

GEO Certified® Independent Verification Report



Golf Facility: Keilir

Prepared by: Mike Wood

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Executive Summary

This report refers to the first certification renewal of Keilir Golf Club, Hafnarfjordur, near Reykjavik, Iceland. The verification visit was carried out on 28 September 2017, preceded by desk review of the on-line application form and uploaded supplementary information, and the 2014 verification report (by independent GEO accredited verifier Edwin Roald, presently an advisor to the club). The visit focused primarily on changes in management since 2014, including progress on continual improvement plans, together with discussion of queries and issues arising from the desk review. A site tour was then undertaken to inspect and validate key elements.

Originally founded in 1967, Keilir Golf Club initially played over a 9 hole course on the links peninsula overlooking the harbour. The layout has evolved continually since then, with the most significant change being the addition of 9 holes on lava fields to the south of the clubhouse in 1997. The peninsula now also incorporates a short 9 hole executive course, with phased implementation of an upgraded links nine ongoing, to proposals prepared by Mackenzie & Ebert in 2016. Keilir is recognised as one of Iceland's premier courses, perhaps its most distinctive feature being the dramatic contrast in landscape setting between the two nines. The front nine plays through a lava field, with the holes tightly framed by rugged rocky outcrops, while the back nine has a traditional links feel, with several holes hugging the shoreline, giving spectacular views north to the distant Snaefellsjokull glacier.

The club's 2014 certification report demonstrated an impressive overall sustainability performance with highlights including its very high proportion of renewable energy use, exclusive use of recycled water for irrigation, and the professional sustainability leadership provided by the course management staff. The 2017 OnCourse report and verification process confirm the continuation of these very high standards, and demonstrate commitment to further improvement in areas including resource conservation and habitat

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creation through reducing mowing, and reinforcing local community partnerships. A statement on behalf of the club was submitted by Edwin Roald prior to the visit covering progress on continual improvements from 2014-17. This was consulted in discussion on site and has been referred to in preparing the relevant notes below.

Nature

The principal features of the landscape and nature conservation context of the course, as detailed in the 2014 verification report, continue to be well understood. These include the extensive lava field in the southern half of the site, (protected by national law since 1999), and the semi-natural coastal grasslands of the Hvaleyrri peninsula, giving close connection between many of the golf holes and the adjoining shoreline (also protected as a national monument). The most significant change since 2014 is the notable progress made in reducing the total areas of mown grassland on the peninsula. As detailed in the Highlights Stories, mowing time has now been reduced by almost half, with associated savings in fuel, manpower, and machinery wear. In addition to this there will be potential increase in species diversity, as well as visual improvements to the golf holes by way of definition, texture, and colour. While no professional surveys of habitats, species, or landscape have yet been undertaken, in-house work by interested members has produced updated 2017 species lists for vascular plants, mammals and birds. A project to monitor colonisation by the moss *Hylocomium splendens* on the lava field area in collaboration with The Icelandic Institute of Natural History is ongoing. Nesting Arctic Terns, a distinctive seasonal feature of the peninsula grassland, are given special protection from disturbance, and information on bird species generally is of a high standard, due in particular to the specialist interest of one member.

Although the reduction in mown areas was recorded as noted above, the overall balance between maintained turf and out-of-play areas could not be determined as the report does not include the overall area of the golf course site. This figure should be straightforward to obtain from existing mapping or aerial photography.

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Of the 45 hectares recorded as intensively maintained turf, 10 hectares (22%) are irrigated, a fairly typical proportion for facilities of a similar landscape character and turf presentation aspirations. No significant changes to turfgrass species since 2014 were reported: the continued emphasis is on fescue and on increasing its percentage in all swards, which also includes out-of-play grassland. This is an appropriate response to the climate and soil types, and the quality of playing surface expectations. Nutrition also continues to be controlled by the MLSN approach, and soil sample analyses from the laboratory used by the club in Memphis Tennessee were reviewed. Nutrient input quantities recorded in the Key Data section are consistent with these guidelines and the club's management objectives emphasising fescue swards. In common with many Icelandic courses overseeding is a key measure in countering winterkill, although this is less frequent at Keilir due to the coastal location. On the other hand, salt-spray impact was reported as problematic on some greens, particularly on the "lava" nine. Several small turf nurseries also help in spring restoration work. Pesticide input is minimal: the 2016 key data record a single fungicide application to greens, together with six applications of herbicide to greens and five to tees.

There are two artificially-constructed lined ponds on the course, located on the lava nine. As noted above, some work has been done since 2014 to expand the buffer zones around these ponds. Waste water discharge continues as per 2014; either to the municipal sewerage system, or to septic tanks. The latest municipal discharge consent was viewed and validated. Hazardous materials storage and disposal were inspected on site and exceed criteria. Quality of potable water continues to be monitored by the municipality. All irrigation water, supplied as waste coolant water from the adjoining aluminium smelting plant, is tested by the plant and test results are available in the supporting information. Clippings are not currently collected or composted.

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Resources

As reported in 2014, Keilir is notable in using 100% recycled water for irrigation. This is piped from the adjoining aluminium smelting works to the lined retention pond at hole 8. The pump used is powered by geothermal energy. All other water is sourced from the municipal potable supply. Total consumption of potable is around 10000m³, a relatively high figure. As noted in the 2014 report, this however should be considered within the very unusual national context for Iceland, given the superabundance of supply. The irrigation system is unchanged from 2014, and is fully computer controlled. Sprinklers are located at all greens and tees, on fairways on the lava nine, and on one hole on the peninsula nine. An upgrade to the pump has been undertaken since 2014, and it is understood that construction works on the upgraded holes on the peninsula incorporate upgrades to tee sprinkler systems. The irrigation programme is currently not linked automatically to evapotranspiration data or to on-site soil-moisture readings.

With the exception of some maintenance machinery, all energy used by the club continues to be generated from renewable sources, either hydro or geothermal. Data are provided for both electricity and hot water consumption, and a spreadsheet detailing fuel consumption by all machinery is provided in addition to the total figure. This has been made possible by an upgrade to the refuelling station incorporating automatic pumps operated by touch tags. Transitioning to hybrid mowing equipment continues. The current fleet includes 5 x hybrid walk-behind and 1 x ride-on hybrid mower. Work on upgrading the maintenance facilities also continues, these still include the re-purposed zoo and aquarium buildings.

The update provided by Edwin Roald notes that a change to LED lighting for the outdoor driving range facilities, parts of the indoor practice facilities, and the bigger common areas of the clubhouse, has reduced electricity usage by 56%.

Keilir continues to set high standards in this area. A concise purchasing policy including ethical and environmental principles has now been uploaded (See Supporting Information).

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The supplier network for both clubhouse and maintenance supplies is exclusively Icelandic, excepting golf course machinery. Waste streams are fully documented and a detailed annual summary has also been uploaded. An innovative project to introduce re-useable refuse bags, providing employment for local disabled people, is ongoing, although the design of the bags is currently still being finalised. It is anticipated that the scheme will be in place during 2018. Paper use in the administration of the club is being addressed with all committee communications now circulated only in digital format. Digital screens are prominent in the clubhouse and have largely replaced noticeboards to provide day to day information for members. Two robot ball collectors on the driving range are another interesting resource-saving innovation. Although not yet implemented, an on-line strokesaver and scorecard is also being considered – through introduction of a mobile app. Members are no doubt looking forward to no more soggy wet cardboard in the pockets of waterproofs!

Community

Keilir Golf Club continues to demonstrate a very close relationship with the community of Hafnarfjordur, and more widely with the city of Reykjavik. In addition to its obvious close physical proximity, and significant employment of staff, there is a strong culture of shared resources and multiple use of the site, based on the municipality's ultimate ownership of the land, and provision of appropriate tax relief and other financial benefits. The club's leading status within Iceland is reinforced by its extensive coaching programme for young and elite players, which continues to benefit also from golf's strong funding position in the context of national sports programmes. The club actively reach out to schools to introduce young players to golf: a notable aspect of this policy is the general manager's position as a member of the local school committee.

As noted in the 2014 report, the Hvaleyrri peninsula is particularly rich in archaeological and historic interest. This has been reflected in the high

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standard of archaeological survey and protection applied in construction work for the new holes. A book produced to mark the club's 50th anniversary in 2017 has provided additional historical research material and given an attractive means of further communicating awareness of cultural heritage value.

The general manager and head greenkeeper are acknowledged leaders in sustainable golf management not only in Iceland, but also internationally, and their enthusiasm and depth of knowledge was abundantly clear throughout the visit. The club's Sustainability Committee has only recently been formalised, with membership including the Club Manager, Head and Deputy Head Greenkeeper, and Chairman of Greens (Ornithological specialist). An initial meeting has been held although formal minutes have not yet been prepared. The club website is currently being reconstructed but is already an attractive one, prominently featuring the GEO Certified status and with a direct link to GEO. It is complemented by a strong social media profile, including regular tweets by Head Greenkeeper Bjarni which often focus on environmental topics.

Conclusion

I, Mike Wood, independent accredited verifier, recommend Húsafell be awarded the GEO Certified® ecolabel. The key strengths as highlighted by the verification process include:

- exceptional awareness of overall sustainability principles and practice by the course management staff, and commitment to providing professional leadership beyond the club
- realisation of new opportunities for mowing reduction and grassland habitat creation in conjunction with ongoing layout improvements
- continued exclusive use of recycled water for irrigation
- high standard of waste stream management
- maximising the club's high status to nurture close relationships and support wider community services
- high social media and website visibility prominently communicating sustainability messages.