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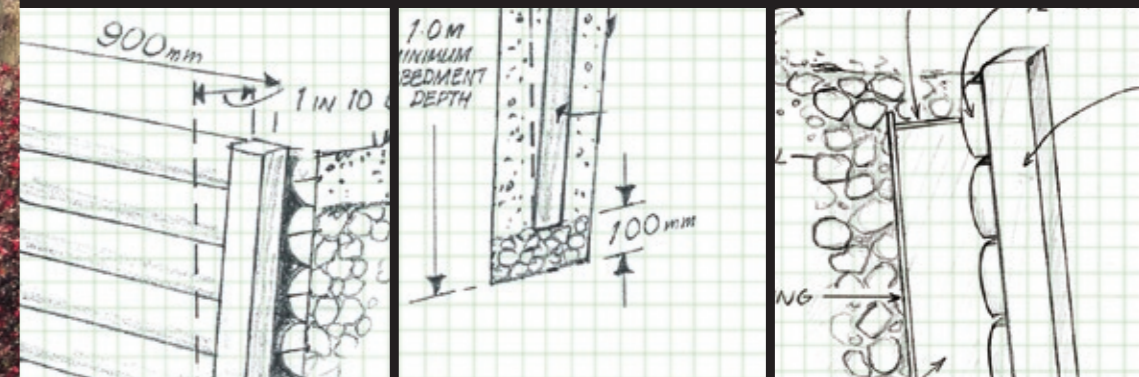
The Building Research Association of New Zealand

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# How to build a garden retaining wall.



Small Garden retaining walls can make a big difference to the appearance of your property. Building one is easier than you think and Carters has everything you'll need to do it yourself.



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This design is only suitable for retaining walls to a maximum height of 1m on firm soil. It does not allow for loadings from vehicles or buildings or sloping ground above the wall.

### STEP 1

- Cut bank back a minimum of 400mm to allow access for nailing and batter back at 60° (approx 1 back, 2 up) for safety during construction. This will provide working space.
- Ensure ground behind wall line slopes towards drainage. Follow natural fall.
- Dig 250mm diameter holes at 900mm centres, without disturbing surrounding soil.
- Use of an Auger or powered posthole borer is recommended and can be hired.
- Prior to setting posts, remove or compact loose soil in holes.
- Place 100mm of compacted base metal in each hole.
- Set posts by adding or removing base metal as required.

### STEP 2

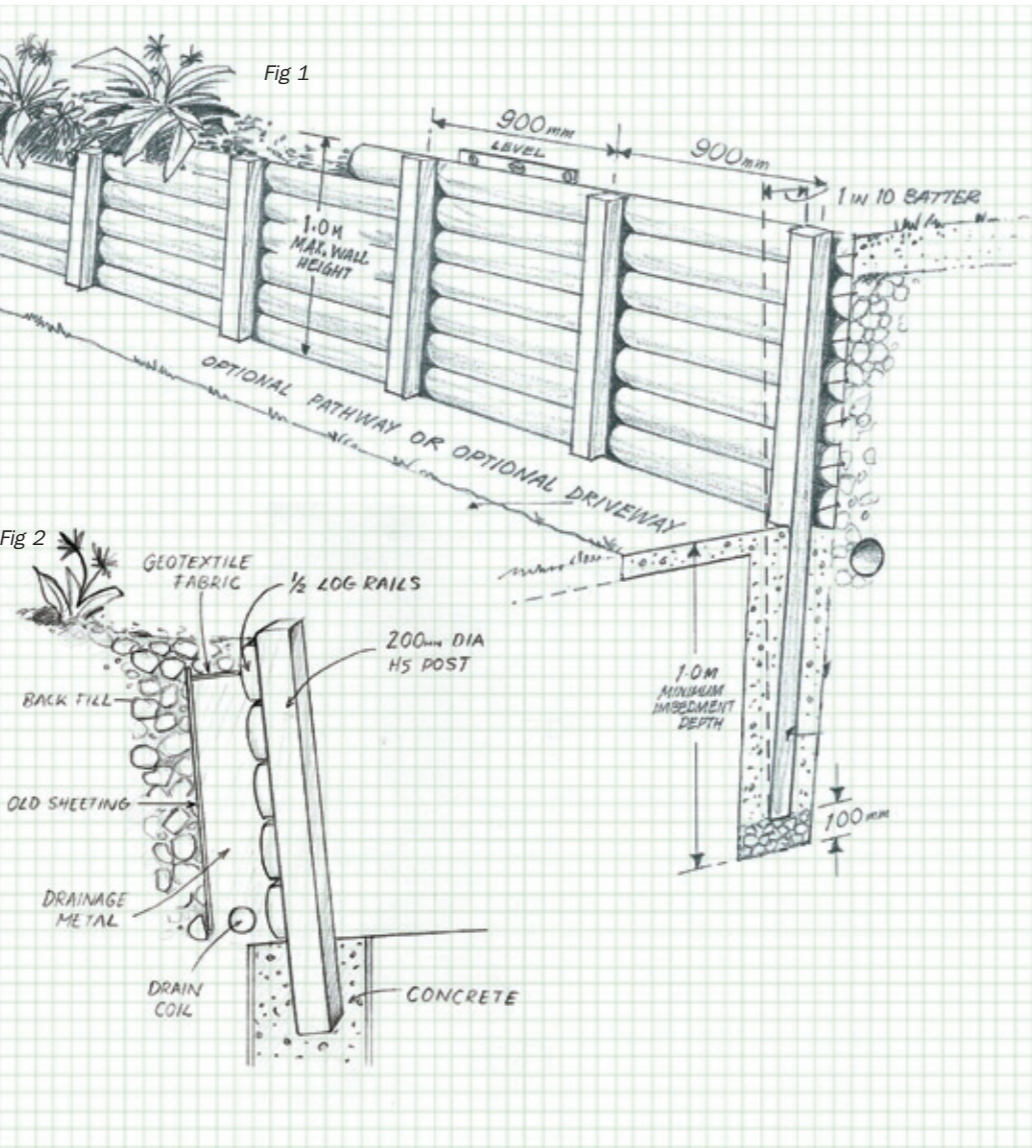
- Set end posts in holes with a 1 in 10 lean-back.
- Brace posts. Handy tip: using hex-head TEK screws is easier on the construction than hammering in nails. If using nails, leave the heads proud and partly bent over for easy removal.
- Check you have exactly same lean on both posts. Use level and hold plumb, measure back to post 100mm.
- Set 2 string lines between 2 end posts, first at 100mm from top of post, second 100mm from ground level. Pack string lines off the posts to give an offset line.
- Use string line to assist in lining up intermediate posts.

### STEP 3

- Concrete in posts, using 1 part cement to 6 parts building mix or use pre-bagged concrete mix.
- Leave 2 days to set.

### STEP 4

- Use ground treated H5 edged half logs as rails (fig 2).
- Fix with 150mm galvanised nails to back of posts.
- Leave a 5mm gap between rails to assist with drainage.
- Join rails at posts only.



### STEP 5

- Use 50mm bed of drainage metal, sloping it in the direction of the water flow outlet and leaving the ends protruding a little to enable cleaning.
- Cover coil with 250mm more drainage metal.
- Position sheets of hardboard, cardboard or cementboard 250mm behind the wall.
- Ensure sheets are positioned at same level.
- Fill between the sheets and wall with drainage metal to within 300mm of ground level at top of wall, at the same time filling behind the sheets with soil or clay.
- Top with free draining gravel and cover with weedmat. Place Topsoil on to complete.

### POINTS TO CHECK

- Check with local Council for retaining wall requirements.
- Generally a retaining wall less than 1.2m high does not require consent.
- Ground must be firm and compact (virgin ground) e.g. not filled ground or loose.
- Soft ground may require advice from a civil engineer.
- Determine where you are going to drain seepage water to.
- Decide how many posts & half edged logs are required, and the amount of backfill required.
- It is essential that the backfill allows water to soak through to drain.
- Check your house plans for underground cables and pipes prior to digging.
- If timber is being stored for a while before building ensure timber materials are stacked at least 150mm above ground level, level and covered.
- Cut ends and notches must be kept clear of ground, cut faces must be coated with a suitable preservative.
- Only embed uncut end in the ground.
- If staining wall, do so prior to timber assembly.
- All bolts and nails must be hot dipped galvanised to prevent rust stains.
- Recess bolts and punch nails below surface, use preservative in recesses. Ask your branch for a suitable product.

### NOTE:

- Retaining walls must have good drainage.
- Poor drainage could result in collapsing.

### TYPICAL RADIATA RETAINING WALL SIZES

Maximum distance between post centres	900mm	
Maximum retaining wall height	500mm	1000mm
Minimum post embedment depth	700mm	1000mm
Post type: No.1 house pile H5 treated to N.Z.T.P.C specs	125 x 125 x 1200mm	125 x 125 x 2100mm
Timber treatment (in ground contact)	H5	

### MATERIAL LIST

- String
- Grease (if bolts are being used)
- Bolts/Nails
- Preservative to treat cut ends and notches
- Concrete Mix - 6 to 1 or pre-mix bags
- Base metal
- Old hardboard/cardboard/cementboard
- Posts - 125 x 125 H5 piles
- Drainage metal/scoria
- Rails
- Drainage flo/coil
- Timber as temporary bracing, pegs, supports etc
- Geotextile fabric - weedmat

### TOOL LIST

- Spade
- Stringline
- Shovel
- Chalk Line
- Circular Saw
- Spirit Level or Post Level
- Chain Saw
- Sledge Hammer
- Hand Saw with medium or coarse teeth
- Old Paint Brush
- Hammer
- Post Hole Auger (hired)
- Tape, Square and Pencil

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