1. Application

1.1. The provision of the services ("Services") by **E4Law Limited** trading as Lextox a company registered in England and Wales under number 7501682 of **The Maltings, East Tyndall Street Cardiff CF24 5EA (**"Supplier") to you ("Client") shall be subject to the terms of this service level agreement ("SLA"), the Supplier's quotation ("Quotation") and the Supplier's terms and conditions ("Terms and Conditions").

2. Sample Collection

2.1. The Supplier will provide a "Chain of Custody Sample Collection Kit" which stores the sample and provides chain of custody from collection to receipt at the Supplier's laboratory. It also identifies the donor, witness if applicable, and sample collector.

2.2. Hair samples should be stored in a dry environment at room temperature and out of direct sunlight.

2.3. The Supplier can provide a sample collection service throughout England and Wales on request. The Supplier's collector ("Supplier Collector") will complete and sign the chain of custody form ("Chain of Custody") which shall be signed by the donor and collector and a witness if applicable. Normally two samples will be collected. Sample collection is not currently covered by our UKAS Schedule of Accreditation. The Chain of Custody sets out the terms on which the donor provides consent to the processing of their personal data in accordance with General Data Protection Regulation (EU) 2016/679 and related legislation.

2.4. It takes approximately 2 weeks from the time of substance use to it being able to be detected in the hair. This is due to the time it takes for the hair to grow a sufficient length to be cut and analysed, as such the timeframe covered by the analysis will not include the 2 weeks prior to sample collection.

2.5. All samples must have a completed Chain of Custody to ensure compliance with applicable laws. The Supplier shall provide detailed guidelines for scalp and body hair sample collection.

2.6. If the collector is unable to obtain the requested scalp hair during the collection appointment, body hair shall be collected where possible. The Client shall be informed of the different hair type collected upon sample receipt at the laboratory and analysis shall proceed. The Client should notify the Supplier within 24 hours of being informed of the different sample type if the Client wishes the Supplier to not report the analysis results. The Supplier's fees will be reduced accordingly.

2.7. Samples may be returned to the laboratory in the prepaid envelope supplied, in person, by postal or courier service. They are logged and the integrity of the Chain of Custody checked immediately upon receipt at the Supplier's laboratory.

2.8. The date of undertaking laboratory activity starts upon sample receipt and includes any stages in the laboratory where the sample is assessed up to the point (date) of issuing the results.

2.9. The Client is the Data Controller and is ultimately responsible for arranging the donor's consent via the Chain of Custody form.

3. Analysis of Drugs and Metabolites

3.1. All hair samples are analysed either by LC-MS/MS (Liquid Chromatography with Mass Spectrometry and Mass Spectrometry) or GC-MS/MS (Gas Chromatography with Mass Spectrometry and Mass Spectrometry) so as to provide a quantitative result.

3.2. The analysis result for each drug/metabolite is reported as 'Not Detected' if it is below the corresponding Reporting Cut Off as listed in Table 1. If the result is on or above the Reporting Cut Off and meets all other analytical and reporting criteria, the result is 'Detected' and the concentration in ng/mg will be reported on the Certificate of Analysis or in the Expert Report.

3.3. In the case of benzoylecgonine (BZE), as this metabolite is a hydrolysis product i.e. can be produced externally then a BZE/cocaine ratio of 5% will be applied. If the BZE falls below the 5% ratio it will be reported as 'Not Detected'.

3.4. The use of cosmetic hair treatments such as hair dyes and bleaches can lead to a decrease in the level of drugs and metabolites detected.

3.5. Donors who are aged 12 or under will be classified as a 'child' and the wash samples will be routinely analysed for the requested drugs and reported. The Reporting Cut Off levels will be applied and any drug/metabolite requested that is on or above the Reporting Cut Off level will be reported with a concentration value. Any drug/metabolite requested that falls below the Reporting Cut Off level but above the lowest calibrator for that run will be reported as 'Present'.

4. Analysis of Alcohol Markers

4.1. All hair samples are analysed by LC-MS/MS (Liquid Chromatography with Mass Spectrometry and Mass Spectrometry) so as to provide a quantitative result.

4.2. The analysis result for Ethyl Glucuronide (EtG) or Ethyl Palmitate (EtPa) is reported as 'Not Detected' if it is below the corresponding Reporting Cut Off as listed in Table 2. If the result is on or above the Reporting Cut Off and meets all other analytical and reporting criteria, the result is 'Detected' and the concentration in pg/mg for EtG and EtPa will be reported on the Certificate of Analysis or in the Expert Report.

4.3. For consistency with the Society of Hair Testing (SoHT) Consensus on Chronic Excessive Alcohol Consumption, a 0-3cm or 0-6cm proximal section is recommended to be analysed. Shorter hair sections may be analysed but in such circumstances the results should be interpreted with caution as they will not be comparable to the cut-off levels recommended by the SoHT and detailed in the Consensus on Chronic Excessive Alcohol Consumption.

4.4. The SoHT Consensus can be found on the SoHT web site 'www.soht.org'.

4.5. The Supplier recommends that a 0-3cm proximal section, with a minimum hair weight of 10mg for EtPa, and a minimum hair weight of 20mg for EtG, are analysed for both EtG and EtPa for the most reliable interpretation.

4.6. If scalp hair samples are received with length less than 3cm we will use a graduated reporting cut-off scheme to account for the empirical findings that EtG levels generally increase in hair closer to the scalp, whereas EtPa levels generally decrease in hair closer to the scalp. For example, if 2cm of hair is supplied a cut-off of 45pg/mg will be applied for EtG, and a cut-off of 317pg/mg will be applied for EtPa. For samples that measure between 3 and 6 cm in length a graduated scale for EtPa will also be applied. Please refer to Table 2.

4.7. Samples shorter than 1cm will not be analysed for alcohol markers EtG and EtPa.

4.8. The Supplier will analyse body hair samples for evidence of the alcohol markers EtG and EtPa; however, we will only analyse samples collected from the chest, arm or leg. The Supplier recommends a minimum hair weight of 10mg for EtPa and 20mg for EtG. The cut-offs applied to all body hair samples, irrespective of their length, are 30pg/mg for EtG and 450pg/mg for EtPa.

4.9. Ethyl palmitate (EtPa) is a compound formed in the body following alcohol consumption and is one of a series of fatty acid ethyl esters. Occasionally, the identification of EtPa in a hair sample can be hindered by the presence of other naturally occurring long-chain fatty acid

ethyl esters or other compounds present within or on the hair. In such instances, the analysis will be repeated to attempt confirmation. If, following repeat analysis using our validated method, the presence of EtPa cannot be unequivocally confirmed against our defined reporting criteria, the result will be reported as an 'Unattainable'. Please note that the fee for analysis applies to the complete analytical process, irrespective of the final reported outcome.

5. Non Routine Samples

5.1. If the Chain of Custody Sample Collection Kit is not completed or sealed correctly the Supplier will discuss the implications with the client, if necessary, and obtain their instruction before proceeding. For example;

- if the pack is not signed by the donor;
- if the sample seals are broken or
- if there are discrepancies in the chain of custody information.

This may delay the results being issued.

5.2. The Supplier recommends that each hair section should have a minimum weight of approximately 10mg to be analysed for drugs, a minimum hair weight of 10mg for EtPa, and a minimum hair weight of 20mg for EtG. A section weighing less than the recommended weight may be insufficient to allow detection of the requested compounds and will be reported outside the scope of accreditation, where applicable.

5.3. The Supplier may use the second hair sample from the Chain of Custody Sample Collection Kit with the first to obtain the recommended weight without prior authorisation from the client. This may result in there being insufficient 'B sample' to allow the result to be repeated by Lextox or another laboratory.

5.4. If the total weight of hair provided in the Chain of Custody Sample Collection Kit is insufficient the Client has the following options offered as a minimum:

- the Supplier will continue with the underweight analysis and report the findings outside the scope of accreditation or;
- the collection of another hair sample can be arranged. In such circumstances, if the Supplier incurs further reasonable charges and delays in reporting results the Client will be liable for such additional charges.

5.5. If there is insufficient hair length to cover the time period requested by the Client (assuming the hair grows at a rate of one centimetre per month), if available, the second sample, the 'B Sample', will be opened to see if the sample is sufficient length for the requested analysis, this will be done without prior authorisation from the client. If the 'B Sample' is long enough then this sample will be used and the original 'A Sample' will be retained. If both samples have insufficient hair length, the available hair will be analysed and the client informed. The Client should notify the Supplier within 24 hours of being informed of the short hair length, if the Client wishes the Supplier to not report the analysis results. The Supplier's fees will be reduced accordingly.

5.6. In certain circumstances, a sample of hair may contain much older strands of hair than those that would normally be present, for example in dreadlocked hair. In such circumstances the client will be informed it may not be possible to determine the age of the sample and the period of time to which that sample relates. However, it may still be possible to determine the presence of a drug.

6. Sample Reporting

6.1. All individual sample results are reviewed by trained experienced scientific specialists before results are reported. Any report from the Supplier will only contain the results of testing in respect of the drug or drug groups requested by the Client.

6.2. All reported results will receive either a Certificate of Analysis or an Expert Report. The Certificate of Analysis will be accompanied by a covering letter summarising the results. The Certificate of Analysis will include the following items:

- Donor Name, Date of Birth and Sex;
- Unique Sample Number;
- Collection Date;
- Client Name, Reference and/or Account Reference;
- Sample Type;
- Hair Section Length and Corresponding Approximate Time Period if applicable; and
- Testing Method and Results.

6.3. The Supplier may, subject to an additional charge payable by the Client, provide a detailed Expert Report on the results for presentation to Court if requested by the Client.

6.4. The Supplier monitors its reporting times and endeavours to report all results in approximately 8 working days from satisfactory receipt of the sample at its laboratory. If the results are to be presented to Court, we recommend the Client ensures the sample is received by the Supplier at the laboratory at least 12 working days before the Court date.

6.5. Metabolites are produced by the body when a drug is ingested and metabolised (broken-down), and traces of the metabolites are deposited in the hair shaft in the same way as the parent drug. Drug use will only be stated in an Expert Report where there is the presence of metabolites, whereas the detection of the parent drug only allows a statement of positive association with the drug, which may include the use. This will be the case for delta-9-THC, cocaine, MDMA, heroin, diazepam, methadone and buprenorphine.

6.6. The Supplier will display all numerical values to three significant figures or the appropriate number of decimal places in regards to the cut off level applied.

6.7. Compounds will be reported as a deviation if some of the analytical criteria has not been met but the laboratory maintains confidence in the analytical run being reported. Compounds will not be reported when all of the analytical criteria have failed or if the laboratory deems necessary.

6.8. Opinions and interpretations, sample collections, hair sections below the recommended weight, and levels above our calibration range are not currently covered under the company's ISO 17025 Scope of Accreditation.

7. Uncertainty of Measurement (%UM), Bias

7.1. The decision point (acceptance limit) is described in this document as the cut-off. Results on or above the cut-off will be reported as the analytical concentration and results below the cut-off will be reported as not detect. No tolerance limit (estimated expanded uncertainty of measurement) is applied to this decision point. The ILAC G8 document describes this practice as "simple acceptance" stating that the

probability to be above or below the cut-off may be as high as 50% in the case when the measurement result is equal to the cut-off. This probability reduces as the measurement result moves away from the cut-off. The actual estimated expanded Uncertainty of Measurement (UM) for the reported results is presented in Table 1 and Table 2.

7.2. The Supplier has detailed the Uncertainty of Measurement (%UM) and bias of analytical methods it uses for accredited analytes. The %UM and bias indicate the variability of the analytical test and indicate the range of values within which the true value will be found. The Supplier estimates the Uncertainty of Measurement using a standard uncertainty multiplied by a coverage factor of K=2, resulting in a confidence level of 95%. Where possible the %UM will be calculated using an incurred sample as this will include variations due to extraction from the hair matrix. The %UM calculation does not include method bias. The levels of drugs, metabolites and alcohol markers reported are the actual values obtained and do not factor in the %UM.

7.3. The Supplier will only Report a result as 'Detected' or 'Present', as detailed in sections 3 and 4, when the result is on or above the lowest calibrator. The calibration range can be found in Table 1: Drugs and Table 2: Alcohol Markers. The Supplier will not report a 'Detected' or 'Present' result when the level is below the lowest calibration point.

8. Fitness for Purpose

8.1. All accredited analytical methods are fully validated in-line with our ISO 17025 accredited quality management systems to accurately identify and quantify any target compound to a level of detection required to show evidence of drug use in hair samples.

8.2. Our un-accredited analytical methods are fully validated in-line with our quality management systems to accurately identify and quantify any target compound to a level of detection required to show evidence of drug use in hair samples.

8.3. There are a number of factors (pre-analytical and analytical) that can affect the results and sometimes their interpretation. Examples of pre-analytical factors that can affect the levels of drugs or metabolites detected in hair are:

- Individual person to person variations in metabolism;
- Hair collection timing will affect estimated time ranges;
- Use of chemical treatments such as dyes, bleaches and in some cases regular shampooing can reduce the level detected; or
- The biology of the hair, i.e. the natural variations in hair growth.

8.4. Analytical factors may include:

- Variables associated with reference standard manufacture; or
- Laboratory measuring equipment and instruments.

8.5. Due to the pre-analytical factors, when a hair sample is sub-divided or a different hair sample is taken from the same donor covering the same time period, the Supplier cannot guarantee that the result obtained from the re-tested sample will be within the estimated uncertainty of measurement when compared with the original result.

9. Retention of Records and Samples

9.1. Processed hair extracts will be stored for up to two months after receipt. Due to previously mentioned pre-analytical factors and the varying stability of the extracts, the Supplier cannot guarantee that results obtained from the re-analysis of extracts will not differ from original results.

9.2. In reference to the Ministry of Justice Record Retention and Disposition Schedule, records pertaining to a sample will be retained for up to twenty-one years and maybe destroyed thereafter without further reference to the Client.

9.3. Any remaining hair samples will be retained for 30 days from issue of the analysis results after which they may be anonymised and used for research.

9.4. Any remaining hair sample that is not used for the purposes outlined in section 9.3. will be retained for up to twenty-one years.

10. Disclosure of Information to the Donor, other Parties and the Court

10.1. If a donor, opposing solicitor or any other parties, requests disclosure of their result, the Supplier will firstly contact the Client. If the Client does not agree (in writing) with the results being released, then the Supplier will not release any information unless the donor submits a formal written Data Subject Access Request which the Suppliers will respond to in accordance with the General Data Protection Regulation (EU) 2016/679 and ICO Guidance.

10.2. In some cases, the analysis performed may identify multiple compounds including the unconfirmed presence of analytes not requested by the Client. These results will not be disclosed to the Client but will be disclosed if requested by the Court and the corresponding fee charged for any additional work.

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11. Subcontracted Services

11.1. The Supplier may sub-contract the provision of some Services (wholly or any part thereof) as detailed below and in accordance with the Supplier's Terms and Conditions, section 8.

11.2. All sub-contracted services are subject to the Service Level Agreement of the sub-contractor which are undertaken in line with the Subcontractor's scope of accreditation, where applicable. The Client is able to request details of the sub-contractor and Service Level Agreement. The sub-contractor's Service Level Agreement will detail the provision of service; including and not limited to, accreditation status of tests and uncertainty of measurement.

11.3. For business continuity, the Supplier has partnered with a UK based laboratory that holds ISO 17025 accreditation. The Supplier may, on occasion, utilise the partner laboratory for the detection of drugs, metabolites, and alcohol markers in hair.

11.4. Hair analysis for the detection of steroids is sub-contracted to a UK partner laboratory that has been assessed by the Supplier as competent to undertake the analysis.

11.5. Nail analysis for the detection of drugs and alcohol markers is sub-contracted to a UK partner laboratory that has been assessed by the Supplier as competent to undertake the analysis.

11.6. Blood analysis for alcohol markers (LFT, CDT, MCV and PEth) is subcontracted to partner laboratories that hold ISO 15189 accreditation. The partner laboratory utilises referral laboratories for the provision of some services.

11.7. DNA testing for relationship testing is undertaken by an ISO 17025 accredited and Ministry of Justice approved partner laboratory.

11.8. Drug Patch analysis for the detection of drugs is sub-contracted to a UK partner laboratory that has been assessed by the Supplier as competent to undertake the analysis.
11.9. The Supplier will detail the accreditation status of any sub-contracted tests within the Expert Report or results issued.

Table 1: Drugs

Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
Ecstasy Group					
Methylenedioxymethylamphetamine (MDMA)**	LC-MS/MS	0.2†	26%	+7.3%	0.1–10.0
Methylenedioxyamphetamine (MDA)	LC-MS/MS	0.2†	23%	+10.7%	0.1-10.0
Methamphetamine, including amphetamine					
Methamphetamine	LC-MS/MS	0.2†	21%	+10.4%	0.05-5.0
Amphetamine**	LC-MS/MS	0.2†	23%	+17.3%	0.05–3.0
Benzodiazepine Group					
Desmethyldiazepam**	LC-MS/MS	0.04	22%	+2.8%	0.02–2.0
Diazepam**	LC-MS/MS	0.04	19%	+3.5%	0.02–2.0
Oxazepam	LC-MS/MS	0.2	23%	+15.1%	0.1-10
Temazepam	LC-MS/MS	0.2	23%	+11.1%	0.1-10
Nitrazepam	LC-MS/MS	0.04	23%	-1.0%	0.02-2.0
Flunitrazepam	LC-MS/MS	0.04	26%	+3.0%	0.02-2.0
Buprenorphine Group					
Buprenorphine	LC-MS/MS	0.05	23%	-0.2%	0.025-2.5
Norbuprenorphine	LC-MS/MS	0.05	30%	+0.2%	0.025-2.5
Cocaine Group					
AEME**	LC-MS/MS	0.2	18%	+10.3%	0.1-10
Benzoylecgonine**	LC-MS/MS	0.05	19%	+2.6%	0.025–2.5
Cocaethylene**	LC-MS/MS	0.05	18%	+5.6%	0.025-2.5
Cocaine**	LC-MS/MS	0.5†	17%	+4.5%	0.2-20
Norcocaine**	LC-MS/MS	0.05	23%	+2.6%	0.025-2.5
New Psychoactive Substances					
Benzylpiperazine	LC-MS/MS	0.02	-	-	-
Methcathinone	LC-MS/MS	0.02	-	-	-
Methiopropamine	LC-MS/MS	0.02	-	-	-
2-Aminoindane (2-AI)	LC-MS/MS	0.02	-	-	-
Methylone	LC-MS/MS	0.02	-	-	-
Ethylone	LC-MS/MS	0.02	-	-	-
4-Fluroamphetamine	LC-MS/MS	0.02	-	-	-
Buphedrone	LC-MS/MS	0.02	-	-	-
p-methoxyamphetamine (PMA)	LC-MS/MS	0.02	-	-	-
Butylone	LC-MS/MS	0.02	-	-	-

Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
p-methoxymethamphetamine (PMMA)	LC-MS/MS	0.02	-	-	-
4-Methylethcathinone	LC-MS/MS	0.02	-	-	-
6-APB	LC-MS/MS	0.02	-	-	-
5-APB	LC-MS/MS	0.02	-	-	-
Pentylone	LC-MS/MS	0.02	-	-	-
Methoxetamine	LC-MS/MS	0.02	-	-	-
Methylenedioxypyrovalerone (MDPV)	LC-MS/MS	0.02	-	-	-
5-MeO-DALT	LC-MS/MS	0.02	-	-	-
5-Iodo-2-aminoindane (5-IAI)	LC-MS/MS	0.02	-	-	-
4-Methoxyphencyclidine (4-MeO-PCP)	LC-MS/MS	0.02	-	-	-
Benzedrone	LC-MS/MS	0.02	-	-	-
Naphyrone	LC-MS/MS	0.02	-	-	-
Methadone Group					
EDDP**	LC-MS/MS	0.2	21%	+5.1%	0.1-10
Methadone**	LC-MS/MS	0.2†	20%	+3.3%	0.1-10
Opiate Group					
6-Acetylmorphine (6 AM)**	LC-MS/MS	0.2†	26%	+6.2%	0.1-10
Codeine**	LC-MS/MS	0.2†	23%	+6.6%	0.1-3.0
Dihydrocodeine**	LC-MS/MS	0.2†	22%	+9.3%	0.05–3.0
Morphine**	LC-MS/MS	0.2†	21%	+0.7%	0.1-10
Cannabis Group					
Delta-9-tetrahydrocannabinol (THC)**	GC-MS/MS	0.05†	27%	-1.0%	0.025-2.5
11-nor-9-carboxy-delta-9-THC**	GC-MS/MS	0.001	30%	+2.3%	0.0005-0.05
Delta-9-tetrahydrocannabinol (THC)**	LC-MS/MS	0.05†	22%	5%	0.025-2.5
11-nor-9-carboxy-delta-9-THC**	LC-MS/MS	0.001	26%	6%	0.0005-0.05
Antidepressant Group					
Fluoxetine (Prozac)	LC-MS/MS	0.04	27%	+1.0%	0.02-1.6
Trazodone	LC-MS/MS	0.04	18%	+1.3%	0.02-1.6
Clozapine	LC-MS/MS	0.04	20%	+1.0%	0.02-1.6
Anti-Epileptic Group					
Gabapentin	LC-MS/MS	0.2	12%	+12.4%	-
Pregabalin	LC-MS/MS	0.2	15%	+13.1%	-
Spice Group					
JWH-018	LC-MS/MS	0.02	-	-	-

Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
JWH-019	LC-MS/MS	0.02	-	-	-
JWH-073	LC-MS/MS	0.02	-	-	-
JWH-122	LC-MS/MS	0.02	-	-	-
JWH-250	LC-MS/MS	0.02	-	-	-
RCS-4	LC-MS/MS	0.02	-	-	-
RCS-8	LC-MS/MS	0.02	-	-	-
Single Compound Tests					
LSD	LC-MS/MS	0.04	19%	2.8%	0.02-1.6
Cathinone	LC-MS/MS	0.20	20%	+14%	0.1–4.0
Pethidine	LC-MS/MS	0.20	20%	+5.3%	0.1–10.0
Ketamine**	LC-MS/MS	0.20†	22%	+6.8%	0.1–10.0
Tramadol**	LC-MS/MS	0.20†	22%	+8.4%	0.1–10.0
Mephedrone	LC-MS/MS	0.04	18%	+2.3%	0.02–1.6
Zolpidem (hypnotic)	LC-MS/MS	0.04	23%	+5.5%	0.02-1.6
Fentanyl	LC-MS/MS	0.02	20%	+1.5%	0.01-1.0

†: The cut-off level indicated is detailed in the SoHT Drugs of Abuse (DoA) consensus on hair analysis.
**: The analytes indicated are UKAS accredited.

Table 2: Alcohol Markers

Compound	Method	Lextox Reporting Cut-off (pg/mg)	UM (± %)	Bias	Calibration Range (pg/mg)
Ethyl Glucuronide (EtG)**	LC-MS/MS				
0-1cm Ø		90	-	-	-
0-2cm Ø		45	-	-	-
0-3cm†		30	16%	+1.3%	12.5-1250
0-4cm		30	16%	+1.3%	12.5-1250
0-5cm		30	16%	+1.3%	12.5-1250
0-6cm†/body		30	16%	+1.3%	12.5-1250
Ethyl Palmitate (EtPa) **	LC-MS/MS				
0-1cm Ø		283	-	-	-
0-2cm Ø		317	-	-	-
0-3cm†		350	20%	-2.7%	125-2500
0-4cm Ø		383	-	-	-
0-5cm Ø		417	-	-	-
0-6cm† /body		450	19%	-1.7%	125-2500

†: The cut-off level indicated is detailed in the SoHT alcohol markers consensus on hair analysis.
**: The analytes indicated are UKAS accredited. Section lengths marked with Ø are analysed using the UKAS accredited analytical method, however the cut-off level applied is outside the scope of accreditation.