Appendix A8.3: Forestry Survey

1 Introduction

1.1.1 This appendix provides additional information on the calculations used to inform the forestry assessment of the proposed scheme, as reported in Chapter 8: People and Communities - Community and Private Assets (refer to paragraphs 8.2.57 and 8.2.58). As part of the assessment ForestGALES: A wind risk decision support tool for forest management in Britain (version 2.5) was used to assess potential windthrow impacts.

1.1.2 Table 1 provides baseline information for each of the affected forestry coupes, identifies the potential new brown edge gap resulting from the proposed scheme and assesses potential wind damage risk status and critical wind speeds for the coupes with the proposed scheme in place. Table 2 provides the tree species reference list for each of the species codes used in Table 1.

Table 1: Forestry and woodland survey data with ForestGALES assessment results

Coupe Reference	Species code[1]	Height (m)	Stem Diameter (mm)	Spacing (m)	Detailed Aspect Method of Scoring (DAMS)	Existing Wind Damage Risk Status (WDRS)		Existing Critical Wind Speed (CWS) (mph)		New brown edge gap (m)	Potential scheme Wind Damage Risk Status (WDRS)		Potential Critical Wind Speed (CWS) after new brown edge gap (mph)	
						Overturning	Breakage	Overturning	Breakage		Overturning	Breakage	Overturning	Breakage
A/1W	**DF**, JL, NS, SY, OK, SBI	33	380	4	14	1 (Low)	1 (Low)	54.7	62.4	330	**6 (High)**	**4 (Med)**	38.9	44.2
A/2W	**SBI**, GWL, SY	15	210	1	14	1 (Low)	1 (Low)	232.0	337.0	140	1 (Low)	1 (Low)	96.4	139.0
A/5W1	OK, BE, LC, GWL, SY	28	1080	6	-	-	-	-	-	-	-	-	-	-
A/5W2	DF, SY, EM, WCH, SBI	30	330	2	-	-	-	-	-	-	-	-	-	-
A/6W	**DF**, SY, EM, AH, NS, HAZ	35	370	2	-	-	-	-	-	-	-	-	-	-
A/7W	**EL**	29	380	4	14	1 (Low)	1 (Low)	61.5	68.0	290	**3 (Med)**	1 (Low)	45.4	49.5
A/8W	SY, BCH, AH, SBI, SY	16	180	-	-	-	-	-	-	-	-	-	-	-
A/11W1	**NS**, SY	28	290	1.5	14	1 (Low)	1 (Low)	168.0	154.0	280	1 (Low)	1 (Low)	79.3	73.5
A/11W2	**OK**, SBI, EM, SY, SCH, BE	25	350	2.5	14	1 (Low)	1 (Low)	154	157	110	1 (Low)	1 (Low)	93.4	95.3
A/12W	SY, OK, SBI	15	200	-	-	-	-	-	-	-	-	-	-	-
A/16W	**NS**, OK	28	400	2.5	11	1 (Low)	1 (Low)	132.0	143.0	280	1 (Low)	1 (Low)	75.4	80.5

Coupe Reference	Species code[1]	Height (m)	Stem Diameter (mm)	Spacing (m)	Detailed Aspect Method of Scoring (DAMS)	Existing Wind Damage Risk Status (WDRS)		Existing Critical Wind Speed (CWS) (mph)		New brown edge gap (m)	Potential scheme Wind Damage Risk Status (WDRS)		Potential Critical Wind Speed (CWS) after new brown edge gap (mph)	
						Overturning	Breakage	Overturning	Breakage		Overturning	Breakage	Overturning	Breakage
A/17W	**NS**, SY	30	400	2	11	1 (Low)	1 (Low)	169.0	175.0	300	1 (Low)	1 (Low)	79.8	82.4
A/18W	**NS**, DF, SP, OK, SY, SBI	32	400	3	14	1 (Low)	1 (Low)	89.9	90.1	320	1 (Low)	1 (Low)	55.1	55.2
A/19W	**SP**, NS, SBI, SY, OK	35	480	4	14	1 (Low)	1 (Low)	64.7	68.5	350	**4 (Med)**	**3 (Med)**	43.9	45.9
A/20W	**SP**, NS, EL, SY	30	350	2.5	11	1 (Low)	1 (Low)	94.6	92.8	300	1 (Low)	1 (Low)	52.6	51.8
A/21W	**SS**, NS, SP, SY	28	350	2	14	1 (Low)	1 (Low)	163.0	153.0	280	1 (Low)	1 (Low)	76.7	72.5
A/22W	SY, SBI, GWL	24	300	4	-	-	-	-	-	-	-	-	-	-
A/23W	NS, SP, OK, SY	28	280	4	-	-	-	-	-	-	-	-	-	-
A/25W	CBE, SY	11	180	2	-	-	-	-	-	-	-	-	-	-
A/26W	**NS**, SS, WHM, OK, AH, ROW	30	380	3	11	1 (Low)	1 (Low)	88.3	89.4	300	1 (Low)	1 (Low)	56.1	56.7
A/27W	**NS**, SS, ST, OK, SBI	25	320	3	11	1 (Low)	1 (Low)	82.7	84.6	250	1 (Low)	1 (Low)	56.5	57.8
B/1W	OK, SBI	4	<75	2	-	-	-	-	-	-	-	-	-	-
B/2W	**DF**, OK, SY, SBI, BE, EL	28	400	2.5	14	1 (Low)	1 (Low)	128.0	168.0	120	1 (Low)	1 (Low)	72.8	93.0
D/1W	SBI, SY, GWL, AR	17	260	2.5	-	-	-	-	-	-	-	-	-	-
E/7W	WHL, WCH, SY, EM	30	350	2	-	-	-	-	-	-	-	-	-	-
E/16W	BE, LI, EM, AR, SY, BCH	18	320	3	-	-	-	-	-	-	-	-	-	-
E/19W	**NS**, LC	20	270	2	-	-	-	-	-	-	-	-	-	-
E/24W	AR, AH, EM, BCH, HAW, SBI	25	300	3	-	-	-	-	-	-	-	-	-	-

Table 2: Tree Species Reference List

Species Code	Common name	Botanical name	Species group
AH	Ash	*Fraxinus excelsior*	Ash
AR	Alder	*Alnus spp*	Alder
ASP	Aspen	*Populus tremula*	Poplar
BCH	Bird cherry	*Prunus padus*	Cherry
BE	Beech	*Fagus sylvatica*	Beech
CBE	Copper beech	*Fagus sylvatica f. purpurea*	Beech
CWL	Crack willow	*Salix fragilis*	Willow
DF	Douglas fir	*Pseudotsuga menziesii*	Fir
EL	European larch	*Larix decidua*	Larch
EM	Elm	*Ulmus spp.*	Elm
GWL	Goat willow	*Salix caprea*	Willow
HAW	Hawthorn	*Crataegus*	Sorbus
HAZ	Hazel	*Corylus avellana*	Hazel
HOL	Holly	*Ilex spp.*	Holly
JL	Japanese larch	*Larix kaempferi*	Larch
LC	Lawsons cypress	*Chamaecyparis lawsoniana*	Cypress
Li	Lime	*Tilia spp.*	Lime
NOM	Norway maple	*Acer platanoides*	Maple
NS	Norway spruce	*Picea abies*	Spruce
OK	Oak	*Quercus spp.*	Oak
PO	Hybrid Poplar	*Populus serotina/trichocarpa*	Poplar
PSP	Blackthorn	*Prunus spinosa*	Cherry
ROK	Red oak	*Quercus borealis*	Oak
ROW	Rowan	*Sorbus aucuparia*	Sorbus
SBI	Silver birch	*Betula pendula*	Birch
SP	Scots pine	*Pinus sylvestris*	Pine
SS	Sitka spruce	*Picea sitchensis*	Spruce
SY	Sycamore	*Acer pseudoplatanus*	Sycamore
WCH	Wild cherry	*Prunus avium*	Cherry
WH	Western hemlock	*Tsuga heterophylla*	Fir
WHI	Whitebeam	*Sorbus aria*	Sorbus

2 References

The Forestry Commission (2015). ForestGales: A wind risk decision support tool for forest management in Britain. Version 2.5. Available at: https://www.forestry.gov.uk/pdf/ForestGALES_2.5_User_Manual.pdf/$FILE/ForestGALES_2.5_User_Manual.pdf (Accessed March 2017).