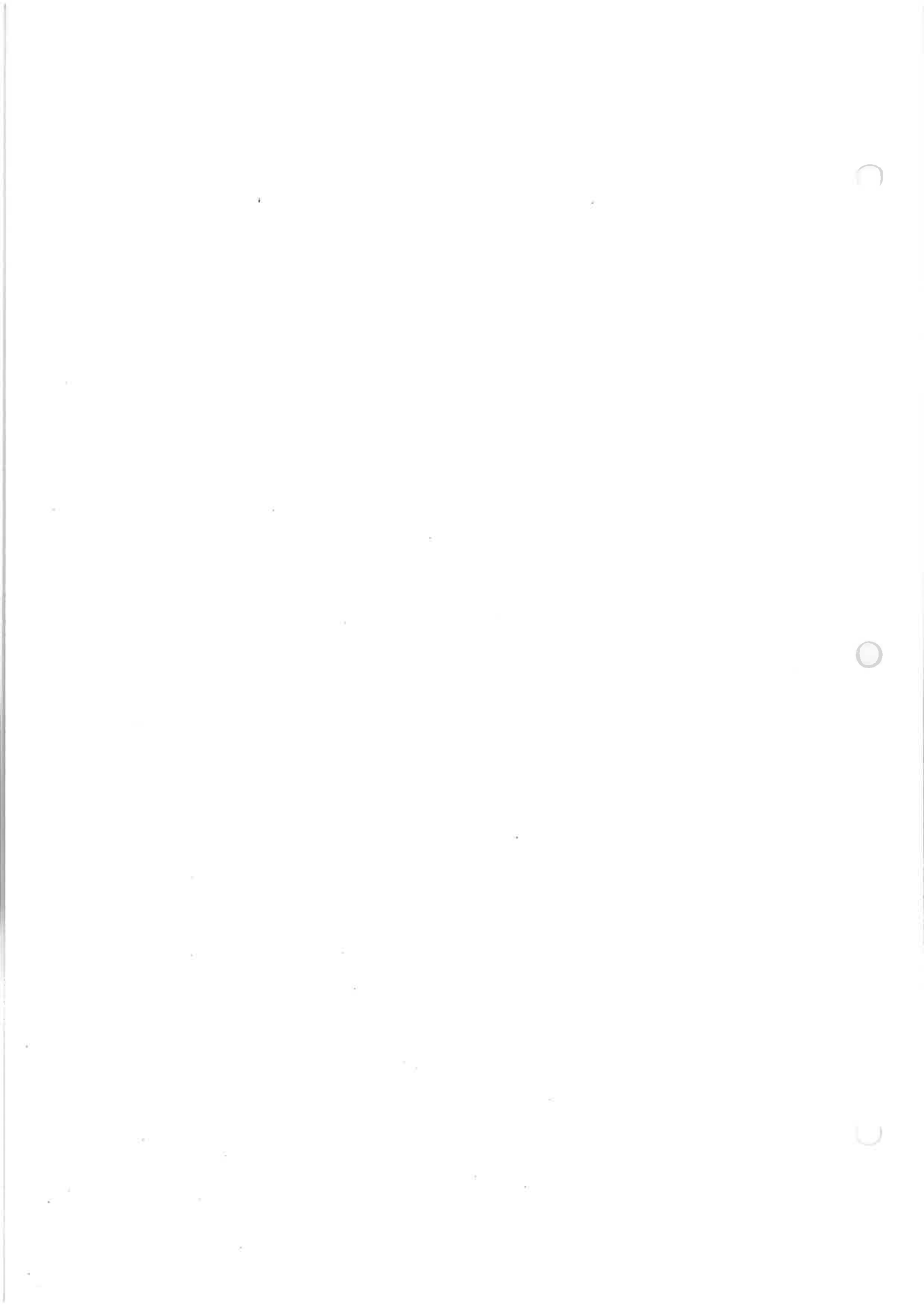


**DEVELOPMENT DESIGN
SPECIFICATION**

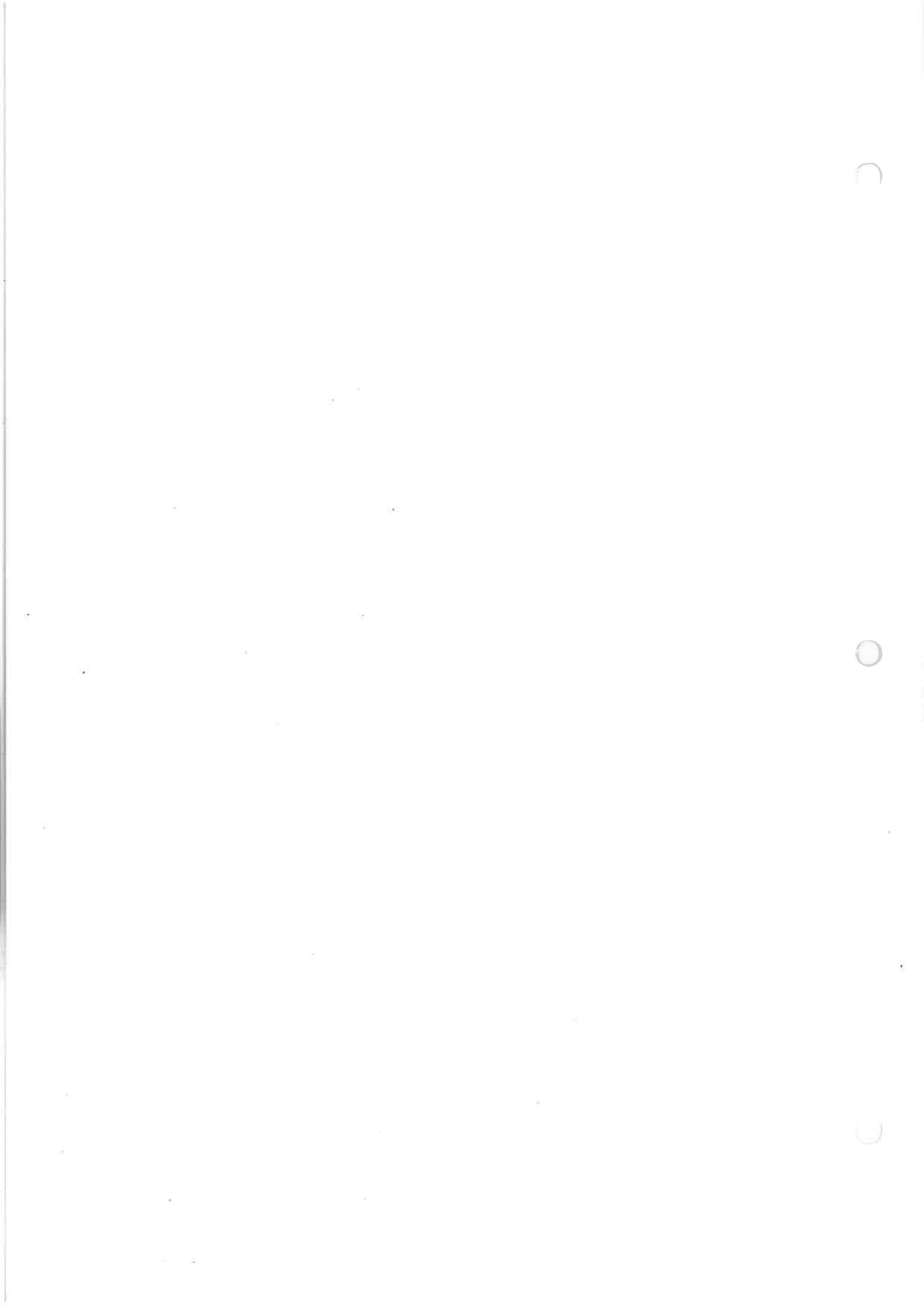
D6

SITE REGRADING



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DEVELOPMENT DESIGN SPECIFICATION D6 SITE REGRADING

GENERAL

D6.01 SCOPE

1. This design specification sets out requirements for the site regrading involved in land development and subdivision. Conceptual requirements are presented as necessary considerations when preparing designs for site regrading.

2. The scope of this specification assumes that the Designer is familiar with requirements cited in the various construction specifications, specifically those related to earthworks, clearing and grubbing, erosion and sedimentation. Additionally the Designer needs to make reference to the associated design specifications related to drainage design, geometric road design and stormwater management and erosion design.

Familiarity with other Specifications Required

D6.02 OBJECTIVES

1. This specification aims to assist the Designer in achieving:

- efficient and economical design
- enhancement of the environmental character of the site whilst maintaining the natural features of the site
- provision of safe construction conditions
- equality of building conditions for residential development
- a minimal impact on adjoining properties and developments.

Efficient

Environmentally Sound

Safe for Construction

Impact on Adjoining Properties

2. To ensure that the ultimate purchaser of land is informed of filling on the site

Purchaser Informed

3. No proposed allotment shall attain a higher risk classification pursuant to AS 2870.1 as a result of the development

Risk Classification

D6.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

Construction Specifications

- | | | |
|------|---|--------------------------------------|
| C211 | - | Control of Erosion and Sedimentation |
| C212 | - | Clearing and Grubbing |
| C213 | - | Earthworks |

Design Specifications

- | | | |
|----|---|--|
| D1 | - | Geometric Road Design |
| D5 | - | Stormwater Drain Design |
| D7 | - | Stormwater Management and Erosion Design |

SITE REGRADING

Development Control Plans

- DCP34 - Managing our Floods
- DCP44 - Requirement for Erection of Buildings
- DCP49 - Waste Management and Minimisation

(b) Australian Standards

- AS 3798 - Guidelines on earthworks for Commercial and Residential Developments
- AS 2870.1 - Residential slabs and footings - Construction.

D6.04 SITE REGRADING CONCEPT

1. Areas of a site proposed for building or recreational purposes may not be suitable in their natural state for their intended function without improvement works to:

- (a) Alleviate flooding of low-lying ground
- (b) Fill gullies or create emergency flowpaths after underground stormwater piping has been installed
- (c) Allow improved runoff from flat ground
- (d) Regrade excessively steep slopes that would preclude economical construction of dwelling foundations
- (e) Stabilise otherwise unstable land
- (e) Allow effective recreational use or give reasonable access

The Designer shall review the natural surface contours and where necessary shall design finished surface levels that ensure the land is suitably prepared

2. Where practical, areas should be regraded to minimise the necessity for underground drainage systems with surface inlet pits, and allow surface water to flow naturally to roads or drainage reserves without excessive concentration.

Drainage

3. The Designer shall consider the implications of site regrading in relation to the existing natural environment. Generally site regrading shall be minimised in heavily treed areas. These areas should be fenced to avoid damage during construction activities.

Natural Environment

4. Care shall be taken to provide depressions for overland flow from low points and over major drainage lines, to direct stormwater for storms up to a 100-year average recurrence interval.

Overland Flow

5. The design of site regrading areas in conjunction with the design of roadworks shall be considered with the objective of **balancing cut to fill** and achieving both an economical development and minimising haulage of imported fill or spoil to and from the development site. Any deviation from a balanced cut to fill design should be clearly shown on the approved plans and approved by Council in writing. Bulk haulage should always be considered to have an adverse effect on adjacent development, and infrastructure and may require a separate development application if classified as an extractive industry.

Balanced cut and fill

6. A Geotechnical Engineer is an Engineer approved by Council for the specific project they are assessing.

D6.05 SPECIAL TREATMENT OF PARTICULAR AREAS

1. Areas abutting flooding or nuisance drainage sites shall be regraded to a minimum level of 0.5 metres above the 1% AEP Flood levels. The site shall be identified on the

Flooding

design plans with appropriate notation of site-specific requirements.

- | | |
|--|---|
| <p>2. In the event that an area is known to be affected by or inundated by local stormwater flows, the Designer shall investigate the existing conditions as they relate to the proposed development and advise the Developer in the preliminary design report on all data obtained in the investigation and recommend appropriate contour adjustments. The report should normally be accompanied by sketch plans to clarify recommendations.</p> | <p><i>Inundation Areas</i></p> |
| <p>3. Site constraints either natural or otherwise may be required to be identified as a burden on developed property. It is recommended that the designer take this into account when preparing the design. The property may ultimately be affected by a "restriction as to user", which shall be controlled by a legal 88B Instrument placed on the title to the land and/or by a Section 149 message advising prospective purchasers of any restrictions affecting the land.</p> | <p><i>Restrictions on Land Use</i></p> |
| <p>4. The finished surface of filled areas shall be designed to levels allowing an adequate cover depth over pipelines (if any) and permitting surface stormwater flow to be guided to inlet pits if depressions are retained in the finished surface contouring.</p> | <p><i>Piped Gullies or Depressions</i></p> |
| <p>5. The location of such features shall be clearly defined on the site regrading plans and defined by distance to corner boundaries, monuments, etc for purposes of relocation at the geotechnical testing stage and for work as executed plans. A geotechnical report specifying the site-specific preparation and compaction requirements will be required to be incorporated with the site-regrading plan. A description of the minimum acceptable quality of the fill shall also be specified on the plans, supported by geotechnical recommendations. All documentation necessary from various authorities to support the filling of dams and watercourses shall be supplied with the design plans.</p> | <p><i>Dams and Water Courses</i></p> |
| <p>6. The finished level of any building area shall be designed to ensure a desirable surface grading of 1.5% (1% minimum) oriented in the direction of the drainage system designed to cater for its catchment.</p> | <p><i>Flat Ground</i></p> |
| <p>7. Building areas containing natural ground slopes of an excessively steep nature, ie greater than 15% shall be brought to the attention of a Geotechnical Engineer for investigation of compatibility with dwelling types proposed. Specific requirements shall be noted on the design plans.</p> | <p><i>Steep Slopes</i></p> |

D6.06 GENERAL STANDARD OF LOT PREPARATION

- | | |
|---|--|
| <p>1. All proposed vegetation removal and management shall be shown on the development application plans. Prior consultation to Councils Tree Preservation Order is necessary in the preparation of plans. Council staff should be contacted to allow clarification of any issues.</p> | <p><i>Clearing</i></p> |
| <p>2. All timber and other materials cleared from lots shall be managed in accordance with the approved Waste Management Plan. All roots, loose timber, etc which may contribute to drain blockage shall be removed. Such proposals shall be shown on the design plan.</p> | <p><i>Disposal</i></p> |
| <p>3. Selected trees shall be preserved by approved means to prevent destruction normally caused by placement of conventional filling or other action within the tree drip zone. Council staff shall be consulted for advice and all specific requirements noted on the design plans.</p> | <p><i>Preservation of Trees</i></p> |

D6.07 STANDARD OF FILL FOR LOTS

1. The following notations are to be incorporated in the design plans:
- "Filling is to be of sound clean material, reasonable standard and free from large rock, stumps, organic matter and other debris."
 - "Placing of fill on the prepared areas shall not commence until the authority to do so has been obtained from the Council."

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|---|------------------------|
| 2. All work shall be in accordance with AS 3798. Fill is to be placed in layers not exceeding 150mm 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. | Fill Quality |
| 3. Imported fill may be accepted by Council only in approved locations and will be subject to specific requirements determined by prevailing conditions. | Restricted Fill |
| 4. 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 as unsuitable or in any way unfit for filling. | Prior Approval |
| 5. All areas where filling has been placed are to be dressed with clean arable topsoil, fertilised and sown with suitable grasses. | Top Dressing |
| 6. Stripping and filling shall be supervised by a Geotechnical Engineer and certified with a lot classification. A "P" classification will not be accepted for any filled sites, nor should any lot be of a lower classification than its pre-development state. | Certification |
| 7. The presence of filling shall be noted on the S.88b instrument | 88b Notation |
| 8. For all subdivisions greater than 3 lots the geotechnical lot classification pursuant to AS 2870 shall be incorporated into an S.88b instrument | 88b Notation |

D6.08 TEMPORARY DIVERSION DRAINS

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|---|----------------|
| 1. Where temporary drains are required to divert surface flows away from the site regrading area, the location and silt/erosion control treatment shall be clearly identified on the engineering plans. The scale of such works shall reflect the volume of water to be diverted. | Erosion |
|---|----------------|

The objective will be to ensure minimal soil disturbances and material loss off the site.

Control measures will include, but not be limited to:

- (a) Provision of trench stops every 30m 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 30m spacings.
- (c) Placement of "blue metal" bags or other approved devices such as socks around downstream drainage pits.

The requirements identified in Council's Specification D7 should be addressed for any additional requirements.

D6.09 NOT USED

D6.10 WORK AS EXECUTED PLANS

1. The Consultant shall annotate on the site-regrading plan, the site-specific detail to be shown on the Work-as-Executed plans. Such detail shall include a geotechnical report certifying the works to be suitable for the intended purpose and any other certifications, testing and survey data, as required in this specification.

D6.11 CARTAGE OF SOIL

- | | |
|--|----------------------------------|
| 1. The Consultant shall refer to Council for acceptable haul roads with applicable load limits. This detail shall be required to be shown on the site-regrading plan. The payment of a Bond may be required by the developer/contractor where Council has some concern | Possible Bond Requirement |
|--|----------------------------------|

about the ability of a haul road to sustain the loads without undue damage or maintenance requirements.

2. Unless specific application is made to Council and approval obtained, the plans will be annotated as follows: **Topsoil**

"All topsoil shall be retained on the development site and utilised effectively to encourage appropriate revegetation."

