

St George's Barracks

Great Crested Newt Survey

October 2019



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Report Ref: DFA19072

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1 INTRODUCTION

1.1 Background

- 1.1.1 In November 2016, the Government announced through 'A Better Defence Estate', a commitment to invest in a more efficient built military estate that will reduce in size by thirty per cent by 2040. The Ministry of Defence (MOD) is required to maximise value through the disposal of sites and has a target to provide land for 55,000 dwellings this Parliament. Within the November announcement it was confirmed that St George's Barracks would be surplus to operational requirements and programmed for disposal in 2020.
- 1.1.2 In recognition of this, Rutland County Council (RCC) and the MOD (Defence Infrastructure Organisation - DIO) have agreed a Memorandum of Understanding that builds upon their willingness to jointly explore the opportunities for the future of the St George's Barracks site post 2020/21 and an appetite to work together in a new and innovative way to maximise Government growth and efficiency objectives for the site. There are currently proposals to re-develop part of the Site. A masterplanning exercise is currently being undertaken, exploring several potential re-development proposals for the Site.
- 1.1.3 As part of any masterplanning process, it important to gain an understanding of the ecological resource within and around the site. This allows for any potential impacts to be avoided or minimised at the onset of the process, as well as allowing areas of maximum ecological enhancements to be realised. To this end, an initial ecological assessment of St George's Barracks, herein referred to as the 'Site', was undertaken in March 2018 (Derek Finnie Associates Report Ref: DFA18005V3). The initial ecological assessment highlighted the need for additional, species specific surveys to fully assess the potential levels of biodiversity within the Site; this included a great crested newt survey.
- 1.1.4 The following report describes the methodology used in a great crested newt eDNA survey undertaken within the Site during 2019, assesses the result and discusses the implications for any future re-development of the Site.

2 METHODOLOGY

2.1 Desk Study

2.1.1 Desk study data supplied by Leicestershire and Rutland Environmental Records Centre (LRERC) was reviewed for known location of great crested newts within 2k of the Barracks.

2.2 eDNA Analysis

2.2.1 The field survey method employed followed that presented in Defra Technical Note WC1067 and was undertaken by Derek Finnie CEnv MCIEEM (Natural England Licence Number 2019-9981-CLA-CIA, Class WML-CL08 and CL09).

2.2.2 Twenty 30ml samples were taken from around each waterbody on the 16th June 2019, with the samples as evenly spaced as possible, although areas that may be suitable for egg laying were targeted. The samples were then collated in a sterile Whirl-Pak bag, which was then shaken for 10 seconds.

2.2.3 Using a pipette, 15ml of the collated water sample was added to the pre-supplied 35ml of ethanol; the ethanol container was then closed and shaken for a further 10 seconds. This was repeated six times for each waterbody.

2.2.4 The samples were then sent to the lab within 24 hours of collection.

2.2.5 Two ponds within the Luffenham Golf Course were subject to survey (Ponds P1 and P2; see Figure 1). However, access was not possible to two artificial water features within the Barracks themselves.

2.3 Survey Constraints

2.3.1 Access was not available into the two artificial water features within the Barracks themselves. Both these features are concrete lined, square tanks which were reportedly completely refurbished earlier in 2019. They are devoid of aquatic or emergent vegetation and surround by short amenity grassland and hardstanding. Given their location and condition, it is highly unlikely these features would support aquatic phase amphibians. Whilst being unable to survey these features at this time could be considered a constraint, it is not believed to be significant, hence confidence in the results is still high.

3 RESULTS

3.1 Desk Study

3.1.1 Great crested newt, as well as smooth newt, have been recorded breeding some 275m to east of the Site boundary in 2015. There are also records dating to 2007 of dead great crested newts in Edith Weston, 500m to the west of the Site.

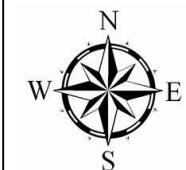
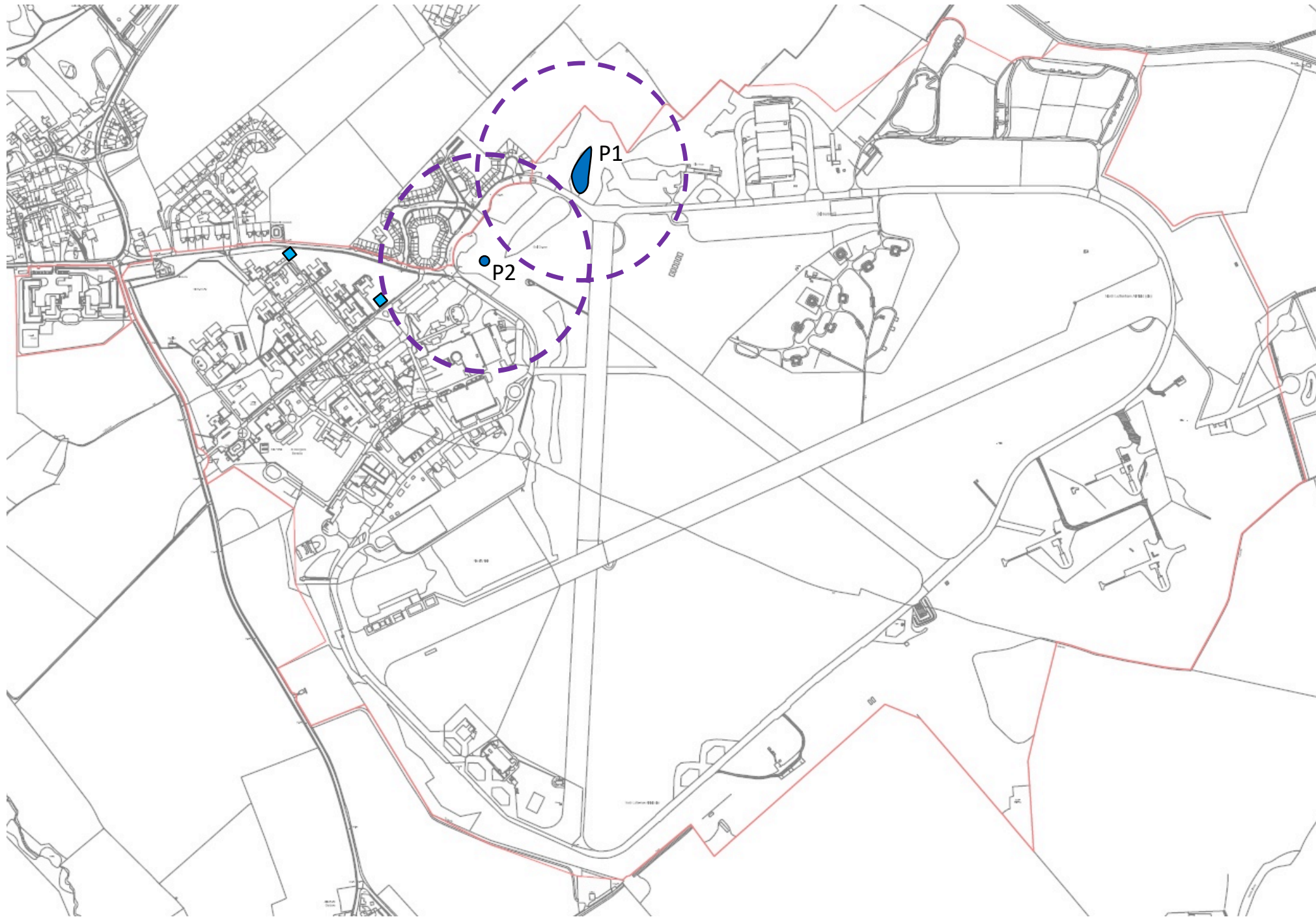
3.2 eDNA Results

3.2.1 Positive results were returned for both Pond P1 and P2 within the Golf course (see Appendix 1) which suggest both these ponds are utilised by great crested newts and may well be breeding ponds.

3.2.2 Smooth newt efts were noted within Pond P2 during a separate visit to the Site in September 2019, confirming that Pond P2 at least is a smooth newt breeding site.

4 DISCUSSION AND IMPLICATIONS

- 4.1.1 Although eDNA analysis can not determine if a specific site is used for breeding or not, it is recommended, at this stage, a precautionary approach is adopted, and it be assumed that both ponds P1 and P2 are great crested newt breeding site. More detailed surveys will be required in future to confirm this and gain an understanding of the population size that may be present.
- 4.1.2 Under the current vision document for the Site, it is likely that both ponds would either be lost to development, or they would be surround by residential units that may make the long-term survival of any newt population unlikely. However, given the amount of open space within the masterplan, much of which would be managed in an ecologically sensitive manner, there is ample opportunity to provide suitable mitigation and enhancement opportunities for great crested newts.
- 4.1.3 It should be possible to create several ponds within the open space and buffer zones to the east of the proposed residential area, connected by good quality terrestrial amphibian habitat. This would likely lead to an increase in the conservation status of the local amphibian population. A capture and translocation exercise of the existing ponds and surrounding areas would need to be undertaken to ensure no harm or injure occurred to individual newts prior to the commencement of works. Given the scale and current likely timescales of any re-development of the Site, there should be ample opportunity to undertake mitigation and enhancement measures well in advance of proposed construction activities.



Legend:

- Pond subject to survey with positive results
- Waterbody not surveyed – no access
- - - 250m radius (approx.)

Drawing No: Figure 1

Title: Waterbody Locations

Date: October 2019

Project: St George's Barracks

Client: RegenCo



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ENVIRONMENTAL DNA ANALYSIS REPORT

DETECTION OF GREAT CRESTED NEWT (TRITURUS CRISTATUS) IN POND WATER SAMPLES

REPORT FOR:

Derek Finnie

Richard Graves Associates

PROJECT NUMBER:

GCN19015

STATUS		DATE
SAMPLES RECEIVED BY	Alejandro Gonzalez Brincan, Molecular Biologist	18.JUN.2019
ANALYSIS UNDERTAKEN BY	Alejandro Gonzalez Brincan, Molecular Biologist	18-21.JUN.2019
REPORT AUTHORED BY	Sebastian Mynott, Chief Operations Officer	21.JUN.2019
RELEASED TO CLIENT BY	Sebastian Mynott, Chief Operations Officer	21.JUN.2019

Background

Following a DEFRA-funded research project (Biggs et al, 2014), Natural England have approved the use of an environmental DNA analysis protocol for detection of the great crested newt (*Triturus cristatus*) ("GCN") using pond water samples (Appendix 5, DEFRA WC1067 Technical Advice Note).

Environmental DNA (eDNA) is genetic material that is released by organisms living in their environment. Sources of genetic material may include; faeces, urine, skin cells, mucous, gametes. The DNA in these sources will degrade over time but can persist in the environment for long enough that we can detect the presence of the organism (Biggs et al, 2014).

In pond water samples, eDNA may persist for 7 to 21 days (Biggs et al, 2014). GCN can be detected from pond water samples, particularly during the GCN breeding season. Samples must be taken between 15th April and 30th June, when it is expected the concentrations of genetic material in pond water samples will be optimal for the test (Biggs et al, 2014).

Methods

Included with the GCN eDNA field sampling kit, the Client was provided with field sampling instructions consistent with those specified in [Appendix 5 of the DEFRA WC1067 Technical Advice Note](#). **It is assumed this sampling protocol was followed without deviation.**

Following the receipt of samples, Applied Genomics Ltd undertook laboratory analyses consistent with the methods described in Appendix 5 of the DEFRA WC1067 Technical Advice Note including control analyses for inhibition and degradation.

The limitations of this method are as follows:

1. the results are based on analyses of the samples supplied by the Client and as received by Applied Genomics Ltd;
2. sediment, organic matter and pollutants in the sample may affect DNA quality and the qPCR reaction;
3. the results of the analyses are qualitative and do not indicate anything other than detection or non-detection of great crested newt DNA;
4. as eDNA may persist for up to several weeks in a water body. Positive results do not imply the pond is currently occupied; and
5. a negative result for GCN eDNA does not exclude the possibility of presence at levels below the limit of detection.

Analyses were conducted in the presence of the following controls:

- eDNA extraction blanks; and
- appropriate positive and negative reagent controls for each of the eDNA, inhibition and degradation control assays.

RESULTS

KIT REFERENCE	CLIENT REF	GCN QPCR REPLICATES	INHIBITION DETECTED	DEGRADATION DETECTED
GCNK912	Foxley Farm	0/12	NO	NO
GCNK913	Small Field	0/12	NO	NO
GCNK914	NOT USED	---	---	---
GCNK915	SG Golf 2	4/12	NO	NO
GCNK916	SG Golf 1	5/12	NO	NO

Reagent controls for eDNA, inhibition and degradation assays performed as expected.

CONCLUSIONS

The results of the tests for great crested newt (*Triturus cristatus*) eDNA in the corresponding samples are provided below:

KIT REFERENCE	CLIENT REF	GCN eDNA DETECTED
GCNK907	Foxley Farm	NO
GCNK908	Small Field	NO
GCNK909	NOT USED	---
GCNK910	SG Golf 2	YES
GCNK911	SG Golf 1	YES

REFERENCES

Biggs, J., N. Ewald, A. Valentini, C. Gaboriaud, R. A. Griffiths, J. Foster, et al. 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust, Oxford, U.K.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

TERMS AND CONDITIONS

Application and entire agreement

- These Terms and Conditions apply to the provision of the services detailed in our quotation (**Services**) by Applied Genomics Ltd. a company registered in England and Wales under number 9180742 whose registered office is at Brixham Environmental Laboratory, Freshwater Quarry, Devon, TQ5 8AY (**we or us**) to the person or legal entity buying the services (**you**).
- You are deemed to have accepted these Terms and Conditions when you accept our quotation or from the date of any performance of the Services (whichever happens earlier) and these Terms and Conditions and our quotation (**the Contract**) are the entire agreement between us.
- You acknowledge that you have not relied on any statement, promise or representation made or given by or on our behalf. These Conditions apply to the Contract to the exclusion of any other terms that you try to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

Interpretation

- A "business day" means any day other than a Saturday, Sunday or bank holiday in England and Wales.
- The headings in these Terms and Conditions are for convenience only and do not affect their interpretation.
- Words imparting the singular number shall include the plural and vice-versa.

Services

- We warrant that we will use reasonable care and skill in our performance of the Services which will comply with the quotation, including any specification in all material respects. We can make any changes to the Services which are necessary to comply with any applicable law or safety requirement, and we will notify you if this is necessary.
- We will use our reasonable endeavours to complete the performance of the Services within the time agreed or as set out in the quotation; however, time shall not be of the essence in the performance of our obligations.
- All of these Terms and Conditions apply to the supply of any goods as well as Services unless we specify otherwise.

Your obligations

- You must obtain any permissions, consents, licences or otherwise that we need and must give us access to any and all relevant information, data, materials, properties and any other matters which we need to provide the Services.
- If you do not comply with clause 10, we can terminate the Services.
- We are not liable for any delay or failure to provide the Services if this is caused by your failure to comply with the provisions of this section (**Your obligations**).

Fees and Deposit

- The fees (**Fees**) for the Services are set out in the quotation and are on a time and materials basis.
- In addition to the Fees, we can recover from you a) reasonable incidental expenses including, but not limited to, travelling expenses, hotel costs, subsistence and any associated expenses, b) the cost of services provided by third parties and required by us for the performance of the Services, and c) the cost of any materials required for the provision of the Services.
- You must pay us for any additional services provided by us that are not specified in the quotation in accordance with our then current, applicable daily rate in effect at the time of performance or such other rate as may be agreed between us. The provisions of clause 14 also apply to these additional services.
- The Fees are exclusive of any applicable VAT and other taxes or levies which are imposed or charged by any competent authority.
- You must pay a deposit ("Deposit") as detailed in the quotation within 10 days of acceptance.
- If you do not pay the Deposit to us according to the clause above, we can either withhold provision of the Services until the Deposit is received or can terminate under the clause below (**Termination**).
- The Deposit is non-refundable unless we fail to provide the Services and are at fault for such failure (where the failure is not our fault, no refund will be made).

Cancellation and amendment

- We can withdraw, cancel or amend a quotation if it has not been accepted by you, or if the Services have not started, within a period of 10 days from the date of the quotation, (unless the quotation has been withdrawn).
- Either we or you can cancel an order for any reason prior to your acceptance (or rejection) of the quotation.
- If you want to amend any details of the Services you must tell us in writing as soon as possible. We will use reasonable endeavours to make any required changes and additional costs will be included in the Fees and invoiced to you.
- If, due to circumstances beyond our control, including those set out in the clause below (**Circumstances beyond a party's control**), we have to make any change in the Services or how they are provided, we will notify you immediately. We will use reasonable endeavours to keep any such changes to a minimum.

Payment

- We will invoice you for payment of the Fees either:
 - when we have completed the Services; or
 - on the invoice dates set out in the quotation.
- You must pay the Fees due within 30 days of the date of our invoice or otherwise in accordance with any credit terms agreed between us.
- Time for payment shall be of the essence of the Contract.
- Without limiting any other right or remedy we have for statutory interest, if you do not pay within the period set out above, we will charge you interest at the rate of 5% per annum above the base lending rate of the Bank of England from time to time on the amount outstanding until payment is received in full.
- All payments due under these Terms and Conditions must be made in full without any deduction or withholding except as required by law and neither of us can assert any credit, set-off or counterclaim against the other in order to justify withholding payment of any such amount in whole or in part.
- If you do not pay within the period set out above, we can suspend any further provision of the Services and cancel any future services which have been ordered by, or otherwise arranged with, you.
- Receipts for payment will be issued by us only at your request.
- All payments must be made in British Pounds unless otherwise agreed in writing between us.

Sub-Contracting and assignment

- We can at any time assign, transfer, charge, subcontract or deal in any other manner with all or any of our rights under these Terms and Conditions and can subcontract or delegate in any manner any or all of our obligations to any third party.
- You must not, without our prior written consent, assign, transfer, charge, subcontract or deal in any other manner with all or any of your rights or obligations under these Terms and Conditions.

Termination

- We can terminate the provision of the Services immediately if you:
 - commit a material breach of your obligations under these Terms and Conditions; or
 - fail to make pay any amount due under the Contract on the due date for payment; or are or become, or, in our reasonable opinion, are about to become, the subject of a bankruptcy order or take advantage of any other statutory provision for the relief of insolvent debtor; or

- enter into a voluntary arrangement under Part 1 of the Insolvency Act 1986, or any other scheme or arrangement is made with its creditors; or
- convene any meeting of your creditors, enter into voluntary or compulsory liquidation, have a receiver, manager, administrator or administrative receiver appointed in respect of your assets or undertakings or any part of them, any documents are filed with the court for the appointment of an administrator in respect of you, notice of intention to appoint an administrator is given by you or any of your directors or by a qualifying floating charge holder (as defined in para. 14 of Schedule B1 of the Insolvency Act 1986), a resolution is passed or petition presented to any court for your winding up or for the granting of an administration order in respect of you, or any proceedings are commenced relating to your insolvency or possible insolvency.

Intellectual property

- We reserve all copyright and any other intellectual property rights which may subsist in any goods supplied in connection with the provision of the Services.
- All data generated as a result of the provision of the Services shall be wholly owned by us.
- We reserve the right to take any appropriate action to restrain or prevent the infringement of such intellectual property rights.

Liability and indemnity

- Our liability under these Terms and Conditions, and in breach of statutory duty, and in tort or misrepresentation or otherwise, shall be limited as set out in this clause.
- The total amount of our liability is limited to the total amount of Fees payable by you under the Contract.
- We are not liable (whether caused by our employees, agents or otherwise) in connection with our provision of the Services or the performance of any of our other obligations under these Terms and Conditions or the quotation for:
 - any indirect, special or consequential loss, damage, costs, or expenses or;
 - any loss of profits; loss of anticipated profits; loss of business; loss of data; loss of reputation or goodwill; business interruption; or, other third-party claims; or
 - any failure to perform any of our obligations if such delay or failure is due to any cause beyond our reasonable control; or
 - any losses caused directly or indirectly by any failure or your breach in relation to your obligations; or
 - any losses arising directly or indirectly from the choice of Services and how they will meet your requirements or your use of the Services or any goods supplied in connection with the Services.
- You must indemnify us against all damages, costs, claims and expenses suffered by us arising from any loss or damage to any equipment (including that belonging to third parties) caused by you or your agents or employees.
- Nothing in these Terms and Conditions shall limit or exclude our liability for death or personal injury caused by our negligence, or for any fraudulent misrepresentation, or for any other matters for which it would be unlawful to exclude or limit liability.

Data Protection

- When supplying the Services to the Customer, the Service Provider may gain access to and/or acquire the ability to transfer, store or process personal data of employees of the Customer.
- The parties agree that where such processing of personal data takes place, the Customer shall be the "data controller" and the Service Provider shall be the "data processor" as defined in the General Data Protection Regulation (**GDPR**) as may be amended, extended and/or re-enacted from time to time.
- For the avoidance of doubt, "Personal Data", "Processing", "Data Controller", "Data Processor" and "Data Subject" shall have the same meaning as in the GDPR.
- The Service Provider shall only Process Personal Data to the extent reasonably required to enable it to supply the Services as mentioned in these terms and conditions or as requested by and agreed with the Customer, shall not retain any Personal Data longer than necessary for the Processing and refrain from Processing any Personal Data for its own or for any third party's purposes.
- The Service Provider shall not disclose Personal Data to any third parties other than employees, directors, agents, sub-contractors or advisors on a strict "need-to-know" basis and only under the same (or more extensive) conditions as set out in these terms and conditions or to the extent required by applicable legislation and/or regulations.
- The Service Provider shall implement and maintain technical and organisational security measures as are required to protect Personal Data Processed by the Service Provider on behalf of the Customer.
- Further information about the Service Provider's approach to data protection are specified in its Data Protection Policy, which can be found on our website. For any enquiries or complaints regarding data privacy, you can contact our Data Protection Officer at the following e-mail address: sebastian@appliedgenomics.co.uk.

Circumstances beyond a party's control

- Neither of us is liable for any failure or delay in performing our obligations where such failure or delay results from any cause that is beyond the reasonable control of that party. Such causes include, but are not limited to: power failure, Internet Service Provider failure, industrial action, civil unrest, fire, flood, storms, earthquakes, acts of terrorism, acts of war, governmental action or any other event that is beyond the control of the party in question. If the delay continues for a period of 90 days, either of us may terminate or cancel the Services to be carried out under these Terms and Conditions.

Communications

- All notices under these Terms and Conditions must be in writing and signed by, or on behalf of, the party giving notice (or a duly authorised officer of that party).
- Notices shall be deemed to have been duly given:
 - when delivered, if delivered by courier or other messenger (including registered mail) during the normal business hours of the recipient;
 - when sent, if transmitted by fax or email and a successful transmission report or return receipt is generated;
 - on the fifth business day following mailing, if mailed by national ordinary mail; or
 - on the tenth business day following mailing, if mailed by air mail.
- All notices under these Terms and Conditions must be addressed to the most recent address, email address or fax number notified to the other party.

No waiver

- No delay, act or omission by a party in exercising any right or remedy will be deemed a waiver of that, or any other, right or remedy nor stop further exercise of any other right, or remedy.

Severance

- If one or more of these Terms and Conditions is found to be unlawful, invalid or otherwise unenforceable, that / those provisions will be deemed severed from the remainder of these Terms and Conditions (which will remain valid and enforceable).

Law and jurisdiction

- This Agreement shall be governed by and interpreted according to the law of England and Wales and all disputes arising under the Agreement (including non-contractual disputes or claims) shall be subject to the exclusive jurisdiction of the English and Welsh courts.