

**Tasman Resource Management Plan
Efficiency and Effectiveness Evaluation**

Chapter 12: Land Disturbance

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Acronyms

CEA	Coastal Environment Area
LD1 & LD2	Land Disturbance Area 1 or 2
GIS	Geographic Information System
HAIL	Hazardous Activities and Industries List
LiDAR	Light Detection and Ranging - technology that provides detailed contour data
LUC	Land Use Capacity
LTMA	Land Transport Management Act 2003
MagiQ-BR/NCS	Two related Council information systems - used to manage data, including for resource consents and service requests, including complaints.
NES-CS	National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health
NES-ET	National Environmental Standards for Electricity Transmission
NES-ETA	National Environmental Standards for Electricity Transmission Activities
NES-PF	National Environmental Standards for Plantation Forestry
NES-TF	National Environmental Standards for Transmission Facilities
NTLDM	Nelson Tasman Land Development Manual
NPS	National Policy Statement
NPS-ET	National Policy Statement on Electricity Transmission
NPS-FM	National Policy Statement for Freshwater Management
NZCPS	New Zealand Coastal Policy Statement
PC# or C#	Plan Change #/Change #, e.g. Plan Change 3
RMA	Resource Management Act
SIRA	Slope Instability Risk Area
SOE	State of the Environment
SPG	Separation Point Granite
TEP	Tasman Environment Plan
TRMP	Tasman Resource Management Plan

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Executive Summary

Chapter 12 of the Tasman Resource Management Plan (TRMP) relates to Land Disturbance. The chapter contains a single objective and a set of four policies that intend to manage the adverse effects of land disturbance activities.

The focus of this evaluation is on the effectiveness and efficiency of the TRMP in achieving the objective of Chapter 12. This evaluation also considers policies relating to land disturbance that are located in other chapters of the TRMP.

Broadly, the TRMP manages land disturbance activities by firstly classifying two dominant land types – Land Disturbance Area 1 (LD1) and Land Disturbance Area 2 (LD2); then, assigning a set of rules for each area.

LD2 covers the steeper highly erodible Separation Point Granite (SPG) geology and LD1 covers the balance of the region. The LD2 rules set is more restrictive due to the highly erodible nature of the geology, while the LD1 rule set is much more permissive. The LD1 area includes the karst geology areas and the Moutere gravel geologies. There is a wide range of geologies in the total LD1 area but not all of them in critical settlement or development areas.

The LD2 area land cover includes indigenous forest largely within the conservation zones, plantation pine forest, reverting scrub and pastoral activities over the middle sectioned zoned Rural 2 (Total area of Rural 2 land within LD2 is 29 000ha's approx.) extending north. There are smaller areas of residential zone/urban development in the Kaiteriteri area and in Pohara - Ligar bay area with small areas of lifestyle/rural residential use including in the Motueka Valley area (see Fig. 1 below).

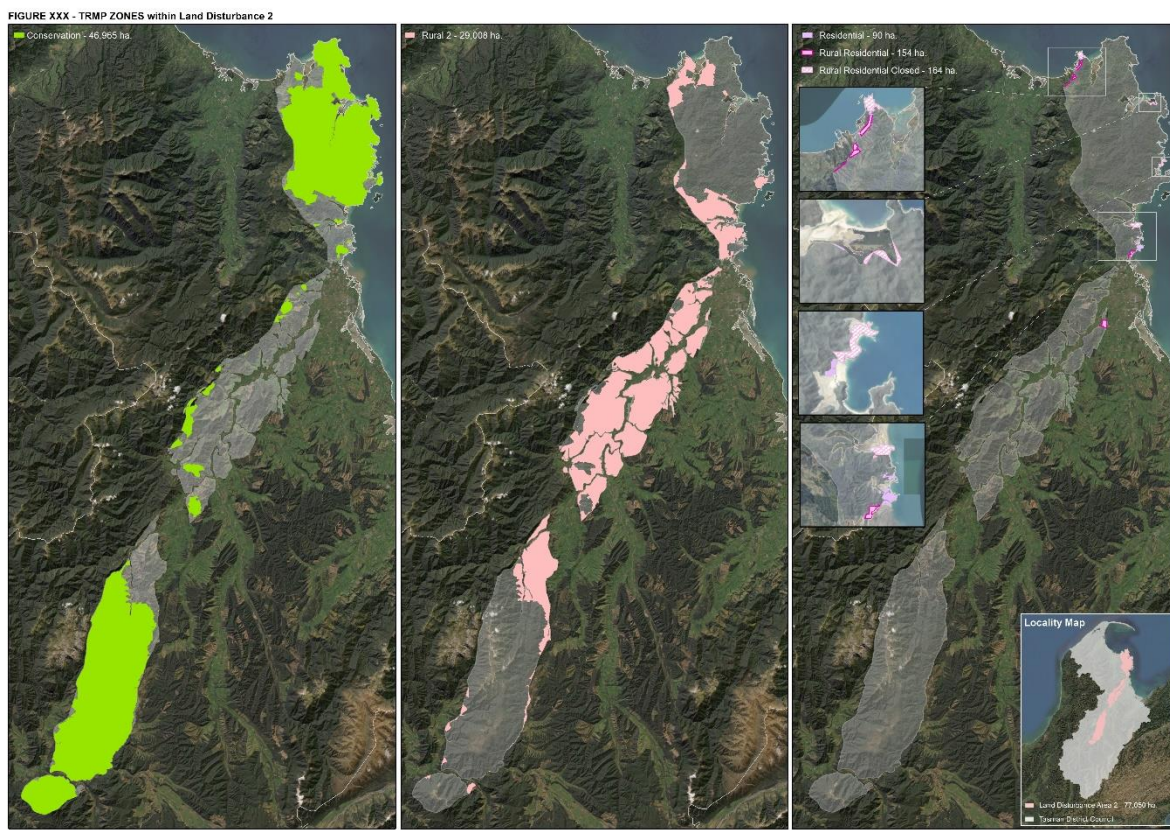


Figure 1: TRMP zones across the Land Disturbance 2 areas within the Tasman region

Within both LD1 and LD2 areas there are separately identified localities of Slope Risk Instability Areas (SIRA's, four in total). Where these coincide with the LD2 areas, only the SIRA rules apply. While land instability is referenced in the issues statement, the land disturbance policy and rules focus largely on soil, sedimentation and visual effects and do not deal with land instability issues. The chapter 13 Evaluation considers SIRA effectiveness.

General Outcomes

Chapter 12 is weak as a whole. As a set, the small number of policies do not translate into effective rules. More fundamentally however, the chapter lacks specificity and clarity to act as a useful policy set relevant to land disturbance effects and to adequately give effect to those matters listed in the objective itself¹.

The TRMP maps include some inaccuracies that result in inefficient and ineffective consenting processes.

Assessment of the consenting data shows that over the period from 2014 to 2019 that 66% of the land disturbance consents were located in the Land Disturbance Area 1 with 34% in the Land Disturbance Area 2.

Environmental trend data suggests the management of land disturbance issues across the district has not always been successful. Indicators show development and land use practices are contributing to sediment buildup and damage to habitats in our coastal estuaries and the regions freshwater waterways (SOE 2010, 2011, Wriggle 2010, Gibbs 2018).

From a national perspective, Chapter 12 inadequately reflects the multiple national policy statements that have been introduced since 1996 when the TRMP was notified.

In 2012² a review of the land disturbance rules was initiated to address a number of gaps and inconsistencies within the TRMP. The review project has not been completed³, and the issues remain current. Significantly, the operative policies and rules are considered to be unclear and ineffective for delivering the outcomes sought in the TRMP.

Recommendations

The following recommendations are intended to inform the review of the Tasman District Plan. These recommendations are intended to:

- advise decision-makers about the effectiveness and efficiency of existing provisions
- indicate if there is a 'need for change', and
- inform the development of the new Tasman Environment Plan.

The recommendations must be viewed as an initial step in the plan review process. Subsequent information from rapid assessments with expert plan users, political input, public input, new information and legislative change will affect final proposals.

¹ *Policy Logic Mapping 2019*

² Environment and Planning Committee resolution on 17 May 2012

³ Due to reprioritization of limited staff resources to good practice guidance development and freshwater projects

The recommendations contained below are only a summary. The full analysis and detailed information supporting these recommendations is contained in the body of this report.

Table 1: Recommendations

Provision	Recommendations
<p>Issues 12.1.1</p>	<ol style="list-style-type: none"> 1. Reword the issue statement to provide clarity between land based effects (onsite) and sedimentation effects (both on and offsite). 2. Instability is identified as an outcome of land disturbance activities but is not followed through to objectives or policy set. There should be clear articulation around land instability and land disturbance activities.
<p>Objective 12.1.2</p> <p>(a) damage to soil;</p> <p>(b) acceleration of the loss of soil;</p> <p>(c) sediment contamination of water and deposition of debris into rivers, streams, lakes, wetlands, karst systems, and the coast;</p> <p>(d) damage to river beds, karst features, land, fisheries or wildlife habitats, or structures through deposition, erosion or inundation;</p> <p>(e) adverse visual effects;</p> <p>(f) damage or destruction of indigenous animal, plant, and trout and salmon habitats, including cave habitats, or of sites or areas of cultural heritage significance;</p> <p>(g) adverse effects on indigenous biodiversity or other intrinsic values of ecosystems.</p>	<ol style="list-style-type: none"> 1. Consider rationalisation of the existing objective into separate objectives relating to a policy set that have evolved from a relevant issue. 2. Objectives need to address: land disturbance, sedimentation and erosion, protection of soils within productive land use, urban land use and slope instability as well as the existing matters within (a-g)
<p>Policy 12.1.3.1</p> <p>To promote land use practices that avoid, remedy, or mitigate the adverse effects of land disturbance on the environment, including avoidance of sediment movement through sinkholes into karst systems.</p>	<ol style="list-style-type: none"> 1. Provide clearer direction on when avoidance versus remedy/mitigation is required to inform consent decisions. 2. Consider a separate objective/policy set for karst geology.
<p>Policy 12.1.3.2</p> <p>To avoid, remedy, or mitigate the actual or potential soil erosion or damage, sedimentation, and other adverse effects of land disturbance activities.</p>	<ol style="list-style-type: none"> 1. Provide clearer direction on when avoidance versus remedy/mitigation is required to inform consent decisions. 2. Policy needs to identify Moutere fine clay soils and other soils with fine clays and identifying the risk of adverse effects when disturbing these soils. 3. Identify and support the need for specific treatment methods to remove the fine clay suspensions before they enter the receiving environment.

Provision	Recommendations
	4. Support the appropriate use of flocculants, coagulant, polymers and binders to manage the fine suspended sediments.
<p>Policy 12.1.3.3</p> <p>To investigate and monitor the actual or potential adverse effects of soil erosion, other soil damage, sedimentation and damage to river beds, subsurface water bodies and caves in karst, aquatic and other natural habitats, arising from land disturbances.</p>	Review the feasibility of investigations and monitoring programmes to ensure this policy is achievable – for example monitoring of sediment damage to subsurface water bodies and caves in karst is not currently practicable for council to achieve.
<p>Policy 12.1.3.4</p> <p>To avoid, remedy, or mitigate the adverse effects of earthworks for the purpose of mineral extraction, on the actual or potential productive values of soil, particularly on land of high productive value.</p>	<p>1. Provide clearer direction on when avoidance versus remedy/mitigation is required to inform consent decisions.</p> <p>2. Ensure use of terminology ‘earthworks’ is consistent with the objective language which uses ‘land disturbance’.</p>
<p>General Recommendations for Chapter 12</p> <ol style="list-style-type: none"> 1. The current three policies are vague and wordy and do not clearly address the issues, ensure that the policy clearly articulates how the objective will be achieved. 2. Consolidate land disturbance provisions from across the TRMP chapters where appropriate to provide a cohesive and comprehensive set of policies with cross referencing in the other chapters. 3. Include provisions to protect coastal landscapes from land disturbance activities. Adverse effects of earthworks (not landscape related) also need managing in the CEA – particularly for location in or near sensitive coastal and estuary receiving environment. 4. Coastal risk area is addressed only in policy 12.1.3.2, ensure the issue and objectives clearly cover the potential effects associated with land disturbance affecting coastal inundation and erosion. 5. Identification of the regional and territorial aspects are not made clear within the current TRMP objectives (the NPS in the future will require this). Chapter 1 of the TRMP defines this chapter currently as wholly territorial. 6. The objective and policy set should include both territorial and regional provisions, particularly given the focus on contaminant discharges, and the potential need for regional land use controls and retrospective application of rules in controlling ongoing effects. 7. Currently the Tasman region is dependent on the NES-PF in terms of controls on new plantings (<i>Afforestation</i>, where they meet the definition for plantation forestry). For the Separation Point Granite SPG geology there is an opportunity to provide for greater stringency than the NES-PF in the TRMP, this stringency could consider limits for SPG land (LD2) in terms of (afforestation) plantation forest, and provide for increased setbacks for planting adjacent to waterbodies. 8. Consideration should be given to providing separate objectives and associated policy sets to provide greater clarity and line-of-sight for the differing drivers to support the various rule sets, including: <ol style="list-style-type: none"> a. Land instability effects and exacerbation of natural hazards – (Refer to recommendations in Chapter 13 report) with particular reference to urban development, and including coastal inundation and erosion protection b. Soil health effects, including soil loss and soil damage c. Damage to plant and animal habitats and ecosystem values d. Damage to cultural and archaeological sites and landscape features e. Visual and amenity effects (including dust generation) 	

Provision	Recommendations
<p>f. Onsite and offsite sedimentation effects on water and waterbodies, including riparian and aquatic habitats (including karst) and coastal receiving environments</p> <p>Alternatively, the objective and policy set could be separated by activity (causal factor) (ie earthworks and recontouring, soil disturbance and vegetation removal).</p> <p>This will also require consideration of other associated policies elsewhere in the TRMP.</p>	
<p>Other Actions</p> <ol style="list-style-type: none"> 1. Chapter 12 does not currently refer to the NZCPS. Any new land disturbance objectives and policies will need to give effect to the NZCPS in relation to policies 22 (Sedimentation) and 23 (Contaminant loads in Stormwater). 2. Monitor outcomes from NES-ETA, NPS-ET and NES-TF in relation to land disturbance requirements and to ensure there is consistency for definitions of 'earthworks' and 'land disturbance'. 3. Chapter 12 does not currently address the NPS-FM (2014) and also will need to consider the implications of the final 2020 NPS-FM, including any sediment attributes. 4. The Nelson Tasman Erosion and Sediment Control Guideline 2019 should be referenced within any revised policy set for the chapter 12 Land Disturbance activities. 5. Consider developing an urban land disturbance policy set and new Land Disturbance area. 6. Assess relationship with PC3 if those Plan Change provisions are retained in Tasman Environment Plan. 7. Consider a specific investigation relating to fine sediment generation from Moutere gravel geologies and potential for a new Land Disturbance area for those gravels. 8. Consider a specific investigation relating to sediment generation and discharge from catchments (including allogenic catchments) that may enter karst landscapes and subterranean systems and potential for a new Land Disturbance area for these areas. 9. There will need to be changes to the definitions of chapter 2 within the TRMP meaning of words to enable consistency of the proposed plan (TEP) with the NPS and any NPS/NES that defines associated terms. Further definitions may be required to enable this chapter to continue to address all aspects of land disturbance including earthworks, soil disturbance and vegetation removal. 10. Regulation 6(1)(b) NES-PF allows council the opportunity for more stringent rules for Separation Point Granite soils. These soils are classified with in the TRMP as Land Disturbance 2. Currently LD2 rules are more stringent than the NES-PF regulations for earthworks and prevail over the NES-PF. Consider limits on the new plantings in Separation Point granites geologies, opportunity to provide guidance on rotation length, species composition, setbacks from settlements/dwellings and greater setbacks from waterbodies. Consider whether limits for all the 8 activities under the NES-PF need more stringency for SPG geology in terms of the risks to slope instability and land disturbance risks. 11. Mapua/Ruby Bay Development and Recontouring rule (18.5.2.1q and 18.5.2.3). This rule is ambiguous and needs rewriting to provide clarity for the purpose and meaning of the rule. 	

1. Purpose Statement

The purpose of this evaluation of the TRMP is to determine the effectiveness and efficiency of the provisions contained within it. It helps us understand if the TRMP provisions are doing what they're meant to do.

This evaluation process is a fundamental step in the policy review cycle and a requirement of the Resource Management Act. It informs good quality plan-making and helps maintain confidence and integrity in the process.

The results of this evaluation will inform the review of the Tasman Resource Management Plan.

What do the terms mean?

Effectiveness: *“assess the contribution provisions make towards achieving the objectives and how successful they are likely to be in solving the problem they were designed to address”*

Efficiency: *“measures whether the provisions will be likely to achieve the objectives at the lowest total cost to all members of society, or achieves the highest net benefit to all of the society”*

(Ministry for the Environment s.32 Guidance)

Key Evaluation Questions

What we need to keep in mind:

- ✓ Are we focused on the right issues?
- ✓ Have we done what we said we'd do?
- ✓ Have we achieved what we said we'd achieve?
- ✓ How do we know our actions led to the outcome observed?
- ✓ Have we achieved that outcome at reasonable cost (could we have achieved it more cheaply)?
(Enfocus, 2008)

2. Scope

2.1 District Plan Provisions Reviewed

Chapter 12 (“Land Disturbance”) of the TRMP provides policy to address the adverse environmental effects of a range of land uses that involve disturbance of land. This chapter has had limited amendments since 1998 with updates relating to land disturbance of karst terrain in 2000 (Variation 5) and the addition of reference to the coastal risk area in 2015 (Change 22). Interestingly there are no changes to this chapter as a result of Variations 25 (earthworks on Kina-Ruby Bay cliffs) and Variation 33⁴ (land disturbance in the Coastal Environment Area) now referred to as Plan Change 3, the changes saw alterations to chapter 18 rule sets. Consideration should be given to the intent of these variations and where they should best sit in the Tasman Environment Plan.

Table 3 sets out the objective and policies that have been reviewed. The objective has been developed in response to the Issues shown in Table 2:

Table 2: TRMP Issues

12.1.1 Issues

Land disturbance for a range of purposes may result in soil loss or damage, instability, sediment deposition and contamination of water, river channel and cave system changes and adverse visual, natural habitat and archaeological site effects.

Effects may include:

- a) induced or accelerated soil loss through mechanical removal, erosion or slope instability;
- b) damage to soil such as compaction;
- c) sedimentation in surface water bodies, with contamination of water and damage to aquatic habitats.
- d) sedimentation in subsurface water bodies or cave systems, and damage to karst systems and features.
- e) river or stream channel modifications, induced channel erosion, and aggravated flood risk
- f) adverse effects on surface and subsurface drainage.
- g) visual changes in disturbed areas
- h) destruction or damage to remnant indigenous plant or animal habitats
- (i) adverse effects on intrinsic values of ecosystems;
- (j) destruction or damage to sites of cultural or archaeological significance.

⁴ Variations 25 and 33 have since been grouped as Change 3

Table 3: TRMP Objective and Policies

Objective	Policy Number	Policy
<p>12.1.2 - Objectives The avoidance, remedying or mitigation of adverse effects of land disturbance, including:</p> <ul style="list-style-type: none"> (a) damage to soil; (b) acceleration of the loss of soil; (c) sediment contamination into rivers, streams, lakes, wetlands, karst systems, and the coast; (d) damage to river beds, karst features, land, fisheries or wildlife habitats, or structures through deposition, erosion or inundation; (e) adverse visual effects; (f) damage or destruction of indigenous animal, plant, and trout and salmon habitats, including cave habitats, or of sites or areas of cultural heritage significance; (g) adverse effects on indigenous biodiversity or other intrinsic values of ecosystems. 	<p>12.1.3.1</p>	<p>To promote land use practices that avoid, remedy, or mitigate the adverse effects of land disturbance on the environment, including avoidance of sediment movement through sinkholes into karst systems</p>
	<p>12.1.3.2</p>	<p>To avoid, remedy, or mitigate the actual or potential soil erosion or damage, sedimentation, and other adverse effects of land disturbance activities consistent with their risks on different terrains in the District, including consideration of:</p> <ul style="list-style-type: none"> (a) natural erosion risk, and erosion risk upon disturbance; (b) scale, type, and likelihood of land disturbance; (c) sensitivity and significance of water bodies and other natural features in relation to sedimentation or movement of debris; (d) Coastal Risk Area [C22 2/11 Op 1/15]
	<p>12.1.3.3</p>	<p>To investigate and monitor the actual or potential adverse effects of soil erosion, other soil damage, sedimentation and damage to river beds, subsurface water bodies and caves in karst, aquatic and other natural habitats, arising from land disturbances.</p>
	<p>12.1.3.4</p>	<p>To avoid, remedy, or mitigate the adverse effects of earthworks for the purpose of mineral extraction, on the actual or potential productive values of soil, particularly on land of high productive value.</p>

Section 12.1.20 of the TRMP outlines the following four methods to enable and ensure implementation of the policy framework:

- (a) Regulation/Rules that allow or regulate the adverse effects of land disturbances in the District.
- (b) Provision for investigations and monitoring
- (c) Education /advocacy
- (d) Financial incentives

Objective and policies of other chapters reviewed within this evaluation that refer to land disturbance are set out in table 4 below. The policies mention sediment/sedimentation, erosion/erodible, slope instability, earthworks, land disturbance.

Table 4

Objectives and/or Policy Topic	Chapter
Urban environment effects	Chapter 6
Margins of rivers, lakes and wetlands	Chapter 8
Landscape and ridgelines	Chapter 9
Significant natural values and historic heritage	Chapter 10
Natural hazards	Chapter 13
Coastal marine area, rivers and lakes, water and discharges including stormwater	Regional plan assessment

2.1.1 Other chapters of the TRMP that refer to land disturbance matters

Chapter 6 – Urban Environment Effects

- 6.3.3.6** To allow development to occur only where adequate provision is made for:
(a) control of sediment discharges;
- 6.14.1.3** Recognition of natural hazards such as slope instability, coastal erosion and other hazards such as fire.
- 6.14.3.3** To control land use activities and subdivision to avoid any adverse environmental effects in terms of sedimentation, erosion, instability and loss of visual amenity.

Principal Reasons and Explanations

Much of the land at Kaiteriteri is highly erodible Separation Point Granites that require particular care when earthworks and vegetation removal are undertaken. Developers and builders will be required to carry out erosion mitigation measures. The Kaiteriteri area has a history of Māori settlement, with defended pa sites at Kaka Point, Anawhakau and Pa Point. There are also wāhi tapu sites.

Chapter 8 - Margin of Rivers etc.

- 8.2.3.7** To ensure that the subdivision, use or development of land is managed in a way that avoids where practicable, and otherwise remedies or mitigates any adverse effects, including cumulative effects, on the natural character, landscape character and amenity values of the coastal environment and the margins of lakes, rivers and wetlands.
- 8.2.3.4(b)** Rules requiring consent for earthworks and the removal of indigenous vegetation along water margins and in the Coastal Environment Area.
[C3 12/03 (Proposed as at 1 November 2008)]
- 8.2.20.4 Advocacy and Education**
- (a) Advice on land management practices that do not adversely affect water bodies, their margins or the coastal environment, particularly practices which reduce erosion, prevent the destruction of riparian vegetation, and maintain or enhance water quality.

Chapter 9 - Landscapes

- 9.1.3.1** To encourage broadscale land uses and land use changes such as plantation forestry and land disturbance to be managed in a way that avoids or mitigates the adverse effects on natural landform, surrounding natural features and on visual amenity values.
- 9.1.3.7** To ensure that **land disturbance** including vegetation removal and earthworks does not adversely affect landscape character and rural amenity value in the Coastal Environment Area in locations of public visibility, particularly where there are distinctive natural landforms
- [C3 12/03 (Proposed as at 1 November 2008)]

9.1.30.2 Land Disturbance

Land disturbance from mining, quarrying, building excavation, road works and tracking can result in stark and unnatural changes in colour and form in the landscape, especially when displayed on hilly landscapes and along coastal and river margins.

Chapter 10 - Significant Natural Values and Historic Heritage

- 10.2.1.2** Historic heritage sites include archaeological sites, and sites of significance to the cultural values of manawhenua iwi, including wāhi tapu and wāhi tapu areas. Development activity, such as buildings **or land disturbance** on or near cultural heritage sites or within areas that are known to be highly likely to contain such sites, can result in the modification, damage or destruction of sites of cultural heritage significance. Development activities on or near any wāhi tapu may have an adverse effect on the wairua, or other cultural or spiritual values held by iwi for the wāhi tapu.
- 10.2.1.2** Historic heritage sites include archaeological sites, and sites of significance to the cultural values of manawhenua iwi, including wāhi tapu and wāhi tapu areas. Development activity, such as buildings **or land disturbance** on or near cultural heritage sites or within areas that are known to be highly likely to contain such sites, can result in the modification, damage or destruction of sites of cultural heritage significance. Development activities on or near any wāhi tapu may have an adverse effect on the wairua, or other cultural or spiritual values held by iwi for the wāhi tapu.

Chapter 13 – Natural hazards

- 13.1.3.13** To regulate **land disturbance** so that slope instability and other erosion processes and inundation are not initiated or accelerated.

Principal Reasons and Explanation

Soil loss through erosion is a significant risk when certain activities, such as tracking, subdivision, and earthworks that disturb the ground, are undertaken. Some parts of the District such as the shallow steeplands soils and the Separation Point Granite terrain from Separation Point/Te Matau to the Glenhope Scenic Reserve have a magnified risk of instability if vegetation or soils are disturbed.

TRMP chapter objectives and policies that utilise the land disturbance rules (chapter 18.5) for achieving related objectives and policies are:

Table 5

Topic	Issue	Objective	Policies
Natural character	8.2.1	8.2.2	8.2.3
Outstanding landscapes and natural features	9.1.1	9.1.2	9.1.3
Rural landscape values	9.2.1	9.2.2	9.2.3
Views for key viewpoints	9.3.1	9.3.2	9.3.3
Biodiversity and indigenous ecosystems	10.1.1	10.1.2	10.1.3
Land disturbance effects	12.1.1	12.1.2	12.1.3
Natural hazards	13.1.1	13.1.2	13.1.3

2.2 Timeframe of Evaluation

April to November 2019.

2.3 Summary of Methodology

Broadly, the methodology of this evaluation follows the Plan Outcomes Evaluation process. Plan Outcome Evaluation involves:

1. An examination of the outcomes being sought – what are the objectives trying to achieve?
2. Tracking how the plan has been designed to affect the outcomes – do the intentions in the objectives get carried through to the rules and methods? Are the provisions efficient?
3. Assessing if the provisions have been implemented – what evidence is there that the provisions are being applied to relevant activities?
4. Assessing relevant environmental trends and ‘on the ground’ data to conclude if the Plan has been successful in achieving its intentions. This includes consideration of the external factor influences such as legislative changes, national policy statements, case law, significant economic changes, demographics etc.

Throughout the evaluation, there is an emphasis on attributing the activities enabled or controlled by the TRMP on observed outcomes. But attributing outcomes to the TRMP must always be viewed in the wider context of changes. These are noted where known, but it is beyond the scope of this evaluation to capture all of the changes and influences that affect outcomes in our communities and environment.

Limitations with the Plan outcome evaluation approach also arise where environmental outcome data is poor, or where there a multiple factors driving outcomes. Time, resourcing and quality of data also affects the comprehensiveness of the evaluation.

To address some of these limitations, the evaluation process has included a ‘rapid assessment’ technique. The technique draws on the MagiQ BR/NCS/databases combined knowledge and expertise of local TDC staff, residents, community leaders, and topic experts to create an understanding of plan implementation, efficiency and outcomes. The rapid assessment outputs are supplemented with:

- Environmental data or expert reports where available.

- Council data (e.g. property and asset information, consenting and compliance database information, models)
- Mapping and imagery (e.g. GIS, aerial imagery, LiDAR)
- Information or reports prepared during plan change processes (e.g. s.32 Reports, Issues and Options papers, technical reports, submissions, community meetings)

The evaluation may also draw on the results of the TRMP Use-ability Survey (TDC, 2013), where relevant.

For this topic:

Table 6: Assumptions and Data Used

Data source/s	Details and Notes (including data parameters used)
Tasman GIS	Assessment of the area within LD2 covered by Rural 2 (Plantation forestry, reverting scrub and pasture, Residential, Rural residential zones.
Rapid Assessment	Dr Simmonds, Trevor James, (EI) Consent Compliance Engineering
External reports	GNS report on Marahau-Motueka rain storm event 2013, Gibbs 2018 Page
Council reports	Wriggle 2010, SOE TDC (2009 and 2011) freshwater and freshwater fish reports. Draft issues and options for land disturbance rule review
Council records (MagiQ-BI/NCS/databases)	Service request data, land disturbance consents
Other	Statistics NZ, Tasman RPS

2.3.1 Monitoring

Completed monitoring work includes: Forestry monitoring, extreme weather event reporting, TDC SOE monitoring 2009 and 2011 - freshwater rivers, freshwater fish, estuarine sediment. Note: there is no specific karst monitoring.

Council's environment information group are undertaking work with regard to riparian protection, fencing grants and planting initiatives to protect water ways from faecal contamination and sediment and to reduce hill country erosion.

It is acknowledged that the Erosion and Sediment Control guidelines are now in place and workshops aimed at construction industry and Council staff industry were run in 2009, 2018 and 2020 and are to be held every two years going forward.

Compliance staff are working with the dairy industry and farmers to improve winter grazing management and effluent management (Compliance staff pers. Comm, 2019).

2.4 Summary of Consultation

The following consultation has been undertaken during the preparation of this evaluation.

2.4.1 Tasman District Councillors

A workshop with elected Councillors was held on 4 March 2020 discussing key issues and recommendations identified for the Land Disturbance chapter. Councillors recommended the following groups be included in any future consultation: Rural contractors, Tapawera community board and community interest groups such as the Ligar Bay neighbourhood group. Councillors at this workshop raised no additional issues and provided feedback on the identified issues and these comments have been incorporated into the relevant sections of this report, where appropriate.

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▪ Land Disturbance Rule Review Programme

Land disturbance rule review is an existing work programme [TRMP Land disturbance provisions review: project outline -- report 12-05-05] that was approved by EPC 7 May 2012.

The following comments were noted in the E&P minutes:

This review is a Priority 1 project and the key issues are:

1. → Inconsistent and complex rules
2. → Flood flows / water quality issues
3. → Plan Change 3
4. → Good Practice
5. → Urban earthworks consent requests were the main drivers for of this review.

It was noted that Plan Change 3 has been ongoing since 2002 and that it will be 'wrapped up' in this review. The impact of the NES-PF report on forestry on this review is not known.

This programme predates the NES-PF and there was no consideration of the provision for 'stringency' within Plan rules under regulation 6 of the NES-PF for Separation Point Granite geology.

Within the council land disturbance workshops, Councillors discussed a number of concerns with the rules in relation to the NESPF and the need to consider the stringency opportunities provided by the NESPF for Separation Point Granites.

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- g) → Sedimentation is a focus for chapter 12 and the term sediment is used in the chapter 33 but there is no link back to chapter 12, is this a fundamental gap with no linkage between the territorial and regional frameworks. Councillors' raised continuing concern around the impact of sedimentation on receiving environments such as Otuwhero estuary.

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- j) → Overlap with slope instability and associated policy sets within chapter 13 (natural hazard). There is a conflict with how the two rules sets interact, not allowing full consideration of the land disturbance 2 area effects if the activity is also within a slope instability risk area. There is opportunity for future efficiencies with land disturbance and slope instability effects being managed together. The overlap raises issues for efficient processing of Resource Consents. Councillors' also raised the issue of upstream and downstream hazards not being included in the current Land disturbance framework and needs to be considered looking forward in terms of risk to housing and other built environments.

2.4.2 Tasman Environmental Policy Iwi Working Group

The iwi of Te Tau Ihu, as tāngata whenua, have a unique relationship with Tasman District Council. There are a number of legislative requirements which oblige us to engage more collaboratively with iwi and Māori - including provisions in the Resource Management Act, Local Government Act and Treaty of Waitangi settlement legislation. To support this a separate section 35 report with a focus on iwi/Māori provisions has been prepared. Please refer to that chapter for a record of consultation undertaken.

3. Effectiveness and Efficiency Evaluation

3.1 Context

Three main pieces of legislation drive land disturbance management for local government – the Resource Management Act 1991 (RMA), Water and Soil Conservation Act 1967 and Soil Conservation and River Control Act 1941.

The most significant legislation is the RMA, which mandates councils to sustainably manage soil resources and activities on land, including impacts from land disturbance activities.

The RMA resulted from a package of legislative changes during the late 1980's and early 1990's, that saw soil conservation duties and functions transferred to regional councils following the amalgamation of regional boards with local counties and boroughs.

Changes were also made to responsibilities under the Water and Soil Conservation Act 1967. The new regional councils had responsibilities for river and soil control that were previously carried out by the Ministry of Works and Development (but local level control had been devolved to regional water boards). The regional water boards had measured the extent and types of erosion through land inventory surveys and land capability assessments.

Broad functions continue today via the Soil Conservation and River Control Act 1941 for the promotion of soil conservation and the prevention and mitigation of soil erosion.

The functions and duties under these three Acts are carried out by three sections in Tasman District Council – Environmental planning, Environmental Information (Land management) and Engineering (River Management).

3.1.1 Legislation Changes

Table 7: Relevant amendments to the RMA since the TRMP was notified

Legislation	Commentary
Resource Management Amendment Act 2005	<ul style="list-style-type: none"> a) Amended s30(1) to add the additional functions for regional councils as follows: <ul style="list-style-type: none"> i) New (ca) – the investigation of land for the purposes of identifying and monitoring contaminated land. b) Amended s31(1)(b) to add an additional function of territorial authorities: <ul style="list-style-type: none"> i) New (iia) the prevention or mitigation of any adverse effects of the development, subdivision, or use of contaminated land.
Soil and Rivers control Act 1941 (reprint 12 November 2019)	Reprinted to include consequential updates to other Acts no changes that have implications for chapter 12.
Water Conservation (Buller River) Order 2001 and subsequent Amendment Order 2008	Regional Policy Statement and Plan must not be inconsistent with the provisions of the Order.
Water Conservation (Motueka River) Order 2004	Regional Policy Statement and Plan must not be inconsistent with the provisions of the Order.
Water Conservation Order Application for Te Waikoropupu Springs (Golden Bay)	Awaiting decision – as at Oct 2019

The National Policy Statements (NPS) and National Environment Standards (NES) referred to below, affect Council's management of Land Disturbance activities.

The National Environmental Standards Contaminated Soils

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) have been enacted to provide for nationally consistent regulations to manage the environmental effects of contaminated soils. The NES-CS provides standards relevant to managing the use, development and subdivision of contaminated or potentially contaminated land for the protection of human health.

The NES-CS provides an additional layer of regulation over the land disturbance rules administered by Council. It focuses on minimising the exposure risk to humans from soil contaminants. The activities covered include: removal or replacement of fuel storage systems, soil sampling, small scale, temporary soil disturbance and subdivision or change of land use.

The amendments to align the TRMP with the NES-CS included the insertion of the following phrase into the TRMP in 18.5.1 scope of section via TRMP Variation 38 which became operative s27/04/2013.

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 may apply to some land disturbance activities. The National Environmental Standard provides standards relevant to managing the use, development and subdivision of contaminated or potentially contaminated land for the protection of human health. This may alter the activity status of an activity and impose additional standards, matters for assessment and criteria.

The National Environmental Standards Plantation Forestry (NES-PF)

The National Environmental Standards for Plantation Forestry (NES-PF) have been enacted to provide for nationally consistent regulations to manage the environmental effects of forestry

The NES-PF were published on 3 August 2017 and came into force on 1 May 2018 with the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (which include changes to the Erosion Susceptibility Classifications) were published on 26 April 2018 and commenced on 1 May.

The NES-PF objectives seek to: maintain or improve the environmental outcomes associated with plantation forestry activities and to increase the efficiency and certainty of managing plantation forestry activities. The objectives are achieved through a single set of regulations under the RMA that apply to foresters throughout New Zealand. The NES-PF regulations cover eight core plantation forestry activities that have potential environmental effects on of which is earthworks.

The implication of these changes saw reference to the NES-PF included into the TRMP by the 1 May 2018 when the NES-PF came into effect. At this time the NES-PF removed control of forestry activities that meet the NES-PF definition from the TRMP. Greater stringency for earthworks in separation point granites was allowed for in the NES-PF.

Regulation 6(1)(b) of the NES-PF allows council the opportunity for more stringent rules for Separation Point Granite soils. These soils are classified with in the TRMP as Land Disturbance 2. Currently LD2 rules are more stringent than the NES-PF regulations for earthworks and prevail over the NES-PF.

The amendments to align the TRMP with the NES-PF included the insertion of the following phrase into the TRMP in 18.5.1 scope of section via TRMP amendments dated 14 July 2018.

NOTE: Rule 18.5.2.1 is subject to the regulations of the National Environmental Standards Plantation Forests 2017 (NES-PF). The NES-PF regulations for activities in relation to plantation forestry (as defined within the NES-PF) prevail unless specifically stated otherwise in advice notes below.

NZ Coastal Policy Statement (NZCPS)

The NZCPS took effect on 3 December 2010 when the NZCPS 1994 was revoked. The national policy statement provided policies to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. Regional policy statements, regional plans and district plans are all required to give effect to national policy statements.

Key policies that are relevant for the land disturbance section are set out below.

Policy 22: Sedimentation

1. Assess and monitor sedimentation levels and impacts on the coastal environment.
2. Require that subdivision, use, or development will not result in a significant increase in sedimentation in the coastal marine area, or other coastal water.
3. Control the impacts of vegetation removal on sedimentation including the impacts of harvesting plantation forestry.
4. Reduce sediment loadings in runoff and in stormwater systems through controls on land use activities.

Policy 23: Discharge of contaminants 4 (b) stormwater

- 4 In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:
 - a. reducing contaminant **and sediment** loadings in stormwater at source, through contaminant treatment and by controls on land use activities.

NPS for Freshwater Management (NPS-FM) 2014 and proposed NES for Freshwater (NES-FW)

The NPS-FM and NZCPS set clear directives for Council to maintain and improve freshwater and coastal water quality, and in particular to control land uses, including development, vegetation removal and plantation forestry to reduce sediment loads in runoff and stormwater.

The 2019 draft of the proposed new National Policy Statement for Freshwater Management (NPS-FM) is proposed as a full replacement of the National Policy Statement for Freshwater Management 2014 (as amended 2017). Within the draft document attributes for fine suspended sediment and deposited sediment are introduced.

The proposed NES for Freshwater (NES-FW) will also influence management of land disturbance activities, and may provide further definitions for some activities including 'earth disturbance' and 'vegetation destruction', particularly with regard to wetlands and infilling of streams. In addition, further control of farm related sediment generation may be implemented through Farm Environment Planning requirements.

Further changes to the NES for Sources of Human Drinking Water (NES-DW) and a proposed new NES on stormwater (NES-SW, anticipated mid 2020) may also affect management of sediment.

NPS Electricity Transmission (NPS—ET) and National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (NES-ETA)

Plan Change 10 introduced rules for earthworks around the electricity transmission Lines for Richmond West and through Plan change 20 for Richmond East.

The 2019 evaluation of the NPS-ET and NES-ETA identified a number of technical and implementation issues regarding the NES-ETA, such as uncertainty in the regulations for vegetation management and earthworks.

NES for Telecommunication Facilities – including the 2015 review proposal (NES-TF)

The NES for Electricity Transmission and NES for Telecommunications Facilities seeks to protect existing infrastructure from the impacts of land disturbance activities, as well as to reduce regulation around the development and maintenance of utility infrastructure involving land disturbance.

Specifically section 5 (1d) of the NES-TF includes earthworks associated with the installation and operation of regulated facilities as subject to the NES and section 4 provides a definition for earthworks⁵. Section 53 and 54 of the NES-TF references the need for compliance with both district and regional rules on earthworks to achieve compliance with the regulation. Section 56 allows regional plans to be more stringent, while section 57 places limitations on natural hazard rules for activities regulated under the NES.

3.1.2 Relevant Plan Changes

The TRMP has had a constant programme of rolling reviews (variations and plan changes) since it was first notified. The changes have been introduced to address unintended outcomes, new issues, new priorities and legislative requirements. The plan changes relevant to this topic are outlined in the table below.

Where a plan change has been recently introduced (i.e. <3 years) its impact will be difficult to determine with any accuracy as:

- there may have been limited uptake of the plan provisions (i.e. not many activities undertaken that trigger the new rule set), and/or
- the impact of existing use rights and previously consented activities continue,
- the impacts may not be highly visible until there is a cumulative uptake of the provision.

For those reasons, the implementation of plan changes less than 3 years old (from operative date) have not been fully assessed for effectiveness or efficiency.

⁵Under the NES-TF earthworks means a disturbance of soil, earth, or substrate land surfaces (including by blading, boring, contouring, cutting, drilling, excavating, filling, moving, piling, placing, removing, replacing, ripping, thrusting, or trenching)

Table 8: Summary of Plan Changes or Variations affecting Chapter 12

Plan Change or Variation	Description of Change and Key Matters
<p>Plan Change 3 [12/03] [V25 Earthworks on Kina-Ruby Bay cliffs and V33 Land Disturbance in Coastal Environment Area]</p>	<p>NB. Plan change 3 had no direct effect on chapter 12 content, but included changes in chapter 18 rule sets. PC3 is included here due to the direct connection to land disturbance matters and may need to consider for objective/policy sets.</p> <p>Plan Change 3, has not progressed past the submissions phase⁶. Plan Change 3 incorporated provisions in areas other than land disturbance. With respect to the land disturbance rules, Change 3 related to landscape effects of earthworks in coastal areas (within 200m of the coastal marine area).</p> <p>The landscape effects are controlled in condition (k) by linking any earthworks over the permitted area per year amount to ‘publicly accessible viewing points’ or ecosystems listed in Schedule 25D.</p> <p>The term ‘publically accessible viewing points’ is not further defined, but it was intended that this mean visible from publically accessible areas such as roads and reserves, and not the ‘view points’ specifically identified in the TRMP planning maps that relate to Chapter 9.3 Landscape (Views from Key Viewpoints).</p> <p>Council proposed Variation 33 (change 3) to address in the Coastal Environment Area included the following:</p> <ul style="list-style-type: none"> • The need for policy to manage effects of land disturbance on landscape character and rural amenity value. • The regulation of destruction or removal of woody indigenous vegetation. • The regulation of earthworks having a potential adverse effect on publicly visible landscapes. • In the Kina – Ruby Bay cliffs area, the need to extend the current control on modification of the cliffline over the southern parts of this feature. • In the Kina – Ruby Bay cliffs area, the need to extend the Slope Instability Risk Area to provide for geotechnical reporting for proposed dwellings or subdivision to manage the risk for development of cliff-top failure or cliff-toe deposition.
<p>Plan Change 10 [10/07, op 03/14]</p>	<p>NES-TF amendment Richmond West Development Area earthworks within 20 metres of the electricity lines</p>
<p>Plan change 20 [08/10, op 08/12]</p>	<p>NES-TF amendment Richmond East Development Area earthworks within 20 metres of the electricity lines</p>
<p>Plan Change 22 [02/11, op 01/15]</p>	<p>Mapua/Ruby Bay Development and Recontouring rule The recontouring rule has ambiguous meaning and requires clarification. See TRMP Log.</p>

Land Disturbance Rule Review Programme

Land disturbance rule review is an existing work programme [TRMP Land disturbance provisions review: project outline - report 12-05-05] that was approved by EPC 7 May 2012.

The following comments were noted in the E&P minutes:

This review is a Priority 1 project and the key issues are:

⁶ [Note: this change predates requirements under RMA Schedule 1 clause 10(4a) to make and notify decisions within two years of notification of the proposed plan change – refer RMA 131 (1a). It is intended that the Land Disturbance Rule Review project will address and resolve the submissions for PC3 (V25 and V33)]

1. *Inconsistent and complex rules*
2. *Flood flows / water quality issues*
3. *Plan Change 3 -*
4. *Good Practice*
5. *Urban earthworks consent requests were the main drivers for of this review.*

It was noted that Plan Change 3 has been ongoing since 2002 and that it will be 'wrapped up' in this review. The impact of the NES-PF report on forestry on this review is not known.

This programme predates the NES-PF and there was no consideration of the provision for 'stringency' within Plan rules under regulation 6 of the NES-PF for Separation Point Granite geology.

Within the council land disturbance workshops, Councillors discussed a number of concerns with the rules in relation to the NES-PF and the need to consider the stringency opportunities provided by the NES-PF for Separation Point Granites.

The land disturbance programme of work in part has been delayed by the need to obtain technical and scientific advice to answer queries around slope instability and sedimentation risks, and to enable development of good practice guidance for erosion and sediment control.

Delays to the programme have occurred as a result of technical data issues, introduction of various National Policy Statements and the National Planning Standards, as well as constraints on staff capacity relating to freshwater projects and more recently the TRMP review.

3.1.3 Relevant Local Case law

None relevant to chapter 12.

3.1.4 Other factors

Tasman District Council Engineering Standards 2013

Prescribed standards for infrastructure development for Tasman District contained guidance for the management and control of earthworks including the control of erosion and sediment from the development activities. This standard was in use until June 2019 and is now replaced by the NTLDM.

Nelson Tasman Land Development Manual (NTLDM)

The NTLDM replaces the Engineering Standards 2013 and has been developed in conjunction with the Nelson Council. In the development process the standards for land disturbance/earthworks associated with infrastructure development have been removed and relocated into the 2019 Nelson Tasman Erosion and Sediment Control Guideline as of July 2019. These are good practice guidelines developed specifically for the region to take account of regional geology, soils and climate.

NZS 4404 Land Development and Subdivision Infrastructure

NZS 4404:2010 remains in place as a national standard and provides local authorities, developers, and their professional advisors with criteria for design and construction of land development and subdivision infrastructure. The Standard encourages sustainable development and modern design. It is applicable to greenfield and infill development, and brownfield redevelopment projects. Some of the key changes and improvements from NZS 4404:2004 include requirements for earthworks and geotechnical needs, roads, stormwater, wastewater, water supply, landscape, and network utility services. The Standard incorporates up-to-date design principles such as low impact design (LID)

solutions to stormwater management, and urban design principles that encourage more sustainable places, spaces, and networks in towns and cities.

Population Change

The high demand for lifestyle allotments may increase the amount of land development through the Rural 3 Coastal Tasman Area. This in turn will increase the associated land disturbance on the Moutere clays geology. The current LD1 Rule framework is permissive and there are poor controls on land disturbance for management of fine sediments. The pressure from increased growth and development is a potential contributor to the damage caused by fine sediment to our streams and coastal environment. The current rule framework has insufficient guidance and/or controls to require flocculation to remove the damaging fine suspended silts generated from disturbance of the Moutere geology soil/gravel.

The demand has also seen development across pre 1970's horticultural land HAIL sites where land disturbance is also managed by the controls of the NES for Contaminated soils. There has been community concern⁷ about dust generated from HAIL sites. Concerns relate to the airborne spread of the orchard chemicals to roofs and gardens where they may cause adverse effects on adjoining properties and existing housing proximate to a new development.

Increased growth pressure in the urban areas predominantly within the LD1 areas will drive the increased land disturbance activities. These activities are controlled by the permissive land disturbance 1 rule set. There are specific issues relating to urban land disturbance in terms of control of cut size and proximity to boundaries. The issues of cut maintenance, protection from falls from height, surcharge loading on cuts adjoining another properties are raised in the TRMP log of rule issues and the need for improved objective policy and rule sets.

The increasing demand for land and the increased property values in the district has the potential to drive demand into areas not ideally suitable for residential/lifestyle growth.

Central Government Intervention

The removal of agricultural subsidies in the late 1980s saw a conversion of marginal farm land to plantation forestry, or reverting back to indigenous vegetation. Those changes were seen as beneficial in terms of reducing erosion, but the loss of subsidies halted many erosion control measures by catchment boards, as landowners were no longer keen, or could not afford to carry them out.

More recently, the billion trees project has been introduced by central government. This project is a potential driver for increased planting of *Pinus radiata* on pastoral hill country for carbon credits. This could give rise to perverse outcomes with a loss of land from other economic uses or loss of alternative environmental gains through more diverse planting options. There are also potential implications for water availability and an increase in additional land disturbance at both harvest time and in the post-harvest period, 25 years in future. Limiting plantings on land not previously in plantation forestry on LD2 geologies is not available to Council except if it was prevented in the TRMP by the presence of a surface water protection area under the current TRMP framework.

The data in Figure 1 following shows a decrease in the area of forestry land over time, however the billion tree funding may see a shift in this trend and an increasing demand for land to be converted

⁷ Source: MagiQ service request data 2019

to forestry and an associated risk for land clearance and land disturbance through the plantation forest life cycles.

Land Ownership

The Te Tau Ihu treaty settlements has seen a large area of crown forestry land returned to Iwi. The majority of this land is LUC class 8 (e) is steep and is located in the separation point granite geology. Articles published in the NZ Journal of Forestry August 2015, Vol 60, No 2 make the observation that a lot of original forest cover (plantation forest) was originally planted as a primary mechanism for erosion control and that any commercial return was a secondary benefit.

The Separation Point Granite land in the Tasman region was one of the areas that used plantation forestry as erosion control on land not suitable for pasture and grazing and that had erosion risks. Iwi have taken ownership of this land and, like other forestry owners, may face potential issues around the management of slope instability risks to adjoining land owners and communities.

Climate Change

Climate change modelling indicates it is likely that the region will experience an increase in the occurrence and intensity of the type of weather event that occurred in the 2011 Ligar Bay event, 2013 Marahau-Motueka area and the more recent 2018 ex-Cyclone Gita. This is likely to expose existing downstream communities to further risks from debris flows and landslide risks and to also increase the risk of adverse effects on the environment.

The adverse effects include: reduced water quality, habitat for streams and estuaries; landscape visual impacts and damage to Council infrastructure and to private property assets.

Forestry in the Tasman Region

Agricultural land use change 2002 to 2016 in Tasman in hectares and percentage area, (note Nelson is included in the following data).

Figures 1 and 2 show that:

- Forestry has a trend of decreasing area planted in forestry;
- Dairy has increased in area by 17.3 % which equates to an additional 3000 hectares;
- The percentage areas of significant increase for grain growing and vegetables relate to much smaller areas than either forestry or dairy.

The implications for loss of soil and sediment from these activities to vulnerable receiving environments is documented and both have received adverse media commentary over the past 18 months. Council has received criticism for not controlling or stopping activities like winter set stocking / grazing practices near water courses and for not doing more to prevent the potential for debris flow from forestry catchments that may impact on downstream properties.

The TRMP Objective, policies and the rule sets do not offer scope to control many of these land disturbance activities in a manner that prevents the adverse effects currently being observed along with the degrading water quality and habitat loss from sediment.

regc_name	farm_type	2002	2007	2012	2016	per_change_0216
tasman	All	All	All	All	All	All
Tasman	Total	276378	251505	238762	225394	-18.45
Tasman	Dairy	36512	38606	39881	42828	17.3
Tasman	Sheep and Beef	97514	86479	78268	74436	-23.67
Tasman	Other Livestock	14895	10392	4443	3362	-77.43
Tasman	Forestry	114729	102795	102352	89495	-21.99
Tasman	Fruit and berry	9905	12274	10038	9030	-8.83
Tasman	Vegetable growing	548	542	714	743	35.58
Tasman	Grain growing	1956		2133	5114	161.45
Tasman	Other	319	417	933	386	21

Figure 2: Agricultural Land Use (in hectares)

Extracted from New Zealand's Environmental Reporting Series: Environmental indicators Te Taiao Aotearoa 2018

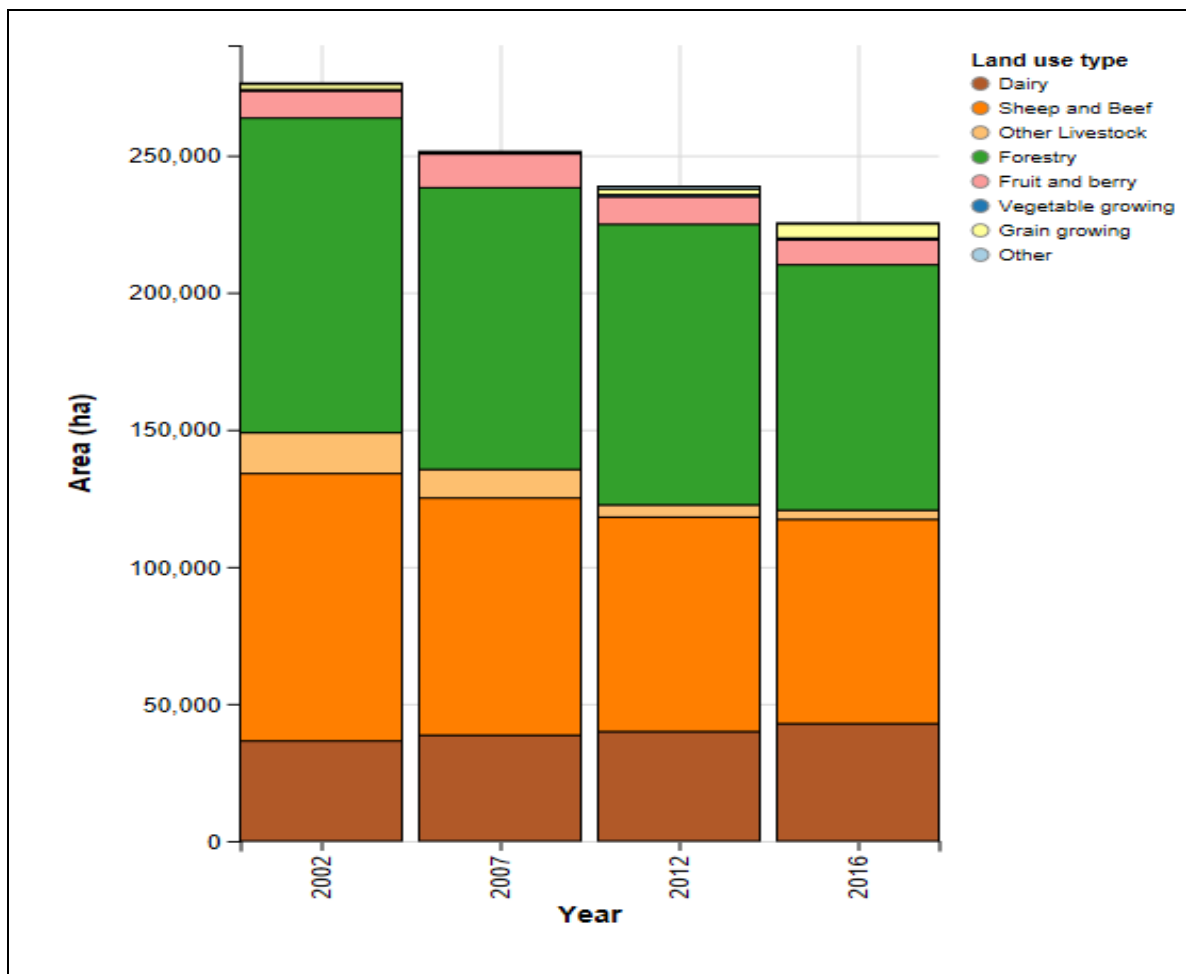


Figure 3: Agricultural Land Use by Type in Tasman

3.2 Internal Consistency of Provisions

Chapter 12 Land disturbance and associated sediment management and land instability can be associated with at least six of the general objectives identified in the Tasman Regional Policy Statement. A search of the term 'land disturbance' within the regional policy is mentioned in the following areas: Issues 5.6, 5.7, 6.1, 6.3, 6.5, 6.8, 7.2, 7.4, 7.5, 9.7, 10.3, 13.2 and Policies 6.1, 6.2, 6.5, 6.6.

The importance of land disturbance and its associated effects is further reflected in the five other policy chapters within the TRMP. (Refer to Table 4) These five policy chapters include direct reference to land disturbance as an activity of concern. Regional policy sets also have linkages to chapter 12.

An over-arching observation is that despite some relevant objectives and policies, the combined policy sets lack cohesion or any over-riding integration.

3.2.1 Chapter 12.1 Objectives

Chapter 12 has one objective to provide for the multiple issues related to adverse effects of land disturbance. By charting the linkages between the issue, objective and policies it can be seen that there is not a clear line of sight from the Issue to the policy, and where there is a linkage, it is not clearly articulated. (Refer to Appendix 3 for Linkages table).

3.2.2 Duplication and Gaps

An analysis of Chapter 12 shows the following gaps or duplications:

- a) The objectives do not mention coastal risk area or hazard area. Change 22 amended the policy set by changing the term coastal hazard area to coastal risk area. Staff in the rapid assessments have noted that chapter 12 has **not** been amended to ensure consistency with the NZCPS 2010. Staff also discussed the difficulties associated with the direction and control of private work being undertaken within private coastal properties to construct coastal walls.
- b) Cultural heritage is identified in the issues/objective but not followed through into the policy set. There is policy within chapter 10 but this is not well linked for the users of chapter 12. However due to the potential of land disturbing activities to be destructive of cultural heritage/ wahi tapu sites and any other unidentified sites, the lack of a clear policy set in Chapter 12 does not provide clear guidance of what is being done to provide appropriate levels of protection for these sites from land disturbing activities. The way the rule sets are articulated and the lack of clear policy has been identified by staff as a barrier to iwi input and process, with iwi concerns not being well catered for. Chapter 12 has not been amended to ensure consistency with the Te tau ihu settlement documents. These are significant gaps in the Chapter 12 framework for land disturbing activities and the potential for harm to cultural to heritage is high. This is a chapter that will need a shared conversation and work with iwi.
- c) The objective makes a broad reference to various adverse effects that are a consequence of land disturbance but there is an absence of clear link through to the three policies (the monitoring and implementation policy not included).
- d) Regional and district matters are mixed and not clearly identified.

- e) Some of the policies that are derived from the objectives are included within the other chapter policy sets such as chapters 6 and 9 (visual amenity values), chapter 10 (cultural heritage sites) and chapter 13 (Natural Hazards).
- f) The term 'intrinsic' as a value is used in issues and objectives but lost in the policy set. Clarification of what the value that is being protected is, and if important why it is not being followed through.
- g) Sedimentation is a focus for chapter 12 and the term sediment is used in the chapter 33 but there is no link back to chapter 12, is this a fundamental gap with no linkage between the territorial and regional frameworks. Councillors raised continuing concern around the impact of sedimentation on receiving environments such as Otuwhero estuary.
- h) Policy 12.1.3.3 is a directive to investigate and monitor the NCS data. The current data captured over the past 10 years is patchy and difficult to extract meaningful information.
- i) Engineering staff observed that within chapter 12 there is no clear direction for land disturbance in legal road, with a subsequent lack of a permitted activity rule. Clear policy and rule sets would assist staff in be able to deliver road network maintenance services efficiently and effectively i.e. reduce onerous consent work for what is routine maintenance that they should not need to resort to consent processes, or provisions for extended emergency works.
- j) Overlap with slope instability and associated policy sets within chapter 13 (natural hazard). There is a conflict with how the two rules sets interact, not allowing full consideration of the land disturbance 2 area effects if the activity is also within a slope instability risk area. There is opportunity for future efficiencies with land disturbance and slope instability effects being managed together. The overlap raises issues for efficient processing of Resource Consents. Councillors' also raised the issue of upstream and downstream hazards not being included in the current Land disturbance framework and needs to be considered looking forward in terms of risk to housing and other built environments.
- k) Staff identified there is a lack of direction in the objective policy sets for the use of polymers and binders in the management of dust and sediment on development sites, productive use of land- winter cultivation and et stocking of green feed crops, potential for the use of farm plans, with clear policy for protection of soil values and soil structure.
- l) Staff identified the lack of urban policy and rules sets to control the specific issues in an urban/residential context for land disturbing activities.
- m) The objective policy sets are not specific enough to deal with Moutere clay fine sediments and evidence shows this is an ongoing adverse impact on the regions coastal estuaries (Wriggle report, 2010).

3.2.3 Overall

The land disturbance effects are scattered through multiple chapters. This reduces the ability of the plan user to locate all relevant effects relating to land disturbance effectively. Efficient use of the plan by any user would be enabled by clustering the land disturbance effects in a single chapter. As a consequence, there may be a need to cross reference to the effects that have connections to other parts of the plan. This equally applies to the regional policy set where sedimentation is a critical effect to be managed but is primarily an outcome of land disturbance activities.

Comments from staff rapid assessment included expressions of frustration with the inefficient staff time used trying to interpret the language of the TRMP, with a plea for clear logic and grammar.

Staff expressed frustration with rules that are not dealing with real effects and are costly for staff and public.

3.3 Evidence of Implementation

3.3.1 Chapter 12- Land Disturbance

There is a poor data in terms of determining how effective the policy set and associated rules have functioned over the duration of the TRMP. However, Council does have some consenting data, State of the Environment monitoring results, as well as independent reports and issues noted by staff in the 'TRMP Amendment Log'.

Results from State of the Environment monitoring (TDC SOE-2010,) of freshwater rivers and (TDC SOE-2011) freshwater fish in Tasman indicate good water clarity for many sites, particularly the larger rivers and those draining indigenous forest areas. Monitoring also highlights issues with sedimentation in a number of stream systems. In particular, smaller stream systems draining low elevation land (lowland streams) and those classified as having pastoral or urban land uses have higher concentrations of suspended sediments than other sites in higher elevations or with indigenous or exotic vegetation cover.

Sediments in urban streams are also contaminated with heavy metals and poly-aromatic hydrocarbons, some of which also affects estuary sediment quality around their confluence. About a third of the waterways in the District have poor aquatic ecosystem health. These sites generally have high nutrient concentrations, low dissolved oxygen concentrations and/or low water clarity or a combination of these parameters. Most of these sites are small waterways that drain intensively farmed pastoral land (TDC SOE 2010).

The 2010 SOE report identified the following sources of sedimentation in surface waters in Tasman:

- *Episodic:*
 - *Large storm events, including*
 - *Discharges from slips after an extreme rainfall events*
 - *Failure of erosion and sediment controls on disturbed land during large events*
 - *Forestry logging and associated earthworks – undertaken without adequate controls*
 - *Roading activities*
 - *Disturbance by water body maintenance clearing*
- *Diffuse/regular discharges:*
 - *Fine sediment from urban industrial and commercial areas – sometimes contaminated with metals and hydrocarbons*
 - *Stock access to streams*

The following reports all indicate a degrading of environments from sediment deposition. Environmental monitoring of Tasman estuaries and their vulnerability (Wriggle 2010, TDC SOE 2010) has identified an increase in soft mud sediments in depositional areas of the Waimea, Moutere, Motueka, Onekaka and Motupipi Estuaries.

2010 report (Wriggle, 2010) on the Waimea Estuary identified:

“the main source of mud is catchment runoff of sediment (estimated at 120,700t/yr, with 91% discharging via the Waimea River). The highest sediment runoff is predicted from pasture and rotational cropping (mostly in the lower catchment), and plantation forestry (mostly in the middle catchment). The most significant inputs are expected during periodic land disturbance (e.g. subdivision, roadworks, horticultural development, forest harvesting, flooding) and are likely to enter the estuary in pulses.”

Results from State of the Environment Monitoring (TDC SOE 2010) of freshwater rivers in Tasman states:

*“good water clarity for many sites, particularly the larger rivers and those draining indigenous forest areas. However the monitoring also highlights issues with **sedimentation** in a number of stream systems.*

*..“The **increase in fine sediments** is having adverse effects on these estuaries. For example, the fine sediments present in the Waimea Estuary mean that “the water clarity within the estuary is low and it reduces the range of different habitats and species present. Sea grass, a species critical for creating habitat for many important commercial and recreational fish species, such as gurnard, snapper, kahawai, and flounder, has been displaced by this fine sediment.”*

2018 Gibb Report on Waimea and Moutere Sediment Sources by Land Use state:

“Moutere Estuary is receiving a high proportion of sediment directly attributable to pine forest harvesting and little legacy streambank sediment. This sediment may be travelling through the Moutere River system rapidly and being flocked out at the river mouth when it contacts the more saline sea water. Some of this sediment may be derived from recent harvesting in the Central Road tributary.”

The reports indicate adverse effects arising from fine sediment generation on water quality and freshwater and marine habitat.

3.3.2 Comments from Staff Rapid Assessment

Council scientists and compliance staff confirmed the above reports with anecdotal reports and observations of fine silts being generated from forestry and subdivision development on the Moutere hill slopes and impacting the down slope stream, estuaries and Tasman bay. They confirmed their frustration with the current objective / policy framework and associated rule sets which place limits on what they can achieve in terms of imposing appropriate control methods. These methods may ultimately require chemical treatment to assist with the removal of the finely suspended clays.

3.3.3 Consenting Data

Assessment of the consenting data shows that over the period from 2014 to 2019, 66% of the land disturbance consents were located in the Land Disturbance 1 area with 34% in the Land Disturbance 2 area. Assessment of the land disturbance consent data manually shows that 16% of the LD1 consents are both a Discretionary activity and are located within the Moutere geology.

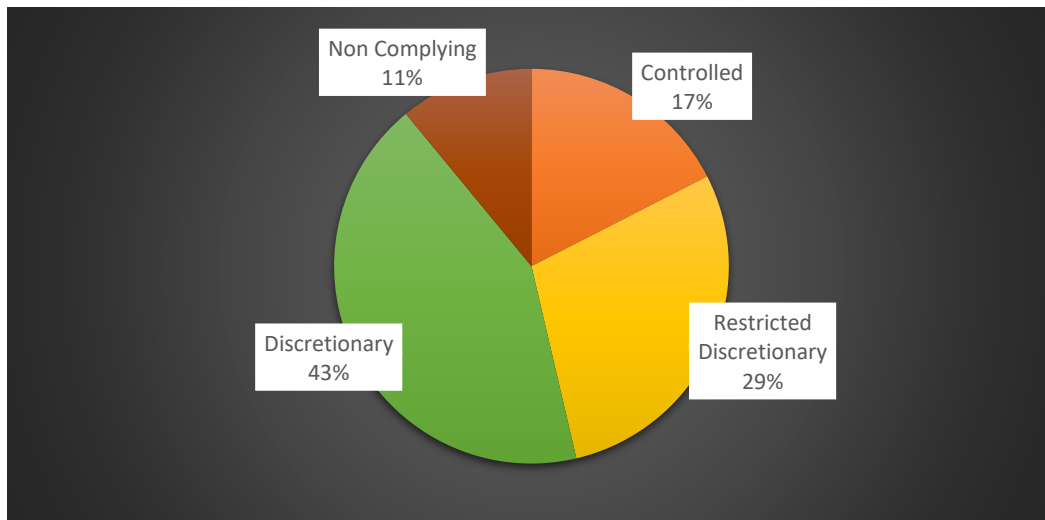


Figure 4: Land Disturbance Consents 2014 - 2019: Activity Status (Total number of consents: 247)

The number of consents in the Moutere gravels that are discretionary also relate to subdivision applications and increased development. The low level of LD1 Moutere geology of Discretionary activities (16%) may indicate the rule cascade is not a correct fit for the Moutere clay geology where the majority of the Rural 3 subdivision development is taking place. The shift to discretionary is not achieved by the development being present in Moutere soils (LD1) but rather by other triggers, ie (HAIL sites). It is the bundling of consents that move the Land Disturbance 1 consents into a Discretionary activity rather than the Land Disturbance 1 rules themselves.

Of concern is that the shift to a Discretionary activity consent or even triggering the need for a consent is not achieved by the presence of Moutere clay geology, which causes the issues with fine suspended clays in receiving environments, but a reliance on other rule triggers. This issue reinforces the need for a review of whether clay soils need a specific LD area and associated set of controls.

The lower percentage of consents in LD2 may mean the LD2 area is effective in limiting land disturbing activities or it may simply relate to the smaller area of land in LD2 across the region.

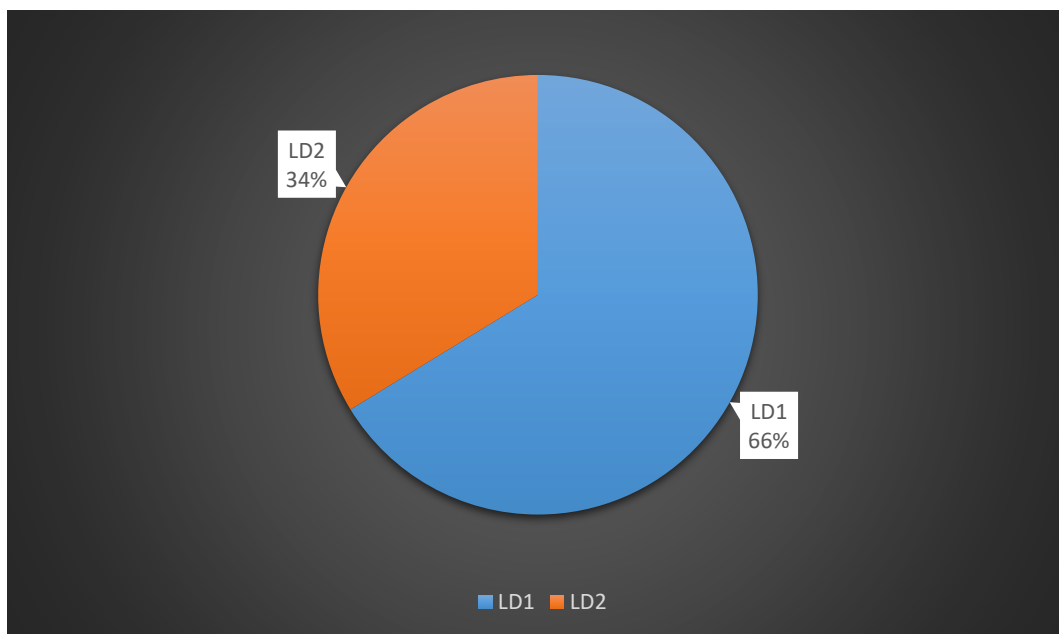


Figure 5: Number of Consents 2014 - 2019 by Land Disturbance Area (Total number of consents: 247)

Gravel (mineral) extraction and the impact on productive land was researched through the consent database with the following overview: consents were largely river gravel extraction or on marginal areas where productive values weren't the main consideration.

Staff have actively discouraged gravel extraction on productive land, in order to protective the productive values. This seems to indicate that Policy 12.1.3.4 has been effective in discouraging mineral extraction (gravel) in productive soils.

3.3.4 Complaints Data

65.4% of the land disturbance complaints from 2005 to 2019 relate directly to complaints about earthworks (385 total complaints). The balance of complaints relating to land disturbing activities and issues were for vegetation removal and forestry (both of which had 6% of the complaints each) with the remainder of the complaints comprising less than 5% each and related to stream, wetland, noise, cultural/archaeological site disturbance and stormwater discharges.

The data linkage to the analysis of the council service request database is difficult to assess due to data input accuracy. However the data below in Figure 6 does provide an overview of the type of issue generating service requests.

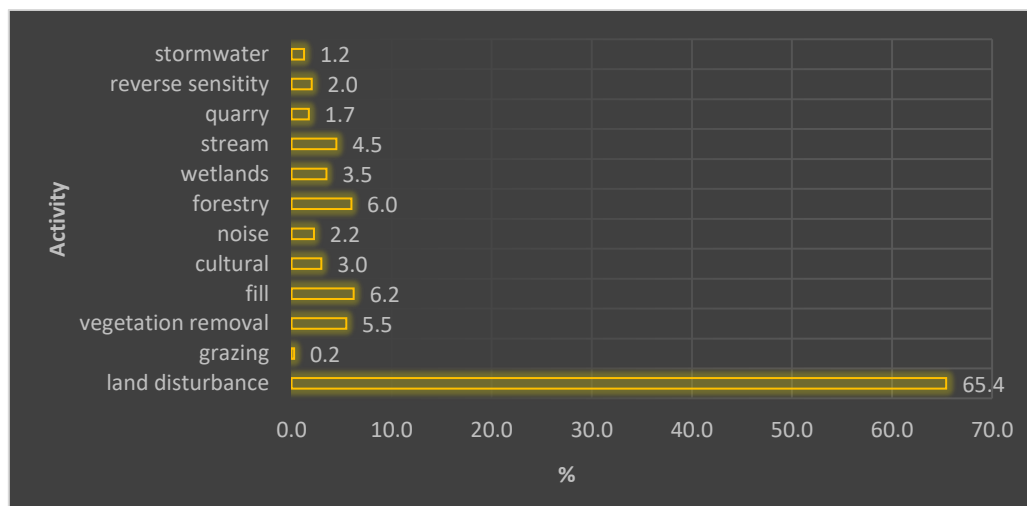


Figure 6: Complaints about land disturbing activities (385 total complaints)

There is a general trend around concern on the effects of land disturbance and the adverse effects arising from this activity and a perception that there has been a lack of authorisation though a consent process (Overview of comments on service requests).

It is noted that the NES-PF regulations for activities in relation to plantation forestry (as defined by the NES-PF) prevail unless specifically provided for within regulation 6 of the NES-PF. This provision for stringency is utilized within the TRMP LD2 rule framework. There are activities not managed under the scope of the NES-PF such as traffic effects and cultural heritage effects and are managed by the TRMP.

The number of complaints taken through the service request system may reduce if the community understood and were better able to comply with land disturbance rule and good practice guides.

Comments from staff rapid assessment

In terms of land disturbance good practice, council staff have not consistently been using the Nelson Tasman Erosion and Sediment Guideline nor were other parts of the Council aware of the changes made through the NTLDM with land disturbance good practice sections being removed and replaced by Nelson Tasman Erosion and Sediment Guideline. Preference was being given on occasion to Auckland Council’s guide GD05.

Commentary from Staff rapid assessment confirms the TRMP language, logic and ambiguity creates confusion and uncertainty across the staff and community. The TRMP log of issues highlights and raise a wide number of issues that include rule inconsistencies, errors, nonsense rules, incorrect rule cascades and ambiguity in grammar and logic. The TRMP log alone supports the need for chapter 12 to be revised and updated.

3.4 Effectiveness and Efficiency

Table 9: Analysis

Objective 12.1.2	Analysis	Rating of Achievement
a) Damage to soil;	TDC SOE 2010 and staff observations indicate that there is ongoing damage to soil structure and the loss of soil from erosion processes through land use practices (productive land use, set stocking, cultivation regimes, land clearance and forestry activities). Cultivation and machinery use on both horticultural, cropping and vegetable production has a detriment impact on soil damage from compaction and water logging of soils leading to increased stormwater runoff as well to streams.	Has not achieved
b) Acceleration of the loss of soil;	TDC SOE 2010 As above.	Has not achieved
(c) Sediment contamination of water and deposition of debris into rivers, streams, lakes, wetlands, karst systems, and the coast;	Karst damage- 2011 -Pohara rain event, 2018 Gita and Fehi cyclones generated significant damage in the west bank area of Motueka hill slopes with large volumes of sediment from Marahau , Otuwhero, Shaggery and Motueka river catchments being mobilised ultimately affecting landscape values, ecological habitat values and impacting the coastal marine areas. Forestry logging impacts – anecdotal from caver observations – it is noted that no effective monitoring system for karst cave systems to report sediment damage.	Has not achieved
(d) Damage to river beds, karst features, land, fisheries or wildlife habitats, or structures through deposition, erosion or inundation;	Karst damage- 2011 -Pohara rain event, 2018 Gita and Fehi cyclones. Forestry logging impacts – letter with caver observations of sediment loads within cave systems. Reports by Wriggle and TDC SOE reports	Has not achieved
(e) Adverse visual effects;	No data or monitoring information via service requests to determine whether this has been achieved or not. But	Unable to determine

Objective 12.1.2	Analysis	Rating of Achievement
	there are a number of complaints and anecdotal observations from staff of landscape visual effects.	
(f) Damage or destruction of indigenous animal, plant, and trout and salmon habitats, including cave habitats, or of sites or areas of cultural heritage significance;	Refer to Baigent case as an example of wetland and cultural heritage damage, rules need to be more certain to enable successful prosecution by Council and to act as a deterrent for destruction of wetlands. Noted there is the potential for conflict between damage to indigenous species and the protection of trout and salmon habitats.	Has not achieved
(g) Adverse effects on indigenous biodiversity or other intrinsic values of ecosystems.	Sedimentation of estuaries and water course and the degrading of these environments indicate that the objective may not being achieved. Refer to 2010 Wriggle report and 2018 Gibbs report. The use of 'Intrinsic' is uncertain.	Declining progress towards achievement

** No split between LD1 and LD2 as the effects relate to both areas.

Appendix 1: References

Young RG, Dohring K, James T, 2010 State of the Environment Report: *River water quality in Tasman District*. Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz)

James T and Kroos, T. 2011 State of the Environment Report: *The health of freshwater fish communities in Tasman District*. Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz)

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(Wriggle report) Stevens, L and Robertson B. 2010 *Waimea Inlet - Vulnerability & Monitoring assessments*. Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz)

Stevens, L, Robertson, B. (2010) *Waimea Inlet, Vulnerability Assessment & Monitoring Recommendations*. Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz).

Gibbs, M (2018) *Waimea and Moutere Sediment Sources by Land Use*. Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz) Retrieved from [http:// www.tasman.govt.nz](http://www.tasman.govt.nz)

Tasman District Council (2018) "Hill Country Erosion Fund Application".

New Zealand's Environmental Reporting Series: Environmental indicators Te taiao Aotearoa 2018.

Page, M.J 2013. Landslides and debris flows caused by the 15-17 June 2013 rain storm in the Marahau-Motueka area, and the fatal landslide at Otuwhero inlet, *GNS science report 2013/244*. 35p.

Appendix 2: TRMP Amendment Log entries relating to Land Disturbance

Log ID	Description	Source	Status
25	Earthworks forming a dam	Policy and compliance	Pending
28	Status of structures and land disturbance within 50m of CMA	Consents	Modified by C22 (removal of coastal structure from building definition)
34	Discharge of sediment or debris from land disturbance in subdivisions	Compliance	pending
35	Control illegal tide walls	Environmental Information	As for ID 28
39	Subdivision earthworks and recontouring too generous	Compliance	Pending
41	Permitted recontouring ambiguous	Environmental Information	Pending
60	Lack of activity limitations on floodprone land (other than inside stopbanks)	Environmental Information	Pending
73	Need to identify slope instability area in Rocklands/upper Rocklands Rd	Consents	Pending
106	Ensure matters for control such as earthworks are carried over to discretionary activity matters	Policy	Pending (LD rule review)
Description		Source	Status
Rules relating to amenity not clearly distinct		Policy	Pending (LD rule review)
Rules on indigenous vegetation removal – overlap with rules in all rural zones - 17.6.5.1 - needs to be consistent.		Policy	
Council has Change 3 (Proposed Variation 33 and 25) to address in the Coastal Environment Area.		Policy	
Need to identify difference between small/moderate sized vs large sites		Policy	
Sediment discharges – captured by 36 rules – have “mixing zone” allowance, however there is a difference between sediment and other water contaminants that are within the water column as this ‘mixing area’ can often be the depositional zone for sediments		Policy/ Compliance	
Landslides (one fatal, several near misses) on SPGs following heavy rain. Summary of GNS report recommendations: <ul style="list-style-type: none"> No spoil placed from road cuts on edges near drainage points or above steep slopes – due to increased risk of slope failure. 		GNS report	

<ul style="list-style-type: none"> • No building platforms at base of steep slopes on old failure debris or near drainage points [or buildings built to withstand debris flow?] • [by inference – no cuts into toe of steep slopes (35-40° = 70-84%)] • Identifying dwellings at risk (steep slopes, drainage points, old landslides) 		
Concerned that separation point granites have a tipping point when they reach saturation and become highly unstable. Outcome sought: greater control on what is happening on separation point granites, and that subdivision is appropriate for Rural 2 and soil instability issues (including considerations of impact of more sleepouts and ancillary buildings creating more cuts and more instability and/or risk of more people in these areas.)	Ray Caird (Marahau landowner)	
Minimal inclusion of best practice in rules or matters for control/discretion	Policy	
Inconsistency and overlap between LDA1 and LDA2 matters	Policy	
Sediment, debris and vegetation discharge to water permitted – with no tie back to best practice management to avoid/minimise (only ambulance conditions, no fences)	Policy	
Need to address silly utility PA LDA2 condition (not allowed hole if more than 0.6mwide?)	Engineering Consents	
Need to better address urban land disturbance – esp. cuts on building sites adjacent to boundaries	Consents	
Note the land disturbance rules as currently written effectively put all damming and diversion into a non-complying status as it excludes damming and diversion from the restricted discretionary category (the highest category) – this is currently not practiced though – we don't require non-complying consents! so all temp works in watercourse/diversions need only to comply with part IV,V and VI – NEED TO FIX IN Land Disturbance rule review	Consents	
There are rules preventing houses above ridgelines for all ridgelines in plan – should the land dis. rules also be decoupled from the CEA (200m from CMA) and just rely on the ridgelines in the plan part? To cover the other non-coastal ones also	Policy	

Appendix 3: National Planning Standards

The following table sets out the definitions required in the National Planning Standards 2019 and compares these to the existing definitions in the TRMP.

NPS	Earthworks	means the alteration or disturbance of land , including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts.
	Land Disturbance	means alteration or disturbance of land , (or any matter constituting the land including, soil, clay, sand and rock), that does not permanently alter the profile, contour or height of the land .
TRMP	Earthworks	means any modification to the shape of the ground surface by movement or removal of soil and includes excavation, infilling, recontouring, and construction of any road, track, embankment, or drainage channel.
	Land Disturbance	means the destruction or removal of vegetation, soil disturbance, or earthworks.
NPS	Quarry	means a location or area used for the permanent removal and extraction of aggregates (clay, silt, rock or sand). It includes the area of aggregate resource and surrounding land associated with the operation of a quarry and which is used for quarrying activities .
	Quarrying activities	means the extraction, processing (including crushing, screening, washing, and blending), transport, storage, sale and recycling of aggregates (clay, silt, rock, sand), the deposition of overburden material, rehabilitation, landscaping and clean filling of the quarry , and the use of land and accessory buildings for offices, workshops and car parking areas associated with the operation of the quarry .
TRMP	Quarrying — means any land disturbance required for the extraction of any mineral including any rock, gravel or sand, and includes any on-site storage or processing of any mineral extracted on the site and any ancillary building including caretaker’s accommodation, but does not include:	

Appendix 3 (continued)

Options for accommodating Chapter 12 in the National Planning Standards are set out in the table below.

TRMP	Chapter	NPS Combined plan
Definitions	2	Part 1 Introduction and general provisions Interpretation Chapter - definitions
Land Disturbance	12	Part 3 domain and topics General Matters Chapter – earthworks Chapter other
Rule Chapters		
Land Disturbance (LD) 1	18	Part 3 domain and topics General Matters Chapter - earthworks
Land Disturbance (LD) 2 (Separation Point granites)	18	Part 3 domain and topics General Matters Chapter - earthworks
<i>Land Disturbance Proposed (LD) 3 (Moutere gravel/soils)</i>	18	
<i>Land Disturbance Proposed (LD) 4 (Urban area)</i>	18	
Slope instability risk area (SIRA)	18	Part 3 domain and topics General Matters Chapter – earthworks
Quarry Area	18	Part 3 domain and topics General Matters Chapter – earthworks

Appendix 4: Linkages within the TRMP Chapters to Land Disturbance

Issues	Objectives	Policies	
Effects	Objectives	The avoidance, remedying, or mitigation of adverse effects of land disturbance, Policies including:	Chapter 12 Other TRMP chapters and links to Chapter 12
(earthworks, land disturbance, erosion, sediment)= search parameters			
(a) induced or accelerated soil loss through mechanical removal, erosion or slope instability;	a, b	(a) damage to soil;	12.1.3.1 12.1.3.2 12.1.3.1 To promote land use practices that avoid, remedy, or mitigate the adverse effects of land disturbance on the environment, including avoidance of sediment movement through sinkholes into karst systems
(b) damage to soil such as compaction;	a	(b) acceleration of the loss of soil	6.14.3.3 To control land use activities and subdivision to avoid any adverse environmental effects in terms of sedimentation, erosion, instability and loss of visual amenity. 6.3.3.6 To allow development to occur only where adequate provision is made for (a) control of sediment discharges;
(c) sedimentation in surface water bodies, with contamination of water and damage to aquatic habitats R	c, d, f	(c) sediment contamination of water and deposition of debris into rivers, streams, lakes, wetlands, karst systems, and the coast;	12.1.3.1 12.1.3.2
(d) sedimentation in subsurface water bodies or cave systems, and damage to karst systems and features R	d, f	(d) damage to river beds, karst features, land, fisheries or wildlife habitats, or structures through deposition, erosion or inundation	12.1.3.1 12.1.3.3
(e) river or stream channel modifications, induced channel erosion, and aggravated flood risk R	c, d, f	(e) adverse visual effects;	12.1.3.2 To avoid, remedy, or mitigate the actual or potential soil erosion or damage, sedimentation, and other adverse effects of land disturbance activities consistent with their risks on different terrains in the District, including consideration of: (a) natural erosion risk, and erosion risk upon disturbance; (b) scale, type, and likelihood of land disturbance; (c) sensitivity and significance of water bodies and other natural features in relation to sedimentation or movement of debris; (d) Coastal Risk Area.
(f) adverse effects on surface and subsurface drainage; R	a, c, d, c	(f) damage or destruction of indigenous animal, plant, and trout and salmon habitats, including cave habitats, or of sites or areas of cultural heritage significance;	12.1.3.3 12.1.3.2 12.1.3.3 To investigate and monitor the actual or potential adverse effects of soil erosion, other soil damage, sedimentation and damage to river beds, subsurface water bodies and caves in karst, aquatic and other natural habitats, arising from land disturbances.
(g) visual changes in disturbed areas	e	(g) adverse effects on indigenous biodiversity or other intrinsic values of ecosystems.	12.1.3.4 To avoid, remedy, or mitigate the adverse effects of earthworks for the purpose of mineral extraction, on the actual or potential productive values of soil, particularly on land of high productive value.
(h) destruction or damage to remnant indigenous plant or animal habitats	f, g		12.1.3.3 12.1.3.3 Policy To regulate land disturbance so that slope instability and other erosion processes and inundation are not initiated or accelerated.
(i) adverse effects on intrinsic values of ecosystems;	f, g		13.1.3.0 reasons and explanation Soil loss through erosion is a significant risk when certain activities, such as tracking, subdivision, and earthworks that disturb the ground, are undertaken. Some parts of the District such as the shallow steepplands soils and the Separation Point Granite terrain from Separation Point/Te Matau to the Glenhope Scenic Reserve have a magnified risk of instability if vegetation or soils are disturbed.
(j) destruction or damage to sites of cultural or archaeological significance.	f		33.3.2 Objective Stormwater discharges that avoid, remedy or mitigate the actual and potential adverse effects of downstream stormwater inundation, erosion and water contamination. 33.3.4 Policy To avoid, remedy or mitigate the potential for flooding, erosion and sedimentation arising from stormwater run-off.
			15.1.3.0 reasons and explanation Policy 3 recognises the particular benefits of the Waimea Community Dam. Policy 4 then recognises that there are specific effects arising from the construction, operation and maintenance of the dam and associated facilities that need to be managed appropriately. The policy includes recognition that some effects may not be able to be avoided, and therefore some form of remediation, mitigation or off-set may be appropriate. This includes ensuring that best industry practice is adopted wherever necessary, especially in relation to the design, construction, operation and maintenance of the dam and managing land disturbance effects
			15.1.3.3 Policy In assessing resource consent applications required under Parts II, IV, V and VI of the Plan for the construction, operation and maintenance of the Waimea Community Dam and associated infrastructure, to manage adverse effects arising from activities, including subdivision, the removal of indigenous vegetation, land disturbance, water management, public access and other associated activities, by having particular regard to: (i) mitigating adverse effects of land disturbance and construction activities on water quality by requiring adoption of best industry practice;