Proposed Garden Room Footings

The proposed outbuilding will utilise a low-impact foundation com*prising hot-dip galvanised ground screws or* helical piles. This method completely eliminates the need for traditional bulk excavation, concrete strip footings, or trenching.

By rotating the screws directly into the ground, soil is compressed and displaced rather than removed, ensuring zero adverse impact on the Root Protection Areas (RPAs) of nearby trees.

Why Ground Screws Protect Tree Roots

No-Dig Installation: Ground screws are screwed directly into the earth using handheld or compact equipment. This avoids the destructive trenching and massive excavations required for traditional concrete foundations.

Tiny Footprint: Each individual screw affects a tiny area—usually less than 200 mm wide. They slip past major structural roots and delicate surface fibrous roots without shearing or ripping them.

On-Site Adjustments: If the screw hits a thick root during installation, the operator can easily shift the placement slightly to miss it. Concrete footings lack this flexibility.

Preserves Soil Health: Traditional pouring and heavy machinery compact the soil, suffocating roots by cutting off water and air. Ground screws exert minimal pressure and preserve natural soil porosity and drainage paths.

Regulatory Compliance: Because they protect Root Protection Areas (RPAs), ground screws help builders comply with strict local regulations and Tree Preservation Orders (TPOs), preventing heavy environmental fines.

Fully Reversible: If the structure is ever removed, the screws can be unscrewed completely. They leave the underground ecosystem whole and undamaged.

Foundation & Ground Screw Requirements (By Contractor)

Contractor responsibility: The outbuilding contractor shall be fully responsible for the design, supply, installation, and performance verification of the ground screw foundation system.

Ground investigation: The contractor must conduct a site-specific soil assessment prior to installation to confirm ground conditions, load-bearing capacity, and screw suitability.

Engineering calculations: The contractor shall provide structural design calculations, signed off by a qualified Chartered Structural Engineer, demonstrating that the foundation layout handles all compression (downward), tension (uplift), and lateral (wind) loads.

Product certification: All ground screws supplied must hold a valid, recognised product certification (such as BBA or equivalent European Technical Assessment) and feature a hot-dip galvanised finish to ensure the required structural lifespan.

On-site load testing: The contractor shall perform independent, on-site load testing (including static compression and pull-out tests) to validate the design assumptions and provide a formal compliance certificate upon completion.

Building Control coordination: The contractor must supply all testing data, engineering drawings, and certifications directly to the Local Authority Building Control (LABC) or Approved Inspector to secure formal foundation sign-off.

Services conflict check: The contractor is responsible for conducting a subterranean services scan (using CAT and Genny or equivalent) to map and avoid existing underground utilities before driving any screws.

Level and tolerance: The final installation must achieve a perfectly level laser-verified plane across all screw heads, adhering to a maximum tolerance of +/- 2mm across the entire footprint.

Observations

Based on a 6m x 3m footprint with a 2.5m height, a clay soil profile, and nearby trees, the risk of seasonal soil movement (shrinkage and swelling) is significantly higher.

The contractor must manage site specific risks as follows:

Site-Specific Ground Screw Specifications (By Contractor)

Clay soil design considerations: The contractor must account for a clay soil profile. The ground screw layout and depth must be designed to penetrate below the active seasonal moisture zone (typically a minimum depth of 1.5m to 2.0m, subject to engineer calculation) to prevent movement from cyclic shrinking and swelling.

Tree root zone engineering: Due to trees at the rear of the structure, the contractor's engineer must assess the tree species and their mature height. Ground screws must be designed to withstand increased desiccated (dry) clay pressures and potential heave, ensuring screws are driven deep enough to anchor into stable substrata.

Non-invasive installation near roots: The contractor shall carefully map root zones. The use of ground screws must minimise disruption to critical root systems compared to traditional concrete strip foundations, avoiding major structural roots during pilot drilling.

Superstructure layout coordination: The screw configuration must precisely align with the 6m x 3m timber or steel chassis layout, ensuring uniform load distribution for the 2.5m high structure and preventing deflection along the 6m span.

Planning compliance: The contractor must ensure the final finished floor level (FFL), including the ground screw brackets and base chassis, maintains the overall structure height within the 2.5m maximum limit from the highest adjacent ground level to comply with building regulations and Planning requirements.

Boundary Compliance & Fire Safety Requirements (By Contractor)

Because the structure sits within 2 metres of the property boundary, the contractor must strictly ensure the absolute highest point of the building (including the roof covering) does not exceed 2.5 metres from the highest adjacent natural ground level. The contractor must calculate the ground screw bracket heights and chassis thickness accordingly.

Fire-rated boundary wall construction: To comply with Building Regulations (Part B), the rear and side walls facing the boundary (closer than 1 metre) must be designed and constructed to provide a minimum of 1 hour of fire resistance from both sides. The contractor must ensure all external cladding and backing materials in these zones are substantially non-combustible.

Internal floor area threshold: The contractor shall note the internal floor area is approximately 15 to 16 square metres (under the 30-square-metre threshold). While this means a full building regulations application for the whole structure may not be required if built substantially from non-combustible materials near the boundary, the foundation engineering and fire safety elements must still strictly adhere to building control standards.

Boundary access and boundary line tolerances: The contractor is responsible for ensuring no part of the foundation system, ground screw brackets, guttering, or roof overhang encroaches over the property boundary line. All installation works must be executed safely within the client's property curtilage.

Updated Construction Workflow

To keep the project on track, your drawings should note that the contractor needs to follow this sequence before ordering materials:

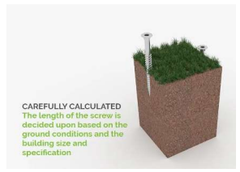
[Site Scan & Pilot Holes] ➔ [Engineer Signs Off Screw Depths] ➔ [Laser Level Verification] ➔ [Chassis & Fire Wall Assembly]





ABOVE: EXAMPLED OF HELICAL PILES AND GROUND SCREWS

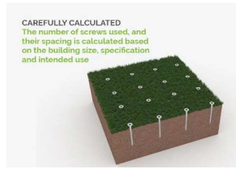
BELOW: diagram of installation sequencing



The length of the ground screw will depend on the site conditions and building specification. Calculations are made to determine the number of screws used, and their spacing within the footprint of the structure.



The floor framework connects the ground screws together, providing a level base for the garden room to be built. Because there is no concrete to dry, work on the installation of the core structure can start as soon as the ground screws have been installed. This reduces the build time considerably.



Ground screw foundations require little site preparation. Once the ground screws are in situ, will lay a weed suppressant membrane before commencing the main build.





Once levelled, steel brackets are added to support the floor framework. Different types of bracket are used, for instance, in the corners, and depend on the floor system that is being used.



Should the building be removed from the garden, the ground screws can be cleanly removed from the site.





RIGHT:
OUTBUILDING ON GROUND SCREWS
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NOTES

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THE CONTRACTOR IS TO ENSURE THAT ALL WORKS; INCLUDING CONTRACTOR'S DESIGNED PORTIONS, CONFORM TO THE CURRENT BUILDING REGULATIONS.

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TRADES ARE TO CONFIRM FINAL DIMENSIONS AND SETTING OUTS ON SITE WITH THE ARCHITECT, PRIOR TO ORDERS, CONSTRUCTION, EXECUTION & INSTALLATION AND IN ACCORDANCE TO PLANNING AND BUILDING CONTROL APPROVALS AND PARTY WALL AGREEMENTS.

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REV	DATE	DESCRIPTION
A	260430	PLANNING
-	260414	CLIENT REVIEW

REVISIONS

SCALE BAR 1:100

0 1 5m

PROJECT
62 CONISTON ROAD,
GF AND LG FLAT MERGE

PR. NO.:
06134

DRAWING NAME AND NUMBER
PROPOSED OUTBUILDING

DWG. NO.:
A-P-100.02 PR

STATUS
PLANNING

REVISION
A

1ST ISSUE DATE 16/12/2025
SCALES/PAPER SIZE 1:100 @ A3
DRAWN/ CHECKED DD/CL

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