COMPANY

Drainage Services Department, HKSAR Government **AECOM Asia Company Limited** Paul Y. - CREC Joint Venture

PROJECT

Yuen Long Effluent Polishing Plant – Main Works for Stage 1

LOCATION

Yuen Lona

ТҮРЕ Infrastructure Project

SCHEDULED TIME OF COMPLETION Nov 2026

About Drainage Services Department, **HKSAR** Government

Drainage Services Department (DSD) provides world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong. Since the establishment in September 1989, DSD has strived to upgrade sewage treatment and flood protection levels in Hong Kong, and has acquired noticeable achievement and has committed to strengthening relationships with community, industry and worldwide counterparts

About AECOM Asia Company Limited

AECOM Asia Company Limited (AECOM) launched when a handful of employees from design and engineering companies shared a dream of creating an industryleading firm dedicated to delivering a better world. AECOM became an independent company formed by the merger of five entities. While our official founding was in 1990, many of our predecessor firms had distinguished histories dating back more than 120 years. Since then, more than 50 companies have joined us and, in 2007, we became a publicly traded company on the New York Stock Exchange.

Paul Y. - CREC Joint Venture

Paul Y. Construction Company Limited, China Railway Group Limited, and China Railway First Group acting in joint venture under the name Paul Y. - CREC Joint Venture was awarded by DSD in Nov 2020 the Contract No. DC/2019/10 Yuen Long Effluent Polishing Plant - Main Works for Stage 1, and has committed in delivering and completing this project effectively, professionally and successfully through dedicated resources and expertise by the parties.

BIM PARTNERS

Syntegrate Limited **Tyfron Consultancy Limited**

AUTODESK PRODUCTS USED

Autodesk[®] AutoCAD[®]

- Autodesk[®] BIM 360[®]
- Autodesk[®] Civil 3D[®]
- Autodesk[®] Navisworks[®]
- Autodesk[®] Revit[®]

BIM-based Construction - Yuen Long Effluent **Polishing Plant**







Project Description

The existing Yuen Long Sewage Treatment Works (YLSTW), commissioned in 1984 now serves Yuen Long Town, Yuen Long Industrial Estate and Kam Tin area with treatment capacity of 70,000 m3/day at secondary sewage treatment level. To cope with the population growth and development needs, YLSTW will be upgraded in stages to 150,000 m3/day and be transformed into Yuen Long Effluent Polishing Plant (YLEPP) at tertiary treatment level within the same tight footprint to meet the more stringent discharge requirements.

Project Challenges

A number of challenges / difficulties were encountered during the course of the upgrading works, including, but not limited to the following:

- 1. Work within the existing operating sewage treatment plant.
- 2. Numerous existing utilities and sewage process pipes are required to be maintained in service to support the sewage treatment services.
- 3. Congested works area with upgrading works within the same tight footprint of YLSTW.
- 4. Tight construction programme, requiring construction of multiple buildings at the same time.
- 5. Surrounded by ecological sensitive receivers, restricting percussive piling works and demolition using excavator-mounted breakers only from April to October of the year.

Solutions for Challenges

Challenges always lead to Opportunities. We embrace a new innovative concept to achieve the following:

- 1. Designate a site personnel to take charge.
- 2. Overlay all details and elements on a building plan on a common platform to facilitate discussion amongst stakeholders.
- 3. Establish a better communication channel a common platform for quality collaboration amongst teams, from management levels to frontline workers
- 4. Increase the productivity by eliminating human errors
 - 5. Track and document how the works are progressing.
- 6. Enable early identification of problems and resolve them by immediate discussion.
 - 7. Reduce the use of paper.
- 8. Better training on site safety to frontline workers.

How does BIM benefit the project?

By incorporating design into BIM, designers and architects are able to evaluate designs for feasibility, function, and aesthetics within a more immersive environment. Additionally, clients can experience a richer review process. In this way, the changes become more easily identified and design options and proposals can be evaluated more quickly.

Using BIM models during the construction phase, the Client, Project Manager and Contractor can work out better planning, construction phasing and method of construction on each activity. By allowing the site information to be visualized in three dimensions, BIM enables a better understanding of the scope of the work.

Better with BIM

With BIM, it is now possible to visualize the BIM model on-site at any time. The BIM model can be automatically and accurately mapped on-site, so that the user will be able to isolate focused digital information and understand the geometric relationship between BIM and the site.

Autodesk BIM 360 provided a excellent common data environment to allow multiple stakeholders to collaborate on the project, including;

- 1. Reduction of risk and increased reliability of data
- 2. Streamlining the process of checking, versioning, and reissuing information.
- 3. Enhance collaboration and improve outcomes.

Honorable Mention





Overall View for YLEPP (with Artist Impression) Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Cost Estimation by Using BIM for construction of CLP substation and 11kV switchgear house Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Clash Analysis for construction of CLP substation and 11kV switchgear house Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Stakeholder Collaboration for construction of Inlet Works Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Proposed Roof Garden with Bird Hide (with Artist Impression) Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Proposed Inlet Works with MEP arrangement Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture



Federated Model in Common Data Environment for YLEPP Image Courtesy of Drainage Services Department, HKSAR Government and AECOM Asia Company Limited and Paul Y. - CREC Joint Venture

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