

July 7, 2016

Fish Creek Excavating Stone Products and Recycling  
7515 – 84 Street SE  
Calgary, AB T2C 4Y1

ISSUED FOR USE  
FILE: 704-ENG.CMAT03037-02.001  
Via Email: jgordon@fishcreekex.com

**Attention:** Mr. Jeff Gordon

**Subject:** Durability Index Testing  
Limestone Rock Sample – Nordegg Quarry  
Nordegg, Alberta

## 1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) has completed the material testing on a limestone rock sample (L-3) that was obtained from Nordegg Quarry. The sample was submitted by Fish Creek Excavating Stone Products and Recycling and was received by Tetra Tech EBA laboratory on June 29, 2016.

The quality of the testing materials was tested in accordance with the California Division of Highways, Test Method No. 206 (Specific Gravity and Absorption of Coarse Aggregate Procedure for Rock Slope Protection) and Test Method 229 (Method of Test for Durability Index). The results are summarized below in Table 1.

**Table 1: Test Summary and Results**

Test	Sample L-3	Acceptance Criteria
Apparent Gravity	2.7	>2.5
Absorption (%)	0.4	<2.0
Durability Index (DI)	93	>51
Durability Absorption Ratio (DAR)	66	>23

The results of the testing conducted on the rip-rap rock material indicate compliance with the California Division of Highways quality control criteria and indicate that the tested material is suitable for use as a rip-rap material.

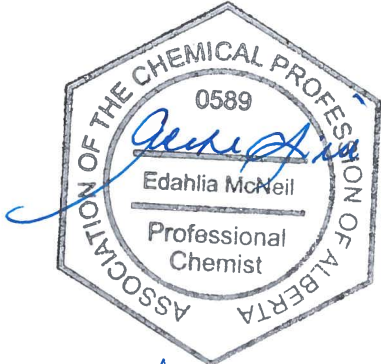
## 2.0 LIMITATIONS

This letter report and its contents are intended for the sole use of Fish Creek Excavating Stone Products and Recycling and their agents. Tetra Tech EBA Inc. does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Fish Creek Excavating Stone Products and Recycling, or for any project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this letter report is subject to the terms and conditions stated in Tetra Tech EBA Inc.'s Services Agreement. Tetra Tech EBA Inc.'s General Conditions are provided with this letter report.

### 3.0 CLOSURE

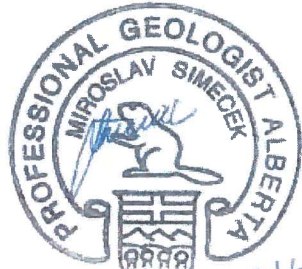
We trust this letter report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Respectfully submitted,  
Tetra Tech EBA Inc.



*July 7, 2016*

Prepared by:  
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*Jul 7, 2016*

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<b>PERMIT TO PRACTICE TETRA TECH EBA INC.</b>	
Signature	<i>Miroslav Simecek</i>
Date	<i>July 7, 2016</i>
<b>PERMIT NUMBER: P245</b>	
The Association of Professional Engineers and Geoscientists of Alberta	

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Enclosure (1): General Conditions – Construction Materials Engineering and Testing Document

# GENERAL CONDITIONS

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## CONSTRUCTION MATERIALS ENGINEERING AND TESTING DOCUMENT

This report incorporates and is subject to these “General Conditions”.

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### 1.0 USE OF REPORT AND OWNERSHIP

This Construction Materials Testing, Materials Engineering, or Materials Design Reporting Document pertains to a specific site, a specific development, and a specific scope of work. The report may include field and/or laboratory tests and other support documents that collectively constitute the Materials Testing or Materials Design report. It is not applicable to any other sites or projects other than that to which it refers.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

### 2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental, regulatory, or sediment and erosion issues associated with construction on the subject site.

### 4.0 VARIATION OF MATERIAL CHARACTERISTICS AND CONDITIONS

Observations and standardized sampling, inspection and testing procedures employed by Tetra Tech EBA will indicate conditions of materials and construction activities only at the precise location and time where and when Services were performed. The Client recognizes that conditions of materials and construction activities at other locations may vary from those measured or observed, and that conditions at one location and time do not necessarily indicate the conditions of apparently identical material(s) at other locations and/or times.

Services of Tetra Tech EBA, even if performed on a continuous basis, should not be interpreted to mean that Tetra Tech EBA is observing, verifying, testing or inspecting all materials on the Project. Tetra Tech EBA is responsible only for those data, interpretations, and recommendations regarding the actual materials and construction activities observed, sampled, inspected or tested, and is not responsible for other parties' interpretations or use of the information developed. Tetra Tech EBA may make certain inferences based upon the information derived from these procedures to formulate professional opinions regarding conditions in other areas.

### 5.0 SAMPLING, OBSERVATION & TEST LOCATIONS

Unless specifically stated otherwise, the Scope of Services does not include surveying the Site or precisely identifying sampling, observation or test locations, depths or elevations. Sampling, observation and test locations, depths and elevations will be based on field estimates and information furnished by the Client and its representatives. Unless stated otherwise in the report, such locations, depths and elevations provided are approximate.

### 6.0 CONTRACTOR'S PERFORMANCE

Tetra Tech EBA is not responsible for Contractor's means, methods, techniques or sequences during the performance of its Work. Tetra Tech EBA will not supervise or direct Contractor's Work, nor be liable for any failure of Contractor to complete its Work in accordance with the Project's plans, specifications and applicable codes, laws and regulations. The Client understands and agrees that Contractor, not Tetra Tech EBA, has sole responsibility for the safety of persons and property at the Project Site.

### 7.0 NOTIFICATION AND LEVEL OF SERVICE

Unless the Client requests or the building code requires full-time services, the Client understands that services provided by Tetra Tech EBA are on an “On-Call” basis. The Client shall assume responsibility for adequate notification and scheduling of Tetra Tech EBA services. Tetra Tech EBA will make every reasonable effort to meet the Client's schedule, but will not guarantee service availability without direct confirmation from with the Client or their agent.

## 8.0 CERTIFICATIONS

The Client will not require Tetra Tech EBA to execute any certification regarding Services performed or the Work tested or observed unless: 1) Tetra Tech EBA believes that it has performed sufficient Services to provide a sufficient basis to issue the certification; 2) Tetra Tech EBA believes that the Services performed and Work tested or observed meet the criteria of the certification; and 3) Tetra Tech EBA has reviewed and approved in writing the exact form of such certification prior to execution of the Service Agreement. Any certification by Tetra Tech EBA is limited to the expression of a professional opinion based upon the Services performed by Tetra Tech EBA, and does not constitute a warranty or guarantee, either express or implied.

## 9.0 WEATHER AND PROTECTION OF MATERIALS

Performance of the Services by Tetra Tech EBA and/or its designated subcontractor may be delayed or excused when such performance is commercially impossible or impracticable as a result of weather events, strikes, shortages or other causes beyond their reasonable control which may also impact cost estimates.

Excavation and construction operations expose materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations, and stockpiles, must be protected from the elements, particularly moisture, desiccation, frost action and construction activities.

## 10.0 CALCULATIONS AND DESIGN

Where Tetra Tech EBA has undertaken design calculations and has prepared project specific designs in accordance with terms of reference that were previously set out in consultation with, and agreement of, Tetra Tech EBA's client. These designs have been prepared to a standard that is consistent with industry practice. Notwithstanding, if any error or omission is detected by Tetra Tech EBA's Client or any party that is authorized to use the Design Report, the error or omission should be immediately drawn to the attention of Tetra Tech EBA.

## 11.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

## 12.0 SAMPLES

The Client will provide samples for testing (at the Client's expense). Tetra Tech EBA will retain unused portions of samples only until such time as internal review is accomplished for intended purpose. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded. The duration of sample retention must be discussed in advance.

## 13.0 GEOTECHNICAL CONDITIONS

A Geotechnical Report is commonly the basis upon which the specific project design or testing has been completed. It is incumbent upon Tetra Tech EBA's Client, and any other authorized party, to be knowledgeable of the level of risk that has been incorporated into the project design, in consideration of the level of the geotechnical information that was reasonably acquired to facilitate completion of the design.

If a Geotechnical Report was prepared for the project by Tetra Tech EBA or others, it will be referenced in the Construction Materials or Materials Design Report. The Geotechnical Report contains General Conditions that should be read in conjunction with these General Conditions for this Report.

## 14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.