The Sizewell C Project

6.10 Volume 9 Rail

Chapter 4 Noise and Vibration
Appendices 4A - 4B

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VOLUME 9, CHAPTER 4, APPENDIX 4A: GREEN ROUTE CONSTRUCTION ASSUMPTIONS

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1. Rail Construction Assumptions

1.1 Rail extension route: noise modelling

1.1.1 The predicted construction activity noise levels have been modelled using SoundPlanTM noise contour mapping software. The model has been established on the basis of calculating the construction activity noise levels over a 40 day period. The construction site is linear in nature, as such it is anticipated that work over a 40 day period would be affected by the closest 400 metre (m) length of construction site. The noise model has broken each 400m length of construction site into eight source points (at 50m spacings) and divided the sound energy equally amongst those points for the duration of the works phase.

1.1.2 Each piece of construction plant equipment has been assigned an operation 'on-time' to take account of the proportion of time that the equipment is in use.

1.2 Rail extension route: earthworks assumptions

1.2.1 The rail extension route is to be constructed in two principal phases; the first involving earthworking activities to create the trackform, the second, to lay the rails which will link the construction site to the existing Saxmundham to Leiston line.

1.2.2 The construction of the rail extension route would take place from east to west, starting at the main construction site and moving towards a new junction with the Saxmundham to Leiston line to the west of Leiston.

1.2.3 The first phase of works will involve earthworking equipment. Plant equipment to be used will include an excavator, dumper truck, dozer and grader to achieve the desired trackform alignment.

1.2.4 The earthworking phase is anticipated to take around 5 months to complete and will involve the movement of material as required to create the necessary cut and fill structures along the route.

1.3 Track preparation: assumptions

1.3.1 Upon completion of the trackform, concrete sleepers will be laid on the formation. The laying of continuously welded rail will be undertaken from a rail mounted loader powered by a class 66 locomotive. For this reason, it is anticipated that track laying activities will be carried out from west to east, so that continuously welded rail trains are joined to the wider rail network.

1.3.2 Where necessary sections of rail will be cut to length using a rail saw.

1.4 Installation of track

1.4.1 Upon commencement of tracklaying, the rails will be lifted onto the sleepers using the loader/rail threading machine. Track will be secured to the sleepers using sleeper screwdrivers and nut runners.

1.4.2 A new turnout will be installed at the point where the rail extension route joins the existing Saxmundham to Leiston line. These works will be undertaken using a mobile crane, or rail mounted crane, a rail saw and nut runner as required.

1.4.3 Once the rails have been secured to concrete sleepers, a train carrying ballast trucks will be run along the rail extension route, and ballast will be dropped onto the trackform and sleepers via hoppers in each of the ballast trucks.

1.4.4 Once ballast has been dropped, a tamping machine will be run over the section of newly ballasted rail to lift the rails and stabilise/compact the ballast. The process of dropping ballast will continue until the track is at its designated vertical alignment.

1.4.5 Finally, upon completion of the ballasting phase a stabiliser train would be run over the newly laid track to provide a final compaction of the ballast before the rail extension route becomes operational.

1.5 Rail extension route – removal of track/decommissioning

1.5.1 It is anticipated that the removal of the track would be undertaken by an engineering train comprising of a number of flatbed wagons and a rail mounted mobile crane. The rails will be cut into sections using a rail saw, and then lifted, in sections, onto a flatbed rail wagon using the rail mounted mobile crane. The train then moves forward to enable the next section of rail to be cut and lifted.

1.5.2 Plant assumed to be used and the percentage (%) on time are shown in **Table 1.1**.

Table 1.1: Rail extension route plant equipment base data

Activity/Phase	Source noise level dB, L_{WA}	Plant Description	Number	% On Time
Earthworks	109	CAT D400 dumper	2	60
	110	CAT D8 dozer	1	60
	115	CAT 16 grader	1	50
	108	CAT 350 excavator	2	50

Activity/Phase	Source noise level dB, L_{WA}	Plant Description	Number	% On Time
Laying of continuously welded rail	102	Class 66 loco on load	1	10
	97	Class 66 loco idling	1	90
	109	Loader	1	20
	108	Nut runner	1	5
	124	Rail saw	1	5
Installation of track	102	Class 66 loco on load	1	10
	97	Class 66 loco idling	1	90
	109	Shovel	1	80
	104	Rail treading machine	1	80
	105	Sleeper screwdrivers	4	80
	124	Rail saw	1	5
	111	Track grinder	1	5
Ballasting and tamping	102	Class 66 loco on load	1	10
	97	Class 66 loco idling	1	90
	112	Dropping ballast	1	5
	110	Tamper	1	30
	112	Regulator	1	20
	104	Stabiliser	1	10
Removal of track	102	Class 66 loco on load	1	10
	97	Class 66 loco idling	1	90
	105	Rail crane	1	40
	109	Loader	1	20
	124	Rail saw	1	5
Removal of trackform/ ballast/re-profiling	109	CAT D400 dumper	2	60
	110	CAT D8 dozer	1	60
	115	CAT 16 grader	1	50

1.6 Abbey Road and Buckleswood Road crossings

a) Noise modelling

1.6.1 The predicted construction activity noise levels have been modelled using SoundPlanTM noise contour mapping software. The model has been established on the basis of calculating the construction activity noise levels over a 40 day period. For the road diversion works, fifteen source points have been modelled at 20m spacings; between four and six source points have been used for the various crossing works, again at 20m spacings. The sound energy has been divided equally between the number of source points for the duration of the work phase.

1.6.2 Each piece of construction plant equipment has been assigned an operation 'on time' to take account of the proportion of time that the equipment is in use.

b) Assumptions

1.6.3 Abbey Road crossing and realignment of road and junction with Lovers Lane.

1.6.4 A level crossing is to be installed where the rail extension route crosses Abbey Road at the junction with Lovers Lane.

1.6.5 The construction of the Abbey Road level crossing is facilitated by the construction of a temporary highway alignment so that the crossing can be built off line, without the need to close Abbey Road. The construction of the level crossing requires the permanent realignment of Lovers Lane to the south. The temporary Abbey Road alignment will be approximately 300m long.

1.6.6 The installation of the Abbey Road level crossing and associated highway diversion works will be carried out in three main phases; earthworks, surfacing and track laying.

1.6.7 The highway diversion for the temporary realignment (and Lovers Lane junction) will be carried out before the crossing installation. The highways diversion will commence with a period of earthworks to create the profile of the route, using a dumper, excavator and dozer. Upon completion of the earthworks, a series of sub layers will be laid and compacted before the surface is paved. This process will involve compaction plant, a tipper lorry, an asphalt paver and road roller.

1.6.8 The works to install the crossing will also require initial earthworks, surfacing and then track installation. The plant equipment used for the road diversion will also be utilised for the crossing works, with the addition of a flatbed lorry (with Hiab), telehandler, and compactor. A rail mounted impact wrench will

be used, with ballasting and tamping to follow to either side of the crossing where the crossing works will tie into the main rail extension route.

c) Buckleswood Road

1.6.9 A level crossing is to be installed where the rail extension route crosses Buckleswood Road. The works will be carried out in a similar way to the crossing installation at Abbey Road, commencing with a temporary road realignment to facilitate the construction of the crossing. Works will be carried out in the same three phases as above; earthworks, surfacing and track laying.

1.6.10 The method and plant are the same as for the Abbey Road crossing works above.

1.6.11 Plant assumed to be used and the % on time are shown in the **Table 1.2.**

Table 1.2: Level crossing construction plant equipment base data

Activity/Phase	Source noise level dB L_{WA}	Plant Description	Number	% On Time
Earthworks	109	CAT D400 dumper	2	70
	110	CAT D8 dozer	1	70
	108	CAT 350 excavator	2	80
Paving	105	Rigid tipper lorry	1	10
	105	Asphalt paver	1	80
	112	Vibratory Roller	1	85
	110	Wacker plate	1	10
Track (at level crossing)	106	Flatbed lorry with hiab	1	70
	109	Telehandler	1	25
	112	Dropping ballast	1	5
	110	wacker plate	3	20
	110	Tamping	1	20
	109	Rail mounted impact wrench	1	5

1.7 Saxmundham to Leiston branch line upgrade

a) Noise modelling

1.7.1 The predicted construction activity noise levels have been modelled using SoundPlanTM noise contour mapping software. The model has been established on the basis of calculating the construction activity noise levels over a daily period. The construction site is linear in nature; in the absence of detailed construction guidance, a daily progress rate of 50m per day has been assumed, broadly on the basis of completing the track works over a 9 month period. Source points have been modelled at 12.5m spacings, with the predicted daily noise level being derived from the log average of predicted noise levels at the closest 5 point source positions to the receptor.

1.7.2 Each piece of construction plant equipment has been assigned an operation 'on-time' to take account of the proportion of time that the equipment is in use.

b) Assumptions

1.7.3 The upgrade of the Saxmundham to Leiston branch line comprises the replacement of the existing trackform. The proposal is to replace the ballast, wooden sleepers and existing jointed rails with new ballast and flat bottom continuously welded rail, mounted on concrete sleepers.

1.7.4 The first phase of work will involve the removal of the existing rails, sleepers and ballast, this is expected to be rail lead, typically using a rail mounted excavator, crane and hand tools.

1.7.5 Once the new trackform is complete, concrete sleepers will be laid. The laying of continuously welded rail will be undertaken from a rail mounted loader powered by a class 66 locomotive. For this reason, it is anticipated that track laying activities will be carried out from west to east, so that continuously welded rail trains are joined to the wider rail network.

1.7.6 Upon commencement of tracklaying, the rails will be lifted onto the sleepers using the loader/rail threading machine. Track will be secured to the sleepers using sleeper screwdrivers and nut runners.

1.7.7 Once the rails have been secured to concrete sleepers, a train carrying ballast trucks will be run along the section of branch line, and ballast will be dropped onto the trackform and sleepers via hoppers in each of the ballast trucks. This process will be followed using a tamping machine which will be run over the section of newly ballasted rail to lift the rails and stabilise/compact the ballast. The process of dropping ballast will continue until the track is at its designated vertical alignment.

1.7.8 Once the ballasting phase is completed, a stabiliser train would be run over the newly laid track to provide a final compaction of the ballast before the branch line becomes operational.

1.7.9 Plant assumed to be used and the % on time are shown in **Table 1.3**.

Table 1.3: Branch line upgrade plant equipment base data

Activity/Phase	Source noise level dB L_{WA}	Plant Description	Number	% On Time
Track removal	97	Class 66 loco idling	1	100
	124	Rail saw	1	5
	105	Rail mounted crane	1	75
	117	Rail mounted backhoe	1	25
	108	Nut runner	1	10
	105	Sleeper screwdriver	1	20
Track laying	97	Class 66 loco idling	1	100
	105	Rail mounted crane	1	75
	108	Nut runner	1	10
	124	Rail saw	1	5
	111	Track grinder	1	20
	112	Dropping ballast	1	20
	105	Sleeper screwdriver	4	75
	104	Rail treading machine	1	75
	110	Tamper	1	30
	112	Regulator	1	20
	104	Stabiliser	1	10

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G. Working of the single line between Saxmundham Junction and Sizewell Sidings

1. Operational rail noise assessment

1.1 Introduction

1.1.1 Sharps Redmore have carried out an assessment of noise arising from rail freight movements associated with the construction of the proposed Sizewell C Power Station. These movements have been broken down into the following elements:

- Branch Line: Saxmundham junction to Leiston (LEEIE) railhead during early years;
- Branch Line: Saxmundham junction to MDS rail head, once the green rail route extension is in operation for the remainder of the construction period;
- East Suffolk Line: Westerfield junction to Saxmundham junction throughout the operational period. This line does not routinely have night time freight trains on it at the current time whereas at Westerfield and to the west of Westerfield junction, which runs between Felixstowe Port and Ipswich (and beyond) does.

1.1.2 The note concludes by providing predicted noise contours for the three elements listed above and explains:

- The criteria used and therefore the parameters predicted;
- The existing and proposed modes of operation of these lines;
- Approach taken to modelling and source data derivation.

1.1.3 Annex A provides maps to show the extent of existing and proposed speed limits on the East Suffolk Line. Annex B provides details of noise survey work and summaries of

- measured source data for slow moving trains at various trackside locations under load and moving at a steady speed and
- measured night time levels at a site in Woodbridge in late 2019.

1.1.4 Predicted noise contours are shown in Annexes C, D, E and F.

1.2 The existing and proposed modes of operation of the lines

1.2.1 Based on line use in 2019 and considering trains passing Woodbridge as a reference point, there are 32 passenger train movements in a 24 hour period

and two of these occur during night time hours (between 06:00 and 07:00 hours). In addition to this, there are typically two movements per year of an engineering train which occur at night: generally on a single night and two movements per night of a "Rail Head Treatment Train" (which is more commonly referred to as a leaf blower) between mid-October and mid-December. In 2019, this took place for approximately 10 weeks.

1.2.2 During the construction of SZC, each freight train to site would be pulled by a Class 66 locomotive and have 20 wagons which would either be full or empty, depending on the patterns shown in Table 1.1. Table 1.1 below shows the existing and predicted number of trains per night on the East Suffolk line between Westerfield junction and Saxmundham.

Table 1.1: Existing and predicted train numbers

Period	Existing trains in 2019		Proposed trains in "Early Years" - before GRR is operational	Proposed trains in "Later Years" – when GRR is operational
	Total passenger train movements	Total non-passenger train movements	Total freight train movements	Total freight movements
00:00 to 06:00	0	0 - 3	3 (2 full, 1 empty)	4 (2 full, 2 empty)
06:00 to 07:00	2	0	0	0
07:00 to 23:00	30	0	0	1 (full)
23:00 to 00:00	0	0 – 1	1 (empty)	1 (empty)

1.2.3 There are currently speed restrictions in place for parts of this line, as shown in Table 1.2 below. Plans showing the locations at which these restrictions begin and end are shown in Figures A1 and A2.

Table 1.2: Existing speeds for different sections of line by train type

Section of line (see Figures in Annex A for details)	Speed limit, mph, by train type		
	Passenger trains	Freight trains	Engineering, rail head treatment and other trains
Westerfield to south of Woodbridge	55	20	40
Through Woodbridge	25	15	40
North of Woodbridge to south of Saxmundham	55	20	40

Section of line (see Figures in Annex A for details)	Speed limit, mph, by train type		
	Passenger trains	Freight trains	Engineering, rail head treatment and other trains
Through Saxmundham	25	15	40
North of Saxmundham	55	20	40

1.2.4 In order to reduce noise from trains passing at night (as a primary mitigation measure), night time speed restrictions are proposed for freight trains servicing the Sizewell construction site as shown in Table 1.3 below. Plans showing the locations at which these restrictions begin and end are shown in Figures A3, A4 and A5. For the purposes of modelling, it is assumed that all trains other than Sizewell trains would continue to run at the same speed and frequency that occurred in 2019.

Table 1.3: Proposed additional speed restrictions for freight trains travelling to and from Sizewell at night

Section of line (see Figures in Annex A for details)	Speed limit, mph for Sizewell freight trains at night
Westerfield to south of Woodbridge	20
Through Woodbridge	10
North of Woodbridge to south of Campsea Ashe	20
Through Campsea Ashe	10
Between Campsea Ashe and Saxmundham	20
Through Saxmundham	10
On branch line	20

1.3 Consideration of secondary noise mitigation options

1.3.1 Under present arrangements, trains using the branch line for Sizewell would need to stop at Saxmundham and then pull away under load twice each time they pass since the system in place for changing points and ensuring branch line safety requires this. Further details of this system are provided in Annex G; in essence, this involves:

- At Saxmundham, each train wishing to use the branch line, or coming from the branch line stops at a “ground frame” and one of the train drivers gets off the train, goes to the ground frame, gets the release of the points from the signal box and takes control of the points.
- The driver on the ground then changes the points so that the train can travel to the east on the branch line and remains at the ground frame.
- The train then pulls away and once it is clear of the points, stops again and the driver on the ground changes the points back, walks back to the train and the train continues on its way.
- At the same time as the points change occurs, the driver on the ground deals with the staff (as described in Annex G).

1.3.2 These train stops and starts (pulling away under load) would result in higher noise levels for people living nearby since they require the train to pull away underload twice where otherwise it might move at a slow steady speed and therefore would produce less noise. In order to remove the need for these two stops, it may be possible to move to an automatic points system and an axle counter could be installed to monitor line use instead of the staff system. Other alternatives may also be possible to remove the need for trains to stop here.

1.3.3 If the system were to be upgraded, this would be expected to result in lower noise levels in Saxmundham. In order to gauge the difference between noise levels with the existing system and the potential new system, both options have been assessed.

1.4 Approach taken to modelling and source data derivation

1.4.1 In order to determine the effect of noise, predictions must be made for L_{Aeq} values over either a 16 hour day or 8 hour night and as an L_{Amax} value during the night. These have been modelled and considered separately. Noise contours have been produced to show all noise sensitive receptors exposed to noise above the LOAEL values within 300 metres of the line.

a) Day and night time noise level, $L_{Aeq,T}$

1.4.2 Train noise levels ($L_{Aeq,T}$) have been predicted using the calculation procedure in the Calculation of Railway Noise (CRN) using Soundplan 3D noise modelling software. For the day and night time noise levels on the east Suffolk line, two scenarios have been considered:

- Existing noise from train movements, bearing in mind current use patterns over a typical year; and

- Predicted noise from existing train movements plus Sizewell C movements during the period when peak numbers of trains for SZC construction are in use.

1.4.3 For existing use, there are expected to be two engineering train movements per year and 10 weeks where the rail head treatment train would pass twice per night – giving approximately 124 movements per year at night. There would also be two passenger trains movements per night between 00:00 and 06:00 hours and 18 movements per night between 23:00 and 00:00 hours.

1.4.4 Calculation of Railway Noise (CRN) was designed to consider rail noise for the purposes of evaluating whether there was an entitlement to compensation under the Noise Insulation (Railways and other guided transport systems) Regulations 1995, it considers noise for the periods defined in those Regulations, which are:

- Day: 06:00 hours to 00:00 hours (18 hours); and
- Night: 00:00 hours to 06:00 hours (6 hours).

1.4.5 Predicted levels in these time periods are expressed as:

- Day: $L_{Aeq,\ 18h}$, façade level; and
- Night: $L_{Aeq,\ 6h}$, façade level.

1.4.6 These levels can be converted to free field 16 and 8 hour values to enable a comparison to be made with the LOAEL and SOAEL values. The daytime value of 68 dB $L_{Aeq,18hrs}$ can be converted to a 16 hour L_{Aeq} value so that a consistent day and night time periods can be considered, by subtracting 2 dB, which includes a -3 dB to remove the façade correction, and a +1 dB correction to convert the 18 hour L_{Aeq} to a 16 hour L_{Aeq}. The night-time value of 63 dB $L_{Aeq,6hrs}$ can be converted to a 8 hour L_{Aeq} value to match the time period and noise index used elsewhere in this chapter, by subtracting 4 dB, which includes -3 dB to remove the façade correction, and a -1 dB correction to convert the 6 hour L_{Aeq} to a 8 hour L_{Aeq}.

1.4.7 In order to obtain average levels for a typical year with the current numbers of trains, therefore, the total number of movements has been calculated for a year and then the predicted yearly noise level reduced by 10 x log (365) = 25.6 dB to obtain the predicted typical night.

1.4.8 Numbers of existing trains from the Table 1.1, therefore become, for a typical year, as shown in Table 1.4:

Table 1.4: Total number of trains in a year (based on 2019 flows) – reference location: Woodbridge

Period	Existing trains in 2019	
	Total passenger trains	Total freight trains
00:00 to 06:00	0	124
06:00 to 07:00	730	0
07:00 to 23:00	10,950	0
23:00 to 00:00	0	18

b) Night time L_{Amax} levels

1.4.9 CRN contains advice (in the form of a graph showing train speed against overall sound level) to enable an estimate to be made of the different noise levels (expressed as a single event level, L_{AE}) at different speeds when rolling at a constant speed. The range of speeds covered are between approximately 12 and 142mph; no data is provided for L_{Amax} values. In order to obtain source data (L_{Amax} values) to model for slow moving trains, measurements were made of freight trains pulled by Class 66 locomotives and travelling at both constant speeds and under load across the range of speeds proposed for the freight train movements at a number of locations. The results of these measurements corrected to a reference distance of 10 metres are shown in Tables B1 and B2 in Annex B. A mean level has been derived for different conditions and these means are shown, along with upper and lower 95% confidence intervals in Table 1.5.

Table 1.5: Table showing estimates of mean L_{Amax} values for different speeds and conditions for Class 66 locomotives: all at very slow speeds

Conditions	Speed (mph)	L_{Amax}, dB at 10 metres		
		Lower 95% CI	Mean	Upper 95% CI
Constant speed	9-11	72	74	77
	12-14	73	75	77
	15-17	76	79	81
	18-20	76	80	85
Under load	9-11	76	79	82
	12-14	82	84	86
	15-17	80	85	89
	18-20	78	84	91

1.4.10 When accelerating, class 66 locomotives produce noise levels (upper 95% confidence interval for mean) of 82 dB at around 10mph up to 91 dB at 20mph. Since trains will normally be under load at a speed between 0 and 20 mph, a value close to the upper bound level at 15-17mph has been used for parts of the line where this will occur: 89 dB, L_{Amax}. For the purposes of modelling L_{Amax} values, therefore, octave band sound power levels have been derived so that the levels at a reference distance of 10 metres coincide with the upper 95% confidence interval values of the mean from Table 1.5. The A-weighted values used are as shown in Table 1.6.

Table 1.6: Sound power levels for different L_{Amax} values under different conditions

Speed (mph)	Condition	L_{Amax}, dB at 10 metres	Sound power level used, L_{WAmax}, dB
10	Constant speed	77	105
0-20	Under load	89	117
20	Constant speed	85	113

1.4.11 Both sets of models (to predict L_{Aeq} and L_{Amax} values) assume that locomotives would be under load for 800 metres as they travel away from any speed restrictions. The same is assumed for the entire branch line heading east from Saxmundham junction due to the uphill gradient for the whole of the branch line.

1.5 Predicted Noise Levels

a) Branch Line: Saxmundham junction to Leiston (LEEIE) railhead during early years

1.5.1 Predicted noise contours for this element are shown in Annex C. The predicted 18 and 6 hour levels shown in the contours can be adjusted to predict 16 and 8 hour noise levels during early years operations. The predicted L_{Amax} values are also presented for night time. There are no night time values within Leiston, as there would be no train movements through Leiston at night. Table 1.7 below shows predicted levels at each receptor for this element during early years.

Table 1.7: Predicted noise levels for receptors between Saxmundham junction and LEEIE during early years operation, all values are free field

Receptor / receptor group	Daytime predicted levels, dB	Night time predicted levels, dB	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	L_{Amax}
Clayhills Road	24	32	55
Cottage Farm	31	39	69
Crossing Cottages	39	32	66
Crossing East	42	34	51

Receptor / receptor group	Daytime predicted levels, dB	Night time predicted levels, dB	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	L_{Amax}
Kelsale Covert	46	46	97
Westhouse Crossing Cottage	46	41	95
1 Westward Ho	39	-	-
28 Harling Way	39	-	-
Carr Avenue	32	-	-
Leiston House Farm	17	-	-
Valley Terrace	39	-	-

b) Branch Line: Saxmundham junction to MDS rail head, once the green rail route extension is in operation for the remainder of the construction period

1.5.2 Noise contours for this element are shown in Annex D. The predicted 18 and 6 hour levels shown in the contours can be adjusted to predict 16 and 8 hour noise levels during early years operations. The predicted L_{Amax} values are also presented for night time. Table 1.8 below shows predicted levels at each receptor for this element during later years.

Table 1.8: Predicted noise levels for receptors between Saxmundham junction and the Main Development Site terminal during later years operation, all values are free field

Receptor / receptor group	Daytime predicted levels, dB	Night time predicted levels, dB	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	L_{Amax}
Clayhills Road	17	31	51
Cottage farm	25	37	65
Crossing Cottages	28	39	75
Crossing East	36	45	81
Kelsale Covert	38	45	93
Westhouse Crossing Cottage	39	45	91
28 Harling Way	15	23	53
Aldhurst Farm Cottage	20	28	59
Ash Wood Cottage	18	25	50
Buckleswood House	13	21	50
Fisher's Farm	17	25	54
Leiston Abbey House	17	24	51
Leiston House Farm	21	30	56
No. 99 Abbey Road	19	27	57
No. 105 Abbey Road	24	31	61

Receptor / receptor group	Daytime predicted levels, dB	Night time predicted levels, dB	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	L_{Amax}
Old Abbey Farm / Old Abbey Care Home	15	23	53
Upper Abbey	21	29	49

c) East Suffolk Line: Westerfield junction to Saxmundham junction throughout the operational period

1.5.3 Noise contours for this element are shown in Appendices E and F. Results for L_{Aeq} are in Annex E and results for L_{Amax} are in Annex F. For modelling purposes, the line has been divided up into seven sections (and some of these were further subdivided). Figure A6 in Annex A shows the locations of these seven sections.

1.5.4 In order to consider how levels would change from the existing operational noise during day and night with the proposed additional freight trains using the line, contours have been produced for both existing and existing plus proposed levels. These contours are shown for each section or subsection. Much of the East Suffolk line is bounded by agricultural land; contours have only been produced for areas which contain buildings.

1.5.5 The contours for Saxmundham show both the scenario where the trains stop to change the points and the scenario where they do not (due to secondary mitigation being in place).

1.6 Interpretation of results

1.6.1 On the East Suffolk line, with the exception of the section of line through Saxmundham, the day time existing and existing plus proposed contours show no discernible difference, since the addition of a single freight train to the existing rail traffic on this line results in a negligible change to the overall daytime level. At Saxmundham, due to the need for trains to stop to change the points, there is a difference between the day time with and without proposed changes.

1.6.2 On the branch line, there are two dwellings which would be exposed to low L_{Aeq} levels at night in early years and three would be exposed to a low L_{Aeq} level at night in later years. All other receptors would experience negligible L_{Aeq} levels at all times.

1.6.3 In relation to L_{Amax} levels on the branch line at night, during early year operations, four dwellings would experience some adverse effect (where

levels would be above 60 dB, L_{Amax}) and two of these would be exposed to L_{Amax} levels which would be significant and above the SOAEL. In later years, six dwellings would experience L_{Amax} levels which indicated that there would be some adverse effect, with four of these being significant and three of those exposed to levels above the SOAEL.

1.6.4 Since the total number of properties along the East Suffolk line is very high, no individual breakdown of levels for each premises has been carried out; however the contours in Appendices E and F may be used to identify the levels to which premises would be exposed. The effect of the additional trains during the day would be negligible, but at night the increase in level and the maximum levels would both result in a significant adverse effect for some receptors. For all receptors, the most significant effects are determined by the maximum levels which are predicted using the L_{Amax} parameter.

1.6.5 Contours in Annex F show zones in which noise levels would be below 60dB (indicating a negligible adverse effect); between 60 and 70dB, L_{Amax}, to indicate where minor adverse effects would be experienced; and above 70dB, L_{Amax} where the effect would be significant. A 77dB contour has also been shown to indicate which premises may experience a façade level above 80dB, L_{Amax}. (Façade levels are taken to be 3dB above free field levels).

1.6.6 In reviewing the potential noise levels we have undertaken research to identify the number of properties which may be impacted: estimated numbers of properties affected are as shown in Table 1.9 below. These numbers will continue to be reviewed including, where relevant, permanent residential caravans and houseboats identified.

Table 1.9: Estimated numbers of properties exposed to different noise levels from proposed night time use of the East Suffolk line between Saxmundham and Westerfield junction

Above level, L_{Amax}, dB (free field)	Estimated number	
	No mitigation	Mitigation (no stops in Saxmundham)
60-79	390-410	320-350
70-77	150-160	100-110
Over 77	40-50	5-10

Annex A Figures showing speed restriction locations

Figure A.1: Existing speed restriction zone – Woodbridge

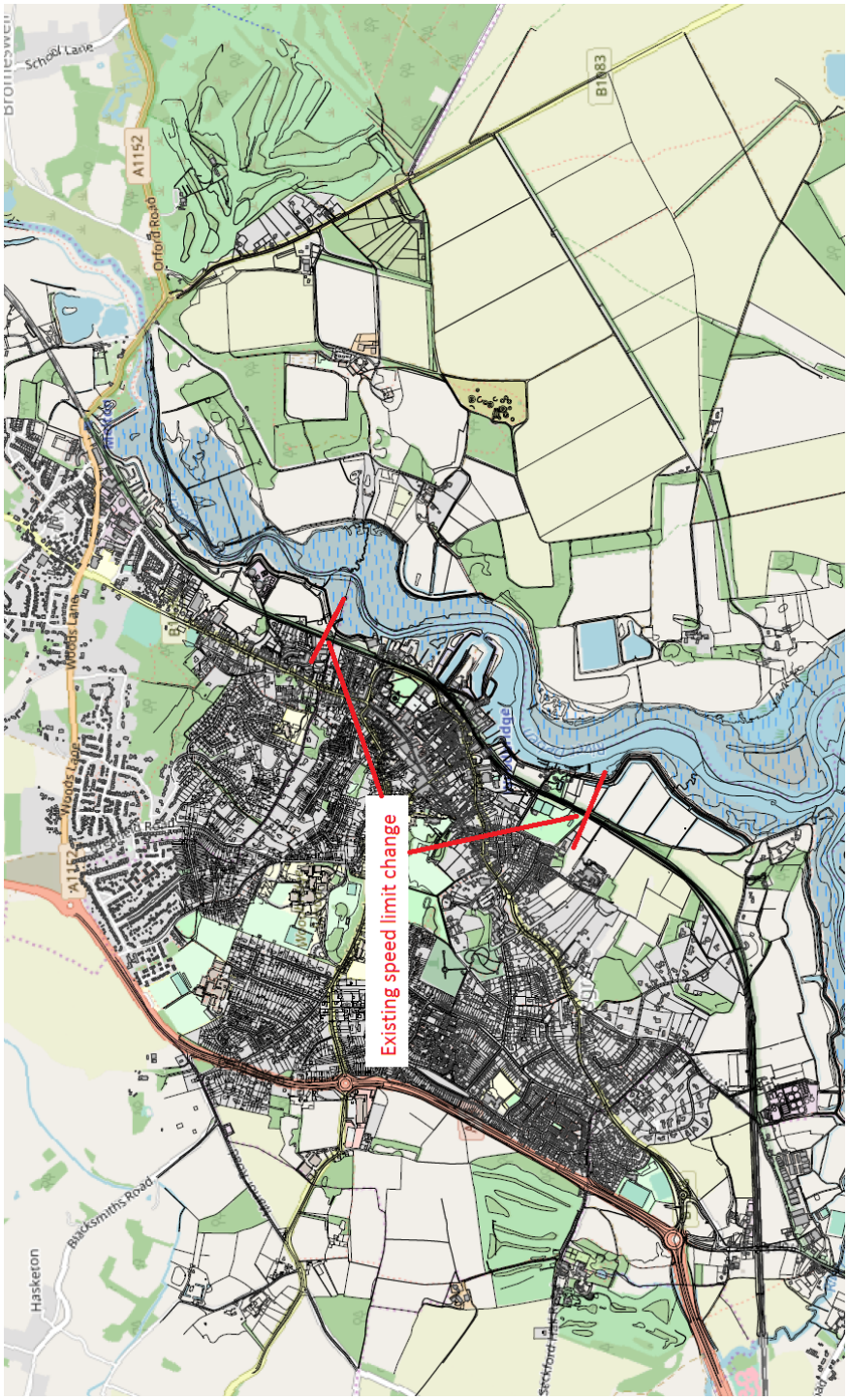


Figure A.2: Existing speed restriction zone - Saxmundham

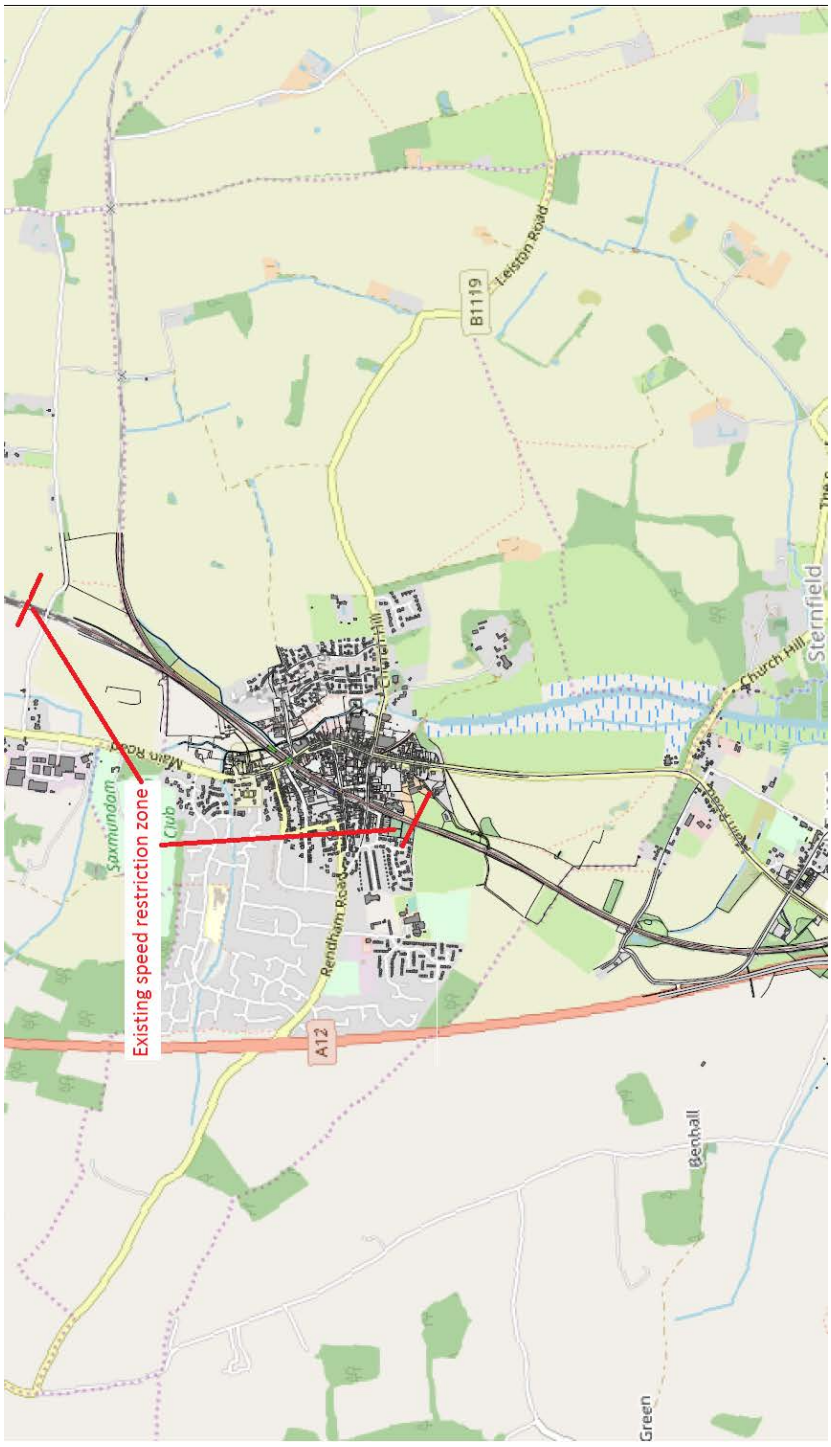


Figure A.3: Proposed night time speed restriction zone for Sizewell freight trains – Woodbridge

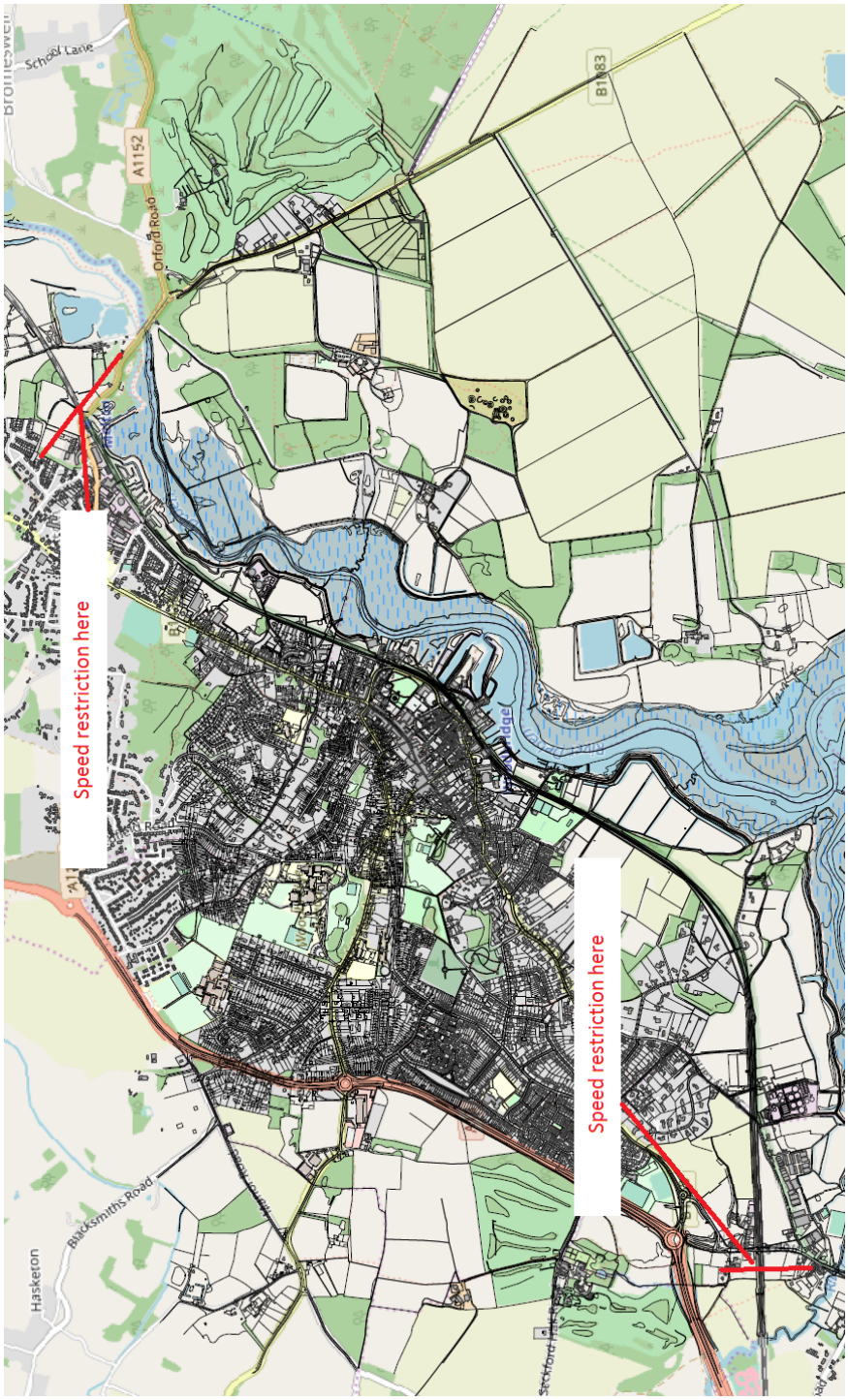


Figure A.4: Proposed night time speed restriction zone for Sizewell freight trains – Campsea Ashe

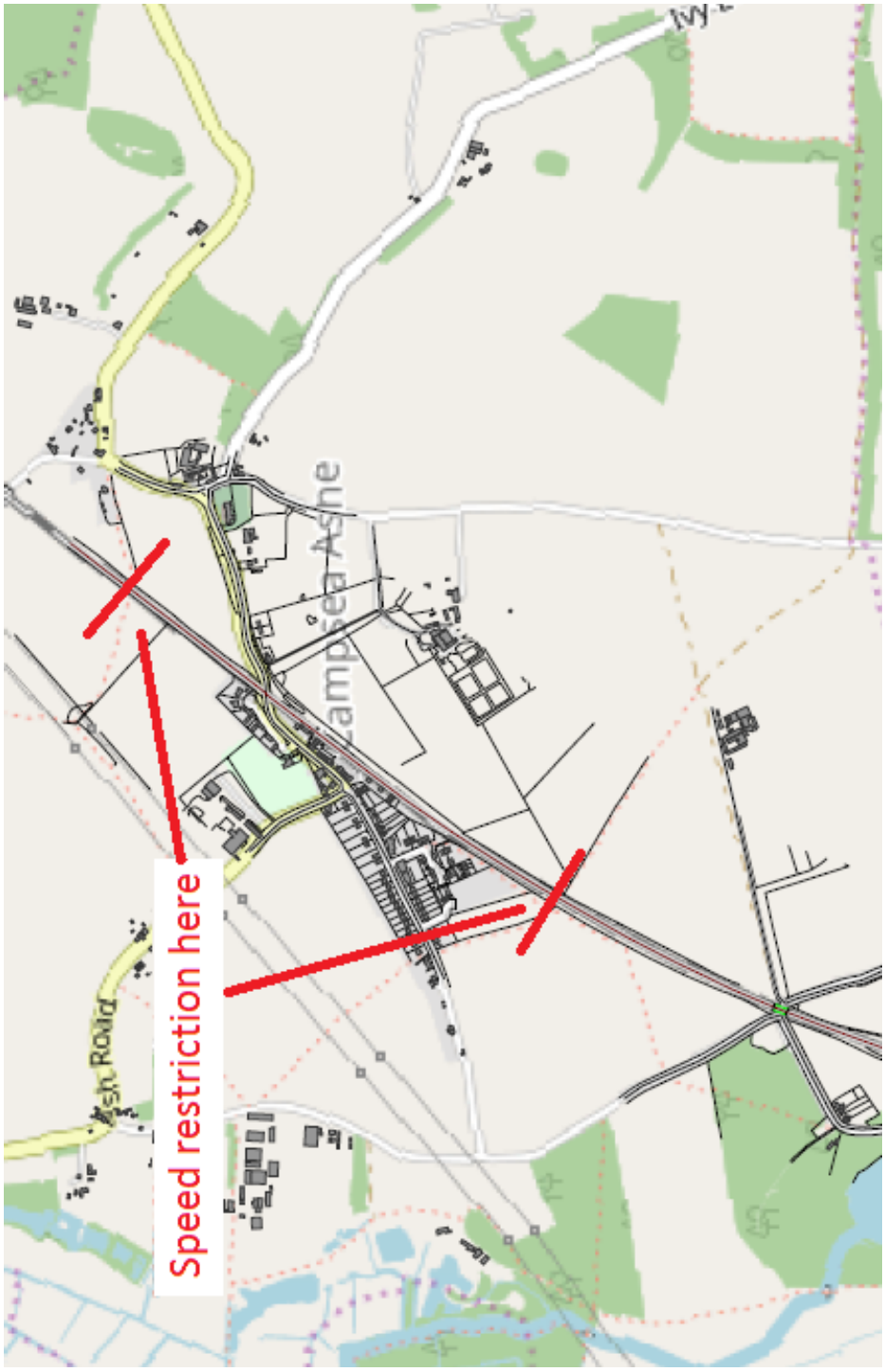


Figure A.5: Proposed night time speed restriction zone for Sizewell freight trains – Saxmundham

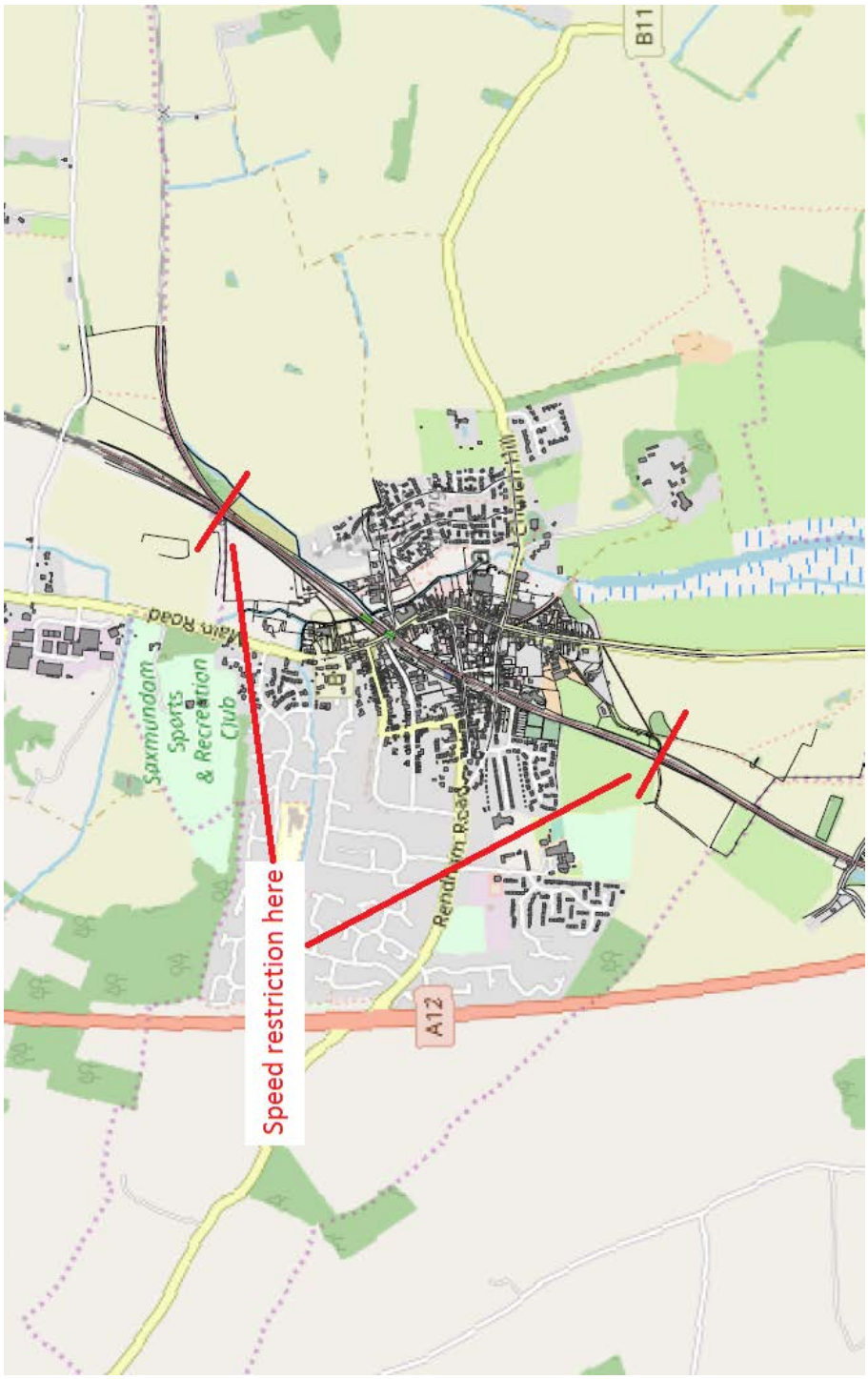
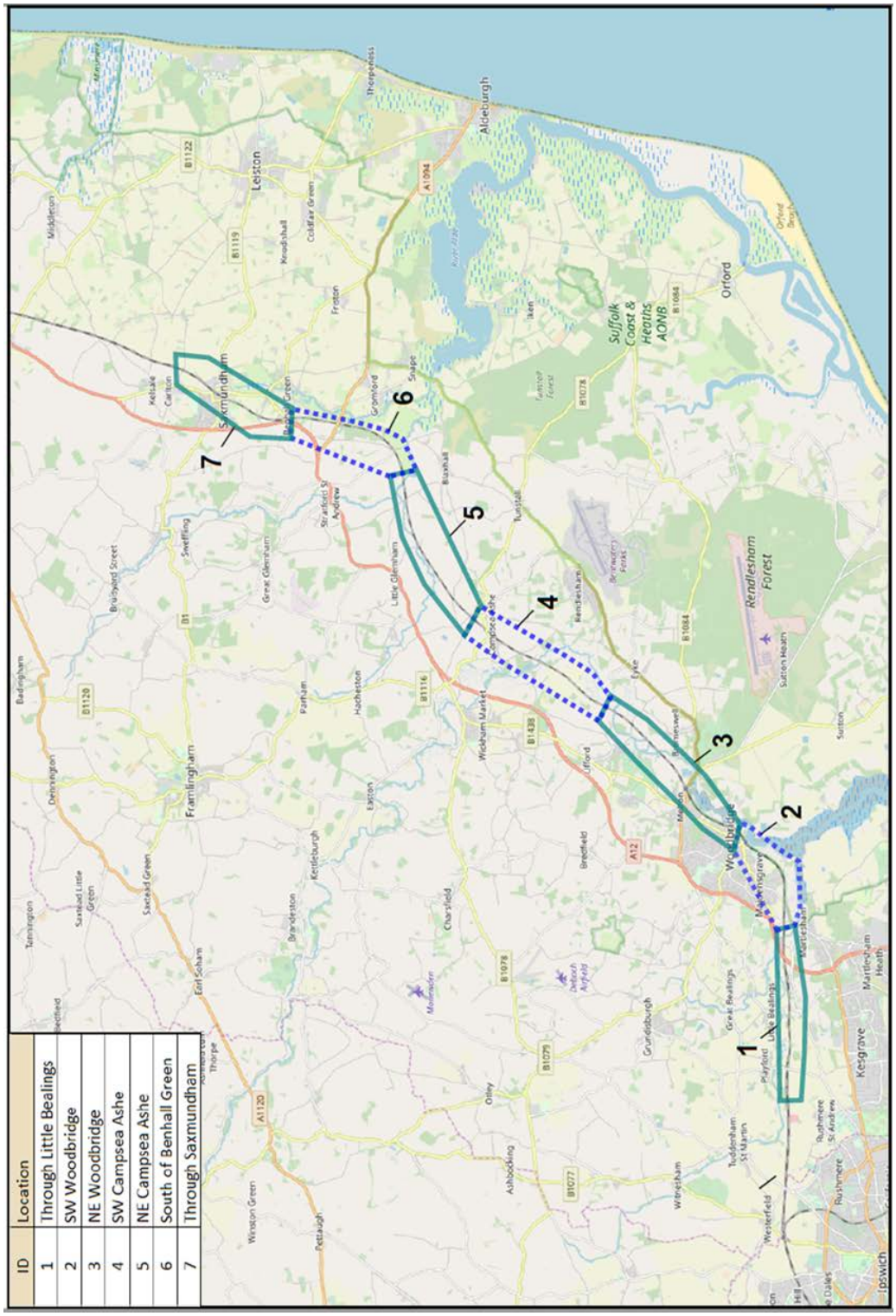


Figure A.6: East Suffolk Line showing how this was divided into sections for modelling



Annex B: Rail noise survey details and results

Survey details

1 Measurements were undertaken using type 1 or class 1 sound level meters within laboratory calibration certification. Before and after all baseline sound measurements, field-calibration was undertaken and no adverse calibration drifts were found to have occurred.

2 The microphone at each survey location was fitted with an appropriate windshield at all times to minimise the influence of air movement across the microphone.

3 All measurements were made in free-field conditions. Other than the ground, there were no reflective surfaces within 3.5 metres of the sound level meter in accordance with the 'Description and measurement of environmental noise' BS 7445-1:2003.

4 All baseline sound survey locations were attended by competent field operatives who recorded the sound level meter position, the weather conditions and record of key information pertinent to the survey. A video and audio recording was made of each freight train as it passed to record details of the locomotive, number and type of wagons. These enabled post processing of this information to identify duration of event, maximum level, and length of train. Distances between the survey location and the passing train were also recorded.

5 In general, weather conditions were suitable for the measurement of environmental noise. However, on some occasions, since the key parameter of interest for both sets of survey work was the L_{Amax} parameter and, when close to a passing locomotive, with levels in excess of 70dB, L_{Amax}, weather conditions have little effect on measurements, survey work continued in some conditions when environmental survey work would normally not be carried out due to the potential influence of the sound of rainfall or the effects of wind, where it was appropriate to do so.

6 Measurements of freight trains passing were made between October 2019 and January 2019 at Ely Station, Ipswich Station, at various locations along the line between Westerfield junction and Felixstowe Port and near to the Loughborough to Leicester line in the vicinity of Mountsorrel Quarry. Results are shown in Tables B.1 and B.2 for Class 66 locomotives at a slow steady speed and under load, respectively.

7 Long term monitoring was carried out at a location in Woodbridge, Suffolk, 5 metres from the rail line in November and December 2019. Results are summarised in Table B.3.

Table B.1: Survey results for freight trains pulled at a steady pace at a range of low speeds at a reference distance 10 metres

Speed, mph	Measured level, L_{Amax}, dB at reference distance of 10m										
9-11	72	78	77	74	76	69					
12-14	80	67	73	73	73	80	73	75	78	76	75
15-17	75	75	79	83	87	73	82	75	77	79	
18-20	78	80	85	73	85						

Figure B.1: Graph showing mean relationship for speed against LAmax level a steady pace at reference distance of 10m

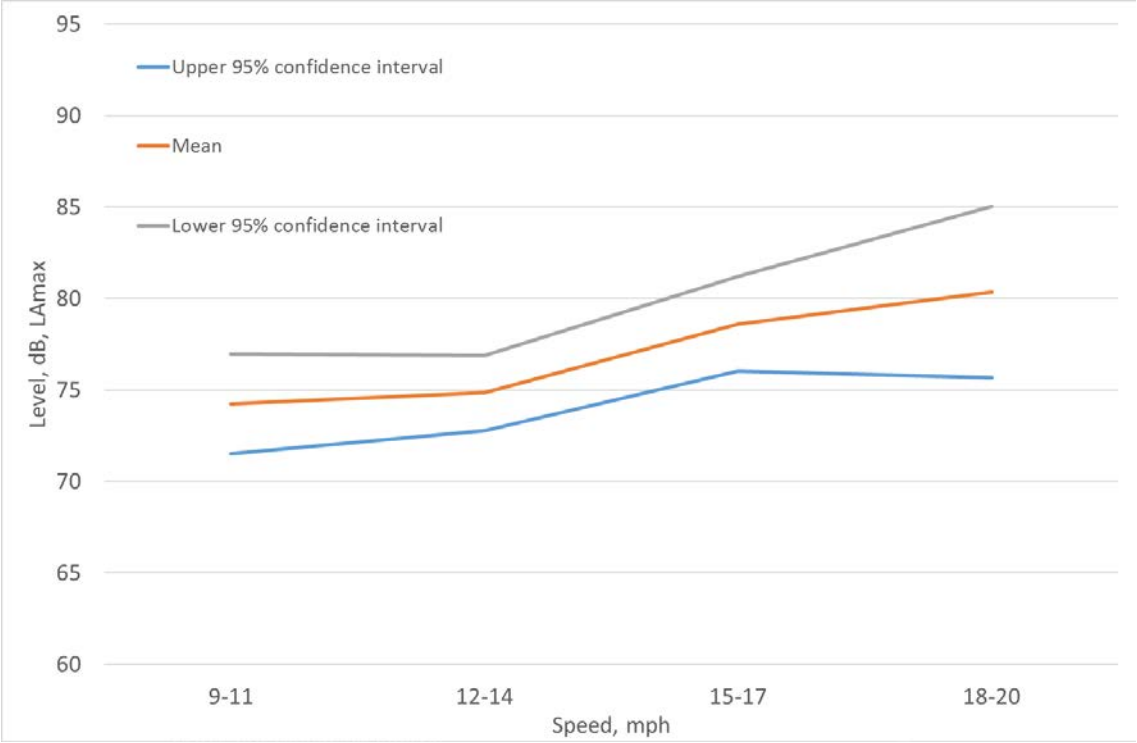


Table B.2: Survey results for freight trains under load at a range of low speeds at a reference distance of 10 metres

Speed, mph	Measured level, L_{Amax}, dB at reference distance of 10m							
9-11	80	78	81	77				
12-14	83	88	83	85	82	82	82	
15-17	77	87	87	90	79	80	87	90
18-20	84	87	82					

Figure B.2: Graph showing mean relationship for speed against LAmax level under load at reference distance of 10m

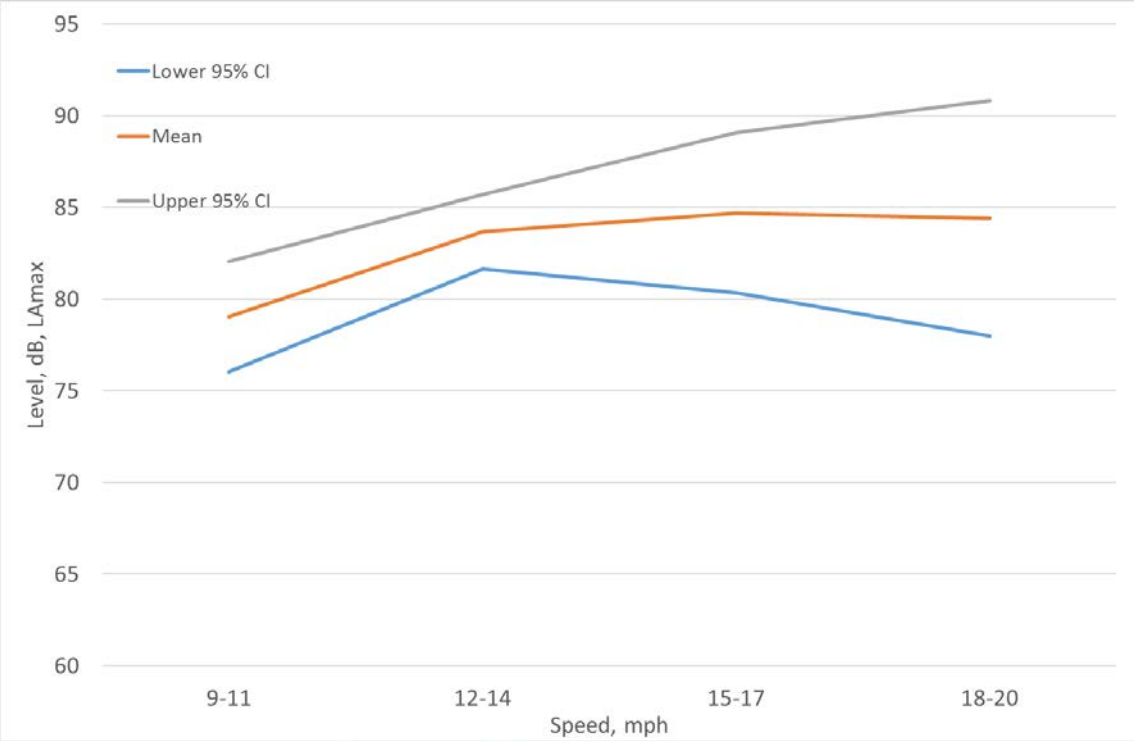


Table B.3: Summary of continuous monitoring between 23rd November and 11th December 2019 (Woodbridge)

Description	Number of occurrences in 19 night period	Measured levels, corrected to reference distance 10 metres: L_{Amax}, dB (free field)	
		Range of levels	Average level
Total train movements	39	69-92	82
Passenger trains	21	69-83	76
Non-passenger trains	17	79-92	90
Number of nights with train movements	15		
Nights with no train movements	4		

Annex C :

Contours - Branch Line: Saxmundham junction to Leiston (LEEIE) railhead during early years

Figure C1: Saxmundham to Leiston – Early Years – Day – Leiston Section, LAeq, 18h

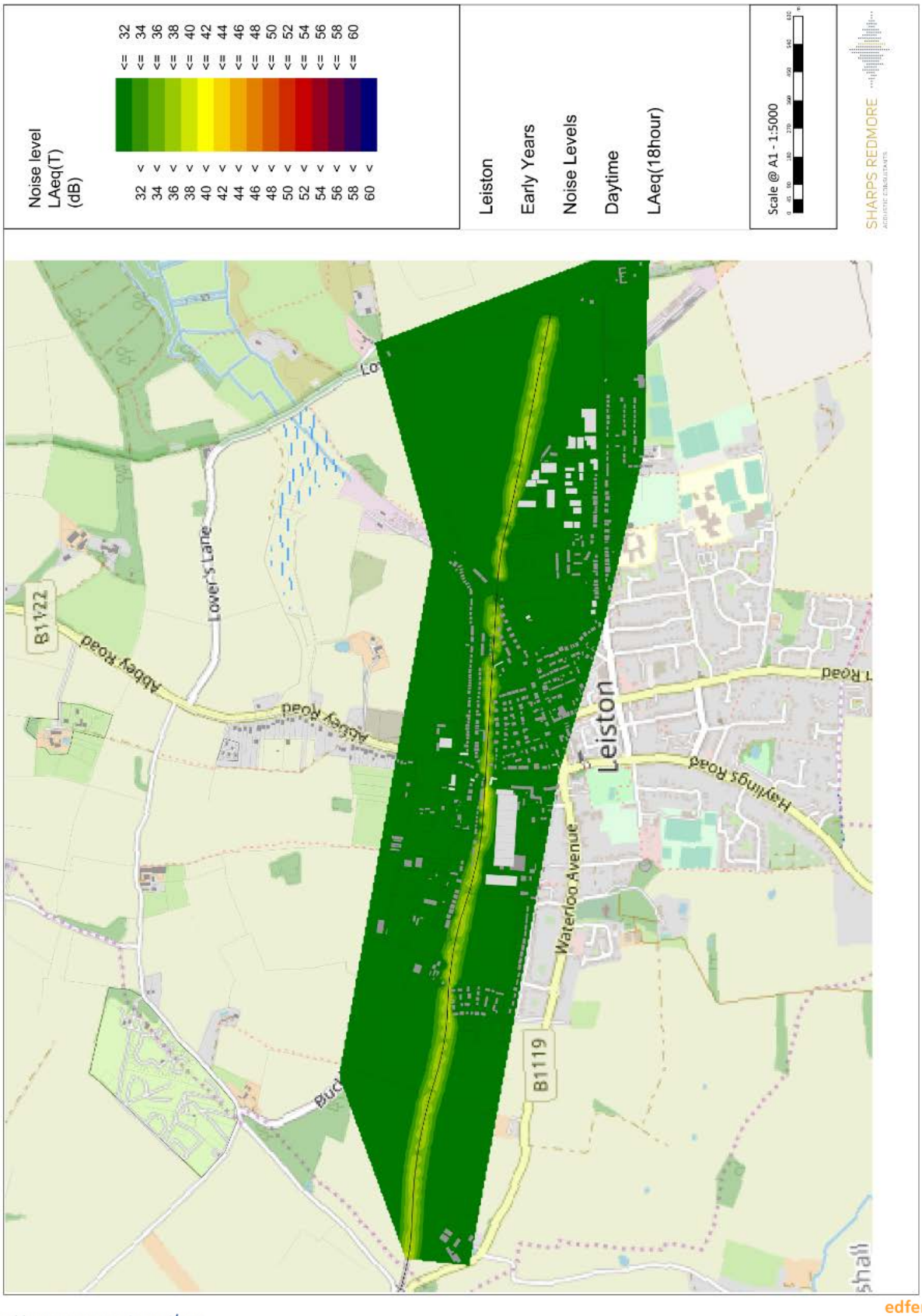

Noise level
LAeq(T)
(dB)
<= 32 v 34
<= 34 v 36
<= 36 v 38
<= 38 v 40
<= 40 v 42
<= 42 v 44
<= 44 v 46
<= 46 v 48
<= 48 v 50
<= 50 v 52
<= 52 v 54
<= 54 v 56
<= 56 v 58
<= 58 v 60
Leiston
Early Years
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5000
SHARPS REDMORE
Lower's Lane
B1122
Abbey Road
Leiston
Haylings Road
Waterloo Avenue
B1119

Figure C2: Saxmundham to Leiston – Early Years – Day – Branch Line Section, LAeq, 18h

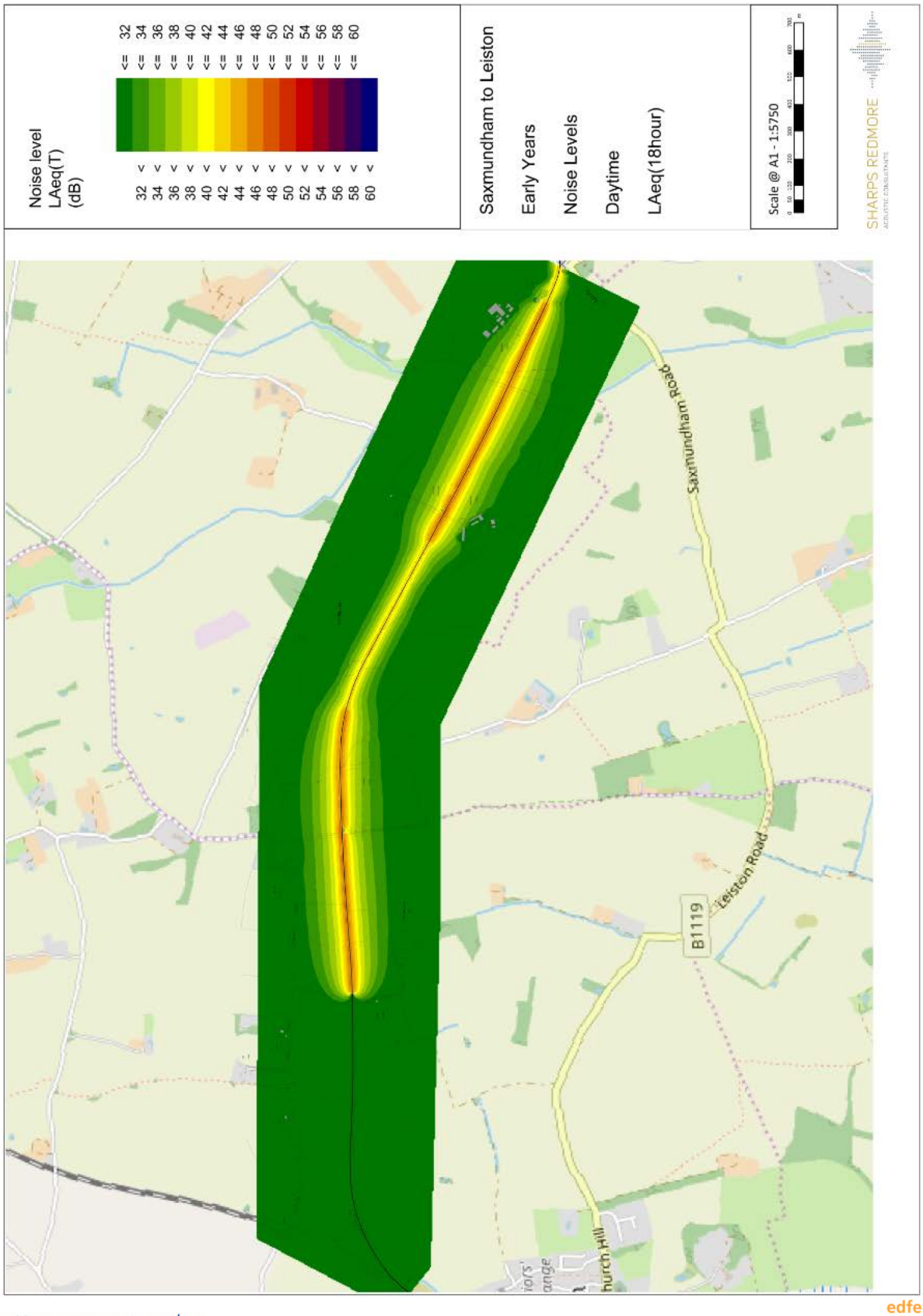

Noise level
LAeq(T)
(dB)
<= 32
<= 34
<= 36
<= 38
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
Saxmundham to Leiston
Early Years
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5750
SHARPS REDMORE
Saxmundham Road
Leiston Road
B1119

Figure C3: Saxmundham to Leiston – Early Years – Night – Branch Line Section, LAeq, 6 h

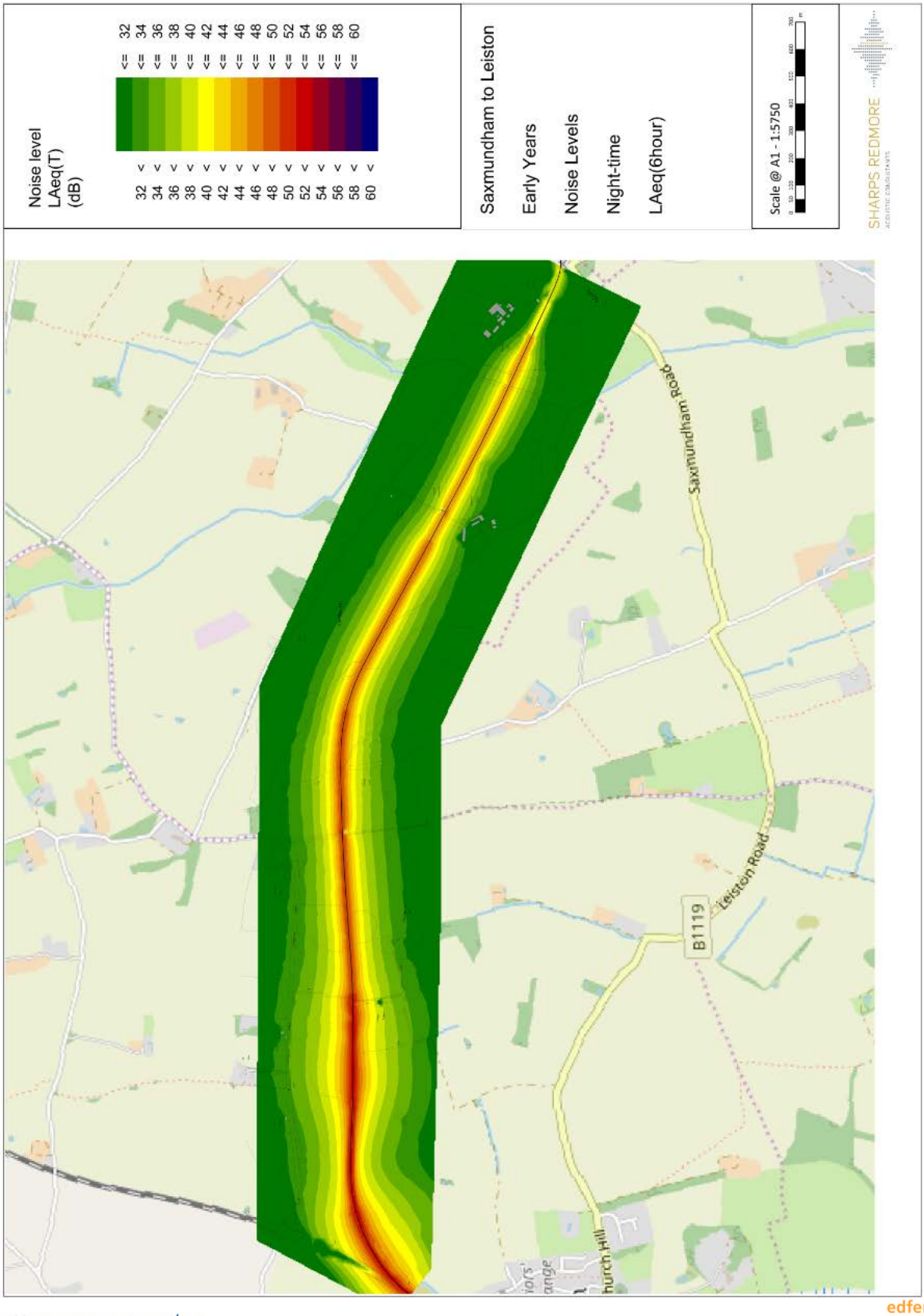

Noise level
LAeq(T)
(dB)
<= 32
<= 34
<= 36
<= 38
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
> 32
> 34
> 36
> 38
> 40
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
Saxmundham to Leiston
Early Years
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5750
SHARPS REDMORE
Saxmundham Road
Leiston Road
B1119

Figure C3: Saxmundham to Leiston – Early Years – Night – Branch Line Section, LAmax


Noise level
LAmax
(dB)
<= 60
<= 70
60 < 70
LAmax noise contours
Early years
Branch line
west of Leiston section
Scale 1:11000
0 50100 200 300 400 m
SHARPS REDMORE

Annex D :

Contours - Branch Line: Saxmundham junction to MDS rail head, once the green rail route extension is in operation for the remainder of the construction period

Figure D1: Saxmundham to MDS – Later Years – Day – Rail extension section, $L_{Aeq, 18h}$

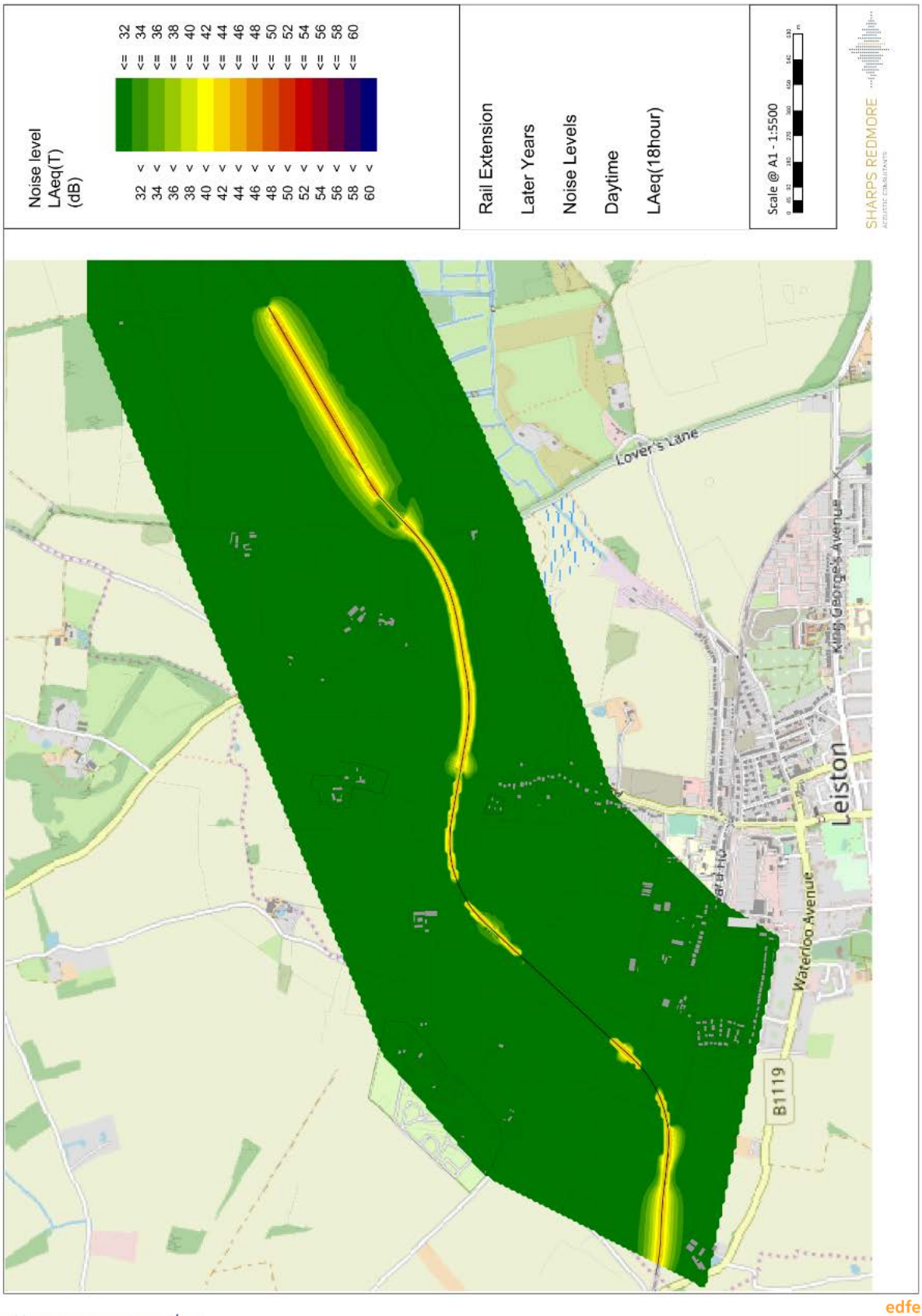

Noise level
LAeq(T)
(dB)
<= 32 v 34
<= 34 v 36
<= 36 v 38
<= 38 v 40
<= 40 v 42
<= 42 v 44
<= 44 v 46
<= 46 v 48
<= 48 v 50
<= 50 v 52
<= 52 v 54
<= 54 v 56
<= 56 v 58
<= 58 v 60
Rail Extension
Later Years
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Lover's Lane
King George's Avenue
Leiston
Waterloo Avenue
B1119

Figure D2: Saxmundham to MDS – Later Years – Day – branch line section, $L_{Aeq, 18h}$

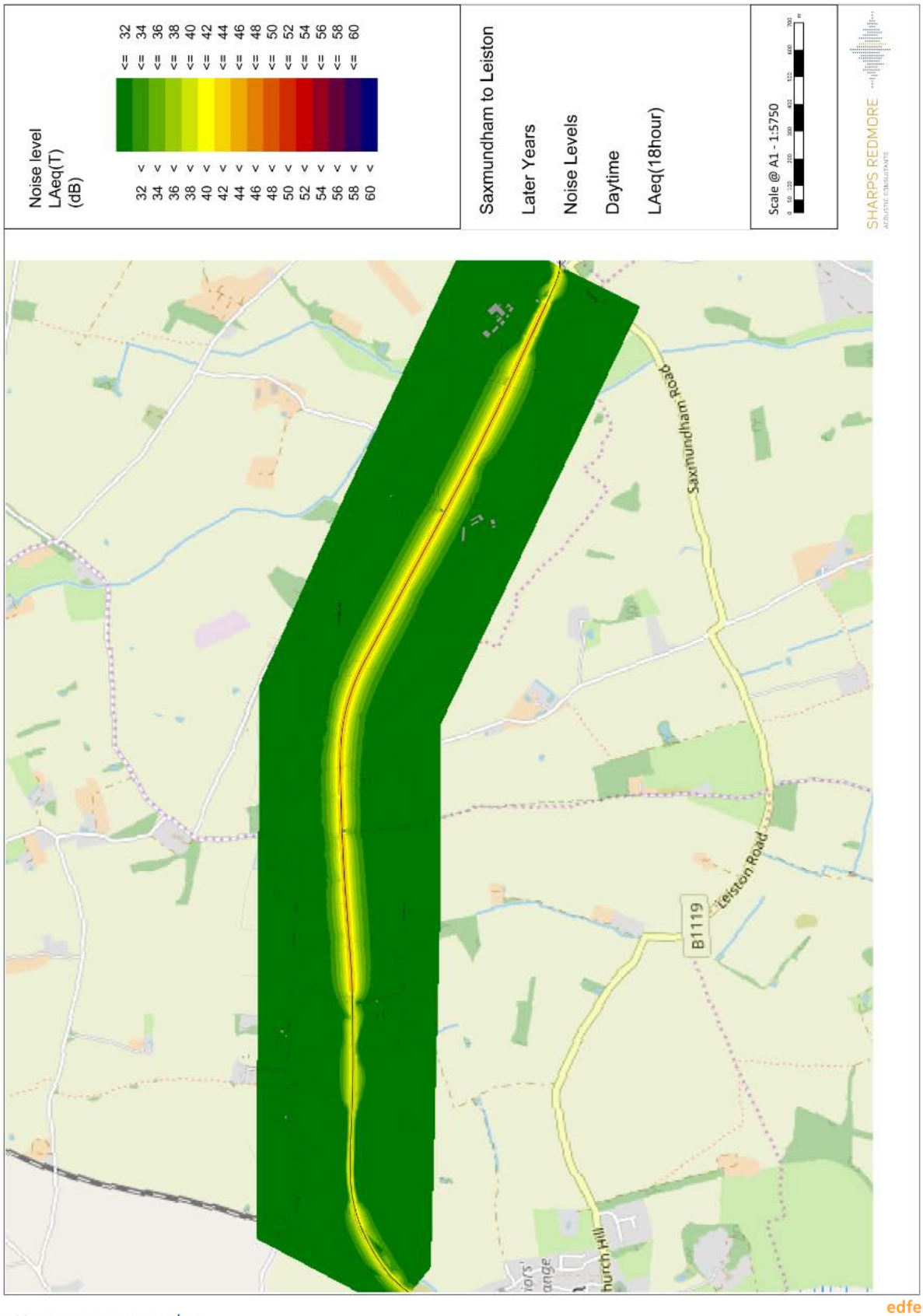

Noise level
LAeq(T)
(dB)
<= 32
<= 34
<= 36
<= 38
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
> 32
> 34
> 36
> 38
> 40
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
Saxmundham to Leiston
Later Years
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5750
SHARPS REDMORE
Saxmundham Road
Leiston Road
B1119

Figure D3: Saxmundham to MDS – Later Years – Night – Rail extension section, $L_{Aeq, 6h}$


Noise level
LAeq(T)
(dB)
<= 32
<= 34
<= 36
<= 38
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
Rail Extension
Later Years
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Lover's Lane
King George's Avenue
Leiston
Waterloo Avenue
B1119

Figure D4: Saxmundham to MDS – Later Years – Night – Branch Line section, $L_{Aeq, 6h}$

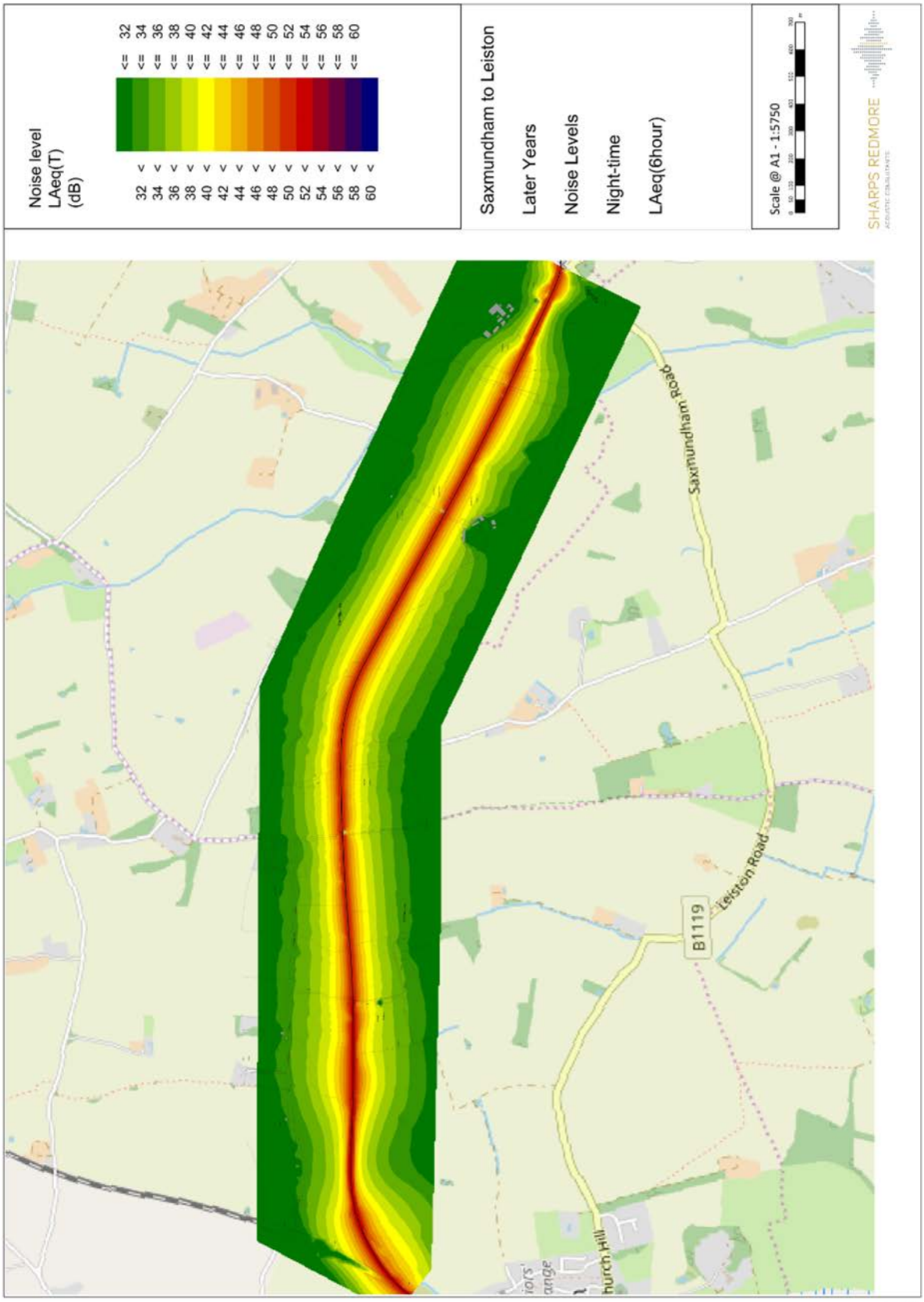

Noise level
LAeq(T)
(dB)
<= 32
<= 34
<= 36
<= 38
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
v 32
v 34
v 36
v 38
v 40
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
Saxmundham to Leiston
Later Years
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5750
SHARPS REDMORE
Saxmundham Road
Leiston Road
B1119

Figure D5: Saxmundham to MDS – Later Years – Night – Rail extension section, L_{Amax}


Noise level
LAmax
(dB)
<= 60
60 < <= 70
70 <
LAmax noise contours
Later years
Rail extension
Scale 1:10000
0 50100 200 300 400 m
SHARPS REDMORE

Figure D6: Saxmundham to MDS – Later Years – Night – Branch Line section, L_{Amax}


Noise level
LAmax
(dB)
<= 60
<= 70
60 < 70
LAmax contours
Later years
branch line
west of Leiston section
Scale 1:11000
0 50100 200 300 400 m
SHARPS REDMORE

Annex E :

East Suffolk Line: Westerfield junction to Saxmundham junction throughout the operational period

L_{Aeq} values

Figure E1: East Suffolk Line - Section 1A, Day time noise contours, $L_{Aeq, 18h}$ – Existing

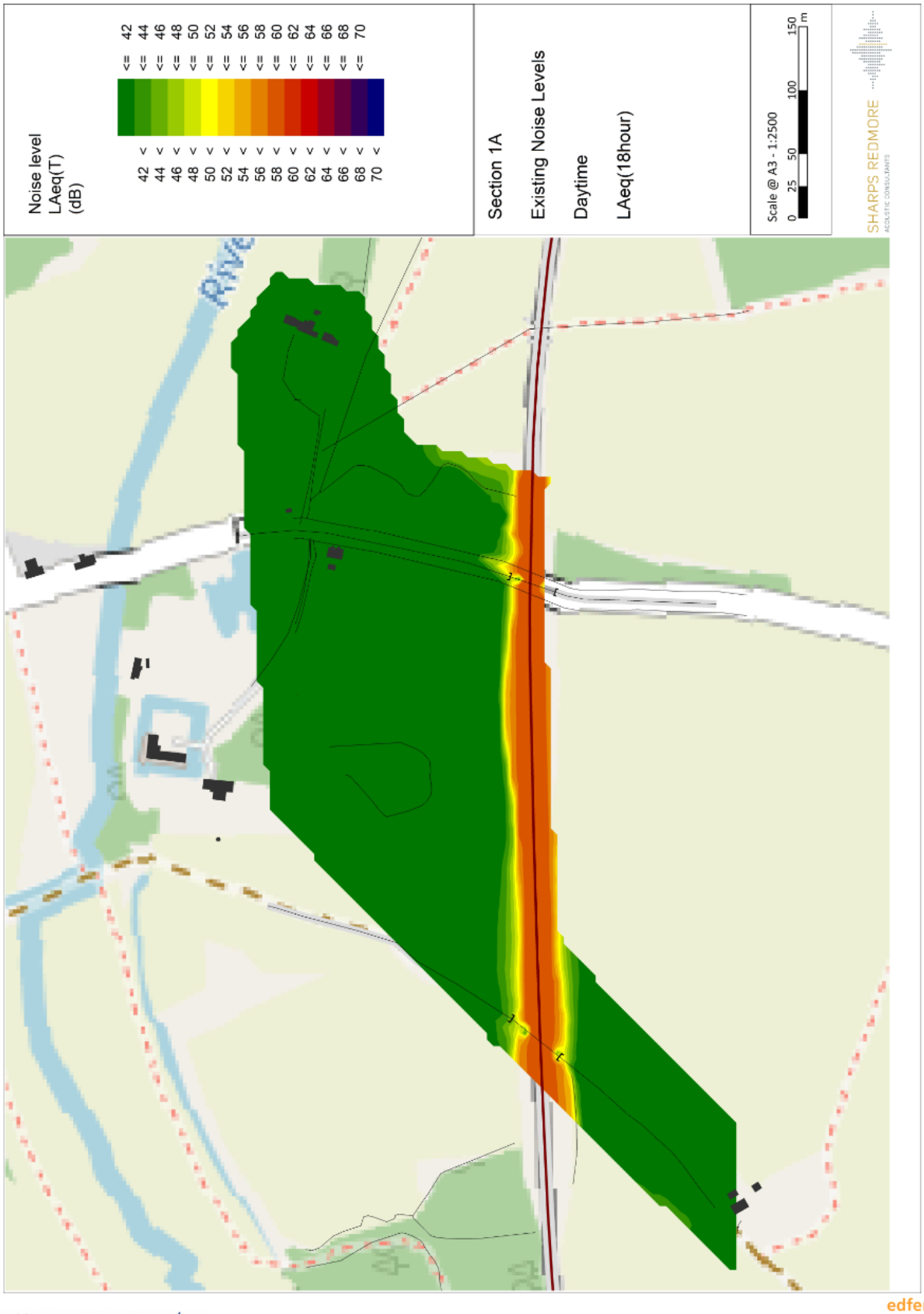

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 1A
Existing Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
0 25 50 100 150 m
SHARPS REDMORE

Figure E2: East Suffolk Line - Section 1A, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

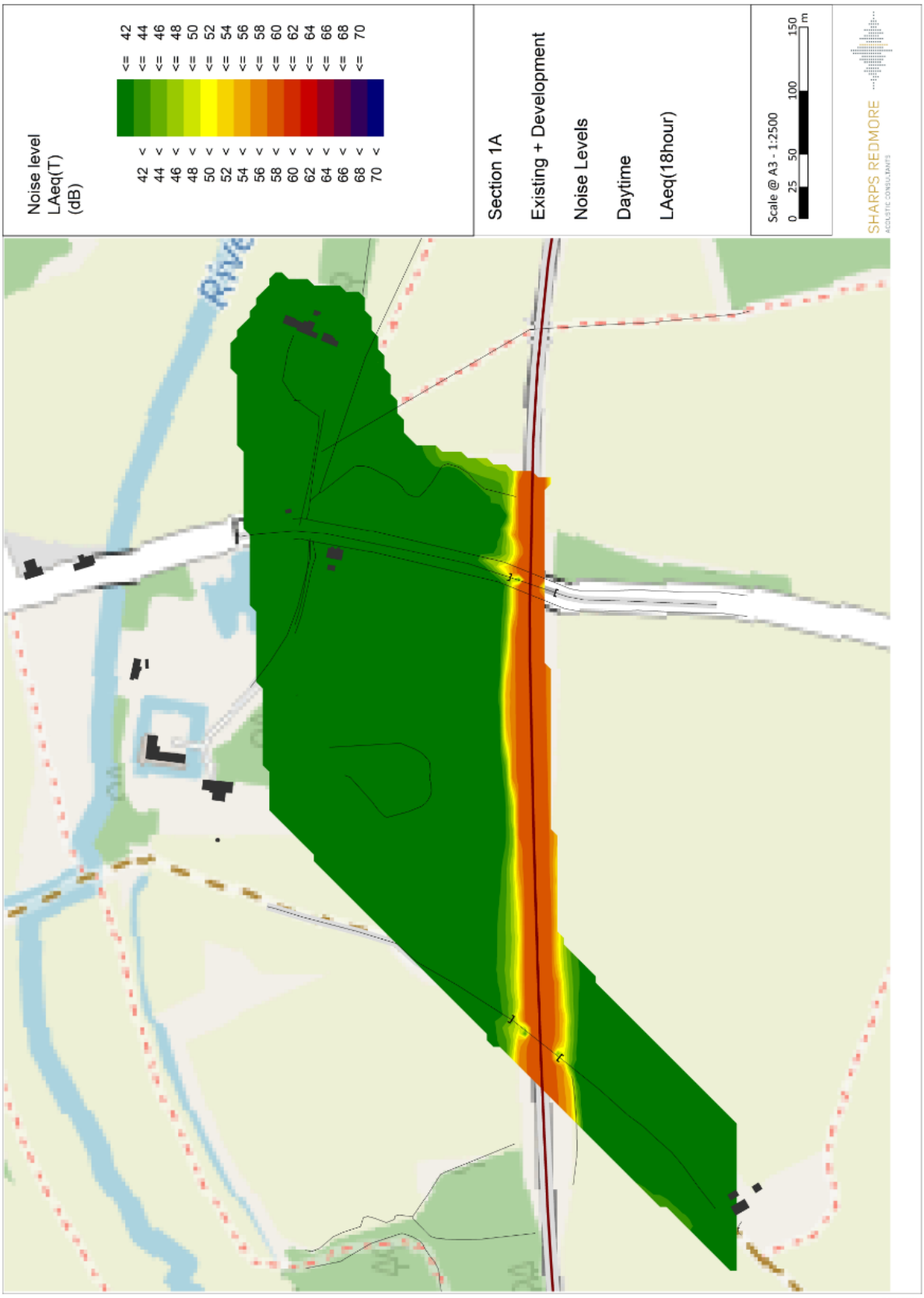

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 1A
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
0 25 50 100 150 m
SHARPS REDMORE

Figure E3: East Suffolk Line - Section 1A, Night time noise contours, $L_{Aeq, 6h}$ – Existing

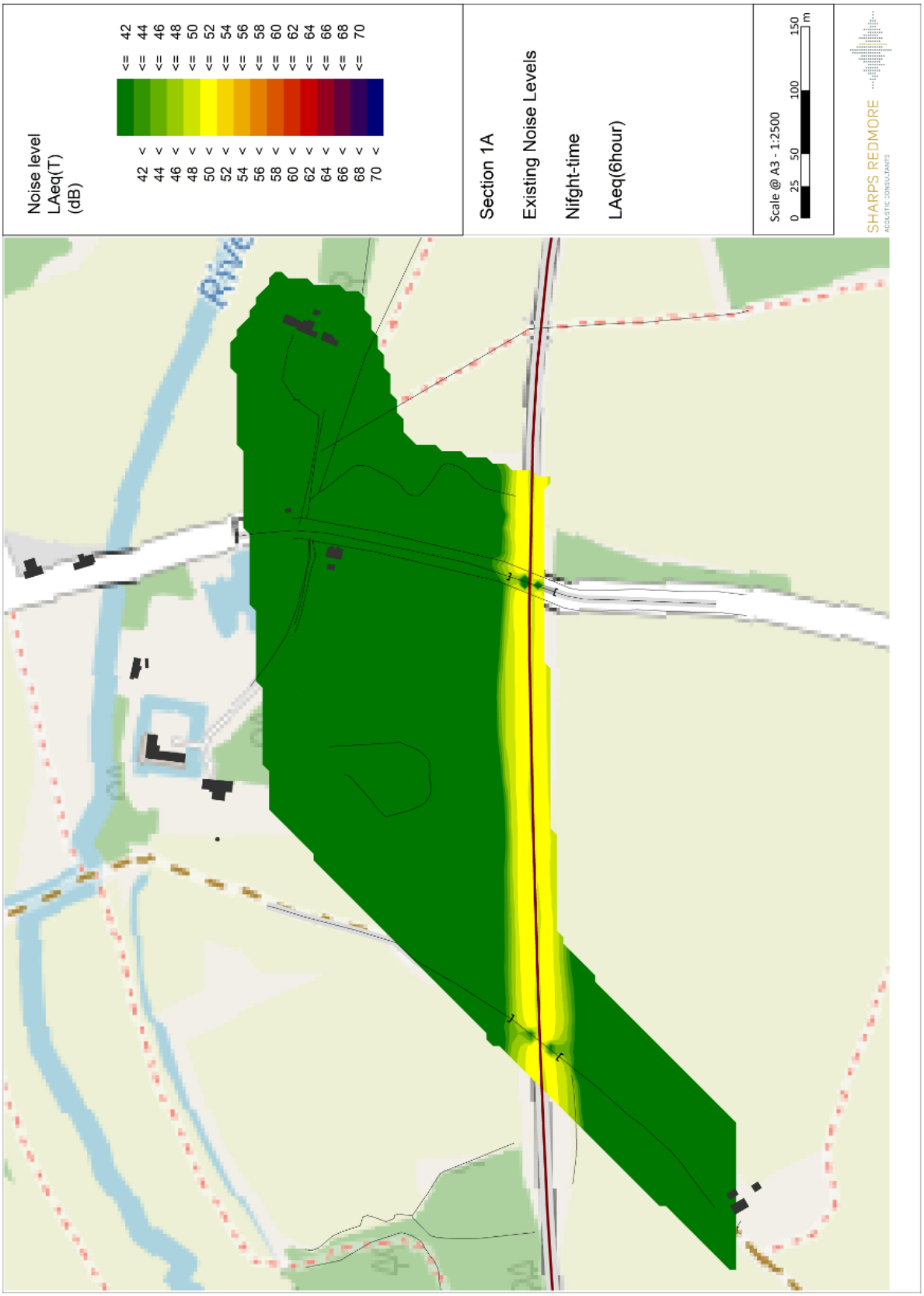

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 1A
Existing Noise Levels
Nifght-time
LAeq(6hour)
Scale @ A3 - 1:2500
0
25
50
100
150
m
SHARPS REDMORE

Figure E4: East Suffolk Line - Section 1A, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

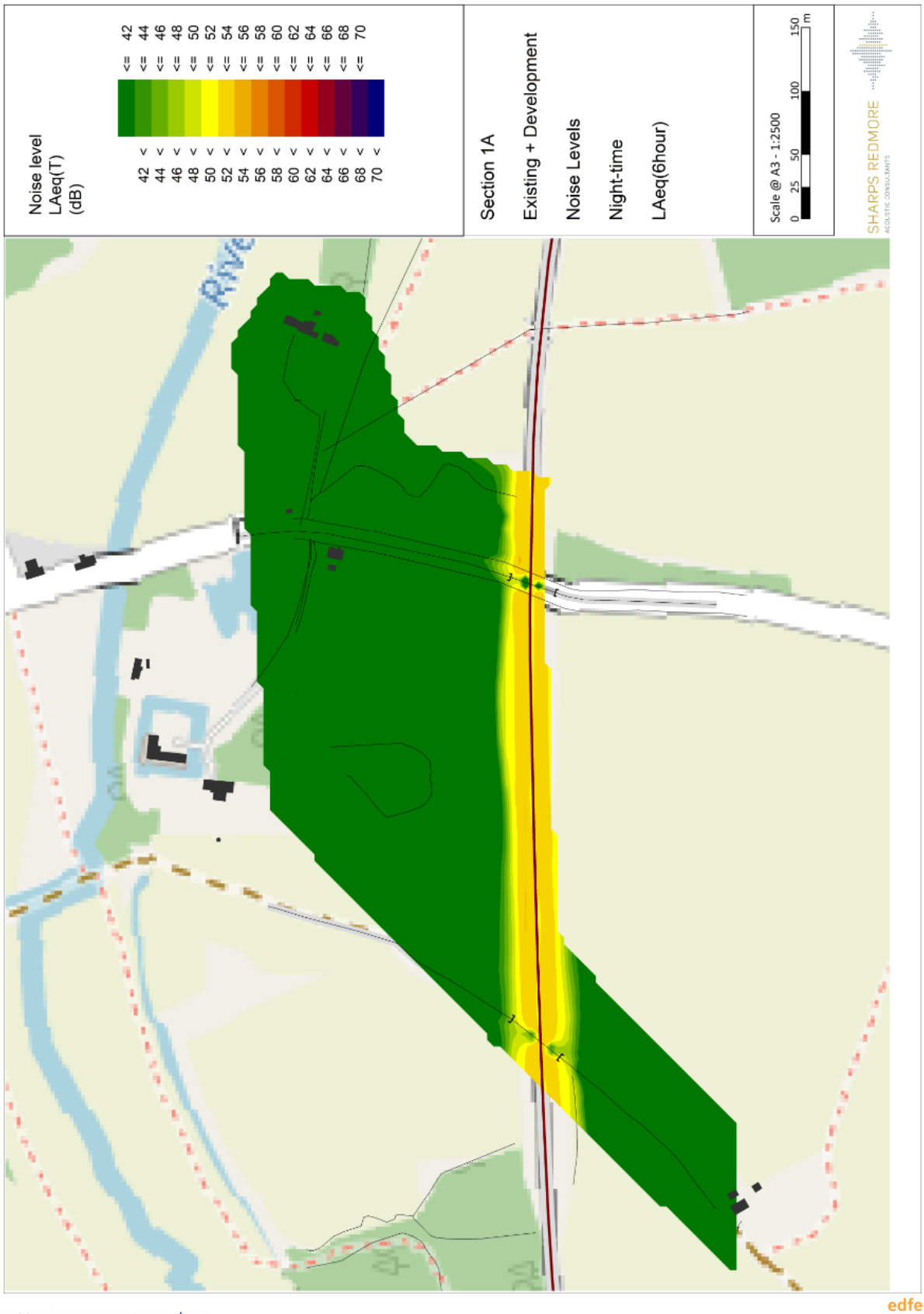

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 1A
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2500
0 25 50 100 150 m
SHARPS REDMORE

Figure E5: East Suffolk Line - Section 1B, Day time noise contours, $L_{Aeq, 18h}$ – Existing

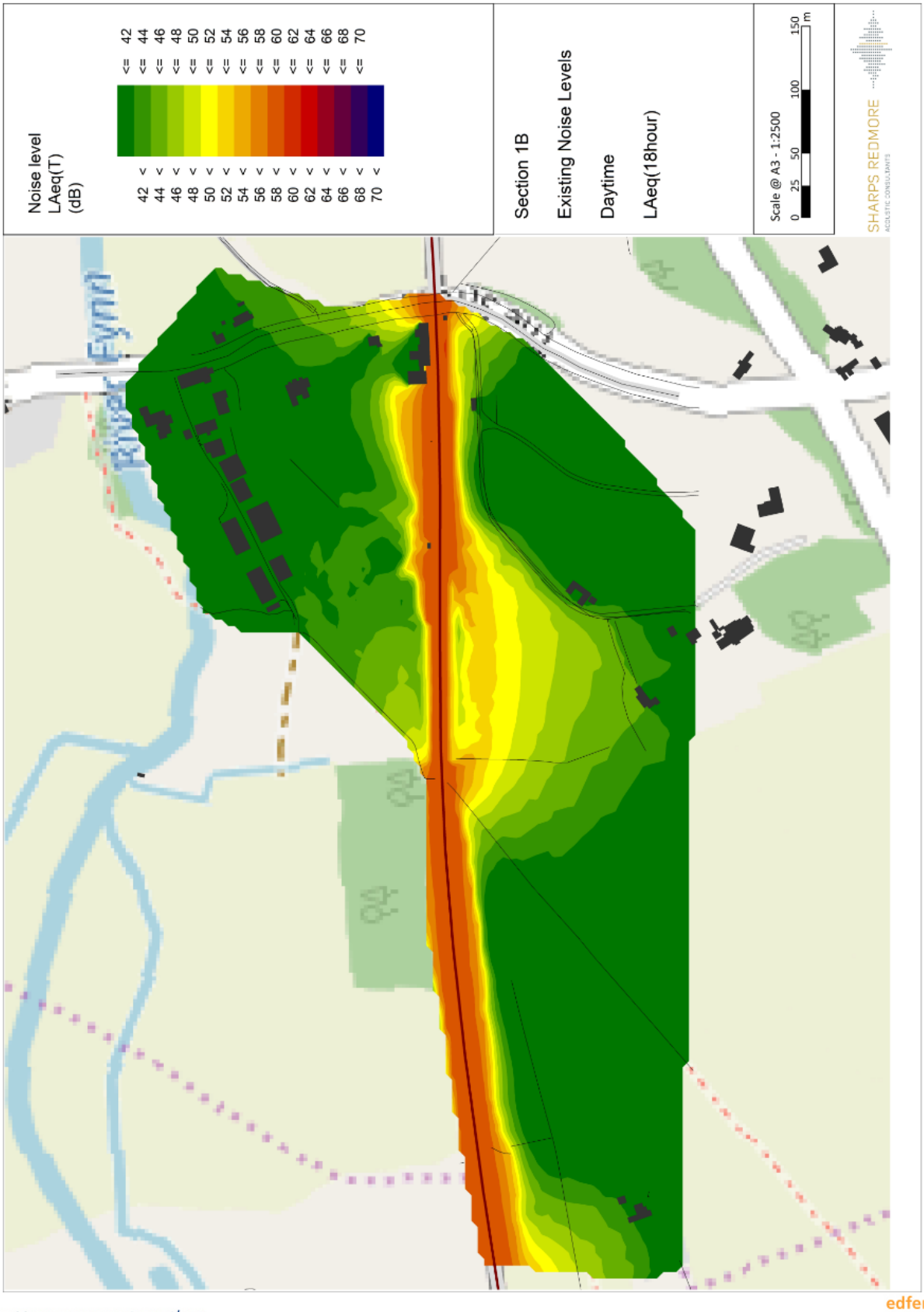

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1B
Existing Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
0
25
50
100
150
m
SHARPS REDMORE
ACOUSTIC CONSULTANTS
River Fynn

Figure E6: East Suffolk Line - Section 1B, Day time noise contours, $L_{Aeq, 18h}$ – Existing + Proposed

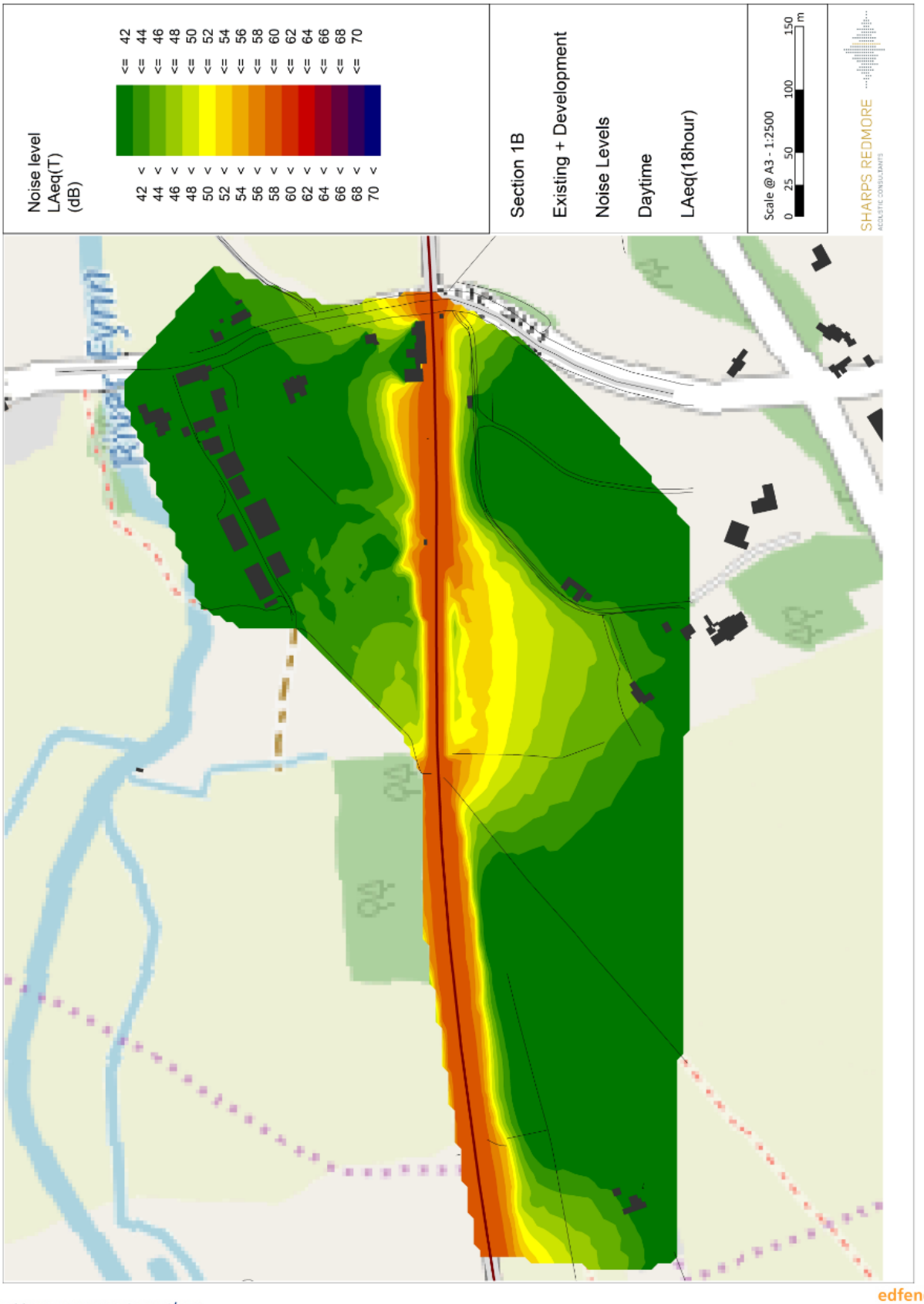

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 1B
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
0
25
50
100
150
m
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure E7: East Suffolk Line - Section 1B, Night time noise contours, $L_{Aeq, 6h}$ – Existing

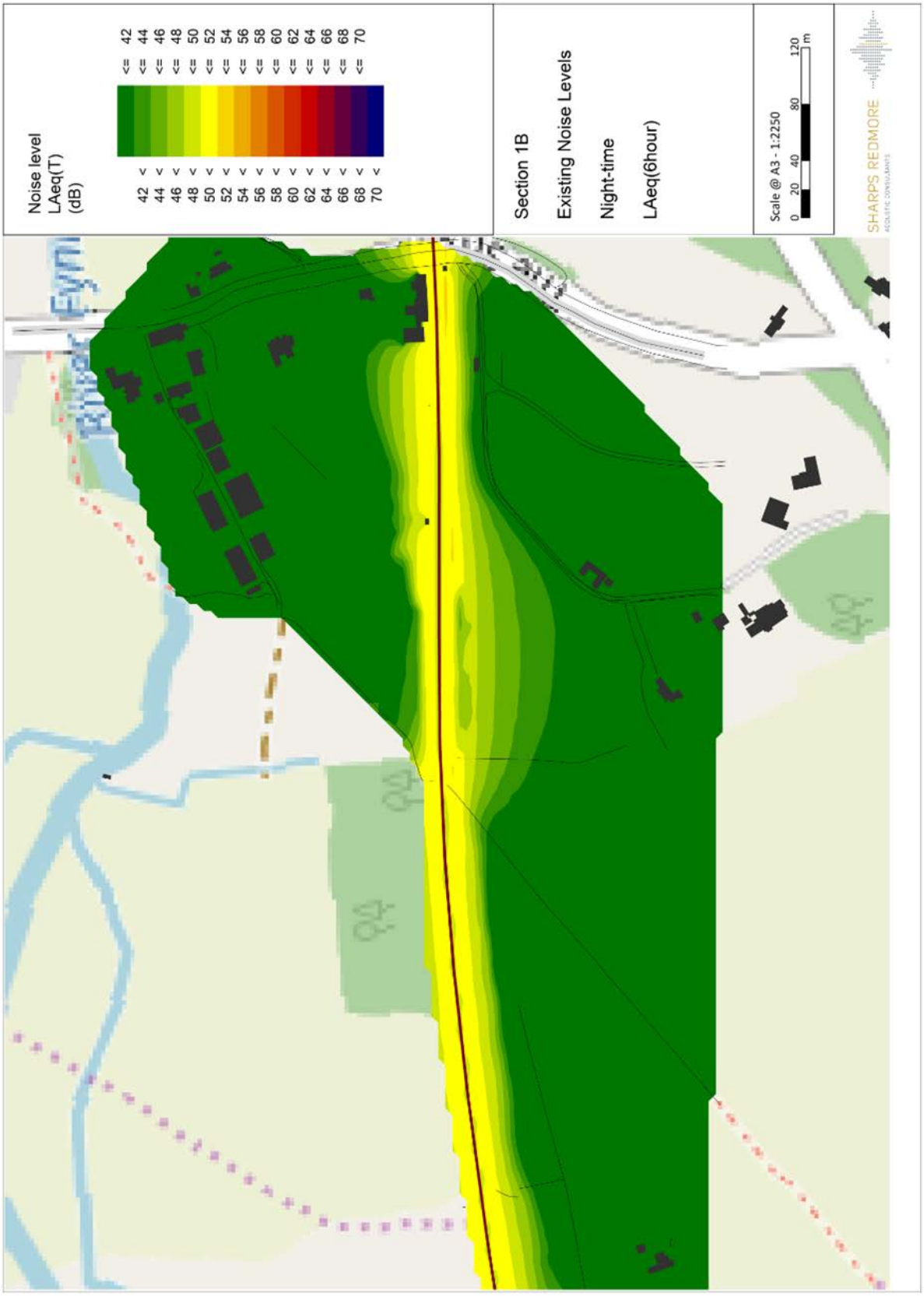

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1B
Existing Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2250
0
20
40
80
120
m
SHARPS REDMORE

Figure E8: East Suffolk Line - Section 1B, Night time noise contours, $L_{Aeq, 6h}$ – Existing + Proposed

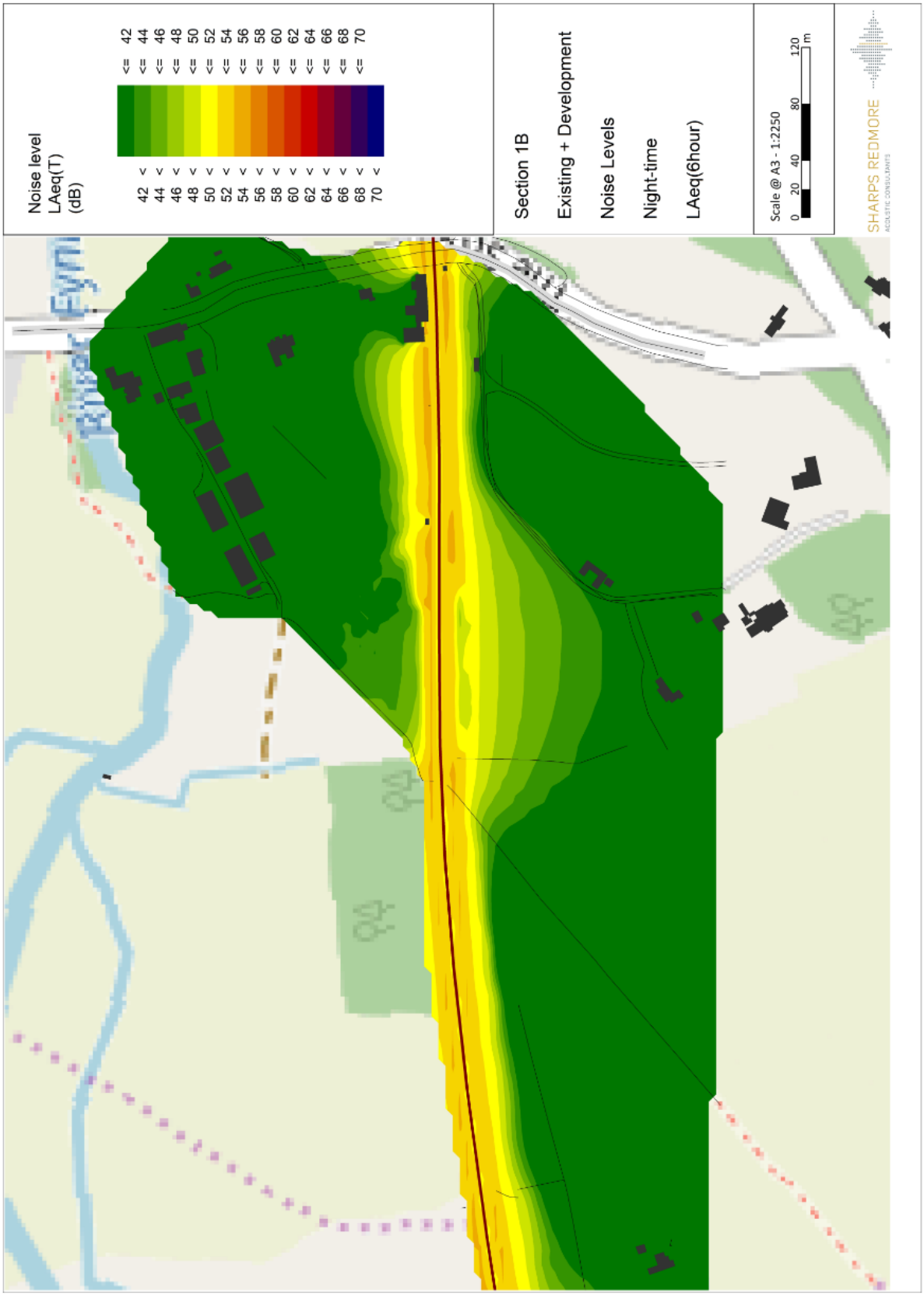

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1B
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2250
0
20
40
80
120
m
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure E9: East Suffolk Line - Section 1C, Day time noise contours, $L_{Aeq, 18h}$ – Existing

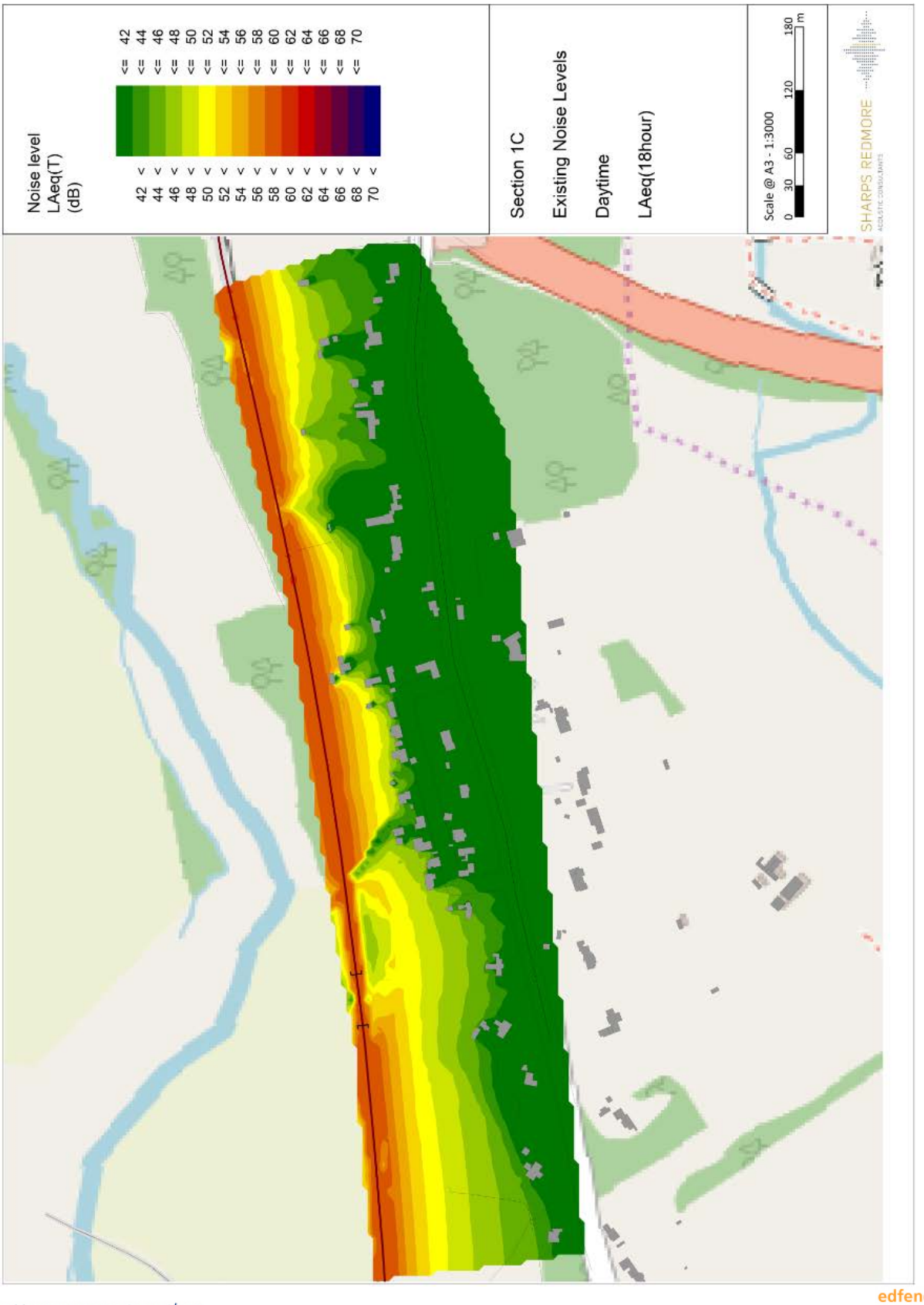

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 1C
Existing Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:3000
0
30
60
120
180
m
SHARPS REDMORE

Figure E10: East Suffolk Line - Section 1C, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

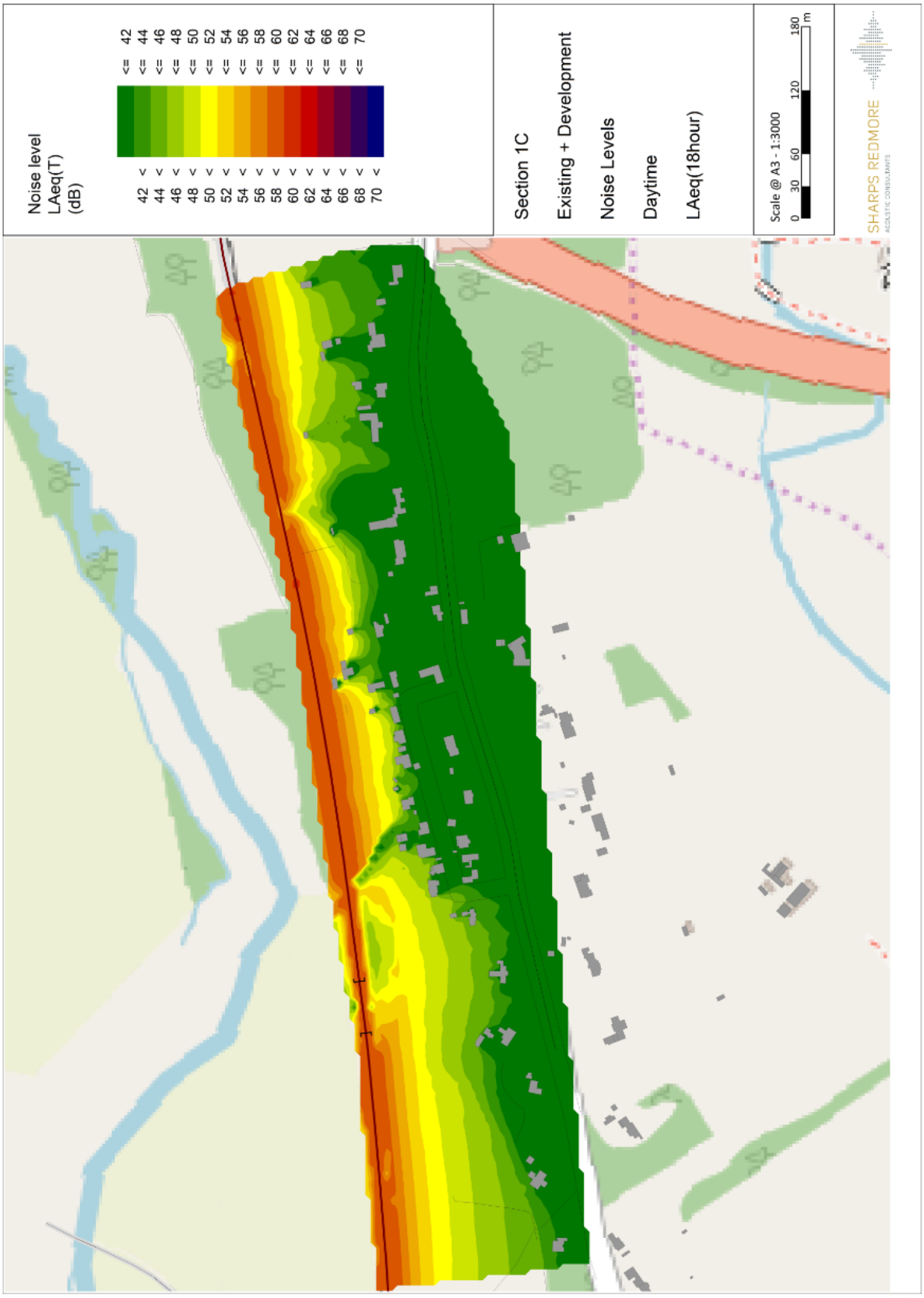

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1C
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:3000
0
30
60
120
180
m
SHARPS REDMORE

Figure E11: East Suffolk Line - Section 1C, Night time noise contours, $L_{Aeq, 6h}$ – Existing

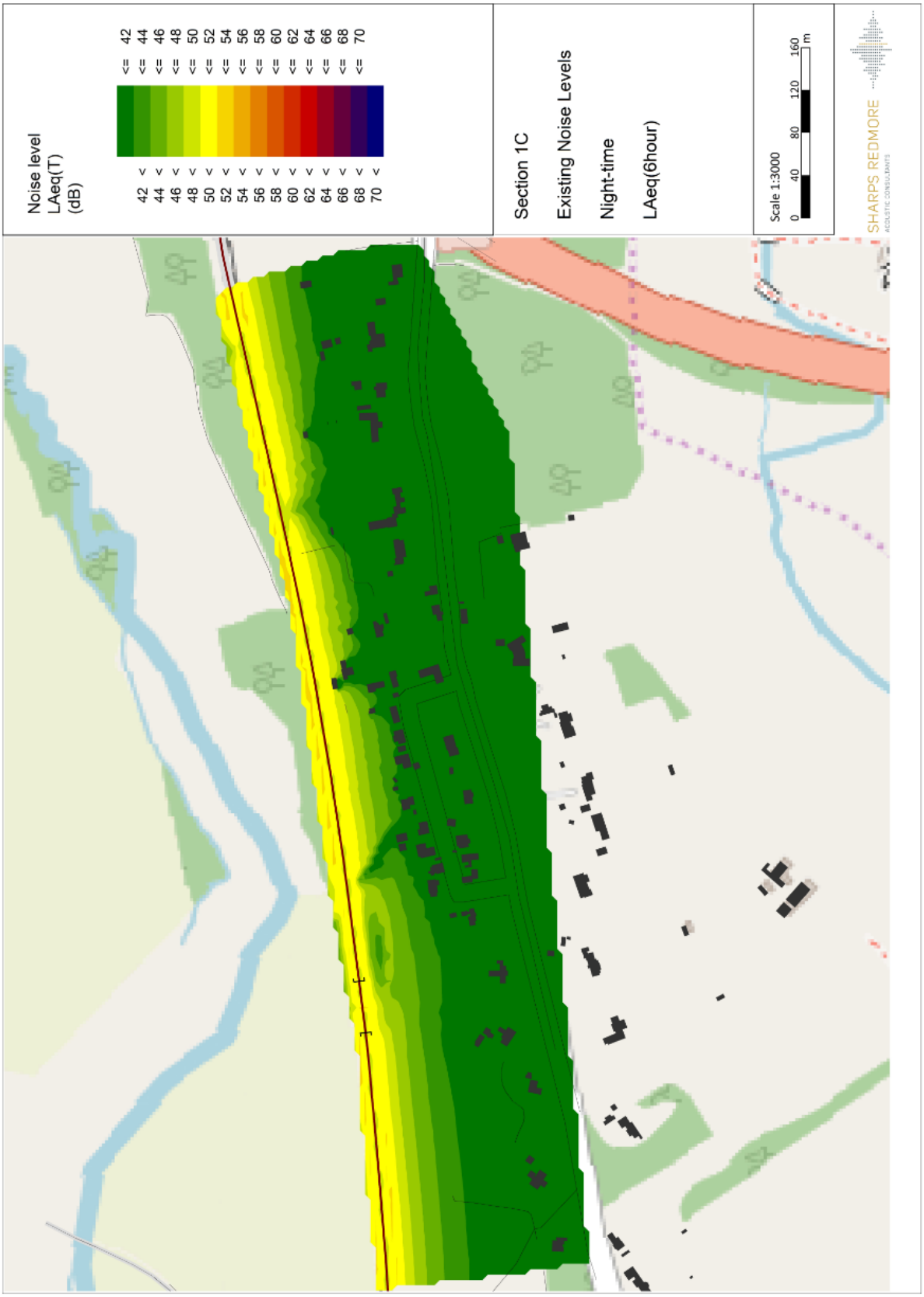

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 1C
Existing Noise Levels
Night-time
LAeq(6hour)
Scale 1:3000
0
40
80
120
160
m
SHARPS REDMORE

Figure E12: East Suffolk Line - Section 1C, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

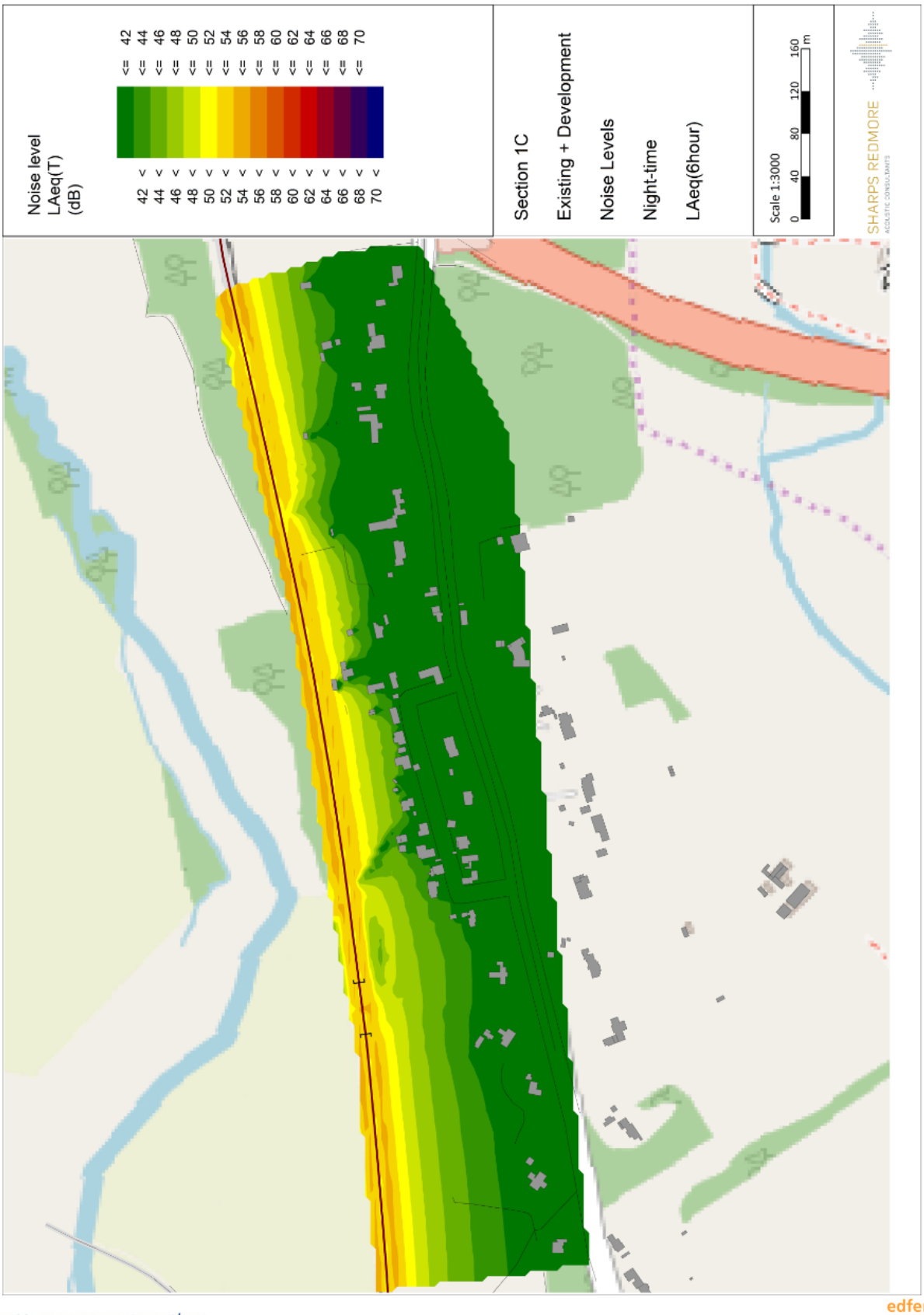

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 1C
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale 1:3000
0
40
80
120
160
m
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure E13: East Suffolk Line - Section 1D, Day time noise contours, $L_{Aeq, 18h}$ – Existing

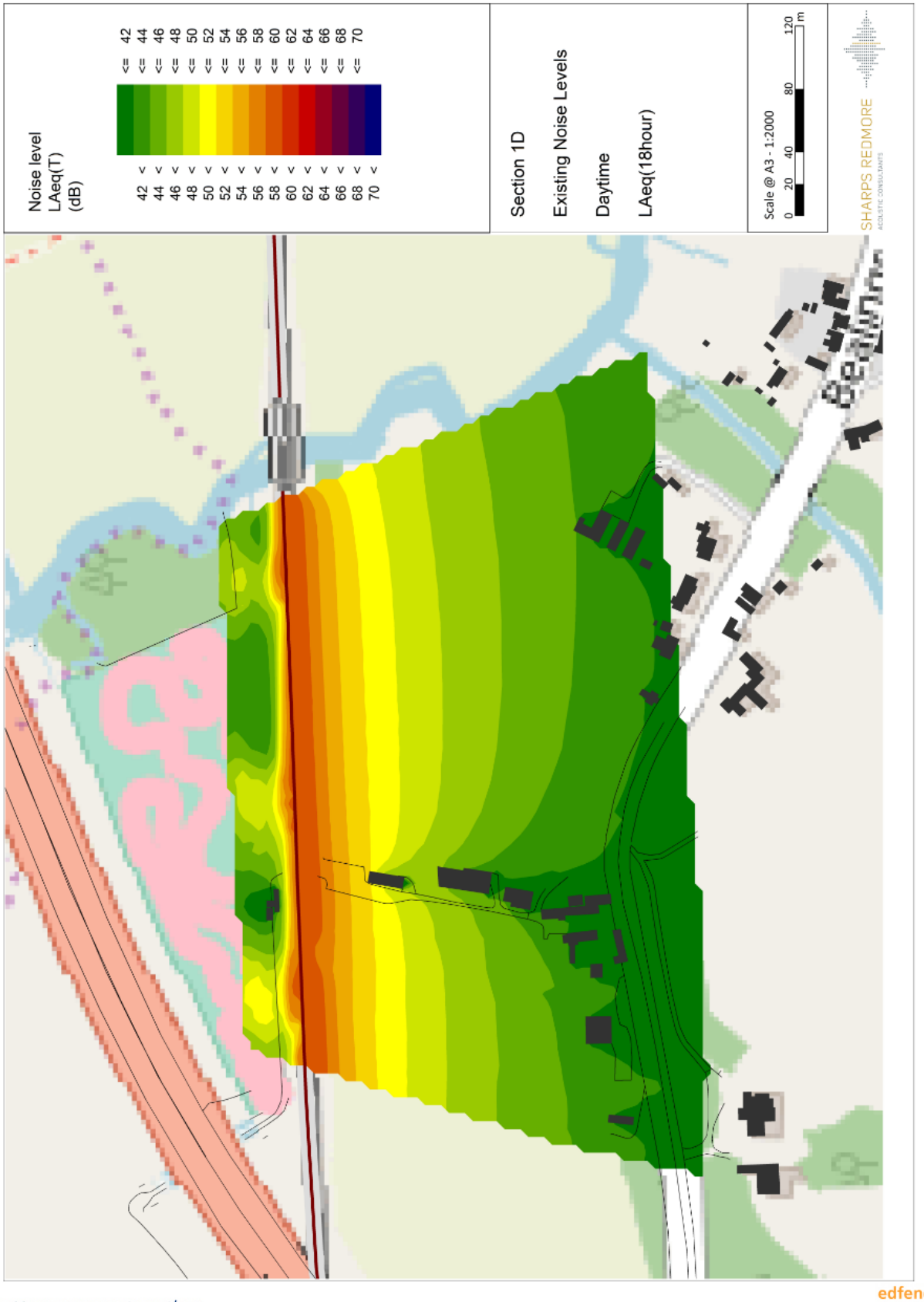

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1D
Existing Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2000
0
20
40
80
120
m
SHARPS REDMORE

Figure E14: East Suffolk Line - Section 1D, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

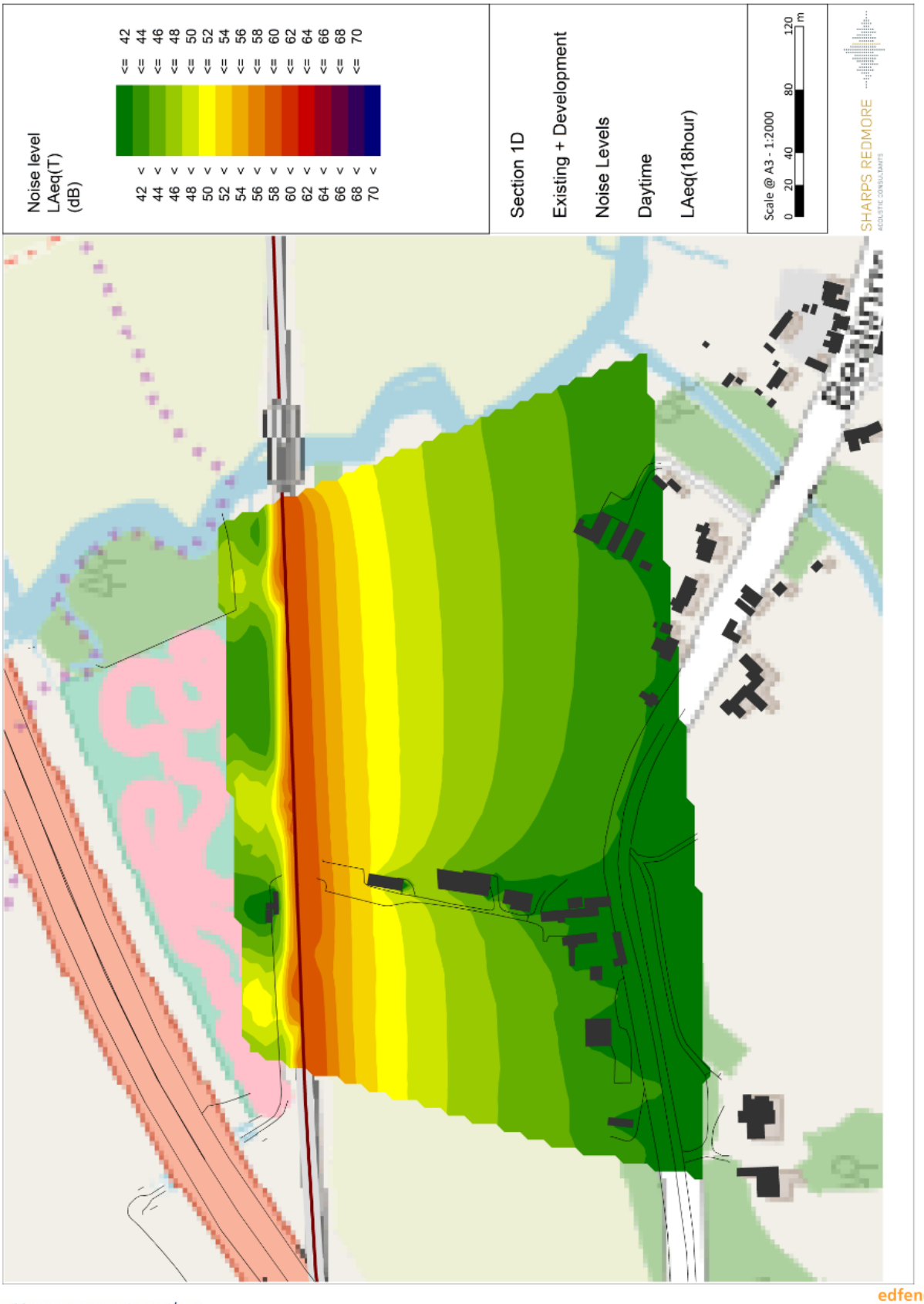

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 1D
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2000
0
20
40
80
120
m
SHARPS REDMORE

Figure E15: East Suffolk Line - Section 1D, Night time noise contours, $L_{Aeq, 6h}$ – Existing

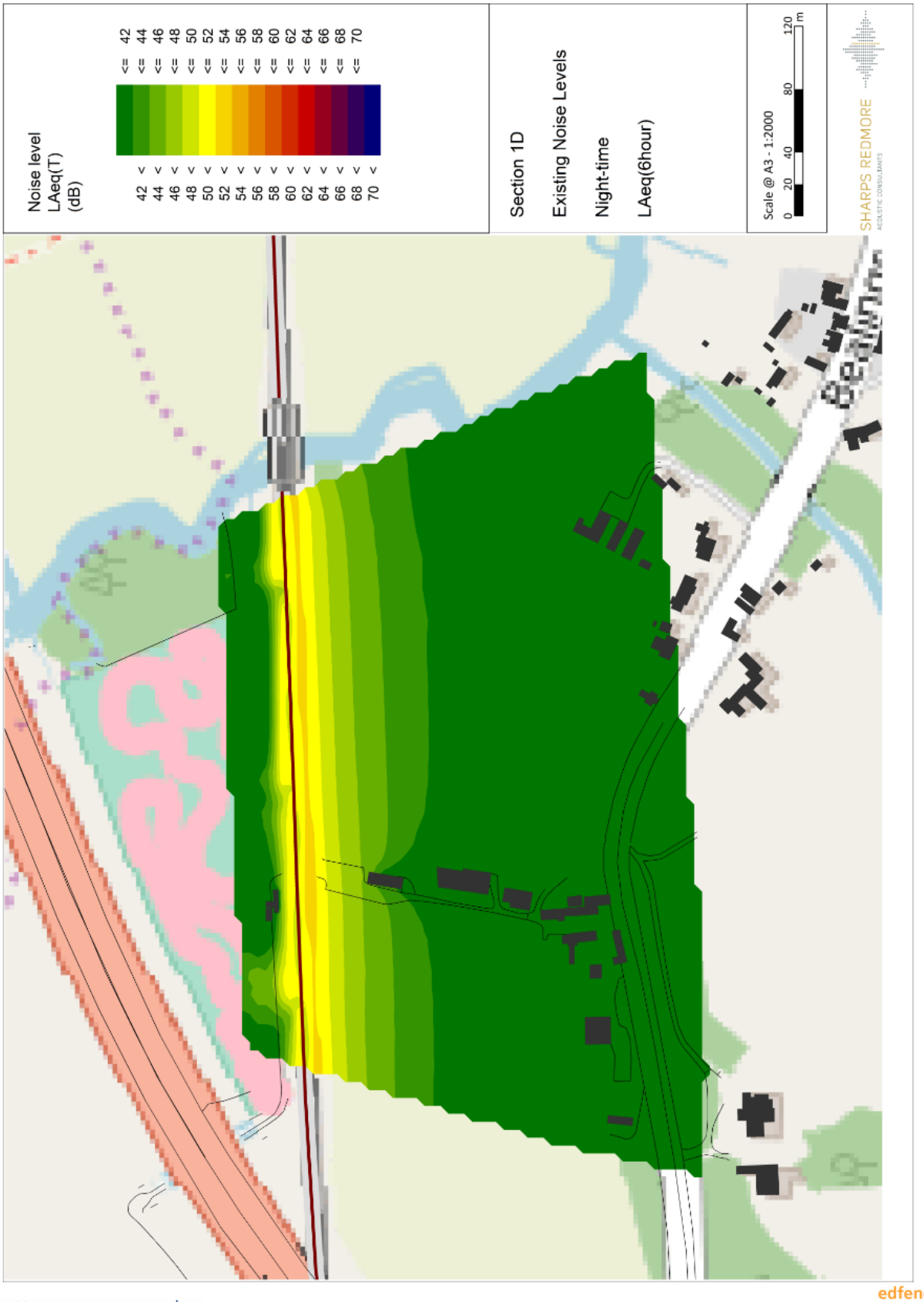

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1D
Existing Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2000
0
20
40
80
120
m
SHARPS REDMORE

Figure E16: East Suffolk Line - Section 1D, Night time noise contours, $L_{Aeq, 6h}$ – Existing + Proposed

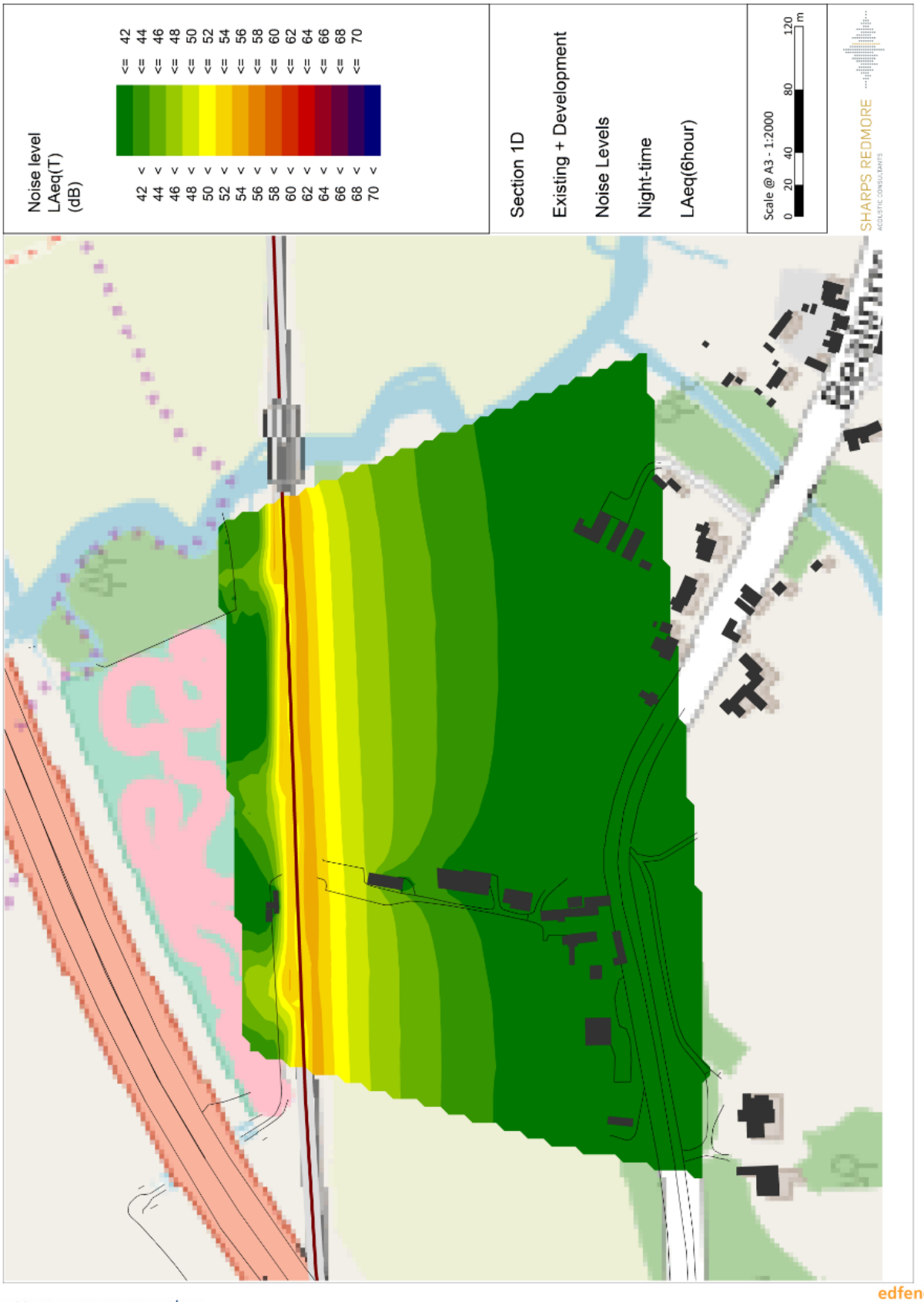

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 1D
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2000
0
20
40
80
120
m
SHARPS REDMORE

Figure E17: East Suffolk Line - Section 2, Day time noise contours, $L_{Aeq, 18h}$ – Existing

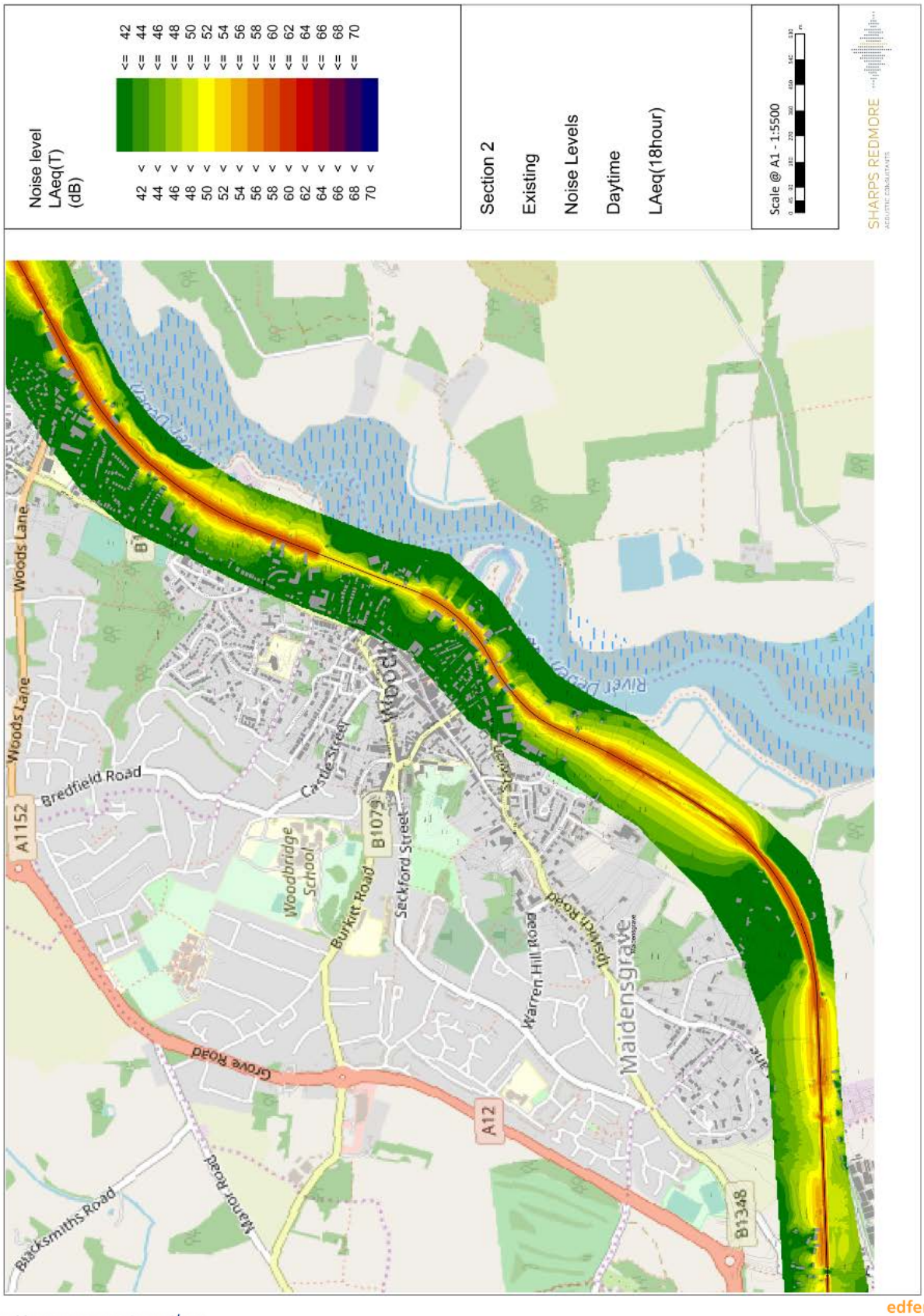

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 2
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Woods Lane
Bredfield Road
A1152
B1079
Castle Street
Seckford Street
Burkitt Road
Woodbridge School
Ipswich Road
Warren Hill Road
Maidensgrave
Grove Road
A12
B1348
Manor Road
Blacksmiths Road
River Deben

Figure E18: East Suffolk Line - Section 2, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

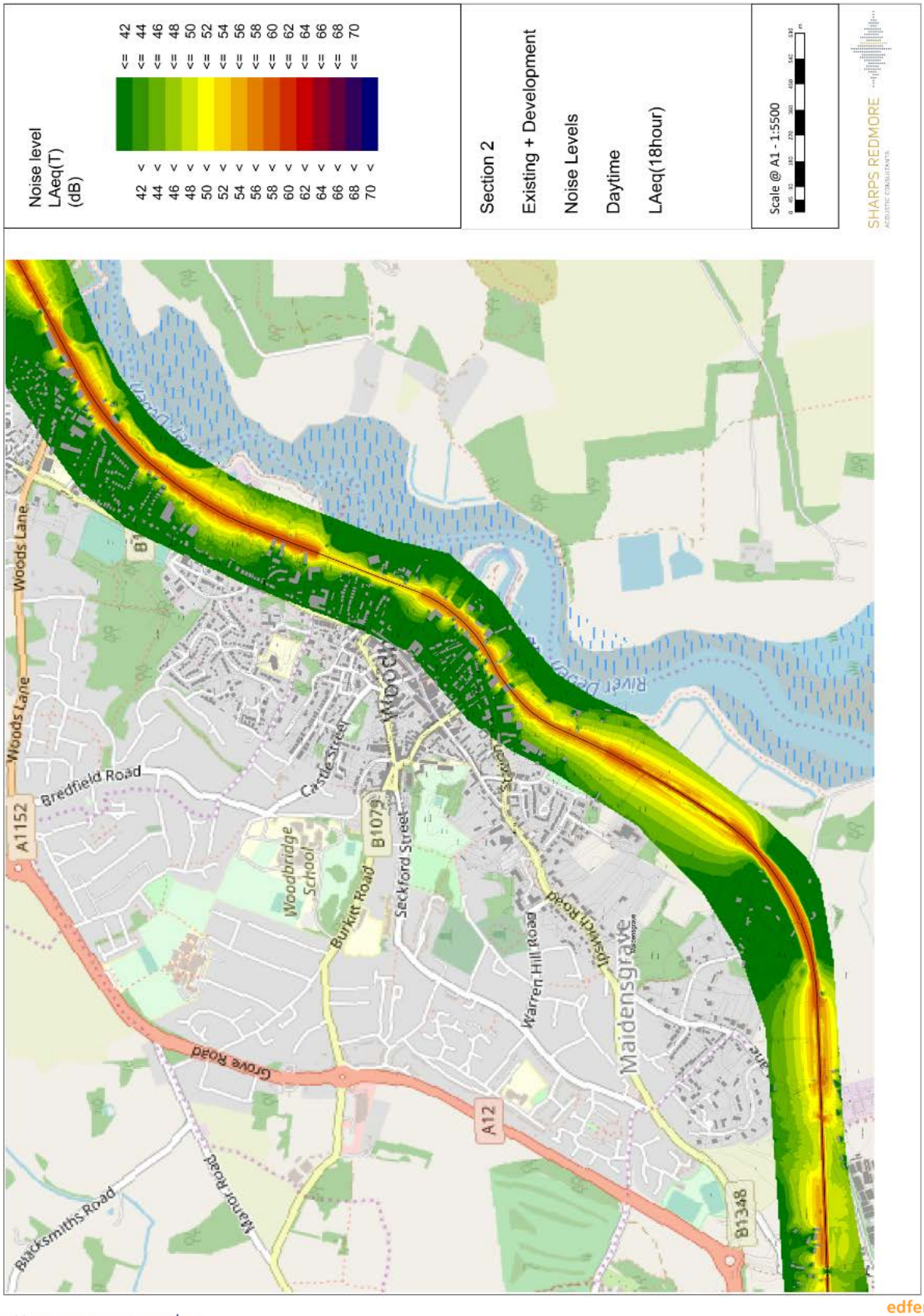

Noise level
LAeq(T)
(dB)
<= 42 <= 44 <= 46 <= 48 <= 50 <= 52 <= 54 <= 56 <= 58 <= 60 <= 62 <= 64 <= 66 <= 68 <= 70
42 < 44 < 46 < 48 < 50 < 52 < 54 < 56 < 58 < 60 < 62 < 64 < 66 < 68 < 70
Section 2
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Woods Lane
Bredfield Road
A1152
B1079
Castle Street
Seckford Street
Burkitt Road
Woodbridge School
Warren Hill Road
Ipswich Road
Maidensgrave
Grove Road
A12
B1348
Blacksmiths Road
Manor Road
River Deben

Figure E19: East Suffolk Line – Section 2, Night time noise contours, $L_{Aeq, 6h}$ - Existing

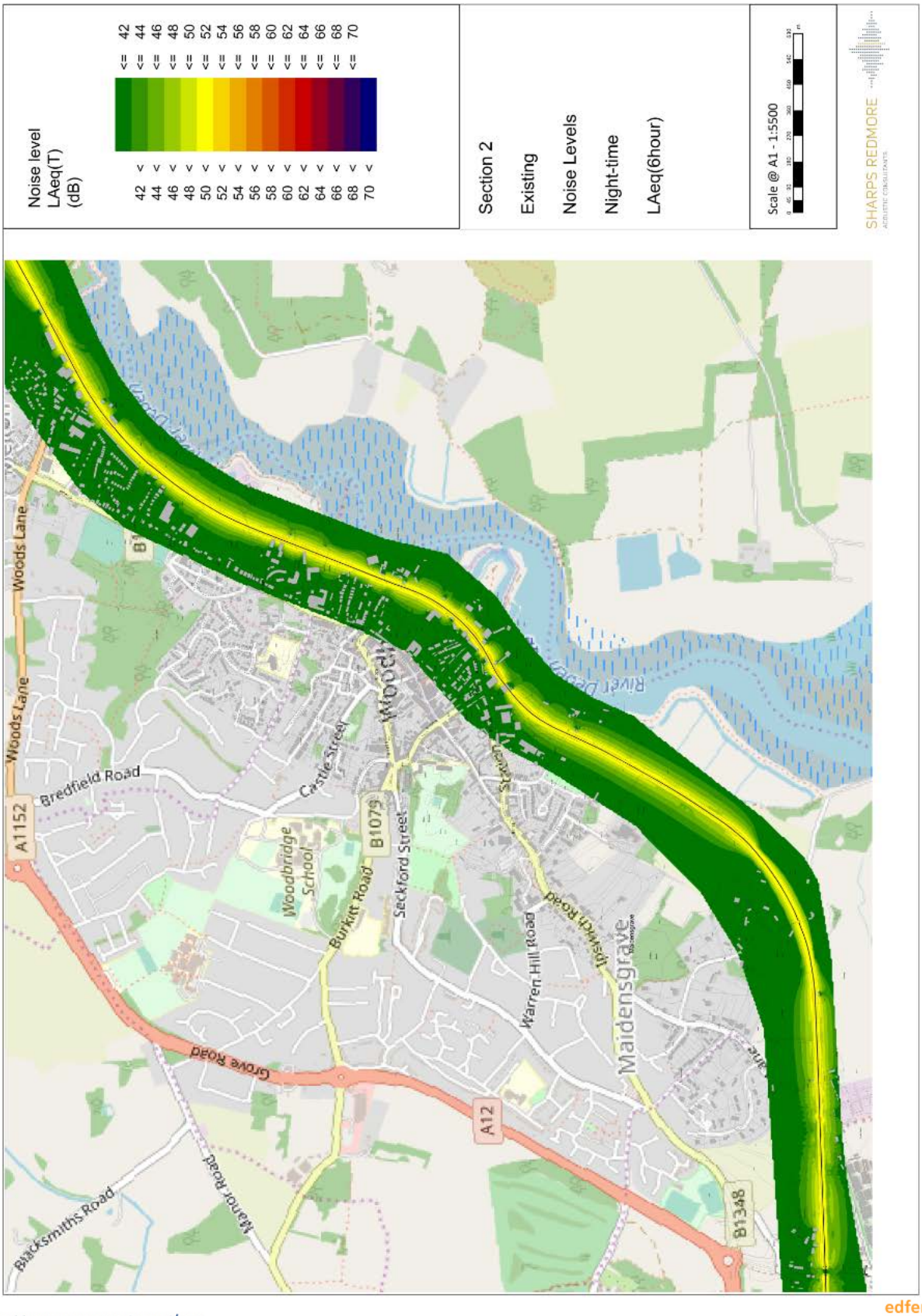

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 2
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Woods Lane
Woods Lane
Bredfield Road
A1152
Castle Street
Woodbridge School
B1079
Burkitt Road
Seckford Street
Warren Hill Road
Ipswich Road
Maidensgrave
Grove Road
A12
B1348
Manor Road
Blacksmiths Road

Figure E20: East Suffolk Line – Section 2, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

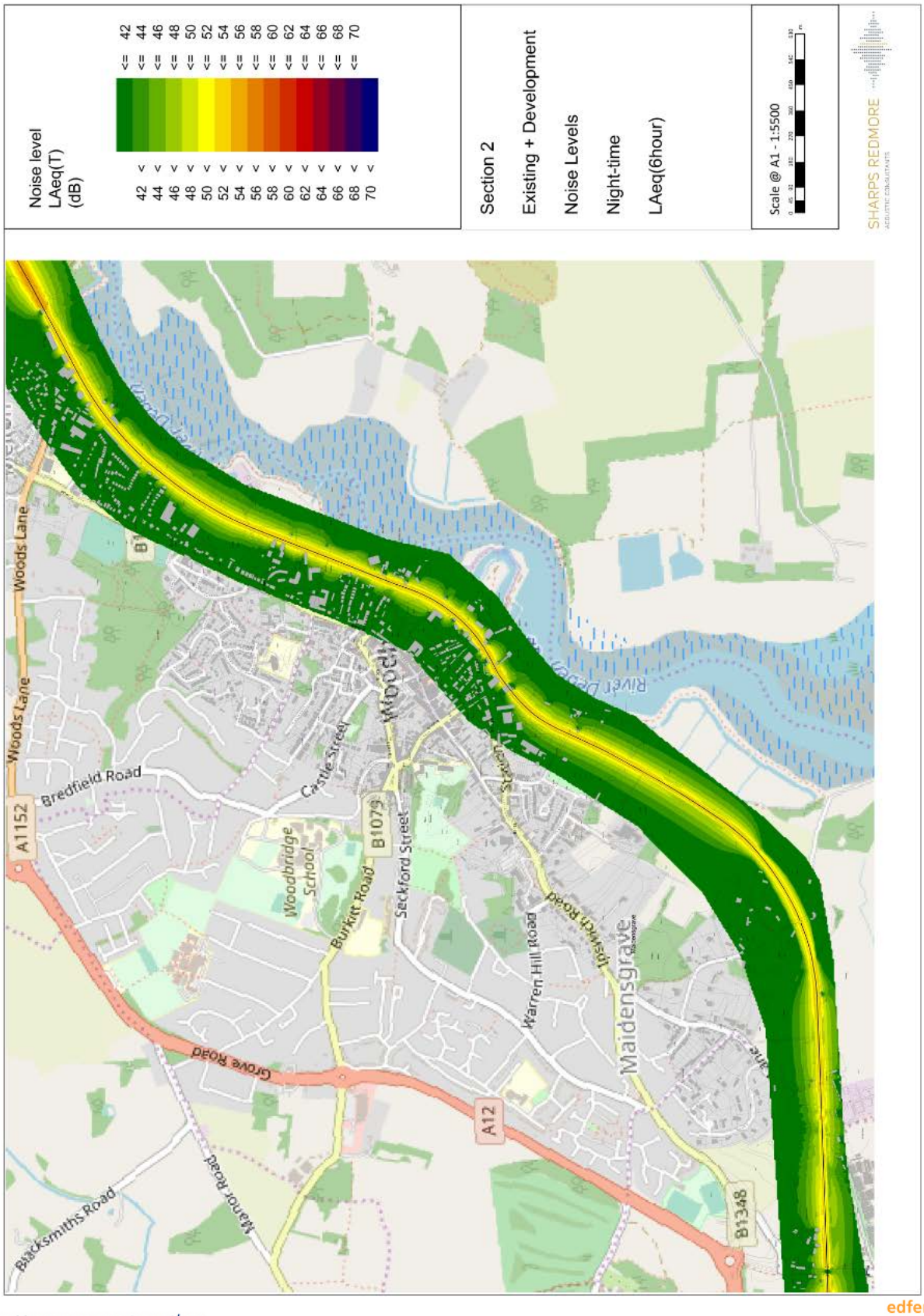

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 2
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Woods Lane
Bredfield Road
A1152
Castle Street
B1079
Seckford Street
Burkitt Road
Woodbridge School
Warren Hill Road
Ipswich Road
Maidensgrave
Grove Road
A12
B1348
Manor Road
Blacksmiths Road
River Deben

Figure E21: East Suffolk Line - Section 3, Day time noise contours, $L_{Aeq, 18h}$ – Existing

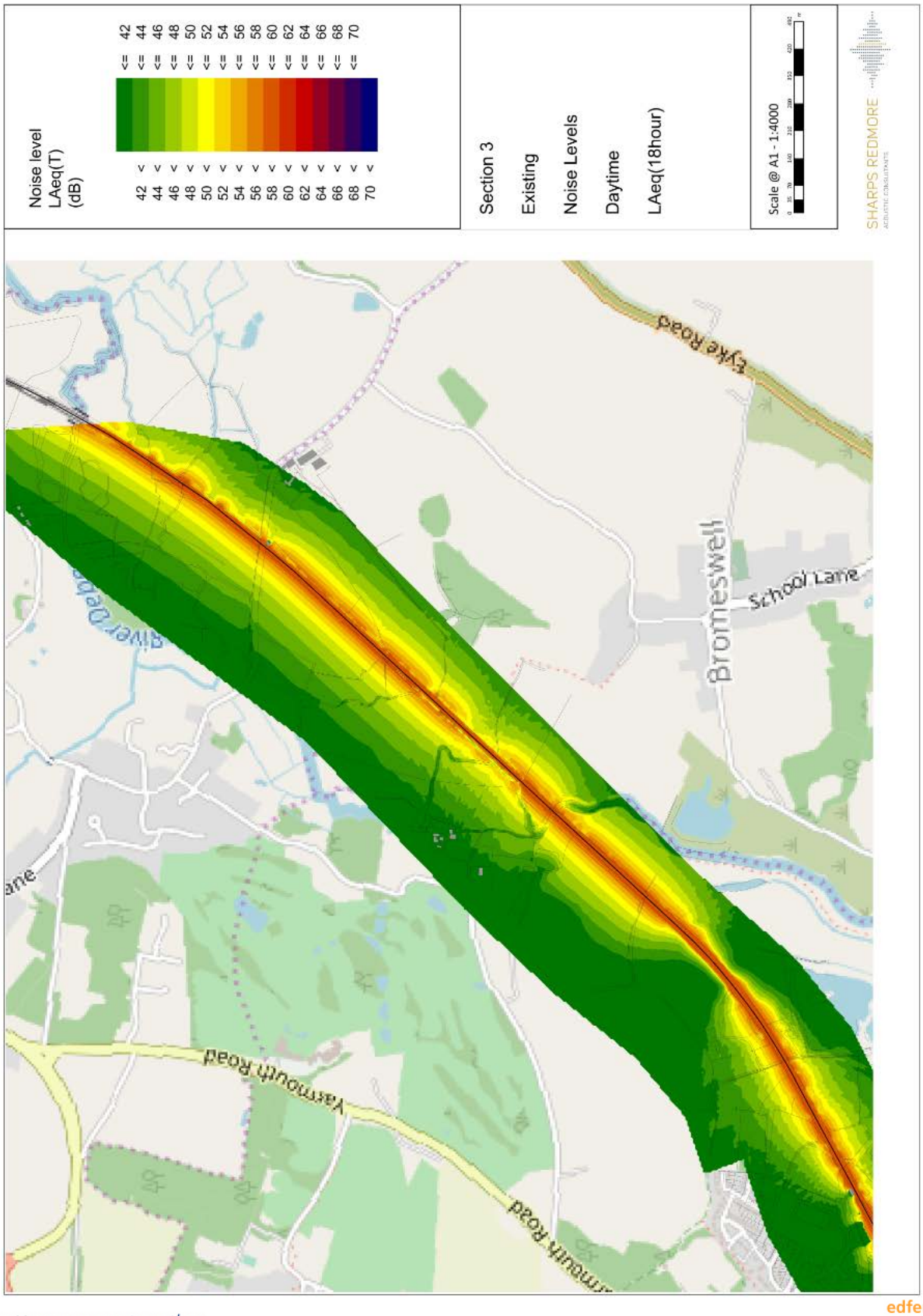

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 3
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:4000
SHARPS REDMORE
Eyke Road
Bromeswell
School Lane
Yarmouth Road

Figure E22: East Suffolk Line - Section 3, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

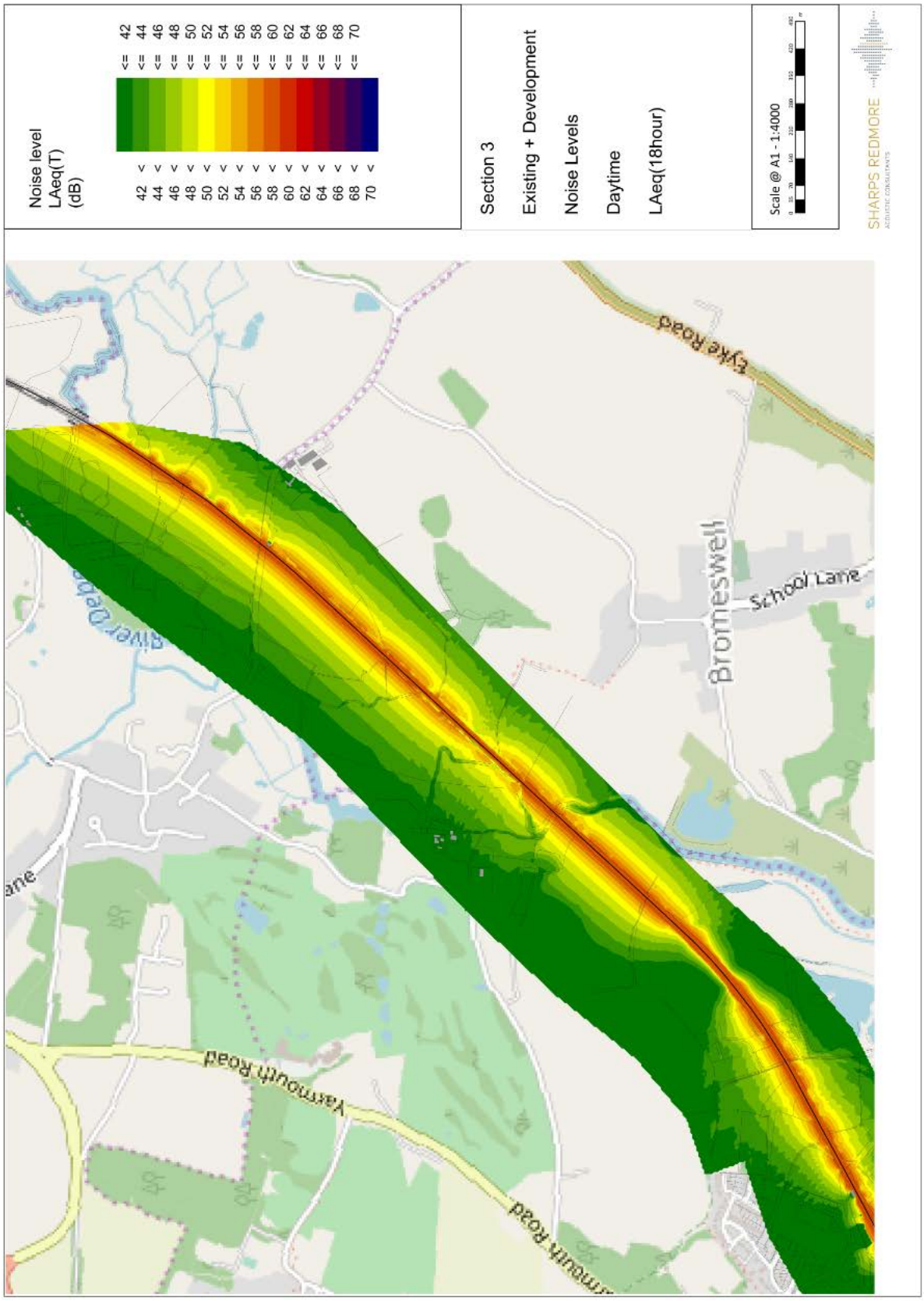

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 3
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:4000
SHARPS REDMORE
Eyke Road
Bromeswell
School Lane
Yarmouth Road

Figure E23: East Suffolk Line – Section 3, Night time noise contours, $L_{Aeq, 6h}$ - Existing

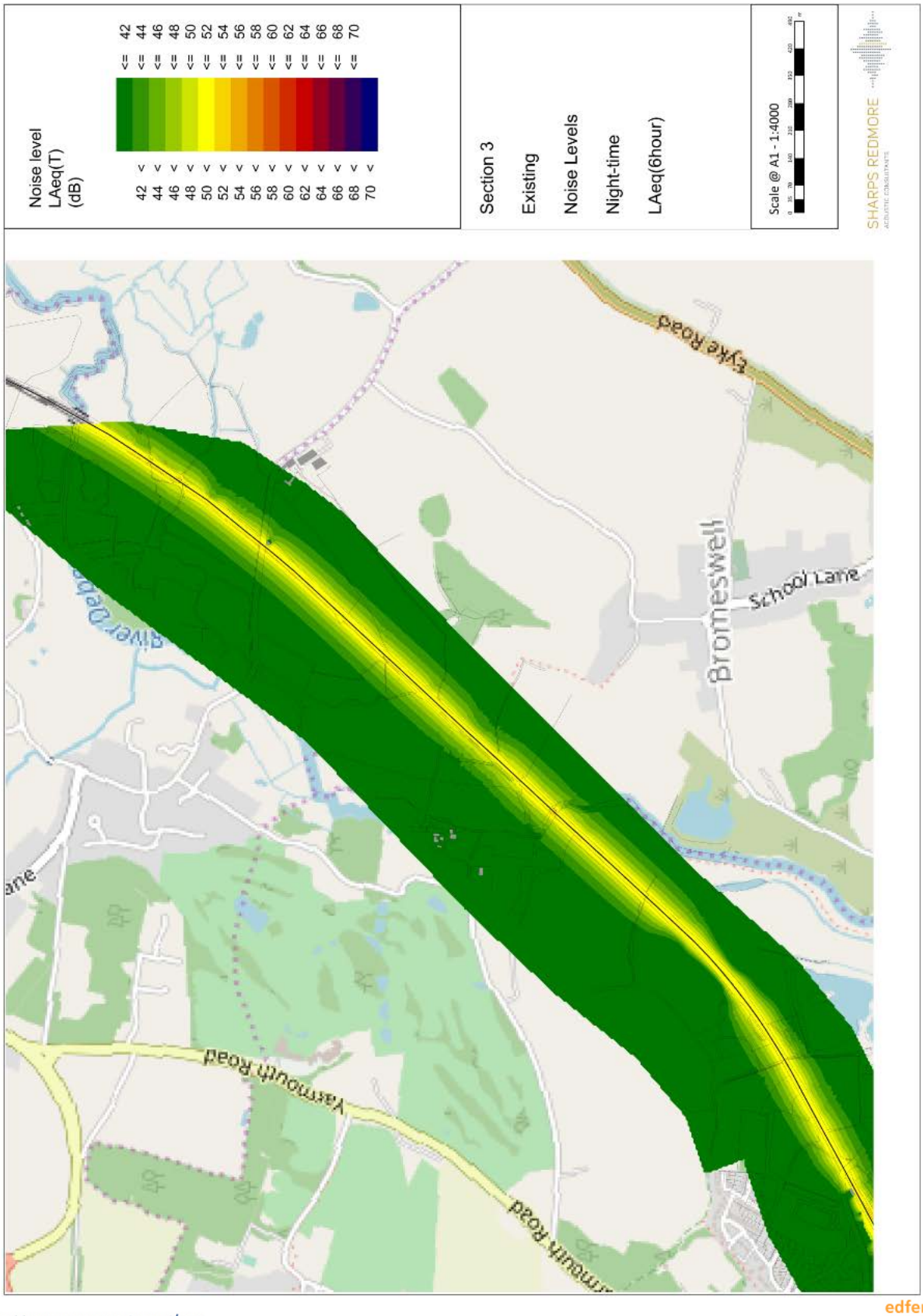

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 3
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:4000
SHARPS REDMORE
Eyke Road
Bromeswell
School Lane
Yarmouth Road

Figure E24: East Suffolk Line – Section 3, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

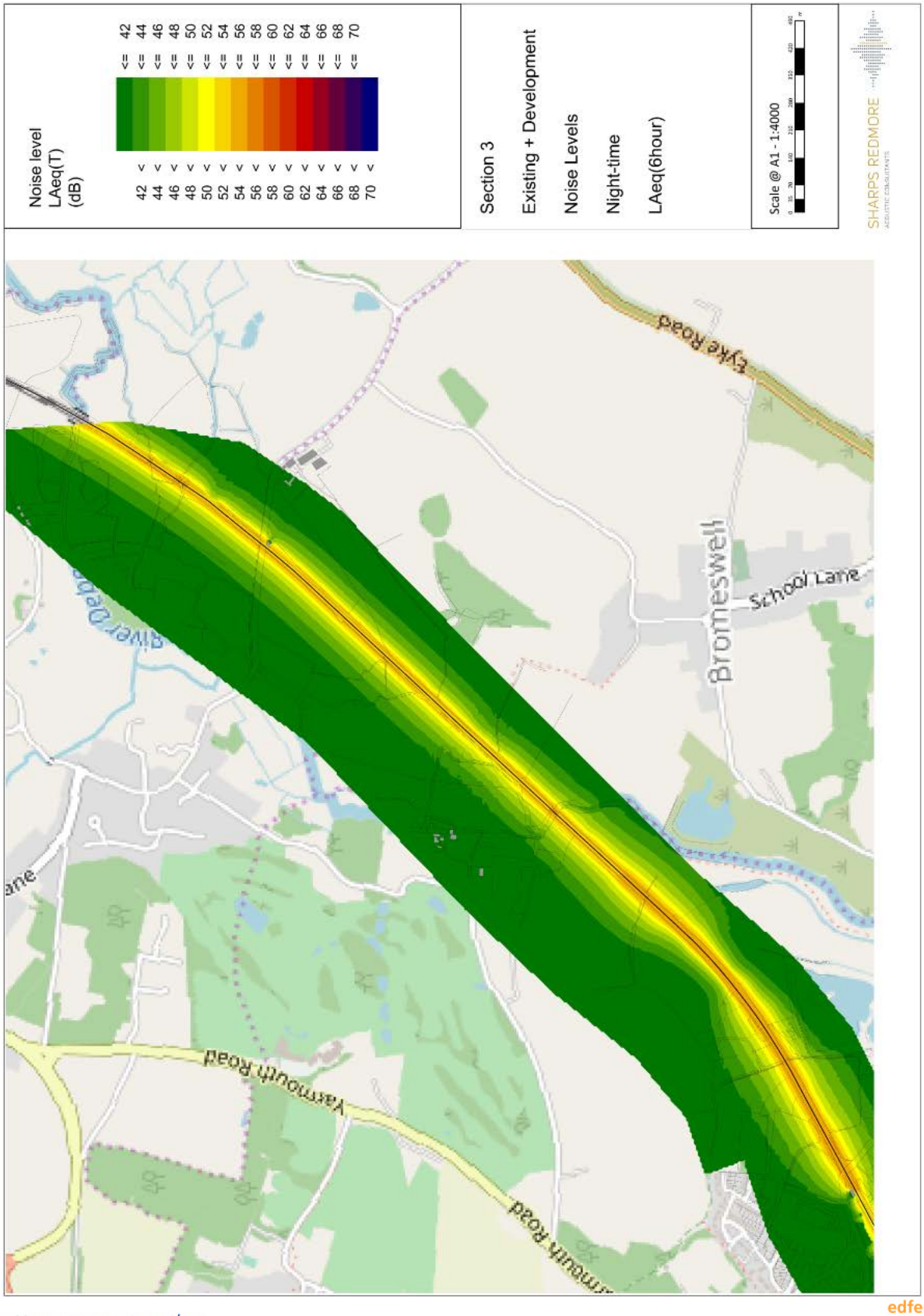

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 3
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:4000
SHARPS REDMORE
Eyke Road
Bromeswell
School Lane
Yarmouth Road

Figure E25: East Suffolk Line - Section 4, Day time noise contours, $L_{Aeq, 18h}$ – Existing

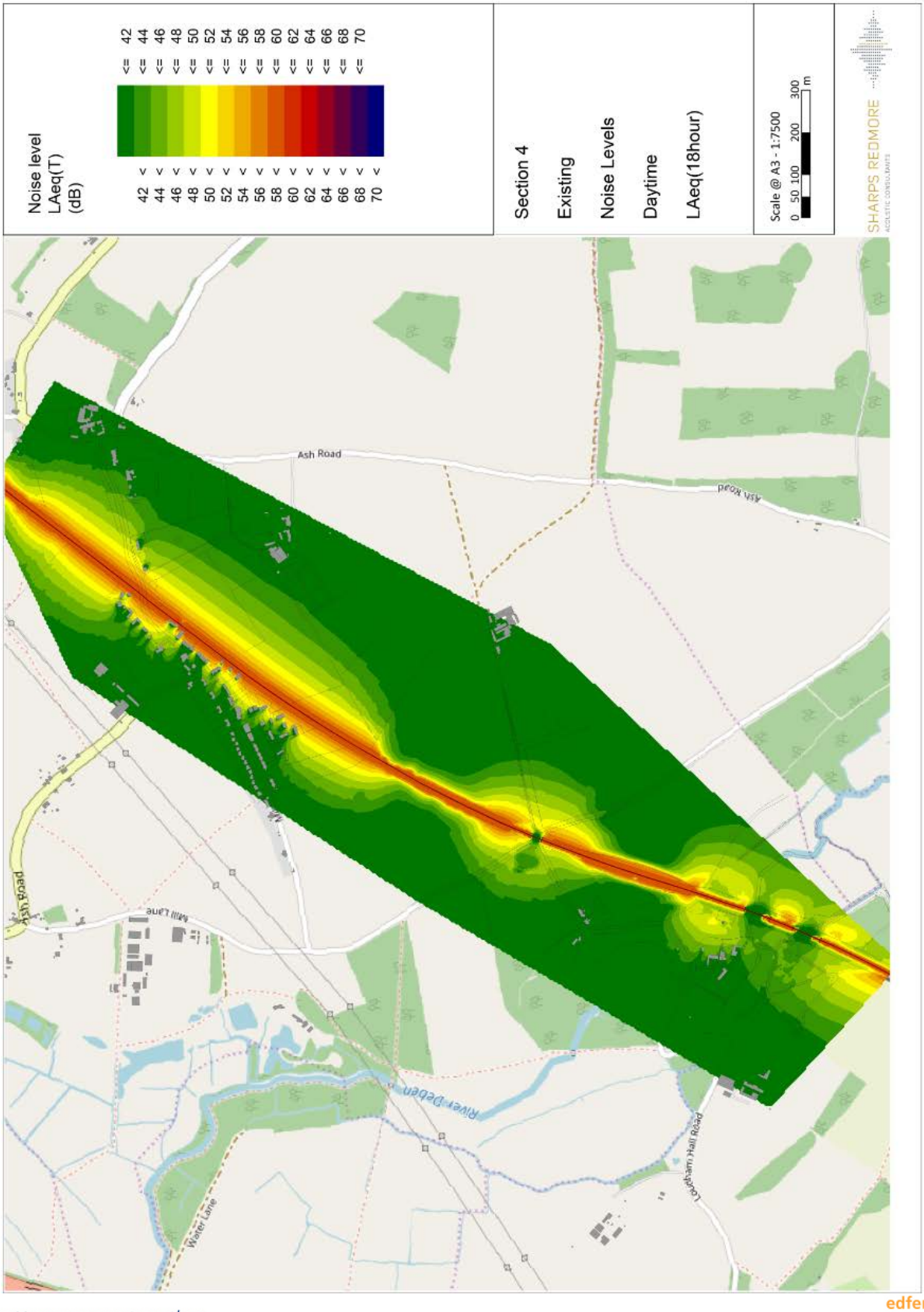

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 4
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:7500
0 50 100 200 300 m
SHARPS REDMORE
Ash Road
Ash Road
Ash Road
River Deben
Water Lane
Loudham Hall Road

Figure E26: East Suffolk Line - Section 4, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

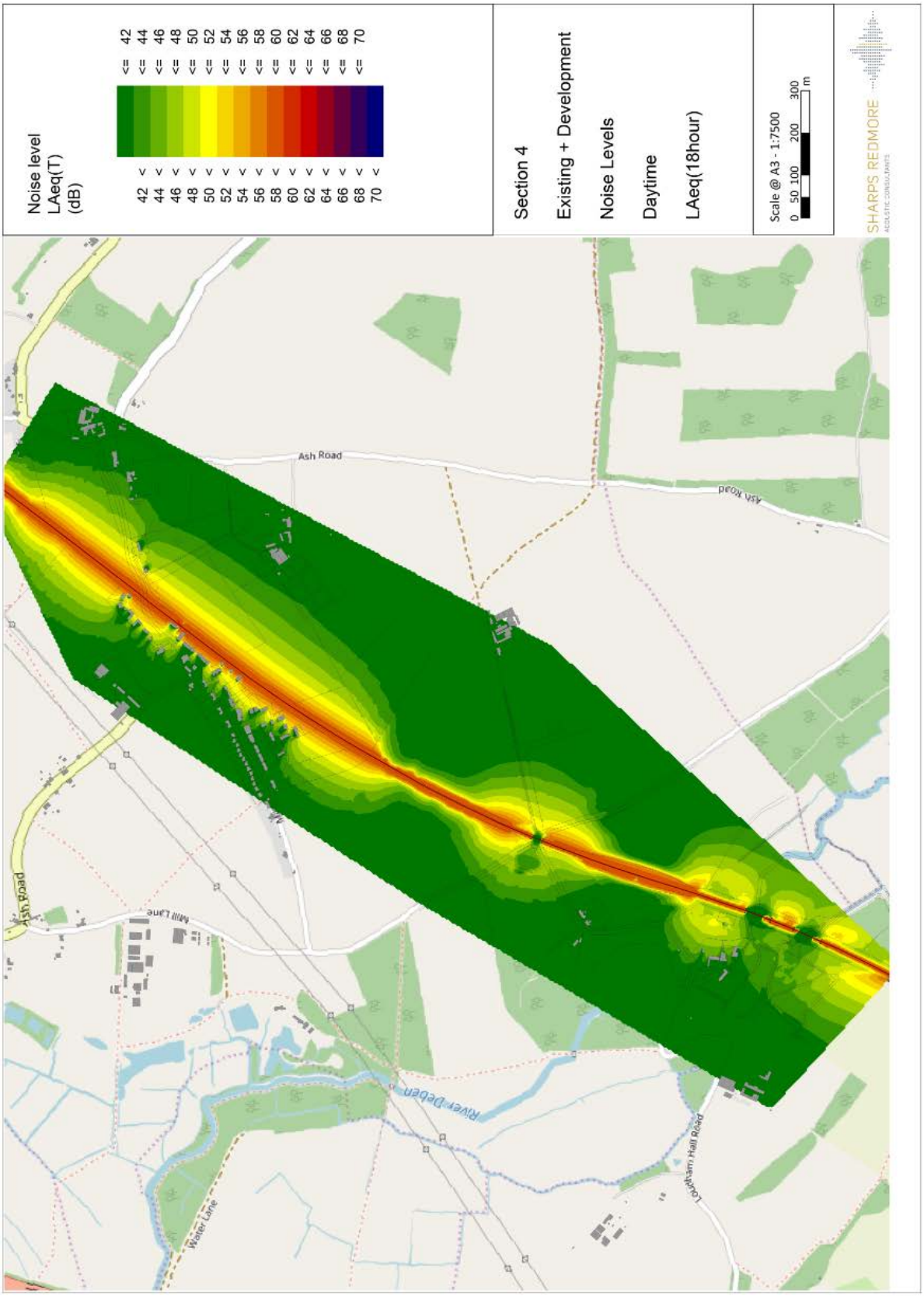

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 4
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:7500
0 50 100 200 300 m
SHARPS REDMORE
Ash Road
Mill Lane
River Deben
Water Lane
Loudham Hall Road

Figure E27: East Suffolk Line – Section 4, Night time noise contours, $L_{Aeq, 6h}$ - Existing


Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 4
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:7500
0 50 100 200 300 m
SHARPS REDMORE
Ash Road
Ash Road
Ash Road
Mill Lane
River Deben
Lower Hall Road
Water Lane

Figure E28: East Suffolk Line – Section 4, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed


Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 4
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:7500
0 50 100 200 300 m
SHARPS REDMORE
Ash Road
Ash Road
Mill Lane
River Deben
Loudham Hall Road
Water Lane

Figure E29: East Suffolk Line - Section 5A, Day time noise contours, $L_{Aeq, 18h}$ – Existing

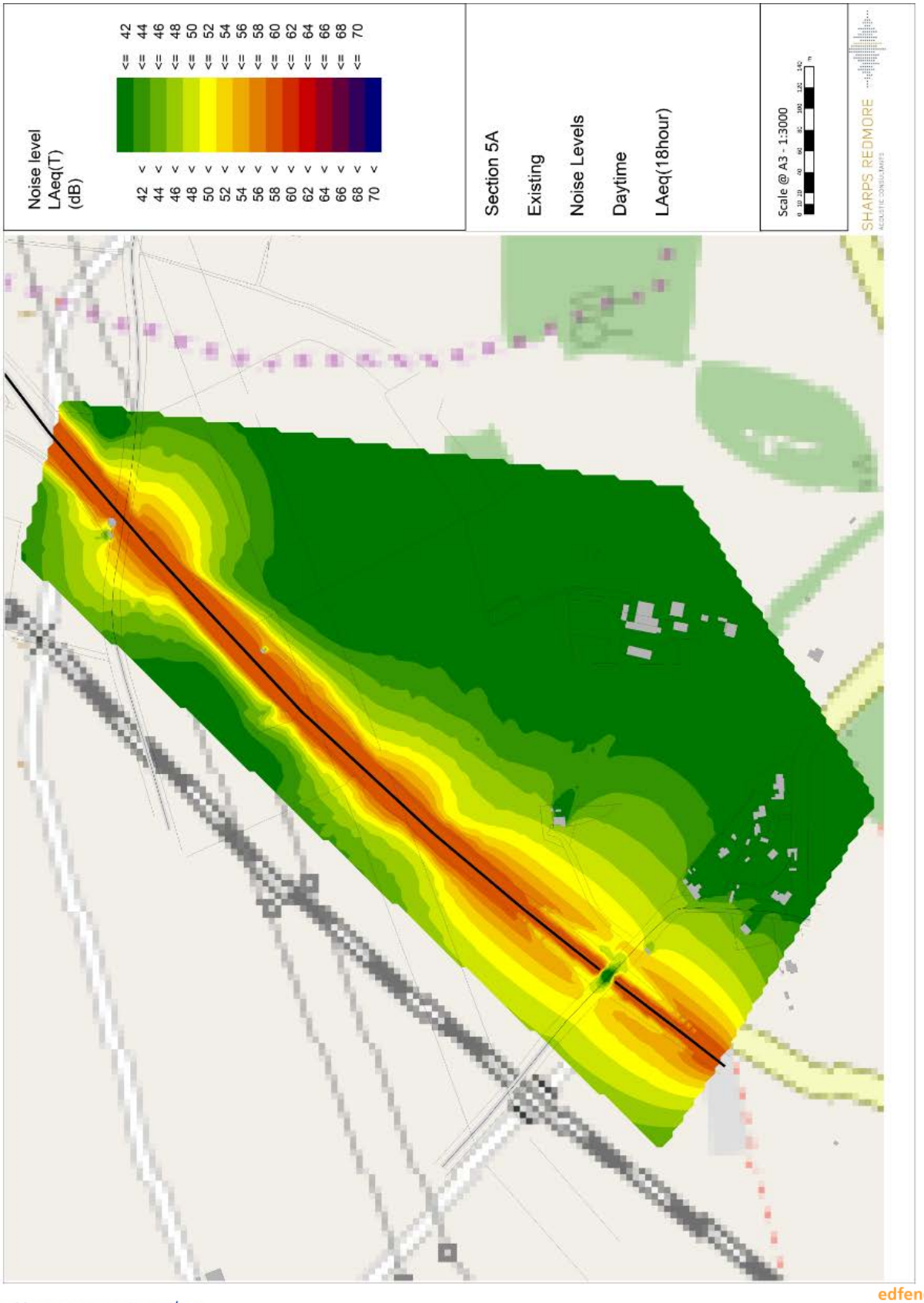

Noise level
LAeq(T)
(dB)
42 <= v < 44
44 <= v < 46
46 <= v < 48
48 <= v < 50
50 <= v < 52
52 <= v < 54
54 <= v < 56
56 <= v < 58
58 <= v < 60
60 <= v < 62
62 <= v < 64
64 <= v < 66
66 <= v < 68
68 <= v < 70
Section 5A
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:3000
SHARPS REDMORE

Figure E30: East Suffolk Line - Section 5A, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

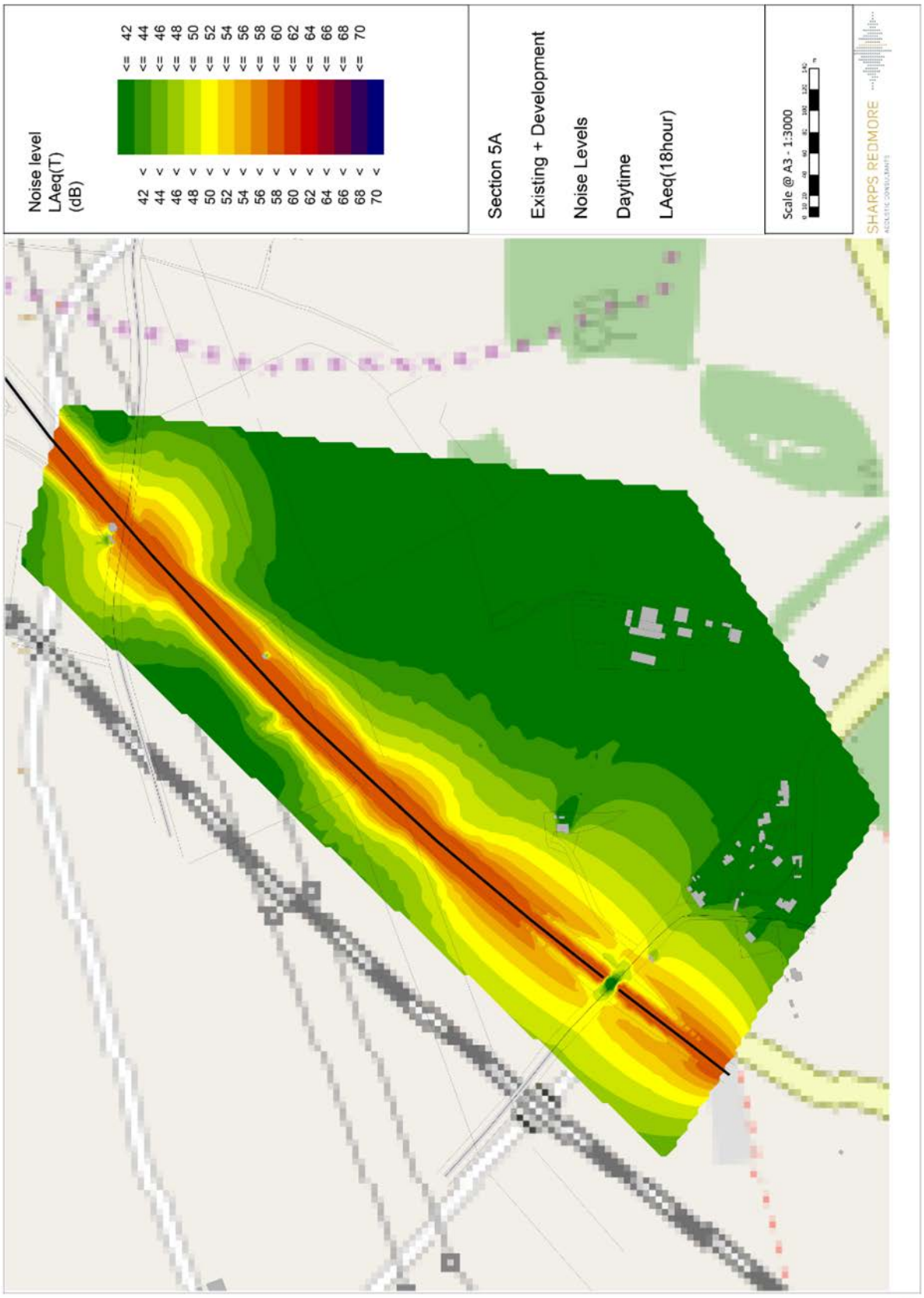

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Section 5A
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:3000
SHARPS REDMORE

Figure E31: East Suffolk Line – Section 5A, Night time noise contours, $L_{Aeq, 6h}$ - Existing

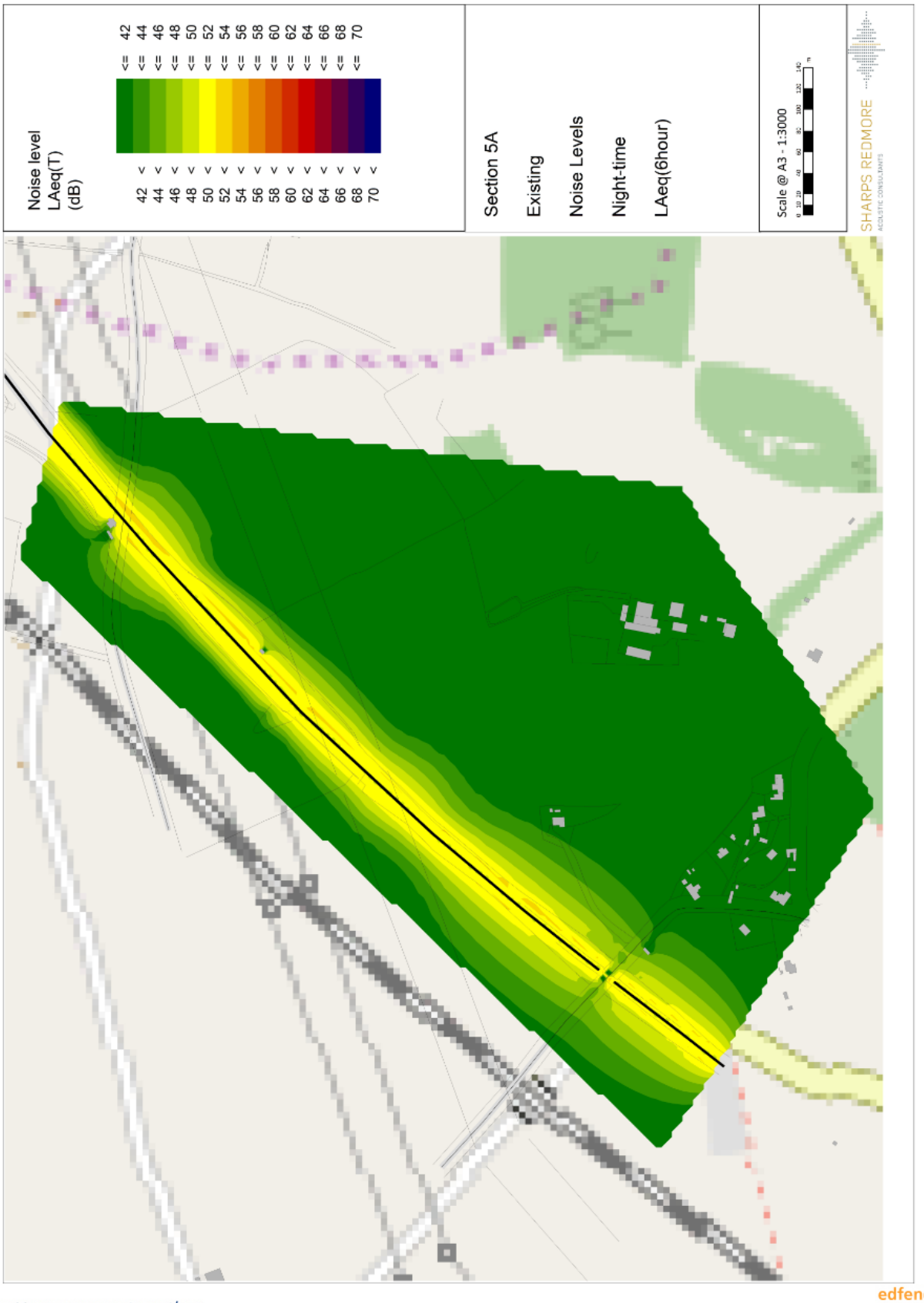

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5A
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:3000
SHARPS REDMORE

Figure E32: East Suffolk Line – Section 5A, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

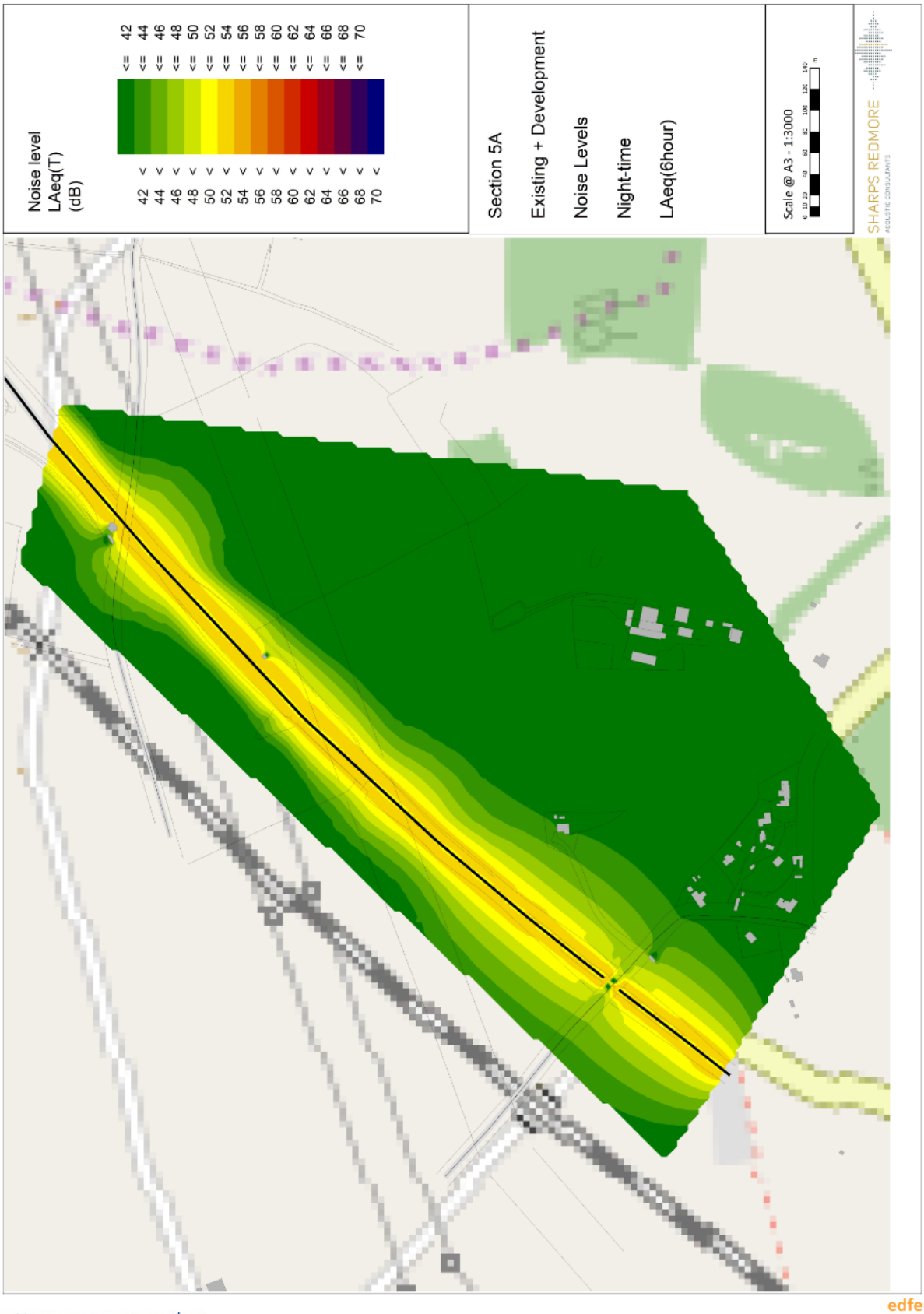

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 5A
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:3000
SHARPS REDMORE

Figure E33: East Suffolk Line - Section 5B, Day time noise contours, $L_{Aeq, 18h}$ – Existing

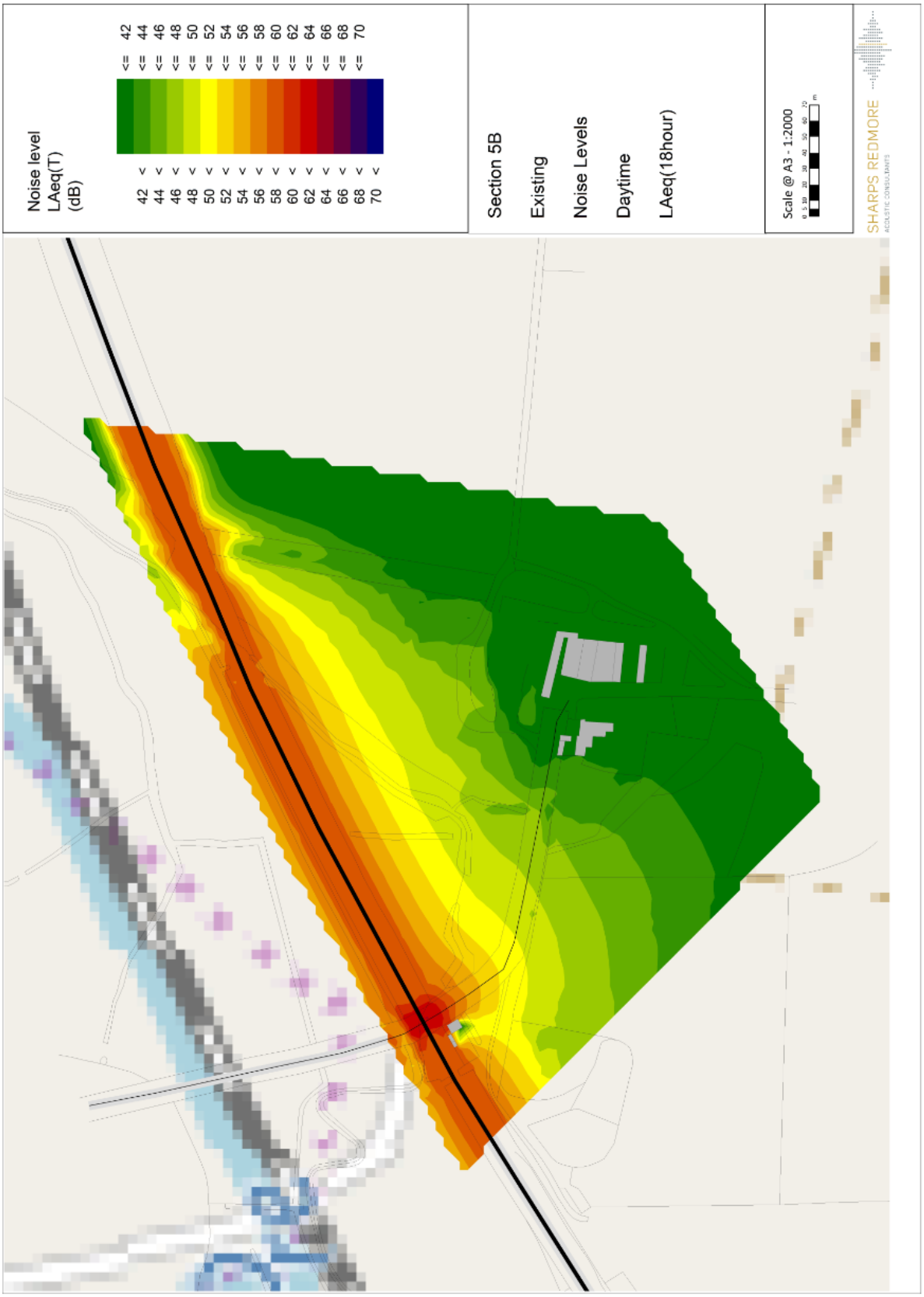

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5B
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2000
SHARPS REDMORE

Figure E34: East Suffolk Line - Section 5B, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

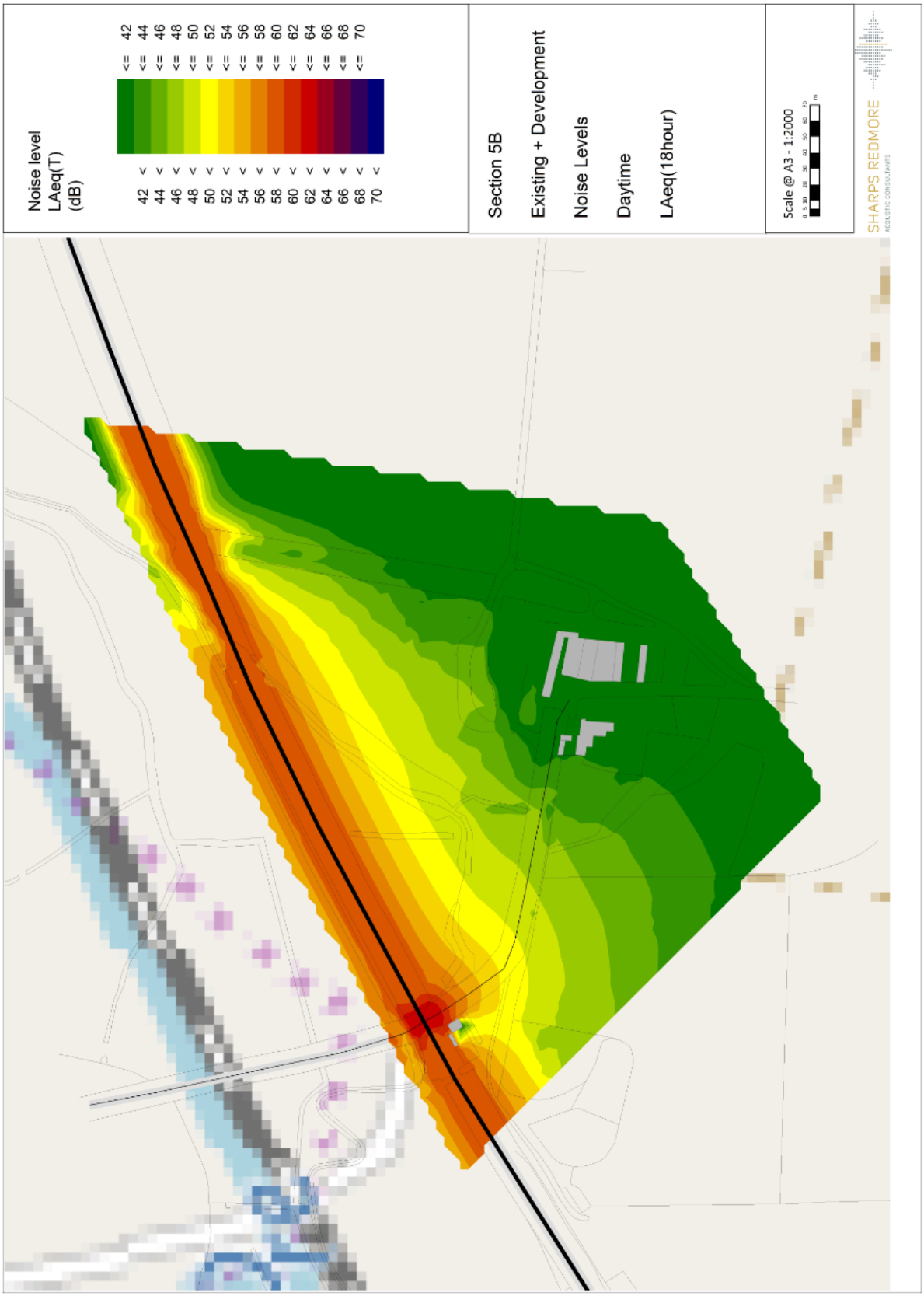

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5B
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2000
SHARPS REDMORE

Figure E35: East Suffolk Line – Section 5B, Night time noise contours, $L_{Aeq, 6h}$ - Existing

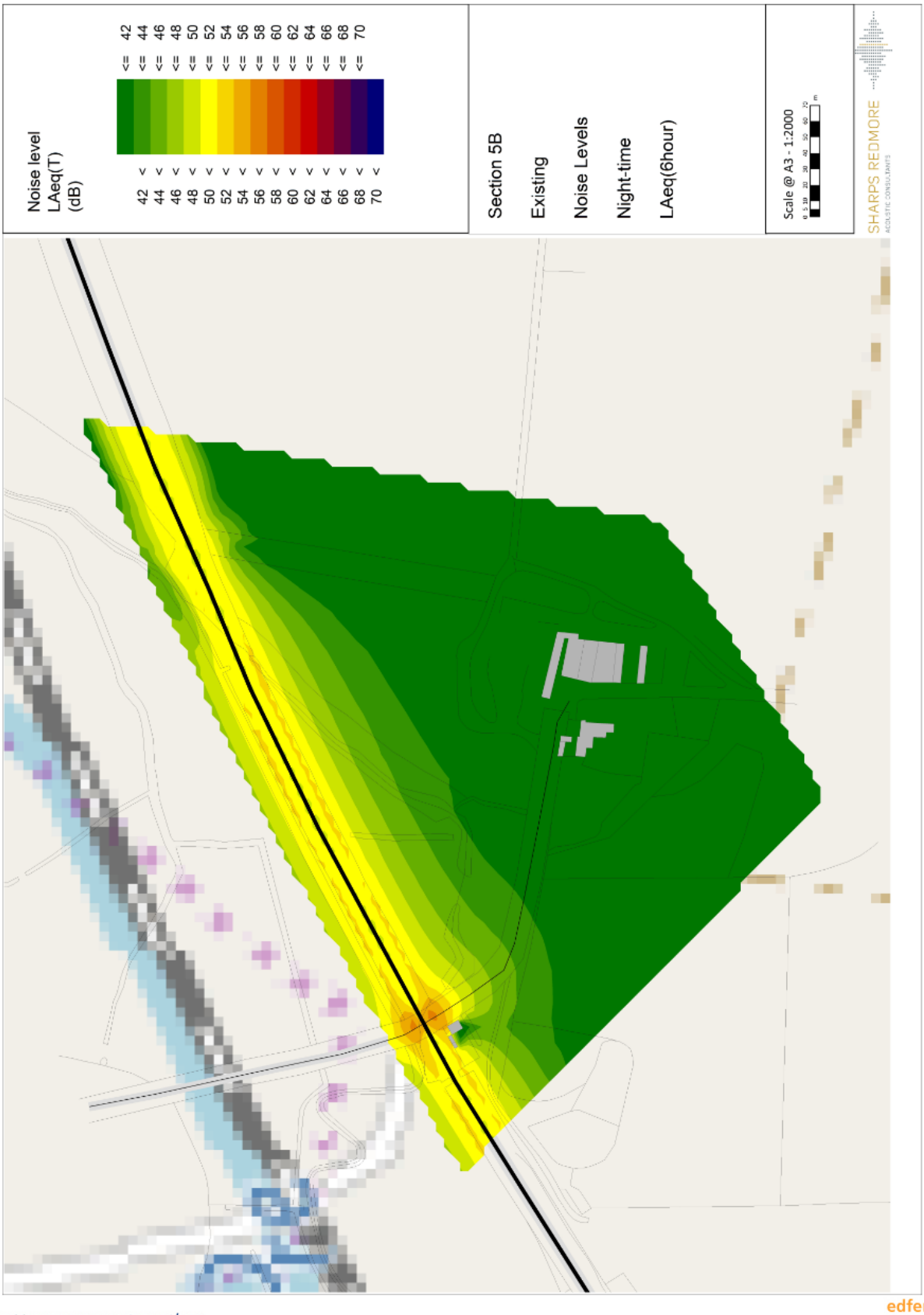

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 5B
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2000
SHARPS REDMORE

Figure E36: East Suffolk Line – Section 5B, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

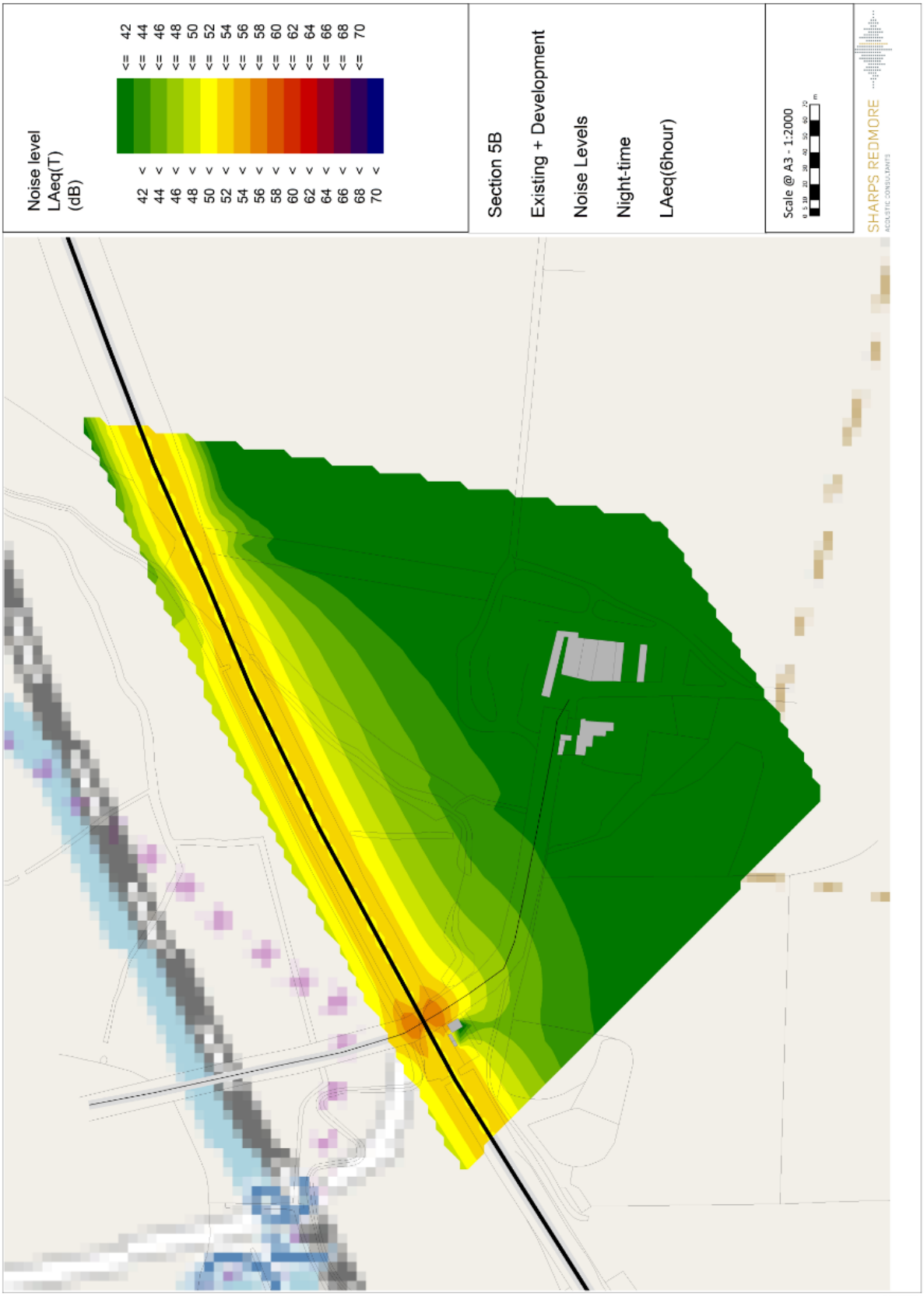

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 5B
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2000
SHARPS REDMORE

Figure E37: East Suffolk Line - Section 5C, Day time noise contours, $L_{Aeq, 18h}$ – Existing

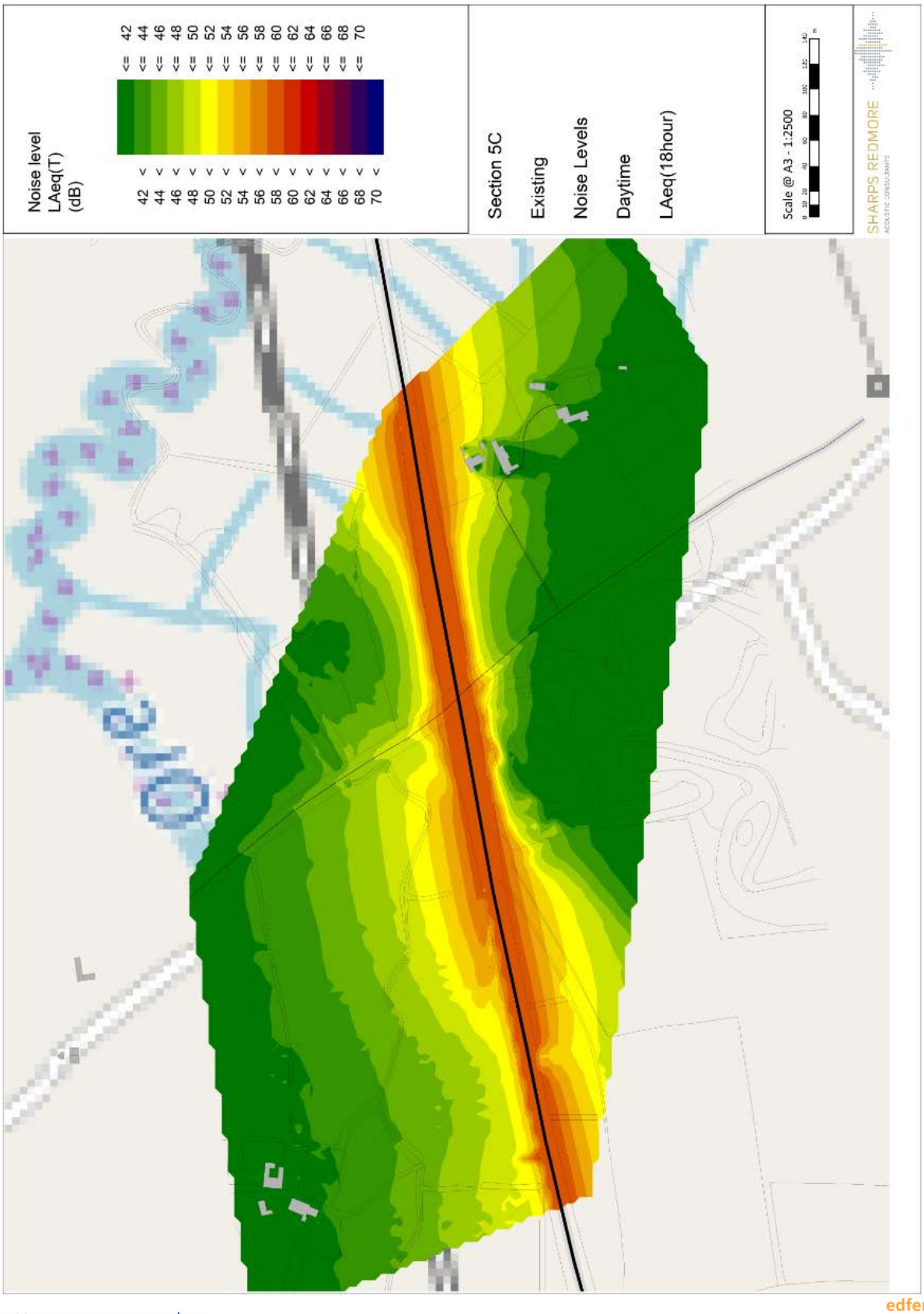

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5C
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
SHARPS REDMORE

Figure E38: East Suffolk Line - Section 5C, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

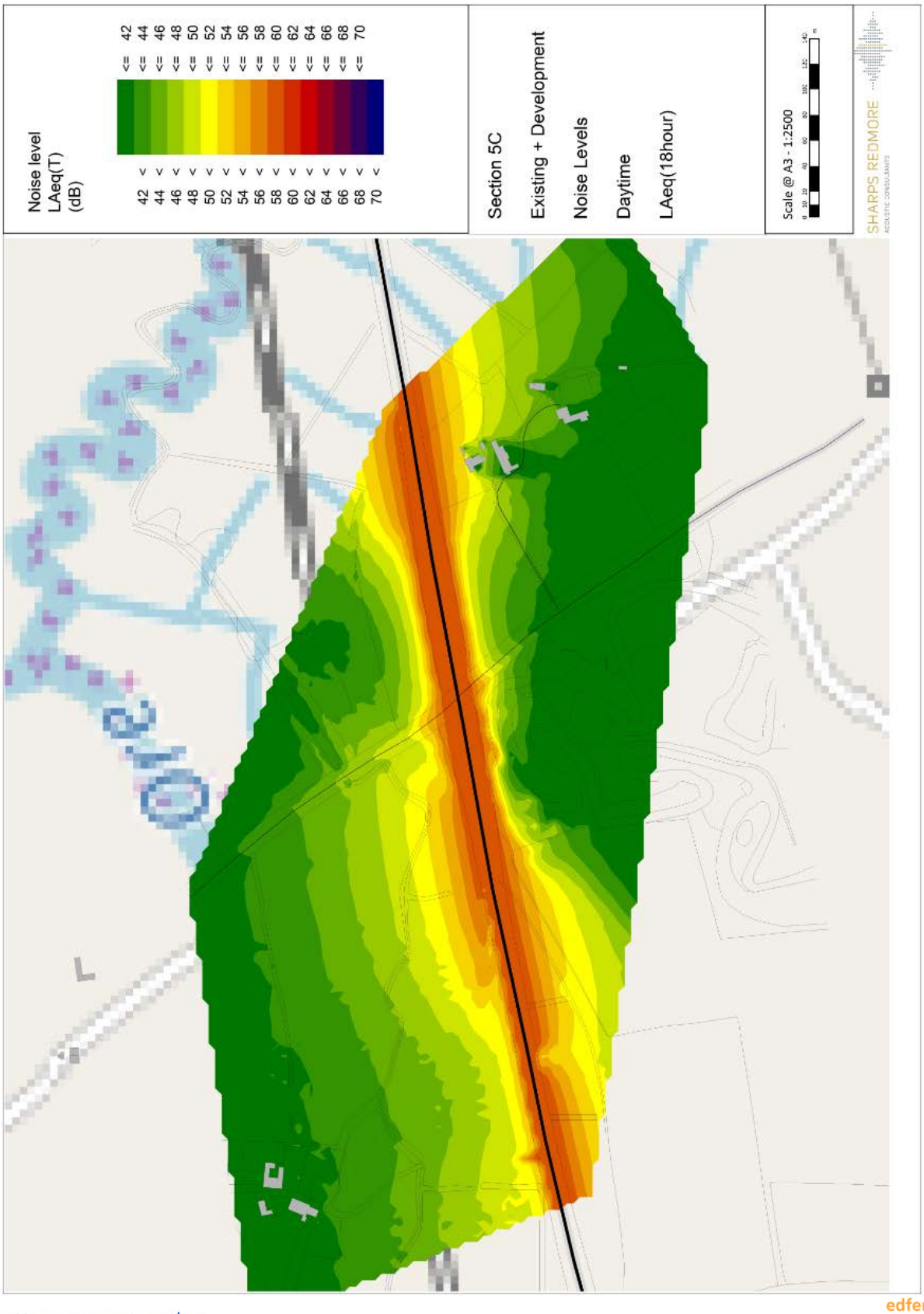

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 5C
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:2500
SHARPS REDMORE

Figure E39: East Suffolk Line – Section 5C, Night time noise contours, $L_{Aeq, 6h}$ - Existing

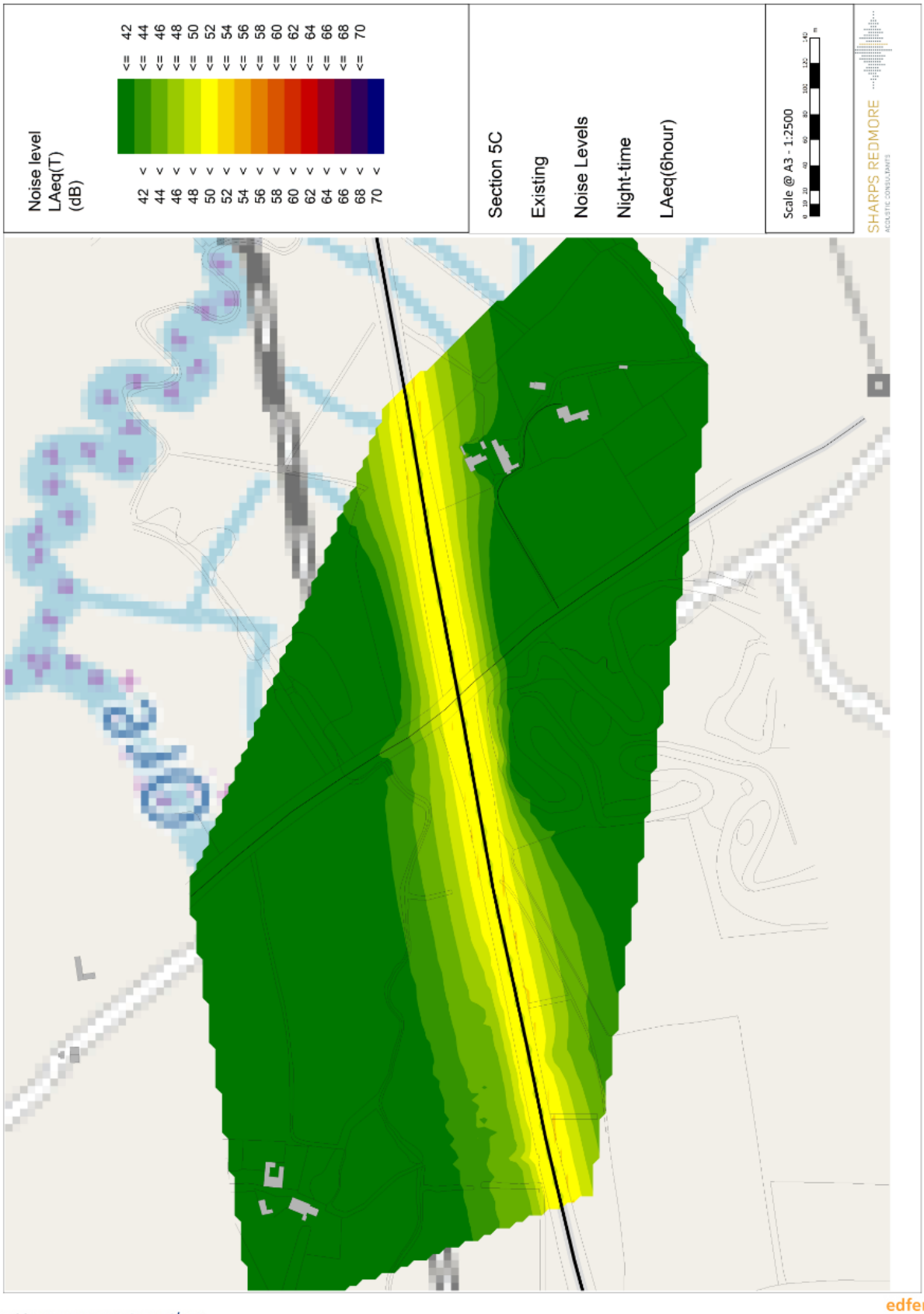

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5C
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2500
SHARPS REDMORE

Figure E40: East Suffolk Line – Section 5C, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

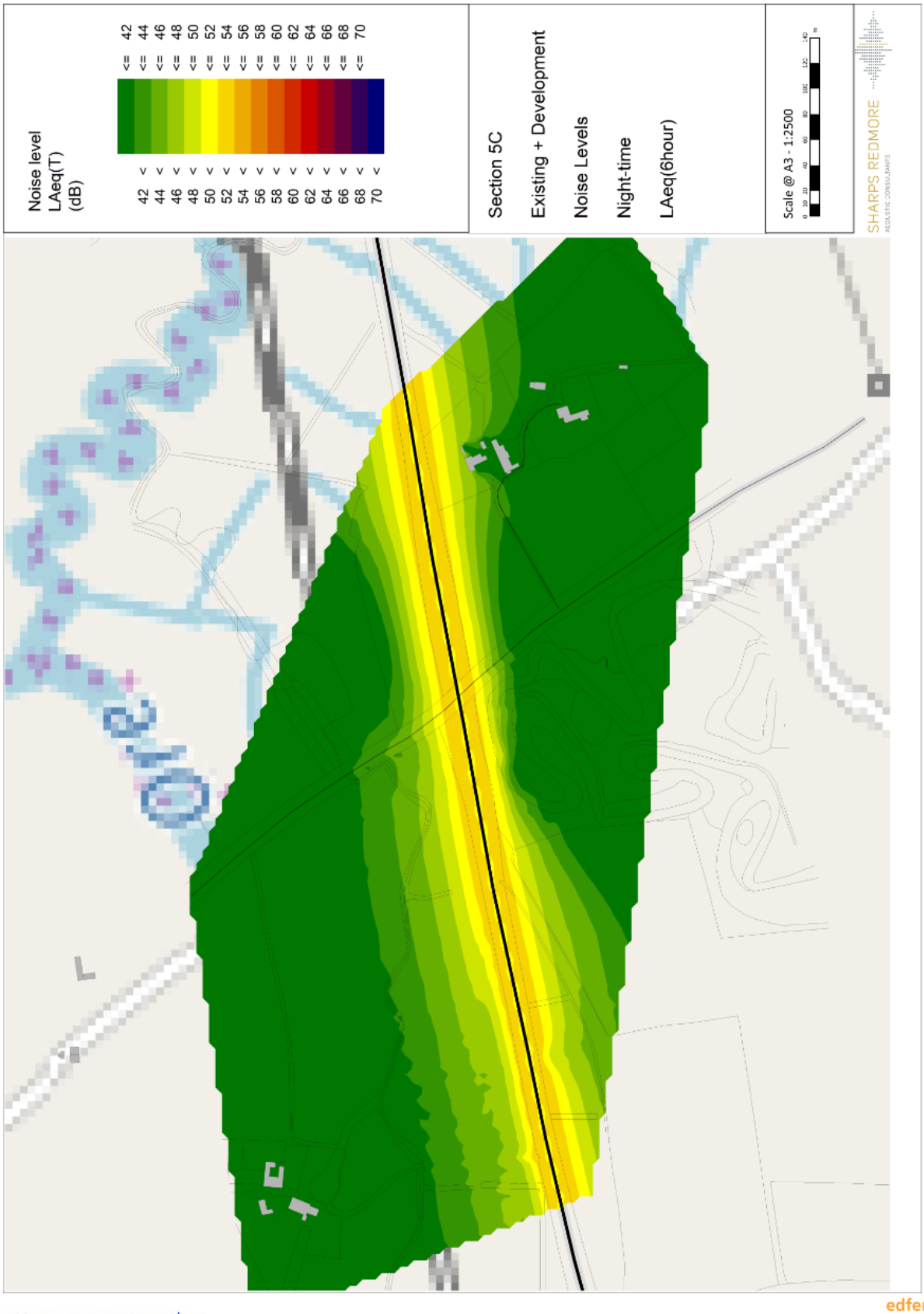

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Section 5C
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:2500
SHARPS REDMORE

Figure E41: East Suffolk Line - Section 6, Day time noise contours, $L_{Aeq, 18h}$ – Existing

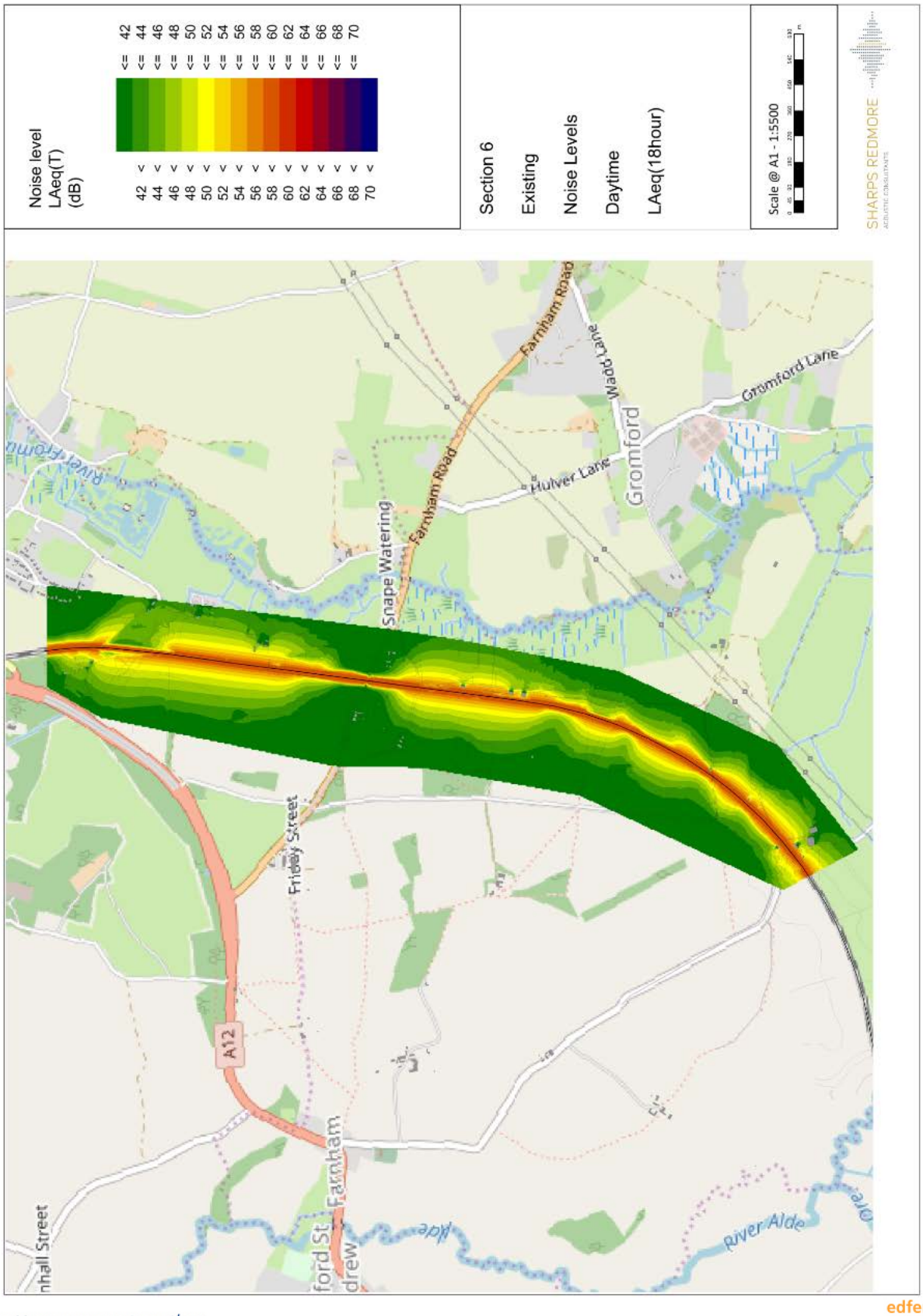

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Section 6
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Farnham Road
Wadd Lane
Gromford Lane
Hulver Lane
Gromford
Snape Watering
Farnham Road
Friday Street
A12
Farnham
River Alde

Figure E42: East Suffolk Line - Section 6, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

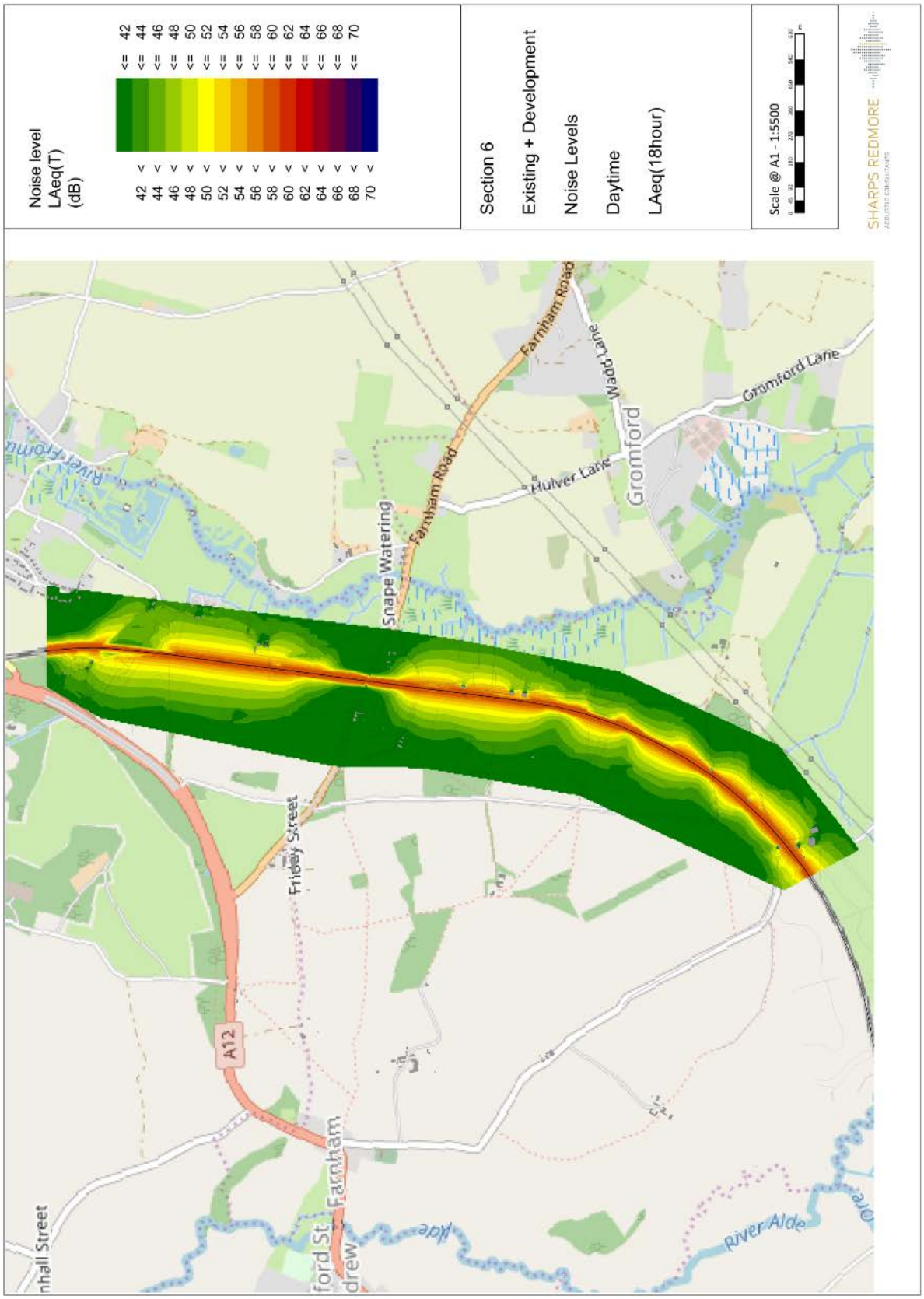

Noise level
LAeq(T)
(dB)
<= 42 < 42
<= 44 < 44
<= 46 < 46
<= 48 < 48
<= 50 < 50
<= 52 < 52
<= 54 < 54
<= 56 < 56
<= 58 < 58
<= 60 < 60
<= 62 < 62
<= 64 < 64
<= 66 < 66
<= 68 < 68
<= 70 < 70
Section 6
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Farnham Road
Wadd Lane
Gromford Lane
Gromford
Mulver Lane
Snape Watering
Farnham Road
Friday Street
A12
River Alde

Figure E43: East Suffolk Line – Section 6, Night time noise contours, $L_{Aeq, 6h}$ - Existing

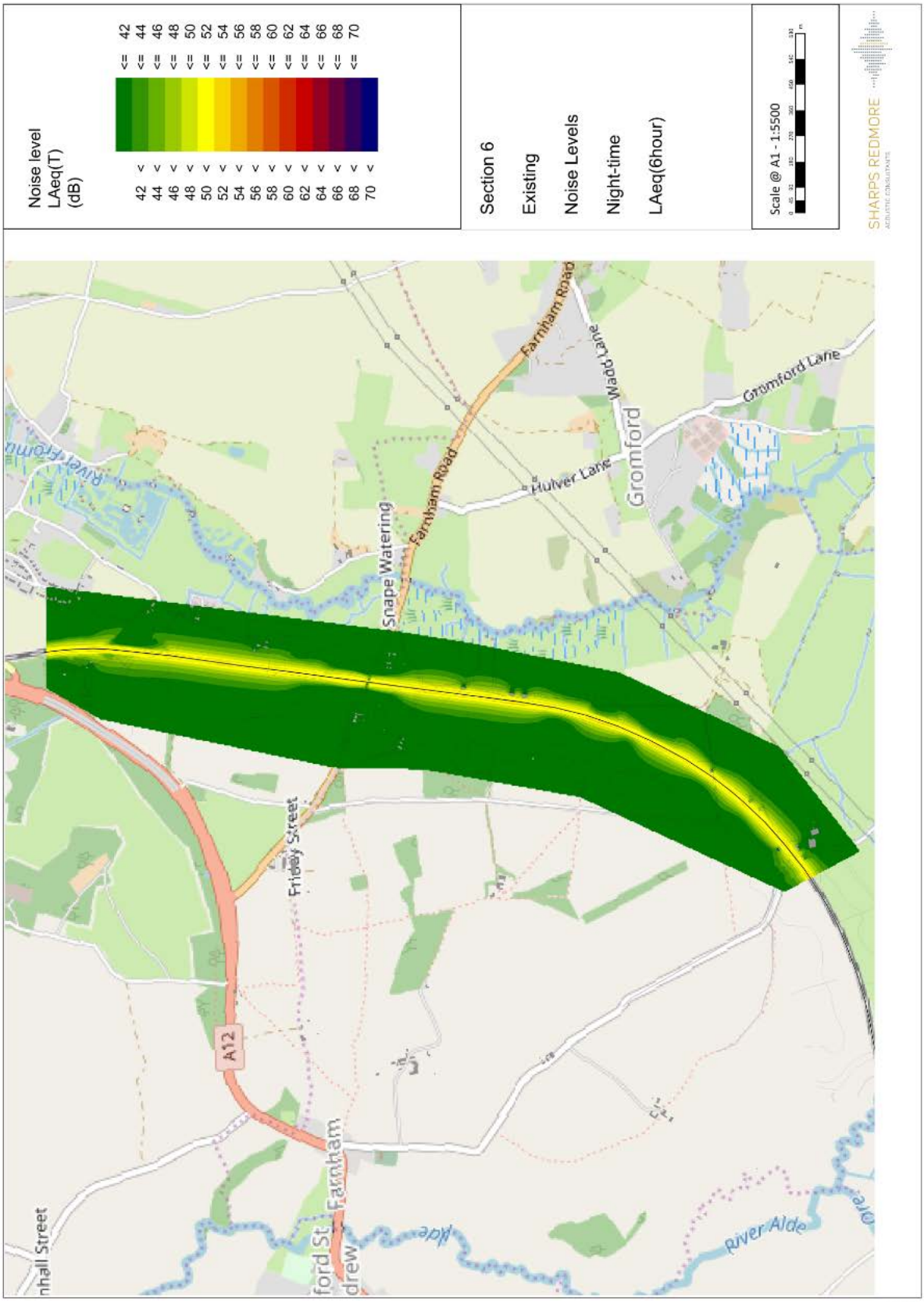

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Section 6
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Farnham Road
Wadd Lane
Gromford Lane
Gromford
Hulver Lane
Snape Watering
Farnham Road
Friday Street
A12
Farnham
River Alde

Figure E44: East Suffolk Line – Section 6, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

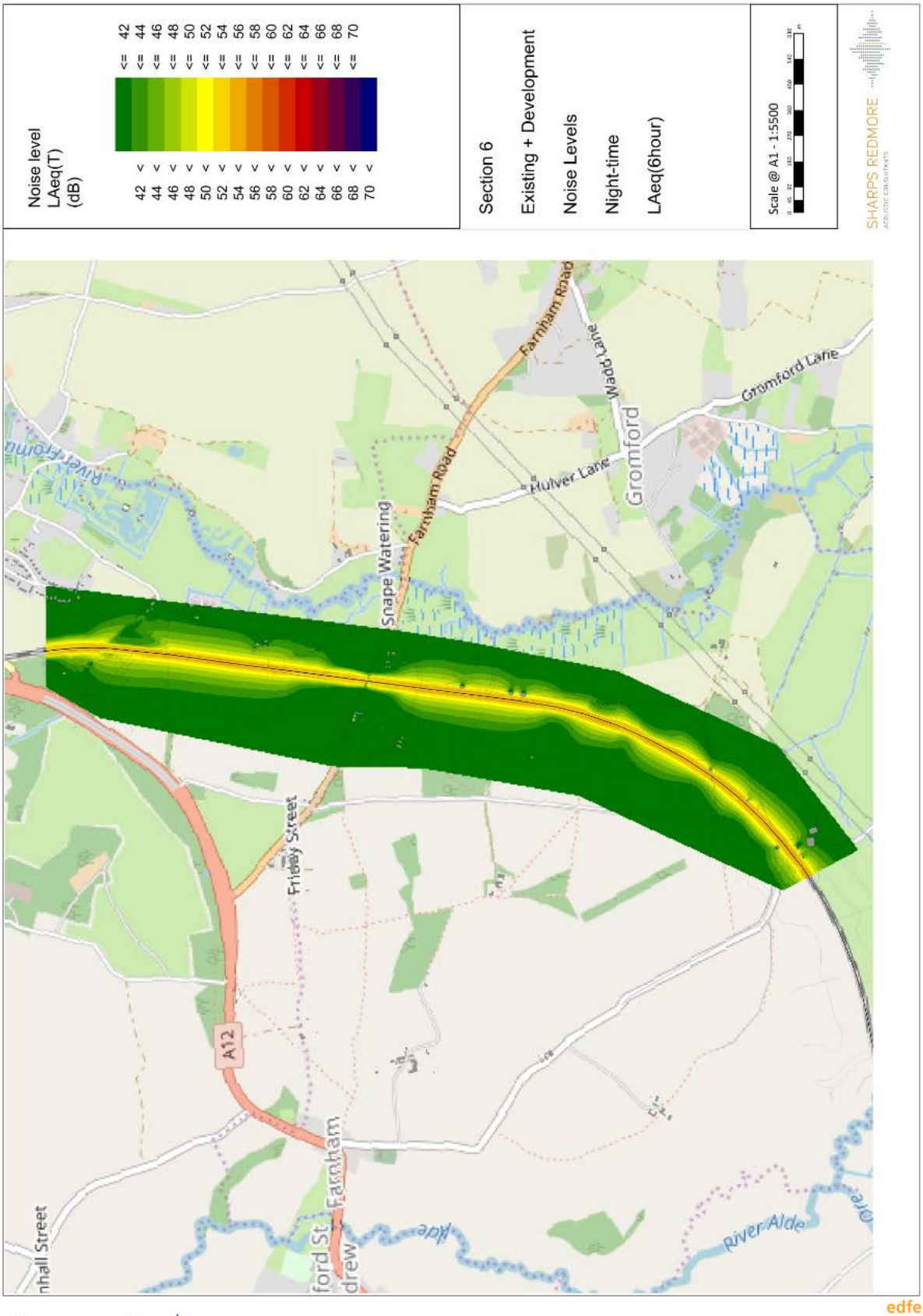

Noise level
LAeq(T)
(dB)
<= 42 <= 44 <= 46 <= 48 <= 50 <= 52 <= 54 <= 56 <= 58 <= 60 <= 62 <= 64 <= 66 <= 68 <= 70
< 42 < 44 < 46 < 48 < 50 < 52 < 54 < 56 < 58 < 60 < 62 < 64 < 66 < 68 < 70
Section 6
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A1 - 1:5500
SHARPS REDMORE
Farnham Road
Wadd Lane
Gromford Lane
Gromford
Hulver Lane
Farnham Road
Snape Watering
Friday Street
A12
Farnham
River Alde

Figure E45: East Suffolk Line - Section 7A, Day time noise contours, $L_{Aeq, 18h}$ – Existing

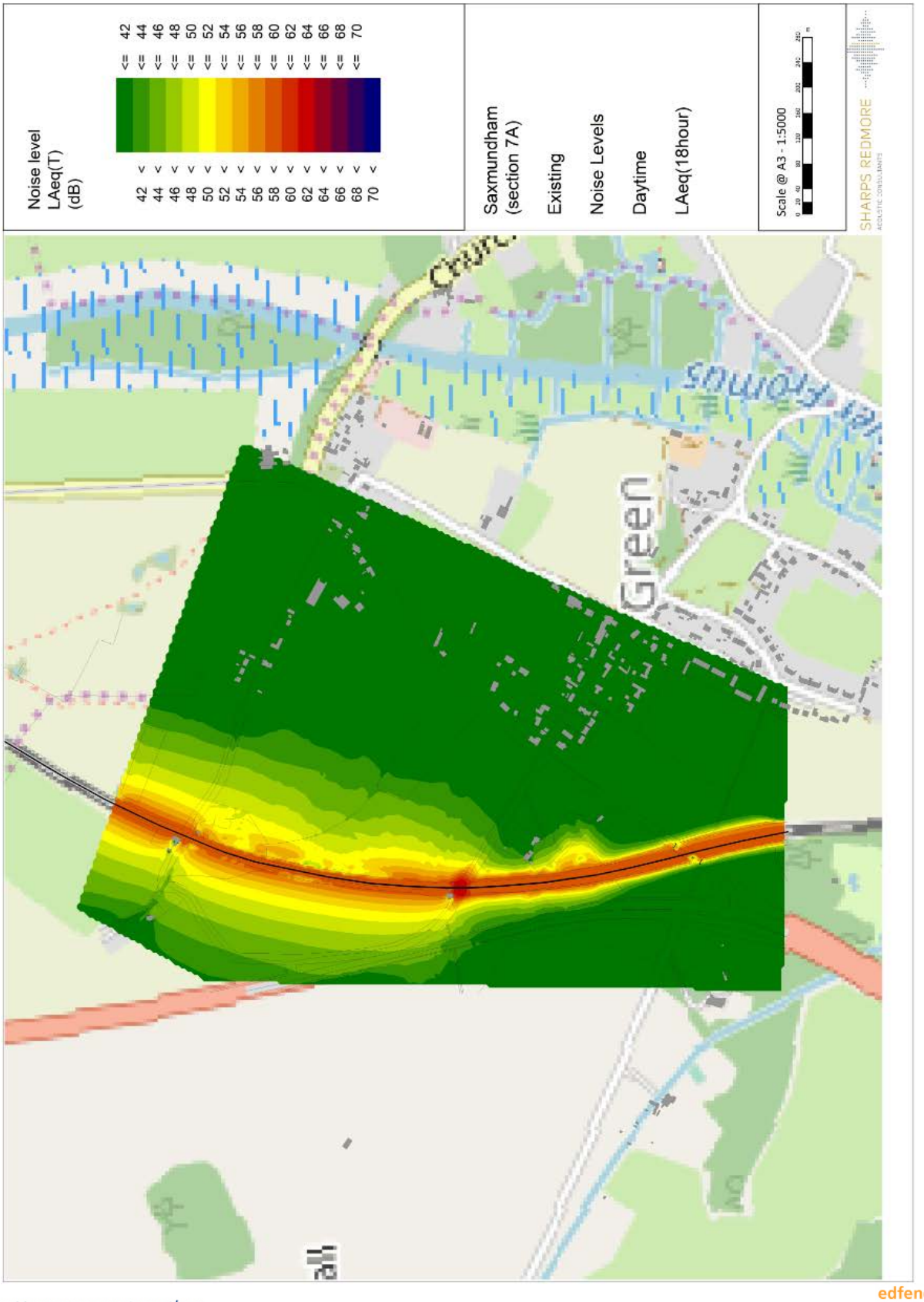

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Saxmundham
(section 7A)
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E46: East Suffolk Line - Section 7A, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

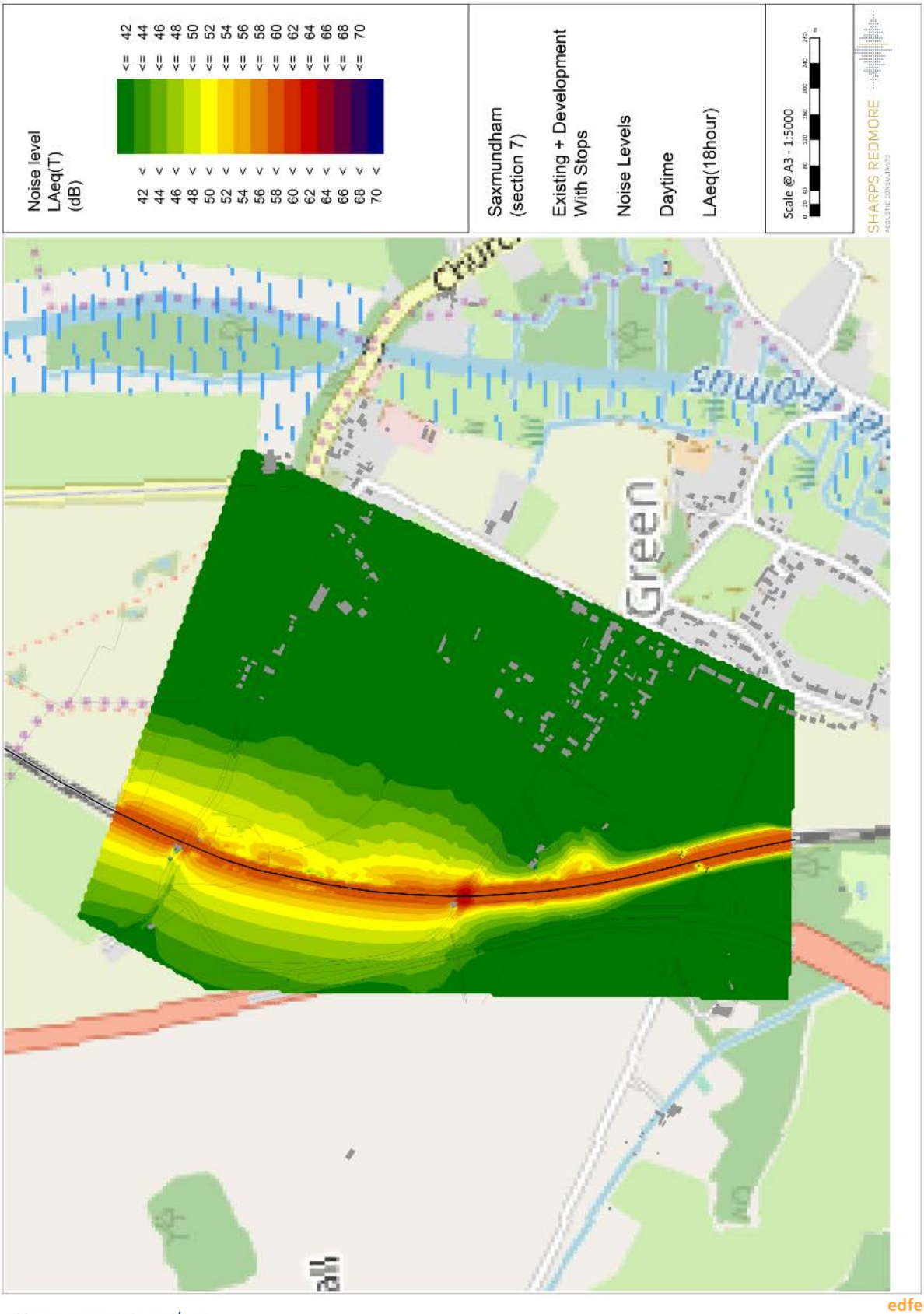

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Saxmundham
(section 7)
Existing + Development
With Stops
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E47: East Suffolk Line – Section 7A, Night time noise contours, $L_{Aeq, 6h}$ - Existing

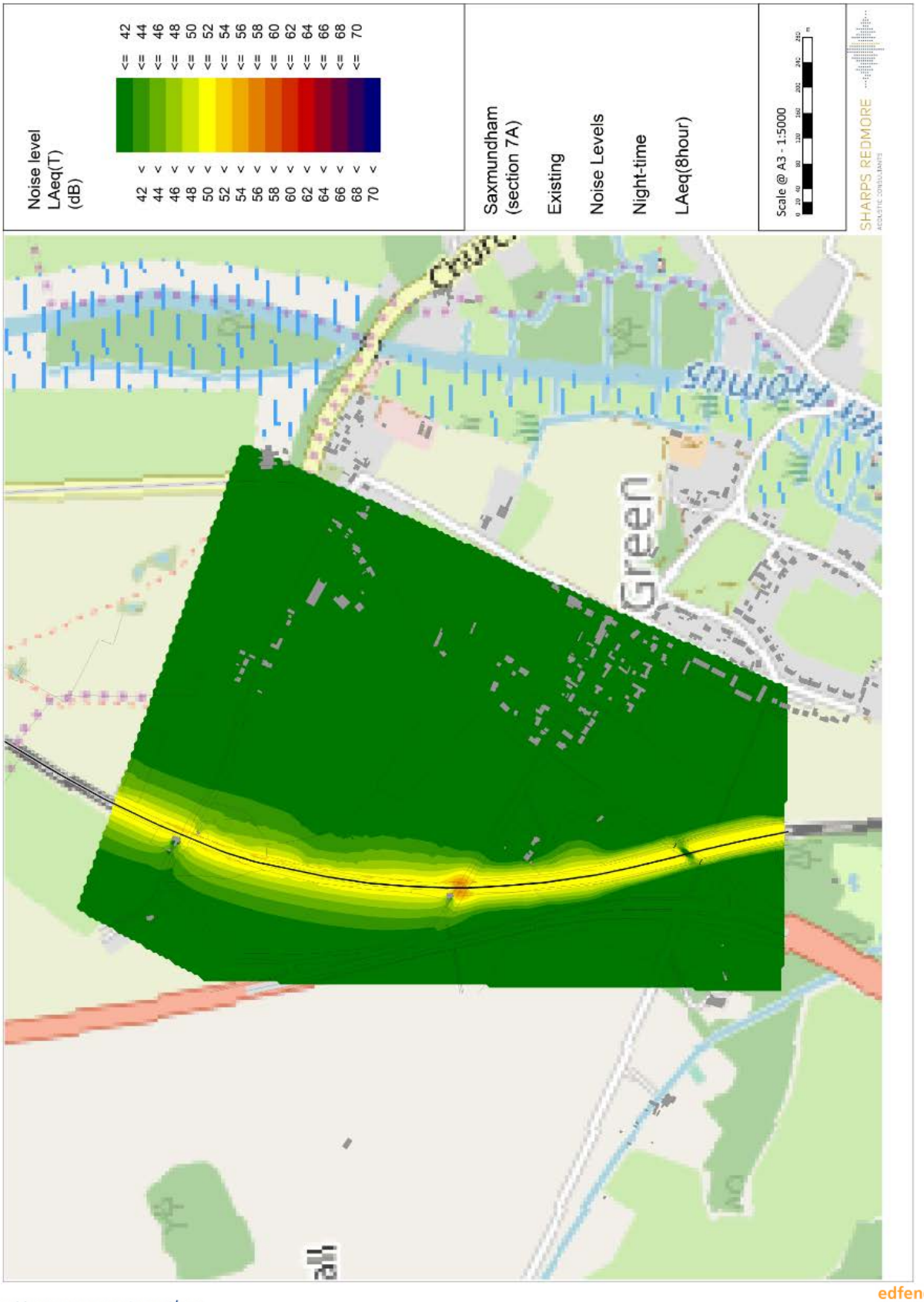

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Saxmundham
(section 7A)
Existing
Noise Levels
Night-time
LAeq(8hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E48: East Suffolk Line – Section 7A, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

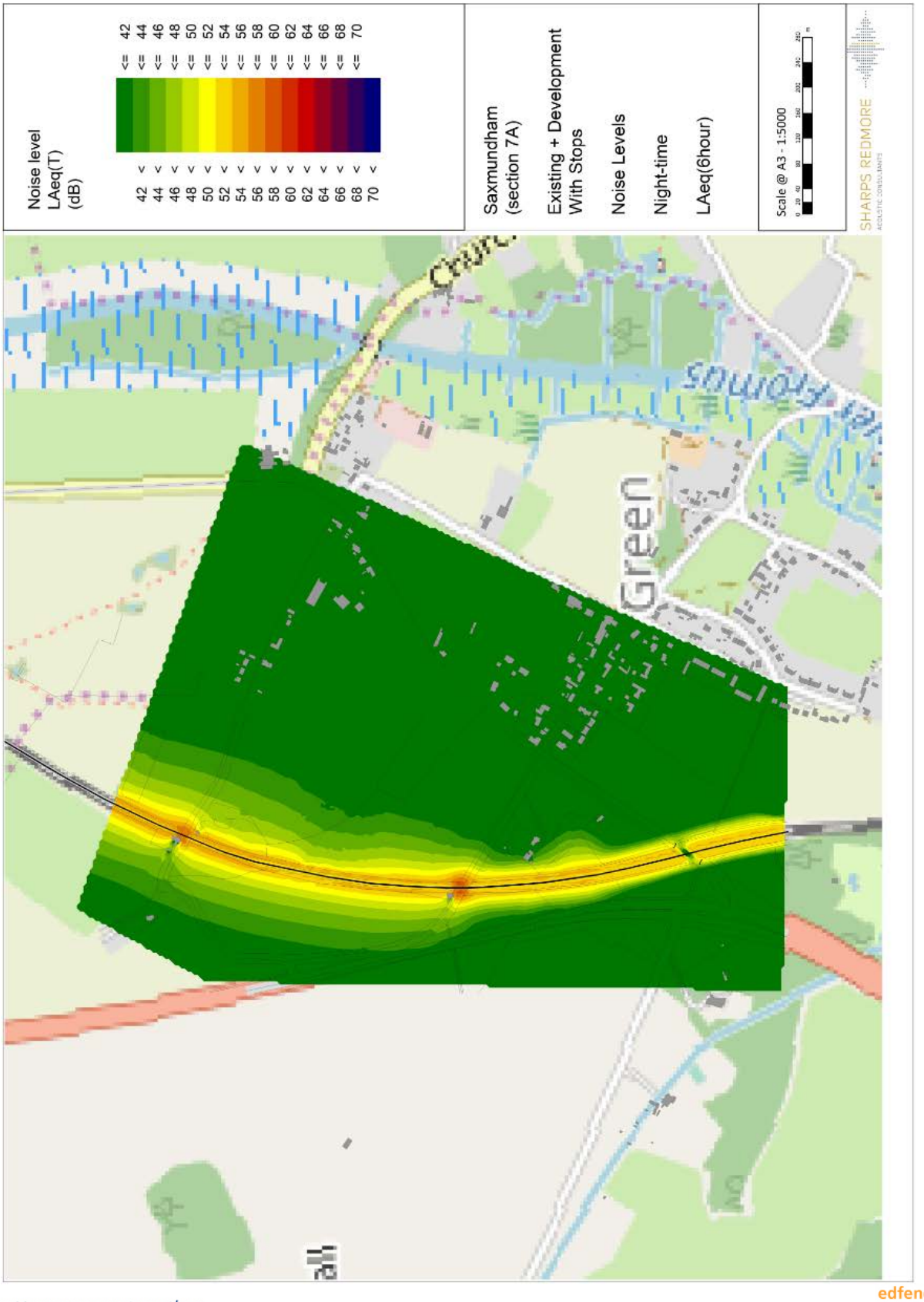

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Saxmundham
(section 7A)
Existing + Development
With Stops
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E49: East Suffolk Line - Section 7B, Day time noise contours, $L_{Aeq, 18h}$ – Existing

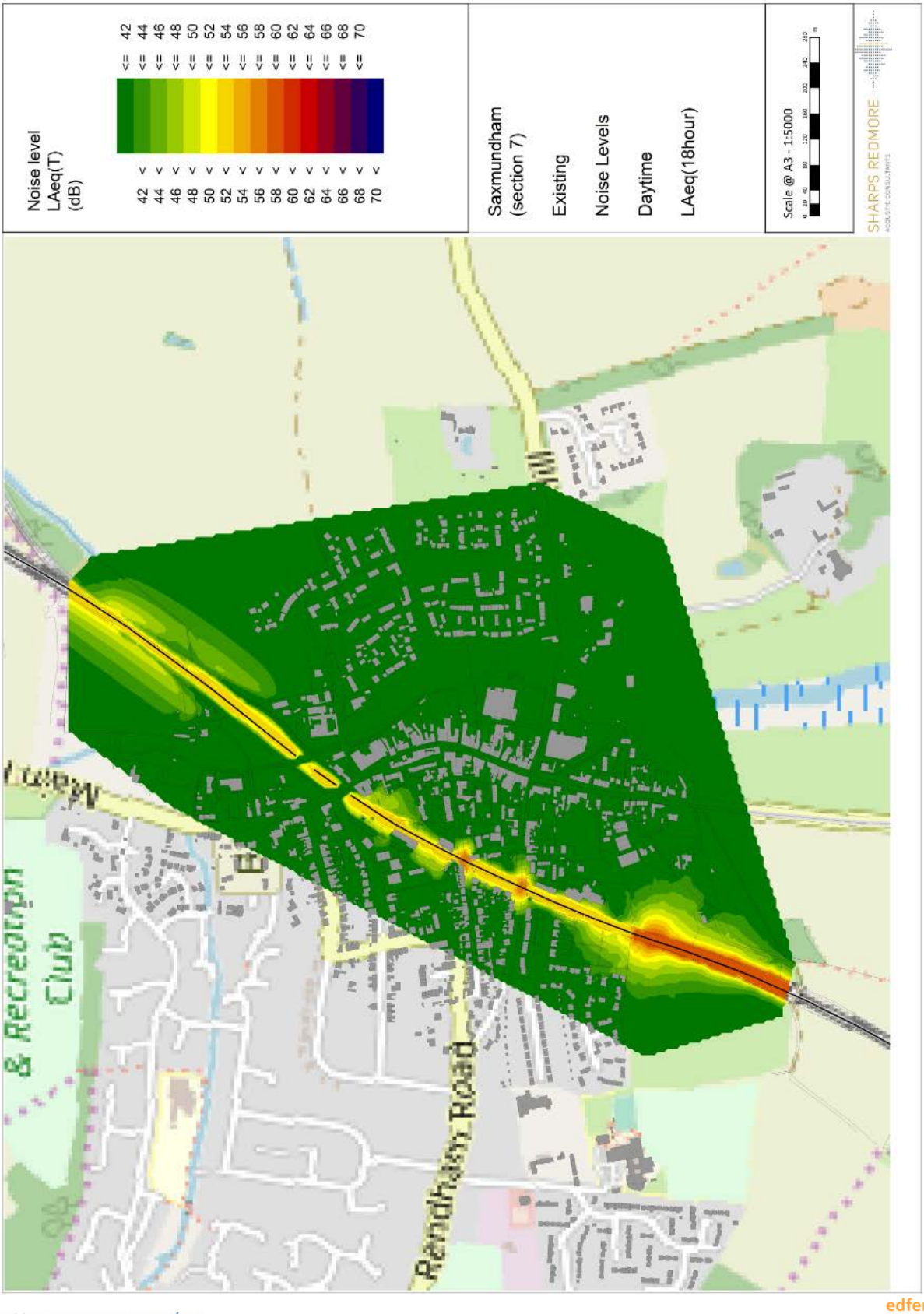

Noise level
LAeq(T)
(dB)
<= 42 <= 44 <= 46 <= 48 <= 50 <= 52 <= 54 <= 56 <= 58 <= 60 <= 62 <= 64 <= 66 <= 68 <= 70
> 42 > 44 > 46 > 48 > 50 > 52 > 54 > 56 > 58 > 60 > 62 > 64 > 66 > 68 > 70
Saxmundham
(section 7)
Existing
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Recreation
Club
Rendham Road

Figure E50: East Suffolk Line - Section 7B, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed

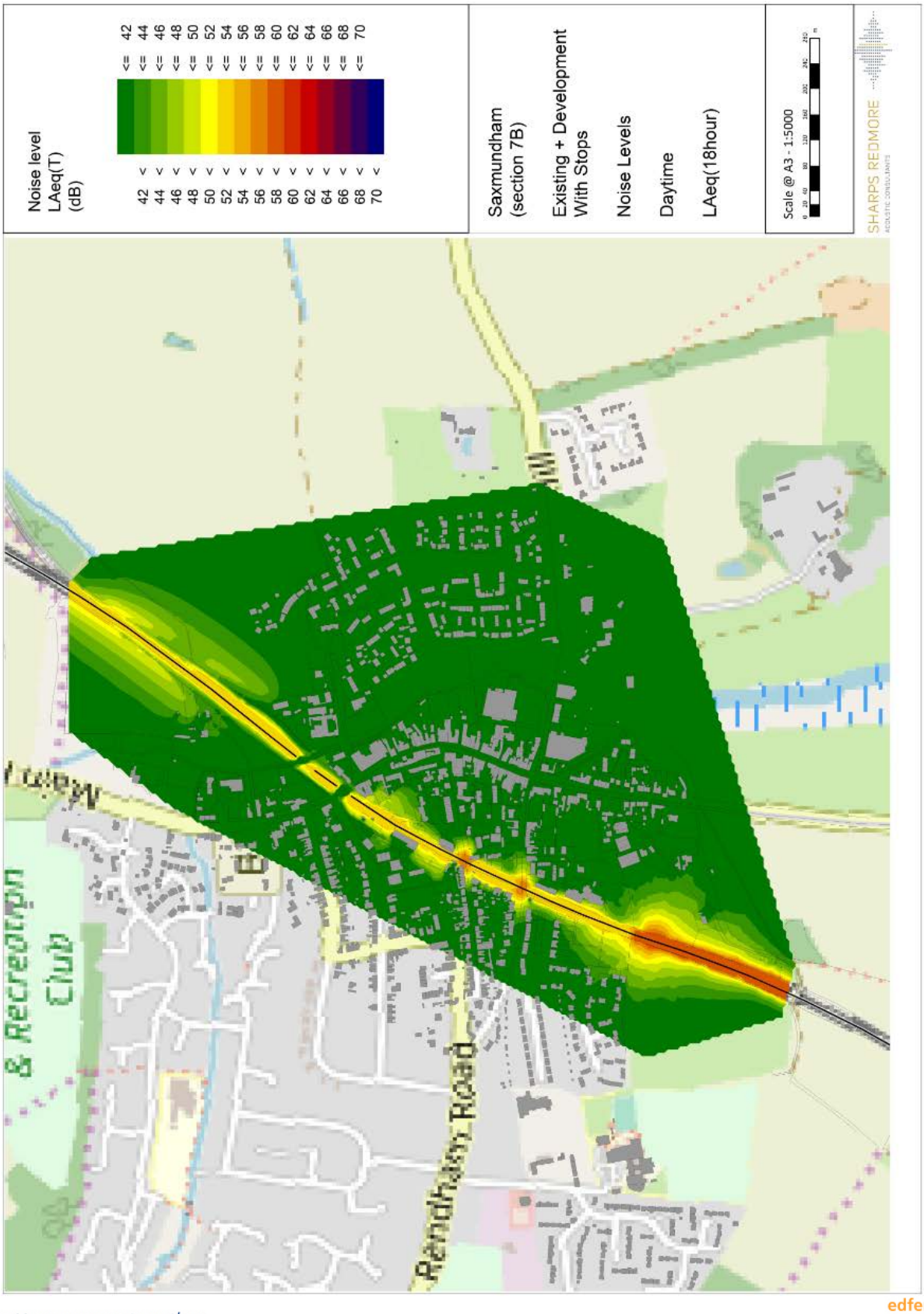

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
> 42
> 44
> 46
> 48
> 50
> 52
> 54
> 56
> 58
> 60
> 62
> 64
> 66
> 68
> 70
Saxmundham
(section 7B)
Existing + Development
With Stops
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
& Recreation
Club
Rendham Road

Figure E51: East Suffolk Line – Section 7B, Night time noise contours, $L_{Aeq, 6h}$ - Existing

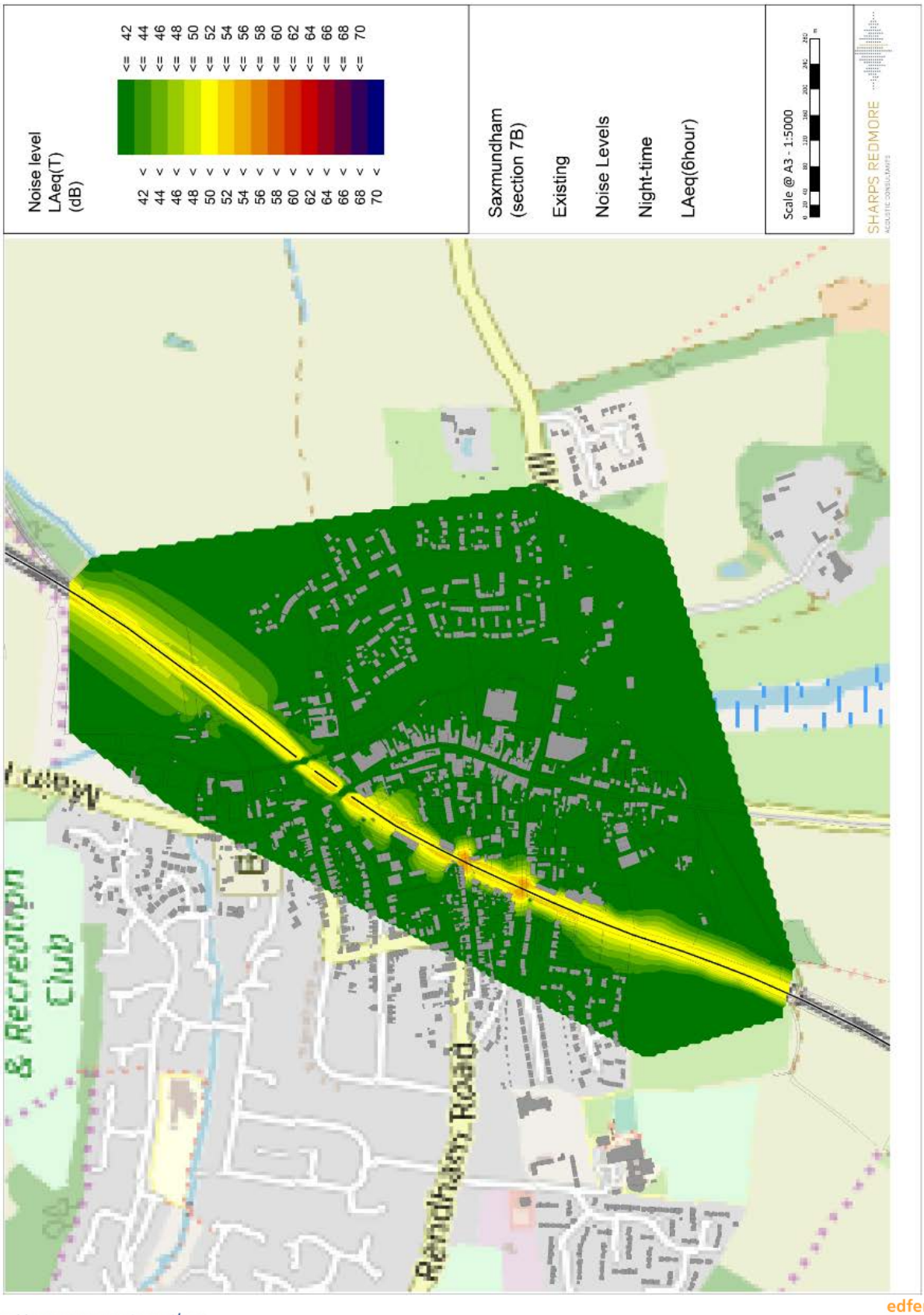

Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Saxmundham
(section 7B)
Existing
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
& Recreation
Club
Rendham Road

Figure E52: East Suffolk Line – Section 7B, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed

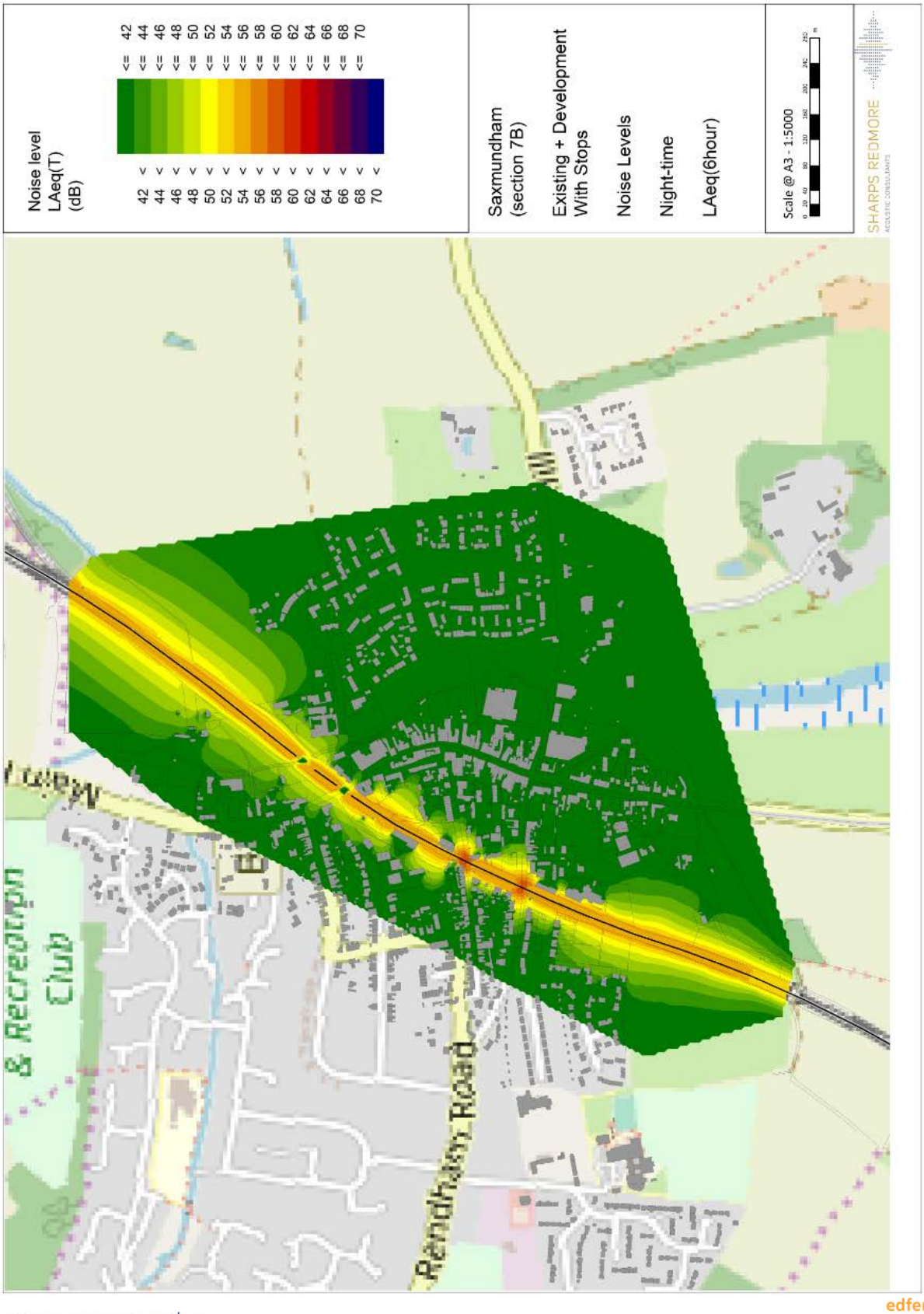

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Saxmundham
(section 7B)
Existing + Development
With Stops
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
& Recreation
Club
Rendham Road

Figure E53: East Suffolk Line - Section 7A, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed with secondary mitigation: avoiding the need for trains to stop

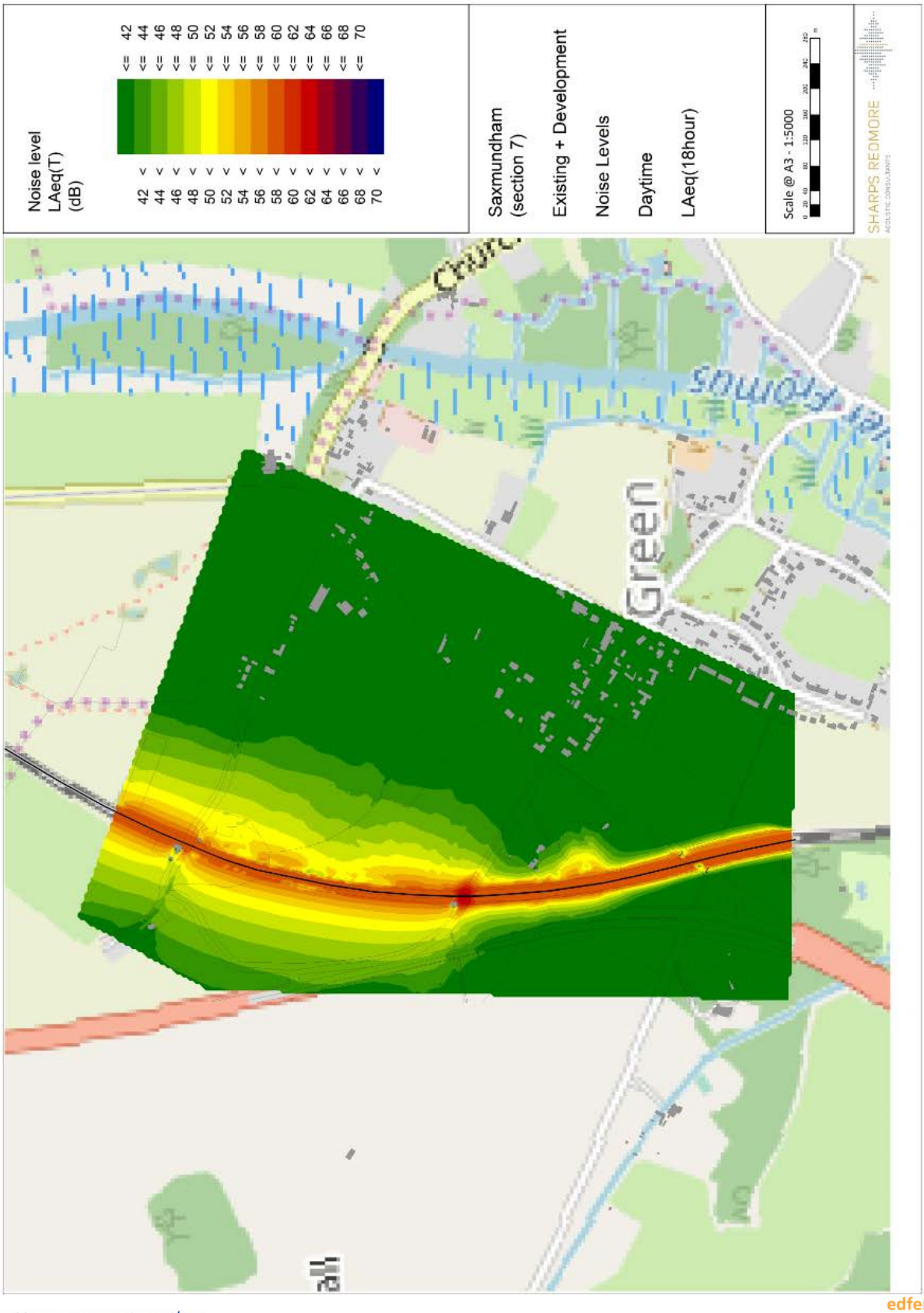

Noise level
LAeq(T)
(dB)
<= 42 <= 44 <= 46 <= 48 <= 50 <= 52 <= 54 <= 56 <= 58 <= 60 <= 62 <= 64 <= 66 <= 68 <= 70
> 42 > 44 > 46 > 48 > 50 > 52 > 54 > 56 > 58 > 60 > 62 > 64 > 66 > 68 > 70
Saxmundham
(section 7)
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E54: East Suffolk Line - Section 7B, Day time noise contours, $L_{Aeq, 18h}$ – Existing + proposed with secondary mitigation: avoiding the need for trains to stop

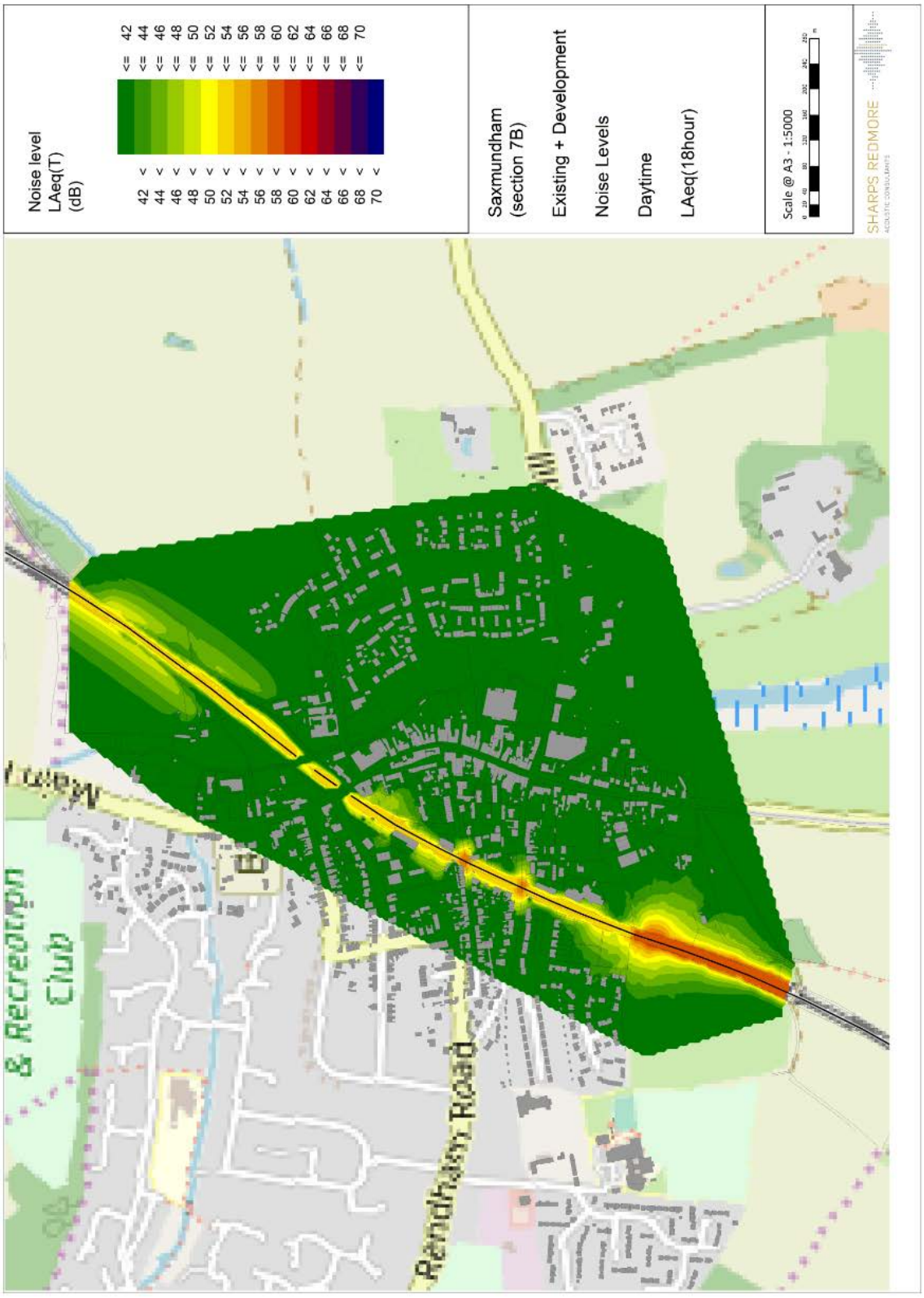

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
v 42
v 44
v 46
v 48
v 50
v 52
v 54
v 56
v 58
v 60
v 62
v 64
v 66
v 68
v 70
Saxmundham
(section 7B)
Existing + Development
Noise Levels
Daytime
LAeq(18hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Recreation
Club
Road

Figure E55: East Suffolk Line – Section 7A, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed with secondary mitigation: avoiding the need for trains to stop

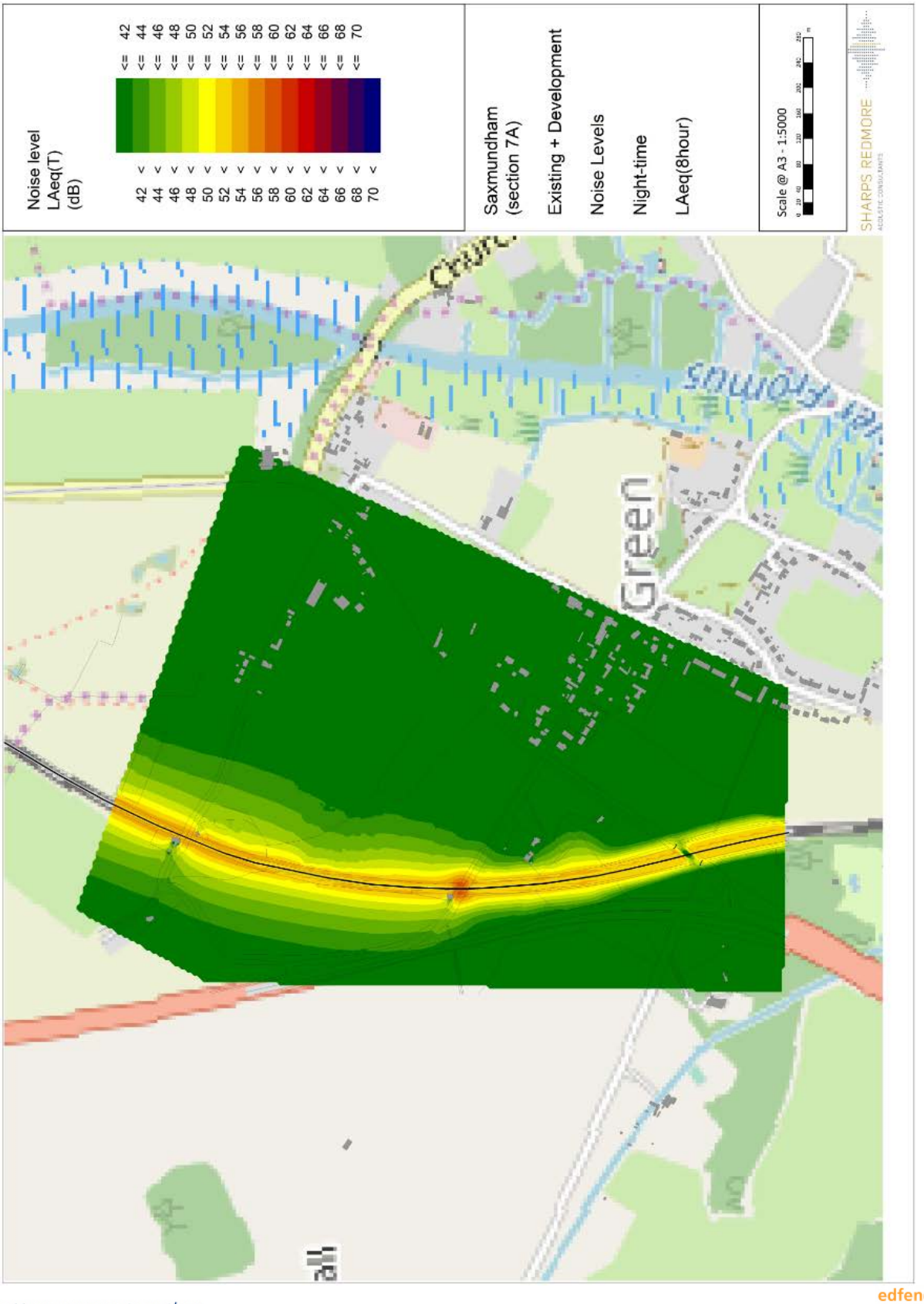
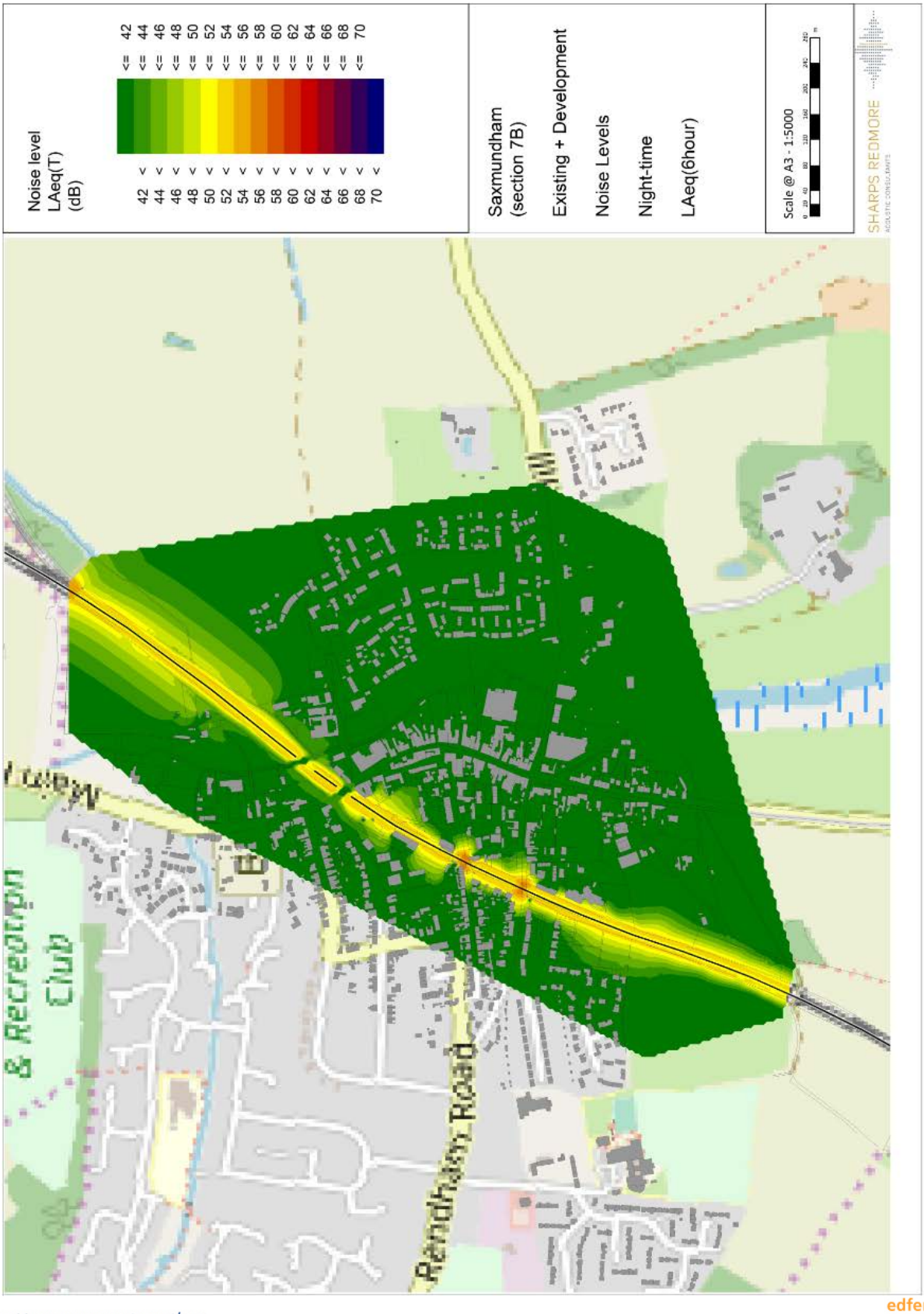

Noise level
LAeq(T)
(dB)
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
<= 70
Saxmundham
(section 7A)
Existing + Development
Noise Levels
Night-time
LAeq(8hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
Green

Figure E56: East Suffolk Line – Section 7B, Night time noise contours, $L_{Aeq, 6h}$ – Existing + proposed with secondary mitigation: avoiding the need for trains to stop


Noise level
LAeq(T)
(dB)
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Saxmundham
(section 7B)
Existing + Development
Noise Levels
Night-time
LAeq(6hour)
Scale @ A3 - 1:5000
SHARPS REDMORE
& Recreation
Club
Rendham Road

Annex F :

Contours - East Suffolk Line: Westerfield junction to Saxmundham junction throughout the operational period

L_{Amax} values

Figure F1: East Suffolk Line - Section 1A, Night time noise contours, L_{Amax} with development

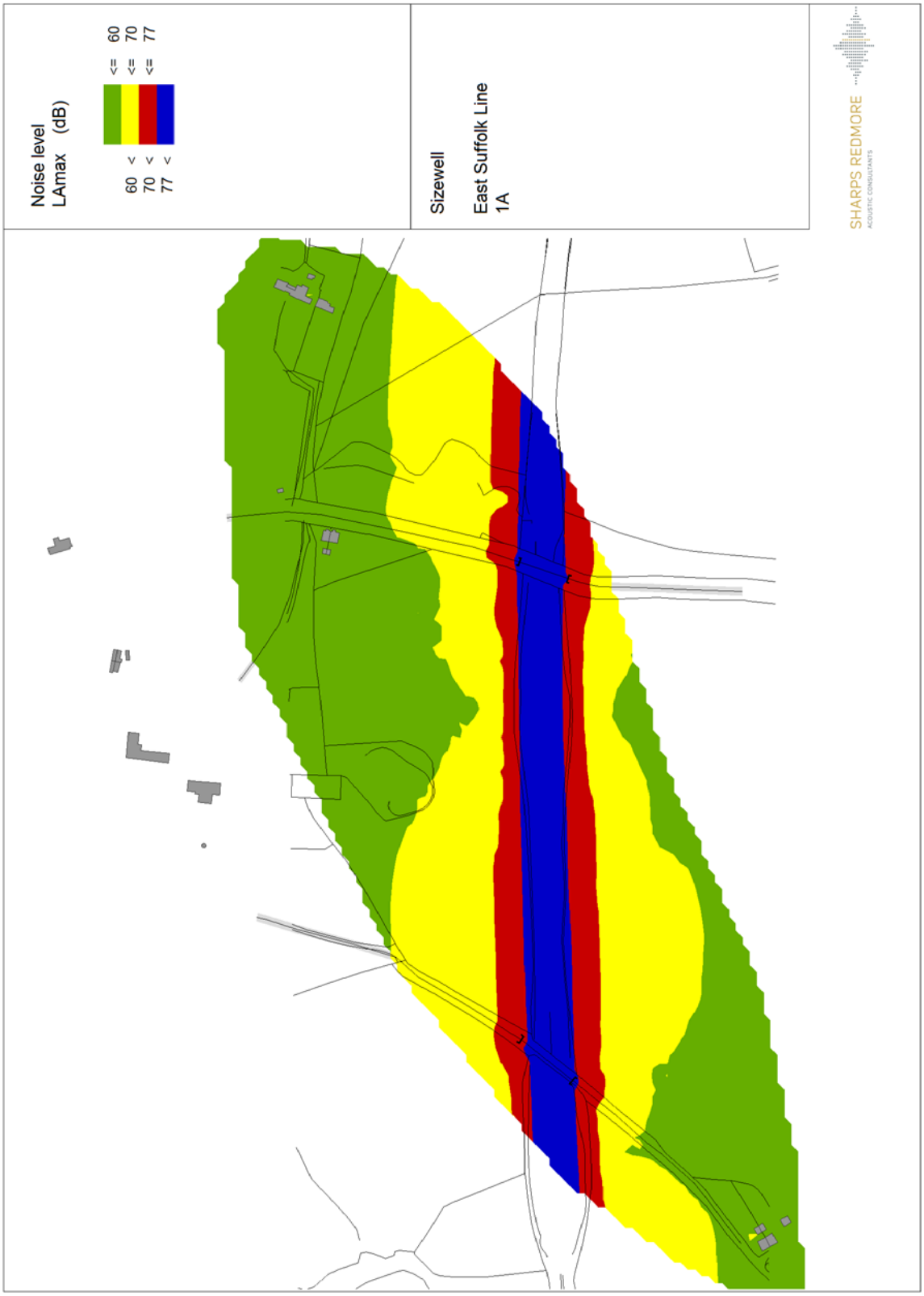

Noise level
LAmax (dB)
60 70 77
<= <= <=
60 < 70 < 77 <
Sizewell
East Suffolk Line
1A
SHARPS REDMORE

Figure F2: East Suffolk Line - Section 1B, Night time noise contours, L_{Amax} with development

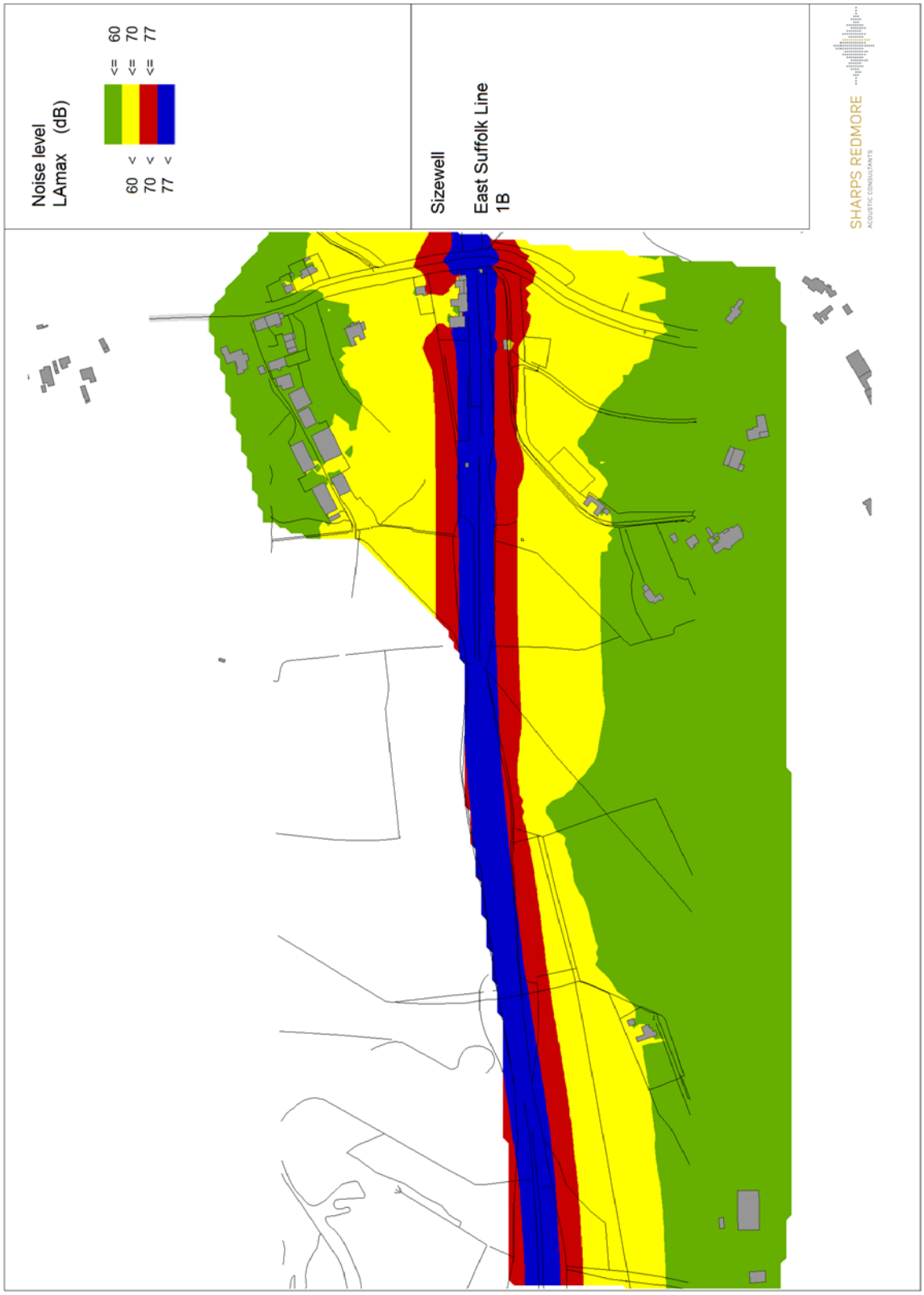

Noise level
LAmax (dB)
60 <=
70 <=
77 <=
60 <
70 <
77 <
Sizewell
East Suffolk Line
1B
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F3: East Suffolk Line - Section 1C, Night time noise contours, L_{Amax} with development

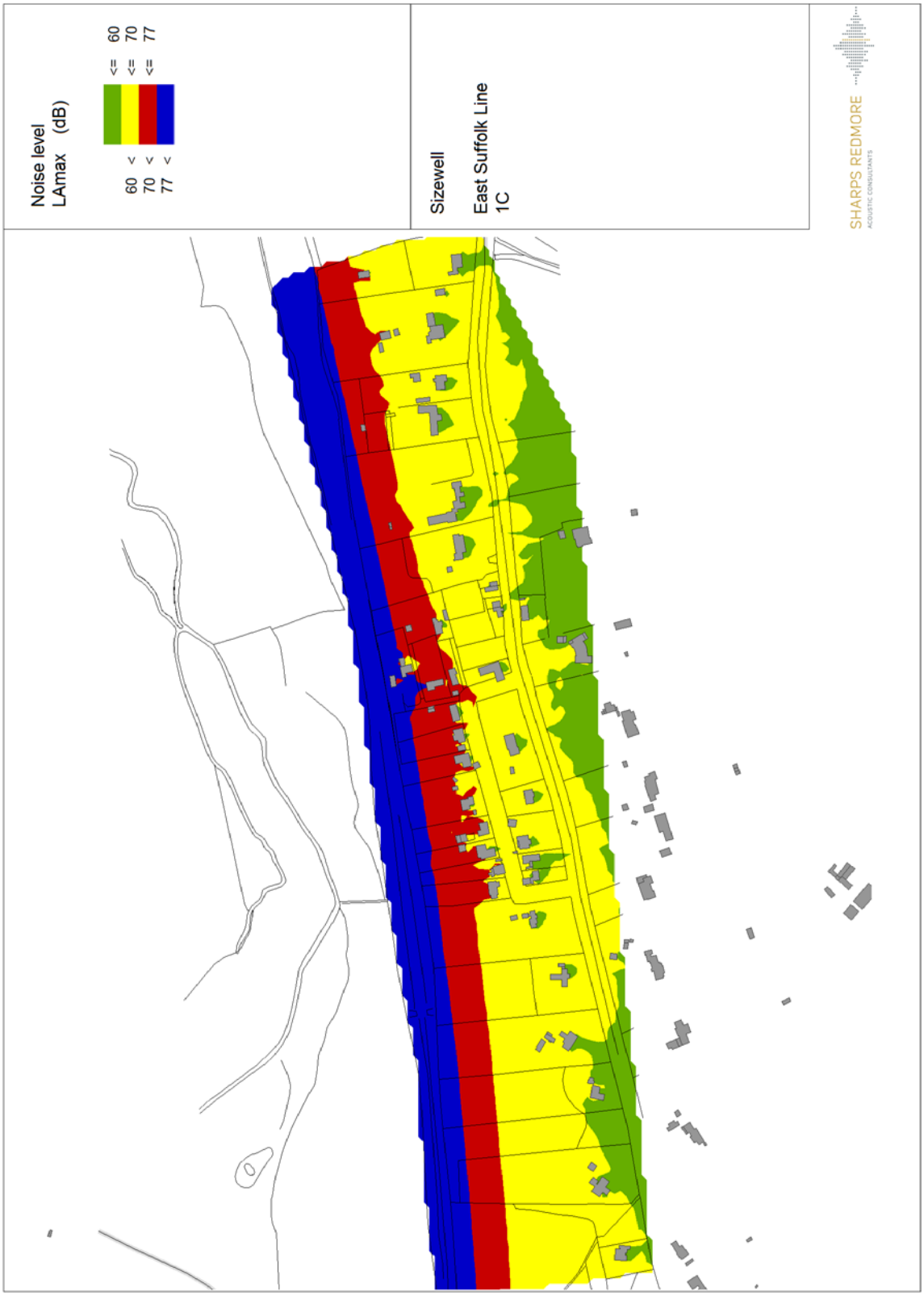

Noise level
LAmax (dB)
60 70 77
<= <= <=
60 < 70 < 77 <
Sizewell
East Suffolk Line
1C
SHARPS REDMORE

Figure F4: East Suffolk Line - Section 1D, Night time noise contours, L_{Amax} with development

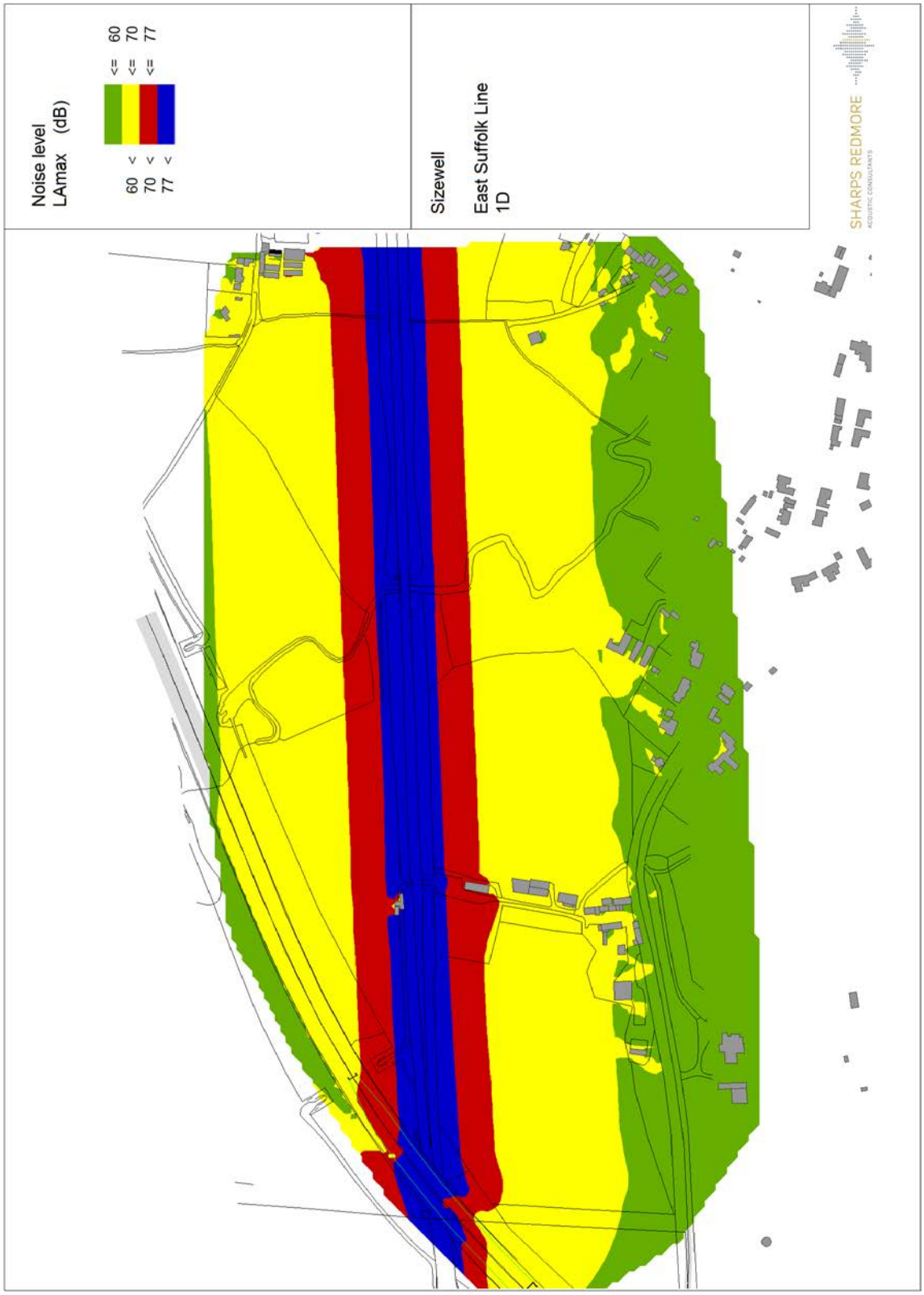

Noise level
LAmax (dB)
60 <=
70 <=
77 <=
60 <
70 <
77 <
Sizewell
East Suffolk Line
1D
SHARPS REDMORE

Figure F5: East Suffolk Line - Section 2A, Night time noise contours, L_{Amax} with development


Noise level
LAmax
(dB)
<= 60
<= 70
<= 77
60 <
70 <
77 <
Sizewell
East Suffolk Line
2A
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F6: East Suffolk Line - Section 2B, Night time noise contours, L_{Amax} with development


Noise level
LAmax
(dB)
<= 60
<= 70
<= 77
60 < 70 < 77 <
Sizewell
East Suffolk Line
2B
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F7: East Suffolk Line - Section 2C, Night time noise contours, L_{Amax} with development

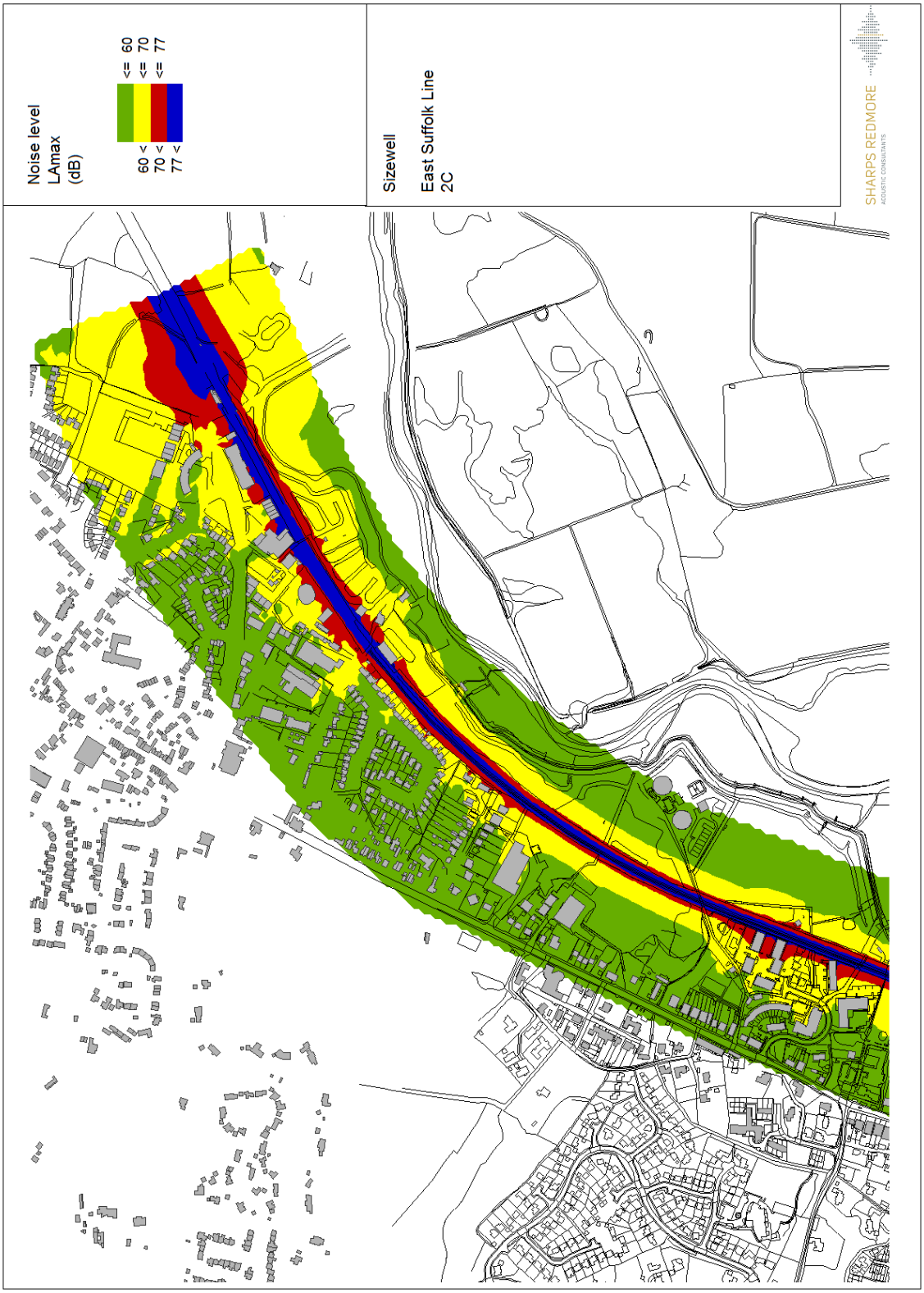

Noise level
LAmax
(dB)
<= 60
<= 70
<= 77
60 < 70 < 77 <
Sizewell
East Suffolk Line
2C
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F8: East Suffolk Line - Section 3A, Night time noise contours, L_{Amax} with development

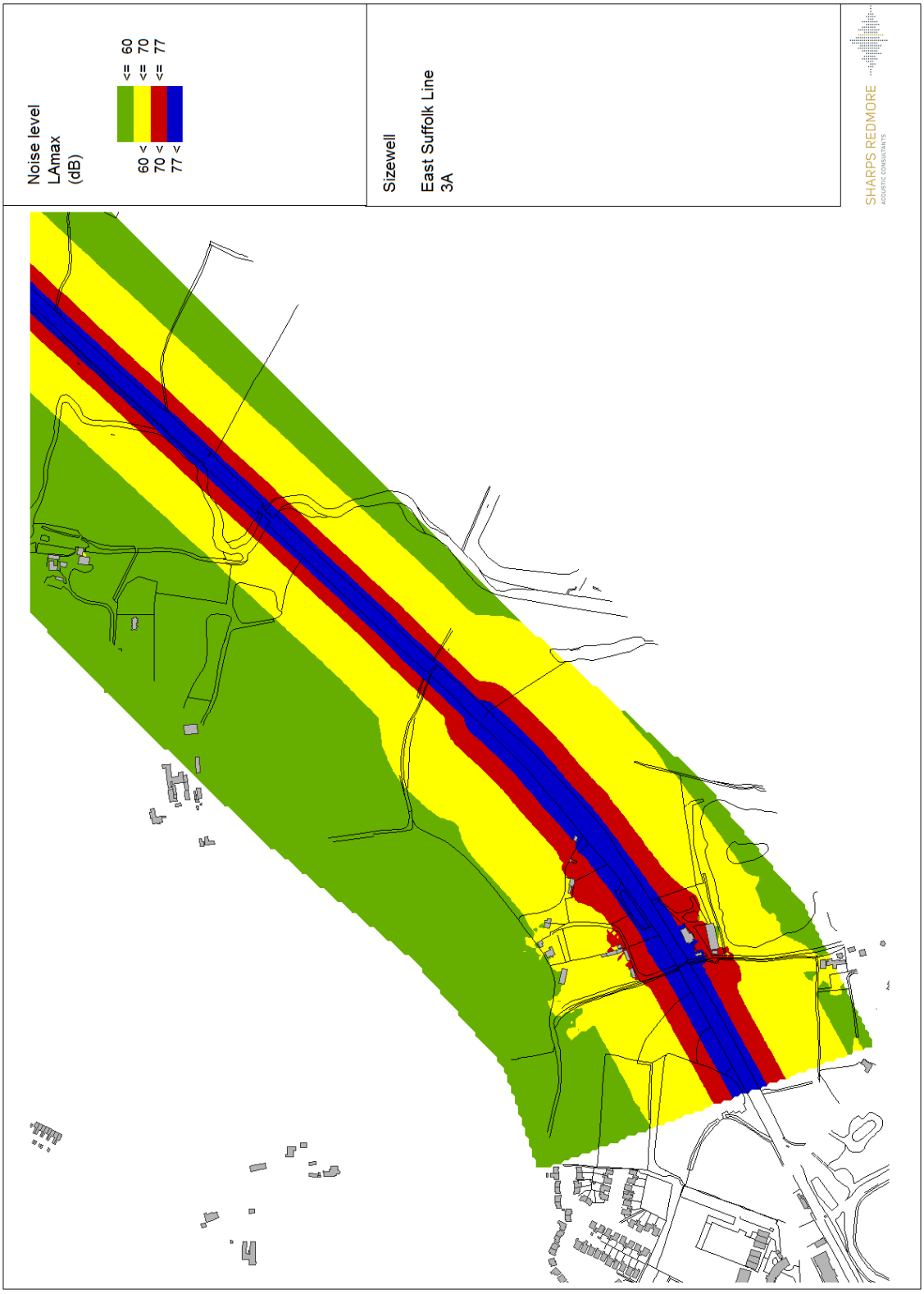

Noise level
LAmax
(dB)
<= 60
<= 70
<= 77
60 <
70 <
77 <
Sizewell
East Suffolk Line
3A
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F9: East Suffolk Line - Section 3B, Night time noise contours, L_{Amax} with development

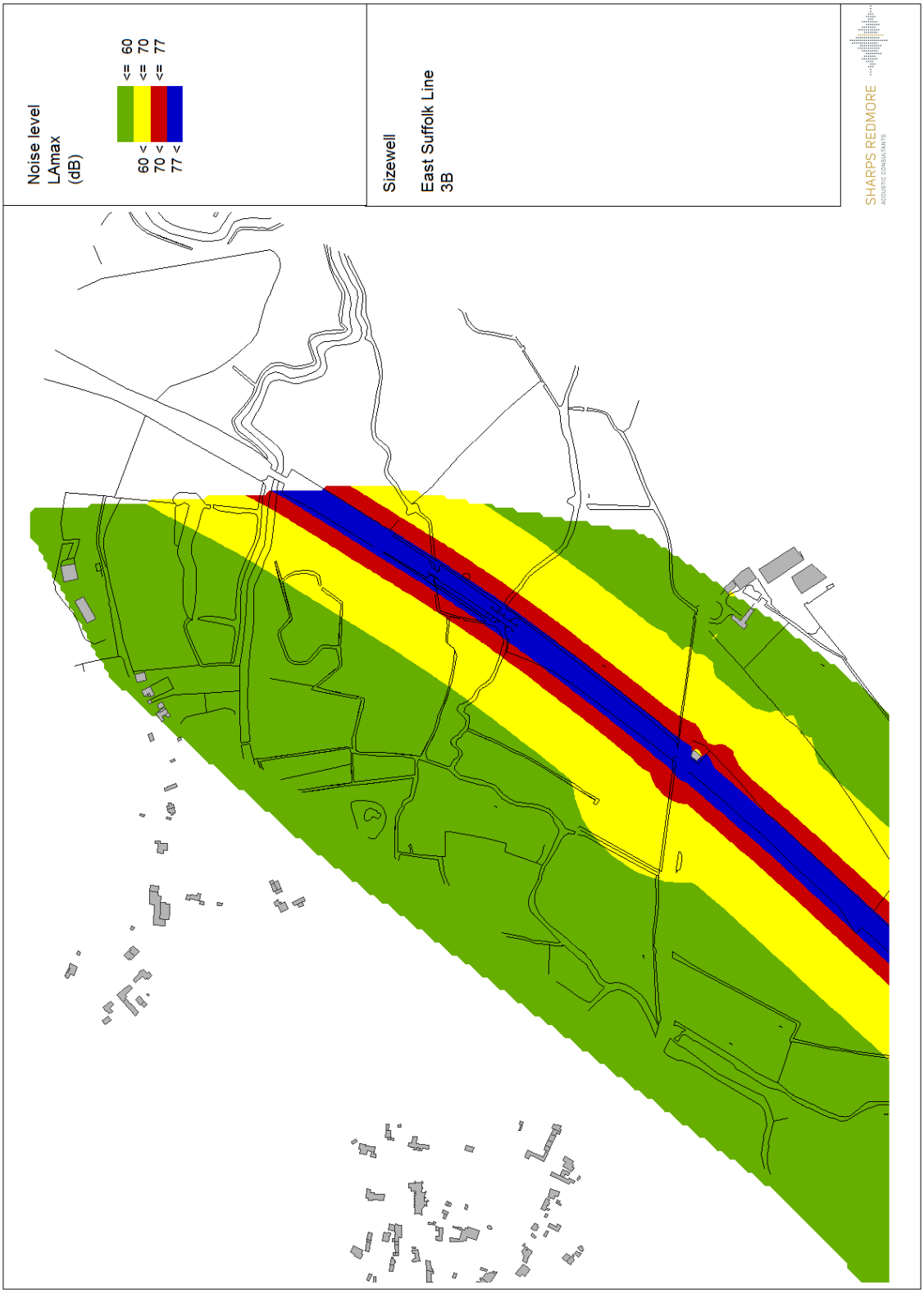

Noise level
LAmax
(dB)
<= 60
<= 70
<= 77
60 < 70 < 77 <
Sizewell
East Suffolk Line
3B
SHARPS REDMORE
ACOUSTIC CONSULTANTS

Figure F10: East Suffolk Line - Section 4A, Night time noise contours, L_{Amax} with development


Noise level
LAmax (dB)
60
70
77
<= <= <=
60 70 77
> > >
Sizewell
East Suffolk Rail
4A
SHARPS REDMORE

Figure F11: East Suffolk Line - Section 4B, Night time noise contours, L_{Amax} with development

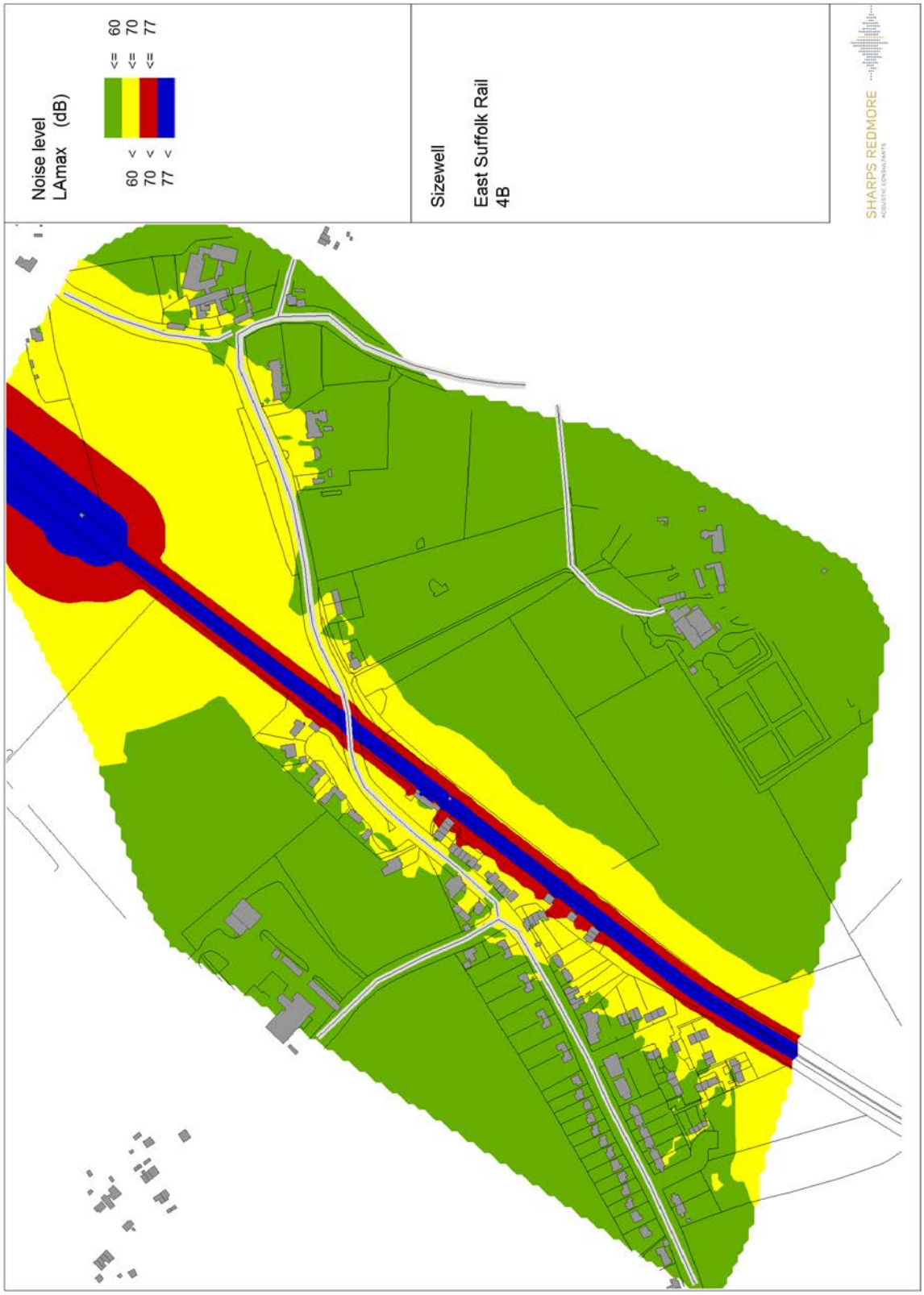

Noise level
LAmax (dB)
60
70
77
<= <= <=
> > >
60
70
77
Sizewell
East Suffolk Rail
4B
SHARPS REDMORE

Figure F12: East Suffolk Line - Section 5A, Night time noise contours, L_{Amax} with development

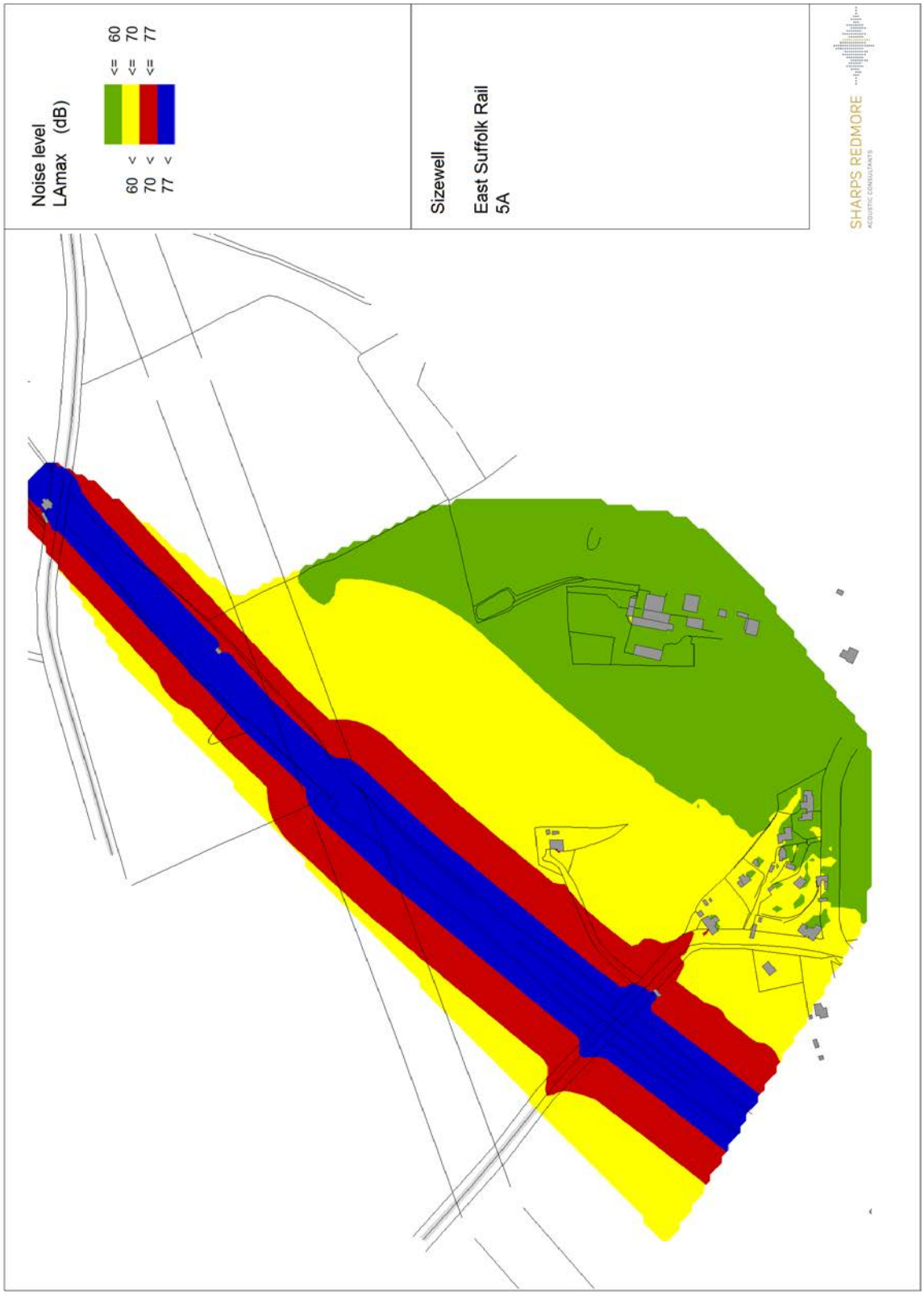

Noise level
LAmax (dB)
60 <= 70 <= 77 <=
60 < 70 < 77 <
Sizewell
East Suffolk Rail
5A
SHARPS REDMORE

Figure F13: East Suffolk Line - Section 5B, Night time noise contours, L_{Amax} with development


Noise level
LAmax (dB)
60 <= 70 <= 77 <=
60 < 70 < 77 <
Sizewell
East Suffolk Rail
5B
SHARPS REDMORE

Figure F14: East Suffolk Line - Section 5C, Night time noise contours, L_{Amax} with development

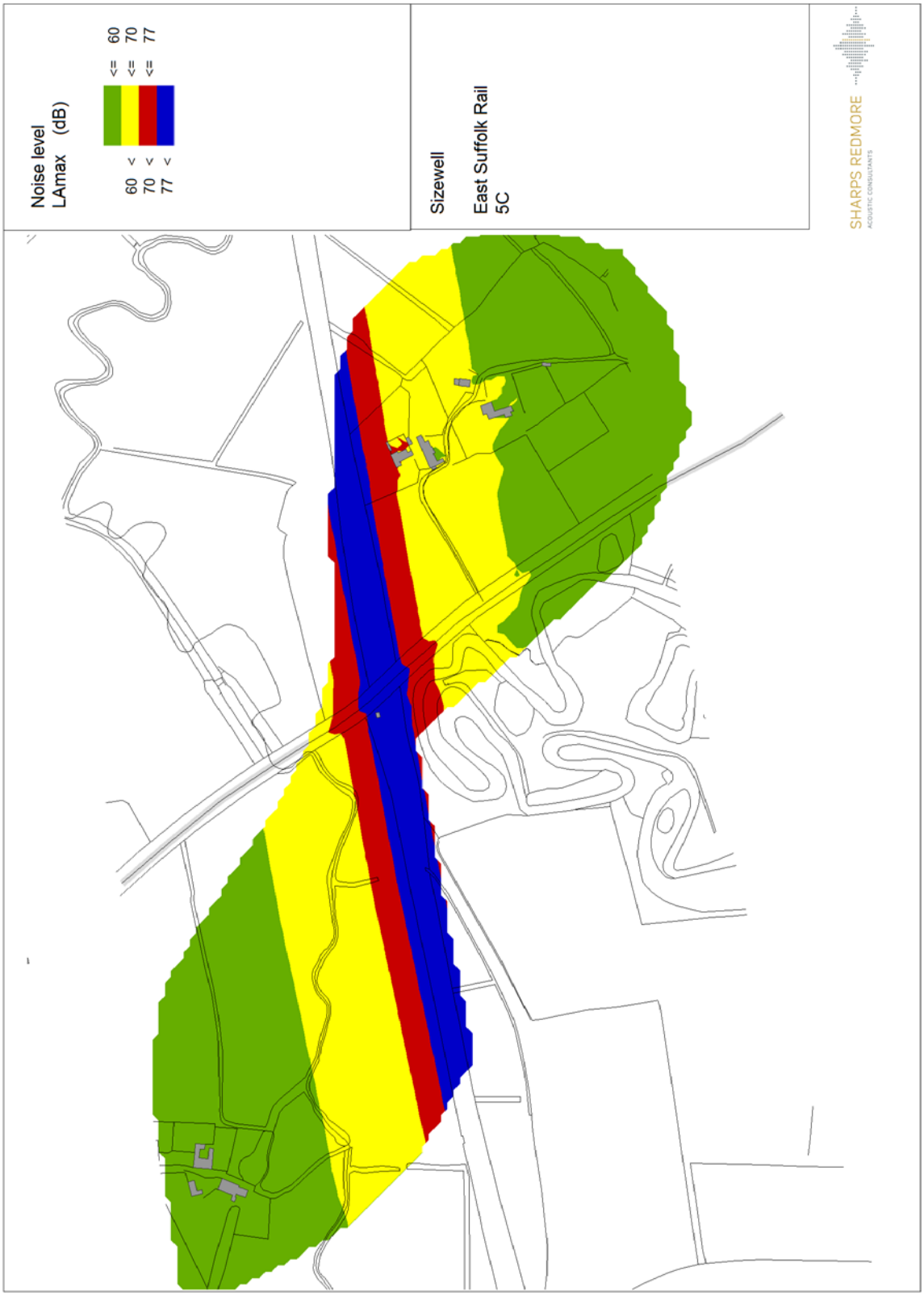

Noise level
LAmax (dB)
60 <= 70 <= 77 <=
60 < 70 < 77 <
Sizewell
East Suffolk Rail
5C
SHARPS REDMORE

Figure F15: East Suffolk Line - Section 6A, Night time noise contours, L_{Amax} with development

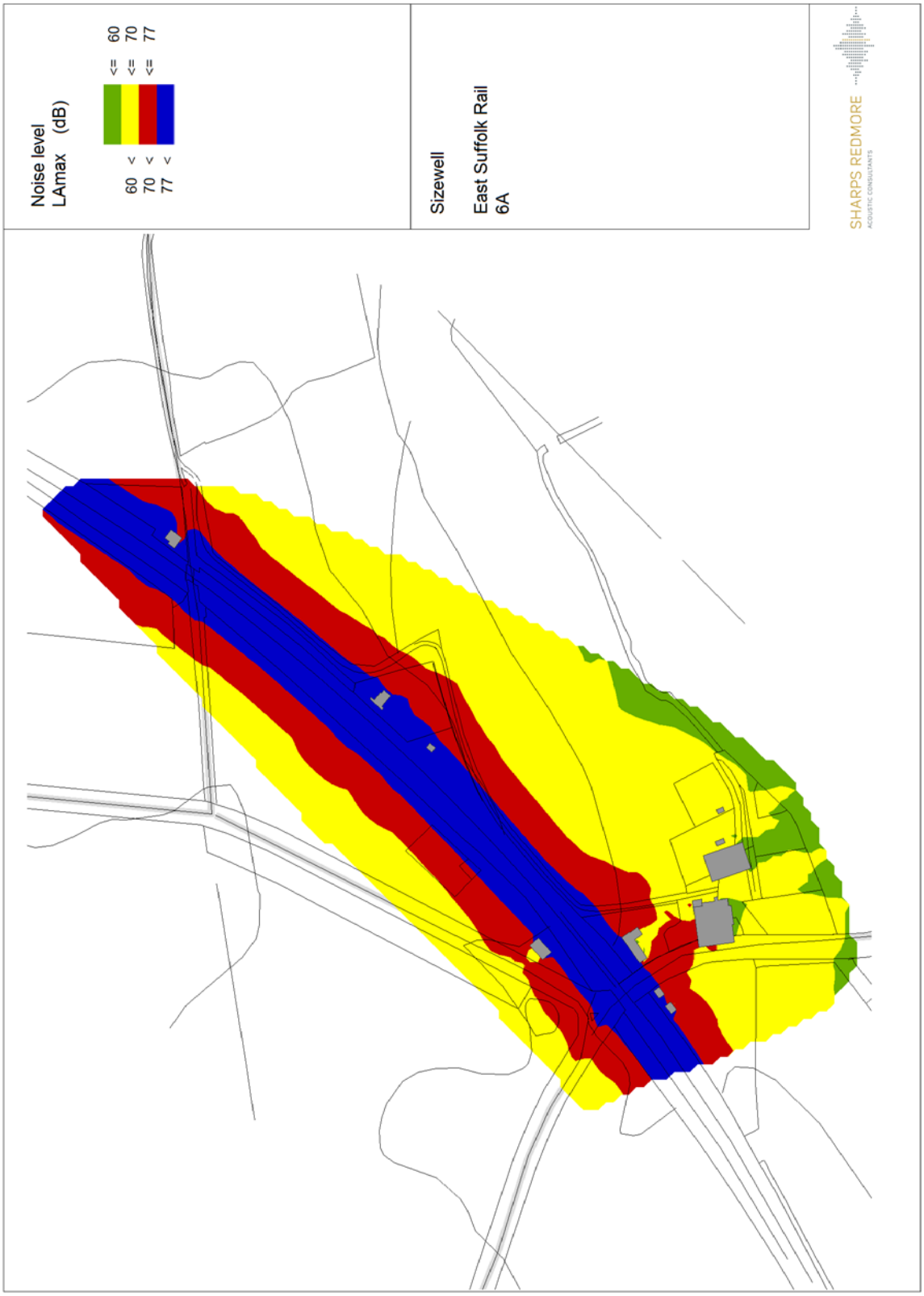

Noise level
LAmax (dB)
60 70 77
<= <= <=
60 < 70 < 77 <
Sizewell
East Suffolk Rail
6A
SHARPS REDMORE

Figure F16: East Suffolk Line - Section 6B, Night time noise contours, L_{Amax} with development

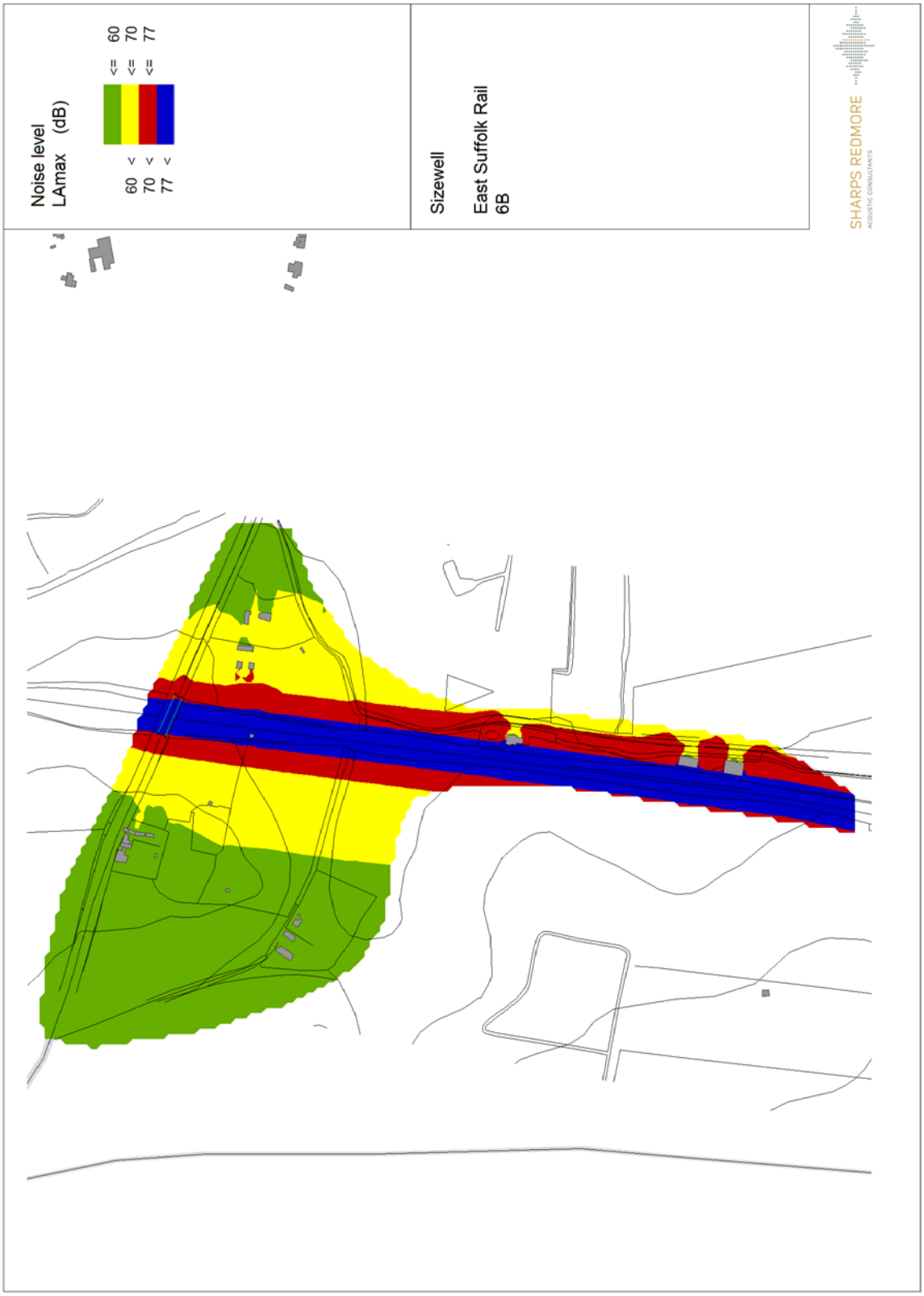

Noise level
LAmax (dB)
60 70 77
<= <= <=
60 70 77
< < <
Sizewell
East Suffolk Rail
6B
SHARPS REDMORE

Figure F17: East Suffolk Line - Section 6C, Night time noise contours, L_{Amax} with development

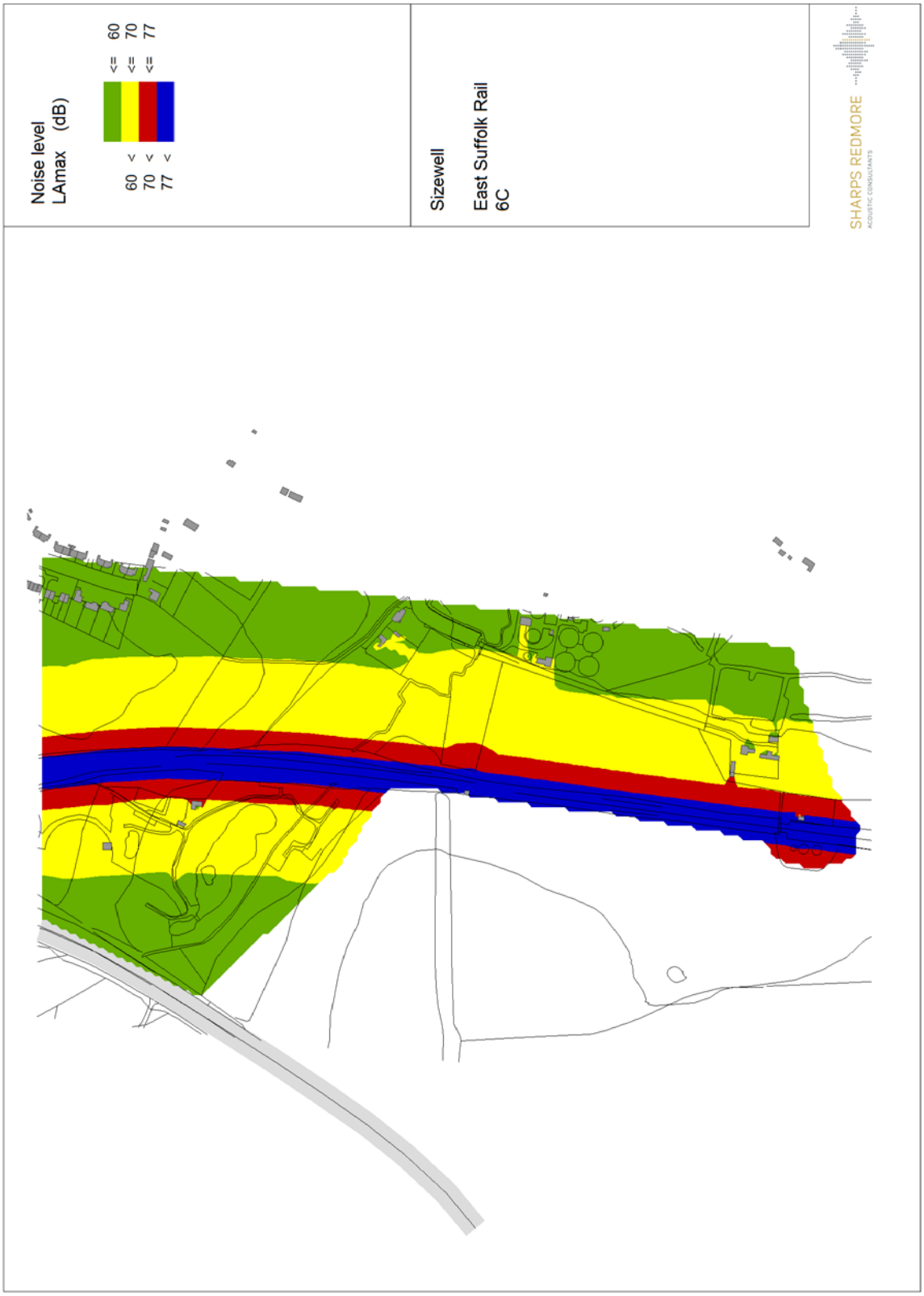

Noise level
LAmax (dB)
60
70
77
<= <= <=
< < <
60 70 77
Sizewell
East Suffolk Rail
6C
SHARPS REDMORE

Figure F18: East Suffolk Line - Section 7A, Night time noise contours, L_{Amax} with development, stopping to change the points

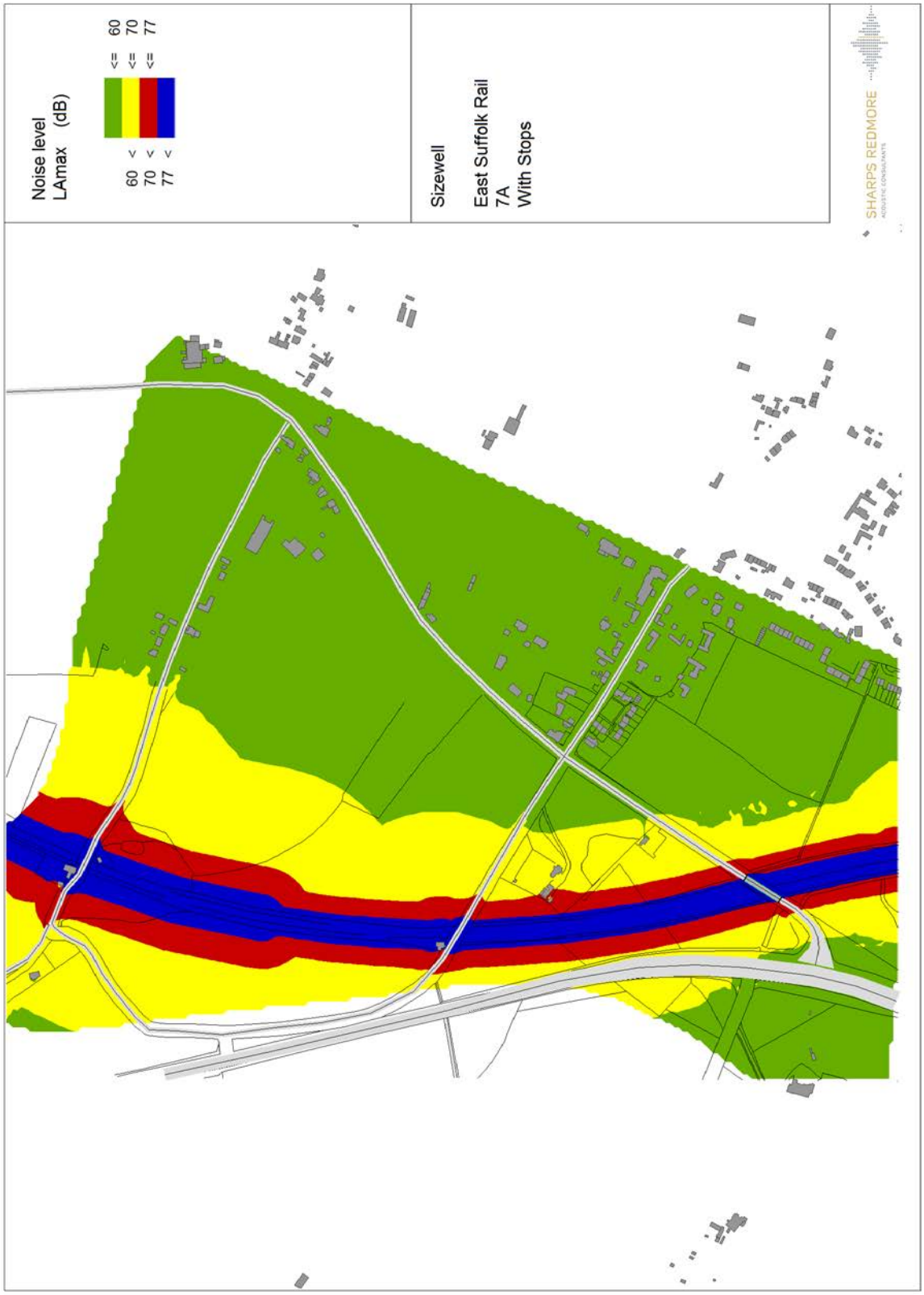

Noise level
LAmax (dB)
60
70
77
<= 60
<= 70
<= 77
Sizewell
East Suffolk Rail
7A
With Stops
SHARPS REDMORE

Figure F19: East Suffolk Line - Section 7B, Night time noise contours, L_{Amax} with development, stopping to change the points

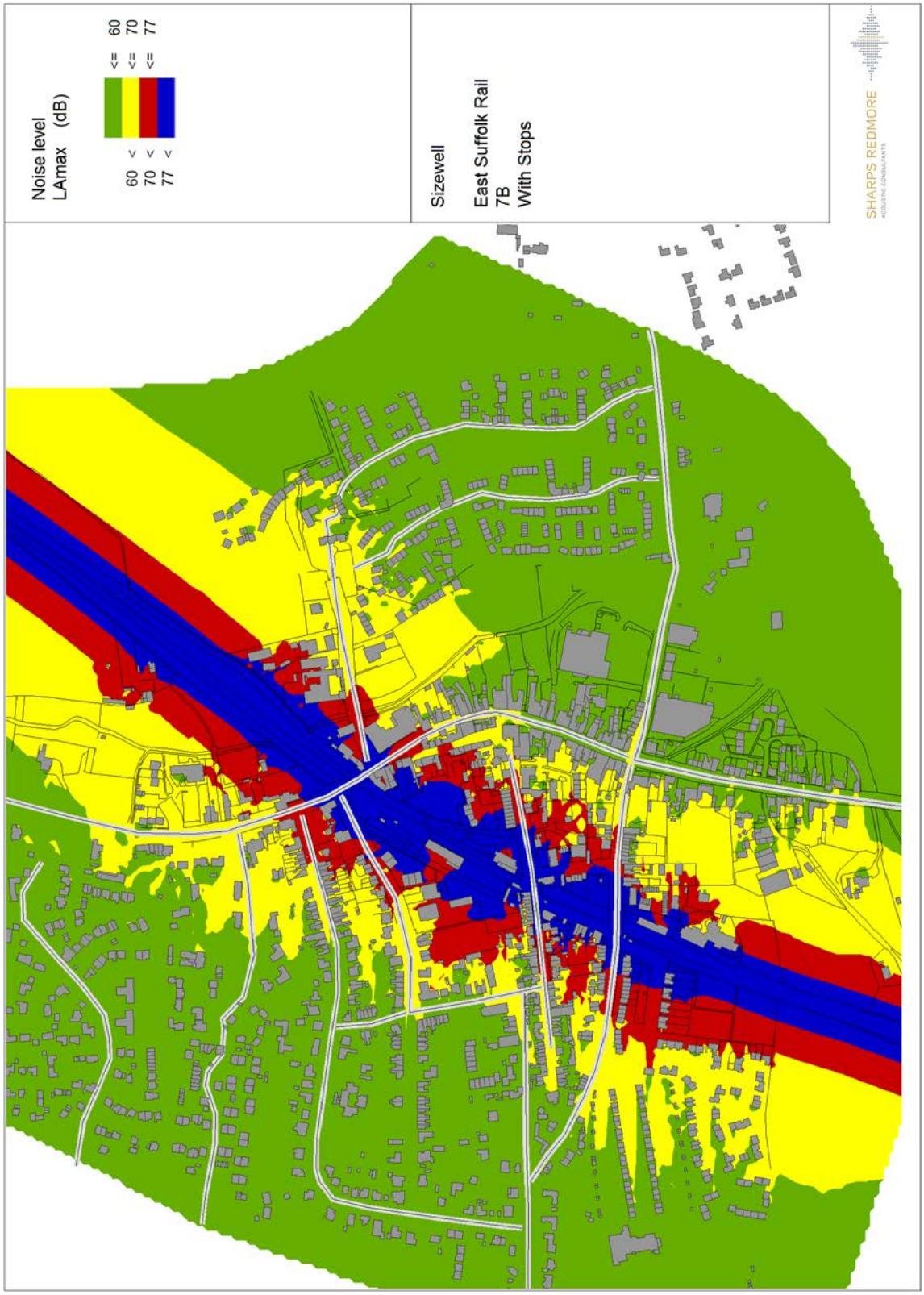

Noise level
LAmax (dB)
60 70 77
< = < = < =
60 70 77
Sizewell
East Suffolk Rail
7B
With Stops
SHARPS REDMORE

Figure F20: East Suffolk Line - Section 7A, Night time noise contours, L_{Amax} with development, with secondary mitigation (no stops)

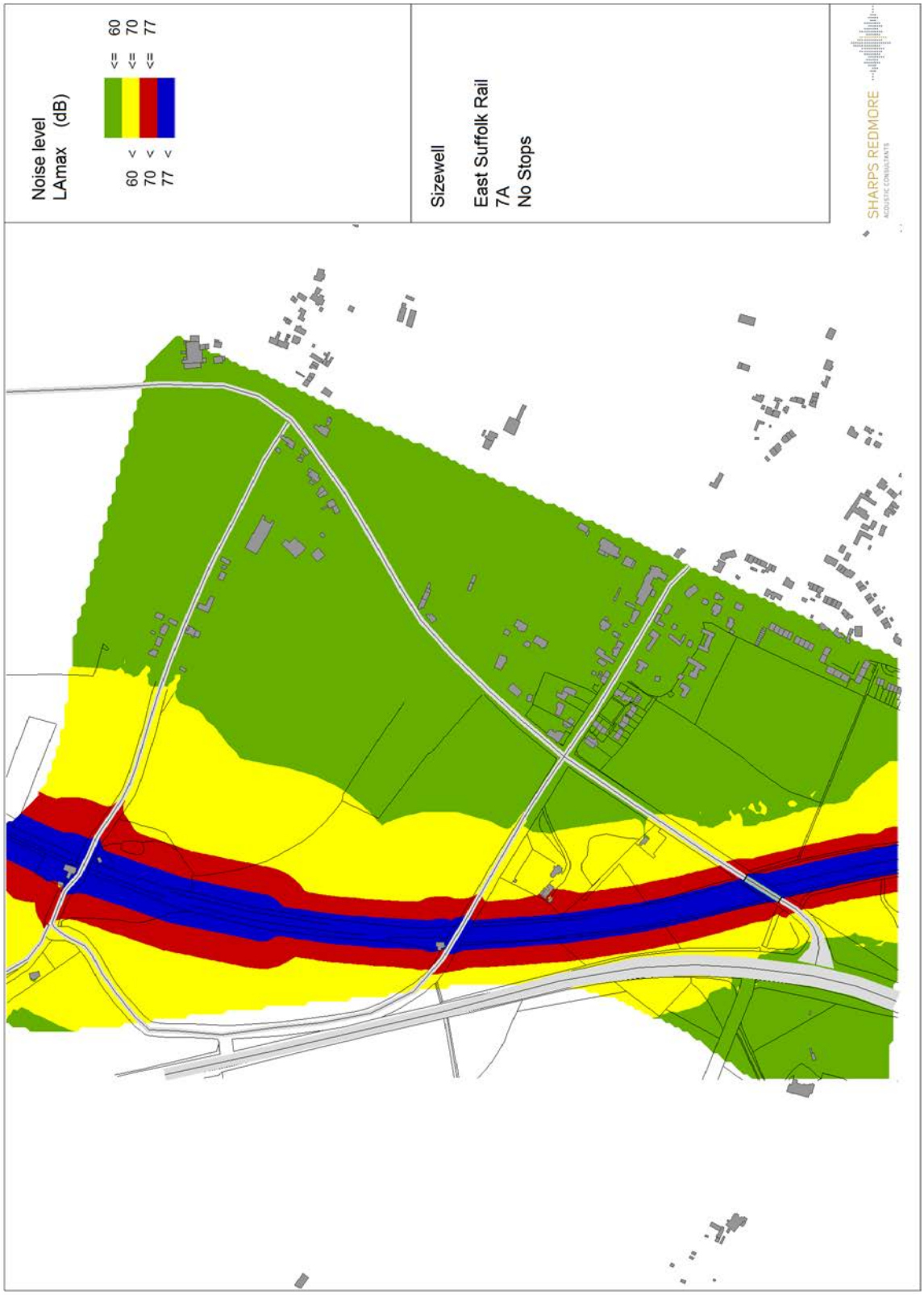
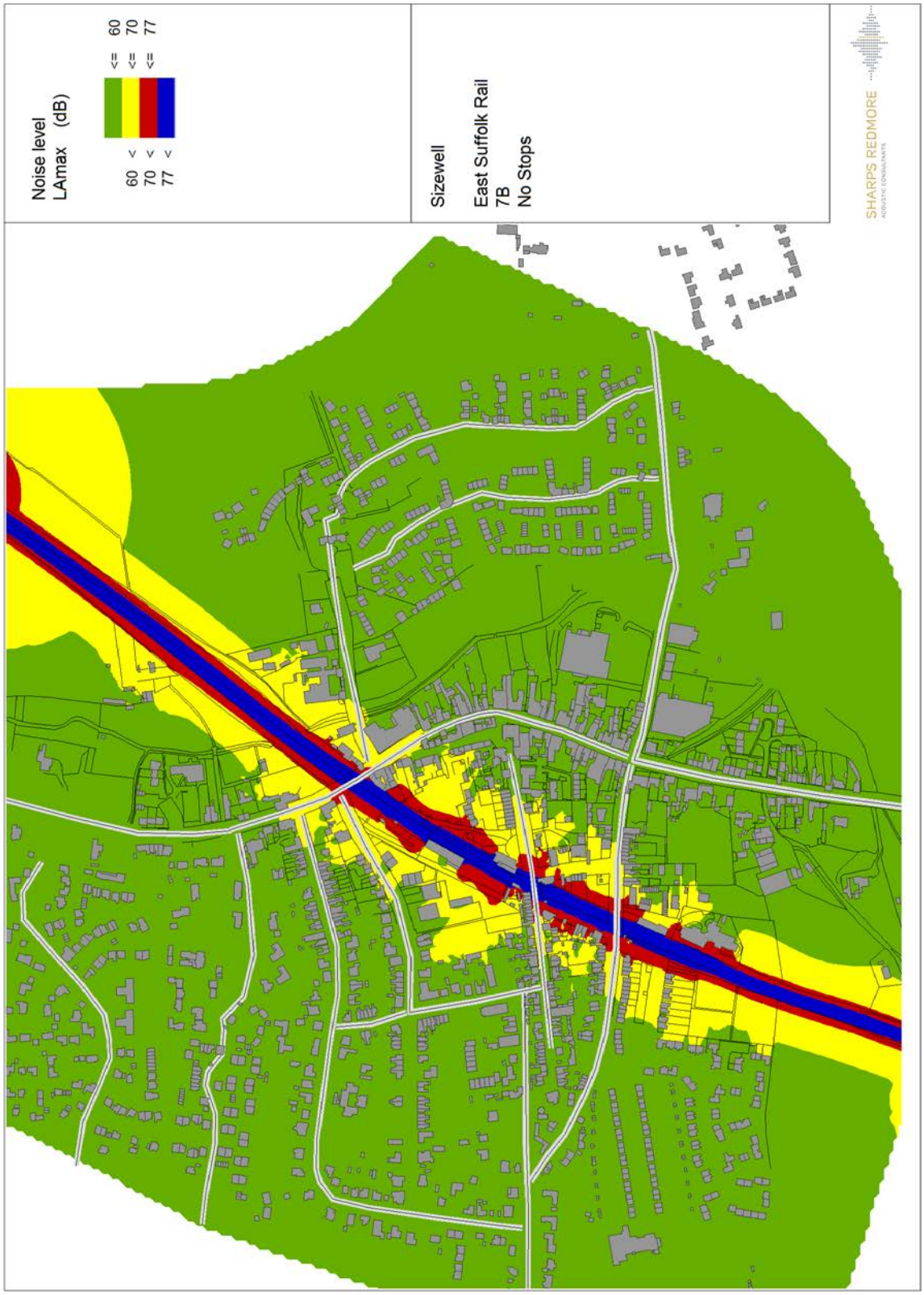

Noise level
LAmax (dB)
60
70
77
<= 60
<= 70
<= 77
Sizewell
East Suffolk Rail
7A
No Stops
SHARPS REDMORE

Figure F21: East Suffolk Line - Section 7B, Night time noise contours, L_{Amax} with development, with secondary mitigation (no stops)


Noise level
LAmax (dB)
60 70 77
<= <= <=
60 70 77
< < <
Sizewell
East Suffolk Rail
7B
No Stops
SHARPS REDMORE

Annex G :

Working of the single line between Saxmundham Junction and Sizewell Sidings

1.1.1 The single line section between Saxmundham Junction and Sizewell Sidings is worked in accordance with Module TW6, Section 1 'One-train working on lines where a train staff is provided' as modified below:

1.1.2 The train staff for the single line section must be kept either in the signal box at Saxmundham or in the designated locked cabinet at Sizewell Sidings (the cabinet at Sizewell Sidings can be opened with a driver's No.1 key).

1.1.3 The train staff consists of:

- the train staff itself (inscribed: 'Saxmundham Junction/Sizewell – Train Staff')
- two detachable segments (inscribed either: 'Saxmundham Junction/Sizewell – Segment 1 of 2 and train staff' or 'Saxmundham Junction/Sizewell – Segment 2 of 2 and train staff')

1.1.4 A segment of the train staff must be detached and used when the next train is required to pass through the single line section in the same direction.

1.1.5 The train staff (and any remaining segments) must be used when the next train is required to pass through the single line section in the opposite direction.

1.1.6 A segment of the train staff may only be used when the train staff itself is present at that end of the single line section. The signaller at Saxmundham must determine whether the train staff or a segment of the train staff is to be conveyed by the driver, to make sure that the train staff itself is at the appropriate end of the single line section for the next planned train movement. Use of a divisible train staff enables up to three trains to pass through the single line section in the same direction when the following procedure is applied.

1.1.7 Down direction train movements from Saxmundham Junction to Sizewell Sidings – Obtaining and delivering the train staff (or segment) The driver will receive the train staff (or segment) from the signaller at Saxmundham and obtain permission to enter the single line section. The driver must make sure the train staff itself is present at Saxmundham, when receiving a segment of the train staff only. When the train has arrived, complete with tail lamp and

is clear of the 'end of token section' board at Sizewell Sidings, the driver must:

- unlock the designated cabinet and place the train staff (or segment) inside
- attach the train staff (or segment) to any segment(s) already in the cabinet
- close and re-lock the cabinet
- tell the signaller at Saxmundham that the train has arrived, complete with tail lamp and is clear of the 'end of token section' board at Sizewell Sidings and the train staff (or segment) has been delivered to the cabinet Up direction train movements from Sizewell Sidings to Saxmundham Junction – Obtaining and delivering the train staff (or segment)

1.1.8 When a train is ready to depart from Sizewell Sidings, the driver must contact the signaller at Saxmundham and request:

- permission to obtain the train staff (or segment)
- permission to enter the single line section

1.1.9 When the signaller at Saxmundham gives the driver permission to obtain the train staff itself, the driver must:

- unlock the designated cabinet
- obtain the train staff
- close and re-lock the cabinet

1.1.10 When the signaller at Saxmundham gives the driver permission to obtain a segment of the train staff only, the driver must:

- unlock the designated cabinet
- make sure the train staff is present
- detach a segment from the train staff
- confirm to the signaller which segment is being detached
- return the train staff (and any remaining segment) to the cabinet

- close and re-lock the cabinet

1.1.11 When the train has arrived, complete with tail lamp and is clear of the ‘end of token section’ board at Saxmundham Junction, the driver must deliver the train staff (or segment) to the signaller at Saxmundham.