

Red John Pumped Storage Hydro Scheme

Volume 5, Appendix 12.1: Tree
Survey Report

ILI (Highlands PSH) Ltd.

November 2018

Quality information

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Revision History

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Distribution List

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Appendix 12.1 Tree Survey Report

12.1 Introduction

- 12.1.1 The Development covers an extensive area from the B852 to Dores, including the B862 and the plantation area toward the Ach-Na-Sidhe guest house, as described in Chapter 12: Forestry (Volume 2) and shown on Figure 12.1 (Volume 3).
- 12.1.2 The scope of the survey was to assess all trees considered to have a significant landscape and amenity value based on stem size and stature, including only trees with a stem diameter above 300 mm as per BS5837:2012 (British Standards Institution, 2012) and where access was considered safe.
- 12.1.3 Due to the evolving design of the Development not all areas surveyed will be affected by the above ground construction works and these areas have not been reported in this appendix.

12.2 Purpose of this Report

- 12.2.1 The brief of this Tree Survey is to satisfy the requirements of the planning process by presenting a BS5837:2012 Tree Survey that assesses the health, vitality and structural integrity of the trees which may be affected by the above ground works required for the Development. The Tree Survey excludes woodlands and plantations which are reported on in Chapter 12: Forestry.
- 12.2.2 The trees surveyed would be categorised using the BS5837:2012 “*Cascade Chart for Tree Quality Assessment*” to give context to the overall arboricultural value and benefit to the landscape. All significant trees in the visual envelope would be included in the survey to show the current and future tree asset of the survey area against those trees considered in too poor a condition to be retained.
- 12.2.3 This report has been compiled in conjunction with the methods and procedures contained within the Arboricultural Association document “*Guide to Tree Survey and Inspection*” (Fay et al 2005); in accordance with the VTA (Visual Tree Assessment) Stage 1 (Matheck 1994); and with “*The Principles of Tree Hazard Assessment and Management*” (Lonsdale 2001). With reference to the identification and naming of the species herein, the Illustrated “*Trees of Britain and Europe*” (More & White 2013) has been used to confirm survey species records.
- 12.2.4 The survey did not identify any trees that would be affected by the Development above ground construction works. A number of trees were surveyed in other areas, which due to the evolving project design would now not be affected by the above ground works. However, each tree in these areas was tagged with an aluminium numbered disk fixed to the tree for future reference if required.

12.3 Scope of Survey

- 12.3.1 The scope of the survey was to gather information on tree genus and species, health condition, hazard and risk and suitability for retention in the context of the Development proposals, based on “BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*”.

- 12.3.2 The survey was carried out in compartmentalised areas. The tree survey field work was carried out prior to completion of the design of the above ground works. Following finalisation of the project design the survey results were filtered and only the areas relevant to the above ground works are identified in Figure 12.1.1.
- 12.3.3 The survey set out to identify significant trees that contributed the most to the landscape that could be affected by the Development, and where possible to retain to ensure the visual fabric of the area was preserved, as well as the habitat these trees were supporting.

12.4 Limitations

Survey Limitations

- 12.4.1 Unless otherwise stated all trees would be surveyed from ground level using non-invasive techniques, in sufficient detail to gather data for and inform the design of the above project only. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy covered or in areas of overgrown vegetation, cannot therefore be expected. All obvious defects, however, are reported. Detailed climbed tree safety appraisals would only be carried out under specific written instructions.
- 12.4.2 Comments on evident tree safety relate to the condition of the identified trees at the time of the survey only. Unless otherwise stated all trees should be re-inspected annually in order to re-appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regards tree structural integrity and trees should therefore be re-assessed in the context of such changes and / or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.
- 12.4.3 Where trees are located wholly or partially on neighbouring private third party land then said land is not accessed and the inspection would therefore be restricted to what can reasonably be seen from within the site. Stem diameters of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are preliminary opinion only. Recommendations for works to neighbouring third-party trees would only be made where a potentially unacceptable risk to persons and / or property has been identified during the survey or, if applicable, where permissible works would be required to implement a proposed development. Where significant structural defects on third party trees are identified and associated management works are considered essential to negate any risk of harm and / or damage then the first attempt would be to inform the site occupier of the issues and, if not possible, then inform the relevant authority.
- 12.4.4 Where a more detailed assessment is considered necessary then appropriate recommendations would be set out in the Tree Survey Schedule. Where tree stem locations are not included on the plan(s) provided then they are plotted at the time of the survey using, where appropriate and / or practicable, a combination of measurement triangulation and GPS co-ordination.

12.5 Methodology

- 12.5.1 The tree survey was carried out on 02 and 03 July 2018. The survey identified only large mature and significant trees, where the removal of such trees would have a significant visual and ecological impact. The weather was sunny and very warm. The survey was carried out from ground level.
- 12.5.2 All trees were assessed visually for outward signs of stress, poor development, structural defects, deadwood, hung up limbs and presence of decaying fungal fruiting bodies. Each tree was measured, where practicable, using a TruPulse 200 laser inclinometer to measure tree height and crown spread and stem / trunk diameter using a girth / diameter tape. The girthing is to mathematically ascertain estimated age, where $(\text{stem girth (cm)} \div 2.5 = \text{estimated age})$ and to determine the extent of the root protection areas, where for single stemmed trees $(\text{stem diameter (girth} \div 3.14) \text{ (cm)} \times 12) = \text{RPA m}$. Each tree was sounded using a rubber mallet to ascertain the presence of cavities and potential structural weaknesses. Each tree location was located and positioned using a Trimble TDC 100 Handheld GPS Device, and identified with an aluminium tree tag, this information is stored on a digital georeferenced Ordnance Survey map which was overlaid onto the site survey drawing to show the tree positions in relation to the above ground works.
- 12.5.3 The survey records information on tree genus and species; height; girth / diameter at 1.5 m; crown spread; clear stem height; root plate zone condition; age classification; BS5837 category; and the specifying of all resulting necessary arboricultural works. The recommended works would identify the removal of trees considered either unrealistic to retain during the construction of the development or which pose an immediate hazard.
- 12.5.4 Where trees are identified for retention within the survey area, a range of recommended arboricultural works would be specified, including structural and routine repairs to ensure these trees are relatively free from defects, reducing the hazard risk of these trees in relation to the public and property. Every retained tree would show a Root Protection Area (RPA) and exclusion zone. The extent of RPA is calculated, based on a radius $12 \times$ the stem diameter around the tree, where the maximum distance is set at 15m radius from the stem, which is equal to 707 m² for all trees with stem diameters that would exceed this distance.
- 12.5.5 All trees would be assigned a retention category to record each tree's condition and amenity and landscape value at time of survey, along with a perceived BS5837 life expectancy.
- 12.5.6 All works identified as a result of the survey should be carried out in conjunction with BS3998:2010 "*Tree Work – Recommendations*" and carried out by an approved contractor.
- 12.5.7 The findings of a tree survey strike a balance between the risks and the benefits associated with the trees. This balance is based on a risk assessment involving a risk-benefit trade-off between safety and preservation of the trees within the garden. The schedule would show the scoring of likelihood and consequence for each tree, to ensure a pragmatic decision has been recorded.

12.6 Tree Survey Report

- 12.6.1 The report consists of observations made in accordance with the above. Due to the evolving design of the Development not all areas surveyed will be affected by the above ground construction works and these areas have therefore been excluded from this report. The survey areas which may be affected by the above ground construction works are shown

on Figure 12.1.1 and are described below. The following BS5837:2012 survey observations were made at each area.

A: B852 Marine Harvest to Guest house

- 12.6.2 This survey area encountered no BS5837 type trees. All trees visually inspected were largely scrub / multi stemmed all below 300 mm diameter. No survey data was therefore recorded.

B: B862 Kindrummond to Ardmor House

- 12.6.3 This area had little by the way of trees that are associated with a BS5837:2012 survey (greater than 300 mm diameter), mainly scrub / multi stemmed hedge trees. No survey data was therefore recorded.

12.7 Arboricultural Impact Assessment

- 12.7.1 The Scoping Response requested both an Arboricultural Impact Assessment (AIA) and a Tree Protection Plan (TPP). Given the survey did not identify any BS5837:2012 type trees, the majority of trees visually inspected being largely scrub / multi stemmed all below 300 mm diameter, no survey data was recorded and neither an AIA or TPP are required.

12.8 Recommendations

- 12.8.1 The tree survey did not identify any BS5837:2012 in areas that may be affected by the above ground construction works associated with the Development. There are no recommendations associated with this report other than if the design of the above ground works changes the validity of the Tree Survey Report should be verified and updated if required. No follow up surveys are required.

12.9 References

- British Standards Institution. (2012). BS 5837:2012 - Trees in relation to design, demolition and construction. Recommendations. London.
- Fay, N, Dowson, D, Helliwell, R. (2005). Tree Survey & Inspection. Arboricultural Association. Romsey.
- Lonsdale, D. (2001). Principles of Hazard Assessment & Management. The Stationary Office. London.
- Matheck, C. (1994). Guide to Visual Tree Inspection, Arboricultural Association. Romsey.
- More, D; White, J. (2013) Illustrated Trees of Britain and Europe. London. Bloomsbury

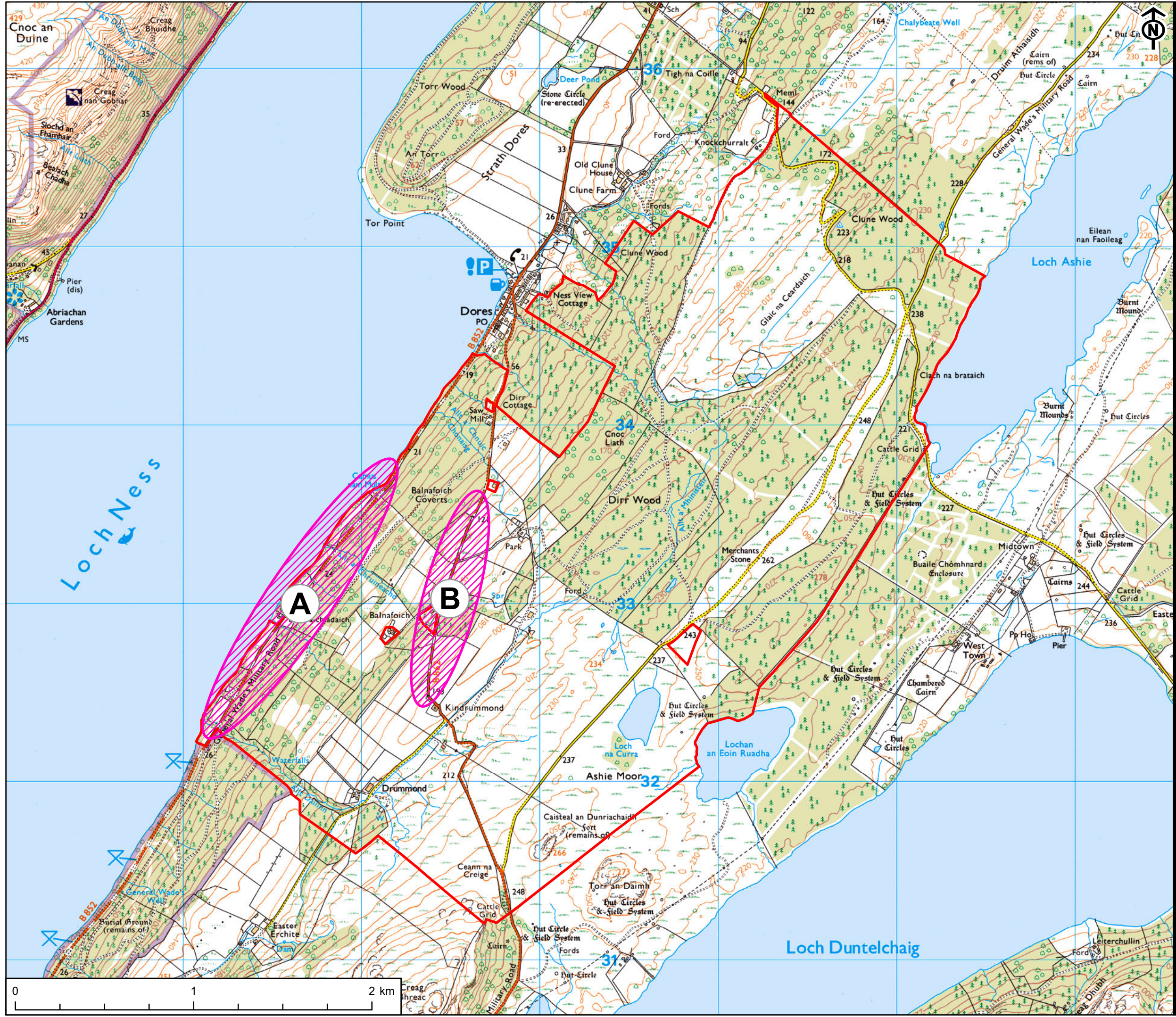
PROJECT
RED JOHN PUMPED STORAGE HYDRO

CLIENT
ILI (Highlands PSH) Ltd.

KEY
Development Site Boundary

Project Management Initials: CA Designer:LC Checked: SY Approved: CA

Scale @ A3 1:20,000



TITLE
FIGURE 12.1.1
TREE SURVEY REPORT
LOCATION MAP

REFERENCE
RJ_181019_EIA_12.1.1_v1

SHEET NUMBER
1 of 1

DATE
17/10/18

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