Valuing Nature in the built environment – a contractor's strategy

VALUING NATURE

Business Impact School 2017

Martin Ballard
Group Environment Manager

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About us

Our Group's family of Companies

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3,000 **10,000** **£1.3 billion**

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Agenda

1. What does valuing nature mean?
2. WD's Biodiversity timeline & The Wildlife Trust
3. Our Biodiversity Strategy: What, Why & How
4. Collaborative support: UCL PhD, BIG & BCT
5. SPADES project: Aberfeldy ecosystem services
6. What's next?

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Valuing nature

Our demand and supply of natural resources











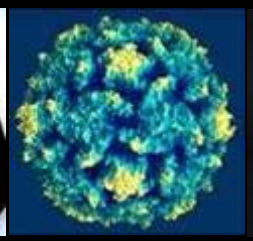





Smarter use of natural resources

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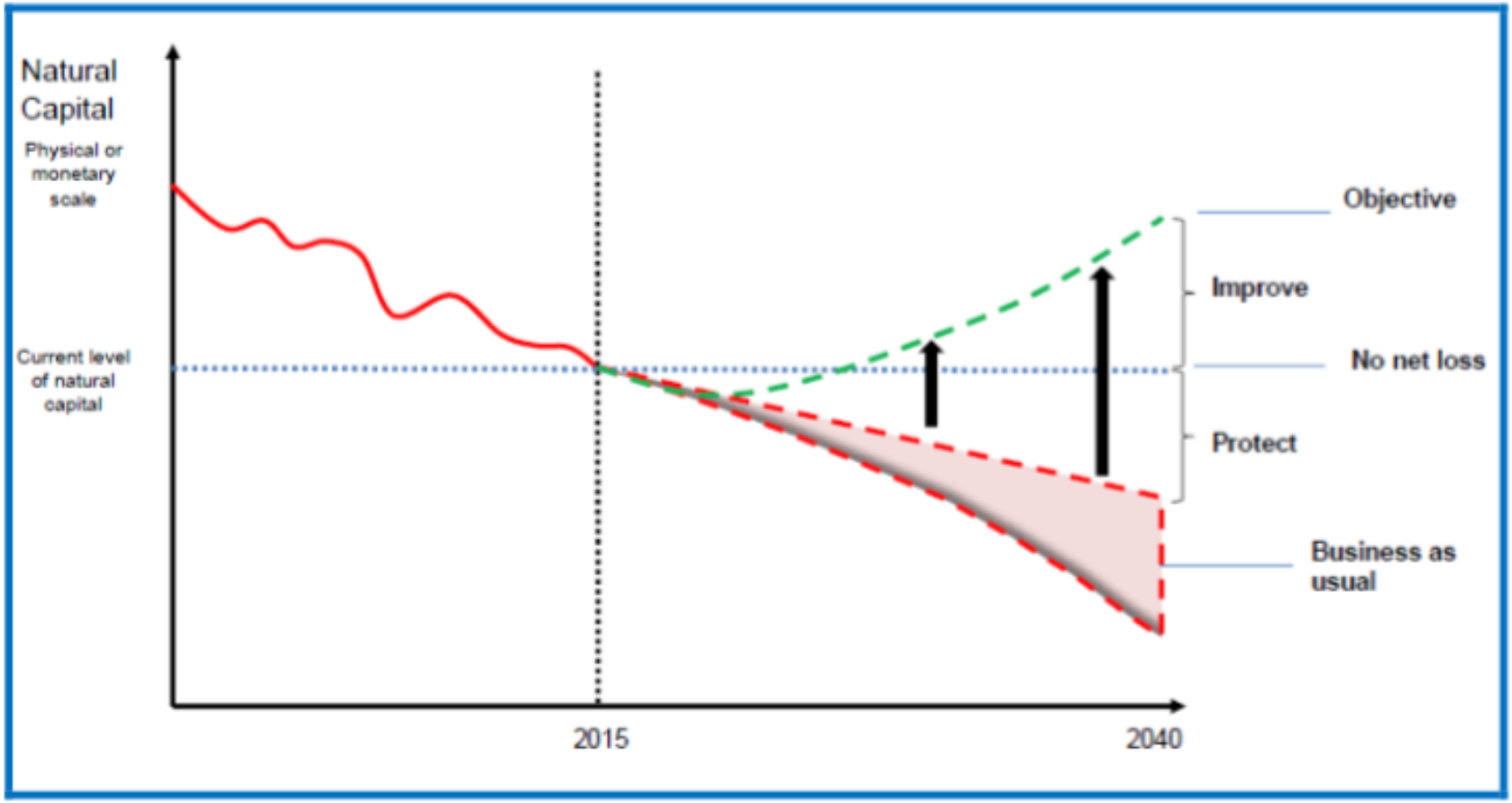
Natural capital and net-gain
what part we can play?

Figure 1: Protecting and improving natural capital over a generation – a stylised interpretation



Our Biodiversity timeline

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UCL Engineering Doctorate – Urban Sustainability & Resilience

Natural Capital Committee
State of Natural Capital

1st Report Mar-13

2nd Report Mar-14

3rd Report Jan-15

eCountability

Natural Capital Initiative

The Wildlife Trusts

the BIG Challenge – do one thing

PRIME PLACE

2012 2013 2014 20 2016 2017

GEM/TWT Dialogue 2012-13

Draft Biodiversity Strategy Apr-16

Biodiversity Strategy approved Oct-16

CEH Centre for Ecology & Hydrology – Natural Environment Research Council

We're taking the BIG Challenge

PRIME PLACE

London Wildlife Trust

VALUING NATURE

Draft MoU Dec-13

2014 Pilot WD/TWT MoU & Ecological Framework

Mar-15 MoU WD/TWT CEO's

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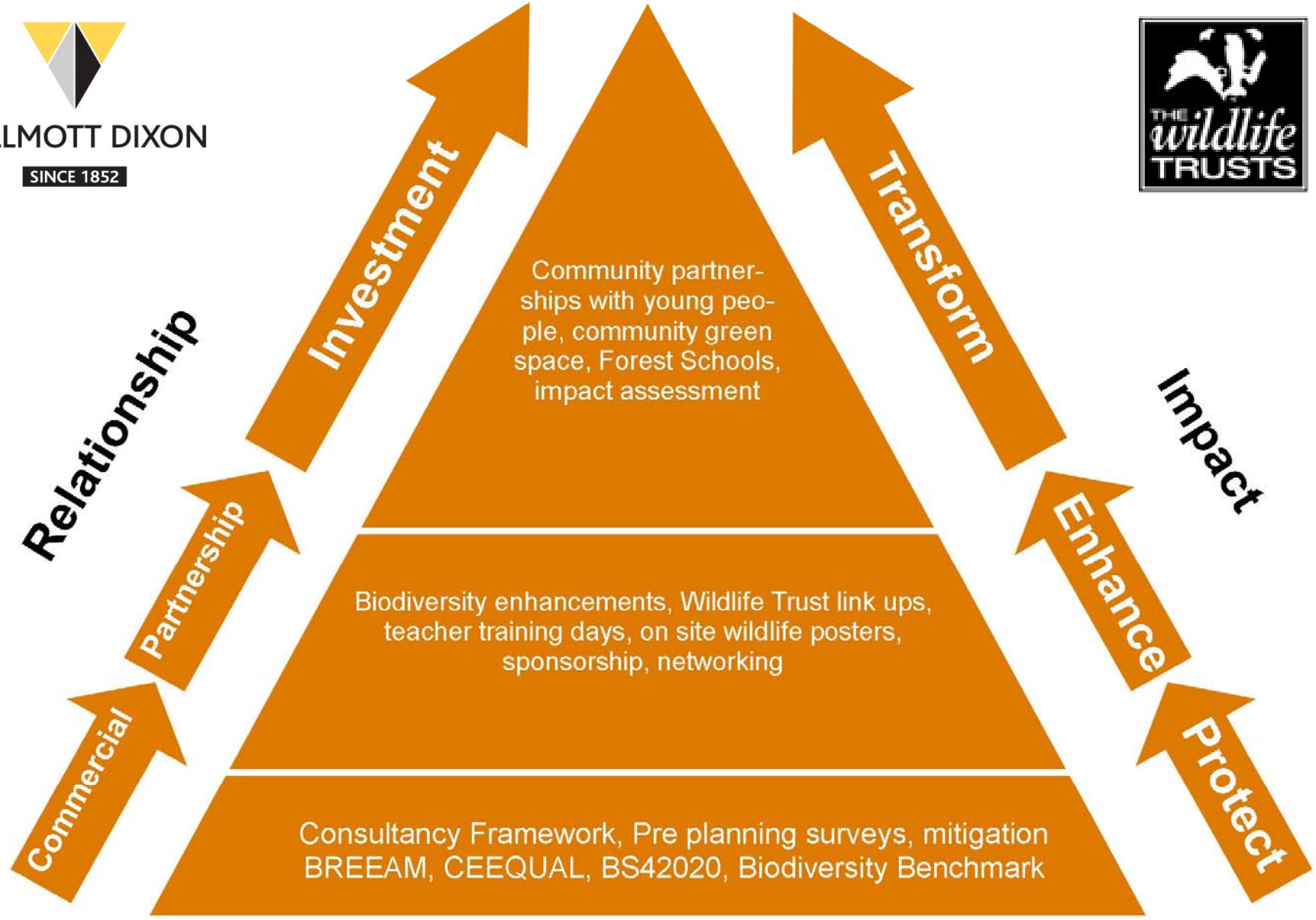
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THE wildlife TRUSTS
Relationship
Impact
Commercial
Partnership
Investment
Transform
Enhance
Protect
Community partner-ships with young peo-ple, community green space, Forest Schools, impact assessment
Biodiversity enhancements, Wildlife Trust link ups, teacher training days, on site wildlife posters, sponsorship, networking
Consultancy Framework, Pre planning surveys, mitigation BREEAM, CEEQUAL, BS42020, Biodiversity Benchmark

Leaving a Lasting Legacy

Working with Assoc. of WT Consultancies

- Accurate records are vital to planning for local restoration of the natural environment
- All data submitted to the Local Biological Records Centres
- Profits reinvested back into the protection and enhancement of the local natural environment, with gift aid benefit under charitable trust

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Why do we need a Strategy?

- Already doing a lot on site and strategically
- Addressing (in)direct biodiversity benefits
- Recognise and formalise our approach to...
- Gather info on what we do already...
  - Analyse trends
  - Create assurance of risk mitigation
  - Spot opportunities
  - Celebrate enhancements (internally or with BIG)
  - Record green/blue/brown infrastructure

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Tiered Level Biodiversity Strategy

1. WD Group Biodiversity Strategy

2. Group Biodiversity Action Plan

3. Company Biodiversity Plans

4. Project Biodiversity Action Plans

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COLLABORATIVE SUPPORT

CIRIA BIG
BCT
UCL PhD support
eCountability &
Innovate UK

The BIG Biodiversity Challenge to 'do one thing' invites you to add one new biodiversity enhancement to your construction site, development or existing building.

The BIG Biodiversity Challenge is a CIRIA Biodiversity Interest Group (BIG) initiative, launched on 14 October 2013. Since its launch in 2013 the challenge has grown considerably and attracts organisations from across a wide range of stakeholder groups.

The Challenge aims to:

- Raise awareness of the importance of protecting and enhancing biodiversity in the built environment to all those who work in the construction industry
- Encourage construction teams to collaborate with local communities to ensure long term awareness and protection of local biodiversity
- Promote the integration of biodiversity in green infrastructure initiatives
- Support the targets of Biodiversity 2020 strategy in the built environment.

"With a little planning and cost, simple and effective action can be taken for biodiversity in the built environment - what could you do?"

Martin Ballard, Group Environmental Manager, Willmott Dixon Group

Why enter the BIG Biodiversity Challenge 2017?

The BIG Biodiversity Challenge continues to be recognised as the number one industry initiative for delivering biodiversity within construction and the built environment.

- **Demonstrate** commitment to championing the delivery of biodiversity within construction and the built environment.
- **Be recognised** as an industry leader in biodiversity, positioning your organisation at the forefront of good practice.
- **Meet your CSR objectives** by supporting good practice and technical excellence.
- It's free to enter!

Sign up to the Challenge!

What is a biodiversity enhancement?

A biodiversity enhancement is an action that improves biodiversity and ecological habitat in the local environment. Enhancements should increase opportunities for local biodiversity and go beyond normal business practice or predetermined planning or construction conditions.

The biodiversity enhancement can be large or small scale and can be permanent or temporary measures. It could also include initiatives such as

We're taking the BIG Challenge

BIG Challenge Case Study

BRENTFORD LOCK BUFFER STRIP, WILLMOTT DIXON

BIODIVERSITY ENHANCEMENT OVERVIEW

Fact box

Company name:
Willmott Dixon

Project name:
Brentford Lock buffer strip

Location:
Brentford, London

Biodiversity enhancement:
Wildflower meadow

Size:
120m^2

Cost:
Cost of the seed mix and labourers time to roughly prepare the ground and sow the seed. 3m by 40m buffer was sacrificed from

the BIG Challenge
do one thing

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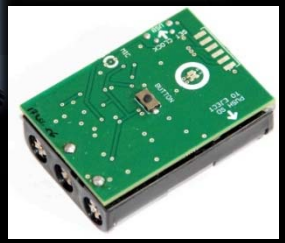
Developing new technology for monitoring biodiversity on urban green infrastructure: Alison Fairbrass UCL PhD

Using the sound emitted by biodiversity as a proxy measure for biodiversity.

With the support of Willmott Dixon, developing technology to monitor biodiversity over large areas and long time periods, while reducing the resource intensity of biodiversity monitoring.



Increasingly cheap and easy to collect lots of sound data, we're developing the tools to quickly measure what biodiversity is recorded.

Audio Moths: £10-£50 per recorder make large areas cost effective to monitor

Hawkins et al, 2016

EPSRC Pioneering research and skills

UCL Engineering Doctorate Urban Sustainability & Resilience

Bat Conservation Trust

CBER Centre for Biodiversity & Environment Research

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Nature-Smart Cities – Sensing Nature in the Queen Elizabeth Olympic Park

Deploying the world's first smart system for monitoring urban biodiversity in the Queen Elizabeth Olympic Park in 2017.

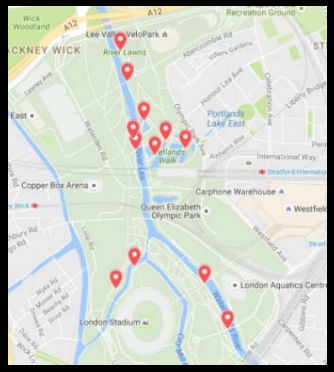
Integrating bat call identification algorithm onto Intel Edison sensors

Dodotronic 192kHz microphone

+

Intel Edison with Arduino Breakout

Developing stakeholders' requirements for a monitoring system…



Deploying 15 sensors across QEOP, reporting real-time results online

https://batslive.wordpress.com/

EPSRC Pioneering research and skills

CBER Centre for Biodiversity & Environment Research

intel

ARUP

London Wildlife Trust

Bat Conservation Trust

UCL Engineering Doctorate Urban Sustainability & Resilience

‘Bearing Witness for Wildlife’ Mitigation Project symposium

Esmée Fairbairn FOUNDATION

Bats and the Built Environment Project

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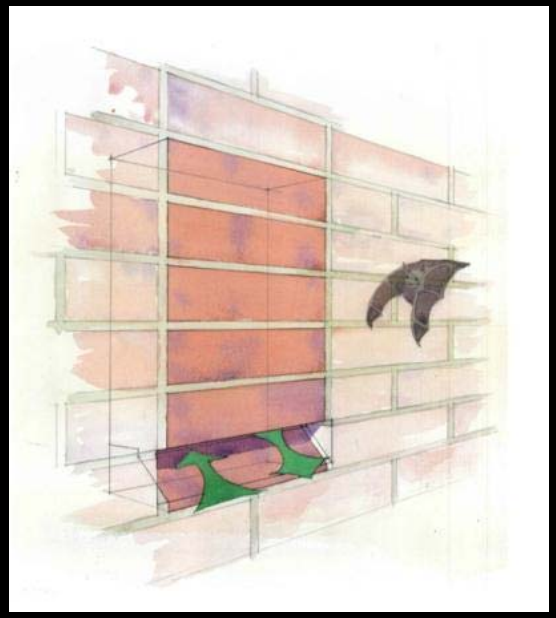
Habibat bat box partnership

habibat



Bats and the Built Environment Project

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PRIME PLACE

SPADES DASHBOARD
Aberfeldy case study

Innovate UK

SPADES
Spacial **D**ecisions on
Ecosystem **S**ervices

eCountability

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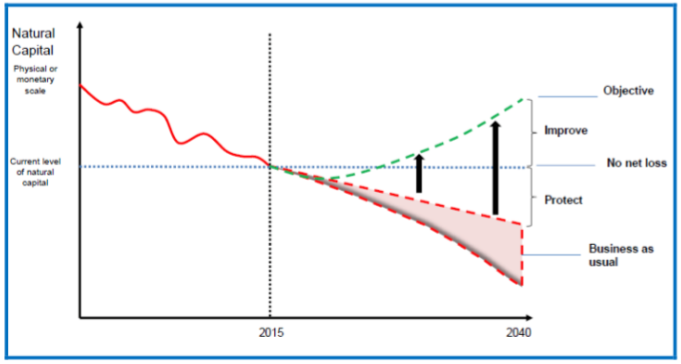
NCC Language & Relationship

Natural Capital and Ecosystem Services

- Private Sector focus?
  - asset resource/stock from which benefits flow or are gained
- Public Sector focus?
  - service provision
  - flow of benefits and services provided or available to people

Figure 1: Protecting and improving natural capital over a generation – a stylised interpretation



WD support for SPADES (Innovate UK funded project) aiming to link natural services with specific beneficiaries, so that the respective values are recognised and sustained in development.

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Ecosystem Services included in the SPADES tool

Service group	Ecosystem Service	Other classifications used in the literature
Cultural	Recreation	
	Access to nature	Accessible nature
	Aesthetic quality	Visual amenity
Regulating	Surface runoff regulation	Flood mitigation; surface water regulation
	Urban temperature regulation	Urban cooling
	Air quality regulation	Local climate regulation
	Carbon storage	
	Interior environment regulation	

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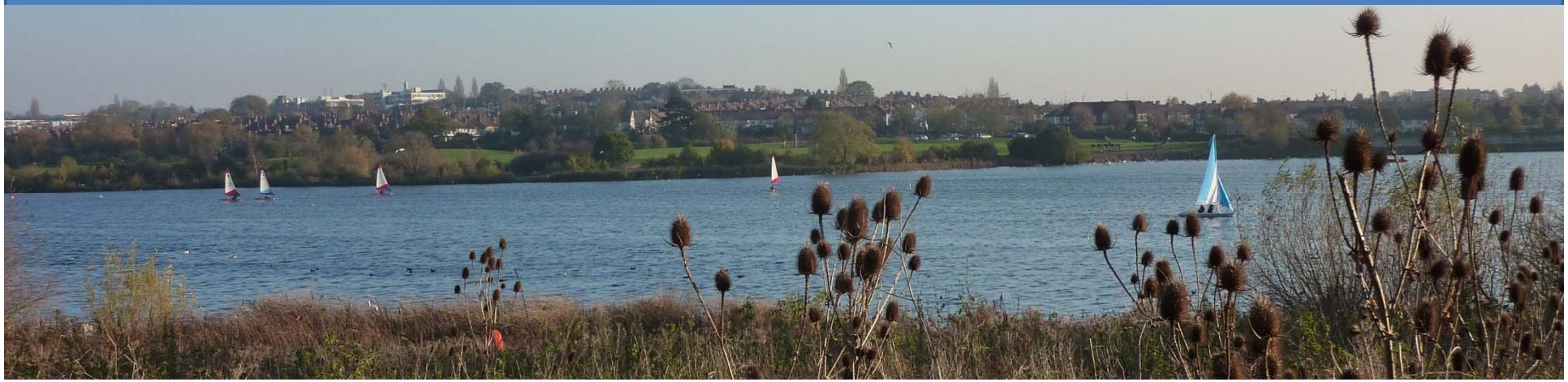
200: Parks and garden
210: Urban park
211: Pocket park
212: Neighbourhood park
213: Community park
214: District park
215: Regional park
220: Country park
230: Garden
231: Vegetated garden
232: Un-vegetated garden
300: Natural and semi-natural open space
310: Grassland
320: Heathland
330: Scrub
340: Woodland
341: Broadleaved woodland
342: Mixed woodland
343: Coniferous woodland
350: Abandoned, ruderal and derelict areas
351: Vacant/derelict land
352: Disused quarry
360: Fresh water body
361: Natural lake or pond
362: Artificial lake or pond
370: Wetlands
380: Coastal
381: Beaches and sand dunes
382: Foreshore/rocks
383: Tidal water
384: Open saline water

400: Green corridors
410: Watercourse
411: Natural watercourse
412: Natural watercourse with artificial embankments
413: Artificial watercourse
420: Green access route
421: Walking/cycling route
422: Riparian routes
430: Transport route greenspace
431: Road island/verge
432: Railway corridor
500: Outdoor sports facilities
510: Sports pitches
511: Natural sports pitches
512: Artificial sports pitches
520: Recreation ground
530: Ball courts
531: Natural ball court
532: Artificial ball court
540: Golf course
550: Race course
560: Bowling green
570: Equestrian centre
580: Other recreational
600: Provision for play and fitness
610: Children's Play Space
611: Natural children's play space
612: Non-permeable children's play space
620: Outdoor gym
621: Natural outdoor gym
622: Non-permeable outdoor gym
630: Adventure playground
631: Natural adventure playground
632: Non-permeable adventure playground
640: Youth area

700: Open space around premises
710: Educational premises open space
711: Natural educational sports pitches
712: Artificial educational sports pitches
713: Other educational open space
720: Institutional premises open space
730: Commercial premises open space
740: Housing estate open space
800: Cemeteries and churchyards
810: Cemetery
820: Churchyard
900: Small-scale food growing
910: Allotments
920: Orchard
930: City farm
940: Community garden
1000: Productive spaces
1010: Agricultural land
1011: Pasture or meadow
1012: Arable land
1013: Agroforestry
1020: Nursery/horticulture
1030: Sand pit, quarry or open cast mine
1040: Reservoir
1050: Fish farm

1100: Urban greening
1110: Green roof
1111: Extensive green roof
1112: Intensive green roof
1120: Green wall
1121: Ground based green wall
1122: Façade-bound green wall
1130: Balcony green
1140: Ground level planters
1150: Atrium
1160: Trees and hedgerows
1161: Veteran tree
1162: Mature tree
1163: Young tree
1164: Tree avenue/alley
1165: Hedgerow
1170: Sustainable urban drainage feature
1171: Bioswale
1172: Rain garden
1180: Other biodiversity feature
1200: Other functional open space
1210: Other natural functional greenspace
1220: Civic spaces
1221: Permeable civic spaces
1222: Non-permeable civic spaces
1230: Other hard surfaced areas
1231: Permeable paving
1232: Non-permeable paving
1300: Data source untranslatable
1400: Vegetation (remote sensing)
1500: Non-vegetation (remote sensing)




PRIME PLACE

Aberfeldy

Air Quality

- Aberfeldy Village
- Aberfeldy Village 1km buffer
- Green and grey infrastructure

PRIME PLACE

Air Quality:
Aberfeldy Case Study, London

PRIME PLACE

Principal Benefits of this service:

Physical Health
(Mortality and Morbidity, Respiratory Disease)

Principal Beneficiaries of this service:

Residents in and near the development

Health services

Employers

Developers

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Greenspace, including tree canopies, pre-development


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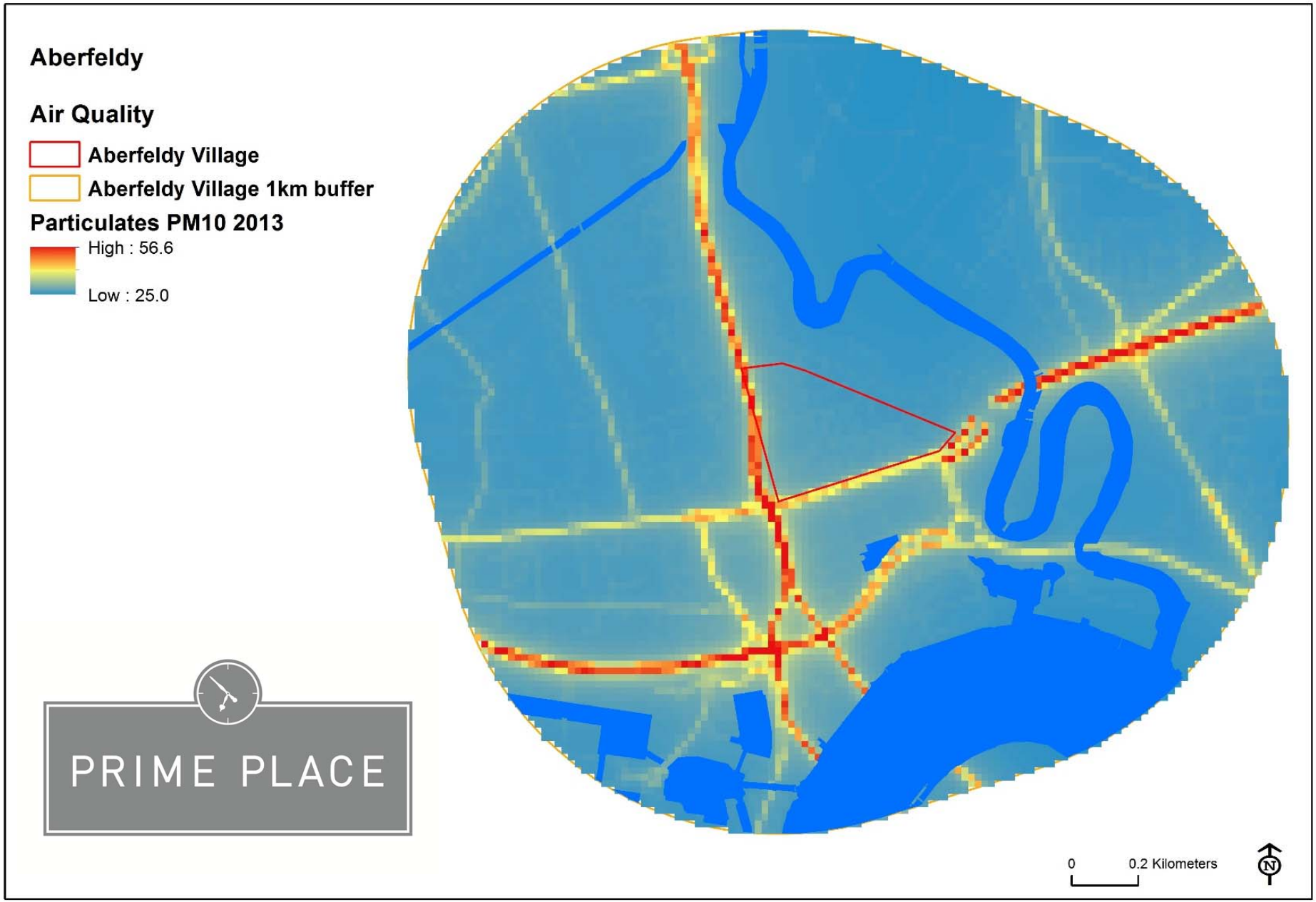
Identifying new plantings, soft landscaping. Green roofs on some of the buildings.

Identifying the greenspace connectivity in locality


Aberfeldy
Air Quality
Aberfeldy Village
Aberfeldy Village 1km buffer
Particulates PM10 2013
High : 56.6
Low : 25.0
PRIME PLACE
0
0.2 Kilometers
N

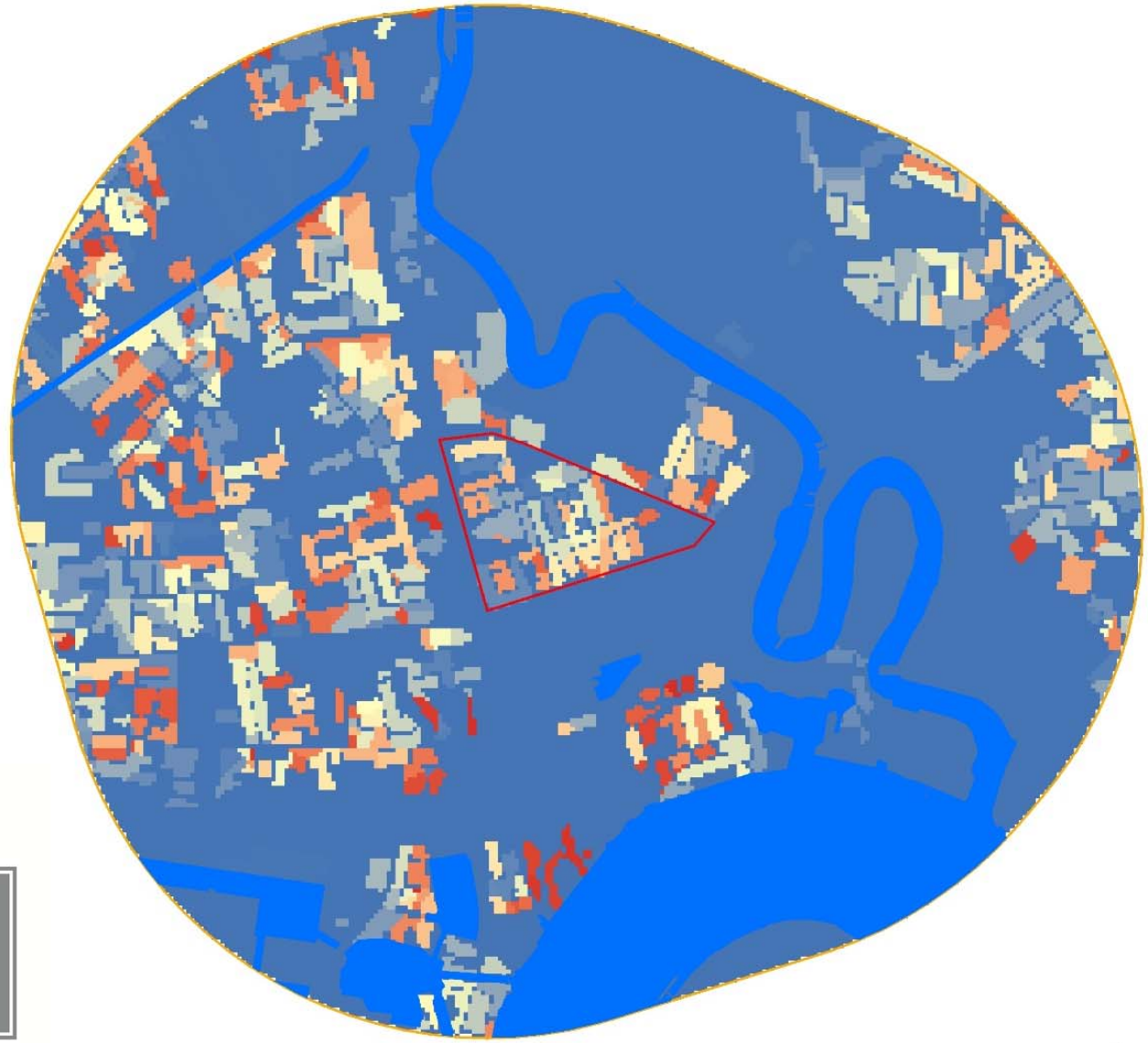
Aberfeldy

Air Quality

Aberfeldy Village

Aberfeldy Village 1km buffer

Residential Population



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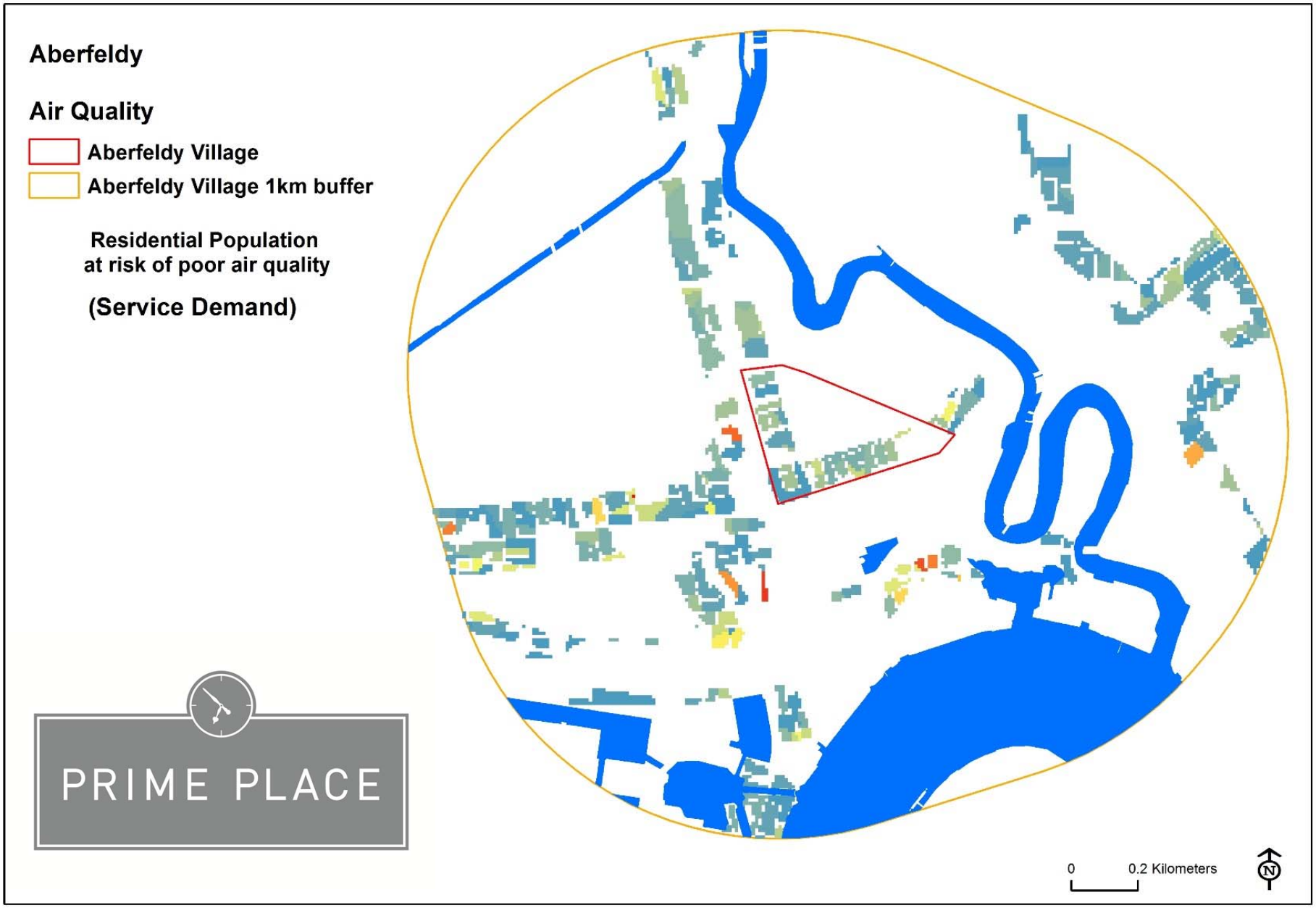

Identifying the service demand

Identifying the contribution of greenspace to air pollutant removal

Air Quality:
Aberfeldy Case Study, London

PRIME PLACE

Quantification:

Trees estimated to remove **285 tonnes of NO2** and **510 tonnes PM10** within 1km of Aberfeldy Village.

Monetisation:

Value of the air pollutant removal service by trees in Aberfeldy 1km buffer*:

NO2 removal: **£283 p.a.** (5p per tree per annum)

PM10 removal: **£48,000 p.a.** (£8 per tree per annum)

* Based on government valuation 2014

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Surface Runoff:
Aberfeldy Case Study, London

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Principal Benefits of this service:

Reduction of surface flooding risk

Principal Beneficiaries of this service:

Residents in and near the development

Developers

Local drainage authorities

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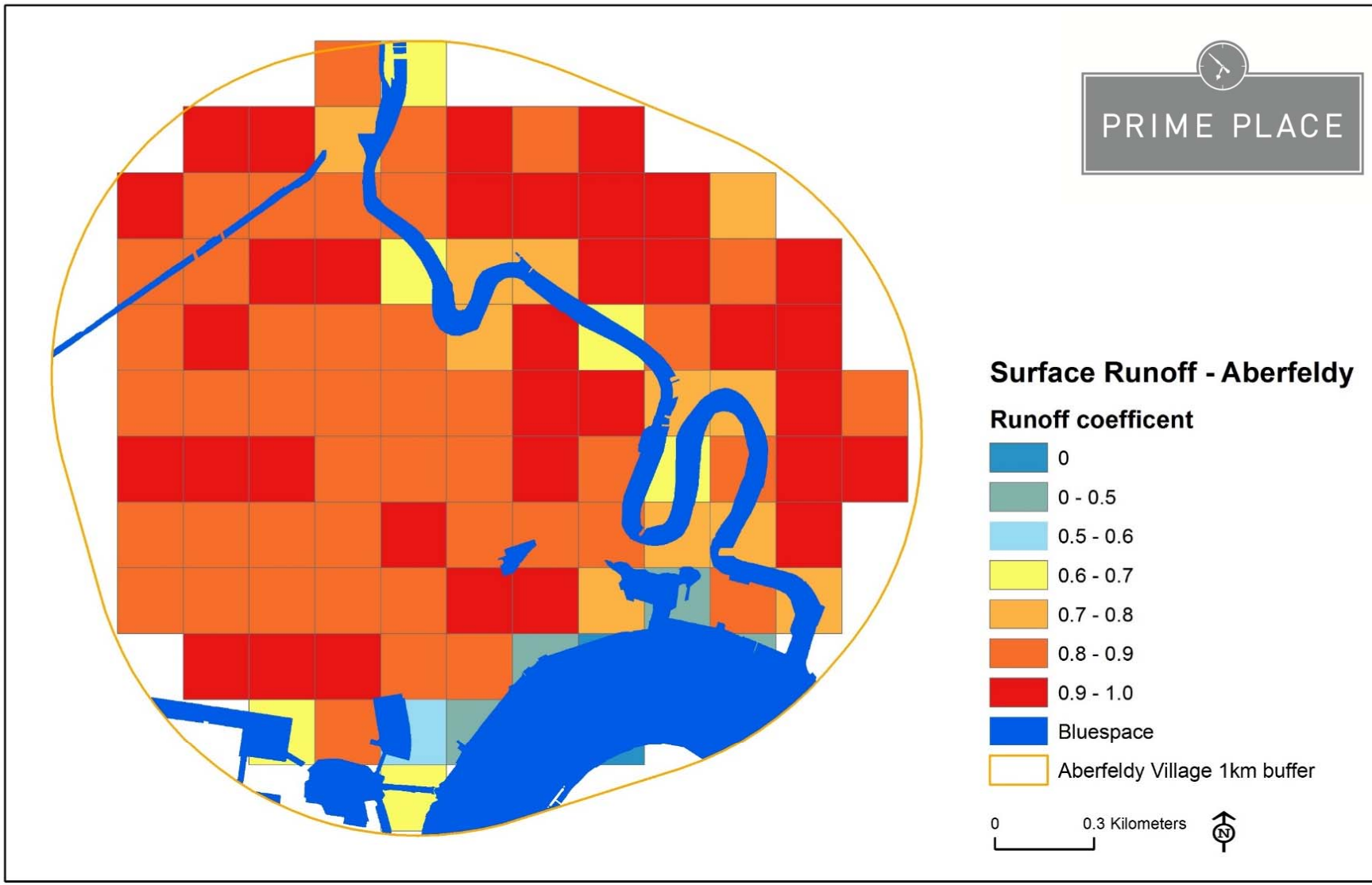
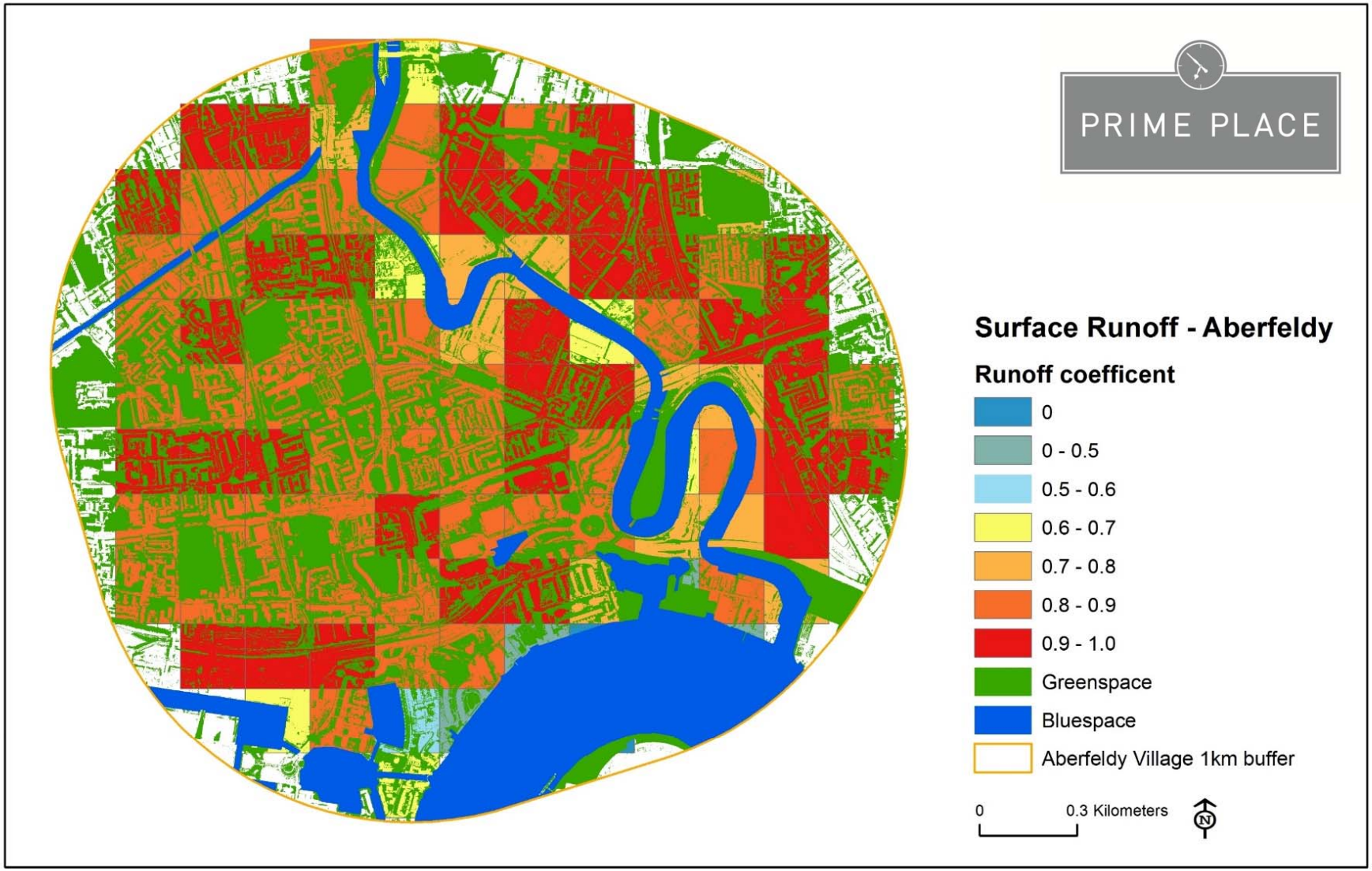

PRIME PLACE
Surface Runoff - Aberfeldy
Runoff coefficent
0
0 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0.9 - 1.0
Bluespace
Aberfeldy Village 1km buffer
0
0.3 Kilometers
N


PRIME PLACE
Surface Runoff - Aberfeldy
Runoff coefficent
0
0 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0.9 - 1.0
Greenspace
Bluespace
Aberfeldy Village 1km buffer
0
0.3 Kilometers
N

DASHBOARD ->> Overview

eCountability

Spades Dashboard

http://spades-project.com

SPADES DASHBOARD

Area Summary | Regulatory Services | Cultural Services

#. Greenspace

Aberfeldy

Aberfeldy Village
Aberfeldy Village 1km buffer
Greenspace

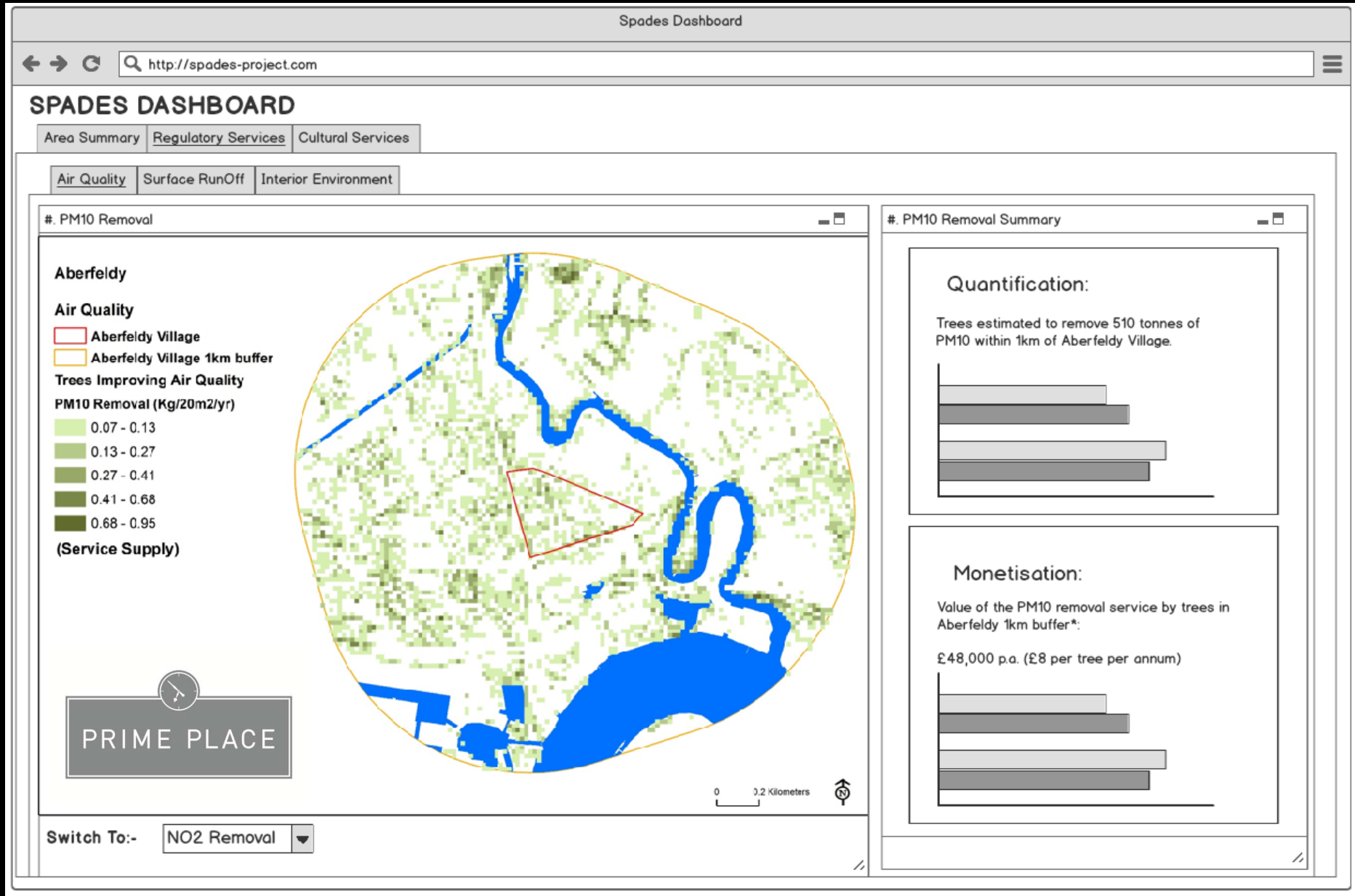
PRIME PLACE

#. Service Summary

	Current	Scenario
Air Quality	0.20	↑ +10%
Surface Runoff	0.23	↑ +5%
Interior Env.	0.20	↑ +10
Urban Temp	0.38	0%
Carbon Storage	0.16	↓ -5%
Access Nature	0.51	↑ +10%
Recreation	0.76	↑ +10%
Visual Amenity	0.20	↓ +10%

DASHBOARD ->> Air Quality Example

eCountability



SPADES

An Ecosystem Services Assessment tool designed for and with the Construction Industry

eCountability

Project Lead: Bill Butcher, eCountability

What's next?

- Tracking BAP delivery for each business
- Record what we've done (the Outputs)
- Recognise what we do with communities for 'spaces for nature' and biodiversity
- Set scientifically meaningful Biodiversity Metric with baseline, that's cost effective, consistent and repeatable
- Keep working with our clients, supply chain & partners in the built environment

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Valuing Nature in the built environment – a contractor's strategy

Q&A

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