

What's happening?

Best practice recycling at Borough Viaduct

Overview:

As part of the works at Borough Viaduct, Network Rail is constructing a new glazed market hall in the footprint left following the demolition of buildings at 16-26 Borough High Street. The building will be an open building and the landscaping within the building will consist of tarmac and granite setts to continue and complement the existing urban realm in the vicinity of Green Dragon Court.

The BV Construction Management team were supervising the construction of new Portacabin offices in the carpark adjacent to James Forbes House (JFH). During foundation works they noticed that a large number of granite setts were being stripped out of the ground and stockpiled. The intention was to crush the setts and reuse them as fill material to raise the level of the new carpark. Knowing that there was a requirement for granite setts as part of the redevelopment works at BV, the team investigated whether the setts uncovered would be suitable for re-use at BV. Time was limited as the area taken up by the material at JFH was required imminently to allow construction to proceed.

It was clear to the project team that re-using the Granite Setts at Borough would be beneficial. However a number of issues needed to be considered including storage of the setts on site. The material had not been palletted, but stockpiled for crushing, therefore the BV team needed to ensure that there would be sufficient space within the work site to store the material. The granite also needed to be collected from JFH and transported to Jubilee Yard. However it was recognised that re-use of the setts would avoid the need to procure newly quarried material.

Costs

The cost saving to the project of re-using the granite Setts are estimated as follows:

Costs to date

- 1 day wagon hire £500 + 100tonnes 6f2 in exchange delivered to JFH £1000
- Palletise est. 5000 Setts = 2men@2weeks = £2500
- Total = £ 4000

There are no storage costs as NR already had sufficient space in the Jubilee Yard to store the material.

Cost Savings

- The estimated cost of the 124m² or 2500 Sets required for 16-26 BHS at market rate delivered palletised @ £2.5 per sett = £6250
- Therefore £2250 Saving

Risks

- Extra Laying time due to irregular depth dimensions of Setts
- Costs of disposal / reuse on the project of Setts that cannot be used due to irregular dimensions = £unknown

CO₂ Savings

- Environmental cost Saving in carbon footprint 124m² 20,000kg CO₂
- Fuel used to Transport Setts and deliver 6F2 est 300kg CO₂
- 6F2 100tonnes for JFH = est 250kg CO₂
- Therefore this exercise potentially saved the environment 19,450kgs of CO₂

Lessons Learned:

In this instance it was fortunate that the works were being over seen by someone who identified that the setts could be used elsewhere on the programme. It would be useful if a mechanism existed for projects to advertise surplus construction materials that could be suitable for reuse elsewhere on the programme so that other projects were aware what was available. The project was also fortunate in having a large construction compound which meant that there was sufficient space to store the material. More constrained sites may not be able to store large quantities of material for re-use because of space constraints.

Meeting our objectives & targets:

- Use Sustainable Materials in a sustainable way. By re-using existing materials we have reduced the need to acquire newly quarried materials and so minimised demand for non-renewable resources.
- Restrict Carbon Emissions – By re-using existing materials we have avoided the energy use/ costs associated with mining and transporting new materials, and with crushing the material to make it suitable for use elsewhere. Estimated CO₂ saving on 19,450kgs.

Granite Setts Stored at Jubilee Yard



Estimated Cost of procuring new materials

Thank you Gavin

Your prices are illustrated below including delivery to East London

(Reference no. 1316437885)



Reclaimed Granite Setts

Your price based on 45 tonnes including delivery to the East London area is **£141.65** per tonne plus vat.

Summary

(Approx coverage 126sq mtrs - Approx £50.59 per sq mtr.)

45 tonnes of Reclaimed Granite Setts	£6,374.25
Vat @ 20%	£1,274.85
Total Payable	£7,649.10

Carbon Calculator

Carbon Calculator



Discover how you could create a carbon neutral garden with Marshall's carbon calculator. The carbon calculator will show you how many tonnes of CO₂ are generated in the manufacture of your chosen hard landscaping - from raw material supply to delivery to your home. It then suggests how many trees you can plant to help offset the CO₂ emissions of a new patio or drive, so you can balance your hard landscaping with soft planting - and aim towards creating a carbon-neutral oasis.

Calculate your carbon footprint...

Product	Quantity	CO ₂ for this product
Cropped Granite Setts	124 m ²	= 19840kg CO ₂ = 27 trees
<input type="button" value="+ Add Another Product"/>		
Total: 19840kg CO₂ - Equivalent to 27 trees <small>Calculations are based on 1 average sized tree with a lifespan of 50 years being equivalent to 0.73 tone CO₂</small>		

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