



One Earth Solar Farm

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Appendix 6.11: Fish Habitat Baseline

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A.6 Fish Habitat Baseline

A.6.1 Introduction

- A.6.1.1. This Appendix should be read in conjunction with Chapter 6 of the Environmental Statement (ES) which is provided in support of the delivery of an Environmental Impact Assessment (EIA) associated with the One Earth Solar Farm, hereafter referred to as the 'Proposed Development'.
- A.6.1.2. This Appendix describes the survey methodologies used and summarises the results of fish habitat surveys undertaken in 2025; with emphasis on points on ditches and watercourses where crossings for access or transmission cables are proposed.

Purpose of this appendix

- A.6.1.3. The purpose of the Appendix is to present the results of the fish habitat survey which was undertaken to identify the potential for important fish populations to be present within the Order Limits.
- A.6.1.4. Surveys were completed across two visits in February and June 2025.
- A.6.1.5. The survey was designed to determine the presence of suitable fish habitat and likely presence of significant fish populations. The survey targeted twelve locations where works to cross wet ditches and watercourses are proposed.

Structure of this appendix

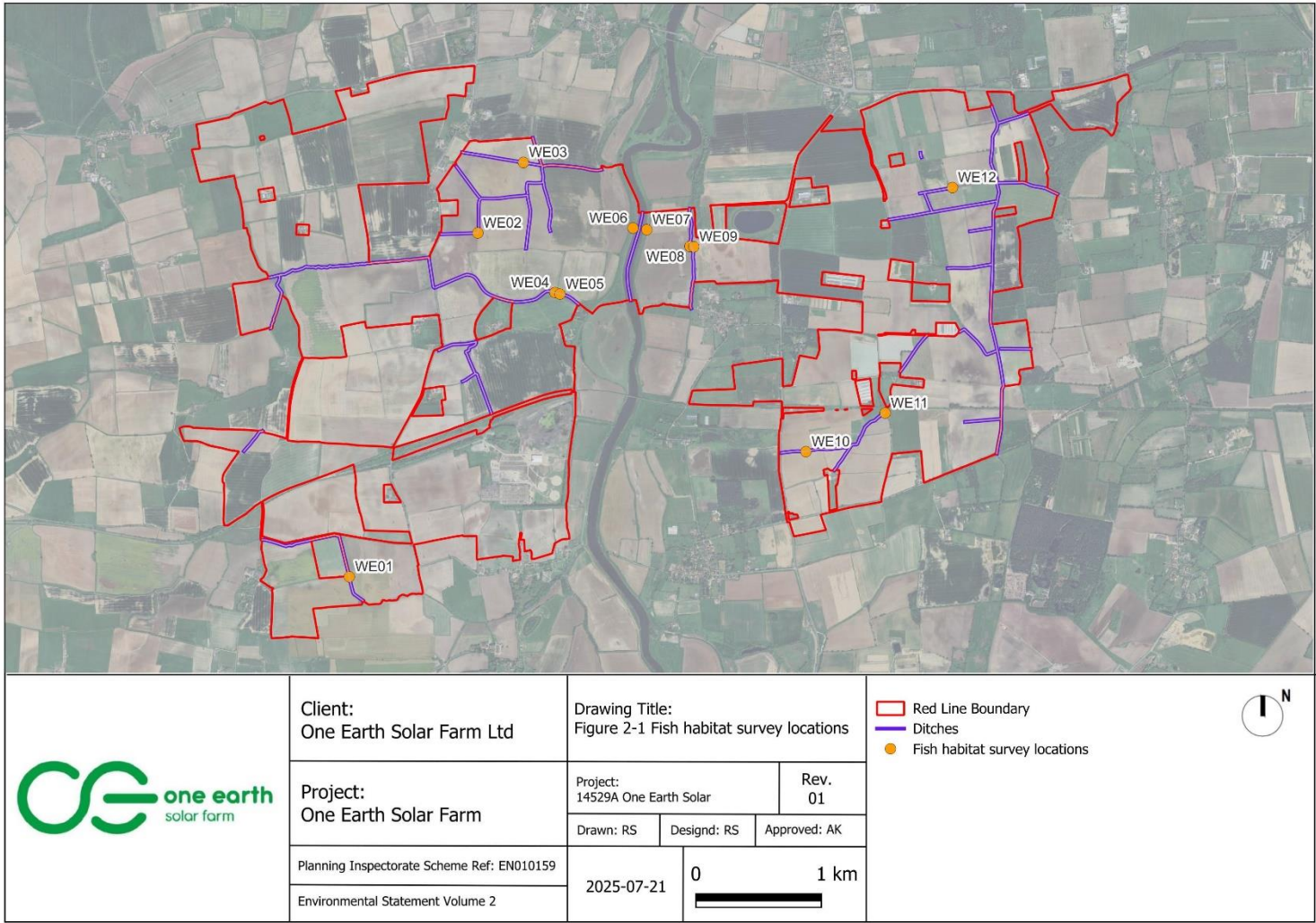
- A.6.1.6. This appendix is structured as follows:
- > Section 2: Methods;
 - > Section 3: Results;
 - > Section 4: References.

A.6.2 Methods

- A.6.2.1. A review of satellite imagery and Ordnance Survey mapping was made by a specialist fresh water ecologist. Each location was visited twice on the 25th February 2025 and again on 9th June 2025. Locations were visited twice to account for differences in water levels and flow at different times of year.



Figure 1: Survey locations



A.1.

A.6.3 Limitations

A.6.3.1. There were no limitations to the survey with all locations visited twice in 2025.

A.6.4 Results

A.6.4.1. Table 2-1 provides descriptions of habitats and discussion of fish potential at each survey location.

Table 2-1: of survey results

Survey point	Description in February 2025	Barriers to movement
WE01	<p>Unnamed drainage ditch. Bounded to the East and West by arable farmland.</p> <p>Bankside habitat: Vegetation comprises grasses, nettles and dandelions. Mature trees were present 10m either side of the survey point reaching heights of 6m to 7m. Very little vegetation overhanging the channel.</p> <p>Bed Habitat: Hard gravel with minimal traces of silt and algae covering 30% to 40% of the visible gravel</p> <p>Channel dimensions: Width 1m, water depth 0.2m. cutting depth 3m to 3.5m</p> <p>In channel features: Open with very little shadow due to minimal overhanging bankside vegetation.</p> <p>In places, larger pieces of gravel and small rocks break the water's surface. There is a brick built, arched bridge</p>	No barriers to movement identified in the general vicinity of the survey point

	<p>crossing the channel 40m North of the survey point providing a public footpath crossing.</p> <p>Water level: Medium to low.</p> <p>Flow: Moderate flow in a Southerly direction.</p> <p>Turbidity: Very low, water appeared really clear, providing excellent views of the channel bed.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. This is a reasonably good habitat for small species like sticklebacks, but too small, shallow and poorly connected to the River Trent, or tributaries of the River Trent, to support diadromous species like Sea Trout, Salmon, River Lamprey or European Eels.</p>	
WE02	<p>Unnamed drainage ditch. Bounded all round by arable farmland.</p>	<p>This was not a water course with flowing water. Potential barriers if there was any flow would only be the in-channel aquatic vegetation</p>

	<p>Bankside habitat: short grasses and occasional reeds.</p> <p>Bed Habitat: Soft alluvial silt.</p> <p>Channel dimensions: Width 1m, water depth 0.20m to 0.35m. Cutting depth 2m to 2.5m.</p> <p>In channel features: Aquatic vegetation covering 50% to 60% of the channel surface including water cress and floating sweet grass.</p> <p>Water level: Medium to low.</p> <p>Flow: None visible.</p> <p>Turbidity: Zero. Very clear water, bed clearly visible between areas of aquatic vegetation.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. This was a clear healthy-looking habitat ideal for smaller fish species such as sticklebacks. Not likely to contain diadromous species like Sea Trout, Salmon, River</p>	
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	Lamprey or European Eel due to lack of connections to the River Trent or tributaries of the River Trent	
WE03	<p>Unnamed drainage ditch. Bounded all round by arable farmland.</p> <p>Bankside habitat: Short, medium and tall grasses and reeds, many of these encroaching on the bed and overhanging the channel.</p> <p>Bed Habitat: Soft clay and silt, rarely visible due to the channel being choked with grasses and reeds.</p> <p>Channel dimensions: Width 0.3m, water depth 0.1m. Cutting depth 1.5m to 2m.</p> <p>In channel features: This water channel is completely full of grasses and reeds with occasional small bankside trees upto 2m in height.</p> <p>Water level: Low in february and dry in June</p> <p>Flow: None.</p>	The very high density of vegetation present in the channel



	<p>Turbidity: Very low, water appeared clear in areas between the grasses and reeds.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. Highly unlikely to contain any fish species due to the shallow depth of water, amount of vegetation clogging the entire channel and lack of connections to the River Trent or tributaries of the River Trent.</p>	
WE04	<p>Fledborough Beck, Southern bank. 25m west of WE05</p> <p>Bankside habitat: Vegetation comprising grasses and reeds. The Northern bank had a 1.5m to 2m high hedge.</p> <p>Bed Habitat: Not visible in February, soft silt detected with a prodding pole. Grey/brown silt visible in June.</p> <p>Channel dimensions: Width 1.5m, water depth 0.8m to 1m. Cutting depth 2m to 2.5m.</p>	<p>Maps show Fledborough Beck flowing into the River Trent to the Northeast of this location approximately 100m South of survey point WE06. However, on inspection there was no confluence at this point. As a result, this watercourse would not be accessible to diadromous species of fish like Sea Trout, Salmon, River Lamprey or European Eels</p>

	<p>In channel features: Grass and reed fringed margins. Slight overhang from bankside grasses, otherwise the channel was open to the light.</p> <p>Water level: Medium to high in February and low in June</p> <p>Flow: Very slow.</p> <p>Turbidity: Very high, zero visibility to the bed, with light brown coloured water throughout.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. This location on Fledborough Beck looked like a good habitat for: Sticklebacks, Minnows, Gudgeon and chub. Maps show Fledborough Beck flowing into the River Trent on the Western bank, to the North East of this location approximately 100m South of survey point WE06. However, on inspection there was no confluence at this point. As a result this watercourse would not be accessible to diadromous species of fish like Sea Trout, Salmon, River Lamprey or European Eels.</p>	
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WE05	<p>Fledborough Beck, Southern bank. 25m east of WE05. Bounded on both sides by arable farmland.</p> <p>Bankside habitat: Vegetation comprising grasses and reeds. The Northern bank had a 1.5m to 2m high hedge.</p> <p>Bed Habitat: Not visible, soft silt detected with a prodding pole.</p> <p>Channel dimensions: Width 1.5m, water depth 0.8m to 1m (0.2m in June). Cutting depth 2m to 2.5m.</p> <p>In channel features: Grass and reed fringed margins. Slight overhang from bankside grasses, otherwise the channel was open to the light.</p> <p>Water level: Medium to high in April. Low in June.</p> <p>Flow: Very slow. Turbidity: Very high, zero visibility to the bed, with light brown coloured water throughout.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p>	<p>Maps show Fledborough Beck flowing into the River Trent to the Northeast of this location approximately 100m South of survey point WE06. However, on inspection there was no confluence at this point. As a result, this watercourse would not be accessible to diadromous species of fish like Sea Trout, Salmon, River Lamprey or European Eels</p>
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	<p>Potential for fish: No fish or evidence of fish observed. This location on Fledborough Beck looked like a good habitat for: Sticklebacks, Minnows, Gudgeon and Chub. Maps show Fledborough Beck flowing into the River Trent on the Western bank, to the Northeast of this location approximately 100m South of survey point WE06. However, on inspection there was no confluence at this point. As a result, this watercourse would not be accessible to diadromous species of fish like Sea Trout, Salmon, River Lamprey or European Eels.</p>	
WE06	<p>West bank of the River Trent Bankside habitat: Grasses and reeds upto 1.5m high with occasional small shrubs and trees.</p> <p>Bed Habitat: Not visible due to the high turbidity of the water and not possible to access past silty and rocky margins.</p> <p>Channel dimensions: Width approximately 80m to 90m.</p> <p>Depth of water between 0.8m and 2.9m. However the River Trent's depth varies and can be affected by tides and sediment load. The river is tidal at this location and further upstream to Cromwell Lock, which is 3 miles below Newark, to the South.</p>	<p>The closest barriers to this survey point are Cromwell Lock and weir 12km South (upstream) and Torksey Lock 7km North (downstream). The Colwick fish pass (the country's largest fish pass) was opened in 2024 on the River Trent in Nottingham (approximately 40km South West, upstream of this survey point). This opens up the River Trent and it's tributaries to coarse and diadromous fish including: Salmon, Sea Trout, European Eels and river lamprey.</p>

	<p>In channel features: Large open river course with rocky, silty and scattered reed lined margins. Occasional overhanging trees upto 2m over the water's edge</p> <p>Water level: Medium.</p> <p>Flow: Moderate to strong.</p> <p>Turbidity: Very high. No visibility to the river bed even in the shallow marginal areas. The water was a light brown colour.</p> <p>Likely changes: Horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: Very high and a the perfect habitat for the following species: Barbel, Bream, Carp, Chub, European Eels, Pike, Salmon, Trout, Dace, Flounder, Gudgeon, River Lamprey, Loach and Minnow. Diadromous species such as River Lamprey, European Eels, Salmon and Sea Trout use this section of the River Trent as a migration route.</p>	
WE07	East bank of the River Trent	The closest barriers to this survey point are Cromwell Lock and weir 12km South (upstream) and Torksey Lock 7km North (downstream). The Colwick fish pass (the

<p>Bankside habitat: Grasses and reeds upto 1.5m high with occasional small shrubs and trees.</p> <p>Bed Habitat: Not visible due to the high turbidity of the water and not possible to access past silty and rocky margins.</p> <p>Channel dimensions: Width approximately 80m to 90m. Depth of water between 0.8m and 2.9m. However, the River Trent's depth varies and can be affected by tides and sediment load. The river is tidal at this location and further upstream to Cromwell Lock, 3 miles below Newark, to the South.</p> <p>In channel features: Large open river course with rocky, silty and scattered reed lined margins. Occasional overhanging trees upto 2m over the water's edge</p> <p>Water level: Medium. Flow: Moderate to strong.</p> <p>Turbidity: Very high. No visibility to the riverbed even in the shallow marginal areas. The water was a light brown colour.</p> <p>Likely changes: Horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p>	<p>country's largest fish pass) was opened in 2024 on the River Trent in Nottingham (approximately 40km South West, upstream of this survey point). This opens up the River Trent and it's tributaries to coarse and diadromous fish including: Salmon, Sea Trout, European Eels and River Lamprey.</p>
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	<p>Potential for fish: Very high and a the perfect habitat for the following species: Barbel, Bream, Carp, Chub, European Eels, Pike, Salmon, Trout, Dace, Flounder, Gudgeon, River Lamprey, Loach and Minnow. Diadromous species such as River Lamprey, European Eels, Salmon and Sea Trout use this section of the River Trent as a migration route.</p>	
WE08	<p>West bank of the sewer dyke. Bounded on both sides by arable farmland. At this survey point there was a stone built bridge crossing the dyke with a culvert underneath.</p> <p>Bankside habitat: Short grasses and reeds.</p> <p>Bed Habitat: Not visible. Soft silt detected with a prodding pole.</p> <p>Channel dimensions: Width 3m, water depth 0.8m to 1m. Cutting depth 3m to 3.5m.</p> <p>In channel features: Reed lined margins with no overhanging vegetation. The water's surface had a large number of floating clumps (5cm to 10cm long) of brown algae covered organic material. In close proximity to this water course there was an odour of rotting organic matter.</p>	No in channel barriers observed

	<p>Water level: Medium.</p> <p>Flow: Extremely slow to none (no flow observed at this survey point, but extremely slow flow observed in places along the 300m stretch from the survey point to Trent Lane in the South).</p> <p>Turbidity: Very high. Zero visibility, bed not visible. The water was a murky brown colour. L</p> <p>likely changes: Horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. Very unlikely to support any fish species due to near stagnant nature, high turbidity and presence of algae covered organic matter.</p>	
WE09	<p>East bank of the sewer dyke. Bounded on both sides by arable farmland. At this survey point there was a stone built bridge crossing the dyke with a culvert underneath.</p> <p>Bankside habitat: Short grasses and reeds.</p>	No in channel barriers observed

	<p>Bed Habitat: Not visible. Soft silt detected with a prodding pole.</p> <p>Channel dimensions: Width 3m, water depth 0.8m to 1m. Cutting depth 3m to 3.5m.</p> <p>In channel features: Reed lined margins with no overhanging vegetation. The water's surface had a large number of floating clumps (5cm to 10cm long) of brown algae covered organic material. In close proximity to this water course there was an odour of rotting organic matter.</p> <p>Water level: Medium.</p> <p>Flow: Extremely slow to none (no flow observed at this survey point, but extremely slow flow observed in places along the 300m stretch from the survey point to Trent Lane in the South).</p> <p>Turbidity: Very high. Zero visibility, bed not visible. The water was a murky brown colour. L</p> <p>likely changes: Horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. Very unlikely to support any fish species due to near</p>	
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	stagnant nature, high turbidity and presence of algae covered organic matter.	
WE10	<p>Unnamed drainage ditch. Bounded on both sides by arable farmland.</p> <p>Bankside habitat: Rough grasses, reeds and brambles.</p> <p>Bed Habitat: Soft silt and clay with reeds growing from it. This was detected using a prodding pole as the bed was not visible at all.</p> <p>Channel dimensions: Width 0.5m, water depth 0.05m to 0.1m. Cutting depth 2m to 2.5m.</p> <p>In channel features: This channel was completely clogged and choked with vegetation, predominantly reeds, grasses and brambles. The water was barely visible at any point.</p> <p>Water level: Low.</p> <p>Flow: None.</p> <p>Turbidity: Zero turbidity, the water was stagnant but crystal clear.</p>	Totally isolated nature of this drainage ditch and vegetation choked water channel

	<p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. Very unlikely to support any fish species due to the shallow depth, vegetation choked nature and isolated nature of the drainage ditch.</p>	
WE11	<p>Unnamed drainage ditch. Northwest bank. Bounded to the Southeast by arable farmland and to the Northwest by rough scrub and grassland. At this survey point there was a narrow 30cm wide wooden beam spanning the water course.</p> <p>Bankside habitat: Grasses with scattered small shrubs and trees.</p> <p>Bed Habitat: Not visible due to the turbidity of the water. Soft silt and clay detected with a prodding pole.</p> <p>Channel dimensions: Width 2.3m, water depth 0.4 to 0.5m. Cutting depth 2m.</p>	No barriers to movement visible

	<p>In channel features: Straight open drainage ditch with very occasional stands of marginal reeds, aquatic vegetation and floating duckweed.</p> <p>Water level: Medium.</p> <p>Flow: Very slow in a North Easterly direction. Turbidity: Very high, bed not visible. The water was a light brown colour. Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity. Potential for fish: No fish or evidence of fish observed. This water course looked like a good habitat for small fish species such as Sticklebacks and flowed into a pond 100m to the Northeast which also looked like a good habitat for Sticklebacks. Due to its lack of connection to the River Trent, or tributaries of the River Trent it is highly unlikely to support diadromous species like Sea Trout, Salmon, River Lamprey or European Eels.</p>	
WE12	<p>Unnamed drainage ditch. Northern bank. Bounded on both sides by arable farmland.</p> <p>Bankside habitat: Vegetation comprising short grasses and brambles, with occasional mature trees upto approximately 10m high.</p>	<p>Two small fallen tree branches observed in the channel from this survey point, no other barriers seen.</p>

	<p>Bed Habitat: Soft sandy silt with a variable 30% to 60% covering layer of dead tree leaves and small patchy clumps of aquatic vegetation.</p> <p>Channel dimensions: Width 1.5m, water depth 0.03m to 0.1m. Cutting depth 2.5m to 3m. In channel features: Open drainage ditch with little or no overhanging vegetation and occasional small patchy clumps of aquatic vegetation.</p> <p>Water level: Low.</p> <p>Flow: Slow in an Easterly direction.</p> <p>Turbidity: Zero. Clear water with excellent visibility to the bed.</p> <p>Likely changes: A clear span bridge spanning this channel or horizontal drilling to put cables 2.5m under the bed would not change the bankside habitat or the water level, flow or turbidity.</p> <p>Potential for fish: No fish or evidence of fish observed. Appears to be a good habitat for small species such as sticklebacks but nothing larger due to the very shallow depth of water. Due to its lack of connection to the River Trent, or tributaries of the River Trent it is highly unlikely to</p>	
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	support diadromous species like Sea Trout, Salmon, River Lamprey or European Eels.	
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