

Chapter 7

Institutional Discussion

Introduction

This guideline sets out alternative approaches primarily to the design and layout of residential land developments and subdivisions although elements of low impact design are also appropriate for commercial and industrial developments. These approaches to erosion and sediment control and stormwater management are based on designs that are responsive to the natural features and systems of the site and the broader catchment.

The guideline sets out practical approaches to implement the broad policies and objectives that are components of a regional stormwater management strategy. That strategy is also articulated through the Auckland Regional Policy Statement, the Regional Plan; Sediment Control, and other regional documents such as the Strategy Statement. Co-ordination and co-operation between the Regional Council and local councils will be required to ensure that the statutory and non-statutory framework applying to land use, subdivision and discharge consent applications is flexible and robust enough to enable these techniques to be successfully implemented. Chapter 4 has highlighted areas where rules and practices in the various District Plans throughout the region could potentially be in conflict with or unsupportive of the approaches set out in this guideline.

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Successful implementation will require the establishment of a statutory and non-statutory framework that encourages and facilitates these new approaches within the ARC and the territorial authorities. The context of that framework involves:

- Relating the guidelines to the requirements of the Resource Management Act through the Auckland Regional Policy Statement, Regional Plans and District Plans.
- Ensuring that the Policy Statement and Plans are sufficiently co-ordinated and consistent to encourage and provide for the use of these techniques.
- Identifying other non-statutory mechanisms that can be used to implement these approaches.
- Promote the use of integrated management processes such as structure plans, catchment management plans, pre-application meetings, joint processing and co-ordination between Councils to facilitate the application of site responsive, low impact design approaches.

Resource Management Act

The Resource Management Act 1991 (RMA) establishes the ARC's and the territorial authorities statutory responsibilities with regard to resource management.

The ARC's responsibilities are set out in section 30 of the RMA. These responsibilities as they relate to the management of stormwater and sediment discharges are:

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- The establishment, implementation and review of objectives, policies and methods to achieve integrated management of natural and physical resources of the region;
- Controlling land use for the purpose of maintenance and enhancement of water quality and quantity in water bodies and coastal waters;
- Controlling land use for the purpose of avoidance or mitigation of natural hazards;
- Controlling the taking, use damming and diversion of water and the control of water levels quantities and flows;
- Controlling discharges of contaminants into or on to land, air or water and discharges of water into water.

The ARC implements these controls through its Auckland Regional Policy Statement, Regional Plans, and through resource consent processes.

The responsibilities of TA's under section 31 of the RMA are related specifically to the use of land, and include:

- Establishing, implementing and reviewing objectives, policies and methods to bring about integrated management of the effects of land use;
- Controlling the actual or potential effects of the use, development or protection of land use;
- Controlling the subdivision of land.

Both the Regional Council and the TA's must carry out these functions in a way that is consistent with the purpose of the RMA, all the matters of national importance and other matters set out in sections 6,7 and 8 of the RMA.

Of particular relevance to the matters discussed in this guideline are section 6 (a) which provides for:

“The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development,” and having regard to section 7 matters including:

- (b) *The maintenance and enhancement of amenity values,*
- (c) *The intrinsic values of ecosystems,*
- (f) *The maintenance and enhancement of the quality of the environment.*

The principal method that TA's have for implementing these controls is the District Plan. The District Plan can set out matters relating to the management of these concerns and particularly the adverse effects of land use, including the effects of land related earthworks and stormwater issues such as; nuisance, dust, stability, amenity, landscape, visual, traffic, habitat, cultural, health and safety. Section 31 does not include water quality as a purpose, however in managing land use, district plans can not be inconsistent with the Regional Policy Statement or any regional plans including the Proposed Regional Plan: Sediment Control. Therefore regional and district councils are able to regulate the same activity (earthworks) but for different purposes (for example, water quality versus stability or dust).

As this guideline has clearly shown, stormwater contamination and the level of sediment generated is strongly influenced, for better or worse, by land use decision-making. The integrated management of the effects arising from development therefore depends on both the regional council and the TA's assuming their responsibilities to manage the effects of land use and development on water quality.

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It is vital therefore that the stormwater management assets that are ultimately inherited by TA's upon the completion of a subdivision or development are consistent with the overall catchment and asset management strategies for that area.

In addition to their statutory functions under the RMA, TA's also have (or delegate to others) a Local Government Act responsibility for the management of stormwater assets including both structural (pipes, manholes and detention ponds etc.) and non-structural (watercourses, wetlands, etc.) infrastructure. It is vital therefore that the stormwater management assets that are ultimately inherited by TA's upon the completion of a subdivision or development are consistent with the overall catchment and asset management strategies for that area.

Regional Policy Statement

The Regional Policy Statement provides regional guidance about managing the use, development, and protection of the natural and physical resources of the Region. It sets in place the policy base for promoting the sustainable management of these resources. It also clarifies the respective roles of the agencies with responsibilities under the RMA. Under the RMA, the Regional Plan and appropriate District Plans must not be inconsistent with one another. The RPS is an umbrella under which various policy plans and statements are provided.

The relevant chapters of the Regional Policy Statement are discussed below and the full text of the most relevant sections are listed in Appendix X of this guideline:

- Chapter 4 – Transport

There are several important sources of water quality degradation arising from transport activities. Motor vehicle emissions that are deposited onto roads together with road surface accumulation from vehicle use (tyre wear, oil leaks etc.) and water borne sediments from road construction all contaminate stormwater runoff. This chapter sets out specific policies and methods that seek to guide the development of roads in a way that avoids, remedies or mitigates the adverse effects of the transport system on water quality including treating stormwater and sediment discharges from roads.

- Chapter 8 - Water Quality

Land disturbing activities and the construction of impervious surfaces associated with new urban development affect the quantity, rate and quality of runoff discharged from these surfaces. Of particular relevance to users of this guideline are the objectives, policies and methods set out in this chapter relating to maintaining and enhancing water quality and stormwater and sediment discharges.

- Chapter 11 - Natural Hazards.

The most commonly occurring natural hazards in the Auckland Region are flooding and erosion/land instability. This chapter sets out specific policies and methods relating to flood hazards and areas subject to erosion/land instability and managing activities such as land development and the siting of habitable buildings in a way that avoids, remedies or mitigates any adverse effects.

Regional Plans

The only directly related Regional Plan is the Proposed Regional Plan: Sediment

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Control (PRP:SC) which addresses the issue of sediment discharge and defines the mechanisms that the ARC has chosen for avoiding, mitigating or remedying any adverse effect on the environment due to sediment discharge from bare earth.

To summarise the PRP: SC, subdivisions that involve earthworks covering an area of 1 ha or more (outside the sediment control protection area¹), or covering an area of 0.25 ha (within a sediment control protection area or where the slope is equal to or greater than 15°) will require a resource consent from the ARC². Note that the PRP:SC is subject to appeal and changes may result. The ARC should be consulted for possible changes to the stated criteria.

Transitional Regional Plan

The Transitional Regional Plan provides guidance on a number of issues which includes provisions relating to the diverting and discharging of stormwater in urban areas. The Transitional Regional Plan requires that resource consents be obtained for discharges of stormwater from impermeable surfaces exceeding 1000m² into any watercourse or lake.

It should be noted that the ARC is currently drafting a Land, Air and Water Plan that will address, amongst other matters, issues relating to avoiding, mitigating or remedying any adverse effect on the environment arising from stormwater and sediment discharges and will replace the PRP:SC and the Transitional Regional Plan for stormwater.

District Plans

It is important that the regulatory framework in the District Plan is supportive of low impact design (LID) approaches. Councils will need to review their District Plans to consider the following matters:

- Objectives and policies; these set out the overall strategy for managing the effects of activities on natural and physical resources. They are particularly important when assessing applications for discretionary activity consents and will need to ensure that they allow for and promote flexible and alternative design techniques.
- Rules; the challenge is to ensure that the rules provide sufficient flexibility for, and are able to be supportive of, the techniques and practices being advocated in this guideline while at the same time ensuring that amenity values and environmental outcomes are not compromised. The following rules specifically will need to be examined and possibly realigned or amended:
 - Density – provision for clustering, medium and higher intensity housing
 - Yards and setbacks – many rules preclude the ability to have zero-lot boundaries, duplex houses etc.

It is important that the regulatory framework in the District Plan is supportive of low impact design approaches.

¹ *Sediment Control protection Area is defined as*

- (a) *100 metres either side of a foredune or 100m landward of the coastal marine area (whatever is the more landward of mean high water springs); or*
- (b) *50 metres landward of the edge of a watercourse, or wetland of 1000m² or more.*

² *The Proposed Regional Plan: Sediment Control should be referred to for the full text of the objectives, policies and rules relating to sediment control and discharges.*

- Earthworks
- Riparian or coastal margins
- Tree, bush, and wetlands protection / vegetation clearance and natural heritage
- Parking
- Impervious surfaces and building coverage
- Driveways / accessways and passing bays
- Outdoor open space
- Financial contributions
- Reserve contributions
- stormwater/utility provisions

Chapter 4 provided information regarding many of these factors and the type of latitude or flexibility that territorial authorities had in promoting LID activities. A number of District Plans have existing rules that provide flexibility to incorporate certain LID principles such as reduction in setbacks and impervious surface limitations. Other activities are not promoted to any great extent such as clustering, reduction in road widths, footpath requirements, broad requirement for kerbing, and no limitations on parking requirements.

The rules within district and regional plans must allow for a certain degree of flexibility to ensure that alternative and innovative solutions are not rejected because they do not fit the ‘standard’ or the rule. This guideline encourages developers and designers to move beyond generic engineering solutions and seek out new and innovative designs. District Plans and Codes of Practice must facilitate this.

Provision should be made through controlled and limited discretionary activity resource consents for designs that are less structural and rigid. The consenting regime should not be so onerous that developers are discouraged, in terms of the application that needs to be applied for, from using these alternative techniques. Councils are able through more permissive rules to offer some sort of incentive to implement low-impact design options. By ensuring that clear and well-targeted assessment criteria are listed the Council can have the confidence that environmental and amenity issues will be adequately addressed and assessed.

Flexibility will need to be built into the district plan rules and into the subdivision design codes of practice. For example:

- Strictly adhering to technical standards may not be appropriate,
- Overly prescriptive rules and performance standards may discourage innovative and less structural responses,
- Assessment criteria will need to be robust to ensure that environmental outcomes are not compromised but flexible enough to allow for an informed balance between technical compliance and practicality,
- Assessment criteria for rules will need to guide development rather than prescribe the exact design and layout of developments.

Successful implementation will ultimately rest on the willingness of the developer to adopt these LID practices.

Other Mechanisms

Successful implementation will ultimately rest on the willingness of the developer to adopt these LID practices. It is important that as many impediments as possible to the use of these approaches are removed. It is also important that other requirements and practices within territorial authorities, such as subdivision and roading design codes of practice, are not in conflict with these guidelines or with Regional Plan or District Plan objectives. The following mechanisms should be considered and re-

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viewed:

Codes of Practice

- Road widths, turnaround sizes
- Driveway / accessway widths
- Footpath widths
- Infrastructure location (power and telephone cables, gas and water and wastewater pipes)
- Alternative designs

Land Titles

- Need to consider easements and other mechanisms for managing right-of-ways, easements for access, joint driveways etc.

Real Estate Marketing

- Education about the advantages of alternative designs over traditional models.
- Perceptions of what the market is seeking / resistance to smaller lots / zero lot lines etc.

Emergency / Utility Services

- Need to consider and manage accessibility issues and explore alternatives (fire engines, ambulances, rubbish trucks)

The New Zealand Standard for Subdivision Design.

- The New Zealand Standard (NZS 4044) for subdivision design is currently being reviewed by the government, that review will determine how or if the national standard is being applied and whether it is necessary to update that standard within the context of the RMA and current urban design practices.

Education

- Education of Council politicians, Council staff, developers and designers about the techniques and practices in this guideline.
- This approach is about finding the best individual components for a design and then integrating those components in the broader system. It involves considering the 'big picture' and that requires making the community and as well as the construction industry aware of the issues affecting a particular area or catchment.

Integrated Management

Early Consultation, Clear Advice and Information, Pre-application Lodgement Meetings

Councils need to have processes in place to allow them to be responsive and able to offer clear advice and information at the initial stages of the development design process.

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Planners, stormwater and roading engineers, asset managers and other relevant staff within councils must actively work with developers and designers to seek more innovative and responsive outcomes. They need to be proactive rather than reactive.

It is often too late after a design has been formulated and a developer has gone to great expense to undertake geotechnical studies and engineering design work to implement design changes. When a developer has developed a design that they believe will work and address the matters that will be assessed in the relevant resource and subdivision consent processes they do not want to modify or alter the project design.

The developer and designer therefore need to be informed of Councils expectations and policies early in the process, the earlier they are aware say of the needs of the various sections of Council the better able they are to address those matters in their design. Where Councils engage in a collaborative way with the developer to work through design issues arising from Councils requirements the outcome is more likely to be mutually acceptable.

Early 'pre-application lodgement meetings' involving:

- The developer, their designers and engineers,
- A Council multidisciplinary team (involving parks staff, ecologists, stormwater engineers, planners, roading engineers, asset managers etc.), and
- The relevant ARC staff

can set out all the issues and each sections various requirements before the design becomes 'set in concrete'. At this stage conflicts, problems and opportunities can be identified and explored. This enables the applicant to understand the wider context that their development is part of. It also assists the developer to identify key council staff contacts who they may need to work with further.

Providing top quality information and clear accurate advice at the outset will result in better design outcomes, greater certainty for the applicant and a more rapid processing of the resource consent.

Structure Plans and Catchment Management Plans

Where ever possible and certainly in areas where greenfields development is taking place a structure or catchment management plan should have been completed. The individual practices and techniques advocated in this guideline are part of the implementation of those plans. The Regional Council has been encouraging territorial authorities to include objectives and policies within structure plans that are consistent with and supportive of the implementation of low impact methods.

Both the Regional Council and territorial authorities need to ensure that structure plans have scoped and addressed all the issues. It is also important that future land uses and opportunities are considered and that future opportunities are not foreclosed.

Consistency and Co-ordination between the Regional Council and the Territorial Authority

Most large subdivisions require land use and subdivision consents from the relevant territorial authority and discharge (and sometimes land use) consents from the ARC. There is a need to establish processes that ensure integrated co-ordination of processing and decision making between local and regional councils during consent process-

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ing. Innovative outcomes will not result if there are conflicting requirements and conditions between the two consent authorities.

The ARC is also working with Councils to explore the use of transfer of powers with respect to earthworks activities that are permitted in the Regional Plan; Sediment Control and to develop Memorandums of Understanding relating to the concurrent processing of consent applications.

The ARC also convenes and runs education workshops and seminars and a certifiers programme for industry operators and related industry staff, and other education initiatives for planning, policy, resource management and building certifying staff at TA's.

Consistency in Policy and Practice within Individual Councils

Councils need to be very clear on the outcomes that they are seeking. Often different sections of Council have different policies, requirements and standards.

For example the urban policy planners may be seeking to increase densities around identified growth nodes and to achieve certain thresholds to meet urban accessibility and amenity issues. The roading engineers however may have strict requirements for carriageway and accessway widths that are in conflict with the densities desired and the design layout. The parks section may have certain standards about safety and maintenance requirements for assets that they acquire and these will need to be accommodated into the design of, say, a detention pond or wetland.

Asset Maintenance

Ultimately the final product of the design; the pattern of residential development, the streets, footpaths, parks, drains, infrastructure, wetlands and ponds will be real structural or non structural elements that must be operated and maintained by the Council. These structures, landforms and patterns will endure and they must satisfy and address community aspirations and values.

Therefore they must be simple and practical in terms of construction, materials, operation, maintenance and safety. They must 'work' within the context of the broader area and the catchment.

Integrated Solutions

The design practices and techniques set out in this low impact guideline are concerned not just with the final outcome, the development, the structures and the land form but equally importantly with the methods and process of getting to that outcome.

Achieving site responsive, low impact design is about acting on opportunities no matter how small to bring a positive change. It is about setting the 'right' agenda at the outset, an agenda that has as its objective sustainable management of natural and physical resources. The emphasis in moving towards site responsive, low impact design is that these methods are not simply limited to individual sites but form the context and framework for how we should go about the business of managing our natural and physical resources.

Actions

The emphasis in moving towards site responsive, low impact design is that these methods are not simply limited to individual sites but form the context and framework for how we should go about the business of managing our natural and physical resources.

The following are suggested for achieving implementation of the LID approaches advocated in this guideline:

- Re-evaluation of District Plan objectives, policies and rules to ensure that they are sufficiently flexible to allow these techniques while maintaining clear standards to ensure that environmental outcomes are not compromised.
- Revision and amendment of Council Codes of Practice to ensure that there are not conflicting design standards that will negate or preclude the use of the techniques set out in this guideline.
- Establishment of multi-disciplinary teams within Councils to facilitate effective 'pre-application lodgement meetings'.
- Completion of structure plans and catchment management plans for areas of greenfields development and in existing urban areas where redevelopment and intensification or brownfields development is taking place.
- Continuation of the inter-council liaison programmes to ensure that clear protocols concerning concurrent processing are agreed to and implemented.
- Asset management plans that clearly articulate the stormwater management strategy for a particular area that is consistent with the Regional and District Plans and with the relevant structure and catchment management plans.
- Monitoring and enforcement of Resource Consents containing conditions to ensure that outcomes are being achieved.
- Ongoing monitoring and auditing of land development and subdivision activities to assess the ongoing effects positive and negative arising from the implementation of LID techniques.

Bibliography

Skupien, J.J; Design Considerations for Structural Best Management Practices; National Conference on urban Stormwater Runoff management: Enhancing Urban Watershed management at the Local, county, and State Levels, U.S. Environmental Protection Agency, April 1995.

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APPENDIX

Relevant sections of the Auckland Regional Policy Statement

CHAPTER 4 – TRANSPORT

4.4.1 Policy

2. Development of the transport system will be guided in a way which:
 - (iv) avoids, remedies, or mitigates the adverse effects of transport on water quality;

4.4.2 Methods

6. The ARC will include in a regional plan rules for sediment discharge from road construction and will implement a Stormwater Quality Control Programme as detailed in Method 8.4.8-2 which will address the adverse effects of stormwater discharges from roads.

CHAPTER 8 - WATER QUALITY

8.4.7 Policies: Stormwater and sediment discharges.

1. All new developments discharging stormwater, whether allowed as a permitted activity or by a resource consent, shall adopt appropriate methods to avoid or mitigate the adverse effects of urban stormwater runoff on aquatic receiving environments.
2. The ARC will promote stormwater quality control on a catchment wide basis to avoid or mitigate the adverse effects of urban stormwater runoff on aquatic receiving environments.
3. All land disturbance activities which may result in elevated levels of sediment discharge shall be carried out so that the adverse effects of such discharges are avoided, remedied, or mitigated.

8.4.8 Methods

3. Policy 8.4.7 -3 will be implemented through the Proposed Erosion and Sediment Control Regional Plan, district plans, and resource consents and other methods such as those listed in Chapter 1.
6. All new developments discharging stormwater, whether allowed as a permitted activity or by a resource consent, shall adopt the 'best practicable option' to achieve stormwater quality control.

CHAPTER 11 - NATURAL HAZARDS

11.4.1 Policies

3. Before provision is made enabling significant development or redevelopment of land which will result in intensification of land use, any flood hazards and

measures to avoid or mitigate their adverse effects shall be identified.

4. Development shall be discouraged in flood hazard zones unless it can be demonstrated that all habitable floor levels are protected from the 1% AEP flood level, and that structures in the 1% AEP flood level do not divert overland flows onto neighbouring properties. (See Appendix D for the definition of AEP)
5. Development shall not be permitted if it is likely to accelerate, worsen or result in inundation of other property, unless it can be demonstrated that the adverse effects can be avoided or mitigated.
6. Where changes in the use of land allows for the construction of habitable buildings, such buildings shall not be permitted to be constructed in the 1% AEP flood hazard zone, unless the hazard can be avoided and access maintained.
9. Development shall not be permitted in areas subject to erosion/land instability unless it can be demonstrated that the adverse effects can be avoided or mitigated.

11.4.2 Methods

2. The ARC will regulate diversions and discharges of stormwater in order to avoid or mitigate adverse effects of flooding and erosion, through the resource consent process.
6. TAs will give effect to these policies by including objectives, policies and methods of implementation within district plans to control the use of land for the avoidance or mitigation of natural hazards.