

# Case Study

## Beever Road Affordable Housing Development, Tipton

### Client

Sandwell Metropolitan Borough Council

### Sector

Public Sector / Affordable Housing

### Location

Tipton, West Midlands

### Project Period

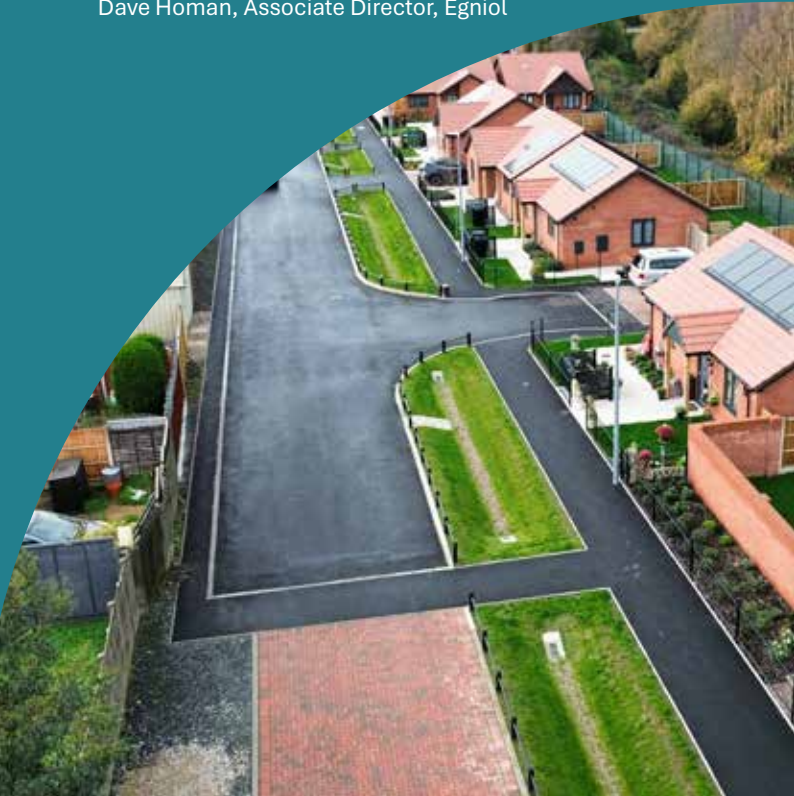
2021 – 2025 (handover December 2025)

### Egniol Services Provided

- Civil Engineering
- Structural Engineering
- Geotechnical Engineering
- Flood Risk & Drainage Engineering
- Stakeholder & Regulatory Coordination

### Project Lead

Dave Homan, Associate Director, Egniol



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# Introduction to the Project

Sandwell Metropolitan Borough Council (SMBC) sought to transform a former brownfield site at Beever Road, Tipton into much-needed affordable housing as part of its wider regeneration strategy to create inclusive, future-ready communities.

The development comprises 18 high-quality new homes, including:

- Eight one-bedroom apartments
- Ten two-bedroom bungalows
- Four homes built to full wheelchair accessibility standards (Part M4(2))

While the site offered strong regeneration potential, it presented a series of complex technical challenges:

- Historic colliery activity and deep made ground from former landfill works
- Floodplain constraints from nearby Tipton Brook
- Redundant public surface water sewers crossing the site
- Proximity to the Walsall Canal
- Sloping terrain requiring stabilisation

Egniol was appointed as Civil and Structural Engineer from early concept stages through to construction completion, building on a long-standing seven-year relationship with SMBC under the council's infrastructure framework.

From the outset, Egniol played a central role in shaping a viable masterplan that balanced accessibility, flood resilience, ground constraints and regulatory compliance.



## Project Implementation & Use

Egniol led the detailed engineering design from **RIBA Stage 2 through to Stage 5** working collaboratively with SMBC's in-house architects, consultants and the appointed contractor, Harper & Sons (Leominster) Ltd.

### Integrated Civil & Drainage Engineering

Egniol delivered a full civil engineering package, including:

- A widened bellmouth and adoptable access road serving all dwellings
- Pavements, parking layouts and external works to local highway standards
- Complete foul and surface water drainage networks
- Sustainable Drainage Systems (SUDs), including:
  - Linear bio-swale alongside the access road
  - Permeable paving for driveways
  - Underground attenuation tanks and oversized pipe storage
  - Floodplain compensation storage

These measures captured runoff at source, reduced flows into Tipton Brook and ensured full regulatory compliance.

### Flood Risk Mitigation

To overcome floodplain constraints, Egniol:

- Carefully set finished floor levels above predicted flood levels
- Integrated compensatory flood storage to offset displaced flood volume
- Designed controlled discharge solutions following Environment Agency consultation

Late-stage challenges from regulators were resolved through collaborative engineering workshops, resulting in an agreed standalone surface water outfall solution.

### Structural & Geotechnical Solutions

Due to deep made ground and varying soil conditions, Egniol:

- Defined load requirements for contractor-designed piled foundations and ground beams
- Coordinated retaining structures to manage level changes and ensure accessibility
- Delivered superstructure designs for apartments and bungalows

Additional geotechnical works included:

- Slope stability assessments along Tipton Brook
- Structural impact reviews near the Walsall Canal
- Innovative investigations avoiding Japanese Knotweed areas

These assessments ensured warranty compliance and long-term stability.

### Stakeholder Coordination

Egniol worked closely with:

- Severn Trent Water
- Environment Agency
- Lead Local Flood Authority (LLFA)
- Canal & River Trust
- Local Authority Building Control (LABC)

A key success was managing CCTV drainage surveys which demonstrated a redundant culverted watercourse. This enabled formal sewer de-vesting, unlocking construction within the apartment footprint.

Low-vibration piling methods and monitoring were introduced to protect canal infrastructure. Regular multi-disciplinary design meetings ensured integrated solutions throughout the project - even during Covid-19 disruptions.

# Outcomes & Benefits

Egniol’s multi-disciplinary engineering approach enabled the successful delivery of a high-quality, flood-resilient housing development on a highly constrained site.

## Key Outcomes

- **18 affordable homes delivered**, including wheelchair-accessible dwellings
- Sectional handovers completed from mid-2025, with full completion by late 2025
- High sustainability standards achieved:
  - Photovoltaic panels installed
  - Electric vehicle charging points
  - EPC A ratings for bungalows and EPC B for apartments

## Technical & Strategic Benefits

- 🏗️ **Flood Resilience**  
Finished floor levels, SUDs infrastructure and controlled discharge ensure zero increase in downstream flood risk.
- 🏗️ **Robust Foundations**  
Piled foundation systems provide long-term structural stability on made ground.
- 🏗️ **Adoptable Infrastructure**  
Drainage and highways designs accepted by authorities, reducing future maintenance liabilities.
- 🏗️ **Cost & Programme Certainty**  
Early risk identification avoided costly redesigns and protected delivery timelines.
- 🏗️ **Community Impact**  
The scheme supports local housing needs while contributing to regeneration objectives.

## Key Project Benefits at a Glance

- Affordable, accessible housing provision
- Fully compliant flood mitigation strategy
- Sustainable, energy-efficient homes
- Stable construction on complex ground conditions
- Strong regulatory engagement and approvals
- Social value through regeneration and local employment

## Satisfaction & Ongoing Relationship

SMBC reported high satisfaction with Egniol’s collaborative and proactive approach. The Egniol team’s ability to manage regulatory complexity, resolve unforeseen constraints and maintain momentum was highlighted as a major strength.



## Client Testimonial

“Egniol’s expertise in civil engineering and flood risk management was invaluable on the Beaver Road scheme. Their collaborative approach helped turn a complex site into quality homes for our community. We look forward to our continued partnership.”

Sandwell Metropolitan Borough Council Representative

## Egniol Project Lead Testimonial

“This project showcased the value of a proactive, multi-disciplinary approach. By addressing flood risk, ground conditions and stakeholder requirements early, we helped turn a highly constrained site into a viable and deliverable housing scheme.”

Dave Homan, Associate Director, Egniol

# Project Impact Summary

- Constrained brownfield land transformed into thriving community housing
- Complex floodplain and ground challenges successfully engineered
- Supporting a compliant, high-quality development, providing affordable and accessible housing.
- Long-term partnership strengthened with local authority client



## Why This Project Demonstrates Egniol's Expertise

This case study highlights Egniol's ability to:

- Deliver integrated civil, structural and geotechnical engineering services
- Overcome challenging site constraints with practical, buildable solutions
- Navigate regulatory approvals effectively
- Support public sector regeneration with robust, sustainable infrastructure

Egniol continues to apply the knowledge and experience gained at Beaver Road across further local authority frameworks and regeneration schemes.project - even during Covid-19 disruptions.



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