Kevin McHugh, Bhargav Dave, Ray Craig

Commercial development consisting of three single-storey data centres, split into three phases, to be powered by a purpose built 220kV Substation (also part of the campus), on a 95 hectacre (Ha) greenfield site in Clonee, Co Meath, Ireland. The 3rd phase of the project required the construction of a third single storey data centre building containing 4 data halls with a gross floor area of 25,400m2 and a data capacity of 36MW and in addition, an ancillary administration and office building of 4,360m2 and associated parking.


CLN 3 - DATAHALL

BENNETT
PRE-FABRICATION SHED

MERCURY
PRE-FABRICATION SHED
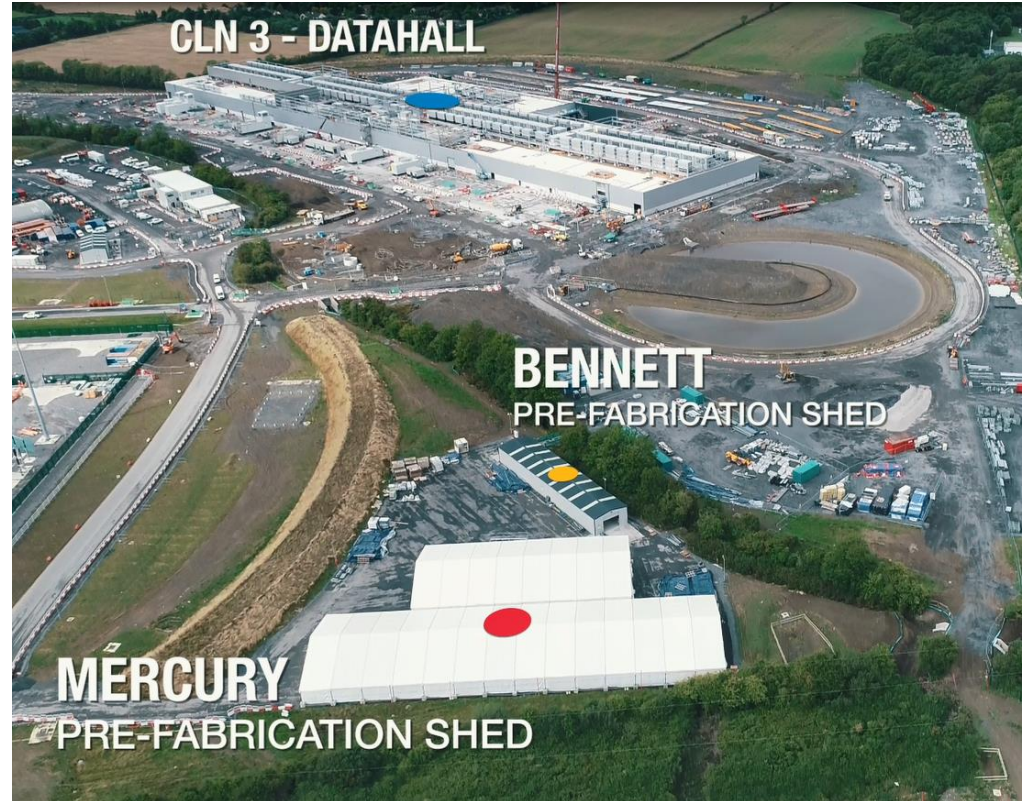
Traditional Methodology

- **Approximately 25-30% of labour are MEWP "spotters"**

- **25% of available time observed as motion waste. (MEWP movements, up/down & gathering materials)**
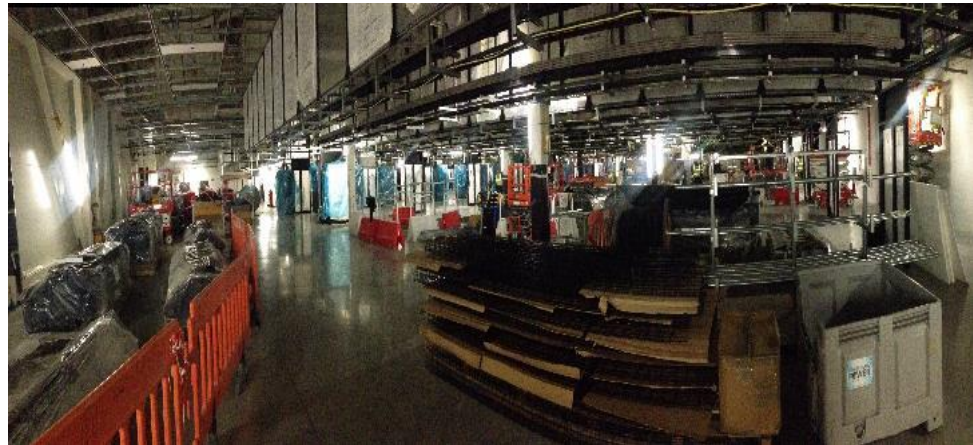
For the communication ease, entire data centre is divided into four zones namely Zone-A, Zone-B, Zone-C, Zone-D. Each zone has specific number of modules to be installed. Accordingly, the schedule was developed with respect to the zones.
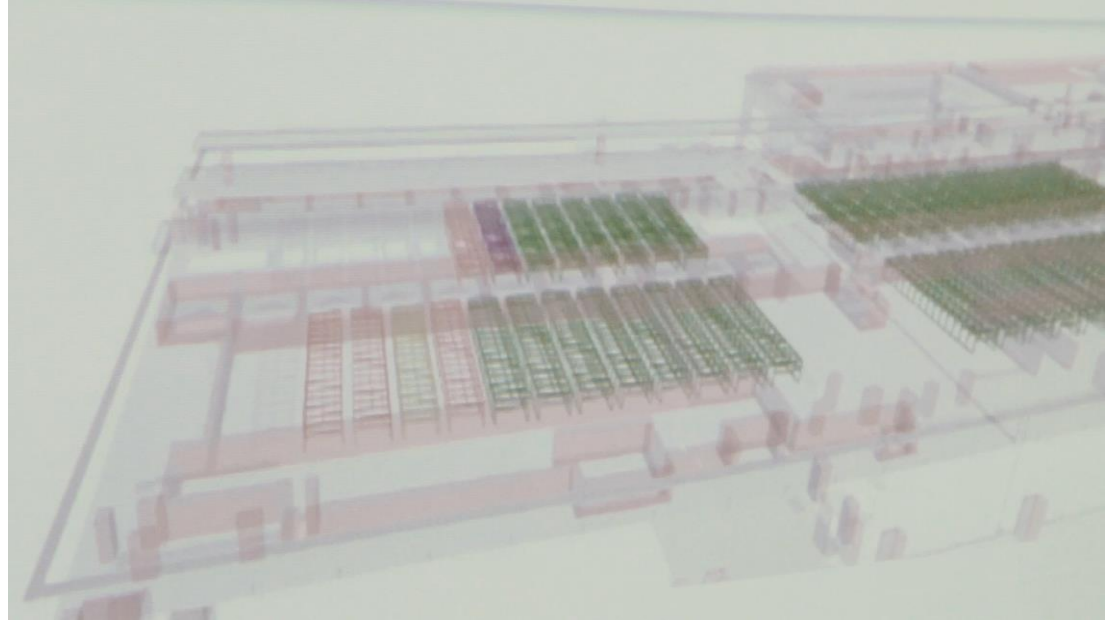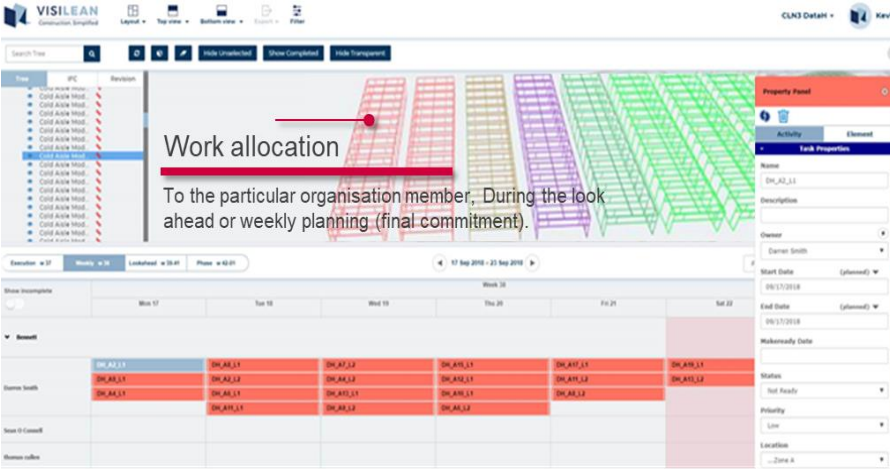
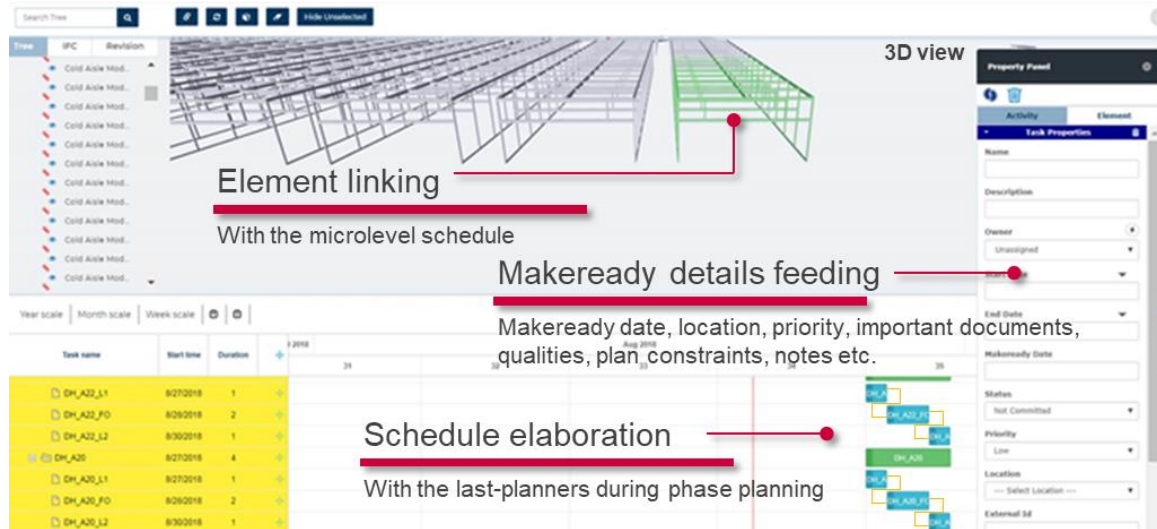# Collaborative Planning Meetings with Integrated Lean and BIM

- Look ahead meetings were held where micro level planning was conducted.
- VisiLean dynamically linked lookahead planning and production control to the 3D model, transforming BIM into a visual planning tool enabling anyone to see at a glance the current build status.
- the challenge was to assign all the makeready details not only to the modules but also to the subprocesses in the module production.

Associated Drawings

3D Model
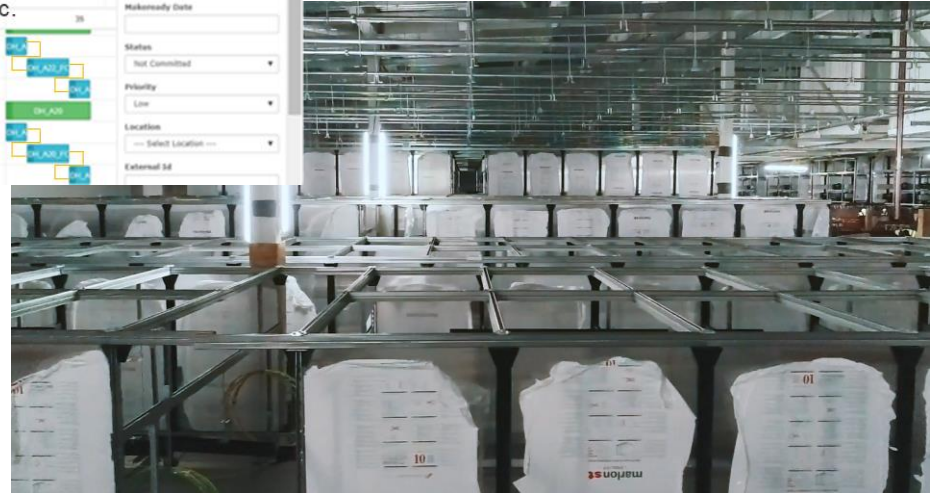
Master Plan
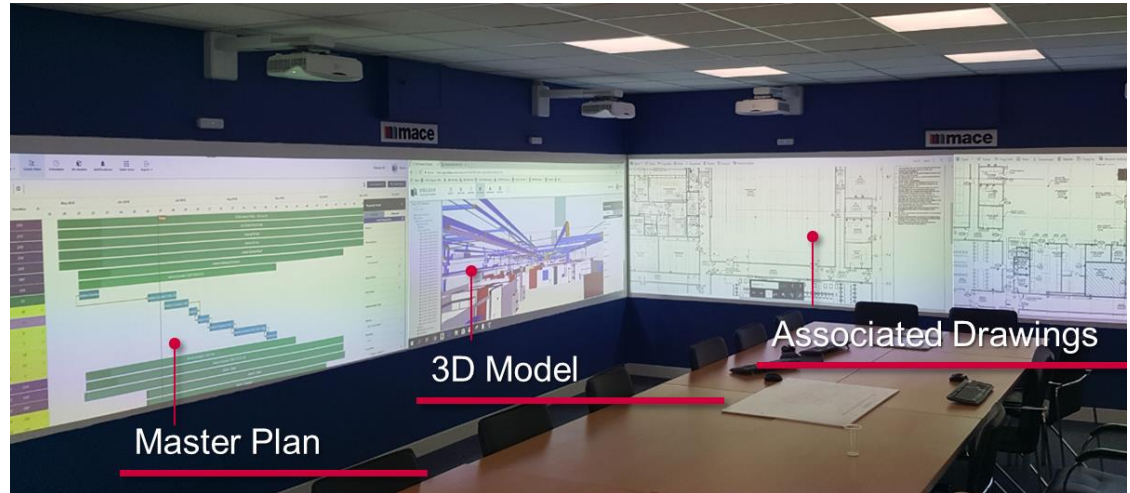
Quality Control and Validation

Space Management and First Run Studies

Element linking

With the microlevel schedule

Makeready details feeding

Makeready date, location, priority, important documents, qualities, plan constraints, notes etc.

Schedule elaboration

With the last-planners during phase planning

3D view

Trade to Trade Handovers
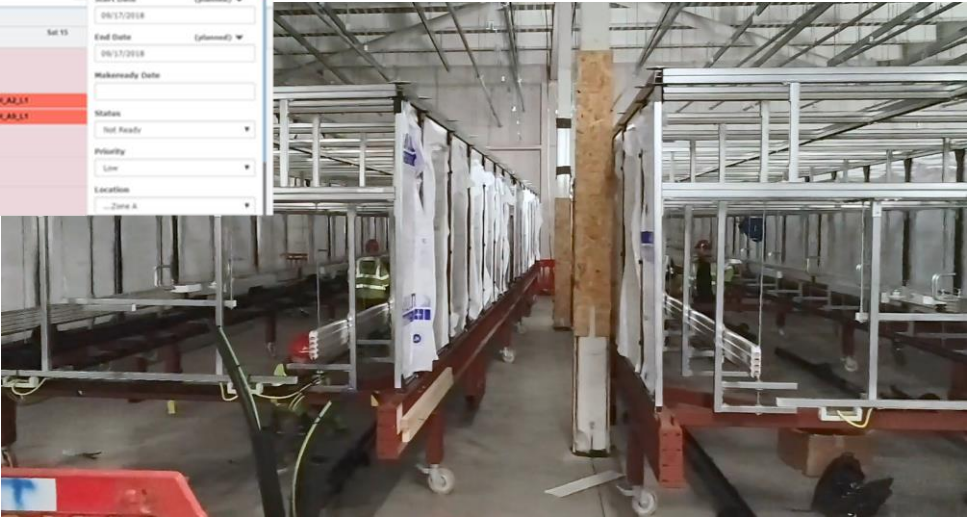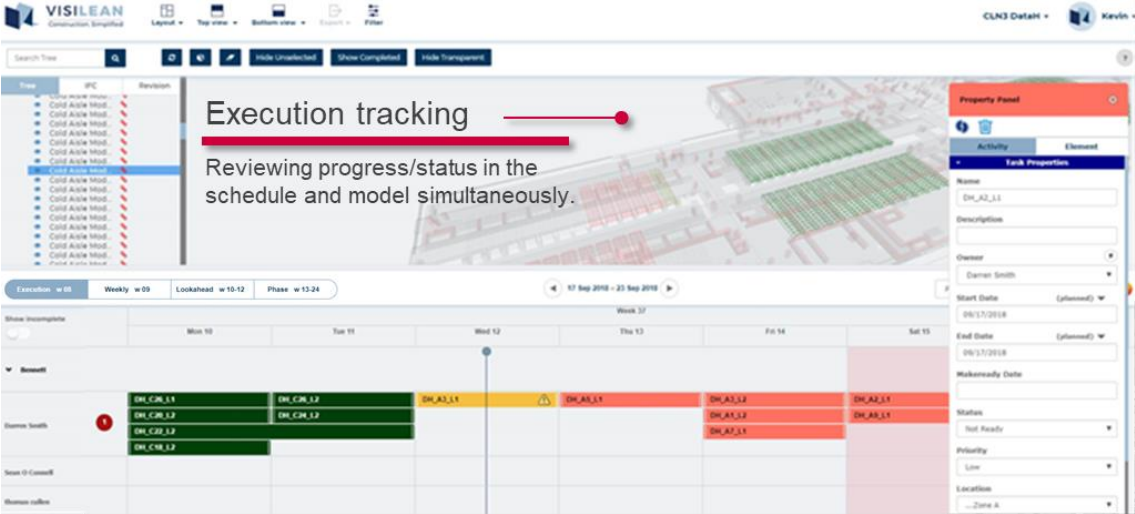
Reducing Waiting Time – Increase Efficiencies

Update progress (daily)

Complete task

"Alert" set for task

Task stopped

Integrating Lean and BIM Process for Modularised Construction

Conclusions
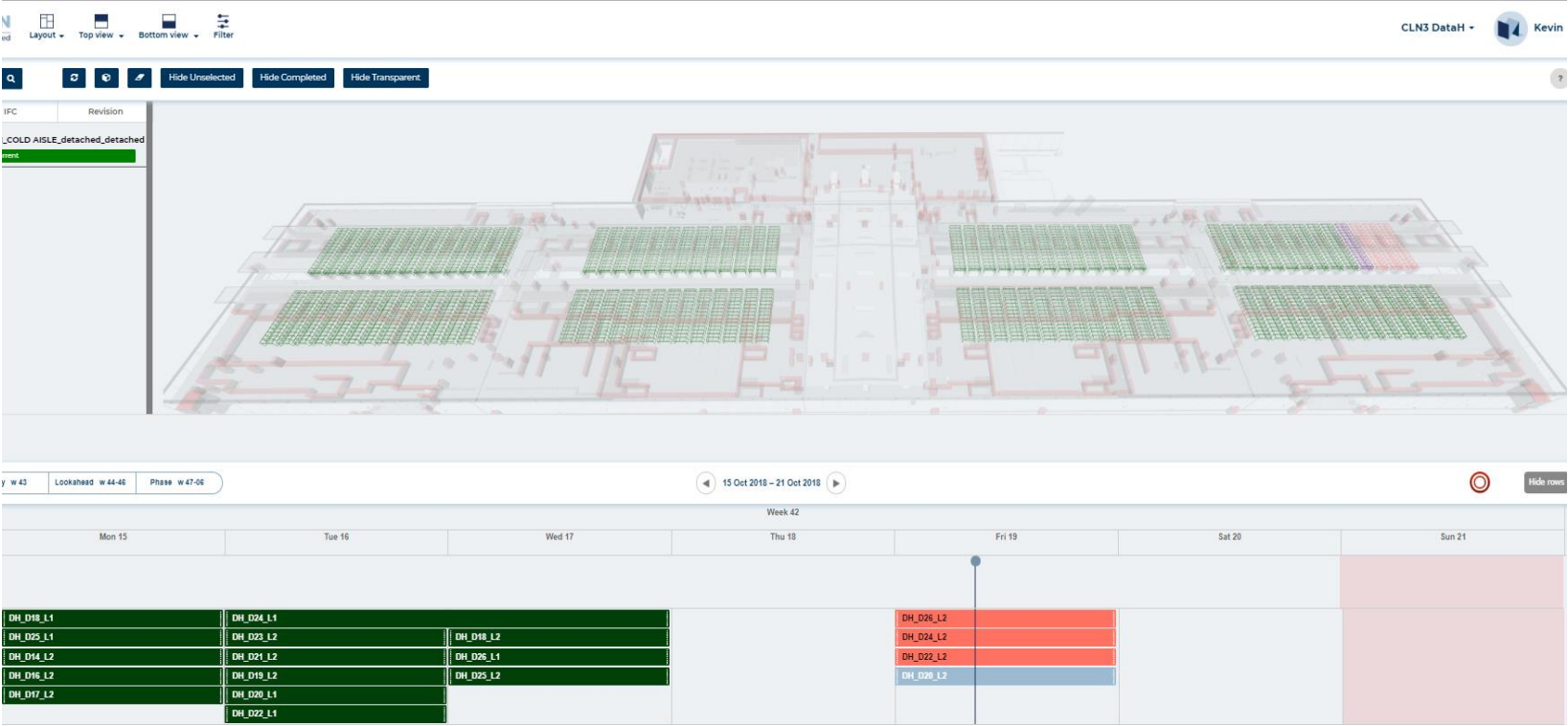
- CLN1 installation time for Data Hall fit out sequence was **21 weeks**
- CLN2 installation time for Data Hall fit out sequence was **16 weeks**
- CLN3 installation time for Data Hall fit out sequence was **9 weeks**
- Measurable benefits
  - 75% reduction in working at height,
  - 60% reduction in defects,
  - 43% improvement in program efficiency,
  - 45% reduction in labour spend.
- The team was able to reduce transport and congestion on site and improve real-time project transparency.
- Finally, the consistent data collected at the work face helped with continual improvement processes.