

BEACH RESIDENTIAL PRECINCTS / OTAKI

CHARACTER ASSESSMENT UP-DATE

RMA [ENABLING HOUSING SUPPLY & OTHER MATTERS]
AMENDMENT ACT & NSP-UD / IMPACT ON CHARACTER



Prepared for Kapiti Coast District Council by

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1 INTRODUCTION

CONTEXT AND BACKGROUND

The Operative Kapiti Coast District Plan identifies four special character areas/precincts with a coastal location at Paekakariki, Raumati, Waikanae Beach and Otaki Beach respectively. These precincts have location-specific issues that are managed through the Operative District Plan.

The District Plan describes these precincts as settlements with ‘a linear form, low key ‘beach’ character and expressive topography enhanced by prominent mature vegetation. Their memorable natural setting contributes to a strong sense of place. While each of the four settlements has its own ambience and individually, they share a range of common features derived from similarities in their coastal location, topography and history of land subdivision”. Further to this, the District Plan provides a list of the common patterns that underpin their ‘beach’ character which relate to both built and natural features and characteristics (refer District Plan, General Residential Zone, Beach Residential Precincts, page 3). These common patterns and characteristic features have been identified by detailed character assessments for each area carried out by the Council in 2011¹.

In recognition of the special character of these precincts the District Plan has made them subject to specific rules and standards ‘to ensure that new development is sensitive to its landscape setting and enhances the collective character, amenity value and public significance of each area’. In addition to the specific rules and standards, the District Plan includes a set of ‘Special Character Area Design Guidelines’ (General Residential Zone/Appendix 3).

The National Policy Statement on Urban Development (2020) (NPS-UD) and subsequent Resource Management (Enabling Housing Supply and Other Matters) Act, call for increasing the existing residential density and are applicable to Kapiti Coast District Council as a Tier 1 local authority. In response, proposed District Plan provisions are being prepared for the General Residential Zone, including the Beach Residential Precincts, with different provisions for the areas within 400m of a Town Centre or 200m of a Local Centre and within 800m of the Paraparaumu Metropolitan Centre Zone or a Rapid Transit Stop.

The increased density provisions have the potential to impact on some of the essential local character attributes associated with each precinct. To understand the potential impact of the new provisions on the key character attributes of each precinct, the Council has commissioned Urban Perspectives Ltd in association with Boffa Miskell to undertake an assessment of the specific ways the character of each precinct might be affected. This report provides an assessment of the Otaki Beach Residential Precinct. The other three areas – Raumati Beach, Waikanae Beach and Paekakariki Beach Residential Precincts are covered in separate reports.

The assessment will help inform the development of District Plan provisions in response to the new legislation and the NPS-UD, while acknowledging the essential local character attributes of the Otaki Beach Residential Precinct.

¹ Character assessments for the Beach Residential Precincts were undertaken by the Council in 2011 to help identify the key character attributes of each area and identify ways to manage those through the District Plan. The findings and recommendations of those assessments provided the rationale for the current District Plan provisions.

PURPOSE

The purpose of the study is two-fold:

- (a) identify the key/primary character attributes of each precinct that would be most sensitive to change/potential intensification; and
- (b) identify the potential impact (degree and nature of potential change) of the proposed increased density provisions on each character attribute and the collective character of the precinct as a whole.

STUDY AREA & SCOPE OF THE ASSESSMENT

The boundaries of the Otaki Beach Residential Precinct PBRP (or precinct) are identified by the District Plan and outlined on the 'context map' (refer Appendix 1/Map 1).

Character Definition ²

For the purposes of this study 'Character' includes both built and natural elements within the private and public realms within an area or neighbourhood. While the individual elements are important, 'character' is largely determined by the relationship between those elements and the unique way they combine to form patterns and create the context and image of an area as a whole. The more pronounced, consistent or continuous those elements, relationships and patterns are, the more distinctive and coherent the overall character of an area feels and the stronger its sense of place is.

Key Character Attributes Assessment

The assessment of the key character attributes is focused on the following aspects of the existing character which are considered most relevant to the assessment:

- Landscape character (landform/topography, vegetation patterns)
- Building height
- Site coverage
- Lot size pattern
- Setbacks

² The definition is a revised version of the definition used for the original 2011 'character assessments'

METHODOLOGY/RESEARCH METHODS

Assessment of 'key character attributes'

- Review and up-date analysis of the original 2011 Character Assessment with reference to key character elements that are most relevant to the purpose of this study, including landscape character and patterns relating to the key bulk/location provisions.
- A detailed landform and vegetation assessment to identify key character attributes.
- Mapping of up-dated and additional data based on the methodology used in the original 2011 Character Assessment.

Establishing the impact of increased density provisions on the local character attributes

- Comparative analysis of the 'character up-date assessment' findings against the operative and new draft provisions to establish the impact of the new provisions on existing character attributes. The analysis is limited to the key 'bulk and location' provisions including site coverage, building height, setbacks and lot size.

The collective use of the identified research/analytical methods allows an objective assessment of the area's character and helps to inform conclusions on the implications of the new increased density provisions.

ACKNOWLEDGEMENTS

Urban Perspectives are grateful to KCDC for supplying GIS information from the Council's database and to Dr Mike Shephard, senior lecturer in geomorphology (retired) Massey University for providing information and advice on the geomorphology of the Kapiti Coast dune systems.

2 EXECUTIVE SUMMARY

CHARACTER ASSESSMENT SUMMARY

Sense of place

The Otaki Beach Residential Precinct (the precinct) has a strong sense of place derived from its coastal location and associated landscape setting. The precinct comprises two separate sub-precincts (the seafront sub-precinct and the inland sub-precinct) with generally comparable development patterns but different landscape characteristics.

Compared to the inland sub-precinct, the seafront sub-precinct has a less pronounced slope profile and a limited amount of tall vegetation. This allows the subtleties of the gentle and shallow dune forms to be expressed while contributing to a distinctive sense of openness.

Conversely, the inland sub-precinct is characterised by a steeper landform and a more pronounced tall vegetation cover. Being setback from the seafront, its relationship to the coast is less direct and experienced primarily in elevated views from some streets and/or private properties within the sub-precinct.

The distinctive and largely intact coastal landform of the entire precinct and the vegetation cover within the inland part of the precinct, represent the precinct's most recognisable characteristics. The existing low-rise/low-density residential development which integrates well into the landform, together with the informal character of some narrow roads within the southern-most part of the seafront sub-precinct, contributes to the precinct's low-key beach character.

Essential character attributes/patterns/relationships³

■ **Primary attributes** - the precinct's primary attributes include:

(i) landscape character attributes:

- relatively intact relict foredune along Marine Parade with a low-lying sand plain which separates and accentuates the relict foredune and the dune ridge inland to the east. While the slope profile in the seafront sub-precinct is less pronounced than that in the inland sub-precinct, the landform of both sub-precincts is largely intact;
- vegetation cover of tall trees (8m+) which creates a relatively continuous tall vegetation pattern in the inland sub-precinct accentuating its landform (vegetation cover above 30% accounts for 44% of the sites). Vegetation cover in the seafront sub-precinct, which is sparse and low, is not a primary landscape attribute that is sensitive to change; and
- direct relationship of the seafront sub-precinct to the beach and associated sense of openness.

As integral parts of their coastal setting, landform and vegetation patterns are interrelated and together with the low-density built form represent the precinct's primary character attributes that largely define its overall character. It is the relationship between the primary

³ These have been identified based on the adopted 'Character' definition (page 2 of this report). According to that definition, 'character' includes both built and natural elements within the private and public realms of an area, noting that while the individual elements are important, 'character' is largely determined by the relationship between those elements and the unique way they combine to form patterns and create the context and collective image of an area as a whole. The more pronounced, consistent or continuous those elements relationships and patterns are, the more distinctive and coherent the overall character of an area feels and the stronger its sense of place is.

landscape and built form attributes of the precinct that define its distinctive character. Managing this relationship is important if the precinct's primary attributes are to be maintained.

The existing street network has not significantly affected the underlying landform but has created several large blocks with internal lots, while also hindering connectivity and creating cul-de-sacs (refer Appendix 1/Maps 13 and 14). Although not directly related to the landform, a distinctive street pattern at the southern end of the seafront sub-precinct has emerged creating a low-key beach character reminiscent of a traditional beach settlement (vicinity of Kapiti Lane). This is further enhanced by the narrow width and informal character of some of the roads (i.e. Kapiti Lane and the southern-most 'cul-de-sac' section of Marine Parade).

The primary character attributes are experienced within the precinct, as well as in views from locations within the surrounding area. The beach-fronting sites contribute to the public character of the entire precinct given their visibility from the beach.

- **Enabling attributes** - the primary character attributes have been enabled by four interrelated, predominant and generally consistent patterns:
 - (i) generous lots size (predominance of lots above 600m²). There is a correlation between lot size, land slope and vegetation cover with the larger lots typically occurring on the steepest slopes where the vegetation cover tends to be most pronounced/dense;
 - (ii) low site coverage - predominance of site coverage below 30% for more than two-thirds (70%) of the sites. This, in combination with the lot size pattern, has allowed: (a) flexibility in building location (most buildings located within the flatter parts of the lot, thus avoiding the need for significant earthworks/landform modifications in the inland sub-precinct); and (b) sufficient space around the existing tall trees to protect their roots and allow for their establishment and growth, as well as provide opportunities for new planting. This is most pronounced in the inland sub-precinct and the steeper parts of the seafront sub-precinct;
 - (iii) building height - the predominant low building height (single-storey for 72% of the sites) combined with the predominant stand-alone dwelling typology, has facilitated building development of a form and scale that is compatible with the landscape setting; and
 - (iv) variable setbacks influenced by the topography - deep setbacks (above 4.5m), which account for 60% of the sites and represent the predominant pattern, typically occur on steeper and/or larger sites. Conversely, shallow setbacks (below 2.5m) relate to sites with a flatter topography and/or smaller size lots that are mostly found in the seafront sub-precinct. 'Informed' by the topography, the existing setback pattern (re both front and rear yards) has enabled a building form that responds to and complements its coastal setting.
- **Supporting attributes**
 - (i) the informal character of some streets at the southern end of the seafront sub-precinct supports the existing low-density building form and contributes to the relaxed low-key beach character of the precinct, which is most pronounced within the southern-most part of the seafront sub-precinct fronting Marine Parade.

The combination of the enabling attributes - low site coverage, generous lot sizes, low building height and setbacks that reflect the topography - has allowed the retention of the underlying landform and associated vegetation cover (the primary landscape attributes) and facilitated a built form character that is compatible with the landscape setting. This is further supported by the informal character of some streets at the southern end of the seafront sub-precinct, to create a low-key beach character.

The landscape character value/significance of the existing landform across the entire precinct and the vegetation pattern of the inland sub-precinct, makes the precinct as a whole generally sensitive to change and especially sensitive to any increased level of intensification. The parts of the precinct that might have a lower level of sensitivity re landform include those parts that fall outside the outline of the most prominent dune formations, as marked on the annotated 'hill shade' map (Appendix 1: Map 2). These parts are located primarily along the periphery or at the 'ends' of the precinct.

DISTRICT PLAN REVIEW / OPERATIVE & DRAFT PROVISIONS VERSUS PREDOMINANT CHARACTER PATTERNS: KEY FINDINGS

Operative Provisions

The Kapiti Coast District Plan identifies the Otaki Beach Residential Precinct as one of four special character areas/precincts with a coastal location. To provide for the management of the special character of these precincts, the District Plan includes provisions *'to ensure that new development is sensitive to its landscape setting and enhances the collective character, amenity value and public significance of each area'*. In addition to these provisions, the District Plan includes a set of 'Special Character Area Design Guidelines' (General Residential Zone/Appendix 3).

The analysis of the operative rules and standards for the Otaki Beach Residential Precinct (re site coverage, building height, lot size and setbacks) established that the operative provisions are generally aligned with and reflect the existing character patterns and attributes. Therefore, they facilitate the management of the precinct's primary attributes. The site coverage and lot size provisions are most critical in this respect.

Draft Provisions

The comparative analysis of the draft provisions relative to the precinct's primary character attributes established that the draft provisions are markedly different from the existing patterns and, if implemented, would enable a density of development and building character that would be a clear departure from that allowed under the existing provisions. This could have a significant impact on the precinct's primary landscape character attributes by enabling an increased level of modification to the landform and tree and other vegetation removal compared to the operative provisions, as well altering the built form character, and affecting its relationship to the landscape setting. It is also likely to impact on the character of some of the narrow informal streets within the southern-most end of the seafront sub-precinct that contribute to the local sense of place and the precinct's overall low-key beach character.

CONCLUSIONS

Character

- The Otaki Beach Residential Precinct comprises two separate sub-precincts (the seafront sub-precinct and the inland sub-precinct) with generally comparable development patterns but different landscape characteristics. The precinct has a distinctive character based on a set of definable character attributes (primary, enabling and supporting attributes) that work together and reinforce each other. The precinct's primary landscape attributes - the largely intact landform of the entire precinct and the vegetation cover pattern within its inland part, particularly that of tall 8+m trees, along with the precinct's low-density built form that is compatible with the landscape setting - have been enabled and maintained by the existing predominant patterns of low site coverage, large lot size, low building height and setbacks that work with the topography. This has been further supported by the existing street network that has largely retained the integrity of the underlying landform and created some narrow streets with informal character (no kerb and channel/no footpaths).

Operative and Draft Provisions

- The operative District Plan provisions are overall aligned with the precinct's predominant patterns. This has facilitated the management of the precinct's primary attributes.
- The draft provisions enable development with a density and building scale and character that is markedly different from that allowed under the operative District Plan provisions and a departure from the precinct's predominant patterns. This suggests that the primary, most prominent landscape character attributes of the Otaki Beach Residential Precinct - the largely intact dune landform of the entire precinct and the tall trees vegetation cover within its inland part - along with the low-density built form that fits well into the landscape, could potentially be considerably affected/alterd under a level of development enabled by the draft provisions.
- The two sub-precincts are sensitive to change in a slightly different way. The sensitivity of the seafront sub-precinct is focused mainly on potential landform modifications and the impact of an increased building height/bulk, particularly that along Marine Parade, as it could result in visual dominance, thereby reducing the existing sense of openness and altering the visual relationship to the coast. The potential changes will be highly prominent due to: (a) the proximity of the seafront sub-precinct to the beach that allows for long unobstructed views to the seafront sub-precinct; and (b) the lack of tall vegetation within the seafront sub-precinct which limits opportunities for integrating buildings to the landscape.
- In comparison, the inland sub-precinct is sensitive to both potential landform modifications, as well as to potential changes in vegetation cover (tall trees) arising from an increased density of development. The potential impact of an increased building height/bulk in the inland sub-precinct will be most pronounced on sites along or close to the ridgelines which will be visible in local views and in views from locations within the wider area.

Parts of the Precinct that are most sensitive to change /spatial extent

- The character value/significance of the existing landform across the entire precinct and the vegetation pattern of the inland sub-precinct makes the Otaki Beach Residential Precinct generally sensitive to change and especially sensitive to any increased level of intensification.
- The sensitivity of the landform to change was determined relative to the steepness of its slopes. Sites with slopes steeper than 1:5 were identified as primary/character defining sites that are most sensitive to change; sites with slopes between 1:5-1:12 as contributory (sites contributing to the character); and sites shallower than 1:12 as supporting/neutral sites. The entire precinct is dominated by contributory sites (63%) followed by primary sites (19%) and a similar percentage of supporting/neutral sites (18%). The average slope profile in the two sub-precincts is different. The inland sub-precinct, which is steeper, is dominated by primary and contributory sites (47% and 51% respectively) with an insignificant number of supporting/neutral sites. In comparison, the seafront sub-precinct is dominated by contributory and supporting/neutral sites (68% and 24% respectively) and a low percentage of primary sites (8%).
- The sensitivity of primary, contributory and, to a lesser degree, supporting/neutral sites (re average slope) was also assessed in relation to the landscape character of the underlying landform (re intactness and/or landscape character value) and separate from the specific slope profile. This is to recognise that the slope's steepness is not always directly related to and/or a necessary ingredient of landform significance. For example, contributory sites and even some supporting/neutral sites might be as sensitive to change as the primary/steep sites in cases where they sit within a generally intact landform with a naturally lower slope profile. The low percentage of primary sites within the seafront sub-precinct is largely a reflection of its underlying gentle and shallow dune forms. The parts of the precinct identified as significant landforms that are most sensitive to change, are highlighted on the annotated 'hill shade' map (Appendix 1, Map 2).

- The sensitivity of the vegetation pattern was determined by the extent of tall tree (8m+) cover on each site. On this basis, sites with a vegetation cover above 30% and up to 80%+ were identified as 'primary' or character defining sites; sites with a vegetation cover between 20% and 30% as contributory sites (sites contributing to the character); and sites with vegetation cover of below or up to 20% as supporting/neutral sites. The vegetation cover in the two sub-precincts is different. In the inland sub-precinct, where the vegetation is more pronounced, primary and contributory sites combined account for two-thirds of the sites (47% primary, 24% contributory) and supporting/neutral site account for the remaining third. In comparison, the seafront sub-precinct is dominated by supporting/neutral sites (78%) followed by contributory sites (17%) and a low percentage of primary sites (5%).
- Primary and contributory sites with regard to both landform and tall tree cover (the precinct's primary landscape character attributes) are most sensitive to intensification. Often primary 'landform' sites are also primary 'vegetation cover' sites.
- The precinct is dominated by primary and contributory sites re landform and by primary and contributory sites re tall vegetation cover, but only in the inland sub-precinct. This means that the potential loss of vegetation in the inland sub-precinct and the degree of modification to the landform in the entire precinct could be significant. This, together with the potential changes arising from an increased building height/bulk, could affect the overall character of the precinct. Even if only some of those sites are to be redeveloped, this could have potential implications beyond the individual site/s.
- Supporting/neutral sites are less sensitive to intensification as their slopes are shallower and their vegetation cover is lower/less dense and therefore impact on the existing landform and/or tall tree vegetation pattern resulting from their redevelopment would be low.

Possible further investigation on the sensitivity of the landform and vegetation cover

- Not all contributory sites (tall tree cover 20-30%) exhibit an equal density of cover. Similarly, not all contributory sites with an average slope 1:5-1:12 have the same level of sensitivity (noting that average slope is not representative of the actual slope).
- Further to this, the sensitivity of primary and contributory sites re average slope needs to be considered in relation to the landscape character of the underlying landform (re intactness and/or landscape character value) and separate from the specific slope profile. The parts of the precinct identified as significant landforms that are most sensitive to change, regardless of the steepness of the slope, have been identified and highlighted on the annotated 'hill shade' map (Appendix 1, Map 2).
- To establish in more detail the relative sensitivity of contributory sites across the precinct and/or the sensitivity of the parts of the precinct that fall outside the identified most sensitive dune formations, further investigation re density of vegetation cover and actual slope characteristics could be considered.

3 CHARACTER ASSESSMENT UP-DATE

LANDSCAPE CHARACTER

INTRODUCTION

Geomorphological processes over millennia have created the distinctive dune landforms of the Kapiti Coast, which are part of an extensive dune system that runs from Paekakariki in the south to almost Whanganui in the north. It is New Zealand's largest dune field, covering about 85,000 hectares and its continuity is broken only by the rivers and waterways that cross the coastal plain. The entire dune field could be considered to be a large-scale coastal landform because the dunes were generated at or near the coastline relatively recently and the coastal character of both the older and younger dunes is significant.

The dune field is of Holocene age and probably commenced forming when the sea rose to its present level 6500 years ago, following the last glacial period. The main variables in the formation of the dune fields include the sand supply (largely by longshore transport from the north), the degree of exposure to the prevailing onshore winds, and fluvial processes, including river mouth migration and sediment supply. Furthermore, the Paekakariki, Raumati, Raumati South and Otaki Beach areas contain coastal landforms that are not present elsewhere along the west coast south of Whanganui.

Ecologically, this extensive sand dune complex is recognised as the Foxton Ecological District. The native vegetation that formed on the dune crests, dune slopes and interdunal hollows and along the edges and terraces of the Waikanae and Otaki Rivers and associated waterways, contributed to the natural character of Kapiti Coast and together with the geomorphological elements and processes have collectively contributed to the character of the precincts being considered. A distinction can be made between younger active dunes and older relict dunes that are stabilised by vegetation.

Historically, the Waikanae and Paraparaumu coastal areas would have been vegetated in native duneland and wetland species and lowland podocarp/broadleaf forest in dune slacks. Today little native vegetation remains because of extensive clearance and land use changes. In the residential areas including in the precincts, fragments, of the original vegetation remain in a few places.

An assessment of the natural character of the Kapiti coastal environment was recently completed for Kapiti Coast District Council and GWRC (Boffa Miskell 2021). In this study the inland extent of the coastal environment was defined and mapped, and an assessment made as to the extent to which the natural elements, patterns and processes exist, and the level of human modification. Natural character aspects have been described then rated in terms of the degree of physical modification alongside experiential aspects that exist because of the levels of modification remaining apparent. The findings of this assessment, which is broadscale and district-wide, have been reviewed as part of these current more detailed precinct character investigations.

CONTRIBUTION OF LANDFORM TO CHARACTER

Landform and vegetation individually and in combination contribute to an area's character. Both provide environmental limits and opportunities. How the land was shaped by the underlying geology and the subsequent geomorphological processes should significantly influence the nature and scale of any built development. Unfortunately, there is often little acknowledgement given to this and landforms are dramatically altered resulting in major changes to both the original form of the land or to the processes that shaped it. Residential subdivision and development can recognise and be guided by the natural landforms, or it can totally change or modify it. Recognition and acknowledgement of landform helps to create the character of an area; it creates identity and attachment.

Kapiti District's landform together with those districts further north is distinctive given that it is part of New Zealand's largest dune field. Creation of the dunefield complex has involved a range of natural processes resulting in various dune landscapes, including the coastline which is characterised by the cusped (tapering) foreland creating the sweeping form of Waikanae, Paraparaumu and Raumati beaches.

Due to subdivision, particularly near the settlements of Paraparaumu Beach and Waikanae Beach, the dune systems have been largely modified to accommodate housing and urban development. Nevertheless, the cusped foreland remains a legible feature. The dunes at the cusped foreland are formed predominantly from material from the Taupo Eruption and is known as the Taupo Dune (McFadgen, 1997). The Taupo Dune extends from the true left of the Waikanae Estuary to the north of Raumati Beach. Seaward of the Taupo Dune is a small strip of the Younger Waitare Dunes which are thought to be younger than 150 years in age.

Acknowledging the differences in the dune fields and their formation is an important part of defining and recognising landscape character and for each of the precincts these differences are described and explained.

Dune fields comprise sand ridges / 'hillocks' and sand plains. It is generally the dune ridges and 'hillocks' that people recognise and identify with because of their distinctive elevated form. Also, dunes generally retain a semblance of their form even after some disturbance and residential development.

Dune ridges are important geomorphologically as they provide visible and often prominent evidence of the processes that formed them; they are also important in terms of their contribution to landscape character of an area. In places they make a significant contribution to landscape character but not always given that once modified through earthworks and subsequent development they are removed or substantially altered and remain as isolated and disconnected remnants.

However, this is not the case with sand plains because they have a low profile and are not visibly prominent, so they are easily modified; following earthworks and residential development their form is totally obliterated or substantially changed.

Dune Slope

With the higher shore-parallel ridges such as at Paekakariki and Raumati / Paraparaumu, there is a tendency for the eastward facing slopes to be steeper because, when they were forming as high foredunes, sand blown up from the beach and over the crests of higher foredunes may have settled out on the sheltered lee slope at the angle of repose for dry sand (30-35 degrees or around 1.5:1). This would vary because of the effect of differing degrees of foredune vegetation at the time of formation and subsequent degree of natural degradation.

The seaward slope of the ridges may also be steep if coastal erosion repeatedly trimmed the front of the dune after its formation (e.g. the seaward-most ridge (foredune) at Raumati South was trimmed back to a cliff during the 1976 storm), but in general, the inland-facing slope is usually steeper, rendering the ridge asymmetrical. This is well-demonstrated at Paekakariki and Raumati South. Low foredune ridges do not demonstrate this asymmetry to the same extent so it could be argued that the height and asymmetry of dunes in these precincts are inherent characteristics that should be acknowledged and recognised because of their contribution to the character of the precincts

Mapping Landform

To assist with depicting and understanding the landform, a digital elevation model (DEM) map has been produced with hill shade and 0.5m contours for each precinct overlaid on the cadastre. The DEM is generated from the land surface and excludes buildings and structures. Also shown are the slopes steeper than 1:3.

CONTRIBUTION OF VEGETATION TO CHARACTER

Vegetation is also a significant contributor or creator of character. Native vegetation that has developed on the underlying landform as part of the natural process is especially valuable in terms of contributing to an area's character. Given that native vegetation in the 'lowlands' of New Zealand where most of the population live, exists as very small fragments or remnants, retention and protection of these areas and enhancing them is very important.

Enhancement can be achieved by linking the fragments together, protecting the edges to create a buffer and wind protection and managing them to ensure they endure as permanent features in the landscape rather than allowing them to be compromised by pest plants, damage through root compaction and, drainage and changes to the water table.

Exotic vegetation can also create or contribute to landscape character, albeit a different type of character. In residential areas generally, it is the combination of native and exotic vegetation that is responsible for creating an area's landscape character.

The contribution of vegetation to landscape character, especially the contribution of native vegetation, varies across the four beach residential precincts identified in the District Plan.

Remnant native vegetation where present within the precincts is restricted to individual or very small groups of trees. Most of the tall native trees and other native species present in the beach residential precincts are not original and have been planted; pohutukawa, in particular have been widely planted.

Vegetation, especially tall trees (i.e. >8.0m) on properties along the seafront in the beach precincts is often lower-growing or limited because of a combination of two factors – climate, especially strong winds, and landowners seeking to maximise unobstructed sea views from their dwellings and outdoor living areas.

Mapping Vegetation

Several vegetation maps were produced as part of the precinct's assessment. A map with vegetation 2.0m tall and above shows the distribution and pattern of vegetation which is useful but of limited use when assessing its scale and value in residential areas and the potential impact of intensification. Vegetation height and density provides more useful parameters to assessing value and the effects of potential impact of intensification.

While all types of vegetation contribute to character in residential areas, large trees are the greatest contributors because of their age, height, scale and canopy spread. Large trees, especially many native trees species are particularly vulnerable to intensification. A limited amount of vegetation, especially tall trees (i.e. >8.0m) in the beach precincts, particularly on properties along the seafronts also make these areas vulnerable to intensification in that it limits the opportunity to integrate new dwellings within an existing tall vegetation matrix.

A height threshold of trees 8.0m and above was selected and mapped for each precinct. An 8.0m tall tree has a similar scale relationship to the height of a residential dwelling and trees of this height make a significant visual and amenity contribution to an individual lot and also collectively to a neighbourhood.

Two key factors to consider in relation to 8.0m trees and potential intensification of residential development are:

- the spread of the canopy; and
- the extent of the root zone.

As a general rule, the extent of a tree's root zone aligns with at least the spread of the canopy (i.e. the drip zone); any ground disturbance (i.e. excavation and/or ground compaction) or building development should not encroach within the drip line. In residential areas, buildings are often constructed within a tree's dripline with tree roots being cut back to enable building and / or the root zone compacted. Sometimes the effects of this disturbance are evident reasonably quickly, but more often it may take several years before the effects become evident (i.e. often referred to as latent damage). This is especially an issue of concern for native forest remnants / trees.

OTAKI BEACH RESIDENTIAL PRECINCT / LANDSCAPE CHARACTER ASSESSMENT

Recognition and acknowledgement of landform helps to create the character of an area; it creates identity and attachment.

The assessment of the Otaki Beach Residential Precinct includes a description of the landform and the natural processes that formed it. Also described, are some of the effects residential development has had on the landform, highlighting those areas where landform warrants recognition as contributing to an area's character.

The Otaki Beach Residential Precinct comprises two broad sub-precincts - the seafront sub-precinct and the inland sub-precinct.

- The seafront sub-precinct includes the narrow band of properties between Marine Parade and Moana Street/ Babbacombe Avenue at its northern end and a separate small enclave of residential development fronting Marine Parade and straddling Rangiuru Road at its southern end. An extensive recreational reserve separates the southern and northern parts of the seafront sub-precinct.
- The inland sub-precinct consists of two parts - the developed area immediately to the east of Ngaio Street and an unusually shaped undeveloped area further inland.

The two sub-precincts are separated by a sand plain.

Landform

Otaki Beach differs from the coastal precincts further south owing to the influence of the Otaki River that, unlike other rivers that cross the coastal plain, has only a minor estuary and a gradient that enables gravelly sediment to be transported to the beach.

The gravel is transported mainly southward (c.4 km) from the river mouth, but some is transported north. For this reason, the beach at Otaki gradually changes from a wide sandy beach at the northern end of Marine Parade to a narrower steeper mixed sand/gravel beach closer to the river mouth. Such beaches usually develop a regular series of small cusped embayments. These beach cusps can be observed between the southern end of Otaki Beach settlement and the Otaki River mouth. Prominent cusps of this nature do not develop elsewhere along the Kapiti coast and rarely occur elsewhere in the North Island. The transition from a sandy beach to a mixed sand/gravel beach occurs along the coastal margin of the precinct and can be regarded as a special feature of the natural environment.

Following the earlier migration of larger, older dunes to locations further east, a belt of parabolic sand dunes migrated inland from the coast, probably within the past 500 years, until reaching a position approximately 1 km inland and an elevation of 10-20 m.

The easternmost part of Otaki Beach (the inland sub-precinct) is located on these younger parabolic dunes. To the west of this dune belt (west of Ngaio Street) is a deflation plain with low relief that developed in the wake of the migrating dunes. To the north, and to a lesser extent, the south, trailing irregular dune ridges bound the central basin.

The seafront sub-precinct is characterised by a low foredune (5-7m) adjacent to the beach and a similar low shore-parallel relict foredune between Marine Parade and Moana Street. The foredune is poorly developed at the southern margin of the precinct because the beach is steeper and narrower due to the presence of gravel, and therefore provides a reduced source of windblown sand for dune development. At the northern margin of the precinct, the migrating mouth of Waitohu Stream has resulted in intermittently extensive areas of bare sand flats that provide a source of windblown sand that has enabled the growth of the partially active higher dunes (15-16 m) at the northern end of Moana Street.

At the southernmost end of the precinct (southern end of the seafront sub-precinct) dunes are poorly developed in the detached triangle of settlement between Marine Parade and Rangiuru Road. The migrating river mouth appears to have affected the geomorphological history of this area, with fluvial rather than coastal landforms dominant.

Vegetation

There is some variation in vegetation cover across the precincts; the vegetation along the coastal edge is relatively sparse and of low stature.

The original vegetation would have included extensive swathes of dune-stabilising species (pingao, Spinifex), dune scrub (e.g. tauhinu, sand coprosma), interdune wetlands (with species such as nikau, kahikatea and pukatea) and rushfields, and coastal forest species (Ravine, 1992; Wildland Consultants Ltd, 2009). Today, there is no evidence of this in the precinct and instead the vegetation is a relatively sparse and eclectic mix of exotic species and a few native species that have been planted.

Vegetation cover in area defined by Marine Parade and Moana Street/Babbacombe Avenue (in the seafront sub-precinct) is mostly low growing, especially on those properties fronting Marine Parade where the open, unobstructed sea views are highly valued. Dwellings in this area are mostly single-level with a bach-like character and much of the vegetation is a mix of low-growing exotic and some native coastal species that are familiar in many North Island coastal settlements. A small number of tall trees 8.0m and above are scattered through this area with pohutukawa and Norfolk Island pine prominent because of their height and scale.

The inland sub-precinct has a different character to the seafront sub-precinct and the vegetation cover is denser with groups of tall canopy trees in places. There are areas of recent infill subdivision. The type, scale and age of the dwellings together with the vegetation cover has created a suburban character that is like the adjoining residential area to the west of Ngaio Road, which is not part of the Otaki Beach Residential Precinct. The undeveloped dune further inland is in pasture and grazed with a block of semi-mature pines on the east face.

The southern end of the seafront sub-precinct on Marine Parade is separated from the other parts of the Otaki Beach settlement by the recreation reserve with its core of tall mostly exotic canopy trees. Marine Parade becomes narrower and less formal south of Rangiuuru Road; the beach is wider and provides informal separation between the residential properties and the sea. Kapiti Lane, a narrow accessway that runs through the middle of the properties, contributes to the 'informal' character and local identity of this part of the precinct. However, the properties that front on to Rangiuuru Road have a suburban character and dominated by buildings with little in the way of canopy tree or substantial areas of vegetation.

Summary

The relatively intact relict foredune along Marine Parade strongly influences the character of the precinct despite residential dwellings along its length; the dwellings are mostly single-storey with a bach-like character. The sparse and low-growing vegetation is a distinguishing characteristic.

The low-lying sand plain separates and accentuates the relict foredune and the dune ridge inland to the east. Throughout the coastal precinct, including the southern enclave, the vegetation cover is relatively sparse and of low stature vegetation cover and consequently has not masked the underlying dune ridges or geomorphological processes.

The vegetation, especially tall vegetation above 8.0m, is present only in the inland sub-precinct and is very low and mostly limited to individual or occasionally small groups of trees. The undeveloped part of the inland sub-precinct, located further inland, is an anomaly in that it is undeveloped, and the area is grazed.

The separated southern enclave of the seafront sub-precinct differs from the rest of the precinct given the wide reserve along the coastal frontage and the influence of the Otaki River on landform and coastal processes. The area is low-lying with very low vegetation cover.

The parts of the landform identified as most sensitive to change, are indicated on the on the annotated 'hill-shade' map, Appendix 1/Map 2). These include most of the northern part of the sea-front sub-precinct, regardless of its relatively shallow slope profile, and most of the inland sub-precinct.

SLOPE MAPS ANALYSIS

Existing (average) slopes were analysed to understand the potential impact of intensification on landform character. Information on average slope was recorded and mapped within five slope categories as shown on the 'average slope' map (refer Appendix 1, Map 4). A general 'slope' map was also created (refer Appendix 1, Map 3). To understand more fully the differences in the slope pattern between the two 'sub-precincts', the slopes in each sub-precinct were recorded and analysed separately.

The figures (percentage of the total) are:

Slopes	Seafront sub-precinct	Inland Sub-precinct	Entire Precinct
Slopes steeper than 1:3	0%	17%	5%
Slopes 1:3-1:5	8%	30%	14%
Slopes 1:5 - 1:8	24%	32%	26%
Slopes 1:8 - 1:12	44%	19%	37%
Slopes 1:12 -1:20	24%	2%	18%

Analysis and Observations

- The average slope profile between the two sub-precincts is different. The landform in the inland precinct is steeper compared to that in the seafront sub-precinct which is dominated by 'medium slopes' (1:5 -1:12) and relatively 'shallow' slopes (shallower than 1:12).
- In the seafront sub-precinct most sites (68%) have medium slope with most of these within 1:8-1:12 category. Sites steeper than 1:5 account for only 8% of the sites with all of these in the 1:3:1:5 category. Sites with relatively shallow sites (1: 12 or shallower) account for 24% of the sites.
- In the inland sub-precinct almost half of the sites (47%) are 'steep' sites, 51% are 'medium slope' sites (with most of these in the steeper 1:5-1:8 slope category) and 2% are relatively 'shallow' sites.
- The average slope provides a general indication of the slope across the site but does not reflect the actual slope, which most often is unevenly spread across the site (i.e. includes some flatter and some very steep parts). This means that potential redevelopment under increased density provisions would most likely require modifications of the existing landform to provide for building platforms on sites with steeper slopes.
- The existing landform and its strong relationship to the precinct's coastal location is one of its primary attributes that defines the precinct's overall character. The slopes, which are an important characteristic of the underlying, largely intact landform, provide an indication of potential need for earthworks under an increased density provision. In terms of building construction, the steepest sites within the precinct (steeper than 1:5) would typically be associated with the greatest need for earthworks and therefore would have the greatest impact on the landform character. On this basis:
 - 'steep' sites (steeper than 1:5) are considered primary sites (sites that define the landform character and are most sensitive to change). 8% of the sites in the seafront sub-precinct and 47% of the sites in the inland sub-precinct are primary sites;
 - 'medium slope' sites (slope 1:5 -1:12) - contributory sites (sites that contribute to the landform character and might require a lower degree of modification compared to the primary sites). 68% of the sites in the seafront sub-precinct and 51% of sites in the inland precinct are contributory sites; and

- sites shallower than 1:12 - are defined as supporting /neutral sites (where impact of potential intensification would be relatively low in landform terms). 24% of the sites in the seafront sub-precinct and 2% of the sites in the inland sub-precinct are supporting/neutral sites.

Refer to 'average slope - character map, which shows the geographic distribution of primary, contributory, supporting/neutral sites (Appendix 1/Map 5).

Summary

The existing, largely intact landform and its inherent relationship to the precinct's coastal location is one of the primary attributes defining the precinct's overall character.

Regarding slope characteristics, the two sub-precincts display different characteristics with the inland sub-precinct having a steeper slope profile than that in the seafront sub-precinct. The seafront sub-precinct is comprised of contributory and supporting/neutral sites with a predominance of contributory sites. In comparison, the inland precinct comprises largely primary and contributory sites of similar percentage.

The sensitivity of primary, contributory and, to a lesser degree, supporting/neutral sites (re average slope) needs to be considered in relation to the character of the underlying landform (re intactness and landscape character value) and separate from the specific slope profile. This is to acknowledge that the slope steepness is not always directly related to and/or a necessary ingredient of landform significance. For example, contributory sites and even some supporting/neutral sites might be as significant as the steeper/primary sites in cases where a generally intact landform has a naturally lower slope profile. The parts of the landform within the precinct identified as significant dune formations/most sensitive to change are highlighted on the annotated 'hill shade' map (Appendix 1, Map 2). These include areas covered primarily, but not exclusively, by primary and contributory sites.

The parts of the precinct that fall outside the outline of the most prominent/ significant dune formations (Appendix 1: Map 2) are limited in extent and located primarily along the periphery or at the 'ends' of the sub-precincts. This means that the precinct overall, and especially the parts covered by the identified significant landform, are sensitive to change/increased levels of intensification as this could alter/affect the integrity of the largely intact landform.

VEGETATION MAPS ANALYSIS

Two maps have been prepared to illustrate the characteristics of the vegetation pattern of tall trees (8m and above): (a) 'vegetation coverage' map and (b) 'vegetation' (8m and above) map. The information on both maps relates only to tall trees (8m and above). Tall trees are the most significant contributor to the existing vegetation pattern. However, they represent only part of the actual vegetation cover currently seen on the ground which also includes mature vegetation below 8m.

The 'vegetation/8m and above' map (Appendix 1, Map 7) shows the location/distribution of tall trees throughout the precinct and provides an indication of the density of vegetation within each site.

The 'vegetation coverage' map (Appendix 1, Map 6) shows the vegetation cover on each site. Vegetation cover was calculated for each lot and initially recorded within 5 categories with a 20% interval between them (starting with vegetation cover of up to 20%). The 20-40% vegetation cover category was further split into two sub-categories 20%-30% and 30%-40% to provide a more detailed understanding of the coverage within this category. The percentages of lots within each category were identified and their geographic distribution plotted on the 'vegetation coverage' map. To understand more fully the differences in the vegetation patterns between the two 'sub-precincts', the tall tree vegetation cover in each sub-precinct was recorded and analysed separately.

The figures (percentage of the total) are:

Vegetation cover of tall (8m and above) trees	Seafront sub-precinct	Inland sub-precinct	Entire Precinct
Up to 20%	78%	32%	66%
20%-30%	17%	24%	19%
30%-40%	4%	20%	8%
40-60%	1%	20%	6%
60%-80% and above	-	4%	1%

Analysis and observations

- Most sites across the precinct have vegetation cover below 30% which account for 85% of the sites, with most of those sites (66%) with a vegetation cover up to 20%.
- There are notable differences between vegetation/tall tree cover patterns between the two sub-precincts with the vegetation cover in the inland sub-precinct being more pronounced compared to that in the seafront sub-precinct.
- The seafront sub-precinct is dominated by sites with low vegetation cover with 78% of the sites having vegetation cover below 20% and only 5% of the sites with vegetation cover above 30%.
- The inland sub-precinct has a much higher percentage of sites (44%) with vegetation cover above 30% and a lower percentage of sites (32%) with a vegetation cover below 20%.
- The percentages of sites with a vegetation cover between 30-40% between the two sub-precincts are less contrasting (17% for the seafront sub-precinct and 24% for the inland precinct).
- The density of the vegetation pattern of tall trees varies from location to location and/or from site to site. The pattern often is more pronounced on the steepest sites and/or on those parts of the precinct further inland that are generally more sheltered from the prevailing winds, where the denser clusters accentuate as well as help to 'protect'/stabilise the underlying landform. The vegetation pattern is less pronounced on sites closest to the coast where climatic conditions are less favorable and/or because tall vegetation has been removed to allow for unobstructed coastal views. There is a correlation between slope and density of the vegetation cover with the steeper slopes often associated with denser vegetation coverage.
- Density of vegetation cover - which is an important characteristic of the vegetation pattern - has been mapped (refer 'vegetation/8m and above' map) but has not been analysed in detail as 'measuring' vegetation density is a difficult and complex task requiring detailed site investigations. As a general observation though, lots with higher vegetation cover (above 30%) tend to have most of their trees grouped together in larger clusters (resulting in a vegetation cover with a higher density). The density within lots with a vegetation cover below 30% appears lower, as many of the trees there tend to form smaller clusters or are dispersed/spread across the lot.
- The value of the vegetation pattern was determined by the extent of vegetation cover on each site. On this basis the following site categories were identified:
 - primary sites - sites with vegetation cover above 30% where the density of the cover appears most dense, make the strongest (primary) contribution to the collective character of the precinct. Primary sites tend to be associated with lots above 600m². 5% of the sites in seafront sub- precinct and 44% of the sites in the inland sub-precinct are primary sites;

- contributory sites - sites with a vegetation cover between 20%-30% are considered to be contributory sites (sites that contribute to the vegetation pattern of the precinct but exhibit a lower density of vegetation cover compared to that on the primary sites). Trees within the contributory sites tend to be spread across the site or might appear in smaller clusters (e.g. have a lower density of cover), compared to the dense clusters/larger groupings within the primary sites. Notwithstanding that, they are important as they accentuate the landform and stabilise the land slopes. 17% of the sites in the seafront sub-precinct and 24% of the sites in the inland sub-precinct are contributory sites; and
- supporting / neutral sites - sites with vegetation cover below 20% are considered to be supporting/neutral sites. 78% of the sites in seafront sub-precinct and 32% of the inland sub-precinct are supporting/neutral sites.

Refer to 'vegetation coverage - character' map: showing the geographic distribution of primary, contributory, supporting/neutral sites' (Appendix 1/Map 8).

Summary

There are notable differences in the vegetation cover pattern between the two sub-precincts. The vegetation cover in the seafront sub-precinct is sparse and low for most of the sites (which fall under the 'supporting/neutral' sites category). While the existing vegetation cover contributes to overall character of the sub-precinct, it is not one of its primary character attributes.

The vegetation cover in the inland sub-precinct comprises largely primary and contributory sites with a predominance of primary sites. The vegetation pattern in this sub-precinct, especially within its developed part, is more extensive and exhibits a level of continuity. This is most pronounced within the steeper slopes where landform and vegetation combined make a notable contribution to the sub-precinct's character. Therefore, the vegetation cover in the inland sub-precinct is one of its primary attributes.

BUILDING HEIGHT

Information on building height was not updated as part of this assessment on the assumption that the findings of the 2011 study are still largely relevant given the permitted height limit under the operative District Plan provisions. The 2011 study found that the area is a mix of one and two storey buildings with a predominance of single-storey buildings.

The figures (percentages of the total) as per the 2011 Character Assessment are:

Building height

1 storey	72.0%
2 storeys	19.0%
3 storeys	-
N/A	9.0%

Observations

The perception of building height within the precinct is influenced by the topography which can reduce or accentuate the perception of height in views from the street depending on the building location. The existing tall vegetation on sites with denser vegetation cover often moderates the impact of the building's actual height.

SITE COVERAGE

Up-dated information on site coverage has been supplied by the Council. The information was recorded within four 'site coverage' categories. The 'Site Coverage' map (refer Appendix 1, Map 9) shows the geographic distribution of the lots within the same category.

Most sites in both sub-precincts have a site coverage below 30% with most of the remaining sites having a site coverage between 30-40%. Site coverage above 40% accounts for a small number of sites.

The figures (percentage of the total) are:

Site coverage

Below 30%	70.0%
31% - 40%	21.0%
41% - 50%	6.0%
51%-60%	-
Unknown	3.0%

Observations

- The precinct is dominated by low site coverage. Site coverage (above 30%) is often associated with smaller size lots (below 600m²).
- The combination of low site coverage, generous lot sizes and the larger percentage of sites in the inland sub-precinct that are steeper than 1: 5 has facilitated the establishment and growth of vegetation cover on those sites. The mature vegetation, in turn has aided the integration of the existing generally low-rise/low-scale buildings into their sites and the landform. This often reduces the perception of the building density in views from the street.

LOT PATTERNS

Up-dated information on lot size was recorded under five lot size categories. The 'lot size' map shows the distribution of lots within each category (refer Appendix 1, Map 10).

The information shows that the predominant lot size in both sub-precincts is above 600m².

The figures (percentage of the total) are:

Lot size

Under 400m ²	2.0%
400m ² to 599	23.0%
600m ² to 899m ²	47.0%
900m ² to 1200m ²	19.0%
Above 1200m ²	9.0%

Observations

- Both sub-precincts are dominated by lots above 600m². The percentage of lots within the two categories 'above' and 'below' 600-900m² size are generally comparable.
- Lot size has been influenced by the topography. Most of the smaller lots (below 600m²) are located in the seafront sub-precinct and tend to occur mainly within its flattest parts. Many of the smaller lots (below 600m²) appear to be a result of subdivision of original larger, often 'corner' lots fronting Marine Parade.
- Conversely, larger lots (above 900m²) are most typical for sites on steeper slopes where a small number of rear lots are also found. The exception to this pattern is observed at the southern-most end of the seafront sub-precinct which includes many large lots despite its relatively flat topography. The subdivision pattern in that same area (re street character and lot proportions) is also different especially within the parts along and to the west of Kapiti Lane (a narrow 'cul-de-sac' access lane lined with generally small/bach-like dwellings).
- Because of its immediate relationship to the coast and the distinctive character of Kapiti Lane, the area between Marine Parade and Kapiti Lane makes a notable contribution to the low-key, informal character of the Otaki Beach Residential Precinct, which will be experienced by users of the coastal reserve.
- Most of the larger lots are also very deep (up 80m). The largest lot within the precinct, located at the easternmost part of the inland precinct, is still undeveloped. Its unusual shape follows the outline of the dune formations. The lack of any development on that lot has so far helped to retain the intactness of its landform.

SETBACKS

Up-dated information on frontage setbacks was recorded within 4 categories: within 1.5m (corresponding to the draft provision), 1.5-2.5m; 2.5-4.5m and above 4.5m (corresponding to the operative provisions). The 'frontage setback' map (refer Appendix 1, Map 11) shows the geographic distribution of setbacks within each category.

The figures (percentage of the total) are:

Frontage setback

Within 1.5m	12.0%
1.5m -2.5m	6.0%
2.5m - 4.5m	19.0%
Above 4.5m	60.0%
N/A	3.0%

Observations

- The predominant frontage setback pattern across the entire precinct is above 4.5m which accounts for 60% of the sites.
- There is a correlation between topography and setbacks. For example, most of the shallowest setbacks are located within the seafront sub-precinct, where the topography is flatter. These are often associated with some of the smaller size lots and/or lots fronting Martine Parade.
- The frontage setback pattern in the inland sub-precinct, where the topography is steeper, is more consistent with a limited number of lots with shallow setbacks (below 4.5m).
- The frontage setback pattern is not always apparent in views from the street due to the topography and/or vegetation (buildings are often obscured by planted embankments along the street edge and/or by tall/dense vegetation within the front yard). This is observed most often in the inland sub-precinct where landform and vegetation cover are more pronounced.
- In many locations existing tall trees in the rear and/or side yards of adjacent properties tend to aggregate to create larger contiguous green clusters mid-block. This increases the visual separation distance between adjacent buildings and aids the integration of the built form to the underlying coastal setting.

4 DISTRICT PLAN REVIEW: OPERATIVE & DRAFT PROVISIONS

ESSENTIAL CHARACTER ATTRIBUTES/PATTERNS/RELATIONSHIPS⁴

The Otaki Beach Residential Precinct has a strong sense of place derived from its coastal location and associated landscape setting. The precinct comprises two separate sub-precincts (the seafront sub-precinct and the inland sub-precinct) with generally comparable development patterns but different landscape characteristics.

The distinctive and largely intact coastal landform of the entire precinct and the vegetation cover within the inland part of the precinct, represent the precinct's most recognisable characteristics. The existing low-rise/low-density residential development which integrates well into the landform, together with the informal character of some narrow roads within the southern-most part of the seafront sub-precinct, contributes to the precinct's low-key beach character.

Based on the up-dated character overview (Section 3 of this report) the following character attributes emerged:

- **Primary attributes** - the precinct's primary attributes include:
 - (i) landscape character attributes:
 - relatively intact relict foredune along Marine Parade with a low-lying sand plain which separates and accentuates the relict foredune and the dune ridge inland to the east. While the slope profile in the seafront sub-precinct is less pronounced than that in the inland sub-precinct, the landform of both sub-precincts is largely intact;
 - vegetation cover of tall trees (8m+) which creates a relatively continuous tall vegetation pattern in the inland sub-precinct accentuating its landform (vegetation cover above 30% accounts for 44% of the sites). Vegetation cover in the seafront sub-precinct, which is sparse and low, is not a primary landscape attribute that is sensitive to change; and
 - direct relationship of the seafront sub-precinct to the beach and associated sense of openness.

As integral parts of their coastal setting, landform and vegetation patterns are interrelated and together with the low-density built form represent the precinct's primary character attributes that largely define its overall character. It is the relationship between the primary landscape and built form attributes of the precinct that define its distinctive character. Managing this relationship is important if the precinct's primary attributes are to be maintained.

The existing street network has not significantly affected the underlying landform but has created several large blocks with internal lots, while also hindering connectivity and creating cul-de-sacs (refer Appendix 1/Maps 13 and 14). Although not directly related to the landform, a distinctive street pattern at the southern end of the seafront sub-precinct has emerged creating a low-key beach character reminiscent of a traditional beach settlement (vicinity of Kapiti Lane). This is further enhanced by the narrow width and informal character of some of the roads (i.e. Kapiti Lane and the southern-most 'cul-de-sac' section of Marine Parade).

⁴ These have been identified based on the adopted 'Character' definition (page 2 of this report). According to that definition, 'character' includes both built and natural elements within the private and public realms of an area, noting that while the individual elements are important, 'character' is largely determined by the relationship between those elements and the unique way they combine to form patterns and create the context and collective image of an area as a whole. The more pronounced, consistent or continuous those elements relationships and patterns are, the more distinctive and coherent the overall character of an area feels and the stronger its sense of place is.

The primary character attributes are experienced within the precinct, as well as in views from locations within the surrounding area. The beach-fronting sites contribute to the public character of the entire precinct given their visibility from the beach.

- **Enabling attributes** - the primary character attributes have been enabled by four interrelated, predominant and generally consistent patterns:
 - (i) generous lots size (predominance of lots above 600m²). There is a correlation between lot size, land slope and vegetation cover with the larger lots typically occurring on the steepest slopes where the vegetation cover tends to be most pronounced/dense;
 - (ii) low site coverage - predominance of site coverage below 30% for more than two-thirds (70%) of the sites. This, in combination with the lot size pattern, has allowed: (a) flexibility in building location (most buildings located within the flatter parts of the lot, thus avoiding the need for significant earthworks/landform modifications in the inland sub-precinct); and (b) sufficient space around the existing tall trees to protect their roots and allow for their establishment and growth, as well as provide opportunities for new planting. This is most pronounced in the inland sub-precinct and the steeper parts of the seafront sub-precinct;
 - (iii) building height - the predominant low building height (single-storey for 72% of the sites) combined with the predominant stand-alone dwelling typology, has facilitated building development of a form and scale that is compatible with the landscape setting; and
 - (iv) variable setbacks influenced by the topography - deep setbacks (above 4.5m), which account for 60% of the sites and represent the predominant pattern, typically occur on steeper and/or larger sites. Conversely, shallow setbacks (below 2.5m) relate to sites with a flatter topography and/or smaller size lots that are mostly found in the seafront sub-precinct. 'Informed' by the topography, the existing setback pattern (re both front and rear yards) has enabled a building form that responds to and complements its coastal setting.
- **Supporting attributes**
 - (i) the informal character of some streets at the southern end of the seafront sub-precinct supports the existing low-density building form and contributes to the relaxed 'low-key beach character' of the precinct, which is most pronounced within the southern-most part of the seafront sub-precinct fronting Marine Parade.

The combination of the enabling attributes - low site coverage, generous lot sizes, low building height and setbacks that reflect the topography - has allowed the retention of the underlying landform and associated vegetation cover (the primary landscape attributes) and facilitated a built form character that is compatible with the landscape setting. This is further supported by the informal character of some streets at the southern end of the seafront sub-precinct, to create a low-key beach character.

The landscape character value/significance of the existing landform across the entire precinct and the vegetation pattern of the inland sub-precinct, makes the precinct as a whole generally sensitive to change and especially sensitive to any increased level of intensification. The parts of the precinct that might have a lower level of sensitivity re landform include those parts that fall outside the outline of the most prominent dune formations, as marked on the annotated 'hill shade' map (Appendix 1: Map 2). These parts are located primarily along the periphery or at the 'ends' of the precinct.

DISTRICT PLAN OPERATIVE PROVISIONS

The Kapiti Coast District Plan identifies the Otaki Beach Residential Precinct as one of four special character areas/precincts with a coastal location. The District Plan describes these precincts as settlements with ‘a linear form, low key ‘beach’ character and expressive topography enhanced by prominent mature vegetation. Their memorable natural setting contributes to a strong sense of place. While each of the four settlements has its own ambience and individually, they share a range of common features derived from similarities in their coastal location, topography and history of land subdivision”. Further to this, the District Plan provides a list of the common patterns that underpin their ‘beach’ character which relate to both built and natural features and characteristics (refer District Plan, General Residential Zone, Beach Residential Precincts, page 3). To ensure the appropriate management of the special character of these precincts the District Plan has made them subject to specific rules and standards ‘to ensure that new development is sensitive to its landscape setting and enhances the collective character, amenity value and public significance of each area’. In addition to the specific rules and standards, the District Plan includes a set of ‘Special Area Guidelines’ (General Residential Zone/Appendix 3).

The applicable rules and standards for the Otaki Beach Residential Precinct have been informed by the predominant pattern of the existing environment as identified in the Council’s 2011 Character Assessment. This suggests that the operative provisions are generally aligned with and reflect the existing character attributes. Nevertheless, for the purposes of this assessment, a high-level comparative review of the operative provisions against the up-dated character attributes (as identified by this assessment) is relevant to undertake. This will inform the comprehensive understanding of the potential impact of new development under the draft (higher density) provisions on the precinct’s character.

DRAFT PROVISIONS [RESOURCE MANAGEMENT (ENABLING HOUSING SUPPLY and OTHER MATTERS) AMENDMENT ACT & NPS-UD])

The draft provisions permit 3 residential units (11m tall) on a site with a total/maximum site coverage of 50%, minimal setbacks (1.5m front yard/1m side and rear yard) and no minimum lot size provisions. Height in relation to boundary is based on a 60° recession plane measured from a point 4m vertically above ground level along all boundaries, except in relation to the road boundary and between the existing or proposed internal boundaries and site boundaries with a common wall.

For the purposes of this assessment, the draft provisions have been assumed to apply to the entire Otaki Beach Residential Precinct.

The draft provisions promote development with a density and building scale and character that would be distinctly different from that allowed under the operative District Plan provisions (which promote relatively low-density residential development) as well from the existing predominant patterns of lot size, site coverage, building height and frontage setbacks. This suggests that precinct’s primary landscape and built form character attributes could potentially be significantly affected by a level of development enabled by the draft provisions, if they were to be implemented.

To understand the specific impact of the draft provisions on the precinct’s primary attributes, the draft provisions have been compared to both the existing patterns and the operative provisions.

EXISTING CHARACTER VERSUS OPERATIVE & DRAFT PROVISIONS

This section of the assessment analyses how the existing character attributes compare with both the operative and the draft provisions. The focus is on:

- a. establishing the degree of protection of the precinct’s primary character attributes under the operative District Plan provisions; and
- b. identifying the implications of the proposed increased density provisions on the precinct’s primary character attributes.

The analysis is carried out in relation to the basic bulk/location provisions that are considered most relevant to the purpose of the assessment. The key observations and findings of the analysis are tabulated below⁵.

COMPARATIVE TABLE

SITE (BUILDING) COVERAGE				
Operative Provisions	Draft Provisions	Analysis/Observations Existing Pattern v/s Operative Provisions	Analysis/Observations Existing Pattern v/s Draft Provisions	Summary Findings
<p>Maximum site coverage 35% of the total property area excluding rights of way and access legs</p> <p>Impervious area maximum 70% of total allotment area</p>	<p>Maximum 50% of net site area</p> <p>Impervious area maximum 70% of total allotment area</p>	<p><u>Existing pattern</u> – The predominant site coverage in the precinct is below 30% which accounts for more than two-thirds of the sites. Most of the remaining sites are with site coverage between 30% and 40%.</p> <p><u>Existing Pattern v/s Operative Provisions</u> - the operative provision of 35% site coverage is closely aligned with the predominant pattern.</p> <p>Applied in combination with the minimum allotment size of 450m² minimum and 600m² average, the operative site coverage provision can largely maintain the integrity of both the landform character and the existing pattern of tall trees.</p> <p>Site coverage should be considered in relation to the maximum ‘impervious area’ provision which technically allows for up to 70% of the site area to be clear of vegetation. This provision has the potential to affect the integrity of the vegetation pattern by allowing vegetation clearance in addition to that allowed by the site coverage. This in turn could affect the landform as vegetation removal, especially on the steeper slopes of the inland sub-precinct could affect slope stability.</p>	<p><u>Existing Pattern v/s Draft Provisions</u> - the draft 50% site coverage is higher than both the existing predominant pattern and the operative provision.</p> <p>Under the draft provisions, and in the absence of a minimum lot size provision, no precinct-wide protection of existing tall trees beyond those individually listed, a blanket setback provision and no specific controls for earthworks within 2m of an approved building development, the precinct’s primary landscape character attributes are likely to be significantly affected. This effect could be exacerbated by the maximum ‘impervious area’ provision (70%) which could result in further vegetation removal⁶ in the inland sub-precinct.</p> <p>The impact would be most severe for the steeper sites and/or those with higher vegetation cover (i.e. the identified primary and contributory sites under each of the primary landscape character attributes).</p> <p>Note that there are no specific earthwork provisions in relation to creating building platforms on sites with steep slopes to manage the potential impact of large visible retaining walls.</p>	<ul style="list-style-type: none"> Operative site coverage provision, which is closely aligned with the existing predominant pattern has the ability to maintain the integrity of the landform character in the entire precinct and the existing tall trees in the inland sub-precinct. This is further supported by the minimum lot size provision, which practically limits subdivision to large sites/generally above 1200m². Under the draft site coverage provision (applied in tandem with the minimal setback provisions and no provision for minimum lot size) the primary landscape character attributes could potentially be significantly affected. The impact of site coverage on the primary landscape character attributes in the inland sub-precinct should be considered in relation to the maximum ‘impervious area’ provision. This provision, which remains the same under both the operative and draft provisions, technically enables further clearance of vegetation in addition to that enabled by the site coverage provision.

⁵ Note that the operative provisions, except for those for minimum lot size, are the same for all Beach Residential Precincts.

⁶ The draft provisions include a requirement for a minimum landscaped area of 20% of a developed site with grass or plants. This means that if a site is developed to fully utilise the permitted building coverage of 50% and provides the required 20% landscaped area, most of the remaining 30% of the site area could be an impervious surface. This will increase the potential loss of vegetation, technically enabling clearing of up to 70% of the site area).

BUILDING HEIGHT

Operative Provisions	Draft Provisions	Analysis/Observations Existing Pattern v/s Operative Provisions	Analysis/Observations Existing Pattern v/s Draft Provisions	Summary Findings
<p>Maximum height of 8m and no more than two storeys</p> <p>Maximum floor area ratio of 0.6:1.0</p>	<p>Maximum building height of 11m,</p> <p>except that 50% of a building's roof in elevation, measured vertically from the junction between wall and roof, may exceed that height by 1m where the entire roof slopes 15° or more</p>	<p><u>Existing Pattern</u> - the precinct is a mix of one and two storey buildings with a predominance of single storey buildings.</p> <p><u>Existing Pattern v/s Operative Provisions</u> - the operative height provision appropriately reflects and is aligned with the existing pattern.</p> <p>Supplementing the maximum height with a requirement that limits the actual building height to two-storeys helps to manage situations where three-level buildings could be erected through excavations while keeping their height to the permitted 8m above existing ground level.</p> <p>The maximum floor area ratio provision is set up to manage the impact of building bulk. In many respects it complements the provision for limiting the actual height of buildings to two-storeys.</p>	<p><u>Existing Pattern v/s Draft Provisions</u> - under the draft provisions, buildings must not exceed 11m. This could potentially result in 4-storey buildings as a maximum number of storeys has not been specified.</p> <p>The proposed height increase, particularly the potential for 4 storey buildings, is clearly a departure from the existing pattern. However, increasing the height in itself will not necessarily impact directly on the vegetation cover and/or landform character (e.g. will not necessarily lead to further vegetation removal or landform modifications). Notwithstanding that the increased height together with the increased site coverage provision will increase the building bulk, thereby affecting the relationship between the primary landscape and built form character attributes by enabling taller and potentially bulkier buildings appearing as prominent elements within the precinct.</p> <p>This impact will be most pronounced on: (a) elevated sites along and close to the local ridge lines in the inland sub-precinct which will be experienced within both the precinct as well as in views from the wider area; and (b) along the beach front parts of the seafront sub-precinct along Marine Parade, which are highly prominent and where tall vegetation is limited, thereby reducing opportunities for integrating the buildings into the landscape. This could result in visual dominance, thereby reducing distinctive sense of openness along Marine Parade and altering the visual relationship to the coast.</p> <p>The visual impact of height could be exacerbated by the proposed draft 'height in relation to boundary' provision which essentially enables reducing separation distances between adjacent buildings, and by the setback provisions, thus</p>	<ul style="list-style-type: none"> ■ <u>The operative height provision</u> is consistent with the existing pattern of building height and assists in retaining the visual character of the existing low-rise built form. ■ The <u>draft height provision</u> in itself will not necessarily require vegetation removal or landform modifications and therefore might not have a direct impact on the primary landscape character attributes. It will, however, alter the scale relationship between built form and landscape setting and therefore affect the collective character of the precinct in terms of its primary character attributes. ■ The impact could be exacerbated by the draft height in relation to boundary provisions and the draft 1.5m frontage setback and 1m side yard which allow buildings of an increased bulk to be spaced more closely and positioned closer to the street edge, thereby increasing their visual dominance.

potentially replacing the existing low-density low-key beach character setting with a building-dominated environment where buildings are no longer compatible with the landform.

HEIGHT IN RELATION TO BOUNDARY

Operative Provisions	Draft Provisions	Analysis/Observations Existing Pattern v/s Operative Provisions	Analysis/Observations Existing Pattern v/s Draft Provisions	Summary Findings
<p>2.1m vertically above ground level at the boundary, with a 45° recession plane.</p> <p>Applies to all boundaries</p>	<p>4m vertically above ground level along all boundaries with a 60° recession plane.</p> <p>This standard does not apply to:</p> <ul style="list-style-type: none"> boundary with a road, existing or proposed internal boundaries within a site, site boundary where there is an existing common wall between 2 buildings on adjacent sites or where a common wall is proposed 	<p><u>Existing Pattern</u> - the existing pattern has not been studied. However, it appears that buildings comply with the provision given the predominant pattern of single-storey buildings and the generous lot size.</p> <p><u>Existing Pattern v/s Operative Provisions</u> it is assumed that the majority of dwellings comply with the existing provision.</p> <p>Height in relation to boundary provision determines the distance of the building to the relevant boundary based on its height.</p> <p>For example, an 8m tall building volume, which complies with the recession plane under the operative provisions, will need to be setback approximately 6m from the relevant boundary on a flat site. This ensures a generous separation distance between permitted 8m tall/2-storey building volumes built on adjacent sites.</p>	<p><u>Existing Pattern v/s Draft Provisions</u> - the draft provision together with the increased height will allow taller/bulkier buildings located closer to the site boundaries compared to both the existing building character and that permitted under the existing provisions.</p> <p>As a general observation, an 8m tall building (volume) on a flat site, which complies with the recession plane under the draft provisions, will need to be setback from the relevant side or rear boundary approximately 2.5m compared to a 6m setback required for a building volume of the same height under the operative provisions. Similarly, a building volume with the maximum permitted height of 11m under the draft provisions, will require a setback of approximately 4m from the relevant side or rear boundary.</p> <p>The resultant effect will be an increased building bulk and reduced separation distances between adjacent buildings. This, as noted under 'building height' above, will change the visual character of precinct by replacing a low-rise building form integrating well with the landscape setting with taller/larger building volumes and smaller separation distances between them, thereby increasing their visual dominance.</p>	<ul style="list-style-type: none"> The <u>operative height in relation to boundary provisions</u> generally reflect the existing character while ensuring a generous separation distance between adjacent buildings on neighbouring sites if they all are built to the maximum building height limit. The <u>draft height in relation to boundary provision</u>, together with the increased height will allow taller/bulkier buildings located closer to the site boundaries compared to the permitted building volumes under the existing provisions and/or those comprising the current environment. This could affect the precinct's overall character by replacing a low-rise building form that is compatible with its landscape setting with taller/larger and more closely spaced building volumes.

SETBACKS

Operative Provisions	Draft Provisions	Analysis/Observations Existing Pattern v/s Operative Provisions	Analysis/Observations Existing Pattern v/s Draft Provisions	Summary Findings
<p>4.5m setback from the road</p>	<p>1.5m front yard</p>	<p><u>Existing Pattern</u> - while most sites have setbacks above 4.5m, the setback pattern exhibits a degree of variation in response to the</p>	<p><u>Existing Pattern v/s Draft Provisions</u> - the draft provisions do not reflect the predominant pattern or the existing variation in response to the</p>	<ul style="list-style-type: none"> The <u>operative provisions re front and rear yards</u> appropriately manage the existing pattern of variable frontage setbacks,

boundary	1m side/rear yard	underlying topography.
3m setback from side and rear boundaries for residential units	no yard where there is a common wall between 2 buildings	<u>Existing Pattern v/s Operative Provisions</u> - the operative provision for a 4.5 frontage setback reflects the precinct's predominant pattern of deep front yards (4.5m+). Resource consent applications where the front yard is smaller, need to be assessed against the 'Special Character Area Design Guidelines' (General Residential Zone/Appendix 3). The operative provision appropriately manages the existing pattern of variable frontage setbacks, which in turn assists in managing the character of the existing landform and associated vegetation pattern.
1m setback from side/rear boundaries for accessory buildings		

underlying topography.

The reduced frontage setback will enable buildings of increased height/bulk to be placed close to the street edge which will increase their visual impact and affect the relationship between the primary landscape and built form character attributes.

Applied as a blanket provision, the draft provision has the potential to encroach on the existing planted embankments that currently define the edges of many streets within the inland sub-precinct.

which in turn facilitates the management of the precinct's primary landscape attributes (the character of the existing landform and associated vegetation pattern).

- The draft provisions do not recognise the variable setback pattern influenced by the topography and/or the predominance of frontage setbacks above 4.5m. The draft provisions have the potential to: (a) increase the visual dominance of the increased building bulk in views from the street; and (b) encroach on existing planted embankments that currently define the edges of some streets within the inland sub-precinct.

MINIMUM ALLOTMENT SIZE

Operative Provisions	Draft Provisions	Analysis/Observations Existing Pattern v/s Operative Provisions	Analysis/Observations Existing Pattern v/s Draft Provisions	Summary Findings
<p>Minimum allotment size 450m²</p> <p>minimum with 600m² average. Lots required to accommodate an 18m diameter circle</p> <p>Subdivision as a Restricted Discretionary Activity</p>	<p>No minimum lot size, shape or other size-related requirements for the following types of subdivision:</p> <p>Subdivision where there is an existing residential unit, if the subdivision does not increase the degree of non-compliance with building standards;</p> <p>Subdivision where residential units are provided under a land use</p>	<p><u>Existing Pattern</u> - the predominant pattern is based on lots above 600m² which account for 75% of the sites.</p> <p>There is a correlation between lot size and topography (i.e. larger lots are typically steeper lots).</p> <p><u>Existing Pattern v/s Operative Provisions</u> - the operative provisions of a minimum lot size of 450m² and average size of 600m² is generally aligned with and intended to largely maintain the predominant lot size pattern (by limiting subdivision to sites generally above 1200m²).</p> <p>The additional requirement for each lot to accommodate an 18m diameter circle manages the minimum lot dimension and provides flexibility in terms of building location.</p> <p>The Restricted Discretionary Activity status of subdivision proposals provides an additional layer of control re subdivision outcomes.</p>	<p><u>Existing Pattern v/s Draft Provisions</u> - the draft provisions do not include a minimum lot size or any shape or other size-related provisions. Under the draft provisions the notional minimum lot size is to be largely determined by the bulk/location provisions.</p> <p>The draft provisions are clearly not aligned with the predominant lot pattern. This could impact significantly on the precinct's primary character attributes, which have been largely enabled by the predominant patterns of generous lot size and low site coverage.</p> <p>The Controlled Activity Status of subdivision provides a degree of control over the arrangement of allotments, but no ability to manage or limit the size of allotments.</p>	<ul style="list-style-type: none"> The <u>operative lot size provisions</u> are aligned with and intend to maintain the predominant lot size pattern, thereby facilitating the management of the precinct's primary character attributes. <p>This is further supported by the Restricted Discretionary Activity status of subdivision proposals. Note that the provision has not been tested for the subdivision of large lots - a development scenario that has the potential to affect the existing landform and/or the vegetation cover of tall trees, given that most of the largest sites are located within the parts of the precinct identified as 'significant landform'/most sensitive to change.</p> <ul style="list-style-type: none"> The <u>proposed 'management' of lot size</u> under the total package of draft provisions relies heavily on the proposed bulk/location provisions for site coverage, setbacks and building height/height in

consent and no vacant allotments are created.

Subdivision as a Controlled Activity.

relation to boundary. Notwithstanding that the subdivision is a Controlled Activity, the draft provisions are not aligned with the predominant pattern and appropriate 'character' outcomes might be difficult to achieve in the absence of specific rules and standards.

5 CONCLUSIONS

Character

- The Otaki Beach Residential Precinct comprises two separate sub-precincts (the seafront sub-precinct and the inland sub-precinct) with generally comparable development patterns but different landscape characteristics. The precinct has a distinctive character based on a set of definable character attributes (primary, enabling and supporting attributes) that work together and reinforce each other. The precinct's primary landscape attributes - the largely intact landform of the entire precinct and the vegetation cover pattern within its inland part, particularly that of tall 8+m trees, along with the precinct's low-density built form that is compatible with the landscape setting - have been enabled and maintained by the existing predominant patterns of low site coverage, large lot size, low building height and setbacks that work with the topography. This has been further supported by the existing street network that has largely retained the integrity of the underlying landform and created some narrow streets with informal character (no kerb and channel/no footpaths).

Operative and Draft Provisions

- The operative District Plan provisions are overall aligned with the precinct's predominant patterns. This has facilitated the management of the precinct's primary attributes.
- The draft provisions enable development with a density and building scale and character that is markedly different from that allowed under the operative District Plan provisions and a departure from the precinct's predominant patterns. This suggests that the primary, most prominent landscape character attributes of the Otaki Beach Residential Precinct - the largely intact dune landform of the entire precinct and the tall trees vegetation cover within its inland part - along with the low-density built form that fits well into the landscape, could potentially be considerably affected/alterd under a level of development enabled by the draft provisions.
- The two sub-precincts are sensitive to change in a slightly different way. The sensitivity of the seafront sub-precinct is focused mainly on potential landform modifications and the impact of an increased building height/bulk, particularly that along Marine Parade, as it could result in visual dominance, thereby reducing the existing sense of openness and altering the visual relationship to the coast. The potential changes will be highly prominent due to: (a) the proximity of the seafront sub-precinct to the beach that allows for long unobstructed views to the seafront sub-precinct; and (b) the lack of tall vegetation within the seafront sub-precinct which limits opportunities for integrating buildings to the landscape.
- In comparison, the inland sub-precinct is sensitive to both potential landform modifications, as well as to potential changes in vegetation cover (tall trees) arising from an increased density of development. The potential impact of an increased building height/bulk in the inland sub-precinct will be most pronounced on sites along or close to the ridgelines which will be visible in local views and in views from locations within the wider area.

Parts of the Precinct that are most sensitive to change /spatial extent

- The character value/significance of the existing landform across the entire precinct and the vegetation pattern of the inland sub-precinct makes the Otaki Beach Residential Precinct generally sensitive to change and especially sensitive to any increased level of intensification.
- The sensitivity of the landform to change was determined relative to the steepness of its slopes. Sites with slopes steeper than 1:5 were identified as primary/character defining sites that are most sensitive to change; sites with slopes between 1:5-1:12 as contributory (sites contributing to the character); and sites shallower than 1:12 as supporting/neutral sites. The entire precinct is

dominated by contributory sites (63%) followed by primary sites (19%) and a similar percentage of supporting/neutral sites (18%). The average slope profile in the two sub-precincts is different. The inland sub-precinct, which is steeper, is dominated by primary and contributory sites (47% and 51% respectively) with an insignificant number of supporting/neutral sites. In comparison, the seafront sub-precinct is dominated by contributory and supporting/neutral sites (68% and 24% respectively) and a low percentage of primary sites (8%).

- The sensitivity of primary, contributory and, to a lesser degree, supporting/neutral sites (re average slope) was also assessed in relation to the landscape character of the underlying landform (re intactness and/or landscape character value) and separate from the specific slope profile. This is to recognise that the slope's steepness is not always directly related to and/or a necessary ingredient of landform significance. For example, contributory sites and even some supporting/neutral sites might be as sensitive to change as the primary/steep sites in cases where they sit within a generally intact landform with a naturally lower slope profile. The low percentage of primary sites within the seafront sub-precinct is largely a reflection of its underlying gentle and shallow dune forms. The parts of the precinct identified as significant landforms that are most sensitive to change, are highlighted on the annotated 'hill shade' map (Appendix 1, Map 2).
- The sensitivity of the vegetation pattern was determined by the extent of tall tree (8m+) cover on each site. On this basis, sites with a vegetation cover above 30% and up to 80%+ were identified as 'primary' or character defining sites; sites with a vegetation cover between 20% and 30% as contributory sites (sites contributing to the character); and sites with vegetation cover of below or up to 20% as supporting/neutral sites. The vegetation cover in the two sub-precincts is different. In the inland sub-precinct, where the vegetation is more pronounced, primary and contributory sites combined account for two-thirds of the sites (47% primary, 24% contributory) and supporting/neutral site account for the remaining third. In comparison, the seafront sub-precinct is dominated by supporting/neutral sites (78%) followed by contributory sites (17%) and a low percentage of primary sites (5%).
- Primary and contributory sites with regard to both landform and tall tree cover (the precinct's primary landscape character attributes) are most sensitive to intensification. Often primary 'landform' sites are also primary 'vegetation cover' sites.
- The precinct is dominated by primary and contributory sites re landform and by primary and contributory sites re tall vegetation cover, but only in the inland sub-precinct. This means that the potential loss of vegetation in the inland sub-precinct and the degree of modification to the landform in the entire precinct could be significant. This, together with the potential changes arising from an increased building height/bulk, could affect the overall character of the precinct. Even if only some of those sites are to be redeveloped, this could have potential implications beyond the individual site/s.
- Supporting/neutral sites are less sensitive to intensification as their slopes are shallower and their vegetation cover is lower/less dense and therefore impact on the existing landform and/or tall tree vegetation pattern resulting from their redevelopment would be low.

Possible further investigation on the sensitivity of the landform and vegetation cover

- Not all contributory sites (tall tree cover 20-30%) exhibit an equal density of cover. Similarly, not all contributory sites with an average slope 1:5-1:12 have the same level of sensitivity (noting that average slope is not representative of the actual slope).
- Further to this, the sensitivity of primary and contributory sites re average slope needs to be considered in relation to the landscape character of the underlying landform (re intactness and/or landscape character value) and separate from the specific slope profile. The parts of the precinct identified as significant landforms that are most sensitive to change, regardless of the steepness of the slope, have been identified and highlighted on the annotated 'hill shade' map (Appendix 1, Map 2).

- To establish in more detail the relative sensitivity of contributory sites across the precinct and/or the sensitivity of the parts of the precinct that fall outside the identified most sensitive dune formations, further investigation re density of vegetation cover and actual slope characteristics could be considered.

6 APPENDIX 1: MAPS

Map 1: Context

Map 2: Hillshade

Map 3: Slope

Map 4: Average Slope

Map 5: Average Slope Character

Map 6: Vegetation Coverage

Map 7: Vegetation (8m and above)

Map 8: Vegetation Coverage Character

Map 9: Site Coverage

Map 10: Lot Size

Map 11: Frontage Setbacks

Map 12: Street Network

Map 13. Street Width

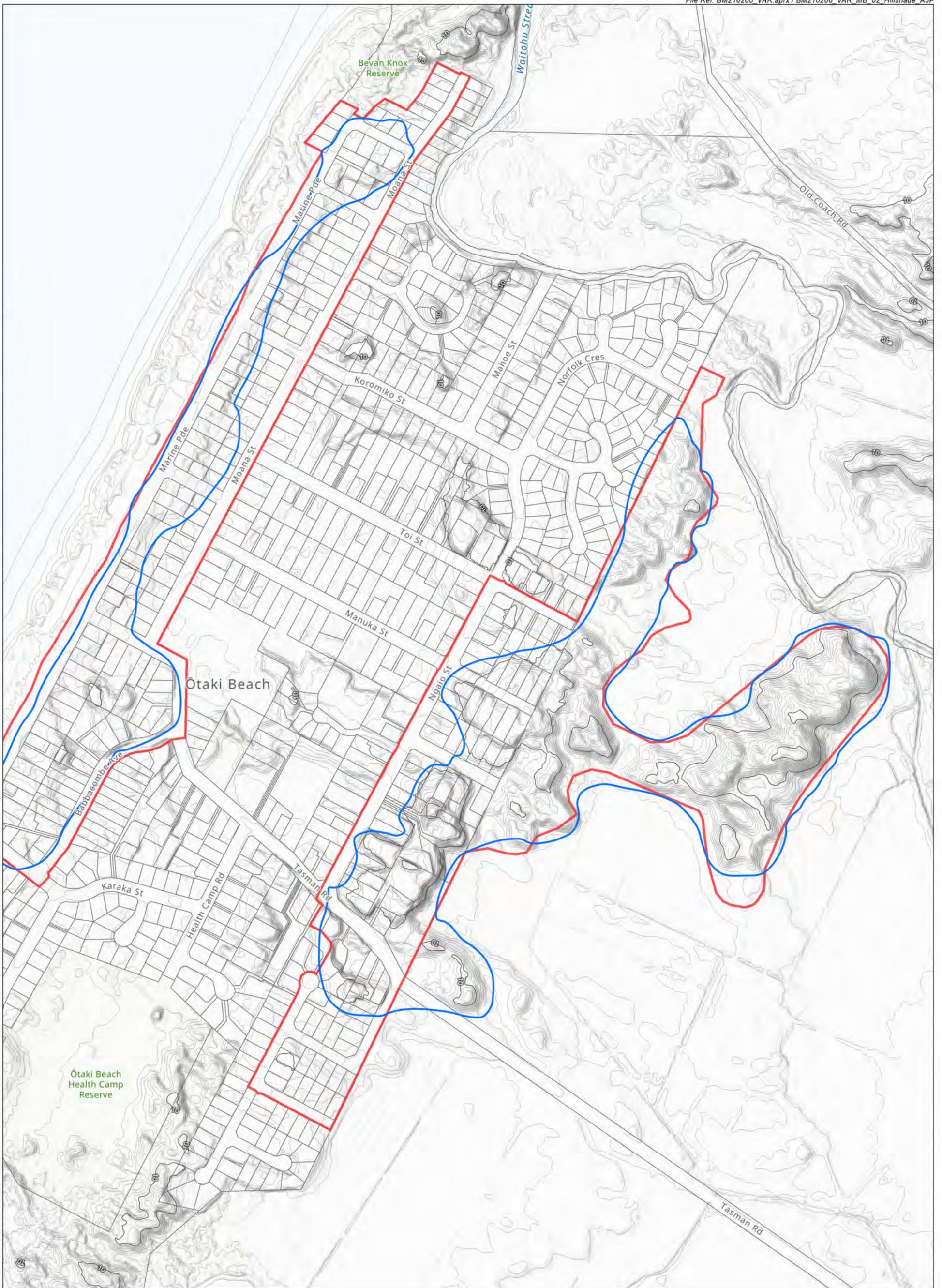
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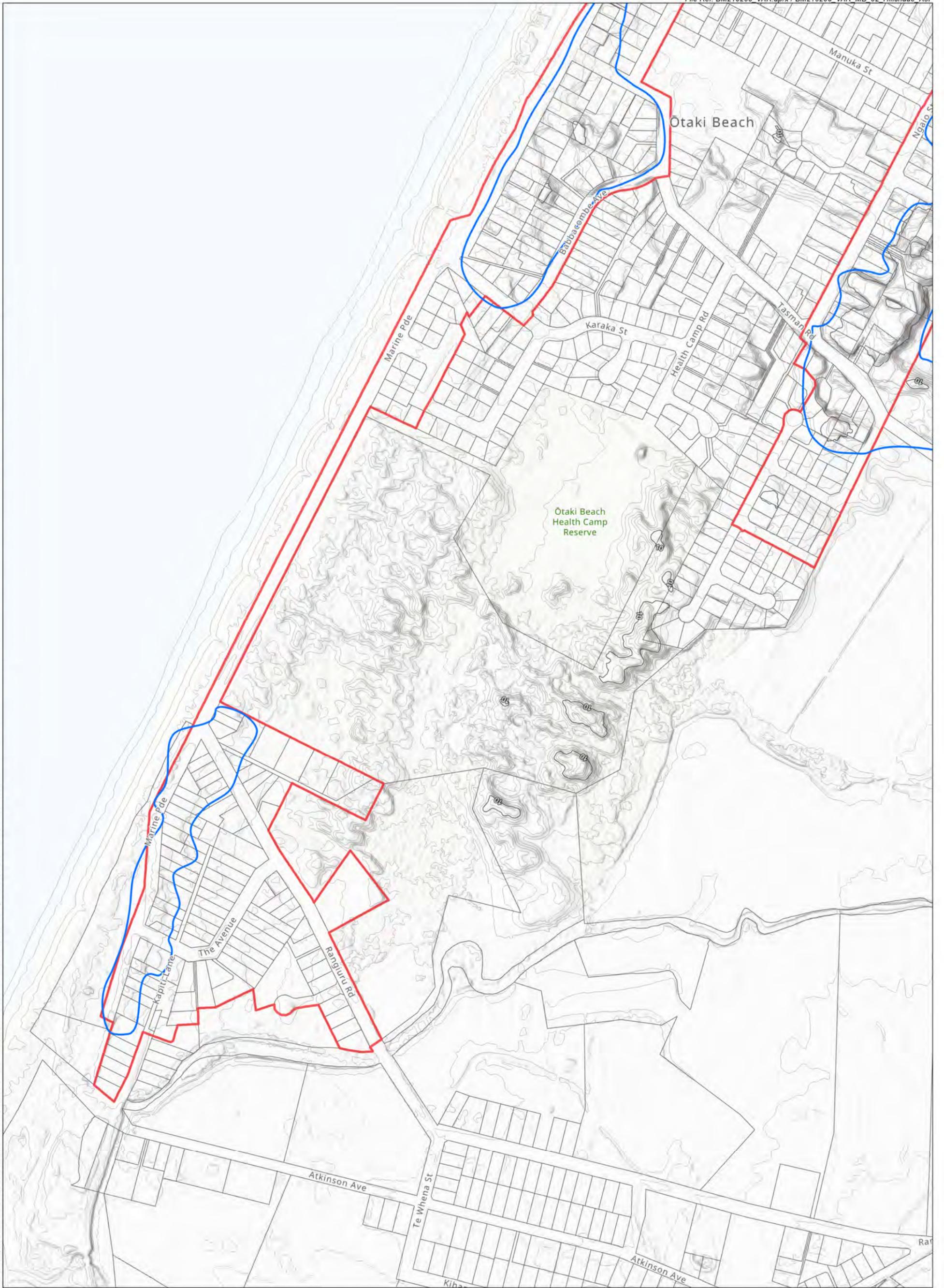
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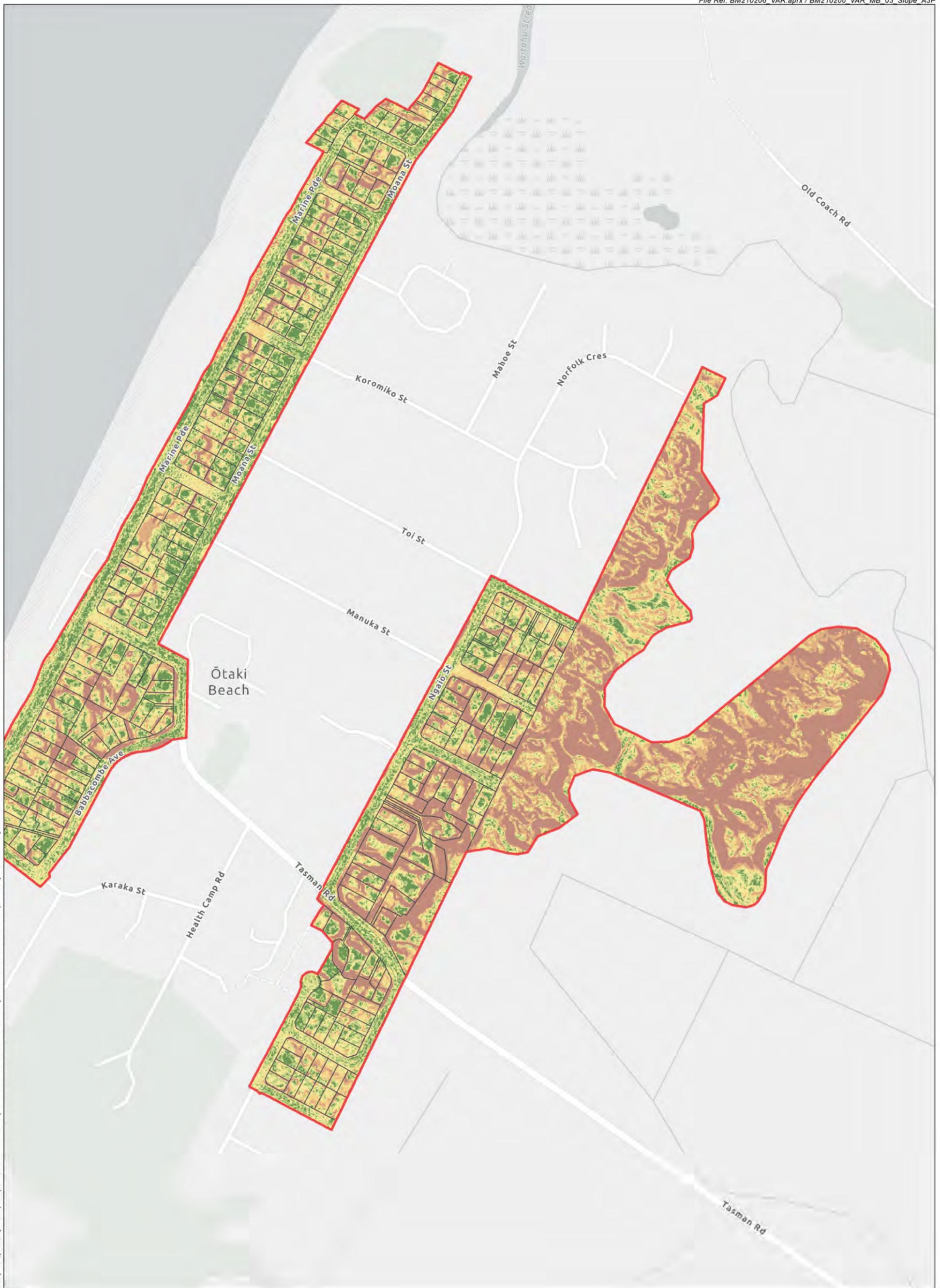
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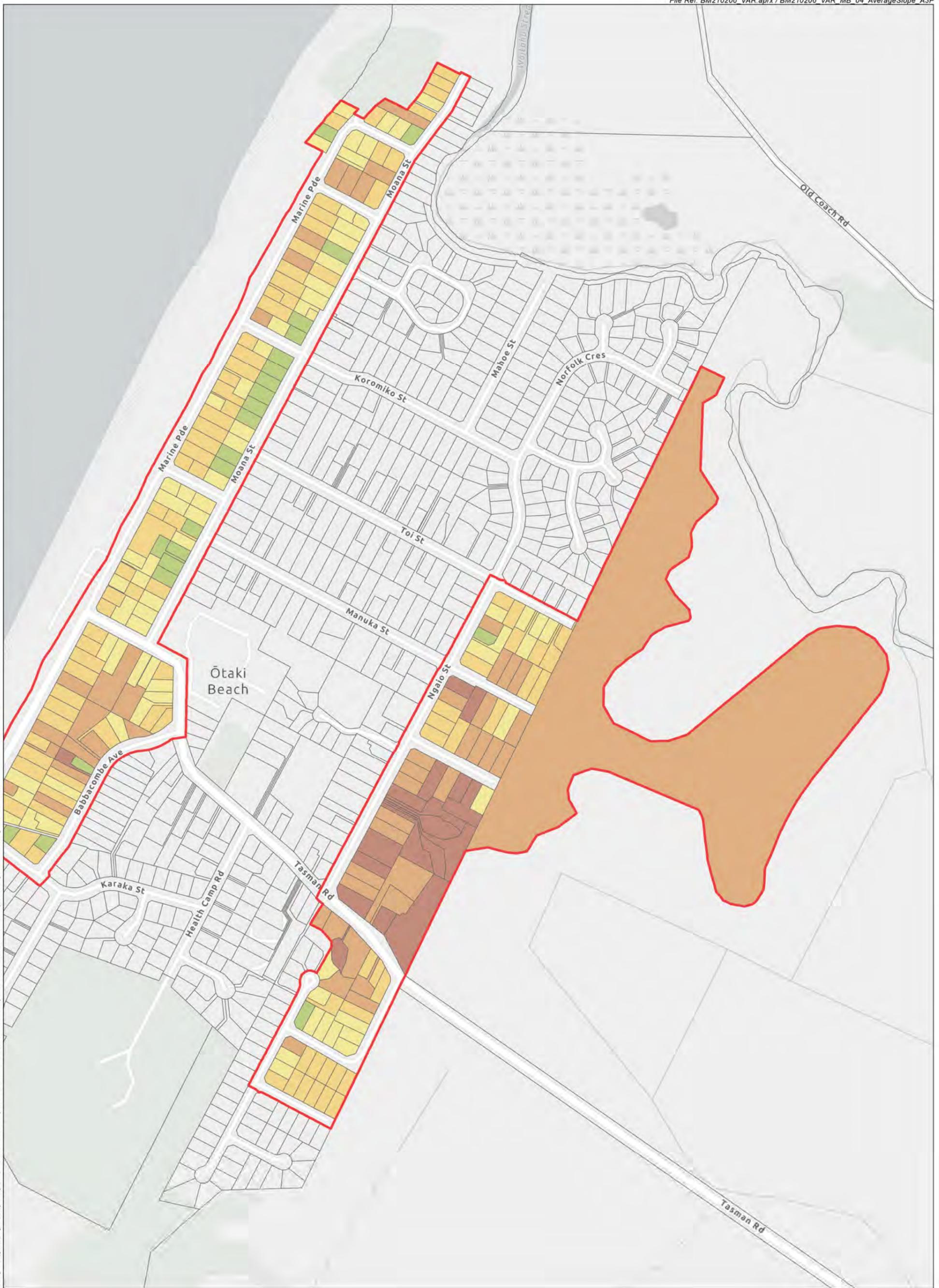
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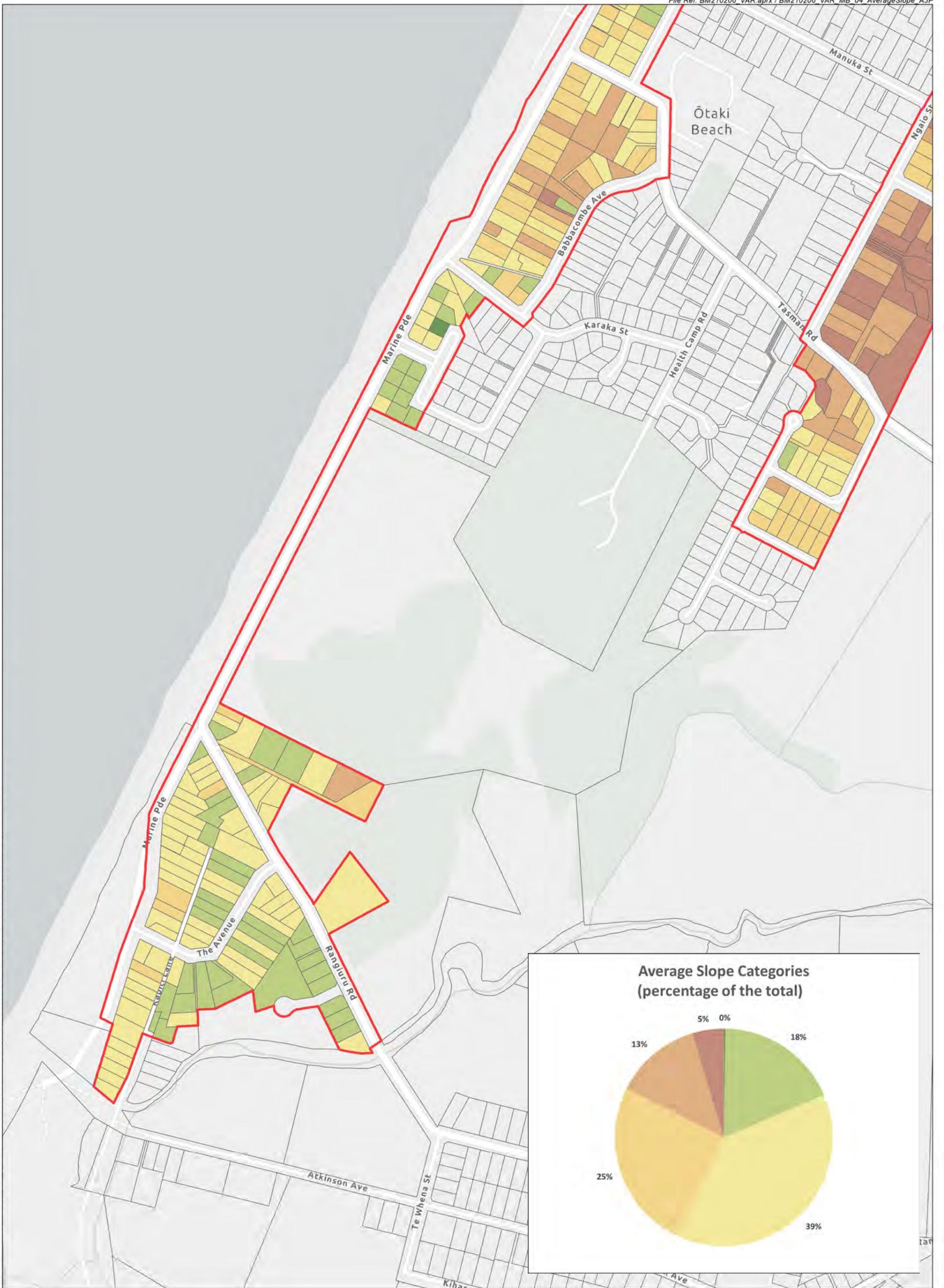
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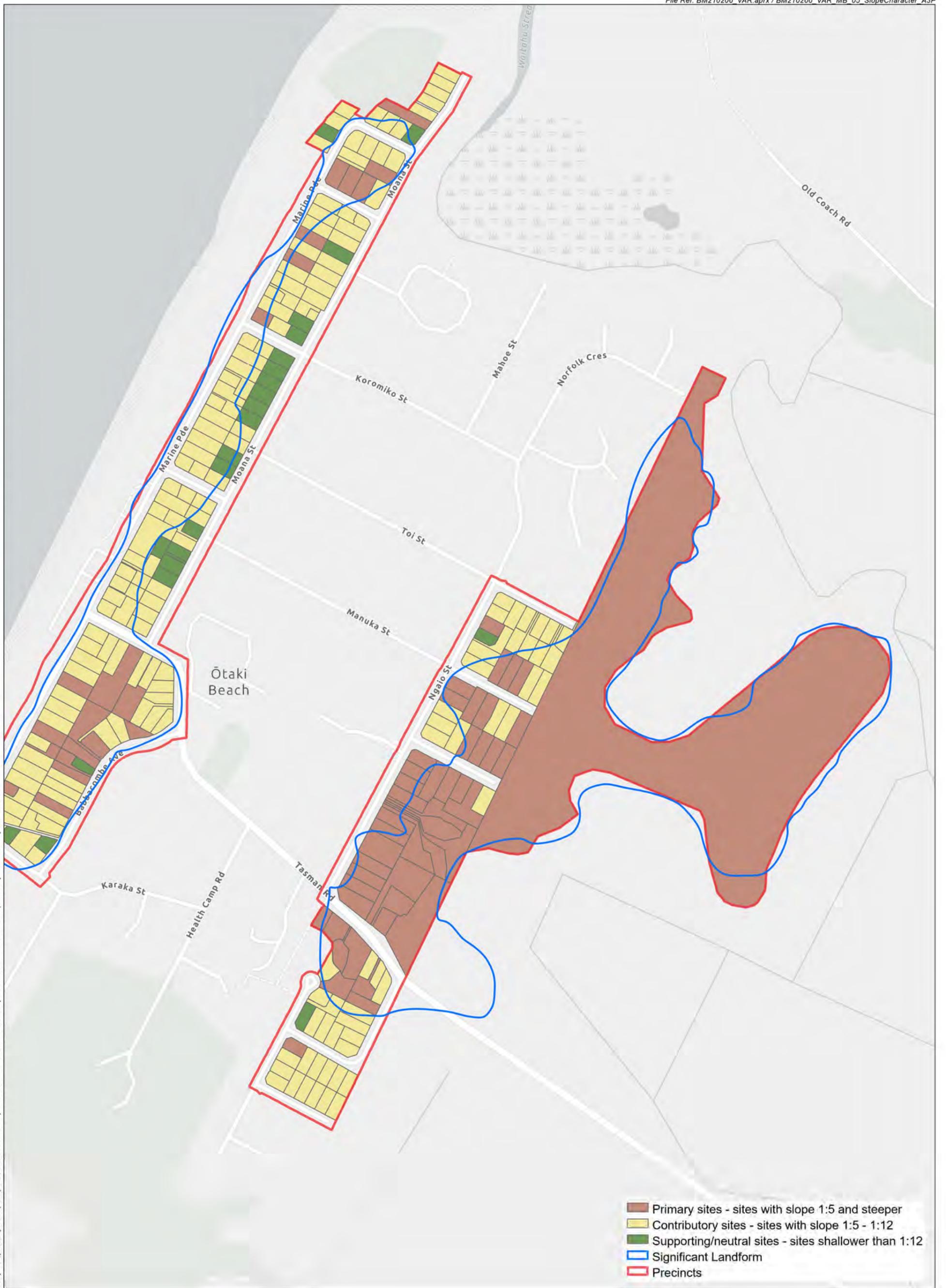
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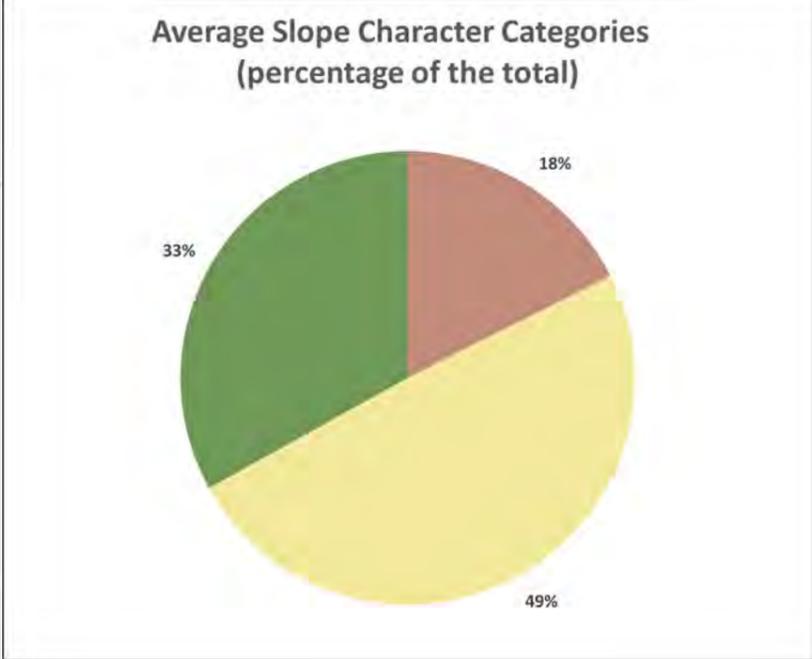
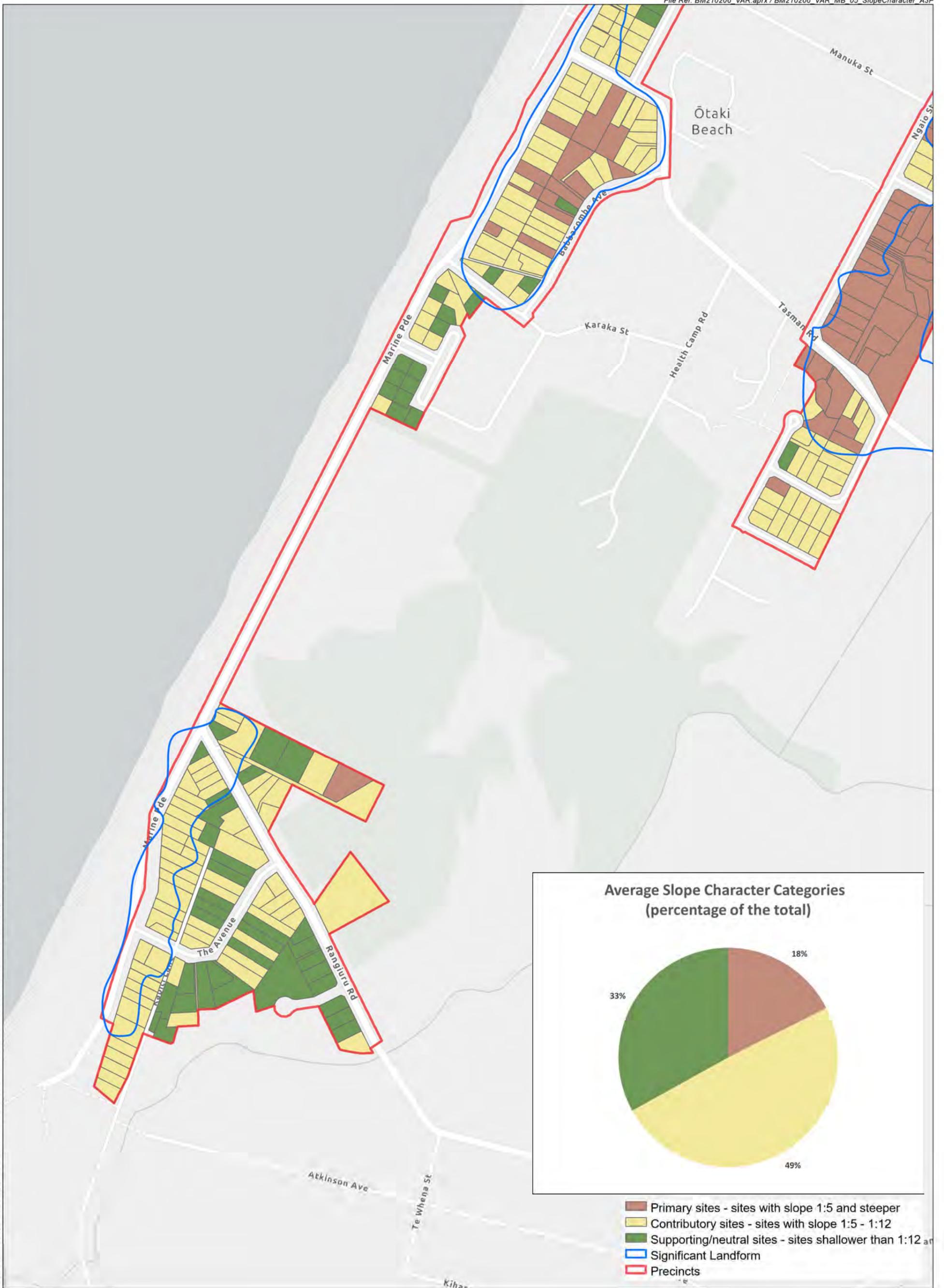


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- Primary sites - sites with slope 1:5 and steeper
- Contributory sites - sites with slope 1:5 - 1:12
- Supporting/neutral sites - sites shallower than 1:12
- Significant Landform
- Precincts

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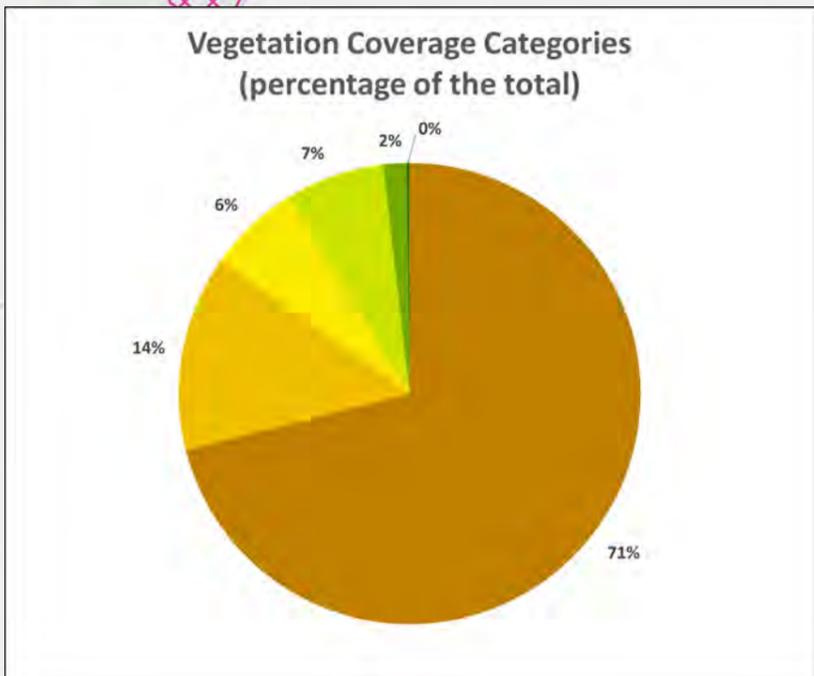
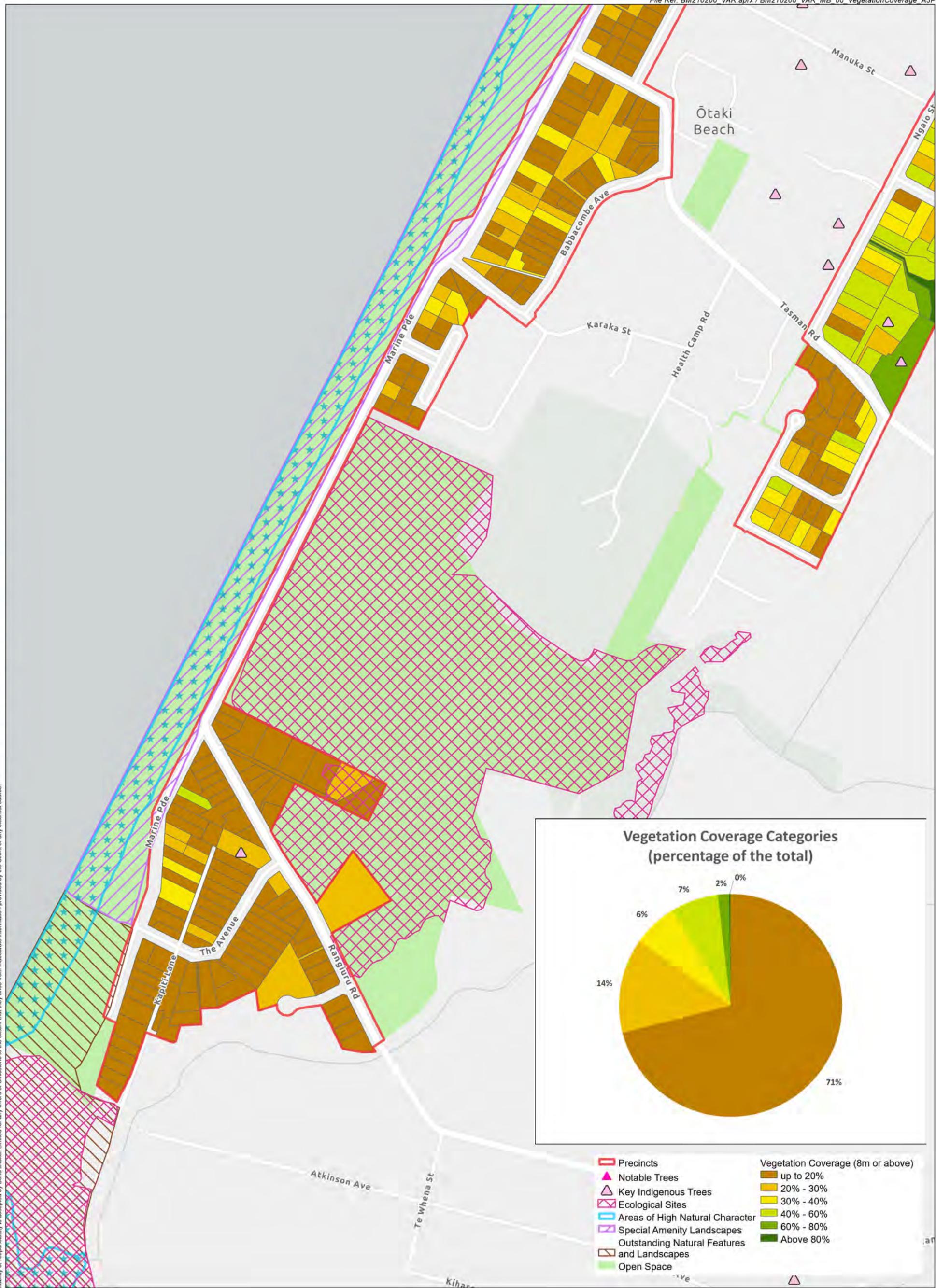


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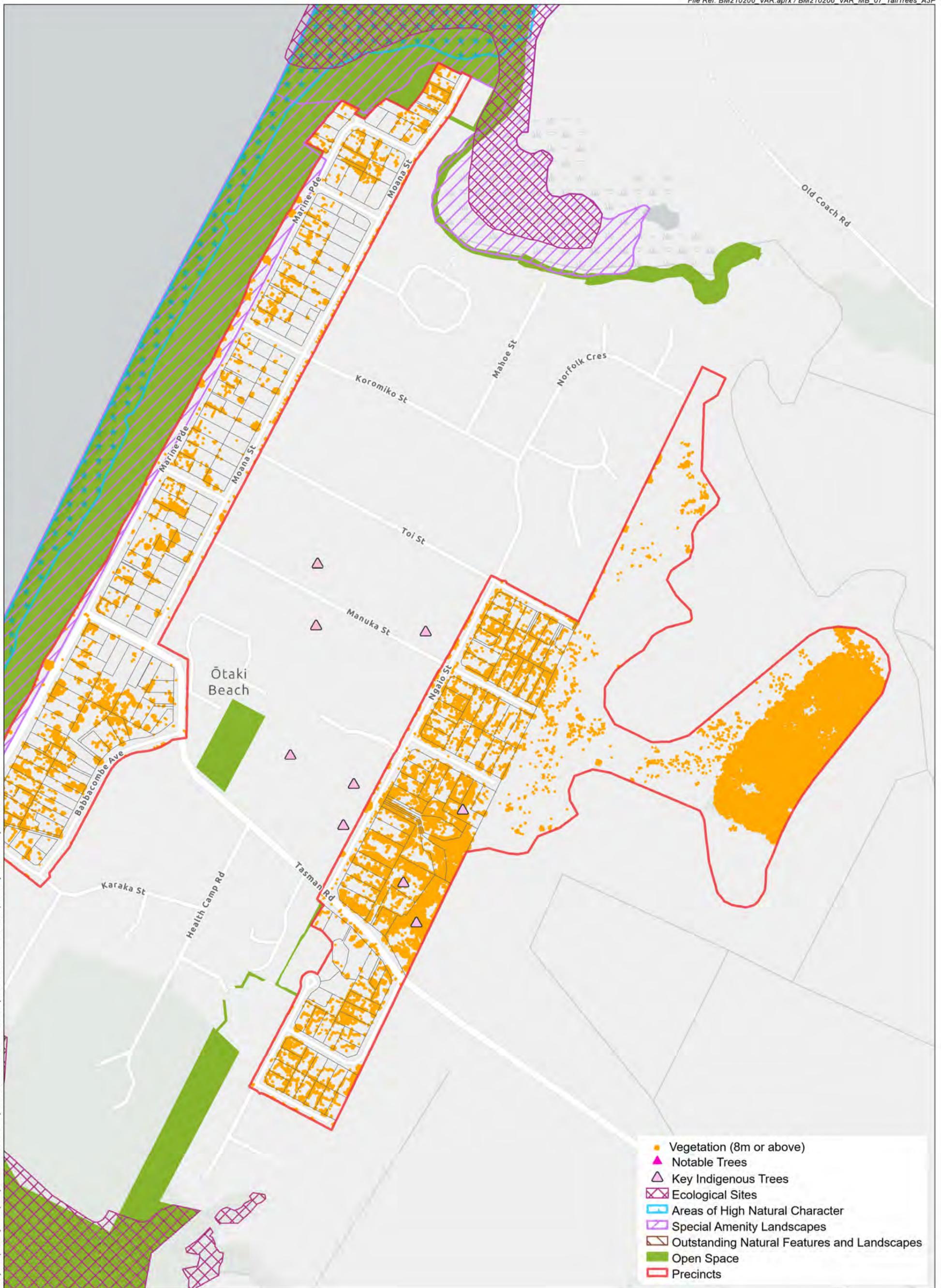


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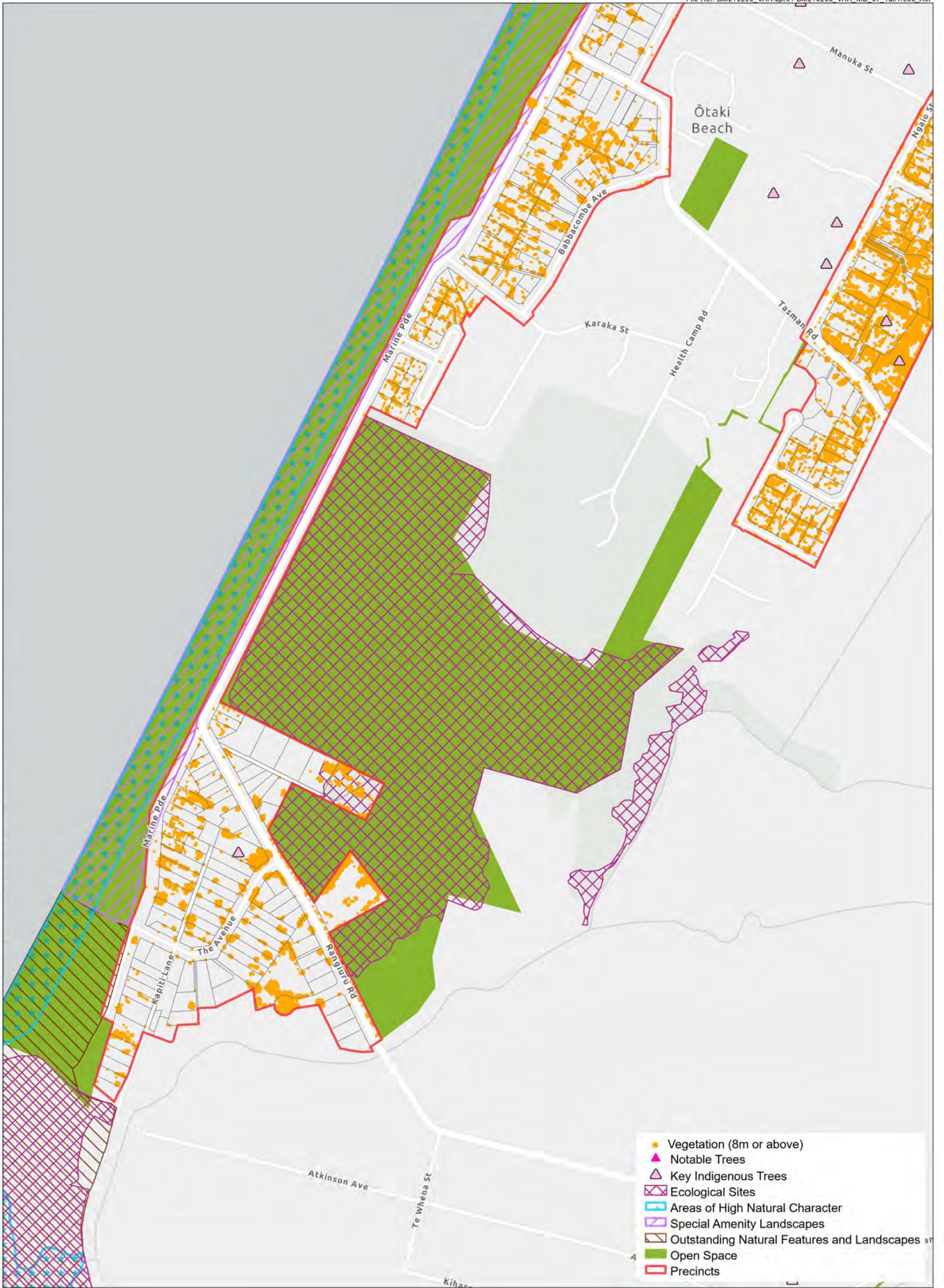
- Precincts
 - ▲ Notable Trees
 - ▲ Key Indigenous Trees
 - Ecological Sites
 - Areas of High Natural Character
 - Special Amenity Landscapes
 - Outstanding Natural Features and Landscapes
 - Open Space
-
- Vegetation Coverage (8m or above) up to 20%
 - 20% - 30%
 - 30% - 40%
 - 40% - 60%
 - 60% - 80%
 - Above 80%

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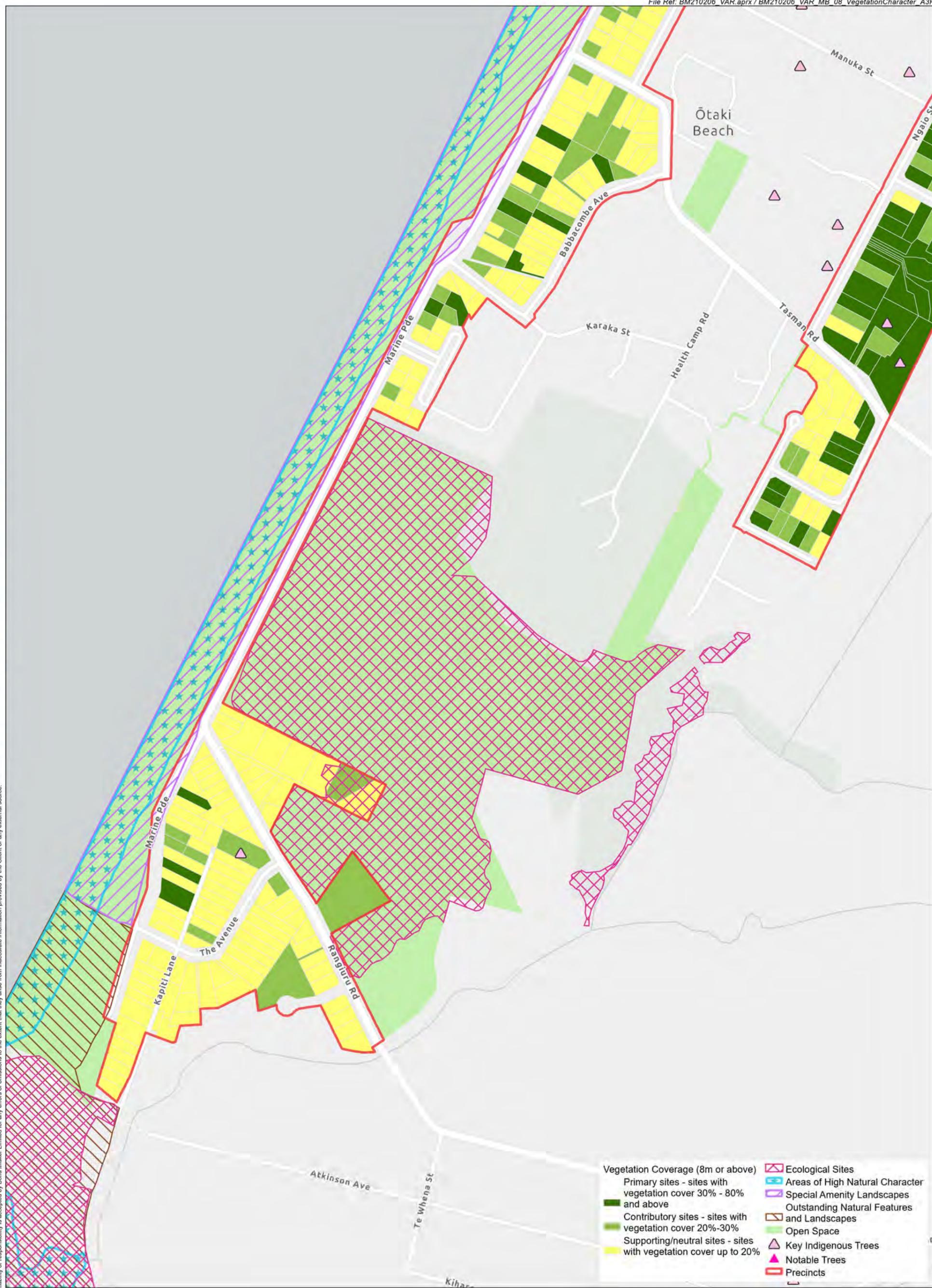


- Vegetation (8m or above)
- ▲ Notable Trees
- △ Key Indigenous Trees
- ▨ Ecological Sites
- ▨ Areas of High Natural Character
- ▨ Special Amenity Landscapes
- ▨ Outstanding Natural Features and Landscapes
- Open Space
- ▭ Precincts

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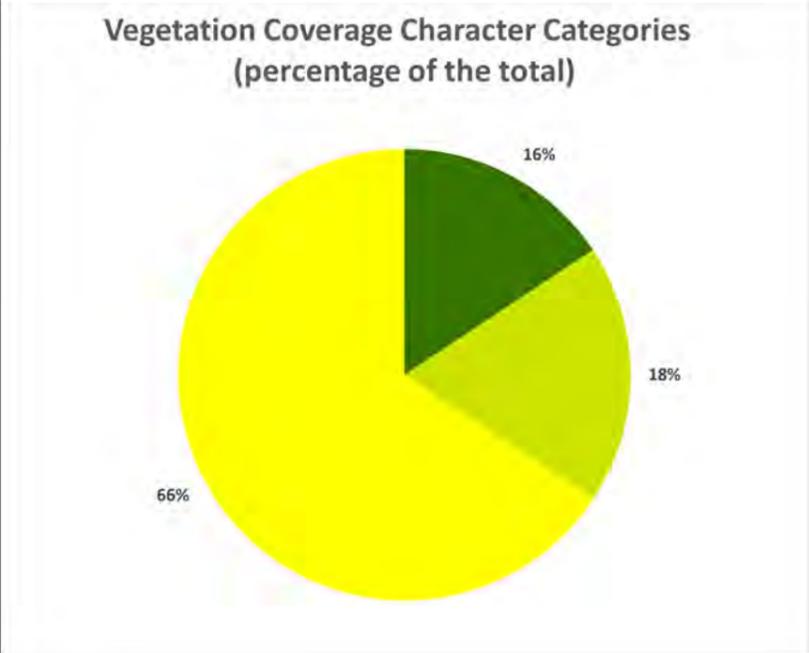
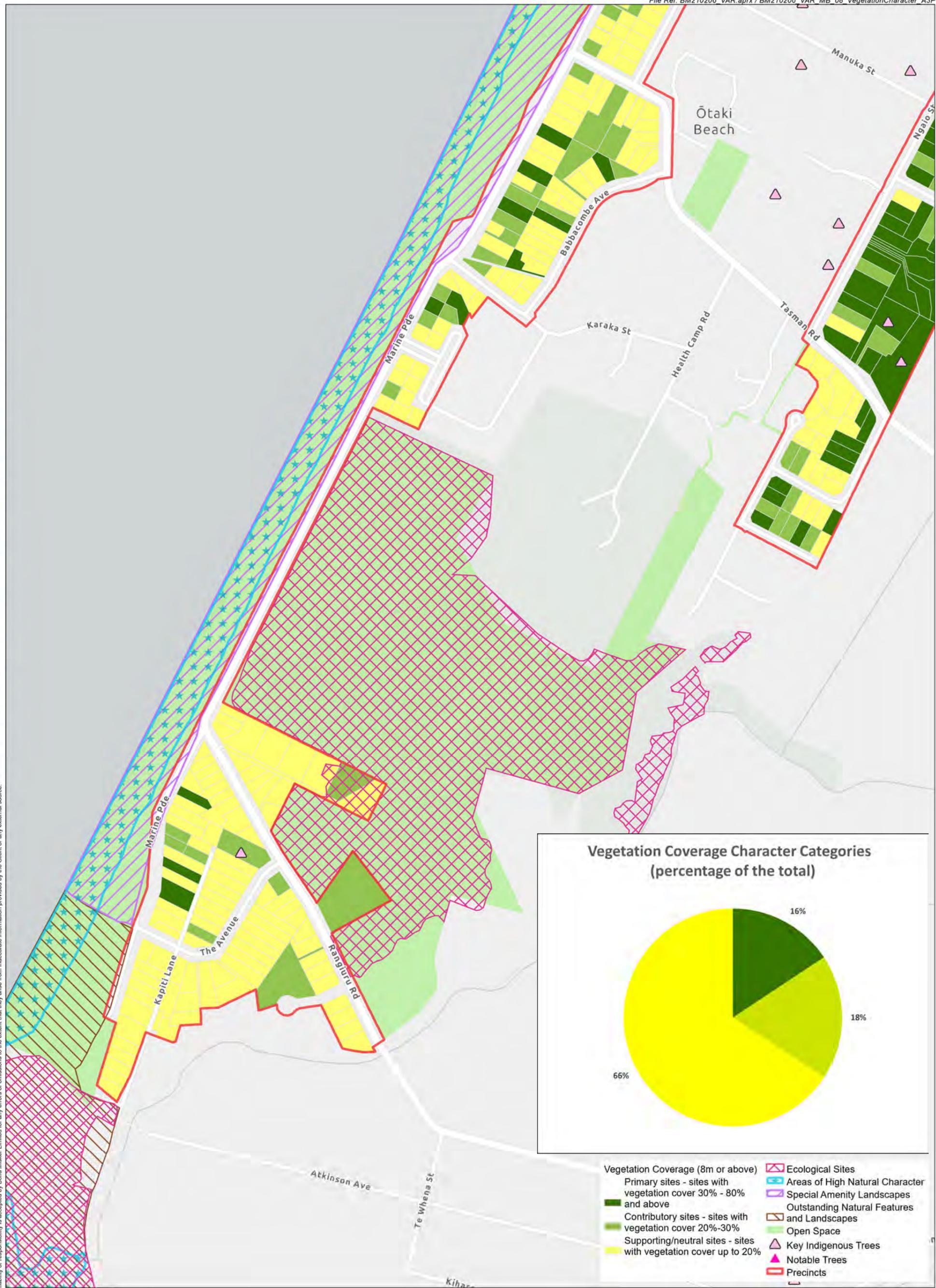


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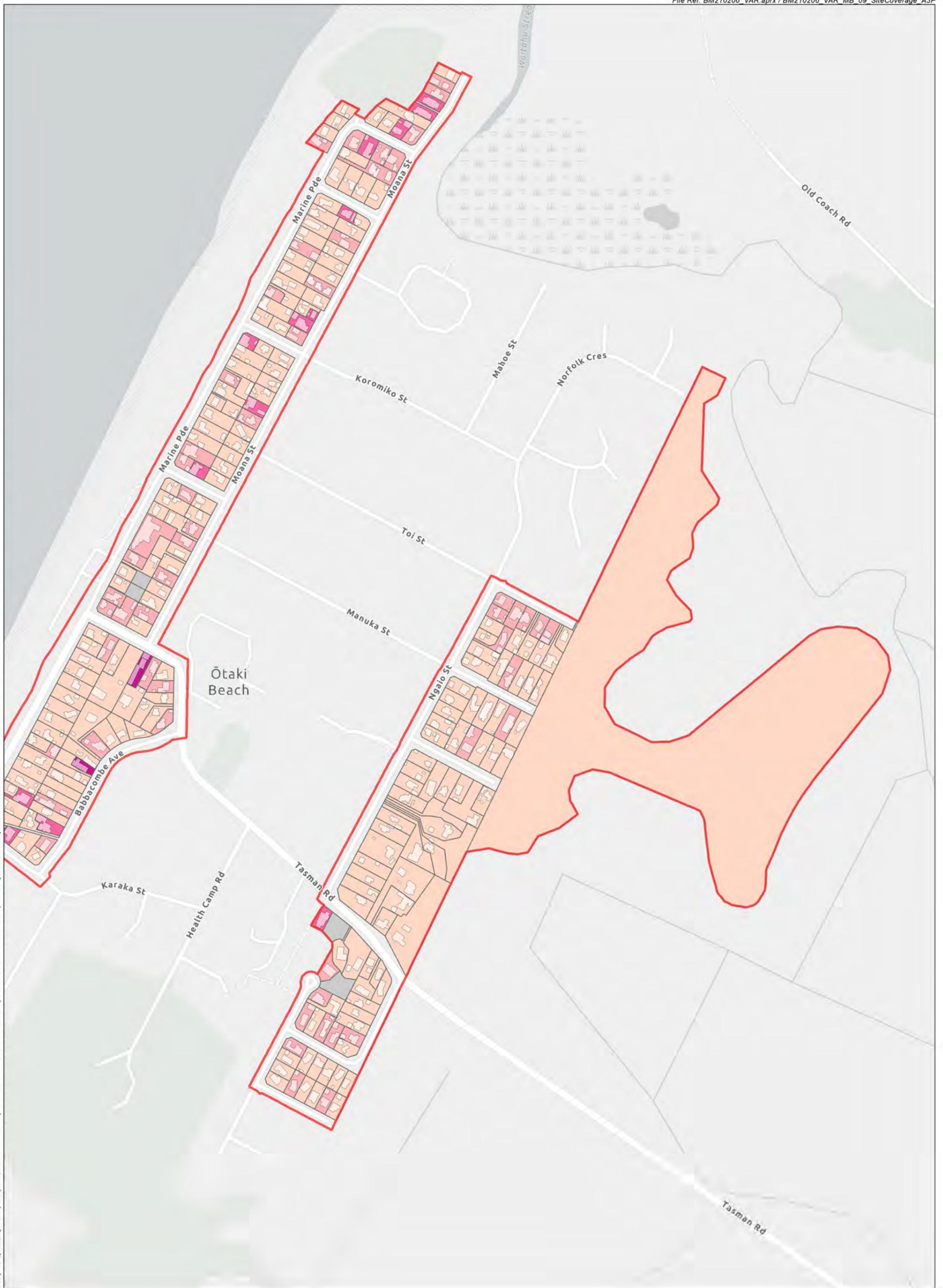
- | | |
|---|--|
| <p>Vegetation Coverage (8m or above)</p> <ul style="list-style-type: none"> Primary sites - sites with vegetation cover 30% - 80% and above Contributory sites - sites with vegetation cover 20%-30% Supporting/neutral sites - sites with vegetation cover up to 20% | <ul style="list-style-type: none"> Ecological Sites Areas of High Natural Character Special Amenity Landscapes Outstanding Natural Features and Landscapes Open Space Key Indigenous Trees Notable Trees Precincts |
|---|--|

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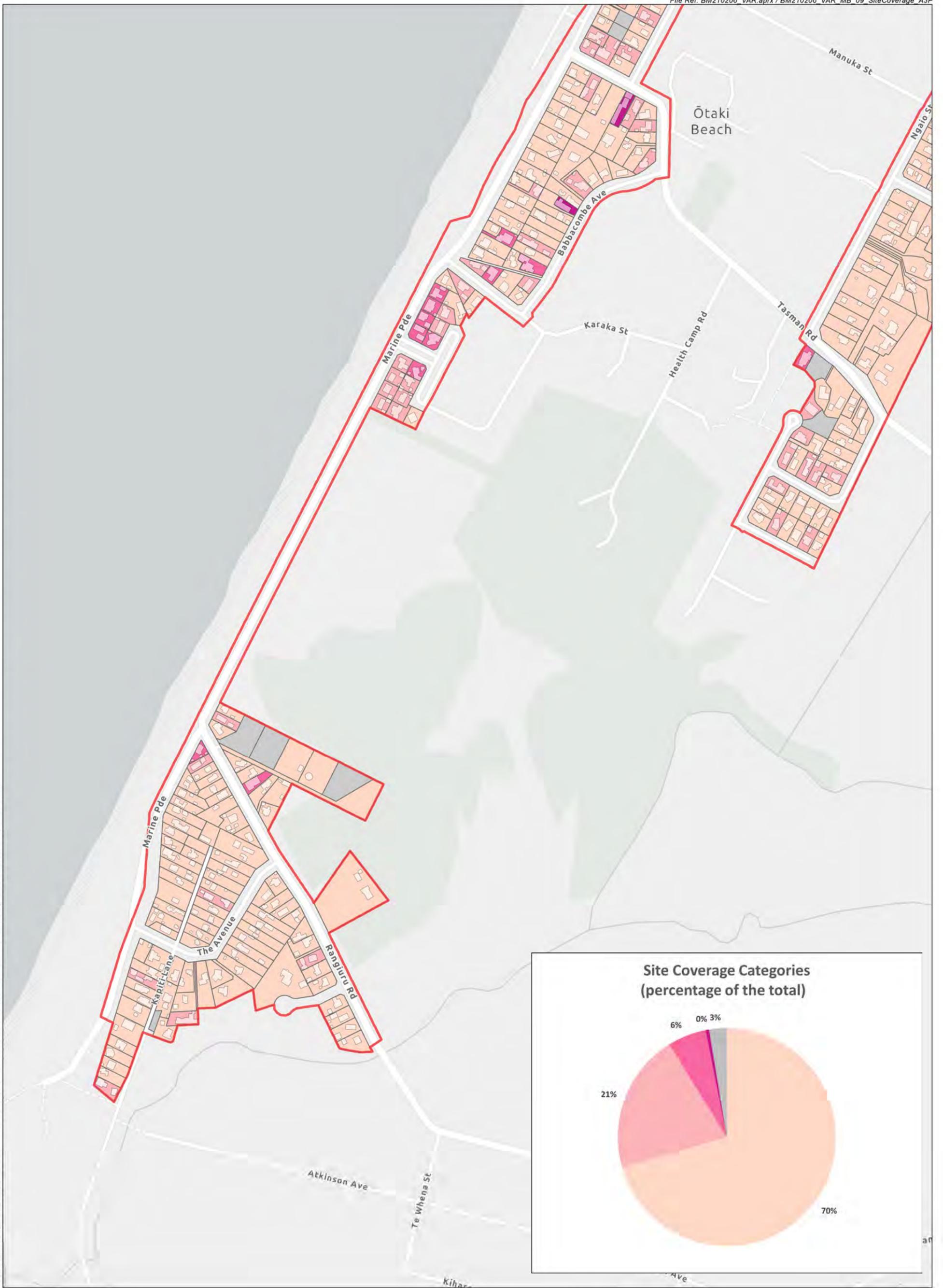


- Vegetation Coverage (8m or above)
 - Primary sites - sites with vegetation cover 30% - 80% and above
 - Contributory sites - sites with vegetation cover 20%-30%
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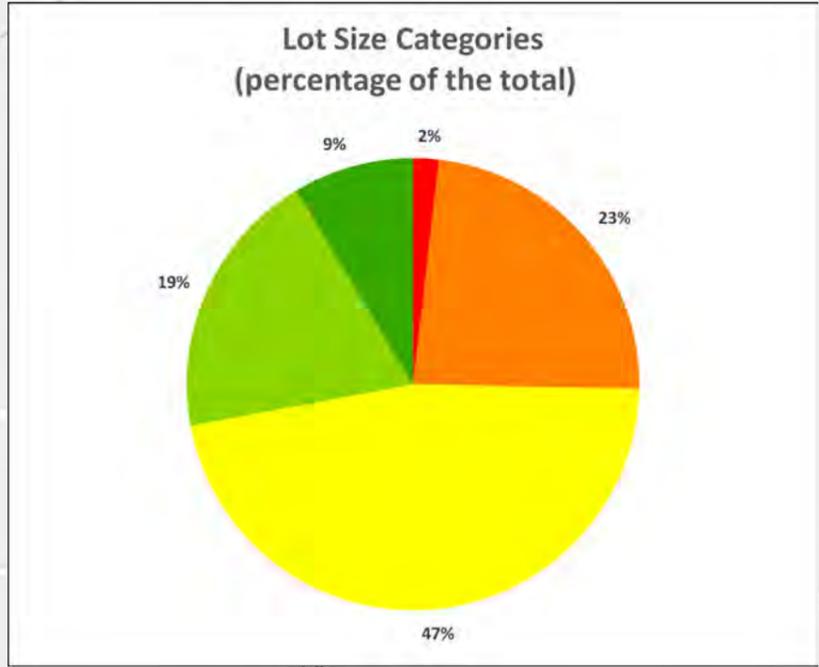
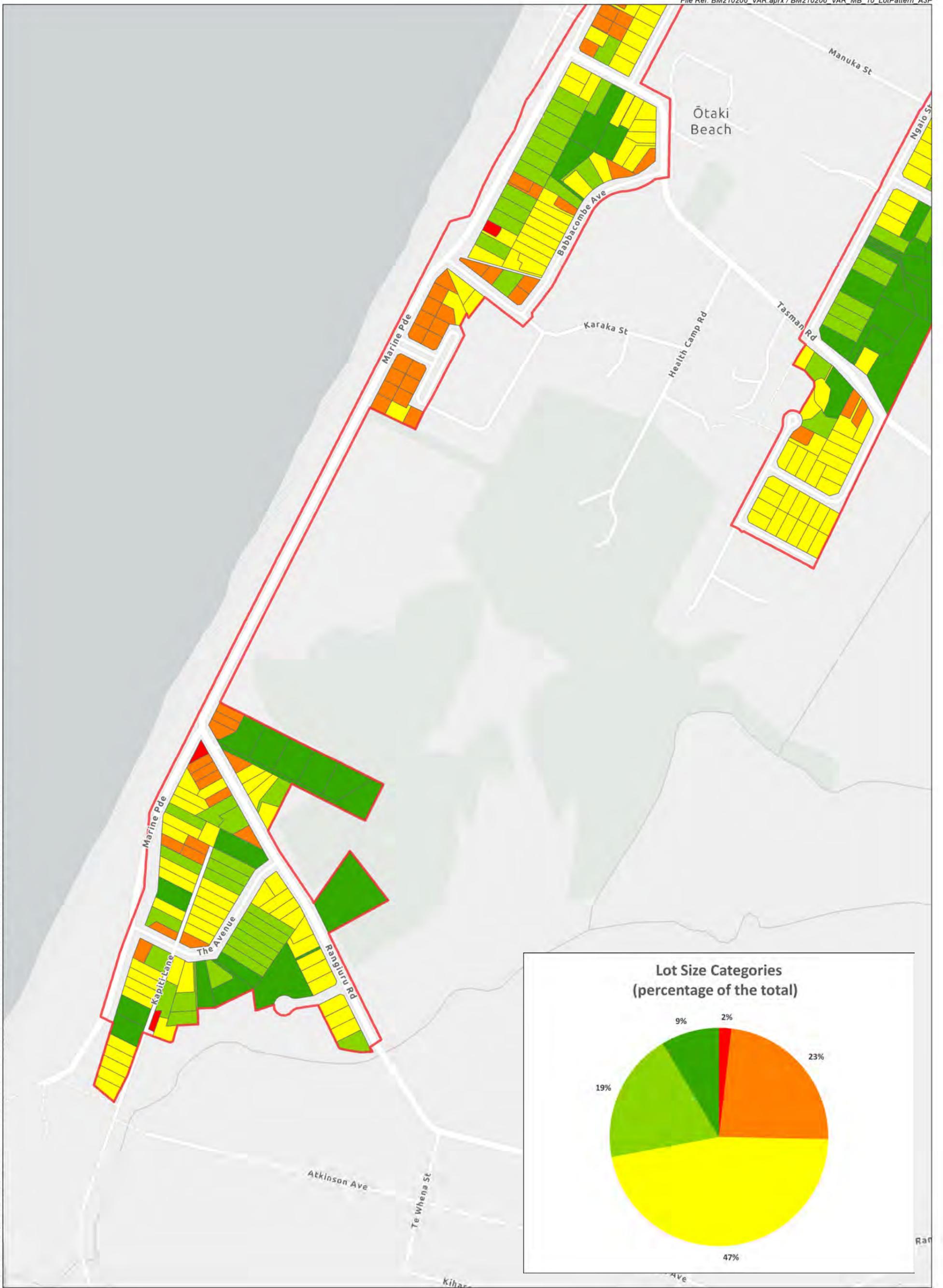
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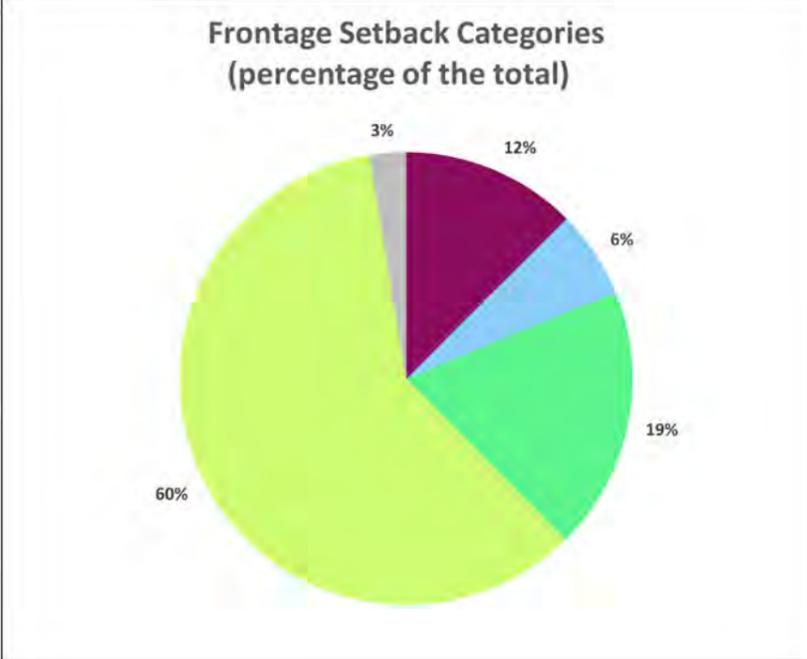
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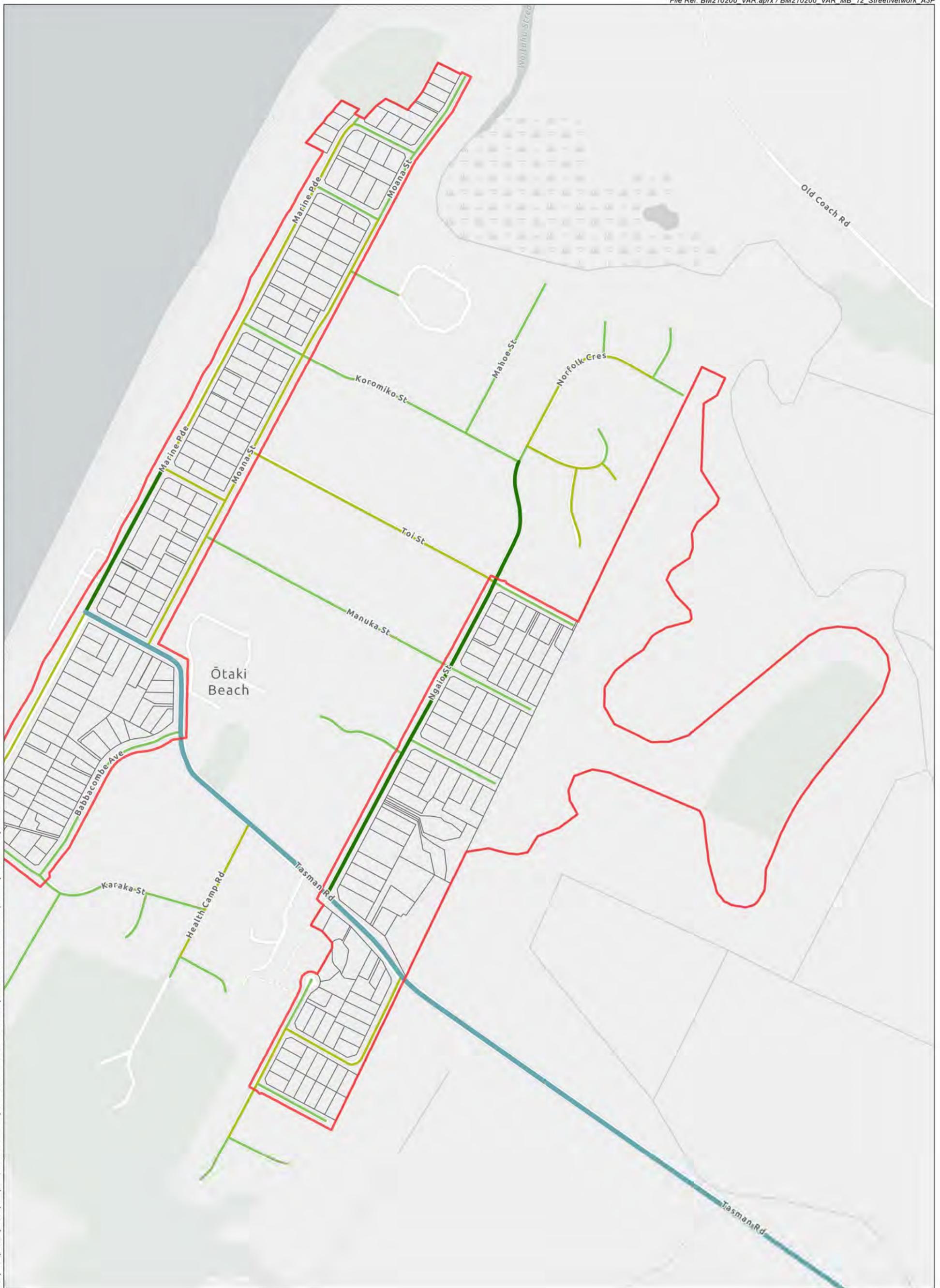
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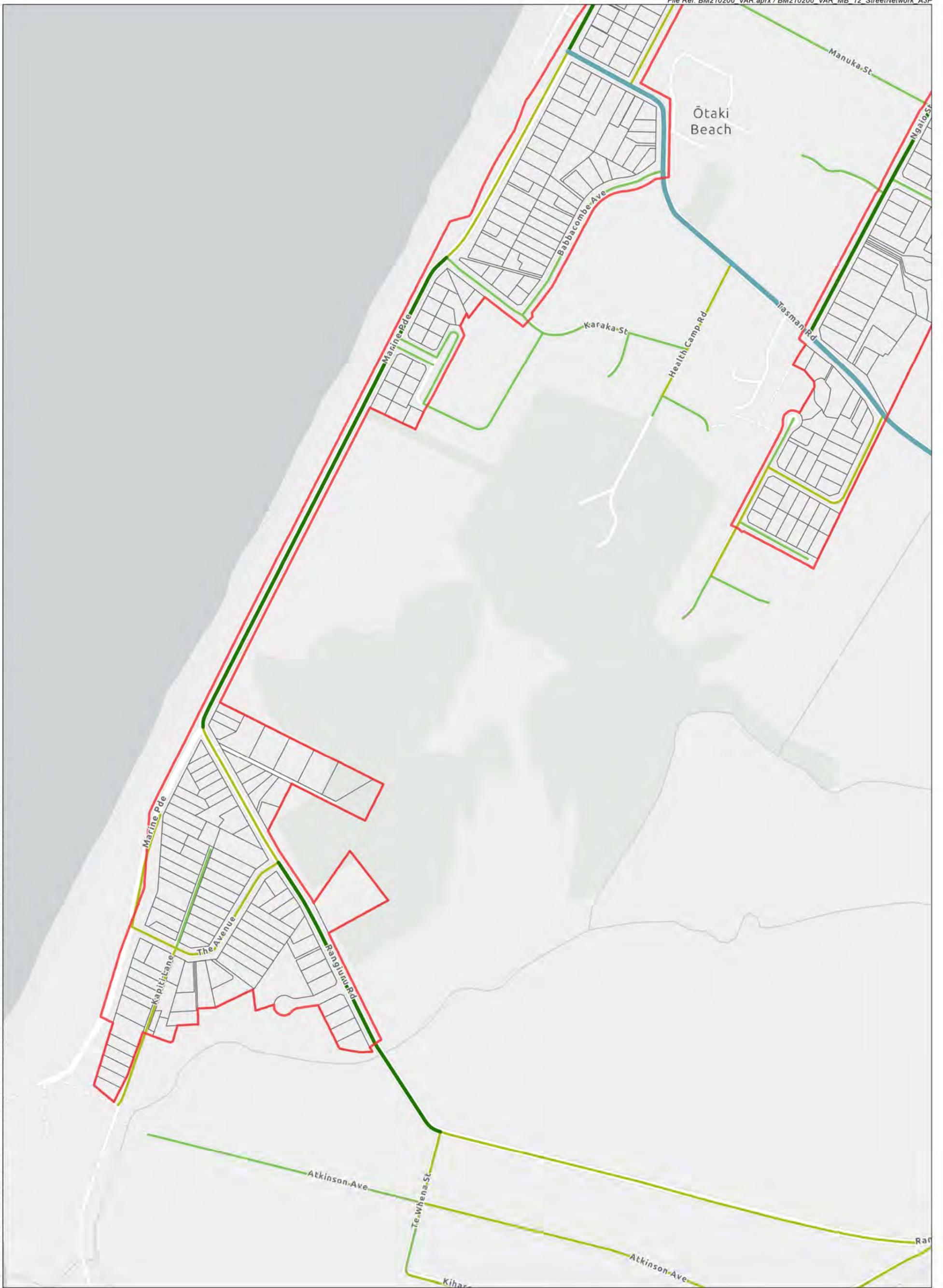
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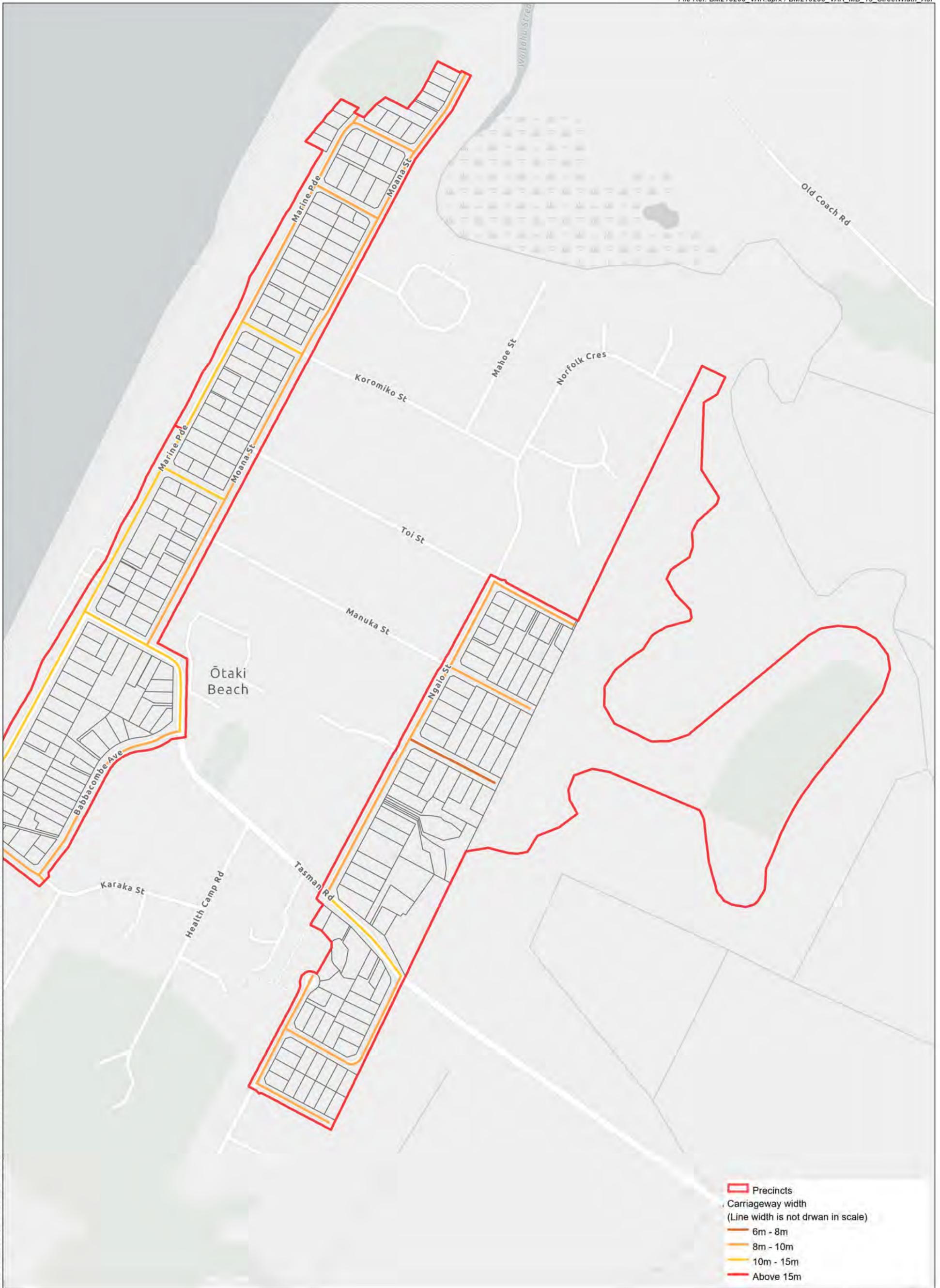
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- Precincts
- Carriageway width
(Line width is not drawn in scale)
- 6m - 8m
- 8m - 10m
- 10m - 15m
- Above 15m

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