



# High Salvington Windmill

## Lowering the Runner Stone

The details in this document have been produced following the process carried out in 2023. Its purpose is to document the points learned during that process and is not intended to be the definitive guide. Reference must also be made to pages 60 and 61 in Peter Casebow's book, "Saving Worthing's Last Windmill".

### Tools & Equipment:

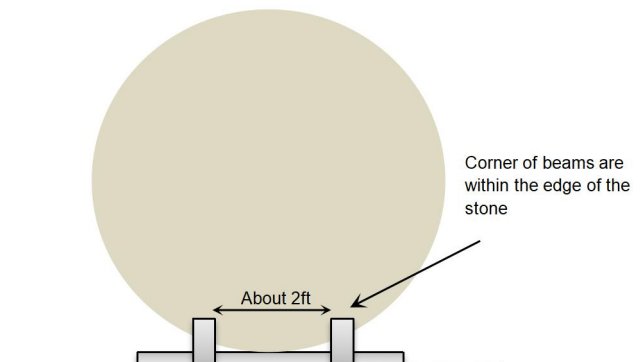
- A long length of rope capable of holding 1 Ton
- Wooden wedges (6 large plus 2 "many height" pivots)
- Metal pinch bars (2 x 5ft long. Shorter crowbars may be valuable but see stone protection requirements below)
- Scaffold poles to be used as rollers (1 x approx 18in long + 3 x poles approx 5ft long)
- Timber beams (2 beams 6"x 4" x approx 6ft long)
- Flat timber to rest removed stone on (already in place following the raising process)
- Additional spare off cuts of timber (e.g. 8"x2") to use as packing and for protecting other woodwork.
- Small pieces of thin sheet wood or steel to use to protect the stone if crowbars have to be used.

The lowering process is the opposite of the raising process with a few additional points to note

With the stone in the raised position as shown (still chocked), the two 6"x 4"x 6ft long beams should be positioned with their ends sitting on the crown tree by at least 3". This should leave a gap of about 2 or



3 inches between the ends of the beams and the upright runner stone. The beams should be about 2ft apart and placed with the narrow side down, as shown below. The important point being that the upper edges of the ends of the beams are well within the face of the stone. See the sketch below. This is so that when the stone is lowered, the weight of the stone bears on the front ends of the beams and not the inside edges.





## High Salvington Windmill

It is recommended that blocks are placed between the other ends of the beams and the prick post, to prevent the beams moving away from the stone when it is lowered.



With at least 2 people to prevent the stone accidentally being knocked forward, the lashings can then be removed and the rope (double thickness) pushed through the central hole and looped round a short scaffold pole. See picture.

The rope should then be wrapped 3 times round the wind shaft in the same direction it was for the raising of the stone i.e. the rope is initially thrown over the wind shaft from the stairs side of the mill.



This is so that the weight of the stone will be trying to rotate the wind shaft in the normal direction (counter clockwise looking at the front of the mill from the outside) and give the brake its maximum braking force. Note the brake has minimal effect when the sails move in the opposite direction. The ends of the rope are then lashed to the tail wheel spokes. A piece of folded cloth should be placed around the edges of the stone where the rope bends round the stone as it is lowered, to protect the rope.

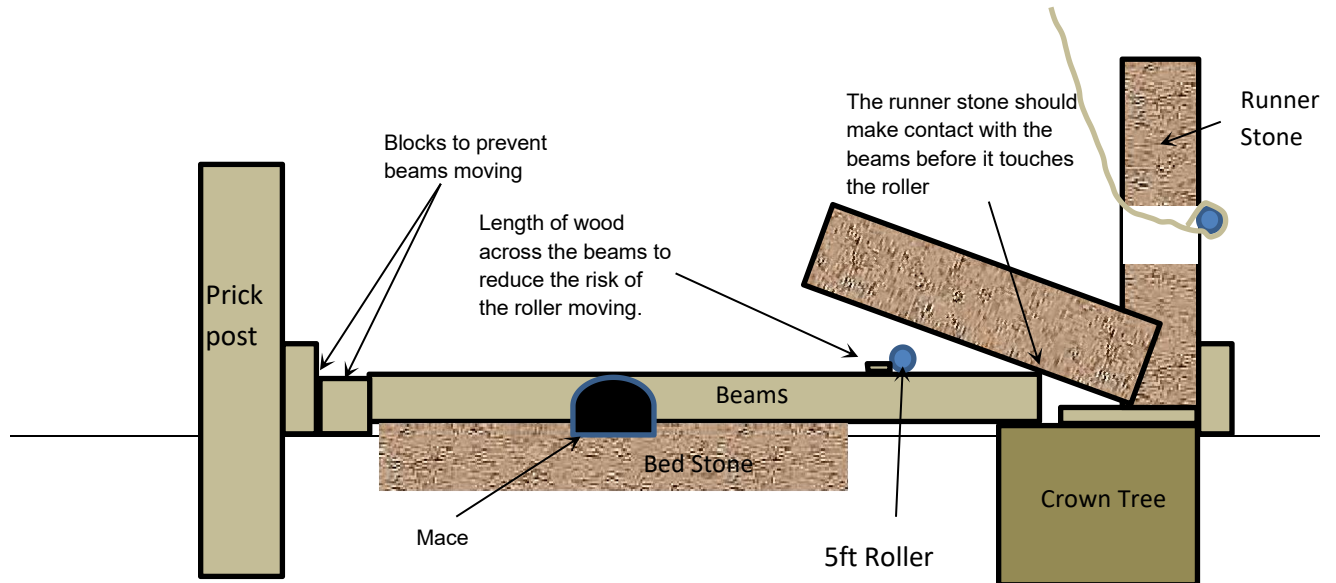
One person inside the mill should be the designated controller of the lowering. At least 2 people are required outside to rotate the sails and a third person is required at the brake window to communicate instructions from the designated person to the people outside. Only the designated persons should give instructions, however anyone can call a halt.

A 5ft roller should be placed across the beams at a position just under half the diameter of the stone (about 20") from the ends of the beams. This is for the stone to rest on when it is lowered. The roller should be chocked in place by a strip of wood across the beams. The tension in the rope should then be taken up by rotating the sails a small amount but not enough to start taking any of the weight of the stone. At this point the stone can be gently pushed over against the tension in the rope. The sails can now be turned so that the stone gently lowers and makes contact with the leading corners of the beams.



## High Salvington Windmill

At this point the lowering process should be very slow, as the stone may have a tendency to slide away from the beams or possibly displace them.



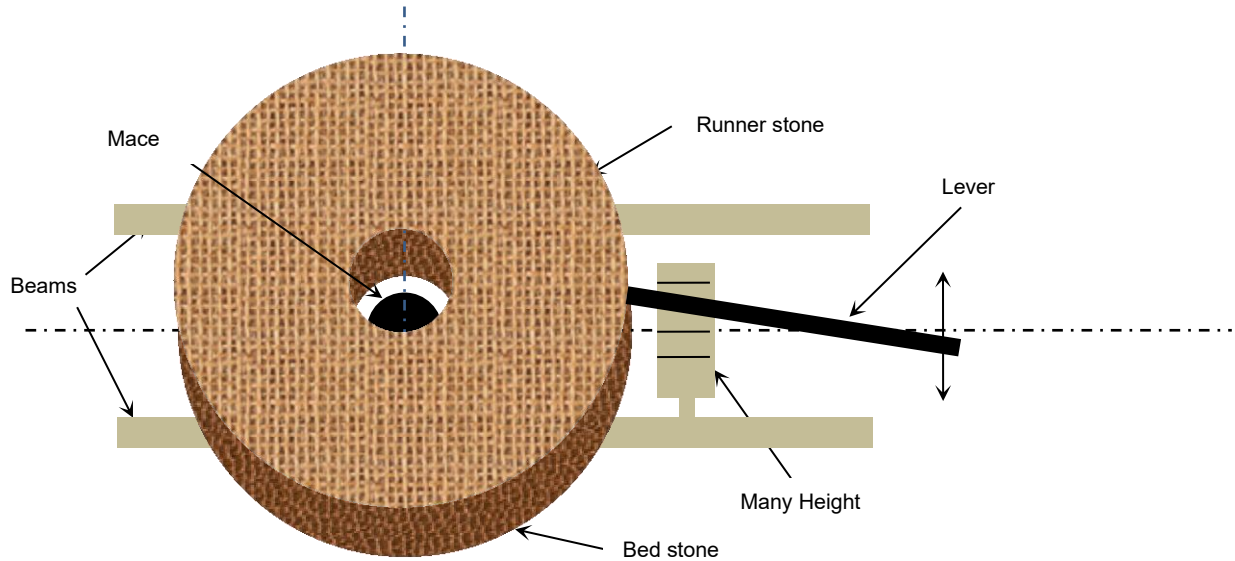
When fully lowered, the rope can be removed and another roller placed under the stone. It should then be rolled towards the bed stone so that the eye of the runner stone is aligned with the centre of the mace. Further rollers will need to be added during the rolling process, such that there are at least 2 under the stone at any time. The runner stone will probably be laterally offset from the mace by about 8". This is due to the centre line of the rope being lined up with the circumference of the wind shaft and not the centreline of the wind shaft.

At this point the runner stone has to be "rowed" sideways so that the eye of the runner stone is fully aligned with the centre of the mace. This is achieved by using the levers and the "many height" blocks as pivots, to initially lift the stone, then by moving the ends of the levers sideways, inch the runner stone sideways. This will normally take several moves before the final position is reached.

**Protecting the stones:** When using any of the levers to raise or move the stones, it is important to ensure that sharp corners do not come into contact with either of the stones. This can be achieved ideally by using the many heights as pivots and the blunt end of the long pinch bars against the stones. When in a confined space the shorter crowbars may have to be used but the stones must be protected by placing either thin pieces of sheet wood or sheet steel between the lever and the stone.



## High Salvington Windmill

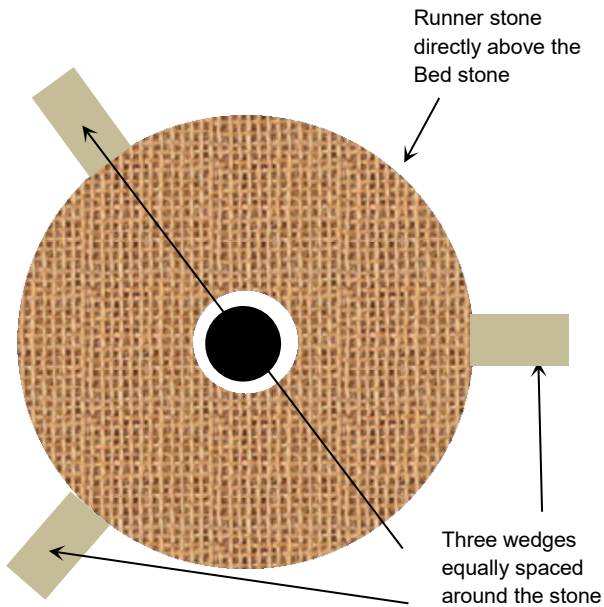


The picture shows the runner stone centred over the bed stone. At this point the mace must be rotated by hand so that the curved indents in the mace are aligned with the rhind. The rollers can now be removed so that the runner stone is sitting on the long beams.

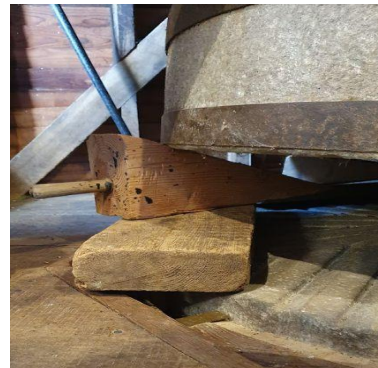
Next the load is taken off the beams by lifting the stone slightly and placing 3 wedges equally spaced around the periphery of the stone. Then the beams can be removed



## High Salvington Windmill



The final lowering of the stone should be done by lifting the stone slightly at each of the wedge points in turn and removing the wedge by just an inch each time. Then lowering the stone back onto the wedge. Lowering the stone by taking bigger steps may cause the stone to move sideways and become misaligned with the mace.



As the runner stone is lowered, it is also important to make sure that the slots in the mace remain aligned with the rhind.

When the wedges are finally removed, the weight of the runner stone should be taken by the nipple on the mace. This can be checked by raising the mace using the tentering mechanism on the floor below. The runner stone should turn freely on the mace with a slight manual push on the runner stone.

**Further thoughts following the 2023 lowering process:** It was thought that connecting the 2 beams together in some way might help reduce the risk of them splaying or moving during the lowering process. Additionally it may be valuable to chamfer or radius the leading edge of the beams where the stone initially contacts them, to create a wider contact area and reduce the risk of the stone sliding away from the beams.

Also it was suggested that instead of looping the rope through the runner stone hole and round a scaffold pole, it might be better to use a fibre strop and loop the rope through that.

Ideally 2 handfuls of grain should be sprinkled on the bed stone prior to lowering the runner stone. The purpose being to protect the stones by keeping them apart, however grain can be added by raising the mace and feeding it through the eye of the runner stone.