Specification

The Specification

Project Title:	Solway Coast and Marine Project – Multi-Scale Detection of Invasive Non-Native Species (INNS)
Service:	Environment Team
Project Owner:	Nick Chisholm

1	INTRODUCTION

Dumfries and Galloway Council and its partners in the Solway Coast and Marine Project – Landscape Connections (SCAMP) wishes to appoint an experienced ecologist surveyor to carry out a pilot study of multi-scale remote sensing for detection and mapping of priority INNS species along the Scottish Solway Coast. We expect this to be undertaken via a mixture of drone survey and satellite imagery, utilising a form of AI to speed up the assessment process.

Invasive Non-Native Species (INNS) are one of the key pressures on the biodiversity of the Solway coastline. Monitoring and mapping of INNS populations is critical to understand the region-wide coverage and scale. This pilot study will integrate satellite analysis, targeted drone surveys and machine learning to identify and quantify Japanese knotweed *(Fallopia japonica)* and Himalayan balsam (*Impatiens gladulifera)* across priority sites during peak flowering periods.

The pilot study will form part of Phase 1 Development of SCAMP, and the results will be used to support the delivery stage application to the National Lottery Heritage Fund.

2	BACKGROUND

The INNS multi-scale remote sensing pilot study on the Dumfries and Galloway Solway Coast Phase 1 Development is expected to be undertaken from mid- September 2026:

Fixed budget up to £15,000 max including all expenses but excluding VAT.

The Multi-Scale Detection of Invasive Non-Native Species (INNS) along the Dumfries and Galloway Solway Coast is part of Phase 1 Development of the Solway Coast and Marine Project (SCAMP). This study will guide control plans and monitoring strategies for Phase 2 Delivery, with a view to building a scalable INNS mapping and monitoring program across the Solway seascape.

SCAMP will deliver an 8-year holistic seascape programme to understand, conserve and develop the potential of the natural, cultural and built heritage for the people of the Solway Firth. It will focus a range of large-scale interventions and activities to deliver a coherent, and co-ordinated approach to reconnect people to the amazing Solway Firth seascape. The project will leave the Solway Firth better understood, protected and will maximise the potential of the seascape to respond to today's nature and climate crises. Much of our work will involve new and novel ways of working, research and development, citizen science and co design.

Coastal habitats face significant threat from INNS as they reduce climate resilience of vulnerable ecosystems, increase erosion and promote loss of native biodiversity. Effective monitoring, control and early detection are crucial for management of habitat degradation.

Galloway Rivers Trust have a successful extensive INNS control project, the Scottish Solway INNS Control and Knowledge Programme, which covers eight river catchments across Dumfries and Galloway. This INNS project involves monitoring and controlling populations of: Japanese knotweed (*Fallopia japonica),* Giant hogweed (*Heracleum mantegazzianum*), Himalayan balsam (*Impatiens gladulifera*), American skunk cabbage (*Lysichiton americanus*) and Giant rhubarb (*Gunnera manicata).* The project also has a focus on promoting biosecurity awareness and early detection to prevent new infestations and reinvasion.

The Multi-Scale Detection of INNS project is an expansion on the current INNS work, with an aim to creating a source-to-sea control programme, enabling landscape ecosystem recovery. Whilst this pilot is concentrating on two candidate species, picked due to their relative abundance in the survey zone, we would hope that the techniques deployed could also be used, with minor adaptation, on other species in the future.

3	Specification

We are seeking an experienced ecologist surveyor to

Survey Locations:

Sandhead – Inner Luce Bay

Loch Ryan Coastal Path

Water of Luce (D/S A75 bridge)

Survey Requirements
Timing and Environmental Conditions
All drone surveys must be undertaken during peak flowering season (September-mid October).

Drone Survey Methodology
The contractor must set out a clear and robust methodology. As a minimum, this should include:

- **Flight planning parameters**, including:
  - Image overlap
  - Flight altitude and coverage strategy
- **Spatial resolution:** High-resolution mapping of priority locations (2-10cm GSD)
- **Positioning and accuracy:** The contractor must ensure high positional accuracy of mapped outputs (e.g. through RTK/PPK GPS or ground control points), and state the expected accuracy
- **Sensor type**, clearly specified:
  - Multispectral imagery (essential, particularly for assessing condition, density, or species differentiation)
  - RGB imagery (minimum requirement)

Satellite Sensing Methodology
The primary objective is to map INNS populations using satellite imagery. Contractors should also outline their capability to:

- Differentiate Japanese knotweed and Himalayan balsam
- Classify plant density (e.g. sparse, moderate, dense)
- Map area of coverage

Data assessment

Proposals should clearly state what level of classification is achievable and the expected confidence. Outputs will be used to direct ground and drone surveys. We would expect the use of some form of machine learning to be deployed to speed up this assessment.

Ground-Truthing
Ground-truthing will be undertaken by GRT in collaboration with the contractor. Contractors must specify their ground-truthing requirements including:

- Whether ground-truthing is required to support classification
- Methods for validation (i.e. GPS-referenced observations)

Data Processing and Outputs
The survey must produce high-quality, GIS-ready outputs. As a minimum, deliverables must include:

- **Georeferenced orthomosaic imagery**
- **Raw imagery** (JPEG or RAW format)
- **Mapped outputs**, including:
  - INNS extent polygons
  - Attribute data (e.g. density classification, where undertaken)
- **GIS data formats**:
  - ESRI Shapefile and/or GeoPackage
- **Metadata**, including:
  - Survey dates and times
  - Equipment and settings used
  - Processing workflow
  - Accuracy statements

The consultant will be expected to have all the necessary licences and permissions to carry out the work.

Site information will be provided to the consultant.

Contract administration
We anticipate monthly, or as required, online or in person meetings between SCAMP and the consultant that will include a progress report and identify issues and opportunities.

Outputs

- Initial meeting agreeing a planned approach to satellite use, drone surveys and GRT ground truthing schedule
- Satellite sensing of 50km^2 of coastline -multi-spectral imagery and LiDAR
- Drone surveys of 3 priority locations
- Draft report, including:
  - Methods
  - Results
  - Integration of spectral, phenological and spatial pattern information
  - Maps and imagery
- Digital mapping outputs (GIS-ready datasets)
- Final report and datasets, incorporating feedback

Outputs should be suitable for repeat monitoring in future years

Time scale
- Initial meeting late early September 2026
- Desk-based satellite sensing September 2026
- Drone surveys September/early October 2026
- Draft report, data processing and digital mapping presentation late October 2026
- Final report and data set late November 2026

To guide the consultant, we have provided the following supporting documents:

Pricing schedule document – to be completed by the consultant

Pricing Guide: Consultants are invited to submit a fixed fee tender as described in this briefing document and the submission will be assessed on a quality/price (70/30%) basis.

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Consultants are invited to submit a fixed fee tender as described in this briefing document and the submission will be assessed on a quality/price (70/30%) basis.

The **budget** for the multi-scale remote sensing methodology is a maximum of £15,000 ex VAT

Deadline: Monday 7th September 2026 at 12 o'clock (noon) with last questions Monday 31st August 2026

4	ADDITIONAL INFORMATION

We are looking for an individual, team or organisation with:

- Experience of working on / delivering environmental consultation work – including habitat restoration programmes (especially coast and marine).
- Familiarity with the Solway coast.
- Ability to travel to and around the project area.
- Strong track record of producing clear, well written, high-quality reports.

Insurance
The Consultants must confirm and evidence that they have the appropriate Employers Liability Insurance (£5 Million), Public Liability Insurance (£5 Million) and Professional Indemnity (£1 Million).

Questions to be submitted via email to: nick.chisholm@dumgal.gov.uk and SCAMP@dumgal.gov.uk

Council contact details
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Dumfries & Galloway Council
nick.chisholm@dumgal.gov.uk

5	SUSTAINABILITY

Our Council has adopted a ***Sustainable Procurement Policy,*** tenders should include a statement as to their approach to carbon reduction, fairtrade and community benefit.

It is a condition of this tender that contractors shall pay the real living wage to all employees working on the contract and provide an 'effective voice' channel. Tenders should be prepared to evidence this if required.

Reference:	DGC-SCAMP-20260801