



PROJECT CASE STUDY

Preserving History with DYWIDAG Products

Restoration of the Hôtel de la Reine

- ▶ Foundation reinforcement in limited spaces
- ▶ Restoration with DYWIDAG products in historical building
- ▶ Permanent application to secure the history for the next generation

Hotel de la Reine in Nancy

Project Overview

The Hôtel de la Reine, constructed in 1755 and located on the UNESCO-listed Place Stanislas in Nancy, is a historic building with a long record of functional adaptations. Its basement served as a shelter during World War II and later as a wine storage area, where inscriptions such as “Saumur Champigny” and “Muscadet” still remain. The structure comprises a ground floor, two upper floors, and a basement. After centuries of service, the building began showing signs of structural distress in the form of differential settlement and cracking. To ensure long-term stability and preserve the building’s architectural value, a targeted foundation reinforcement project was initiated. The adopted approach involved installing twelve-meter micropiles anchored in deeper clay and marl layers to establish a new, reliable load-bearing path.

Project Details

	Location	Nancy, France
	Timeline	2025 – 2026
	Owner	Ville de NANCY
	Architect	Pierre-Yves CAILLAULT
	Consultants	BET2C / ETICO, GEOTEC (Geotechnic)
	Contractors	FLB & TES TECHNIFOR
	Systems	DYWI Drill® R51-550 & R51-800 with couplers, nuts according to the BMVIT-327.120/011-IV approval. 460 micropiles 12m long

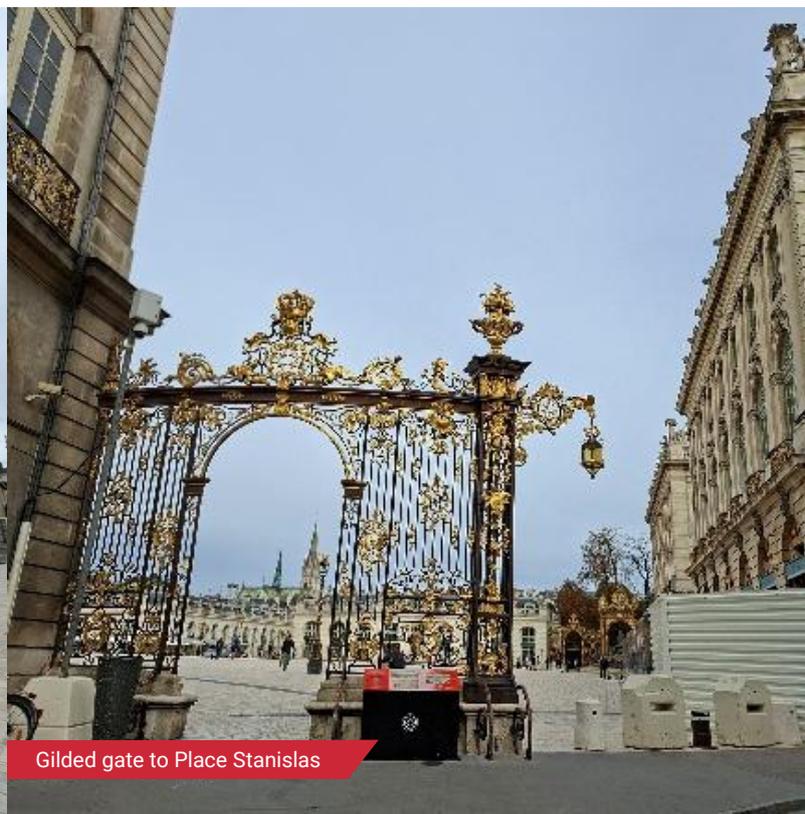
Project Challenges

The main engineering challenge was ongoing settlement, which appeared through visible cracking and areas of distortion in the structure. The issue was caused by the original timber pile foundation, placed in former swamp soil and naturally weakening over time. The heavy weight of the building, with its large stone walls and stone floors, increased the stress on this already weakened foundation system.

Access conditions intensified the technical complexity of the project. The basement offered very limited vertical space, making it impossible to bring in standard drilling equipment or carry out interior foundation work in a conventional way. All interventions had to be executed within these constraints while ensuring that the historical fabric of the structure remained intact.



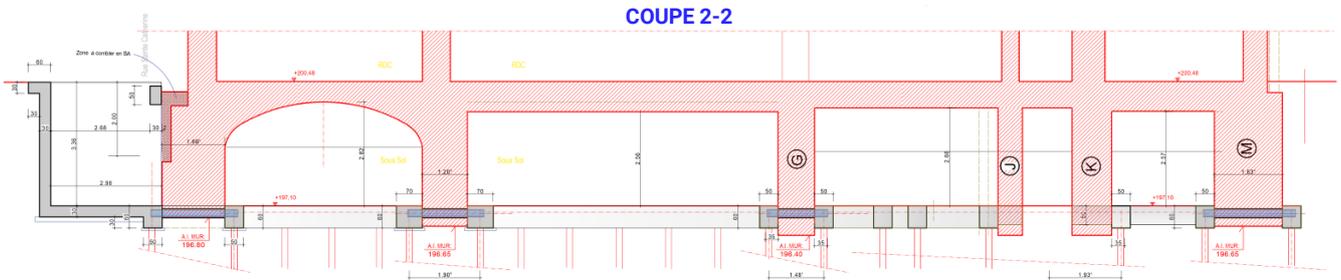
Hôtel de la Reine outside view



Gilded gate to Place Stanislas

Solution and Execution

The selected reinforcement strategy focused on installing twelve-meter micropiles designed to transfer loads into deeper clay and marl layers capable of providing the required bearing capacity. The building's large stone walls and stone floors created high structural loads, which required the micropiles to be spaced at one-meter intervals to provide even load distribution and ensure adequate foundation stiffness. With the design defined, the execution was divided into exterior and interior phases to maintain support for the structure while addressing the limited access conditions inside the building.



Work Outside / Exterior Phase

The exterior phase was carried out first to stabilize the front facade before any interior activities began. A three-meter-deep excavation was created along the front wall, providing access to drill the first line of micropiles at ground level. After installation, the micropile heads were connected using a reinforced concrete beam, creating a stable load transfer element that prepared the structure for the interior phase.



Micropiles Outside Installation

Work Inside / Interior Phase

Due to restricted vertical space in the basement and the steep, narrow stair access, standard drilling equipment could not be brought inside. To address this, a controlled opening was created in the ground floor slab, and the DYWI® Drill System was lowered into the cellar. Before drilling began, the basement ceiling was reinforced with steel tubes to safely support the weight of the drilling machine. This approach made it possible to carry out drilling operations despite the confined conditions.



Basement Ceiling Reinforcement

Final Integration

After the interior micropiles were installed, a 400-millimeter horizontal hole was drilled between the interior and exterior areas. A steel beam was inserted through this opening to connect the inside and outside micropile lines, completing the load path and allowing the entire system to function as one continuous foundation.

Outcome and Project Wins

Stabilized Foundation: Established a reliable deep foundation system using twelve-meter micropiles to stop ongoing settlement and support the building's significant structural loads.

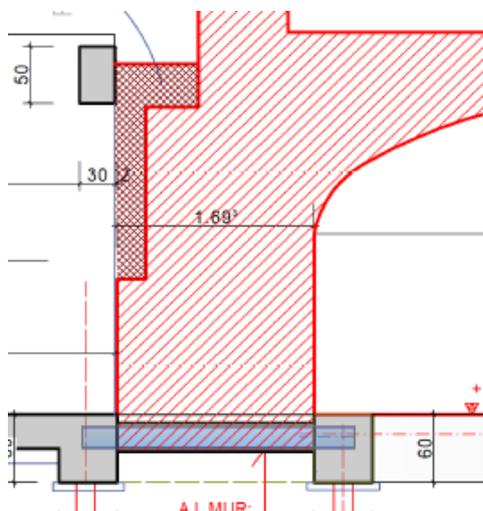
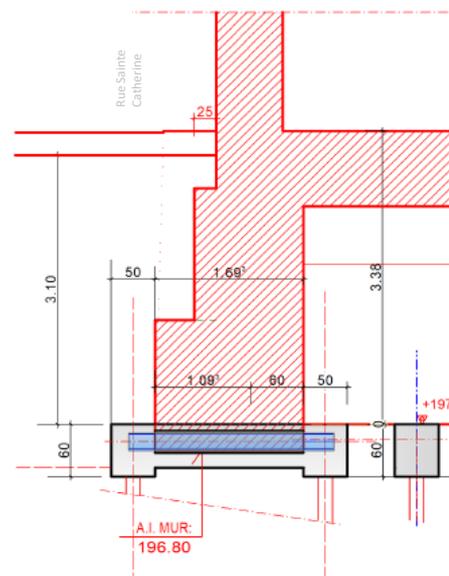
Unified Load Path: Linked interior and exterior micropile lines through a horizontal steel beam, creating a continuous load transfer system for improved long-term performance.

Efficient Installation Approach: Used phased exterior and interior installation with the DYWI® Drill System to overcome limited basement access while maintaining support throughout the works.

Minimal Structural Impact: Completed drilling and reinforcement work within severely limited interior space using a controlled slab opening and temporary ceiling supports, enabling full installation without disturbing the building's historic fabric or architectural integrity.

Permanent, Long-Term Stability: Delivered a deep-foundation solution designed for 100-year service life, using a 50-mm grout coating in accordance with EN 14199 to ensure durable protection of the building's historic masonry and secure performance for future generations.

Project Insights





DYWIDAG 

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Specializing in post-tensioning, geotechnical, stay cable, and concrete solutions, we combine local expertise with global competence to deliver structural integrity that stands the test of time.

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