

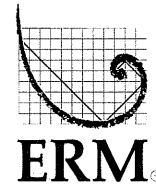
**Environmental
Resources
Management**

399 Boylston Street, 6th Floor
Boston, MA 02116
(617) 646-7800
(617) 267-6447 (fax)

<http://www.erm.com>

18 February 2005
Reference: 0026898

Mr. Benson R. Gould
CMG Environmental, Inc.
600 Charlton Street
Southbridge, MA 01550



Re: Response to Public Comments
Draft Water Quality Certification Closure
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts (the "Site")
RTN 3-13302; Tier IB Permit No. 133939

Dear Mr. Gould:

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) has prepared this letter providing responses to comments prepared by CMG Environmental, Inc. (CMG), consultant to the Town of Wayland, regarding the Draft Water Quality Certification Closure (WQCC), dated 20 December 2004. CMG's comment letter, dated 20 January 2005, contains three comments. This response letter includes each comment in italics and responses in plain text.

As further detailed below in Raytheon's response #1, Raytheon and ERM have requested to be included on the agenda for the Town of Wayland Conservation Commission (Commission) meeting to be held on 3 March 2005 to discuss the use of berms during the wetland sediment/soil excavation. In an effort to incorporate all the Town's comments in the WQCC, Raytheon will delay submitting the WQCC to the Massachusetts Department of Environmental Protection (Department) until after the 3 March 2005 meeting.

CMG's Comments:

I) Regarding the extent of wetlands excavation at the Site, ERM states "the total area excavated was approximately 2 acres." This is correct but imprecise. In keeping with the "original estimation of 1.7 acres," Wayland requests that you provide this information to at least two significant figures (three would be better,

since ERM has determined the total area excavated to at least that degree of accuracy). Section 2.4 of the November 24, 2004 Phase IV Completion Report for the Site indicates the total excavated in Area A, Area B, and Area C was 88,828 square feet, or 2.04 acres; however, this does not incorporate the 3,500 square feet of wetlands 'temporarily disturbed' by excavation to form an earthen berm around Area A and Area C. Thus the total area of wetlands disturbed by excavation was 92,328± square feet, or 2.12 acres.

Raytheon and ERM appreciate the detail to significant digits by the Town. The language in the WQCC was modified to read "the total wetland soil/sediment excavated in Area A, Area B, and Area C was 88,828 square feet, or 2.04 acres." Additionally, as stated in Section 2.4 of the Phase IV Completion Report (CR), dated 23 November 2004, a survey was completed of the final excavation area. Although not directly stated in the Phase IV CR, the "temporarily disturbed" wetlands were included in the final excavation area survey. The total area of wetlands disturbed by the wetland excavation was 2.04 acres.

The Town believes that this information is pertinent, since in Section 2.3.2 of their Phase IV Completion Report ERM asserts that "the creation of earthen berms to prevent erosion from flooding is acceptable under the Department Water Quality Certification." To wit, Special Condition 10 of the September 15, 2003 WQC states (in pertinent part): "The applicant shall be responsible for anticipating the need for and the installation of additional erosion controls during construction. Such controls may include ... berms." Therefore, Wayland requests that Raytheon note in the WQC Closure document that the professional judgment of your contractor dictated that construction of the earthen berm (and the concomitant disturbance of additional wetland area) was necessary to control erosion.

Raytheon and ERM believe the creation of earthen berms, as detailed in Section 2.3.2 of the Phase IV CR, were necessary to assure that the Comprehensive Remedial Action met the project design standards. The following statement, from Section 2.3.2 of the Phase IV CR, will be added to the WQCC, "As a result of high water levels, a modification to the flood protection procedure presented in the Phase IV Remedy Implementation Plan (RIP), dated 30 December 2002, was required. This modification included construction of temporary earthen berms around Excavation Areas A and C to prevent river water from entering these areas. The creation of earthen berms to prevent erosion from flooding is acceptable under the Department Water Quality Certification. Approximately 3,500 ft² of wetlands were temporarily disturbed as a

result of these activities. The use of earthen berms was not specifically included in the Phase IV RIP, however the modification was noted in Inspection Report #10, dated 27 February 2004, prepared for the Town of Wayland Conservation Commission. ERM believed it was necessary to construct earthen berms as a last measure to enable continuation of excavation activities, even though the Phase IV RIP indicated that they would be avoided, if possible.

Raytheon and ERM are aware of concerns regarding the use of berms during the wetland sediment/soil excavation which concluded in October 2004. Raytheon requested to be included on the agenda of the Commission meeting to be held on 3 March 2005 to discuss the use of berms with the Commission. In an effort to incorporate all the Town's comments in the WQCC, Raytheon will delay submitting the WQCC to the Massachusetts Department of Environmental Protection (Department) until after the 3 March 2005 meeting. Raytheon will continue to work with the Town and the PIP to resolve any issues and/or concerns as they are communicated.

II) Unlike areal extent, the WQC Closure is silent regarding comparing comparison of the total amount of wetland soil excavation (7,955 cubic yards) versus the amount called for in the original WQC (3,700 cubic yards). This appears to be a greater deviation from the original plan than the increase in areal extent was, since the actual volume excavated was 115% greater than proposed (versus a 25% increase in areal extent excavated). The Town requests that Raytheon provide a summary comparison of the final volume excavated versus the original estimate.

Raytheon and ERM appreciate the Town's concern regarding the total volume of wetland soil/sediment excavation material. As detailed in Section 2.2 of the Phase IV CR, Raytheon proposed an excavation of approximately 1.5 acres of wetland soil/sediment to an average depth of 1.5 feet belowground surface (bgs) (i.e., an estimated 3,700 cubic yards). As detailed in Section 2.4 of the Phase IV CR, the actual excavation consisted of 2.04 acres to an average depth of 2.4 feet bgs (i.e., 7,955 cubic yards). The increase in wetland soil/sediment volume excavated was a result of both an increased area and increased depth. The following is a comparison of the proposed and actual excavation volumes:

	Area of Excavation (acres)	Area of Excavation (square feet)	Average Depth of Excavation (feet)	Volume (cubic feet)	Volume (cubic yards)
Proposed Excavation Volume	1.5	65,340	1.5	98,010	3,630
Actual Excavation Volume	2.04 *	88,828 *	2.4 *	214,785 *	7,955

* Value calculated from final surveyed excavation volume (i.e., 7,955 cubic yards)

As described in Section 2.5.3 of the Phase IV CR, post-excavation verification sampling was conducted to ensure project design standards were met. Verification sampling was performed within grid cells to confirm the achievement of wetland soil/sediment concentrations at or below the clean-up goals for each contaminant of concern. Failure to meet the cleanup goals after an excavation of a grid cell prompted an increase in areal and/or vertical extent of excavation. This increase in vertical and areal extent, conducted in order to meet project design standards, resulted in the difference between proposed and actual excavation volume estimates.

A comparison of the proposed and actual excavation volumes will be included in the WQCC.

III) *Special Condition 8 of the WQC stipulates that any natural soil used for wetlands remediation must contain at least 12% organic carbon by weight, and manufactured soil must consist of equal volumes of organic and mineral materials. Furthermore, Special Condition 8 requires submittal of "a statement from a qualified individual" certifying the compliance of remediation soils to these requirements. No such statement is included in the WQC Closure, nor was Wayland made aware of any previous submittal of such a statement.*

Furthermore, the Town has not received any documentation of soil quality for the manufactured wetlands soil used in restoration to date. Section 2.7.1 of the Phase IV Completion report indicates the "engineered soil was a sandy loam with approximately 20 percent organic matter."

However, Section 3.2.1 of "The Wetland Remediation Site at the Former Raytheon Facility, Wayland, Massachusetts 2004 Wetlands Restoration Monitoring Report" prepared by Woodlot Alternatives, Inc. states the "soils used for restoration were a mixture of sand, loam, silt, clay, and 12% organic matter, which is consistent with the variable composition of floodplain soils." Section 7.2 of the February 2003 "Regulatory Permit Application for Wetlands Impacts Resulting from Remediation of Oils and Hazardous Materials in Sudbury River Floodplain Wetlands, Wayland, Massachusetts" indicated that "Manufactured soil will meet the specifications for high quality compost and soil material. These specifications stipulate that the soil must be free of weed seeds, have at least 12% organic content, be of a relatively balanced pH, be reasonably high in nutrient value, and not contain excessive salts."

Wayland requests that Raytheon provide documentation of laboratory analyses on the manufactured soil for percent organic matter, pH, nutrients, and salts in the final WQC Closure. The Town also requests that this document include a copy of the statement required pursuant to Special Condition 8.


Raytheon and ERM appreciate the Town's concern regarding the soil used during the wetland restoration. Raytheon is providing a Certification for Compliance for Wetland Soil (Certificate), prepared by Agresource Inc. of Amesbury, Massachusetts (Agresource), as Attachment A. This Certificate details the organic content (i.e., 12 percent), and the mixture of organic and mineral materials.

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Environmental
Resources
Management

If you have any questions or comments please, contact Mr. Edwin Madera of Raytheon at (978) 440-1813.

Sincerely,


John C. Drobinski, P.G., LSP
Principal-in-Charge


Jeremy J. Picard, P.G.
Project Manager

Attachment A - Certification of Compliance for Wetland Soil

cc: Mr. Edwin Madera, Raytheon Company, Sudbury, MA 01776

Public Repository, Wayland Public Library, Wayland, MA 01778

Public Repository, Board of Health Office, Wayland, MA 01778

Ms. Karen Stromberg, Massachusetts Department of
Environmental Protection - Northeast Region, One Winter Street,
Boston, MA 02108

Attachment A
Certification of Compliance for
Wetland Soil

AGRESOURCE - THE SOURCE FOR COMPOST**FILE COPY**

Date: 7/24/03**To:** Environmental Resources Management
Rachel Leary
Phone: 617-646-7841
Fax: 617-267-6447**From:** Agresource, Inc.
Tim J Gould
Phone: 800-313-3320
Fax: 978-388-4198**Pages:** 3

Subject:

Attached is lab data from a sample that was made for the Wayland wetland project. It is made from leaf compost and fine sandy loam to produce a high organic soil.

Please call with any questions.

Tim Gould



UNIVERSITY of
 MASSACHUSETTS

UMass Extension

Agroecology Program
 Soil and Plant Tissue
 Testing Laboratory
 West Experiment Station
 682 North Pleasant Street
 Amherst, MA 01003-9302
 413.545.2311
 413.545.1931 fax
<http://www.umass.edu/plsoils/soiltest>

TEXTURAL ANALYSIS RESULTS

Customer Name: Agresource, Inc.
 Tim Gould
 100 Main Street
 Amesbury, MA 01913

Sample ID: S030722-101

Customer Designation: Wetland Soil

USDA SIZE FRACTIONS

Main Fractions	Size (mm)	Percent
Sand	0.05-2.0	53.8
Silt	0.002-0.05	38.8
Clay	< 0.002	7.4
Total	< 2.0	100.0

PERCENT OF WHOLE SAMPLE PASSING

Size (mm)	Sieve #	%
2.00	#10	100
1.00	#18	94.1
0.50	#35	86.7
0.25	#60	78.4
0.10	#140	67.9
0.05	#270	58.5
0.02	20 um	48.4
0.005	5 um	34.2
0.002	2 um	28.6

Sand Fractions	Size (mm)	Percent
Very Coarse	1.0-2.0	7.7
Coarse	0.5-1.0	9.5
Medium	0.25-0.5	10.8
Fine	0.10-0.25	13.6
Very Fine	0.05-0.10	12.2
		53.8

Silt Fractions	Size (mm)	Percent
Coarse	0.02-0.05	13.2
Medium	0.005-0.02	18.4
Fine	0.002-0.005	7.2
		38.8

USDA Textural Class = fine sandy loam

Gravel Content = 22.8%

SOIL ANALYSIS REPORT FOR RESEARCH

07/24/03

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S030722-102
BAG NUMBER: 54864

SOIL WEIGHT: 4.99 g/5cc

AGRESOURCE
100 MAIN ST
AMESBURY, MA 01913

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: WETLAND SOIL
SOIL TYPE:

SOIL PH 7.7 ALUMINUM (AL): 23 PPM (Soil Range: 10-300)
BUFFER PH 7.2 ORGANIC MATTER: 12.6 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 30	XXXX	XX	XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
POTASSIUM (K) 976	XXXX	XX	XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
CALCIUM (CA) 3813	XXXX	XX	XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
MAGNESIUM (MG) 506	XXXX	XX	XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
AMMONIUM (NH4-N) 6	XXXX	XXXXXX		
NITRATE (NO3-N) 45	XXXX	XX		

CATION EXCH CAP 25.8 MEQ/100G PERCENT BASE SATURATION
K= 9 S MG=16.2 CA=74.2

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	2.7	0.1 - 2.0	Copper (Cu)	0.6	0.3 - 8.0
Manganese (Mn)	31.9	3 - 20	Iron (Fe)	8.8	1.0 - 40
Zinc (Zn)	5.0	0.1 - 70			

EXTRACTED LEAD (PB) 3 PPM ESTIMATED TOTAL LEAD IS 65 PPM.
EXTRACTED CADMIUM (CD) 0. PPM.
EXTRACTED NICKEL (NI) 0. PPM. EXTRACTED CHROMIUM (CR) 0.1 PPM.

COMMENTS