Techniques to Minimise Earthworks

Pre-consultation with a Manningham City Council Planning Officer is very important in the planning permit application process, especially in relation to earthworks. Should Council have concerns with the extent of earthworks proposed, these concerns will be discussed prior to the application being lodged. This can avoid delays with the processing of the application.

Do not select a house plan prior to selecting your parcel of land. A building should be designed for the land, not the land altered for the building. If Council has concerns with the earthworks required, it may be necessary to alter the location and layout of the building.

The following should be avoided:

- An imbalance of cut and fill. If earthworks are proposed, a balance of cut and fill is favourable as opposed to one large individual cut or fill area;
- Concrete slab construction should be avoided. The design of the house must respond to the slope of the land. A split-level or pole construction design may be necessary to minimise earthworks;

moving, depositing, shaping
and stabilising of soil and rock.

- Orientate the house floor plan parallel with the contours of the land. This will decrease the amount of earthworks required. When assessing the location of the house, the existing vegetation and orientation of the site will also be considered;
- The driveway should follow the natural contours of the land wherever possible;
- Earthworks should be kept outside the drip line of any tree to be retained on the site and on adjoining properties;
- All earthworks should be setback a suitable distance from the site boundaries to allow room for landscaping. This distance will depend on the individual site and surrounds;
- Consider the future location of any septic tanks and pipes. These should not be located within fill areas, as the fill will settle and move;
- Batter slope gradients should not be greater than 1:3;
- A combination of retaining walls, rocks and landscaping is encouraged to integrate the earthworks with the surrounding area; and
- No earthworks apart from those required to establish the septic system are allowed in close proximity or within the effluent disposal area.

The following will be required during construction:

- the owner must use appropriate site management practices to prevent the transfer of mud, dust, sand or slurry from the site into drains, onto nearby roads or neighbouring properties. In the event that a road or drain is affected, the owner must upon direction of the Responsible Authority, take the necessary steps to clean the affected portion of road or drain to the satisfaction of the Responsible Authority; and
- disturbed surfaces on the land resulting from the buildings and works approved by this permit must be stabilised and revegetated within three (3) months of the completion of the development to the satisfaction of the Responsible Authority.

For further information:

For further information, please contact Manningham City Council's Statutory Planning Department on telephone 9840 9495 or Council's wesite at www.manningham.vic.gov.au

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EARTHWORKS IN THE CITY OF MANNINGHAM

MANNINGHAM
BALANCE OF CITY AND COUNTRY

What are Earthworks?

Earthworks involve the moving, depositing, shaping and stabilising of soil and rock.

In Manningham, earthworks are usually undertaken to create flat or benched areas on sloping sites. The steeper the slope, the greater the earthworks required to create levelled areas.

Prior to considering development on your land, it is important to carry out a site analysis which considers vegetation cover, slope of the land, access, orientation, provision of services, position of watercourses, impact on neighbours etc. That way any design can minimise the level of disturbance and cost associated with development.

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Disadvantages of Earthworks

Activities associated with development on undulating to steep sites can lead to extensive earthworks with significant cut and fill batters to create flat areas. This will have a significant impact on soil stability, vegetation, habitats, drainage and the landscape character of the area.

Carrying out earthworks on land can have a number of disadvantages including:

Excessive cost, compared with site responsive design of buildings
Costs of earthworks can be as high as $3000 for a typical house per 300mm of height or depth. When earthworks exceed 1 metre in height or depth, engineering specifications are required, adding to the cost.

Change to the natural landscape appearance
Many people move to places because they like the bushland feel and hilly character. By doing significant earthworks to bench sites for single dwellings, tennis courts and outbuildings, changes occur to the character of the area.

Causes sediment-laden runoff
When land is disturbed it is more likely to erode, which will cause sediment run off on your land and adjoining land and roads. Sediment fills drains and pollutes creeks. When land is cut and filled, the risk of erosion is greatly increased.

Creates soil instability
The depth of soil overlaying rock varies according to the topography. Soils are usually deeper on the lower part of the hill slope and shallower on the crest. Soil profiles are typically deeper on gentle slopes compared to steeper slopes. Where slopes exceed 20%, soils are usually shallow and prone to erosion.

In addition, the soils in the municipality generally have silty loam topsoil above a yellow subsoil clay and these soils are highly susceptible to erosion.

Methods of Stabilising Earthworks
Retaining walls are often required to stabilise earthworks.

Timber retaining walls, which are often the cheapest material, are incompatible with the clay soils of Manningham and are prone to rotting and termite infestation. Local stone is not hard wearing and can erode and become unstable more quickly.

Alters natural drainage patterns
Altering the slope of your land also changes the natural flow of water over your site and this can cause water ponding or flooding. The soils of Manningham are very shallow and do not retain water very well.

Earthworks can change how the land drains. This may result in your property or adjoining properties becoming damp or boggy in places.

Impacts on Vegetation
When fill is located within the drip line or canopy of a tree, it will suffocate its root system and may result in the tree dying. Earthworks that involve excavation can also sever root systems of nearby trees.

Spreads weeds and soil pathogens
Disturbance of soil creates the opportunity for weeds to establish. Importation of fill also increases the potential for weeds to be transferred onto your property from other areas. Weeding either by chemical means or by hand is costly and time consuming and can be an ongoing issue for many years.

Movement of soil is also one of the main ways of spreading fungus and pathogens from site to site. Cinnamon Fungus, phytophora, is an example of a soil fungus which affects the root systems of plants and causes dieback by restricting the uptake of food and water.

Reduction in area available for on-site effluent disposal
When you excavate soil or import fill you can substantially reduce the area of land available for on-site effluent disposal. Depending on how these works are carried out, it may be impossible for effluent disposal to be provided in areas where earthworks have occurred.

Increases the chance of vermin, such as rabbit burrows being established in fill
Rabbits will always choose the easiest places to burrow. Fill, even when compacted, is almost always not as dense as natural soil and is therefore highly susceptible to rabbit invasion. Rabbits increase erosion and may even cause failure of batters in the future.