

# KAIKOURA EARTHQUAKE UPDATE

KAIKOURA EARTHQUAKE UPDATE - no. 16

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This weekly bulletin provides the latest information about the rebuild of road and rail networks damaged by the Hurunui/Kaikoura earthquake in November 2016. The bulletin is produced by the North Canterbury Transport Infrastructure Recovery (NCTIR) – an alliance representing the NZ Transport Agency and KiwiRail, on behalf of Government. We're keen to hear your questions about our work, or any feedback on this bulletin. Drop us a line via email at [info@nctir.com](mailto:info@nctir.com) or give us a call on **0800 NCTIREQ** (0800 628 4737) – we'd like to hear from you.

## MILESTONE: SIX MONTHS AFTER THE QUAKE



This Sunday, 14 May marks the six-month anniversary of the 7.8 magnitude earthquake that severely damaged the transport networks of the upper South Island's east coast. As we pass that milestone, the recovery alliance's work to clear the monstrous landslides that fell is entering a new phase.

North of Kaikoura, where the largest landslides buried State Highway 1 and threw the Main North Line railway into the sea, New Zealand's largest helicopter sluicing programme is transitioning into the nation's largest earthworks operation.

Since the quake, as construction crews tackled landslides on the ground, nine helicopters have been working together in the air. They have dropped more than 150 million litres of water on the highly unstable landslides, to bring rock, mud and vegetation down. That's the equivalent of 60 Olympic swimming pools - 150,000 tonnes of water - being dropped from monsoon buckets.

The sluicing work has pushed down around 100,000 cubic metres of loose material and has helped stabilise the fragile cliffs to a point where construction crews could safely work underneath.

Since February, ground crews have been working their way to Ohau Point from the north and south, clearing and stock piling material, as well as creating access tracks for construction machinery. Today, an average day 14 excavators and nearly 30 trucks are working together to clear slip material. That work in turn has allowed construction of a new road and rail alignment north of Maungamau.

The helicopter fleet – aided by teams of abseilers dislodging large boulders, and the occasional use of explosives - has made it possible for all the machines to work safely.

This past week the fleet dropped from 12 helicopters to three. The remaining helicopters will be used for periodic sluicing, lifting heavy equipment and transporting abseil crews to and from sites. They will also be used to install wire mesh around a landslide at Ohau Point to protect vehicles from falling rocks.

The NZ Transport Agency's Earthquake Recovery Manager, Steve Mutton, says the helicopters have achieved a great deal.

'The pilots have done an amazing job over the last few months, working seven days a week and bringing down a lot of rocks and loose material. Along with the abseilers, the pilots have helped make the worksite safe for earthworks crews to clear slips on the ground.'

Engineering Geologist and onsite Geotechnical Co-ordinator, Frances Neeson says because the landslides were so large and fragile, it was clear from the start that sluicing would play a crucial role in safely deconstructing them.

'The scale of the landslides following the Kaikoura earthquake was something we have never seen in NZ before. We knew we needed to take a top down approach with sluicing and abseiling to remove loose material and high risk rock features.'

Up to 400 metres high, the landslides are an imposing site for the 30 pilots that have been involved in the programme. They've come from all round the country for the chance to help Kaikoura in its hour of need.

Helicopter pilot Daniel Stevenson says several helicopters working in rotation have been dropping on average one-tonne of water per monsoon bucket.

'We have dropped a million litres a day on the slips, tackling target areas as directed by onsite geotechnical specialists, to release loose material. Boulders as large as caravans are regularly bouncing down the side of slips and smashing into pieces on the road below.'

Air Support Manager, Lindsay Bell has been in charge of the nine sluicing and three passenger helicopters, and coordinates them in the air.

'These are some of the most experienced pilots in the country with as many as seven helicopters working on a slip at a time'.

Recent cyclones and Kaikoura's famous sea fog have caused challenges for the team; sometimes strong winds and heavy rain meant the team could not fly.

'It's just not safe to put a helicopter in the air or sluicing a slip face when the winds are too strong. Low cloud and sea fog can also be a problem as we can't land helicopters on top of the landslides to drop off abseil crews'.

Reflecting back, he's proud of the work his crew has achieved.

'The road and rail corridor will be much safer thanks to their hard work, they've done a great service to Kaikoura.'

## REOPENING SH1 SOUTH OF KAIKOURA

Crews are working on the giant landslide north of Rosy Morn with the aim of getting traffic travelling in both directions - with a target date for re-opening in the week starting 22 May.

A decision has been made to route the highway around the base of the landslide, as it is too big and unstable to clear quickly. Temporary rail tracks will be laid at the same time the new road is built.

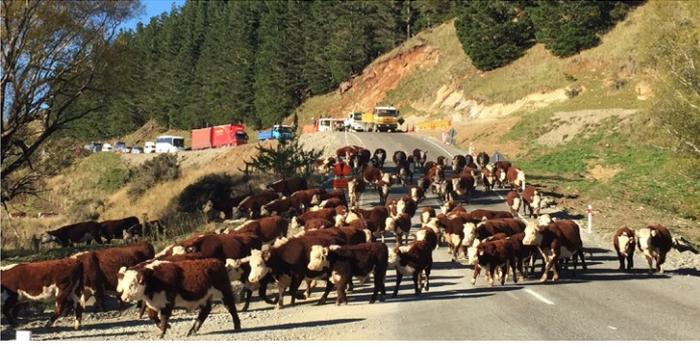
The landslide, named slip 29a, started at the end of April's cyclones and was active for about a week, at one point trapping a digger when fresh material let go overnight.

The recovery alliance thanks everyone for their patience while this highway work is underway, especially residents who facing much longer journeys between home and work.

The Waiou / Mt Lyford inland road to Kaikoura (Route 70) is open, but check road conditions before travelling, especially in wet weather.



## TRAFFIC MANAGEMENT ON ROUTE 70



## LEWIS PASS DURING WINTER

The Transport Agency's management of Lewis Pass (SH7) will change over the winter months. It will either be 'open' or 'closed' rather than having the usual restrictions of 'chains essential' and 'no towing'. Crews will be working the route 24/7 over the winter months and will do their best to keep any closures as short as possible.

Drivers using state highways between Picton to Christchurch - via St Arnaud, Murchison and Lewis Pass - this winter will also need to allow extra time. This route over the Southern Alps is challenging to drive - it's narrow and winding in places, with single-lane bridges. Extreme weather conditions close the road about seven times a year, so drivers should be prepared and keep up to date with weather reports.

Up-to-date information on weather and road conditions can be found:

- On the Transport Agency's website: [www.nzta.govt.nz/traffic/regions/11](http://www.nzta.govt.nz/traffic/regions/11)
- By phoning **0800 4 HIGHWAYS** (0800 44 44 49)
- On the Transport Agency's social media: [www.nzta.govt.nz/contact-us/connect-with-us/](http://www.nzta.govt.nz/contact-us/connect-with-us/)

## MAIN NORTH LINE REBUILD: 'FAST AND SOMETIMES UGLY'



Speed is coming before beauty as the recovery alliance forges ahead with its reconstruction of the Main North Line.

The aim is to have KiwiRail freight services running between Picton and Christchurch as soon as possible. To date, about 40 per cent of the sites damaged by November's earthquake have been fully repaired.

To open the line as quickly as possible, the alliance has developed an 'ugly but fast' approach, when it is necessary. In those instances, temporary structures and track alignments are being built so trains can run. Then, over time, the many structures along the railway that were severely damaged during November's quake can be permanently replaced.

Bridge 131, near Wharanui north of Kaikoura, was badly damaged during the earthquake and needs to be fully replaced. Rather than delay the re-opening of the line while the permanent structure is built, a temporary bridge is being erected using steel spans that were readily available.

While the temporary bridge 'isn't pretty' (pictured), it is a safe and speedy solution to getting the trains running again. All temporary structures will be fully safety compliant.

The line between Picton and Christchurch is a vital link in New Zealand's transport supply network, and crucial for moving freight between the North and South Islands. Before the earthquake, more than 1 million tonnes of freight was moved on the line each year.

## TEMPORARY TRACK LAID IN MARLBOROUGH HILLS

Rail crews have been working day and night (under lights) to build a temporary rail track around a slip at Tar Barrel, with the aim of progressing work trains towards Kaikoura.

The work trains have dropped off carriages of ballast so temporary rail tracks can be placed on top of the 500 m-long worksite, with 200m of track already finished.

This temporary track in Marlborough is crucial for the rail programme, because work trains will help prepare the coastal transport corridor from Ward, to Clarence and past the largest landslips.

Once trains are back on the Tar Barrel section of the track, slip repairs and embankment stabilisation will be carried out before further permanent works to the rail line take place.



## INNOVATION AT 'POMPIDOU BRIDGE'



At Bridge 95, near Claverley, strengthening works are complete, allowing work train that lays rail tracks to progress north towards Kaikoura. There is a back story to this bridge's unusual appearance. Some of the superstructure of the original bridge was undamaged by the quake, but needed to be melded with repairs. From an engineering perspective, the design of the repairs needed to evolve and respond as the nature of the damage was better understood - even though repairs were already underway. As a result, the bridge 'wears its repairs'. The longitudinal 'pipe' struts and blade walls between the columns are not part of the original bridge, but supplement the remaining strength in the original pier columns. The external struts - coupled with the blades and services ducts - create an appearance of an exo skeleton- not unlike the famous Pompidou Centre building in Paris. Bridge 95 has now been dubbed 'Pompidou Bridge' by the recovery alliance's rail team.

At Tar Barrel in Marlborough, crews are working day and night (under lights) to build a temporary track around a slip and subsidence so that work trains can continue south towards Kaikoura.

## RECOVERY OF THE TRAIN STRANDED BY THE QUAKE

The first of the rail wagons stranded on the Kaikoura coast during the November earthquake have been returned to Christchurch on the back of trucks.

The complex removal project involved the wagons being pulled by a digger through Tunnel 15 and then lifted by crane onto the back of the same trucks that are being used to move accommodation units from Christchurch to Kaikoura.

Four wagons were trucked out early Wednesday, May 10, with ten more scheduled for removal before the end of this week. The work is being carried out in the early morning so it does not conflict with regular traffic movement on the inland route (Route 70) and will continue into next week.

The recovery alliance is working with Smith Cranes and Construction to achieve this milestone.



# THE 'KIT-SET VILLAGE' IS ON THE MOVE

The first units of the workers temporary village have successfully been delivered to Kaikoura.

The initial convoy of trucks carrying the accommodation buildings made it to the village location at Ludstone Road last week, where site preparations are underway so that the units can be attached to essential services.

The Transport Agency says the contract to manage the temporary village has been let to Compass Group Limited, a preferred supplier to the NZ Defence Force with experience in managing emergency accommodation facilities in New Zealand.

The company is working with local businesses and the Kaikoura District Council to fill food, transport, cleaning and management services for the workers village which will employ around 21 local staff to cook breakfast, clean and run the facility.

The accommodation units will continue being moved along the SH1, SH7 and Waiiau/Mt Lyford inland road over the next couple of weeks and movements are being staggered to cause as little disruption as possible. Loads leave the Woolston holding yard between midnight and 3am when there is minimal traffic and road works.

The accommodation units left Brisbane, Australia just before Easter, landed in Lyttelton, and were moved through the Lyttelton Tunnel and onto a storage site in Woolston. They had previously been used for projects throughout Australia and will temporarily house more than 300 women and men working to restore SH1 and the railway.

More information about the facility can be found in a 'Q and A' on the NZ Transport Agency's website: [www.nzta.govt.nz/assets/projects/kaikoura-earthquake-response/Kaikoura-Earthquake-Response-Accommodation-Village-question-and-answers-20170428.pdf](http://www.nzta.govt.nz/assets/projects/kaikoura-earthquake-response/Kaikoura-Earthquake-Response-Accommodation-Village-question-and-answers-20170428.pdf)



1. Flat pack Brisbane



2. Woolston



3. Village site preparation



4. Arriving in Kaikoura

## KAIKOURA HARBOUR

Staff from the recovery alliance team were on hand at the Coastguard Kaikoura Open Day last weekend, answering questions about work being done on the harbour and on reconnecting communities affected by the November earthquake.

Beautiful weather on Saturday meant a steady stream of people attended the open day, which is held each year to raise awareness and funds for the volunteer group for their training so they are skilled and ready to go when a call for help comes in.

The 11.5m Naiad rescue vessel was a favourite with visitors, and a representative said the volunteer organisation is always on the lookout for new members to add to the 19 people who are currently on board.

Learn more about Kaikoura Coastguard here: [www.coastguard.nz/regions/southern-region/units/kaikoura/](http://www.coastguard.nz/regions/southern-region/units/kaikoura/)



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- Visit our website: [www.nzta.govt.nz/kaikoura-earthquake-response/](http://www.nzta.govt.nz/kaikoura-earthquake-response/)
- Call our freephone: **0800 NCTIR EQ** (0800 628 4737)
- Email us if you have a question: [info@nctir.com](mailto:info@nctir.com)
- Attend a community meetings - keep an eye on your local newspapers for details.
- Follow us on Facebook, see: NZ Transport Agency - South Island [www.facebook.com/nztasouthisland/](https://www.facebook.com/nztasouthisland/) and KiwiRail [www.facebook.com/kiwirailNewZealand/](https://www.facebook.com/kiwirailNewZealand/)
- For travel information about road conditions, see: [www.nzta.govt.nz/traffic/regions/11](http://www.nzta.govt.nz/traffic/regions/11)



TO BLENHEIM ↗

↙ TO KAIKOURA



*Please note: Map is indicative only*