

A46 Coventry Junctions (Walsgrave)

Scheme number: TR010066

6.3 Environmental Statement Appendices

Appendix 8.16 Assessment of Noise Impacts on Ecological Features

APFP Regulations 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and
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**The Infrastructure Planning
(Applications: Prescribed
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ENVIRONMENTAL STATEMENT APPENDICES
**Appendix 8.16: Assessment of Noise
Impacts on Ecological Features**

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1. Introduction and methodology

1.1. Introduction

- 1.1.1. This document has been produced as an Appendix to the Environmental Statement (ES) **(TR010066/APP/6.1)** for the A46 Coventry Junctions (Walsgrave) Scheme to detail the assessment of noise impacts upon ecological features. For the full details including methodologies, survey results and conclusions relied upon in this appendix you are encouraged to read the main document.
- 1.1.2. The ES **(TR010066/APP/6.1)** for the Scheme identifies potential construction and operational noise impacts upon Coombe Pool Site of Special Scientific Interest (SSSI) which is located partially within the Order Limits and adjacent to the west. The SSSI is primarily designated for breeding grey heron (*Ardea cinerea*), wintering waterbirds including shoveler (*Anas clyptea*) and breeding waterbirds. Also mentioned within the SSSI citation are the designated sites breeding and wintering woodland bird assemblages.
- 1.1.3. Five otter (*Lutra lutra*) couches were identified during surveys to establish the ecological baseline and inform the ES **(TR010066/APP/6.1)**. Three otter couches are present on the banks of Coombe Pool lake, one on Smite Brook and a fifth couch is present on the River Sowe. Couch locations are shown on Figures 1 -14 in Annex A.
- 1.1.4. Three potential bat roosts were identified within buildings within Hungerley Hall Farm. Due to limitations upon the survey it was not possible to confirm these roosts and their precise locations within the Hungerley Hall Farm complex. The potential roosts identified at the Farm include one common pipistrelle (*Pipistrellus pipistrellus*) day roost, night roost or potential foraging resource, and two potential day roost, night roost or feeding roost of unidentified species.
- 1.1.5. This Appendix details an assessment of construction and operational noise impacts on the above identified ecological features. Whilst the bat roosts identified are only potential roosts, an assessment has been undertaken on a precautionary basis.

1.2. Assessment methodology

- 1.2.1. In the absence of precise locations of potential bat roosts identified in Hungerley Hall Farm, due to survey limitations, a worst-case approach has been applied to the assessment. Noise data modelled at 3m high has been used for the assessment of impacts upon potential bat roosts. This is because modelled noise data from this height would be considered applicable to any roosting

features on the building facades. Modelled data includes day and night data and the following months from the construction period have been assessed September 2-26, October 2026, June 2027, August 2027, September 2027, October 2027, June 2028 considering the classification of the potential roosts as either day roosts, night roosts or feeding roosts (i.e. not hibernation roosts).

- 1.2.2. CIEEM undertook a literature review on the effects on noise upon bats in *Noise Impacts on Bats – A Sound Assessment?* (CIEEM, 2020). Within this publication CIEEM state “*Applying the precautionary principle, non-natural, unfamiliar or unpredictable noise exceeding 50 dB, Lmax at 8+ kHz within a roost could begin to have deleterious effects (e.g. increased stress)*”. However, CIEEM also states that this shouldn’t be cited as threshold for disturbance. In the absence of a definitive reliable noise threshold for effects to roosting bats, 50dB for unfamiliar noise has been used, however where there is any increase in noise this has also been considered as potential for disturbance.
- 1.2.3. In the absence definitive thresholds for noise disturbance on other ecological features assessed within this Appendix, including otters and birds (both breeding and wintering), 3dB has been used as a threshold at which noise changes would be noticeable (from existing levels), with reference to the Institute of Environmental Management and Assessments’ (IEMAs) *Guidelines for Environmental Noise Impact Assessment* (IEMA, 2014).

1.3. Limitations

- 1.3.1. The assessment of noise impacts upon ecological features detailed within this Appendix is based upon noise modelling undertaken for Scheme construction and operation. The construction assessment was undertaken with the absence of data from the following months in the construction phase: April 2027, May 2027, July 2027, April 2028 and May 2028. This was due to requirement of a rapid production of the data for this assessment. This limitation is therefore applicable to the construction assessment of noise impacts upon otter, roosting bats at Hungerley Hall Farm and breeding birds at Coombe Pool SSSI (including grey heron and waterbirds). However, it is not considered a significant limitation as the construction months for which modelled data has been undertaken cover works that would be ongoing throughout the construction phase and therefore provide an accurate representation of the construction period a whole. As modelling has focused on works when in closest proximity to the SSSI it is likely this assessment is based on a worst-case scenario and as works proceed away from the SSSI impacts will likely reduce.

2. Assessment of likely significant effects

2.1. Construction

Otters

- 2.1.1. Table 1 below details the modelled daytime noise levels respectively experienced at each otter couch within the 'do minimum' opening year (hereafter referred to as the DMOY (i.e. the background noise levels)) and the cumulative noise levels during construction (i.e. the DMOY plus construction noise).
- 2.1.2. The table provides a visual representation of exceedance of background noise levels in the daytime, during the construction period. In the absence of a construction barrier, noise levels at the five otter couches during construction are in exceedance of the DMOY levels, by varying degrees, in every month. Noise levels will then return to background levels in June 2028.

Table 1: Daytime construction noise levels at the five identified otter couches including DMOY noise and construction noise

Month	Couch – daytime construction cumulative noise (dB (A)) Laeq 16hr				
	1 – on Coombe pool lake	2 – on the River Sowe	3 – on Smite Brook	4 – on Coombe pool lake	5 – on Coombe pool lake
DMOY	52.2	54.3	54.6	55.6	54.8
Sept-26	53.0	55.0	56.1	56.6	55.7
Oct-26	52.3	54.6	54.6	55.7	54.9
Nov-26	54.1	56.2	56.6	58.4	57.3
Dec-26	55.9	58.1	57.4	60.4	59.1
Jan-27	56.1	58.5	58.2	60.4	59.3
Feb-27	55.6	58.5	58.1	59.7	58.6
Mar-27	54.7	57.4	57.0	58.9	57.8
Jun-27	52.6	55.3	54.9	56.1	55.3
Aug-27	53.9	54.4	55.7	58.4	56.9
Sept-27	52.7	54.7	55.0	56.4	55.5
Oct-27	53.3	55.0	55.3	57.2	56.1
Nov-27	52.4	54.4	54.7	55.9	55.1
Dec-27	53.4	54.6	57.1	57.2	56.1
Jan-28	52.5	54.4	55.3	56.1	55.2
Feb-28	54.1	54.6	64.7	58.0	56.9
Mar-28	54.2	54.4	56.6	58.9	57.3
Jun-28	52.2	54.3	54.6	55.6	54.8

2.1.3. Table 2 below details the modelled daytime absolute noise change at each otter couch and provides a comparison between the source noise levels and the existing noise level and has been used to determine the potential impact of the works in accordance with the below, with reference to the Institute of Environmental Management and Assessments' (IEMAs) *Guidelines for Environmental Noise Impact Assessment* (IEMA, 2014).

- With a difference of -10dB, the source noise is unlikely to be discernible against existing noise levels.
- A difference of -3dB will be detectable, with the source noise level being noticeably quieter than the existing noise levels.
- A difference of 0dB between the existing noise level and the source noise level will sound about equal in volume.
- A difference of +3dB with the source noise level being noticeably louder than the existing noise levels.
- With a difference of +10dB, the source noise will become the loudest dominant noise source and be heard above all other background levels therefore considered to be potentially more disturbing.

2.1.4. Levels of exceedance are shown in Table 2 in accordance with the following:

- **Green shading:** where there is no exceedance of background levels.
- **Yellow shading:** areas where construction absolute noise change levels is in exceedance of background levels but remain under <3dB
- **Red shading:** areas where construction absolute noise change levels is in exceedance of background levels by ≥3dB but do not exceed 10dB
- **Purple shading:** areas where construction absolute noise change levels is in exceedance of DMOY levels by ≥10dB

Table 2: Daytime construction absolute noise level changes at the five identified otter couches

Month	Couch – daytime absolute noise change (dB (A))				
	1 – on Coombe pool lake	2 – on the River Sowe	3 – on Smite Brook	4 – on Coombe pool lake	5 – on Coombe pool lake
Sept-26	0.8	0.7	1.5	1.0	0.9
Oct-26	0.1	0.3	0.0	0.1	0.1
Nov-26	1.9	1.9	2.0	2.8	2.5
Dec-26	3.7	3.8	2.8	4.8	4.3
Jan-27	3.9	4.2	3.6	4.8	4.5
Feb-27	3.4	4.2	3.5	4.1	3.8
Mar-27	2.5	3.1	2.4	3.3	3.0
Jun-27	0.4	1.0	0.3	0.5	0.5

Month	Couch – daytime absolute noise change (dB (A))				
	1 – on Coombe pool lake	2 – on the River Sowe	3 – on Smite Brook	4 – on Coombe pool lake	5 – on Coombe pool lake
Aug-27	1.7	0.1	1.1	2.8	2.1
Sept-27	0.5	0.4	0.4	0.8	0.7
Oct-27	1.1	0.7	0.7	1.6	1.3
Nov-27	0.2	0.1	0.1	0.3	0.3
Dec-27	1.2	0.3	2.5	1.6	1.3
Jan-28	0.3	0.1	0.7	0.5	0.4
Feb-28	1.9	0.3	10.1	2.4	2.1
Mar-28	2.0	0.1	2.0	3.3	2.5
Jun-28	0.0	0.0	0.0	0.0	0.0

- 2.1.5. The output of the noise modelling indicates that there will be an exceedance of daytime DMOY noise levels at each otter couch across the course of the construction period. Exceedances <3dB, shown in yellow in Table 2, are considered unlikely to be noticeable above the DMOY levels and as such are not further analysed.
- 2.1.6. Exceedances >3dB but below 10dB largely occur between December 2026 and March 2027, with all five couches experiencing increases >3dB in January and February 2027. However, an isolated exceedance of DMOY levels by +3.3dB would also impact one of the couches on Coombe Pool lake in March 2028. The most significant exceedance, of +10.2dB, would occur in February 2028 and impact the otter couch on Smite Brook.
- 2.1.7. Potential effects of noise disturbance impacts upon otters occupying couches during construction include temporary abandonment of the couches. As otter couches are not where cubs are raised (this activity occurs in natal dens and breeding sites) otters in couches are less sensitive to disturbance and the effects of abandonment are less severe. It is anticipated that otters disturbed whilst occupying couches during construction would simply move elsewhere on Coombe Pool lake, Smite Brook and/or the River Sowe, or other surrounding watercourses, outside of the area of disturbance.
- 2.1.8. This temporary disturbance during construction is due to last a period of four months between December 2026 and March 2027 with the exception of disturbance in two other months. This is a cumulative impact as the disturbance during these periods will prevent otters using all of these couches as such it is assessed as a moderate adverse impact which would result in a **slight adverse**

(not significant) effect on otters occupying couches during the construction phase.

- 2.1.9. Note, as otters use couches as daytime resting places changes in nighttime noise levels would not be expected to disturb otters as otters would not be occupying couches at this time.

Coombe Pool SSSI

Breeding waterbirds (excluding grey heron)

- 2.1.10. Modelling of construction daytime and nighttime noise levels has been used to identify potential noise disturbance impacts on breeding waterbirds during the early, mid- and late breeding season within Coombe Pool SSSI and includes modelled data from the following months:
- March 2027
 - June 2027
 - August 2027
 - March 2028
 - June 2028
- 2.1.11. Noise modelling has confirmed absolute daytime noise changes impacting the coombe pool lake in June 2027 are between +0.1dB and +0.9dB and no changes in nighttime noise in this month. These daytime increases in noise are significantly below the threshold which is considered to produce a noticeable change (3dB) and as such no impacts are considered upon breeding birds during this month due to noise disturbance. All other modelled months during the breeding season (including March and August 2027 and March and June 2028) would experience exceedances >3dB and as such are discussed further.
- 2.1.12. Table 3 below details the maximum construction absolute noise changes (dB) in the modelled breeding months within the construction phase and the areas of the coombe pool lake impacted, including the percentage area impacted of the 36ha Coombe Pool lake. Months scoped out above due to lack of absolute noise changes >3dB are not included in the table.

Table 3: Maximum daytime absolute noise changes during construction and areas of the coombe pool lake impacted

Month	Day/night	Absolute noise change (dB) range	Areas* of Coombe Pool lake where maximum absolute noise change (dB) is >3dB exceedance of DMOY noise levels					
			Exceedance between >3dB - ≤5dB		Exceedance between >5dB - ≤10dB		Combined exceedance (all exceedance >3dB)	
			Area	% of Coombe Pool lake	Area	% of Coombe Pool lake	Area	% of Coombe Pool lake
March 2027	Day	6.7dB – 0.2dB	7.03ha	19.53%	1.29ha	3.58%	8.32ha	23.11%
	Night	No change >+3dB						
August 2027	Day	8.6dB – 0.1dB	3.75ha	10.42%	1.96ha	5.44%	5.71ha	15.86%
	Night	No changes in noise levels						
March 2028	Day	8.5dB – 0.5dB	4.18ha	11.61%	1.85ha	5.14%	6.03ha	16.75%
	Night	No change >+3dB						
June 2028	Day	No change >+3dB						
	Night	3.5dB – 0.5dB	0.01ha	0.03%	No change >5dB		0.01ha	0.03%

*areas are approximate

- 2.1.13. Figures 6, 7, 10 and 13 of Annex A provide a visual representation of construction daytime and nighttime absolute noise change levels within the breeding months.
- 2.1.14. Modelling demonstrates that there would be increase in noise levels within breeding months during construction in exceedance of the noticeable 3dB threshold. Absolute noise changes would be between >+8.6dB and >+0.1dB. noise changes >3dB would impact significant areas of the coombe pool lake in March 2027, August 2027 and March 2028 with 23.11%, 15.86% and 16.75% of the total coombe pool lake area impacted respectively. In accordance with the Design Manual for Roads and Bridges (DMRB) LA 108 (National Highways, 2020) the level of impact of this temporary increase in noise, given the significant extent of the Coombe Pool lake impacted, is assessed as moderate adverse, resulting in a **moderate adverse (significant) effect**.

Breeding grey heron

- 2.1.15. The heronry is located to the far east of Coombe Pool lake, understood to be a minimum of 1km from the existing road, as confirmed by the site Ecologist and reported on within the main body of Chapter 8: Biodiversity of this Environmental Statement.
- 2.1.16. Modelled construction absolute noise changes demonstrate changes in noise during the breeding season (in months March 2027, June 2027, August 2027, March 2028 and June 2028) between +2.3dB and +0.5dB impacting the easternmost section of the Coombe Pool lake. These increases are below the noticeable threshold of 3dB and as such no impacts are anticipated upon the heronry or nesting herons from noise increases during construction.
- 2.1.17. Impacts upon breeding grey heron from increases in noise during construction may result from disturbance during foraging including avoidance of foraging habitat and a decreased efficiency in foraging. Grey heron was recorded during breeding bird surveys for the Scheme on three occasions between April and May 2022 on the westernmost section of the Coombe Pool lake, including two locations on the western banks closest to the main works. Due to the presence of a heronry on the coombe pool lake, observations of heron within breeding bird surveys and assumed fish populations within the Coombe Pool lake (a managed fishing coombe pool lake) it is considered likely that the coombe pool lake is a foraging resource for breeding heron. Noise modelling has demonstrated significant increases in noise (i.e. >3dB and in cases >5dB (see Table 3 and Figures 6, 7, 10 and 13)) in areas of the Coombe Pool lake and as such the level of impact of construction noise disturbance upon breeding heron during foraging is assessed as moderate adverse resulting in a **moderate adverse (significant) effect**.

Wintering waterbirds (including Shoveler)

- 2.1.18. Modelling of construction noise levels used to identify potential noise disturbance impacts on waterbirds during the wintering and passage seasons within Coombe Pool SSSI includes modelled data from the following months:
- September 2026
 - October 2026
 - November 2026
 - December 2026
 - January 2027
 - February 2027
 - September 2027

- October 2027
- November 2027
- December 2027
- January 2028
- February 2028

2.1.19. Noise modelling has confirmed both daytime and nighttime absolute noise changes impacting the Coombe Pool lake in November 2027 and January 2028 (1.6dB and 0.7dB worst-case absolute changes respectively) are below the noticeable threshold of 3dB and as such no impacts are considered upon wintering birds during these months due to noise disturbance. Impacts upon wintering waterbirds due to changes in noise levels in October 2026 have also been scoped out as modelled daytime increases impacting the Coombe Pool lake are a maximum of 0.3dB and there are no changes in noise during the nighttime.

2.1.20. Table 4 below details the maximum absolute noise changes impacting the Coombe Pool lake in each of the wintering and passage months and the area of the Coombe Pool lake impacted. Months scoped out above due to lack of absolute noise changes >3dB are not included in the table.

Table 4: Absolute construction noise changes by month impacting Coombe Pool lake

Month	Day/Night	Absolute noise change (dB) range	Approximate areas of coombe pool lake where maximum absolute noise change (dB) is >3dB exceedance of DMOY noise levels					
			Exceedance between >3dB - ≤5dB		Exceedance between >5dB - ≤10dB		Combined exceedance (all exceedance >3dB)	
			Area	% of Coombe Pool lake	Area	% of Coombe Pool lake	Area	% of Coombe Pool lake
Sept 2026	Day	No change >+3dB						
	Night	+6.6dB – +0.4dB	24.29ha	67.47%	2.57ha	7.14%	26.86ha	74.61%
November 2026	Day	+7.2dB - +0.2dB	5.41ha	15.03%	0.43ha	1.19%	5.84ha	16.22%
	Night	No change >+3dB						
December 2026	Day	+10dB - +0.3dB*	7.05ha	19.58%	6.24ha	17.33%	13.29ha	36.92%
	Night	No change >+3dB						

Month	Day/Night	Absolute noise change (dB) range	Approximate areas of coombe pool lake where maximum absolute noise change (dB) is >3dB exceedance of DMOY noise levels					
			Exceedance between >3dB - ≤5dB		Exceedance between >5dB - ≤10dB		Combined exceedance (all exceedance >3dB)	
			Area	% of Coombe Pool lake	Area	% of Coombe Pool lake	Area	% of Coombe Pool lake
January 2027	Day	+7.9dB - +0.4dB	15.85ha	44.03%	5.78ha	16.06%	21.63ha	60.08%
	Night	No change >+3dB						
February 2027	Day	+7dB - +0.3dB	15.57ha	43.25%	2.96ha	8.22%	18.53ha	51.47%
	Night	No change >+3dB						
September 2027	Day	+3.3dB - +0.1dB	0.04ha	0.11%	No change >5dB		0.04	0.11%
	Night	No change >+3dB						
October 2027	Day	+51.dB - +0.1dB	1.27ha	3.53%	<0.01ha	<0.03%	Ca. 1.27ha	3.53%
	Night	No changes in noise levels						
December 2027	Day	No change >+3dB						
	Night	+3.5dB - +0.2dB	1.30ha	3.61%	No changes >5dB		1.30	3.61%
February 2028	Day	+3.1dB – +0.2dB	0.09ha	0.25%	No changes >5dB		0.09	0.25%
	Night	No change >+3dB						

*an area of the coombe pool lake <0.01ha in size would experience construction daytime absolute noise changes of between +10.1dB and +10.2dB. As this area is so small it is considered insignificant.

- 2.1.21. Figures 1-5, 8-9, 11-12 and 14 in Annex A provide a visual representation of construction daytime absolute noise change levels within the wintering and passage months.
- 2.1.22. Modelling of construction absolute noise change levels across the area of Coombe Pool lake in the wintering and passage months has revealed maximum absolute noise changes of up to +10dB. The percentage the Coombe Pool lake impacted varies depending on the month and time of day. The most significant impacts, with absolute noise level changes greater than 3dB are expected to occur between September 2026 and February 2027 where areas of Coombe Pool lake impacted range from 16.22% to 74.61% of the total open water.

- 2.1.23. The impacts of increased noise during construction on wintering waterbirds could include an avoidance of foraging areas, reduced efficiency of foraging and abandonment and/or avoidance of roosting habitat. According to DMRB LA 108 (National Highways, 2020), the level of impact of this temporary noise increase is, Coombe Pool lake, considered a moderate adverse level of impact, given the extent of the Coombe Pool lake affected as detailed in Table 4 above. Due to the detectable increases in noise levels (i.e. increases greater than 3dB) affecting significant areas of the Coombe Pool lake (between 16.22% and 74.61%) for an extended period in the wintering season between September 2026 to February 2027 the effect on this nationally important feature is assessed as a **large adverse (significant) effect**.

Woodland breeding and wintering birds

- 2.1.24. The citation for Coombe Pool SSSI considers both breeding and wintering woodland species as features of the SSSI. As such, this assessment considers potential impacts from the Scheme upon the woodland assemblage.
- 2.1.25. Following the breeding and wintering bird surveys undertaken at PCF stage 3 (see ES Appendix 8.3: Breeding Bird and Barn Owl Report and ES Appendix 8.11 (Wintering Bird Report) (**TR010066/APP/6.3**)) the woodland immediately adjacent to the A46 carriageway was shown to support low numbers of common woodland and garden species including tits, thrushes, warblers and corvids. All of these were recorded either holding territories during the breeding season and foraging over winter. The reduced numbers are likely due to the proximity of the existing road reducing the suitability for birds maintaining territories and due to the dense understorey present within the woodland areas adjacent to the Order Limits. The Scheme would result in a temporary increase in noise during construction that would impact the nearby woodland areas for approximately 22-months. Once operational the Scheme would result in a reduction in noise levels of around -1dB.
- 2.1.26. As identified above the area is considered sub-optimal for breeding and wintering woodland birds as demonstrated by the results of the breeding and wintering bird surveys and considered likely due to the proximity to the existing A46. The species notified within the SSSI citation for woodland species are largely for Birds of Conservation Concern ((BoCC) British Trust for Ornithology, 2021) Green species and as such these species are not considered at risk given their common nature and increasing populations. Redwings (*Turdus iliacus*) and fieldfares (*Turdus pilaris*) are BoCC Amber and BoCC Red respectively and wintering bird data has shown that redwings and fieldfares have been recorded foraging regularly within the arable fields outside the SSSI but have on occasion been recorded foraging within the designated site. Specifically, redwing (in two groups, one within the area of impact and one group further west of the Order

Limits) were recorded within SSSI woodland during one winter bird survey and fieldfare (one individual) was also recorded on one occasion only, this was during a particularly cold period of weather where temperatures dropped to -3C as such forcing the birds to utilize these areas. This foraging is primarily located in the areas further north-west and not immediately adjacent to the carriageway. As such, any potential impacts to woodland assemblages of the SSSI is considered to be minimal and short-term. The operational noise reduction within the SSSI due to the implementation of the Scheme would result in a beneficial effect to these species (see paragraph 2.2.10).

Potential bat roosts – Hungerley Hall Farm

- 2.1.27. Tables 5 to 7 below detail construction noise levels which would impact the buildings with the potential bat roosts in at Hungerley Hall Farm. Due to limitations upon the initial bat surveys and internal access into the unstable buildings there is uncertainty regarding the precise location of any roosts. A precautionary worst-case approach has therefore been applied. Absolute noise changes identified in Tables 5 to 7 are the highest absolute noise change impacting any point of the building. The highest absolute noise change values for the potential roost in B4 also consider the values from the adjoining building to the south. As internal access was not possible it is uncertain whether these buildings connect and bats may be able to fly through. DMOY and cumulative noise levels identified in Tables 5 to 7 are the levels at the modelled points of highest absolute noise change. Where there is no noise change due to an absence of works the highest DMOY level for any modelled point on the building/s is reported.
- 2.1.28. The CIEEM literature review found studies which evidence noise avoidance between 68dB and 84dB for bats on the wing and unpredictable noise at 50dB within a roost as a precautionary threshold at which deleterious effects “could” occur upon roosting bats.
- 2.1.29. As such, this 50dB precautionary threshold has been used for construction noise. Noise levels are shown in Tables 5 to 7 in accordance with the following:
- No shading: where there is no exceedance of DMOY levels.
 - **Green shading**: where there is an exceedance of DMOY levels however cumulative noise levels are below 50dB
 - **Yellow shading**: where there is an exceedance of DMOY levels and cumulative noise levels and DMOY levels are above 50dB therefore the background noise is already in exceedance of the 50dB threshold
 - **Red shading**: where there is an exceedance of DMOY levels and cumulative noise levels are above 50dB however DMOY levels are below 50dB as such

the increase in noise due to construction works results in crossing the 50dB threshold.

Table 5: Worst-case modelled construction noise data for potential bat roosts in B1 at Hungerley Hall Farm during the bat active season

Month	Day/night	DMOY noise levels*	Cumulative noise level (DMOY + construction)*	Absolute noise change (dB)
September 2026	Day	50.7dB	58.2dB	+7.5dB
	Night	43.66dB	60.1dB	+16.4dB
October 2026	Day	53.1dB	53.3dB	+0.2dB
	Night	57.43dB	No works.	0.0dB
June 2027	Day	50.7dB	51.8dB	+1.1dB
	Night	57.43dB	No works.	0.0dB
August 2027	Day	62.1dB	63.1dB	+1.0dB
	Night	57.43dB	No works	0.0dB
September 2027	Day	50.8dB	51.6dB	+0.8dB
	Night	56.17dB	56.3dB	+0.2dB
October 2027	Day	50.2dB	51.9dB	+1.7dB
	Night	57.43dB	No works.	0.0dB
June 2028	Day	66dB	No works.	0.0dB
	Night	53.92dB	54.2dB	+0.3dB

*at modelled point of worst absolute noise change. Where the worst case absolute noise change is applicable to several modelled points, the highest DMOY and cumulative noise level data is provided

Table 6: Worst-case modelled construction noise data for potential bat roosts in B2 at Hungerley Hall Farm during the bat active season

Month	Day/night	DMOY noise levels*	Cumulative noise level (DMOY + construction)*	Absolute noise change (dB)
September 2026	Day	53.2dB	55.5dB	+2.3dB
	Night	53.02dB	62.2dB	+9.1dB
October 2026	Day	52.9dB	53.4dB	+0.5dB
	Night	53.65dB	No works.	0.0dB
June 2027	Day	52.9dB	54.3dB	+1.4dB
	Night	53.65dB	No works.	0.0dB
August 2027	Day	61.1dB	61.9dB	+0.8dB
	Night	53.65dB	No works.	0.0dB
	Day	56.5dB	56.8dB	+0.4dB

Month	Day/night	DMOY noise levels*	Cumulative noise level (DMOY + construction)*	Absolute noise change (dB)
September 2027	Night	53.65dB	53.8dB	+0.1dB
October 2027	Day	48.1dB	49.1dB	+1.0dB
	Night	53.65dB	No works.	0.0dB
June 2028	Day	61.9dB	No works.	0.0dB
	Night	53.65dB	53.9dB	0.2dB

Table 7: Worst-case modelled construction noise data for potential bat roosts in B4 at Hungerley Hall Farm during the bat active season

Month	Day/night	DMOY noise levels*	Cumulative noise level (DMOY + construction)*	Absolute noise change (dB)
September 2026	Day	57.1dB	58.9dB	+1.8dB
	Night	49.42dB	57.0dB	+7.6dB
October 2026	Day	53.2dB	53.7dB	+0.5dB
	Night	51.67dB	No works.	0.0dB
June 2027	Day	53.2dB	54.6dB	+1.4dB
	Night	51.67dB	No works.	0.0dB
August 2027	Day	53.7dB	54.7dB	+1.0dB
	Night	51.67dB	No works.	0.0dB
September 2027	Day	56.2dB	56.8dB	+0.6dB
	Night	48.07dB	48.2dB	+0.2dB
October 2027	Day	57.2dB	57.7dB	+1.1dB
	Night	51.67dB	No works.	0.0dB
June 2028	Day	59.6dB	No works.	0.0dB
	Night	49.06dB	49.3dB	+0.3dB

2.1.30. The above tables demonstrate that, as a worst-case scenario, bats which may be roosting in B1 and B4 could be impacted by unfamiliar nighttime noise levels in January 2026. In these month noise levels impacting the buildings in question would be in exceedance of 50dB where background levels are below this.

2.1.31. Whilst the CIEEM literature review states that unfamiliar noise, which bats would not be habituated to, of greater than 50dB may cause adverse impacts to roosting bats, modelled data shows increases in absolute noise change levels in other months which should also be considered a risk of causing noise disturbance (shown in yellow in Tables 5 – 7) including significant increases in

some instances (e.g. up to +9.1dB). Whilst bats may already experience levels upwards of the precautionary 50dB threshold, increases on top of this could potentially 'worsen the effect' of noise and result in adverse effects to roosting bats. However, it is worth acknowledging that the noise levels within Tables 5- 7 would likely be reduced 'at the bat' given bats are roosting within the buildings and the structures can be expected to reduce the noise levels somewhat.

- 2.1.32. The construction noise impacts on roosting bats in day roosts, night roosts, and/or feeding roosts could potentially result in temporary roost abandonment. However, since the identified roosts have been classified as either day, night or feeding roosts (all of which are considered low conservation value roosts), it is expected that any bats disturbed by the construction noise would simply relocate to an alternative, unimpacted roost nearby. Therefore, the level of impact from temporary roost abandonment during construction is assessed as moderate adverse resulting in a **slight adverse (not significant) effect**.

2.2. Operation

Otters

- 2.2.1. Table 8 details the results of modelling of operational short-term noise levels (noise levels within the opening year of the Scheme) at the five identified otter couches. The short-term change is categorised in accordance with the below with reference to the Institute of Environmental Management and Assessments' (IEMAs) *Guidelines for Environmental Noise Impact Assessment* (IEMA, 2014).:

- **Green shading:** where there is a modelled reduction in noise levels short-term
- **Yellow shading:** where the short-term change in noise levels shows an increase <3dB
- **Red shading:** where the short-term change in noise levels shows an increase ≥3dB

Table 8: modelled operational noise including DMOY, 'do something' opening year (hereafter referred to as DSOY (i.e. noise levels in the opening year following Scheme construction)) and short-term change, at the five identified otter couches

Month	Couch – modelled noise levels and short-term change (dB)				
	1 – on Coombe Pool	2 – on the River Sowe	3 – on Smite Brook	4 – on Coombe Pool	5 – on Coombe Pool
DMOY	54.2	56.3	56.61	57.57	56.78
DSOY	53.91	54.23	54.65	57.83	56.74
ST change	-0.29	-2.07	-1.96	0.26	-0.04

- 2.2.2. The modelled noise data for operational noise levels at the otter couches indicates a reduction in noise levels at four out of the five couches as a result of the Scheme. Since the modelling has demonstrated a decrease in noise levels at these otter couches the level of change is considered as a permanent minor beneficial change. However, it is unlikely this beneficial effect will have a noticeable effect on otter, as the reductions are of less than 3dB and may not be detectable (see paragraph 1.2.3). Therefore, the Scheme in operation is assessed as having a **neutral (not significant) effect** on these four otter couches due to changes in noise levels.
- 2.2.3. Short-term noise levels during Scheme operation are anticipated to increase by 0.26dB at one otter couch on Coombe Pool lake. As this increase is significantly below the change threshold considered detectable (3dB) the level of impact is assessed as a permanent minor adverse impact. This impact would be unlikely to have an effect on otter due to being below the detectable threshold and as such the Scheme in operation is assessed as having a **neutral (not significant) effect** on these otter couch four due to changes in noise levels.

Coombe Pool SSSI

Breeding and wintering waterbirds (excluding grey heron)

- 2.2.4. Noise modelling for the operational phase of the Scheme has identified short-term change noise levels (i.e. a change between DMOY and DSOY), including both reductions in noise impacting some areas of coombe pool lake and increases in noise impacting other areas, impacting the coombe pool lake between +3.5dB and -1.0dB. However, the area of the Coombe Pool lake impacted by increases in noise >3dB is less than 0.01ha in size, and as such this increase is beyond the recognised identifiable change threshold (i.e. 3dB) and therefore considered to result in an insignificant impact and as such it is not considered further.
- 2.2.5. Approximately 6.66ha of the open water area (18.5%) would experience short-term operational change in noise levels of between +0.5dB and +3dB. However, as these changes are below the level considered to produce a noticeable change in noise (>3dB). Noise levels at the closest edge of the Coombe Pool lake to the Order Limits in the DMOY in the absence of the Scheme would be 61.5dB, which would increase to 64dB in the DSOY scenario with the implementation of the Scheme. The TIDE guidance (Institute of Estuarine & Coastal Studies, 2013) identifies continuous/repetitive noise between 60dB and 72dB as moderate disturbance stimuli. The change in noise levels, which is between this band, would therefore not result in a change considered to result in an increase from the current disturbance level. As such, no impacts are considered likely upon breeding and wintering waterbirds as a result of short-term increases in noise during operation.

- 2.2.6. Noise modelling has also identified operational short-term reductions in noise levels of -0.5dB would impact approximately 9.73ha (27.03%) of the coombe pool lake, in addition to reductions of -1.0dB impacting approximately 0.22ha (0.61%) of the coombe pool lake. Although these reductions in noise levels are below the noticeable threshold of 3dB, they may still result in (i.e., greater than 3dB) benefits for the calling of waterbirds on the Coombe Pool lake compared to the noise levels during operation. Waterbirds use calls during the breeding season for courting and defending territories, and therefore, reductions in noise levels that make the calls more detectable from the background levels could have beneficial impacts on breeding behaviour. While it is not possible to confirm or quantify this potential beneficial effect, considering the reduction in noise levels and the likely positive impacts resulting from this permanent change, the level of impact is assessed as minor beneficial, resulting in a **slight beneficial (not significant) effect** on breeding waterbirds during operation. There is considered to be no change in the level of impact of the below the noticeable threshold noise changes on wintering birds using the Coombe Pool lake, and as such, it has a **neutral (not significant) effect**.

Breeding grey heron

- 2.2.7. Modelled short-term operational noise changes have identified no changes in noise over the majority of the eastern end of Coombe Pool lake where the heronry is located, with a small area approximately 2.61ha in size which would experience a -0.5dB reduction in noise short-term during operation. As the exact location of the heronry in relation to this area which would experience noise reduction is not known (the heronry was located well outside the survey area) there is considered to be no impacts to the heronry itself as a result of operational noise changes.
- 2.2.8. The increases in noise impacting other areas of the Coombe Pool lake as identified in paragraph 2.2.5 are below the detectable threshold and as such no impacts upon foraging grey heron are anticipated. Grey heron males utilise calls during the breeding season to attract a mate and as such noise reduction levels resulting in the calls becoming more detectable from background levels could result in beneficial impacts upon breeding behaviour. Whilst confirmation and quantification of this potential beneficial effect is not possible, in recognition of the reduction in noise levels and likely positive impacts resulting from this permanent change the level of impact is assessed as minor beneficial resulting in a **slight beneficial (not significant) effect** on breeding grey heron during operation.

Woodland breeding and wintering birds

- 2.2.9. The modelled noise data for short-term operational change, modelled at 4m height, identifies that approximately 0.25ha of SSSI woodland would experience an increase in noise greater than 5dB, and approximately 0.5ha of SSSI woodland would experience detectable increases between 3dB and 5dB.
- 2.2.10. A small portion of the woodland would experience increases in noise of less than 3dB at operational phase. Since these increases are below the noticeable threshold of 3dB there would be considered to be no impacts on woodland birds. Significant areas of SSSI woodland further east around the north of the coombe pool lake and south would see reductions in noise levels during operation of up to -2dB. Although not a significant noticeable change in itself, this reduction could be expected to result in beneficial impacts on breeding woodland birds if the noise levels are reduced by more than 3dB below singing levels. It is considered that the areas of the SSSI woodland in which noise would be reduced would become more suitable for breeding and wintering birds therefore sufficiently mitigating the smaller area negatively impacted by increase in noise greater than 3dB. The level of impact is therefore assessed as minor beneficial result. A **slight beneficial (not significant) effect** is reported upon the SSSI, taking into consideration the fact that there is still an area of woodland that would experience a significant increase in noise.

Potential bat roosts – Hungerley Hall Farm

- 2.2.11. Modelled noise data has identified a short-term operational noise change (the change in noise between the DMOY to the DSOY) impacting the buildings in which the three potential roosts are located of between -2.04dB and +0.73dB.
- 2.2.12. The minor increases in noise would impact B1 and B4 which within the DMOY scenario would already be experiencing levels >50dB. Furthermore, the increases are minor in dB and bats would be expected to habituate to these minor changes over time lessening any potential impacts in the long-term.
- 2.2.13. Reductions in noise at the buildings may result in the buildings becoming more suitable for roosting bats during operation. However, as the reductions in noise are very minor the level of this permanent impact is assessed as minor beneficial and the effect considered **neutral (not significant)**.

3. References

CIEEM (2020). *Noise Impacts on Bats – A Sound Assessment?* CIEEM In Practice. Issue 108. June 2020. Pg 15 – 18.

British Trust for Ornithology (2021) Birds of Conservation Concern 5.

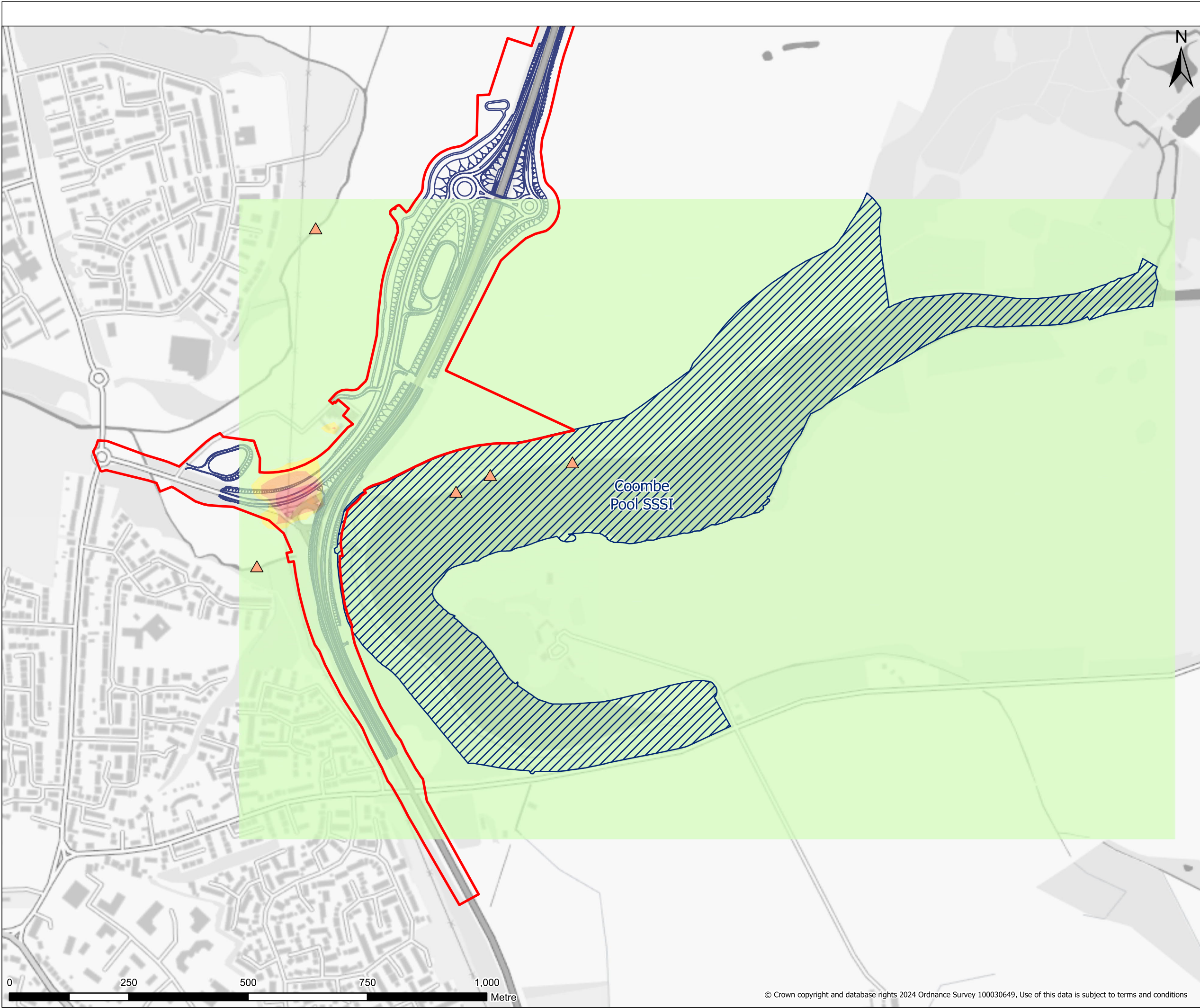
[https://www.bto.org/our-science/publications/birds-conservation-concern#:~:text=Commonly%20referred%20to%20as%20the,Conservation%20Concern%205%20\(BOCC5\)](https://www.bto.org/our-science/publications/birds-conservation-concern#:~:text=Commonly%20referred%20to%20as%20the,Conservation%20Concern%205%20(BOCC5)) (accessed August 2024).

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National Highways (2020). Design Manual for Roads and Bridges. LA 108: Biodiversity. Available online at: <https://www.standardsforhighways.co.uk/search/af0517ba-14d2-4a52-aa6d-1b21ba05b465> (Accessed August 2024).

Annex A: Drawings



Legend

- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
REV	DATE	REVISION NOTE	ORG	CHKD	APP
Designer					
Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 1 - CONSTRUCTION NOISE EFFECTS DAY TIME - SEPTEMBER 2026					
Suitability					
FOR INFORMATION					
Sheet Size	Scale	Status	Revision		
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Drawing Number					
HE604820-OIL-EBD-00-DR-LB-30058					



Legend

- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND ≤ -5.0 dB
- 5.0 < ND ≤ -3.0 dB
- 3.0 < ND ≤ 0 dB
- 0 < ND ≤ 3.0 dB
- 3.0 < ND ≤ 5.0 dB
- 5.0 < ND ≤ 10.0 dB
- 10.0 < ND dB

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A46 COVENTRY JUNCTIONS (WALSGRAVE)

Project Stage

DCO APPLICATION

Drawing Title

APPENDIX 8.16 FIGURE 2 - CONSTRUCTION NOISE EFFECTS DAY TIME - NOVEMBER 2026

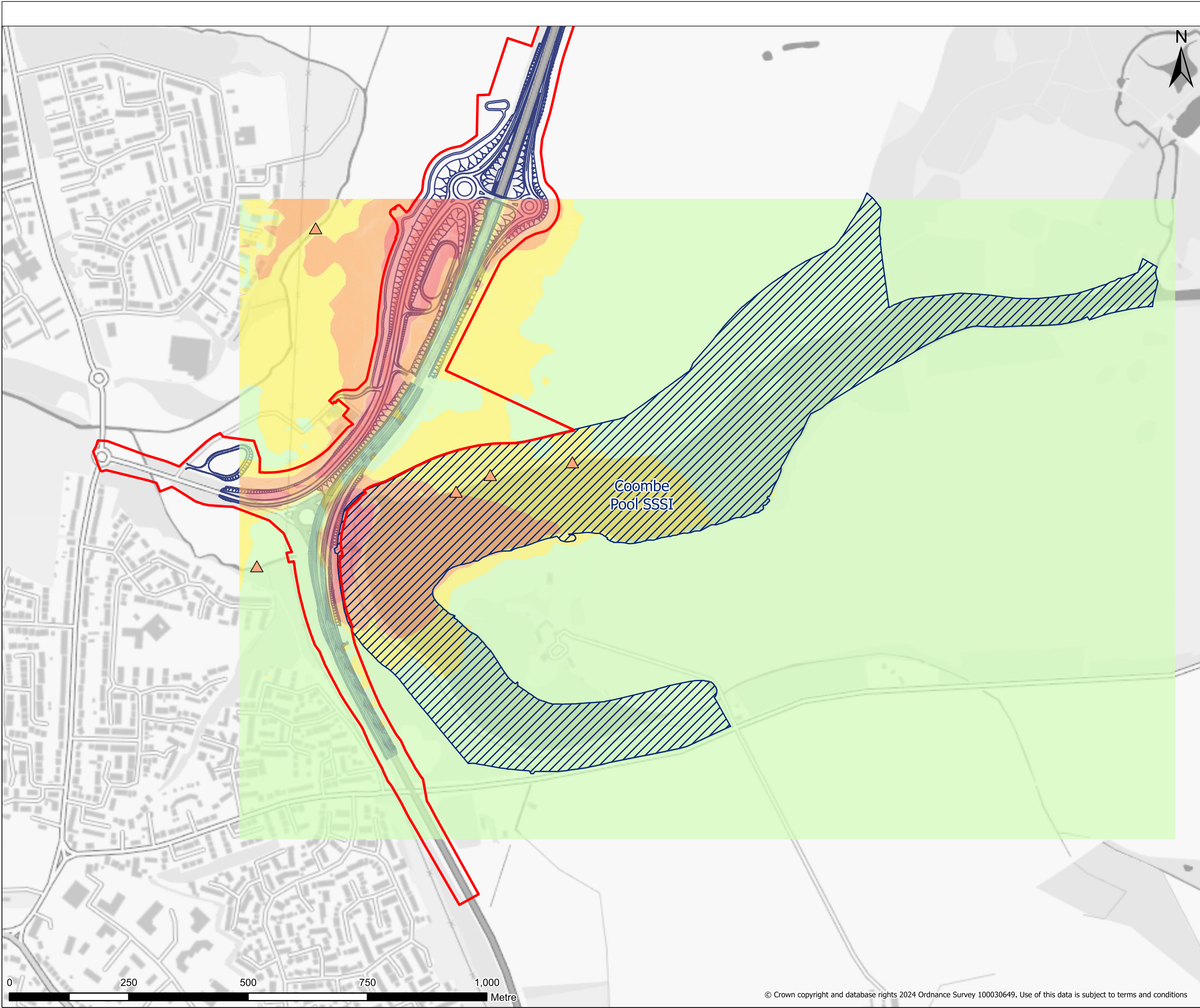
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Drawing Number

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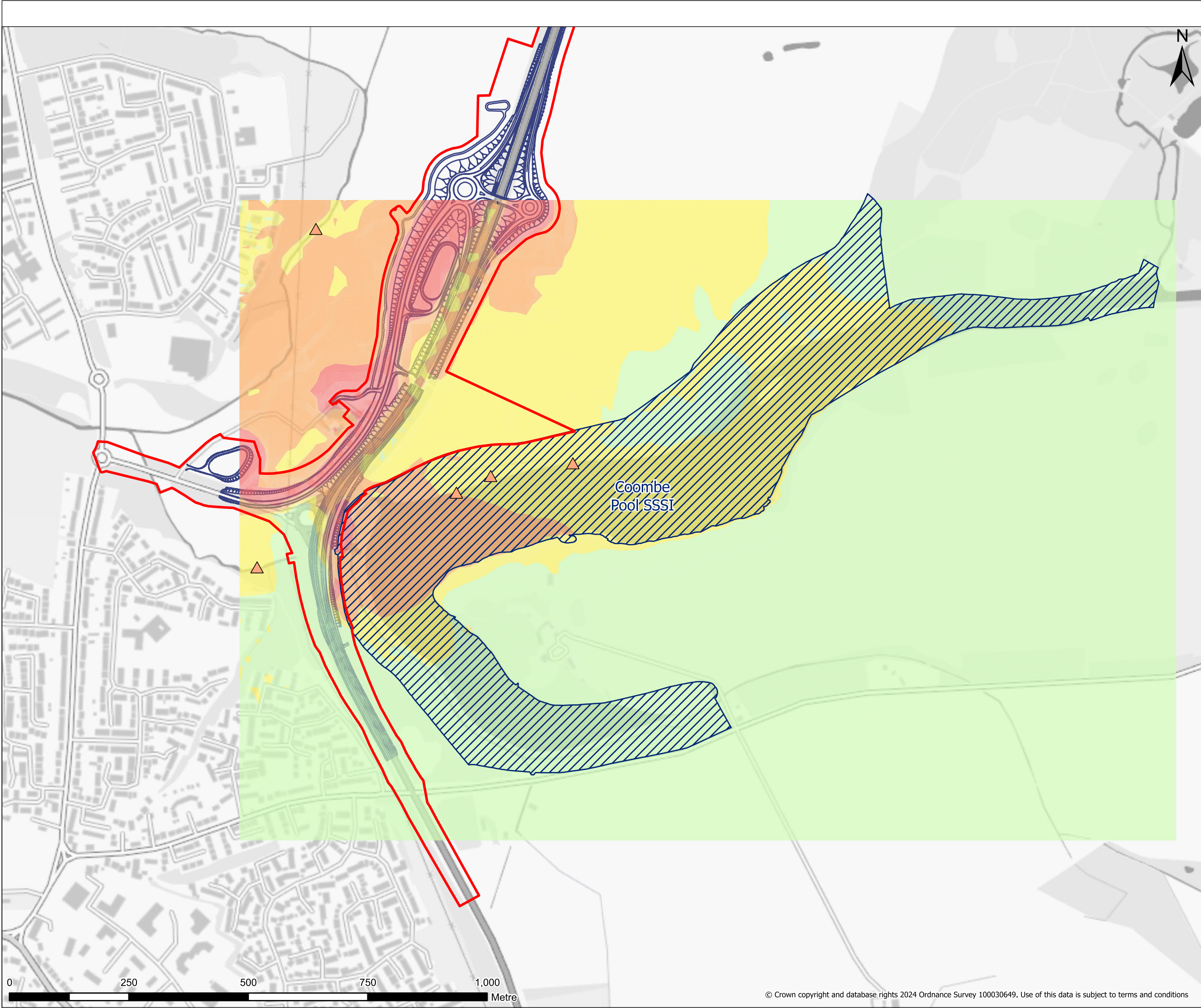
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

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- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 3 - CONSTRUCTION NOISE EFFECTS DAY TIME - DECEMBER 2026					
Suitability					
FOR INFORMATION					
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Drawing Number					
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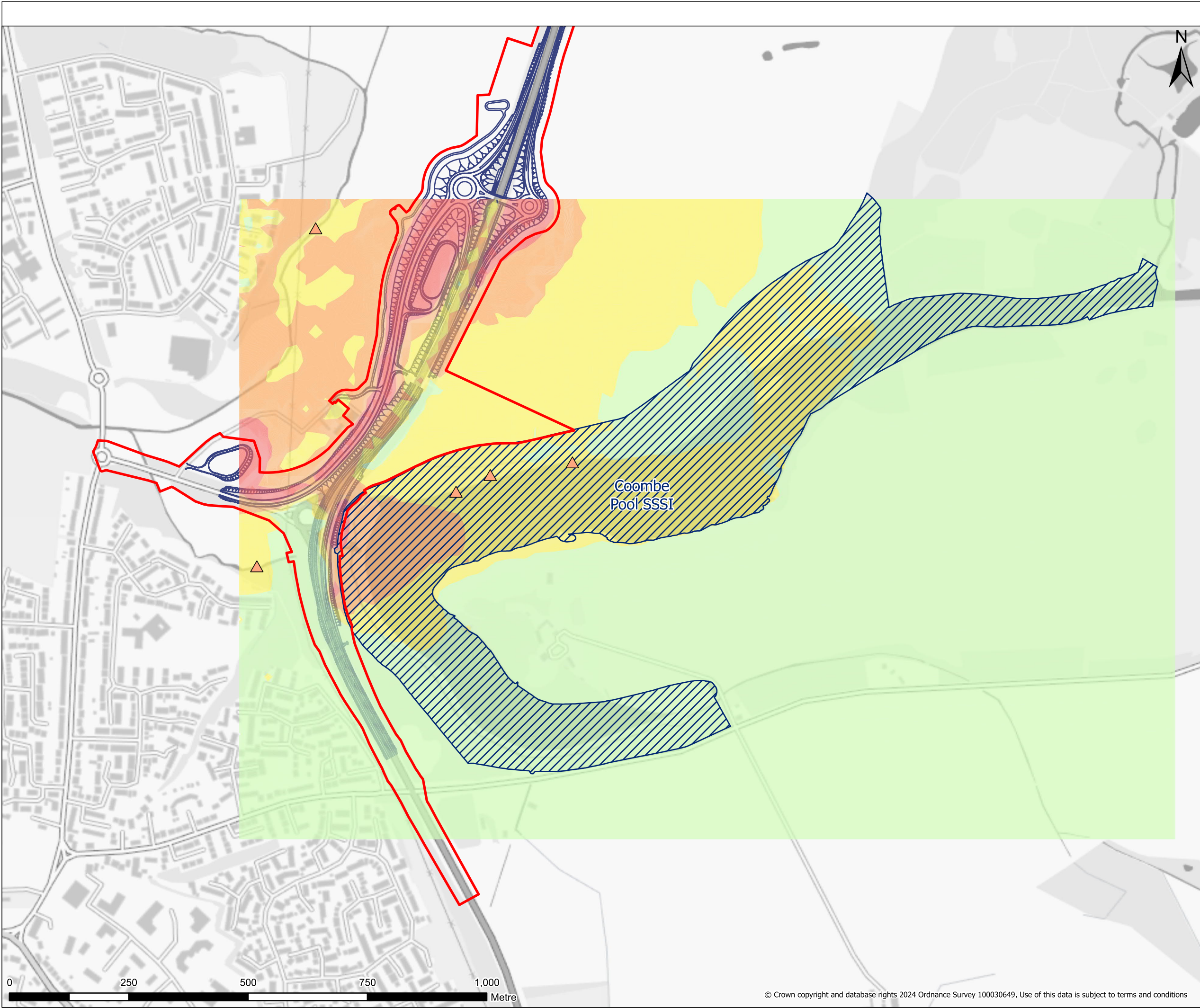
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 4 - CONSTRUCTION NOISE EFFECTS DAY TIME - JANUARY 2027					
Suitability					
FOR INFORMATION					
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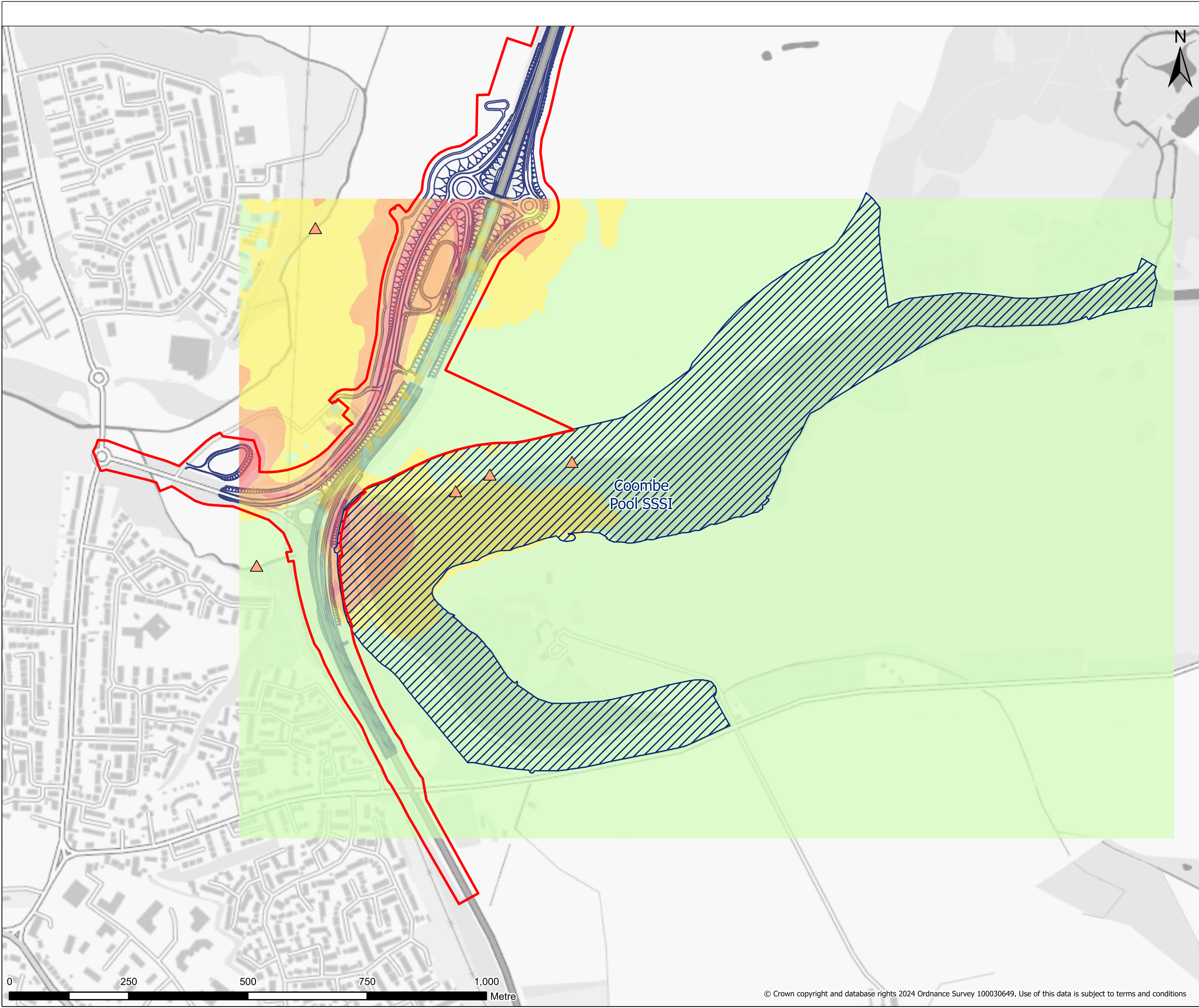
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND ≤ -5.0 dB
- 5.0 < ND ≤ -3.0 dB
- 3.0 < ND ≤ 0 dB
- 0 < ND ≤ 3.0 dB
- 3.0 < ND ≤ 5.0 dB
- 5.0 < ND ≤ 10.0 dB
- 10.0 < ND dB

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Project Title					
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Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 5 - CONSTRUCTION NOISE EFFECTS DAY TIME - FEBRUARY 2027					
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FOR INFORMATION					
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Drawing Number					
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Legend

- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND ≤ -5.0 dB
- 5.0 < ND ≤ -3.0 dB
- 3.0 < ND ≤ 0 dB
- 0 < ND ≤ 3.0 dB
- 3.0 < ND ≤ 5.0 dB
- 5.0 < ND ≤ 10.0 dB
- 10.0 < ND dB

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Bedworth
Lutterworth
Coventry
Rugby
Kenilworth
M6
A45
A46
A4177

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Contractor

Client

Project Title

A46 COVENTRY JUNCTIONS (WALSGRAVE)

Project Stage

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Drawing Title

APPENDIX 8.16 FIGURE 6 - CONSTRUCTION NOISE EFFECTS DAY TIME - MARCH 2027

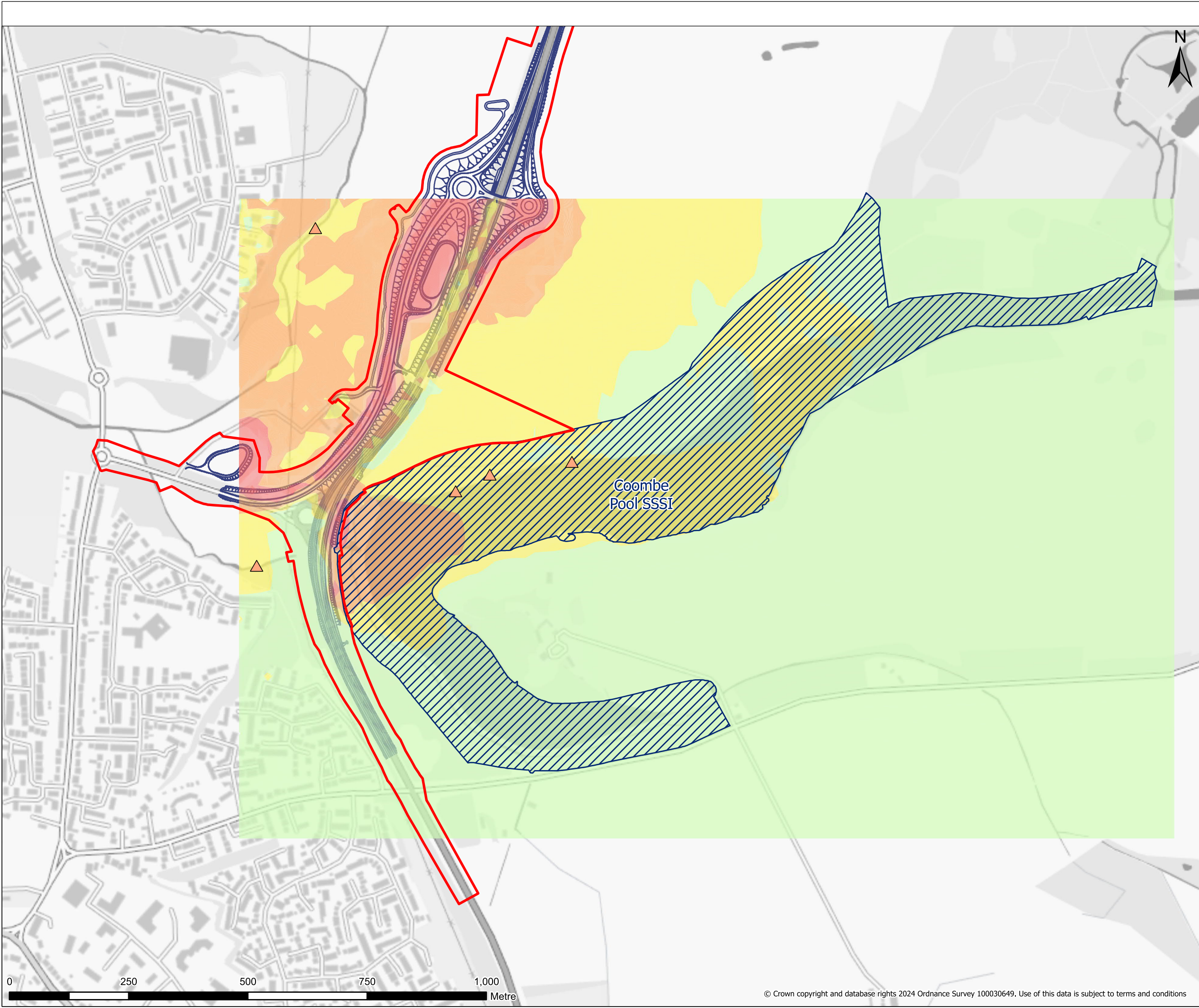
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FOR INFORMATION

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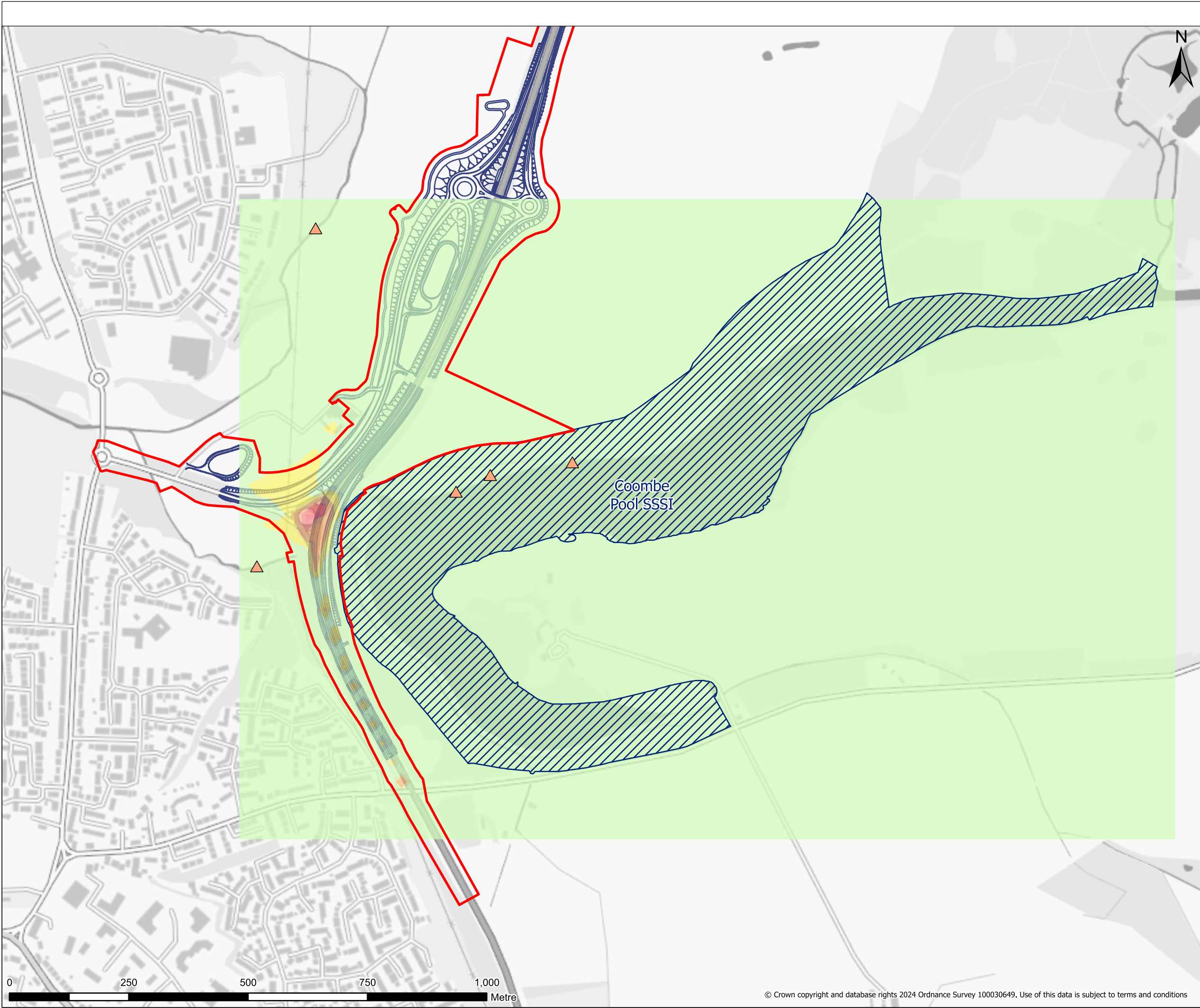
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

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- 5.0 < ND ≤ -3.0 dB
- 3.0 < ND ≤ 0 dB
- 0 < ND ≤ 3.0 dB
- 3.0 < ND ≤ 5.0 dB
- 5.0 < ND ≤ 10.0 dB
- 10.0 < ND dB

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REV	DATE	REVISION NOTE	ORG	CHKD	APP
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Contractor					
Client					
Project Title					
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Project Stage					
DCO APPLICATION					
Drawing Title					
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FOR INFORMATION					
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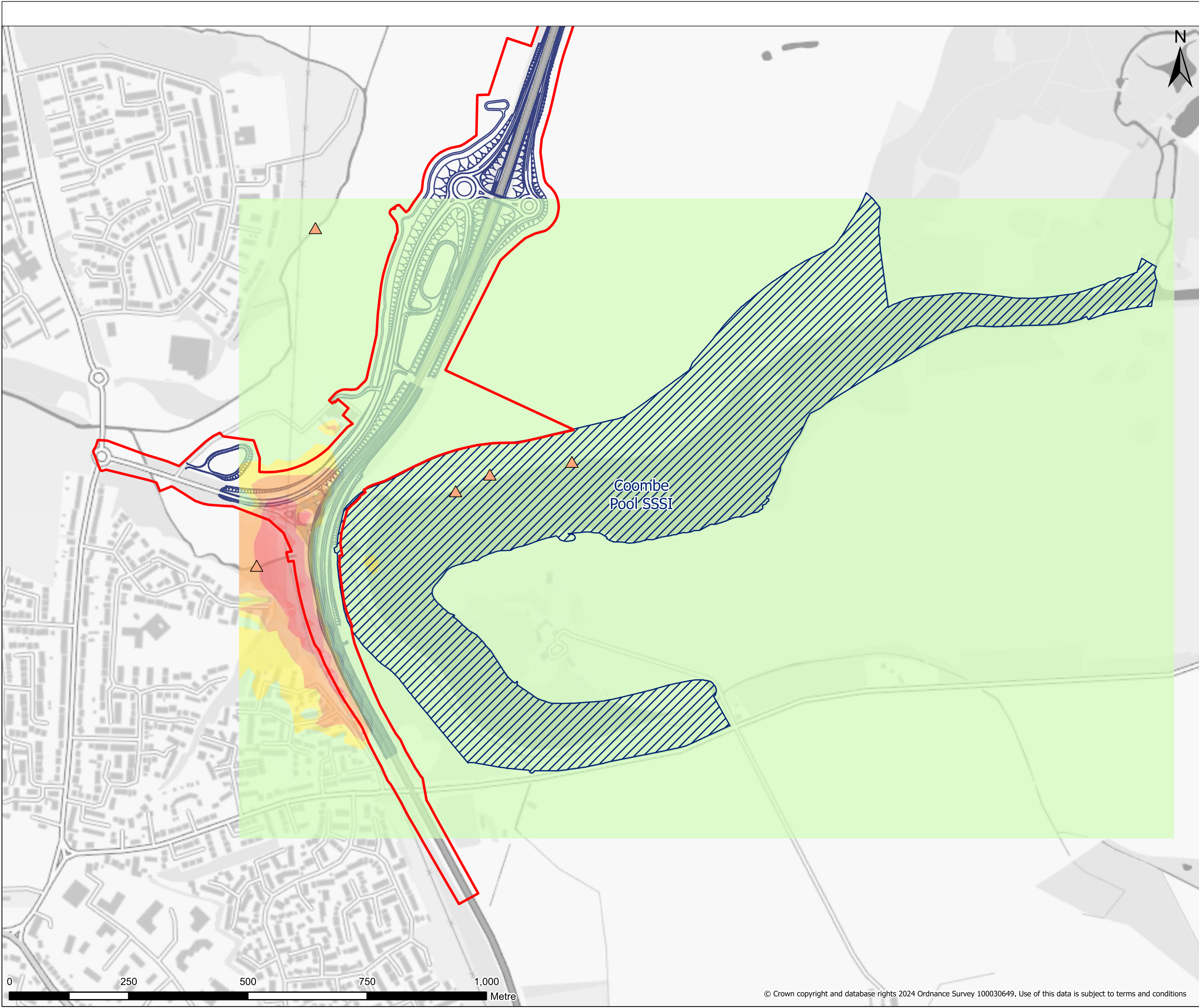
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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Contractor					
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Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 8 - CONSTRUCTION NOISE EFFECTS DAY TIME - DECEMBER 2027					
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FOR INFORMATION					
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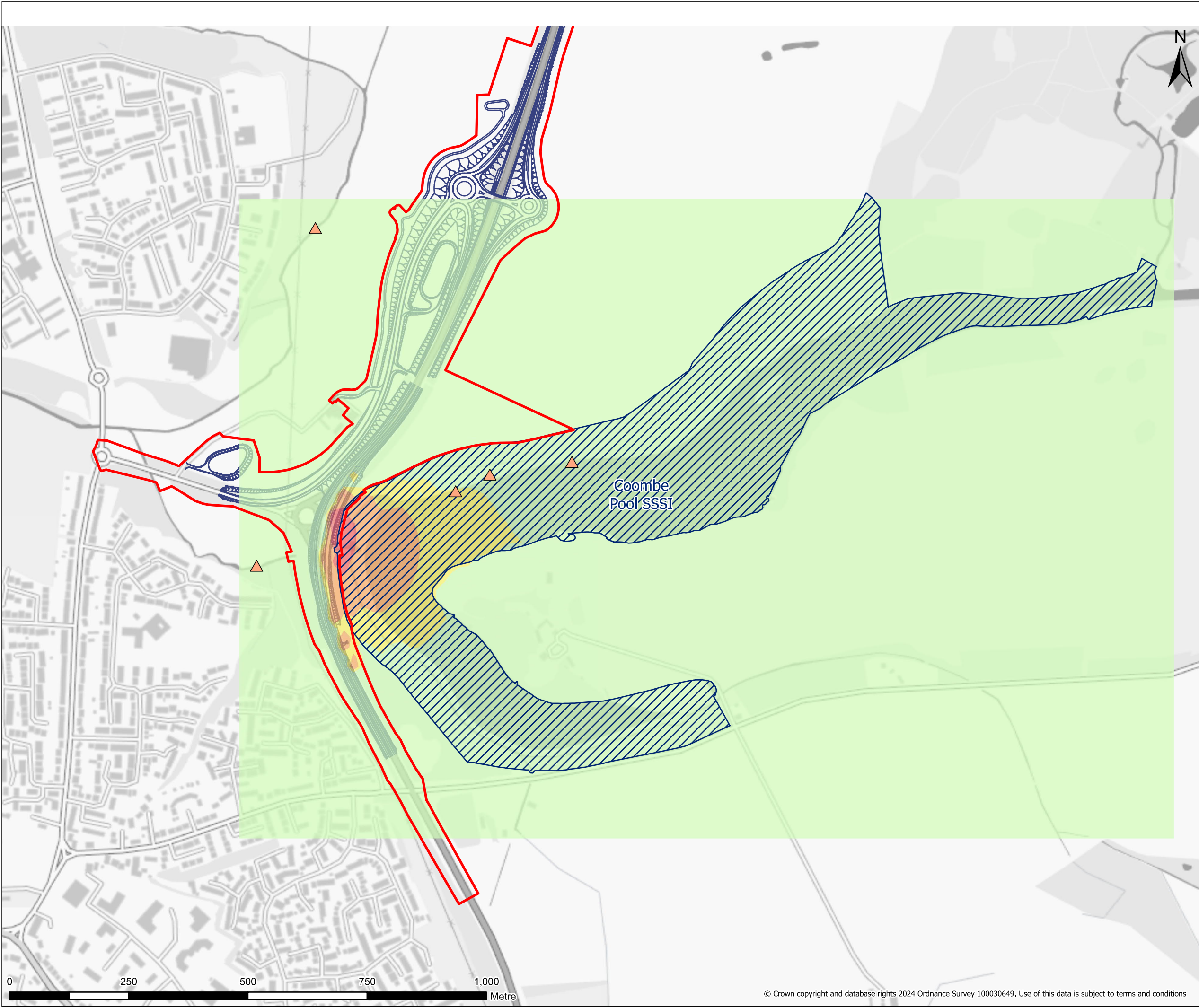
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

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- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
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Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSgrave)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 9 - CONSTRUCTION NOISE EFFECTS DAY TIME - FEBRUARY 2028					
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FOR INFORMATION					
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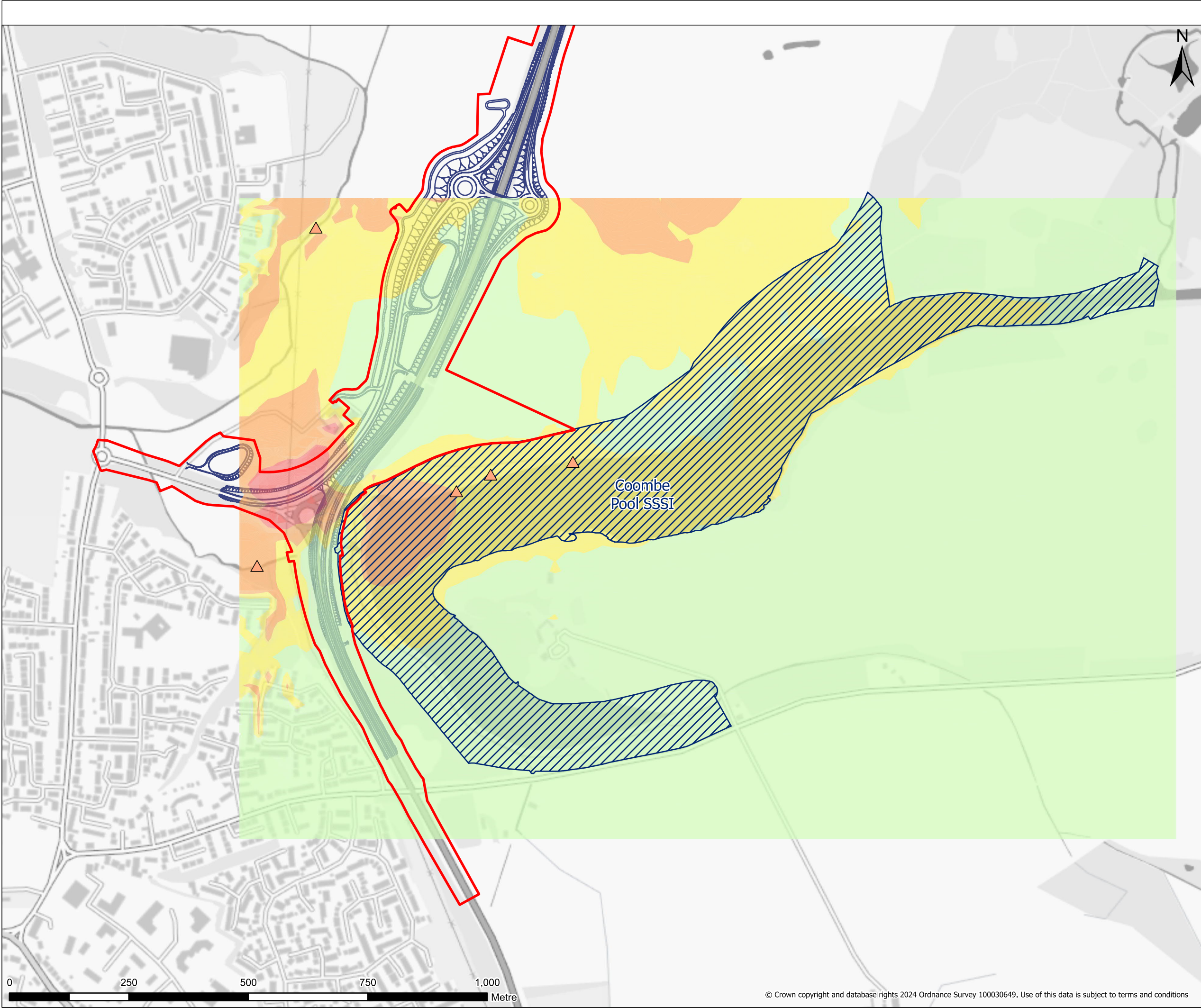
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
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Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 10 - CONSTRUCTION NOISE EFFECTS DAY TIME - MARCH 2028					
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FOR INFORMATION					
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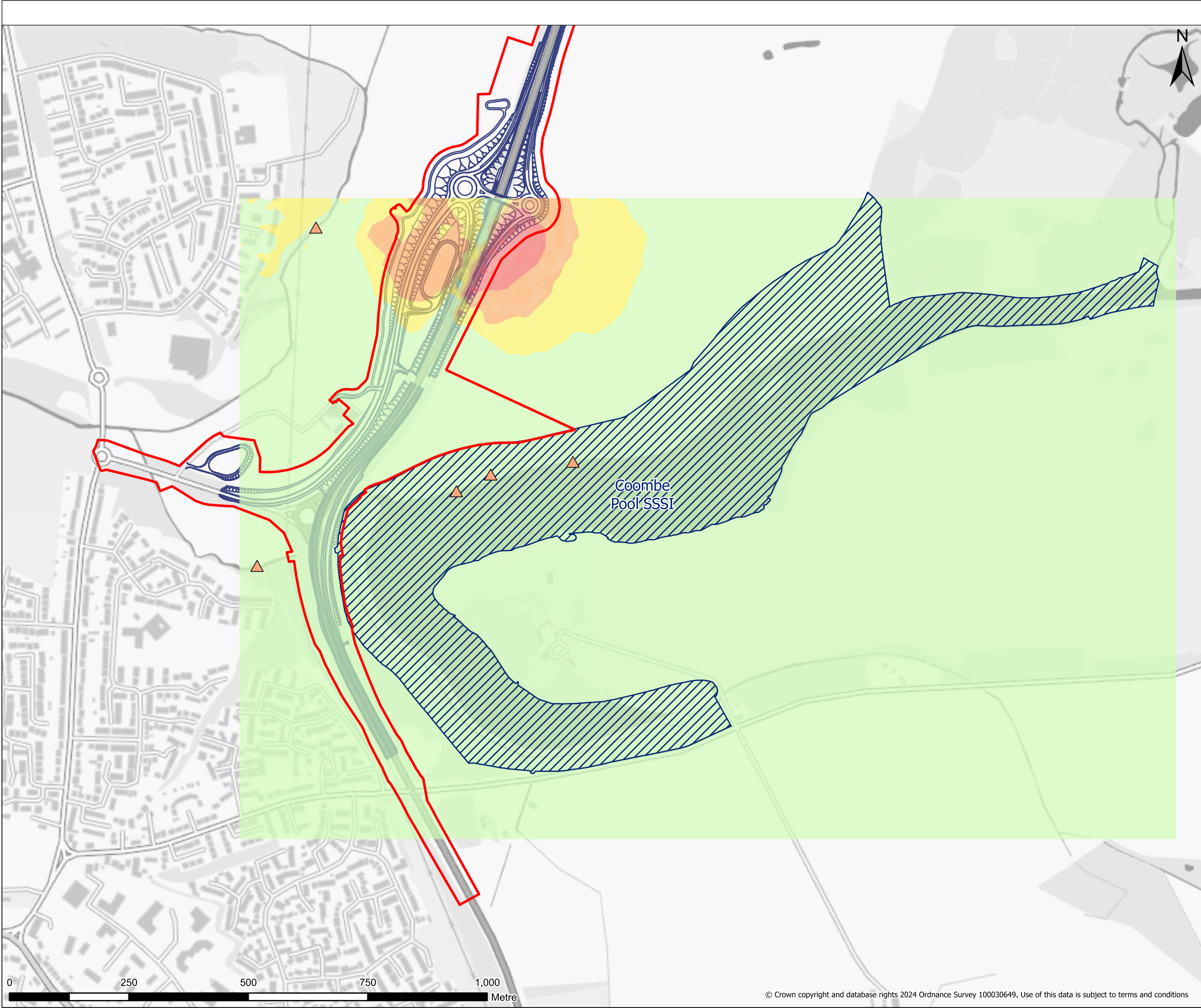
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
REV	DATE	REVISION NOTE	ORG	CHKD	APP
Designer					
Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 11 - CONSTRUCTION NOISE EFFECTS NIGHT TIME - SEPTEMBER 2026					
Suitability					
FOR INFORMATION					
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Drawing Number					
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Legend

Order Limits

Proposed Scheme Design

Otter Couch

Coombe Pool SSSI

Noise difference

ND <= -5.0 dB

-5.0 < ND <= -3.0 dB

-3.0 < ND <= 0 dB

0 < ND <= 3.0 dB

3.0 < ND <= 5.0 dB

5.0 < ND <= 10.0 dB

10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
REV	DATE	REVISION NOTE	ORG	CHKD	APP

Designer

Contractor

Client

Project Title

A46 COVENTRY JUNCTIONS (WALSGRAVE)

Project Stage

DCO APPLICATION

Drawing Title

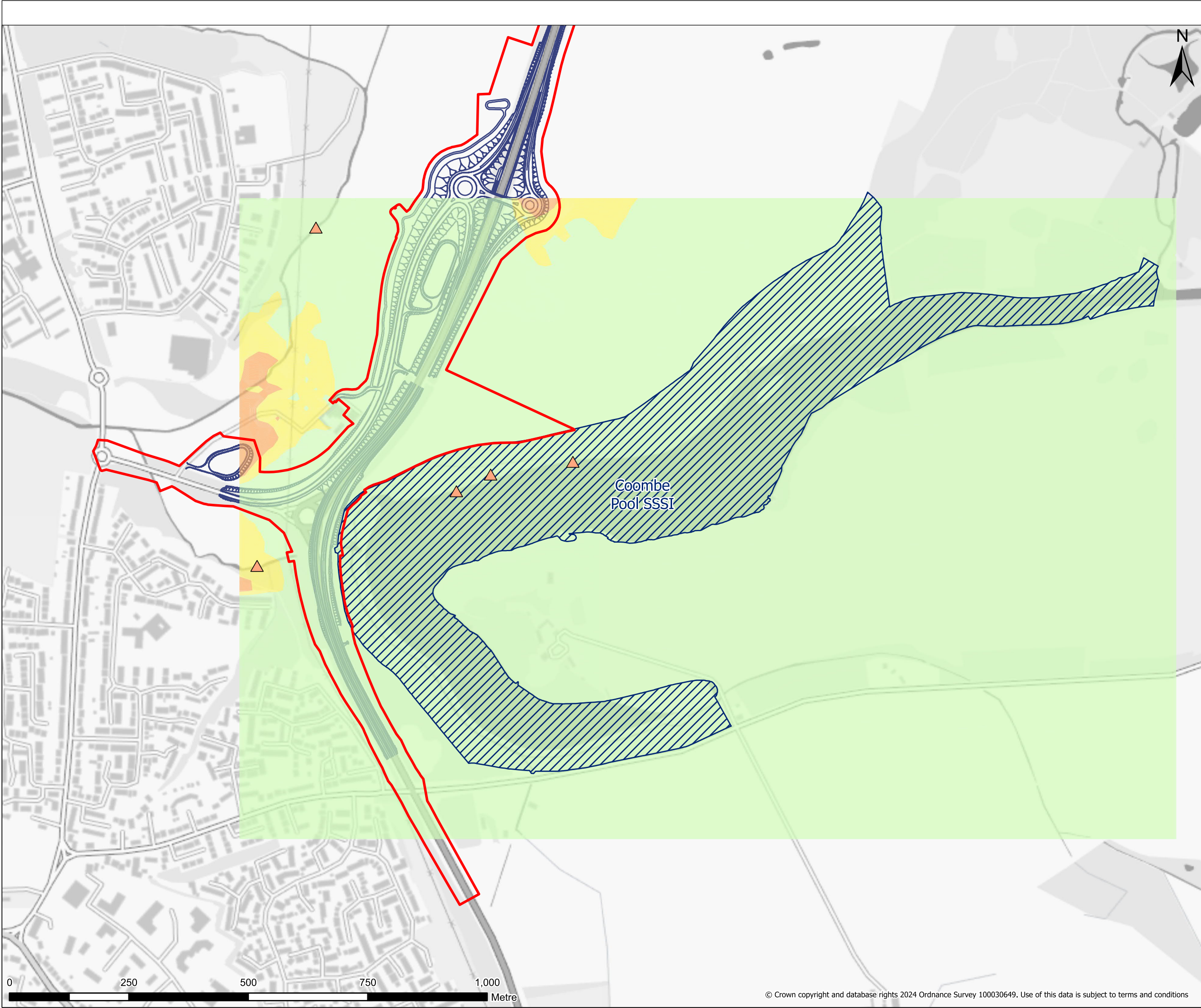
APPENDIX 8.16 FIGURE 12 - CONSTRUCTION NOISE EFFECTS NIGHT TIME - FEBRUARY 2027

Suitability

FOR INFORMATION

Sheet Size	Scale	Status	Revision
A3	1:7,500	S3	P02

Drawing Number
HE604820-OIL-EBD-00-DR-LB-30069



Legend

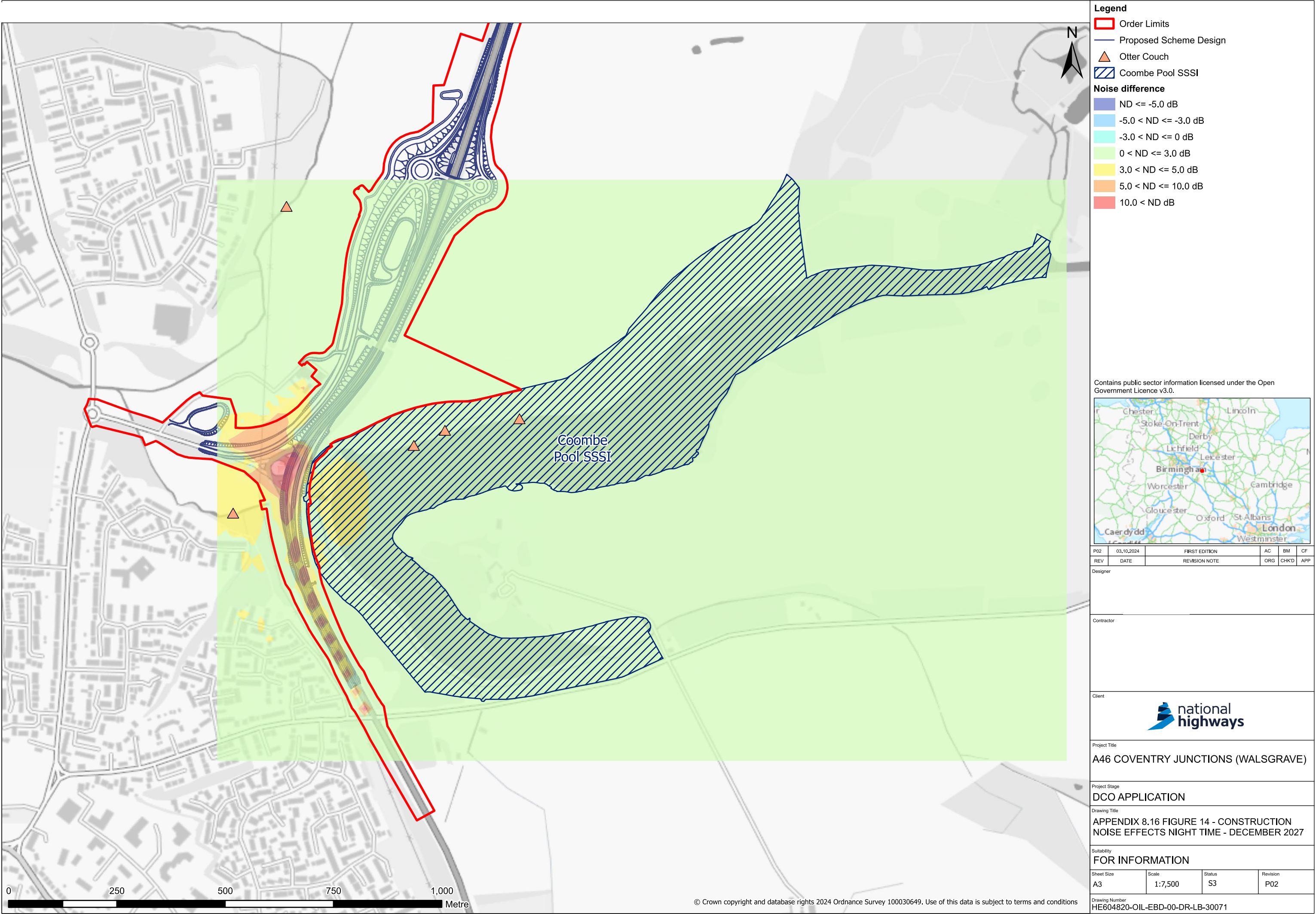
- Order Limits
- Proposed Scheme Design
- Otter Couch
- Coombe Pool SSSI

Noise difference

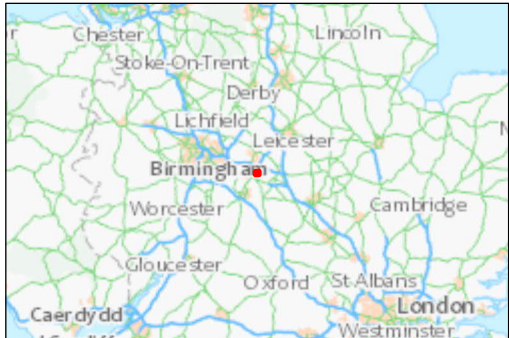
- ND <= -5.0 dB
- 5.0 < ND <= -3.0 dB
- 3.0 < ND <= 0 dB
- 0 < ND <= 3.0 dB
- 3.0 < ND <= 5.0 dB
- 5.0 < ND <= 10.0 dB
- 10.0 < ND dB

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P02	03,10,2024	FIRST EDITION	AC	BM	CF
REV	DATE	REVISION NOTE	ORG	CHKD	APP
Designer					
Contractor					
Client					
Project Title					
A46 COVENTRY JUNCTIONS (WALSGRAVE)					
Project Stage					
DCO APPLICATION					
Drawing Title					
APPENDIX 8.16 FIGURE 13 - CONSTRUCTION NOISE EFFECTS NIGHT TIME - MARCH 2027					
Suitability					
FOR INFORMATION					
Sheet Size	Scale	Status	Revision		
A3	1:7,500	S3	P02		
Drawing Number					
HE604820-OIL-EBD-00-DR-LB-30070					



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P02	03,10,2024	FIRST EDITION	AC	BM	CF
REV	DATE	REVISION NOTE	ORG	CHKD	APP

Designer

Contractor

Client



Project Title
A46 COVENTRY JUNCTIONS (WALSgrave)

Project Stage
DCO APPLICATION

Drawing Title
APPENDIX 8.16 FIGURE 14 - CONSTRUCTION NOISE EFFECTS NIGHT TIME - DECEMBER 2027

Suitability
FOR INFORMATION

Sheet Size	Scale	Status	Revision
A3	1:7,500	S3	P02

Drawing Number
HE604820-OIL-EBD-00-DR-LB-30071