

July 2026

Enviromental Impact Assessment Report

Lairdmannoch Energy Park

Technical Appendix 6-9: Fish Habitat Survey
(Additional Information)

Lairdmannoch Energy Park Limited

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1. Overview

- 1.1.1. In May 2025, Lairdmannoch Energy Park Limited (the 'Applicant') submitted a planning application (Ref. No: ECU00004900) to the ECU under Section 36 of the Electricity Act 1989 and for deemed planning permission under Section 57 of the Town and Country Planning (Scotland) Act 1997 for the construction and operation of Lairdmannoch Energy Park (the 'Proposed Development').
- 1.1.2. The application included an Environmental Impact Assessment Report (the '2025 EIA Report'), prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations').
- 1.1.3. Galloway Fisheries Trust (GFT) objected to the Proposed Development in its response dated 31 July 2025. Full details are provided in Table 6-1 of the revised Chapter 6: Ecology. This Technical Appendix supports the revised Chapter 6 and responds to the GFT consultee comments.
- 1.1.4. The revised Chapter and Technical Appendix form part of the supporting documentation submitted with the Additional Information (AI) Report.

1.2 Terms of Reference

- 1.2.1. The Proposed Development is located 7 km northeast of Gatehouse of Fleet and 10 km west of Castle Douglas in Dumfries and Galloway, centred on Grid Reference NX 65917 61697.
- 1.2.2. The surveys were undertaken to establish the ecological baseline condition of fish habitat, as summarised in this report, and to identify potential control and sample points that could be used in future electrofishing surveys as part of a Fish Monitoring Plan.

1.3 Proposed Development Description

- 1.3.1. The Proposed Development Site is located within an area of managed farmland and is surrounded by commercial conifer plantation to the north and west. Field drains were prevalent throughout, with multiple drains entering each of the surveyed watercourses.
- 1.3.2. The Site is located around Loch Mannoch, which is fed from the north by the Anstool Burn via an unnamed field drain, both of which pass through the Proposed Development Site. Loch Mannoch also feeds the Tarff Water, which exits the loch to the east and passes through the eastern part of the Site. To the west, the Glengap Burn meanders between managed farmland and the surrounding forestry areas.
- 1.3.3. In addition to the watercourses listed above, there are small drains in the northwest of the Site and a small burn that flows from the farmland to the Tarff Water (see Appendix A: AI Figure 6-10).

1.4 Objectives

- 1.4.1. This report assesses the value of fish habitat and spawning potential for salmonids, Atlantic salmon (*Salmo salar*) and sea/brown trout (*Salmo trutta*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) within the Proposed Development. The report also assesses habitat suitability for European eel (*Anguilla anguilla*) and considers habitat suitability for freshwater pearl mussel (FWPM) (*Margaritifera margaritifera*) within the Proposed Development Site.
- 1.4.2. This report provides the following to identify potential control and sample points that could be used in future electrofishing surveys as part of a Fish Monitoring Plan:
 - Legislative context;

- Review of existing information;
- Field survey methodology; and
- Field survey results.

1.5 Legislative and Policy Context

- 1.5.1. Atlantic salmon are an internationally important species and are listed under Annex II and V of the European Habitats Directive (1992) (only in freshwater), and Appendix III of the Bern Convention (1979) (only in freshwater). Salmon are also listed on the Wildlife and Countryside Act 1981 (as amended) and on the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. They are present on the Scottish Biodiversity List (SBL) and considered a UK Priority Species under the UK post-2010 Biodiversity Framework. The species has recently been reclassified from 'Least Concern' to 'Endangered' in Great Britain and from 'Least Concern' to 'Near Threatened' globally (IUCN Red List).
- 1.5.2. Brown/sea trout do not receive extensive protection under conservation legislation, although sea trout are afforded additional protection under fisheries legislation relating to the protection of 'salmon'. Brown/sea trout are considered to be declining or threatened in Scotland and are listed on the Scottish Biodiversity List (SBL). Furthermore, brown/sea trout are considered a UK Priority Species under the UK post-2010 Biodiversity Framework. The species is listed as 'Least Concern' on the IUCN Red List.
- 1.5.3. The European eel is listed on the Wildlife and Countryside Act 1981 (as amended), the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003, and the SBL as declining or threatened in Scotland. In Scotland, an Eel Management Plan was developed by Marine Scotland Science in 2008 to prevent further decline of this species. European eel is also listed as a UK Priority Species under the UK post-2010 Biodiversity Framework. The species is listed as 'Critically Endangered' on the IUCN Red List.
- 1.5.4. The lamprey species are listed on the Wildlife and Countryside Act 1981 (as amended) and the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. They are included on the Scottish Biodiversity List (SBL). Brook lamprey is listed as 'Near Threatened' on the IUCN Red List, while river lamprey and sea lamprey are listed as 'Least Concern'. Sea lamprey is also listed on the SBL as declining or threatened in Scotland and as a UK Priority Species under the UK post-2010 Biodiversity Framework.
- 1.5.5. Freshwater pearl mussels are an internationally important species and are listed under Annex II and V of the European Habitats Directive (1992) and Appendix III of the Bern Convention (1979). They are given full protection in the UK under Schedule 5 of the Wildlife and Countryside Act (1981). Mussels have a complex life cycle: in their first year, they live on the gills of young Atlantic salmon or brown trout, without causing harm to the fish. The species is listed as 'Critically Endangered' on the IUCN Red List and of principle importance on the SBL.

1.6 Methodology

Field Survey

Survey Personnel

- 1.6.1. The fish habitat survey was undertaken by Consultant Ecologists Joel Pullum and Daniel McKinley between 22 and 24 April 2026. The survey was repeated on a small section of the access track - where it joins the main site - which had previously been missed, on 22 and 23 June 2026. On the second visit the survey was undertaken by Senior Ecologist Ross Turnbull and Consultant Ecologist, Michael Christie.

Survey Locations

- 1.6.2. The watercourses in the Proposed Development Site which may be liable to disturbance due to infrastructure installation and peat restoration activities were subject to field survey (see Appendix A: AI Figure 6-10). Rivers were surveyed within the survey boundary with an additional 500 m downstream and 100 m upstream, where accessible.

Survey Methodology

- 1.6.3. The survey method followed a modified version of the methodologies developed by Hendry and Cragg-Hine (1997), and the Scottish Fisheries Co-ordination Centre (2010) with areas of habitat defined as detailed in Table 1. Reference was also made to SEPA's 'Guidance for applicants on supporting information requirements for hydropower applications' (SEPA, 2017).
- 1.6.4. Spawning redds, where present and accessible, would be described in terms of stability, compaction and notes on the degree of siltation present within the spawning redds. In addition to notes on physical channel morphology, notes were also taken on bankside structure and surrounding land use.

Table 1: Fish Habitat Classification

Habitat Type	Classification
Salmon spawning redds	Stable gravel up to 30 cm deep that is not compacted or contains excessive silt. Substrate size with a diameter of 0.8 to 10.2 cm.
Salmon fry habitat *	Shallow (< 0.2 m) and fast flowing water indicative of riffles and runs (61 cm/s) with a substrate dominated by gravel (16 – 64 mm) and cobbles (64 – 256 mm). Preference for mid-stream.
Salmon parr habitat *	Riffle – run habitat that is generally faster and deeper than salmon fry habitat (0.2 - 0.4 m). Substrate consists of gravels (16 – 64 mm), cobbles (64 – 256 mm) and boulder (> 256 mm).
Trout spawning redds	Stable gravel up to 30 cm deep that is not compacted or contains excessive silt. Substrate size with a diameter of 0.8 to 10.2 cm.
Trout fry habitat	Deeper water (>0.25 m) slow to moderate flow (41 cm/s) with a substrate dominated by gravel (16 – 64 mm) and cobbles (64 – 256 mm). Appropriate substrate on the edge of the stream.
Trout parr habitat	Generally deeper (0.3 - 0.5 m) and slower flowing than trout fry habitat. Substrate consists of gravels (16 – 64 mm), cobbles (64 – 256 mm) and boulder (> 256 mm). Frequently extends under covered bankside areas.
Lamprey spawning habitat	Consists of uncompacted stable gravels (2 – 16 mm) and pebbles (16 – 64 mm). Clear river conditions required with very low siltation or no pollution.
Juvenile lamprey habitat	Stable gravel (2 – 16 mm) and sand. Slow flowing water in water approximately 15 cm deep. Good overhead cover and plant detritus on riverbed. Can occur within water <15 cm deep but not optimal.
Eel habitat	Large substrate between cobble (64-256 mm) and boulder (>256 mm) with scattered mud, suitable for burrowing. Bankside crevices present with complex undergrowth for cover.
Freshwater pearl mussel	Fine gravel (2 – 16 mm), fast flowing river with no pollution or siltation.

Glides	Smooth laminar flow with little surface turbulence. Shallow glide generally less than 0.3 m deep. Deep glides generally greater than 0.3 m deep.
Pools	No perceptible flow and usually greater than 1 m deep. Shallow pool generally less than 0.3 m deep. Deep pool generally greater than 0.3 m deep.
Flow constriction	Where flows are accelerated between narrow banksides (usually combined with deep fast flows and bedrock substrates).
Obstacles/barrier	A structure or item identified as a potential obstruction to fish passage at certain water heights. Salmon can surpass waterfalls of approximately 2 – 3 m.

Source: SFCC (2010)

** If significant amounts of fry and parr habitat were found to co-exist in the same section, these habitat classifications are often combined and classified as juvenile habitat. Where parr habitat is mentioned, this will refer to habitat that has principally been identified as habitat more suited to parr than fry, however, will habitually contain a lower quantity of fry habitat and habitat which is suited to both fry and parr.*

- 1.6.5. SEPA's guidance for supporting requirements for hydropower applications uses a simpler classification namely, productive habitat, lamprey habitat, bedrock channel (unproductive) and obstacles to migration. This is reflected in the fish habitat quality assessment, detailed in Table 4.
- 1.6.6. The quality of the habitat was graded negligible to high as outlined in Table 2. The assessment of the quality was determined at every survey point excluding obstacle features.

Table 2: Fish Habitat Quality Measures

Grade	Conditions
High	All desirable habitat conditions are met
Good	Most of desirable habitat requirements met with few adverse conditions present
Medium	Habitat displays a mixture of both desirable and adverse conditions.
Poor	Habitat primarily consists of adverse conditions with few desirable conditions present.
Negligible	Little/no desirable habitat conditions present

- 1.6.7. The survey comprised a walkover, noting physical morphology throughout the potentially impacted reach, as well as upstream and downstream with potential existing obstacles to migration being noted. The results of the survey were mapped and are presented in Appendix A: AI Figure 6-10.
- 1.6.8. Photos and target notes (TNs) were recorded in the context of varying fisheries habitat/flow types, and obstacles/barriers along the survey reach. Photos and descriptions of the relevant target notes (TNs) are provided in Appendix B.

Analysis

- 1.6.9. Data collected via the survey was used to analyse and evaluate the quality of the habitat for fish, eel and lamprey. The traits of the rivers recorded include river depth, width, substrate, and bankside foliage coverage. From the recorded data, assessments were made regarding fish utilisation potential (FUP) and salmonid spawning potential (SSP). This was recorded across the full river with notes being taken approximately every 50 m or when river conditions changed significantly.
- 1.6.10. SSP was assessed using the SFCC Walkover Habitat Survey Protocol and Habitat Surveys Training Course Manual (SFCC, 2010) and Louhi *et al.* (2008). Observations informed the assessment criteria, including substrate type, substrate compaction, river depth, flow type, and siltation, as shown for Atlantic salmon and sea/brown trout in Table 3. Locations were classified as providing Optimal, Sub-optimal or Not Suitable SSP. SSP is considered 'optimal' if an area greater than 10 m² is present with clean substrate suitable for all salmonids. SSP is considered 'sub-optimal' if the spawning area is <10 m² with a mix of suitable and unsuitable substrate types. 'Not suitable' spawning habitat contains no suitable spawning habitat.

Table 3: Criteria for Salmonoid Spawning Potential

Species	Substrate	Depth (cm)	Water Flow	Siltation and Pollution
Atlantic Salmon	Uncompacted stable gravel (8 -12 mm) and pebbles (16–64 mm)	20–50	Moderate to fast (35–65 cm s ⁻¹)	No siltation or pollution
Sea/brown Trout	Uncompacted stable gravel (8 -12 mm) and pebbles (16–64 mm)	15–45	Slow to moderate (20–55 cm s ⁻¹)	No siltation or pollution

- 1.6.11. Any barriers which would limit migratory fish, eel and lamprey were also recorded and assessed to determine if they prevented upstream migration.

1.7 Electrofishing Locations and Water Quality Monitoring Site Selection

- 1.7.1. Points for future electrofishing and water quality monitoring were identified on the survey. The sites were chosen for their proximity to accessibility and likelihood of containing the target species.
- 1.7.2. Additionally, the sites included areas where infrastructure will be within the vicinity of the watercourses or in areas where watercourses will be crossed. Upstream and downstream areas were chosen as potential sites to collect baseline data with areas outside of the Proposed Development Site boundary being identified downstream of these work areas.
- 1.7.3. These sample locations are indicative and will be refined through the pre-construction and construction periods where electrofishing and water quality sampling will occur. These are shown in Appendix A: AI Figure 6-10.

1.8 Limitations

- 1.8.1. The majority of the Proposed Development Site was accessible within the red line boundary and within the upstream and downstream buffers that include Loch Mannoch and the Tarff Water.
- 1.8.2. However, the forestry areas to the north and most of the west boundaries, and the farm field beyond the northeastern corner of the Proposed Development Site were not accessible for survey, therefore the survey buffers out with the Proposed Development Site on the associated watercourses were not accessible. The area of the southwest access track within the commercial forestry land was available during a resurvey in June 2026.
- 1.8.3. Water levels were considered to be normal and channel features, substrate and areas of fish habitat were fully visible and thus no limitations were encountered during the habitat assessment. Weather conditions did not have any impact on the surveyors' ability to conduct a comprehensive survey.

2. Results

Fish Utilisation Potential

- 2.1.1. The Tarff Water is the most consistently high-quality watercourse within the Proposed Development Site and suitable for both salmon and trout. This is due to its river morphology, where a range of water depths and speeds are present, with varying substrate throughout the watercourse. Furthermore, this burn had minimal human modification in terms of flow restrictions. Some barriers were present in the form of waterfalls; however, these are passable by both salmon and trout.
- 2.1.2. The small tributary feeding the Tarff Water to the north of the Site is narrow (less than 1.5 m) but provides good substrate and flow for salmonid fry. There is a steep gradient leading upstream from the Tarff Water however it is passable by salmon and trout. Once the burn enters the farm there is a stone wall which creates an impassable barrier for fish migration.
- 2.1.3. The Anstool Burn was a slow-moving watercourse that fed Loch Mannoch. The watercourse had a variety of depths suitable for parr and fry due to the mixture of substrate found within the burn. Furthermore, there has been minimal modification to the burn with only livestock crossing points at certain areas. Lastly salmonid parr were observed where the burn flows into Loch Mannoch.
- 2.1.4. A tributary to this watercourse was disregarded from this survey because a 10 m waterfall was observed outside the survey area. This would prevent fish from migrating upstream into the centrewest of the Proposed Development Site. Additionally, this watercourse connects to small field drains in the northwest. Therefore, these areas were also not surveyed.
- 2.1.5. The small field drain that flows into Loch Mannoch from the north provides poor to negligible habitat and is overgrown with grass and other vegetation before the drain itself flows over the grass areas.
- 2.1.6. The Glengap Burn is similar to the Anstool Burn in that it is a slow-moving watercourse with a variety of features. Upstream, it starts as a narrow, shallow burn that is suitable for fry, which were also observed, with shallow substrate and overhanging vegetation. In the central area of the burn within the Proposed Development Site, there is a mixture of deep pools and riffles suitable for both fry and parr. Additionally, areas of fine gravel would provide suitable spawning habitat for fish. The southern section that was surveyed was wide, with deep areas suitable for parr, which were observed in the watercourse.
- 2.1.7. The Red Nick Burn is a fast-flowing tributary of the Glengap Burn with moderate habitat quality. Where they meet, the Red Nick Burn flows through a culvert under a non-metalled access track. A 30cm drop is present on the downstream side which could prove an obstacle to fish migration in drier periods. Further upstream this watercourse is largely <2 m in width and modified to aide drainage of the surrounding forestry. The watercourse is well shaded by the canopy of trees and vegetation, and substrate is predominantly cobble and bedrock with some sections of gravel.
- 2.1.8. Lastly the watercourses identified in the northeast were field drains that dissipated over the fields as they left the Proposed Development Site downstream. Also, fish could not enter the Proposed Development Site from these watercourses as they were blocked by a stone wall.
- 2.1.9. Table 4 summarises the results of the FUP assessment for all relevant species for each surveyed stream.

Table 4: Fish Utilisation Potential of the Watercourses in the Proposed Development

Description	Habitat Suitability	River Image
<u>Tarff Water – Upper (TN1 to TN15)</u> Width Watercourse varied between 1 m to 3 m throughout the burn, a small field drain tributary fed the watercourse did not exceed 50 cm in width. Depth The burn varied from 50 cm to 1 m in depth with deep pools of 3 m in depth present. Substrate Gravel and boulders dominated the bed of the watercourse with minimal soft, sandy or muddy sections. Flow This varied between slow and faster moving sections. Some stepped waterfalls were observed where the flow was fast before slowing down in wide areas. Vegetation The upper section was heavily covered in broadleaved woodland. There was minimal vegetation on the banks of this section of the Tarff Water. Barriers Stepped waterfalls were present although did not provide barriers for fish.	Salmon: high for fry and parr. Trout: high for fry and Parr Eel: Medium Lamprey: Negligible	

Description	Habitat Suitability	River Image
<u>Tarff Water – Lower (TN16 to TN30)</u> Width The watercourse ranges from 2 cm to 3 m at its widest point. Depth This section of the watercourse was shallow with the depth reaching 50 cm at its deepest. Some shallower sections of the burn were between 20 cm and 10 cm deep. Substrate Gravel and boulders dominate, some mud areas. Flow The watercourse had limited fast moving sections, so slow flow was observed throughout. Some fast sections occurred where the watercourse narrowed over shallow sections. Vegetation They lower limit is covered by small broadleaved trees with grass on the banks. Barriers No barriers were observed.	Salmon: high for fry and parr. Trout: high for fry and Parr Eel: Medium Lamprey: Medium	
<u>Anstool Burn (TN46 to TN52 / TN110 and TN111)</u> Width The watercourse ranges from 1 m to 2 m at its widest point. Depth The watercourse was shallow with the depth reaching 1 m at its deepest. The majority of the burn was between 50 cm and 20 cm deep. Substrate Gravel and boulders dominate the watercourse bed. Mud sections are seen where the livestock is crossing.	Salmon: Good to high Trout: Good to high Eel: Medium Lamprey: Medium	

Description	Habitat Suitability	River Image
Flow The watercourse had a consistent moderate flow throughout the surveyed area. The flow would occasionally slow at meandering sections. Vegetation The watercourse flows through agricultural fields dominated by <i>Juncus</i> sp. Some areas were covered by sporadic trees growing on the edges of the watercourse Barriers No barriers were observed.		
<u>Glengap Burn – Upper (TN70 to TN90)</u> Width The watercourse ranges from 20 cm to 1 m in width Depth The watercourse was shallow at 20 cm with the depth reaching 1 m at its deepest in some pools. The majority of the burn was between 50 cm and 20 cm deep. Substrate Gravel dominated the watercourse	Salmon: Good to high Trout: Good to high Eel: Medium Lamprey: Medium	

Description	Habitat Suitability	River Image
bed. Mud sections are seen in some sections. Flow The watercourse had a consistent slow flow throughout the surveyed area. The flow would occasionally slow further at meandering sections or where a wide section enters a narrow section and was restricted by vegetation. Vegetation The watercourse flows through agricultural fields dominated by <i>Juncus</i> sp. with minimal cover. Barriers No barriers were observed.		

Description	Habitat Suitability	River Image
<u>Glengap Burn – Lower (TN91 to TN109)</u> Width The watercourse ranges from 1 m to 2 m at its widest point. Depth The watercourse was shallow with the depth reaching 1 m at its deepest. The majority of the burn was between 50 cm and 20 cm deep. Substrate Gravel and boulders dominate the watercourse bed. Fine gravel was observed on some edges of pools that would be suitable for spawning. Flow The watercourse had a consistent moderate flow throughout the surveyed area. The flow would occasionally slow at meandering sections. Vegetation The watercourse flows through agricultural fields dominated by <i>Juncus</i> sp. where the sections entered commercial forestry there was cover from taller trees, however these were generally more than 2 m from the bank. Barriers No barriers were observed.	Salmon: Good to high Trout: Good to high Eel: Medium Lamprey: Medium	

Description	Habitat Suitability	River Image
		
<u>Tributary to the Tarff Water (TN36 to TN41)</u> Width The watercourse ranges from 30 cm 1 m at its widest point. Depth The watercourse was shallow with the depth reaching less than 50 cm at its deepest. The majority of the burn was between 30 cm and 20 cm deep. Substrate Gravel and small pebbles dominate the watercourse bed. Flow The watercourse had a consistent slow to moderate flow throughout the surveyed area. The flow was faster as it descended the high bank into the Tarff Water. Vegetation The watercourse flows through agricultural fields dominated by Juncus sp and short grass. Barriers A stone wall blocked fish movement upstream into the eastern section of the Proposed Development Site,	Salmon: Medium Trout: Medium Eel: Negligible Lamprey: Negligible	  

Description	Habitat Suitability	River Image
		
<u>Unnamed Tributary to Loch Mannoch (TN42 to TN45)</u> Width The watercourse ranges from 10 cm to 30 cm at its widest point. Depth The watercourse was shallow with the depth reaching less than 30 cm at its deepest. The majority of the burn was between 10 cm and 20 cm deep. Substrate Gravel and small pebbles dominate the watercourse bed. Flow The watercourse had a consistent slow to moderate flow throughout the surveyed area. Vegetation The watercourse flows through agricultural fields dominated by <i>Juncus</i> sp and short grass. The burn itself was often overgrown with grass. Barriers Flow constrictions blocked the drain to fish migration.	Salmon: Negligible Trout: Negligible Eel: Negligible Lamprey: Negligible	  

Description	Habitat Suitability	River Image
<u>Northeastern field drains (TN63 to TN68)</u> Width The watercourses were 30 cm at their widest points. Depth The watercourse was shallow with the depth reaching less than 20 cm at its deepest. The majority of the drains were flowing over vegetation. Substrate Gravel and vegetation. Flow The drains had slow flow. Vegetation The watercourse flows through agricultural fields dominated by <i>Juncus</i> sp and short grass. Barriers A stone wall blocked fish movement onto the Proposed Development Site.	Salmon: Negligible Trout: Negligible Eel: Negligible Lamprey: Negligible	   

Description	Habitat Suitability	River Image
		
<u>Tributary to Anstool Burn</u> A 10 m waterfall outside the survey area would prevent fish migration upstream into this area of the Proposed Development Site.		

Description	Habitat Suitability	River Image
Red Nick Burn Width Between 1-2 m Depth Between 50-90 cm deep Substrate Stone and bedrock substrate. Flow The watercourse had a consistent slow to moderate flow throughout the surveyed area. Vegetation Tall grass, ferns, woodrush and angelica. Heavily shaded. Barriers None	Salmon: Medium Trout: Medium Eel: Medium Lamprey: Medium	

Salmonid Spawning Potential

- 2.1.10. There were some suitable salmonid spawning locations on the Glengap Burn. In the pool areas there were sections of built-up fine gravel which could be used for spawning. The presence of fry and parr along the watercourse indicates that spawning is occurring.

Freshwater Pearl Mussel

- 2.1.11. While suitable freshwater pearl mussel habitat was seen on the Proposed Development Site, the level of pollution from agricultural runoff is high, therefore the environment is unlikely to be suitable for this species.

Barriers and Obstructions to Migration

- 2.1.12. There were no visible barriers to migration on the named burns surveyed. However, the 10 m waterfall on the tributary to the Anstool Burn would prevent migration into the centre west of the Proposed Development Site. Additionally, the wall in the tributary to the Tarff Water prevented upstream access for fish into the northeast of the Proposed Development Site.

Electrofishing Survey and Water Quality Monitoring Locations

- 2.1.13. Table 5 summarises the results of the outline electrofishing and water quality monitoring locations for all relevant infrastructure that could potentially affect the watercourse.

Table 5: Electrofishing and Water Quality Monitoring Descriptions

Description	Habitat Suitability
Tarff Water	

Electrofishing point and water sampling point upstream out with the Proposed Development Site-difficult access.



Electrofishing point and water sampling point for potential runoff from solar farm construction.



Electrofishing point and water sampling point for potential runoff from solar farm construction.



Electrofishing point and water sampling point for potential runoff from solar farm construction.



Electrofishing point and water sampling point for potential runoff from solar farm construction.



Electrofishing point and water sampling point for potential runoff from solar farm construction.



Electrofishing point and water sampling point upstream of WCC8.



Electrofishing point and water sampling point downstream of WCC8.



Electrofishing point and water sampling point downstream out with the Site.



Tributary to Tarff Water

Electrofishing point and water sampling point downstream of WCC7.



Anstool Burn

Electrofishing point and water sampling point upstream of WCC6.



Electrofishing point downstream of WCC6 – very difficult access.



Electrofishing point and water sampling point downstream of WCC6 — far away from tracks.



Electrofishing point and water sampling point before Loch Mannocho.



Tributary to Anstool Burn

Water Quality Monitoring point for WCC5.



Glengap Burn

Electrofishing point upstream of Turbine 4 and WCC4.



Electrofishing point upstream of Turbine 4 and WCC4.



Electrofishing point and water quality monitoring point upstream of Turbine 4 and WCC4.



Electrofishing point and water quality monitoring point upstream of Turbine 4 and WCC4.



Electrofishing point and water quality monitoring point downstream of Turbine 4 and WCC4.



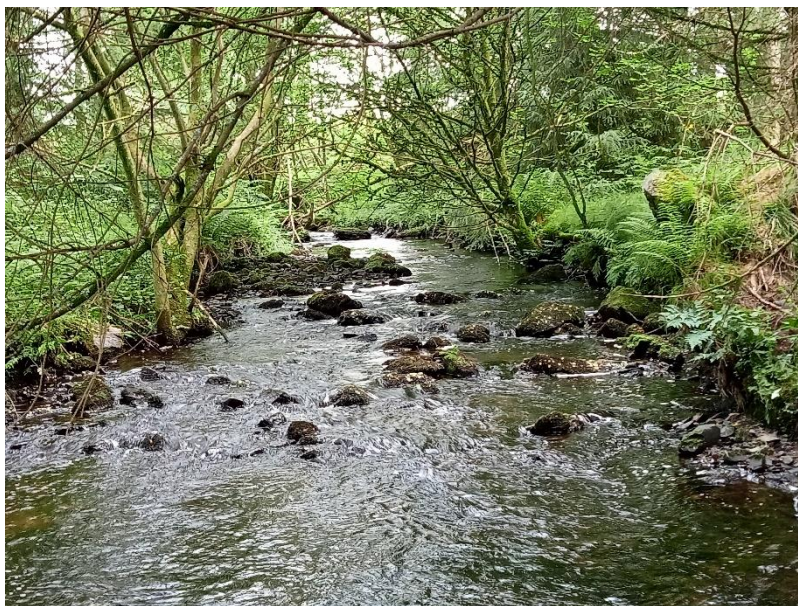
Electrofishing point and water quality monitoring point downstream of Turbine 4 and WCC4.



Water quality monitoring point downstream of Turbine 4 and WCC2.



Electrofishing and water quality monitoring point downstream of Turbine 4 and WCC1.



3. Discussion

Field survey

- 3.1.1. The three main watercourses on the Proposed Development Site (Tarff Water, Anstool Burn and Glengap Burn) all have good to high potential habitat for salmonid species with the potential for spawning locations. The observations of fish in both the Glengap and Anstool Burns strongly indicate that fish use the watercourses for breeding. Furthermore, the lack of significant barriers in the three of these burns allows for sufficient fish migration up into the Site. The variations in river morphology throughout the watercourses provides areas for multiple stages in the salmonid lifecycle.
- 3.1.2. Electrofishing should be undertaken throughout the watercourses to understand the population densities of fish species and different life stages in order to establish a baseline before construction starts. Furthermore, a monitoring regime should be implemented during and after construction to record any effects that the Proposed Development may have on the watercourses and fish populations.
- 3.1.3. The small field drains that act as tributaries to the Anstool Burn are often passing through overgrown sections that are narrow for fish migration. However, it should be noted that smaller fish, such as salmonid fry, may be able to utilise these drains even though the habitat is poor.
- 3.1.4. Water quality monitoring points should be established upstream and downstream of infrastructure to understand baseline watercourse conditions before construction begins and during construction to detect any pollution generated by the works. Indicative locations are shown in Appendix A: AI Figure 6-10, although these may be subject to change.

4. References

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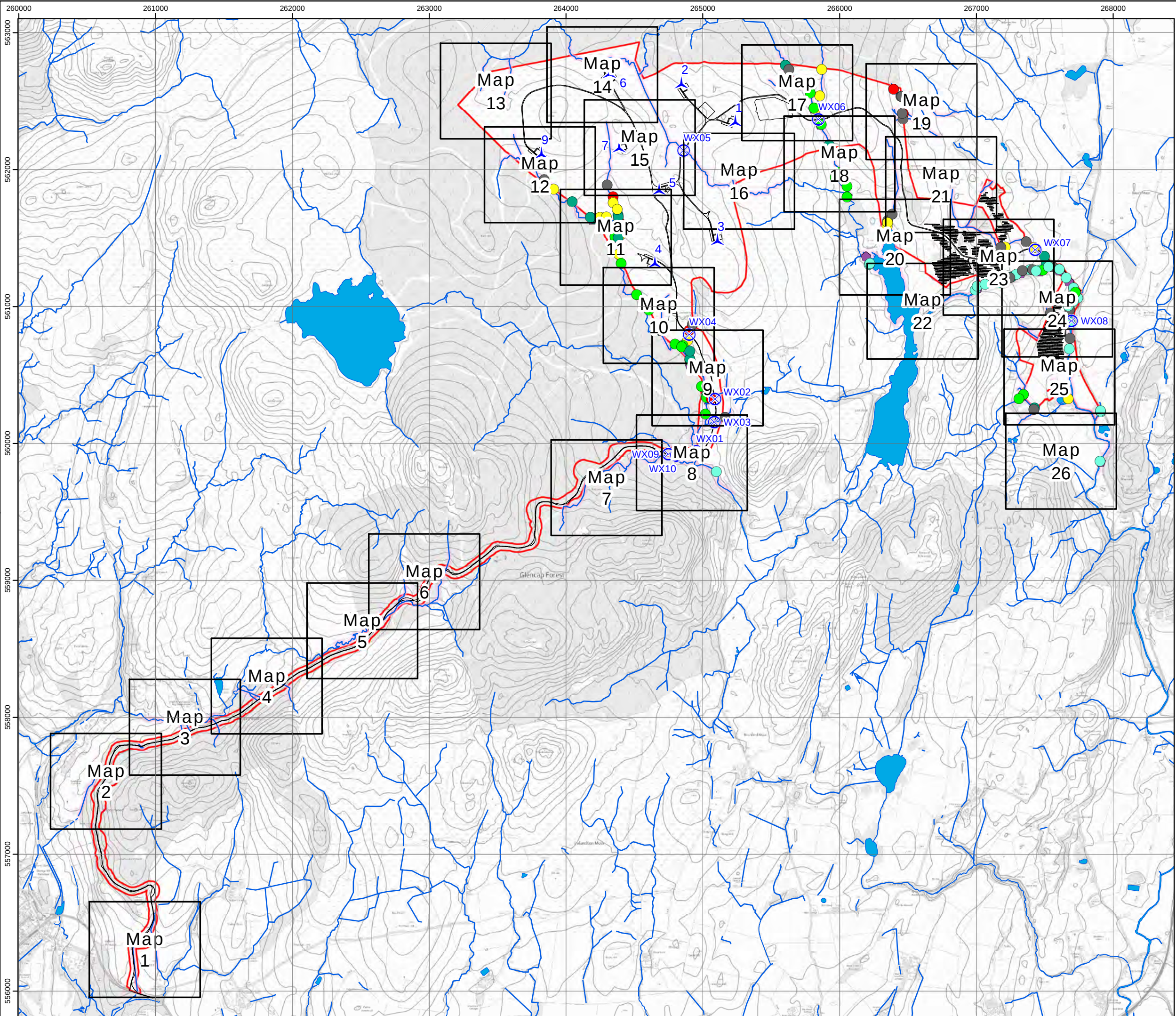
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Appendix A. Figure



Lairdmannoch Energy Park



AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Overview

- Key**
- Site boundary
 - Proposed turbine location
 - Watercourse crossing
 - Surveyed watercourses
 - Proposed infrastructure
 - Watercourse
- Habitat Quality**
- High
 - Good
 - Medium
 - Low
 - Negligible
 - NA
- Incidental observations**
- Water Sampling Point
 - Electrofishing Point



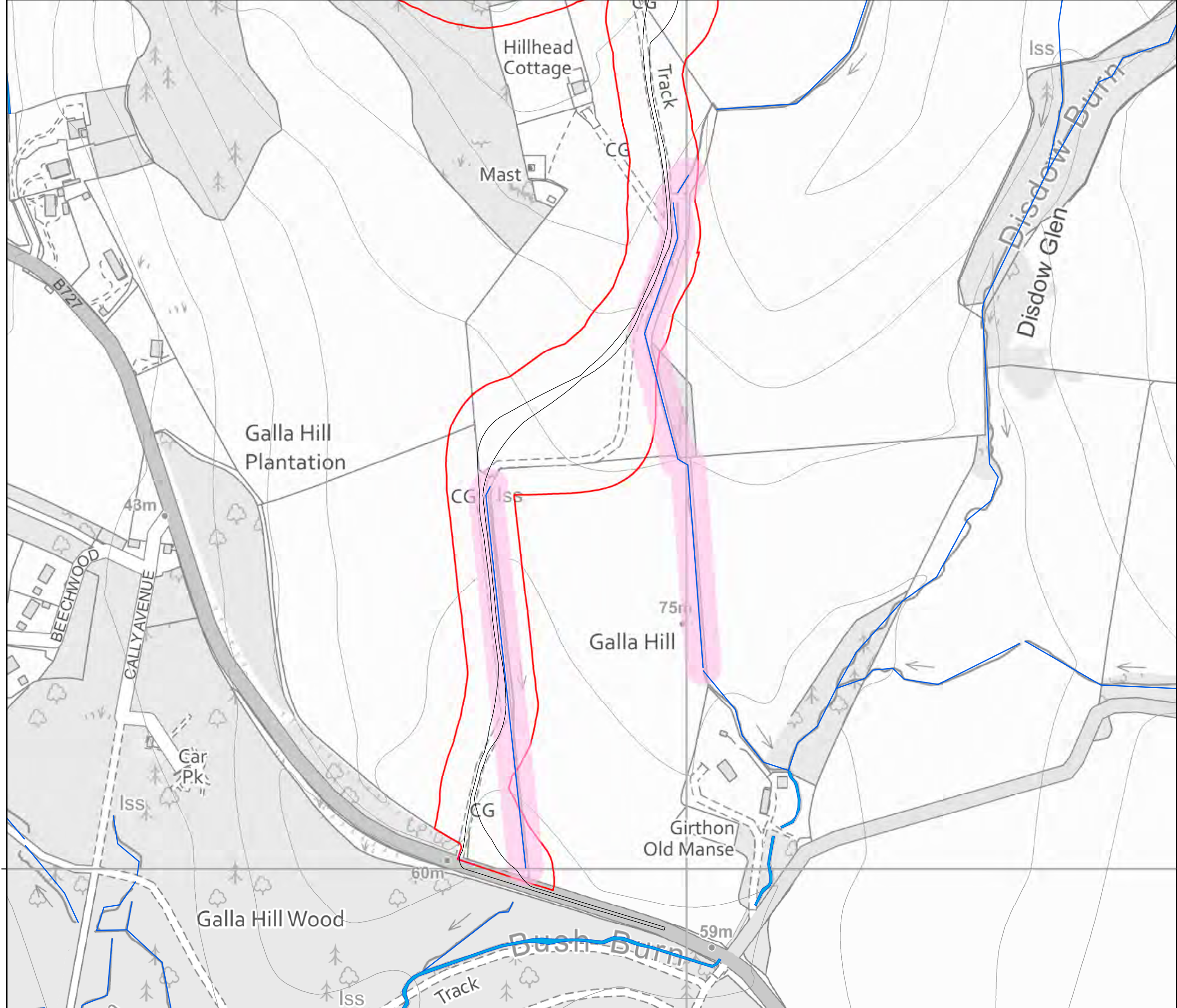
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Metres

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Scale @ A3:
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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 1

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



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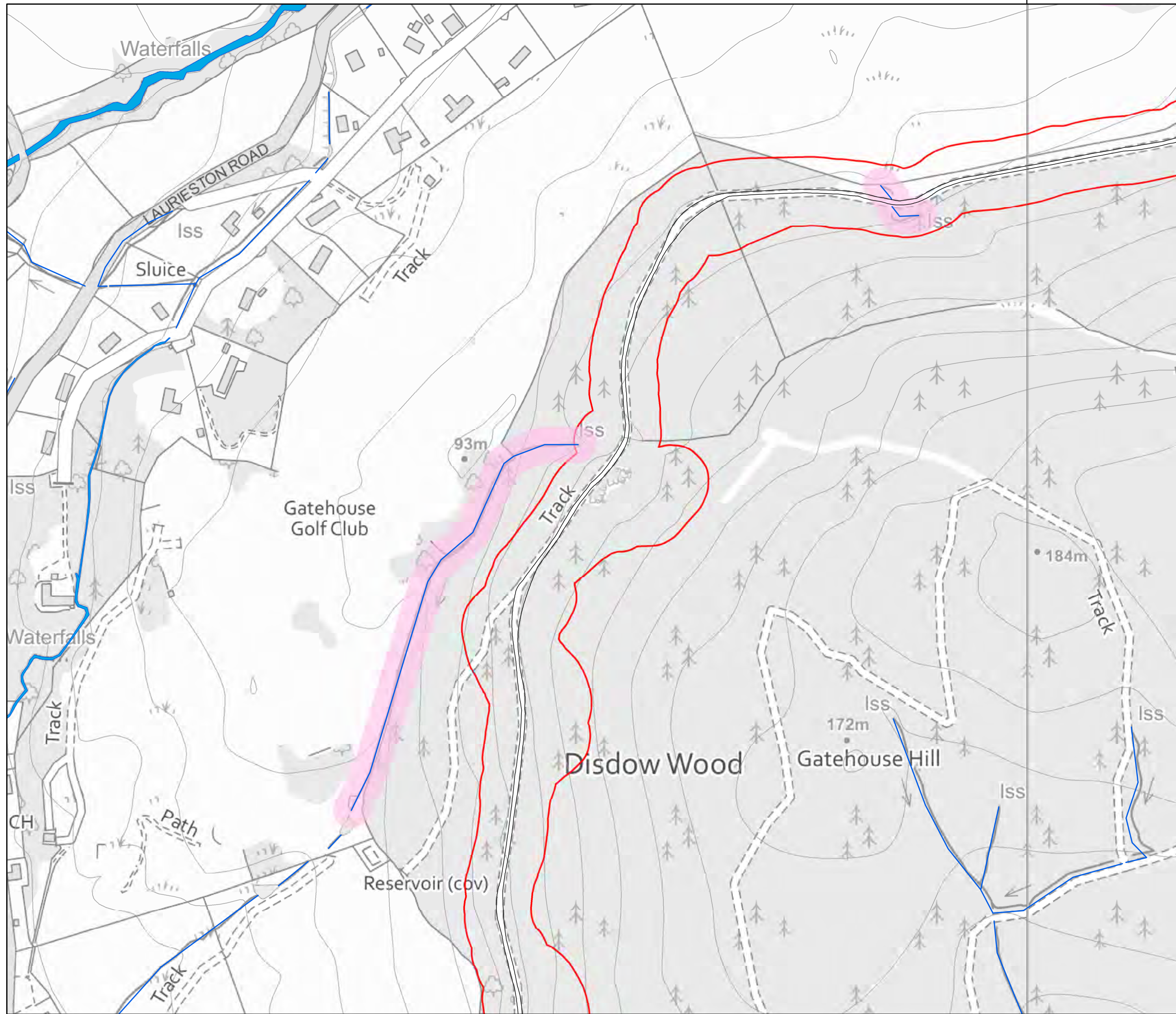


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wind2

AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 2

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

atmos
CONSULTING

0 50 100
Metres



Scale @ A3:
1:3,000



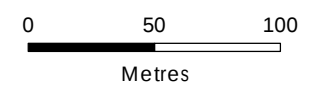
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wind2

Key

- Habitat Quality

- High
● Good
● Medium
● Low
● Negligible
● NA

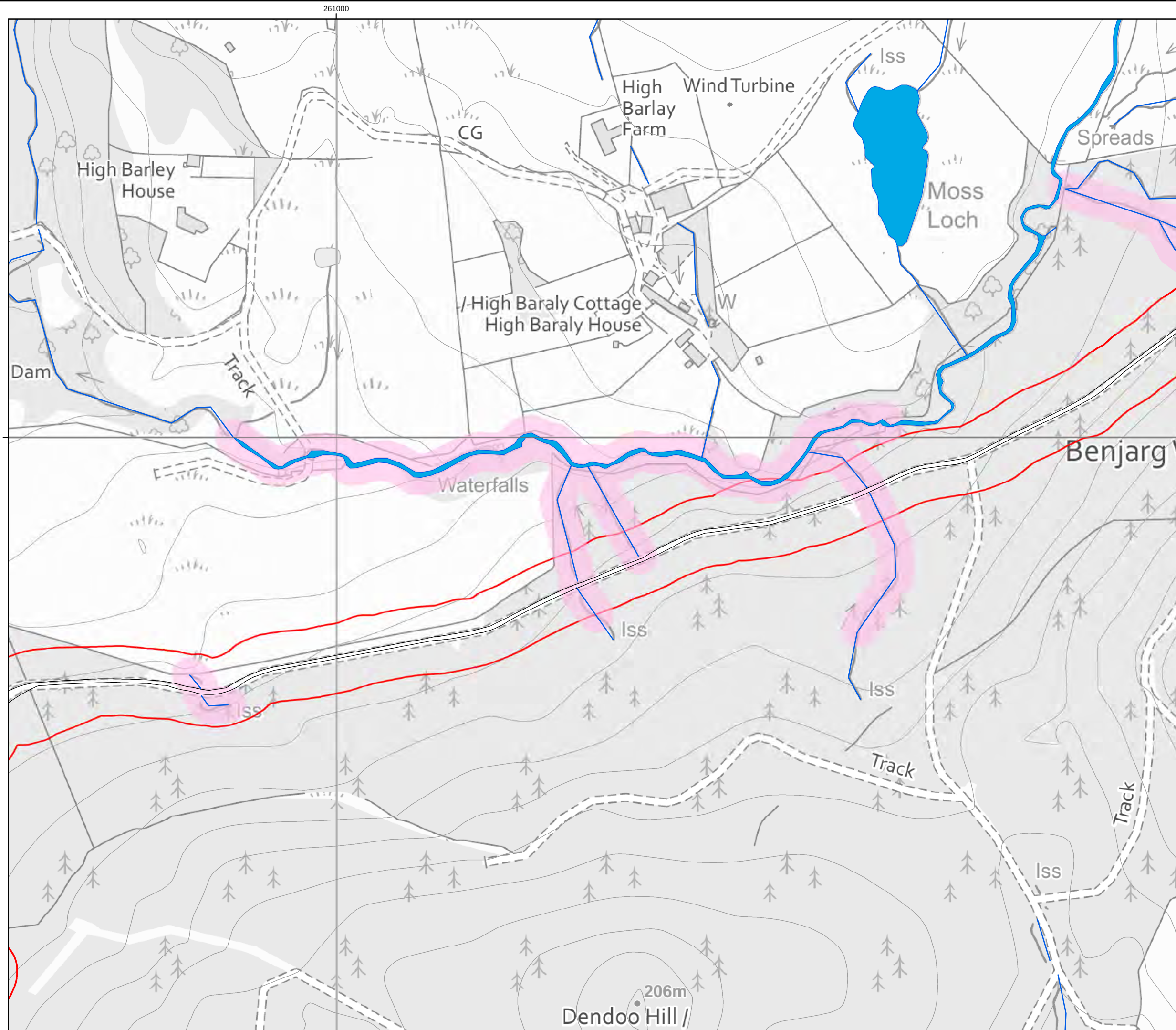


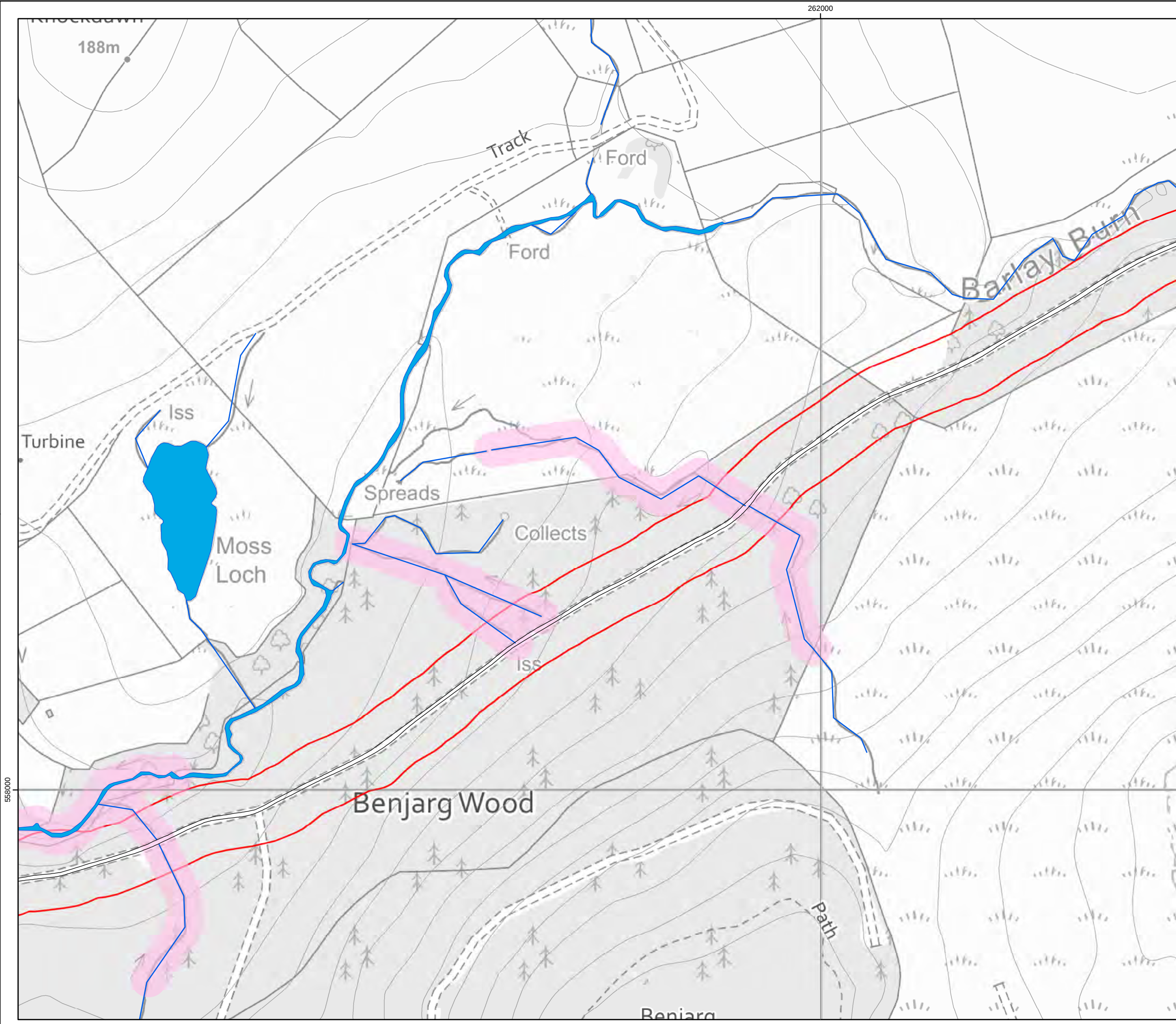
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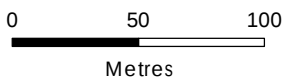


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 4

- Key**
- Site boundary
 - Surveyed watercourses
 - Proposed infrastructure
 - Watercourse
- Habitat Quality**
- High
 - Good
 - Medium
 - Low
 - Negligible
 - NA

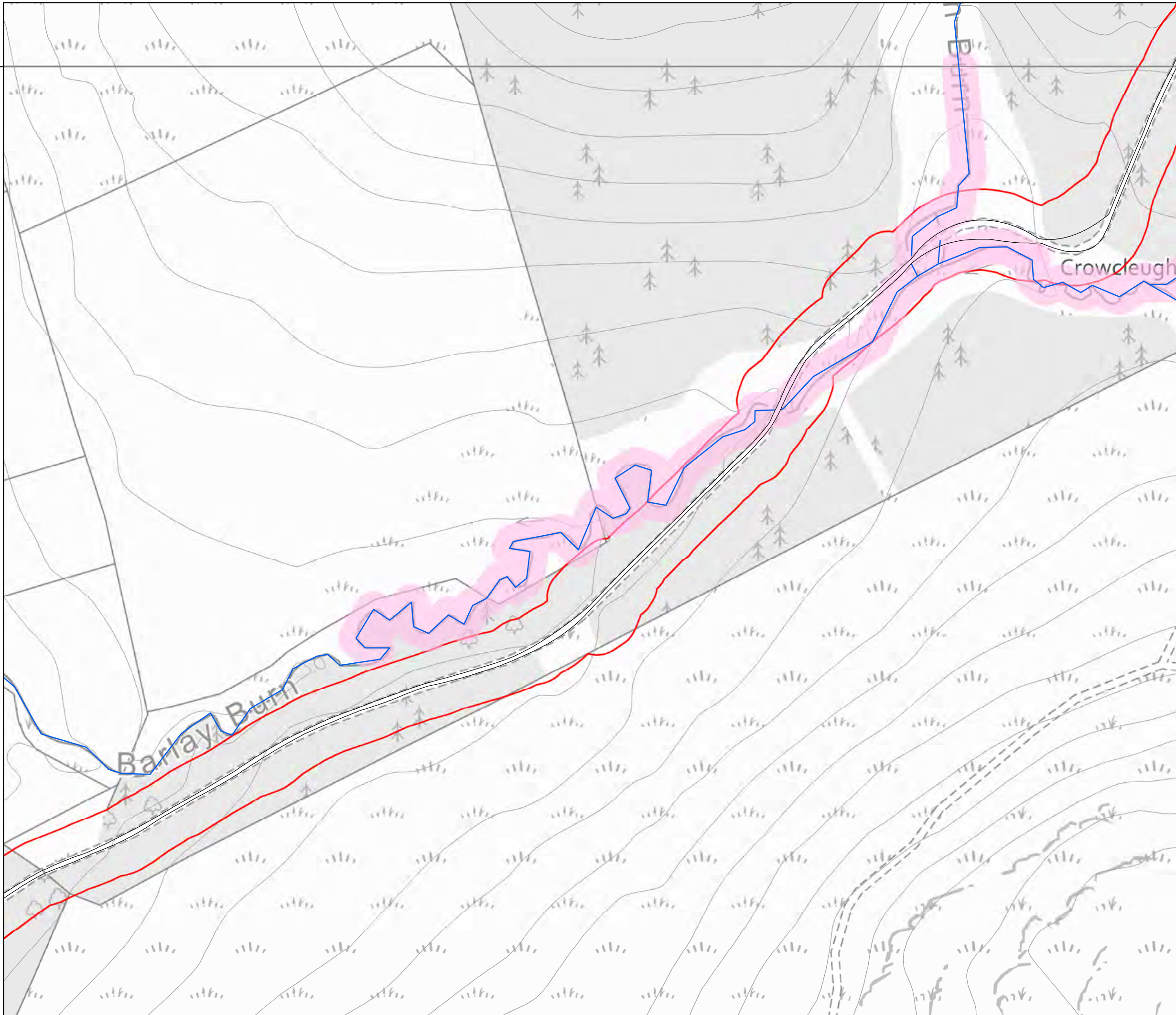


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559000



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 5

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



0 50 100
Metres



Scale @ A3:
1:3,000



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 6

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



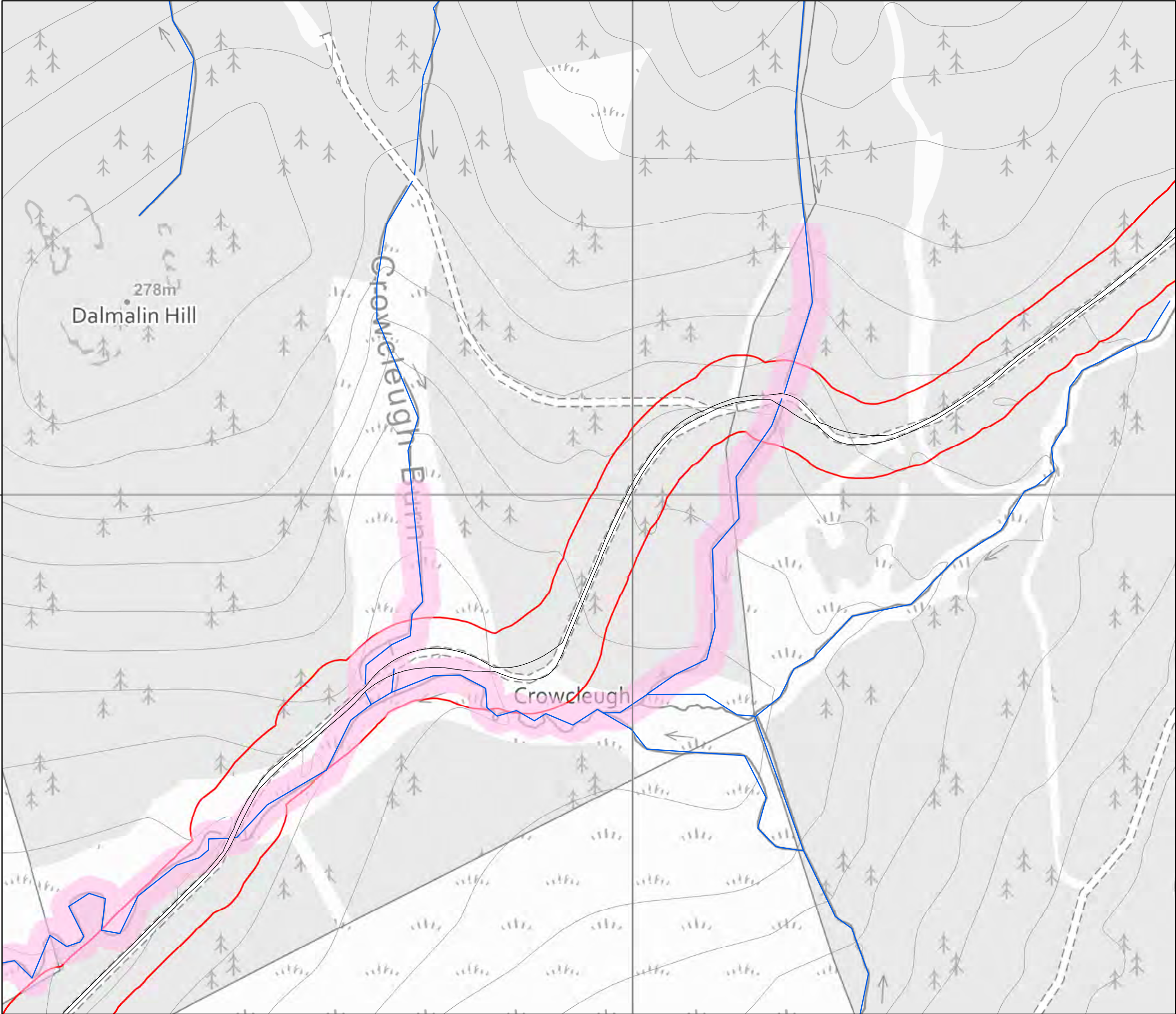
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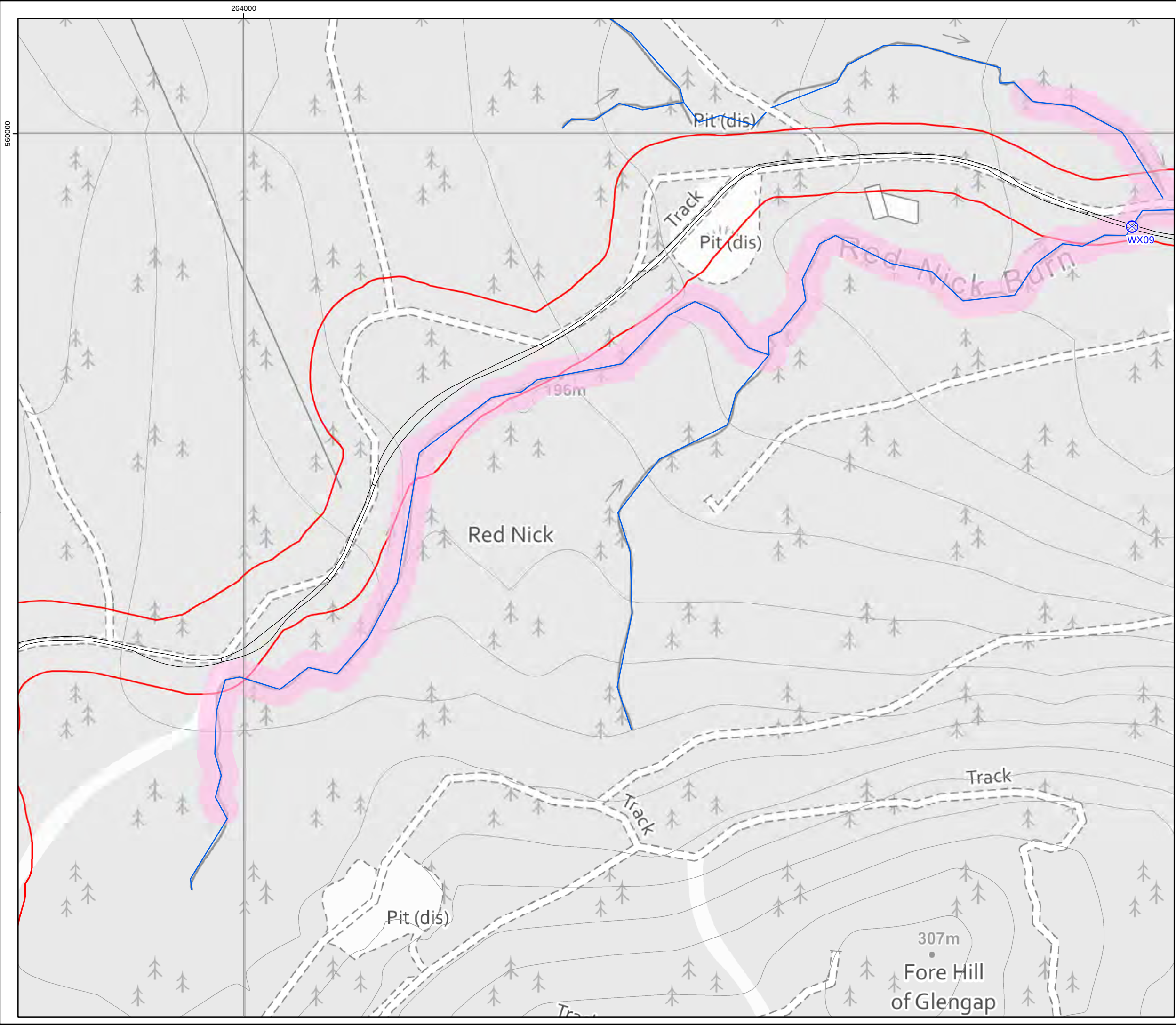


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 7

- Key**
- Site boundary
 - Watercourse crossing
 - Surveyed watercourses
 - Proposed infrastructure
 - Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



050100

Metres

N

Scale @ A3:
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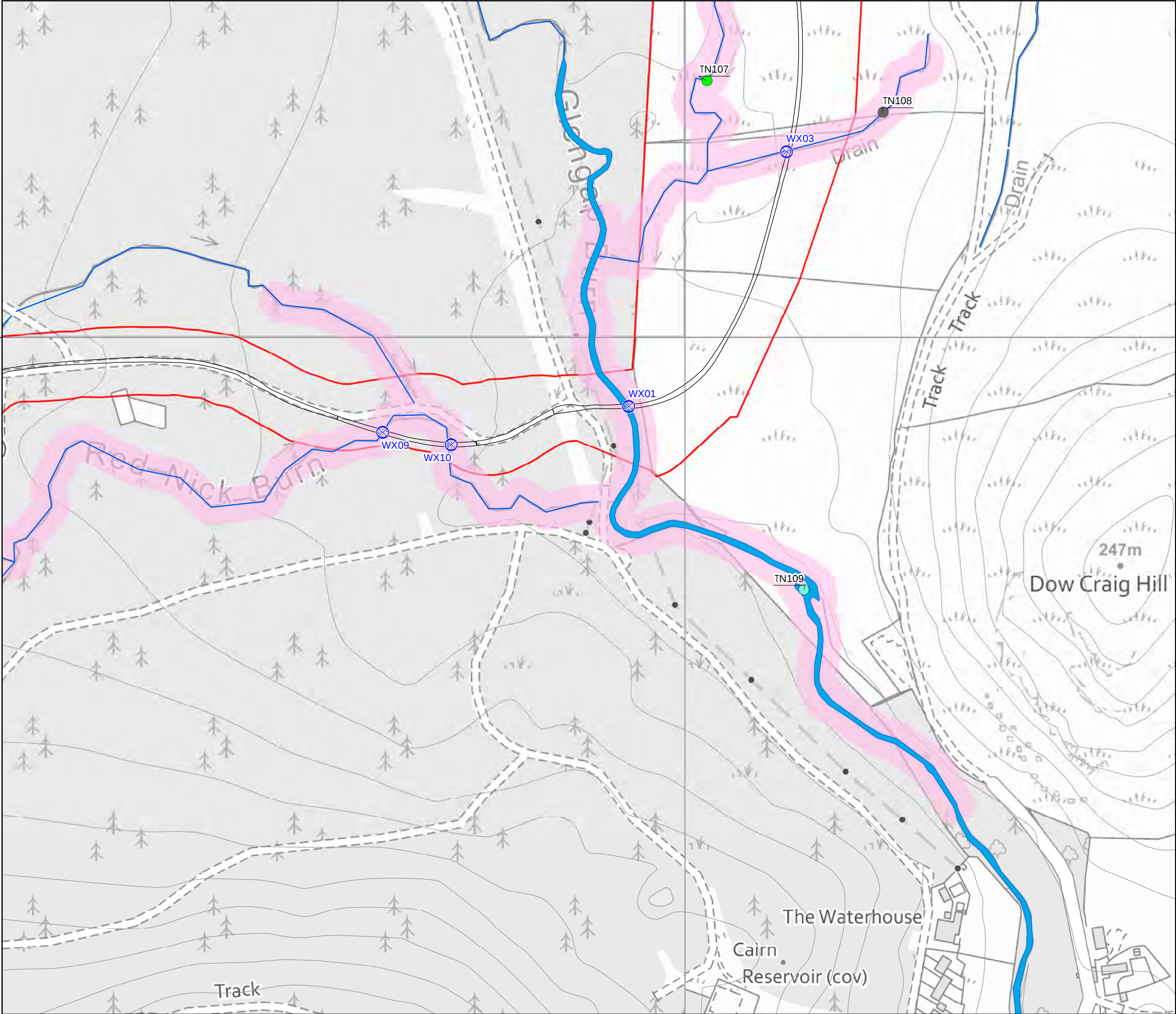
AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 8

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



0 50 100
Metres

Scale @ A3:
1:3,000



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 9

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Water Sampling Point
- Electrofishing Point



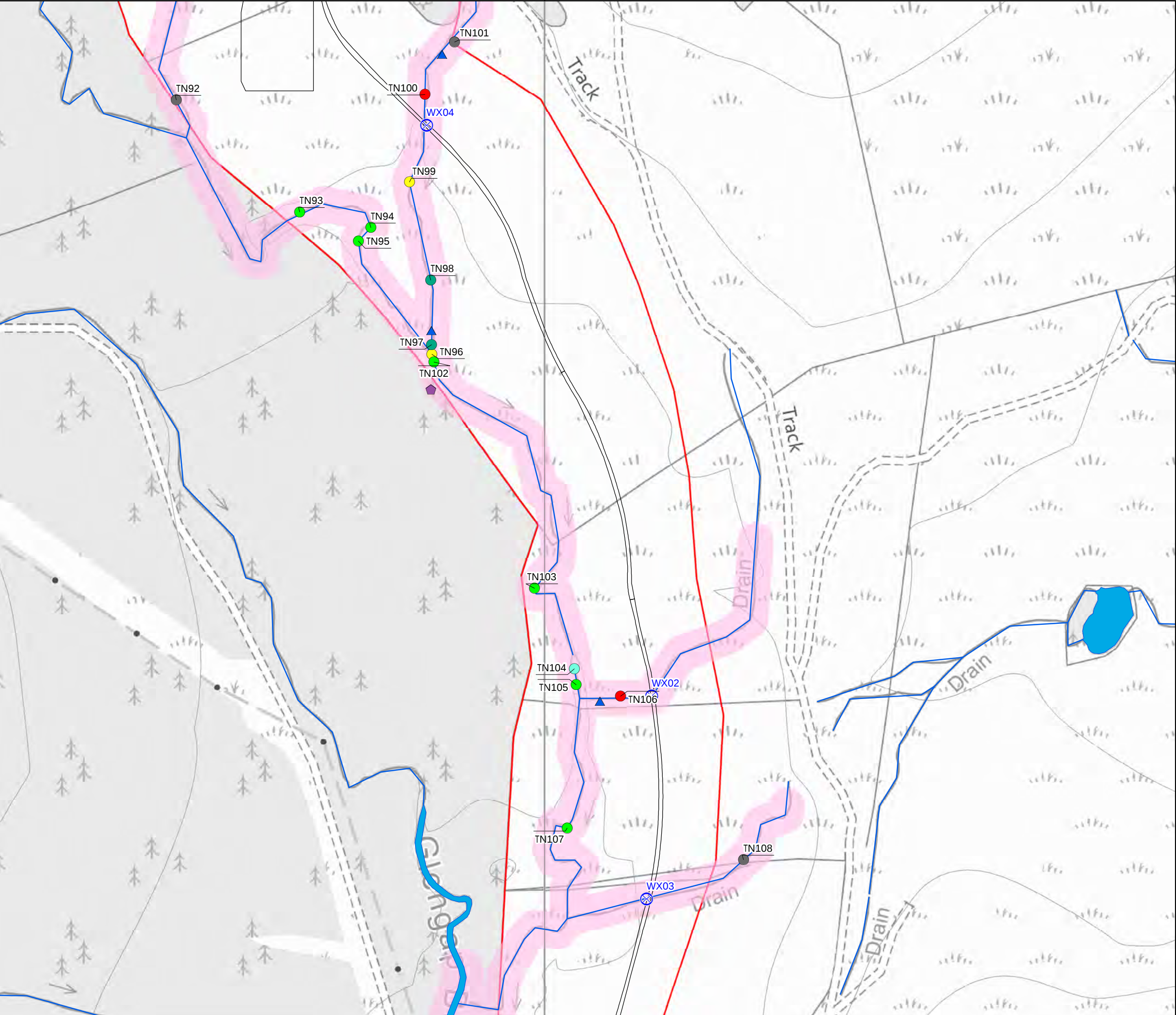
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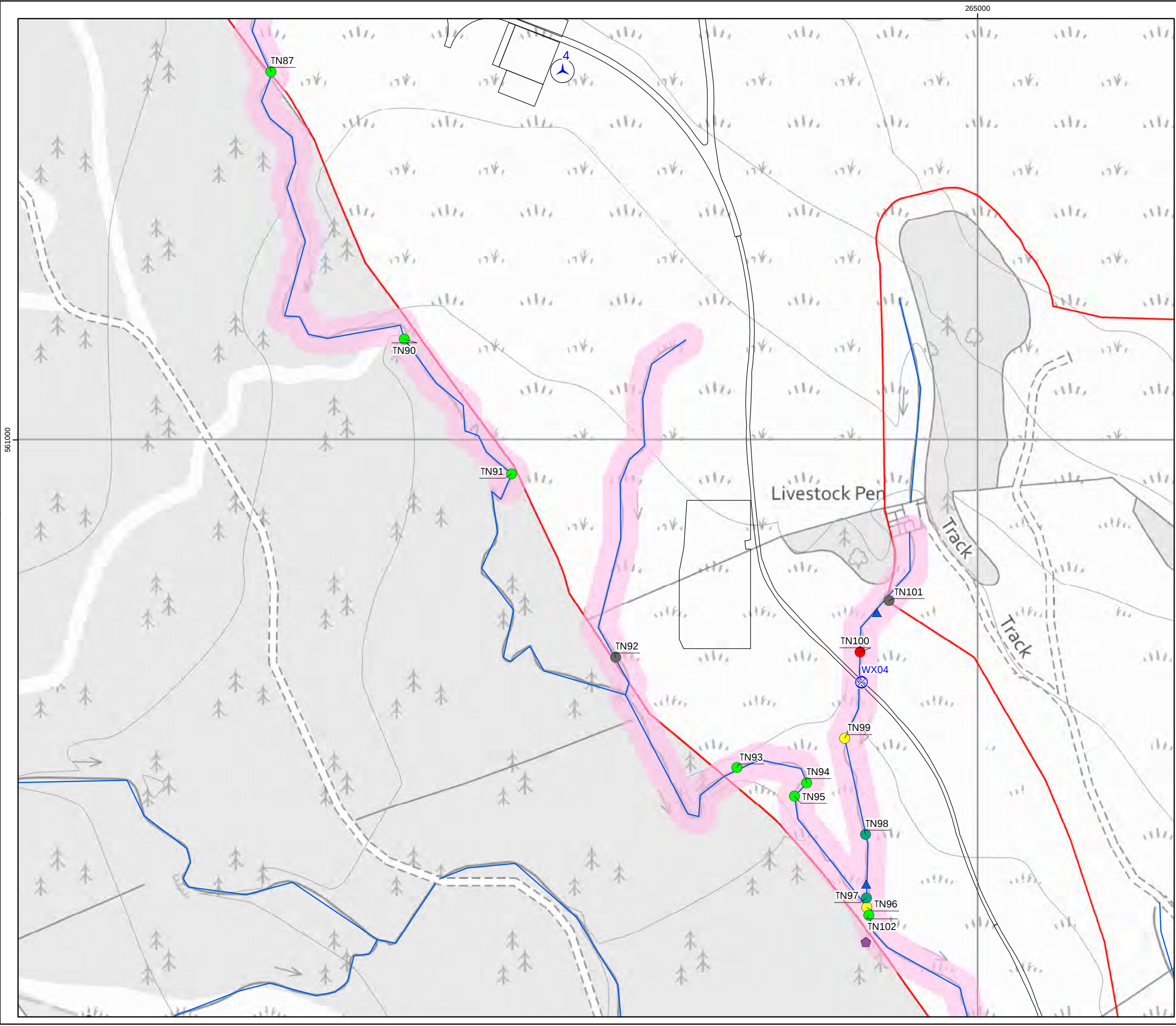


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 10

Key

- Site boundary
- Proposed turbine location
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Water Sampling Point
- Electrofishing Point



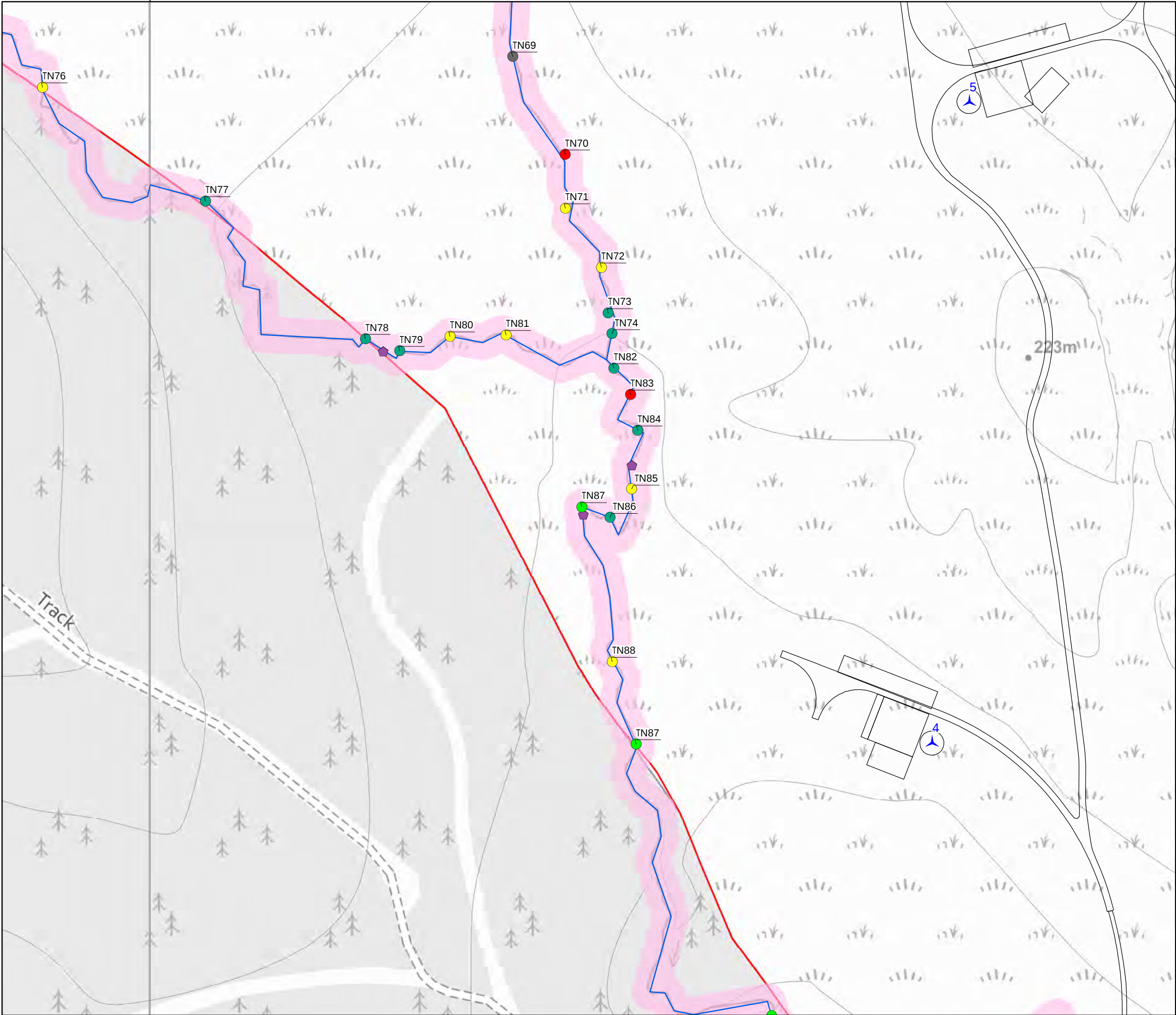
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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 11

Key

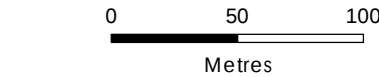
- Site boundary
- Proposed turbine location
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

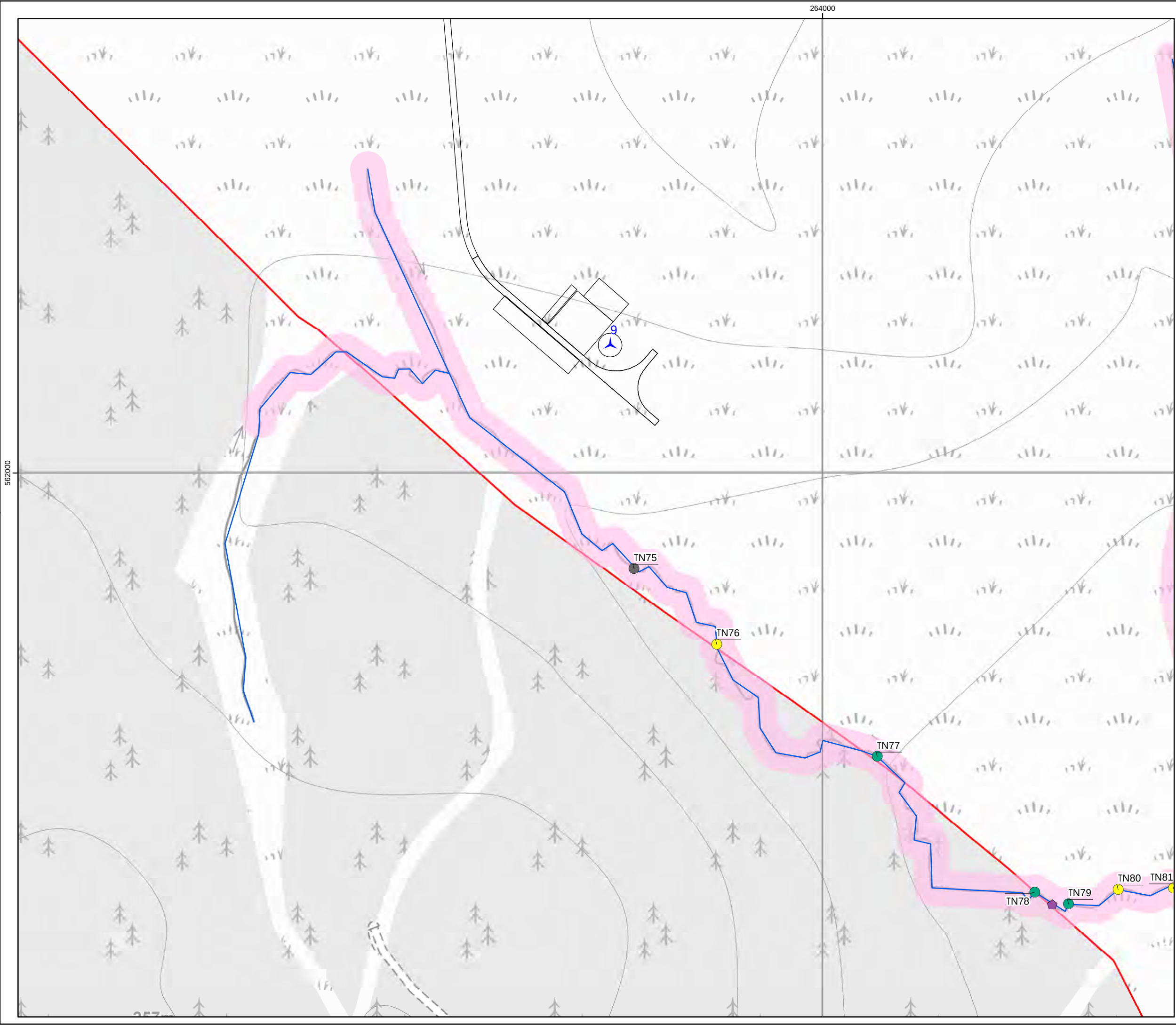
- Electrofishing Point



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 12

- Key**
- Site boundary
 - Proposed turbine location
 - Surveyed watercourses
 - Proposed infrastructure
 - Watercourse
- Habitat Quality**
- High
 - Good
 - Medium
 - Low
 - Negligible
 - NA
- Incidental observations**
- Electrofishing Point



050100

Metres

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Scale @ A3:
1:3,000

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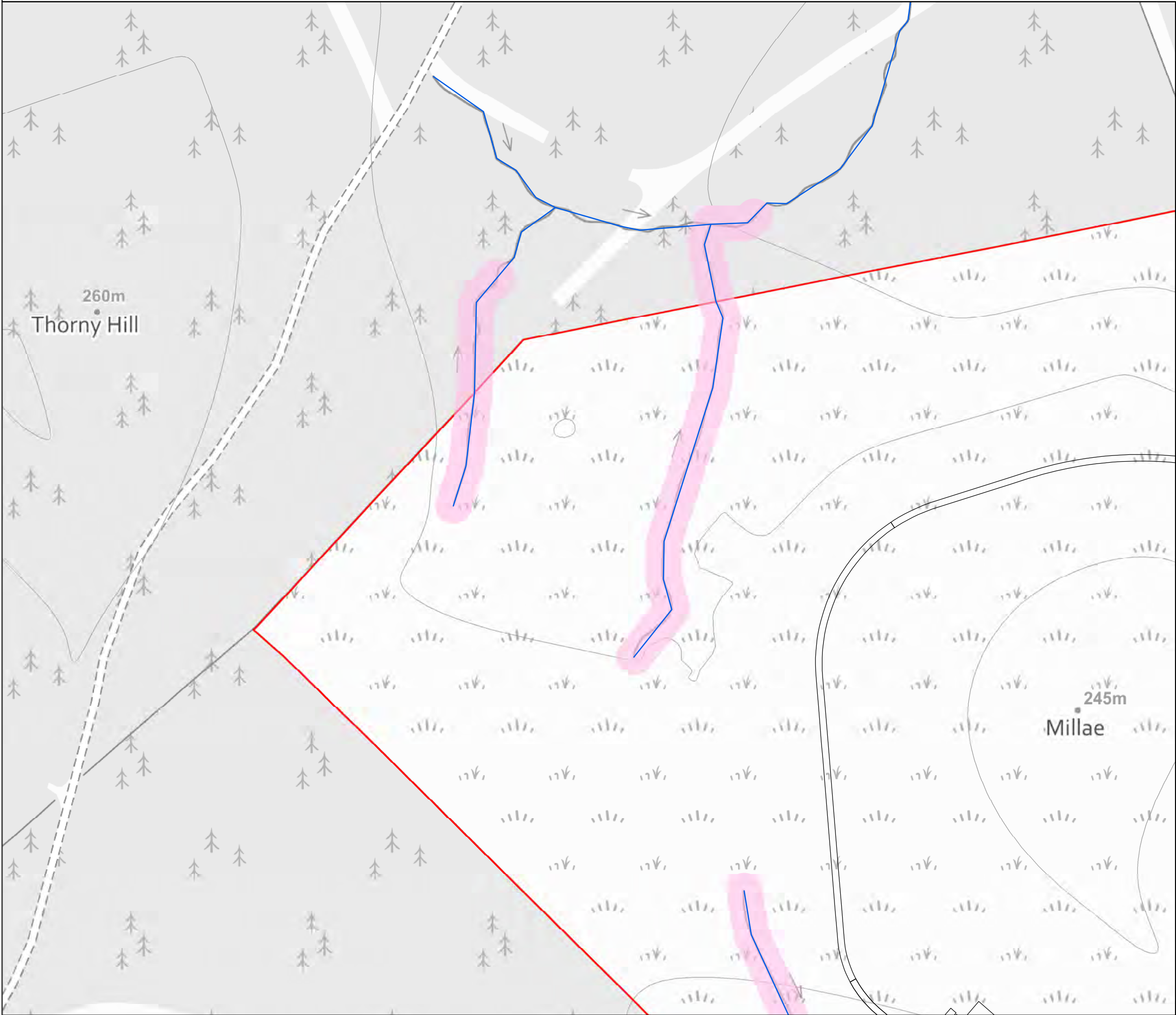
AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 13

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

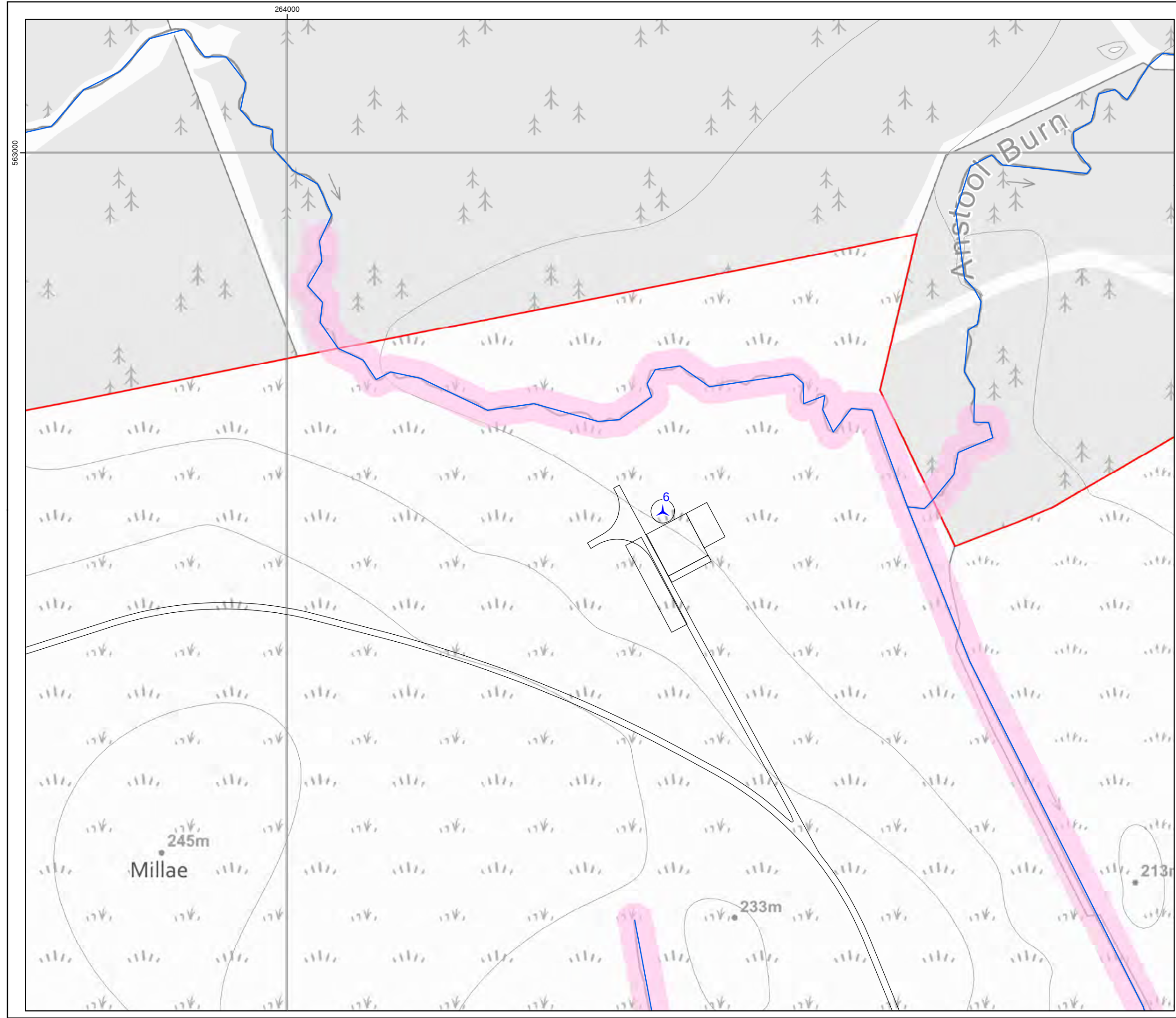


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 14

- Key**
- Site boundary
 - Proposed turbine location
 - Surveyed watercourses
 - Proposed infrastructure
 - Watercourse
- Habitat Quality**
- High
 - Good
 - Medium
 - Low
 - Negligible
 - NA

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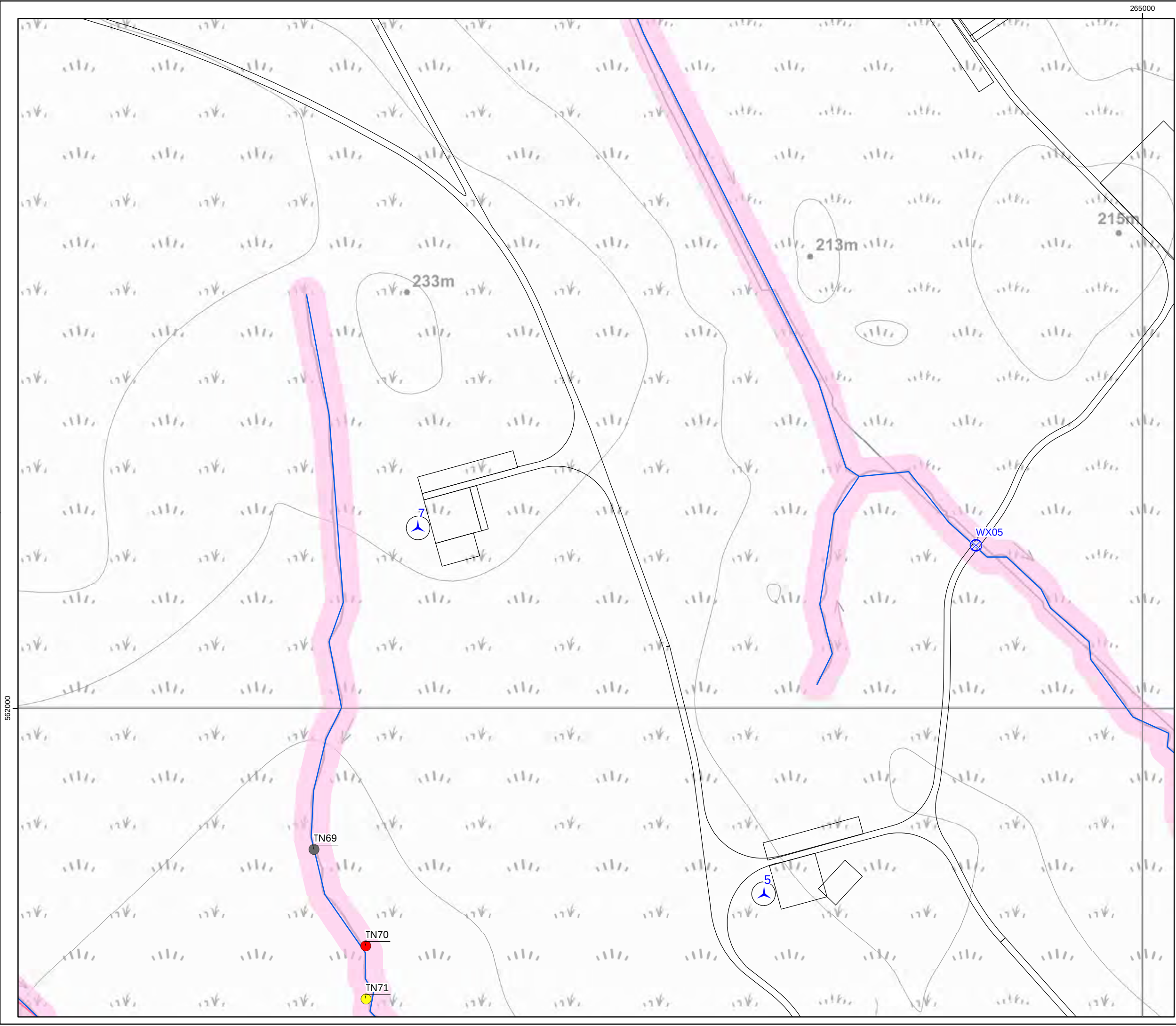
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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 15

Key

- Site boundary
- Proposed turbine location
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA



050100

Metres

N

Scale @ A3:
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wind2

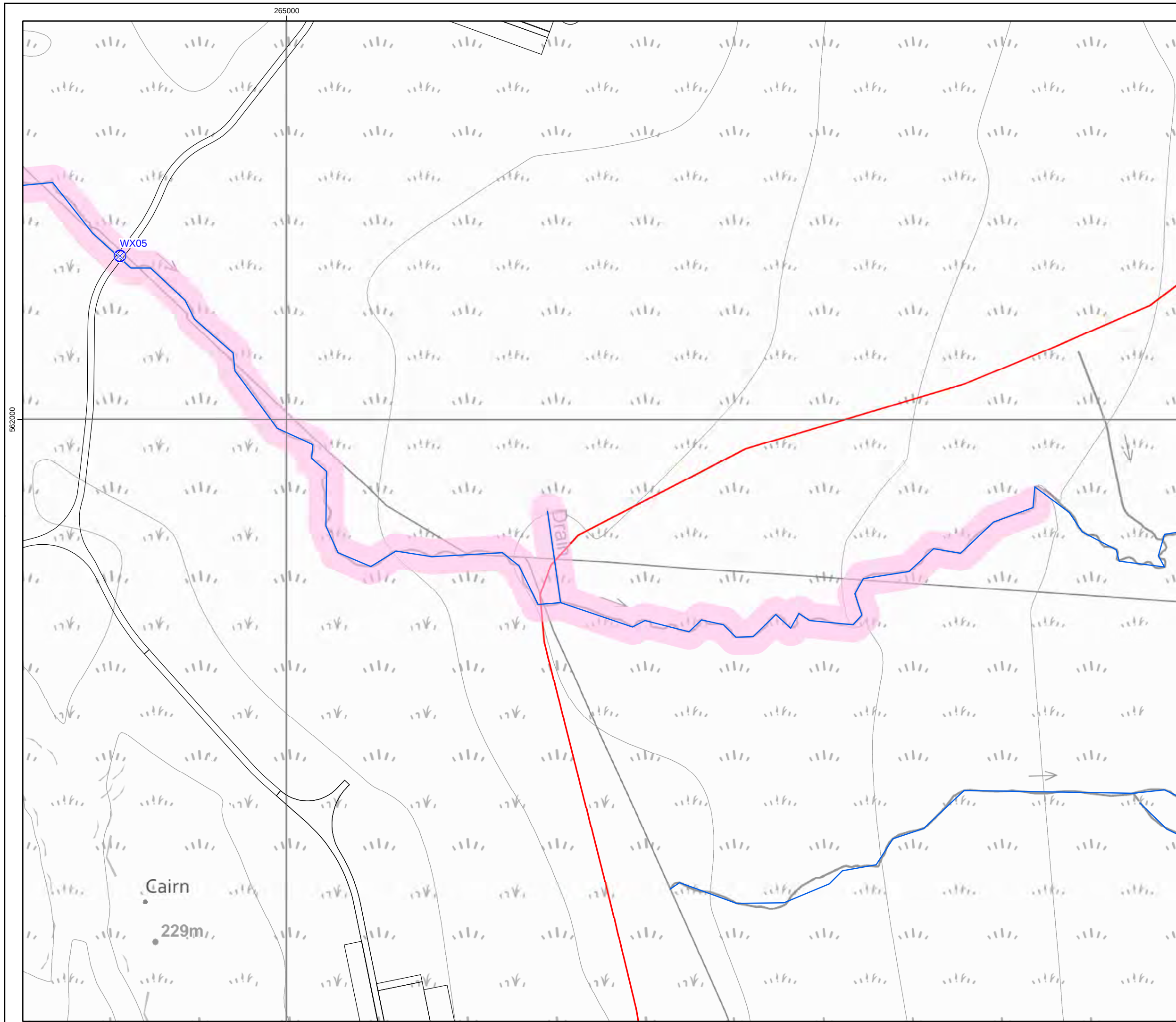
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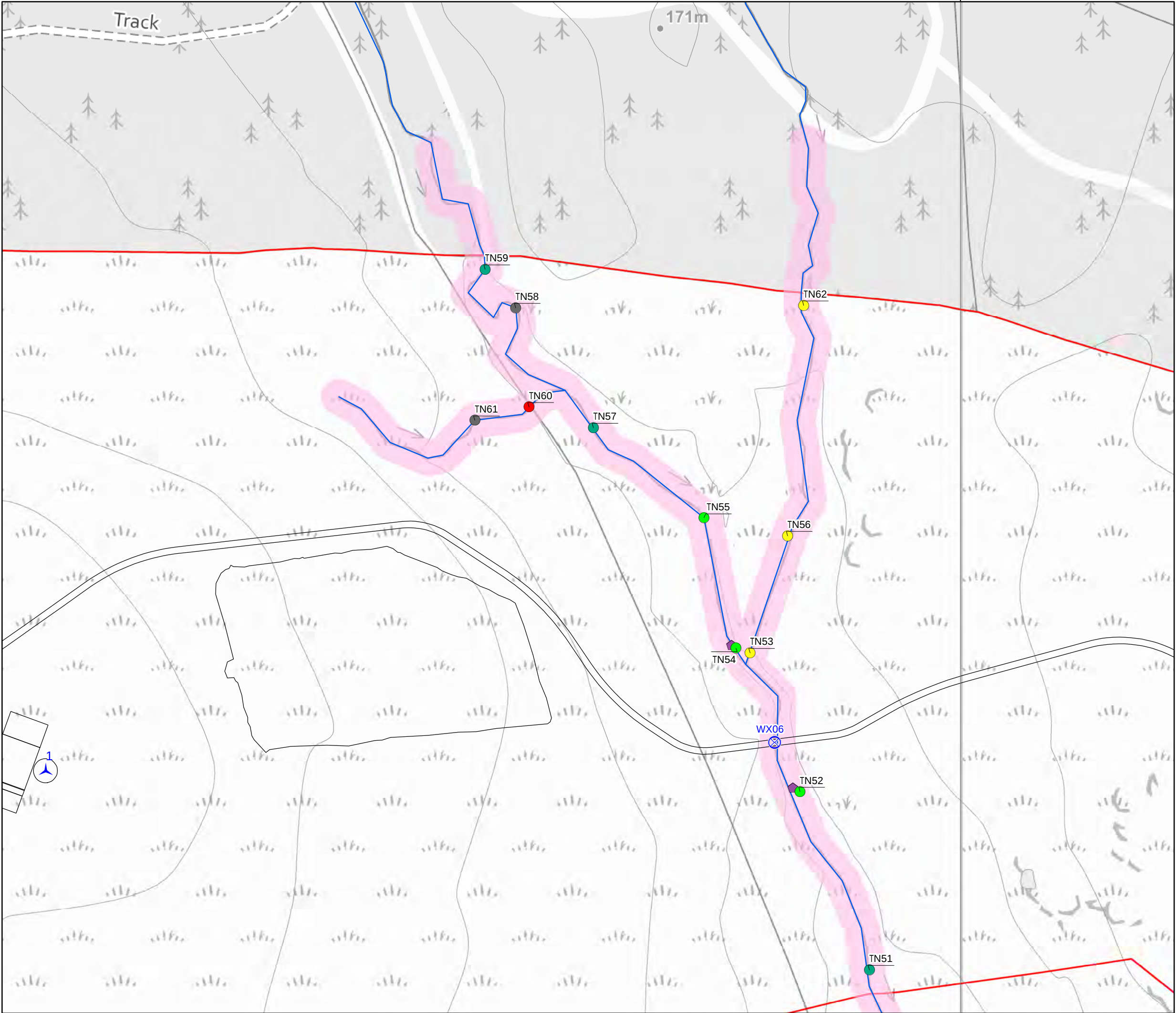
- Habitat Quality

- 



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 17

Key

- Site boundary
- Proposed turbine location
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

atmos
CONSULTING

0 50 100
Metres

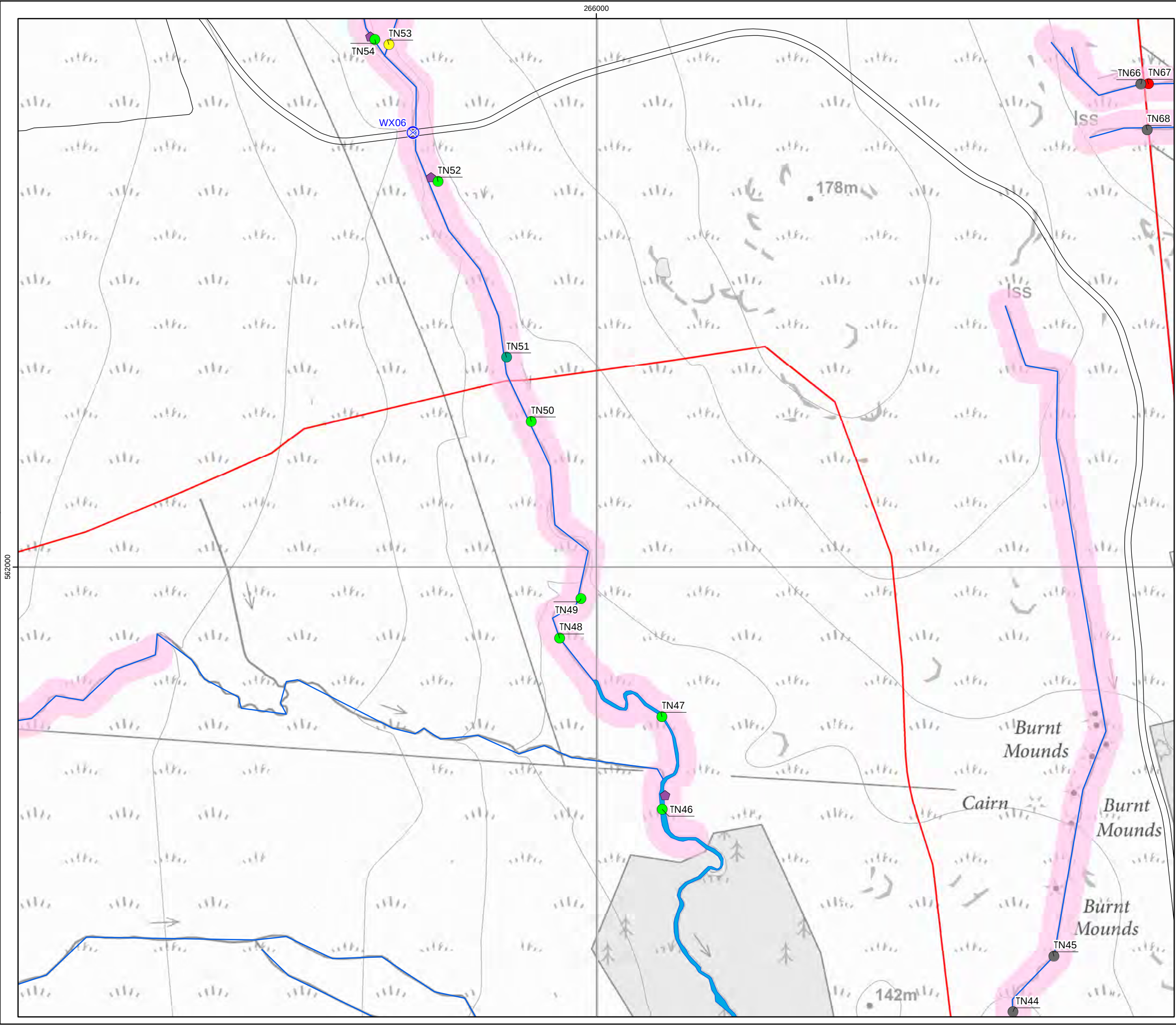


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 18

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point



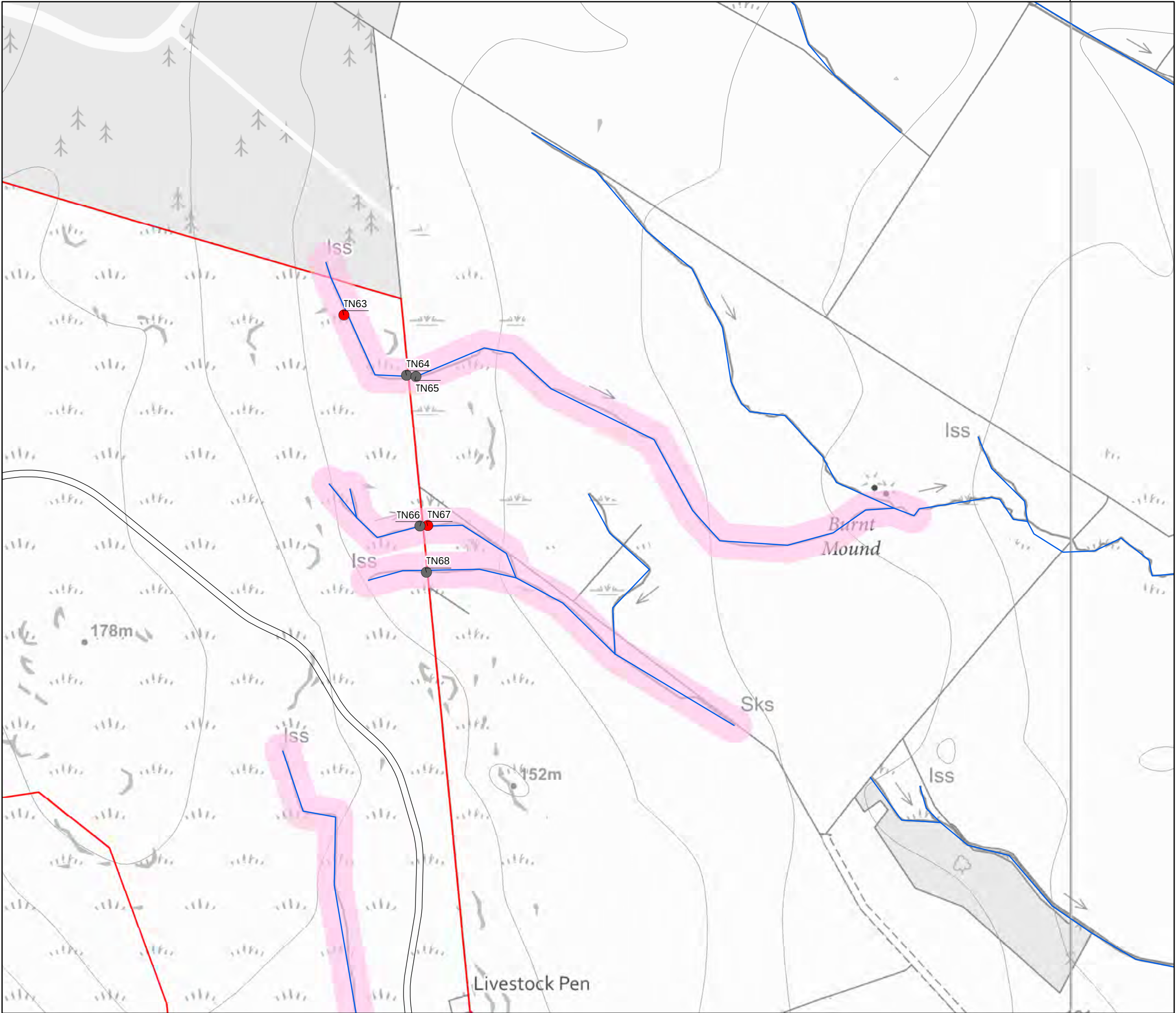
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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 19

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

atmos
CONSULTING

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Metres

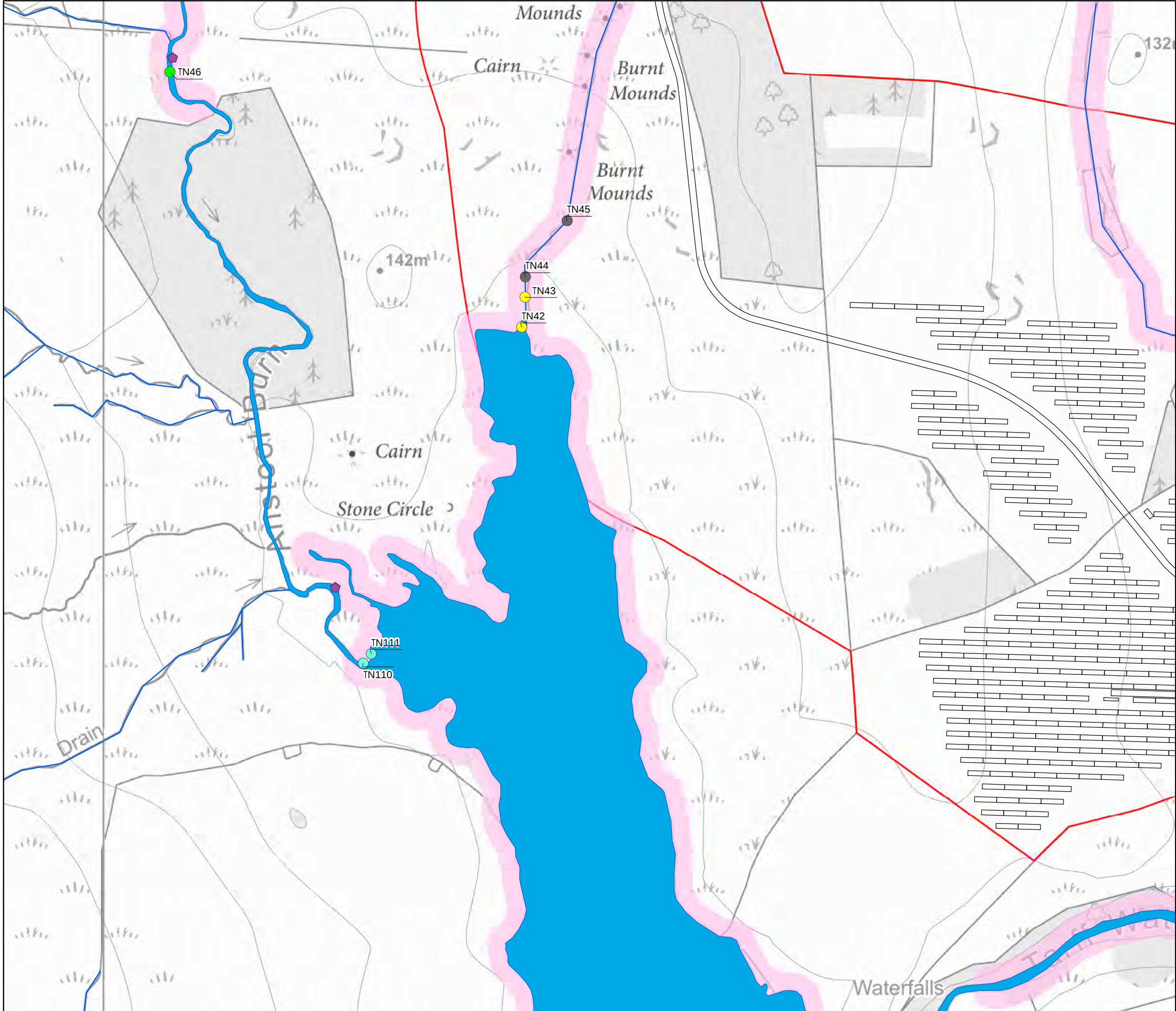


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 20

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

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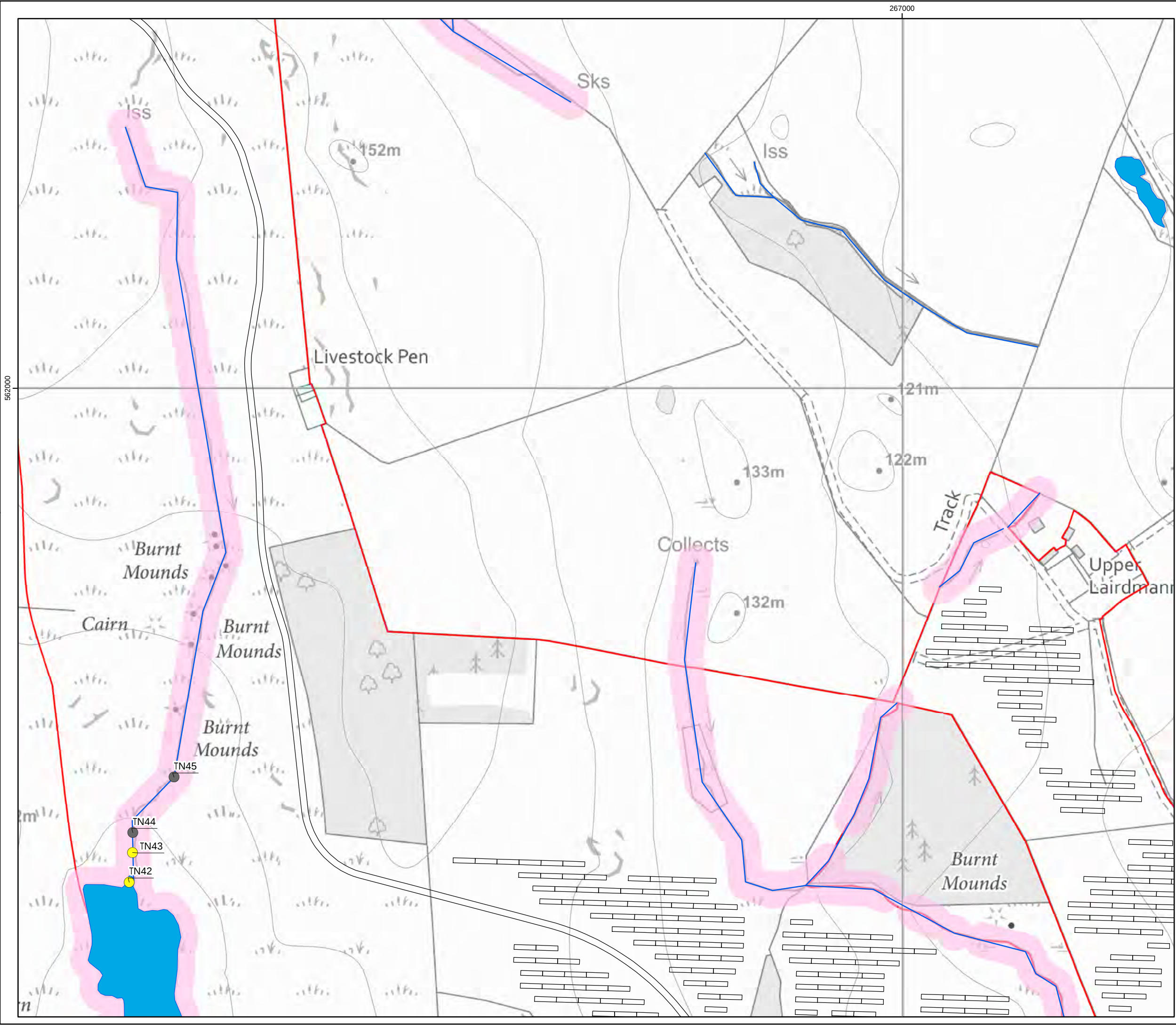
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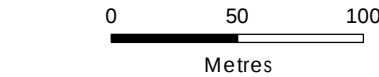
AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 21

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

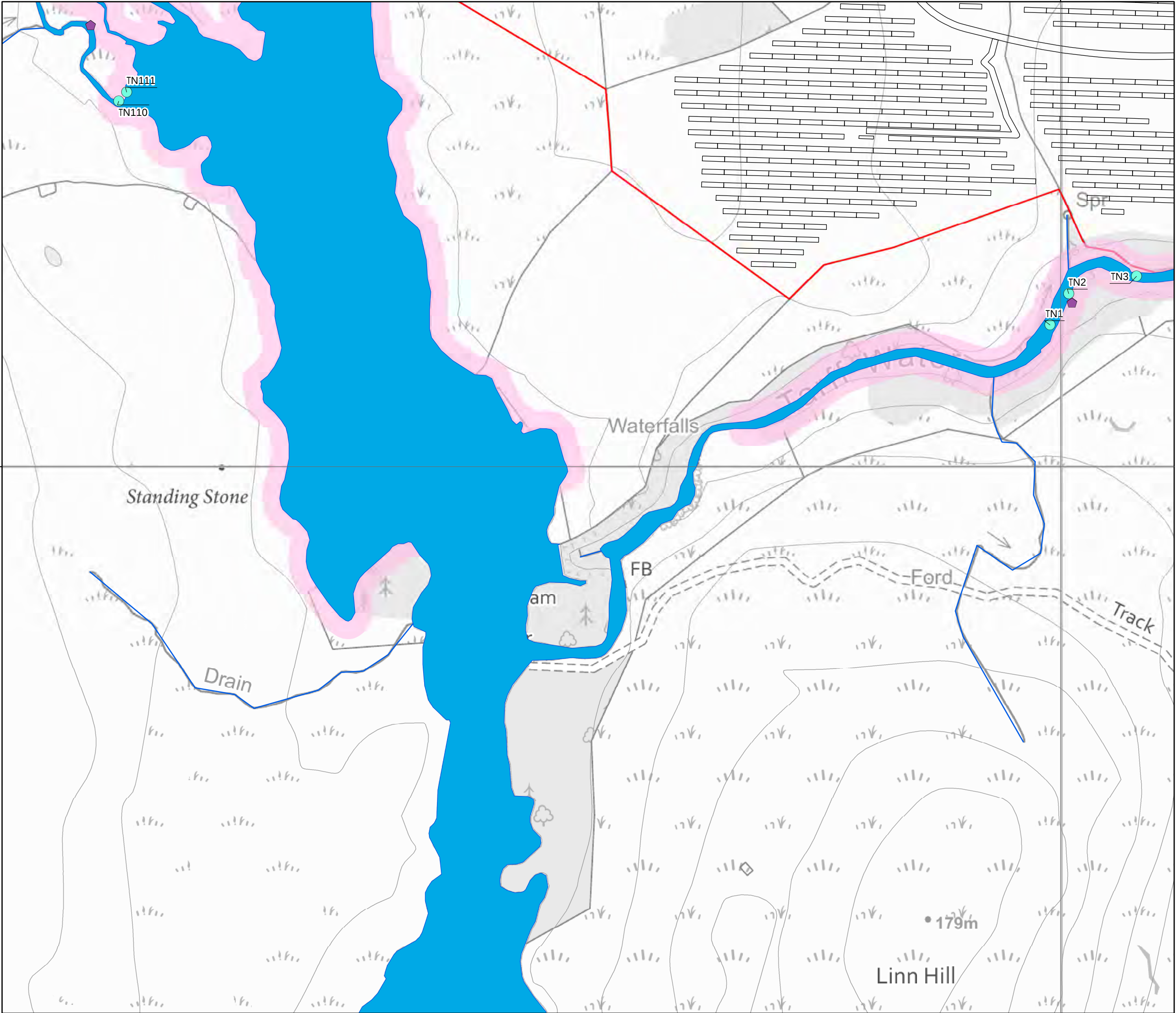
- High
- Good
- Medium
- Low
- Negligible
- NA



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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 22

Key

- Site boundary
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

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0 50 100
Metres



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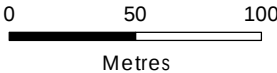
AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 23

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse
- Habitat Quality
 - High
 - Good
 - Medium
 - Low
 - Negligible
 - NA

Incidental observations

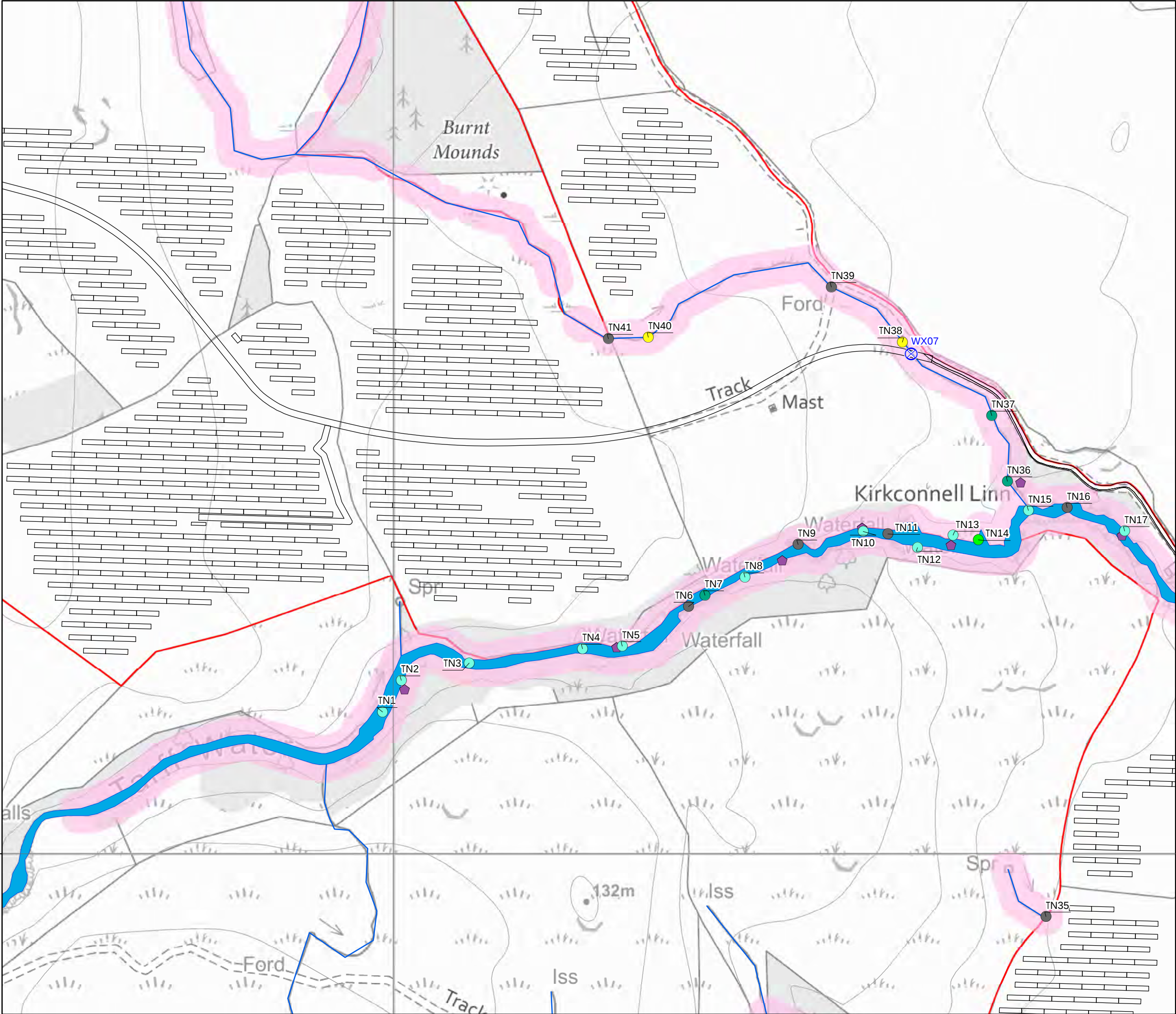
- Electrofishing Point

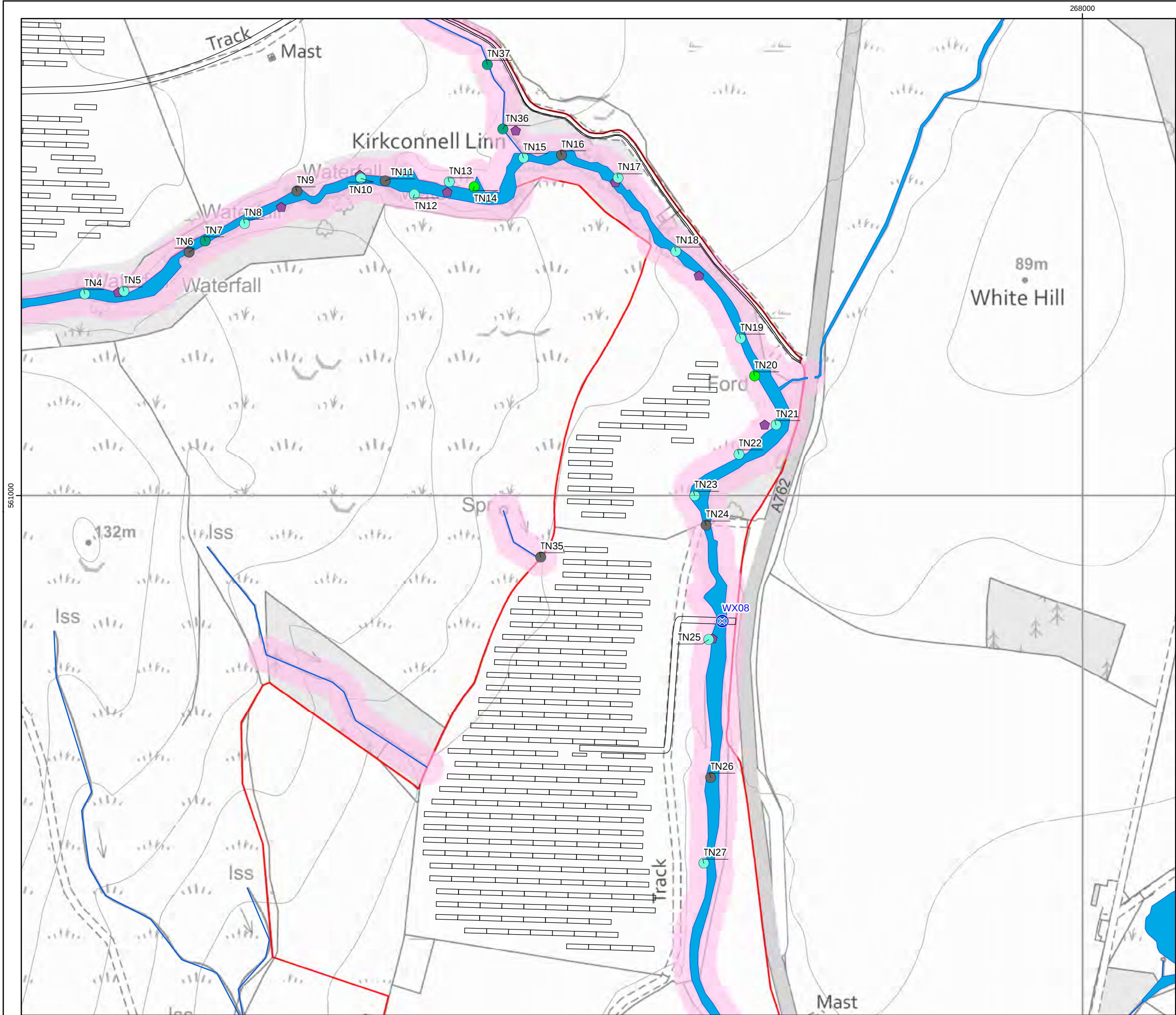


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 24

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

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0 50 100
Metres

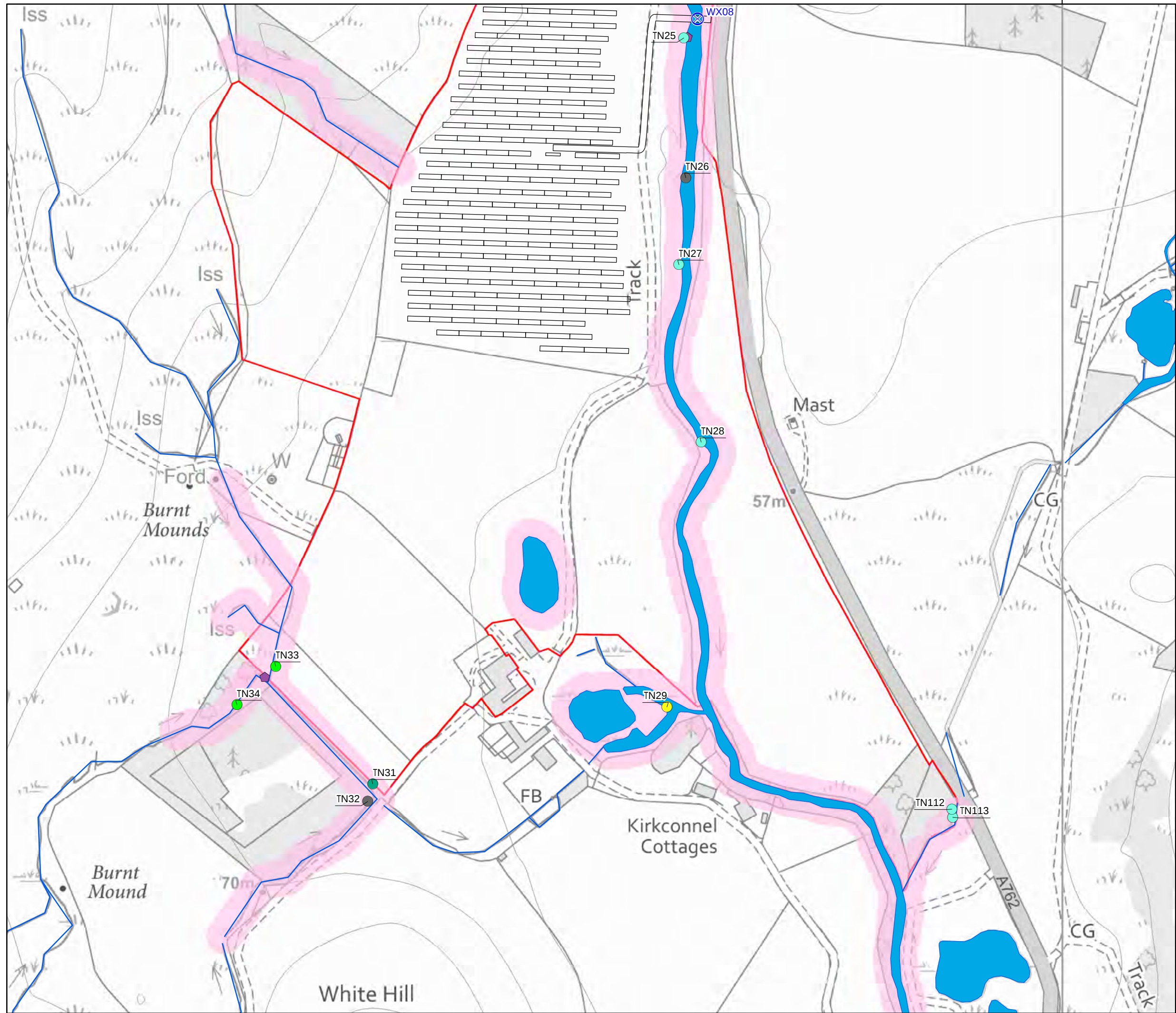
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ISO 14001

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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 25

Key

- Site boundary
- Watercourse crossing
- Surveyed watercourses
- Proposed infrastructure
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

atmos
CONSULTING

0 50 100
Metres

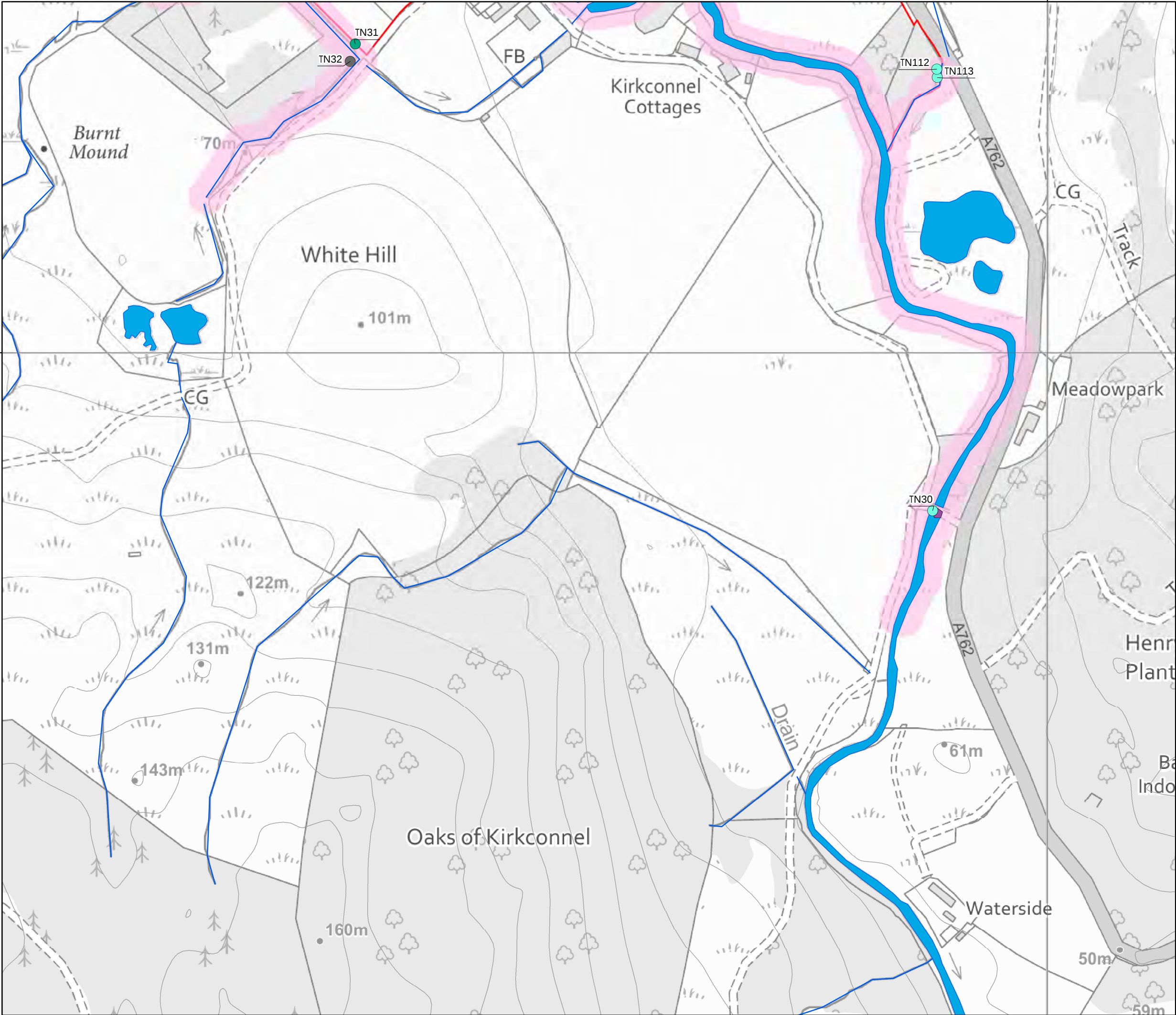


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AI Figure 6-10
Fish Habitat Survey with Indicative
Electrofishing and Water Quality
Sampling Locations - Map 26

Key

- Site boundary
- Surveyed watercourses
- Watercourse

Habitat Quality

- High
- Good
- Medium
- Low
- Negligible
- NA

Incidental observations

- Electrofishing Point

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0 50 100
Metres



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