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*Gain
understanding
and control
of the
building
process*

Online Course—Module 3



Australian Owner Builders



Module 3

3.0 SITE WORKS

This Module discusses works required on site prior to construction — land survey, building set-out, excavations, drainage, easements, site clearance and planning.

If the building site is not carefully prepared for the construction works, many problems will be encountered. There should be convenient access for delivery trucks, areas set aside for piling of sand, weatherproof storage of cement etc, and removal of trees (subject to council approval) that might interfere with the integrity of the proposed structure.

Site works for a residential dwelling are carried out more or less in the following sequence:

3.1 Soil Test:

The soil test is performed by a qualified engineer who will visit the site and drill for core samples. Since the ground is to be the foundation of your building, it is important to know its make-up — whether it is clay, rock, sandy loam, silt, or a combination.

The nature of the foundation encountered governs the design of the footings system nominated (usually either concrete strip footings or concrete floor slab).

This soil test will allow your building envelope to be classified as to its bearing capacity, and should, at the same time, highlight any drainage and/or construction problems.

3.2 Site Clearance:

The building envelope should be stripped of unwanted shrubs, trees (subject to council approval), long grass etc that could get in the way of the excavation contractor, set-out specialist, concreter, or bricklayer, with firm going provided for delivery trucks.

3.3 Land survey

If your block is sloping and/or undulating, it is advisable to pay for a land surveyor to plot its levels. This survey will produce a plan of contours of the land indicating slopes in all directions, and will be invaluable to your draftsman/designer, who will use the contours to help design the dwelling.

The same survey and map of contours will assist in calculating the extent of excavations required (cut and remove/cut and fill) to accommodate the building; it will provide a true record of boundaries, and also will assist in designing drainage runs (storm water and sewerage).

3.4 Rough Set-out

This can follow stripping from the site any interfering trees or shrubs, and other superfluous vegetation. Shrubs and long grass also would get in the way of the string lines for the building set-out. The rough set-out is done where significant excavations are required either for installation of a concrete slab floor, or where advantage is to be taken of the slope(s) to provide a split-level floor plan, or basement area.

The rough set-out need only be indicated by a series of wooden stakes to show the excavating contractor exactly where, and how deep, cuts/fills are to be made. However, even this rough set-out is best done by the land surveyor, because careless calculations at this stage could prove expensive — not enough, or too much, soil excavated will cost you money once construction gets underway.

3.5 Drainage Trenches

These can be dug by the contractor who excavates to the contour plan, or by the plumber and/or drainage contractor. Some plumbers are happy to do both the drainage excavations and the drainage connections (pipes). Others prefer to hand over drainage work to a specialist.

**Example:
Owner Builder
Project**

Materials & Services
\$200,000

Owner Builder labour cost
Nil

Sum insured
\$200,000

(Realistic cost of replacement)
Project quoted by builder
\$300,000

Sum underinsured
33% \$100,000

In the event of a claim for,
say **\$200,000**

Payout of 66% of the claim
\$132,000

Owner builder out of pocket
= \$68,000





Public Liability Insurance

Covers third parties against personal or property damage for which the renovator or owner builder is legally liable.

- As the builder in control owner builders have a duty of care.
- Damage caused to third parties coming on site.
- Damage caused from the site to adjoining properties & individuals.

3.6 Building Set-out

The building set-out establishes precisely the building lines, taking into account the position of easements and boundary set-backs. Easements (land reserved for underground mains drainage pipes) can be either along the side of a block, at the rear, or both, and are shown, if they exist, on the Title to the Land. Usually they are along the rear fence approximately within a two-metre wide area. Construction over the easement, even of outbuildings, is strictly forbidden; it must be left clear to allow future maintenance work by the water/sewerage authority.

There are specialist firms who do building set-out work, usually for quite a small fee. Better to pay a specialist than attempt it yourself, because the set-out lines must be squared and perfectly positioned, true to the working drawings, and in accordance with easements and boundary set-backs.

The importance of the accuracy of the building set-out in the construction process cannot be over-emphasised.

The area for the concrete floor slab, or the concrete strip footings (if the house is to have a timber floor system) will be dug and poured to the building lines. The lines are indicated by string stretched between nails driven into the tops of wooden marker hurdles, put in by the set-out specialist.

The bricklayer and/or carpenter must be able to rely on the accuracy of the set-out. If the lines run out of true, so will the construction work that follows.

3.7 Retaining Walls

Retaining walls might be needed to hold back earth that has been excavated/cut to facilitate changed levels, i.e. a basement area. If they are, they will be shown as part of the working drawings on the building plan.

In most cases, retaining walls will be designed independently by a structural engineer. The engineer is usually commissioned by the architect/draftsperson to supply detail drawings and computations to prove the integrity of certain critical parts of the structure, be they retaining walls or other load-bearing elements, i.e. columns, beams, lintels, trusses etc.

KNOWLEDGE: *Although minor changes may be made to the building plan during the work, i.e. a window size, or a room dimension (provided you advise your PCA), on no account should a structural engineer's design, for any part of the works (retaining walls or otherwise) be altered, adjusted or ignored unless changes are approved/re-designed by the engineer.*

3.8 Temporary Site Services

As the owner-builder, you will need to organise a temporary toilet and temporary electrical power pole/box, both usually hired from a specialist contractor for the duration of the works. The hirer arranges delivery and installation, and will collect the equipment once the project is finished.

SUMMARY of Module 3

Your tasks as the Owner-Builder -

- 1) Rough set-out for cut/fill excavation, if needed.
- 2) Organise a land survey if required (land surveyor).
- 3) Order building set-out (specialist contractor).
- 4) Contact plumber/drainer to plan trenches and outlets for storm water and sewer.
- 5) Order temporary site services (power, toilet etc).
- 6) **CHECK with your local council if your building site is in an area where protection measures must be taken against infestation by TERMITES.**

If termite protection is required, it is your duty, as the owner-builder, to select the method to be used and ensure it is installed. Consult a specialist pest control firm as early in the exercise as possible, because different systems require access at different stages of the building works.

