Expert Report of SC Market Analytics

June 9, 2017

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I. INTRODUCTION

1. SC Market Analytics ("SCMA") has been retained by the Government of Canada in the context of the Bilcon of Delaware et al. v. Government of Canada NAFTA Chapter 11 arbitration to evaluate the pricing assumptions relied on by the Claimants' experts, to conduct an analysis of aggregates pricing in the New York City region ("NYC"), and to assess grits pricing in NJ ("NJ"). We have also been asked to provide an opinion on certain capital and operating expenditures budgeted for the proposed quarry and marine terminal project at Whites Point in Nova Scotia ("the project") based on the yield of the aggregates materials at the Whites Point quarry.

2. Our specific assignment with respect to pricing was to review the pricing assumptions used in the lost profits calculations in the expert report of Howard Rosen of FTI Consulting (the "Rosen Report") and other materials that fed into his report, and to provide our opinion on those assumptions. In particular, we were asked to determine the impact, if any, of competition on pricing. For our review, we were instructed to adopt the following assumptions:

   - Any lost profits calculation in this case should be conducted from the vantage point of October 22, 2007, which we understand is the date of the measures that the Tribunal in this case identified as a breach of Canada's obligations under Chapter 11 of NAFTA.
   - The description of the Whites Point quarry contained in Bilcon of Nova Scotia's ("Bilcon") Environmental Impact Statement ("EIS") and other contemporaneous documents, including of production volumes and quarry resources, was an accurate representation of Bilcon's expectations and plans for the project at the time.
   - Bilcon's expectations as of October 22, 2007 should form the basis for assessing the pricing of their products, with the exception that we were instructed to use the same product mix ratio and the destination of sales used in the Rosen Report, and have thus assumed that the project would sell its higher quality products in New York, rather than in NJ as Bilcon said in its EIS. This is a favourable assumption for the Claimants, as prices in New York have typically been higher than prices in NJ.

a. Qualifications

3. **Dr. David Chereb** has over 30 years' experience forecasting North American construction materials markets. He is the owner of David Chereb Group, which has provided specialized economic and market forecasting services to the cement, concrete and aggregates industries since 1996. These forecasts and analyses have been used to support major new plant investments, mergers and acquisitions and routine strategic planning exercises.

4. Dr. Chereb also developed an online portal for analyzing construction and materials changes by county by combining a variety of construction drivers.

5. Dr. Chereb received his B.S. from the United States Air Force Academy in 1970, his M.A. in Economics from the University of California, Los Angeles in 1971, and his Ph.D. in Economics from the University of Southern California in 1977.

6. Dr. Chereb's curriculum vitae can be found at Appendix VI.

7. **Colin Sutherland** has over 30 years' experience working in the construction materials sector; primarily cement, aggregates and concrete products. Areas of expertise include corporate strategy development, market / competitive analysis, demand forecasting, & business case development for large CAPEX projects.

8. Mr. Sutherland has been a member of the Board of Directors of US Concrete Inc. ("USCR") since September 2010. USCR is currently the largest Ready-Mix concrete supplier in NYC and Northern NJ, owns a granite quarry in Hamburg, NJ that supplies aggregates to NYC and has owned New York Sand & Stone ("NYSS") since 2014. Prior to this, he was VP Strategy & Business Development for Votorantim Cimentos NA. He was also VP Business Development, Integration & Strategy for Holcim (US), VP Cementitious Materials for Lafarge SA and Director Corporate Development for Blue Circle North America.

9. Mr. Sutherland obtained a Bachelor of Commerce degree from Queen's University in Kingston, ON in 1977. His curriculum vitae can be found at Appendix VI.

10. **Michael Power** has over 40 years' experience in the sales and marketing areas of the aggregates industry. He conducts market research, including material and transport cost analysis. Mr. Power is President of Atlantic Coast materials LLC and was a VP of Martin Marietta Materials Canada Ltd.

11. Mr. Power is President of the Board of Directors of the Bayside Port Corporation, NB in New Brunswick, Member of the Chamber of Marine Commerce in Ontario, Former Director of the Strait Area Chamber of Commerce in Nova Scotia and the Strait of Canso Superport Corporation in Nova Scotia.

12. Mr. Power's curriculum vitae can be found at Appendix VI.

13. **James Ward** has over 40 years' experience in the heavy building materials and construction products industries in the United States, South Africa, the United Kingdom, Canada and the Caribbean. Mr. Ward has held executive and senior management positions with Blue Circle, Tarmac and Lafarge. His experience includes operating management, acquisitions and organic growth.

14. Mr. Ward obtained a Licentiate of the Royal Institute of Chemistry, LRIC, adjudicated for the United States Government as equivalent to a BSc in Chemistry, with subsequent studies in Quarrying qualifying as a Fellow of the Institute of Quarrying, FIQ, and is a past President of

the Georgia Crushed Stone Association, twice awarded the Eagle Award for the creation of and as an Instructor for the Georgia Crushed Stone Management Development Course.

15. His curriculum vitae can be found at Appendix VI.

b. Overview of Conclusions

16. Our report addresses three main areas:

1) [redacted]. For ease of reference, we have referred to these products collectively as "aggregates." Our analysis shows that the addition of higher quality aggregates from the Whites Point Quarry (or any other significant new supply) in 2011 and subsequent years into the New York market would have caused aggregates prices to decline by approximately [redacted]

The conclusion is based on five factors that characterized the market at the time of Whites Point's anticipated entry:

i. [redacted]

ii. [redacted]

iii. Near term market demand was declining, not increasing.

iv. The new supply from Whites Point would have created a [redacted]

v. The price elasticity for aggregates [redacted]

These five factors combine to create a market after 2002 that was not open to significant additional supply without taking an equivalent volume away from existing suppliers, and [redacted]

If the Whites Point quarry had entered the market as planned in 2011, [redacted]

2) Grits Pricing in NJ: As producing grits results in a high waste factor, customary aggregates producers do not typically find it attractive to do so. In addition, given the [redacted]

3) Whites Point's Quarry Materials Costs: The Claimants' labeling of the Whites Point operation as [redacted] is highly misleading. This refers only to the quantity of products that it intended to sell into NYC and Northern NJ. It is customary in the aggregates industry to define a quarry by its annual production capacity. SCMA calculated the amount of rock that needed to be processed by the Whites Point quarry in order to produce the [redacted] Bilcon proposed to sell in its specific product mix. Using manufacturers' data, our own research, and information provided by the Claimants, we determined that [redacted]

The Claimants have not based many of the project's operational or capital costs on the total amount of production required. As a result, the proposal for the Whites Point quarry requires [redacted] These additions result in greater costs. In particular, we found that:

i. [redacted]

iii. As is customary in the aggregates industry, capital expenditures should be increased to include a one-time 10% contingency at the start of the capital spending based on the fact that all expenditures are budgetary and not firm

quotes by contractors and suppliers. This was referred to in Bilcon's earlier planning documents,[1] but not itemized in the Rosen Report.

II. OVERVIEW OF THE WHITES POINT QUARRY PROJECT

17. Bilcon proposed to build a quarry and marine terminal on Digby Neck in Nova Scotia. We understand that it described the project in an EIS dated March 31, 2006, created as part of the Joint Review Panel ("JRP") environmental assessment of the proposed project.[2] In November 2006, Bilcon submitted a revised version of this project description, which included further information about the proposed project.[3]

a. Project Life, Production Volumes, and Prices

18. Bilcon's EIS stated that Whites Point would have a project life of 50 years,[4] broken down into construction, operations, and decommissioning periods. Quarry operations would be conducted over an area of 152 ha, of which 120 ha was to be quarried.[5] Bilcon also described that Whites Point would have annual production of [redacted] comprised of crushed stone of various types, grits, and sand, although the exact proportions were not stated.[6] Bilcon stated that it did not anticipate an expansion of the production area, nor did it anticipate [redacted]

19. The EIS stated that the quarry would sell the [redacted] of crushed rock and grits to Clayton Concrete Block and Sand in NJ.[8] The EIS did not report any information about prices that Whites Point would receive from selling its products to Clayton Concrete Block and Sand in NJ. However, in response to an undertaking during the JRP process, Bilcon stated that: "Stone price in NJ is US$6.23 - $10.00 per ton, NYC is US$18.50 to $19.00 per ton - FOB

[1] **C-1344**, Bilcon of Nova Scotia Corporation, Costings (Oct. 18, 2004), pp. 3-4; **C-1345**, Bilcon of Nova Scotia Corporation, Costings with Handwritten Notes (Oct. 18, 2004), p. 3; **C-1346**, Bilcon of Nova Scotia Corporation, Costings included in Environmental Assessment Process (Feb. 20, 2007), p. 3.
[2] **R-578**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Volume V (Mar. 31, 2006) ("EIS – Volume V"), Chapter 7.
[3] **R-581**, Whites Point Quarry & Marine Terminal, Revised Project Description (Nov. 2006) ("Revised Project Description").
[4] **R-581**, Revised Project Description, pp. 6-7.
[5] **R-581**, Revised Project Description, p. 6.
[6] **R-581**, Revised Project Description, pp. 40, 137.
[7] **R-581**, Revised Project Description, p. 106.
[8] **R-581**, Revised Project Description, p. 7; **R-575**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Volume I – Plain Language Summary (Mar. 31, 2006) ("EIS – Volume I"), p. 4.

point of sale."[9] The 2004 business plan prepared by Clayton Concrete indicated that Bilcon expected Whites Point to receive a delivered price of [redacted] on its sales.[10]

b. Quarry Design, Operating and Capital Costs

20. The EIS contained an estimate that the capital costs associated with the processing plant and the other upgrades would be about [redacted].[11] In his witness statement, Mr. John Wall states that the processing plant design known as "Revision D" was [redacted] Mr. Wall also noted that t [redacted]

21. According to Mr. Wall, this was a preliminary estimate prepared in 2004, which was long before the site design plan on which the EIS was based.[14] The expected capital cost for the actual site design underlying the EIS was significantly higher. The expert report of Michael Washer prepared in 2016 concluded that the capital costs associated with Revision D and the other upgrades would have been [redacted].[15]

22. In addition to the processing plant and infrastructure upgrades, operations at the Project would have required mobile equipment, which the EIS estimated would cost approximately [redacted].[16] This estimate was consistent with Mr. Washer's estimate for the mobile equipment of [redacted]

23. In the Gardner Pinfold study filed with their EIS, Bilcon estimated annual operating costs for the quarry to be [redacted], including shipping, labour, energy and many other costs.[17] [redacted]

[9] **C-445**, Bilcon's Response to Undertaking #12 (Jun. 22, 2007).
[10] **R-717**, Business Plan for Whites Point Quarry, Prepared by Clayton Concrete, April 2004, pp. BIL012505-6.
[11] **R-581**, Revised Project Description, p. 71.
[12] Witness Statement of John Wall, 8 December 2016, ¶ 51 ("Wall Statement").
[13] Wall Statement, ¶ 54.
[14] Wall Statement, ¶ 58.
[15] First Expert Report of Michael G. Washer, 8 December 2016, ¶ 11 ("Washer Report").
[16] **R-581**, Revised Project Description, p. 71.
[17] **C-1028**, Digby Neck/Islands Economic Profile, Gardner Pinfold Study, February 2006, p. 25.
[18] **R-581**, Revised Project Description, p. 96; Wall Statement, ¶ 55.
[19] **R-581**, Revised Project Description, p. 96; Wall Statement, ¶ 55.

III. COARSE AGGREGATES SUPPLY AND PRICING IN THE NYC REGION MARKET

24. In their expert reports and witness statements, the Claimants assert that the price of aggregate ranged between [redacted] In his lost profits calculation, Mr. Rosen assumes that prices [redacted]

25. This section explores five characteristics of the NYC area aggregates market that show that the Claimants have incorrectly assumed that prices for aggregates would [redacted], with no impact felt by the addition of [redacted] of new supply.

a. Existing Suppliers in the NYC Aggregates Market

i. [redacted]

26. Between 1996 and 2002, the NYC aggregates market underwent a period of consolidation. The period was marked by a series of a[redacted] entered the New York State aggregates market through the purchase of [redacted]

27. Beginning in [redacted] embarked on a series of further acquisitions, including:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

28. By 2002, [redacted]

[20] Export Report of Howard Rosen (FTI Consulting), 15 December 2016, ¶ 5.18 ("Rosen Report").
[21] Rosen Report, ¶ 5.20.
[22] **R-691**, [redacted]
[23] **R-692**,
[24] **R-693**,
[25] **R-694**,
[26] **R-695**,

[redacted] Figure 1 below shows the location of the quarries [redacted]

Figure 1: Map of [redacted] Quarries

[redacted]

29. [redacted] As discussed in section III.B below, [redacted]

ii. Other Suppliers Selling into the NYC Market

30. A number of other suppliers were also selling into the NYC market. Figure 2 below shows both actual and potential suppliers into the market, and compares their estimated cost curves to illustrate the competitive dynamics of the market. US-based quarries within a 35-mile radius of Central Brooklyn are shaded in blue [redacted] and yellow [redacted] Existing Eastern Canadian quarries situated on water are shaded in red. The figure also shows three proposed Canadian quarries located at: Black Point, Nova Scotia; Belleoram, Newfoundland (both cross-hatched red); and Whites Point (cross-hatched in green).

[27] SCMA calculated this amount based on the press releases cited above as follows: [redacted]

Figure 2: New York City Aggregate Sources – Actual & Potential[28]

31. A noteworthy observation is that, of the first 10 lowest cost US supply sources for NYC coarse aggregates, [redacted]. The pronounced cost advantage of [redacted]

32. Of the Canadian-based quarries, only the Bayside, New Brunswick ("NB") location owned by Atlantic Coast Materials ("ACM") was a core supplier to the NYC market in 2007. At the time, it was selling coarse stone to NYSS and grits to Amboy Aggregates in Northern, NJ – both businesses affiliated with the Clayton Group of Companies. Almost all of the production from Auld's Cove, Nova Scotia ("NS"), owned by Martin Marietta Materials, was being shipped to

[28] The estimated delivered cost to customers includes trucking delivery costs, on a per ton basis, to final customers, which are assumed to be in located in the Brooklyn – Bronx area. Using the estimated delivered cost to customers allows us to compare the relative costs of quarries that use different modes of transportation (e.g. by water, truck, and rail). The cost curve also directly compares the estimated cost to produce the coarse aggregates products that Whites Point planned to sell. The calculations in this figure are estimates and are intended to provide a graphical representation of the rough dynamics of the market, rather than represent exact calculations of the costs of each quarry.

the Southeastern US at this time. However, [redacted]

33. At the time, Lower Cove, Newfoundland, owned by Atlantic Materials, was selling to US customers on the Eastern Seaboard. As discussed below, [redacted]

34. Black Point, NS – very close to Auld's Cove on the Canso Straight – was a prospective location that had been promoted by the Government of Nova Scotia as a good potential quarry site and had been considered by Bilcon as an alternative to Whites Point.[29] Subsequent to the proposed development of Whites Point, the Black Point resource was acquired by Vulcan Materials Limited, the largest aggregates producer in the US. Vulcan is currently in the process of permitting a super quarry to serve US customers.[30] Within the aggregates industry, the term super quarry is generally considered to mean a quarry with annual capacity in excess of 5 million tons.

35. [redacted][31]

36. Figure 3 shows the locations of all sites included in Figure 2, including suppliers selling or planning to sell into the NYC area market as of 2007:

[29] **R-581**, Revised Project Description, p. 18 (referred to by its geographic location in Guysborough County, NS).
[30] **R-696**, Black Point Quarry Project, Summer 2016 Newsletter, available at: https://www.blackpointquarry.com/documents/Blackpoint%20Quarry%20Newsletter%20Summer%202016%20FINAL.pdf.
[31] SCMA bases its estimate of NYSS' market share on based on the estimated size of the market shown in the Expert Report of Michael Wick (John T Boyd Company), 5 December 2016, p. 2-1 ("BOYD Report"), corrected for their overstatement of the size of the Concrete sub-segment. See ¶¶ 76-80 below.

Figure 3: Map of All Actual & Potential Aggregate Sources for NYC Area

b. Aggregates Prices Increase in theNew York Market

37.

38. As discussed in section III.a.i,

[32] *See* Figure 4b below, data sourced from: 2007-2016 USGS Minerals Yearbooks (**R-697** to **R-706**), Table 4.

[redacted]

39. [redacted]

40. [redacted]

41. The implication is that [redacted]

42. A simple comparison to the relationship between price and volume (i.e. demand) in the NJ market illustrates this point. Figures 4a and 4b show the relationship described above between Price and Volume (i.e. Demand) for aggregates in NJ and New York State, respectively.

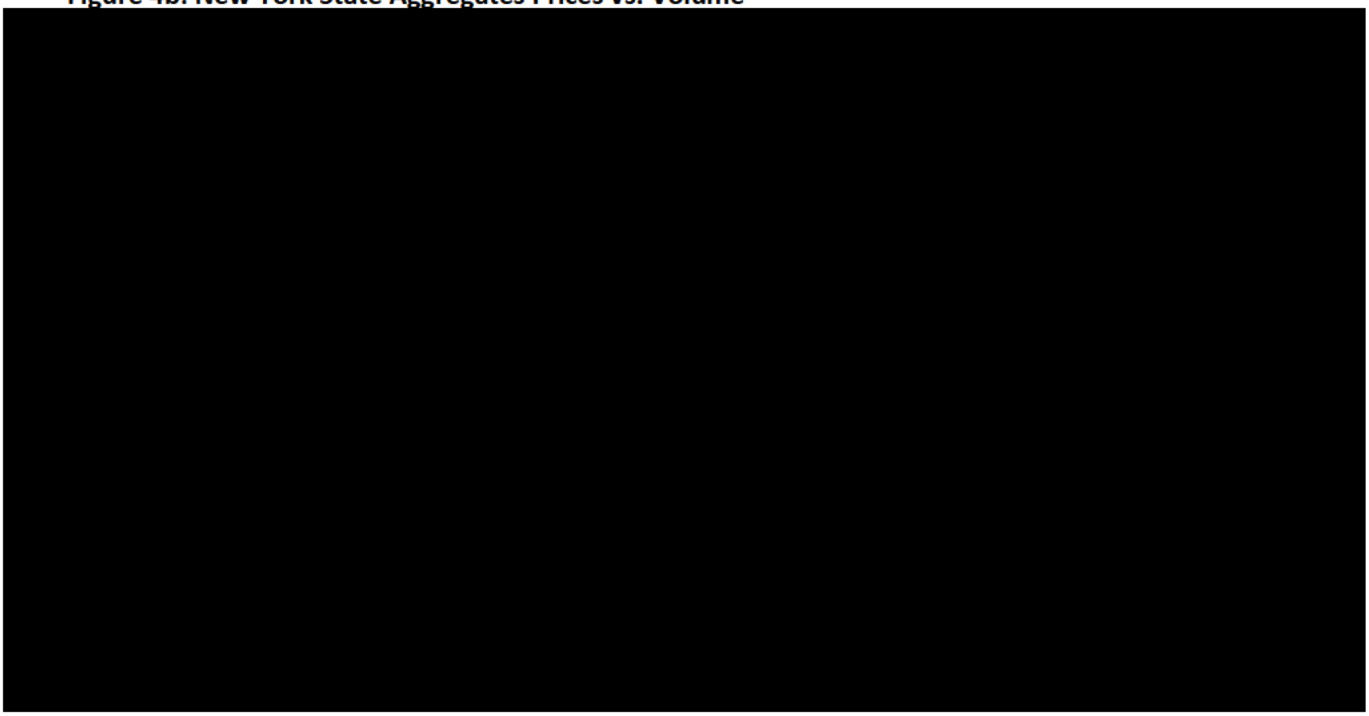
43. As can be seen in Figure 4a, prices in NJ [redacted]

[33] **R-707**, The New York Times article, "Building Materials Company Ireland Loves to Hate" (Sep. 5, 2002), p. 4.
[34] See Figure 4b below.

Figure 4a: NJ State Aggregates Prices vs. Volume[35]

44. By contrast, prices in New York

Figure 4b: New York State Aggregates Prices vs. Volume[36]



[35] Data sourced from: 2007-2016 USGS Minerals Yearbooks (**R-697** to **R-706**), Table 4.

45. Table 1 shows the [redacted]

Table 1: Aggregates Volume vs Price for New York and NJ[37]

[redacted]

47. All of these figures and tables illustrate how unusual the New York pricing situation is. In a highly competitive market when volume declines and stays lower, prices do not increase,

[36] Data sourced from: 2007-2016 USGS Minerals Yearbooks (**R-697** to **R-706**), Table 4.
[37] Data sourced from: 2007-2016 USGS Minerals Yearbooks (**R-697** to **R-706**), Table 4.
[38] Data sourced from: 2007-2016 USGS Minerals Yearbooks (**R-697** to **R-706**), Table 4.

unless low cost suppliers run out of material. In both states, with urban areas next to each other, volume declined. Only in New York did the price rise substantially. This implies market power by a supplier who has enough market share to influence market price.

48. While the graph in Figures 4b and 5 above show prices for the entire state of New York, and not just NYC, we are highly confident that [redacted]

i. Example of [redacted]

51. [redacted]

52. [redacted]

[39] **R-708**, SCMA-CMD Group, Construction Market Data (2005-2017).
[40] In our model, the NYC 5 counties account for about 52% of total state volume.
[41] See Appendix II: The Largest Metropolitan Statistical Areas of New York State.
[42] Dooley Statement, ¶ 64.

Figure 6: CRH/Tilcon Share NYC Area Production

53 [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[43] Dooley Statement, ¶ 67.
[44] See Figure 4b above.

57. [redacted]

58. As mentioned above, [redacted] when Bilcon was seeking to enter the market. [redacted]

59. As shown in Figure 7a below, [redacted]

Figure 7a: NYC Aggregates – Supplier Cost Curve Delivered to Customers[46]

[redacted]

[45] See Appendix I: Profitability Metrics in the Aggregates Industry.

[46] These costs include estimated freight costs to final user. SCMA's estimated cash costs are corrected for specific gravity and full transportation costs to the final customer location, which is assumed to be central Brooklyn / Queens.

60. Based on the information in the chart above, [redacted]

61. As shown in Figure 7b below, [redacted]

Figure 7b: NYC Water Borne Suppliers Only CIF Cost Curve [DRAFT][47]

62. Table 2, below, shows how [redacted]

Table 2: Reconciliation Between CIF Cost and Delivered Customer Price[48]

[redacted]

[47] SCMA's estimated cash costs are [redacted] Water borne transportation costs for Whites Point were taken from the Rosen Report. Water borne transportation costs for other suppliers are estimated based on SCMA's experience.

[48] Tilcon wholesale price taken from **R-709**, Letter from Thomas A. Dooley to Robert Pecorella, Tilcon New York (Nov. 1, 2007). Other costs SCMA's estimates.

d. Contrary to the Claimants' Views, Market Demand Was Not Growing

63. The Claimants' experts relied on extrapolated Dodge contracts data from 2015 – a peak year – and forecasts from the Portland Cement Association ("PCA"), an historically unreliable source, to project future coarse aggregates demand in NYC continuing to grow steadily from an already high level.[49] In spite of the optimism expressed in many of these documents – including the BOYD Report and the Witness Statement of Tom Dooley – about the NYC construction market and its prospects for continuous long-term growth, the underlying economic and demographic facts paint a different picture.

64. This area is a classic example of a built-up, mature, slow growth market and aggregates or cement consumption trends bear this out. Consider:

- Population growth for the 5 Boroughs has been averaging about 0.3% per annum over the past two decades – or less than 1/3 of the US average. Future forecasts from the US Census Bureau have the population growth rate trending towards zero.[50]
- The average age of the area's population is above the national average which is evidence of the phenomenon known as the "Flight of the Young" where people in their 20's and 30's flee expensive and/or slow growing areas for those where new jobs are being created and the cost of living is much lower.
- Related to this last point, the rate of employment growth in the region lags the national average due to a preponderance of mature industries and the lack of incentives for new, growing companies to locate in such a high cost area.[51]
- For aggregates, [redacted].[52] It is the building of new roads, new residential housing developments, and new municipal infrastructure that consumes the most aggregates, not the maintenance of old infrastructure.

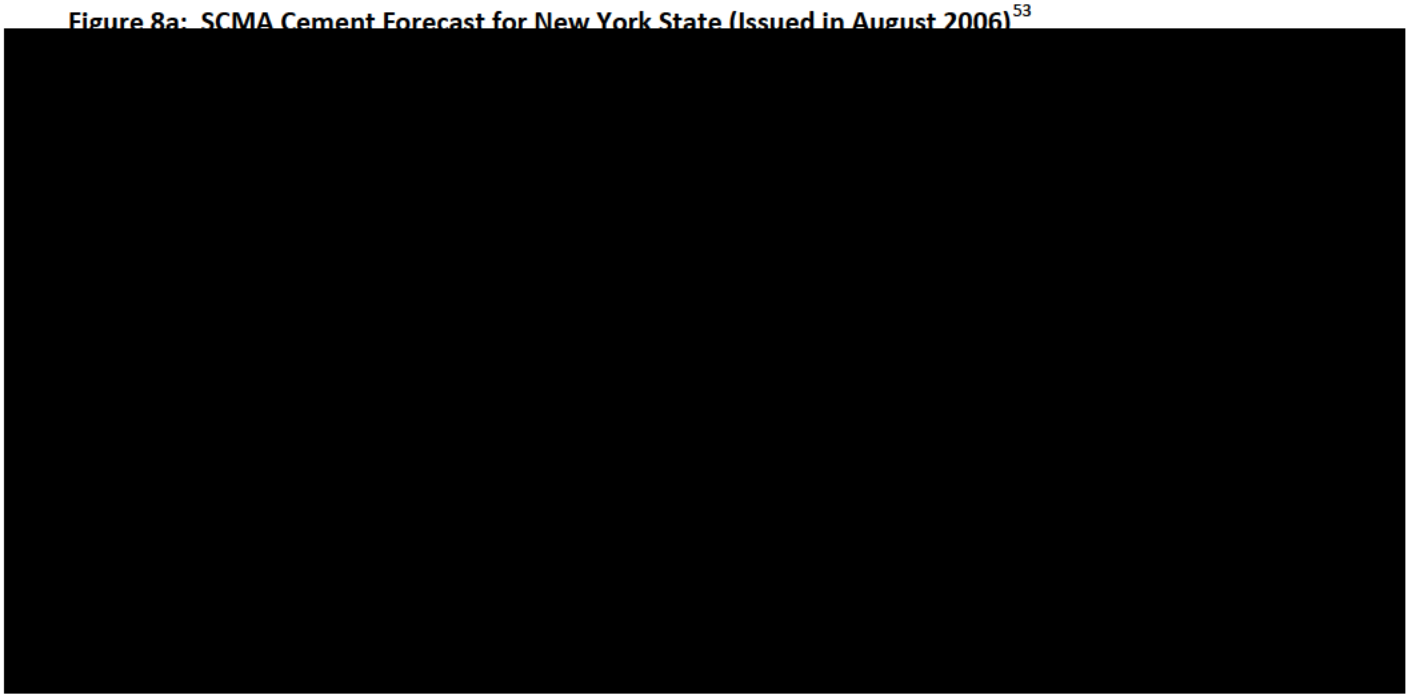
65. While there will always be a significant amount of construction in New York City, a populous area which is the world's premier financial services hub and a world center for culture,

[49] See, e.g., BOYD Report, pp. 6-6, 6-7.
[50] US Census Bureau.
[51] From 2010 to 2015, U.S. employment grew by 15% while the NYC 5 Counties only grew by 8%. We have drawn these figures from SCMA's Proprietary Aggregates Model, which includes aggregates consumption for every county in U.S. by year for 2005-2027. SCMA and its predecessors (notably David Chereb Group, Inc.) have developed and refined proprietary forecasting models for US Portland cement and aggregates consumption over the past 30 years. These models are built from the county level up – i.e. national totals represent the summation of all counties in the US. Historical county level data is incorporated from publicly available sources including the Bureau of Labor Statistics and the US Census Bureau, and supplemented by privately developed construction contracts awards data from CMD Group. This enormous data base is then used in conjunction with monthly reported state-level cement and aggregates consumption statistics (from USGS) and a complex series of proprietary algorithms to, in essence, solve for the best allocation of that state-level consumption among the counties that comprise each state.
[52] Derived from: SCMA's [Formerly David Chereb Group, Inc.] Proprietary Aggregates Model.

construction spending is not likely to grow at a high sustained rate over the long term. There will occasionally be upward spikes in construction spending and materials demand, as there has been over the past 3-4 years. However, the spikes are not sustainable over the long term.

66. Historical trends bear this out. SCMA (then DCG, Inc.) has been forecasting cement consumption at the County, State and National levels since the early 2000's, and aggregates since 2010. Figures 8a and 8b below show our August 2006 cement forecast as it was prepared then for New York State and NYC, respectively. As can be seen, our forecast correctly anticipated declining market demand for the 2006-2008 period when Bilcon was anticipating building volume [redacted] through a potential new aggregates source in Nova Scotia:

Figure 8a: SCMA Cement Forecast for New York State (Issued in August 2006)[53]



[53] Sourced from: SCMA's [Formerly David Chereb Group, Inc.] Proprietary Cement Forecasting Model. Analyzed cement consumption by county by year for 2000 to 2017.

Figure 8b: SCMA Cement Forecast for NYC (Issued in August 2006)[54]

67. Our forecast showed volumes declining for this market area over the following several years. Basic analysis of market fundamentals suggested that the market was past its peak. It could be observed that bringing in additional offshore volumes in a declining market would cause severe disruption to price.

68. Following a similar trend, Figure 9 shows that construction contracts were also declining from 2008 to 2011 for the NYC areas:

Figure 9: Near Term Construction Contracts for NYC[55]

[54] Sourced from: SCMA's [Formerly David Chereb Group, Inc.] Proprietary Cement Forecasting Model. Analyzed cement consumption by county by year for 2000 to 2017.
[55] **R-708**, SCMA-CMD Group, Construction Market Data.

69. In 2017, construction contracts are again declining after a strong 3-year uptick. Accounting for the lag between contract awards and aggregates sales, this means that there will again be downward pressure on aggregates volumes and prices during the 2019-22 period.

e. Volume from the New Whites Point Quarry Would Have [redacted]

70. From the moment that the Clayton Group and its joint venture partners formed NYSS in 1998, the company had been importing stone for NYC and grits for NJ from the Jamer Materials Ltd. quarry at Bayside, NB ("Bayside"). At its peak output, this quarry supplied close to 2 million tons of aggregates per year into the NYC/NJ area and became a "core" supply source for this market. In fact, it was likely the existence of Bayside and Auld's Cove that allowed [redacted]

71. When it opened, Whites Point would have [redacted]

72. [redacted]

73. The BOYD Report states that [redacted].[57] This conclusion is based on erroneous calculations of the market's size. The BOYD Report calculates that [redacted]

[56] **R-590**, Letter from [redacted] to William Clayton [redacted]
[57] BOYD Report, p. 2-1.

[redacted].[58] This latter number is wrong, with [redacted] [redacted].[59]

74 [redacted]

75. First, [redacted], as the BOYD Report suggests, would have been [redacted] and could not easily have been accommodated. Whites Point would have had to [redacted] As evidence, [redacted] offered to purchase the Whites Point project [redacted]. Also, as discussed in section III.b.i, [redacted]

76. Second, the market share claimed by the BOYD Report is a [redacted]

[58] We suspect that the BOYD Report's erroneous calculation – also based on interpolation from cement statistics – includes ALL aggregates consumed by the Concrete Sector i.e. coarse and fine aggregates or sand. The BOYD Report's estimates for the size of the "Asphalt" and "Other" market segments appear reasonable.

[59] We calculated this figure by interpolation from the consumption of Portland Cement (reported by USGS) and our calculation was validated as being within 5% of the market size as calculated by the current second leading aggregates supplier to the market.

[60] **C-1025**, Supply Agreement between New York Sand & Stone and Martin Marietta Materials (May 24, 2010), p. 6.

[61] **C-1026**, New York Sand & Stone Confidential Information Memorandum (Jan. 2014), p. 17.

[62] **C-1025**, Supply Agreement between New York Sand & Stone and Martin Marietta Materials (May 24, 2010), p. 1.

[63] **C-1026**, New York Sand & Stone Confidential Information Memorandum (Jan. 2014), p. 17.

[64] **C-1026**, New York Sand & Stone Confidential Information Memorandum (Jan. 2014), p. 25.

[redacted]

f. Aggregates Price Elasticity Is Essentially Zero, meaning that Volume Increases Do Not Follow Price Drops

77. Price elasticity is defined as the percentage change in volume due to a percentage change in price. For example, if a supplier drops price by 5% and market volume increases by 10%, that would be called an elastic market. If the same 5% price decline leads to only a 1% increase in market volume, that would be called an inelastic market.

78. Based on our knowledge of economic theory and 30 years of real world experience analyzing aggregates markets, this commodity has a price elasticity of approximately zero. This means there is effectively zero increase in volume when prices drop. Thus, any additional supply added to the market will have to be taken from existing suppliers. The highest delivered cost producers will be hit the hardest. Since the Claimants now estimate that Whites Point would [redacted]

79. We know aggregates prices are inelastic for two reasons. First, aggregates are a very small cost item in most projects. Based on the value of construction nationwide, in 2015 aggregates comprised about 4% of total project costs on average for the US.[66] In the NYC market area, the proportion is approximately half that level. This means that a 10% decline in aggregates prices decreases total project costs by 0.1-0.3%. Such a small decrease is barely noticeable in the context of the projects in which aggregates are being used. Second, no one takes extra tons of aggregates just because the price is lower. A project needs a certain amount of concrete or asphalt. The specifications will not change in the short run due to small changes in aggregate prices.

g. Implications of the Five Factors for Aggregates Prices in the NYC Area Market

80. There are three implications that flow from the factors discussed above:

1. The threat of an additional [redacted] of coarse aggregates entering the NYC market would cause prices to drop [redacted] By our calculation, this new pricing threshold [redacted] This causes [redacted]

[65] **C-1026**, New York Sand & Stone Confidential Information Memorandum (Jan. 2014), p. 25.
[66] Calculated as the 2015 Aggregates Industry Value ($22.1 Billion) vs. 2015 Total Construction Contracts ($573 Billion). **R-705**, USGS, 2015 Mineral Industry Surveys, Crushed Stone and Sand and Gravel, p. 5, Table 3; **R-708**, SCMA-CMD Group, Construction Market Data (2005-2017), p. 1.

[redacted]

[redacted]

Figure 10: Impact of [redacted] If Whites Point Enters Market

[redacted]

2. [redacted]

3. [redacted]

[redacted]

[redacted]

Figure 11: Rosen Report Prices vs. SCMA Assumed Prices[67]

[redacted]

Nominal $ 2011 to 2016, 2016-2060 'Real' 2016$ deflated by GDP deflator

IV. Characteristics Specific to the Whites Point Products That Would Have [redacted]

81. [redacted]

[67] See Appendix III: Aggregates Pricing Changes, Rosen vs. SCMA.

[redacted]

82. [redacted]

[redacted]

V. The Price of Grits and Aggregates Sold to NJ

84. Bilcon stated in its 2006 EIS that Whites Point would produce an uncommon and customized crushed stone material they called "Grits" and ship it to Amboy Aggregates – an affiliated company – in Northern NJ.[68] In the Claimants' materials created in 2016, they specify that they would sell approximately [redacted],[69] and explain that the grits [redacted].[70] [redacted] has been in short supply in Northern NJ for many years and is therefore quite valuable.

85. The assumed selling price for this unusual Grits material was based on [redacted] and appears reasonable to us. Because of its customized nature, the importation of this product [redacted]

86. [redacted] In order to turn this fine sand into concrete sand for sale, it needs to be combined with a coarser material – grits. As the sand from the dredging process becomes finer, more coarse materials are required to make saleable concrete sand. Accordingly, the

[68] **R-575**, EIS – Volume I, p. 4; **R-578**, EIS – Volume V, p. 31.
[69] See, e.g., Rosen Report, ¶ 5.15.
[70] Witness Statement of Joe Forestieri, 13 December 2016, ¶ 20.

addition of grits from the Whites Point operations would [redacted]

87. As stated at the beginning of the document, [redacted]

VI. The Claimants Understate the Costs to Operate the Whites Point Quarry

a. The Process of Crushing Aggregates

88. The crushing process at a quarry, which follows drilling and blasting, not only produces the range of sizes to be sold, it is also critical in determining the ratio of the yield of the various sizes. When a piece of rock is broken, some of the fragments will be large and some small, and they are produced together with some dust. There is no way of controlling how many big, medium, or small fragments will be produced, or how much dust. By careful selection of crushing equipment, crushing in stages, and making each reduction stage as small as practicable, it is possible to influence how much of each size fragment is produced, but not control it. This means that if you want to make some ¾" pieces of rock out of a 3" piece of rock, you can influence how many pieces of ¾" there will be when you break it, but not make it all into ¾" pieces. If 30% of the weight of the rock ends up being broken into ¾" pieces then the yield is 30% of ¾".

89. Crushing capacity and performance is based, not only on the size, but on the selection of the particular type of configuration for each crusher. Liner shape selection, speed, throw, feed distribution, feed rate, size distribution of the feed, maintaining a full crushing cavity (choke feeding), reduction ratio, close side setting, and moisture content are many of the factors, which influence the particle size distribution of the product and throughput, and are all assumed to be optimized for calculation purposes in the next section.

90. Bilcon selected [redacted] for the proposed Whites Point quarry installation.[71] [redacted]

91. As described above, Bilcon proposed [redacted]

[71] **C-1001**, Crushing Plant Drawings and Schedule with George Bickford's Handwritten Notes; and referenced in the capital expenditures shown in Rosen Report, Schedule 7.

[redacted] Because the volume of saleable product is not equivalent to the total volume of rock produced, it is necessary to understand the amount of rock that has to be processed by this conceptual crushing circuit in order to achieve the relative amounts of each product size. This represents the yield from a crushing and screening process of saleable products relative to gross throughput. Screening, the separation of product from a crushing circuit into individual sizes, was assumed to be 100% efficient (which is rarely achieved) for calculation purposes to determine the maximum yield.

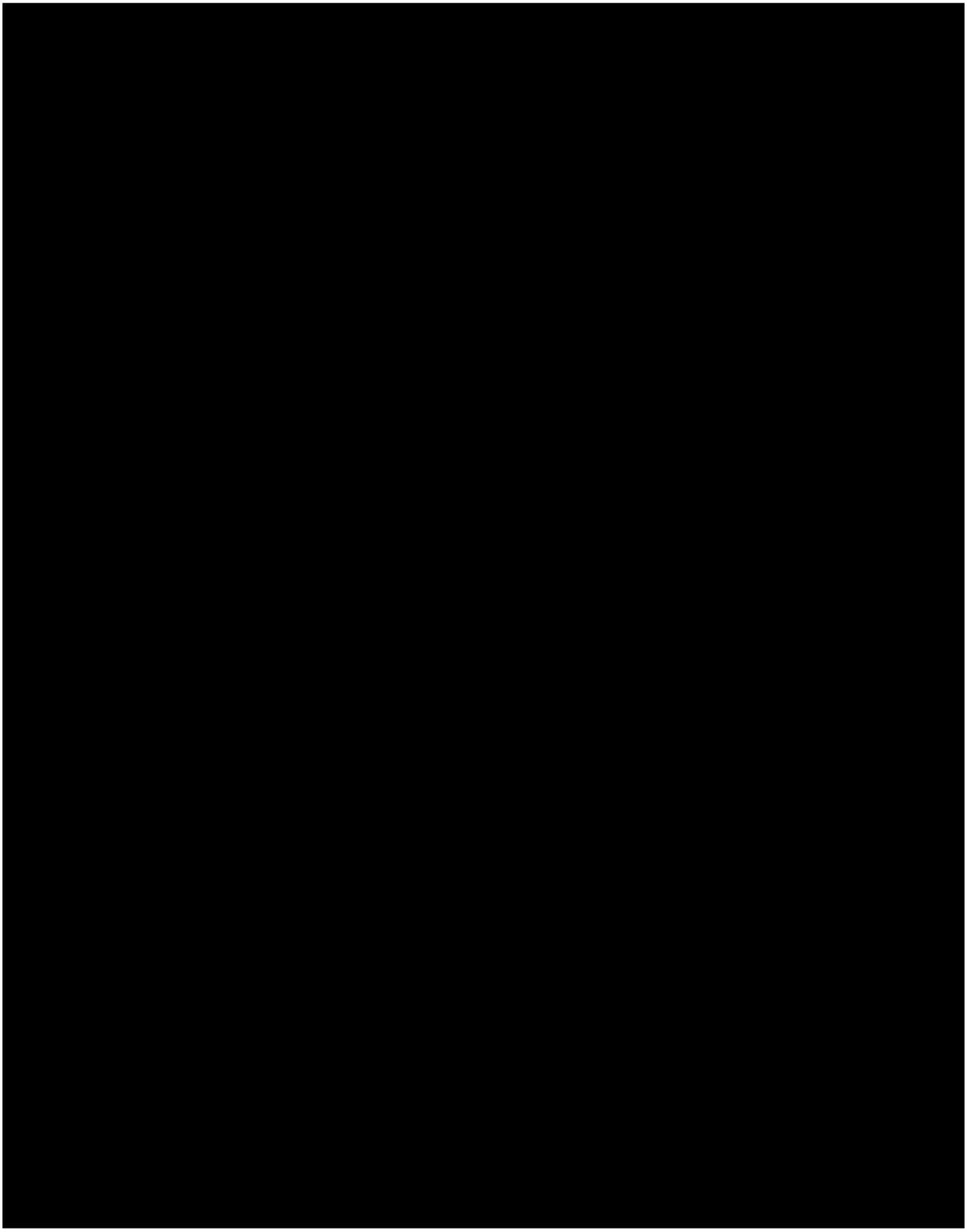
b. Calculating the Yield of the Whites Point Quarry Based on Manufacturers' Specifications

92. A "ground-up" approach was taken to calculate the production capacity of the proposed crushing and screening plant at Whites Point. We created a Microsoft Excel simulation model using the grading analysis of the crusher products found in the manufacturer's literature for each crusher. In order not to overcomplicate the numerical model, screening, i.e. the separation of product from a crushing circuit into individual sizes, was conservatively assumed to be 100% efficient, though this is rarely achieved in real world situations, for calculation purposes to determine the maximum yield.

93. Table 3 below represents a snapshot of the numerical model. The crusher close side settings (the minimum discharge opening of the crusher) were chosen to maximize the production of the ¾" to ¼" fraction and minimize the production of screenings, from which grit is produced.

[72] Rosen Report, Schedule 2.

Table 3



94. Thus, to supply the required [redacted]

c. Impact on Operating Expenditures for the Project

95. In many of their operating costs used to calculate the project's potential profits, the Claimants have considered the Whites Point Quarry to have been [redacted] This results in a significant increase in operating costs. In particular, [redacted] the tons per man hour assumed by the Claimants in their labour and production cost calculation is highly unreasonable. As explained further in Appendix IV, [redacted] Using that assumption for Whites Point means that [redacted]. The Claimants have only costed here [redacted]

96. In addition, in order to [redacted] the quarry will have to operate more than the Rosen Report has planned – [redacted] We have set out our detailed operational cost calculations in Appendix IV. Accounting for an extension of the working hours, additional equipment and maintenance, and an increased number of employees, operating costs to [redacted] should be [redacted] The Claimants have also now proposed that sales from the Whites Point quarry would [redacted] The quarry would need to [redacted] and operating costs would accordingly increase even further.

d. Impact on Capital Expenditures for the Project

97. In order to meet the Claimants' proposed sales mix, capital expenditures should also be increased by [redacted] This additional capital expenditure would include [redacted]. Also, as is

[73] See Appendix IV, Table IV.
[74] Rosen Report, Schedule 2.
[75] Appendix IV.

customary in the aggregates industry, capital expenditures should be increased to include a one-time 10% contingency at the start of the capital spending based on the fact that all expenditures are budgetary and not firm quotes by contractors and suppliers. While such a contingency was referred to in Bilcon's earlier planning documents,[76] it has not been itemized in Rosen.

VII. Conclusions

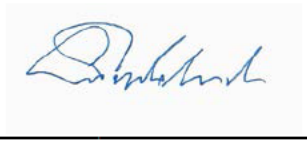
98. This analysis has determined three things:

1. The entry of material from the Whites Point quarry after 2010 would have caused aggregates prices in the New York City market to drop by [redacted]
2. The operating cost per ton as shown in the Rosen Report is understated and will be [redacted]
3. The capital expenditures required to sustain the quarry need to be increased by [redacted], with a 10% contingency added to the on-shore capital costs.

99. The Whites Point quarry would have [redacted] Aggregates demand is highly dependent on construction contracts as they are the basis for concrete and asphalt demand. A project specifies a certain volume of concrete and asphalt and [redacted]

100. From an operational perspective, the Whites Point quarry proposal calculates costs on [redacted]. Calculated correctly, it requires [redacted]. This means that costs would be materially higher [redacted] than the Claimants have presented.

[76] **C-1344**, Bilcon of Nova Scotia Corporation, Costings (Oct. 18, 2004), pp. 3-4; **C-1345**, Bilcon of Nova Scotia Corporation, Costings with Handwritten Notes (Oct. 18, 2004), p. 3; **C-1346**, Bilcon of Nova Scotia Corporation, Costings included in Environmental Assessment Process (Feb. 20, 2007), p. 3.



Colin Sutherland

David Chereb

APPENDIX I: Profitability Metrics in the Aggregates Industry

1. The most commonly monitored profitability metric in the aggregates industry is the non-GAAP calculation of Earnings Before Interest, Taxes, Depreciation and Amortization ["EBITDA"] and, more specifically, the ratio of EBITDA to Net Revenues ["EBITDA Margin"]. This metric is used internally by many industry players in their annual management incentive compensation schemes and is closely followed by financial analysts.

2. A very popular and widely used method for valuing an aggregate firm's Enterprise Value ["EV"] is to apply a multiple of sustainable EBITDA. The two leading suppliers of aggregates in the US are the publicly traded Martin Marietta Materials, Inc. [NYSE: "MLM"] and Vulcan Materials Company [NYSE: "VMC"]. Of the two, MLM is considered the gold standard "pure play" aggregates business in that it has a lower percentage of non-aggregates revenues and a highly attractive geographic footprint.

3. MLM owns and operates the Auld's Cove, NS quarry while VMC previously owned the Bayside, NB quarry and is now building a super-quarry at Black Point, NS in close proximity to MLM's operation.

Comparing Whites Point Pro-Forma Profitability to Industry Leaders

4. MLM's reported EBITDA margin hit a peak of approximately 29.8% in 2007 just prior to the onset of the Great Recession. For fiscal 2015 and 2016 the margins were approximately 22.7% and 26.6% respectively. VMC also coincidentally earned a similar 26.5% EBITDA margin for the year ended December 31, 2016.

5. In considering the likelihood of other new entrants following the lead of Bilcon to supply aggregates to NYC, it is informative to look at the pro-forma profitability of the Whites Point Quarry. Because the calculations in Rosen's model include only accelerated, tax based depreciation or CCA, we assumed a more conservative economic based depreciation approach (i.e. Gross Fixed Assets depreciated on a straight-line basis over their useful life) in order to compare Whites Point's EBITDA margin to those of the industry leaders.

6. The result of this exercise shows [redacted]

Obviously when the Gold Standard of the industry, MLM, earns a 30% EBITDA margin at the peak of the cycle, [redacted]

APPENDIX II: The Largest Metropolitan Statistical Areas in New York State

Rank	Metropolitan Area	Population
1	New York–Northern New Jersey–Long Island	18,747,320
2	Buffalo-Niagara Falls	1,135,509
3	Rochester	1,082,284
4	Albany–Schenectady–Troy	825,875
5	Poughkeepsie–Newburgh–Middletown	667,742
6	Syracuse	651,763
7	Utica–Rome	297,885
8	Binghamton	248,422
9	Kingston	182,693
10	Glens Falls	128,572
11	Ithaca	100,018
12	Elmira	89,512

Source: US Census Bureau

APPENDIX III: Aggregates Pricing Changes, Rosen vs. SCMA

Traditional
Aggregates Prices

Prepared by:
SCMA

APPENDIX IV: Whites Point Quarry Operating Cost Analysis & Capital Adequacy Commentary

1. BASIS FOR ASSUMPTIONS.

1. In order to reach our conclusions on the operating and capital expenditures budgeted for the Whites Point quarry, we reviewed the materials the Claimants provided with their Damages Memorial. We looked particularly at the description of the quarry's operations provided in the Expert Report of Howard Rosen ("Rosen Report"),[77] the Drawing of the plant referred to as "Revision D,"[78] and the description of the plant in the Witness Statement of John Wall ("Wall").[79] [redacted]

2. In light of our review, we understand the Claimants' description of the Whites Point quarry operations as follows:

   a) Wall Statement, paragraphs 50 and 55:

      i. [redacted]

   b) Interpretation of the Revision D Drawing:[80]

      i. [redacted]

[77] Rosen Report. See especially Schedules 1 through 7.
[78] **C-1001**, Crushing Plant Drawings and Schedule with George Bickford's Handwritten Notes.
[79] Wall Statement. See especially ¶ 55.
[80] **C-1001**, Crushing Plant Drawings and Schedule with George Bickford's Handwritten Notes.

ii. [redacted]

c) Rosen Report, Schedules 2 through 7.

i. [redacted]

[81] Bickford Report, ¶ 56; Wall Statement, ¶50.

[redacted]

2. IMPACT OF ACHIEVING THE CLAIMANTS' SPECIFIC SALES MIX ON OPERATING COSTS.

3. In the body of our report, we concluded that [redacted] It is customary in the aggregates industry to calculate operating and capital expenditures on the basis of the quarry's total production. [redacted]

1) Number of employees. The industry generally considers [redacted]) to be an excellent productivity ratio. In Exhibit C1010, the Claimants show that [redacted] are required for the Whites Point quarry once it

[82] **C-1344**, Bilcon of Nova Scotia Corporation, Costings (Oct. 18, 2004); **C-1345**, Bilcon of Nova Scotia Corporation, Costings with Handwritten Notes (Oct. 18, 2004); **C-1346**, Bilcon of Nova Scotia Corporation, Costings included in Environmental Assessment Process (Feb. 20, 2007).

[83] **C-1344**, Bilcon of Nova Scotia Corporation, Costings (Oct. 18, 2004); **C-1345**, Bilcon of Nova Scotia Corporation, Costings with Handwritten Notes (Oct. 18, 2004); **C-1346**, Bilcon of Nova Scotia Corporation, Costings included in Environmental Assessment Process (Feb. 20, 2007).

[redacted]

However, as discussed above, [redacted]

As a guide to the amount of labor used to achieve certain levels of production in the aggregate industry, we reviewed information from the United States Mine Safety and Health Administration ("MSHA") site. Based on our review of several other quarries' operations, we established ratios to assess what would be reasonable employment and productivity levels for a given level of production. For example, Mount Hope Quarry, which Mr. Wall managed and mentioned as achieving "5.2 million tons of capacity,"[85] employed up to 115 people according to the MSHA website.[86] These facts provide a productivity ratio of 20 tpmh. Another example, Stone Industries Quarry, a Braen owned quarry known to Mr. Wall, and which supplies New York, had 28 employees with a production of approximately 1 million tons.[87] Its productivity ratio is approximately 17 tpmh. Similarly, other active quarries reviewed on the MSHA site provided results in this same general range. Of particular note are two Tilcon quarries, Haverstraw and Clinton Point, both of which supply New York by water. They were shown on the MSHA site to employ 93[88] and 156[89] people, respectively, during their highest levels of production, which were estimated at 3.5 million and 5.7 million tons. Their productivity ratios are between 18 and 20 tpmh.

With a newly developed operating quarry, [redacted] However, it is not reasonable to assume it would be as high as the Claimants suggest [redacted]

[84] **C-1010**, Whites Point Operating Costs, 2011-2015, p. 1.
[85] Wall Statement, ¶ 5.
[86] **R-710**, MSHA website excerpt, Mine Yearly Production Information, Mount Hope Quarry.
[87] **R-711**, MSHA website excerpt, Mine Yearly Production Information, Stone Industries Quarry.
[88] **R-712**, MSHA website excerpt, Mine Yearly Production Information, Haverstraw Quarry & Mill.
[89] **R-713**, MSHA website excerpt, Mine Yearly Production Information, Clinton Point Quarry & Mill.

We have also assumed, consistent with Bilcon of Nova Scotia's description of the project in its EIS, that the quarry would operate for 44 weeks each year.[90]

To produce [redacted]. We have set out our calculations in Table I below.

Table I

[redacted]

Accordingly, the number of production hours and related labor costs in the Rosen Report should be increased to provide sufficient production to satisfy the proposed sales. Accordingly, [redacted]

[90] **R-581**, Revised Project Description, p. 40. The Claimants now state that the quarry would operate for only 40 weeks per year: Wall Statement, ¶77; **C-1342**, Letter from Greg Nash to Tribunal (Mar. 10, 2017), p. 9. Our calculation of operating hours is therefore conservative.

[91] See Table I, below.

[redacted]

In addition, CA$350,000 (2011 dollars) should be added to the supervisory costs to cover the cost of [redacted] The basis for these additions is to [redacted]

In total, labor costs [redacted] We have set out the results of our calculations in Table IV at the end of this appendix.

2) Fuel. The Claimants have also understated the fuel costs associated with Bilcon of Nova Scotia's mobile equipment. Fuel has been a very expensive item subject to major fluctuations. The following table provides an estimate of the diesel cost per short ton in US dollars based on the equipment shown in Rosen, Schedule 6 together with the hours of operation shown in Exhibit C1010:

Table II

[redacted]

Fuel consumption per hour for the equipment in Table I is based on [redacted]

[redacted]

3. IMPACT OF ACHIEVING THE CLAIMANTS' SPECIFIC SALES MIX ON CAPITAL AND MAINTENANCE COSTS.

1) Additional Mobile Equipment Expenditures. The tabulation in Table III shows a comparison between Bilcon of Nova Scotia's earlier thinking on the size of equipment and that which is included in the capex list, Rosen, Schedule 6:

Table III

[redacted]

2) Additional Plant Expenditures. Due to the [redacted] is necessary. Additionally, [redacted] is required to achieve [redacted]. The cost of

[92] **R-714**, Owning and Operating (O&O) Baseline Cost Estimate Solutions (Edition 41).
[93] **C-1001**, Crushing Plant Drawings and Schedule with George Bickford's Handwritten Notes.

[redacted]

3) Contingency. When making a large capital investment in the aggregate industry, the projects are typically subject to a 10% contingency to cover items that were missed in the capex costing, such as unforeseen site development issues, general cost overruns, labor and the use of contractors. This is particularly the case where the amounts in question are budgeted amounts rather than firm quotes. A 10% contingency was noted in Bilcon of Nova Scotia's earlier planning documents,[95] confirming the practice. However, this item was not itemized in the Rosen Report. Accordingly, a 10% contingency should be added to the quarry's onshore capital expenditures.[96]

4) Additional Maintenance Expenditures. An increase in maintenance costs will also be required as follows:

a) *Mobile equipment* [redacted]

b) *Plant*: [redacted]

c) *Marine Terminal*: [redacted]

[94] **R-715**, Control Engineering news article, "Quarry carves out twice the production" (Nov. 23, 2015), available at: http://www.controleng.com/single-article/quarry-carves-out-twice-the-production/ecc8ae3e1bcccb995c97fafd2c1265bc.html

[95] **C-1344**, Bilcon of Nova Scotia Corporation, Costings (Oct. 18, 2004), pp. 3-4; **C-1345**, Bilcon of Nova Scotia Corporation, Costings with Handwritten Notes (Oct. 18, 2004), p. 3; **C-1346**, Bilcon of Nova Scotia Corporation, Costings included in Environmental Assessment Process (Feb. 20, 2007), p. 3.

[96] We note that a small amount of contingency was accounted for with respect to [redacted]): see **C-1011**, LB&W Engineering, Inc., Plant/Infrastructure Costing 2008 USD, p. 1011-26. An additional contingency is not required for these items.

[redacted]

4. We incorporated all of these numbers into Mr. Rosen's schedules, and provided them to the Brattle Group.

Table IV

[redacted]

APPENDIX V: Frequently Cited Sources

USGS: U.S. Geological Survey

The U.S. Geological Survey describes its purpose as follows (emphasis added):[97]

> Created by an act of Congress in 1879, USGS has evolved over the ensuing 125 years, matching its talent and knowledge to the progress of science and technology. USGS is the sole science agency for the Department of the Interior. It is sought out by thousands of partners and customers for its natural science expertise and its vast earth and biological data holdings.
>
> The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and **mineral resources**; and enhance and protect our quality of life.
>
> USGS is a world leader in the natural sciences through our scientific excellence and responsiveness to society's needs.
>
> As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems. Our diverse expertise enables us to carry out large-scale, multidisciplinary investigations and provide impartial scientific information to resource managers, planners, and other customers.

CMD Group, Construction Market Data

Very similar to F.W. Dodge construction data.

CMD, a ConstructConnect company, provides national U.S. coverage and the strongest Canadian coverage available. The formation of ConstructConnect brought together four industry leaders to provide customers with the best information, technology solutions, and market relationships in a single brand. Learn more about ConstructConnect.

They make over 2 million contacts per year with construction industry professionals to collect, verify and maintain data on over 184,000 bidding projects and more than 85,000 planning projects.

SCMA: SC Market Analytics

Provides construction materials analysis for acquisitions and forecasts at the county level.

Our most frequent commodities for analysis are aggregates and Portland cement.

[97] See **R-716**, USGS website excerpt, "Who We Are", accessed June 3, 2017. Available at: https://www.usgs.gov/about/about-us/who-we-are

APPENDIX VI: SCMA CV's

a) David Chereb
b) Colin Sutherland
c) Michael Power
d) James Ward

Dr. David Chereb – Executive Vice President & Chief Economist

- Over 30 years' experience forecasting North American construction materials markets
- Owner David Chereb Group which has provided specialized economic and market forecasting services to the cement, concrete and aggregates industries since 1996. These forecasts and analyses have been used to support major new plant investments, mergers & acquisitions and routine strategic planning exercises.
- Developed proprietary "Pressure Index" tool for tracking specific markets and micro markets on an intra-year basis.
- Developed online portal for analyzing construction and materials changes by county
- Presented paper, "Does Data Mining Improve Business Forecasting" at 18th International Symposium on Forecasting, Edinburgh, Scotland, June 10-13, 1998
- B.S. United States Air Force Academy, 1970
- M.A. (economics) UCLA, 1971
- Ph.D. (economics) University of Southern California - 1977

Jan 2017, SCMA

COLIN M. SUTHERLAND

81 Conservation Way **mobile: 416.476.5760**
Collingwood, ON L9Y 0G9 **colin.m.sutherland@gmail.com**

Senior construction materials executive and Corporate Director with a strong entrepreneurial bias, skilled in strategy implementation, value creation and change management with broad supporting experience in financial valuation, market analysis, transaction negotiation and post merger integration. Leader, mentor and innovative problem-solver with a demonstrated ability to work effectively in a range of public & private organizations from start-ups to multi-billion dollar global entities. Strengths include:

Formulation & Implementing Successful Long Term Corporate Strategies
Setting strategy in competitive, cyclical industries requires a solid understanding of the economic fundamentals that drive industry activity and product demand over the long term. Often strategic success depends as much on the discipline of knowing what projects to avoid, as what projects should go forward.

Building on a Broad Perspective and International Experience
Working in the US, Canada and Europe has permitted exposure to different corporate cultures and business environments demanding a high degree of adaptability in addition to a well developed sense of diplomacy. The result is openness to new ideas and formation of a best practice management philosophy rooted in teamwork, personal accountability and respect for the individual. Fluency in French is a complementary skill.

Identifying and Negotiating High Impact Acquisitions, Joint Ventures and Other Growth Initiatives
Skilled at evaluating the big picture, establishing priorities and identifying the most financially and strategically attractive external opportunities to grow an enterprise. Excellent listening skills facilitate negotiations. Maintaining a firm grasp on underlying objectives helps uncover innovative solutions to barriers that arise during the process.

Exceeding Major Acquisition Goals through Creative Integration
Experienced in planning, organizing and leading post merger integration programs designed to assure the delivery of value creation associated with business combinations. Led projects with regional, national and global scope and conducted seminars for senior managers to teach the concepts of successful integration.

EXPERIENCE

SC MARKET ANALYTICS INC., Collingwood, ON / Mission Viejo, CA 02/14 to Present
President & Co-Owner
Formed company in early 2014 in partnership with Dr. David Chereb an economist with 25 years of experience analyzing North American construction materials markets. SC Market Analytics offers independent market forecasting, decision support and strategic consulting services to clients focused on these sectors.

US CONCRETE INC., Euless, TX (USCR – Nasdaq) 09/10 to Present
Member of the Corporation's Board of Directors, Audit & Compensation Committees
Joined a newly constituted Board that has guided the company since its emergence from Bankruptcy in 2010

- This Board has overseen the complete replacement of the executive management team, refocusing of the business portfolio, completion of several successful acquisitions and restructuring of the Balance Sheet.
- Core business sales have increased ~75%, EBITDA is up close to 12X and the company's market capitalization has grown approximately 25X since the lows of late 2011.

VOTORANTIM CEMENT NORTH AMERICA, Toronto, ON 05/12 to 09/13
Vice President Commercial Strategy
Senior strategy & corporate development officer for ~$1 Billion cement, concrete & aggregates subsidiary of a major Brazilian multi-national. Seconded to integration project for new international business cluster in 2012.

- Helped execute carve-out / integration of 6 Eurasian Country Business Units (CBU's) from CIMPOR
- Developed organizational plan for new Eurasian HQ in Madrid, assisted in turnaround of Chinese CBU

WATERFORD GROUP, Brantford, ON 04/11 to 05/12

Vice President Corporate Development
Oversaw corporate development activities in a rapidly growing mid-sized company with two main business lines: Industrial Services and Construction Material (aggregates & ready-mix concrete).

ARMTEC INFRASTRUCTURE INC., Guelph, ON 07/10 to 03/11
Special Corporate Development Advisor to the CEO
Assisted in the integration of recently acquired businesses and outlining a future growth strategy.
- Managed the value creating divestiture of a non-core business on an accelerated timetable
- Formulated a new acquisition screening / prioritization model to focus the company's growth initiatives.

CATAWBA RESOURCES & RELATED COMPANIES, Sudbury, MA 03/07 to 04/10
Executive Vice President Business Strategy & Development
Provided strategic, financial & business leadership for several privately held start-up businesses.
- Co-founder of a Clean Technology startup company focused on developing a proprietary low-cost process to remove CO_2, SO_2, Mercury and other pollutants from cement, lime and steel plant emission streams.

HOLCIM (US) INC., Waltham, MA 08/03 to 02/07
Vice President, Business Development, Integration & Strategy
Led business development and strategy formulation for a $1.5 billion producer of cement and related products.
- Created innovative JV structures to partner with strategic customers while minimizing capital investment.
- Managed Holcim (US) team during successful $230 million purchase of Meyer Materials in mid-2006.

LAFARGE S.A., Paris, France 10/01 to 07/03
Vice President, Cementitious Materials
Directed Lafarge's worldwide initiative to increase the utilization of and value creation from sustainable low CO_2 Supplementary Cementitious Materials including slag, fly ash and natural pozzolans.
- Set priorities for a Paris based team of six and a global network of several hundred individuals.
- Created new, SCM performance improvement program for use in 47 business units worldwide.

BCI PLC / LAFARGE S.A., London & Paris 02/01 to 09/01
Group Integration Director
Reporting to BCI's CEO and an Executive Steering Committee, co-managed the organization, launch, and day-to-day coordination of a worldwide integration program for the $7+ billion merger of BCI & Lafarge.
- With focus on value creation and cultural adaptation, program succeeded in identifying almost triple the anticipated synergies and became the starting point for a Group-wide cultural change initiative.

BLUE CIRCLE NORTH AMERICA, Atlanta, GA 09/95 to 01/01
Director, Corporate Development
Directed all aspects of the financial, economic, competitive and strategic justification for acquisitions, joint ventures and major capital projects in four business lines of a $1.5 billion sales enterprise.
- Between 1995 and 2000 sales doubled to $1.5 billion and EBIT tripled to $300 million.
- Acquisition spending exceeded $500 million; major capital project spending exceeded $500 million.

Previous Strategy & Development experience with JANNOCK LIMITED (brick, siding, steel products) 1994-95, RTICA CORPORATION (innovative insulation products) 1992-94, DOMTAR INC. (roofing, insulation, chemicals, gypsum, packaging, pulp & paper) 1985-1992 and, LAFARGE NA (cement, aggregates, concrete) 1977-1985.

ACADEMIC BACKGROUND

- Bachelor of Commerce with Honors - Queens University, 1977
- Graduate Studies - Wharton School - University of Pennsylvania, 1981
- Lecturer in Finance - Concordia University, Montreal 1986-87
- Canadian Securities Course, 1994-95
- Holcim Senior Management Course - IMD Lausanne, 2004

MICHAEL R. POWER

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SALES AND MARKETING ♦ PROFESSIONAL ♦ LIAISON ♦ LEADER ♦ CONSULTANT

PROFESSIONAL PROFILE:

- Sales and Marketing professional with over 40 years experience working within the Aggregate Industry fostering excellent working relations with various business partners
- Conducts extensive market research to remain current and competitive in a tight global market; strong knowledge of market conditions and demand, material and transport costs
- Establishing a loyal clientele through years of providing strong, knowledgeable and efficient service to customers while maintaining confidentiality and professionalism
- Coordinate with shipping companies to ensure efficient transport of materials worldwide
- Collaborates with state, provincial and government agencies to ensure all products adhere to compliance standards

PROFESSIONAL EXPERIENCE:

Atlantic Coast Materials LLC — Upperville, VA / Antigonish, NS
President — April 1998 to Present

- Responsible for all sales and shipping for a marine based aggregate quarry located in Bayside, NB
- Coordinate all sales and shipping for U.S. East Coast, Gulf Coast, the Caribbean, West Indies, Central and South America
- Foster excellent working relations with customers establishing connections that are built around trust, loyalty and the ability to deliver a professional grade product
- Liaise with shipping companies worldwide to coordinate the delivery of material from source to various locations; ensuring appropriate conditions for delivery and efficiency

M.R. Power and Associates Aggregate Marketing Consultants — Antigonish, NS
Owner / Operator — October 1997 to Present

- Provide assistance to various companies sourcing aggregates; look for appropriate material and investigate new potential sites
- Conduct market research to ensure a competitive advantage; staying current on market conditions, demand, selling prices and transport costs
- Research logistics for potential marine offloading sites to ensure appropriate water depth, draft, berth, dock, storage capacity
- Working with various shipping companies to source out prospective unloading facilities and coordinate the delivery of material from source to location

Martin Marietta Materials Canada Ltd — Auld's Cove, NS
Vice President and General Manager — September 1995 to September 1997

- Responsible for overall management of a three million tonne marine based aggregate facility
- Managed over 80 employees; ensuring all staff were competent, knowledgeable and productive while adhering to all company safety standards and guidelines
- Responsible for all sales and shipping for East Coast Canada, the Caribbean, West Indies, Central and South America
- Coordinated with all the marine based company owned terminals within the United States
- Liaised with shipping companies worldwide to coordinate the delivery of material from source to various locations; handled all shipping, material and load logistics
- Oversaw production of materials; worked closely with operations personnel to ensure professional quality product, availability of product and that equipment was maintained

PROFESSIONAL EXPERIENCE CONTINUED:

Construction Aggregates LTD (Acquired by Martin Marietta Materials 1995) Auld's Cove, NS
President June 1990 to September 1995

- Responsible for overall management of a three million tonne marine based aggregate facility
- Managed over 80 employees; ensuring all staff were competent, knowledgeable and productive while adhering to all company safety standards and guidelines
- Responsible for all sales and shipping for East Coast Canada, East Coast and Gulf Coast of U.S., the Caribbean, West Indies, Central and South America
- Coordinated with all the marine based company owned terminals within the United States
- Liaised with shipping companies worldwide to coordinate the delivery of material from source to various locations; handled all shipping, material and load logistics
- Oversaw production of materials; worked closely with operations personnel to ensure professional quality product, availability of product and that equipment was properly maintained

PROFESSIONAL AFFILIATIONS:

Bayside Port Corporation Bayside, NB
President of the Board of Directors April 2000 to Present

Chamber of Marine Commerce Ottawa, ON
Member 2005 to Present

Strait Area Chamber of Commerce Port Hawkesbury, NS
Director September 1990 to September 1997

Strait of Canso Superport Corporation Mulgrave, NS
Director / Treasurer May 1993 to December 1998

REFERENCES:

Professional references available upon request

Confidential Career Summary for James O. Ward

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960 Saint Matthews Road, Chester Springs, Pa. 19425

SYNOPSIS

More than 40 years' experience in the heavy building materials and construction products industries in the United States, South Africa, United Kingdom, Canada, and the Caribbean. During this time, I have worked at an executive and senior management level directly for such integrated international companies as Blue Circle, Tarmac, and Lafarge. Additionally, I have carried out substantial work for other large national and international corporations, investment banks, entrepreneurs, and private equity groups. My extensive, multi-functional experience includes aggregates, sand, ready mix concrete, asphalt, cement, timber, bricks, and clay.

Education and Associations - BSc in Chemistry, certifications in mining, engineering and geology from Doncaster College, UK, University of the Witwatersrand, South Africa, and has been a Fellow of the Institute of Quarrying (FIQ) for over 35 years. He served as the President of the Georgia Crushed Stone Association, renamed as the Georgia Construction Aggregate Association, and was instrumental in creating and taught at the Georgia Crushed Stone Management Development course for several years.

DETAIL

2009 – Present

Due to the recent nature of the studies mentioned, the names of the companies have been kept confidential; however, references may be obtained by arrangement.

Lead consultant for diversification and entrance into aggregate market of large international service company to the steel industry. Quarry viability study in Illinois and Florida for a large international cement company. Reserve and viability study for a large investment group. Market surveys for rapidly expanding large national cement, aggregates and asphalt company, evaluation of quarry opportunities in Texas, Arizona, Florida, Pennsylvania, Oklahoma, California, Illinois, Ohio, Michigan, Mississippi, Georgia, Alabama. Lead consultant on a Dominican Republic opportunity. Development of proprietary intellectual property organizational effectiveness diagnostic. Consultant for American Infrastructure (Allan A. Myers of which Independent Construction materials is a subsidiary).

2006 – 2009

Vice President/General Manager, Independence Construction Materials, Malvern, Pennsylvania

Managed the integration of the acquisition of D. M. Stolzfus into existing operations, improved operating performance of asphalt plants, quarries and transport fleet. Successfully exited ready mix business, increased capacity and operating efficiency of quarries, started new quarry in Elverson, Pennsylvania, worked on new acquisitions, built new asphalt plant in Jessup increasing footprint in Mid Atlantic and working on Washington, DC market. Prepared business plan for entry into other regions.

2003 – 2006

James Ward DBA Giddalti Enterprises

Carried out market study for importing aggregate into USA together with developing a business plan for starting a mining, cement and shipping business from the Caribbean location. Met with financial institutions and prepared business plans to obtain funding for the venture. Developed mining plan, reviewed geology and designed aggregate processing plant.

Evaluated several businesses ranging from bottled water in Northern Florida, sand and aggregate opportunities in the Florida panhandle, dimension stone in Indiana and Texas, lumber in Atlanta and Greenfield quarry opportunities in Alabama, Texas, Florida and Georgia.

Developed an Aggregate business for McDonald Enterprises, Birmingham, Alabama, by acquiring quarries in Florida and South Carolina. Evaluated several other opportunities and put together business plans and market studies for these opportunities.

Employed as lead consultant on the purchase of D. M. Stoltzfus by American Infrastructure.

1989 – 2003

President Blue Circle Aggregates North America. (Worked in that capacity for Lafarge from date of takeover 2000/2001 until I left Lafarge)

Responsible for operating profit, development and growth of the aggregate operations. Evaluated several acquisitions, started three green field quarries and merged the aggregate operations of St Mary's Cement, Canada into Blue Circle Aggregates. Acquired additional businesses in Canada which included small asphalt and contracting business and cold asphalt patching business.

1987 – 1989

Vice President Blue Circle Phoenix, Arizona.

Responsible for turnaround situation of ready mix, aggregate and trucking company. Developed business and entered Laughlin, Nevada market. This part of the company was sold to Cemex along with the Blue Circle cement plant in Mexico.

1965 – 1989

Tarmac Roadstone.

Vice President – Aggregates and Trucking, Texas (1986 – 1987)

Technical Development Manager, Tampa, Florida. Responsible for all aspects of operational improvement in aggregate, ready mix and cement businesses. Worked with business development on several acquisitions, potential acquisitions and was operational and geological point person during the Lonestar acquisition.

Technical Development Manager, Tarmac Roadstone, Johannesburg, South Africa. (1977 – 1985)

Responsible for all aspects of operational improvement and development of associated businesses such as ready mix, aggregates, asphalt, waste disposal, brick manufacture, water purification, sand products, asphalt/cement surfacing. Functioned as professional geologist when required.

Quarry Manager/Production Manager, Tarmac Roadstone, Johannesburg, South Africa. (1976 – 1977)

Managed granite, tillite and sand operations in Durban and Johannesburg.

Quarry Manager/ Staff Foreman (1972 – 1976) Tarmac Roadstone, Derbyshire/Yorkshire, UK

Managed quarry, aggregate, and asphalt plants.

1962 – 1965 Industrial Chemist, National Coal Board, Derbyshire/Nottinghamshire, UK.

Education.

1970 Nottingham and Chesterfield Colleges - LRIC (B Sc) in Chemistry with Mathematics.

1976 Doncaster College – Quarrying, Mining, and Engineering

1978 University of the Witwatersrand, South Africa - Geology

Ashridge College, UK. Courses Taken - Manager of the Future – Strategic management – Business Evaluation – Acquisitions and Mergers – Marketing.

Current and Past Associations

Fellow of the Institute of Quarrying (FIQ), UK, - Member Institute of Asphalt Technology, UK, Member of South African Geological Society, - Member of the South African Marketing Institute, South African Mining Blasting Certificate necessary to manage mining operations.