

Bull Paddock Creek Biv Repair Project

November 2017-November 2019

Working Bee: 16-17 November 2019

Project Coordinator: Kerry Clapham.

Volunteers: Martin Clapham, Kerry Millard, Phil Bones, William Osborne, Stefan Warnaar, Jan Clayton-Greene. (Marlborough Tramping Club, Otago University Tramping Club, Canterbury University Tramping Club).

Department of Conservation Facilitator: Phil Crawford, Nelson Lakes District Office.

Primary Sponsors:



BACKCOUNTRY TRUST
Supporting Aotearoa's Backcountry Heritage



Additional Donations: Marlborough Tramping Club, Marlborough District Council.

Thanks: Rainbow station for land access and support and Geosolve Dunedin for their advice.

Volunteer hours:

Task	Hours
Funding application, DOC agreement, team coordination including Health and Safety plan, advertising the trip to volunteers	29
Reporting and documentation	10
Site inspection	11
Engineering calculations, plans and building consent exemption application	55
Purchasing, cutting and preparing the materials	18
Volunteers travel time (from Blenheim to site & return)	39
On site:	
Friday	42
Saturday	70
Sunday	49
Monday	42
Tuesday (return of gear)	2
Total	347

Summary of Project

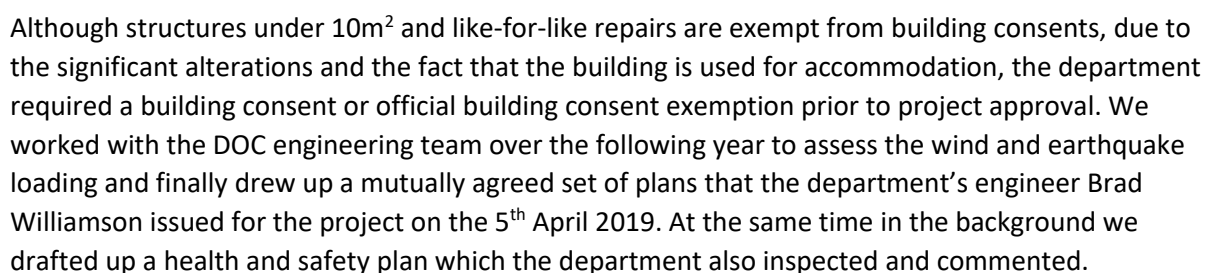
This project addressed concerns around Bull Paddock Creek Biv's foundations. In late 2017 the biv was closed after an engineering inspection concluded the foundations were weak and could fail resulting in it toppling down the hill. In November 2019 seven volunteers spent four days onsite replacing the foundations. Six new piles, bracing and bearers were constructed directly adjacent to the biv. The biv was lifted 300mm onto temporarily bearers along which it was rolled to its new location. Supplementary joists were added to reinforce the weathered ones at the ends of the biv. The iron cladding was peeled back and new stud-joist and stud-bearer fasteners were installed. Flashing was added around the base of the biv to protect the floor and joists from further weathering. Given the biv was now much higher a small 1200 x 1600mm deck was constructed at the front. Soil and rocks from the back of the biv and pile holes, was brought around the front (on top of the old biv site) and compacted to make a flat area adjacent to the deck. The soil removal improved ventilation around the back wall. One full load of rubbish was flown out, leaving the biv in a tidy state. With thanks to all the generous volunteers and sponsors including The Backcountry Trust and Helicharter Nelson the biv's in a good state to provide shelter and safety to outdoor enthusiasts for another fifty years.



Kerry M, Stefan, William, Martin, Kerry C, Jan, Phil

Planning

We then worked with DOC to form a more detailed project outline. Unfortunately, due to nature of the 30° slope the structure was determined high risk and all piles (including those on the uphill side) required replacing to meet building code. The agreed plan involved constructing the new piles directly behind the biv and then winching the biv across on an extension of the new bearers.



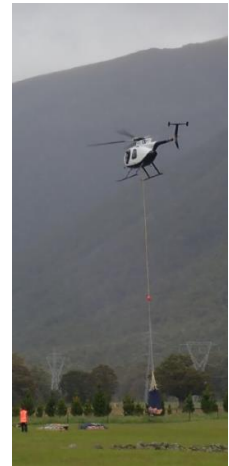
The building consent exemption process was resumed with the receipt of the Producer Statement. An application was immediately lodged with support of Marlborough Tramping Club at the Marlborough District Council. On the 16th April the building consent exemption was approved and the council waved the consent fees as a community group project. At this point the days were getting too short and by the time we would be in a position to run a working-bee winter would well and truly be set-in. Therefore we decided to postpone till spring.

Over winter the cutting list and gear list was finalised. Nearing spring Martin and Kerry M purchased the timber and laid it out to dry to reduce the flying weight. The weekend of the 15th of November was selected as the preferred date, with a backup of the following weekend. The project was further advertised in the Otago and Canterbury University Tramping Clubs. On notifying the department of the finalised date, we were notified that a new partnership agreement process was now required prior to commencement of works. Following a significant review (the standardised community agreement was very onerous on both parties), an amended agreement was signed on the 12th November. A huge thanks to Phil Crawford for helping us through this project.

Working Bee

Everything kicked off on Thursday 14th November. Kerry C and William left Dunedin in the early hours of the morning, later collecting Phil and Stefan in Christchurch. In Blenheim we all meet Martin and helped load 90 bags of concrete on the back of a massive trailer (amongst other tools) kindly lent by DOC Renwick. Kerry M secured the timber into two 350kg loads ready for flying

On Friday morning we meet the Helicharter Nelson crew at Rainbow Station and loaded up nets of gear. The cloud level was 1300m, the same height as the biv so there was some uncertainty of whether or not to fly. Luckily Matt Gibb's (the pilot) interpretation of the conditions was right, the cloud lifted and we were soon underway transporting the 8 loads to site. We were all in there before lunch time, a huge credit to the team at Helicharter Nelson for their efficiency and attention to detail.

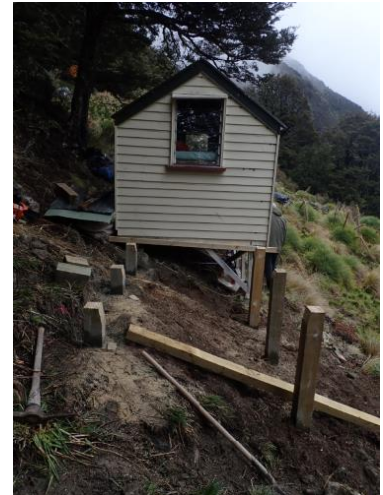


Once onsite, our builder Kerry Millard measured up the new pile holes while we got started on digging. The braced piles needed to be 600mm deep while the Anchor Piles needed to be 900mm. We struck the water table at around 700mm which made the final 200mm of the Anchor Piles challenging. With five instruments we ended up digging five holes, leaving the centre braced pile for after lunch. Unfortunately, we were in for a ride, there was a gigantic rock that we couldn't even find the edge of. As the hole was 750x750mm we can only conclude that it was bigger than that. We chipped away at the top of it before surrendering to the hole just 400mm deep. Given that the hole was now massive and the anchor piles all were at the correct depth we concluded that the derating of the centre braced pile would not affect the structural integrity.



Attention then shifted to gathering water and concrete. Martin rigged up a section of pipe to get water out of the steep creek bed nearby and into 20L jerry cans and buckets which were carried across to the biv. Meanwhile the rest of us shuffled 20kg bags of concrete from where we had deposited the slings in the nearest piece of flat-not boggy ground 30m away from the biv. The concrete was slowly decanted into the hole at the same rate as water was mixed in with a spade. Around 13 bags of concrete went into each of the 12 holes. The concrete was left to set overnight and we enjoyed one of Jan's fabulous meals that were soon to become a staple of the trip.

In the morning the foundations were then trimmed to height ensuring 200mm of ventilation clearance for the subfloor structure. While Stefan, Kerry M and I worked on the Bracing, William, Phil and Martin worked to get the old structure ready for shifting. Phil planted a further deep pile on the downhill side of the biv which was braced to a 4x2 peg and a nearby tree, this pile would act as the foundation for the temporary bearer to winch the biv across. The bearers were cut from the joists using a hacksaw blade Each piece of the framing was coated in metalex and the joists were secured on top of damp course. As Kerry M trimmed the braces to length, Stefan and I inserted the 12mm bolts in(space)to fasten the braces to the piles. Later William came across to help us nail bearer-pile nails plates on.



When the foundations were secure, we lifted the biv using highlift jacks. A safety sing anchored to a large uphill tree was looped around the biv. The biv was lifted around 50mm on the downwards side and Kerry M constructed a temporary bearer for the biv to sit on. We then demolished the original foundations and continued lifting the biv alternating down and up hill sides until the biv was raised 250mm to the new foundation height. At this point new temporary bearers were bolted onto the new foundation bearers with M12 bolts to form a secure bench to manoeuvre the biv on.

To move the biv along on the new 150x50 bearer we used three lengths of steel pipe. The back of the biv was first raised and the pipe was first inserted, followed by the front of the biv. With the pipe underneath the biv moved freely and it was soon on the new foundations. Removing steel pipes was more challenging as the biv was lowered 100mm into its final resting position. It required a combination of levering and pushing once lowered to get it in correct position. At this point the old bearers were also levered off the joists.



Kerry M, Phil, Stefan and William worked to fasten the biv to the foundations. New ties connected the studs to the subfloor structure. Supplementary joists were added beneath two of the studs which did not line up with the existing joists. A further two joists were added to support the end joists that were extremely weathered. Martin and I worked to construct an entry point to the biv door which now floated a shear 700mm above ground level. Jan did an amazing job rigging tarps, shifting gear to keep everything dry and accessible while also keeping warm drinks flowing as the rain set in on Saturday afternoon.



Both tasks dragged into Sunday. Kerry M began cutting strips of tin to cover the joists. William who had been painfully crawling around under the biv installing cleats moved on to filling sharp edges on the new flashing. Stefan cleared behind the biv to pile level to aid air circulation while Martin and I shifted a gigantic bolder to finish the deck foundation pile holes.

At this point all hands were on deck, literally as we all helped transport the remaining concrete to the deck and pour the piles. Kerry M made a fantastic jig to ensure the piles were all lined up within just a few millimetres. After lunch Martin cut the decking timber while the rest of us finished off the final touches on the biv and bolted the deck together. A hand rail was installed along the steep edge of the deck and wire meshing on the surface. Where the biv used to sit we spread out and compacted the leftover soil and rocks to create a flat approach.



Everything was wrapped up by 4pm so we all headed off on small adventures. Teams went rock climbing, waterfall hunting and peak bagging in the magnificent cirque at the head of the valley. Monday morning was a stark contrast with heavy snow hampering any efforts to tidy up. We completed team crosswords in the biv waiting for the weather to improve. Around midday we reluctantly began packing up in the cold and wet in the slim chance that Matt would be able to make it in a fine gap in the weather. Sure enough just as we had finished packing the first sling load the clouds began pulling away from the hills and Matt was overhead. We raced to finish the second sling as he flew the first out. And just like that we were sanding back by the trailer watching the next front approach from the south-east as we waved goodbye to Matt heading back to Nelson.

