

## COMPANY

Civil Engineering and Development Department,  
the Government of the Hong Kong Special  
Administrative Region  
Mott Macdonald Hong Kong Limited  
Build King - Tung Lee Joint Venture

## PROJECT

CV/2023/17 - Site Formation and Infrastructure  
Works for Public Housing Development at Tsing Yi  
Road West, Tsing Yi

## LOCATION

Tsing Yi Road West, Tsing Yi

## TYPE

Civil

## SCHEDULED TIME OF COMPLETION

01 August 2029

# Infrastructure Development: Merging Technology and Collaboration for Efficient Management



“Autodesk Construction Cloud and AI-driven solutions revolutionize project management by connecting data and automating workflows. Intelligent document handling, OCR data extraction, and real-time dashboards make information instantly accessible, reducing manual effort and errors. Integration with ERP systems enhances resource planning and coordination. This innovative approach transforms complexity into clarity, promotes teamwork, and sets new benchmarks for efficiency, transparency, and success, driving the construction industry forward with smarter processes and better outcomes at every stage.”

—Harry LEUNG

Senior Construction Manager,  
Build King Management Limited

## AUTODESK PRODUCTS USED

Autodesk® 3ds Max®  
Autodesk® Civil 3D®  
Autodesk Construction Cloud®  
Autodesk® Navisworks® Manage  
Autodesk® ReCap® Pro  
Autodesk® Revit®



Site Formation and Infrastructure Works for Public Housing Development at Tsing Yi Road West, Tsing Yi. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture

## Vision for Site Formation and Infrastructure Works

The project involves site formation and infrastructure works for a public housing development at Tsing Yi Road West, Tsing Yi. Key components include forming a 3-hectare works site with retaining walls and slopes, building a footbridge with lifts over Tsing Yi Road West, constructing a signal-controlled junction for road connection, and carrying out ancillary works such as drainage, sewerage, water supply, and landscaping. The project is managed by the Civil Engineering Office / Special Duties (Works) Division of the Civil Engineering and Development Department, with Mott MacDonald Hong Kong Limited as the consultant and Build King - Tung Lee Joint Venture as the contractor. The approved project estimate is \$727.1 million, and construction began in August 2024.

The Tsing Yi Road West infrastructure project demonstrates a forward-thinking approach to construction management, leveraging digital technologies to address the complexities of modern site formation. The project's adoption of Autodesk BIM and digital collaboration tools serves as a model for how technology can streamline communication, improve efficiency, and ensure quality across all stages and disciplines.

## Centralized Data Hub: Foundation of Collaboration

A centralized data hub serves as the backbone of the project's information management system, enabling effective collaboration among all stakeholders. Through this unified platform, diverse teams—including project management, accounting, administration, business,

human resources, finance, estimating, procurement, safety, environmental, and operations—are brought together in a single digital environment. This centralization breaks down data silos, allowing for efficient data sharing, comprehensive analysis, and integrated decision-making at every management level. The result is a “one network, one vision” approach, where information remains consistently accessible, up-to-date, and secure for all participants.

### **Data Visualization and AI: From Insights to Actions**

Once data is centralized, the focus shifts to transforming raw information into meaningful insights that drive action. The project leverages interactive dashboards and advanced data visualization tools to provide managers with real-time, actionable intelligence. By integrating a Universal AI Platform, users can quickly retrieve data and perform intelligent queries, enabling faster and more informed decision-making. These digital tools establish a dynamic feedback loop, ensuring that data is continuously analyzed and actively applied to enhance project performance, rather than simply being archived.

### **Unified Information Management: ACC Cross-Referencing**

A major pain point in traditional project management is the disconnect between drawings, reference documents, and project records, leading to inefficiency and slow issue resolution. The enhanced workflow in this project uses Autodesk Construction Cloud (ACC) to cross-reference information. Every issue is linked to its full history, including schedules, drawings, BIM models, photos, SCS, and RFI records. This unified referencing ensures that all related documents and decisions are easily traceable, supporting both internal studies and claims management.

### **Comprehensive Document Workflow**

The document management process is both systematic and transparent, promoting efficiency and accountability throughout the project. Incoming documents are first reviewed by Project-in-charge and line managers, then tasks are automatically assigned to the relevant teams. Clerk personnel upload documents to the Autodesk Construction Cloud (ACC) and enter the necessary details. Subsequent reviews, follow-ups, and activity tracking ensure that every document is properly managed. This structured workflow, reinforced by clear activity logs and references, helps prevent information loss and maintains accountability at every step.

### **Document and Task Management Dashboards: Monitoring in Real Time**

The document and task management dashboard provides an overview of key areas such as NCE (Notification of Compensation Event), CSF (Contractor Submission Form), and RFI (Request for Information). Managers can review task statuses (work-in-progress, pending review, closed, overdue), search reference documents, and monitor pending replies. These dashboards ensure that nothing falls through the cracks and support proactive project management.

### **Ongoing Enhancements: ACC API Integration**

The project is actively enhancing its digital ecosystem via API integration with ACC, focusing on:

1. Excel Synchronization: File attributes are synchronized between Excel and ACC, reducing manual data entry.
2. Automatic Electronic Signatures: Streamlining approval processes.
3. Automated Document Referencing: Linking related documents automatically.
4. OCR Extraction: Using Optical Character Recognition to read and import document details directly into the CDE.

These enhancements further automate workflows, reduce manual errors, and save valuable time.

### **Enhancing the Common Data Environment with ACC APIs**

The integration of ACC APIs has brought substantial improvements to the Common Data Environment (CDE), making project workflows more efficient and reliable. By utilizing the Autodesk Construction Cloud (ACC) API, the system can now automate essential tasks such as generating cover pages, applying digital signatures, and referencing documents, all of which help reduce manual work and minimize errors. A key advancement is the integration with Enterprise Resource Planning (ERP) systems, which enables smooth data exchange between platforms and supports better resource planning and management. Alongside these features, Excel synchronization and a robust backup solution ensure that project data remains accessible and safeguarded against accidental loss. Together, these enhancements not only streamline daily operations but also enhance the overall transparency and security of project information management.

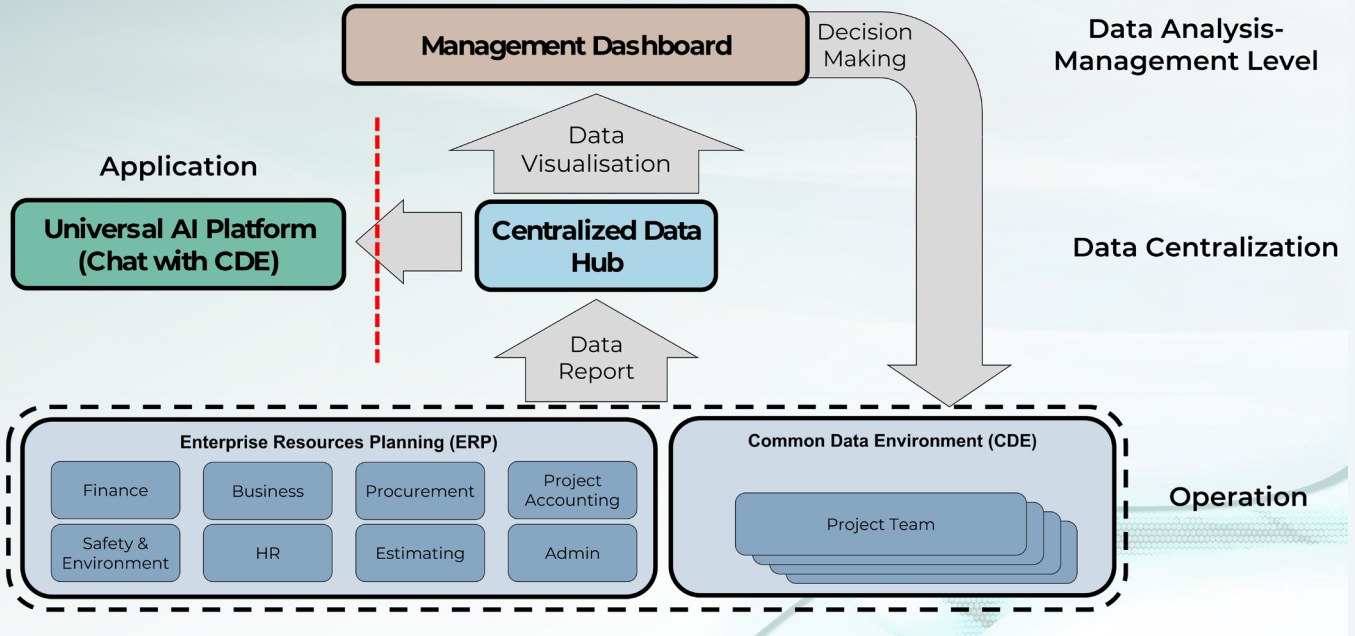
### **Optical Character Recognition (OCR) in Project Documentation**

The adoption of Optical Character Recognition (OCR) technology has significantly improved the efficiency and accuracy of project documentation. By scanning and processing documents, the OCR reader captures essential details such as letter type, title, sender, date, recipient, and reference numbers. This extracted data is then automatically imported into the Common Data Environment (CDE), where it populates the relevant attributes for each document. As a result, manual data entry is greatly reduced, minimizing the risk of errors and freeing up valuable time for project teams. Overall, the integration of OCR not only streamlines the documentation process but also enhances data integrity, supporting more reliable and timely project management.

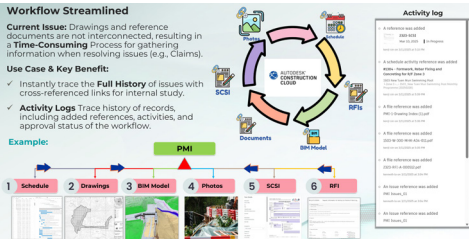
### **Universal AI Platform: The Future of Construction Management**

Looking forward, the Universal AI Platform will integrate AI-driven tools like safety chatbots and intelligent assistants that interact with CDE. This not only enhances user experience and accessibility but also lays the groundwork for predictive analytics, automated risk identification, and smarter workflow management. The platform's ongoing development ensures the project team stays at the forefront of digital construction practices.

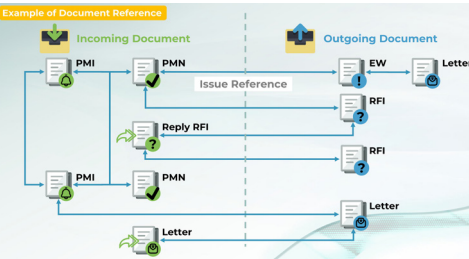
# One Network, One Vision



Centralizes ERP and CDE data through an AI platform, enabling unified data analysis and smarter management decisions. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



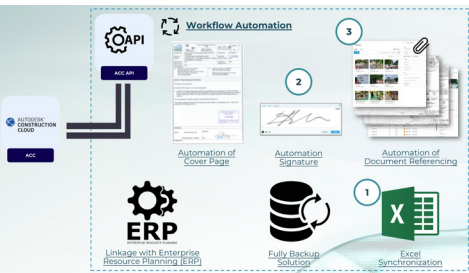
ACC cross-referencing streamlines project workflows by linking schedules, drawings, models, and documents, allowing teams to instantly trace full issue histories and view detailed activity logs. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



Document workflow links incoming and outgoing records for efficient tracking and issue referencing. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



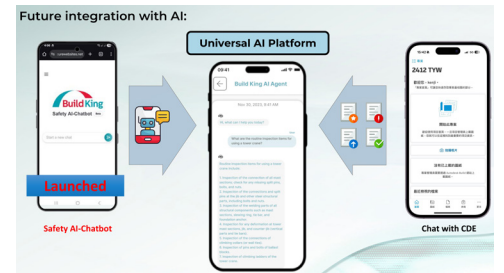
The Document and Task Management Dashboard provides real-time tracking and status summaries of all project documents. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



ACC APIs automates workflows, integrates ERP, and ensures secure project data backup in the CDE. The Document Dashboard provides real-time tracking and status summaries of all project documents. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



OCR automates data extraction from documents, reducing manual entry and improving accuracy. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture



Universal AI Platform enables smart chat and integration with project systems. Image Courtesy of Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region and Mott Macdonald Hong Kong Limited and Build King - Tung Lee Joint Venture