

8.0 EARTHWORKS

8.1 EROSION MITIGATION & SEDIMENT CONTROL & CLEARING

Prior to commencement of any work, details specified in Clause 3.2 and Section 3.8 need to be installed/completed.

8.2 GENERAL STANDARD OF LOTS

Special requirements will apply where necessary, but generally lots are to be cleared of low scrub, fallen timber, debris, stumps, large rocks and any trees which in the opinion of Council are approaching the end of their functional life or are dangerous will be hazardous to normal use of the development. Prior consultation with Council's Community Services Department is necessary.

8.3 DISPOSAL OF CLEARED MATERIAL

All timber and other materials cleared from lots shall be removed from the site. All roots, loose timber etc., which may contribute to drain blockage, shall be removed.

8.4 IMPROVEMENT OF LOTS

Allots shall be graded and trimmed or filled as necessary to render them in a useable condition and avoid the necessity of future basic site improvement works and negate ponding of water.

8.5 FILLING IN AREAS WITH EXISTING TREES

In areas to be filled, allowance is to be made for clearing of all trees and replanting with a minimum of six (6) advanced suitable species to each lot, planting to be clear of probable future building location, and not to be commenced until filling has been completed and graded, with provision for watering and maintenance for duration of the contract.

8.6 PRESERVATION OF EXISTING TREES

Selected trees shall be preserved by approved means to prevent destruction normally caused by placement of conventional filling within the drip zone and by other earthworks. Refer to Clause 3.7.8.

8.7 EXPLOSIVES

Storage and use of explosives shall be in strict accordance with prevailing laws and regulations and where blasting is intended within fifty (50) metres of a public road or occupied building, a permit under the conditions of Local Government Ordinance No. 43 is to be first obtained from Council and the conditions thereon strictly adhered to.

8.8 INSPECTION PRIOR TO FILLING

No filling is to be placed until clearing of the area has been inspected and the proposed fill material certified by a geotechnical engineer and approved by Council. All vegetation and topsoil shall be stripped from the fill area. Any useable topsoil shall be stockpiled for use as topdressing. Immediate progressive revegetation is to take place as specified.

8.9 STANDARD OF FILL FOR LOTS

Filling is to be of sound clean material, reasonable standard and free from large rocks, stumps, organic matter and other debris.

Lot sizes shall comply with the shape and dimensions of the approved Development Plan. Amendments may be necessary due to engineering requirements identified during the processing of the development and the construction,

Where filling is proposed, provision is to be made to ensure that no water is ponded on any of the development lots or adjoining land. If filling is to be placed against adjoining property, provision is to be shown on the plan for the toe of fill batters to merge with the existing natural surface a minimum one (1) metre within the development, and for any necessary excavation within this unfilled strip to permit the free passage of water away from the adjoining land (e.g. catch drain or inter lot drainage).

Alternate methods of retaining fill may be submitted due to site or area restrictions and will be considered by Council.

All fill areas are to be topdressed with topsoil, seeded and fertilised as a minimum requirement. Minimum grade of fill is generally 1%. Turfing and/or erosion prevention control measures may be required in addition to topsoil/seedling.

Where it is proposed to fill any adjoining land, written proof of consent of affected landowners shall be supplied to Council prior to approval of the engineering plans.

The minimum height of filling will be governed by the 1% ARI top water level of the subject land, and will be finalised at preliminary design stage. In certain instances, where considered necessary by Council, a minimum floor level will be stipulated for any proposed or future dwellings.

Where it is considered from the grade and lie of the land that roof and/or natural surface runoff will create significant future inter-lot drainage problems, provision shall be made by piping and reshaping of the land for conveying such water to the nearest practical drainage line. Each lot in this instance shall be provided with a surface inlet pit at the lowest near corner of the property. Refer to Clause 6.16.

Where filling or reshaping of the lots is proposed, finished level contours of 0.5 metre intervals are to be shown on the engineering plans.

"Works as Executed" levels will be required on the original design contour plan and certified by a Registered Surveyor.

Filling is to be of sound clean material, reasonable standard and free from large rock, stumps, organic matter and other debris.

All work shall be in accordance with AS.3798-1990. Fill is to be placed in layers not exceeding 200mm compacted thickness. All fill is to be compacted to 95% standard maximum dry density. Maximum particle size shall be 2/3 of the layer thickness.

8.10 **TRENCHES**

All trenches shall be excavated to a depth and width as per the manufacturers specification for the material being laid.

Depth will depend directly on the application and cover requirements as specified in the appropriate sections through this specification.

Excavated material from the trench shall not be placed on the road or kerb and gutter.

In the event of any trenching being left open for an extended period of time, i.e. longer than two (2) weeks, the developer will provide erosion control measures to ensure minimal soil disturbance and material loss off the site.

Control measures will include:

- (a) Provision of trench stops every 30 metres along a trench, with provision for overtopping to be directed to the kerb.
- (b) Placement of blue metal bags along kerb and gutter at maximum 30 metre spacings.
- (c) Placement of blue metal bags around downstream drainage pits.
- (d) Construction of diversion banks to divert the uphill catchment from entering the trench.

Trench restoration shall be carried out in accordance with Section 8.15.4.

8.11 **COMPACTION TESTING**

Areas to be filled to a greater depth than 400mm are to be controlled by compaction testing which is to be carried out in accordance with AS.1289 for controlled filling.

Testing is to be carried out by a NATA registered laboratory, at the subdivider's expense.

Copies of the test certificate, clearly indicating the location of each test, and the laboratory's certificate covering the whole of the area tested, shall be forwarded to Council for approval.

Lot classifications in accordance with AS.2870-1987 (Residential Slab and Footings) will also be required prior to the release of the linen plan.

8.12 **TOP DRESSING OF FILL**

All areas where filling has been placed are to be dressed with clean arable topsoil, fertilised and sown with suitable grasses. Refer to Section 3.8.2.

8.13 **RESTRICTED FILL MATERIALS**

Fill comprising coal chitter or other industrial wastes or by-products will be accepted only in approved locations, and will be subject to specific requirements determined by prevailing conditions.

8.14 **PRIOR APPROVAL OF RESTRICTED FILL MATERIAL**

It is essential that prior advice be given of intended use of such materials. It should be noted that failure to obtain Council's approval may lead to an order for removal of any material considered by Council or other relevant authorities, such as the Environmental Protection Authority, as unsuitable or in any way unfit for filling.

8.15 **RESTORATION OF SURFACES**

8.15.1 *General*

Pavements, lawns and other improved areas shall be thoroughly cleaned and left in a similar order as they were at the commencement of the works.

8.15.2 *Lawns*

Lawns shall be restored with turf cut and set aside from the original surface or with turf imported from a source approved by Council's Engineer.

8.15.3 *Pavements*

Pavements shall be maintained with approved gravel or other suitable material, allowing for consolidation, and shall then be restored to a condition equivalent to that of the original pavement. (Refer to Clause 5.14).

8.15.4 *Trenches*

Backfill shall be placed sufficiently high to compensate for expected settlement and further backfilling shall be carried out or the original backfill trimmed in order that the surface of the completed trench may then conform with the adjacent surface level. Surplus material shall be disposed of to areas approved by Council and arranged by the contractor.

Immediately the backfilling of a trench excavated through a pavement has been completed, the pavement shall be temporarily restored. Where the trench crosses bitumen or concrete pavement, a pre-mixed asphaltic material shall be used for such temporary restoration. Temporary restoration shall be maintained by the contractor until final restoration is carried out. Final restoration of the pavement shall be carried out to restore the pavement and its sub-base to no less than the original condition. Final restoration may include, if required by Council's Engineer, the removal of temporary restoration.

Where, within public or private property, the reasonable convenience of persons will require such, the Council's Engineer may order trenches to be levelled off at the time of backfilling. The area disturbed during construction shall then be topsoiled and seeded, or turfed if required. Any subsequent settlement shall be made good by the Contractor.

Should the contractor elect to tunnel under paving, kerb and gutter or other improved surfaces in lieu of trenching, backfilling shall be carried out so as to restore full support to those surfaces. The contractor shall remain responsible for the repair of the improved surfaces, if subsequent damage occurs due to subsidence of the backfill, until the end of the maintenance period.

8.15.5 Maintenance

All restored surfaces shall be maintained in the condition to which they are restored until the expiry of the maintenance period (refer to Clause 2.22) applicable to those works, notwithstanding that any deterioration of the restored surfaces, and the need for their maintenance, may or may not be due to defects which became apparent or arise from events which occur during the maintenance period.