M E M O R A N D U M

METRO

Jim Morgan
Metro
Regional Parks & Greenspaces Dept.

Date: Sept. 19, 1997

To: Smith and Bybee Lakes Technical Advisory Co.
Mark G. Wilson
Nancy Owen Myers

From: Emily Roth, Wildlife Area Manger, Smith and Bybee Lakes

RE: Meeting of the TAC to discuss site preparation on the St. Johns Landfill

c: Dan Kromer
Dennis O'Neil
Smith and Bybee Lakes Management Co.

I realize the TAC has not met for over a year, even though much has been happening at the lakes. In fact, it has been just over a year since I was selected for the position and took over the responsibility of managing the lakes from Jim Morgan. But an issue has recently come up that we need your knowledge and expertise to make a recommendation to the management co. Since time is of the essence (isn't it always), I selected **Monday, October 6 from 9:00-noon at Metro Regional Center, room 370A** for the meeting. The meeting topic will be limited to whether the herbicide Roundup Pro® or Rodeo® should be used to prepare the locations of three 1 acre test plots for native vegetation trials this fall or postpone the trials until an alternative site preparation methods is agreed upon. I will be asking you to meet again in November (a date will be selected at the October meeting) to make a broader recommendation to the management co. on which site preparation and weed control method(s) should be used at the St. Johns landfill to establish a native dominant vegetation cover.

Background

In April 1997, Metro's Regional Environmental Management (REM) department sent out a request for proposals for establishment of native vegetation at St. Johns landfill (RFP #97R-9-REM). The team of Mark Wilson, Laura Brophy and Loverna Wilson were selected to develop and implement the plan. In August, the consultant team submitted a draft plan for the first phase of work. After looking at a range of options the team recommended using the herbicide Roundup Pro® or Rodeo® to prepare the three 1 acre test plots. They felt this was the best option in order to proceed with the vegetation trials in a timely manner. Enclosed is a copy of the draft plan with comments by project manager Dennis O'Neil.

Since submittal of the phase one work plan, there has been extensive discussions within Metro, with the consultant team and others on the use of herbicide at the St. Johns landfill, its impact on the surrounding natural area, overall safety and persistence, and its effectiveness relative to other methods in preparing the site for native vegetation

plantings. There are a wide range of information, literature and opinions available on the use of herbicides and other site preparation methods. A variety of methods will be briefly discussed at this meeting, with a more in-depth discussion at the November meeting.

Please let me know if you or another representative from your agency or organization will be attending the October 6th meeting. Also, if you have any questions or need more information before the meeting, please call me at (503) 797-1515. Thanks in advance for putting up with the short notice and taking the time to consider this important issue.

enclosures

M E M O R A N D U M

METRO

Jim Morgan
Metro
Regional Parks & Greenspaces Dept.

Date: Sept. 29, 1997

To: Members of the Smith and Bybee Lakes TAC
Nancy Owen Myers

From: Emily Roth, Wildlife Area Manager

RE: Additional Information for TAC Meeting on Oct. 6, 1997

c: Dan Kromer, Metro
Dennis O'Neil, Metro
Smith and Bybee Lakes Management Co.

Enclosed is additional information for the meeting on Oct. 6, 1997. The information is a short summary of the proposed experimental plot procedures outlined by the consultant team.

Just a reminder, please let me know if you or a representative from your agency or firm will be attending the meeting on Oct. 6, 1997, starting a 9:00 a.m. at Metro Regional Center (600 NE Grand Ave.), room 370A. I can be reached at (503) 797-1515 or by email at rothe@metro.dst.or.us

Looking forward to seeing you on October 6th.

PDX
BES
· Friends
Audubon
· Metro
Port
· Business

# ESTABLISHMENT OF NATIVE VEGETATION AT ST. JOHN'S LANDFILL
## Preface to Phase I Document: Summary of Proposed Experimental Plot Procedures

### Overview

This summary provides an explanation of the Wilson-Brophy-Wilson Design Group (WBW) approach to experimental plots at the St. John's Landfill. This summary is provided as a supplement to the Phase I document, "Establishment of Native Vegetation at St. John's Landfill: Proposed Phase I Work Guidelines and Cost Estimates: Draft" submitted to Metro on August 22, 1997 by WBW. Additional information is available in the initial proposal submitted to Metro on May 21, 1997. The initial proposal is entitled "Proposal for Professional Services: Establishment of Native Vegetation at St. Johns' Landfill"; it was the basis for the award of contract #905795. The Phase II document (to be submitted to Metro on November 3, 1997) will expand on the ideas outlined below; changes may be made based on information received before November 3.

### Purpose of experimental plots

The experimental plots are designed to determine the identity of sustainable native grass species and/or native-dominant herbaceous assemblages that can be planted as cover on the landfill, along with management practices for establishment and maintenance of these assemblages. These assemblages and management practices should not jeopardize the integrity and function of the existing cover system at St. John's Landfill, but should prevent or control erosion and the spread of invasive noxious weeds, and enhance the wildlife habitat and scenic values of the landfill.

### Question to be answered by experiment

The proposed experimental plots are designed to answer the question, "Which of the proposed experimental treatments provides the best growth of native or native-dominant vegetation during the 5-year contract period?" Treatments to be tested are described under "Experimental plot treatments..." below. Statistical analysis of experimental results will be used to compare these treatments.

### Site preparation methods

The goal of site preparation is to provide a "clean slate" for the experimental plots -- specifically, an area free of severe competition from undesired vegetation -- so that the different experimental treatments can be evaluated without the serious handicap of different initial weed populations at the beginning of the experiment. A single, uniform site preparation method must be applied across all experimental plot areas in order to allow comparison of the experimental treatments. (Treatments are described below under "Experimental plot treatments.") Given the short (5-year) duration of this contract, both the "clean slate" approach and use of a single, uniform site preparation method are vital to improve the chances of significant experimental results. Uneven initial weed control and/or lengthy experimentation on site preparation methods would almost certainly lead to inconclusive results in the experimental plots. Site preparation for the plots will consist of a combination of herbicide (glyphosate), irrigation, and/or tillage. Application of the herbicide glyphosate is recommended for fall 1997 (see Phase I document) to reduce the vigor of existing non-native vegetation while maintaining erosion control over the winter 1997-98 period. Specifications and rationale for any further site preparation work in late winter and spring 1998 will be provided in the Phase II document. Additional applications of glyphosate may be recommended. For example, a second application should be applied in late winter before winter annuals go to seed. A third application could provide control of the site's dense stand of perennial non-native grasses. Decisions regarding these applications will be based on the extent of regrowth

after earlier herbicide applications, as well as the effectiveness of tillage and irrigation if these methods are used.

Phase II site preparation will probably also include irrigation to sprout any remaining seed bank during the dry part of the summer. Herbicide application after irrigation would provide final control of undesired vegetation. Irrigation may also be recommended in conjunction with planting, to speed the establishment of the cover crop and desired species before the onset of 1998-99 winter rains. A single tillage operation may also be added to the site prep schedule, depending on results of soil physical testing in winter 1997-98. Tillage is not recommended as the primary method for control of existing non-native vegetation, because repeated tillage would be necessary to achieve the desired level of weed control. Repeated tillage would increase the risk of erosion, because it would weaken the already-poor soil structure at the site.

**Experimental plot treatments, design and monitoring**

Experimental treatments to be applied to the plots will include different seeding mixtures (cover crops, native grasses and forbs, and non-native grasses), and may also include management practices such as soil amendments, planting techniques, or other cultural practices designed to help establish the desired species. No-till planting will probably be recommended, to maintain existing soil structure and reduce seed bank competition with plantings. No-till planting implements designed to provide good seedling establishment conditions even in compacted soils are now available.

Experimental plot design will be based on the number and structure of treatments chosen, and environmental variability at the site. We expect plant community measurements to be strongly influenced by environmental factors such as water regime, aspect, slope, soil depth and composition, and border effects. We will select plot size, plot shape, blocking/stratification and other design methods to reduce within-treatment variability due to such environmental factors. For example, plots will be blocked across environmental gradients and randomized within blocks to increase statistical reliability. Strip-plot or split plot designs will be used if required, to make it easier to plant and manage the plots.

Quantitative data will be collected for individual species of interest and for the plant community as a whole, in the form of percent cover, frequency, density, and/or other statistically valid measures. These data will be used to answer the question, "Which of the experimental treatments provides the best growth of native or native-dominant vegetation during the 5-year contract period?" . We will select statistical sampling and monitoring methods to maximize accuracy, precision, and repeatability of measurements. Prior to finalization of the statistical protocol, we will conduct preliminary sampling at the site to determine the best type of sampling units, unit size, number of units, and parameters to be measured.

We will interpret experimental data via means comparisons using accepted test statistics; analysis of variance and covariance; regression; and/or other appropriate linear methods.

Prepared by: Mark Griswold Wilson and Laura Brophy, September 24, 1997

# Exhibit A

## Scope of Work

### 1. Statement of Work.

For this project Mark Griswold Wilson shall be Contractor. Laura Brophy of Green Point Consulting and Loverna Wilson, Plant Ecologist shall be subcontractors to Mark Griswold Wilson. For purposes of work responsibility, Contractor remains responsible for the performance of all described work, regardless of subcontracting. No subcontractor additions or deletions may be made without written permission of Metro's Project Manager.

Contractor shall perform the work described below in conformance with the following goals and objectives.

A. GOALS:

1. Establish a native-dominant vegetative cover that encourages wildlife use if it does not pose a significant risk to the integrity of the St. Johns Landfill cover system or encourage invasion by noxious weeds.
2. Establish this vegetative cover in phases over the next 30-years using methods which minimize risk to public health, safety, and the environment and which conform to the Metro Alternatives to Pesticides Policy.

B. OBJECTIVES:

1. By the year 2007 establish native-dominant vegetation on 50-acres of the St. Johns Landfill cover system and on 6,000 lineal feet of its perimeter and develop methods which are reliable, environmentally protective, and cost effective enough to allow later establishment on larger spaces and to control invasive, non-native and noxious vegetation.
2. By the year 2007 develop a time schedule, methodology and cost estimate to establish native vegetation over the remaining cover system and perimeter.

After receiving written authorization to proceed (including an authorized budget limit) , Contractor shall develop and submit to Metro a plan for experimental test plots to test methods for establishing native vegetation on St. Johns Landfill cover system in conformance with the above goals and objectives. At a minimum plan shall include the following elements:

A. A statement of purpose and rationale.

B. A summary and evaluation of past work, which details past success and failure with reasons.

C. Detailed methods for establishment and evaluation of test plots of native-dominant vegetation over a five-year period in new areas. These methods shall include soil and

site preparation, and maintenance (including seed/plant harvesting, integrated pest management plan and monitoring techniques).

Contractor shall select plot size, plot shape, plot location, blocking/stratification, and use other methods to minimize within-treatment variation due to environmental factors such as water regime, aspect, slope, border effects, and soil depth and composition. Contractor shall consult with Metro's Site Manager to ensure that test plot location does not significantly interfere with operation and maintenance activities. Metro's site manager shall inform the Contractor of operation and maintenance activities which may affect the test plot.

D. Detailed methods to maintain existing native dominant vegetation including integrated pest management methods to control exotic, invasive plants. These methods shall be submitted to Metro after Contractor has designed and conducted a monitoring program to determine if current management practices are meeting management goals.

E. Detailed methods to manage areas not yet planted with native vegetation. These methods shall be submitted to Metro after Contractor has designed and conducted a monitoring program to determine if current management practices are meeting management goals.

Plan elements C, D, and E shall include detailed information about the following:

1. Quantitative monitoring including criteria for success. For the test plots in plan element C monitoring design shall ensure collection of data which maximizes statistically valid analysis and minimizes within treatment variability.
2. Operation and maintenance needs (equipment, supplies, person hours).
3. Staffing needed (including expertise) and proposed allocation of tasks between Contractor and Metro staff.
4. Budget (personnel hours/cost, equipment, supplies) by fiscal year (July 1--June 30) for the term of the agreement.
5. Timeline for implementation.

The information above shall include, at least three vendors for seed, other materials, and contractual services.

After approval of each plan element by Metro, the Contractor shall carry out this plan element during the remainder of the Contract in cooperation with Metro Operations and Maintenance staff. Contractor and the Metro site manager shall keep each other informed about activities of each which may significantly affect the other. Contractor shall carry out any modifications approved in writing by Metro.

Each year as listed in the time schedule below, Contractor shall submit to Metro an annual report. This report shall include statistically valid, quantitative data that are interpreted to support vegetation management recommendations. These recommendations may include modifications to the 1997 Vegetation Plan. This annual report shall include time schedule

M E M O R A N D U M

METRO

Date: October 6, 1997

To: Smith and Bybee Lakes Management Co.

From: Emily Roth, Wildlife Area Manager

RE: Recommendation from the Smith and Bybee TAC

The Smith and Bybee TAC met this morning from 9-noon to discuss using the herbicide Roundup® on three 1 acre experimental plots at St. Johns Landfill. After a lengthy and wide ranging discussion, the TAC recommends (Fishman, Bricker, Thompson, Newell, Sjulin, Spencer voted yes; O'Neil voted no):

Allowing the spraying of Roundup® as proposed by the consultant team of Wilson, Brophy and Wilson on page 5 of the *Establishment of Native Vegetation at St. Johns Landfill: proposed Phase 1 Work Guidelines and Cost Estimates (Draft)*, August 1997. Erosion control methods needs to be in place before spraying and the area around the plots should be checked to ensure there are no aquatic features nearby. A 100 foot buffer from any water was suggested.

TAC Members in attendance:
Jim Sjulin, Portland Parks
Steve Bricker, Portland Parks
Jennifer Thompson, USFWS
Tim Spencer, DEQ
Paul Fishman, Fishman Environmental Services
Avis Newall, DEQ
Stan Geiger, Shapiro and Assoc.

Others attending:
Emily Roth, Metro Parks and Greenspaces
Joanna Karl, Metro REM
Dennis O'Neil, Metro REM
Nancy Owen Myers, Private Consultant
Laura Brophy, Private Consultant
Mark Wilson, Private Consultant

Not attending, but sent or telephoned comments:
Carey Smith, USFW
Mary Abrams, City of Portland BES
Dana Field, OR Division of State Lands
Holly Michaels, ODFW

I will try to summarize the discussion, comments, and concerns expressed in the meeting by next week. The TAC will be meeting again on Thursday, Nov. 13 to discuss the bigger issue of herbicide use, site preparation and weed control policy at the St. Johns landfill.

c: Dan Kromer, Metro Parks and Greenspaces
Jim Watkins, Metro REM
Dennis O'Neil, Metro REM

c:\rothe\word\landfill\herbrec.doc

Cooper Mtn. Maps

to Emily Roth