

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK
CITY OF PORTLAND

Please Read
Application And
Notes, if Any,
Attached

BUILDING DEPARTMENT

PERMIT

Permit Number: 040405

This is to certify that Oakhurst Dairy/Ledgewood

has permission to Foundation ONLY for a 1742 sq.ft. cook addition

AT 364 Forest Ave 114A F001001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is altered or closed-in. HEAVY NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS SEE#
Fire Dept. PREVIOUSLY APPROVED 040405
Health Dept. _____
Appeal Board _____
Other _____
Department Name _____

[Signature]
Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application
 389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 04-0405	Issue Date: APR 13 2004	CBL: 114A F001001
-----------------------	----------------------------	----------------------

Location of Construction: 364 Forest Ave	Owner Name: Oakhurst Dairy	Owner Address: 364 Forest Ave	Phone:
Business Name:	Contractor Name: Ledgewood Inc.	Contractor Address: 27 Main Street South Portland	Phone: 2077671866
Lessee/Buyer's Name	Phone:	Permit Type: Foundation Only/Commercial	Zone:

Past Use: Commercial/Oakhurst Dairy	Proposed Use: Foundation ONLY for a 17421 sq.ft cooler addition	Permit Fee:	Cost of Work: \$0.00	CEO District: 3
Proposed Project Description: Foundation ONLY for a 17421 sq.ft cooler addition		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <i>SEE # 040281</i>	INSPECTION: Use Group: <i>FOUNDATION ONLY</i> Type: <i>4/12/04</i> Signature: <i>[Signature]</i>	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____		

Permit Taken By: mjn	Date Applied For: 04/12/2004	Zoning Approval		
1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..		Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>SEE #040281</i>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date: _____	Historic Preservation <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: _____

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Planning Copy**

2003-0136
Application I. D. Number
7/7/2003
Application Date
Oakhurst Dairy Expansion
Project Name/Description

Oakhurst Dairy
Applicant
364 Forest Ave, Portland, ME 04101
Applicant's Mailing Address

Consultant/Agent
Applicant Ph: (207) 772-7468 Agent Fax:
Applicant or Agent Daytime Telephone, Fax

364 - 364 Forest Ave, Portland, Maine
Address of Proposed Site
114A F001001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): New Building Building Addition Change Of Use Residential Office Retail
 Manufacturing Warehouse/Distribution Parking Lot Other (specify) _____

17,534 s.f. Proposed Building square Feet or # of Units Acreage of Site **B2** Zoning

Check Review Required:

- | | | | |
|---|--|--|--|
| <input checked="" type="checkbox"/> Site Plan (major/minor) | <input type="checkbox"/> Subdivision # of lots _____ | <input type="checkbox"/> PAD Review | <input type="checkbox"/> 14-403 Streets Review |
| <input type="checkbox"/> Flood Hazard | <input type="checkbox"/> Shoreland | <input type="checkbox"/> Historic Preservation | <input type="checkbox"/> DEP Local Certification |
| <input type="checkbox"/> Zoning Conditional Use (ZBA/PB) | <input type="checkbox"/> Zoning Variance | | <input type="checkbox"/> Other _____ |

Fees Paid: Site Pla **\$500.00** Subdivision _____ Engineer Review **\$3,317.32** Date **3/26/2004**

Planning Approval Status:

Reviewer **Kandi Talbot**

- Approved **Approved w/Conditions** See Attached Denied

Approval Date **11/18/2003** Approval Expiration **11/18/2004** Extension to _____ Additional Sheets Attached

OK to Issue Building Permit **Kandi Talbot** signature **4/7/2004** date

Performance Guarantee **Required*** Not Required

* No building permit may be issued until a performance guarantee has been submitted as indicated below

<input checked="" type="checkbox"/> Performance Guarantee Accepted	<u>3/24/2004</u> date	<u>\$227,427.00</u> amount	<u>10/29/2006</u> expiration date
<input checked="" type="checkbox"/> Inspection Fee Paid	<u>3/24/2004</u> date	<u>\$4,548.54</u> amount	
<input type="checkbox"/> Building Permit Issue	_____ date		
<input type="checkbox"/> Performance Guarantee Reduced	_____ date	remaining balance	_____ signature
<input type="checkbox"/> Temporary Certificate of Occupancy	_____ date	<input type="checkbox"/> Conditions (See Attached)	_____ expiration date
<input type="checkbox"/> Final Inspection	_____ date	_____ signature	
<input type="checkbox"/> Certificate Of Occupancy	_____ date		
<input type="checkbox"/> Performance Guarantee Released	_____ date	_____ signature	
<input type="checkbox"/> Defect Guarantee Submitted	_____ submitted date	_____ amount	_____ expiration date
<input type="checkbox"/> Defect Guarantee Released	_____ date	_____ signature	

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

2003-0136
Application I. D. Number

7/7/2003
Application Date

Oakhurst Dairy
Applicant
364 Forest Ave, Portland, ME 04101
Applicant's Mailing Address

Consultant/Agent
Applicant Ph: (207) 772-7468 Agent Fax:
Applicant or Agent Daytime Telephone, Fax

Oakhurst Dairy Expansion
Project Name/Description

364 - 364 Forest Ave, Portland, Maine
Address of Proposed Site
114A F001001
Assessor's Reference: Chart-Block-Lot

Approval Conditions of Planning

- 1 1. That a Drainage Maintenance Agreement be submitted to the City prior to issuance of a building permit.
- 2 2. that a revised lighting photometric plan be submitted showing the entire property and minimize the amount of spillover onto the abutting property.
- 3 3. That the applicant obtain a 5-year lease from Palmer Springs prior to issuance of a building permit.
- 4 4. That the applicant provide an executed lease from Alpine Realty for a minimum of 5 years to be submitted prior to issuance of a building permit.
- 5 _____

Approval Conditions of Fire

- 1 Application requires State Fire Marshal approval.

**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Fire Copy**

2003-0136
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Oakhurst Dairy
Applicant
364 Forest Ave, Portland, ME 04101
Applicant's Mailing Address

7/7/2003
Application Date

Oakhurst Dairy Expansion
Project Name/Description

Consultant/Agent
Applicant Ph: (207) 772-7468 Agent Fax:
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364 - 364 Forest Ave, Portland, Maine
Address of Proposed Site
114A F001001
Assessor's Reference: Chart-Block-Lot

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 Manufacturing Warehouse/Distribution Parking Lot Other (specify) _____

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Acreage of Site _____

Check Review Required:

- | | | | |
|---|--|--|--|
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Fees Paid: Site Pla **\$500.00** Subdivision _____ Engineer Review **\$3,317.32** Date **3/26/2004**

Fire Approval Status:

Reviewer **Lt. MacDougal**

- Approved **Approved w/Conditions** See Attached Denied

Approval Date **7/17/2003** Approval Expiration **7/17/2004** Extension to _____ Additional Sheets Attached

Condition Compliance **Lt. MacDougal** **7/17/2003**
signature date

Performance Guarantee **Required*** **Not Required**

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<input checked="" type="checkbox"/> Inspection Fee Paid	3/24/2004 date	\$4,548.54 amount	
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<input type="checkbox"/> Defect Guarantee Released	_____ date	signature _____	

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

2003-0136
Application I. D. Number

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Applicant
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Consultant/Agent
Applicant Ph: (207) 772-7468 Agent Fax:
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7/7/2003
Application Date
Oakhurst Dairy Expansion
Project Name/Description

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Address of Proposed Site
114A F001001
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Approval Conditions of Fire

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**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Engineering Copy**

2003-0136
Application I. D. Number

Oakhurst Dairy
Applicant
364 Forest Ave, Portland, ME 04101
Applicant's Mailing Address

7/7/2003
Application Date

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Project Name/Description

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Applicant Ph: (207) 772-7468 Agent Fax:
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 Manufacturing Warehouse/Distribution Parking Lot Other (specify) _____

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Proposed Building square Feet or # of Units Acreage of Site **B2**
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<input type="checkbox"/> Zoning Conditional Use (ZBA/PB)	<input type="checkbox"/> Zoning Variance		<input type="checkbox"/> Other _____

Fees Paid: Site Pla \$500.00 Subdivision _____ Engineer Review \$3,317.32 Date 3/26/2004

Engineering Approval Status: Reviewer Tony

Approved Approved w/Conditions See Attached Denied

Approval Date 7/18/2003 Approval Expiration 7/18/2004 Extension to _____ Additional Sheets Attached

Condition Compliance _____ signature _____ date

Performance Guarantee Required* Not Required

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**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
DRC Copy**

2003-0136
Application I. D. Number

Oakhurst Dairy
Applicant
364 Forest Ave, Portland, ME 04101
Applicant's Mailing Address

7/7/2003
Application Date

Oakhurst Dairy Expansion
Project Name/Description

Consultant/Agent
Applicant Ph: (207) 772-7468 Agent Fax:
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17,534 s.f. Proposed Building square Feet or # of Units Acreage of Site **B2**
Zoning

Check Review Required:

- Site Plan (major/minor) Subdivision # of lots _____ PAD Review 14-403 Streets Review
 Flood Hazard Shoreland Historic Preservation DEP Local Certification
 Zoning Conditional Use (ZBA/PB) Zoning Variance Other _____

Fees Paid: Site Pla **\$500.00** Subdivision _____ Engineer Review **\$3,317.32** Date **3/26/2004**

DRC Approval Status:

Reviewer **Sebago Technic**

- Approved Approved w/Conditions See Attached Denied

Approval Date **11/18/2003** Approval Expiration **11/18/2004** Extension to _____ Additional Sheets Attached
 Condition Compliance **Kandi Talbot** **4/7/2004**
signature date

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Facilities Design & Construction Company
3904 Abel Drive, Columbia, PA 17512
(717)285-9442 Fax (717)285-3102
email: info@facilitiesdesign.com
www.facilitiesdesign.com

FACSIMILE TRANSMITTAL

To:	Mike Nugent	From:	Joe Shaffer
Fax Number:	207/874-8716	Date:	April 12, 2004
Project Name:	Oakhurst Dairy	Job Number:	0167.01

Number of pages including cover: 28

CONFIDENTIALITY NOTE:

The documents accompanying this telecopy transmission contain information, which may be confidential and/or legally privileged, from the construction firm Facilities Design, & Construction Company. The information is intended only for the use of the individual or entity named on this transmission sheet. If you are not the intended recipient you are hereby notified that any disclosure, copying, distribution or taking of any action in reliance on the contents of this information is strictly prohibited, and that the documents should be returned to this firm immediately. If you have received this in error, please notify us by telephone immediately at the number listed above; collect, so that we may arrange for the return of the original documents to us at no cost to you. The unauthorized disclosure, use, or publication of confidential or privileged information inadvertently transmitted to you may result in criminal and/or civil liability.

Mike,

You will see on the attached note that I had attempted to fax the soils report on 3-31-04. The fax must not have gone thru. Attached is a copy of the report.

Joe

"Master Builders" Engineer-led design and construction

**Report
of
GEOTECHNICAL INVESTIGATION
for
COOLER ADDITION TO OAKHURST DAIRY
PORTLAND, MAINE**

**Prepared
for
PINKHAM & GREER CONSULTING ENGINEERS, INC.
FALMOUTH, MAINE**

**Prepared
by
R. W. GILLESPIE & ASSOCIATES, INC.
SACO, MAINE**

RWG&A Project No. 277-81

July 2003

R. W. Gillespie & Associates, Inc.

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 SUBSURFACE EXPLORATIONS	2
3.0 LABORATORY TESTING	2
4.0 SUBSURFACE CONDITIONS	3
4.1 Subsurface Soils	3
4.2 Groundwater	3
5.0 EVALUATION OF GEOTECHNICAL DATA	4
5.1 General	4
5.2 Foundation	4
5.3 Use of On-site Material	4
5.4 Corrosion Potential of On-site Soils	4
6.0 RECOMMENDATIONS	4
6.1 Site Preparation	5
6.2 Foundations	6
6.3 Ground Floor Slabs	7
6.4 Foundation Drainage	7
6.5 Below Grade Walls	7
6.6 Pavements	8
6.7 Temporary Excavations	8
6.8 Geotechnical Observation	9
7.0 CLOSURE	10

FIGURES:

- Figure 1. Locus Map
- Figure 2. Exploration Location Plan

APPENDICES:

- Appendix A. Exploration Logs
- Appendix B. Laboratory Test Results

R. W. Gillespie & Associates, Inc.

1.0 INTRODUCTION

Oakhurst Dairy is located at 364 Forest Avenue in Portland, Maine, as shown on Figure 1, *Site Locus Map*. The proposed cooler addition will be located at the southeast side of the Oakhurst Dairy building in a paved parking area formerly occupied by a Pizza Hut restaurant.

Topography dips slightly to the south and east. Construction is expected to be steel frame and masonry with ground floor level at a loading dock height about 3 feet above existing grade. Eave height will be typically 14 to 20 feet. Based on structural loading information provided by Pinkham & Greer Consulting Engineers, Inc., and Facility Design, Inc., it is understood that plan area of the cooler is approximately 15,000 square feet, and column loads are anticipated at 80 to 170 kips. Interior storage rack loads are anticipated at 25 to 45 kips.

Subsurface explorations were made to obtain site-specific subsurface information and develop laboratory testing data to make foundation and site development evaluations for the proposed addition. As performed, R.W. Gillespie & Associates, Inc.'s (RWG&A) scope of work included the following items.

1. Drilled, logged, and sampled five test borings within and near the proposed addition.
2. Performed laboratory soil tests consisting of moisture content, grain-size, Atterberg Limits, pH, and resistivity tests on representative soil samples.
3. Reviewed the following information:
 - *Site Plan Oakhurst Dairy Portland, Maine* prepared by Pinkham & Greer Consulting Engineers, Inc., date 23 June 2003.
 - *Rack Loading Information* prepared by Facility Design, Inc., dated 26 June 2003.

Evaluated the acquired field, laboratory and design information with respect to the proposed addition. Emphasis was placed on foundation types and allowable loads, anticipated settlement, slab subgrade preparation, foundation drainage, frost protection, parameters for below grade wall design, and pavement sections. The seismic site coefficient was also evaluated in the process.

4. Prepared this report of geotechnical investigation presenting the results and conclusions of our work, and soil and foundation recommendations for design and construction of the cooler addition.

R. W. Gillespie & Associates, Inc.

Page 2 of 10

2.0 SUBSURFACE EXPLORATIONS

The subsurface exploration program consisted of five test borings advanced to depths ranging from 17.5 to 24.5 feet below local ground surface. Borings were drilled on 19 June 2003, by Great Works Pump & Test Boring, Inc., of Rollinsford, New Hampshire, using a truck mounted, B-59, rotary drill rig. Split-barrel sampling with standard penetration testing (*ASTM D1586, Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils*) was performed at about 5-foot intervals from the ground surface. The borings were advanced with solid stem augers and driven casing.

Exploration activities were monitored by RWG&A personnel. The soils were described in general accordance with *ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Logs of the explorations are included in Appendix A of this report. Stratification lines shown on the exploration logs represent the approximate boundaries between the different soil types encountered; the actual transitions will be more gradual and may vary over short distances.

The explorations were located by taping or pacing from fixed physical features by RWG&A; see Figure 2, *Exploration Location Plan*, for exploration designations and locations. Figure 2 was developed from the *Site Plan Oakhurst Dairy Portland, Maine* prepared by Pinkham & Greer Consulting Engineers, Inc., dated 23 June 2003. Exploration locations provided in this report are approximate and should be considered accurate only to the degree implied by the methods used to determine them.

3.0 LABORATORY TESTING

All samples were visually examined and, when necessary, reclassified using the procedures of the *ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*. A laboratory testing program was performed to provide data for use in soil classification and determination of geotechnical engineering properties of the soils. The program consisted of 10 water contents, one grain-size analysis, one Atterberg Limits, one soil resistivity, and one pH of soil. The tests were performed in accordance with the following methods and procedures:

- *ASTM D422, Standard Test Method for Particle-Size Analysis of Soils*
- *ASTM D2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*
- *ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils*

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 3 of 10

- *AASHTO Designation T 288, Standard Method of Test for Determining Minimum Laboratory Soil Resistivity*
- *AASHTO Designation T 289, Standard Method of Test for Determining pH of Soil for Use in Corrosion Testing*

Results of the laboratory tests are presented in Appendix B, Laboratory Test Results.

4.0 SUBSURFACE CONDITIONS**4.1 Subsurface Soils**

Five distinct units were encountered in the explorations: asphalt, fill, topsoil, silty clay, and sand. Generalized soil descriptions with encountered thicknesses are provided below; please refer to the exploration logs for detailed descriptions at specific locations.

<u>Soil Unit</u>	<u>Thickness (feet)</u>	<u>Description</u>
Bituminous Concrete	0.42 to 0.50	Asphalt pavement.
Topsoil	1.12	Topsoil and organic material.
Fill	0.40 to 3.4	Silty sand to silty sand with gravel, loose to medium dense, moist; medium to fine sand, some to trace silt, some to trace gravel, brown.
Silty Clay (CL)	13.5 to 17.7	Silty clay, hard to soft, moist to wet, olive brown to gray, stratified sand seams with depth.
Sand (SP)	2.5 to 5.5	Sand, medium dense, wet, medium to fine sand, trace silt, brown.

Refusal surfaces were encountered on possible bedrock in all of the explorations.

4.2 Groundwater

Free water was observed in all the explorations at a depth of approximately 6 to 7 feet below local ground surface. Groundwater levels at the site will fluctuate due to location, elevation, season, temperature, rainfall, and construction activity in the area; therefore, water levels during and following construction will vary from levels estimated in the explorations.

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 4 of 10

5.0 EVALUATION OF GEOTECHNICAL DATA**5.1 General**

Engineering evaluations for this project are based on the subsurface explorations, laboratory testing data, and conceptual construction information currently available to RWG&A. Should differing information become known prior to or during construction, these evaluations should be reviewed by RWG&A to confirm their continued applicability.

5.2 Foundation

The site is considered appropriate for construction of the proposed cooler addition from a geotechnical standpoint. Subsurface conditions are suitable for the use of shallow foundations consisting of spread footings and slab-on-grade ground floors. The footings and slabs may bear on the naturally deposited inorganic soils or compacted structural fill extending to undisturbed naturally deposited inorganic soils. Post-construction settlements are anticipated to be about one inch. Foundation drainage is recommended to reduce water levels around and within the area of the proposed addition.

5.3 Use of On-site Material

All fill material on the site should be removed. It is anticipated that the gravelly sand fill directly beneath the asphalt pavement could be stockpiled and tested for use as structural fill. The silty sand fill located near the old Pizza Hut building should not be used as structural fill.

5.4 Corrosion Potential of On-site Soils

Soil is considered to be corrosive if it has one or more of the following properties: a pH value less than 4.5, resistivity less than 2,000 ohm-centimeter, and/or if sulfates are present. A pH of 6.7 and a resistivity of 2500 ohm-centimeter were determined when testing samples B-2, S-2 and B-3, S-2 combined together. The pH value indicates the soil is neutral and the resistivity value is very close to the limit where the soil would be considered corrosive.

6.0 RECOMMENDATIONS

Recommendations pertaining to foundation design and construction and site development are presented in the following sections. Foundation requirements and site development considerations are significantly affected by the subsurface conditions present at the proposed cooler addition. RWG&A recommends that foundation design and construction be in accordance with all applicable codes. It is understood the city of Portland currently uses the *BOCA National Building Code/ 1999*.

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 5 of 10

6.1 Site Preparation

1. All topsoil, organic material, fill, utilities, and other structures should be removed within and below the limits of the proposed cooler addition.
2. Fill placed within the addition footprint beneath footings and floor slabs should consist of only compacted structural fill.
3. Structural fill should be a well-graded sand and gravel mixture meeting the following gradation requirements:

Screen or Sieve Size	Percent Passing
6 inches	100
3 inches	75 to 100
No. 4	35 to 70
No. 40	5 to 35
No. 200	0 to 5

Note: Maximum particle size limited to 3 inches within 2 feet of foundation walls, footings, and floor slabs, or if compacted by hand-guided equipment.

4. In open areas, structural fill should be placed in level, uniform lifts not exceeding 9 inches in uncompacted thickness and be compacted with self-propelled compaction equipment. In confined areas, structural fill should be placed in lifts not exceeding 6 inches in uncompacted thickness (note: maximum particle size 3 inches) and be compacted with hand-operated compaction equipment. Structural fill should be compacted to at least 95 percent of the maximum dry density as determined by *ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))*.

Compaction with large roller compactors might produce vibrations that are noticeable to vibration sensitive equipment and occupants of the nearby buildings. It is recommended that this issue be reviewed with abutters prior to construction.

5. Site grading should provide positive drainage away from constructed facilities both during and after construction.
6. Dewatering requirements will vary at the site based on groundwater levels encountered during construction. In general, it should be practicable to accomplish construction

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 6 of 10

dewatering from within excavations by open pumping methods. Surface runoff and infiltration of groundwater should be controlled so that excavation, filling, and foundation construction can be completed in the dry.

6.2 Foundations

7. The proposed addition may be supported on spread and/or continuous footings bearing on compacted structural fill or undisturbed, naturally deposited, inorganic soil. Footings should be designed for a maximum contact pressure of 3 kips per square foot. For footings with bearing areas having a least lateral dimension smaller than 3 feet, the allowable bearing pressure shall be 1/3 of the above maximum times a footing's least lateral dimension in feet. Minimum footing width should be in accordance with concrete design and building codes, and not less than 2 feet. Existing fill is not suitable for structural support and should be removed and replaced with compacted structural fill.
8. Excavators equipped with smooth edged buckets should be used during footing excavation to minimize disturbance to the clay subgrade. The exposed subgrade should be protected from further disturbance, moisture, and freezing until the footings are placed. Areas where fill is encountered should be over excavated to undisturbed soil and replaced with compacted structural fill. Any soft areas or areas where moisture has accumulated should be excavated and replaced with compacted structural fill.
9. Exterior footings should be founded at least 4 feet below adjacent ground surface for frost protection. Footings at heated interior locations may be founded at a minimum depth of 18 inches below adjacent finished floor elevation. If the interior of the building will be exposed to freezing temperatures for extended periods, either during construction or in service, the interior footings should be founded at the same depth as the exterior footings.
10. The integrity of natural soils and structural fill must be maintained during cold weather conditions. Footing and slab subgrades should not be allowed to freeze. The naturally deposited soils are considered highly frost-susceptible. Freezing of subgrade soils beneath footings and floor slabs may result in frost heaving and post-construction settlement. The Contractor should make every effort to prevent freezing of subgrade soils. In the event frost penetration occurs, structural fill or naturally deposited soils should be removed and replaced to the depth of the frozen soils.
11. The building foundation should be designed to withstand lateral, uplift, and overturning forces due to earthquakes. In accordance with the *BOCA National Building Code/ 1999.*, the soil profile type at the site is classified as S2.

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 7 of 10

12. Lateral foundation loads from wind and earthquake may be resisted by friction between the bottom of the spread footing and bearing subgrade. A friction coefficient of 0.35 is recommended for use in design.

6.3 Ground Floor Slabs

13. Ground floor slabs may be slab-on-grade construction bearing on a minimum 12 inch thickness of structural fill. Fill used to raise site grade beneath slabs should be structural fill. A subgrade modulus of 300 kips per cubic foot should be used for design. Where point loads are present due to storage rack loads, an increased value of 450 kips per cubic foot may be used.
14. A vapor barrier should be installed beneath interior ground floors to minimize moisture infiltration. It is anticipated that details of the type, thickness, depth, bedding, and cover of the vapor barrier will be provided by the Architect or Structural Engineer.

6.4 Foundation Drainage

15. Perimeter footing drains should be provided. The perimeter drain should be installed at an elevation equal to the bottom of the exterior footings.
16. A minimum of two outlets should be provided for the perimeter drain such that reliance is not placed on a single drainage path. The outlet should provide free flow of water under all runoff conditions. Roof drains should not be connected to the foundation drainage system.

6.5 Below Grade Walls

17. Design Criteria for Cast-in-Place Concrete Walls:

Recommended soil parameters for use in design of cast-in-place concrete below grade walls are listed below.

Unit weight of silty clay (γ)	= 110 pounds per cubic foot
Buoyant unit weight of silty clay (γ')	= 50 pounds per cubic foot
At rest lateral earth pressure coefficient (K_0)	= 0.5
Active earth pressure coefficient (K_a)	= 0.4
Passive earth pressure coefficient (K_p)	= 2.5

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 8 of 10

Unit weight of backfill soil (γ)	= 130 pounds per cubic foot
Buoyant unit weight of backfill soil (γ')	= 70 pounds per cubic foot
At rest lateral earth pressure coefficient (K_0)	= 1.0
Active earth pressure coefficient (K_a)	= 0.33
Passive earth pressure coefficient (K_p)	= 3.0

6.6 Pavements

18. The parking lot and high traffic areas should be provided with the following pavement sections.

Component	Thickness (inches)	
	Automobile Parking	High Traffic
Asphaltic Concrete (703.09 Grading C)	1	1
Asphaltic Base (703.09 Grading B)	2	2
Base Course (703.06 Type A Aggregate)	4	6
Subbase (703.06 Type D Aggregate)	12	12
Total	19	21

Materials and placement methods should meet current Maine Department of Transportation requirements.

6.7 Temporary Excavations

19. The Owner and Contractor should make themselves aware of and become familiar with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety is considered the responsibility of the Contractor who is solely responsible for the means, methods, and sequencing of construction operations. Under no circumstances should the information provided below be interpreted to mean that RWG&A is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.
20. We anticipate that footing excavations can generally be accomplished using sloped, open-cut techniques. Care should be taken during excavation along property lines to prevent disturbing existing walls on neighboring properties. It is anticipated that temporary earth support will be needed at the south end of the segmental wall to retain the stone and cast-

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 9 of 10

in-place concrete walls that will remain. Excavations that extend below groundwater are anticipated to require dewatering. We anticipate dewatering can be accomplished by the use of sumps and open pumping.

The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety regulations, (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926) or successor regulations. Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractor could be liable for substantial penalties.

As a safety measure, it is recommended that all vehicles and spoil piles be kept a minimum lateral distance from the crest of the slope equal to no less than 100 percent of the slope height. The exposed slope face should be protected against the elements.

RWG&A should be retained to monitor the soils exposed in all excavations and provide engineering services for such slopes. This will provide an opportunity to monitor for such types encountered and to modify the excavation slopes, as necessary. It also offers an opportunity to verify the stability of the excavation slopes during construction.

6.8 Geotechnical Observation

21. Since these geotechnical recommendations have been developed using limited numbers of observations and tests, the Owner should be sensitive to the potential need for adjustment in the field. It is in the best interest of the Owner to retain RWG&A to observe geotechnical construction aspects of the project, observe general compliance with the design concepts, specifications, and recommendations, and to assist in development of design changes should subsurface conditions differ from those anticipated prior to the start of construction. Such observation increases the likelihood of the design intent being carried out during construction and will allow RWG&A to confirm its design recommendations.

The Owner should recognize that unanticipated or changed conditions may be encountered during any earthworks construction. It is therefore recommended that the Owner retain RWG&A to observe construction. RWG&A would assign qualified personnel to observe and report on the quality of work performed by the earthwork contractor. Construction observation is a technique employed to minimize the risk of problems arising during construction. It is not insurance, nor does it constitute a warranty or guarantee of any type. In all cases, contractors retain responsibility for the quality of their work and for adhering to plans and specifications. Should RWG&A not be retained to perform observations during the full period of construction, RWG&A would not have had the opportunity to perform a complete service.

RWG&A Project No. 277-81

08 July 2003

R. W. Gillespie & Associates, Inc.

Page 10 of 10

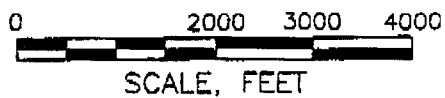
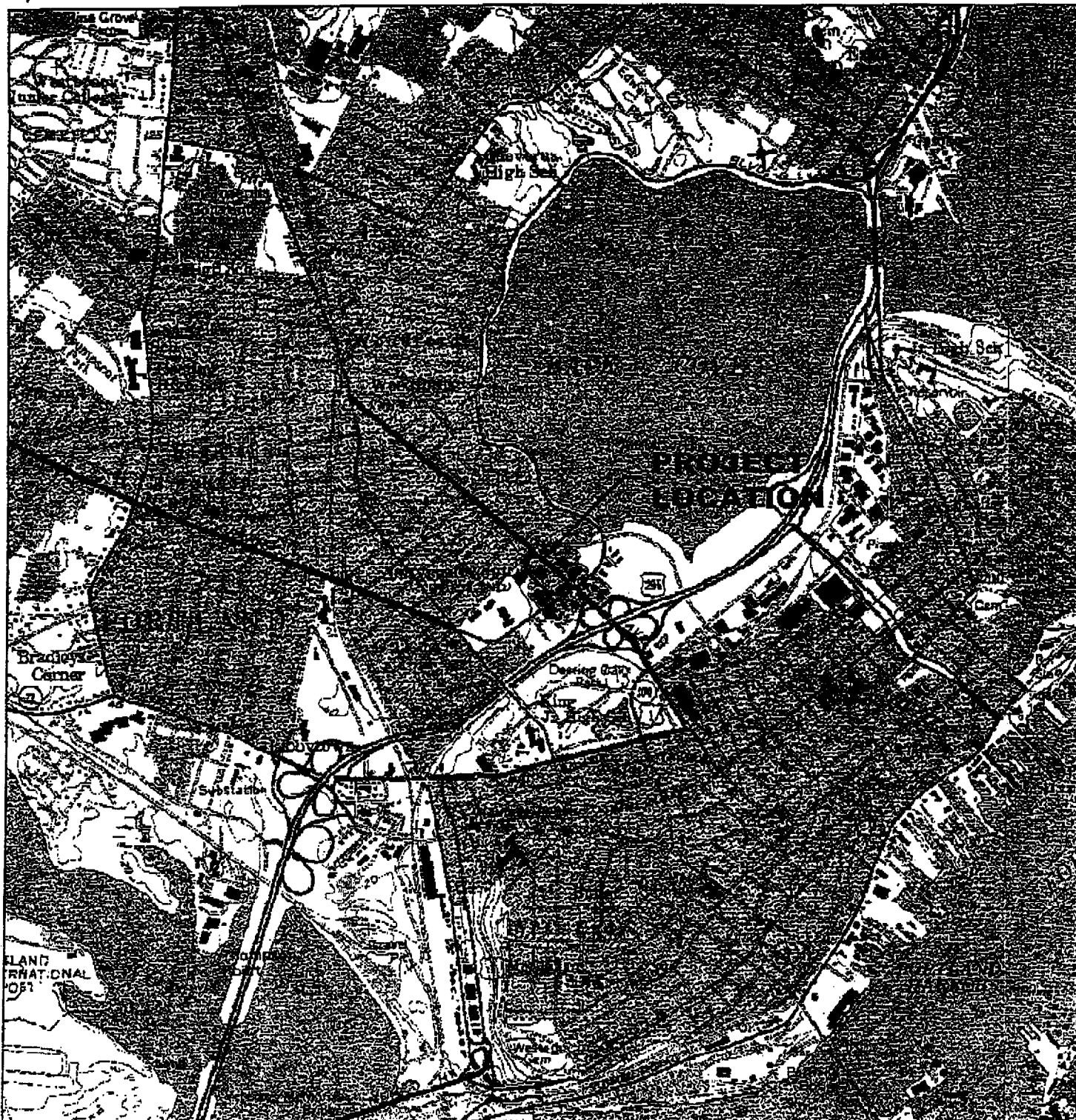
7.0 CLOSURE

This report has been prepared for specific application to the cooler addition at Oakhurst Dairy in Portland, Maine, and for the exclusive use of Pinkham & Greer Consulting Engineers, Inc. This work has been completed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. In the event any changes are made in the nature or location of the building, the conclusions and recommendations of this report should be reviewed by RWG&A.

The recommendations presented are based on the results of widely spaced explorations. The nature of variations between the explorations may not become evident until construction. If variations are encountered, it will be necessary for RWG&A to re-evaluate the recommendations presented in this report. RWG&A requests an opportunity for a general review of the final design and specifications in order to determine that earthwork and foundation recommendations have been interpreted in the manner in which they were intended.

RWG&A Project No. 277-81

08 July 2003



SOURCE:
 USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE
 OF PORTLAND WEST, ME, DATED 1978.

FIGURE 1
 LOCUS MAP
 COOLER ADDITION TO OAKHURST DAIRY
 PORTLAND, MAINE

JULY 2003

PROJECT NO. 277-81



R.W. Gillespie & Associates, Inc.
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R. W. Gillespie & Associates, Inc.

APPENDIX A

EXPLORATION LOGS

Geotechnical Investigation
Cooler Addition to Oakhurst Dairy
Portland, Maine

RWG&A Project No. 277-81

08 July 2003

BORING LOG B-1

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 26'
 Ground Water Depth: 6'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
0		S-1	TOPSOIL AND ORGANIC MATERIAL (14 inches).	10	1 1 2 3	3		
2.5			FILL: Silty Sand to Sand, loose, moist to wet, medium to fine sand, some to little silt, trace gravel, brown.					
5		S-2	SILTY CLAY (CL); hard, moist, olive brown. Pocket Penetrometer: Undrained Shear Strength, $S_u = 4.5$ ksf.	24	10 10 14 16	24		
7.5								
10		S-3	Pocket Penetrometer: Undrained Shear Strength, $S_u = 2.0$ to 2.25 ksf.	24	5 5 6 7	11		
12.5								
15		S-4	Becomes medium stiff, wet, gray, stratified with thin sand seems (2-4"). -GLACIAL MARINE DEPOSITS-	24	1 1 2 3	3		
17.5								

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Project: Cooler Addition to Oakhurst Dairy
Location: Portland, Maine

Approximate Surface Elevation: 26'
Ground Water Depth: 6'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	SAMPLE #	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests												
				<p>Probed with "A" rod and blow count from 18' to 23'. SAND (SP); logged from change in probe resistance and blow count.</p> <table border="1"> <thead> <tr> <th>Depth per ft.</th> <th>Blows per ft.</th> </tr> </thead> <tbody> <tr><td>18.0 - 19.0</td><td>20.0</td></tr> <tr><td>19.0 - 20.0</td><td>51.0</td></tr> <tr><td>20.0 - 21.0</td><td>41.0</td></tr> <tr><td>21.0 - 22.0</td><td>40.0</td></tr> <tr><td>22.0 - 23.0</td><td>67.0</td></tr> </tbody> </table>	Depth per ft.	Blows per ft.	18.0 - 19.0	20.0	19.0 - 20.0	51.0	20.0 - 21.0	41.0	21.0 - 22.0	40.0	22.0 - 23.0	67.0					
Depth per ft.	Blows per ft.																				
18.0 - 19.0	20.0																				
19.0 - 20.0	51.0																				
20.0 - 21.0	41.0																				
21.0 - 22.0	40.0																				
22.0 - 23.0	67.0																				
				Bottom of Exploration at 23': probe refusal.																	
20																					
22.5																					
25																					
27.5																					
30																					
32.5																					
35																					

R.W. Gillespie & Associates
Saco, Maine

BORING LOG B-2

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 25.3'
 Ground Water Depth: 6'±

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
0		S-1	ASPHALTIC PAVEMENT (5 inches).	22	7	23		PH RESIS
			FILL: Silty Sand with Gravel, loose, moist, medium to fine sand, little silt, little to trace gravel, brown.		9			
			SILTY CLAY (CL); hard, moist, olive brown. Pocket Penetrometer: Undrained Shear Strength, Su = 4.5+ ksf.		14			
5		S-2	Pocket Penetrometer: Undrained Shear Strength; Su = 4.0 ksf.	24	8	16		
					7			
					8			
10		S-3	Becomes medium stiff, wet, stratified with thin (2" to 4") sand seams. -GLACIAL MARINE DEPOSITS-	24	3	6		
					3			
					3			
					2			
15		S-4	SAND (SP); medium dense, wet, medium to fine sand, trace silt, brown.	20	13	17		
					5			
		S-5	Bottom of Exploration at 17.5': spoon refusal.	6	12	40+		
					13			
					15			
					25/			
					0"			
20								
25								
30								
35								

R.W. Gillespie & Associates
 Saco, Maine

BORING LOG B-3

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 26.8'
 Ground Water Depth: 6'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
0			ASPHALTIC PAVEMENT (5")					
0 - 2.5		S-1	FILL: Gravelly Sand, medium dense, moist, medium to fine sand, little gravel, trace silt, brown. SILTY CLAY (CL); hard, moist, olive brown.	20	12 9 8 9	17	23	PH RESIS
2.5 - 5		S-2	Pocket Penetrometer: Undrained Shear Strength: Su = 3 - 3.5 ksf.	24	5 7 10 12	17	29	
5 - 7.5		S-3	Pocket Penetrometer: Undrained Shear Strength, Su = 2.25 ksf.	24	4 4 6 6	10	31	
7.5 - 12.5		U-1		24/ 24				
12.5 - 15		S-4	Becomes medium stiff, wet, gray, stratified with thin (2-4") sand seems. -GLACIAL MARINE DEPOSITS-	24	2 1 2 1	3	29	
15 - 17.5								

R.W. Gillespie & Associates
 Saco, Maine

BORING LOG B-3

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 26.8'
 Ground Water Depth: 6'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
20		S-5	SAND (SP); medium dense, wet, medium to fine sand, trace silt, brown.	20	8 9 8 12	17	23	
22.5								
25			Bottom of Exploration at 24.5'; auger refusal.					
27.5								
30								
32.5								
35								

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BORING LOG B-4

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 28.5'
 Ground Water Depth: 7'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
0			ASPHALTIC PAVEMENT (6").					
0 - 2.5		S-1	FILL: Gravelly Sand, loose, moist, medium to fine sand, some gravel, trace silt, brown.	4	3 1 2 5	3	3	
2.5 - 5			SILTY CLAY (CL); hard, moist, olive brown. Pocket Penetrometer: Undrained Shear Strength, Su = 4.5+ ksf.					
5 - 7.5		S-2		24	7 10 13 14	23	26	
7.5 - 10								
10 - 12.5		S-3	Pocket Penetrometer: Undrained Shear Strength, Su = 2 - 2.5 ksf.	24	4 6 5 7	11	27	
12.5 - 15								
15 - 17.5		S-4	Becomes medium stiff, wet, gray, stratified with thin (1-3") sand seems. -GLACIAL MARINE DEPOSITS-	24	1 1 1 1	2	26	

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BORING LOG B-4

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 26.5'
 Ground Water Depth: 7'

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
20			SAND (SP); (logged from cuttings).					
22.5			Bottom of Exploration at 22.5'; auger refusal.					
25								
27.5								
30								
32.5								
35								

R.W. Gillespie & Associates
 Saco, Maine

BORING LOG B-5

Project: Cooler Addition to Oakhurst Dairy
 Location: Portland, Maine

Approximate Surface Elevation: 27.5'
 Ground Water Depth: 7'±

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 8"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
0			ASPHALTIC PAVEMENT (5 inches).					
0 - 2.5		S-1	FILL: Gravelly Sand, loose to medium dense, moist, medium to fine sand, little gravel, trace silt, brown.	14	5 6 4 4	10		
2.5 - 5			SILTY CLAY (CL); hard, moist, olive brown. Pocket Penetrometer: Undrained Shear Strength, Su = 4.5 ksf.					
5 - 7.5		S-2		24	3 8 12 13	20	29	GS AL
7.5 - 10								
10 - 12.5		S-3	Becomes medium stiff, wet, statified with thin (1/2 to 2") sand seams.	24	4 4 7 6	11		
12.5 - 15								
15 - 17.5		S-4	Becomes, wet, gray. -GLACIAL MARINE DEPOSITS-	24	1 1 4 15	5		
		S-5	SAND (SP); medium dense, wet, medium to fine sand, little to trace silt, brown.	24	3 11	21		

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 Saco, Maine

BORING LOG B-5

Project: Cooler Addition to Oakhurst Dairy
Location: Portland, Maine

Approximate Surface Elevation: 27.5'
Ground Water Depth: 7'±

Client: Pinkham & Greer

Date: 19 June 2003

Project No. 277-81

DEPTH, FT.	SYMBOL	SAMPLES	SAMPLE #	DESCRIPTION OF MATERIAL	SAMPLE RECOVERY, IN.	BLOWS PER 6"	SPT-N BLOWS PER FT.	MOISTURE CONTENT	Lab Tests
						10			
						11			
20				Bottom of Exploration at 20.1: anger refusal.					
22.5									
25									
27.5									
30									
32.5									
35									

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APPENDIX B

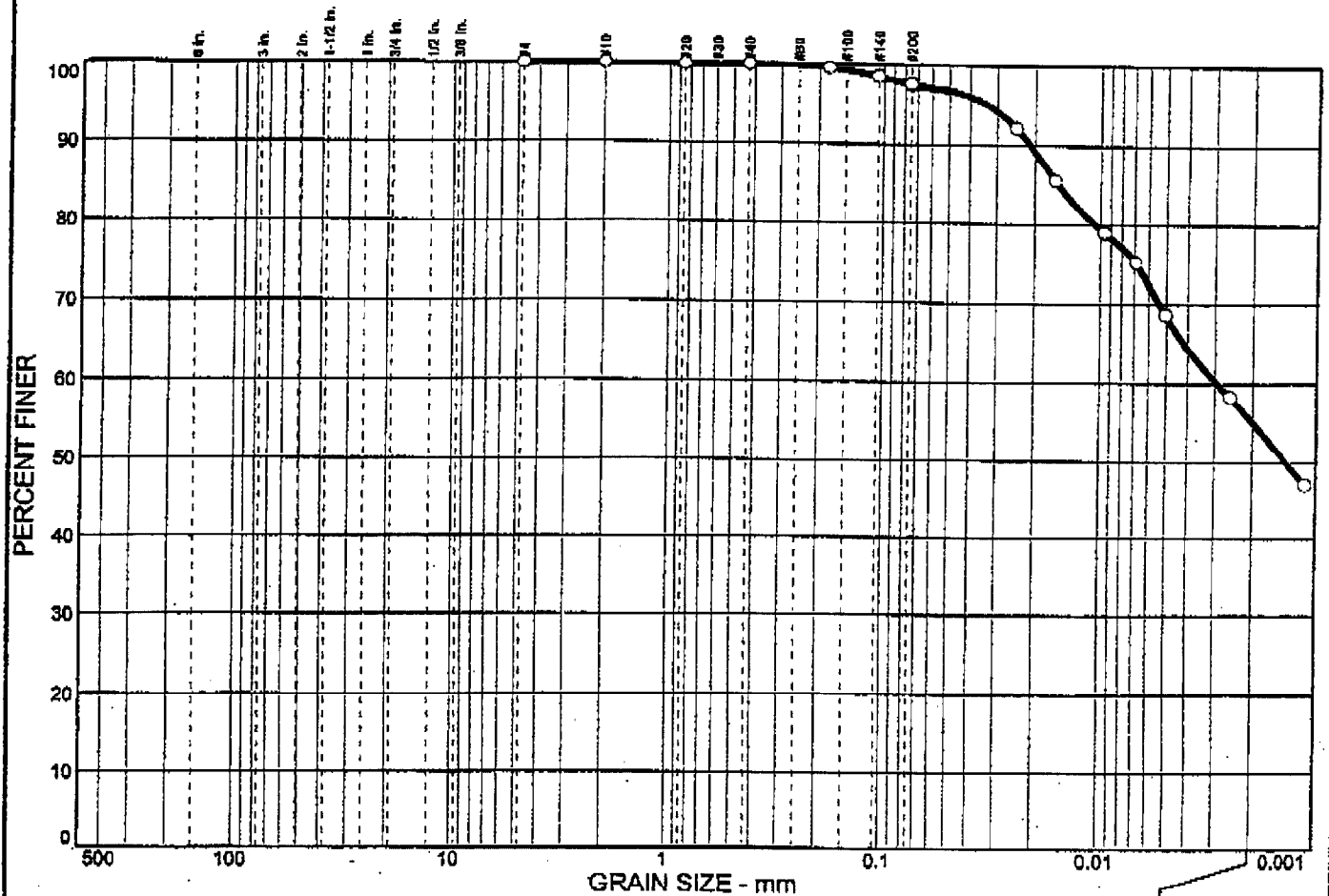
LABORATORY TEST RESULTS

Geotechnical Investigation
Cooler Addition to Oakhurst Dairy
Portland, Maine

RWG&A Project No. 277-81

08 July 2003

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	2.4	42.5	55.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#80	99.6		
#140	98.5		
#200	97.6		

Soil Description
Lean Clay

Atterberg Limits
PL= 23 LL= 47 PI= 24

Coefficients
D₈₅= 0.0155 D₆₀= 0.0029 D₅₀= 0.0014
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= CL AASHTO=

Remarks
Moisture Content 26.9%
Tested by AMA

* (no specification provided)

Sample No.: 2
Location: Portland, ME

Source of Sample: B-5

Date: 6/19/2003
Elev./Depth: 5-7'

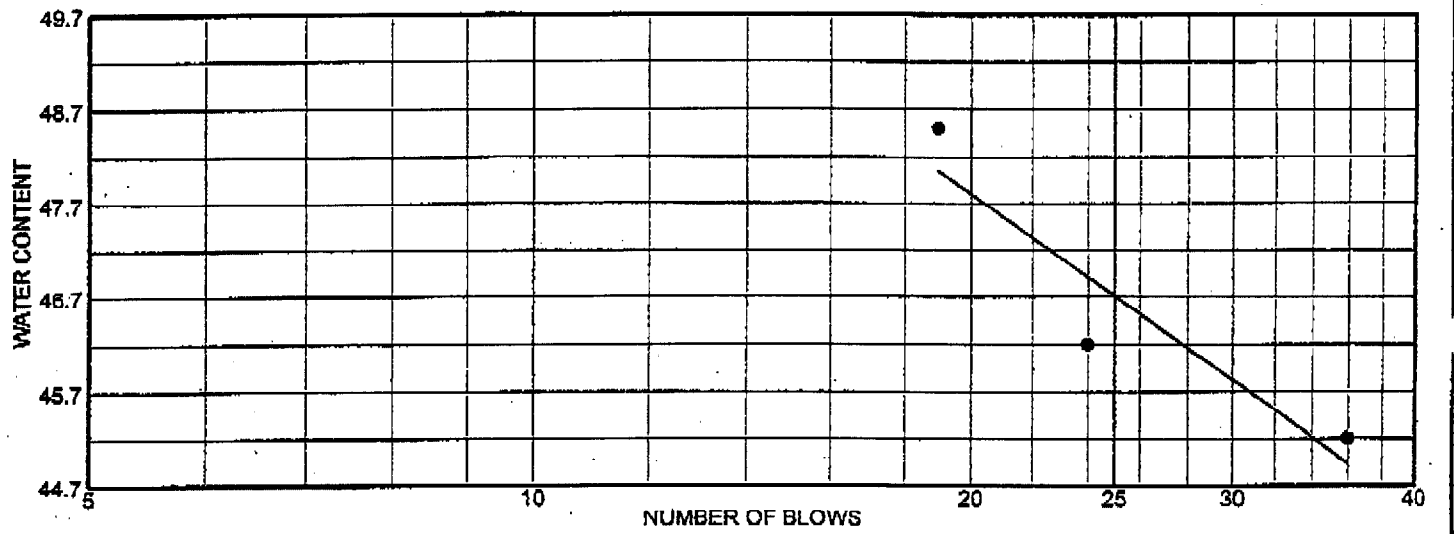
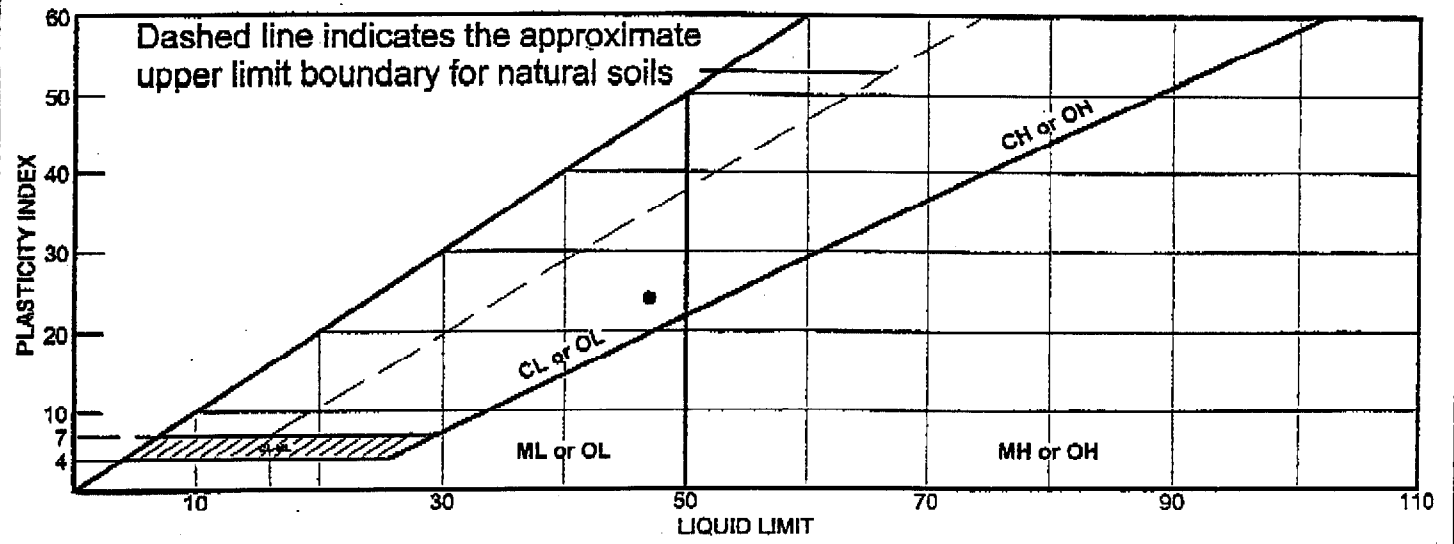
R.W. Gillespie & Associates, Inc.

Client: Pinkham & Greer Consulting
Project: Cooler Addition to Oakhurst Dairy

Project No: 277-81

Plate 6682B

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
• Lean Clay	47	23	24	100.0	97.6	CL

Project No. 277-81 **Client:** Pinkham & Greer Consulting
Project: Cooler Addition to Oakhurst Dairy
Location: Portland, ME

Remarks:
 • Tested by AMA

LIQUID AND PLASTIC LIMITS TEST REPORT
R.W. Gillespie & Associates, Inc.

Plate 6682A