

Client: Carter Design Group / Waitrose  
Site: Car Park Extension  
Location: Welwyn Garden City, Hertfordshire

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## Project Description

GTL Partnership were employed by Carter Design Group to design, supply and install the helical (screw) piled foundations for a mezzanine car park on an existing Waitrose site in Welwyn Garden city.

The client was looking for a foundations system that would allow for staged construction of the car park minimising the impact on existing parking arrangements and the customers of a busy Waitrose superstore.



## Geotechnical Ground Conditions

The soils investigation indicated superficial deposits overlaying dense to medium dense clayey sands and gravels, over upper chalk formations.

## Helical Pile Design

GTL designed the helical piles for various pile cap configurations with pile loads up to 400kN in compression and 75kN laterally.

GTL carried out a static analysis using end bearing 450 diameter helical plates to generate the required pile capacity.

The piles were designed to resist the accidental loading condition from a car colliding with a column. The combination of pile lateral capacity and passive resistance of the earth on the concrete pile caps was used to justify the lateral loading conditions.



During installation, the presence of harder ground conditions limited the maximum penetration depth of the piles. GTL were quick to propose an alternative design based on the updated soils information and feedback from GTL's own installation crew on site. This meant that the project programme was maintained and the client was kept happy with overall progress on site.