



**GEO Certified<sup>®</sup>**

# GEO Certified<sup>®</sup> Report Sentosa Golf Club

Prepared by independent verifier, Brad Revill

Certified by GEO Foundation: June 2022  
Valid until: June 2025

**GEO Certified<sup>®</sup>**

The logo features a green circular icon with a white golf ball inside, followed by the text 'GEO Foundation' in green, with 'GEO' on the top line and 'Foundation' on the bottom line. Below this, the tagline 'Sustainability in and through golf' is written in a smaller green font.

**GEO  
Foundation**  
Sustainability in and through golf

*"Sentosa Golf Club is an impressive facility which has already achieved some notable milestones - provision for local bee colonies; biochar and seaweed soil amendments to restore biology; fairway area reduction to reduce maintenance inputs; large-scale on-site composting to reduce green and food waste pressure on local public services; LED lighting and transition to renewable energy.*

*It was fantastic to see a team aligned in their vision and collectively driving their commitment to the environment and sustainability, both internally and externally. Sentosa Golf Club is a model and source of inspiration for other clubs and facilities in the region. I look forward to seeing the new upgraded maintenance facility and to the club furthering their goals to become net carbon positive in the future."*

**Brad Revill**

*(GEO accredited independent verifier)*



# Introduction

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GEO Foundation is pleased to confirm that **Sentosa Golf Club** has successfully achieved GEO Certified® status for its outstanding work to foster nature, conserve resources and support the community.

GEO Certified® is the most respected certification for golf, based on a credibly and transparently developed modern sustainability Standard of best practice.

**Sentosa Golf Club** has:

1. Met the required certification criteria for sustainable golf operations
2. Successfully completed the official third-party verification process
3. Successfully passed the final evaluation by GEO Certification Ltd. (autonomous subsidiary of GEO Foundation)

GEO agreed with the conclusions of the official verification report, that, having achieved all mandatory criteria; and with specific Continual Improvement Points (CIP) set for the future, **Sentosa Golf Club** should be awarded GEO Certified® status.

For the certification period stated above, **Sentosa Golf Club** can therefore claim a position as a leader in advancing sustainability in golf – making important contributions in protecting nature, conserving resources and strengthening communities.

The GEO Certified® Report that follows comments on the actions undertaken against the criteria, as observed by the independent verifier during the assurance process.

Certification is nearly always the result of a dedicated team effort resulting in many practical and valuable social and environmental results around the golf course, maintenance facility and clubhouse. These dedication and leadership qualities are an important part of ensuring the resilience of the golf facility and the golf industry into the future and also as part of society's wider effort to pull together for people and planet.

We congratulate all involved.

Jonathan Smith  
Founder and Executive Director, GEO Foundation  
GEO Certification Ltd. Board Member

Kelli Jerome  
Executive Director, GEO Foundation

Richard Allison  
Manager, GEO Certified Facilities



# Verification and Certification

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## Verification

The official third-party audit was carried out by an independent verifier, accredited by GEO to undertake verifications of golf facilities applying for certification.

Verification involves reviewing practices and data, using the International Voluntary Standard for Sustainable Golf Operations as the guide to ensure comprehensive and consistent evaluation of performance. A detailed verification report is submitted for evaluation by GEO Certification Ltd, a subsidiary of GEO Foundation.

## Certification

GEO Certification Ltd, an autonomous subsidiary of GEO Foundation [both not-for-profit entities], undertook a full review of all content submitted through the OnCourse® online platform and the report submitted by the verifier, ensuring:

- Comprehensiveness – that activities undertaken touched on all elements of the Standard
- Consistency – that the verification approach was balanced, well weighted and with consistent depth of evaluation across each theme
- Accuracy - matching the verification report with evidence submitted by the golf facility to ensure statements and claims were accurate

GEO Foundation is an international not-for-profit founded to advocate, support and reward sustainability in and through golf. Over more than ten years, the group has worked collaboratively with dozens of golf industry associations and government and non-government organisations around the world, to help golf become a sustainability leader, striving for a net positive social and environmental impact. In addition to managing and assuring GEO Certified®, GEO Foundation also provides a suite of credible, practical programmes for golf facility management, new golf developments and golf tournaments called OnCourse®, often delivered in partnership with national golf bodies. Find out more at [www.sustainable.golf](http://www.sustainable.golf)

## Credibility

GEO Certified® is part of the ISEAL Alliance, a group of the world's foremost credible certification systems including Fairtrade, Rainforest Alliance, Forest Stewardship Council, Marine Stewardship Council and many others. GEO Foundation earned and retains full membership of the ISEAL Alliance global association following a rigorous evaluation against the ISEAL Codes of Credibility in Sustainability Standards and Certification. The ISEAL Codes cover standard-setting, assurance, and monitoring and evaluation. Find out more at [www.isealalliance.org](http://www.isealalliance.org)



# Verifier's Report

The Sustainability Agenda for golf covers the following themes and action areas:

THEMES	ACTION AREAS
<b>Nature</b>	<ul style="list-style-type: none"> <li>• Habitats &amp; Biodiversity</li> <li>• Turfgrass management</li> <li>• Pollution prevention</li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>• Water</li> <li>• Energy</li> <li>• Materials</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>• Partnerships &amp; Outreach</li> <li>• Golfing &amp; Employment</li> <li>• Advocacy &amp; Communications</li> </ul>

Included below are the observations made by the Independent Verifier against each item in the Standard.

NATURE			
N1 Habitats and Biodiversity			
Objectives	Requirements	Mandatory Practices	Verifier Notes
N1.1 Understand the site and surroundings	N1.1.1 Sound understanding of the nature and landscape value of the site	Map all habitats and vegetation types on the site; Regularly update landscape / biodiversity surveys	The club has had an in-depth biodiversity study completed and accurately identified the types of habitats present, and their relative size.  <b>CIP</b>

			Should create specific map(s) and/or aerial image(s) which highlight the location of each habitat type. These could also be made available to members and visitors.
	<b>N1.1.2 Knowledge of legal designations for protected areas, habitats and species</b>	Understand legal responsibilities for protected landscapes and species; Record and monitor protected, endangered, or rare species found on the site	No threatened or protected animal species identified on site yet. There is a unique coastal mangrove habitat with mangrove tree species that are only found on this site, and not anywhere else in the country.  The club works closely with universities and environmental protection agencies and has also completed lake bank stabilisation projects to help protect this area.  <b>CIP</b> The club is aware of their abundant plant and animal species and plan to conduct a detailed wildlife survey in '22/'23.
	<b>N1.1.3 Understanding and respect for cultural heritage</b>	Protect any archaeological, historical or cultural designations on the site	Multiple WW2 structures and battle locations are present on site. The club has protected them and highlights their significance through signage and historical photographs.
<b>N1.2 Opportunities to naturalise the course</b>	<b>N1.2.1 Measures taken to identify and minimise the required area of managed turfgrass</b>	Observe, track and / or monitor golfer play	Increase of 0.2ha of new wetland habitat area.  The club regularly reviews potential areas to remove turfgrass based on observation of player behaviour
<b>N1.3 Actively manage habitats for wildlife</b>	<b>N1.3.1 Projects to manage habitats in the best way for wildlife and golf</b>	Regularly review and follow a habitat management plan; Prioritise native species when planting and landscaping	Native bee colonies have been established on site in 2 different locations with plans on expansion.  Bird nesting boxes are constructed and placed as part of a program developed with local schools.  A stone wall has been constructed around the coastal areas of the course which resulted in a dramatic reduction in sediment and an increase to endemic coral populations  <b>CIP</b> Should formalise the habitat management plan encompassing all current and future initiatives.
<b>N1.4 Conserve key species</b>	<b>N1.4.1 Practical conservation measures for priority species</b>		Endemic red flame trees are propagated from seed collected on site.  Works closely with universities to further develop and spread endemic mangrove species
<b>N2 Turfgrass</b>			

<p><b>N2.1 Maintain optimum turf and soil health</b></p>	<p><b>N2.1.1 Appropriate turfgrass varieties adapted to climatic and other geomorphological factors</b></p>	<p>Select appropriate grass species for climate</p>	<p>The grass species on the greens is TifEagle Bermuda (Cynodon dactylon x Cynodon transvaalensis); the tees consist of Seashore Paspalum (Paspalum vaginatum); the fairways and rough consist of Zoysia matrella.</p> <p>All turfgrass species listed above are well suited to the climate.</p> <p>The club is aware of the environmental challenges vs the need to provide turf surfaces for play and actively manage this aspect.</p>
	<p><b>N2.1.2 Practices to maintain good soil structure and condition</b></p>		<p>All turf surfaces are regularly aerated to relieve soil compaction and amendments are applied to rectify any soil nutritional or chemical imbalances.</p> <p><b>CIP</b> There is an opportunity here to utilise a more data driven approach for aeration/organic matter management through dedicated organic matter testing, to further refine programs and identify any potential opportunities to reduce inputs</p>
	<p><b>N2.1.3 Careful and responsible fertiliser application throughout the year to avoid over-fertilisation</b></p>	<p>Undertake soil tests and nutrient analysis</p>	<p>A detailed nutritional program is in place based on recommendations from lab reports.</p> <p>Apart from phosphates, the total nutrients applied have decreased in the 2 years of data available.</p> <p><b>CIP</b> Further reductions to inputs may be possible by utilising the Minimum Level of Sustainable Nutrition (MLSN) guidelines when interpreting soil nutrient reports.</p>
<p><b>N2.2 Prioritise mechanical maintenance</b></p>	<p><b>N2.2.1 Non-chemical pest, disease and weed management</b></p>	<p>Sharpen mowing blades; Remove surface moisture; Hand weeding</p>	<p>The club is actively using biochar and seaweed extract to restore soil biology and help prevent turfgrass diseases and reduce fertiliser inputs.</p> <p>Pepper and Tabasco sauce are being trialled as deterrents for large animal pests</p>
<p><b>N2.3 Use chemicals responsibly</b></p>	<p><b>N2.3.1 Application of chemicals only when necessary to prevent or cure defined / identified turf health issues</b></p>	<p>Establish patterns and levels of risk for pests and diseases; Scout the course daily for early signs of pests and disease; Accurate pest and disease identification; Map and track pest and disease hotspots; Establish pest and disease thresholds</p>	<p>Disease identification reports from laboratories are present.</p> <p>No formal thresholds for pest/disease activity. Due to the club's goal for consistently high maintenance standards, a preventative program for disease control is in place year-round.</p> <p>Chemical applications have increased by 92% compared to the previous year.</p>

			<p>The club comments this is due to the grow-in of one of their courses and levels will reduce in subsequent years.</p> <p><b>CIP</b> Consider the balance of sustainability with pest and disease prevalence as a key to understanding and establishing thresholds in tolerance. This should be better defined and communicated by the club at the certification renewal stage.</p>
	<b>N2.3.2 Application of chemicals with full safety precautions</b>	<p>Use only legally registered and approved products; Ensure staff are fully qualified and licenced to use pesticides; Regularly calibrate and test applicators; Use appropriate protective equipment; Dilute and dispose of leftover product on untreated areas of turf</p>	<p>This aspect is well managed. All application logs are up to date.</p> <p>Current storage is secure and well ventilated with hazardous products separated and further secured as per regulations.</p> <p>Mixing area is isolated with drainage to a separate tank which is pumped out and disposed of by a licensed contractor as per national regulations.</p> <p><b>CIP</b> Emergency shower located at another building, a long distance from chemical storage and mixing location. An emergency shower and eye-wash station could be installed closer for ease of access.</p>
<b>N3 Pollution Prevention</b>			
<b>N3.1 Prevent pollution across the entire site</b>	<b>N3.1.1 Practical measures to ensure pollution risks are minimised from golf course operations</b>	<p>Document procedures for emergency spill responses; Maintain mowing buffer zones around water and all ecologically sensitive areas; Maintain spraying and spreading buffer zones around water and all ecologically sensitive areas; Create a map / aerial visual reproduction, drawing etc of the course showing buffer zones and no-spray, no-spread areas.</p>	<p>Emergency spill kits and procedures are well documented and easily accessible.</p> <p><b>CIP</b> Buffer zones are in place but could be more easily identified by visually mapping them out. See N1.1.1</p>
	<b>N3.1.2 Practical measures to ensure pollution risks are minimised from clubhouse operations</b>	<p>Ensure all hazardous materials are safely and securely stored; Ensure compliance with all required standards and systems for hazardous waste and wastewater discharge</p>	<p>The clubhouse is following best practice procedures throughout, in compliance with all regulations.</p>
	<b>N3.1.3 Practical measures to ensure pollution risks are minimised from</b>	<p>Ensure wash areas are on impermeable, leak-free surfaces; Mixing and loading of pesticides and fertilisers over an impermeable surface;</p>	<p>Equipment wash area is on an impermeable surface with debris trap and oil / grease separator.</p> <p>Chemical mix area: see point N2.3.2</p>



	<b>maintenance facility operations</b>	Triple rinse pesticide containers and applicators	
<b>N3.2 Safely manage hazardous substances</b>	<b>N3.2.1 Legal compliance in the storage, handling, application and safe disposal of all hazardous substances</b>	Maintain a register of hazardous materials available to authorised staff; Safe storage in secure and ventilated concrete or metal building; Sufficient storage capacity; Impermeable flooring; Spill containment kits present; Emergency wash area; Fire extinguisher in the immediate area; Secondary containment for fuel, either externally constructed, or integrally manufactured; Regular inspection of storage tanks	Storage tanks (underground) are inspected by a registered and licensed company every 3 years as per the national regulations.  Emergency response procedures are well documented and easily accessible.  <b>CIP</b> Secondary containment, in the form of bunding or a channel / grate, could be constructed around the fuel pumps and filling area to isolate any spills from washing into the nearby stormwater drain. An extension to the roof area could also help reduce potential run-off problems.
<b>N3.3 Responsibly manage waste / storm water</b>	<b>N3.3.1 Appropriate wastewater usage and discharge licences</b>	Wastewater discharge licence; Appropriate treatment of machinery wash water (impermeable surface, oil / grease / clipping separation)	All in compliance.  See point N3.1.3 about the wash bay

<b>RESOURCES</b>			
<b>R1 Water</b>			
<b>Objectives</b>	<b>Requirements</b>	<b>Mandatory Practices</b>	<b>Verifier Notes</b>
<b>R1.1 Minimise water demand</b>	<b>R1.1.1 Measures to reduce the need to consume water</b>	Target irrigation to essential playing surfaces only	Part circle sprinklers are installed along all water bodies to prevent contamination and reduce wastage.  <b>CIP</b> The automatic re-flow programming function on the irrigation software could be utilised with the on-site weather stations to further reduce any unnecessary applications of water in the event of rainfall.

<b>R1.2 Maximise water efficiency</b>	<b>R1.2.1 Practical measures to use water more efficiently on the golf course</b>	Conduct regular irrigation performance checks; Provide staff training on efficient irrigation practices; Ensure effective application of water to target areas; Ensure irrigation schedules are informed by weather patterns and soil moisture analysis	All irrigation components (Toro) are of the latest efficient technology, including the central control software.  Soil moisture sensors are in place with plans to install sensors in all greens.  Irrigation system is audited every 2 years.
	<b>R1.2.2 Practical measures to use water more efficiently in buildings</b>	Audit water use regularly; Review bills frequently and look for irregularities; Encourage water-saving practices amongst staff and visitors; Categorise and track water consumption	Accurate recording of all water use is in place.  The electrical and water consumption of clubhouse equipment is considered as part of the purchasing approval process.
<b>R1.3 Source water responsibly</b>	<b>R1.3.1 Measures towards alternative, lower quality sources of water</b>	Ensure appropriate water abstraction permit and reporting, as required	Recycled water is used in compliance on some landscape beds at the entrance to the property.
<b>R2 Energy</b>			
<b>R2.1 Reduce energy demand</b>	<b>R2.1.1 Measures to reduce the amount of energy consumed in course maintenance</b>	Minimise areas of managed turf to reduce mowing, irrigation, and turf inputs	As part of the course re-design, fairway area was reduced by 30%
<b>R2.2 Maximise energy efficiency</b>	<b>R2.2.1 Measures to use energy and fuels more efficiently in buildings</b>	Audit energy use regularly; Regularly review bills; Categorise and track energy consumption	See point R1.2.2 above.  All records are regularly updated and checked against previous years.  All lighting has been changed to LED and resource efficient equipment is used when and where available.  Clubhouse has the Singapore Green Mark (Platinum) certification.
<b>R2.3 Source energy responsibly</b>	<b>R2.3.1 Measures to source alternative, renewable forms of energy</b>	Determine potential sources of renewable energy in the area and on-site, through renewable energy providers	The club is actively looking into adding solar panels to the clubhouse roof as well as the water bodies on the golf course.  They are also looking to switch to renewable / green power sources for incoming power by paying a premium to the utility supplier.

			<p>Five new electric vehicle charging stations installed, and carts / buggies upgraded to more efficient battery technology.</p> <p>The club works alongside Sentosa Development Corp and dedicated climate experts in achieving Carbon Neutral in 2021 and plan to be carbon positive in the future.</p>
<b>R3 Materials</b>			
<b>R3.1 Reduce materials demand</b>	<b>R3.1.1 Products and materials selection based on necessity, including opportunities for recycled, reused and locally sourced alternatives</b>	Undertake a review of materials consumed	<p>Waste materials are logged by type and location. Total waste has been reduced by 50% and recycling increased by 333%</p> <p>Food waste has been eliminated using a large on-site composting machine. This is an impressive piece of technology.</p> <p>All packaging, water bottles and pens are made from recycled or biodegradable materials.</p>
<b>R3.2 Purchase responsibly</b>	<b>R3.2.1 Practical use of an ethical / environmental purchasing policy</b>	Adopt a sustainable, or ethical / environmental purchasing policy to maximise the use of locally sourced goods and goods made from recycled, recyclable and certified materials	<p>See point R1.2.2 above</p> <p>Seasonal fruit, veg and meat is used in the club restaurant. The club has also planned to construct a vertical, hydroponic garden to supply the restaurants with locally sourced vegetables.</p> <p>All packaging, water bottles and pens are made from recycled or biodegradable materials.</p>
<b>R3.3 Reuse and recycle</b>	<b>R3.3.1 Waste stream separation for maximum recycling and re-use opportunity</b>	Demonstrate waste separation, reuse and recycling; Track how much waste goes to landfill, or is reused / recycled	<p>In place</p> <p>See point R3.1.1</p>
<b>R3.4 Demonstrate legal compliance</b>	<b>R3.4.1 Compliance with all local and regional waste management regulations</b>	Use authorised waste and recycling contractor for general, hazardous, industrial and green waste	In place

# COMMUNITY

## C1 Outreach

Objectives	Requirements	Mandatory Practices	Verifier Notes
C1.1 Diversify access and provide multi-functionality	C1.1.1 Social and recreational activities at the facility		Sentosa Golf Club is a member's club with regular social events and activities
C1.2 Provide for volunteering and charity	C1.2.1 Opportunities available for volunteering and support of charities and good causes		Volunteer programs are in place for tournament preparation. The club supports the ARC Children's Centre.
C1.3 Establish active community partnerships	C1.3.1 Positive and constructive engagement with neighbours, the local community and other groups	Create a 'sustainability working group'	The club has influenced the island of Sentosa to the point where they have developed a ONE SENTOSA community drive with goals and a vision to improve the whole island's ecological footprint.  Exploring the sequestration of carbon dioxide in the tropics is also a good example of outreach and collaboration with Singapore Golf Association and others.  <b>CIP</b> A formal 'sustainability working group' or meeting of key decision makers dedicated to this purpose could be set up to drive this initiative.

## C2 Golfers & Employees

C2.1 Improve health and wellbeing	C2.1.1 Benefits to human physical and mental health from golf and facility activities		Resident golf professional on-site who works with members to promote golf skills and fitness.  Utilise their in-house magazine to promote the benefits of golf.
C2.2 Be open and inclusive	C2.2.1 Inclusivity and diversity in membership and visitor policies	Demonstrate inclusive policies for members and visitors	The club has no barriers to entry with multiple membership tiers and all facilities open to the public.  50/50 walk-in and member golf.
C2.3 Employ fairly and safely, and provide career opportunities	C2.3.1 Ethical and legal employment, working	Follow all relevant national legislation and best practice for employment, health & safety etc	All in compliance.  Risk assessments in place and up to date.

	conditions and professional development		
<b>C3 Communications</b>			
<b>C3.1 Engage golfers and members</b>	<b>C3.1.1 Communications activities that raise awareness and understanding amongst members and visitors</b>	Provide information on the facility's sustainability commitments, actions, or achievements	<p>In-house magazine brand which communicates all sustainability achievements and commitments; social media also echoes this.</p> <p>Industry bodies share articles relating to the club's achievements and commitments.</p> <p><b>CIP</b> Additional information regarding habitats, flora and flora species present, and maps could be provided to members and visitors to provide greater awareness and interest.</p>
<b>C3.2 Celebrate and promote sustainability</b>	<b>C3.2.1 Activities that raise awareness and engage people in the wider community</b>	Provide evidence of external communications and community engagement	<p>The club regularly hosts international golf tournaments which feature sustainability initiatives and partnerships with other sustainability focused businesses.</p> <p>The club has recently partnered with Adidas to provide uniforms made from recycled materials for the maintenance team.</p>

## Golf and Sustainability

Among all sports, golf has a particularly close relationship with the environment and communities, golf facilities can bring many benefits to people and nature - from the protection of greenspace and conservation of biodiversity; healthy recreation for all ages; local supply chains; and jobs, tourism and other forms of economic value.

Adopting a more sustainable approach is also good for golf. It's about presenting a high-quality golf course and providing a memorable experience in natural surroundings. It's about being as efficient as possible. And it's about supporting the community in a range of ways that bring increased recognition, respect and contact.

At a broader level, it's important that golf credibly demonstrates its commitment, and its social and environmental value – strengthening the sport's image and reputation for the long term.

Golf facilities that participate in OnCourse®, an international sustainability initiative assured by the non-profit GEO Foundation, are taking a comprehensive approach and striving to be leaders in the community.

Find out more at [www.sustainable.golf](http://www.sustainable.golf)