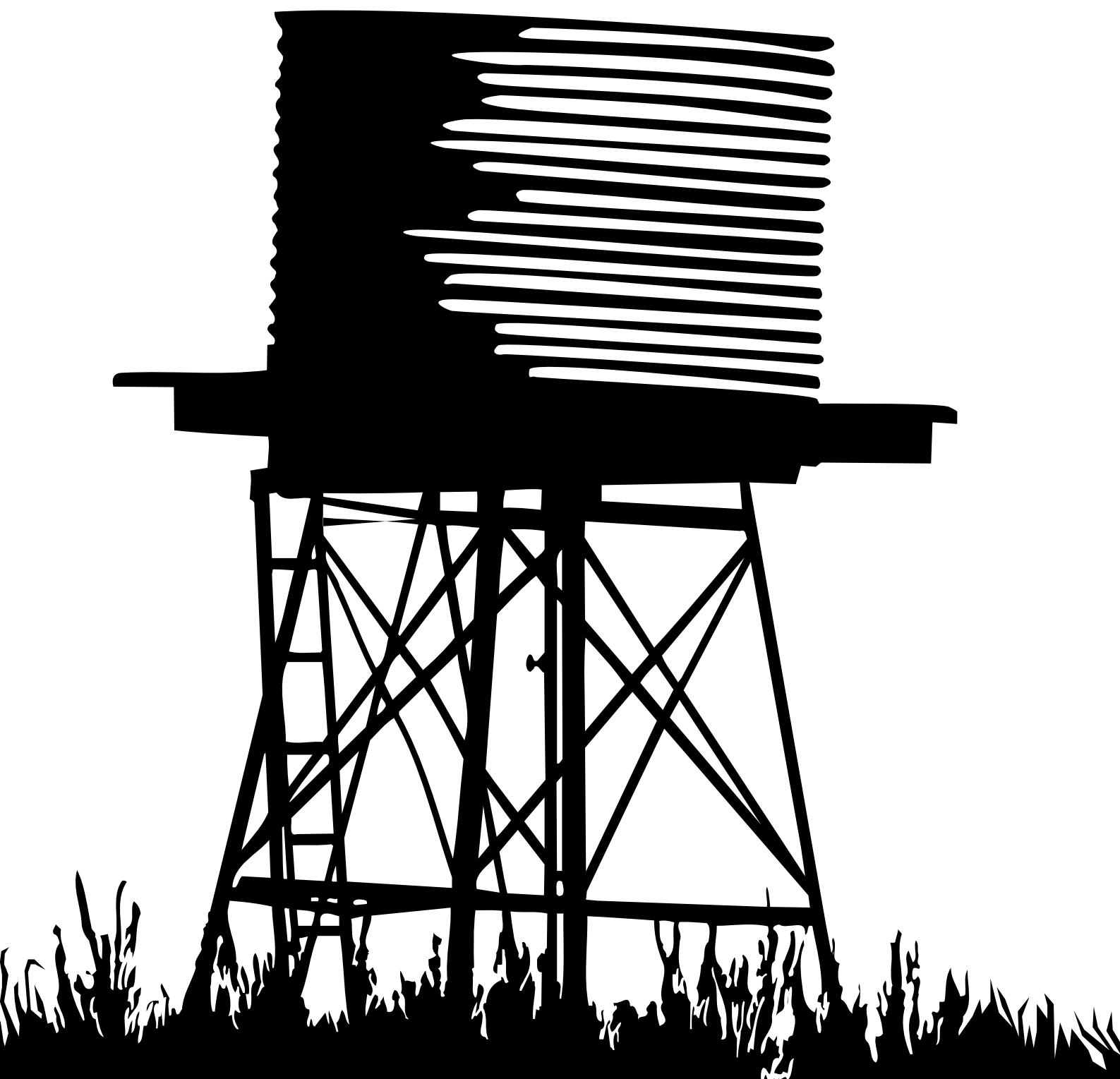


# The Glockemann Pump

*Site & Installation Guide*



**GLOCKEMANN PECK**  
ENGINEERING

# *C O N T E N T S*

SITE & INSTALLATION GUIDE		Page
Chapter 1	What Type of Site is Suitable for a Glockemann Pump	1
Chapter 2	Long Drive Tube Method	1
Chapter 3	Siphon Method	2
Chapter 4	Measuring the Flow Rate in your Creek	2
Chapter 5	Measuring the Delivery Head	3
Chapter 6	Measuring the "Drop" in Your Creek	3
Chapter 7	Selecting the "Bore"	4
Chapter 8	Drive Tubes	4
Chapter 9	Weir Construction	6
Chapter 10	Installing Pump and Drive Tubes	8
Chapter 11	Delivery Pipe Diameters	8
Chapter 12	Pump Models & Specifications	8

## *C O N T A C T*

[www.gpe-waterpumps.com](http://www.gpe-waterpumps.com)

fax 61 2 97080900

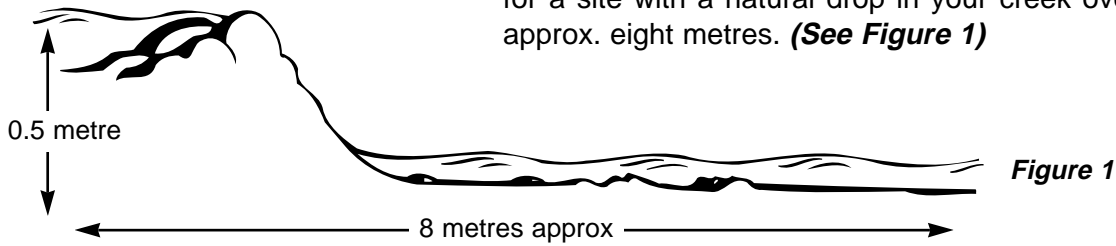
Glockemann Peck Engineering P/L

PO Box 357

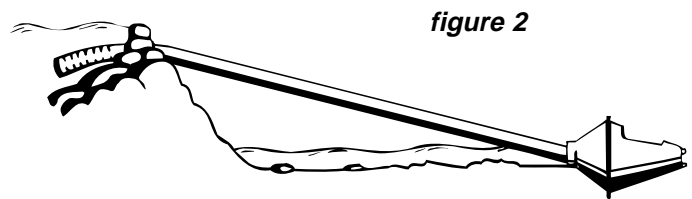
West Ryde NSW 1685 Australia

# 1. What type of site is suitable for a Glockemann Pump\*

The Glockemann Pump requires a constant flow of water, i.e. a creek or stream a drop in the creek of at least half a metre and a flow rate of at least one litre per second. Ideally you should look for a site with a natural drop in your creek over a short distance, approx. eight metres. (See Figure 1)



All that is needed at the site above is a small weir to create a pool of water deep enough to cover the drive tube inlet. (note: the drive tube must have no air in it, so the drive tube inlet must stay well under water.) See figure 2



When looking for a possible site keep in mind that moving rocks or other obstacles downstream may sometimes create a larger drop. (See figure 3 & 4)

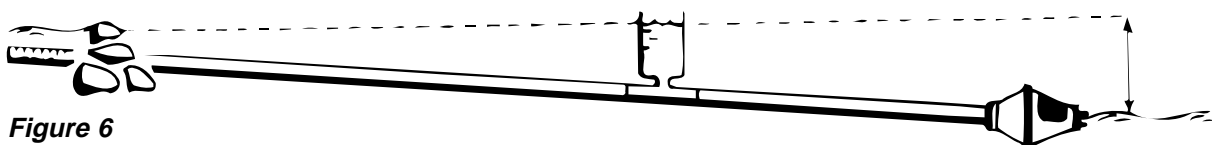
If your creek has no natural step drops or rapid sections you may need to build a larger weir across the full width. (See figure 5)



## 2. Long Drive Tube Method

If you are unable to create enough drop using the examples in diagrams 2, 3, 4 & 5, but there is enough drop in your creek over a longer distance you may be able to use a longer drive tube. This method uses a length of larger diameter pipe or other container stand-

ing upright from a 'T' piece in the drive tube to create a head. The container is put 10 metres from the pump and must stand higher than the upper water level. (see figure 6)



\*Patented or patent pending world wide.

### 3. Siphon Method

If your site has a drop which is formed naturally by water flowing from a pool over a solid rock face and it is not possible to build a weir to raise the water level above the drive tube inlet you may use the siphon method.

see figure 7

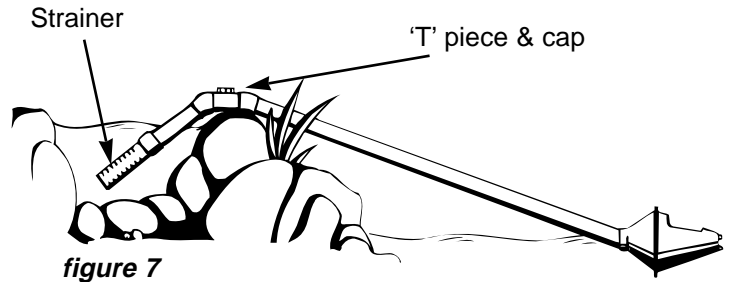


figure 7

The diagram shows a 'T' piece sewer fitting with a rubber sealed cap at the top of the drive tube. To remove the air in the drive tube, slip off the drive tube strainer and screw on a rubber sealed cap (sewer pipe fitting),

remove the cap from the 'T' piece and fill the drive tube with water from a bucket. This will create an air free siphon to feed your pump.

### 4. Measuring the Flow Rate in Your Creek

The Glockemann Pump is capable of operating on a very small flow of water. If it is obvious that your creek has plenty of flow proceed to the next paragraph. If your creek has a smaller flow of water a good way of measuring the flow is by putting a 10

litre bucket under a small waterfall, see figure 8 and timing how long it takes to fill. Then divide 10 (litres) by the filling time, the result is the flow rate.

#### MEASURING FLOW RATE

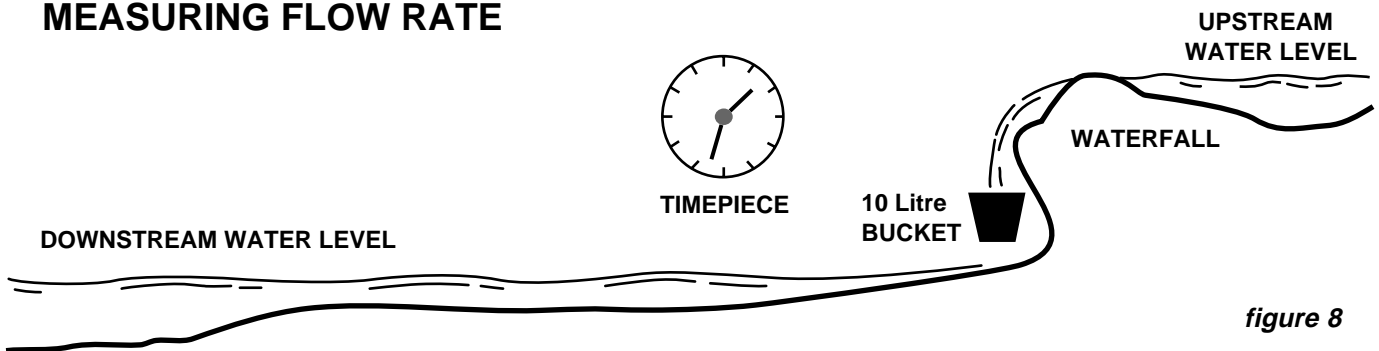


figure 8

If there is no natural waterfall, it may be possible to create a temporary 'spout' by arranging the river

stones or using sand bags to form a temporary weir, (see figure ).

#### MEASURING FLOW RATE

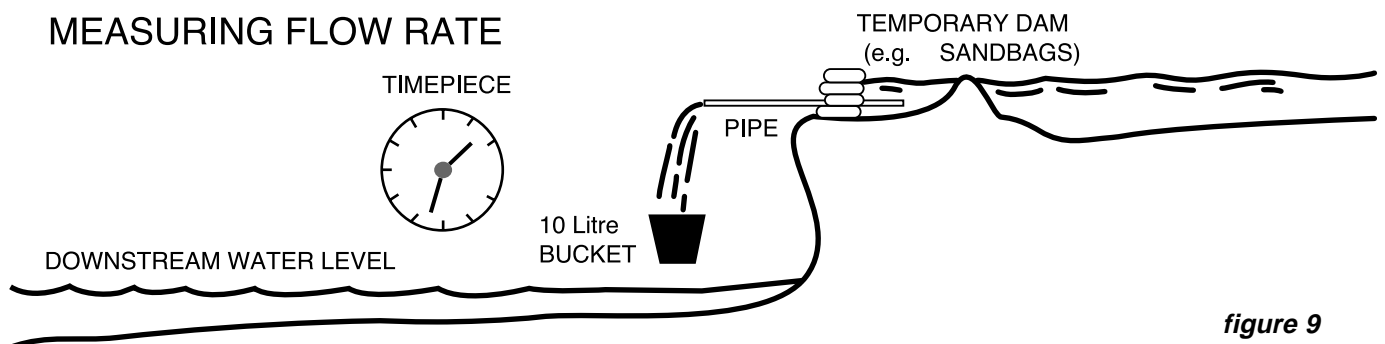


figure 9

## 5. Measuring the Delivery Head

This is the height from the creek water level to the storage tank. Note: The **vertical** height only, not the overall linear distance from the pump to the tank.

One way of finding out your delivery head is by referring to a topographical map (contour map) on which your property is marked, another way is to use a stick

or pole approx. 2 metres long, marked clearly with graduations, and a spirit level resting on a stick. By working your way uphill step by step and adding all the measurements together you will have a good idea what your delivery head is. (*See figure 10*)

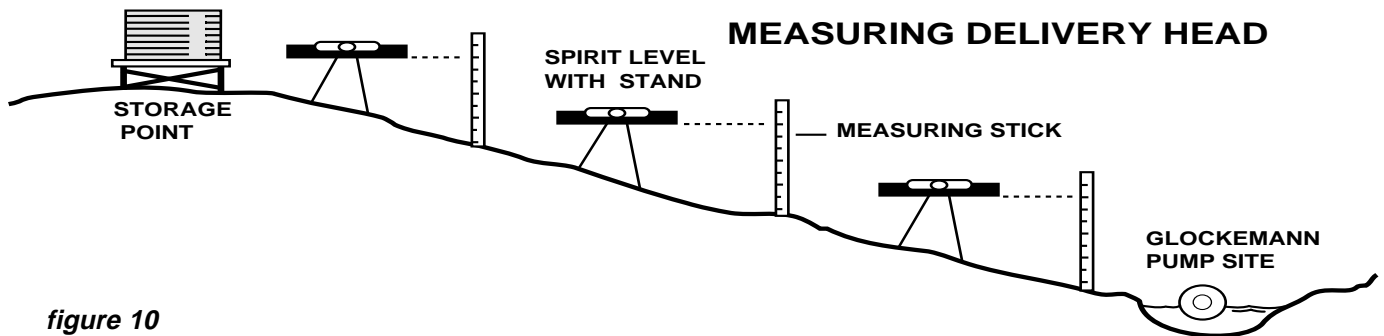


figure 10

## 6. Measuring the "Drop" in Your Creek

A good way of measuring your drop is to use a clear plastic tube long enough to reach from the upstream water level down to the place you will put your pump. A garden hose with a small length of clear tube attached may be easier. Place one end under water

upstream and draw the air out of the lower end creating a siphon, hold the lower end up slowly until the water level in the clear tube levels out, measure from the creek water level to the level in the clear tube. (*see figure 11*)

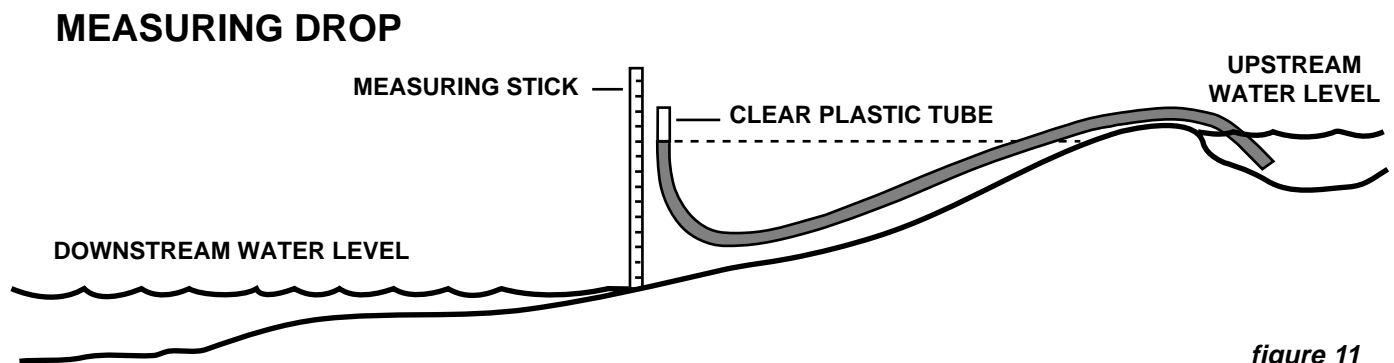


figure 11

It is important to know at this point that the drop is measured from the surface of the upper water level to the surface of the lower water level (see figure 12), except if the pump is above the lower surface level,

then the drop is measured from the upper level to the pump (see figure 13). The drop is **not** increased by the pump being **below** water level (*see figure 14*).

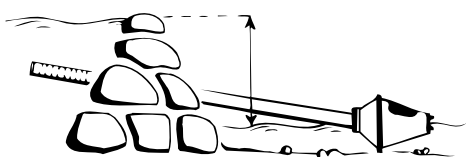


figure 12



figure 13

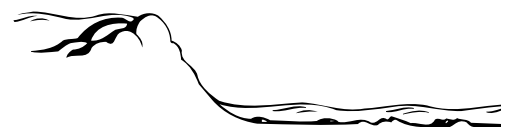


figure 14



## 8. Drive Tubes cont.

If you intend building a small weir the following diagrams show how to position your drive tube.

**Figure 17** is the most common method, note the drive tube positioned half way up the weir to make sure there is plenty of water above the drive tube inlet and strainer.

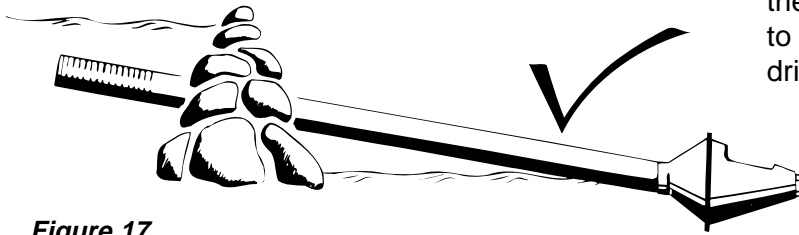


Figure 17

If the strainer is too close to the surface it may draw air into the drive tube by creating a whirlpool (see **figure 18**). Make sure you allow plenty of clearance.

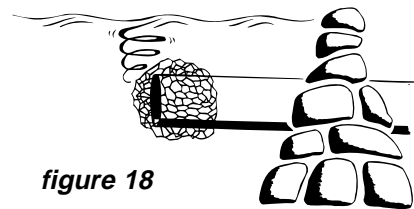


figure 18

As long as the drive tube is the correct length it does not matter if most of the drive tube is in front or behind the weir (see **figure 19 & 20**).



figure 19

In figure 20 most of the drive tube length is behind the weir under water.

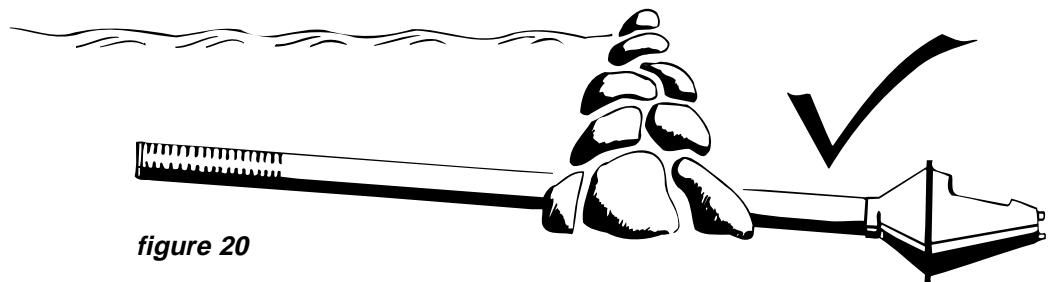


figure 20

## 8. Drive Tubes cont.

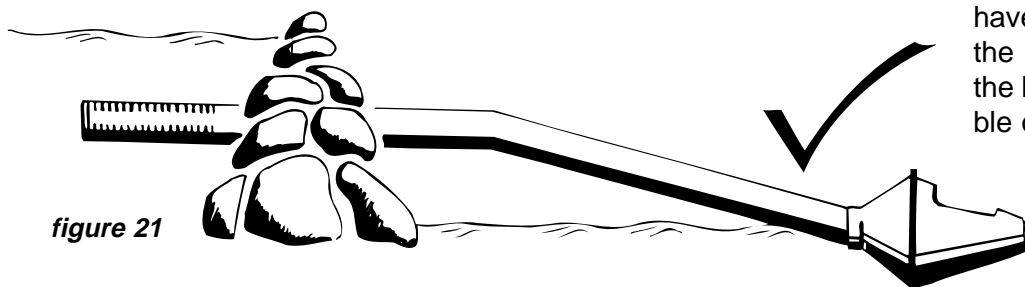


figure 21

If necessary the drive tube may have more than 1 slope, however, the drive tube strainer **must** be at the highest point to allow air to bubble out. (see figure 21)

The drive tube in figure 22 is **wrong**, the drive tube strainer is **lower** than the bend in the drive tube. An air pocket will form in the bend with no way of escape and will stop the pump from working. (see figure 22)

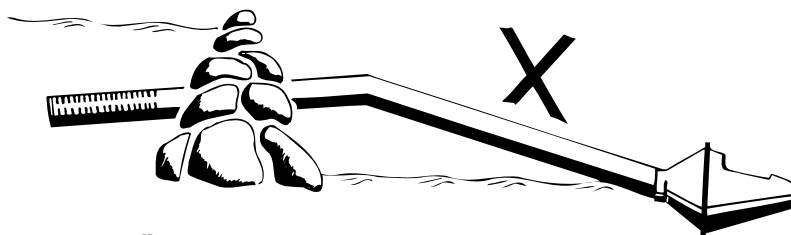


figure 22

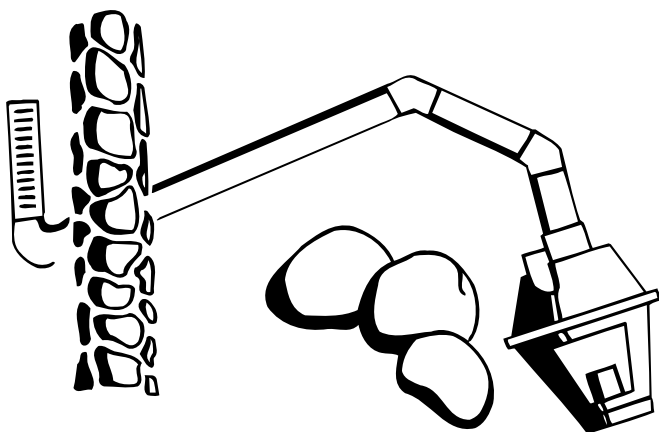


figure 23

The drive tube does not have to be straight, you may use elbow fittings to create a good protected position for your pump. Figure 23 is a view from above of the pump. (see figure 23)

## 9. Weir Construction

There are 3 main types of weir construction.

If your site has a naturally occurring drop, maybe a small waterfall or step drop, a small weir can be made by simply piling river stones across the top to form a weir. (see figure 24)

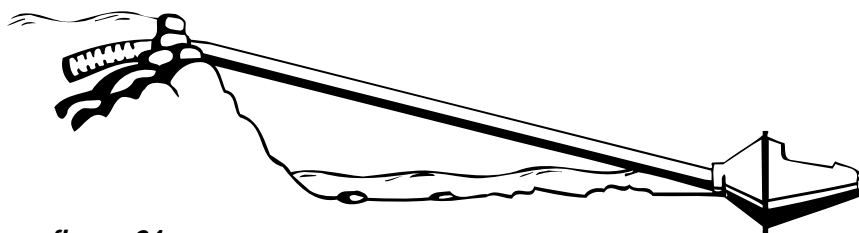


figure 24

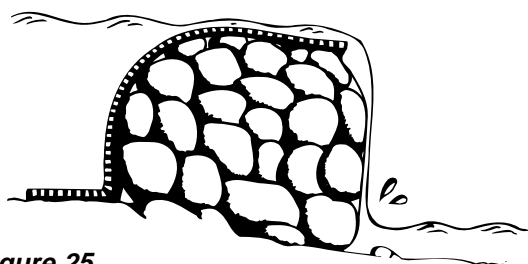


figure 25

Remember, your drive tube strainer must be well under water. You may also like to seal your weir with drainage filter media which is a felt like material available from plumbing suppliers, this material clogs up in a matter of hours and becomes impervious to water. (see figure 25)

## 9. Weir Construction cont.

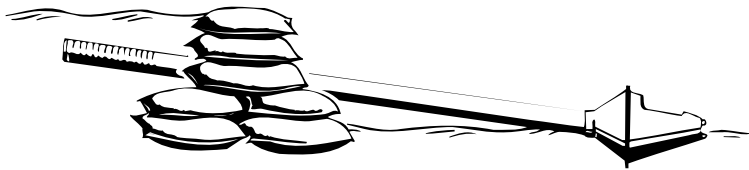


figure 26

If your site requires a larger or stronger weir there are 2 excellent options.

1. Hessian bags filled with sand and cement (dry for ease) can be stacked and molded into position, they will set well with very little cement seepage downstream. (see figure 26)

Your hessian bag weir can also be strengthened by driving reinforcing bars through the bags before they set. (see figure 27)

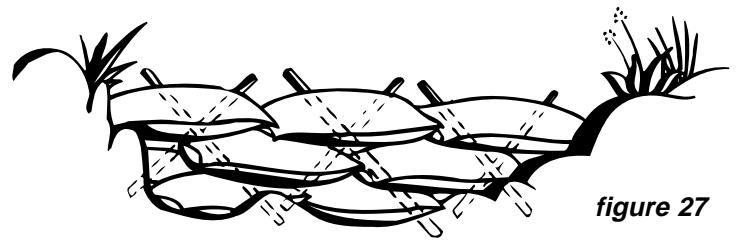


figure 27

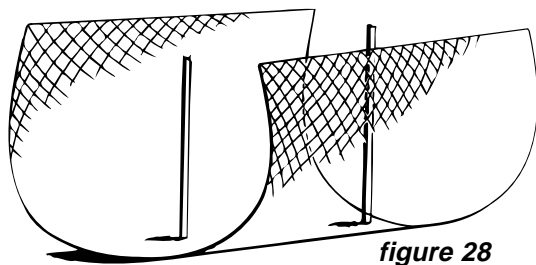


figure 28

2. A very strong weir system employed by the Dept. of Water Resources and the construction industry in general is the 'rock sausage'. For this method use 3mm gauge double galvanised chain mesh, ask your hardware or fencing supplier, form the mesh into a 'U' shape across the stream and secure with star pickets. (see figure 28)

Pile the mesh with river stones, some larger ones at the base will give added support, creating a solid weir. (see figure 29)

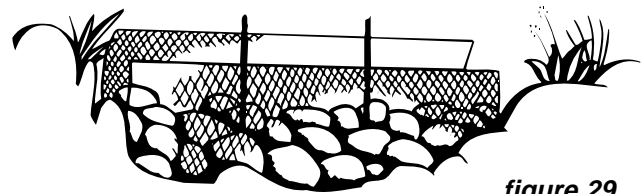


figure 29

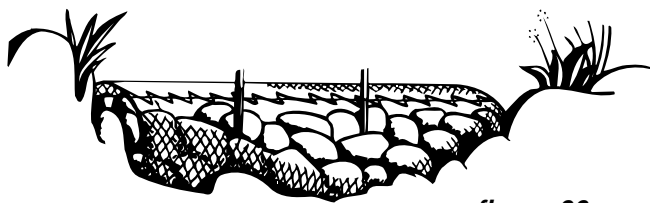


figure 30

When complete, fold the chain mesh over the weir and wire securely. The rock sausage may then be sealed with drainage filter media. (see figure 30)

### Important Note:

When you are making a weir, it is important to position your drive tube during construction. You may prefer to put a length of larger diameter pipe through the weir as you are building it and feed your drive tube through this pipe later on. For example, if you are using 100mm drive tube, put a length of

150mm pipe through the weir. Also, if you intend feeding your pump inlet from your weir as in figure 31 below, put a length of 50mm pipe through weir as you build it and feed your inlet pipe through the 50mm pipe later. The method shown in figure 31 is the suggested ideal for your pump inlet.

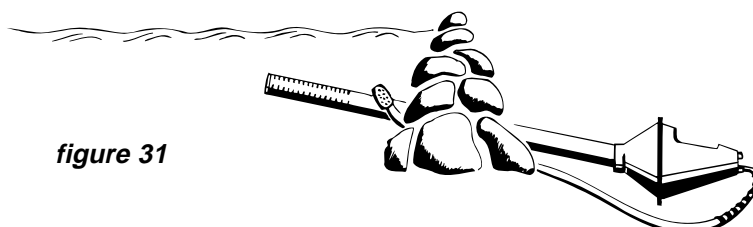
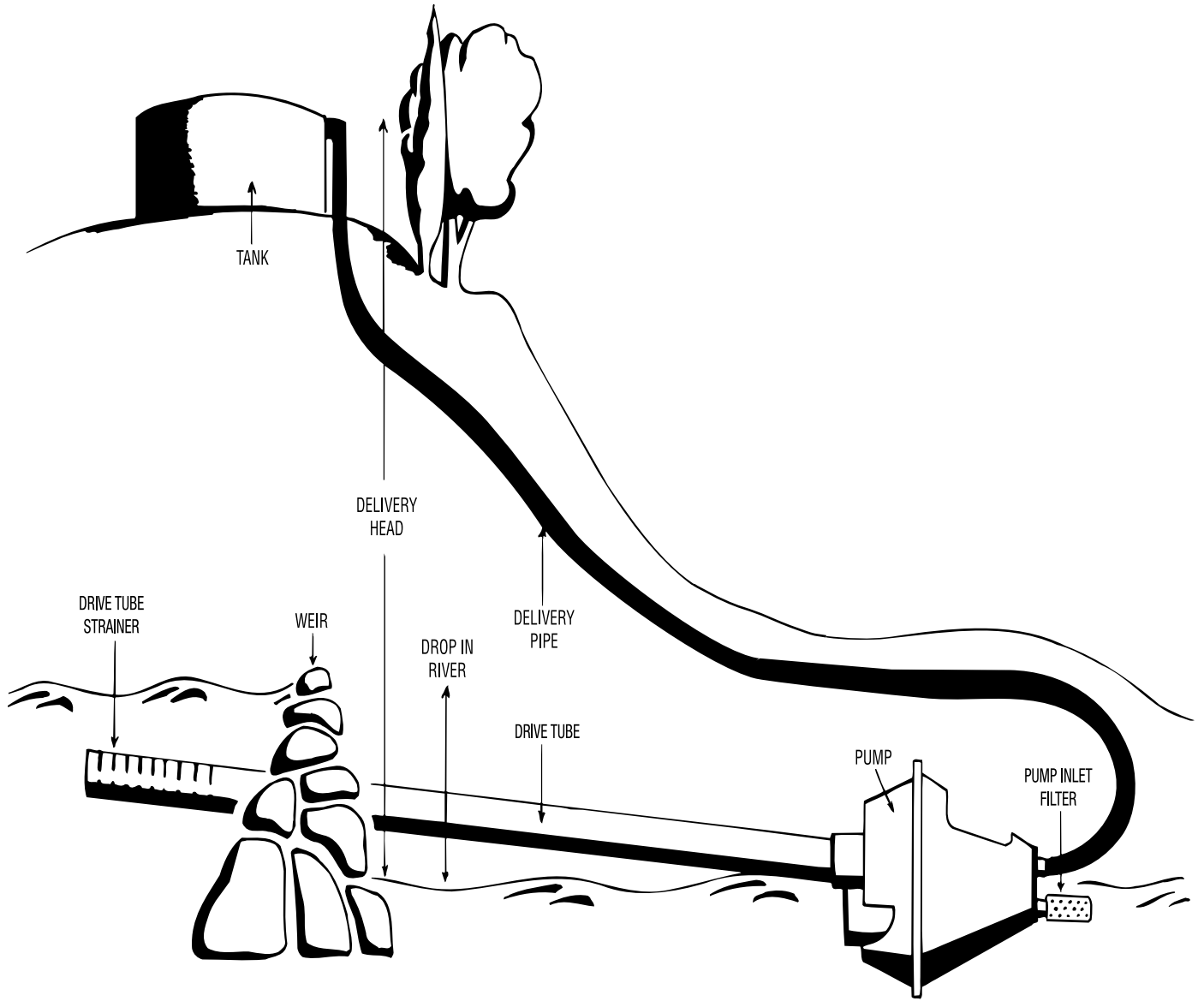


figure 31



# Glockemann Pump Site Plan



Illustrations by Sue Gibson