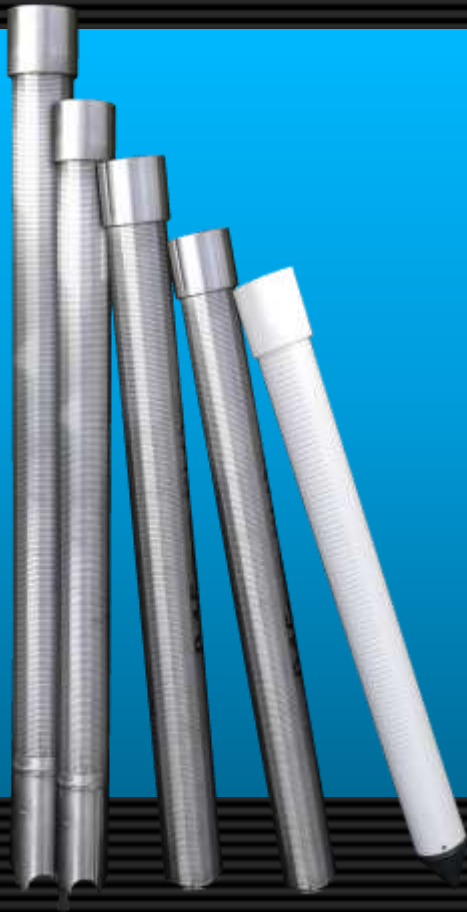


# SAND SPEARS

## Bailing Method



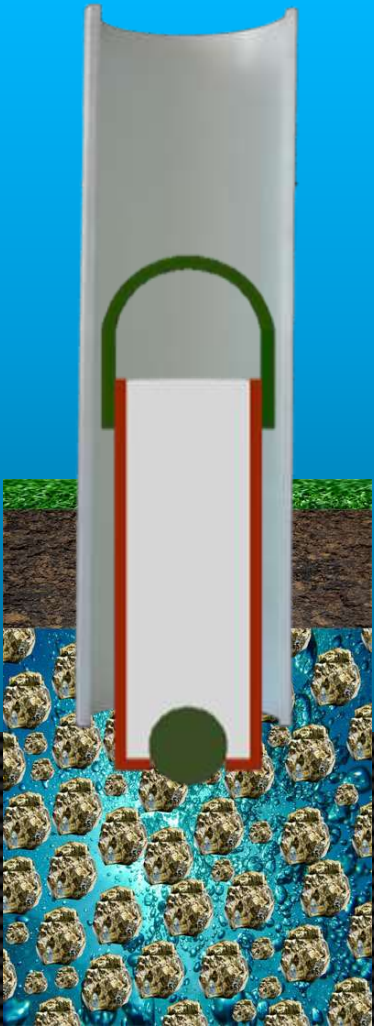


# Drilling methods and Installation of a sand spear

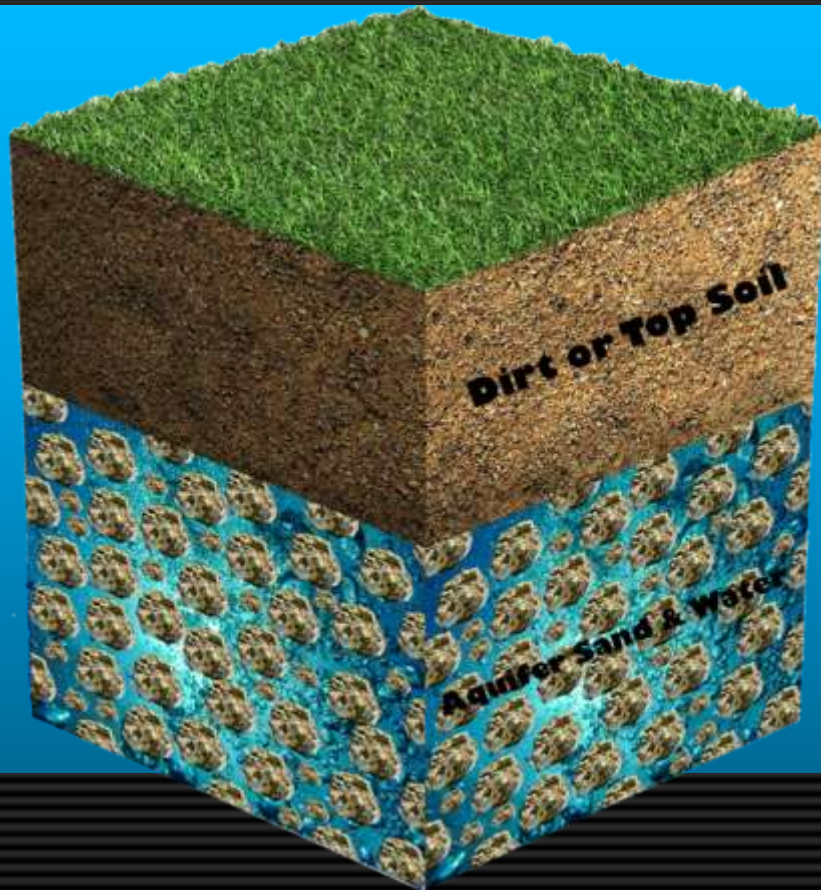


# Bailing Method

A bailing tool is dropped from a height and forced into the ground, the ground material enters through a hole and then is trapped, as the tool goes further into the ground, casing is pushed into the ground to follow just behind. The tool is raised and then emptied out and the process continues



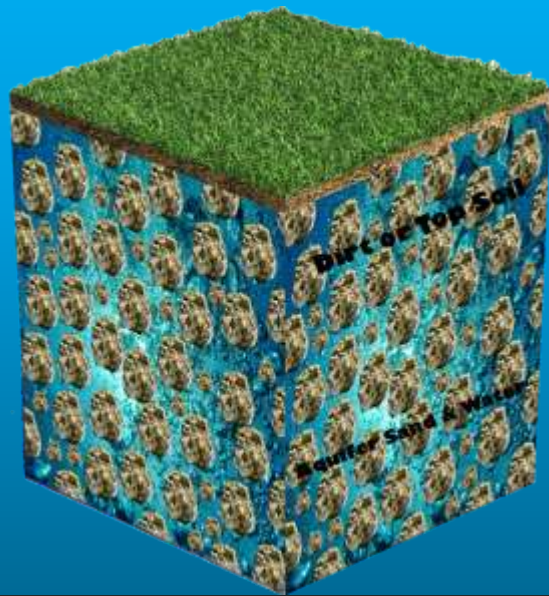
# Drilling a Sand Spear



**View of typical  
Soil  
Formation**



# Drilling Through Top soil



**Depending on where  
you are drilling you may  
or not have top soil  
above your sand**

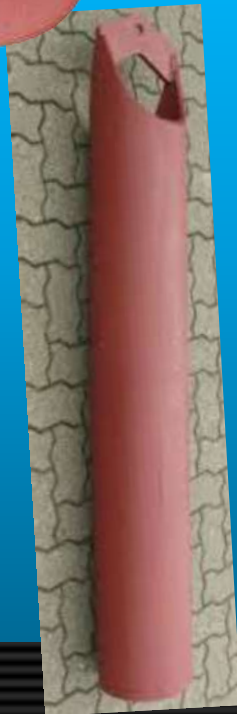




# What's Needed



## Equipment Needed



# What's Needed

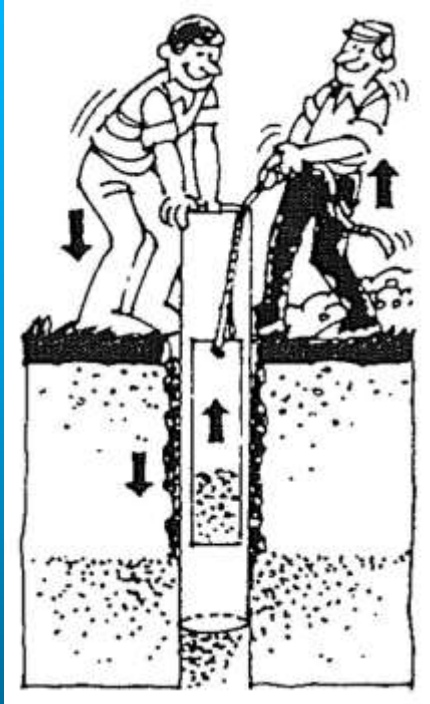


**Tripod**

**With Rope**

**A winch would make it  
easier**

# What's Needed



**Can be done by hand**

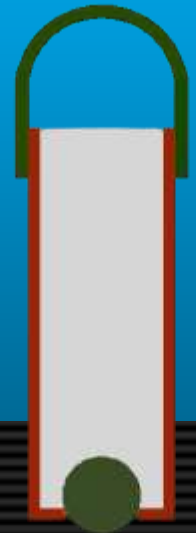
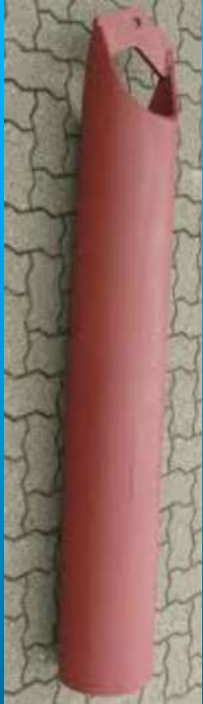
**Lot's of hard work**



# What's Needed

## Bailing Tool

**This has the flap on the bottom, allows sand in but not fall out**



# What's Needed

## Casing

**The size is so the bailer  
just fits inside and can  
slide up and down**



# What's Needed

## Cement or Grout

For top casing to seal dirt  
out



# Bailing Method

**The following are different  
types of equipment you  
can buy or make**



# Bailing Method



**A Bailer  
made by  
Nordmeyer**

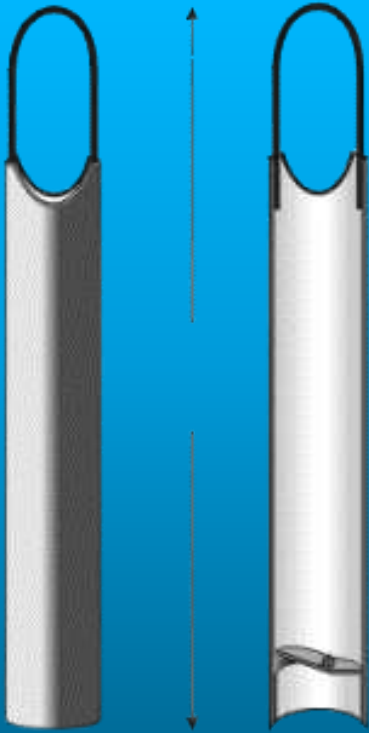
# Bailing Method



**A Bailer  
made by  
Nordmeyer**



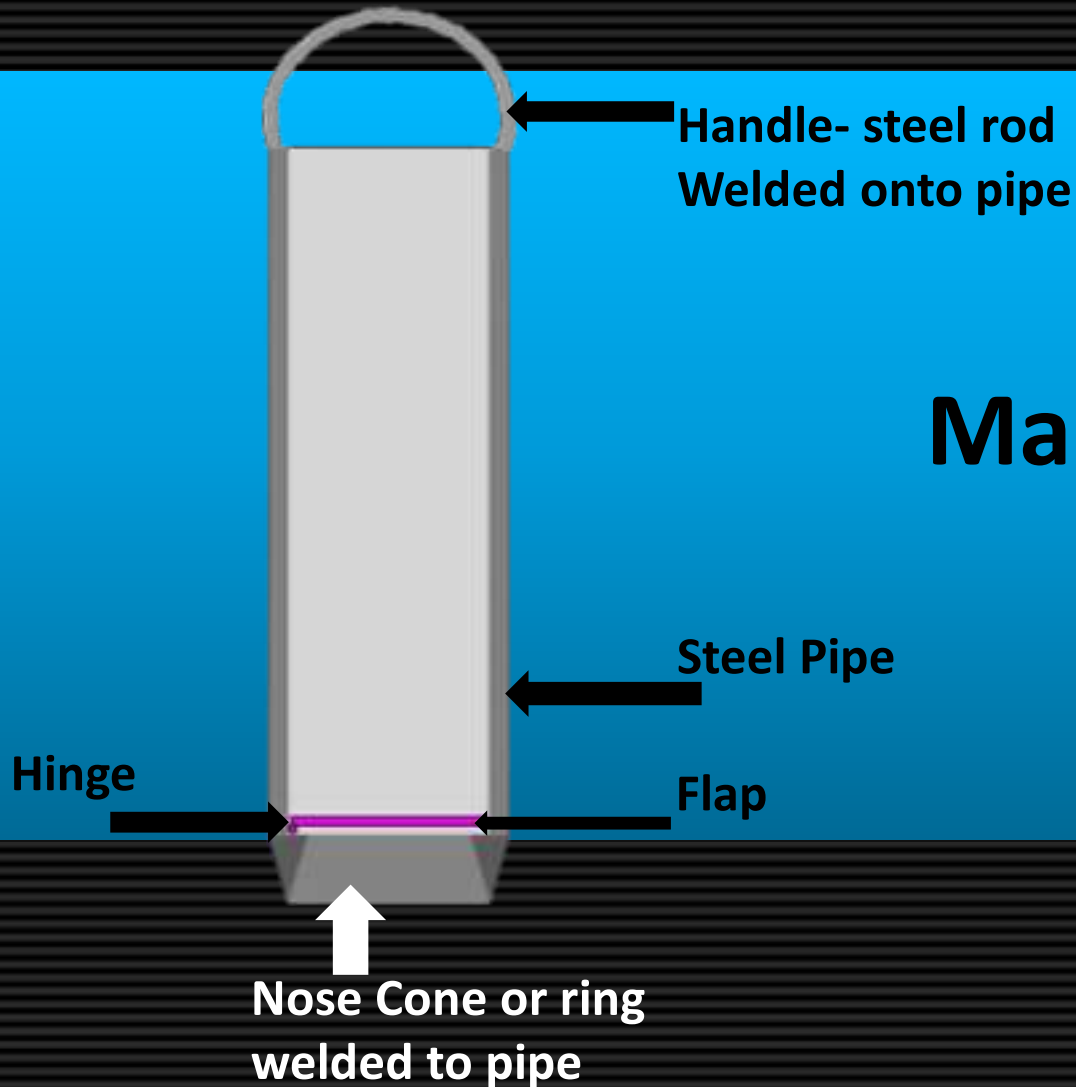
# Bailing Method



**Designing a bailer go to**

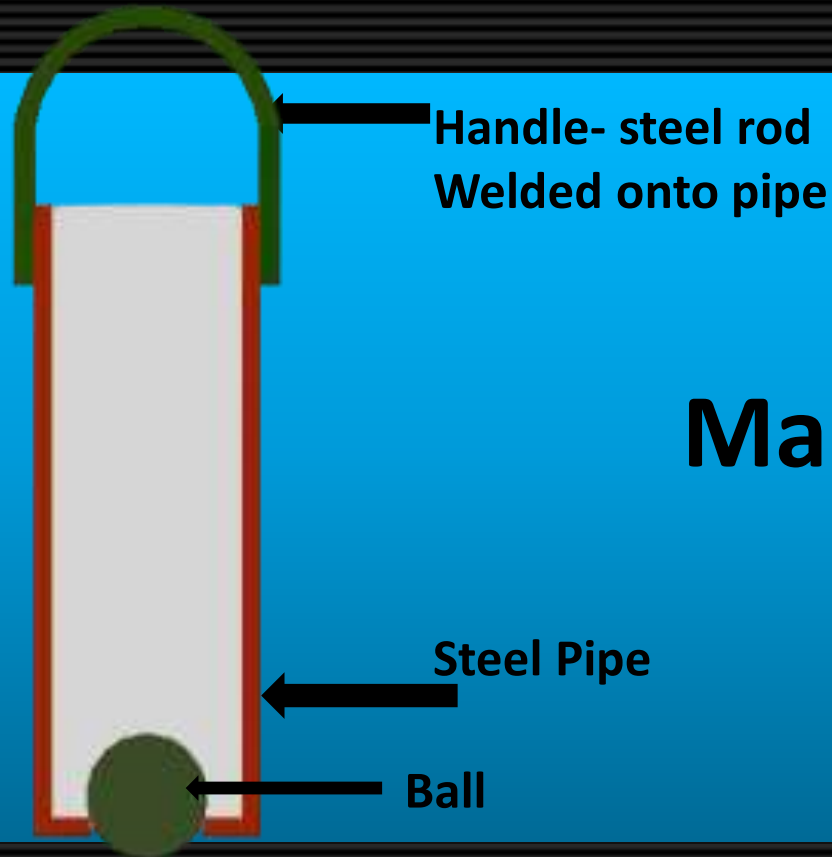
<http://www.wellspringafrica.org/WebManual/chapter3.htm>

# Bailing Method



**Make this at home**

# Bailing Method



**Make this at home**

**↑**  
**Nose Cone or ring  
welded to pipe**

# Bailing Method

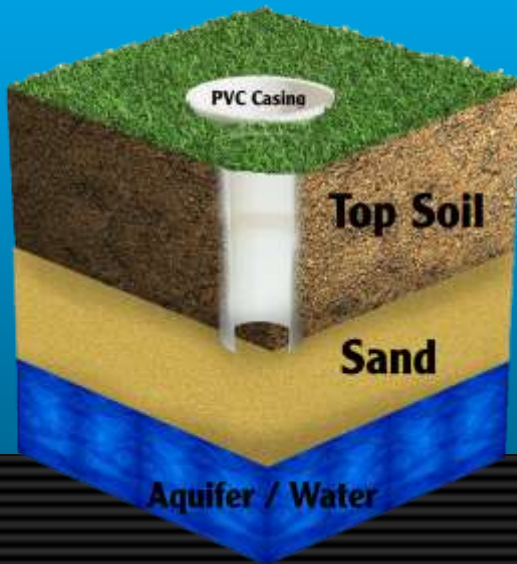


**A Tripod  
made by  
Consallen**

# Bailing Method

## Step 1

**Drill to sand and  
case if needed**



# Drilling Through Topsoil



**Drill a hole by auger or a shovel through the top soil into the sand**



Delivering Sand  
Spear Solutions

**SCA**



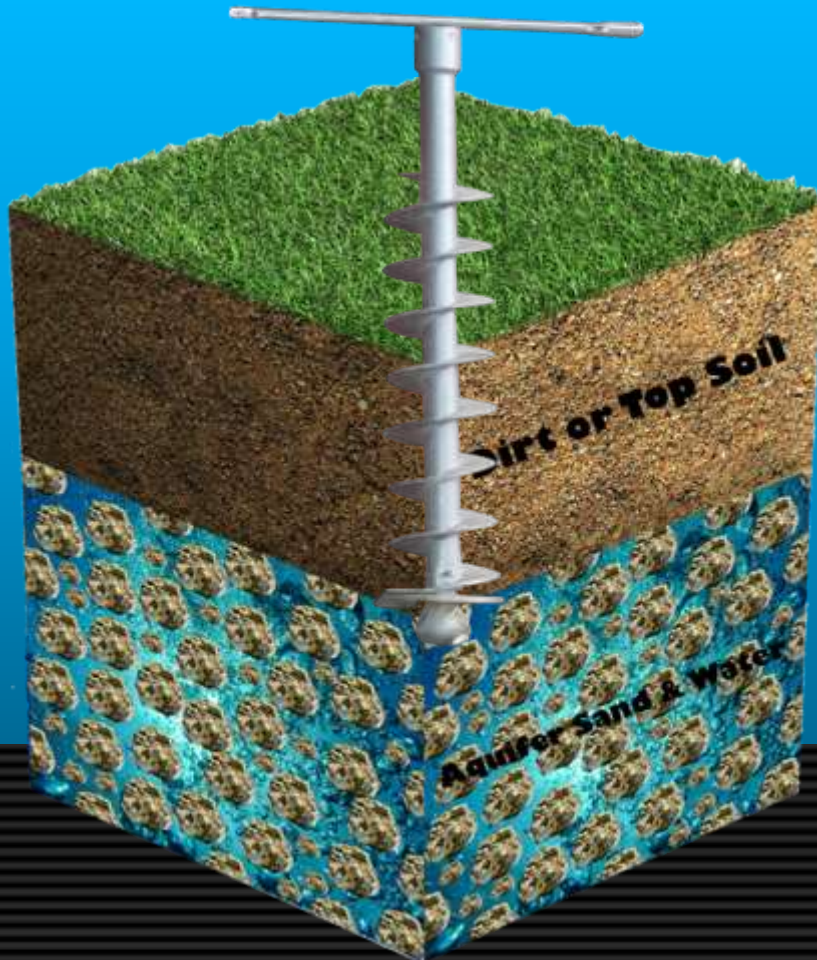
# Drilling a Sand Spear



## Machine Auger



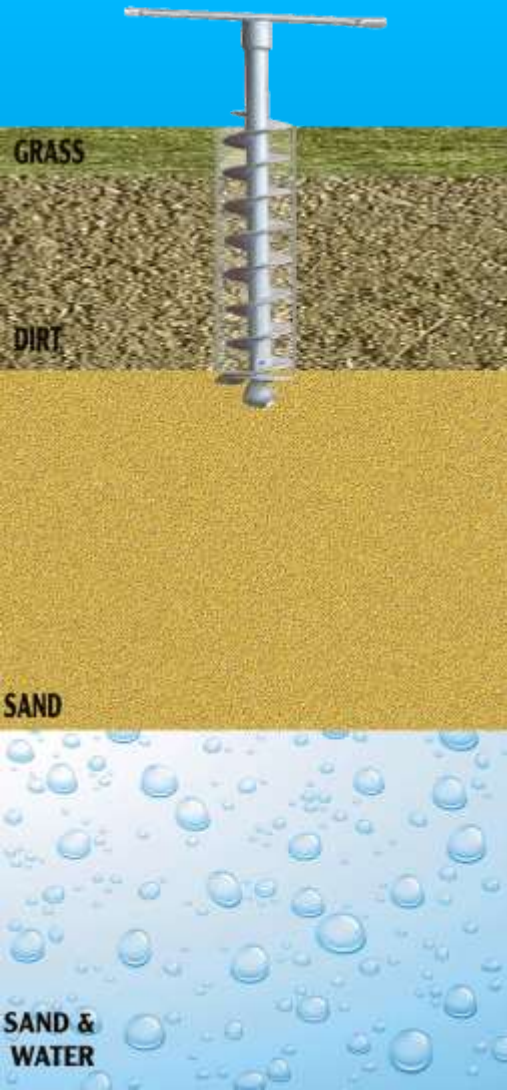
# Drilling a Sand Spear



## Hand Auger



# Drilling a Sand Spear



## Auger Hole



# Drilling a Sand Spear



**Remove Auger**



# Drilling a Sand Spear



**You can leave open, if  
the soil is solid, while  
bailing in casing**

# Or



**Insert Short piece of casing  
Larger than the casing to be  
bailed in**



# Drilling a Sand Spear



**This is to ensure no dirt or rocks can enter your hole and insertion of sand spear and casing is much easier**

# Seal Casing

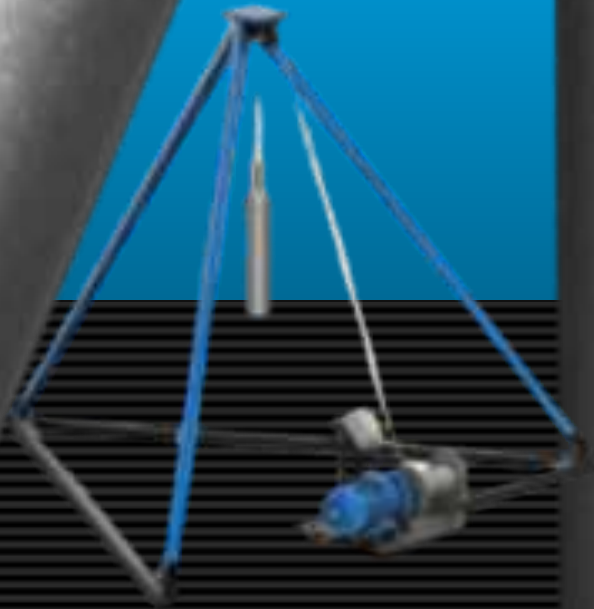


In around casing once in place with cement, grout or dirt, so casing is more secure.

# Bailing Method

## Step 2

**Set up tripod  
above centre of  
hole being drilled**



# Bailing Method



**Make one using  
pipe, or wood and  
put a sheave block  
or pulley on top  
for rope**



# Bailing Method

## Step 3

**Connect Bailer to tripod using the rope or wire**



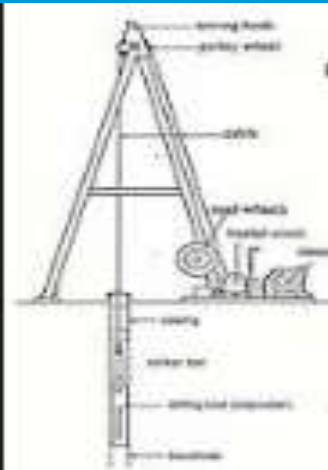
[lonestardrills.com](http://lonestardrills.com)



# Bailing Method

## Step 4

**Raise the bailer to the top and then let it fall into the hole**





# Bailing Method

## Step 5

**Continue this until the bailer is full of sand or too heavy**



# Bailing Method

## Step 6

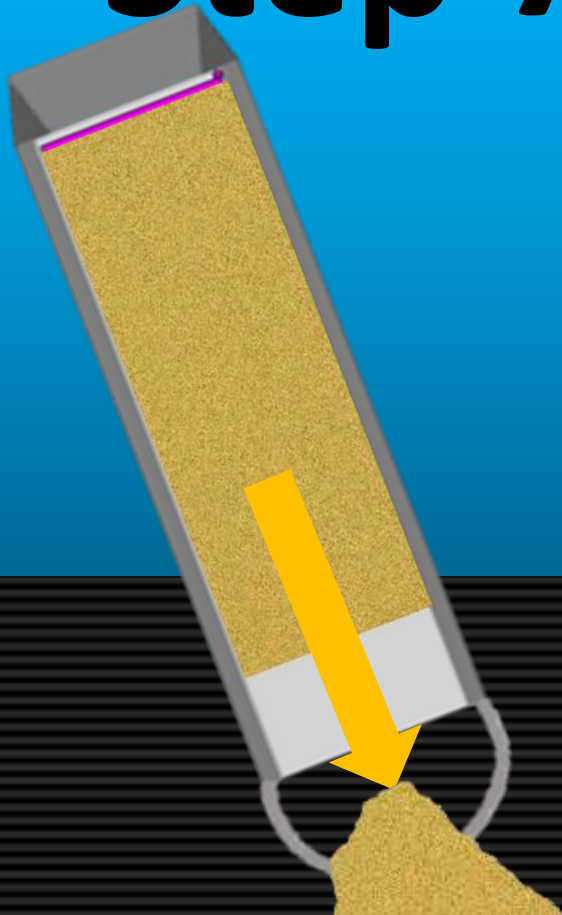
Bring Bailer to the surface, as lowering pull away from the hole and lay on the surface



# Bailing Method

## Step 7

Lift the bottom of the bailer in the air and tip out sand.



# Bailing Method

**Step 8** Insert casing into the hole and push in to depth drilled (follows bailing tool)



# Bailing Method

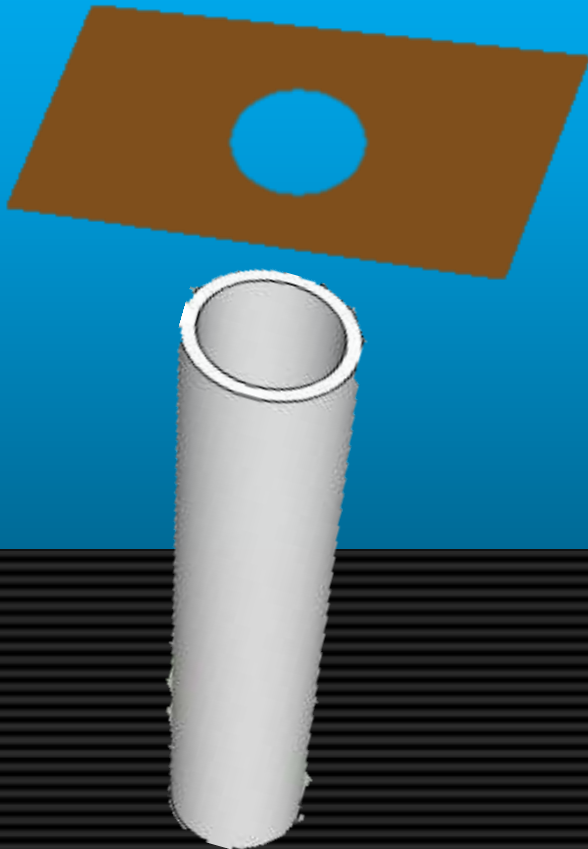


**To push PVC casing  
in you can use a  
casing clamp  
or**

# Bailing Method

## Using a Push Board –

Where the hole in the board is the same size as the ID of the casing or allows bailing tool to pass through

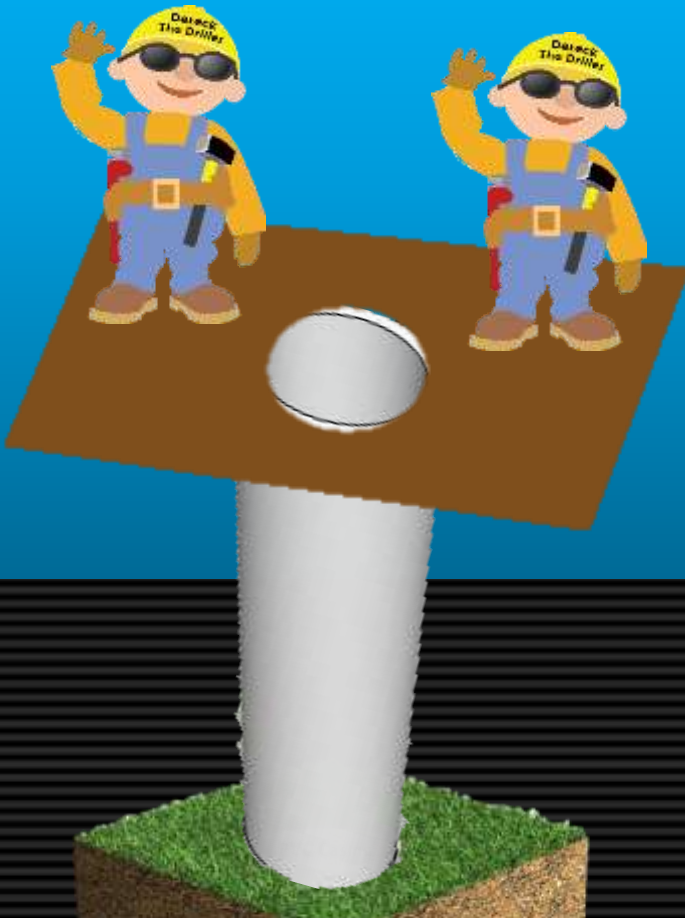




# Bailing Method

## Push Board –

As you bail the hole you stand on the board sitting on top of the casing and push into the ground



# Warning



Steel casing can be  
driven safely by  
hammering

**If using Pvc casing and  
driving in using a  
hammer beware as  
Pvc is brittle and can  
break**

# Warning

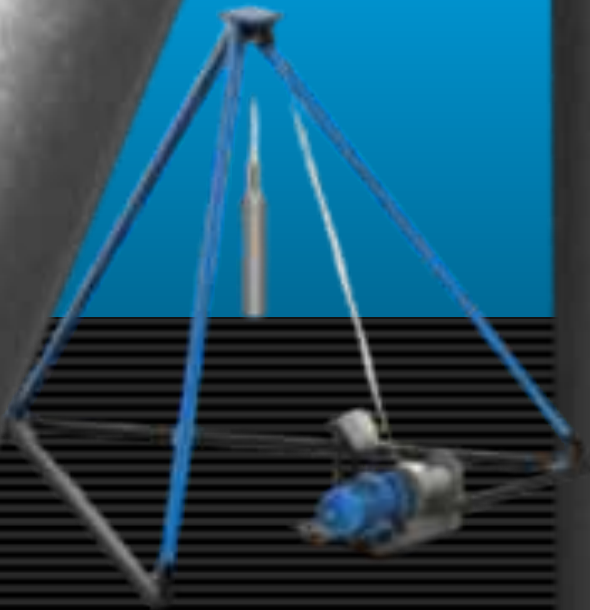


**If you need to use hammer blows, have a driving cap on top of Pvc pipe. Made of strong material**

# Bailing Method

## Step 9

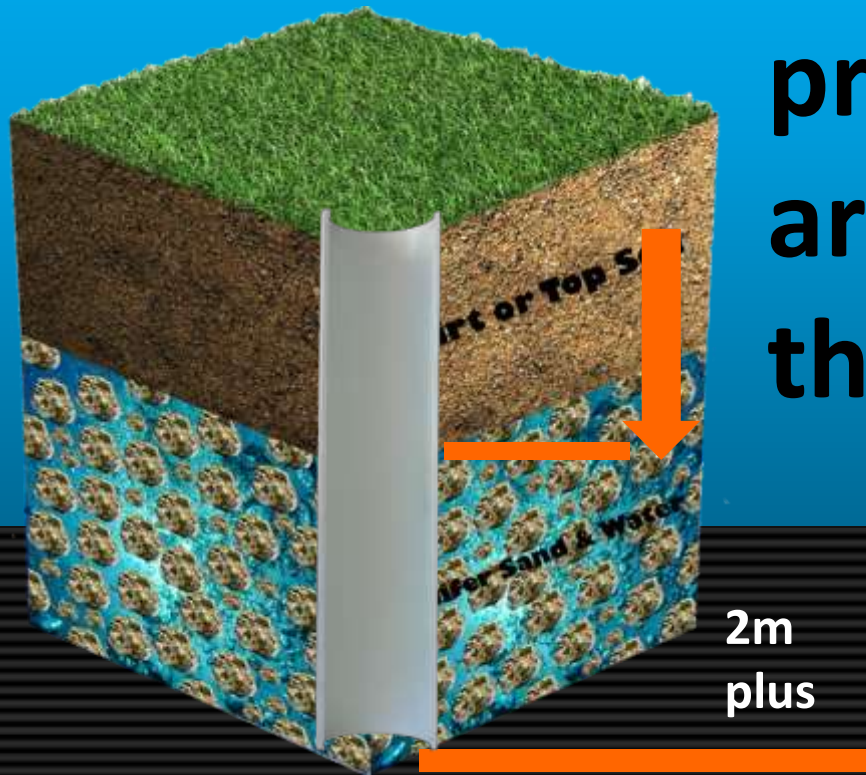
Raiser bailer up and  
start the process  
again - repeat



# Bailing Method

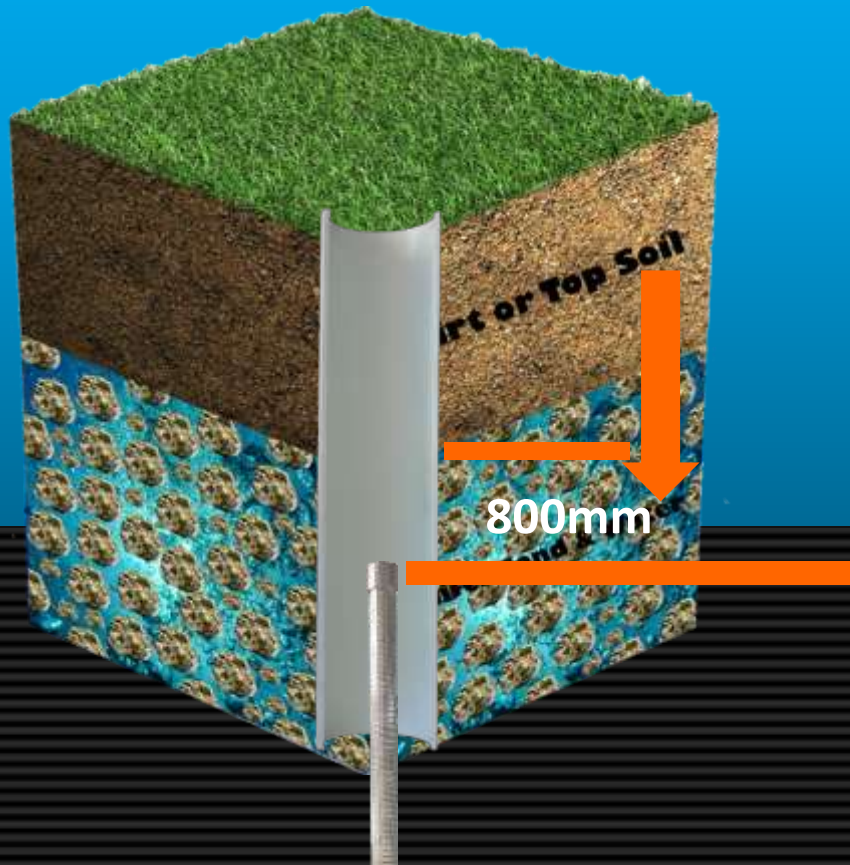
## Step 10

Continue this process until you are 2m plus below the water table.



# Bailing Method

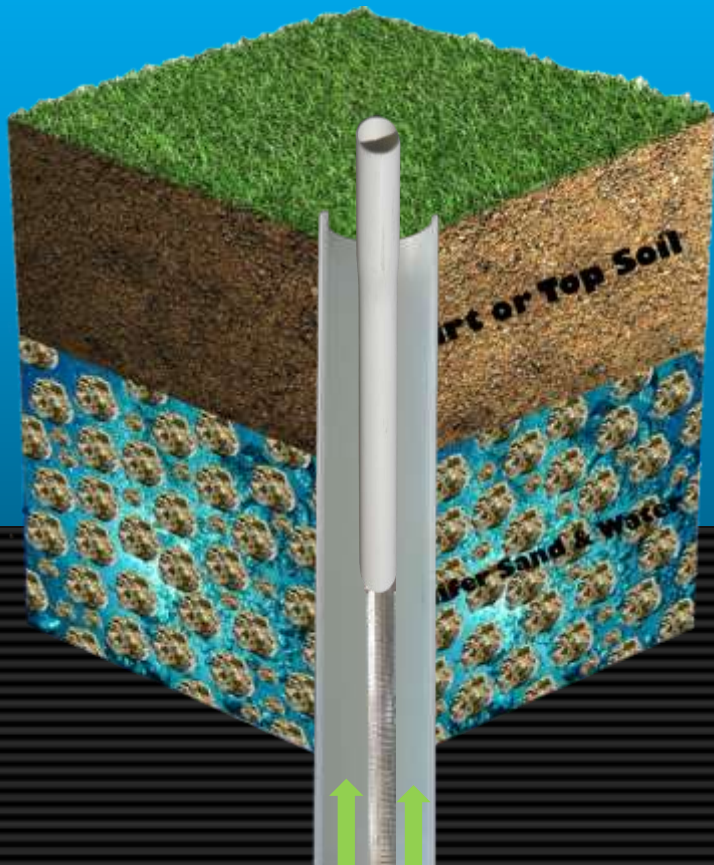
To ensure top of screen is approximately 800mm below water table level





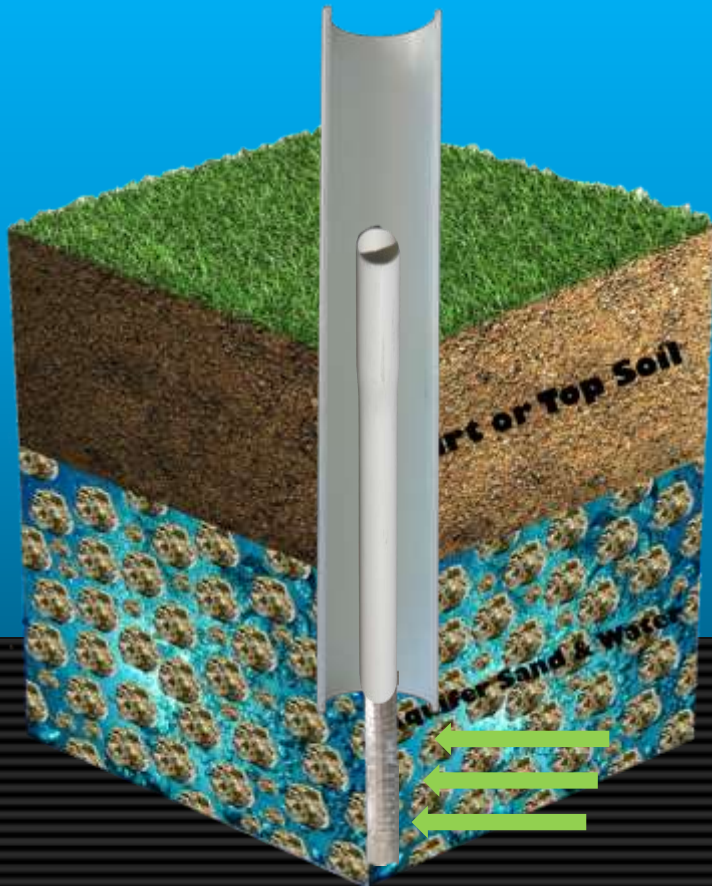
# Nearly Finished

**You can leave the Casing in this position, and the water will come through bottom of the pipe.**



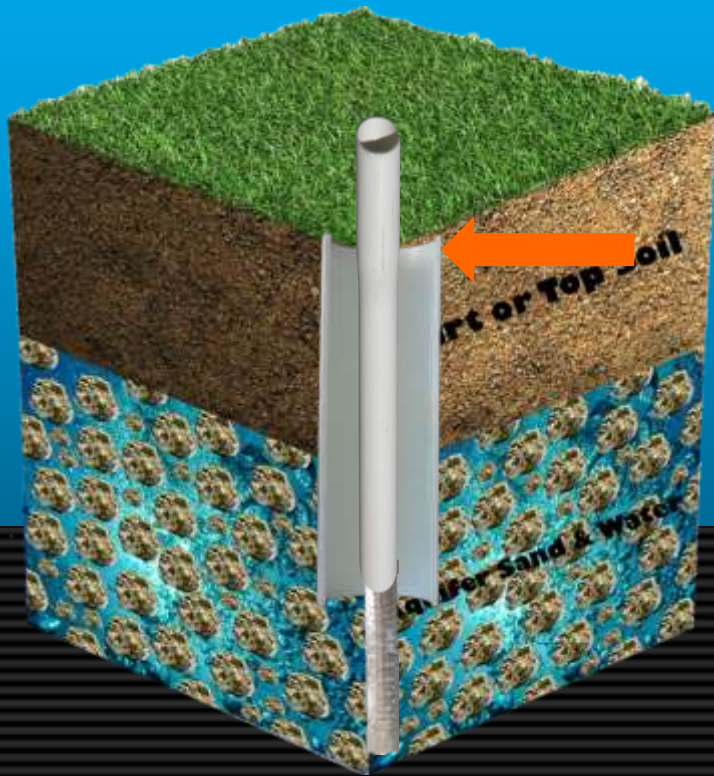
or

**Pull the casing up  
800mm approx., to  
expose the full length  
of screen, allowing  
more area of flow**

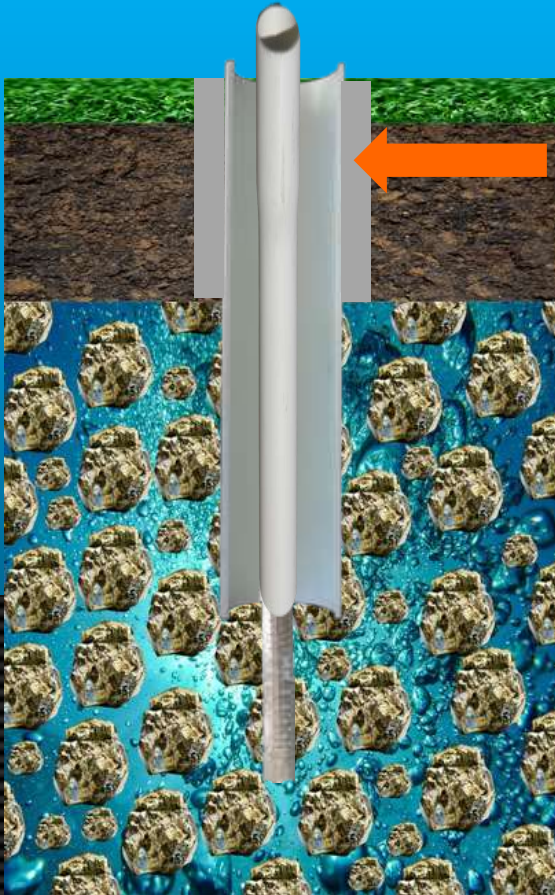


# Last things

**Cut the casing to  
ground Level**



# Seal Casing



**Cement, Grout or pack  
with solid dirt.  
( if no outer casing is  
used)**



# Bailing Method

**You are now ready  
to Install your  
sand spear**



# Installing a pump

**You can now install your pump.  
Look for more information we have  
created called**

**how\_to\_instal\_a\_pump\_into\_a\_sandspear**





**BUT  
REMEMBER...**



# When purchasing or Install your Sand Spear...



- ✓ Suit to purpose
- ✓ Decide on drilling method
- ✓ Screen to match Gravel
- ✓ Check on Council regulations
- ✓ Choice the best position
- ✓ Do your homework first

## And try to avoid...

- ✗ Mud
- ✗ Soil
- ✗ Driving of PVC Screens
- ✗ Deeper than 3M
- ✗ Air leaks
- ✗ Screen above the Aquifer



# Thank You

Thank you for taking the time to look at the information we have created for you.

We hope this will be of assistance and a benefit to you with the installation of your sand spear system

If you have any more questions  
Please feel free to contact us



# We

## Deliver Sand Spear Solutions

“At Your Service”

Visit our website at [sandspears.com.au](http://sandspears.com.au)

or call us at 0438 746 894

[Info@sandspears.com.au](mailto:Info@sandspears.com.au)



# Components and Accessories



Caps  
Casing  
Wash Down Valves  
Spear Points  
Pumps  
Wedge Wire  
PVC Pipe  
Wire Mesh Screens  
Bore Developing Tools

Installation Kits  
Screwed Casing  
Sand Ventures  
Non return valves  
Surface casing  
Rising main  
PVC Fittings  
Poly Fittings  
Hand Pumps



# Sand Spears

**Solving your Sandspear, Installation and  
Pumping Challenges  
with Trust and Integrity**

