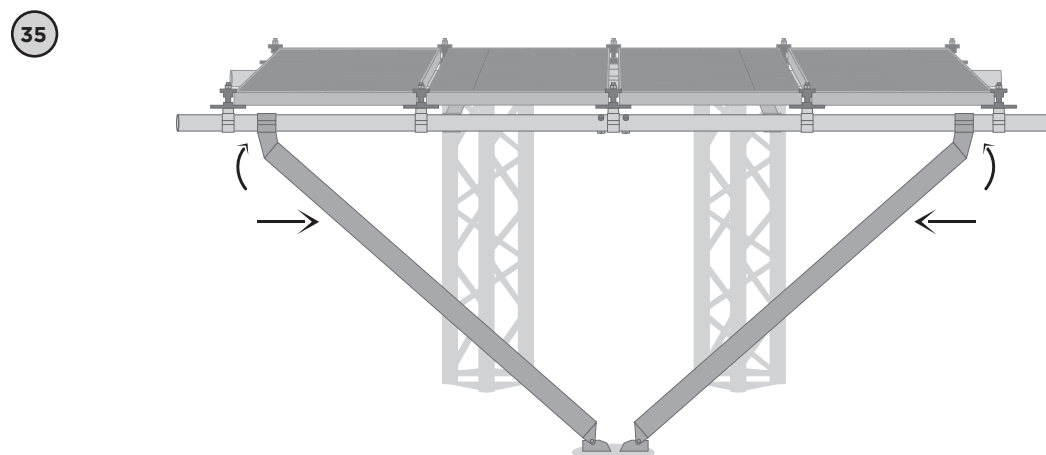


Connect the bottom of the support pipe without a clamp to the remaining earth screw.



Connect the top part of the support pipes to the solar panel frame. Before nuts and bolts are tightened. The support pipes

shall be pushed inwards so they are preloaded.

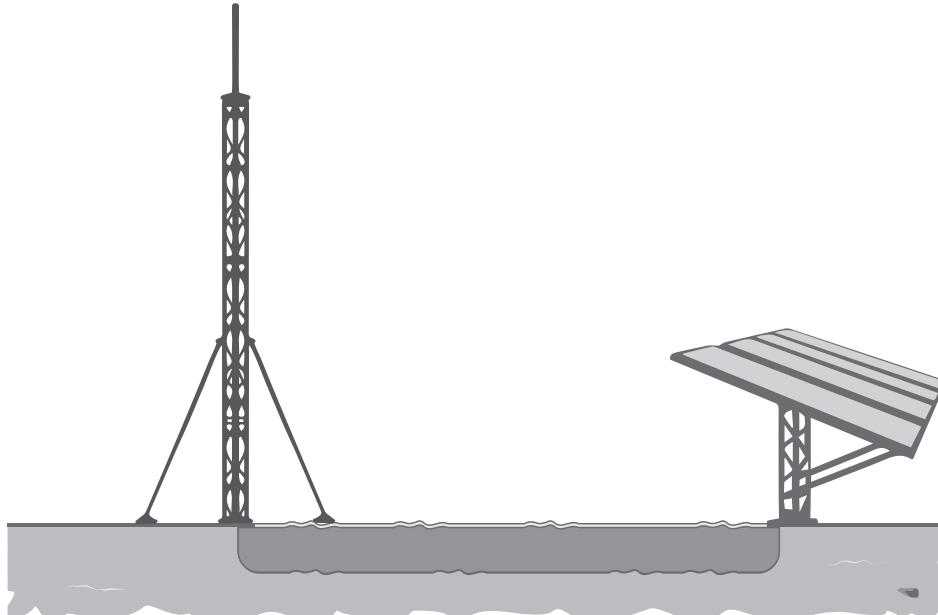


CABLE PREPARATION AND INSTALLATION

tower sections and the center of the tower. The trench must be around 30cm/1ft deep and 15cm/0.5ft wide.

Using the supplied shovel, dig a trench between one of the solar infrastructure

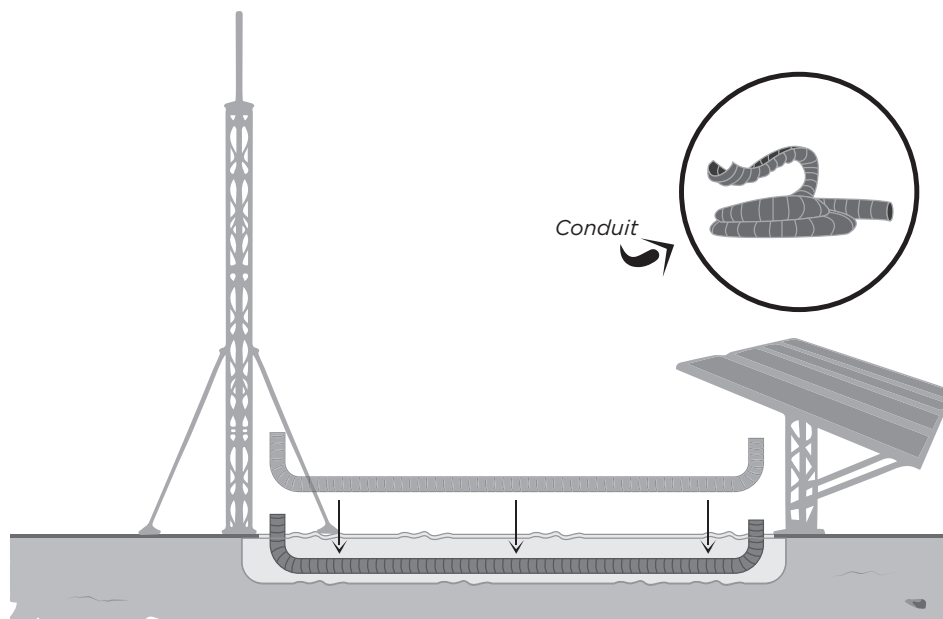
36



Place the supplied cable conduit centered the trench. The conduit ends must be placed next one of the base of the solar panel tower sections and the center of the tower. If the conduit is too long, it can be shortened using the supplied cutters.

As the BLUETOWN BLUE ONE SOLAR is to be connected to the BLUETOWN REACH TOWER leave the trench open. If the solar infrastructure is to be connected to other types of infrastructure, follow system installation guidelines provided for that specific infrastructure.

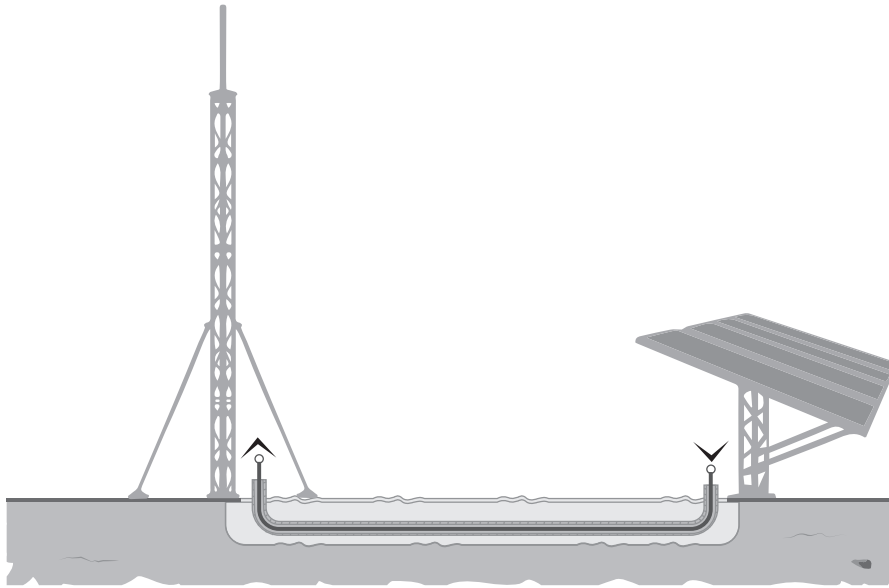
37



GROUNDING

Insert the grounding cable into the cable conduit.

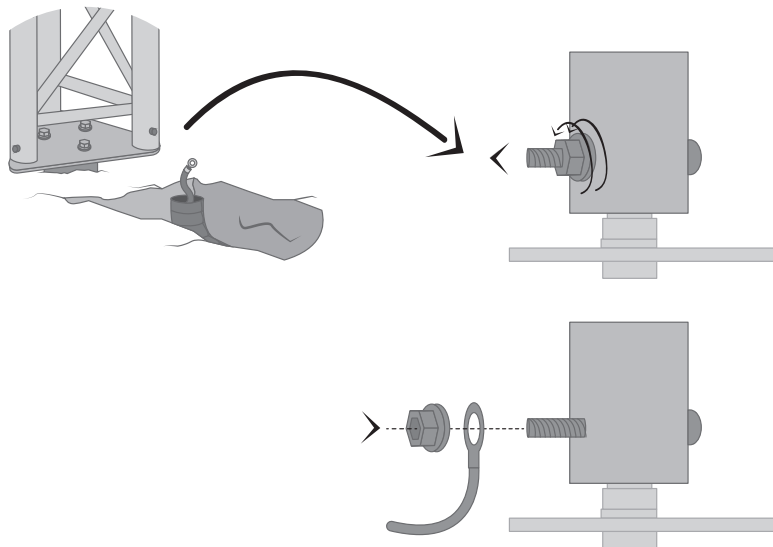
38



Connect the ends of the grounding cable to the threaded pins on the tower sections on both BLUETOWN REACH

TOWER and BLUETOWN BLUE ONE SOLAR.

39



SAFETY & INSPECTION

Ensure that all cables are properly fixated and comply with the wiring instructions.

Double check that all fasteners are properly secured. The installation is now complete.

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