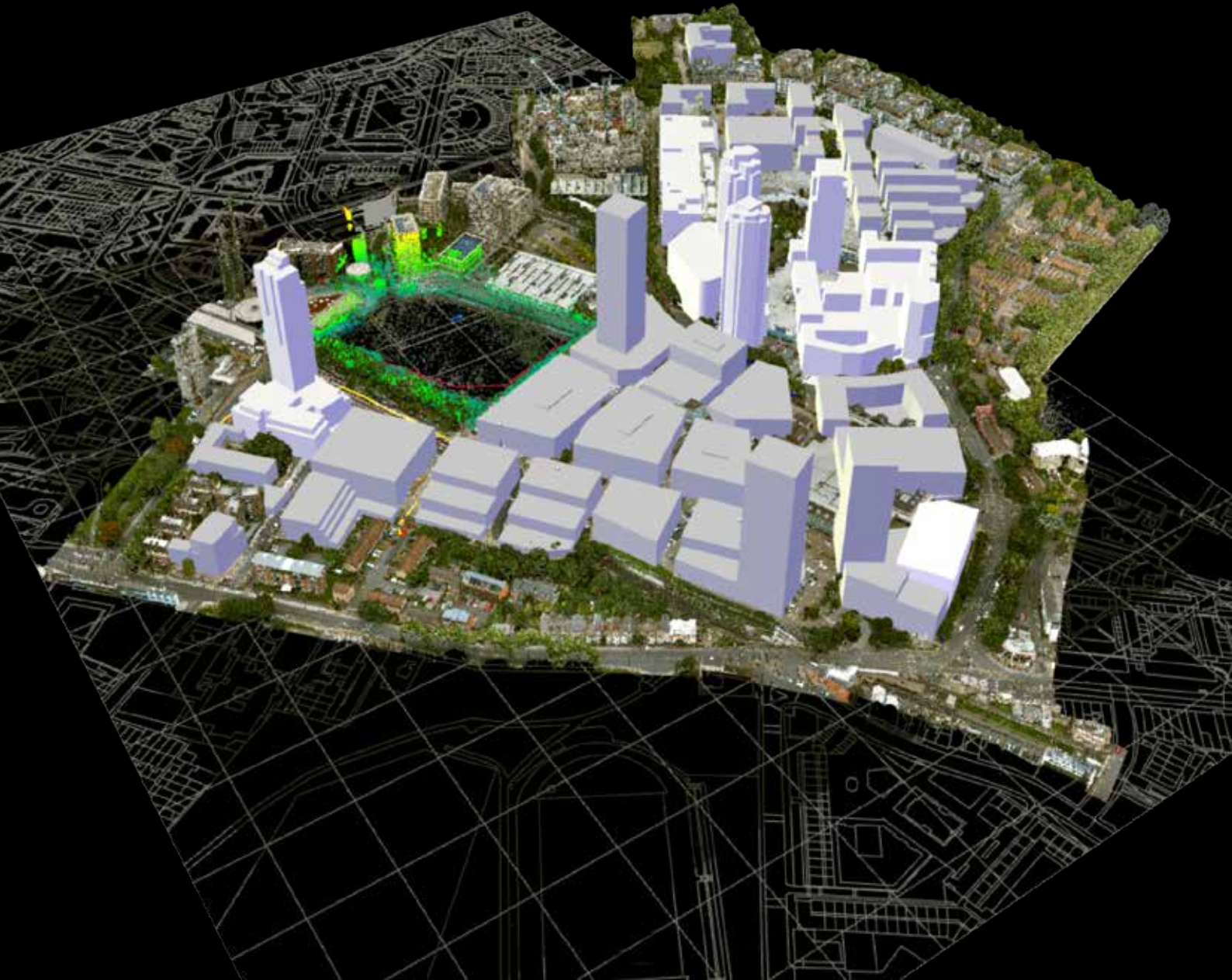


Sensat, British Land and Amodal create a “digital twin” to speed up planning of Canada Water Masterplan

Project
Canada Water Masterplan

Location
London, United Kingdom



Summary

British Land, in partnership with Southwark Council, have embarked on an ambitious £4 billion project to redevelop Canada Water's 53 acre site. Working with Amodal and Sensat, the Canada Water Masterplan is committed to providing an outstanding new town centre for Southwark and London communities that complements the local area, making an active, positive, long-term contribution to local life.

In collaboration with:



With support from Homes England, the Canada Water Masterplan responds to the Greater London Authority (GLA) and Southwark Council's policy aspirations to deliver new homes and jobs at Canada Water, and aims to speed up development for up to 3,000 new homes built on the Rotherhithe peninsula over the next fifteen years.



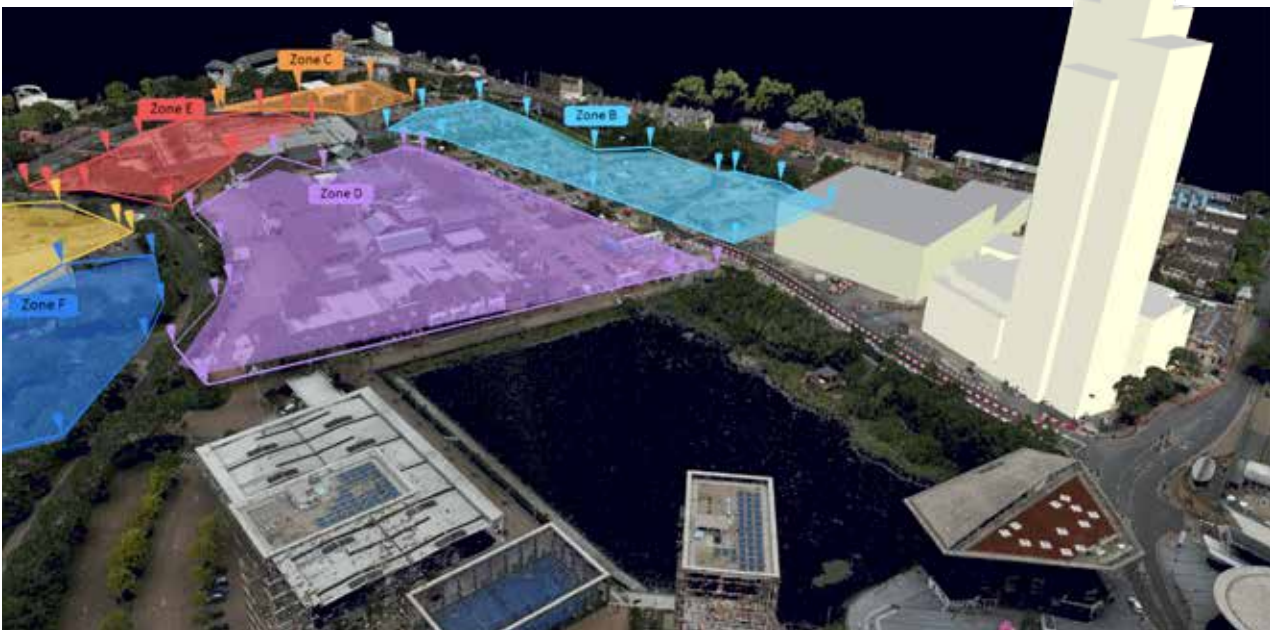
The project

3,000

proposed new homes

Situated adjacent to and above the London Overground at Surrey Quays and the Jubilee Line at Canada Water, the site for the Canada Water Masterplan is complex with various land uses and constraints above and below ground. Covering 53 acres, the site is occupied by a broad range of land uses from brownfield, to industrial, to retail and leisure.

While in the planning stage, British Land and their delivery partners needed to better understand the site and expedite the options appraisal process, feasibility reporting, community impact and risk evaluations. Sensat provided a complete overview of past and present site data all in one place, where multiple teams and project stakeholders could easily visualise the entire site and its constraints.



Above highly accurate 3D model of the Canada Water project displayed within Sensat's platform

By combining highly-detailed 2D and 3D data of the site (with a tolerance of +/- 62 mm) captured from Sensat's Unmanned Aerial Vehicles (UAVs), with all other site data, including existing below and above ground utilities, into a digital replica in Sensat's visualisation platform, the Canada Water team was able to ensure planning context, clarity and frictionless collaboration. This consolidated model of the project site provides the missing link for overarching site coordination and planning for the duration of the scheme.

Challenges



The ability to both accurately scan the site, and confidently pull together lots of disparate data into one single platform, is amazingly powerful. The speed of iteration really helps for quicker incident response, more efficient handover processes, and better clash detection to reduce contingency costs. It's been an invaluable resource when thinking through phasing.



David Walters
Project Director at British Land

Contractor alignment

Visualisation access of each allocated plot was required for specific stakeholders, to ensure each team's (stakeholder/ architect/designers) design work was integrated into the overall infrastructure and civils model of the site, so that boundaries of each plot are maintained to prevent clash/ overlap throughout the project. As coordination across a scheme of this size and density can be quite challenging, having a visualisation platform that acts as a Common Visualisation Environment® (CVE) and provides a single source of truth to surface information when it is needed, is enabling contractors to align and users to spot constraints and potential problems early. This allows for speedy decisions to be made, as well as avoided disputes, fewer errors/changes and the reduced need for reworks. According to the Centre for Digital Built Britain (CDBB), costs due to clashes sit at 5% of the total project cost. On a £4 billion project, British Land could expect to see savings in the region of £20 million by employing better clash detection.

Data validation

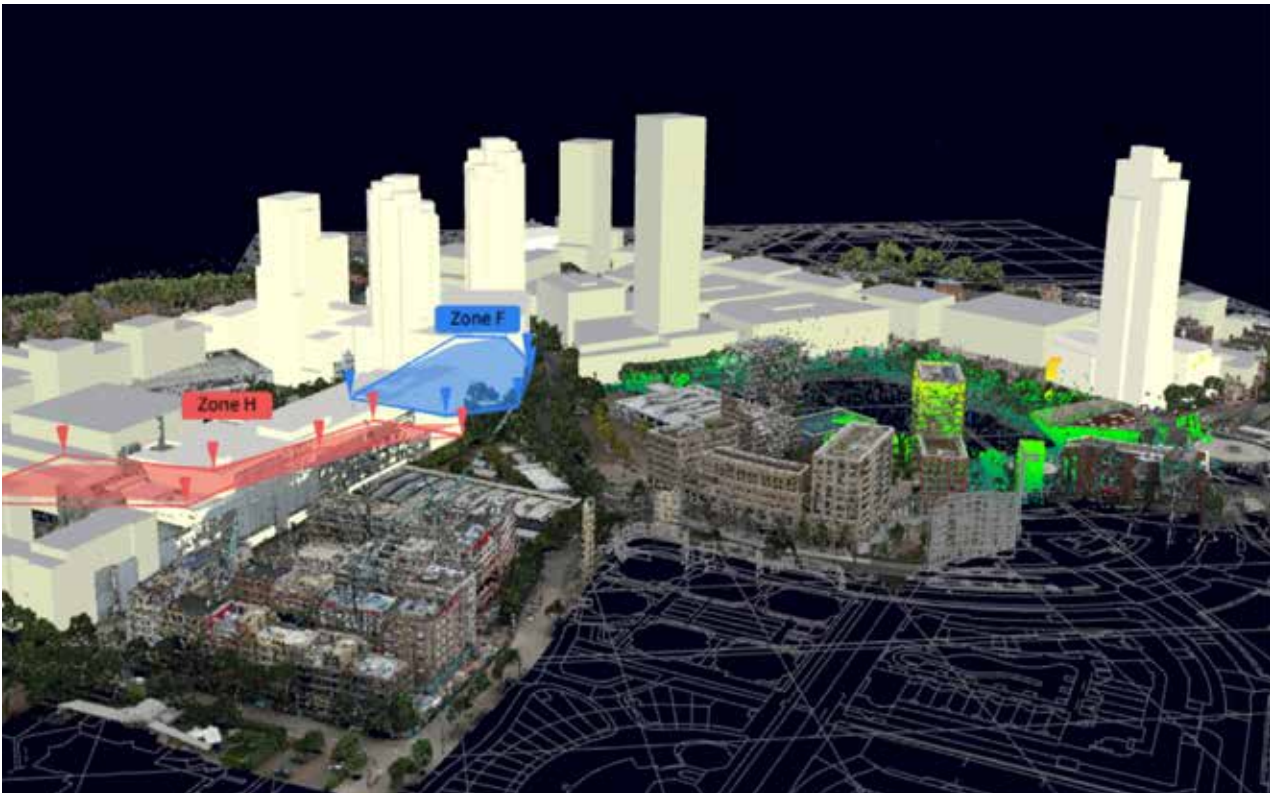
Lead designers, Waterman Group, were missing the data set for a Ground Penetrating Radar (GPR) survey of the area immediately east of Surrey Quays Road. This needed to be conducted to produce an up-to-date 3D representation of the utilities and buried services to enable completion of proposed utilities services in the area. With Sensat's visualisation platform, the below ground 3D model could be aligned to the above ground site, facilitating data validation, collaboration and design interface, while allowing for multi-disciplinary design works and clash detection between existing underground utilities, proposed underground services, foundation models for civil engineers, public realm models from architects, and more.

Data accessible to all

Site coordination on a project of this scale ensures that the high costs of construction and development can be planned, organised and programmed efficiently to reduce or eliminate the number of delays and disputes on site work.

Challenges

The team at British Land required quick and instant access to correct and up-to-date site information to inform decisions, monitor progress, deliver reporting and much more during development, without going through multiple contractors, documents, drawings, etc.—bringing siloed information into one place and making it accessible to all.



Above Highly accurate 3D model of the Canada Water project displayed within Sensat's platform including BIM models, LiDAR data and ground floor plans

Complex platforms hindering logistical coordination

With multiple projects going on at the same time across such a vast site, it was paramount to have an easy-to-use tool that everyone could understand. Previous projects using geographic information system (GIS) platforms typically required a technical user to maintain and operate the platform. This created a bottleneck for decision-making as not all team members were able to consult on the visual data set to gain quick insights about the project site. Sensat's simple user interface means that even those people that aren't necessarily construction-minded are able to make quick decisions based on up-to-date, accurate and consumable information.

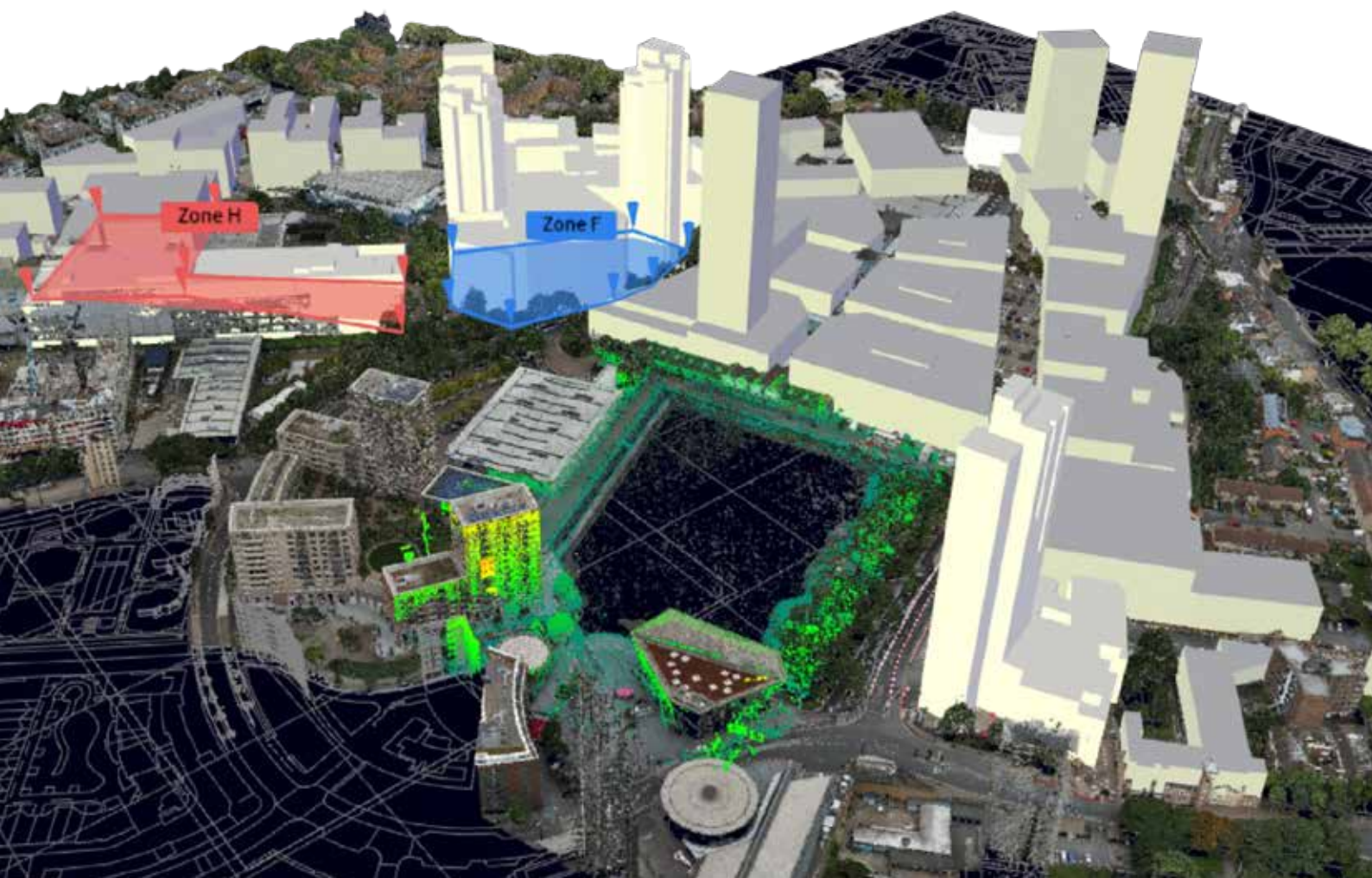
£20M

savings expected by employing better clash detection

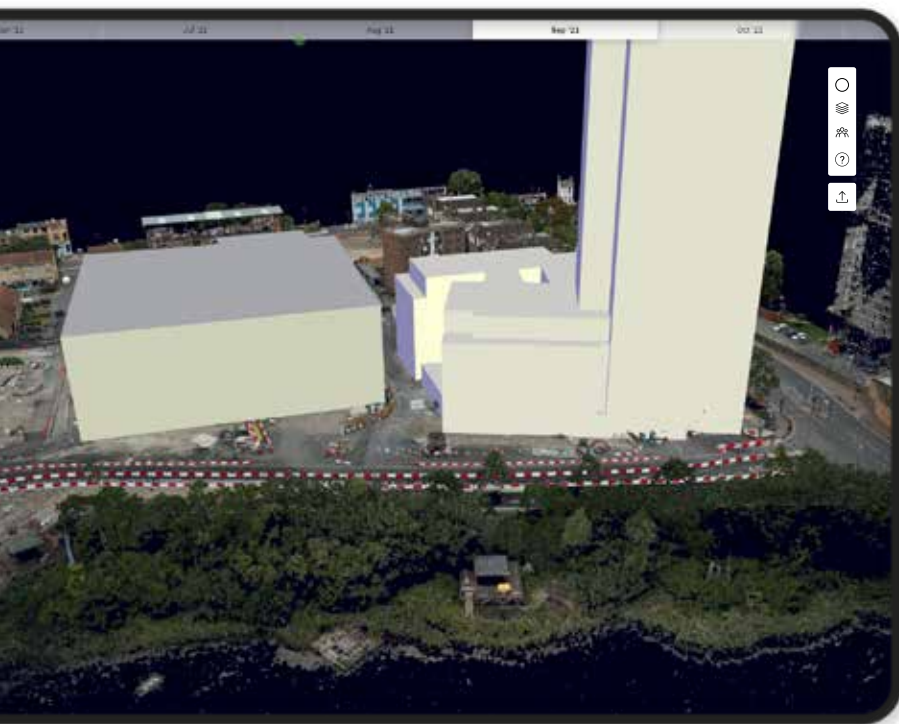
The solution

Sensat: A Common Visualisation Environment® (CVE)

British Land was using a Common Data Environment (CDE), with its primary focus being document control and collaboration. With the ongoing works planning and site activities, an enhanced visualisation capability was needed to help expedite the project, but it was important for data to pass seamlessly between systems so only one version of the truth exists. Working with Amodal, British Land decided to adopt Sensat's visualisation platform, which acts as a Common Visualisation Environment® (CVE), to provide visual oversight of the multiple data layers that make up the project and site. Sensat was able to complement the data sets used on British Land's existing software to enhance the visualisation and user functionality of current (and future) data sets, providing a seamless transition from CDE to CVE and allowing stakeholder engagement, collaboration, and integration across teams. This golden thread of information also provides an up-to-date visual resource for presenting and communicating with various stakeholders.



The solution



I use Sensat for cost certainty. And it doesn't matter because the cost of reworks and mistakes, digging up roads to check things and paying for additional surveys would far exceed the initial investment. It's much better to mitigate those risks by having better information earlier on



Thomas Whiting
Managing Director at Amodal

Sensat Continuous

With exemptions and permission to fly in restricted areas and private land such as London City Airport, Sensat is able to continuously map the 53 acre site using an unmanned aerial vehicle (UAV) in less than one hour, avoiding disruption to the public and weeks of approvals. Once combined with multiple data layers, these scans create a much sought after consolidated digital site view.

The hybrid planning permission for the Canada Water Masterplan was granted in May 2020, and the construction programme for the entire site will take approximately 10 years. Looking forward to the continued construction stage of the Canada Water development, Sensat's automatic drone updates will continually keep the state

of the site up-to-date in British Land's "digital twin". This visualisation platform will be used to monitor progress of construction on site and enable the coordination of works, providing an interface for all relevant phases of the project, infrastructure developments, proposed designs, while giving users a better indication on the programme and associated costs of the scheme. To date, Sensat has captured 1.6+ billion data points with a tolerance of +/- 62 mm, and almost 2,700 high-resolution images across the 53 acre site. With the Sensat Certified® quality stamp, all data goes through a rigorous quality check process ensuring guaranteed data accuracy for the entirety of the project.

Collaboration

Sensat is allowing users in the Canada Water Masterplan team to access a digital copy of Canada Water from anywhere via their computer or mobile device. It is enabling users to analyse and interpret the real-world without needing to leave the office, improving both safety and efficiency,

The solution

1.6+ billion

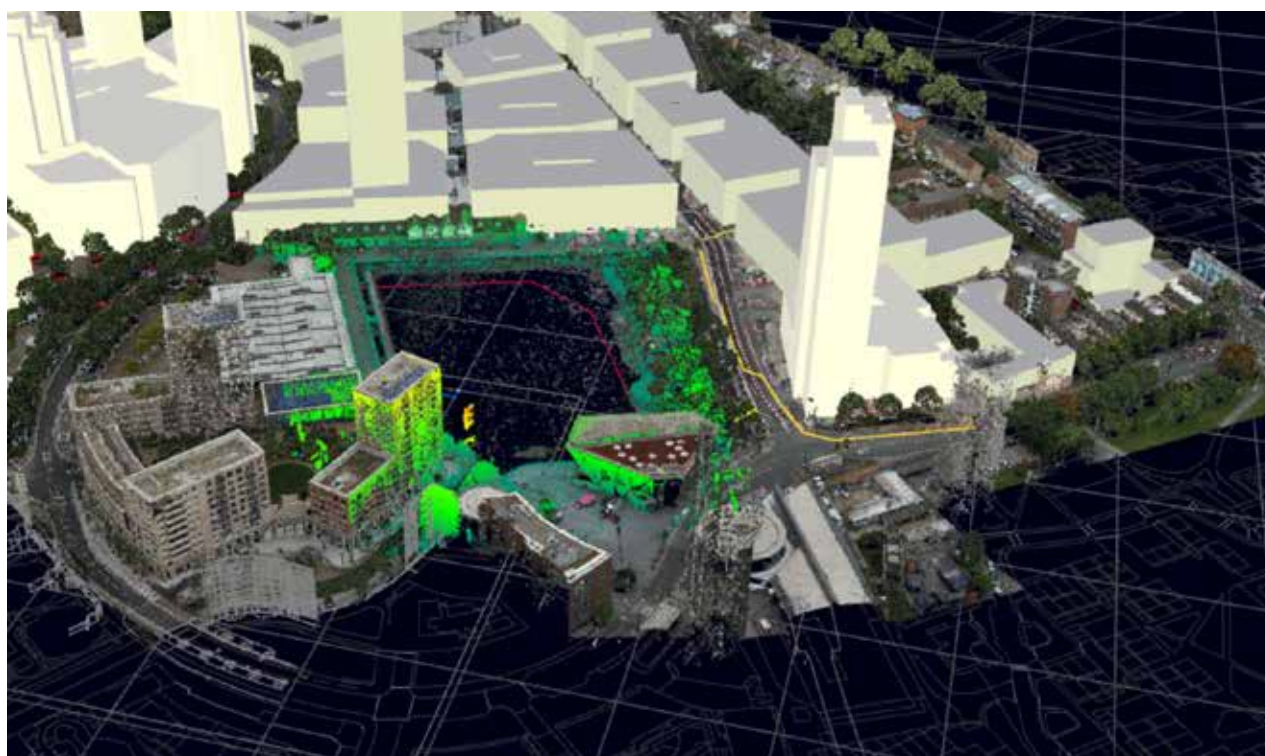
data points captured to date

presenting up-to-date accurate information across multiple teams, avoiding clash or overlap, while providing better decision-making opportunities.

Risk management

Data validation was instrumental in managing risk profile and identifying risks early. By scanning the site using aerial mapping technology with enhanced accuracy of information and displaying it in Sensat's visualisation platform, British Land had more information about existing assets which in turn provided greater certainty. For example, Sensat was able to validate the location of a building where existing documentation was incorrect. British Land was then able to overlay that georeferenced data against planned above and below ground designs to establish a disparity of 2 metres between the actual location of a building and its previously documented location. Spotting this problem early ahead of the design phase reduced the level of risk contingency costs associated with the development. In this instance British Land avoided a redesign of the road network as well as surrounding infrastructure, making savings in the £100,000s.

Below highly accurate 3D model of the Canada Water project displayed within Sensat's platform



Conclusion

The partnership between Sensat, British Land and Amodal will underpin the Canada Water Masterplan through its 12 to 15 year lifespan.

By working to better understand overall digital ambitions, creating up-to-date 3D models and geospatial representations of the site and filling in missing data sets during the planning stage, it has meant that benefits have been delivered before construction has even started.

Over the coming months and years, the partnership will work together to continually evolve and identify further efficiencies through the lifecycle of the project, ultimately delivering a digital twin for a completely new piece of the city.

Summary table

Problem	→ Solution
It's impossible to prevent contractor clash/overlap with siloed, inaccurate information.	With Sensat you can visualise each allocated plot, providing a single source of truth and ensuring boundaries are maintained to avoid disputes and delays.
We can't trust the data we have.	By using Sensat Certified® RICS Band F site reality scans with full QA and market-leading quality guarantee you ensure data accuracy, processing and quality so you can be confident that everything is where you think it is and mitigate risk.
Site data is siloed and impossible to access.	Sensat provides quick and instant access to the correct and up-to-date site information to inform decisions, reporting, and more.
Our complex platforms are hindering coordination.	Sensat provides an easy-to-use tool that everyone can understand, avoiding bottlenecks to effective decision-making.