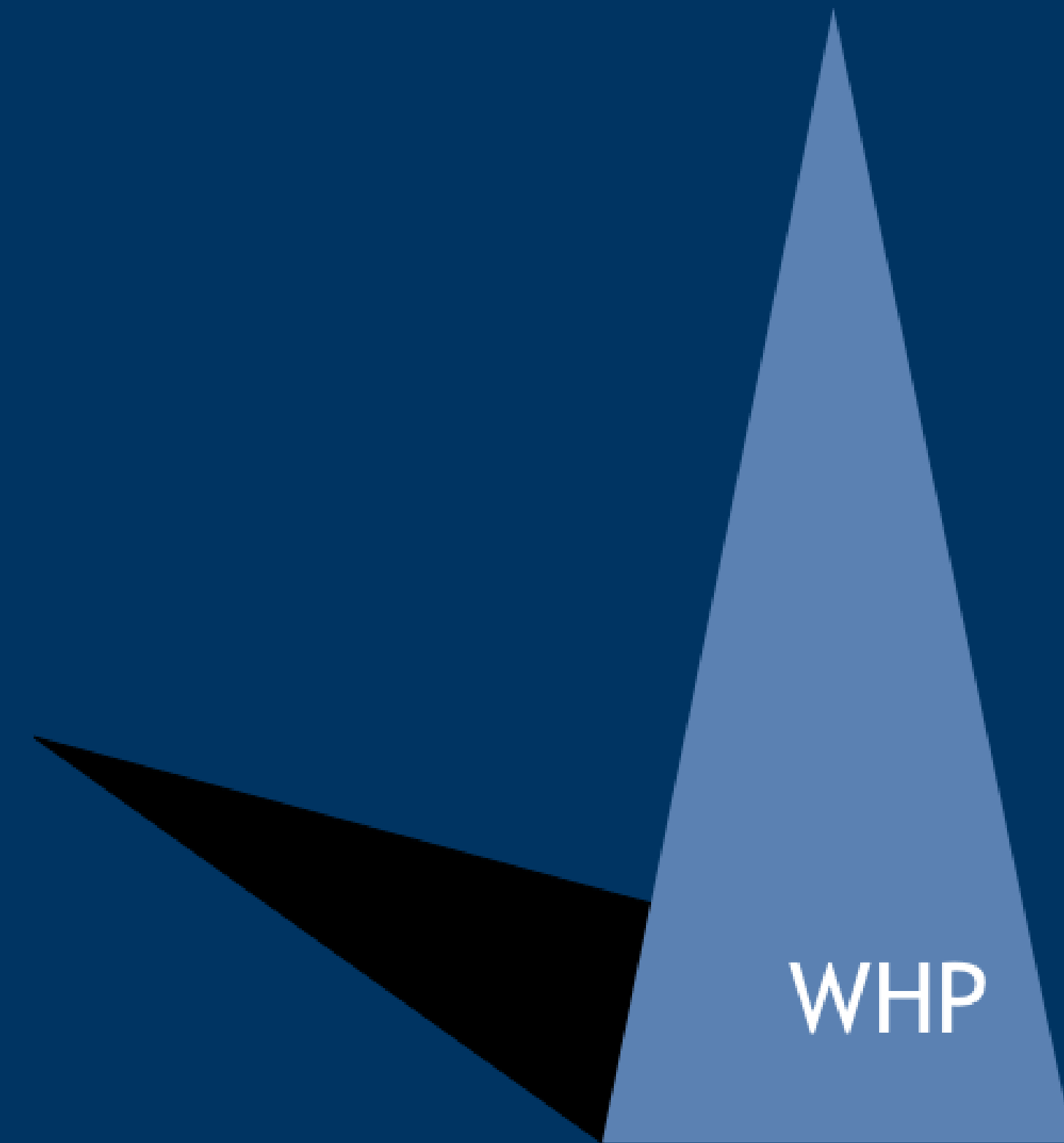


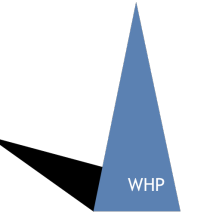
WHP Telecoms

Challenges For Rural Deployment
Rural Spectrum Use Case



18 October 2021

Rural Deployment – The Challenges



Physical Access

- The last 5% i.e. the most remote locations
- Islands off islands
- Resources and logistics

Land Ownership

- Complex multi party agreements
- E.g. crofting sites in Scotland

The Electronic Communications Code

- To speed up and reduce cost of deployment
- More open and constructive discussion
- Total cost of ownership has gone through the roof (temporary?)

Local Authority Planning

- Applying National guidance at a local level
- Still too arbitrary – development should prevail where planning argument is won
- Finding local champions
- Pixels vs Premises – the justification challenge

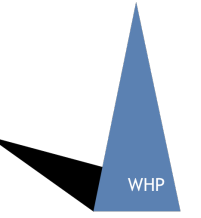
Backhaul

- Fibre – Distance and cost
- Microwave – Distance and geography

Power To Site

- DNO Connections – Capacity, distance and cost
- Off Grid Solutions – Improving with challenges

Rural Deployment – Key Drivers



Experience

- Let experience drive every aspect of crafting the most appropriate solution for every site

Innovation

- Innovation by itself is not the solution

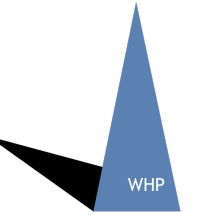
Engagement

- Involve as many relevant stakeholders as possible as early as possible

Communication

- Keep all stakeholders informed at every stage

Agri Tech Use Cases – Market Engagement



Industry & Regulation

Industry and regulatory bodies pushing for **progress and innovation**

Universities, Colleges, Estates, Farmers

Currently in a state of “**quasi-autonomy**”. Investment in machinery that works autonomously continues at pace. Innovative solutions require resilient and robust networks **now** to move to full autonomy.

Farmers already investing millions of pounds in machinery with funding available for investment in private networks to support full autonomy.

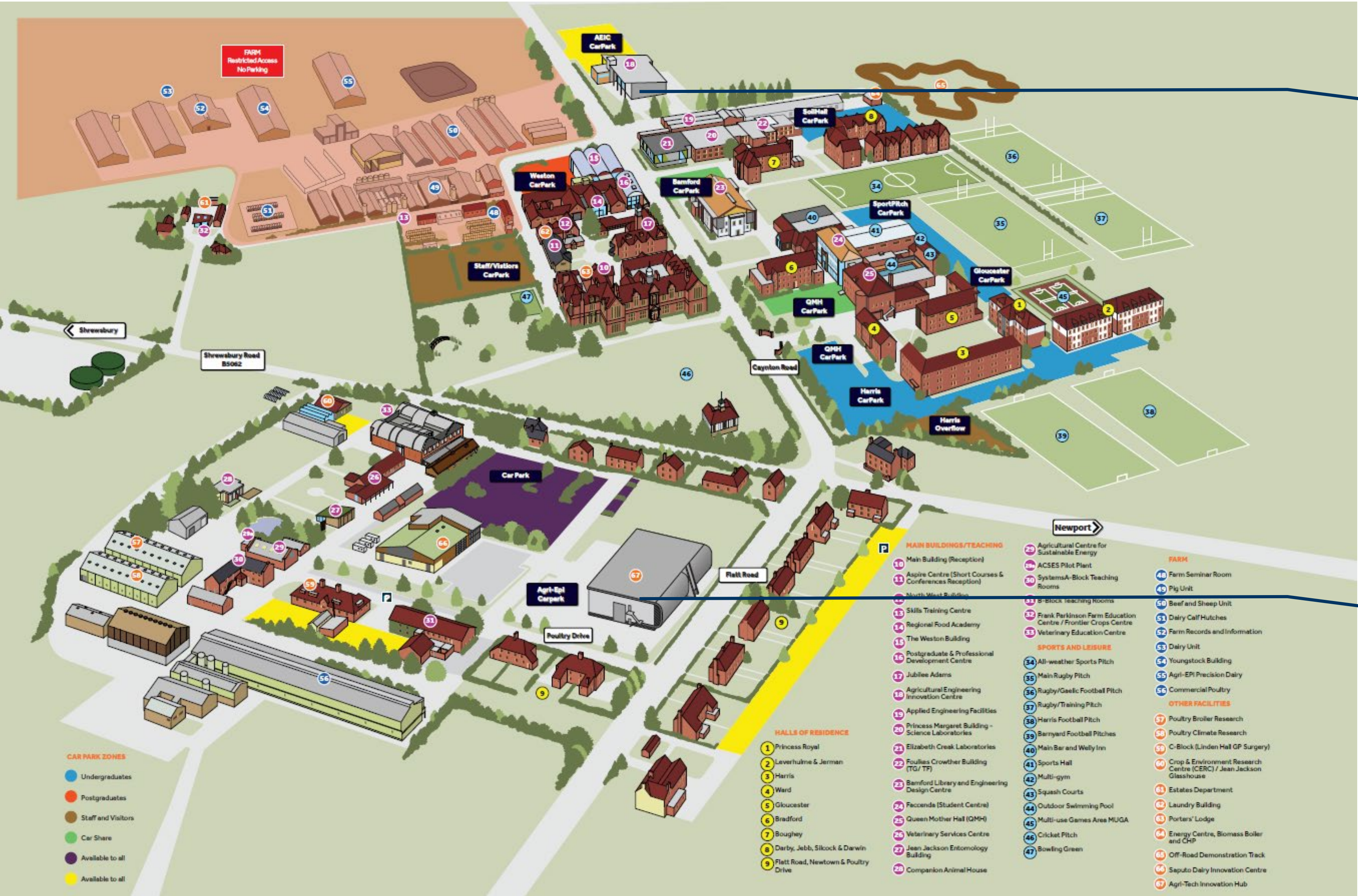
Equipment Manufacturers and MNOs

Radio solutions arriving for 5G. MNO Investment in macro and small cells networks focused on urban areas.

Spectrum

- Support for wider area (rural)/higher capacity private networks.
- Agile spectrum exchange - real time visibility of spectrum by geography/availability.
- Spectrum sharing.
- Use it or lose it clauses.

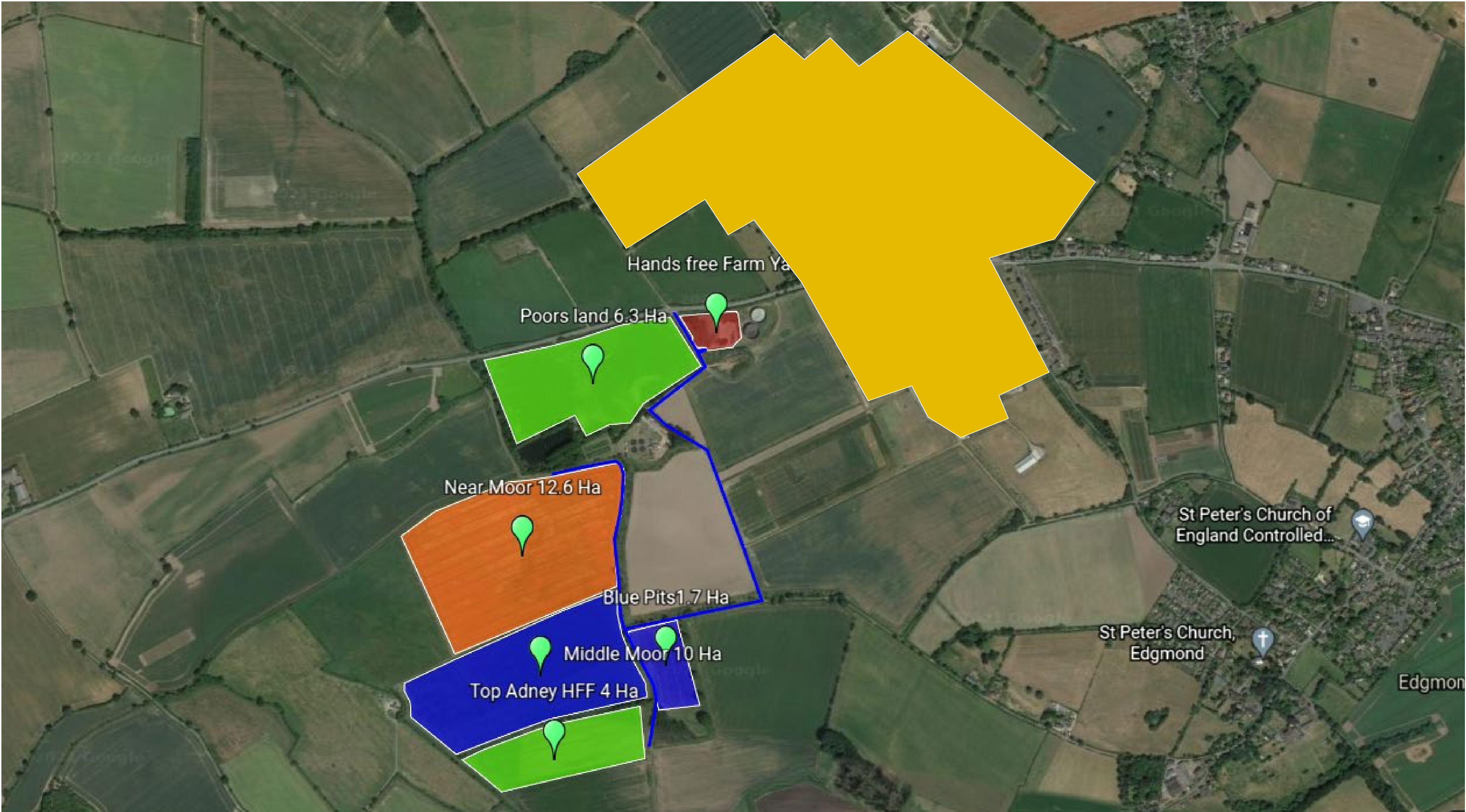
Agri Tech Opportunity



Agri Tech Test Site

Agri Tech Hub

Agri Tech Opportunity



Agri Tech Opportunity – Predicted Coverage

