

Manchester City, Etihad Stadium

High Performance Air Flow & Drainage

DESIGN & ESTIMATE Version 3

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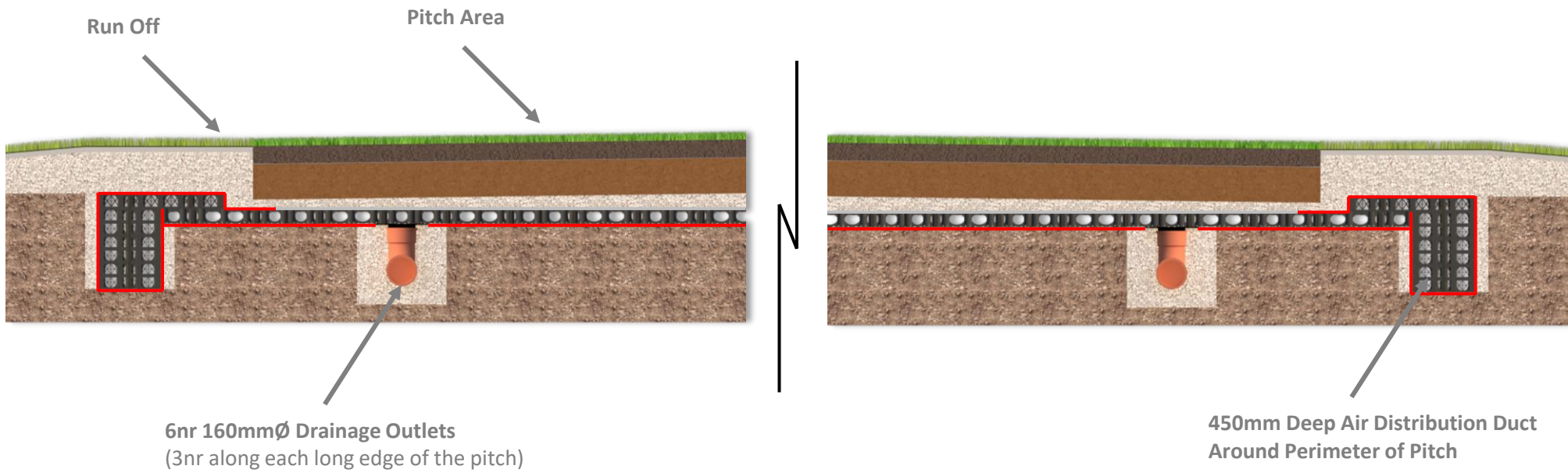
Strategy

The Permavoid blanket will be installed level/flat with the pitch crown formed above. The Permavoid 85mm blanket across the pitch area provides:

- 52% Perforated surface area provides excellent air flow at low pressure with an even/uniform distribution for consistency.
- 92% void ratio to create **600m³** of water storage across the pitch area, which can be used by sprinklers.

Install Permavoid air ducts around the full pitch perimeter for even distribution with 2nr 300mmØ pipe inlets. Install an impermeable geomembrane to the entire pitch area to allow the Permavoid blanket to harvest rainwater which can be used for the sprinkler system. 6nr 160mmØ drainage outlets will be installed to allow the pitch area to drain rapidly and evenly. Optional extras include remote controlled valves to temporarily close the outlets which allows water to build up in the Permavoid raft, which then can be reused.

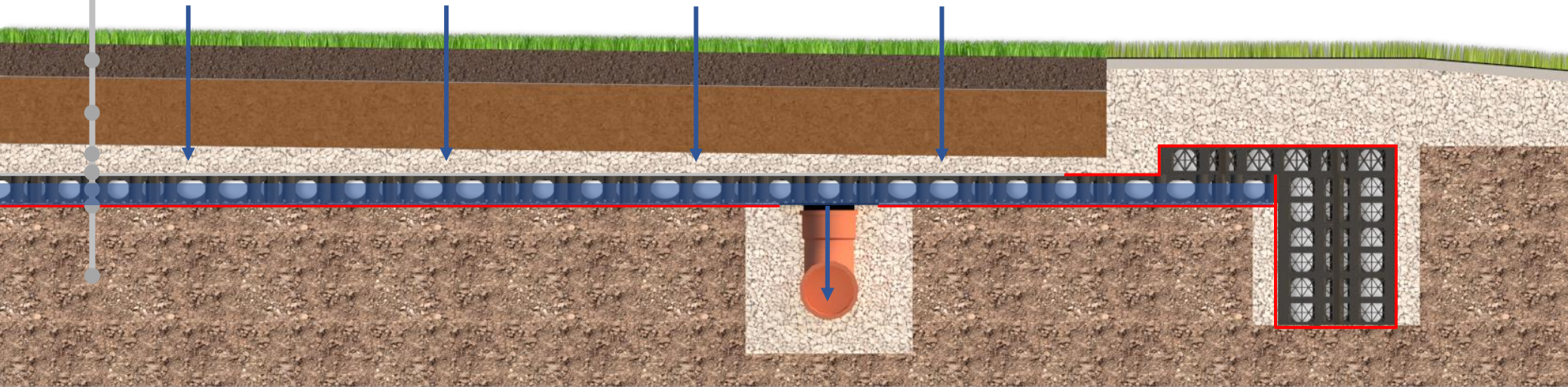
Air fans will be located in the plant room in the available section located above and potentially in the area currently designated as disabled toilets with a vent to atmosphere. 2nr 300mmØ air pipes will be routed from the pitch area to the plant room underground.





DRAINAGE SECTION

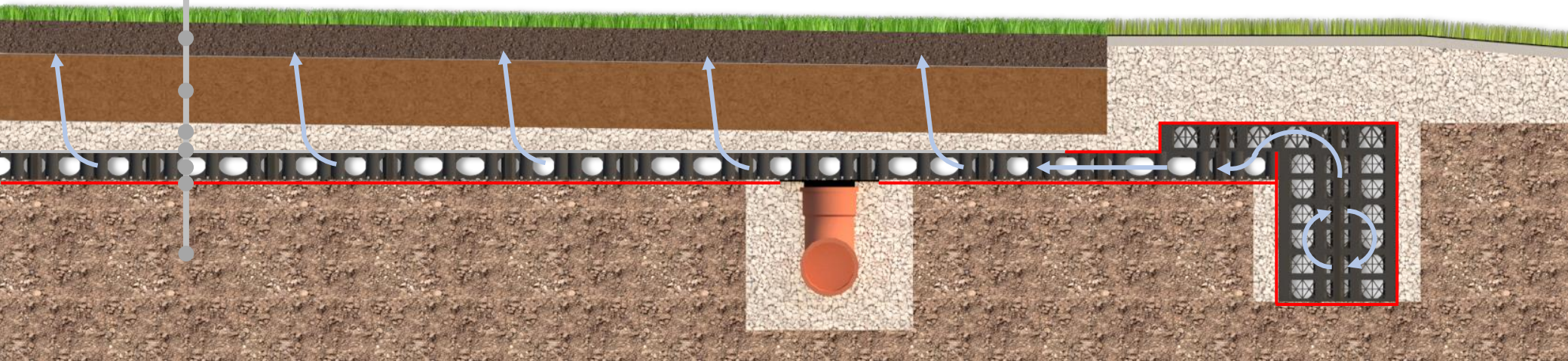
- 100mm Upper Root Zone
- 200mm Lower Root Zone
- 50mm Gravel – Graded to Crown
- Permeable Separation Geotextile *WASP02106*
- Permavoid Sport 85mm – 600m³ Irrigation Storage
- Reinforced Impermeable Membrane *PVOD10101*
- Existing Subbase

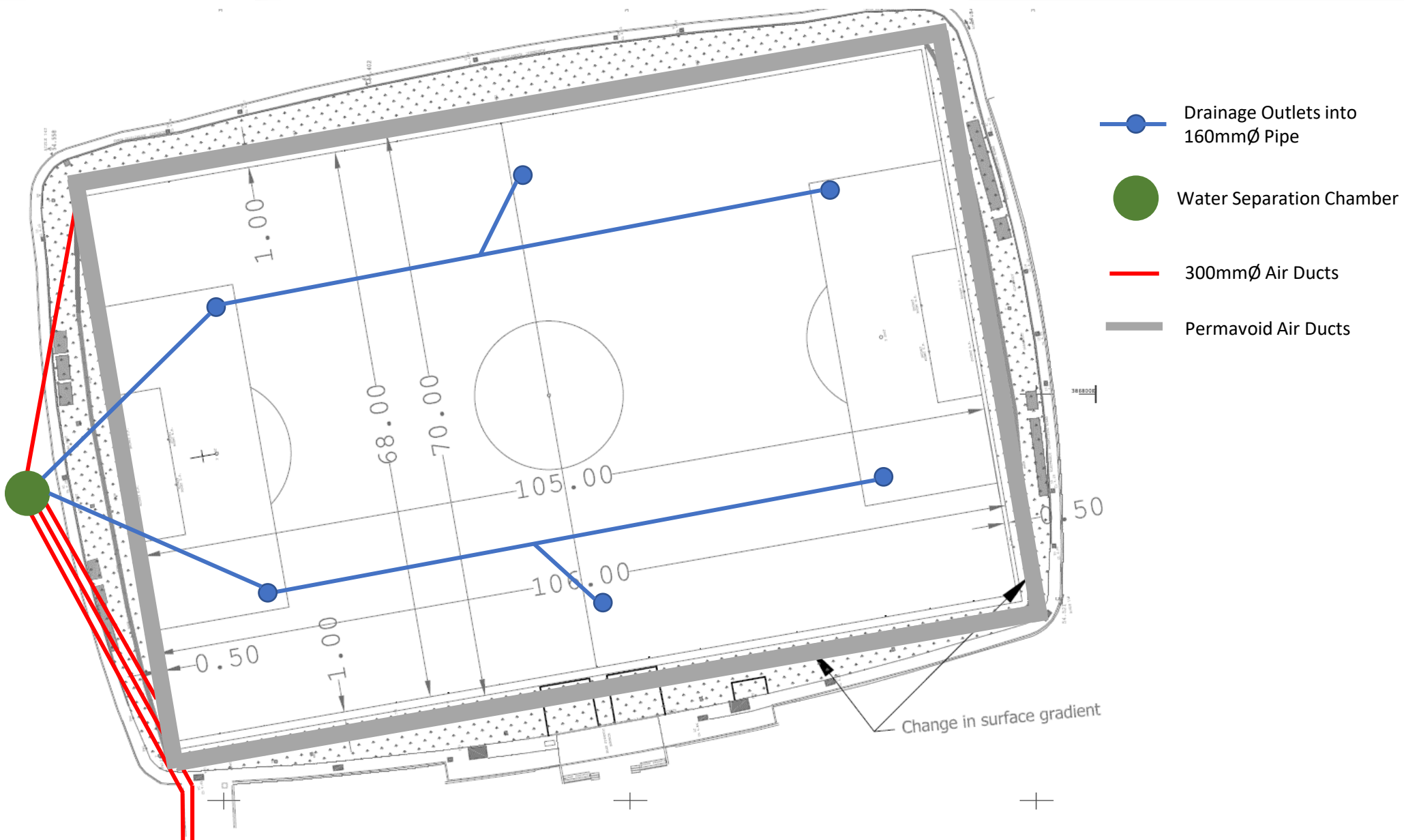




AIR FLOW

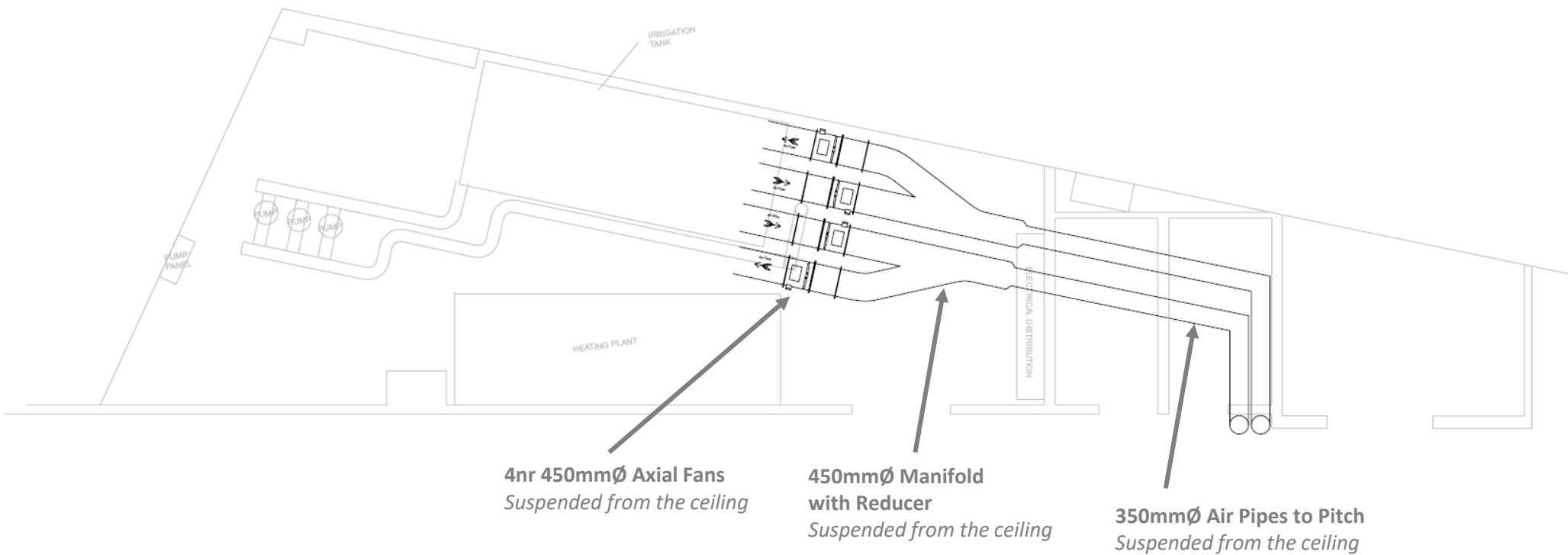
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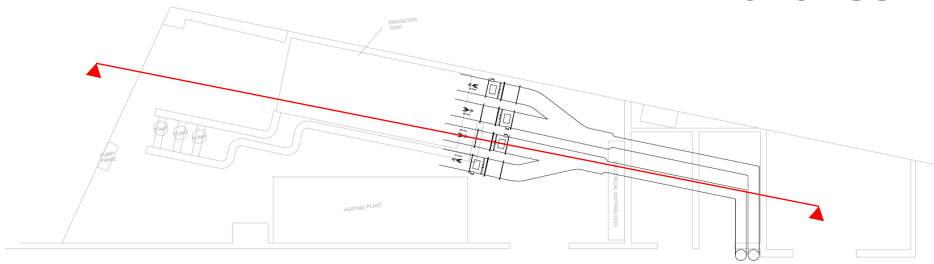


Plant Room Fan Layout - Plan

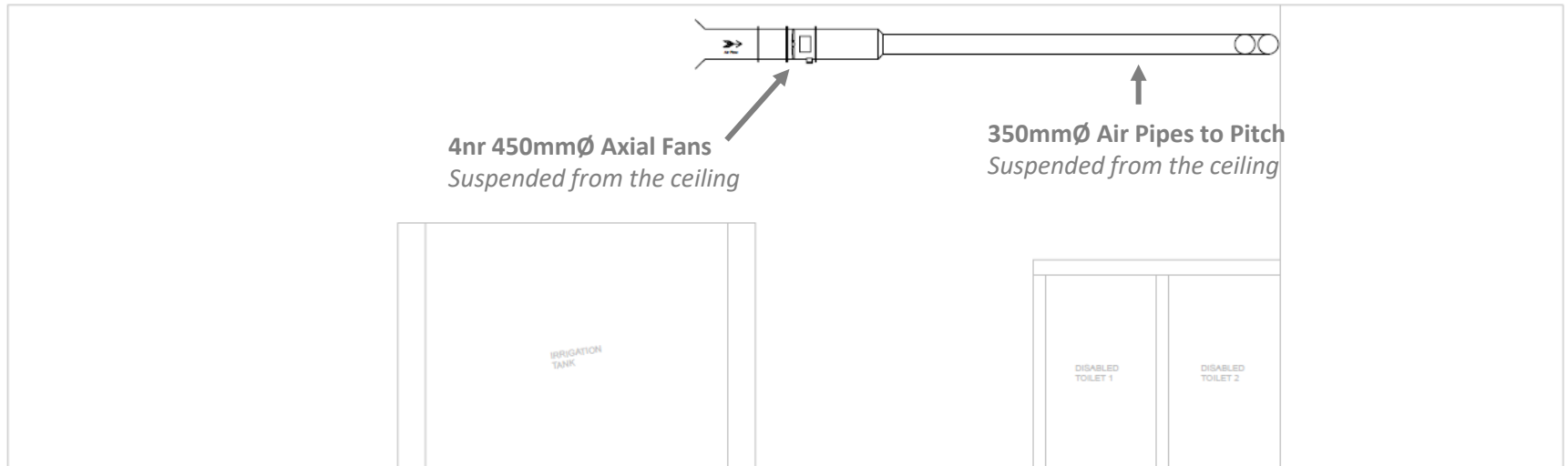




Plant Room Fan Layout – Section



31 course
block





Plant Room Fan Layout - Elevation

31 course
block



4nr Air Vents

350mmØ Air Pipes to Pitch

Exiting plant room at high level, running vertically down the wall and into the ground.