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CIRTEX GABIONS

TWISTED WIRE GABION / MATTRESS

ASSEMBLY AND
CONSTRUCTION DETAILS

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ASSEMBLY & CONSTRUCTION DETAILS

1.0 GENERAL

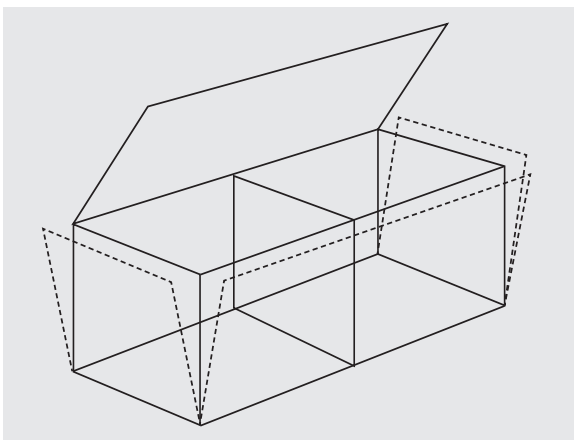
Typical manpower requirements for the assembly and erection of gabions are a leading hand, three labourers and a plant operator. The plant requirements are generally a small to medium sized excavator.

1.1 ASSEMBLY

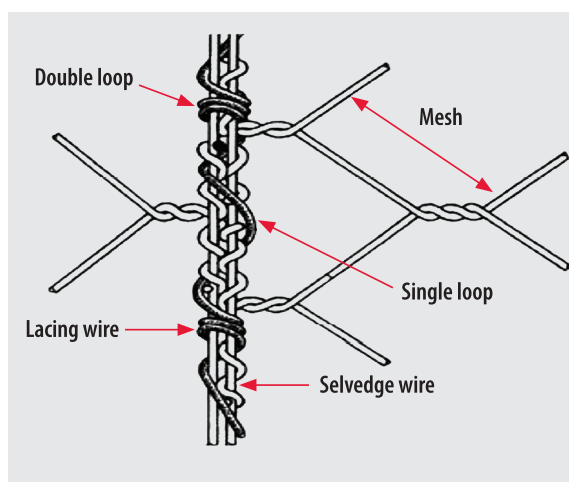
Unpack the gabion and unfold it on a firm surface. Stretch the gabion and stamp any kinks from the mesh.

Assemble each gabion individually by raising the sides, ends and diaphragms as shown above.

Ensure that all creases are in the correct positions and that the tops of all four sides are at an even height.



First lace the four corners of the gabion, then the diaphragms to the sides. Always begin lacing at the top, twisting the end of the lacing



wire around the selvedges, then lacing around the two edges being joined, using a double tie through each mesh in turn, and tie off securely at the bottom, see sketch above.

Turn the ends of all lacing wire to the inside of the gabions on completion.

1.2 ERECTION

Position the assembled gabion on the structure. Secure the end or side from which work is to proceed either by lacing to already completed work or to stakes driven into the ground at the corners. These stakes must reach at least the top of the gabion and be braced before tensioning them.

1.3 TENSIONING

Before tensioning can commence all edges (top, bottom and sides) of the row of must be laced together.

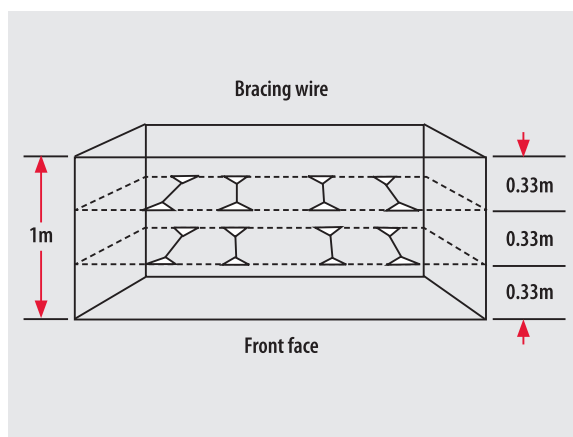




1.4 FILLING

Fill with durable rock. The size of the rock should vary from a maximum of 250 mm diameter and should be reasonably well graded down to 100 mm diameter with not more than 10% material by mass smaller than 100 mm diameter.

Where correct size material is limited, the engineer may approve the use of smaller material in the central 50% of the cross sectional area of each gabion, with correct sized material on the outer faces.



Provide internal horizontal bracing wire at 0.33m vertical centres in 1 m deep gabions, at the ratio of four wires per cubic metre, see sketch above.

These bracing wires should be wrapped around two mesh wires at the front and back faces, and should be positioned and tensioned to ensure a neat face and line free of excessive bulges and depressions. Fill the gabions in stages and insert bracing wires as filling is brought up.

Overfill the gabion by 20 to 50mm above the top to allow for subsequent settlement.

Where required to achieve a neat outer face, a timber form may be used. Once the gabions are tensioned the timber form can be positioned against the gabion and fixed into position. The outer face of the gabion should be carefully hand packed with selected stone and then the timber form removed.

Release tension on the gabion only when it is sufficiently full to prevent the mesh from slackening.

1.5 FINAL WIRING

Close and wire down the lid as soon as practicable after filling.

Stretch the lid tight over the fill using bars or a closing tool and wire down securely through each mesh along all edges, ends and diaphragms. Turn the ends of all lacing and bracing wires into the gabion on completion. Alternatively use 50mm stainless steel 'C' rings at 100mm centres maximum in lieu of lacing.

1.6 CUTTING AND FOLDING MESH

Where shown on the drawings, cut, fold and wire together gabion mesh to form mitre joints or non-rectangular shapes. The mesh must be cleanly cut, and the surplus mesh cut out or folded back and neatly wired to an adjacent face. Lace the cut edge of the mesh securely together with binding wire through each mesh.



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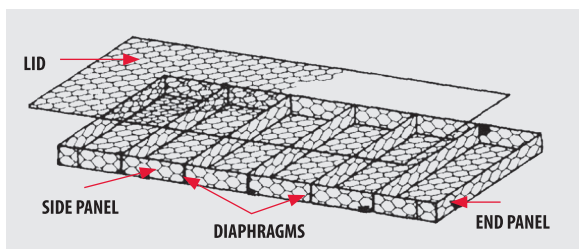
INSTRUCTIONS FOR THE ASSEMBLY AND ERECTION OF MATTRESSES

2.0 GENERAL

The assembly and erection of mattresses requires the same manpower and plant requirements as described in the gabion section above.

2.1 ASSEMBLY

Unpack the mattress and unfold it on a firm flat surface. Stretch the mattress and remove any kinks from the mesh.



Assemble each mattress individually by raising the sides, ends and diaphragms. The various elements of a mattress are shown in sketch above.

Hold the diaphragms temporarily in the vertical position by tying the selvage wire projecting from the top edge of the diaphragm around the top of the long sides. Starting from the top, use binding wire to lace the four corners of the mattress through each mesh and tie securely at the bottom.

Commence from the top using binding wire to lace the ends of each diaphragm to the sides of the mattress. Lace through each mesh and tie securely as shown in the gabion section above.

Alternatively use 50mm stainless steel 'C' rings at

100mm centres maximum in lieu of lacing. Turn the ends of all lacing wires to the inside of the mattress on completion.

Mattresses should be placed and wired together when still empty as it is difficult to wire mattresses together when both are full of stone.

2.2 ERECTION

Position / orientate the assembled mattress as detailed on the contract drawings. Lace along all edges (top, bottom and corners) to all adjacent mattresses.

2.3 FILLING

Fill with hard durable rock generally between 75 mm and 100mm, preferably a maximum of two-thirds of the mattress. Mattresses require the same manpower and plant requirements as that for gabions.

Wire down the lid as soon as practicable after filling.

2.4 FINAL WIRING

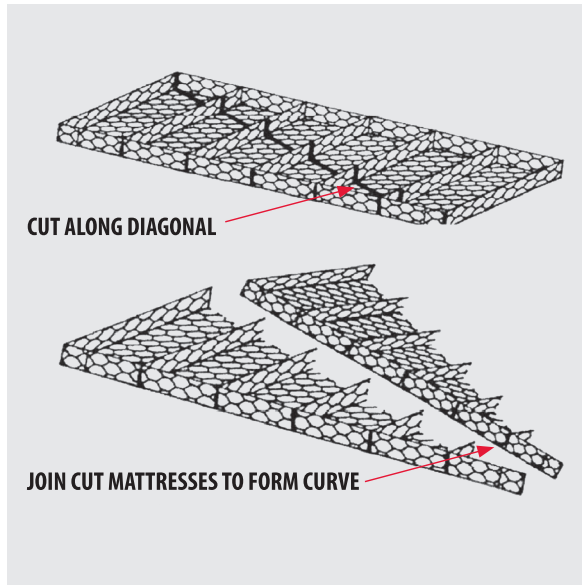
Stretch the lid tight using bars and wire down securely through each mesh along all sides, ends and diaphragms.

Turn the ends of all lacing wires into the mattress on completion.

2.5 CUTTING AND FOLDING MATTRESS MESH

It is often necessary to shorten mattresses to fit the structure being built by cutting off a number of compartments. This should be carried out at the locations of the diaphragms to ensure the integrity of the mattress is maintained.





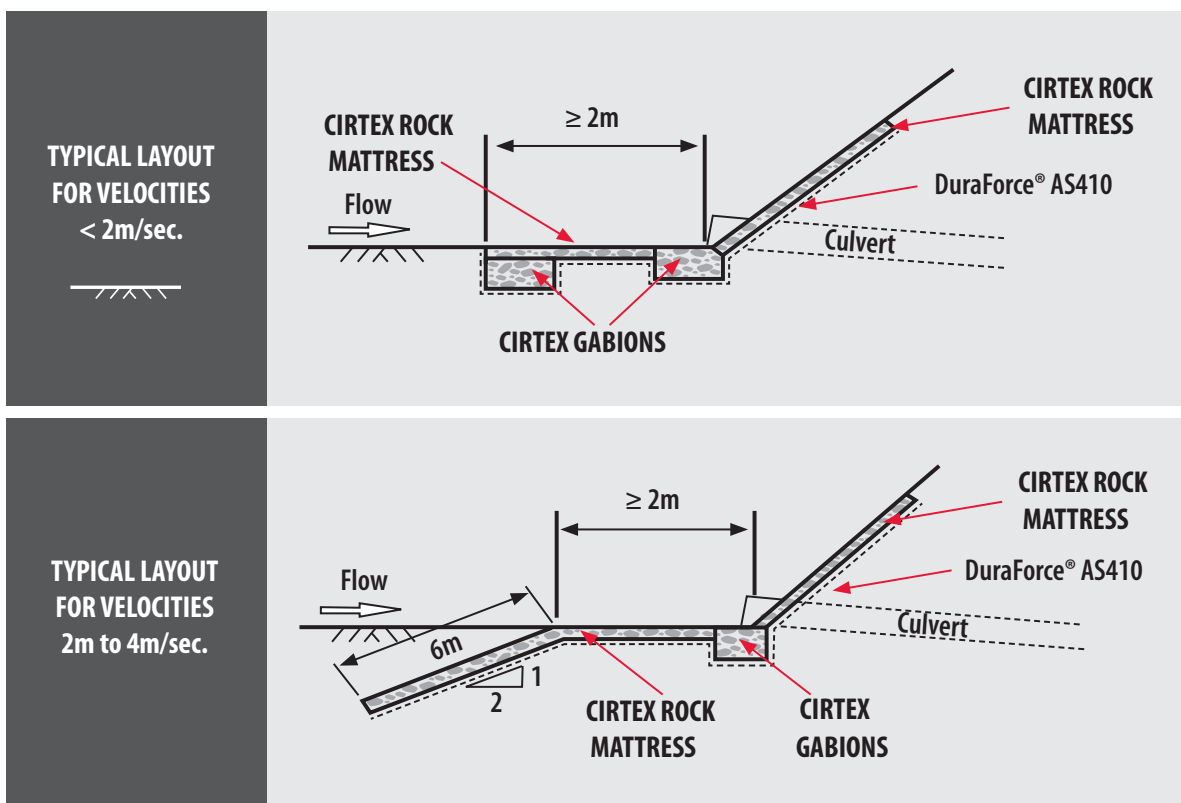
Mattresses can be cut and folded to form mitre joints and non-rectangular shapes. The mesh must be cleanly cut, and the surplus mesh cut out or folded back and neatly wired to an adjacent mattress face.

Lace the cut edge of the mesh securely together with binding wire through each mesh.

Mattresses can also be cut and folded to form difficult curves. One such technique is shown in the sketch above where the mattress is cut diagonally to form two triangular sections that can be wired together to form a curve.

To modify the curve of whole mattresses triangular sections can be placed between the whole mattresses.

TYPICAL MATTRESS PLACEMENT AT CULVERTS



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