

INNOVATION, SUSTAINABILITY + DIGITAL IN PRACTICE

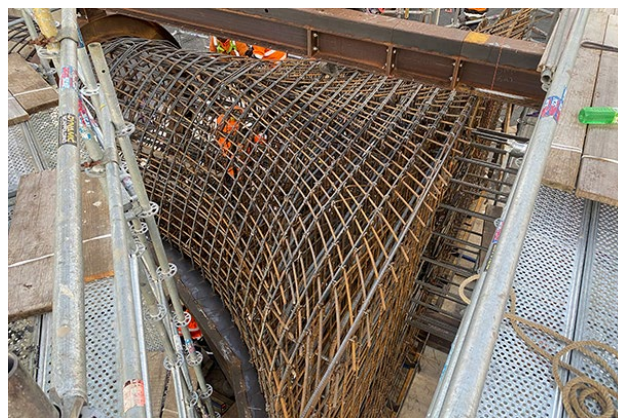
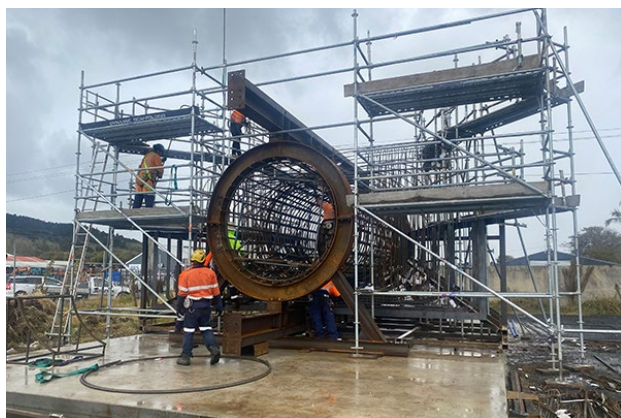
ISDIP

ISDIP 062	Eastern Busway – Flared Reinforcing Columns	
Date	20 July 2024	
Business Unit	Fletcher Reinforcing	
Project & Region	Eastern Busway	
ISC Themes	<ul style="list-style-type: none">• Management and Governance• People and Place• Using Resources• Innovation	

1 What Happened?

Fletcher Reinforcing have taken on one of our most challenging and complex projects to date, with supply of the prefabricated flared reinforcing columns for piers on the flyover above Reeves Road on the Eastern Busway project.

The flyover is a major part of the project connecting the South-Eastern Highway with Pakūranga Road, reducing traffic on Pakūranga Road and Tī Rākau Drive, especially during peak times to make travel easier. The project is a team effort involving Auckland Transport, Fletcher Construction, ACCIONA, AECOM, and Jacobs.



The flared columns being constructed in the Hunua facility.

2 What Are We Doing Differently?

In order to better manage on-site outcomes and delivery of the highly complex reinforcing cages for the piers, Fletcher Reinforcing adapted a unique process to build and meet delivery objectives for the flared columns.

The innovative use of Tekla technology has also proven to be critical in terms of managing both build complexity and quality assurance as the Hunua site is remote to Fletcher Reinforcing's manufacturing operation in Mt Wellington.

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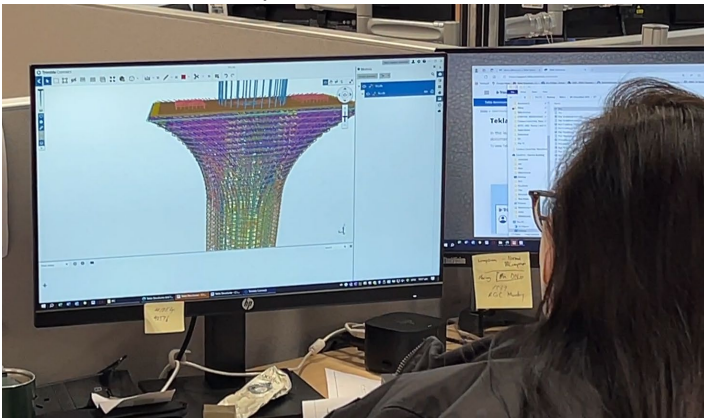
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The detailing team modelled each flare tower in 3D using the Tekla Structures platform. For the complexity of this type of project it is difficult to imagine doing detailing it any other way. The platform has enabled full models to be accurately detailed and it has been a real game changer for the team enabling the flared columns to be built with confidence to the fully detailed 3D model.

To effectively use the 3D model, the steel fixing teams all have iPads on-site with direct access to the 3D model using Trimble Connect. This enables them to interrogate the model to troubleshoot issues in real time which not only improves the quality of each flared column build but increases the build efficiency.

As of now, all of Fletcher Reinforcing steel fixing teams are equipped with iPads and Trimble Connect, using the benefit of digital tech to give our people autonomy when placing and fixing on-site.

Given the sheer size of each flared column, the construction team chose to build these at Fletcher Steel's Hunua site, which gave them the space and opportunity to focus independently on the build of each pier using purpose built scaffold towers, and then to use learnings gathered for each pier build to improve construction efficiency of the next.



The Tekla model defines the complex geometry and the site teams using Ipads to follow the design.

The first flared column for Pier 16 took about 1,500 man hours to complete and was successfully delivered in June 2024. The second took around 900 man hours, with the expectation to achieve 750 man hours per flared column in the end.

As the flared column builds progressed Fletcher Reinforcing saw the opportunity to tune the build methodology by proposing a simple and effective way to achieve a reduction in the quantity of reinforcing per column by increasing the bar diameters. This has further reduced time frames to less than 600 man hours per flared column.

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The flares lifted into place on site at EBA.