

September 2016

VEGETATION IS BUILT-IN BY RML – PART 2.

I started discussing this topic in July in 'Vegetation is built-in by RML - part 1' and am pleased to continue the story here.

I wrote an article that appeared in 'Civil Engineering' in 2003 under the sub-heading 'Sustainability-Willow engineering: a greener solution for slopes'. In the article I described willow spiling and this attracted the attention of Gordon Smilie, a principal engineer with Norfolk County Council. A slope fronting a minor road that ran alongside part of the Broads was threatened by the wash from turning boats and Gordon invited me to Norfolk to look at his problem. A site visit, followed by a design based on willow spiling and a quotation won RML the installation and we have been back on 2 subsequent occasions to work in the area. Gordon was attracted by the low cost and the short time needed to do the work as well as the low impact on the surroundings. I used photographs of the job in my April newsletter entitled 'Vegetation as an engineering material'. Of course the key element in all of this was that Gordon placed his trust in us.

Clients who trust you are like gold, they do exist, and I have mentioned before that we stand on our heads for them.

I am sure you all understand that the variation in conditions between one site and the next can be extreme. We have used willows in combination with different geotextiles, rock armour, gabions, rock rolls, ground anchors, soil nailing and augured-in king posts of elm and oak. On just one occasion we have found that our 'soft approach' to engineering problems could play no useful part so we used precast concrete retaining units to support a bank alongside an aggressive stream that was threatening a property. This was another project commissioned by the same loss adjuster who I mentioned earlier in Part 1 of this story. We discussed this piece of work in our newsletter 'Like an iceberg' in June last year. Our client was back with us in November 2015 and again in April 2016.



Slope instabilities are likely to be continuing problems which we are pleased to address.

The main features of RML's approach are its sustainability, low impact, its support of wildlife, speed of installation and lower cost compared with conventional works to say nothing of the quality of our work and very satisfied clients.

An interesting adjunct to all of this work is our understanding of how roots work and the conditions in which they do or do not work successfully.

In order to increase our understanding of why 'willows are best' we have carried out research into the rate of growth of willow roots in different soils, compared root growth with shoot growth, and measured the strength of new spiling as a slope retaining structure. Debbie Scott, a director of Groundsolve, introduced a paper which she and I had prepared on the subject in a webinar for the Institution of Civil Engineers.



Countless trees have been planted alongside newly constructed highways and a good many of them fail to reach maturity and fail to have the desired impact on the local environment. Our report to Transport for London examined the ground in and under highways in which many trees are planted and reviewed the reasons why they fail to grow successfully. We recommended appropriate densities for the materials in which tree roots can be expected to develop successfully. The problem under highways margins is that over-compacted soil has a density that is simply too dense for roots to penetrate and provide the requisite nutrients, oxygen and water for plants to grow.



This was a re-run of our early work in land reclamation when in the 1970s and 1980s we had to insist that engineers did not over-compact fill material that was expected to support tree and grass. I have mentioned before how many years ago engineers reacted with the comment "You mean you want us to rip and loosen the material which we have been compacting" and our response "Yes indeed we do". We had learned quite quickly that to a large extent success in this area of work was measured by the man in the street by the quality of the 'greening' that was achieved. Miserable looking trees earned no plaudits.

Kind regards

Ivor

Managing Director
Richards, Moorehead & Laing Ltd.

RE-VISITING ESTONIA.

Andrew, David and I have just returned from a delightful and informative trip to Estonia. We were 'honoured guests' at an international symposium that celebrated 100 years of exploitation of Estonian oil shale.



The venue for the conference, an abandoned oil-shale-fired power station in Tallinn, now converted into a conference venue, which will host the presidency of the EU when Estonia takes the UK's slot next year.

I have added below some 'reflections' on the symposium that I jotted down on my return.

International Symposium 'Oil Shale 100' Tallinn September 2016

1. The symposium was held in Estonia and celebrated 100 years of exploitation of oil shale deposits that are in Estonia.
2. The symposium used only English throughout all of its events, a feature which in itself was most impressive
3. Attendees from Estonia, the USA, Canada, South Africa, Australia, Switzerland, Jordan, Nigeria, Russia, China and the UK took part.
4. There are vast deposits of oil shale around the world that are collectively equivalent to billions of barrels of oil
5. Despite significant exploitation in some countries most of this resource is untouched
6. The intention in most countries is that the oil shale will be exploited as a source of hydrocarbons
7. The scale of the exploitation in terms of surface area will be enormous, the important deposit in Australia occupies an area that is bigger than Europe
8. Most extraction is likely to be by opencast or open pit mining
9. Technologies already exist that enable the oil shale to be exploited with minimum release of pollutants and hydrocarbons
10. It seems to be very unlikely that oil shale will not be exploited in the medium term
11. The only impediment to large scale exploitation of oil shale mentioned was the current low level of the price of oil
12. Concern about global warming did not figure at all, especially in countries like Lebanon which has no other comparable energy resource
13. The Estonians were proud that they have reduced their carbon emissions per head by the greatest proportion in Europe. The minister for the environment was present throughout the symposium

My delight was on account of me meeting dear friends Antii Roose and Erik Puura who were involved with me more than 20 years ago. Antii Roose met me at Tallinn airport on my very first visit in 1990.



Antii Roose, left, with Ivor and Andrew at the conference

In 1992 I was introduced to Erik Puura through the UK Baltic Society. Erik was completing an MSc in Manchester and came to lunch on a few Sundays and then stayed with Marj and I for several months as he wrote-up his thesis on the environmental impact of oil shale wastes. Over the next few years Erik was the interpreter on our projects working with the Estonian Oil Shale industry. Erik is now a Deputy Rector at Tartu University and Antii is a lecturer in the department of geography at Tartu.

We visited our model farm reclamation scheme which we were disappointed to find abandoned, probably due to land ownership issues. The reclaimed areas themselves had performed well.



Erik Puura, left, with Ivor and Andrew at the Kohtla mine restoration scheme

During the symposium we learned a lot about the scale of the deposits of oil shale that exist around the world and their long-term significance as a source of hydrocarbons. The Estonians burn their oil shale to produce electricity but many attendees thought that a better use of the material could be made as a source of valuable feedstock. I would think that this is the likely direction in which the exploitation of most of the world's oil shale will proceed in the years ahead.

This week, Shale gas has been imported from the USA into Grangemouth as feedstock for the INEOS refineries.

Kind regards

Ivor

Managing Director
Richards, Moorehead & Laing Ltd.

55 WELL STREET, RUTHIN, DENBIGHSHIRE LL15 1AF

Tel +44(0)1824 704366, Fax +44(0)1824 705450

email: rml@rmlconsult.com web: www.rmlconsult.com

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