

SKELF BIKE PARK PROPOSAL

BRAIDWOODS

EDINBURGH

WOODLAND AND TREE IMPACT ASSESSMENT

**Produced for :-
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DESCRIPTION

Introduction

The proposed SKELF Bike Park occupies a largely wooded area, known as the Braidwoods. The woodland is a relatively young broadleaf plantation, and forms part of a larger woodland mass between Dumbiedykes and Holyrood Park, in Edinburgh . As part of the planning process for the proposed Bike Park, this report has been produced in order to:-

- Describe and assess the woodland's current condition
- Detail the potential impact of the Pump Track & MTB Trails on the woodland and its trees.
- Identifying means of minimising and mitigating the potential impacts

The site also includes small areas of maintained amenity grassland and an open knowe clad in rough grasses, but the report largely confines itself to woodland and tree-related matters.

Location and Context

The woodland occupies approximately 0.6 ha of land located to the east of Holyrood Park, occupying the western side of a shallow ridge which runs on a north-south axis. The residential areas of St Leonards and Dumbiedykes lie to the west, being separated from the woodland by a narrow strip of maintained public open space, bisected by Braidwood Gate, a pedestrian thoroughfare. The Crags Sports Centre is located off Bowmont Place, just to the west of the site. A surfaced path bisects the woodland, connecting Braidwood Gate with footpaths within Holyrood Park.

The site also encompasses a narrow strip of maintained amenity grass between the footpath and the woodland, and a small knowe to the immediate south of the woodland which supports rank grassland and ruderal vegetation. A high stone wall located along a ridgeline forms the boundary between the site and Holyrood Park; the area to the immediate east of the site

The woodland forms a small section of a woodland habitat network which stretches from Holyrood to Duddingston Loch and Prestonfield House. The woodland network is fragmented in places, while the site forms part of its widest and most robust sections. The habitat network covers perhaps 30 ha of land over its 3km length.

Designations

The site is recorded in the City of Edinburgh Council's (CEC) Open Space Audit and Strategy, but it is not recorded as an 'urban woodland', and neither is it a Local Biodiversity Site. Holyrood Park, containing Arthur's Seat, on the immediate east of the site, is shown as being an 'Area of Great Landscape Value'; as Greenbelt; and as a Scheduled Ancient Monument (this latter designation is believed to cover the wall which forms the eastern boundary of the site). The Park is also a Site of Special Scientific Interest, with the designated area including two very small areas within the site. It is believed that these areas cover rock outcrops, with the designation being made for geological reasons in this particular location.

The woodland is not covered by a Tree Preservation Order, nor does it lie within a 'Conservation Area'.

Description

The woodland comprises of a narrow strip of semi-mature woodland located between a public path and the boundary wall of Holyrood Park. The highpoint of the site lies at its southern end, with the ground falling at first gradually and then steeply to the north. Within the wood, the ground slopes gently to the west and includes several rocky outcrops. The remains of demolished houses are evident in the southern part of the site (see 'History' below).

The woodland is primarily broadleaved in character, with a few Scots pine being the only coniferous component, and it is of recent plantation, rather than semi-natural, origin. The trees are well-spaced making it relatively easy to walk among them.

The woodland has not been actively managed in recent years and parts of the site are currently used for drinking and drug taking, with needles and other associated litter occurring in several locations in the wood.

History

Housing covered the site up until the 1960's. Following the demolition of the houses it is believed that the site was partly infilled, and a rudimentary reclamation scheme was undertaken in the 1980's, at which stage the site was planted with trees and shrubs. As a

consequence of its origins, the woodland's soils are shallow and compact, with a high rubble/stone content. The prevailing conditions obviously affected the species selection, although some notable pioneer species, which would normally be used on hostile sites, are not present (e.g. alder and birch). Following their establishment the woodland does not appear to have been actively managed. It is noticeable that the trees on the west side of the boundary wall (within Holyrood Park) appear to be younger, but significantly taller and healthier.

Structure

The woodland has a well-formed canopy with 80 -90% cover, dominated by semi-mature Norway maple, lesser components of other broadleaves, including ash, and with a small component of Scots pine. There are defined areas with lower density cover (e.g. the southern end of the site) and very small gaps in the canopy.

The sub-canopy covers 10-15% of the ground and is made up of young elm, ash, lime and whitebeam. A shrub layer is present covering 10% of the area, mainly at the woodland edges, and towards its northern terminus, and is made up of hawthorn, with smaller amounts of elder and crab apple.

Regeneration is present at low levels throughout the woodland consisting of Norway maple and ash.

Condition

The woodland has been planted with a narrow range of broadleaved tree species and a small number of Scots pine. The trees form a cohesive woodland group, although the majority of the trees have poor form, with miss-shaped stems that are often suppressed by the canopy of Norway maple, ash and lime. Many trees are multi-stemmed. Minor levels of squirrel damage are visible in the crown of some trees. There are some suppressed trees now struggling for survival.

The tallest trees are in the region of 14m in height, and the largest recorded diameters are roughly 35cm, although the average diameter is closer to 20cm. There are no significant individual trees, nor and there any species of note present.

Despite their planted origin, tree spacing is variable, most likely due to the difficult site conditions and a consequent high failure rate amongst the planted trees. There has also been some natural regeneration taking place, although the main canopy trees are all of a single age. Overall, the average stocking density is in the region of 1,100 trees per ha, with the density being higher in the northern section and lower in the southern section. There are approximately 550 trees on site.

Fallen, windblown trees occur rarely in the wood with little standing deadwood present. Deadwood branches are present on the ground throughout the woodland.

The ground is compact and rocky and appears well-drained. Ground flora is largely absent due to the dense tree canopy, with patches of grasses at the woodland edges and in occasional open glades. Rosebay willowherb and ragwort occur regularly along the western woodland edge.

Towards the northern end of the woodland ivy is present on the ground and on a small number of trees.

Compartment Summaries

Compartment 1 (north of bisecting path)

Area ~0.45 ha

Species:

Norway maple	30%	Hawthorn	10%
Ash	20%	Elder	5%
Lime	10%	Gean	2%
Elm	10%	Crab apple	1%
Whitebeam	10%	Rowan	1%
		Scots pine	1%

Compartment 2 (south of bisecting main path)

Area ~0.10 ha

Species:

Norway maple	40%	Hawthorn	2%
Ash	35%	Rowan	2%
Elm	15%	Whitebeam	2%
Scots pine	3%	Elder	1%

ASSESSMENT OF WOODLAND

Silvicultural Assessment

As noted under the 'condition' section above, the individual trees are generally in poor condition, and the same could be said for the woodland as whole. Tree quality and form is poor, and there is a lack of age class, structural, and species diversity. The woodland has lacked any positive management in recent years, and it is now over-stocked. The hostile growing conditions limited the extent to which individual trees and the woodland as whole can thrive. Squirrel damage threatens the quality of the numerous Norway maple trees, while ash, another common species, is most likely to succumb to Chalara (ash dieback disease) in the short to medium term.

Landscape Assessment

The woodland forms part of a larger well-wooded feature occupying a pronounced ridge on the edge of Holyrood Park. The site lies on the western slopes of the ridge.

The woodland within the site is clearly visible from a confined area to its immediate west of the site. Recipients of this view include the residents of numerous flatted properties, and the users of the Broadwood Gate path and the Craggs Sports Centre. In the main the woodland presents an attractive boundary to Holyrood Park, although it obscures views onto the historic boundary wall and rocky outcrops. It is likely that the woodland, lacking significant evergreen component, presents a somewhat unkempt view in the winter months.

While the site is not visible from the Queens Drive on the lower parts of Holyrood Park, it is visible at a distance from Salisbury Craggs and Arthur's Seat. However, visibility is confined to the upper canopy of the trees, with the trees on the east-facing slopes of the ridge (within Holyrood Park itself) being more in evidence. In time this prominence will increase, as the trees within the park are growing more rapidly than those within the site, and it is likely that the site will not be visible within the next decade or two.

Amenity and Recreation Assessment

There is very limited positive recreational use of the site and its woodland. Aside from low level use of the path to Holyrood Park, there are no recognised routes within the site. The woodland is a haven for anti-social activity, most notably for drug taking, with numerous

needles and drug-related paraphernalia being scattered around the wood. The woodland collects a limited amount of wind-blown litter. The mown grass verge between Braidwood Gate and the woodland gives the wood a neat frontage, at least in summer. The woodland is too small to offer any value in terms of pedestrian recreational access, and linkage to the wider greenspace is limited by the presence of the boundary wall.

Biodiversity Assessment

As noted, the woodland forms part of a much larger, is somewhat loose, woodland habitat network. The woodland itself is of low, local biodiversity value. While the majority of the species are native, there is a high proportion of non-native Norway maple forming the canopy, while the common native species, ash and elm, are threatened by Chalara and Dutch elm disease respectively. Biodiversity levels are constrained by the relative youth of the trees (~35 years old) and the absence of over mature trees and deadwood. True woodland ground flora is absent. While the site forms part of a larger habitat unit, it is itself very small, as is adjacent to housing and well used path, which leads to high levels of disturbance. This is exacerbated by the occurrence of anti-social activity, notably in the hours of darkness.

There is no sign of use by badgers, and the trees and walls do not appear to offer suitable roosting habitat for bats. The only other habitats present on the site as a whole are ruderal grassland and maintained amenity grassland, which again offer very limited habitat value.

Management Issues

Notwithstanding the current development proposal the key management issues facing the woodland are as follows:-

- Even-aged woodland (which limits sustainability and biodiversity values)
- Many poorly formed and suppressed trees, due to the hostile growing conditions, and lack of management intervention in terms of thinning
- High proportion of ash trees (with Chalara likely to lead to their deaths)
- Anti-social use, including fire setting, drug-taking (with discarded needles and related paraphernalia evident)
- Presence of litter, including garden waste
- Presence of squirrels, which is damaging the Norway maple trees in particular.

Future Management

Irrespective of the proposed development, in order to manage the whole woodland in the future, and to retain its amenity value and to promote the health of the trees the following proposals are recommended:

- Thin the woodland to remove poorly formed and suppressed trees, to promote the growth of retained trees.
- Clear regeneration (<4m in height) from a narrow strip of ground on the west of the park wall to provide clearer views of the wall itself and to prevent damage to the wall from the growth of the trees.
- Clear litter and used needles on a regular basis
- Introduce small-scale new planting to boost the variety of trees and shrubs present on the site.

IMPACT ASSESSMENT

Development Proposals

The development proposal includes for:-

- The construction of a 'Pump Track' straddling the line of the existing path to Holyrood Park
- The construction of MTB Trails through the woodland and its margins
- The construction of a replacement path connecting to Holyrood Park

The footprint of these developments is shown on Map 2

Each of these proposals will have an impact on the woodland and its constituent trees. Given this, in addition to the completion of a woodland survey (with the description and assessment contained in the preceding sections of this report), a survey and assessment of the development proposals on the individual trees has been made.

Tree Survey Methodology

A simplified version of the tree survey methodology recommended in BS 5837:20012 was utilized. Given that the trees are generally of low quality, and more importantly, as their value lies collectively in the form of a woodland rather than as individual specimens, that little knowledge would be gained from adopting the rigorous approach adopted to the survey and assessment of individual trees in BS 5837:20012.

Only the trees thought to be affected by the development proposals have been individually surveyed.

Table 1 - Tree Attributes Recorded in Survey Table 1 – Tree Survey

Attribute	Description
Ref no.	The trees likely to be effected by the developments have been referenced on the maps and survey tables, and given prefixes, while on site the trees have been marked with paint (which will fade in time). They have not been marked with tags). The various markings and prefixes are detailed below white dot/prefix C - trees to be removed for construction of MTB Trails no marking/prefix S – scrub to be removed for construction of MTB Trails yellow dot/no prefix – trees to be removed for construction of the Pump Track green cross/prefix E – trees to be removed for construction of embankments of Pump Track green band/prefix R – trees to be removed for construction of realigned path to Holyrood Park
Species	Tree species (English name).
Height (m)	The height of the tree estimated to the nearest metre.

Stem dia.(cm)	Generally the stem diameter was recorded at 1.5m above ground level, and measured in centimetres. The diameter of forked trees was recorded below the fork (often at the base of the tree) as well as on each bole at 1.5m
Canopy Spread	Not recorded; most trees have a very restricted canopy spread due to their woodland setting
Age Class	The age class of the tree, classed as young, semi-mature, early-mature, mature, over-mature or dead. The age range in years for each class varies depending on species.
Physiological /Structural Condition	Notes on the tree's health, with trees generally classed as good or fair unless there was a notable issue with their health (e.g. decay, disease, fungal growth, dieback, lack of vigour). Notes any significant structural issue, relating to tree form, (number of stems, physical damage etc.).
Management Proposals	Not included for individual trees –recommendations for woodland management are made in the preceding section.
Remaining Contribution	This is an estimate of how long the tree will continue to make a useful contribution in landscape, biodiversity, silvicultural, or amenity terms. (NB this is not how long the tree may live for)
Category	Each tree has been assigned to one of four categories A - trees of high quality and value B - trees of moderate quality and value C - trees of low quality and value U - trees with serious defects, are dead, in irreversible decline, are unsafe, or are of very low quality These categories are further defined in BS 5837:2012.
Root Protection Area (RPA)	The root protection areas have not been calculated for each tree. Given the relatively dense tree coverage, roots will spread throughout out the woodland, but will be constrained by the nature of the sub-surface materials. The larger trees are generally between 20cm and 30cm in diameter, which would in normal circumstances give a RPA radius of between 2.4m and 3.6m.

Impact of Pump Track Construction

The proposed Pump Track will cover a small plateau within the site, including part of the existing path to Holyrood, as well as its verges and woodland on either side of it. The construction of the track will involve the clearance of trees (at least for the most part), levelling of ground, removal of upper soil horizons, placement of hardcore, and surfacing with a tarmacadam based product.

Due to the slight fall in slope from east to west, a short embankment will be required on the Pump Track's western boundary.

The total area covered by the Pump Track and its embankments is in the region of 800m², of which 500m² is currently wooded.

While it is understood that efforts may be made to retain a few trees within the Pump Track, it would be prudent to assume that all trees within the footprint of the Track and its embankment, and those within 2m of its boundary, will require to be removed to facilitate the construction of the Track.

In order to assess the actual tree removals involved, the footprint of the Pump Track was marked out on site, and all trees within, or in close proximity to, the Pump Track were numbered, surveyed, assessed, and recorded. They were also marked with a yellow dot (within the Pump Track area) or a green cross (within the embankment area). These details are shown in Appendix 1, while the approximate locations of the trees is shown on Map 2

In total, 50 trees will be removed. Of these, 8 have been categorised as being 'U' i.e. trees of very low quality, with the remainder being category C, trees of low quality. The majority of the trees are either Norway maple or lime (see table 2 below). In line with the overall nature of the woodland most trees within the affected area are between 25cm diameter, and 12-14m in height, with the largest tree being 41cm diameter, and the tallest 16m in height.

The total area of woodland removal will be around 500m², which is roughly 17% of the wooded area. The total number of trees being removed to facilitate the construction of the Pump Track is 50, which equates to approximately 10% of the trees present on site.

Impact of MTB Trail Construction

The MTB Trails are designed to follow curvilinear routes through the site, with the retention of a wooded setting being important to their usefulness and attractiveness to cyclists. The paths will be designed to have a maximum width of 1.2m. In general a corridor of 3m width will be cleared of vegetation, but where feasible (in terms of access and safety) existing trees will be retained within this corridor. Path construction methods are outlined below:

- Trail route stripped of topsoil (1.2m wide, max depth of 350mm)
- Excavated material retained for later landscaping
- Geotextile membrane installed in the excavated strip if required
- Excavated strip filled with approx 250mm base course of 75mm crusher run quarry aggregate
- Wearing course of approx 30mm of 0-4mm quarry stone dust

The proposed routes have been walked, and trees which may have to be removed to facilitate both the trail construction and use by cyclists have been numbered, mapped, surveyed, assessed, and recorded. They were also marked with a white dot. These details are shown in Appendix 1, while the approximate locations of the trees is shown on Map 2. In total, 18 trees will be removed. Of these, 4 have been categorised as being 'U' i.e. trees of very low quality, with the remainder being category C, trees of low quality. The majority of the trees are either Norway maple or ash (see table 2 below). Most trees are between 15-20cm diameter, and 10-12m in height, with the largest tree being 25cm diameter, and the tallest 14m in height.

There will be no loss of woodland cover as a result of the MTB Trail construction.

In practice, the MTB Trail construction will aim to minimise the number of tree removals needed.

The loss of 18 trees equates to around 3% of the total number of trees present.

Impact of Path Realignment

The existing path to Holyrood Park from Braidwood Gate will be removed as part of the Pump Track construction, and it will be replaced by a realigned route around the north of the Pump Track. It has been assumed that it will be a 1.5m wide, semi-bound path (similar to the existing one), and that it will require excavation to a depth of 150mm. In general a corridor of 3.0m width will be cleared of trees, while the path will bound with the southern edge of the Pump Track.

The proposed route has been walked, and trees which may have to be removed to facilitate both the path construction and use have been numbered, mapped, surveyed, assessed, and recorded. They were also marked with a green band. These details are shown in Appendix 1, while the approximate locations of the trees is shown on Map 2.

In total, 2 trees will be removed, both of which have been categorised as being 'C' (trees of low quality). Both trees are elm, of 14m in height, and with the larger tree being 34cm in diameter.

There will be no measureable loss of woodland cover as a result of the path realignment.

Other Impacts

In addition to tree removal, tree pruning will be required along the lengths of the MTB Trails and realigned path. Branches protruding into a 3m wide and 2.5m high corridor along the trails will be pruned back to the trees main stems.

All arisings should either be removed from site or chipped on site, with chips being spread to a depth no greater than 75mm in any location. The use of habitat piles is not appropriate due to impact on amenity and likely use of materials for anti-social activity.

Impact Summary

Tables 2 and 3 below set out the total number of trees to be felled by species and by tree category.

Table 2 – Summary of Felling by Species

Species	Pump Track	MTB Trail	Realigned Path	Total
N. Maple	17	3	1	21
Lime	13		1	14
Ash	7	6		13
Elm	4	1		5
S. Whitebeam	4	1		5
Hawthorn	2	1		3
Elder		3		3
S. Pine	2			2
Whitebeam	1	1		2
Sycamore		1		1
Pear		1		1
Total	50	18	2	70

Table 3 – Summary of Felling by Category

Development	A	B	C	U	Total
Pump Track			42	8	50
MTB Trail			14	4	18
Realigned Path			2	0	2
Total	0	0	58	12	70

In summary no trees of category A or B will be felled, and 12 trees to be felled have been classified as category U. As not all of the individual trees on site have been categorised it is not possible to define the significance of this, but it appears that the quality of trees being removed is broadly in line with tree quality throughout the woodland.

- The removal of 70 trees equates to the loss of approximately 13% of the total number of trees within the woodland
- The removal of 500m² of woodland equates to the loss of 17% of the woodland within the site, and a 2% loss of the greater woodland area in the locality.

MITIGATION AND COMPENSATION

Mitigation

The potential to mitigate the impact of the Pump Track construction is limited but the following steps are proposed

- Four trees on the boundary of the embankment have been identified as having the potential to be retained, and to fulfil screening and amenity functions on completion of the works. These trees are detailed in the Tree Survey Table and their approximate locations are shown on Map 2. These trees should be protected in line with BS 2837:2012 in as far as is feasible. However, due to their proximity to the embankment that will be created it will not be feasible to erect a protective fence outwith of these trees's root protection area, but a temporary fence will be erected as detailed below.
- Prior to works commencing a temporary post and wire fence or 'Heras' type fence, should be erected and maintained on the boundary of the Pump Track, with works being confined within the enclosed area.
- Tree roots which are revealed during excavations to be protruding into the working area should be treated in accordance with BS 5837:2012.

In terms of impact mitigation for the MTB Trail and path realignment construction works, the following steps will be taken. It should be noted that some of these steps are more stringent than those listed in the project's Feasibility Study.

- While a clearance width of 3m has been assumed in the estimation of tree removals, where feasible in terms of working access and user safety, trees on the internal edge of this corridor may be retained (subject to on-site assessment and estimation of stability following path construction).
- It will not be feasible to erect a 'Heras' style or similar fence along the corridor, rather works will be confined to this corridor through the erection and maintenance of barrier tape along the corridor edges, and by communication with a supervision of site operatives.
- Impacts will be minimised through the use of rubber tracked mini-diggers (3 tonne maximum) and rubber tracked dumpers (max. carrying load of 1 tonne).
- Excavation depths will be kept to minimum sufficient to allow affirm path base to be constructed. Where required the path surface will be raised above the surrounding ground level and the edges supported by the placement of excavated material. Given this, and the nature of the ground, the maximum excavation depth will be ~200mm).
- Tree roots which are revealed during excavations to be protruding into the working area should be treated in accordance with BS 5837:2012.
- Where large tree roots (>50mm dia.) of retained trees are encountered, excavations will be undertaken manually, and under-digging avoided.

- Where exposed large roots (>50mm) of retained trees are encountered overtip construction methods will be used, and roots will be protected by use of a geotextile membrane

Compensation

The woodland, which has been unmanaged for a considerable number of years, will be brought into positive management. This will involve:-

- Thinning the woodland to remove poorly formed and suppressed trees, in order to promote the growth of retained trees. It would be prudent to wait for at least 12 months following the completion of the construction works. Thinning intensity would be in the region of 20% of stems, targeting poorly formed trees for removal. In addition the spread of Chalara among the ash trees present will be monitored, and in the event of infection, ash will be targeted for removal.
- Clearing woody regeneration (<4m in height) from a narrow strip of ground on the west of the park wall to provide clearer views of the wall itself and to prevent damage to the wall from the growth of the trees.
- Regular monitoring of the trees, including an annual inspection of all trees within falling distance of the public paths, Pump Track, and MTB Trails
- Undertaking enrichment planting of woody shrubs and trees to provide a greater degree of low cover in selected locations (see Map 2). Appropriate species include hawthorn, hazel, wild privet, silver birch and rowan. The planting will entail clearance of vegetation, ground cultivation, and planting of 90-120cm tall transplants, followed by a regular maintenance programme entailing weed control, firming up, and replacement of failed plants

Appendix 1 - Tree Survey Record Sheet

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
Proposed	Cycle Tracks						
Trees	For Removal	marked on site with white dot			dark green dot on Map 2		
C1	Ash	14	21	semi--mature	erect stem, bark completely removed to 3m, dying	<10	U
C2	Ash	14	15	semi--mature	erect stem, bark completely removed to 3m, dying	<10	U
C3	Ash	14	17	semi--mature	erect stem, bark completely removed to 3m, dying	<10	U
C4	Sycamore	8	12	semi--mature	slender, suppressed stem, with lost leader	10+	C
C5	Swedish whitebeam	10	16	semi--mature	heavily suppressed, poor condition (severed roots?)	10+	C
C6	Norway maple	11	15	semi--mature	heavily suppressed, dieback evident, (roots severed)	<10	U
C7	Norway maple	14	14	semi--mature	twin stems at 3m, suppressed, slender form	10+	C
C8	Whitebeam	8	10	semi--mature	very slender, low quality stem	10+	C
C9	Ash	6	11	semi--mature	very heavy lean to SW due to competition from larger trees, poor form	10+	C
C10	Elm (English)	10	19,19,15	semi--mature	3 stems, 2 heavily developed to NE tree leans over existing path	20+	C

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
C11	Norway maple	13	25	semi--mature	on steep ground, slight lean to NE, minor dieback, compression fork	40+	C
C12	Pear	6	8, 6	semi--mature	twin stemmed, poor quality, stunted specimen, on rocky outcrop	10+	C
C13	Hawthorn	2	6	early mature	small, spreading specimen	20+	C
C14	Ash	13	13	semi--mature	slender form, canopy suppressed, and developed only to E	20+	C
C15	Ash	13	18	semi--mature	slender form, canopy suppressed, and developed only to NE	20+	C
C16	Elder	5	12, 10,10	mature	poorly formed, multi-stemmed specimen, growing against wall	10+	C
C17	Elder	5	17	mature	very heavy lean to NW, extensive rot on trunk	<10	C
C18	Elder	5	15	mature	heavy lean to west, rot at base	<10	C

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
Scrub	For Removal	- not marked on site			orange dot on Map 2		
S1	Hawthorn	5	<10	early mature	5 small stems on edge of wood, being suppressed	10+	C
S2	Hawthorn/Elder	4	<10	early mature	4 elder and 3 hawthorn bushes on woodland edge; all small statured, and suppressed by larger trees	10+	C
Proposed	Pump Track						
Trees	For Removal	marked on site with yellow dot			purple dot on Map 2		
1	Ash	14	20	semi-mature		20+	C
2	Norway maple	14	22	semi-mature		30+	C
3	Norway maple	14	20	semi-mature		30+	C
4	Elm (English)	14	24	semi-mature		20+	C
5	Elm (English)	12	20	semi-mature		20+	C
6	Norway maple	14	20,19	semi-mature	twin stems at base	30+	C
7	Norway maple	15	41	mature	large tree	20+	C
8	Elm (English)	6	12	young		20+	C
9	Scots pine	14	22	semi-mature		40+	C
10	Scots pine	16	28	semi-mature		40+	C
11	Norway maple	14	25	semi-mature		30+	C
12	Ash	12	25	semi-mature	near reference point C	30+	C

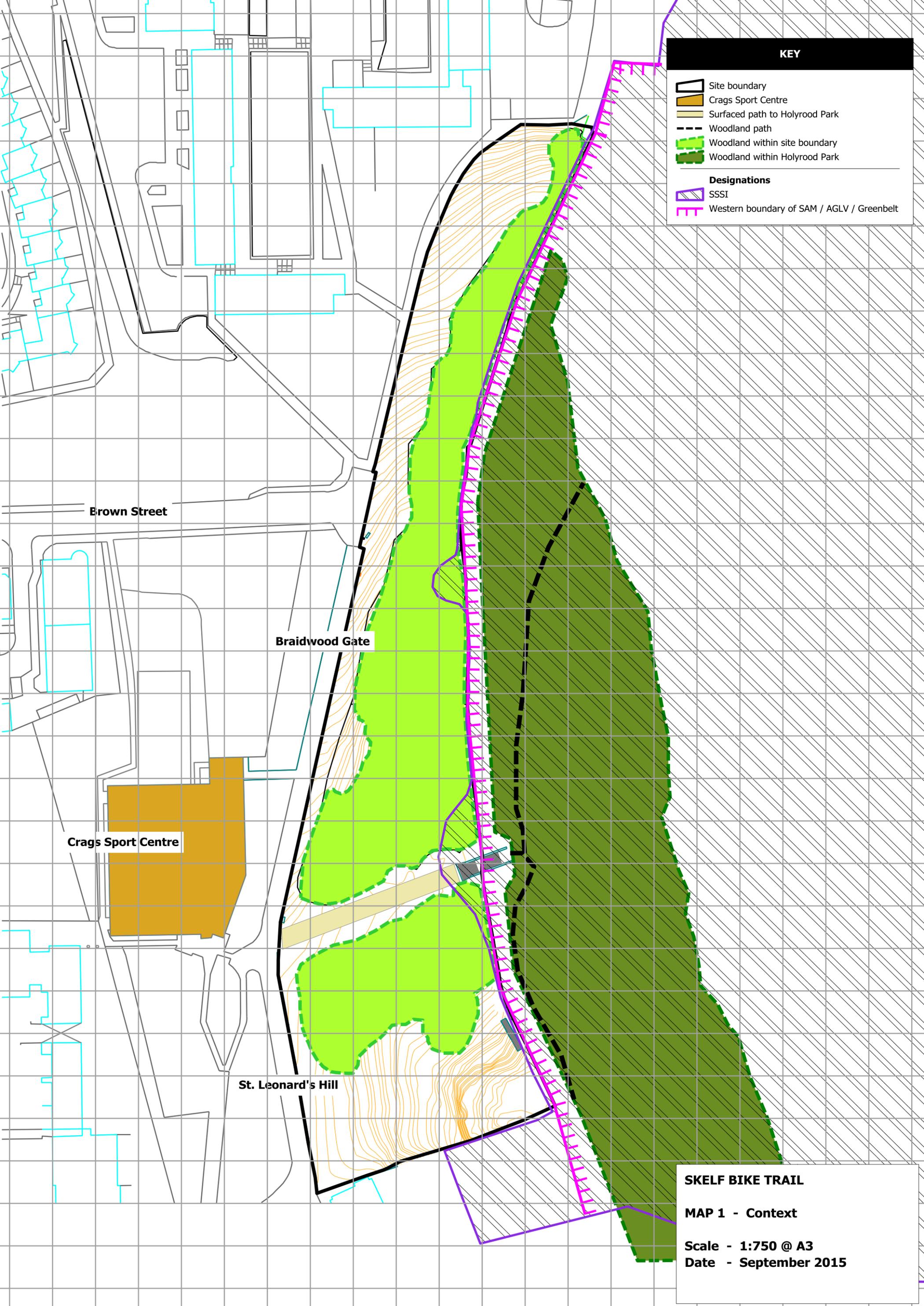
Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
13	Norway maple	15	27	semi-mature	bend in lower bole	30+	C
14	Norway maple	12	25,32	semi-mature	fork at base, leaning towards steps	30+	U
15	Norway maple	12	25	semi-mature	visible dieback in crown	30+	U
16	Norway maple	5	11	young	in decline, dying tree	<10	U
17	Norway maple	15	34	semi-mature		20+	C
18	Norway maple	8	12,18	young	fork at 0.5m, poor form	10+	C
19	Lime (large leaved)	8	<10	young		40+	C
20	Norway maple	11	15	young		30+	C
21	Ash	14	14,14	early mature	fork at 0.5m, twin stem	30+	C
22	Lime (large leaved)	8	<10,<10	young	fork at base, twin stem	40+	C
23	Lime (large leaved)	12	14,15	early mature	fork at base, twin stem	40+	C
24	Lime (large leaved)	6	<10	young		40+	C
25	Norway maple	13	20	semi-mature	near reference point H	40+	C
26	Norway maple	11	25	semi-mature		40+	C
27	Lime (large leaved)	12	20	early mature	poor form	20+	U

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
28	Lime (large leaved)	5	<10	young		40+	C
29	Lime (large leaved)	5	<10	young		40+	C
30	Lime (large leaved)	11	10,12,11,12	early mature	4 stems at base	30+	C
31	Norway maple	11	15,15,15	early mature	forked at 0.5m, 3 stems	30+	C
32	Norway maple	14	48,25	mature	fork at 1.5m, twin stems	20+	C
33	Ash	13	10,15,15	early mature	3 stems at base	20+	C
34	Swedish whitebeam	7	<10	young	multi-stemmed young tree	30+	C
35	Swedish whitebeam	11	10,11,14	young	3 stems at base	30+	C
36	Ash	13	25,25	early mature	fork at base with twin stems, poor form	20+	U
37	Elm (English)	10	12	young	multi-stemmed tree, largest stem 12cm	20+	C
38	Swedish whitebeam	12	15	young		30+	C
39	Hawthorn	6	<10	early mature		20+	C

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
40	Lime (large leaved)	12	15,15,15	early mature	fork at 0.5m with 3 stems	40+	C
41	Whitebeam	7	15,15	early mature	fork at 0.5m, with 2 stems, damage and rot at base	<10	U
42	Lime (large leaved)	8	14	early mature	multi-stemmed tree, stems <15cm	30+	C
43	Lime (large leaved)	8	14	early mature	multi-stemmed tree, stems <15cm	30+	C
44	Lime (large leaved)	12	20,24,25,27	semi-mature	fork at base with 4 stems	30+	C
45	Ash	11	25,20,21	early mature	3 stems at base	20+	C
46	Ash	10	25	young		20+	C
47	Swedish whitebeam	7	15	young	poor form	10+	U
48	Hawthorn	6	14	young		20+	C

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
Proposed Pump Track - trees potential affected by creation of embankments							
Trees	For Removal	marked on site with green cross			red dot on Map 2		
E1	Lime (large leaved)	7	9	semi--mature	suppressed stem, poor form, damaged at 0.5m	10+	U
E2	Norway maple	13	13	semi--mature	slender stem with suppressed crown, forks at 0.5 m	10+	C
Trees	To be Protected and Retained	unmarked on site			light green dot on Map 2		
E3	Scots pine	14	33	early mature	reasonable quality specimen near woodland edge - Protect if feasible	20+	C
E4	Lime	11	14	early mature	fair quality stem, potential to provide screening/setting for pump track - Protect if feasible	20+	C
E5	Ash	14	13	early mature	insignificant tree near edge of pump track, with potential to provide screening - Protect if feasible	20+	C
E6	Ash	11	14, 9, 8	early mature	insignificant, 3 stemmed tree near edge of pump track, with potential to provide screening - Protect if feasible	20+	C
Realigned Path							

Tree Survey Ref.	Species	Height (m)	Stem Diam. (cm)	Age Class	Physiological/Structural Condition	Estimated Remaining Contribution	Category Grading
Trees	For Removal	marked on site with a green band			blue dot on Map 2		
R1	Elm (English)	14	17	early mature	slender stem with suppressed crown, forks at 4m	20+	C
R2	Elm (English)	14	34	early mature	narrow form, evidence of bark loss and rot at 1.5m, with lateral fissures and flaking bark, dead wood in crown	10+	C



KEY

-  Site boundary
-  Crags Sport Centre
-  Surfaced path to Holyrood Park
-  Woodland path
-  Woodland within site boundary
-  Woodland within Holyrood Park

Designations

-  SSSI
-  Western boundary of SAM / AGLV / Greenbelt

Brown Street

Braidwood Gate

Crags Sport Centre

St. Leonard's Hill

SKELF BIKE TRAIL

MAP 1 - Context

Scale - 1:750 @ A3
 Date - September 2015

KEY

-  Site boundary
 -  Cycle Track routes
 -  Woodland cover
 -  Pump Track area
 -  Re-aligned surfaced path to Holyrood Park
-
- Trees to be removed :-**
- For cycle track construction**
 -  C1-C18
 -  S1-S2
 - For pump track construction**
 -  1-48
 -  E1-E2
 - For re-aligned path**
 -  R1-R2
-
- Trees to be protected**
-  E3-E6
-
- Other Tree Work**
-  Minor pruning works
 -  Enrichment planting



SKELF BIKE TRAIL

MAP 2 - Proposed Tree Works v2
Scale - 1:750 @ A3
Date - September 2015