



# glass hammer

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## THE FUTURE OF MAIN LINE RAIL

In New Zealand we have an inter-city rail network which, by world standards, carries low levels of traffic. It is virtually a freight network, and these days carries mainly containers or in some cases, bulk loads like coal and logs. This is unlike European networks which focus much more on passenger traffic for which high speed trains have been developed.

Rail is at a huge disadvantage in New Zealand. The cost of maintaining the permanent way (the railway corridor and tracks) is an enormous burden, let alone the cost of constructing it originally, although I suspect this has long since been written off.

We know that the direct cost and the carbon emissions involved in moving a tonne of freight by rail are much lower than by road, but add in the cost of the respective networks and the inflexibility of rail around local delivery and I wonder if our rail system is as cost effective as road. So what does the future hold for rail in New Zealand? Here is an idea.

The rail corridor is a great asset. It has flat gradients and wide flat curves. If we took the trains off it and converted it to a 'truck-way', trucks could run at high average speeds and carry larger loads. Clearly, however, on single lane sections they would be timetabled for 'north and south' running. Control would be an issue, but one for which rail probably has the answers. The express trucks would still be allowed to run on the highway and to pick up and drop off at their depots.

There would be significant capital cost,

especially around decking existing bridges and making some tunnels a bit larger. However, we would be able to reduce capital spending on our roading network where the economic justification is often centred on savings in the operation of heavy vehicles.

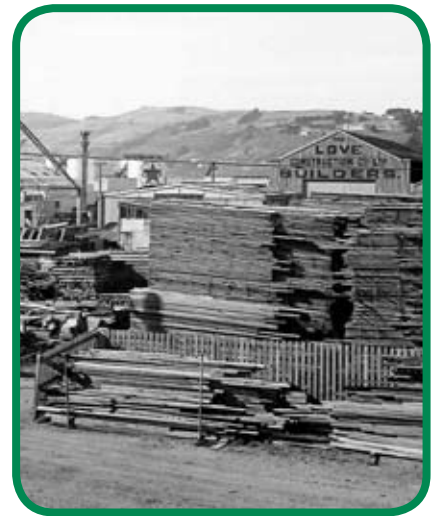
Express trucks designed for the truck-way would be more fuel efficient than those designed for general road conditions, as they would be able to run close to their optimum speeds for longer. If enough trucks could be attracted to the truck-way there would be a point at which fuel use per tonne would drop below what is used by the current mix of rail and road.

An effect of truck-way use might be a significant reduction in road user charges, but this would be covered by the reduced cost of maintenance of the highway network, brought about by the lower truck count on the roads. (Pavement design is more about the number of heavy axles that pass in its lifetime and, within reason, less about their weight).

Add in the improvements in road safety and the downstream social cost benefits, the reduced congestion, and the reduced carbon footprint of not having to manufacture single purpose locomotives and rolling stock, and we might have a sustainability deal.

Could be worth a look.

**Trevor Kempton,**  
Managing Director



**NAYLOR LOVE**

**100** years  
building  
new zealand

Loves used to get wagon-loads of native timber from the West Coast, 'cut of the log', raw sizes that seemed useful. When it reached Dunedin, it was ripped down into joinery and building grades, with lesser grades being used for boxing and dunnage (pieces of wood used to keep ship cargo in position). Loves had acres of timber drying in their yard.

In 1952 the government made moves to conserve what was left of our native forest by encouraging the use of *Pinus radiata* timber in construction. Despite this, Loves increased their shareholding in Dobson Sawmilling Co. Ltd to ensure a steady supply of red pine (rimu). Sustainability had not yet become fashionable!

*Naylor Love is celebrating its centenary, 1910-2010*

# TE KURA KOTUKU'S VISION



Te Kura Kaupapa o Te Kotuku, the new Māori immersion school recently completed by Naylor Love in Ranui, West Auckland, is close to the magnificent forest including kauri of the Waitakere Ranges.

The kura is a Green Building Council School Tool pilot. Green Star NZ points are awarded according to different weightings, one of which is 'Land Use and Ecology'. The project team has designed for seven points out of ten, including a Waitakere City Council conditional requirement.

Annie Day, project manager, described their commitment to achieving points.

Following Green Star guidelines, Te Kotuku Rejuvenation Plan was completed. The landscape design by Bridget Gilbert is shown here, with the school buildings and playgrounds in the centre of the plan.

More than one third of the school site is a very steep gully (shown at the right), which can't be used for play or sporting activities. A programme has been drawn up, in consultation with the school community, to enhance this gully area over the next five years and achieve the Eco-E credit, *Biodiversity enhancement* (to encourage and recognise design initiatives that enhance

local biodiversity). The plan is three-fold:

- To get rid of the gorse and weeds in the gully, and plant it in self-maintaining native bush of eco-sourced plants that belong to the Waitakere area and will attract native wildlife.
- To use the bush for teaching the pupils about the plants, how they grow, what berries they produce, and what birds and other animals come to feed on the berries and live in the bush.
- To have a school-wide project in which each new pupil provides a koha (donation) of a tree to plant in the gully, and the school and community plant the rest. Species have been selected to encourage wildlife.

Naylor Love has planted fruit trees down the side of the driveway (01 and 02 at the bottom left of the plan) so that pupils will be able to harvest fruit, but also to provide a buffer to the residential boundary and mitigate noise (a Waitakere City Council requirement). The rain garden and car park (03) are mass planted with native low shrubs and groundcover. Other areas have been designed for planting with titokis, native ferns or flax, or for raised herb gardens and terraced vegetable gardens. Hangi pits are shown at 15, an enviro play area at 06, and an outdoor classroom at 22.

Another credit is Eco-4, *Change of ecological value* (to encourage and recognise the minimisation of ecological impact from development, and encourage ecological enhancement of a site for new and existing buildings). For this credit, the team designed and received four points out of four, the first school to be awarded this number. Their design was independently checked by Tonkin and Taylor, restoration ecologists.

Under Eco-5, *Topsoil and fill removal from site*, the design team planned and undertook to reuse all topsoil on site. The civil works to complete this in two stages was a huge contract, for which they received praise from Dean Allen, senior environmental monitoring officer for the Waitakere City Council.

As the gully restoration of Te Kura Kotuku takes hold over the next few years, the kura building will appear to be sitting out over a bush-clad gully. What a wonderful teaching resource!

# MORE GREENROOF WORK

Since the University of Otago Psychology building had its green roof installed by Greenroofs Ltd last year, they have been planting out two more Naylor Love buildings. The growing medium/substrate, made up of organic and inorganic materials and pumice, is all sourced from within New Zealand.

Each green roof has been designed not only to suit local climatic conditions, but also the unique purpose of the building – a research facility, a school, and an office block.

## PIPITEA PLAZA PATTERNS

The levels on this ten-level building in Wellington's CBD change shape every two or three floors, allowing three different levels of green roof. A distinct design, in which the lines of the green roof pattern are aligned to those of the level, is used for each. They are made up of a variety of sedum/succulent species planted in 605 sq/m blocks and broken up by 630 sq/m blocks of Otaki pebbles and Riwaka Gold Chip.

The species for each level's planting were selected especially for flower colour, with each level having a different colour - level 5 pink, level 6 yellow, and level 9 white. The office dwellers will have fabulous gardens right outside their windows.

## REMARKABLE ROOF



PHOTOS COURTESY OF LYALL SMILLIE



The roof of the new two-level Remarkables Primary School, on the edge of Lake Wakatipu in Frankton, Queenstown, is like no other. Land for building on is limited around Queenstown, so the most has to be made of any area available for children to use.

The roof has been designed with large wooden deck areas and boardwalks for outside education. Stone finishes and grass around these will give the roof a 'lakeside at ground level' feel. The garden is now planted out on top of pods 1 and 2, 825 sq/m of it, with a random mixture of sedum and succulent plants.

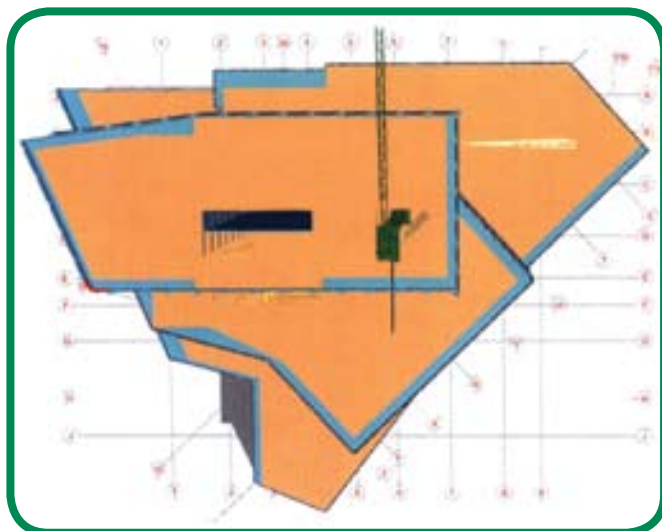


PHOTO COURTESY OF GREENROOFS LTD

# FUCHSIA GULLY TRACK BEACH CLEANUP

PHOTO COURTESY OF OROKONUI ECOSANCTUARY



In 2009, Naylor Love built the eco-friendly visitors' centre at the head of the 307 hectares of protected habitat in Orokonui Ecosanctuary near Dunedin. The pest-proof fence has allowed the reintroduction of a number of endangered species, which are adapting well to their new home.

In response to their sponsorship offer, Naylor Love has been given naming rights for the Fuchsia Gully Track, a one-way side trip off the Rimu Track. It has a gentle gradient, and takes visitors through mature fuchsia/kotukutuku forest to a very pretty part of Orokonui Stream. Many birds are often seen along this track, which takes twenty minutes return from the Rimu Track.

Recently, South Island robins/toutouwai, the "stars of avian

entertainment" and the friendliest and cheekiest of little birds, were released in the sanctuary. Last year, Matariki, a kaka chick born in the sanctuary, was the first to be hatched in the wild in eastern Otago since the 1920s. A few weeks ago, two more kaka chicks were born – Mere and Phoenix – which are already becoming quite independent, and will shortly feed themselves with fruits and nuts supplied in the feeding stations.



Long Bay, on Auckland's North Shore, is a one kilometre long beach with an adjoining regional park and marine reserve. Extremely popular with visitors, it attracts more than one million a year. It is not surprising therefore, that, despite the 'no bins on site - take your litter away' policy, rubbish accumulates on the beach and foreshore.

One evening in March, Auckland division's green team and family members gathered to pick up litter from the northern end of the beach. Kitted out in disposable gloves, Naylor Love hi-viz vests and rubbish sacks, those taking part in the green community service drive netted glass bottles, food wrappers, cigarette stubs, plastic bottles and other less pleasant 'personal' items.

An analysis of collected items gave the following percentages: plastic sheet 34%, hard plastic 23%, aluminium and tin 22%, paper 10%, glass 6% and other items 5%.

The barbecue which followed was appreciated by everyone after all their hard, and not always pleasant, work.

## RESTORATION ON QUARANTINE ISLAND

Each day for three months this year, a small dinghy carried four Naylor Love men over to Quarantine Island in the middle of Otago Harbour. Here, they were carrying out further restoration of the block built in 1873 to house immigrant healthy married couples until they were cleared to enter Dunedin.

The building, the only one still standing of the former quarantine hospital and quarters, had become derelict and unsafe. As money becomes available, the building has been undergoing restoration. Last year, Naylor Love replaced the roof and its ventilation shafts. At present, walls and windows are being repaired and restored to make the building weatherproof.

As much of the existing materials as possible are being saved. The window frames will be restored in Dunedin. The original weatherboards, too rotten and warped to be re-used, have been stripped off and will be replaced by new material. Studs are being patched where rot is removed, and the bottom plate replaced.



Married Quarters – before...



...and after (March 2010)

### GLASS HAMMER CONTACT INFORMATION

Editor	Rosemarie Patterson
Phone	(03) 467 5791
Email	rosemariepatterson@xtra.co.nz
Postal	Naylor Love, PO Box 363, Dunedin 9054, New Zealand

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