IN-SITU RECYCLING
a sustainable future for Britain’s roads
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GENERAL INTRODUCTION

Stabilised Pavements Limited (SPL) is a specialist in-situ road recycling company based in Leicestershire, working with highways clients throughout the UK.

Operating independently the business prides itself on delivering great customer service built on decades of highway experience, technical expertise and a highly trained workforce operating state of the art plant and equipment.

Industry design guides and the RSTA’s Code of Practice safeguard a client’s investment by controlling how the treatment is specified and carried out following extensive site investigations, with testing on-site during the work demonstrating compliance.

In-situ recycling has long played a vital Asset Management role for highway authorities and despite budgetary constraints, through early involvement and programming its wider use on both Trunk Roads and rural unclassified roads is increasing.

With a Design Life of 20 years, high recycled content and low carbon footprint, the treatment provides a cost effective and environmentally sustainable highway maintenance technique for clients and supported by SPL’s technical expertise and culture of innovation, the technique is increasingly employed to overcome challenges ranging from soft ground conditions through to rapid reconstruction.

Gerry Howe
Managing Director
PEOPLE – INDUSTRY EXPERTISE

MANAGEMENT TEAM

Gerry Howe, Managing Director
Gerry has been in-situ recycling for nearly 40 years’, over a decade of which has been with SPL. He holds several key roles within the industry, including Executive Committee member of the Road Surface Treatment Association (RSTA), membership of the CIHT and IAT. The knowledge Gerry has gained over the years has been used to great effect with him assisting in the development of the TRL 386 Report for Recycled Materials, and establishing an industry CO2 calculator model. He was a member of Steering Committee (CASSST, Greenwich University) writing specifications and guidelines on treating contaminated soils, and was hand selected by the DTI to help gather information on stabilisation and solidification during a mission to the USA.

Andrew Jones, General Manager
Andy has over 20 year’s management experience following a start with Tarmac as a Commercial Graduate. During his time with Tarmac he contributed to the development of innovative ‘low carbon’ and ‘recycled’ technologies including unbound aggregates, foamed bitumen and porous asphalt systems. Starting with SPL as Commercial Manager, Andy now oversees all aspects of the business, utilising his Management skills and invaluable Technical & Environmental expertise to the full.

Jason Twinn, Operations Manager
Starting as a Machine Operator 12 years ago, Jason now manages all Operational aspects. From planning and programming to account settlement, Jason safeguards the SPL delivery. Jason monitors closely all aspects of site work through our QA reporting and client feedback and develops action plans in SPL’s efforts towards continuous improvement. SPL’s emphasis on training is facilitated by Jason who understands first-hand the importance of a trained workforce.

Gary Cork, Technical Co-ordinator
Formerly an Assistant Contracts Manager with Colas, and BDM for Stabilised Pavements. With a wealth of Highways experience, Gary is now performing the role of Technical Co-ordinator; overseeing the Trialling and Testing of potential sites, reporting findings and providing essential input into the validation, design and delivery of the SPL process.

Justin Osborne, Business Development Manager
Former Contracts Manager for a Commercial Paving & Hard Landscaping Contractor. Justin went on to work as a Construction & Project Manager on a number of varied construction projects for a framework provider at Stansted Airport before joining the team 2 years ago. Currently advancing new and existing relationships with local authorities, asset teams, and contractors throughout the UK.

Emily Howe, Marketing & Systems Manager
Having spent time in other industries, Emily develops and implements our marketing activities to ensure we are aligned to the needs of customers, whilst promoting the treatment across the industry. Emily also undertakes a role in auditing and improving our systems and procedures to ensure as a business we continually better our standards and governance.
## Workforce Competence

Expertise and competence is fundamental throughout our workforce with all operatives trained and qualified to the highest standards, many to NVQ Level 2 standard and above, in compliance with the RSTA’s minimum threshold requirements.

### SPL Operational Workforce - Qualifications/Training

<table>
<thead>
<tr>
<th>Supervisors</th>
<th>Skilled Operatives</th>
<th>Labourers/Trainees</th>
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</thead>
<tbody>
<tr>
<td><strong>NVQ Level 3</strong></td>
<td><strong>NVQ Level 2</strong></td>
<td><strong>CSCS – Labourer</strong></td>
</tr>
<tr>
<td>CSCS - Supervisory/Work Supervisor</td>
<td>CSCS – Skilled Worker</td>
<td></td>
</tr>
<tr>
<td>Occupational Works Supervisor</td>
<td>CPCS – Competent Operator</td>
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</tr>
<tr>
<td>S2 Qualification for Supervisors</td>
<td>O2 Qualification for Operatives</td>
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Each year we invest significantly in training and development to improve the competence of our people.
PLANT – THE CAPABILITY TO DELIVER

SPL continually invests in new plant and equipment which not only reduces the risk of breakdowns and assures quality but has allowed us to increase capacity with this year a third operational crew having been formed.

Our fleet of cold recycling machines has been purchased from the world leader, Wirtgen Group, who provides state of the art equipment which minimises emissions, is increasingly more manoeuvrable on site and drives higher productivity with more accurate depth and mixture control.

On rural schemes this gives SPL capacity to deep recycle: 1.6million m² per annum
FINANCIAL PERFORMANCE

The company’s general financial performance and suitability to undertake work has been assessed and certificated by Constructionline with information, correspondence and assessment available online using our registration number listed below:

Constructionline Registration Number: 51159

RAISING THE STANDARDS – QUALITY, HEALTH, SAFETY & ENVIRONMENT

We operate to the independently recognised and audited Quality Standard of ISO 9001 and in 2016 SPL was the UK’s first In-Situ Recycling contractor to gain accreditation under National Highways Sector Schemes 13.

The stringent Policies and Procedures we operate can be shown through our CHAS Accreditation which is reviewed annually and as a company we continually seek ways to work safer and have engaged our expanding work force in collaborative Safety Days to encourage feedback.

CONFIDENCE THROUGH ACCREDITATION

RSTA – SPL is one of the founder members of the Road Surface Treatment Association (RSTA) with representation on the executive board. The team have been instrumental in developing the RSTA code of practice for In-Situ Road Recycling, which has been endorsed by ADEPT.
WORKING IN PARTNERSHIP

As the procurement requirements of clients and their supply chain evolves, SPL has adapted.

UNDERTAKING A VARIETY OF ROLES – FLEXIBLE AND CAPABLE:

As principal designer and contractor effectively providing a design and build service for clients or as an integrated supply chain partner working as a subcontractor, SPL has demonstrated we can deliver.
## WHAT DRIVES OUR CLIENTS

Below we list a selection of our clients and their principal drivers:

<table>
<thead>
<tr>
<th>Company/Client</th>
<th>Principle Drivers</th>
</tr>
</thead>
</table>
| Norfolk County Council   | Long Term Structural Solution  
Fenland Geology (soft) Solution |
| Lincolnshire Council     | Low Cost Structural Remediation  
Tar Contamination Solution  
Fenland Geology (soft) Solution |
| London Borough of Enfield| Underlying Clay Solution  
Tar Contamination Solution  
Programme Reduction  
Reduced Local Disruption |
| Cambridge County Council | Low Cost Structural Remediation  
Programme Reduction |
| East Riding of Yorkshire | Tar Contamination Solution  
Low Cost Structural Remediation  
Long Term Structural Solution |
| Essex County Council      | Long Term Structural Solution  
Low Cost Structural Remediation  
Programme Reduction  
Reduced Local Disruption |
| Oxfordshire County Council| 20 Year Structural Design Life  
Low Cost Structural Remediation  
Reduced Local Disruption  
CO₂ Benefits |
| Dorset County Council    | Tar Contamination Solution  
Long Term Structural Solution  
Reduced Local Disruption |
| Somerset County Council  | Innovative Design  
Night-work Capability  
Minimal Impact To Daytime Traffic  
Cost effective Alternative To  
Traditional Reconstruction |
| Cheshire East Council    | 20 Year Structural Design Life  
Tar Contamination Solution  
Fast Delivery  
CO₂ Savings |
| Cardiff Council          | Design Life  
Robust Structural Improvement  
Cost & Programme Benefits Over  
Traditional Reconstruction |
| Buckinghamshire County Council | Structural Solution With 20 Year Design Life  
Programme Reduction - Quicker Delivery |
OVERVIEW OF IN-SITU RECYCLING

Working in accordance with the design guide TRL Report 611 and the RSTA’s Code of Practice, SPL undertake deep in-situ cold recycling for the treatment of failing carriageways.

The process involves firstly pulverisation of the existing carriageway in-situ and then second, spread and mixing in a cementitious powder to create a Hydraulically Bound Material layer to form a strengthened pavement. Throughout the operation the materials are trimmed, graded and compacted to return the recycled layer back to required finish levels before an asphalt surfacing or surface dressing is applied.

Fundamental is the requirement to undertake extensive site investigations and laboratory testing in advance of works taking place with the findings and resulting treatment proposal presented to clients through a Project Quality Plan.

On a scheme in an urban location or with fixed thresholds, the upper layer of the existing road may need to be planed in advance to provide a sufficient drop in the road level to accommodate the required thickness of asphalt surfacing.

Full Width Carriageway Treatment

Using TRL 611 a pavement design can be defined with due regards to traffic volume and foundation strength.

It is important to read Table 7.4 with due regard to the Highways Agency design document HD26/06 which reinstates the different permitted HBM material classifications as original allowed in TRL 386 through which lower material classifications can be adopted on lower msa roads.

1. Before: In-situ process
2. Powder Placement
3. Mixing
4. After: In-situ process
INNOVATION

Haunch Treatment

Also in accordance with industry standards a nominal 1.0 metre haunch treatment is available for failing carriageway edges.

Figure below illustrates the final pavement construction when an asphalt surface course is applied, along with the recommended incorporation of a geotextile to bridge the construction joint. In essence, a two phase operation, the technique involves a thicker layer of recycling with the upper 40-50mm then planed out to permit inlay of the asphalt surfacing and geotextile.

Polyroad

Polyroad is an insoluble dry powdered polymer (IDPP) used as a stabilising additive for rehabilitation of flexible pavements and new pavement construction.

Polyroad effectively waterproofs granular materials that would otherwise lose significant strength when subject to moisture ingress.

During mixing and compaction of the soil, the Polyroad coated fine grained particles, which now repel water, fill the voids between and adhere to the larger soil particles thereby limiting the impact of water on the entire structure.

Regen Roads

Working to a depth of no more than 150mm, SPL pulverise and stabilise in situ, using a low percentage of blended cement powder – typically around 2% in order to bind the recycled material prior to surfacing. On occasion, these evolved roads may not have sufficient depth of material to recycle, in this instance planings have been imported to provide additional integrity.

Immediately following the recycling - Surface Dressing using a double application of 12mm and 6mm stone is utilised, for cost, function and speed of completion. The result is a re-shaped, structurally sound road, protected against water ingress with restored surface characteristics at a cost appropriate to use.
CAUSES OF STRUCTURAL FAILURE

Increased levels of traffic beyond original design capability

Lack of foundation, No formal construction (evolved road)

Surface neglect—potholes allowing deeper damage

Cracking due to vegetation and trees

Poor Drainage

Utilities issues—leaks and subsequent repairs

Profile problems—barrelling from excessive overlay

WHERE TO USE IN-SITU RECYCLING

Failed Roads

Requirements:
- Formal reconstruction (150-350mm deep)
- 50mm or deeper plane out and replacement
- Patching and overlay
- Edge repair: haunching

Types of Roads:
- Rural
- Urban
- Road Type Categories: 1, 2, 3, 4 (up to 30msa)

DESIGN OPTIONS

- Major A roads (10-30 msa)
- Trunk A/B roads (2.5-10 msa)
- Local Roads (0.5-2.5 msa)
- Unclassified Rural Roads (up to 0.5 msa)
TREATMENT BENEFITS

Future proofing for the road structure
Increase in traffic volumes, heavier buses and lorries, traffic congestion encouraging use of lower class roads

In Situ Recycling: The Drivers
Sustainable 'Green' treatment
Reduced embodied carbon through reducing volumes of new construction materials and reduction in lorry movements

Zero waste – typically recycles 100% of existing road
Long term Asset Management - 20 year design life

Quicker build times reduce contract costs and shorten road closures

Solution for roads containing hazardous cold tar – encapsulating tar within the cement bound layer

Safer construction by removing majority of material deliveries to site

Low cost ‘Regen’ approach for unclassified roads

Reduced cost over traditional reconstruction

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