Specific Pathogen Free (SPF) Hatchery

Main Contractor procurement
RFI Presentation

BBSRC bioscience for the future
The Pirbright Institute receives strategic funding from BBSRC.

Location


Digital Wired
Lovelight Photography - Children, Family &...
Ash Rd
Merial Animal Health
The Pirbright Institute

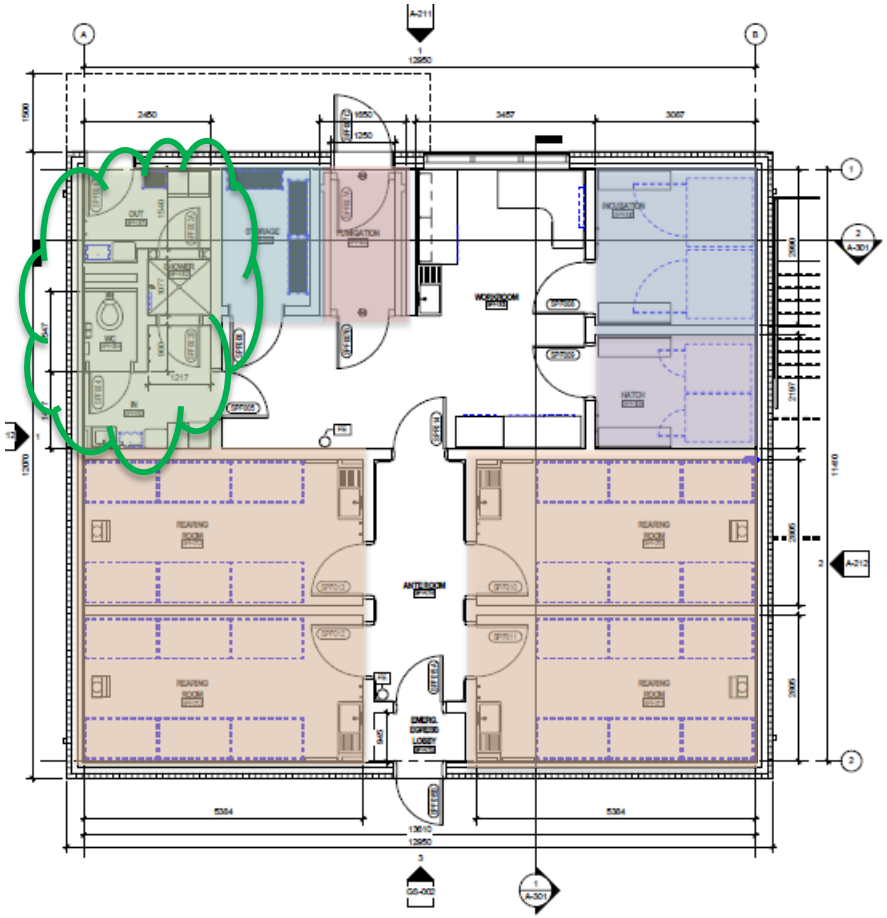

SPF

Location

Contractor's Design

- Contractor to develop Stage D design and TPI user requirements / comments into a fully integrated and complete scheme
- Contractor to be Principal Designer
- Building must be fumigateable by Vaporised Hydrogen Peroxide
    - In-house expertise will be available from the Institute to support and guide this requirement
- Design development opportunities
    - Mechanical systems can be simplified
        - HEPA
        - Ventilation / AHU
        - Reverse osmosis water plant
    - Building elevation challenge – eliminate roof plant level
    - Traditional construction methodologies for building fabric to be contractor's proposal
    - Increase welfare area space
    - Include hard landscaping and infrastructure / utilities connections

Plan layout



Rearing rooms

4 rearing rooms approx. 15sq m.

Birds up to 600g housed in pens 1sqm /pen

Gasketed doors

320 eggs/week total

Welfare

Review spatial allocations

Storage

Fumigation lobby

Required to fumigate equipment and feed into the SPF

Pass through lobby required for emergency exit and waster removal

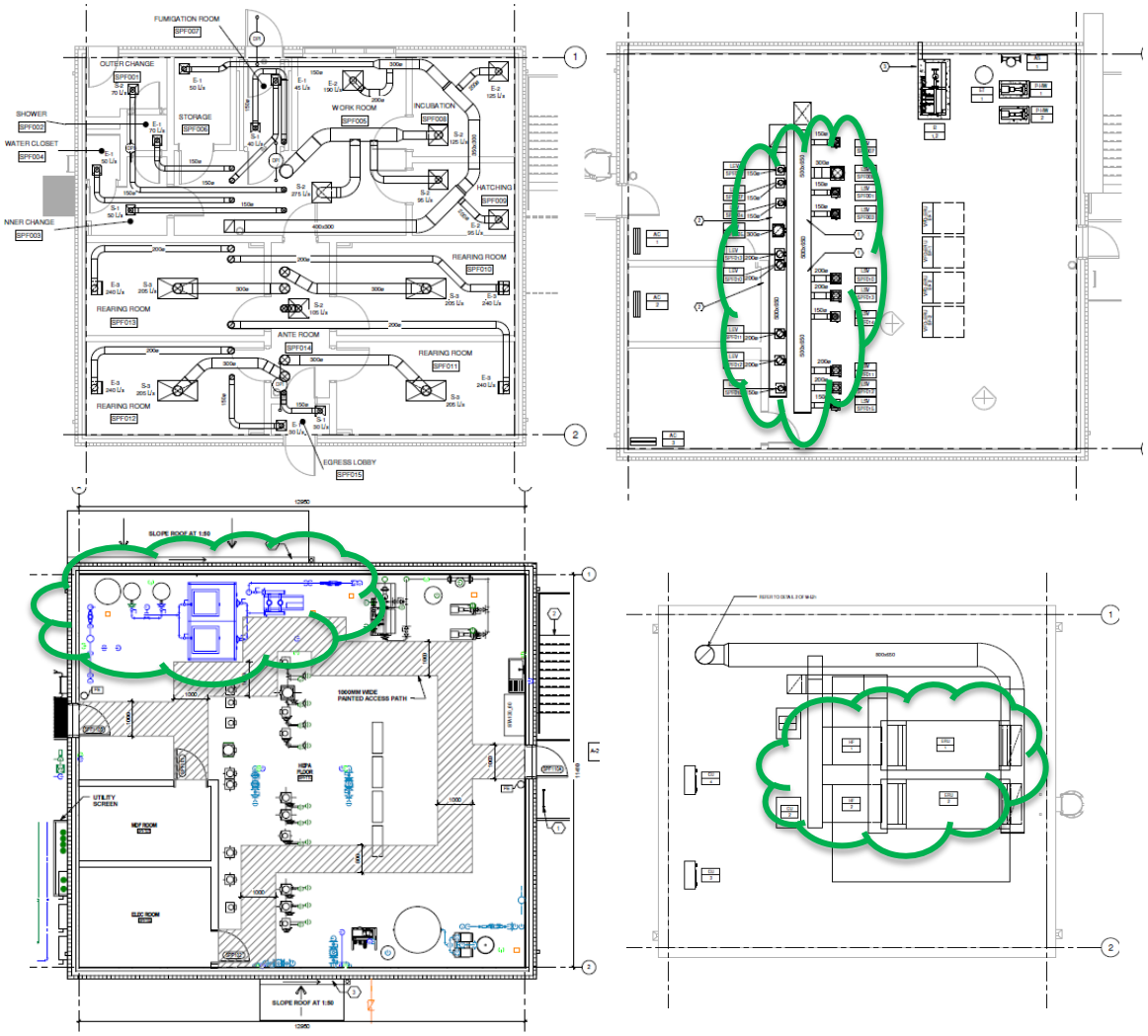
APR doors for fumigation control

Hatchery room

Incubation room

2x incubators

MEP Services



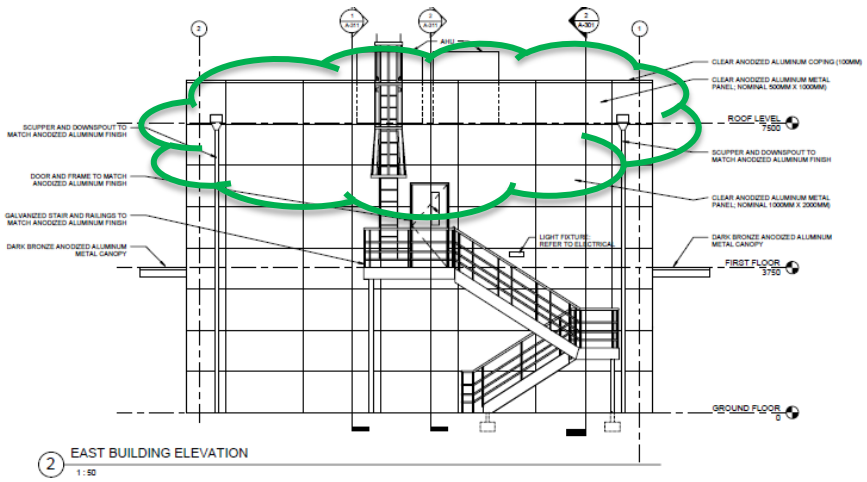
First floor
- Power/ data/ access control

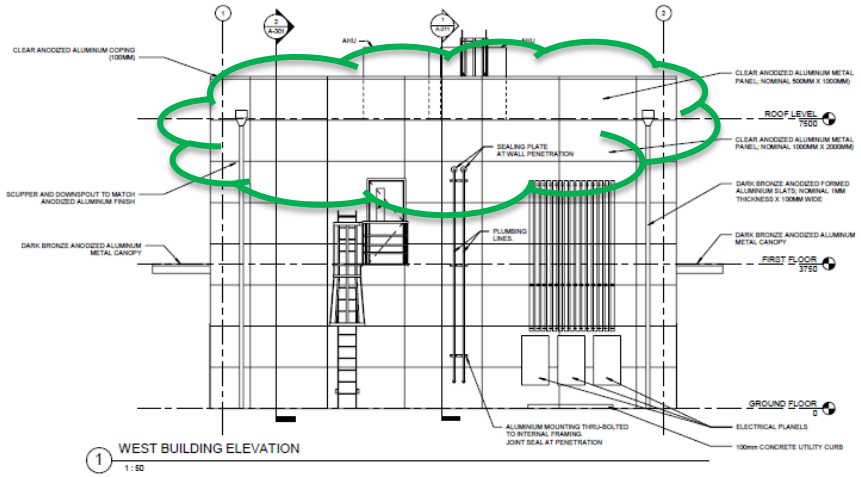
First Floor ceiling
- Supply and Exhaust locations

Plant Floor
- Access from exterior
- HEPA filters - Simplify
- RO Plant - Simplify
- Electrical boards
- Water softener
- Break tanks

Roof level
- Access from exterior
- AHU – possibly double stack, relocate to plant level
- Exhaust fans

Plan layout





Elevations

- Building cladding – Configuration can be best value by contractor
- Insulated Panels
- Exterior Stair, access for Plant 1st and 2nd Floors
- Lifting Beam to External Stair
- Entry canopy
- Windows
- Roof and drains integrated by contractor
- Challenge the need for a roof level

Structural design

Ground

- Shallow spread foundations bearing onto dense sand. Ground bearing pressure 250kN/m2 from AP Geotechnics
- Proprietary gas resistant membrane and passively ventilated or positively pressurised underfloor sub-space with monitoring facility required

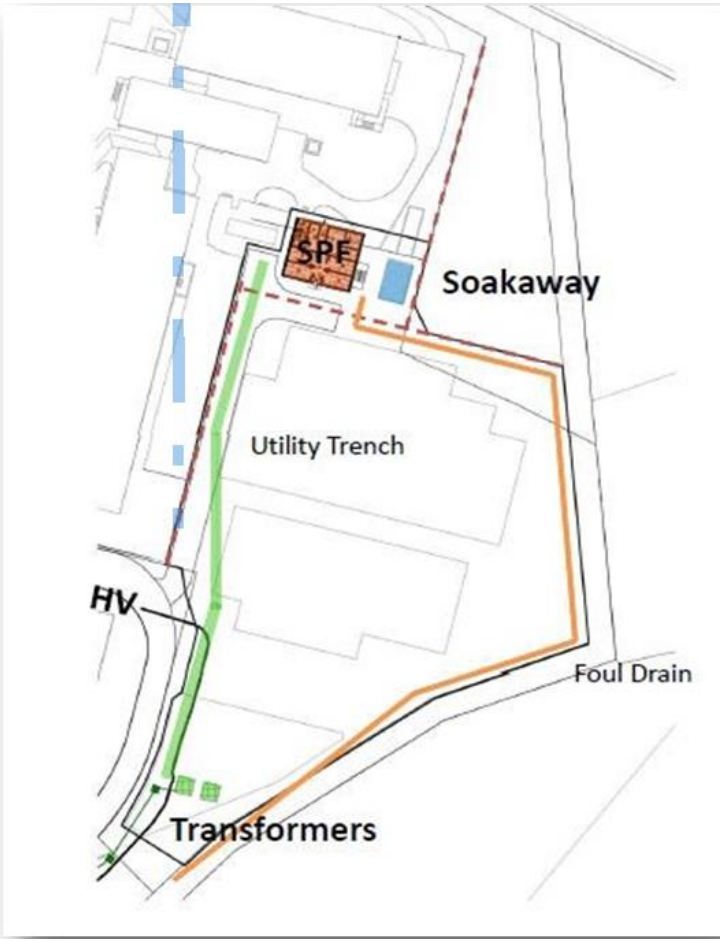
Walls

- Walls to be designed to resist the maximum positive pressure of 75Pascals generally however the fumigation lobby walls will need to resist 500Pascals.
- External wall construction to be a lightweight system

Loadings

- Ground – Labs – 4.0kN/m2
- First Floor – Plant – 7.5kN/m2
- Second Floor – Plant – 7.5kN/m2
- Roof – 0.60kN/m2
- Wind Loading

Site utilities



Site Location Features

- No Quarantine Restrictions.

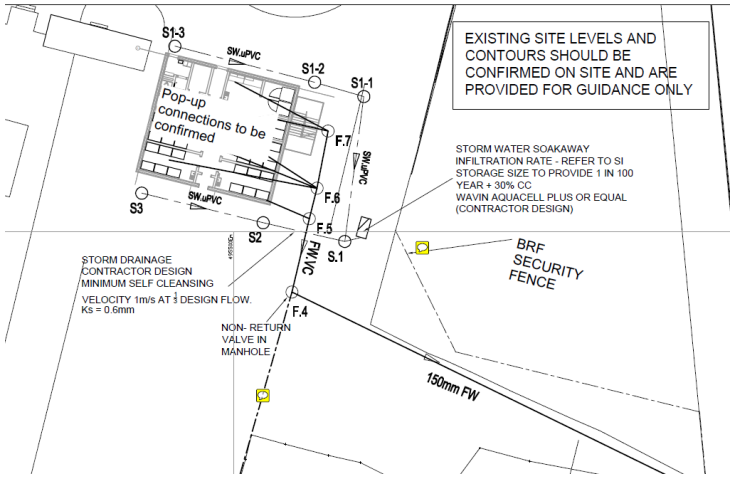
Utility Trench

- Water, Power.

East Side of Building

- Storm Water and Soaking Station
- Foul Waste

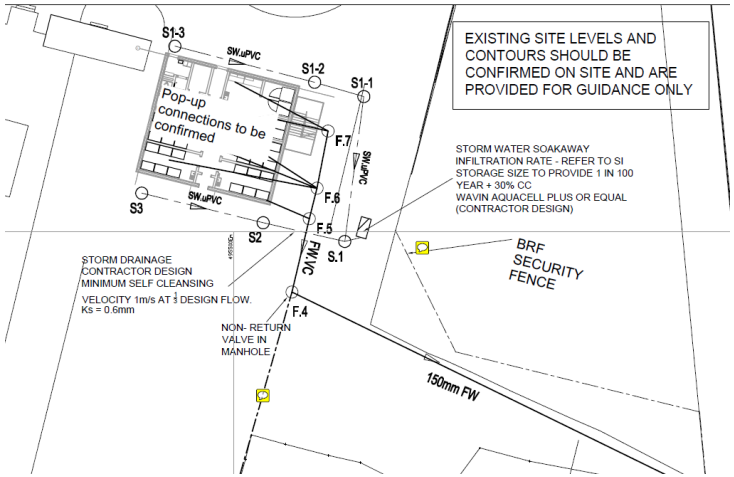
Civils – below ground drainage



Key Design Features

- All manholes to be external
- All drain pipes picking up the waste to be 100 diameter and vitrified clay or uPVC, these will be sleeved through the spread foundations
- The pipework taking the total foul will increase to 150mm diameter

Soakaway



Key Design Elements

- New soakaway
- Location of soakaway 5m from building and boundary fence
- Based on the current building size a 4m3 soakaway located adjacent to the SPF will be constructed. These will be formed using 1.0x0.5x0.4m waving aqua cell crates. The plan area required will be 1.5x4.0m with the crates stacked in 2 rows.
- We would require permeability testing to be carried out in the location of this new soakaway once it has been installed to ensure the area is adequate we can then either add to this area or position a new soakaway and connect the two together.