THE GEORGE ALEXANDER FOUNDATION

GOLF ARCHITECTURE:

Reflections from a tour of Great Britain

An International Specialised Skills Institute Fellowship.

SCOTT CHAMPION

Sponsored by the George Alexander Foundation

Table of Contents

i. EXECUTIVE SUMMARY

With the assistance of the International Specialised Skills Institute and the George Alexander Foundation, Scott had the opportunity to embark on a five-week pilgrimage to the home of golf. This report reflects on the discoveries from visiting thirty-six golf courses throughout his tour of Great Britain during August – September 2016. Scott covered more than 3,000 kilometres stretching as far as Brora in the Scottish Highlands to Sandwich on the English Channel, across to Jura in the Western Isles as well as the traditional golf regions of Fife, East Lothian, and Ayrshire.

The Fellowship had three key areas of study, which were:

1. Pre 20th century course design – courses that were instrumental in the early growth of the game

2. 'Golden Age' of golf architecture – exploring the work of Alister MacKenzie, Harry. S Colt, and James Braid

3. Environmental sustainability – best practice in the design and construction of golf courses in sensitive coastal dune environments

These three areas were explored in detail and this report provides a brief account of the learnings gained by the Fellow. Scott's travels provided an opportunity to examine the routings and architectural features of the courses visited, acquire new ideas, and test the principles he believes are required to produce quality and enduring golf courses.

There was an environmental component to the Fellowship that saw Scott research and visit several courses that had been recently built in sensitive coastal dune environments including Machrihanish Dunes and Trump International Golf Links in Aberdeen. Scott compared their approaches with courses that have coexisted and evolved with their environments for more than a century and subsequently proven to be excellent environmental stewards. Such courses include Machrihanish, Prestwick, and Sandwich. The Fellowship also provided the opportunity for Scott to meet with The R & A Director – Sustainability, Steve Isaac, and Golf Environment Organisation – Director Golf Development, Sam Thomas to discuss the role and direction that governing bodies are taking to promote sustainable golf course development.

Obvious highlights such as visiting North Berwick, Prestwick, and the Old Course were all expected, however, perhaps the most rewarding visits came from unplanned encounters where last minute detours to places such as Cullen and Dunaverty provided the greatest insight into the spirit of golf in Scotland.

Recommendations from Scott's travels cover areas of professional development, environmentally sustainable design principles, and considerations to improve and progress the professional organisation of golf course architects in Australia and New Zealand. Upon his return to Australia, Scott will resume his role as a golf course architect with Harrison Golf where he is implementing his newly gained knowledge and experience on their range of projects, Australia-wide.

ii. ACKNOWLEDGEMENTS

The Fellow would like to thank the following individuals and organisations who generously gave their time and their expertise to assist, advise and guide him throughout his George Alexander Foundation Fellowship.

Awarding Body – International Specialised Skills Institute (ISS Institute)

The ISS Institute plays a pivotal role in creating value and opportunity, encouraging new thinking and early adoption of ideas and practice by investing in individuals.

The overarching aim of the ISS Institute is to support the development of a "Smarter Australia". The Institute does this via the provision of Fellowships that provide the opportunity for Australians to undertake international skills development and applied research that will have a positive impact on Australian industry and the broader community.

The International Specialised Skills Institute was founded 28 years ago, by Sir James Gobbo AC, CVO, QC, and former Governor of Victoria, who had a vision of building a community of industry specialists who would lead the up-skilling of the Australian workforce. The Fellowship Program builds shared learning, leadership and innovation across the broad range of industry sectors worked with. Fellows are supported to disseminate learning's and ideas, facilitate change and advocate for best practice through the sharing of their Fellowship learning's with peers, colleagues, government, industry and community.

Since its establishment 28 years ago, ISS Institute has supported over 450 Fellows to undertake research across a wide range of sectors which in turn has led to positive change, the adoption of best practice approaches and new ways of working in Australia.

The Fellowship Programs are led by investment partners and designed in a manner which ensures that the needs and goals desired by the partners are achieved. ISS Institute works closely to develop a Fellowship Program that meets key industry priorities, thus ensuring that the investment made will have lasting impact.

For further information on ISS Institute Fellows, refer to www.issinstitute.org.au

Governance and Management

Patron in Chief: Lady Primrose Potter AC

Patrons: Mr Tony Schiavello AO and Mr James MacKenzie

Founder/Board Member: Sir James Gobbo AC, CVO

Board Chair: Professor Amalia Di Iorio

Board Deputy Chair: Katrina Efthim

Board Treasurer: Jack O'Connell AO

Board Secretary: Alisia Romanin

Board Members: John Baker, Maria Peters, Camilla Roberts and Mark Kerr

CEO: Wendy Draayers

Sponsor – The George Alexander Foundation

The Fellow sincerely thanks The George Alexander Foundation for providing funding support for the ISS Institute and for this Fellowship. In 1972, George Alexander AM (1910 - 2008) set up an independent philanthropic Foundation as a way of sharing his wealth and giving back to the community. Today, the main focus of The George Alexander Foundation is access to education for promising young people, particularly students with financial need and those from rural and remote areas.

The George Alexander Foundation (GAF) Scholarship and Fellowship Programs form the core of the foundation's work, operating in partnership with major tertiary institutions, while our Fellowships and other Education grants provide a variety of other unique and challenging educational experiences. George Alexander believed in the notion of 'planting seeds and hoping they grow into pretty big trees'. The programs supported by the Foundation endeavour to support this ideal and as GAF students graduate and go on to contribute to the community, George's legacy and spirit lives on through their achievements. George Alexander came to Australia as a child migrant, and went on to become a mechanic, an entrepreneur and a businessman and later, a generous philanthropist, who held that you do not own the possessions you have, 'you're just minding them'. This philosophy guided him to give during his lifetime and to hope that through his example, he might inspire others to do the same.

Fellowship Supporters

Employer Support:
Scott would like to acknowledge the support of Bob Harrison who provided invaluable advice, guidance and encouragement to complete the Fellowship program in addition to the continual mentorship provided in developing his skills and knowledge as a golf course architect.

Supporters:
Scott would also like to thank the following individuals and organisations who have generously provided assistance throughout his Fellowship:

» Darius Oliver (Planet Golf)
» Sam Thomas (Golf Environment Organisation)
» Nick Leefe (Alister MacKenzie Society and Alwoodley Golf Club)
» Richard Atherton (Alister MacKenzie Society and Cavendish Golf Club)
» Ru Macdonald (Scottish Golf Podcast and Cruden Bay Golf Club)
» Timothy Gallant (North Berwick Golf Club)
» Simon Freeman (Machrihanish Dunes)
» Ken Moodie (Creative Golf Design)
» Steve Isaac (The R & A)
» Stephen Pitt (Golf Australia)
» Harley Kruse (Society of Australian Golf Course Architects)
» Tim Lobb (Lobb & Partners)
» Chris Haspell (Castle Stuart Golf Links)
» Stephen Toon (Sunningdale Golf Club)
» Jamie Wilson (Sunningdale Golf Club)
» Ken Goodwin (Prestwick Golf Club)
» Stephen Connolly (Gleneagles)
» Steve Wilson (Trump International Golf Links)
» Ronnie MacAskill (Royal Aberdeen Golf Club)
» Peter Rishworth (Moortown Golf Club)

» Tony Gill (Brora Golf Club)
» George Ritchie (Swinley Forest Golf Club)
» Innes Knight (Kingsbarns Golf Links)
» Machrihanish Golf Club
» Fraserburgh Golf Club
» Boat of Garten Golf Club
» Trump Turnberry
» The Renaissance Club
» The Glen Golf Club
» Gullane Golf Club
» St Andrews Links Trust
» Golf House Club, Elie
» Cruden Bay Golf Club
» Cullen Links
» Royal Dornoch Golf Club
» Musselburgh Links
» Royal St Georges Golf Club

iii. ABBREVIATIONS, ACRONYMS AND DEFINITIONS

SAGCA: Society of Australian Golf Course Architects

EIGCA: European Institute of Golf Course Architects

ASGCA: American Society of Golf Course Architects

GEO: Golf Environment Organisation

The R & A: The Royal and Ancient Golf Club

USGA: United States Golf Association

Early Influencers: Courses built pre-1900 that influenced the development of the game

Golden Age: A period of golf course design between 1900 – 1940

Modern design: New or substantially redesigned courses built post – 2000

1. ABOUT THE FELLOW

Scott Champion is a Golf Course Architect and Landscape Architect with over 10 years' experience in golf course design. His love of golf developed at a young age and he quickly gained an affection for the sport that has been a significant part of his life.

Embarking on a degree in Landscape Architecture with aspirations of designing golf courses, it was a natural progression that he became interested in the routing of courses as a way to explore the landscape and began questioning why certain types of holes were more appealing than others. Early in his degree, Scott approached the then Sydney-based Greg Norman Golf Course Design (GNGCD) to undertake professional practice which led to employment at GNGCD. During this time, he established an association with Design Partner, Bob Harrison, who went on to form his own design company, Harrison Golf. Scott began at Harrison Golf in 2010 and continues to work with Bob to this day.

Scott is actively involved in all aspects of Harrison Golf's current projects which include redevelopments of Townsville Golf Club and Brighton Lakes Golf Club; preparation of Course Masterplans with staged remodelling at Newcastle Golf Club and Castle Hill Country Club, as well as planning for a number of other courses in the Approval phase.

In 2015, he was accepted into the Society of Australian Golf Course Architects (SAGCA). With a passion for golf architecture, he is eager to grow and promote the profession in Australia. He is actively involved in the Society's meetings and manages their social media accounts.

Having returned from his Fellowship travels, Scott's design philosophy has been influenced by the learnings of the Fellowship and he continues to implement the design principles that he believes are essential for the game of golf to be sustainable for future generations.

Qualifications / Membership

Bachelor of Landscape Architecture (Honours), University of New South Wales, Sydney, Australia. Completed 2008.

Full Member, Society of Australian Golf Course Architects (2015 – present)

Employment

Golf Course Architect (2010 – present), Harrison Golf Pty Ltd, Sydney, Australia

Notable projects:

» Riverside Oaks (Bungool Course), Sydney, New South Wales

» Townsville Golf Club, Townsville, Queensland

» Ardfin Golf Course, Jura, Scotland

» Nora Creina Golf Resort, Robe, South Australia

» Brighton Lakes Golf Club, Sydney, New South Wales

» Castle Hill Country Club, Sydney, New South Wales

» Newcastle Golf Club, Sydney, New South Wales

Design Associate (2007 – 2009), Greg Norman Golf Course Design, Sydney, Australia

Notable projects:

» Stonecutters Ridge, Sydney, New South Wales

» The Dunes, Port Hughes, South Australia

» Danang Golf Club, Vietnam

2. FELLOWSHIP BACKGROUND

Golf architecture as a profession is a particularly specialised field that currently has no formal education offered in Australia or the rest of the world. With no formal education, there is a greater emphasis placed on self-learning including studying the finest literature and most significant courses that have shaped the game of golf. Many of which are located in the United Kingdom, and specifically Scotland – the birthplace and home of golf where the game likely originated in the 15th century and became part of mainstream society circa 1750 – 1800.

Constant across the most revered golf architects from past eras, and those practicing today, is sharing a deep understanding and passion for the origins of the game. Of great influence is the work of several golf architects that practiced during the 'Golden Age' of golf architecture – the early decades of the 20th century, when many of the finest golf courses in the world were built. This was also a period of significant literary works – much of which was written by the foremost golf architects of the day.

The Fellowship provided a unique opportunity to undertake research in golf course architecture in Great Britain; and primarily Scotland. Scotland is synonymous with golf and its hallowed ground has been instrumental in the growth of the game and the development of the golf course architecture profession.

Context

Maintaining robust levels of participation in the sport is a challenge facing the industry that is impacted by time pressure, competing sports / activities, increasing cost, etc. The role of golf course architects is only one contributing factor to improving this situation, however it is among the most important, as they create the 'playing field' which provides the foundation on which a facility can build on.

Financially struggling clubs are looking to alternative methods for capital injection – often resulting in the selling of land (if available) and repaying debt or reinvesting into the course and/or club facilities. In severe cases, some clubs are selling their property to developers and relocating to a greenfield site with an entirely new golf course. Both models have seen mixed success.

There are two main areas of employment for a golf course architect – new golf courses, and improvements to existing golf courses. Each is influenced by slightly different market factors.

Since 1980, there have been 177 new golf courses built in Australia:

» 1980's: 65 new golf courses

» 1990's: 56 new golf courses

» 2000's: 43 new golf courses

» Since 2010: 13 new golf courses were built (at this rate there will be 22 new courses by 2020)

There is a strong downward trend in the number of new courses being built; however, the quality of many of these courses has risen dramatically. In the period of 2000 – 2015, half of Australia's current top 10 ranked golf courses opened. Three of the courses were designed by architects from North America (two in consultation with Australian architects). The other two new courses were both designed by Australian architects. The five courses and their architects are:

» Barnbougle Dunes – Tom Doak (US) and Mike Clayton (AU)

» Cape Wickham – Mike Devries (CA) and Darius Oliver (AU)

» Lost Farm – Bill Coore and Ben Crenshaw (US)

» Ellerston – Greg Norman and Bob Harrison (AU)

» The National Moonah – Greg Norman and Bob Harrison (AU)

To highlight the significance of the quality of design being undertaken today, the other five courses to make up the top 10 were all substantially built in a period of 1925 – 1932, during the 'Golden Age'. The influence of Alister MacKenzie's 1926 whirlwind tour on Australian golf architecture is undeniable. He designed or played an influential role in four of these courses (Royal Melbourne West, Kingston Heath, New South Wales, and Royal Adelaide), and indirectly influenced the 5th (Royal Melbourne East), which was designed by Alex Russell, MacKenzie's design partner in Australia.

There is a recent trend of new golf courses being built in dramatic and remote locations (eg. Barnbougle x 2, Hamilton Island, King Island x 2) as well as a number going through planning approvals – often on sites with high environmental significance. Part of the appeal of these courses is their spectacular settings, so there is already an emphasis placed on retaining the surrounding landscape. Nonetheless, there are considerable environmental regulatory constraints on courses of this nature, and it is important that the design principles, construction methods, and ongoing maintenance practices are innovative and environmentally sound to combine and balance the need for the best possible golf course and excellence in environmental stewardship. This forms the basis for one of the focus areas of this Fellowship – research into the environmental management of courses located within coastal dune environments.

With fewer new courses being developed, a higher proportion of consultancy is derived from improvements to existing courses. There is generally a growing appreciation and awareness of work by some of the early golf architects, and accordingly an increase in the number of clubs considering restoration projects. The rich architectural history and sheer quantity of time-honoured courses in the UK provides many opportunities to study some of the leading examples of recent restoration and redesign projects.

There is a current trend of upper tier golf clubs in Australia commissioning international golf course architects for ongoing and/or redesign improvements. In order to compete with the likes of these architects, it is important to develop our own skills as designers, but to also promote and increase the marketability of our services. In both cases, there is significant value in gaining an appreciation for the origins of the game and the courses it was played on, as well as the design philosophies of many of the most prominent architects practicing during golf architecture's Golden Age. This leads to another focus area of the Fellowship; the exploration of the Golden Age of golf architecture and specifically the work of Alister MacKenzie, Harry S. Colt, and James Braid.

Methodology

The prime focus of most appointments that occurred during the Fellowship research was the golf courses themselves, which required purposeful time and attention to examine them.

Alister MacKenzie dedicates a chapter to "The Future of Golf Architecture" in his 1920 classic, Golf Architecture, where he discusses the attributes of what makes a good golf architect.

> **"His knowledge of the game should be so intimate that he knows instinctively what is likely to produce good golf and good golfers. He must have more than a passing acquaintance with the best courses and the best golfing holes. It is not only necessary that he should play them, but study them and analyse the features which make them what they are."[1]**

MacKenzie continues to describe in great detail other required characteristics; however, it is those words that describe, in the simplest way, the essence of this Fellowship.

The visit to each golf course involved the following process:

Pre-arrival

1. Research
2. Contact with course representative

During visit

3. Site observations – photographic record, notes, sketches
4. Discussions with representatives (secretary manager / superintendent / architect, etc)
5. View Club archives for historic plans, reports, photographs (where feasible)

Post-trip

6. Additional research of specific items of interest
7. Follow up discussion with representative

While it was not possible to gain the intimate familiarity one gets from playing a course time and time again, the focus was on the key features and noteworthy items related to the specific intended outcomes identified in this Fellowship. This was achieved by a combination of walking and playing the courses, in conjunction with meeting representatives from the course. Walking allowed for greater time to consider the different strategies and design features of an individual hole and provided a more impartial view free of influence from one's own game. On the other hand, playing and watching provided fascinating insight into the strategy of different skill levels, as well as being enjoyable! Both were important, and they each produced different observations.

Meetings with industry leaders also formed an important role in achieving the desired outcomes and contributed to the knowledge acquisition. In some cases, they were informal discussions, while others were more structured. They included club secretary managers, architects, historians, course manager / superintendents, professional association / society representatives, and importantly, every day golfers.

An important component of the research was completed prior to visiting. This involved the viewing of course plans, gaining an understanding of the history of the course, and establishing potential focus areas from each appointment. This allowed for productive correspondence with interested parties, and supplemented information gained from site observations, archive material, meetings, etc.

The documenting of the travel component of the Fellowship was primarily via the following methods:

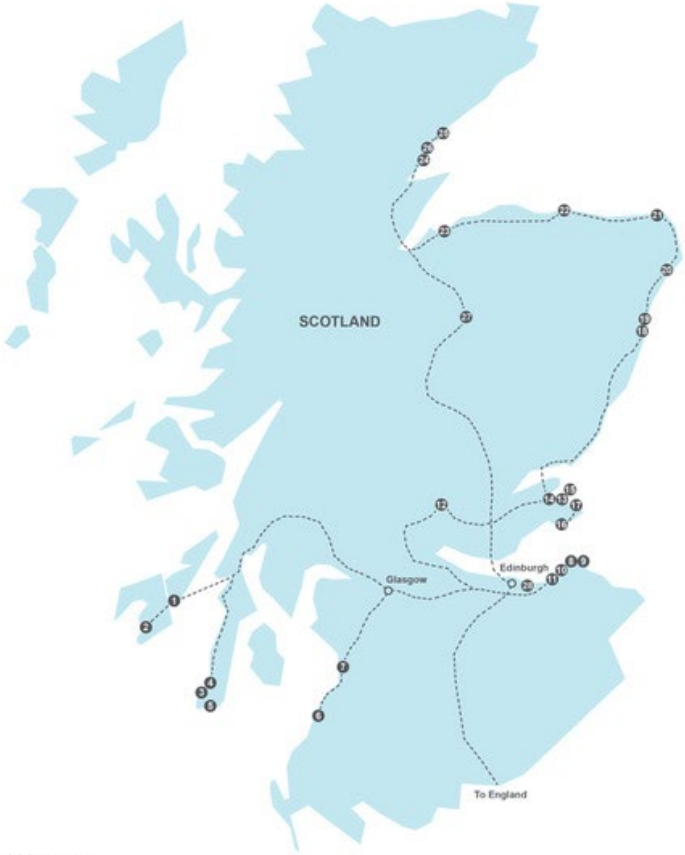
- Photography – to assist in the recollection of courses and their notable features
- Notes – taken during visits relating to observations and information gathered from meetings
- Sketches – interpreting observations and inspiration for related ideas

1 A. MacKenzie, Golf Architecture: Economy in Course Construction and Green-Keeping, London, Simpkin et al, 1920

Period

The travel component of the Fellowship was completed over 36 days, commencing in late August and concluding in early October. It comprised of 25 days in Scotland and 11 days in England which included visiting a total of 36 golf courses often walking 2 or 3 courses a day and, in most cases, walking each course several times.

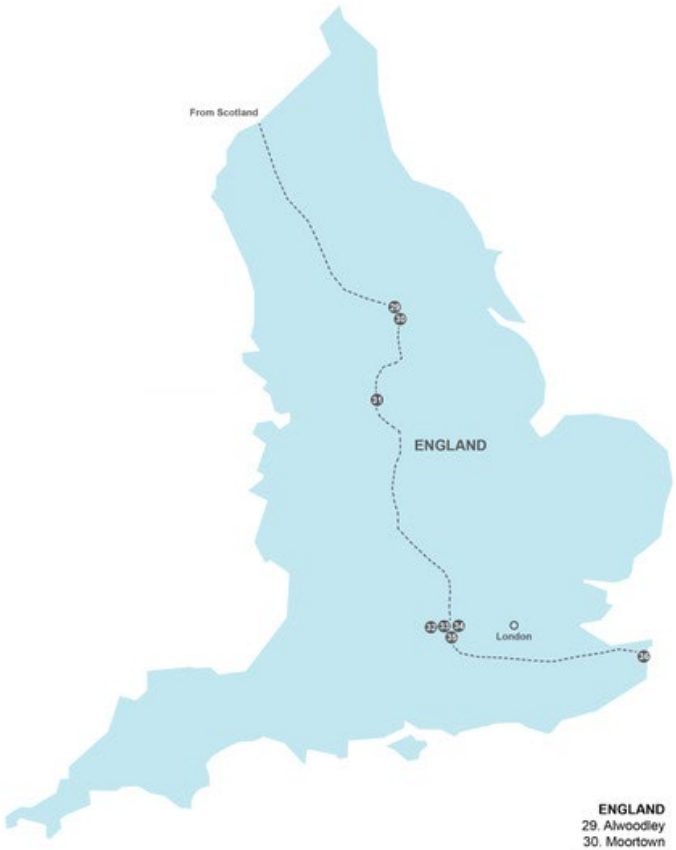
Map of the golf courses visited in Scotland during the Fellow's tour of Great Britain.



SCOTLAND

1. Ardfin
2. The Machrie
3. Machrihanish
4. Machrihanish Dunes
5. Dunaverty
6. Turnberry
7. Prestwick
8. North Berwick
9. Glen
10. Renaissance Club
11. Gullane (No.1)
12. Gleneagles (Kings)
13. The Old Course
14. St Andrews (Eden)
15. Ladies Putting Course
16. Golf House Club, Elie
17. Kingsbarns
18. Royal Aberdeen
19. Trump International
20. Cruden Bay
21. Fraserburgh
22. Cullen
23. Castle Stuart
24. Royal Dornoch
25. Brora
26. Embo
27. Boat of Garten
28. Musselburgh Links

Map of the golf courses visited in England during the Fellow's tour of Great Britain.



ENGLAND

29. Alwoodley
30. Moortown
31. Cavendish
32. Swinley Forest
33. Sunningdale
34. St Georges Hill
35. Woking
36. Sandwich

3. AIMS OF THE FELLOWSHIP

The purpose of the Fellowship was to continue developing knowledge and skills in golf course design by studying a selection of architecturally significant courses in Great Britain. It provided an opportunity to examine the routings and their design features as well as the measures to reduce impact on their environments. Exposure to these courses allowed Scott to acquire new ideas and to test the principles he believed are required to produce quality and enduring golf courses. The attributes that are fundamental to producing great golf are not new. They are embodied in some of the game's earliest courses such as The Old Course, Prestwick, and North Berwick – courses that remain relevant and among the best today. This report identifies and discusses the qualities of these courses, among others, and considers the design principles that are advantageous to modern golf course design.

As a designer, inspiration comes from a variety of sources. Sometimes its drawn from the site where the landform suggests a particular location for a hole, naturally positioned bunker, or shape of a green. On other occasions, the land might be dull and uninspiring, and inspiration needs to be drawn from outside the site. This might involve recalling a concept for the strategy of a hole that has stood the test of time, or it might be borrowing the shape from part of a green elsewhere and adapting it to fit a particular situation. In both cases, it is beneficial to continually develop a 'database' of ideas to draw from. For a young architect honing his craft, this Fellowship presented an invaluable opportunity to do this – and there is no better place than where the game began. Being able to recall golf holes from an extensive 'database' of courses is one thing, however, an architect also needs to have the ability to identify landform that lends itself to finding natural golf holes (where possible), as well as the skill to prescribe interesting and exciting shape that appears natural on an otherwise bland site.

The concept of borrowing ideas to produce new ones is not new either. Mark Twain wrote extensively about originality and plagiarism – among other topics. Twain believed that all ideas were second-hand, and in his seminal piece *'Mark Twain's Own Autobiography: The Chapters from the North American Review'* wrote:

"There is no such thing as a new idea. It is impossible. We simply take a lot of old ideas and put them into a sort of mental kaleidoscope. We give them a turn and they make new and curious combinations. We keep on turning and making new combinations indefinitely; but they are the same old pieces of coloured glass that have been in use through all the ages." [2]

Twain could easily have been mistaken for describing golf architecture. These *"pieces of coloured glass"* could be akin to one's own principles of design. The style and appearance of courses may change to reflect their surroundings, however, the fundamental ideas behind the strategy of the best holes remain the same.

Originality is the difference between merely copying an idea and interpreting it in an innovative way on new ground that has its own inherent qualities. Nature provides infinite compositions of shapes that are often irregular, irrational, and very difficult to replicate by hand. One should go to great lengths to ensure the natural features that a site provides are maximised to their fullest. This is partly what makes The Old Course so special – and perhaps why, after many centuries

2 M. Twain and M.Kiskis, Mark Twain's Own Autobiography: The Chapters from the North American Review, Madison, University of Wisconsin Press, 2010.

with all the technology and equipment at one's disposal, nobody has been able to create another course like it – why Alister MacKenzie describes it as being *"infinitely superior to anything else."* [3]

The above is a simplistic view of golf architecture. An architect must also be adept in the practical side of golf architecture and understand the technical aspects of golf course construction including possessing a sound knowledge of turf, soils, drainage, geology, and horticulture – the 'science' behind the art.

There is an increasingly more rigorous environmental component to the design of new courses in particular. Increasing environmental awareness, stricter government regulations on top of moral obligations has placed a greater focus on designing and constructing courses using the most sustainable methods available. Sustainability was an integral part of golf in the early years (partly out of necessity) when many of the most influential courses were built. Many have subsequently proven to yield excellent attributes in environmental stewardship. This Fellowship studies those courses, as well as modern courses built on environmentally sensitive sites. It identifies what can be learned from those courses to help achieve this balance today, to ensure that the game of golf is sustainable for future generations.

In addition to developing skills and experience, the Fellowship provided an opportunity to expand a network of contacts within the industry. This included meeting with representatives from Clubs and organisations, as well as informal conversations through chance encounters along the way.

The focus areas identified as key outcomes of the Fellowship included:

Skill Enhancement Area 1

Pre 20th century course design – courses that were instrumental in the early growth of the game.

» Observe a range of courses influential to the history and growth of golf.

» Explore courses and holes that have had significant influence in the development of the design profession.

» Observe a selection of courses that have coexisted with nature proving to be exemplary examples of environmental stewardship.

» Examine the design approach and explore how it might be advantageous in the design and construction of environmentally sustainable golf courses today.

Skill Enhancement Area 2

'Golden Age' of golf architecture – explore the work of 'Golden Age' architects in Great Britain with a focus on Alister MacKenzie, Harry. S Colt, and James Braid.

» Observe a selection of courses by each architect and examine their design approaches.

» Explore design principles / features including identifying original and altered work.

» Analyse exemplar holes or features of design significance.

» Investigate recent restorations or redesigns of courses predominantly designed by 'Golden Age' architects.

» Explore the use of technology that could assist to document and implement accurate historical restorations.

3 A. MacKenzie, Golf Architecture: Economy in Course Construction and Green-Keeping, London, Simpkin et al, 1920.

Skill Enhancement Area 3

International best practice in the design and construction of golf courses in sensitive coastal dune environments.

» Examine new courses on 'Sites of Specific Scientific Interest' (SSSI); Scotland's highest level of nature conservation (Machrihanish Dunes, Trump International Golf Links, and Coul Links).

» Analyse design features that have been implemented to minimise the impact on the environment.

» Consider the challenges of these developments and identify potential solutions that could be improved for future courses.

» Discuss the role and direction that governing bodies (The R&A and Golf Environment Organisation) are taking to promote sustainable golf course development.

4. THE INTERNATIONAL EXPERIENCE

The travel component of the Fellowship involved visiting golf courses that were selected mainly due to their relevance to the identified aims and skill enhancement areas. The majority of the 36 courses can be very broadly grouped into three core themes based on the era when the author has determined the most significant design was completed.

1. Early influencers (pre–1900)

Courses that influenced the development of the game. These courses were often laid out with limited resources and the best ones made significant use of the natural features of the virgin "links" land available.

2. 'Golden Age' of golf architecture (1900–1940)

A period of golf course design known as the 'Golden Age' with a specific focus on a selection of courses from the portfolios of Alister MacKenzie, Harry Colt and James Braid.

3. Modern designed courses (post–2000)

New or substantially redesigned courses with a focus on those built in environmentally sensitive coastal environments.

The courses are listed below and include the year they were designed or most significantly altered:

EARLY INFLUENCERS	'GOLDEN AGE'	MODERN
St Andrews Old Course (1450)	*Sunningdale – Old (1901)*	*Kingsbarns (2000)*
Musselburgh Links (1672)	*Glen (1906)*	*The Renaissance Club (2006)*
Prestwick (1851)	*Alwoodley (1907)*	*Castle Stuart (2009)*
North Berwick (1877)	*Moortown (1909)*	*Machrihanish Dunes (2009)*
Machrihanish (1879)	*Swinley Forest (1909)*	*Trump Aberdeen (2012)*
Gullane - No.1 (1884)	*St Georges Hill (1913)*	*Turnberry (1950 / 2016*)*
Royal Dornoch (1886)	*St Andrews Eden Course (1914)*	*The Machrie (1891 / 2017*)*
Royal Aberdeen (1887)	*Gleneagles – Kings (1919)*	*Ardfin (2018)*
Royal St Georges (1887)	*Fraserburgh (1922)*	*Coul Links (not built)*
Dunaverty (1889)	*Cavendish (1923)*	**recently undergone substantial modern redesign*
Golf Club House Elie (1896)	*Sunningdale – New (1923)*	
Cruden Bay (1899)	*Brora (1924)*	
Cullen Links (1901)	*Boat of Garten (1925)*	

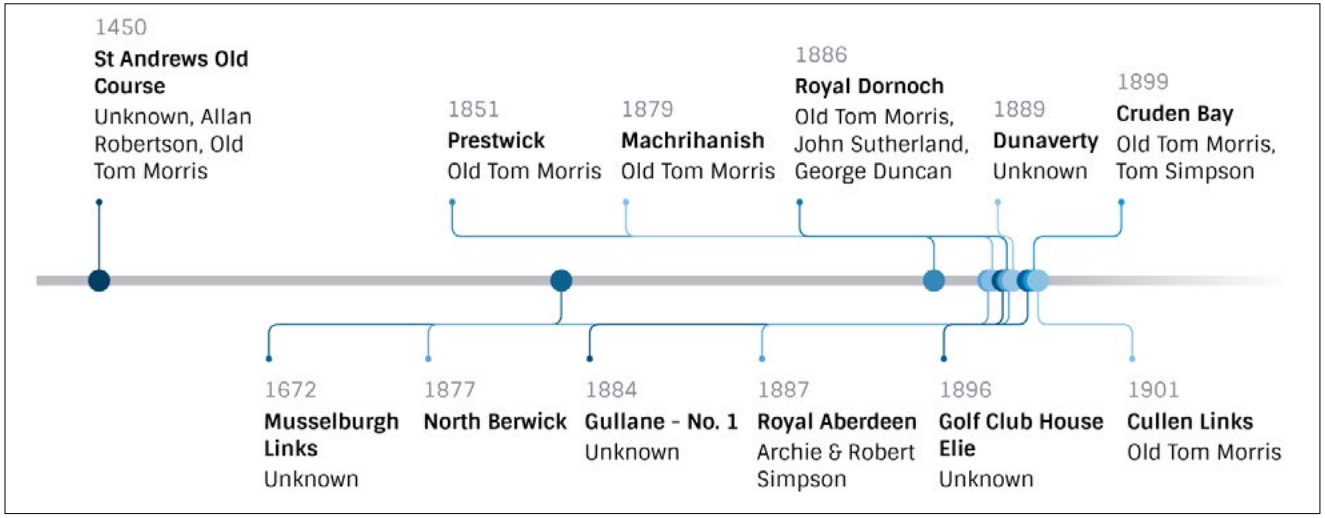
All the courses were valuable and contributed to Scott's learnings, however, naturally some were more influential than others. Within the limitations of this report, the intention is not to provide a complete background to the history and development of each course, nor provide a course review. The focus is on presenting a relatively small amount of the findings that are most significant to the aims of the Fellowship along with interesting observations that were discovered throughout the Fellows travels.

In addition to the courses listed above, Scott also met with two organisations to discuss environmental sustainability in golf course development. They were:

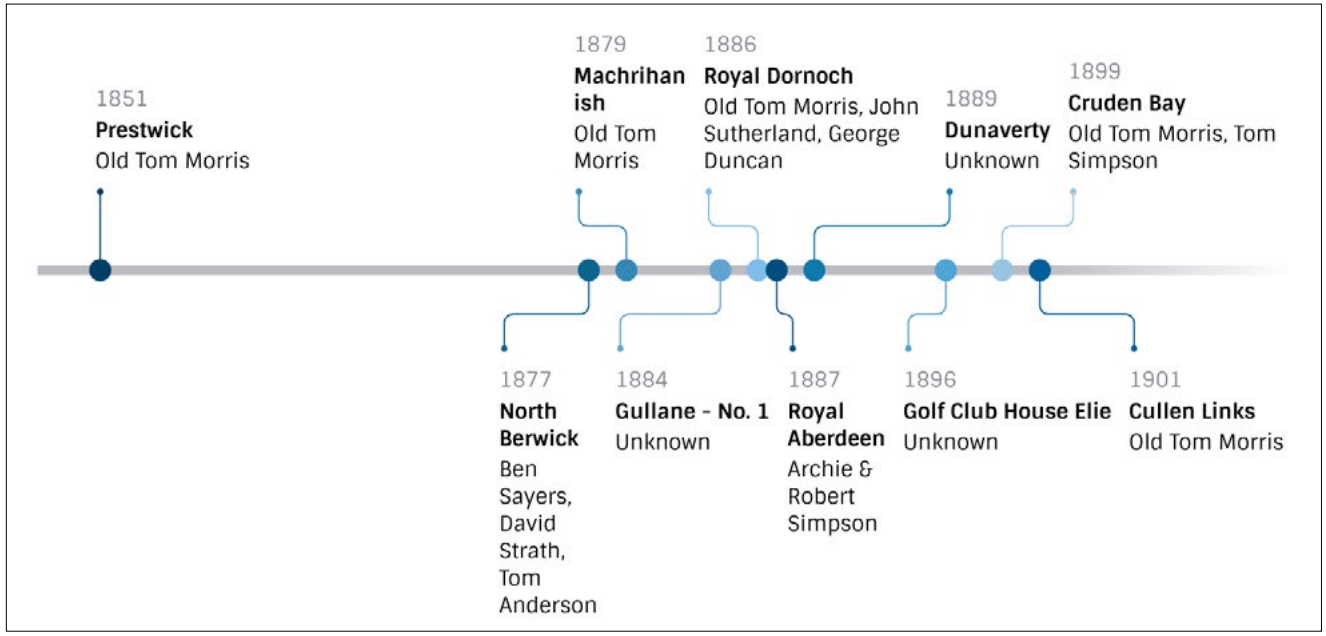
» The R&A – Steve Isaac (Director – Golf Course Management)

» Golf Environmental Organisation (GEO) – Sam Thomas (Director – Golf Development)

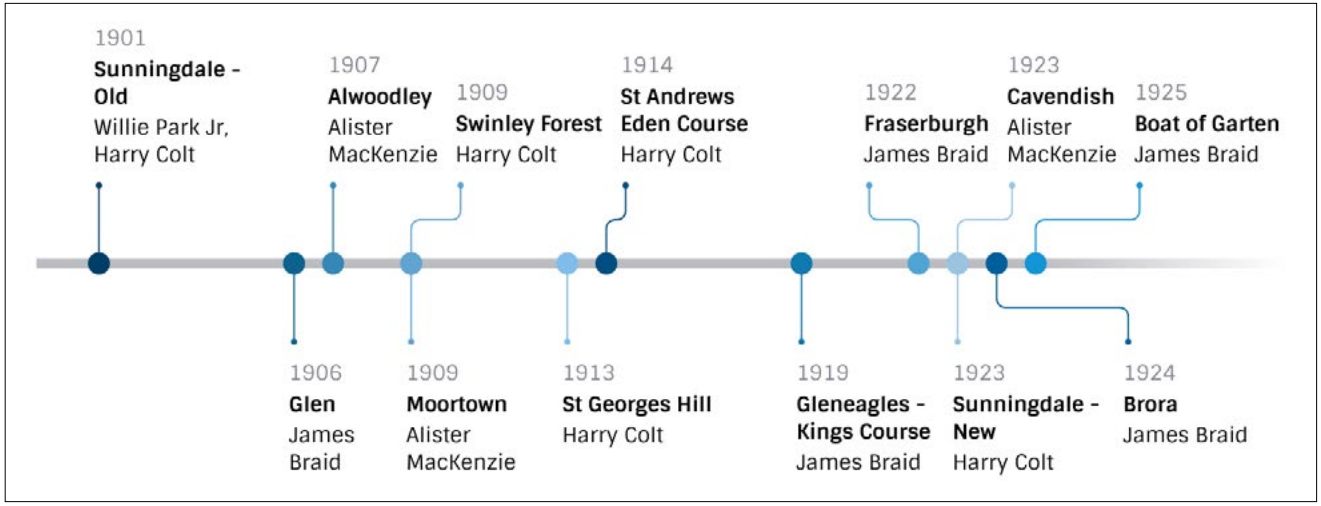
These two organisations have a leading role in influencing and guiding the direction that golf developments should take in order to best contribute to a sustainable future for golf.



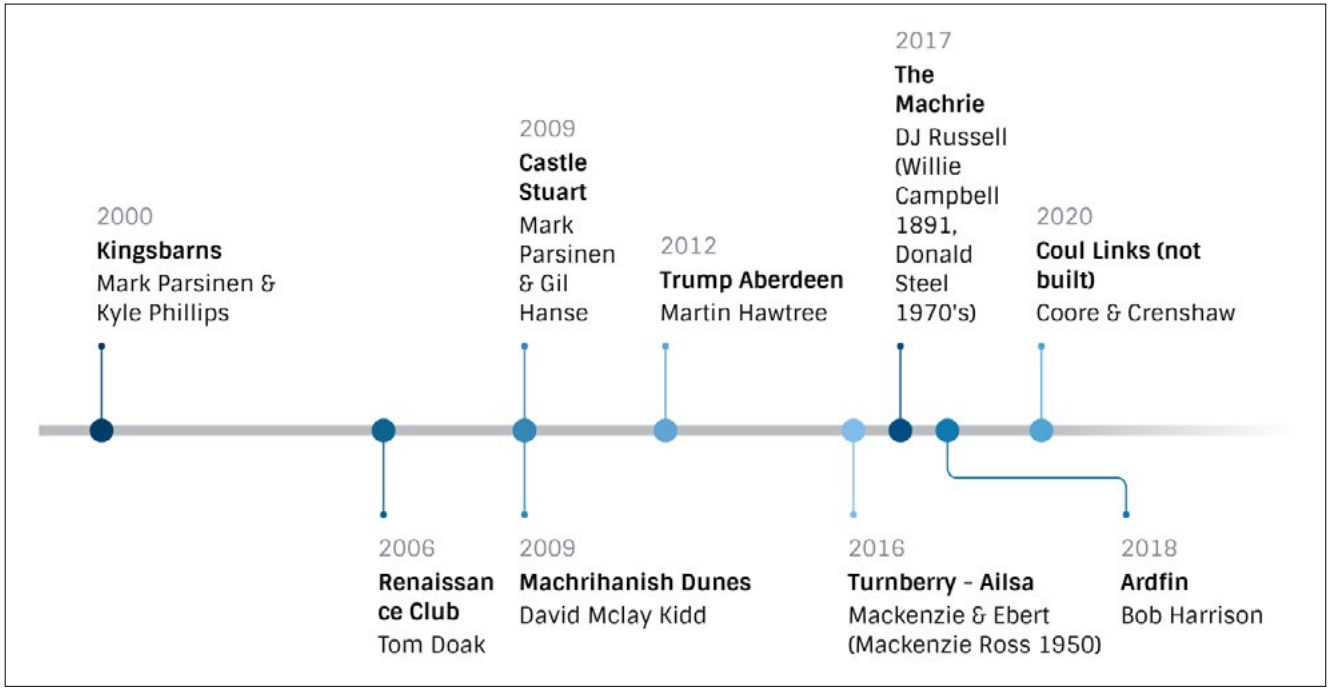
Timeline of the courses visited from the 'Early Influencers'



Timeline of the courses visited from the 'Early Inflencers' (without The Old Course & Musselburgh)



Timeline of the courses visited from the 'Golden Age'



Timeline of the 'Modern' courses visited

1. EARLY INFLUENCERS

A group of courses built pre-1900, that were influential to the growth in popularity of the game and subsequently the development of the golf architecture profession. Scott has termed these courses, the 'early influencers'.

They are blessed with being located on linksland that joins the sea with the heavier agricultural soils inland. The sandy ground meant it had little use to farmers at the time, but these conditions were ideal for the growth of fine-grasses that presented ideal surfaces for golf. This land was also often full of natural humps and hollows formed by the dune systems which provided the features to produce charismatic golf holes.

With kilometres of untouched dunes up and down the coast and few environmental restrictions on which land was available to choose from, the designers of the time began with a significant advantage. They would occasionally stake out the layouts in an afternoon and were fortunate that they had very few predetermined design parameters to adhere to. More practical considerations were common such as finding flat enough land that was easily accessible to build a clubhouse on. These locations were often close to or within the town and sometimes required the starting and finishing holes to be routed over less than inspiring ground before the course moved into the more compelling ground. Examples include Fraserburgh, North Berwick, St Andrews, and Elie. In the following years, tweaks and refinements would be made to the layouts as the courses became more popular and additional funds became available.

A dominant figure in all aspects of golf during this time was Old Tom Morris, who had a hand in laying out many of the new courses as the demand grew. These included improvements to the Old Course at St Andrews where he was Keeper of the Green for many years, Prestwick, Machrihanish, Royal Dornoch, Cruden Bay, Brora and Cullen Links. Interestingly, there was no set criteria of the number of holes required to make a course until the R & A issued new rules in 1858 that stated, *"one round of the Links or 18 holes is reckoned a match unless otherwise stipulated."* Having come from St Andrews where 18 holes had been in play for almost a century after reducing the course from 22 holes to 18 holes in 1764, Old Tom Morris still did not feel it was necessary that a course must be 18 holes when he laid out the 12-hole course at Prestwick in 1851.

Sustainability formed a key part of golf in the early years and many of these courses have subsequently proven to also yield excellent attributes in environmental stewardship. Consistent across many of these early courses was an economical use of the land with natural features and utilising the existing soils required to build the course. This was partly out of necessity as the equipment to move large volumes of earth was not readily available – but Scott is also optimistic that the early designer's approach to design would have refrained from doing so in any case. With little earth moved and many fairways created by simply mowing and cultivating the ground, the impact on the surrounding environment was minimal. Part of this Fellowship examines these fundamental design principles and how a balance can be accomplished today, to ensure that the game of golf is sustainable for future generations.

Most of the characteristics of these courses have survived and the best of them are typified with occasionally irrational holes, an element of luck, and blindness. This was true minimalistic design in the sense of very little large-scale earthmoving took place and use of the terrain was the main obstacle in the strategy of the hole. This approach to design produced fascinating golf that is most enjoyed in its purest form; a match against your opponent. Tom Simpson and H.N. Wethered describes the attraction of these early courses in their 1920 classic, The Architectural Side of Golf.

"The original charm of golf, its simplicity and naturalness, cannot be too strongly emphasized; and this was in a great measure lost when the demand for fresh courses grew, since it then became necessary to imitate what in the first instance had come into being spontaneously." [4]

Often disparaged by golfers today, blind shots were much more prevalent in the design of these early courses. Golfers accepted that luck was an integral part of the game. From the imperfect lies that were inevitable on the crudely maintained surfaces, to the excitement of walking over a hill to discover where your ball has come to rest. With golf today becoming more and more scientific with most carrying distance devices of some description, the value of blindness in creating deception and apprehension is perhaps more important than ever. Some of the most exhilarating examples of blind holes that Scott visited include:

» 4th & 17th Prestwick

» 14th & 15th Cruden Bay

» 4th Royal St Georges

» 4th Dunaverty

» 17th The Old Course

» 14th North Berwick

Of the 13 courses that Scott visited that are considered part of the 'early influencers', there were seven that stood out as being particularly inspiring. They were the Old Course at St Andrews, North Berwick, Prestwick, Machrihanish, Elie, Royal St Georges, and Cruden Bay.

4 H.N.Wethered, T.Simpson, The Architectural Side of Golf, Grant Books, Droitwich, 1995

St Andrews (The Old Course)

Scott had the opportunity to spend five days in St Andrews, where each evening as the mass of golfers playing the Old Course wound down, he would set out from town and walk the course for a few hours until dark. This might just be the perfect time to explore the course, with ideal low light highlighting the humps and bumps that make the holes so compelling. It also provided the chance to stop and study the slopes around the greens and the angles required to access certain pins.

It is these features that are integral to the strategy of the Old Course. They require the golfer to work back from the green and choose their best line within the undefined routes that are presented on most of the holes. Ample fairway width and a general absence of long rough are vital to allow this idea to flourish.

One could spend a lifetime studying the Old Course and might never fully comprehend its complexities. It is for this reason, that Scott argues against the recent changes that were made to the course – under the guise of making it a challenge to modern golfers. While the Old Course has not been immune to changes, and its evolution has been documented perhaps more than any other, there reaches a time where some places should just be left well enough alone.

In 1933, MacKenzie highlighted the brilliance of the Old Course, when he wrote: *"In discussing the question of finality it is well to enquire if there are any really first class courses in existence which have been unaltered for a considerable number of years and still remain not only a good test of golf but a source of pleasure to all classes of players…The only one I know if the Old Course at St Andrews,*

Scotland…Today, with the exception of the lengthening of some of the tees, St Andrews remains substantially the same as it was 70 years ago." [5]

Low light capturing the subtle slopes within the double green of the 4th and 14th holes at The Old Course

5 A. MacKenzie, Golf Architecture: Economy in Course Construction and Green-Keeping, London, Simpkin et al, 1920

More dramatic contouring within the double green of the 3rd and 15th holes at The Old Course

North Berwick Golf Club

The course that captures the quirk of yesteryear. Originally began as a 6 hole loop confined within the stone walls, but with the popularity of the game increasing, David Strath expanded the course to 18 holes which opened in 1877. Littered with ancient stone walls, blind shots, and rumpled ground, North Berwick, along with Prestwick and Cruden Bay, is one of the most significant of the 'early influencer' courses to demonstrate that golf architecture should not always be rational – and is usually better when it isn't. It shows the possibilities of incorporating unusual, quirky features in the strategy of a hole – such as the 13th which features a long narrow sunken green squeezed between a diagonal stone wall and neighbouring dune, requiring an exacting pitch over the stone wall.

North Berwick also holds significance being home to the original of several template holes that have developed in golf architecture, including the Redan (par 3 15th) and Cape style hole (par 4 2nd). Then there are the iconic moments at the 13th (Pit), 14th (Perfection), and the Biarritz-like green at the 16th hole that, with the Redan, form a stretch of holes that may be the best continuous 4-holes in the world. If not the best, then they are certainly the most unusual and enjoyable to play.

It is also a leading example of the popular out and back routing with starting and finishing holes in town in similar fashion to many of the early courses including the Old Course at St Andrews, Machrihanish, Brora, Elie, and Royal Aberdeen.

The mid-length par 4, 13th hole (Pit) requiring a delicate pitch up and over the ancient stone wall

The long par 4, 2nd hole (Sea) that provided inspiration for many Cape style template holes

The Biarritz-like green at the par 4, 16th hole

Prestwick Golf Club

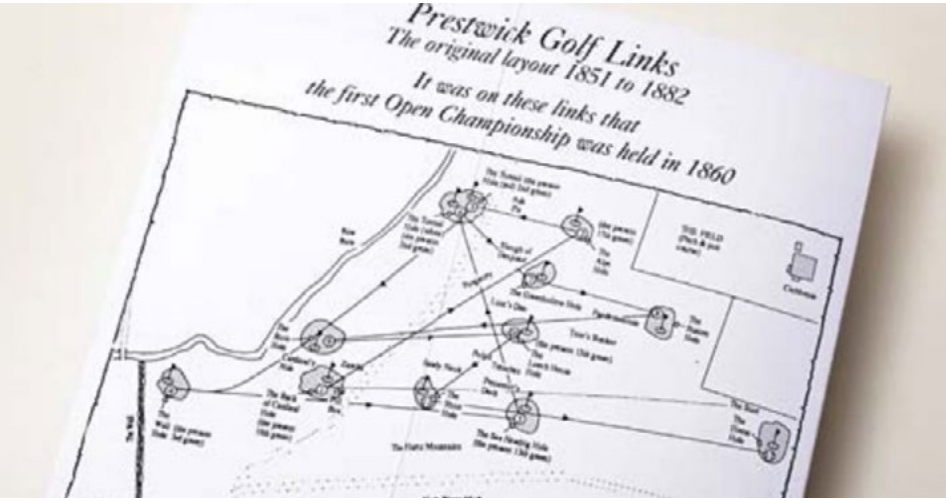
Originally a 12 hole layout by Old Tom Morris in 1851, the holes criss-crossed through the tightly confined dunes that would have demanded blind shots often across other holes and presented a safety concern with any more than a handful of groups playing the course. Yet, these 12 holes were where the Open Championship began with Prestwick hosting the tournament on the first 12 occasions.

Only one hole remains close to its original form, the 2nd hole in the 1851 12-hole version which is the current 17th hole (Alps) and the oldest existing hole in championship golf. The approach to the green features a blind shot played over a dune ridge to a green beyond – separated from the dune by the massive Sahara bunker which cannot be seen from the fairway. It requires an assured stroke that if pulled off is followed by the exhilarating experience of climbing to the top of the ridge to find whether your ball has carried the bunker or not.

An equally terrifying experience comes earlier in the round at the par 3, 5th hole (Himalayas) which also involves a completely blind shot over a ridge to a green littered with five bunkers on the left and one on the right. It is these eccentric moments that are part of what make Prestwick unique. It is also undeniable that the history and prestige of the Club adds to and is a crucial part of the overall experience.

Several of Prestwick's unconventional elements can be applicable in today's game. Potentially the most significant, is the historic connection to 12 holes. There are many circumstances today where less than 18 holes could be a more viable option for existing or new golf clubs. Many courses are facing financial uncertainty, decreasing memberships, and increasing operating costs. There are also outside pressures from other sports and activities that are faced with providing their service in a shorter, faster format. There is an opportunity for some clubs to diversify by considering the merits of alternative forms of golf – possibly combined with some form of development. A 12 hole layout provides maximum flexibility when laid out in two six-hole loops to enable two starting points and the option of

playing another six holes to make 18. So, while it might seem radical, shorter forms of golf played a role in the growth of the game at Prestwick and can also be part of creating a sustainable future.



Original 12-hole Prestwick layout 1851-1852 (source: Prestwick Golf Club)

The green of the 17th hole (Alps) plays over the dune ridge and beyond the daunting Sahara bunker

View from the tee at the blind par 3 5th hole (Himalayas)

Machrihanish Golf Club

A round at Machrihanish commences with perhaps the most exhilarating opening tee shot in golf, requiring a brave drive across the corner of Machrihanish Bay. Old Tom Morris added this hole in 1879 as part of his work to extend the previous 10 hole course to 18 holes.

Among the first courses visited by Scott on his itinerary, Machrihanish was an introduction to proper, wild Scottish links golf and there are few that are in a greater setting. The site incorporates an impressive large dune system that is designated a Site of Special Scientific Interest (SSSI), Scotland's highest level of environmental protection. Sharing these dunes is neighbouring course, Machrihanish Dunes, which was opened in 2009, and was the first new course to be built on a SSSI designated site. Part of the conditions of allowing the development involved extremely strict requirements on how much of the land was allowed to be altered as well as strict ongoing management practices once the course had been built.

Machrihanish, on the other hand, was built at a time when there would have been little environment legislation and has coexisted and evolved with the dunes for more than a century. The approach that Old Tom Morris would have taken in 1879 to lay out the course would likely have been met with approval from the environmental agencies today. Likewise, the early maintenance practices, which utilised what was available from the land and promoted the most suitable grasses for the conditions. Sustainability was a key part of the golf in the beginning. There were not the resources or equipment readily available to move large volumes of earth – and nor was it considered to be necessary at the time. The holes play up and over and around the dunes largely as they were found with minimal impact caused to the surrounding environment. The result is captivating with unusual and incredibly natural holes that are not found on today's modern links. This approach provides a key insight into how a course could be routed today on a site that is of high environmental significance.

Far more than an impressive set of dunes, the finer detail at Machrihanish is equally impressive with some of the most unusual and charismatic greens that are perhaps unrivalled in all of Scotland. The highlights are many but reach their peak at the 2nd, 5th, 12th, and 13th greens.

Perhaps the most exhilarating opening tee shot in golf

The one-of-a-kind part punchbowl second green

The audacious 5th green is the perfect complement to the inspiring tumbling ground that makes the 5th fairway

The 8th and 10th holes routed through the SSSI listed large dune system

The difficult to hold 13th green features a large false front before the remainder of the putting surface has a significant front to back tilt

Golf House Club Elie

Elie embodies what early Scottish golf was all about. It is a short charming layout that starts and finishes in town, is full of quirk and has a multitude of blind shots that includes the famous first hole with the modified submarine periscope in the starters hut to see over the hill. Originally 9 holes before being stretched to 11 and then 14, Old Tom Morris finally extended the layout to 18 holes in 1895.

There are 16 par four holes with only two par threes and no par fives. Despite this, the course feels far from monotonous and consists of a wonderful variety of par four holes. Perhaps the most valuable takeaway from Elie is the subtle manner in which the course creates interest and difficulty on many of the short par 4's. In particular, the challenge that can be presented by greens that fall away while presenting firm and bouncy surfaces. The tenth hole epitomises this idea. At only 288 yards and often playing down the prevailing wind, the green is out of sight over the hill from the tee and falls with the lay of the land away from the player towards the sea beyond. The approach into this green can be a very short shot, but one that must be placed perfectly before the green to avoid running through.

Also of interest was the history of some of the Clubs that had rights to play over the links which included James Braid as part of the Earlsferry Thistle Golf Club. This is the course where Braid learnt the game and probably started developing his ideas in golf architecture. It is then by no means a surprise that Braid would have been inspired by Elie in some of his designs.

The fall away green at the conclusion of the often downwind short par four 10th hole

Royal St Georges (Sandwich)

Sandwich is among the most provocative of the Open rota venues – at least among the professionals. Mark Calcavecchia once rated it *"dead last"* of the Open rota courses and described it as: *"There are a bunch of fairways you can't hit. There are a few blind tee balls. And it seems like some of the angles and where bunkers are, are kind of quirky."* For professional golfers, these elements might present as being unfair where they cannot control with exact precision how and where their golf ball will finish. However, a description of this kind is everything that is appealing about the traditional British Isles sea side links – and that creates one of the most interesting and demanding courses played for the Open Championship.

Laid out in 1887, the course has been lengthened and altered significantly over the years, yet it retains its quirkiness and big dunes feel. Such as the 4th hole which requires a drive over one of the highest dunes on the property with the intimidating Himalayas and Coffin bunkers set into the dune before the rolling fairway beyond leads into the green that consists of a large false frontal ridge that rejects all but the best placed approaches.

Another of the highlights at Sandwich comes at the 12th which requires a drive over a ridge to a diagonal fairway beyond. The further right one plays the longer and more dangerous the carry over the ridge and the two bunkers set into it – yet successful negotiation is rewarded with a considerably shorter approach to a treacherous green that falls away on the left side.

The perfect big scale dunes to route a course

The rolling fairway leading into the 4th green with half the pin visible

The treacherous approach into the 12th hole

Cruden Bay Golf Club

Another course originally created by Old Tom Morris in 1899, before Tom Simpson redesigned the layout in 1926, keeping most of the original routing and several green sites. Scott was fortunate to tour the links with Cruden Bay local, Ru Macdonald, who along with hosting the Scottish Golf Podcast, is a keen advocate of the quirky links that has become a cult classic among golf architecture aficionados.

Cruden Bay is a prime example of courses that do not conform with any predetermined design parameters – and are better for it. Such as the back to back blind approaches, first to the famous bathtub green at the 14th hole, followed by the bold and blind par 3 15th that plays across the corner of a hill.

The stretch of holes from 3 – 7 are particularly inspiring. The 3rd hole is a wonderful short par 4 requiring a blind tee shot between two humps to a fairway that tumbles down towards a sunken target. Followed by the attractive par 3, 4th hole that plays from next to the town along the river towards the sea, before turning and playing along the coast at the 5th hole through a set of massive dunes. The par five, 6th hole features a green that is nestled amongst the dunes beyond a burn that lies approximately 60 yards short presenting a true risk reward option. However, perhaps the crescendo of the front nine is reached at the long and demanding par four 7th. After choosing how much of the dog leg to take on, the hole turns to the left and presents a long, narrow green squeezed between a gap in the dunes with most of the pin positions hidden from view depending on your angle from the fairway.

Similar to Prestwick, this course presents several exhilarating moments that are rarely found on the modern links. Traversing the dunes to find where your shot has finished at the 3rd, 7th, 14th, and 15th holes brings excitement that cannot be underestimated. Cruden Bay's strongest features are in its quirky and unusual moments. The Fellow hopes that recent murmurs within the Club of making changes including removal of the blind par 3 15th are avoided and the Club stand by what makes them unique. This is part of the attraction of visiting and what makes them standout from some of the more mundane modern links.

Scott photographed on the 9th tee which provides an outlook onto the entire links below. Notably, the blind 'bathtub' green of the 14th hole is clearly in view and it is prudent to take a look at pin positions for later in the round.

Looking back at the short par 4, 3rd hole played over the hill to the sunken green

The dramatic par 4, 7th hole with the narrow green squeezed between the dunes with Cruden Bay local, Ru Macdonald

The blind tee shot at the par 3, 15th hole played over the corner of the hill

Other 'early influencer' courses that Scott visited on his travels included Musselburgh Links, Royal Dornoch, Royal Aberdeen, Cullen, Dunaverty, and Gullane.

2. 'GOLDEN AGE' OF GOLF ARCHITECTURE

The second theme of the Fellowship relates to a series of courses that were designed (or redesigned) during a period in the early 20th century known as the 'Golden Age' of golf course architecture. First termed the Golden Age by architect Tom Simpson, it is now generally accepted as running from approximately 1900 – 1940, with its peak between the end of World War I (1918) and the beginning of the Great Depression (1929). More of the greatest courses in the world were built during this period than any other in history. Not only were great courses being built during this time, but some of the most significant and influential literary works were also written by the foremost architects of the day. These writings, along with their courses, have continued to influence golf course architecture today.

The quality of work produced at the time was not isolated to Great Britain. Architects such as Donald Ross, Charles Blair Macdonald, Seth Raynor, A.W. Tillinghast, Stanley Thompson, and William Flynn were also producing exceptional courses and pioneering golf course architecture in America.

Scott chose to focus on the work of three key architects operating in Great Britain during this period – Harry Colt, Alister MacKenzie, and James Braid. There were several others such as Tom Simpson and Willie Park Jr that would also have been worthy to study – and while Scott visited some of their courses, they are not covered within the constraints of this report.

The intention on leaving for Great Britain was to study several courses from each of these architects. One aspect that was of interest was to identify the features of each course that were original and those that had been altered over time. While this was quite apparent in some cases, Scott quickly discovered that without the investment of significant time researching the history of each course, that it would be quite difficult to be certain about some changes – and even some of the Clubs were not sure themselves.

During this period, architects would spend much less time overseeing the construction work than occurs today. In some cases, the plans and reports were submitted, and it was left to the Club to implement the construction as they deemed fit. On other occasions, such as when St Georges Hill, Swinley Forest, or Sunningdale were built, Colt lived nearby and would spend much greater time on site, overseeing the construction of their features.

Of most importance in the appreciation of the work of the architects during this time, is a study of the routings. The routing provides the backbone to the course and regardless of who and how the individual features of the courses were built or altered over time, the use of the property's topography and natural terrain in the strategy of each hole is easily discernible. This does not mean that the finer details are not important, but they are much easier to alter or improve, and in many cases were probably not implemented in the intended manner of the architect.

Below is the list of courses that Scott visited from each of the 'Golden Age' architects selected:

MACKENZIE	COLT	BRAID
Alwoodley	*St Andrews (Eden Course)*	*Boat of Garten*
Cavendish	*St Georges Hill*	*Brora*
Moortown	*Sunningdale (Old & New)*	*Fraserburgh*
	Swinley Forest	*North Berwick East Links (Glen)*
		Gleneagles (Kings)

Dr Alister MacKenzie

Early in his career, Scott developed a keen admiration of MacKenzie's work which has had a major influence on golf course architecture in Australia. With a strong familiarity of MacKenzie's Australian projects, Scott was keen to visit some of MacKenzie's early designs that have been well-regarded in the UK including visits to Alwoodley, Moortown, and Cavendish.

MacKenzie grew up in Leeds, England before studying to become a doctor at Cambridge University. He became fascinated with the use of camouflage through the Boer War and World War One and later used these skills in shaping the land to appear natural to great effect in his career as a golf course architect.

Following a brief stint in partnership with Harry Colt and Charles Alison, MacKenzie branched out on his own and serviced projects in England, Scotland, Ireland, Australia, New Zealand, United States, and Argentina.

In England, two of MacKenzie's earliest designs, Alwoodley and Moortown, have undergone significant restoration projects in recent years to rediscover the design features, character, and style that MacKenzie had envisioned. Visiting and gaining an understanding of the themes and objectives of these restoration projects was beneficial for Scott in gaining a deeper understanding of some of MacKenzie's design principles and how the implementation of them varied at different courses. This was particularly relevant given the number of leading courses in Australia that have been designed or influenced to some degree by MacKenzie.

MacKenzie's writings are essential reading for students of the game. 'Golf Architecture' was published in 1920 and 'Spirit of St Andrews' was written in 1933 but not published until 1995. Both contain MacKenzie's famed thirteen principles of golf architecture which remain almost entirely relevant today. Without discussing all thirteen in this report, there are three principles that resonate with Scott's design philosophy more than others. They are numbers 7, 8 and 9:

"The course should have beautiful surroundings, and all the artificial features should have so natural an appearance that a stranger is unable to distinguish them from nature itself."

There should be a sufficient number of heroic carries from the tee, but the course should be arranged so that the weaker player with the loss of a stroke, or portion of a stroke, shall always have an alternate route open to him.

There should be infinite variety in the strokes required to play the various holes – that is, interesting brassie shots, iron shots, pitch and run up shots." [6]

Alwoodley

MacKenzie was a founding Member, first Secretary and architect of the Alwoodley course. This was MacKenzie's first venture into golf course design following years of studying the subject. It was the place where he was able to first test and refine his design ideas, having made constant improvements to the course over a 20 year period from 1907 to around 1930.

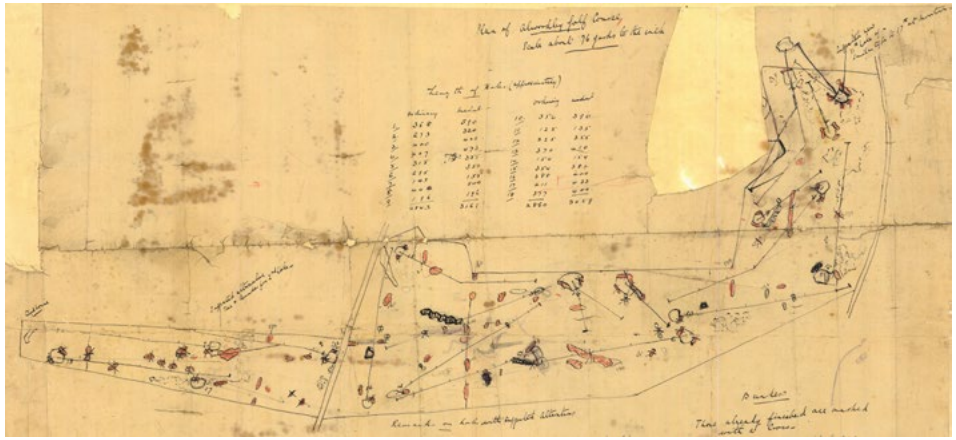
Scott was fortunate to meet with Nick Leefe, Club Historian, Honorary Secretary of the Alister MacKenzie Society and long-time member of Alwoodley who provided a tour of the course and background to the changes that have been made to the course over the years. Interestingly, Leefe explained that there wasn't a lot of interest in MacKenzie in the 1990's when the original plan was discovered in the Club's archives. Over the last few decades, appreciation of MacKenzie's designs have grown both at Alwoodley and at his other courses around the world.

During the 1990's the club carried out an ambitious program to replace the green profiles in order to improve their condition and performance. The greens were all surveyed with GPS which was one of the earliest examples of using CAD technology in this fashion in order to record and preserve the intricate shapes of the greens, many of which were originals.

6 A.MacKenzie, Spirit of St Andrews, Sleeping Bear Press, Chelsea, 1995

Alwoodley embarked on a course improvement program in 2009 under the guide of Ken Moodie of Creative Golf Design. Unfortunately, Scott was not able to meet with Ken during his visit to Alwoodley, however, correspondence via email was beneficial and Ken kindly provided documents on Alwoodley including the Proposals for Course Improvements report, plans, and before and after photographs. The project brief asked to look at strategic and aesthetic improvements to the course while preserving it's character and heritage. Two major areas of improvements related to the reinstating and unifying the 'MacKenzie' approach to the bunkers, and the vegetation management which included a large amount of tree removal and rejuvenation of the native heather in the outer roughs.

Scott discussed the detail of some of these improvements in an article titled *'A Case for Course Improvement'* written for the Society of Australian Golf Course Architects annual Journal, 'Golf Architecture' in 2017.



MacKenzie's original working plan of Alwoodley Golf Club probably dated around 1909-1910 (source: Alwoodley Golf Club)

An example of the restoration of heather in the outer roughs and bunker edges on the 8th hole

Restoration of the 'MacKenzie' style of bunkering at the 9th hole. (source: Tim Gallant)

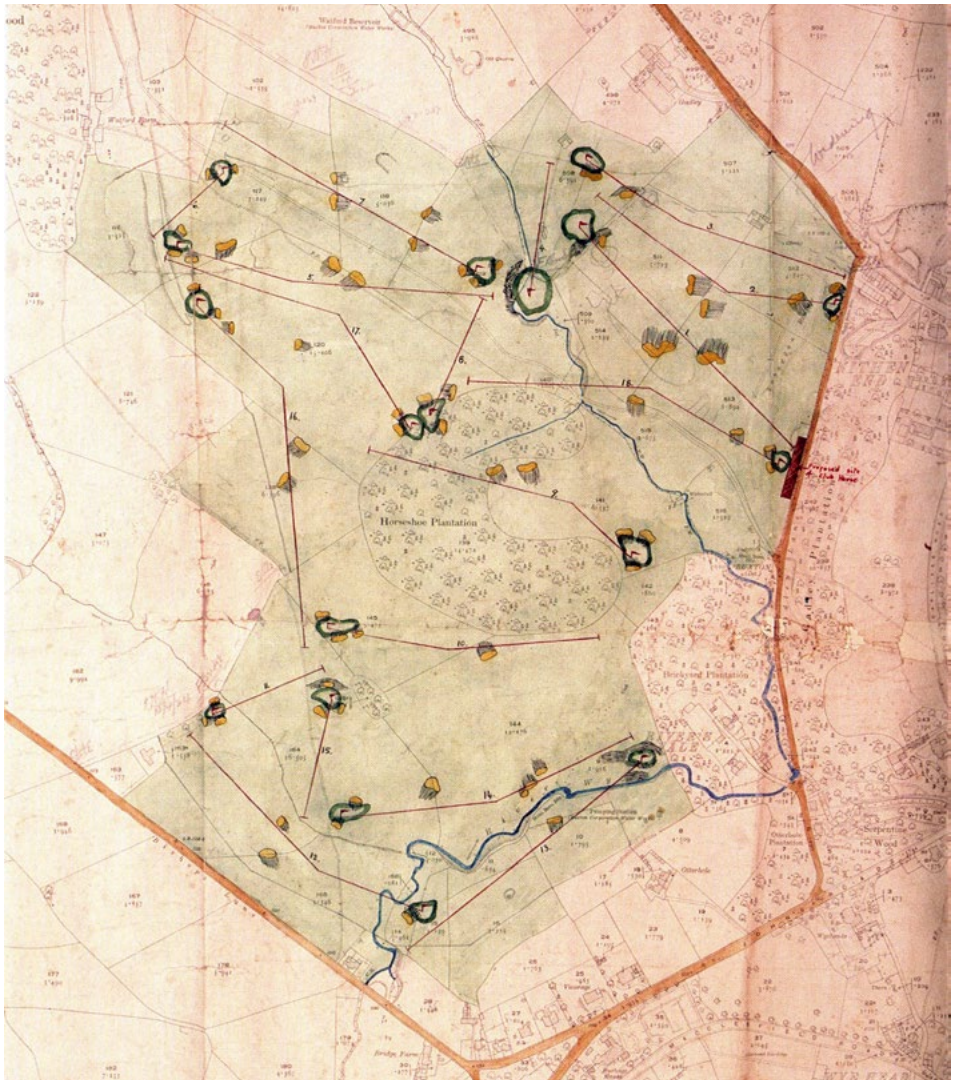
Cavendish

"Above all, I realise that more golf courses are ruined by spending money on them than by refraining to do so." [7]

While Alwoodley was MacKenzie's first design, Cavendish is arguably his most intact - partly owing to the Club having limited financial resources over the years. Without the financial means to do so, the temptation to make changes to the course was probably reduced. The benefit of this is that the course played today is mostly unchanged from how MacKenzie and his brother Charles' construction company, the British Golf Course Construction Co. built it in 1924. A handful of bunkers have been removed and the 9th green reinstated in recent years by architect and Member Jonathan Gaunt.

Scott met with Richard Atherton (Treasurer of the Alister MacKenzie Society and Cavendish Member) to discuss the course and MacKenzie's role in its design. Originally designed for the Duke of Devonshire / Cavendish Family at Chatsworth, MacKenzie proposed that portions of holes 1 (green), 2 (tee), 3 (green), and 4 (tee) used a triangular piece of land to the north of the current 1st green. Unfortunately, this land was not able to be secured forcing MacKenzie to revise his plans.

Site of MacKenzie's original design for the 1st green beyond the stone wall.



Plan of the Layout by Alister MacKenzie, 1923 (Source: Cavendish Golf Club)

7 A. MacKenzie, Golf Architecture: Economy in Course Construction and Green-Keeping, London, Simpkin et al, 1920

Plan of the constructed course by the British Golf Course Construction Co. 1924 (Source: Cavendish Golf Club)

Moortown

Scott visited Moortown with two key aims; to observe the recent course improvements that were made under a restoration program led by Ken Moodie of Creative Golf Design; and to examine MacKenzie's famous Gibraltar hole, the par 3 10th hole which MacKenzie was commissioned to build as a sample of the potential course in order to attract members and secure finance to build the remaining holes.

So significantly had the course changed in character from MacKenzie's original intent, that 2000-3000 trees had to be removed as part of the improvement program to rediscover the low moorland landscape and rejuvenate the native heather. Supported by Natural England, the Club have undertaken significant landscape restoration projects that are still in progress today.

The process of restoring MacKenzie's 'hillock bunkering' on the 12th hole. (Source: Ken Moodie)

Harry Colt

Harry (born Henry) Shapland Colt was born in 1869 in Highgate, England and became one of the most influential golf course architects in history. Trained as a solicitor, Colt became involved in golf course design initially through his tenures as Secretary at Rye Golf Club and later Sunningdale Golf Club. As demand for his services soared, he subsequently established a career full-time as a golf course architect building an extensive resume of courses across multiple countries including England, Scotland, Canada and the United States. Colt was a collaborator and at various times throughout his career worked in partnership with Alister Mackenzie, Charles Alison, and John Morrison – as well as collaborating with George Crump (among others) at Pine Valley. Through his partners, Colt's influence stretches further afield including to Australia, Japan, and South America.

Colt wrote three pieces on golf course architecture covering topics from his design philosophies to the practicalities of golf course construction, where he was one of the first to promote the idea of creating 'links-like' conditions on inland courses, by making extensive agronomic improvements to the ground. Colt favoured an approach that used and improved on the natural features of a site and wrote about this idea in his 1920 book, *'Some Essays on Golf Course Architecture',* stating that:

"I firmly believe that the only means whereby an attractive piece of ground can be turned into a satisfying golf course is to work the natural features of the site in question. Develop them if necessary, but not too much; and if there are many nice features, leave them alone as far as possible, but utilise them to their fullest extent, and eventually there will be a chance of obtaining a course with individual character of an impressive nature." [8]

Where these natural features were not present, Colt firmly believed that any man-made changes should be made to mimic nature and to look as natural as possible so that they were indiscernible to the untrained eye.

8 H.S. Colt, C.H. Alison, Some Essays on Golf Course Architecture, Country Life, London, 1920

Colt is well-known for producing brilliant par 3 holes. He is also known for using diagonal cross hazards, subtle contouring of greens, a dislike of blind shots, and viewed trees as a 'fluky' hazard. However, Colt was never inhibited by these ideas, nor are they accurate descriptions for all Colt courses. Perhaps the most appropriate description of Colt's work is to borrow a term used by his partner, Alister MacKenzie, and describe his courses as encompassing an *"infinite variety"* of design features and styles.

St Andrews (Eden Course)

The fourth course to be built at St Andrews (behind the Old, New, and Jubilee) was the Colt-designed Eden Course which opened in 1914 – however the course that Scott walked and that is played today, is significantly different due to the expansion of the St Andrews Links Trust practice facilities in the 1980's. The opening two and closing two holes on the course were replaced with holes designed by Donald Steel on a flat, wet field at the western end of the course. Unfortunately, these holes are on inferior ground and among the weakest of the current layout.

The original Colt greens on the Eden Course are a highlight and worth studying on any trip to the St Andrews area. They are significantly more contoured than many of Colt's other courses where he usually favoured a subtler approach. One can muse that this was MacKenzie's influence at the time, or inspiration drawn from the charismatic greens on the Old Course – however, no one can ever be certain. The first (original 3rd) for instance is a tiered green, with a pronounced spine running parallel to the length of the hole, effectively splitting the green into a left and right side – a feature also used by Colt at St Georges Hill a year earlier with variations of this idea evident on their 10th and 14th greens.

While the course will unlikely ever regain the Colt holes that were replaced, it would benefit from revisiting the new holes and modifying them in a manner more consistent in style to the original Colt holes.

The first (original 3rd) green on the Eden Course with a pronounced spine splitting the left and right sides.

St Georges Hill

Perhaps Scott's favourite course of the heathland area, St Georges Hill, is on more dramatic terrain than the other heathland courses and was part of probably, the world's earliest gated golf and residential community. Built in 1913, the real estate is amongst the most sought-after around London – however beyond just being an exclusive location, the holes have an impressive scale and grandeur carved through a forest providing ample setback and isolation from the surrounding residential properties.

A mammoth undertaking, the construction required on average 1500 trees to be removed per hole, as well as the removal of peaty soil and subsequent follow up treatments to present conditions suitable for growing fine manicured turf. The routing utilities the sizable hills, ridges, and ravines as a key part in the strategy of many of the holes, as does the attractive purple heather found in the long rough.

Scott toured the course with the Club's Consulting Architect, Tim Lobb, to discuss the history of the course and the planned improvements aimed at restoring some of Colt's original design intent. Colt's routing of the course is largely intact apart from the first green. A new first green has since been rebuilt, roughly half way between the original Colt green and the previous green. In order to establish similar playing surfaces to the rest of the greens, a sample of the soil profile was taken from several other greens and an average used to produce a specification for the materials in the new green.

Most of the other planned modifications are of a subtler nature, concerned with reinstating the size and grandeur of the bunkers and improving how they sit within the surrounding landscape. Comparing historic photographs and orthophotos with modern surveys has helped demonstrate the changes that have taken place over time. There is a concerted effort to regain the sand faces on the bunkers that have been lost to grass over time as well as reinstate a few that been removed by previous well-meaning committees. Scott and Tim also inspected the progress of several areas of heather restoration, with Tim demonstrating the process that the Club implements to help the seed within the ground naturally rejuvenate – a process that normally takes approximately two years.

As described above with the Eden Course, there are several greens that feature a large spine running parallel to the line of play. The 14th green has one that protrudes from behind into the green before bleeding out – creating demanding long putts should one be on the opposite side to the hole.

The 14th green at St Georges Hill with pronounced spine protruding from the back of the green splitting the left and right sides of the green.

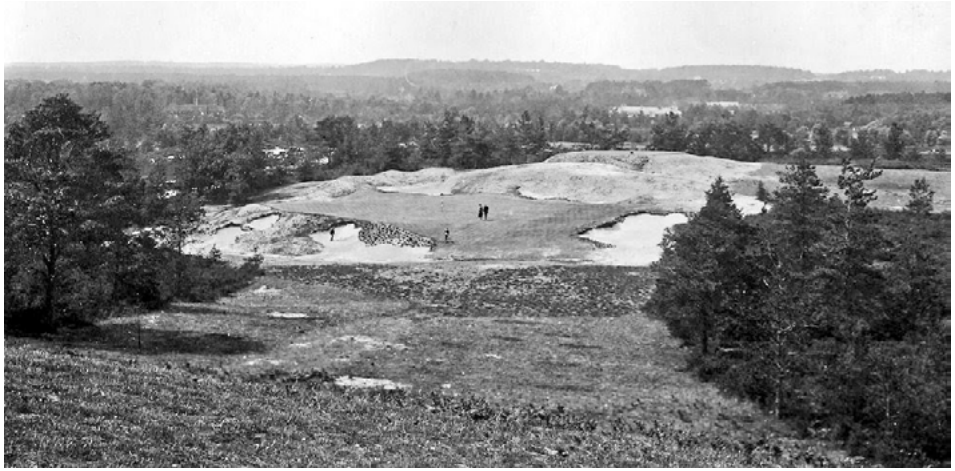
Sunningdale – Old and New Courses

Colt has arguably had greater influence at Sunningdale than any other of his designs partly due to his role as Club Secretary from 1900 - 1913. Scott met with current Club Secretary Stephen Toon, who provided a tour of the Old Course followed by lunch and a tour of the New Course with Courses and Estate Manager, Jamie Wilson. Discussion naturally lead to the impact of Colt and changes to the routing over time including the recent rediscovery of Colt's 'lost holes' which Jamie was instrumental in locating and uncovering them through clearing of the overgrown corridors.

Interestingly, Sunningdale are not strictly Colt disciples, however they generally keep the feel and character of the course in line with Colt's intentions. This is aided by regularly reviewing old photographs of the course and maintaining features such as bunker edges in a similar fashion including promoting the growth of heather – a key component of the property's landscape.

The Old Course was designed by Willie Park Jr and opened in 1901. Later, several holes were modified by Colt while he was Club Secretary. As demand for Colt's design services grew, and several years of balancing his Secretary duties with course design commissions, he relieved his duties and began consulting to other Club's full time. With enough demand to increase their facilities, Colt returned to Sunningdale to design their New Course which opened in 1923.

Several years after the New Course opened, the membership decided that the middle section of the course was too hilly and called in Tom Simpson to build five new holes (holes 6 through 10) before they were reconfigured again by Colt's design firm partner John Morrison. The original 'lost holes' by Colt have recently been rediscovered by the Club amongst the forest that has grown over time. Upon discovering the holes, the Club embarked on a process to clear some of the corridors (such as the old par 3 10th hole on the New Course) leading to fascinating comparisons of old photographs with the view presented today. It is understood the Club have no intention to revert to these holes, and perhaps for good reason given the decision made by an earlier membership. Even so, it is pleasing to see the Club uncover and show a unique part of their history.



Colt's original 10th hole on the New Course at Sunningdale

The rediscovered 'lost' 10th hole as seen today.

Scott also visited Swinley Forest, another Colt designed course in the heathlands and one that Colt modestly describes as his "least bad course".

James Braid

Responsible for the original design or redesign of over 400 courses, Braid was one of the most prolific architects operating in the early 20th century. Born in Fife in 1870, Braid started his career in golf as a fine player, winner of the Open Championship five times and forming one-third of the "Great Triumvirate" with Harry Vardon and John Henry Taylor. Commencing his design career in 1897, Braid was in high demand up until his death in 1950.[9]

Scott was barely able to scratch the surface of Braid's extensive portfolio, however, was fortunate to visit some of Braid's most significant works including Brora, Fraserburgh, Boat of Garten, Glen, and the Kings Course at Gleneagles.

Braid's written design philosophy was a little more definitive than other architects operating at the time. He had set views on what an ideal course should look like, including the length and nature of certain holes within the routing. For example, the 17th and 18th should be long, difficult holes to provide the better player an opportunity to win the match.

His design views also tended towards providing fairer circumstances that would reduce the chance of luck that might aid the lesser golfer in a match. For example, Braid believed that while greens should have plenty of undulations in them, the 18th green should be as flat as possible to reward a good putter and eliminate the chance of lucky putts. Consistent with the view of many professional players, Braid also disliked the luck involved with blind shots and believed they should be avoided where possible.

Braid believed that the placement of bunkers should "catch particular kinds of defective shots" rather than influencing the strategic placement of good shots. As such, Braid wrote about favouring bunkers along the edges of holes rather than cross bunkers.

Thankfully, the rigidity of his words did not always transfer onto the ground. Braid also believed that the use of natural hazards is best and that they should be used wherever possible to create interesting holes. Many of Braid's courses are exceptional examples of this idea and are inspiringly routed over and around dramatic terrain.

Brora

Originally a 9 hole golf course laid out by Old Tom Morris in 1891, the Club extended the course to 18 holes around 1900 before inviting Braid to visit in January 1924 to prepare a plan which would totally overhaul the course. Arguably Braid's most acclaimed design, most of his suggestions were carried out and remain largely unchanged to this day.

Scott met with Club Secretary, Tony Gill, who is also Treasurer of the James Braid Society to discuss the history of the course and Braid's involvement in its design, including comparing a copy of Braid's original plan and letters of correspondence with the course today.

Not uncommon for Braid at the time, he made one visit by train, walked the course with a member of the Committee and was on the next train out where he would often make notes of his most recent visit. Braid subsequently sent the plan with accompanying notes and left for the Club to decide what features of the plan they would implement. On this occasion, Braid made another trip that he privately funded to make some refinements to the plan.[10]

9 J.F. Moreton & I.A.I. Cumming, James Braid and His 400 Golf Courses, Grant Books, Worchestershire, 2013

10 J.F. Moreton & I.A.I. Cumming, James Braid and His 400 Golf Courses, Grant Books, Worchestershire, 2013

With electric fences to protect greens from the sheep and cattle the roam the fairways, Brora is charming and takes the golfer back to a time when Braid wandered the links.

Fraserburgh

Founded in 1777, the seventh oldest golf club in the world moved its course to its current location in 1891. Braid visited in 1922 to provide advice on proposed improvements to the course that had become out of date[11] due to the changes in equipment at the time. Braid's proposal consisted of a seven-page letter that suggested alterations for every hole with some requiring completely new greens and tees. It appears Braid did not oversee any of the construction which was left to the golf club at the time to interpret Braid's vision. This was aided with detailed notes about the proposed improvements, such as on the 18th hole, Braid recommended:

"A bunker at the right hand corner to be cut in half-moon shape extending round the back of the green. Ten yards long and four yards wide raised at front two feet six inches high so as to show up the green." [12]

It was not uncommon for some architects of the time not to oversee the construction of their recommended alterations which on occasion lead to a lack of sophistication in the shaping of some of the finer details of the greens, bunkers, etc. As is the case today, the result on the ground is partly dependant on having a skilled operator completing the work. It is likely that had Braid spent more time on the ground during the construction, an enhanced outcome would have resulted.

As is often the case at many of the early links courses, the clubhouses were often situated on the flatter ground nearest the town or access road. As is the case at Fraserburgh, the opening and closing holes are often on less than inspiring ground before the rest of the course moves into the more dramatic land.

The highlight at Fraserburgh comes at the par 4, 13th, a short par 4 that features two tightly mown mounds with a narrow opening between them through to the green that has a significant slope at the back that can help feed balls back towards the middle of the green. The variety of approach shots that are possible depending on the pin location is what makes this hole so fun. One can use the mounds to deflect their ball to access a left or right pin or play directly over them but risk their shot being impacted by the wind.

Despite being located on the other side of the world, this hole also provided the inspiration for the 9th hole at the course designed by Gil Hanse for the 2016 Rio Olympics in Brazil. Kyle Franz, a shaper on the Rio course, visited Fraserburgh several times during the winter and was so enamoured with the idea that he replicated the concept for the approach to the 9th hole.

11 J.Cranna, Correspondence Fraserburgh Golf Club, Fraserburgh Herald, 7th November 1922

12 J.F. Moreton & I.A.I. Cumming, James Braid and His 400 Golf Courses, Grant Books, Worchestershire, 2013

Fraserburgh's 13th green tightly guarded by two tightly mown grassed mounds

Side view of the 9th green at the Rio Olympics Course with the pronounced mounds leading into the front of green visible (Matthew Stockman / Getty Images)

Gleneagles (Kings Course)

Braid's skill of using the natural terrain as a hazard is on full display on the Kings Course at Gleneagles. The exceptional conditioning that provides firm and fast surfaces allows running shots that support the use of the elevation change and slopes that can deflect, or aid ones shot.

Braid's use of blindness is also on display. At Gleneagles, it first comes at the quirky 3rd hole where one is asked to play a completely blind shot high up and over a ridge located directly in front of the green.

Blindness is used again at the dramatic par 4 7th which uses the natural terrain as the main hazard and strategic element. The hole features a diagonal ridge to a blind fairway beyond where a longer but riskier drive across the ridge is rewarded with a shorter and better angled approach to the green. The often-long approach shot for those who played a tee shot safe to the right are challenged by a run of cross bunkers short of the green.

Another example of Braid not necessarily being constrained to his written design philosophies comes at the exceptional short par 4 14th hole, where a string of cross bunkers are set into a ridge across the fairway. For those long enough, a drive played over the bunkers will likely be aided by slopes that will kick the ball forward and onto or near the green. The course has benefitted from a recent restoration project carried out by Course Manager Scott Fenwick, that mostly concerned with improving conditions and bunkers, raising sand lines and widening fairways back to the bunkers that had become situated in the rough. Greens surfaces were expanded, and running shots were promoted with fairway and greens surrounds also expanded. The restoration project could have gone further still by recreating some of the looks from historic photographs that were available. For example, the 14th hole presented a perfect opportunity to reinstate a bunker which had been lost overtime due to the growth of the heather and gorse.

The approach shot to the 3rd green with marker post on top of the ridge.

The tee shot on the 7th hole played over the diagonal ridge to a blind fairway beyond

The 14th hole on the Kings Course in the 1920's (Source: Gleneagles)

The 14th hole as seen today. Note the far-left bunker that has been lost to encroaching gorse.

Scott also visited two other courses that are attributed to James Braid; Boat of Garten and Glen Golf Club in North Berwick.

3. MODERN DESIGNED COURSES

The third Skill Enhancement Area of the Fellowship relates to courses (early influencers and modern) that were built in sensitive coastal dune environments and examining best practice approaches to their design and construction.

This included the previously discussed courses that had coexisted and evolved with nature for more than a century such as North Berwick, Machrihanish, and Prestwick. It also involved looking at courses that had been built in coastal dunes in the last 10 years such as Machrihanish Dunes and Trump Aberdeen.

In addition to those mentioned that are in coastal dune environments, there have been a handful of recent modern courses to open in the UK on spectacular coastal sites that are not necessarily naturally suited to golf. These include arable or farming land, peaty or rocky ground and while still spectacular, they have the benefit of reduced levels of environmental protection and therefore an easier process to gain government approval.

As the protection of sites with high environmental value is amplified and the ability to build golf courses on such sites reduced, there will become an increased need to create golf courses on these types of sites. Scott was keen to visit two of the most highly acclaimed recent examples of such projects; Kingsbarns and Castle Stuart.

Kingsbarns Golf Links

Kingsbarns and Castle Stuart are both coastal courses that can be classified as a new type of modern artificial links, located on sites with beautiful vistas that required significant earthmoving to create. Both were developed and designed by Mark Parsinen with the assistance of co-designers Kyle Phillips (Kingsbarns) and Gil Hanse (Castle Stuart). Parsinen sought out sites such as these that have lower environmental value to reduce the risk of a long drawn out approval process. This doesn't need to be a detraction from the courses, rather the impressive outcomes are testament to the people involved and are fine examples of what's possible on less than naturally spectacular sites.

Scott met and toured Kingsbarns with Course Manager, Innes Knight, who provided insight into the scale of the transformation that has taken place. Mostly built on clay-based meadows, all bar one small area of ground at Kingsbarns was entirely reshaped to convert the sloped and tiered fields into an artificial dune setting that to the undiscernible eye would appear that the holes have been laid out over. Instead, it required a massive earthmoving exercise and significant drainage including sand slit drainage at 2m spacings across all the fairways. The result is relatively firm and dry surfaces that allow the option of playing running shots if one chooses.

The par 4, 6th hole surrounded by the artificially created dunes setting

Castle Stuart Golf Links

Located on better ground than Kingsbarns, Castle Stuart is far sandier and was previously arable farmland with some areas of gorse before being transformed into a natural golf course setting with coastal grasses, scrub and heathland. Castle Stuart's Course Manager, Chris Haspell who had also been involved in the construction and grow-in, provided a tour and discussion of the course with Scott.

Illusion plays a large role in the design of Castle Stuart. Many of the holes appear isolated from others and there are many infinity greens that appear as though they are on the edge of a cliff leading to the ocean, when in reality there is often another hole below them. An example of this is holes 12, 16, and 17 where there are three levels of holes, all hidden from the other.

Views were another key consideration at Castle Stuart and are a highlight of the course. Internally, views between holes were restricted to create a sense of isolation. Externally, the expansive views were promoted and often the holes were designed to take in key landmarks in the distance such as the stone Castle Stuart behind the 4th green. There is a sense of enclosure and openness as you play Castle Stuart. Scott likens it to the traditional landscape principle of 'prospect and refuge' that Jay Appleton discusses in his 1975 book 'Experience of Landscape'. Theory being that humans naturally seek out places of safety where they have the capacity to observe (prospect) without being seen (refuge).

Landmarks and views play a key role at Castle Stuart such as the par 3, 4th hole that aims directly at the castle behind the green

Machrihanish Dunes

Completed in 2009, Machrihanish Dunes was particularly interesting as it was the first modern course built on a Site of Special Scientific Interest (SSSI) in Europe. Designed by David McLay Kidd, only 7 acres (out of 289) were re-contoured to build the course – mainly limited to the green and tee sites – a true example of "minimalist design" – an often confused term used to describe a certain style of golf course today. The project demonstrates the benefits that are possible when a developer and permitting agency work together – in this case Scottish Natural Heritage (SNH). The relationship between the course and SNH continues with regular consultation to review the effectiveness of management practices, monitoring of biodiversity numbers, and refinement of the golf course layout.

The routing of the course is a little awkward in some places, possibly due to the environmental restrictions placed on the development, including the need to stay clear of the most sensitive areas comprising the mobile dunes and dune slacks. Of particular importance to the dune slacks is maintaining the natural flows of water through them, by ensuring the inlets and outlets do not become blocked or altered which would impact on the volume of water and natural mix of flora.

The mobile and semi-mobile dunes also need to be carefully managed to ensure the species diversity is retained. Too much foot traffic can cause dunes to erode, but at Machrihanish Dunes, it is equally important that the grass cover (Marram in particular) does not become too long and thick which could smother the rare orchids and sedges and risk immobilising the dunes which can create flow on affects up and down the coast.

Scott met with Simon Freeman (Course Manager) to tour the property, discuss the project's development and the differences in maintaining a course within a SSSI designated site. Freeman was previously the Course Manager at the revered Machrie Golf Course on Islay, only a couple of hours by ferry west of Machrihanish Dunes. Freeman employed his preferred natural greenkeeping techniques at The Machrie, not due to environmental restrictions, but because it made best sense from an efficiency and cost perspective to use practices that worked with the land and the natural processes rather than fighting them. This turns out to also make the most sense from an environmental perspective, so his approach when moving to Machrihanish Dunes did not have to differ greatly.

Some of the maintenance practices specifically relating to protection of the SSSI site at Machrihanish Dunes include:

» No irrigation, fertiliser or pesticides used on fairways (use limited to greens and tees). The natural sward of grasses are maintained and promoted.

» "Environmental areas" are no-go zones for staff and golfers (particularly low areas)

» Natural drainage paths are retained to ensure water inputs into the dune slacks are not impacted

» Grass clippings are collected on concrete stand areas and disposed of appropriately

» Native areas are cut once a year with clippings collected and taken off site

» Removal program of noxious weeds (thistles, nettles and ragwort) from environmental zones

» Paths near areas of specific importance are lined with soft rubber matting to help define the path and to protect the vegetation / ground beneath it

» Maintenance routes are rotated to allow recovery of vegetation on the primary routes

» Micro-habitats are created using deadwood and brush piles

» Use of sheep / rabbits assist in keeping the "roughs" at a manageable height

Machrihanish Dunes has seen a significant increase in biodiversity since the establishment of the course and the associated management practices to the environmental areas. This is an outcome to be applauded and demonstrates the positive benefits that golf courses can have. One area worthy of further research is control testing which should take place on adjacent sites (e.g. Machrihanish Golf Club, adjacent dunes, farmland etc) within the local region to help determine if the increase (or decrease) in biodiversity is a direct result of the management practices or whether there are greater climatic influences at play impacting on the flora and fauna numbers.

This concept would also benefit other courses in similar situations – such as Tara Iti golf course in New Zealand which Scott visited on a subsequent study tour of New Zealand. Reports from Tara Iti say there have been increases in the numbers of native fairy tern (which the golf course is named after), an outcome widely accepted as a result of the mass tree removal of the old pine farms that inhabited the site. The removal of these trees and creation of new habitat amongst the

dunes and grasses is thought to have led to the increase in numbers, however, with control testing at an adjacent site, this claim could be further validated.

Machrihanish Dunes is an exemplar in sustainable golf development. It demonstrates that golf can coexist with highly sensitive landscapes and improve these environments when they are both responsibly managed.

The tumbling fairway on the first hole consisting of a sward of natural grasses that were present before the course began. The greens and tees were generally the only portions of the golf course where earth was moved.

Coul Links, Embo

While Kingsbarns and Castle Stuart were located on sites with lower environmental value, Coul Links is located partially on a Site of Special Scientific Interest (SSSI), the highest level of protection in Scotland. The proposed development at Coul Links to be designed by Coore & Crenshaw, is currently under consideration by the Scottish Government but faces a significant level of opposition from environmental groups. Scott walked the site of the proposed golf course and will watch its development with interest.

The site of the proposed Coul Links course at Embo taken from near the site of the 16th tee looking north.

Trump International

The new course at Balmedie opened in 2012 and is set within the stunningly beautiful Foveran Links mobile dune system that are of a scale rarely seen elsewhere in the world. The SSSI listed dunes are over 4,000 years old and were some of the least disturbed and most dynamic in Britain.

Scott met with Course Manager, Steve Wilson who provided a tour of the course and discussed some aspects of its design and construction. The presence of security at the course is quite visible and perhaps necessary given the public opinion surrounding Trump's politics and the objections to the development. For many, they cannot separate the merit or critique of the development from Trump the politician.

Martin Hawtree succeeded in making the holes strikingly spectacular from a visual perspective, but one feels a sense of repetition when climbing the dunes to tee off to a flattish fairway below set between gigantic dunes. The Fellow would like to have seen the dunes have more of a role in the strategy of the holes such as found on the traditional older links which played up and over various dunes. The Fellow can't help but contemplate the scenario had the dunes been incorporated more into the makeup of the holes. Doing this had the potential to have made them more interesting as well as the added benefit of reducing the scale of change to the natural environment.

There has been severe opposition to the development from various environmental and government groups. Scottish Natural Heritage has recently released documents that advise the development has caused the direct loss of up to 68 hectares of the 205 hectares of the SSSI Foveran Links site commenting that *"The construction has removed the vast majority of the geomorphological interest within the vicinity of the golf course."*

For all the positive work that developments such as Machrihanish Dunes have done to improve the perception and showcase the benefits that golf developments can bring, Trump's development at Aberdeen has caused severe damage to the reputation of the golf development industry. Warranted or not, the impact on public perception has been so damaging that subsequent developments such as Coul Links at Embo are now battling to have their development assessed on its individual merits without constant comparison to the Trump development.

The final hole at Trump Aberdeen is typical of the major theme of the course - playing from a high tee through spectacular dunes to a flattish fairway below that is often over bunkered.

Scott also visited the recently redesigned Ailsa course and King Robert the Bruce course at Turnberry by MacKenzie & Ebert, The Machrie by DJ Russell, along with Tom Doak's The Renaissance Club. In addition to the Fellowship travels, Scott spent time at Ardfin on the Isle of Jura, which he worked on as part of his employment with Harrison Golf.

While Scott was fortunate that the Fellowship provided an opportunity to see a wide range of courses across the three focus areas, his travels have only scratched the surface of the golf on offer in Great Britain. Inevitably, throughout his travels, the list of courses to see in the future has gotten longer. Scott considers this visit the first of many and looks forward to returning to continue his education and exposure to golf course architecture in the land where the game began.

5. ORGANISATIONS

The R&A

Scott met with Steve Isaac, Director – Sustainability at The R&A, in St Andrews to discuss the role of the organisation in the sustainable development of the game. The R&A primarily take on the role of providing policy, support, and guidance either through funding and/or adding credibility rather than technical expertise. The technical research-based activities are left to other organisations such as GEO and STRI.

In countries where golf is already well-established, such as Australia, the local governing bodies are already prominent, fairly self-sufficient, and therefore require less guidance. The R&A have a stronger presence in promoting golf in emerging markets such as Asia and Latin America where they see a greater opportunity and responsibility to help guide the growth of the game in these developing countries. Their focus is on promoting the development of golf courses of all kinds in a manner that allows courses to be sustainable to run (environmentally and economically). This includes promoting courses to suit a variety of markets including the development of golfers at the grass roots level. These courses do not all need to be 18 hole "championship" golf – and they do not need to have 'perfect' surfaces. It is much more important that they are sustainable to manage long term. Financial and social factors cannot be separated from environmental sustainability. One of the key elements of sustainable practices is to use locally sourced materials. For example, not all greens constructions need to be in accordance with USGA guidelines and where possible, the specification should be adjusted to suit the locally available materials to help achieve a sustainable solution. Not only is this a better environmental outcome, it also helps support local businesses and contributes to the economy of the region.

The Open tournament provides the best marketable opportunities each year for The R&A to demonstrate sustainability in golf by setting best practice examples and see this as an important role in leading improvements in the industry. The set up and presentation of the golf course is important to ensure they are presenting a product that other golf clubs can strive for rather than an unsustainable product that is largely unattainable for all but a few clubs. The maintenance of the golf course, management of the setup, as well as the venue itself including catering and waste, all need to demonstrate best practice.

Steve Isaac was previously Course Manager of The Old Course, and naturally, conversation also revolved around the changes in the management of The Old Course over the years. From an agronomic perspective, Steve reports that it has not changed drastically over the years. The fertiliser inputs have increased slightly, partly due to a wetter climate. The focus remains on providing good links surfaces that are firm and consistent. Obtaining data to measure the firmness and consistency of putting greens has helped make objective assessments which provides the ability to adjust maintenance practices to suit. The R&A in conjunction with STRI have developed testing apparatus to measure the firmness and consistency of surfaces which helps develop targets that can be sustained. The use of this apparatus is becoming more mainstream particularly in the lead up to major tournaments.

Golf Environment Organisation (GEO)

While in North Berwick, Scott had the opportunity to meet with the Golf Environment Organisation (GEO), an international body dedicated to promoting the sustainable and responsible growth of the sport. GEO promote sustainability in golf through research, publishing of best practice guidelines and programmes, and providing recognition and certification of golf developments and tournaments.

Scott met with Sam Thomas, Director of Golf Development at GEO, to discuss the objectives of the organisation, ways to design golf courses in a more sustainable manner and confer over the future direction and challenges facing golf.

Similar to The R & A, GEO considers emerging markets such as China, India and South America an important opportunity to positively influence the way golf is developed in these countries. There are a number of environmental challenges facing golf in the developing world – both real and perceived – and organisations such as GEO have an important part to play in promoting the positive outcomes that are possible.

A major component of sustainable golf is providing facilities that cater for golfers at all levels. Not every new golf course needs to be of championship length. A range of course types including 9 or 12 hole courses at various price points are needed to help introduce a wide variety of people to the game.

GEO have published three industry sustainable development documents since 2016 to help guide the development of golf courses and the management of golf facilities. They are:

1. Voluntary Sustainability Standard (2018)

2. Development Guidelines (2017)

3. Public Facilities Guidelines (2018)

Of primary benefit to the design of golf courses is the Development Guidelines document which discusses the general principles behind topics such as site planning, design layout, earthworks, construction, management of topsoil, etc.

In addition to the above documents, GEO have also released their 'OnCourse Developments' programme which is *"a voluntary standard, guidance programme and certification system developed in collaboration with the golf and sustainability industries, representing a strong and credible platform to deliver the vision of valuing golf for maximising its economic, social and environmental contribution."*[13]

Following the international travel component of the Fellowship, subsequent discussions with Sam Thomas have taken place around the future of golf and how the GEO Foundation sees changes in the next 10-20 years. Some of the key areas identified by Thomas include:

» *"…Greater potential for a split in golf development than ever before. We may see more examples of 'high-end' projects, competing to out-spend, out-build, out-spec, out-claim and out-do the next, whereas at the same time we may see more examples of low-tech, low-input, low-cost accessible public and private projects achieving more with less."*

» *"…Expectations will rise globally – the golfer, the client, the permitting agency – every stakeholder involved in the development of a golf course will expect more – more detail, more transparency, greater commitments, greater quality, more choice – all delivered faster."*

» *"With increased expectations will come a more intense focus on new projects to better articulate their overall value, while clearly addressing social and environmental concerns whether they are perceived or real."*

» *"…Hope to see increased positive publicity around golf developments inside*

13 Golf Environment Organisation, OnCourse Developments, North Berwick, Scotland, 2017

and outside of the industry, improving the wider image and reputation of our sport. Communication about the subject of development becoming clearer, fact-based and strongly promoting the real positive contributions we know so many golf developments male to the environments or communities they are built in."

The above views from GEO, among other topics, were elaborated on as part of Scott's presentation on the "Future of Golf" at a Conference meeting in 2018 between The Society of Australian Golf Course Architects (SAGCA), European Institute of Golf Course Architects (EIGCA), and American Society of Golf Course Architects (ASGCA).

6. CONSIDERATIONS AND RECOMMEDATION

The following considerations and recommendations have been developed throughout the Fellowship. They are separated into three broad categories – professional development, environment and industry – however, many have significant cross over between them.

1. Professional development

» Continue developing skills and knowledge by undertaking similar study tours within Australia and abroad.

» Meet and discuss diverse range of topics with other experts in the industry – including other architects, superintendents, general managers, golf historians, and other keen students of golf architecture.

» Take part in opportunities to speak at industry conferences and meetings – as Scott did at the recent Conference between the American, European, and Australian professional architectural organisations.

» Embrace and promote environmentally sustainable best practice in all design work wherever possible.

» Promote the recommendations identified to raise the profile and standing of the Society of Australian Golf Course Architects.

» Following on from the learnings throughout the Fellowship travels, develop best practice design guidelines for sustainable golf course development within coastal dune environments.

» Undertake design in accordance with the following design philosophies:

viii. Create situations which allow strategic golf – including promoting width to allow options and preferred angles of approach, firm greens and surrounds to allow running shots, use of slopes to magnify strategy, and creation of hazards that make holes more interesting.

ix. Utilise the best naturally occurring features of any property to the fullest extent.

x. Challenge the perception that golf should be fair. Embrace the element of luck.

xi. Promote the essence and qualities of the game's early courses and apply those in today's context.

xii. Ensure works are completed in a manner that mimics the natural shape and features of the course's environment so that alterations to the land are indiscernible.

2. Environmental Principles

» Adjust your design approach to the site and local conditions while adopting a least disturbance approach that maximises the use of the existing site features.

» Use locally available resources (from the site where possible) to help promote local businesses and reduce travel distances.

» Topsoil is a finite resource and should be recovered and reused wherever possible. In sandy profiles, topsoil has the benefit of building up organic content over time which can aid in reducing long term inputs and lower ongoing maintenance costs.

» Adopt locally indigenous plants and grasses that have adapted to grow in that particular environment.

» Undertake control testing on adjacent sites for new golf course developments to help determine whether changes in biodiversity are a direct result of management practices or whether there are greater climatic influences at play impacting flora and fauna numbers.

3. Professional Organisations

» Promote formal educational opportunities where applicable, for architects working within the industry. The only formal education offered in golf course architecture was a Masters course run by the University of Edinburgh in Scotland. Unfortunately, this course is no longer offered due to a lack of professional opportunities upon graduating.

» Introduce Continuing Professional Development (CPD) requirements as part of membership of the Society of Australian Golf Course Architects to encourage continual learning, currency, and development of skills and knowledge. Both the American and European organisations run similar programs which adds credibility to the organisation and the architects who are members.

» Host seminars to educate the golf industry on a variety of topics with seminars to be presented by Members of the society.

» Promote the positive benefits that golf courses have on the environment – including case studies with specific and measurable statistics.

» Promote the role of the golf course architect including the benefits and value they can bring to the table.

» Lobby other professional organisations such as The R & A and USGA to act on important issues such as the distance the golf ball is traveling. This can include educating the golf industry on the effects these issues are having such as deteriorating the design intent of the games classic courses, increasing safety problems, greater costs to build and maintain courses, etc.

» Promote and educate local governments to the benefits that golf courses can bring to the community, to encourage investment in rather than closure of the numerous Council owned courses throughout our cities.

» Encourage greater collaboration between architects and other industry professionals to broaden learning experiences, encourage robust discussion of ideas, and develop industry best practice guidelines.

7. REFERENCES

A. MacKenzie, Golf Architecture: Economy in Course Construction and Green-Keeping, London, Simpkin et al, 1920

A.MacKenzie, Spirit of St Andrews, Sleeping Bear Press, Chelsea, 1995

Golf Environment Organisation, OnCourse Developments, GEO, North Berwick, 2017

H.N.Wethered and T.Simpson, The Architectural Side of Golf, Grant Books, Droitwich, 1995

H.S. Colt and C.H. Alison, Some Essays on Golf Course Architecture, Country Life, London, 1920

J.Cranna, Correspondence Fraserburgh Golf Club, Fraserburgh Herald, 7th November 1922

J.F. Moreton & I.A.I. Cumming, James Braid and His 400 Golf Courses, Grant Books, Worchestershire, 2013

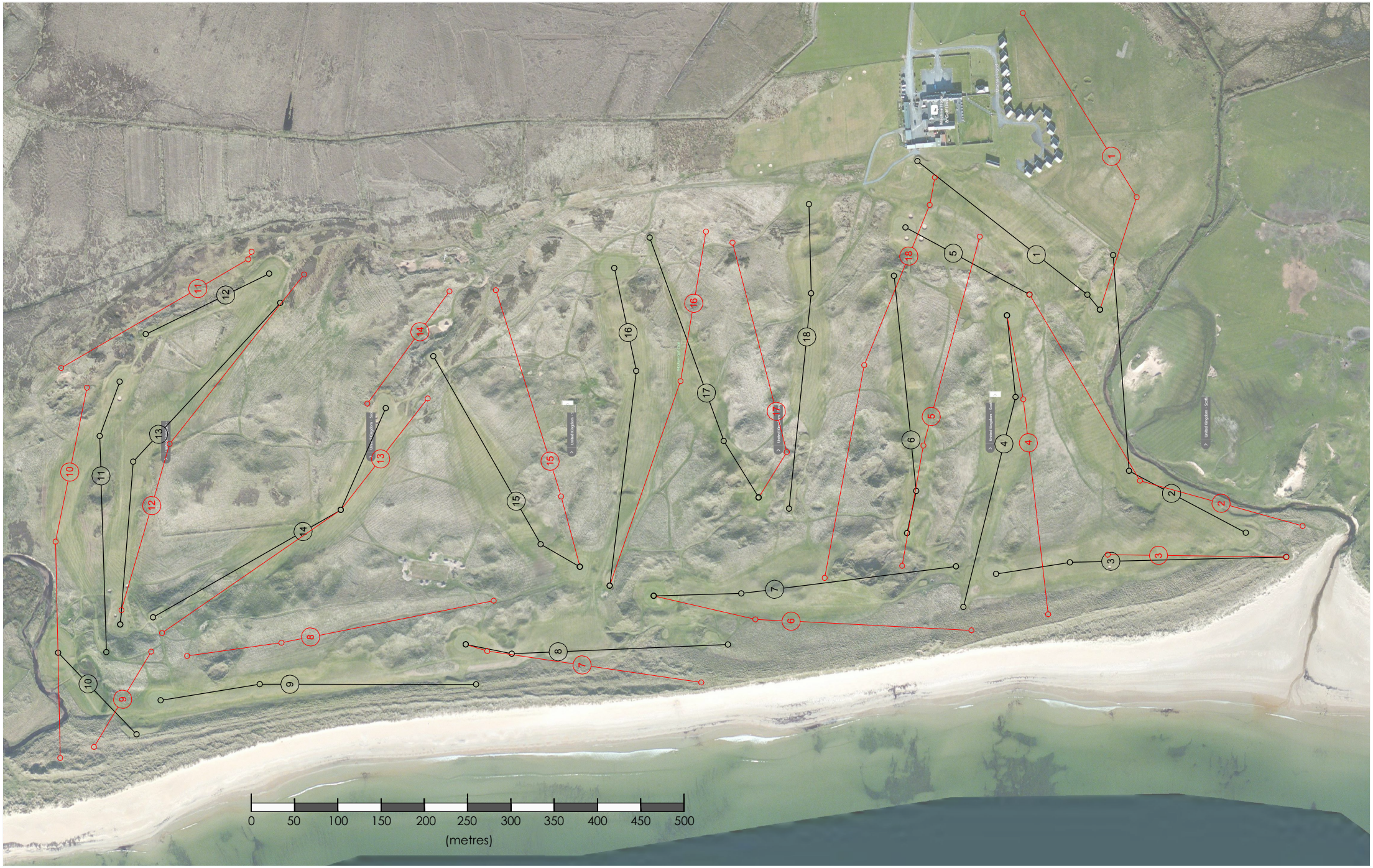
M. Twain and M.Kiskis, Mark Twain's Own Autobiography: The Chapters from the North American Review, University of Wisconsin Press, Madison 2010

P. Pugh and Henry Lord, Masters of Design: The Golf Courses of Colt, MacKenzie, Alison and Morrison, Icon Books, London, 2006

8. APPENDIX - COURSE MAPS

Prepared by: S. Champion
Date of visit: 1 Sept 2016
Map Source: Google Earth 2013

ARDFIN
Isle of Jura, Scotland



Prepared by: S. Champion
Date of visit: 3 Sept 2016
Map Source: Google Earth

THE MACHRIE (pre-redesign)

Islay, Scotland

Prepared by: S. Champion
Date of visit: 3 Sept 2016
Map Source: Google Earth

THE MACHRIE (post-redesign)

Islay, Scotland

Prepared by: S. Champion
Date of visit: 4 Sept 2016
Map Source: Bing Maps

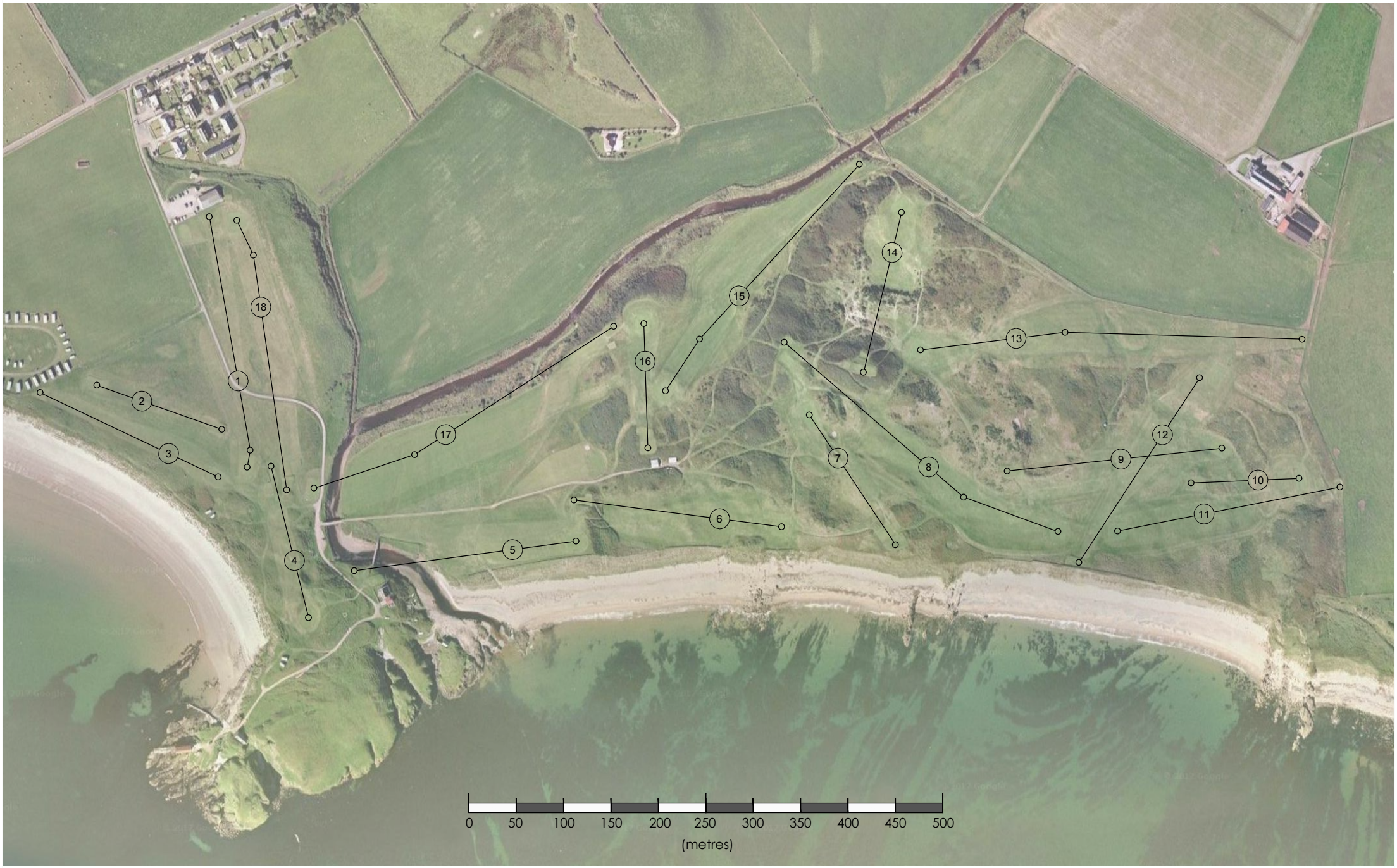
MACHRIHANISH GOLF CLUB

Kintyre Peninsula, Scotland

Prepared by: S. Champion
Date of visit: 6 Sept 2016
Map Source: Bing Maps

MACHRIHANISH DUNES

Kintyre Peninsula, Scotland



Prepared by: S. Champion
Date of visit: 5 Sept 2016
Map Source: Google Earth

DUNAVERTY GOLF CLUB

Kintyre Peninsula, Scotland

Prepared by: S. Champion
Date of visit: 7 Sept 2016
Map Source: Google Earth 2018

TURNBERRY
Ayrshire, Scotland

Prepared by: S. Champion
Date of visit: 8 Sept 2016
Map Source: Google Earth

PRESTWICK GOLF CLUB

Ayrshire, Scotland

0 50 100 150 200 250 300 350 400 450 500
(metres)

Prepared by: S. Champion
Date of visit: 10 Sept 2016
Map Source: Google Earth

NORTH BERWICK WEST LINKS

East Lothian, Scotland

0 50 100 150 200 250 300 350 400 450 500

(metres)

Prepared by: S. Champion
Date of visit: 10 Sept 2016
Map Source: Bing Maps 2019

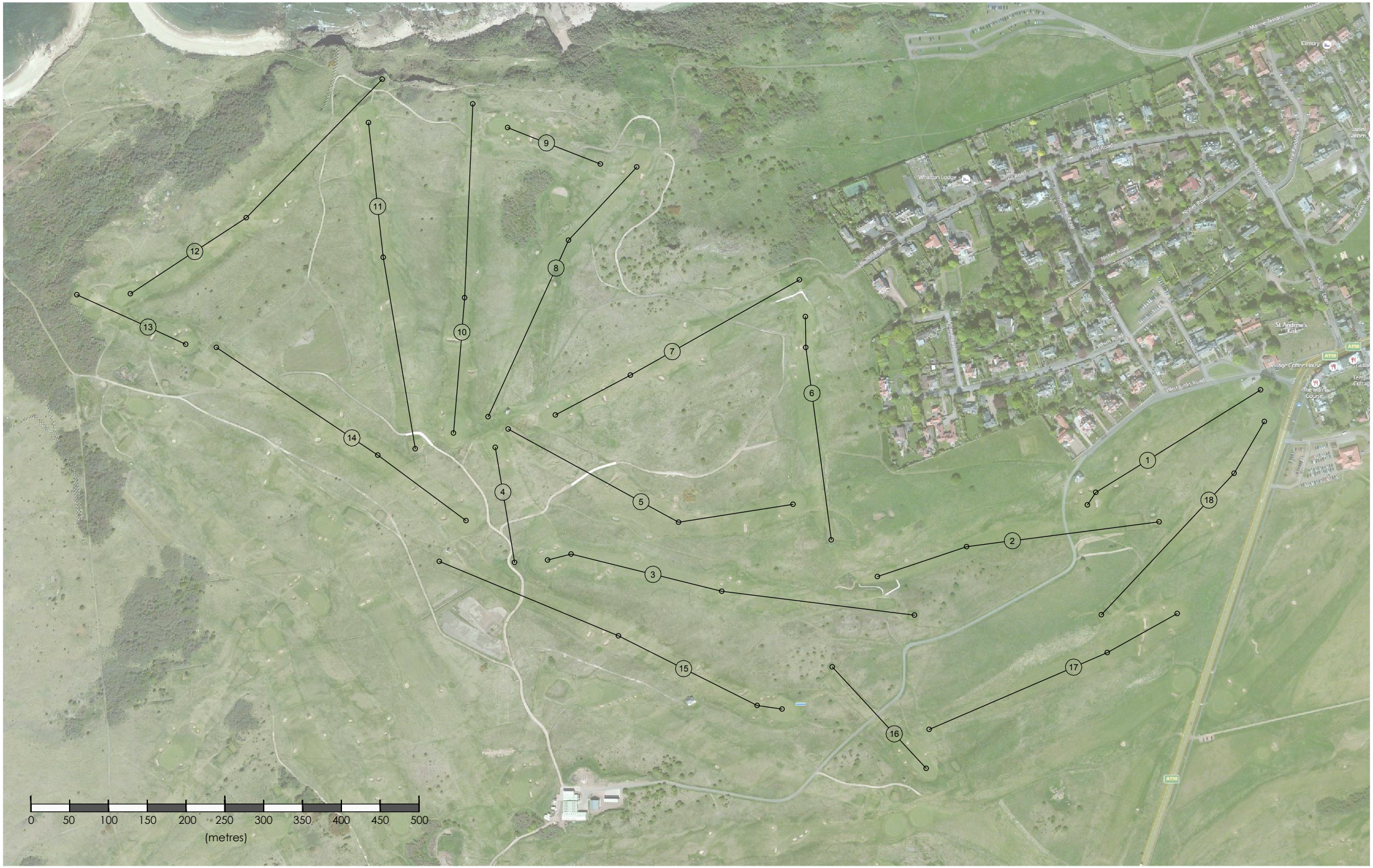
GLEN GOLF CLUB

East Lothian, Scotland

Prepared by: S. Champion
Date of visit: 11 Sept 2016
Map Source: Google Earth 2019

RENAISSANCE CLUB

East Lothian, Scotland



Prepared by: S. Champion
Date of visit: 11 Sept 2016
Map Source: Bing Maps 2019

GULLANE GOLF CLUB (No.1)

East Lothian, Scotland

0 50 100 150 200 250 300 350 400 450 500
(metres)

Prepared by: S. Champion
Date of visit: 12 Sept 2016
Map Source: Google Earth 2018

GLENEAGLES - KINGS COURSE

Perthshire, Scotland

Prepared by: S. Champion
Date of visit: 12 Sept 2016
Map Source: Google Earth

THE OLD COURSE, ST ANDREWS

Fife, Scotland

Prepared by: S. Champion
Date of visit: 14 Sept 2016
Map Source: Google Earth 2018

EDEN COURSE, ST ANDREWS

Fife, Scotland

Prepared by: S. Champion
Date of visit: 14 Sept 2016
Map Source: Google Earth 2018

GOLF HOUSE CLUB, ELIE

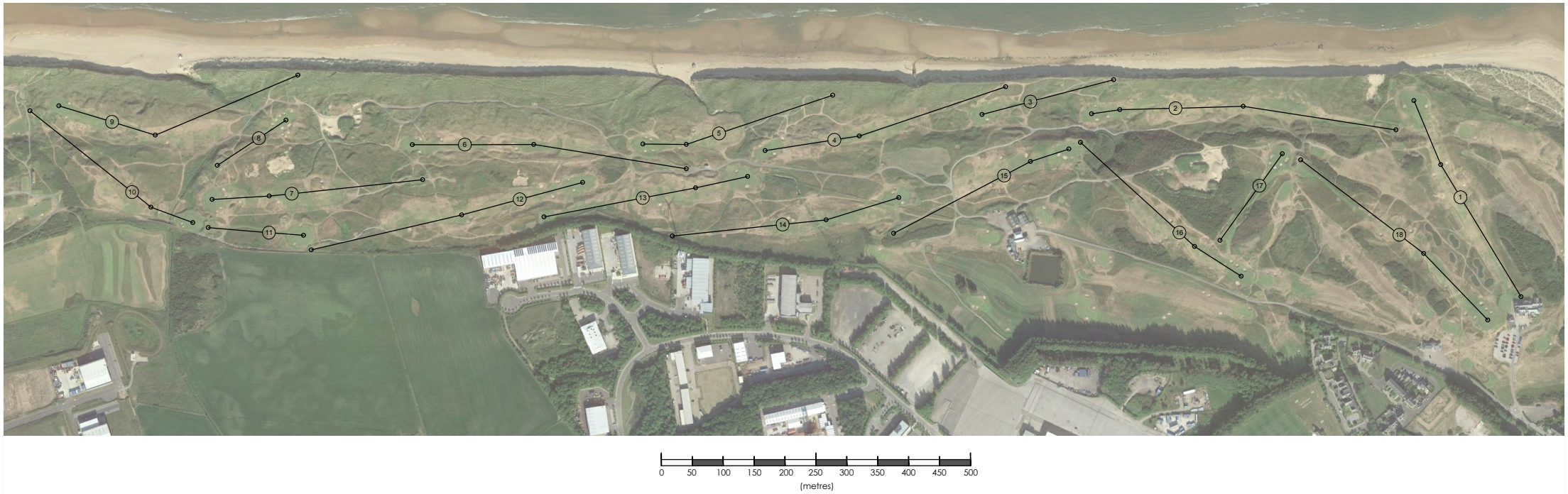
Fife, Scotland

0 50 100 150 200 250 300 350 400 450 500
(metres)

Prepared by: S. Champion
Date of visit: 15 Sept 2016
Map Source: Google Earth 2018

KINGSBARNS GOLF LINKS

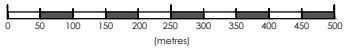
Fife, Scotland



Prepared by: S. Champion
Date of visit: 17 Sept 2016
Map Source: Google Earth 2018

ROYAL ABERDEEN GOLF CLUB

Aberdeenshire, Scotland



Prepared by: S. Champion
Date of visit: 18 Sept 2016
Map Source: Google Earth 2018

TRUMP INTERNATIONAL ABERDEEN

Aberdeenshire, Scotland

Prepared by: S. Champion
Date of visit: 16 Sept 2016
Map Source: Google Earth

CRUDEN BAY GOLF CLUB

Aberdeenshire, Scotland

Prepared by: S. Champion
Date of visit: 18 Sept 2016
Map Source: Google Earth 2018

FRASERBURGH GOLF CLUB

Aberdeenshire, Scotland

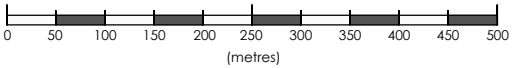
0 50 100 150 200 250 300 350 400 450 500

(metres)

Prepared by: S. Champion
Date of visit: 19 Sept 2016
Map Source: Google Earth 2004

CULLEN GOLF LINKS

Moray, Scotland



Prepared by: S. Champion
Date of visit: 19 Sept 2016
Map Source: Google Earth 2018

CASTLE STUART GOLF LINKS

Inverness, Scotland

0 50 100 150 200 250 300 350 400 450 500
(metres)

Prepared by: S. Champion
Date of visit: 21 Sept 2016
Map Source: Google Earth 2018

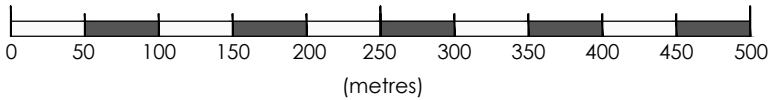
ROYAL DORNOCH GOLF CLUB

Sutherland, Scotland

0 50 100 150 200 250 300 350 400 450 500
(metres)

Prepared by: S. Champion
Date of visit: 20 Sept 2016
Map Source: Google Earth

BRORA GOLF CLUB
Sutherland, Scotland



Prepared by: S. Champion
Date of visit: 23 Sept 2016
Map Source: Google Earth 2006

BOAT OF GARTEN GOLF CLUB

Highland, Scotland

Prepared by: S. Champion
Date of visit: 24 Sept 2016
Map Source: Google Earth 2016

MUSSELBURGH LINKS

East Lothian, Scotland

Prepared by: S. Champion
Date of visit: 26 Sept 2016
Map Source: Google Earth 2016

ALWOODLEY GOLF CLUB

Leeds, England

Prepared by: S. Champion
Date of visit: 26 Sept 2016
Map Source: Google Earth 2016

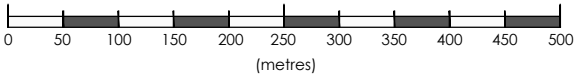
MOORTOWN GOLF CLUB

Leeds, England

Prepared by: S. Champion
Date of visit: 27 Sept 2016
Map Source: Google Earth 2017

CAVENDISH GOLF CLUB

Derbyshire, England



Prepared by: S. Champion
Date of visit: 30 Sept 2016
Map Source: Google Earth 2018

SWINLEY FOREST GOLF CLUB

Surrey, England

Prepared by: S. Champion
Date of visit: 3 Oct 2016
Map Source: Google Earth 2018

SUNNINGDALE GOLF CLUB (OLD & NEW COURSES)

Surrey, England

Prepared by: S. Champion
Date of visit: 4 Oct 2016
Map Source: Google Earth 2018

ST GEORGES HILL GOLF CLUB

Surrey, England

Prepared by: S. Champion
Date of visit: 4 Oct 2016
Map Source: Google Earth 2018

WOKING GOLF CLUB

Surrey, England

Prepared by: S. Champion
Date of visit: 5 Oct 2016
Map Source: Google Earth 2018

ROYAL ST GEORGES
Kent, England

International Specialised Skills Institute

ISS Institute
Level 1, 189 Faraday Street
Carlton VIC 3053

T 03 9347 4583
E info@issinstitute.org.au
W www.issinstitute.org.au

Published by International Specialised Skills Institute, Melbourne | www.issinstitute.org.au