

LANDFILL AREAS AND ITS VEGETATION

Dirk Oostindie

Parks Superintendent
District of North Vancouver

Oscar Singing "I Love Trash" From Sesame Street

O.K., O.K., I've waited long enough and now the time has come. Oscar, what are you doing?

What does it look like I'm doing, Bob?

Well, it looks like you're making a mess.

I'm getting ready to sing my song, so I'm throwing out all my trash onto the sidewalk. Isn't it beautiful?!

Well, I wouldn't say it is exactly beautiful, Oscar.

Well I would. Just look at it all.

What a beautiful junky mess of rotten, rusty, maingy, musty, crummy beautiful trash.

"Oh, I love trash - anything dirty, or dingy, or dusty, anything ragged or rotten or rusty. Yes, I love trash. If you really want to see something trashy, look at this - I have here a sneaker that's tattered and worn. It is all full of holes and the laces are torn. A gift from my mother the day I was born. I love it because it is trash. Oh, I love trash - anything dirty, or dingy, or dusty, Anything ragged or rotten or rusty. Yes, I love trash."

"The American dream is alive and well. Garbage is the great equalizer" and as Oscar sings in Sesame Street's "I Love Trash", it is nice to know that some of us enjoy it.

With this lovely introduction on garbage, let us turn to the more mundane matters, and that is the conversion of landfill sites to active and passive recreation.

Some of the questions often raised are:

1. What species will thrive on completed landfill sites?
2. Are there any techniques available which will help in attempting to establish a vegetation cover over a completed landfill site?
3. What is the nature of the toxic effect of landfill gas on vegetation?

A number of reports are written, mostly coming from the Eastern U.S.A., Britain, West Germany and Holland. Out of those reports we can make some conclusions, although the plant material may be very foreign to the Pacific coast, the principles are still very much the same regarding gas, type of tree material, grasses, etc.

Recommendations concerning site preparation, tree planting and cultural practices to maintain plant material on landfill sites will depend upon the proposed use of the landfill, the composition and preparation of the refuse, the kinds of soil available and the characteristics of the site. Choice of plant material depends upon use, not so much aesthetic reasons. It should be chosen primarily for survival first as overall growth

will keep the cost down. Refuse composition and preparation is a determining factor as the gas may contribute significantly to deterioration and death of any plant material.

From the many observations made, either by research or non-scientific observations, we have some facts which most of us can use when preparing a landfill for landscaping:

1. When planting shrubs or trees, never plant mature plant material as the deep roots will meet oxygen poor air as the methane bacteria will take away the oxygen. The roots of mature plant material are less flexible and are already located deeper on planting.
2. Try to landscape with plant material that has a slow growth and in their natural state is in oxygen poor conditions, such as plants that thrive in wet, marshy conditions.
3. Start with young plant material. The plants, when meeting oxygen poor layers, will try to recover on shallower layers.
4. Another factor to consider is selecting tree species which are relatively small at maturity, when we don't have much soil. This risk is diminished when we have soil covers of 1 meter and more.
5. Irrigation is important especially the first two or three years. Most landfill operations don't have much soil, as such, not much moisture is available. Also the root systems are mostly located close to the surface and lack established capillary pore space. However, to install an inground irrigation system is not recommended, as due to settlements, the underground pipes will break or split. Mulching with wood chips, bark, sawdust, or grass clippings can help in controlling evapotranspiration by reducing soil temperatures, weed growth and evaporation from the soil surface.
6. One report recommends continuous extraction of the gas by an induced exhaust system, to reduce the quantity and pressure of the landfill gas generated in the refuse. Another way to protect the root system is when we prepare and cover the refuse. A barrier of clay or similar material will act as an impermeable layer. A layer like this is more flexible than plastic or others. This should keep the gas away from the cover soil, which will be placed over the barrier. A good example of this I saw at the St. John's landfill site.
7. Soil structure can also be improved by establishing a grass or ground cover with tall fescues, rye grass, crown vetch, lupine and clover. The latter for the nitrogen producing bacteria. This includes alder trees.

Last year, we planted several plant species, *Salix* - willows, *Betula* - birch, rose varieties, *Sorbus aucuparia* - mountain ash, mahonia, *Symphoricarpos* - snowberry, *Cornus* - dogwood, and a few more. The survival rate is poor - 8 to 10%.

Pine trees planted two years ago do very well, however, which perhaps can be attributed to their drought resistance. As such, this test planting did not tell us that much as we had no water control and the summer of 1985 was extremely hot. We have successful growth of young alder and cottonwood, kale, clover and lupine, and of course the grasses.

Seeding application was done by hydroseeding using mulch (wood fibre cellulose) and tackifier. With the assistance of staff members from Terrasol, we have now established a mixture that seems to do very well.

A batch of 1,100 lbs. would consist of the following:

- 20% Derby Perennial Ryegrass
- 30% Sydsport Kentucky Bluegrass
- 30% Dawson Fescue
- 20% Dwarf White Dutch Clover

We would be adding:

Crown Vetch	10 lbs.
Hairy Vetch	"
1,00 Headed Kale	"
Narrow Stem Kale	"
Wildflower Mix	5 lbs.
Dwarf White Clover Multicoated	50 lbs.
Russel's Perennial Lupines	15 lbs.

ELEVENTH ANNUAL MEETING

LAND REHABILITATION: Policy, Planning Systems and Operational Programs

June 3 - 6, 1986

University of British Columbia
Vancouver, B.C.



CANADIAN LAND RECLAMATION ASSOCIATION

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FOREWORD

The British Columbia Chapter of the Canadian Land Reclamation Association was formed in 1985 to provide a local public forum for the exchange of information and experience in land rehabilitation. Comprised of professionals from a wide range of backgrounds and interests, this organization pulled together quickly to host the 1986 Annual Meeting. The diverse membership in the B.C. Chapter was realized in a program that expanded the scope of the conference to include many fields that have not been represented in past programs. The quality of presentations and range of topics kept audience participation at a spirited level. It is our hope that we have initiated a trend to widen the scope of the annual meetings so as to not focus on traditional mining or energy development issues.

I wish to thank all speakers and attendees for making this first formal function of the B.C. Chapter a success. The enthusiastic support of chapter members in the planning and administration of the conference demonstrated a strong desire for a quality meeting. This drive bodes well for the future of our chapter.

A great deal of effort went into the publication of the proceedings of the 1986 Annual Meeting. Care was taken to accurately reproduce all papers, however minor errors may have escaped the review process. We hope that this will not detract from the information presented by the authors.

May the CLRA and all local chapters continue to grow and function as a focal point for land rehabilitation.