

HAVERSTOCK ROAD CENTRAL INTERCEPTOR SITE PROPOSAL

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Summary

The St Lukes Environmental Protection Society, or STEPS, are proposing better environmental and community outcomes at a key Watercare Central Interceptor site that is at the headwaters of Meola Creek Waitītiko, in Mt Albert.

This proposal is to daylight a 500 to 600 metre section of Meola Creek Waitītiko that is currently in underground pipes.

Due to the nature of the Central Interceptor site and the work that will be done, as well previous improvements made on the creek, the level of investment to achieve these outcomes is very low compared to most daylighting situations.

There is further opportunity to establish a public green space around the site including a short walk between two local streets.

Background Information

Meola Creek Waitītiko

Meola Creek Waitītiko originates near Mt Albert-Owairaka and runs through Kerr Taylor Reserve and the Roy Clements Treeway. A tributary arises in the nearby Mount Albert Grammar School Farm, and together these three green spaces represent a 'breathing space' in the busy St Lukes area.

Meola Creek Waitītiko has the largest catchment on the Auckland isthmus, including the suburbs of Mt Albert, Mt Eden, Balmoral, Sandringham and Point Chevalier. It runs through Chamberlain Park and reaches Waitematā Harbour just west of Meola Reef-Te Tokaroa, the longest lava flow in Auckland. Te Tokaroa originates at Mt St John volcano and extends over 10 km, nearly crossing Waitematā Harbour to within 600 m of Kauri Point on the North Shore.

More information can be found here: <u>https://en.wikipedia.org/wiki/Meola_Creek</u>

A fly-over of the length of Meola Creek can be found here: <u>https://youtu.be/hY0RKWxO6Rw</u>

STEPS – St Lukes Environmental Protection Society

The St Lukes Environmental Protection Society, or STEPS, was incorporated in 2005 to protect and enhance the environment and amenities in the St Lukes area including Meola Creek Waitītiko.

Our aims are:

- Protect and enhance Waititiko-Meola Creek Waitītiko, the Roy Clements Treeway, Kerr Taylor Park, and the underlying aquifer Te Tatua-a-Riukiuta
- Inform people in the use of Waititiko and its environs in a responsible and sustainable manner
- Promote and encourage community involvement and support in the restoration of Meola Creek Waitītiko
- Consult and work alongside iwi, community groups, schools and other stakeholders

More information can be found here: https://www.meolacreek.org.nz/



STEPS have established the "Mountain to Sea Walk" from the summit of Mount Albert Owairaka to the Waitematā Harbour. This is to promote connectedness between Aucklanders and the creek on its journey through Auckland.

More information can be found here: <u>https://www.meolacreek.org.nz/meola-waititiko-mountain-to-sea-walk/</u>

Watercare Central Interceptor Project

Watercare is undertaking a significant infrastructure project called the "Central Interceptor". This is targeted, among other things, at addressing sewage overflows on the Auckland isthmus.

The project will drill a large diameter underground sewage tunnel / pipe across Auckland from Mangere Wastewater Treatment station. At various sites along the pipe, shafts will be created to collect and transfer wastewater into the tunnel.

Five of these sites are directly adjacent to Meola Creek Waitītiko and will enable combined sewer overflows to be captured by the Central Interceptor, rather than the current state of discharging directly into the stream. This will significantly improve water quality and pollution issues.

More information can be found here: <u>https://www.watercare.co.nz/About-us/Central-interceptor</u>

Haverstock Road Central Interceptor Site

The Haverstock Road Central Interceptor site is one of the five sites on Meola Creek Waitītiko and is in the very headwaters of the creek.

The major works occurring here, as well as the permanent site that will remain once the work is complete, present a unique opportunity to improve community and the environmental outcomes.

The Haverstock Road site is on the eastern most part of Plant and Food Research's grounds, and is close to Haverstock Road, but even closer to the newly developed Ti Kouka Lane, as well as the Camden Road cul de sac. Plant and Food is a government owned Crown Research Institute and owns their Mt Albert site.



Figure 1. Haverstock Road Works Site of Watercare Central Interceptor



Plant and Food Research have recently sold the portion of land that will contain the entirety of the permanent site, to Watercare.

Note that the works site will be considerably larger than this permanent Watercare owned site, and in addition there is an easement over private land from Haverstock Road to provide access. This is in addition to the site being adjacent to the Camden Road cul de sac.

It is understood that Plant and Food will have their fence line reinstated along the new boundary with the Watercare land. This creates a situation where a triangle of Plant and Food land is isolated on the eastern side of the site. Auckland Council will continue to manage the creek itself, with Watercare managing their permanent site, and Plant and Food managing the isolated triangle of land despite not having convenient access to it or use of it.



Figure 2. Haverstock Road Permanent Site Ownership



Meola Creek Waitītiko and the Haverstock Road Site

There are several natural springs in the vicinity, including some that were used as a bathing area in the late 1800s by the Kerr Taylor family when the land was part of the Alberton Estate.

The flow from three of the largest springs (including the bathing spring) originally converged very close to the land that has now become the Haverstock Road site. Together they formed the Meola Creek Waitītiko headwaters and they flowed in a north-westerly direction along what is now the boundary between the Plant and Food grounds and the Ti Kouka Lane development.



Figure 3. Haverstock Road Site today looking north along original creek flow path



Today, three of the largest springs are piped from their source into an open concrete storm water basin (see below). From there they are piped again for 140 metres across the Central Interceptor site and directly into a culvert underneath which also runs to the north-west along the Plant and Food boundary, underneath the current Meola Creek Waitītiko stream bed, for 500 meters.



Figure 4. Open Concrete Basin Where Three Piped Spring Flows Converge on Plant and Food grounds



Figure 5. Haverstock Road Site Showing Relevant Stormwater and Sewage Piping



This culvert was installed during the 1990's to minimise the local impact of sewage overflows which were discharging directly into Meola Creek Waitītiko at that point. Overflows were delayed a further 500 metres, past the Plant and Foods, Te Kura Kaupapa, and the MAGS Farm boundaries, before emptying in to the creek bed once more in Kerr Taylor Park.

The Central Interceptor is expected to greatly reduce the volume and frequency of the overflows via this culvert, but it is understood that the overflow infrastructure is still required for more extreme events, and so it will remain in place.



Figure 6. Sewage Overflow Culvert from the Haverstock Road Site



Recent Restoration History

Previous Restoration Work

Sometime after 2010, Auckland Council's Healthy Waters did restorative work to bring the springfed base flow back to the surface, effectively daylighting the stream for 500 metres.

At the core, this simply involved disconnection of the pipe (draining the concrete basin) from the culvert, and instead having the pipe flow directly into the creek bed at the far end of this pipe (the point where the pipe meets the creek bed and culvert).

From here, water flowed above ground and above the culvert for approximately 500 metres and past the culvert's outlet. This meant that with one minor change, at the end of a single stormwater pipe, approximately 500 meters of stream was daylighted.



Figure 7. Previous Recovered Creek Flow



STEPS were very supportive of this work, and extremely pleased to see it delivered. After the work was done, native plantings further naturalised the stream along the Plant and Food and Te Kura Kuapapa boundaries.

Figure 8. View of Planted Creek from Te Kura Kaupapa Toward the Haverstock Road Site - 2017





Several grates in the creek bed, which had drained any above ground water straight into the culvert, were replaced with scruffy domes. These enable any above ground water to stay in the creek bed, but to do so in a way as to not present a flooding risk. By the nature of scruffy domes, when the water got above a certain level depth, they start draining any water above this depth into the culvert, protecting the surrounding area from flooding.

Figure 9. Scruffy dome installed along Plant and Food Boundary



Subsequent Loss of Daylighted Section

In 2014, 96 Haverstock Road was subdivided. Number 96B was built immediately next to where the spring-fed water was flowing out of the new outlet and into the creek bed on the Plant and Food boundary.

While the drainage of this property was being installed, the outlet was removed and the spring water redirected back into the culvert. It is assumed that those involved in the work saw the unusual arrangement as a non-standard configuration and did not understand the daylighting outcome it had achieved.

Without the constant base flow, the creek bed now only contains rain run-off from the immediate areas, and so often standing water is present in the creek bed, and some sections dry up entirely at certain times during the year.

STEPS are of course very disappointed with the loss of such recent daylighting work.

The new community forming in the Ti Kouka Lane development no longer has a pleasant stream bubbling by the lane, but rather an irregular flow that is not quite a stream.



Figure 10. The creek beside Ti Kouka Lane after loss of permanent flow



New Opportunity

At the completion of the Central Interceptor site works at the Haverstock Road site, there will be an opportunity to implement one of two new solutions to provide optimal outcomes.

The CI Community Liaison Group (CLG) discussed version 1 of this proposal.

As the existing spring flows currently under the Central Interceptor site will not be disturbed during the CI project, the view of Watercare and Healthy Waters is that improvements and daylighting should be undertaken separately, after CI project completion.

It was agreed that site improvements at the Haverstock Road site would be explored in a dedicated forum, with Healthy Waters leadership and STEPS, Watercare and Plant and Food involvement. At the time of writing, this forum had not yet been established.

The two proposals for improvement follow.

Proposal 1 - Reinstatement of Daylighted Springs Base Flow Only

This proposal simply consists of reinstating the daylighting work that was done in the 2010 timeframe.

All that would need to be done is to reinstate the above ground flow at the connection point between the concrete base flow pipe across the CI site (which drains the open concrete storm water basin) and the overflow culvert. No existing pipes would need to be changed, dug up or replaced, except for at the connection point between the base flow pipe and the culvert.



Figure 11. Proposal 2. Reinstatement of Daylighted Springs



Benefits

- 500 metres of inexpensive, yet very meaningful daylighting on a waterway that is being massively affected by both storm water and combined sewage overflows and will be significantly affected by the Central Interceptor project. All involved parties will be able to be recognised for this improvement.
- Ti Kouka Lane residents and Te Kura Kaupapa students and staff get a cleaner, natural stream flowing near their homes, school or work, providing a healthier space and a better outlook.
- Minor security benefits for Plant and Food, as re-establishing creek flow obstructs access to their fence line perimeter along Ti Kouka Lane

Investment

- A very small amount of physical change is needed to achieve this outcome. A small amount of alternative piping configuration at a single point, on a single pipe, would be all the work that would be needed.
- Planning work and hydrology would not need to be redone, as this was all investigated and approved in the 2010 timeframe.

Further Proposal – Public Use of Haverstock Road CI Site

STEPS further propose that the area around the Haverstock CI site could become a public green space. A short walkway could connect to Ti Kouka Lane and Camden Road, providing a way for the public to visit the daylighted stream, and a pleasant and/or convenient walk for the local



community. This walk would improve and extend the Mountain to Sea Walk by bringing this part of the walk closer to the creek.

In this scenario, daylighting of the springs-fed flow would be done in a similar way to the 2010 timeframe daylighting, but closer to the springs source so that the creek would flow around the site, rather than being in the pipe underneath the site. This would involve bringing the springs fed base flow above ground further upstream, closer to, or even at, the open concrete basin.

At the simplest level, just blocking the outflow into the pipe from the concrete basin would cause the basin to fill, overflow into the above ground flow path of the creek, and this alone would daylight the creek. While it is clear that more consideration is needed than this, the apparent simplicity of the engineering is notable. This is how the daylighting has been represented on the above picture but, of course, further options should be explored, including changes to the existing overground flow path of the creek.

The above would create a natural feature of interest in a publicly accessible natural space. Adding the additional section of daylighting would deliver up to 600 metres of daylighted stream.



Figure 12. The site today. Reinstatement of the site can be approached to create a public friendly green space.



Figure 13 Proposed Green Space and Walkway





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Figure 14 Wider area around site showing 600 metre section of daylighted creek

Implementation

The green space would be created by combining the management of these three land areas:

- Watercare owned permanent site
- Auckland Council managed creek / creek bed
- Plant and Food isolated land

It is proposed that there not be a change of ownership for any of the three portions of land to achieve the outcomes, only change to the management of the land. Without this combination of management, each of the three separate organisations would have to manage three small blocks of land separately, so there is a benefit to the land owners also.

Also, as Plant and Food's new fence would be established along the perimeter of the green space, the flow path illustrated here follows this fence line, replicating the situation to the north west, where the creek provides a security benefit because it makes the Plant and Food fence less accessible to the public.

The scruffy domes already to the north of the site would still be in place to mitigate flood events by directing flood water above a certain level into the culvert, as per their original design.



Benefits

- A new green space in Auckland available for the local community. A place for residents to get outside and for children to play, especially for those in the dense housing development of Ti Kouka Lane, who have limited garden space. Auckland Council, Albert Eden Local Board and Watercare would all be recognised for key input to achieving this outcome.
- 600 metres of inexpensive, but tangible, meaningful daylighting on a waterway that is being massively affected by both storm water and combined sewage overflows and will be significantly affected by the Central Interceptor project. Healthy Waters, AELB and Watercare would be recognised for the achievement.
- Ti Kouka Lane residents and Te Kura Kaupapa students and staff get a cleaner, natural stream flowing near their homes, school or work, providing a healthier space and a better outlook.
- Minor security benefits for Plant and Food, as new creek flow obstructs access to their fence line perimeter.
- Mountain to Sea Walk is brought closer to the creek during a section of the walk where currently the public typically need to walk around surrounding streets.

Investment

For the level of benefit described above, the investment needed to establish the green space is minor. Investment would be expected to include:

- Landscaping costs for the difference between reinstatement of the pre-CI site and what has been proposed for the green space, including:
 - \circ ~ a short section of new above ground flow path for the part of the creek
 - o the walk way
- Planning work and hydrology. Note, this is not expected to need to be redone for the creek downstream of the CI site, as this was all investigated and approved in the 2010 timeframe, and no changes are being proposed above what was approved previously.

Next Steps

STEPS shares this as a conceptual plan with a view to it being treated an opportunity for community and environmental improvement. STEPS are very open to discussion, changes and adjustments.

Feed-back and discussion with involved and interested parties is welcomed.

Establishment of a working group / forum, to discuss this specific opportunity while CI site works are underway at the Haverstock Road Site, is the next step in considering this opportunity.