

# Burrell & Associates Inc.

**Structural Engineers  
Construction Equipment Specialists**

1 Greensboro Drive, Suite 202  
Toronto, Ontario M9W 1C8

Tel.: (416) 745-8882  
Fax.: (416) 745-8833

March 31, 2016

Mr. R. Massey  
**Conqueror Steel Inc.,**  
3392 Colonial Drive,  
Mississauga, Ontario,  
L5I 5B9

**Re: Test of 6.25 metre and 4.8 metre "Blue Con-Shore" Aluminum Shoring Posts.**

Dear Mr. Massey:

On March 4, 2016 I witnessed tests on your "Blue Con-Shore" 4.8 metre Aluminum Shoring Posts. The tests were carried out by Intertek at 6225 Kenway Drive in Mississauga.

A copy of the report from Intertek is included for your reference.

The shores tested were supplied by Conqueror Steel Inc. The posts supplied consisted of an extruded blue aluminum outer tubes with a threaded aluminum inner tube. A description of the test samples can be found in the Intertek report.

Photos of the Tests are included for your reference.

The test apparatus consisted of a head and base made up of steel members. The head and base were connected together by steel square tubes. A hydraulic ram connected to a hydraulic pump supplied the force necessary to test the components. The hydraulic pump was equipped with a digital pressure gauge that displayed the applied pressure in pounds per square inch. The gauge was calibrated so that the applied force was determined from the reading of the pressure gauge. I verified the applied force for each test with the operator of the test rig.

Continued on page 2....

**Test Procedure:**

The tests were done in basic accordance with clause 11.3.4.1 (d) of CSA standard S269.2 with the exception that the posts were tested plumb rather than at the specified variation from plumb as per the standard.

In each test the shore was extended to it fully open position. The shore was then placed in the test rig between the bottom hydraulic ram and the top plate. The shore was plumbed. Pressure was applied to the hydraulic ram by the hydraulic pump. The pressure extended the jack thereby applying force from the test apparatus onto the vertical shore.

The pump was stopped near the rated load and the shore inspected in the test rig.

The pressure was then increased until failure occurred.

**Test Results from Intertek report: "Blue Con-Shore" extended to 4.8 metres**

Test Number	Applied Load Kilo-Newtons	Applied Load pounds	Remarks
1*	27.9	6,272	Very Slight Bow
	42.0	9,442	Slight Bow
	108.9	24,475	Buckled at mid height, Ultimate Load
2*	27.9	6,272	Very Slight Bow
	42	9,442	Slight Bow
	108.9	24,475	Buckled at mid height, Ultimate Load
3*	27.9	6,272	Very Slight Bow
	42	9,442	Slight Bow
	114.6	25,767	Buckled at mid height, Ultimate Load
4*	27.9	6,272	Very Slight Bow
	42	9,442	Slight Bow
	113.4	25,493	Buckled at mid height, Ultimate Load

\*This set of 4 posts was tested between fixed plates..

Average Ultimate Load =  $(108.9+108.9+114.6+113.4) \div 4 = 111.45$  kN.

Continued on page 3....

Mr. R, Massey

-3-

March 31, 2016

**Conclusions:**

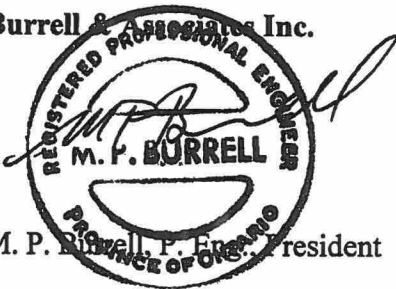
The average ultimate load for the 4.8 metre long "Blue Con-Shore" fully extended was 111.45 kN.

The design capacity according to section 11.2.2 of and table 3 of CSA Standard S269.2 for a factor of safety of three is  $111.45 \div 3 = 37.15$  kN, when fully extended.

I trust that this is the information you require. If I can be of further assistance, or if you have any questions in this regard, please contact me.

Yours truly,

Burrell & Associates Inc.



M. P. Burrell, P. Eng. President