

The STASOIL® advantage

For road construction

The Challenges STASOIL® Solves

Building durable and cost-effective road infrastructure poses significant challenges, particularly in regions with low-bearing-capacity soils or areas prone to erosion. Conventional road construction methods often require:

- Importing expensive aggregates and materials.
- Resource-intensive processes that escalate costs.
- Environmental disruptions caused by quarrying, material transport, and water usage.

These traditional methods are not only costly but also environmentally unsustainable. Achieving required California Bearing Ratio (CBR) standards for sub-grade, sub-base, and base layers often necessitates expensive material replacements or enhancements. The need for a transformative approach to infrastructure development has never been more urgent.

The STASOIL® Solution

STASOIL®, powered by advanced System of Colloidal Transport® (STC®) technology, introduces a groundbreaking method to transform native soils into high-performance structural layers. By leveraging applied nanotechnology, the Colloidal Delivery System® (CDS®), STASOIL® enhances soil properties through:

1. **Nano-confinement:** Strengthens soil particles, increasing their interlock and load-bearing capacity.
2. **Water Dynamics Control:** Reduces water absorption, improving erosion resistance and extending road lifespan.
3. **Rigid-Flexible Matrix Formation:** Creates a balanced structure that supports heavy loads without cracking.
4. **Environmental Optimisation:** Minimises resource extraction, transport, and water usage, significantly reducing the carbon footprint.

This innovative approach eliminates the need for traditional base and sub-base materials, drastically simplifying construction processes while achieving or exceeding California Bearing Ratio (CBR) standards.

The Commercial & Technical Advantages

1. Enhanced Performance

- **CBR Compliance:** STASOIL® consistently meets or exceeds required CBR values for sub-base and base layers.
- **Longevity:** Roads built with STASOIL® exhibit superior resistance to erosion and water infiltration, reducing maintenance needs and ensuring extended lifespan.

2. Cost Savings

- **Material Efficiency:** By utilising native soils, STASOIL® eliminates the need for costly imported aggregates, reducing material costs by 60-70%.
- **Water Conservation:** STASOIL®-treated roads use up to 80% less water during construction.
- **Total Project Savings:** Overall project expenses are reduced by 15-30% compared to traditional methods.

3. Environmental Impact

- **Lower Carbon Footprint:** Eliminates resource-intensive quarrying and material transport.
- **Sustainability:** Supports environmentally compliant practices, meeting or exceeding green construction standards.

4. Construction Efficiency

- **Faster Timelines:** Simplified processes using native soils enable quicker project completion.
- **Reduced Equipment Needs:** Streamlined methods decrease labor and machinery requirements.

Item	Traditional Methods	With STASOIL®	Savings
Base & Sub-base Layers	\$200,000–\$300,000	\$50,000–\$80,000	60–70% reduction
Water Usage	High	Low	Up to 80% reduction
Transport of Material	Extensive	Minimal	Major savings
Total Cost	\$500,000–\$650,000	\$425,000–\$525,000	15–30% total savings

* All cost estimates provided in this document are approximations based on typical conditions and current industry standards. Actual project costs may differ depending on location, material availability, market fluctuations, and project-specific factors. These estimates should not be interpreted as a final or binding offer but rather as a general guideline for potential cost savings.

Conclusion

STASOIL® is redefining the future of road construction. By transforming native soils into high-performance layers, it offers a sustainable, cost-effective, and environmentally friendly alternative to traditional methods. With clear commercial and technical advantages, STASOIL® ensures that contractors can construct high-quality roads that meet stringent standards, reduce environmental impact, and optimise resources—all while achieving long-lasting performance.

To learn more

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