

FREEFORM
ADVANCED 4D MODELLING

Keble College 4D Case Study
Synchro Digital Construction Awards 2017



Project Overview

PROJECT LOCATION

The Acland Project is located in Oxford city centre. It is situated between Woodstock Road and Banbury Road which are two main roads that enter from the north of the city. A no parking policy is enforced on site due to the restricted space. Parking is also severely restricted around the site.

PROJECT SUMMARY

The construction of a new building around a quadrant courtyard providing 260 bed student accommodation. The new build has a basement, lower ground floor, ground floor and three upper floors. The existing building, Acland House, is grade II listed and is to be retained and incorporated into the new building.

The residential accommodation will be supported by various facilities including seminar / teaching spaces, common rooms, café and basement research lab and storage.

A separate Woodstock Road Building will be constructed on the north west side of the site but linked to the main building via a shared basement. This will serve as an office / research building with meeting and conference rooms and library. The building will have basement, ground, first and second floors.

External works include a central landscaped quadrant incorporating a water feature, landscaping to the boundaries of the site and a northern vehicular and pedestrian road with limited car parking.

PROJECT COST

£58m

PROJECT TIMELINE/TIMESCALE

32 weeks of early / enabling works up to 16 September 2016 including demolition, archaeology, piling mats, followed by a 109 week construction programme.

Practical completion is scheduled for October 2018.



The Application of 4D

HOW WAS SYNCHRO USED?

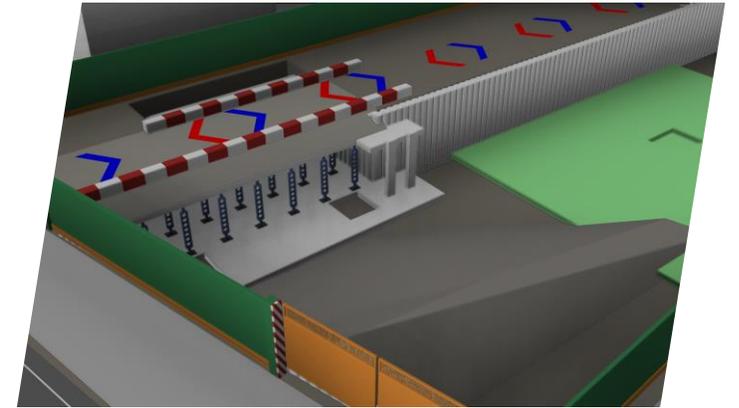
The very earliest use of Synchro was for client communication. With such a complex and sensitive existing structure, clear communication of access, temporary works and permanent works sequence was vital. The 4D model in this instance was the perfect solution and allowed BAM to promote their unique solutions to these issues.

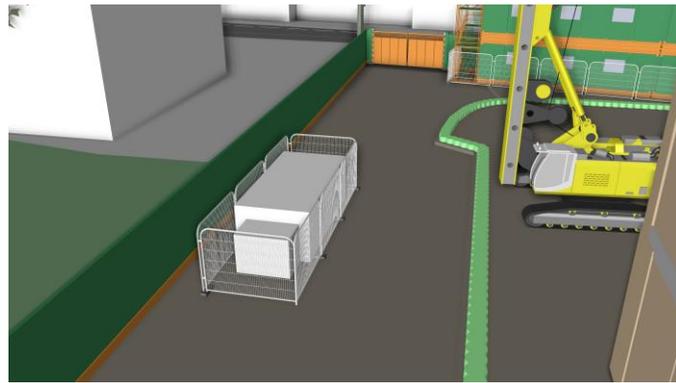
The Synchro model was also extremely useful during the second stage tender process. The model was utilised to run the complex simulations of work at the post tender meetings. This gave the subcontractors a detailed appreciation of the sequence of works, and enabled a more confident and detailed discussion, allowing them to consider timings of sequence and other trades which interfaced with each work package. In addition, during these simulations, works that were being carried out at the same time but elsewhere on the project and which were not initially deemed relevant to the subcontractor would provide an essential logistical understanding with respect to delivery and storage restrictions.

Dashboard modules were deployed on the project in order to capture all elements of works and different trades across the project duration. This allowed BAM to consider and plan for all trades access across the floor plates at any one time, mapping internal fitout progress with consideration of external works and the striking of scaffold in the same space.

HOW DID SYNCHRO IMPROVE THE TRADITIONAL PLANNING PROCESS?

The underpinning and stabilisation of the retained Acland House (shown bottom right) was a complex process. This would previously have been presented to individuals on 2D drawings, but by using Synchro, the process could be easily conveyed and understood by the BAM Managers and subcontractors involved in the works enabling teams to identify risks and issues much earlier and more comprehensively and put in place plans to resolve them.





31/03/2017

INTERNAL FITOUT

- WALL ONE SIDE + SCREED
- MECH + ELEC
- WALLS + CEILINGS
- PAINT + DECORATE
- FITTINGS + FINAL COAT

FACADE WORKS

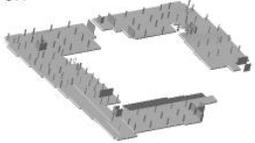
- MET SEC
- BRICKWORK

ACLAND HOUSE

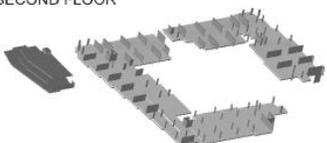
- STRUCTURAL STABILISATION



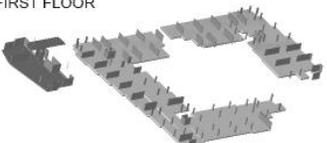
THIRD FLOOR



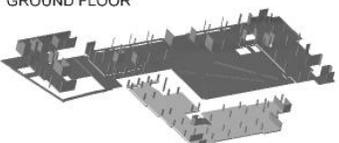
SECOND FLOOR



FIRST FLOOR



GROUND FLOOR



LOWER GROUND FLOOR



BASEMENT

