Appendix B

SEA Baseline Data

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APPENDIX B BASELINE INFORMATION

Introduction

There are local characteristics to the baseline information listed in Table 3 of the Environmental Report that merit particular consideration in relation to this draft Supplementary Guidance (SG) on Renewable Energy. These may have broader relevance, but they are described under the heading of the most relevant perspective.

Scottish Borders is the 6th largest council area in Scotland covering 4734km^2 and has a population of 114,030 as of 2015. The area is predominantly rural with small towns and villages scattered throughout the area, and has an abundance of natural and man-made attractions. These include 9 designated “special landscape areas” and 2,996 listed buildings.

This baseline will seek to give an overview of the study area using information from Scottish Borders Council as well as national statistics. The aim is to use this information to assess the guidance on Renewable Energy. This baseline will be presented under the broad headings of:

- Biodiversity, Flora and Fauna
- Population and Human Health
- Material Assets
- Water
- Soil
- Landscape
- Cultural Heritage
- Climatic Factors
- Air

PART 1: BIODIVERSITY, FLORA AND FAUNA

Detailed objective: Protect and enhance species and habitats

A principal asset of the Scottish Borders area is its high quality natural environment and diverse range of species and habitats which are protected and conserved by a range of designations on an international and national scale.

The Land Cover map (2000) classifies the type of land throughout Scottish Borders using satellite remote sensing. The outputs of the land cover map are shown below in Table 1.

The maps that follow Table 1 show the various international and national designations within Scottish Borders, including:

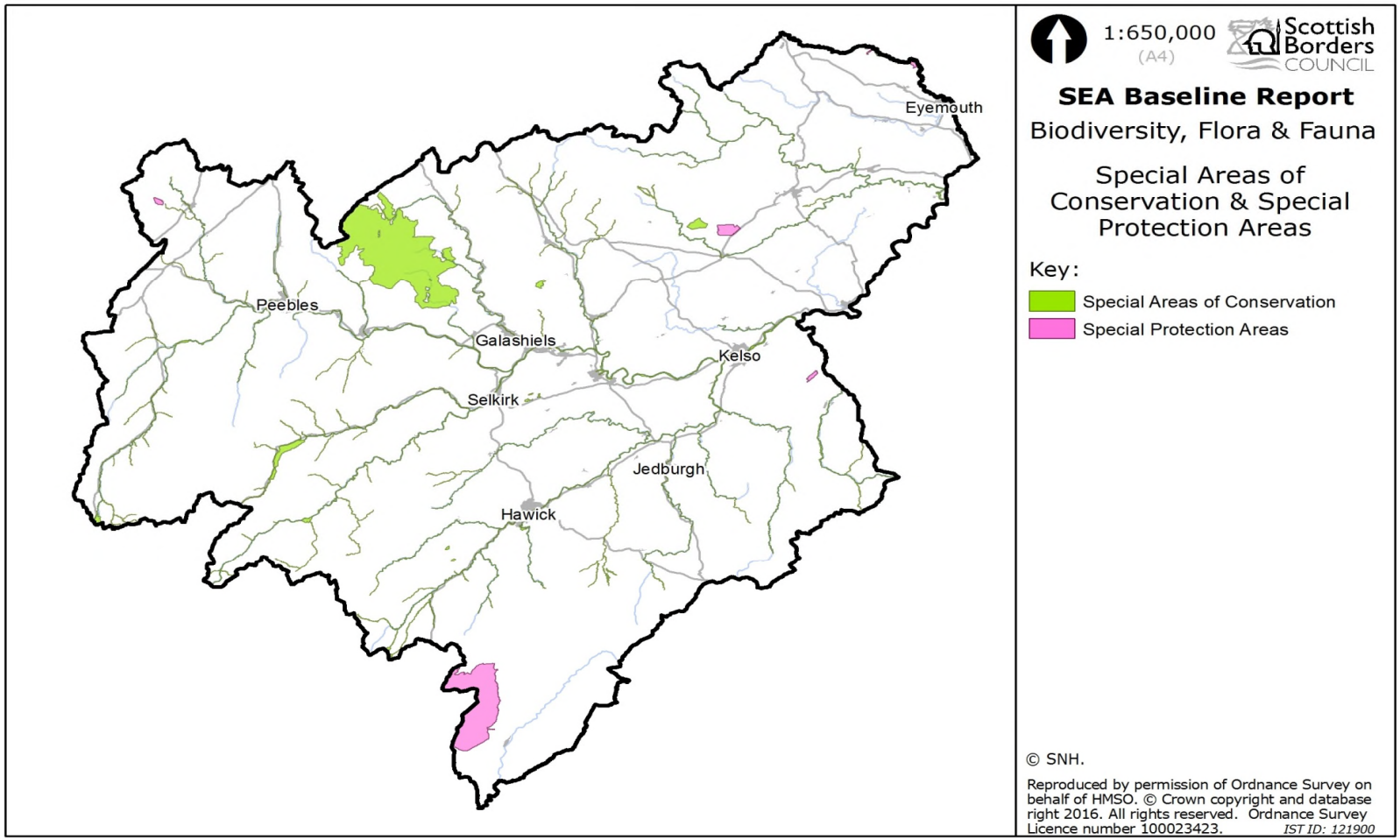
- Special Areas of Conservation and Special Protection Areas
- National Nature Reserves and Ramsar Sites
- Sites of Special Scientific Interest
- Ancient Woodland Inventory

The Phase 1 Habitat Classification is produced by the Joint Nature Conservation Committee and provides a system to record of semi-natural vegetation and other wildlife habitats. The ten categories of habitats include woodland and scrub, grassland and marsh, and heathland and amongst these categories there are 155 habitat types. Accordingly, the habitat map of Scottish Borders is too detailed to be legible but more information to the Phase 1 Habitat Classification can be found at http://jncc.defra.gov.uk/page-4258.

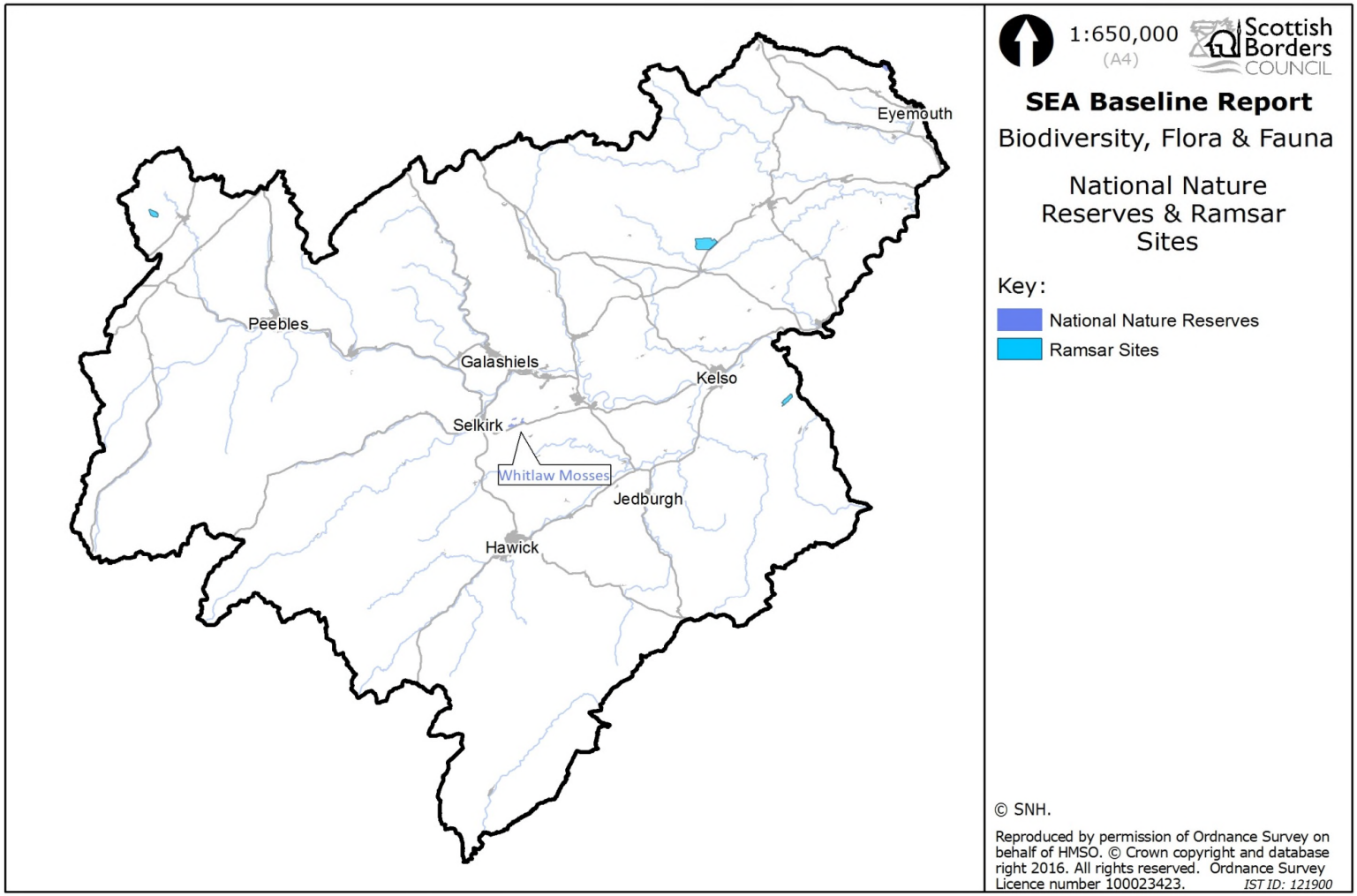
Table 1: Land Cover of Scottish Borders

Type of Land Cover	**Area (Ha)**
Acid	63,438
Arable & Horticulture	103,641
Bog	8,020
Bracken	9,318
Broad-leafwood	19,799
Built-up areas and gardens	3,663
Calcareous	8,201
Coniferous woodland	57,004
Continuous urban	1,118
Dwarf shrub heath	13,543
Improved grassland	97,562
Inland rock	463
Littoral rock	168
Littoral sediment	75
Neutral	35,927
Open dwarf shrub heath	51,813
Standing Water	1,744
Supra-littoral sediment	11

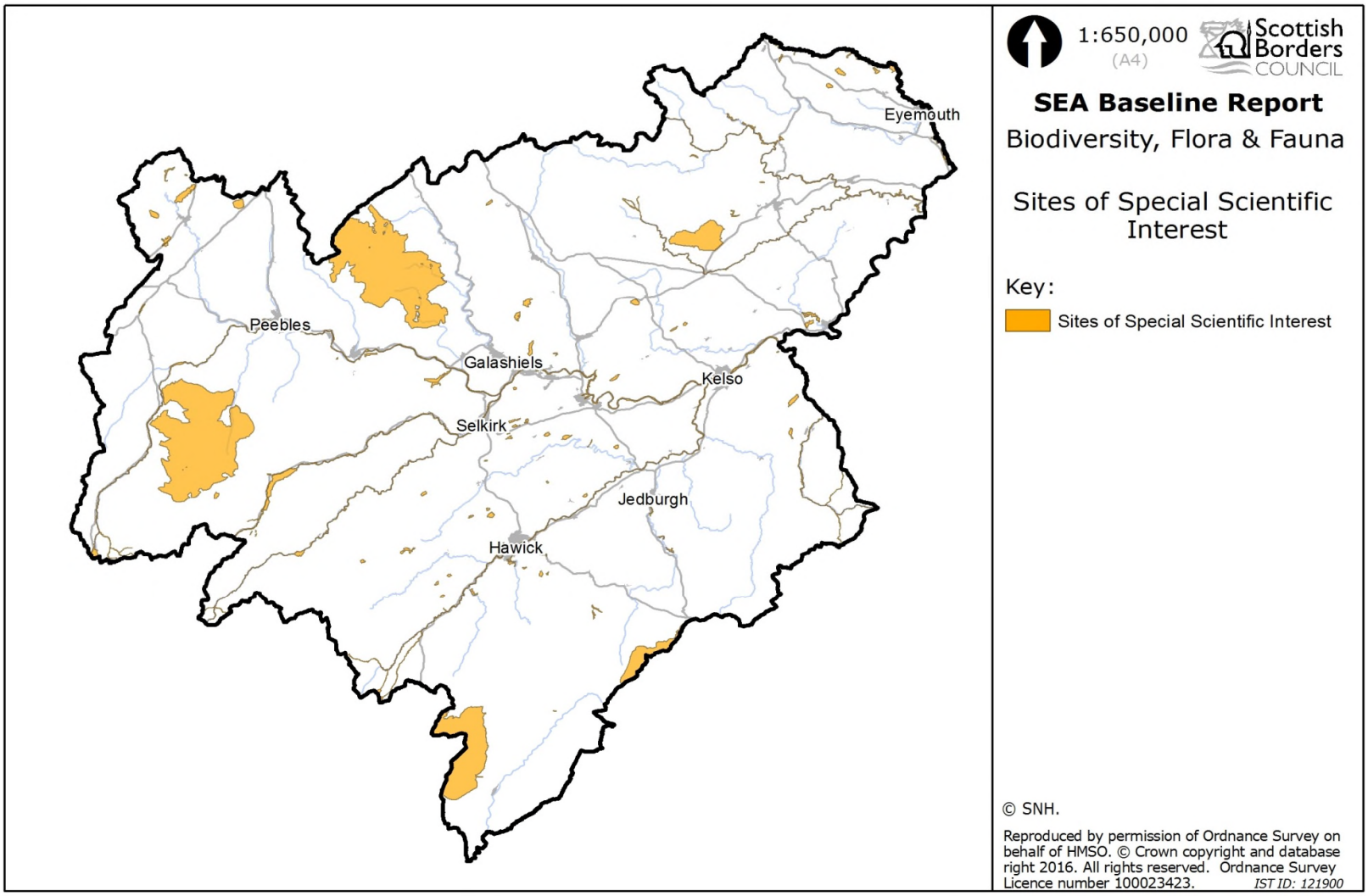
Map 1 : Special Areas of Conservation and Special Protection Areas



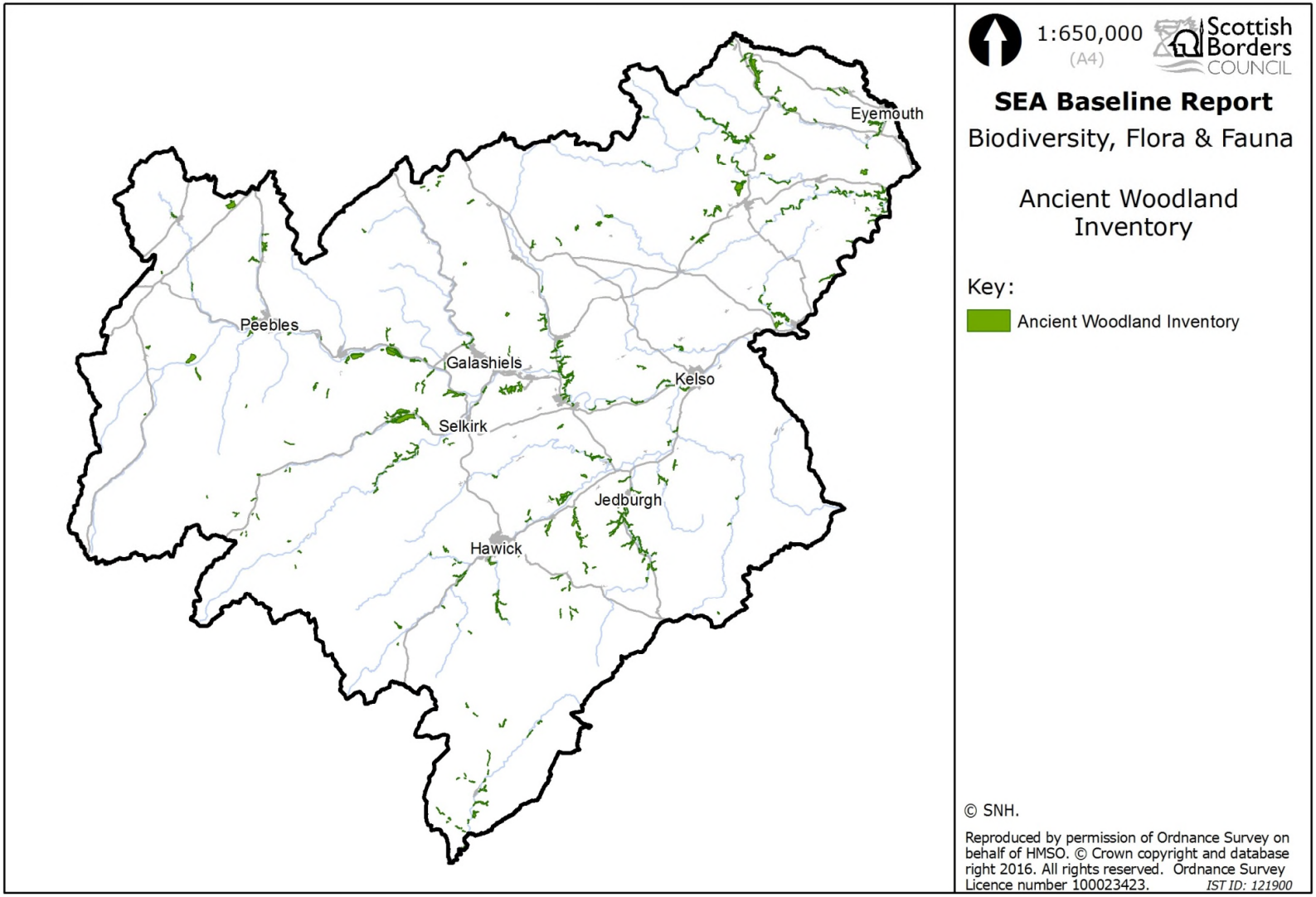
Map 2 : National Nature Reserves and Ramsar Sites



Map 3 : Sites of Special Scientific Interest



Map 4 : Ancient Woodland Inventory



PART 2: POPULATION AND HUMAN HEALTH

Detailed objective : To improve the quality of life and human health for communities in the Borders

In 2015 the estimated population of the Borders was 114,030. The majority of the population is located in a 'central hub' of settlements; these include Hawick, Galashiels, Melrose, Selkirk and Jedburgh. The National Records of Scotland provides an estimated population of Scottish Borders 2015; this is shown in Table 2 below:

Table 2: Scottish Borders Population Breakdown

Age Group	Male Population Scottish Borders	Female Population Scottish Borders	Total Population of Scottish Borders	% of total population of Scottish Borders
0 - 14	9,070	8,771	17,841	15.7
15 - 29	8,304	8,276	16,580	14.5
30 - 44	8,704	9,653	18,357	16.1
45 - 59	13,202	13,632	26,834	23.5
60 - 74	11,146	11,707	22,853	20.1
75+	4,890	6,675	11,565	10.1

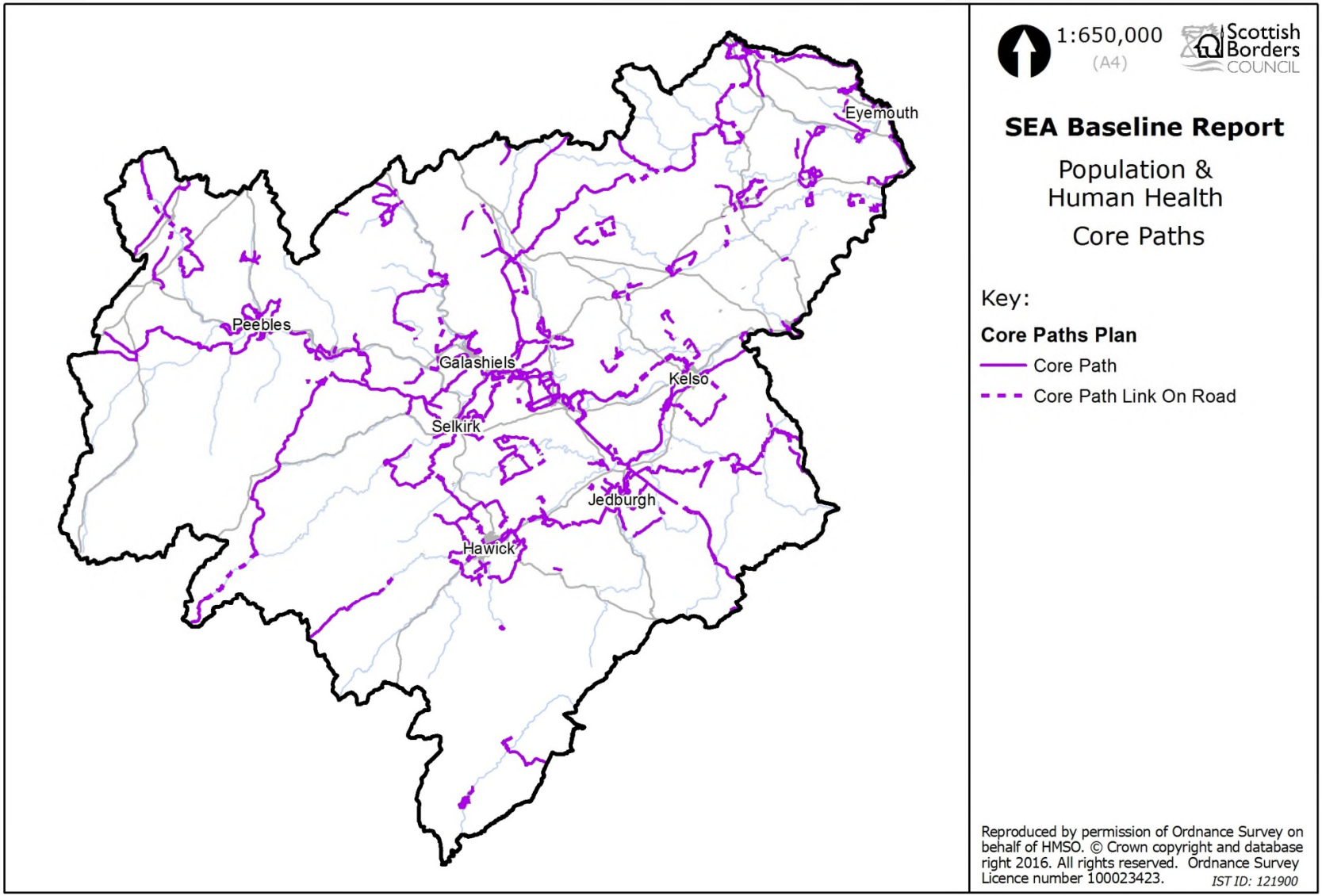
The number of residents in the Scottish Borders claiming jobseeker's allowance in April 2015 was 1,138, this figure represents a rate of 1.6% (Source: Office for National Statistics).

Core paths are described in the Land Reform (Scotland) Act 2003 as "a system of paths sufficient for the purpose of giving the public reasonable access throughout their area". These paths include Rights of Way, Council managed routes and any other route that provides reasonable countryside access. The majority are off-road, though some may be pavements or reached by quiet roads. These paths vary in type and quality. The Core Paths within Scottish Borders are shown in Map 5 below.

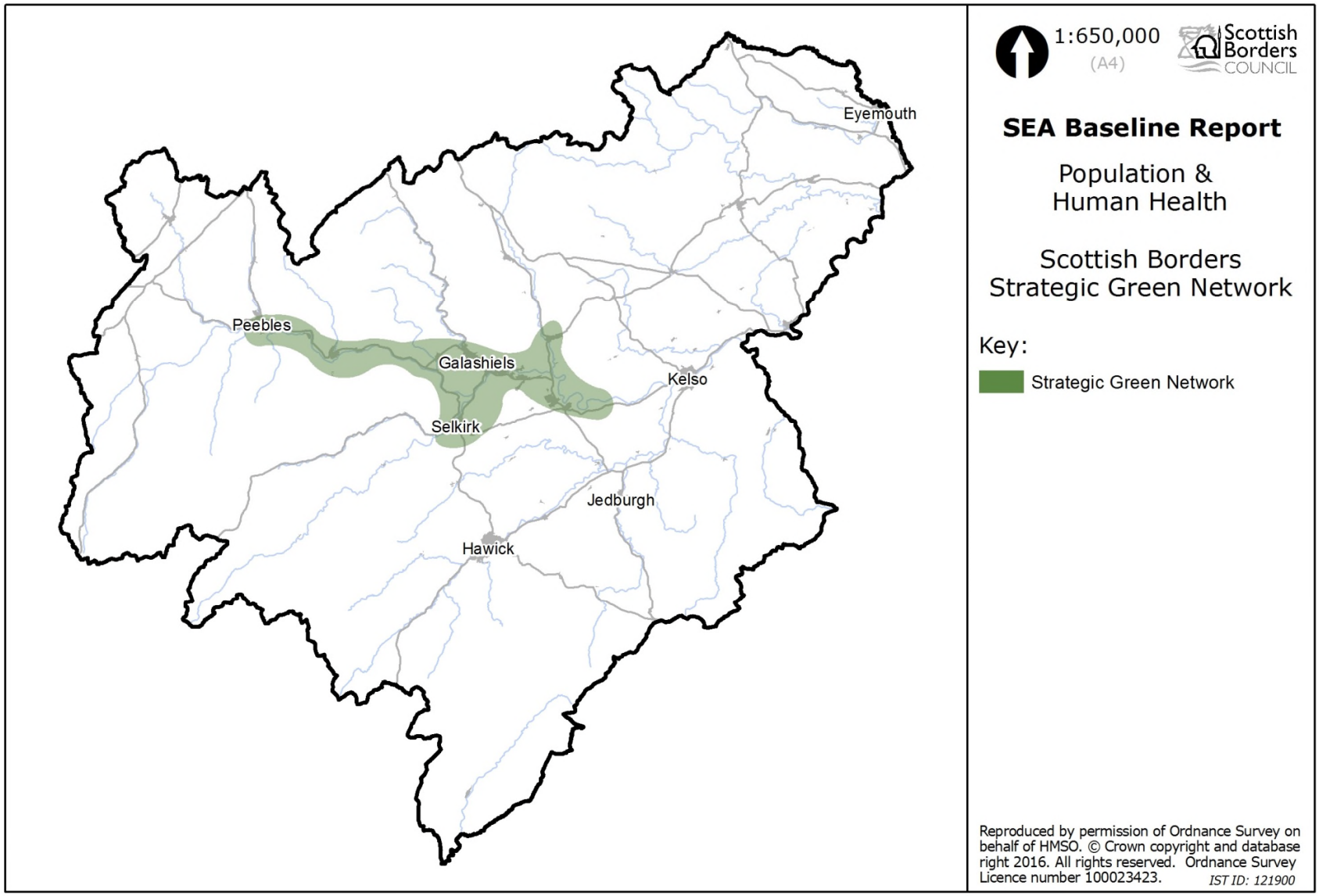
The Local Development Plan identified a Strategic Green Network, shown in Map 6. The purpose of the Strategic Green Network is to assist in supporting sustainable economic growth, tourism, recreation, the creation of an environment that promotes a healthier-living lifestyle, and the protection and enhancement of biodiversity, and to improve the quality of the water environment, promote flood protection and reduce pollution.

The Local Development Plan also identifies key green spaces within the Development Boundaries of settlements. The spaces identified within the Plan are those spaces which are considered to be of the greatest value to the community and are therefore worthy of protection. It is intended that within key green spaces only proposals that will enhance the space will be supported by the Council. The key green spaces are shown in Map 7 below, with a closer look at the green space in Scottish Borders' largest towns in Map 8.

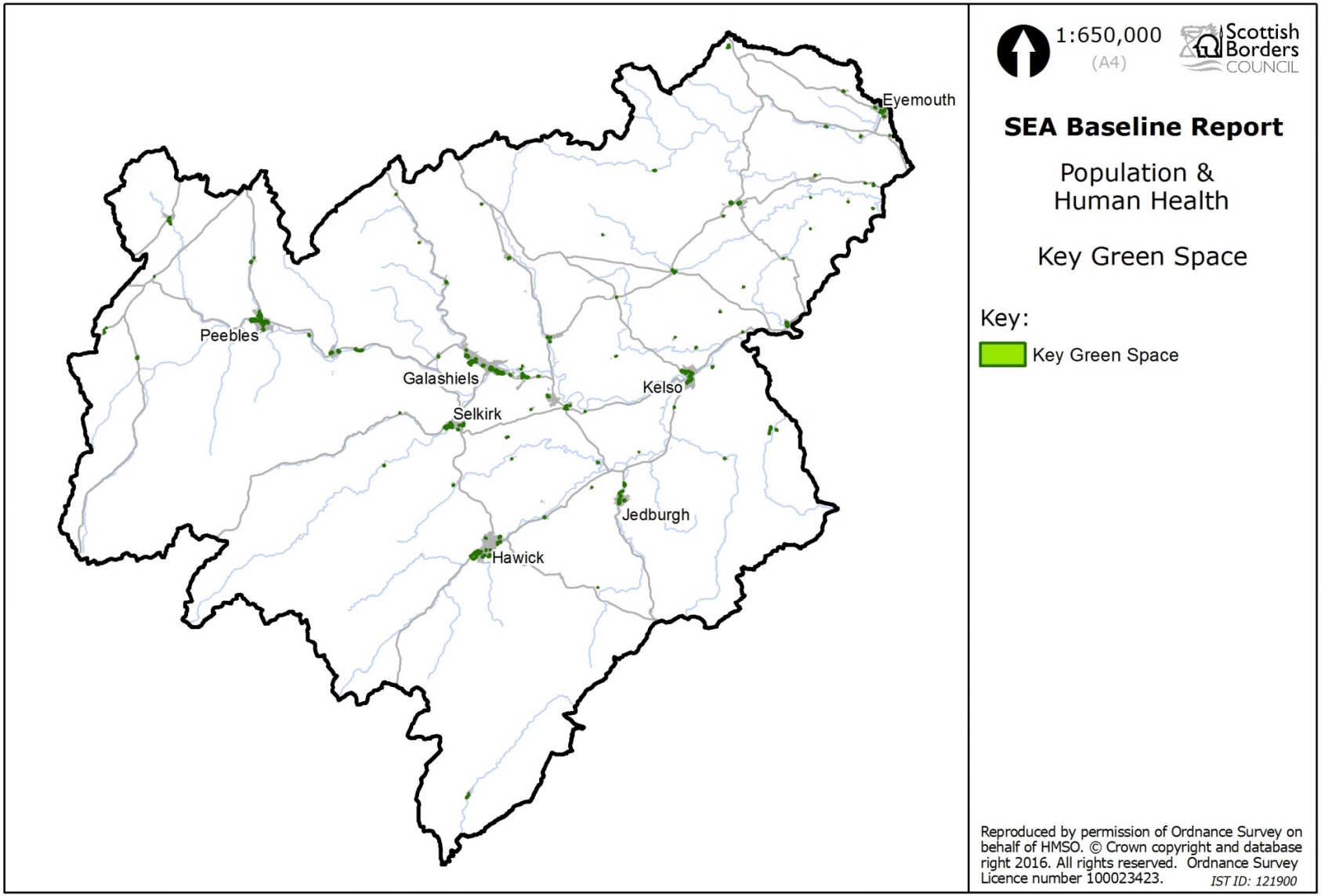
Map 5 : Core Paths



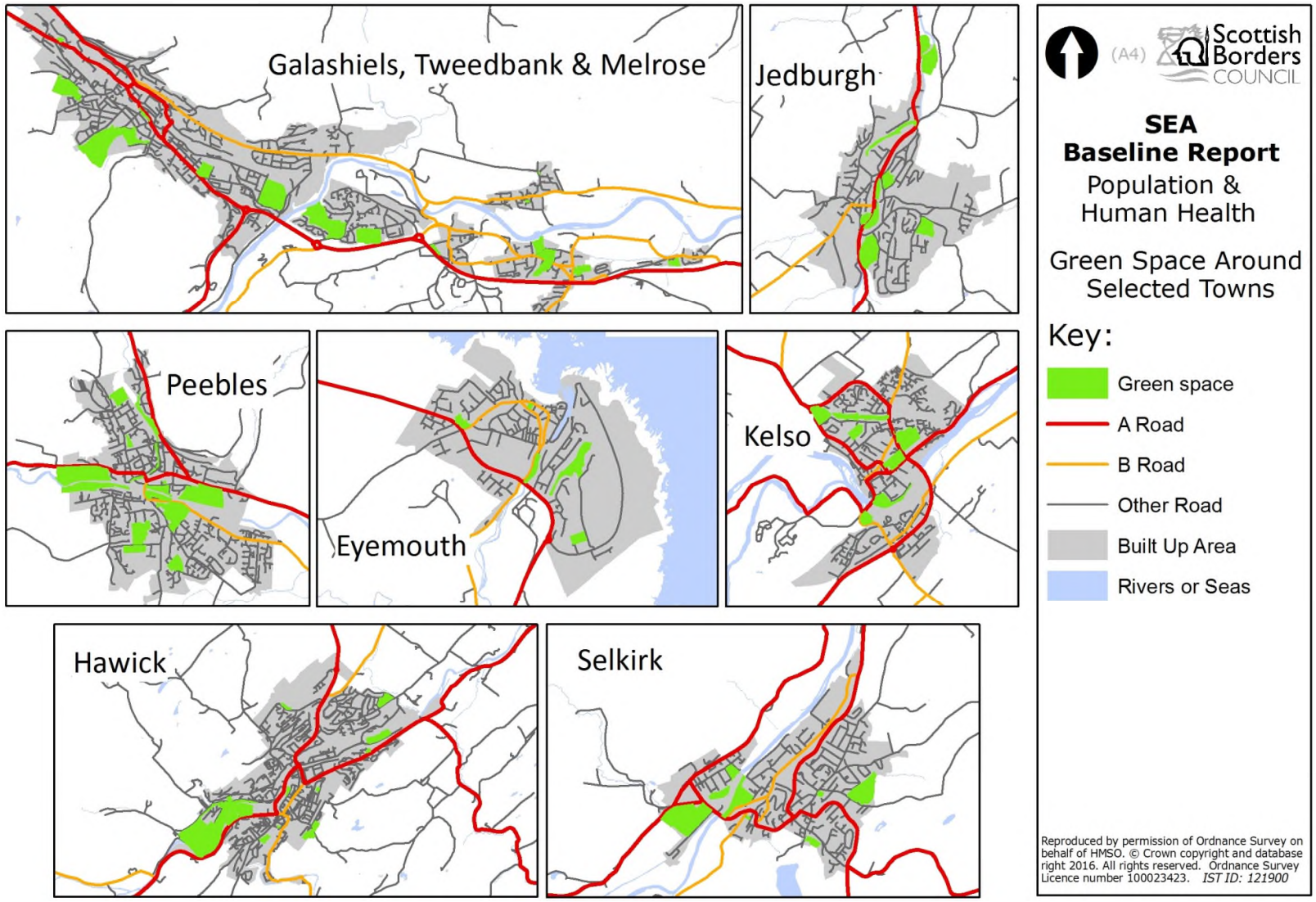
Map 6 : Strategic Green Network



Map 7 : Key Green Spaces



Map 8 : Key Green Space Around Selected Towns



PART 3: MATERIAL ASSETS

Detailed objective:.To ensure adequate protection and sustainable use of material assets

"Material Assets" has been taken to consider access to include parks and open spaces, infrastructure covering transport, waste and water facilities, and mineral resources that contribute to the means to provide development.

Parks and Open Spaces

Table 3: Parks and Open Spaces serviced by Scottish Borders Council

Type of Open Space	Area (Ha)
High Maintenance Grass Areas	5.72
Medium Maintenance Grass Areas	374.9
Low Maintenance Grass Areas	35.03
Shrub Beds	7.61
Woodlands	48.05
Football/ Hockey Pitches	42
Rugby Pitches	25
Mini Football Pitches	7
Play Areas	188
Total	**733.31**

Source: SBC

Transport

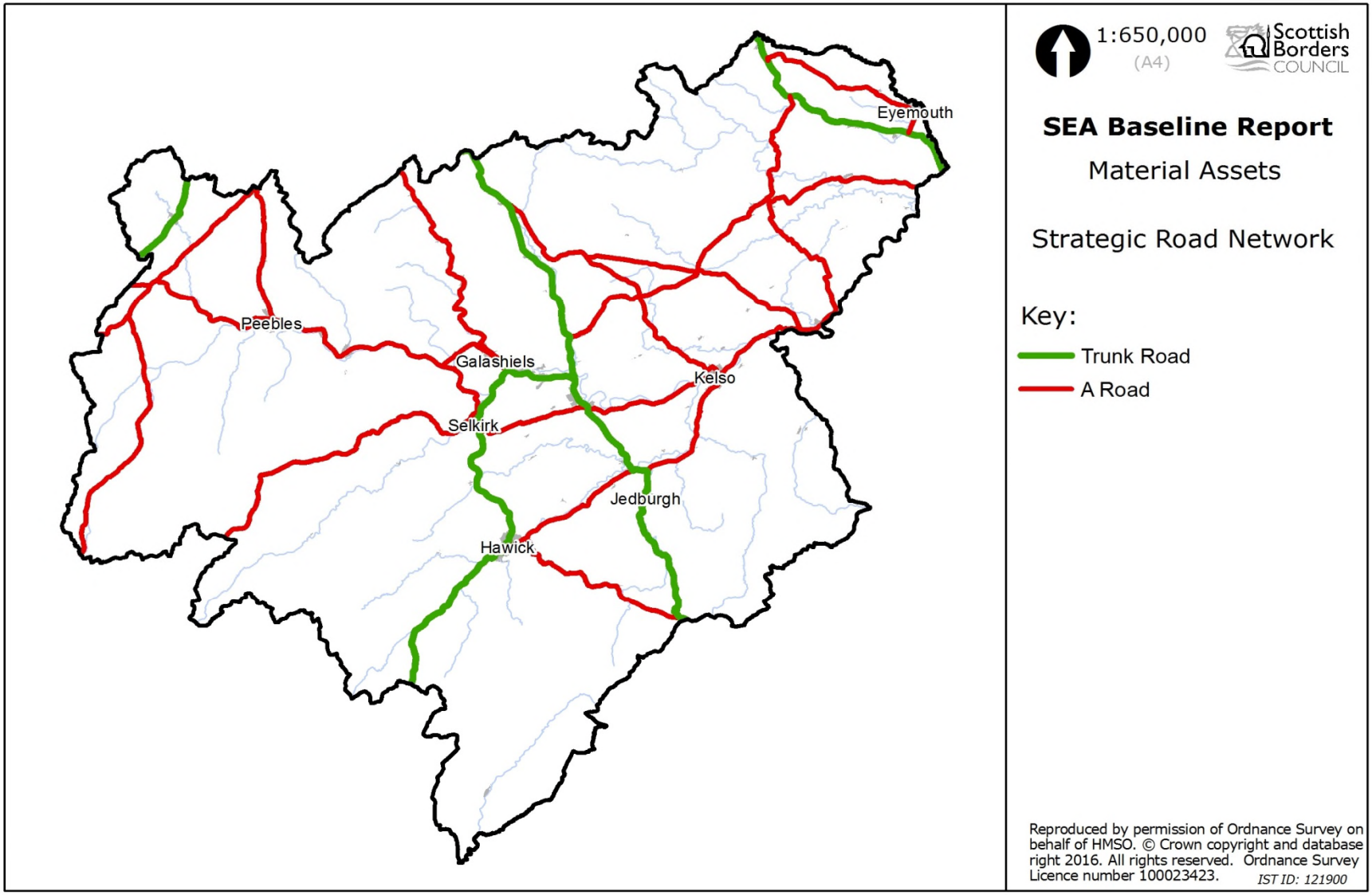
The Scottish Government defines just over two thirds of the Scottish Borders as being "accessible" with the remainder being "remote", this means that there is a significant reliance on private car for use in daily life. Map 9 below shows the Strategic Road Network and Map 10 shows the rail network.

Sustrans develops and maintains the National Cycle Network which provides sustainable transport routes across the country. Map 11 below shows National Routes 1 and 76, which have sections in the Scottish Borders.

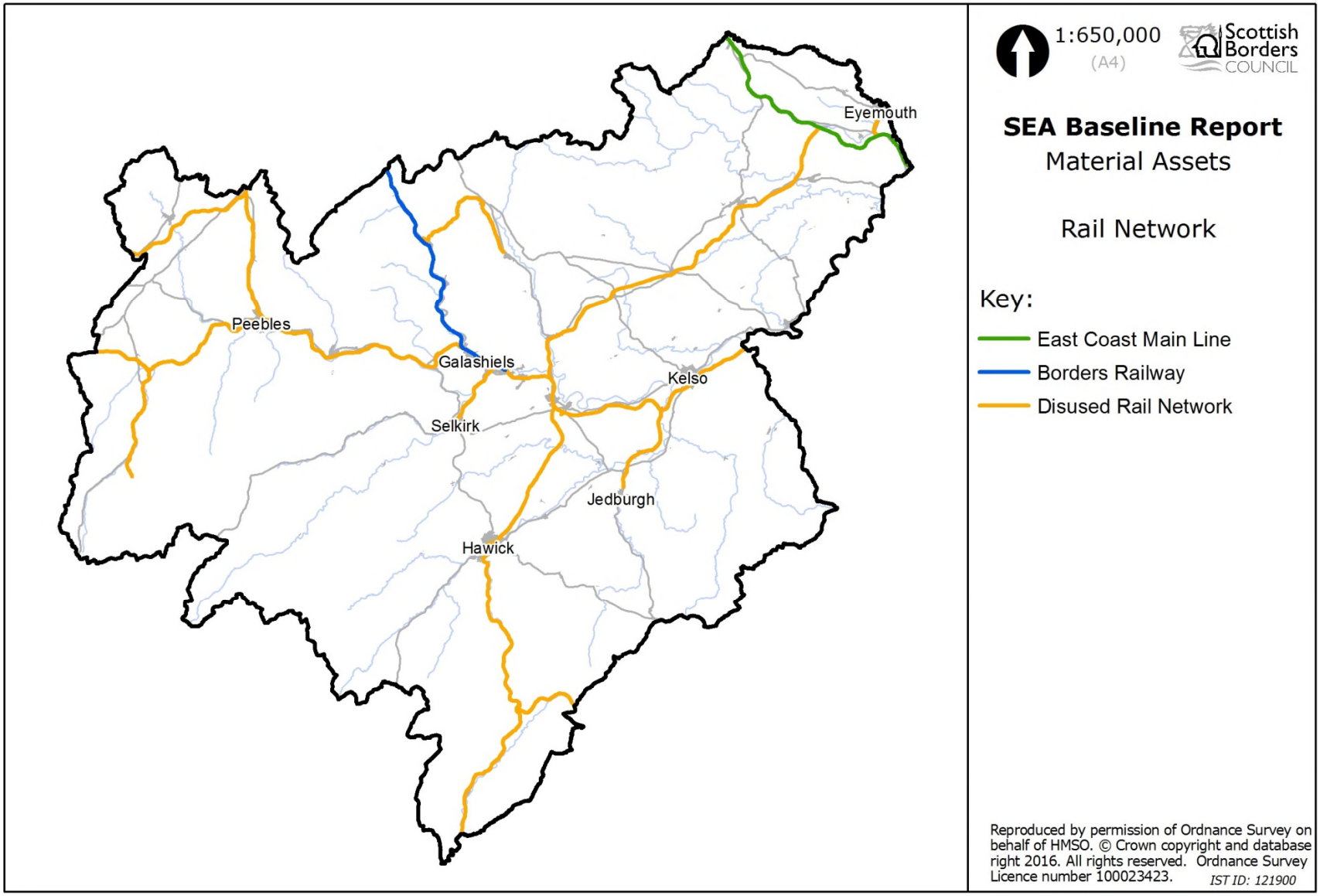
- National Route 1 terminates at Dover and John O'Groats. The route passes inland from Berwick-Upon-Tweed to Melrose and on to Edinburgh.
- National Route 76 runs from Berwick-Upon-Tweed to St Andrews, passing through the Scottish Borders.

Each of the routes also has various other linkages associated with other routes in the Scottish Border

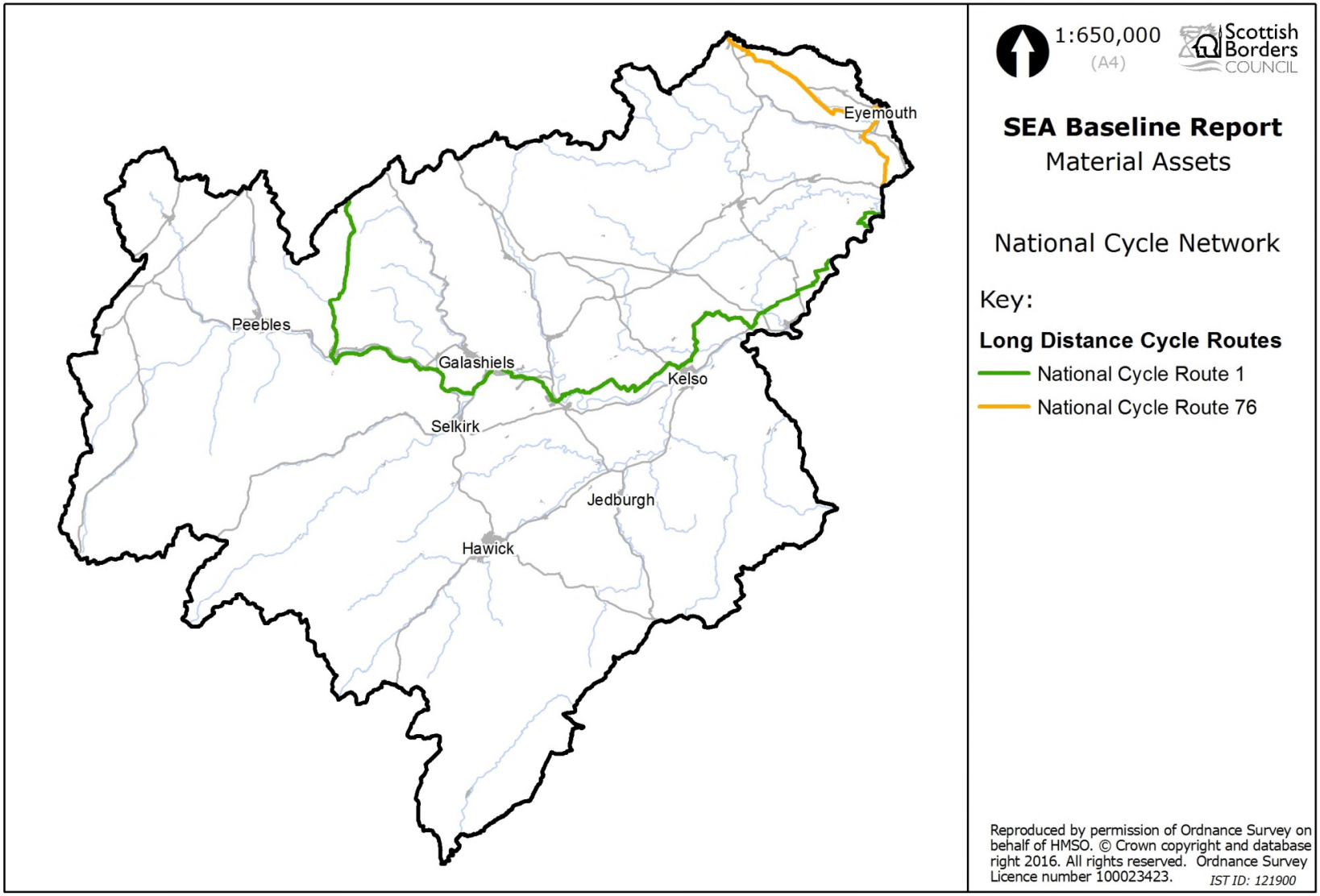
Map 9 :Strategic Road Network



Map 10 : Rail Network



Map 11 : National Cycle Network



Waste

The Scottish Government introduced the Zero Waste Plan in 2010, the vision of the document is to reach 70% recycling and maximum 5% to landfill of Scotland's waste by 2025; in addition there will also be landfill bans for specific waste types, source segregation and separate collection of specific waste types; and restrictions on inputs to energy from waste facilities.

Table 4 below shows the waste collected within Scottish Borders and the quantities that were composted or recycled:

Table 4: Municipal Waste collected within Scottish Borders (2009)

Total municipal waste collected in tonnes	Waste collected for disposal (tonnes)			Waste collected for recycling and composting (tonnes)	
	Household	Commercial	Other non-household	Household	Commercial
70,498	30,699	12,698	120	23,593	3,088

Source: SEPA Waste Data Digest 11: Data Tables 2009

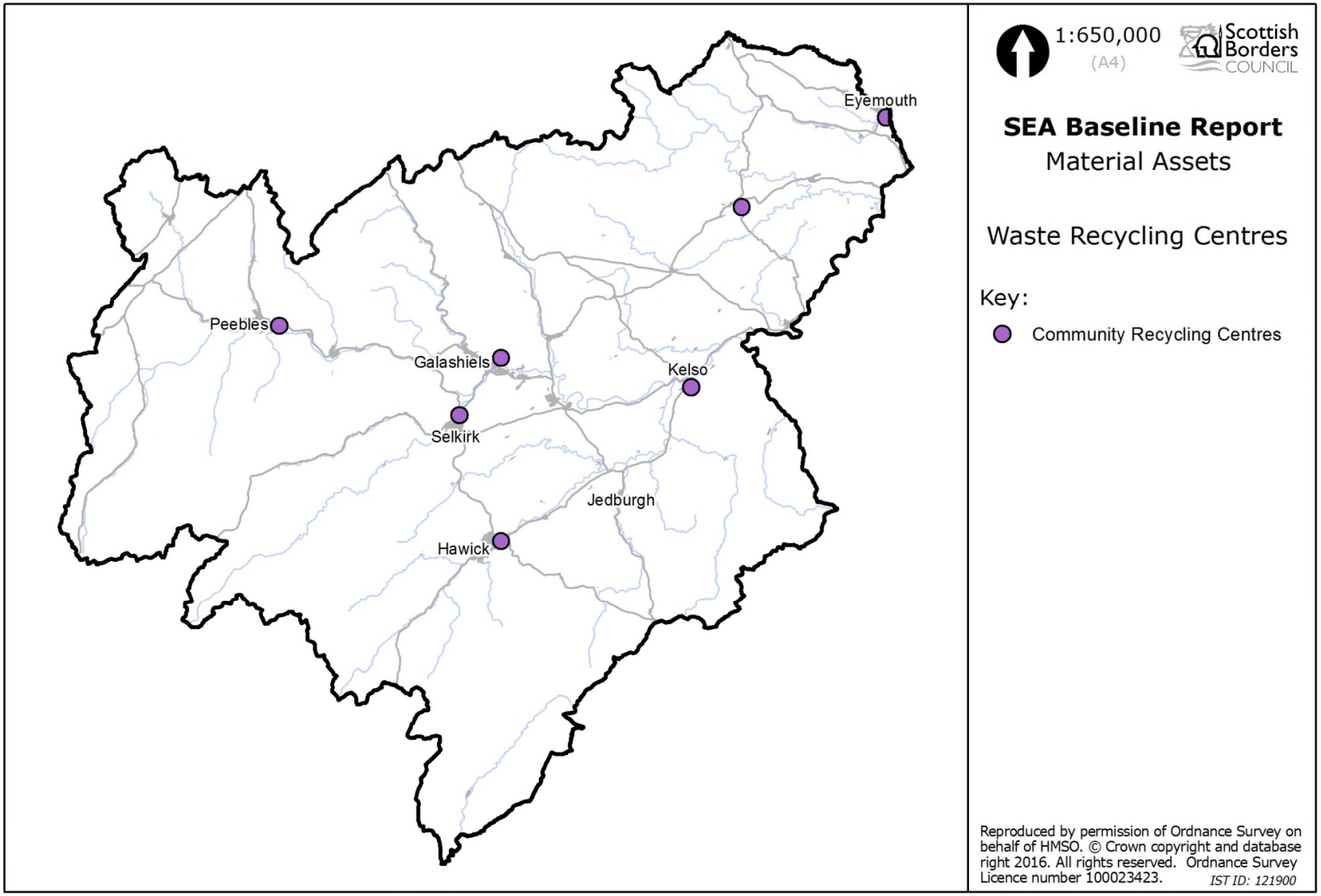
It is also possible to show the current water and wastewater asset capacity in the Scottish Borders and this is shown in Table 5 below:

Table 5: Water and Wastewater Asset Capacity

Area	Wastewater Asset Status	Drinking Water Asset Status
Stow	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Lauder	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Galashiels	Current capacity is sufficient for identified development needs	There is currently limited capacity at Manse Street WTW; supply may be supported by another WTW
Peebles	A growth project has been raised to enable development in this area	There is currently sufficient capacity for identified development needs. However, any further development a growth project may be required where the developer will need to meet 5 growth criteria
Innerleithen	There is currently limited capacity at the treatment works.	There is currently sufficient capacity for identified

	A growth project may be required where the developer will need to meet 5 growth criteria.	development needs. However, any further development a growth project may be required where the developer will need to meet 5 growth criteria
Selkirk	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Hawick	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Newtown St Boswells	A growth project has been raised to enable development in this area	Current capacity is sufficient for identified development needs
Jedburgh	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Melrose	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Duns	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Reston	There is currently sufficient capacity at the treatment works. However, if development exceeds current capacity a growth project would be required.	Current capacity is sufficient for identified development needs
Kelso	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Earlston	The growth project is awaiting confirmation of the 5 Criteria from the developer.	Current capacity is sufficient for identified development needs
Coldstream	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Eyemouth	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Howden WWTW	Current capacity is sufficient for identified development needs	N/A

Map 12 : Waste Recycling Centres



Mineral Resources

Mineral resources are finite and they can only be worked where they occur, so it is essential that they are worked in the most efficient and sustainable manner. The use of alternatives or recycling of minerals only partially contributes to meeting demand. Transport of minerals over long distances is not always viable as it is costly not only to the consumer, but also to the environment. Securing local supplies can make an important contribution to sustainable development.

It is possible to show the consented mineral operations in Scottish Borders and this is shown in Table 6 below:

Table 6: Consented Mineral Operations in Scottish Borders

Hard rock mineral extraction	Sand and gravel mineral extraction	Other mineral extraction
• Cowieslinn • Craighouse • Greena • Soutra Hill • Trowknowes • Edston • Glenfin • Hazelbank • Swinton	• Kinegar • Reston	• Whim Moss

PART 4: WATER AND SOIL

Detailed objective: To protect and enhance the status of the water environment and to maintain soil and peat quality and avoid exacerbating pollution

Water

The quality of the water environment is monitored by SEPA, who in 2015 updated the river basin management plan for the Solway Tweed river basin district. Much of this district is located within Scottish Borders. Table 7 below shows the status of the 560 surface waters and 64 groundwaters in the Solway Tweed river basin management district in 2014.

Table 7: Status of Surface Water and Groundwaters in the Solway Tweed River Basin District

Condition of Water	**Surface Waters (rivers, lochs, estuaries, coastal waters)**	**Groundwaters**
High/Maximum	16	-
Good	239	46
Moderate	158	-
Poor	126	18
Bad	21	-
Total	560	64

SEPA has also set environmental objectives for this river basin management district over future river basin planning cycles so that sustainable improvement to its status can be made over time, or alternatively that no deterioration in status occurs, unless caused by new activity providing significant specified benefits to society or the wider environment.

Table 8: Water Quality Objectives in the Solway Tweed River Basin District

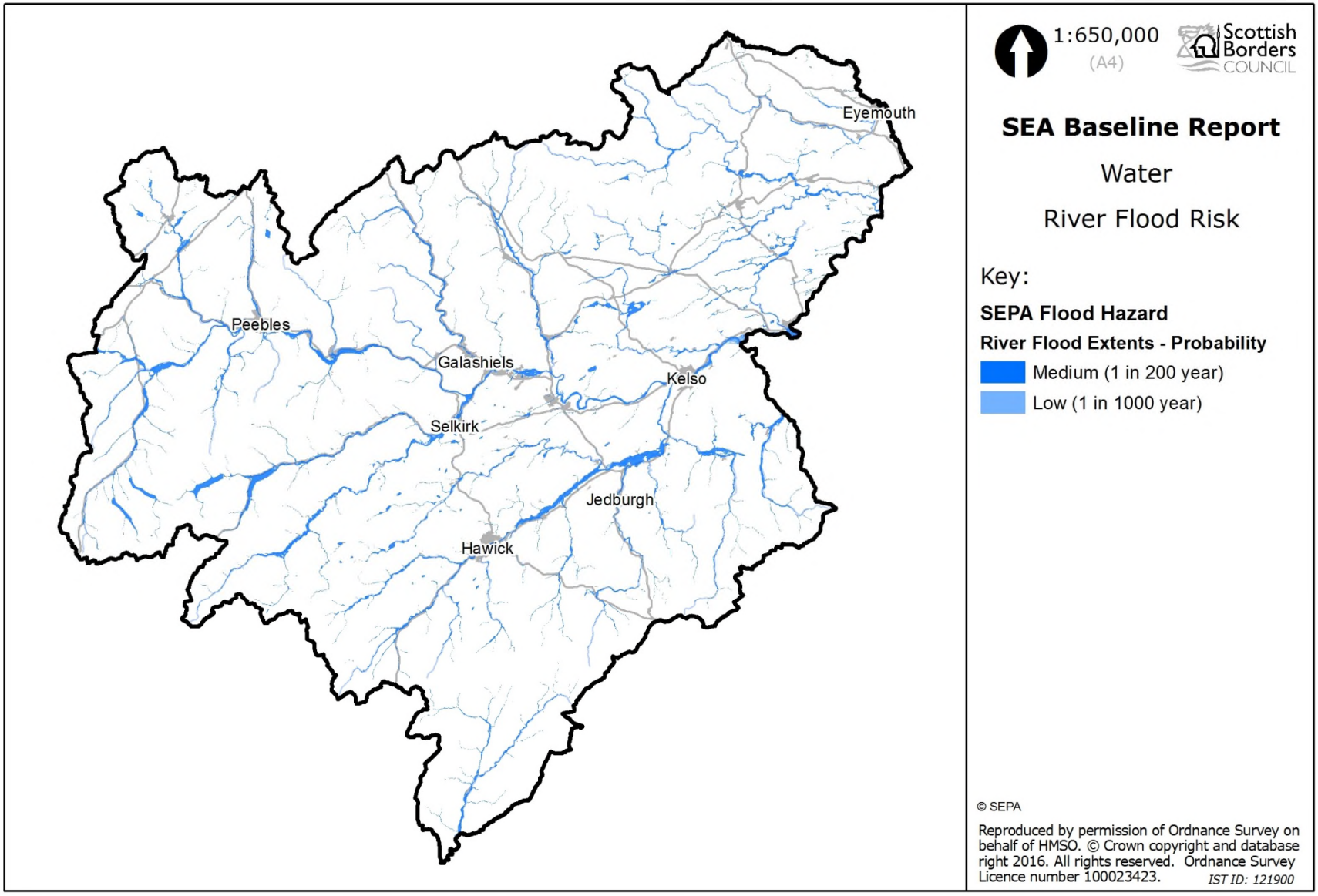
Water bodies **currently** good or better	48%
Water bodies good or better **by 2021**	57%
Water bodies good or better **by 2027**	90%
Water bodies good or better **after 2027**	94%

Flooding is a natural phenomenon that plays an important role in shaping the environment. However, climate change may mean that flooding becomes more severe and more frequent in certain areas. Flood risk comes from a variety of sources including fluvial, coastal, groundwater, surface water and/or sewer flooding. It should be managed rather than prevented and needs to be taken into account in decisions about

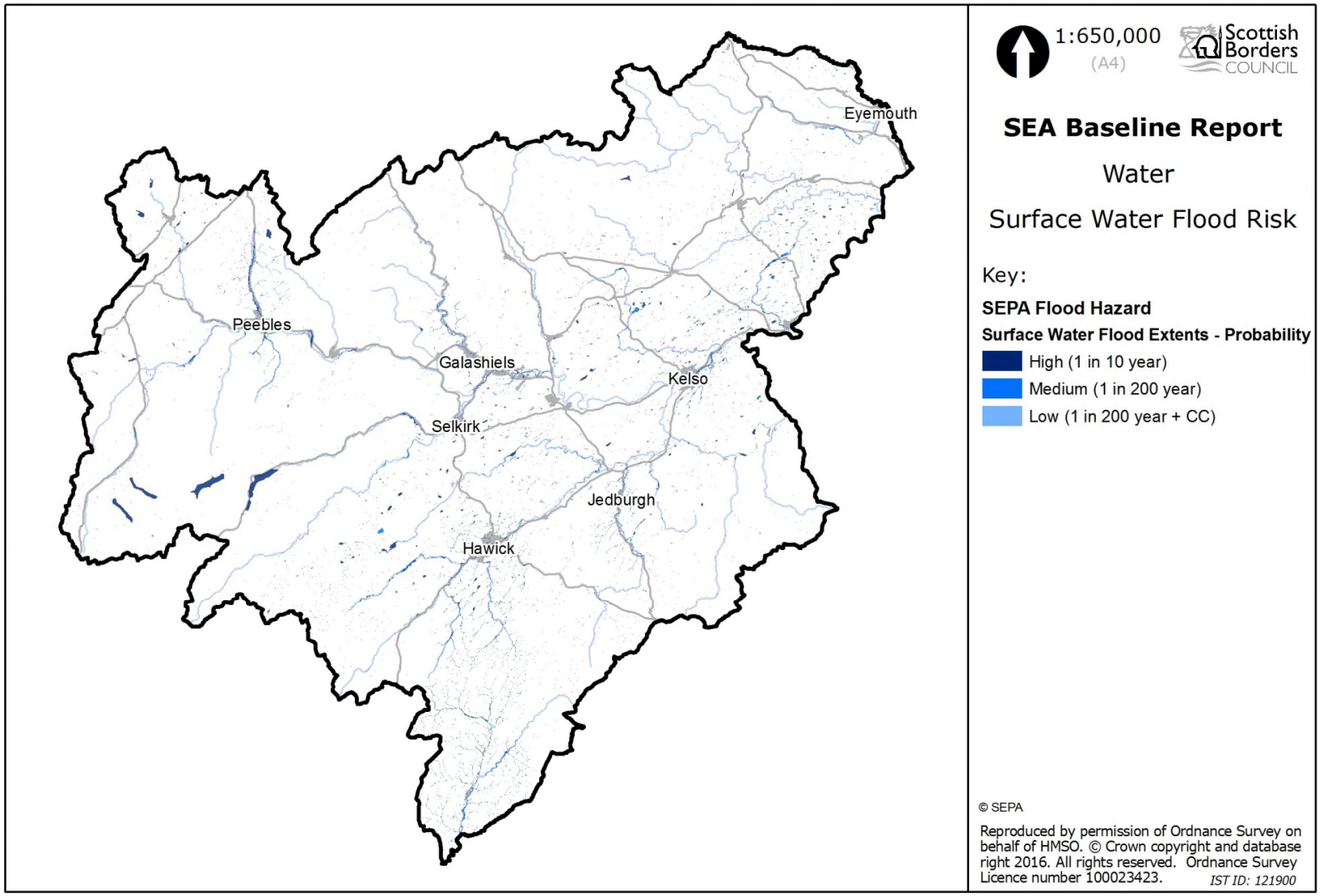
locating development. This management takes the forms of mitigation against the impacts of flooding including sustainable flood management projects; and adaptation to the changing flood risk in the future.

Maps 13 and 14 below shows the fluvial and surface flood risk for the Scottish Borders area:

Map 13 : River Flood Risk



Map 14 : Surface Water Flood Risk



Soil

There are two sources that indicate the availability of brownfield land in Scottish Borders. These are:

Vacant and Derelict Land

- Vacant and derelict land presents an opportunity for development to take place on previously developed area (thereby reducing development pressure on rural or more sensitive areas) but also presents potential issues surrounding contaminated land and the need for remediation and appropriate development. Table 9 below shows the Derelict and urban vacant land in Scottish Borders as of 2014:

Table 9: Derelict Land and Urban Vacant Land

Derelict Land			**Urban Vacant Land**			**Total Derelict and Urban Vacant Land**		
Area (Ha)	**%of Derelict Land(by area)²**	**No. of Sites**	**Area (Ha)**	**% of Urban Vacant Land (by area)²**	**No. of Sites**	**Area (Ha)**	**% of Total V&D Land (by area) ²**	**No. of Sites**
49	1	61	28	1	21	78	1	82

Urban Capacity Survey

- As part of the production of the Strategic Development Plan (SESPlan) an Urban Capacity Study was undertaken, the results for Scottish Borders are shown in Table 10 below: Brownfield Land

Table 10: Urban Capacity Results

No. of Sites	Gross Area	Gross Units	Discounted	Annual Average
282	445	5167	2817	402

Soil Quality

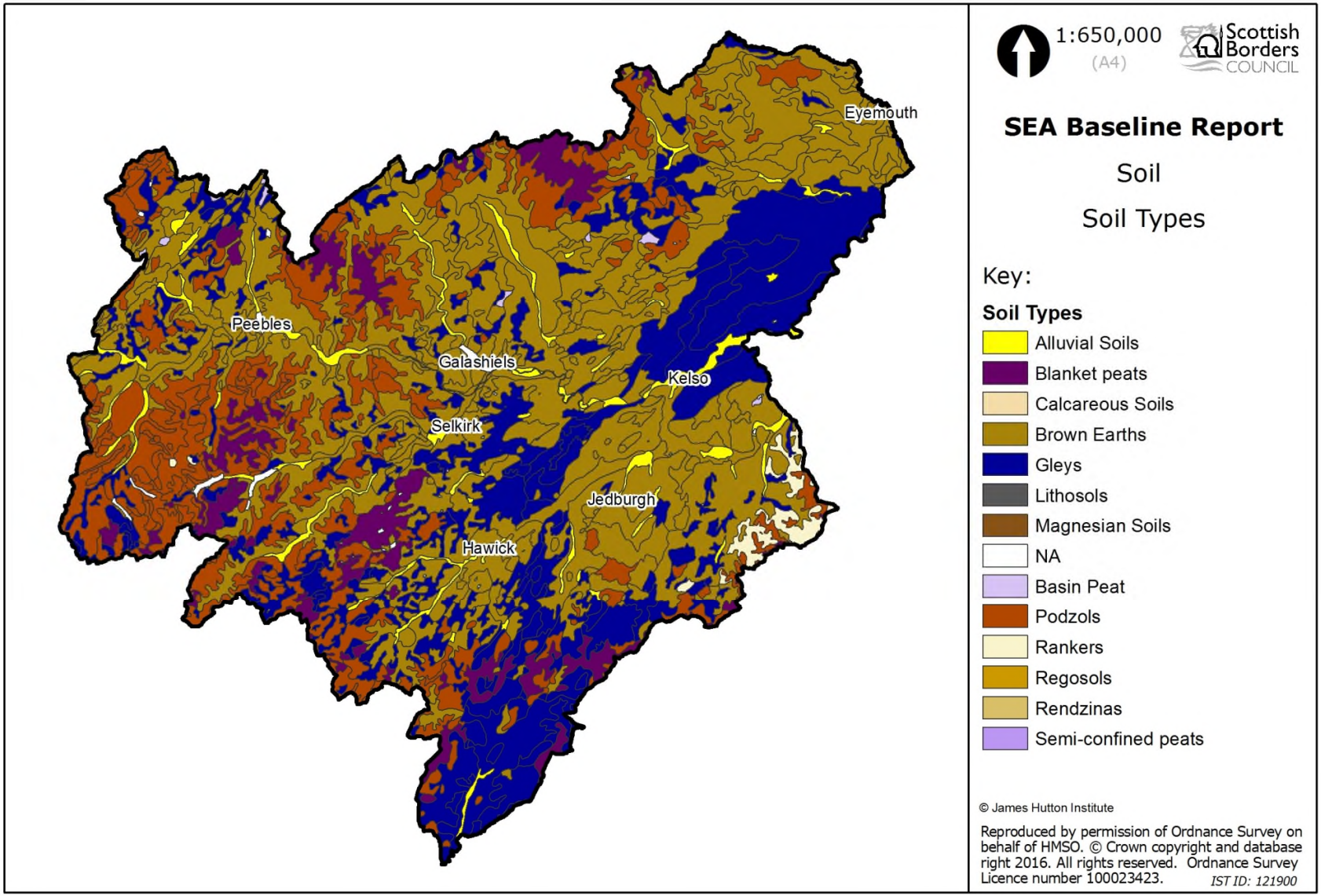
The soils of the Borders have a varied quality with regard to agricultural capability with better quality soils capable of supporting a wider range of arable crops including areas of prime agricultural land located along the south eastern part of Scottish Borders from Jedburgh northwards to Duns and east to Eyemouth on the coast (shown in Map 5,438 below). There are poorer quality soils within the area with regards to agricultural capability associated with upland areas of the Pentlands, in the far North West, to the Moorfoot Hills on the western boundary and the Lammermuirs in the north; here the land is only capable of supporting rough grazing.

Soils are of key importance in water quality, flood prevention, biodiversity and other soil related functions for natural heritage. The protection of soils is crucial to maintaining natural processes and in turn maintaining the quality of our environment as a whole. Map 15 below provides a broad indication of the soil types in Scottish Borders.

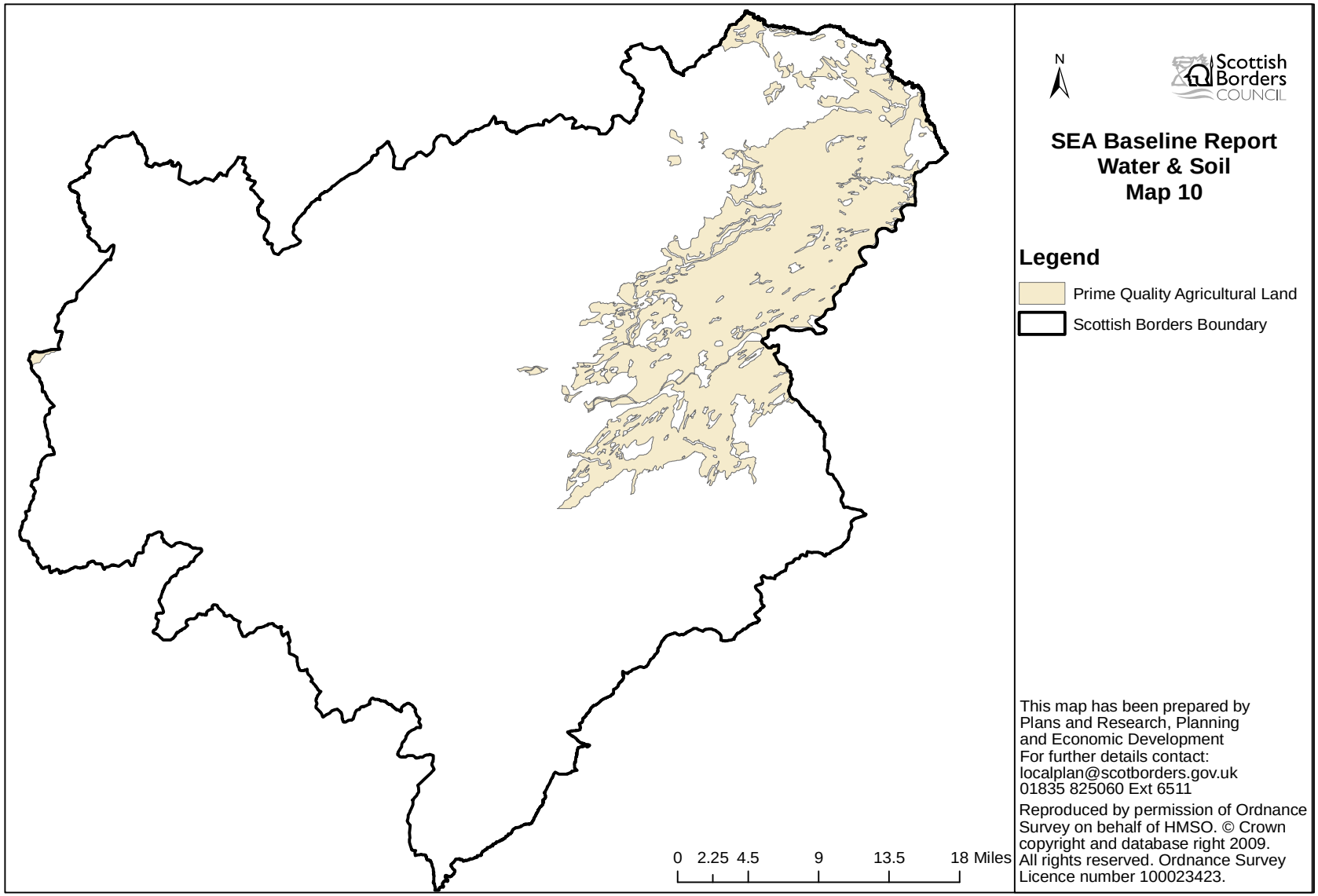
Contaminated land can cause severe adverse conditions on ecosystems, human health and water systems. Part IIA of the Environmental Protection Act 1990 came into force in Scotland in July 2000. It places responsibilities on local authorities to deal with contaminated land in accordance with a published Contaminated Land Strategy. Scottish Borders Council adopted a Contaminated Land Inspection Strategy in 2001 and allows the council to adopt a strategic approach to identify land that could be potentially contaminated within the local authority area. The Council provided contaminated land performance indicators (2006/2007) to the Scottish Executive. This shows the sites by the local authority as warranting inspection under the Contaminated Land Regime at 31.3.07. In Scottish Borders there were 790 sites covering a total area of 302.6ha.

A valuable natural asset of the Scottish Borders is the agricultural land available, with15% of this being “prime” quality (class 1, 2 and 3.2 agricultural land defined by the Macaulay Land Use Research Institute). As shown in map 16 “prime” agricultural land is located in Berwickshire in the north east of the region. This is currently protected by national policy).

Map 15 : Soil types



Map 16 :Prime Quality Agricultural land



PART 5: LANDSCAPE

Detailed objective: Protect and enhance the local character, quality and diversity of the landscape.

The Scottish Borders is considered to have a special and diverse landscape which includes differing variations of upland, lowland, valley and coastal landscapes. The most special landscapes in the Borders are protected by national and local landscape designations. There are two National Scenic Areas (NSAs) and nine Special Landscape Areas (SLAs). The landscape designations are listed with their area size in Table 11.

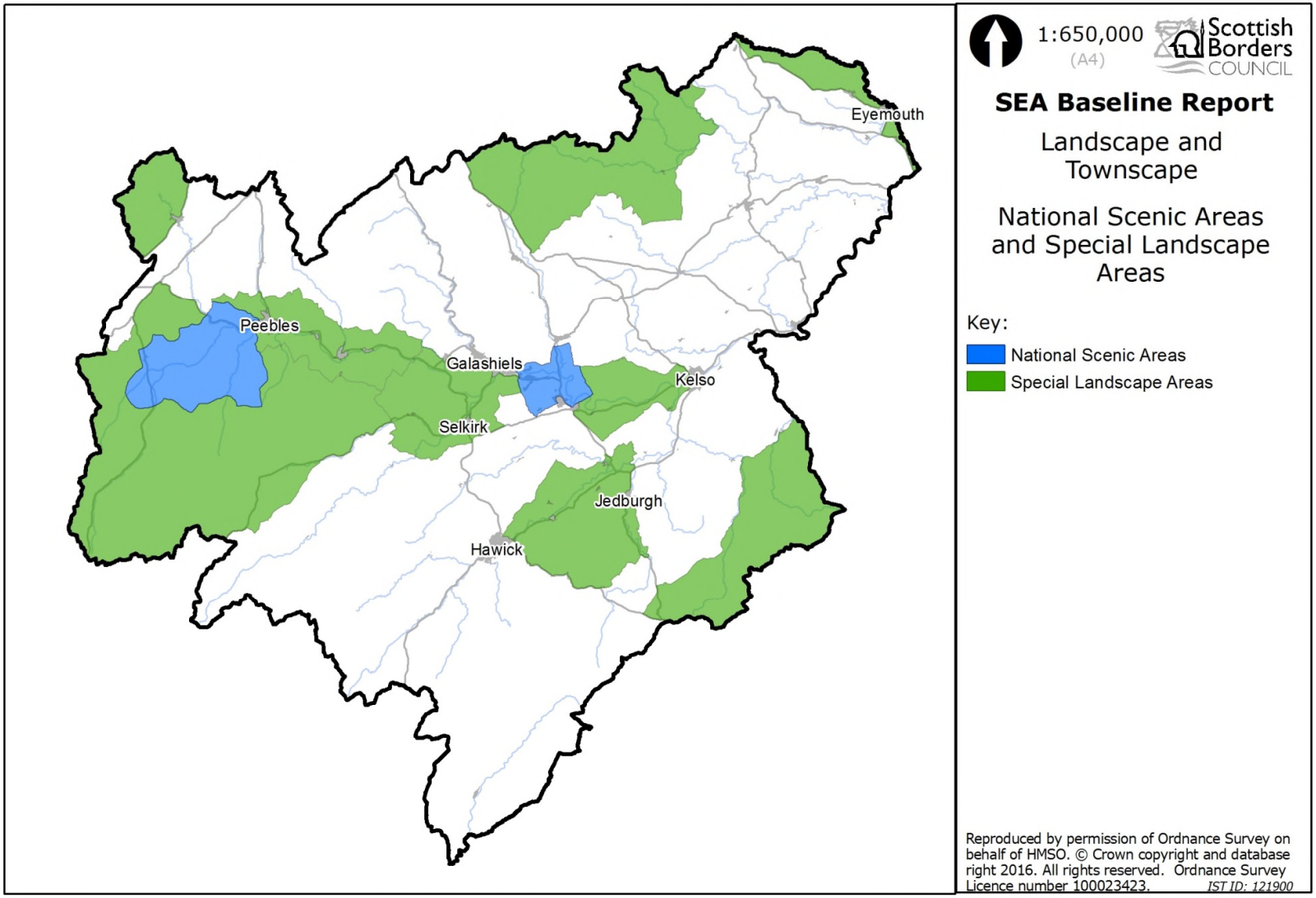
National Scenic Areas were introduced by the Countryside Commission in 1980. NSAs are nationally important areas of outstanding beauty, representing some of Scotland's grandest landscapes, the purpose of their designation is to preserve and enhance their character or appearance (Scottish Natural Heritage (1995) The Natural Heritage of Scotland: an overview). Special Landscape Areas are defined by local authorities in development plans with a view to safeguarding areas of regional or local landscape importance from inappropriate development - the SLAs in the Scottish Borders are designated within the Supplementary Guidance titled 'Local Landscape Designations'. The National Scenic Areas and Special Landscape Areas are shown in Map 17.

The Scottish Borders Landscape Character Assessment highlights the 5 types of landscapes in the Borders – coastal, lowland, river valley, upland fringe, and upland - and is shown in Map 18. In addition to the designations a number of Scottish Borders Council policies aim to protect the landscape - one such example is the Countryside Around Towns policy which was introduced to prevent settlement coalescence in the central Borders area, the CAT area is shown in Map 19.

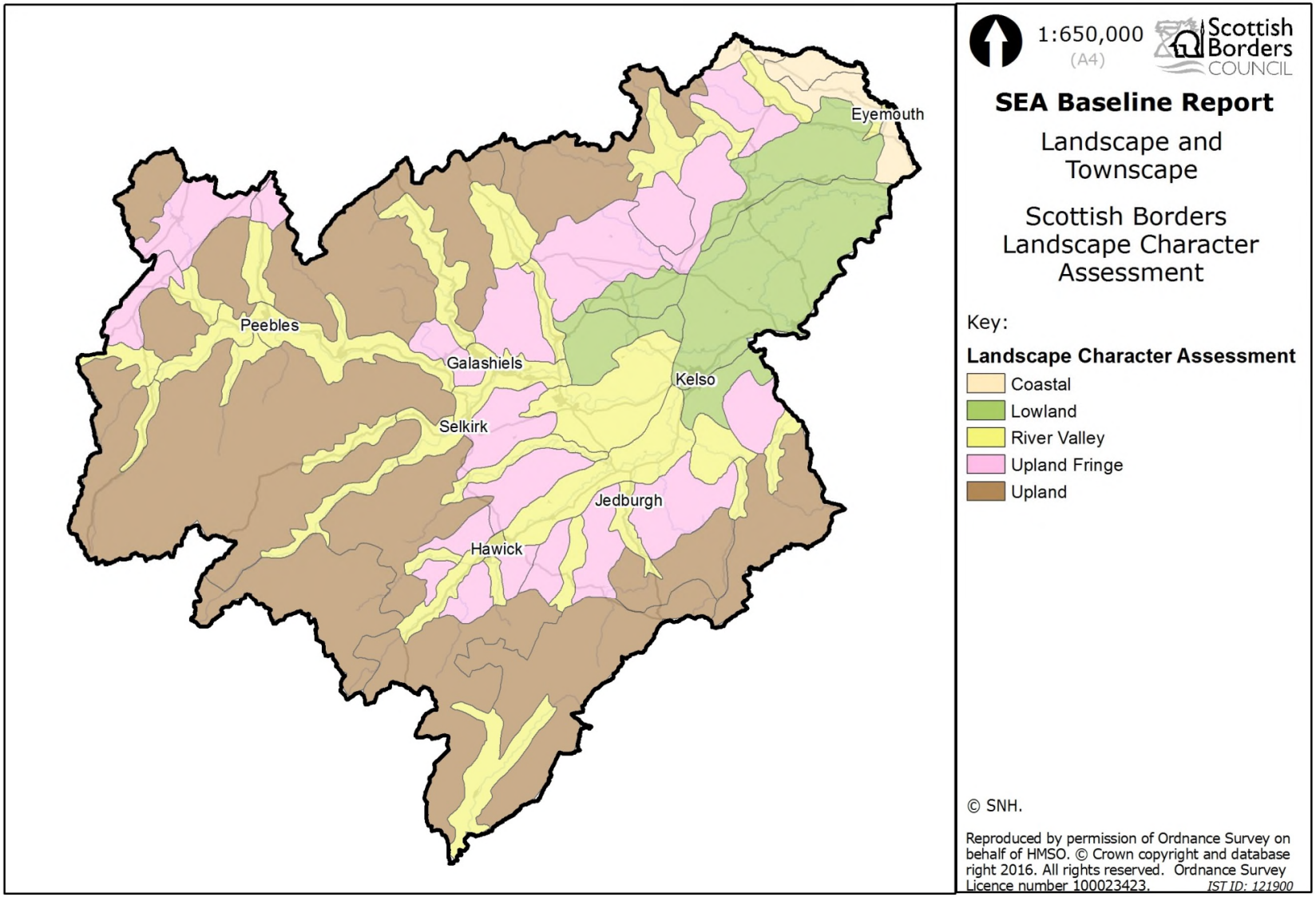
Table 11 : National Scenic Areas (NSA) and Special Landscape Areas (SLA) in the Scottish Borders

Landscape Designation	**Area (Ha)**
Eildon and Leaderfoot NSA	3880
Upper Tweeddale NSA	12770
Berwickshire Coast SLA	4469
Cheviot Foothills SLA	18602
Lammermuir Hills SLA	25057
Pentland Hills SLA	5949
Teviot Valleys SLA	15693
Tweed, Ettrick and Yarrow Confluences SLA	11994
Tweed Lowlands SLA	6819
Tweedsmuir Uplands SLA	53569
Tweed Valley SLA	10959

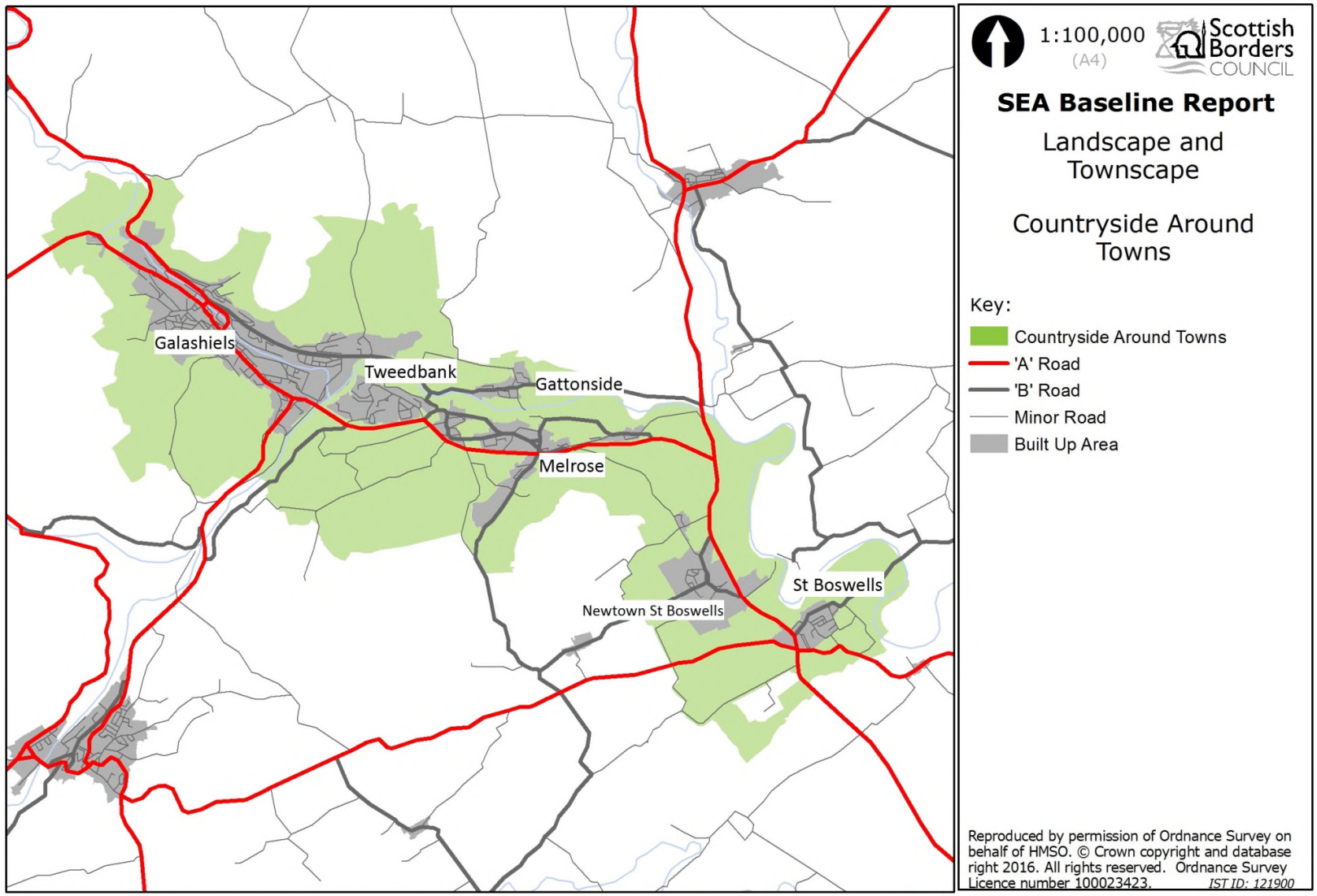
Map 17 : National Scenic Areas and Special Landscape Areas



Map 18 : Scottish Borders Landscape Character Assessment



Map 19 : Countryside Around Towns



PART 6: CULTURAL HERITAGE

Detailed objective: To protect and conserve the cultural and built environment and archaeological assets

Scottish Borders has a rich cultural and historical heritage and this is shown through the number of related designations and initiatives undertaken in the area. For example the Council has completed Townscape Heritage Initiatives (THI) in Hawick and Kelso in recent years, which were undertaken with the aim to culturally, socially and economically regenerate the towns. Supplementary guidance reports include Planning Briefs for historically sensitive sites including one underway for Kelso High School.

The Register is maintained by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) on behalf of Historic Scotland, and provides information on properties of architectural or historic merit throughout the country that are considered to be at risk. Currently the register identifies that there are 172 buildings within Scottish Borders at risk whilst 11 are currently being restored (as at 20/07/2016).

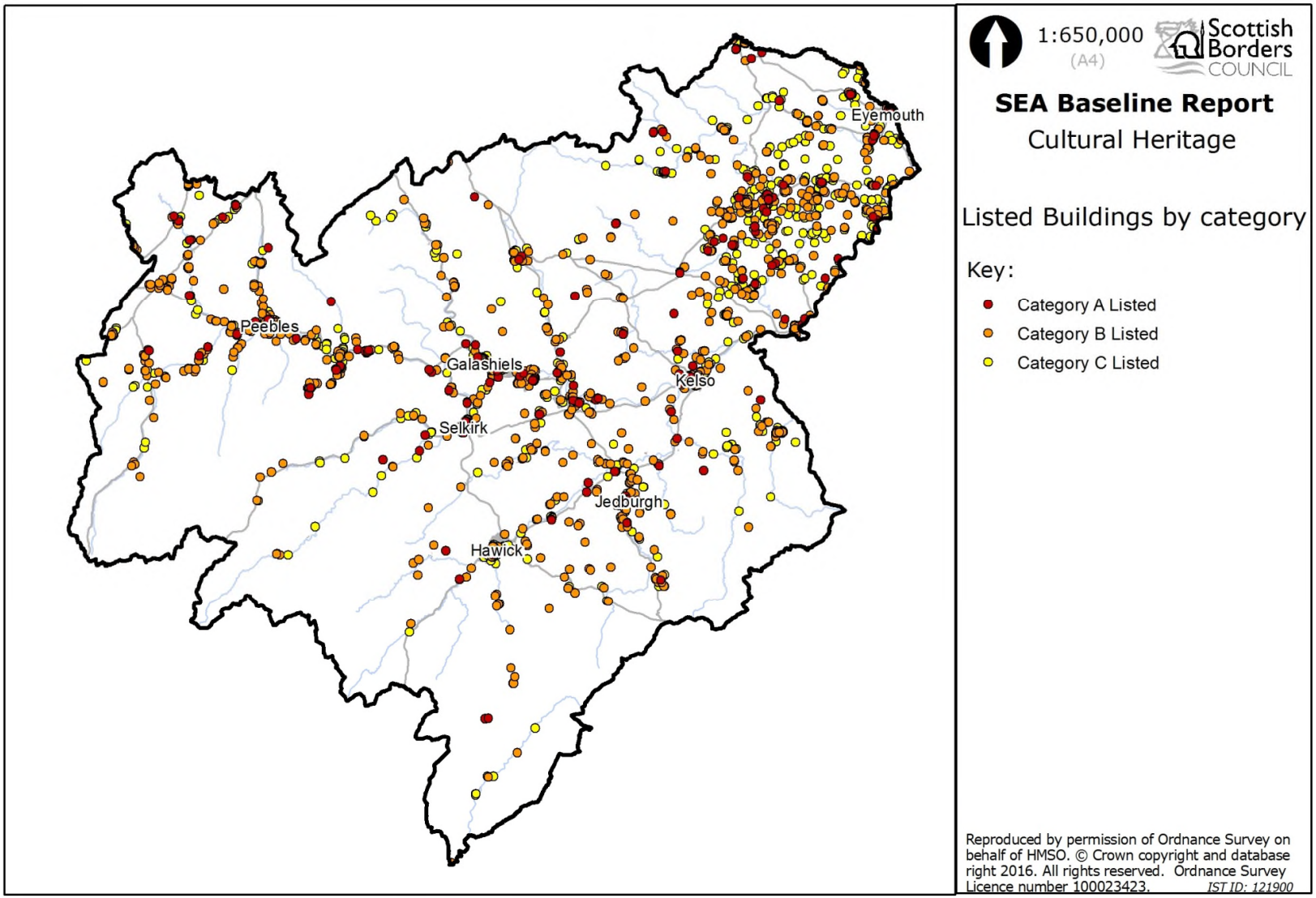
The Scottish Borders has 2,996 listed buildings, shown in Map 20; the categories of listed buildings and the description are listed below in Table 12. There are also 43 conservation Areas in Scottish Borders these have been designated by the Council to ensure the character of the area is protected. The largest Conservation Areas in Scottish Borders are Peebles (117ha) and Dryburgh (71ha) in total the Conservation Areas cover almost 900ha, as shown in Map 23. There are 742 Scheduled Monuments within Scottish Borders and locations of these are provided in Map 21. All sites contained on the Council's Historic Environment Record are shown in Map 24. The 31 Gardens and Designed Landscapes in Scottish Borders are shown in Map 22, and the 3 battlefields in Scottish Borders are shown in Map 25.

Table 12 - Listed Buildings in Scottish Borders by Category

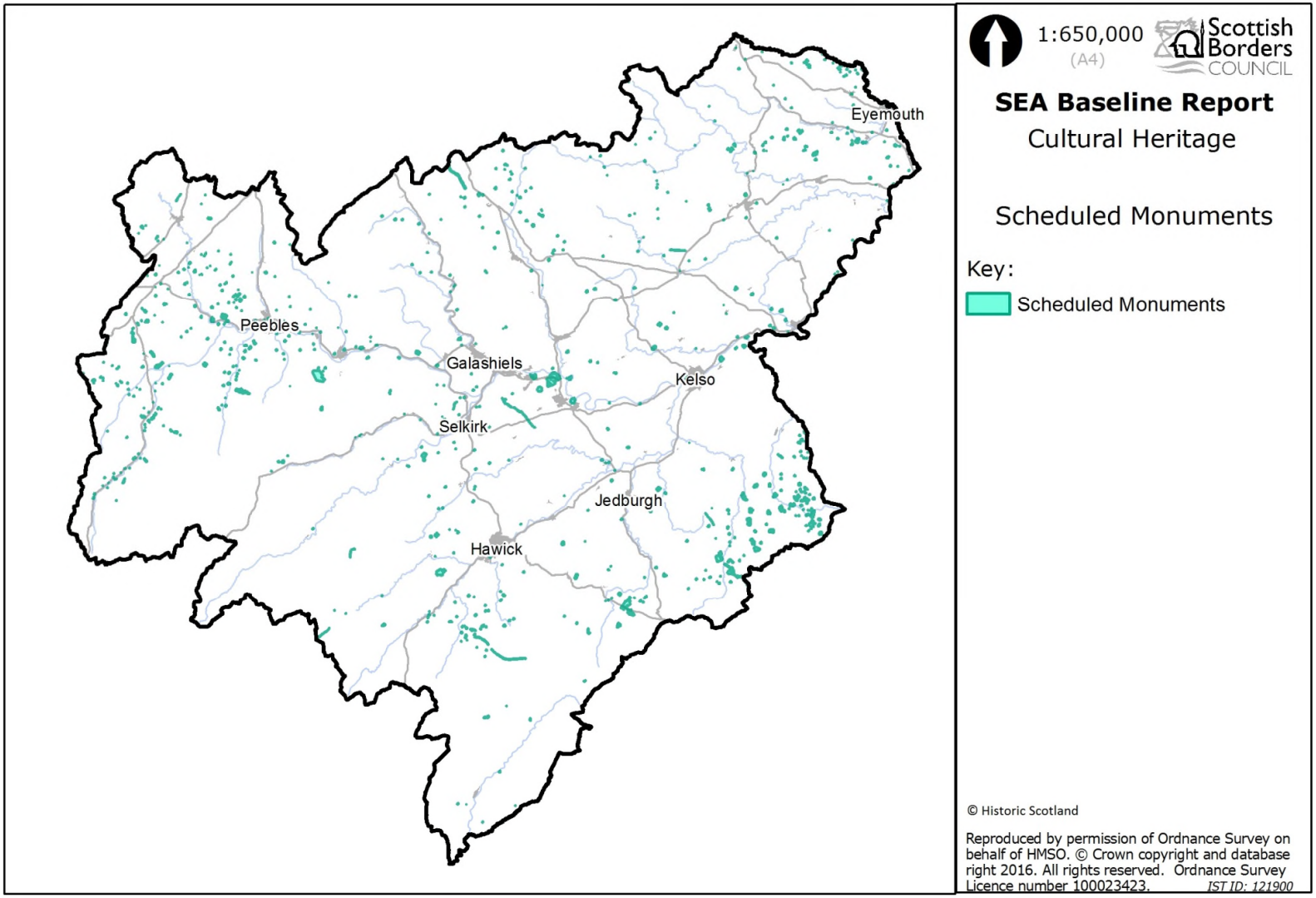
Category	Category Description	Total number
A Listed	Buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type.	178
B Listed	Buildings of regional or more than local importance, or major examples of some particular period, style or building type which may have been altered.	1,217
C Listed	Buildings of local importance, lesser examples of any period, style, or building type, as originally constructed or moderately altered; and simple traditional buildings which group well with others in categories A and B.	1,601
		2,996

Source: Historic Environment Scotland Website

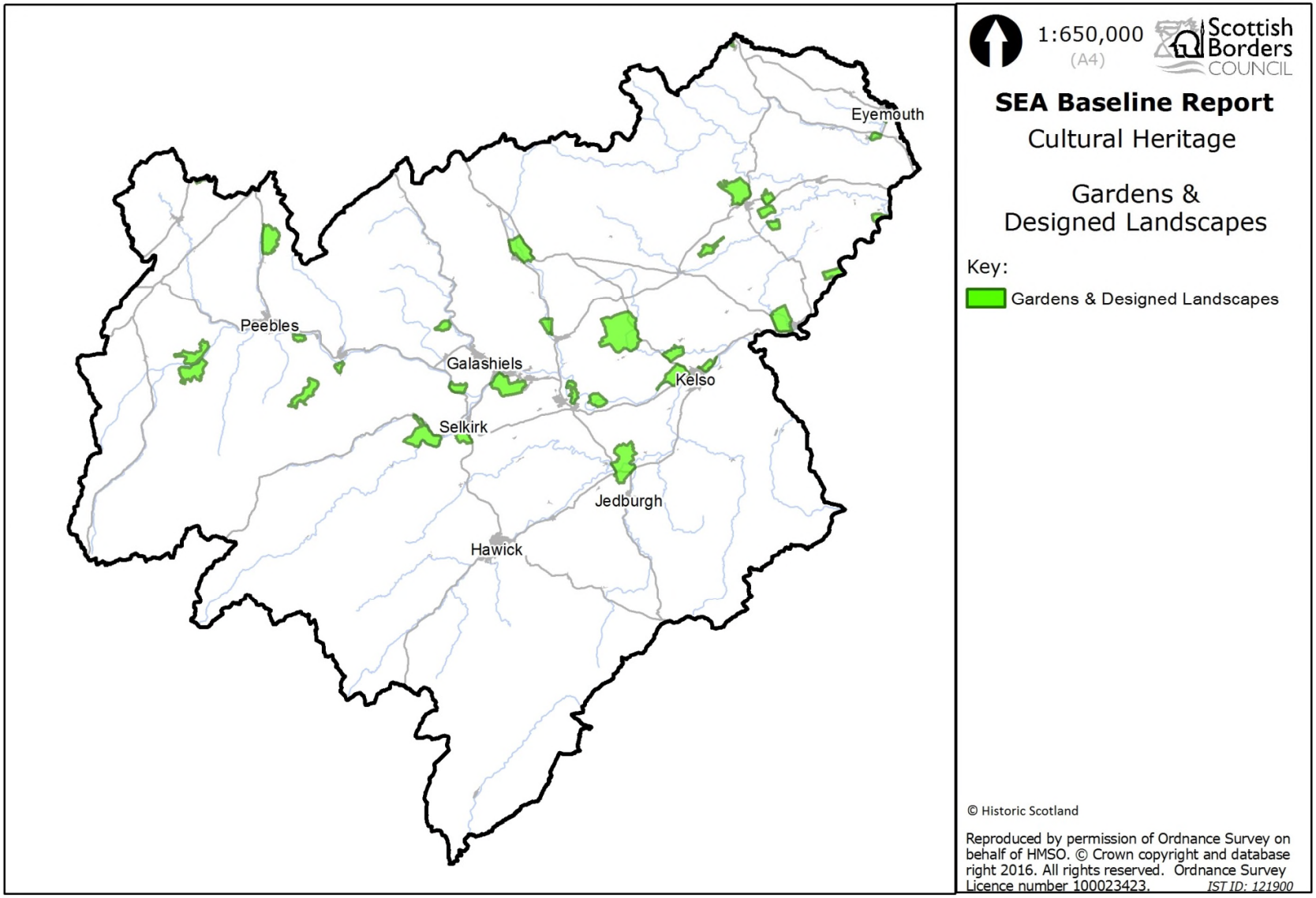
Map 20 : Listed Buildings



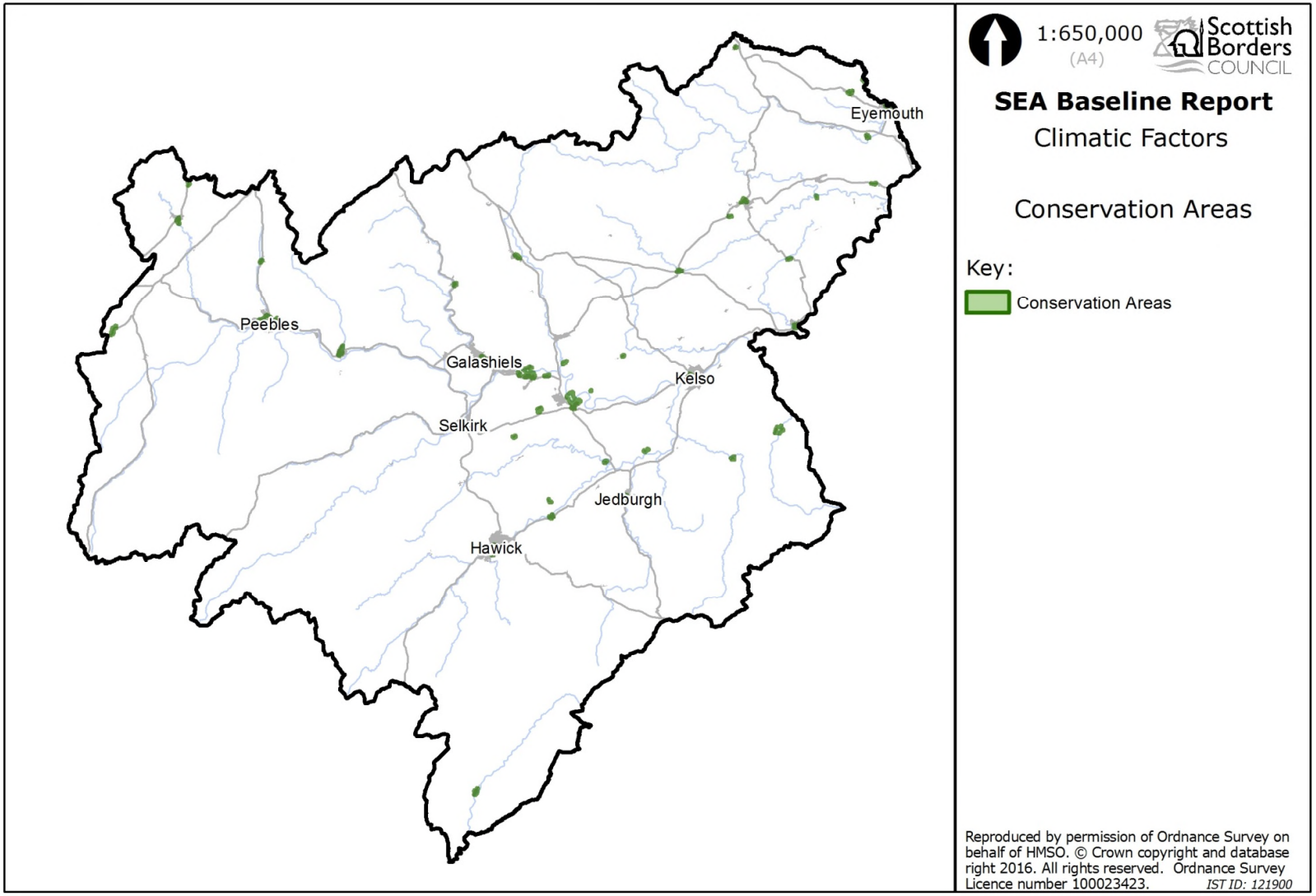
Map 21 : Scheduled Monuments



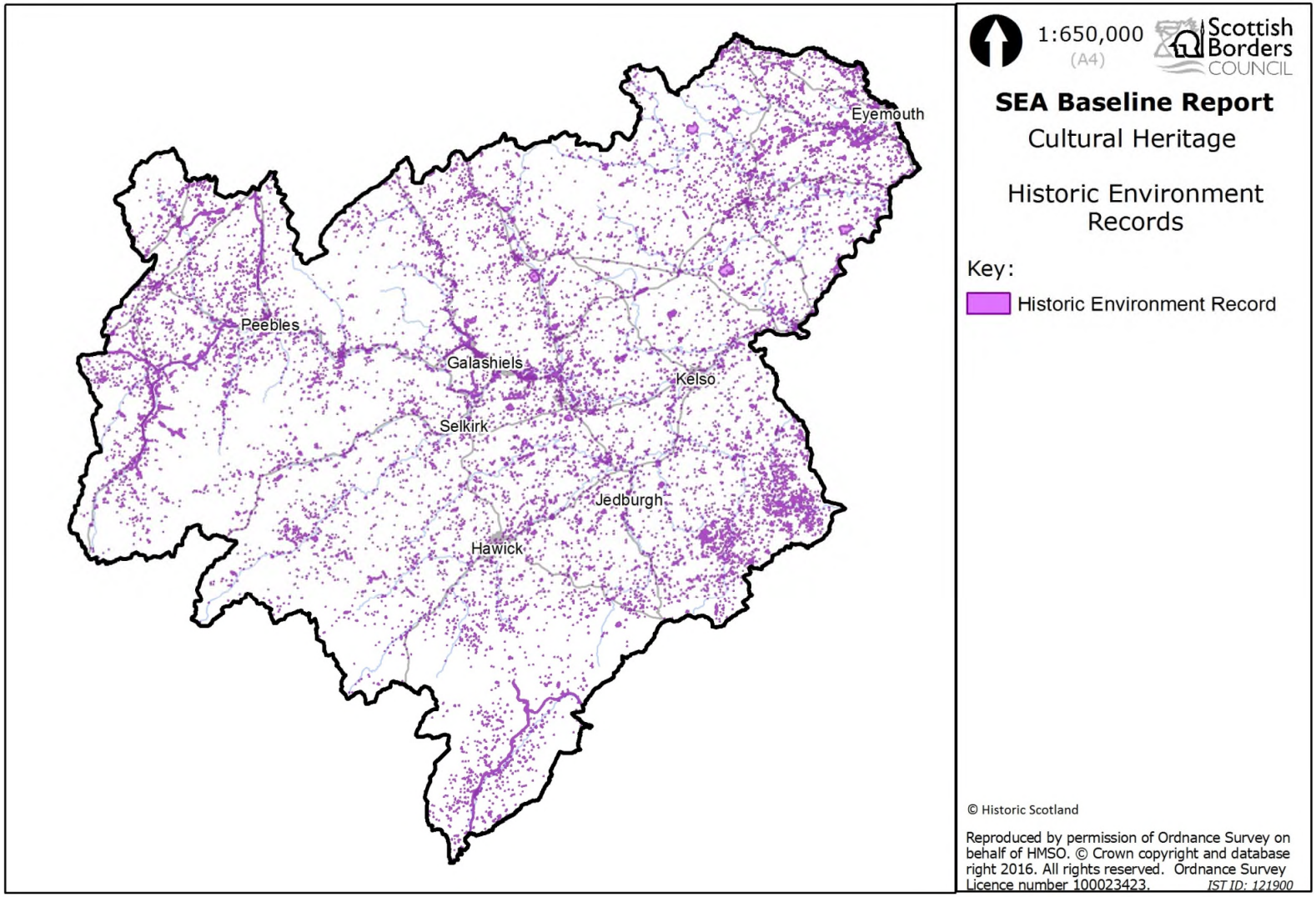
Map 22 : Gardens and Designed Landscapes



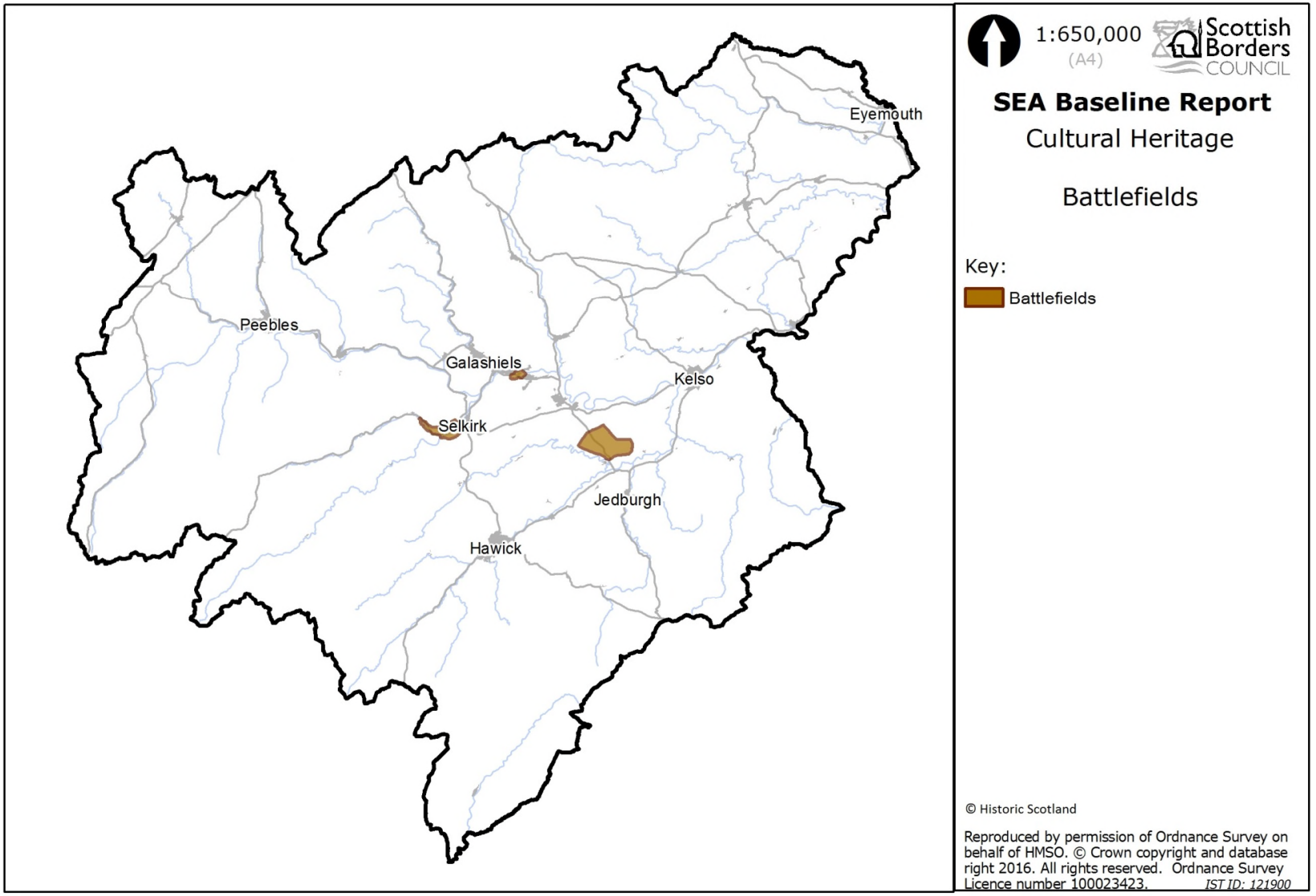
Map 23 : Conservation Areas



Map 24 : Historic Environment Records



Map 25 : Battefields



PART 7: Climatic Factors

SEA Objective: To reduce CO_2 emissions, reduce energy consumption and promote climate change adaptation.

The climate change Act 2009 sets out ambitious targets for Scotland to reduce carbon emissions which are 42% reduction by 2020 and 80% by 2050. It is possible to show a comparison for ecological and greenhouse gas footprints for the Scottish Borders Local Authority area:

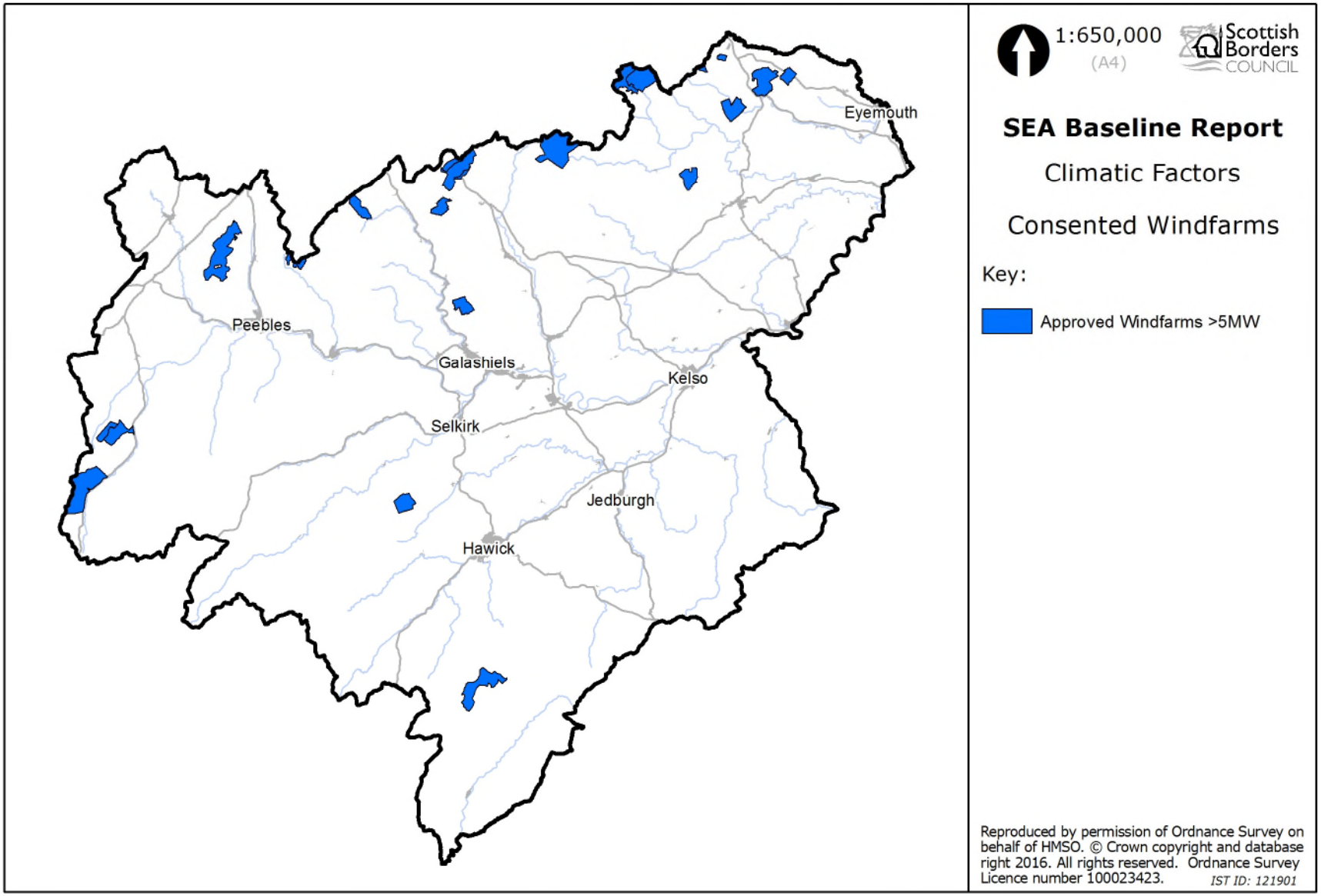
- Ecological Footprint (g/ha/capita): 5.52
- GHG Footprint (tCO2eq/capita): 17.02

To put these figures into context the UK ecological footprint average is 5.3 and the world average GHG footprint is 16.34. An assumption that can be drawn from these figures is that Scottish Borders consumes resources at an unsustainable rate.

The development of renewable energy sources has been identified as a key strand in the Scottish Government's plans to help tackle the issue of climate change. This is demonstrated by the framework for renewables in 'Scotland's Renewables Action Plan' (The Scottish Government (2009) Renewables Action Plan).

The estimated capacity of renewable energy generation is Scotland has been estimated at 60 GW (The Scottish Government (2002) Scotland's Renewable Energy Potential – Beyond 2010). Scottish Borders has, and continues to play a key role in the development of sustainable energy sources with several existing and proposed windfarms, the number of windfarms (5MW or above generation) is shown in Map 26 (please note this figure is indicative of the status at the time of writing). The Borders also has the potential of wood fuel and heat recovery systems associated with forestry and recently there has been a growing interest in solar farms.

Map 26 Operational and consented wind farms



Part 8 : Air

SEA Objective: To protect current air quality and provide opportunities for public transport.

Local Authorities have a responsibility under the Environment Act 1995 and Air Quality (Scotland) Amendments Regulations (2002) to improve air quality, not merely minimise pollution. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000) and Addendum (2003) set health based objectives for nine air pollutants and two for the protection of vegetation and ecosystems. Where it is found that these objectives are unlikely to be met by the due date, then an Air Quality Management Area (AQMA) must be declared and an action plan setting out proposals for addressing the problems prepared. In the Scottish Borders there are no AQMAs, nor areas close to designation.

The Climate Change (Scotland) Act 2009 include emissions reduction targets covering greenhouse gases (GHG), the list is as follows: Carbon dioxide (C02), Methane (CH4), Nitrous oxide (N20), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF6). The amount to which these gases are emitted due to human processes varies; far much more CO2 is emitted than the other five gases, however the five other gases are more powerful in their greenhouse effect (known as Global Warming Potential). Table 13 shows the most recent Scottish Borders greenhouse gas emissions data.

Emissions for some renewable energy types can have impacts in terms of air pollution. This would include, for example, emissions from plants relating to biomass, energy from waste and anaerobic digestion systems. Any renewable energy proposal which may have air pollution impacts must comply with relevant Environmental Health regulations

Another area that affects air quality is emissions from transport. Important transportation developments in Scottish Borders include the Borders Railway, the potential for the extension of the Borders Railway, and the potential for a railway station at Reston. Rail transport assists with reducing CO^2 emissions from cars. Important road routes in Scottish Borders include the A1, A68, A7 and A702 which are under route management schemes.

Table 13: Scottish Borders Greenhouse Gas Emissions

Scottish Borders **Population 114,030**

	PER CAPITA FOOTPRINT				TOTAL FOOTPRINT		
	Ecological Footprint (gha/capita)	Carbon Footprint (tonnes CO2/capita)	GHG Footprint (tonnes CO2eq/capita)		Total Ecological Footprint (gha)	Total Carbon Footprint (Tonnes CO2)	Total GHG Footprint (Tonnes CO2 eq)
TOTAL	**5.52**	**12.59**	**17.02**		**611,216**	**1,392,837**	**1,882,729**
Housing	1.44	4.10	4.59		159,741	454,143	507,433
Transport	0.94	3.09	3.58		103,548	341,616	396,351
Food	1.40	1.23	3.05		155,110	135,697	337,371
Consumer Items	0.73	1.44	2.09		80,764	158,856	231,677
Private Services	0.29	0.74	1.05		31,839	81,415	116,578
Public Services	0.59	1.58	2.13		65,637	174,520	236,014
Capital Investment	0.12	0.36	0.46		13,756	39,298	51,049
Other	0.01	0.07	0.06		821	7,293	6,257