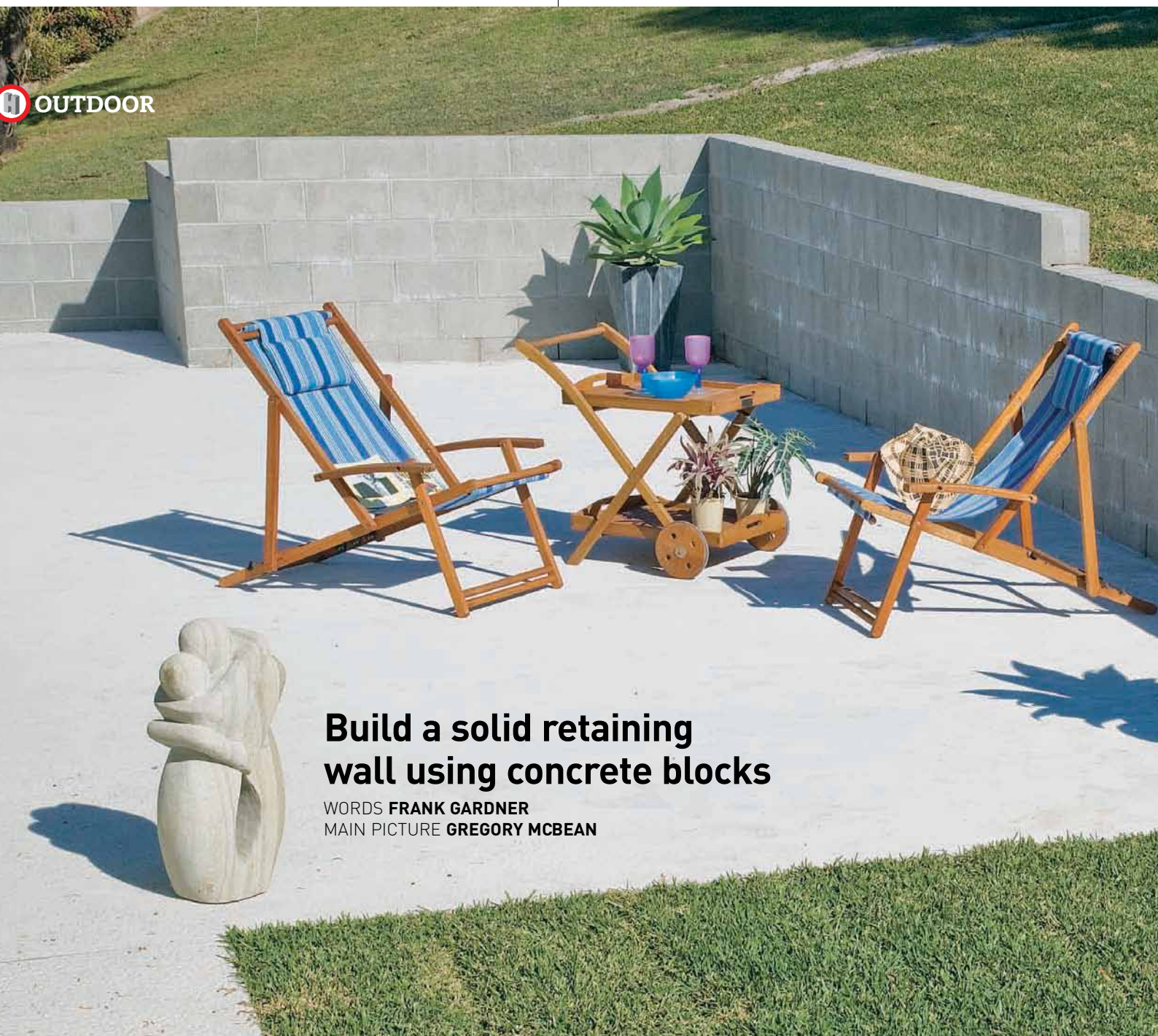


 OUTDOOR



Build a solid retaining wall using concrete blocks

WORDS **FRANK GARDNER**

MAIN PICTURE **GREGORY MCBEAN**

Terraced

DIY > \$5480

HAVE IT DONE FOR \$9500

SKILL > 123456789

TIME > 5 DAYS

Masonry retaining walls are built with a reinforced concrete base as an anchor and a wall of hollow concrete blocks reinforced with 12mm steel bars.

Starter bars embedded in the base

are lapped to vertical bars and crossed with horizontal bars. Then hollow blocks are filled with concrete for a solid, stable wall capable of resisting pressure from soil and water.

The height of the wall and soil type determine the footing size and



Before

The house needed an outdoor entertaining area to utilise the vast area of sloped lawn.

After

The wall encompasses a newly paved area and transforms the lawn into a feature.

CONSTRUCTION PROJECT

wall

steel reinforcement requirements, so check with a building authority for regulations and engineering specifications, and for any required council approvals.

TIP Render or bag the wall for a textured finish or paint in a colour.

MIND THE PIPES

To avoid digging into water pipes, electrical cables and phone lines visit www.dialbeforeyoudig.com.au or call 1100 for a free referral service for locating underground pipes and cables anywhere in Australia. ▶

Hiring equipment

Arrange to hire equipment for the heavy work before beginning the construction.

EXCAVATOR to dig the footing. Hire is about \$125 an hour and no licence is required.

BOBCAT is a skid-steer machine that turns 360° on the spot for work in tight spaces, and is used to remove waste. No licence is needed and hire costs from \$100 an hour.

TRUCK may be required to remove waste to a clean-fill station. A licence is needed for trucks with a gross vehicle mass over 4.5 tonnes, costing \$100 an hour.



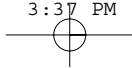
Hire a bobcat to move waste or transfer concrete from truck to trench.

Estimating material

CONCRETE is sold in 0.2m³ increments, should contain 20mm aggregate and be 25MPa in strength. Multiply the length of the footing by width and by height to calculate how much you'll need. So $20 \times 0.5 \times 0.35 = 3.5\text{m}^3$ and the order would be for 3.6m³.

Have it delivered straight from truck to trench, or transfer via bobcat to save wheelbarrow work.

BLOCKS are calculated for 1m². Multiply the length of the wall by the height to work out the size in m² then calculate how many blocks for 1m² (such as 12.5 blocks sized at 400 x 200mm). Multiply the wall size by the number of blocks in 1m² (see Diagram 1). So $20\text{m}^2 \times 12.5 = 250$ blocks. The blocks cost about \$3 each.



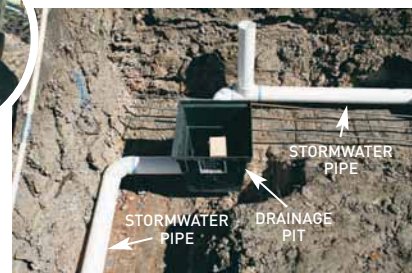
HOW TO Build the retaining wall



1 Set the levels
Establish the line of the wall and the area to be excavated, driving in long pegs beyond the ends of the wall and using a dumpy to check the excavation depth. Mark the height of the footing and finished wall at both ends and corners.



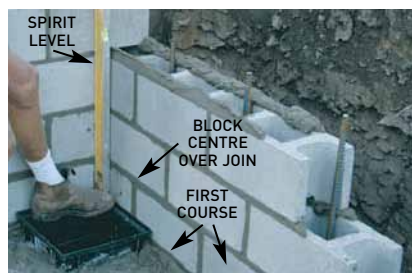
2 Excavate for the wall
Use an excavator to cut the line of the wall, levelling the surrounding area and digging the footing. Remove the waste using a bobcat and truck.
TIP For a small wall, you could use a pick and shovel instead of hiring an excavator.



3 Set drainage and pipes
Position drainage pits at the front connected with stormwater pipes, and agricultural pipe at the back of the footing. Position steel longitudinal and base transverse bars, tying starter bars at 400mm centres, the first 100mm from the end (see Diagram 2).



4 Pour the concrete
Fill the trench to the set height with concrete and level with a screed, using a dumpy to check the concrete is level, finishing around the starter bars with a timber float.
TIP Check the bars are aligned at the 400mm centres.



5 Build the ends of the wall
Set out the first course of blocks, laying them out dry on the footing, ensuring the corners are square. Mix the mortar and lay the blocks. Build the end or corner with block centres over the joints of the course below.
TIP Use a spirit level to check blocks.



6 Set the laying lines
Set stringlines from the ends to guide each course. Spread mortar on the footing to bed front and back of the blocks. Lay the base course over starter bars, tapping them level.
TIP Leave every third vertical joint open as a weep hole.



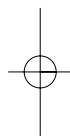
7 Position the reinforcing
Lay bars on every second course, overlapping by 500mm, and inverting alternate courses to open the webbing for horizontal bars. Roll out 100mm diameter geo-fabric soaked agricultural pipe behind the wall, with outlets extending past the ends.



8 Build the wall
Spread up to 1.5m of mortar along the front and back edges of the course, buttering the ends of four blocks at a time, positioning and tapping level with the stringline. Push a jointing iron over joints, brush and sponge down the wall.



9 Fill and backfill the wall
Pour concrete into the core of the blocks and compact by ramming with a bar, leaving to cure for at least seven days. Behind the wall, lay geo-textile fabric over the soil and backfill with drainage material such as recycled crushed concrete.



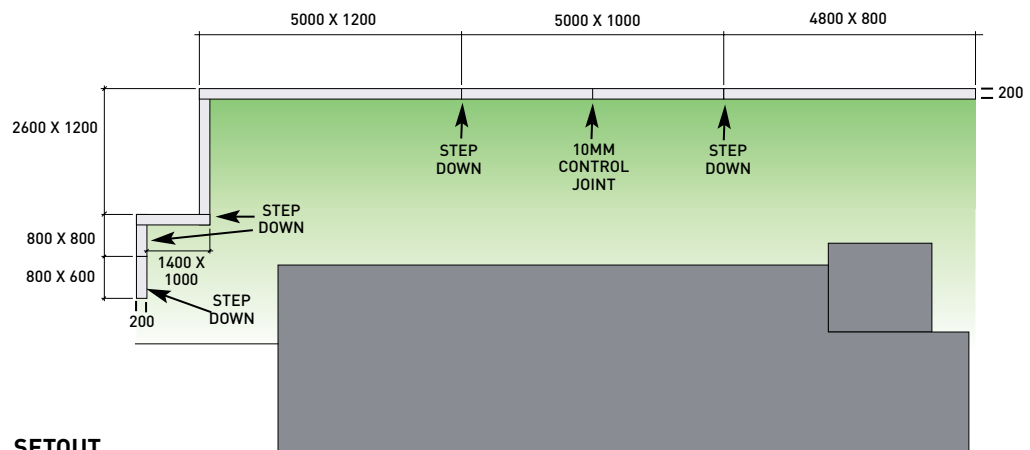
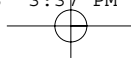


DIAGRAM 1
RETAINING WALL SETOUT

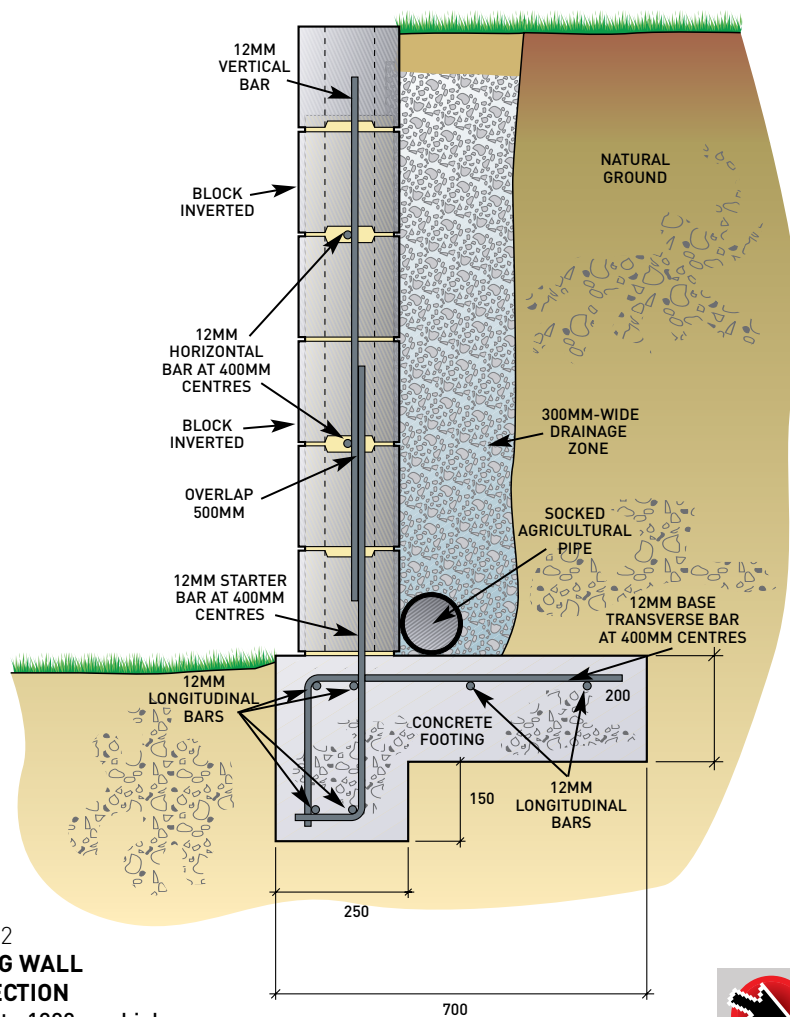


DIAGRAM 2
RETAINING WALL
CROSS-SECTION
(walls 800 to 1200mm high,
measurements in mm)

Visit www.handyman.net.au
for building standards,
tools, materials and costs.