Revetment
On Task Risk Assessment

SITE / LOCATION:	Conic Hill, Balmaha	DATES FROM /TO:	24th / 25th May 2023
OSGR:	NS 42510 91677 (below ford at top section 2)	MAIN CONTACT: CONTACT NO:	
BRIEF DESCRIPTION / TYPE OF ACTIVITY:	The residual revetment wall built as part of the path upgrade.	GENERAL GROUP DESCRIPTION:	Upland access path.

The risk assessment contained in this document has been carried out in accordance with the method of Qualitative Risk assessment. This approach seeks to standardise the values given to risk, in order to provide better comparisons.
A Hazard is a process or substance with the potential to cause harm, a Risk is the seriousness of that risk. The "Risk" number is obtained by multiplying numbers seeking to quantify both the likelihood and severity of consequence of any particular risk. In the methodology used in this document the numbers are obtained from the matrix bellow and multiplied together to gain the final risk number, so that:

- Likelihood x Consequence = Risk

Risk numbers for both before and after the implementation of controls are provided for comparison.

- Figure 1. Likelihood/consequence matrix

Likelihood:	**Consequence:**
1. Unlikely.	1. Slight (minor injury, first aid required).
2. Possible.	2. Moderate (minor injury, first aid/medical attention).
3. Likely.	3. Serious (injury, medical attention, hospitalisation.
4. Probable.	4. Major (serious injury/death).
5. Imminent.	5. Catastrophic (number of casualties/deaths).

RISK MATRIX

Likelihood						
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
0	**1**	**2**	**3**	**4**	**5**
	Consequence				

LOW (1-4): Be Aware.

MEDIUM (5-9): Control measures required.

HIGH (10+): Design out if and where possible.

SITE INFORMATION

Grid reference:	NS 42510 91677 (location specific)	Meeting point:	Balmaha Visitors Centre
Nearest phone:	Balmaha Visitors Centre, mobile signal OK	Nearest toilet:	Balmaha Visitors Centre
Access for Emergency Services:	From the car park at Balmaha visitor centre See attached contractor **Emergency Plan**	Nearest A&E hospital:	Vale of Leven Minor Injuries Unit, Main Street, Alexandria, G83 0UA or Royal Alexandria Hospital PA2 9PN

Site description (specific):

Conic Hill is a sharp little summit rising to 364m above Balmaha. Right on the Highland Boundary Fault, this short hill walk offers truly fantastic views over Loch Lomond and its many islands.

This **RISK ASSESSMENT** refers specifically to the new revetment /retaining wall which has been recently installed during the Conic Hill path refurbishment works.

Background Condition: before works.

The path leading to the ford is steep and unstable. At the top of the timber steps leading up the sharp incline towards the ford. There is a large bedrock mound in the centre of the path line which many walkers go around either below towards the drop-off, or circle above to meet at the same point above. The bedrock mound/lump which is in the middle of the path line has a relatively smooth surface with an approximate angle of slope around 30°. During wet weather/ground conditions, this is treacherous to navigate, especially when coming downhill. The path line on or around the bedrock is difficult to navigate and is exceptionally slippery when wet, there are various lines/trods which run parallel to the bedrock on the upper left-hand side (when facing uphill). The outermost line follows the edge of the drop to the burn for approx. 20m; the edge of the banking here is very unstable with only a hawthorn bush root plate holding the path edge together. The path surface has a cross-slope of approx. 20° leading to 5° (left to right when facing up hill) nearest ford crossing. The slope of the ground to upper left behind the Holly tree sheds water onto the path during wet conditions. The depth of soils to bedrock is such that water seps out of the cut bank on the inside edge of the path leading to runoff which is further destabilising the outer banking dropping off to burn.

Current Condition: after works.

The path is now 2m minimum width with a flat and stable walking surface. There is ample drainage to catch, carry and discharge any surface water or detritus. The unstable lower edge/banking has been replaced and widened with a revetment wall, backfilled to solid, to provide stability, increased width and greater usability. The bedrock obstacles previously atop the old timber steps, have been fully removed and levelled, and replaced with a safe wide walking surface. The stabilising revetment on the lower right (going uphill to ford) holding the path is fully backfilled with porous aggregate materials to allow seepage water to transit through and disperse naturally; this reduces the amount of water 'runoff' during high levels of precipitation which has caused issues previously. The path edge at the highest point of the revetment has an 'edge' buffer; this buffer is a visual representation of the edge, allowing users greater visibility, creating awareness, of the edge. The path and revetment are fully built with rock armour stone which is robust and stable providing a safe and resilient surface and substructure.

The path has been built following the latest Upland Path Advisory Group (UPAG) guidelines and best practice. We have worked to mitigate, as far as reasonably practicable, all reasonable and potential risks with regards to an upland path. Like any upland environment, there will be obstacle and hazards for users to negotiate and overcome. We have produced and delivered a new walking access path to the highest standards with regards to useability and safety. This is an upland environment and users must respect what this entails whilst in this environment.

Significant Issue, Activity, Hazard or Statement	Who might be harmed	Current control measures in place to eliminate or reduce risks to an acceptable level	Residual risk rating L x C = R		
1. Steepness of path/slipping/falling to/off edge	All users Cyclists / mountain bikers, walkers, runners, general public.	• The reworked revetment wall which is now in place reduces the risk of edge collapse, widens the path route and provides a safe and stable foundation for the path. • The path gradient is greatly reduced and now provides a flat stable walking surface. • The cross-slope is fully eliminated and now provides far safer access. • The new path provides far better line of sight for users, both uphill and downhill. • The large ford crossing above the steep section (holly tree/revetment) acts as an 'awareness barrier' with regards to mountain bikers. The increased visibility and large obstacle attract the attention (particularly coming downhill) to alert persons of an obstacle which requires focused attention. This is intentional to save persons coming at speed and missing the path completely, putting themselves and others in harms way. • We do not envisage ay mountain biker cycling uphill due to gradient. • The new path, being wider and stable, provides users with ample passing space, allowing persons to either walk 2/3 abreast or pass up/down in single file. • The height of the stabilising revetment is now less that the original unstable banking making the path as a whole safer. (visually, it does look tall but physical measurement has shown to reduce the overall height by more than 1/2m)	2	2	4
2. Is the path in better condition following the works?	All users	• Yes. The path is now as a minimum, 2m in width with a flat walking surface. • Line of sight is much improved – users can now see where they are going without the need to 'micro manage' every footstep. • There is ample drainage incorporated into the path providing significant water protection. • The path width allows all users to pass through the section with ease and completely removes any dangerous obstacles (the former bedrock mound) which constituted a significant hazard.	2	1	2
3. Does the path edge require a handrail?	All users	No (for the following reasons): • The path is within an upland environment/setting. • It would be a target for vandalism. Given the setting and the popularity of the path and high user numbers, particularly through summer months and periods of good weather, there is a known 'element' who, given the opportunity, will likely cause damage which could undermine the path on a grated level. • A structure such as a handrail in this environment would 'invite' individuals to swing or hang from the handrail. This would pose more of an issue and heighten potential for a person to be injured. • The new path width and surface are more than adequate for users to transit through the section safely. • There is no change of height. The new path surface to burn height is no greater that that which was previous. • It would be out of place in an upland environment.			

		• It would set a dangerous precedent for all paths across Scotland and beyond. • To install a handrail on a 'mountain' path is outwith the guidance as held as best practice within the UPAG Guidelines.			

Assessed by:	ACT Heritage Ltd.	Date of assessment:	15th May 2023	Date of next assessment:	As and when required / by task
Print:		Comment: In the interests of awareness, we would recommend that the Park Authority consider install signage at the start of the path or at the forestry boundary, as part of their route mapping information, advising users that they are entering an upland environment and to be aware of their surroundings.			
Sign:					