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Gnoll Country Park, Neath Proposed Log Cabin Accommodation Phase One Coal Mining Risk Assessment

Report Reference: ESP.8603.3901

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Gnoll Country Park, Neath Proposed Log Cabin Accommodation Phase One Coal Mining Risk Assessment

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Report Reference: **ESP.8603.3901**

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Appendix A2 Extracts from Historical Maps, Site B

Appendix A3 Extracts from Historical Maps, Site C

Appendix B1 Coal Authority Mining Report, Site A

Appendix B2 Coal Authority Mining Report, Site B

Appendix B3 Coal Authority Mining Report, Site C

General Notes

1 Introduction

1.1 Background

Andrew Scott Ltd (hereafter known as the Client) are involved in the redevelopment of Gnoll Country Park in Neath. This redevelopment generally comprises refurbishment of pathways, landscaping and other park features on three sites, defined for the purposes of this report as Sites A, B and C (see Section 2.1 for further details). However, in addition, new log cabin type accommodation is proposed on Sites A and B, and a new adventure play area and boat house on Site C.

The Earth Science Partnership Ltd (ESP), Consulting Engineers, Geologists and Environmental Scientists, were initially instructed by the Client to prepare a Phase One (desk study based) Coal Mining Risk Assessment (CMRA) to evaluate the potential risks to the development from past abandoned mine workings beneath Sites A, B and C.

1.2 Objective and Scope of Works

The scope of works of this preliminary risk assessment is in general accordance with the published Coal Authority guidance on a risk based approach to development (Coal Authority, 2014). Specifically:

- to obtain and review relevant desk study data on the site relating to past coal mining; and
- to identify and evaluate the risks (individually and cumulatively) to the proposed development (based on desk study data on at this stage).

The precise scope of works was mutually developed and agreed with the Client by ESP within an agreed budget and comprised a desk study review of available historical Ordnance Survey maps, geological maps, memoirs, and a Coal Authority mining report obtained for the site by ESP, assessment, and reporting. No intrusive investigation has been undertaken at this stage.

The contract was awarded based on a competitive tender quotation. The terms of reference for the assessment are as laid down in the Earth Science Partnership email proposal of 25th April 2023. The assessment was undertaken in May and June 2023.

This report is issued as a digital version only.

1.3 Report Format

This report represents the findings of an assessment of risks associated with possible past shallow coal mining and mine entries on all three sites. The brief did not require an assessment of the implications for any other end use, nor of other geotechnical or geo-environmental hazards (e.g., contamination, slope stability and landfill/ alluvial gas risks). These hazards may require further assessment prior to development. It should also be appreciated that no intrusive investigation has been completed at this stage. The report is not a comprehensive site characterisation and should not be construed as such.

Where preventative, ameliorative or remediation works are required, professional judgement will be used to make recommendations that satisfy the site-specific requirements in accordance with good practice guidance.

Consultation with regulatory authorities will be required with respect to proposed works as there may be overriding regional or policy requirements which demand additional work to be undertaken. It should be noted that both regulations and their interpretation by statutory authorities are continually changing.

This report represents the findings and opinions of experienced geotechnical specialists. Earth Science Partnership does not provide legal advice and the advice of lawyers may also be required.

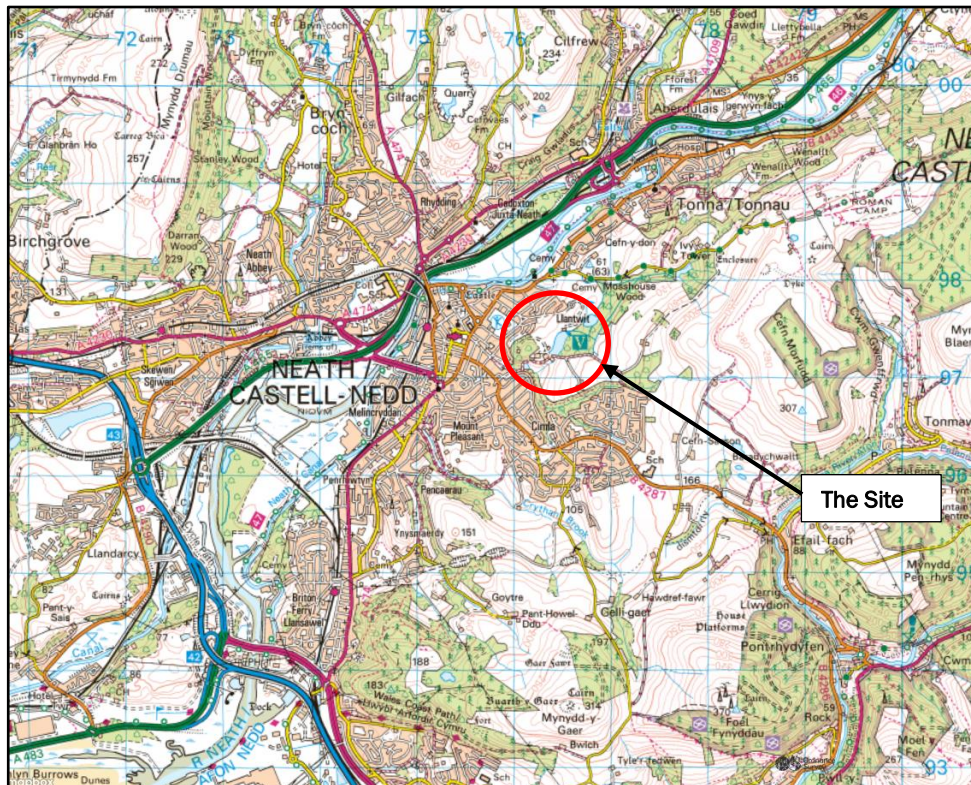
2 Desk Study and Field Reconnaissance Visit

The information presented in this section was obtained from desk-based research of sources detailed in the text, including historical maps (Appendix A), and a mining report obtained from the Coal Authority (Appendix B). Further desk study reports/data/records are included as subsequent appendices as referenced in the text.

The site description is based on a site visit of 22nd May 2023 during dry and sunny weather.

2.1 Site Location and Description

Gnoll Country Park is located on the eastern side of the town of Neath, as shown in Insert 1 below.



*Insert 1: Site Location Plan from Ordnance Survey 1:25,000 scale map.
Reproduced with permission (OS License No.: AL100015788).*

Within the park, the three sites being considered in this assessment are all located around 'Reservoir B', as shown on Figure 1, as summarised below:

- **Site A:** to the south-west of the reservoir, with a National Grid Reference of 276285 197195;
- **Site B:** to the north-east of the reservoir, with a National Grid Reference of 276510 197500; and
- **Site C:** to the south-east of the reservoir, with a National Grid Reference of 276620 197370.

2.1.1 Site A

Site A is located to the south-west of the reservoir and comprises ground elevated above the access track into the park from the south-west. It apparently currently comprises a park maintenance compound, which was locked behind a gate at the time of the site visit (Plate 1). The southern boundary with the track comprises a high masonry retaining wall above the track, with an exposure of bedrock in the slope beneath the south-western margins of the site (Plate 2).

2.1.2 Site B

Site B is located at the north-eastern end of the reservoir and is currently occupied by tree lined, open parkland, with the park visitor centre buildings (Plates 3 and 4) and a children's play area. The ground in the north of the site slopes away to the north.

2.1.3 Site C

Site C is located to the south-east of the reservoir and is presently occupied by woodland with dense undergrowth. A footpath follows the side of the reservoir through the western margins with a children's play area in the south-west (Plates 5 and 8). The remainder of the site is overgrown with dense vegetation, hindering access during the site reconnaissance (Plate 6), and appears to slope gently towards the reservoir. Just to the south of the site, a bedrock exposure is evident beneath a tree at existing ground level (Plate 7).

2.2 Previous Investigations and Assessments

We are not aware of any information on previous geotechnical or mining investigations or assessments at the site.

2.3 Site History

2.3.1 Published Historical Maps – Site A

The site history has been assessed from a review of available historical Ordnance Survey County Series and National Grid maps. Extracts from the historical maps for Site A are presented in Appendix A1 and the salient features since the First Edition of the County Series maps are summarised in Table 1 below.

Table 1: Review of Historical Maps – Site A (South-west)

Date	On-Site	In Vicinity of Site
1877 –	The site was occupied by Gnoll Cottage and associated buildings and glasshouses. The remainder of the site is crossed by paths, and landscaped areas, apparently part of the grounds of Gnoll House.	Gnoll House was located some 200m to the west. Old quarries are indicated some 140m to the east.
1899 – 1919	No significant changes.	An old shaft is shown some 250m to the west. This shaft was not shown on previous editions.

Table 1: Review of Historical Maps – Site A (South-west) cont.

Date	On-Site	In Vicinity of Site
1935 to present-	No significant changes.	The old shaft to the west is no longer shown. An apparent rock slope is shown just to the west from 1935.
Notes to Table 1: 1. Extracts from historical maps presented in Appendix A1. 2. Site boundary is an indicative rectangular area, as shown on Figure 1. 3. The above summary concentrates on mining features. Other features of geotechnical or geo-environmental importance may be present, but have not been considered. 4. Features may have been present on site between the dates of the individual mapping, and it should be appreciated that these cannot be identified from the map review.		

In summary, the site appears to have remained similar since the late nineteenth century, with no evidence of mining features within 100m.

2.3.2 Published Historical Maps – Site B

The site history has been assessed from a review of available historical Ordnance Survey County Series and National Grid maps. Extracts from the historical maps for Site B are presented in Appendix A2 and the salient features since the First Edition of the County Series maps are summarised in Table 2 below.

Table 2: Review of Historical Maps – Site B (North-east)

Date	On-Site	In Vicinity of Site
1877	The majority north of the site was occupied by open ground with the southern margins comprising the northern part of Reservoir B. Trees line the northern boundary of the reservoir.	Two 'old coal levels' are shown some 220m to the north-west, and a further 'old coal pit' is shown some 120m to the south-east (Site C). Old quarries are shown some 50m to the north and 200m to the south.
1897 - 1973	The site layout is shown to be similar, apart from 'filter beds' shown in the north-western corner.	No significant changes.
1982 to present-	The visitor's centre is shown on site from the 2001 map edition.	Housing is shown to the north of the site, in the area of the former mine entries.
Notes to Table 2: 1. Extracts from historical maps presented in Appendix A2. 2. Site boundary is an indicative rectangular area, as shown on Figure 1. 3. The above summary concentrates on mining features. Other features of geotechnical or geo-environmental importance may be present, but have not been considered. 4. Features may have been present on site between the dates of the individual mapping, and it should be appreciated that these cannot be identified from the map review.		

In summary, the site appears to have remained similar since the late nineteenth century to the 1980s, when the visitors centre was built. There is no evidence of mining features within 100m.

2.3.3 Published Historical Maps – Site C

The site history has been assessed from a review of available historical Ordnance Survey County Series and National Grid maps. Extracts from the historical maps for Site C are presented in Appendix A3 and the salient features since the First Edition of the County Series maps are summarised in Table 3 overleaf.

Table 3: Review of Historical Maps – Site C (South-east)

Date	On-Site	In Vicinity of Site
1877 – 1935	The south of the site is shown to have comprised mixed woodland with open ground within the northern area. A track is shown around the eastern side of the reservoir. An 'old coal pit' was located in the south-east of the site. On subsequent editions, the woodland is named 'Fishponds Wood'.	Reservoir B is shown immediately to the west of the site. Two 'old quarries' are shown to the south.
1965 to present	The site is now shown to have been fully occupied by woodland. The former 'old coal pit' is now labelled as a 'shaft (disused)'.	No significant changes.
Notes to Table 3: 1. Extracts from historical maps presented in Appendix A3. 2. Site boundary is an indicative rectangular area, as shown on Figure 1. 3. The above summary concentrates on mining features. Other features of geotechnical or geo-environmental importance may be present, but have not been considered. 4. Features may have been present on site between the dates of the individual mapping, and it should be appreciated that these cannot be identified from the map review.		

In summary, the site appears to have remained similar in terms of its features with the exception of the extension of the woodland by the 1960s. There is evidence of past mining features, in the form of the old mine shaft in the south-east of Site C.

2.3.4 Other Sources

No further information has been identified.

2.4 Geology

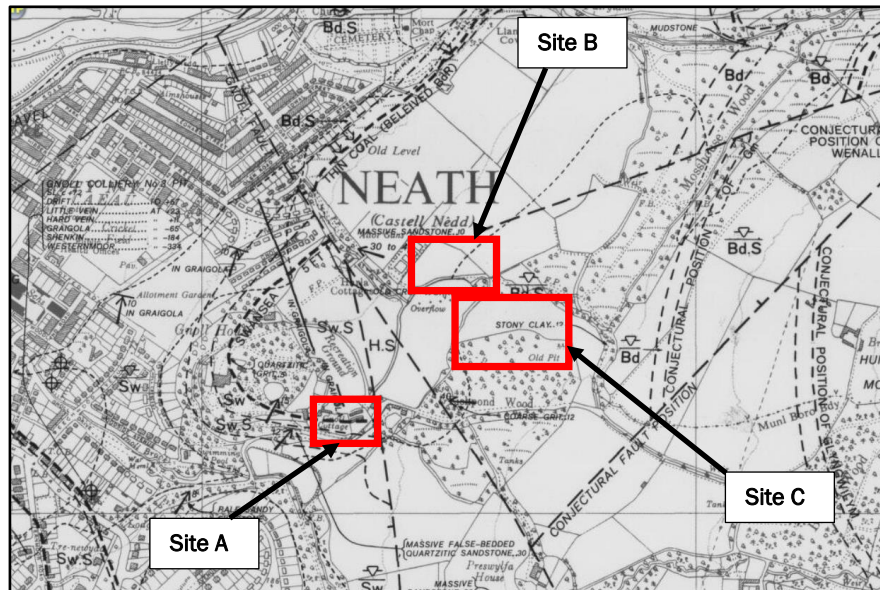
2.4.1 Published Geology

The published 1:10,560 scale geological maps for the area of the site (Sheet SS79NE) covers all of Sites A, B and C, and an extract is presented as Insert 2 overleaf. The geological map shows the area is generally underlain by 'Boulder Clay' overlying Coal Measures bedrock of the Hughes, Swansea and Brithdir Beds. The 'Boulder Clay' is not present across the whole area and the bedrock is present at the site surface (as suggested by the presence of quarries on historical maps).

Reference to the up-to-date mapping available on the website of the British Geological Survey (BGS, 2023) indicates a similar succession, but the Boulder Clay is now known as Diamicton.

Site A (south-west):

The geological map indicates Site A to be underlain by bedrock of the Swansea Beds, with Diamicton possibly present only in the southern margins – however, the rock exposure on the southern boundary (see Plate 2) suggests that Diamicton may be very thin if present. The outcrop of the Swansea Five Feet coal seam is shown to loop around to the west in the area of Gnoll House, and is shown east-west across the Site A. The eastern site boundary is shown in the immediate vicinity of the western offshoot of the Gnoll Fault, which separates the Swansea Beds (to the west) and Hughes Beds (to the east). The Swansea Beds strata is indicated to dip to the north-east at between 12 and 15°. Crop workings are indicated at the northern end of the looped outcrop of the Swansea Five Feet seam, some 360m north of the site. No similar crop workings are identified in the vicinity of the site.



Insert 2: Extract from BGS Geological Map Sheet SS79NE, original 1:10,560 scale.
Reproduced with permission (BGS licence number: C15/05 CSL)

Site B (north-east):

The geological map indicates Site B to be underlain by bedrock of the Brithdir Beds, with Diamicton present in the eastern area only. The probable Brithdir Rider coal seam is shown to crop out in a south-west to north-east orientation some 240m to the north-west, in the area of the former mine entries identified on historical maps. The conjectural outcrop of the Glyngwilym coal seam is shown some 360m to the east. The site lies within a triangular fault block defined by the Gnoll Fault to the west and two unnamed faults to the north and south. In the west of this fault block the strata is indicated to dip to the west at 30 to 40°. However, based on the outcrop pattern, the bedrock in the east of the fault block appears to dip to the east.

Site C (south-east):

The geological map indicates Site C to lie in a similar geological setting to Site B. Diamicton is indicated to overlie Brithdir Sandstone bedrock. The Diamicton is indicated to comprise 'stony clay'. The 'old pit' indicated on the historical maps is also shown on the geological map.

2.4.2 Available BGS Borehole Records

Reference to the website of the British Geological Survey (BGS, 2023) indicates no available borehole records in the vicinity of Sites A, B or C.

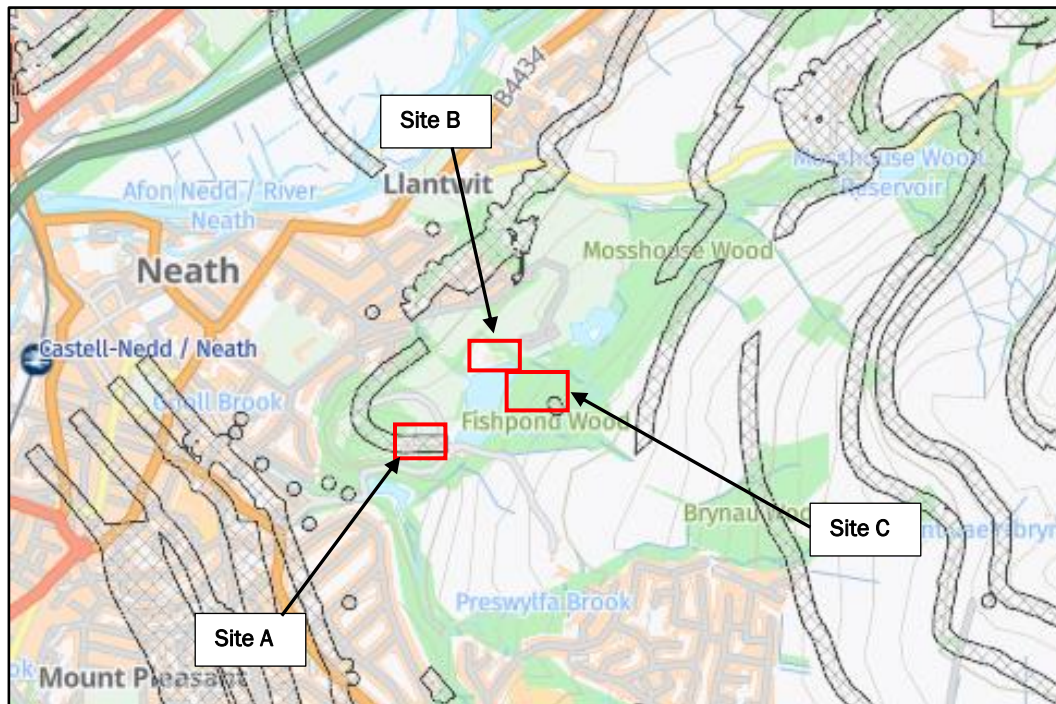
2.5 Coal Authority Records

2.5.1 Coal Authority Website

Reference to the Coal Authority website (CA, 2023) provides the following salient information around Sites A, B and C:

- The coal seams identified on the geological map are shown in the area, including the Brithdir Rider to the north, the Swansea Five Feet looping around in the west, and the Glyngwilym seam to the east.
- No past or probable shallow mine workings are recorded beneath Sites A, B or C.

- There are no recorded mine entries in the vicinity of Sites A and B, however, a mine shaft is shown on Site C (as shown on the historical and geological maps).
- A zone of 'Development High Risk' is shown along the looped outcrop of the Swansea Five Feet seam, including across Site A, as shown on Insert 3 below. A similar zone is shown around the former mine shaft on Site C. No such zones are shown on Site B.



Insert 3: Extract from Coal Authority website, showing Zones of 'Development High Risk' (after The Coal Authority)

2.5.2 Coal Authority Mining Report – Site A (south-west of reservoir)

A consultants mining report has also been obtained from the Coal Authority for Site A and is presented in Appendix B1. This indicates that, based on the available Coal Authority records:

- The site is underlain by recorded mine workings within an unnamed 1.6m thick coal seam, at 134m depth dipping at 9° to the north and worked until 1896.
- There are no 'probable unrecorded' mine workings beneath the site.
- No spine roadway is recorded at shallow depth.
- There are no recorded mine entries within 100m of the site boundary (as shown on Figure 1).
- An 'unnamed', workable coal seam crops out in an east-west direction across the site – this is indicated on the geological map to be the Swansea Five Feet seam.
- A fault is indicated beneath the eastern boundary – this is the western limb of the Gnoll Fault as shown on the geological map.
- No opencast workings are indicated in the vicinity of the site.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50m of the enquiry boundary, since 31 October 1994.
- There is no current Stop Notice delaying the start of remedial works or repairs to the property.
- The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

- No mine gas emissions are recorded within 500m of the enquiry boundary.
- No future underground mining or licensing is recorded by the Coal Authority.
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

The above information correlates with the other desk study information.

2.5.3 Coal Authority Mining Report – Site B (north-east of reservoir)

A consultants mining report has also been obtained from the Coal Authority for Site B and is presented in Appendix B2. This indicates that, based on the available Coal Authority records:

- There are no coal outcrops in the immediate vicinity of the site.
- There are no recorded or probable unrecorded mine workings beneath the site.
- There are no recorded mine entries within 100m of the site boundary (as shown on Figure 1).
- No faults or fissures are recorded in the vicinity of the site (see below).
- No opencast workings are indicated in the vicinity of the site.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50m of the enquiry boundary, since 31 October 1994.
- There is no current Stop Notice delaying the start of remedial works or repairs to the property.
- The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.
- No mine gas emissions are recorded within 500m of the enquiry boundary.
- No future underground mining or licensing is recorded by the Coal Authority.
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

The above information correlates with the other desk study information, apart from the fault shown on the geological map across the northern margins of the site.

2.5.4 Coal Authority Mining Report – Site C (south-east of reservoir)

A consultants mining report has also been obtained from the Coal Authority (CA) for Site C and is presented in Appendix B3. This indicates that, based on the available Coal Authority records:

- There are no coal outcrops in the immediate vicinity of the site.
- Although the CA report states there are no recorded or probable unrecorded mine workings beneath the site, they also reference an abandonment plan, which suggests recorded workings are present.
- There are two mine shafts indicated within the site boundary (as shown on Figure 1) – see below for further details.
- No faults or fissures are recorded in the vicinity of the site (see below).
- No opencast workings are indicated in the vicinity of the site.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50m of the enquiry boundary, since 31 October 1994.
- There is no current Stop Notice delaying the start of remedial works or repairs to the property.
- The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

- No mine gas emissions are recorded within 500m of the enquiry boundary.
- No future underground mining or licensing is recorded by the Coal Authority.
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

As discussed above, two mine shafts are recorded on Site C as follows:

- Shaft Ref. 276197-004 - NGR 2776674 197337; and
- Shaft Ref. 276197-009 - NGR 2776667 197350; and

These two mine shafts plot next to each other on the plan provided by the Coal Authority, and no further details other than the above are provided. Given that a single historical mine shaft is clearly identified on the geological and historical maps in this area, we consider that the two shafts detailed by the Coal Authority are likely to be the same shaft, but with positions obtained from two sources, hence with an error in plotting. Given the geological setting and date of the shaft (pre-1877), the presence of two shafts at this location is considered unlikely.

2.6 Mining Information from Other Sources

2.6.1 Site A (south-west of reservoir)

The stratigraphical section on the published geological map shows the Swansea Five Feet seam to be up to 5 feet (1.5m) in thickness. Based on the Swansea Five Feet seam cropping out at the surface across the site (bedrock is evidently very shallow in the area – see Plate 2), the next seams in the succession are the Little and Hard seams anticipated at around 90m depth beneath the site, the Graigola seam at around 115m depth, the Swansea Two Feet seam at around 160m depth, and the Westernmoor seam at around 180m beneath the site. Given this, it is not clear within which seam the workings recorded by the Coal Authority at 134m depth are, however, we consider they are likely to be within the Graigola seam, which is indicated to be 5 feet (1.5m) in thickness, which correlates with the reported Coal Authority thickness.

Arup (1994) report that, in the Swansea area, the Swansea Five Feet seam was mined extensively, whilst the Little seam was rarely worked. The Graigola is also known as the Swansea Two Feet seam, and was also mined extensively, thus adding further confidence that this seam is that worked at 134m depth.

Strahan (1907) provides a shaft record for the No 3 Pit of the Gnoll Colliery, which suggests that the Graigola coal seam is 2.2m in thickness, and is the seam with recorded workings at 134m depth beneath Site A.

2.6.2 Sites B and C (north-east and south-east of reservoir)

The stratigraphical section on the published geological map suggests that the succession beneath Sites B and C includes the Brithdir Rider, Graig and Brithdir coal seams. The Wenallt and Glyngwilym seams are shown to crop out to the east and, based on the outcrop pattern we consider these seams are unlikely to be present beneath the sites. The Brithdir Rider is shown to crop out to the north, but this is likely to be a separate fault block and, therefore, the presence of the Brithdir Rider cannot be discounted beneath these sites.

The Brithdir Rider is indicated to be around 1 foot (300mm) in thickness, but is shown to have been worked to the north of the site via mine entries along the outcrop in that area (see Section 2.4.1). The Graig is indicated to be 1 ft 9 inches (500mm) in thickness and some 23m beneath the Brithdir Rider seam, and the Brithdir to be only thin, located some 55m below the Graig seam.

Strahan (1907) provides no significant information for Sites B and C.

3 Identification and Assessment of Site-Specific Coal Mining Risks – Site A

3.1 Context

Site A is located to the south-west of Reservoir B. The proposed site development comprises new log cabin type accommodation.

3.2 Identified Coal Mining Risks

3.2.1 Preliminary Conceptual Ground Model

Based on the available information, Site A is likely to be underlain at very shallow depth by bedrock of the Swansea Beds, with minimal superficial deposits. The outcrop of the Swansea Five Feet coal seam is shown to cross the site in an east-west direction. The north-south trending Gnoll Fault lies on the eastern site boundary.

3.2.2 Summary of Mining Hazard

The potential coal mining risks identified at the site are summarised in Table 4 below:

Table 4: Identified Coal Mining Risks – Site A

Coal Mining Issue	Identified Hazard	Risk Assessment
Underground Coal Mining (recorded at shallow depth ¹)	No	See Section 3.2.3.
Underground Coal Mining (unrecorded shallow ¹)	Possible	
Underground Ironstone Mining (recorded at shallow depth ¹)	No	None identified.
Underground Ironstone Mining (unrecorded shallow ¹)	No	
Recorded Mine Entries (shafts and adits)	No	See Section 3.2.4.
Unrecorded Mine Entries (shafts and adits)	Possible	
Recorded Coal Mining Geology (fissures)	No	None identified.
Recorded Past Mine Gas Emissions or Potential	No	See Section 3.3.
Recorded Surface Coal Mining Hazard	Possible	See Section 3.4.
Recorded Surface Mining (opencast workings)	No	None identified.
Notes to Table 4: 1. The Coal Authority defines shallow depth as within 30m of the ground surface. 2. Identified risks are discussed further in the following sections.		

3.2.3 Shallow Coal Mine Workings

The shallowest recorded mine workings are likely to be within the Graigola coal seam at 134m depth beneath the site. However, the Swansea Five Feet seam is indicated to crop out across the site, dipping to the north. This seam locally is reported to be 1.5m in thickness and is indicated on the geological map to have been worked at crop some 360m north of Site A.

Given the Swansea Five Feet seam was worked extensively in the Swansea/Neath area, it crops out across the site, and was worked at the outcrop to the north of the site, we consider that there is a high likelihood that the seam could have been worked beneath the site. Such workings are unrecorded by the Coal Authority, but the hazard has been identified by the Authority with the presence of a Development High Risk Zone along the outcrop.

Based on the above, and without any further existing investigation information, we consider that the subsidence risk associated with shallow coal mine workings beneath Site A must be considered potentially **High**.

3.2.4 Mine Entries

No mine entries are recorded on the site. However, given the reported outcrop of the Swansea Five Feet seam across the site and its potential for working (see Section 3.1.3), we cannot discount the presence of mine entries on the site. These are likely to have taken the form of mine adits or, given the shallow bedrock, possibly bell pits along the outcrop. Shallow mine shafts, down to the shallow coal seam, cannot be discounted further north.

Based on the above, we consider that the risk of mine entries beneath Site A is potentially **High**.

3.3 Mine Gas Mitigation

As discussed in Section 2.5.2, the Coal Authority has no record of a mine gas emission requiring action in the vicinity of the site. Notwithstanding this, a mine gas risk assessment based on the guidelines published by Wilson et al (2021) would be required for any development – information on the ground conditions and state of the coal seam(s) would be required to undertake this assessment, so should be undertaken following the further investigation (see Section 3.5).

3.4 Surface Coal Mining Hazard

Where the Swansea Five Feet coal seam crops out on the site, there is a potential for combustible materials at shallow depth.

3.5 Recommended Further Mining Investigation Works

Based on the available information, we consider that the precise outcrop position of the Swansea Five Feet coal seam and the potential for shallow mine workings should be confirmed by a rotary drillhole investigation. The number of boreholes required will depend on the precise development layout, which is not known at present, and the findings of the initial boreholes, but we consider that a minimum of five boreholes are likely to be required. The boreholes should be taken down to at least 30m depth.

A full site reconnaissance should also be undertaken by an experienced engineering geologist to identify any evidence of past mine entries. If such potential entries are identified, they would require further investigation, probably by trial trenching, or non-invasive geophysical investigation.

The above boreholes should identify the presence, depth and thickness of coal seams, and the nature of the bedrock strata between the various seams. Once this information is available, a further assessment of the subsidence risk to the proposed development can be made, and options for appropriate risk mitigation measures prepared. A mine gas risk assessment may also then be completed.

These boreholes are anticipated to take at least two days to complete. Coal seams and workings are in the ownership of the Coal Authority and their permission will be required prior to any drilling works (this can take around four weeks). The use of water flush and gas monitoring at the drilling rig is likely to be required.

4 Identification and Assessment of Site-Specific Coal Mining Risks – Site B

4.1 Context

Site B is located to the north-east of Reservoir B. The proposed site development comprises new log cabin type accommodation, and refurbishment of pathways and landscaping.

4.2 Identified Coal Mining Risks

4.2.1 Preliminary Conceptual Ground Model

Based on the available information, Site B is likely to be underlain by bedrock of the Brithdir Beds with Diamicton anticipated beneath the eastern area only.

4.2.2 Summary of Mining Hazard

The potential coal mining risks identified at the site are summarised in Table 5 below:

Table 5: Identified Coal Mining Risks – Site B

Coal Mining Issue	Identified Hazard	Risk Assessment
Underground Coal Mining (recorded at shallow depth ¹)	No	See Section 4.2.3.
Underground Coal Mining (unrecorded shallow ¹)	Unlikely	
Underground Ironstone Mining (recorded at shallow depth ¹)	No	None identified.
Underground Ironstone Mining (unrecorded shallow ¹)	No	
Recorded Mine Entries (shafts and adits)	No	See Section 4.2.4.
Unrecorded Mine Entries (shafts and adits)	Unlikely	
Recorded Coal Mining Geology (fissures)	No	None identified.
Recorded Past Mine Gas Emissions or Potential	No	See Section 4.3.
Recorded Surface Coal Mining Hazard	No	None identified.
Recorded Surface Mining (opencast workings)	No	None identified.
Notes to Table 5: - The Coal Authority defines shallow depth as within 30m of the ground surface. - Identified risks are discussed further in the following sections.		

4.2.3 Shallow Coal Mine Workings

There are no recorded mine workings beneath Site B, and the Coal Authority have not defined a Development High Risk zone within the site. The shallowest coal seams beneath Site B are anticipated to be the Brithdir Rider, Graig and Brithdir seams. All three seams are indicated to be relatively thin (500mm or less), so the risk of mine workings within the seams may be **Low**. However, given the potential for shallow workings beneath Site C (see Section 5.1.3) and due to the lack of precise information, this should be confirmed by further investigation.

4.2.4 Mine Entries

No mine entries are recorded on the site and, as discussed in Section 4.1.3, mine workings may also be absent beneath the site.

Based on the above, we consider that the risk of mine entries beneath Site B is potentially **Low**.

4.3 Mine Gas Mitigation

As discussed in Section 2.5.3, the Coal Authority has no record of a mine gas emission requiring action in the vicinity of the site. Notwithstanding this, a mine gas risk assessment based on the guidelines published by Wilson et al (2021) would be required for any development – information on the ground conditions and state of the coal seam(s) would be required to undertake this assessment, so should be undertaken following the further investigation (see Section 4.3).

4.4 Recommended Further Mining Investigation Works

Based on the available information, we consider that the mining hazard beneath the site should be confirmed by further investigation. We consider that three boreholes to 30m are likely to be sufficient.

The above boreholes should identify the presence, depth and thickness of coal seams, and the nature of the bedrock strata between the various seams. Once this information is available, a further assessment of the subsidence risk to the proposed development can be made, and options for appropriate risk mitigation measures prepared. A mine gas risk assessment may also then be completed.

These boreholes are anticipated to take no more than two days to complete. Coal seams and workings are in the ownership of the Coal Authority and their permission will be required prior to any drilling works (this can take around four weeks). The use of water flush and gas monitoring at the drilling rig is likely to be required.

5 Identification and Assessment of Site-Specific Coal Mining Risks – Site C

5.1 Context

Site C is located to the south-east of Reservoir B. The proposed site development comprises a new adventure playground and boat house, along with refurbishment of pathways and landscaping.

5.2 Identified Coal Mining Risks

5.2.1 Preliminary Conceptual Ground Model

Based on the available information, Site C is likely to be underlain by bedrock of the Brithdir Beds with Diamicton anticipated beneath the eastern area only.

5.2.2 Summary of Mining Hazard

The potential coal mining risks identified at the site are summarised in Table 6 below:

Table 6: Identified Coal Mining Risks – Site C

Coal Mining Issue	Identified Hazard	Risk Assessment
Underground Coal Mining (recorded at shallow depth ¹)	No	See Section 5.2.3.
Underground Coal Mining (unrecorded shallow ¹)	Possible	
Underground Ironstone Mining (recorded at shallow depth ¹)	No	None identified.
Underground Ironstone Mining (unrecorded shallow ¹)	No	
Recorded Mine Entries (shafts and adits)	Yes	See Section 5.2.4.
Unrecorded Mine Entries (shafts and adits)	Unlikely	
Recorded Coal Mining Geology (fissures)	No	None identified.
Recorded Past Mine Gas Emissions or Potential	No	See Section 5.3.
Recorded Surface Coal Mining Hazard	No	None identified.
Recorded Surface Mining (opencast workings)	No	None identified.
Notes to Table 6: - The Coal Authority defines shallow depth as within 30m of the ground surface. - Identified risks are discussed further in the following sections.		

5.2.3 Shallow Coal Mine Workings

There are no recorded mine workings beneath Site C, although an abandonment plan is apparently available. The Coal Authority have not defined a general Development High Risk zone within the site. However, an old mine shaft is identified in the south-east of the site, and the Authority have defined a Development High Risk zone around this shaft.

Mine shafts constructed in the mid-19th Century were expensive, and were generally constructed if there was high confidence of shallow coal. Therefore, we cannot discount the presence of shallow coal seams, probably the Brithdir Rider, Graig and Brithdir seams, and associated mine workings. Given this, we consider that the potential for shallow mine workings is potentially **High**.

5.2.4 Mine Entries

A single mine shaft, dating from before 1877, is indicated on historical and geological maps in the south-east of the site. The Coal Authority identifies two mine shafts but, as discussed in Section 2.5.4, these are likely to be the same shaft plotted in two positions. No further information is available on the shaft.

Based on the above, the risk of mine entries on Site C is **High**.

5.3 Mine Gas Mitigation

As discussed in Section 2.5.4, the Coal Authority has no record of a mine gas emission requiring action in the vicinity of the site. Notwithstanding this, a mine gas risk assessment based on the guidelines published by Wilson et al (2021) would be required for any development – information on the ground conditions and state of the coal seam(s) would be required to undertake this assessment, so should be undertaken following the further investigation (see Section 5.3).

5.4 Recommended Further Mining Investigation Works

Based on the available information, we consider that the mining hazard beneath the site should be confirmed by further investigation.

We recommend that initially the mine shaft is located and investigated to confirm its depth and diameter. Clearance of vegetation will be required and the shaft position may then be evident, however, if not, geophysical investigation and/or trial trenching may be required to locate the shaft. Once located, at least one rotary drillhole should be constructed through the shaft to identify the shaft depth and diameter and the depth and nature of any backfill within the shaft.

Depending on the findings of the shaft investigation, we consider that further rotary drillholes would be required to investigate for shallow mine workings. The number of boreholes required will depend on the precise development layout, which is not known at present, and the findings of the initial shaft investigation, but we consider that a minimum of four boreholes are likely to be required. The boreholes should be taken down to at least 30m depth.

The above boreholes should identify the presence, depth and thickness of coal seams, and the nature of the bedrock strata between the various seams. Once this information is available, a further assessment of the subsidence risk to the proposed development can be made, and options for appropriate risk mitigation measures prepared. A mine gas risk assessment may also then be completed.

These boreholes are anticipated to take two days to complete. Coal seams and workings are in the ownership of the Coal Authority and their permission will be required prior to any drilling works (this

can take around four weeks). The use of water flush and gas monitoring at the drilling rig is likely to be required.

6 Conclusions

Based on the available desk study information, we consider that the following mine risks are applicable for the three sites:

- **Site A (south-west of reservoir):** high potential for shallow mine workings and mine entries, further investigation required to understand the hazard (see Section 3.5);
- **Site B (north-east of reservoir):** probably low potential for shallow mine workings and mine entries, but further investigation required, intended to confirm the low hazard potential (see Section 4.4); and
- **Site C (south-east of reservoir):** high risk from mine shaft, and possible shallow mine workings hazard, further investigation required to understand the hazard (see Section 5.4).

7 References

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PLATES



Plate 1: Site A, entrance to compound.
Looking south.

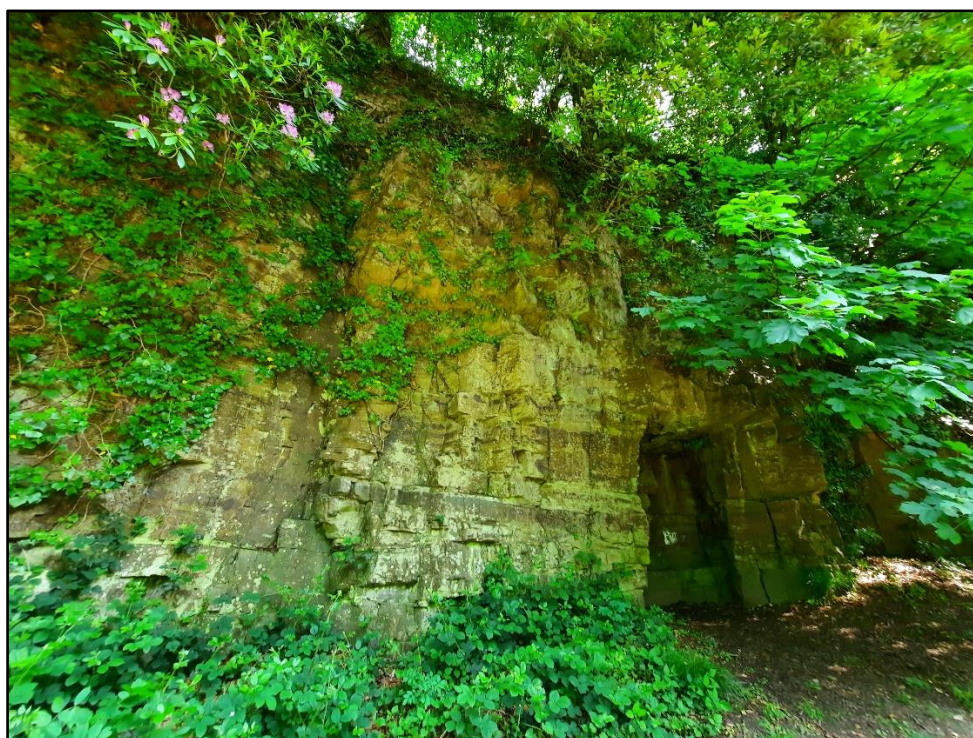


Plate 2: Site A, rock cutting beneath site

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Plate 3: Site B, visitor centre at east of lake.
Looking south-east.



Plate 4: Site B, visitors centre.
Looking north-west.

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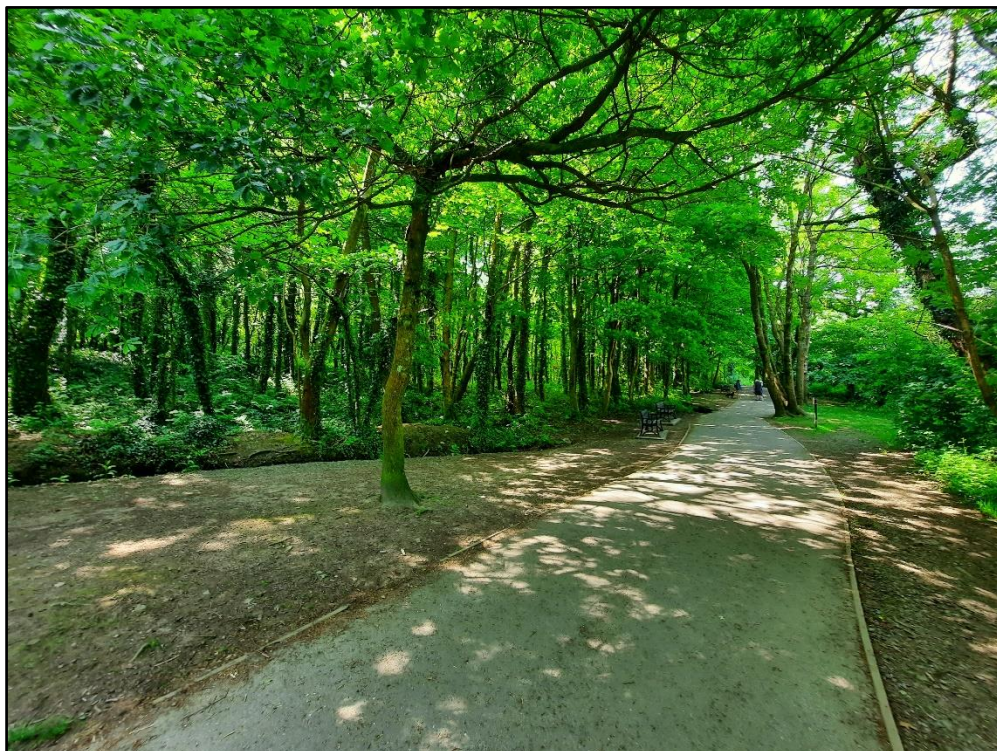


Plate 5: Site C, eastern end of pathway.
Looking south-west.



Plate 6: Site C, typical view of overgrown nature of site.

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Plate 7: Site C, rock outcrop beneath tree, just south of site.



Plate 8: Site C, play area in south-west of site. Looking east.

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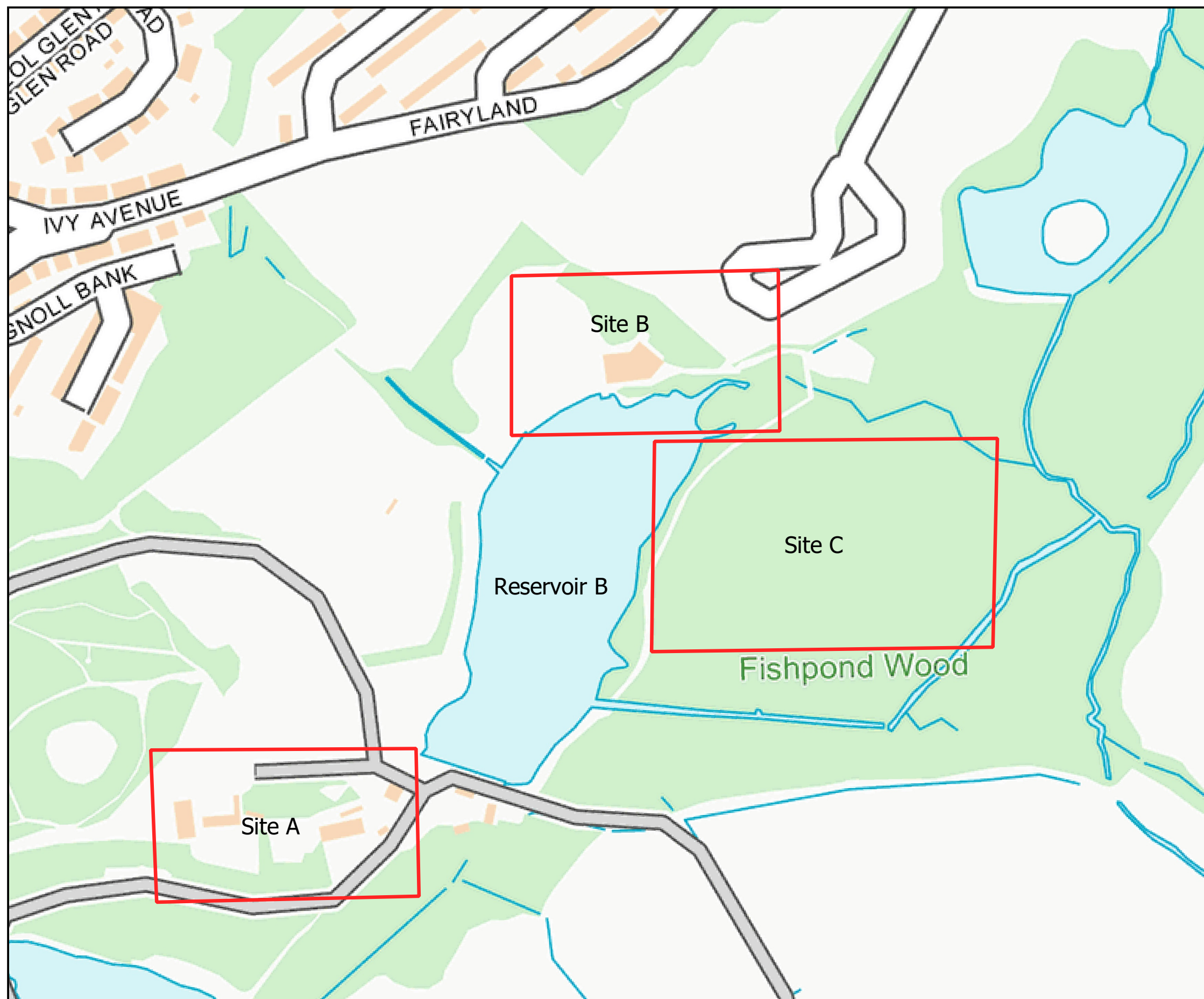
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FIGURES



LEGEND:

Site Boundaries

NOTES:

1. Do not scale from drawing. This drawing should be read in conjunction with all other associated project information.

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REPORT REF: 8603

CLIENT: Andrew Scott Ltd

FIGURE TITLE: PROPOSED DEVELOPMENT SITE LOCATIONS

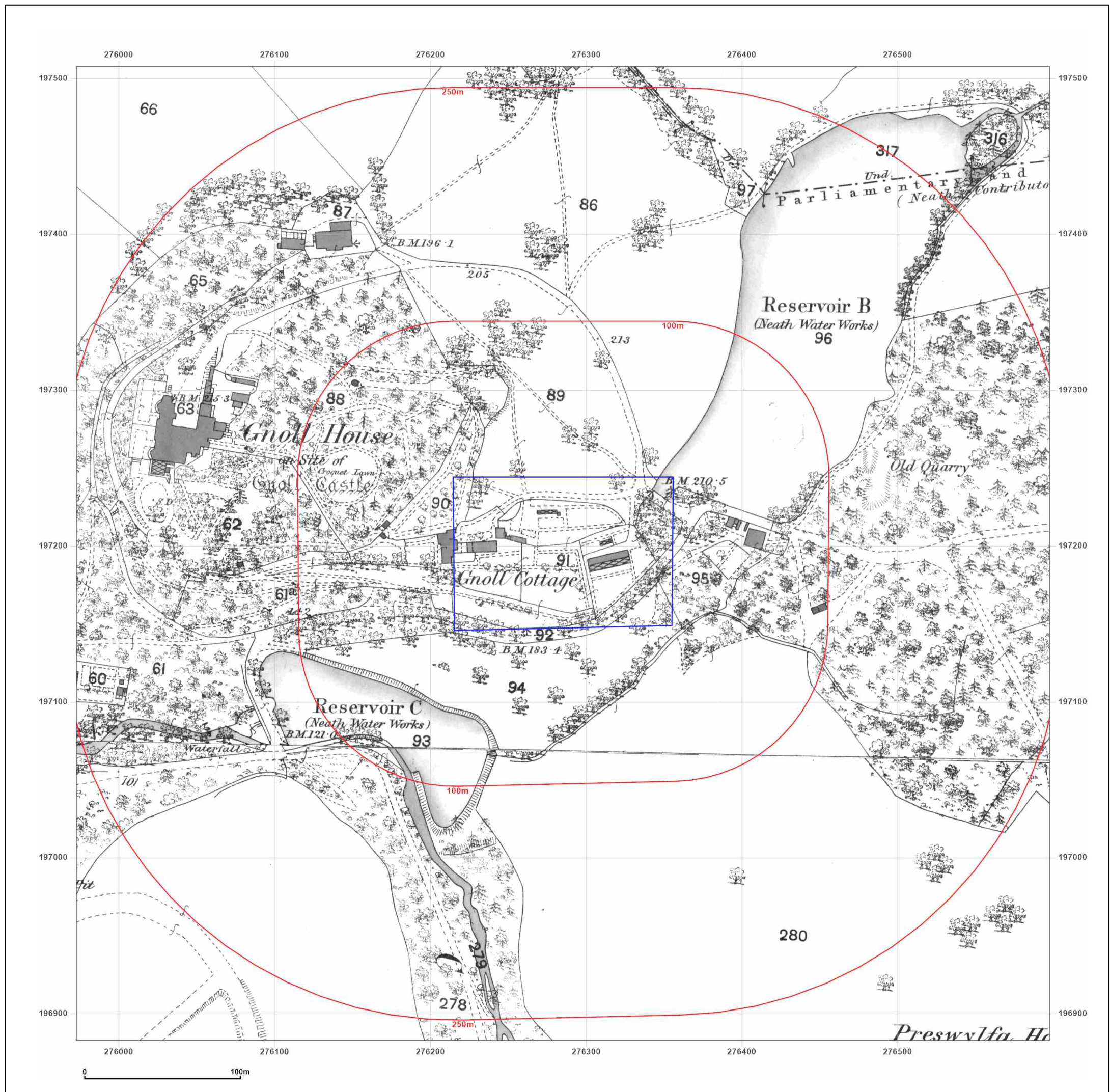
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DATE: 06/06/2023 SCALE: NTS

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APPENDIX A1 Extracts from Historical Maps, Site A



Site Details:

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Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

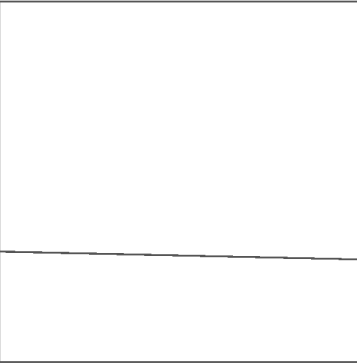
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Scale: 1:2,500

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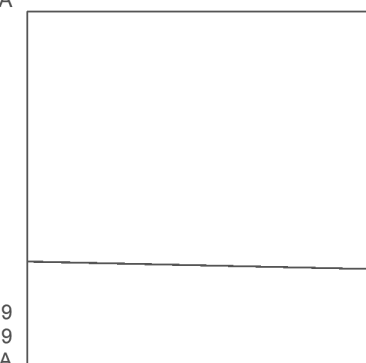
Map date: 1919

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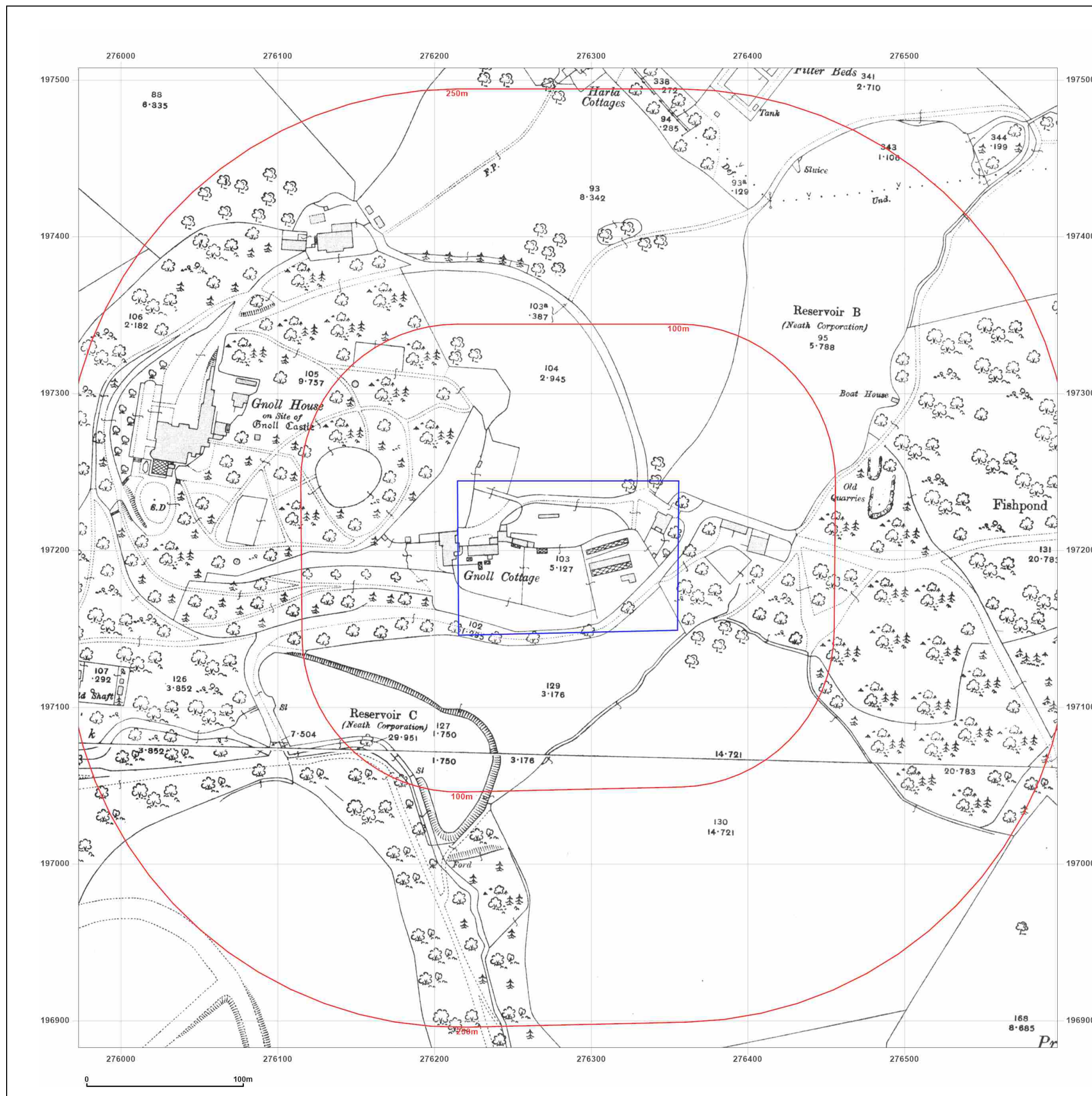


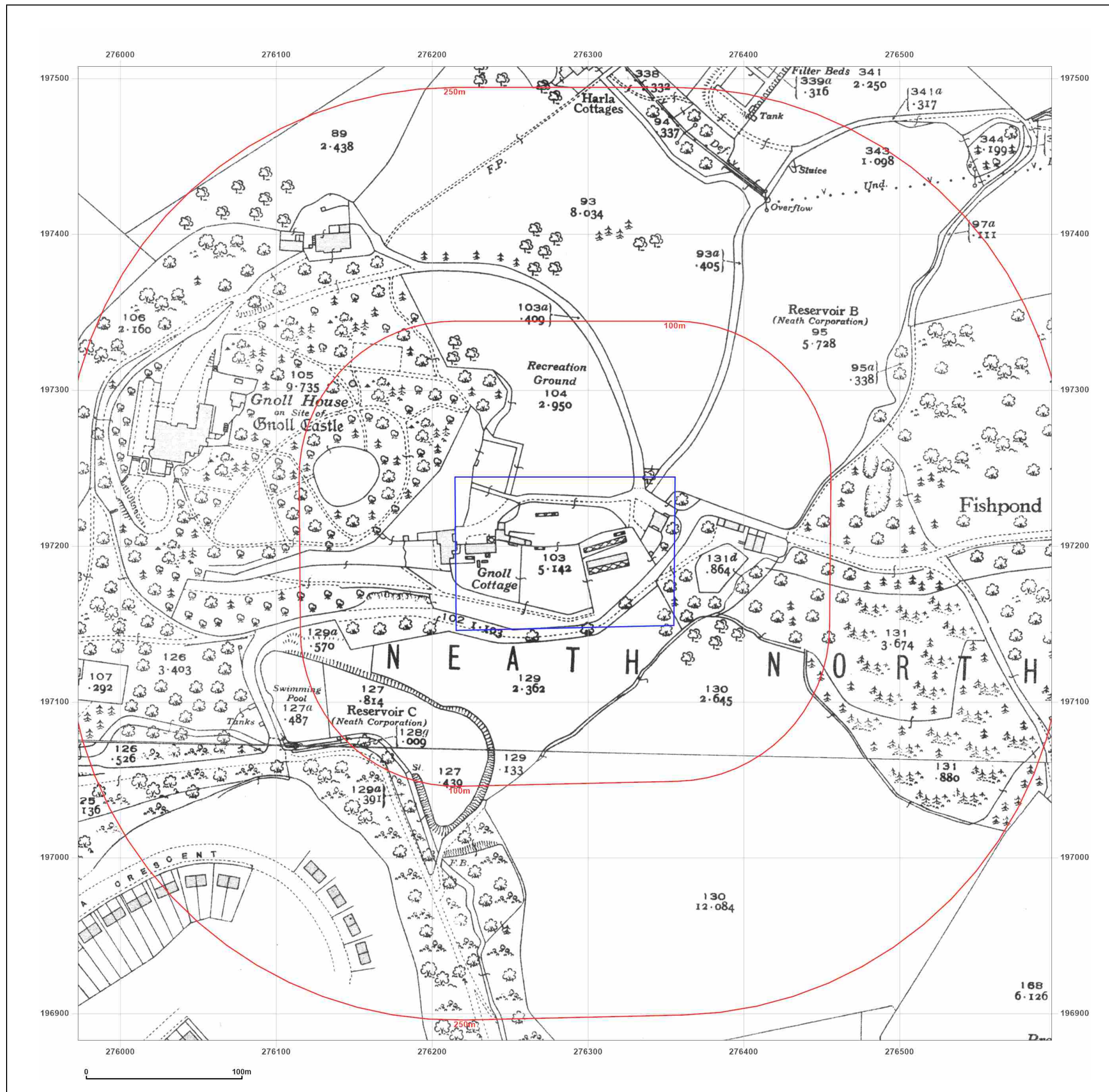
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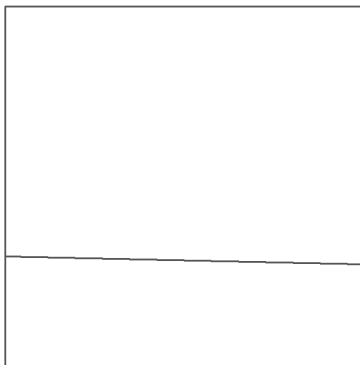
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Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 1964-1965

Scale: 1:2,500

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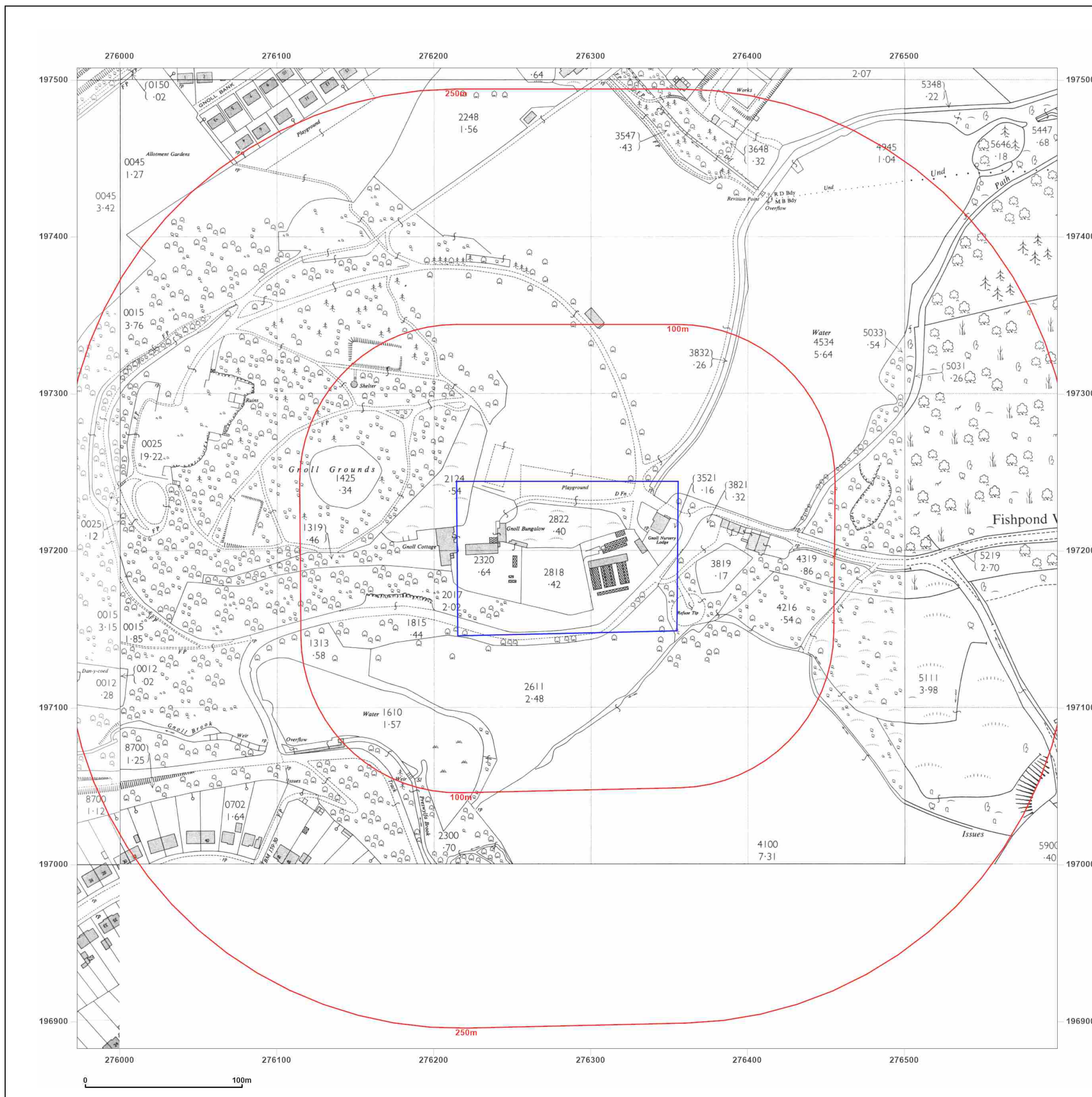


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Map Name: National Grid

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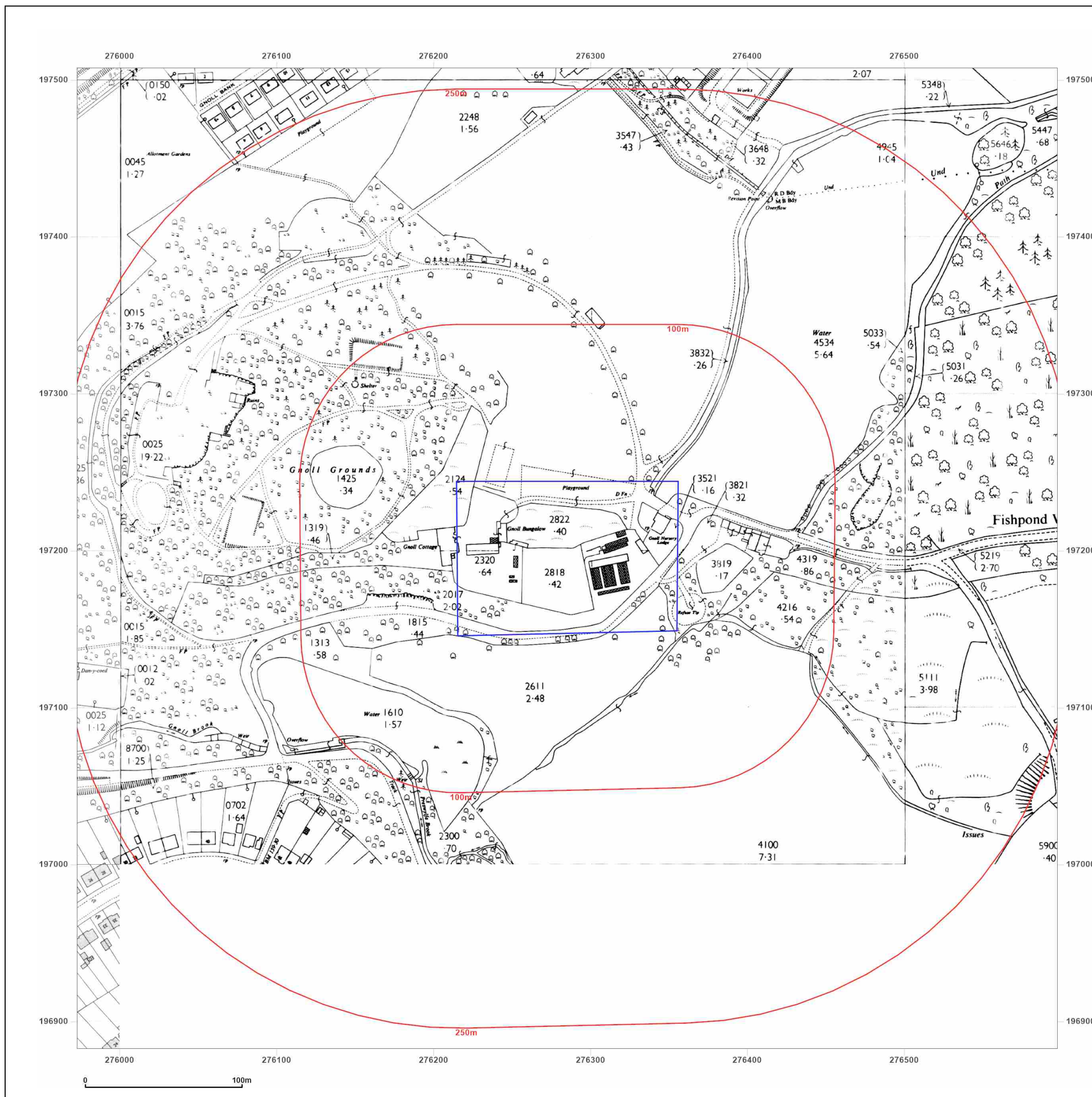


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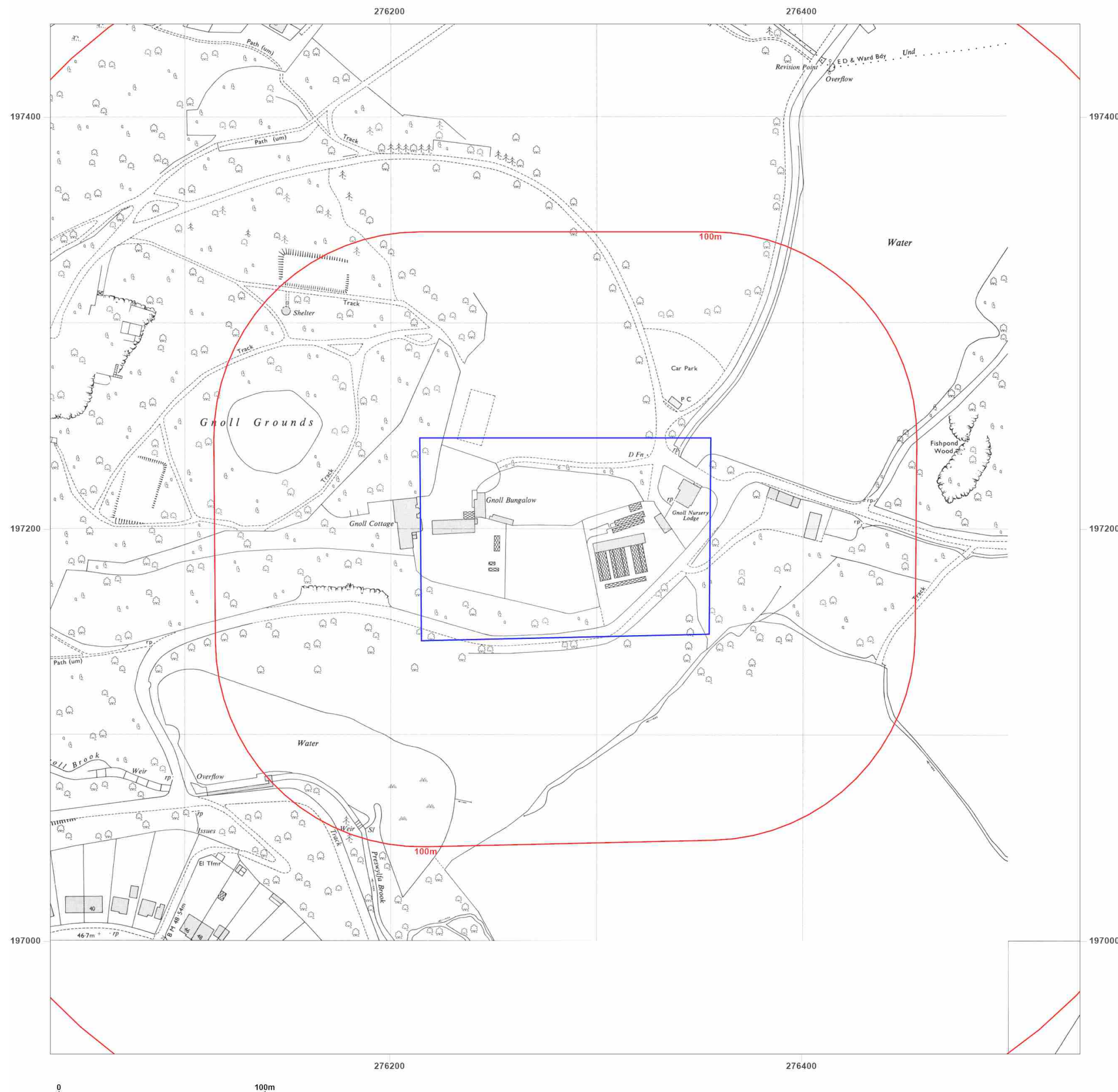


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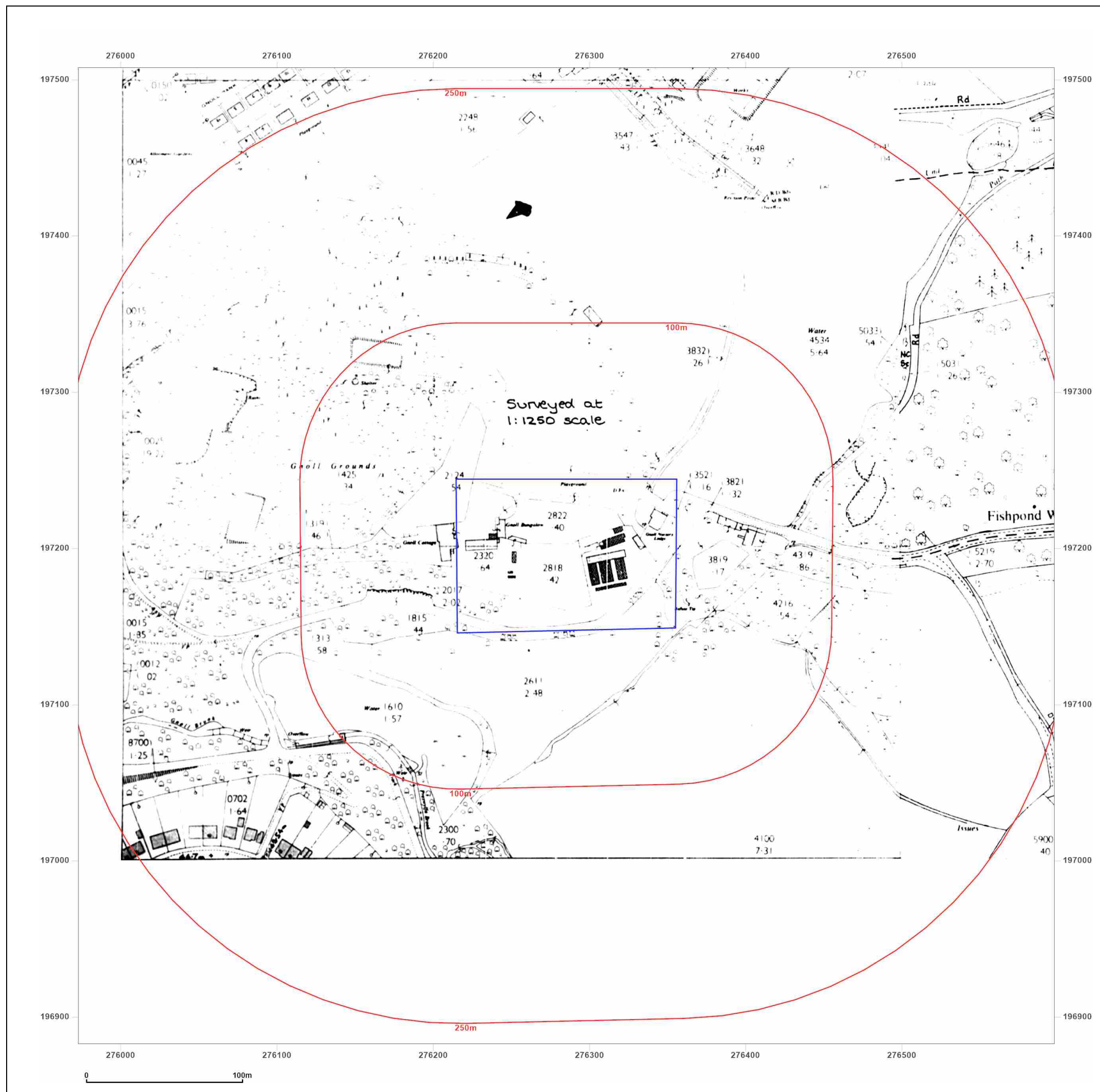


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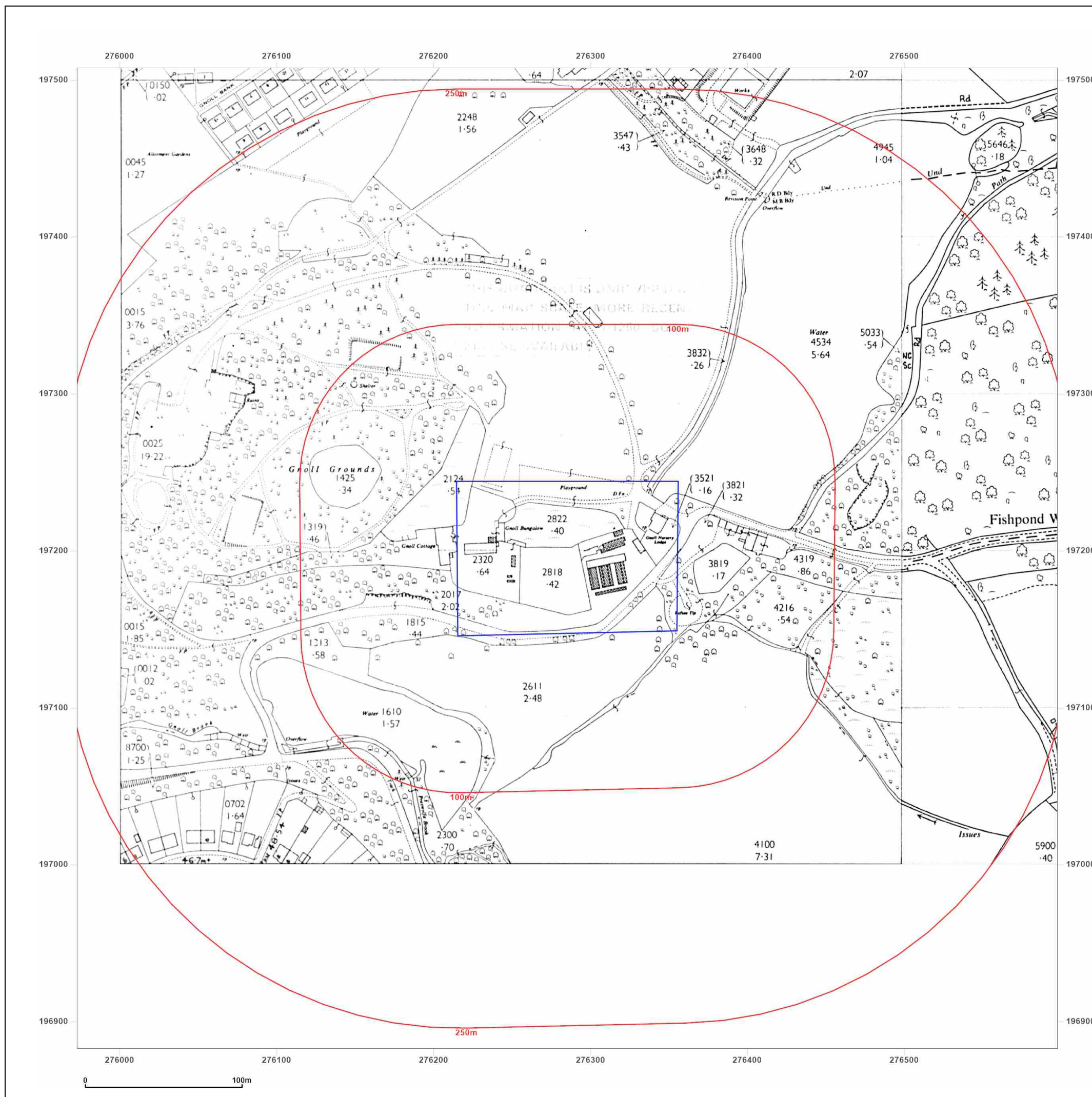


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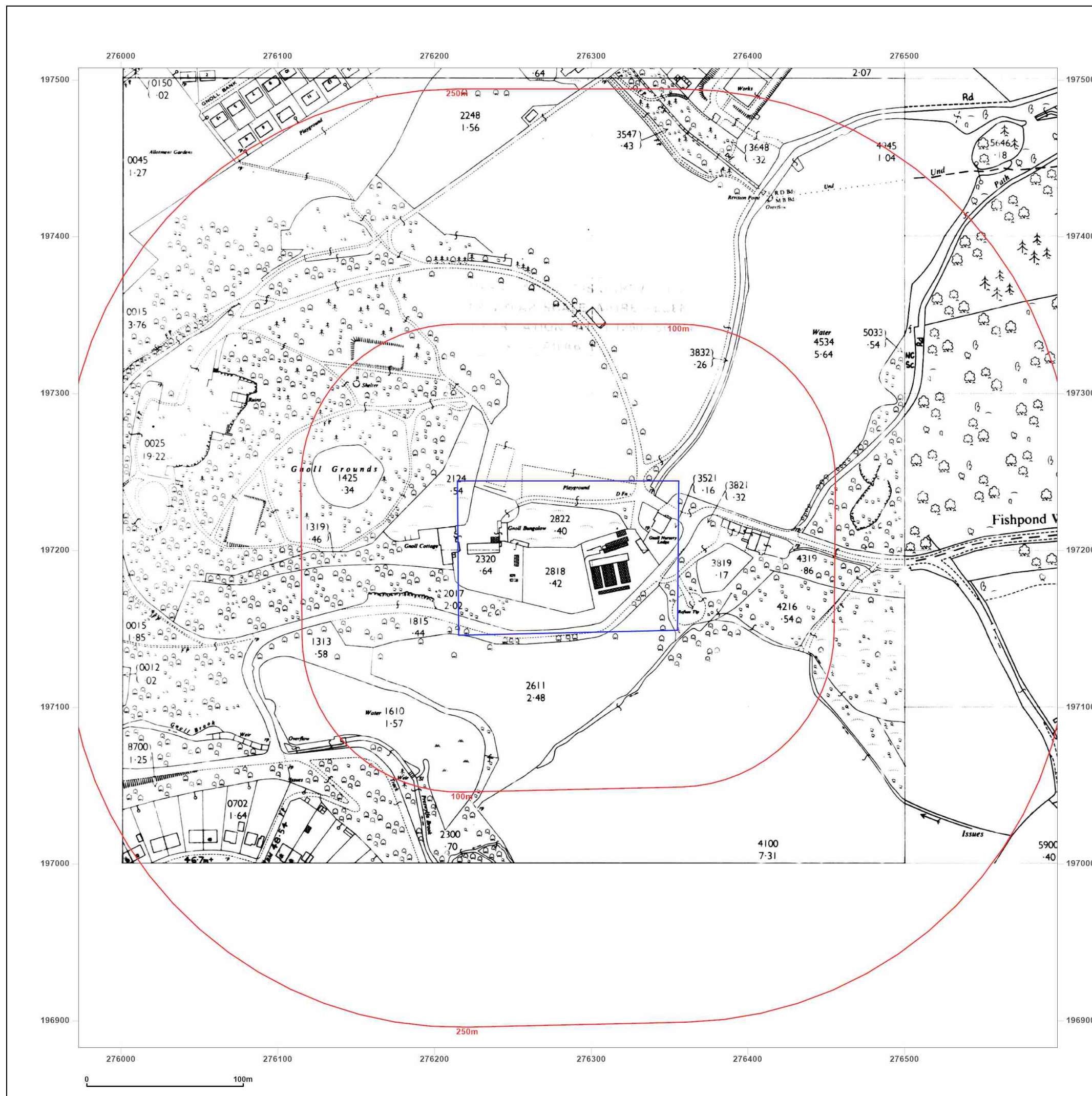


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Map Name: National Grid

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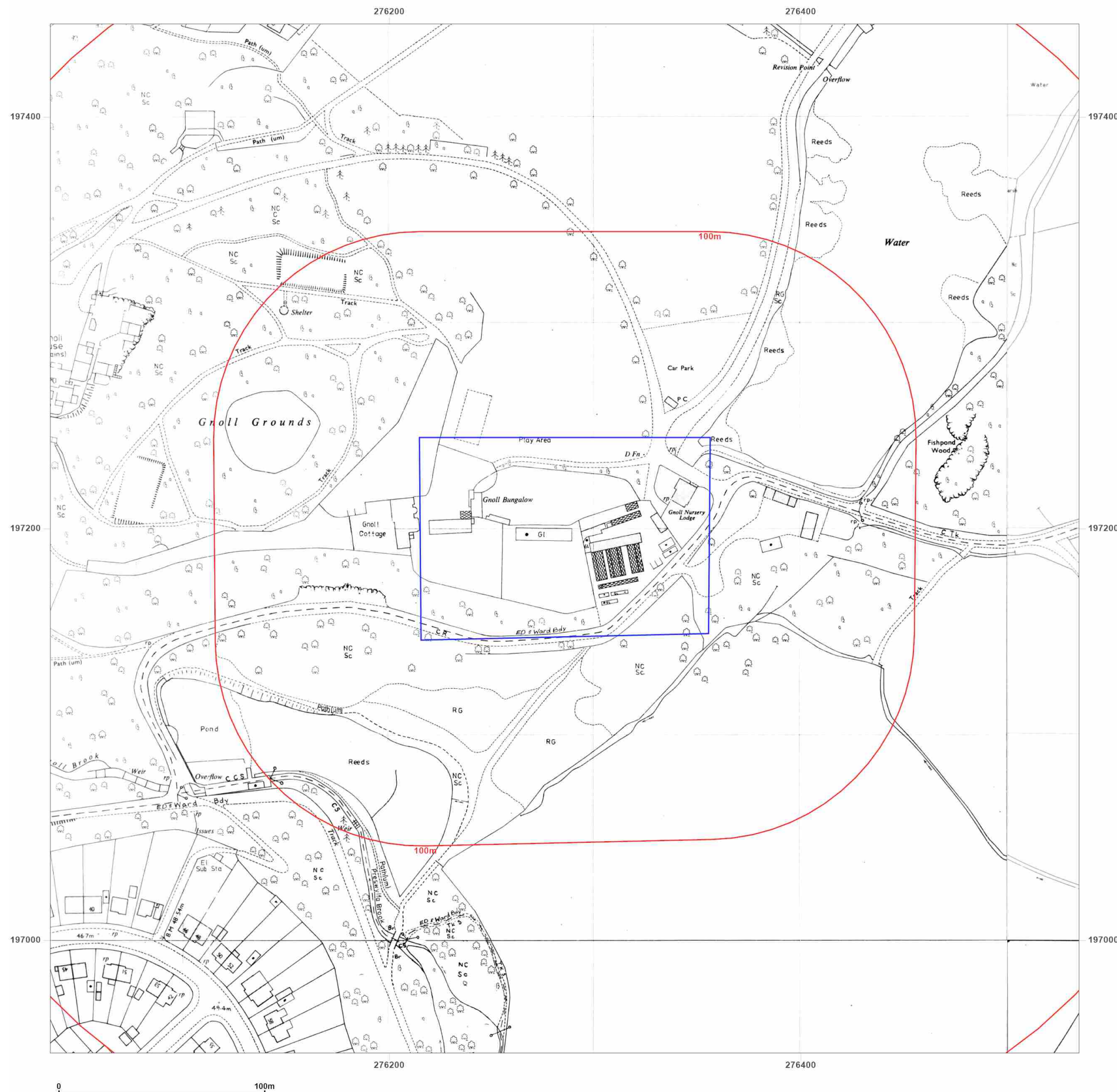


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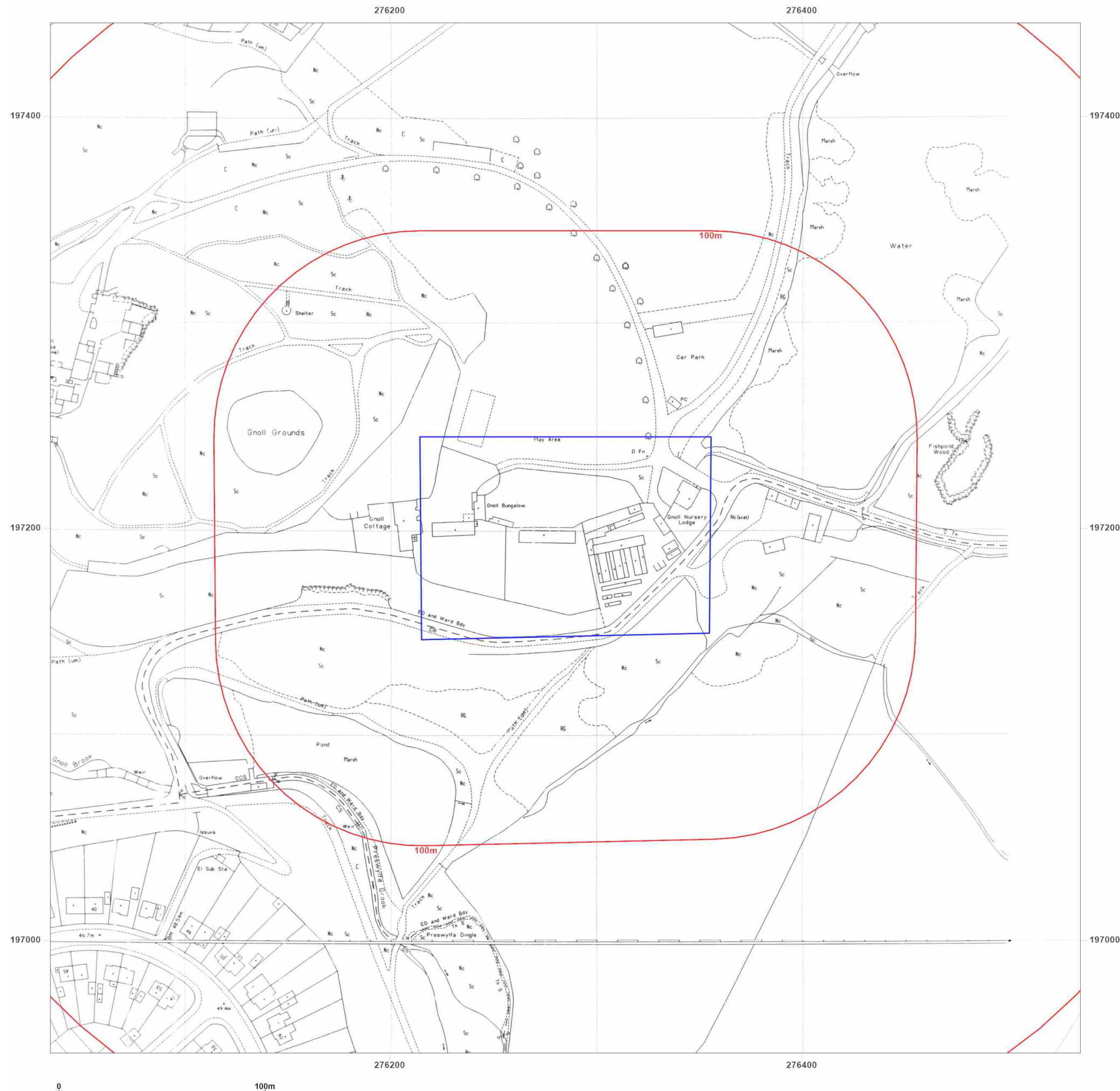


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Grid Ref: 276285, 197195

Map Name: LandLine

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Report Ref: ESP-FEB-EOT-3EY-P3Q
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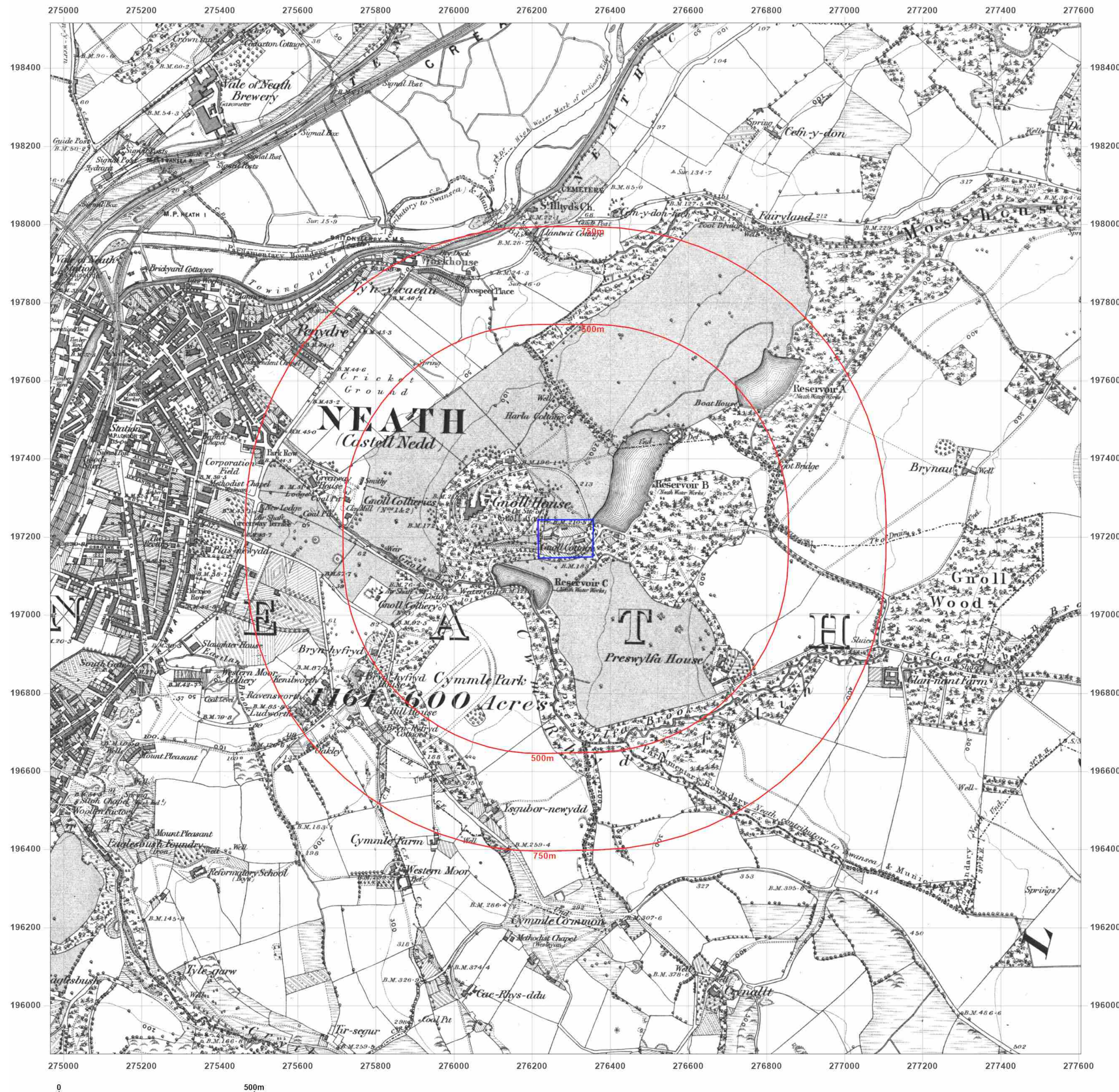
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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1897

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A



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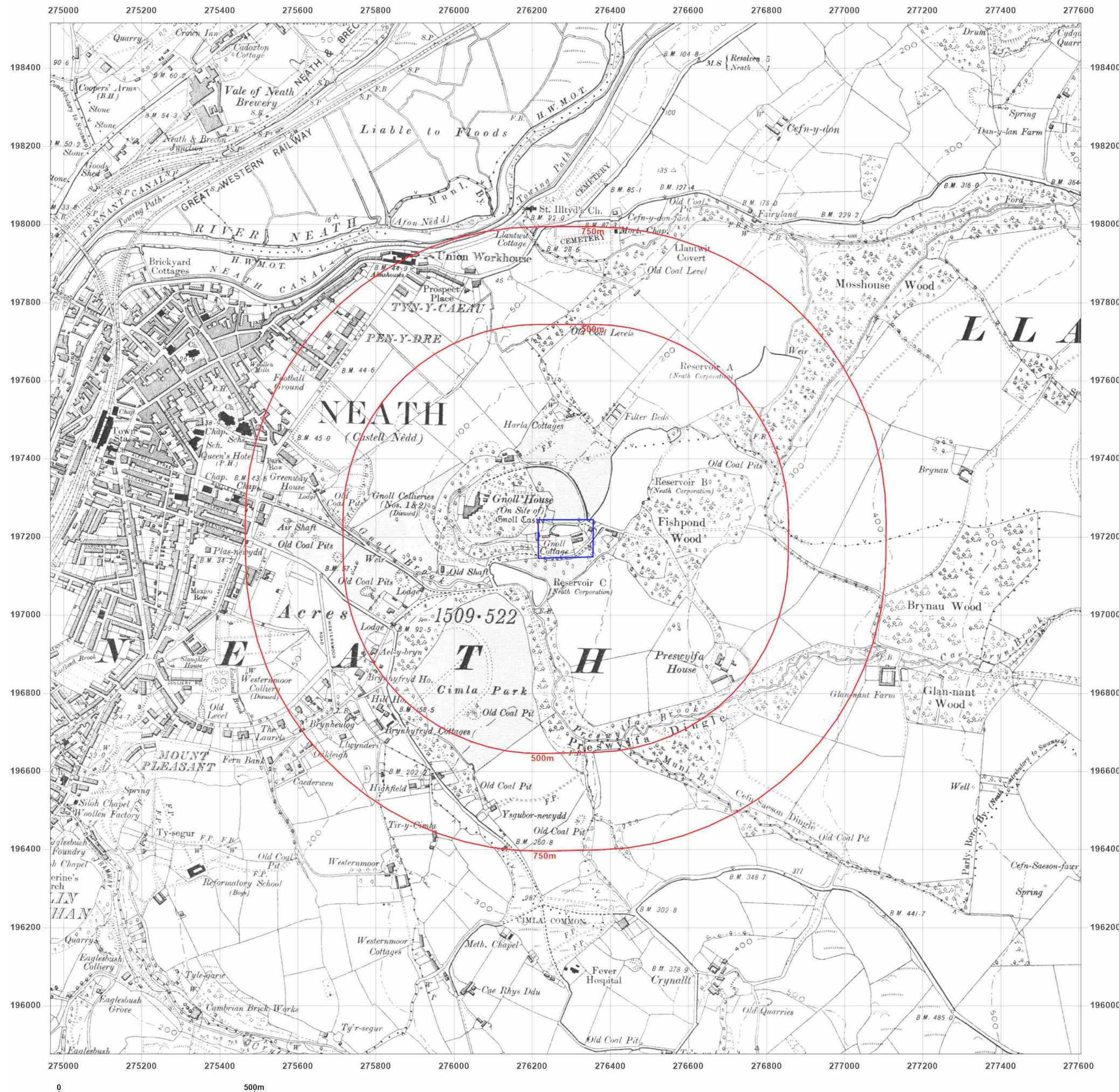


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Production date: 10 May 2023

Map legend available at:
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Site Details:

GNOLL COUNTRY PARK,
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1914

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A



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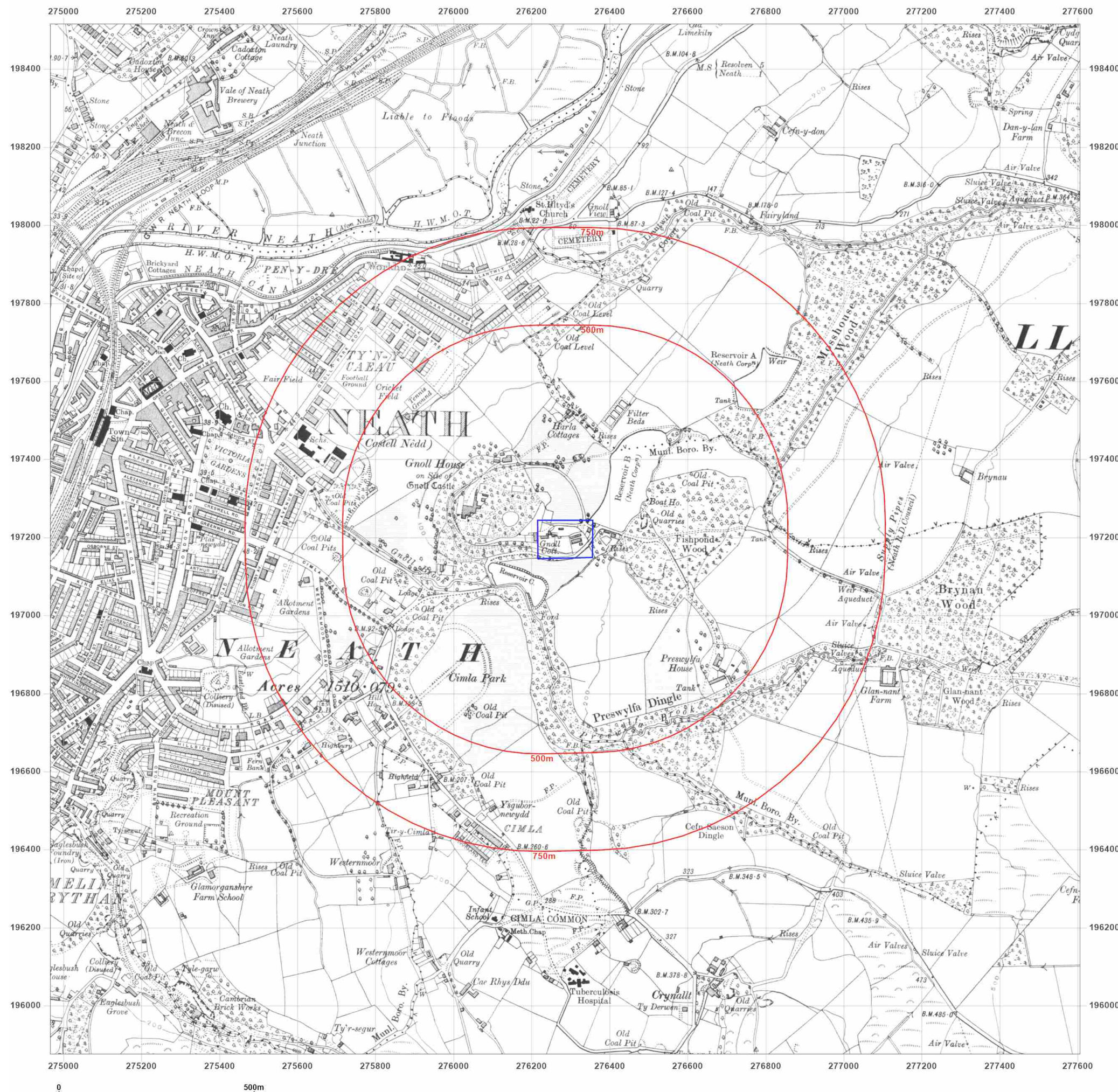


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Site Details:

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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1921

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A



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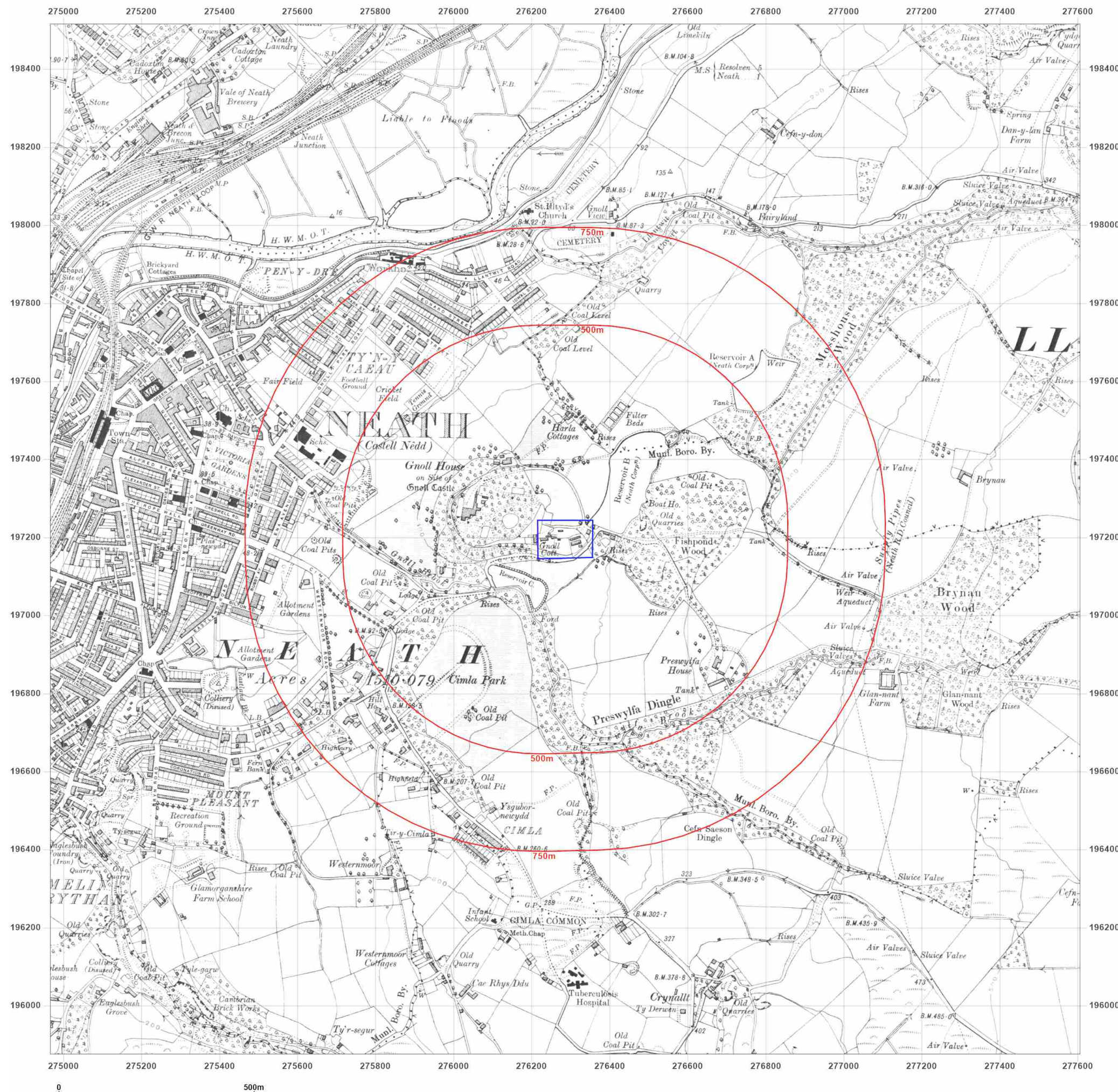


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Site Details:

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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1936

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1936
Edition N/A
Copyright N/A
Levelled N/A



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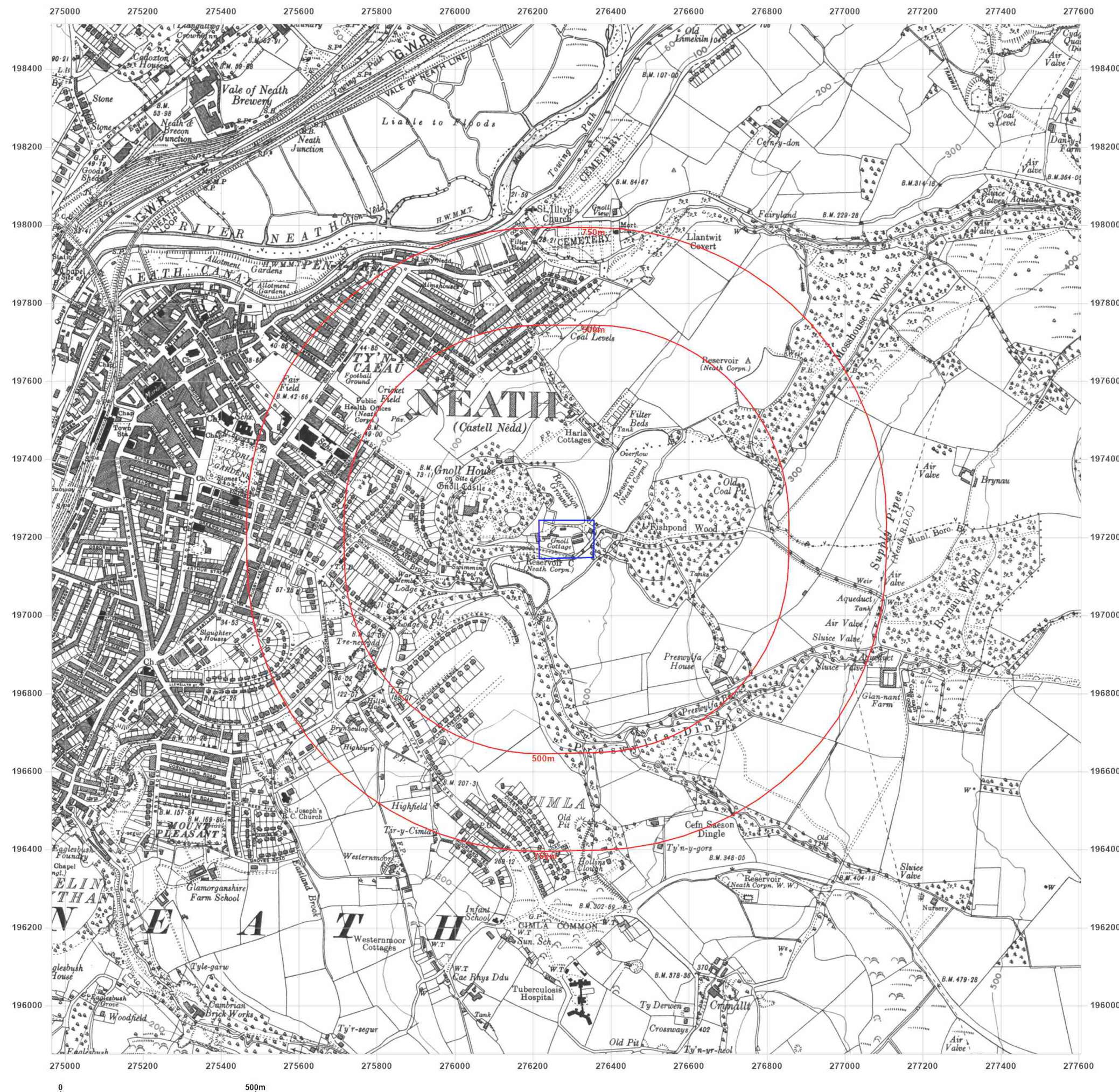


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Site Details:

GNOLL COUNTRY PARK,
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1938
Edition N/A
Copyright N/A
Levelled 1936



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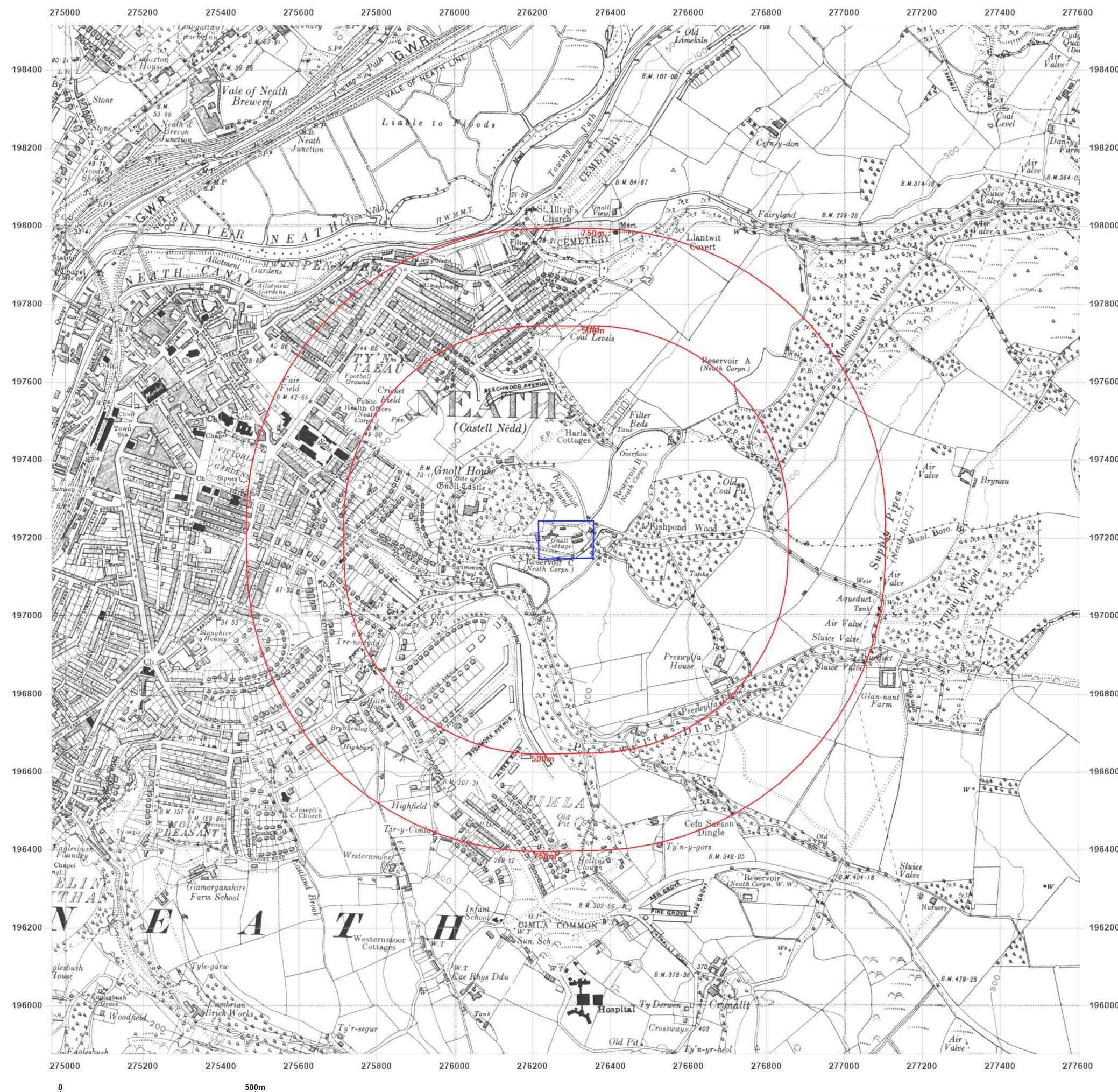


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Map legend available at:
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Site Details:

GNOLL COUNTRY PARK,
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: County Series

Map date: 1951

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1948
Edition 1951
Copyright N/A
Levelled 1950



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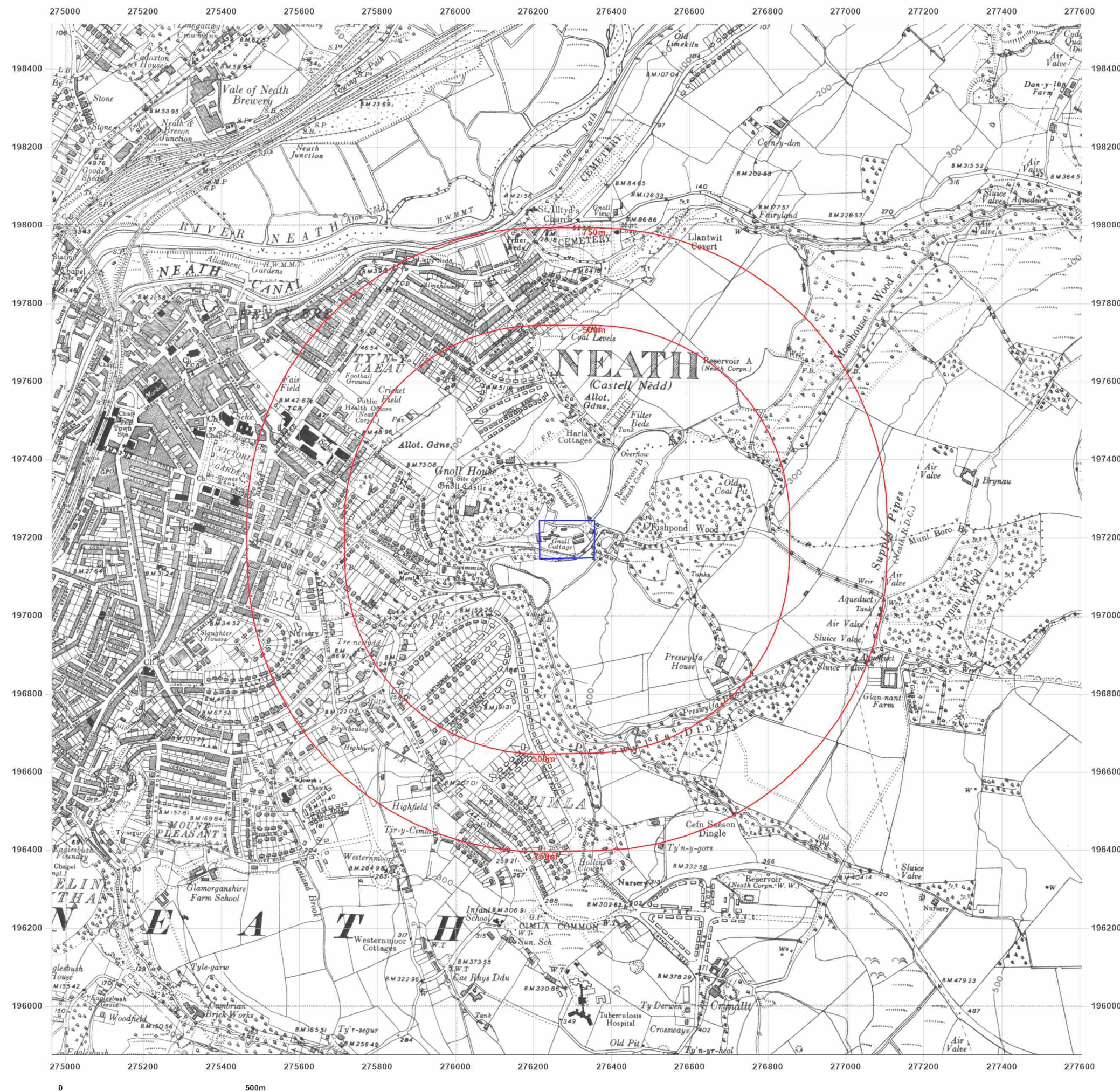


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Site Details:

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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: Provisional

Map date: 1962-1964

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1962
Revised 1962
Edition N/A
Copyright N/A
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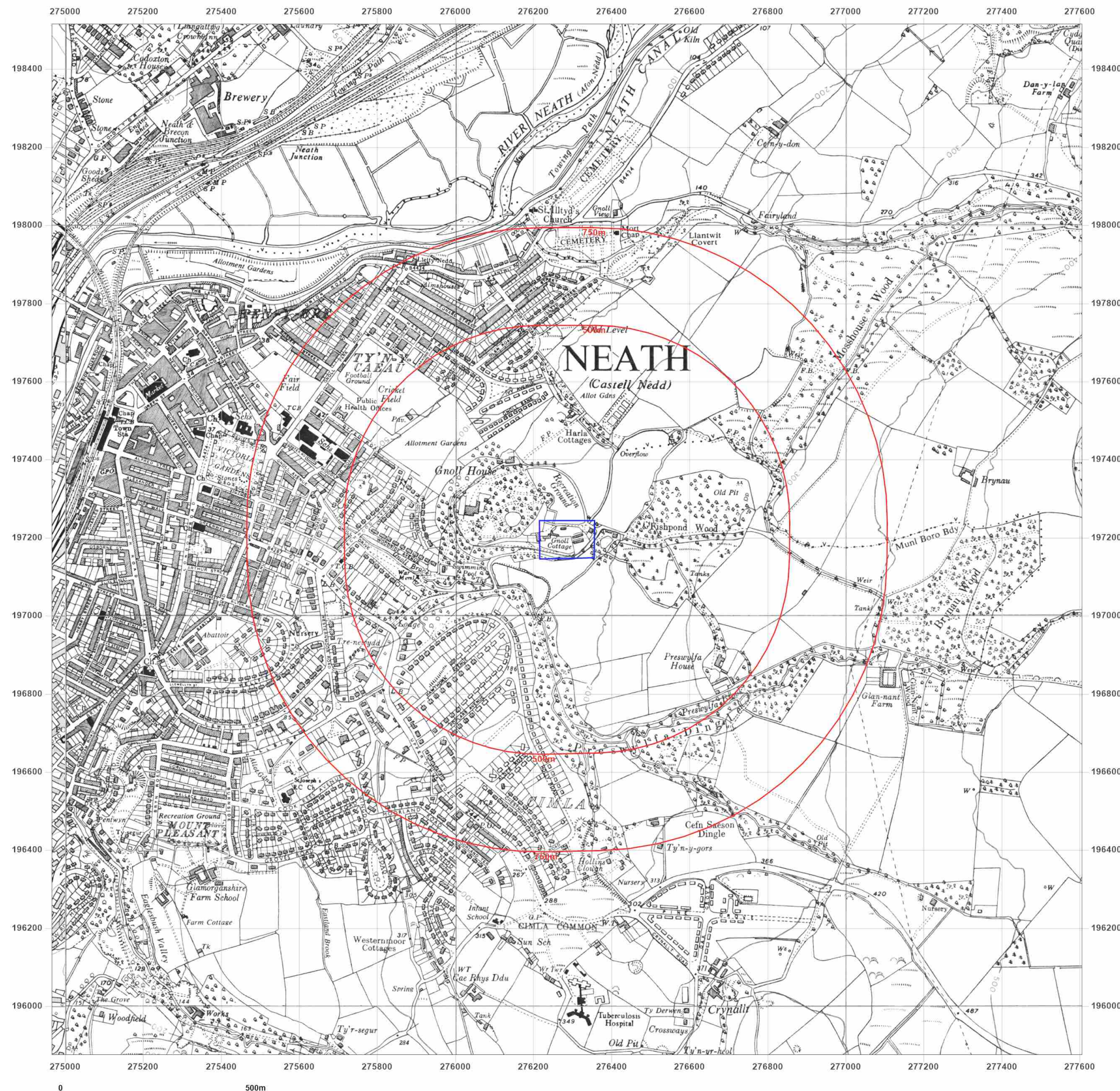


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Site Details:

GNOLL COUNTRY PARK,
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1970
Revised 1973
Edition N/A
Copyright 1973
Levelled 1964



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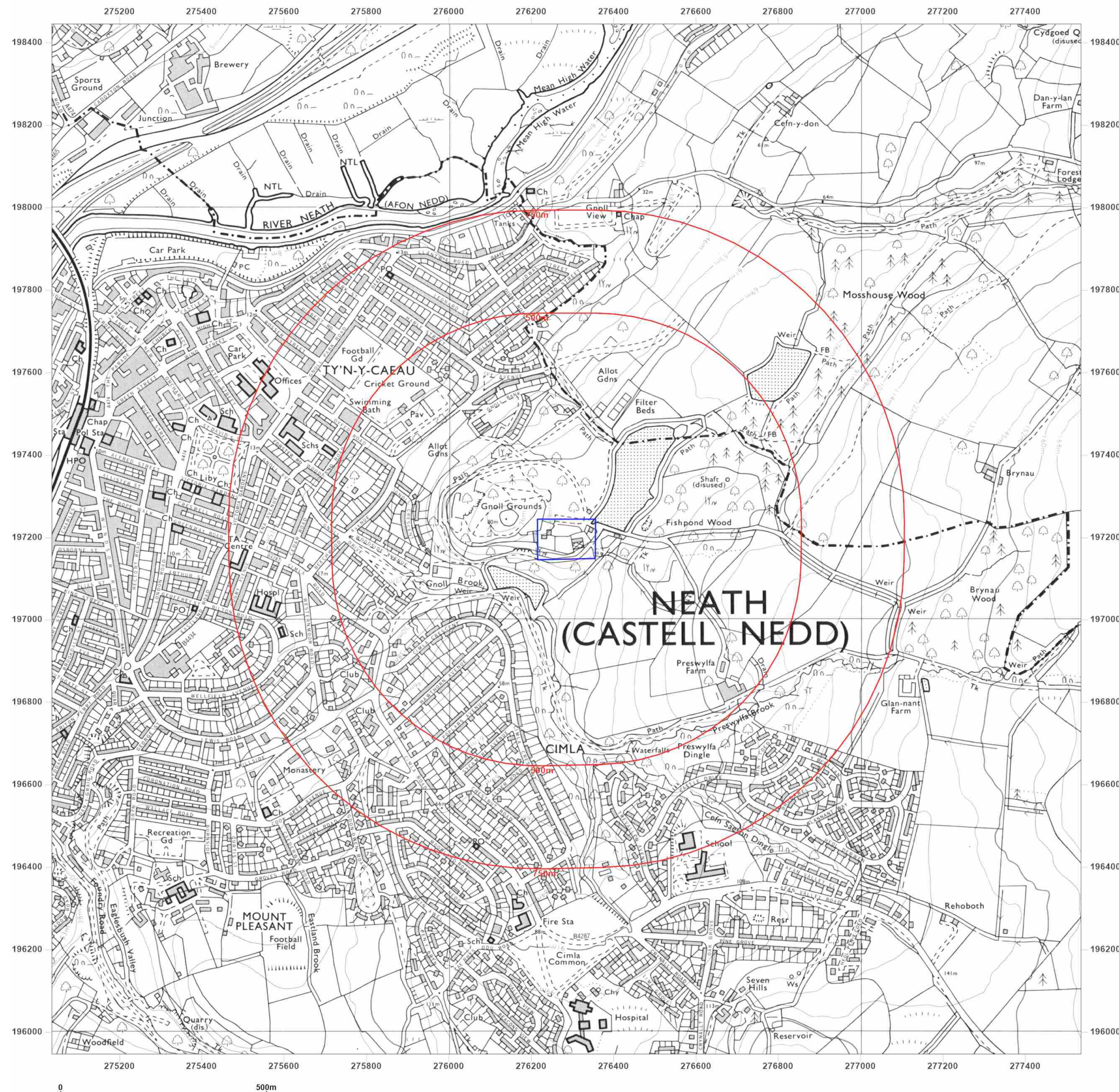


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Site Details:

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Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 1982

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1976
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A



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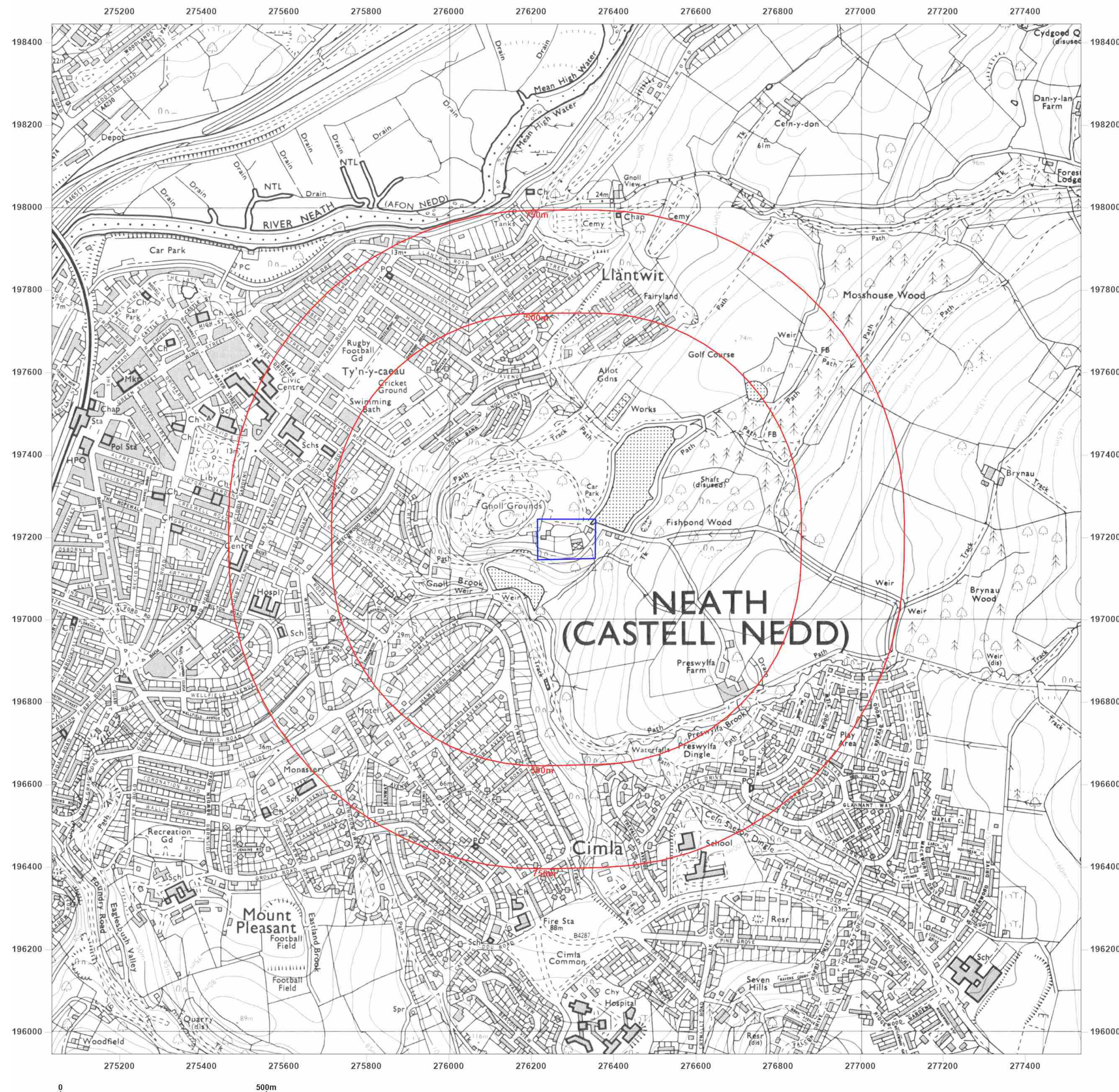


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Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1989
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A



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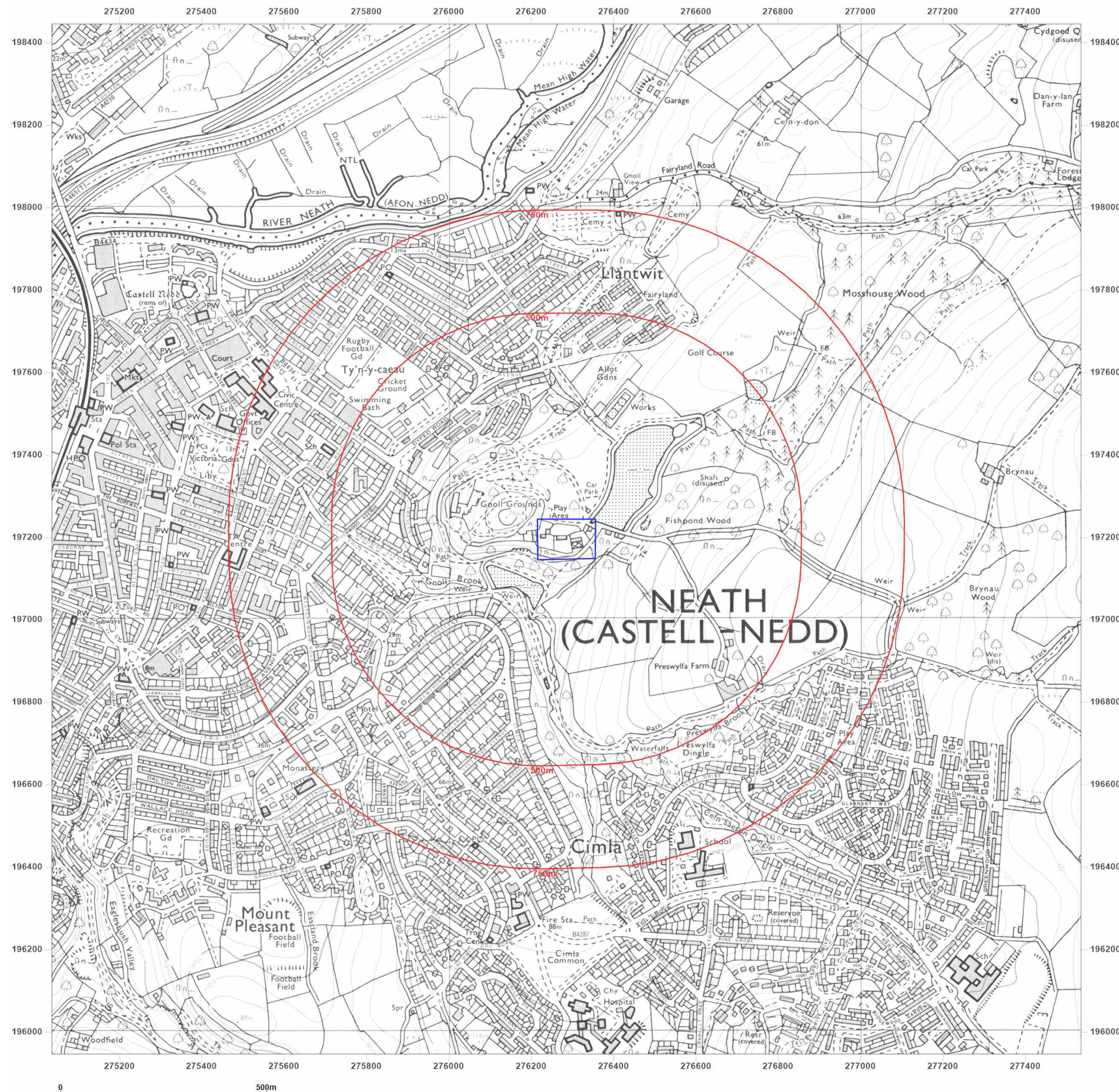


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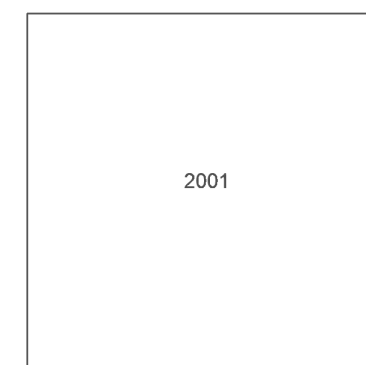
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Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



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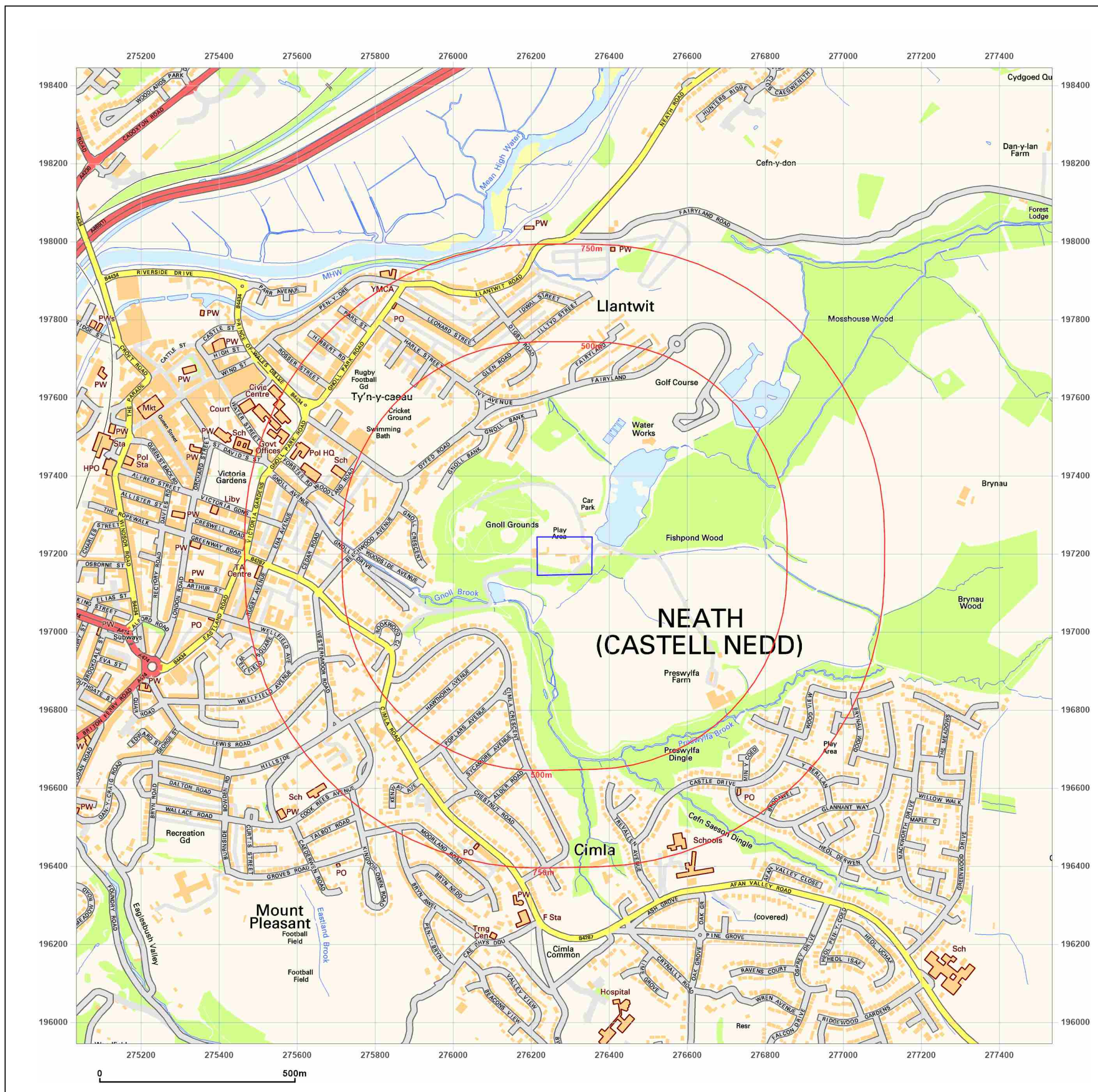


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FAIRYLAND, NEATH, SA11 3EF

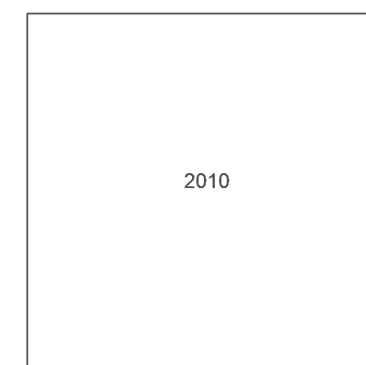
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Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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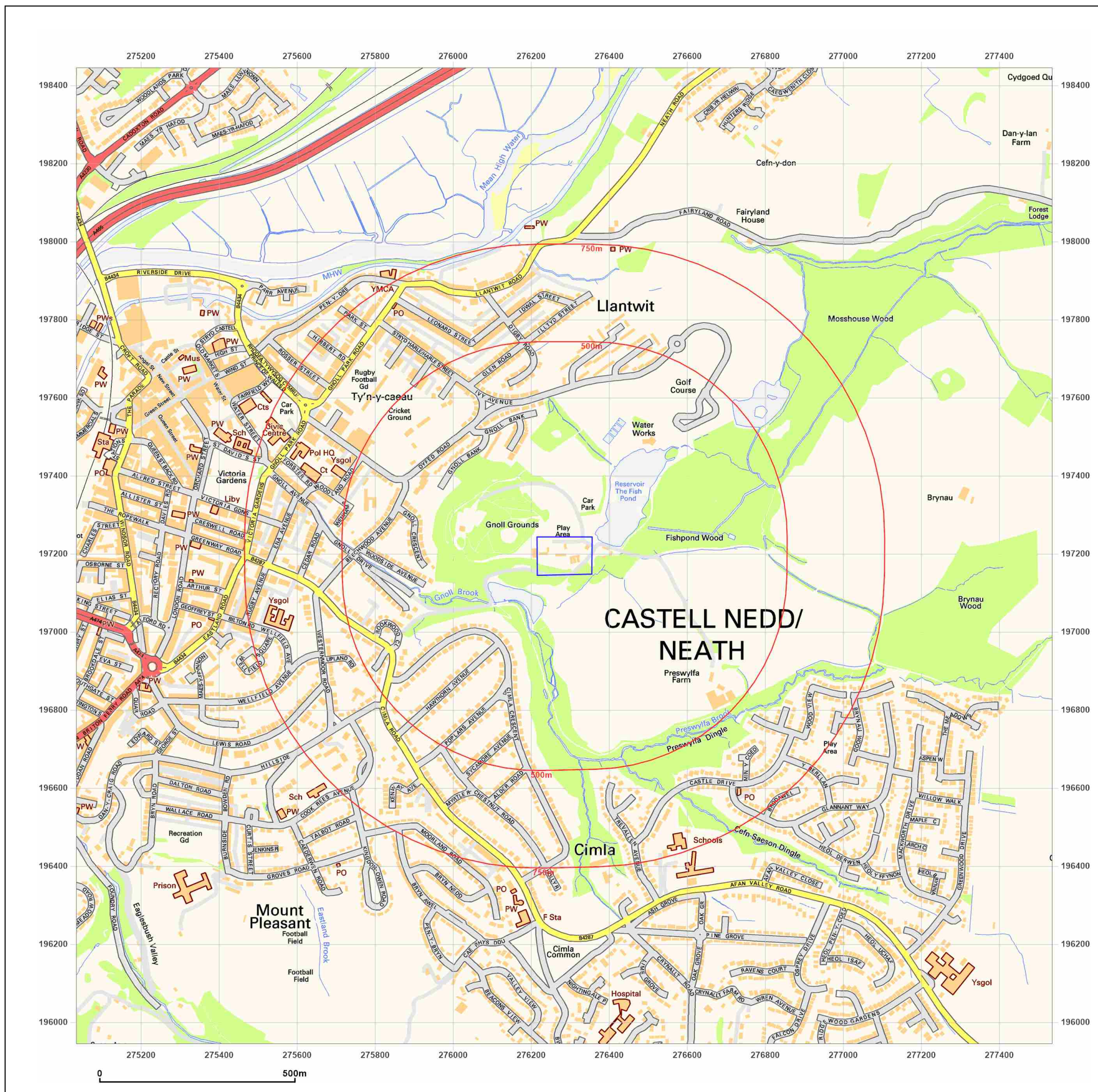


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Site Details:

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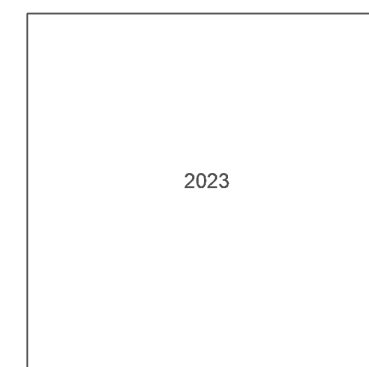
Client Ref: 8603_Gnoll_Country_Park_W_PO11528
Report Ref: ESP-FEB-EOT-3EY-P3Q
Grid Ref: 276285, 197195

Map Name: National Grid

Map date: 2023

Scale: 1:10,000

Printed at: 1:10,000



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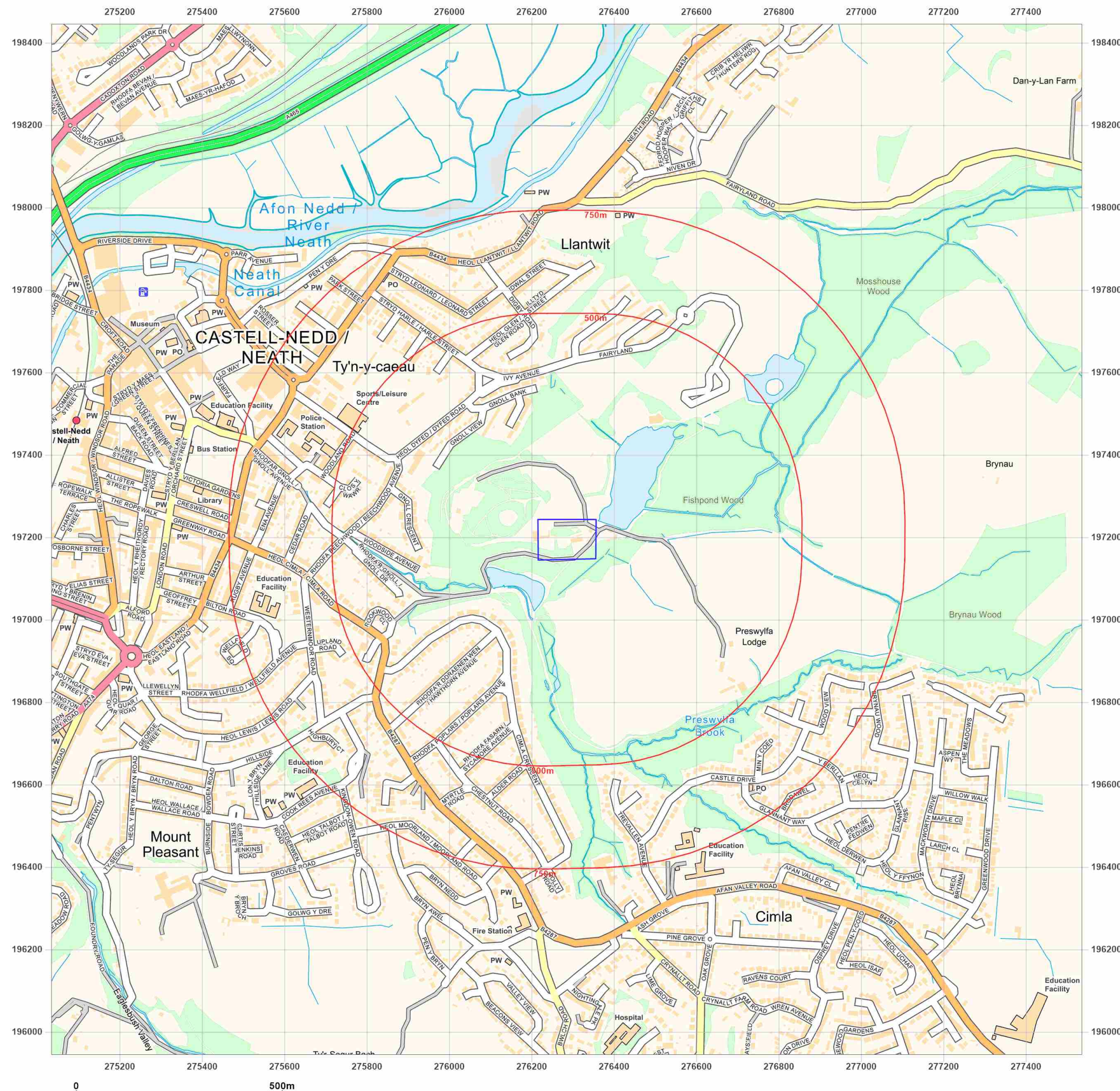


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APPENDIX A2 Extracts from Historical Maps, Site B

Site Details:

GNOLL COUNTRY PARK
(EASTERN DEVELOPMENT),
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

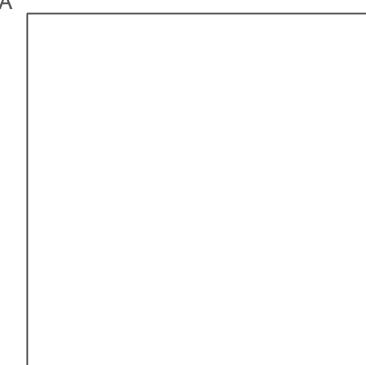
Map date: 1877

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A



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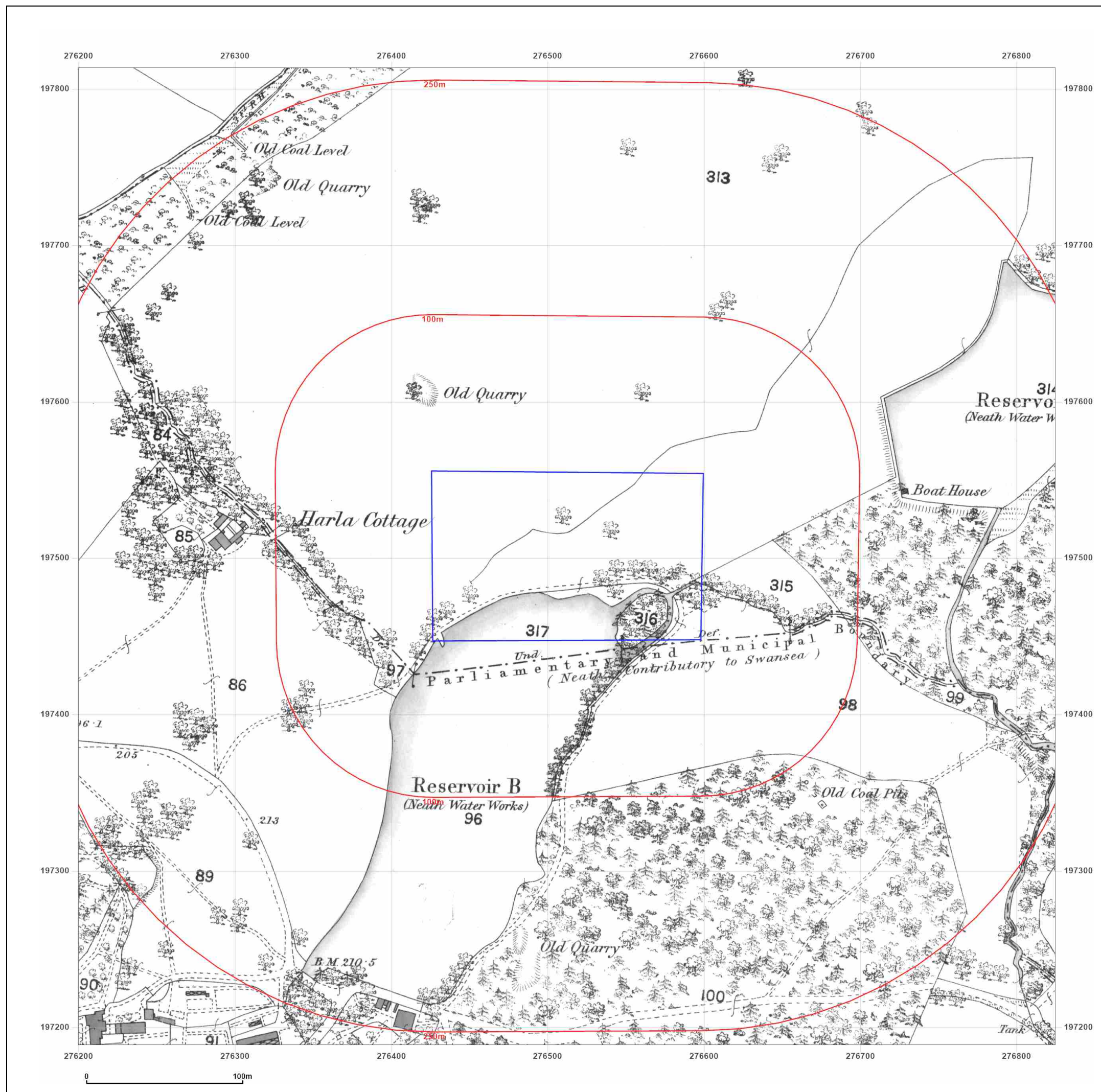


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Production date: 10 May 2023

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Site Details:

GNOLL COUNTRY PARK
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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

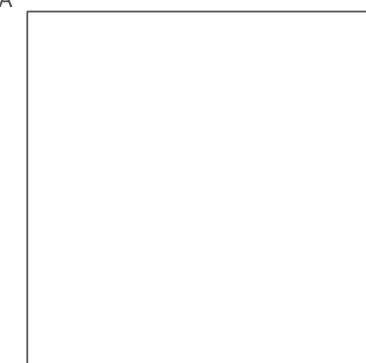
Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A



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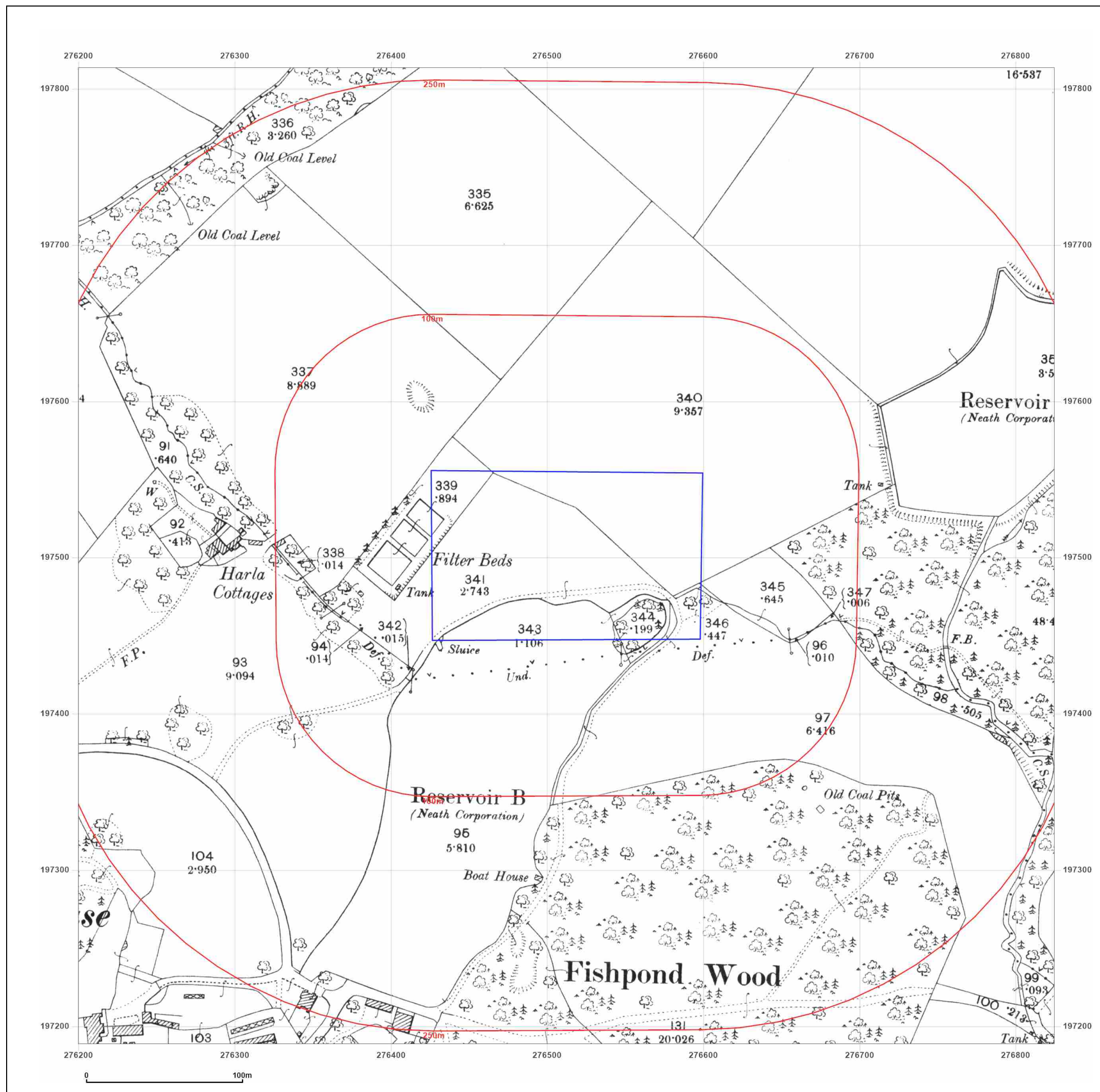


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Site Details:

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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

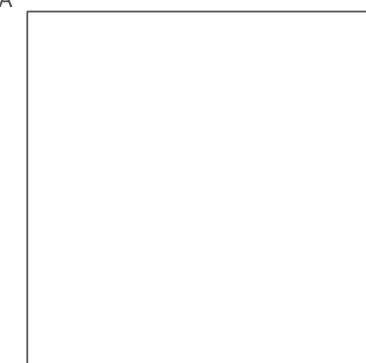
Map date: 1919

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1919
Revised 1919
Edition N/A
Copyright N/A
Levelled N/A



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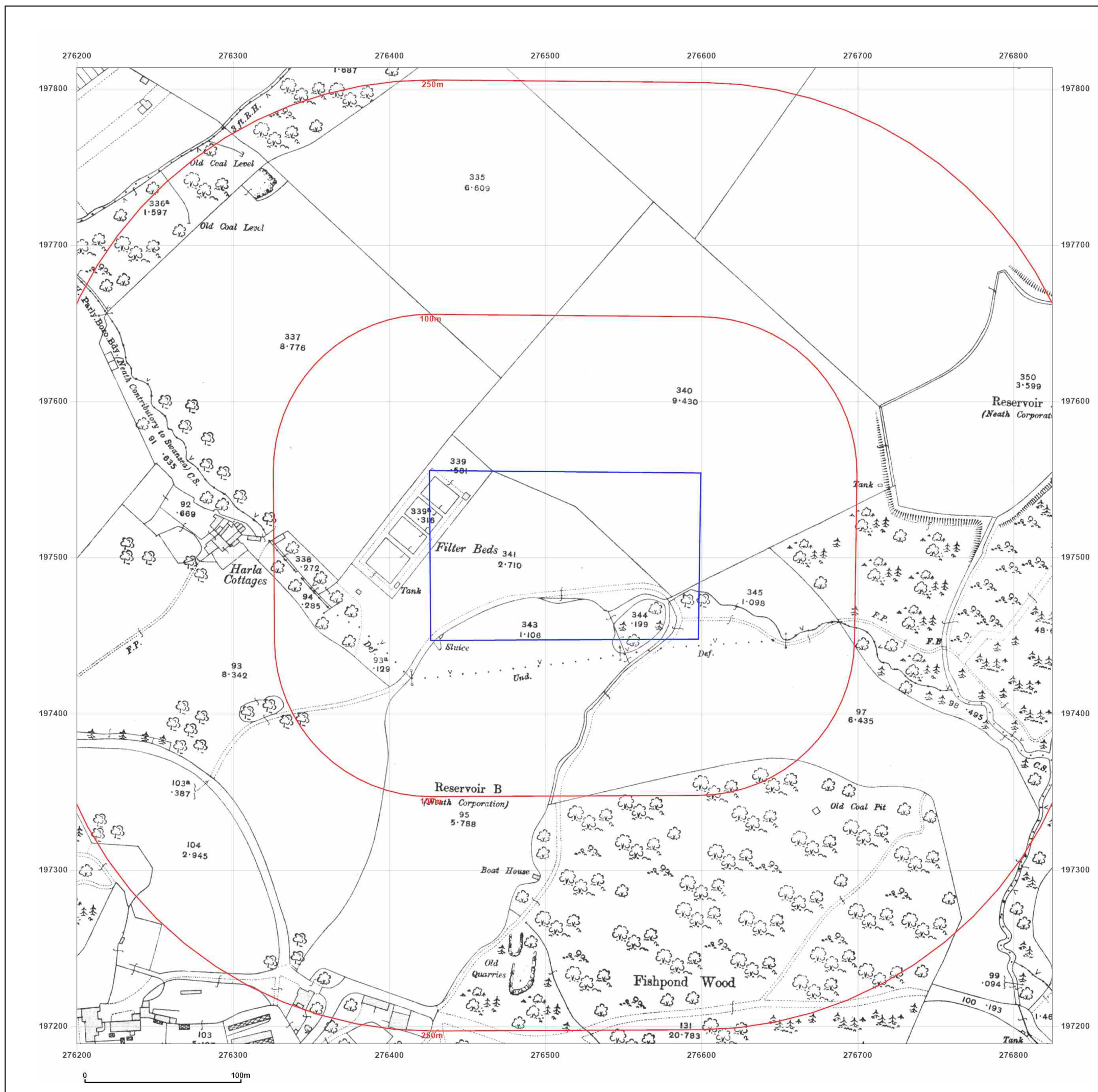


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ENGINEERS
GEOLOGISTS
SCIENTISTS

Site Details:

GNOLL COUNTRY PARK
(EASTERN DEVELOPMENT),
FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

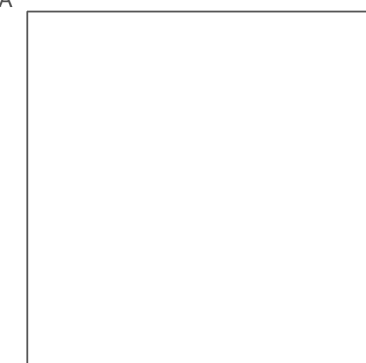
Map date: 1935

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1935
Revised 1935
Edition N/A
Copyright N/A
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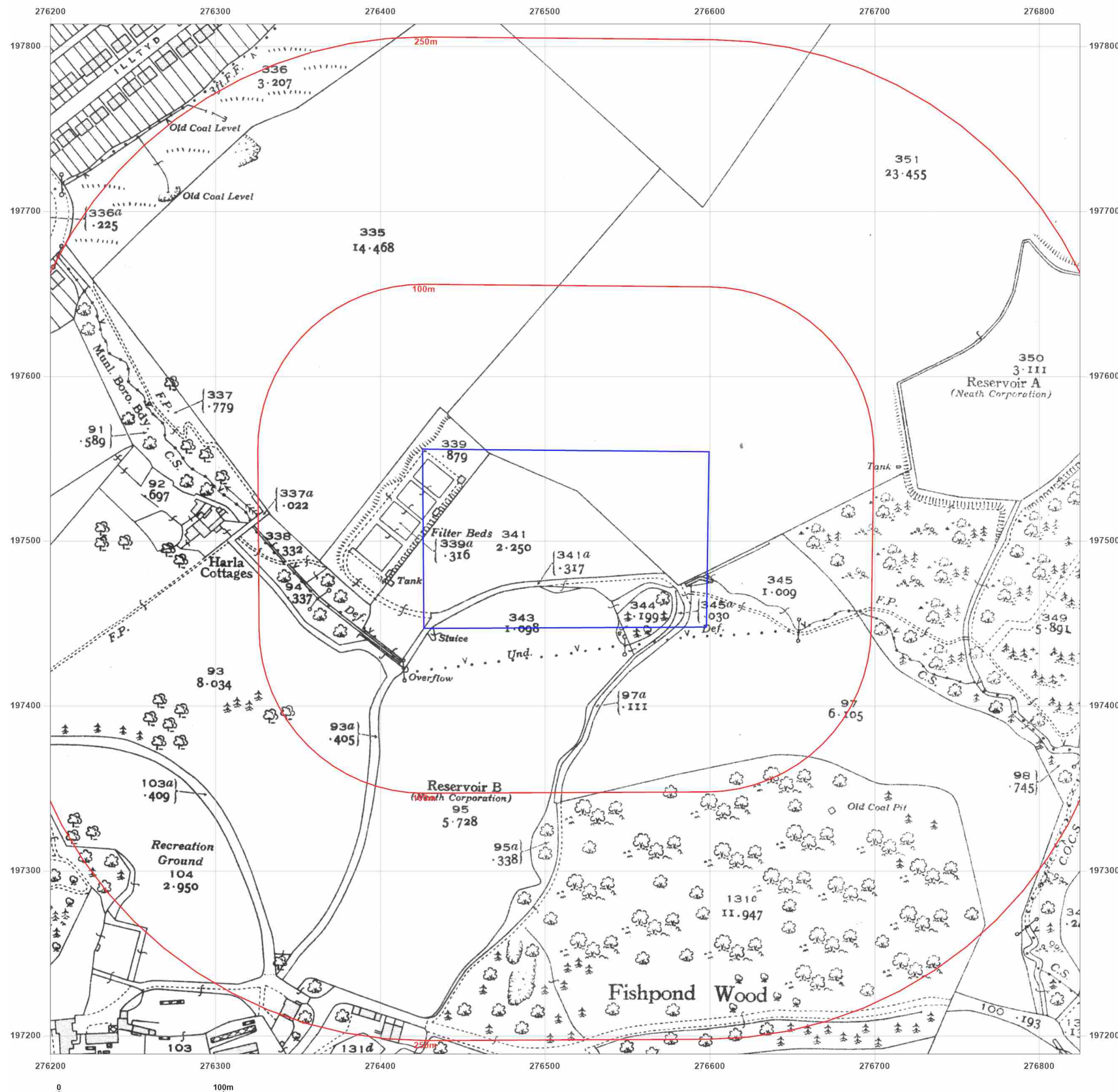


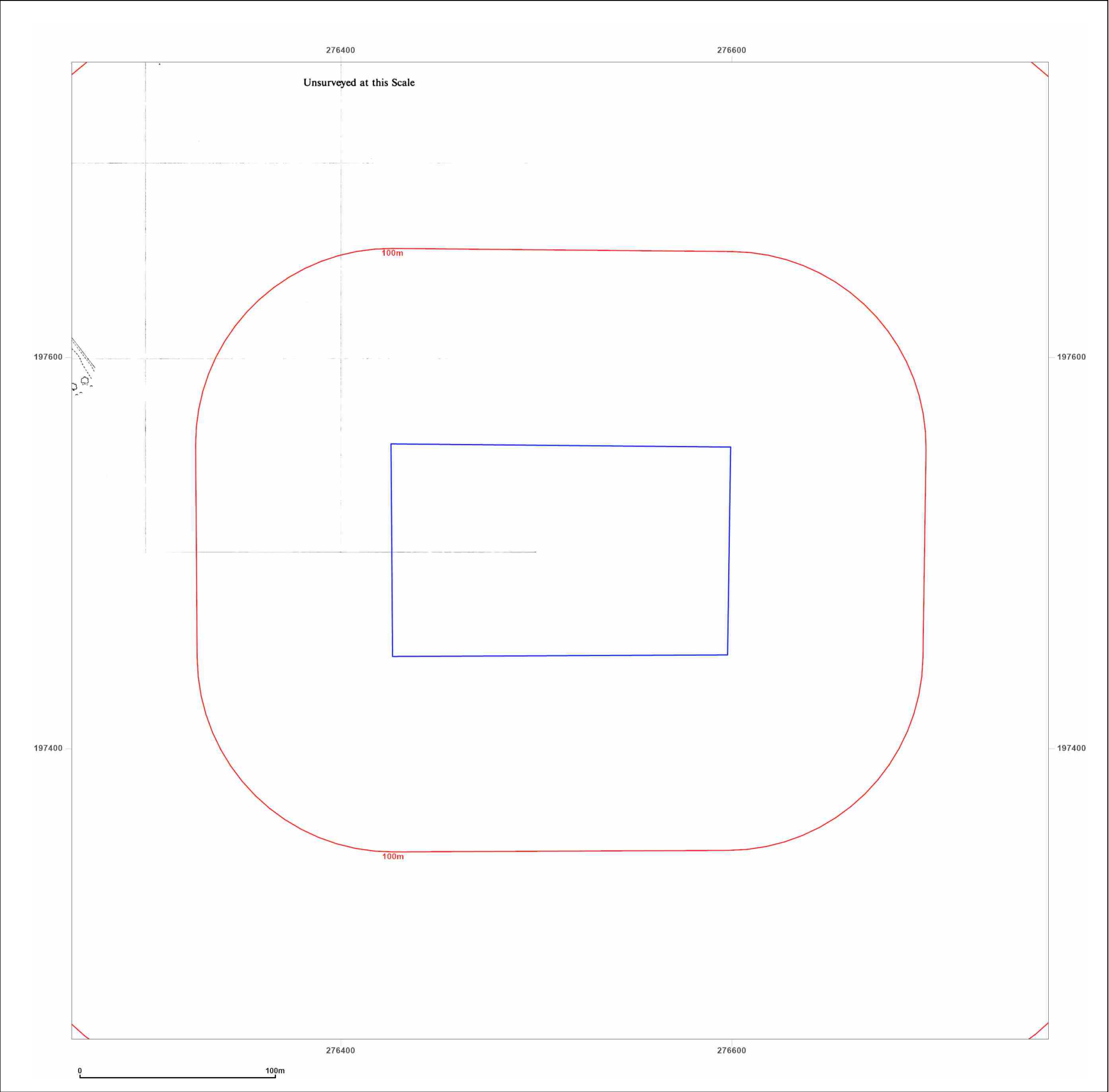
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Site Details:

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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

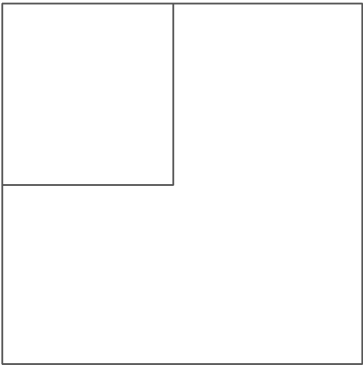
Map date: 1949

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1949
Revised N/A
Edition N/A
Copyright N/A
Levelled 1948



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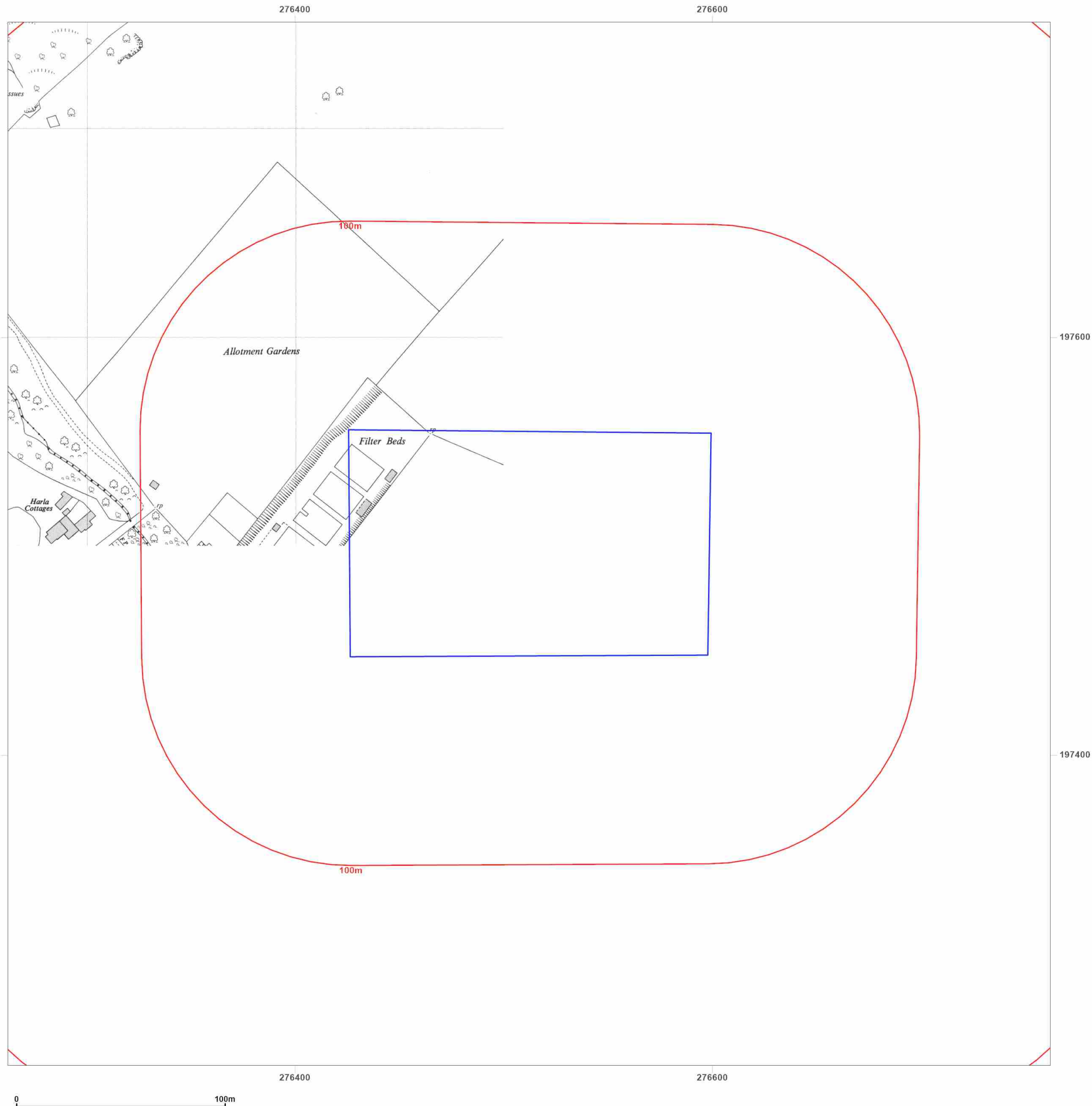


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Site Details:

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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

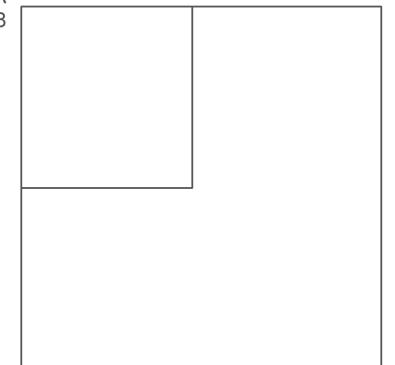
Map date: 1956

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1948



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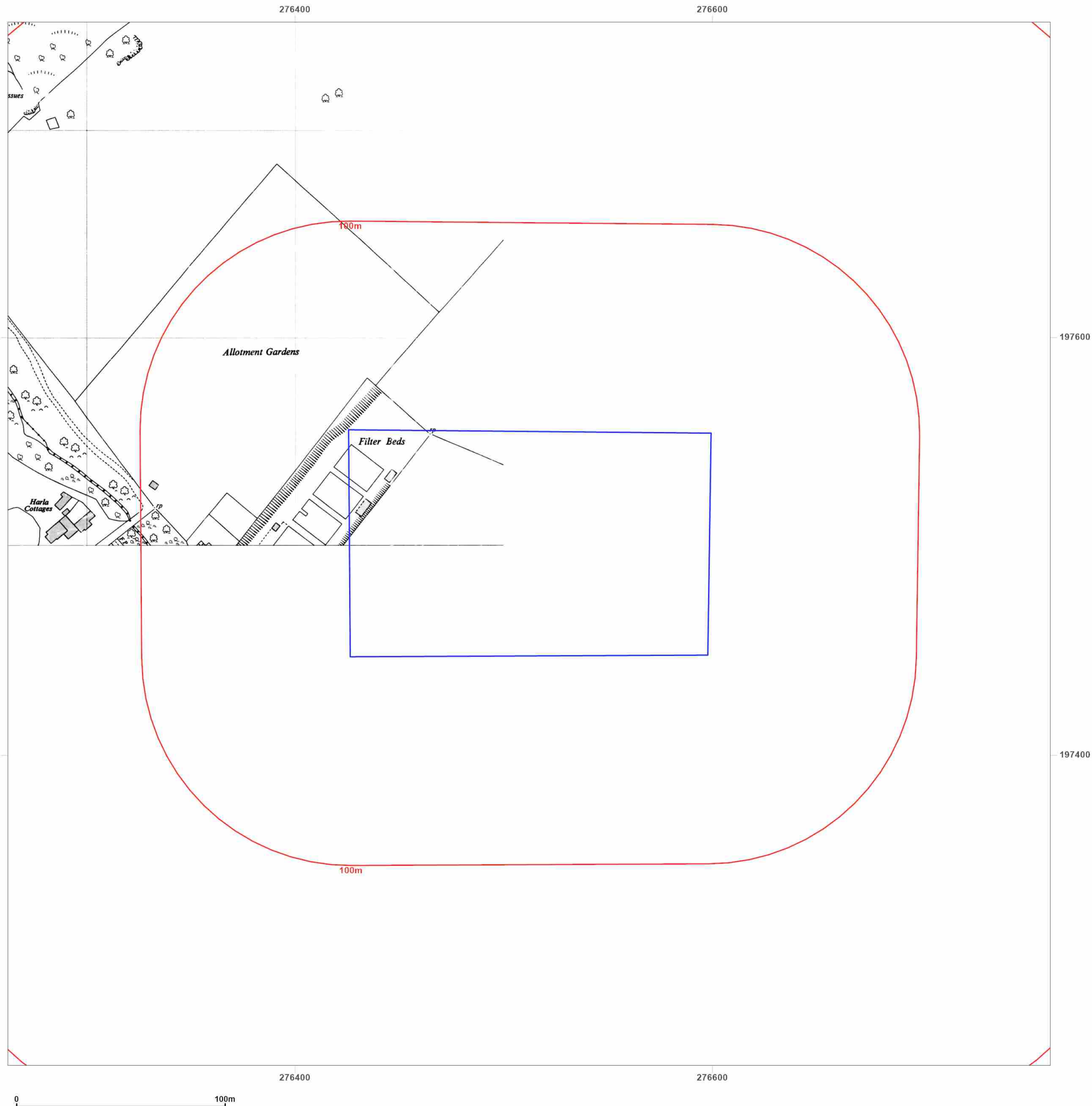


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Site Details:

GNOLL COUNTRY PARK
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FAIRYLAND, NEATH, SA11 3EF

Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

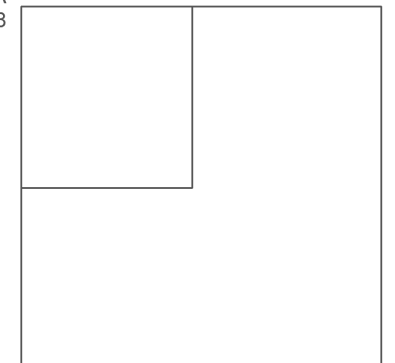
Map date: 1957

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1948



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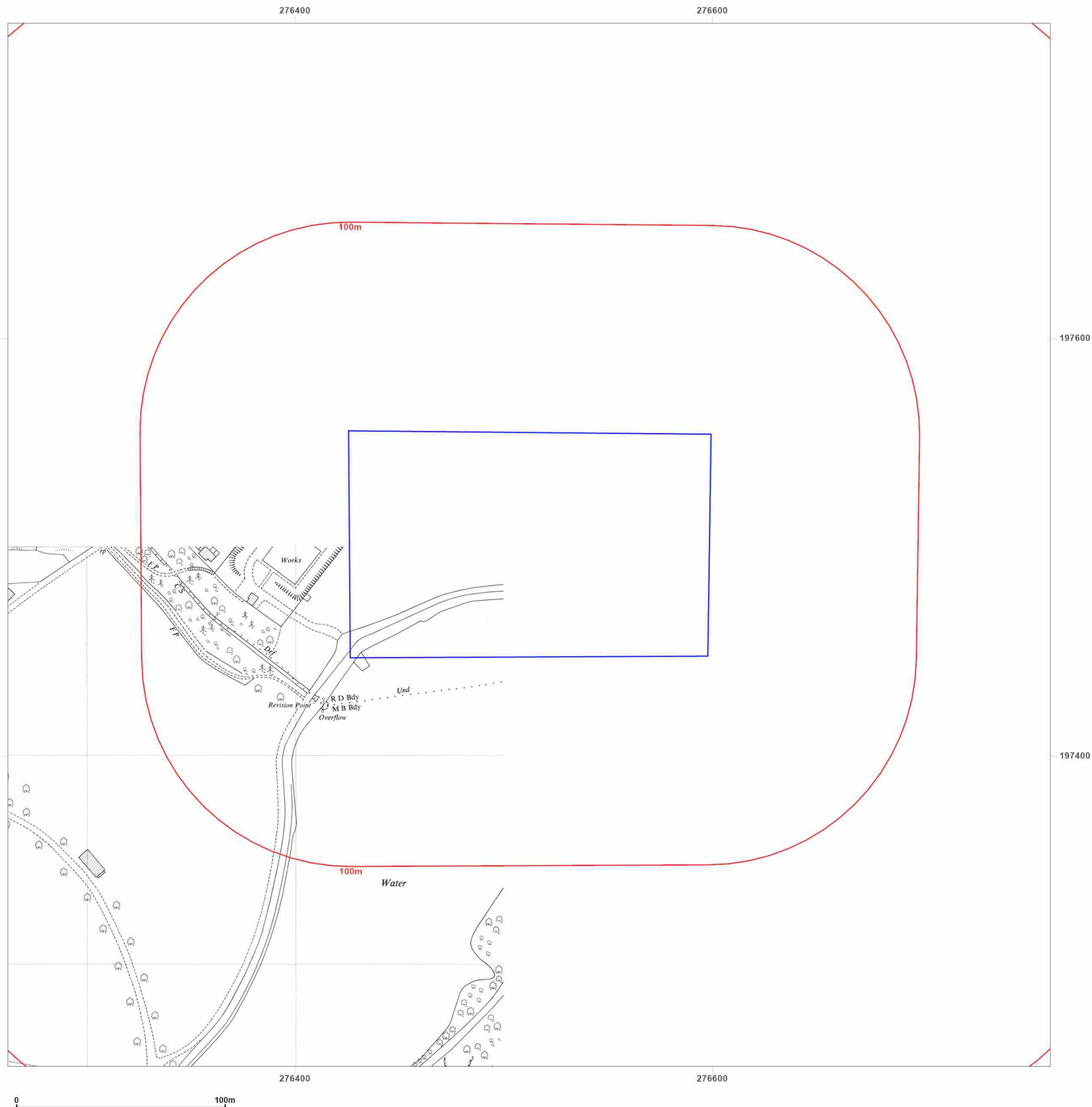


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

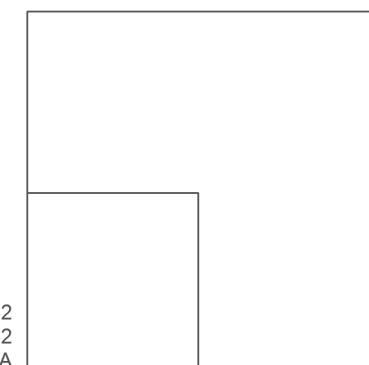
Map date: 1963

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1962
Revised 1962
Edition N/A
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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1964
Edition 1965
Copyright 1965
Levelled 1964



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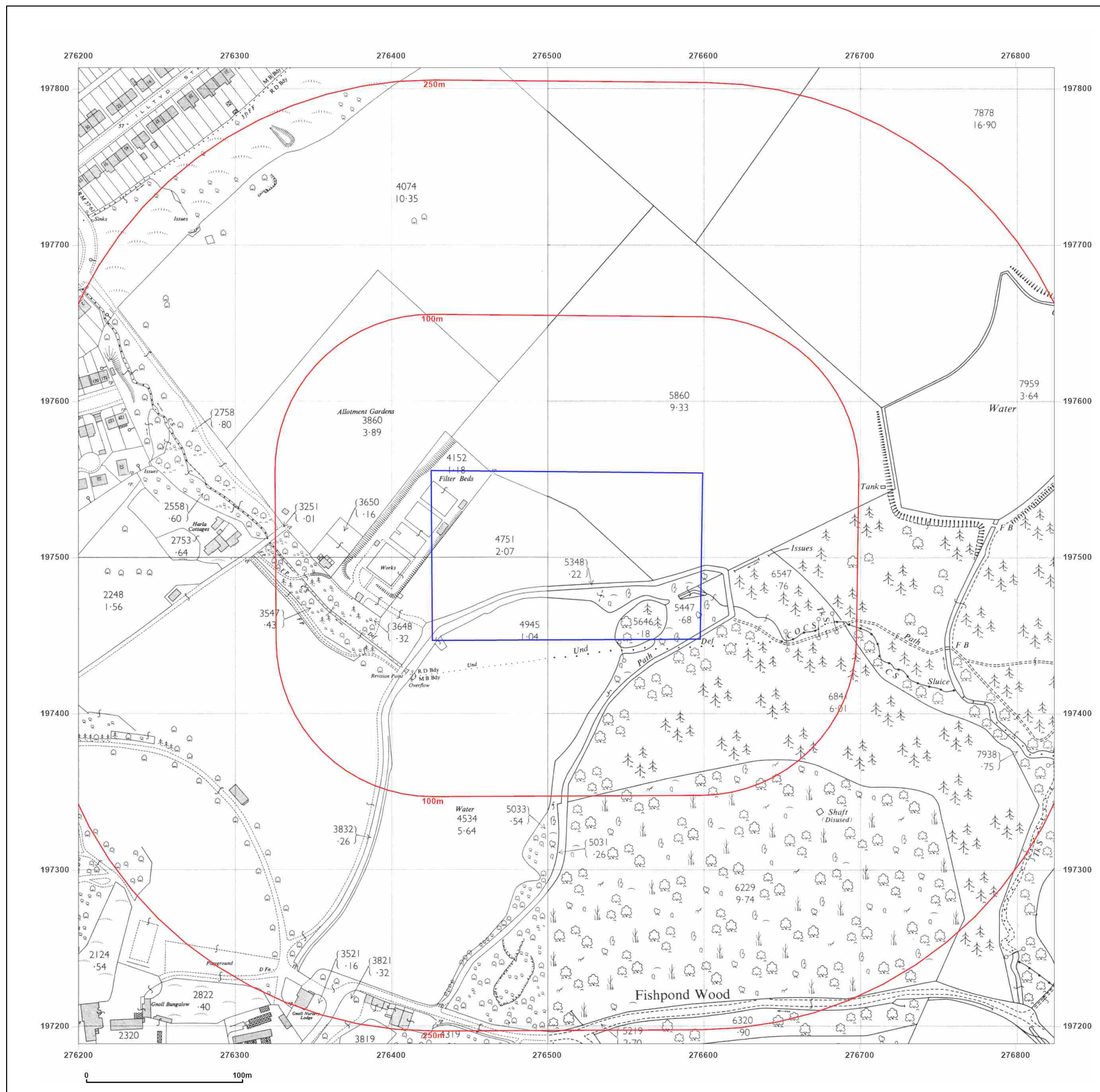


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Site Details:

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FAIRYLAND, NEATH, SA11 3EF

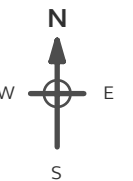
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Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1974-1976

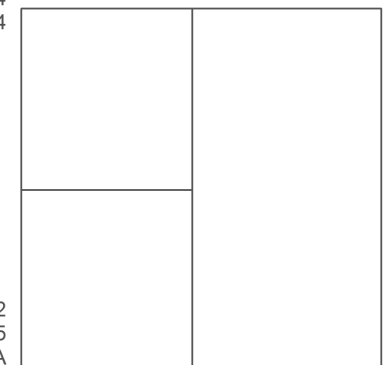
Scale: 1:1,250

Printed at: 1:2,000



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Revised 1974
Edition N/A
Copyright 1974
Levelled 1964

Surveyed 1962
Revised 1975
Edition N/A
Copyright 1976
Levelled 1964



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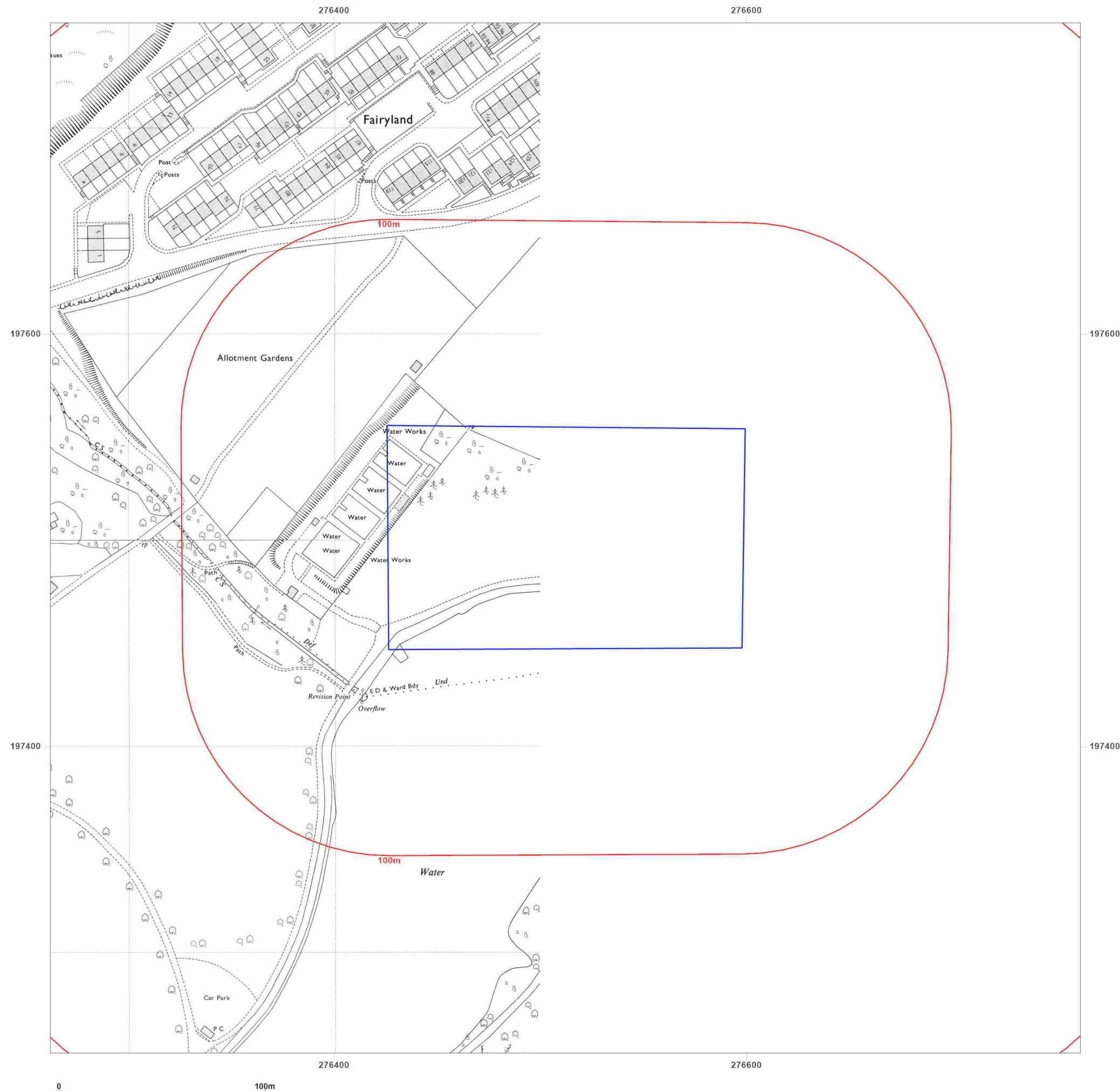


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GEOLOGISTS
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Site Details:

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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1987

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
Edition N/A
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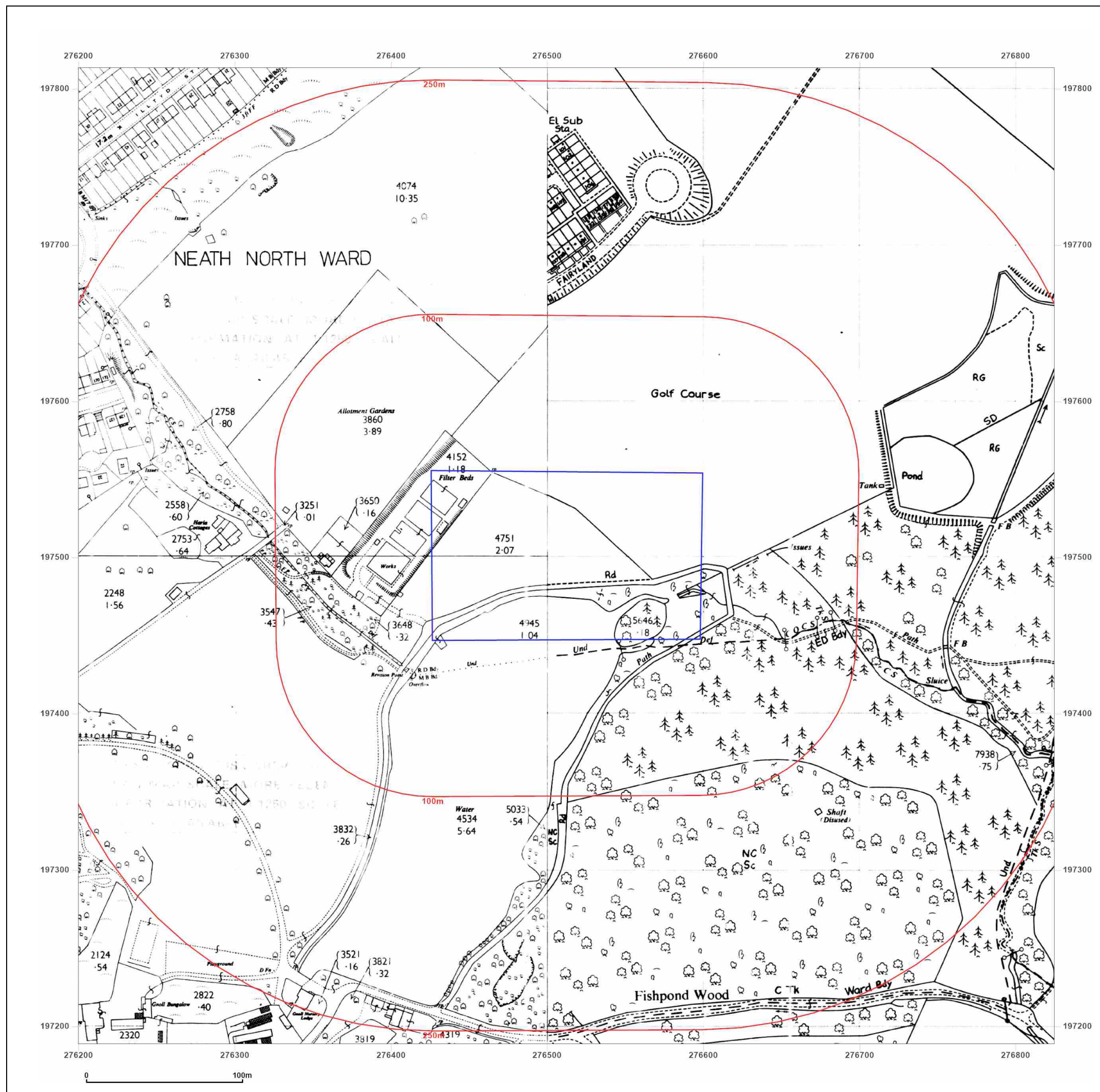


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1989-1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1989
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
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Surveyed 1993
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Edition N/A
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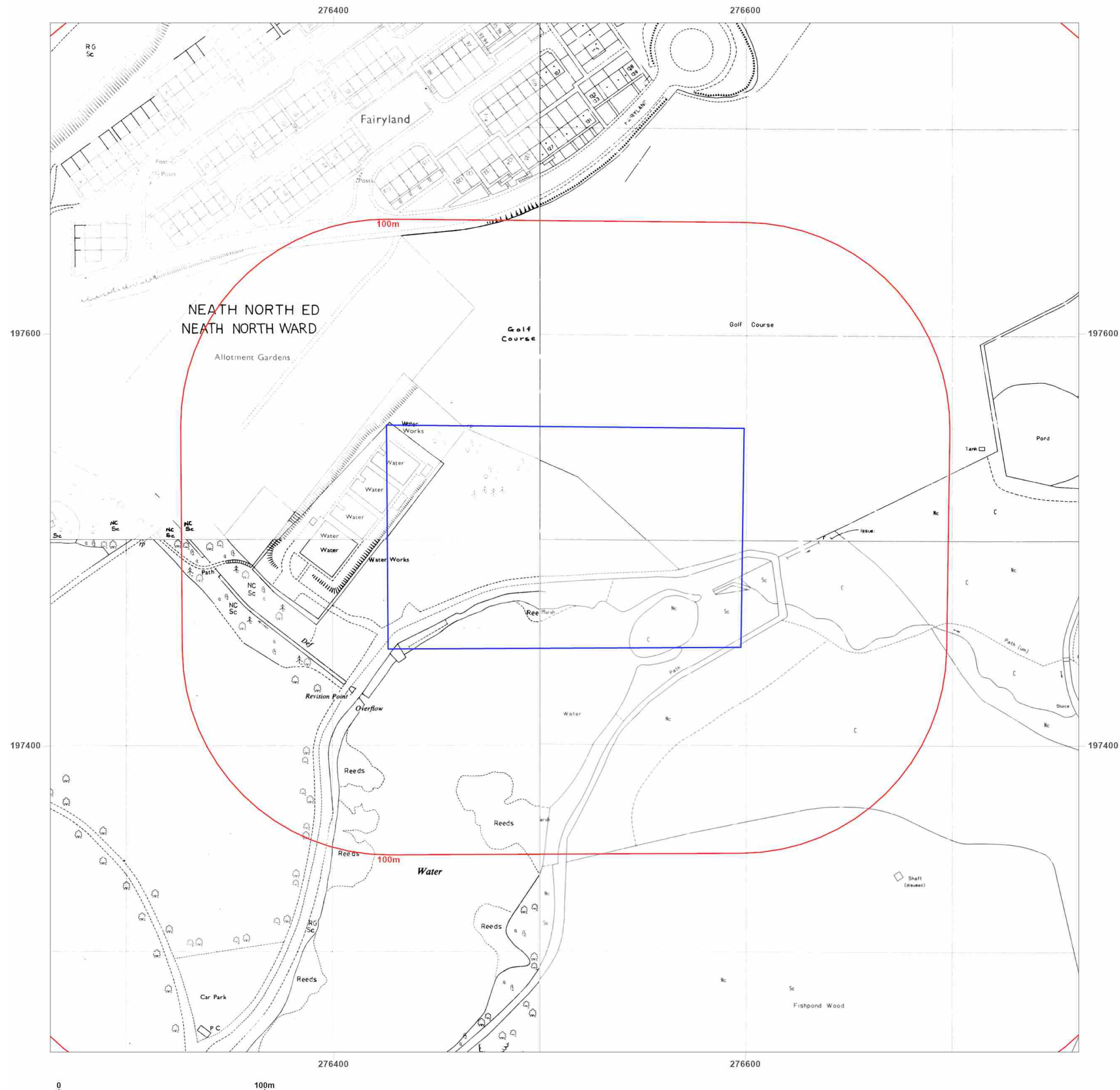


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1989-1993

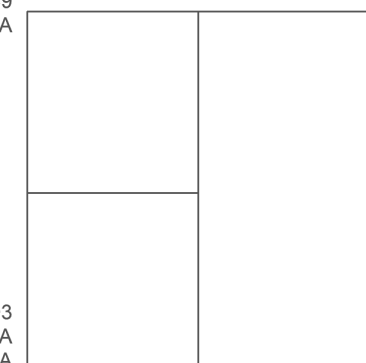
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Edition N/A
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Surveyed 1993
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Edition N/A
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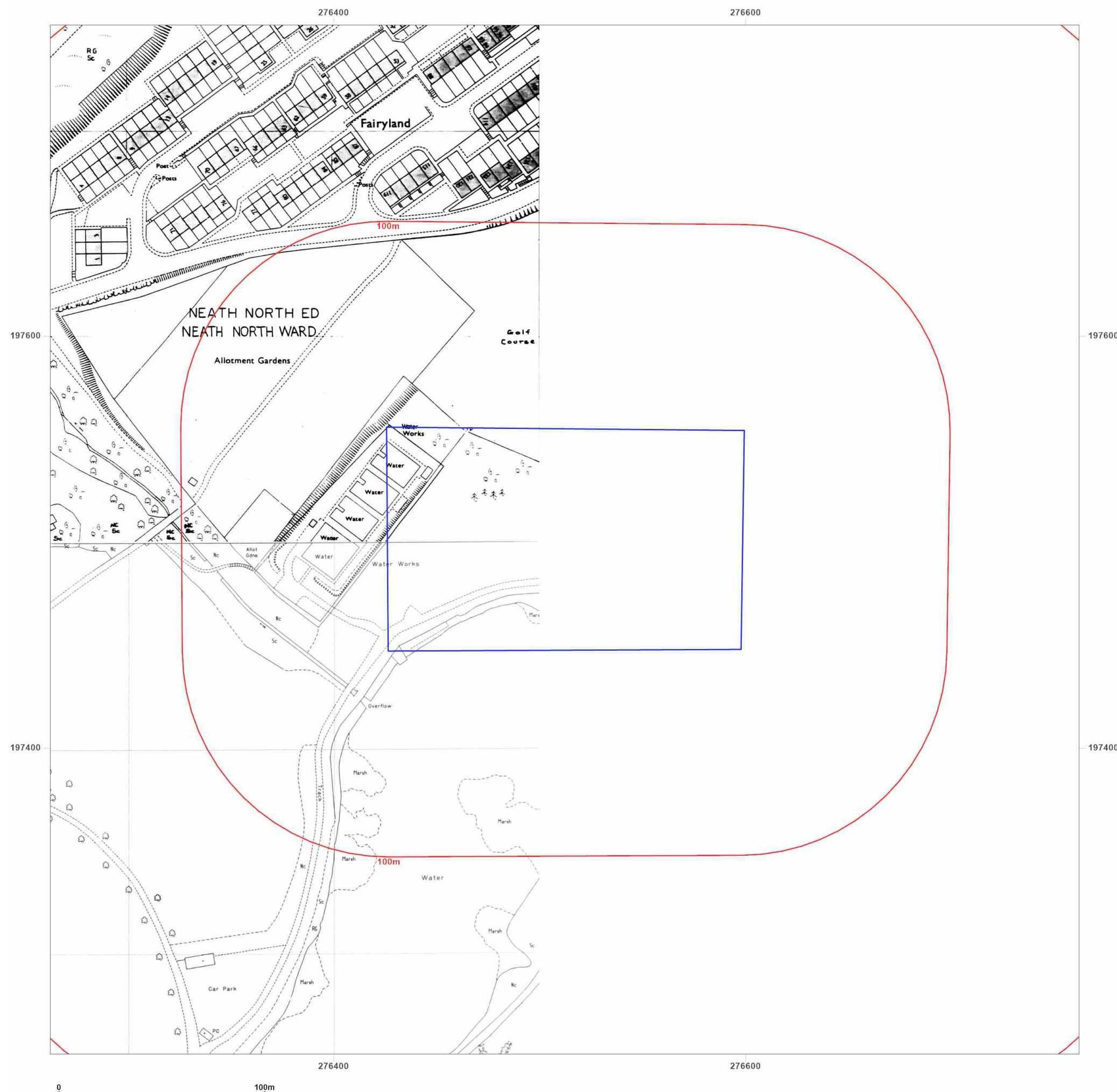


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1993-1995

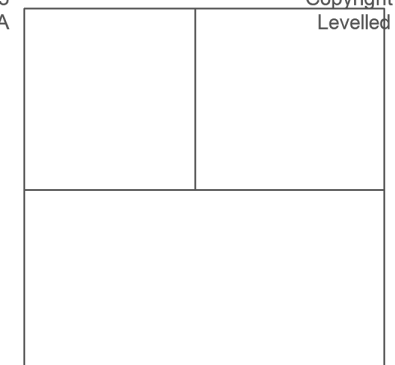
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Printed at: 1:2,000



Surveyed 1993
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Surveyed N/A
Revised N/A
Edition N/A
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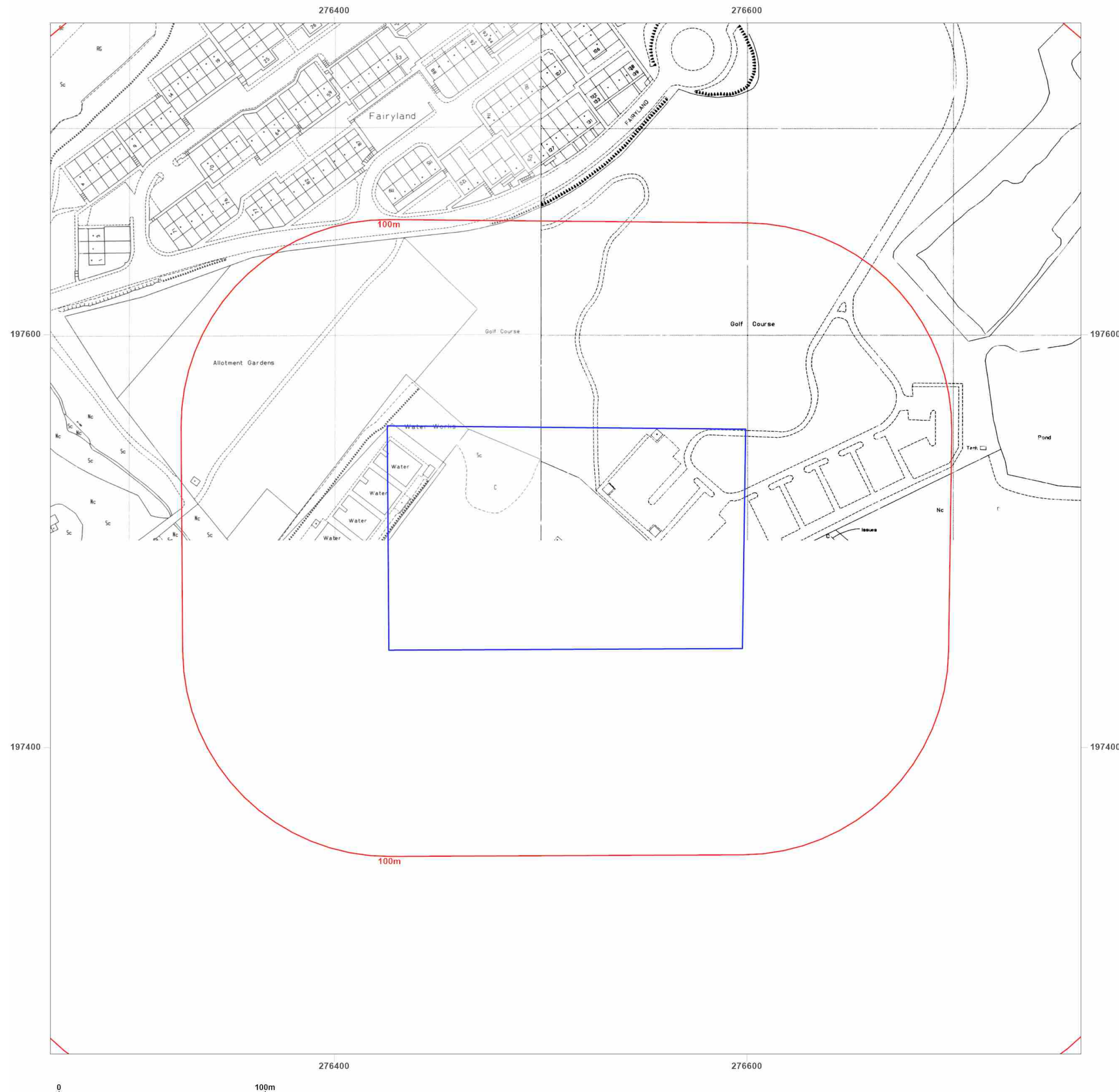


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1995
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Edition N/A
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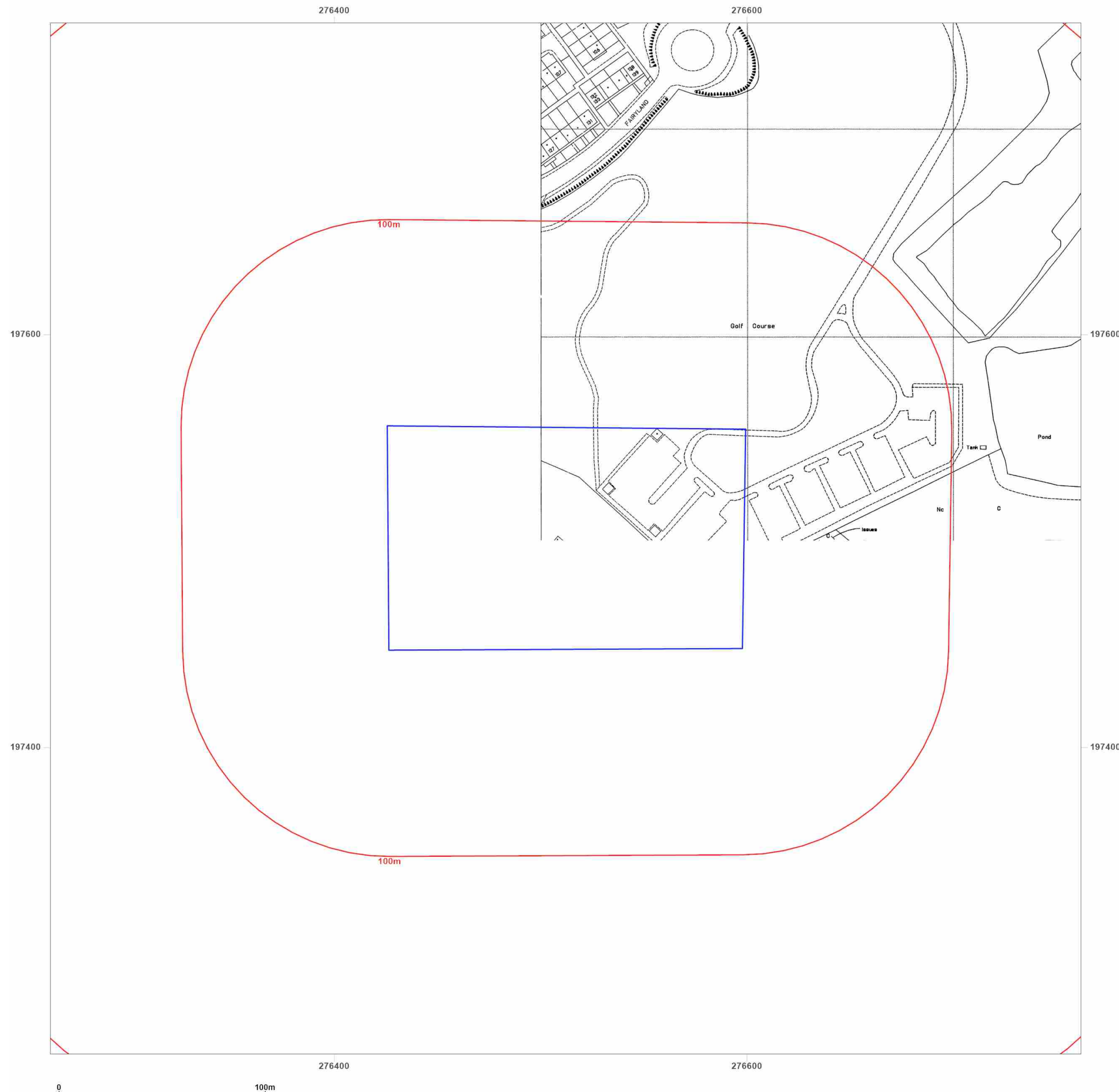


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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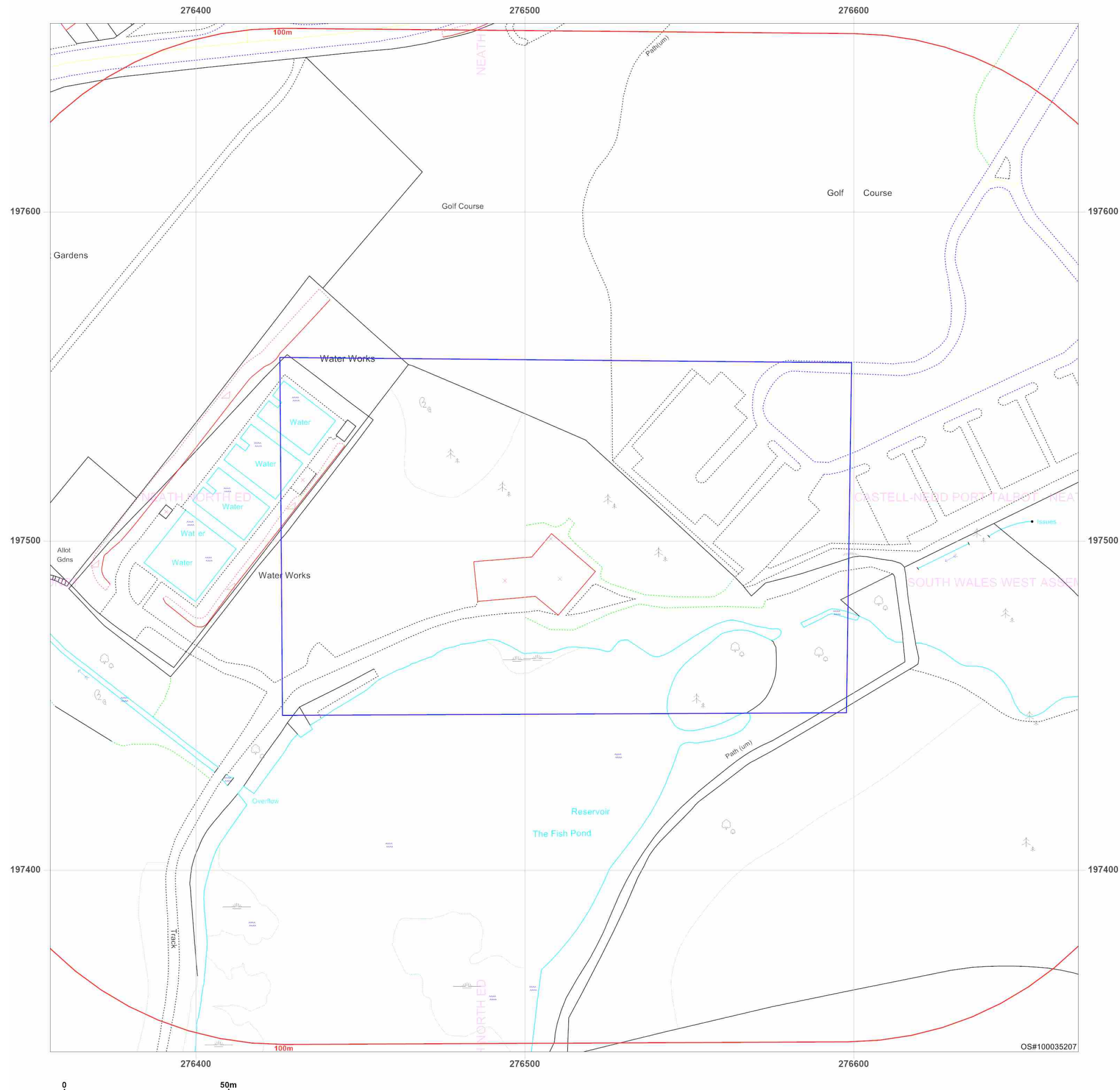


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1877

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1877
Edition N/A
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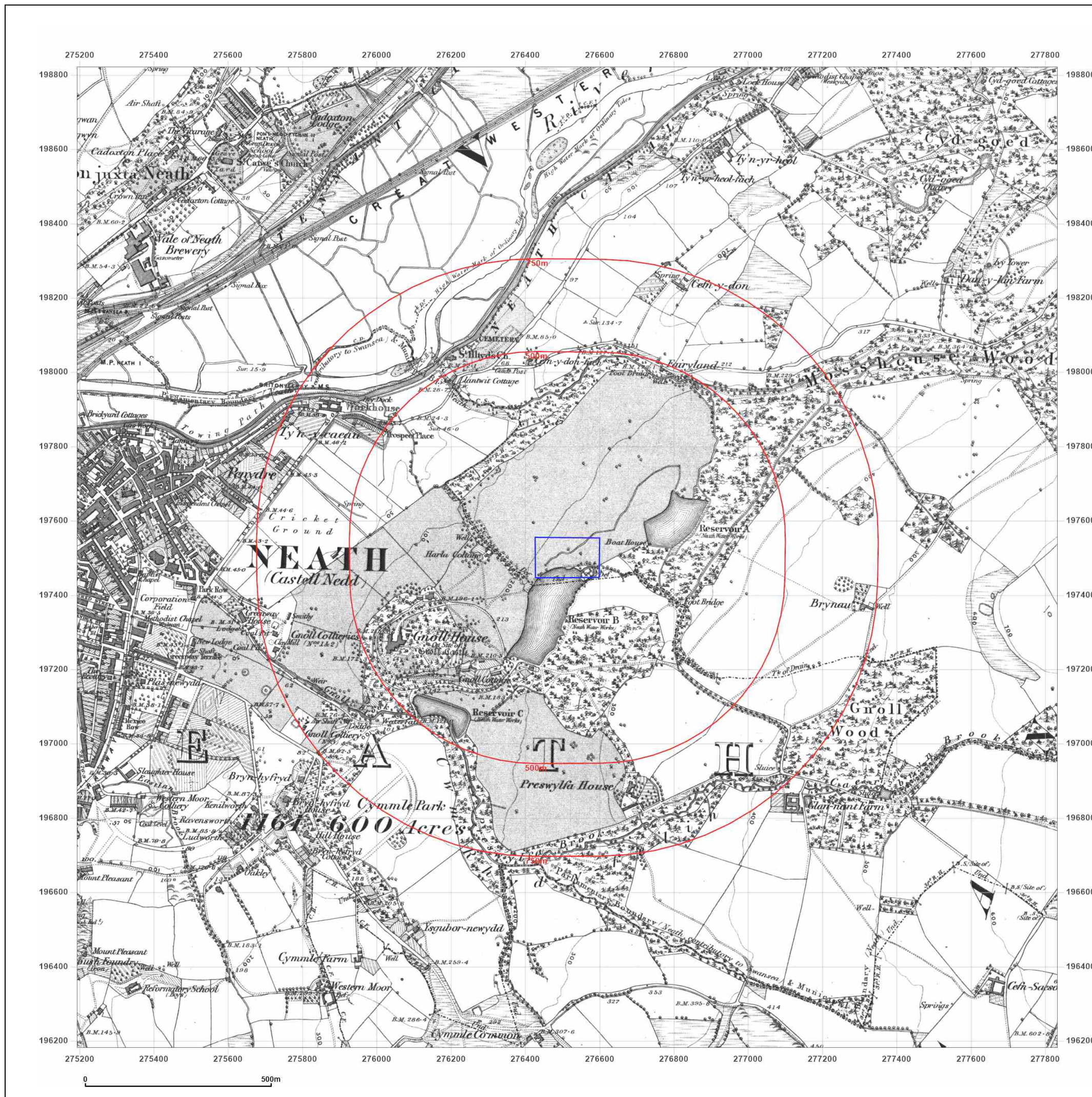


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Production date: 10 May 2023

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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1897

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1897
Edition N/A
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Levelled N/A

Surveyed 1877
Revised 1897
Edition N/A
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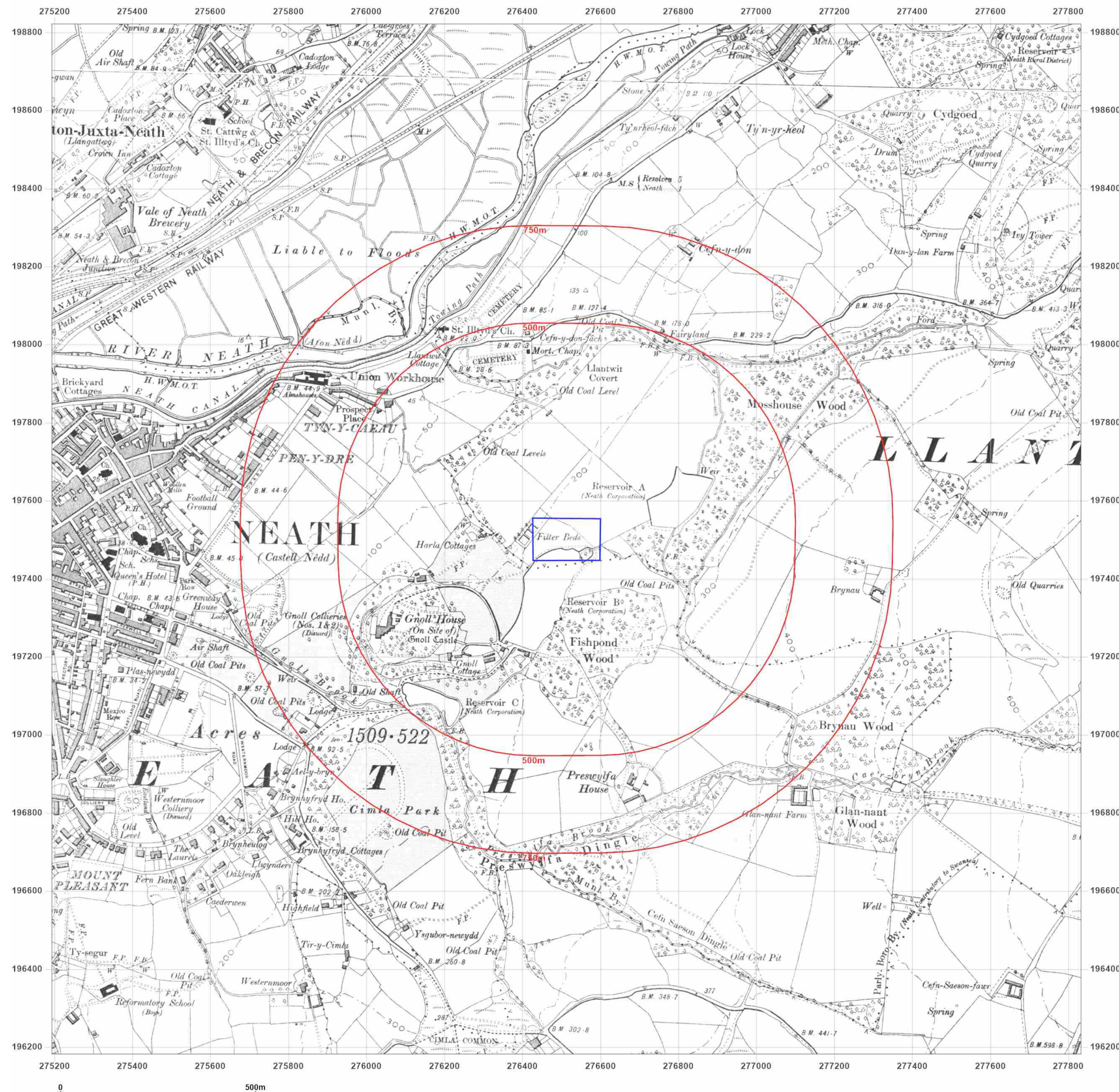


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1914

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1875
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1914
Edition N/A
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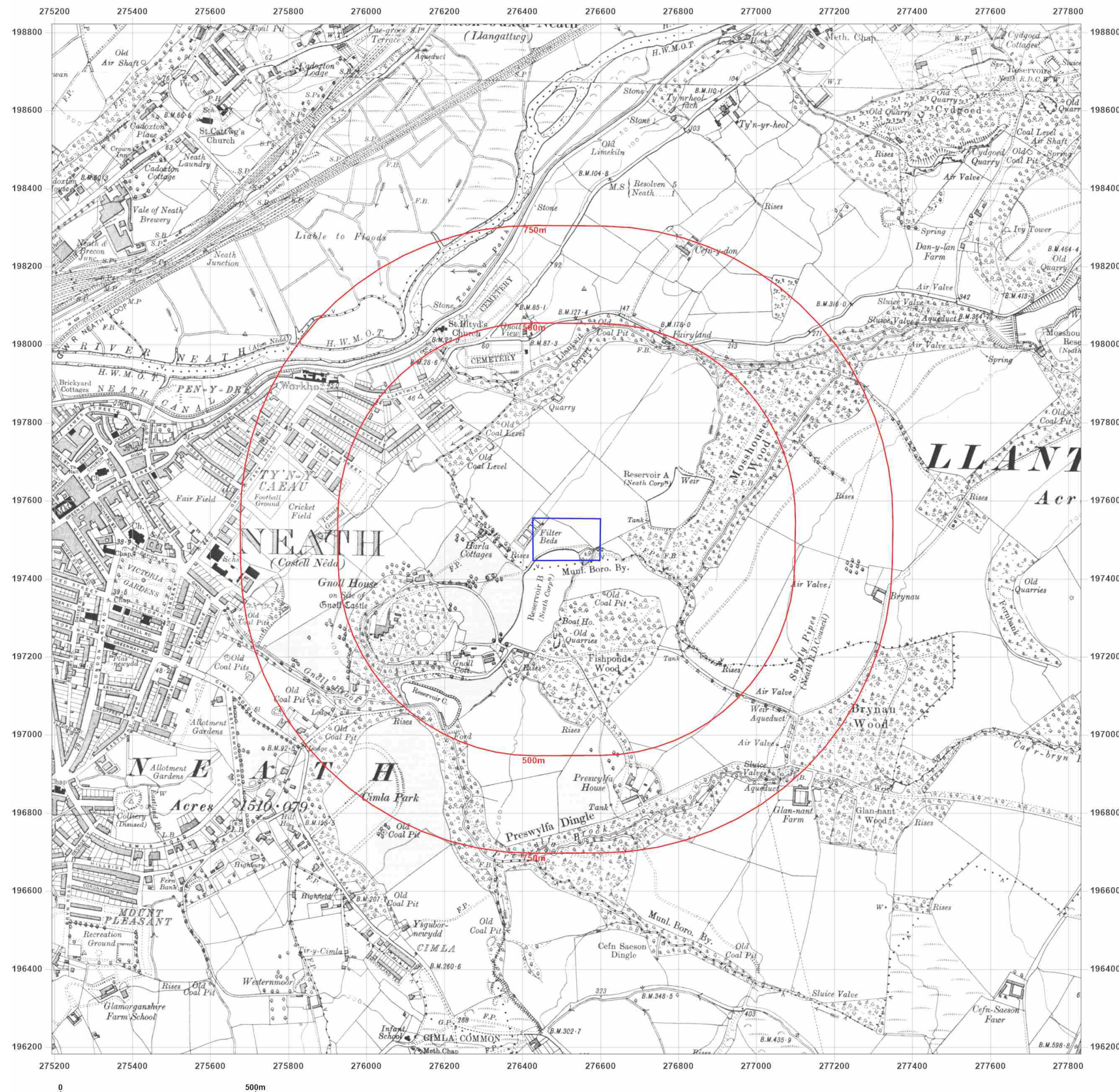


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1921

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1921
Edition N/A
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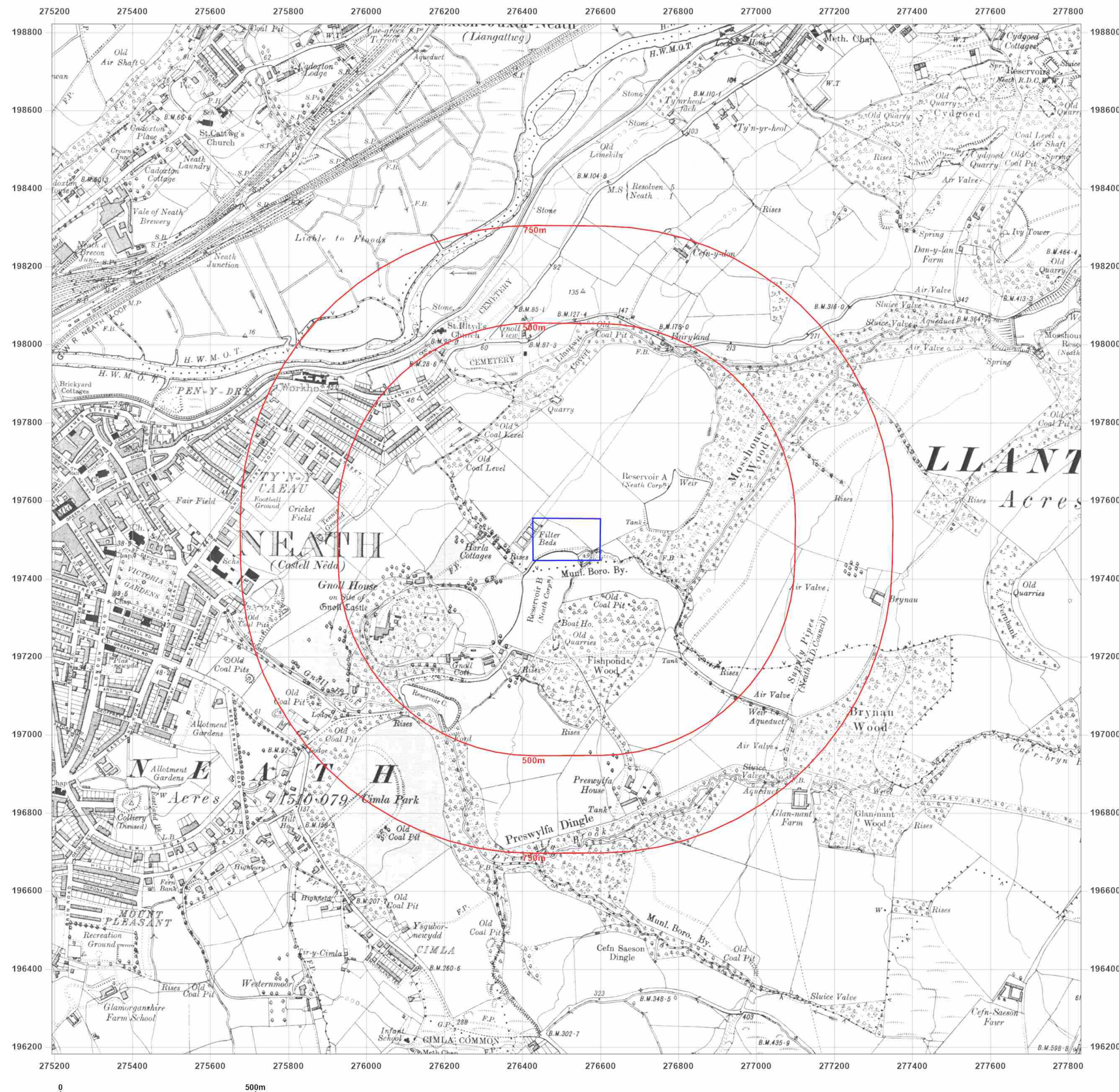


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1935-1936

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1875
Revised 1935
Edition N/A
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Surveyed 1876
Revised 1936
Edition N/A
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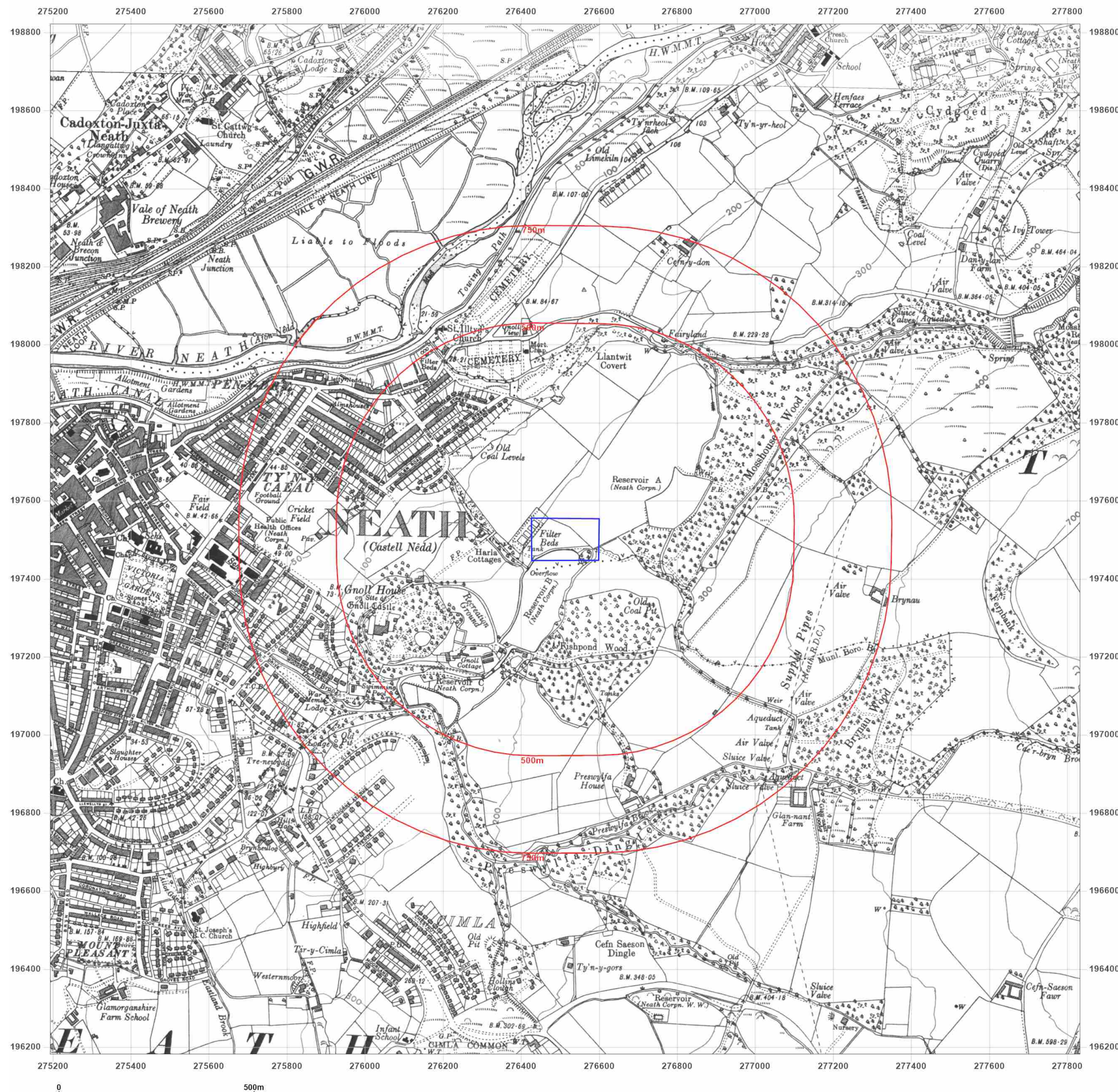


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1938
Edition N/A
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Levelled 1936



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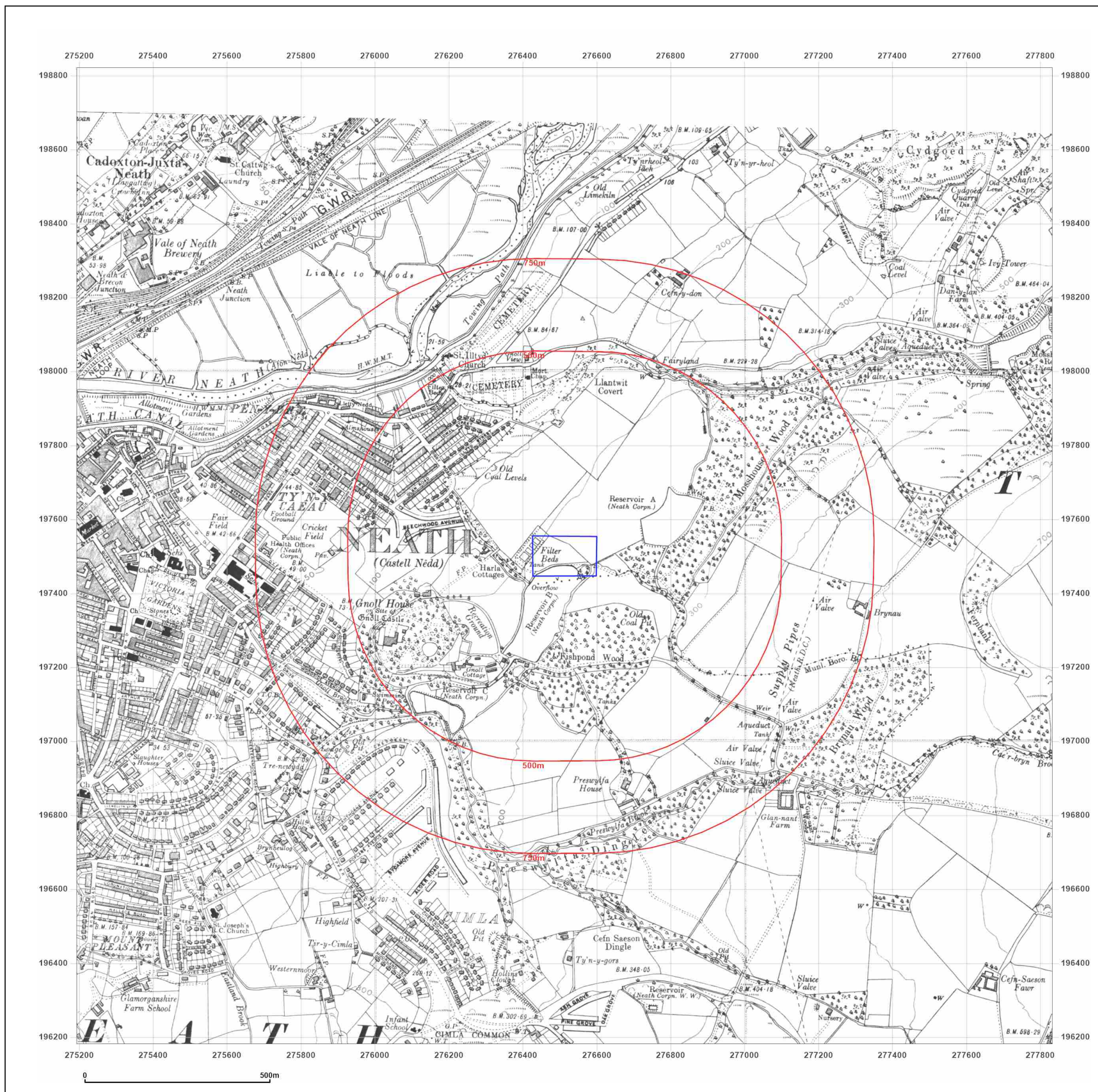


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: County Series

Map date: 1948-1951

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1875
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1948
Edition 1951
Copyright N/A
Levelled 1950



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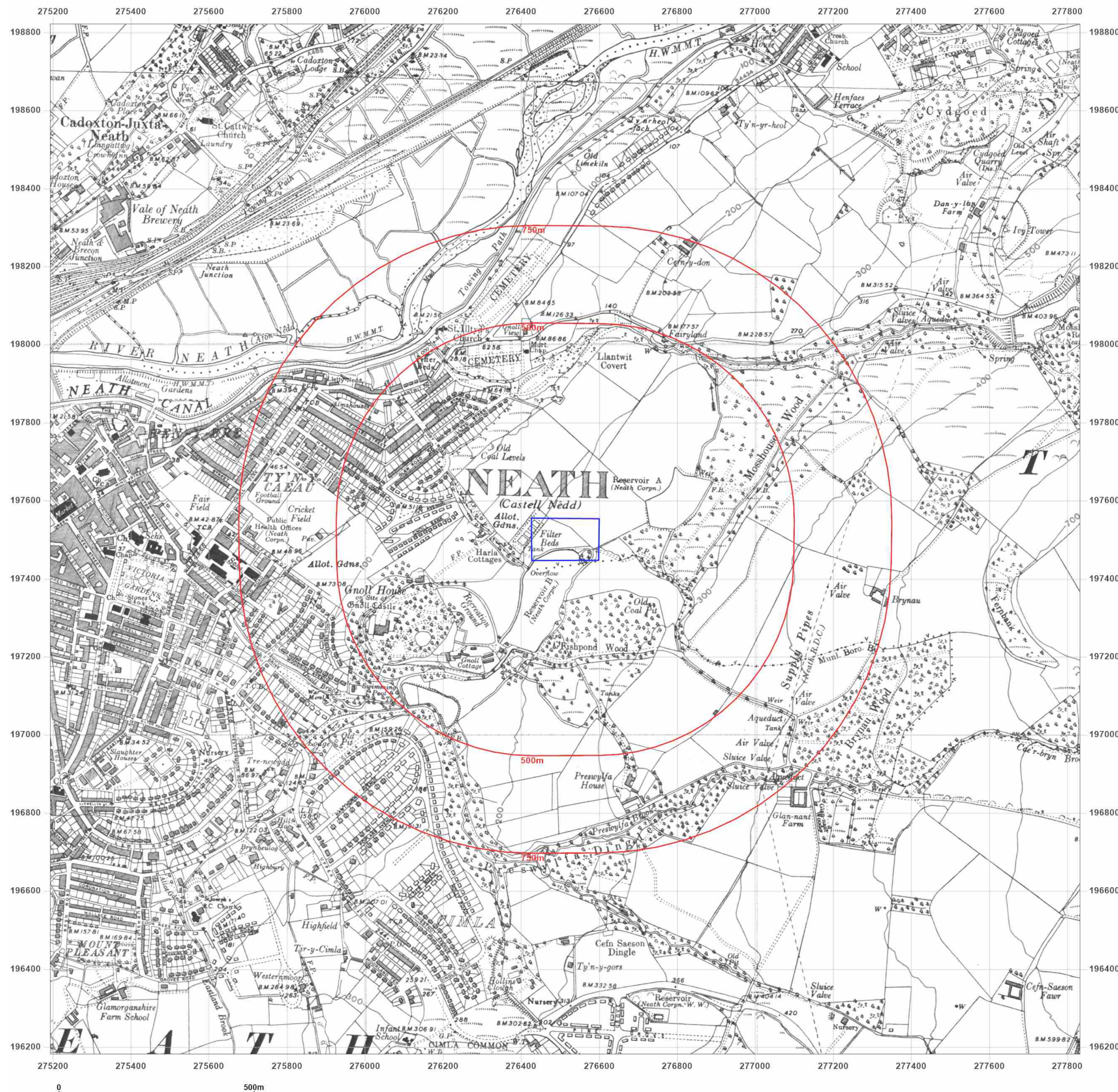


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: Provisional

Map date: 1962

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1962
Revised 1962
Edition N/A
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Levelled N/A



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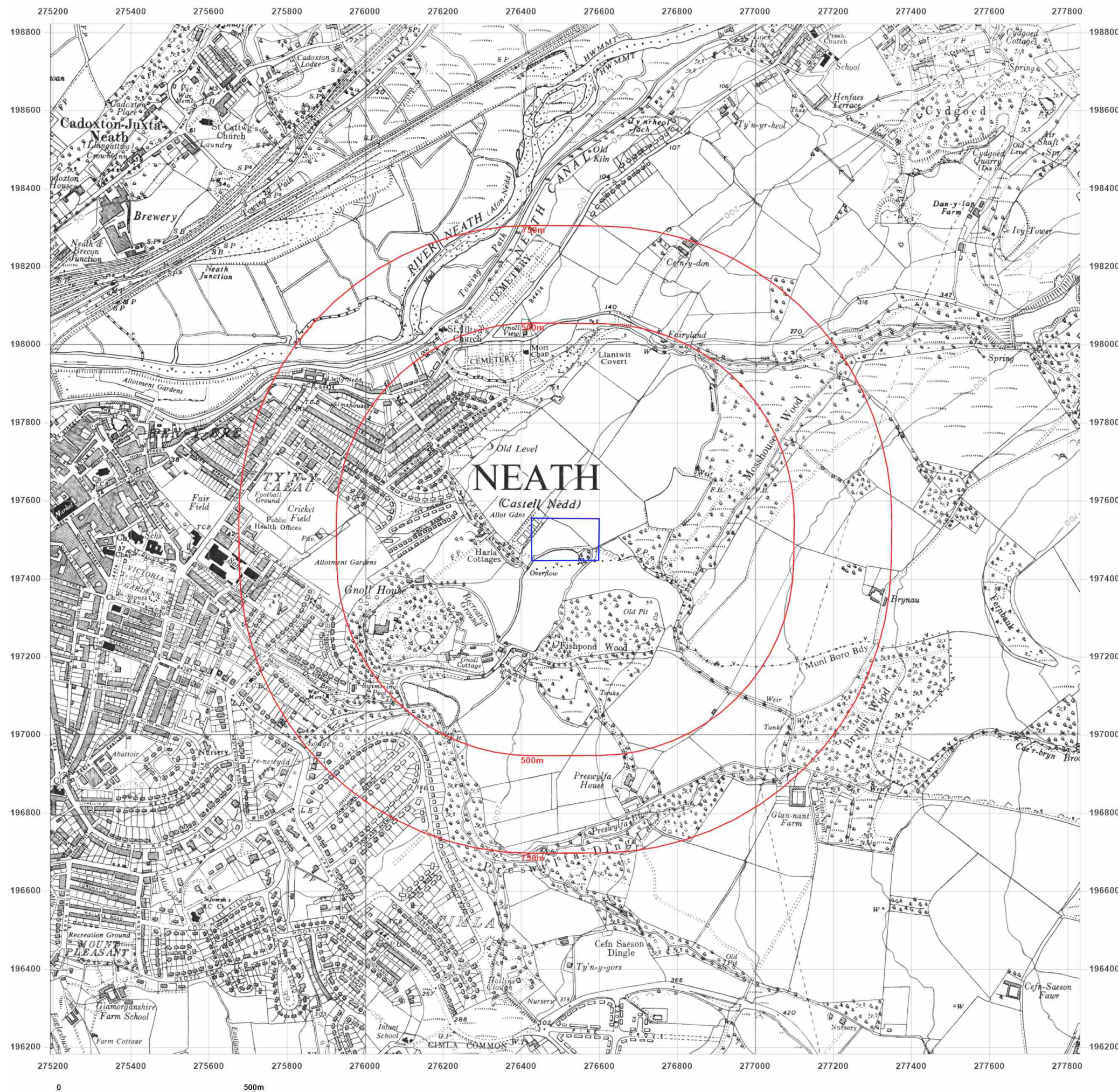


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1970
Revised 1973
Edition N/A
Copyright 1973
Levelled 1964



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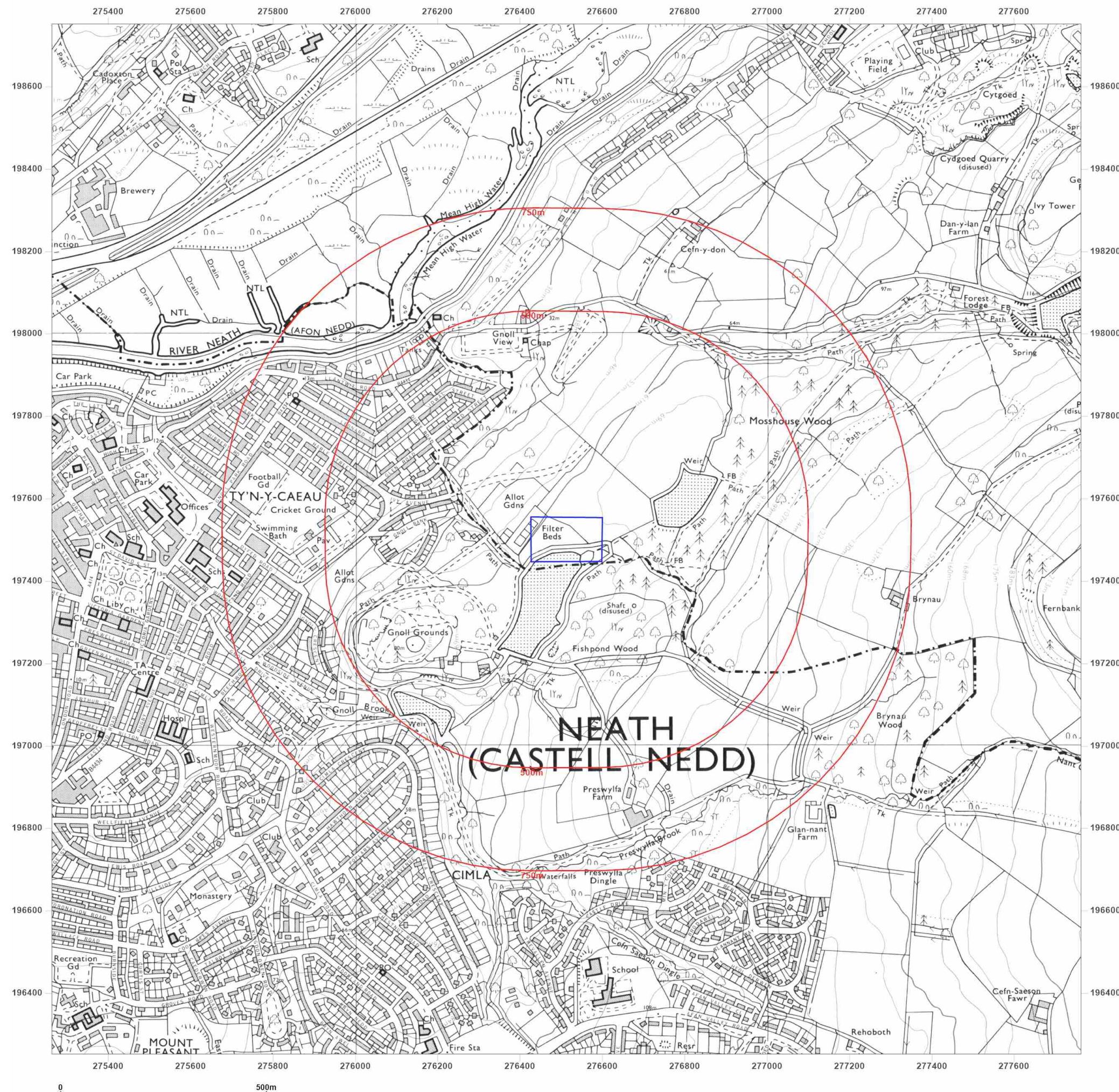


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1982

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1976
Revised 1982
Edition N/A
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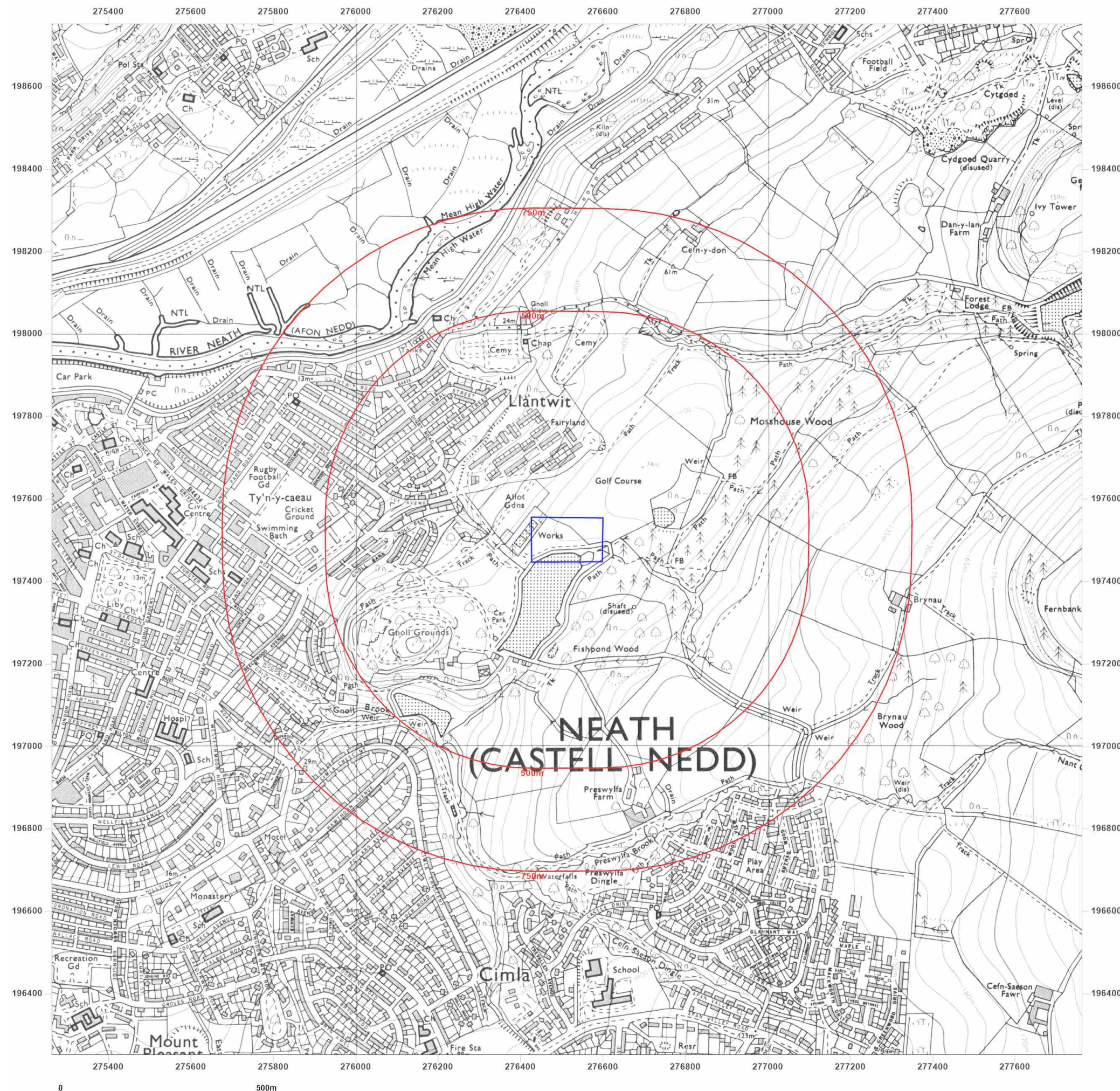


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1989
Revised 1991
Edition N/A
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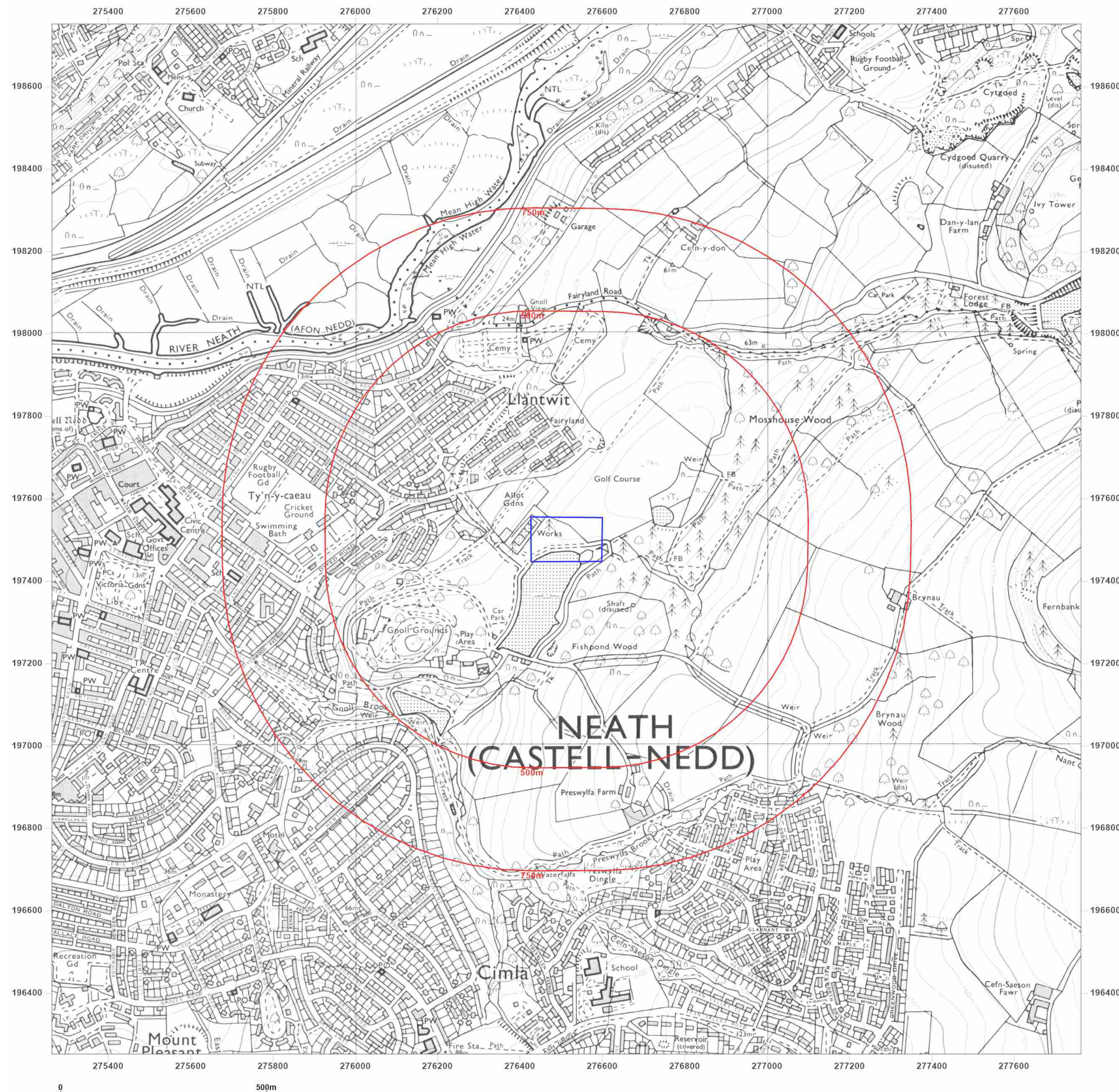


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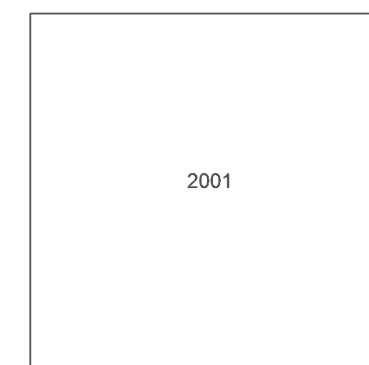
Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



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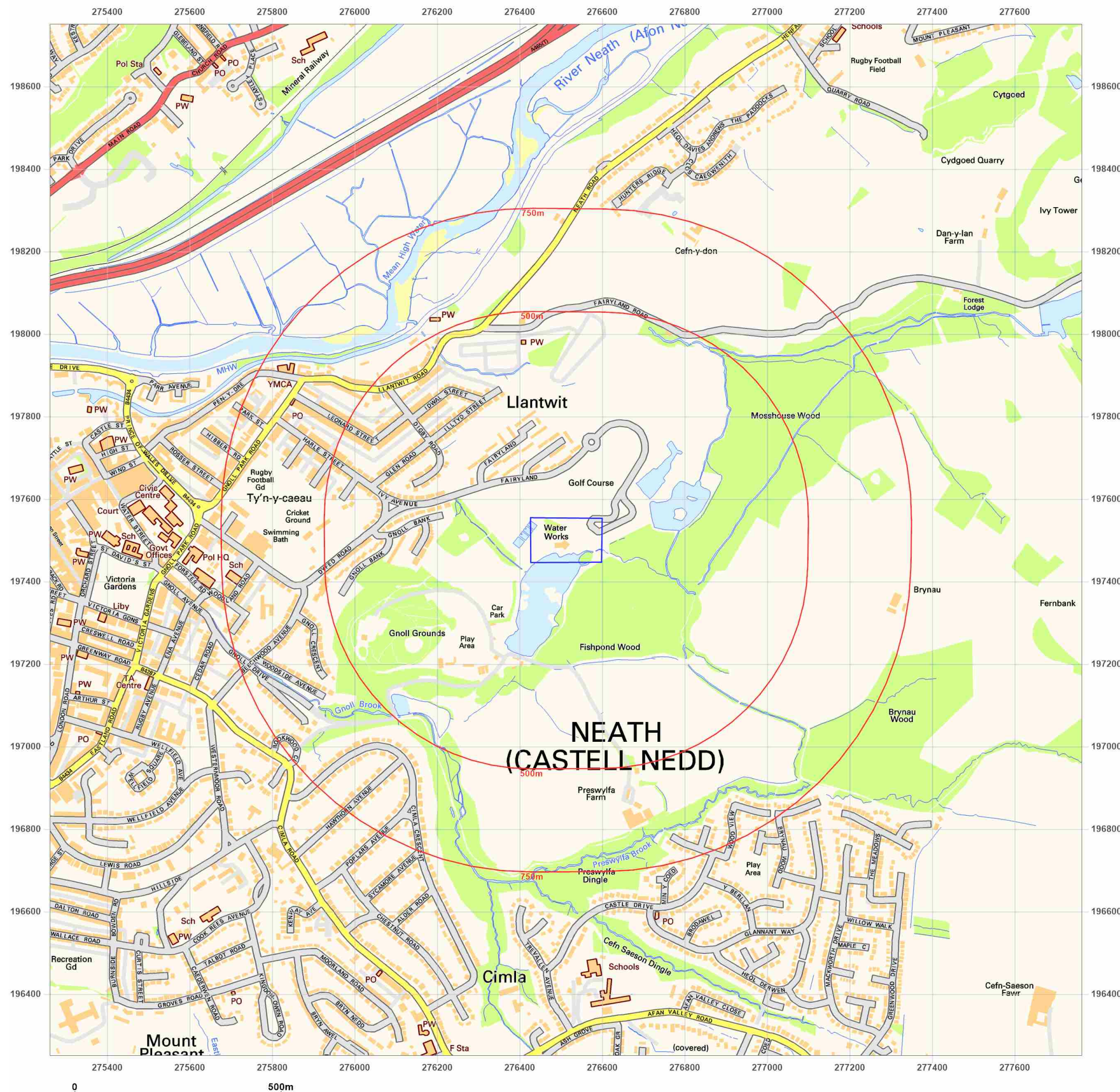


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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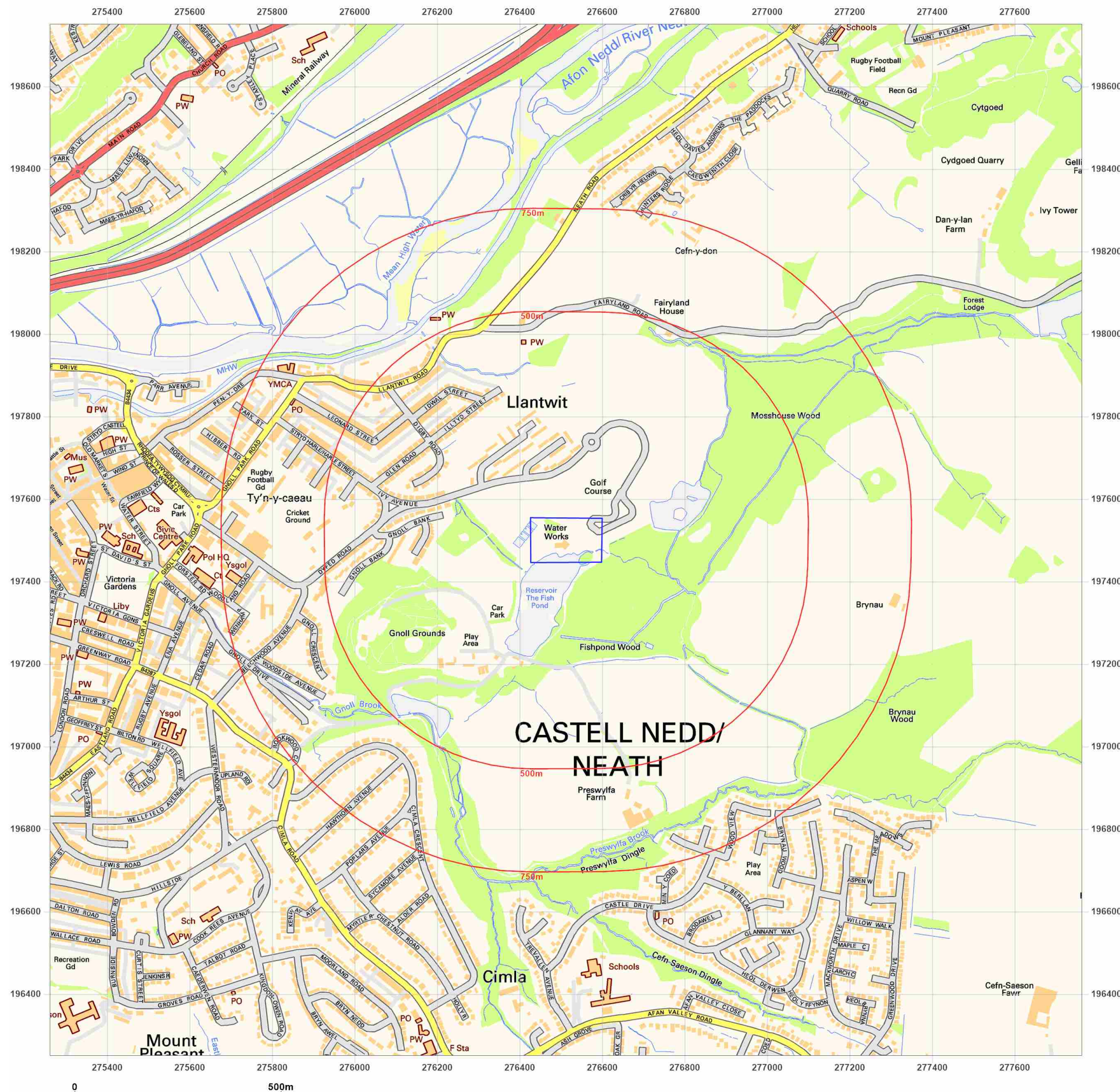


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Client Ref: 8603_Gnoll_Country_Park_E_PO11529
Report Ref: ESP-QOH-PRP-LAH-QAG
Grid Ref: 276512, 197501

Map Name: National Grid

Map date: 2023

Scale: 1:10,000

Printed at: 1:10,000



2023



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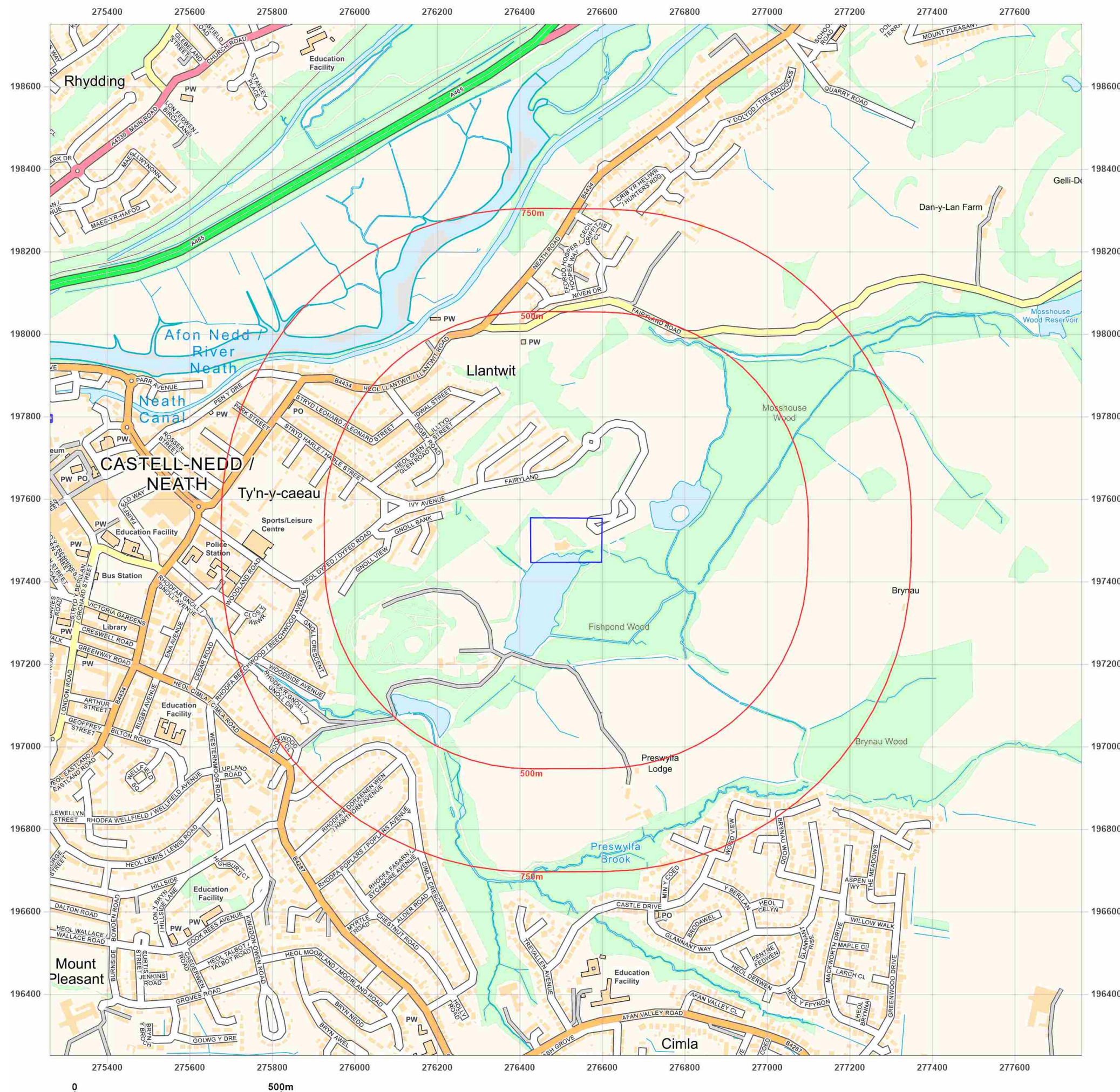


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APPENDIX A3 Extracts from Historical Maps, Site C

Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1877-1881

Scale: 1:2,500

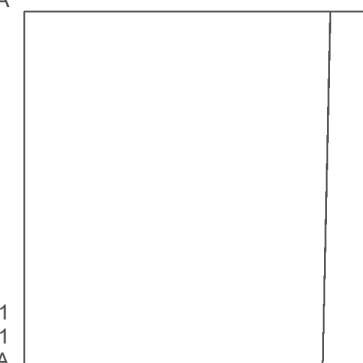
Printed at: 1:2,500



Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1880
Revised 1880
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1881
Revised 1881
Edition N/A
Copyright N/A
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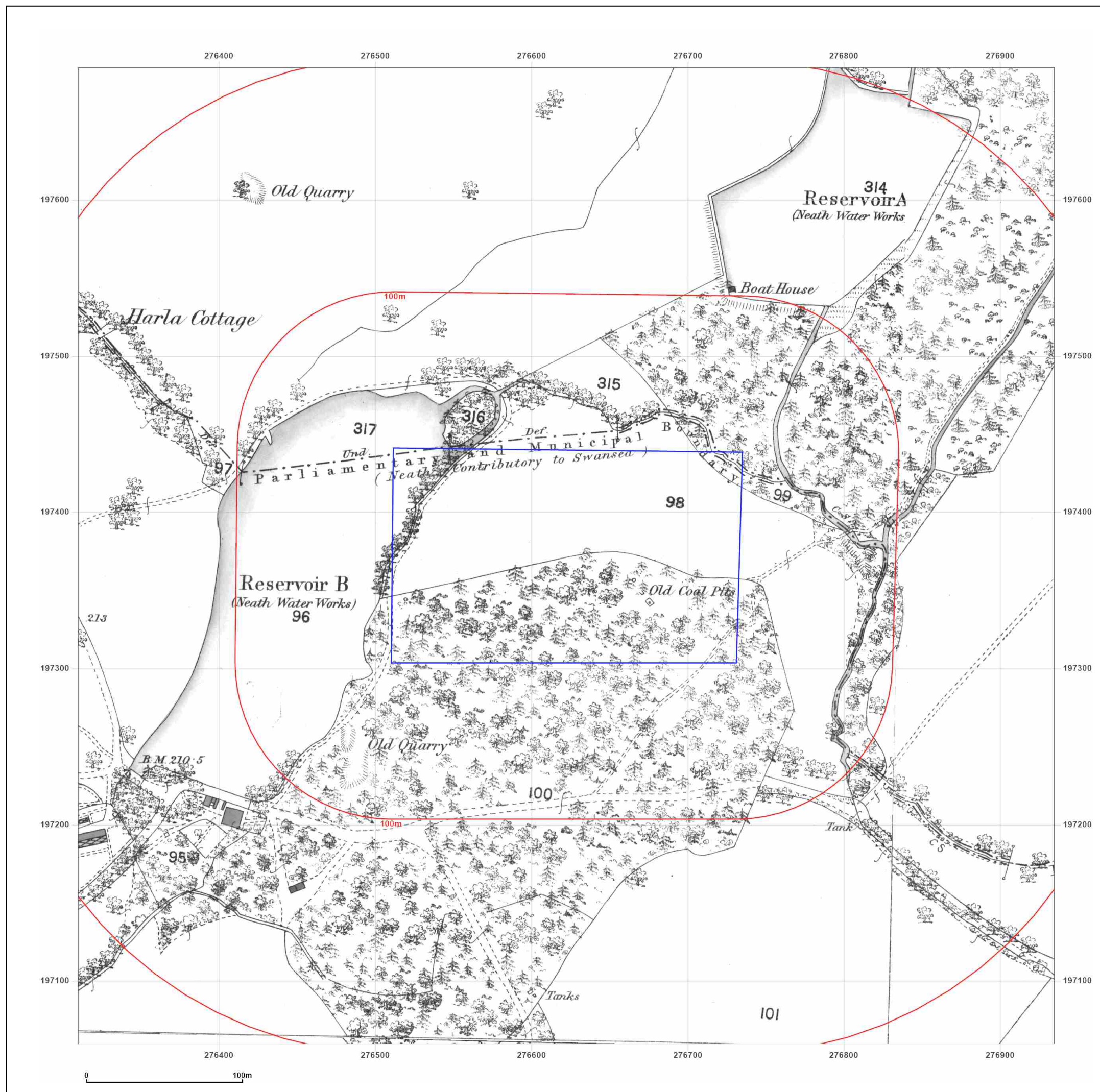


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
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Edition N/A
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Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1899
Revised 1899
Edition N/A
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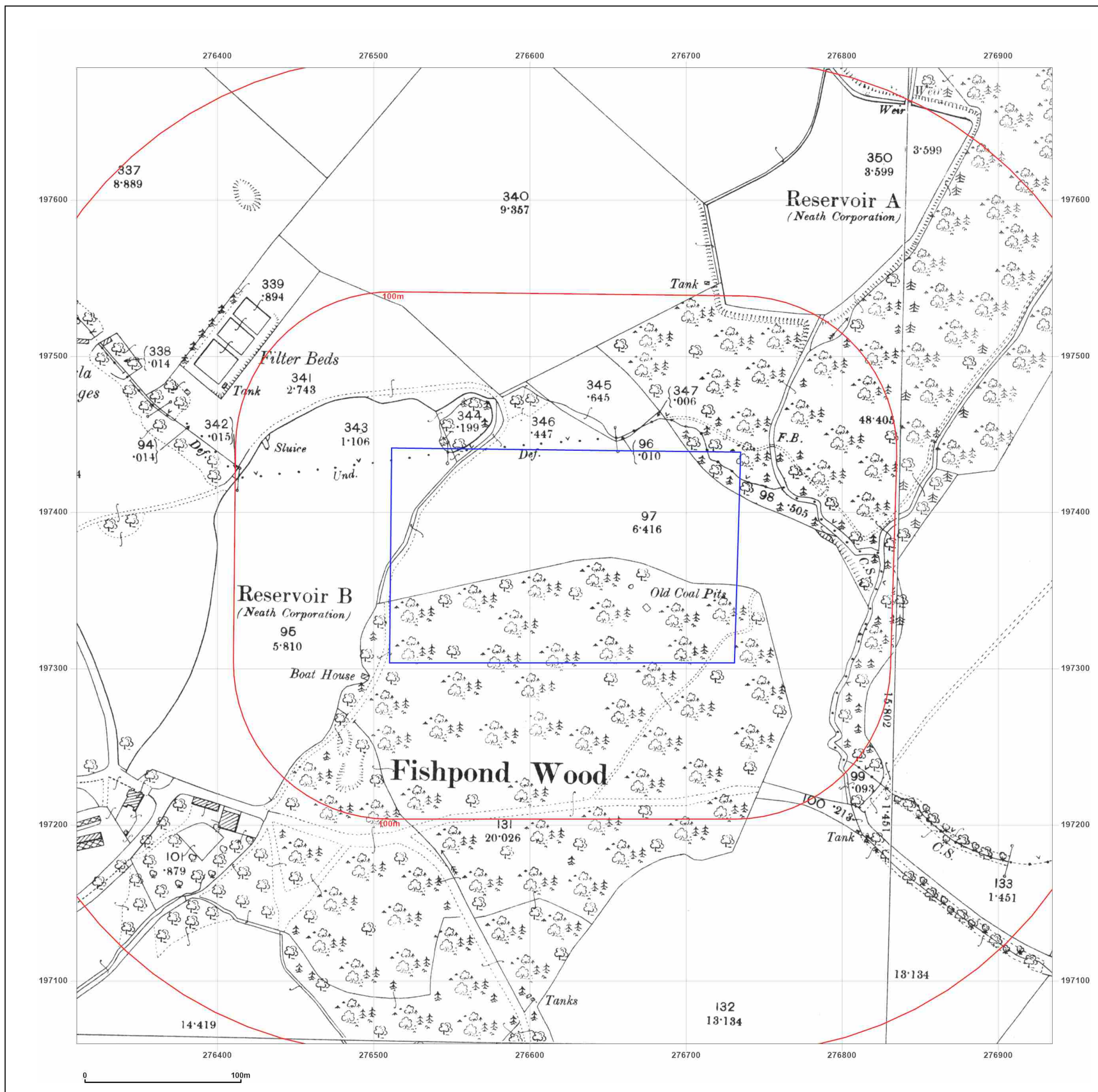


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1935

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1935
Revised 1935
Edition N/A
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Surveyed 1935
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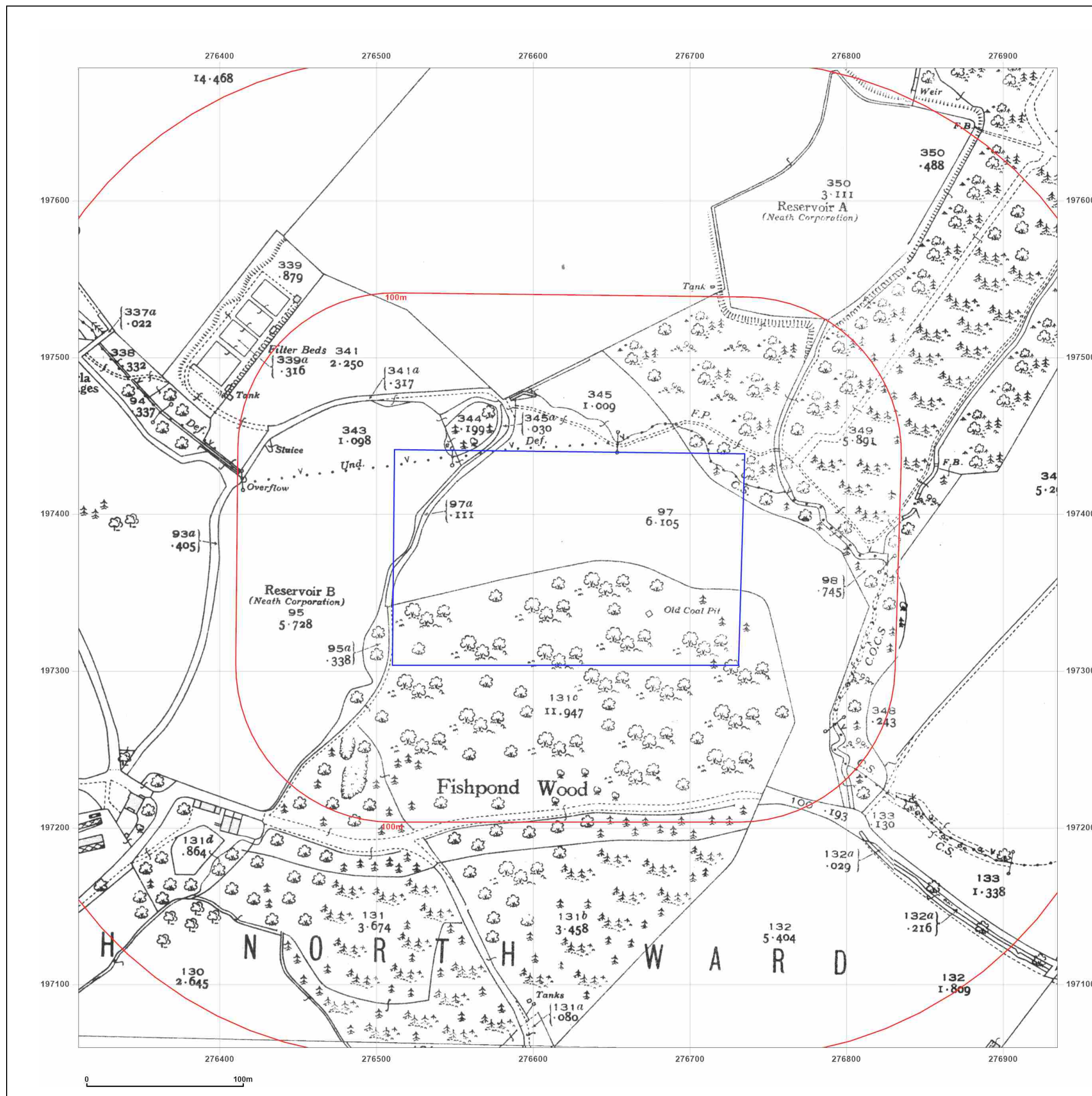


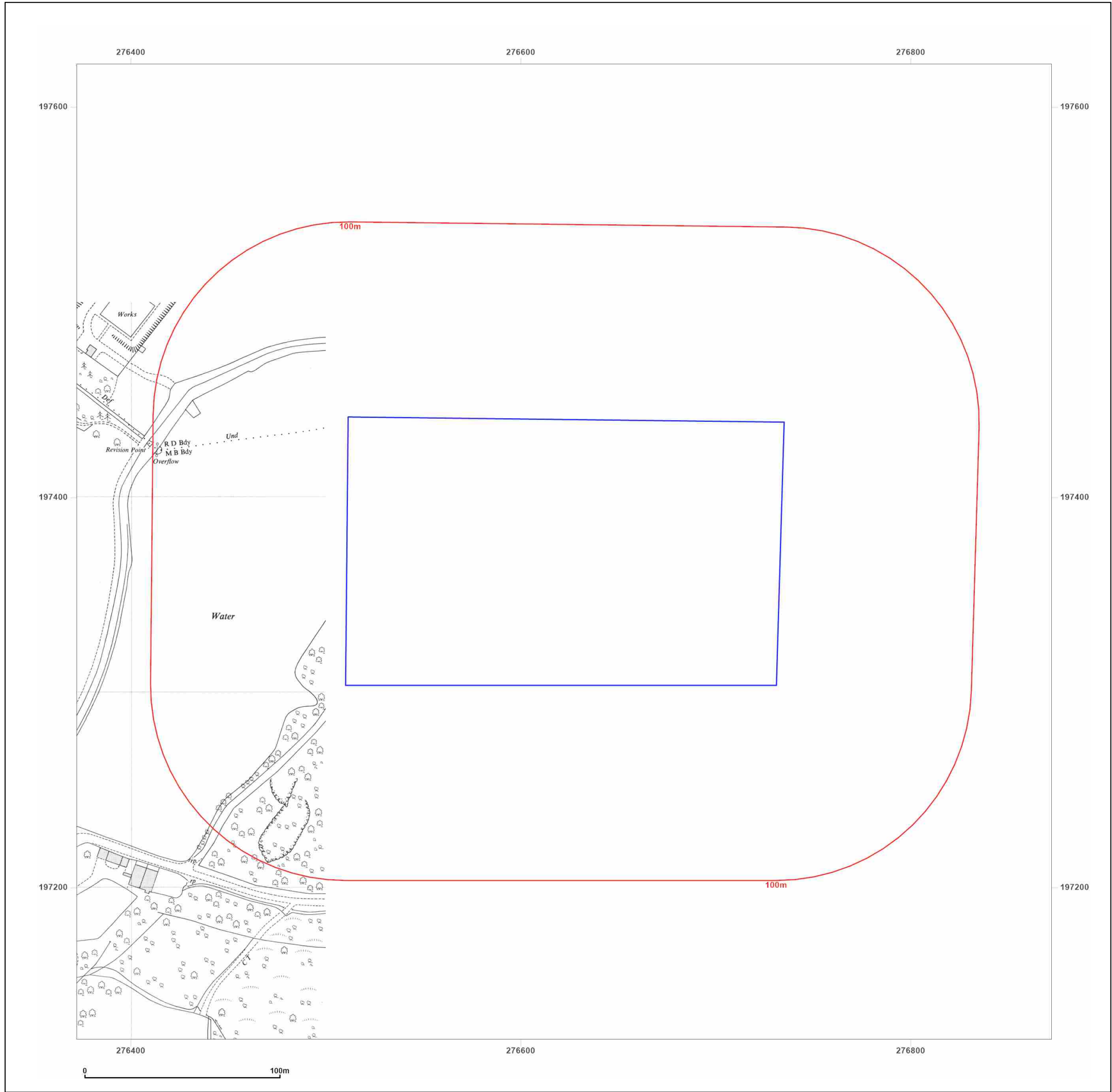
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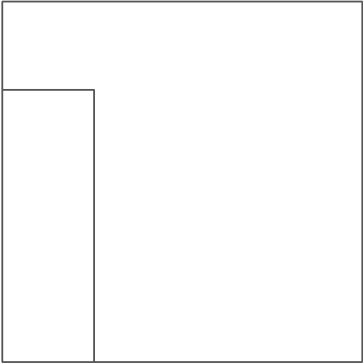
Site Details:
276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid
Map date: 1963
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1956



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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1964
Edition 1965
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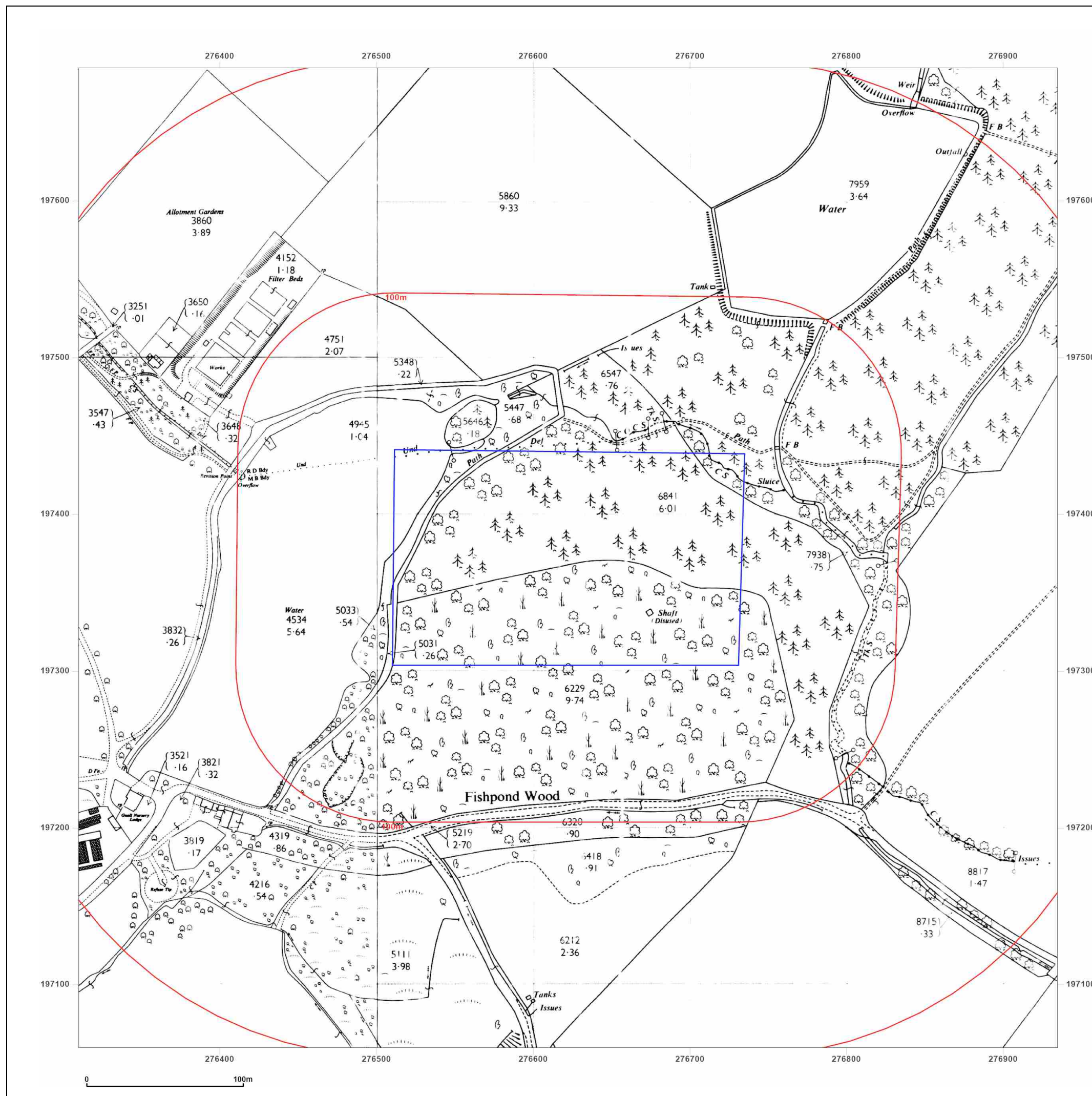


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1964
Edition 1965
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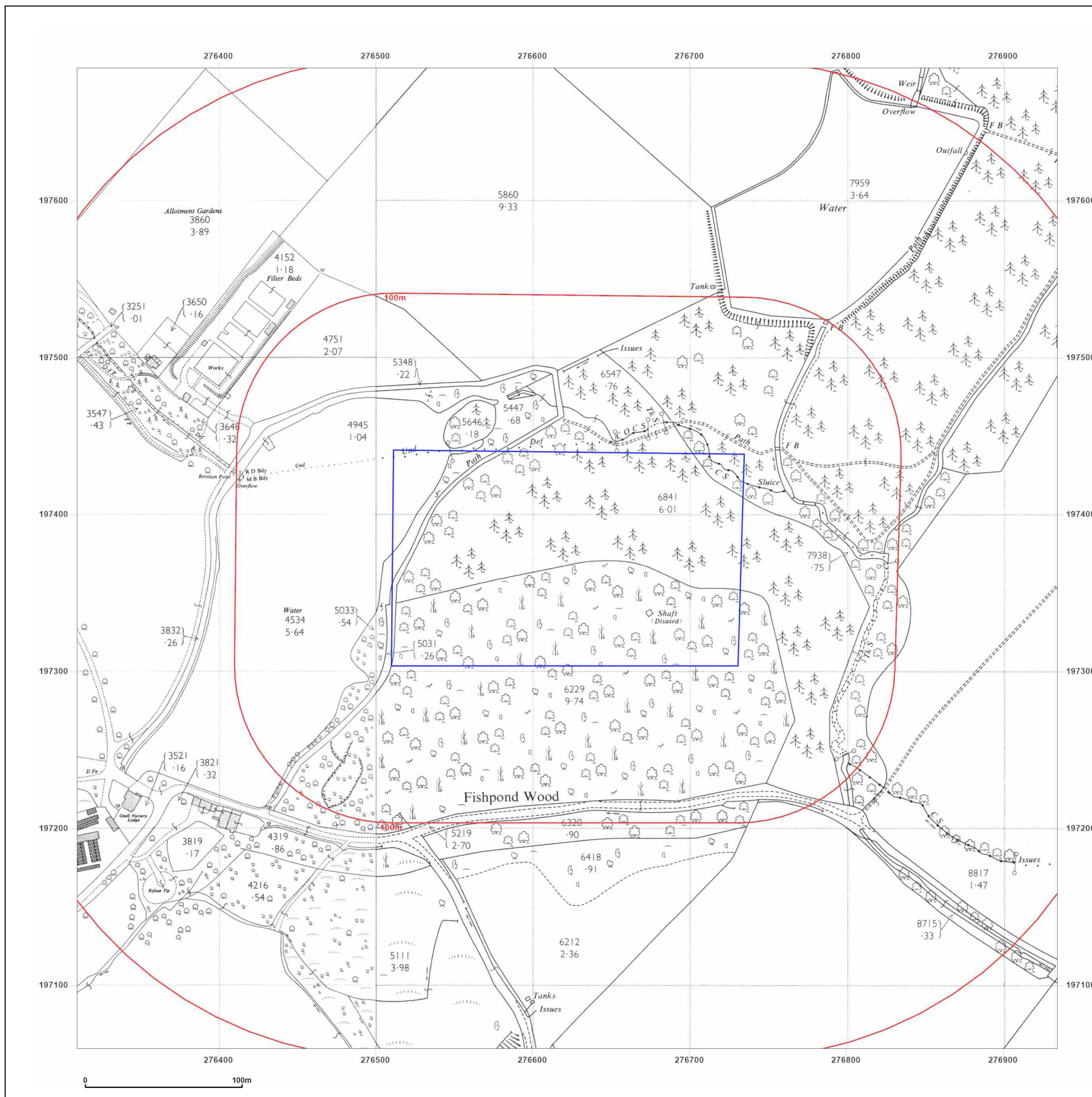


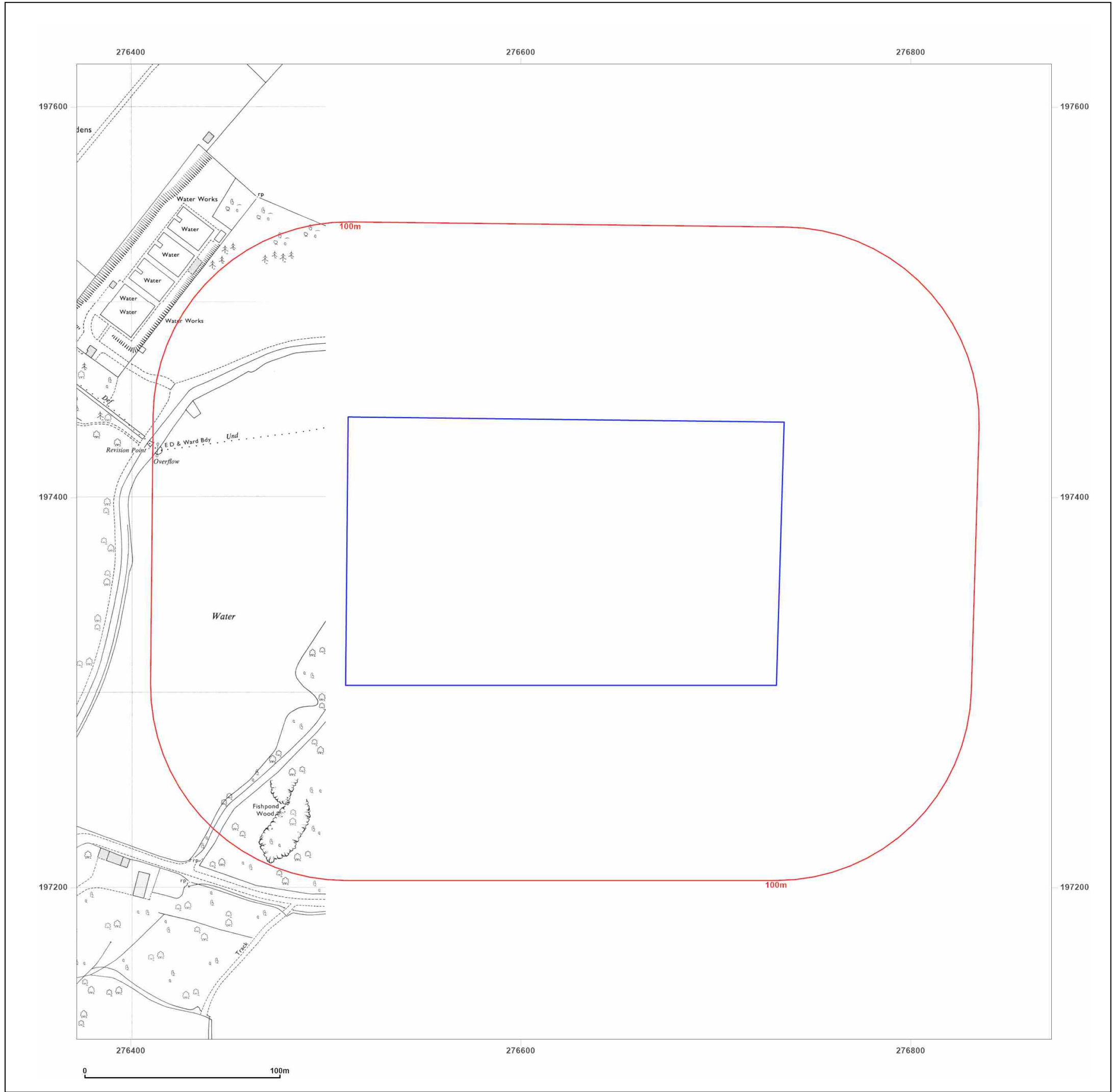
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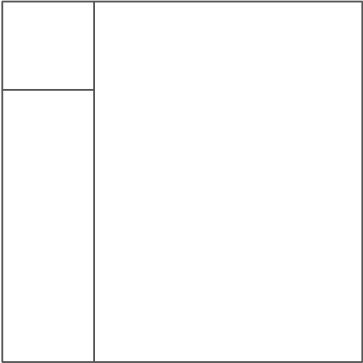
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Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid
Map date: 1974-1976
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1949
Revised 1974
Edition N/A
Copyright 1974
Levelled 1964

Surveyed 1962
Revised 1975
Edition N/A
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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1984

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1984
Edition N/A
Copyright 1984
Levelled 1964



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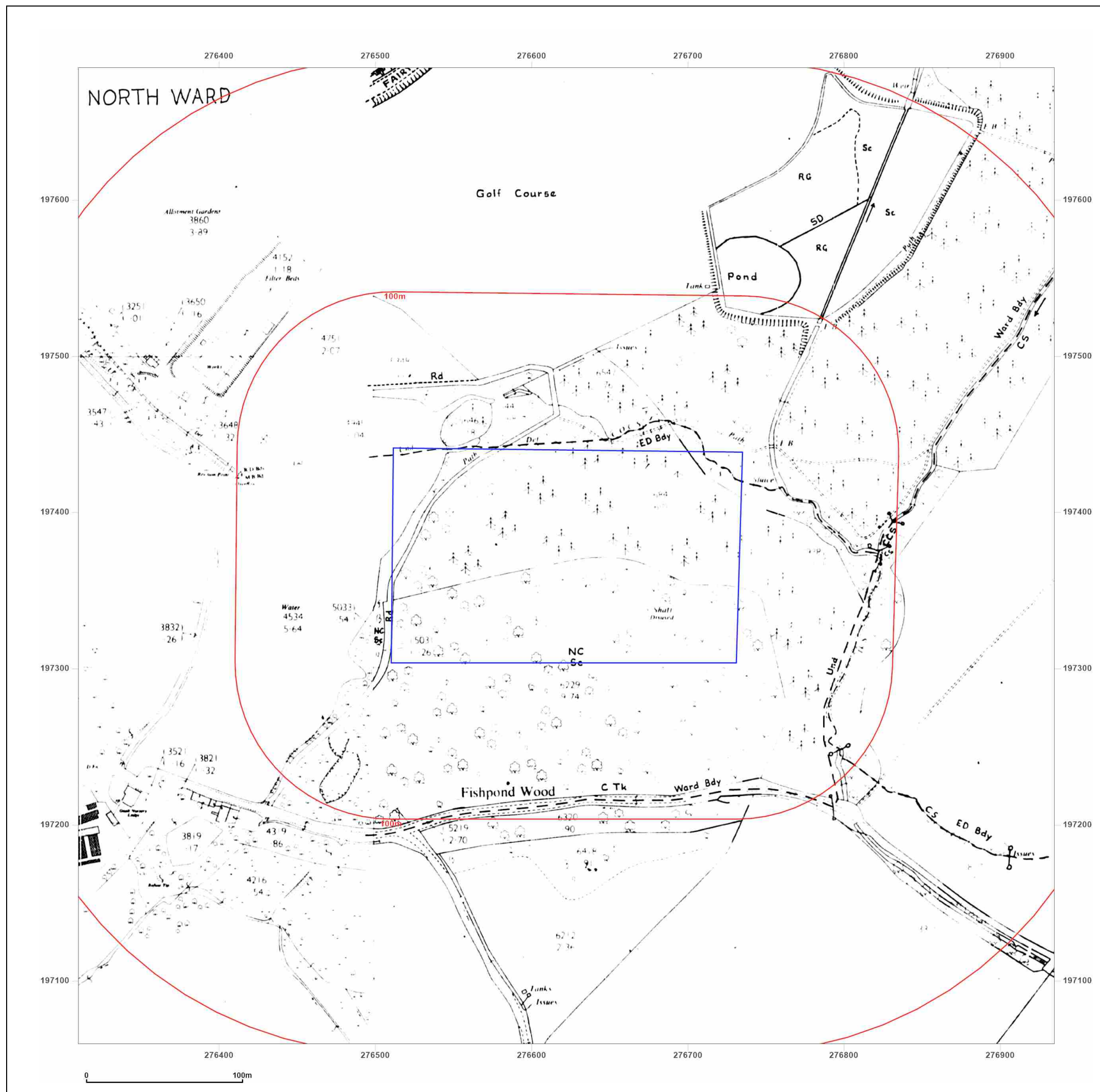


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1987

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1987
Edition N/A
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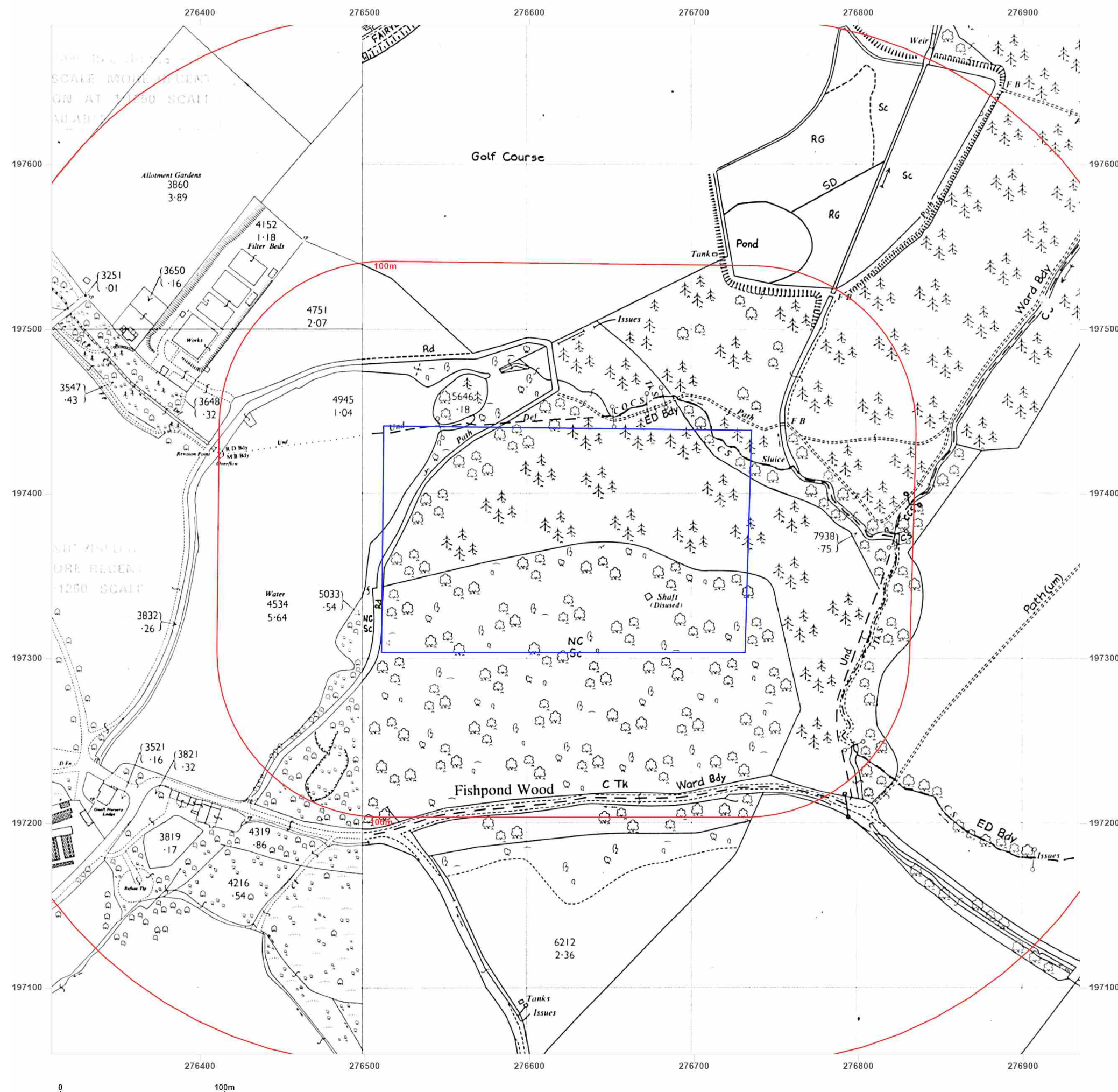


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1987

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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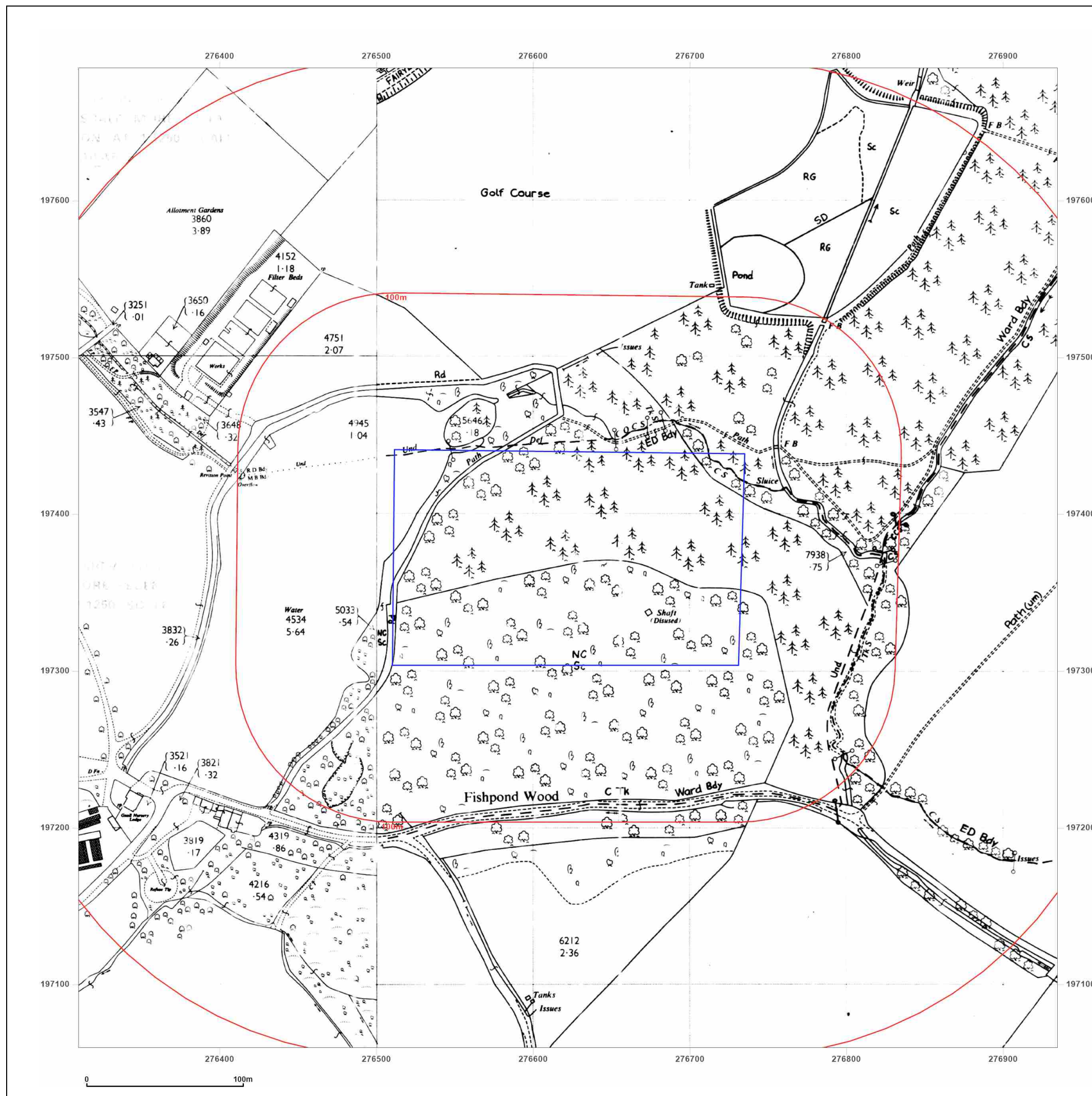


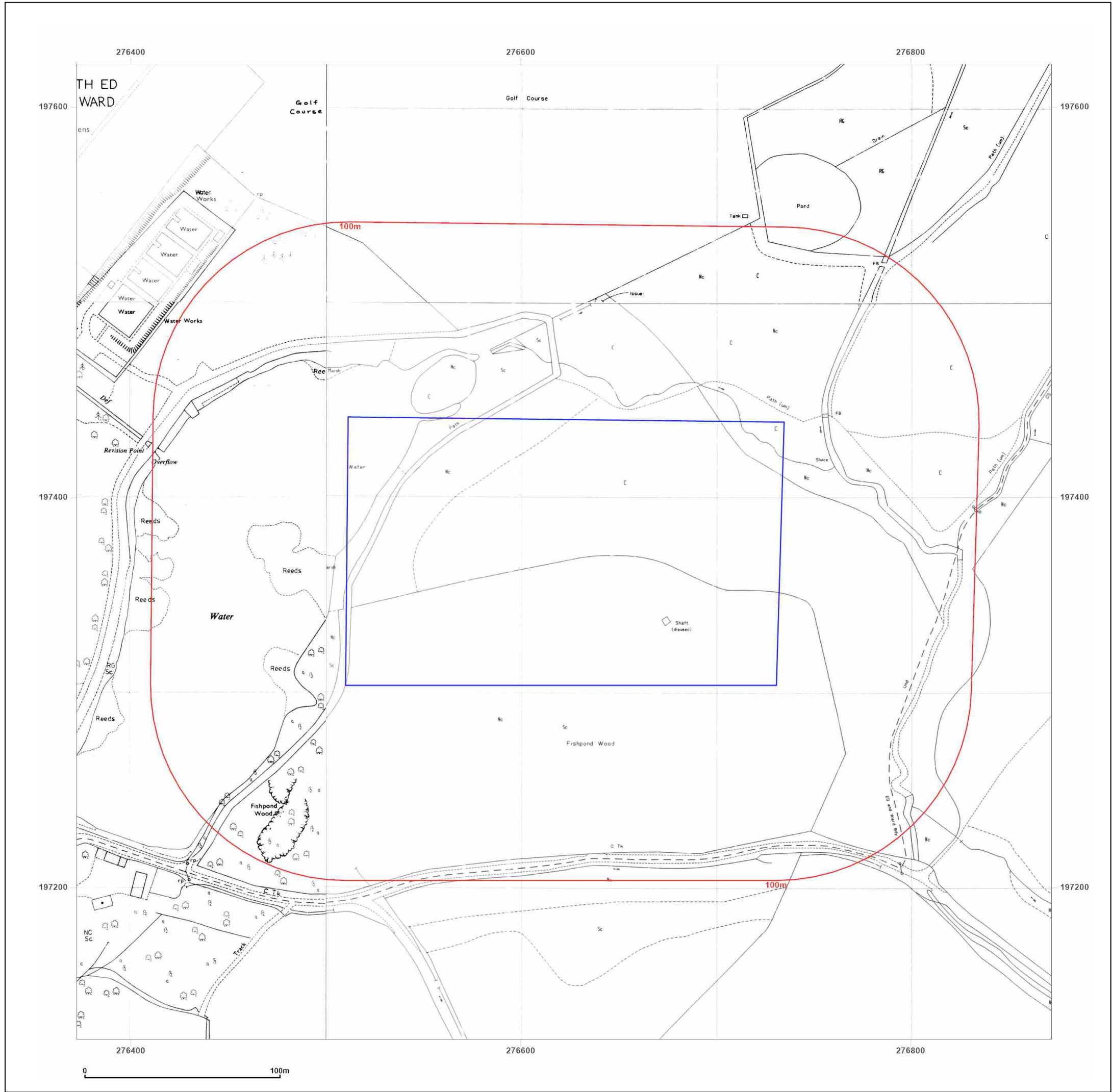
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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1989-1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1989
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Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
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Surveyed 1993
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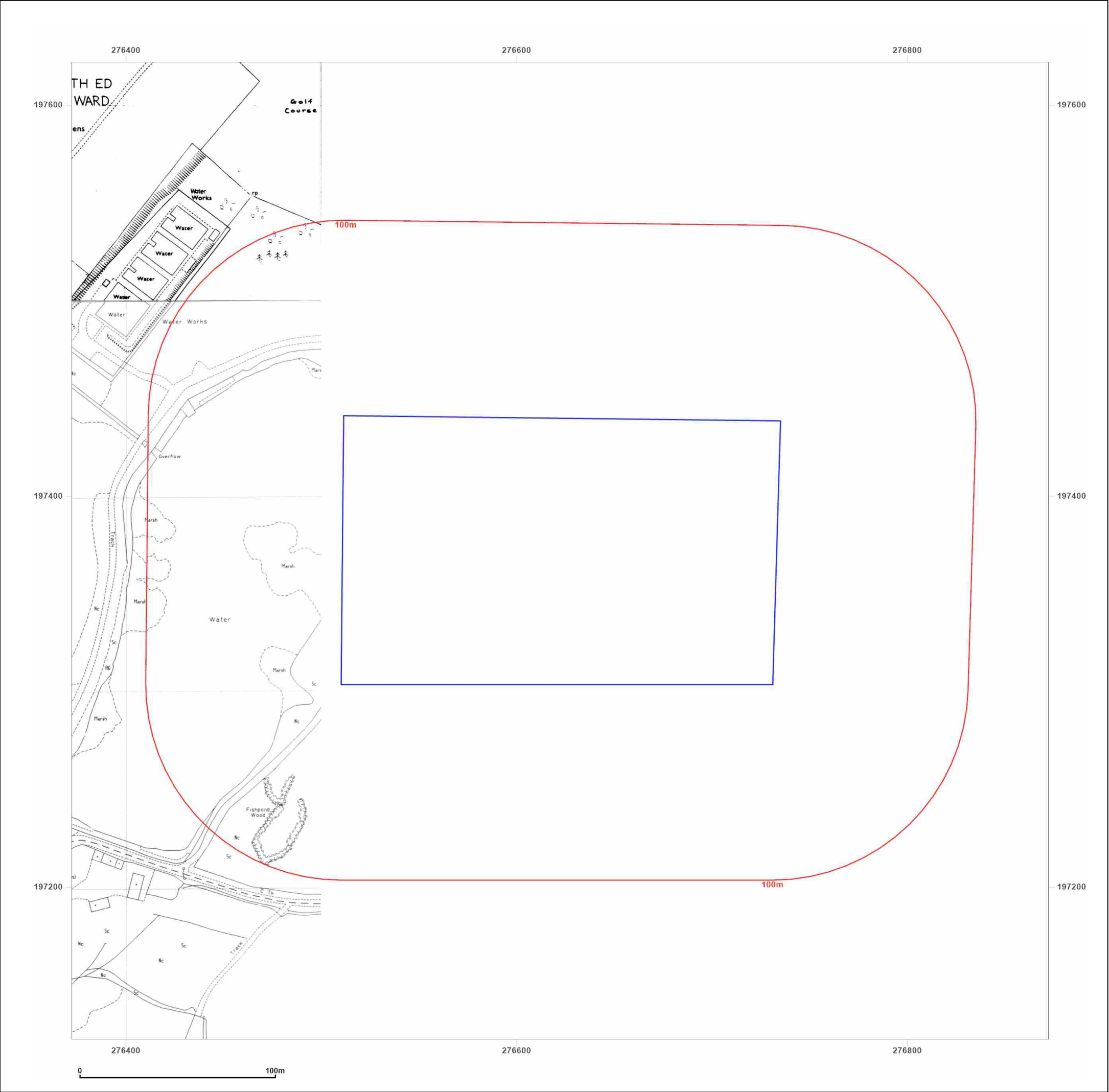


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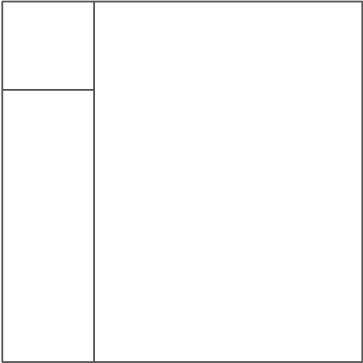
Site Details:
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Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid
Map date: 1989-1993
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1989
Revised 1989
Edition N/A
Copyright 1989
Levelled N/A



Surveyed 1993
Revised N/A
Edition N/A
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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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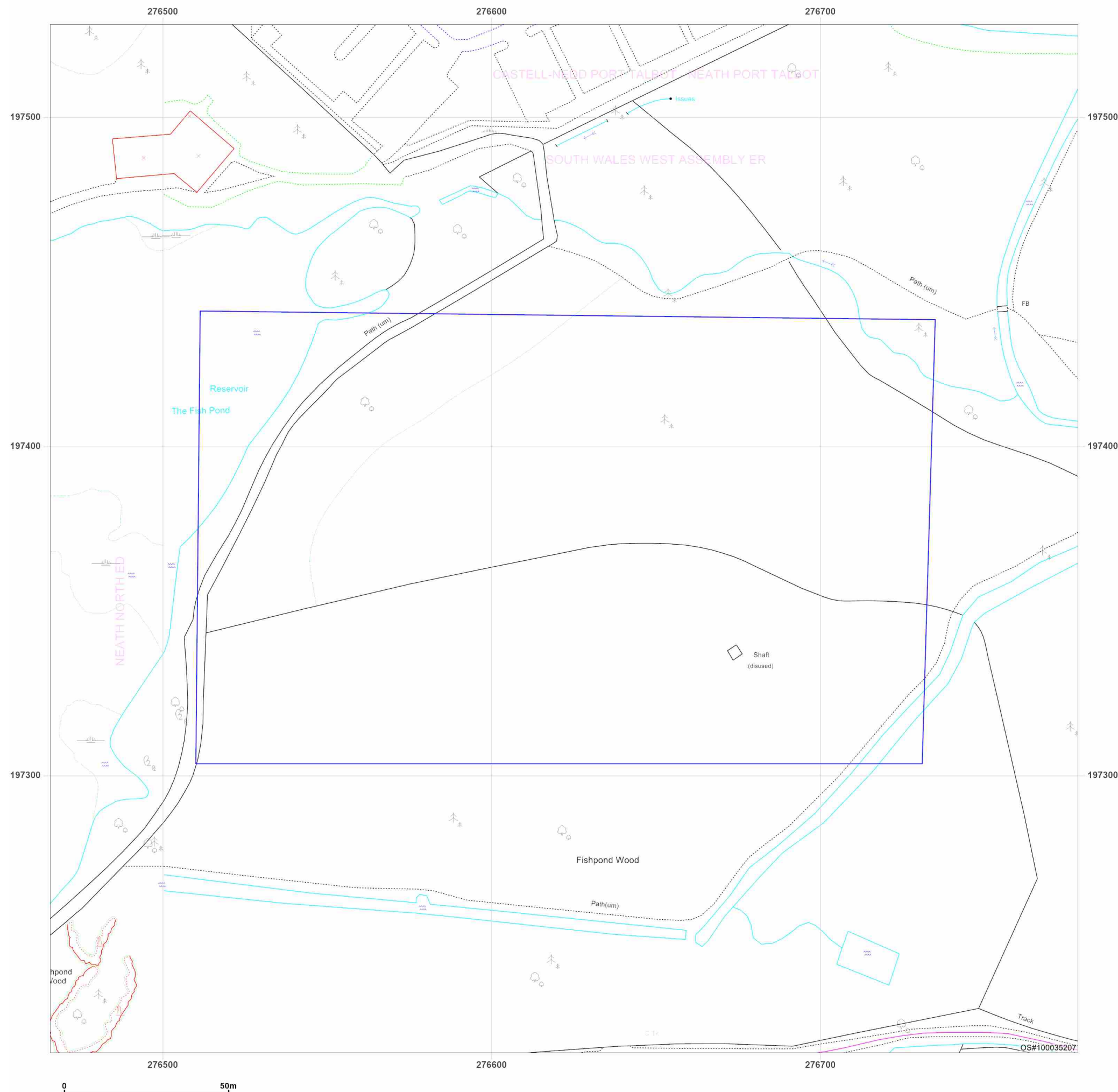


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1877

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1877
Edition N/A
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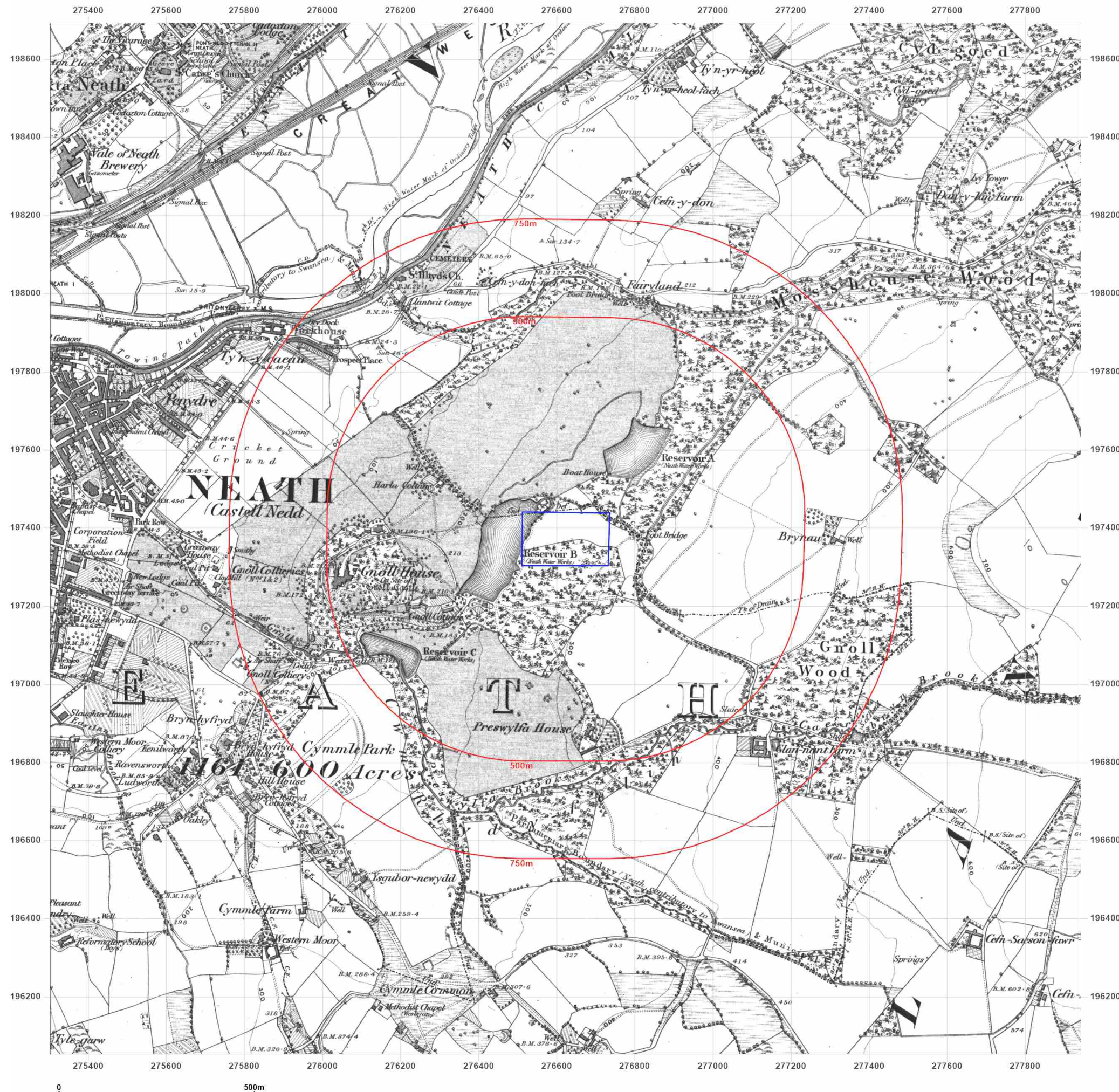


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1897

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1897
Edition N/A
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Surveyed 1877
Revised 1897
Edition N/A
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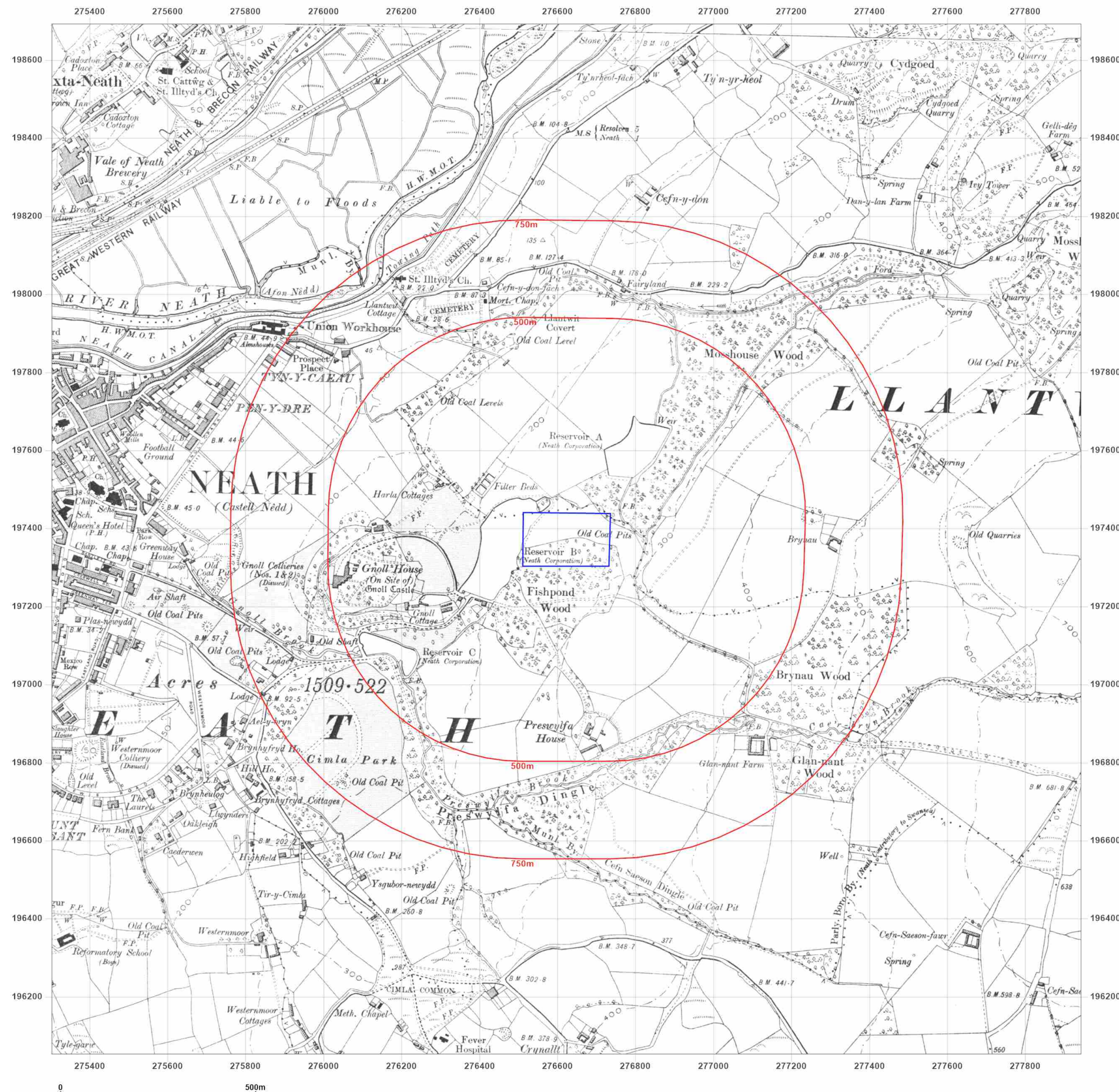


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Site Details:

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Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1914

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1914
Edition N/A
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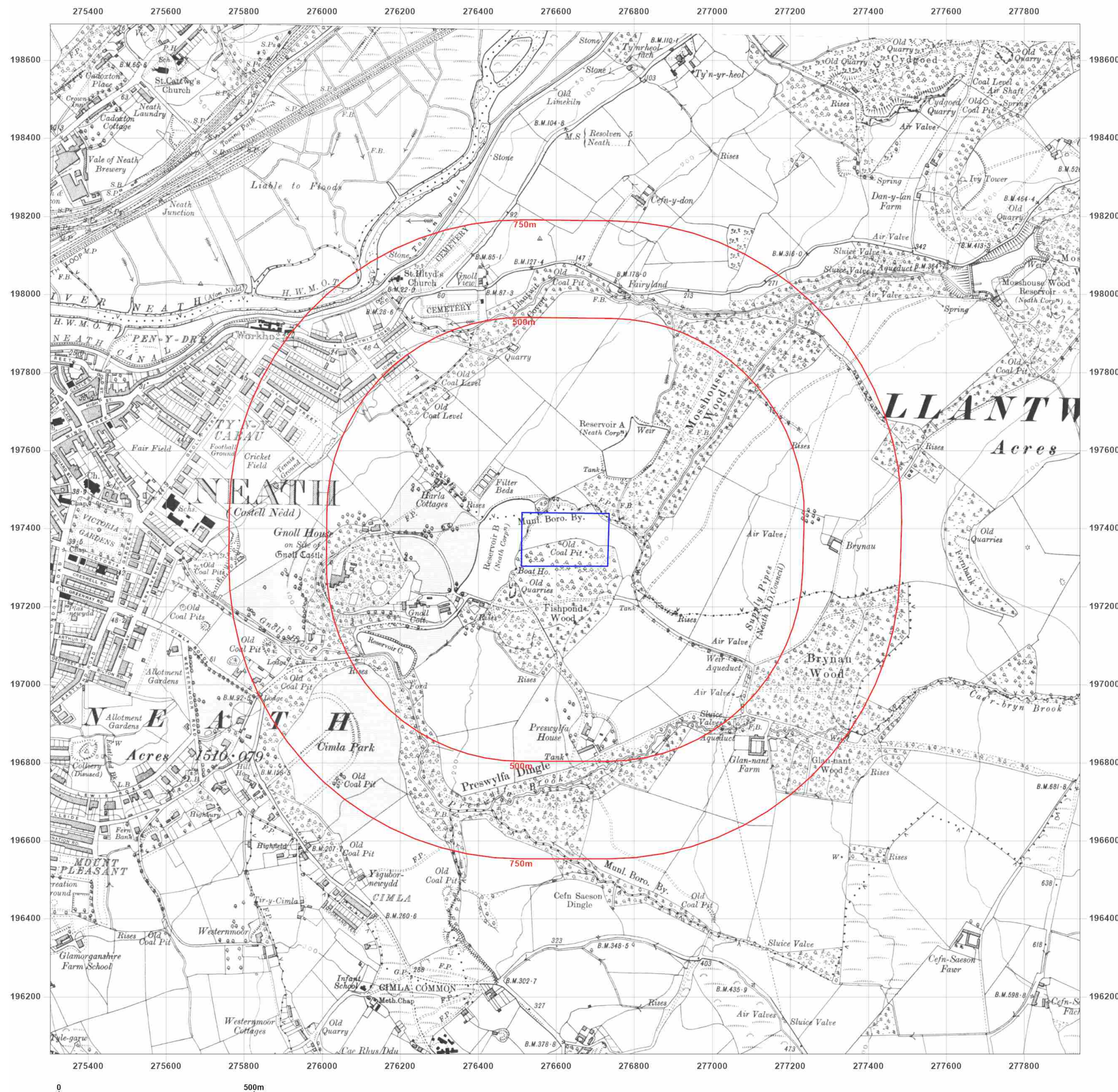


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1921

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1921
Edition N/A
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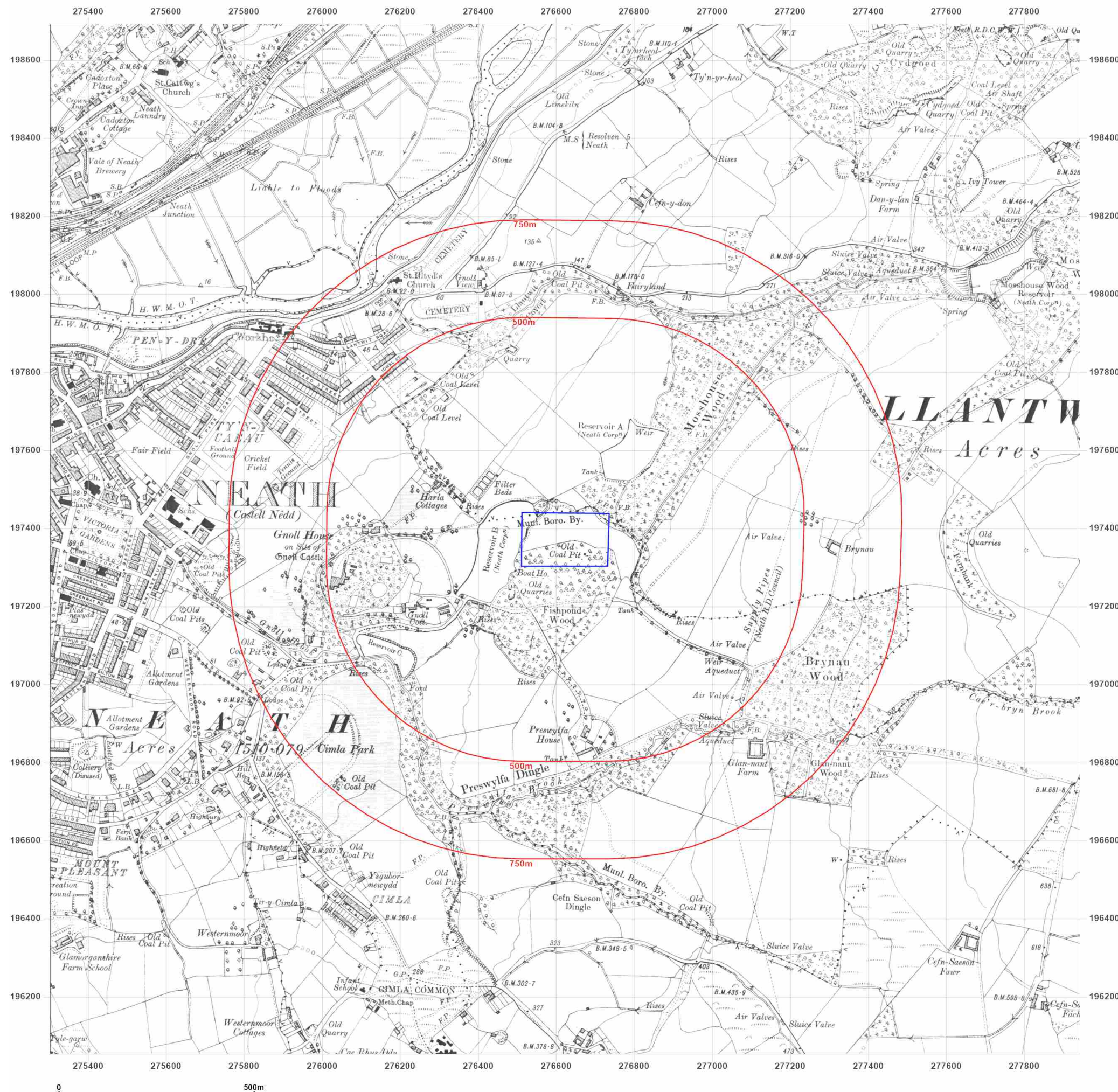


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Site Details:

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Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1935-1936

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1875
Revised 1935
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1936
Edition N/A
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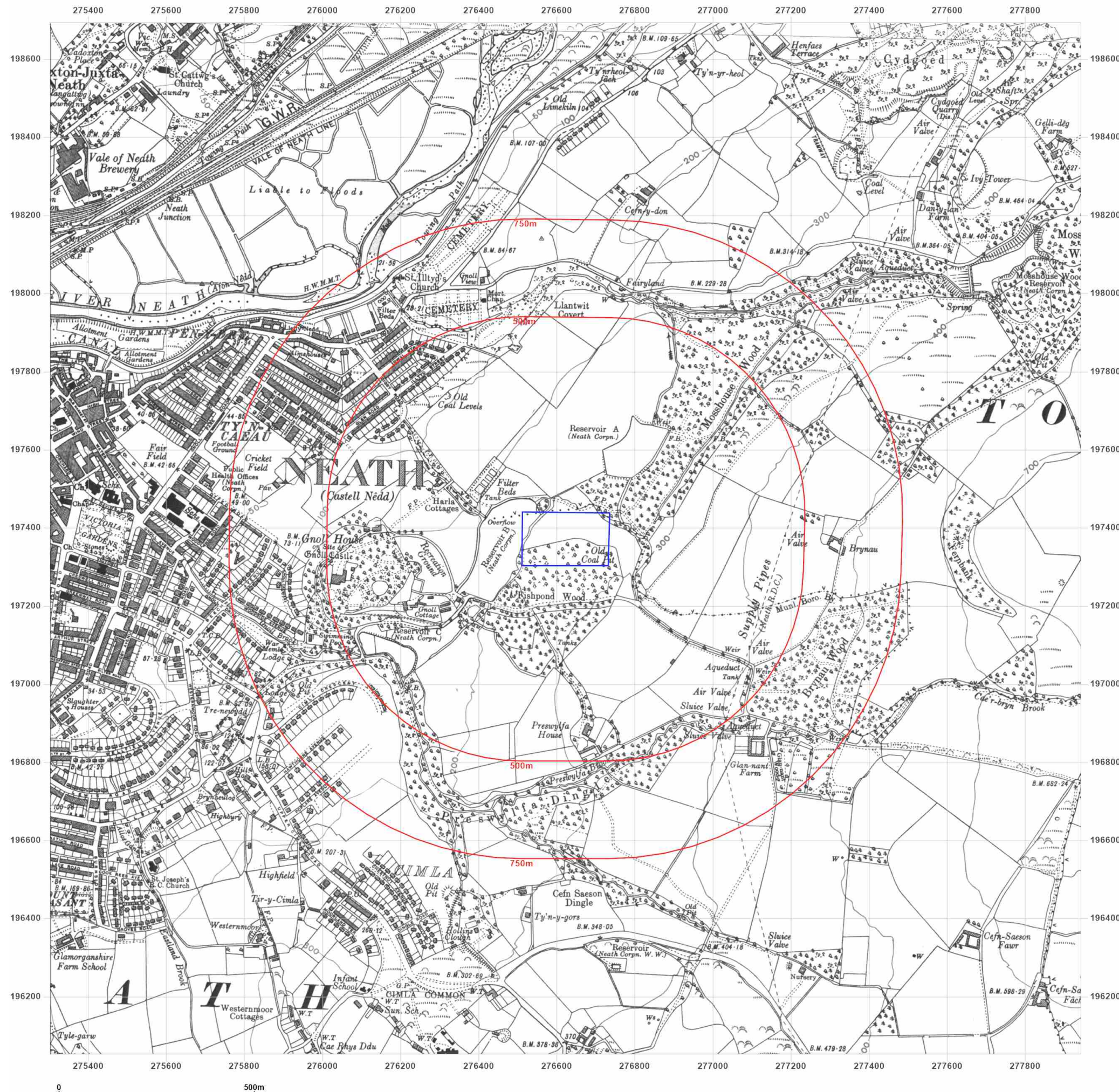


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Site Details:

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Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1876
Revised 1938
Edition N/A
Copyright N/A
Levelled 1936



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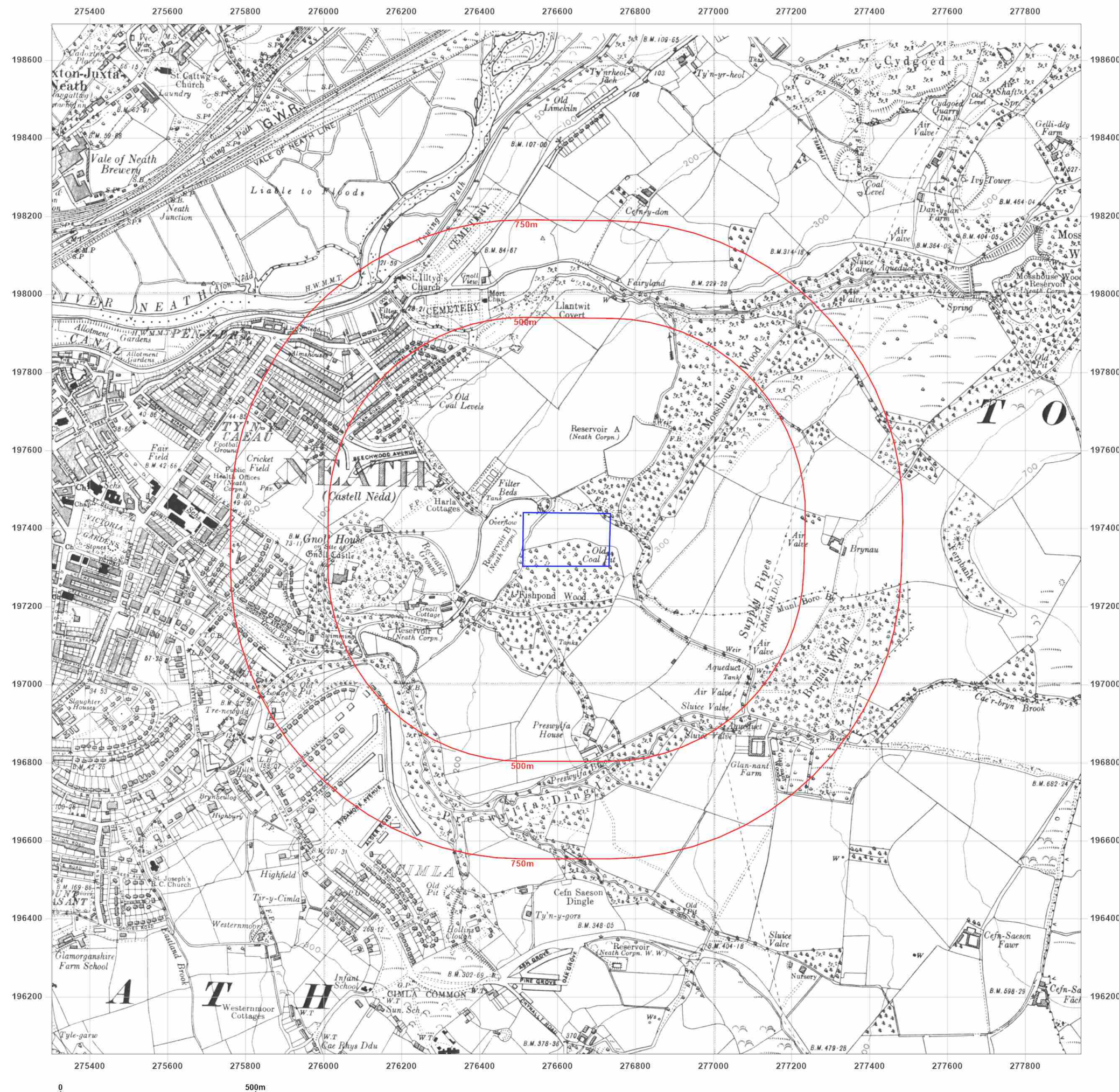


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: County Series

Map date: 1948-1951

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1875
Revised 1948
Edition N/A
Copyright N/A
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Surveyed 1876
Revised 1948
Edition 1951
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Levelled 1950



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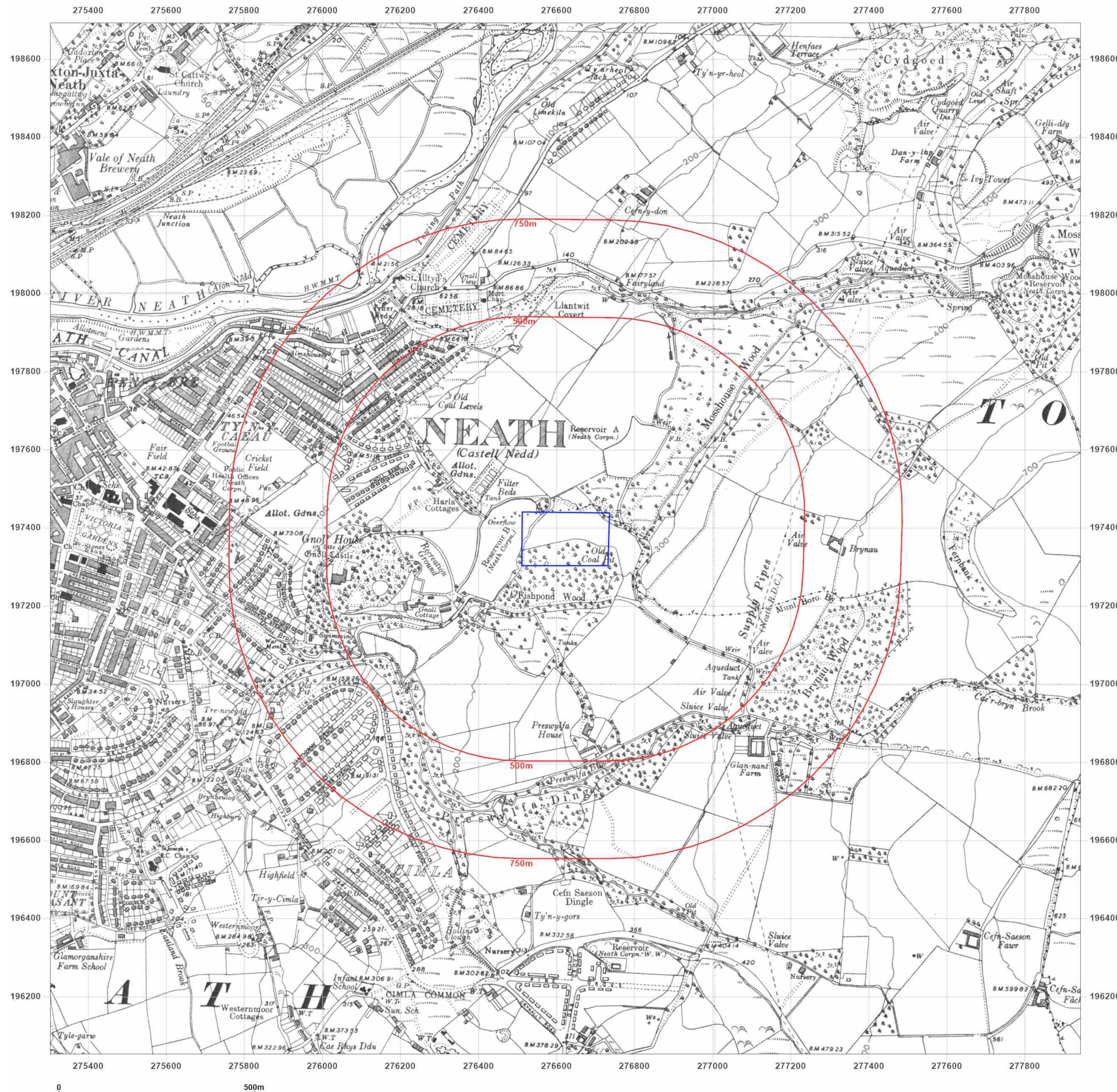


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Site Details:

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Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: Provisional

Map date: 1962

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1962
Revised 1962
Edition N/A
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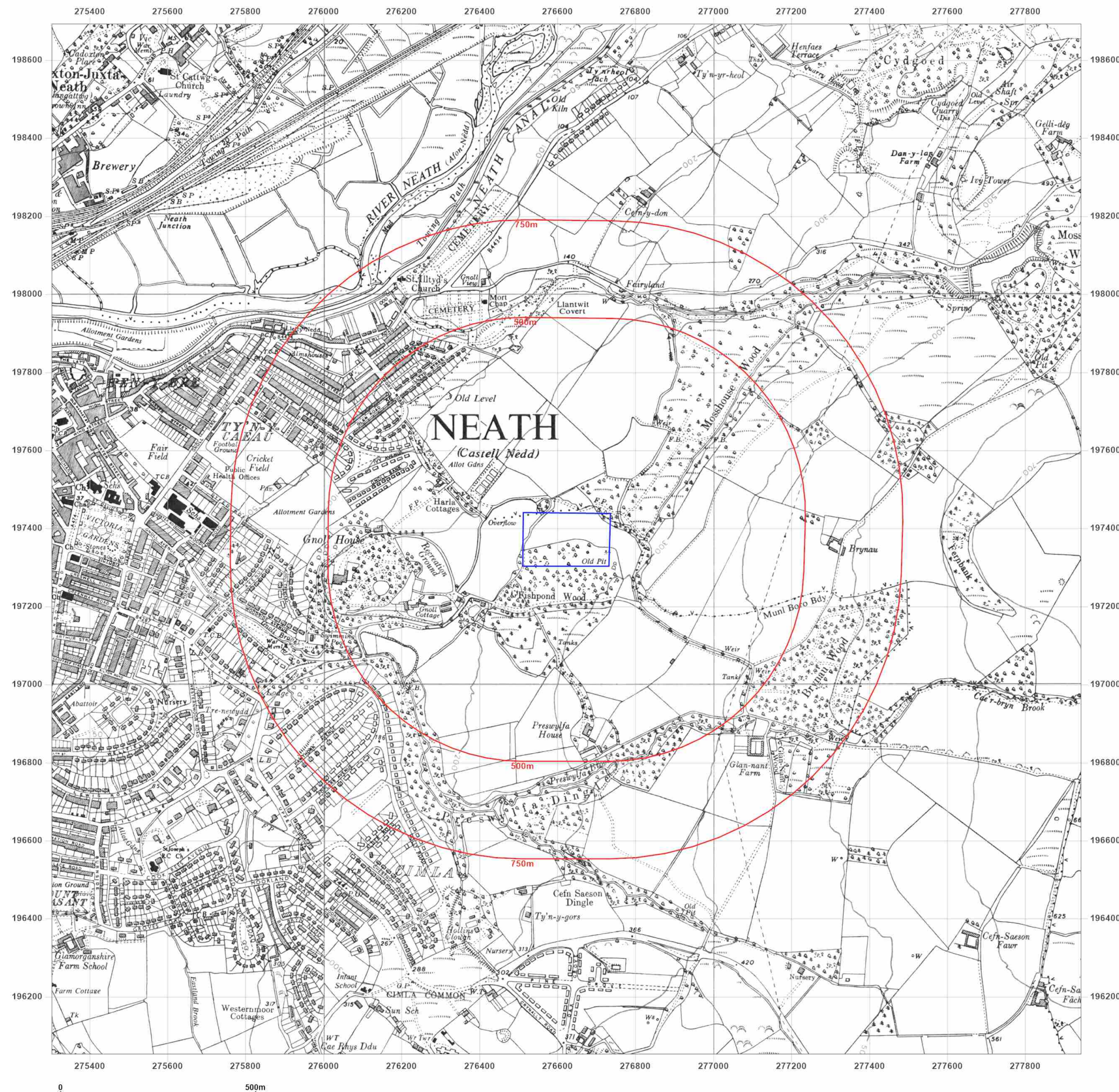


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1970
Revised 1973
Edition N/A
Copyright 1973
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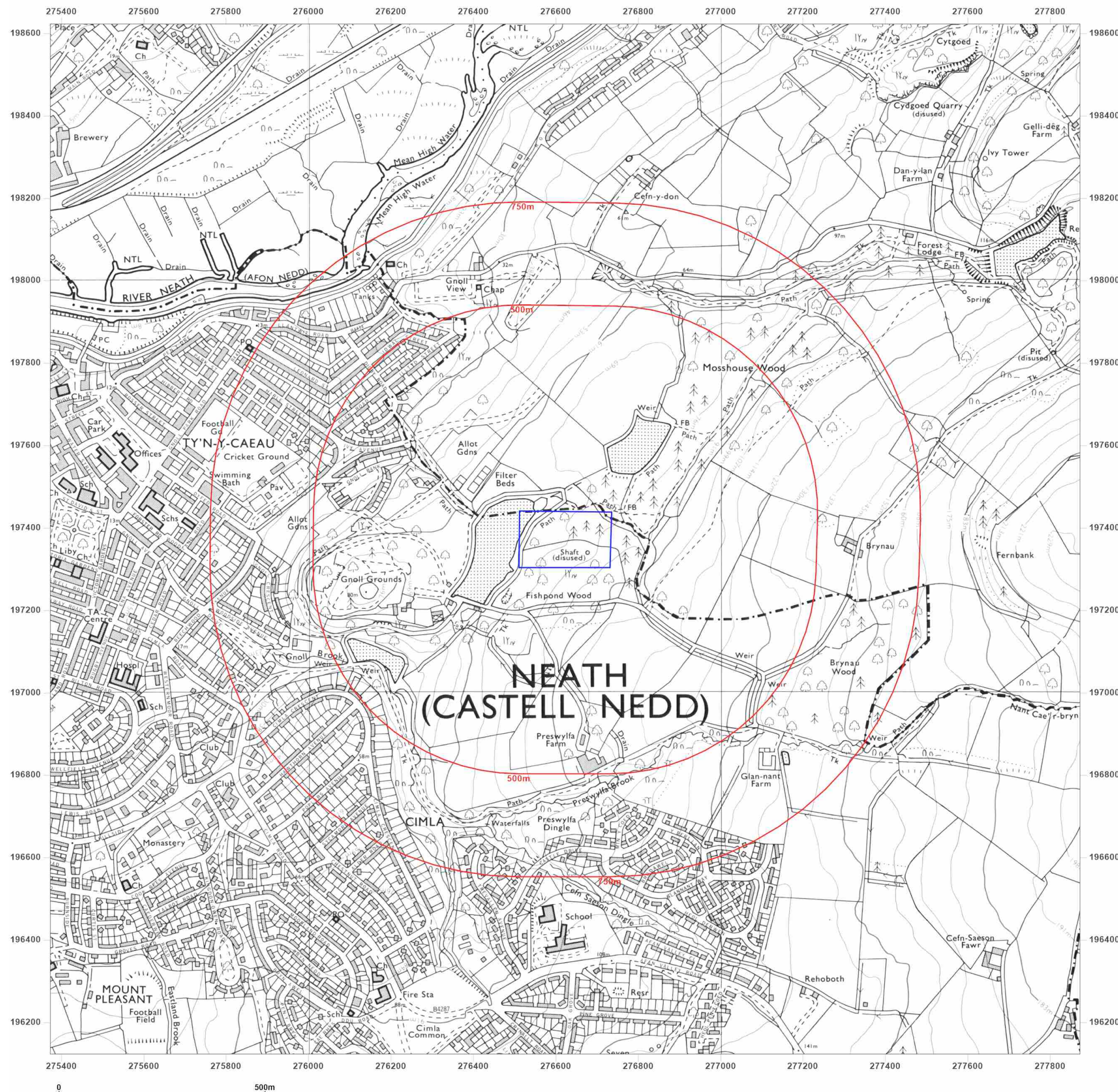


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1982

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1976
Revised 1982
Edition N/A
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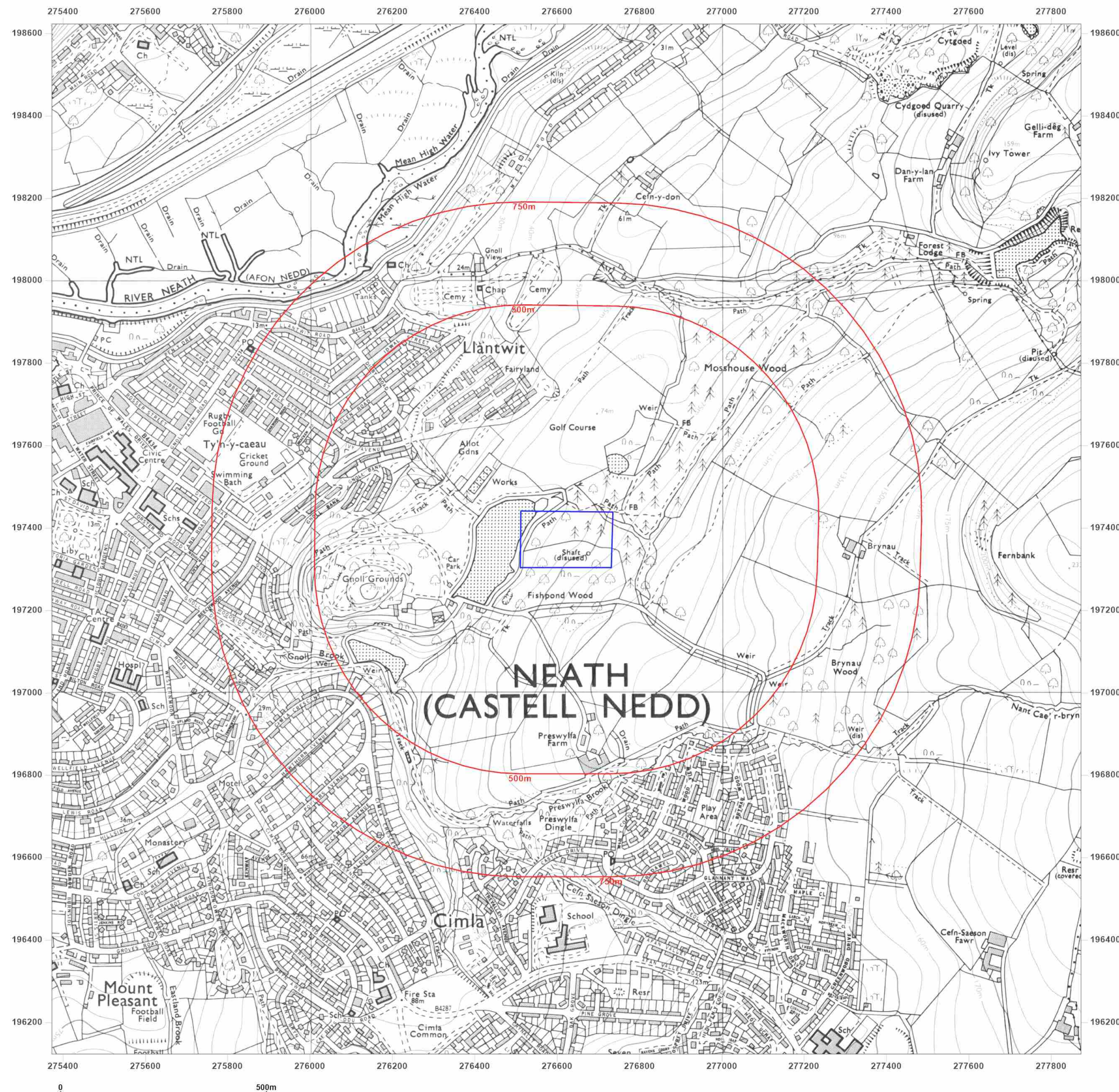


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Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1989
Revised 1991
Edition N/A
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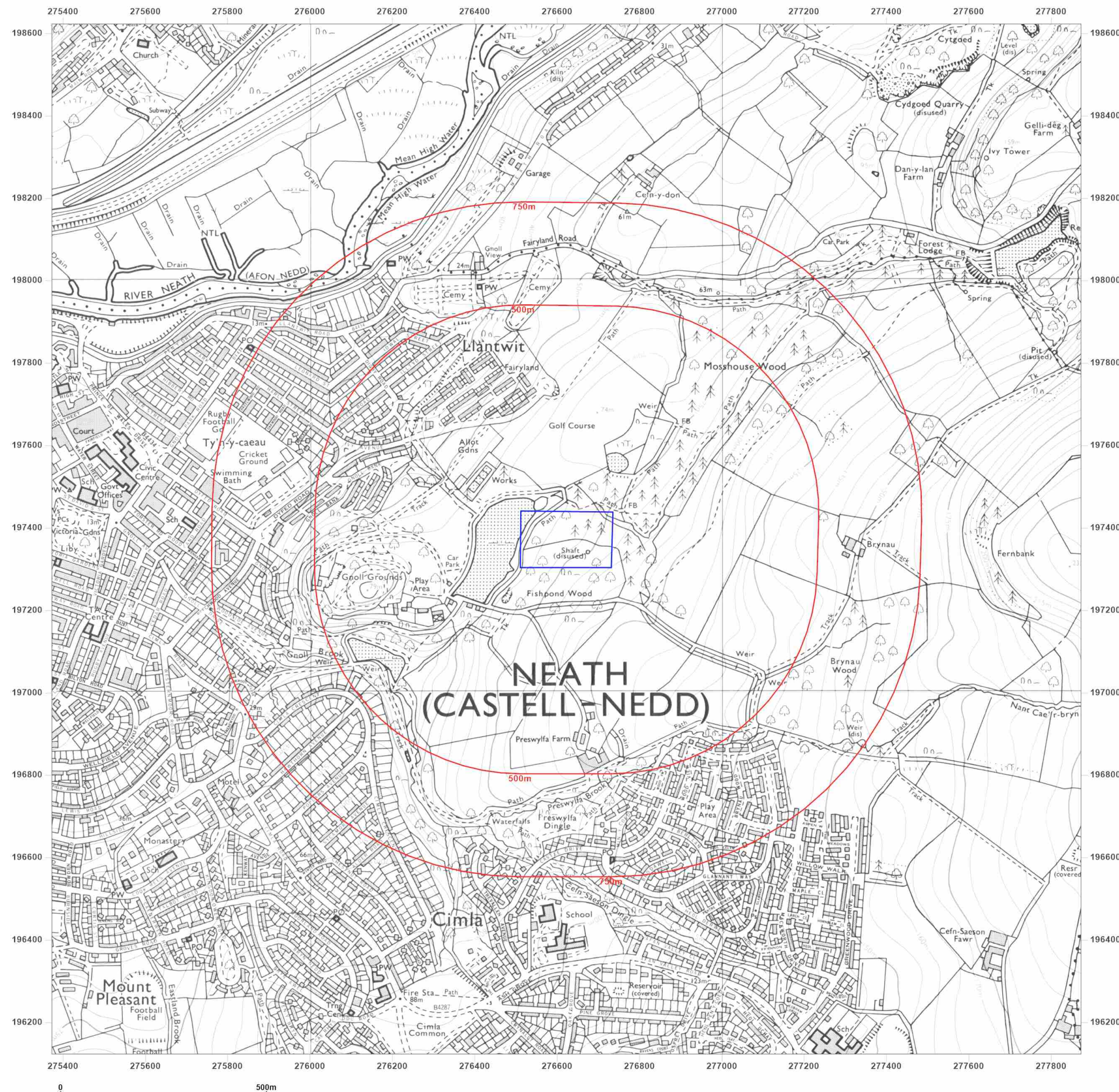


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Production date: 18 May 2023

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www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

276627 197376

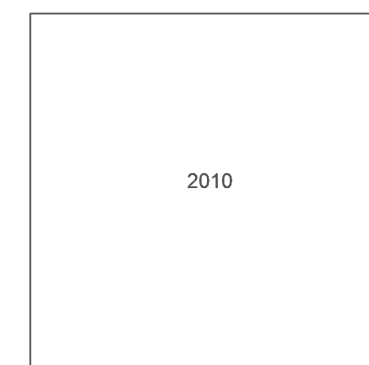
Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



Produced by
Groundsure Insights
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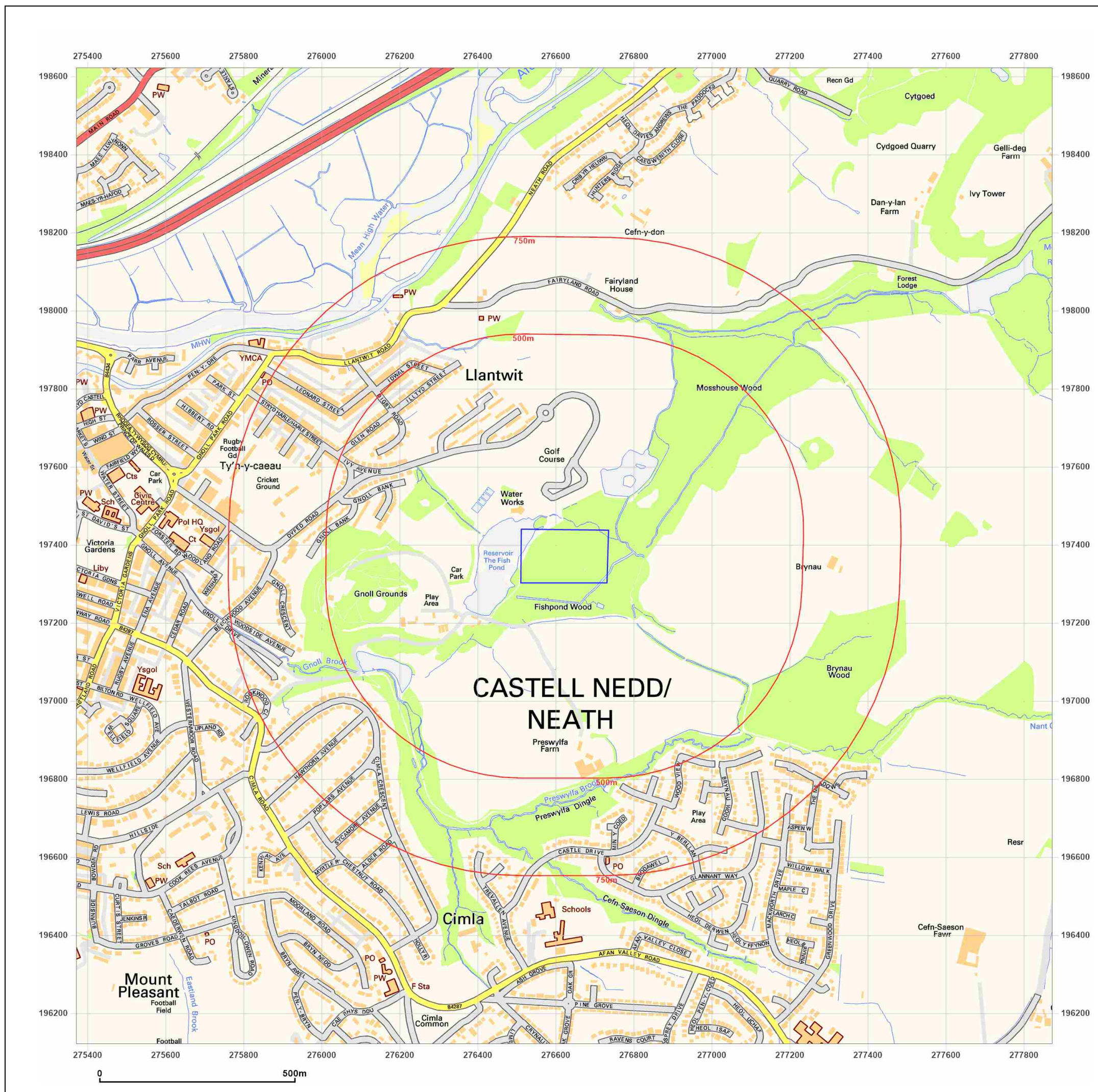


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Production date: 18 May 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

276627 197376

Client Ref: Gnoll_Country_Park_8603_PO11551_BC
Report Ref: ESP-QU2-5C1-VP8-BP3
Grid Ref: 276622, 197372

Map Name: National Grid

Map date: 2023

Scale: 1:10,000

Printed at: 1:10,000



2023



Produced by
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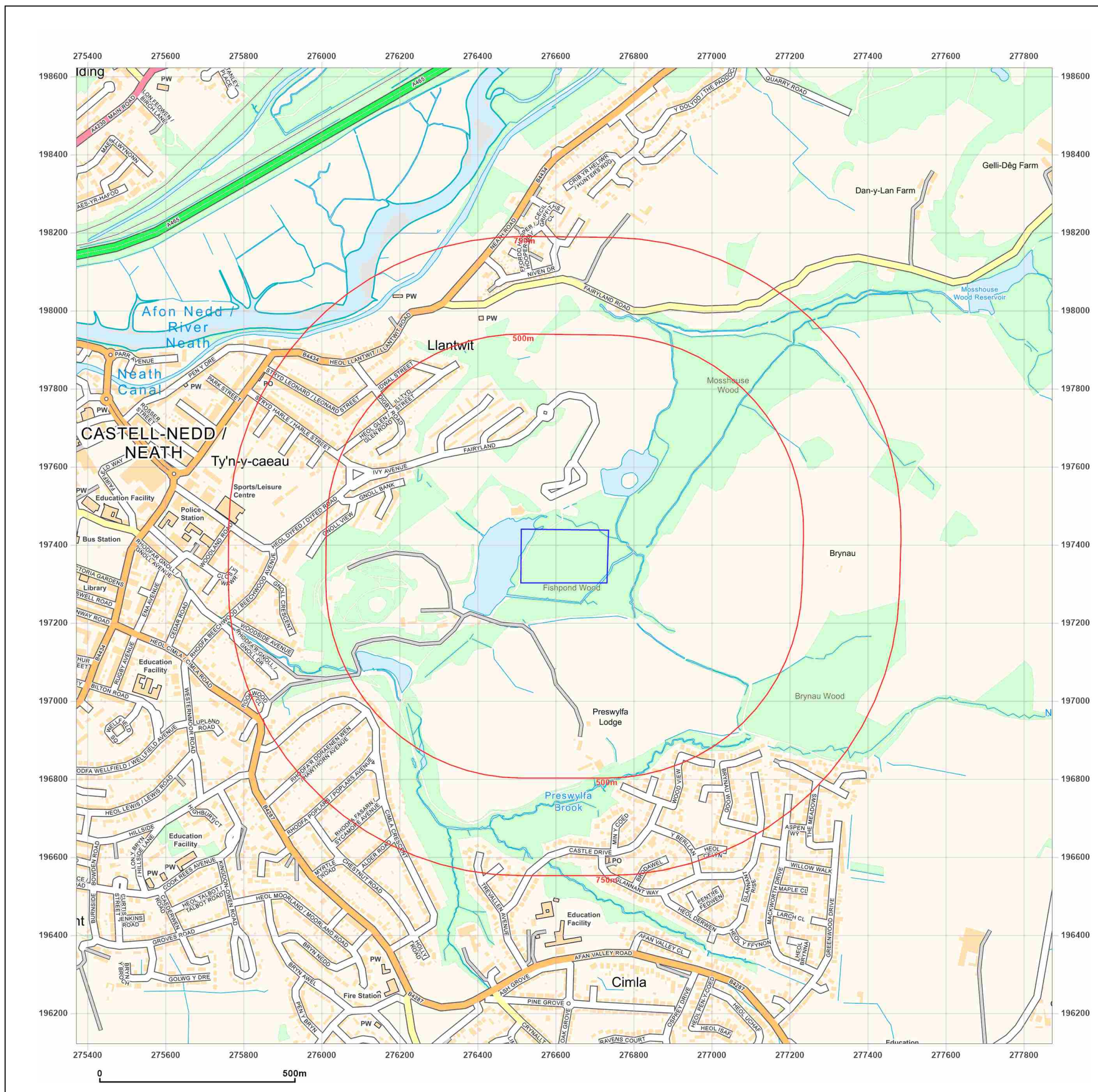


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Production date: 18 May 2023

Map legend available at:
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APPENDIX B1 Coal Authority Mining Report, Site A



The Coal
Authority

Consultants Coal Mining Report

Gnoll Country Park (western
Development)
Fairylane
Neath
Neath Port Talbot
SA11 3EF

Date of enquiry:	10 May 2023
Date enquiry received:	10 May 2023
Issue date:	10 May 2023

Our reference:	51003354225001
Your reference:	8603 PO11531 BC



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Earth Science Partnership

Enquiry address

Gnoll Country Park (western Development)
Fairyland
Neath
Neath Port Talbot
SA11 3EF

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

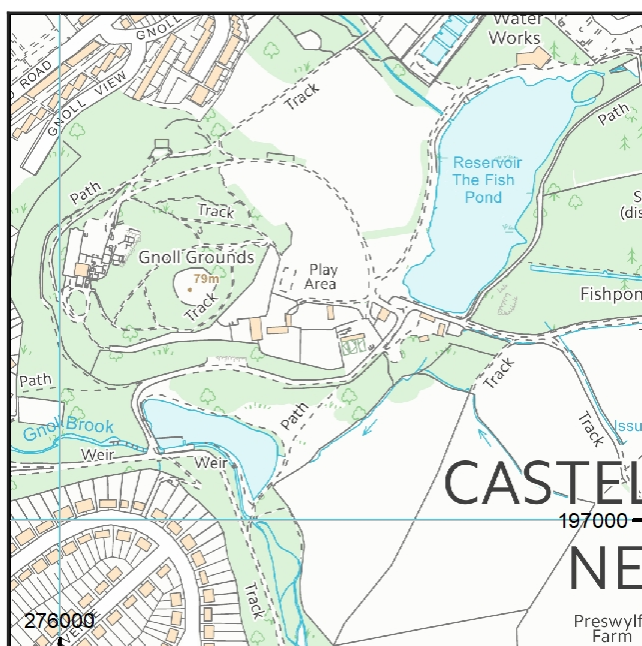
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	UNNAMED	Coal	4ED6	134	Beneath Property	9.1	North	160	1881

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR1671	R10975	1999
PO0	SWR2654	

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
UNNAMED	Coal	Yes	Within	N/A	87

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

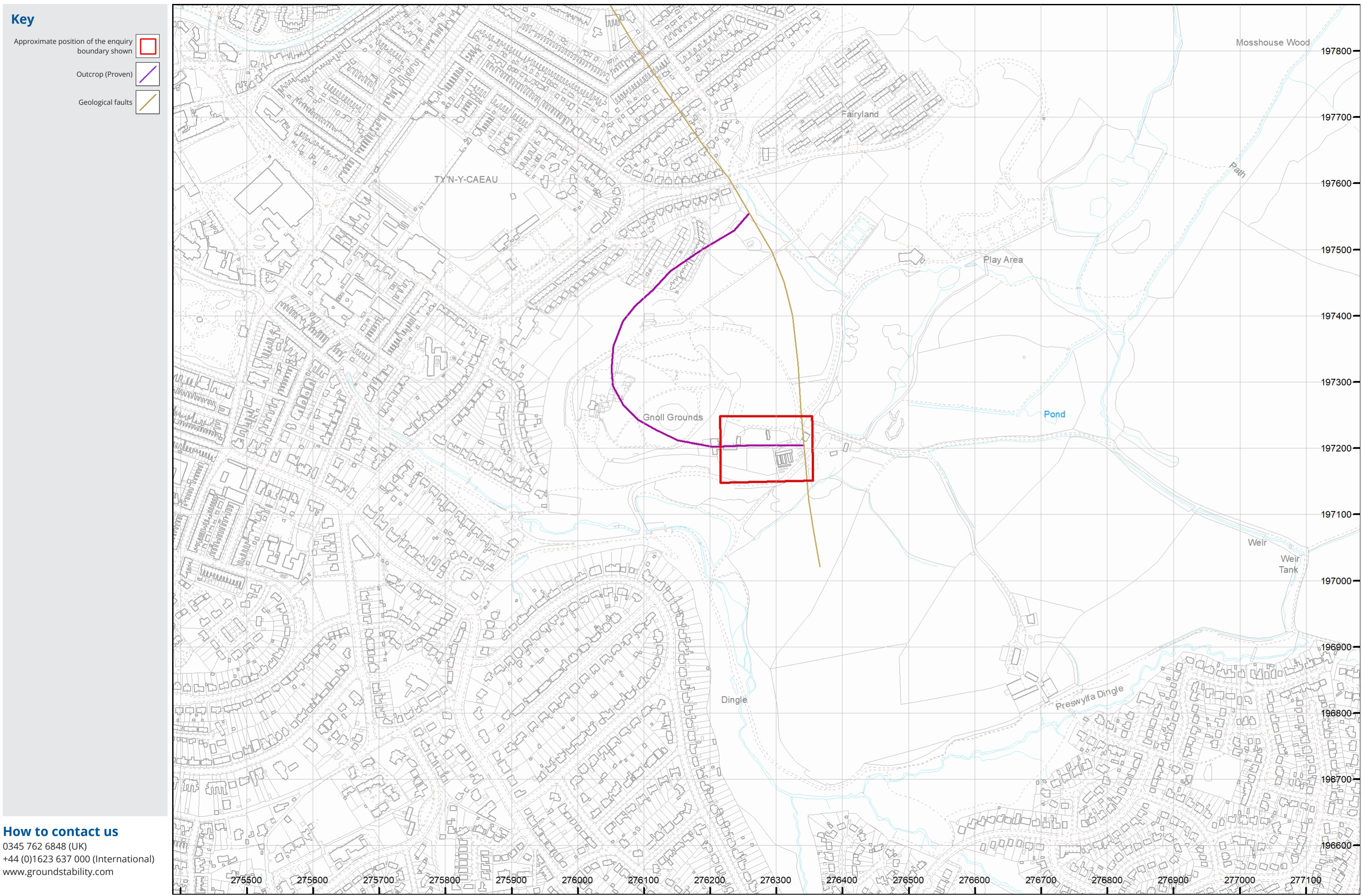
Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



APPENDIX B2 Coal Authority Mining Report, Site B



The Coal
Authority

Consultants Coal Mining Report

Gnoll Country Park (eastern
Development)
Fairyland
Neath
Neath Port Talbot
SA11 3EF

Date of enquiry: 10 May 2023
Date enquiry received: 10 May 2023
Issue date: 10 May 2023

Our reference: 51003354227001
Your reference: 8603 PO11532 BC



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Earth Science Partnership

Enquiry address

Gnoll Country Park (eastern Development)
Fairyland
Neath
Neath Port Talbot
SA11 3EF

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

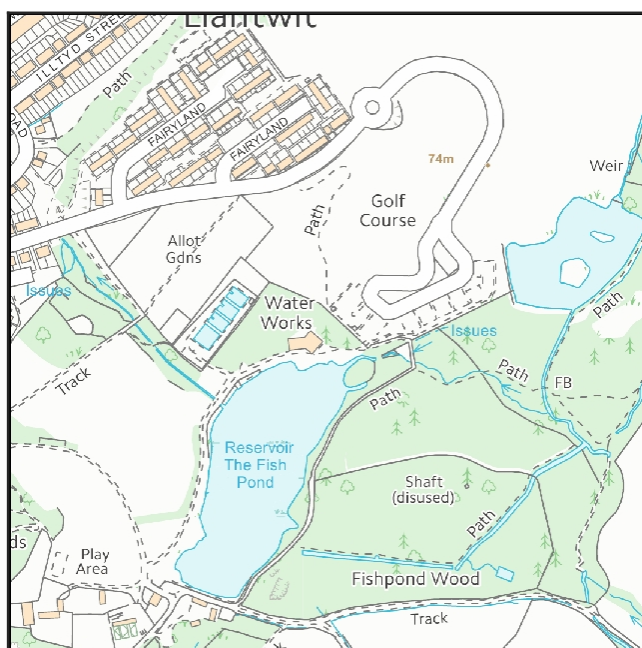
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR1671	R10975	8437
1999	PO0	SWR2654

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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+44 (0)1623 637 000 (International)
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APPENDIX B3 Coal Authority Mining Report, Site C



The Coal
Authority

Consultants Coal Mining Report

Gnoll Country Park
Fairylane
Neath
Neath Port Talbot
SA11 3QJ

Date of enquiry: 18 May 2023
Date enquiry received: 18 May 2023
Issue date: 18 May 2023

Our reference: 51003355972001
Your reference: 8603 PO11552 BC



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Earth Science Partnership

Enquiry address

Gnoll Country Park
Fairyland
Neath
Neath Port Talbot
SA11 3QJ

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

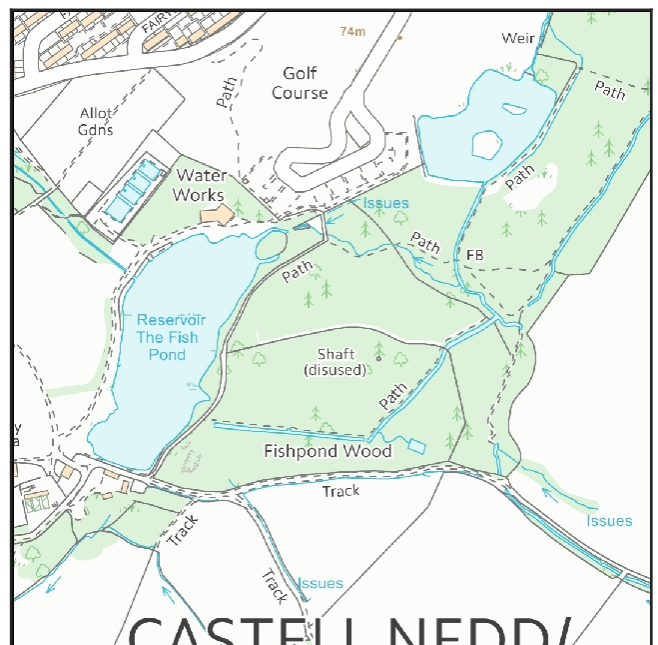
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	276197-004	276674 197337		Coal	
Shaft	276197-009	276667 197350		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR1671	PO0	SWR2654
---------	-----	---------

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

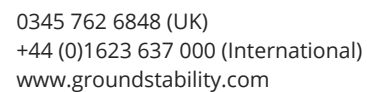
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.



GENERAL NOTES

1. Earth Science Partnership (ESP) believes that providing information about limitations is essential to help clients identify and therefore manage their risks. These risks can be mitigated through further investigation or research, but they cannot be eliminated. This report may not be used for any purpose other than that for which it was commissioned.
2. This report includes available factual data for the site as obtained only from the sources described in the text. The data are related to the site on the basis of the site location and boundary information provided by the client. The findings and opinions conveyed in this assessment are based on the information obtained from a variety of sources as detailed in the report, which ESP believe are reliable. Nevertheless, ESP cannot and does not guarantee the authenticity or reliability of the information it has relied on. It is possible that the assessment failed to indicate the existence of further sources of information on the site. Assuming such sources do exist, their information could not have been considered in the formulation of the opinions and findings in this report. It should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
3. In preparing this report it has been assumed that all past and present occupants of the site have provided all relevant and other information, especially relating to known or potential hazards. This report is not required to identify insufficiencies or mistakes in the information provided by the user/owner or from any other source, but has sought to compensate for these where obvious in the light of other information.
4. Reports are normally prepared and written in the context of a stated purpose, and should not, therefore be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission.
5. The opinions presented in this report are based on the findings derived from a site inspection, investigations and a review of historical and other records. The report details any indicators that may suggest that hazardous substances exist at the site at levels likely to warrant mitigation. Not finding such indicators does not mean that hazardous substances do not exist at the site. The most recent site inspection was undertaken as detailed within the report. Circumstances on sites are subject to change and certain indicators of the presence of hazardous substances that may have been latent at the time of this inspection may subsequently have become observable.
6. The work carried out for the assessment can only investigate a small portion of the subsurface conditions. Certain indicators or evidence of hazardous substances may have been outside the limited portion of the subsurface investigated, latent at the time of the work or only partially intercepted by the works, and thus their full significance could not be appreciated. In this regard, groundwater levels are particularly susceptible to variation and it should be noted that groundwater levels are subject to diurnal, seasonal, and climatic changes and are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation.
7. Accordingly, it is possible that the assessment failed to indicate the presence or significance of hazardous substances. Assuming such substances exist, their presence could not have been considered in the formulation of the report's findings and opinions. The conclusions resulting from this study and contained in this report are not necessarily indicative of future conditions or operating practices at or adjacent to the site. Where differing ground conditions or suspect materials are encountered during future site works, additional specialist advice should be sought to assess whether the new information will materially affect the recommendations currently provided herein and whether further consideration is required. Any limiting factors should be assessed by an appropriately qualified specialist.
8. The assessment was prepared for the sole internal use and reliance of the Client. The report shall not be relied upon by or transferred to other parties without the express written authorisation of the Earth Science Partnership. If an unauthorised party comes into possession of the report, they rely on it at their peril and the authors owe them no duty of care and skill.
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