BUILD RIGHT

Setting out

ADAPTED FROM BRANZ HOUSE BUILDING GUIDE

BEFORE EXCAVATIONS START, THE PROPOSED BUILDING MUST BE SET OUT ON THE SITE. GETTING THIS WRONG CAN PROVE VERY EXPENSIVE, SO HERE ARE A FEW POINTERS.

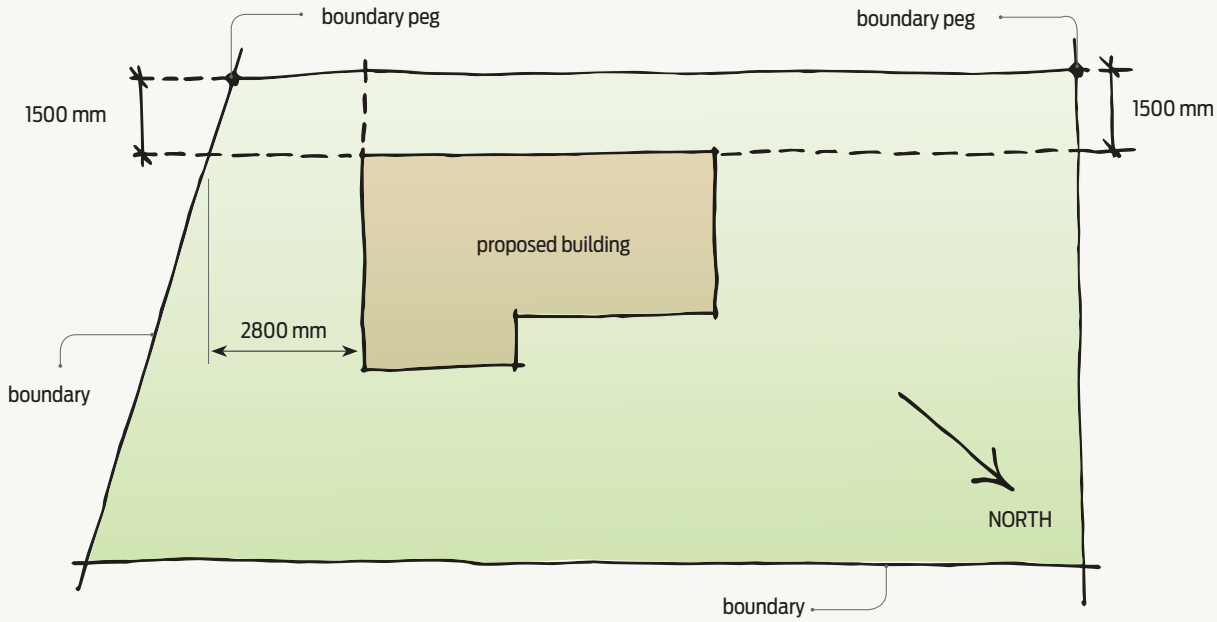

Figure 1 **Clear set-out with single offset dimensions.**

Setting out involves working out the location and extent of the building on site. Each site is different, so start by establishing the particular conditions. Use information from territorial authorities' records combined with an on-site inspection.

Understand your site

Where construction is being carried out, it's usually necessary to:

- accurately locate boundary lines
- determine ground conditions
- verify the location of underground and overhead services
- obtain site levels – it may appear flat or level, but appearances can be deceptive
- accurately verify the position of existing structures, such as the house, garage, outbuildings and significant trees
- use a contractor with the appropriate carpentry or foundations licence.

Set-out starts with designer

Building set-out starts with the designer – the building needs to be designed to fit to side yards, set-backs and height envelopes. Careful and unambiguous set-out instructions on the drawings make it easier for the builder to follow.

The designer's instructions must:

- determine the reference point for the set-out – the front or side boundary (boundary pegs must be located)
- give single offsets from the building to the most critical points on the boundaries (see Figure 1) – they must not dimension set-outs to opposing boundaries
- establish a permanent datum point for setting out the height of the building in relation to the ground or other identified features – the datum point may be well clear of the building and established on a fixed feature such as a manhole cover.

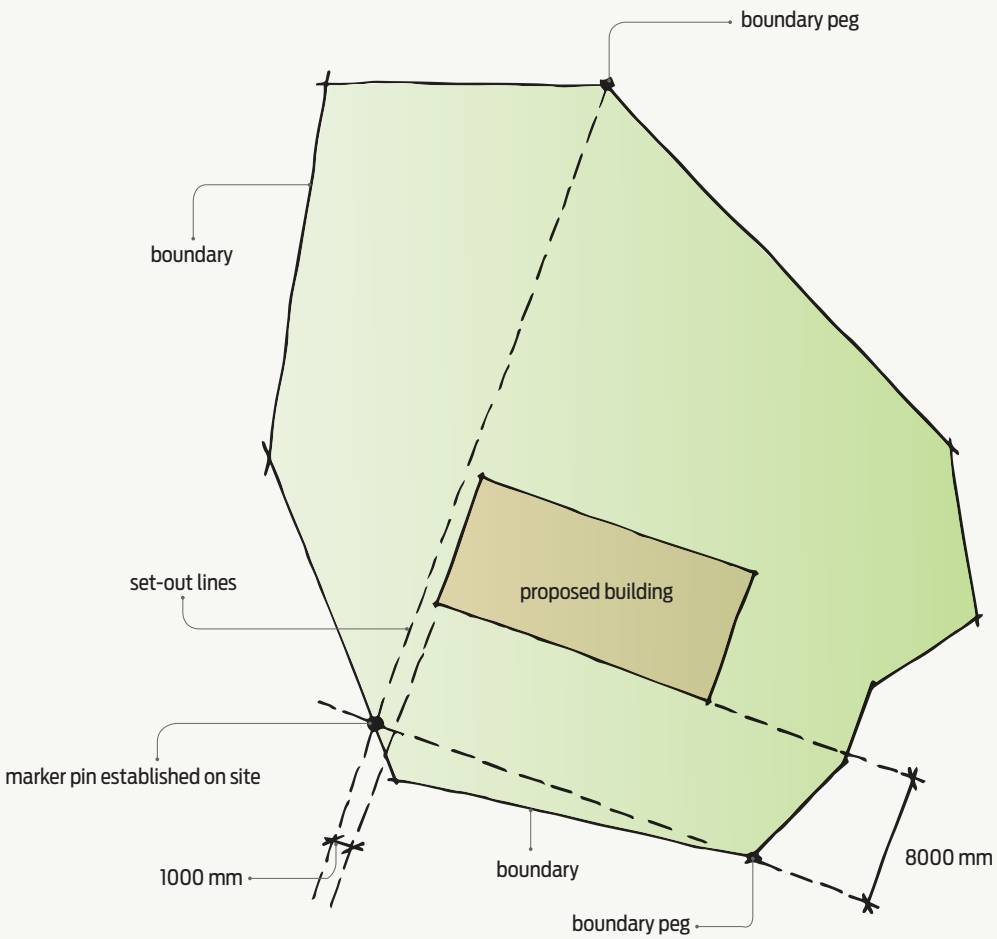

Figure 2 **Set-out example for an irregular site.**

Irregular site needs set-out lines

If the site is not regular or the building is to be placed at an unusual angle to the boundaries, the designer should give set-out lines for the builder to work to (see Figure 2).

Establish set-out lines to fixed points on site, positioned so that the lines are clear of the intended building. The lines can then be rerun for checking without having to pass through the building. Designers specify the offset dimensions from these lines.

Buildings must also be located a safe distance from the tops of banks (see NZS 3604:2011 clause 3.1.2(b) or *Build* 129, page 24).

Builder takes over

On site, the builder will:

- erect profiles approximately 1.2 m (but not less than 0.9 m) outside the perimeter of the building (see Figure 3)
- brace all profiles to keep them from moving
- level horizontal profiles, from the highest point of the site first using a builder's or laser level – the tops of the profiles are often set 20 mm above the top of the floor joist level (use a packer under the string line when levelling joists)
- determine the longest building face, locating the structure corners on the longest line
- set out lines at right angles to the longest line and locate all other lines
- mark set-out lines on levelled profiles – check the set-out to ensure the building layout is square, to correct dimensions and at the correct level
- mark the building lines permanently on the horizontal profile members
- ensure lines setting floor levels will meet the minimum ground clearances (see E2/AS1 Table 18 and Figure 65 for details).

The finished floor level should be checked on site to ensure finished ground clearance can be achieved, gullys can be set at the correct heights and there will be sufficient fall for drains.

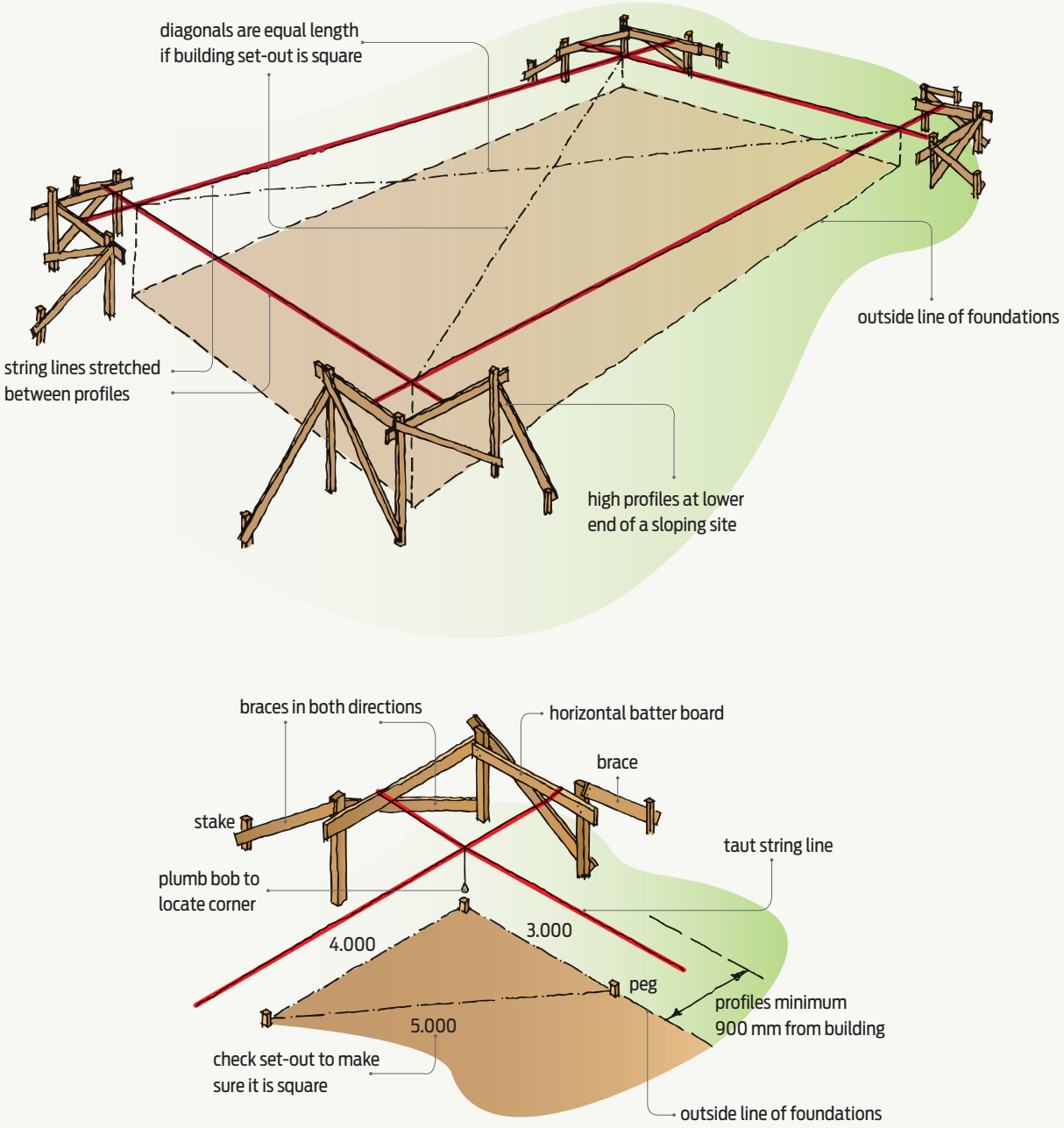

Figure 3 **Building profiles.**

Usually it is the builder's responsibility to place the building correctly on site, but it is important to check where responsibilities lie for individual contracts.

Generally, the owner must indicate the boundaries and ensure boundary pegs are properly positioned.

Surveyor may be needed

Most builders can undertake building set-outs that are clearly instructed and on easy contour sites.

However, for more difficult sites or tight urban infill building where set-out is critical down to the finest measurement, employ a land surveyor to position the foundations.

While on site, they can also set out other difficult-to-place features such as pile positions (tricky on steep sites), boundary walls and so on.