District Plan Review

Section 32 Analysis

Earthworks

March 2014

Contents

1. EXECUTIVE SUMMARY

The operative District Plan earthworks provisions were introduced by Variation 8 and made operative in 2005. Issues, one objective and polices were inserted into Section 4 with rules in each zone chapter of the Plan. A monitoring report on the earthworks provisions of the District Plan was prepared in 2012 and identified a number of issues to be addressed through the District Plan review. As part of the simplifying and streamlining of the District Plan, Earthworks provisions are to be a separate District Wide chapter rather than duplicated throughout the Plan.

The principal changes to the District Plan are as follows:

1. A new earthworks section with the issues clearly identified in the purpose. The issues are addressed in seven new objectives and associated policies that are grouped under the following headings:

    - *Earthworks and Environmental Effects*
    - *Landscape and visual amenity*
    - *Land stability and flooding*
    - *Earthworks in Rural areas and Ski Areas*
    - *Water bodies*
    - *Cultural heritage and archaeological sites*
    - *Cleanfill facilities*

2. Revision of the definition of 'earthworks' and inclusion of new definitions for 'cleanfill' and 'cleanfill facilities', 'bulk earthworks' and 'bed' (water bodies).

3. Amendment to the definition of mining to include gravel extraction and processing and exclusion of these activities from earthworks. Exemptions within the section kept to a minimum.

4. Site standards that trigger Controlled, Restricted Discretionary, Discretionary and Non-Complying activity resource consents where thresholds are not met and a more specific non-notification clause.

5. A key site standard is the maximum total volume of earthworks (m^3). Zones have been grouped into seven tiers with increasing maximum volume of earthworks ranging from $100m^3$ to $1000m^3$. The tiers reflect the sensitivity of the receiving environments, scale of development anticipated and the ability to internalise adverse effects on larger sites. The area (m^2) threshold has been deleted in favour of volume only thresholds.

6. The Volume standard works in conjunction with 'Height of cut and fill and slope' and 'Environmental Protection' standards. Specific provisions in relation to water bodies, cultural heritage and archaeological sites are retained with minor modifications.

7. Bulk earthworks in excess of $50,000m^3$ associated with either land-use or subdivision is a Discretionary Activity. Cleanfill facilities are also listed as a Discretionary Activity.

8. Cleanfill material is identified as acceptable only in certain circumstances as part of earthworks or for deposition into cleanfill facilities.

9. A new Subdivision rule is proposed specifying controlled subdivision activity status where subdivision involves earthworks.

10. A small number of zone specific rules have been carried across into the new Section, to ensure a standard approach of removing the earthworks provisions from each separate zone.

The provisions seek to enable earthworks that are a necessary part of subdivision, development and access, provided they are undertaken in a manner that does not adversely affect communities and the natural environment.

2. INTRODUCTION

Section 79 of the Resource Management Act (the Act) requires that a local authority must commence a review of those District Plan provisions which have not been a subject of a plan change during the previous 10 years. To meet this requirement of the Act, Queenstown Lakes District Council (QLDC) has undertaken a review of the Operative Queenstown Lakes District Plan, 2003 (the Operative Plan).

This report is an evaluation of the proposed objectives, policies and methods relating to the management of Earthworks under Section 32 of the RMA.

3. POLICY CONTEXT

3.1 Statutory Policy Context

For the purpose of giving effect to the Resource Management Act (RMA) in its district, territorial authorities' functions under Section 31 of the RMA include:

> *"(a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district"*

The following national and regional policy documents inform the review of earthworks.

3.1.1 National Policy Statement Freshwater Management 2011

The national policy statement for Freshwater Management 2011 sets out objectives and policies that direct local government to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. The national policy statement is a first step to improve freshwater management at a national level. It states:

> *"Fresh water is essential to New Zealand's economic, environmental, cultural and social well-being. Fresh water gives our primary production, tourism, and energy generation sectors their competitive advantage in the global economy. Fresh water is highly valued for its recreational aspects and it underpins important parts of New Zealand's biodiversity and natural heritage. Fresh water has deep cultural meaning to all New Zealanders. Many of New Zealand's lakes, rivers and wetlands are iconic and well known globally for their natural beauty and intrinsic values."*[1]

The Water quality objectives and policies states:

> *"A. Water quality*
> *Objective A1*
> *To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the use and development of land, and of discharges of contaminants.*

[1] National Policy Statement for Freshwater Management 2011, page 3.

C. Integrated Management
Objective C1
To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.

Policy C1
By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.

Policy C2
By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure."[2]

The objectives and policies promote a catchment management approach in managing the interactions between land and water. It emphasises the need for integration between the management of land and water. Regional councils are the lead agencies and should use all functions available in section 30 of the RMA to achieve this. Under the umbrella of Objective C1, improved integrated management of land use, water quality and quantity is expected. It will require integration with territorial authority management of land use. For example, rural activity conversions and residential development or earthworks that may affect freshwater quality. Integration and consistency of approach across different regional and territorial planning instruments and programmes is required.[3]

3.1.2 National Policy Statement on Electricity Transmission (NPS ET)

The Government issued the NPS ET in March 2008. This sets out an objective and policies to enable the provision of and management of the effects of the electricity transmission network under the RMA.

The structure of the District Plan provides a separate chapter relating to Utilities. Utilities cover the activities, structures and buildings relating to the transmission and delivery of electricity within the District (but exclude generation). Issues around Electricity Transmission will be addressed in detail in the Utilities Section review.

3.1.3 The National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health

The National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health came into effect in 2012. The NES overrides District Plan rules relating to the effects of soil contamination on human health. The District Plan cannot generally be more lenient or stringent than the NES unless the terms and conditions deal with effects not covered by the NES (i.e. do not relate to effects to deal with human health).

[2] National Policy Statement for Freshwater Management 2011, page 6 and 10.
[3] MfE Implementation guide NPS for Freshwater Management 2011, page 36.

The provisions of the NES need to be referenced in the Earthworks Section of the District Plan to provide clarity for the community and to ensure the effects of soil contamination are appropriately managed.

3.1.4 Regional Policy Statement (RPS)

The Regional Policy Statement (RPS) for Otago was made operative on 1 October 1998. It has not been reviewed since this time and parts are out of date. The RPS is undergoing review and is expected to be publicly notified in 2014/ 2015. 'Land' 'Water', 'Air' and 'Waste' chapters contain relevant objectives and policies, including:

Chapter 5 Land:

5.4.1 To promote the sustainable management of Otago's land resources in order:

(a) To maintain and enhance the primary productive capacity and life-supporting capacity of land resources; and

(b) To meet the present and reasonably foreseeable needs of Otago's people and communities.

5.4.2 To avoid, remedy or mitigate degradation of Otago's natural and physical resources resulting from activities utilising the land resource.

5.4.3 To protect Otago's outstanding natural features and landscapes from inappropriate subdivision, use and development.

5.4.5 To promote the sustainable management of Otago's mineral resources in order to meet the present and reasonably foreseeable needs of Otago's communities.

5.5.8 To recognise known mineral deposits and to consider the potential for access to those mineral resources to be compromised or removed by other alternative land development.

5.5.1 To recognise and provide for the relationship Kai Tahu have with Otago's land resource through:

(a) Establishing processes that allow the existence of heritage sites, waahi tapu and waahi taoka to be taken into account when considering the subdivision, use and development of Otago's land resources; and

(b) Protecting, where practicable, archaeological sites from disturbance; and

(c) Notifying the appropriate runanga of the disturbance of any archaeological site and avoiding, remedying, or mitigating any effect of further disturbance until consultation with the kaitiaki runanga has occurred.

Chapter 6 Water:

6.4.2 To maintain and enhance the quality of Otago's water resources in order to meet the present and reasonably foreseeable needs of Otago's communities.

6.4.3 To safeguard the life-supporting capacity of Otago's water resources through protecting the quantity and quality of those water resources.

6.4.4 To maintain and enhance the ecological, intrinsic, amenity and cultural values of Otago's water resources.

6.4.5 To avoid, remedy or mitigate degradation of water resources resulting from the use, development or protection of the beds and banks of Otago's water bodies and of adjacent land areas.

6.4.5 To avoid, remedy or mitigate degradation of water resources resulting from the use, development or protection of the beds and banks of Otago's water bodies and of adjacent land areas.

6.4.6 To mitigate the threat of flooding and riverbank erosion resulting from the use, development or protection of Otago's water bodies and lake beds.

6.4.8 To protect areas of natural character, outstanding natural features and landscapes and the associated values of Otago's wetlands, lakes, rivers and their margins.

6.5.8 To allow the extraction of alluvial material from Otago's rivers provided:

(a) The stability of structures, riverbanks and beds within the river system is not reduced; and

(b) The maintenance and, where practicable, enhancement of in stream amenity and habitat values is considered and provided for; and

(c) The adverse effects on water quality are avoided, remedied or mitigated.

6.5.9 To allow for the community's use, development or protection of the beds and banks of Otago's water bodies provided:

(a) Any adverse effects on:

(i) Kai Tahu cultural and spiritual values; or

(ii) The natural character of the water body; or

(iii) Habitats of indigenous fauna; or

(iv) Amenity values; or

(v) Intrinsic values of ecosystems; or

(vi) Salmon or trout habitat; or

(vii) Outstanding natural features or landscapes;

are avoided, remedied or mitigated, and that the life supporting capacity of the water body is maintained and, where practicable, enhanced; while

(b) Considering the maintenance and, where practicable, enhancement of the natural functioning of river systems; and

(c) Considering the need to provide mitigation to lessen the threat posed by flooding and riverbank erosion.

Chapter 7 Air:

7.4.1 To maintain and enhance Otago's existing air quality, including visual appearance and odour.

7.5.2 To avoid, remedy or mitigate any discharges which have adverse effects on the air resource including effects on human health, the environment, visual impacts and odour.

Chapter 13 Wastes and Hazardous Substances:

13.4.1 To protect Otago's communities, environment and natural resources from the adverse effects of the waste stream.

Section 75 (3) requires that the District Plan "give effect to" the Regional Policy Statement.

3.1.5 Regional Plan – Water and Plan Change 6A

The provisions of the Otago Regional Water Plan are relevant to earthworks activities. The Otago Regional Council has released its decision on Plan Change 6A to the RPW and these take effect from 20 April 2013.

The objectives and policies relevant to earthworks activities are detailed below.

Objectives:

7.A.2 To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values.

Policies:

7.B.4 When considering any discharge of water or contaminants to land, have regard to:
- *(a) The ability of the land to assimilate the water or contaminants; and*
- *(b) Any potential soil contamination; and*
- *(c) Any potential land instability; and*
- *(d) Any potential adverse effects on water quality*

7.B.7 Encourage land management practices that reduce the adverse effects of water or contaminants discharged into water.

7.B.8 Encourage adaptive management and innovation that reduces the level of contaminants in discharges.

The rules within the RPW, as modified by decisions on PC 6A, prohibit the discharge of sediment from disturbed land to water in any:

(i) Lake, river or regionally significant wetland; or
(ii) Drain or water race that flows to a lake, river or regionally significant wetland,
where no measure is taken to mitigate sediment runoff.[4]

The permitted activity rule enables the discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water for those activities that passes through the requirements of the prohibited activity rule (above), where:

(a) The discharge does not result in flooding, erosion, land instability or property damage; and
(b) There is no discharge of water from one catchment to water in another catchment; and
(c) The discharge does not change the water level range or hydrological function of any Regionally Significant Wetland; and
(d) Where the discharge first enters water in any lake, river, wetland, or any open drain or water race that flows to a lake, river or wetland, the discharge:
- *(1) From 01 April 2020, does not exceed the relevant limits given in Schedule 16A, when, at the representative flow monitoring site, the water flow is at or below the reference flow indicated in Schedule 16B; and*
- *(2) Does not contain sediment that results in:*

[4] Otago Regional Water Plan, as amended by decisions on Plan Change 6A (20 April 2013), Rule 12.C.0.3, Page 40.

a. A visual change in colour or clarity; or
b. Noticeable local sedimentation, in the receiving water; and

(3) Does not have an odour, oil or grease film, scum or foam; and

(4) Does not have floatable or suspended materials, other than inorganic sediment; and

(e) Any discharge of nitrogen also complies with Rule 12.C.1.3.[5]

Section 75(4) provides that a district plan "must not be inconsistent with" a regional plan.

3.1.6 Regional Plan - Waste

The provisions of the Otago Regional Waste Plan are also relevant to the Earthworks Chapter as there is potential for overlap. Cleanfills (as they are included within Landfill rules) are a Permitted Activity within that Plan but the emphasis of the rule is on discharge of contaminants. At a higher level, Landfill (Cleanfill) is a Discretionary Activity where other effects can be considered, but there is no specific reference to visual effects, stability, future use of the land, and others.

It is the intention of this Plan, only to address the effects of cleanfill facilities (sites) and material that are not covered within the Regional Plans.

From the Waste Plan:

> *7.6.3 Cleanfill landfills (permitted activity)*
> *The discharge of any contaminants into or onto land when occurring as the result of cleanfill landfills is a permitted activity, provided that no sediments enter into any water body.*
>
> *7.6.4 Cleanfill landfills (discretionary activity)*
> *The discharge of any contaminant into or onto land when occurring as the result of a cleanfill landfill which does not comply with Rule 7.6.3, is a discretionary activity.*
>
> *7.6.4.1 Assessment matters*
> *In considering any application under this rule, in addition to the matters listed in Section 104 of the Resource Management Act, the Otago Regional Council will have regard to, but not be restricted by, the following matters:*
> *(a) The location of the cleanfill landfill relative to any water body, and areas prone to erosion, inundation or subsidence, and areas of cultural, conservation or historic significance;*
> *(b) The adverse effects on land, water and air arising from any discharges;*
> *(c) The action that is to be taken to avoid, remedy or mitigate any adverse effects of any discharges; and*
> *(d) The monitoring programme to be implemented.*

[5] Ibid, Rule 12.C.1.1, Page 40.

3.2 Non-statutory Policy Context

3.2.1 QLDC Waste Management and Minimisation Plan 2011

The QLDC Waste Management and Minimisation Plan 2011 – 2017 was adopted by Council in December 2011. The vision of this Waste Management and Minimisation Plan is: "*Towards Zero Waste and a Sustainable District*"[6]. This document presents a new direction for the Queenstown Lakes District in regard to waste management and minimisation over the next 6 years. It supersedes the operative Waste Management Strategy, which was adopted in April 2003.

The Section on Cleanfills states:

> *"Cleanfill management is currently not a Council service and cleanfills are privately owned and operated.*
>
> *A cleanfill is a permitted activity in the Regional Plan: Waste for Otago provided that no sediments enter into any water body and that fill material complies with the cleanfill definition in the Regional Plan. The ORC has obligations with respect to monitoring and enforcing compliance with this rule.*
>
> *Currently, there is no definition for cleanfill in the District Plan and therefore the Council has control over cleanfill activities only as provided for under the earthworks rule.*
>
> *Commercial activities taking place at cleanfills and earthworks over 1,000 m^3 trigger the need for resource consents for cleanfills under the District Plan. There are eighteen cleanfills in the District that are consented under earthworks consents. However, there is the potential for cleanfills in the District that do not require earthworks consents.*
>
> *Issues relating to cleanfill management include:*
>
> - *limited or no monitoring of cleanfills, which means the Council has little or no information about the types and quantities of materials being disposed*
> - *limited or no monitoring of the effects of cleanfills on the environment, which means that the Council has little or no information about loss of material by erosion, damage to water ways, slope failures, cleanfill settlement, any loss of visual amenity, and cleanfill closure and aftercare*
> - *a need to protect land use from loss of opportunity and identify potential hazards that may relate to uncontrolled fill sites*
> - *the need for cleanfill capacity to be available in the District so as to facilitate development*
> - *the consenting process for the establishment and operation of cleanfills not being administered in a consistent way across the District and the risk".*[7]

[6] QLDC Waste Management and Minimisation Plan 2011 – 2017, Page 9.
[7] QLDC Waste Management and Minimisation Plan 2011 – 2017, section 12.2.5, page 31.

BACKGROUND REPORTS AND SUPPORTING INFORMATION:

The following table lists the technical work and reports which have been used to inform the review in relation to Earthworks:

Documents	How have these been used	File Ref.
QLDC - Monitoring Report on the Earthworks Provisions of the District Plan (May 2012)	Identification of Earthworks issues	134
Research Relating to the Management of Earthworks, Report prepared for QLDC by Boffa Miskell Ltd and Vision Planning.	Research that informed the identification of Earthworks issues.	135
National Policy Statement Freshwater Management 2011 (NPS FWM)	Provides a national directive on issue of Freshwater Management. Earthworks have the potential to result in sedimentation of waterways and decrease water quality.	136
MfE Implementation guideline: NPS-FWM.	Provides details of how the NPS FWM should be implemented and regional and territorial responses.	137
The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES CS)	This regulation is applicable to earthworks on sites where a hazardous activity or industry has been, is more likely than not to have been or is currently operating.	138
Otago Regional Council Plan Change 6A, as amended by decisions (20 April 2013).	In response to the NPS-FWM the plan change introduces new objectives, policies and rules in relation to water quality. Includes permitted and prohibited activity rules for discharge of sediment.	139
QLDC - Waste Management and Minimisation Plan 2011 – 2017	Council policy on Waste Management and Cleanfill facilities.	140
MfE - A guide to the management of Cleanfills	Detailed guideline on management of Clean fills.	141
A guide to earthworks in the Queenstown Lakes District, QLDC / Civic Corp.	Background information.	142
Variation 8 Decision	Background to the earthworks provisions that were introduced into the District Plan by variation and made operative in 2005.	143
Consultation brochure on the earthworks provisions	Consultation brochure was sent to all earthworks contractors, planning consultants, the Southern Lakes Contractors Industry Association, inviting feedback on issues and options based on the monitoring report.	144
Feedback received on the consultation brochure on the earthworks provisions	Feedback considered as part of preparing this section 32 report and amendments to plan provisions.	145

NZS 4404:2010, Land Development and Subdivision Infrastructure and NZS 4431:1989 ,Code of Practice for Earth Fill for Residential Development.	These provide industry standard requirements for Earthworks nationally. NZS 4404 has been recently updated.	146
(Otago) Regional Plan: Waste April 1997	Provides Regional control measures for Landfill, including Cleanfill sites and facilities. Contains a partial overlap to the activities subject of this proposed Chapter.	147
KTKO Natural Resource Management Plan 2005	These documents have provided essential background knowledge to establish the importance of possible effects on cultural sites. The overlap of rohe means that both Plans are important.	7
TAMI Ngai Tahu ki Murihiku Natural resource and Environmental Iwi Management Plan 2008		8
The National Policy Statement on Electricity Transmission (March 2008)	Provides national policy guidance on managing the potential impact of activities, including earthworks, on transmission lines.	17
New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34:2001).	Provides detailed rules relating to the proximity and depth of excavations near overhead electric line supports	18

4. CONSULTATION

In accordance with the requirements of the RMA and the processes outlined in District Plan Review Consultation Strategy, extensive consultation has been undertaken with the local community, practitioners, earthwork companies and other key stakeholders. The consultation undertaken is summarised as follows:

(a) Development of a consultation 'brochure' (copy attached),
(b) Public drop in sessions
(c) Workshops

4.1 Historic Places Trust comments on Earthworks Issues and Options

The Otago/Southland branch of the New Zealand Historic Places Trust provided the following comments in response to the issues and options brochure for Earthworks[8].

> *"Below are some suggestions for matters that the NZHPT believes should be considered in relation to the review of the District Plan earthworks provisions. Please note that I have not looked at the earthworks provisions for all zones but have used Section 4.10 and the Rural and Residential zones as a basis for these comments. I also realise that the framework may change with the District Plan review and so please treat these comments as general.*
>
> *Section 4.10.2*
>
> *It would be helpful to include in this section a note about the Historic Places Act so that applicants are aware that there may be another process to complete*

[8] Email from Jane O'Dea | Heritage Advisor (Planning) - Otago/Southland | New Zealand Historic Places Trust, dated 24 August 2012

alongside any resource consent process. As an example section 17.7 of the DCC District Plan contains the following text:

All earthworks must comply with section 10 of the Historic Places Act 1993, which protects recorded, suspected and unrecorded archaeological sites from destruction, damage and modification.

Assessment Matters

It is noted that the assessment matter for impacts of earthworks on sites of cultural heritage value in both the Rural and Residential (see 7.7.2(xxxi) (e) (ii)) zones reads as follows:

Impacts on sites of cultural heritage value:

. . .
(c) Whether the subject land contains a recorded archaeological site, and whether the NZ Historic Places Trust has been notified.

It is considered that the wording of this assessment matter puts the onus for the management of effects on archaeological sites onto the NZHPT via the provisions of the HPA 1993. The Council does have a role to play in terms of section 6(f) of the RMA, as the definition of historic heritage includes archaeological sites. I therefore consider that if this assessment matter is to be retained that it should be amended as follows or similar:

Whether the site contains a recorded or suspected archaeological site, and if so the extent to which the proposal would affect any such site and whether any necessary archaeological authority has been obtained from the NZ Historic Places Trust.

The above approach recognises the Council's responsibilities in terms of s6 (f), as well as that of the NZHPT under the HPA 1993. Furthermore, as the Plan does contain rules pertaining to earthworks affecting ***scheduled*** *archaeological sites, Waahi Tapu and Waahi Taoka, an assessment matter along these lines would also ensure that applicants are aware that not all significant heritage sites are listed in the District Plan heritage schedule or on the NZHPT's register. There are many significant archaeological sites that are neither scheduled, nor registered by the NZHPT.*

It would also be helpful to include an explanation that a recorded archaeological site is a site recorded via the New Zealand Archaeological Association's Site Recording Scheme (called Archsite) and information is available at www.archsite.org.nz. If the Council has access to Archsite then it can easily establish whether a particular property contains a recorded site and this information can be provided directly to the customer at an early stage, for example on a LIM report."

4.2 Oil Companies comments on Managing Earthworks Issues and Options

Z Energy and BP Oil NZ Ltd and Mobile Oil Ltd (the 'Oil Companies) provided detailed comments on the Managing earthworks issues and options paper.

4.3 Iwi Consultation

Consultation with both Te Ao Marama Incorporated (TAMI) and Kai Tahu Ki Otago (KTKO) has been undertaken. TAMI provided written comments which have been substantially included and KTKO expressed more interest in the wider Plan review. Written comments from the latter have been requested.

5. RESOURCE MANAGEMENT ISSUES FOR EARTHWORKS

The resource management issues identified in the Operative District Plan for Earthworks are contained within Appendix 1 to this report, the 2012 Monitoring Report on Earthworks Provisions.

6. PROBLEMS IDENTIFIED WITH THE OPERATION OF THE EARTHWORK PROVISIONS IN THE OPERATIVE DISTRICT PLAN

Monitoring Report on the Earthwork Provisions of the District Plan (May 2012) identifies 16 issues. Of these, 15 (excluding item 12) have formed the basis for this Section 32 analysis:

1. Wording of objectives and policies

The monitoring report identifies a number of problems with the wording of the objectives and policies. In particular the objectives all start with "to avoid, remedy or mitigate" which is three objectives in one.

2. 7m setback distance for earthworks near water bodies

The ORC noted that when they submitted on Variation 8 in relation to the proximity of works to a water body, the intent was that the setback rule was 7m from the top of the *bank* of a water body, as this is what is used in the Regional Plan: Water. However the drafting of the rule does not reflect that, it states *"within 7m of a water body".* Lakes Environmental had interpreted this as being 7m from the edge of the actual water course. This is an inconsistency between the Regional Plan: Water, and the District Plan.

3. No distinction between earthworks and cleanfills / gravel processing

The earthworks rules do not distinguish between earthworks associated with construction of a building, and other quite distinct activities such as cleanfilling and gravel extraction. Most applications for earthworks are associated with construction or landscaping of a new building. Once complete, the new building and landscaping effectively mitigates the effect of the earthworks. Some of the more controversial applications for earthworks have involved the deposition of large volumes of cleanfill or gravel extraction. While low in number, these applications have often been publicly notified and present quite different issues. There are also no objectives or policies relating to cleanfill or gravel processing. Consideration could be given to whether 'clean filling' or 'gravel processing' requires specific objectives and policies, and / or a separate consent category.

4. Gravel extraction and the definition of mining

Related to the above, the definition of 'mining' in the district plan is:

MINING: Means the use of land and buildings for the primary purpose of the extraction, winning, quarrying, excavation, taking and associated processing of minerals and includes prospecting and exploration.
The definition of 'earthworks' is:

EARTHWORKS: Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pits and the erection of posts or poles or the planting of trees.

Confusion has arisen with regard to gravel extraction activities, and whether this is 'mining' or 'earthworks'. The two definitions need to be reviewed to clarify what category gravel extraction falls into.

5. No link in rules to site slope

Issues such as sediment runoff are intimately related to the slope of the site, although there are exceptions where solid rock is involved. However there is no link in the earthworks rules to site slope. Consequently flat residential locations like Lake Hayes Estate are sometimes triggering the need for an earthworks consent where there may not be any environmental effects if the Environmental Protection Measures (for dust and runoff) are implemented. A trigger for site slope (>18.5 degrees, 1 in 3) is already present in the assessment matters in relation to when a geotechnical report is required. A trigger for earthworks could potentially be used to avoid flat sites zoned for development needing an earthworks consent.

6. The area (m^2) limit for urban zones

Related to the above, the area limit on earthworks in most urban zones is 200m^2. The small study of 5 other district plans with similar topography and rainfall to the Queenstown Lakes District, indicated that no other Council had an *area* limit (m^2) for earthworks, just *volume* limits (m^3). If the purpose of area limit (m^2) rule is to control dust, this should be controlled in any event under the Environmental Protection Measures. The area limit (m^2) is somewhat curious, as earthworks less than 0.5m in depth are excluded in residential zones. In other words, it would be impossible for an earthworks consent to be required just on the basis of *area*, simply because if you are exceeding 200m^2 at an average depth greater than 0.5m, that already totals 100m^3, which is the trigger for the volume limit before an earthworks consent is required. As the area of earthworks (m^2) is intimately linked to the volume (m^3), consideration could be given as to whether the area rule is necessary.

7. Earthworks in the Gibbston Character Zone

The earthworks rule for the Gibbston Character zone is unusual in that the Environmental Protection Measures are not listed, and the range of exceptions listed for the Rural General zone, are not included. This should be considered as part of the District Plan review.

8. Farm tracks and fire breaks

The earthworks rules exclude *"routine repair and maintenance of operational tracks"*. Feedback from Federated Farmers supported this current exemption, but noted that what is 'routine' is often debateable, and it is unclear if this includes minor upgrading of a track. Federated Farmers would also prefer to see a non-notification provision for farm tracks, but recognise they can be sensitive activities in the Queenstown Lakes

district landscape. Lakes Environmental noted that on occasion, this rule has been 'stretched' to widen farm tracks, which are then used as the basis of a road for subdivision. This is a difficult issue to resolve as it is important for the farming community to enable the genuine repair and maintenance of farm tracks for farming activities. Federated Farmers also noted that constructing firebreaks often requires earthworks. This could be considered for inclusion as an exemption to the definition of earthworks.

9. Link to subdivision rules

Lakes Environmental have noted that while it appears that earthworks associated with subdivision are exempt from the site standard rules for earthworks (and this was likely the intention of Variation 8), the wording of Section 15 (subdivision) does not in fact provide that exemption. As a result, where earthworks are associated with a subdivision and have not been approved by separate land use consent, they are subject to the site standard provisions for earthworks. This means that a subdivision that was otherwise a controlled activity is assessed as a restricted discretionary activity, with discretion reserved over earthworks. This requires further consideration. A memorandum from Lakes Environmental is available on this topic.

10. Link to hazards information

The objectives and policies refer to avoiding, remedying or mitigating the adverse effects of earthworks on land stability and flood potential of the site and neighbouring properties. However, there is no direct link in the District Plan to the hazard information held by Council. This information can be referred to once the area / volume limits are triggered and consent is required, however consideration should be given to whether it is an issue that the small amount of permitted earthworks could occur in unstable or flood prone areas.

11. Earthworks associated with constructing fence lines

As noted in the boxed case study in the monitoring report, the High Court overturned a decision on the Environment Court relating to earthworks associated with the construction of a fence line on Mt Dewar Station. Consideration needs to be given to revising the Earthworks definition in light of this decision. Due to the vagueness of the terms 'reasonably necessary' and 'minimum disturbance', this will be challenging in terms of a definition that can be monitored and enforced.

13. Archaeological sites rule

The standard rule for the protection of archaeological sites, waahi tapu and waahi taoka is only triggered if the site that is being 'modified, damaged or destroyed' is listed in Appendix 3 of the District Plan. This appendix contains only 14 entries of major archaeological sites. There is no district plan protection for archaeological sites not listed, but permission would still be required under the Historic Places Act. Text could be added to the district plan to remind readers of the requirements under the Historic Places Act. Appendix 3 will be updated as part of the District Plan review.

14. Link to Heritage landscapes

Related to the above, the earthworks rules do not link to the identified Heritage Landscapes shown in Appendix 10. On a few occasions, the identified Heritage Landscapes have not been considered at the time of earthworks consent.

15. Exclusion of Ski Area Sub-Zones from the earthworks rules

The Ski Area Sub-Zones are exempt from the normal earthworks rules in the Rural General zone. On one hand, this permissive regime has been adopted to enable the development of the ski fields, recognising their importance in contributing to the social and economic well-being of the community. On the other hand, this approach appears inconsistent with other earthworks rules in the District Plan, where volumes as small as $100m^3$ require resource consent, even on flat land zoned for development. Earthworks in steep, elevated locations such as the Ski Area Sub-Zones do have the potential to have environmental effects, and it takes a long time for vegetation to re-establish. Consideration could be given to applying some or all of the Environmental Protection Measures to earthworks in the Ski Area sub-Zones, so that as a minimum, erosion and sediment controls are implemented. Alternatively, an approach adopted elsewhere through the District Plan Review, is to permit earthworks that have been consented to by the Department of Conservation, to avoid duplication in process.

16. Unfinished earthworks

A recurring issue is the visual impact of unfinished earthworks arising from a construction project not being fully completed. Well-known local examples are at 5 Mile and Kawarau Falls Station. Bonds can be taken at the time of earthworks consent, and the assessment matters could be strengthened to specifically mention the consideration of a bond when earthworks over a certain scale are proposed. The key would be ensuring smaller scale earthworks are not captured.

7. EVALUATION

7.1 Appropriateness of Objectives to achieve purpose of RMA

7.1.1 Earthworks

A following group of six objectives (and associated policies) seek to address the sustainable management of earthworks:

Objective 1: Earthworks and Environmental Effects

To enable earthworks that are a necessary part of subdivision, development, and access, provided that they are undertaken in a manner that avoids adverse effects on communities and the natural environment.

Objective 2: Landscape and Visual Amenity values

To protect landscape and visual amenity values from the adverse effects of earthworks

Objective 3: Land stability and flooding

To ensure earthworks do not impact on the stability of adjoining land, adjoining sites or exacerbate flooding.

Objective 4 Earthworks in Rural Areas and Ski Area Subzones

Subject to Objective 2, to enable earthworks that improves efficiency of farming operations, health and safety and public recreation values.

Objective 5 Water bodies

Earthworks that do not adversely affect the water quality of the District's rivers, lakes and aquifers.

Objective 6 Cultural Heritage and Archaeological Sites

To protect cultural heritage, including waahi tapu and waahi taoka and archaeological sites from the adverse effects of earthworks.

RMA Provision	**Evaluation**
Section 5(2)(a)	Objective 2 seeks to protect landscape and visual amenity values from the adverse effects of earthworks, thereby sustaining them to meet the reasonably foreseeable needs of future generations.
Section 5(2)(b)	Objective 5, addresses freshwater quality of our rivers, lakes and aquifers, as directed by the "National Policy Statement Freshwater Management (2011)". Maintaining and enhancing water quality is an important step toward safeguarding the life supporting capacity of water and ecosystems.
Section 5(2)(c)	Objectives 1 to 6 (and associated policies) address the adverse effects of earthwork activities. Objective 1 seeks to enable earthworks provided they are undertaken in a manner that does not adversely affect communities and the natural environment. Without effective environmental protection measures, including sediment and erosion control, dust, storm water, noise, vibration and traffic management, earthworks have the potential to give rise to significant adverse effects. Earthworks need to be designed to be sympathetic to natural topography and take into account the receiving environment. Sensitive areas include steep sites, visually prominent slopes, natural landforms, ridgelines, lakes, rivers and aquifers. Objective 2 seeks to protect landscape and visual amenity values from the adverse effects of earthworks. Inappropriate earthworks can threaten the openness and naturalness of Outstanding Natural Features and Outstanding Natural Landscapes. Objective 3 seeks to ensure earthworks do not impact on land stability or exacerbate flooding. Objective 5 – in order to maintain or enhance water quality sedimentation effects of earthworks need to be avoided. This can be achieved in many instances through use of environmental protection measures. Objective 6 seeks to protect cultural heritage sites, including waahi tapu and waahi taoka, and archaeological sites from the

	adverse effects of earthworks.
Social wellbeing	Subdivision, development and access are essential to the social wellbeing of our community. Objective 1 seeks to provide for earthworks that are a necessary part of development.
Economic wellbeing	Subdivision, development and access are essential to the economic wellbeing of our community. Objective 1 seeks to provide for earthworks that are a necessary part of development. Objective 4 Earthworks in Rural Areas and Ski Area Subzones, subject to objective 2, seeks to enable earthworks that improve the efficiency of farming operations, and public recreation values. This acknowledges the important part farming, public recreation and tourism has on the economic wellbeing of our community.
Cultural wellbeing	Objective 6 specifically addresses cultural heritage and archaeological sites.
Health and safety	Subdivision engineering standards and the Building Act are the primary health and safety controls. Health and safety is implicitly addressed in Objective 1 and Objective 3. Application of appropriate engineering standards and good practice on site is critical to ensuring health and safety. Objective 4 explicitly refers to health and safely in the context of earthworks in the rural areas and Ski Area subzones.
Section 6	*S6(a) the preservation of the natural character of wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:* Lakes, rivers and margins form part of the landscapes and visual amenity values that Objective 2 seeks to protect. In addition Lake Wakatipu, Lake Wanaka, Lake Hawea and the Clutha river are identified as Statutory Acknowledgement areas and under Objective 6 earthworks within or adjacent to these areas are specifically addressed. *S6(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:* Inappropriate earthworks can threaten the openness and naturalness of Outstanding Natural Features and Outstanding Natural landscapes. Objective 2 seeks to protect landscape and visual amenity values from the adverse effects of earthworks. *S6(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:* This issue is addressed in the objective and policies of Part 4 District Wide and Part 5 Rural and is not duplicated in this chapter.

	S6(d) the maintenance and enhancement of public access to and along the lakes, and rivers: Earthworks associated with maintenance and enhancement of public access to and along lakes and rivers is provided for subject to the environmental standards in Objectives 1 to 6 being met. *S6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:* These matters are addressed comprehensively in Part 4, District Wide Objectives and policies. Objective 6 specifically addresses the adverse effects of earthworks on cultural heritage and archaeological sites. *S6(f) the protection of historic heritage from inappropriate subdivision, use, and development* Objective 6 seeks to protect cultural heritage and archaeological sites from the adverse effects of earthworks.
Section 7	*S7(a) kaitiakitanga* *S7(aa) the ethic of stewardship:* These matters are addressed in Part 4, District Wide objectives and policies. *S7(b) the efficient use and development of natural and physical resources* Earthworks are an integral part of the efficient use and development of land and objective 1 seeks to enable earthworks that are a necessary part of subdivision, development and access. Objective 4 Earthworks in Rural Areas, subject to Objective 2, seek to enable earthworks that improve the efficiency of farming operations, the use and development of public recreation trails and Ski Areas. *S7(c) the maintenance and enhancement of amenity values* *S7(f) maintenance and enhancement of the quality of the environment* Objective 1 addresses effects on amenity values and Objective 2 addresses landscape and visual amenity values. Objective 5 seeks to maintain or improve water quality of rivers lakes and aquifers which is an important part of the quality of the environment in this District. *S7(g) any finite characteristics of natural and physical resources*

	Mining and aggregate extraction and processing have been specifically excluded from the earthworks chapter. Mining is specifically addressed in the objective and policies of Part 4 District Wide and Part 5 Rural and is not duplicated in this chapter. *S7(h) the protection of the habitat of trout and salmon:* The habitat of trout and salmon is implicitly addressed by Objective 5 which seeks to maintain or improve water quality of rivers and lakes. *S7ba the efficiency of the end use of energy* *S7(i) the effects of climate change* *S&(j) the benefits to be derived from the use and development of renewable energy* These matters are implicitly addressed in Objective 1 (and associated policies), in particular the design of earthworks.

7.1.2 Cleanfill Facilities

A new objective and associated policies are proposed to address cleanfill facilities.

Cleanfills have been included within the earthworks section as a distinct activity. By definition cleanfill is "inert" material and compared to landfills generate significantly less environmental impact. The Council's Waste Management and Minimisation Plan identifies the need for cleanfill capacity to be available in the District so as to facilitate development. Cleanfill management is currently not a Council service and cleanfills are privately owned and operated. Criteria limiting the waste that can be accepted provide the primary environmental control for a cleanfill. Waste acceptance must be monitored and the criteria enforced during the operational period of the cleanfill for these environmental controls to be effective.

Objective 7 Cleanfill Facilities

To provide for cleanfill capacity and to promote diversion of cleanfill material from landfills

Policies:

7.1 To ensure materials for deposition at cleanfill facilities meet acceptance criteria.

7.2 When considering the location of new cleanfill facilities, the following matters shall be taken into account:

- *Suitability of the site in terms of topography and landform*
- *Suitability of the site in terms of adverse effects on landscape and visual amenity values*
- *The stability of the site*
- *Accessibility and whether the location minimises travel distance from the main source/s of materials*
- *The option/s provided for long term use,*

and in addition sites shall:

- *Avoid significant water bodies,*
- *Avoid sites of cultural heritage or archaeological significance.*

7.3 To ensure cleanfill facilities avoid or mitigate the adverse effects of dust, noise and traffic on neighbours and residential areas.

7.4 To ensure cleanfill sites are rehabilitated and remedial restoration works carried out in a timely manner.

RMA Provision	**Evaluation**
Section 5(2)(a)	Landfills have limited capacity to provide for the reasonably foreseeable needs of future generations. Diversion of cleanfill material is provided for by Objective 7, and is more sustainable alternative.
Section 5(2)(b)	Ensuring materials accepted at cleanfill sites are inert and meet waste acceptance criteria is critical part of ensuring the life-supporting capacity of air, water, soil and ecosystems are safeguarded.
Section 5(2)(c)	Policies 7.1 to 7.4 address the potential adverse effects of cleanfill facilities. Issues include ensuring materials accepted are inert, suitability of new cleanfill facility sites, ensuring adverse effects of dust, noise and traffic on neighbours and residential areas are avoided or mitigated and rehabilitation and remedial restoration works.
Social , economic wellbeing and cultural wellbeing Health and safety	The provision of waste services is critical to the social, economic wellbeing and health and safety of the community. Policy 7.2 specifies the location of new cleanfill facilities shall avoid sites of cultural heritage or archaeological significance. Site stability, dust, noise and traffic effects on neighbours and residential areas can give rise to health and safety issues. These are explicitly addressed in Policy 7.2 and 7.3.
Section 6	*S6(a) the preservation of the natural character of wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:* Policy 7.2 directs the location of new cleanfill facilities to avoid significant water bodies. *S6(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:* Policy 7.2 directs the location of new cleanfill facilities to take into account landscape and visual amenity values. This policy should be read in conjunction with Section 4 landscape objectives and policies.

	S6(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna: This issue is addressed in the objective and policies of Section 4 District Wide and Section 5 Rural and is not duplicated in this chapter. *S6(d) the maintenance and enhancement of public access to and along the lakes, and rivers:* As policy 7.2 directs the location of new cleanfill facilities to avoid significant water bodies and are unlikely to impact on public access to and along lakes and rivers. *S6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:* *S6(f) the protection of historic heritage from inappropriate subdivision, use, and development* These matters are addressed comprehensively in Section 4, District Wide objectives and policies. Policy 7.2 directs the location of new cleanfill sites to avoid sites of cultural heritage and archaeological significance.
Section 7	*S7(a) kaitiakitanga* *S7(aa) the ethic of stewardship:* These matters are addressed in Section 4, District Wide objectives and policies. *S7(b) the efficient use and development of natural and physical resources* The Council's Waste Management and Minimisation Plan identifies the need for cleanfill capacity to be available in the District so as to facilitate development. Cleanfill management is currently not a Council service and cleanfills are privately owned and operated. Objective 7 seeks to provide for cleanfill capacity and promote diversion of cleanfill material from landfills. Objective 7 promotes an efficient use and development of natural and physical resources. *S7(c) the maintenance and enhancement of amenity values* *S7(f) maintenance and enhancement of the quality of the environment* Criteria in Policy 7.2 siting new cleanfill facilities - seeks to ensure the maintenance and enhance of amenity values. Rehabilitation and remedial works at the end of a cleanfill facilities life, as promoted by Policy 7.4 can be used to enhance the quality of the environment.

	S7(g) any finite characteristics of natural and physical resources Landfills are designed with a finite capacity. Policy 7 promotes diverting cleanfill material from landfills. *S7(h) the protection of the habitat of trout and salmon:* Policy 6.2 directs new cleanfill facilities to avoid significant water bodies which correspond to the habitat of trout and salmon. *S7ba the efficiency of the end use of energy* *S7(i) the effects of climate change* *S&(j) the benefits to be derived from the use and development of renewable energy* Landfills give off gases and have implications for climate change. Objective 7 promotes removing cleanfill from this waste stream and is a more sustainable alternative.

7.2 Identification of Other Reasonably Practical Options

In determining the most appropriate way to achieve the objectives identified above the following were considered reasonably practical options.

7.2.1 Option 1: Status quo / No change

Retain the operative earthworks provisions and re-notifying as part of the District Plan review. Use submissions as a means of determining issues with current provisions and react accordingly. Under this option the earthworks rules and assessment matters would be retained in each Chapter.

7.2.2 Option 2: Retain and Improve / New District Wide Chapter.

Retain the majority of the earthworks provisions but amend where appropriate to address the 15 key issues identified in the Monitoring Report. Incorporate changes to address new central government policy. Under this option the provisions would be consolidated into a new District Wide Chapter to avoid duplication and streamline the plan.

7.2.3 Option 3: Comprehensive Review

Comprehensively review all earthworks provisions across all zones in the district plan. The costs and benefits of these different options have been assessed as follows:

	Option 1: No Change	Option 2: Retain and Improve / New District Wide Chapter	Option 3: Comprehensive Review
Costs	The monitoring report identifies a number of costs associated with the existing provisions, including the triggering of a high number resource consent applications and administrative uncertainty due to interpretation issues. This option fails to address new Central Government policy direction to simplify and streamline Resource Management Act processes.	Cost of the District Plan review process on the community.	This option requires more resources, including technical input (and better links to Hazard mapping). Higher cost of the District Plan review process on the community.
Benefits	The earthworks provisions were introduced into the Plan by variation, (operative 2005). The variation involved a comprehensive review of the issues. The status quo would avoid the Council needing to spend further resources on an issue that has relatively recently been through the planning process.	Targeted improvement of the provisions to address specific issues identified in monitoring report in the eight years since the provisions were made operative. Provides opportunity for the Council to address new Central Government Policy in the Plan. Creating a new District Wide Earthworks chapter will remove repetition in the plan and make the document more streamlined.	A more comprehensive review with better quality information, including technical input, would enable the rules to be more refined. Better quality information may reduce the number of resource consent triggers. Would enable a review of the provisions to address new Central Government Policy.
Ranking	**3**	**1**	**2**

The approach that is most effective and efficient is Option 2: Retain and Improve / new district wide chapter. The monitoring that has been undertaken shows that the majority of the objectives, policies and rules are effective, but that a number of changes could be made to address issues identified in monitoring and to better achieve the purpose of the Act.

The principal aims of the District Plan review is to simplify the plan where appropriate and to provide greater clarity and certainty around development matters in the District. It is anticipated that this will remove some of the uncertainties that can restrict potential economic growth and associated employment provision.

In accordance with these aims and based on the assessment above, Option 2 is considered the most practicable option.

7.3 Assessment of Provisions (Policies, Rules and other methods)

It has been established that the Objectives are the most appropriate way of achieving the purpose of the Act. This section will consider whether, having regard to their efficiency and effectiveness, the proposed Policies are the most appropriate way to achieve the Objectives. The Policies may relate to more than one Objective.

The following table provides an assessment and summary of the reasons for deciding on the policies.

(a) The assessment of the efficiency and effectiveness of provisions is based on the assessment of costs and benefits, risk and any other relevant matter identified.
(b) The assessment of relevant benefits and costs is undertaken in terms of environmental, economic, social and cultural matters. This will include opportunities for economic growth that are anticipated to cease to be available and employment anticipated to be provided or lost where relevant. If practical the benefits and costs will be quantified.
(c) The assessment of the risk of acting or not acting will only be undertaken if there is uncertain or insufficient information about the subject matter or provisions.

Policies for achieving Objective 1 - Earthworks and Environmental Effects

To enable earthworks that are a necessary part of subdivision, development, and access, provided that they are undertaken in a manner that avoids adverse effects on communities and the natural environment.

1.1 To promote earthworks designed to be sympathetic to natural topography, and that provide safe and stable building sites and access with suitable gradients.

1.2 To use environmental protection measures to avoid adverse effects of earthworks, including:

- Sediment run-off erosion control techniques
- Dust control measures to avoid nuisance effects of dust beyond the boundary of the site
- Management of storm water and overland flows
- Management of construction noise and vibration effects
- Limits on the duration of construction taking into account the receiving environment
- Traffic management and implementation of techniques to avoid the depositing of sediment onto roads, particularly where access is gained through residential areas.

1.3 To promote use of engineering standards and good practice on site.

1.4 To require remedial works and re-vegetation to be implemented in a timely manner.

1.5 To avoid the long term adverse effects of unfinished projects.

Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Policy 1.1 - good design is	The benefits for the community	There is potential for resource	There is no uncertainty or

efficient and effective, and promoting this through Policy 1.1 is an appropriate way of achieving Objective 1. Policy 1.2 – environmental protection measures have been shown to be an important part of the effectiveness of the existing earthwork provisions (refer monitoring report, 2011). Environmental protection measures as identified in Policy 1.2 can be used to efficiently and effectively avoid, and mitigate, the adverse effects of earthworks. Policy 1.3 - application of engineering standards, such as NZS4404 for subdivision, can provide robust solutions. Good practice on site can be promoted through use of the earthworks guidelines. Policy 1.4 in order for remedial works and revegetation to be effective they need to be implemented in a timely manner. Policy 1.5 is a new policy introduced to specify address the	include: · Good design that is sympathetic to natural topography; · Provision of safe and stable building sites · Access with suitable gradients · mitigation of adverse effects through use of environmental protection measures, particularly during construction phase · good on site practice · Appropriately engineered works · Timely remedial works and revegetation Policy 1.5 - avoiding future "hole in the ground" scenarios is important to the community. Unfinished developments detract from the visual amenity that is an important part of the tourism based economy of our district.	consent costs and high monitoring costs. The monitoring report highlights the low level of compliance with Environmental Protection measures. Policy 1.5 – to avoid will require a more rigorous resource consent process and associated costs, including use of legal instruments.	insufficient information regarding Policies 1.1 – 1.5.

issue of unfinished projects. Examples in the District include Frankton Flats and Kawarau Falls Station where building development has been on hold leaving unfinished large scale earthworks with associated long term adverse effects. The policy seeks to avoid the long term adverse effects of unfinished earthworks.			
Policies for achieving Objective 2 - Landscape and Visual Amenity values To protect landscape and visual amenity values from the adverse effects of earthworks			
2.1 To avoid adverse effects of earthworks on Outstanding Natural Features and Outstanding Natural Landscapes. 2.2 To avoid adverse visual effects of earthworks on visually prominent slopes, natural landforms and ridgelines. 2.3 To ensure cuts and batters are sympathetic to the line and form of the landscape. 2.4 To ensure remedial works and re-vegetation mitigation are effective, taking into account altitude and the alpine environment.			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Policy 2.1 – aims to protect outstanding natural features and outstanding natural landscapes from inappropriate earthwork activities.	Policy 2.1 – the amenity of outstanding natural features and outstanding natural landscapes are an important part of our District and tourism based economy.	Policy 2.1 – the cost of not protecting our Outstanding Natural Features and Outstanding Natural Landscapes is potentially very high, taking into account the importance of tourism to our local	There is no uncertainty or insufficient information regarding Policies 2.1 – 2.4

Policy 2.2 and 2.3 - to more specifically implement Objective 2, the policies identify areas that are particularly sensitive to the adverse visual effects of earthworks Policy 2.4 – In order for remedial works and revegetation to be effective the altitude and alpine environment needs to be taken into account.	Policy 2.2 and 2.3 will avoid scarring landscapes that form an important backdrop to our tourism industry. Policy 2.4 – promotes effective revegetation though use of the right species for the environment.	economy. Policy 2.2 and 2.3 - alternative routes that are less visually prominent may potentially be more costly to construct. Policy 2.4 – cost of implementing revegetation plans can be high along with their ongoing maintenance.	

Policies for achieving Objective 3 – Land stability and flooding

To ensure earthworks do not impact on the land stability of adjoining sites or exacerbate flooding.

3.1 To ensure earthworks, in particular cut, fill and retaining do not impact on the stability of adjoining sites and are undertaken in accordance with appropriate engineering standards.

3.2 To ensure earthworks do not cause or exacerbate flooding and avoid de-watering.

3.3 To avoid earthworks including tracking on steeply sloping sites and land prone to erosion or instability. Where this cannot be avoided, to ensure techniques are adopted that minimise the potential to decrease land stability.

Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Policy 3.1 addresses Objective 3 by ensuring cut, fill and retaining do not impact on the stability of adjoining sites by undertaking in accordance with appropriate engineering standards.	Certainty for neighbours that their property will not be inundated or collapse. Use of Engineering standards provides certainty to both	There is a high economic cost if earthworks cause instability that damages property or flooding is exacerbated.	The Hazards Chapter of the Plan addresses Natural Hazards. As these areas are not being mapped as part of the District Plan review there is insufficient information to link between

Engineering standards will likely change over the life of the District Plan therefore specific references have not been included. Policy 3.2 – Earthworks may cause or exacerbate flooding by altering the natural profile of landforms, including the modification of stormwater run-off channels and catchment topography. They have the potential to cause downstream flooding and inundation. Further, by placing impervious structures beneath ground level, the potential for flooding is increased through the process of 'de-watering'. Policy 3.3 has been retained from the Operative District Plan and remains an appropriate policy.	applicants and neighbours. Certainty for neighbours and the Council that their property will not be flooded.		earthworks and areas subject to natural hazard.

Policies for achieving Objective 4 – Earthworks in Rural Areas and Ski Area Sub-Zones

Subject to Objective 2, to enable earthworks that improves efficiency of farming operations, health and safety and public recreation values.

4.1 To provide for earthworks associated with farming activities where they enhance the efficiency of the operation including the maintenance and improvement of track access and fencing.

4.2 To provide for earthworks to create fire breaks.

4.3 To provide for earthworks associated with public recreation trails.

4.4 To provide for earthworks that provide for the growth, development and consolidation of ski fields within Ski Area Sub-Zones.

Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
These policies seek to enable specific types of earthworks that have social and economic benefits. Objective 4 is subject to Objective 2, thereby putting in place an environmental proviso.	Policy 4.1 – farming is an important part of the Districts economy. Policy 4.2 – firebreaks provide for health and safety of the community. Policy 4.3 – public recreation trails have social and economic benefits. Policy 4.4 – ski fields are an important part of our tourism industry, winter employer and provide for social and economic benefits Earthworks on ski fields can also improve safety of trails.	Potential environmental cost of earthworks associated with farming activities, firebreaks and public recreation trails and ski areas being visible in the landscape.	There is no uncertainty or insufficient information regarding Policies 4.1 – 4.4.

Policies for achieving Objective 5 – Water bodies To maintain or improve water quality of rivers, lakes and aquifers			
5.1 To avoid sediment run-off into water bodies through the adoption of sediment control techniques. 5.2 To avoid the location of earthworks in close proximity to water bodies. Where this cannot be avoided, to ensure that sediment control techniques are put in place to avoid sediment run-off. 5.3 To avoid earthworks contaminating water aquifers, including Hawea Basin, Wanaka Basin Cardrona alluvial ribbon and Wakatipu Basin aquifers.			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
The National Policy Statement Freshwater Quality (2011) sets out objectives and policies that direct local government to manage water in an integrated and sustainable way. This includes improved integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land and associated ecosystems. Objective 5 reflects this directive that the overall quality of fresh water quality shall be maintained or improved.	There are health, social, economic and cultural benefits of maintaining and improving water quality in the Districts streams rivers and aquifers.	The policy sets a high threshold for sediment control techniques which will potentially increase project costs.	There is no uncertainty or insufficient information regarding Policies 5.1 – 5.5. The Option to rely on the ORC Water Plan was rejected in favour of addressing the sediment issues at source and in conjunction with the activity generating the effects. Plan Change 6A proposes a permitted / prohibited status for sediment discharge.

Policy 5.1 - sediment run-off from earthworks has potential to contaminate fresh water. To maintain or improve freshwater quality as set out in Objective 1, the policy seeks to avoid sediment run-off through the adoption of sediment control techniques. Policy 5.2 extends this to avoid earthworks in close proximity to water bodies due to the risk, and where this cannot be avoided then to rely on sediment control techniques. Policy 5.3 - reference should be made to the Otago Regional Council Water Plan Aquifer maps. Four main aquifers are noted - Hawea Basin, Wanaka Basin Cardrona alluvial ribbon and Wakatipu Basin.			

Policies for achieving Objective 6 – Cultural Heritage and Archaeological sites

To protect cultural heritage, including waahi tapu and waahi taoka and archaeological sites from the adverse effects of earthworks.

6.1 To protect waahi tapu, waahi taonga and other archaeological sites from potential disturbance resulting from earthworks.

6.2 To notify Kai Tahu ki Otago or Te Ao Marama Incorporated (as appropriate) where earthworks are proposed, in areas identified in either the District Plan or the Natural Resource Management Plans as significant to iwi.

6.3 To notify Kai Tahu ki Otago or Te Ao Marama Incorporated (as appropriate) where earthworks are proposed adjacent to, or within Statutory Acknowledgement Areas

6.4 To notify the NZ Historic Places Trust where proposed earthworks may affect archaeological sites.

6.5 To ensure that work is suspended and Kai Tahu ki Otago or Te Ao Marama Incorporated (as appropriate) and the NZ Historic Places Trust are notified when archaeological remains are observed or unearthed during earthworks activities.

6.6 To include accidental discovery protocol as a condition of earthworks resource consents.

6.7 To recognise and protect those values associated with heritage landscapes.

Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Policies 6.1, 6.2, 6.4 and 6.5 are currently in the operative plan. These policies are efficient and effective and the most appropriate way of achieving Objective 6. Policy 6.3 - Acknowledgement	Cultural benefit of protecting cultural heritage and archaeological sites.	Heritage and archaeological assessments require specialists and are costly for applicants. Uncertainty, particularly where sites are unearthed during projects. It can result in	There is insufficient information to identify / map all cultural heritage and archaeological sites within the District.

Areas include Lake Wakatipu, Lake Wanaka, Lake Hawea and the Clutha river. The policy seeks to notify Kai Tahu ki Otago where earthworks are proposed adjacent to, or within Statutory Acknowledgment Areas. Policy 6.6 - It has become common practice on resource consents to include Ngai Tahu ki Murihiku accidental discovery protocol as a condition of earthworks resource consents. This policy has been included to reflect this practice. Policy 6.7 – The identification of heritage landscapes within the District requires a distinct provision.		significant time delays and associated costs. Potential for obligations under Historic Places Trust Act not met due to insufficient information.	

Policies for achieving Objective 7 – Cleanfill Facilities

To provide for clean fill capacity and to promote diversion of cleanfill material from landfills

7.1 To ensure materials for deposition at cleanfill facilities meet acceptance criteria.

7.2 When considering the location of new cleanfill facilities, the following matters shall be taken into account:

- *Suitability of the site in terms of topography and landform*
- *Suitability of the site in terms of adverse effects on landscape and visual amenity values*
- *The stability of the site*
- *Accessibility and whether the location minimises travel distance from the main source/s of materials*
- *The option/s provided for long term use,*

and in addition sites shall:

- *Avoid significant water bodies,*
- *Avoid sites of cultural heritage or archaeological significance.*

7.3 To ensure cleanfill facilities avoid or mitigate the adverse effects of dust, noise and traffic on neighbours and residential areas.

7.4 To ensure cleanfill sites are rehabilitated and remedial restoration works carried out in a timely manner.

Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Providing for cleanfill capacity in the District is an efficient and effective way to facilitate development and avoid material going to landfill.	Provides for development and reduces landfill waste stream.	Site selection process requires technical assessments with associated costs. Rehabilitation and remedial restoration works can be expensive to implement.	There is no uncertainty or insufficient information regarding policies 7.1 – 7.4.

7.4 Rules and Methods

It was established above that the Objectives are the most appropriate way of achieving the purpose of the RMA. This section will consider whether, having regard to their efficiency and effectiveness, the proposed amendments to rules and other methods are the most appropriate for achieving the objectives. The rules may relate to a number of Objectives.

The following tables provide an assessment and summary of the reasons for deciding on the provisions.

Definitions			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Bed bed means,— (a) in relation to any river— (i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the river cover at its annual fullest flow without overtopping its banks: (ii) in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and (b) in relation to any lake, except a lake controlled by artificial means,— (i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the lake cover at its annual highest level without exceeding its margin: (ii) in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin; and (c) in relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating level;			
This definition links to the water body rule. Administrative issues have arisen in respect of where to measure setbacks from and	The RMA definition has the benefit of case law to assist with administrative interpretation and is used by the ORC policy	Using the RMA definition is a low cost option.	There is no uncertainty or insufficient information regarding the use of the defined term 'bed'.

inconsistency with the Regional Plan Water. The use of the RMA definition of "Bed" in conjunction with a redrafted rule provides an efficient and effective solution.	documents.		
Bulk earthworks Means Earthworks with a total volume greater than 50,000m^3 and includes the use of Cleanfill but excludes Mining Activities and Cleanfill Facilities			
The definition links to a new discretionary activity rule for Bulk Earthworks and Policy 1.5 and 1.6.	The 50,000m^3 threshold aims to capture only large scale projects. For example Five Mile, Kawarau Falls Station.	Accurate calculations required up front.	There is no uncertainty or insufficient information regarding the development of a new definition of bulk earthworks.
Cleanfill Acceptable Cleanfill material is strictly limited to – asphalt (cured), bricks, ceramics, concrete, fibre cement building products, glass, road sub-base, soils, rock, gravel and clay (refer to Ministry for the Environment, A Guide to the Management of Cleanfill, January 2002). **Cleanfill Facility** Means a site used solely for the disposal of Cleanfill. A Cleanfill facility may include stockpiling, landscaping and rehabilitation works.			
Cleanfills have been included in the earthworks chapter as a distinct activity. These two new definitions work in combination with a new discretionary activity rule for Cleanfill facilities and Objective 7 / Policies 7.1 – 7.4. Through this separate definition clean fills facilities can be more efficiently and effectively addressed.	The Council's Waste Management and Minimisation Plan identifies the need for Cleanfill capacity to be available in the District so as to facilitate development.	Criteria limiting the waste that can be accepted provide the primary environmental control for a Cleanfill. For this control to be effective waste acceptance must be monitored and the criteria enforced the operation period of the clean fill.	There is no uncertainty or insufficient information regarding the development of a new definition of Cleanfill and clean fill facility.

The proposed definition is slightly different to the ORC Water Plan definition of Cleanfill - "A natural material such as sand, gravel and rock, and such other materials as concrete, brick or demolition products that are free of soluble materials and are therefore not subject to biological or chemical breakdown." The differences are not substantial.			
Earthworks Means the disturbance of land by the removal or depositing of material. Earthworks may include excavation, fill, cuts, batters and formation of roads, access and tracks, and the use of Cleanfill, but excludes the cultivation of land, planting of Indigenous Vegetation, Mining Activities and Cleanfill Facilities.			
This is a modified version of the Operative Plan's definition of Earthworks. To avoid duplicate assessments Mining activities and Cleanfill Facilities have been specifically excluded. Cultivation of land has been retained and planting made specific to indigenous vegetation which has ecological benefits.	This definition forms the basis for administration of the earthworks rules. The specific exclusion of Mining (in conjunction with this definition being amended to include gravel extraction and processing) should reduce the length of resource consent assessments.	The definition in the Operative Plan has been generally effective and efficient. The modifications propose are minor in terms of cost, when read in conjunction with the new provisions in Section 22.	There is no uncertainty or insufficient information regarding the amendments to the definition of earthworks.

22.3.1 General Provisions and Cross Referencing			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
(a) District Wide Rules			
The District Wide Rules may apply in addition to the section 22 Earthworks rules.	Provisions not duplicated.	Cross-referencing required with the potential for resource consent triggers to be overlooked. The definition of works in Section 13 includes earthworks. Cross-referencing to the Heritage rules in respect of listed Heritage Items is particularly important, for example earthworks can adversely impact on tree roots.	There is no uncertainty or insufficient information regarding the general provisions or cross referencing.
(b) Subdivision			
Section 22 addresses land-use effects of earthworks while Section 15 addresses the effects of subdivision. This clause clarifies that earthworks approved as part of a subdivision that has resource consent pursuant to Rule 15.2.20 or that has obtained resource consent prior to public notification of the review and explicitly relates to earthworks is not subject to assessment under Section 22 rules. A new rule is proposed in Part 15 is proposed making subdivision involving earthworks a controlled	Assessments not duplicated. This clause in conjunction with the new subdivision rule 15.2.20 seeks to address the administrative issue with the Operative Plan. Lakes Environmental interpretation has been that earthwork activities can trigger both land use and restricted discretionary subdivision consent where the sites standards are not met.	This provision reduces cost as it avoids duplication of assessments.	There is no uncertainty or insufficient information regarding the removal of duplication.

activity and subdivision involving bulk earthworks a discretionary activity (refer below).			
(c) Noise			
Cross–referencing to each zone noise standard is an efficient and effective way of triggering noise assessments.	Provisions not duplicated.	Cross-referencing required with the potential for resource consent triggers to be overlooked.	There is no uncertainty or insufficient information regarding the avoidance of duplication.
(d) Archaeological Sites			
In addition to resource consent an archaeological authority may need to be applied for from the New Zealand Historic Places Trust. All earthworks must comply with Section 10 of the Historic Places Act 1993, which protects recorded, suspected and unrecorded archaeological sites from destruction, damage and modification. A Recorded archaeological site is a site recorded via the New Zealand Archaeological Association's Site Recording Scheme (called Archsite) and information is available at www.archsite.org.nz.	A cross-referencing to these requirements is an effective and efficient way of informing applicants of their obligations.	Not all sites are recorded or known prior to development and there is a risk of damage being done to sites	Due to insufficient information "Suspected and unrecorded" archaeological sites are at risk.
(e) NES			
The status of some activities will	A cross-referencing to these	There is no register of	There is no uncertainty or

be determined by the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Reference should be made to the Ministry of Environment website for a copy of the regulations, user's guide, and latest version of documents incorporated by reference in the regulations. This regulation will be applicable to Earthworks on sites where a *"hazardous activity or industry has been, is more likely than not to have been or is currently operating".*	requirements is an effective and efficient way of informing applicants of their obligations.	contaminated sites and this lack of information results in uncertainty for development.	insufficient information regarding incorporating the reference to the NES.
(f) QLDC Earthworks Guideline			
Reference should also be made to the Queenstown Lakes District Earthworks Guideline to assist in the achievement of the following standards and best practice.	The earthworks guideline is another method of getting information to applicants to improve environmental outcomes on sites. It can be used throughout the planning process, including by monitoring officers undertaking site inspections.	As an "other method" the guideline cannot be enforced or environmental bottom lines guaranteed.	There is no uncertainty or insufficient information regarding referring to the Earthworks Guideline.

22.3.2 Activities			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
22.3.2.1 Permitted Activities (a)			

Standard Clause	-	-	-
22.3.2.1 Exemption (b) (i)			
The following exemptions are proposed from the Volume of Earthworks rule and Height of Cut and Fill and Slope. Earthworks associated with maintenance of: farm track access, fencing, firebreaks, public recreational tracks, and trails and operational areas within Ski Area Sub-Zones, provided that the maintenance work results in less than a 10% increase in exposed surface area of that feature in any 12 month period. This rule is linked to Objective 4.	Objective 4, Earthworks in Rural Areas and Ski Area sub-zones, subject to Objective 2 seeks to enable earthworks that improve the efficiency of farming operations, health and safety and public recreation values. This rule seeks to implement this through specifically providing for maintenance, including a 10% threshold to provide administrative certainty.	Exemptions for specific activities add to administrative complexity. The figure 10% is a 'blunt' instrument.	There is no uncertainty or insufficient information regarding providing for exemptions to the earthworks rules.
22.3.2.1 Exemption (b) (ii)			
Earthworks associated with the replacement and/or removal of a fuel storage system as defined and controlled in the 'National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations 2011'.	This provision avoids duplication with a National Environmental Standard.	Maintaining records of fuel storage systems remains the responsibility of Council.	There is no uncertainty or insufficient information regarding the exclusion of Earthworks associated with the replacement and/or removal of a fuel storage system as defined and controlled in the 'National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations 2011'

22.3.2.1 Exemptions (b) (iii) – Remarkables Park Zone			
In the Operative Plan, these exemptions are contained within the Remarkables Park zone and were the result of the submission process on Variation 8.	These provisions have been efficient and effective and it is proposed that they be retained	Exemptions for specific zones add to administrative complexity.	There is no uncertainty or insufficient information regarding the retention of a special zone for Remarkables Park.
22.3.2.1 Exemption (c)			
It is proposed to replace the exemption in Part 5 Rural General for earthworks within the Ski Area Sub-Zone. The new exemption narrows the exemption to Earthworks within the Ski Area Sub-Zone that are in accordance with any relevant Conservation Management Plan or Concession approved by the Department of Conservation. Coronet Peak, Remarkables and Treble Cone Ski Area Sub-zones are located on DOC land. The exemption would not apply to Cardrona or Snow Farm / Park Ski Area subzones.	This exemption avoids duplication of resource consent with Department of Conservation concessions process, which also provides environmental assessment. It would enable assessment of earthworks within the Cardrona and Snow Farm/Park ski area subzones, which are not subject to the concession process.	Resource consent costs for two Ski Areas.	There is no uncertainty or insufficient information regarding providing for exemptions to the earthworks rules.
22.3.2.2 Controlled activities (b) Jacks Point Zone (d) Open Space Zone			
These are copied across from the relevant zones and their effectiveness is not altered.			
22.3.2.3 Restricted Discretionary Activities (b)			
This standard specifies the	Retaining a wide range of matters	Administrative cost of	There is no uncertainty or

restricted discretionary activity status for the new Earthworks "Site Standards". The matters in respect of which Council has reserved discretion are: (i) The nature and scale of the earthworks (ii) Environmental Protection Measures (iii) Remedial works and revegetation (iv) The effects on landscape and visual amenity values (v) The effects on land stability and flooding (vi) The effects on water bodies (vii) The effects on cultural and archaeological sites (viii) Noise. These have been formulated to reflect the issues, objectives and policies and enable effective and efficient implementation.	over which Council has discretion will enable appropriate assessment and resource consent conditions.	assessments needing to cover seven matters.	insufficient information regarding the restricted discretionary activity status for the new Earthworks "Site Standards"
22.3.2.3 Restricted Discretionary Activities (c) (d) Shotover Country			
These are copied across from the relevant zones and their effectiveness is not altered.			
22.3.2.4 Discretionary Activities (a) Cleanfill Facilities			
This rule works in conjunction with the new definitions of	There is a need to provide for cleanfill capacity and to promote	Costs of every cleanfill facility, irrespective of scale, going	There is no uncertainty or insufficient information regarding

Cleanfill and Cleanfill Facilities. Cleanfills have in the past also been assessed under the earthwork provisions. This new rule streamlines the assessment to be specific to cleanfill issues, and is a more efficient and effective method.	diversion of cleanfill material from landfills. The location of new cleanfill facilities requires a case by case assessment to ensure environmental criteria as set out in policy 7.2 are met. A resource consent process also enables appropriate conditions of consent to be imposed on rehabilitation and remedial restoration works to be carried out in a timely manner.	through resource consent process.	the Discretionary Activities rule for (a) Cleanfill Facilities
22.3.2.4 - Discretionary Activities (b) Bulk Earthworks			
This rule works in conjunction with a new definition of "Bulk Earthworks" - Earthworks with a total volume in excess of 50,000m^3. This new rule streamlines the assessment to be specific to issues associated with large scale earthworks and is a more efficient and effective method.	The threshold of 50,000m^3 and the Discretionary Activity status will enable the effects of large scale earthwork projects to be better managed and mitigated. It is also aimed to implement Policy 1.5. "To avoid the long term adverse effects of unfinished projects."	Costs of large scale projects, going through Discretionary resource consent process with associated uncertainty.	There is no uncertainty or insufficient information regarding the Discretionary Activities rule for (b) Bulk Earthworks.
22.3.2.4 - Discretionary Activities (c) Jacks Point Zone			
These are copied across from the relevant zones and their effectiveness is not altered.			
22.3.2.5 - Non-complying Activities (a) Cleanfill material			
This rule allows the differentiation of suitable cleanfill material, which is encouraged to be re-used, from contaminated fill which is dealt with elsewhere in the District and	Clear guidance that Cleanfill is acceptable in either a dedicated Facility or as part of (larger) scale projects.	Costs of sourcing the appropriate disposal sites for inappropriate material from development projects.	There is no uncertainty or insufficient information regarding the introduction of a Non-Complying Activity which seeks to differentiate between acceptable

Regional Plans.			an unacceptable materials.
22.3.2.5 - Non-complying Activities (b) Open Space Zones			
Clear identification is required of activities that are not acceptable within this Zone.	Guidance is given to identify that all other activities will be assessed as not being anticipated as suitable within the Plan.	Clear identification of the non-compliance with the Plan allows certainty in application planning, including costs.	There is no uncertainty with the appropriate activities within the Zone as they relate to earthworks.
22.3.2.6 - Non-notification of Applications			
In the Operative District Plan the "non-notification" clause for Earthworks applied in some zones but not others (with no apparent reasons). It is proposed that in the new Section that the non-notification clauses only apply in respect of; volume of earthworks in some zones, ski area subzones, and earthworks in general (subject to restrictions), and relating to certain electricity transmission lines.	A non-notification clause provides process certainty to applicants.	Where non-notification is not specified it reduces process certainty for applicants and potential costs of public notification processes.	There is no uncertainty or insufficient information regarding the use of a non-notification rule for certain earthworks applications.

22.3.3 Site Standards			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
i Volume of Earthworks			
The rule specifies the maximum total volume of earthworks (m^3) shall not exceed that specified in	The clarifications provide for administrative certainty.	It can be costly and difficult to monitor and enforce consecutive 12 month periods.	There is no uncertainty or insufficient information regarding the use of varying volume limits

Table 22.1. It is proposed to use this table as a means of grouping zones according to their sensitivity (or not) to the effects of earthworks activities. Table 22.1 proposes seven tiers according to groupings of zones, having volumetric thresholds established for each. The tier 1 zones represent those most sensitive to the effects of earthworks activities with tier 6 being the least. An evaluation of the merits of each of the tier thresholds within Table 22.1 is provided below. The maximum total volume of earthworks shall be calculated per Site, within one consecutive 12 month period. Volume shall mean the sum of all earth that is moved within a site and includes any combination of cut and fill, removing fill off-site and replacing fill on site - refer Interpretive diagrams 5(a), (b) and (c). Clarification of the terms within the rule provides for more efficient administration of the plan.	The term "Site" is defined and used extensively in the Operative Plan. The meaning of Volume is also retained along with the interpretative diagrams which assist in interpretation. The 12 month period is a "blunt" cut-off incorporated to provide a reasonable tolerance taking into account the volumes specified in table 22.1.		that reflect the nature of the environment.

In the Operative Plan an area (m^2) trigger was also included. This has been deleted as when read in conjunction with the 0.5m average depth and maximum volume (m^3) achieved little. A volume trigger is more efficient and effective method of implementing the objectives and policies.			
Table 22.1 – Tier 1			
Tier 1 has 100m^3 maximum total volume of Earthworks. This is the maximum total volume that was introduced through Variation 8 across the majority of zones. In Table 22.1 it is proposed to reduce the number of zones of this low threshold to the most sensitive receiving environments. The Tier 1 zones include area with historic values, special character and that are subject to potential flood risk.	Reduces the application of the low 100m^3 threshold to the most sensitive zones.	The low threshold will trigger resource consent assessment with associated costs.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.
Table 22.1 – Tier 2			
Tier 2 has 200m^3 maximum total volume of Earthworks. Tier 2 zones include sensitive landscape areas – Outstanding Natural Landscapes, Outstanding Natural	The 200m^3 threshold provides for the rural and ski area activities anticipated by Objective 4, while protecting landscape and visual amenity values from the adverse	The low threshold will trigger resource consent assessment with associated costs.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.

Features, Heritage Landscapes and Open Space Zone and Special Zone Open Space Activity Areas. This is a decrease of 100m^3 from the Operative Plan controlled activity trigger in Rural General.	effects of earthworks.		
Table 22.1 – Tier 3			
Tier 3 has 300m^3 maximum total volume of Earthworks. The Tier 3 zones include 'low density residential' areas. Many of these zones in the Operative Plan had a 100m^3 threshold which does not provide for the building of an average size dwelling anticipated in these zones. The increase to 300m^3 is aimed to enable development anticipated and will work in conjunction with the Environmental Protection Measures which require sediment and dust control etc. This is a more efficient and effective method.	The 300m^3 threshold should avoid the need or earthworks resource consent on development of an average residential unit.	Development of above average sized residential units are likely to trigger resource consent assessment with associated costs. Cost of monitoring compliance with Environmental Protection Measures unable to be passed onto applicants.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.
Table 22.1 – Tier 4			
Tier 4 has 400m^3 maximum total volume of Earthworks. The Tier 4	The 400m^3 threshold should avoid the need for earthworks	Development of above average sized buildings are likely to trigger	There is no uncertainty or insufficient information regarding

zones include 'medium to high density residential' areas and Rural Residential / Lifestyle areas with larger lot sizes. Many of these zones in the Operative Plan had a $100m^3$ threshold which does not provide for the scale of building anticipated in these zones, reflect the larger sites within rural living zones within which effects can be mitigated or the desirability to promote more intensive building development within higher density residential zones. The increase to $400m^3$ is aimed to enable development anticipated and will work in conjunction with the Environmental Protection Measures which require sediment and dust control etc. This is a more efficient and effective method.	resource consent on larger sites that have greater capacity to internalise effects or those higher density residential areas where the Plan is trying to promote more intensively forms of building development.	resource consent assessment with associated costs. Cost of monitoring compliance with Environmental Protection Measures unable to be passed onto applicants	the use of varying volume limits that reflect the nature of the environment.
Table 22.1 – Tier 5			
Tier 5 has $500m^3$ maximum total volume of Earthworks. The Tier 5 zones include Business and Industrial Zones, Mixed use and Town Centres.	The $500m^3$ threshold should avoid the need for earthworks resource consent on the scale building footprint anticipated in these zones.	The development of above average sized buildings and larger underground car parks are likely to trigger resource consent assessment with associated costs.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.

Many of these zones in the Operative Plan had a 100m^3 threshold. Increasing the volume better reflects the amenity values of the receiving environment, provides for the scale of building anticipated in the zones and provides for other anticipated outcomes such as underground car parking. The increase to 500m^3 is aimed to enable development anticipated and will work in conjunction with the Environmental Protection Measures which require sediment and dust control etc. This is a more efficient and effective method.		Cost of monitoring compliance with Environmental Protection Measures unable to be passed onto applicants	
Table 22.1 – Tier 6			
Tier 6 has a 1000m^3 maximum total volume of Earthworks. Tier 6 zones include Rural General (except where classified as Outstanding Natural Landscapes, Outstanding Natural Features or within a Heritage Landscape), Gibbston Character Zone and Ski Area sub-zones. The controlled activity threshold of 300m^3 in Rural General areas of the Operative Plan is not being	The 1000 m^3 threshold provides for the rural and ski area activities anticipated by Objective 4, while protecting landscape and visual amenity values from the adverse effects of earthworks. It reflects the maximum size of a building platform provided for as a discretionary activity in Rural General.	Cost of monitoring compliance with Environmental Protection Measures unable to be passed onto applicants.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.

retained (replaced with 200m^3 restricted discretionary activity rule for Outstanding Natural Landscapes and Outstanding Natural Features – refer tier 2 above).			
Table 22.1 – Tier 7			
Tier 7 includes any zone or Special Zone Activity Area not listed above in Tier 1 to 6 and specifies a 100m^3 maximum total volume of earthworks.	This provides a backstop, reflective of the Operative Plan threshold, for any zone which has been omitted from the table.	The low threshold will trigger resource consent assessment with associated costs.	There is no uncertainty or insufficient information regarding the use of varying volume limits that reflect the nature of the environment.
ii Height of cut and fill and slope (a) Rural General, Gibbston Character Zone and Ski Area Sub-Zones			
(i) No road, access or track shall have an upslope cut or batter greater than 1 metre in height, measured vertically. (ii) All cuts and batters shall be laid back such that their angle from the horizontal is no more than 65 degrees. (iii) The maximum height of any fill shall not exceed 2 metres. These measures have been retained from the Operative Plan and monitoring Report indicates they are effective and efficient.	The adverse visual effects of earthworks can be mitigated by well-designed and laid out cuts and batters. The threshold of up to 65 degrees provides flexibility.	Cost of monitoring compliance.	There is no uncertainty or insufficient information regarding the use of controls on the height of cut and fill and slope in the Rural General, Gibbston Character and Ski Area Sub Zones.
ii Height of cut and fill and slope (a) All Other Zones			

(i) The maximum height of any cut shall not exceed 2.4 metres. (ii) The maximum height of any fill shall not exceed 2 metres. (iii) The vertical height of any cut or fill shall not be greater than the distance of the top of the cut or the toe of the fill from the site boundary (see interpretative diagram 6). Except where the cut or fill is retained, in which case it may be located up to the boundary, if less or equal to 0.5m in height. These measures have been retained from the Operative Plan and monitoring Report indicates they are effective and efficient.		There is high economic cost if earthworks cause instability on neighbours	There is no uncertainty or insufficient information regarding the use of controls on the height of cut and fill and slope in other Zones.
iii Fill			
The requirement to comply with relevant NZ Standards ensures continuity across the Plan and to other Council methods.	Inclusion as a Site Standard ensures that specific technical matters aren't duplicated elsewhere.	Costs of duplication of the provision of this information are avoided.	The requirement is duplicated if not specifically referred to here.
iv Environmental Protection Measures			
(i) Any person carrying out earthworks shall implement sediment and erosion	Implementation of Environmental Protection Measures is critical to the mitigation of adverse effects	Cost of monitoring compliance with Environmental Protection Measures is high and where	There is no uncertainty or insufficient information regarding the use of Environmental

control measures to avoid sediment effects beyond the boundary of the site. (ii) Any person carrying out earthworks shall implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site. (iii) Where vegetation clearance associated with earthworks results in areas of exposed soil, these areas shall be re-vegetated as soon as practicable taking into account planting seasons provided this shall be no longer than 12 months from the completion of the works. These measures have been retained from the Operative Plan and monitoring Report indicates they are effective and efficient.	of earthworks. By incorporating these into rules the need for resource consent assessment is avoided.	resource consent has not been trigger is a cost that is unable to be passed onto applicants Re-vegetation in alpine environments can be difficult to establish and costly.	Protection Measures.
v Water Bodies			
These provisions have been retained from the Operative Plan. The rules have been amended to refer to "Bed" of any Water Body (refer above for definitions).	The "Bed" of any Water Body is defined under the RMA and is used by the Otago Regional Council in their Regional Plans. This amendment will improve administration.	The low thresholds will trigger resource consent assessment with associated costs.	There is no uncertainty or insufficient information regarding the use of controls on proximity to water bodies

v Cultural heritage and Archaeological sites			
These provisions have been retained from the Operative Plan.	Protection of cultural heritage and archaeological sites.	Uncertainty and associated costs.	There is no uncertainty or insufficient information regarding the provisions relating to cultural heritage and archaeological sites.
vi Construction noise			
It is proposed to introduce a new standard relating to construction noise. Construction noise is currently referred to within the noise rules for most zones in the operative Plan as distinct from the general noise rules. Because of the close association between construction noise and earthworks activities, it is proposed to adopt NZS6803:1999 as a basis for establishing appropriate thresholds to control noise effects. This approach is considered more efficient as it relies on an established standard appropriate to the nature of the effects being generated. This Standard covers sound from construction work which is of a limited duration. Where the sound from a construction activity is part of the overall sound emission from an on-going land use activity, then the sound shall meet	Protects the amenity values of neighbours during construction phase.	Special noise assessments may be required to demonstrate compliance.	There is no uncertainty or insufficient information regarding the construction noise provisions.

the relevant standard within the zone in which the activity is located.			
vii Frankton-Cromwell Electricity Transmission Line			
The NPS ET requires the Council to recognise the national significance of the electricity transmission network, while managing the adverse effects of other activities on the network. The New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001) sets minimum safe electrical distance from overhead electric line installations. The minimum safe distances have been set primarily protect persons, property, and plant from harm or damage from electrical hazards. The rule seeks to address Earthworks in proximity to the Frankton-Cromwell Electricity Transmission Line. The thresholds relating to the quantity and proximity of earthworks reflect the NZECP34:2001. Reliance on the NZECP as a means of implementing the NPS ET is effective and efficient.	Electricity Transmission is critical infrastructure for our community and the rule provides necessary protection.	It is a detailed provision that could be addressed in Utilities chapter.	There is no uncertainty or insufficient information regarding the provisions to address Earthworks in proximity to the Frankton-Cromwell Electricity Transmission Line.

22.4 Resource Consents – Assessment Matters i Nature and Scale of Earthworks (a) to (d) i Nature and Scale of Earthworks In Rural Areas and Ski Area Subzones (e) to (h) ii Environmental Protection Measures iii Remedial works and revegetation iv Effects on Landscape and Visual Amenity Values v Land Stability and Flooding vi Water bodies vii Impacts on sites of cultural heritage value viii Bulk Earthworks ix Cleanfill facilities and cleanfill material			
Efficiency and Effectiveness [(a)]	Benefits [(b)]	Costs [(b)]	Risk acting/ not acting [(c)]
Assessment Matters i to vii			
The majority of the assessment matters are retained from the Operative Plan. They have been grouped to flow from the issues, objectives, policies and rules. In this manner they are an effective and efficient means of achieving the objectives of the Plan. The assessment matters are considered effective in that the provide guidance to the Council and users of the plan alike.	The benefits of the proposed assessment matters are that they provide detailed guidance on the main issues relevant for consideration. The assessment matters are deliberately framed to be flexible to adapt to a range of consent scenarios.	Detailed assessment matters can be costly to administer. There is a risk the assessment matters do not explicitly list a particular issue and thus relegate a potential issue of importance.	There is no uncertainty or insufficient information regarding the assessment matters.
viii Bulk Earthworks			
A new set of assessment matters have been included specific to bulk earthworks. These flow in	The benefits of the proposed assessment matters are that they provide detailed guidance on the	The potential costs of these assessment matters relate to the additional administration costs	There is no uncertainty or insufficient information regarding the bulk earthworks assessment

from the environment effects of earthworks (Objective 1) and Policies 1.4 and 1.5 that proposed to address the long term adverse effects on unfinished projects and to ensure remedial works are considered during a consideration of a resource consent application.	particular issues relating to bulk earthworks. Particular benefits can be achieved in highlighting the significance of remediation rehabilitation and other restoration work necessary to prevent long term adverse effects from large scale earthworks.	and duplication of assessment if related to wider activities.	matters.
ix Cleanfill Facilities			
A new set of assessment matters have been formulated for the new discretionary activity rule for clean fill facilities. These follow Objective 7 and related policies and provide a detailed consideration of the particular issues arising from clean fill activities. The assessment matters are considered an effective and efficient means of implementing the higher order policies.	The benefits of these assessment matters are to target assessment of issues particular to clean fills and thus achieve the benefits of diverting inert material from landfills.	The requirements for rehabilitation works and legal instruments can be costly to implement.	There is no uncertainty or insufficient information regarding the assessment matters for clean fill facilities.

8. DESCRIPTIVE TEXT FORMERLY IN THE DISTRICT PLAN

Removed and amended through the District Plan Review:

"4.10.1 Resources, Activities and Values

The topography of the Queenstown Lakes District often means that land modification, through earthworks, generally precedes the development of land. Some modification of the natural landscape is inevitable in order to provide safe and stable building platforms and roads with a suitable gradient. For example, in Queenstown, extensive excavation is often required to enable the further development of steep land. This has the potential to cause problems in terms of stability of adjacent properties, run-off and de-watering. Filling may also be used to increase the height of building platforms. This has the potential to alter the natural form of the landscapes, and has the potential to adversely affect the amenity values of neighbouring properties, and can alter drainage patterns. Earthworks have the potential to alter landforms, landscapes and natural features to such an extent that the identity, amenity values and character of an area can be changed permanently. Therefore, while earthworks are temporary, their effects are often both significant and long term.

4.10.2 Issues

Sediment and soil run-off associated with earthworks have the potential to adversely affect water quality and the amenity values of neighbouring properties.

The direct results of sediment run-off include damage to neighbouring properties, the blocking of drains and the sedimentation of waterways. The factors that affect the amount of sediment run-off are rainfall, soil erodability, slope length and slope gradient. The closer the earthworks operation locates to a waterway, the more immediate the potential impact.

Earthworks, either through excavation or filling, have the potential to permanently alter the natural shape and form of the landscape, particularly in areas of Outstanding Natural Features and Outstanding Natural Landscapes.

Potential adverse effects from earthworks on landforms and landscapes range from the widespread practice of remodelling the land for subdivisions, cut and fill operations, to more minor earthworks such as ground contouring for building platforms or driveways. Cut and fill operations can adversely affect privacy, cause physical domination and over-shadowing if located too close to neighbouring property boundaries, and have the potential to permanently alter the form and shape of Outstanding Natural Features and Outstanding Natural Landscapes.

Earthworks, including filling and excavation, have the potential to affect land instability and the potential for flooding.

Earthworks activities have the potential to weaken soil structure and exacerbate soil instability, subsidence, and soil erosion. This may be caused by incorrectly placed excavated fill, unsupported excavations, inherent weak rock strata combined with steep slopes, or steep slopes stripped of vegetation. Excavations close to the boundary also have the potential to reduce the overall stability of the soil of the adjacent property. Particularly in Queenstown, the excavation of sites to develop building platforms has the potential to undermine neighbouring properties. Earthworks may also cause or exacerbate flooding by altering the natural profile of landforms, including the modification of stormwater run-off channels and catchment topography. The effects of modifying the landscape, if carried out inappropriately may cause downstream flooding and inundation. Further, by placing impervious structures beneath ground level, the potential for flooding is increased through the process of 'de-watering'.

Earthworks have the potential to adversely affect amenity values by creating noise and dust emissions.

Earthworks activities can emit high levels of noise, vibrations and dust. Dust emissions can cause irritation to people living nearby, and in some cases can cause adverse health effects such as asthma. Earthworks operations cause noise emissions through the use of large machinery, vehicle movements and in some cases blasting. These are particularly disturbing to amenity values if they occur early in the morning or late at night.

Earthworks can disturb cultural heritage sites, including Waahi Tapu and Waahi Taoka, and archaeological sites.
Waahi Tapu and Waahi Taoka and archaeological sites in the District can be destroyed through the excavation and filling of land. A process of identifying these sites needs to be established so that the adverse effects of earthworks can be avoided.

Earthworks associated with tracking on highly visible slopes have the potential to adversely affect amenity values and permanently alter the landform.
Earthworks associated with the formation of tracks on highly visible slopes have the potential to have an adverse effect on the landscape and/or feature, particularly in areas of Outstanding Natural Landscapes and Outstanding Natural Features.

Earthworks have the potential to affect groundwater.
Earthworks have the potential to adversely affect the groundwater resource by either exposing the groundwater or by reducing the depth of the protective mantle that overlies the aquifer, which reduces the filtering capacity of the protective mantle. In the Wakatipu Basin the risk of aquifer contamination the filtering capacity of the protective mantle. In the Wakatipu Basin the risk of aquifer contamination due to excavation is particularly high, because in parts the protective soil mantle is very thin."[9]

[9] Operative District Plan, Part 4, Section 4.10, page 4-59 and 4-60.

2012

Monitoring Report on the Earthworks Provisions of the District Plan

Policy and Planning

Queenstown Lakes District Council

May 2012

Executive Summary

This report fulfils the requirements of section 35(b) of the Resource Management Act in relation to monitoring the effectiveness and efficiency of the earthworks objectives, policies and rules of the Queenstown Lakes District Plan. The implementation methods, and the number of earthworks related complaints, are also monitored.

The majority of the existing objectives, policies and rules relating to earthworks were created through Variation 8 – Earthworks to the Proposed District Plan. Following resolution of an appeal from Remarkables Park Limited, the provisions became operative in March 2005. Further earthworks provisions have subsequently been inserted as part of plan changes, both public and private.

While a range of earthworks rules exist, in the majority of 'urban zones', the earthworks rules are relatively consistent, the permitted amounts are usually $100m^3$, $200m^2$, with a maximum cut height of 2.4m and a maximum fill height of 2m. A small comparative analysis of five other district councils with similar rainfall and topography to the Queenstown Lakes district suggested the earthworks rules were not unduly restrictive in terms of the basic volumes permitted.

Over 2007 – 2009, at least 15% of all resource consent applications require permission under the earthworks rules. Lakes Environmental also receive approximately 30 complaints a year in relation to earthworks matters.

The effectiveness of all the objectives is limited by the use of 'avoid, remedy or mitigate', which is essentially three different objectives in one. Otherwise, the objectives are relatively effective in that they address the key issues arising from earthworks. One area for which there is no clear objective, is with regard to applications for the deposition of clean fill, and gravel extraction. Both fall within the definition of earthworks.

The majority of policies are effective, however a number could be improved with minor changes. There is an inconsistency between the District Wide policies relating to earthworks and the District Wide policies relating to Takata Whenua. There are no clear policies on earthworks as part of a cleanfill or gravel extraction operation.

In terms of the rules, 16 issues were identified, and these can be considered as part of the district plan review. Ten active construction sites for a range of activities in a range of zones were randomly identified to determine whether consent conditions relating to earthworks, and the Environmental Protection Measures are being implemented. In most instances it appears some effort at compliance is being made. In three instances, it appeared that there were definite breaches of either the earthworks rules or conditions.

1. Introduction

Section 35 of the Resource Management Act states that:

> ***Every local authority shall monitor-***
> ***...[(b)] the efficiency and effectiveness of policies, rules, or other methods....***
>
> ***and take appropriate action (having regard to the methods available to it under this Act) where this is shown to be necessary.***

This report fulfils the requirements of section 35(b) in relation to the efficiency and effectiveness of the earthworks objectives, policies and rules of the Queenstown Lakes District Plan. Findings in this report will assist in informing the review of the Queenstown Lakes District Plan, due to be publicly notified in October 2013.

A range of potential effects can be generated from earthworks. These include:

- Visual effects through changing the form and nature of landscapes;
- Nuisance effects, including dust and noise;
- Effects on water quality resulting from silt and sediment runoff;
- Effects on the overland flow of stormwater;
- Effects on land stability;
- Effects on archaeological sites; and
- Changes in natural ground level, so that determining building height becomes difficult.

2. How were the earthworks provisions created?

When the Proposed District Plan was notified in 1995, it contained few rules relating to earthworks. This led to the Council initiating Variation 8 – Earthworks to the proposed District Plan. A discussion document and a section 32 report were produced. The variation was publicly notified for comment on 20 October 2001, and following a hearing, a range of earthworks provisions were inserted. The decision was appealed by Remarkables Park Limited in relation to the earthworks provisions for the Remarkables Park Special Zone. A number of other parties joined the Remarkables Park appeal, raising more 'district wide' matters with Variation 8, however these fell away once the Remarkables Park appeal was resolved. A consent order was issued by the Environment Court in March 2005.

Further earthworks provisions have subsequently been inserted as part of plan changes, both public and private.

3. How much activity do the earthworks provisions enable?

A summary of what is currently enabled by the earthworks provisions is contained in **Appendix A**. For the majority of 'urban' type zones, resource consent for earthworks is required if the following limits are exceeded over a 12 month period:

- More than 100m^3 in volume
- More than 200m^2 in area
- More than 20m^3 within 7 metres of a water body
- The maximum height of any cut shall not exceed 2.4 metres
- The maximum height of any fill shall not exceed 2 metres.
- Any cut or fill should be its own height away from the boundary, unless retained in which case it may be located up to the boundary if less than 0.5 metres in height.

Importantly, *"any person carrying out earthworks shall:"* implement the following 'Environmental Protection Measures':

a. *Implement erosion and sediment control measures to avoid soil erosion or any sediment entering any water body.*

b. *Ensure that any material associated with the earthworks activity is not positioned on a site within 7m of a water body or where it may dam or divert or contaminate water.*

c. *Implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site* (does not apply in rural zones)

These 'Environmental Protection Measures' apply, regardless of whether the area or volume controls are exceeded.

Special rules for earthworks apply in a number of zones. Some examples include:

- Airport Mixed Use Zone – no earthworks rules
- Ski Area Sub-zones – no earthworks rules
- Remarkables Park Special Zone – no specific limits, require a controlled activity as part of the consent application for a building, otherwise discretionary.
- Mt Cardrona Station zone – doubles the normal volume /area limits set out above.

As **Appendix A** shows, there is now a range of different earthworks rules, ranging from permitted to non-complying, used for the different zones of the District Plan.

3.1 What earthworks are excluded?

The definition of earthworks is set out below:

EARTHWORKS	Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pits and the erection of posts or poles or the planting of trees.

This definition excludes certain matters including:

- *cultivation of land*
- *the digging of holes for offal pits,*
- *the erection of posts,*
- *the erection of poles and*
- *the planting of trees:*

In the Rural General zone, the following earthworks are excluded from the rules:

- *earthworks within the Ski Area Sub-Zones*
- *earthworks approved as part of a consented subdivision*
- *earthworks for routine repair and maintenance of operational tracks;*
- *earthworks for utility activities*
- *earthworks approved as part of a resource consent for a residential building platform or a building; and*
- *earthworks approved as part of a resource consent for a farming building except for earthworks associated with access.*

There is no list of exceptions in other zones, however the rule relating to the permitted area of earthworks (m^2) only applies to earthworks that are greater than 0.5m in depth, so this would effectively exclude things like cultivation which are listed as excluded in the Rural General zone.

Case Study – Excluded earthworks – the Mount Field case

In 2008 the earthworks rules in the Queenstown Lakes District Plan went all the way to the High Court in the case Mount Field Ltd vs. Queenstown Lakes DC.

Mount Field Ltd constructed a fence shown in the photographs below on Mt Dewar Station. The fence was located in the Rural General zone, in an area of Outstanding Natural Landscape. Following a complaint from the New Zealand Historic Places Trust, a Council enforcement officer visited the site and determined earthworks had been undertaken without resource consent. Enforcement proceedings were initiated, and the matter was appealed to the Environment Court. Central to the case was the definition of 'earthworks' which specifically excluded:

> *the digging of holes for offal pits and the erection of posts or poles or the planting of trees.*

The Environment Court determined that (underlining added):

- the fence established by Mount Field…is a structure permitted by the [Proposed] District Plan.

- the benching works undertaken by Mount Field to enable establishment of the fence constitute earthworks as defined in the [Proposed] District Plan.

- the earthworks undertaken do not fall into the exclusion from the definition contained in the [Proposed] District Plan.

- in addition to being a permitted structure under the [Proposed] District Plan, the fence also constitutes and existing use for the purposes of section 10 [of the Act].

- the benching works undertaken by Mount Field to enable the replacement or renewal of the fence cannot be demonstrated to have existing use rights pursuant to s 10 [of the Act]

- the benching works undertaken require resource consent.

Mount Field appealed to the High Court, who overturned the Environment Courts decision, stating:

[48]….In my view the proper interpretation of the "earthworks definition" allows a farmer operating within the Rural General zone to erect an internal boundary fence and to do all work reasonably necessary to undertake that task without a resource consent.

[49] It is important that I give some guidance on what I mean by the phrase "reasonably necessary". First, this is not a carte blanche to enable a farmer to do whatever he or she wants to do to erect a fence. What is "reasonably necessary" will be assessed by reference to the minimum disturbance to the adjacent land that can be achieved to construct the fence. Second, what is "reasonably necessary" will be assessed by reference to the need for the middle of the fence to be on the boundary line with the posts required to erect it being placed "on the boundary line or as near thereto as practicable".

4. How do the Queenstown Lakes earthworks controls compare to other councils with similar topography and rainfall?

A simple comparison has been undertaken with the five Councils listed in the table below, which were identified as having similar average annual rainfall, soil types and geography to the Queenstown Lakes district, relevant factors when considering effects from earthworks:

District	***Average Annual Rainfall[1]***	***Soil Type[2]***	***Topography***	***Other***
Queenstown Lakes District Plan	913mm	Brown Soil: occur in places where summer drought is uncommon and which are not waterlogged in winter.	Valleys with high jagged mountains, rocky bluffs, and tussock-covered slopes	Significant development in recent years. Tourist and wine growing area.
Napier City Plan	803mm	Brown Soil and pumice: Sandy and gravelly	Hilly	Tourist area that also produces wine. Chosen for its similar soils and rainfall.
Wairarapa Combined District Plan	979mm	Brown Soil and Ultic Soils are strongly weathered soils that have a well structured, Clay enriched subsoil horizon.	Hilly	This is a relatively new plan, so should reflect current practice. Predominately rural area.
Nelson City Plan	970mm	Brown Soil and Ultic Soils	Flat areas close to the coast with more rugged country inland.	A lot of development during recent years.
Marlborough Sounds Resource Management Plan	655mm	Brown Soil and Ultic Soils	Valleys with steep sides and extensive ridgelines.	A lot of development occurring on steep land close to the coast.
Dunedin City Plan	812mm	Brown Soil	Gentle to rugged slopes with flat land close to the coast.	Development occurs on often steep slopes, and the District has similar rainfall and soils to Queenstown.

[1] Figures obtained from NIWA.
[1] Information obtained from Landcare Research

The table below provides a basic summary of the earthworks provisions for the five councils that are similar to Queenstown Lakes district:

Council	*Summary of earthworks provisions*
Dunedin City Plan	• Relatively simple standards: one set for the Rural Zone and one set for all other zones. • Rural: 200m^3 on sites of 10ha or less and 20m^3 per ha on sites over 10ha. • Urban: 100m^3 on sites of 2ha or less and 200m^3 on sites over 2ha. • Specific provisions on protection of High Class Soils, landscapes and ground water protection.
Napier City Plan	• Earthworks have the same status as the associated activity i.e. if subdivision is a controlled activity, then the associated earthworks are a controlled activity. If a residential unit is a permitted activity then associated earthworks are a permitted activity. • Except that any earthworks that exceed a certain set of criteria i.e. is a cut on a slope greater than 22 degrees above horizontal then it becomes a restricted discretionary activity and requires a specialist geotechnical report and design criteria.
Wairarapa Combined District Plan	• Earthworks are only managed in the Rural Zone for the purpose of protecting outstanding landscapes, water bodies, flood hazard and erosion hazard areas.
Nelson Resource Management Plan (Unitary Authority)	• The rules distinguish between "soil disturbance" as one activity and "earthworks" as a separate activity. 'Soil disturbance' is managed according to slope of the site (25 degrees) and distance from waterways (5m from bank). This applies in residential and rural zones. 'Earthworks' by the maximum height or depth of excavation or fill (1.2m in inner city zone). • There are a number of other controls over matters such as the purpose of the earthworks, protection of rivers and CMA, and re-vegetation of sites.
Marlborough Sounds Resource Management Plan	• Earthworks are managed by volume of cut and/or fill (20m3) as well as gradient of cut. • Number of other controls over matters such as erosion of cut, run-off, stability of batters, ecology, archaeology and water quality. • The Plan was quite deliberate in applying a stringent standard for earthworks given the topography of the region. However development in the main areas of Picton and Blenheim is on flat ground, where earthworks are not generally required.

The basic comparison shows that the existing Queenstown Lakes District Plan limits, i.e. the 100m^3 and 200m^2 that are employed in most 'urban' zones, are not unduly restrictive, at least when compared to the five councils with similar geography and rainfall.

5. How many proposals include an earthworks component?

For the purposes of this monitoring report, the period from to 2007 and 2009 was studied. A list of all consents lodged in each calendar year for that period was examined.

A high proportion of land use consents include an earthworks component, simply because you cannot build a building without scraping top soil, digging foundations, laying drains and sealing driveways, all of which involve earthworks. In many

instances, this earthworks component would not trigger the need for a resource consent, provided the Environmental Protection Measures are employed.

Due to the way data is collected when consents are received, the figures below are indicative only, and likely undercount the actual number of consents that require approval for earthworks. Limitations arise because:

- Lakes Environmental record the 'primary' reason for consent, and often earthworks are not the primary reason for consent, it will be part of a larger proposal, for example to construct a new visitor accommodation building.
- It was not possible to determine in all instances whether subdivision consents also required earthworks.

The following table show the total number of consents and the number of those applications that specifically breached the earthworks rules, or required a specific assessment of earthworks as part of another consent.

Year	***Total Number of Consents Lodged***	***Number of consents specifically requiring consent under earthworks rules, or as a controlled activity***	***% of consents specifically requiring consent under earthworks rules***
2007 – 2009	3845	634	16.5%

A minimum of at least 16% of all consents lodged require resource consent under the earthworks rules. This is a significant proportion of all consents, and is approximately 191 consents per year over 2007 – 2009.

6. How many complaints have been received about earthworks?

A review of the Lakes Environmental complaints database has shown the following in relation to complaints involving earthworks:

Year	***Total Number of Complaints Received***	***Number of complaints relating to earthworks***	***% of complaints relating to earthworks***
2007	132	37	28%
2008	109	18	16.5%
2009	256	42	16.5%
Averages	***166***	***32***	***19%***

For the three year study period, a large proportion of complaints received by Lakes Environmental are related to earthworks. On average there were 32 complaints a year in the 2007 – 2009 period. 19% of all the complaints received related to earthworks / earthworks related activities in that time.

Earthworks complaints vary widely in terms of their topic, with the majority relating to the lawfulness of earthworks being undertaken, and dust / mud on the road as a result of earthworks.

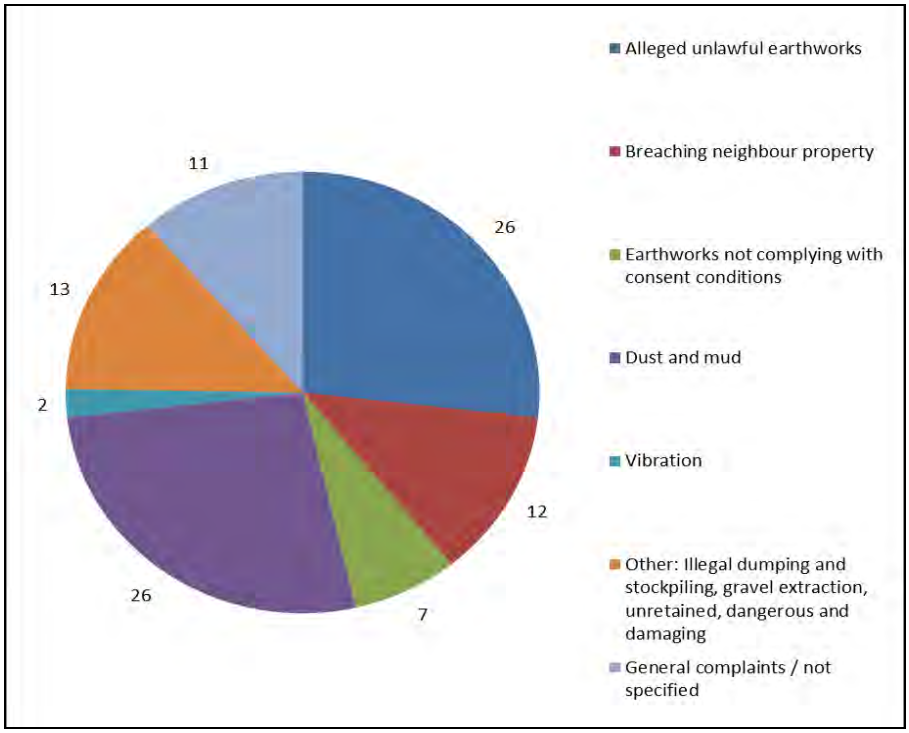


Figure 1. above simply shows the topic of the complaint. It does not show how many of the complaints of alleged unlawful earthworks were correct in terms of no consent having been obtained.

7. What do the earthworks provisions seek to achieve?

The objectives and policies relating to earthworks sit in 'Section 4: District Wide' of the District Plan, reflecting the 'district wide' nature of the activity. The primary 'District Wide' objectives relating to earthworks are set out below:

Objectives

To avoid, remedy or mitigate the adverse effects from earthworks on:

(a) Water bodies

(b) The nature and form of existing landscapes and landforms, particularly in areas of Outstanding Natural Landscapes and Outstanding Natural Features.

(c) Land stability and flood potential of the site and neighbouring properties

(d) The amenity values of neighbourhoods

(e) Cultural heritage sites, including waahi tapu and waahi taoka and archaeological sites

(f) The water quality of the aquifers.

The following 'Taka Whenua' objective is also relevant:

Objective 3 - Waahi Tapu and Waahi Taoka

Recognition and protection of places of burial, other waahi tapu, and all waahi taoka, as places of cultural and traditional importance to Kai Tahu.

A number of other objectives from the District Wide chapter are also indirectly relevant to earthworks, for example the objectives below relating to Nature Conservation Values:

The management of the land resources of the District in such a way as to maintain and, where possible, enhance the quality and quantity of water in the lakes, rivers and wetlands.

8. How effective are the earthworks objectives?

It is noted that every objective listed below includes the words 'avoid, remedy or mitigate' adverse effects. Using the three terms 'avoid, remedy or mitigate' in one objective means it is effectively three objectives in one, as an objective of 'avoiding' adverse effects is quite different to an objective of 'mitigating' them. For example if your objective is to avoid adverse effects on an Outstanding Natural Feature, this is quite different to mitigating the effects of earthworks on an Outstanding Natural Feature, which effectively suggests they can occur. Thus all the objectives for earthworks are not entirely clear on what they seek to achieve.

The District Wide objective for earthworks is set out above, and the constituent parts are assessed individually below.

To avoid, remedy or mitigate the adverse effects from earthworks on water bodies

This is a general objective that remains effective (apart from the comment above) provided the Environmental Protection Measures that are required when earthworks are undertaken are implemented. One of the key effects arising from earthworks is the potential to affect water quality through runoff from exposed soil.

To avoid, remedy or mitigate the adverse effects from earthworks on the nature and form of existing landscapes and landforms, particularly in areas of Outstanding Natural Landscapes and Outstanding Natural Features.

This is a general objective that is considered moderately effective (apart from the comment above). The District Plan naturally contains significant provisions relating to landscapes, and as earthworks can physically affect those landscapes, this high

level objective is relevant. However, the permitted volumes and areas for earthworks in the Rural General zone (where the Outstanding Natural Landscapes and Outstanding Natural Features are located) are relatively high, up to 300m^3 and up to 1000m^2. Adverse effects could still arise from the permitted volumes of earthworks.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on land stability and flood potential of the site and neighbouring properties***

This objective is also considered to be moderately effective as there is no specific link in the rules to the Council's hazard information. This link can be established once a consent is required, as the Lakes Environmental planner can check the Council's hazard information. However earthworks that affect land stability and flood potential could occur within the permitted limits.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on the amenity values of neighbourhoods***

This general objective remains relevant and effective (apart from the comment above). Effects on amenity values can of course still arise within the permitted thresholds, such as from dust, if earthworks are done inappropriately or the Environmental Protection Measures are not employed.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on cultural heritage sites, including waahi tapu and waahi taoka and archaeological sites***

This objective is effective (apart from the comment above). However the rule that gives effect to it is limited to those archaeological sites in Appendix 3, which lists just 14 archaeological sites in the entire Queenstown Lakes district. Therefore in most instances the objective relies on the Historic Places Act being implemented to address effects on archaeological sites.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on the water quality of the aquifers.***

This objective relating to the water quality of aquifers remains relevant and effective (apart from the comment above). The objective is supported by rules relating to the exposure of ground water.

8.1 Summary with regard to effectiveness of objectives

The effectiveness of all the objectives is limited by the use of 'avoid, remedy or mitigate', which is effectively three objectives in one. Otherwise, the objectives are relatively effective in that they address the key issues arising from earthworks. One area for which there is no clear objective, is with regard to applications for the deposition of clean fill, and gravel extraction, which both fall within the definition of earthworks. Both of these types of applications can be controversial as discussed in more detail in section 10 of this report.

9. How effective are the earthworks policies?

There are 12 policies relating to earthworks which are set out below:

> ***1. To minimise sediment run-off into water bodies from earthworks activities through the adoption of sediment control techniques.***

This policy is considered to be effective. It suggests that the associated rules should focus on sites within close proximity to water bodies and sloping sites. However as section 10.1 illustrates, at a random selection of ten sites under construction, some of those sites close to water bodies were not taking measures to minimise sediment runoff.

> ***2. To avoid the location of earthworks in close proximity to water bodies. Where this can not be avoided, to ensure that sediment control measures are put in place to minimise sediment run-off.***

The second part of the policy is already covered by Policy 1 as an expectation for all earthworks, and therefore this part of the policy simply provides an easy 'out'. Either the second part of the policy should be removed and the standard strengthened accordingly to achieve the policy "to avoid" (e.g. a zone standard would need to prevent any earthworks within 7m of a water body), or the policy needs to be re-drafted to be clearer (e.g. to avoid earthworks…unless sediment control measures are put in place which will avoid any sediment runoff entering water bodies).

> ***3. To minimise the area of bare soil exposed and the length of time it remains exposed.***

The policy should be amended to clarify what it intends to achieve. If it is to help in reducing runoff, erosion and/ or stability issues then the standard should only apply to steep slopes or those in proximity to a waterbody. Alternatively, if it intends to mitigate dust issues then the following should be considered:

- why the site standard specifies that the exposed earth be of an average depth of 0.5m before a consent is triggered in residential zones as this will not mitigate dust;
- whether the area specified is too low, as that barely enables the creation of a building platform, and
- whether the site standard is needed at all, in that the Environmental Protection Methods (including dust mitigation) are required to be met for all earthworks, regardless of scale.

In regard to the area standard (m^2), it is noted that none of the five other District Plans assessed in section 4 of this report, include an *area* (m^2) control. Furthermore, all of the ten construction sites which were assessed for this report were visited in very dry conditions (albeit still/ not windy) and only one exhibited dust issues despite the fact that few had any real dust mitigation measures in place.

4. To avoid or mitigate adverse visual effects of earthworks on outstanding natural landscapes and outstanding natural features.

This policy relates solely to the Rural General Zone and is effective, although the same issue arises as with the objectives, in that the use of 'avoid or mitigate' means it is two different policies in one. It is unclear why "remedy' is not mentioned in this policy.

Most earthworks in Outstanding Natural Landscape areas and on Outstanding Natural Features relate to a dwelling or subdivision, which once approved are exempt from the earthworks rules and subject to assessment under the more detailed Part 4 landscape policies.

5. To avoid earthworks including tracking on steeply sloping sites and land prone to erosion or instability. Where this can not be avoided, to ensure techniques are adopted that minimise the potential to decrease land stability.

This policy is not considered effective as the rules are not sufficiently strong enough to avoid earthworks on steep sites and there is no trigger relating to slope in the rules. Earthworks up to 100m³/ 200m² in urban areas and up to 300m³/1000m² in the Rural General zone are permitted regardless of how steep the land is.

Case Study 5 provides an example of earthworks on steeply sloping land where there is no evidence of exacerbated erosion and the rock, where necessary, has been stabilised. As part of the District Plan Review, a standard which triggers the requirement for resource consent based on a particular site slope could be considered. Three of the District Plans assessed used site slope as a trigger, using 20º, 22º and 25º respectively.

The policy could be re-drafted to *"to avoid earthworks…on steeply sloping sites… unless…techniques are adopted…".*

6. To protect the existing form and amenity values of residential areas by restricting the magnitude of filling and excavation.

The policy is effective to the extent that rules do indeed restrict the magnitude of filling and excavation. Beyond those limits, resource consent is required, and an assessment can be made of impacts on form and amenity values, and if necessary, affected party approvals required.

The part of the policy relating to "the amenity values of neighbourhoods" would include dust and noise, and therefore overlaps with the following policy.

7. To ensure techniques are adopted to minimise dust and noise effects from earthworks activities.

This policy is appropriately worded and is carried through to the rules with the Environmental Protection Measures requiring dust control measures in urban zones. As the ten case studies in section 10.1 show, ensuring this is actually occurring at the time of construction is critical.

8. As far as practicable, to protect Waahi Tapu, Waahi Taoka, and other archaeological sites from potential disturbance resulting from earthworks.

This policy is not particularly effective because it is unclear due to the inconsistency with Policy 3.1 below. There is also no mention of what to do if encountering Waahi Tapu, Waahi Taoka and other archaeological sites in the 'Guide to Earthworks' document (which is referred to in the site standard). There are specific rules regarding the protection of archaeological sites including waahi tapu and waahi taoka that are identified in Appendix 3 of the District Plan. However only 14 archaeological sites are identified in the entire Queenstown Lakes district.

9. To notify Kai Tahu ki Otago where earthworks are proposed in areas identified in either the District Plan or the Natural Resource Management Plan as significant to iwi.

This policy is effective in that it has been carried through to the rules for earthworks, which normally state that:

> *The activity shall not affect Ngai Tahu's cultural, spiritual and traditional association with land adjacent to or within Statutory Acknowledgement Areas.*

The District Plan identifies the following Statutory Acknowledgement Areas:

1. Lake Hawea
2. Lake Wanaka
3. Lake Wakatipu (Whakatipu-Wai-Maori)
4. Clutha River (Mata-au)
5. Mount Earnslaw (Pikirakatahi)
6. Mount Aspiring (Tittitea)

Lakes Environmental has confirmed that Ngai Tahu is notified of applications within these Statutory Acknowledgement Areas (SAA), and depending on the nature of the application, for proposals adjoining the SAA.

10. To notify the NZ Historic Places Trust where proposed earthworks may affect archaeological sites.

Where the earthworks rule is triggered relating to the modification, damage or destruction of archaeological sites listed in Appendix 3 of the District Plan, New Zealand Historic Places Trust (NZHPT) would definitely be deemed to be an 'affected party' and would be notified of the application. However, as noted earlier, only 14 archaeological sites are listed in Appendix 3 which limits the effectiveness of this policy. Permission from the NZHPT would still be required under the Historic Places Act if a pre-1900 archaeological site is identified. Appendix 3 will also be updated as part of the District Plan review.

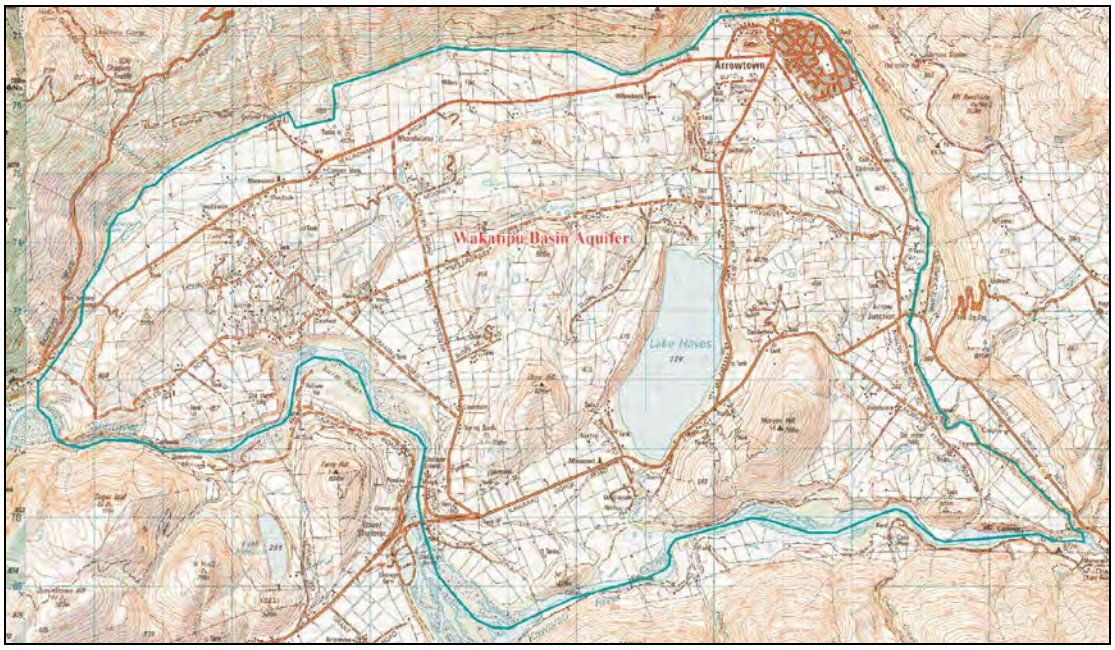
11. To ensure that work is suspended and Kai Tahu ki Otago and the NZ Historic Places Trust are notified when archaeological remains are observed or unearthed during earthworks activities.

This policy is for situations where archaeological sites are discovered during excavations. This does not happen frequently, and the NZHPT representative spoken to could not recall if it had ever happened. The policy is effective in its wording, but its effectiveness in practice is dependent on the cooperation of the digger driver or construction staff who makes the discovery.

12. To avoid contaminating the water aquifers of the Queenstown Lakes District.

This policy is considered appropriate – its effectiveness is largely determined by the Otago Regional Council (ORC), which grants consents for new bores and for discharges that could affect the aquifers. Correspondence with the ORC confirms that at a big picture level, groundwater within the Queenstown Lakes district aquifers is pristine, although some localised contamination has been identified from wastewater discharges. The Regional Plan: Water identifies four aquifers within the Queenstown Lakes located in the Hawea Basin, Wanaka basin, Cardrona alluvial ribbon and the Wakatipu Basin.

Wakatipu Basin Aquifer – From ORC Water Plan



Whilst there is an Environmental Protection Method stating that cut or fill shall not expose the groundwater aquifer (water bearing gravels), such that it causes ponding or artificial drainage of the aquifer, there is no rule relating specifically to the four aquifers identified in the Regional Plan: Water. The limited level of compliance with Environmental Protection Measures found in section 10.1 further suggests that such a standard may be needed in order to ensure compliance and protect ground water.

9.1 Takata Whenua policy relating to earthworks

The following policy is from the Takata Whenua section of the District Wide Issues chapter:

> ***3.1 To recognise waahi tapu and waahi taoka, and protect them from disturbance and interference from modification through earthworks, mining, and other development.***

This policy is related to Policies 8 – 11 above. Policy 8 above, and this policy, are inconsistent which limits its effectiveness. Policy 8 refers to protecting Waahi Tapu, Waahi Taoka, and other sites "as far as practicable", which is a weaker policy than 3.1 above, which requires they be 'recognised and protected' with no reference to whether this is practical or not. This inconsistency could be addressed through the District Plan Review.

9.2 Summary with regard to effectiveness of policies

The majority of the policies are effective. A number could be improved with minor changes. There is an inconsistency between the District Wide policies relating to earthworks and the District Wide policies relating to Takata Whenua.

10. How effective are the earthworks rules?

Monitoring of the District Plan provisions, including meetings and discussions with stakeholders, has identified a number of issues with the rules relating to earthworks:

1. <u>7m setback distance for earthworks near water bodies</u>

The ORC noted that when they submitted on Variation 8 in relation to the proximity of works to a water body, the intent was that the setback rule was 7m from the top of the *bank* of a water body, as this is what is used in the Regional Plan: Water. However the drafting of the rule does not reflect that, it states *"within 7m of a water body".* Lakes Environmental interpret this as being from the 7m edge of the actual water course. This is an inconsistency between the Regional Plan: Water, and the District Plan.

2. <u>No distinction between earthworks and cleanfills / gravel processing</u>

The earthworks rules do not distinguish between earthworks associated with construction of a building, and other quite distinct activities such as clean filling and gravel extraction. Most applications for earthworks are associated with construction or landscaping of a new building. Once complete, the new building and landscaping effectively mitigates the effect of the earthworks. Some of the more controversial applications for earthworks have involved the deposition of large volumes of clean fill or gravel extraction. While low in number, these applications have often been publicly notified and present quite different issues. There are also no objectives or

policies relating to clean fill or gravel processing. Consideration could be given to whether 'clean filling' or 'gravel processing' requires a separate consent category.

3. Gravel extraction and the definition of mining

Related to the above, the definition of 'mining' in the district plan is:

> *MINING: Means the use of land and buildings for the primary purpose of the extraction, winning, quarrying, excavation, taking and associated processing of minerals and includes prospecting and exploration.*

The definition of 'earthworks' is:

> *EARTHWORKS: Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pits and the erection of posts or poles or the planting of trees.*

Confusion has arisen with regard to gravel extraction activities, and whether this is 'mining' or 'earthworks'. The two definitions need to be reviewed to clarify what category gravel extraction falls into.

4. No link in rules to site slope

Issues such as sediment runoff are intimately related to the slope of the site, although there are exceptions where solid rock is involved. However there is no link in the earthworks rules to site slope. Consequently flat residential locations like Lake Hayes Estate are sometimes triggering the need for an earthworks consent where there may not be any environmental effects if the Environmental Protection Measures (for dust and runoff) are implemented.

5. The area (m^2) limit for urban zones

Related to the above, the area limit on earthworks in most urban zones is $200m^2$. The small study of 5 other district plans with similar topography and rainfall to the Queenstown Lakes district, indicated that no other Council had an *area* limit (m^2) for earthworks, just *volume* limits (m^3). If the purpose of area limit (m^2) rule is to control dust, this should be controlled in any event under the Environmental Protection Measures. The area limit (m^2) is somewhat curious, as earthworks less than 0.5m are excluded in residential zones. In other words, it would be impossible for an earthworks consent to be required just on the basis of *area*, simply because if you are exceeding $200m^2$ at an average depth greater than 0.5m, that already totals $100m^3$, which is the trigger for the volume limit before an earthworks consent is required. As the area of earthworks (m^2) is intimately linked to the volume (m^3), consideration could be given as to whether the area rule is necessary.

6. Earthworks in the Gibbston Character Zone

The earthworks rule for the Gibbston Character zone is unusual in that the Environmental Protection Measures are not listed, and the range of exceptions listed for the Rural General zone, are not included. This should be considered as part of the District Plan review.

7. Earthworks in the Bendemeer Special Zone

There are two sites standard relating to earthworks (pages 12-60 and 12-61). The first site standard 12.9.5.1iii appears to be an error as it specifies the normal 'urban' limits for earthworks. The second site standard, 12.9.5.1iv, is likely to be the correct one, as it refers specifically to Bendemeer, and contains more 'rural' scale earthworks rules.

8. Farm tracks and fire breaks

The earthworks rules exclude *"routine repair and maintenance of operational tracks"*. Feedback from Federated Farmers supported this current exemption, but noted that what is 'routine' is often debateable, and it is unclear if this includes minor upgrading of a track. Federated Farmers would also prefer to see a non-notification provision for farm tracks, but recognise they can be sensitive activities in the Queenstown Lakes district landscape. Lakes Environmental noted that on occasion, this rule has been 'stretched' to widen farm tracks, which are then used as the basis of a road for subdivision. This is a difficult issue to resolve as it is important for the farming community to enable the genuine repair and maintenance of farm tracks for farming activities. Federated Farmers also noted that constructing firebreaks often requires earthworks. This could be considered for inclusion as an exemption to the definition of earthworks.

9. Link to subdivision rules

Lakes Environmental have noted that while it appears that earthworks associated with subdivision are exempt from the site standard rules for earthworks (and this was likely the intention of Variation 8), the wording of Section 15 (subdivision) does not in fact provide that exemption. As a result, where earthworks are associated with a subdivision and have not been approved by separate land use consent, they are subject to the site standard provisions for earthworks. This means that a subdivision that was otherwise a controlled activity is assessed as a restricted discretionary activity, with discretion reserved over earthworks. This requires further consideration.

10. Link to hazards information

The objectives and policies refer to avoiding, remedying or mitigating the adverse effects of earthworks on land stability and flood potential of the site and neighbouring properties. However, there is no direct link in the District Plan to the hazard information held by Council. This information can be referred to once the area / volume limits are triggered and consent is required, however the small amount of permitted earthworks could occur in unstable or flood prone areas.

11. Earthworks associated with constructing fence lines

As noted in the boxed case study, the High Court overturned a decision on the Environment Court relating to earthworks associated with the construction of a fence line on Mt Dewar Station. Consideration needs to be given to revising the Earthworks definition in light of this decision. Due to the vagueness of the terms 'reasonably necessary' and 'minimum disturbance', this will be challenging in terms of a definition that can be monitored and enforced.

12. Twelve month time limit for earthworks

The District Plan allows a certain amount of permitted earthworks within a 12 month period. Occasionally a situation arises where a person may undertake the permitted amount every 12 months in order to remove a landscape feature or other type of earthwork that might not be approved if a resource consent was lodged. This is a difficult issue to resolve, however, it is noted some Councils have earthworks rules without a permitted annual allowance.

13. Archaeological sites rule

The standard rule for the protection of archaeological sites, waahi tapu and waahi taoka is only triggered if the site that is being 'modified, damaged or destroyed' is listed in Appendix 3 of the District Plan. This appendix contains only 14 entries of major archaeological sites. There is no district plan protection for archaeological sites not listed, but permission would still be required under the Historic Places Act. Appendix 3 will be updated as part of the District Plan review.

14. Link to Heritage landscapes

Related to the above, the earthworks rules do not link to the identified Heritage Landscapes shown in Appendix 10. On a few occasions, the identified Heritage Landscapes have not been considered at the time of earthworks consent.

15. Exclusion of Ski Area Sub-Zones from the earthworks rules

The Ski Area Sub-Zones are exempt from the normal earthworks rules in the Rural General zone. On one hand, this permissive regime has been adopted to enable the development of the ski fields, recognising their importance in contributing to the social and economic well-being of the community. On the other hand, this approach appears inconsistent with other earthworks rules in the District Plan, where volumes as small as $100m^3$ require resource consent, even on flat land zoned for development. Earthworks in steep, elevated locations such as the Ski Area Sub-Zones do have the potential to have environmental effects, and it takes a long time for vegetation to re-establish. Consideration could be given to applying some or all of the Environmental Protection Measures to earthworks in the Ski Area sub-Zones, so that as a minimum, erosion and sediment controls are implemented.

16. Unfinished earthworks

A recurring issue is the visual impact of unfinished earthworks arising from a construction project not being fully completed. Well known local examples are at 5 Mile and Kawarau Falls Station. Bonds can be taken at the time of earthworks consent, and the assessment matters could be strengthened to specifically mention the consideration of a bond when earthworks over a certain scale are proposed. The key would be ensuring smaller scale earthworks are not captured.

10.1 Are the Environmental Protection Measures and consent conditions relating to earthworks being complied with?

The rules for earthworks all require that Environmental Protection Measures be undertaken. Ten active construction sites were randomly identified within the Queenstown Lakes district as case studies in order to determine:

1. whether any consent conditions relate to earthworks;
2. if they have resource consent for earthworks; whether the earthworks conditions are being complied with; and
3. in all circumstances, including if the construction is being undertaken within the permitted limits; whether the Environmental Protection Measures required by the site standard are being undertaken.

The Environmental Protection Measures require that:

> *"any person carrying out earthworks shall:*
>
> *a. Implement erosion and sediment control measures to avoid soil erosion or any sediment entering any water body. Refer to the Queenstown Lakes District Earthworks guideline to assist in the achievement of this standard.*
>
> *b. Ensure that any material associated with the earthworks activity is not positioned on a site within 7m of a water body or where it may dam or divert or contaminate water.*
>
> *c. Implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site.*

Note (c) relating to dust control does not apply in the Rural General zone.

The ten case studies are:

1. A residential dwelling in the Wanaka Rural Residential zone;
2. A residential dwelling on Lake Hayes Rural Residential zone;
3. A residential dwelling on Queenstown Hill in the Low Density Residential zone;
4. A residential dwelling at St Andrews Park, Queenstown in the Low Density Residential zone.
5. A residential dwelling in Queenstown (Low Density Residential)
6. An accessory building in Queenstown in the High Density Residential zone;
7. A commercial building in the Wanaka Town Centre zone;
8. An industrial building in Wanaka in the Industrial zone;
9. Earthworks not related to a dwelling in the Wakatipu Basin in the Rural General zone; and
10. A residential dwelling in the Remarkables Park Special Zone (Activity Area 1).

The ten case studies were given an overall rating of green, orange or red, based on the following:

Green	All earthworks related conditions / Environmental Protection Measures being complied with.
Orange	Some earthworks related conditions / Environmental Protection Measures being complied with.
Red	No visible effort at any form of compliance with either earthworks related conditions or Environmental Protection Measures.

It is noted that the above rating is indicative only, as a single site visit cannot accurately determine compliance with matters such as dust, which might require earthworks to be dampened down on a daily basis.

10.1.1 Case study 1 – residential dwelling, Wanaka, Rural Residential zone

Resource consent?	Yes - RM 110824	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Relatively flat	RM110824. Consented 1,874m² of earthworks (45% of the site). Conditions: - Compliance with control/ mitigation techniques outlined in the Earthworks guide[1] prior to commencing - Prevent deposition of material onto roads - Top soiled and re-vegetated within 6 weeks of completing earthworks. Compliance: - Extent – seem to have scraped slightly more than consented. - Some signs of 'dampening down' but other than 1 haybale, no other sign of any runoff control (e.g. bales, silt fence, bunds, or sediment ponds or drainage). NB – there is an existing vegetation buffer of sorts along one road boundary.
Notes	Visited in March/ April in very dry conditions. The building is still under construction (i.e. roof not yet on) and 1-2 m high piles of earth still onsite/ yet to be transported.	

[1] "A guide to Earthworks in the Queenstown Lakes District Council"

		- Roads clean but no 'cattlestop' in place (as per 'General Measure' #1 of the Guide) Some re-contouring looks complete but there is no sign of re-vegetation/ top soil/ grass where there plausibly could be.
Overall rating:	Orange	Some compliance apparent

10.1.2 Case Study 2 - Residential dwelling, Lake Hayes Rural Residential zone

Resource consent?	Yes - RM100663	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping and highly prominent	RM100663 – Bowden. Consent approved approximately 3,800m³ of earthworks, consisting of 2,500m³ of cut and 1,300m³ of fill. Conditions: - Install measures to control and/or mitigate any dust, silt runoff and sedimentation for the duration of the project - Retaining wall along the southeast boundary of the site is to be completed as soon as practicable or if left un-stabilised for more than 8 weeks, temporary retaining or protection measures shall be installed - Prevent deposition of debris on roads - No earthworks, loading and stockpiling of earth beyond the subject site. - Exposed earth to be top-soiled/ grassed /re-vegetated/ otherwise permanently stabilised within 4 weeks. - Obtain a Code of Compliance for retaining walls constructed under the Building Act - Submit a revised driveway, retaining and earthworks design to mitigate adverse effects on the landscape, including proposed finish for retaining walls. Compliance: - Silt fence installed along only half of the downslope boundary and in disrepair. - No obvious measures taken to control dust - A revised driveway, retaining and earthworks design has been approved
Notes	Visited in March/ April in very dry conditions. Landscape effects were a real concern in this case.	

		- Retaining wall along the southeast/ rear boundary of the site is complete as at 31-3-12. - No measures in place to prevent deposition of any debris on surrounding roads. However none noticed. - Possible stockpiling occurring on the adjacent site to the south. - No exposed earth top-soiled/ grassed /re-vegetated/ otherwise permanently stabilised yet – may be too early to be practical.
Overall rating:	Orange	Some compliance apparent

10.1.3 Case Study 3 – Residential dwelling, Queenstown Hill, Low Density Residential zone

Resource consent?	Yes - RM 110098	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping	Consented for 438m³ and over 200m² of earthworks; and a breach of the height to boundary rule (i.e. a 3m cut on the western boundary and 1.8m cut on the road boundary; and a maximum cut of 4.8 metres). Conditions: - A geotechnical engineer to continually assess the excavation and ensure temporary retaining in place where necessary. - Measures to be taken to control/ mitigate dust, silt run-off, and sedimentation. - Earthworks, batter slopes, retaining, earthworks and site management to be in accordance with the engineering report - If there are justifiable complaints regarding vibration then earthworks to cease. - Ground conditions are to be monitored throughout
Notes	Visited in March/ April in very dry conditions. The geotechnical report submitted as part of the application has not been assessed as part of this compliance check.	

		- Retaining walls to be constructed as soon as practicable and if not done within 6 weeks then temporary retaining is needed - No earthworks or stockpiling off-site - A 2 m safety fence to be constructed atop the cut. - Measures to be taken to prevent deposition of material onto roads - Compliance with the control/ mitigation techniques outlined in the Earthworks guide[2] - Top soiled and re-vegetated within 6 weeks of completing earthworks **Compliance:** - No sign of bales, silt fencing, etc. to control sediment runoff. - Extent of compliance regarding geotechnical assessments is unknown. - Most of the exposed earth has been covered with river stones[3] which would mitigate the effects of run off, sedimentation, and dust. - Signs that the area of exposed/ bare earth had been dampened. No dust issues when visited. - The roads were generally clean but there was no cattlestop/ wooden planks, etc. in place (as per #1 of the Guide). - There was no temporary or permanent retaining of the cuts in place as at 20-3-12 but when re-visited on 2-4-12, the cut was permanently retained (see figure above). Unlikely this was constructed within the 6 weeks required by consent.
Overall rating:	Orange	Some compliance apparent

[2] "A guide to Earthworks in the Queenstown Lakes District Council"
[3] Presumably to cover underground services, first and foremost

10.1.4 Case Study 4: A residential dwelling, Queenstown, Low Density Residential zone.

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Gently sloping, down to a water body	No resource consent has been applied for or approved for earthworks, even though the earthworks appears to be well over 200m² in area and 100m³ in volume and definitely involves over 20m³ of earthworks within 7 m of a waterbody. Compliance with the site standards and EPMs: - As outlined above, it seems to exceed the standards relating to area, volume and proximity to a waterbody.
Notes		

		- No measures seem to have been taken to prevent dust or sedimentation. The fact that there is no sediment control and the earthworks is as close as 1m from the waterbody is of concern. - No measures have been taken to prevent debris on roads but no evidence of such debris - Rock retaining wall (approx. 1m) installed along edge adjacent to waterbody. The only other significant 'cut' proposed (in the south-west of the site) is not yet properly formed and not yet retained. - It is too early for top soiling, etc. - No earthworks appear to be breaching the boundaries.
Overall rating	Red	Appears to need resource consent. No visible effort to comply with EPMs.

10.1.5 Case Study 5: Residential dwelling, Low Density Residential, Visitor Accommodation sub-zone.

Resource consent?	Yes – RM100256	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping, large development site	RM100256 - Resource consent approved 4318m³ of earthworks across a total area of 4490m², with a maximum cut depth of 7.2 metres, and a maximum fill depth of 4.4 metres. Nine consents are required in relation to the proposed earthworks. Conditions: - Install measures to control and/or mitigate any dust, silt run-off and sedimentation - Include groundwater and stormwater control measures - Batter slopes, retaining, and site works as per the geotechnical report from Green Being - No rock breaking from 5 pm – 8 am - Prevent debris on roads - No earthworks or stockpiling off site - If justifiable complaints re vibration, then shall cease and reassess. - Temporary safety fences atop the cuts - If excavation left unstabilised for over 6 weeks then temporary retaining is needed. Top soiling etc. to occur within 4 weeks of dwelling being constructed. Compliance: - Aerial photography taken in February 2012 appears to show works encroaching into adjoining reserve. - Silt fence in place along lower boundary of the site - No evidence of sprinklers/ dampening down but the site is almost exclusively rock so dust issues unlikely to be significant. - Rock breaking was undertaken over a short time and within the permitted hours - No mechanism in place to prevent debris on roads but none sighted. - No earthworks or stockpiling occurring off site
Notes	Visited in March/ April in very dry conditions. The application includes extensive landscape plan, to reduce the perceived bulk of the dwelling and conceal the earthworks. The geotechnical report submitted as part of the application has not been assessed as part of this compliance check. Split-zoned Low Density Residential (visitor accommodation subzone) and Rural General	

		- Safety fences in place Excavation/ cuts have been stabilised (as at 2/4/12). It is unknown whether this occurred within the 6 weeks required by conditions.
Overall rating	Orange	Almost fully complies but aerial photography shows some earthworks appear to be encroaching onto adjoining Council reserve.

10.1.6 Case Study 6 - An accessory building in Queenstown in the High Density Residential zone

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Sloping.	No resource consent exists for the site. Earthworks likely close to the volume limits specified in the Plan. Notwithstanding the above, with regard to the EPMs which all earthworks must comply with, it is not complying with (c)(ii)(a) re dust and runoff mitigation Sediment / dirt was running down driveway and onto legal road reserve, not getting on the road much. It is too soon to monitor (c)(i) regarding re-vegetation.
Notes	Visited in March/ April in very dry conditions Building replaces existing carport so excavations not as large as might appear. Estimated to be close to 100m³.	
Overall rating	Red	No obvious efforts at complying with the EPMs

10.1.7 Case Study 7 - A commercial building in the Wanaka Town Centre zone

Resource consent?	Yes – RM110596	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Flat land adjoining the Bullock Creek reserve. The creek is 12 metres from the excavation.	RM110596 approved 400m³ and 1100m² of earthworks. The proposed earthworks involve excavating the site about 0.5m and compaction in order to create a building platform. Conditions: - A geotechnical engineer is to continually assess the excavation and ensure temporary retaining in place where necessary to stop erosion and stability issues. - A site management plan is to be submitted which, as a minimum, includes sprinklers, water carts, etc. to control dust; silt traps (i.e. bales or silt fences/ traps) to stop sediment entering Bullock Creek, site drainage paths to keep any silt laden materials on site and to direct the flow to silt traps (and to maintain and replace such traps). - A vehicle crossing is to be installed to prevent debris being taken onto the road - Various conditions relating to ensuring a 'sound' base for building upon (including the removal of all uncertified fill, confirming the depth of footings, etc. - Topsoiling/ re-vegetation or otherwise permanently stabilising to occur within 4 weeks (of completing the earthworks presumably) and the building cannot be occupied until then.
Notes	The site a flood prone area. Visited in March/ April in very dry conditions. There are 5 further conditions following completion of the earthworks which cannot yet be commented on. Without assessing the site management plan the specific detail regarding management and mitigation cannot be monitored.	

		Compliance: - Regarding sediment control, filter cloth is attached to the fence on the Bullock Creek reserve boundary. - The vehicle crossing had not been designed to ensure against debris on the road (although there appeared to be very little) - There was no evidence of hoses, sprinklers, or water carts on site/ in use but the site was not too dusty and the project manager said that sprinklers are used. Compaction may well mean that dust issues are unlikely to be significant - It is unknown what extent of drainage is in place and whether it includes filters. - As the building has yet to be started, it will be a considerable time before re-vegetation/ top soil, grass or hard surface occurs.
Overall Rating	Orange	Substantial compliance with exception of vehicle crossing. Possibly a green rating.

10.1.8 Case Study 8 – Industrial building, Wanaka, Industrial zone

Resource consent?	Yes – RM110490	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Flat	RM110490 - Minerva Property Limited – approved 194m³ of earthworks. Conditions: - Compliance with control/ mitigation techniques outlined in the Earthworks guide[4] prior to commencing - Wooden planks or similar to prevent damage to the footpath and kerb and to prevent deposition of material onto roads
Notes	Visited in March in very dry conditions	

[4] "A guide to Earthworks in the Queenstown Lakes District Council"

		- Top soiled and re-vegetated within 4 weeks of the building being constructed and building shall not be occupied until this time. Compliance: - Downpipes and some drainage in place (refer above photo) but no filter cloth over drains to prevent sediment entering. - The site was very dusty and there were no signs of 'dampening down' the exposed earth. - Earth had been stockpiled on the road reserve (beyond the site boundaries). Refer above photo. - Regarding sediment runoff, there was no sign of hay bales, silt fences, or bunds - Roads clean but no 'cattlestop' in place (as per the conditions and #1 of the Guide) As the majority of the bare earth will be covered in hard surface (e.g. concrete) re-vegetating, etc. seems to not make sense and has not been done.
Overall rating	Red	No obvious efforts at compliance

10.1.9 Case Study 9 - Earthworks not related to a dwelling, Rural General zone, Wakatipu Basin

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Sloping and adjacent to and runs down to a wetland area and an adjoining irrigation race (not deemed to be a water body under the RMA definition)	No resource consent can be found for this earthworks, which is probably within the permitted Rural General volumes / area limits of 300m^2 and 1000m². In order to meet the site standard, the EPMs which apply to 'any person carrying out earthworks' need to be complied with. Compliance with the EPMs:
Notes	Visited in March/ April in very dry conditions	- There are no erosion or sediment control measures in place, however due to gentle slope of site, unlikely to be

		significant erosion or sedimentation. - It was too early to monitor re-vegetation requirements. - There is no requirement for dust control in the EPMs for the Rural General zone.
Overall rating	Green	Possibly could be an orange rating, but erosion and sediment control probably not required in this instance.

10.1.10 Case Study 10 – Residential dwelling, Remarkables Park Special Zone (AA1).

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Gently sloping, almost flat.	Due to the small size of this house and relatively flat site it would easily fit within the 100m^3 and 200m^2 limits. No resource consent is needed but must comply with the EPMs: Compliance with the EPMs: - There are no erosion or sediment control measures in place, however due to flat nature of site and small house this is probably not needed. - There was no visible dust control on the large pile of topsoil which due to the prolonged construction period could cause dust issues for neighbours. Due to construction stalling for several months, no workers had been on site to control dust. - It was too early to monitor re-vegetation requirements.
Notes	Visited in May following recent rain. Construction had been stalled for several months following the roof being finished.	
Overall rating	Orange	Dust control was not being undertaken on large pile of top soil for several months when construction stalled.

10.1.11 Summary with regard to case studies

Ten active construction sites for a range of activities in a range of zones were randomly identified throughout the Queenstown Lakes district. This provided a useful snapshot of whether consent conditions relating to earthworks, and the Environmental Protection Measures which apply regardless of whether a consent is required, are being implemented.

Category	***Number of Case Study Sites / 10***
All earthworks related conditions / Environmental Protection Measures being complied with.	1
Some earthworks related conditions / environmental protection measures being complied with.	6
No visible effort at any form of compliance with either earthworks related conditions or environmental protection measures.	3

The above assessment is subjective, however in most instances it appears some effort at compliance is being made, but could be improved in some areas. In three instances, it appeared that there were definite breaches of either the earthworks rules (where no consent had been obtained) or where conditions had been specifically breached, for example, earthworks going outside of the site.

11. How effective are the earthworks implementation methods?

The District Plan lists the following Implementation Methods:

Implementation methods

(i) District Plan

(a) The inclusion of rules controlling the effects of earthworks activities in the Residential, Rural Living Areas, Townships, Town Centre, Business and Industrial, and Special Zones.

This implementation method has been adopted, with rules in almost all zones, not just the ones listed above.

(ii) Other methods

(a) The provision of sediment control guidelines, which provide information on sediment control techniques, and best management practices for earthworks activities.

(b) Advise and provide information to local community groups, landholders and organisations

(c) *Coordination with Te Runanga O Ngai Tahu, Kai Tahu ki Otago and the NZ Historic Places Trust in the identification and protection of sites of cultural heritage value.*

(d) *Advise and provide information to all those proposing to undertake earthworks with detailed information of the Wakatipu aquifers and mantle as provided by the Otago Regional Council.*

In terms of implementation method ii(a) above, these are frequently referenced in consent conditions. These guidelines could also fulfil a role under implementation method ii(b). In terms of ii(c), this will need to occur as part of the district plan review in order to update Appendix 3. In terms of ii(d), a review of the ORC website does not indicate this information is specifically available, but it is available in the Regional Plan: Water.

11.1 Summary with regard to implementation methods

As the ten case studies in section 10 illustrate, neither the 'District Plan' or 'Other Methods', particularly (a) the sediment control guidelines are particularly effective in terms of sediment control.

12. How efficient are the earthworks provisions?

The financial cost of administering the earthworks provisions / processing resource consents is difficult to evaluate clearly, as earthworks are usually part of another application, for example, to construct a dwelling. The financial cost of the earthworks provisions has been evaluated using the 2007 – 2009 period based on an assessment of:

- Number of resource consents triggered by the earthworks rules
- Number of resource consents triggered by only the earthworks rules
- Notification / non-notification of earthworks related applications
- Number of Environment Court appeals focused on earthworks related matters

12.1 How many resource consents relating to earthworks have been triggered?

As noted in section 5, approximately 16% of the consents lodged between 2007 and 2009 were for or included an earthworks component. The vast majority are for earthworks as part of a building. Over the three years studied, this is some 634 consents. As noted in section 5, this is likely an undercount.

Year	***Total Number of Consents Lodged***	***Number of consents specifically requiring consent under earthworks rules, or as a controlled activity***	***% of consents specifically requiring consent under earthworks rules***
2007 – 2009	3845	634	16.5%

12.2 Average cost of processing resource consents (2003–2011)

Lakes Environmental charge the following fees for earthworks applications:

Earthworks minor (e.g. single dwelling or similar)	*$820.00*
Earthworks other	*$2,500.00*

However, the Lakes Environmental fees are not cumulative, i.e. where an application includes both land-use and earthworks activities or multiple activities, only the higher or highest relevant charge is payable. If the fee for another part of the application is higher than the earthworks fee, the earthworks fee would not be charged.

Determining the cost of the earthworks provisions in the District Plan is very difficult as the cost of the earthworks part of a resource consent is normally tied up with consent for another matter, such as a building.

Lakes Environmental engineers have advised that the time spent on the earthworks component of an application is completely dependent on the quality of information provided by the applicant. If all necessary information is provided up-front, the time spent can be as little as an hour or two, or where information is missing or poor, many hours. Major earthworks applications such as that at Kawarau Falls Station can require many days or weeks of work.

While it would be possible to trawl through the itemised invoices from Lakes Environmental for a selection of consents involving earthworks, to determine what proportion of the total time / cost was associated with assessing the earthworks component, this is unlikely to provide meaningful results. It would rather reflect the quality of information provided with the consent application.

12.3 Notification / Non-notification of applications

Over the 2007 – 2009 study period, of the 3845 consents lodged, approximately 175 were processed on a notified or limited notified basis. This equates to a little over one consent being notified each week over the period 2007 – 2009.

A more detailed examination of these 175 notified applications has revealed that approximately 77 involved an earthworks component. In most instances, earthworks were associated with a building and were not the main purpose of the consent.

Over the period 2007 – 2009, seven applications were publicly notified where the main component of the application related to earthworks:

Consent	***Date lodged***	***Zone***	***Description***	***Status***
RM071162	6/12/2007	RG	Continue a clean fill operation at Littles Road , Wakatipu	Awaiting further information
RM050922	24/07/2008	RG	Consent for stockpiling and processing of gravel and machinery storage on site located at Tucker Beach.	Refused by Commissioner, approved by Consent Order
RM081331	2/10/2008	RG	Extract gravel from the Lower Shotover River delta and to construct an engineered fill being the eastern runway end safety area at Frankton-Ladies Mile and Lucas Place, Wakatipu Basin	Granted consent, confirmed by consent order.
RM081454	12/11/2008	RG	Construction of a training line for flood	Granted consent, confirmed

			protection at Shotover Delta, Frankton-Ladies Mile, Wakatipu Basin	by consent order.
RM081455	12/11/2008	RG	Undertake gravel extraction of 1,200,000m3 for flood	Granted consent, confirmed by consent order.
RM090116	24/02/2009	RG	Extract process gravel from the Lumberbox Quarry at Kingston	Withdrawn at applicants request
RM090262	28/04/2009	RG	Undertake gravel extraction, importing and processing at Riverbank Road, Wanaka	Granted by Commissioner

As the above table illustrates, the earthworks related consents that were processed on a publicly notified basis all related to gravel extraction or cleanfill.

12.4 Summary with regard to efficiency

A large number of applications require consent under the earthworks rules. While the vast majority of these earthworks consents are part of another consent application, e.g. for a new dwelling, and are processed on a non-notified basis, there is a cost associated with having to seek consent under these rules. Plans showing areas of cut and fill are normally required, as are calculations of earthworks areas and volumes. In most instances this would be prepared by an architect or engineer.

Because earthworks consents are normally required as part of consent for another purpose, for example to build a new house which often requires consent in any event, the financial cost of the earthworks component is very difficult to separate out.

13.Conclusion

This report has assessed the effectiveness of the earthworks objectives, policies, rules and assessment matters. The majority of the objectives and policies are effective, but their effectiveness could be enhanced through some minor wording changes. In particular, the use of the words 'avoid, remedy or mitigate' in an objective or policy can be confusing. The absence of any objectives or policies for cleanfill and gravel extraction operations is an omission as these are usually the most controversial form of earthworks applications.

At least 16 issues were noted with the rules, and many of these can be addressed through the District Plan review. The rules also state that any person carrying out earthworks shall comply with the Environmental Protection Measures. Ten case studies of active construction sites in a variety of zones around the Queenstown Lakes district were monitored to see if the consent conditions and Environmental Protection Measures relating to earthworks were being implemented. In most instances it appears some effort at compliance is being made, but compliance could be improved in some areas. In three instances, it appeared that there were definite breaches of either the earthworks rules (where no consent had been obtained) or where conditions had been specifically breached, for example, earthworks going outside of the site.

Appendix A: Basic Summary of Earthworks Provisions – Queenstown Lakes District Plan.

ZONE	*PERMITTED*	*CONTROLLED*	*RESTRICTED DISCRETIONARY*	*NON-COMPLYING*
Rural General	Up to 300m3 Up to 1000m2 Less than 20m3 within 7m of a waterway	300m3 – 1000m3 1000m2 – 2500m2	1000m3 or more 2500m2 or more 20m3 within 7m of a water body	
Ski Area Zone	All permitted			
Airport MUZ	All permitted			
Low Density Residential	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
High Density Residential	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Residential Arrowtown	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Rural Lifestyle	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Rural Living	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Townships	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Town centres	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Business	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Industrial	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Resort – Millbrook	Likely permitted unless zone standard relating to Mill Creek is deemed to be breached.			Zone standard relating to water quality of Mill Creek.
Resort – Waterfall Park	Likely permitted			Zone standard relating to water quality of Mill Creek.
Resort – Jacks Point	Up to 100m3 Up to 200m2	Earthworks are a matter for control in association with buildings. Greater than 1000m3 and / or 2500m2 associated with golf course development	100m3 200m2 20m3 within 7m of a water body	
Rural Visitor	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Penrith Park	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Bendemeer (Note: 2 separate rules for earthworks)	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
	Up to 1000m3 2500m2		1000m3 2500m3	
Remarkables Park		Earthworks associated with a building or subdivision or controlled activity consent	Other earthworks	
Hydro Generation	As part of "operation, maintenance and enhancement of facilities".	As part of the upgrade of existing or new hydro generation facilities		

Quail Rise		As part of consent for buildings	100m3 200m2 20m3 within 7m of a water body	
Meadow Park	Otherwise permitted	As part of consent for buildings		
Frankton Flats A	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Mount Cardrona Station	Up to 200m3 Up to 400m2	Earthworks for access roads, underground car parks, walkways, farm tracks, bridle paths, utilities and mitigatory earthworks as shown on Structure plan.	200m3 400m2 20m3 within 7m of a water body	
Ballantyne Road Mixed Use Zone	Up to 100m3 Up to 200m2		100m3 200m2	
Three Parks	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body (excludes deferred urban subzone)	
Kingston Village	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Open Space – Landscape Protection		Earthworks associated with cycling or walking trails		Earthworks not associated with cycling or walking trails

Managing Earthworks Issues and Options

Earthworks are defined in the District Plan as

"Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pitts and the erection of posts or poles or the planting of trees."

Earthworks can generate a range of potential effects. These include:

- Visual effects through changing the form and nature of landscapes
- Nuisance effects, including dust and noise
- Effects on water quality resulting from silt and sediment runoff
- Effects on the overland flow of stormwater
- Effects on land stability
- Effects on archaeological sites
- Changes in natural ground level, so that determining building height becomes difficult.

What do you think?

Please send your comments to:
Policy & Planning
Queenstown Lakes District Council
Private Bag 50072, Queenstown 9348

Email **services@qldc.govt.nz**

Or comment online at
www.qldc.govt.nz/district_plan_review

Comments should be received by 24 August 2012 although feedback on these issues will be welcome at anytime during the review process.

Please call Blair Devlin on (03) 441 0499 if you'd like to discuss this further.

What are we doing?

We're currently reviewing the District Plan and looking at what works well and what needs to be changed. As part of this process, we've been looking at the provisions that manage earthworks, and how they are working.

We've identified some changes that could be made and we'd like your feedback.

QUEENSTOWN LAKES DISTRICT COUNCIL

The Current Situation

The main District Plan rules that manage earthworks are summarised below:

Volume of earthworks - In most 'urban' zones resource consent is required if you exceed 100m^3. In the Rural General zone, this increases to 300m^3.

Area of earthworks - In most 'urban' zones resource consent is required if you exceed 200m^2. In the Rural General zone, this increases to 1000m^2.

Height of cut - In most 'urban' zones resource consent is required if you excavate deeper than 2.4m.

Height of fill - In almost all zones resource consent is required if you place fill deeper than 2m.

Distance from boundary - In most 'urban' zones the cut and fill must be its own height from the boundary, unless retained (see District Plan).

Proximity to waterbody - If earthworks are to occur within 7m of a waterbody, only 20m^3 is allowed before resource consent is required.

Environmental Protection Measures - In most zones, certain Environmental Protection Measures must be carried out when doing earthworks, including dust control and erosion/sediment control to stop sediment entering water bodies.

Proposed Changes

Monitoring of the current rules around earthworks has identified a number of issues that need to be looked at.

Possible changes include:

- Provide specific objectives, policies and rules to manage cleanfill and gravel extraction applications.
- Consider using site slope as a trigger for when resource consent is required, to recognise that earthworks on flat sites are less likely to cause environmental effects.
- Consider deleting the area rule of earthworks. Very few applications trigger the area rule (m^2) without triggering the volume rule (m^3).
- Make the Regional Plan: Water and the District Plan consistent in terms of rules relating to earthworks in proximity to waterways.
- Improve links between the subdivision and zone rules
- Tidy up the rules to improve consistency, for example there are no earthworks limits in the Gibbston Character Area, and two earthworks rules in the Bendemeer Special Zone.
- Review the definition of 'earthworks' in light of Court decisions.

A number of other minor changes are suggested in the earthworks monitoring report. You can see the full report at **www.qldc.govt.nz/monitoring**.

What Do You Think?

- Have we identified the issues with earthworks correctly?
- Should the permitted quantities of 100m^3 and 200m^2 for most urban zones be retained or increased / decreased?
- Should the permitted quantities of 300m^3 and 1000m^2 for the Rural General zone be retained or increased / decreased?
- Should we link the permitted amounts of earthworks to the slope of the site?
- Should we keep the 12 month time limit for permitted amounts of earthworks?
- Should any other types of earthworks be excluded from the definition?

managing earthworks