

**Stage 1 Earthworks
Kelson Heights Subdivision
64 Waipounamu Drive**

LANDSCAPE & VISUAL ASSESSMENT



**Prepared for Kelson Heights Ltd by
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1.0 Background

Drakeford Williams Ltd has been engaged by Kelson Heights Ltd to prepare a landscape and visual effects assessment for the Stage 1 bulk earthworks for 64 Waipounamu Drive.

An initial site survey was undertaken on 31 July 2016 and further field work for the visual assessment on 3 September 2016.

1.1 Documentation referred to includes:

- Cook Costello Plans 12652-002 EW-01_RC:
 - Sheet 1: Bulk earthworks plan
 - Sheet 2 & 3: Sections through site
- Cuttriss Planting Plan 28923SK1 Sheet 1
- Cardno TCB Plan set issued for 16 February 2009 Hearing

2.0 The site context and history

2.1 Site history

The 64 Waipounamu Drive site is a 14.1334ha parcel of land in Kelson on the Western Hutt hills.

In the 1970s the land formed the final stages of a Fletchers medium density subdivision extending east and west of Major Drive. Stages 10 and 11 did not proceed and this site remained undeveloped.



Figure 1: Kelson zoning

In 1994 the site zoning was changed from Residential to the Hill Residential in the draft District Plan. The outcome is that the site now is bounded by Residential zoned development on 3 sides, with lower density/larger lot Hill Residential and Rural Residential zoned development to the north.

In 2009 Kelson Heights Ltd lodged plans for a 142 lot subdivision including earthworks for roading and building platforms, to be undertaken in 10 stages. A joint HCC and WRC hearings panel granted Kelson Heights Ltd consent. The subdivision did not proceed although the resource consent decision will remain valid until 2019.

2.2 *Site context*

It is located towards the top end of Major Drive, on moderately steep hill slopes below Belmont Regional Park and immediately east of Speedy's Stream and Speedy's Reserve (owned by Greater Wellington and managed as part of Belmont Regional Park)¹. The site borders existing properties on Kaitangata Crescent to the north, Major Drive to the east and Waipounamu Drive, Otira Drive and Christchurch Crescent to the south.

Residential development along the top end of Major Drive and on the streets either side is typical 1970s medium density subdivision where vegetation was removed across the site and bulk earthworks undertaken to form viable building platforms.

Overall the residential landscape is characterised by what today are regarded as modest houses on relatively large lots, set in an open streetscape but contained within the wider Belmont hill landscape. While not evident in aerial photographs, when viewed from the road the topography increases the visual impact of the small bands of regenerating bush on the steeper slopes and ridgelines either side of Major Drive, both on private land and within reserves, and in Speedy's Reserve. This backdrop vegetation creates the perception of a framework of green vegetation separating areas of residential development.

2.3 *Site landform and vegetation*

The site is located on a northwest facing hillside that extends from a spur/ridge sitting parallel to (and west of) Major Drive down into Speedy's Stream (also known as Kahikatea Stream) in a larger valley to the west in Speedy's Reserve. The landform is folded into rolling to moderately steep spur and ridgetop slopes intersected by steep to very steep slopes. The site includes the spur ridgeline to the east and five gully and stream systems but stops short of Speedy's Stream to the west. Two of the streams are considered to be ephemeral and basically three main tributaries drain the site. Collectively they form wetted areas along the western boundary and a small wetland area at the base of the northern-most gully.

Historic aerial photography shows the progressive revegetation of the site from pasture through gorse cover to the regeneration of native bush. It also shows there was vegetation clearance along the ridgeline west of Major Drive in the 1980s and some re-cutting/clearing of old farm tracks in the period between 2008 and 2013. The

¹ Speedys Reserve is shown as part of Belmont Regional Park in the webmap on the GW site.

land today has a cover of gorse and early regenerating bush on the higher and more exposed slopes and established native forest in the sheltered bottom gullies. Revegetation on the east facing slopes above Major Drive is generally more advanced due to the protection from the prevailing wind.

2.4 Site values

The application site is not identified in the District Plan as being an outstanding natural feature or landscape (ONFL) nor is it identified as a special amenity feature or landscape.

3.0 Site visibility and views

3.1 Views from the east

Views from the east are towards the ridgeline at the eastern end of the site, above Major Drive.

Distant views from the valley floor

The ridgeline currently sits at 210masl. This is lower than the Outram Grove ridgeline at 220masl to the east that effectively screens the site in views from the floor of Hutt Valley.



Figure 2: local topography/contours

Views from private property

Views into the site/up to the ridgeline from most properties on 191-242 Major Drive are screened by intervening vegetation along the back boundary within both the site and residential yards. Towards Kaitangata Crescent the ridgeline drops to a small saddle. Residents at 229-237 Major Drive, particularly those who have cleared vegetation outside their back boundary, have more direct views into the site and up to the ridge either side of the saddle.

The site is seen from properties on the eastern side of Major Drive and side streets such as Invercargill Drive, Mossburn Grove, Tarras Grove, Drummond Crescent,

Outram Grove and their associated cul-de-sacs and closes. Residents on Major Drive see the ridge silhouetted on the skyline. Residents of the more distant and elevated properties and Outram and Mossman Grove view the ridgeline in elevation, backdropped by the Belmont hills.

From local streets and reserves

Views from local streets are largely confined to immediate views from traffic on Major Drive and from side streets such as Invercargill Drive and Becks Close for traffic approaching Major Drive looking up to the ridgeline.

3.2 Views from the north and northwest

Views from private property

Residents of properties at 3-7 Kaitangata Crescent that back onto the site have views to the south towards the spur at end of the ridgeline that rises to the skyline. The landform changes from 9 Kaitangata Crescent, with the site at grade and from 11 Kaitangata Crescent to the west, the site falls away from the residential boundary. Established vegetation along the boundary screens close views into site, although residents have more distant views to the west up towards the Belmont Hills.

Houses on the other side of the road sit above the road, with most having a garage at ground level and living areas on the floor above. Residents, particularly those in more elevated locations such as Benhar Close and Kaitangata Crescent properties further up the road, have more panoramic views extending from residential development along the Mossman and Outram Grove ridge, to the site ridgeline and upper slopes, more distant views to the south across the site spurs and gullies to residential development beyond and then west towards the Belmont Hills. In other words, the site forms one part of an overall extended view.

Residents on the residential lifestyle properties further up the road at 21, 29 and 55 Kaitangata Crescent have views south towards the ridge and mid and upper west facing slopes. The house at 55 Kaitangata Crescent in particular is elevated and has views towards the ridge on the eastern site boundary, 400m away.

3.3 Views from the west

The site can be seen from tracks in Belmont Regional Park with the nearest track 800m away. From this location, the west facing slopes are viewed in full, from the ridgeline down to Speedy's Reserve.

3.4 Views from the south

From local streets and reserves

Views into the site from the local roads are limited. There are fleeting views up to the ridgeline for traffic heading north on Major Drive and on the smaller side streets and cul-de-sacs.

Views from private property

The site is visible from adjoining properties in Waipounamu Drive, Christchurch Crescent, Otira Grove, Ilam Grove and Waiau Close in views to the north, as well as a limited number of more distant properties to the south on Major Drive and Timaru Grove. As with views from the road, existing residential development, trees and areas of bush on the site boundary (but external to the site), screen the lower site. Views are focussed on the west facing upper slopes of the ridgeline. Residents looking up towards the site see the ridgeline but the bulk of the site is screened from view.

4.0 The Proposed Stage 1 Earthworks

4.1 Stage 1 includes:

- Vegetation removal and bulk earthworks to facilitate a future subdivision on the application site including stepped building platforms along the ridgeline at the eastern end of the site;
- A bush protection/no build covenant over 0.517ha native vegetation along the site boundary on the lower slopes of the ridgeline spur. The bush protection zone extends along the rear boundary of properties on Major Drive, Waipounamu Drive and Christchurch Crescent;
- Retention of 1.464ha of bush and wetland area in the northwestern corner of the site adjoining Speedys Reserve; and
- Offset mitigation for stream and vegetation loss to be undertaken via planting in the wider Speedy's Stream catchment, on Belmont Regional Park land.

Additional landscape mitigation measures include:

- Establishing a grass cover over completed cut and fill earthworks;
- Native revegetation on the fill batter facing the end of Christchurch Crescent and the house at 37 Christchurch Crescent, with 336sqm of batter to be planted; and
- Supplementing existing site vegetation along the boundary of properties at 229-237 Major Drive with a screen of low trees/shrubs.

4.2 *Landscape / Biophysical description of works*

4.21 *Earthworks*

Earthworks are focussed around the formation of building platforms along the ridgeline and the installation of infrastructure for the future subdivision. Stage 1 earthworks also include provision of stormwater and wastewater infrastructure for the future subdivision. Earthworks cover 7.0276ha, 49.72% of the site.

It is proposed to lower the ridgeline by up to 10.5m, with maximum cuts occurring at the crown of the ridgeline road. Works also include the filling of several east-west running gullies, and cutting through the adjacent spurs to allow the construction of a haul road.

The proposed earthworks involve approximately 145,662m³ of cut. The majority of this material will be used as fill on the site. However, there will be an excess of 12,713m³ of material left over. This is likely to be removed from the site and

deposited within a cleanfill. Alternatively, the fill may be stockpiled on the site and used in future stages of the site development.

The scale of the earthworks varies across the site with cuts up to 13.4m, and filled sites up to 17.1m deep. Cut batter gradients are 1V:1H, fill batter gradients are 1V:2H.

All cut and fill batters are to be hydroseeded with the exception of a fill batter on the boundary of 37 Christchurch Crescent that will be revegetated. Areas of exposed earthworks on the remainder of the site are to be grassed once bulk earthworks have been completed.

4.22 Vegetation

The most valued wetland and the associated stream and riparian vegetation are to be retained within a 1.46ha area in the northwestern corner of the site.

Vegetation on the lower ridgeline slopes on the eastern and southern adjoining residential boundary will be retained and protected with a covenants/consent notice. This includes a band of semi-mature bush (mahoe forest) on the eastern side of the ridgeline, above the residential boundary of properties on Major Drive and Christchurch Crescent, as shown on Figure 3 below.

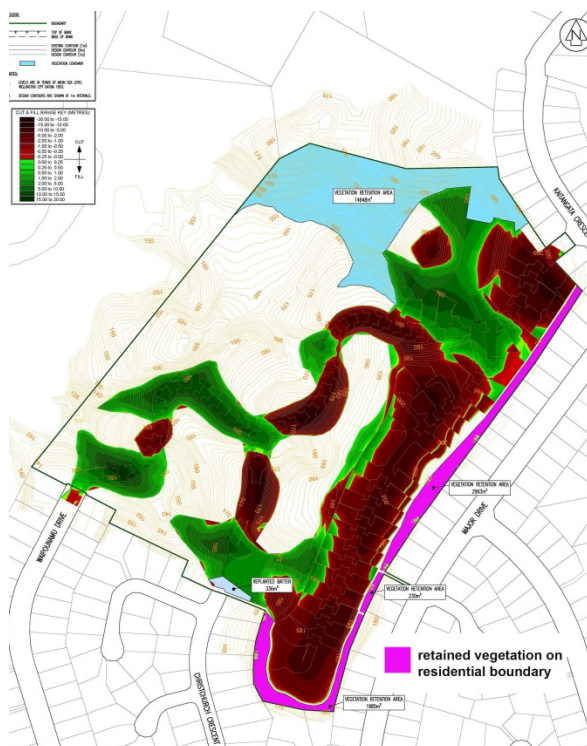


Figure 3: Vegetation retained on the residential boundary

The extent of the protected vegetation varies according to the topography, with an additional 1.5m buffer allowed for as a margin of error for contractors. In detail, retained vegetation includes:

- a band of retained vegetation 4.7m to 15m wide along the eastern boundary above Major Drive;
- a minimum 4.7m wide retained vegetation occurs at the southern end of the boundary, adjacent to the playground and 199, 205 and 207A/B Major Drive where there is additional established vegetation on steep banks within the properties;
- a minimum 6.2m wide band of retained vegetation at the north end of ridge on the boundary of 227-241 Major Drive properties; and
- a band of retained vegetation 5m-15m wide at the southern and western end of the ridgeline along the Major Drive and Christchurch Crescent residential boundary, part of a larger area of bush/scrub vegetation that extends across the boundary and the back yards of these properties.

In all 7ha of vegetation will be retained on the site.

4.23 Waterways

The earthworks required piping in gullies at the head of the watercourses resulting in the loss of 724m of stream in the upper section of the site. About 165m of the remaining high quality stream environments lie within the area to be zoned General Recreation where works will be avoided.

The effects of the loss of ecological function are to be offset by a proposal of 20m of riparian planting each side of Speedy's Stream for 1,425m of the stream. This amounts to 56,916sqm of riparian planting overall.

Landscape and Visual Effects

Terminology

The New Zealand Institute of Landscape Architects (NZILA) best practise recommends using a robust and consistent rating scale for assessing the magnitude and importance of conditions, change or effects, such as the following seven point scale: extreme/ very high/ high/ moderate/ low/ very low/ negligible.

extreme	very high	high	moderate	low	very low	negligible
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This scale has been used for the following assessment, with 'low' considered to be equivalent to 'minor' effects in RMA terminology.

5.0 Effects on Visual Amenity

5.1 Views from the east

5.11 *Close views from adjoining Major Drive properties*

The retained bush on the residential boundary screens views from adjoining Major Drive dwellings, particularly where the landform is steeper and limits the viewing angle –ridge still elevated above houses. Visual effects are Very Low to Negligible.

Residents of 229-237 Major Drive at the saddle or dip in the ridge landform will have views of the exposed earthworks due to the sparseness of the existing bush and the proximity of the works to the boundary. Changes in ground level in the vicinity of the boundary are insignificant but residents will observe the vegetation removal and changes to ridgeline on the landform in views to the north and south. Visual effects are Moderate to High initially. However all these houses are single storey and once the proposed mitigation planting along the boundary has established, effects will reduce to Very Low.

5.12 *Views from properties east of Major Drive*

Properties on Major Drive on the eastern side of the road and at the lower end of roads that link into Major Drive will observe the lowered ridge landform but the earthworks themselves are screened by retained vegetation along the ridgeline or by intervening houses.

The earthworks have increased visibility for more elevated properties at the upper end of Invercargill Drive and on Mossburn Grove, Tarras Grove, Drummond Crescent and Outram Grove. From the mid slopes some 200m away, residents view the lowered and stepped ridge in elevation, backdropped by the Belmont Hills. Residents living on the ridgeline east of Major Drive will look down onto the ridgeline earthworks once the ridge landform has been lowered. The stepped profile will be less discernible from 300-350m away, in views down to the site. In other words, while more of the site can be seen, the visual impact of the earthworks in terms of their prominence is reduced by the viewing distance and the wider landscape context. This includes the band of retained vegetation above Major Drive residential development in the foreground and Belmont hill landscape in the background.

Visual effects are Low for distant locations and Moderate for midground views where the stepped ridge is viewed in elevation but reduce to Very Low and Low once a grass cover is established on exposed earthworks.

5.2 Views from the north and northwest

5.21 *Views from adjoining Kaitangata Crescent properties*

Views from 3-7 Kaitangata Crescent will open up with the removal of the smaller ridge landform immediately south of the houses. Residents will see the more distant ridgeline above Major Drive, although views are partially obscured by buildings; each property has a garage set back against the rear boundary. The removal of the

landform changes the view but earthworks are over 100m away, which reduces their impact. Visual effects are Low.

From 11 Kaitangata Crescent to the west, vegetation along the boundary screens close views into site.

5.22 *Views from Kaitangata Crescent properties further north*

Residents, particularly those in more elevated locations such as Benhar Close and Kaitangata Crescent properties further up the road, will view earthworks along the upper slopes and ridgeline. The impact of the geometric building platforms will be softened once the earthworks have a grass cover, and effects are further mitigated by the viewing distance and the framing elements within the wider panoramic view.

5.23 *Views from Kaitangata Crescent lifestyle properties further west*

Residents on the residential lifestyle properties further up Kaitangata Crescent will see the changes to the earthworks on the mid and upper slopes of the site. The ridgeline earthworks have increased visibility in these oblique views across the site, but will be viewed against a background of residential development, namely the houses on Mossman Grove and Outram Grove ridgeline to the east. The most exposed property is 55 Kaitangata Crescent which has views across to the upper slopes and ridgeline but is over 400m away.

Visual effects are Low to Very Low considering the viewing distances and the wider panoramic viewing context.

5.3 Views from the west

5.31 *From tracks in Belmont Regional Park*

Track users in Belmont Regional Park will look down to the site to see the vegetation removal / earthworks across the site. Views focus on the ridgeline and upper slopes, although the viewing angle is likely to preclude views of the cuts through the east/west running spurs. Given the viewing distance, the visual impact of the works will decrease once grass has re-established on the exposed surfaces and softened the more geometric cut and fill batters.

The visual impact of the works will be high, but the site is seen within the wider residential context, the viewing distance is great and the views are one part of the track user experience. Visual effects are Low.

5.4 Views from the south

5.41 *Close views from adjoining properties*

Retained vegetation within the site will screen earthworks from directly adjoining properties in Waipounamu Drive, Otira Grove and Christchurch Crescent, with the exception of the property at 37 Christchurch Grove. Residents of this property will see a large fill batter in views to the north, although the visual impact of the earthworks will be mitigated with the proposed planting. Visual effects for this

property are High but will be reduced to Very Low once the batter is revegetated as recommended.

5.42 *Views from other properties*

Existing houses, trees and areas of bush on the site boundary (but external to the site) will continue to screen the bulk of the mid and lower hill slopes in views from the south and southwest, although residents of east facing properties in Waipounamu Drive and Christchurch Crescent will see the top profile of the fill batters in the gully system that runs parallel to the southern boundary (Cross-section A-A).

More distant properties will see the changes to the ridge in views to the east, although views are softened by the retained vegetation on the slopes below the ridgeline (between the 180m and 195m contours). It is unlikely that the 'stepped' earthworks will be prominent, due to the viewing distance and angle of view. As with closer views, the visual impact of these changes will be mitigated once grass cover has established on the exposed earthworks.

Very effects are considered to be Very Low.

5.5 Views from local streets

5.51 *Views from Major Drive*

Views into the site are limited from local roads apart from Major Drive. Although vegetation and built development will screen views for traffic in the immediate vicinity of the site, drivers will be aware of the vegetation removal and earthworks as they approach the site from Kaitangata Crescent, and from either end of Major Drive. The visual impact of the works is moderate and will reduce once the exposed earthworks have a grass cover. Views are brief and effects on driver visual amenity are Low.

5.6 Summary Visual Effects

The site landform forms a small amphitheatre orientated to the west towards the Belmont Hills. Due to its location, and the local topography, the most visible elements of the site are the ridgeline and upper slopes. The remainder of the site, the mid and lower slopes, is screened by landform, intervening vegetation and built development along the site boundaries, and can only be seen in immediate views from adjoining properties and in more distant views from tracks in Belmont Regional Park and lifestyle properties accessed from Kaitangata Crescent.

Close views of earthworks from adjoining properties in Waipounamu Drive, Christchurch Crescent and most of Major Drive are screened by planting within the properties and by the retained vegetation along the site boundary. The removal of local landform along the boundary of properties at 3-7 Kaitangata Crescent exposes residents to earthworks on the rising landform some 100m away, although the viewing distance and intervening garages reduce the visual impact of the works.

Effects on visual amenity are greatest for properties at 229-237 Major Drive. Due to the sparseness of vegetation along the boundary and the immediate landform, residents will observe the vegetation removal and changes to ridgeline on the

landform in views to the north and south. Therefore it is recommended that existing vegetation is supplemented by planting low trees/shrubs along the boundary to limit views into the site.

The earthworks have increased visibility for residents of more distant and elevated properties to the east. However the visual impact of the vegetation removal and earthworks is reduced by the viewing distances and the viewing context, with the site viewed as part of a wider panorama of views across Kelson and the Belmont Hills, and the retained vegetation around the eastern ridge landform. Effects on visual amenity will be reduced once grass is established on exposed surfaces and the cover softens the geometry of the earthworks when viewed from more distant locations.

The full scale and scope of the earthworks can be seen from areas north to west of the site, although from these elevated locations looking directly into the site amphitheatre, retained vegetation on the mid and lower slopes is a dominant element of the wider viewing context.

The 2009 Decision identified the natural elements that provide the green backdrop for the adjoining residential area, noting that if these could be retained, the Kelson Heights proposal would not reduce the existing residential character and amenity of the wider Kelson landscape.

The introduction of earthworks into an otherwise undeveloped site must by definition create visual impacts for local residents. This proposal manages visual effects for those properties adjoining the site that potentially would be most affected by retaining a band of vegetation around the eastern and southern end of the ridge that screens and softens views into the site. Effects on visual amenity for views from more distant properties and streets are mitigated by distance, by the wider viewing context and by the retained vegetation across the west facing upper slopes that separates areas of cut and fill and reduces the visual dominance of the earthworks.

6.0 Effects on landscape and natural character

6.1 Landscape Effects

The earthworks alter the ridge and upper slopes of the site by lowering the ridgeline and spurs at the eastern end of the site and using the fill material to partially fill in a four of the gully systems. This smooths out the steepness of the local spur and gully landscape to create a more uniform landform across the upper slopes. While fill batters and building platforms on the mid slopes have a man-made geometry, they generally reflect the underlying topography in their scale and their gradient. Earthworks are concentrated on the upper half of the site, retaining the Speedy's Stream valley and wetland landform at the lower end of the site, and in the northern-most gully in the northwest corner of the site.

In this respect the proposed earthworks retain elements of the wider landscape framework and are concentrated around the ridgeline, limiting penetration into the vegetation on the lower slopes and gullies on the valley floor, adjacent to Speedy's Reserve.

6.2 Effects on Natural Character

Landscape character is evaluated in terms of the combination of landform, land cover and land use of a location or area. The Hill Residential zone anticipates a change to the natural character of the site, in the same way as the 2008 consent anticipated the works required to establish infrastructure for residential development. In other words, the provision of services and roading necessitates vegetation removal and earthworks, which in turn diminish natural character values.

6.3 Summary Landscape and Natural Character Effects

In a physical sense, vegetation removal and earthworks will substantially modify the site landform and biophysical features. Localised effects on landscape and natural character values are considered to be Moderate to High.

In the broader landscape the modified landform will have no effect on the landscape character of the Belmont hills and Belmont Regional Park. It will have a minimal impact on the local area. Kelson has already been substantially modified by large scale earthworks carried out for the 1970's residential subdivision and the subsequent construction of dwellings and in this context and considering the existing Hill Residential zoning, landscape and natural character effects are Low

7.0 Recommendations for Landscape Mitigation

7.1 Native revegetation on the fill batter facing the end of Christchurch Crescent and the house at 37 Christchurch Crescent, with 336sqm of batter to be planted.
Recommended species include

7.2 It is recommended that a double row of screen planting is established within the 6.2m buffer area along the boundary of properties at 229-237 Major Drive where gaps occur in the existing vegetation. Planting to include:

- i) native hedging species such as *Pittosporum eugenioides* or *Pittosporum tenuifolium* planted at 800mm centres on the residential boundary; and
- ii) an inner row of locally occurring revegetation species at 1200mm centres including plants such as :
 - *Aristotelia serrata* (wineberry)
 - *Coprosma robusta* (karamu)
 - *Sophora microphylla* (kowhai)
 - *Pseudopanax arboreus* (five-finger)

8.0 Conclusion

The site landform forms a small amphitheatre orientated to the west towards the Belmont Hills. The site is not visible from the wider Hutt City. The landform limits views into the site from Kelson, so that the ridge above Major Drive is the most visible element of the proposal.

The remainder of the site, the mid and lower slopes, is screened by landform, intervening vegetation and built development along the site boundaries, and can only be seen in immediate views from adjoining properties and in more distant views from tracks in Belmont Regional Park and lifestyle properties accessed from Kaitangata Crescent.

The introduction of earthworks into an otherwise undeveloped site must by definition create visual impacts for local residents. This proposal manages visual effects for those properties adjoining the site that potentially would be most affected by retaining and/or supplementing a band of vegetation around the eastern and southern end of the ridge that screens and softens views into the site. Providing the recommended screen planting is undertaken, effects on the visual amenity of these residents are considered to be Low to Negligible.

A key objective for the *Hill Residential Area* is to maintain and enhance the distinct characteristics and amenity values associated with the area. In a physical sense, the vegetation removal and earthworks will alter the site and its landform and effects on landscape and natural character values are considered to be Moderate to High. In the broader landscape the modified landform will have no effect on the landscape character of the Belmont hills and Belmont Regional Park. It will have a minimal impact on the local area. Kelson has already been substantially modified by large scale earthworks carried out for the 1970's residential subdivision. In this context and considering the existing Hill Residential zoning, landscape and natural character effects are Low.



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