12d® Model Case Study

Westfield London
(White City)

Designer: Transport and Development Ltd
Client: Westfield Shoppingtowns (UK) Ltd
Location: White City, London, W12
Completion Date: 30th October 2008

"There was very little clearance above the underground tunnels and 12d gave us the ability to design easily to the required precision."

Paul Worrall
Waterman Project Director

Outline:

The project is Europe's largest shopping centre and included the design of a major public transport interchange with new rail, underground and bus stations connecting directly to the centre.

The design also provided a new access road from the A3220 trunk road, a new Bus Station, two new railway stations and re-siting the Central Line Railway depot to accommodate a major new shopping mall with leisure facilities.

Background:

The project was conceived to regenerate the White City area and benefit the region by providing a commercial development with good transport links.

It also provides improved facilities for the existing railways. It represents one of the bigger re-developments within the London area.

Methodology:

Feasibility studies were carried out to support the architects planning documents.

Outline scheme options were developed using 12d Model to demonstrate the horizontal and vertical components of the development were achievable.

Issues:

There were a number of underground obstacles and tunnels with minimal clearance above them which greatly influenced the vertical profile of the finished construction surfaces.

The powerful design editing capacities of 12d allowed the design to be refined locally to overcome the issues by achieving the specified construction depths.

"Flood protection measures were designed with aid of 12d analysis by integrating overflow paths into the highway designs."

The requirement to connect into several existing transportation links and preserve existing site features created obstacles for the horizontal alignment of the proposed highway network.

The flexible IP and complex element design alignment tools inside 12d enable alignments to meet on-site requirements while still achieving adoptable design standards and safety regulations.

Flood protection measures were designed with aid of 12d analysis by integrating overflow paths into the highway designs.

The surface modelling functionality and analysis tools inside 12d significantly helped in determining the overflow paths and presenting them to all involved in the development.

Benefits:

Detail design options for horizontal and vertical alignments were developed in support of the wider design.

Reflections:

A formalised layer agreement would be useful to maintain consistency of working.

Project Participants:

Waterman Transport & Development – Civil and Structural designer.
Waterman Building Services – Mechanical and Electrical designer.
Ian Ritchie Architects Ltd – Architectural Services.
INC Architects – Architectural Services.
EDAW – Landscape Architects.
Halcrow – Transportation Services.

Accreditation:

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