

Install Guide

Tools & Equipment

- Ø5mm steel drill bit
- Battery powered drill with a low torque setting (we don't recommend use of electric drills)
- Self-drilling tek setting tool (driver bit)
- Hacksaw or battery powered reciprocating saw or cold saw
- Air compressor or blower
- Post spacer bar
- Laser level
- Tape measure
- Marking paint
- String line and pegs
- Spirit level
- Metal file
- Clamps
- Sponge
- Touch up paint and small brush
- Zinc rich epoxy primers paint
- Scissor shovels
- Crow bar
- Dingo or similar with auger



Hazards

- **Contact with underground services** during excavation of post footings. *Controls:* Based on a site specific risk assessment complete dial before you dig searches, carry out underground service location, mark services on site plan, mark services on the ground with color coded marking paint, and seek plans from property owner. Induct all persons digging holes.
- **Contact of people with vehicles or equipment.** *Controls:* Based on a site specific risk assessment deploy safety signage, safety barriers, workers to wear hi-viz, carry out higher risk work at lower traffic periods, develop a traffic management plan.
- **Injury to pedestrians entering the work area.** *Controls:* Based on a site specific risk assessment use safety signage, safety barriers (flagging, paramesh or temporary fencing), use Hi-Viz PPE, minimise period of using plant in the work area, housekeeping to remove waste materials, reversing alarms and flashing lights operable on equipment, carry out higher risk work at lower pedestrian traffic periods, create alternate openings for access and egress, cover open excavations at night.

Reference Documents




- Bluedog Factory Packing List (to check off the materials supplied at the time of delivery using the material pick list that should have been provided).
- Hinge installation instructions.

Drawings

- Bluedog assembly drawings

IG-750-015 Headingly Steel Picket Fencing Guide

Material checklist

Item	Component Name	Image	Quantity
1	Panel	900mm high x 2400mm long.	1 per assembly
2	Post	65x65x1.6-2.5mm x 1500mm long.	2 per assembly (each end of the panel)
3	Panel bracket		4 per assembly (unhanded) Connects the rail of the panel to the post. Each bracket requires three self drilling tek screws (see item 5)
4	Panel shroud (alternative to the above bracket)	40x40 zinc plated shroud with 2 diagonal holes.	4 per assembly Connects the rail of the panel to the post. Each shroud requires three self drilling tek screws (see item 5)
4	Splayed Rail Bracket (Note: when setting the bracket to the post check it matches adjacent panel brackets)		These brackets are used to achieve changes in direction in the fence without the need to cut brackets. Each bracket requires three self drilling tek screws (see item 5)
5	Tamper resistant 12g self-drilling tek screw (gal finish or powder coated)		3 per in-fill panel bracket or splayed rail bracket

SOME GENERAL PRINCIPLES

1. Some general principles when installing the fencing include:
 - a. Set the height of the posts or change the prevailing ground level to make the gradient as consistent as possible. This will make installation of the fence easier and will achieve a better visual outcome.
 - b. Position the posts to make the changes of direction as gradual and uniform as possible. This will again make fence installation easier and achieve a better visual outcome.
 - c. Set out the fence so as to minimise hazards to the users of the fencing.
 - d. Seek confirmation whether the pickets (uprights) are on the inside of the rail or the outside. The image below shows the pickets on the inside.

INSTALL OF STEEL PICKET FENCING



2. Measure the distance of each run and draw up a plan if there is not already one. Calculate the number of posts in each run. Refer to the drawings for post spacing: 2480mm centres are standard to suit 2400mm long panels and 65x65mm posts (this allows a 15mm gap to work with). Use the post spacing template supplied for the standard intermediate post spacing. Manipulate the position of the fence posts to achieve the best all round outcome. Take into consideration:
 - a) Achieving a top height of the panel of about 950-1000mm above the prevailing ground level.
 - b) Any fall along the run so that you can potentially step the panels so as to maintain clearances under the fence as consistently as possible.
 - c) Changes of direction in the fence. Try and plan the layout to keep changes of direction as consistent as possible.
 - d) Ends of each run in the fence. Try and position full panels either side of gate ways if practical as it improves the aesthetic outcome.
 - e) If you can shorten or lengthen the run to avoid having to cut panels and rails.
 - f) The location of underground services where you may need to cut a panel to straddle the service.

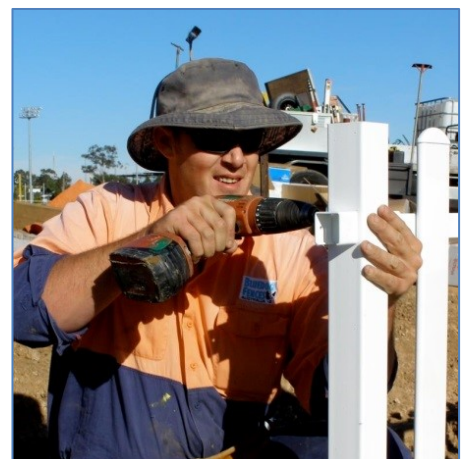
3. Using a laser, take levels along the alignment to establish what the fall is if any over the run. We recommend stepping of the panels to achieve a gap of 50mm, ranging from 25-75mm if necessary. Panels may need to be cut short to maintain this clearance. Try and break the run into sections of the same gradient to make install easier and achieve a better aesthetic outcome. Measure the difference in height at each end of the run and divide by the number of posts to calculate the step at each post assuming a consistent gradient.
4. Mark out the fence alignment. If it is a radius, such as on an oval, try to get the radius as consistent as possible. Clearly mark any underground services along the alignment. Mark the centre of the holes. Double check all measurements and then excavate footings per drawings or as otherwise specified (with regard to the likely loads and the soil conditions). After excavation of the holes we recommend again checking the post spacing.
5. Place the posts along each run. Use the laser or string line to set these posts to height to achieve the desired gradient of the fence. Concrete the posts in place, finishing the top of the footing neatly about 50mm below ground level. Check the posts are in line and plumb. **Note:** Twist change of direction posts so as to bisect (half) the change of direction angle for a neater outcome.



The posts have been set at height to achieve even stepping of the fill panels down the gradient.

INSTALLING THE PANELS

6. For ease of understanding in this guide, we suggest working from left to right facing the fence. Measure down from the top of the left hand post (P1). Fix the top panel bracket to P1. The bracket fixes to either the inside or outside (see image at right) of the post with 2 x 12g tek screws into the post and one into the top rail of the panel.
7. Place the top left end of the panel into this bracket.
8. Place a bracket on the other three ends of the panel.
9. Place a spirit level on the top rail of the panel



Brackets being installed to the outside of the post.

and bring the panel to level.

10. Fix the top right panel bracket to the right hand post (P2).
11. We suggest only installing one tek screw at this stage in each bracket (in case you need to adjust later). Where the run is level, the top bracket for the next panel will be level with the opposing bracket on the same post. Where the run is sloped, the opposing bracket will be lower or higher to suit the gradient of the terrain (see image above right).



View of the post showing the brackets fixed to the post. These opposing brackets are stepped to allow for the gradient of the terrain.



View from outside of the post showing the brackets fixed to the post. The opposing brackets are set at the same height to suit level ground.



The panel brought to level and the bracket at the other end of the top rail is secured to P2.

12. Repeat the above process.

INSTALLING THE GATES

13. We recommend setting the gate posts before completing the end of a run of fencing. This allows you to use a full panel adjacent to the gate (if practical for aesthetic reasons) and means you can trim a number of panels in the bays leading up to the gate. This avoids having to cut a panel close to the picket which looks unsightly.
14. Refer to the separate instructions for the gates and assembly drawings.
15. Measure the gate leaves that have been supplied and check against the plans as to which gates go where. Calculate the gate opening based on the actual length of the gate leaves, the hinges being used and the desired gap between the latch stile of the gate (in the case of a single gate) and the latch stiles (in the case of double gates, we recommend 30mm max.). For example, for a double gate with 1455mm leaves and HD1 hinges, the opening will be $2 \times 1455 + 2 \times 50\text{mm (each hinge gap)} + 30\text{mm (latch gap)} = \text{gate opening of } 3040\text{mm}$. **Hinge and latch measurements need to be confirmed with the Salesman prior to proceeding.**
16. Mark the position of the gate opening. Add half the size of the gate post size to the opening to get the gate post centre to centre distance and mark. For example, for 100mm gate posts add 50mm to each side of the gate opening. So for the above opening the post centres will be 3140mm. Re-check measurements.

17. Excavate the gate post footings. Place the posts and re-check the gate opening suits the gate leaves. Set the gate posts to height.
18. Attach the hinges to the gate posts (refer instructions). Swing the gate leaves and adjust so that the rails are level (the latch stiles are parallel). Install the drop bolts (and drop bolt receivers) and slide bolt and receiver.

OTHER TIPS

19. Metal swarf on the product: This is the biggest risk factor especially when the product is powder coated pearl white or some other light colour. The swarf corrodes and embeds into/ stains the powder coat and looks really poor and is hard to remove after the event (see image right). Ways to manage this risk:
 - The best approach is to not get swarf on the product in the first place.
 - Eliminate the need to cut posts by setting the posts to height (also saves time).
 - Remove the panels before cutting the posts to height or otherwise cover the panels while cutting. Note: Take care to cut top of post level so that the cap sits square.
 - Use cutting equipment away from the fence.
 - Try to avoid creating swarf when the product is wet because it cannot be removed easily from the surface.
 - Blow swarf off the product regularly in particular the top rail, say every 2-3 hours. Use a compressor or cordless blower.
 - Remove swarf inside the 20mm slide bolt unit (MSB) after installing otherwise the swarf collects and corrodes.
20. We strongly recommend the following process when dealing with metal swarf created during install of the self-drilling tek screws:
 - Swing the panel by installing a 12g hex head tek (as easier to repeatedly use) in each bracket on the top rail at both ends. One tek in the post and not fixed firmly. Make sure the bracket is square on the post. Also leave about a 2mm gap between the bracket and the post. This is so any swarf or the cut end of the panel doesn't bleed rust down the post as readily.
 - Centre the panel between the posts so that the 'outboard' (gap between last picket and post) is even at both ends of the panel to achieve a good aesthetic outcome.
 - Use a drill bit (Ø4mm) all other holes. The drill creates less fine swarf and instead creates a metal spiral of swarf.
 - Remove the two teks.
 - Pull the panel off the posts.



- Blow out the swarf from between the bracket and post. Pull the bracket off and blow out the swarf between the bracket and the rail.
- Reassemble the panel to post. Tek's should only just pull up and not more.
- Use two new tek's instead of the two first used (keep using the same pilot tek's to swing the next panel).
- Blow down and inspect the fixing points progressively to ensure all swarf has been removed from the top surfaces.

21. **The torque setting on drill:** It is recommended to only use cordless drills set to a low torque cut out. A drill is better than impact driver because it doesn't drive the screw as hard if the setting is right. The risk with over tightening is that the fixing is compromised because the tek chews the fixing point in the post. Also sometimes the tek's will be painted but if the installer hammers the tek in once it has pulled up it just rips the paint/ gal off which has to be touched up and creates a corrosion point. The tek's only need to be pulled up, no more. Also once the tek's are chewed they are very hard to reverse out.

22. **Touch up:**

- Any cut panels we recommend you file off any cut dag and then coat with zinc rich epoxy paint applied by small brush.
- Touch up any tek heads (if painted) as you go otherwise they get oxidation on them and paint will not adhere as well.
- Do not use a touch up spray can because it results in a poor looking outcome. Use a small brush.
- We suggest using 4.8mm diameter white (colored) stainless steel rivets for any wrong holes that need filling.

23. **Gradient:** depending on the fall, we recommend stepping the panels in long runs to smooth out any local ups or downs.

24. **Other information:**

- Use a post spacing list showing the centre to centre of the standard intermediate posts.
- Avoid doing earthworks around the fence once the panels are installed. This can result in dirt/ dust getting on the panels that can discolor with rain and looks like swarf.
- Use a spacer bar to set the desired gap between posts.
- Any grouting around posts set in core holes: use as little grout as possible with grout level into the base of the post and then a radius of about 10mm so the grout only comes up the post about 10mm max. Don't leave a domed finish above the surrounding concrete as it results in a poor aesthetic outcome. Finish with a sponge.
- The panels naturally curve towards the picket due to the face weld. Therefore, for a round oval the panel is suited to having the picket on the inside. This camber will be a bit noticeable on a straight run.

- If the posts are in natural ground it is recommend to finish the concrete footing just below the ground level to allow re-instatement of the soil and grass around the post. Having said this, cutting of the grass around the post will remove the powder coating in time.
- Wipe the concrete splash or slurry off the post while it is moist with a clean rag or moist sponge and bucket of water. Cleaning as you go saves time and achieves a better result compared to it doing later. If inserting a post into a footing that is already mostly full with concrete then this issue should largely be avoided.
- Make sure the steel caps are knocked on all the way and are level.
- Check all picket tops are right down and that there is no gap under the picket and the top of the steel tube.
- If cutting panels try to ensure the outboard on both ends is close to equal to achieve a better aesthetic outcome. Think about this when setting posts for a short panel.
- It should be stipulated to the client that all gate leaves must be secured in either the open or closed position at all times to avoid harm to the hinges, the gate or members of the public.
- Remember to provide an operation and maintenance guide.

Revisions

REV.	SECTION	SUB-SEC.	PARA.	DATE	AUTHORISED BY
A (original)	-	-	-	14/8/15	S. Belfield
B				15/2/16	S. Belfield
C				17/3/16	S. Belfield
D	24			15/3/17	S. Belfield