



**LASER  
SURVEYS.**

## **3D MODEL CLIENT GUIDE**

**BUILDING MODELS**

**TOPOGRAPHICAL MODELS**

**UNDERGROUND SERVICES MODELS**

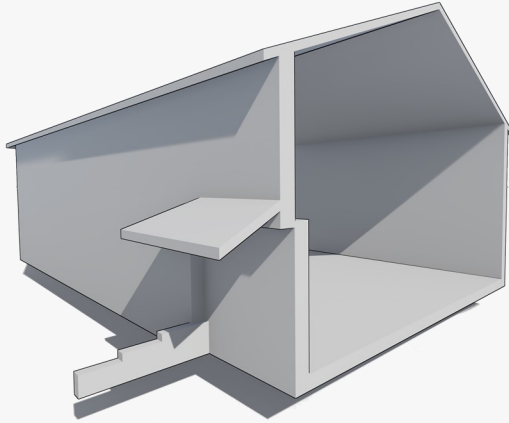
**ABOVE GROUND SERVICES MODELS**

**BIM READY**

# LOD—(Levels Of Detail) Building Models

## LOD 1—Massing Model

- Shows **approximate shape** of the external building envelope.
- Provides **height, width and depth** but no specific openings.
- **No services or architectural features** will be shown.

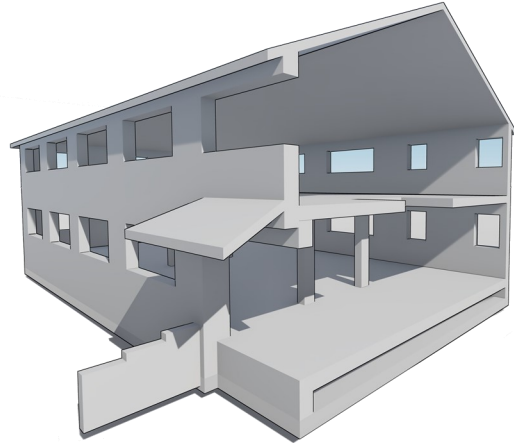


### SUITABLE FOR:

Buildings surrounding a site that may cover a large area, basic site massing in conjunction with a topographical model, buildings on a site that are not being developed but position & size needs noting.

## LOD 2—Outline Model

- Shows the **building mass** with only **key elements** in basic modelling:
- Door & Window **openings** (and other significant structural openings)
- **Stairs & ramps**
- **Primary structural elements**: beams & columns, floor slabs, walls, roofs
- **No detailed architectural elements** will be shown and no families modelled.



### SUITABLE FOR:

Right to light, buildings adjacent to site, intensive works where a record of existing buildings is required.

## LOD 3—Standard Survey Model

- As with the LOD 2 model, **also including standard architectural and structural elements**.
- Revit **standard families** will be used for elements such as: **doors & windows, stairs & ramps, railings, fixed furniture** (worktops, sanitary fittings, fixed shelving)

**Basic outline modelling** will be used for elements such as:

- **MEP** (Ducting, pipework, electrical panels etc. pipework shown at >50mm diameter only).
- Other **specific features must be requested** as part of the quote, and will be modelled in a **to LOD 2 as standard**.



### SUITABLE FOR:

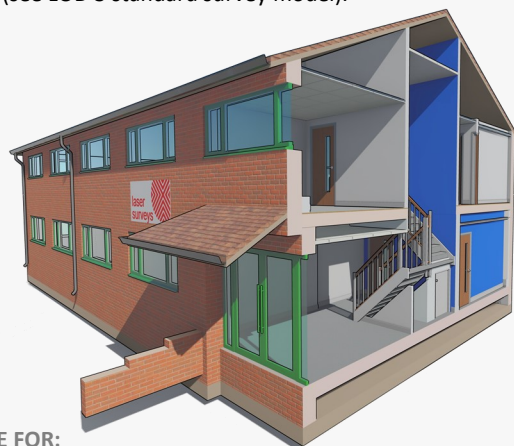
Most building projects where substantial changes are planned.

## LOD 4—High Detail Survey Model

- As with the LOD 3 model, this model will contain **more detailed architectural and structural elements**.
- **Project specific families** will be used for elements such as: **doors & windows, stairs & ramps, railings, fixed furniture & architectural detailing** (e.g. architraves, mouldings)
- **Materials** (these will be Laser Surveys standard materials used as a representation only).
- **Other specific features** such as radiators, lighting, etc, **must be requested** as part of the quote, along **with LOD required**.

**Basic outline modelling** will be used for elements such as:

- **MEP** (see LOD 3 standard survey model).



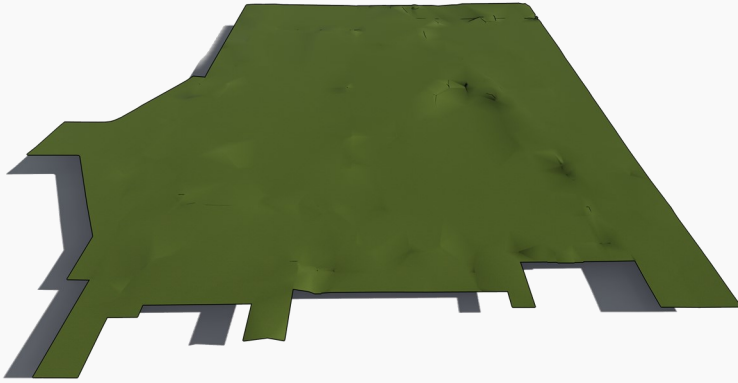
### SUITABLE FOR:

Listed buildings or projects where large amounts of the existing fabric are to be retained.

## LOI—(Levels of information)

Please note that due to the projects being carried out generally being on existing buildings, the information included in the model families will only cover basic information (such as the model category, dimensions, location and type). We can include observations such as assumed material based on non-intrusive methods where required, but cannot comment on such things as construction build ups or structural integrity).

## LOD 1—Site Massing Model



- Shows the **basic topographic surface**.
- Levels taken from **measured point level data** on site by our surveyors.
- **No specific regions** or elements will be identified.
- Often **used in conjunction with a building model** to show **wider context** or as a base for **clearer visualisation**.

### SUITABLE FOR:

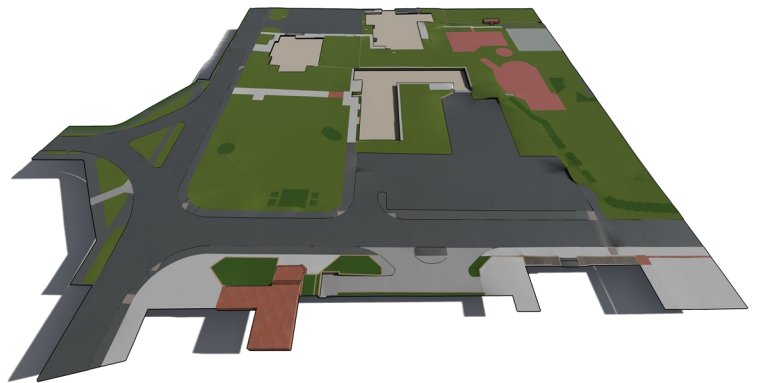
Large site areas where the building model is the focus but some context and height data may be required

- Shows the **basic topographic surface** for the site.
- Levels taken from **measured point level data** on site by our surveyors.
- **Split into subregions** to represent **changes in surface** (e.g. grass, gravel, concrete).
- Where kerbs and other notable **level changes occur the surface will be split** and tidied to **show the step clearly**.
- Where buildings are identified within the survey area a **building pad will be placed** to show **extent, shape and location**.
- **Materials identified will be Laser Surveys standard materials**, used as a **representation only**.

### SUITABLE FOR:

Most standard site models where general changes to the site are planned, for locating new projects within a site and for working on existing buildings that required slightly more contextual detail.

## LOD 2—Outline Model (Subregions defined)



## LOD 3—Detailed Site Model



- As with the LOD 2 model, **also including site features such as:**
  - \* Steps & ramps
  - \* Lamp posts
  - \* Barriers
  - \* Fences
  - \* Walls
  - \* Trees & large elements of planting
- **Other street furniture** such as bins, benches and signposts will **only be shown if requested** at quote stage
- All families shown will be **Revit standard families or Laser Surveys standard families**.

### SUITABLE FOR:

Most building projects where substantial changes are planned, or where a large amount of site elements need to be considered.

## LOI—(Levels of information)

Please note that due to the projects being carried out generally being on existing buildings, the information included in the model families will only cover basic information (such as the model category, dimensions, location and type. We can include observations such as assumed material based on non-intrusive methods where required, but cannot comment on such things as construction build ups or structural integrity).

## Considerations for Building models

You may require specific elements of your project in a different level of detail to that specified for the overall building, for example if certain elements are listed or require more detailed modelling due to renovation works. Other elements may need to be shown but are not the focus of the works and can be shown in a lower detail. Items that may be considered in this way could be:

- Walls
- Cornices, dados, skirtings
- Floors
- Primary structural elements
- Secondary structural elements
- Ceilings & ceiling fixtures
- Bulkheads
- Roofs, gutters and fascias
- Windows and curtain walling
- Doors and screens
- Stairs, ramps and railings
- Lifts and escalators
- Fixed furniture
- Pipework and sanitaryware



Please make us aware of any specific requirements like this at quoting stage so that we can include for this.

Where we have only been unable to survey one side of an element (e.g. ceiling, wall), we will identify the type with the description “Unknown Thickness” in the type name. An assumed thickness based on the surrounding elements or standard thickness of 100mm will be used, whichever works best in the situation.

## Considerations for Topographical models

Different Levels of Detail can be applied to different parts of the site if required. Please specify at quoting stage.

Kerbs are not modelled as Revit objects, the surface is split and tidied to show the level change. This will result in a gap between the road and the kerb where a step occurs, but is more accurate from a survey perspective than using a site designer tool to place kerbs or keeping one surface.

Trees and bushes included in the model are generic examples. Height and position are taken from the topographical survey, while spread is determined by the Revit family and cannot be amended.

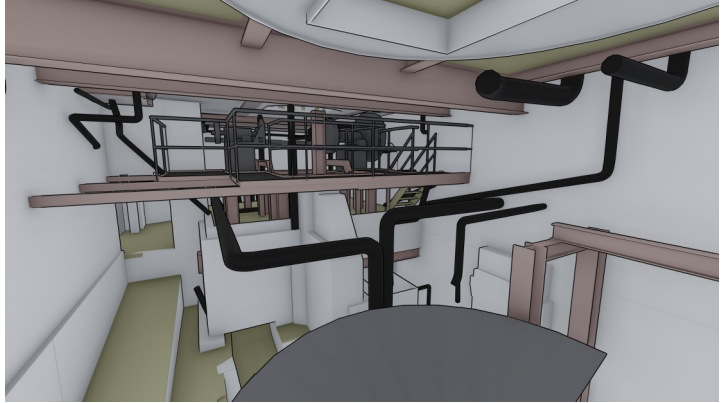
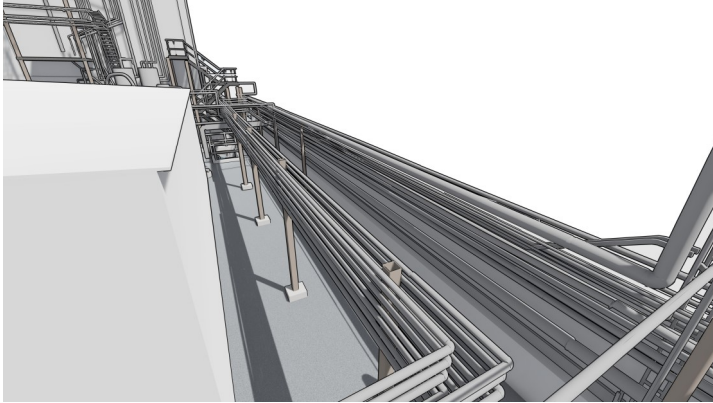
## Alternative outputs

Models are done in Revit but can be exported to other file types. These include:

- AutoCAD 3D (.dwg)
- IFC files (.ifc)
- DNG files

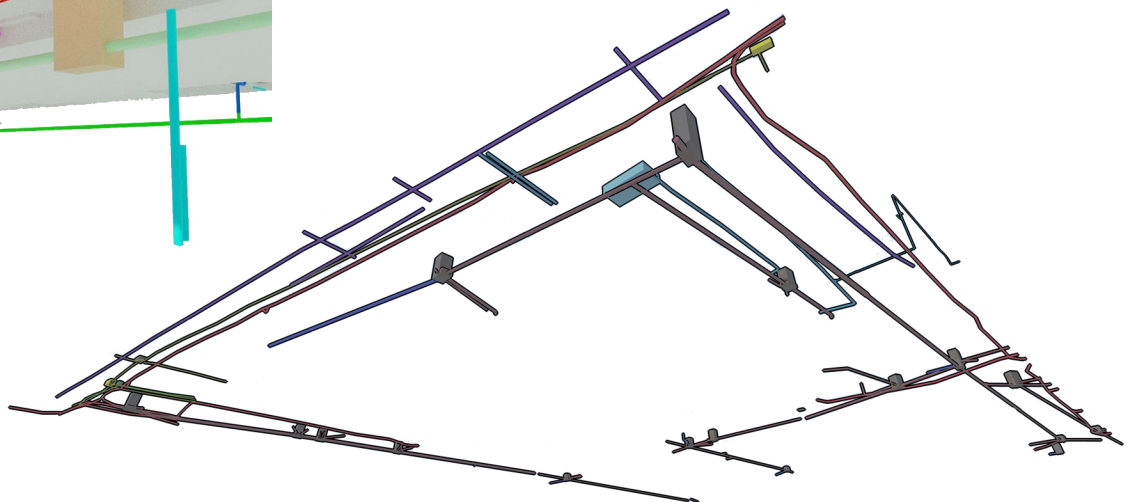
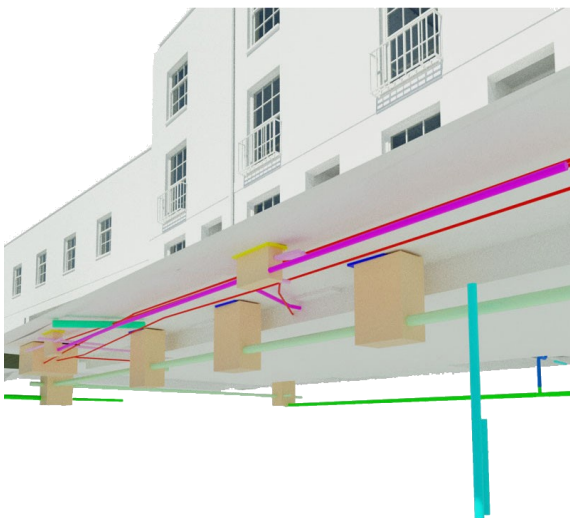
### Above Ground Services—LOD 2—Outline Model

- We **only model overall size** (including insulation) **and position** of services.
- We **do not include intelligent information** about the services in the model.
- Service type is not identified. **All pipework is shown as a default pipe** type with generic fittings.
- **Support brackets, structures and valves are not generally modelled** unless specified.



### Below Ground Services—LOD 2—Outline Model

- We **only model overall size and position** of below ground services.
- We **do not include intelligent information** about the services in the model.
- Service **type is taken from the survey data** where available. **All pipework is shown with generic fittings** and modelled as a **representative type** where data is available.
- Models include a **“zone of uncertainty”** which represents the **limitation of accuracy of the detection equipment**.
- **Not all underground services are detectable** from the surface scans. What is modelled in Revit **will be a representation of what has been detected only**, and will not be any more accurate than what was surveyed.
- Pipework stretches between recorded levels will be shown as straight runs.
- Manhole and cover **details will be taken from the survey and schedule carried out by our surveyors**. If details cannot be provided (e.g. manhole cannot be lifted on site), then a generic family will be used with only cover level identified.
- An underground services model is **generally only produced in conjunction with a 3D topographical model**, so that manholes covers and other **surface level elements can be hosted**, and to **provide context** to the model.



## Further information

For further information or to request a quote for a 3D model please get in touch:

**Email** [worcester@lasersurveys.com](mailto:worcester@lasersurveys.com)

**Tel** 01886 833173

**Web** [www.lasersurveys.com](http://www.lasersurveys.com)

All 3D models are undertaken to the same specification as our 2D surveys in regards to positioning (e.g. datum and grid) and follow the same requirements on site in relation to access and limitations of the survey. Please refer to our quote sheets and website for further information, or feel free to get in touch.

We provide a wide range of 2D and 3D surveys beyond Revit models, including Point cloud data capture, stats searches, CCTV drainage surveys and mapping and GIS consultancy. If you require additional surveys or would like further information about any of our services, see our [website](#) for more details.



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