

Wates Hoarding Best Practice Guidance Notes





OUR GOAL

The Wates Group will be the company of first choice for all stakeholders.

The Wates Group will also challenge and change the image of construction.

With leaness and agility we will adopt processes to compete with world leading businesses.

But above all else, we must send everyone that comes into contact with our sites and premises home safely each and every day.

This is our license to trade.

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IMPORTANT NOTE:

THESE STANDARD DESIGNS DO NOT ALLOW FOR ANY OF THE FOLLOWING:

- WIND FUNNELLING IN CITY CENTRES OR MOUNTAINOUS TERRAIN
- CROWD LOADING
- UNEVEN / UNSTABLE GROUND
- ADJACENT EXCAVATIONS
- FLOODING
- VEHICLE IMPACT
- MODIFICATIONS OR PARTIAL REMOVAL

IF ANY OF THE ABOVE IS INVOLVED THEN A BESPOKE DESIGN WILL BE REQUIRED!

All sites require some form of hoarding or enclosure to prevent access by unauthorised persons. As the hoardings provide the main interface with the public then it is crucial that they are of adequate design and are regularly checked and maintained. We provide fences, hoardings and gates to:

- Permit safe passage of members of the public
- Prevent unauthorised entry
- Create the right image for our brand, our customers and the communities we work in

Hoardings may either be bespoke purpose built system designed specifically for your project or proprietary 'off the shelf' systems. The use of proprietary systems is becoming more common place due to their flexibility and often cost advantages, although their suitability for your site needs to be checked and verified by the Wates Temporary Works Department.

One thing worth investigating is whether the permanent fencing to the project (if you have any) can be installed early on in the project to essentially provide a secure line for the site and therefore avoid temporary hoarding cost in the first place.

Either way, when selecting a type of hoarding for your site, there is a Wates standard hierarchy to follow, which is:

- Solid timber hoarding embedded in the ground - 2.4m high
- Palisade fencing NOT clad with debris netting or Monarflex
- Solid timber/proprietary hoarding sat on the ground with kentledge
- Heras fencing - to manufacturers details

This booklet sets of the minimum Wates standard requirements for most common hoarding types available to use.

This booklet has been produced having identified the main systems of hoarding used on Wates sites, and provides both guidance and restrictions on the use of each. It is intended that this booklet is to be used by site teams with assistance from the Wates Temporary Works Department, who will provide the relevant site wind pressure as well as any other potential limitations specific to your project. The following assumptions/limitations have been applied in the preparation of these recommendations. If any of these items fall in to the category of potentially what you are installing, then contact the Wates Temporary Works Department:

1. All components have been installed in strict accordance with the manufacturer's details (where applicable) and are in good condition.
2. The hoarding designs do not consider wind tunnelling and therefore the Wates Temporary Works Department should be contacted for advice if this is a possibility, i.e. city centre projects or adjacent to tall buildings.
3. For open mesh (Heras) type fencing, there is to be no more than one standard Wates sign (Max 600x700 mm) per panel. If debris netting is to be used then no signs are to be installed. Monarflex shall NOT be used on open mesh fences as the fence components are not strong enough.
4. Hoardings are not designed to be subjected to crowd loadings.
5. Hoardings shall be inspected weekly as part of the site inspection regime and any defects found are to be promptly rectified. Items to look out for in addition to product specific checks include:
 - Verticality, straightness etc.
 - Loose bolts/screws.
 - Bent/damaged plates and components
 - Loose sheets/panels.
 - Any sharp points or edges.
 - Any movement of kentledge blocks.
 - For embedded hoardings is there any sign of movement around the concrete infill?
 - Are any components removed or damaged?
 - Any excavations or holes in the ground around posts or foundations.
6. For kentledge stabilised hoardings it is assumed that the ground is of sufficient strength to support the kentledge weight.
7. Duration taken into account in calculation of project 'q' value but should not be greater than 2 years.
8. The site is reasonably flat, with a slope not more than 1 in 8 for kentledge stabilised type hoardings and not more than 1 in 4 for embedded hoardings.

If a system is to be used that is not described in this booklet then a full set of drawings, details and associated calculations will need to be submitted for review, comment and approval by the Wates Temporary Works Department, allowing two weeks for this process.

Once you have selected your preferred type of hoarding, be it from one of these standards or you have chosen to go down the route of a bespoke project specific design, then the following needs to be followed as part of the Wates Best Practice.

- Ground conditions and existing services/drainage considered.
- Completed and maintained to a high standard (e.g. corporate colours).
- All timber procured from a sustainable source.
- Regularly inspected.

Pre-construction Phase

1. The site shall confirm to the Wates Temporary Works Department, the duration the hoarding shall be erected for, when it is to be erected and the site post code to determine which wind loading value is applicable to your site.
2. Site team to decide which hoarding type best suits their needs.
3. Drawings (if applicable) will be issued by Wates Temporary Works Department as Construction Issue.
4. The Temporary Works Co-ordinator (TWC) to ensure the latest revision of Approved Drawings, Method Statements, Risk Assessments and Wates procedures and permits are adhered to.

Construction Phase

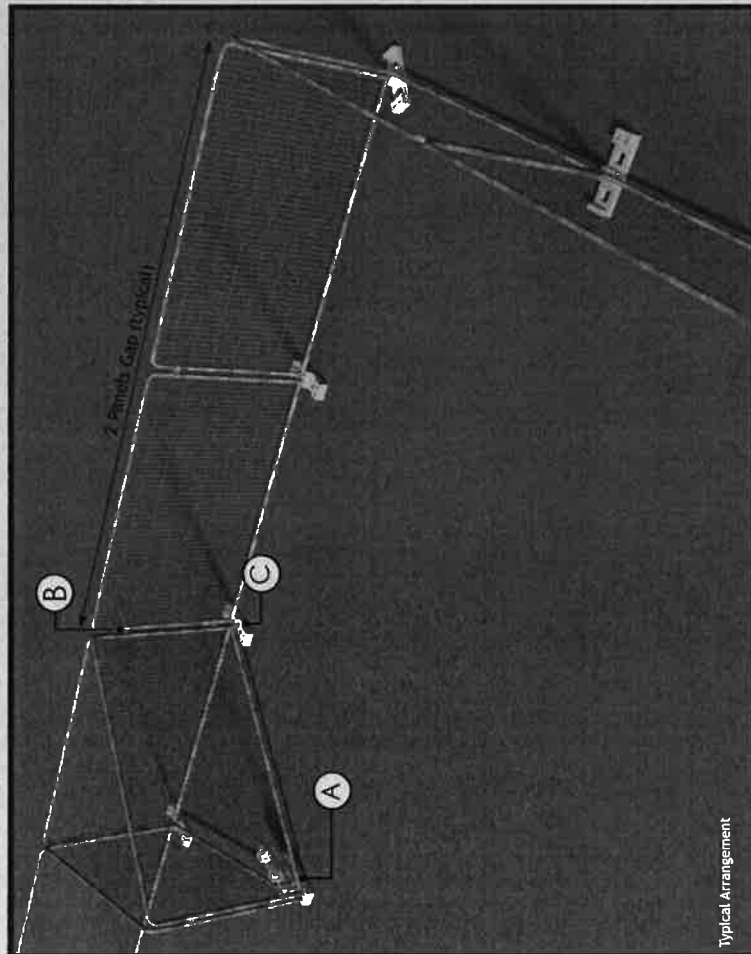
1. Prior to commencing erection all services to have been identified by site both above and below ground. Additionally all other obstructions, traffic/pedestrian management issues and third party interfaces on site to have been identified.
2. TWC to review if choice of hoarding is still suitable for site conditions.
3. Ensure that all materials delivered to site are in accordance with the approved drawing/requirements.
4. TWC to assess/review the working area to ensure it is safe to proceed as per the project and operation specific RAMS.
5. Top soil and other soft material must be removed from the area prior to commencing foundation excavation or placing on kentledge.
6. Excavate and form the foundations (as applicable) in accordance with the approved details within this document. Note: Time spent on careful preparation and setting out of the post and foundation positions will make erecting more accurate, economical and faster.
7. TWC to check the construction of the hoarding against the details and/or drawings, including all connections and setting out.
8. TWC to issue any relevant permits for satisfactory completion or after any remedial works are carried out.
9. The site team are to regularly evaluate the environment that the hoarding is erected in, to see if any additional protection measures required e.g. road/pedestrian barriers required, potential short-term crowd loading etc.
10. Site to monitor performance of hoarding rectifying any defects such as excessive movement, strength or stability issues with the structural members due to wear and tear through reverse cycle wind loading, rot/damage of timber elements due to wetting & drying cycles, and if any screws / sharp snagging items need corrective action.
11. Under no circumstances should any planned or unplanned excavation occur in front or behind the hoarding which would undermine the foundations during its serviceable life.

Dismantling Phase

1. The Temporary Works Co-ordinator (TWC) to ensure the latest revision of RAMS and Wates procedures & permits are adhered to.

Inherited Hoardings

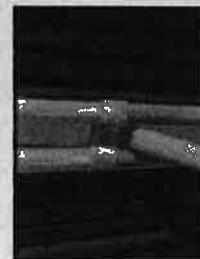
1. Hoardings that have been inherited from previous works etc shall be subject to all of the above requirements.



(A) Stabiliser Base



(C) Loading Tray

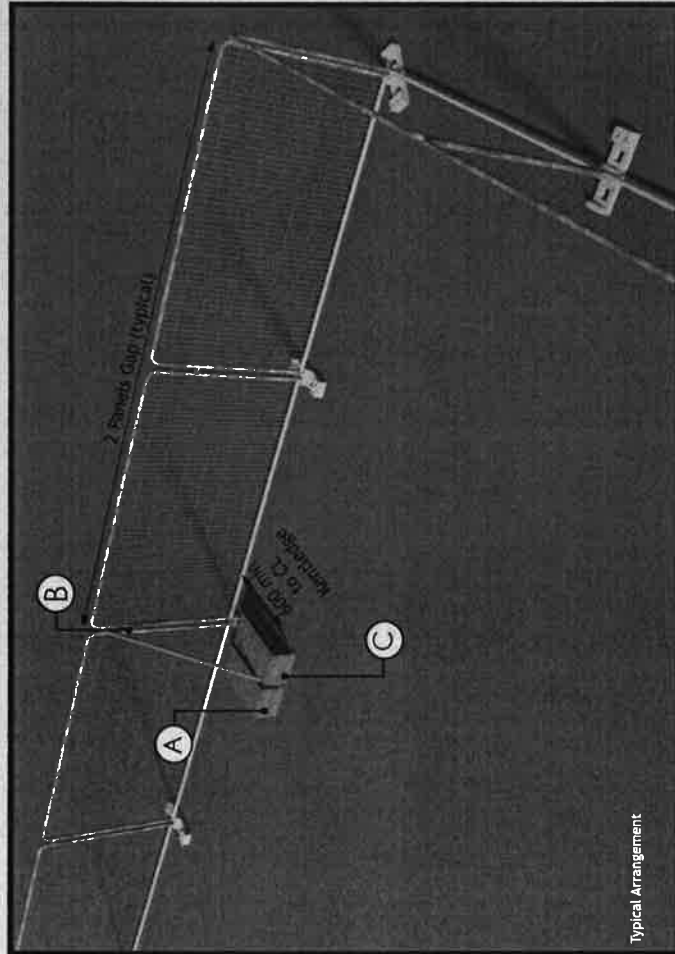


(B) Couplers

Anti Lift Plates

Notes for open mesh 'heras' fence with fence panel 'triangles':

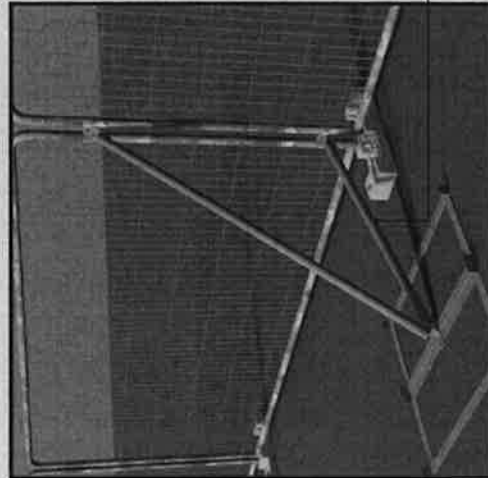
- Open mesh 'Heras' type fencing should only be used on projects of short duration (6 months or less) or in areas that are sheltered and not interfacing with the public.
- Designs are safe up to a maximum dynamic wind pressure (qs) of 0.25 kN/m². This pressure should be confirmed by Wates Engineering, for each application. Different sites in close proximity to each other may have different wind speeds.
- Panels to be standard panels of maximum overall size 3.45m wide x 2.05m high. Panels larger than this will need a separate check.
- Designs are for plain open mesh fences only, a specific check will be required when signs or debris mesh are fixed to the fence. Monarflex should not be used on heras fence panels.
- All panels to have clips top and bottom and are to have standard feet (18kg minimum) with anti lift plates.
- All panels are to be supplied in good condition and to be regularly inspected and maintained in a safe condition.
- All proprietary equipment is to be installed in strict accordance with manufacturers instructions.
- Where triangulated fence panels do not fit into a hole in the base foot then they are to be located on top of the base in a position where they can be clipped securely to one of the adjacent panels.
- Provide additional triangles each side of any openings or gate.
- The design factors of safety shall be 1.5 against sliding and 1.2 against overturning. (These will need to be higher in areas adjacent to people movement or where it may be subjected to increased wind speeds i.e wind tunnel effects.)
- On no account is any thing to be leant against the fencing.
- Open mesh heras fence is not suitable for crowd loading.



A Stabiliser Base



B Couplers

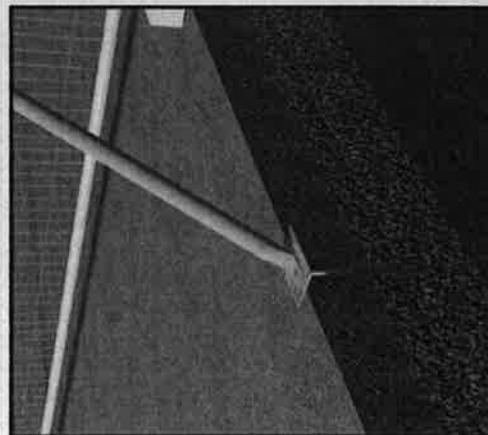
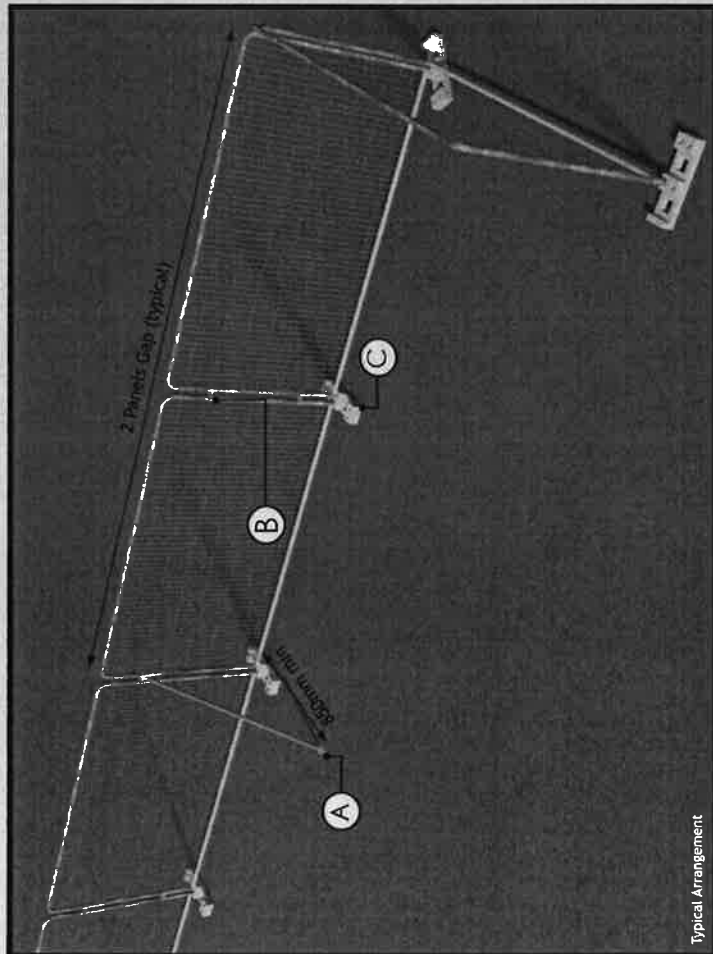


C Loading Tray

Notes for open mesh 'heras' fence with kentledge:

- Open mesh 'Heras' type fencing is only be used on projects of short duration or in areas that are sheltered and not interfacing with the public.
- Designs are safe up to a maximum dynamic wind pressure (qs) of 0.25 kN/m². This pressure must be confirmed by Wates Engineering for each application. Different sites in close proximity to each other may have different wind speeds.
- Panels to be standard panels of maximum overall size 3.45m wide x 2.05m high. Panels larger than this will need a separate check.
- Designs are for plain open mesh fence only, A specific check will be required when signs or debris mesh are fixed to the fence. Monarflex should not be used on heras fence panels.
- All panels to have clips top and bottom and are to have standard feet (18kg minimum) with anti lift plates.
- All panels are to be supplied in good condition and regularly inspected and maintained in good condition.
- Provide 8No. 18kg concrete blocks to every second panel joint.
- All proprietary equipment is to be installed in strict accordance with manufacturers instructions.
- Provide additional backstays and kentledge each side of any openings or gates.
- The design factors of safety shall be 1.5 against sliding and 1.2 against overturning. (These will need to be higher in areas adjacent to people movement or where it may be subjected to increased wind speeds i.e wind tunnel effects.)
- On no account is any thing to be leant against the fencing.
- Open mesh heras fence is not suitable for crowd loading.

Support system must have bottom stay similar to that shown



(A) Stabiliser Base



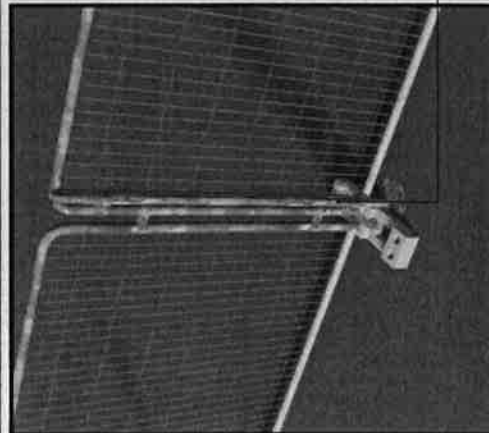
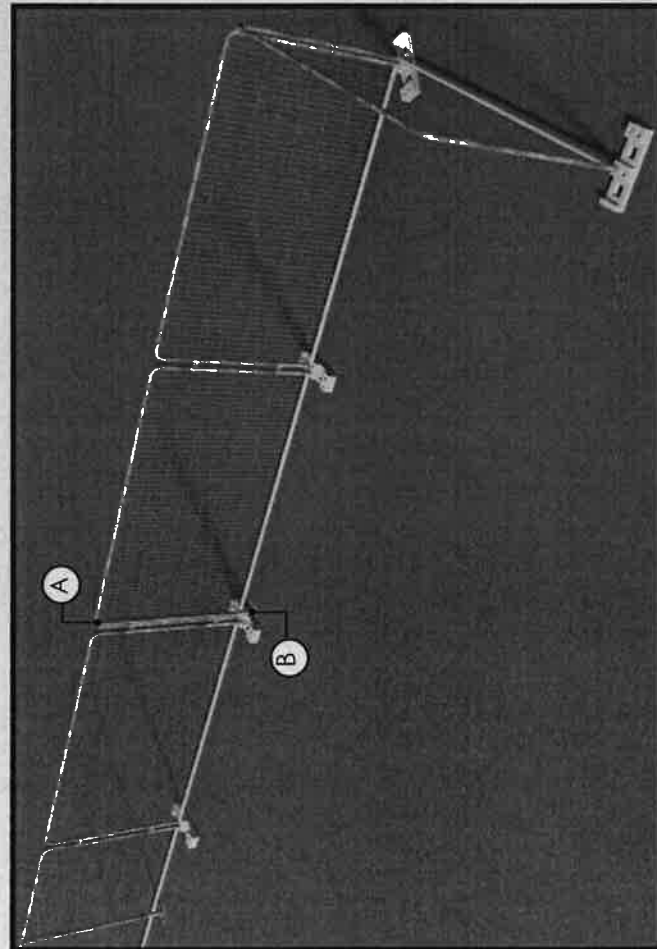
(B) Couplers



(C) Anti Lift Plate

Notes for open mesh 'heras' fence with anchored backstays:

- Open mesh 'Heras' type fencing should only be used on projects of short duration or in areas that are sheltered and not interfacing with the public.
- Designs are safe up to a maximum dynamic wind pressure (qs) of 0.25 kN/m². This pressure should be confirmed by Wates Engineering for each application. Different sites in close proximity to each other may have different wind speeds.
- Panels to be standard panels of maximum overall size 3.45m wide x 2.05m high. Panels larger than this will need a separate check.
- Designs are for plain open mesh fence only, a specific check will be required when signs or debris mesh are fixed to the fence. Monarflex should not be used on heras fence panels.
- All panels to have clips top and bottom and are to have standard feet (18kg minimum) with anti lift plates.
- All panels are to be supplied in good condition and regularly inspected and maintained in good condition.
- All proprietary equipment is to be installed in strict accordance with manufacturers instructions.
- Every second panel joint to be supported by a proprietary backstay with 1 No. M12x80mm long screwbolt into solid concrete or asphalt with a bonded base course. Concrete or asphalt to be 100mm minimum thick and is to be in good condition. Anchors into asphalt are to be tested to 2kN pullout at a frequency of 1 in 5 (minimum 3)
- Ensure that the area has been scanned for utilities prior to the installation.
- Provide backstays each side of any openings or gates.
- The design factors of safety shall be 1.5 against sliding and 1.2 against overturning. (These will need to be higher in areas adjacent to people movement or where it may be subjected to increased wind speeds i.e wind tunnel effects.)
- On no account is any thing to be leant against the fencing.
- Open mesh heras fence is not suitable for crowd loading.



A Embedded Post



B 300mm dia x 600 Deep RC20 Base

Scaffold pole embedded 500 min into base

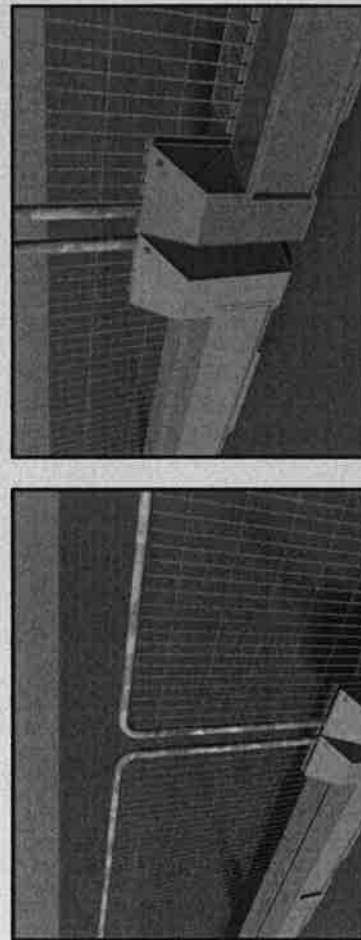
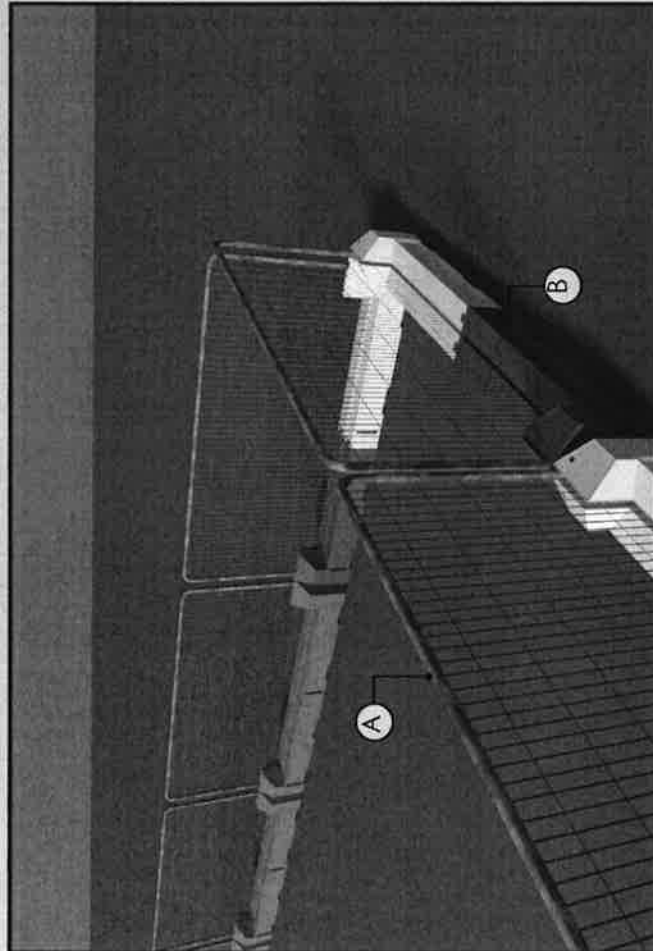
Connect heras panels to scaffold tube using panel clips top and bottom

Notes for open mesh 'Heras' fence supported by embedded scaffold poles:

- Open mesh 'Heras' type fencing is only be used on projects of short duration or in areas that are sheltered and not interfacing with the public.
- Designs are safe up to a maximum dynamic wind pressure (qs) of 0.25 kN/m². This pressure must be confirmed by Wates Engineering for each application. Different sites in close proximity to each other may have different wind speeds.
- Panels to be standard panels of maximum overall size 3.45m wide x 2.05m high. Panels larger than this will need a separate check.
- Designs are for plain open mesh fence with up to one standard sign per panel. If debris mesh is to be fixed to the fence then a specific design will be required. Monarflex should not be used on heras fence panels.
- All panels to have clips top and bottom and are to have standard feet (18kg minimum) with anti lift plates.
- All panels are to be supplied in good condition and regularly inspected and maintained in good condition.
- All proprietary equipment is to be installed in strict accordance with manufacturers instructions.
- Every second panel joint is to be supported by a type 4 steel scaffold tube 2.5m long embedded in a 300mm diameter by 600mm deep RC25 concrete base.
- The soil is to be average to good natural soil with an SPT value of at least 4. If this criteria cannot be met then a specific design will be required.
- Ensure that the area has been scanned for utilities prior to the installation.
- Connect each fence panel to the support tube using a standard fence clip top and bottom.
- Provide poles each side of any openings or gates.
- The design factors of safety shall be 1.5 against sliding and 1.2 against overturning. (These will need to be higher in areas adjacent to people movement or where it may be subjected to increased wind speeds i.e wind tunnel effects.)
- On no account is any thing to be leant against the fencing.
- 150 x 75 C16 timber posts may be used instead of scaffold tubes.
- Open mesh heras fence is not suitable for crowd loading.

Notes for open mesh 'heras' fence supported by water filled kentledge:

- Open mesh 'Heras' type fencing is only be used on projects of short duration or in areas that are sheltered and not interfacing with the public.
- Designs are safe up to a maximum dynamic wind pressure (qs) of 0.25 kN/m². This pressure should be confirmed by the Wates Engineering for each application. Different sites in close proximity to each other may have different wind speeds.
- Panels to be standard panels of maximum overall size 3.45m wide x 2.05m high. Panels larger than this will need a separate check.
- Designs are for plain open mesh fence with up to one standard sign per panel. If debris mesh is to be used then a specific design will be required. Monarflex should not be used on heras fence panels.
- All panels to have clips top and bottom and are to be fixed to bases as per manufactures details.
- All panels and bases are to be supplied in good condition and regularly inspected and maintained in good condition.
- All proprietary equipment is to be installed in strict accordance with manufacturers instructions.
- The soil is assumed to be average to good natural soil with an SPT value of at least 4.
- All bases are to be kept full of Water and this is to be inspected regularly and topped up as necessary.
- If the fence is likely to be in a place over winter then a suitable biodegradable anti freeze is to be added to the mix. If antifreeze is not required then water is to be treated with a suitable anti bacterial treatment.
- The design factors of safety shall be 1.5 against sliding and 1.2 against overturning. (These will need to be higher in areas adjacent to people movement or where it may be subjected to increased wind speeds i.e wind tunnel effects.)
- Open mesh heras fence is not suitable for crowd loading.

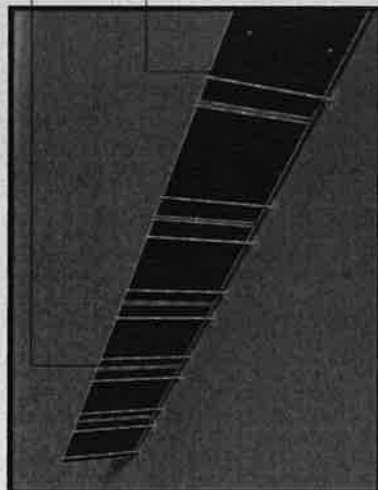


(A) Standard mesh fence panel slotted into base

(B) Heras interblock filled with water (2 per panel)

2 poles per panel, first 4 panels
From a corner gate, or openings

1 pole per panel there after



Proprietary hoarding panel (TYP)



(B) DK Support Clips

Scaffold tube embedded
400mm minimum into base
(Typ.)

400mm dia. RC20 base per post or
800x400 base for each pair of posts.
Depth to be as per table 1.

(A) Post Embedment

Table 1 - Post Embedment Depths

Hoarding Height (m)	Ground Class	DYNAMIC WIND PRESSURE q_s (kN/m ²)			For intermediate values use next level above given site q
		0.3 kN/m ²	0.45 kN/m ²	0.6 kN/m ²	
		2.0m	2.5m	2.5m	
Good	Good	0.50	0.60	0.65	Blue requires single posts - see adjacent diagrams
Average	Average	0.60	0.70	0.80	
Poor	Poor	0.75	0.85	0.95	
Good	Good	0.65	NOT APPROPRIATE		Yellow requires double posts. Refer to sheet 2
Average	Average	0.75			
Poor	Poor	0.90			

Table 2

Ground	SPT	Cu	Class
Compact well graded sand and gravel, hard clay, well graded fine and coarse sand, decomposed granite rock and soil, drains well	> 10	>50	Good
Compact fine sand, medium clay, compacted well drained sandy loam, loose coarse sand and grave. Average, soils drain sufficiently well that water does not stand on surface.	4-10	20-50	Average
Soft clay, clay loam, poorly compacted sands, clays containing a large amount of silt and vegetable matter, and made up ground includes site placed backfill unless fully compacted. Normally wet with poor drainage.	1-4	10-20	Poor

Method for selecting spacing and embedment:

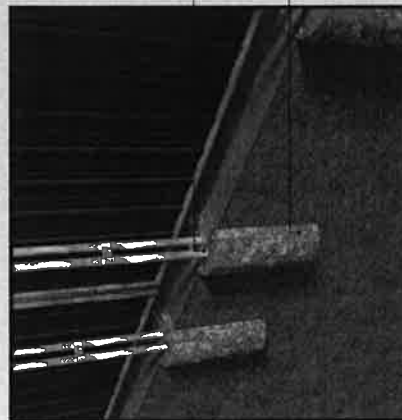
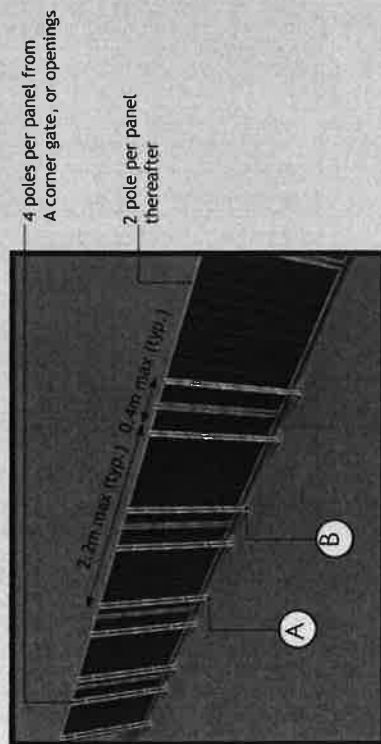
1. Establish the dynamic wind pressure (q_s) for the site by consulting the temporary works department having supplied them with the site postcode and the duration of the hoarding
2. Decide what height of hoarding you require.
3. Establish the width of panels to be used by consulting your proposed supplier.
4. Set out the hoarding and check the dimensions of the posts from the corner/return.
5. By referencing tables 1 and 2, check the suitability of the chosen system and the required embedment.

Worked example:

- Hoarding height to be 2.4m.
- Panel widths to be 2.2m.
- Geotech report indicates an SPTN value of 12.
- The hoarding length >50m with any returns > 2.4m.
- Postcode of KT22 7SW and job duration of 14 months given to the Wates Temporary Works Department who in turn calculate the dynamic wind pressure of 0.27kN/m².
- Reading from Table 2, the soil is an average soil.
- Reading from table 1, double posts are required and an embedment of 0.75m.

Notes

- The embedment figures stated provide a factor of safety against sliding and overturning of at least 1.5.
- Corners and return have been taken as being greater than the height of the hoarding.
- If the q_s value exceeds 0.6kN/m² then a bespoke design will be required for your project, but as this pressure is very high and the requirements will be sizeable, you may wish to consider using an alternative hoarding solution.
- If your panel widths are not listed in table 1, then select the next width size up in the table.
- The above calculations are based on a nominal run of hoarding of 50m.
- Post embedment may be either circular, square or may consist of a shared base 0.4 x 0.8m in plan at the same embedment.



A Post Embedment



B DK Support Clips

Table 1 - Post Embedment Depths

		DYNAMIC WIND PRESSURE q_s (kN/m ²)	
		0.3 kN/m ²	0.45 kN/m ² 0.6 kN/m ²
Hoarding Height (m)	2.0m	Good Average Poor	0.50 0.60 0.75
	2.5m	Good Average Poor	0.65 0.75 0.90
		NOT APPROPRIATE	

For intermediate values use next level above given site q

Blue requires single posts. Refer to sheet 1

Yellow requires double posts. See adjacent diagrams

Table 2

Ground	SPT	Cu	Class
Compact well graded sand and gravel, hard clay, well graded fine and coarse sand, decomposed granite rock and soil, drains well.	> 10	>50	Good
Compact fine sand, medium clay, compacted well drained sandy loam, loose coarse sand and grave. Average soils drain sufficiently well that water does not stand on surface.	4-10	20-50	Average
Soft clay, clay loam, poorly compacted sands, clays containing a large amount of silt and vegetable matter, and made up ground includes site placed backfill unless fully compacted. Normally wet with poor drainage.	1-4	5-20	Poor

Method for selecting spanning and embedment:

1. Establish the dynamic wind pressure (q_s) for the site by consulting the temporary works department having supplied them with the site postcode and the duration of the hoarding.
2. Decide what height of hoarding you require.
3. Establish the width of panels to be used by consulting your proposed supplier.
4. Set out the hoarding out and check the dimensions of the posts from the corner/return.
5. By referencing tables 1 and 2, the suitability of the chosen system and the required embedment.

Worked example:

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- Panel widths to be 2.2m.
- Geotech report indicates an SPTN value of 12.
- The hoarding length >50m with any returns > 2.4m.
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- If your panel widths are not listed in table 1, then select the next width size up in the table.
- The above calculations are based on a nominal run of hoarding of 50m.
- Post embedment may be either circular, square or may consist of a shared base 0.4 x 0.8m in plan at the same embedment.