

- Concrete slab construction on sloping sites 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.
- 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 or any 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.
- No earthworks, apart from those required to establish the septic system, are permitted in close proximity or within the effluent disposal area.

For all earthworks conducted in Manningham, the following is required during construction:

- The owner must use appropriate site management practices to prevent the transfer of mud, dust and sand or slurry from the site into drains, onto nearby roads or neighbouring properties. In the event that a road or drain is altered necessary steps should be taken to clean the affected portion of the road or drain.
- Disturbed surfaces of the land resulting from the building and works should be stabilised and revegetated within three months of the completion of the works.

Translation Services

An interpreting service is available if required by contacting Manningham City Council on 9840 9333.

Arabic / عربي
خدمة الترجمة متاحة إذا لزم الأمر عن طريق الاتصال بمجلس بلدية مدينة مانينجهام على هاتف رقم 9840 9333.

Chinese / 中文
需要的话可以提供翻译服务，联系 Manningham 市政厅电话 9840 9333。

Greek / Ελληνικά
Υπηρεσία διερμηνείας είναι διαθέσιμη, αν απαιτείται, επικοινωνώντας με το Δημοτικό Συμβούλιο του Manningham στο 9840 9333.

Italian / Italiano
È possibile utilizzare il servizio d'interpretariato se necessario telefonando al comune di Manningham, al 9840 9333.

Korean / 한국어
통역 서비스를 원하시면 매닝햄 시의회에 9840 9333으로 연락하셔서 요청하시면 됩니다.

Macedonian / Македонски
Ако ви треба преведувачка услуга јавете се на Општина Манингхам на 9840 9333.

Persian / فارسی
خدمات ترجمه شفاهی موجود است. در صورت نیاز می توانید با شهرداری مانینگهام به شماره تلفن 9840 9333 تماس بگیرید.

For further information, please contact Manningham Council's Statutory Planning Department on 9840 9495 or 9840 9273.



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Earthworks in Manningham



Planning the future

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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 a land site, it is important to carry out a site analysis, this will consider vegetation cover, slope of the land, access, orientation, provision of services, position of water courses, impact on neighbours etc. A site analysis will help to ensure any design will minimise the level of disturbance, and also cost, associated with development.

Disadvantages of earthworks

Activities associated with development on undulating and steep land 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**
The cost of earthworks for a typical house can be as high as \$5000 per 300mm of height or depth. Earthworks that exceed one metre in height or depth require engineering specifications which will add to the costs involved.
- **Change to the natural landscape appearance**
Many people choose a particular site to enjoy the bushland feel and undulating 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 laden run-off on the site as well as

any 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 of a site. Soils are usually deeper on the lower part of a hill slope and shallower on the crest. Soil profiles are typically deeper on gentle slopes than on steep slopes. When slopes exceed 20 per cent, soils are typically shallow and prone to erosion. In addition, the soils in Manningham generally have silty loam topsoil above yellow subsoil clay; both soils are highly susceptible to erosion.
- **Can require additional works to stabilise**
Retaining walls are often required to stabilise earthworks. Timber retaining walls 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 a land site changes the natural flow of water over the site, this can cause water pooling 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 a property, or adjoining properties, becoming damp or swampy 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.
- **Weed Spread and Soil Pathogens**
The disturbance of soil creates the opportunity for weeds to establish. Importation of fill also increases the potential for weeds to be transferred onto a 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 a variety of ways of spreading fungus and pathogens from site to site. Cinnamon fungus, phytophthora, 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**
Excavating soil or importing fill can substantially reduce the area of land available for on-site effluent disposal. Depending on how the 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, generally not as dense as natural soil and therefore is highly susceptible to rabbit invasion. Rabbits increase erosion and may even cause failure of batters in the future.

Techniques to minimise earthworks

A pre-application meeting with a Manningham 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 the earthworks proposed, these concerns will be discussed prior to an application being lodged. This can avoid delays with the processing of an 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 noted:

- An imbalance of cut and fill should be avoided, if earthworks are proposed a balance of cut and fill is favourable as opposed to one large individual cut or fill area.