NJUG

NJUG CASE STUDY

CASE STUDY 65: Maximising the Use of Sustainable Methods and Materials

Winner of the NJUG 2012 Sustainability Award

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The 39 utility companies and 17 contractors[1] we represent work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc.

NJUG members need to continue to drive forward further improvements. We have therefore developed the NJUG Vision for Street Works, which revolves around six main principles:

1. Safety is the number one priority
2. Utilities deliver consistent high quality
3. Utilities work together and in partnership with local authorities and contractors to minimise disruption
4. Utilities keep the public informed on all aspects of works
5. Utilities maximise the use of sustainable methods and materials
6. Damage to the underground assets is avoided

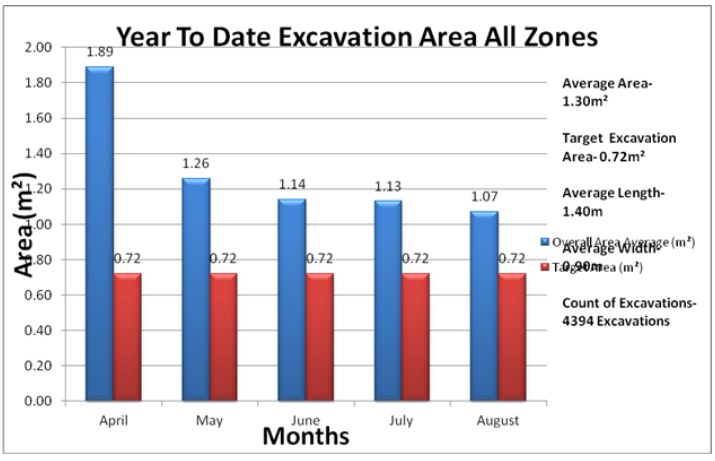
This case study is an example of NJUG and its members / associate members delivering on these principles and turning the vision into reality.

Overview

Use of innovative techniques and technology in the reinstatement process at the **North London Gas Alliance (Skanska/National Grid)** thereby reducing spoil generated and maximising recycling rates. The North London Gas Alliance (NLGA) gas mains replacement project has been running for the past 8 years. There are two methods in realising a more sustainable reinstatement, firstly in reducing the amount of material generated as a result of works and secondly ensuring that as much as possible of that excavated material is returned to the ground through an effective recycling process.

Case Study

Reinstatement: NLGA have continually improved their recycling rate, achieving a rate of over 90% on utilities projects. In addition, we are working hard to reduce the amount of finite materials, such as virgin aggregate, used in reinstatement. NLGA projects achieved a <10% Virgin Aggregate used in reinstatement through extensive dialogue and a rigorous monitoring programme. The utilisation of technology has led to the increase in quality of reinstatement whereby only 204 defects were detected in 57,000 reinstatements. This ensures minimal use of resources and materials leading to a more sustainable process.



Reduction in Service Hole size: In order to reduce the size of excavations a template service hole size has been adopted. NLGA undertake approximately 1000 service holes per month. Depending on local conditions a standard size of excavation is required and this is monitored monthly for compliance through the reinstatement quality control process.

The reduced excavation sizes in reinstatement reduce the amount of waste going to landfill, support sustainability and deliver significant cost savings.

Vacuum Excavation Evolution: Vacuum excavation has led to a reduction in the quantity of spoil being removed from site and consequently a reduction of the plant on site and consequent disruption. NLGA recognised the

[1] NJUG's current members are Energy Networks Association (representing electricity and gas), Water UK (representing all water and wastewater companies), National Grid, BT Openreach, and Virgin Media. Our associate members are Clancy Docwra, Skanska, Balfour Beatty, Carillion, First Intervention, Laing O'Rourke, Compass, AMEC, Enterprise, Morrison Utility Services, Fastflow Pipeline Services, May Gurney, CLC Ltd, PJ Keary and Murphy Ltd. Including members through trade associations, NJUG represents thirty eight utility companies and seventeen utility contractors.

need for a smaller vacuum excavator to reach areas where access was restricted, and collaborated with Vac-ex to introduce a portable vacuum excavator, designed specifically for narrow and difficult access conditions. This is currently being presented across the industry in road shows. Vacuum excavation decreases the size of service excavations for gas connections by an average of 27% and connection holes by 22% on the NLGA project, compared with conventional excavation techniques. Grab movements were reduced by around 30% due to the reduced amount of material excavated.

Meeting targets: NLGA is confident that the corporate target of <2% waste to landfill will be achieved by 2015, as they are ahead of roadmap objectives, which set out that less than 10% waste would be sent to landfill in 2011 as an interim target. This was achieved through rigorous analysis, forward-planning, optimising the use of recycled materials and actively engaging stakeholders. Skanska has developed and will launch the School of Excellence for Reinstatement, and will target road shows at local authorities to promote the use of recycled materials. By obtaining local authorities support NGLA not only achieves a lower volume of waste but spreads best practice within their control, protecting an extended area. NLGA will set and monitor targets for the size of excavations, using keyhole techniques wherever possible.

Optimisation and Route Efficiency: Fuel efficiency and the optimisation of an organisation's assets are critical in the use of vehicles. Routing software can efficiently route teams and materials to works orders, thereby reducing the amount of fuel spent on a particular job. This is undertaken using PDA's, iPhones, iPads and other devices that transmit directly to operatives' works management system. Shared data systems between contract partners allows all stakeholders to view and review quality information as it happens from their own work stations. This approach enables management information to be produced in various formats, to be utilised for statutory and compliance reporting, as well as producing performance data to measure the quality of works. This data can be sub-divided to allow measurements to be taken of the whole operation, sub-contractor companies or right down to the individual.

Educating our Workforce: To further complement the induction process a monthly briefing on "Making Reinstatement Work" is communicated to all staff and operatives. This is a bespoke series of reinstatement briefings, which has been developed from operational experience highlighting key issues and best practice. Further reinforcing the message and education of our workforce, we hold regular 'Stop for Reinstatement' days where reviews and best practice are communicated to our teams. In addition, the minimum standards for reinstatement developed by the NLGA have been adopted for all National Grid operations.

Utilising Technology in Reinstatement: Skanska has been innovating in the mobile device arena for many years, and have received several awards in this area. The process begins with an onsite inspection by a competent Reinstatement Supervisor who will inspect the site and ensure that information regarding material and any specific rulings conforming to the requirements of the Highways Authority and Utility Committee (HAUC) are accurately captured on their real time reporting system utilising PDA technology. The information, gathered at site, generates a works order in addition to triggering an automated inspection request relating to minimum standards of reinstatement upon completion of the work. In the meantime, after receiving the works instruction the reinstatement team will arrive on site and complete the work no later than two days after. Upon completion the reinstatement team record the works and gather photographic evidence of the completed works. This is relayed in real-time to the reinstatement portal to show evidence that work is complete.

Evolving Backfill Material – Closing the Loop: Hydraulically Bound Material (HBM) in the form of Ecobase is a sustainable alternative to traditional reinstatement techniques. 96% of the Ecobase material is a by-product of the mechanical separation of mixed utility spoil and other utility related excavation waste. Traditionally this material was considered of too low a quality to be utilised for anything else other than to landfill, however due to an innovative process controlled by a specially dedicated plant, NLGA reinstatement partners, SQS can now close the loop on this 'waste' by reconstituting the material into a HDM. However, it is essential that a proper quality control process is in place and approval (buy in) from all stakeholders is realised. The resulting reduction in waste and associated wagon movements not only results in positive reductions in disruption and environmental impact, but has also contributed to reduced operating costs associated with reinstatements in the form of fuel consumption reduction and landfill taxes or tipping costs at waste transfer stations.

In conclusion, the material outlined above has a positive effect on reducing the environmental footprint associated with reinstatement works. NLGA is rolling out the use of this material across other areas of operations and sharing best practice with other organisations.

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