

COMPANY

Agrivert Limited
Alchmex International Construction Limited
The Jardine Engineering Corporation Limited
WSP (Asia) Limited

PROJECT

O•PARK2

LOCATION

Kong Nga Po Road, Sha Ling, N.T.

TYPE

DBO

SCHEDULED TIME OF COMPLETION

2024

BIM - Based: Global and Interdisciplinary Collaboration



About Agrivert Limited

Agrivert has established itself as a market leader in the development and operation of organic waste treatment facilities, derived from 25 years of extensive operational experience.

About Alchmex International Construction Limited

Alchmex International Construction Limited (UK) is a subsidiary of China State Construction for sustainable construction and building service innovation and development. We provide excellent design - build - operate services with advanced technologies and management systems towards carbon neutrality.

About The Jardine Engineering Corporation Limited

Jardine Engineering Corporation (JEC) is a leading provider of engineering services, sourcing and contracting expertise. Established in Shanghai in 1923, JEC is headquartered in Hong Kong and operates throughout Asia.

About WSP (Asia) Limited

WSP is one of the world's leading professional services consulting firms. We have been active in Asia since early 1970s, contributing to many of the region's infrastructure, building and urban developments.

AUTODESK PRODUCTS USED

Autodesk® BIM 360®

Autodesk® Civil 3D®

Autodesk® Navisworks®

Autodesk® Revit®

Project Description

O•PARK2 adopts anaerobic digestion technology to convert food waste into biogas for electricity generation and fertilizer as by-product for landscaping or agricultural applications. In addition to providing electricity and heat for its own facilities, the surplus biogas produced can be converted to about 24 million kilowatt-hours of electricity annually, sufficient for use by some 5,000 households. With the commissioning of O•PARK2, the decrease in the use of fossil fuels for electricity generation together with an annual reduction of about 110,000 tonnes of food waste to be disposed of at landfills will prevent the emission of some 67,000 tonnes of greenhouse gases annually.

Project Challenges

1. Disciplinary Collaboration. The O•PARK2 project involves many disciplines and the internal structure of the building is complex. There are numerous files shared among various stakeholders and contractors.
2. Global Collaboration. During the COVID-19 pandemic, cross-boundary traveling to work is extremely difficult, particular to O•PARK2. The project involved technology provider partners from UK and Equipment suppliers from around the world.
3. Tight Schedule. The conventional procedure of combining the design from different disciplines engineers to generate the final design is extremely time-consuming. The O•PARK2 design team is formed by many engineers from various backgrounds and different regions, which makes the design combination even more difficult and time-consuming.

Solutions for Challenges

Many challenges have been solved through BIM. BIM models from different disciplines can be federated in Navisworks. These stakeholders work together through BIM 360. By using Common Data Environment (CDE), information can be exchanged effectively regardless of the geographical boundary. And we use BIM to do the spatial analysis to reduce design error and save time. BIM 4D simulation can make the construction sequencing visualize feasibility. Although it will take some time to set up the initial model, the communication based on one single truth of BIM allow us to avoid misunderstanding during the design combine with considerable time-saving.

How does BIM benefit the project?

- Multidisciplinary collaboration by using 100% BIM;
- More accurate and streamlined planning;
- Full project visualization;
- Early identification and mitigation of clashes;
- Monitor and track progress during construction;
- Improved communication across teams;
- Competitiveness – better projects and more bids; and
- With the great effort from AJA Joint Venture and WSP, BIM is widely promoted amongst internal and external counterparts.

We believe that the BIM is well implemented and developed during the project period.

Better with BIM

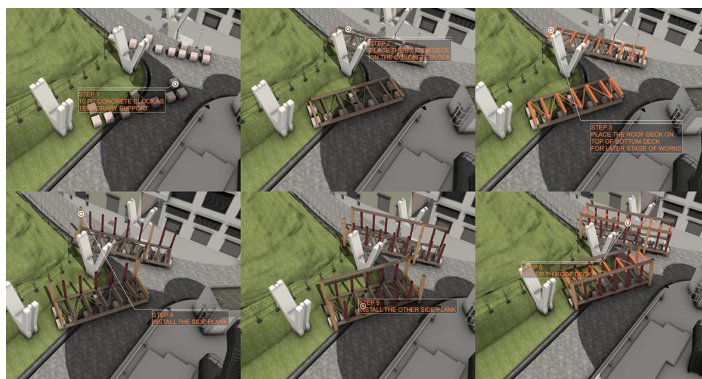
Except for wide BIM uses covering all mandatory BIM Uses and some optional BIM uses in Development Bureau Technical Circular, O•PARK2 project has three major innovative BIM uses, including global collaboration via BIM, smart construction management (C-Smart) system developed based on BIM, and investigation on integration of BIM and CIC carbon assessment tool (CAT) for sustainable construction. Moreover, the anaerobic digester construction involving complicated construction sequences is a special case for adopting BIM to prevent setting out errors in this project.



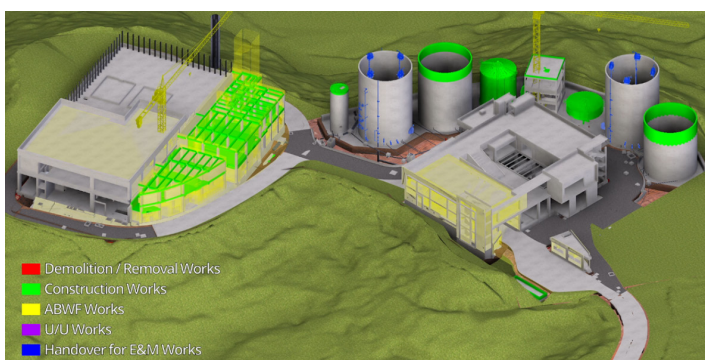
O-PARK2 is a DBO project of the Environmental Protection Department. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



We use DFMA for footbridge construction. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



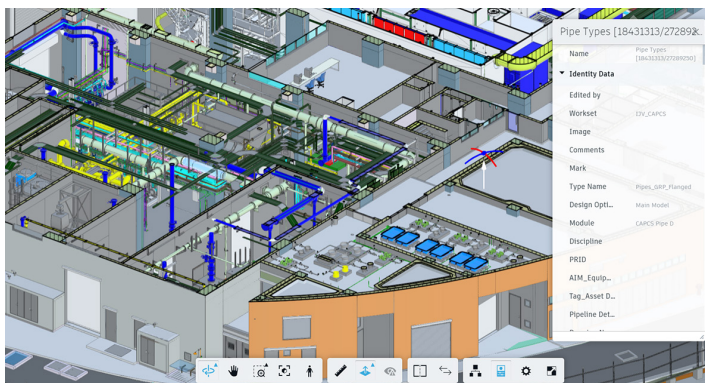
Six steps for DFMA – footbridge construction. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



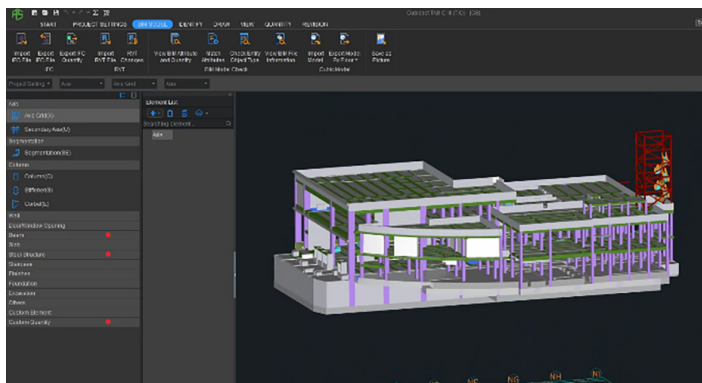
BIM 4D data is useful for outlining and fine-tuning schedules. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



C-Smart – Remote construction system. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



Information collects on-site to build up the asset information model. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited



Materials and elements are categorized and counted by using Cubicost TAS. Image Courtesy of Agrivert Limited and Alchmex International Construction Limited and The Jardine Engineering Corporation Limited and WSP (Asia) Limited