Appendix 1 – Consultation record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
SNH	Feb 2017 20 May 2018	 13 June 2018	 Several amendments to text and maps requested.	 All amendments made.
RSPB	Feb 2017 20 May 2018		 “We welcome the proposed management to restore the sand dune habitat within Lossie Forest. The plans for clearance work on the previously cleared area is welcomed and this should be priority to avoid further regeneration outside of the Forest Enterprise area. We support the restoration of the quarry area to a wetland area which should benefit a range of species. We also welcome the continuation of a LISS system, providing deadwood and improving the structural and species diversity of the forest, which should benefit a	

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			range of wildlife found in the forest."	
Moray Council	Feb 2017 20 May 2018	No response to date.		
SEPA	Feb 2017 20 May 2018	20 June 2018	See copy of letter below.	1.2 Plan text has been amended. 3.1 Broadleaves able to cope with occasional flooding events will be used such as willow and alder. 5.1 Plan objective amended. 5.2 Broadleaf planting along riparian zones is not an objective for this plan. We will accept broadleaves as part of the natural regeneration mix under LISS management. All other points not addressed as they have no impact on the management of the forest.
Historic Environment Scotland	Feb 2017 20 May 2018	25 June 2018	See copy of letter below.	Reference to a monument management plan has been removed. Clear-felling between the

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
				elements of the scheduled monuments was considered however removal of the current mature crop of conifers would allow extensive birch natural regeneration. As we are unable to commit the resources require to control the birch regeneration this would even further limit views along the monument. There are no plans to increase the amount of forest cover in the scheduled area. The plan is to retain the current crop as is to reduce light levels and so help prevent further natural regeneration of broadleaves. All operation in the vicinity of the scheduled area will go through the work plan process (like all operations) at which point the detailed requirement of working close to the monument will be addressed.
		23 Nov 2018	See copy of letter below.	Reference to the replacement of Heras fencing with

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
				deer fencing has been removed from the plan. A site meeting is being arranged between HES and FES for the first quarter of 2019. This will allow further discussion of any assessment and repair/maintenance that may be appropriate. However this will not have a material impact on the LMP.
CONFOR	Feb 2017 20 May 2018	No response to date.		
Innes Community Council	Feb 2017 20 May 2018	No response to date.		
SSE	Feb 2017 20 May 2018		"As highlighted in your key features map, there are three sections of overhead powerline that are in close proximity of your woodland boundary; All are high voltage 11kV overhead power lines. The section at Inchbroom Cottages contains a very small number of potential 'red zone' trees which would require an outage to fell should they be included in your harvesting proposals. The other section at Loch of Cotts also has some potential	There is no clearfelling adjacent to the powerlines planned in the period of this plan (ten years).

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			'red zone' trees but I believe these may be out-with your boundary, as they appear to be located within the neighbouring property's woodland garden. The last section at Speyslaw is well out-with your boundary and therefore offers no issues. If the small section of 'red zone' at Inchbroom was felled within the period of your plan, we would request that restocking includes an increased area of open ground around the trans-former pole. As the current 'red zone' is so small, we don't envis-age this increase in open ground to be detrimental to this wood-land area. However, should you prefer to include trees in this location, the use of small shrub broadleaves would be our second preference."	
Scottish wildlife trust	Feb 2017 20 May 2018	No response to date.		
Permit holders	Feb 2017 20 May 2018	No response to date.		
Innes Estate	Feb 2017 20 May 2018	No response to date.		

SEPA
Scottish Environment Protection Agency
Buidheann Dion Àrainneachd na h-Alba

Our ref: PCS/159390
Your ref: Lossie Forest

If telephoning ask for:
Clare Pritchett

20 June 2018

Mark Reeve
Forestry Commission Scotland
Moray And Aberdeenshire Forest District
Portsoy Road
Huntly
AB54 4SJ

By email only to: mark.reeve@forestry.gsi.gov.uk

Dear Mr Reeve

Lossie Land Management Plan

Thank you for consulting SEPA on the draft of the above plan on 29 May 2018. Please see our comments below.

1. Analysis & Concept Plan

1.1 We are pleased to note the identification of opportunities for habitat enhancement including of the water environment of the quarry and ponds. We appreciate that the UK Forestry Standards Guidelines will be followed in order to improve the water quality.

1.2 However, it should be identified (and para 3.4.2 re-worded) that the 'poor status' of the River Lossie is due to the physical condition, where the pressures are due to the modifications to the bed and banks. The biota is mainly 'good' (except for the fish) and the chemistry has passed. Also the 'poor status' refers to the water body - River Lossie Waulkmill to Arthurs Bridge which ends at Arthurs bridge. The forest is therefore downstream of this particular waterbody. The waterbody actually adjacent to the forest is the Lossie Estuary and this is classified as 'good'. The Innes Canal/Lhanbryde Burn is classified as 'poor' due to the hydromorphology and the physical condition. The biological elements are 'high' and the chemistry hasn't been recorded or calculated at this waterbody. Therefore the River Lossie isn't downgraded due to agricultural activities and it's not correct to state that the forest would be beneficial in improving the water quality by filtering out polluting particles present in the water entering the Lossie from agricultural activities.

2. Current Species Map

2.1 It would be useful to know the species mix in the 'open areas' to link into the opportunities for habitat enhancement including those areas of fen slacks and artificial hollows with rich vegetation including coral root orchid on silty soils.

Chairman
Bob Downes
Chief Executive
Terry A'Hearn

SEPA Aberdeen Office
Inverdee House, Baxter Street
Torry, Aberdeen AB11 9QA
tel 01224 266600 fax 01224 896657
www.sepa.org.uk • customer enquiries 03000 99 66 99

3. Future Species Map

3.1 It would be helpful to have clarification of the reasons for planting broadleaves in the gaps in an area which has flooded in the past and the proposed species.

4. Key Features Map

4.1 The river Lossie runs along the western boundary of the forest. There are a number of man-made ponds related to gravel quarry operations. In the eastern area there are narrow areas of open water/fen habitat formed from former dune slacks. It would be helpful if the drainage canal which is just within the forest edge could be identified.

5. Draft Land Management Plan

5.1 Dune restoration – if would be helpful if this could be clarified as one of the objectives, so restoration in addition to the preservation of biodiversity. It is noted that an area (8.5ha) of mature Corsican and Scots pine will be felled and not re-stocked and that further meetings are to be held with SNH to decide the management direction for the SSSI, SAC and dune restoration areas. It would be helpful if these areas could be identified on the plans.

5.2 It is noted that in the previous plan new native broadleaf areas were to be established along riparian zones and that there are still riparian areas where conifers remain but it is the aim to re-stock those areas with broadleaves. It would be helpful if these riparian zones either already re-stocked with broadleaves areas or with conifers still to be removed could be identified on the plans as well as those areas within the fen habitat where willow growth will be monitored and cleared if necessary and the on-going creation of wetland areas in the former quarry though the works to link separate lagoons to form a larger body of water with a gently sloping shore and islands suitable for nesting.

5.3 In section 3 - pressures and proposed actions – it is noted that invasive species are identified as a pressure with mature trees to be cut back from fens, willow scrub to be cut and treated with glyphosate., coral root orchid to be identified, gorse to be removed and cut stumps treated with glyphosate etc all to be agreed with SNH.

6. Regulatory advice for the applicant

6.1 Details of regulatory requirements and good practice advice for the applicant can be found on the Regulations section of our website. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the regulations team in your local SEPA office.

If you have any queries relating to this letter, please contact me by telephone on 01224 266609 or e-mail at planning.aberdeen@sepa.org.uk.

Yours sincerely

Clare Pritchett
Senior Planning Officer
Planning Service

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

By email to:
mark.reeve@forestry.gsi.gov.uk

Mr Mark Reeve
Planning Forester
Forestry Commission Scotland (Grampian)
Moray & Aberdeenshire Forest District
Portsoy Road
Huntly
Aberdeenshire
AB54 4SJ

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

joss.durnan@hes.scot
T: 0131 668 8688

Our ref: AMN/8/8/GB
Our case ID: 300028800

25 June 2018

Dear Mr Reeve

Forestry Act 1967
Lossie Land Management Plan
Statutory Designation: Innes Links, anti-invasion defences, Kingston to Lossiemouth
Designation Reference: SM13572

Thank you for your consultation which we received on 29 May 2018. We have assessed it for our historic environment interests and consider that the proposals have the potential to affect the following:

Ref	Name	Designation Type
SM13572	Innies Links, anti-invasion defences, Kingston to Lossiemouth	Scheduled Monument

Our Advice

We have considered the information received and have some comments regarding the proposed Land Management Plan (LMP). The Plan suggests that Innes Links will be conserved by way of a monument management plan. However, our records do not show a monument management plan to be in place for this monument. We would therefore recommend that a proposed management of the monument be included within the LMP. Our comments in this regard are detailed below.

The monument comprises the well-preserved remains of a Second World War Defence Sector, constructed between 1940 and 1941 with the intention to protect various airfields within this section of coast against seaborne and airborne invasion from occupied Norway. It consists of reinforced concrete pillboxes and anti-tank blocks, centred on an Emergency Coastal Battery at Innes Links. The monument has the potential to add

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significantly to our understanding of the defence of Scotland during the Second World War, particularly with regard to defences strategies, the design, planning and construction of anti-invasion defences, the use of the landscape in defence, and the lives of soldiers who trained on and manned the defences.

We previously gave comments on a LMP review in March 2017, and recommended that clear-felling between the separate elements of the scheduled area, particularly in the west where the defences incorporate an intake of the Innes Canal, would aid interpretation of the site by opening related views along the line which are currently obscured by forestry. We would encourage you to incorporate this into the LMP.

The future species map suggests an aim to increase the forest's broadleaf resource through LISS within compartments containing scheduled areas. We would not recommend an increase in forestry within a scheduled area.

The supplied thinning map shows that areas containing parts of the scheduled monument are to be thinned. This work would likely require scheduled monument consent, and we would therefore recommend early consultation with us to ensure any thinning activities do not negatively impact upon the monument.

The supplied mapping shows a number of forestry roads are immediately adjacent to parts of the scheduled monument. We would therefore recommend that during any forestry works, staff and contractors on site be made aware of the presence of the scheduled monument and its significance.

These recommendations would have a clear and substantial benefit for the monument's preservation and would be in keeping with the UK Forestry Standard Guidelines (https://www.forestry.gov.uk/ukfs), which encourage the positive management of scheduled monuments, in particular Section 6: Historic Environment.

I trust the above is helpful clear but please let me know if we can advise further.

Yours faithfully

Historic Environment Scotland

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

By email to:
mark.reeve@forestry.gsi.gov.uk

Mr Mark Reeve
Planning Forester
Forestry Commission Scotland (Grampian)
Moray & Aberdeenshire Forest District
Portsoy Road
Huntly
Aberdeenshire
AB54 4SJ

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

iona.murray@hes.scot
T: 0131 668 8932

Our ref: AMN/8/8/GE
Our case ID: 300028800

23 November 2018

Dear Mr Reeve

Forestry Act 1967
Fourth consultation on the Lossie LMP
Statutory Designation: Innes Links, anti-invasion defences, Kingston to Lossiemouth
Designation Reference: SM13572

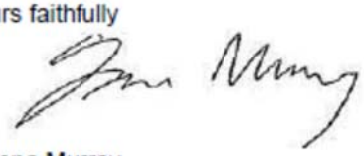
Thank you for the further information supplied on 12 October 2018 relating to the above scheduled monument.

We welcome the proposed controlling of gorse, scrub, and tree encroachment, and the maintaining of existing open views within the scheduled area. We would encourage further options for the restoration of sight lines and the improvement of the setting of all elements of the monument to be explored.

We are however concerned by the proposed replacement of temporary Heras fencing with permanent deer fencing. This is a strategy which we cannot support. Not only will it negatively impact upon the setting of the monument, it will encourage further gorse and scrub regeneration. We understand there are health and safety concerns with the areas currently fenced and would encourage you to consider undertaking a detailed assessment of these areas to set out the options for repair and management. Any requirement for permanent fencing should be set within assessment.

We welcome the offer of a site visit, and would be happy to meet with you on site to discuss management issues at this nationally significant heritage asset.

Yours faithfully



Dr Iona Murray
Deputy Head of Casework
Historic Environment Scotland

Appendix 2 – Tolerance table

	Adjustment to Felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Changes to roadlines	Designed open space	Windblow Clearance
FC Approval not normally required	Fell date can be moved within 5 year period and between phase 1 and phase 2 felling periods where separation or other constraints are met	Up to 10 % of coupe area	Normally up to 2 planting seasons after felling. Where hylobius levels are high up to four planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change within species group e.g. conifers, broadleaves.		Increase by up to 5% of coupe area	
Approval by exchange of letters and map		Up to 15 % of coupe area	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.		Additional felling of trees not agreed in plan Departures of more than 60m in either direction from centre line of road.	Increase by up to 10%. Any reduction in open ground within coupe area.	Up to 5 ha
Approval by formal plan amendment may be required	Advanced felling (phase 3 or beyond) into current or 2nd 5 year period	More than 15% of coupe area	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change from specified native species. Change between species group.	As above depending on sensitivity.	More than 10% of coupe area. Colonisation of open areas agreed as critical.	More than 5 ha

Appendix 3 – LISS prescriptions

Coupe ref. (See map – LISS coupes)	Management Type and area	Management objective/Reason for selection	Long-term structure and desirable species	Age Trans. period and return time (years)	Regeneration and ground flora	Observations (e.g. likely barriers to achieving objective)	Next treatment required	Other useful information
1	Clearfell with seed trees - 332 ha	Production of timber. Good seed source present over the site. Evidences of successful natural regeneration within and around the site.	Uniform stands of Pines either Scots or Corsican Pines – A minor percentage of Broadleaves will be accepted - about 10 % maximum.	**Age** – 10 to 78 years old. **Transf. period** – 20 to 200 years. **Return time** – 10 years thinning cycle.	Diverse – See on a case by case basis if ground preparation is needed. Generally, ground vegetation should not be a barrier to acquire natural regeneration.	Ground vegetation including gorse / bracken / moss. Undertake active ground vegetation control when necessary.	**Either crown thinning or See LISS map for heavy thinning year.** Each heavy thinning will aim to reduce the tree density to 40 / 80 trees / ha depending on their crown development (basal area comprised between 8 and 12m^2 / ha.	After each heavy thinning, soil scarification will help to acquire natural regeneration particularly where the ground vegetation layer is too thick for the seed germ to reach the mineral layer (more than 5 cm - indicative). The last clearfell will occur before that the NR reaches a height of 50 cm – clearfells undertaken later than this will damage natural regeneration. The best seed trees can be left for several rotations (10 to 20 trees/ ha). We will aim to have 10 000 trees/ha when NR is 5 cm high, 2500 trees / ha when NR is 50 cm high and 2000 trees / ha when NR is 2 m high.

2	Group selection - 119 ha	Production of timber. Recreation and avoid windblow / landscape issue along coastal line. Good seed source present over the site. Evidences of successful natural regeneration within and around the site.	Uneven aged crop of Pines either Scots or Corsican pines. – A minor percentage of Broadleaves will be accepted – about 10 % maximum.	**Age** – 45 to 69years old **Transf. Period** - Approx. 70 to 100 years. **Return time** – 10 years thinning cycle.	Diverse – See on a case by case basis if ground preparation is needed. Generally, ground vegetation should not be a barrier to acquire natural regeneration.	Ground vegetation including gorse / bracken / moss. Undertake active ground vegetation control when necessary.	Fell approx. 1/10th of groups at each thinning stage. The total area felled represents approx. 11.9ha of the total area standing. Group size approx. 0.2ha each.	After each group felling, soil scarification will help to acquire natural regeneration particularly where the ground vegetation layer is too thick for the seed germ to reach the mineral layer (more than 5 cm - indicative). Respacing might be needed once NR will be established.
3	Single tree selection - 18.5 ha	Production of timber / firewood. Encourage diversity of species. Evidences of successful natural regeneration within and around the site.	Broadleaves mainly Birch and Sycamore. Other broadleaves will be retained when present in the area.	**Age** – 12 to 100 years old **Transf. period** – Varies depending on growing conditions **Return time** – 10 years thinning cycle.	Diverse.	Ground vegetation including gorse / bracken / moss. Undertake active ground vegetation control when necessary.	Keep thinning.	
4	Scarification and weed control - 5.2 ha	Acquire NR of Pines where clearfell with seed trees has been done and NR unsuccessful.	Pines and broadleaves (no more than 20 % broadleaves).	**Age** – 79 years old **Transf. period** – 5 to 10 years **Return time** - Now for scarification	Some NR of BI + SP and CP. Problem of competition with gorse + bracken and thick ground flora.	Ground vegetation	Weed control and Ground preparation – Scarification / mulching / spraying necessary.	

Appendix 4 Spey Bay SSSI and Lower River Spey & Spey Bay SAC

Overall Management Aims & Objectives for each designated site

- To maintain the extent, diversity and quality of the habitats on the site through sensitive management and careful work planning.
- To preserve the physical and visual integrity of the shingle ridges.
- To manage visitor pressure and, in particular, minimise illegal vehicular access to the ridges and dunes.

Contents

Section 1 Designated Sites covered by this appendix (or LMP)

Designated Site Name	Site code	Site Type	Total Area of designated site (ha)	Area within this FDP (ha)	% Within this FDP	% on NFE	Annex containing SNH site documentation
Spey Bay	1461	SSSI	458.8	178.6	38.9	38.9	Annex 2
Lower River Spey and Spey Bay	8311	SAC	654.26	178.6	27.3	27.3	Annex 3

Refer to the map in Annex 1 which highlights the location of the above designated sites in relation to the FDP boundary and the NFE management area.

For further detail on the designation refer to the SNH documentation in the above listed annexes, which refers to the entire designated site area. The remainder of this plan will refer in detail to the element of the above designated site/s on the NFE.

Both the SSSI and SAC are one main area, concentrated in the east end of the forest, with an elongated polygon along the coastal strip and one separate 3.6ha polygon near the quarry. The SSSI extends to a further 280.2ha and the SAC a further 475.66ha outside of the NFE.

Section 2 Features on the NFE and condition

Only features that exist on the NFE within this FDP are listed in the table below.

Site Type	Site code	Feature description	Feature code	SCM Condition (Date assessed)	Condition on NFE	Management Classification (if relevant)
SSSI	1461	Hydromorphological Mire Range		Unfavourable declining 3/2005	Partially Recovering	
SSSI	1461	Shingle		Favourable maintained 3/2005	Favourable maintained	
SSSI	1461	Coastal Geomorphology of Scotland		Unfavourable – no change 3/2005	Unfavourable – recovering due to mgt.	
SAC	8311	Coastal Vegetated Shingle Outside the reach of the waves		Favourable declining	Favourable	

* Note that the latest SCM results may not be contained within the SNH legal documentation for the site. Always check the SCM spreadsheet or database.

Hydromorphological Mire Range

Between the parallel single ridges there are many linear depresssions or slacks, along with some "artificial" hollows created by previous mineral extractions. These areas are flooded during the winter months and remain wet throughout the year, creating extremely rich vegetation on silty soils.

The fen lies parallel to the sea and stretches intermittently for many hundreds of metres, ultimately linking with the open water further through the forest. Despite this great length, the fen is only 3 to 7 metres wide and overshadowed by the Scots pine crop. Occasional mature Scots pine, birch and willow grow within the wet area. Reflecting the original wave action, the ground on the south side of the fen rises steeply, whilst is shallower on the seaward side.
Another rich fen area is the site of a former cobble stone and aggregate quarry. The active quarry has now been moved to the south of the site. Vegetation on the site forms a mosaic of open water reed bed, swamp and tall fen. Various species and hybrids of willow grow on the site. These include creeping willow (*Salix repens*), grey willow (*S.cinerea*) goat willow (*Salix caprea*) and hybrids of both, and crack willow *(S.viminalis*) (appeared to be planted).

Water levels on the site fluctuate dramatically during the year with rises of up to 2.5 metres. These fluctuations; the presence of creeping willow (and other willows) around the periphery of the site, create a suitable interface zone between wet and dry ground ideal for growth of coral root orchid.

Coastal Geomorphology of Scotland

Spey Bay is a site of the highest importance for coastal geomorphology. It is outstanding on several accounts. Firstly, the active shingle ridges are the finest in Scotland. These are developed on a massive scale over a distance of 8 km and provide almost unique evidence for short and medium-term dynamic coastal processes. Secondly, the delta at the mouth of the Spey is a complex and shifting area with a documented history of dramatic changes. Thirdly, the magnificent strandplain of post-glacial shingle ridges records the progressive history of coastal development. The scale of this development, juxtaposition and inter-relationships of these three elements makes Spey Bay one of the most important coastal physiographic sites in Britain.

Coastal Vegetated Shingle Outside the Reach of the Waves

The Spey Bay area is the largest vegetated shingle complex in Scotland, and has been notified as an SSSI and designated a Special Area of Conservation (SAC) because of the wide variety of associated plant communities.

The active shingle ridge is bare of vegetation and backed by a sequence of pioneer shingle communities of scattered perennial herbs, dwarf shrubs and/or lichens followed by shingle grassland and scrub or sand dune vegetation. Along the seaward edge the dwarf-shrub heath and grassland resemble maritime cliff vegetation. Sand sedge *Carex arenaria* and marram grass *Ammophila arenaria* occur more frequently in the west of the site due to the increasing importance of sand. Damp shingle slacks with cross-leaved heath *Erica tetralix*, black bog-rush *Schoenus nigricans* and Baltic rush *Juncus balticus* are found in the middle and east of the site.

Section 3 Pressures and proposed actions

Site Type	Feature description	Feature code	Pressures	Proposed action	Timescale	Location Map highlighting work & other key limiting factors
SSSI	Hydromorphological Mire Range	1461	Invasive species	Mature trees to be cleared back from fens. Cut willow scrub and treat stumps with glyphosate.	During the lifespan of the LMP	Botanical survey to be carried out ahead of works to identify coral root orchid locations
SSSI SAC	Shingle habitat Coastal geomorphology Coastal Vegetated Shingle outside the reach of the waves	8311	Presence / Change in extent of invasive species	Gorse to be continue to be removed as per methodology agreed with SNH. Cut stumps to be treated with glyphosate. Cut material to be removed to track, following vegetated areas and chipped and removed from site. Strip of gorse along edge to be retained as barrier to access. Fence to be erected to block gaps. Interpretation to be used to educate and inform public.	2018 and as required throughout the lifespan of the plan	Sensitivity of relict shingle ridges to physical disturbance and herbicide drift
			Forestry Operations	No machinery on open shingle. Harvesting methodology to be discussed and agreed with SNH for any thinning or felling on shingle areas, including relict ridges and raised cliffline. Routes used to extract cut material to be agreed with SNH in advance of operations	During the lifespan of the LMP	Sensitivity of relict shingle ridges to physical disturbance

Section 4 Operations within the LMP that could impact on the designated features on the NFE

Operation Type	Detailed description of operation and method	Mitigation measures to be applied	Timing	Map reference & other relevant comments
Clearfell of phase one coupe (red on Management map) - raised cliffline feature of coastal geomorphology	Clearfell of mature crop on Binn Hill by chainsaw, harvester and skyline.	Use of harvesting method which avoids ground damage/erosion on the steep slope. Strict adherence to industry guidance. Use of well-thatched brash mats on existing extraction routes. Avoid winter working where practical to avoid poor ground conditions. Any requirements to use existing track across the hill for access / egress to be discussed and agreed with SNH prior to operations. Take opportunities to improve the visibility of landforms/visual integrity of the site. Open areas will give easier access and extensive views across the site.	Due in Phase 1 of the LMP (2017 to 2021).	Refer to map 5
Clearfell of phase three coupe (yellow on Management map) - raised cliffline feature of coastal geomorphology	Clearfell of mature crop on Binn Hill by chainsaw, harvester and skyline.	Use of harvesting method which avoids ground damage/erosion on the steep slope. Strict adherence to industry guidance. Use of well-thatched	Due in Phase 3 of the LMP (2027 to 2031).	Refer to map 5

		brash mats on existing extraction routes. Avoid winter working where practical to avoid poor ground conditions. Any requirements to use existing track across the hill for access / egress to be discussed and agreed with SNH prior to operations. Take opportunities to im-prove the visibility of landforms/visual integrity of the site. Open areas will give easier access and extensive views across the site.		
Thinning of LISS stands	Sylvicultural thinning of conifer and broadleaf crops. Mechanised harvesting using harvester/forwarder. Implementation of a single tree selection system or group selection up to a maximum of 0.2 ha	Strict adherence to industry guidance. Use of well-thatched brash mats on existing extraction routes. Avoid winter working where practical to avoid poor ground conditions.	Due in 2019.	
Establishment of low density native woodland on raised cliffline feature coastal geomorphology	Re-establishment of woodland cover on felled areas. Woodland to be established at low density (<1500 stems per hectare). Species – Scots Pine, Birch and other native broadleaves. Direct planting.	Manual planting direct into ground. Woodland to incorporate open space to maintain visibility of features	During lifespan of plan	Refer to map 6
Clearance of gorse from shingle beds	Removal of native invasive shrub from a qualifying feature of the Spey Bay SSSI. Treatment of cut stumps with glyphosate	Manual cutting and removal of gorse scrub from the shingle beds. (No vehicles allowed on the open shingle).	Depending on monitoring results of re-growth or regeneration of gorse scrub, but no	

		Cut material will be removed following agreed tracks during suitable weather conditions. Application with weedwipe or paintbrush will prevent "drift". Chemical application in line with best practice and regulations and during a spell of dry weather and not when windy or raining. Trained operators.	greater than 5-yearly intervals.	
Lease to MOD for rifle range	Access to and use of rifle range	Obligation on MoD to ensure all operations are carried out in agreement with SNH.	Ongoing	
Recreation / Public Access	SOAC public access on forest roads and tracks. Issues with illegal motorbike and vehicle access.	FES to use signage to educate and inform about protected areas such as shingle. Possible use of fencing / gorse as barrier to access. Use of signage to inform that 4x4 / motorbikes are not permitted. Situation monitored and work with Police Scotland	Ongoing	

Section 5 Operations within the FDP or aspects of the national forest estate within the FDP that could impact on designated sites adjacent to national forest estate

Operation Type / Aspect of forest	Detailed description of issue or operation	Proposed action &/or mitigation	Timing	Map reference & other relevant comments
Re-wetting of disused quarrys / borrow pits	Minor works to reduce gradients and join up pits into larger water body.	Disused pits are currently wet and no work being done to influence water level. Water levels to be monitored and discussed with SNH as required.	On-going	Re-wetting of features will have additional potential benefit of connecting with the designated fens establishing a network of wetland habitats through the forest.

Section 6 Appropriate Assessment/s undertaken on work contained within the FDP

Appropriate assessment of forestry proposals which are likely to have a significant effect on a European site under the Conservation of Natural Habitats, &c.) Regulations 1994. Regulation 48.

1. Name of European site affected by the application and current designation status, including name of component SSSI (if relevant).

Lower River Spey – Spey Bay SAC (Spey Bay SSSI)

2. Features of European qualifying interest, whether priority or non-priority; and conservation objectives for qualifying interests.

SAC – qualifying interests

Coastal Shingle Vegetation outside the reach of the waves

Additional Proposed interests

None.

Conservation objectives for qualifying interests

To avoid deterioration and distribution of the habitats of the qualifying features (above), thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying features.

To ensure for the qualifying species that the following are maintained in the long term:

- Distribution and extent of habitats
- Structure, function and supporting processes of habitats
- No significant deterioration of the habitats.
- Processes supporting the habitats
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

3. Details of proposal.

Name: Lossie Land Management Plan ***Location:*** Morayshire

Applicant: Forestry Commission Scotland Moray & Aberdeenshire ***Reference:*** FM1/2/9

Description of proposal:

The proposal is in the form of a Forest Plan, as such reference to the plan maps and text should be made, as they form part of this assessment.

Management of open shingle to maintain this open habitat. Use of thinning, low impact silvicultural systems and clearfell to produce quality timber whilst achieving favourable condition and enhanced biodiversity of habitats and species.

Operations:

- **Manual cutting of gorse and treatment of cut stumps –** gorse will be cut with chainsaws or scrub-saws. Cut material will be removed from the shingle following an agreed route across cut gorse areas. No machines or operators on open shingle areas. Cut stumps will be painted or sprayed (with weed wiper) with glyphosate. No chemical operations on windy and/or wet days. No chemicals stored or mixed on shingle. Cut material will be chipped or deposited in adjacent mature pine stands. Operations in compliance with best practice and by qualified and trained operators. Detailed work plan and site plan in place.
- Trees and scrub will be cut using scrubsaw/chainsaw and the cut stumps treated with glyphosate. Operations in compliance with best practice and by qualified and trained operators. Detailed work plan and site plan in place.

4. Appraisal of impact on European interest.

4.1 *Is the proposal directly connected with or necessary to the management of the site?*
Yes /No **(if Yes go to 5.)**

Yes for gorse clearance
No for sand dune restoration.

4.2 *Is the proposal likely to have a significant effect on the European interest on the designated site?*
Yes/No **(if yes assess impact on site)**
No

5. Conclusions.

Will the proposal adversely affect the integrity of the European site?

No.
Gorse is expanding across the site and left uncontrolled it will destroy the feature. With reference to the mitigation detailed in section 3 above and the conditions stated in (6) below, the proposals should not affect the integrity of the site.
The sand dune restoration will have the positive benefit of removing seed source adjacent to the shingle and reduce encroachment of trees and scrub onto the designated site.

6. Conditions

- All operations to comply with the Forest and Water Guidelines and Forests and Soils Guidelines as a minimum.
- Motor manual felling to be undertaken on shingle
- No fuel or chemical storage or application within 5m of shingle nor 15m of any watercourse
- Direct FCS supervision of all sites and liaison with SNH ahead of operations
- All operations will be timed to minimise the possibility of ground damage or contamination by run-off
- No vehicles or machinery to be parked on or driven on open shingle

Section 7 Approvals, agreements & signatures

I confirm that the above management plan which covers the section of Spey Bay SSSI (Site code 1461) within the Land Management Plan for Lossie Forest contains the necessary detail, content and mitigation measures to comply with the statutory requirements contained within the Nature Conservation (Scotland) Act 2004 and in particular in relation to Part 2, Chapter 1, Section 14 (d), which covers consents via an agreed management plan (i.e. "SNH's consent under section 13 is not required in relation to carrying out an operation of the type described in subsection (1) of that section – …….(d) in accordance with the terms of a management agreement between SNH and the public body or office-holder carrying out the operation").

SNH Signature …… Date ……..

SNH Name ……..

SNH Job Title ……..

Address……..

Email ……..

Contact telephone number ……..

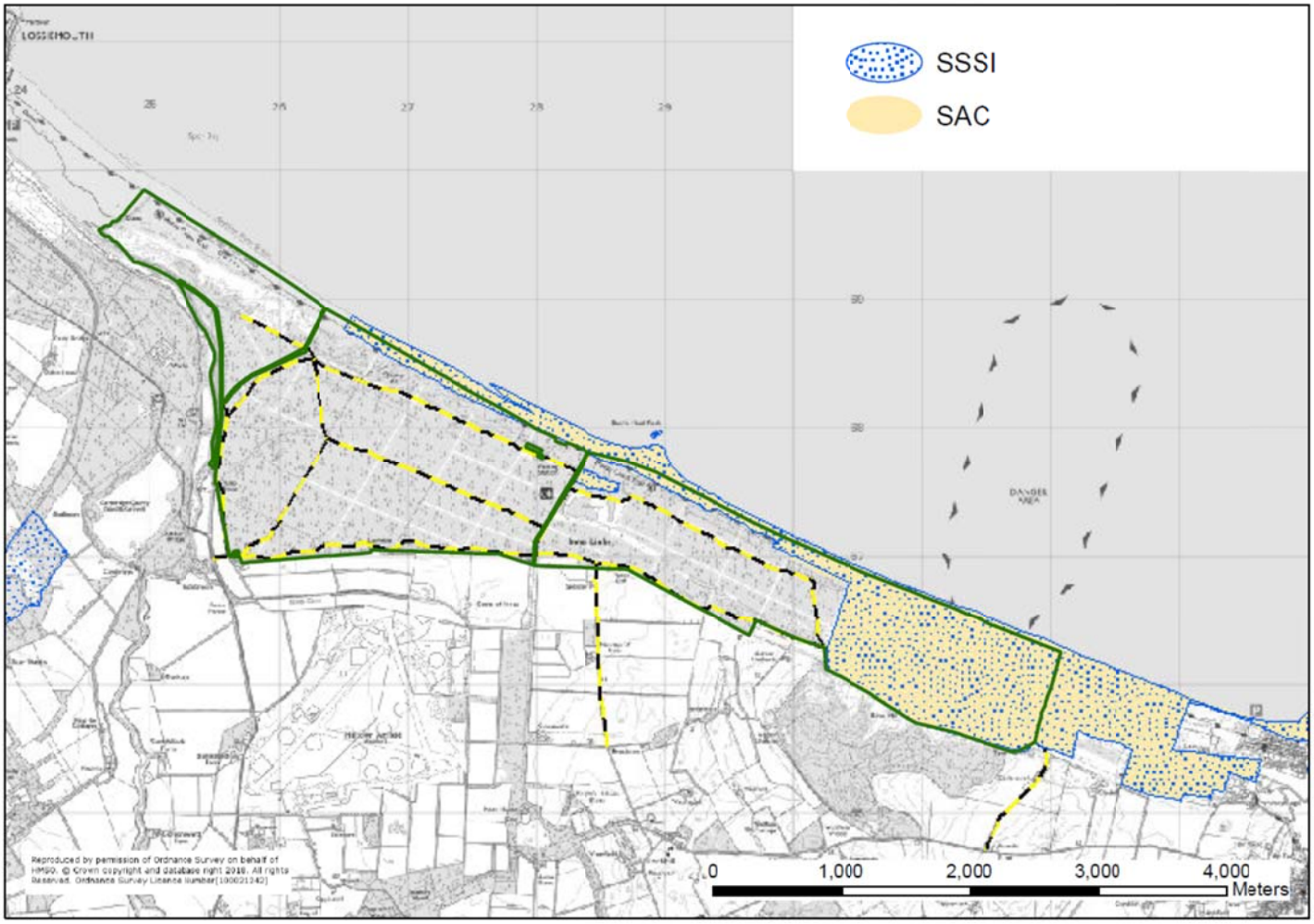
FCS has a corporate requirement under UKWAS (2nd edition) and under the FCS Framework Document for FES (2010) to manage all designated sites in accordance with plans approved by the statutory authority, I therefore sign below to approve the contents of this plan in relation to the designated sites SAC 8311, SSSI 1461,that fall within its boundary on the NFE.

SNH Signature …… Date ……..

SNH Name ……..

Annex 1 – Location Map

Map highlighting the location of the designated sites in relation to the LMP boundary and the NFE management area.



Annex 2 – SSSI Citation

CITATION

SPEY BAY
SITE OF SPECIAL SCIENTIFIC INTEREST
Moray

Site code: 1461

NATIONAL GRID REFERENCE : NJ325660

OS 1: 50 000 SHEET NO : Landranger Series 28
1: 25 000 SHEET NO : Explorer Series 424

AREA : 458.8 hectares

NOTIFIED NATURAL FEATURES

Geological	: Geomorphology	: Coastal Geomorphology of Scotland
Biological	: Fens	: Hydromorphological mire range
	: Coastlands	: Shingle
		: Saltmarsh
	: Woodlands	: Wet woodland
	: Vascular plants	: Vascular plant assemblage
	: Butterflies	: Small blue *Cupido minimus*
		: Dingy skipper *Erynnis tages*

DESCRIPTION

Spey Bay is located on the south side of the Moray Firth, between Lossiemouth and Buckie. The site comprises a delta at the mouth of the River Spey, a narrow shingle beach to the east and west of the river mouth and a very large strandplain of shingle deposits to the west, the largest in Scotland.

GEOLOGY

Spey Bay is a site of the highest importance for coastal geomorphology. It is outstanding on several accounts. Firstly, the active shingle ridges are the finest in Scotland. These are developed on a massive scale over a distance of 8 km and provide almost unique evidence for short and medium-term dynamic coastal processes. Secondly, the delta at the mouth of the Spey is a complex and shifting area with a documented history of dramatic changes. Thirdly, the magnificent strandplain of post-glacial shingle ridges records the progressive history of coastal development. The scale of this development, juxtaposition and inter-relationships of these three elements makes Spey Bay one of the most important coastal physiographic sites in Britain.

BIOLOGY

The river delta, active shingle ridges and shingle strandplain support a wide range, and some exceptional examples, of riparian and coastal habitats.

The delta at the mouth of the River Spey has extensive areas of mobile shingle, saltmarsh, riverbank scrub and woodland. This woodland, mainly dominated by

alder *Alnus glutinosa* , with smaller areas of willow and some more mixed stands of alder and ash , is one of the most important areas of floodplain woodland in Britain.

The saltmarsh is one of the most extensive in north-east Scotland. It is mainly dominated by red fescue *Festuca rubra* with locally dominant mud rush *Juncus gerardii*, and smaller areas of common couch *Elytrigia repens* and slender spike-rush *Eleocharis uniglumis*. Common reed *Phragmites australis* and reed canary-grass *Phalaris arundinacea* form patches of swamp at the landward edges of the creeks with grey club-rush *Schoenoplectus tabernaemontani* swamp at the seaward edge. Transitional grasslands with silverweed *Potentilla anserina* and tall fescue *Festuca arundinacea* are also found.

The active shingle ridge is bare of vegetation and backed by a sequence of pioneer shingle communities of scattered perennial herbs, dwarf shrubs and/or lichens followed by shingle grassland and scrub or sand dune vegetation. Along the seaward edge the dwarf-shrub heath and grassland resemble maritime cliff vegetation. Sand sedge *Carex arenaria* and marram grass *Ammophila arenaria* occur more frequently in the west of the site due to the increasing importance of sand. Damp shingle slacks with cross-leaved heath *Erica tetralix*, black bog-rush *Schoenus nigricans* and Baltic rush *Juncus balticus* are found in the middle and east of the site.

The strandplain has extensive areas of shingle colonised only by lichens, as well as gorse scrub and birch woodland, and fen and carr woodland in damp hollows. Extensive "artificial" hollows, formed after gravel extraction, now support outstanding slack and fen with black bog-rush, Baltic rush, common reed and brown mosses.

The wide range of habitats supports an extremely rich flora with many nationally or regionally rare or declining vascular plants. These include curved sedge *Carex maritima*, coralroot orchid *Corallorhiza trifida*, baltic rush *Juncus balticus*, intermediate wintergreen *Pyrola media*, sheep's-bit *Jasione montana*, purple milk-vetch *Astragalus danicus*, autumn gentian *Gentianella campestris*, petty whin *Genista anglica*, bird's-foot *Ornithopus perpusillus* and shepherd's cress *Teesdalia nudicaulis*. Bog hair-grass *Deschampsia setacea*, grey hair-grass *Corynephorus canescens* and tubular water-dropwort *Oenanthe fistulosa* have also been recorded.

The wide range of habitats supports diverse invertebrate communities including two rare butterflies, the small blue *Cupido minimus* and the dingy skipper *Erynnis tages*.

NOTIFICATION HISTORY

First notified under the 1981 Act on 30 April 1986.
Notification reviewed under the 2004 Act: 11 January 2012.

REMARKS

Measured area of site corrected (from 492 ha).

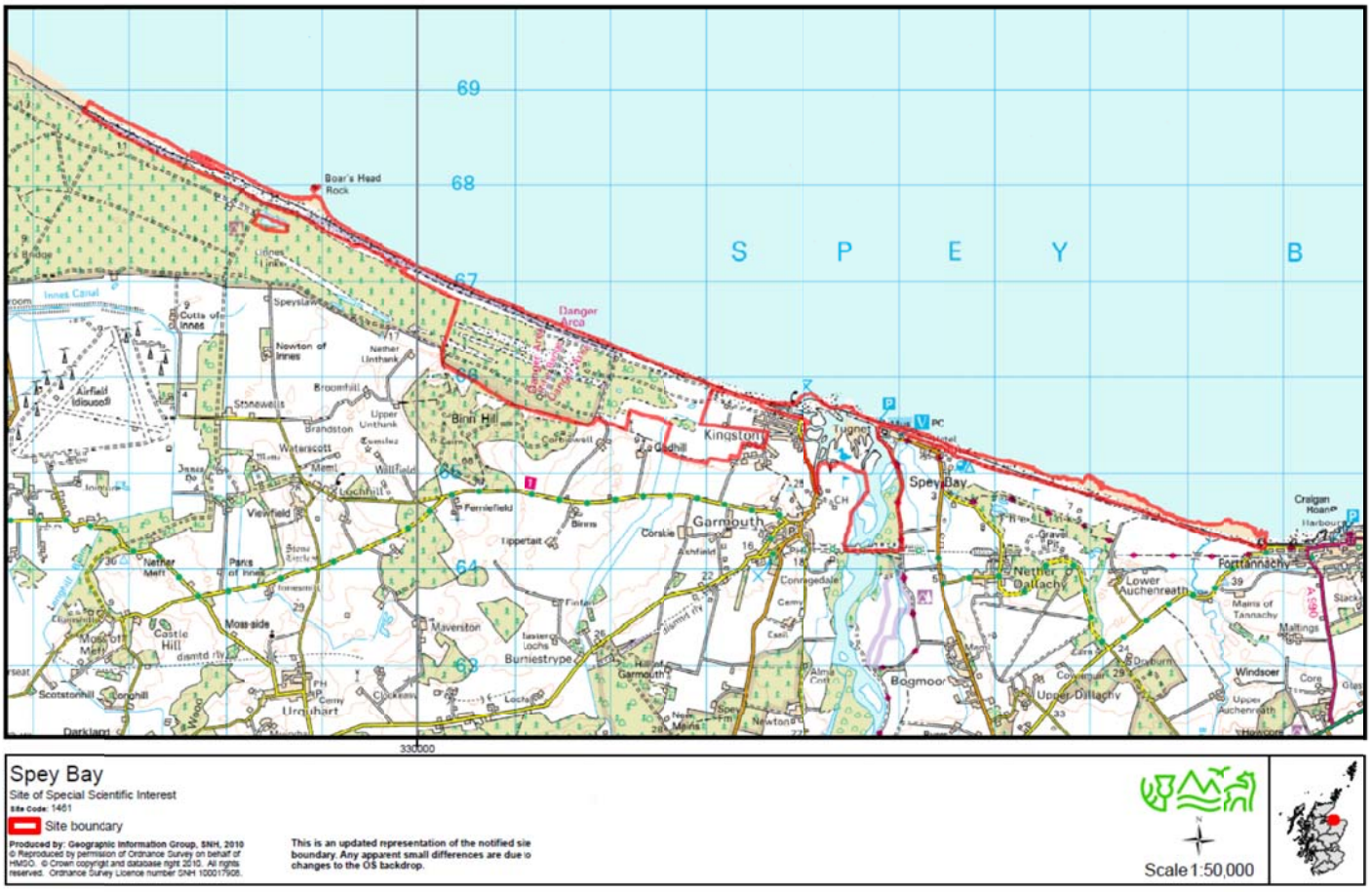
Spey Bay SSSI overlaps with the River Spey SSSI.

Spey Bay SSSI is designated as part of the Lower River Spey - Spey Bay Special Area of Conservation (SAC) and as part of the Moray and Nairn Coast Special Protection Area (SPA). Part of Spey Bay SSSI is designated as part of the River Spey SAC.

These sites are designated for the following European habitats and species, of which those highlighted by an asterisk are most relevant to the area of this SSSI.

Habitats	Alder woodland on floodplains*
	Coastal shingle vegetation outside the reach of waves*
Species	Freshwater pearl mussel *Margaritifera margaritifera*
	Atlantic salmon *Salmo salar**
	Otter *Lutra lutra**
	Sea lamprey *Petromyzon marinus*
Birds	Pink-footed goose *Anser brachyrhynchus*
	Greylag goose *Anser anser*
	Redshank *Tringa totanus**
	Bar-tailed Godwit *Limosa lapponica**
	Osprey *Pandion haliaetus**
	Dunlin *Calidris alpina alpina*
	Oystercatcher *Haematopus ostralegus*
	Red-breasted Merganser *Mergus serrator**
	Wigeon *Anas penelope*
	Velvet Scoter *Melanitta fusca**
	Long-tailed duck *Clangula hyemalis**
	Common Scoter *Melanitta nigra**

Annex 3 - Boundary Map



Spey Bay
Site of Special Scientific Interest
Site Code: 1461
Site boundary

This is an updated representation of the notified site boundary. Any apparent small differences are due to changes to the OS backdrop.

Annex 4 - List of operations requiring consents

11January 2012

SPEY BAY SITE OF SPECIAL SCIENTIFIC INTEREST

OPERATIONS REQUIRING CONSENT FROM SCOTTISH NATURAL HERITAGE

If you propose to carry out, or permit to be carried out, any of the operations listed below, you must first obtain consent from SNH unless a local authority has granted you planning permission (under Part III of the Town and Country Planning (Scotland) Act 1997) or a designated regulatory authority has given you written permission (under s.15 of the Nature Conservation (Scotland) Act 2004). If you have such a permission, you may proceed without obtaining consent from SNH for the same operation.

Standard Ref. No.	*Type of Operation*
1.	Cultivation, including ploughing and re-seeding.
2.	The introduction of grazing.
5.	Application of manure, fertilisers and lime.
6.	Application of pesticides, including herbicides (weedkillers).
7.	Dumping, spreading or discharge of any materials.
8.	Burning.
9.	The release into the site of any wild, feral or domestic mammal or bird, plant or seed.
11.	The removal or cutting of any plant including trees, shrubs and turf.
12.	Changes in tree and/or woodland management including afforestation, planting, clear and selective felling, thinning and coppicing.
13a.	Drainage.
13b.	Modification of the structure of water courses (e.g. rivers, streams, ditches).
13c.	Management of aquatic and bank vegetation for drainage purposes (see also 11).
15.	Infilling of ditches, pools, marshes or pits.
19.	Erection of sea defences or coast protection works.

20. Extraction of minerals.

21. Construction of roads, tracks, fences, hardstands, or other earthworks, or the laying or removal of pipelines and cables.

22. Storage of materials on the site.

23. Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.

24. Battering or grading the shingle ridges.

26. Use of vehicles or craft likely to damage or disturb features of interest.

27. Recreational or other activities likely to damage features of interest other than those activities carried out responsibly in keeping with the Scottish Outdoor Access Code.

28. Changes in game and waterfowl management.

Annex 5 - Site Management Statement

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

SPEY BAY
Site of Special Scientific Interest

SITE MANAGEMENT STATEMENT

Site code: 1461

Address: 32 Reidhaven Street, Elgin, Moray IV30 1QH
Tel: 01343 541551
email: Elgin@snh.gov.uk

Purpose

This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this statement.

Description of the site

Spey Bay SSSI is notified for its geological and biological features. At the mouth of the River Spey, adjoining the Lower River Spey SSSI, the site experiences dramatic coastal and river forces. These dynamic conditions are fundamental to maintaining the rare habitats found at Spey Bay.

Spey Bay SSSI is intimately linked in terms of geomorphic processes with the Lower River Spey SSSI. Both SSSIs are exceptional sites both in Scotland and the UK, in their own right, but particularly in combination as one complex integrated geomorphological system.

The Spey Bay area is the largest vegetated shingle complex in Scotland, and has been notified as a SSSI and designated a Special Area of Conservation (SAC) because of the wide variety of associated plant communities.

Fifteen species of butterfly have been recorded on the Wildlife Reserve of the Scottish Wildlife Trust (SWT) including the declining small blue, grayling and dingy skipper.

Seven species of dragonfly have been identified in ponds within Lossie Forest.

Breeding birds include common and arctic terns that breed on the bare shingle at the mouth of the Spey.

Annexes 1 & 2 provide further information on Spey Bay's geological and biological features.

Natural Features of Spey Bay SSSI	**Feature Condition (date monitored)**	**Other relevant designations**
Coastal Geomorphology of Scotland	Unfavourable, no change (September 2001)	
Hydromorphological mire range	Unfavourable, declining (July 2004)	
Saltmarsh	Favourable, maintained (August 2001)	Ramsar

Shingle	Unfavourable, no change (October 1998)#	SAC
Wet woodland	Unfavourable, declining (August 2010)*	SAC, Ramsar
Vascular plant assemblage	Not yet assessed	
Small blue butterfly	Not yet assessed	
Dingy skipper butterfly	Not yet assessed	

Assessment of SAC feature. Assessment of SSSI feature was Favourable, maintained in August 2001.
*Assessment for SAC only

Features of overlapping Natura sites that are not notified as SSSI natural features	**Feature Condition (date monitored)**	**SAC or SPA**
Atlantic salmon	Unfavourable, recovering (October 2004)	SAC
Otter	Favourable, maintained (September 2004)	SAC
Redshank	Favourable, recovered (November 2008)	SPA
Bar-tailed godwit	Favourable, declining (November 2008)	SPA
Red-breasted merganser	Favourable, maintained (November 2008)	SPA
Osprey	Favourable, maintained (April 2001)	SPA

The geomorphological feature was last monitored in 2001. The feature was found to be in unfavourable condition because the natural evolution of the river channel has been influenced by various bank protection works put in place to reduce erosion. Some damage to relict shingle ridges, caused by military vehicles, was also recorded. The equivalent SSSI and SAC habitat features were also assessed in cycle 1. The SAC feature was assessed as being in unfavourable condition, mainly due to the removal of shingle at the back of the beach near Boars Head Rock, but the shingle SSSI feature was assessed as being in favourable condition as extraction was not taken into account at that time.

The woodland feature for the Lower River Spey - Spey Bay SAC was recently assessed as Unfavourable, declining. This was mainly due to the apparent increase of invasive non-native species including sycamore in the canopy and giant hogweed, Himalayan balsam and Japanese knotweed in the field layer.

The hydromorphological mire range was last surveyed in 2004 and was assessed as being in unfavourable condition. The extent of open wetland is declining and the area of fen woodland is currently increasing. This indicates that the feature is drying out. The wetland may also be suffering from nutrient enrichment. More recent visits to the site have confirmed that the feature is still declining.

Past and present management

Aggregate extraction for concrete has been a historical activity at Spey Bay and has had a significant physical impact on the geomorphological interest of the shingle ridges.

Structural wartime defences remain at Spey Bay. Their presence will have influenced coastal sedimentation patterns.

Previous coastal and river engineering works are likely to have influenced the natural geomorphology and the dynamic processes of the fluvial and coastal systems.

A section of Lossie Forest is within the SSSI and trees were planted to help stabilise the dunes that cap some of the shingle ridges and may have diminished the ecology of the ridges. Thinning and felling operations have potential to disrupt the shingle ridges.

Spey Bay and Lower River Spey were important sites for salmon netting.

Annex 3 looks back at Spey Bay's history in more depth.

The Forest section of the site, part of Lossie Forest, is managed by Forest Enterprise (FE). Management is carried out in accordance with a Conservation Management Plan (CMP), agreed between FE and SNH. The CMP prescribes clear objectives for the management of the forest section. Recently this has included the sensitive removal of gorse scrub from several shingle ridges. This is to increase the extent of open shingle and slow the spread of scrub onto adjacent open bare shingle.

Sections of the SSSI owned by Forestry Commission Scotland (FCS) are leased to the Ministry of Defence (MOD) as firing and training ranges.

Part of the SSSI, known as the Lein, is managed by the SWT as Spey Bay Wildlife Reserve. SWT's management objectives for the reserve help secure and enhance the habitat and the rare plant and animal communities found on the shingle deposits at the Lein.

Crown Estate (Fochabers Estate) have consent to carry out 'minor river works' to help alleviate erosion along the river banks in areas where this could contribute to flooding. This work involves using machinery to relocate tree debris that has naturally washed down the river and deposited up and downstream of the viaduct. This work is done occasionally, avoiding times of year when breeding birds may be present.

Spey Bay is popular with locals and tourists visiting Moray. Facilities at Tugnet have been significantly improved under the stewardship of the Whale and Dolphin Conservation Society (WDCS) and SWT, attracting more visitors and providing valuable educational resources.

Annex 4 provides further information on the present management of Spey Bay.

Objectives for Management (and key factors influencing the condition of natural features)

We wish to work with the owners and managers of the SSSI to protect the site and to maintain, and where necessary enhance, its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate, to increase our knowledge and understanding of the site and its natural features and to monitor the effectiveness of the various approved plans and agreements.

The EU Habitats and Birds Directives oblige Government to avoid, in SACs and SPAs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, where such disturbance could be significant in relation to the objectives of these Directives. The objectives below have been assessed against these requirements. All authorities proposing to carry out or permit to be carried out operations likely to have a significant effect on the European interests of this SSSI must assess those operations against the relevant Natura conservation objectives (which are listed on our website through the SNHi – SiteLink facility).

1. **To maintain the extent, diversity and quality of habitats within the site**

   This includes:

(i) allowing all areas of substantially unmodified shingle and marsh habitats and their associated vegetation to develop without intervention by man or non-native species
(ii) where necessary, manage areas of modified shingle to maintain examples of early successional communities (principally wet slack, heath, and open water).
(iii) manage for the benefit of nationally or regionally rare species as far as this is compatible with i) and ii).

Natural succession of vegetation on the Lein reduces the extent of rare habitats in particular heath. Scrub control is required.

2. **To ensure the continuation of natural coastal and river processes as far as practical unless there is a threat to life or avoidable damage to property**

Management of either Spey Bay SSSI or Lower River Spey SSSI may have consequences for the other and should take into account the effects that management may have on the natural processes and the SAC, SPA and Ramsar designations that straddle the sites.

Natural coastal and river processes are to be encouraged. Where, however, there is a risk to life or property and measures can be identified to help manage such risk, SNH will work closely with SEPA, Marine Scotland and the Moray Council to help advise on the likely consequences. SNH will take into account both the impact of the proposed measures on all of the scientific interests, but also their likely effectiveness given the dynamism of the river and the coastal processes.

This objective could be facilitated by developing an integrated river and coastal management plan of the Lower River Spey and Spey Bay SSSIs. SNH is also committed to working with other agencies, the Moray Council and the local communities to support sustainable flood risk management, which may include adaptation and flood resilience.

3. **To maintain the physical and visual integrity of the land-forms, including the ancient shingle ridges**

Commercial forestry operations on shingle ridges obscure and can disturb the shingle ridges so sensitive planning during thinning and felling operations is needed.

FE continues to remove gorse from shingle ridges to increase the extent of open shingle areas.

MOD exercises on shingle ridges outwith the firing range can cause damage to the geomorphological interest and should continue to be avoided.

Unauthorised motorised vehicular use (predominantly motorbikes) causes some tracking across shingle areas and this can be tackled through management of access and education locally. The delivery of this is assisted greatly by the presence and management of SWT and the WDCS at Spey Bay.

4. **To promote public understanding & enjoyment of Spey Bay where appropriate and to manage visitor pressure sensitively.**

To help ensure this SNH will continue to work with SWT and FE as land managers and also WDCS where appropriate.

Date last reviewed: 11 January 2012.

ANNEX 1

Geomorphological feature

The Spey Bay - Lower River Spey complex

The Spey Bay SSSI is intimately linked in terms of geomorphic processes with the Lower River Spey SSSI. Both SSSIs are exceptional sites both in Scotland and the UK, in their own right (as below). However, when considering these two complex geomorphological systems as one integrated system the real importance of the area is highlighted. In a national context this system is unique. Nowhere else in the UK is there an example of such a dynamic, actively abrading gravel-bed river entering a wide coastal shingle strandplain, with a suite of raised shorelines relating to adjusting sea-level following the last glaciation. The scale and magnitude of the landforms within the two SSSIs allow a unique insight into the Holocene (the last 10 000 years) development of this part of the Scottish coastline. The inter-relationship of this fluvial and coastal system is unique in a Western European context and therefore of international significance.

The Spey Bay SSSI complex

Spey Bay is one of the most important physiographic sites in Britain for several reasons. The active shingle ridge complex is recognised as the finest in Scotland, extending over 8 km, providing superb evidence for present day dynamic, coastal processes. The Spey mouth delta and related forms (shingle spits, bars, banks and lagoon), have a complex and well documented history of dramatic change. They provide an excellent example of fluvial-coastal interactions, as the actively abraded gravel-bed river enters the high-energy coastal environment, at the mouth of the Spey. In addition, the active coastal margin is backed by the magnificent strandplain of shingle ridges mentioned above.

ANNEX 2

Biological features

On the well drained shingle ridges the vegetation ranges from pioneer shingle heath to birch and Scots pine woodlands, and in the damp hollows from shingle slacks to fen and carr woodland. The artificial hollows have outstanding slack and freshwater marsh vegetation. Species-rich dry and wet heath habitats in the unafforested areas of both the disturbed and undisturbed shingle represent probably the only significant example of heath on shingle in Great Britain.

The Speymouth delta complex has extensive areas of mobile shingle and brackish saltmarsh along with areas of tidal and riverbank scrub woodland.

The flora of the whole area is extremely rich (over 380 vascular plants and 45 bryophytes have been recorded) with many local species. It has long been recognised as one of the most exceptional localities in Moray and the vegetated shingle is now recognised as important on a European scale.

In the summer, ospreys fish around the mouth of the Spey and common and arctic terns have bred on the bare shingle there but are thought to be particularly prone here to human disturbance and nest predation.

Seven species of dragonfly (including four damselflies), have been identified in the ponds in Lossie Forest, an excellent number for such a northerly site, and fifteen species of butterfly have been recorded on the SWT Reserve. Two of the latter, the small blue and the dingy skipper are important on a Scottish scale and two more, the grayling and speckled wood are important in a local context. These insects are dependent on the diversity of habitats.

ANNEX 3

Past Management

Aggregate extraction

Gravel mining began west of Kingston in 1935, with extraction from the bare shingle beach. Following the purchase of part of the suite of raised shingle ridges, the mining was extended over the Lein. A stone crushing and pre-cast concrete plant were in operation until 1960, when they closed due to severe flooding. This extraction has created a substantial human impact within the SSSI. It is estimated that 60% of this shingle area has been reduced to damp shingle lows, of between 2-3 metres below the natural beach level. A lowering on this scale has marked consequences for the level of the freshwater table, potential saline seepage and the nature of the vegetation cover. In March 1998 the sea breached the active shingle ridge, inundating part of the extracted area. Such events may increase in frequency with rising sea levels. On a biologically positive note, colonisation of the extraction pits has led to the development of particularly varied flora and fauna, with certain habitats unique to the shingle at this site as well as being of European importance.

Sand has been quarried from the degraded Holocene cliffline near the east entrance to Lossie Forest. It was transported along the coastal tracks for use at the concrete works. Although the quarry is outwith the SSSI, this human impact is significant as the Holocene cliffline is the natural geomorphic boundary of the landform unit.

Forestry

Forestry plantations cover 152 ha (30.4%) of the western part of the SSSI. Much of the area near the present day rifle range was planted prior to 1903. Replanting and extensive new planting was carried out during the 1940s and 1950s, with additional small areas in the 1970s. This afforestation has caused significant impact upon the landforms. The sand dunes and sand capping of the shingle ridges have been stabilised by forestry, effectively 'freezing' the dune forms *in situ*. The raised shingle ridges are still identifiable although they have been modified in places by forestry operations, such as ditch and furrow digging during the pre-planting and planting stages. Significant impacts upon the habitats are also likely although no records of the pre-forest vegetation cover and land usage are known. The construction of forest tracks has led to some modification and damage to the shingle ridges. However, they do provide a ready means of access to the core areas of geomorphic interest. However, records from the western Lossie Forest, outwith the SSSI, may be similar. At the time of acquisition by the Forestry Commission in 1937, the vegetation of Innes Link was mainly dune heath, with cross-leaved heath on the wetter patches, marram grass on the dunes, and patches of lichens.

Coastal engineering

The coast of Spey Bay SSSI is erosional from Porttannachy in the east, to west of the Lein where it becomes depositional. There are several sections of man made coastal defence and protection works which impact upon the SSSI interest of natural coastal processes (for example reducing the already naturally diminished supply of shingle from the east). The erosional section of coast is therefore likely to continue to recede as its sediment supply is diminished. Structures include: a sea wall along the front of Portgordon, two pipe outfalls, 200m of boulder rip-rap on the beach in front of the Spey Bay Hotel, 500m of rip-rap at Tugnet and a man made embankment by the Lein (the latter two are placed at the back of the beach and have minimal interference with the coastal processes).

River engineering

River bank protection works have been carried out along several stretches of the river and a railway viaduct was constructed in 1886. Bank protection works are intended to preserve the current channel configuration and prevent erosion. Such works may constrain the river to a fixed channel and remove one of the most important geomorphological features of the lower River Spey: the actively braiding and changing channel pattern. Engineering works at one location, especially in high energy rivers with large sediment loads such as the Spey, will likely have impacts at other locations further downstream and upstream.

Speymouth cuts

The historical westerly growth of the Speymouth spit diverts the natural course of the river mouth westwards over time. This diversion consistently causes flooding and coastal erosion problems at Kingston. Several attempts to realign the river outlet have been made throughout recorded history due to the clear threat to land, property and life. There have been eight recorded man made cuts in roughly the last 100 years, the most recent in around 1998. The natural geomorphology and process dynamics of both the fluvial and coastal systems have been extensively influenced by these cuts.

War time defences

Various military activities were carried out in the Spey Bay area during the Second World War. The likely impacts of these activities are, in the main, buried under both dunes and trees. The most noticeable impact of former activities is the line of pill boxes (approximately 300m) connected by concrete blocks. The erection of these concrete structures would have caused considerable disruption to the landforms, and therefore sedimentation patterns adjacent to them may be in part, unnatural. This line of defences also provides an indication of coastal movement since their erection. Several of the pill boxes have been vandalised and littered with bottles and cans.

Fishing

Between the mid 19th and mid 20th centuries, the Spey Bay coast was important for fixed engine fishery. Historically net and cobble fishing was permitted to a limit approximately 2km upstream of the Fochabers road bridge. This ceased in August 1993. Angling is the only remaining legal fishing within the Spey Bay SSSI. The importance of rod and line fishing on the River Spey has steadily increased, probably over the last 150 years, while that of the net fishing declined.

Grazing

Old drainage ditches and post and wire fences provide evidence for at least part of the Lein having been grazed at one point in the past.

ANNEX 4

Present Management

Forest Enterprise Plantation

This plantation consists of predominantly Scots pine, with some Corsican and lodgepole pines. It is part of a larger plantation, the Lossie Forest, which covers 808ha in total and encompasses the suite of raised shingle former shorelines which extend outwith the designated area. The geomorphology beneath the forest can be identified and plays an important role in the health of the trees, with a distinct difference in the height and health of trees growing on the shingle ridges compared to the troughs. It is managed by Forest Enterprise and FE Conservation Management Plan is agreed with SNH in periodically. The Plan states: '*The objective of the Management Plan is to preserve and conserve the geomorphological and biological features of the SSSI. Timber production will be carried out as a secondary objective where it does not conflict with the conservation interest. Subsidiary objectives will be the continued use of the Firing Range, and group activities in the surrounding forest such as orienteering and military training.*' Details of prescribed management within the FE owned land are found in this Plan.

SWT Nature Reserve

As previously mentioned the colonisation of the shingle extraction pits, has led to the development of particularly varied flora and fauna, with certain communities unique to the shingle at this site and of European importance. This area of the Lein as well as the foreshore and estuary up to the viaduct is leased and managed by the Scottish Wildlife Trust for nature conservation. There is a 10-year Site Management Plan for the area written by SWT.

Ministry of Defence

The Binn Hill Firing Range is let by FE to the MOD. The natural geomorphology within the firing range has been modified with several of the natural ridges disturbed and several ridges being artificial. The unvegetated shingle expanses on either side of the range offer the most impressive and visible views of the undisturbed suite of shingle ridges. This is an important feature especially as many views of the shingle ridges are hindered by forestry.

Rod fishing

The angling rights down to the mouth of the Spey are owned by the Crown Estates and let to the Speymouth Angling Association.

Recreation and tourism

The area is popular with locals and visitors alike, with open access over the majority of the site. Immediately adjacent to the site are the villages of Kingston, Garmouth and Spey Bay, two golf courses, the Speyside Way, car parks at Tugnet and Kingston, the Tugnet ice-house museum and WDCS and SWT Spey Bay Wildlife Centre. Most of the recreational activities are low pressure but there has been adverse impact in the past by vehicles on vegetation on the Lein and probably also by human disturbance to nesting terns on the shingle.

GLOSSARY

Carr - a woodland that develops at the end of succession from open water.

Delta - triangular tract of deposited earth, alluvium, etc. at the mouth of a river, formed by its diverging outlets.

Fen - a low marshy or flooded area of land.

Fluvial - of or found in a river or rivers.

Geomorphology - the study of the physical features of the surface of the Earth and their relation to its geological structures.

Strandplain - a wave cut platform that has been raised above sea-level since the end of the last ice-age.

Annex 6 – SAC Documentation

LOWER RIVER SPEY – SPEY BAY SPECIAL AREA OF CONSERVATION (SAC)

Designation date: 17 March 2005

Administrative area: Moray

Qualifying Interests for which the site is designated:

SCIENTIFIC NAME	COMMON NAME
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*)*	Alder woodland on floodplains
Perennial vegetation of stony banks	Coastal shingle vegetation outside the reach of waves

* Indicates a priority habitat

Lower River Spey - Spey Bay

Special Area of Conservation (SAC)

EC Site Code: UK0019978

Site boundary

0 1 2 4 km

0 1,000 2,000 4,000 m

Scale 1:70,000

This is an updated representation of the designated site boundary. Any apparent small differences are due to changes to the OS backdrop.

N

OS backdrop map is 1:50,000

Conservation Objectives for
Lower River Spey – Spey Bay Special Area of Conservation

To avoid deterioration of the qualifying habitats (listed below) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying habitats that the following are maintained in the long term:

- **Extent of the habitat on site**
- **Distribution of the habitat within site**
- **Structure and function of the habitat**
- **Processes supporting the habitat**
- **Distribution of typical species of the habitat**
- **Viability of typical species as components of the habitat**
- **No significant disturbance of typical species of the habitat**

Qualifying Habitats:

- Alder woodland on floodplains*
- Coastal shingle vegetation outside the reach of waves

* Indicates priority habitat

This site overlaps with Moray and Nairn Coast Special Protection Area