



Oxford Plastic Systems, tRIIO, Cadent and Wales & West Utilities with Replacement for Steel Plates in Driveways

Winner of the Street Works UK Street Works Future award 2017

Street Works UK is the UK industry association representing utilities solely on street works issues. Street Works UK represents some 56 utility companies and contractors engaged in the street works sector, and 18 specialist sub-contractors who provide equipment, materials and services supporting street works activities. Our members represent major contributors to economic growth and work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc. In order to continue this drive for further improvements within the industry – we have developed the Street Works UK Vision for Street Works, which revolves around seven main principles:

- Safety
- High Quality
- Minimise Disruption
- Keep the Public Fully Informed
- Sustainable Methods and Materials
- Avoid Damage to Underground Assets
- Innovation

This case study is an example of the street works sector delivering on these principles and turning the vision into reality.

Overview

Oxford Plastic Systems Ltd committed to the Street Works UK Vision for Street Works and the catalyst it provides for positive change using the seven key goals put into place. Actively working with key stakeholders within the industry new products are developed with the industry every year

The start of this project began with James Clarke working with tRIIO, identifying Safety and Access issues from existing working practices surrounding gas insertion techniques. As the industry leader in trench cover systems Oxford Plastic Systems were approached to partner this project.

Critically, tRIIO wanted to continue keeping customers' driveways accessible and safe while digging service holes in front of their homes:

“feedback from our customers was that they bought into the essential work we needed to do but did get frustrated that we had to block their driveway in order to complete works. This led to customer complaints and lower customer satisfaction scores. “ James Clarke, tRIIO



Oxford Plastic Systems could also gain essential feedback from other key Utility companies and main contractor partners. Product brief and prototype testing by a range of clients was essential.

Current methods needed to be reviewed as customer and operational team safety needed to be improved whilst improving disruption currently being given to customers.

Project Brief

Initially James Clarke and the Research and Development team at Oxford Plastic Systems built the brief for the research project. This would confirm load, size, and handling characteristics whilst also keeping the Seven Key goals of NJUG's Vision for Street Works at the centre of any proposal.

It was clear from initial research that many family vehicles are now over 2t with many 3.5t commercial vehicles also being stored at households. The loading for this cover method would need to be able to meet this requirement.

Common excavation sizes for utility work within driveways revealed that a span of up to 900mm would be required.

Current handling methods of steel plates that had been used require either HIAB lifting equipment or in some cases mini diggers had been used. Neither were deemed acceptable in this environment with steel plates also being over engineered for this application. The desired method would be a two man lift system.

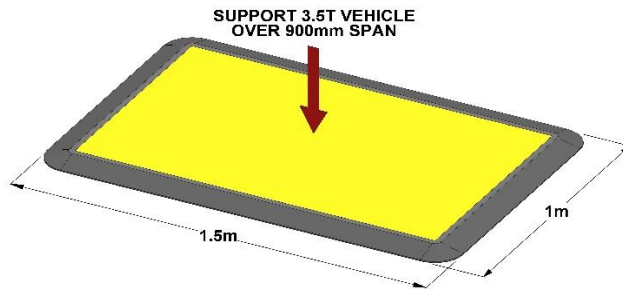
Summary of Requirements

The product requirements were therefore a Driveway Cover with a load capability of one wheel of a 3.5t vehicle (875kg). The product should have a safety factor of at least two as per industry standards. Using current testing techniques and practices set out by industry.

The product should also be a two person lift and installation. This would remove specialist lifting equipment and safety issues surrounding moving heavy steel plate. Transport costs of these items would also be reduced and or removed.

The system would utilize Low Pro technology developed by Oxford Plastics Systems to reduce and remove board slide and noise. This would help avoid damage to other underground assets and damper down noise of product in use.

National Grid document T/SP/E/42 preferred a board 1500mm x 1000mm for this application.



Prototypes

Manufacturing methods had an extensive review to ascertain loading capabilities. We established that prototypes could be produced but new machinery and processing methods would be required to push and develop capabilities of this product. This would ensure a high quality item and innovate manufacture.

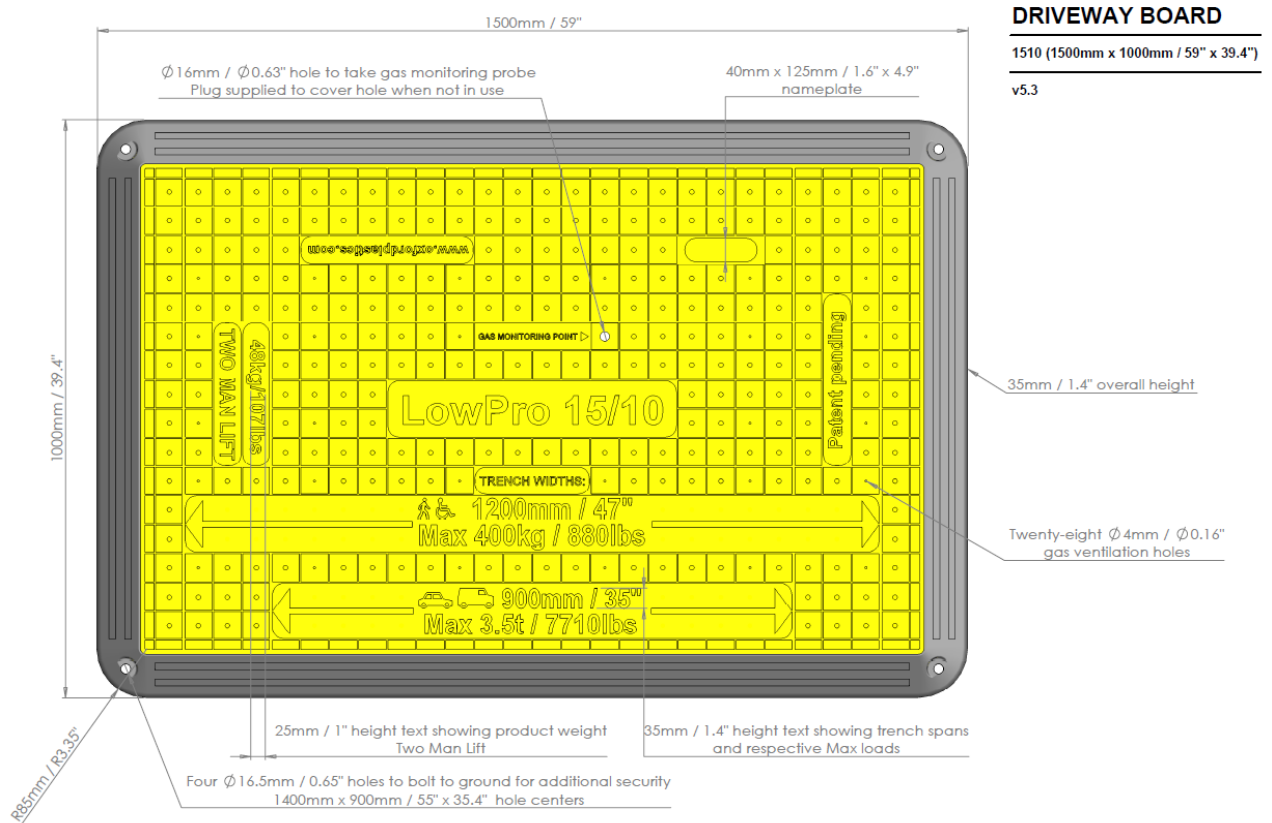
A series of prototype versions were tested on our in house test rig before bespoke items being sent out to live test at appointed TRIIO sites.

Feedback

All feedback confirmed loading, size, and handling requirements were exact. The Low Pro technology improved safety, noise, and life of product. Transport would be far more easily managed and reduce cost

Other phase 2 requested included the inclusion of a Gas Probe hole that should be bunged when not in use and also small gas vent holes for improved ventilation and safety. We would also include fixing holes in each corner in case fixing was required on poor sites and the board would be clearly marked to show orientation and loading capability of product. This would be discovered during required Site Specific Risk Assessments.

These were all incorporated into final analysis to produce the final design for sign off from the steering group. Tooling was produced for final prototype production to start in the summer of 2016.



After successful trials with TRIIO the product was released to the market in the Autumn of 2016. Product has now been adopted throughout the UK with Utilities and contractors including the following Cadent (National Grid), Wales and West Utilities, SGN, Northern Gas Networks, Electricity North West, Northern Powergrid, UK Power Networks, Western Power Distribution, SP Energy Networks, Thames Water, Anglian Water, Balfour Beatty, Morrison US, Clancy Docwra, Kier, Morgan Sindall, and Skanska to name a few.

Benefits

- Improved safety on site.
- A reduction in disruption to clients.
- An improved life of product including slip resistance.
- A reduced set up time and transport and handling cost.

Typically a steel plate a steel plate cost is £350-£400 before transport is taken into consideration. Slip resistance is temporary and will need to be replaced at extra cost. Steel plates should be fixed into place giving potential for damage and extra cost. New design is half this cost with the need to fix removed with the exception of poor site conditions. Since release 12,000 units have been delivered to clients Worldwide with adoption in Europe, USA, Australia and New Zealand.





Feedback from Users

“At Wales & West Utilities our essential work to respond to gas emergencies, connect new homes and businesses and upgrade the gas network can mean that we have to dig in footpaths and driveways. The Oxford Plastics products we use meet all our needs and removes safety concerns around the use of traditional steel plates. The Oxford Low Pro 15/10 is quick and easy to install. It’s a time and money saver; helping us to deliver value for money to our customers while keeping disruption to customers, road users and other members of the community to a minimum.”

- Graham Bond
Street Works Manager
Wales & West Utilities Limited

“Balfour Beatty provide the essential infrastructure assets societies need to function, develop and thrive. Our teams operate across the full infrastructure lifecycle and address long term challenges. We harness innovation to improve safety and minimise this essential work has on local communities and the investment in the Low Pro 15/10 product has helped us to deliver this goal. The product has also been part of the development of the HAUC advice note on the specification and Operational requirements for footway boards, Driveway Boards, Footway Ramps and Road Plates.”

- Tom Lambert
General Manager Streetworks
Balfour Beatty Services

Conclusion

The rapid adoption of this innovative solution across the Utilities and construction industry is testimony to its creation. This product has solved an industry problem that’s has been around for years and ties in directly to the ambition of Street Works UK.