High Speed Two Phase 2a (West Midlands - Crewe)

Background Information and Data

Map book Ecology (EC-02, EC-04, EC-05, EC-06, EC-07, EC-08, EC-09, EC-10, EC-11, EC-12) Part 1



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Map book

Ecology (EC-02, EC-04, EC-05, EC-06, EC-07, EC-08, EC-09, EC-10, EC-11, EC-12) Part 1





High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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Contents

Mapping explanatory notes

Data dictionary and definitions

Map series name	Map series description	Map book part
EC-02 - Phase 1 Habitat (1:10,000)	This map series shows Phase 1 habitat survey information for land required and in the vicinity of the Proposed Scheme at a scale of 1:10,000. Where it has not been possible to gain access for field survey or the area mapped is between 250-500m from the boundary of the land potentially required during construction, the information is based on available desk study and interpretation of aerial photography.	Background Information and Data map book — Ecology Part 1
EC-04 - Amphibians	This map series shows the results of amphibian surveys conducted to inform the Environmental Statement. It principally details the results of great crested newt surveys conducted. In addition it shows the location of those 'exceptional' populations of common amphibians recorded.	Background Information and Data map book — Ecology Part 1
EC-05 - Bat - Roost	This map series shows results of field surveys conducted to investigate the potential for trees and buildings/structures to support roosting bats. It shows the location of roosts confirmed by field survey and features identified as having a high or moderate potential to support roosting bats.	Background Information and Data map book — Ecology Part 1
EC-o6 - Bat - Activity	This map series shows the location of bat activity surveys conducted to inform the Environmental Statement. In addition it shows the location of the key bat foraging and commuting routes which have been established on the basis of the survey work conducted.	Background Information and Data map book — Ecology Part 1
EC-07 - Reptiles	This map series shows the extent and results of survey work for common reptiles that has been undertaken to inform the Environmental Statement.	Background Information and Data map book – Ecology Part 2
EC-o8 - Breeding Birds - Protected and Notable Species	This map series shows records of protected/notable breeding birds that are considered most relevant in considering the impacts of the Proposed Scheme on breeding birds. The location of nest sites for species such as barn owl and raptor species which may be liable to persecution are not displayed.	Background Information and Data map book — Ecology Part 2
EC-09 - Wintering and Passage Birds – Protected and Notable Species	This map series shows records of selected protected/notable wintering birds that are considered most relevant in considering the impacts of the Proposed Scheme.	Background Information and Data map book – Ecology Part 2
EC-10 - Phase 2 Habitat Survey	This map series shows the extent of detailed habitat surveys undertaken to inform the Environmental Statement. The map shows the location of hedgerows that qualify as 'Important hedgerows' under the Hedgerows Regulations (1997).	Background Information and Data map book – Ecology Part 3
EC-11 - Other Protected and Notable Species (1)	This map series shows the extent of protected species surveys conducted to inform the Environmental Statement.	Background Information and Data map book – Ecology Part 3
EC-12 - Other Protected and Notable Species (2)	This map series shows the extent of protected species surveys conducted to inform the Environmental Statement.	Background Information and Data map book – Ecology Part 3

Mapping explanatory notes

This map book is part of the background information and data (BID) for Phase 2a of the proposed High Speed Two (HS2) rail network between the West Midlands and Crewe (the Proposed Scheme), and comprises ecological baseline data. This map book does not form part of the Environmental Statement, but presents relevant ecological information for the Proposed Scheme.

Copyright statements

Copyright statements are presented in the Data dictionary and definitions section at the front of the map book, due to limited space to include this on the individual maps themselves.

Ordnance Survey data

All maps contain Ordnance Survey (OS) data. HS2 Ltd use the most up to date mapping available, where possible, supplied by the OS and as such, we cannot be held responsible for any inaccuracies within this data.

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Chainage

The maps presented have a chainage value shown next to the alignment. Chainage is presented on the maps in black font, in the form of XX+YYY. E.g. 192+000 or 239+500.

Chainage (known as reference chainage) is referenced from Euston Station, which is 0+000, and the value presented is in metres. E.g. 192+000 refers to the point, 192,000m, or 192km, from Euston Station. Chainage values increase in intervals dependant on the map scale. For maps at 1:50,000 scale chainage is shown at 5km intervals. For maps at 1:25,000 scale chainage is shown at 2km intervals. For maps at 1:20,000, 1:10,000, 1:5,000 and 1:2,500 scales, chainage is shown at 1km intervals.

Chainage has been included on the maps as a useful tool for comparing different map sets showing the different environmental themes or engineering plans, due to map sets having different scales and therefore showing differing amounts of alignment on the map.

Map orientation

The maps presented in this map book are presented with the railway alignment running horizontally across the page. The direction of travel to London would be following the alignment to the right hand side of the page, and Crewe to the left.

High Speed Two Phase 2a (West Midlands-Crewe) Background Information and Data **Data dictionary and definitions**



Data dictionary and definitions

Legend features	Definition	Source	Copyrig
250m radius from all water bodies where presence of Great Crested Newts is confirmed.	250m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
50m radius from all water bodies where presence of Great Crested Newts is confirmed.	50m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
500m radius from all water bodies where presence of Great Crested Newts is confirmed.	500m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
Activity transect route	Transect route that was surveyed during bat activity surveys.	High Speed Two (HS2) Ltd	
Areas isolated by significant barriers to amphibian movement	Areas isolated by significant barriers to amphibian movement.	High Speed Two (HS2) Ltd	
Assumed key areas of foraging habitat	Likely areas of bat foraging habitat for local bat populations, derived from bat activity survey results.	High Speed Two (HS2) Ltd	
Assumed key commuting route	Key commuting and foraging bat routes that have been identified by an ecologist after review of available survey data and application of professional judgement.	High Speed Two (HS2) Ltd	
Bat activity static detector location	Location where bat activity static detectors were used during survey period.	High Speed Two (HS2) Ltd	
Community area boundary	The Proposed Scheme has been split into 5 sections called Community Areas.	High Speed Two (HS2) Ltd	© Crow Ordnan Publicat
Confirmed bat roost – building: Hibernation roost Maternity roost Other roost Multiple roost types Potential to support roosting bats – buildings: High Moderate	Locations where bat roost survey has been completed within buildings. Buildings are categorised into those with potential to support bat roosts (high and medium potential) and those that have confirmed roosts. Confirmed roosts are further categorised into Hibernation, Maternity, Other or Multiple roosts.	High Speed Two (HS2) Ltd	
Confirmed bat roost – trees: Hibernation roost Maternity roost Other roost Multiple roost types Potential to support roosting bats – trees: High Moderate	Locations where bat roost survey has been completed within trees. Trees are categorised into those with potential to support bat roosts (high and medium potential) and those that have confirmed roosts. Confirmed roosts are further categorised into Hibernation, Maternity, Other or Multiple roosts.	High Speed Two (HS2) Ltd	
County boundary	County boundaries from Ordnance Survey boundary mapping.	Ordnance Survey	© Crow Ordnan Publicat
Depot, station, headhouse or portal building	Extends to cover operational footprint of each depot and station and the footprint of each tunnel vent shaft and headhouse at surface level. Excludes any ancillary buildings associated with these structures.	High Speed Two (HS2) Ltd	
District/Borough boundary	Ordnance Survey local authority boundary mapping.	Ordnance Survey	© Crow Ordnan Publicat

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Legend features	Definition	Source	Copyrig
Great Crested Newt (GCN) survey locations	Results from Great Crested Newt pond surveys.	High Speed Two (HS2) Ltd	
Land potentially required during construction	Boundary defining the maximum possible extent of construction works required to build HS2 as far as the current level of design allows. This only covers surface works and includes all tunnel portals, vent shafts and headhouses, but does not apply to wholly tunnelled sections or to air rights. It also encompasses associated highway, access, drainage and utility works.	High Speed Two (HS2) Ltd	
Phase 1 Habitat survey data	Results from Phase1 habitat surveys.	High Speed Two (HS2) Ltd	
Route in tunnel Route on surface	Represents the proposed route of HS2, split into route on surface and tunnelled sections.	High Speed Two (HS2) Ltd	
Water body	Any mass of water having definite hydrological, physical, chemical and biological characteristics.	Ordnance Survey	© Crown Ordnand Publicat
Watercourse	Any channel through which water flows, can be natural or manmade. They are split into two categories (main rivers or ordinary watercourses) in England and Wales for regulation purposes.	Environment Agency	© Enviro right 20:
Woodland (not verified by survey) Woodland (verified by survey)	Woodland areas derived from Ordnance Survey MasterMap data.	Ordnance Survey	© Crown Ordnand Publicat

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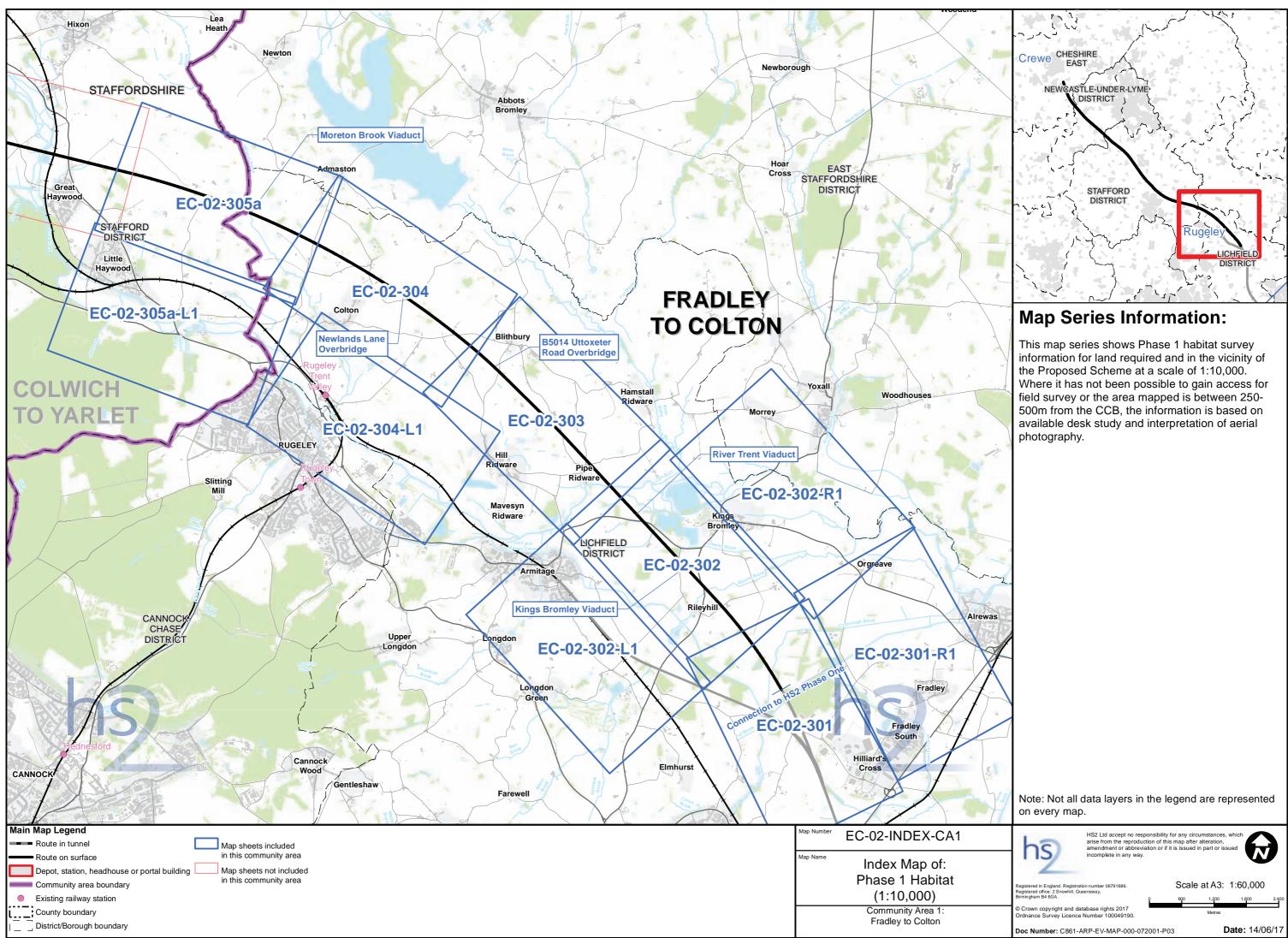
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High Speed Two Phase 2a (West Midlands-Crewe) Background Information and Data **EC-02 - Phase 1 Habitat (1:10,000)**





Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats
Broadleaved woodland - semi-natural		Bracken - continuous	R	Refuse-tip	XXX	Scrub - scattered
Broadleaved woodland - plantation	XXX	Bracken - scattered	A .	Cultivated/disturbed land - arable	•••	Broadleaved parkland/scattered trees
Coniferous woodland - semi-natural		Upland species-rich ledges	A	Cultivated/disturbed land - amenity grassland		Coniferous parkland/scattered trees
Coniferous woodland - plantation		Other tall herb and fern - ruderal	XXX	Cultivated/disturbed land - ephemeral/short perennial		Mixed parkland/scattered trees
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub	-	Upland species-rich ledges
Mixed woodland - plantation		Dry dwarf shrub heath - acid		Intact hedge - native species-rich	-	Marginal and inundation - marginal vegetation
Scrub - dense/continuous	XXX	Lichen/bryophyte heath		Intact hedge - species-poor	_	Running water
× × Scrub - scattered	11	Dry heath/acid grassland	0000	Defunct hedge - native species-rich	www	/ Intact hedge - native species-rich
Broadleaved parkland/scattered trees	***	Wet modified bog		Defunct hedge - species-poor	-	Intact hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire	***	Hedge with trees - native species-rich	AVAN	/ Defunct hedge - native species-rich
Mixed parkland/scattered trees		Swamp		Hedge with trees - species-poor		Defunct hedge - species-poor
F F Broadleaved woodland - recently felled	777	Marginal and inundation - inundation vegetation		Fence	Volum	Hedge with trees - native species-rich
F F Mixed woodland - recently felled		Standing water		Wall		Hedge with trees - species-poor
Acid grassland - unimproved	EE	Standing water - eutrophic	==	Dry ditch		Fence
Acid grassland - semi-improved	MM	Standing water - mesotrophic	223	Boundary removed		Wall
Neutral grassland - unimproved		Running water		Earth bank		Dry ditch
SI Neutral grassland - semi-improved	1111	Limestone pavement	***	Caravan site	×××	Boundary removed
Calcareous grassland - unimproved		Other exposure - basic		Buildings	••••	Earth bank
Calcareous grassland - semi-improved	CC	Cave		Bare ground		
I I Improved grassland	QQ	Quarry		Other habitat		
Marsh/marshy grassland		1. 13				

M	Map Name Legend
	Phase 1 Habitat Survey

Point Habitats

×	Scrub - scattered
	Broadleaved parkland/scattered trees
٠	Coniferous parkland/scattered trees
×	Bracken - scattered

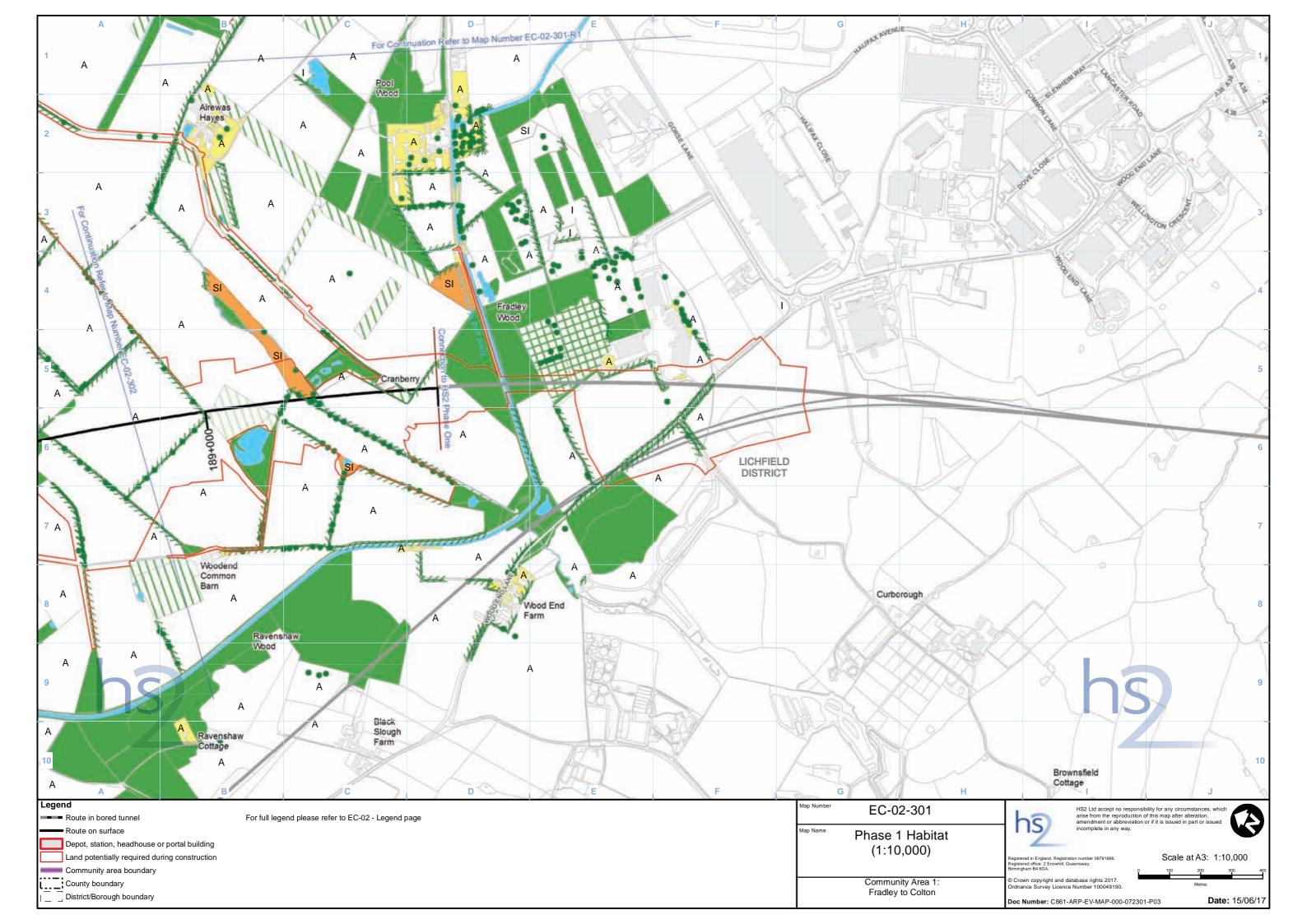


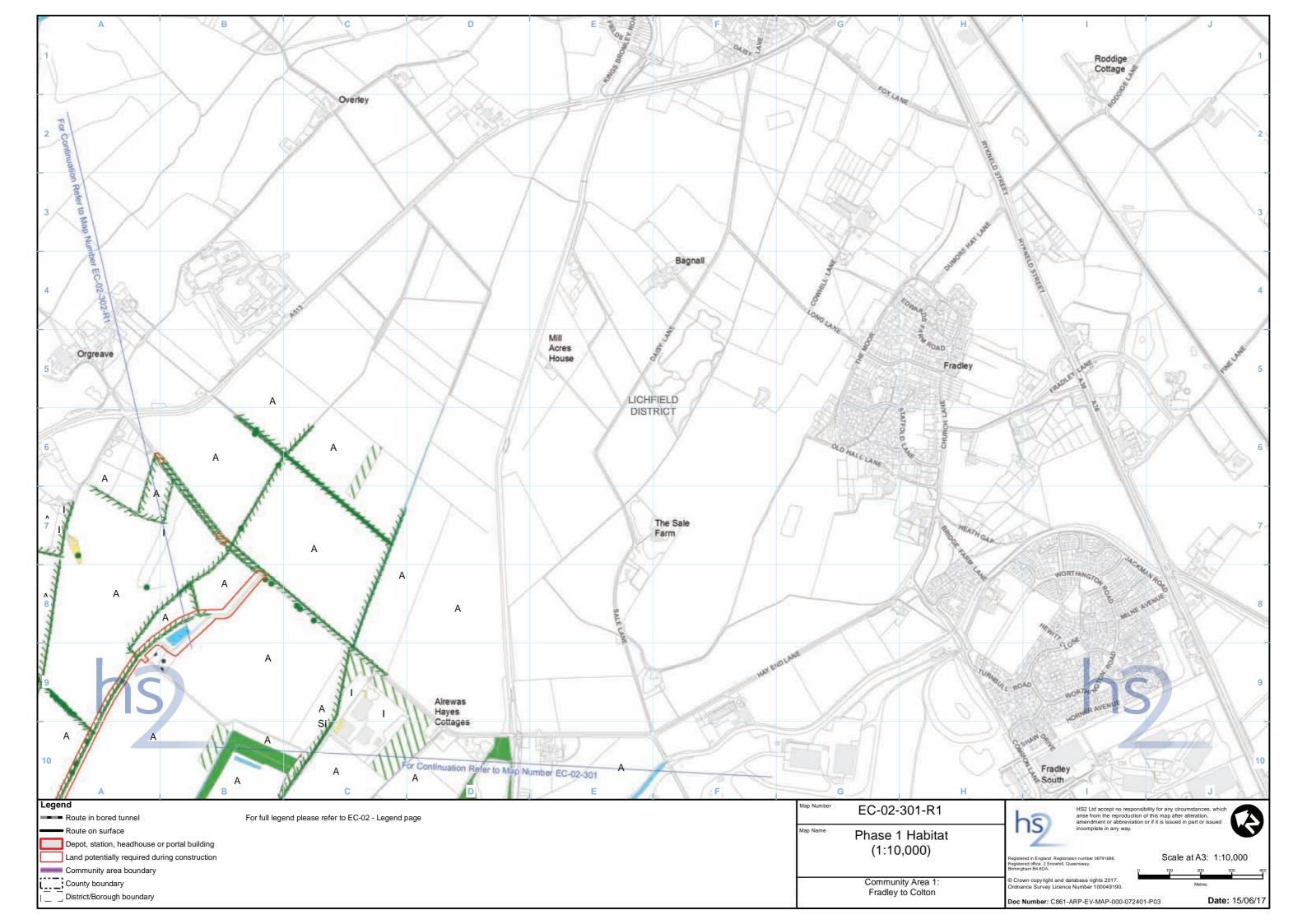
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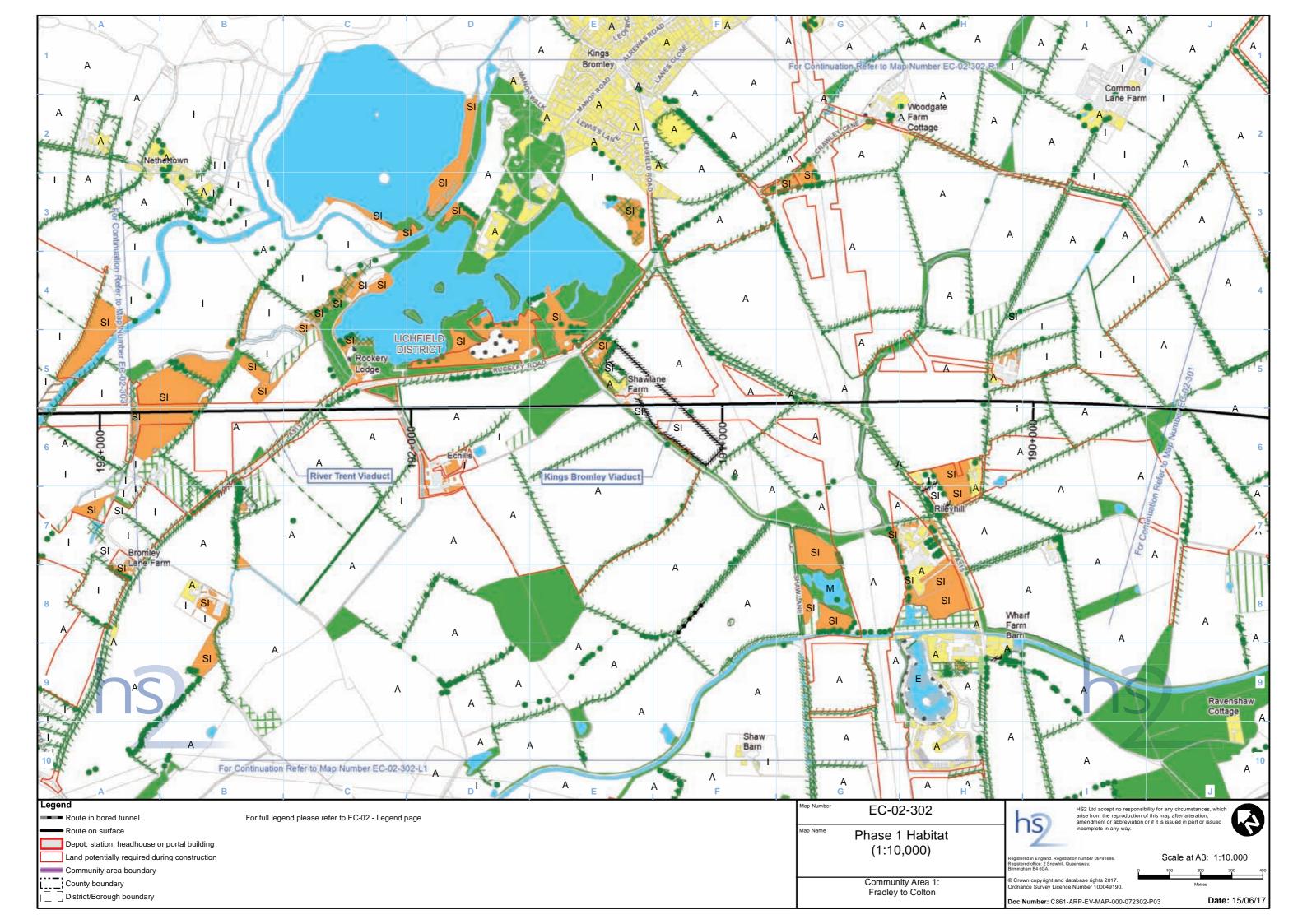
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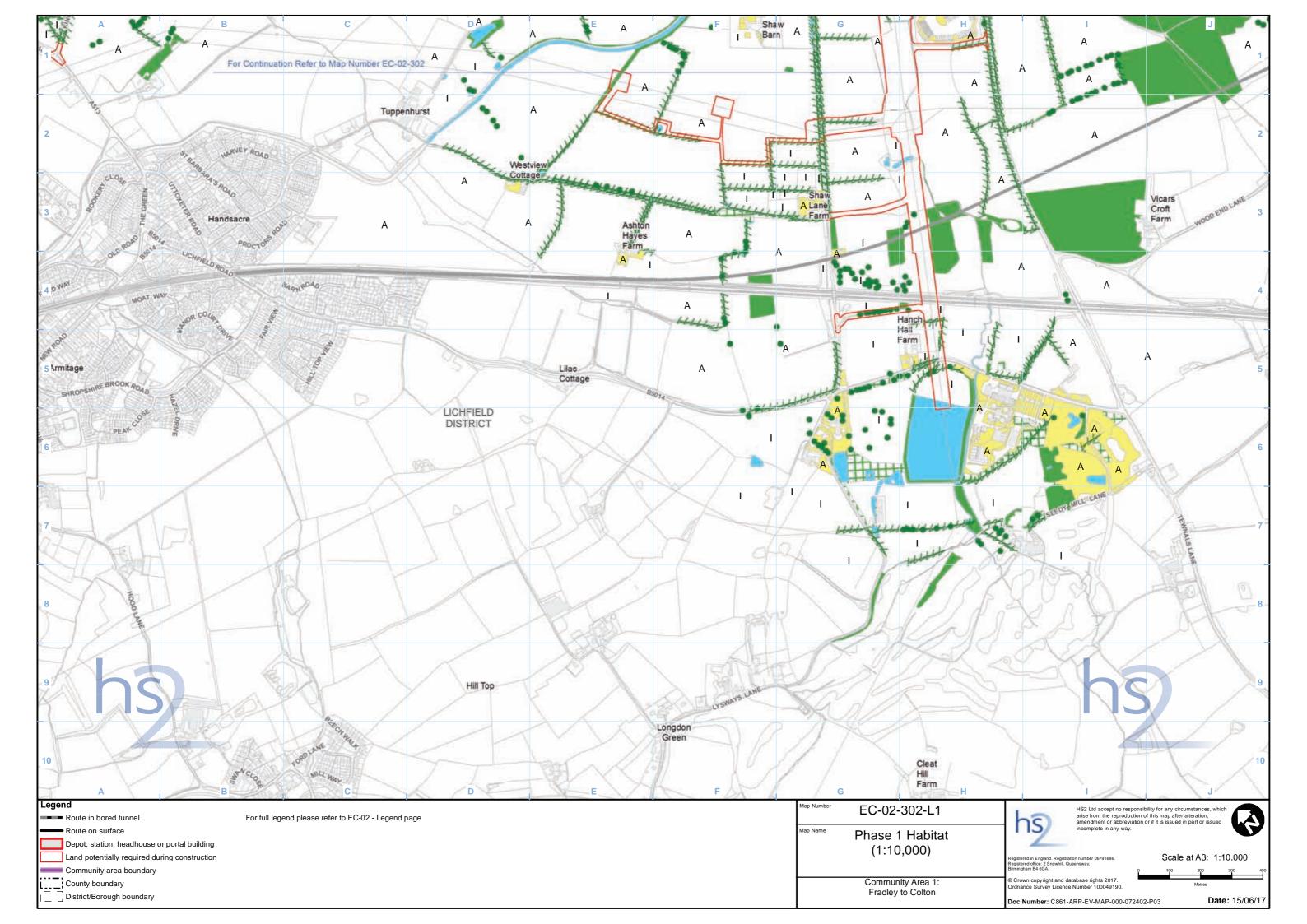
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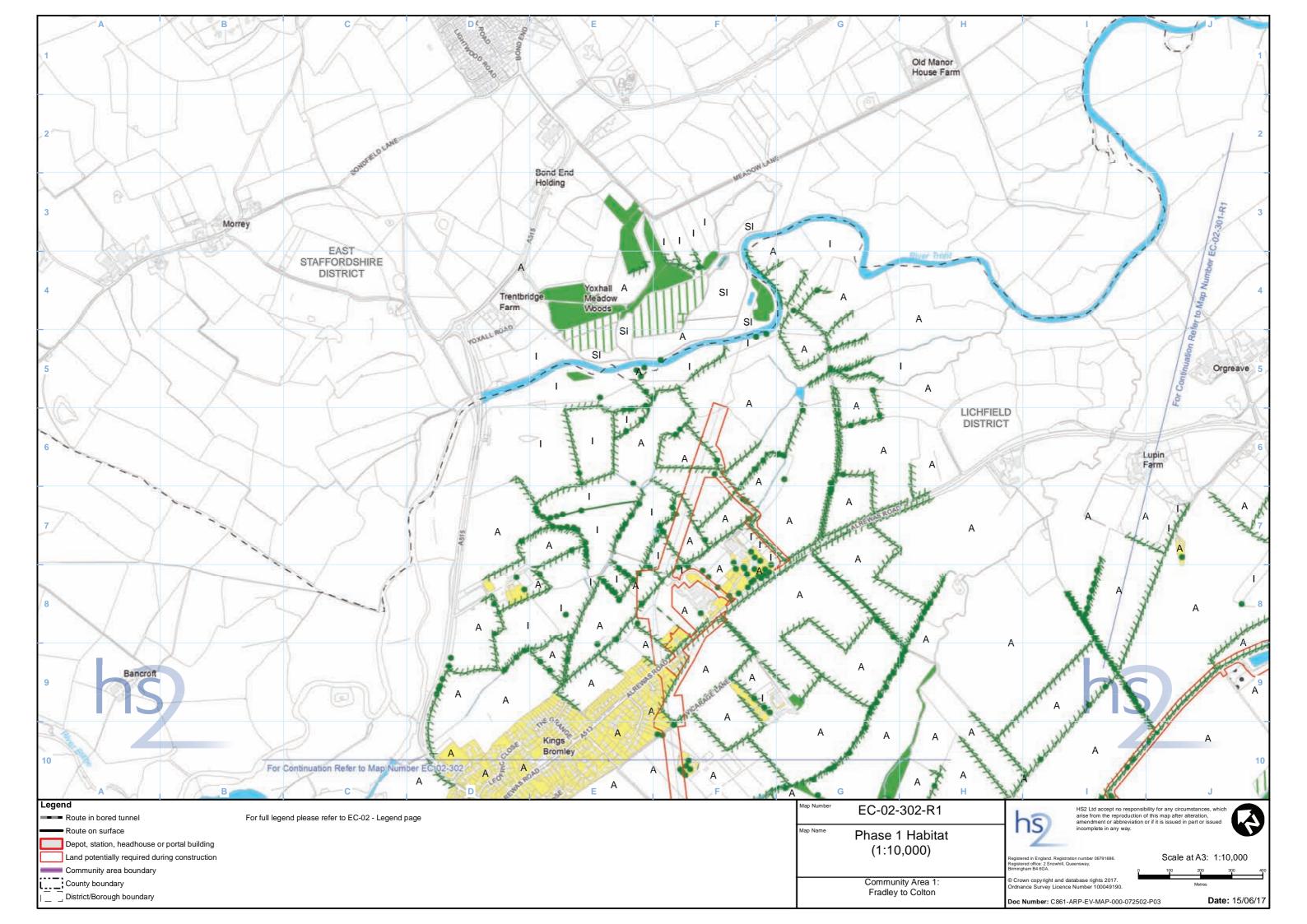
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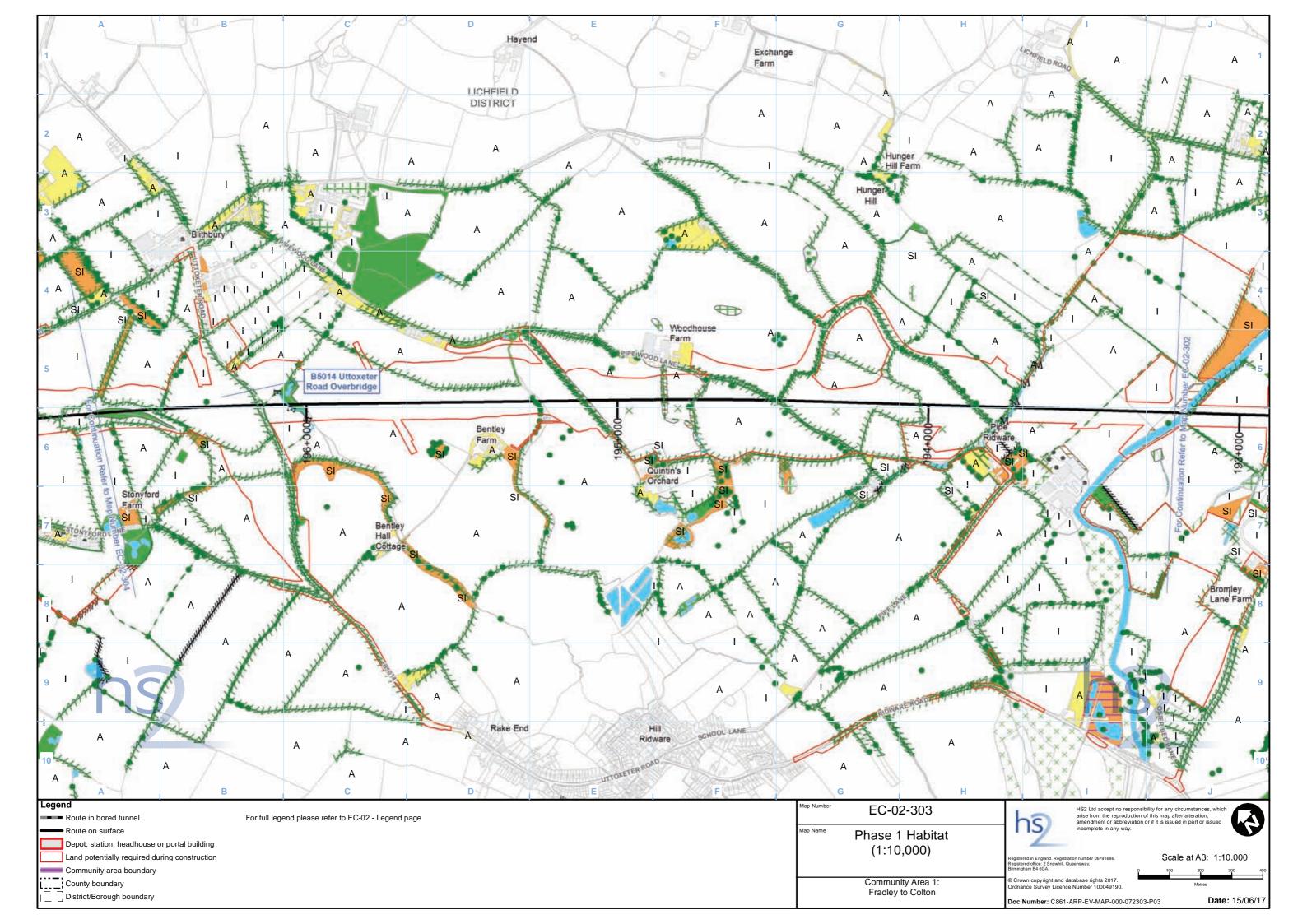


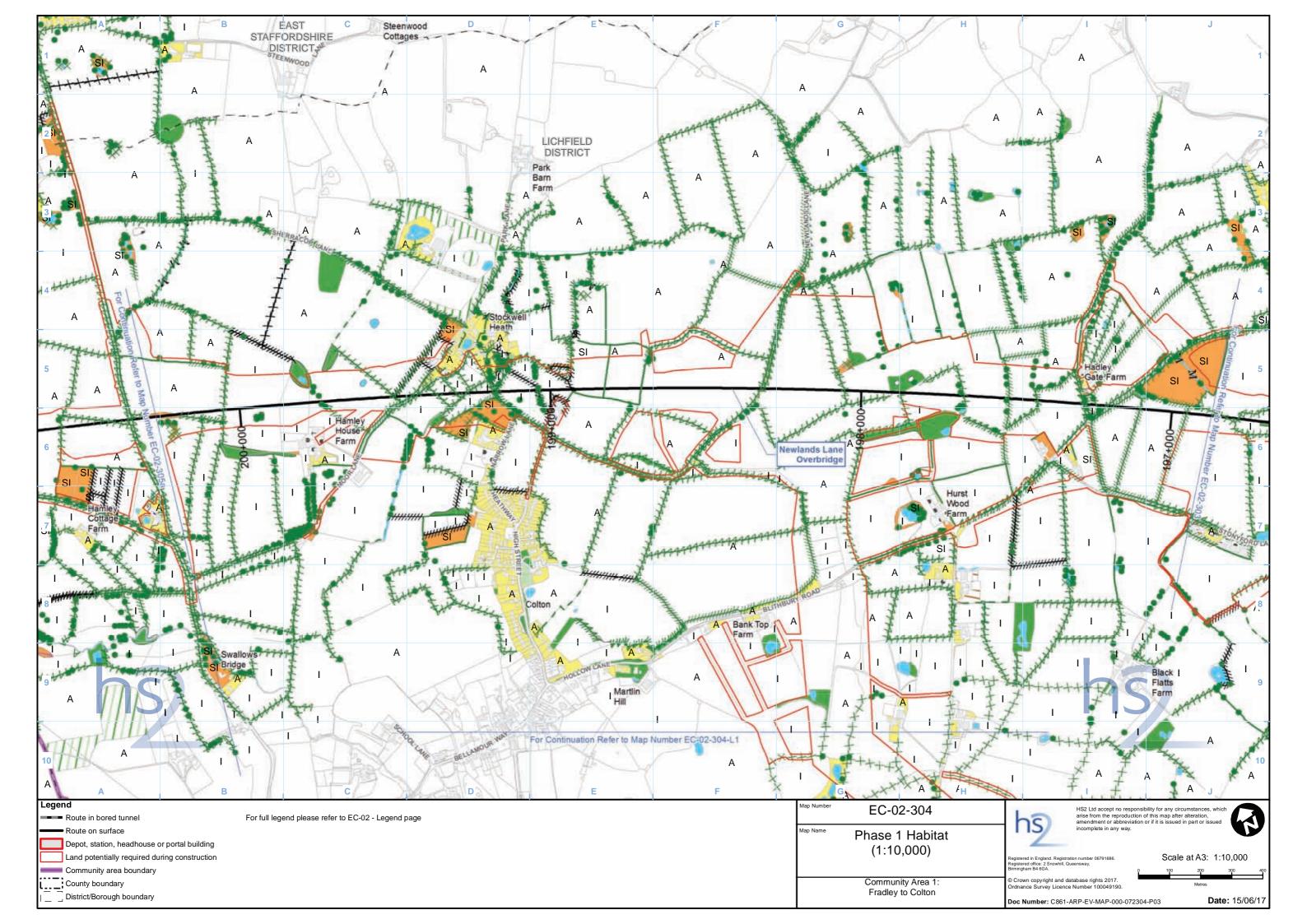


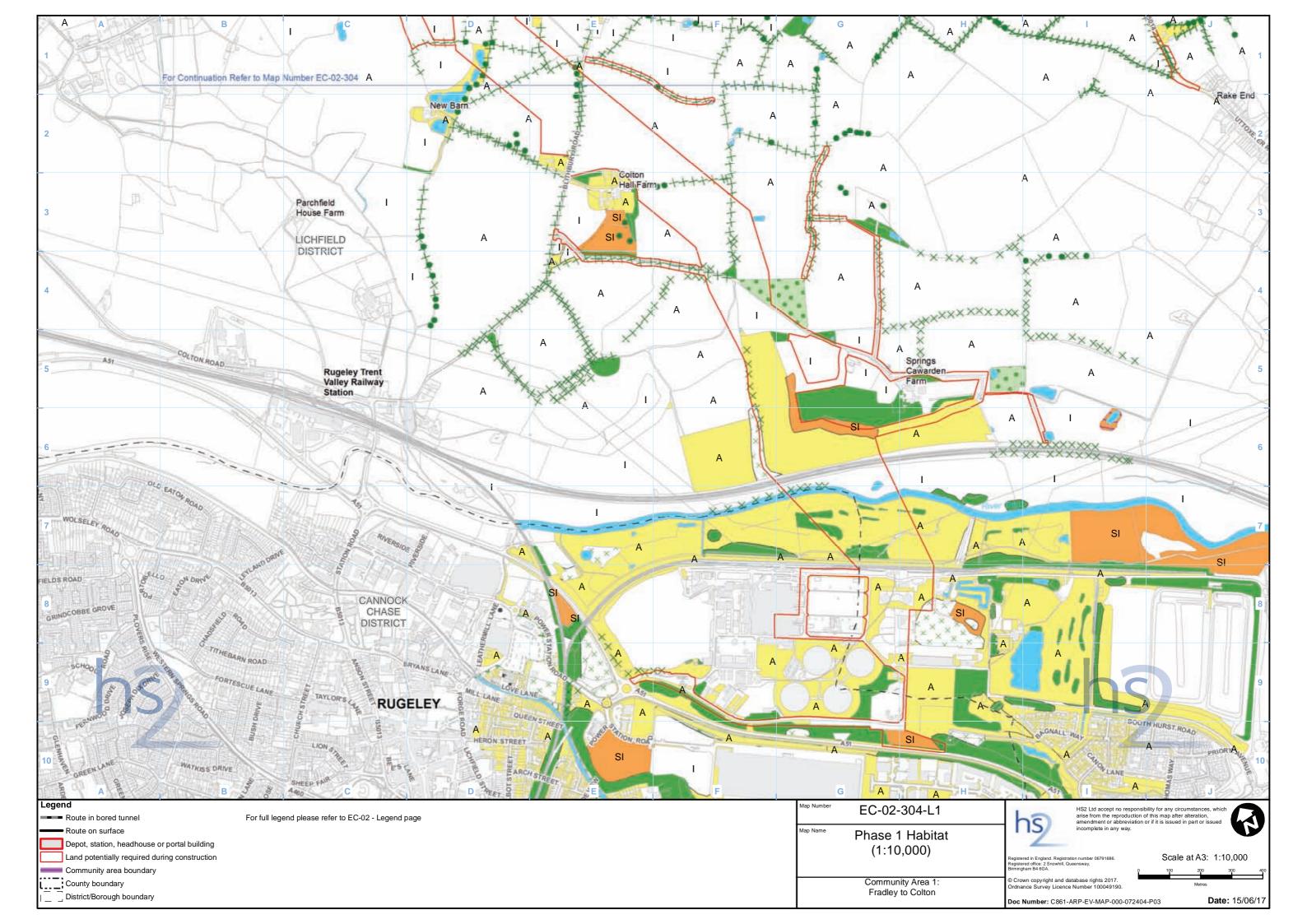


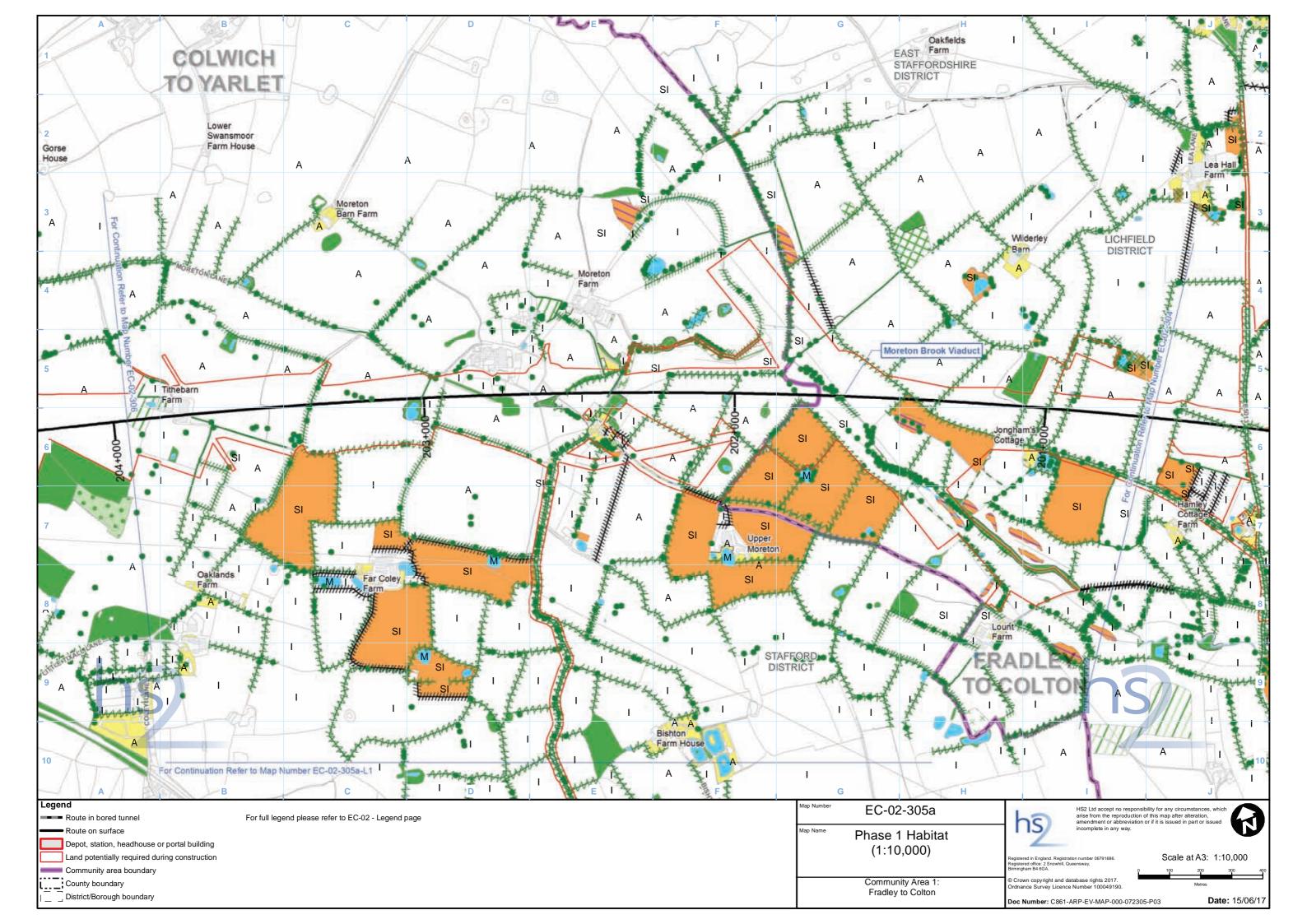


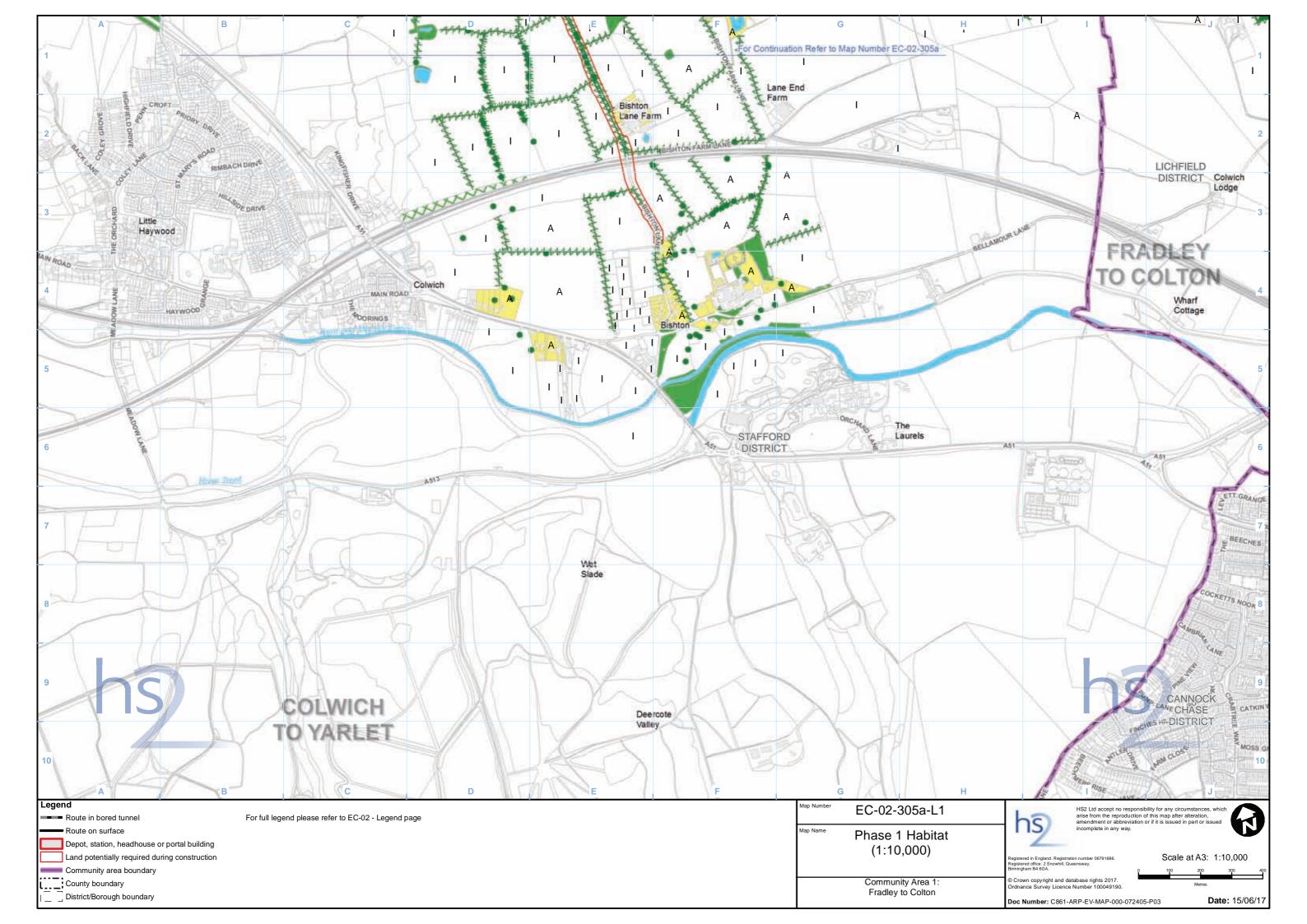


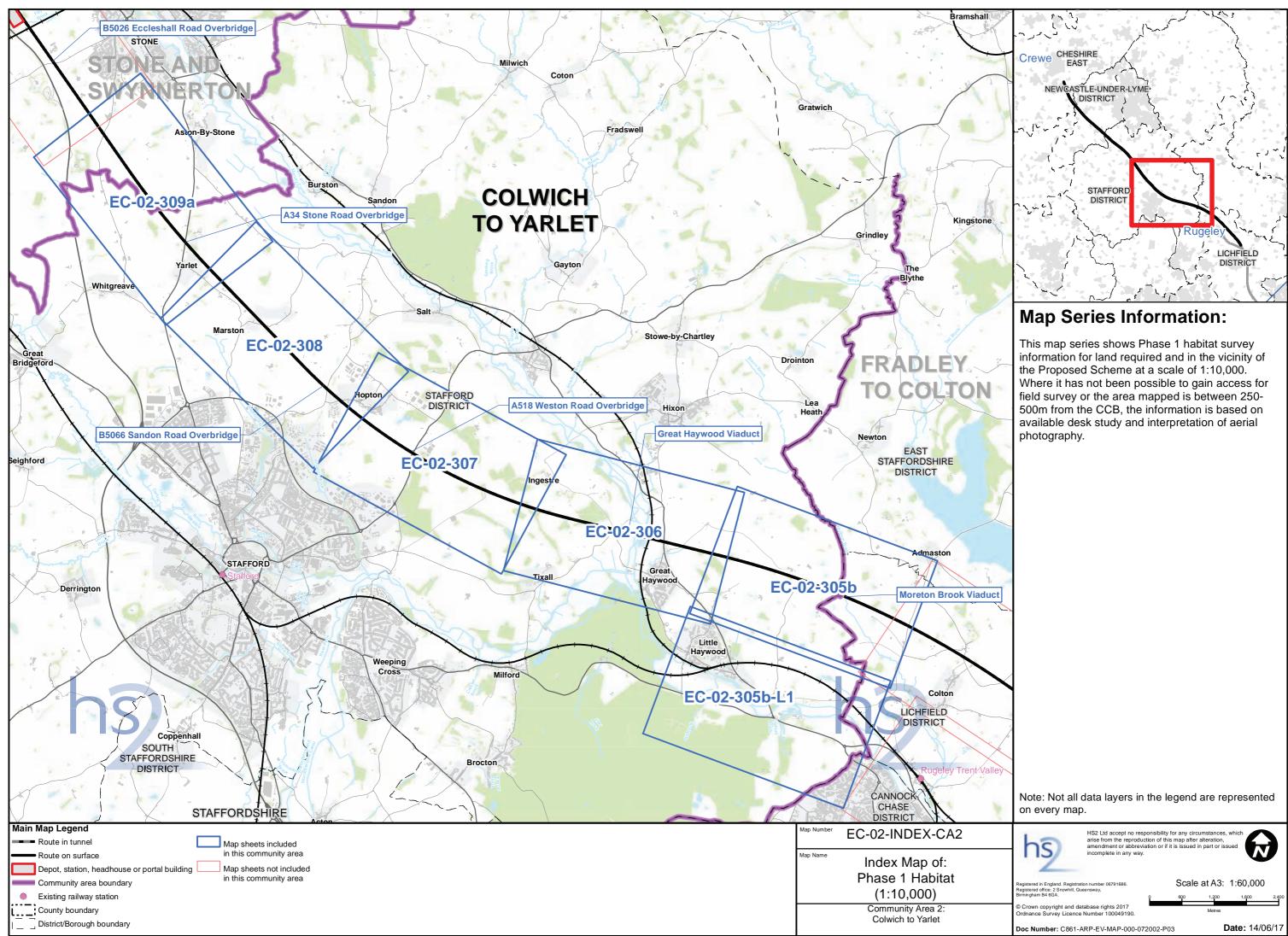












Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats
Broadleaved woodland - semi-natural		Bracken - continuous	R	Refuse-tip	XXX	Scrub - scattered
Broadleaved woodland - plantation	XXX	Bracken - scattered	A .	Cultivated/disturbed land - arable	•••	Broadleaved parkland/scattered trees
Coniferous woodland - semi-natural		Upland species-rich ledges	A	Cultivated/disturbed land - amenity grassland		Coniferous parkland/scattered trees
Coniferous woodland - plantation		Other tall herb and fern - ruderal	XXX	Cultivated/disturbed land - ephemeral/short perennial		Mixed parkland/scattered trees
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub	-	Upland species-rich ledges
Mixed woodland - plantation		Dry dwarf shrub heath - acid		Intact hedge - native species-rich	-	Marginal and inundation - marginal vegetation
Scrub - dense/continuous	XXX	Lichen/bryophyte heath		Intact hedge - species-poor	_	Running water
× × Scrub - scattered	11	Dry heath/acid grassland	0000	Defunct hedge - native species-rich	www	/ Intact hedge - native species-rich
Broadleaved parkland/scattered trees	***	Wet modified bog		Defunct hedge - species-poor	-	Intact hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire		Hedge with trees - native species-rich	AVAN	/ Defunct hedge - native species-rich
Mixed parkland/scattered trees		Swamp		Hedge with trees - species-poor		Defunct hedge - species-poor
F F Broadleaved woodland - recently felled	777	Marginal and inundation - inundation vegetation		Fence	Volum	Hedge with trees - native species-rich
F F Mixed woodland - recently felled		Standing water		Wall		Hedge with trees - species-poor
Acid grassland - unimproved	EE	Standing water - eutrophic	==	Dry ditch		Fence
Acid grassland - semi-improved	MM	Standing water - mesotrophic	223	Boundary removed		Wall
Neutral grassland - unimproved		Running water		Earth bank		Dry ditch
SI Neutral grassland - semi-improved	1111	Limestone pavement	***	Caravan site	×××	Boundary removed
Calcareous grassland - unimproved		Other exposure - basic		Buildings	••••	Earth bank
Calcareous grassland - semi-improved	CC	Cave		Bare ground		
I I Improved grassland	QQ	Quarry		Other habitat		
Marsh/marshy grassland		1. 13				

M	Map Name Legend
	Phase 1 Habitat Survey

Point Habitats

×	Scrub - scattered
	Broadleaved parkland/scattered trees
٠	Coniferous parkland/scattered trees
×	Bracken - scattered

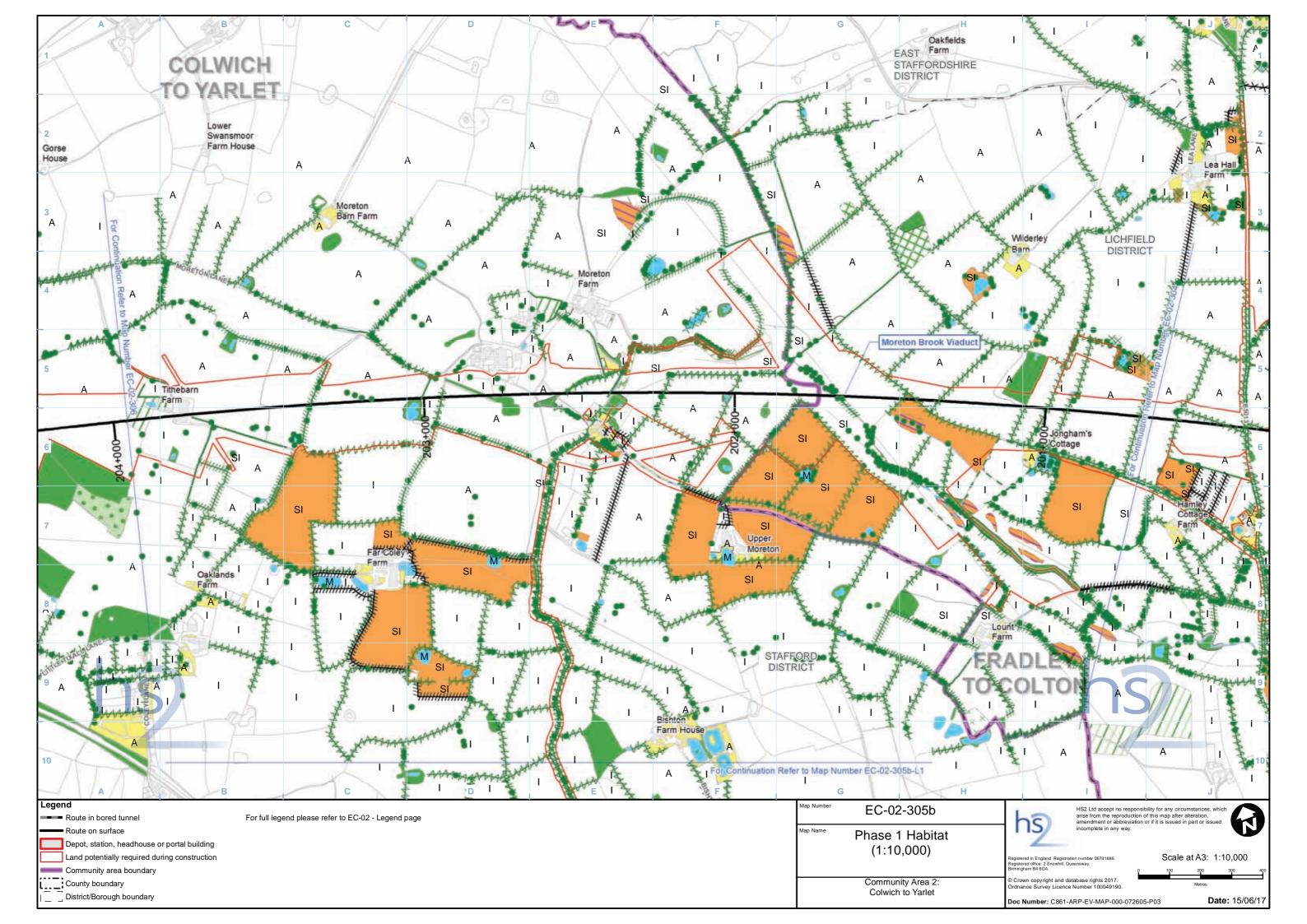


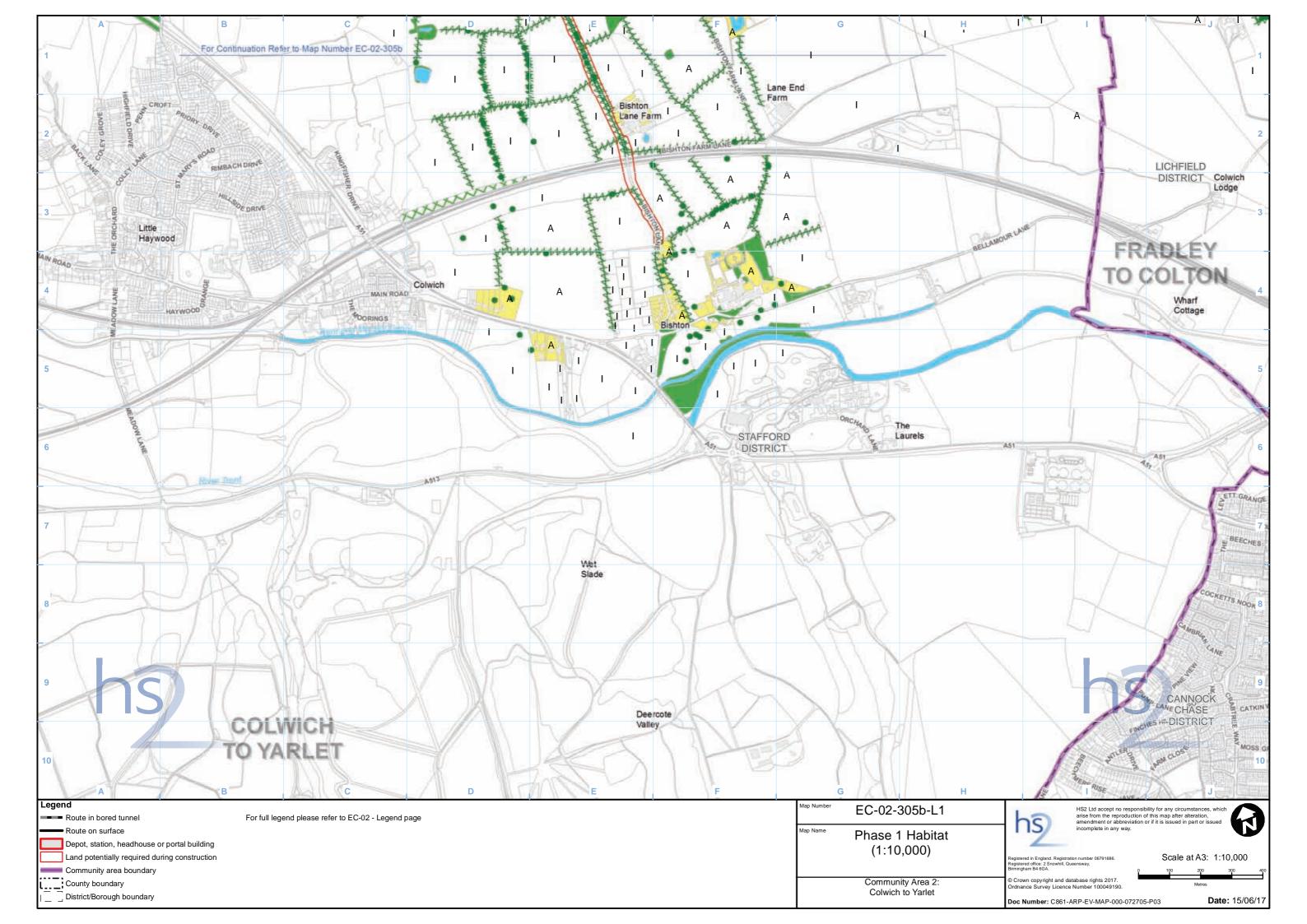
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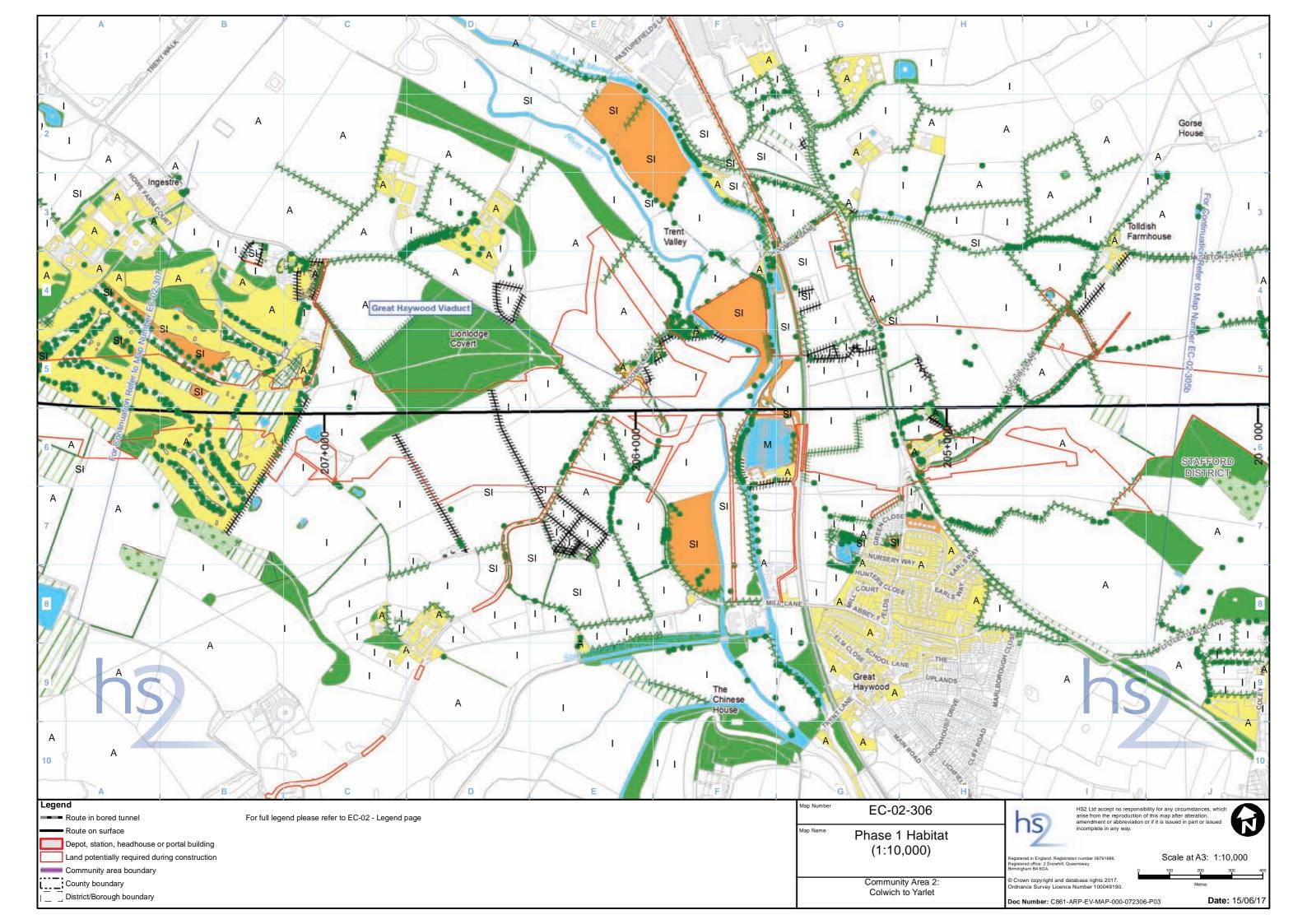
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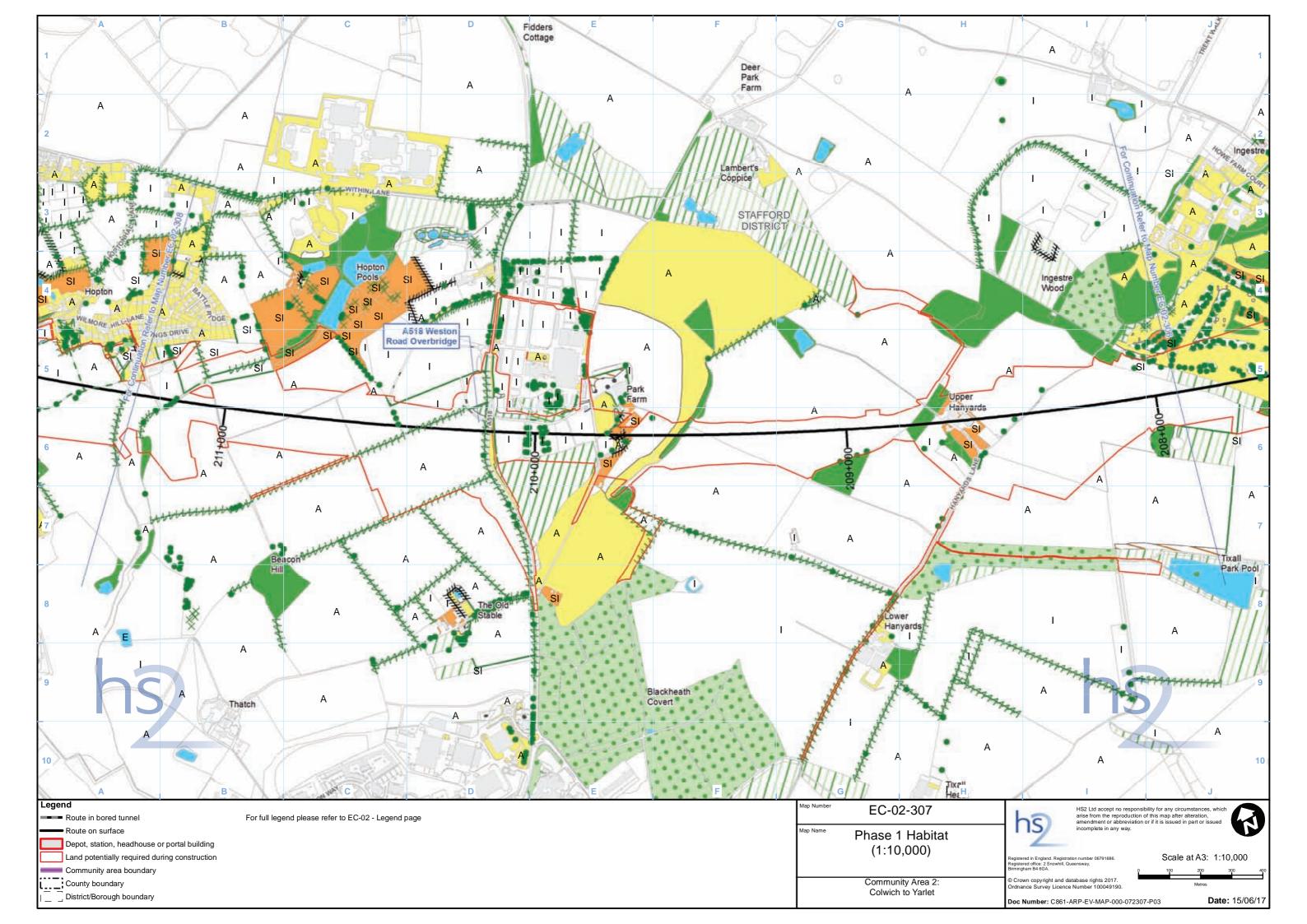
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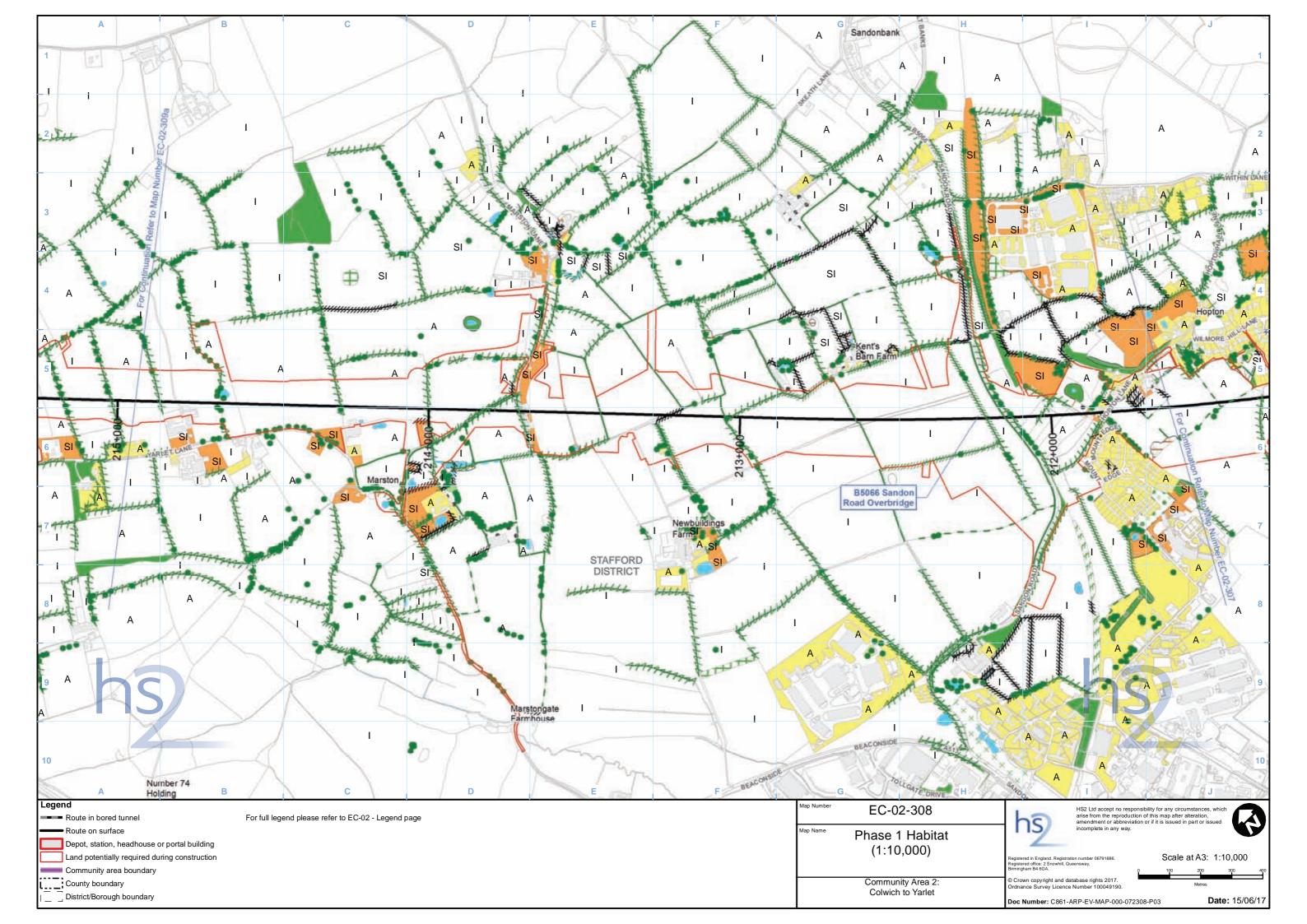
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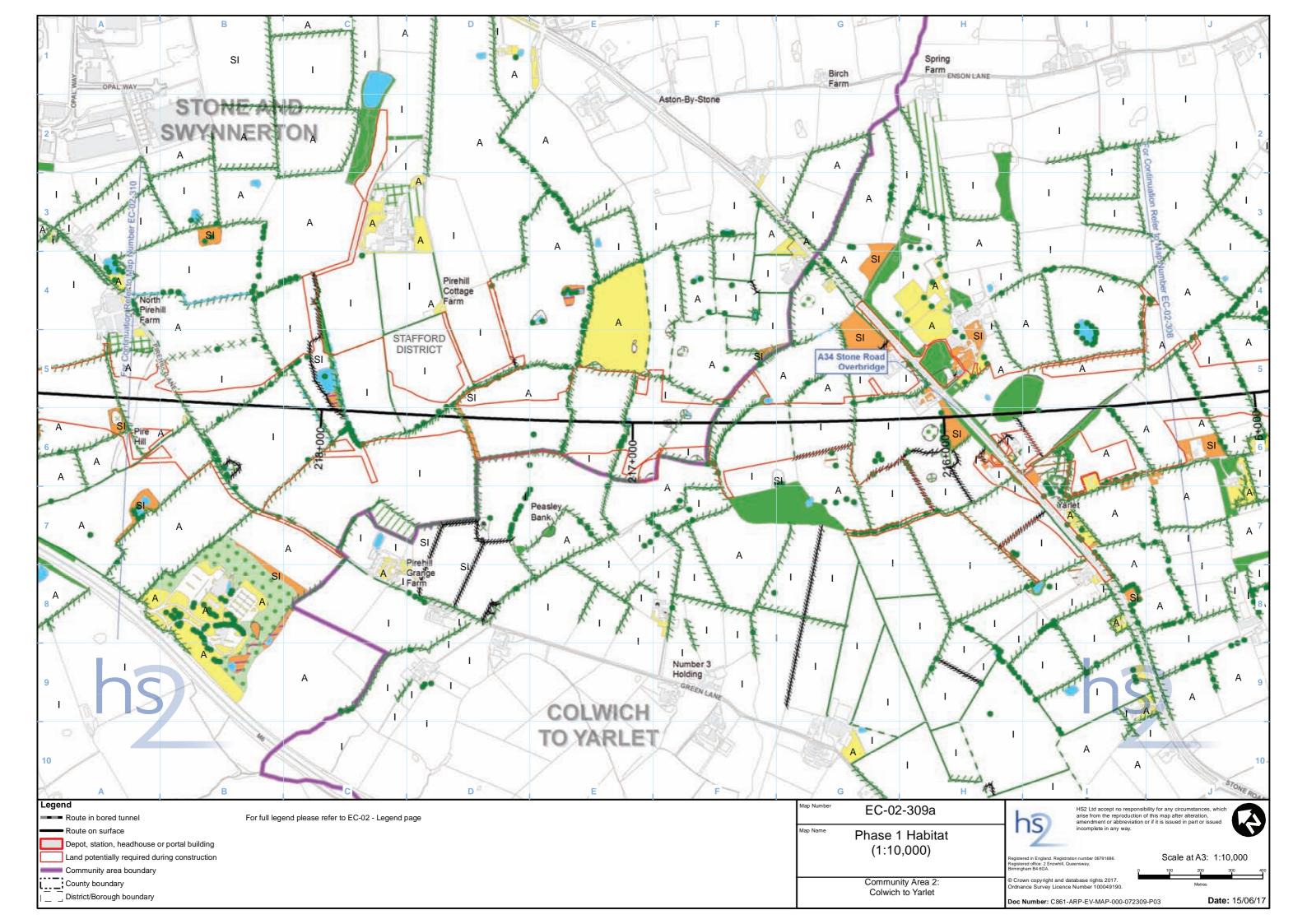


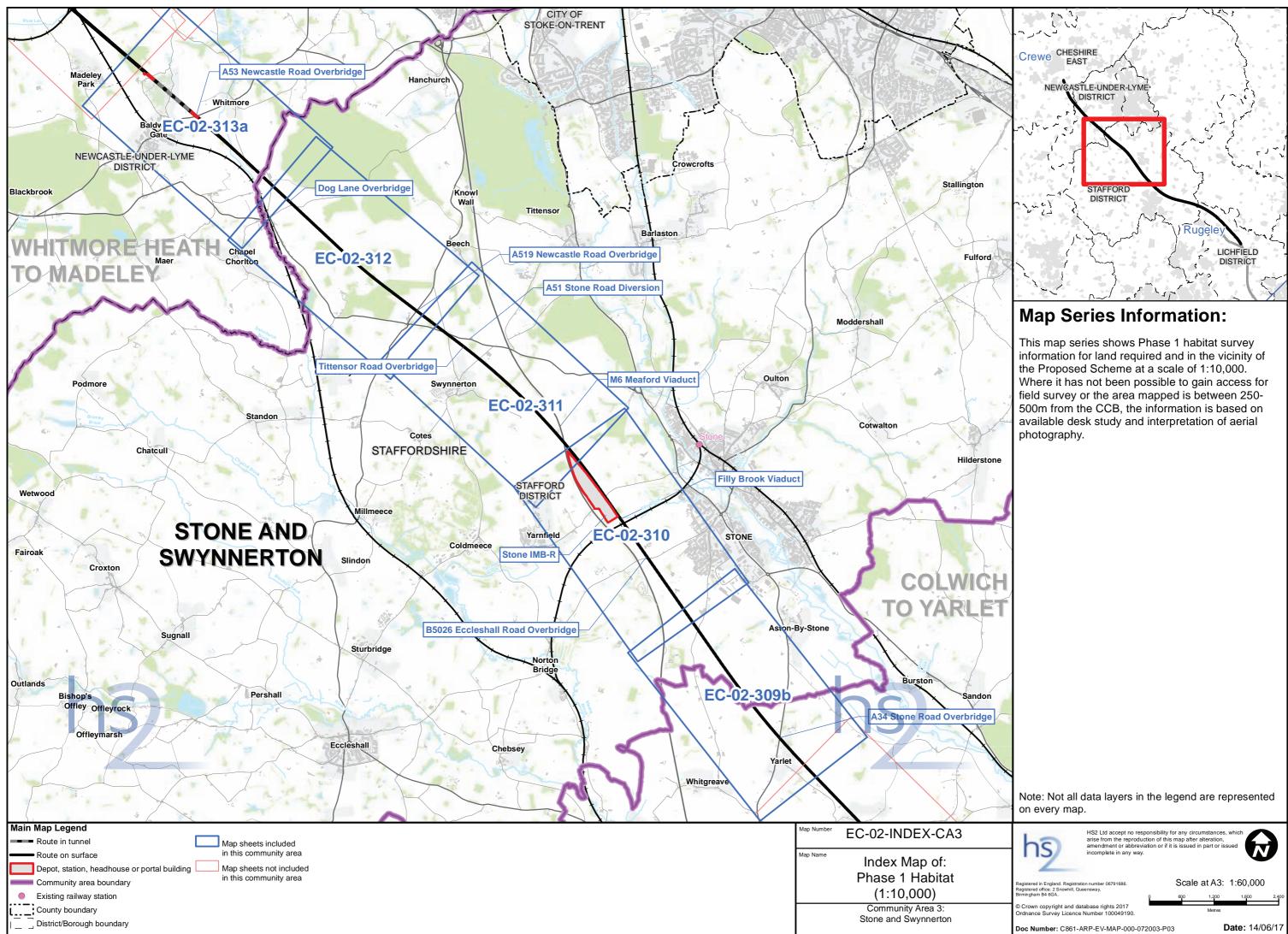












Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats
Broadleaved woodland - semi-natural		Bracken - continuous	R	Refuse-tip	XXX	Scrub - scattered
Broadleaved woodland - plantation	XXX	Bracken - scattered	A .	Cultivated/disturbed land - arable	•••	Broadleaved parkland/scattered trees
Coniferous woodland - semi-natural		Upland species-rich ledges	A	Cultivated/disturbed land - amenity grassland		Coniferous parkland/scattered trees
Coniferous woodland - plantation		Other tall herb and fern - ruderal	XXX	Cultivated/disturbed land - ephemeral/short perennial		Mixed parkland/scattered trees
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub	-	Upland species-rich ledges
Mixed woodland - plantation		Dry dwarf shrub heath - acid		Intact hedge - native species-rich	-	Marginal and inundation - marginal vegetation
Scrub - dense/continuous	XXX	Lichen/bryophyte heath		Intact hedge - species-poor	_	Running water
× × Scrub - scattered	11	Dry heath/acid grassland	0000	Defunct hedge - native species-rich	www	/ Intact hedge - native species-rich
Broadleaved parkland/scattered trees	***	Wet modified bog		Defunct hedge - species-poor	-	Intact hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire	***	Hedge with trees - native species-rich	AVAN	/ Defunct hedge - native species-rich
Mixed parkland/scattered trees		Swamp		Hedge with trees - species-poor		Defunct hedge - species-poor
F F Broadleaved woodland - recently felled	777	Marginal and inundation - inundation vegetation		Fence	Volum	Hedge with trees - native species-rich
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Neutral grassland - unimproved		Running water		Earth bank		Dry ditch
SI Neutral grassland - semi-improved	1111	Limestone pavement	***	Caravan site	×××	Boundary removed
Calcareous grassland - unimproved		Other exposure - basic		Buildings	••••	Earth bank
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I I Improved grassland	QQ	Quarry		Other habitat		
Marsh/marshy grassland		1. 13				

M	Map Name Legend
	Phase 1 Habitat Survey

Point Habitats

×	Scrub - scattered
	Broadleaved parkland/scattered trees
٠	Coniferous parkland/scattered trees
×	Bracken - scattered

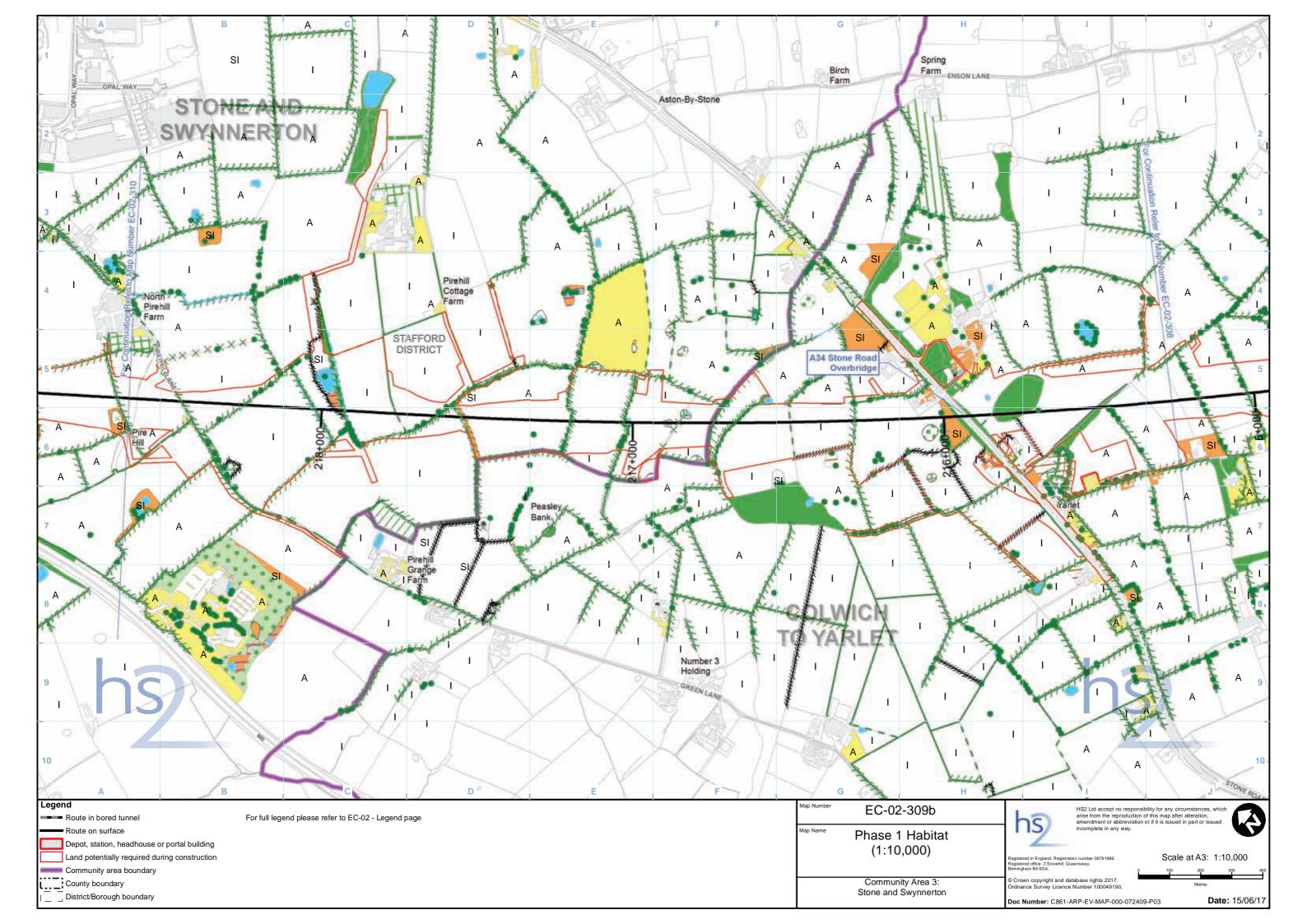


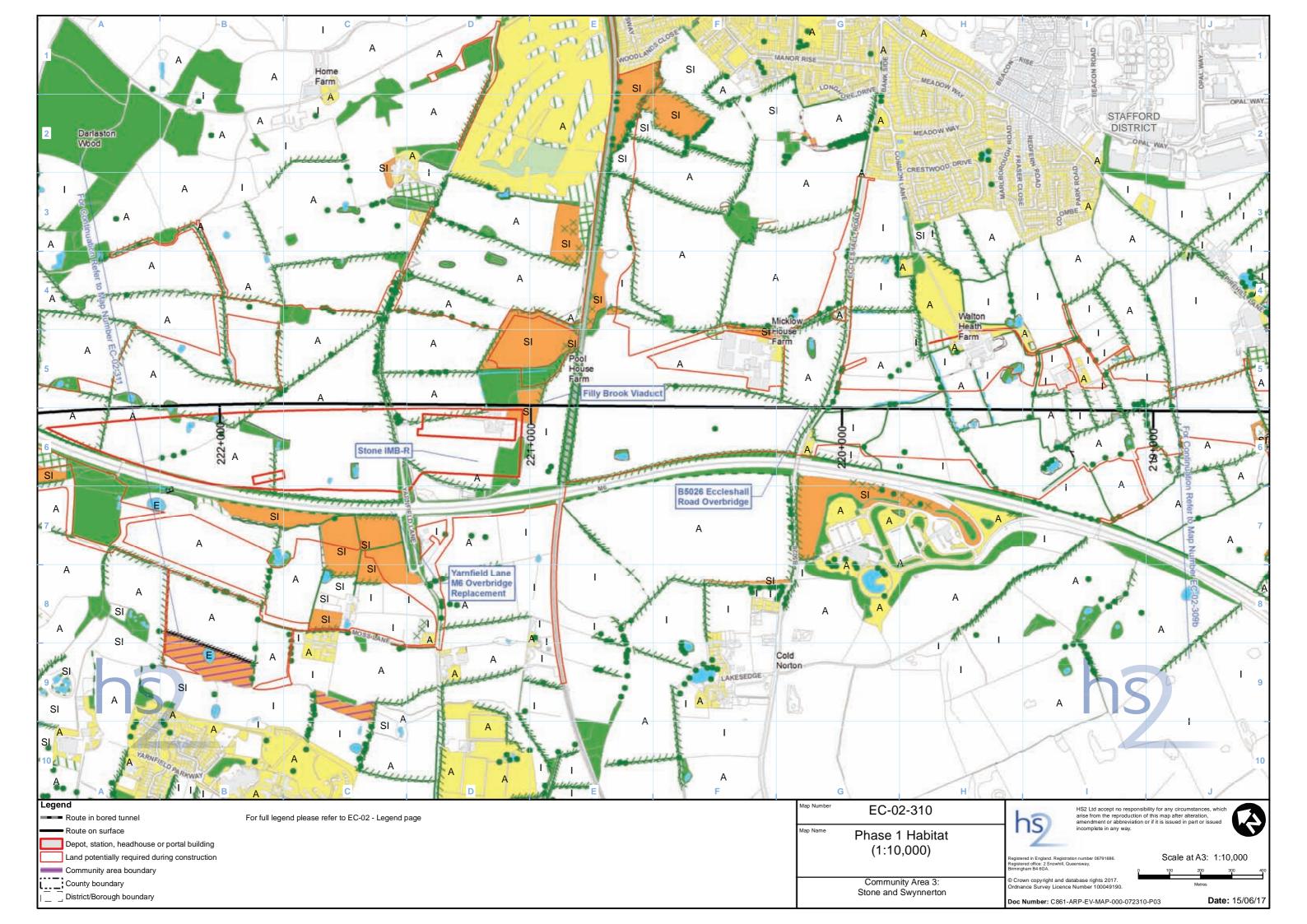
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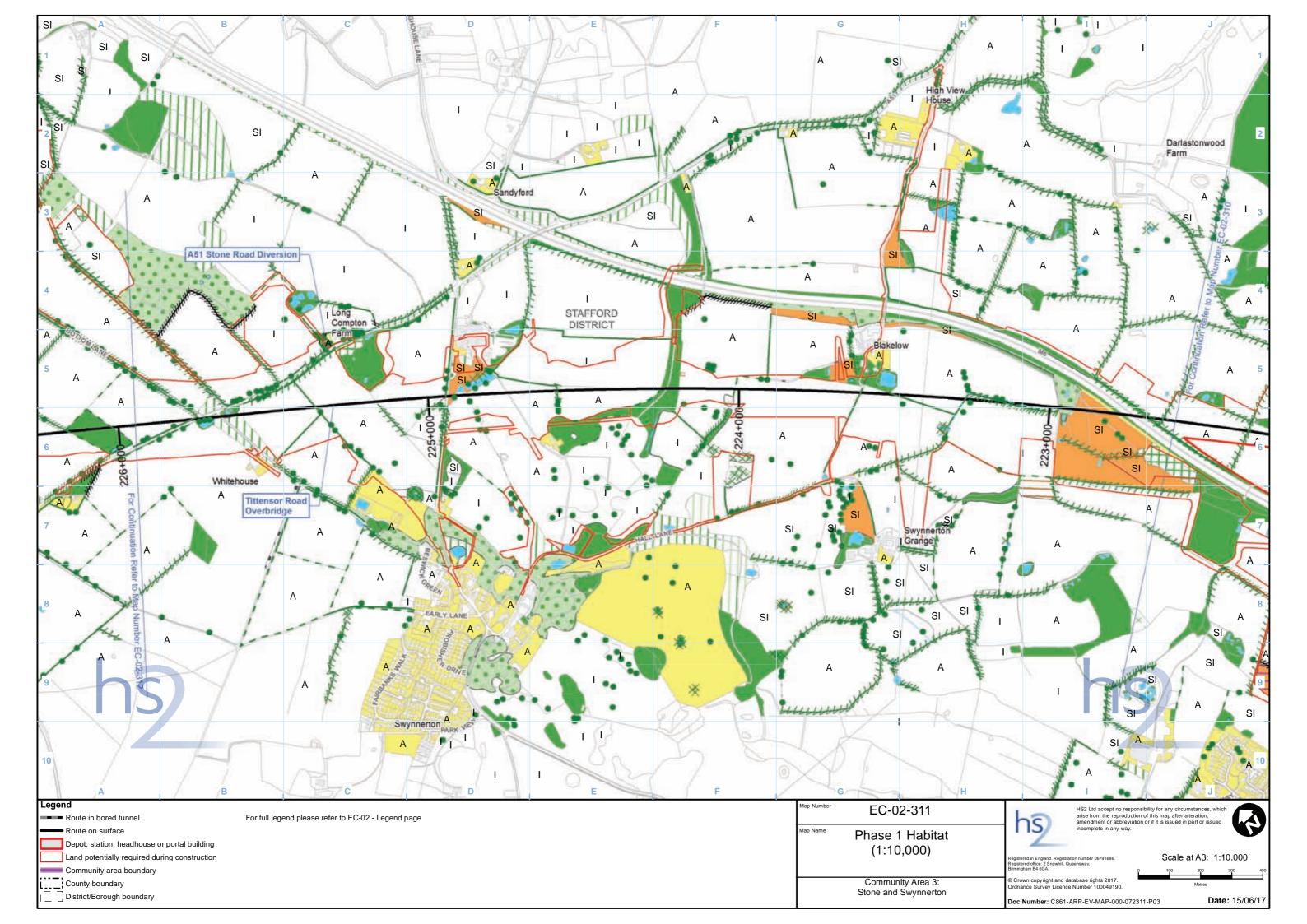
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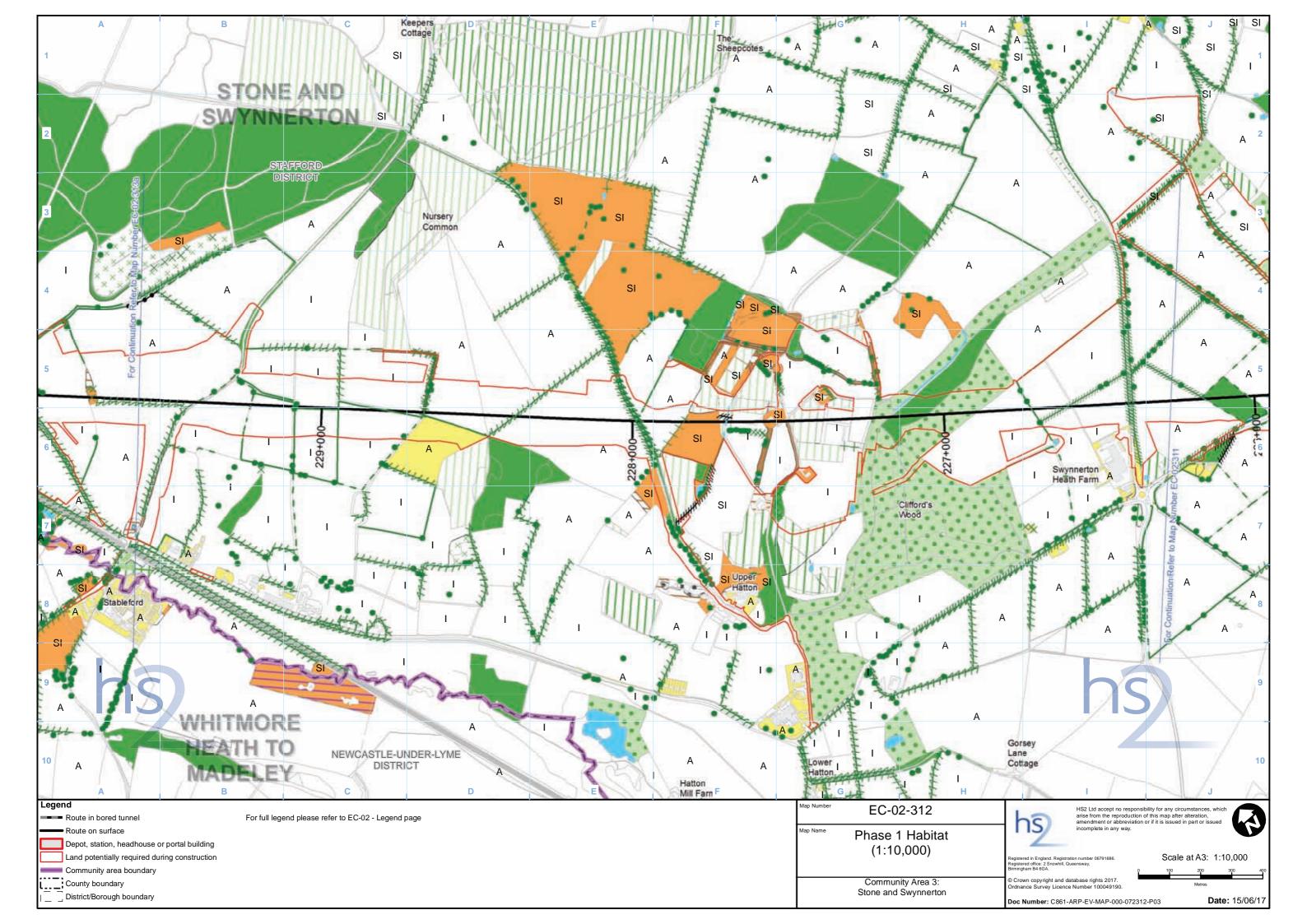
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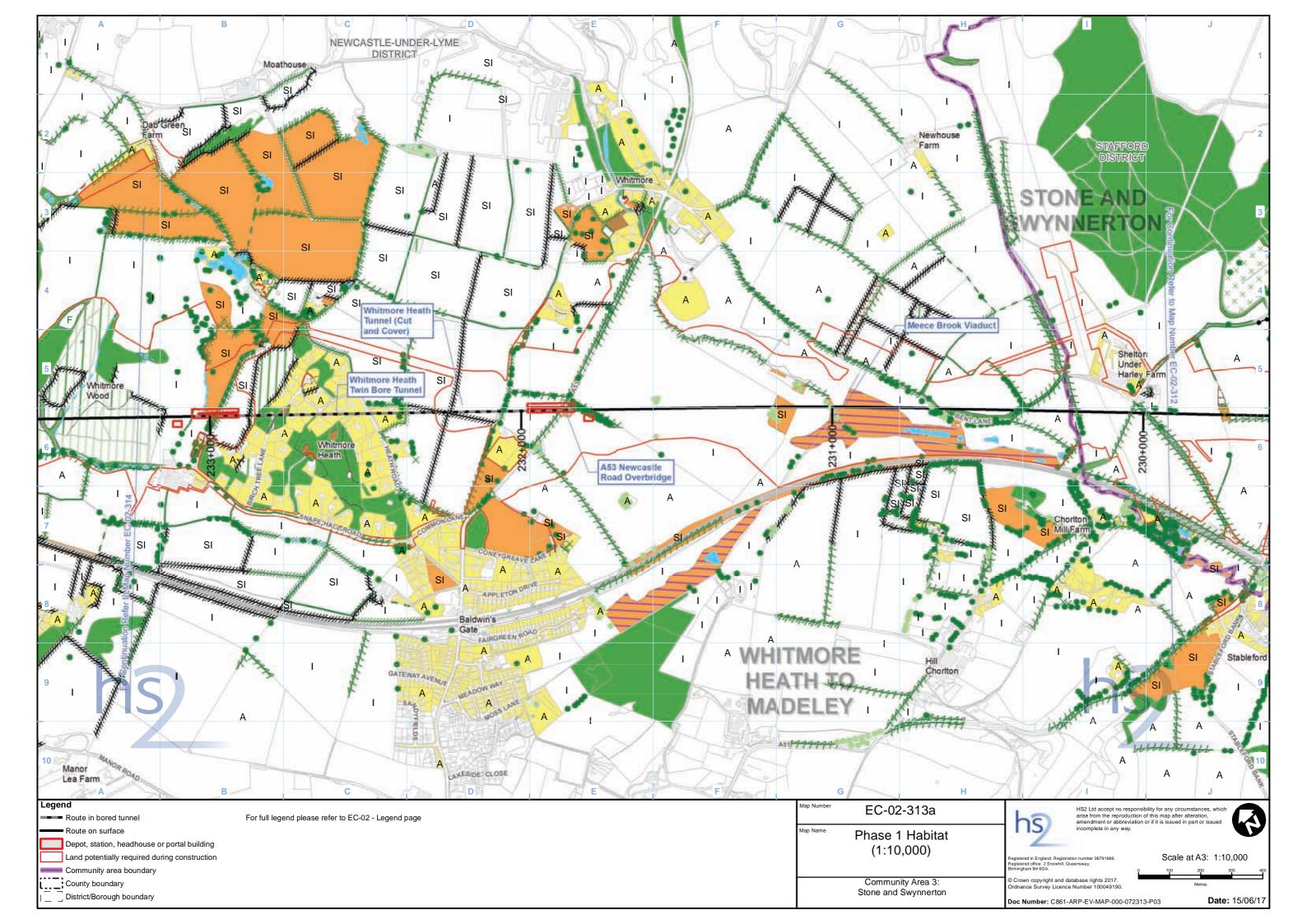
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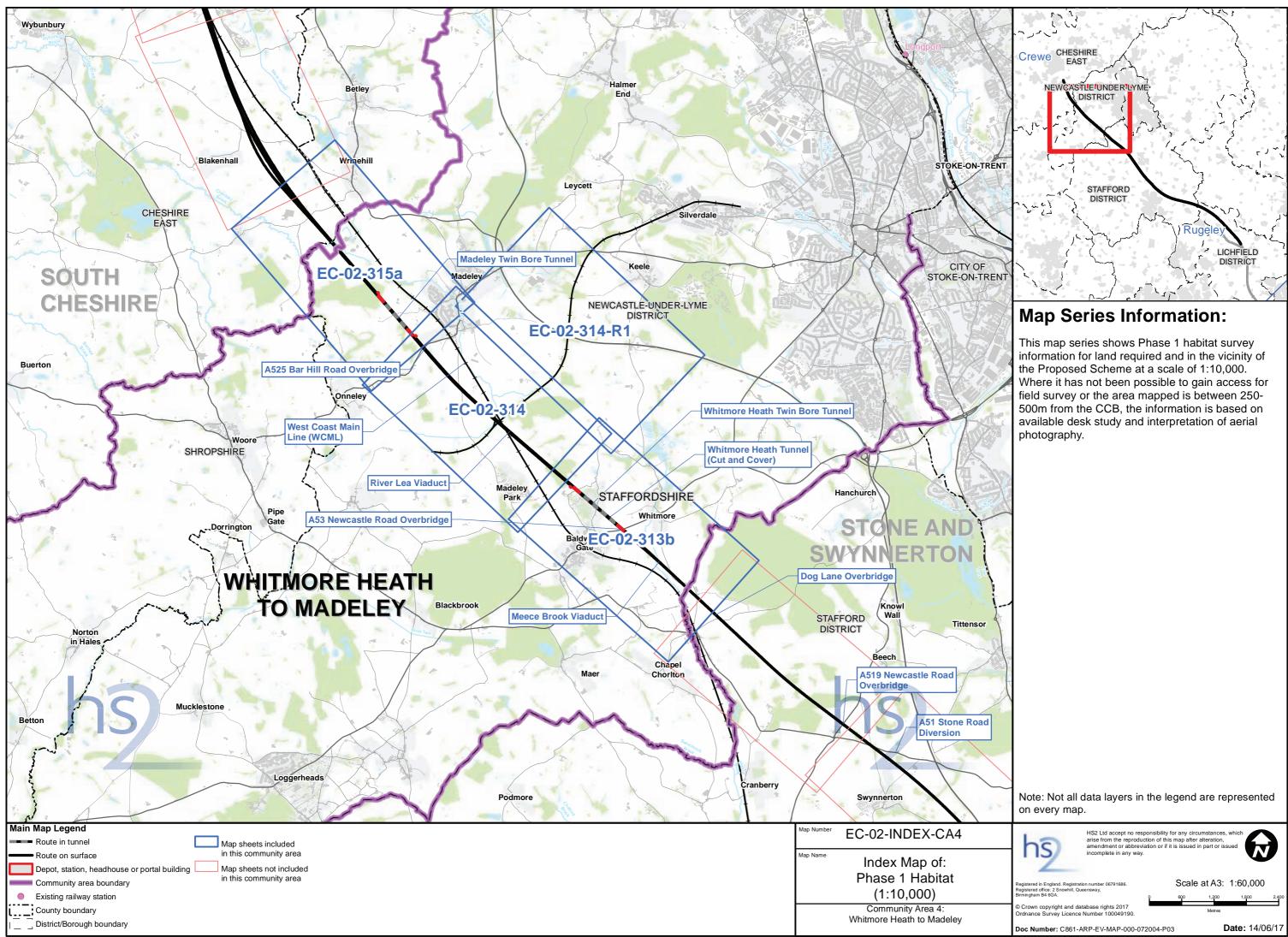








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Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats
Broadleaved woodland - semi-natural		Bracken - continuous	R	Refuse-tip	xxx	Scrub - scattered
Broadleaved woodland - plantation	XXX	Bracken - scattered	A .	Cultivated/disturbed land - arable	•••	Broadleaved parkland/scattered trees
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Coniferous woodland - plantation	$\frac{111}{110}$	Other tall herb and fern - ruderal	XXX	Cultivated/disturbed land - ephemeral/short perennial		Mixed parkland/scattered trees
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub	-	Upland species-rich ledges
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Broadleaved parkland/scattered trees	***	Wet modified bog		Defunct hedge - species-poor	-	Intact hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire		Hedge with trees - native species-rich	WAN	Defunct hedge - native species-rich
Mixed parkland/scattered trees		Swamp		Hedge with trees - species-poor		Defunct hedge - species-poor
F F Broadleaved woodland - recently felled	111	Marginal and inundation - inundation vegetation		Fence	Voloto	Hedge with trees - native species-rich
F F Mixed woodland - recently felled		Standing water		Wall		Hedge with trees - species-poor
Acid grassland - unimproved	EE	Standing water - eutrophic		Dry ditch		Fence
Acid grassland - semi-improved	MM	Standing water - mesotrophic	223	Boundary removed	-	Wall
Neutral grassland - unimproved		Running water	•••	Earth bank		Dry ditch
SI Neutral grassland - semi-improved	1111	Limestone pavement	***	Caravan site	×××	Boundary removed
Calcareous grassland - unimproved		Other exposure - basic		Buildings	••••	Earth bank
Calcareous grassland - semi-improved	CC	Cave		Bare ground		
I I Improved grassland	QQ	Quarry		Other habitat		
Marsh/marshy grassland						

M	Map Name Legend
	Phase 1 Habitat Survey

Point Habitats

×	Scrub - scattered
	Broadleaved parkland/scattered trees
٠	Coniferous parkland/scattered trees
×	Bracken - scattered

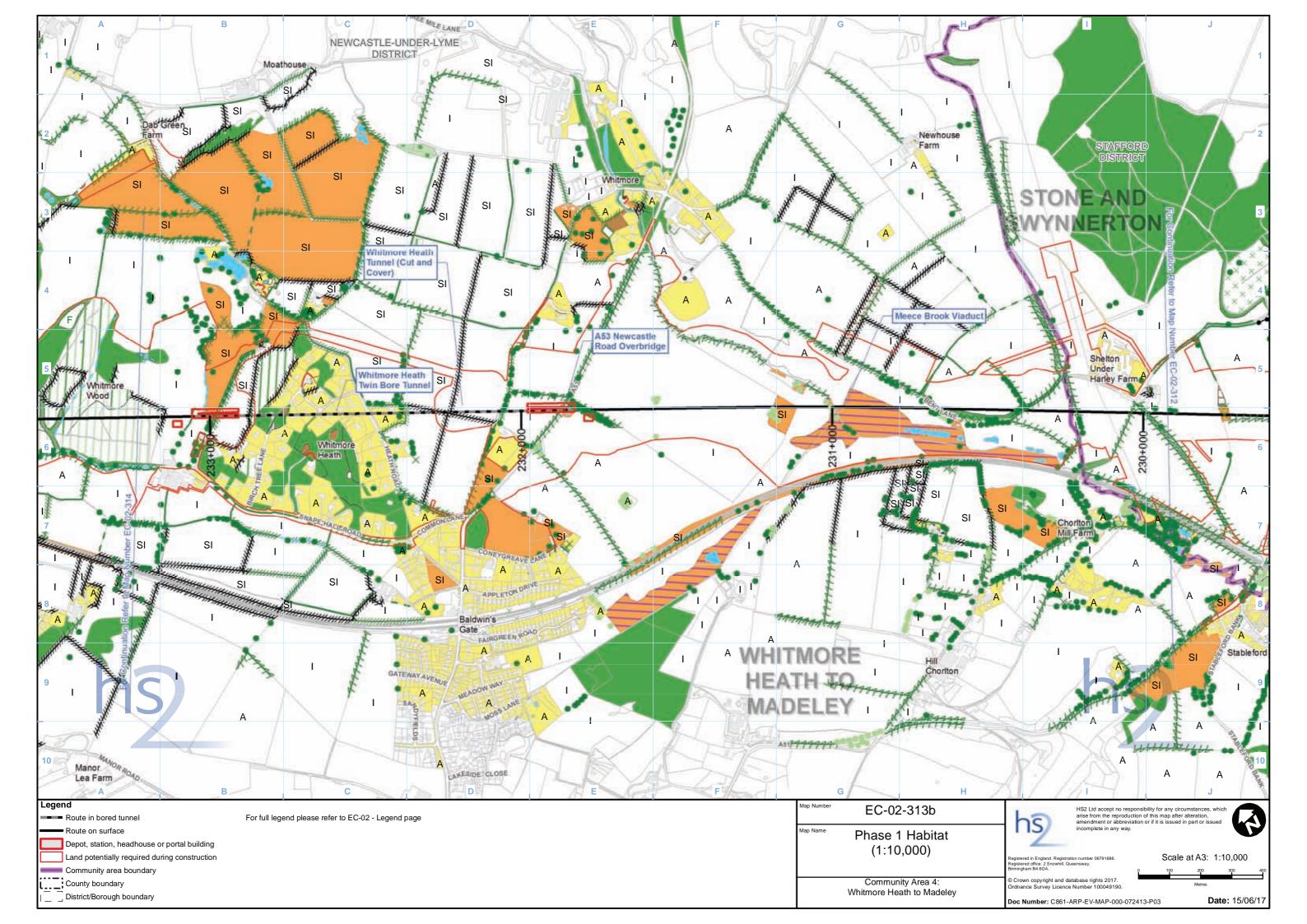


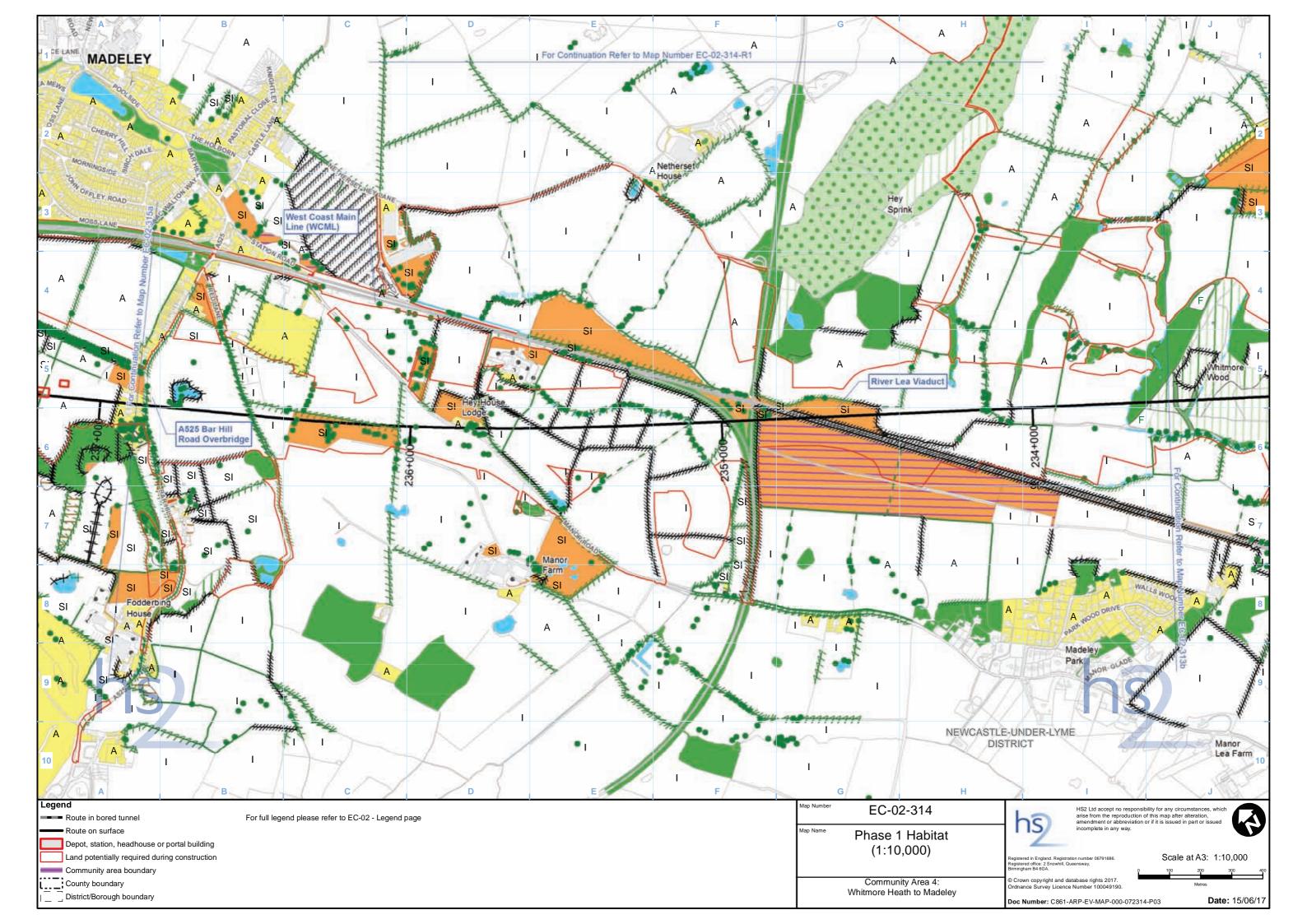
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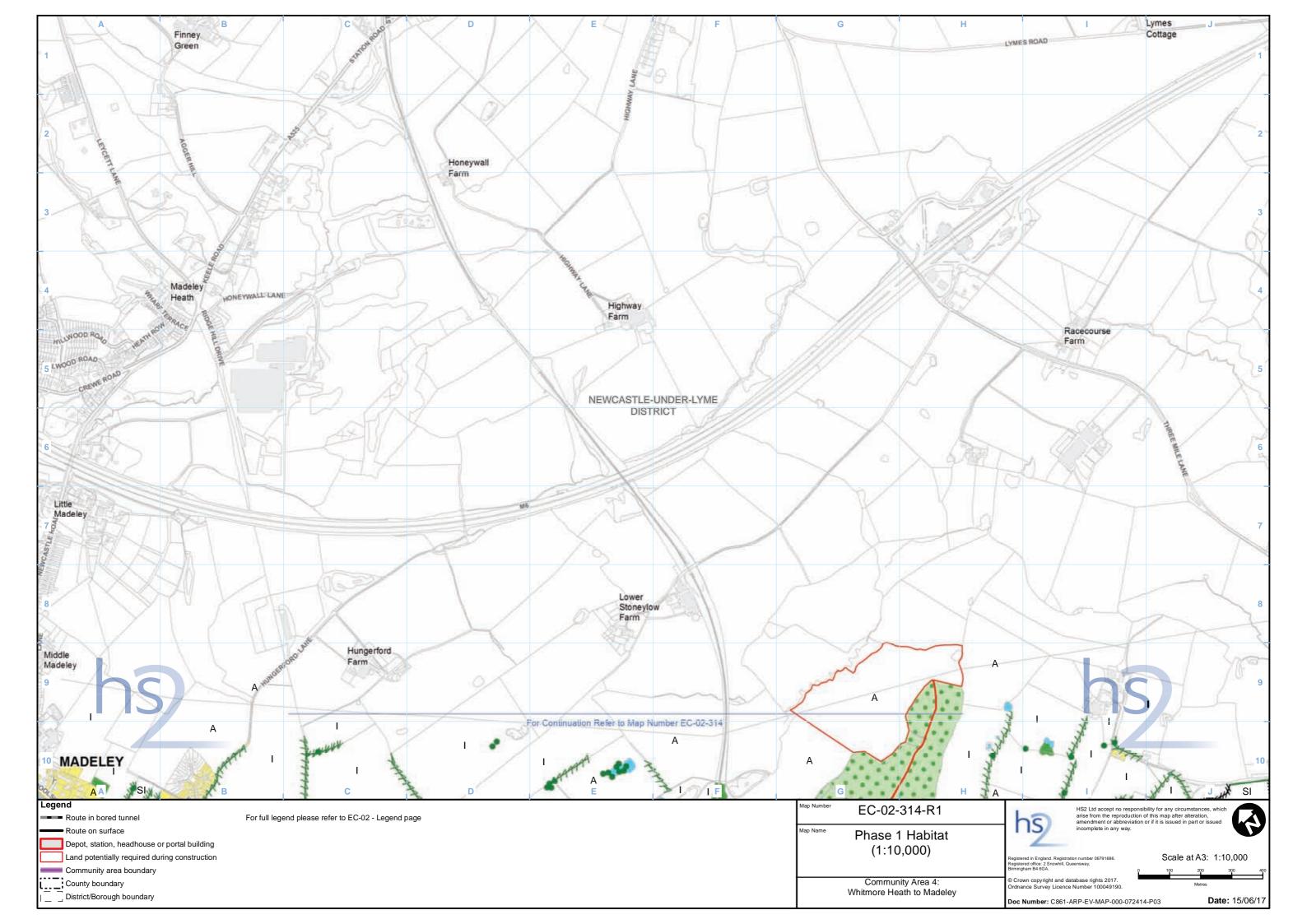
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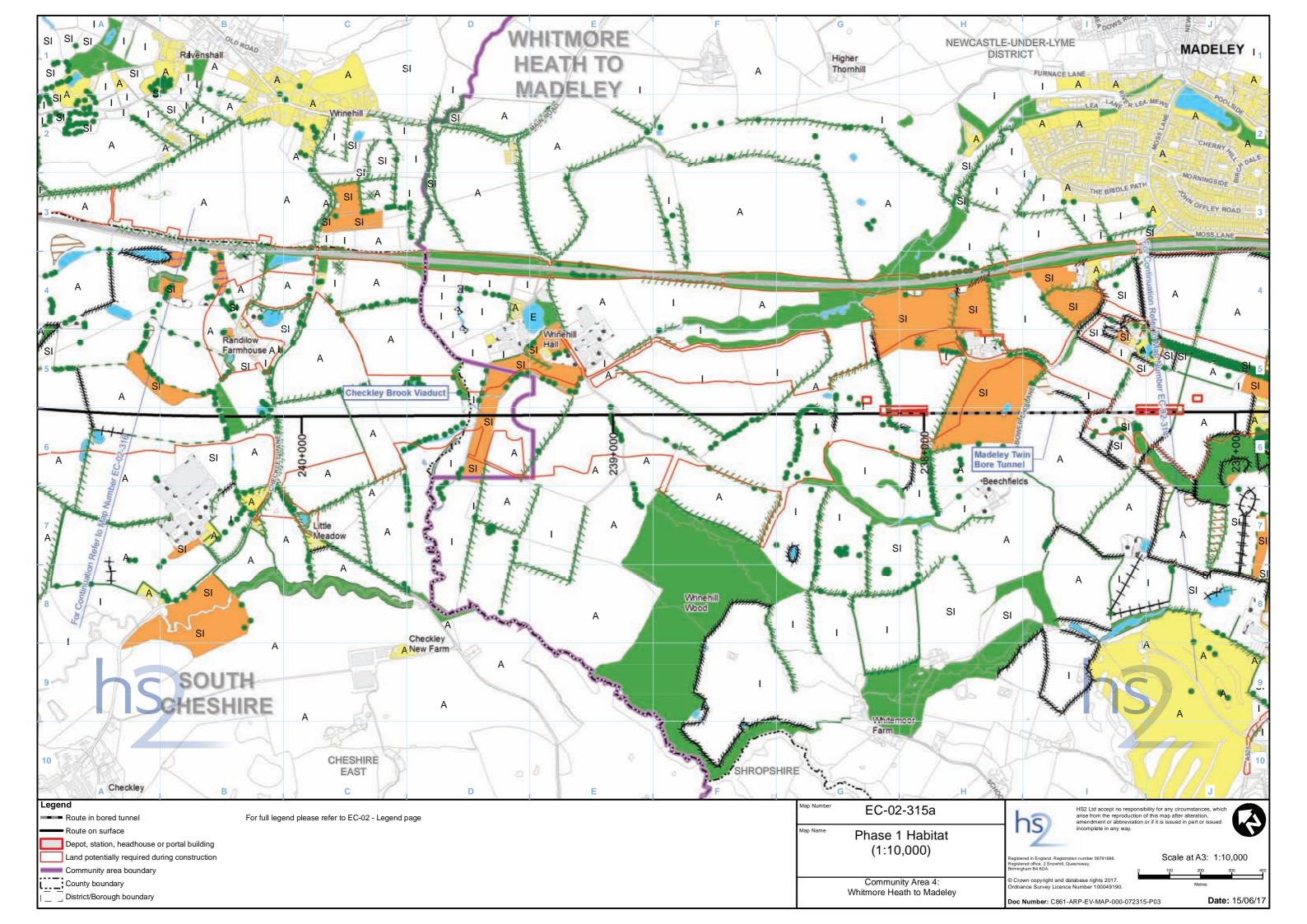
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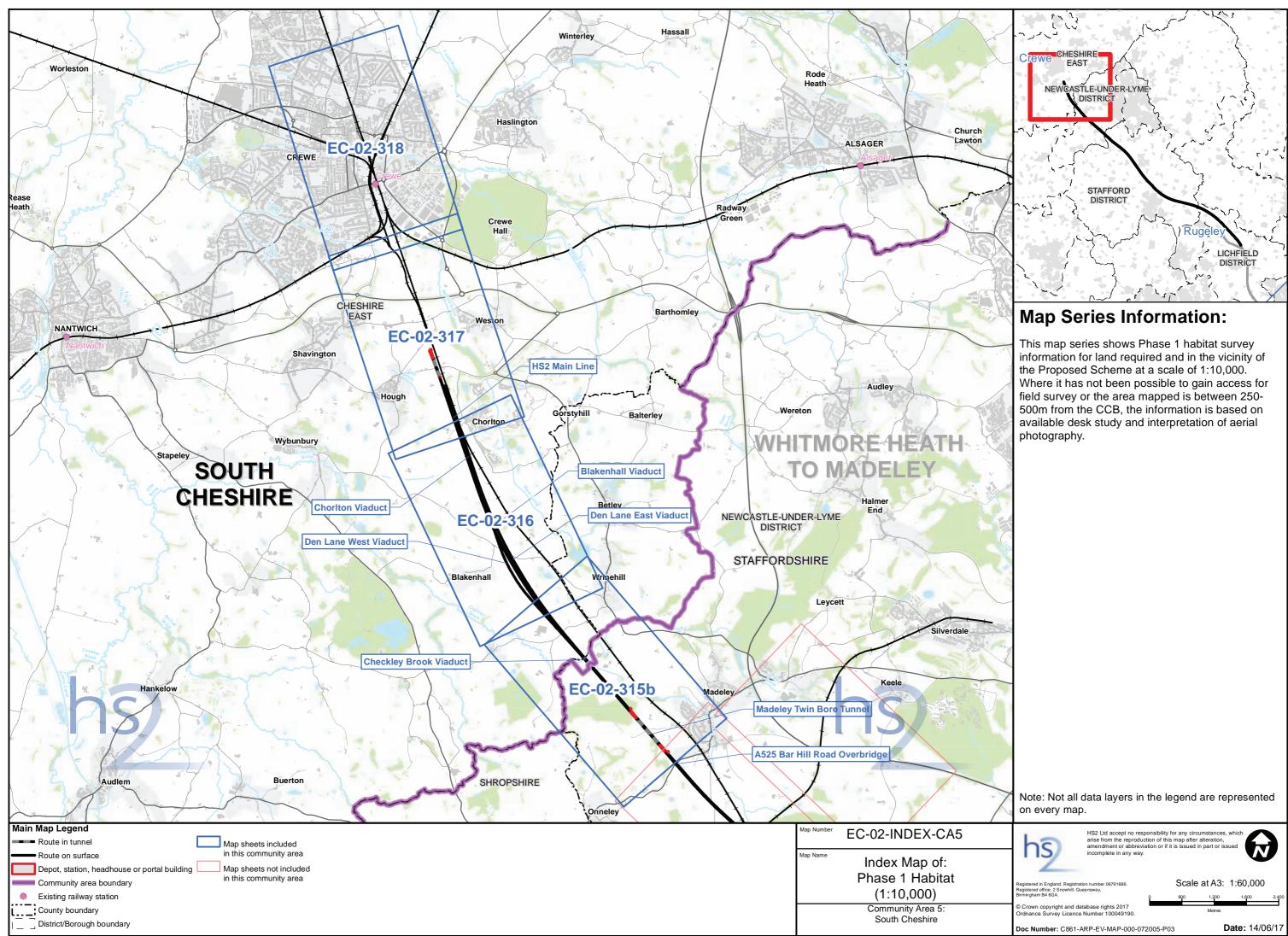
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Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats
Broadleaved woodland - semi-natural		Bracken - continuous	R	Refuse-tip	×××	Scrub - scattered
Broadleaved woodland - plantation	XXX	Bracken - scattered	A .	Cultivated/disturbed land - arable	•••	Broadleaved parkland/scattered trees
Coniferous woodland - semi-natural		Upland species-rich ledges	A	Cultivated/disturbed land - amenity grassland		Coniferous parkland/scattered trees
Coniferous woodland - plantation		Other tall herb and fern - ruderal	XXX	Cultivated/disturbed land - ephemeral/short perennial		Mixed parkland/scattered trees
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub	-	Upland species-rich ledges
Mixed woodland - plantation		Dry dwarf shrub heath - acid		Intact hedge - native species-rich	- 13	Marginal and inundation - marginal vegetation
Scrub - dense/continuous	XXX	Lichen/bryophyte heath		Intact hedge - species-poor	_	Running water
× × Scrub - scattered	///	Dry heath/acid grassland	0000	Defunct hedge - native species-rich	www	Intact hedge - native species-rich
Broadleaved parkland/scattered trees	***	Wet modified bog		Defunct hedge - species-poor	-	Intact hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire		Hedge with trees - native species-rich	WAN	Defunct hedge - native species-rich
Mixed parkland/scattered trees		Swamp		Hedge with trees - species-poor		Defunct hedge - species-poor
F F Broadleaved woodland - recently felled	111	Marginal and inundation - inundation vegetation		Fence	Voloto	Hedge with trees - native species-rich
F F Mixed woodland - recently felled		Standing water		Wall		Hedge with trees - species-poor
Acid grassland - unimproved	EE	Standing water - eutrophic		Dry ditch		Fence
Acid grassland - semi-improved	MM	Standing water - mesotrophic	223	Boundary removed	-	Wall
Neutral grassland - unimproved		Running water	•••	Earth bank		Dry ditch
SI Neutral grassland - semi-improved	1111	Limestone pavement	***	Caravan site	×××	Boundary removed
Calcareous grassland - unimproved		Other exposure - basic		Buildings	••••	Earth bank
Calcareous grassland - semi-improved	CC	Cave		Bare ground		
I I Improved grassland	QQ	Quarry		Other habitat		
Marsh/marshy grassland						

M	Map Name Legend
	Phase 1 Habitat Survey

Point Habitats

×	Scrub - scattered
	Broadleaved parkland/scattered trees
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×	Bracken - scattered

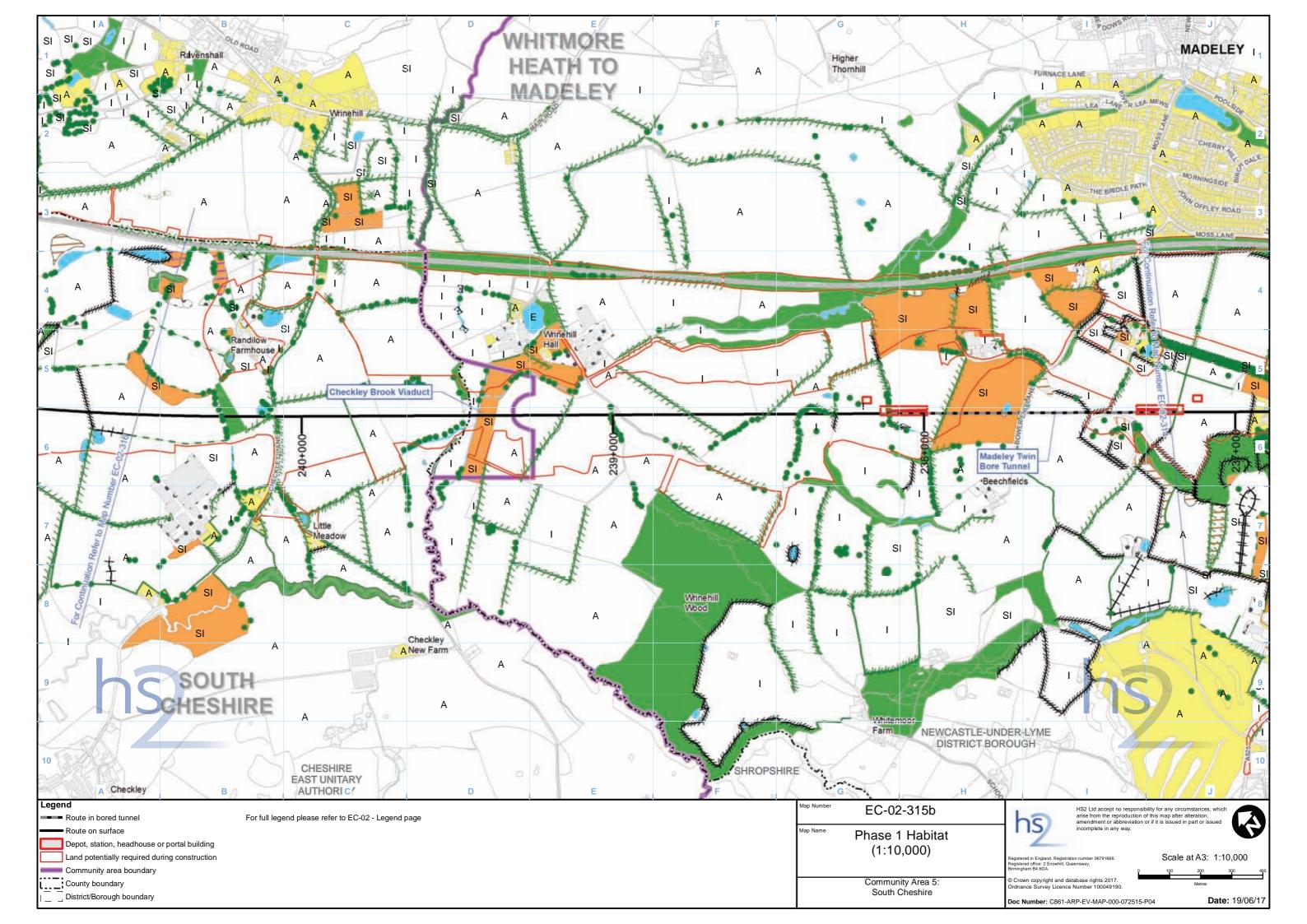


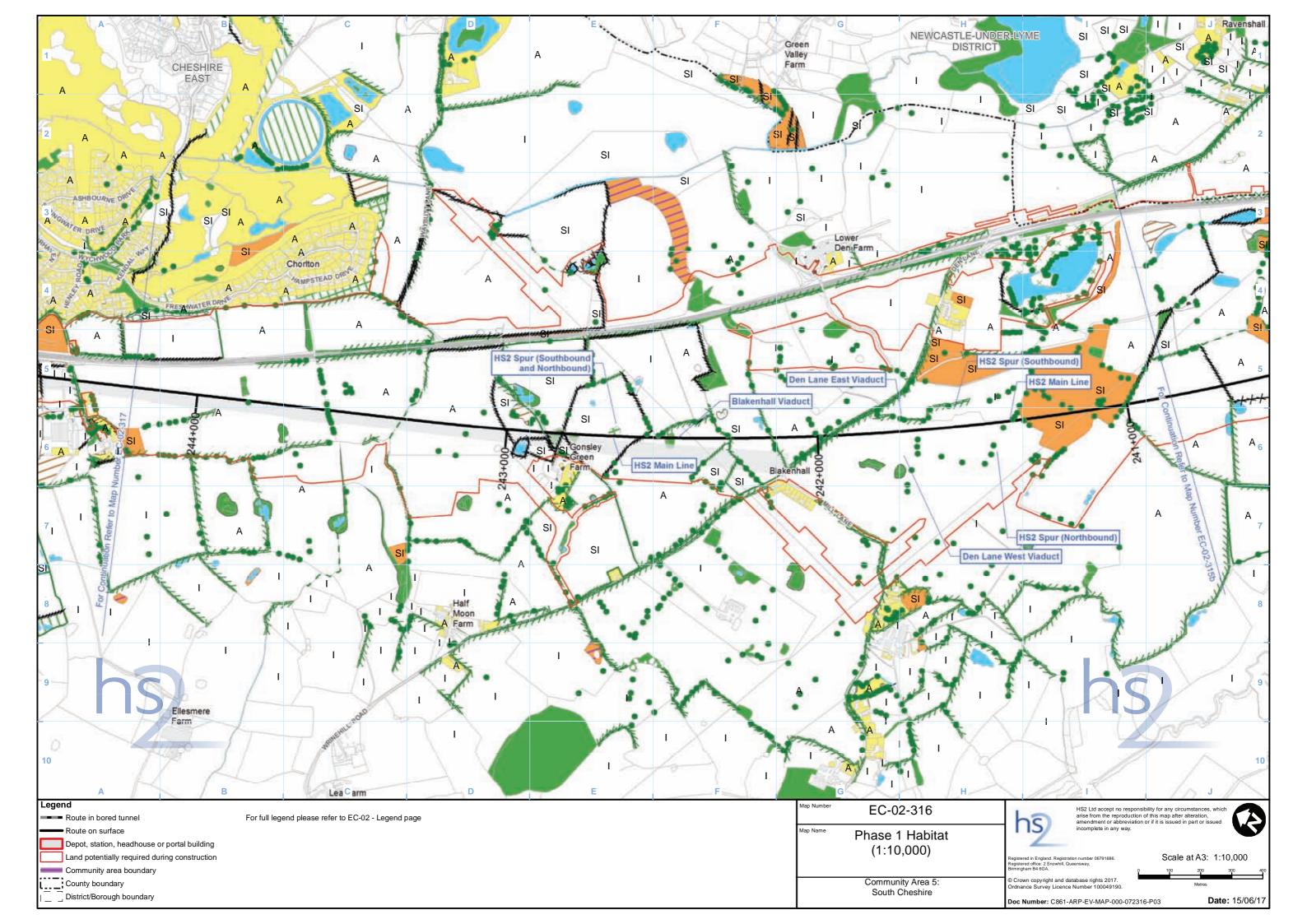
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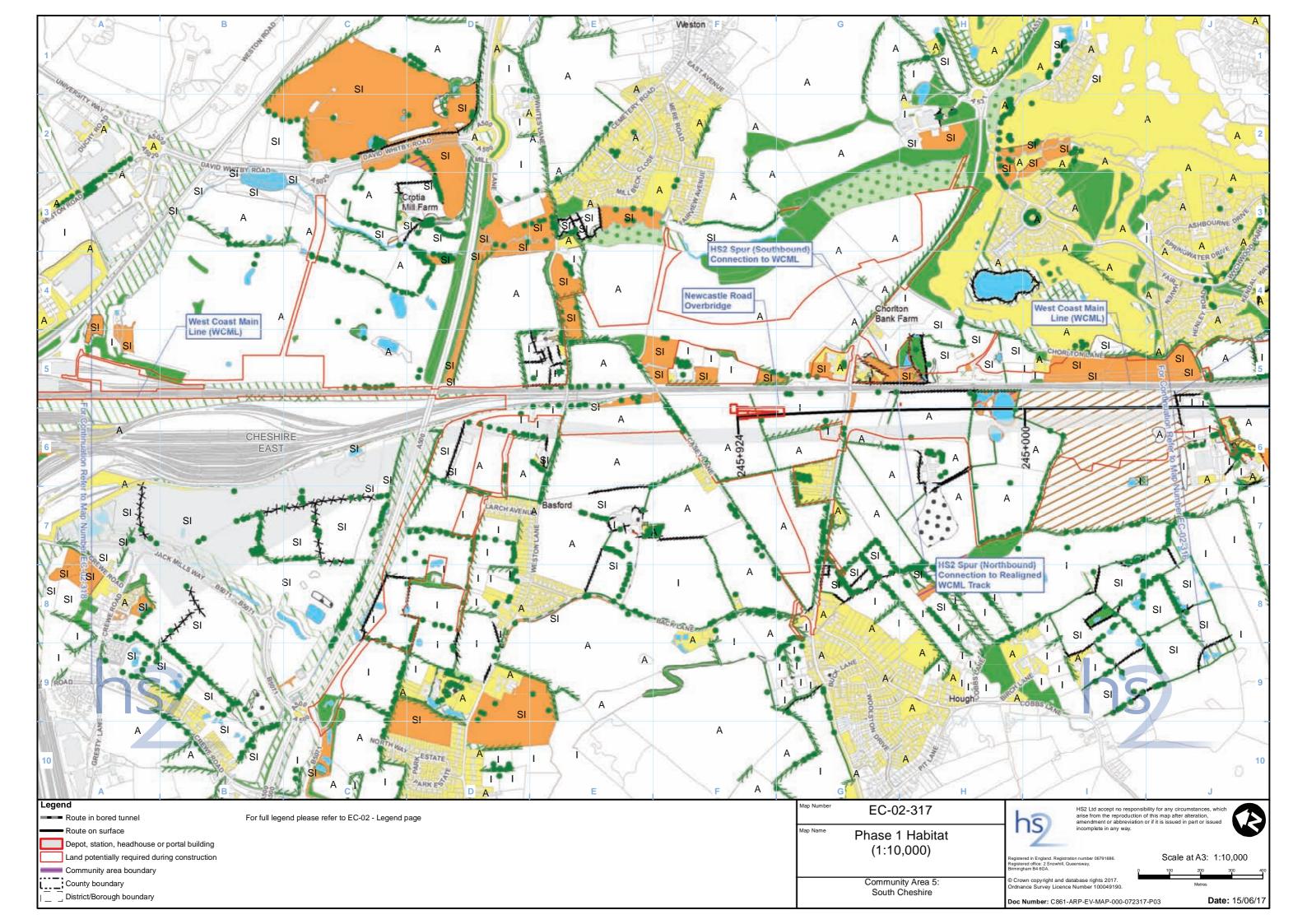
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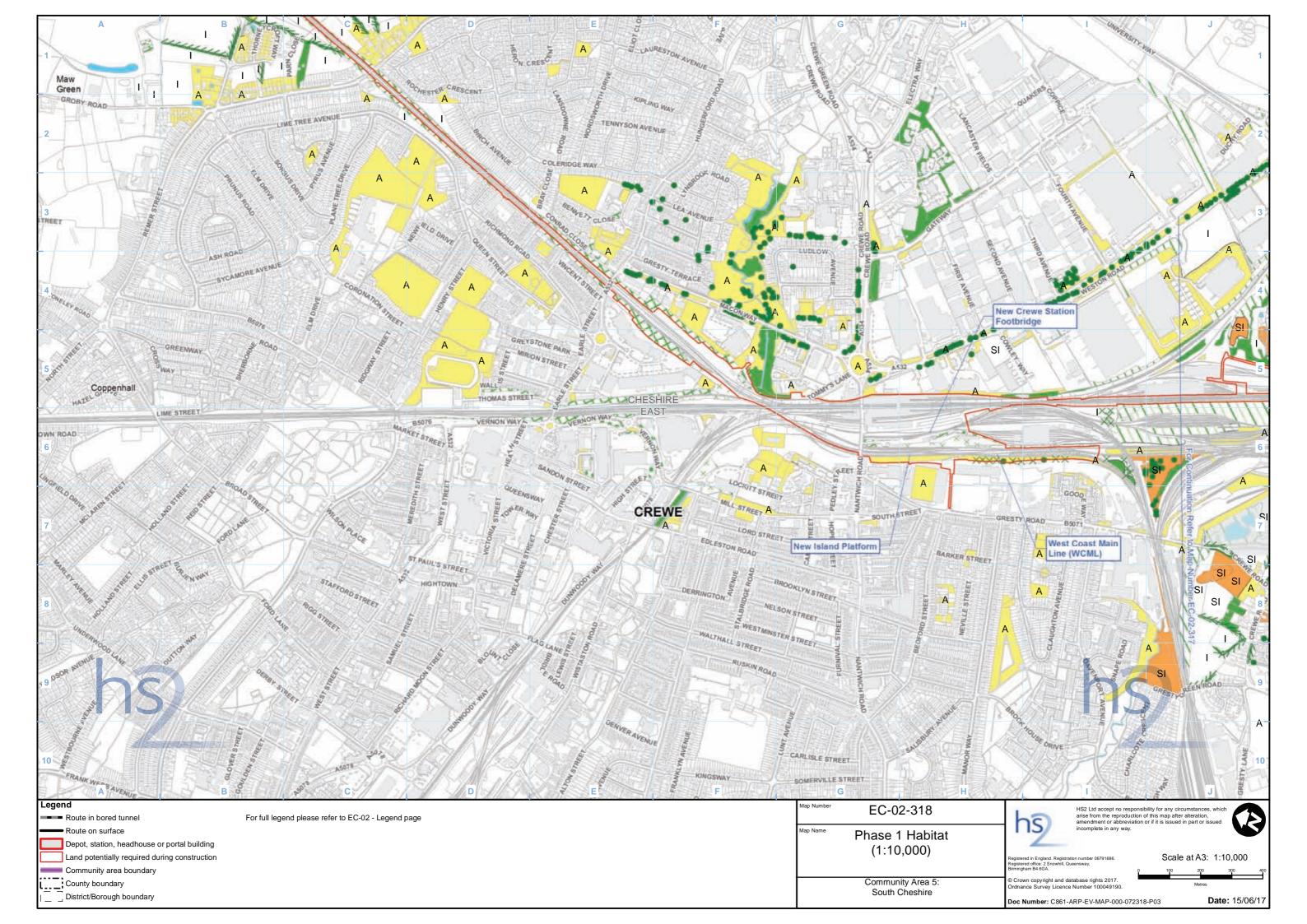
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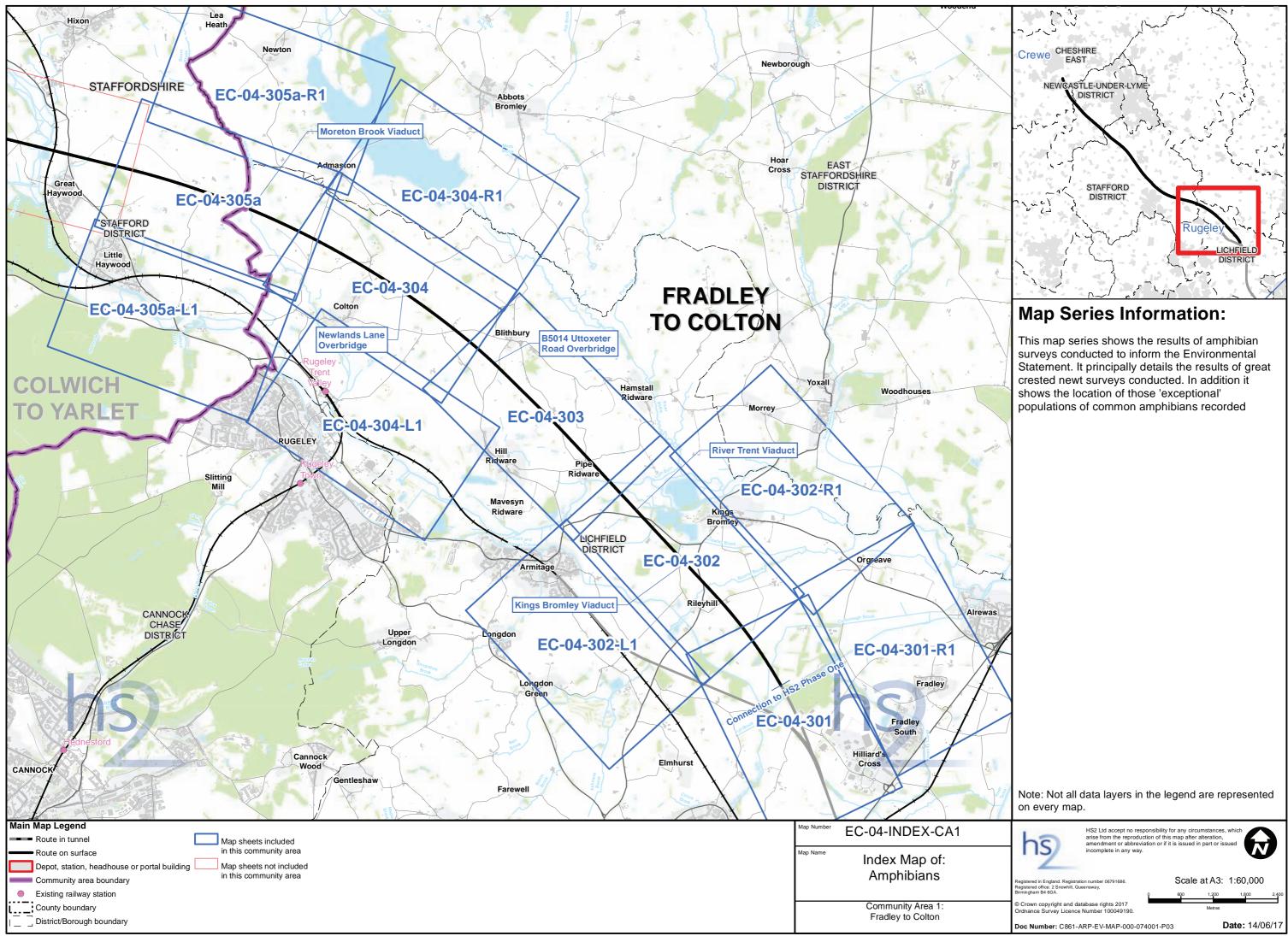


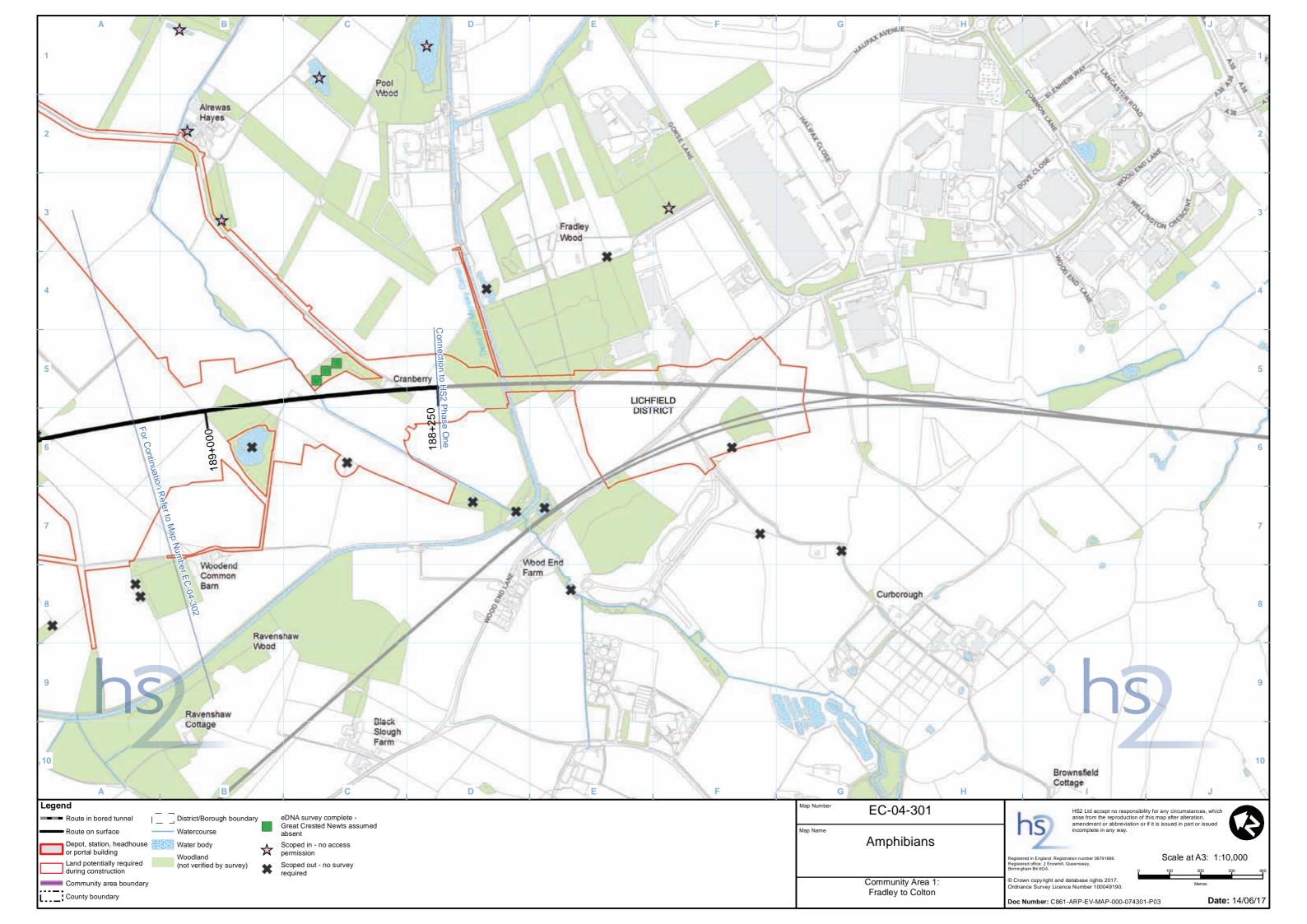


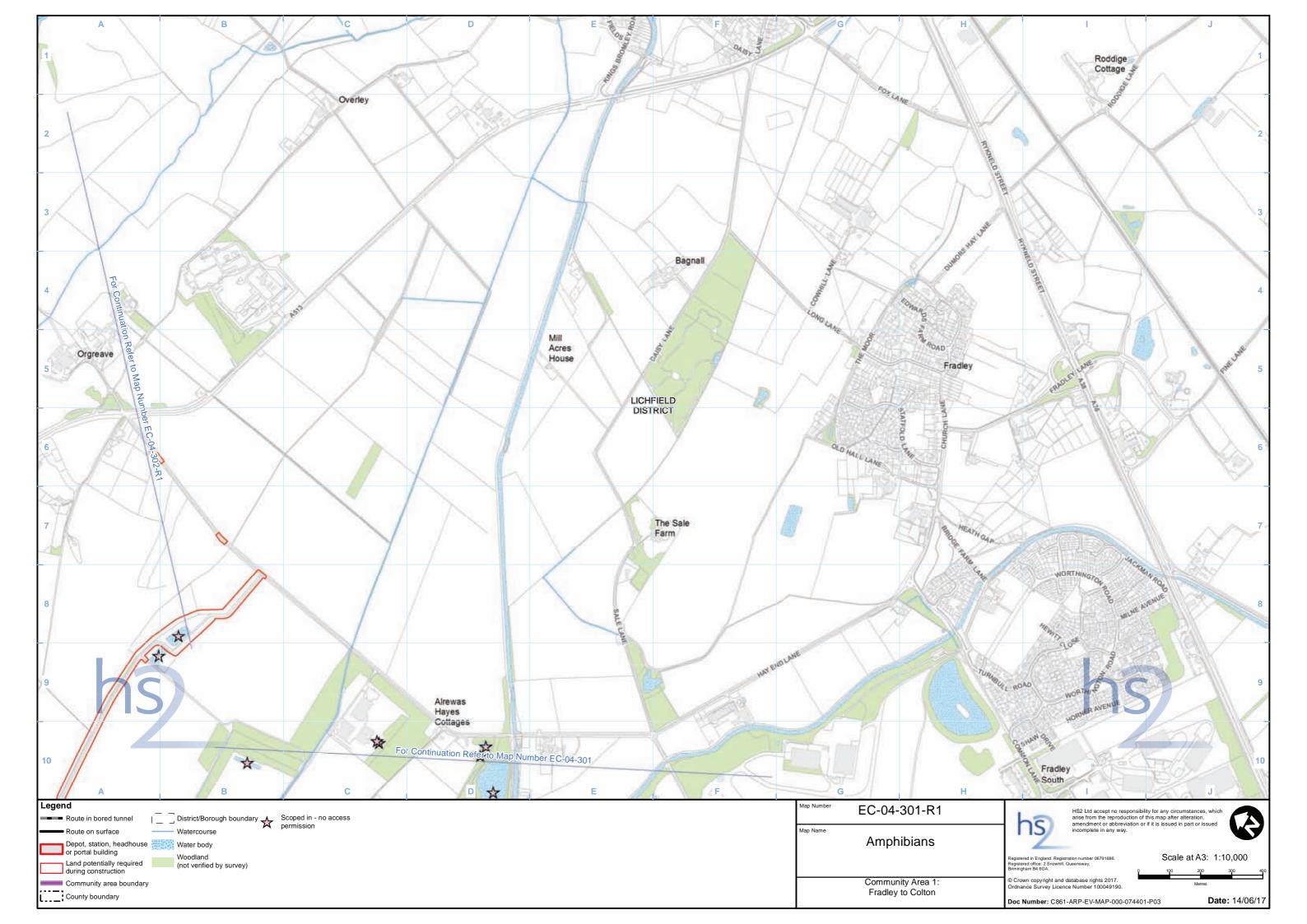
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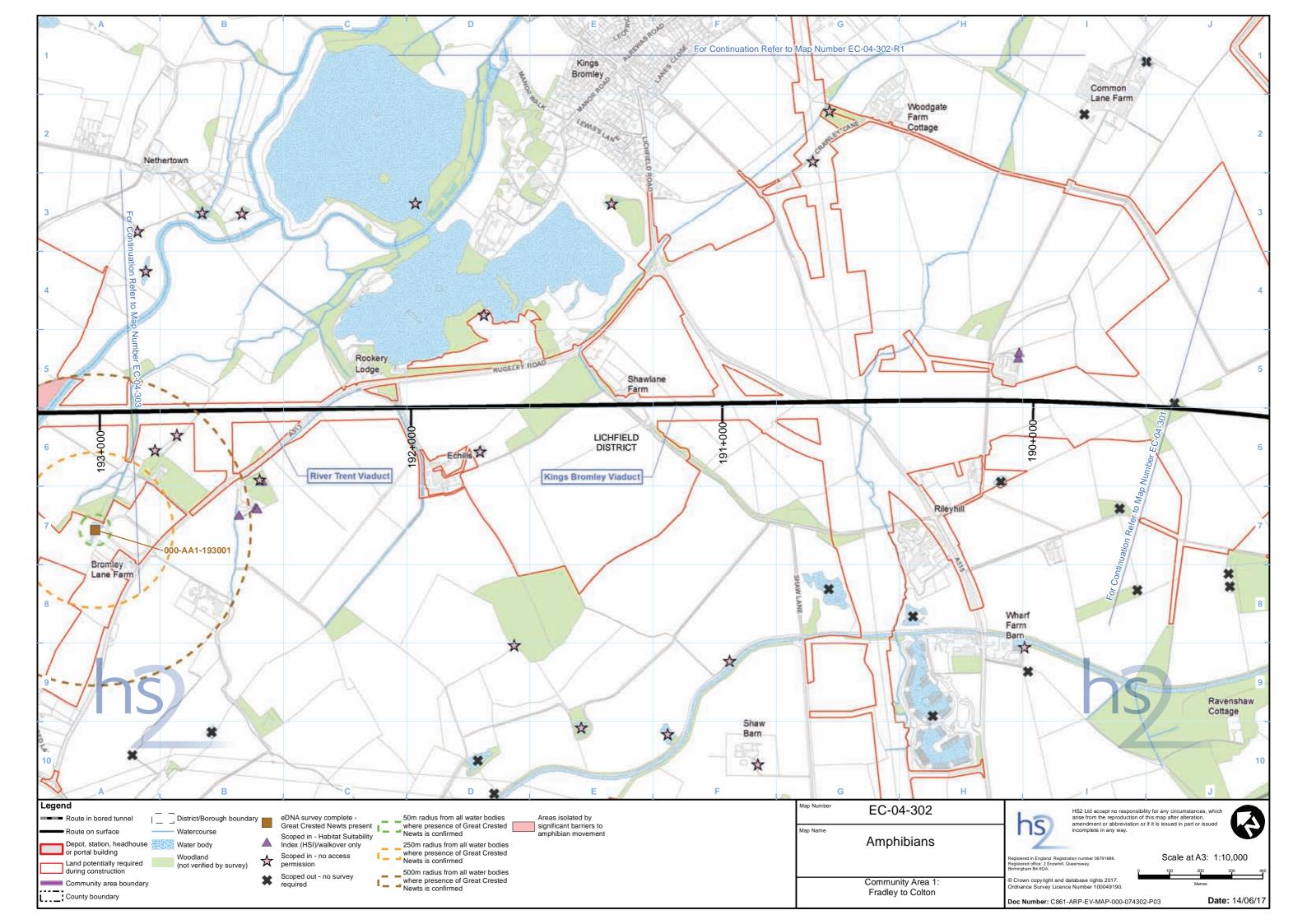
High Speed Two Phase 2a (West Midlands-Crewe) Background Information and Data **EC-04 - Amphibians**

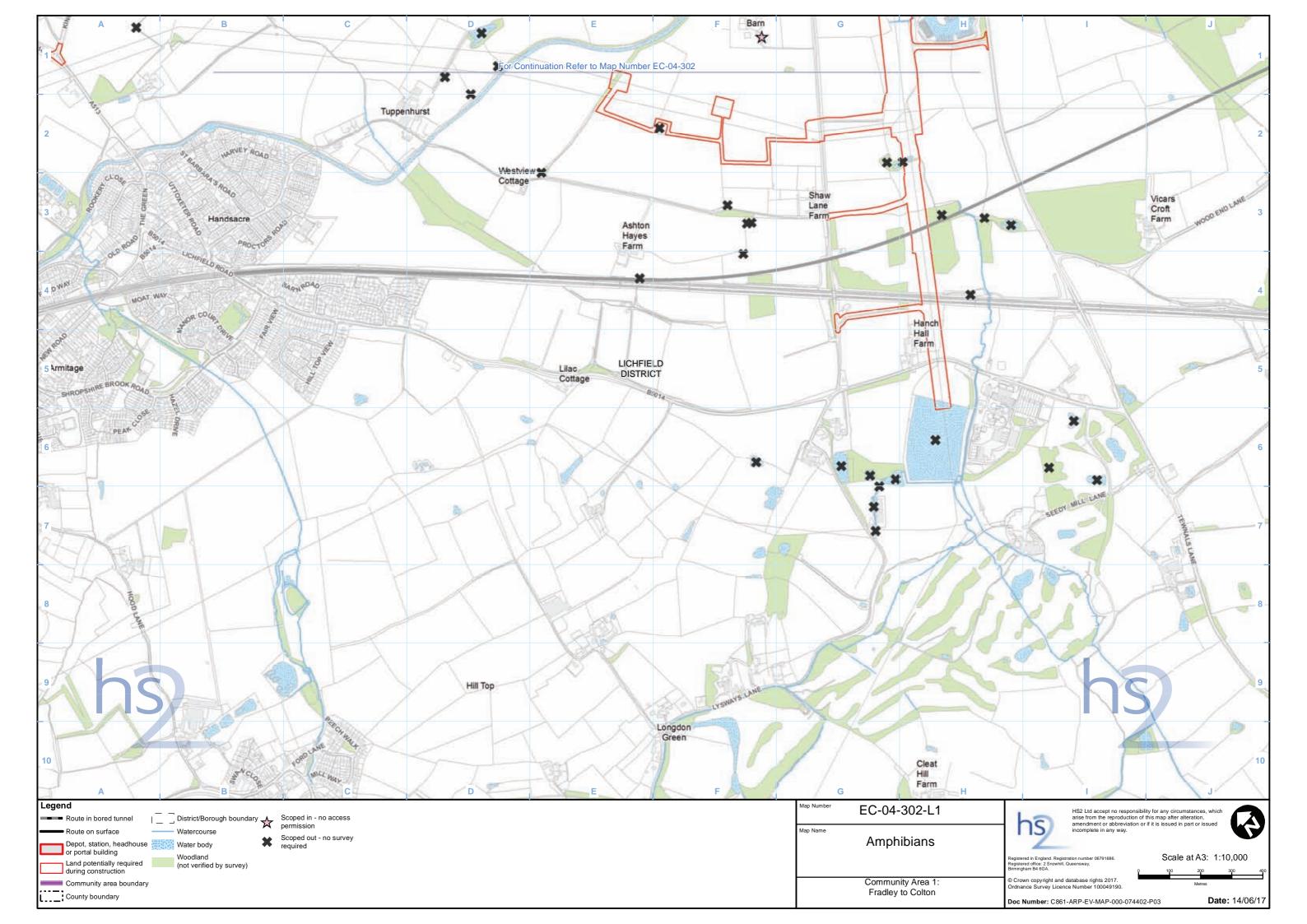


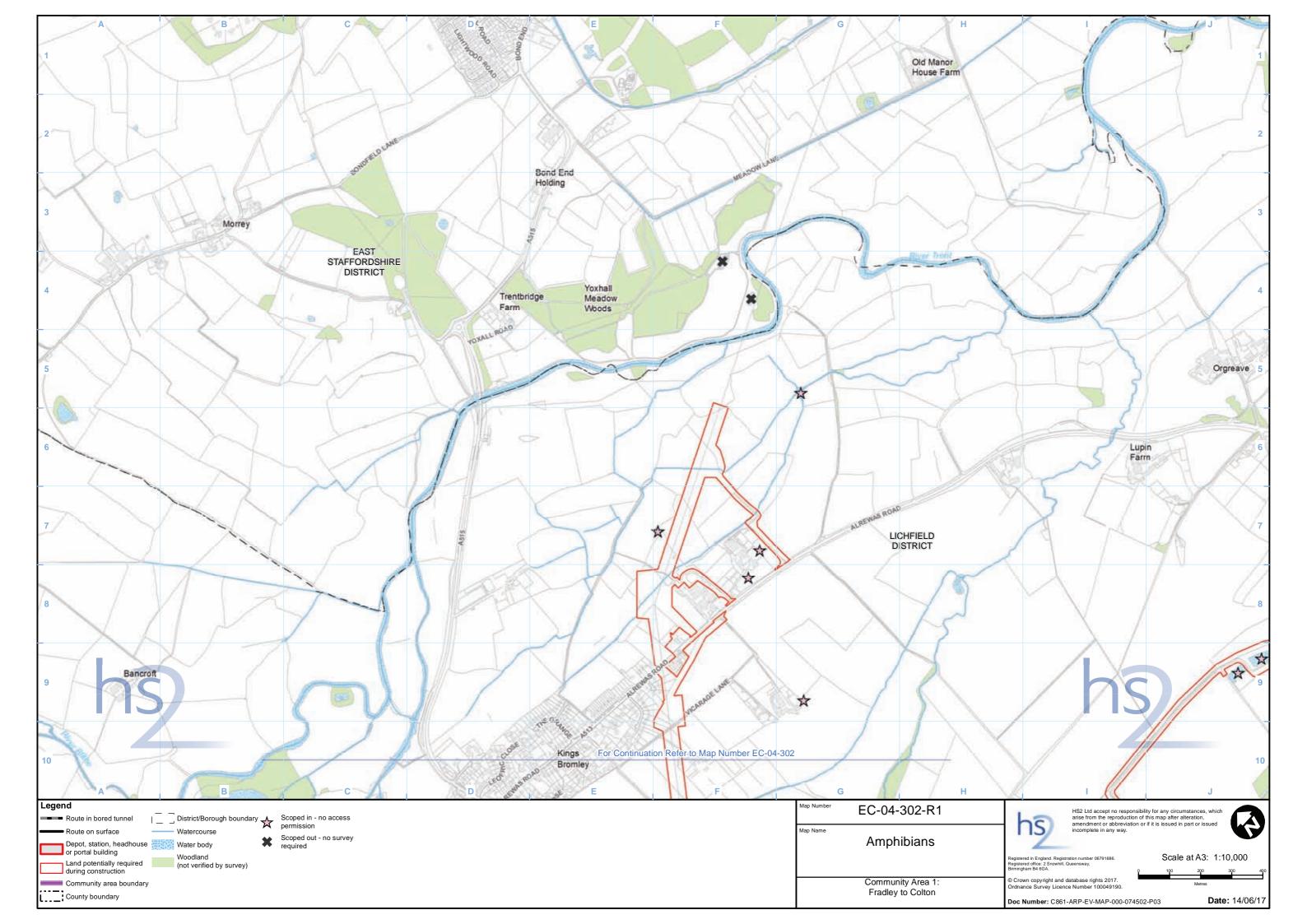


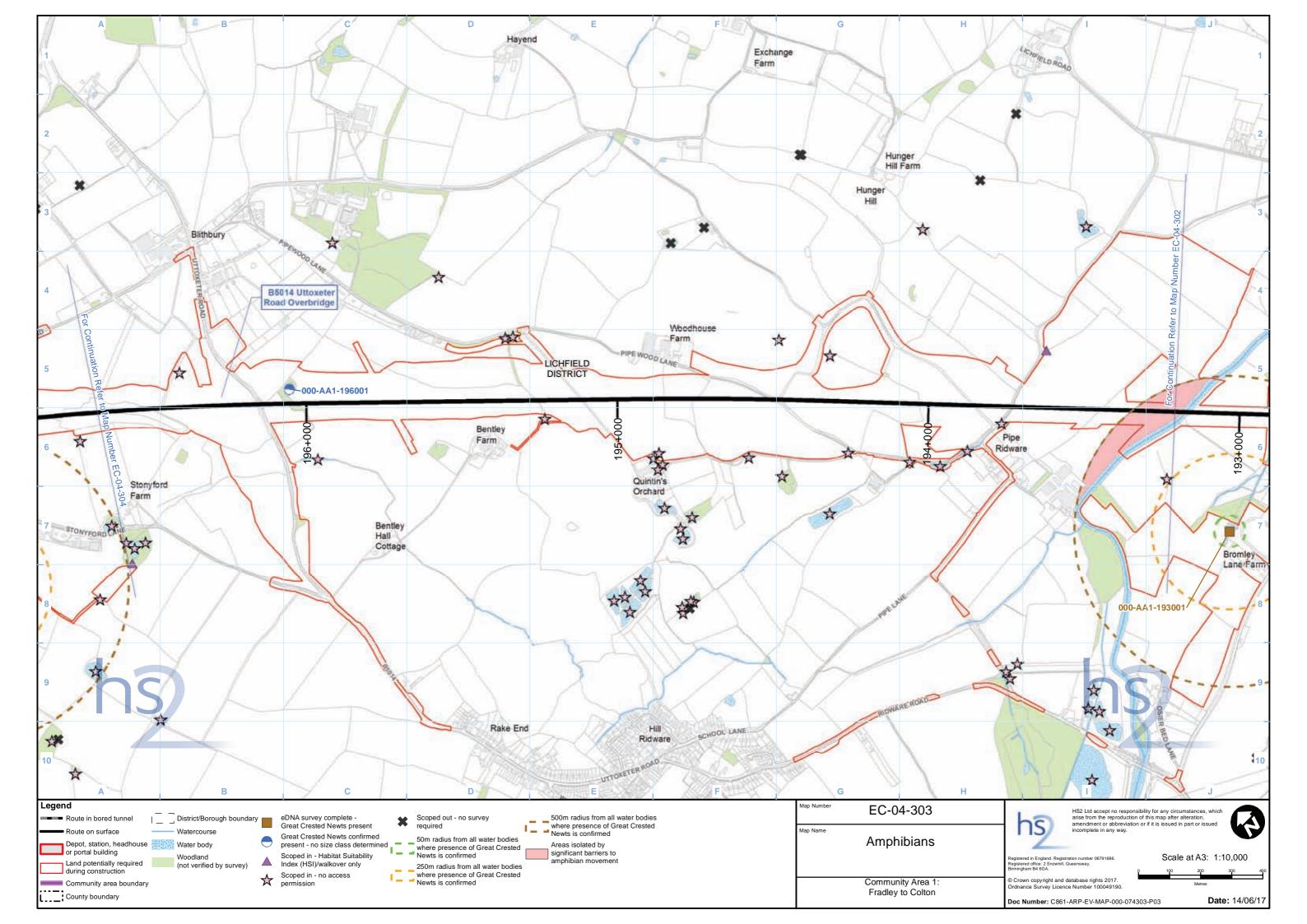


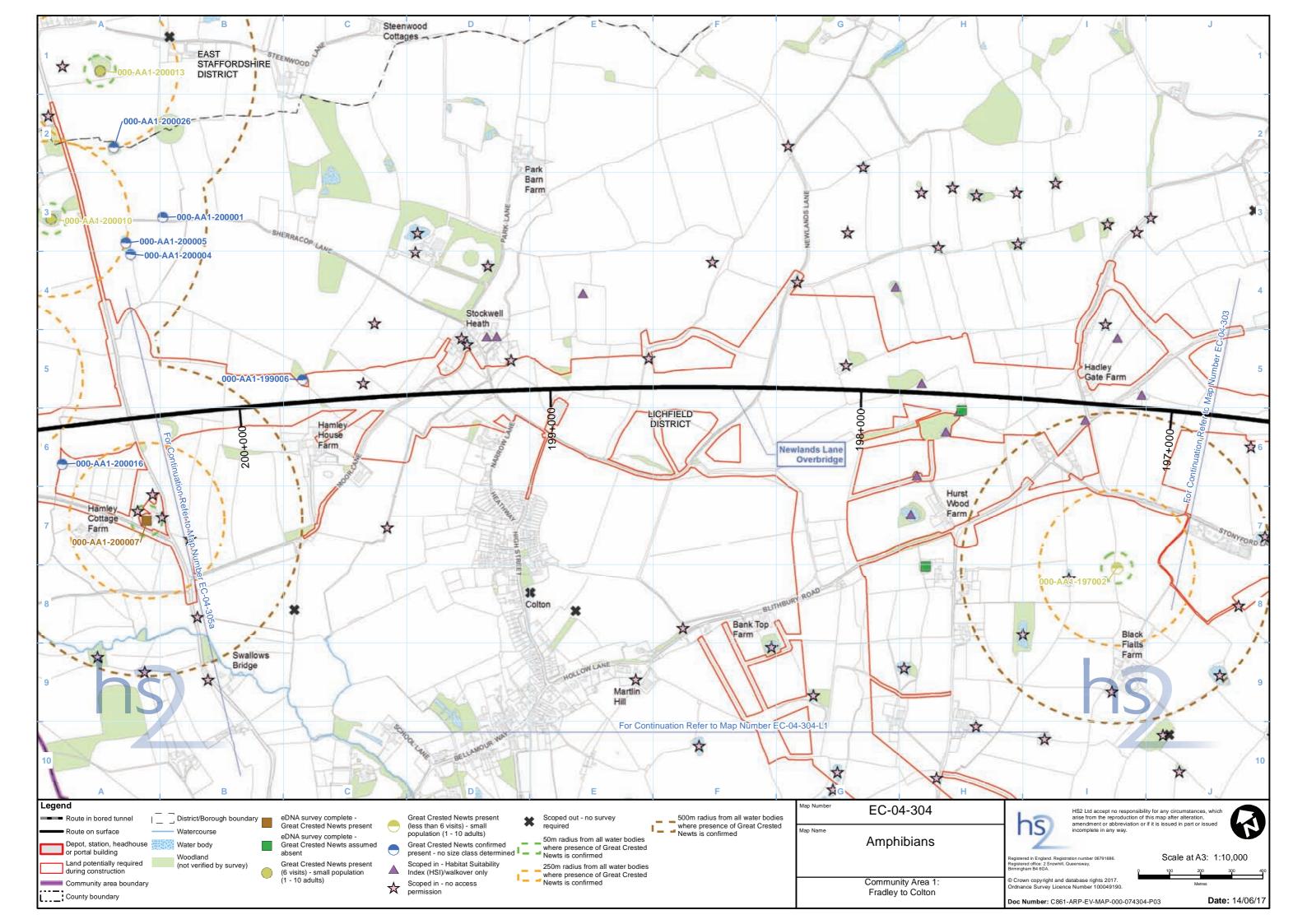


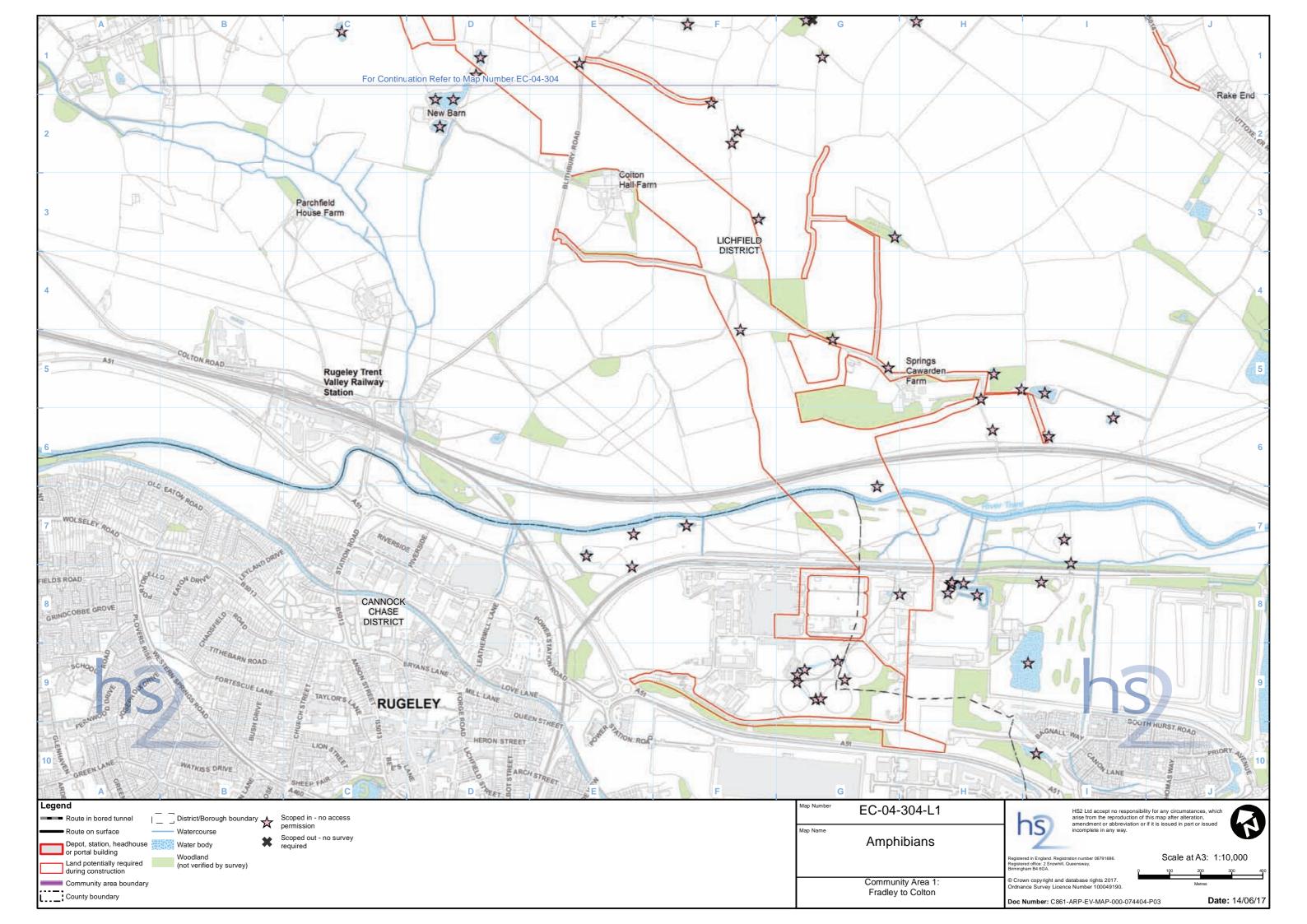


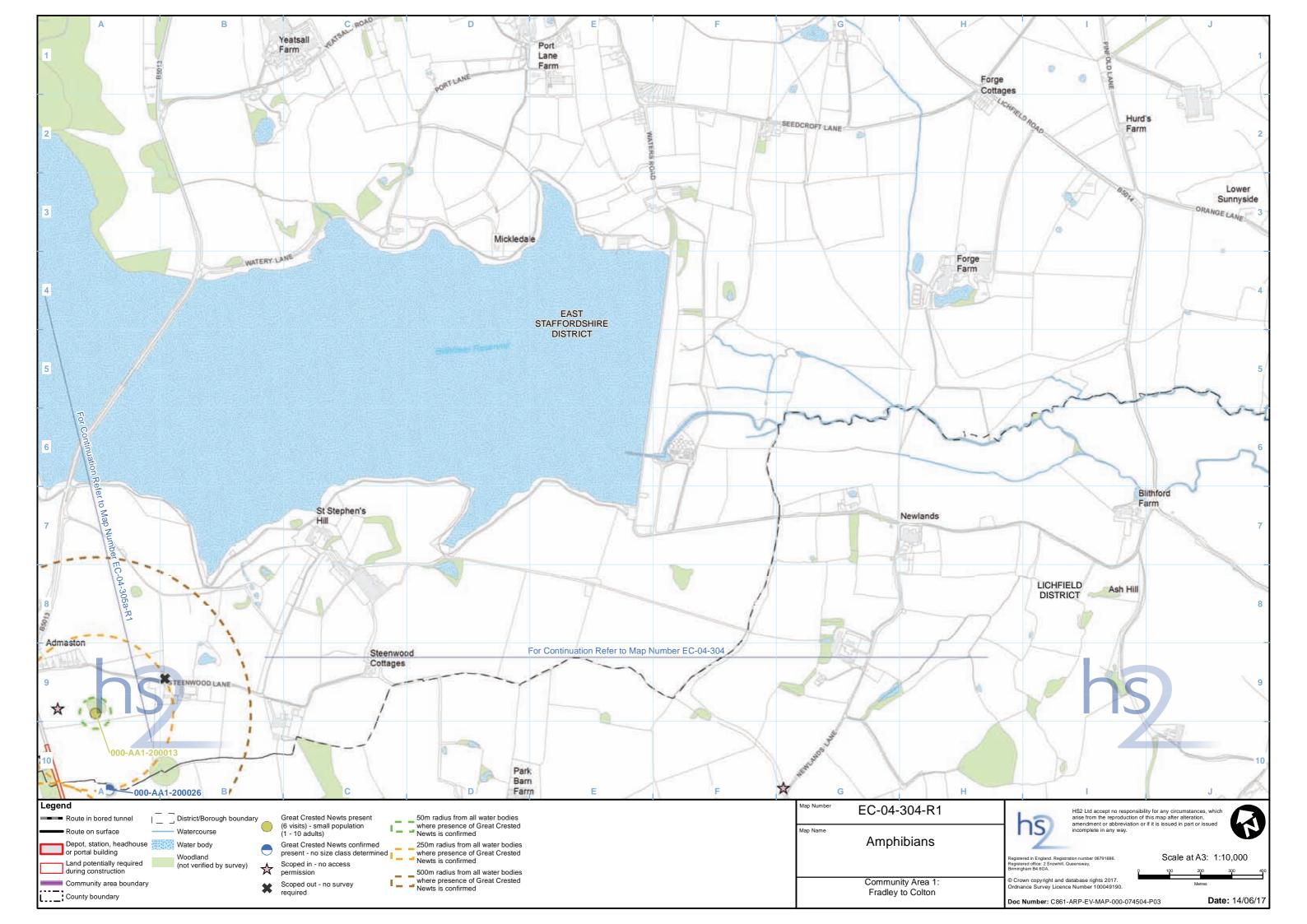


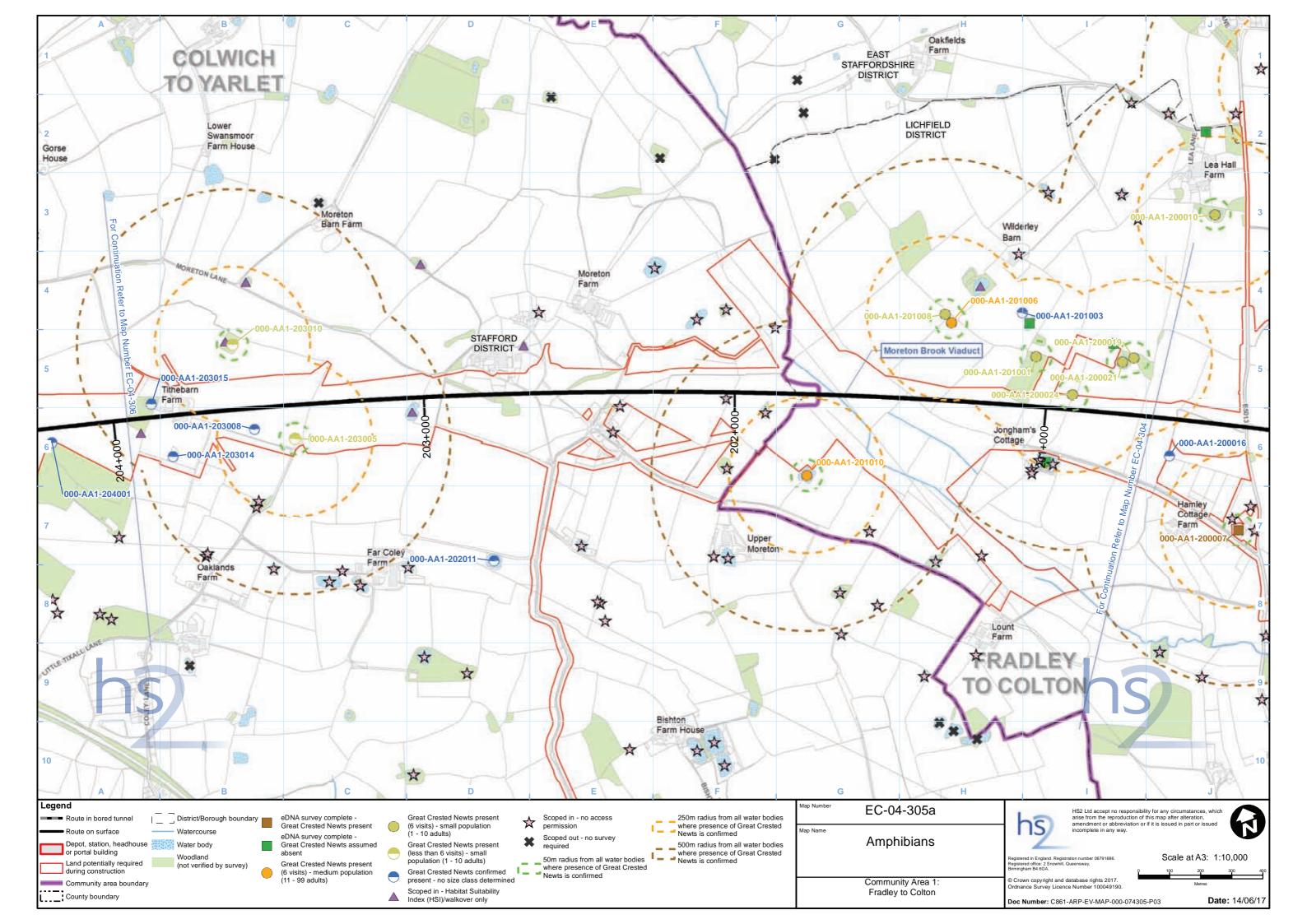


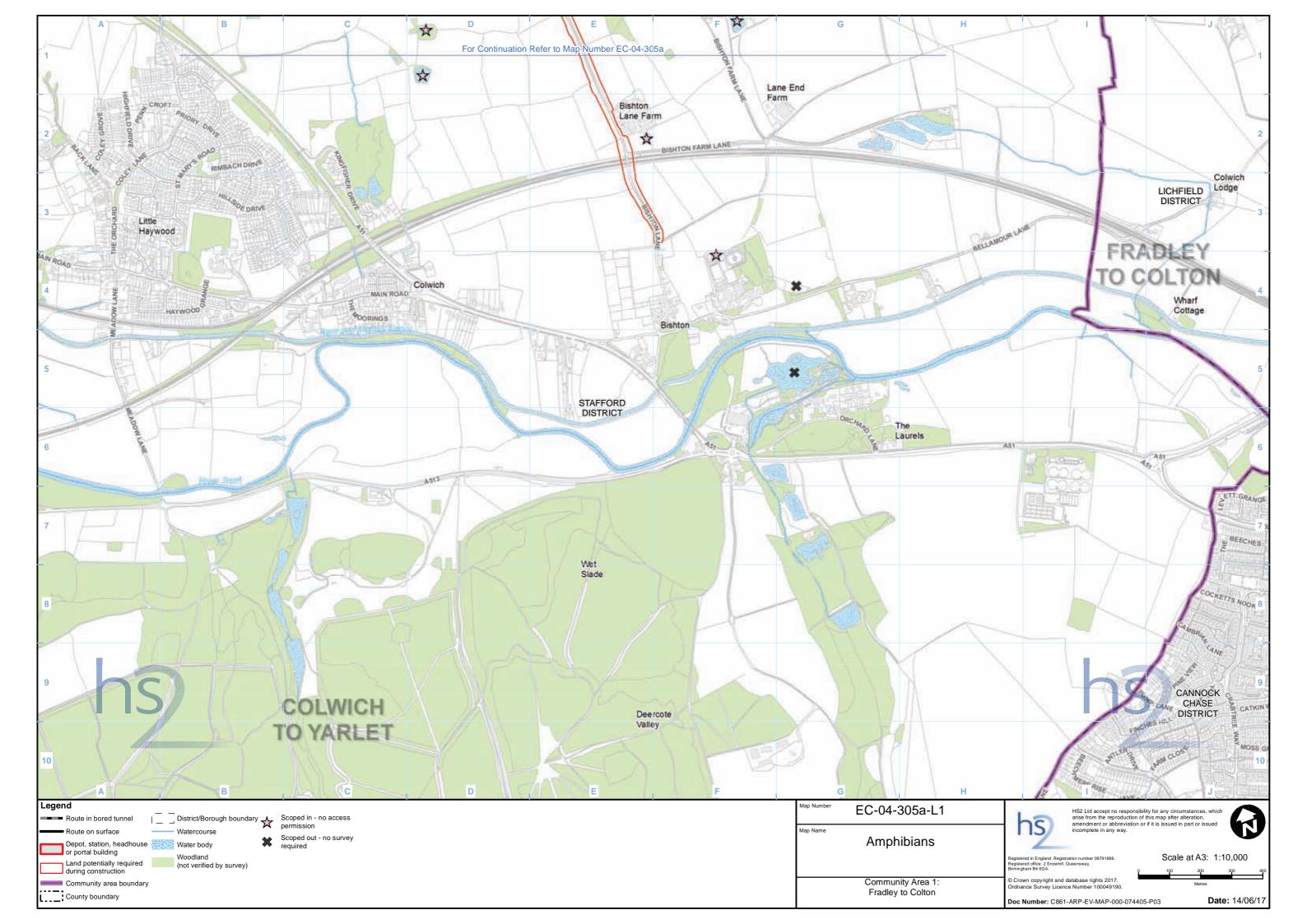


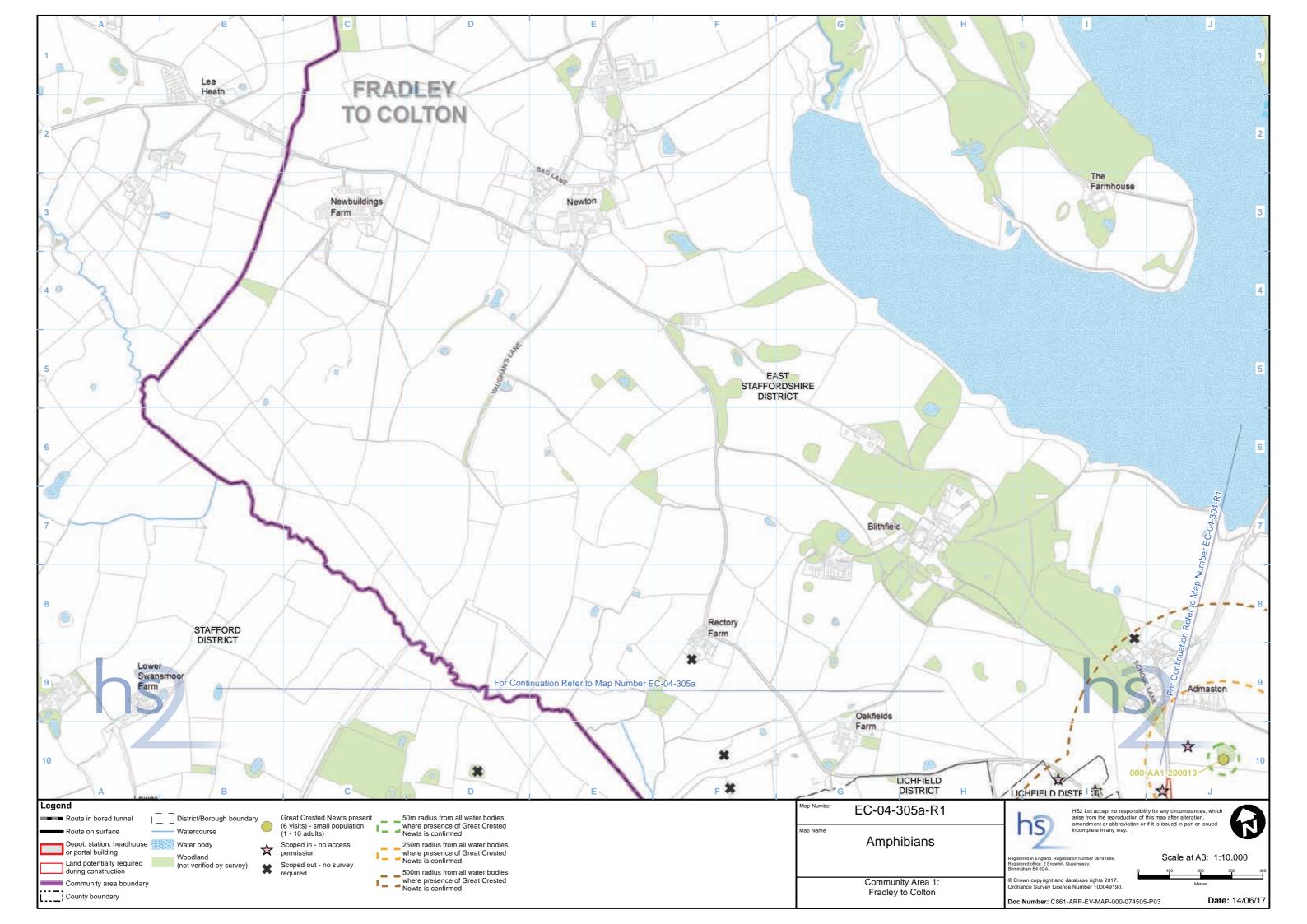




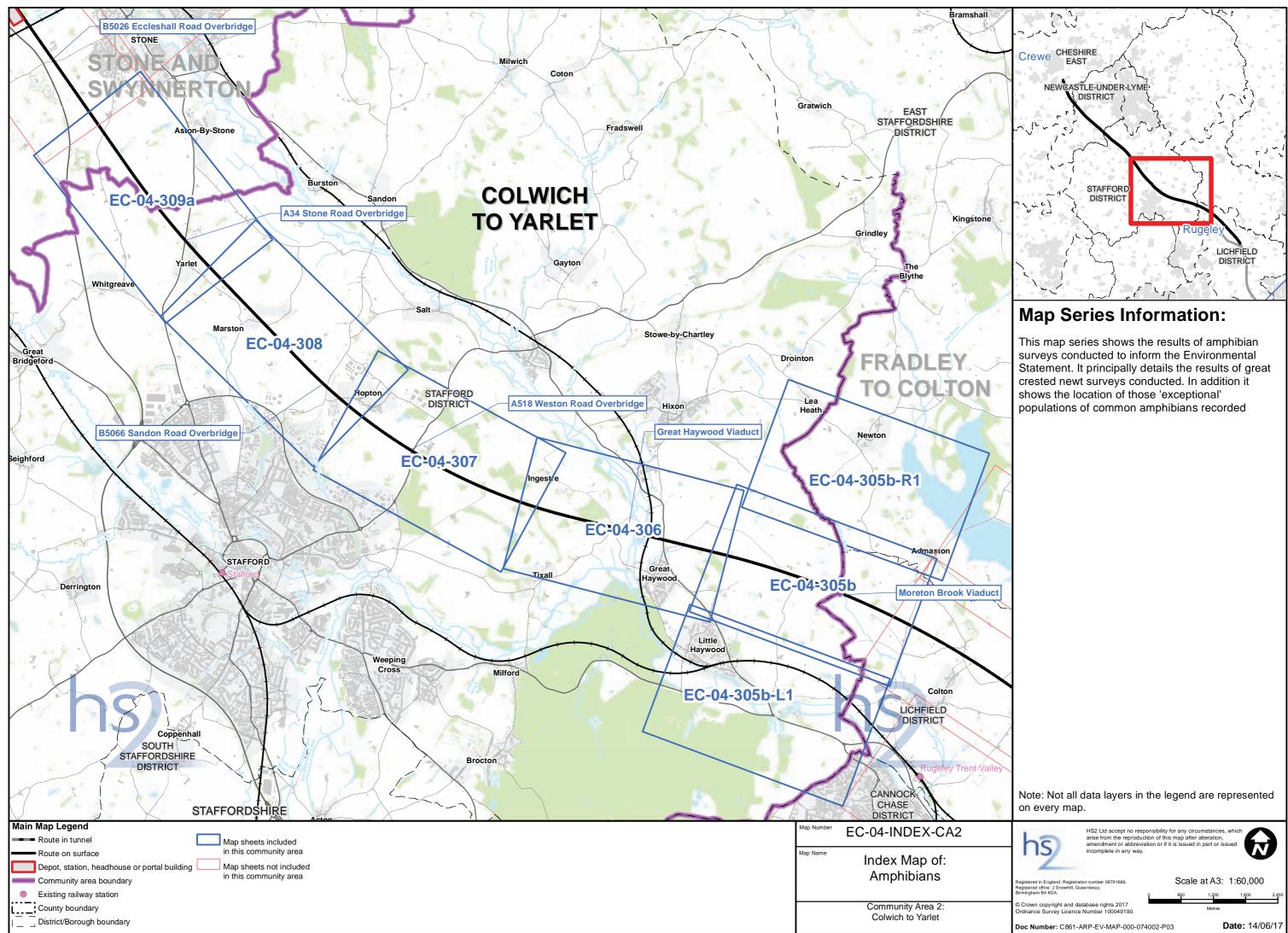


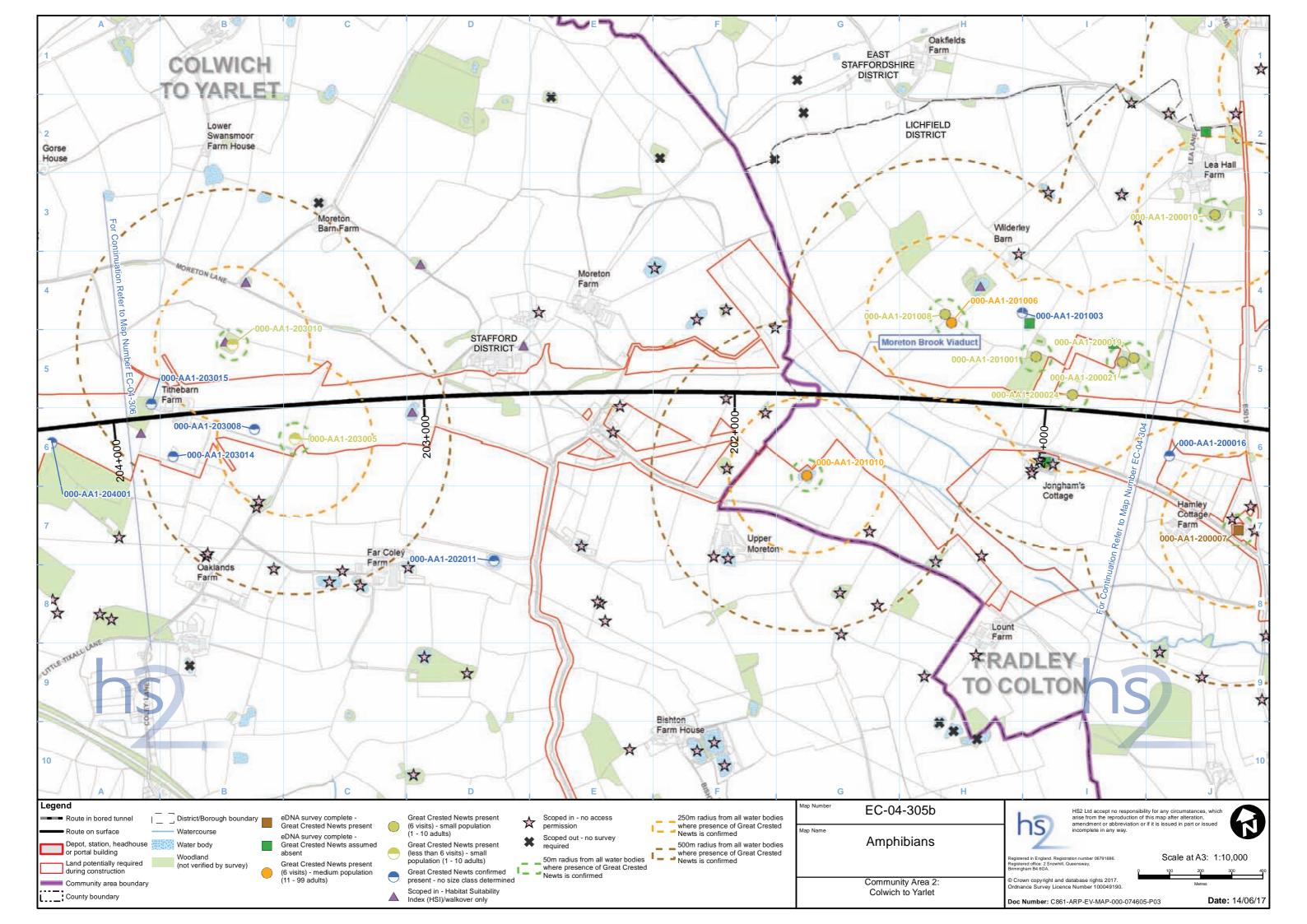


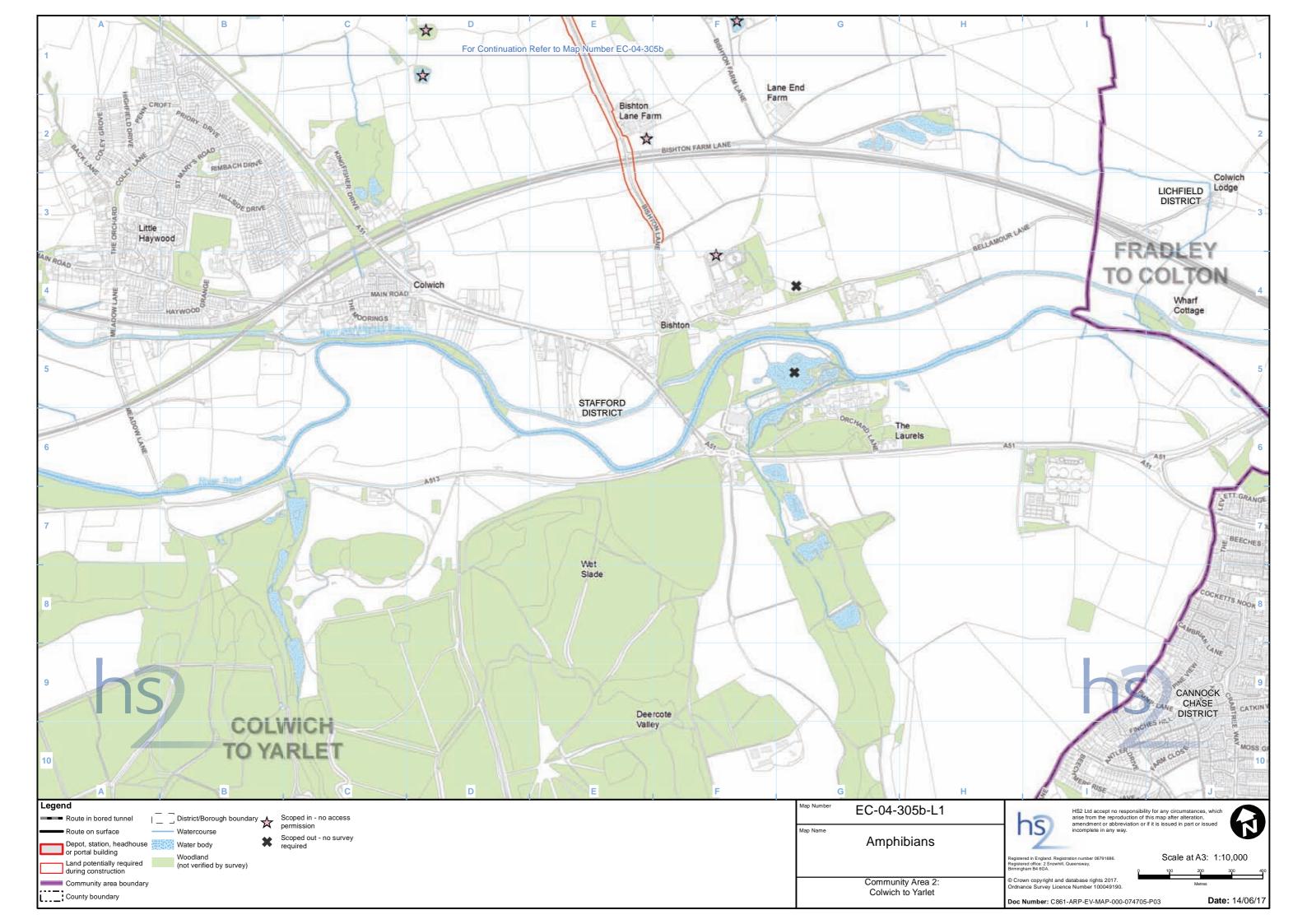


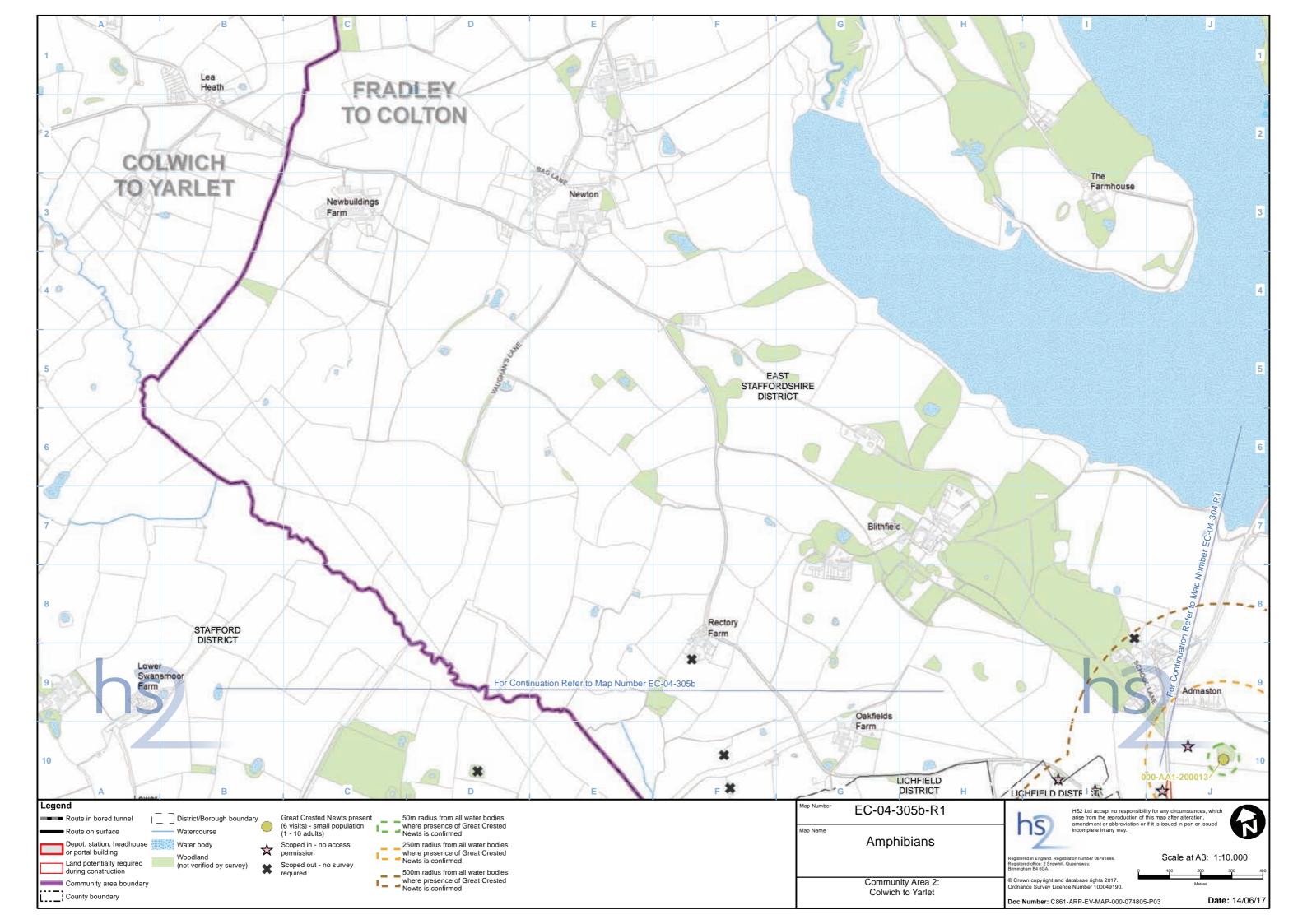


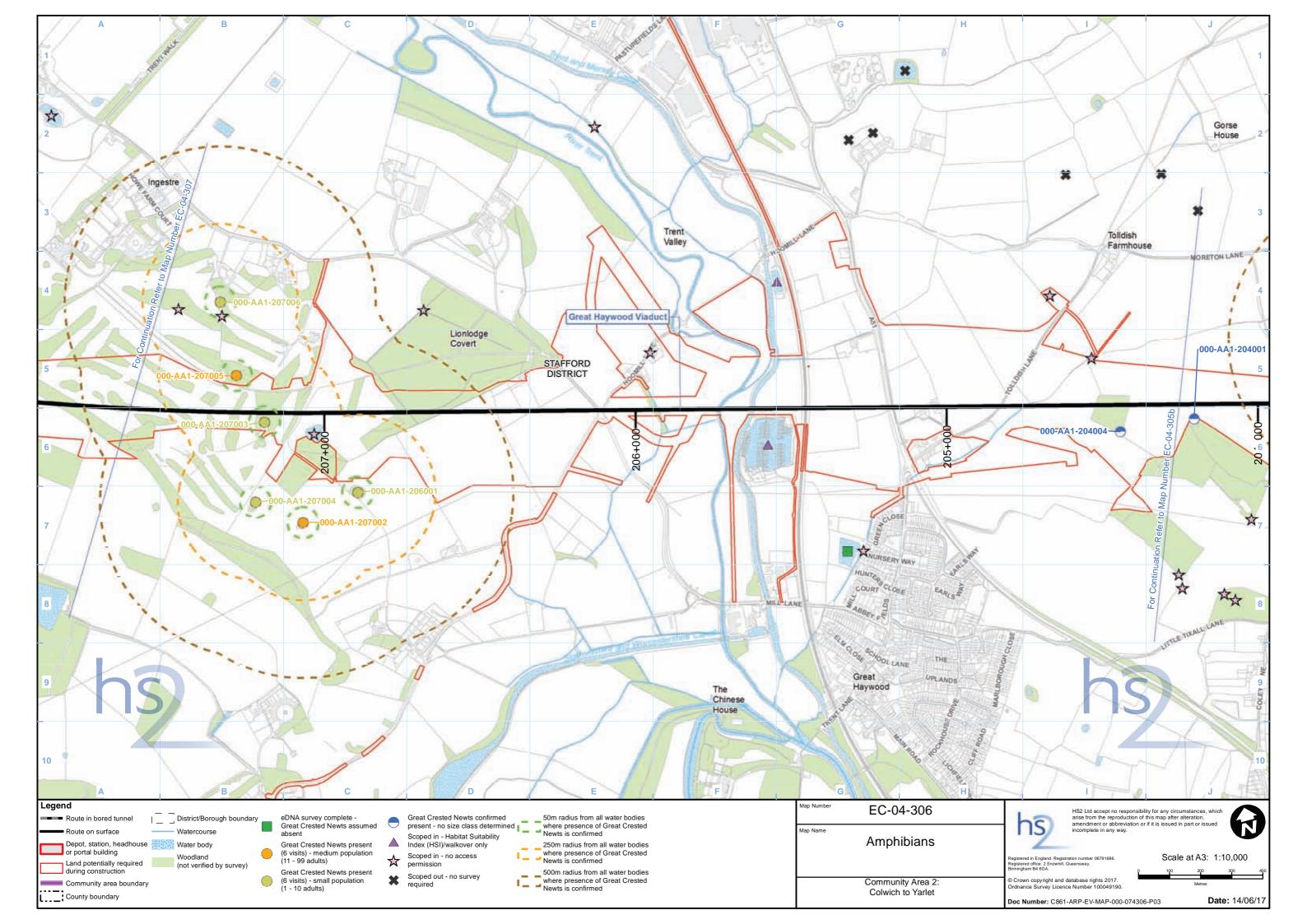
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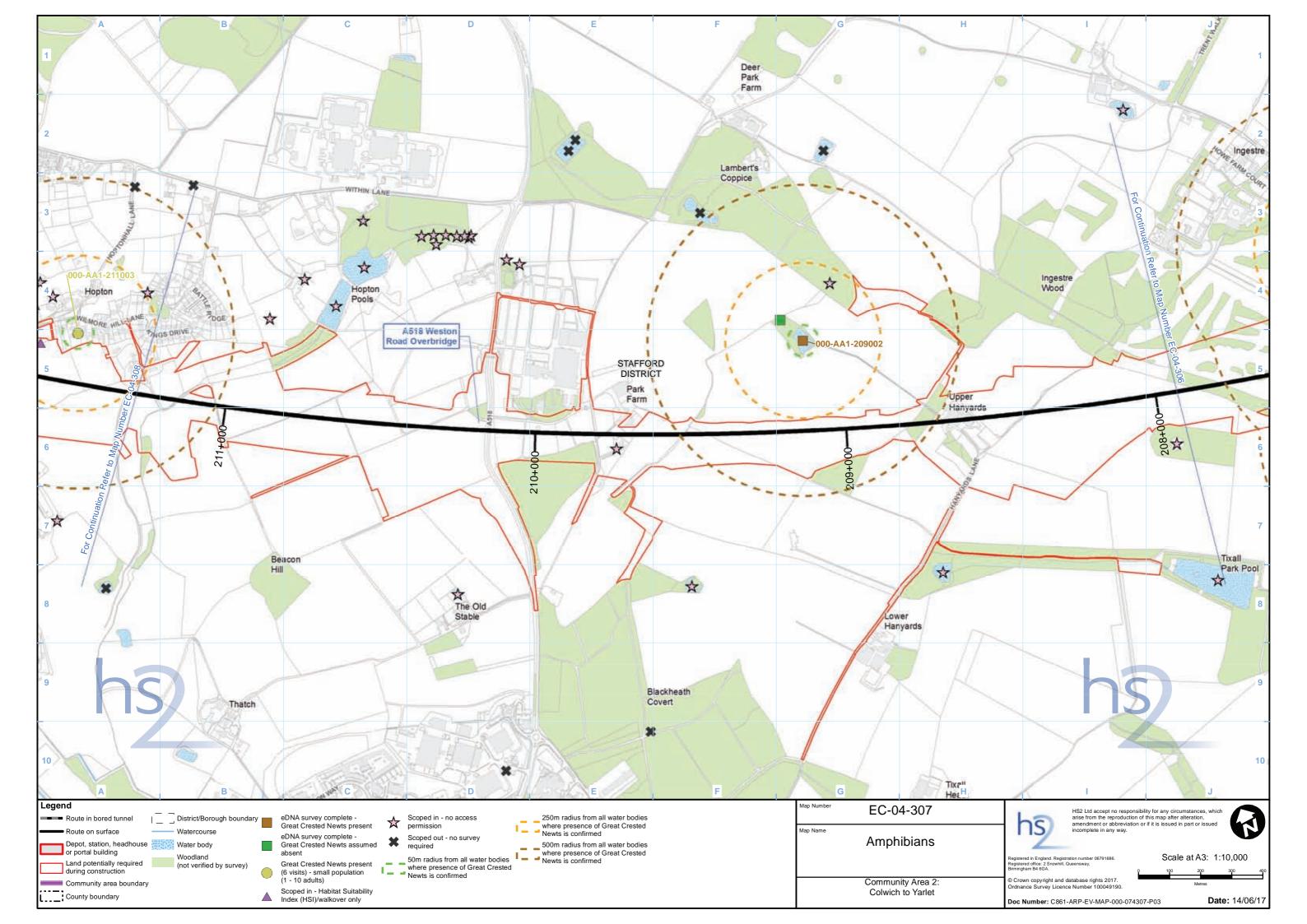


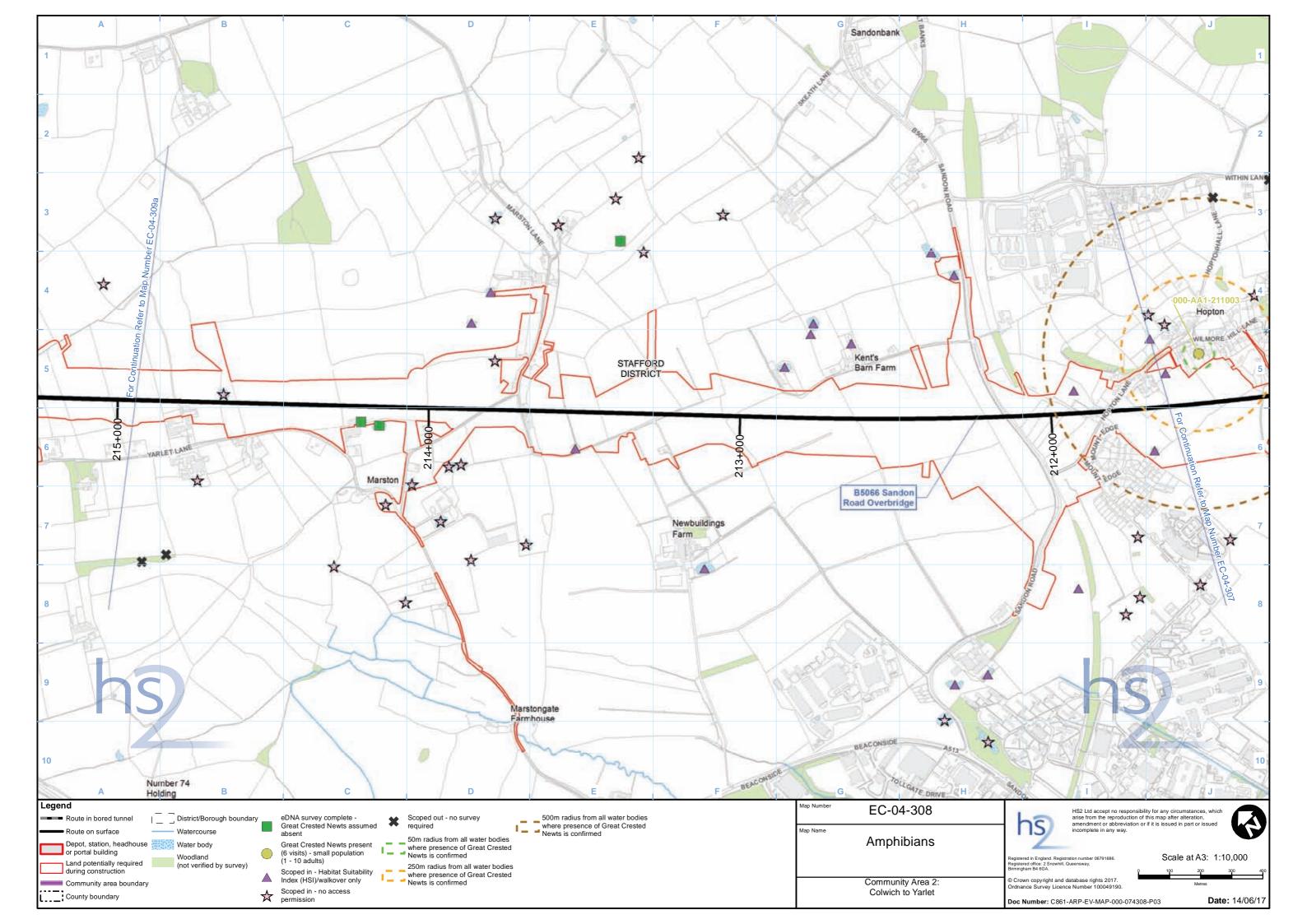


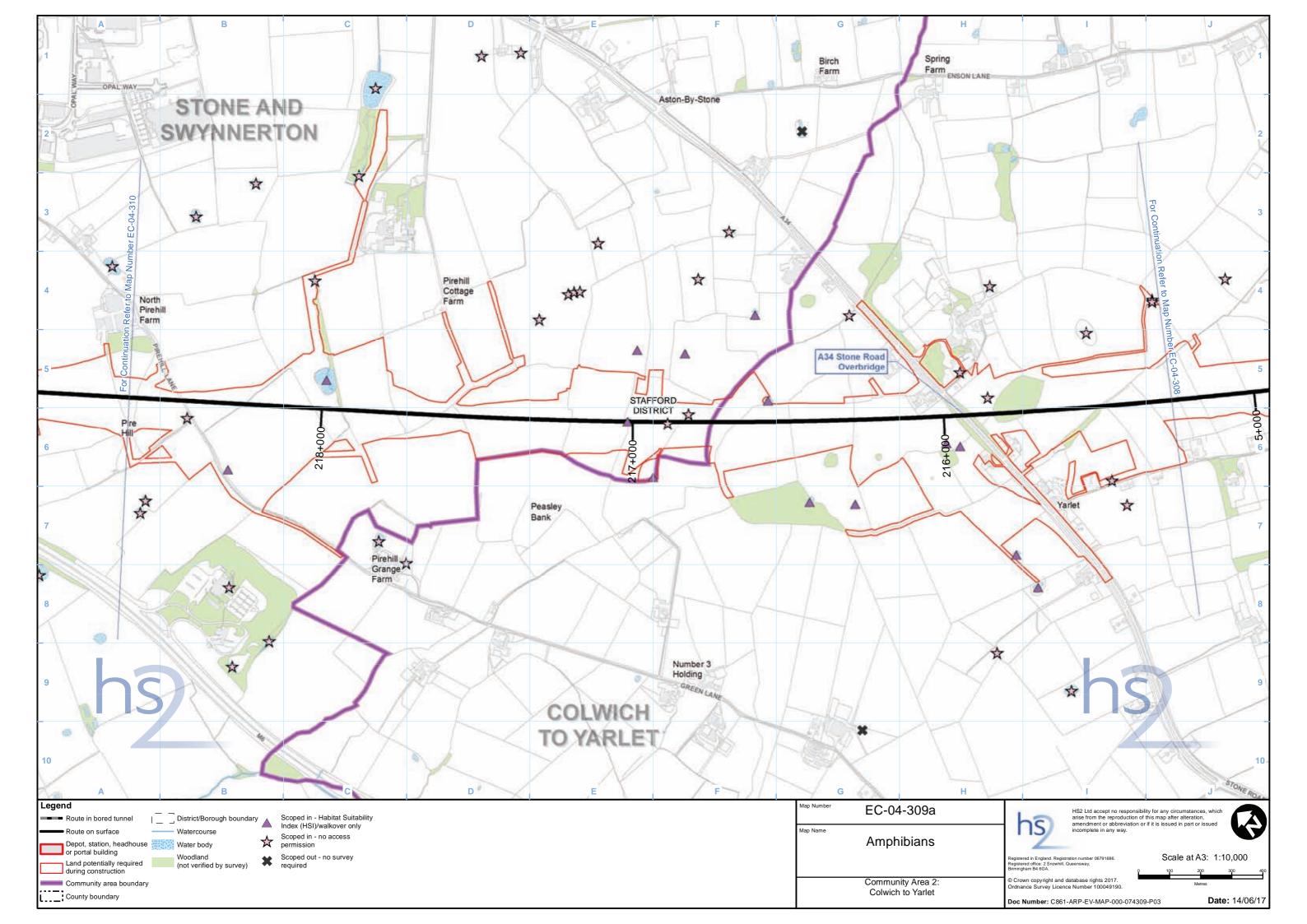


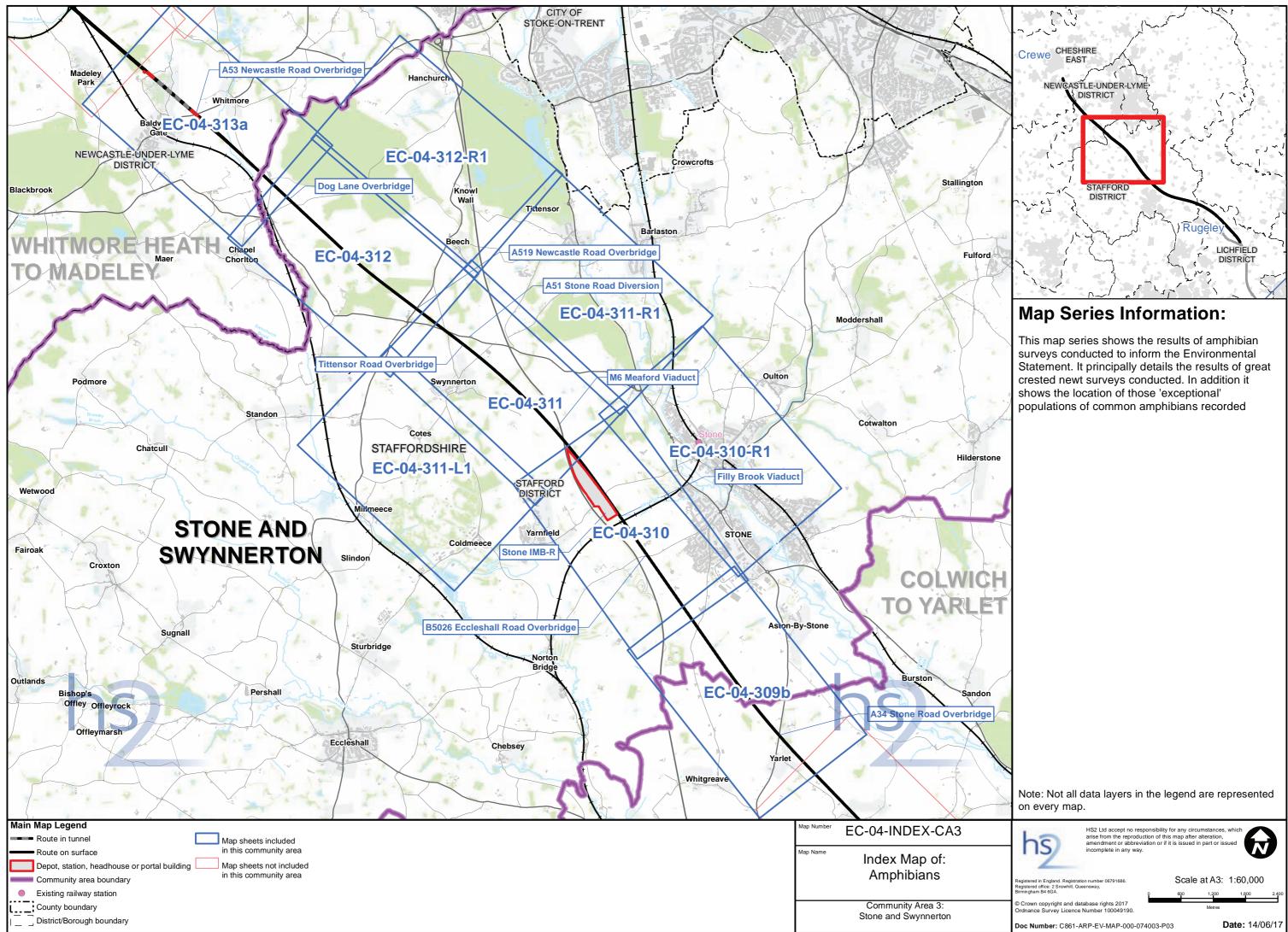


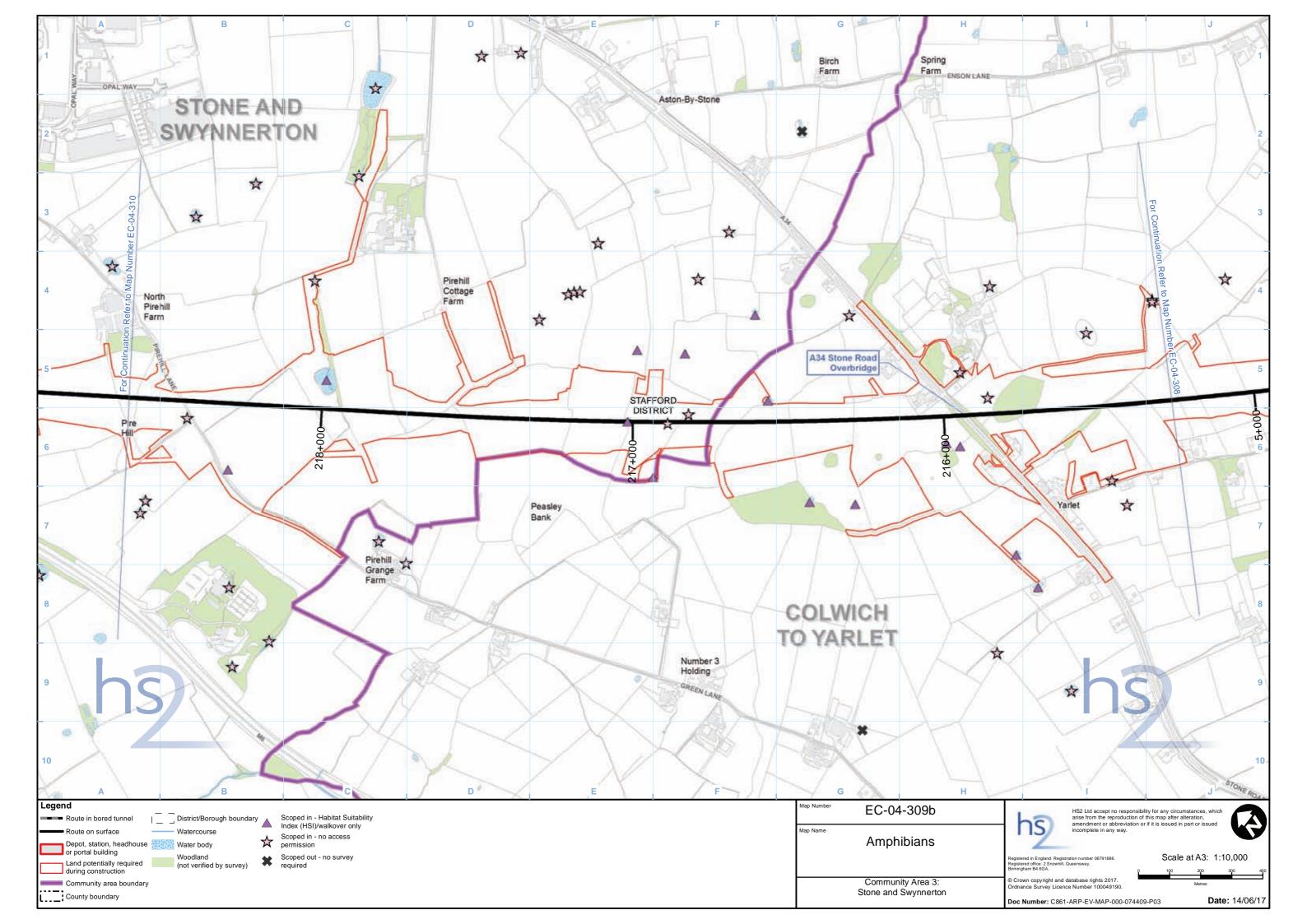


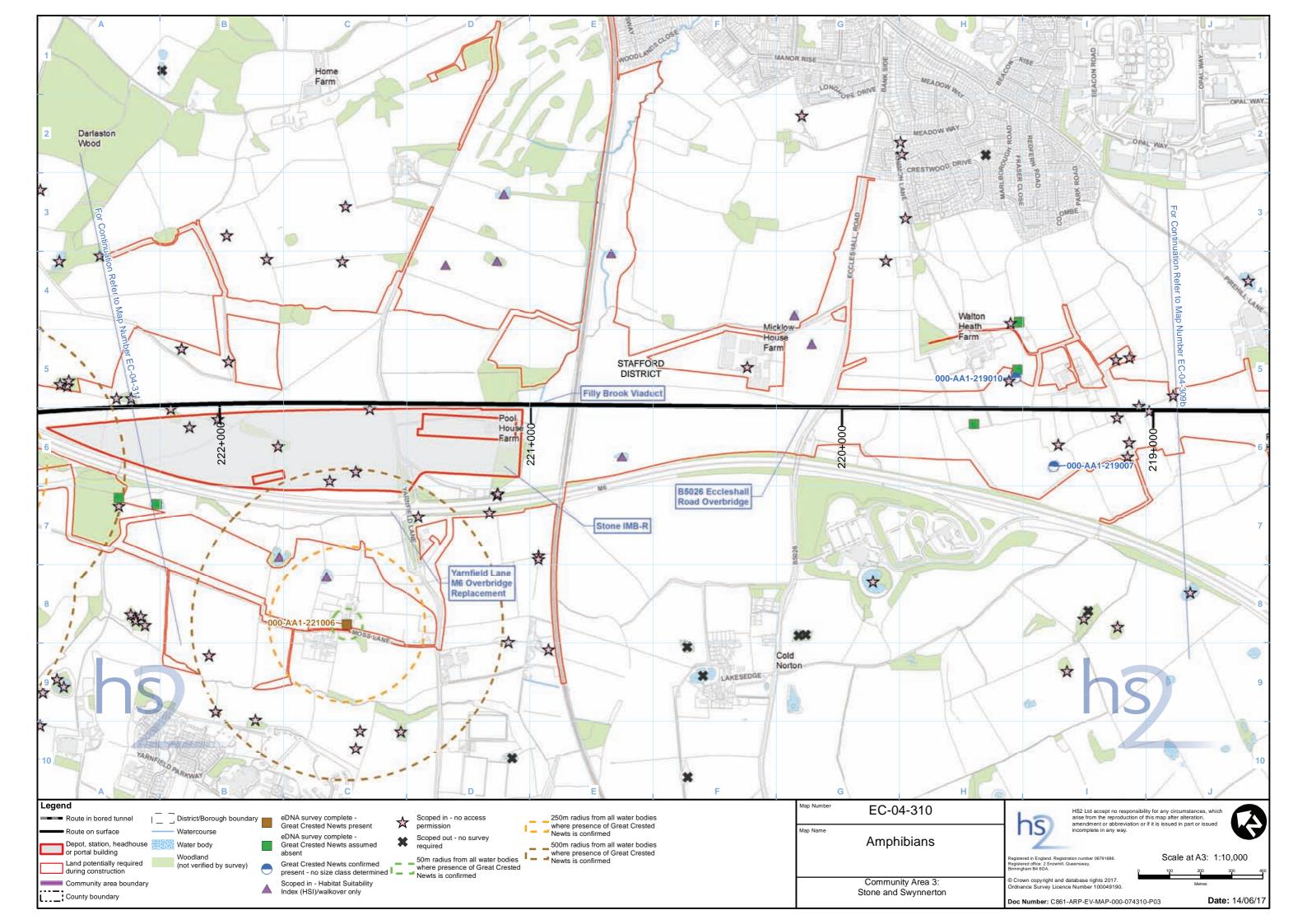


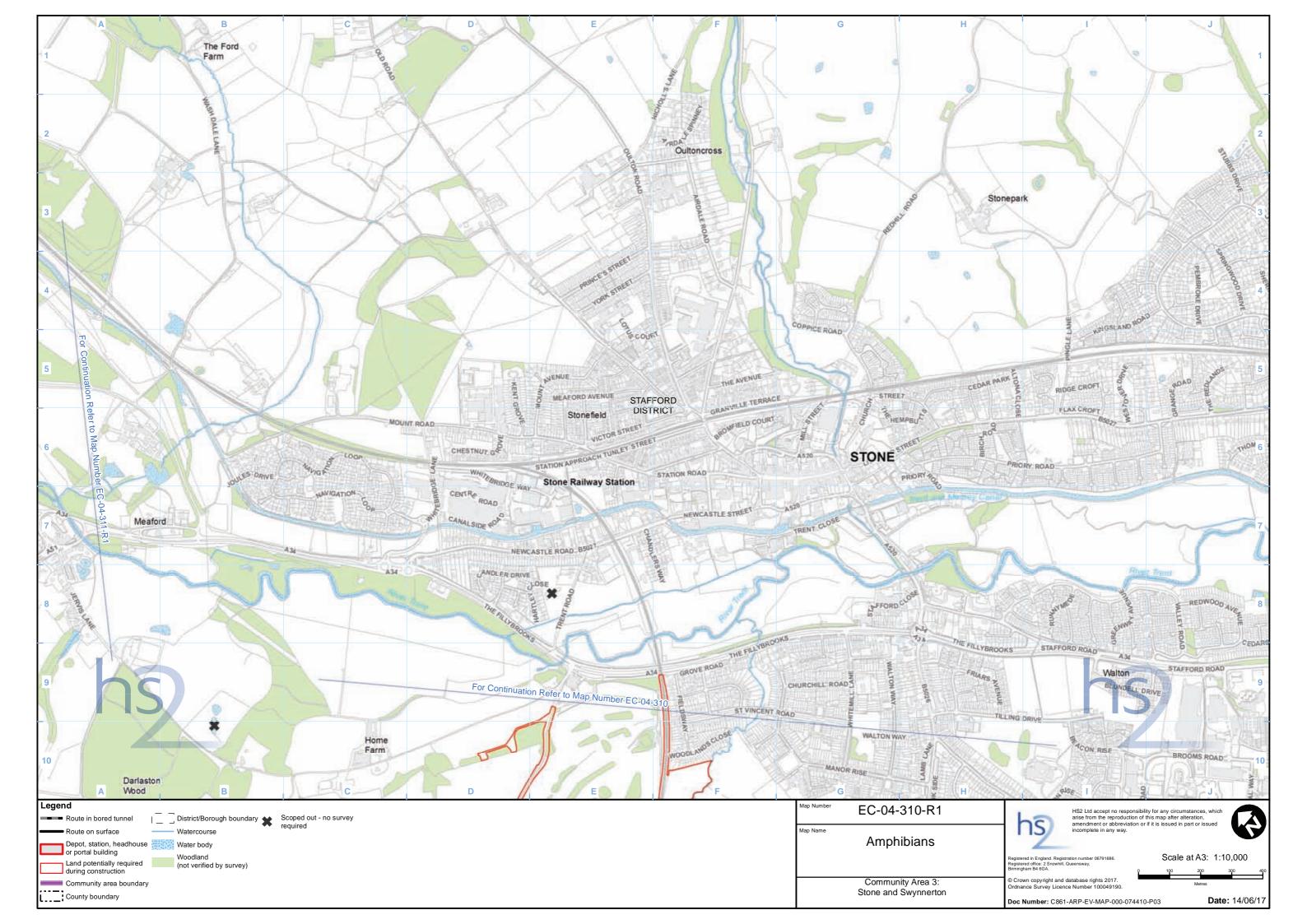


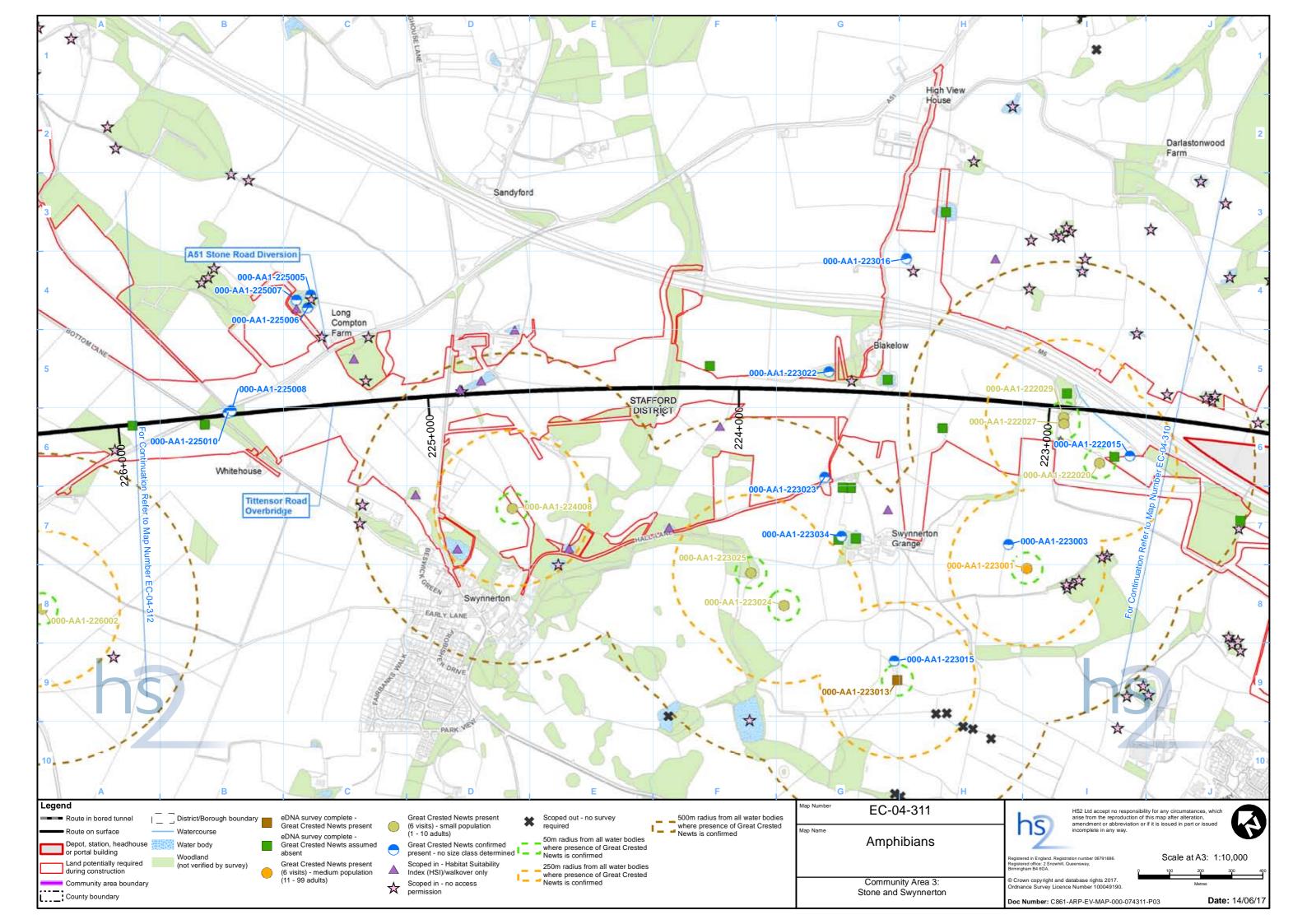


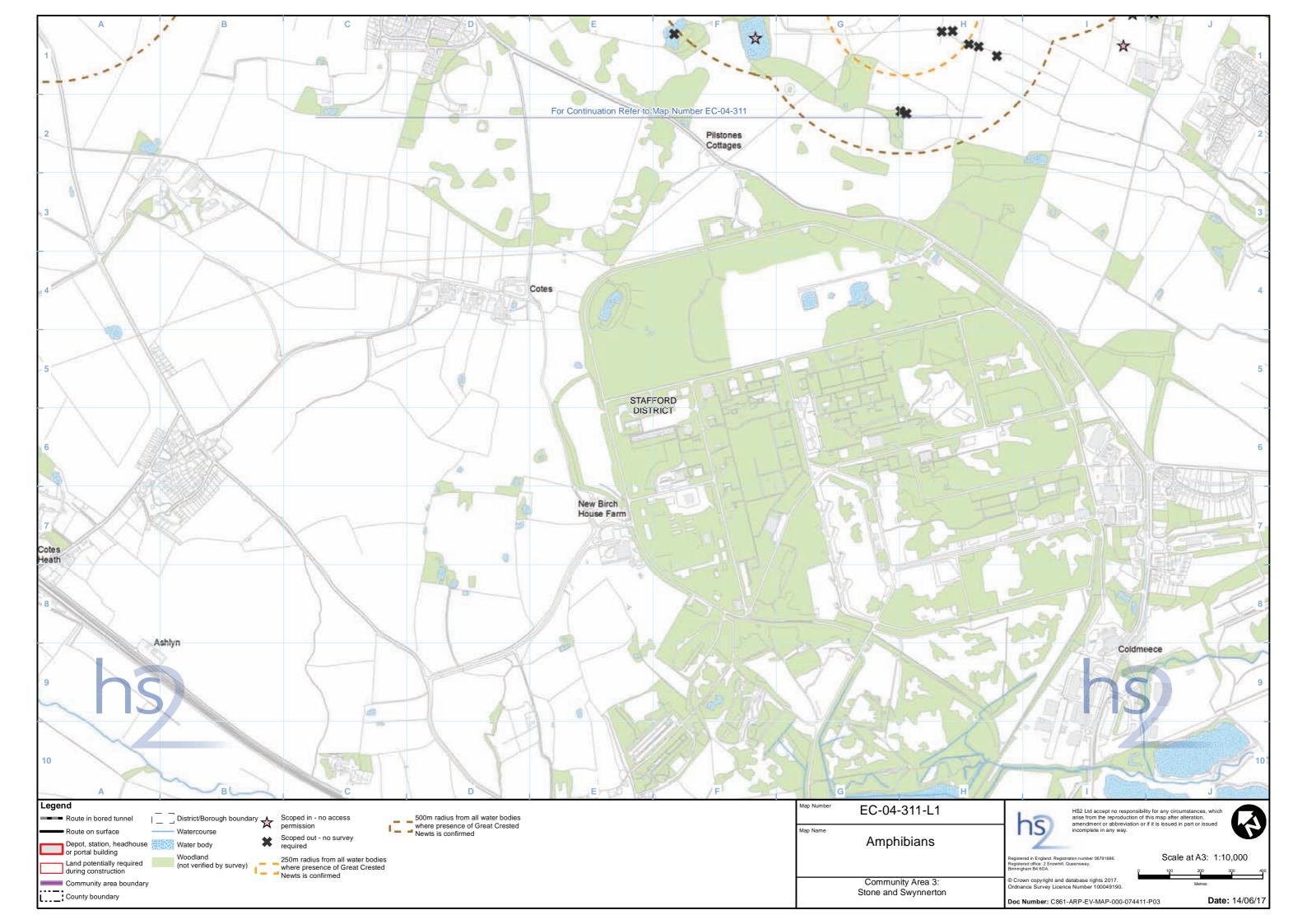


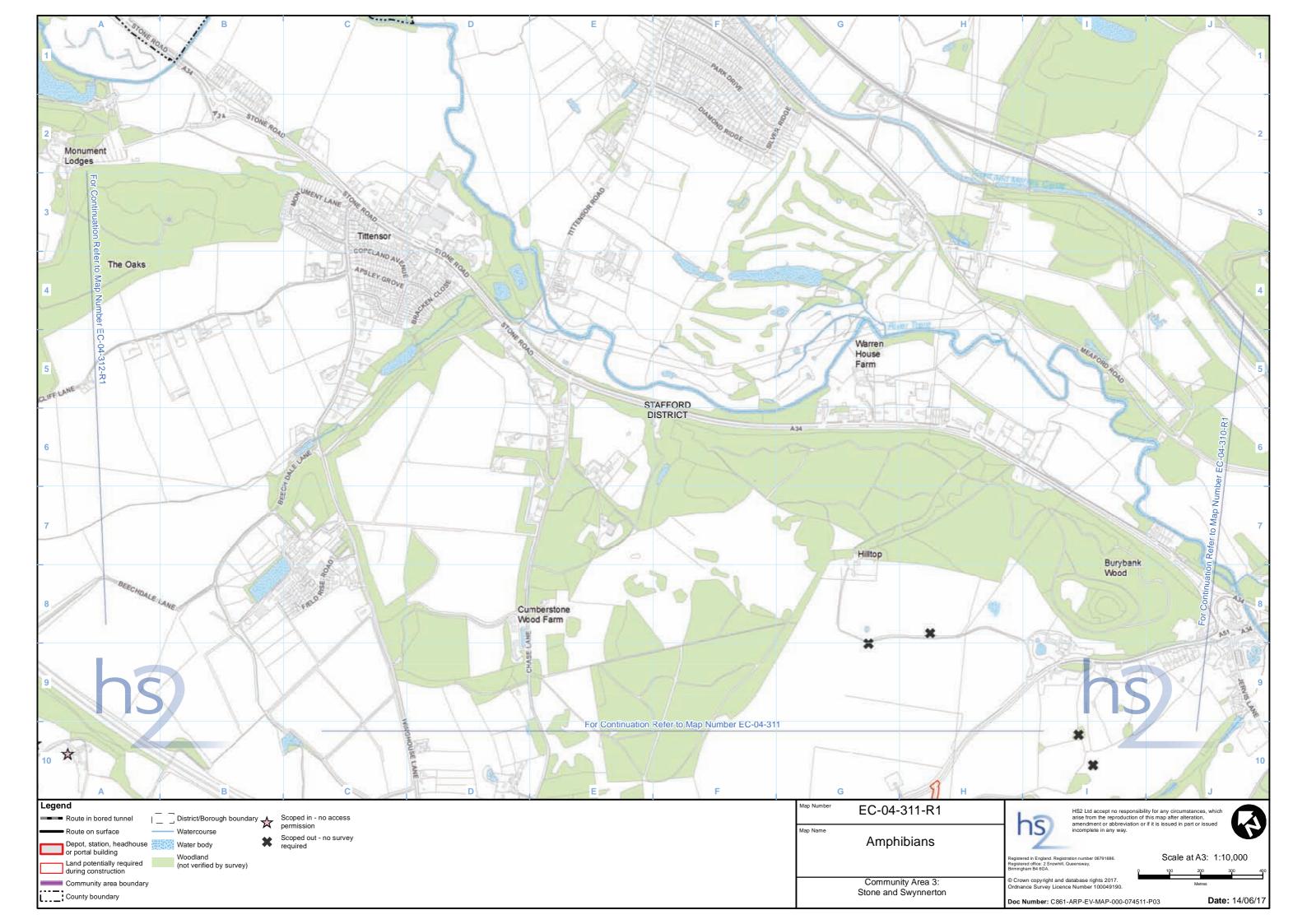


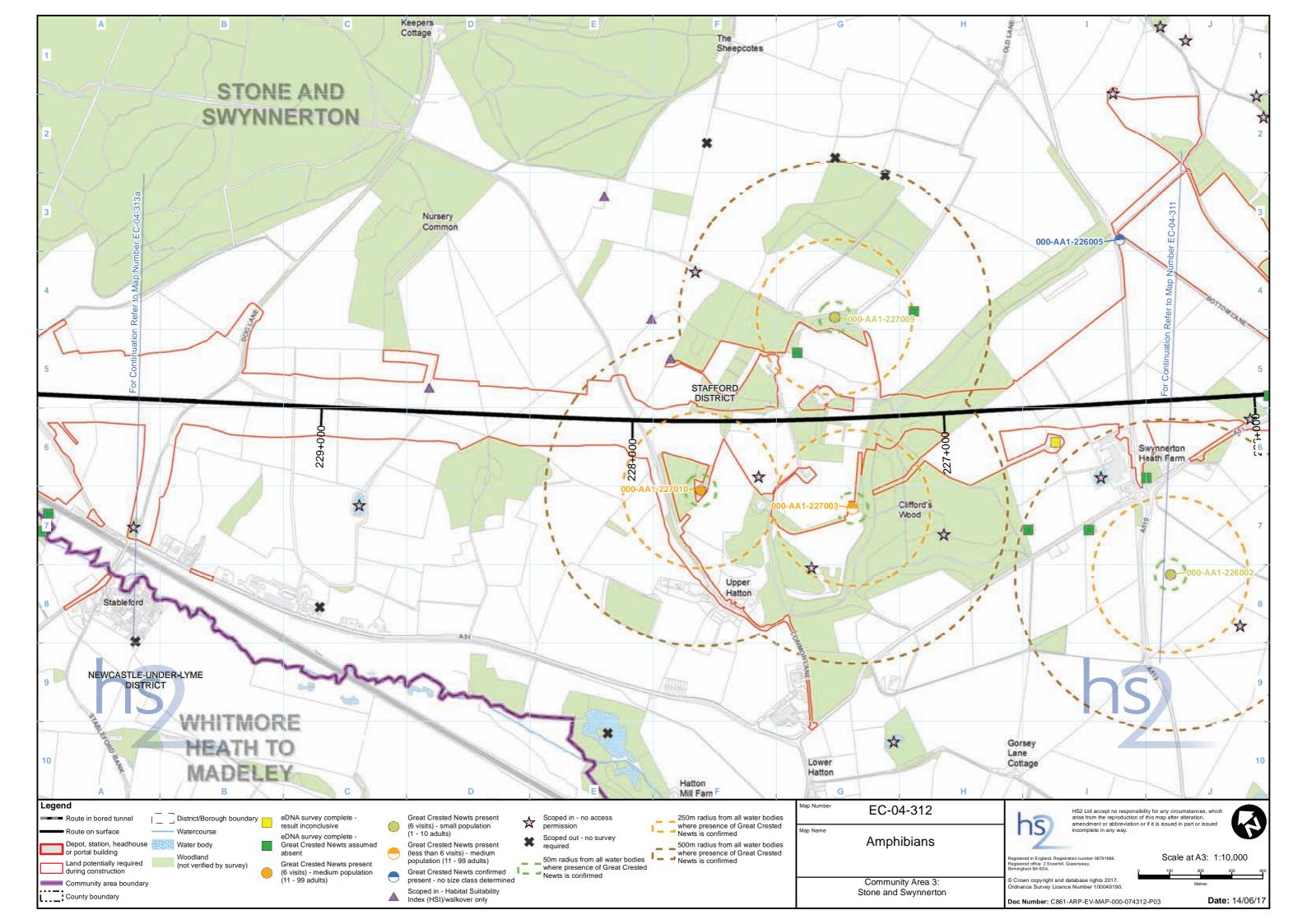


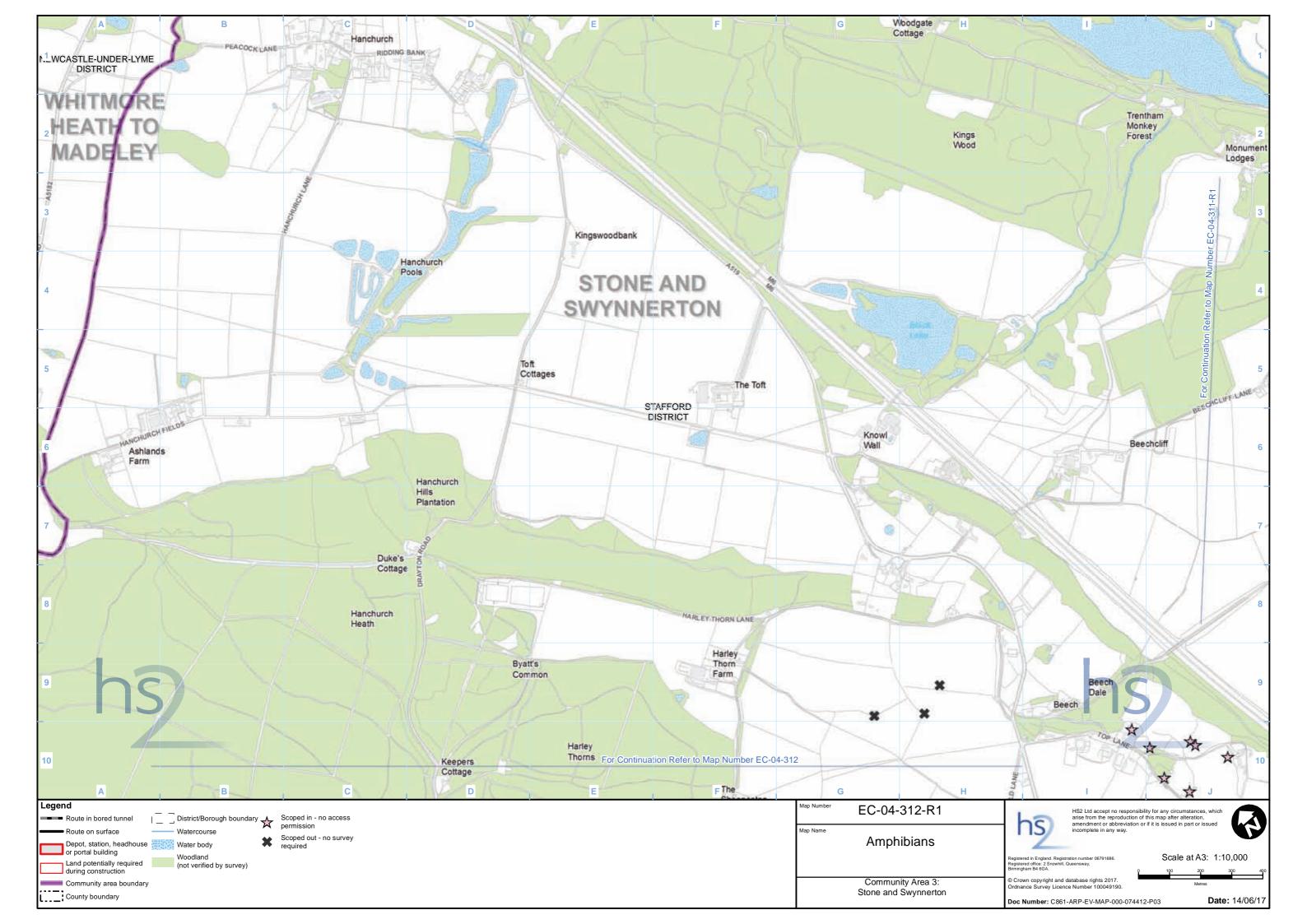


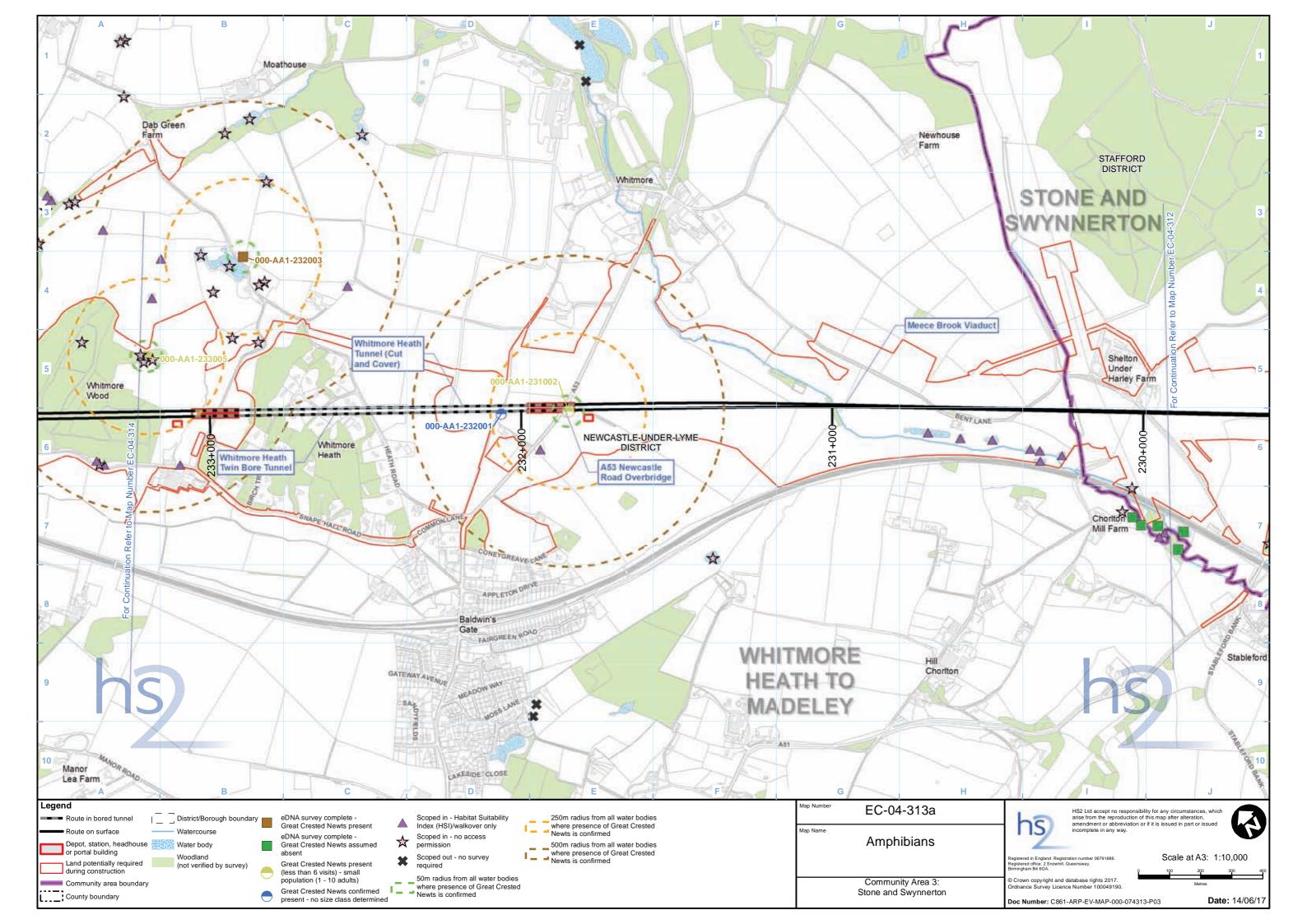


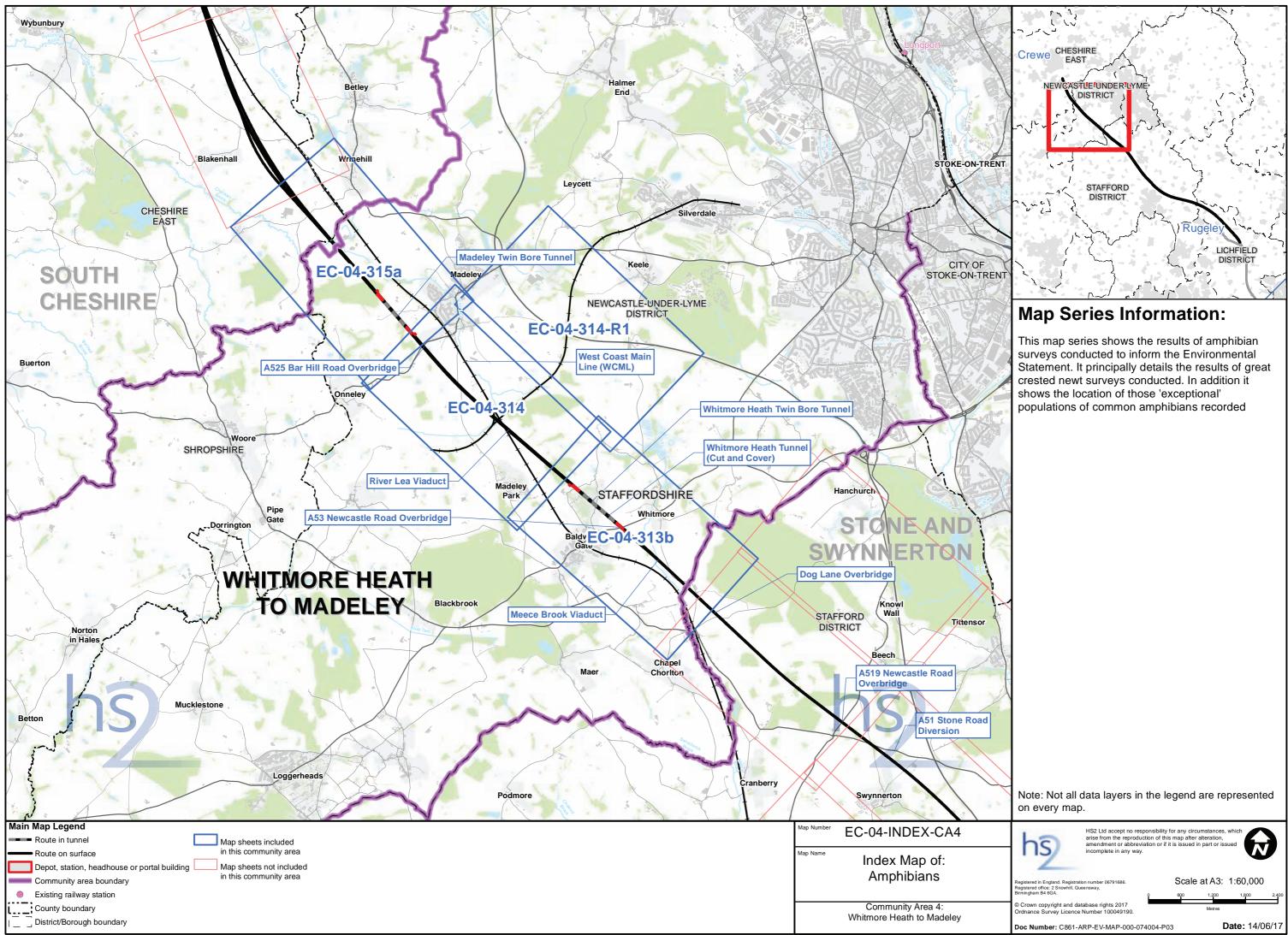


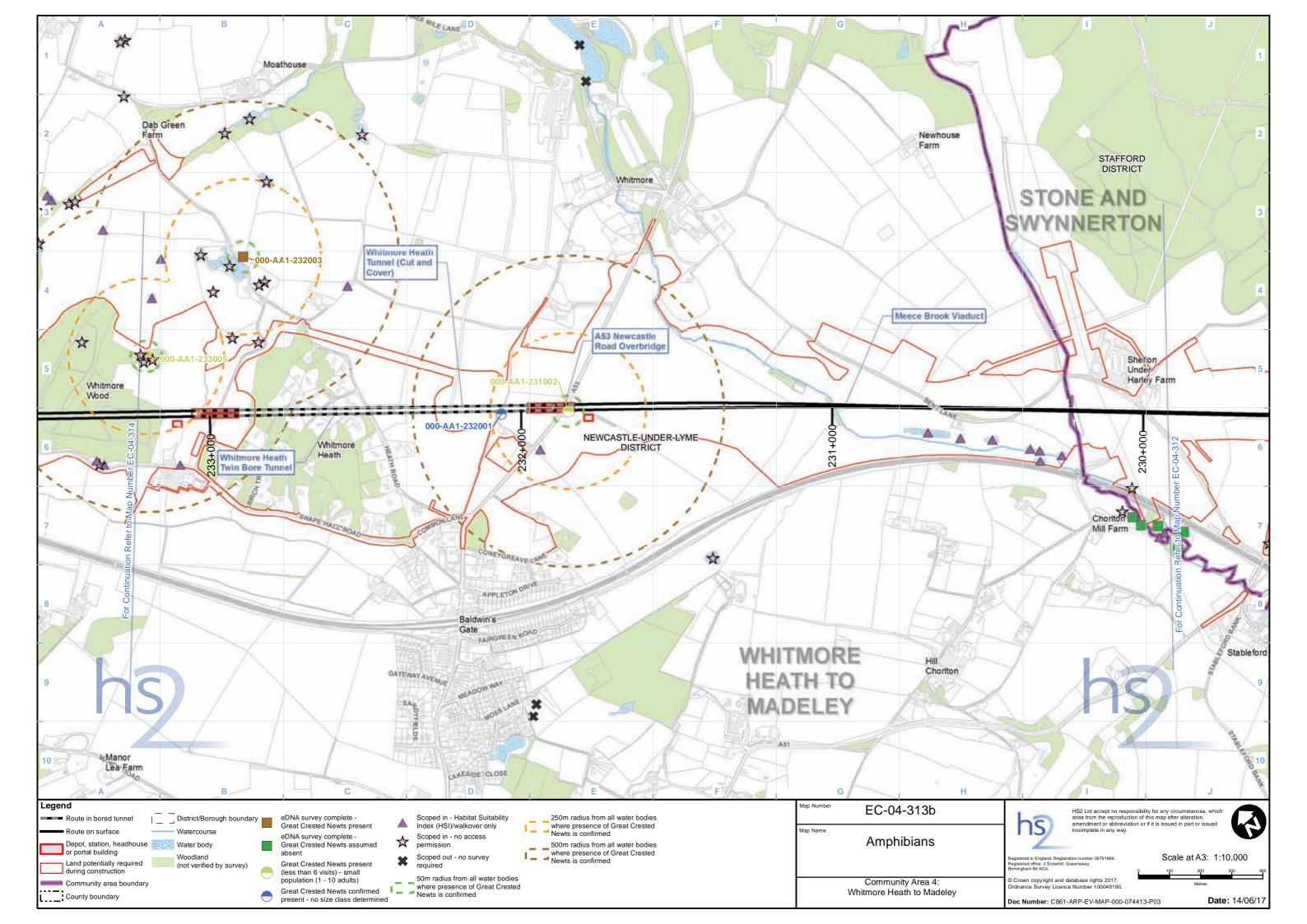


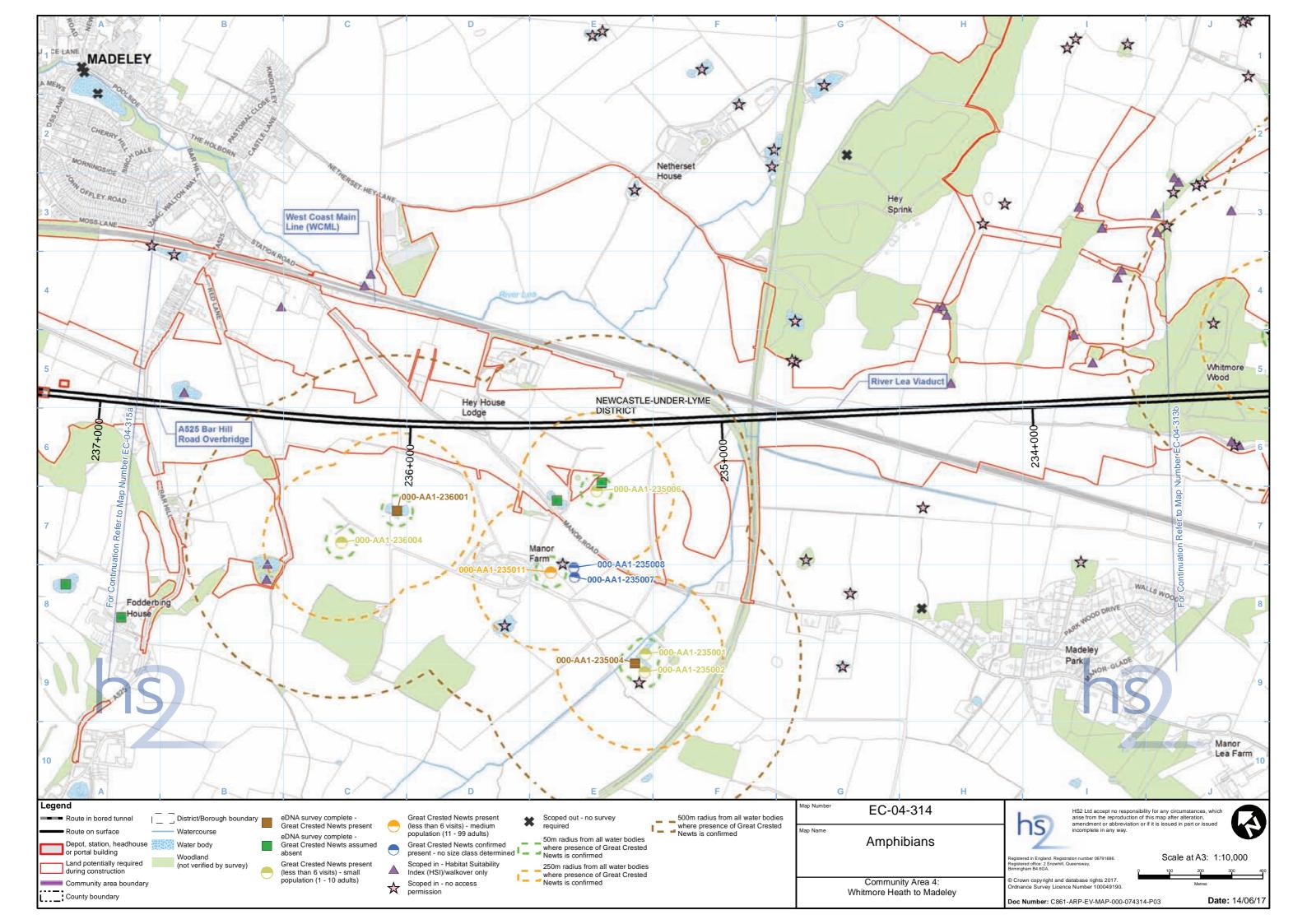


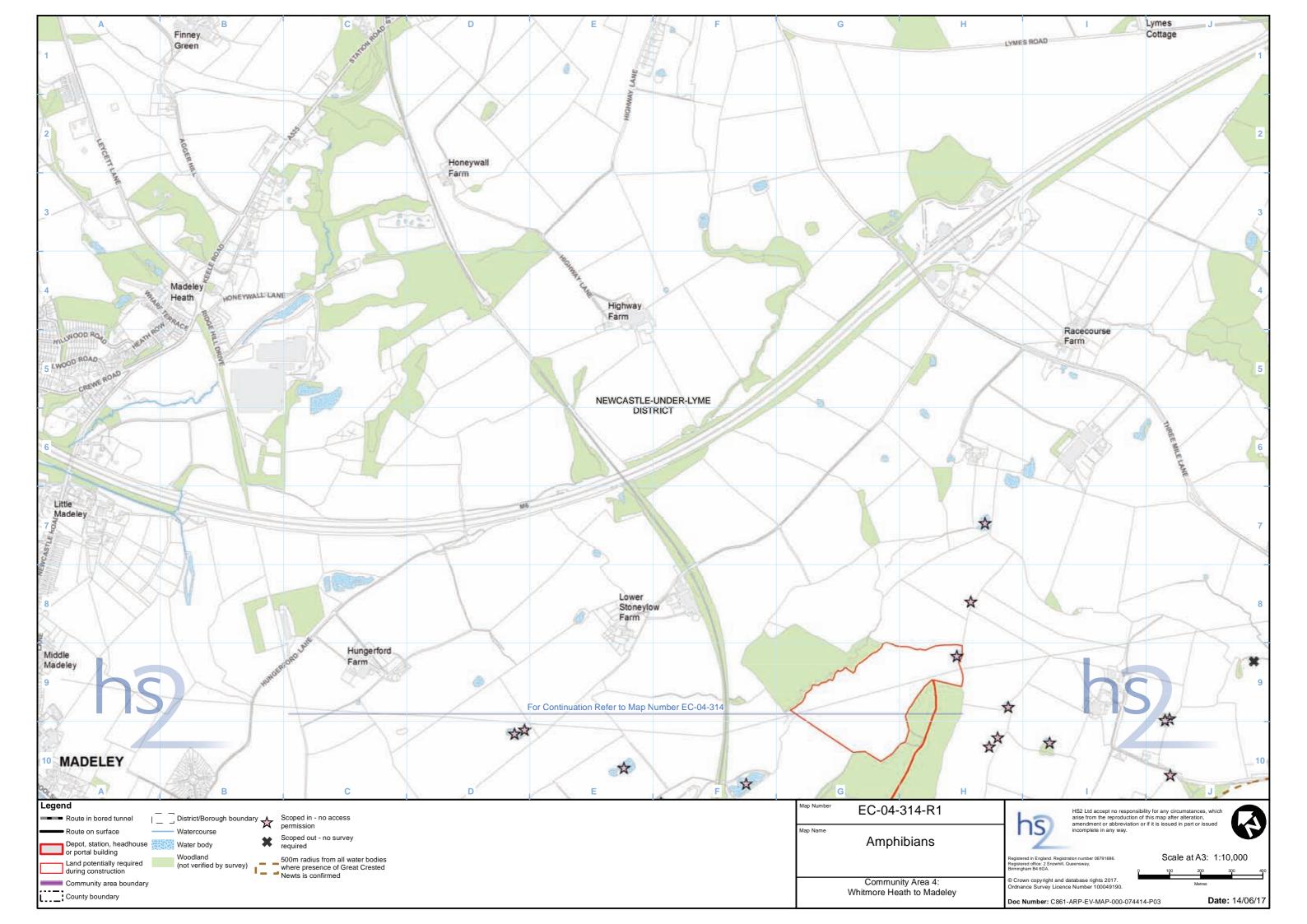


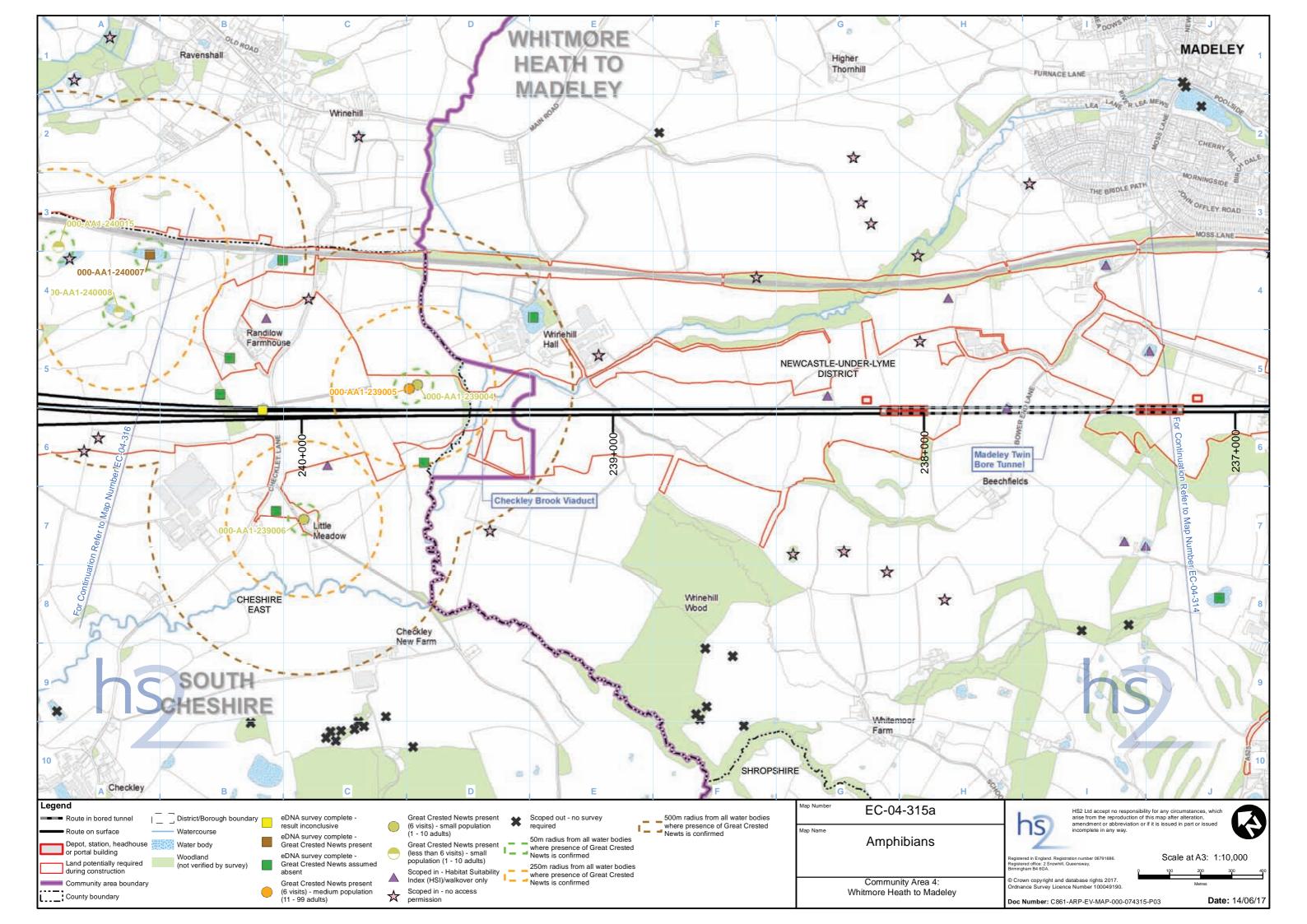




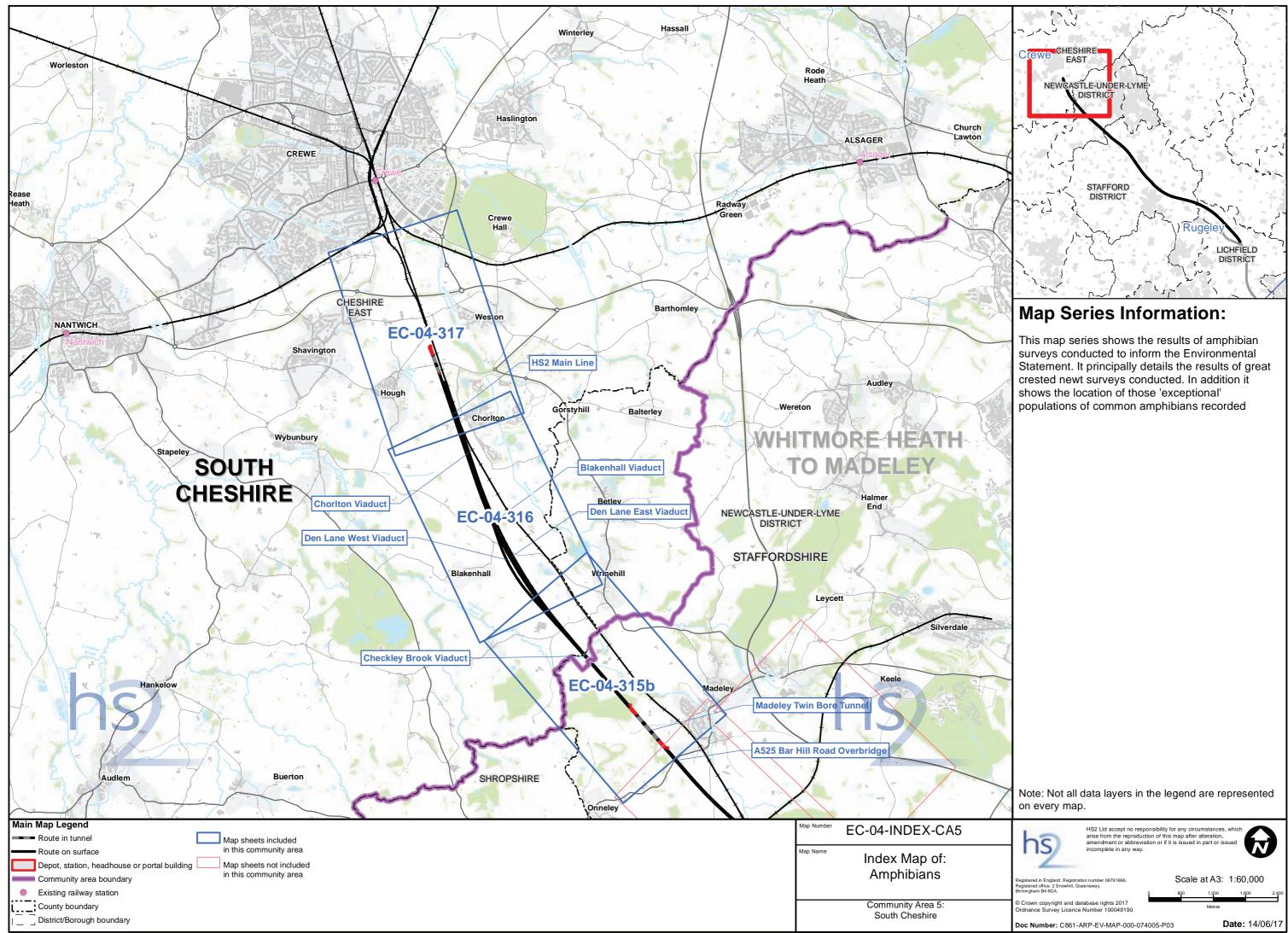


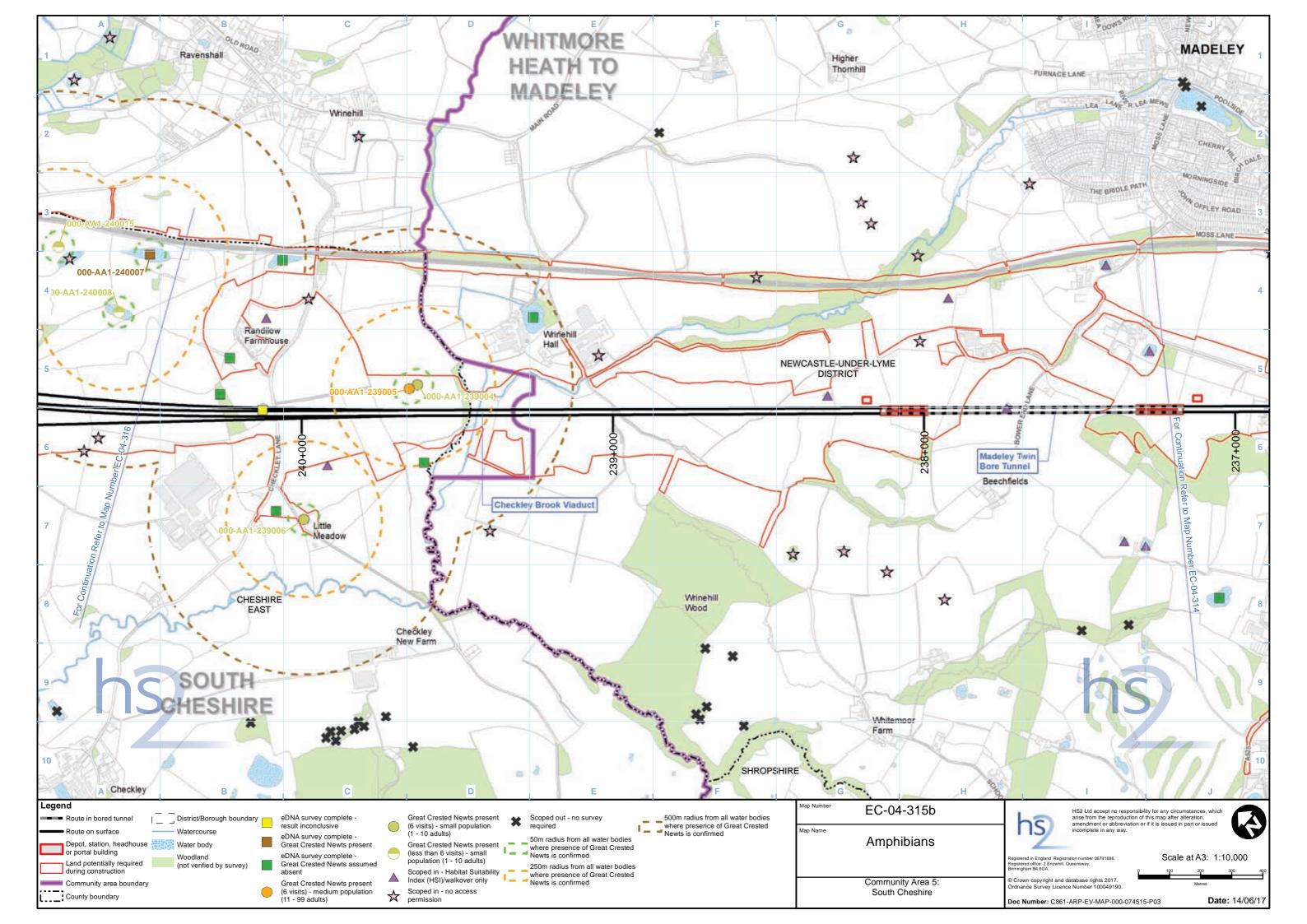


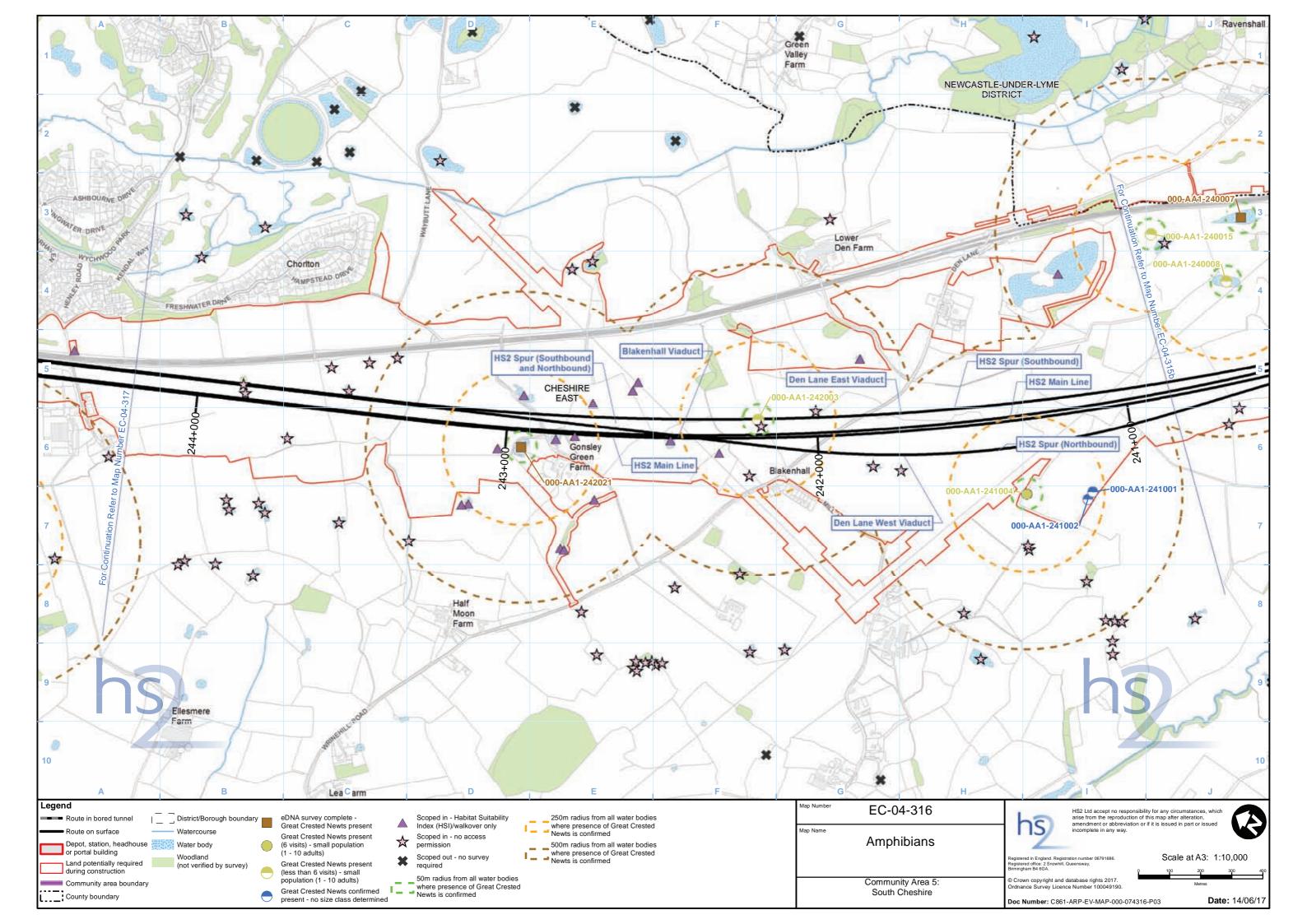


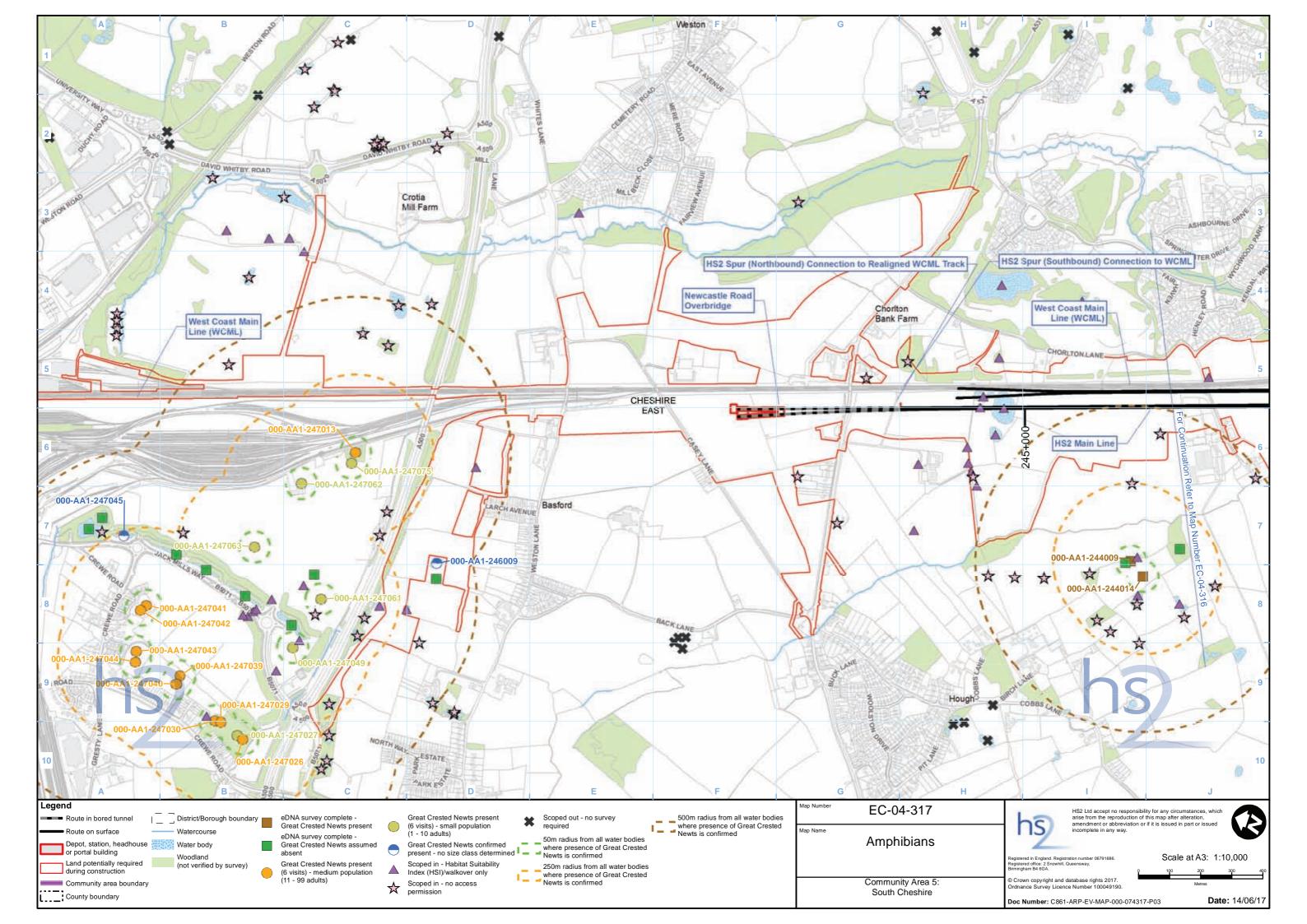


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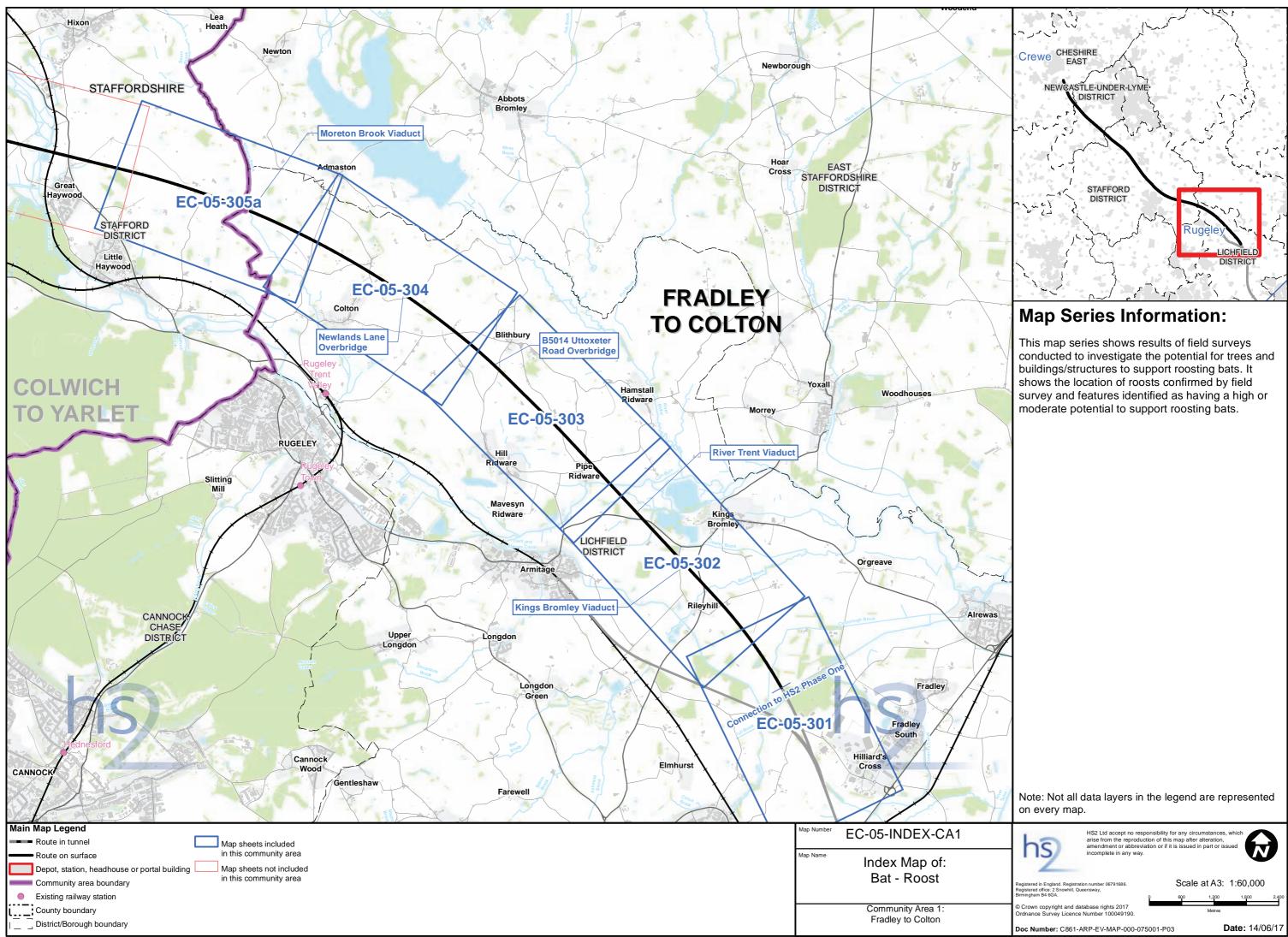


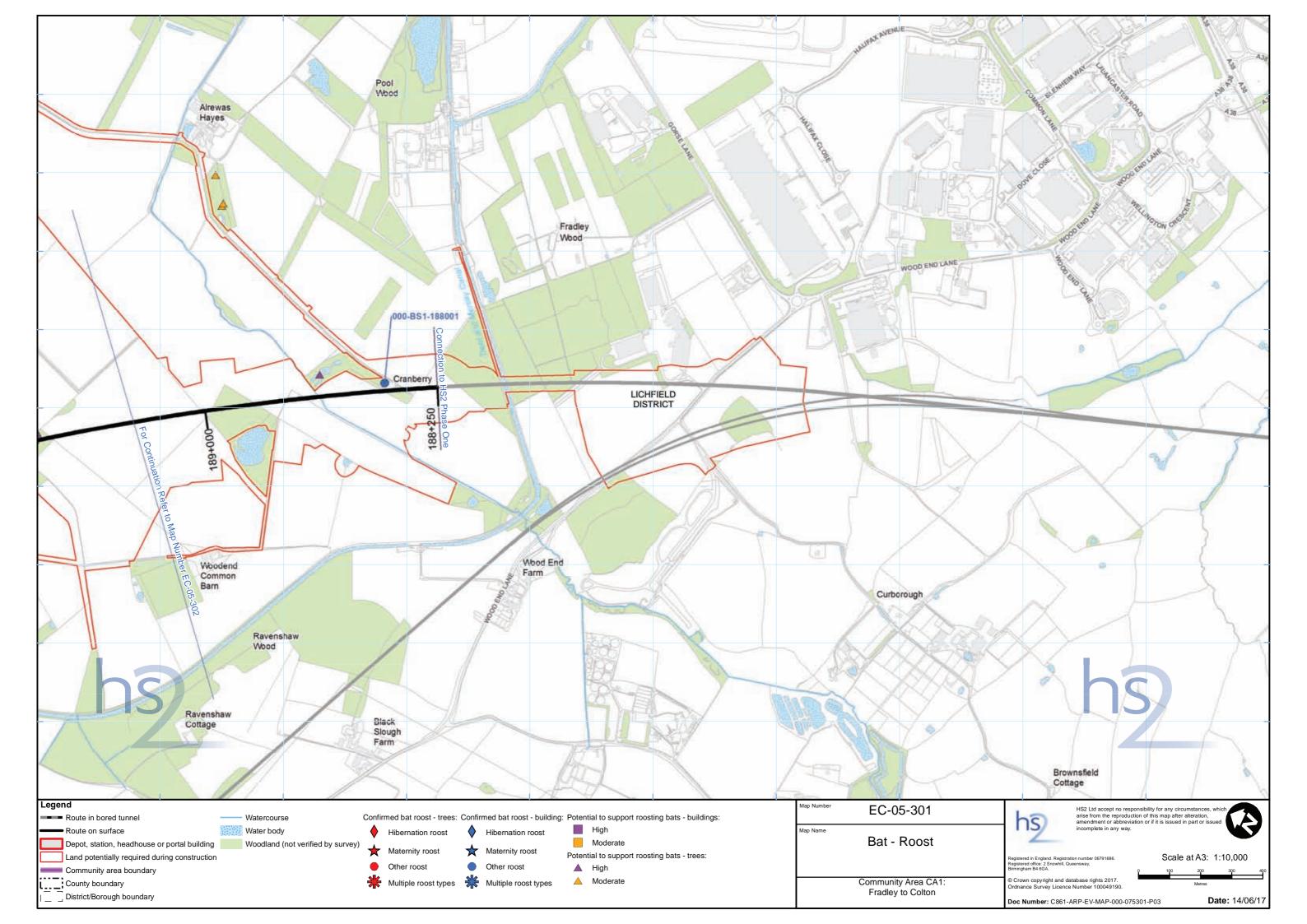


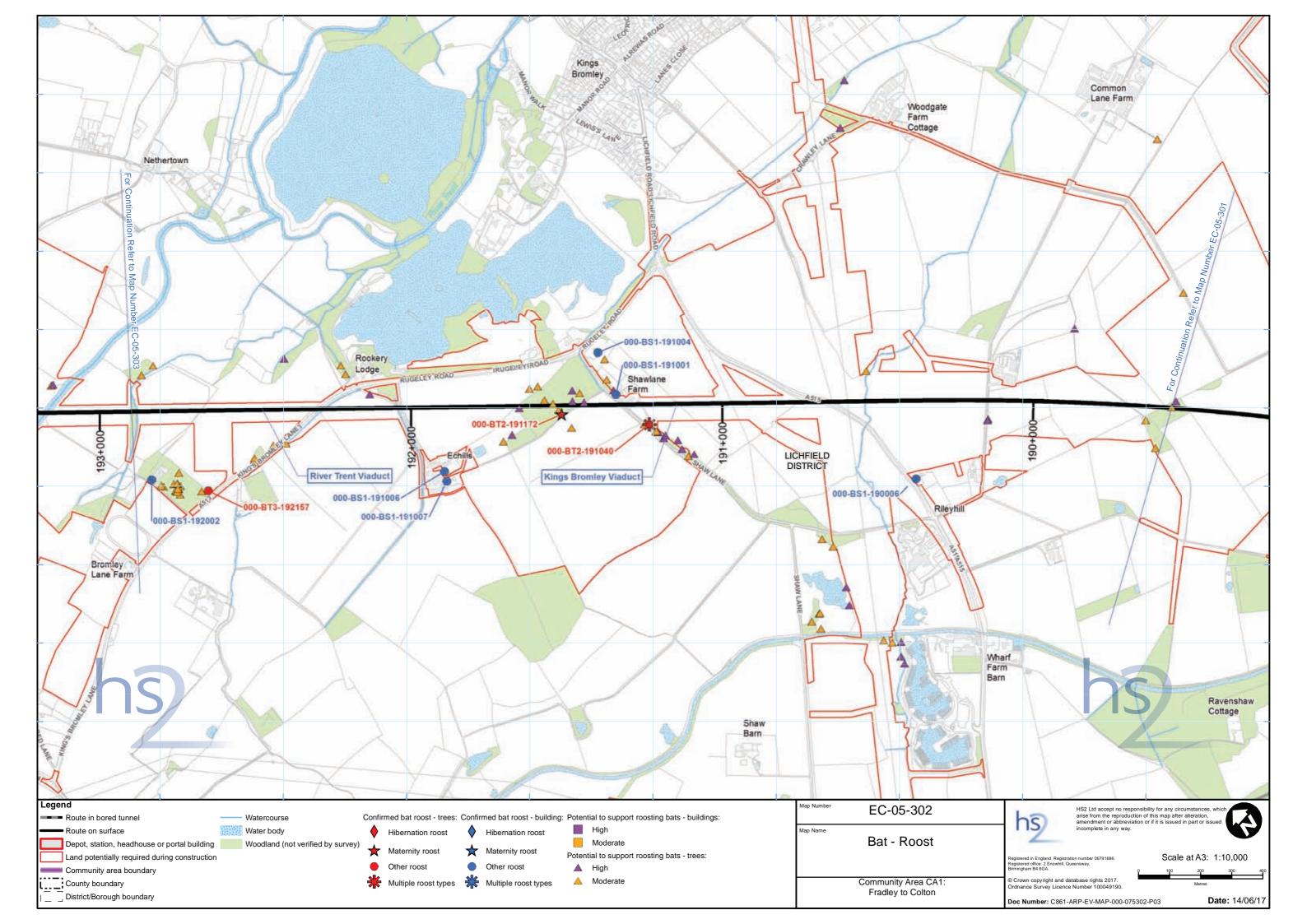
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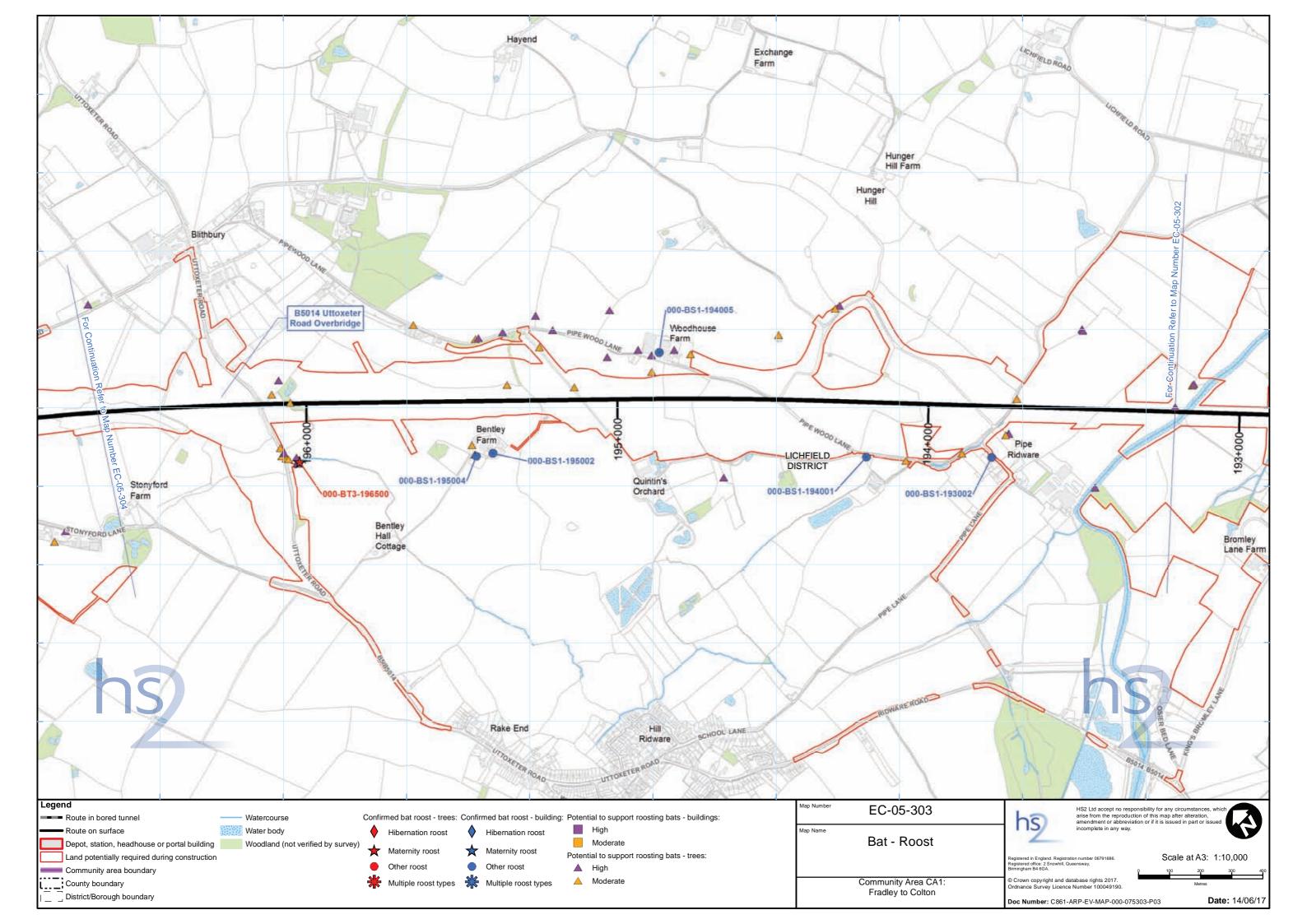
High Speed Two Phase 2a (West Midlands-Crewe) Background Information and Data **EC-05 – Bat - Roost**

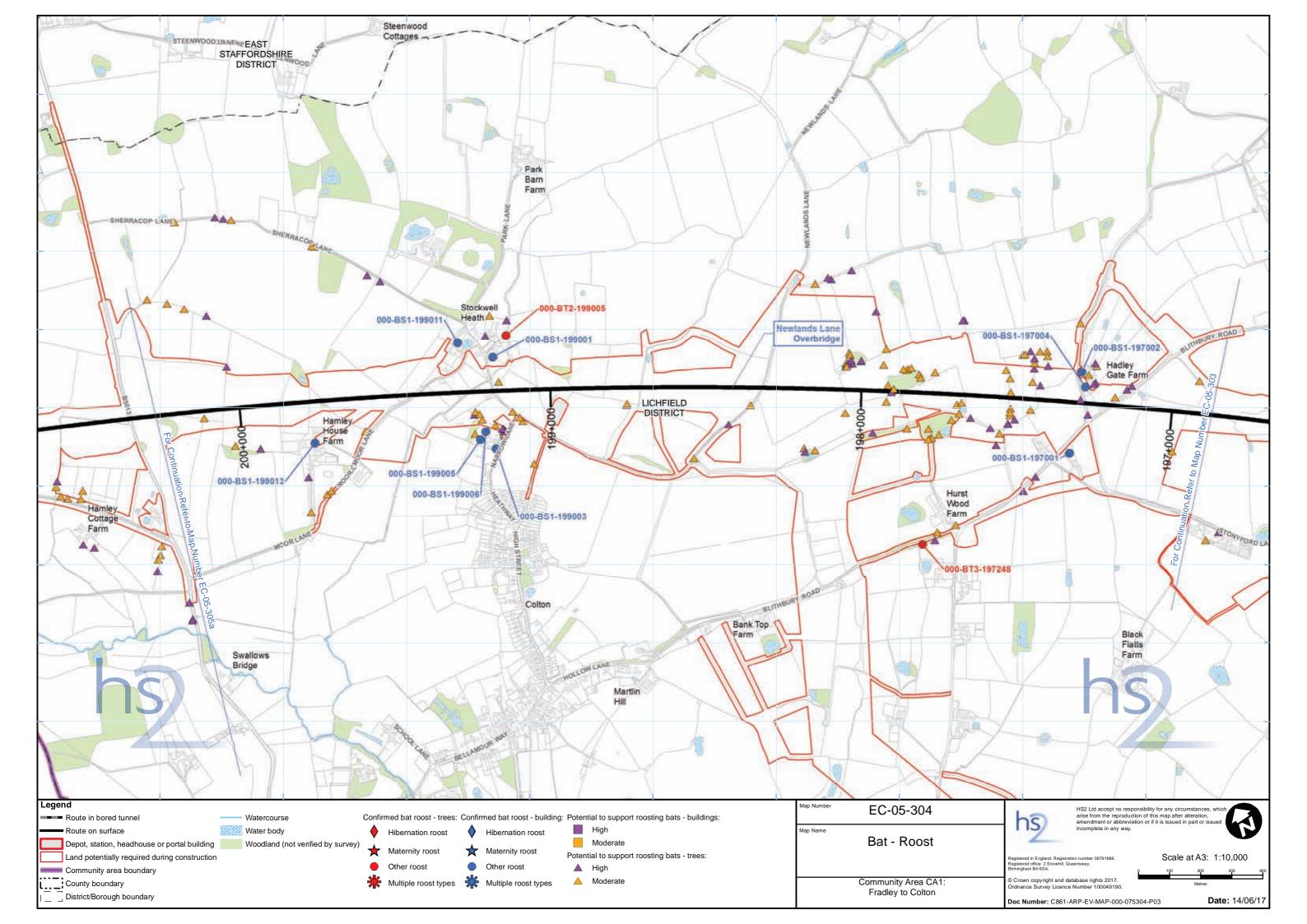


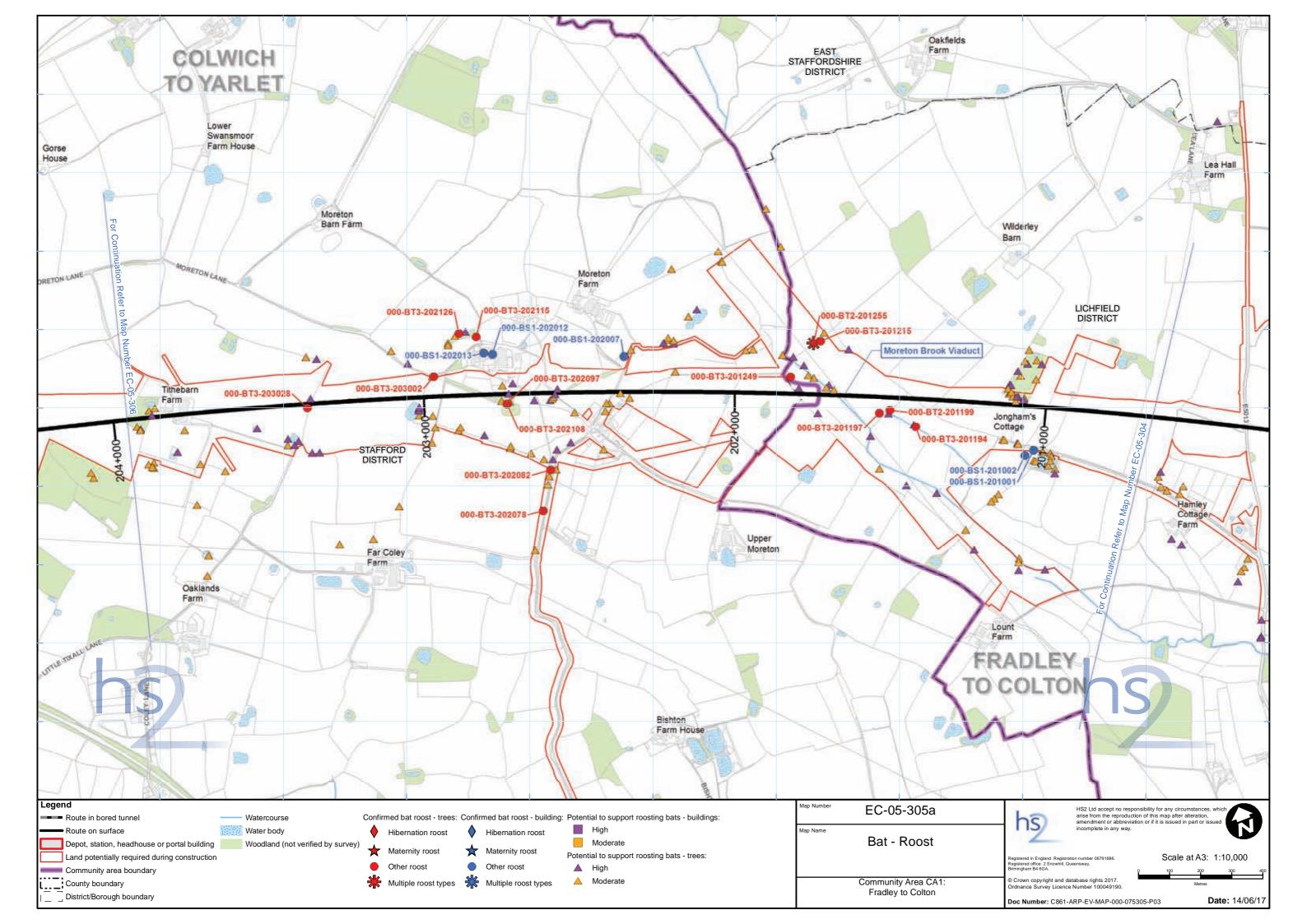


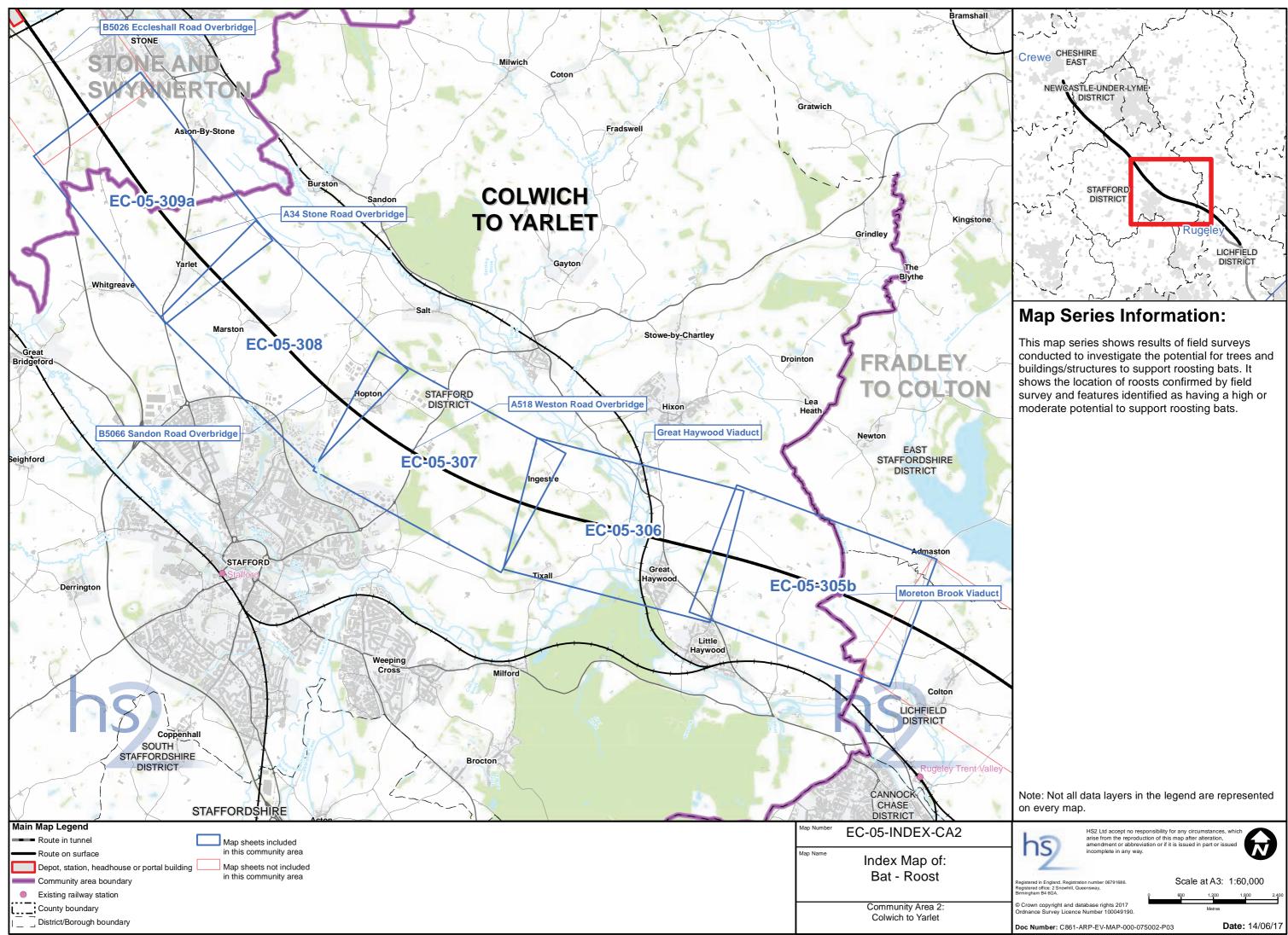


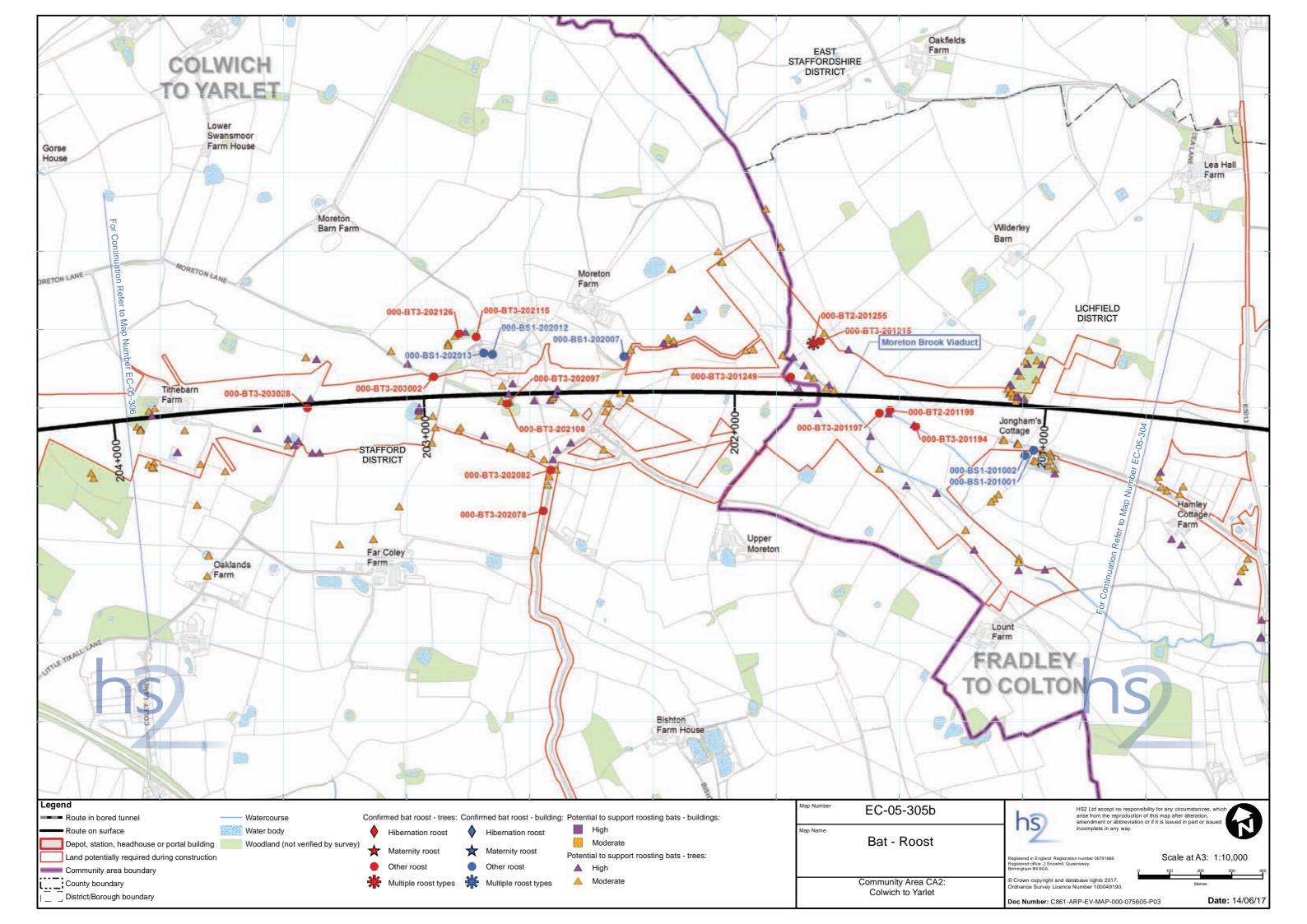


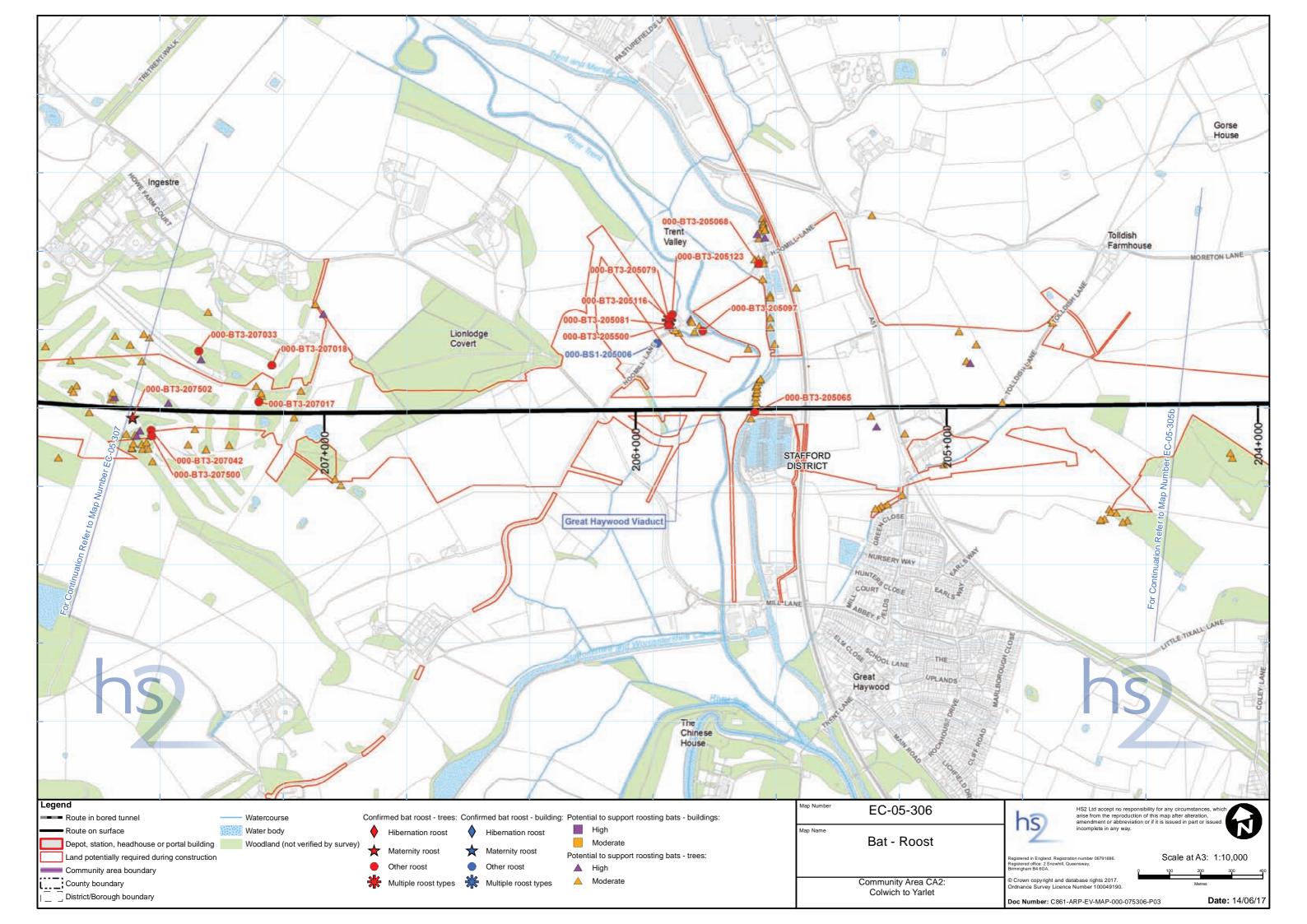


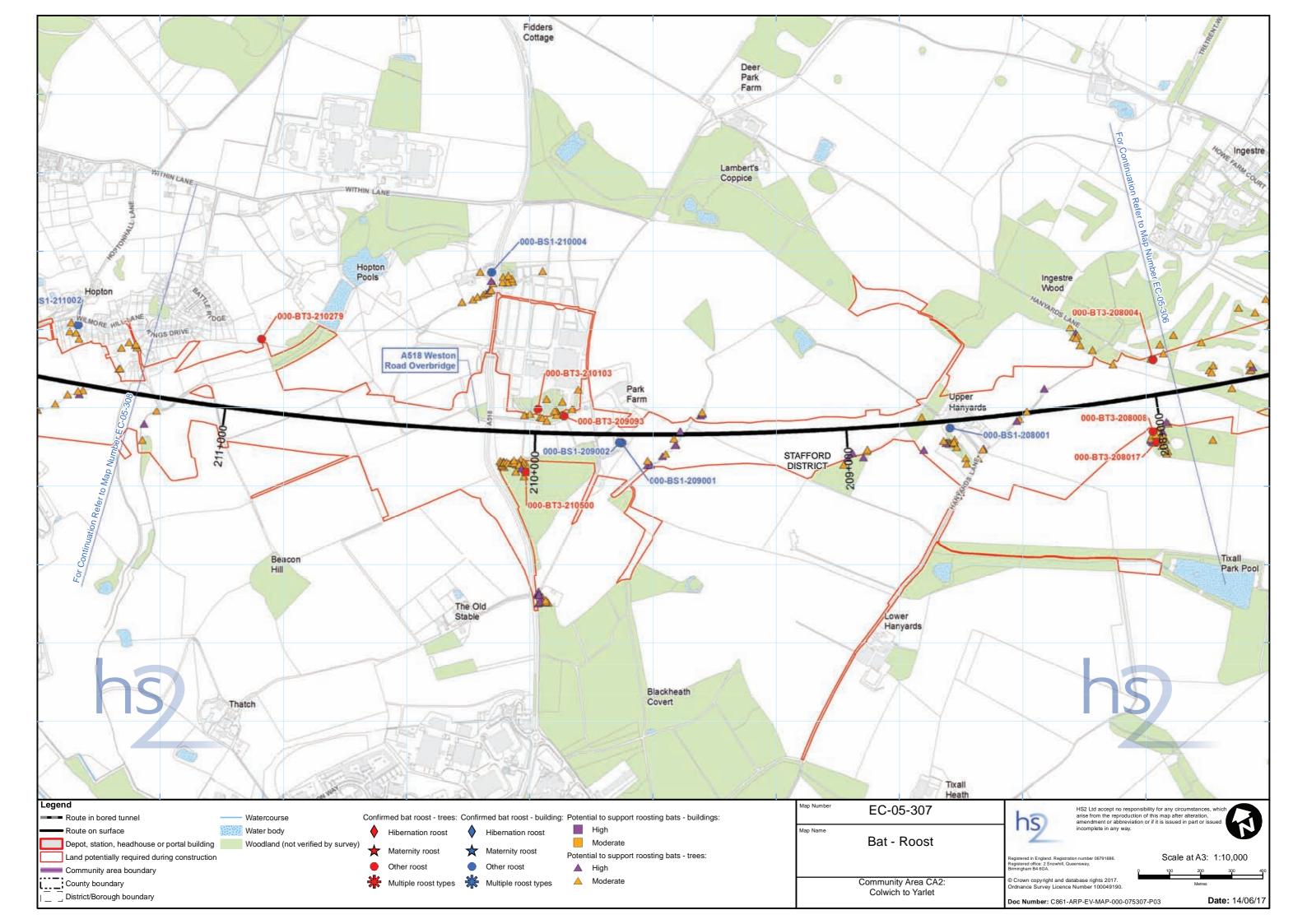


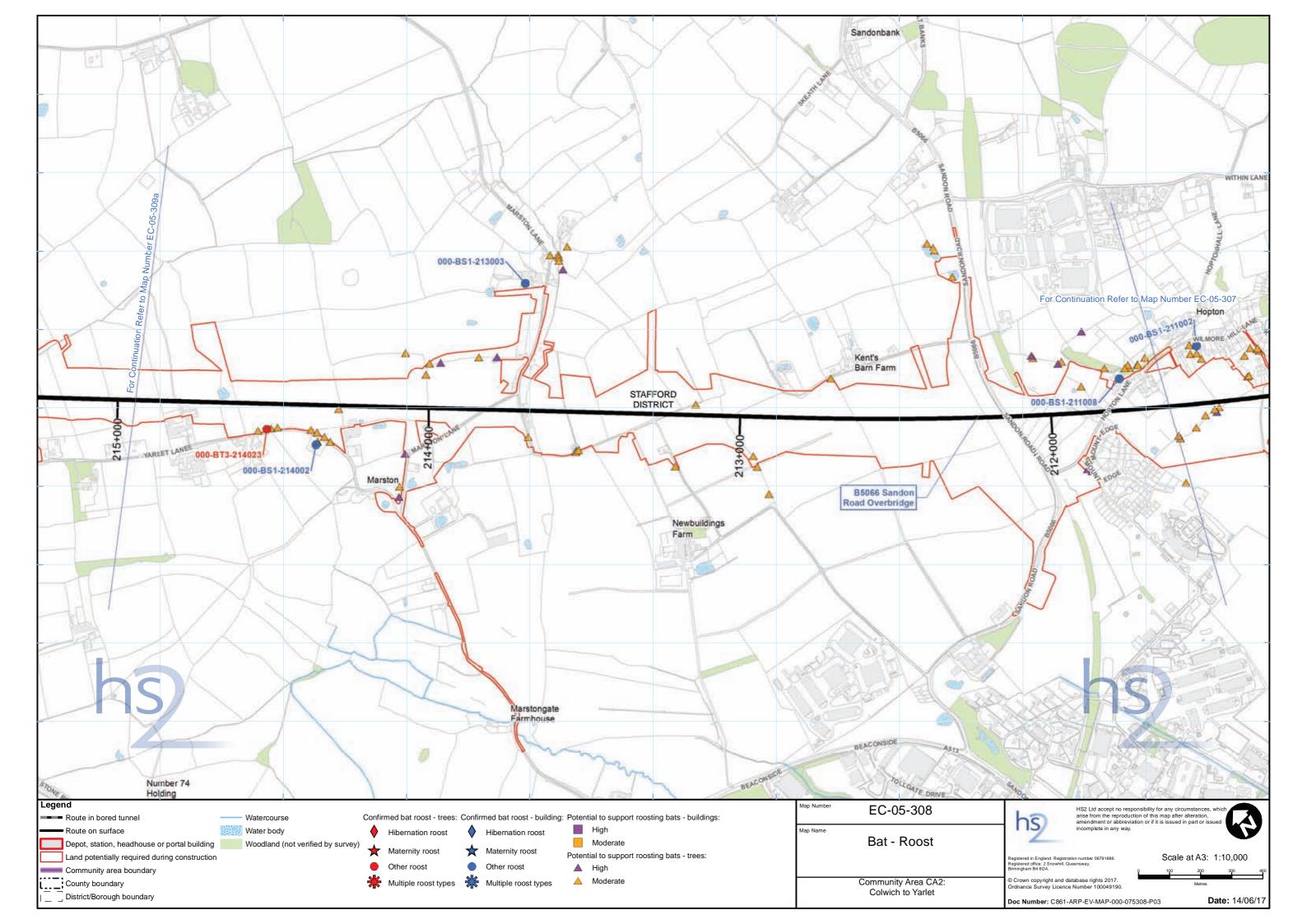


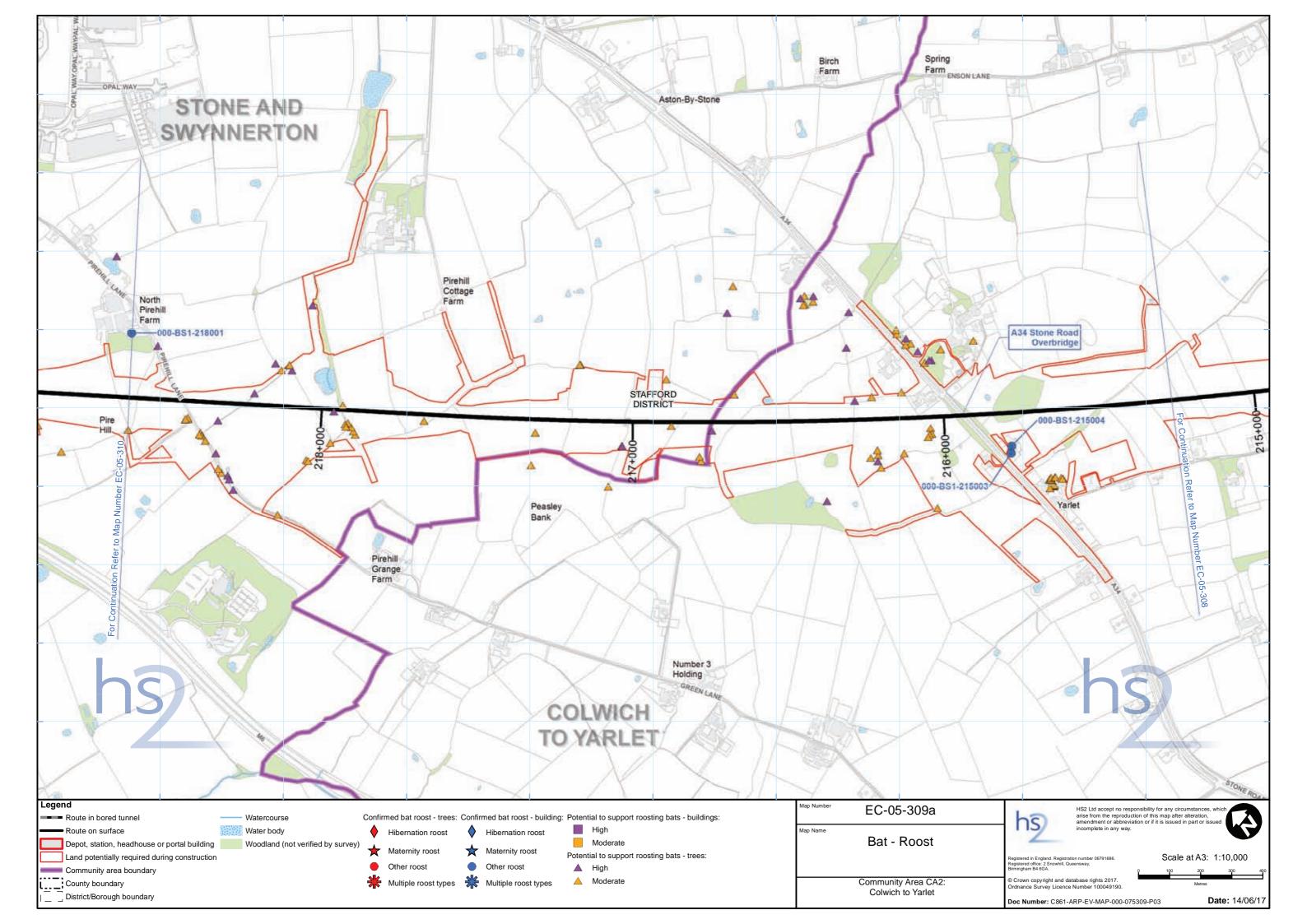


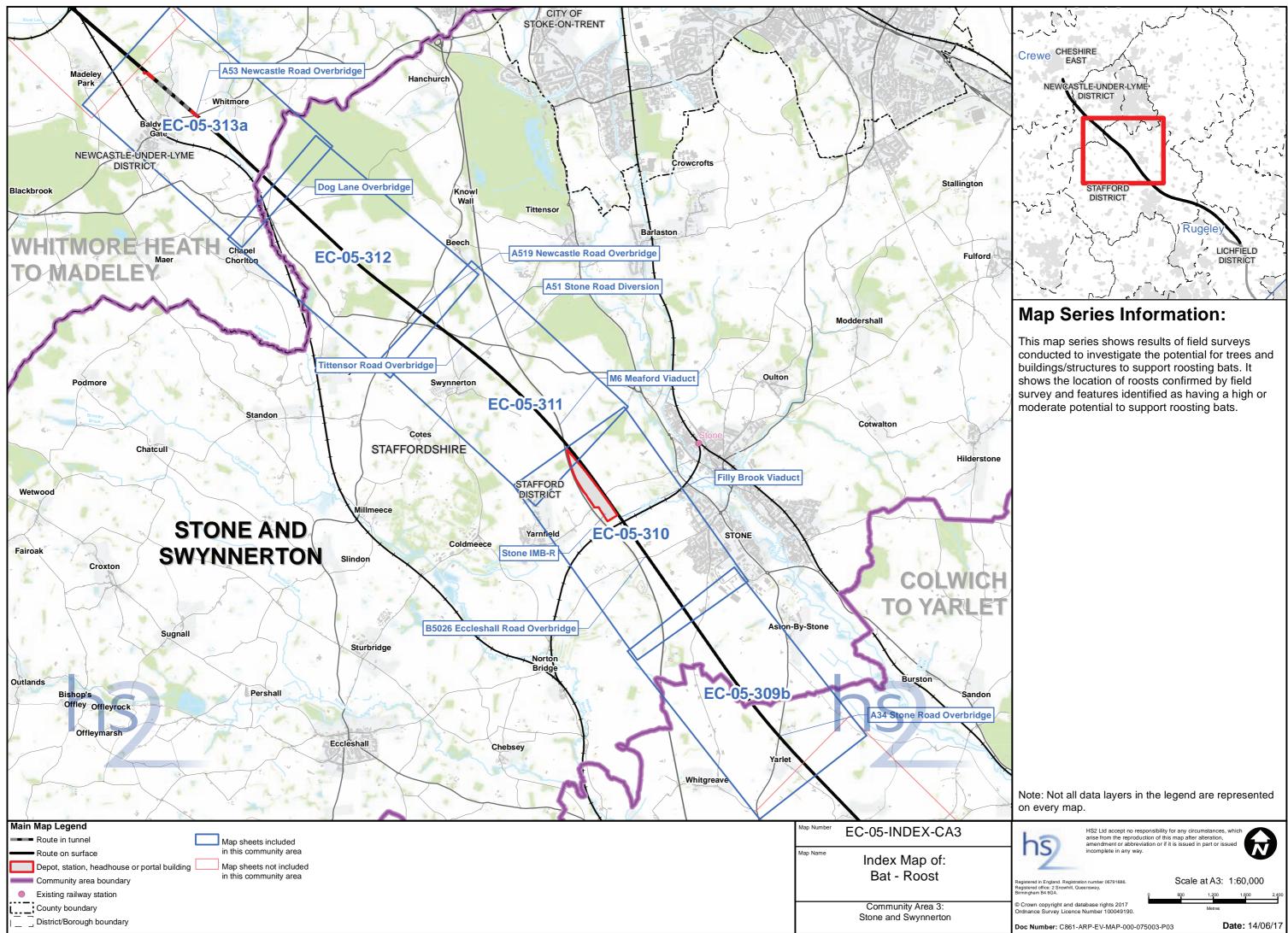


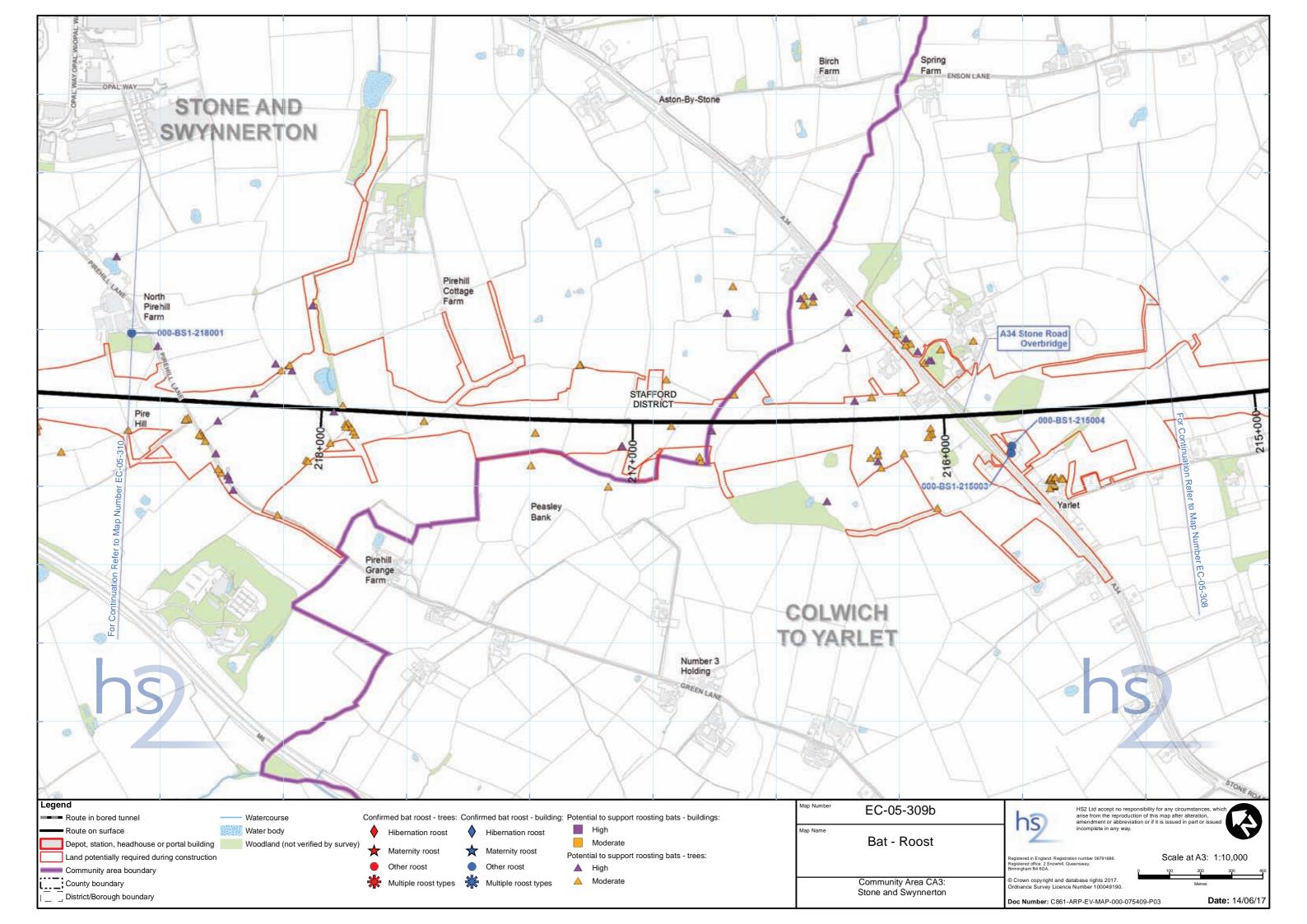


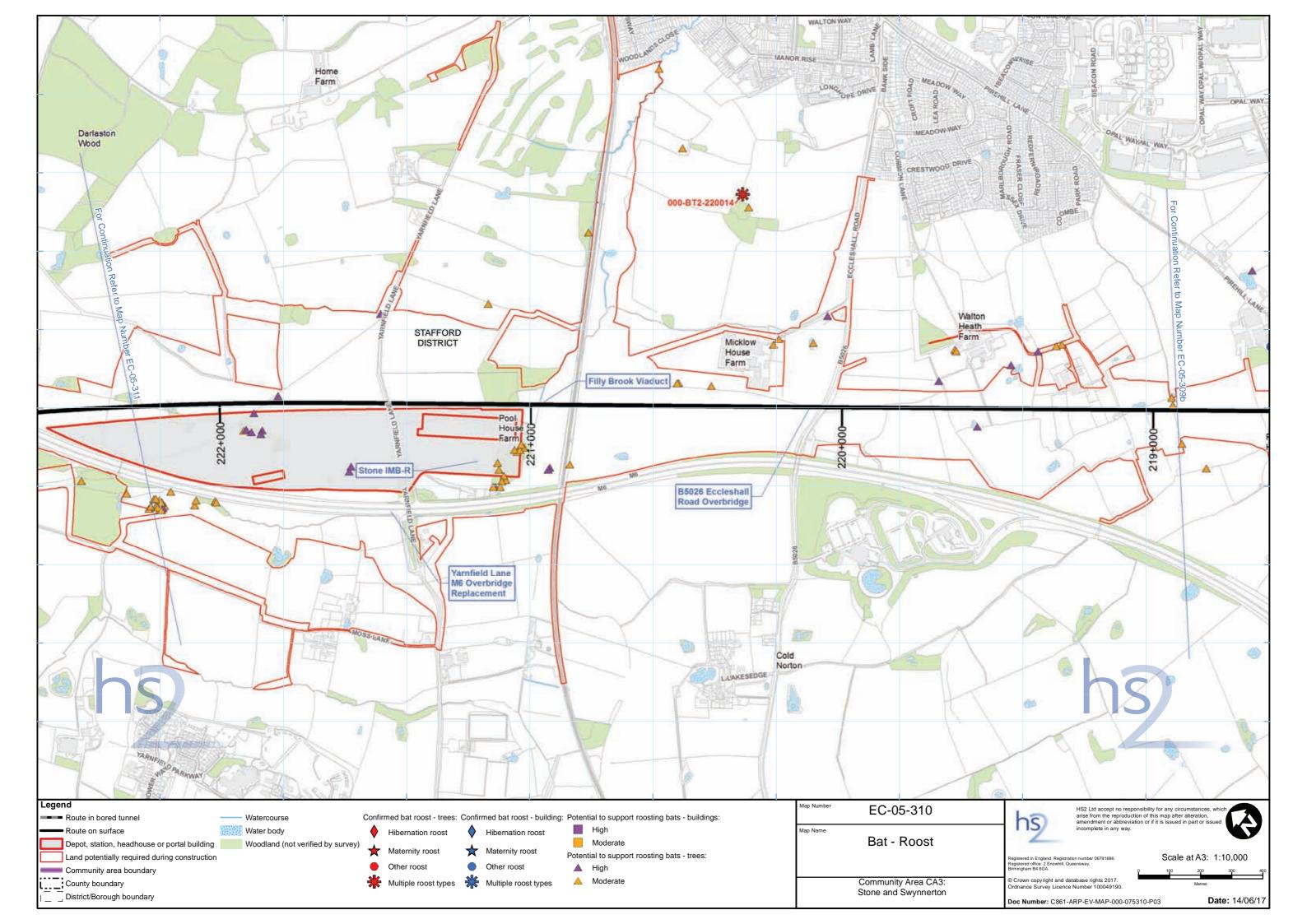


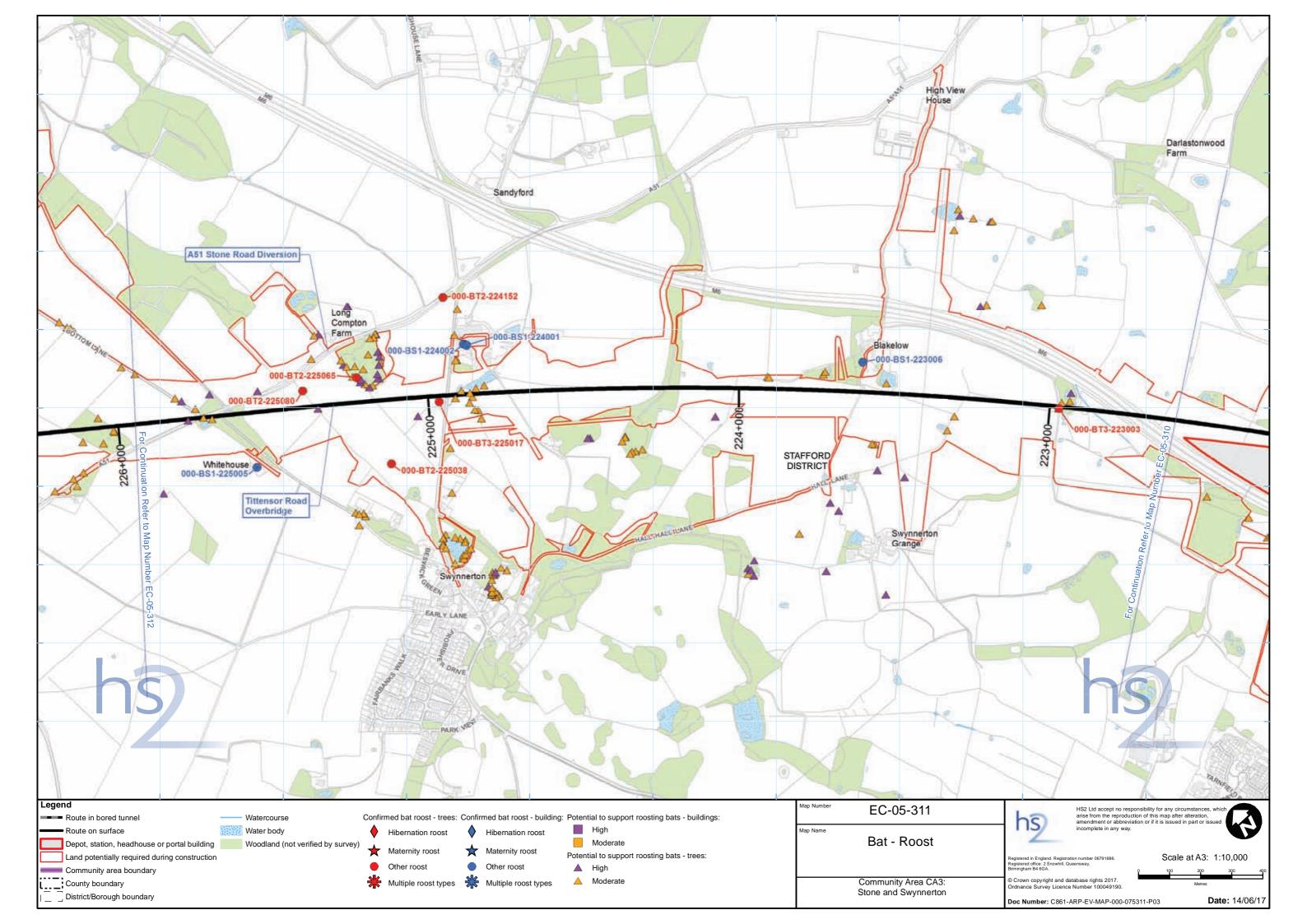


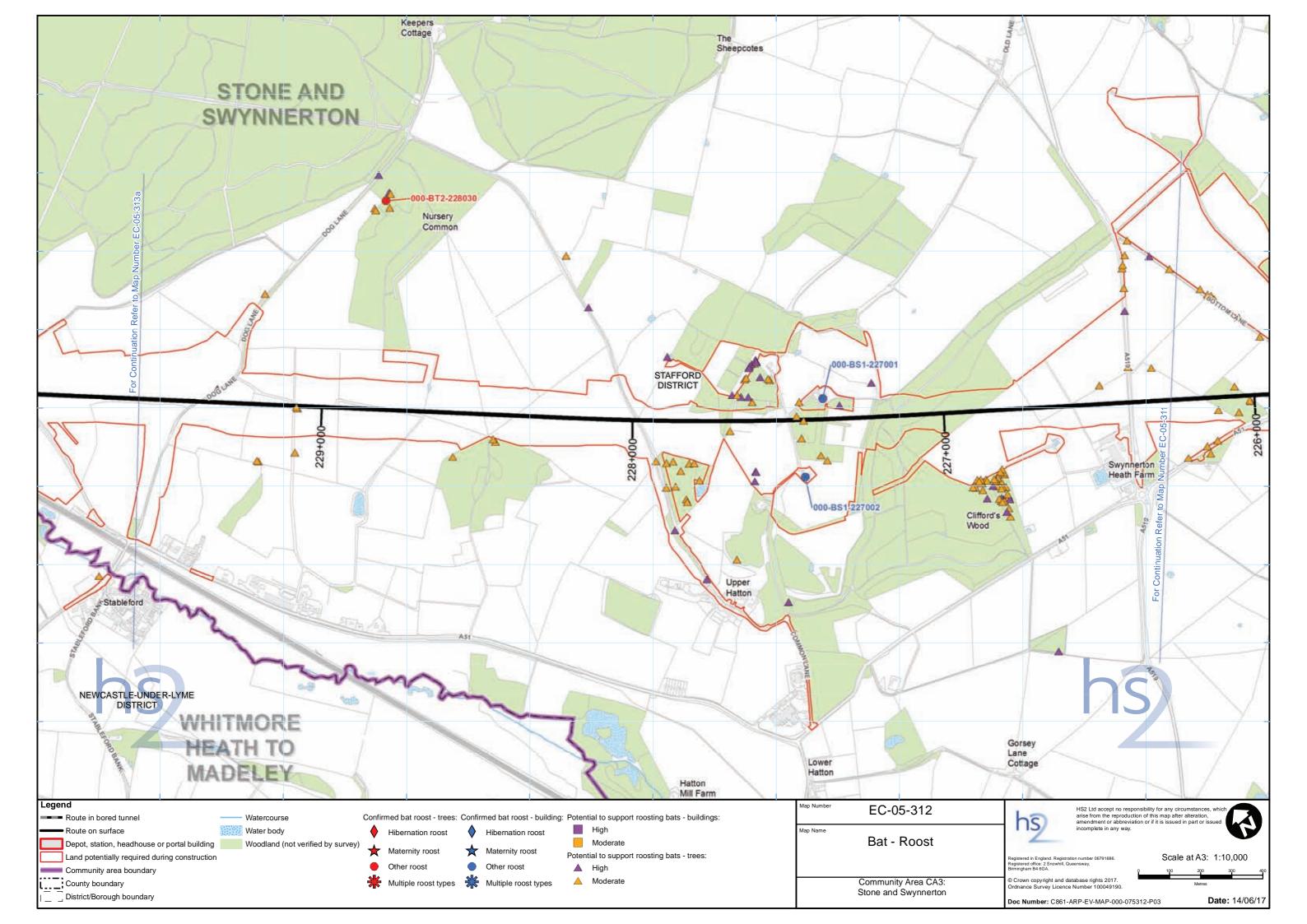


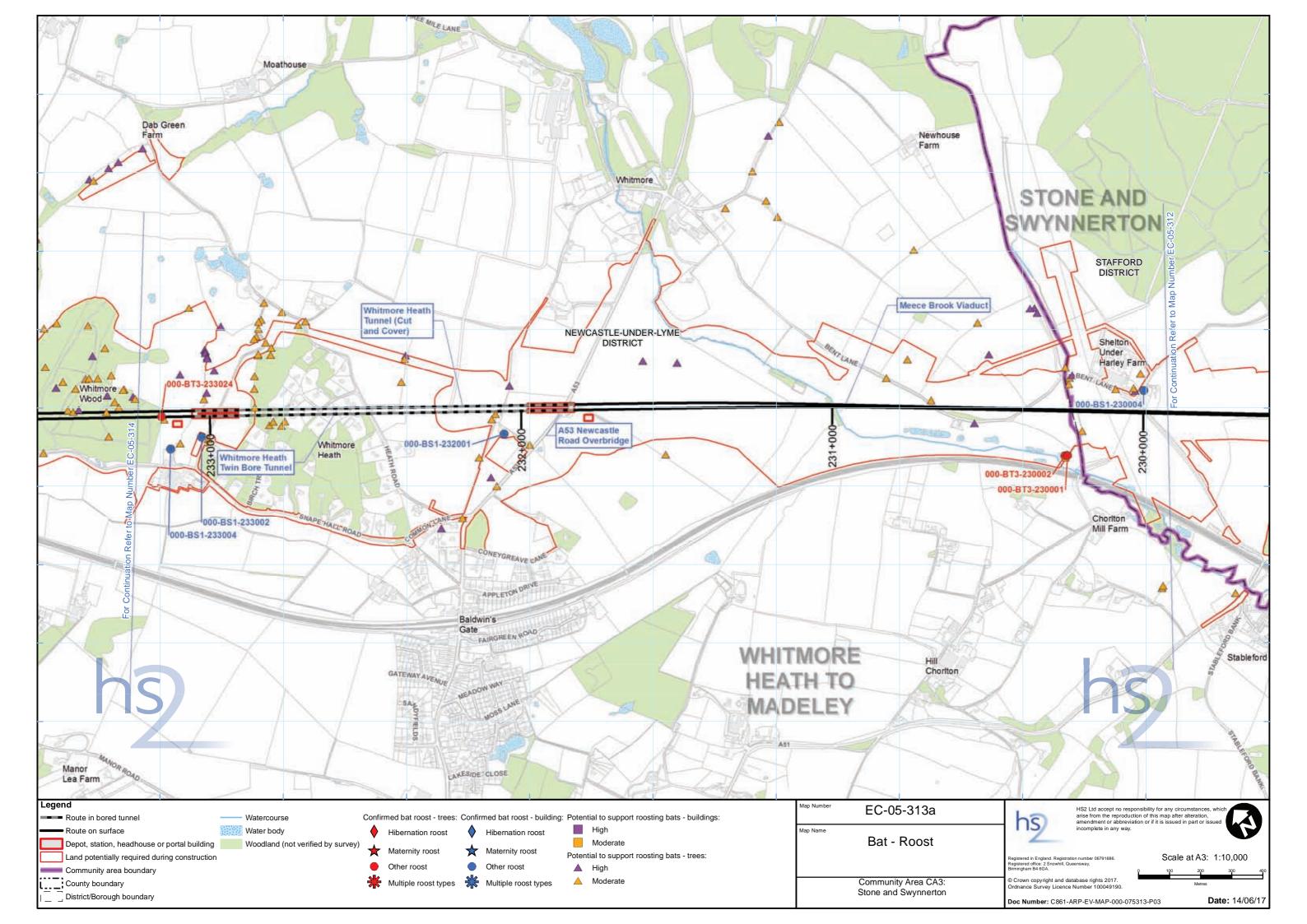


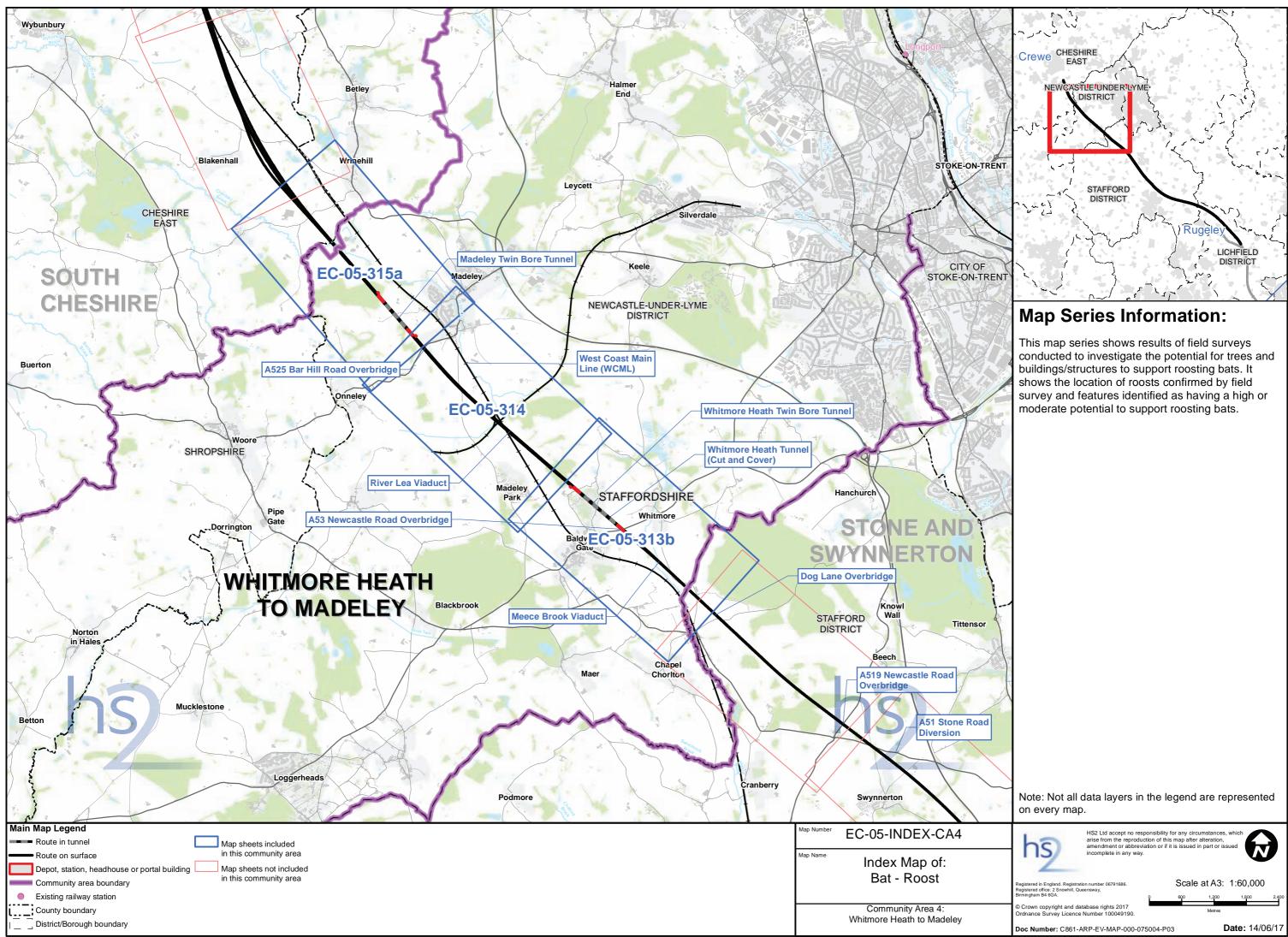


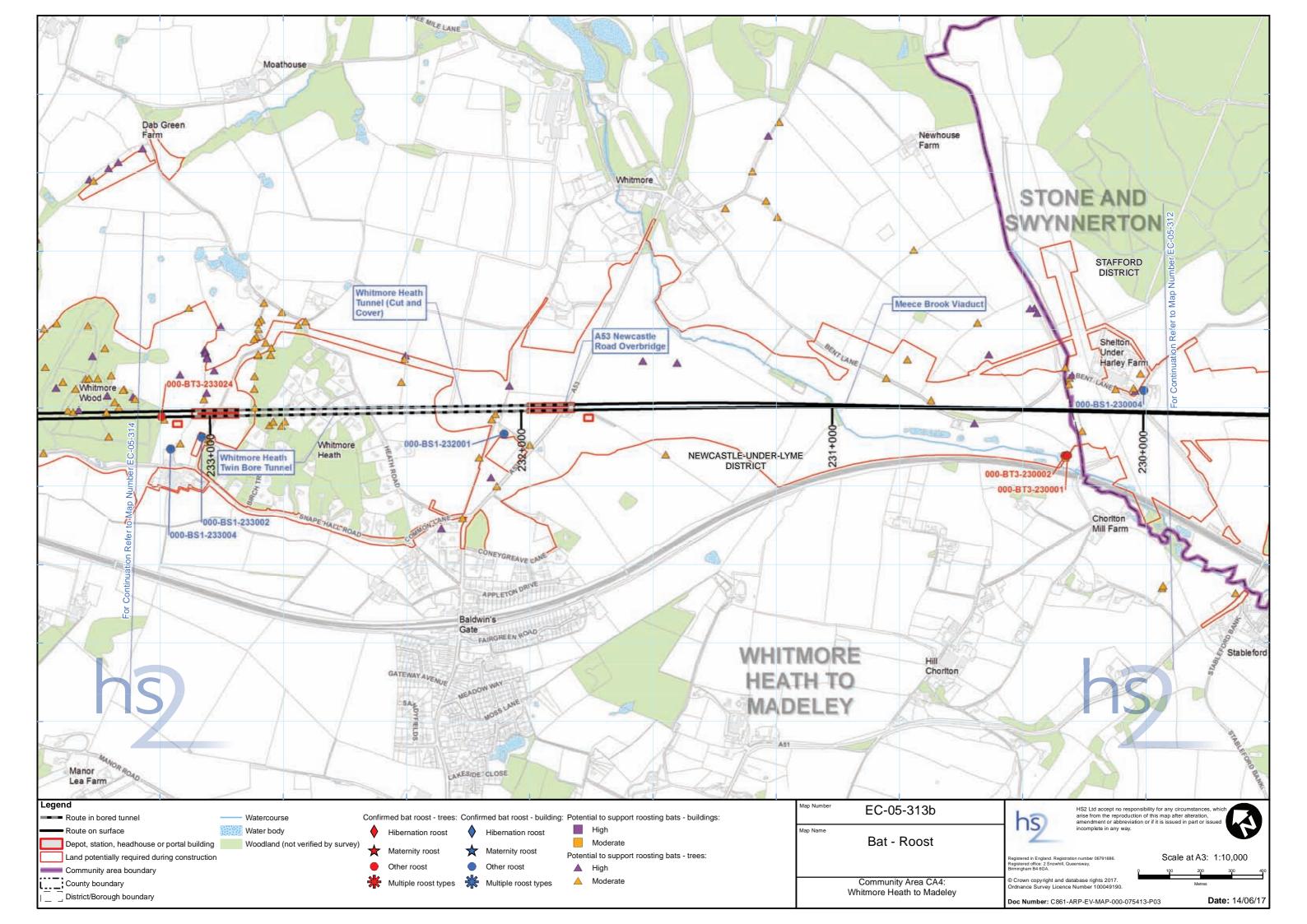


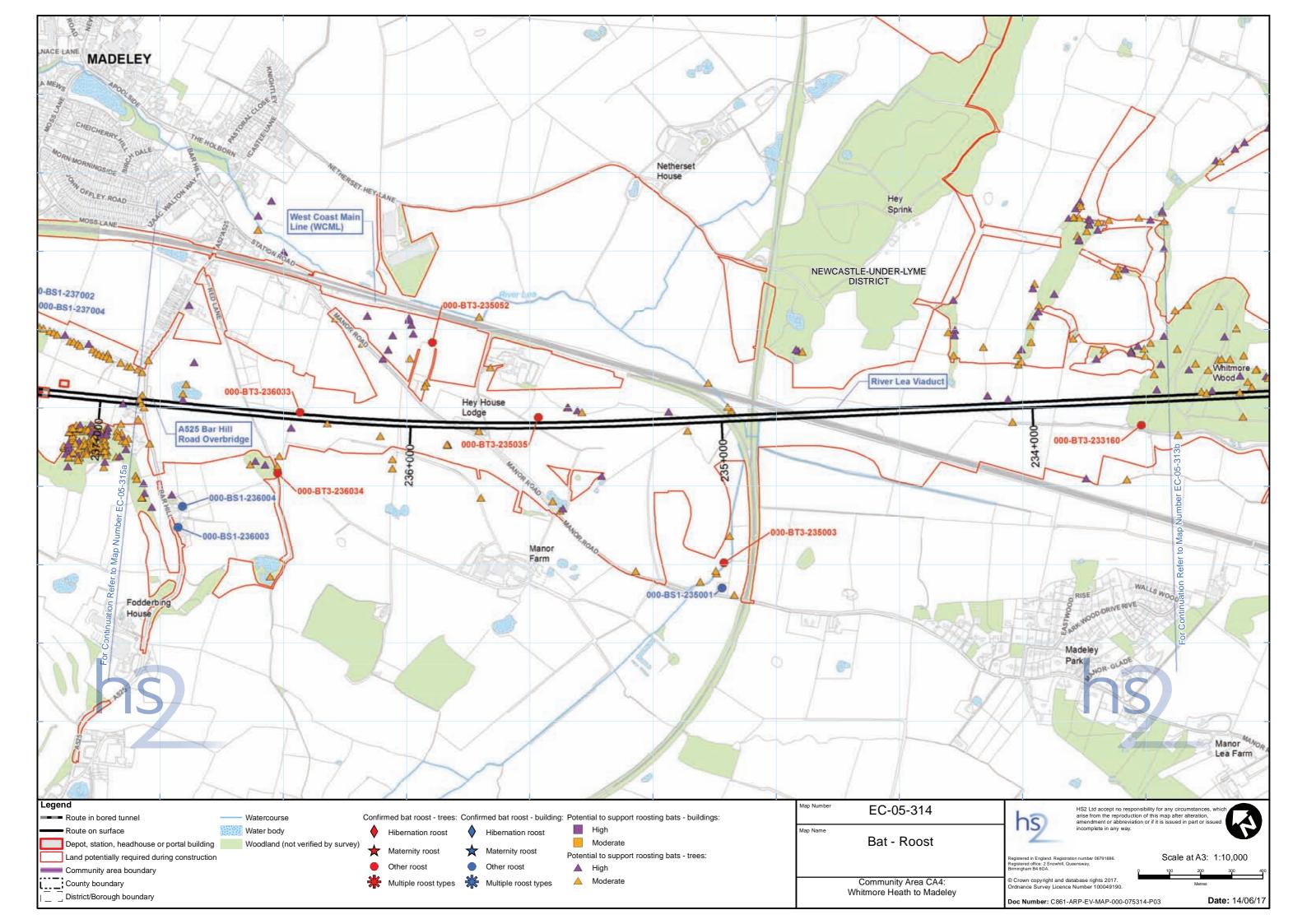


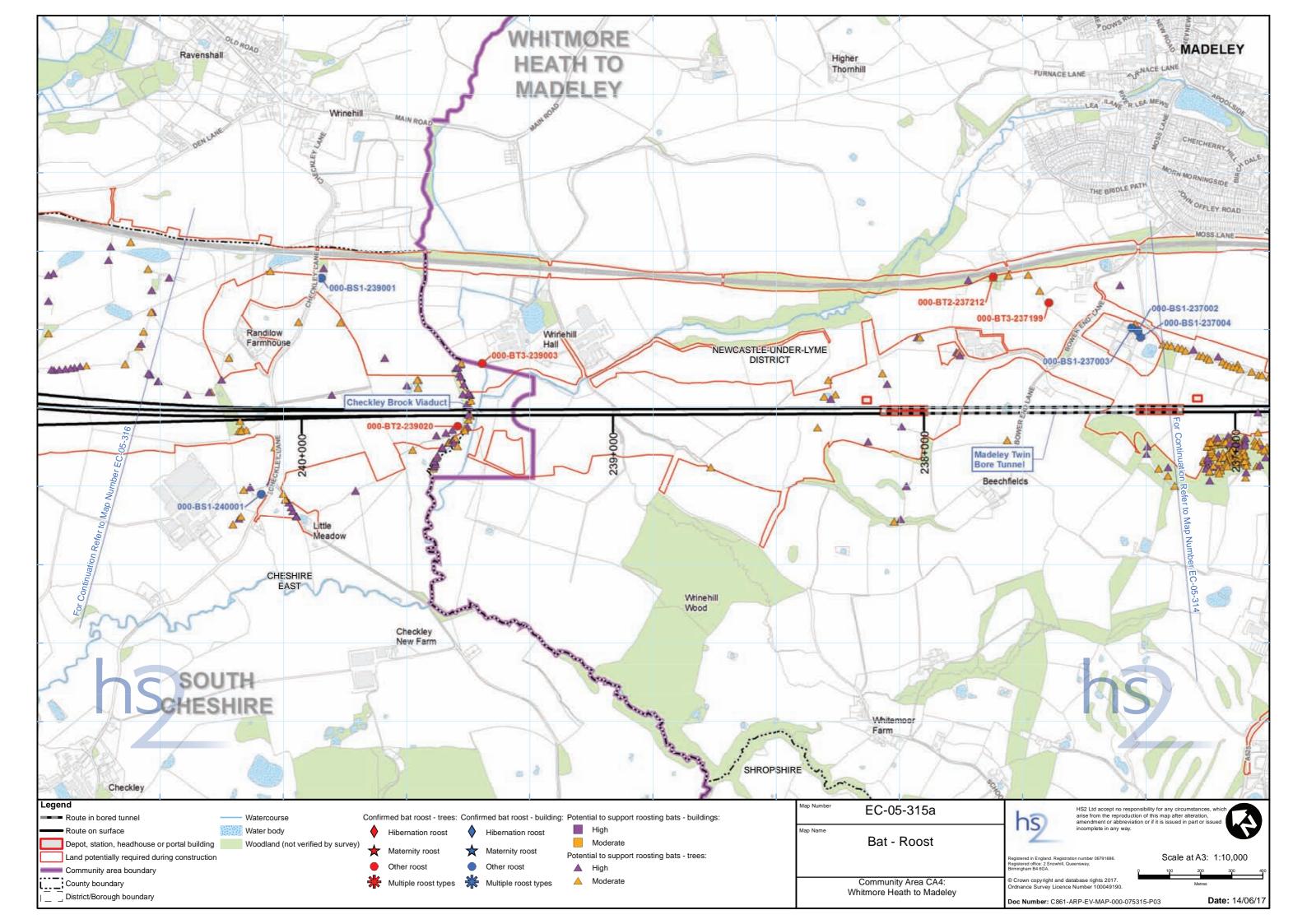


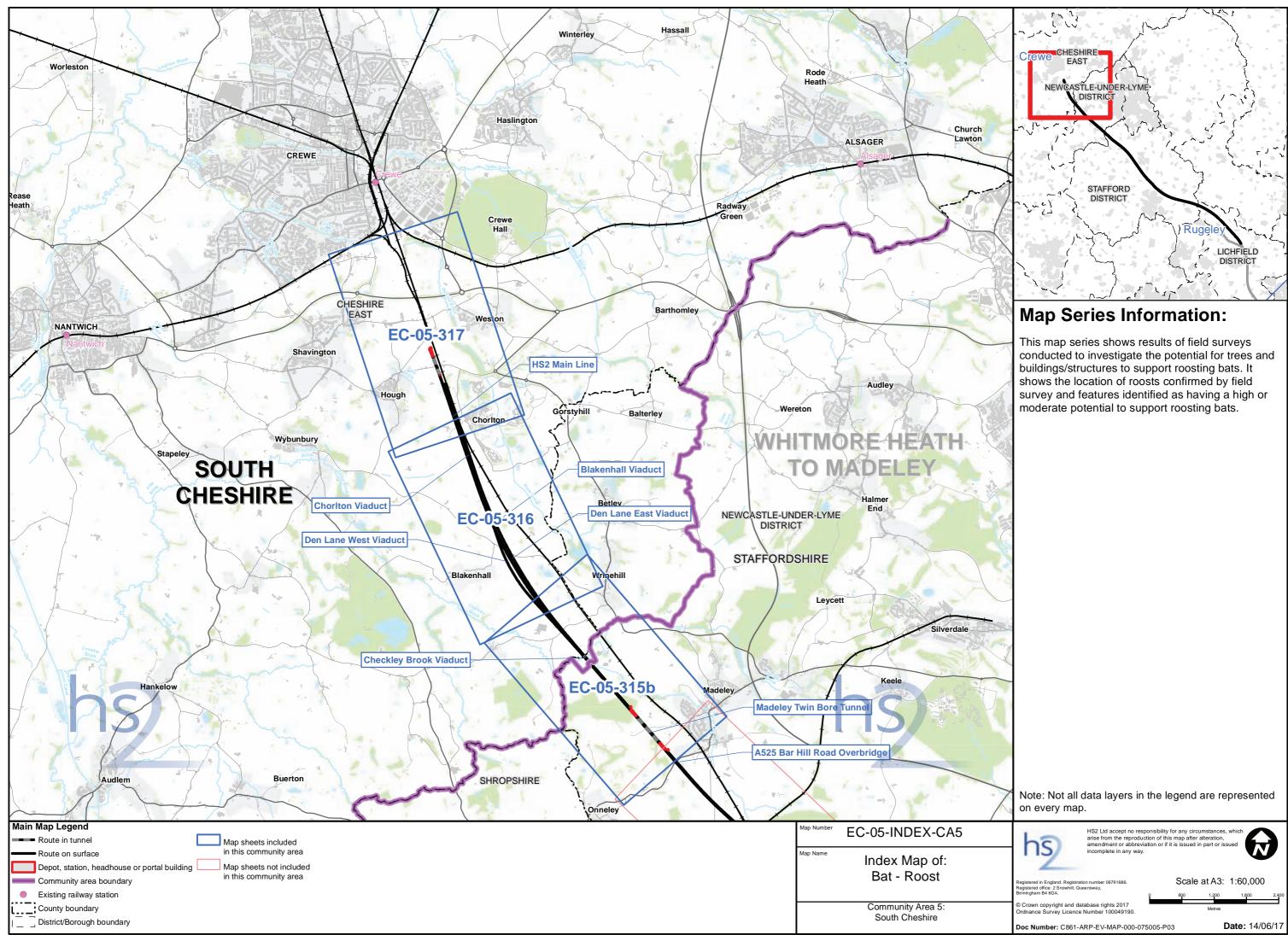


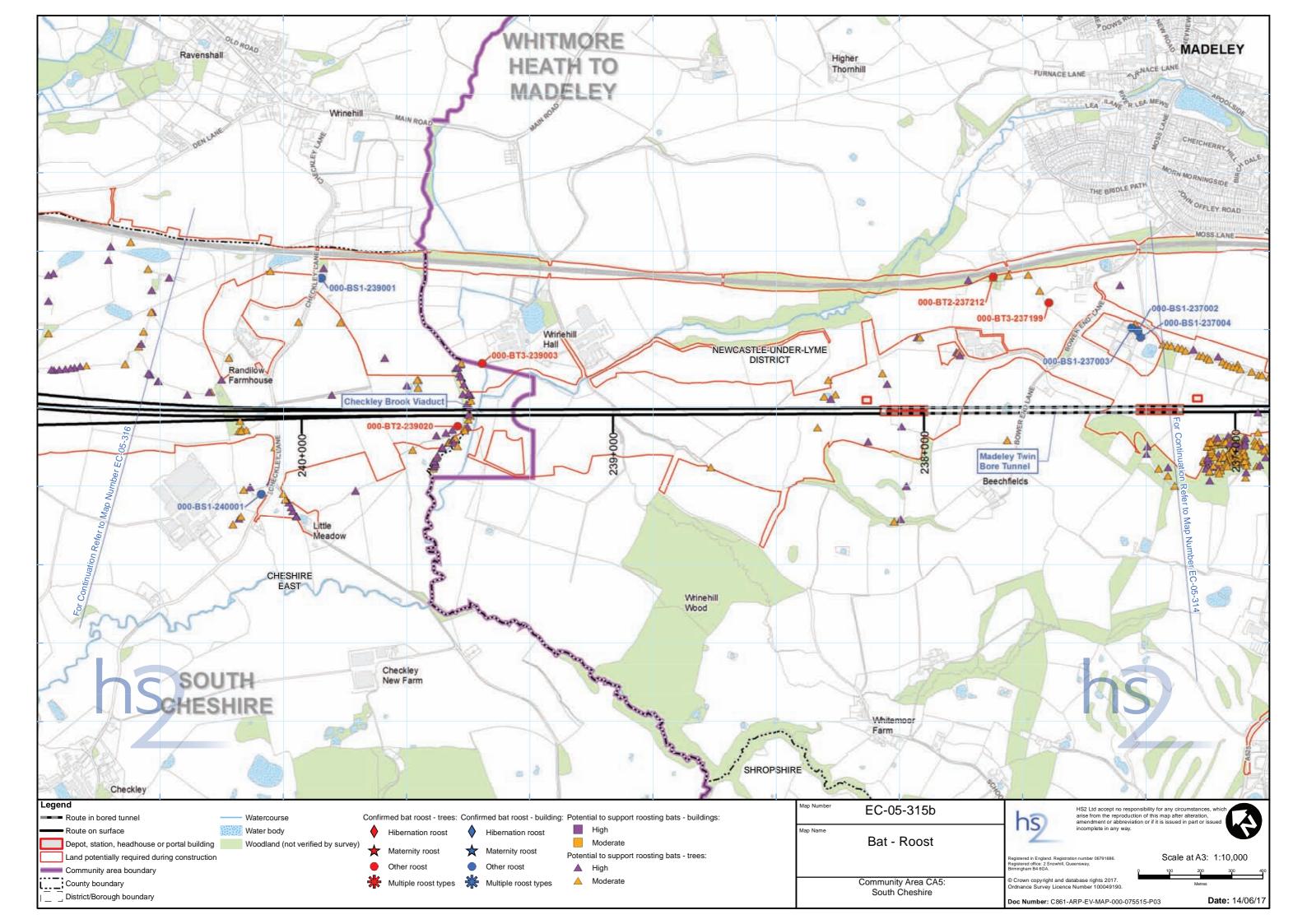


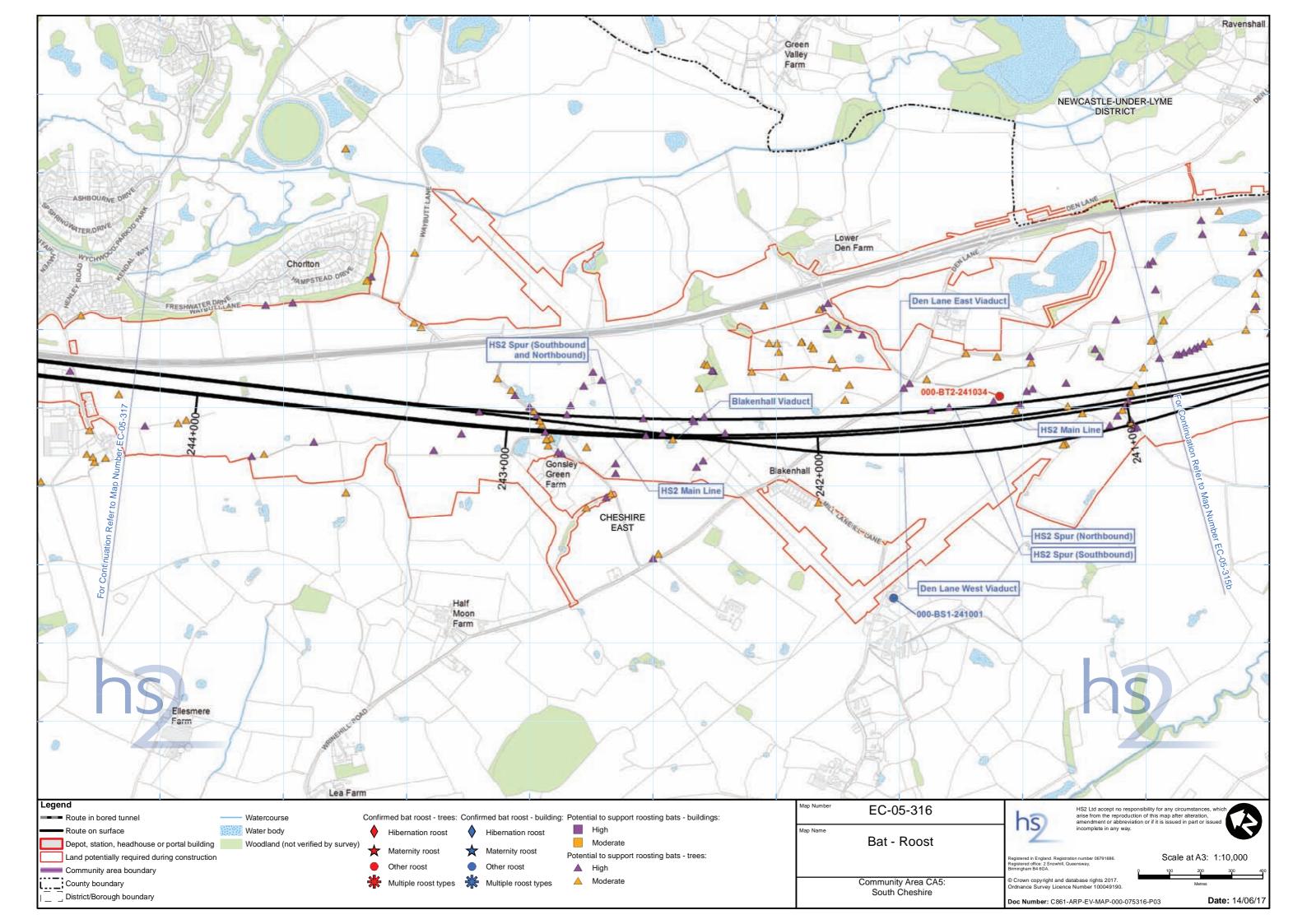


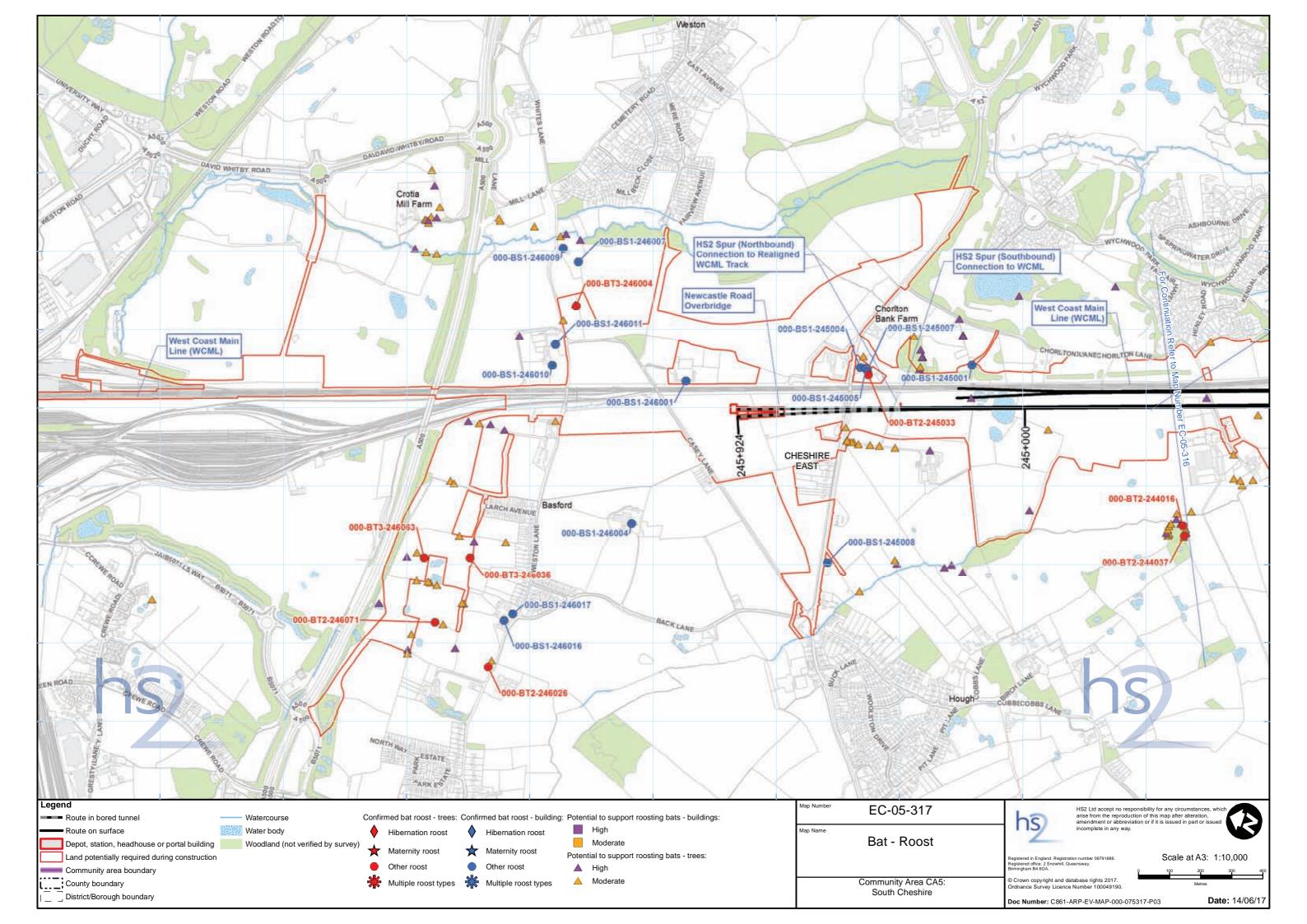








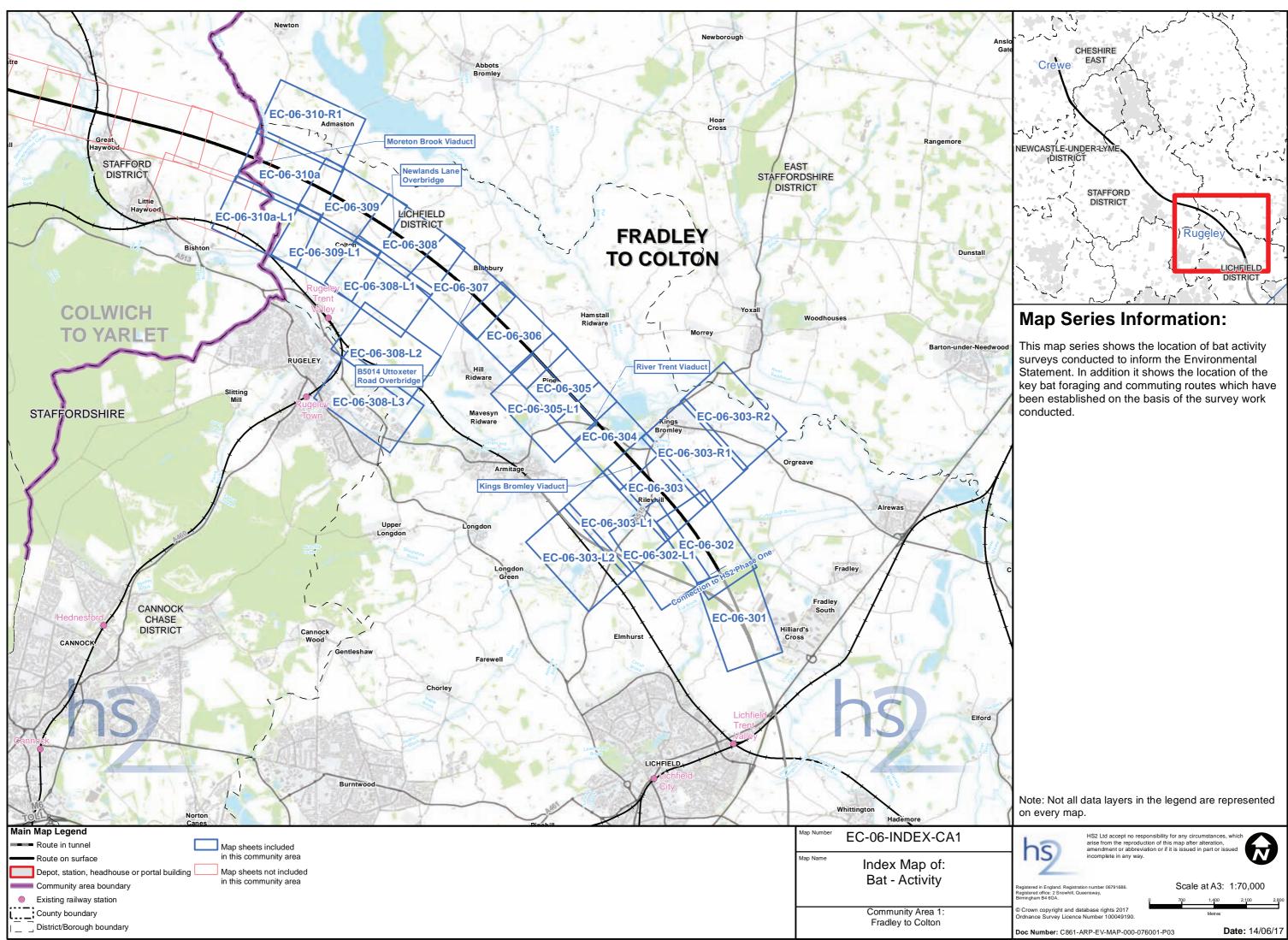


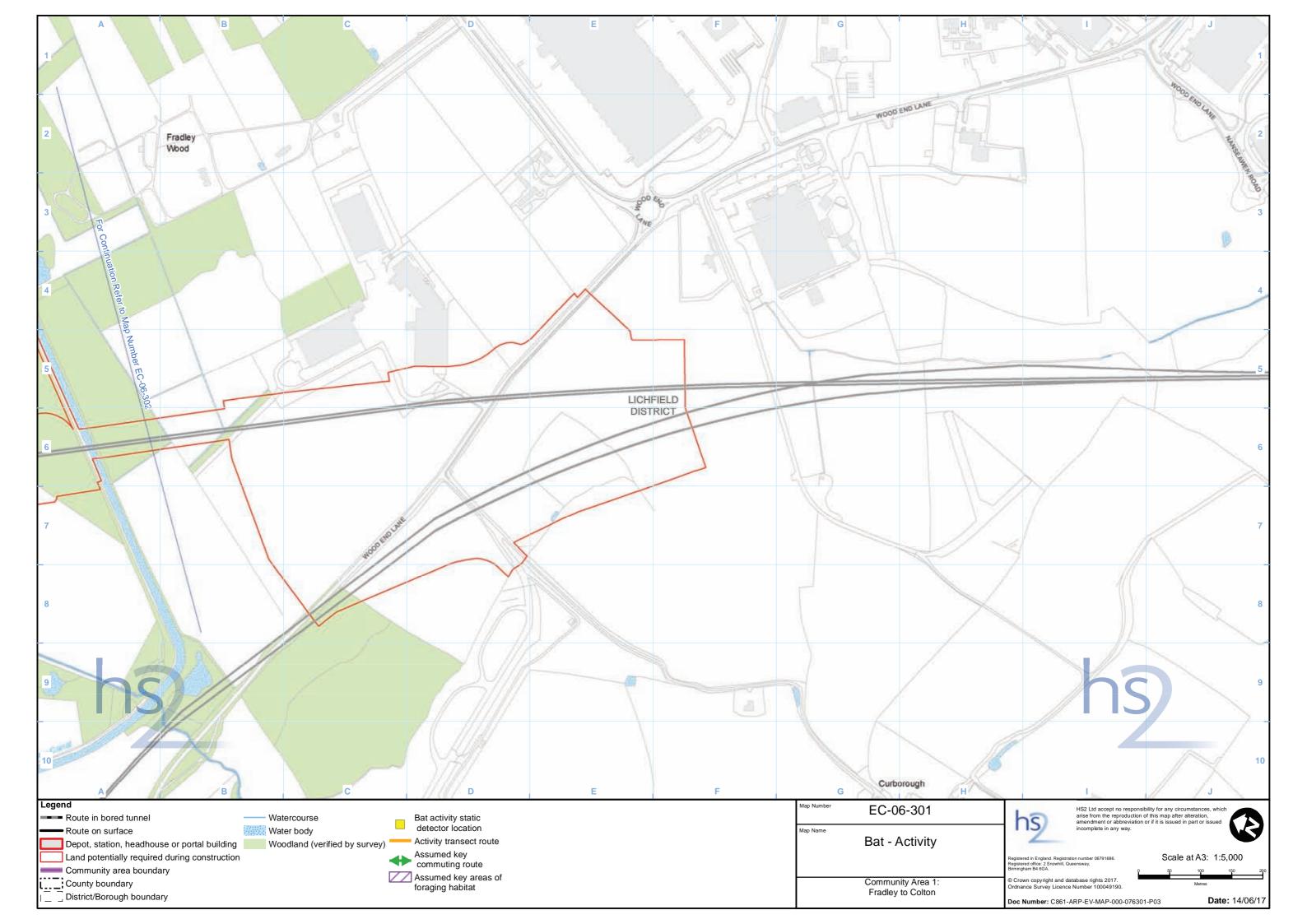


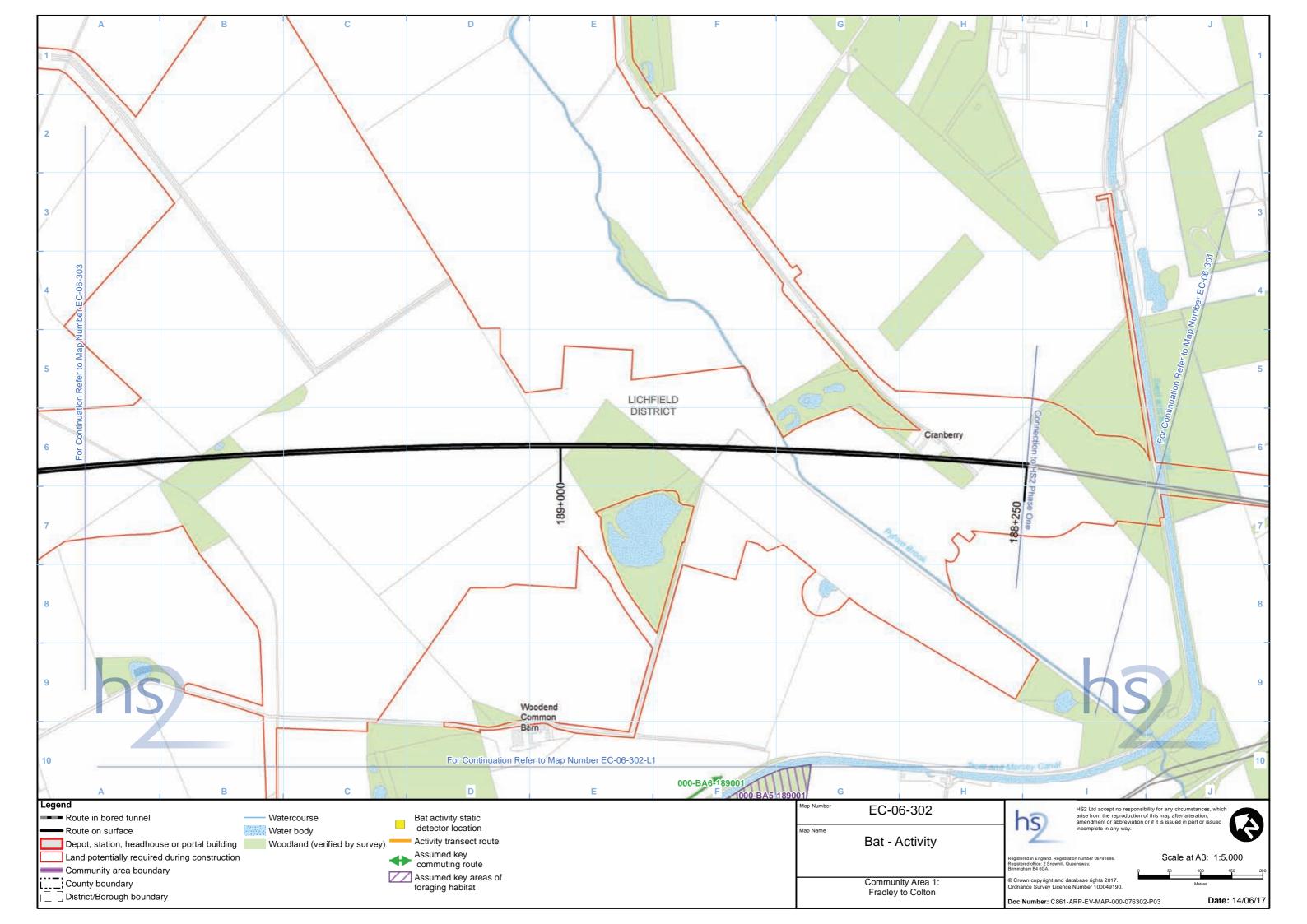
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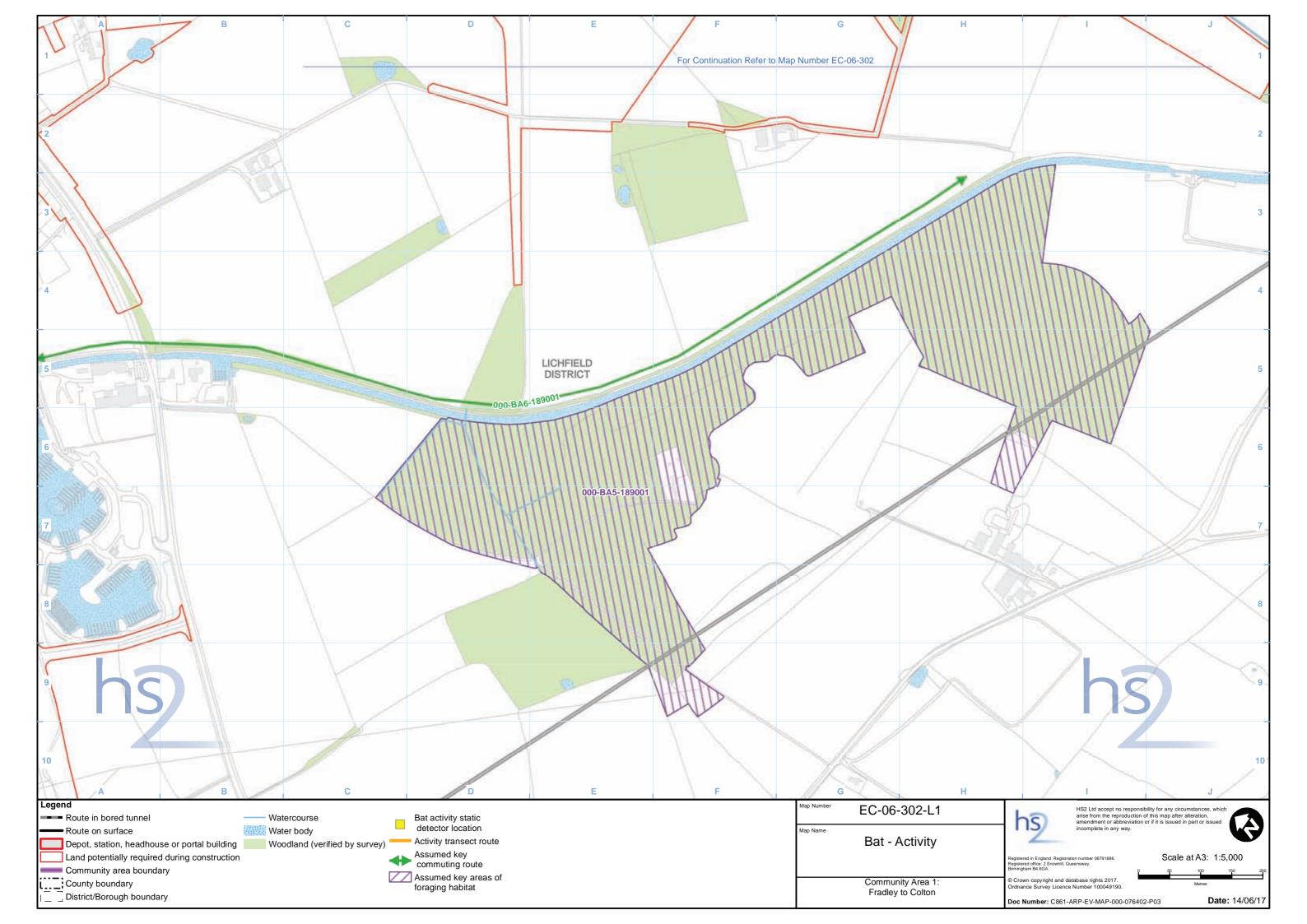
High Speed Two Phase 2a (West Midlands-Crewe) Background Information and Data **EC-06 - Bat - Activity**

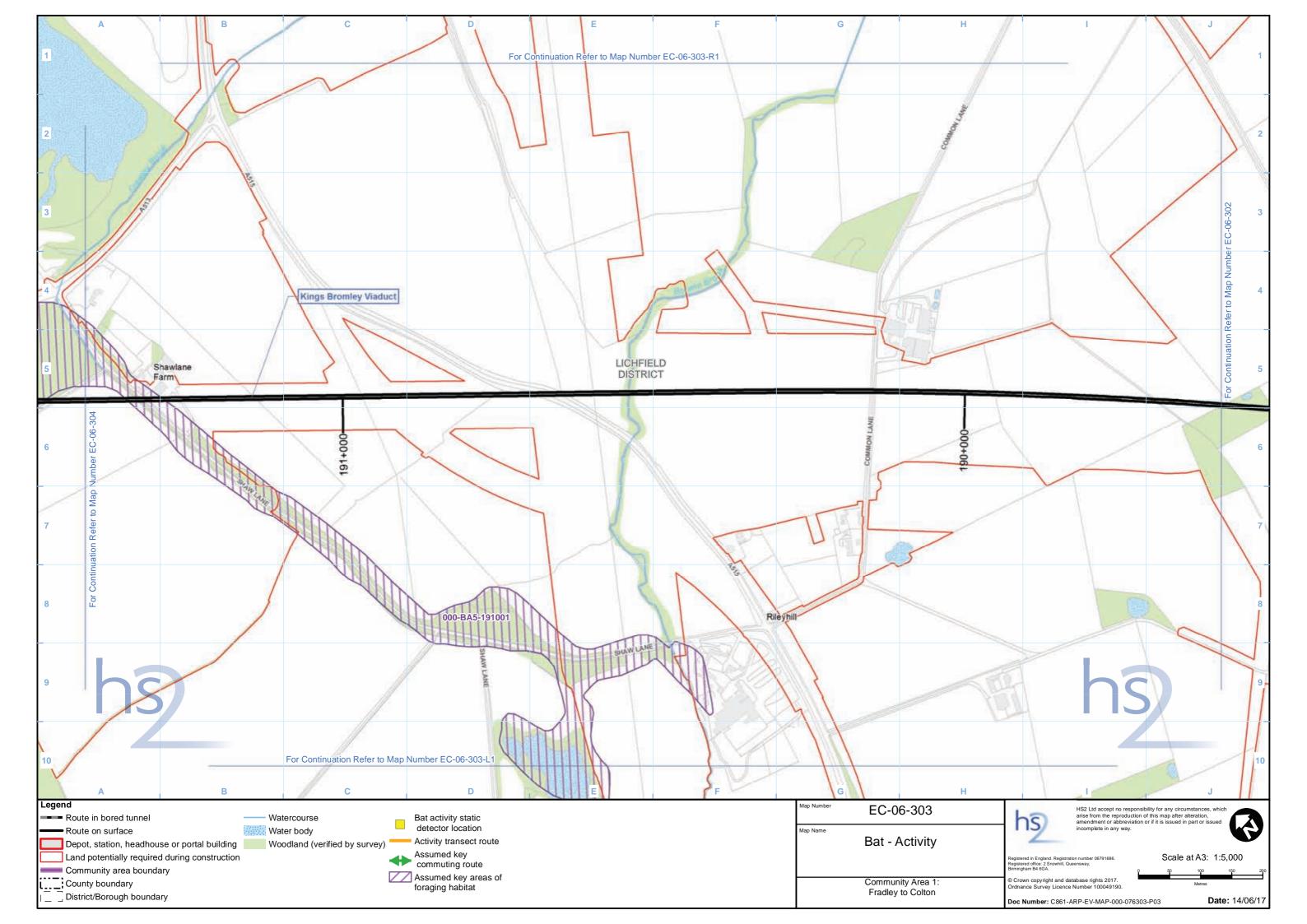


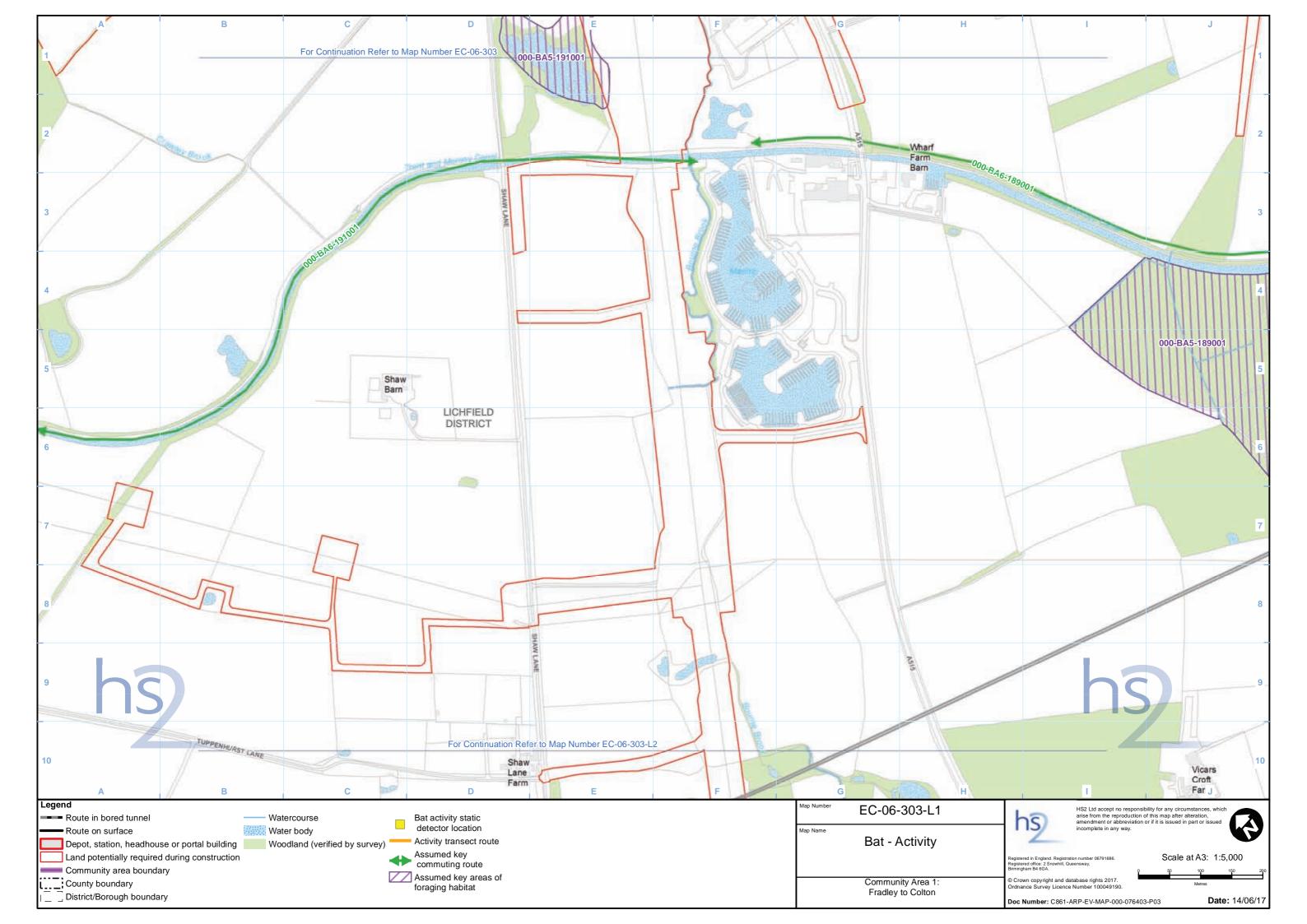


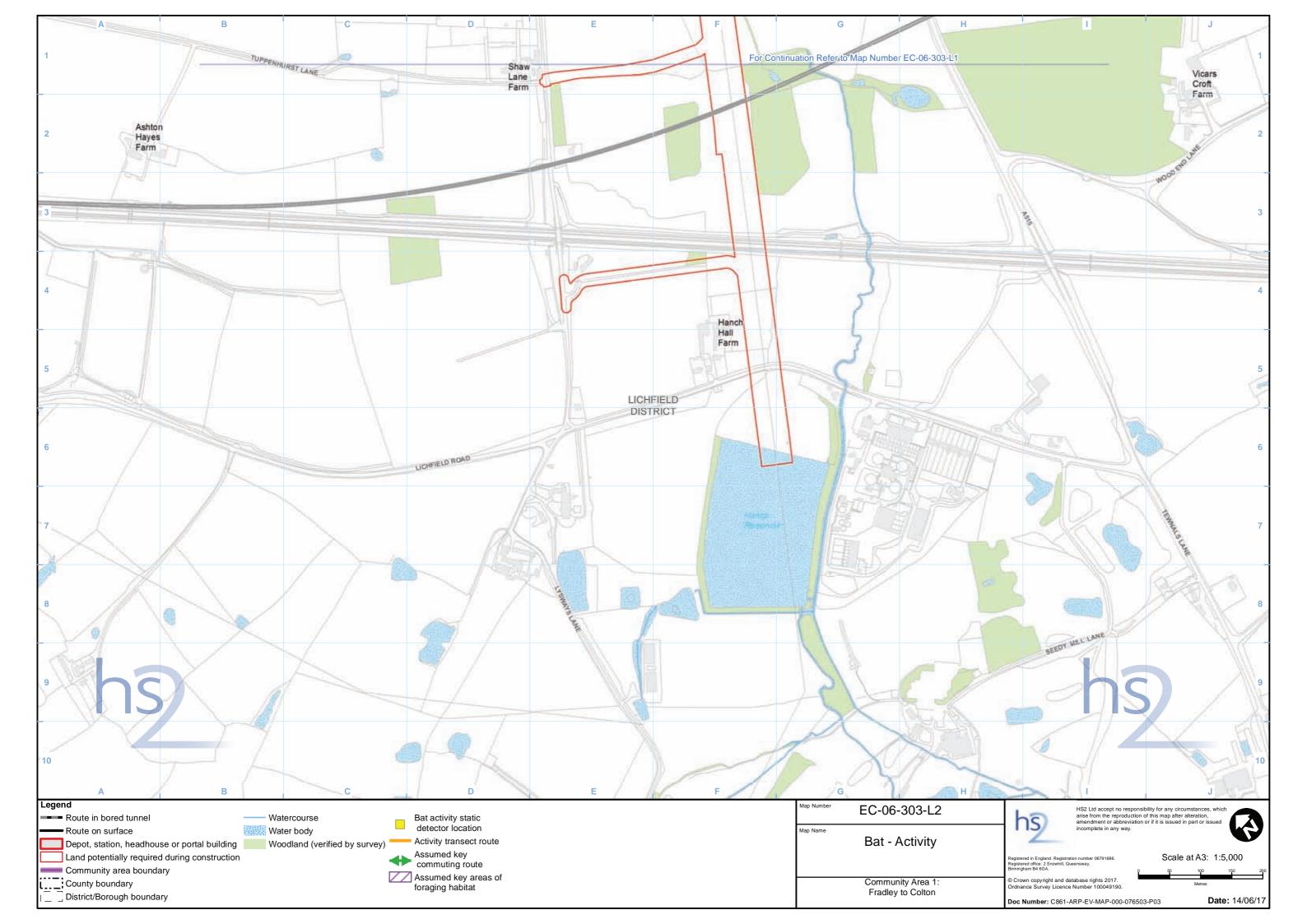


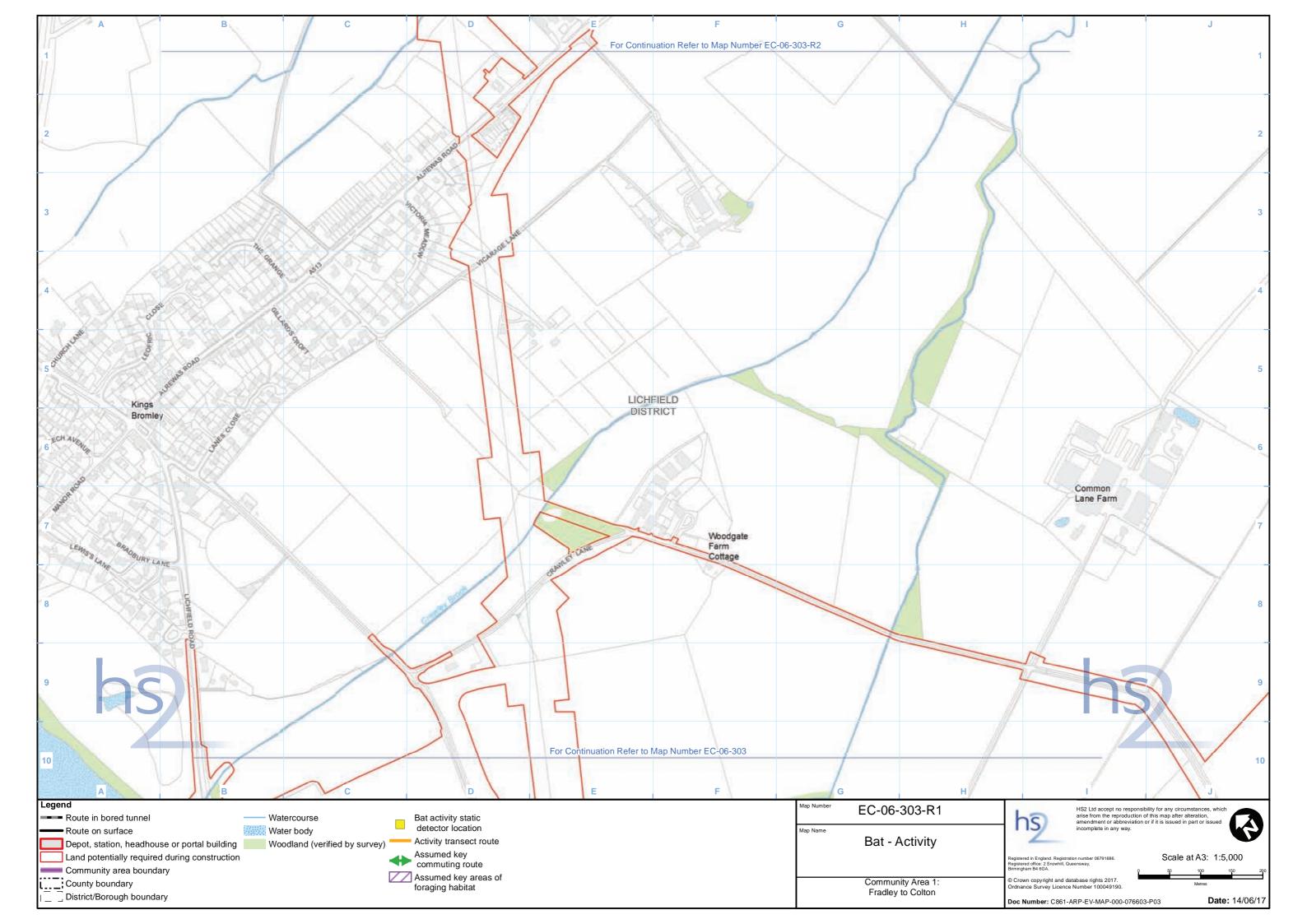


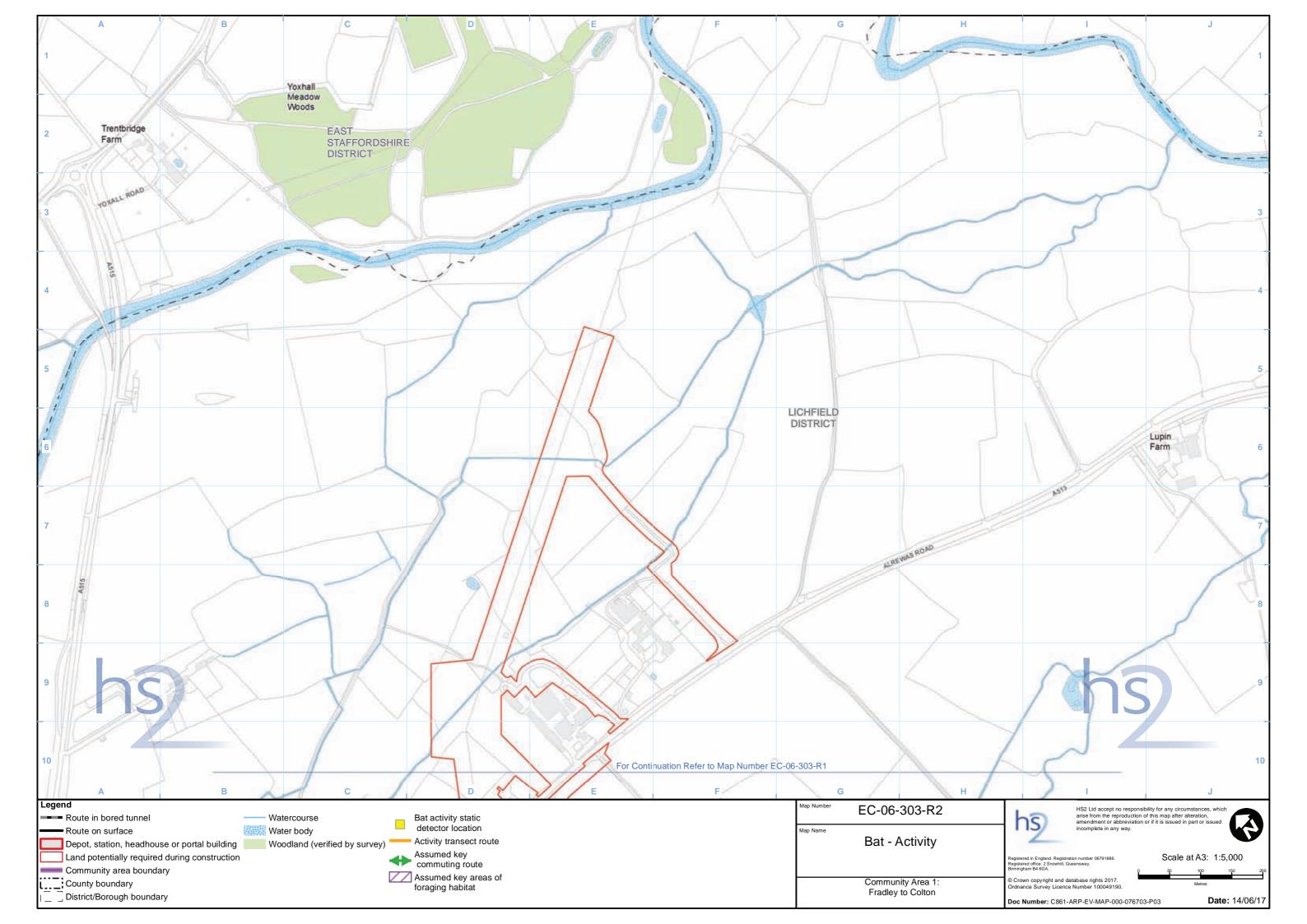


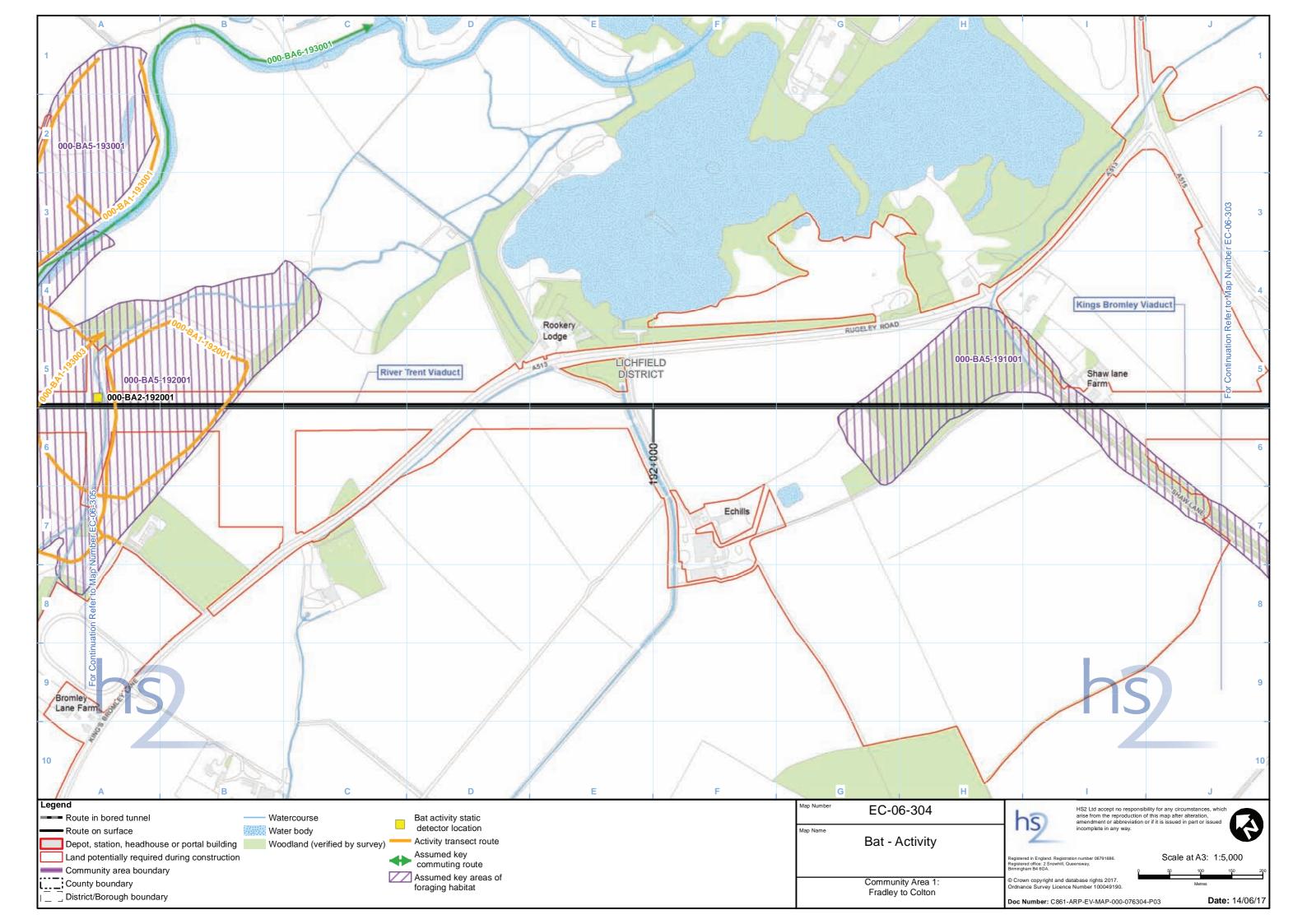


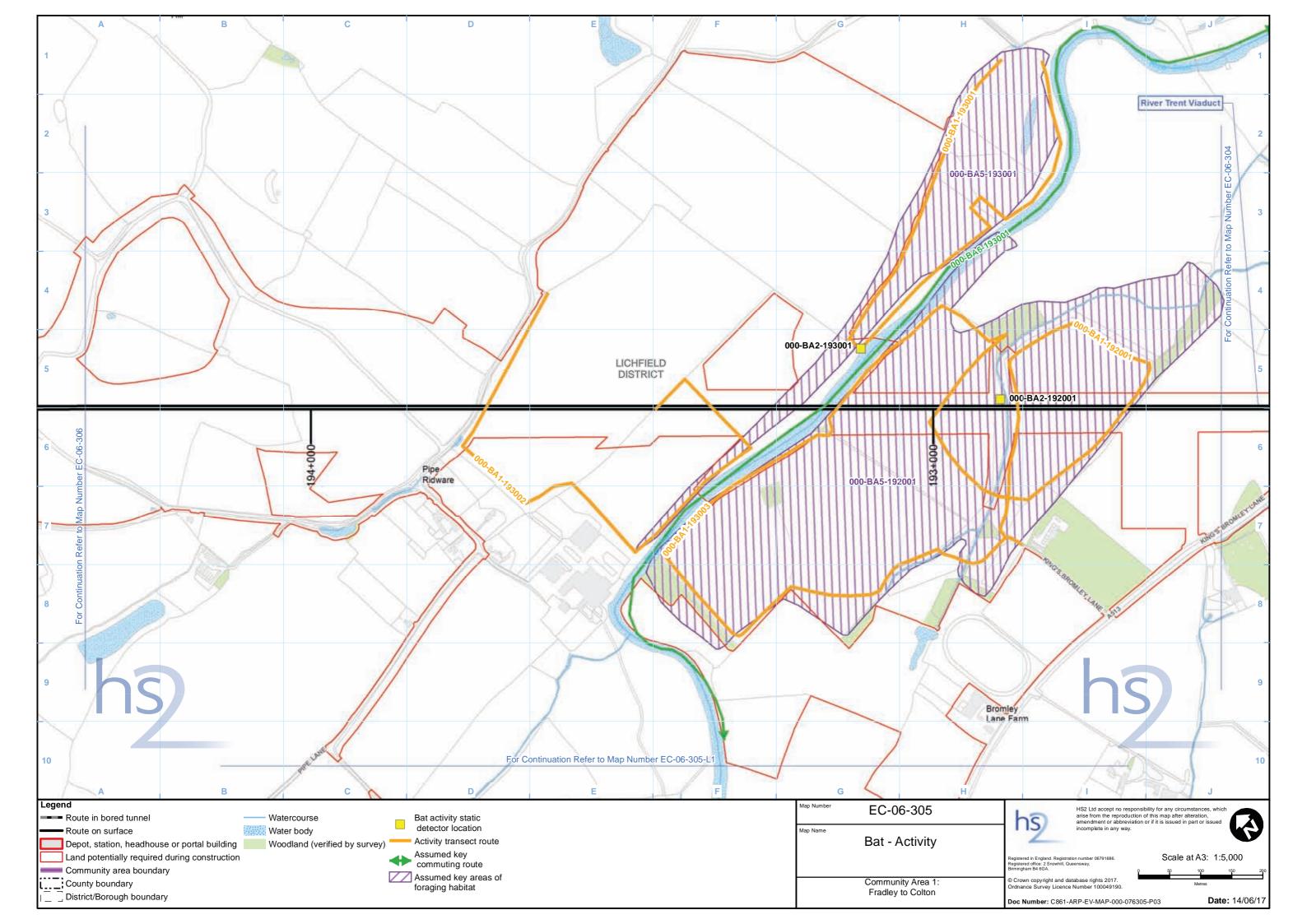


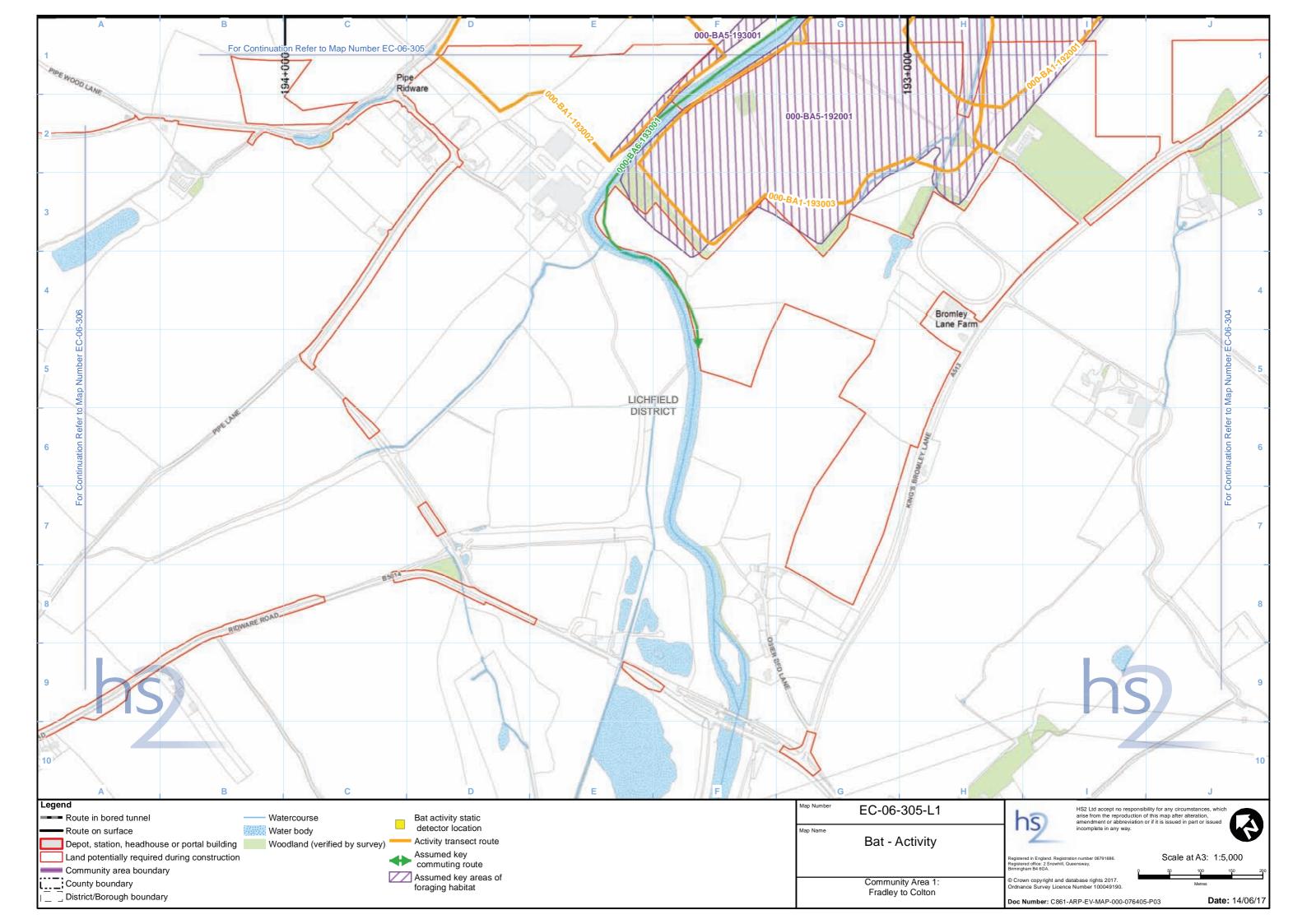


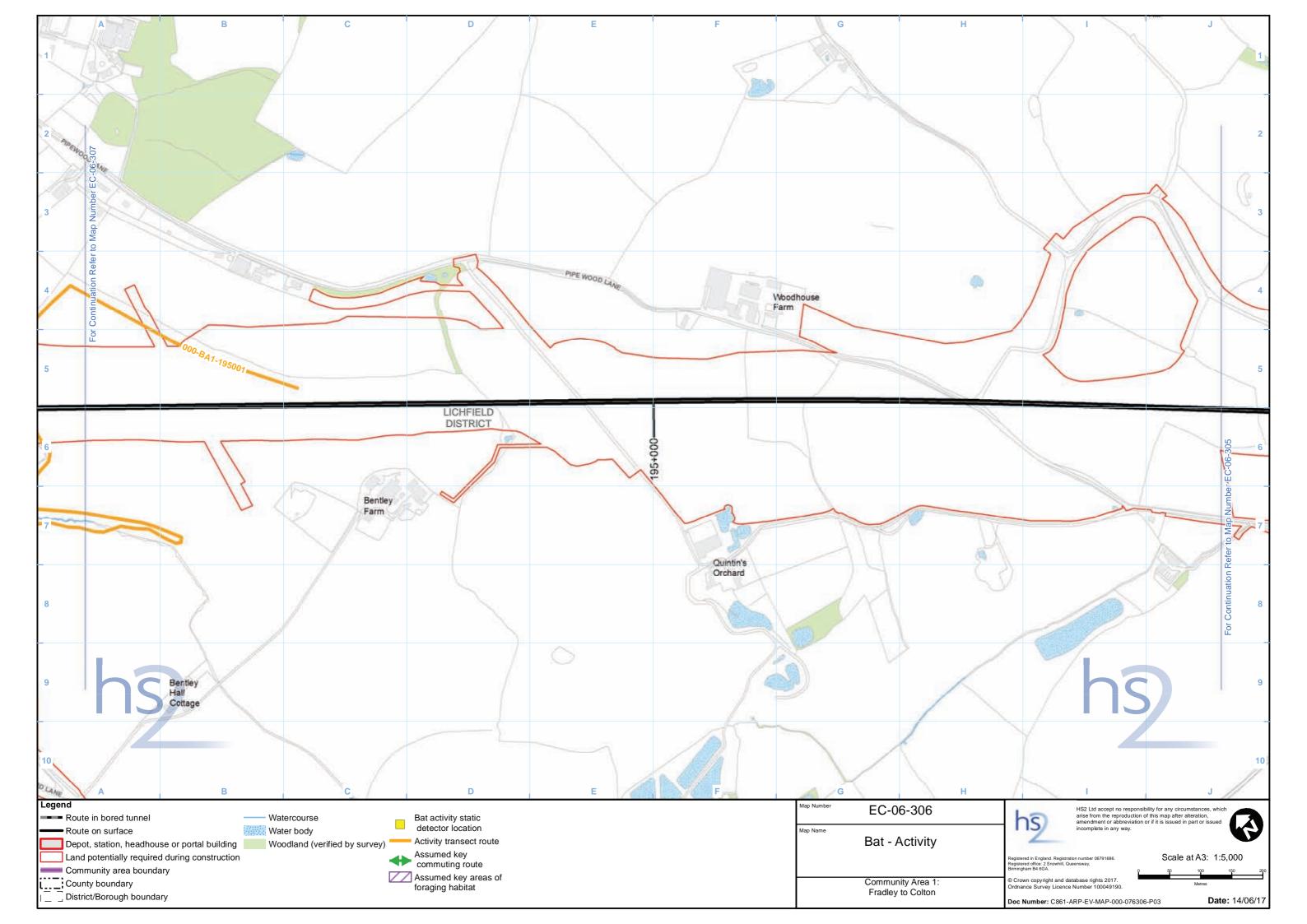


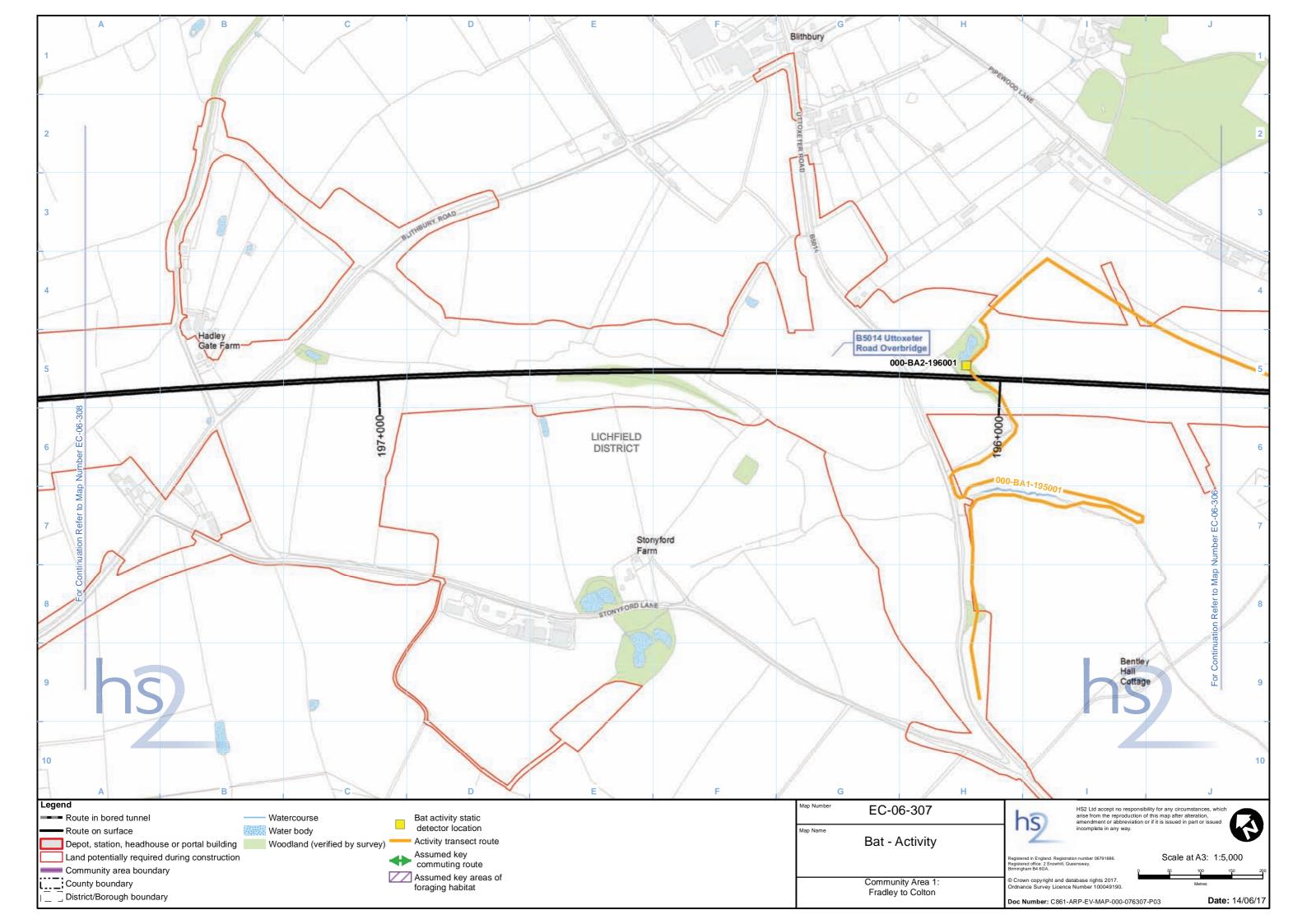


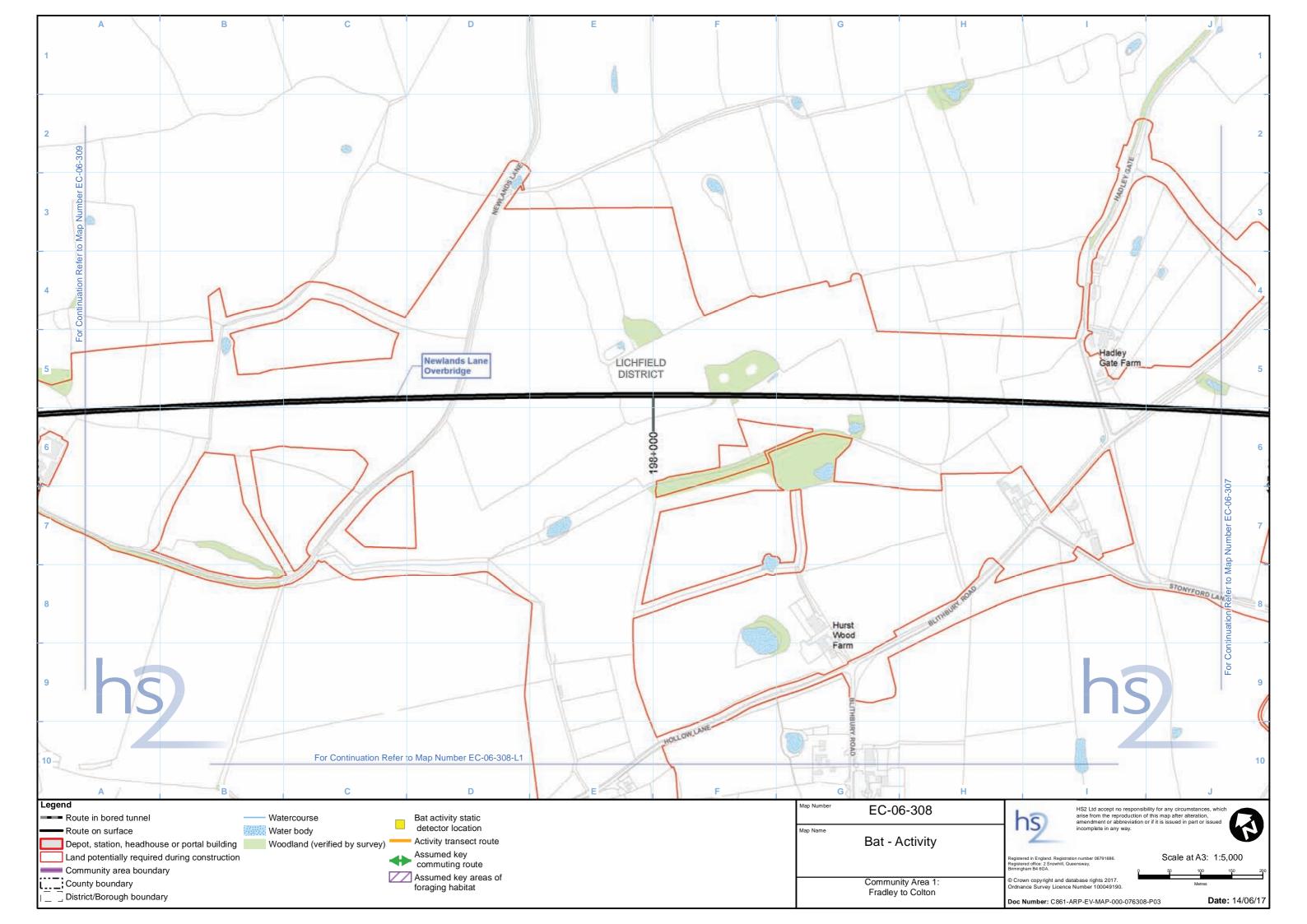


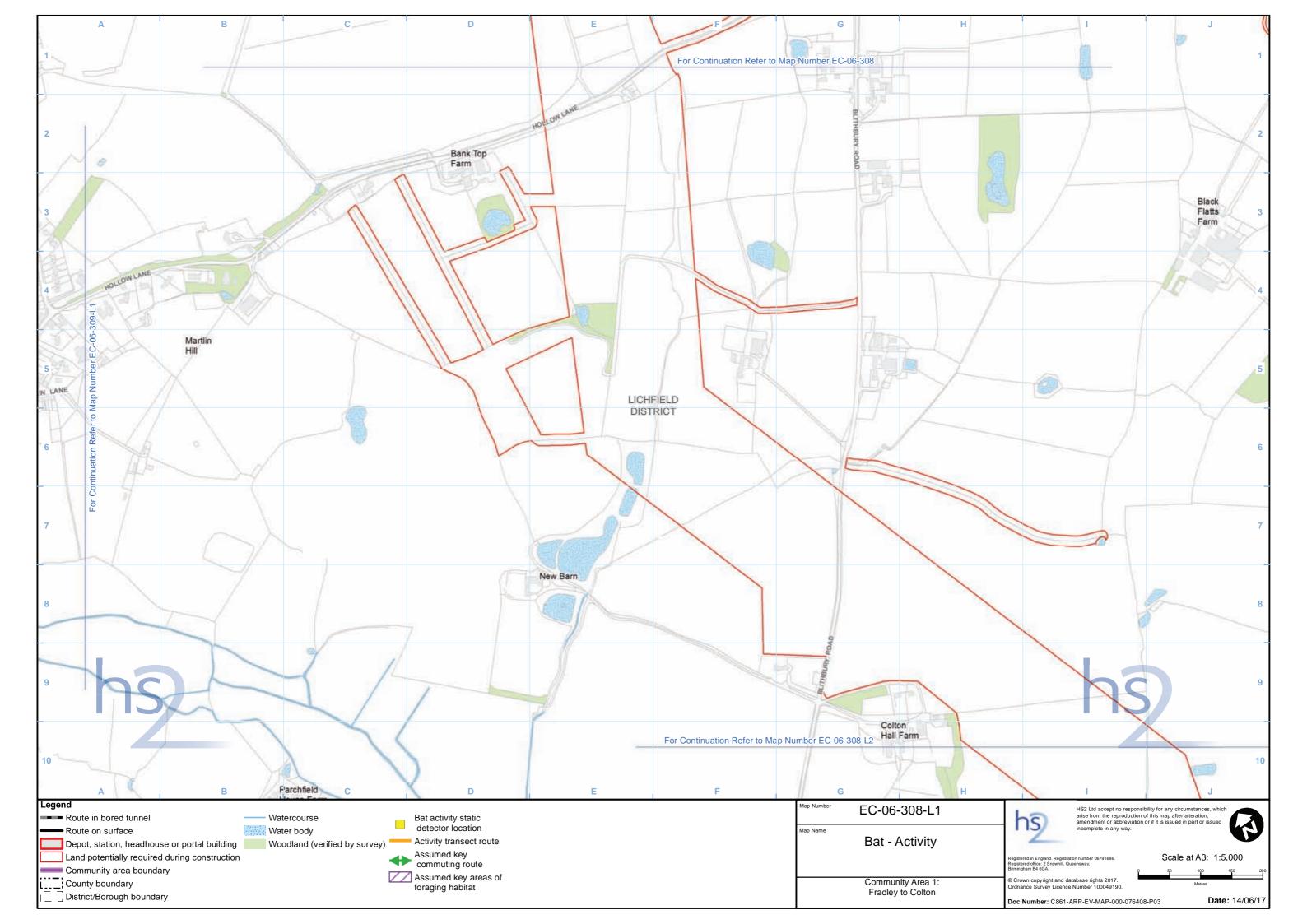


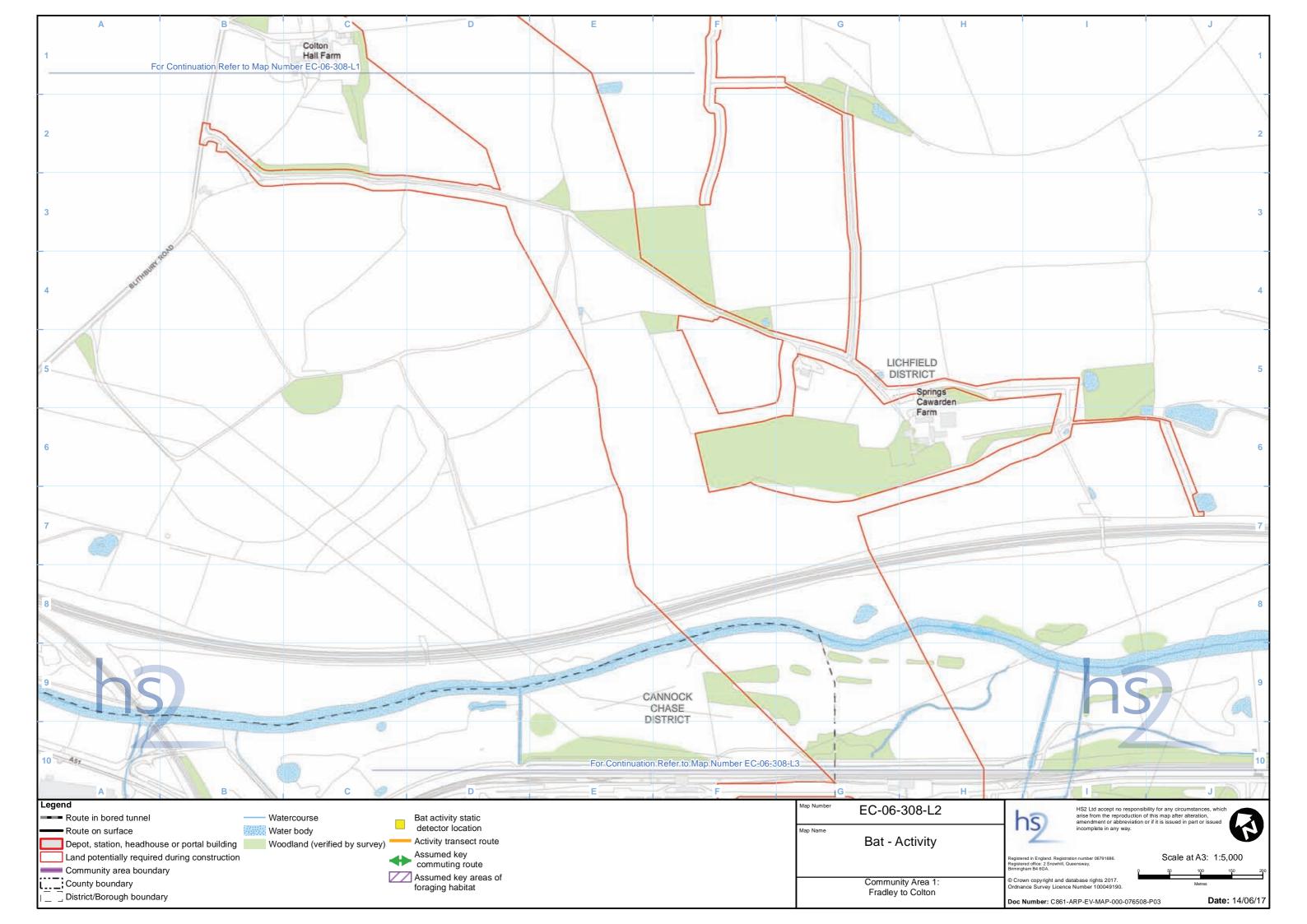


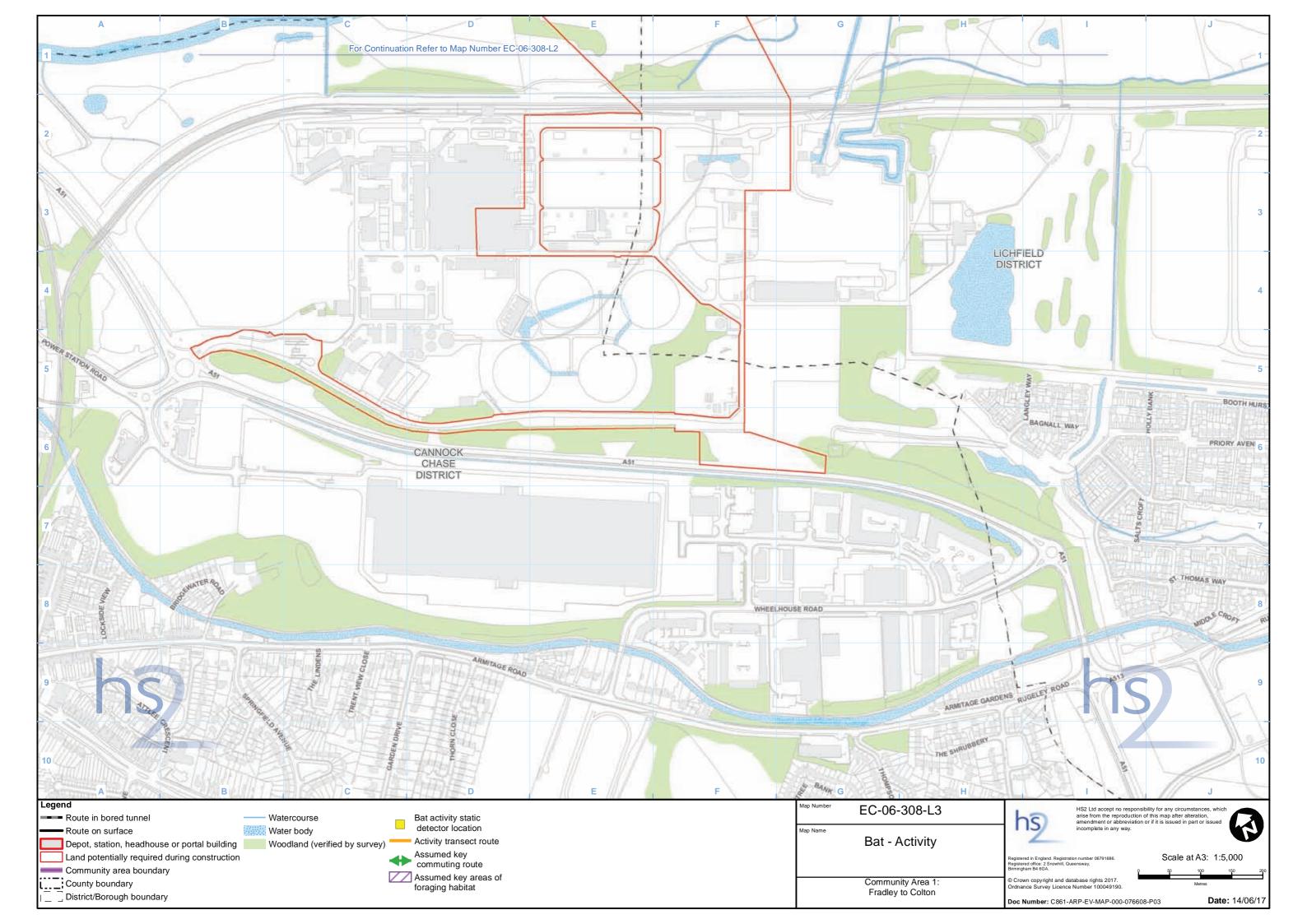


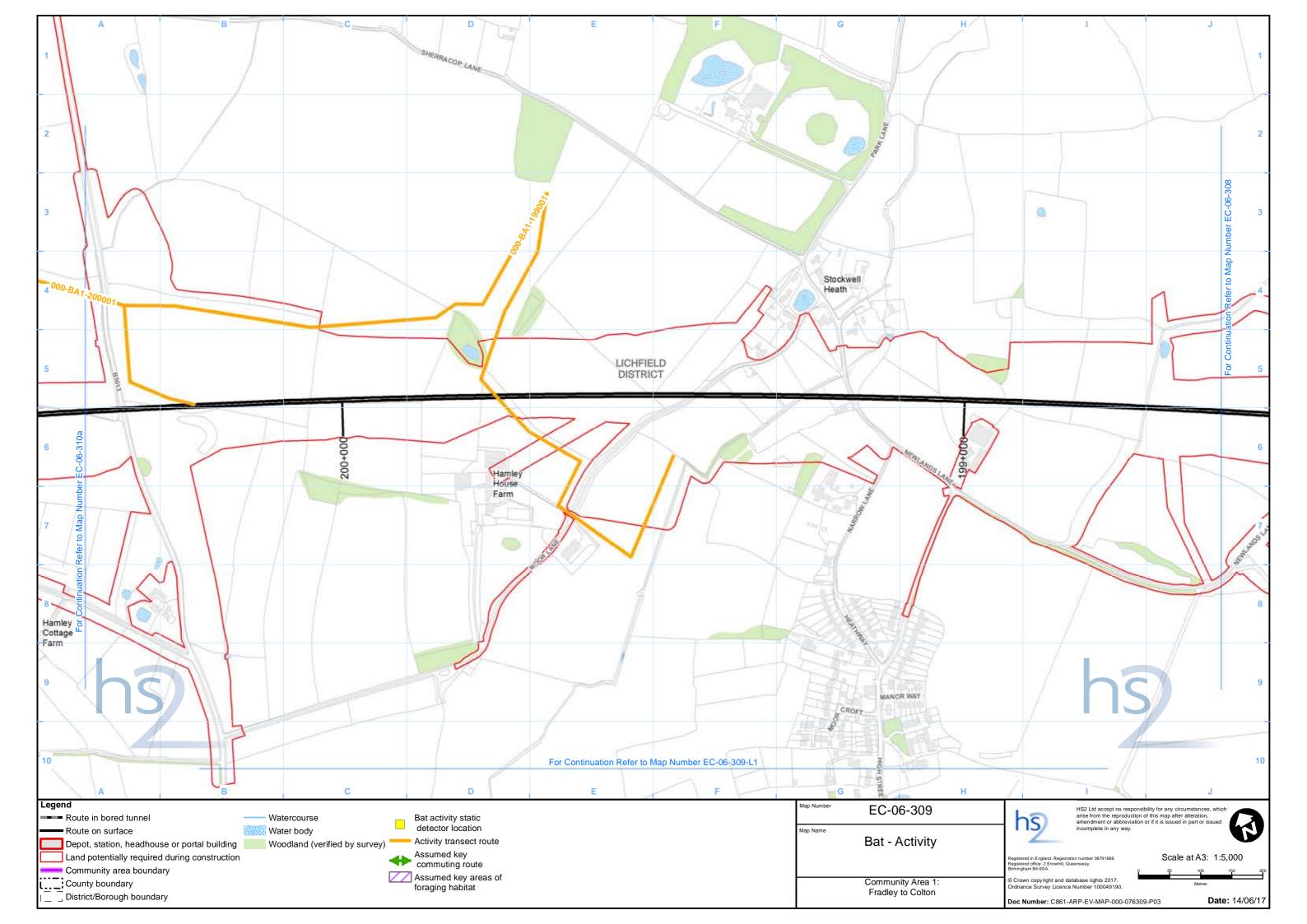


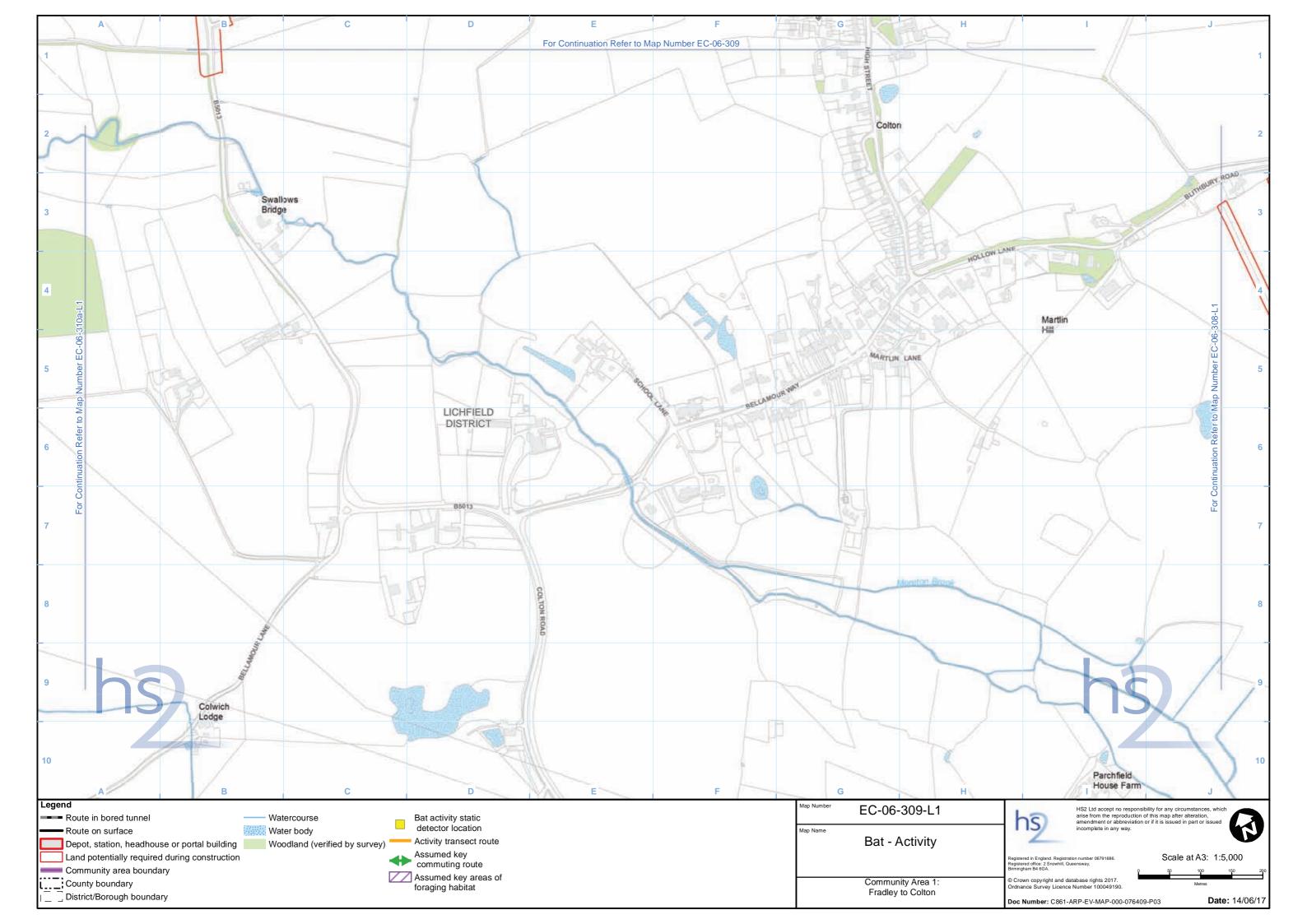


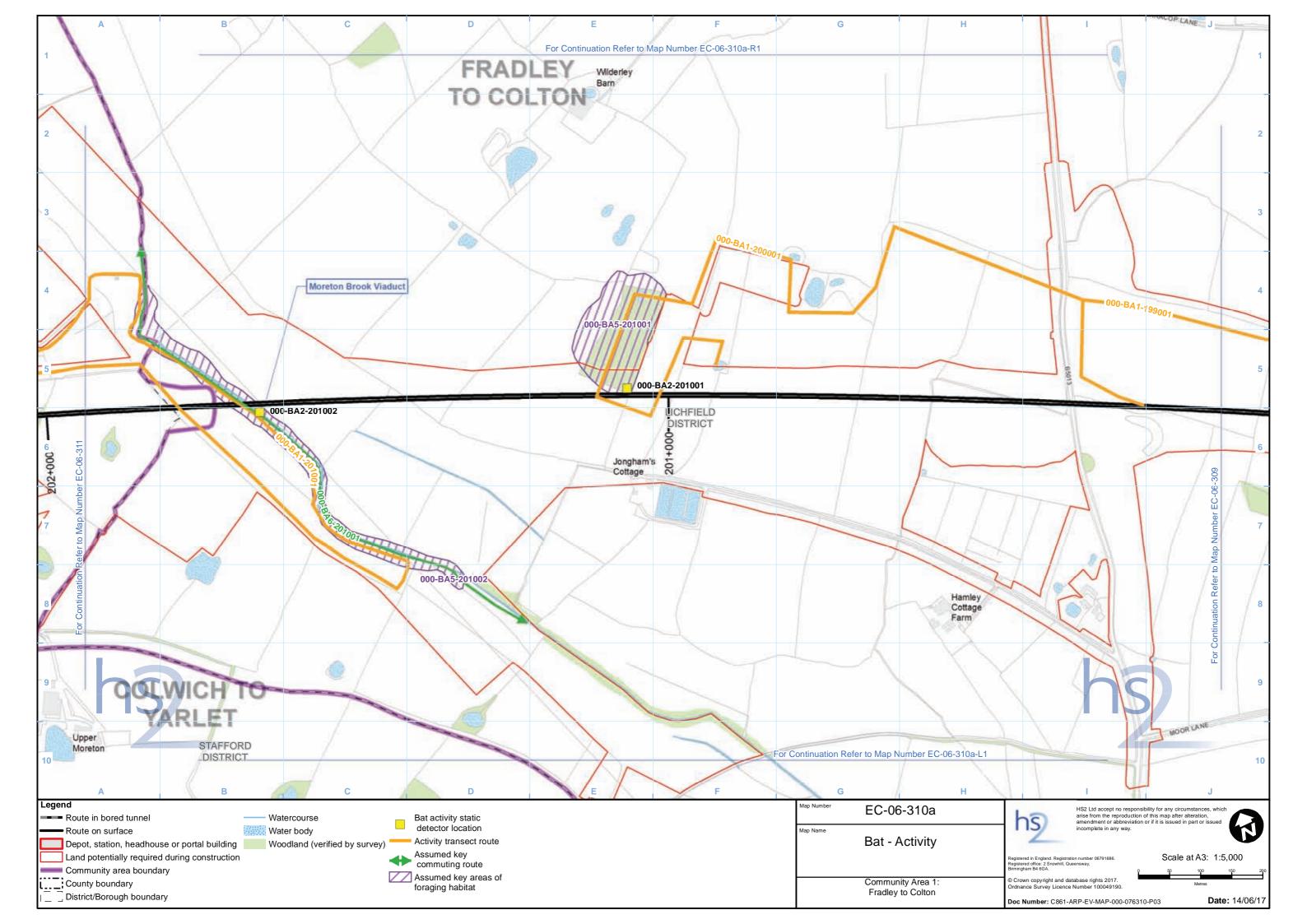


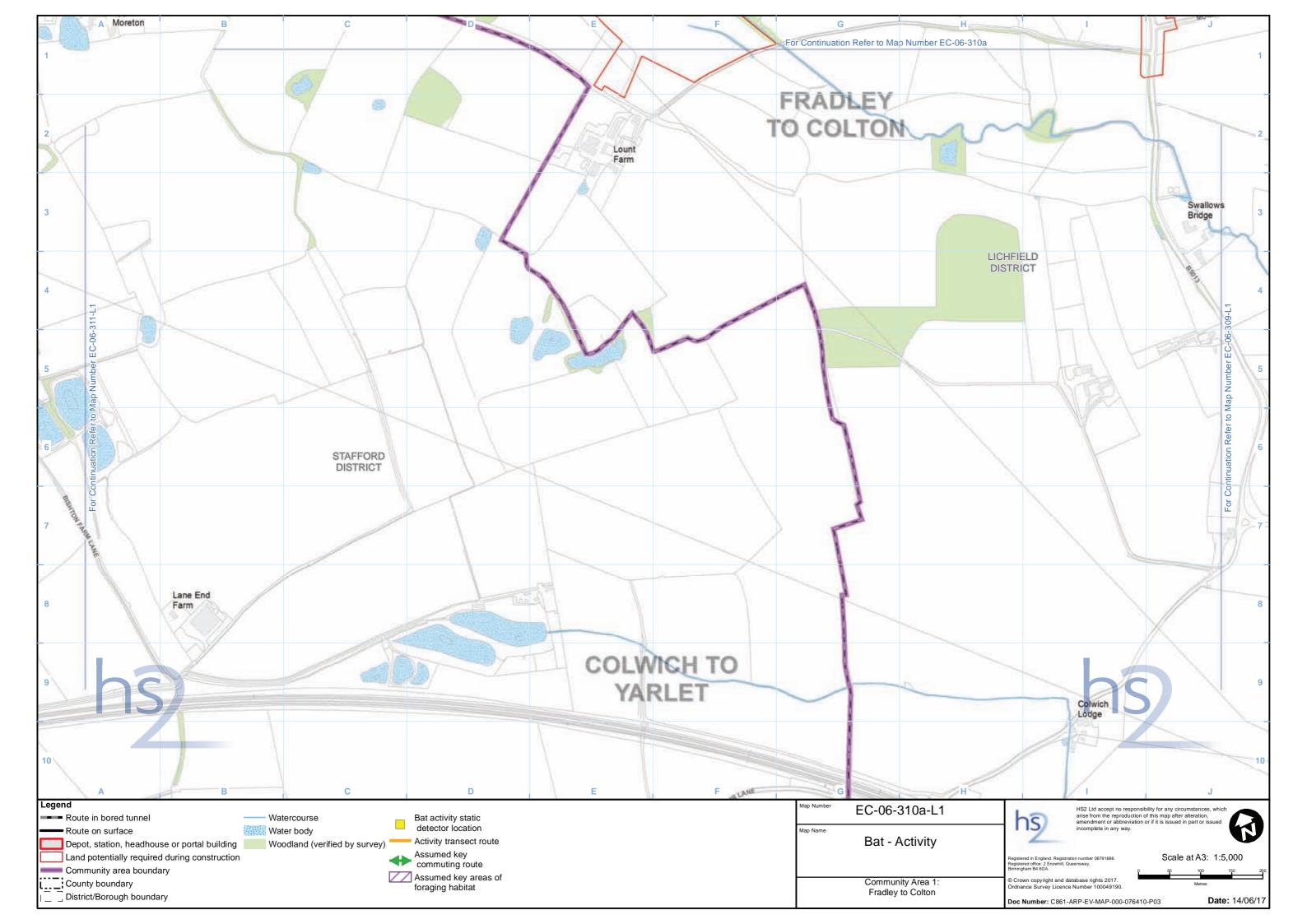


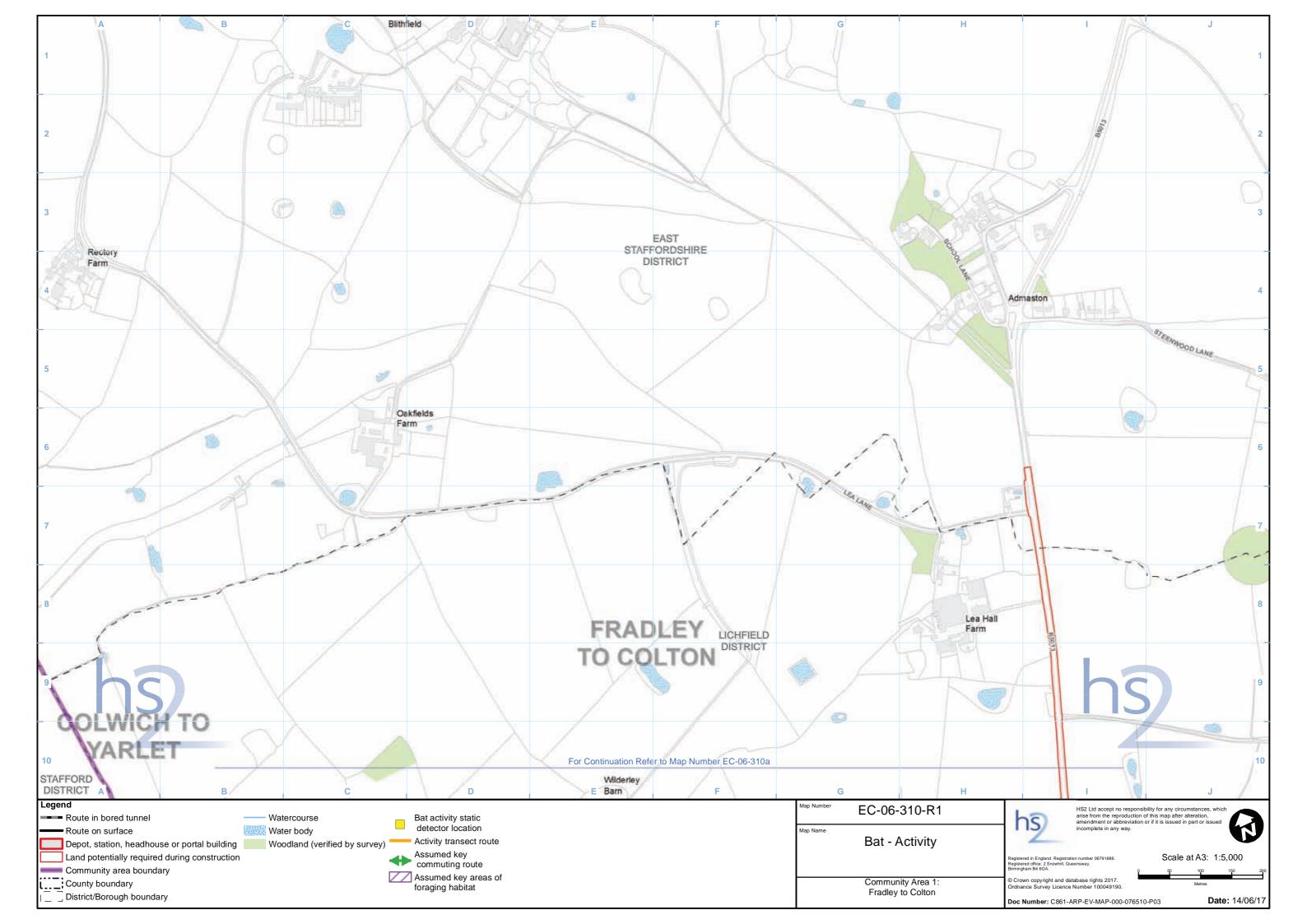




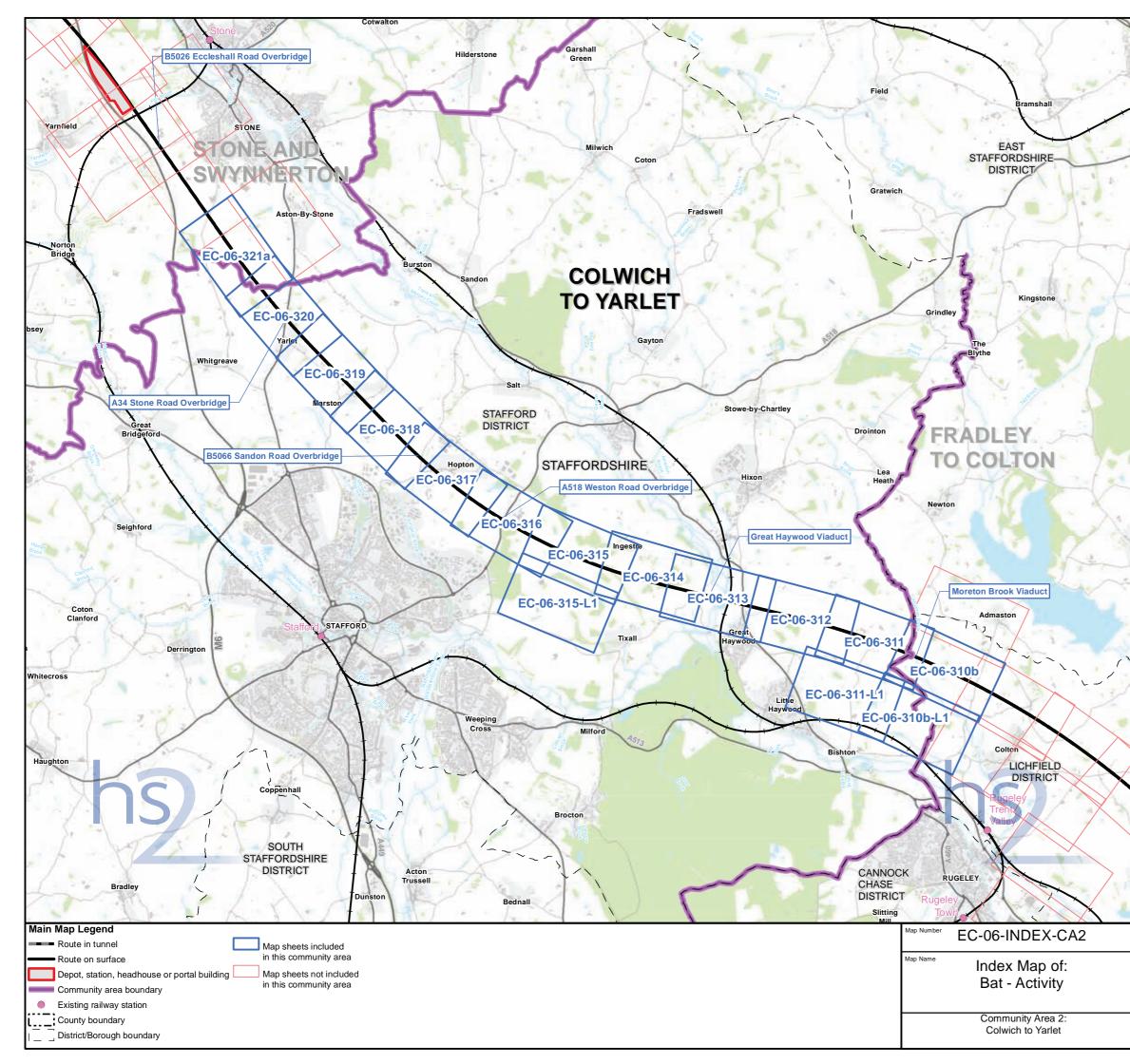


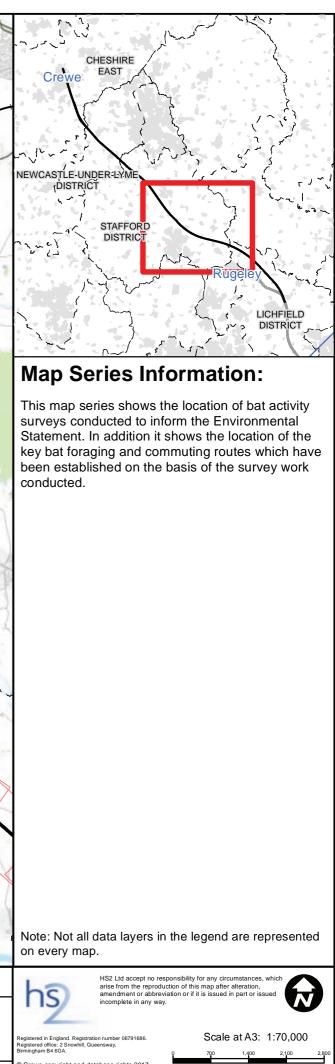






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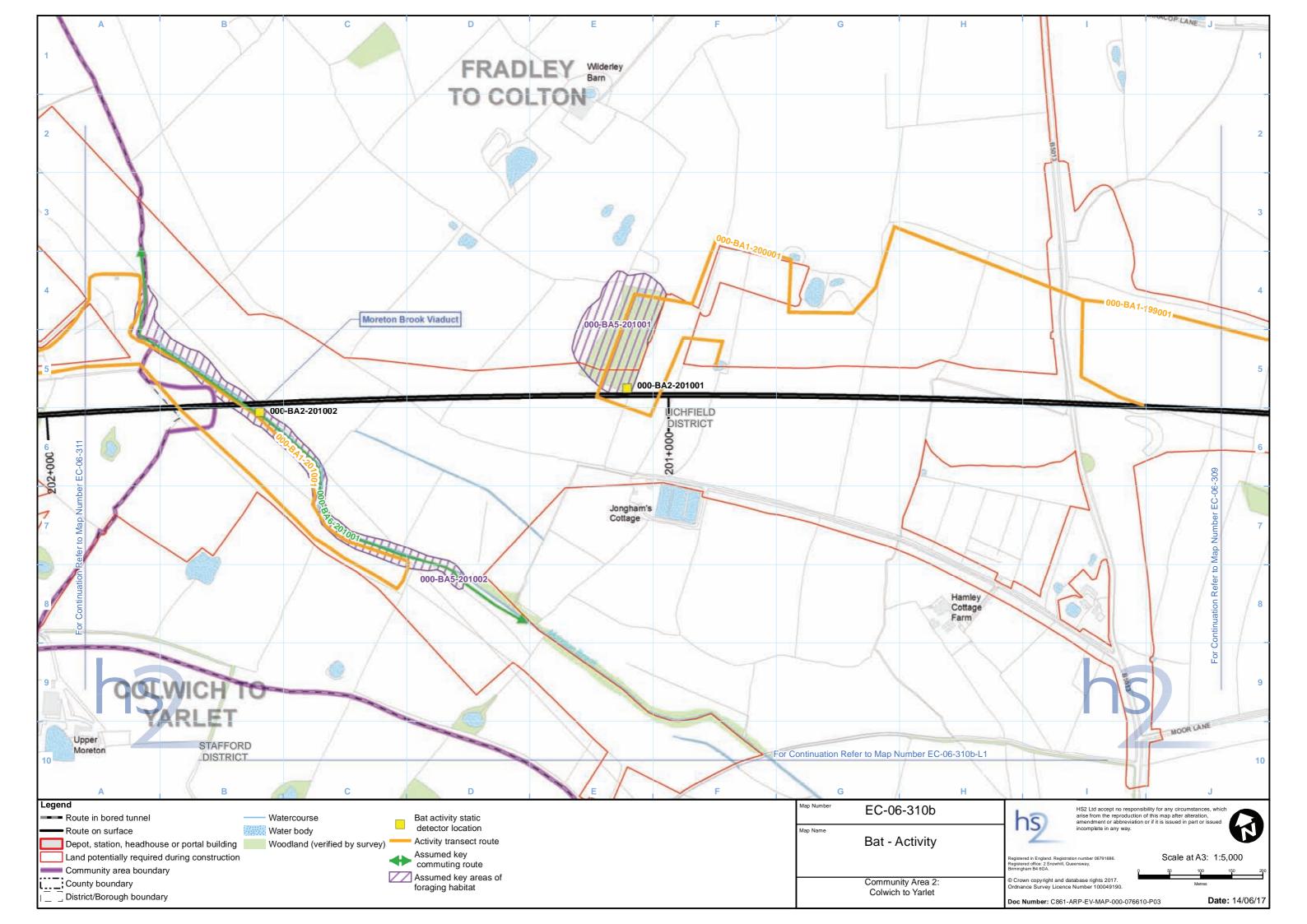


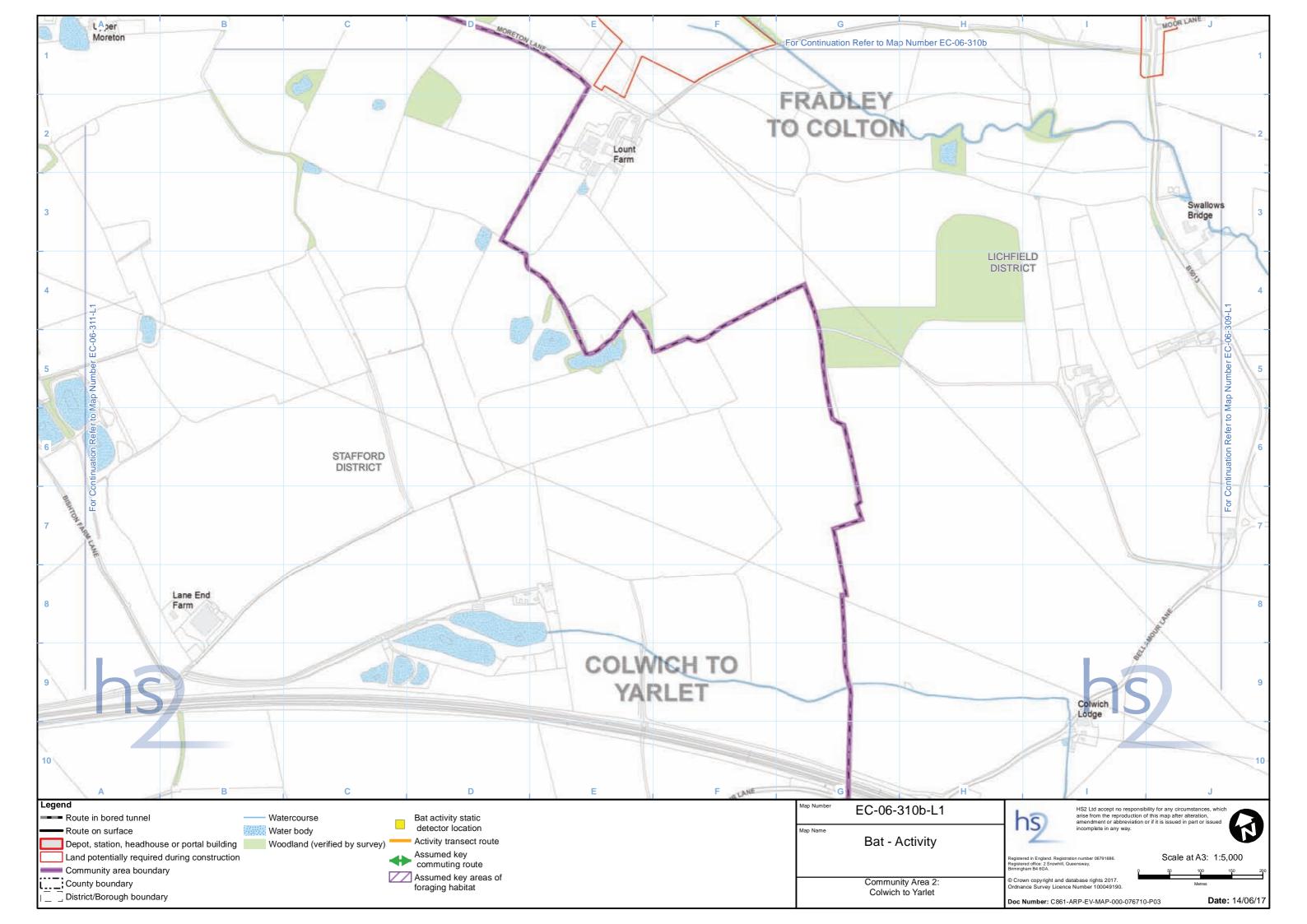


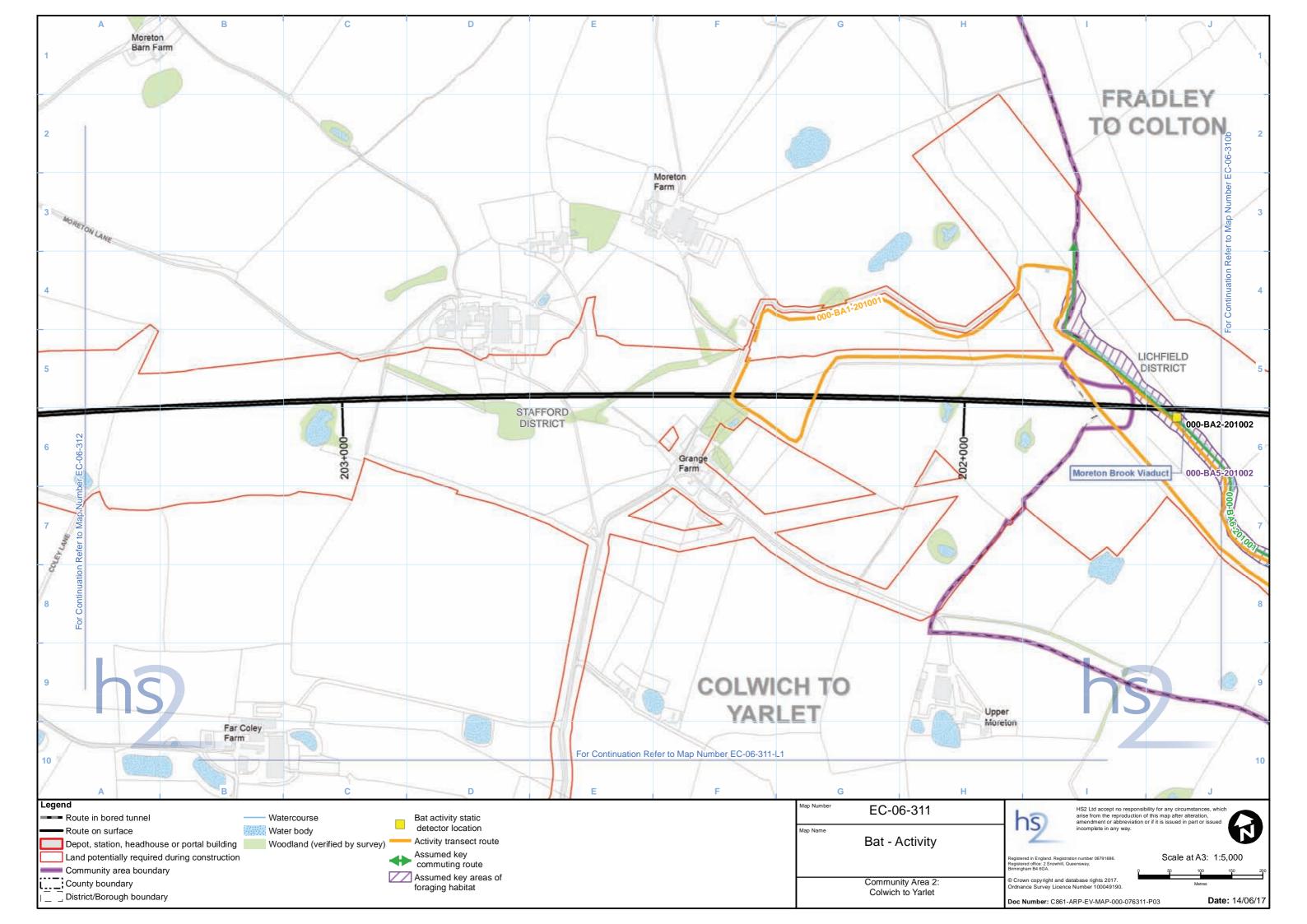
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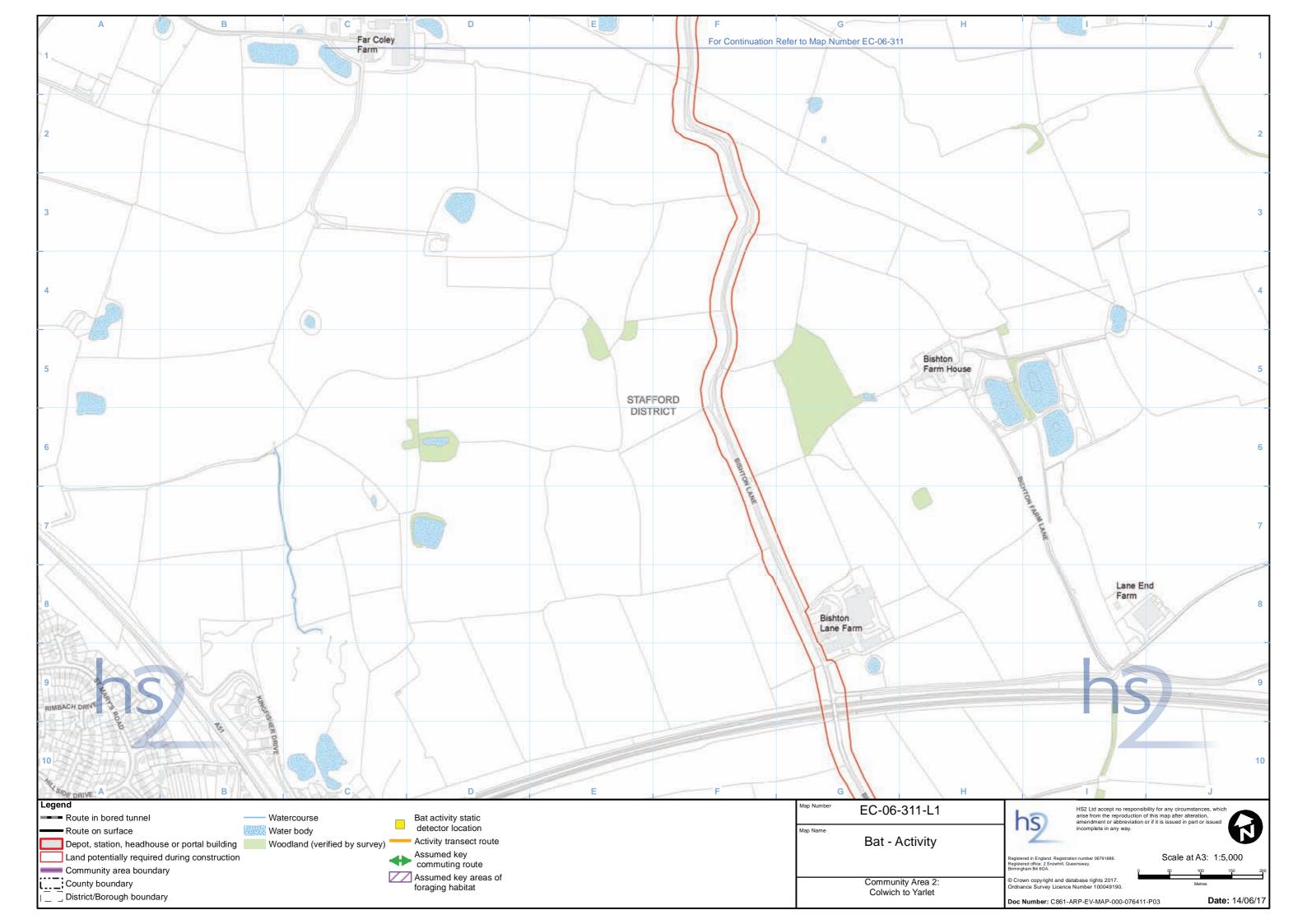
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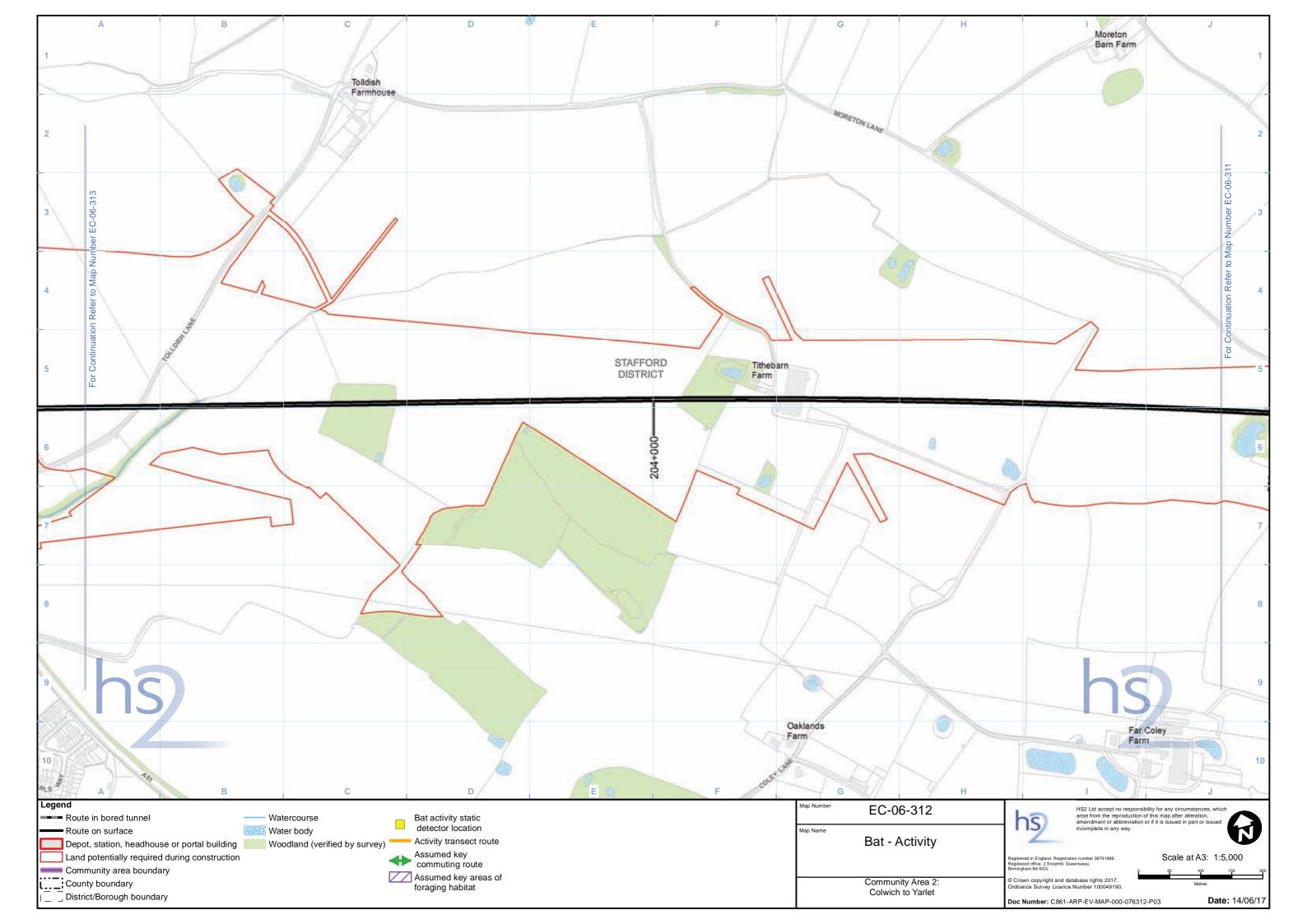
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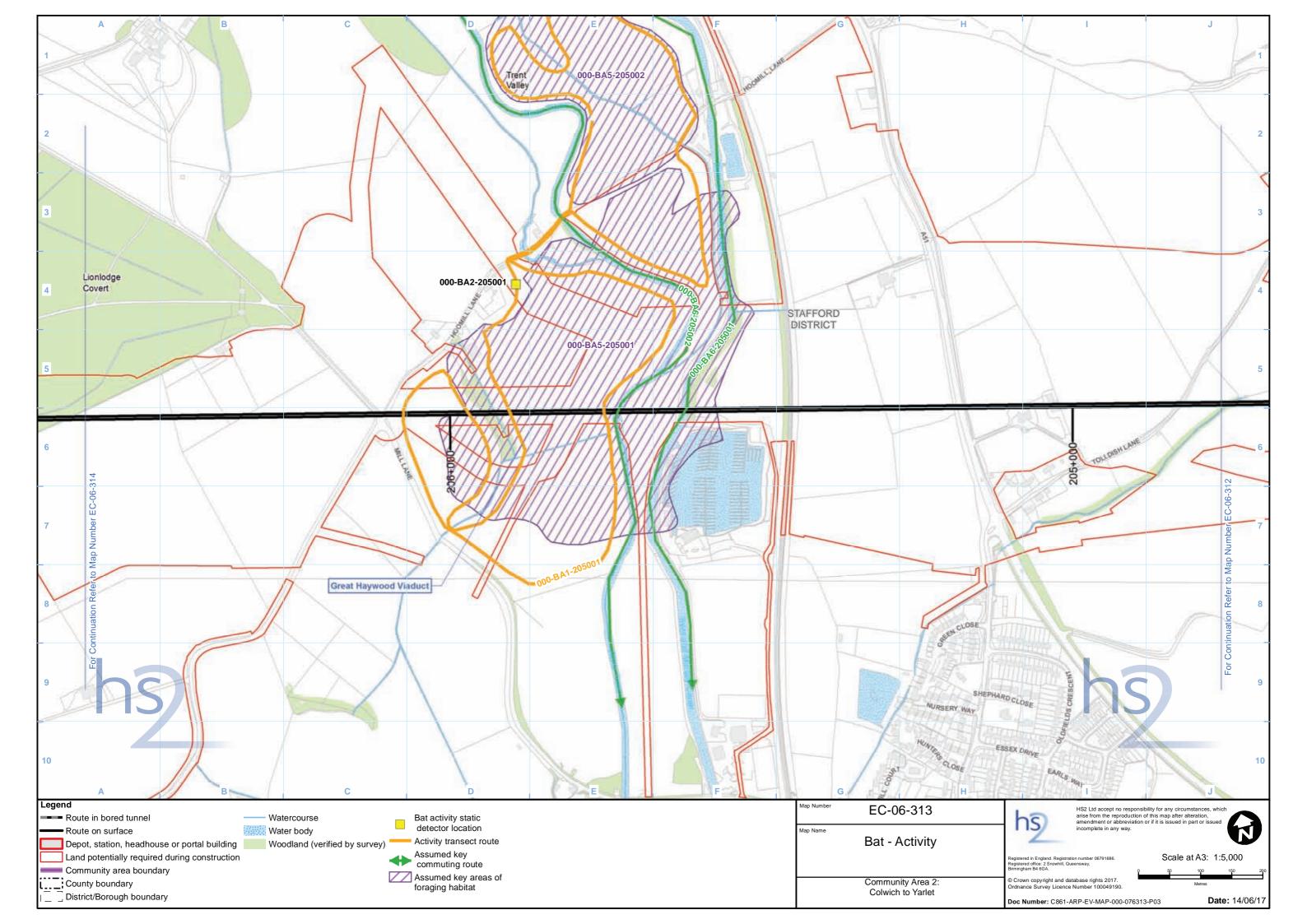


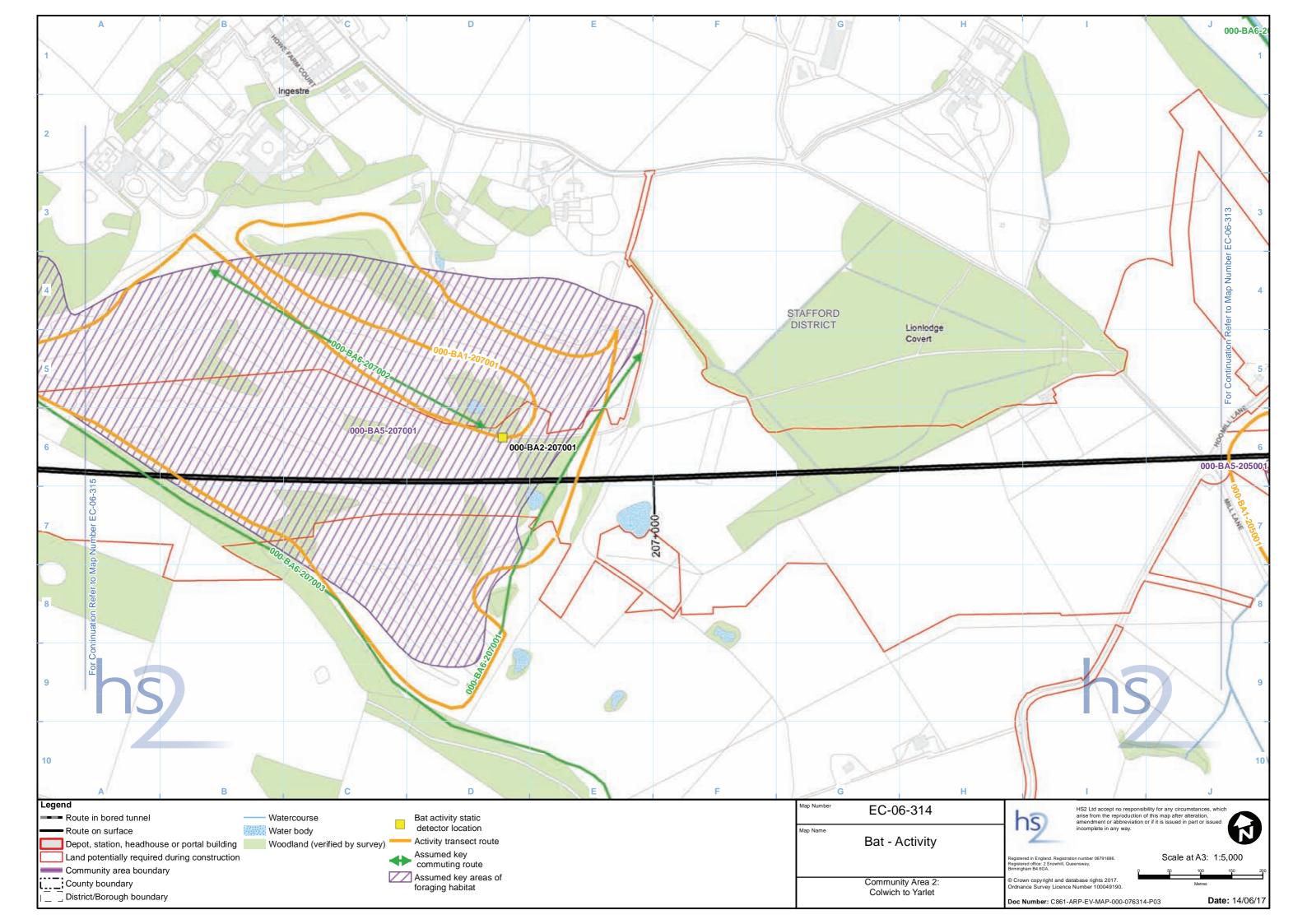


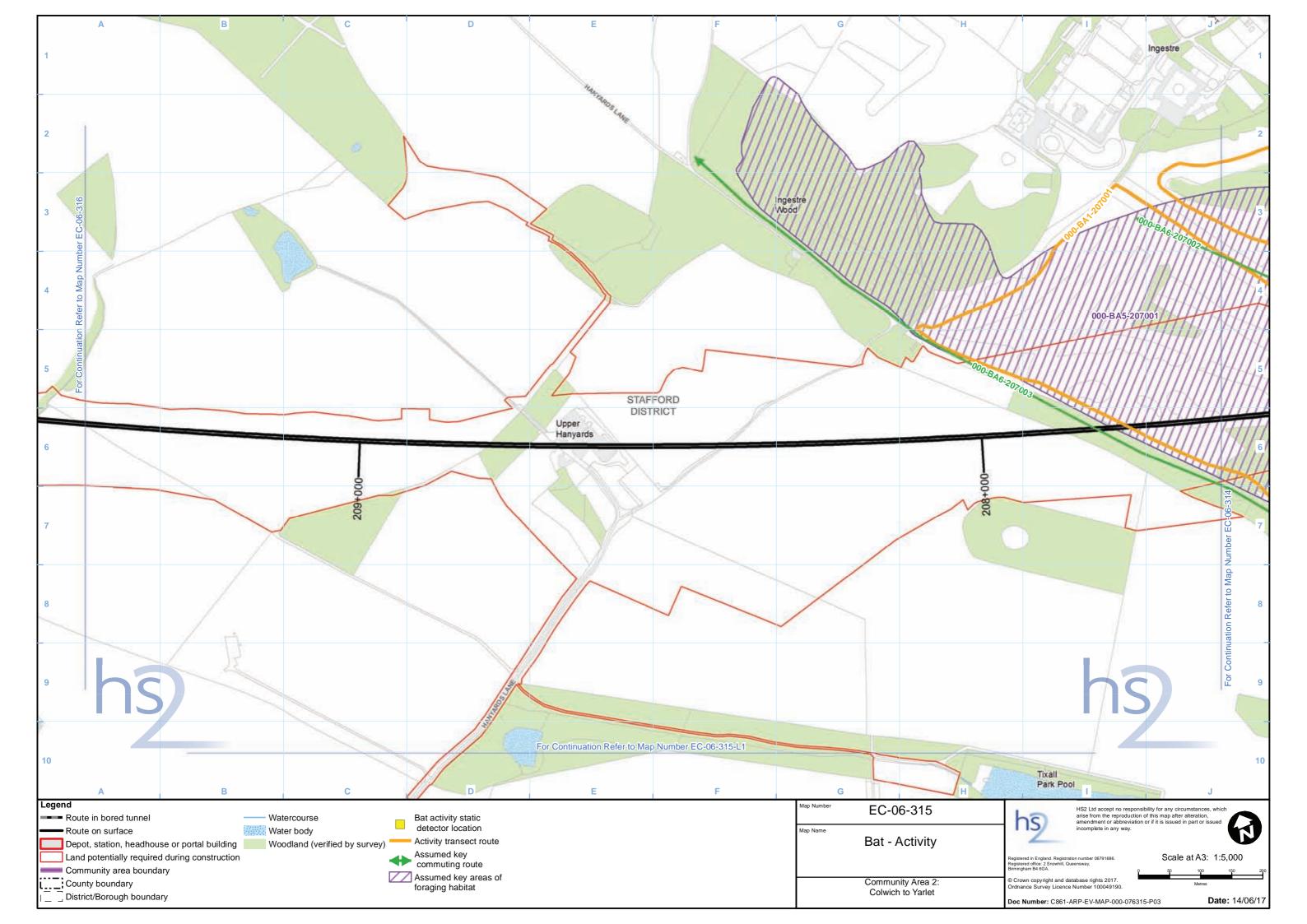


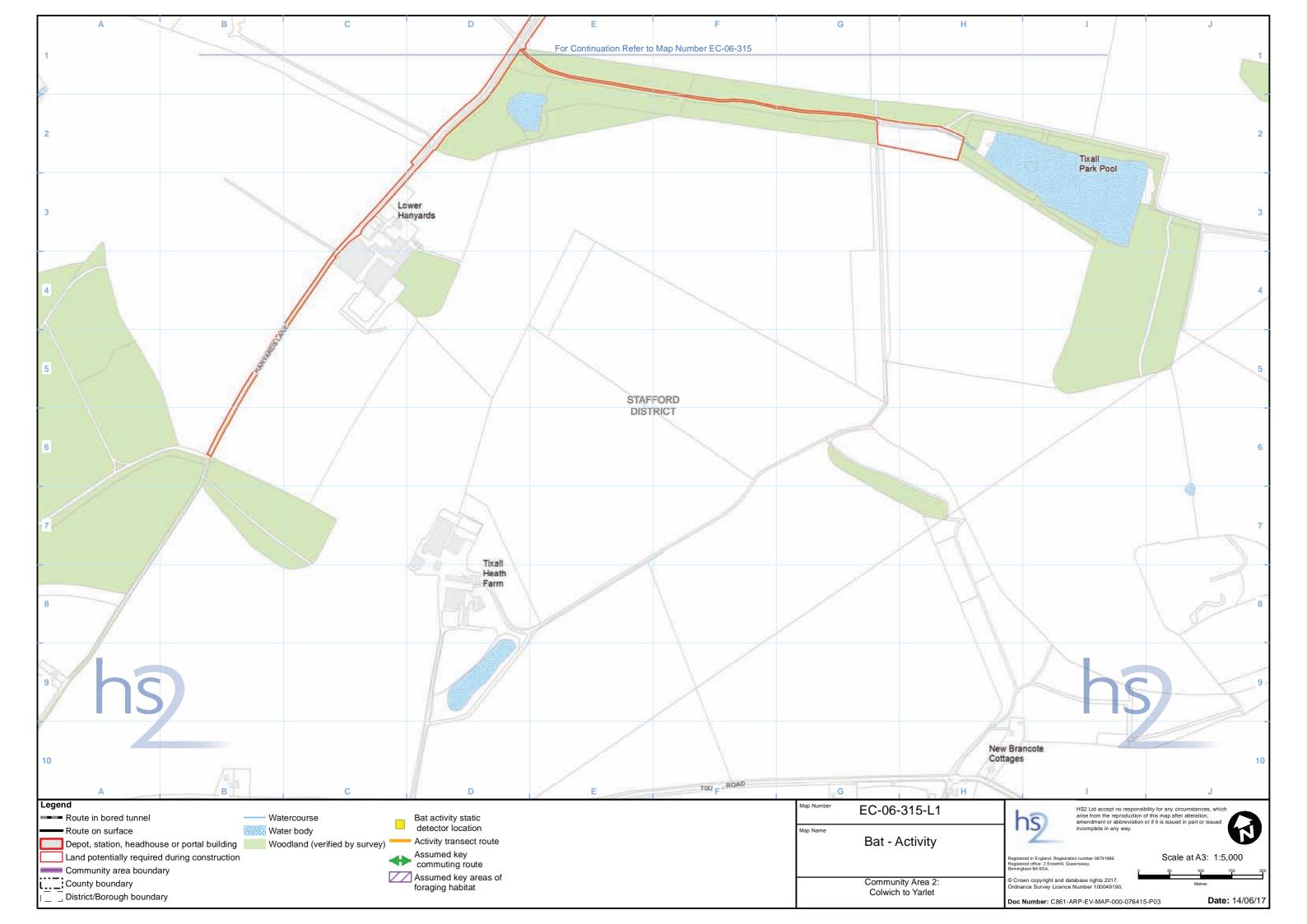


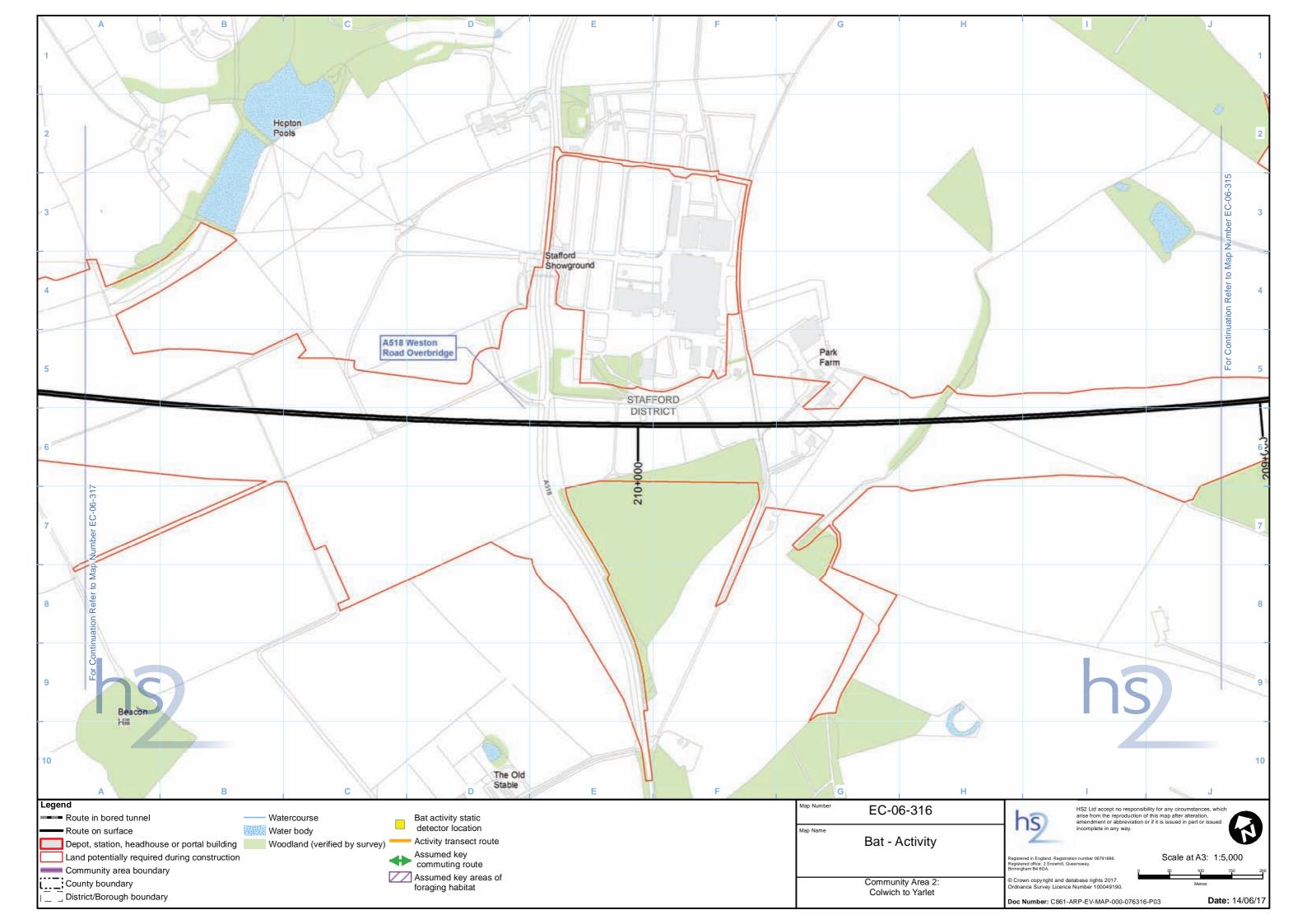


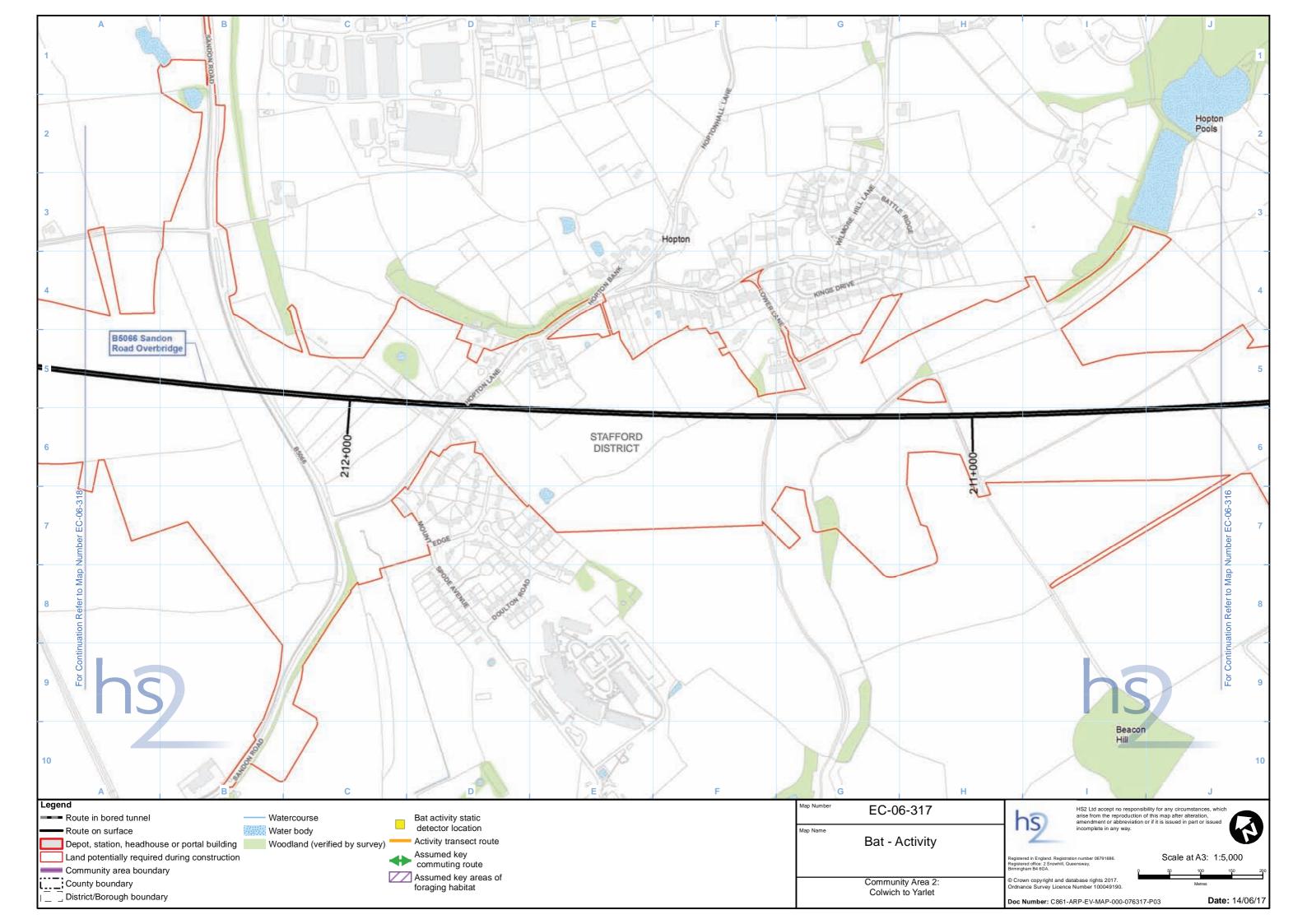


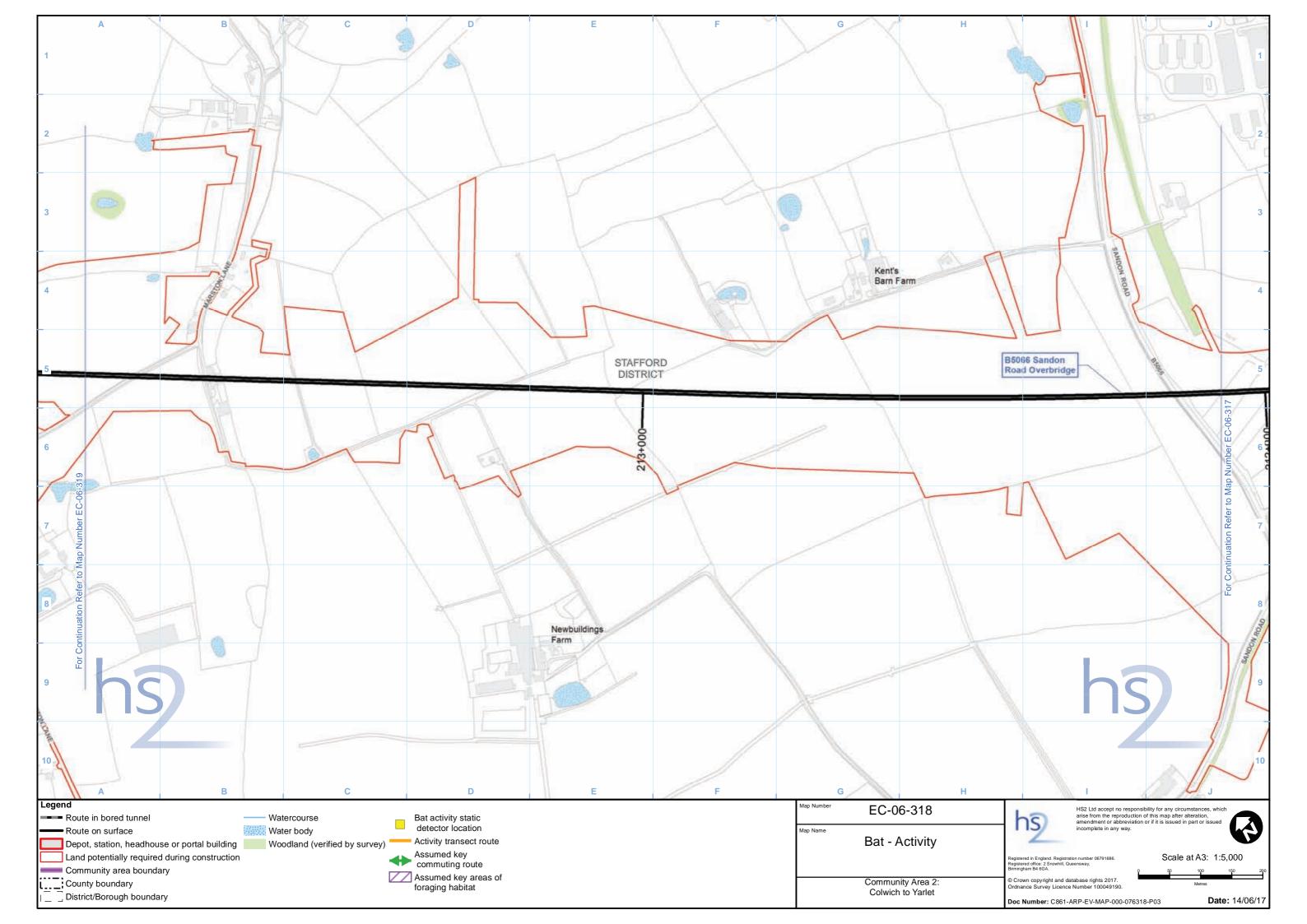


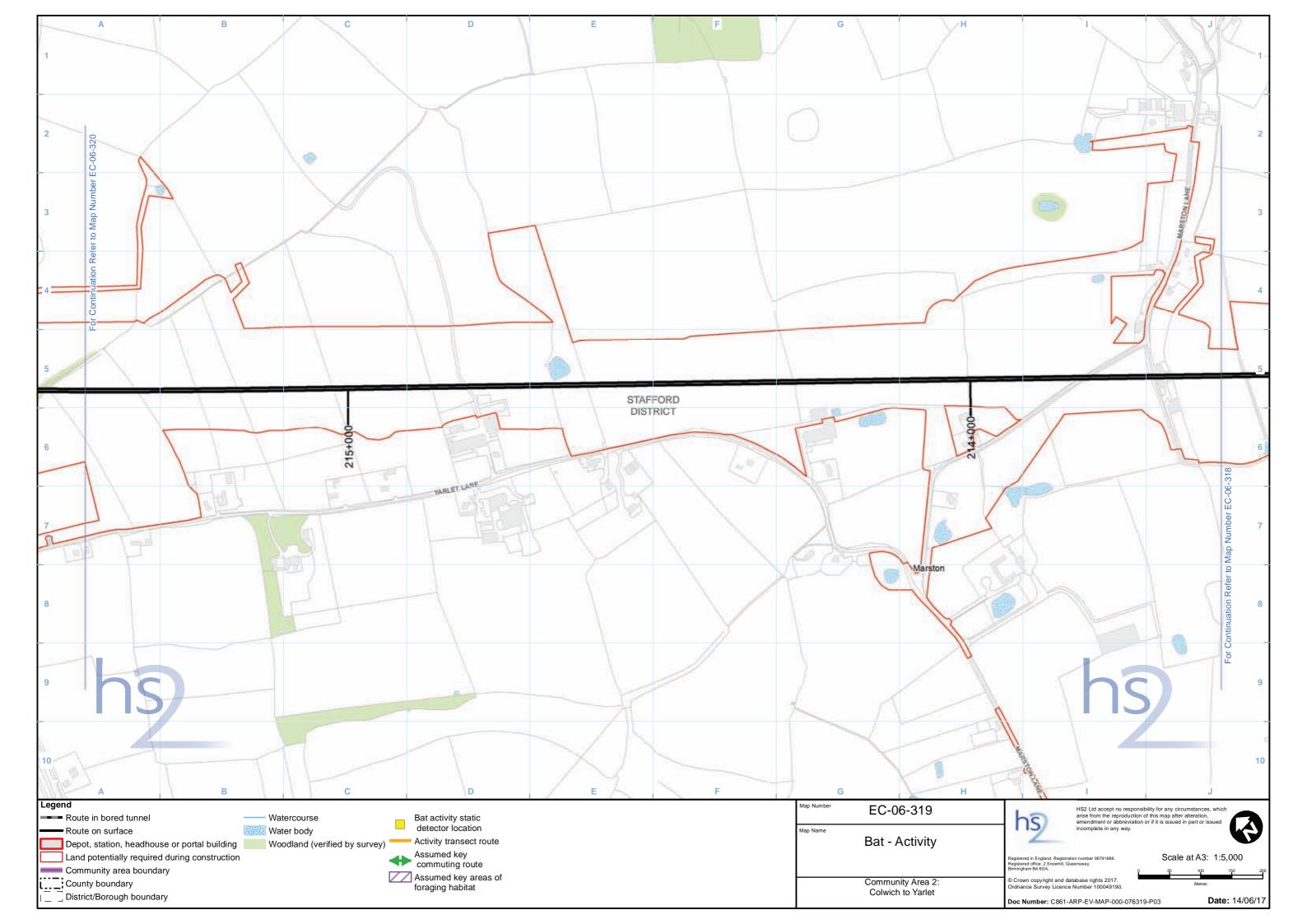


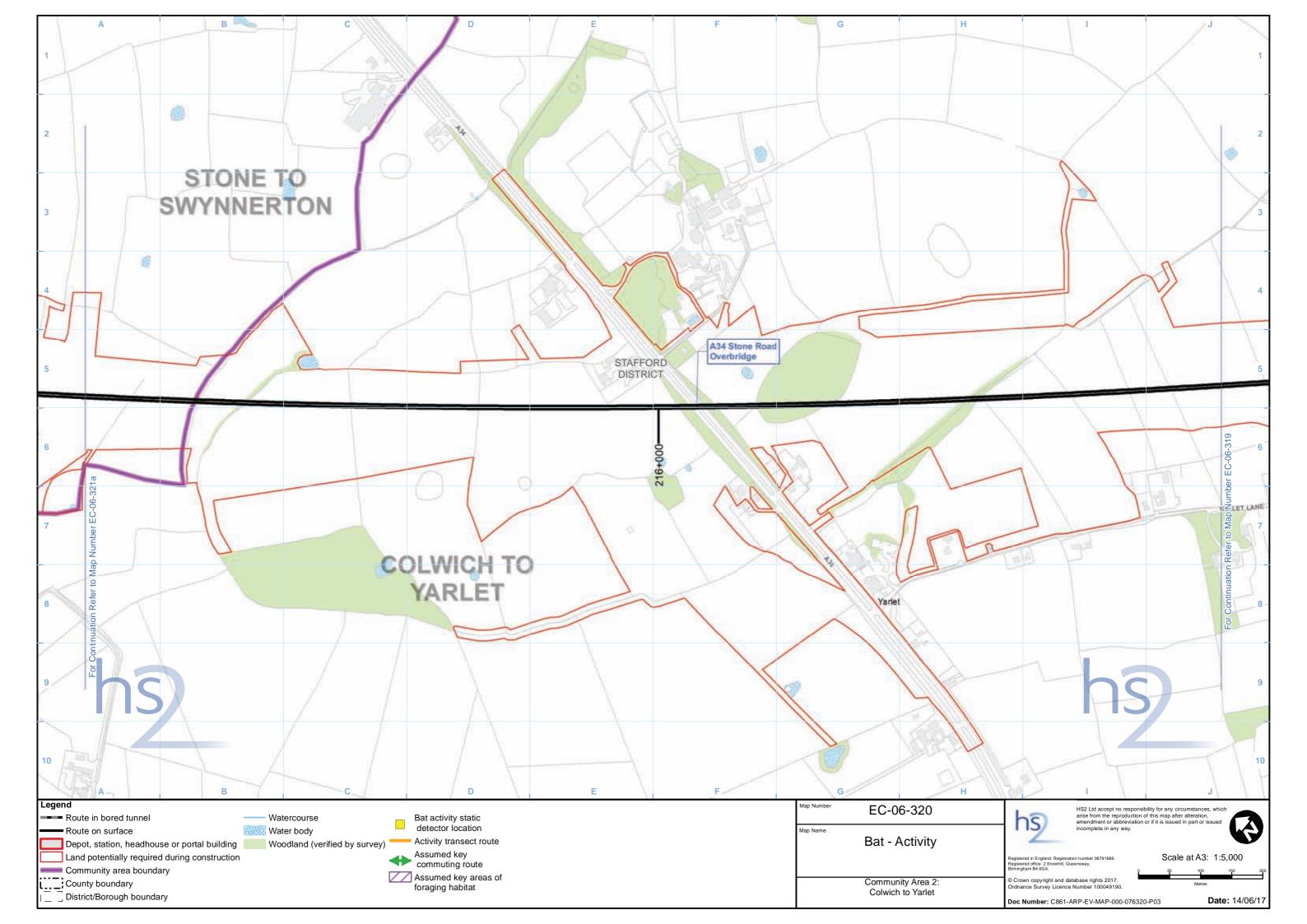


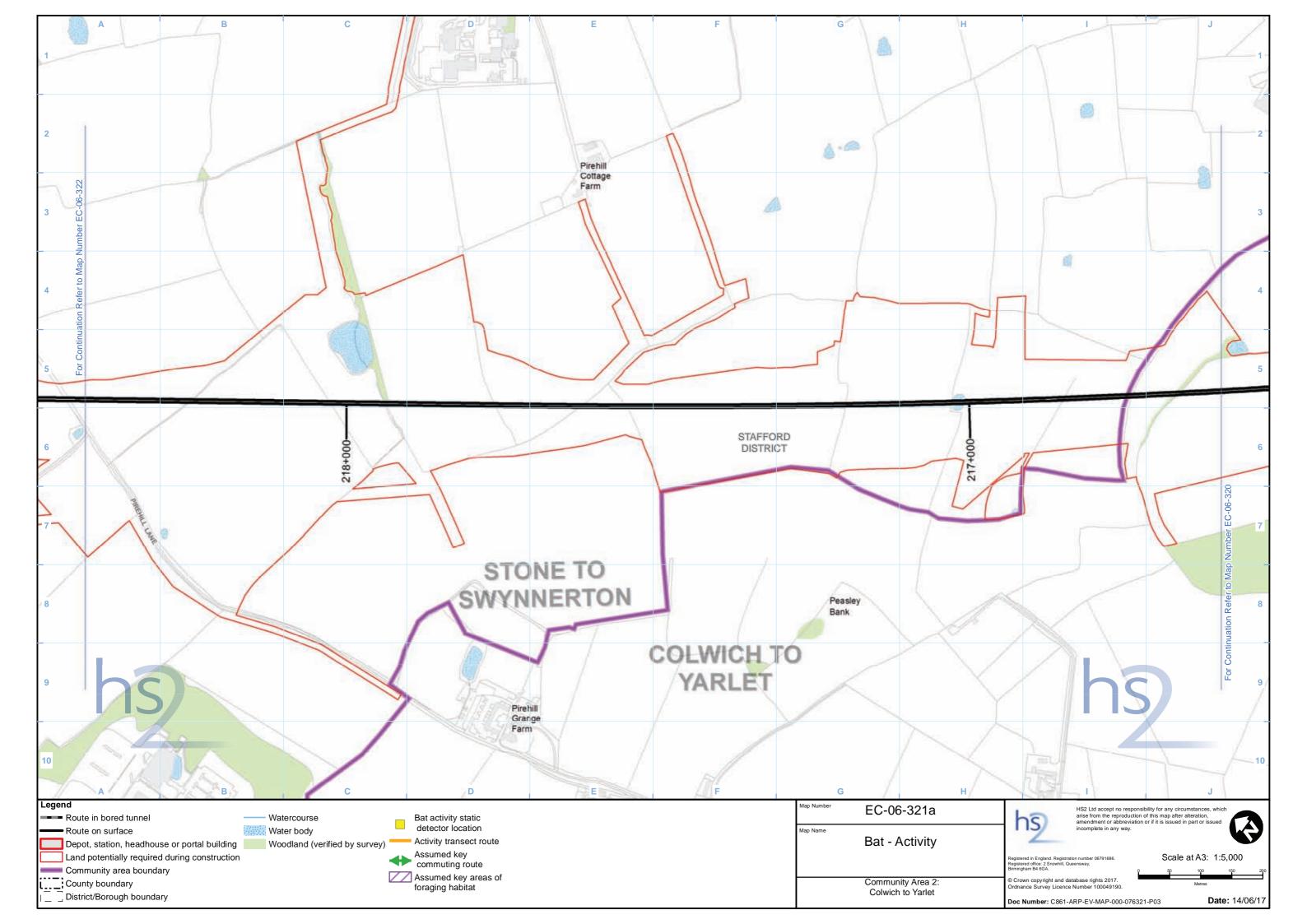


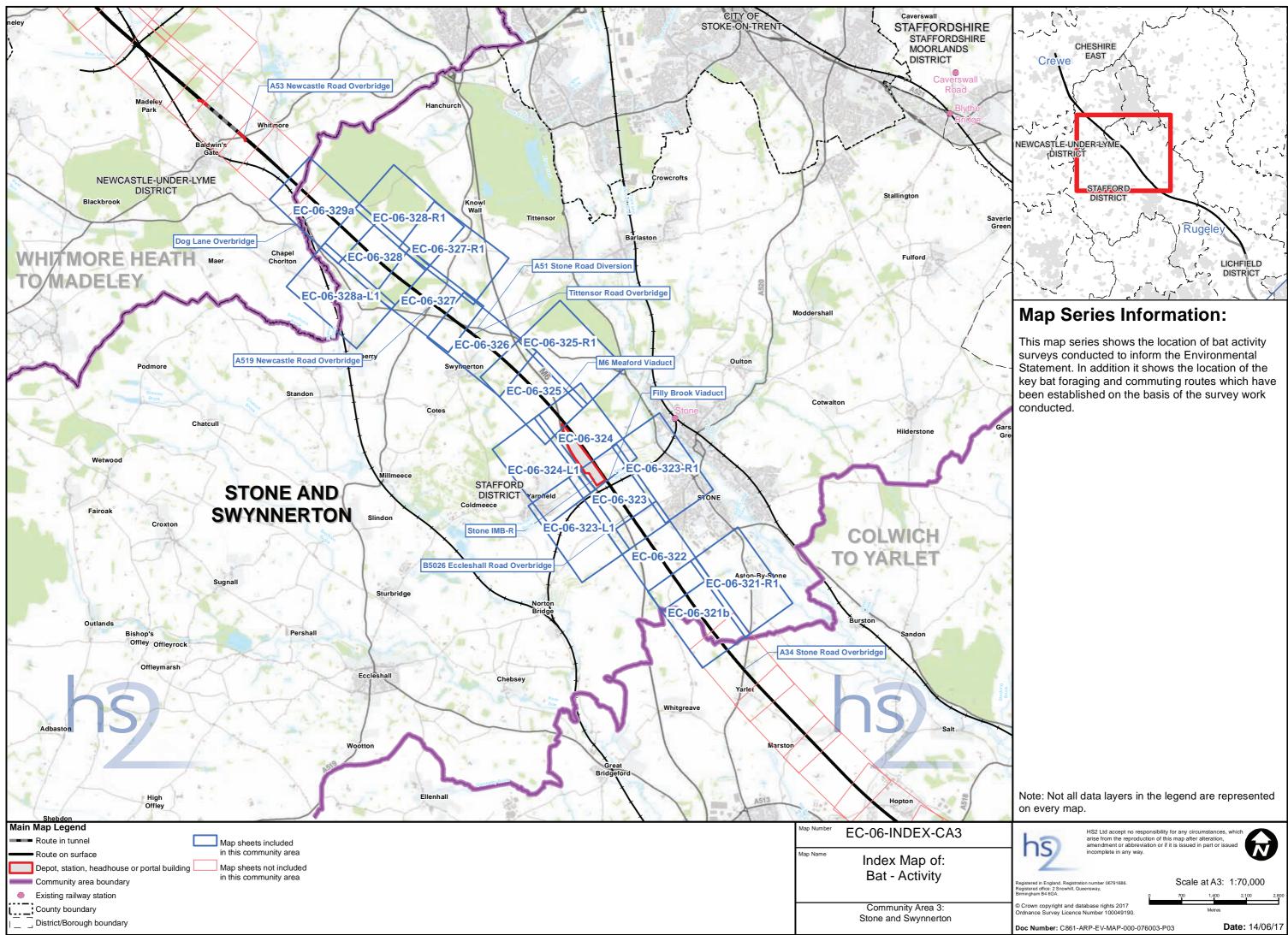


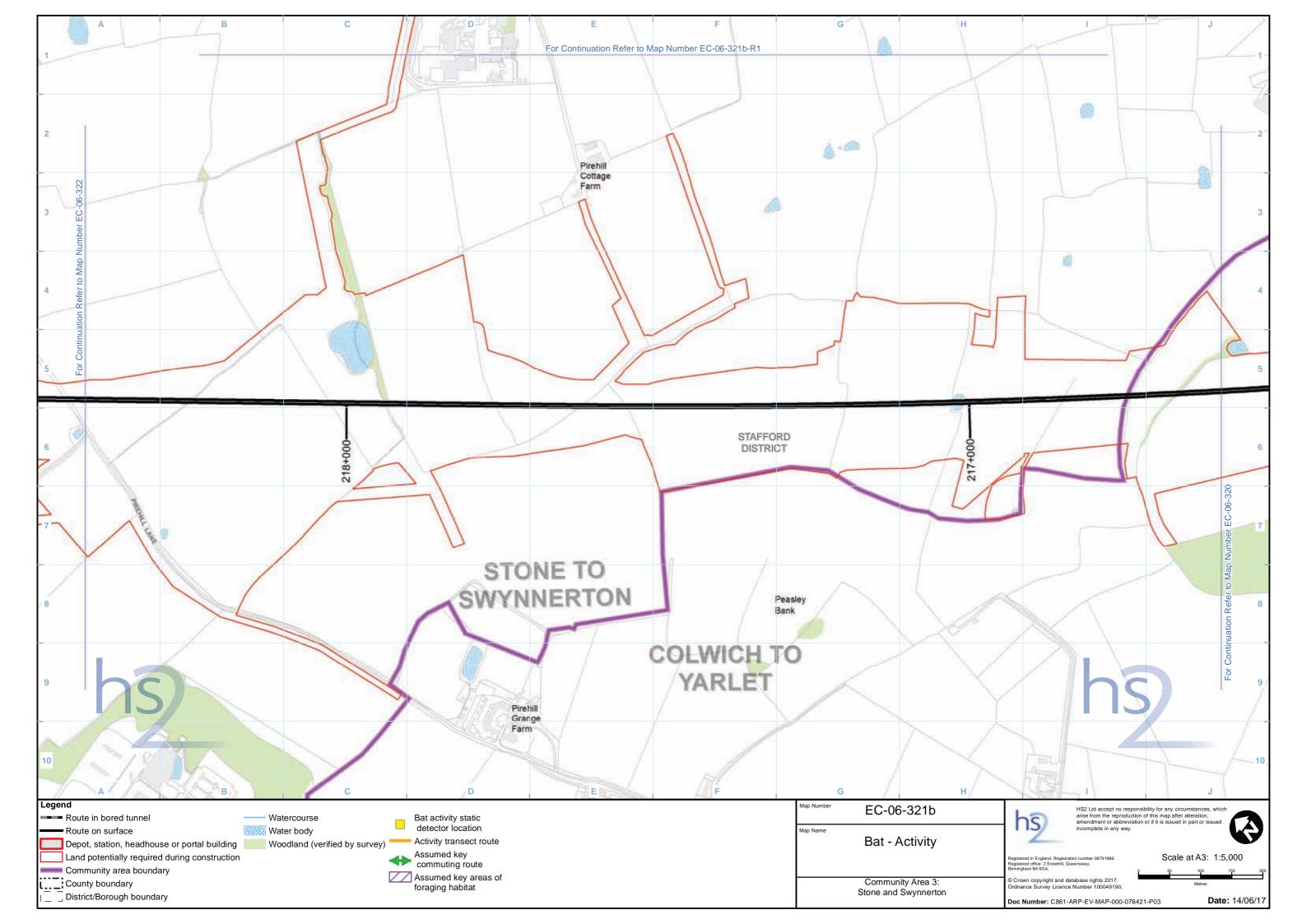


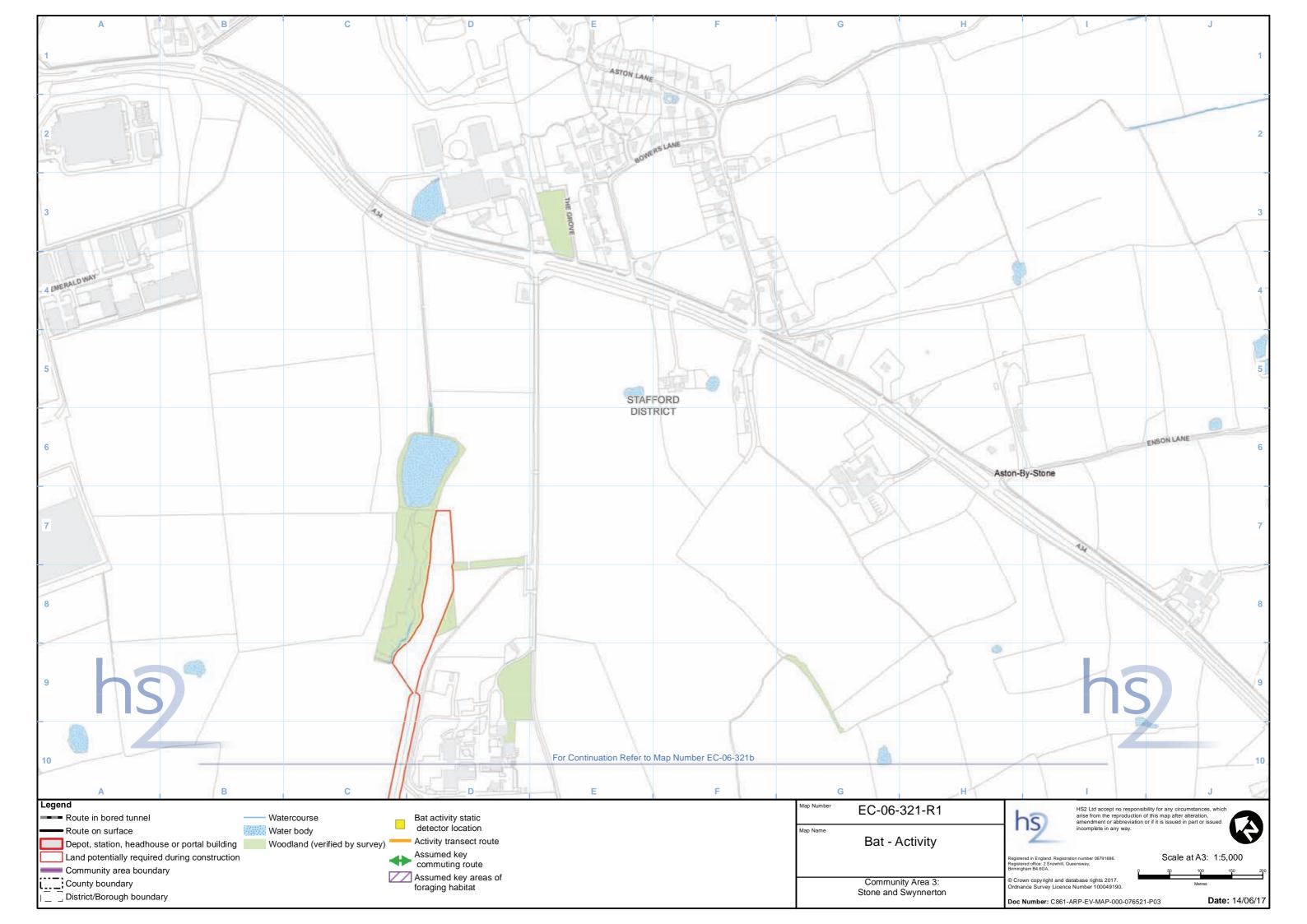


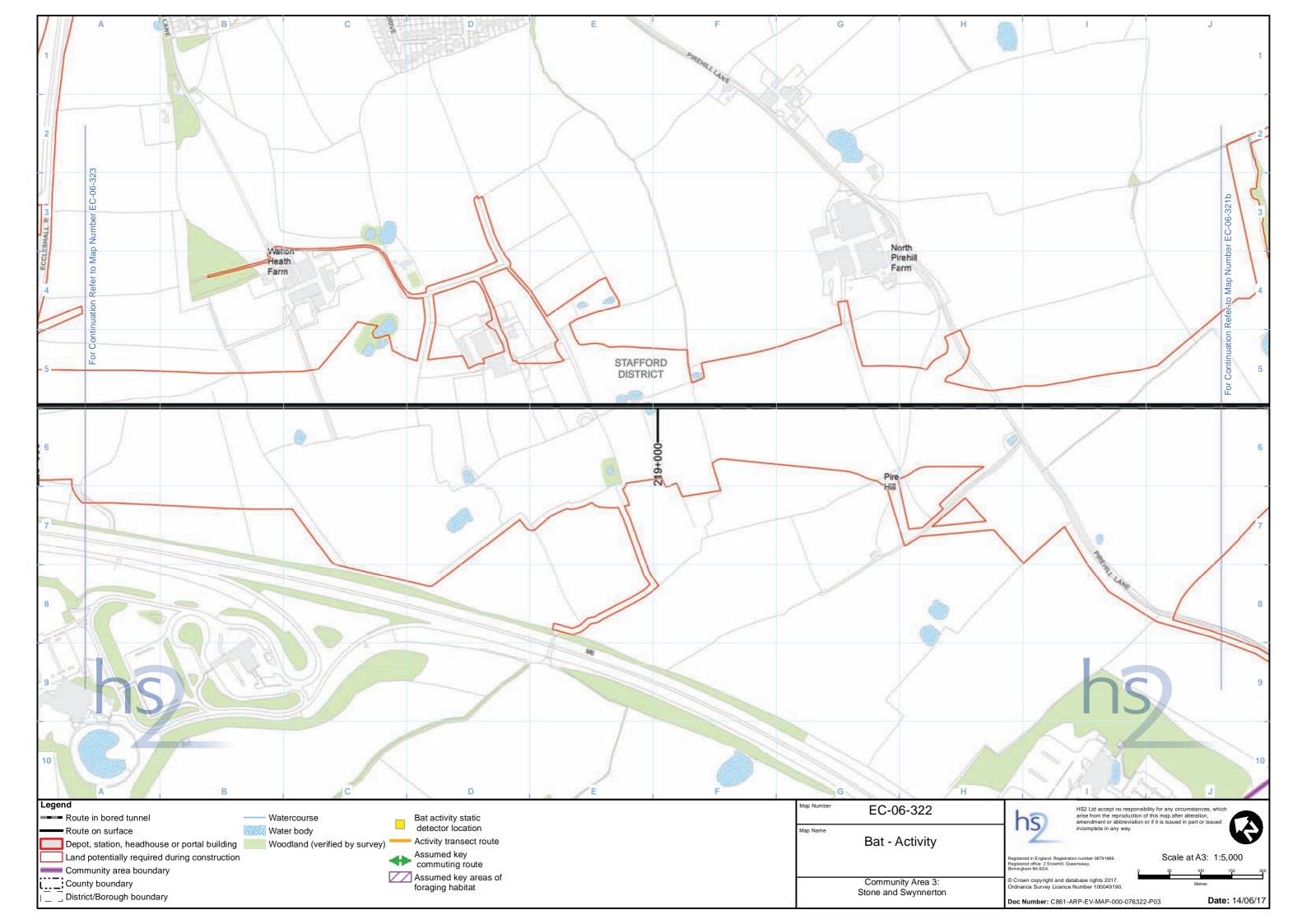


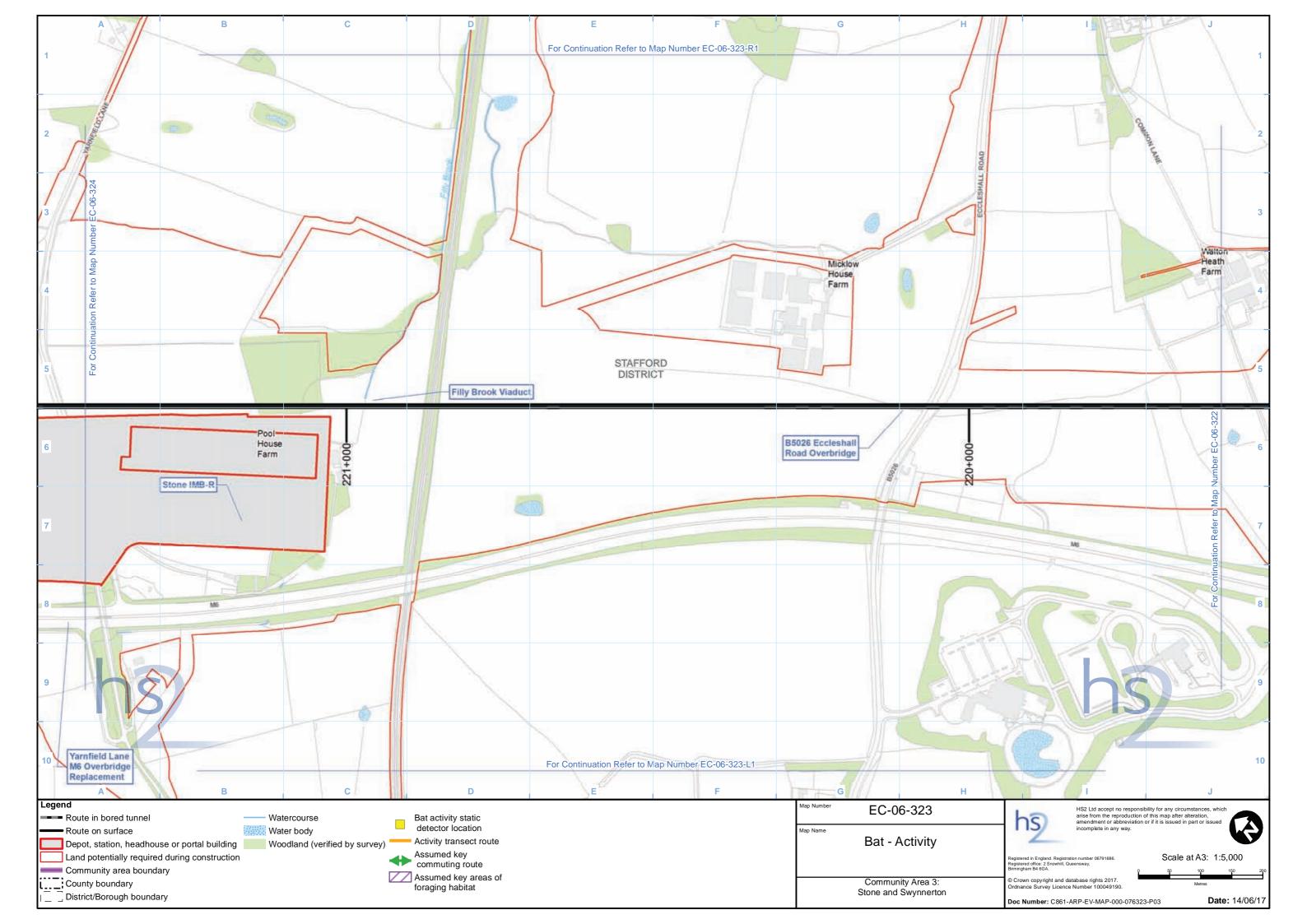


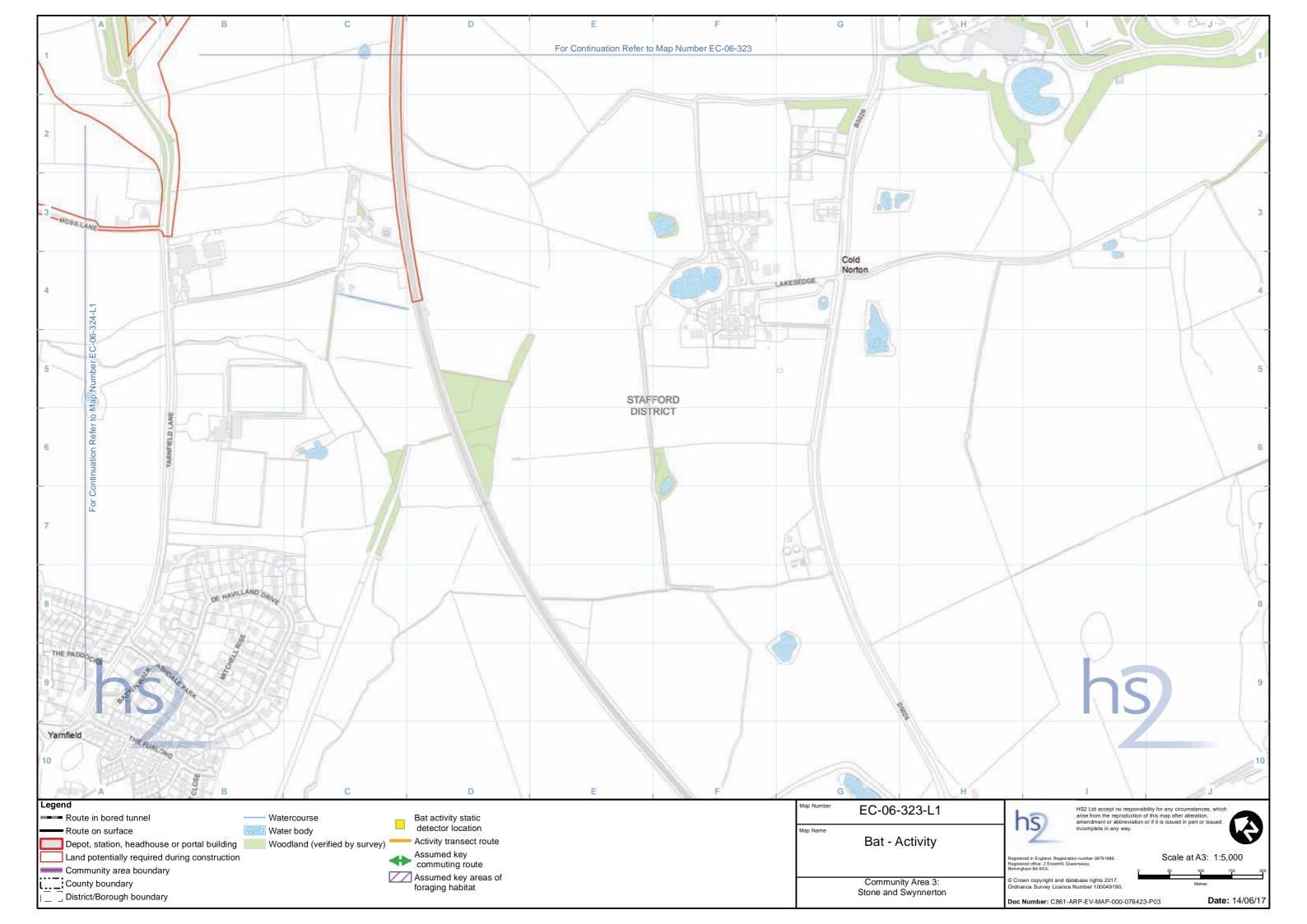


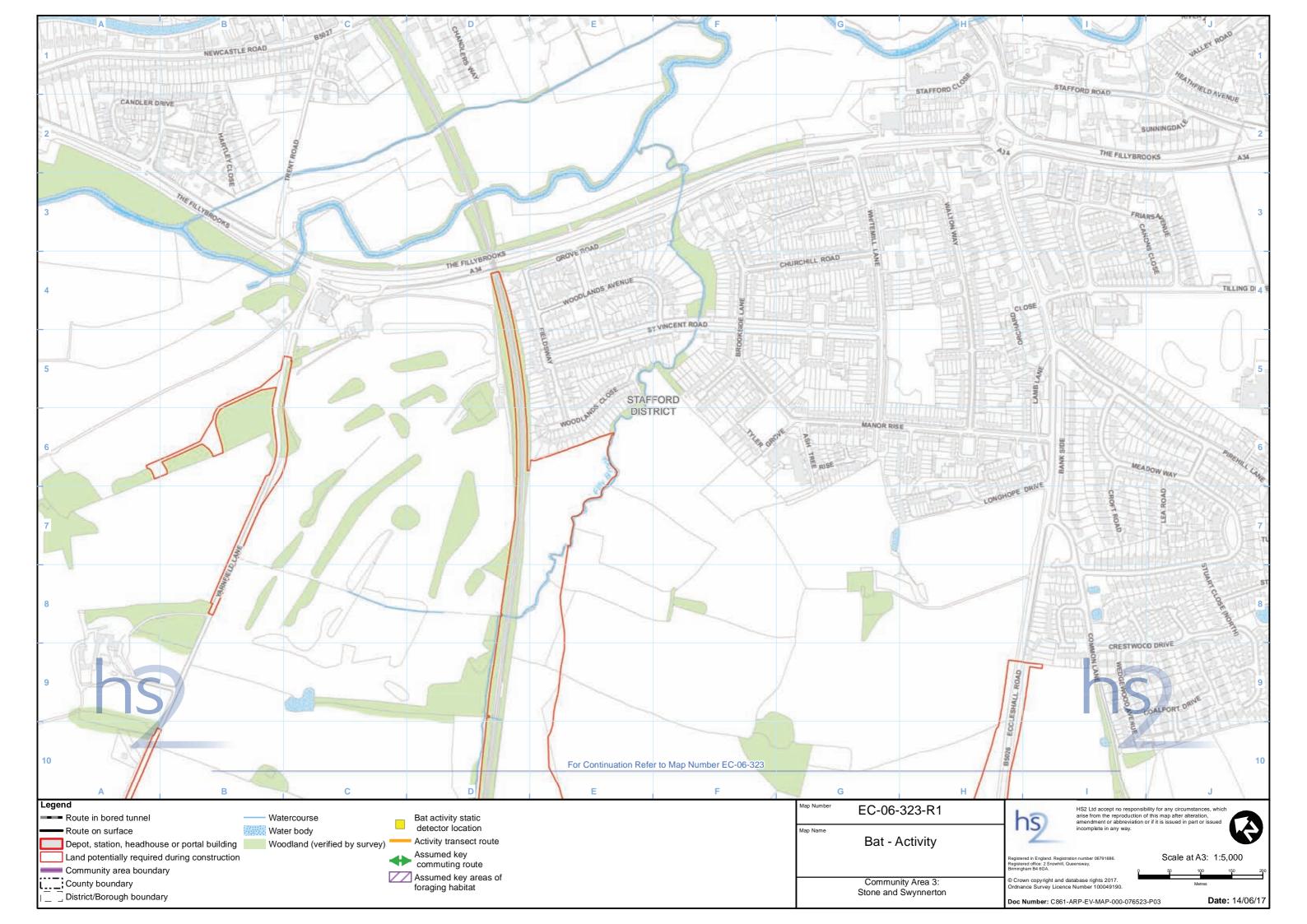


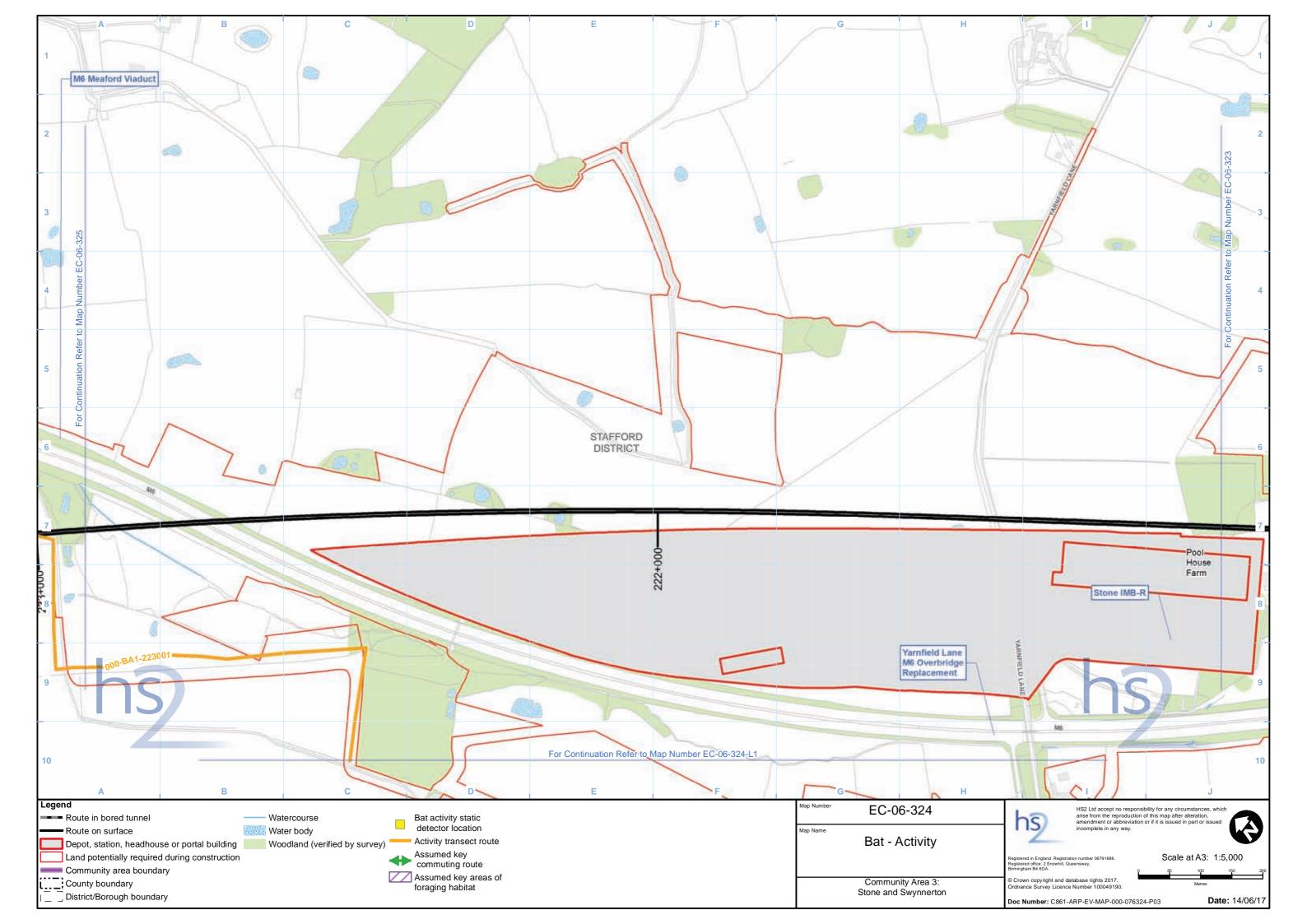


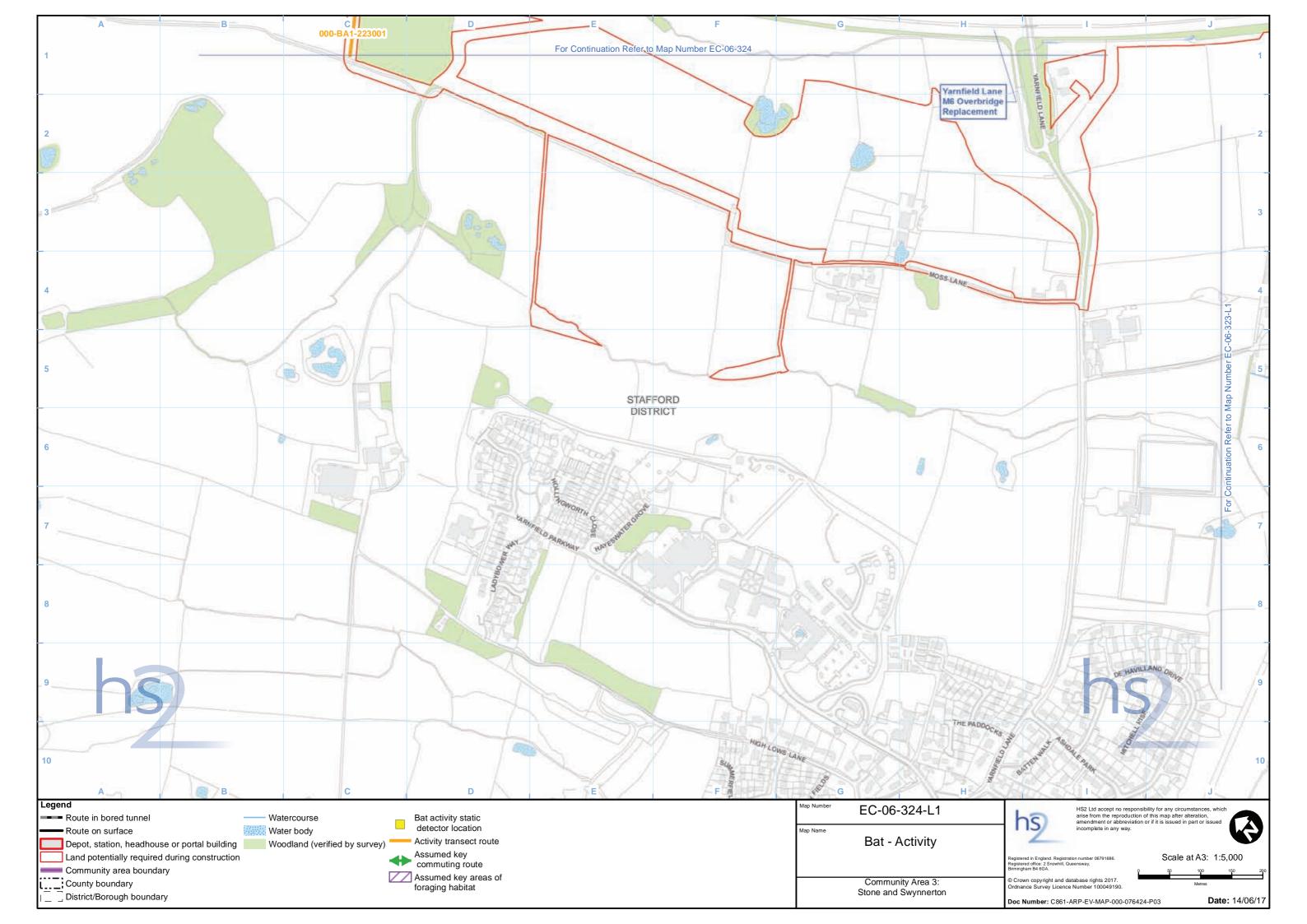


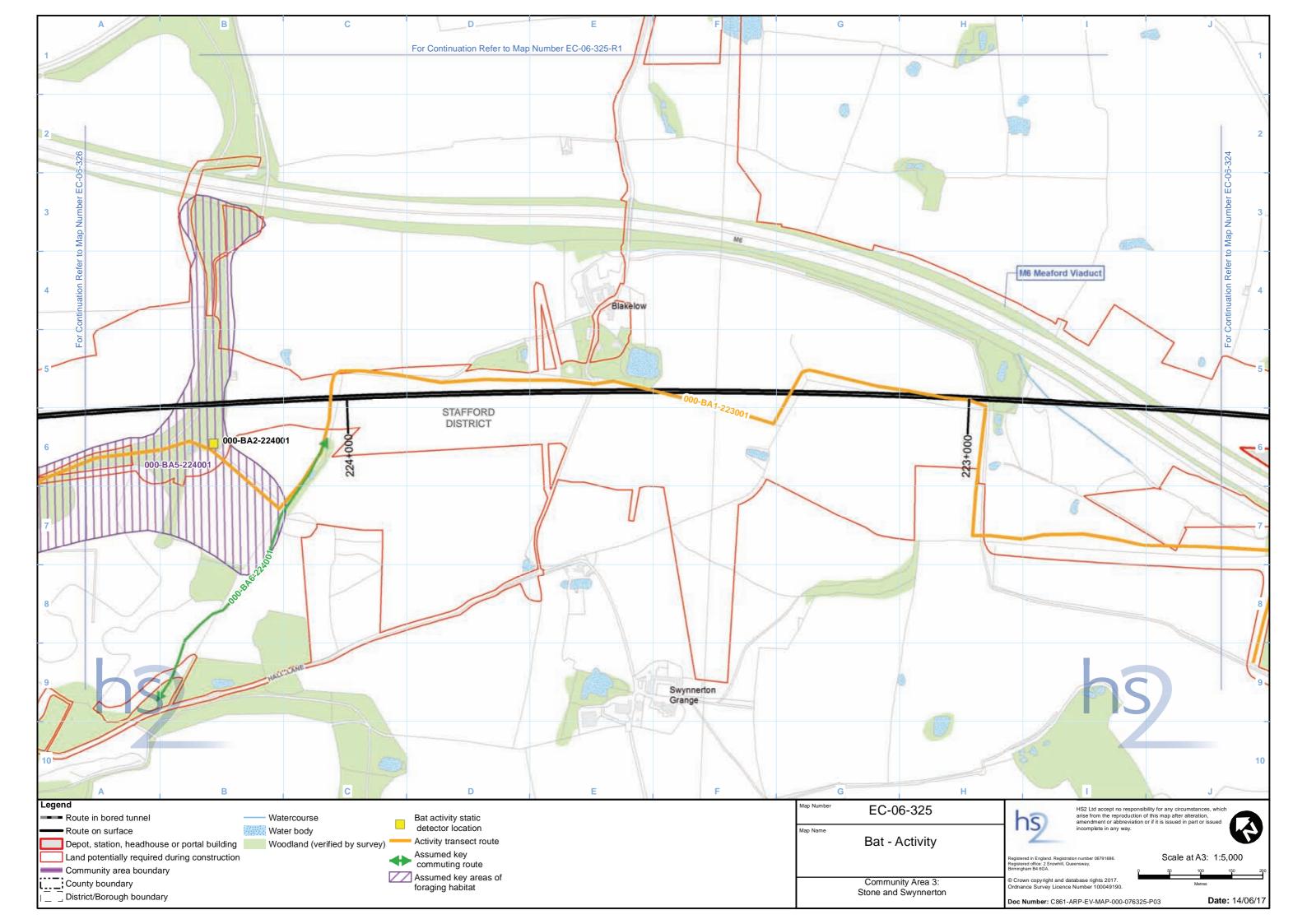


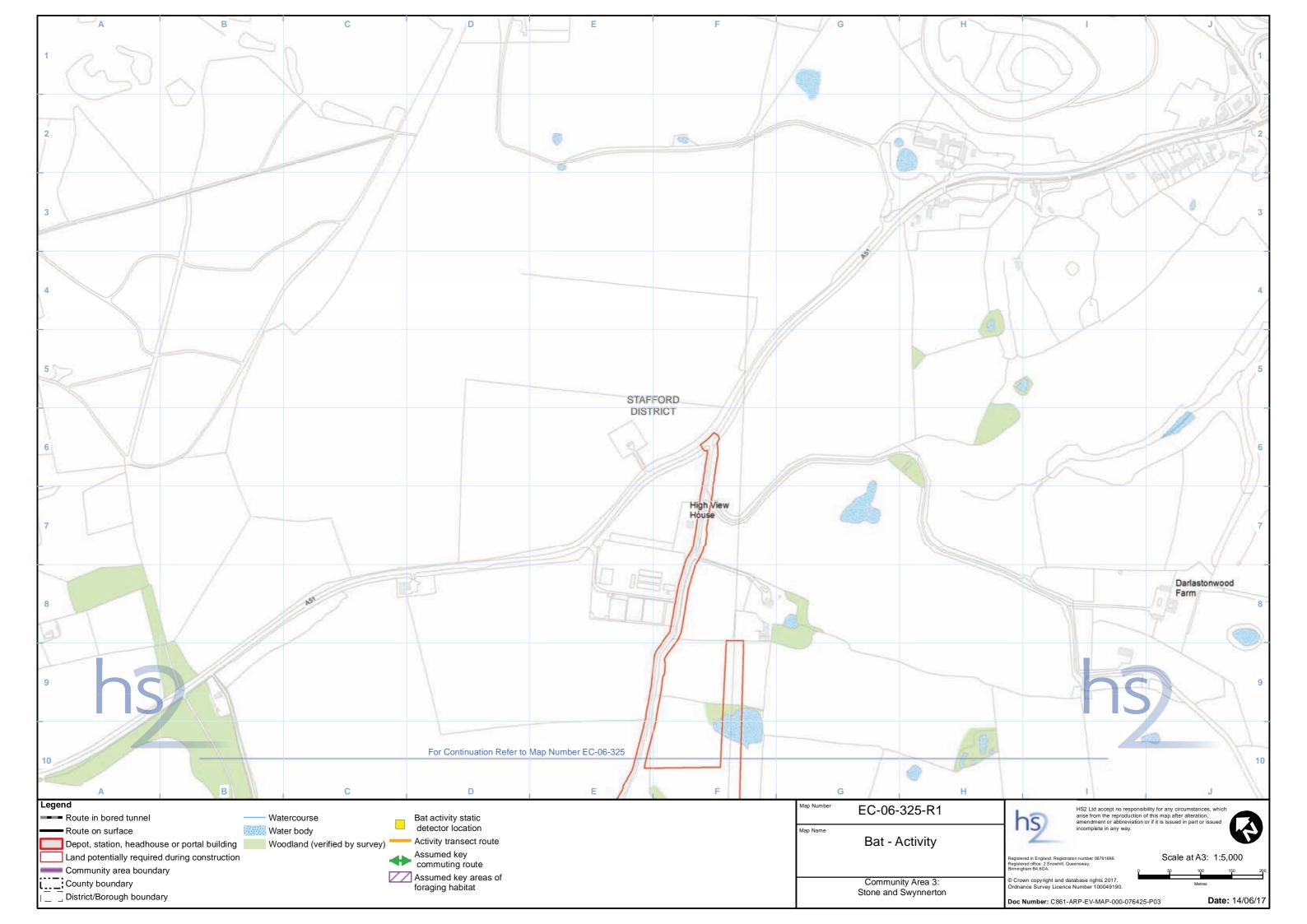


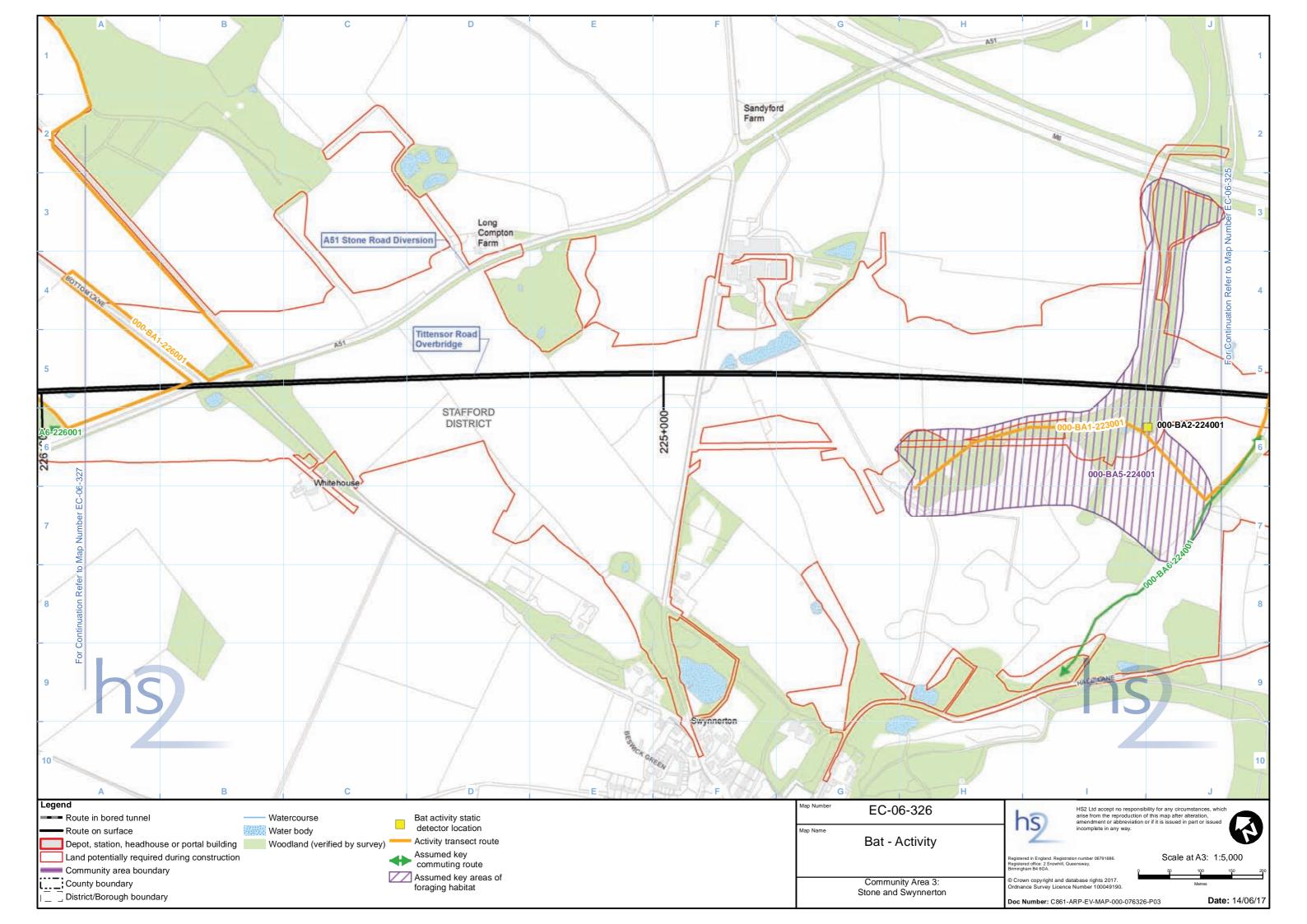


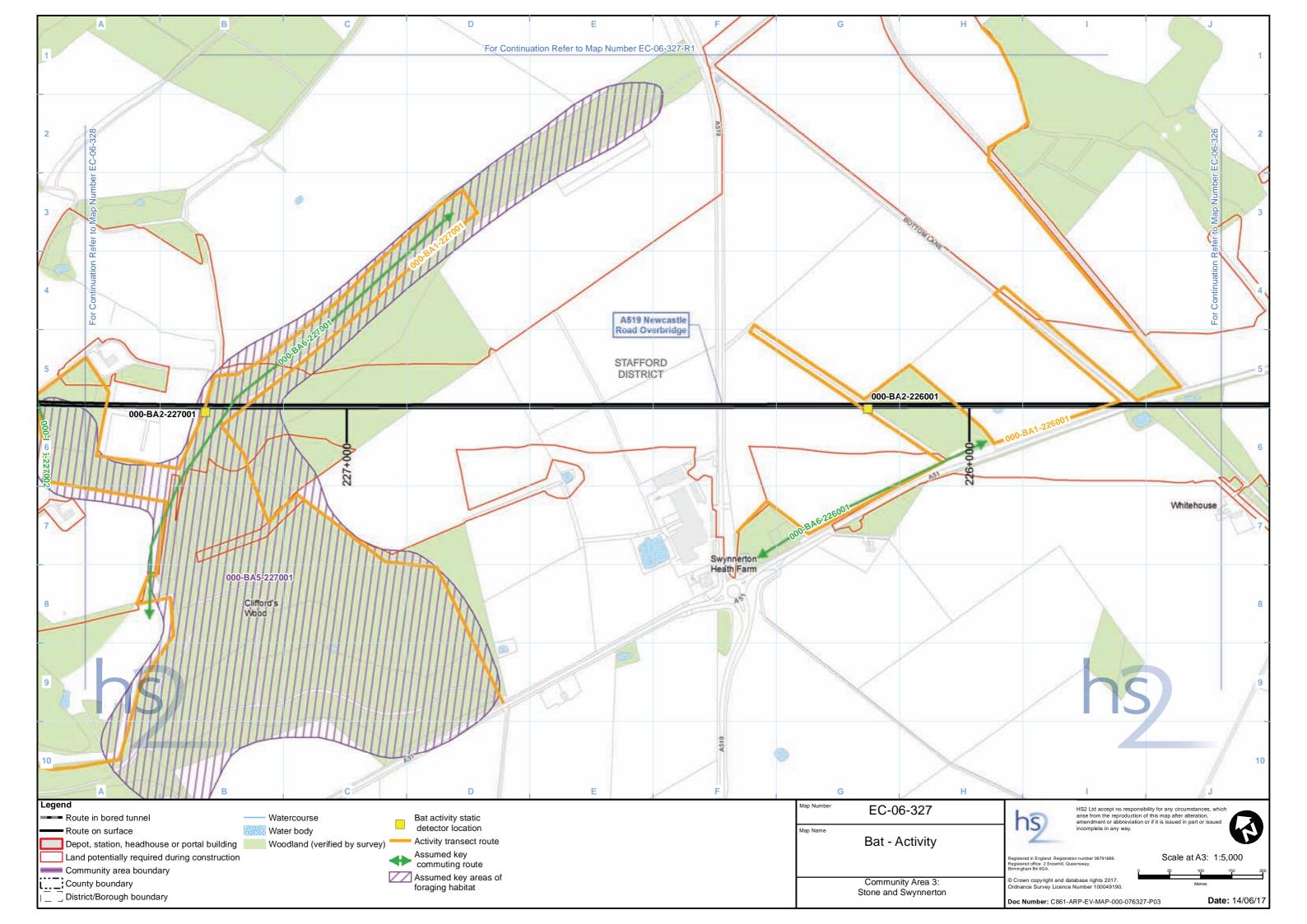


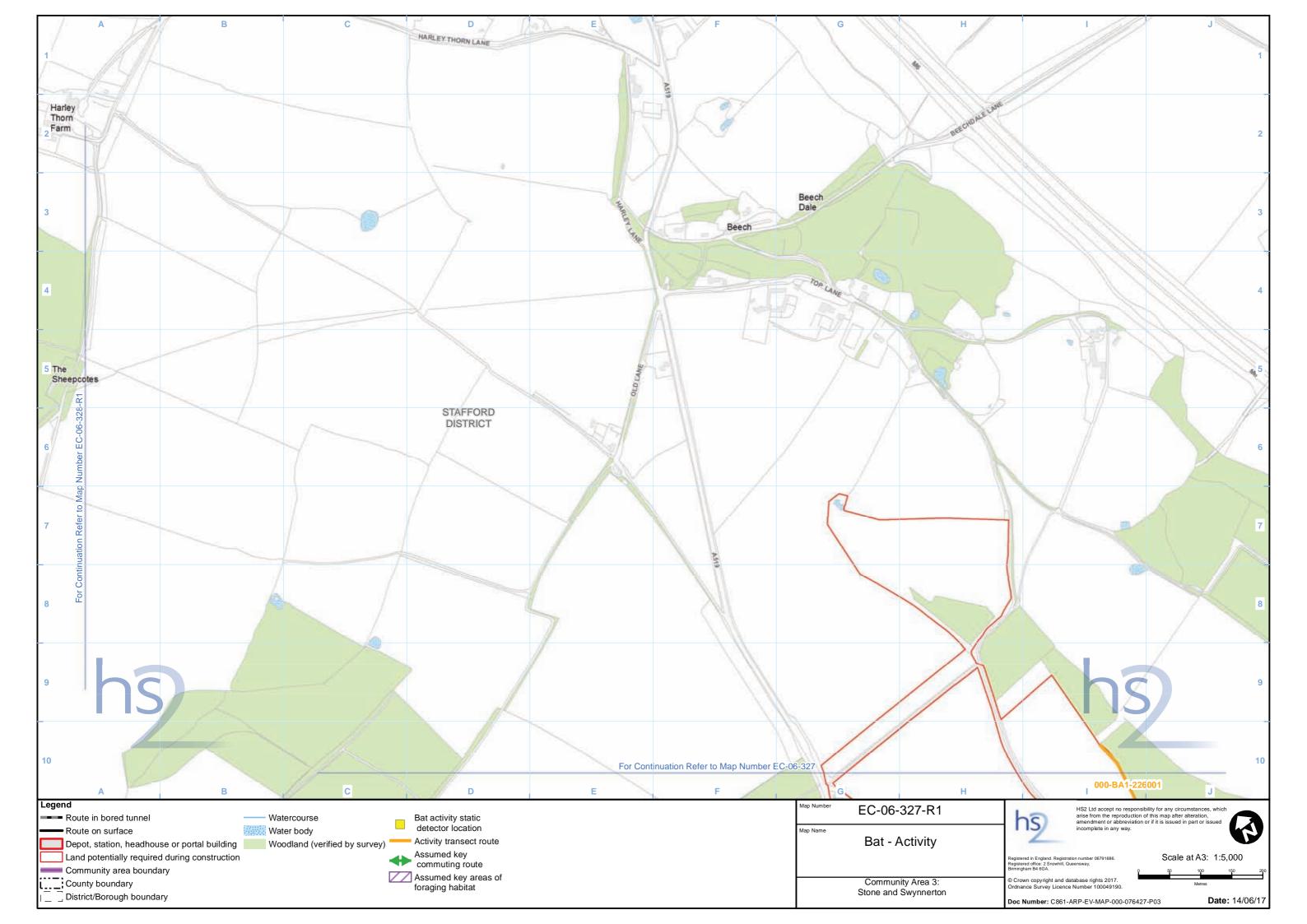


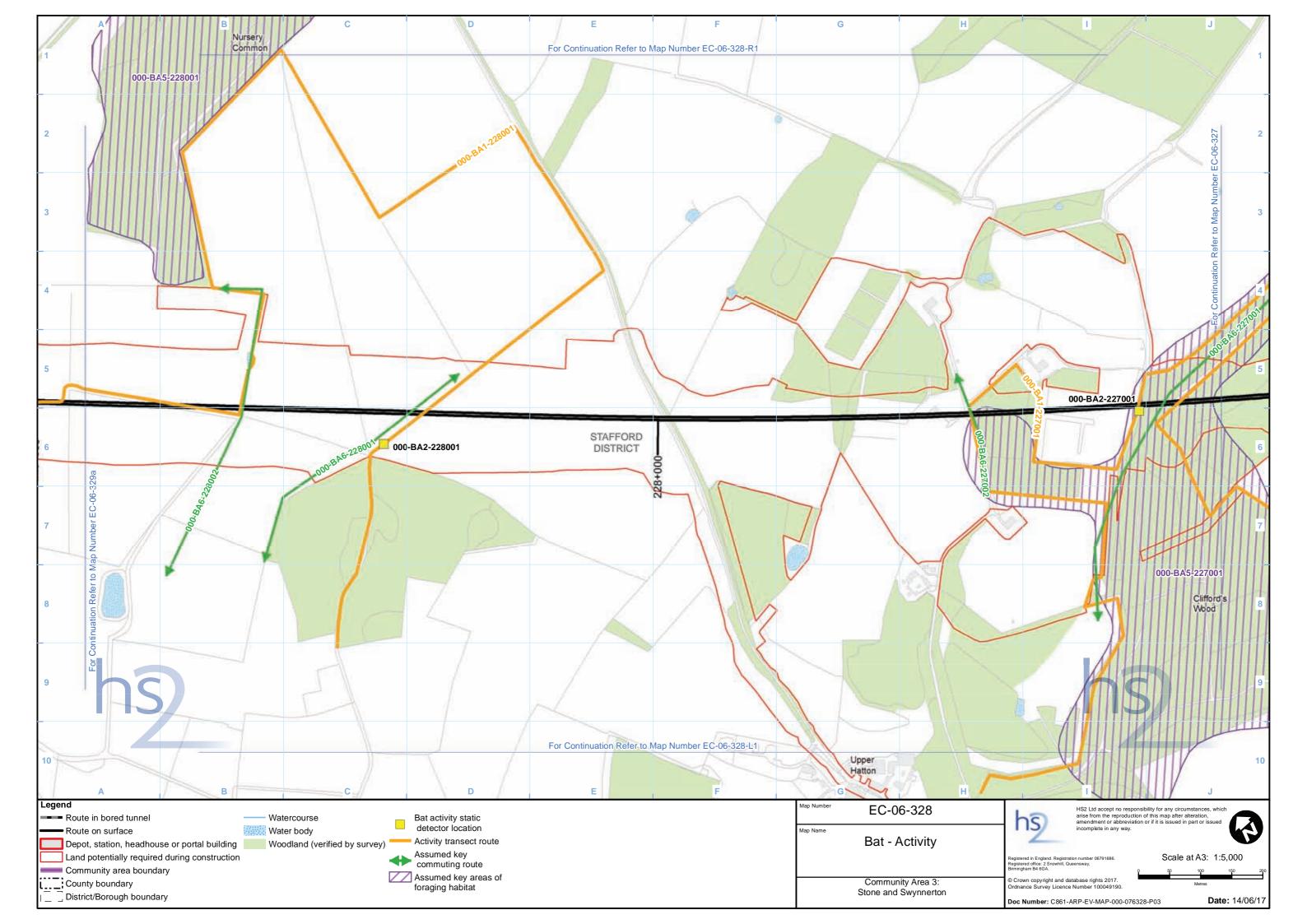


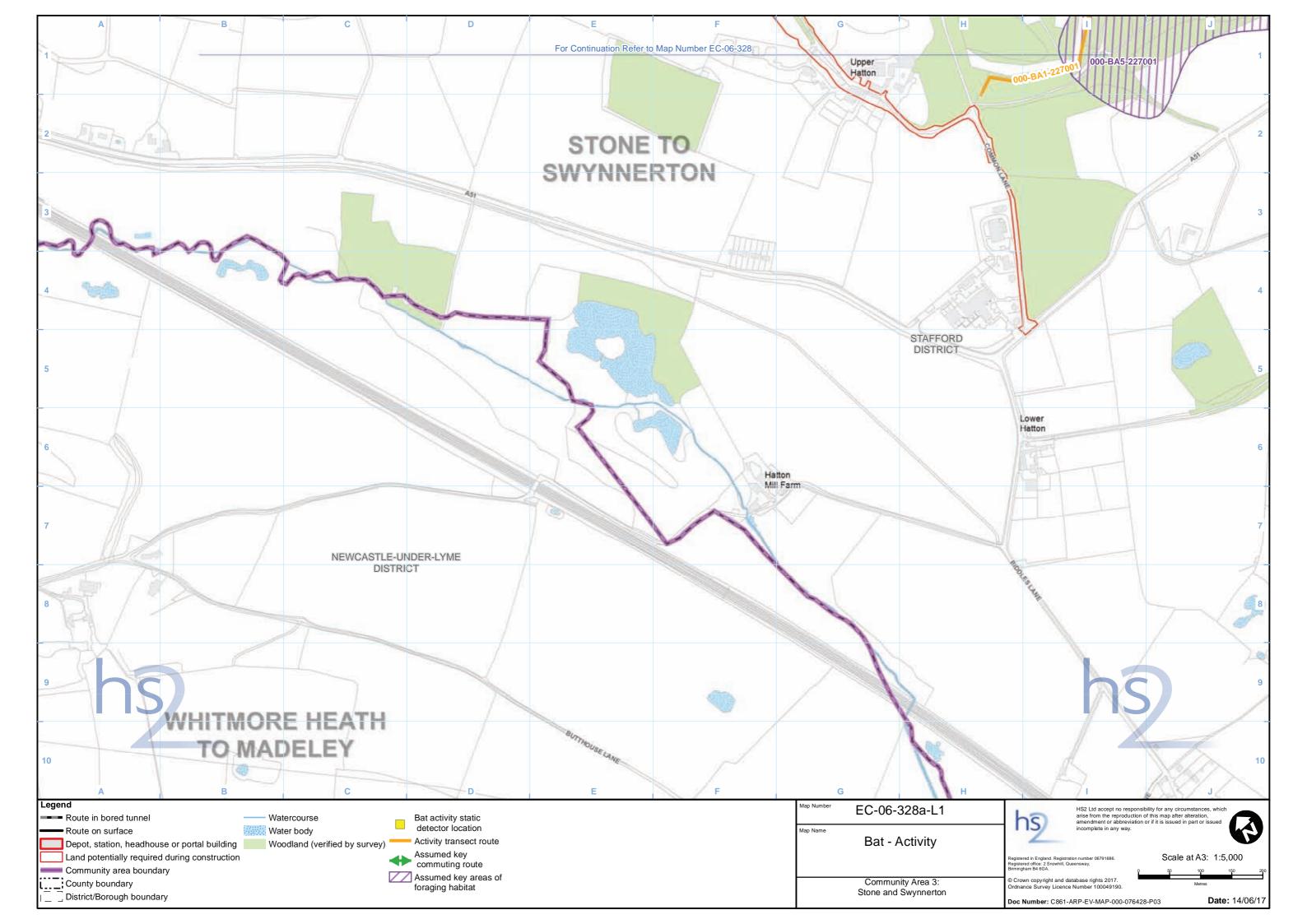


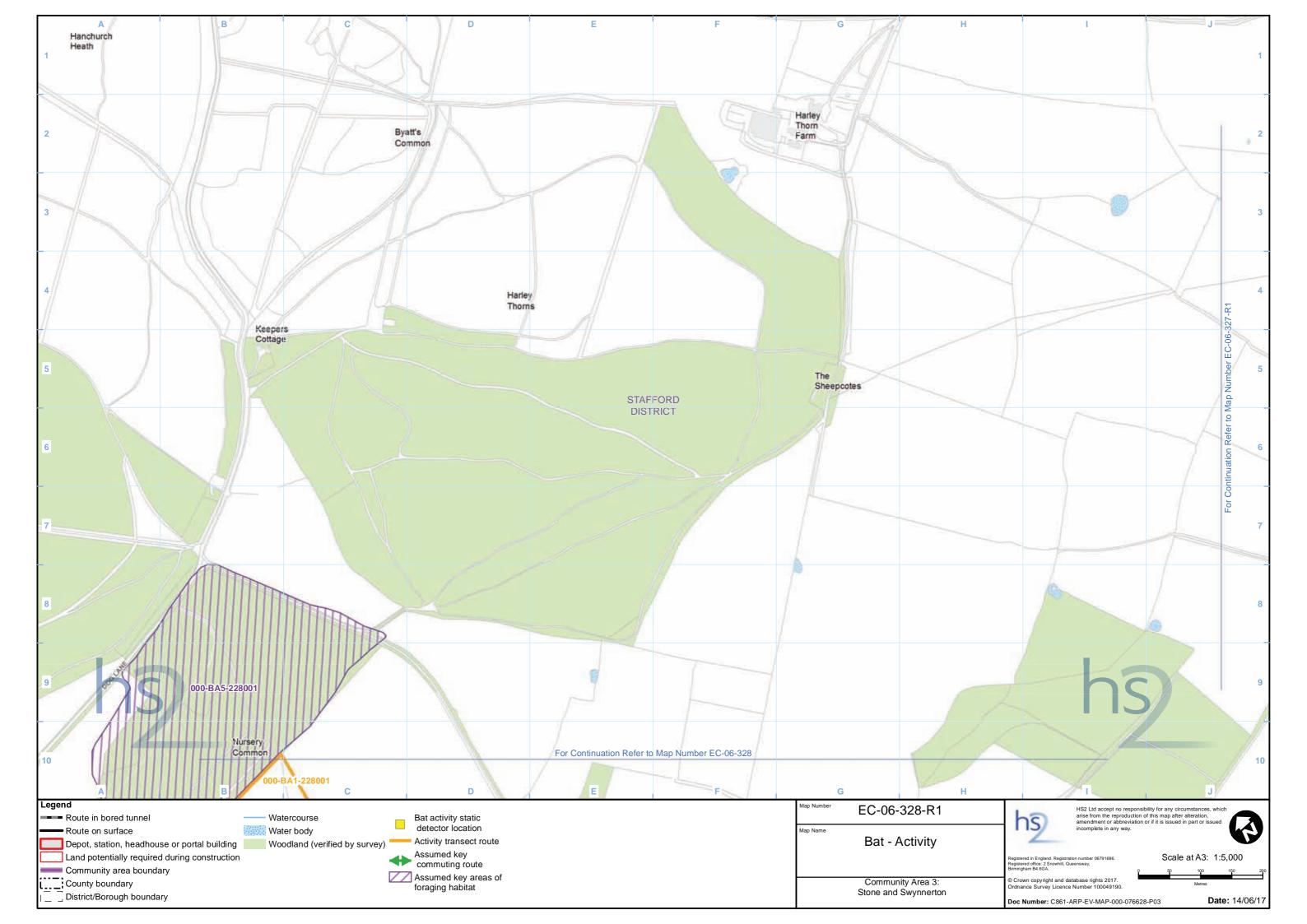


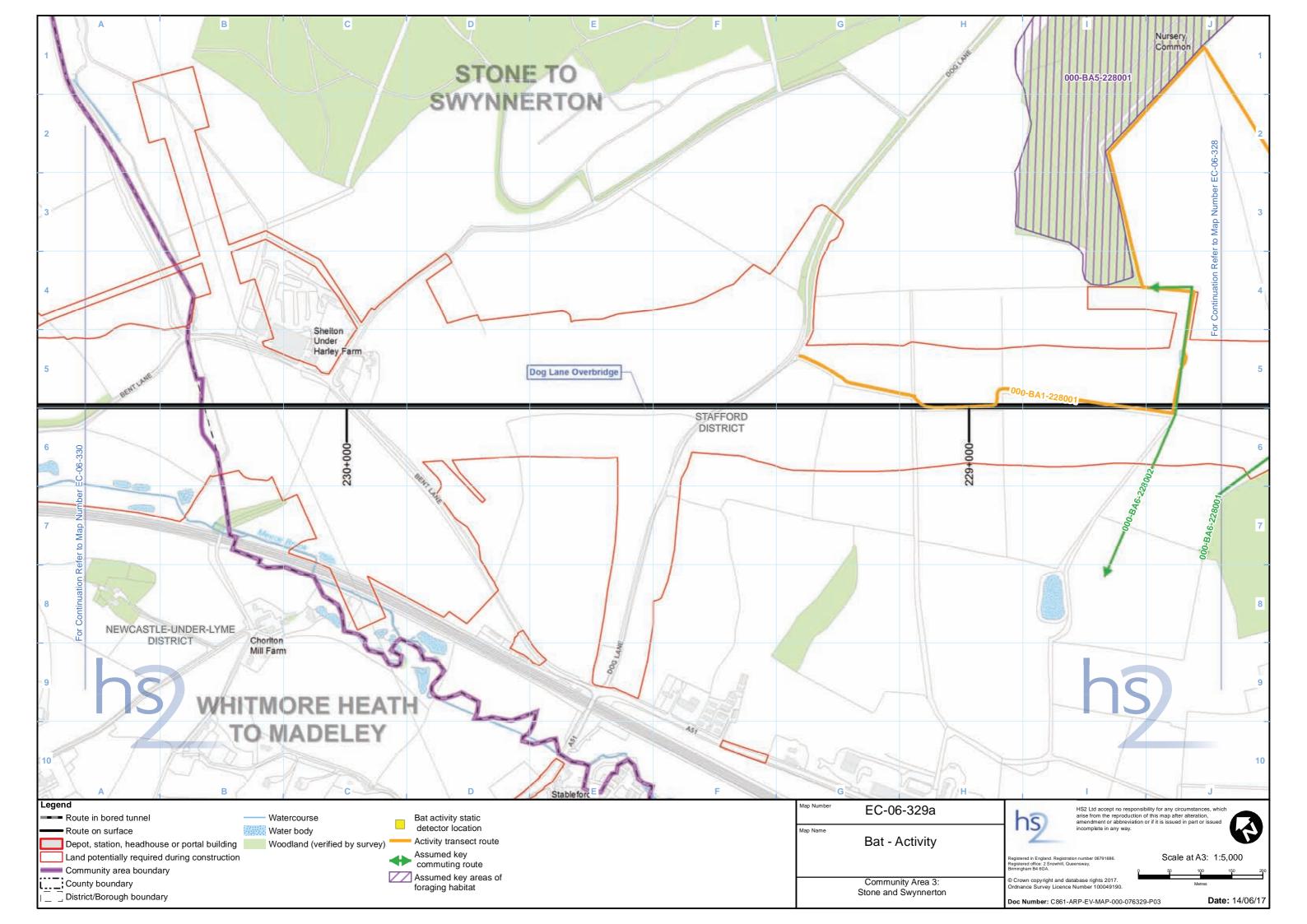


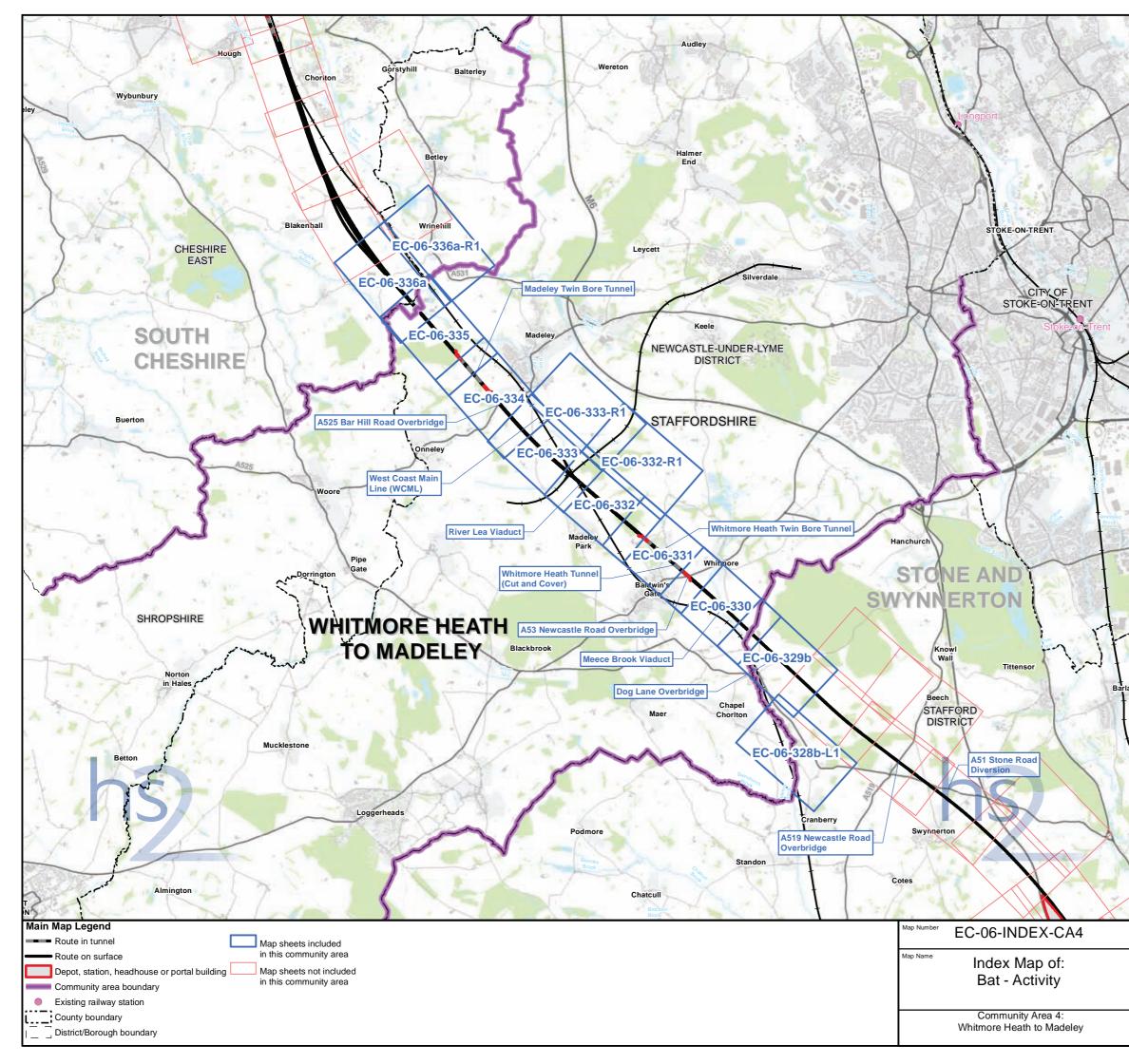


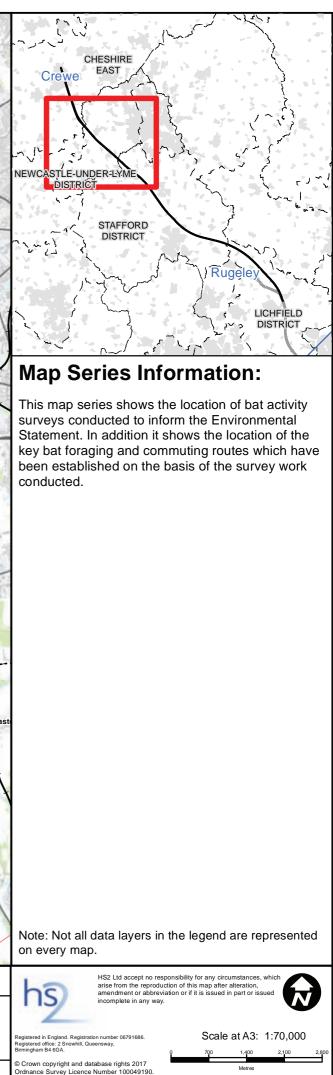






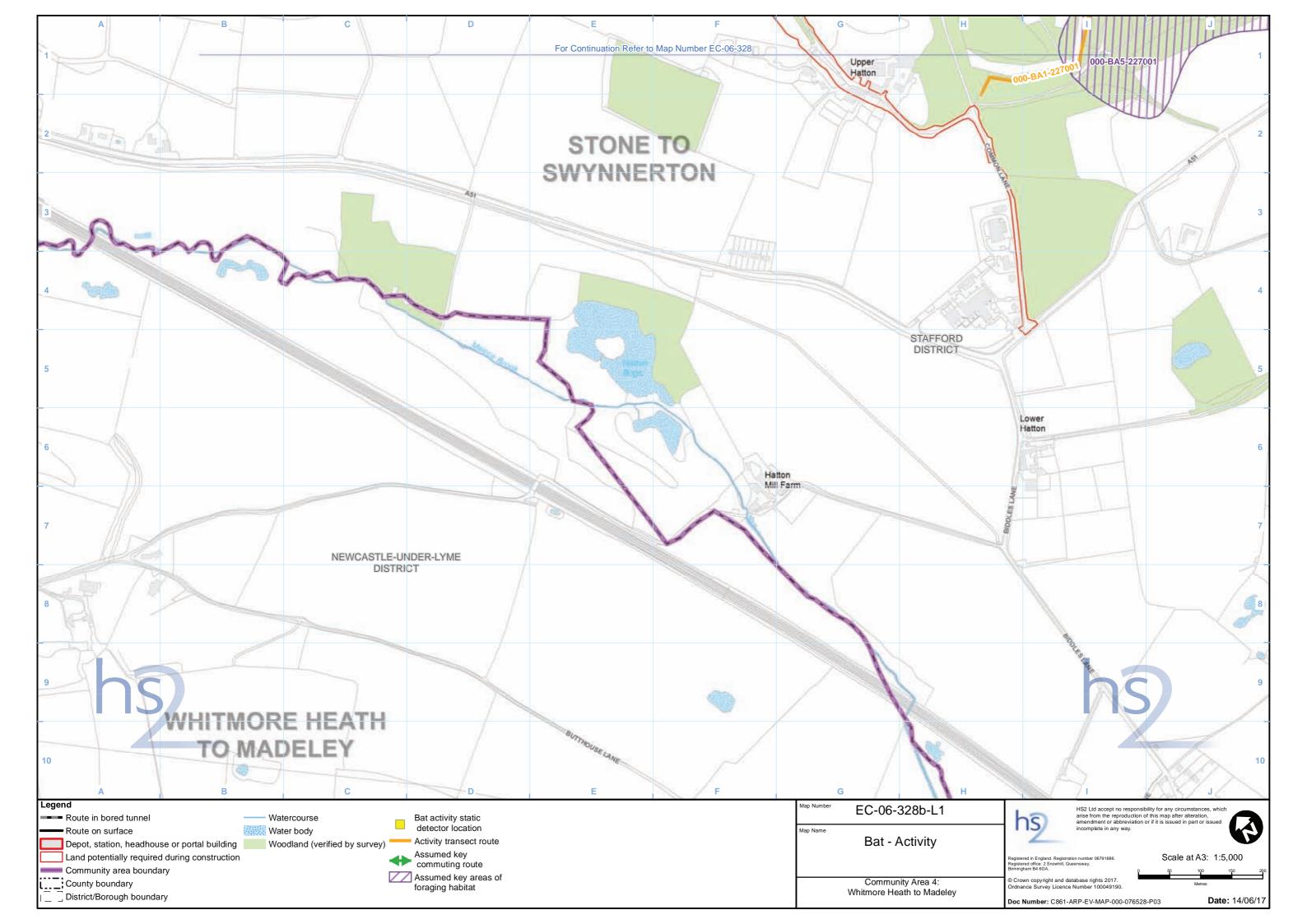


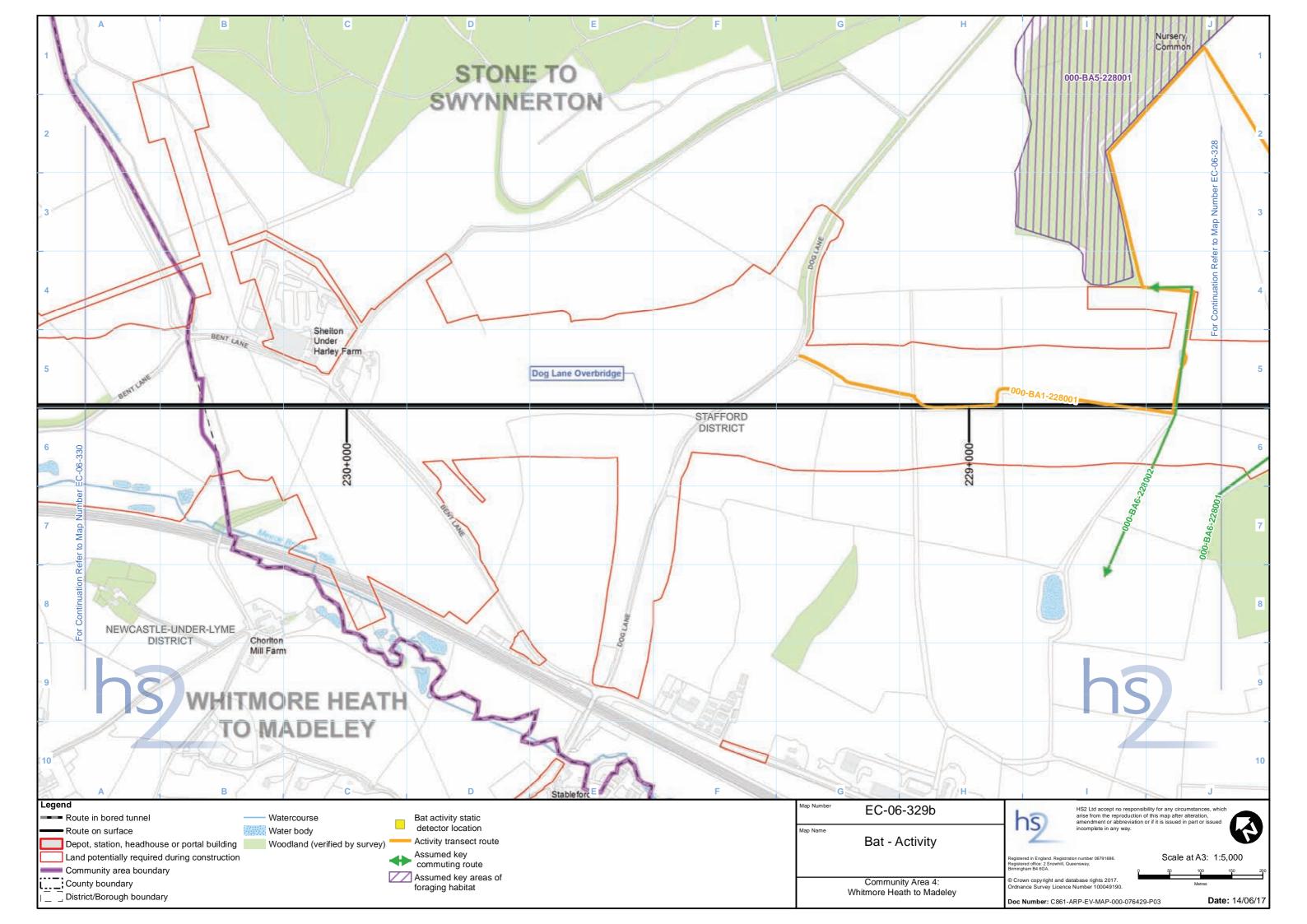


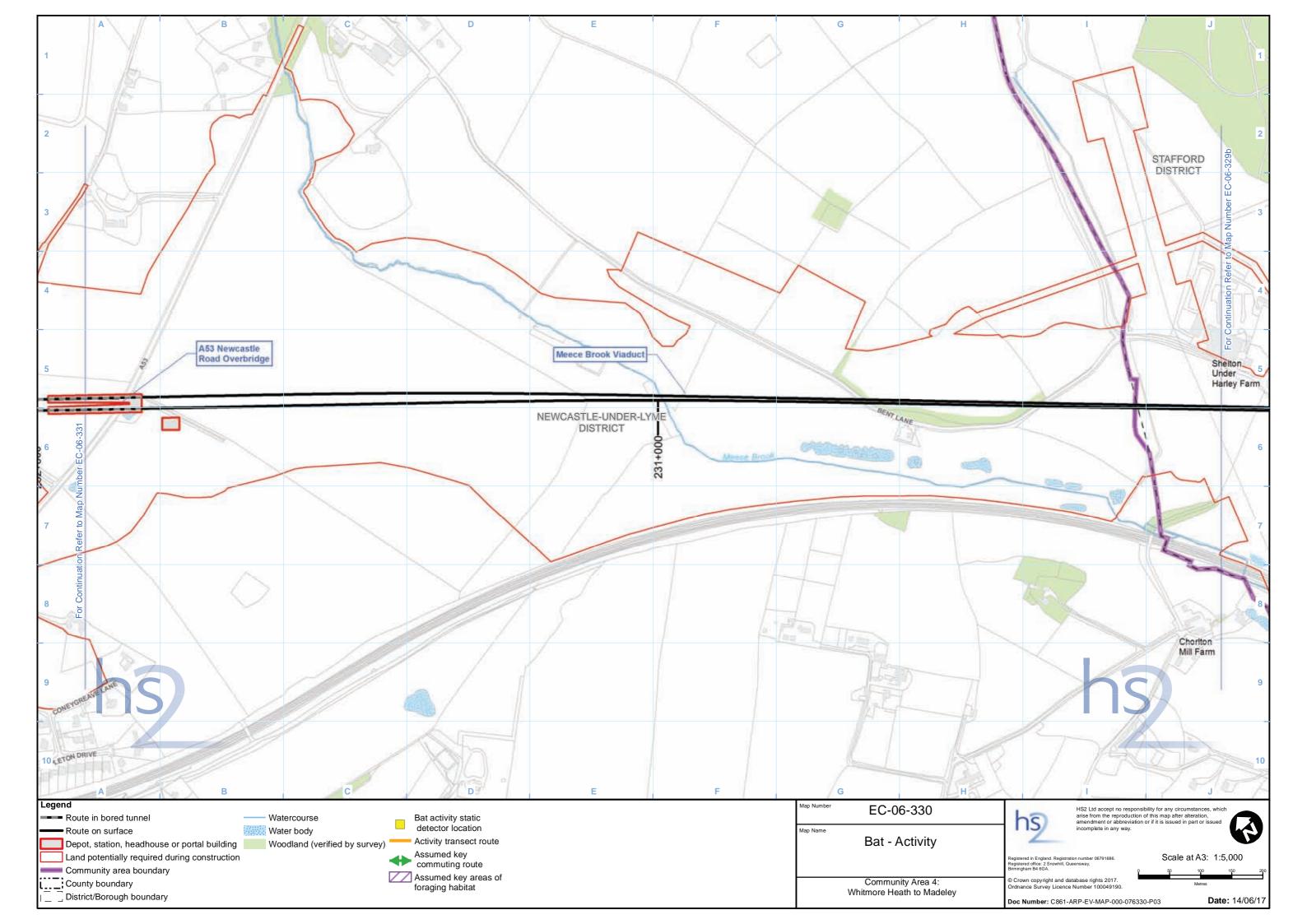


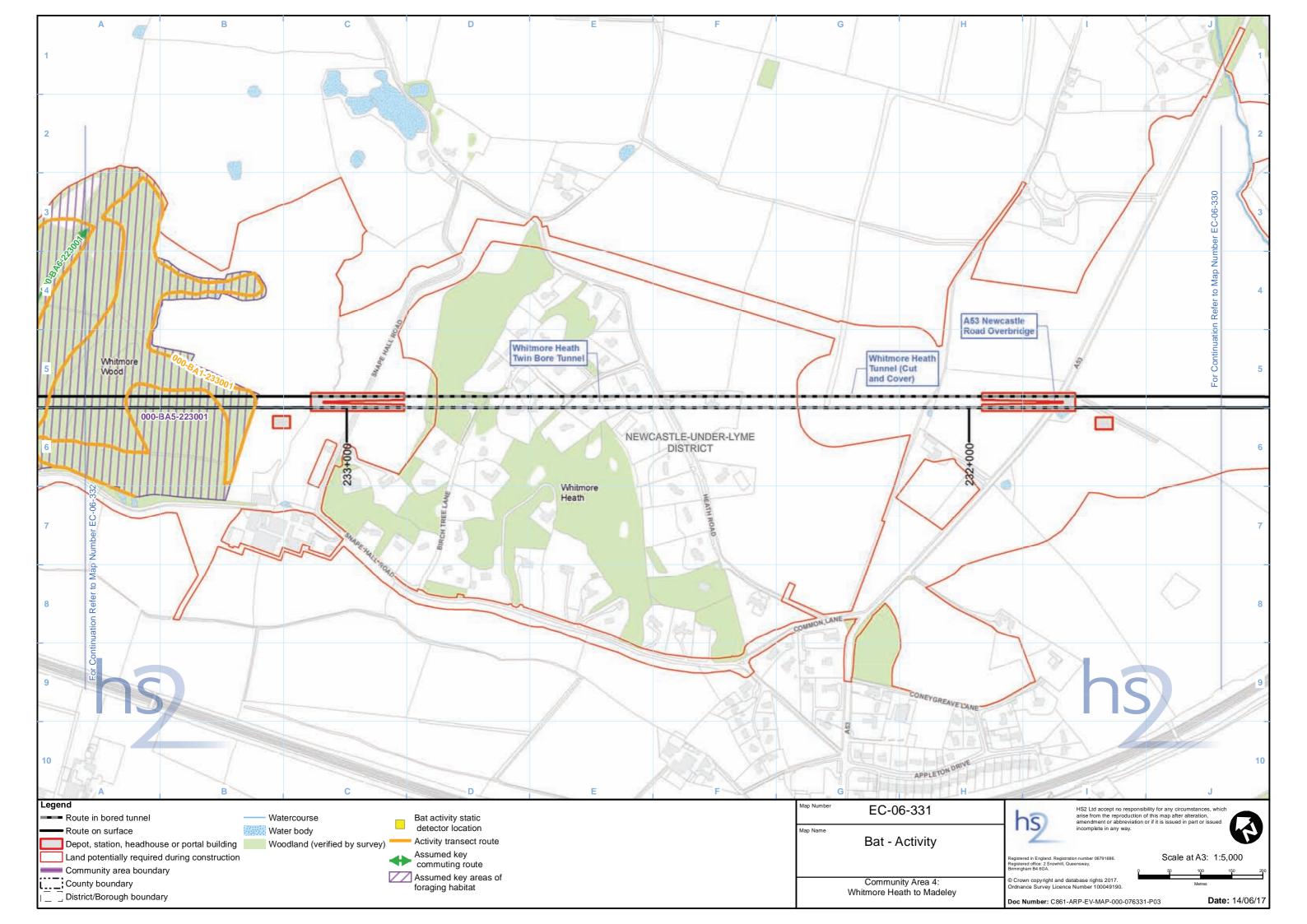
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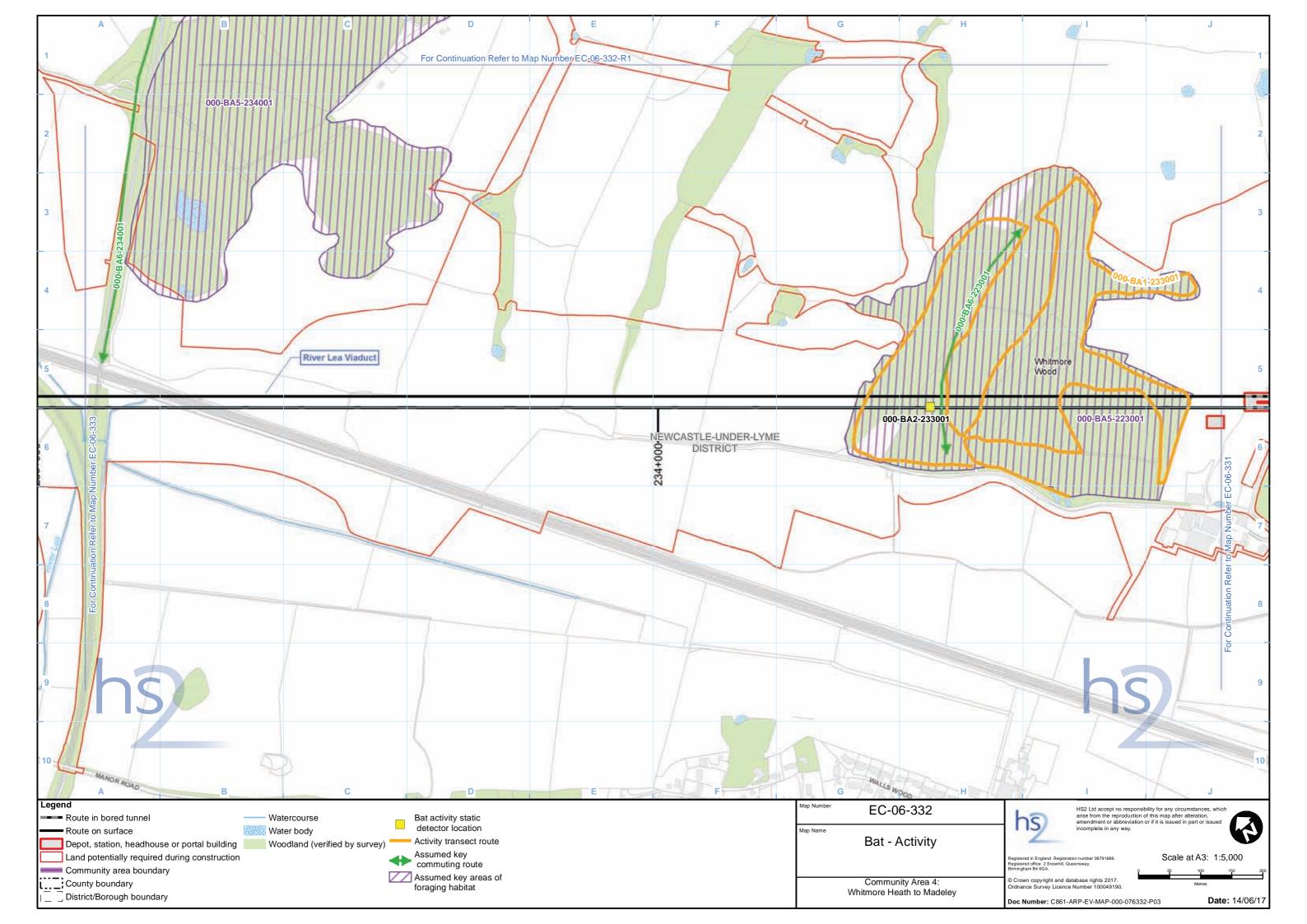
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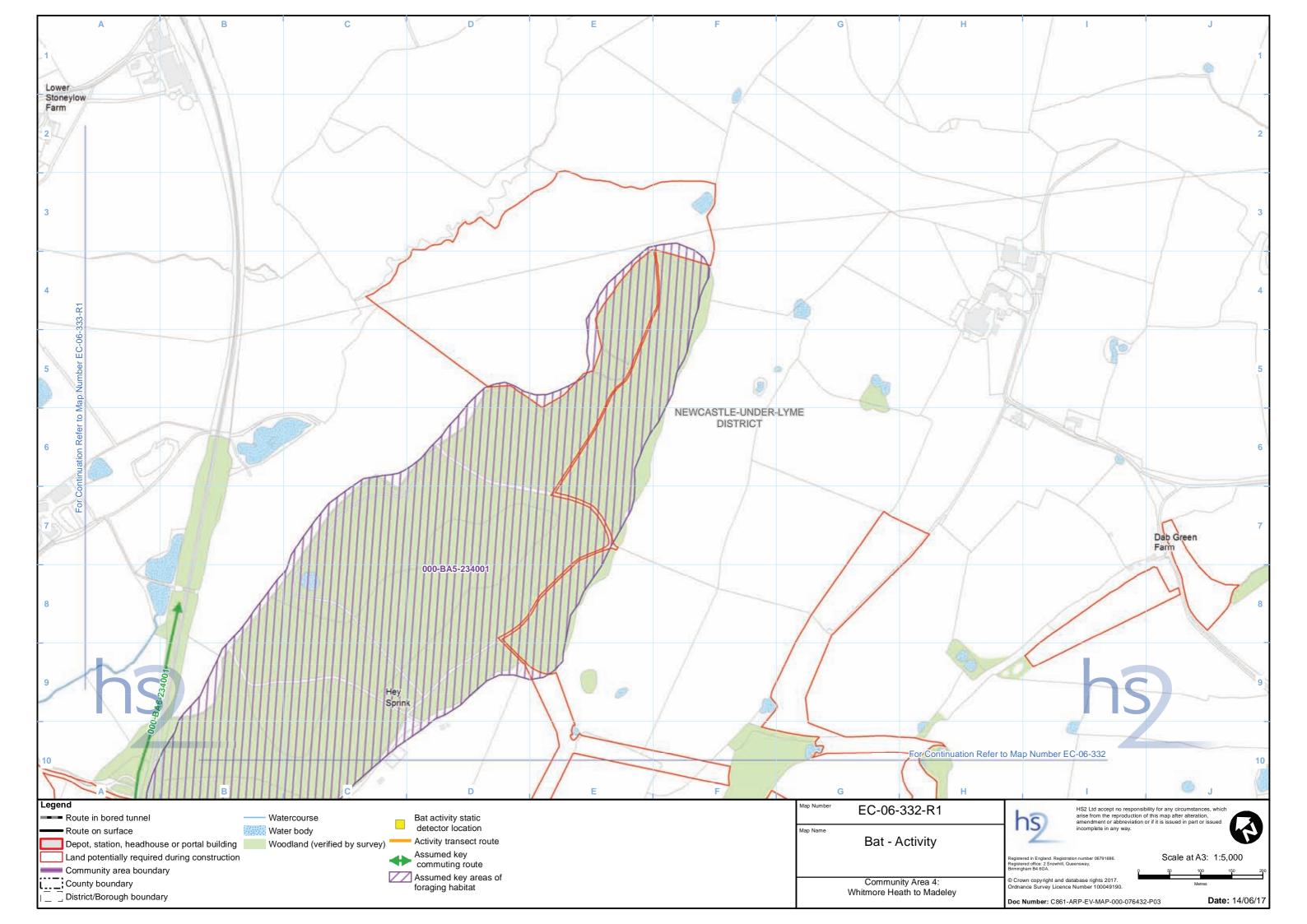


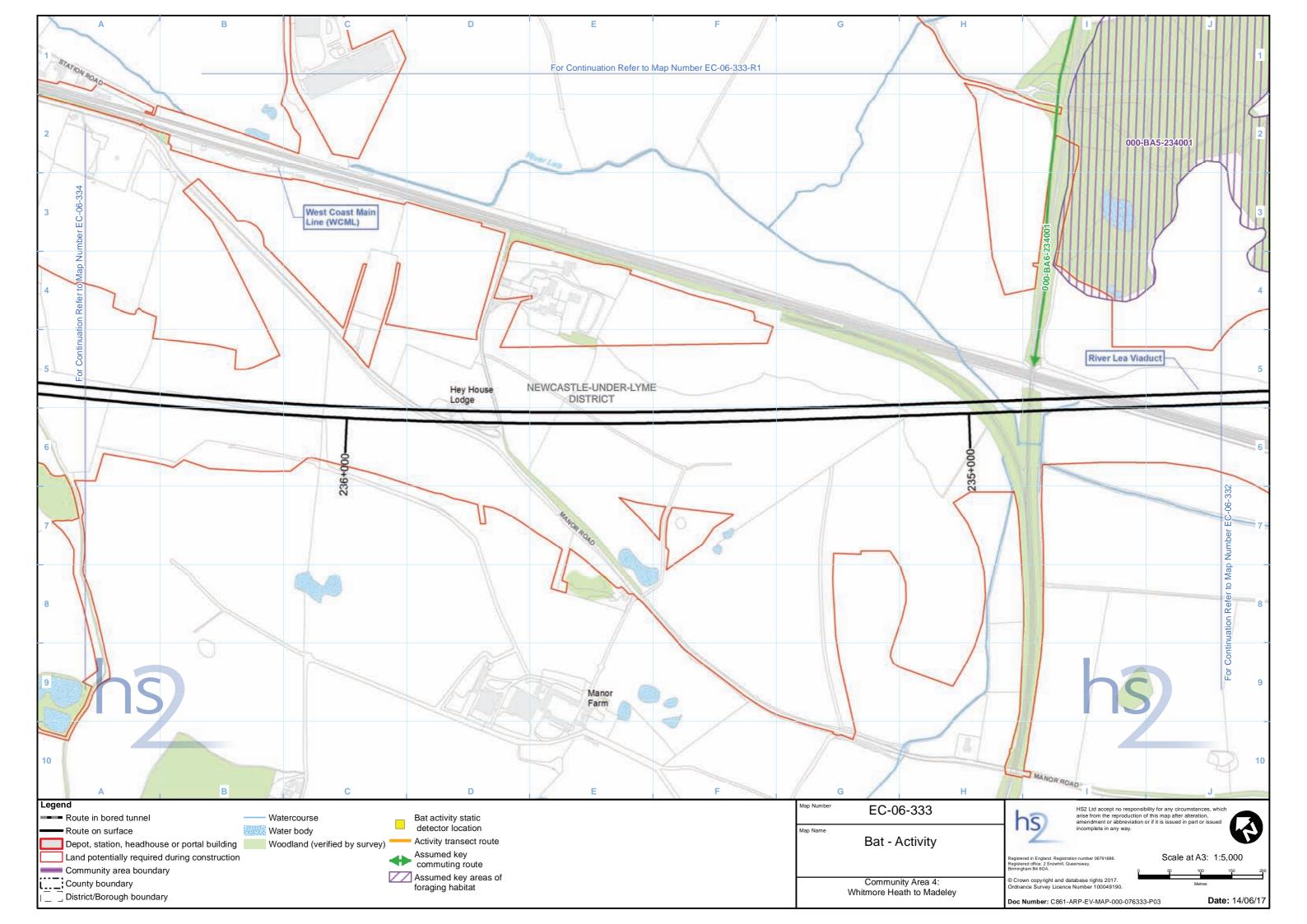


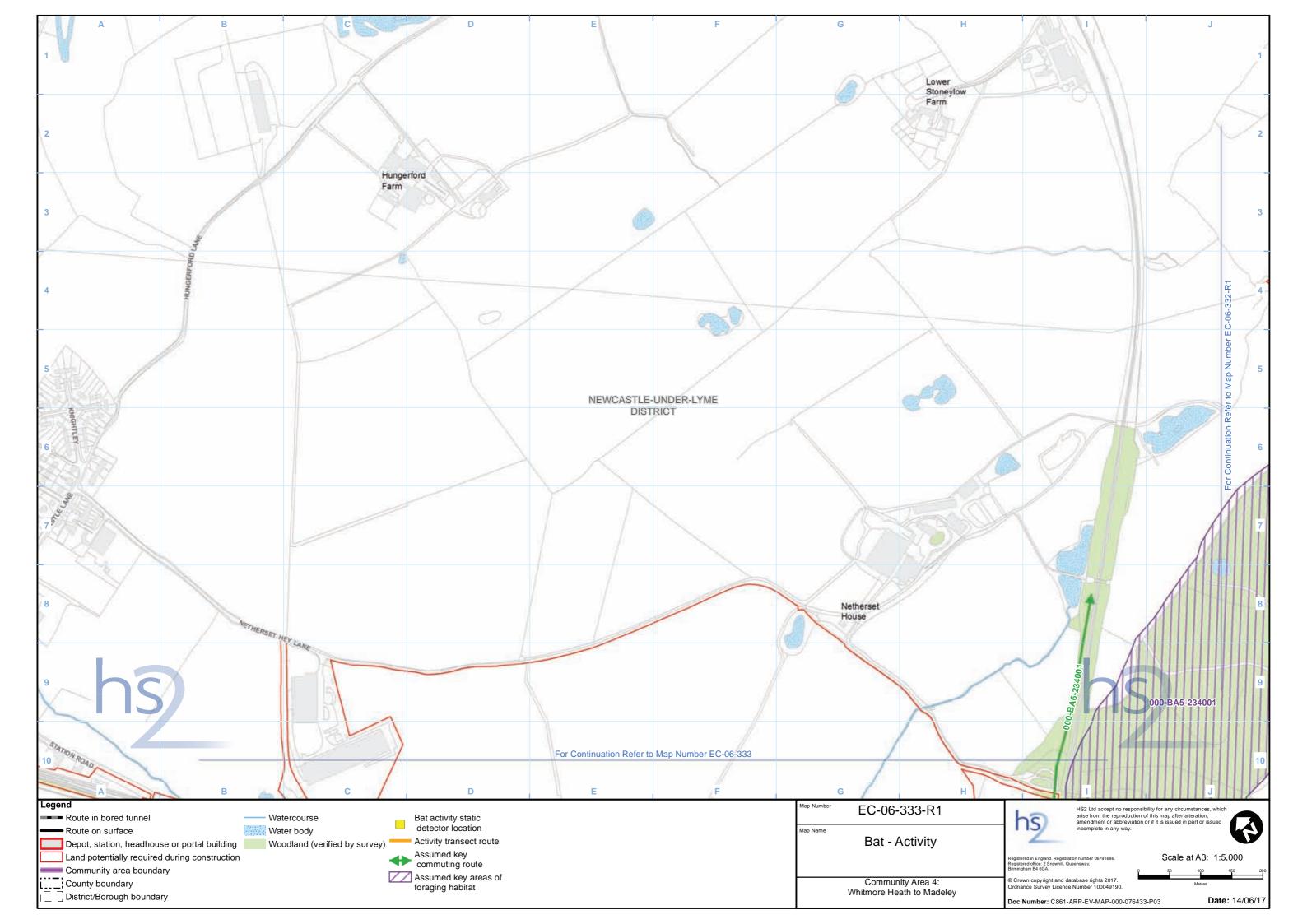


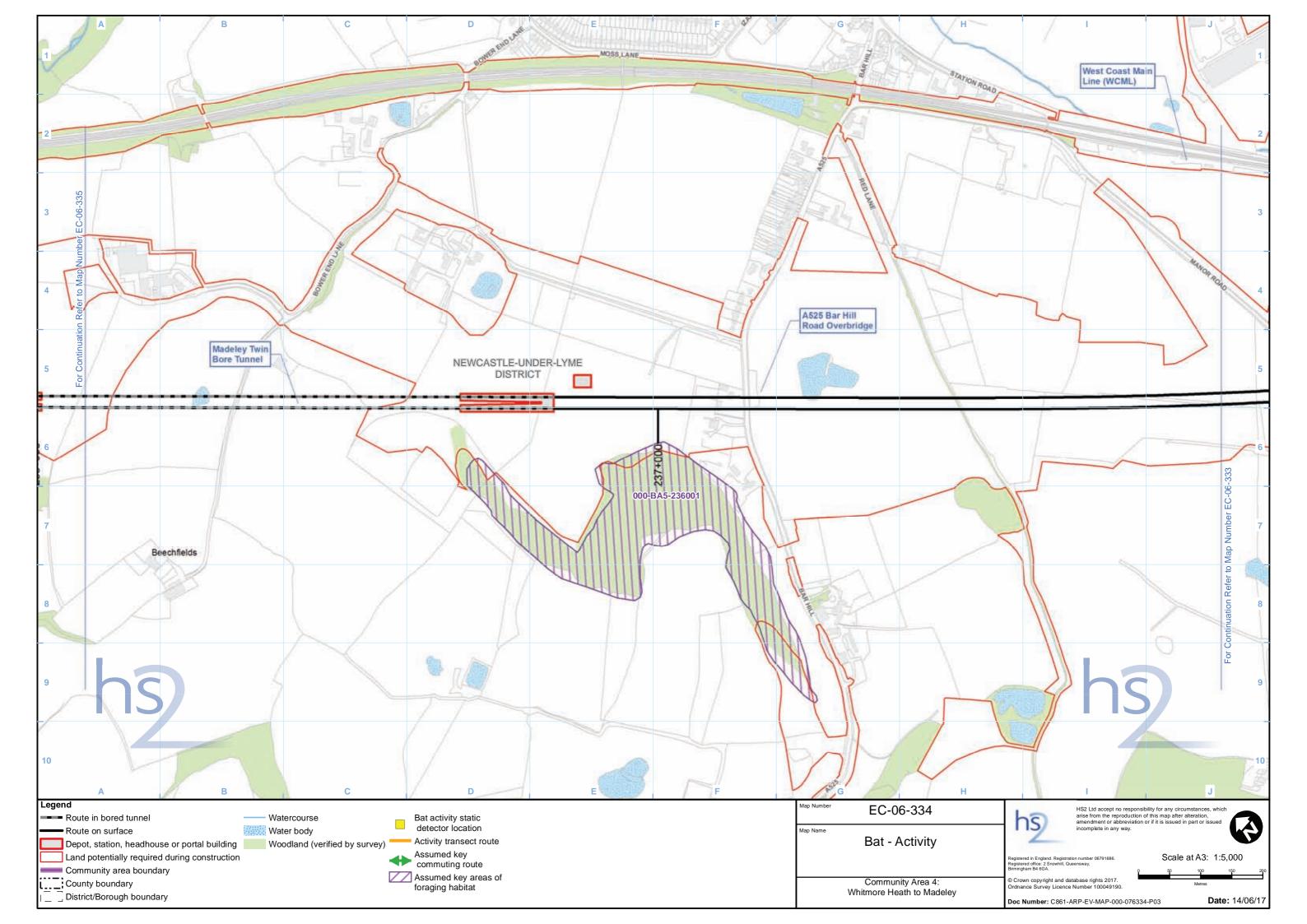


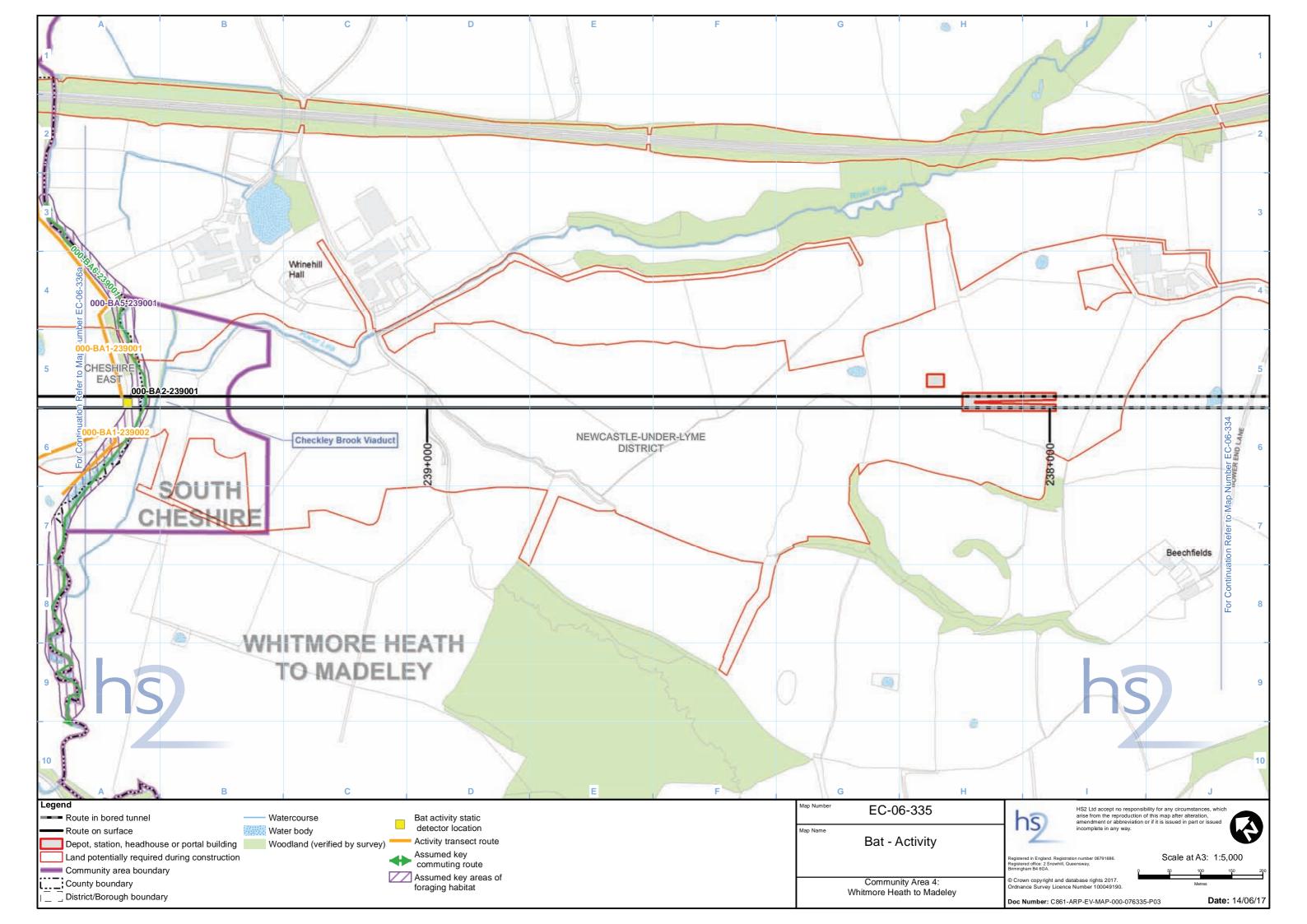


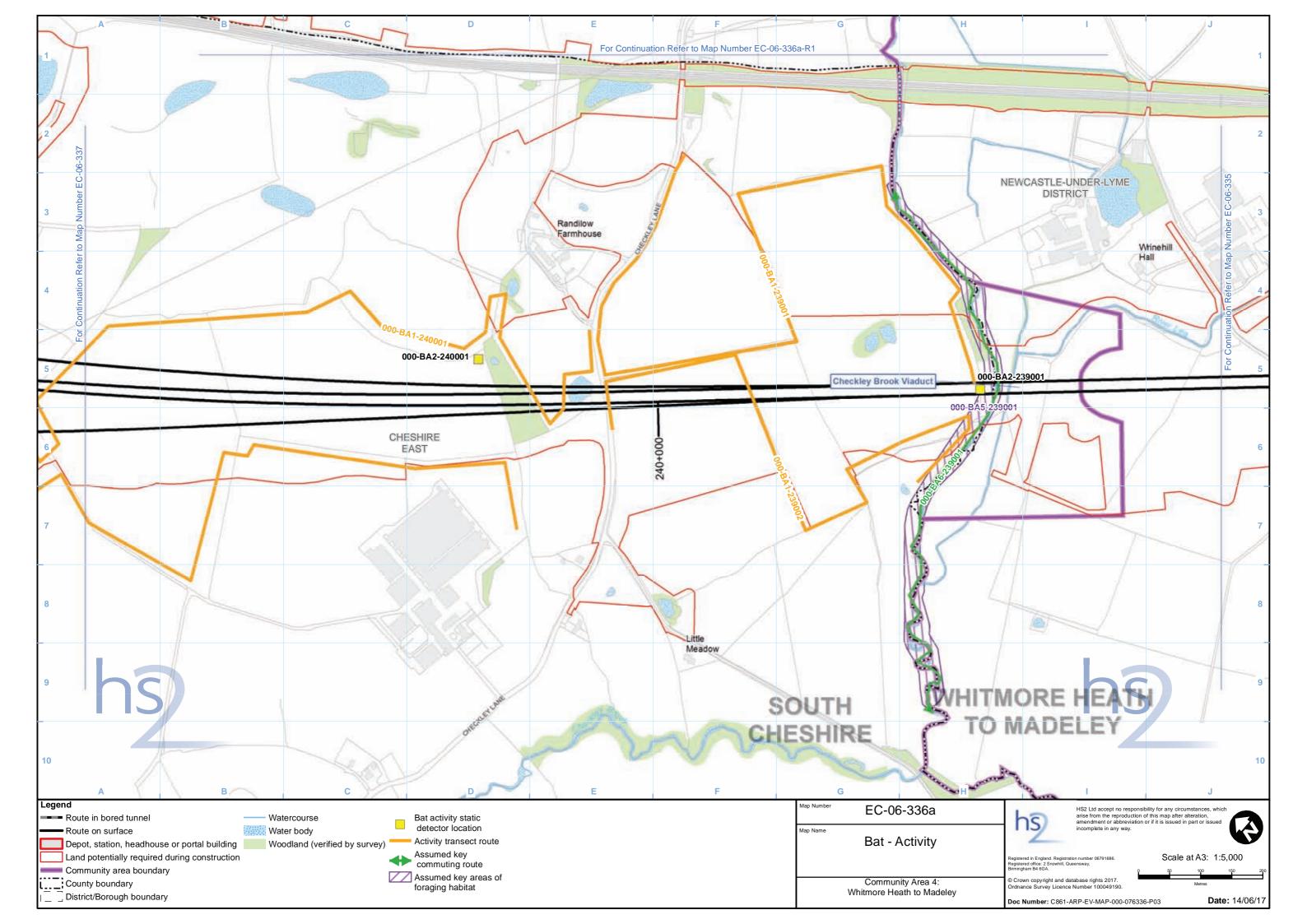


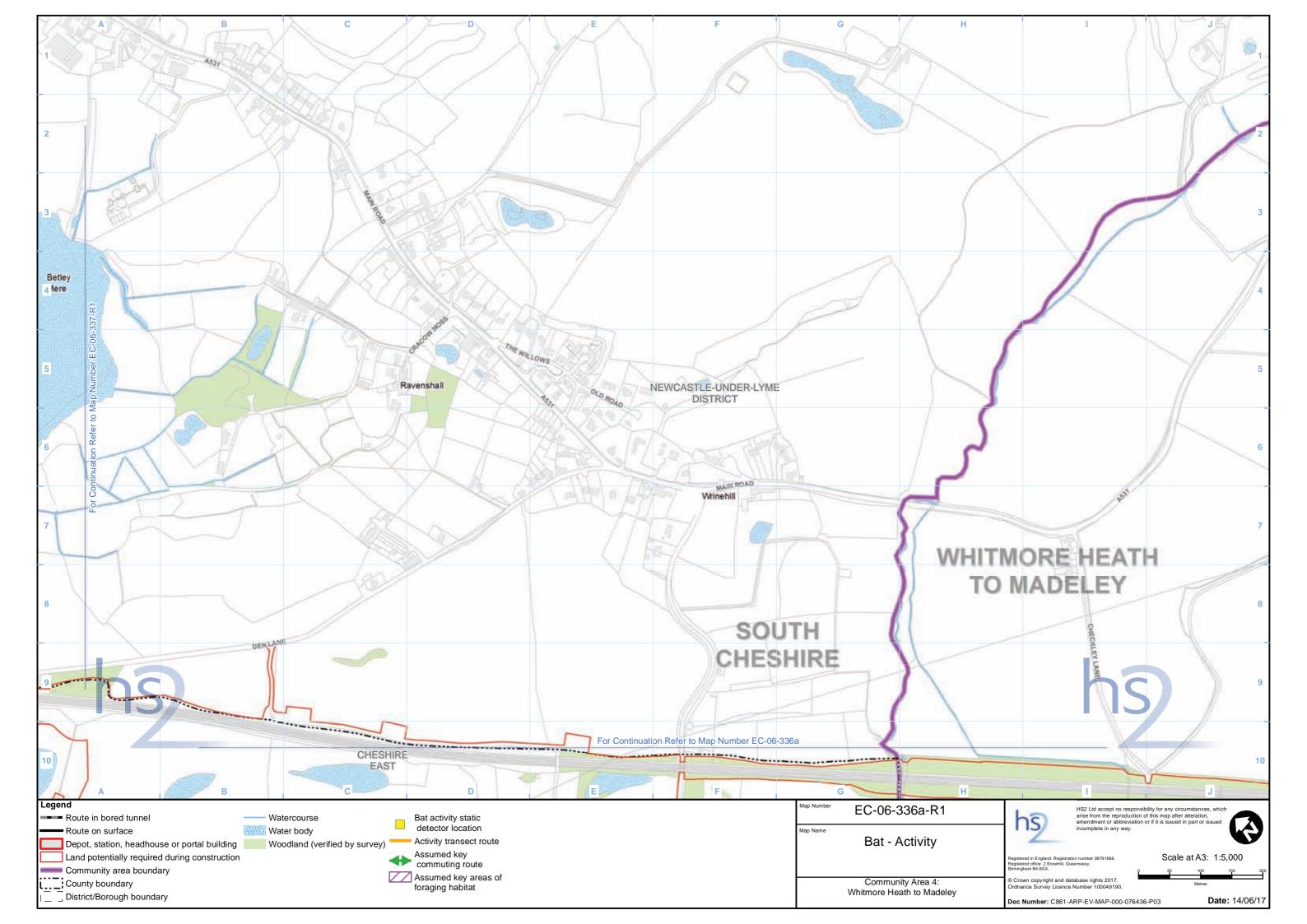












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