

## CASE STUDY

### Skanska | GeoBIM at the A428 – 13<sup>th</sup> Sept. 2022

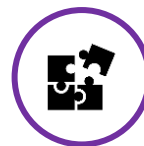
## Introduction

Initially at the A428 project the design and construction teams were working with an off-the-shelf SafetiBase system to capture all CDM hazards during the design phase and this enabled us to complete some significant work with digital rehearsals. However, there were issues with access to the system and the cost of additional licences, so our GIS Lead Georgios Floris developed a fully integrated solution GeoBIM.



### Overview

GeoBIM integrates a Geographic Information System (GIS) with Building Information Modelling (BIM) to create a 3D visual representation of an entire project. In this case the A428 Black Cat to Caxton Gibbet scheme. Skanska's GeoBIM is easily accessible from a browser or mobile device and connects data, disciplines and people. Skanska developed and owns the GeoBIM solution and it is being used on all of our highways major projects.



### Challenges

Skanska has long been committed to digital transformation but at the A428 it was quickly recognised that there were some technical and accessibility issues with using an "off-the-shelf" Safetibase solution, in particular around:

- Platform accessibility to all on the scheme regardless of parent company
- Cost – the number of licences required
- Standardising work flows
- Collating meaningful data





**"Skanska GeoBIM is a powerful tool that the A428 project team is able to use to help make proactive decisions and manage interfaces more efficiently and effectively. It helps us communicate and connect with our customer, National Highways and other key stakeholders"** Willie McCormick Skanska Project Director.



## Action Taken

Georgios Floros the GIS Lead at the A428 project developed Skanska's GeoBIM solution building on the previous Safetibase system we had been using. By establishing a truly accessible portal with clear workflows he has created a consistent process containing high quality information in a standardised format. People are able to raise, manage and interrogate information easily and the common coding of hazards and information allows Skanska to build a rich data source which we can use in the future to benchmark other highways projects.

	<b>IMPORTANT</b>
	<b>HEALTH, SAFETY &amp; ENVIRONMENTAL INFORMATION</b>
	IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE INDICATED ADDITIONAL RISKS IN LINE WITH THE KEY BELOW
	FULL DETAILS SEE HE551495-MOTG-GHS-CONWI_CONW-DR-ZS-00001
	<b>EXAMPLE HAZARD ID: <u>CDM.1221.S.CMO.CB.4.3</u></b> <b>Key:</b> <b>CDM</b> = FIXED IDENTIFIER <b>1221</b> = UNIQUE NUMBER <b>S</b> = HAZARD TYPE (S=SAFETY, E=ENVIRONMENT, H=HEALTH) <b>CMO</b> = STAGE OF WORK AFFECTED (C=CONSTRUCTION, M=MAINTENANCE, O=OPERATIONS, D=DEMOLITION, I=INSPECTION) <b>CB</b> = NATIONAL HIGHWAYS TWO DIGIT DISCIPLINE CODE (CB=CIVIL BRIDGES, CD=CIVIL DRAINAGE ETC, FROM GG 184) <b>4</b> = RESIDUAL RISK SEVERITY (1=LOW, 2=MEDIUM LOW, 3=MEDIUM, 4=MEDIUM HIGH, 5=HIGH) <b>3</b> = RESIDUAL RISK LIKELIHOOD (1=RARE, 2=UNLIKELY, 3=POSSIBLE, 4=LIKELY, 5=ALMOST CERTAIN)  GIS BASED DATA SOURCE SKANSKA MAPS AVAILABLE VIA QR CODE HERE 
	IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.



Contact: Stephanie Goldsmith

Mobile: 07342 049892

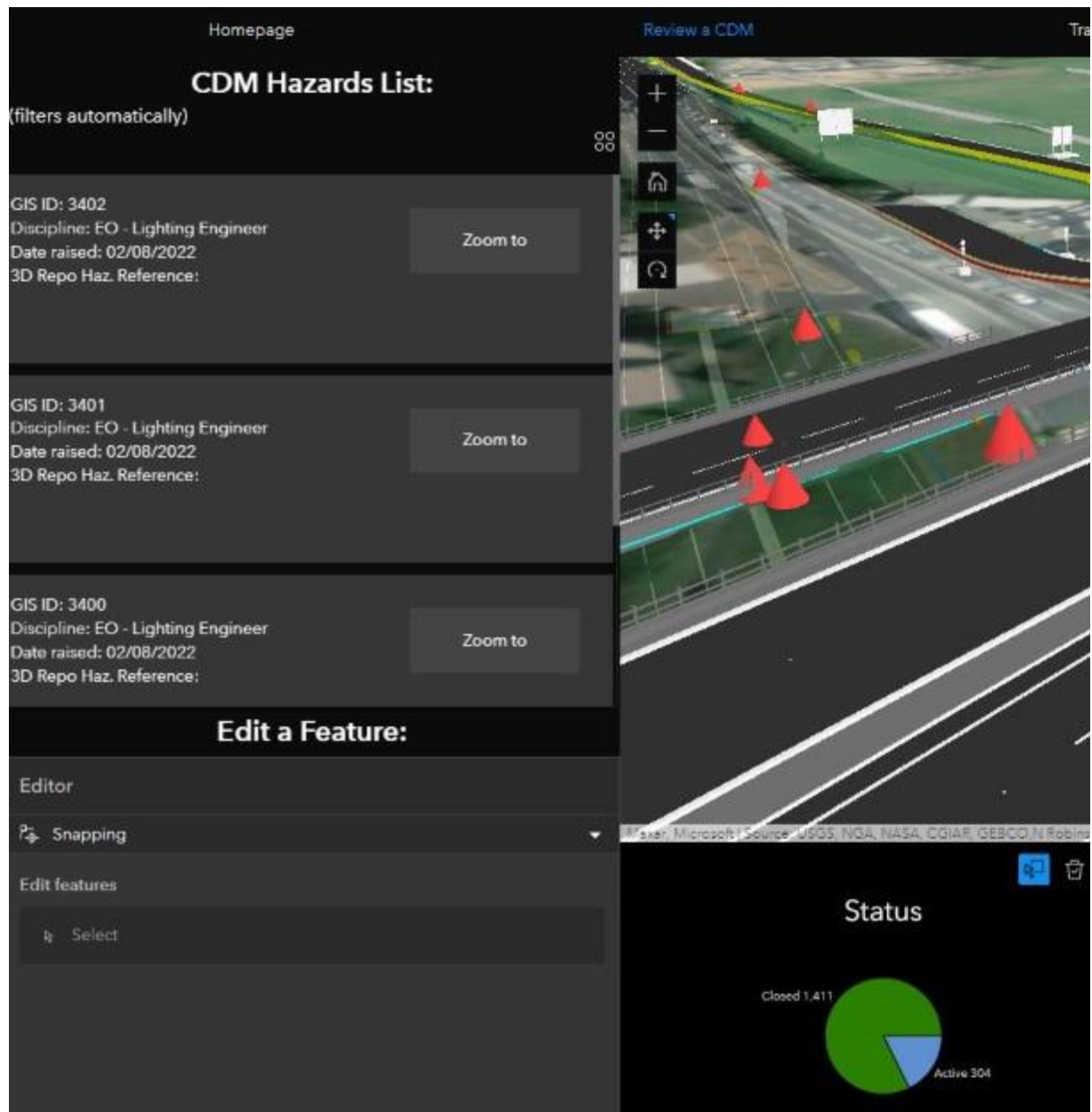


Email:

[stephanie.goldsmith@skanska.co.uk](mailto:stephanie.goldsmith@skanska.co.uk)

home  
safe  
and well

Hazards are raised as either Safety Health or Wellbeing triangles on the GIS map with common coding attributes as described in the figure above.



Screenshot from Skanska GeoBIM system

## Results

Skanska's GeoBIM solution places the project in a geo-spatial context allowing the project team to make better informed and proactive decisions, connecting the office with the site seamlessly. Users can overlay a multitude of information relating to construction, design, health and safety, environmental data, logistics routes, underground assets, land boundaries and live traffic data onto a map on the platform. This can then be analysed and interrogated by the project team to enable a totally different level of decision making, not based on "best

guesses” but based on actual data. Some of the key benefits of our in-house developed solution are:

- The system is always available and accessible and contains live up-to-date information for all persons working across the scheme.
- It provides a constant snapshot of open and closed CDM Hazards as well as all the information that supports them.
- The functionality of the system allows each hazard to be interrogated and users can see the history/comments/actions assigned to that hazard providing a full audit trail.
- The functionality of Skanska GeoBIM allows actions to be assigned against a hazard to design discipline leads and enables easy monitoring. Capturing this detail in the live design model for the A428 has provided a real step change in our ability as the Principal Designer for the scheme to assure clear and continuous management of CDM hazards.
- The use of this new digital tool is shaping and developing the behaviours and mindsets within the design and operational teams and has really helped with the check and challenge process in terms of design hazards with ALL residual risks being challenged before being accepted into the construction phase.
- Separating out the CDM hazards into distinct areas of health and safety and wellbeing has enabled greater focus on health and wellbeing and feeds into Skanska’s bigger picture around benchmarking in design.
- We have taken information from the M42 J6 project and from HS2 to start our benchmarking activity at the A428 and we plan to take the data we now have to our next highways scheme setting further targets for continuous improvement in safe by design.
- We have used the power of this visual tool throughout the DCO period with our local stakeholders at the A428 to explain how the scheme will be built and how it will transform the local community.

Skanska has won two awards for the development of GeoBIM – in May 2022 Skanska won the Technology Innovation Award at the Geospatial World Awards, and at the Digital Construction Awards the A428 Team collected the Digital Excellence in a Construction Business Award.



**A428 Project Team Collecting Award**

**"Skanska GeoBIM has brought to life the digital version of the A428 Black Cat to Caxton Gibbet scheme. It is an innovative and effective platform for collaboration and provides the project team with insights to support managing the projects interfaces with other assets, including existing infrastructure and utilities as well as other projects in development. It is also used to support our engagement with local stakeholders by providing a much richer and clearer view of the project plans in a digital environment" Lee Galloway National Highways Project Director.**