



Kimberly-Clark, Flint
Green Hydrogen Facility
Preliminary Ecological Appraisal

Produced for:



April 2023

This report contains sensitive information pertaining to locations of badger. This will need to be redacted prior to it being issued to the public domain.

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Quality Assessment Record

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1 INTRODUCTION

1.1 The Scheme

1.1.1 Etive Ecology Ltd was commissioned by ITP Energised Ltd to undertake an ecological appraisal of a plot of land south of the Kimberly-Clark Plant, Flint. The application site is centred on National Grid References SJ 23352 73312.

1.1.2 The proposed scheme is for the development of a Green Hydrogen Electrolysis (GHE) Facility. The applicant is planning to apply for full planning permission for the development and the scheme which includes the construction of hydrogen blocks, storage units, a substation and associated infrastructure.

1.2 Scope of this Report

1.2.1 The ecological appraisal of the proposed scheme is broadly based upon the *Guidelines for Preliminary Ecological Appraisal* (Chartered Institute of Ecology and Environmental Management, 2017).

1.2.2 The aim of the assessment is to obtain information on the existing ecological composition and value of the site, and to conduct a preliminary assessment of the likely significance of ecological impacts. To achieve this, the following steps were taken:

- The field survey area and the 'zone of influence' of the scheme have been identified.
- A desk study has been undertaken using freely available resources and biological records obtained from the Local Record Centre (COFNOD).
- Baseline information on the site and surrounding area has been recorded through an 'extended Phase 1 survey', including a Phase 1 habitat survey (JNCC 2010) and consideration of notable and/or protected habitats and species (IEA 1995)
- The ecological features found to be present have been evaluated (CIEEM, 2019)
- Invasive plant and animal species (such as those listed on Schedule 9 of the Wildlife & Countryside Act [WCA]) have been identified.
- Potential constraints to the proposed development and any ecological impacts arising from the development have been identified.
- Recommendations for further survey have been made, where appropriate.
- Mitigation recommendations have been provided based on current information.

1.2.3 A Phase 1 Habitat Map of the survey area is presented in **Appendix A**. Target notes are marked on the Phase 1 Habitat Map and are used to link the report text to locations on site. Photographs taken during the survey are presented in **Appendix B**.

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify any nature conservation sites within 1km of the site. The desk-based exercise also considered the potential for protected and/or notable species of fauna to be found within 1km of the site.

2.1.2 The following sources of information were utilized:

- MAGIC website (<http://www.magic.gov.uk/MagicMap.aspx>)
- Flintshire County Council website (<http://www.flintshire.gov.uk>)
- Natural Resources Wales website (<https://naturalresources.wales/>)
- Wales Biodiversity Partnership (<https://www.biodiversitywales.org.uk/>)

2.2 Extended Phase 1 Habitat Survey

2.2.1 The initial site visit was made on the 12th of January 2023.

2.2.2 The survey comprised an extended Phase 1 Habitat Survey. This survey method follows the habitat assessment and classification procedure outlined by the Handbook for Phase 1 Habitat Survey (JNCC, 2010), whereby all habitats are identified, described, and mapped using a standard classification.

2.2.3 The extended component of the survey is developed from the methodology described in Guidelines for Baseline Ecological Assessment (IEA, 1995). All habitats and features within the survey area are assessed for their potential to support legally protected or notable species (nationally or locally).

2.2.4 These species include:

- **Amphibians:** ponds within 250m of the site were considered for their suitability to support a range of amphibians, including great crested newts (GCN).
- **Reptiles:** the site was assessed for suitable habitats including rough grassland, cloddiau, brownfield sites and habitat edges in general which would provide cover, basking and foraging habitat for reptile species.
- **Otters:** watercourses within 100m of the site were checked for signs of otter and assessed for their suitability to support the species.
- **Water voles:** watercourses on site were checked for signs of water vole presence and assessed for their potential to support the species.
- **Bats:** all trees and structures on site were assessed as to their suitability to support roosting bats at any point during the year. Trees and structures were then categorised for their potential to support roosting bats as per the *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J., 2016).
- **Birds:** the site was assessed for suitable habitats for nesting birds, including habitats suitable for ground-nesting species.
- **Badgers:** all habitats within 30m of the site were surveyed where possible to identify the presence of any setts or signs of badger activity.

- **Invasive plant species:** this assessment does not constitute a full Schedule 9 species survey. The potential for any Schedule 9 species was assessed and any species that were encountered were mapped and noted.

2.3 Assessment of Ecological Value

2.3.1 The value and sensitivity of ecological features was determined based on the guidance given in *Guidelines on Ecological Impact Assessment* (CIEEM, 2019). Individual ecological receptors (habitats and species that could be affected by the development) were assigned levels of importance for nature conservation in one of the following categories:

- International
- UK
- National
- County
- District;
- Local, or
- within the immediate zone of influence or site only.

2.3.2 For a given receptor, determination of value includes consideration of the size, secondary or supporting value/function, conservation status and quality of the species or feature

2.5 Limitations

2.5.1 Access was permitted to all land within the proposed development footprint. Access beyond the site boundary was restricted but much of the adjacent land was at least visible to the surveyor.

2.5.2 There are therefore considered to be no significant limitations to the undertaking of or the accuracy of the survey work or subsequent ecological appraisal.

3 RESULTS

3.1 Desk Study

Designated Sites

3.1.1 There is one statutory for nature conservation located within 1km of the site:

- Dee Estuary (SSSI/SAC/Ramsar): located approximately 670m northeast of the application site. The Dee Estuary is notified for supporting internally important populations of waders and wildfowl, along with various regionally and nationally scarce fish, insects, plants and other vegetation. It is also an important staging post for numerous migrating birds during spring and autumn. The site includes a number of estuarine habitats of international importance including inter-tidal mudflats and coastal saltmarshes.

3.1.2 There are four non-statutory nature conservation sites within 1km of the site:

- Coed Cae-Crwn (LWS): a woodland block located approximately 610m southwest of the application site. It is designated for its mixed woodland habitat.
- Coed Ffrith (LWS): a woodland block located approximately 830m northwest of the application site. It is designated for its broadleaved woodland habitat.
- Cornist Wood (LWS): a woodland block located approximately 860m southwest of the application site. It is designated for its mixed woodland habitat.
- Flint Marsh (LWS): coastal marsh located approximately 820m northeast of the application site. It is designated as a saltmarsh within the Dee Estuary.

Species Records

3.1.3 Below is a summary of species records:

- Amphibians: common frog, common toad, great crested-newt and smooth newt.
- Bats: common pipistrelle and soprano pipistrelle.
- Birds: various bird species including barnacle goose, bullfinch, curlew, dunnock, grey heron, lapwing, little egret, pink footed-goose, reed warbler and wigeon.
- Invertebrates: various invertebrate species including blue-tailed damselfly, harlequin ladybird, migrant hawkler and silky snail.
- Mammals: badger, brown hare and hedgehog.
- Reptiles: common lizard and slow-worm.
- Riparian mammals: otter.
- INNS: Himalayan balsam, and Japanese knotweed.

Environment (Wales) Act 2016

3.1.4 Section 7 of the Act replaced the 'Biodiversity duty' in Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, which requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'Biodiversity duty'.

3.1.5 The Section 7 list is now used to identify those habitats and species of Principal Importance in Wales under the Environment (Wales) Act. The following relevant habitats and species are found on this list:

Table 3.1.1 Relevant Section 7 Habitats/Species

Habitats	Species
Lowland mixed deciduous woodland	Common toad
Hedgerows	Great crested newt
Lowland meadow	Brown hare
	Hedgehog
	Otter
	Various bat species
	Various bird species
	Various invertebrate species

3.2 Extended Phase 1 Habitat Survey

3.2.1 The walkover survey was undertaken by Russell Grey (BSc, MCIEEM, CEnv) and Sophie Frost (BSc, MCIEEM). The survey was undertaken on a bright and sunny day in January, with no constraints to the survey of any part of the red line application site.

3.2.2 The application site is located to the southwest of the Kimberly-Clark Plant which itself comprises a mixture of mixed plantation woodland, mixed semi-natural woodland, hardstanding, buildings and six ornamental water-bodies. To the immediate south of the site is Red Wood (semi-natural broadleaved woodland), with industrial and residential land-use beyond. To the west and northwest lies pastoral farmland comprising of improved grassland pasture bordered by hedgerows, trees and ditches. Other than the ornamental ponds within the Kimberley-Clark site, there are no other waterbodies within 250m of the application site boundary.

Habitats

3.2.3 The habitat assemblage of the site is described by the target notes. Each target note is linked to the Phase 1 Habitat Map in **Appendix A** (Table 3.2.1)

Table 3.2.1 Target Notes within the Phase 1 Habitat Map

Target No.	Notes	Receptors / Constraints
1	<u>Improved Grassland</u> makes up the main body of the development footprint. The grassland appears to be sown for use as silage.	N/A
2	<u>Semi-Natural Broadleaved Woodland</u> to the south of the site (Red Wood) comprising oak (<i>Quercus</i>), silver birch (<i>Betula pendula</i>), sycamore (<i>Acer pseudoplatanus</i>) and alder (<i>Alnus</i>), with understory of holly (<i>Ilex</i>) and bracken (<i>Pteridium</i>). A number of the trees along the edge of the woodland are covered in a dense ivy (<i>Hedera</i>).	Nesting Birds Roosting Bats Foraging/Commuting Bats
3	Block of semi-natural broadleaved woodland on a spur of high ground immediately to the west of the application site. This woodland block is dominated by oak, with hazel (<i>Corylus</i>), blackthorn (<i>Prunus spinosa</i>), bramble (<i>Rubus</i>), and dogrose (<i>Rosa canina</i>) in the under-storey.	Nesting Birds Roosting Bats Foraging/Commuting Bats
4	<u>Species-Poor Native Hedgerow</u> comprising hawthorn (<i>Crataegus</i>), ivy, bramble, holly, and alder.	Nesting birds

Target No.	Notes	Receptors / Constraints
5	<p><u>Fence</u> line boundary to the northeast of the main development footprint, with <u>scattered scrub</u> on the inside of the boundary. The woodland to the northeast of the boundary is well-established mixed plantation on sloping ground down to the Kimberley-Clark plant, comprising Scots pine (<i>Pinus sylvestris</i>), young alder, semi-mature silver birch, and regenerating ash and sycamore, with an understory comprising hazel, gorse and dense bramble.</p>	<p>Nesting Birds Foraging/Commuting Bats</p>
6	<p>A continuation of the well-established mixed plantation woodland described in TN 5 above. The eastern edge at the foot of the woodland consists of clematis, buddleia, helleborine sp., hard rush, bramble and dogwood. The section of woodland within the application site boundary is dominated by young alder, sycamore and ash, with the vast majority of trees having a diameter at breast height (DBH) of <150mm. All trees which are <150mm DBH are in good condition with no potential roost features (PRF). There are also mammal pathways running through this area of woodland.</p>	<p>Nesting Birds Foraging/Commuting Bats Badger</p>

Protected Species

3.2.4 The following text summarises the suitability of the survey area to support various legally protected species, based on the descriptions provided in the above target notes.

Amphibians

3.2.5 There are no aquatic features located within the application site boundary. The nearest ponds are those within the Kimberly-Clark Plant adjacent to the north of the application site. These ponds are all ornamental and artificially constructed ponds, receiving runoff and drainage from the grounds of the plant and also supporting fish populations. As a result, they are considered to be unsuitable to support GCN.

3.2.6 The terrestrial habitat within the application site comprises of improved grassland and mixed woodland. The grassland offers few little in terms of foraging or sheltering value to amphibians and is considered to be of negligible suitability to support GCN. The woodland habitat has a sparse ground flora due to the dense tree spacing within the original plantation woodland, which therefore offers few opportunities for GCN to forage or take shelter. It is therefore considered that the woodland habitat within the application site is of low value to GCN and other amphibians.

3.2.7 There are no records of GCN or any other amphibians within the application site boundary. Common toads have been recorded 780m northeast of the site within saltmarsh habitat. There have been numerous recordings of GCN within 1km of the application site, the closest being 220m to the northwest, although these records are over 20 years old.

- 3.2.8 It is therefore concluded that GCN are likely absent from the application site boundary due to the low value habitat and absence of recent records. However, GCN and other species of amphibian may be present in the local area where suitable habitat is found in close proximity to suitable breeding ponds.

Badgers



- 3.2.9 The terrestrial habitat within the application site is considered to be of low suitability for badgers, offering only occasional foraging potential. The semi-natural broadleaved woodland to the south and southwest does have the potential to support badgers and badger setts owing to its relatively undisturbed and mature habitat. The plantation woodland that surrounds the Kimberley-Clark site is of lesser value to badgers owing to the disturbance associated with the operational site. A number of mammal pathways cross beneath fencing that surrounds the improved grassland field of Target Note 1 and a single mammal pathway was found within the plantation woodland. However, no hairs or prints, or any other signs of badger, were found anywhere on site during the walkover survey. Land up to 30m from the application site boundary was fully inspected by the surveyors.
- 3.2.10 There are numerous records of badgers within and surrounding the application site boundary. There was a sighting of a badger within the red line boundary along the access point into the improved grassland area of the application site, and four other records located within the Red Wood south of the application site. There are numerous other badger records in all directions within 1km of the site.
- 3.2.11 Given the number of records for the local area, it is acknowledged that badgers are present locally but that there are no badger setts within 30m of the application site.



Bats


- 3.2.12 The terrestrial habitat of potential value to bats within the application site include the semi-natural broadleaved woodland and the mixed plantation woodland to the south, east and north. These habitats provide suitable corridors for bat commuting and opportunities for foraging. A narrow and short corridor of the application site runs through the semi-natural broadleaved woodland habitat to the east of the main grassland field. Here, there were five trees with a dbh of >150mm which were considered for their Bat Roost Potential (BRP¹). Each tree note in Table 3.2.2 below is linked to the Phase 1 Habitat Map within **Appendix A**.

¹ **High** = trees or buildings with one or more potential roost sites suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time. **Medium** = trees or buildings with one or more potential roost sites that could be used by bats but unlikely to support a roost of high conservation status. **Low** = trees or buildings with one or more potential roost sites that could be used by individual bats opportunistically, but are not suitable to be used on a regular basis by larger numbers of bats. **Negligible** = negligible features unlikely to be used by roosting bats.

Table 3.2.2 Trees Assessed for their BRP.

Tree No.	Potential Roosting Features (PRF)	BRP Assessment
1	<p>Oak tree with approximately 400mm DBH. Good condition overall.</p> 	Negligible
2	<p>Multi-stem silver birch with approximately 200mm DBH for each stem with a sparse ivy cover. There is peeling bark and occasional snap out features.</p> 	Low

Tree No.	Potential Roosting Features (PRF)	BRP Assessment
3	<p>Oak tree with approximately 600mm DBH. There are snap out features within the tree.</p> 	Low
4	<p>Oak tree which has approximately 600mm DBH with dead limbs and a dense ivy cover.</p> 	Low

Tree No.	Potential Roosting Features (PRF)	BRP Assessment
5	<p>Poplar (<i>Populus</i>) tree with a knot hole.</p> 	Low

3.2.14 The Cofnod data search returned no records of bats within the application site. However, both common pipistrelle and soprano pipistrelle have been recorded in land surrounding the site, predominantly within the residential area located to the southeast. There are also records of both pipistrelle species 230m to the northeast of the site within the grounds of the Kimberly-Clark Plant.

3.2.15 It is concluded that the site offers low to moderate value commuting/foraging habitat and that there are a number of trees with Low potential to support roosting bats.

Birds

3.2.16 The improved grassland that dominates the majority of the development footprint is of negligible value to nesting birds, owing to its sparse vegetation cover and its agricultural/pastoral land-use. The woodland habitat through which a narrow and short corridor of the application site runs is considered to be suitable to support a small number of common and widespread species of woodland bird during the breeding season. There are also good foraging opportunities in land adjacent to the application site.

3.2.17 The data search from COFNOD returned results for nesting birds in land surrounding the application site, but not within it. Many bird species were recorded within the Red Wood to the south of the site, including bullfinch (*Pyrrhula pyrrhula*) and dunnock (*Prunella modularis*). In conclusion, it is considered likely that birds are present within the broadleaved woodland within and surrounding the site.

Reptiles

- 3.2.18 The terrestrial habitat within the application site boundary is comprised of short-sward improved grassland and closed canopy woodland; both of which lack suitable foraging and basking opportunities for reptiles. These habitats and the site in general are therefore considered to be of unsuitable to support reptiles.
- 3.2.19 There were no signs of reptiles recorded during the walkover survey, primarily due to the timing of the survey outside of the active season. Direct sightings are rare even within optimal habitats.
- 3.2.20 There are records of slow-worm (*Anguis fragilis*) 757m south of the site (1997) and common lizard (*Zootoca vivipara*) 817m east of the site (2014). There are numerous dispersal barriers between these points and the application site. Therefore, due to the limited records within close proximity to the site, and the largely unsuitable habitat for reptiles within the site boundary, it is considered that reptiles are absent from the application site and immediately surrounding land.

Riparian Mammals

- 3.2.21 There is no aquatic habitat within the application site boundary. The terrestrial habitat within the site boundary is of negligible value to riparian mammals such as otter (*Lutra lutra*) due to its open structure and its disturbance from agricultural activities and public access. Otters have previously been observed within one of the larger water-bodies on the Kimberly-Clark Plant grounds and have also been recorded on the Dee Estuary saltmarsh.
- 3.2.22 There were no signs of any riparian mammals recorded during the walkover survey, on site or within any adjacent habitat.
- 3.2.23 The COFNOD data search returned records of otter 633m to the north of the application site (2006). It is therefore considered that riparian mammals are absent from the application site but occasional utilise aquatic habitat 100m adjacent to the site boundary.

3.3 Notable Species

- 3.3.1 The site is considered to be of low ecological value for most species of flora and fauna, owing to the application site comprising predominantly of improved grassland, lacking species diversity, and foraging and sheltering opportunities. The site is considered to have low potential to support species such as brown hare, hedgehog or any notable assemblage of invertebrates. There are records for brown hare, hedgehog and invertebrates within 1km of the site.
- 3.3.2 No notable species of flora were noted during the walkover survey, due primarily to the timing of the survey. However, no such species are expected to be present owing to the management of the grassland and the disturbance from public access to the woodland.

3.4 Invasive Non-Native Species (INNS)

- 3.4.1 There were no signs of any INNS within the application site or adjacent land during the walkover survey. However, Japanese Knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*) have both been reported within 1km of the application site.

3.5 Key Ecological Receptors

3.5.1 The extended Phase 1 Habitat Survey has identified the following key ecological receptors associated with the site:

- Habitat; the semi-natural broadleaved woodland adjacent to the south of the site is considered to be a Habitat of Principal Importance in Wales. *Local Value*.
- GCN; considered likely absent from the application site but historic records indicate present >250m away. *Local Value*.
- Badgers; considered to be likely absent from the application site but recorded recently in adjacent habitat. *Local Value*.
- Bats; there are four trees within the application site boundary which have been classified to have Low BRP. The site also has the potential to support foraging/commuting bats. *Local Value*.
- Nesting Birds; the broadleaved woodland within and surrounding the application site is considered to be of value to nesting birds. *Local Value*.
- Notable species; the site is potentially suitable for notable species of invertebrates, as well as brown hare and hedgehog. *Local Value*.
- INNS; no INNS have been recorded on site but they are known to be locally present. Therefore, there is a risk of these species being present or being accidentally caused to spread as a result of the proposed scheme. Potentially significant at the *Local Scale*.

3.5.2 The protected species / ecological receptors not bullet-pointed above are considered to be of *less than local value*.

4 DISCUSSION

4.1 Proposed Scheme

The Development

4.1.1 The proposed scheme is for the construction of a Green Hydrogen Electrolysis (GHE) Facility. A draft site layout has been prepared and is included here as Figure 2 (**Appendix A**). The facility is expected to comprise of:

- Three 2.5MWe ‘proton exchange membrane’ electrolyzers;
- Numerous tanks, cabinets, compressors and cabinets;
- DNO and Project 11kV substation compounds and HV cabling;
- Hydrogen, oxygen, nitrogen, compressed air, water supply, water waste, and heat transfer pipe distribution network;
- Hardstanding;
- Earth mounds;
- Fencing, and;
- Vehicular access.

4.1.2 The following assessment of impacts has been prepared based on the scheme as illustrated in Figure 2.

4.2 Likely Impacts

Habitats

4.2.1 The development will result in the loss of approximately ~0.7ha of improved grassland (negligible ecological value), 0.05ha of mixed plantation woodland (moderate ecological value) and 0.05ha of semi-natural broadleaved woodland (Habitat of Principal Importance in Wales, high ecological value). The construction phase of the scheme may also pose a risk of disturbance to the woodland habitats, from noise, littering, dust, vibration, etc. Without mitigation the proposed scheme is considered likely to have a minor impact on habitats at the Local scale.

GCN

4.2.2 The majority of the development footprint lies within improved grassland of negligible value to GCN and other amphibians. A smaller footprint of the scheme runs through woodland habitats of potential value to GCN and other amphibians. The loss of these woodland habitats poses a minor loss of suitable habitat to GCN but also poses a low risk of harm and disturbance during the construction phase. Without mitigation the proposed scheme is likely to result in a minor impact on GCN and other amphibians at the Local scale.

Badgers

4.2.3 No badger setts have been found anywhere within 30m of the development footprint, therefore no direct impacts are posed to setts. However, badgers are known to be present locally and are therefore at risk of harm during the construction phase. The loss of a small area of woodland and grassland habitat is also an adverse impact on the foraging value of the area for badgers. Without mitigation, the proposed scheme is likely to result in a minor impact on badgers at the Local scale.

Bats

- 4.2.4 The footprint of the scheme has been designed so as to avoid the loss of four trees with Low BRP and therefore Avoiding any potential impacts on roosting bats (if they are found to be present within any of these trees). The scheme will also result in the loss of woodland habitat of potential foraging/commuting value and also has the potential to cause ongoing disturbance in the form of noise and artificial lighting to adjacent habitats of foraging/commuting value. Without mitigation the proposed scheme has the potential to result in a minor impact on bats at the Local scale.

Nesting Birds

- 4.2.5 The proposed development poses a risk of harm, injury, and disturbance to any nesting birds found within the site boundary. The loss of woodland habitats is likely to be the key impact on nesting birds as this is the area of greatest value. If habitat is cleared during the nesting bird season, the scheme is likely to pose a minor adverse impact on nesting birds at the Local scale.

Notable Species

- 4.2.6 The site has the potential to support hedgehogs, brown hare and various species of invertebrate. These species are likely to occupy both the woodland and the grassland habitats, at different times of the year. The loss of these habitats to the development footprint poses a loss of suitable habitat for these species, whilst there is also a risk of direct harm posed during site clearance. Without mitigation the proposed scheme is likely to have a minor adverse impact on notable species at the Local scale.

INNS

- 4.2.7 The development of the site poses a risk of introducing INNS to the site, such as Japanese knotweed and Himalayan balsam, during the construction phase. The introduction of INNS would result in an adverse impact on the existing habitats and associated species of flora and fauna. Without mitigation, the proposed scheme is unlikely to have a moderate adverse impact as a result of INNS introductions at the Local scale.

4.3 Recommendations

Habitats

- 4.3.1 To mitigate for the loss of woodland habitat to the footprint of the scheme, it is recommended that compensatory habitat is provided in the vicinity of the Site:
- To be secured by a planning condition, a planting scheme should be prepared for the creation of a species-rich native hedgerows with trees. The hedgerow should comprise at least five woody species, with broadleaved standards every 10m. The hedgerow should then be subject to a long-term conservation management plan.
- 4.3.2 In addition, a selection of the woody material arising from the clearance of the construction zone, should be used to create four brush/habitat piles within the adjacent woodland.

GCN

- 4.3.3 To avoid the low risk of impacting GCN and other amphibians during the construction phase, the following Reasonable Avoidance Measures (RAMs) will be followed to protect from accidental harm. These RAMs will be incorporated into a Construction Environmental Management Plan (CEMP):
- Clearance of ground vegetation, detritus and any other potentially suitable refugia for GCN (such as at the edges of the site, around mounds, piles of logs, brash, tree roots and in rough grassland) will be undertaken prior to any construction works.
 - Any clearance works described above will be undertaken with care and by hand by a suitably experienced contractor.
 - If any GCN are encountered, works in the area of the discovery should cease immediately and an experienced ecologist called for advice. The wetland area where GCN have previously been recorded 220m to the northwest would be suitable as a receptor site for any GCN found during the works (subject to landowner permission).
 - During construction works;
 - all materials will be stored off-ground on stillages or pallets.
 - all rubble/spoil/earth arising from works will be skipped or removed from site on a daily basis.
 - any excavations left overnight will either be back-filled and compacted or else covered by plastic sheeting and secured by plywood batons (or similar) to prevent GCN from gaining access.
 - pre-start checks of the working area will be undertaken each morning, looking for any GCN.
 - all site workers will be made aware of the potential presence of GCN and an identified sheet will be kept on site in case any of these animals are encountered.

Badgers

- 4.3.4 The RAMs given above would be adequate in protecting badgers from accidental harm during the site clearance and construction phases of the project. Excavations left overnight should provide suitable means of egress for badgers and pre-works checks should also include searches for signs of badger or badger activity. These additional measures will be incorporated into a Construction Environmental Management Plan (CEMP).

Bats

- 4.3.5 It is recommended that any works within the root protection area of the four trees with Bat Roost Potential are undertaken in line with the recommendations within the Arboricultural Report, to avoid any significant impacts on the longevity of these trees. If any of these trees do need to be directly affected (trimming, limb removals or felling) then the tree should be climbed and inspected by a suitably licensed bat ecologist. If evidence of bat activity is found, the trees should be subject to further bat surveys and a bat license would need to be obtained from NRW in order for the scheme to progress. However, if not evidence of bat usage is found, the trees can be felled without further constraint relating to bats.
- 4.3.6 It is recommended that any artificial lighting used in the GHE Facility be carefully specified and sited so as to minimise the potential impacts on foraging/commuting bats. Lights should be sited as far from the boundaries as possible and directed downwards, with a narrow field

of illumination. Ideally, red lighting elements should be used, as these generally pose least impact on bat activity.

- 4.3.7 To compensate for the general impacts of the scheme, it is recommended that four bat boxes are installed on trees within the adjacent woodland. The specification of these boxes can be provided upon approval of the scheme.

Nesting Birds

- 4.3.8 To ensure no nesting birds are directly affected by the proposed development, it is recommended that all vegetation clearance is undertaken outside of the period of March to August inclusive. Where this is not possible, any clearance work undertaken must be preceded by a nesting bird survey undertaken by a suitably experienced ecologist. Only those areas of the sites where no active nests are present will be available for clearance during the nesting season.

- 4.3.9 To compensate for the loss of potential nesting habitat it is recommended that four bird nest boxes are installed within the adjacent woodland. The specification of these boxes can be provided upon approval of the scheme.

Notable Species

- 4.3.10 To avoid the low risk of impacting notable species such as hedgehog during the construction phase, the RAM's detailed in 4.3.3 will be implemented in full.

INNS

- 4.3.11 It is recommended that industry best practice is followed to ensure that all reasonable precautionary measures are undertaken by all contractors to prevent the introduction of INNS onto site during the construction phase. Where any INNS are found to have been introduced onto site, it will be necessary to eradicate the species post-development.

4.4 Net Benefit for Biodiversity

- 4.4.1 The current value of the application site is considered to be relatively low at the Local scale. The site is comprised primarily of improved grassland used for agricultural purposes; of low species-diversity and subject to a high level of disturbance. The area of woodland that also lies within the red line application site is a mix of plantation woodland that screens the Kimberley Clark site and semi-natural woodland that forms part of Red Wood. The plantation woodland is primarily a landscape feature that has matured with relatively little management, resulting in a stand of single-aged trees, forming a closed canopy woodland with very little ground or shrub layer vegetation. This lack of structure means that the woodland is of relatively low ecological value (albeit with the potential to be of much greater value subject to suitable management). The semi-natural woodland is of greater value due to its natural and varied structure, its proximity to the field edge and its mix of species.
- 4.4.2 The proposed scheme will result in the loss of 0.7ha of improved grassland, 0.05ha of plantation woodland and 0.05ha of semi-natural woodland. The corridor cutting through the plantation woodland is narrow and will effectively act as woodland thinning, creating a ride through the otherwise densely populated woodland and allowing much needed light into newly created woodland edges. The same is also true of the corridor cutting through the semi-natural woodland, provided the four semi-nature trees of ecological value are

adequately avoided. These impacts together are considered to represent a minor loss in biodiversity value at the local scale.

- 4.4.3 The proposed mitigation will see a new corridor of species-rich hedgerow and trees created, off-setting the loss of woodland habitat. This feature will be subject to long-term management and will also benefit foraging/commuting bats, birds, invertebrates and hedgehogs. Additionally, brash/habitat piles will be created and new bird and bat boxes will be installed in existing woodland. As a result, there should be a small net benefit to biodiversity as a result of the proposed development, provided the recommendations given herein are implemented in full.

5 CONCLUSION

- 5.1 Etive Ecology Ltd was commissioned by ITP Energised Ltd, to undertake an ecological appraisal of a plot of land south of the Kimberly-Clark Plant, Flint. The site is proposed for the installation of a Green Hydrogen Hydrolysis (GHE) Facility.
- 5.2 The assessment comprised of an Extended Phase 1 Habitat survey, a desk study, an assessment of the likely impacts on the ecological value of the site and recommendations for further survey and/or mitigation measures to be implemented.
- 5.3 A desktop data search identified one statutory site of nature conservation located <1km of the site; the Dee Estuary SSSI/SAC/Ramsar. Four non-statutory nature conservation sites were identified <1km, all of which were LWS and none of which were <500m. Protected species records for the area included common lizard, common toad, GCN, hedgehog, otter, slow-worm, and various bat, bird and invertebrates.
- 5.4 The application site is located to the southwest of the Kimberly-Clark Plant which itself comprises a mixture of woodland, hardstanding, buildings and six ornamental ponds. To the immediate south of the site is Red Wood (semi-natural broadleaved woodland), with industrial and residential land-use beyond. To the west and northwest lies pastoral farmland comprising of improved grassland pasture bordered by hedgerows, trees and ditches. Other than the ornamental ponds within the Kimberley-Clark site, there are no waterbodies within 250m of the application site boundary.
- 5.5 The application site comprised of 0.7ha of improved grassland 0.05ha of mixed plantation woodland and 0.05ha of semi-natural broadleaved woodland. The surrounding ownership boundary is characterised by additional improved grassland and broadleaved woodland, as well as a section of species-poor hedgerow. The application site was found to be generally of low ecological value with some potential to support bats, badgers, nesting birds and notable species such as hedgehogs.
- 5.6 The proposed development will result in the loss of 0.7ha of improved grassland and 0.1ha of woodland. This habitat loss represents a minor adverse impact to bats (roosting/foraging/commuting), nesting birds and notable species. The potential impacts on roosting bats require further survey work to determine presence/absence. The construction of the scheme also poses the potential risk of harm to amphibians, nesting birds, badger and notables, as well as the introduction of INNS. The proposed scheme has been assessed to pose no likely significant effects on the designated nature conservation sites within 1km.
- 5.7 Recommendations include a climb/inspect survey of the four trees with Low BRP (if impacts occur).
Inclusion of a species-rich native hedgerow with trees on Site. RAMs to protect amphibians, badgers and notable from harm, and seasonal timing of vegetation clearance to avoid nesting birds. Brash/habitat piles and both bat and bird boxes are also recommended. Provided these measures are implemented in full, the proposed scheme is anticipated to pose a minor net benefit for biodiversity at the local scale.
- 5.8 In conclusion, the application site has been found to be of relatively low ecological value at the Local scale. However, provided the recommendations given herein are implemented in full, there should be minor net benefit for biodiversity at the Local scale as a result of the proposed scheme.

6 REFERENCES

CIEEM (2012), *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management.

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Collins, J., (2016), *Bat Surveys for Professional Ecologists; Good Practice Guidelines, 3rd edition*. Bat Conservation Trust, London.

Institute of Environmental Assessment, (1995), *Guidelines for Baseline Ecological Assessment*. E & FN Spon. London.

Joint Nature Conservation Committee, (2010), *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000), *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

Appendix A - Figure 1

Phase 1 Habitat Map

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Survey Information	
	Application site boundary
	Land owners / property boundary
Phase 1 Habitat Survey	
	Semi-Natural Broadleaved Woodland
	Improved Grassland
	Hardstanding
	Fence
	Gate
	Scattered Broadleaved Tree
	Target Note

Additional Information:
Please see associated report for further information relating to each target note location.

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PROJECT TITLE
KIMBERLY-CLARK, FLINT

DRAWING TITLE
Figure 1: Phase 1 Habitat Map

VER	DATE	REMARKS	Drawn	Checked
1.0	01/02/23	Habitat Map	MP	SF

DRAWING NUMBER:
ETIVEECOLOGY/Kimberly-Clark/Phase1

**ETIVE
ECOLOGY**

Ecological Services & Solutions

SCALE 1:1,600
PLOT SIZE A3
DATUM OSGB
PROJECTION BNG



Appendix A - Figure 2

Proposed Development Layout

DRAFT

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2023 LICENCE NUMBER 0100031673.

NOTES:

- FOR KEY, REFER TO SHEETS 2-4.
- EXISTING CONTOURS SHOWN AT 0.5m INTERVALS.

REFERENCES:

- PROPOSED SURFACE WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001
- PROPOSED FOUL WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001

SHEET 1 OF 4



2	JM	BY APPD	MC	2023-04-06	REVISED INFRASTRUCTURE LAYOUT.
1	BM	BY APPD	MC	2022-10-07	FIRST ISSUE
ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES

PURPOSE	PLANNING	COORDINATES	OSGB 1936
SCALE	1:1,250 @A3	DATUM	N/A
LAYOUT DRAWING	N/A	T-LAYOUT NO	N/A

PROJECT TITLE
COLESHILL GREEN HYDROGEN FACILITY

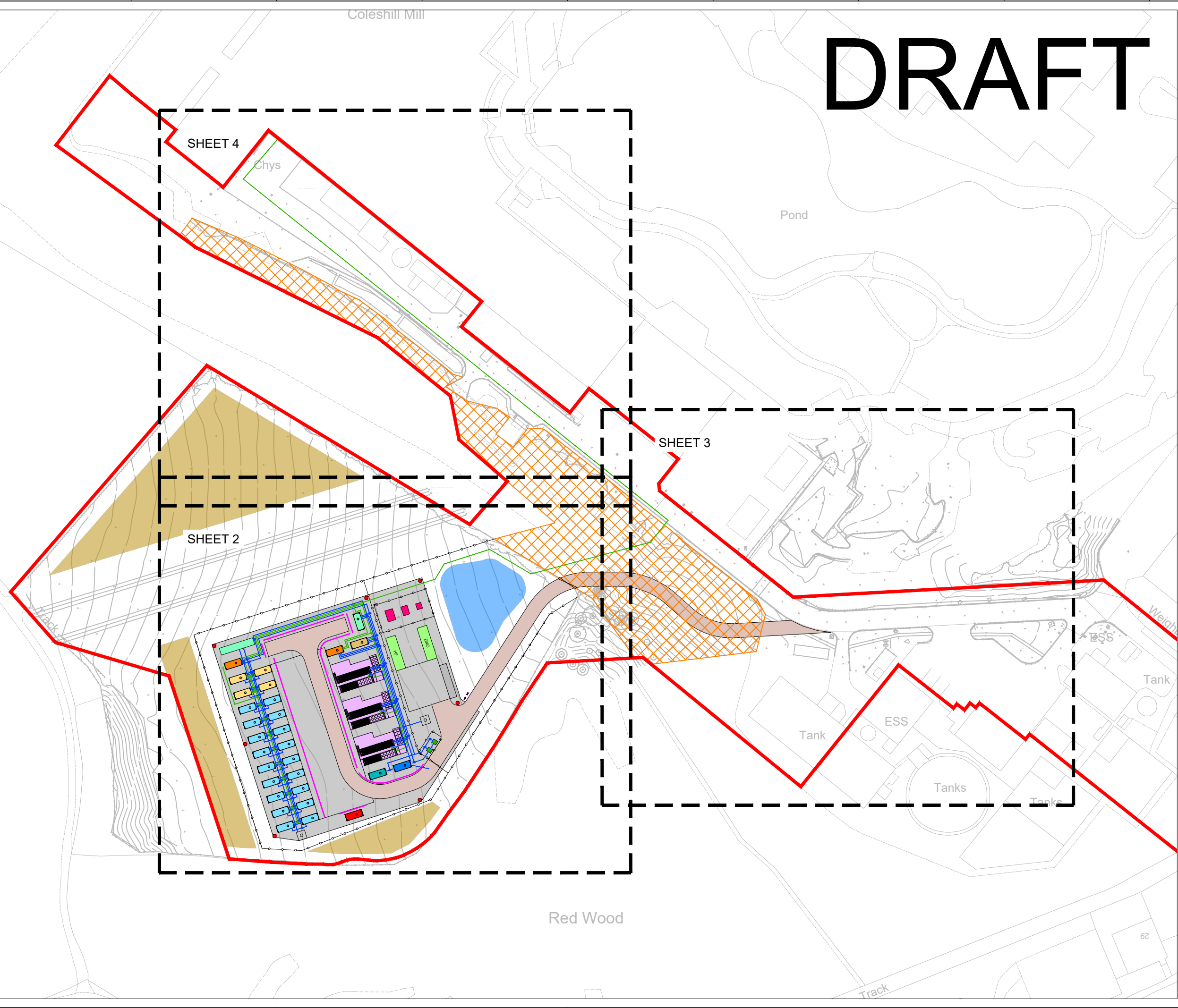
DRAWING TITLE
INFRASTRUCTURE LAYOUT

RES DRAWING NUMBER	05040-RES-PRO-DR-PT-001	REV	2
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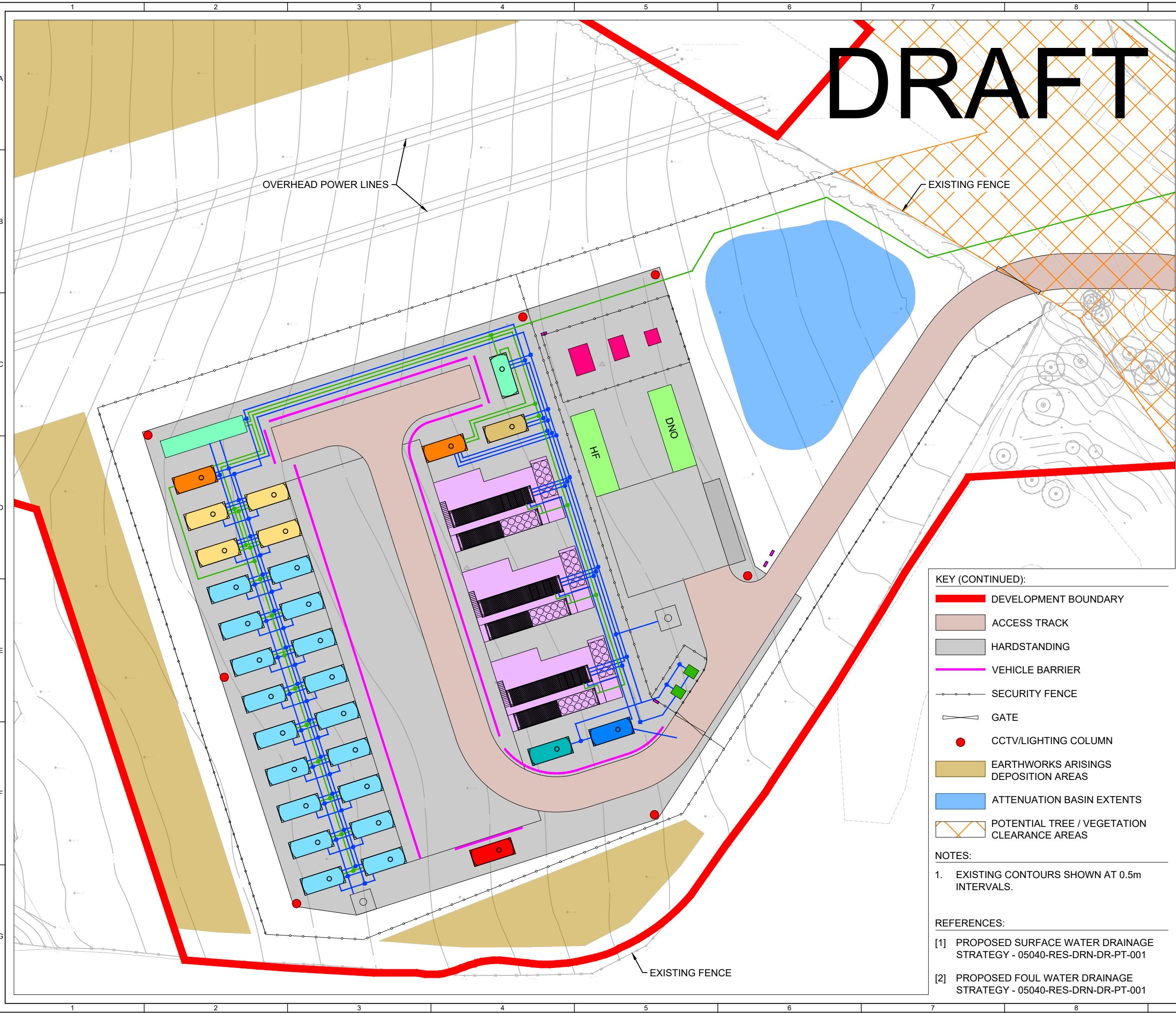
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KEY:

	COMPRESSOR
	GRID COMPLIANCE EQUIPMENT
	HYDROGEN ELECTROLYSERS
	HYDROGEN PIPE (ABOVE GROUND OR BURIED)
	SERVICES / PIPEWORK (ABOVE GROUND)
	INSTRUMENTATION AIR UNIT
	LOW PRESSURE BUFFER TANK
	METER CABINET
	NITROGEN
	ODOURISATION SYSTEM
	UNINTERRUPTIBLE POWER SUPPLY
	PRESSURE LET DOWN SYSTEM
	OFFICE AND SPARES CONTAINER
	HYDROGEN TANK
	DNO SUBSTATION
	HYDROGEN FACILITY SUBSTATION
	EMERGENCY VENT STACK
	WATER FEED TANK

KEY (CONTINUED):

	DEVELOPMENT BOUNDARY
	ACCESS TRACK
	HARDSTANDING
	VEHICLE BARRIER
	SECURITY FENCE
	GATE
	CCTV/LIGHTING COLUMN
	EARTHWORKS ARISING DEPOSITION AREAS
	ATTENUATION BASIN EXTENTS
	POTENTIAL TREE / VEGETATION CLEARANCE AREAS

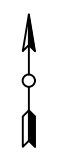
NOTES:

- EXISTING CONTOURS SHOWN AT 0.5m INTERVALS.

REFERENCES:

- PROPOSED SURFACE WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001
- PROPOSED FOUL WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001

SHEET 2 OF 4



2	JM	BY APPD	MC	2023-04-06	REVISED INFRASTRUCTURE LAYOUT.
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ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
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PLANNING				OSGB 1936	
SCALE				DATUM	
1:500 @A3				N/A	
LAYOUT DRAWING				T-LAYOUT NO	
N/A				N/A	

PROJECT TITLE	
COLESHILL GREEN HYDROGEN FACILITY	
DRAWING TITLE	
INFRASTRUCTURE LAYOUT	

RES DRAWING NUMBER	REV
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KEY:

	DEVELOPMENT BOUNDARY
	ACCESS TRACK
	HYDROGEN PIPE (ABOVE GROUND OR BURIED)
	POTENTIAL TREE / VEGETATION CLEARANCE AREAS

NOTES:

- EXISTING CONTOURS SHOWN AT 0.5m INTERVALS.

REFERENCES:

- PROPOSED SURFACE WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001
- PROPOSED FOUL WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001

SHEET 3 OF 4



2	JM	BY APPD	MC	2023-04-06	REVISED INFRASTRUCTURE LAYOUT.
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ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES

PURPOSE	COORDINATES
PLANNING	OSGB 1936
SCALE	DATUM
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LAYOUT DRAWING	T-LAYOUT NO
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PROJECT TITLE
COLESHILL GREEN HYDROGEN FACILITY

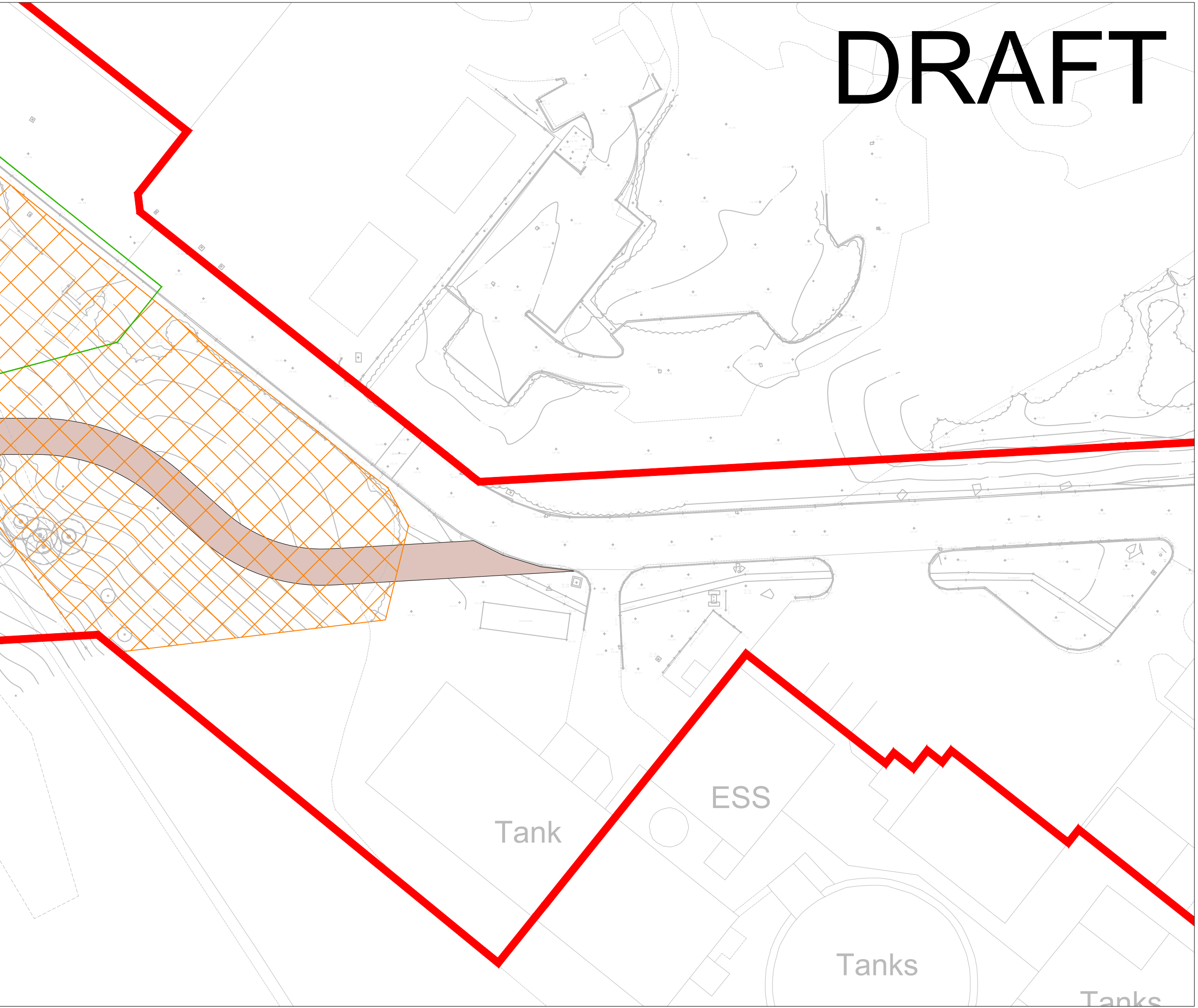
DRAWING TITLE
INFRASTRUCTURE LAYOUT

RES DRAWING NUMBER	REV
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KEY:

	DEVELOPMENT BOUNDARY
	EARTHWORKS ARISING DEPOSITION AREAS
	HYDROGEN PIPE (ABOVE GROUND OR BURIED)
	POTENTIAL TREE / VEGETATION CLEARANCE AREAS

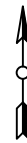
NOTES:

- EXISTING CONTOURS SHOWN AT 0.5m INTERVALS.

REFERENCES:

- PROPOSED SURFACE WATER DRAINAGE STRATEGY - 05040-RES-DRN-DR-PT-001
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SHEET 4 OF 4



2	JM	BY APPD	MC	2023-04-06	REVISED INFRASTRUCTURE LAYOUT.
1	BM	BY APPD	MC	2022-10-07	FIRST ISSUE
ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
PURPOSE				COORDINATES	
PLANNING				OSGB 1936	
SCALE			DATUM		
1:2,000 @A3			N/A		
LAYOUT DRAWING				T-LAYOUT NO	
N/A				N/A	

PROJECT TITLE
COLESHILL GREEN HYDROGEN FACILITY

DRAWING TITLE
INFRASTRUCTURE LAYOUT

RES DRAWING NUMBER	REV
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Appendix B - Site Photographs



Target Note 1



Target Note 2



Target Note 3



Target Note 4



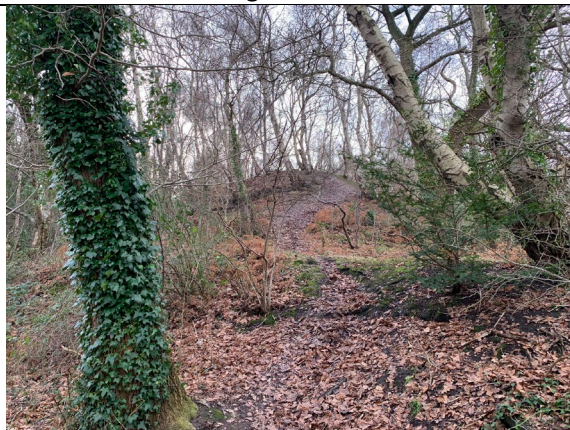
Target Note 5



Target Note 6



Unmanaged plantation woodland



Semi-natural broadleaved woodland

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