

**RED HILL VALLEY PARKWAY INQUIRY**

*In the matter of the Public Inquiries Act, 2009, S.O. 2009, c 33, Sch 6*

*And in the matter of the Resolution of the Council of the City of Hamilton dated April 24, 2019, establishing the Red Hill Valley Parkway Inquiry pursuant to section 274 of the Municipal Act, 2001, S.O. 2001, c 25*

**DUFFERIN CONSTRUCTION COMPANY, A DIVISION OF CRH CANADA  
CONSTRUCTION GROUP INC.**

Participant

**DUFFERIN'S CLOSING SUBMISSIONS**

March 10, 2023

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TO: **Mr. Justice Wilton-Siegel, Commissioner**

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### DUFFERIN'S CLOSING SUBMISSIONS

#### Introduction

1. The Red Hill Valley Parkway Inquiry (the “**Inquiry**”) was established on April 24, 2019 by the Council of the City of Hamilton (“**Council**”). The genesis of the Inquiry, as expressed in the Terms of Reference for the Judicial Investigation on the Red Hill Valley Parkway (the “**Terms of Reference**”), was to inquire into concerns that were raised regarding why a draft report by Tradewind Scientific Ltd. dated November 20, 2013 (the “**Tradewind Report**”) was not disclosed to Council.<sup>1</sup> The Tradewind Report addressed friction testing that was done on the Red Hill Valley Parkway (the “**RHVP**”).

2. The Terms of Reference set out 24 questions which form the subject matter and scope of the Inquiry. Dufferin Construction Company, a Division of CRH Canada Construction Group Inc. (“**Dufferin**”) has an interest in the aspects of the Inquiry that relate to the selection of the aggregates for, and the paving of, the RHVP in 2006 and 2007. Accordingly, Dufferin’s closing

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<sup>1</sup> Terms of Reference, Item 12(a) and Appendix “B” of [General Issues Committee Report 19-008 dated April 17, 2019](#), pp. 9 and 17.

submissions are confined to, and address only, the aspects of the Inquiry that engage: (a) the use of DEMIX-Varenes traprock aggregate for the Stone Mastic Asphalt (“SMA”) mixes, and (b) the mainline paving of the RHVP.

### **Overview of Dufferin’s Involvement**

3. Dufferin paved the RHVP from the Mud Street Interchange to the QEW Interchange, pursuant to a tender issued by the City of Hamilton Public Works Department (the “City”) (the “**Project**”) The tender was a “bid build”, which required bidders to provide unit pricing for the materials specified by the City based on an approximate schedule of quantities provided in the tender documents. The contract was provided to Dufferin (then a business unit of St. Lawrence Cement Inc.) and executed July 27, 2006. Substantial performance of the contract was achieved November 27, 2007.

### **Dufferin Witnesses**

4. Commission counsel called three witnesses who had each been employed by Dufferin at the material time (collectively the “**Dufferin Witnesses**”) and each of whom worked on the Project:

- (a) Peter Gamble – At the material time, Peter Gable was the Manager of Plants, Equipment and Technology for Dufferin.<sup>2</sup> He was responsible for all the pavement crews (both concrete and asphalt), all the asphalt and concrete plants, and quality control of the laboratories.<sup>3</sup> Peter Gamble was retired at the time of his testimony.<sup>4</sup>

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<sup>2</sup> Transcript from the Examination of Peter Gamble, May 2, 2022 (the “**Gamble Transcript**”), p. 820, ln. 20-24.

<sup>3</sup> Gamble Transcript, p. 821, ln. 3-14.

<sup>4</sup> Gamble Transcript, p. 818, ln. 19-21.

- (b) Dave Hainer – Dave Hainer is the current Operations Manager for the Northeast District of Dufferin.<sup>5</sup> At the material time, he was the Senior Project Superintendent.<sup>6</sup> He was charged with the safety of the workers and the public, overall execution of the Project, logistics and finance for the Project, and the day-to-day resourcing and scheduling of equipment and people for the Project.<sup>7</sup>
- (c) Paul Janicas – Paul Janicas currently works for Metrolinx,<sup>8</sup> but he worked at Dufferin from 1999 to December 2020.<sup>9</sup> At the outset of the Project, Paul Janicas was the Senior Quality Control Lab Supervisor.<sup>10</sup> His responsibilities included resource management – making sure that the labs were staffed properly and certified<sup>11</sup> and seeking approval of the asphalt mix designs.<sup>12</sup> In the Spring 2007, he became the Quality Control Manager for bituminous, and then in early 2008 he became the Asphalt Plant Superintendent.<sup>13</sup>

### **Credibility & Reliability of Dufferin Witnesses**

5. It is respectfully submitted that each of the Dufferin Witnesses testified in a sincere and straightforward manner. Each was forthcoming in answering the questions posed by Commission counsel, counsel for the other parties and, on occasion, the Commissioner. Each did

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<sup>5</sup> Transcript from the Examination of Dave Hainer, May 11, 2022 (“**Hainer Transcript**”), at p. 1809, ln. 24-25.

<sup>6</sup> Hainer Transcript, p. 1812, ln. 9-13.

<sup>7</sup> Hainer Transcript, at p. 1814, ln. 3-21.

<sup>8</sup> Transcript from the Examination of Paul Janicas, May 5, 2022 (the “**Janicas Transcript**”), p. 1219, ln. 2-4.

<sup>9</sup> Janicas Transcript, p. 1219, ln. 5-13.

<sup>10</sup> Janicas Transcript, p. 1220, ln. 8-12.

<sup>11</sup> Janicas Transcript, p. 1221, ln. 1-13.

<sup>12</sup> Janicas Transcript, p. 1225, ln. 6-12.

<sup>13</sup> Janicas Transcript, at pp. 1220-1221 and 1227, ln. 13-25, 1-25, and 13-20.

his best to recall events from over fifteen years ago and each was candid when he no longer recalled specific facts.

6. There were no material inconsistencies in the evidence of Dufferin Witnesses among one another or with the evidence of the City or Golder witnesses, who worked with the Dufferin Witnesses on the Project. In fact, the evidence of the Dufferin Witnesses was largely consistent with the witnesses from both Golder and the City.

7. It is respectfully submitted that the Commission should find that each of the Dufferin Witnesses was credible and reliable in his evidence.

#### **Facts related to Dufferin's involvement**

8. In or around July 2006, Dufferin was awarded the contract for the paving of the mainline of the RHVP (contract PW-06-243) (the "**Mainline Paving Contract**").<sup>14</sup> Dufferin respectfully submits that neither the tender process nor the decision by which the contract was awarded to Dufferin is at issue in the Inquiry.

#### ***Use of Demix Aggregates in SMA Mixes***

9. As stated in the foregoing, the Mainline Paving Contract that Dufferin was awarded by the City was strictly for the paving of the RHVP. Dufferin did not design the RHVP and Dufferin did not establish the specifications of the SMA mix design. Instead, the paving

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<sup>14</sup> Exhibit 3, Overview Document 3, paras 52 and 56-58, pp. 26 and 28-29. See also HAM0003013\_0001; DUF0002533.001 plus Parts A, B, C, and D at DUF0002534.001, DUF0002535.001, DUF0002536.001, DUF0002537.001.

specifications were determined by others and set-out in the tender.<sup>15</sup> The paving specifications included, among other things, the following:<sup>16</sup>

- (a) SMA 12.5 incorporating PG 70-28 asphalt cement surface course on mainline and SP 12.5 FC2 incorporating PG 70-28 asphalt cement surface course on ramps;
  - (b) No Reclaimed Asphalt Pavement (RAP) allowed in SMA or SP 12.5 FC2;
  - (c) SMA Specification OPSS 1151 November 2004, Material Specification for Superpave and Stone Mastic Asphalt Mixtures;
  - (d) OPSS 1101 November 2002, Material Specification for Performance Graded Asphalt Cement;
  - (e) OPSS 1003 November 2004, Material Specification for Aggregates – Hot Mix Asphalt;
  - (f) OPSS 1001 November 2005, Material Specifications for Aggregates, General;
  - (g) Surface Smoothness Requirements; and
  - (h) Acceptance of Hot Mix Asphalt by Visual Inspection of Segregation.
10. Dufferin hired Trow Global Holdings Inc. (now exp Global Inc.) as its asphalt mix design consultant for the Mainline Paving Contract.<sup>17</sup>

11. Since the Mainline Paving Contract did not require Dufferin to use aggregate from the Ministry of Transportation's ("MTO") Designated Sources for Materials ("DSM"),<sup>18</sup> Dufferin sought and obtained approval to use an externally sourced crushed traprock in the Superpave 12.5 FC2 and SMA mixes (in respect of both the coarse and fine aggregates) from the Demix-Varenes

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<sup>15</sup> Exhibit 3, Overview Document 3, para 53.

<sup>16</sup> Exhibit 3, Overview Document 3, para 54. See also DUF0002533.0001 at images 91-93 (pages 3-5 to 3-7).

<sup>17</sup> Exhibit 3, Overview Document 3, paras 65 and 66(a). See also HAM0007868\_0001 at image 2.

<sup>18</sup> Transcript from the Examination of Ludomir Uzarowski, April 28, 2022 (the "**Uzarowski Transcript**"), pp. 410-411, ln. 20-25 and 1-20.

quarry in Quebec (“**Demix**”).<sup>19</sup> In that respect, Dr. Hassan Baaj (“**Dr. Baaj**”), an expert retained by Golder to opine upon the testing conducted on the Demix aggregate, explained that there would be no reason to reject the Demix aggregates because they were not on the DSM. Rather, the aggregate would merely need to be evaluated and, in this case, the technical review of the Demix aggregates was done properly.<sup>20</sup> Accordingly, the Demix aggregates were suitable and appropriate for application within the SMA mix.<sup>21</sup>

12. The evidence concerning the aggregate that was supplied by Demix is clear and unequivocal – the aggregate was of excellent quality. In particular, the Inquiry heard the following evidence:

- (a) Dr. Ludomir Uzarowski (“**Dr. Uzarowski**”), the principal pavement and materials engineer at Golder Associates Ltd. (“**Golder**”), gave evidence that the results from the testing of the aggregate “were excellent”, that the aggregate obtained results that you “rarely see”, that it was “a good quality aggregate,” and that Dr. Uzarowski was “impressed [by] how good the results were”,<sup>22</sup>
- (b) Dr. Gerardo Flintsch (“**Dr. Flintsch**”), an expert retained by the Inquiry to opine upon friction on the RHVP, gave evidence that the Demix aggregates used in the SMA met the requirements at the time (i.e., 2007) and that results that the MTO obtained in 1992 do not inform or impact the appropriateness of the Demix

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<sup>19</sup> Exhibit 3, Overview Document 3, paras. 66(b), 78, 80, and 120. See also DUF002741.01.

<sup>20</sup> Transcript from the Examination of Dr. Hassan Baaj, February 22, 2023 (the “Baaj Transcript”), pp. 16020-16022, ln. 24, 1-25, and 1-16.

<sup>21</sup> Baaj Transcript, p. 16036, ln. 10-18. See also Transcript from the Examination of Dr. Gerardo Flintsch, February 16, 2023 (the “**Flintsch Transcript**”), pp. 15541-15542, ln. 18-25 and 1-5.

<sup>22</sup> Uzarowski Transcript, pp. 408-409, 418-419, and 420; ln. 13-25 and 1-18, 22-25, 1-5, and 4-14.

aggregates in 2007 because, among other reasons, aggregates vary in quarries overtime;<sup>23</sup> and

- (c) Dr. Baaj's evidence<sup>24</sup> was that: (a) the polished stone value of the Demix aggregates was higher than the minimum number required in Ontario and many other places and, as a result, the Demix aggregates were good for use when skid resistance may be required or needed;<sup>25</sup> (b) the Micro-Deval abrasion tests confirmed that the aggregates had good resistance to abrasion/attrition;<sup>26</sup> and (c) the petrographic number ("PN")<sup>27</sup> confirmed that Demix's aggregates were of high quality (the PN of the aggregates was 100, which is almost the lowest that can be achieved with natural aggregates).<sup>28</sup>

### ***Dufferin Fulfills the Mainline Paving Contract***

13. The Inquiry was established in 2019 – more than a decade after Dufferin completed the paving of the RHVP. Given the passage of time, the Inquiry heard from witnesses whose memories had faded and the Inquiry received imperfect productions, as documents were misplaced or destroyed overtime. As a result of the passage of time, therefore, a determination cannot be made as to: (a) the precise date that the SMA mix design was approved;<sup>29</sup> (b) whether Dufferin

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<sup>23</sup> Flintsch Transcript, pp. 15542 – 15543 and 15633-156335, ln. 12-25, 1-5, 20-25, 1-25, and 1-14.

<sup>24</sup> Dr. Flintsch reviewed Dr. Baaj's report and confirmed that Dr. Baaj had conducted a very thorough analysis of the Demix aggregates. Dr. Flintsch generally agreed with Dr. Baaj's review of the aggregate related test results. See Flintsch Transcript, pp. 15542-15543, ln. 25 and 1-5.

<sup>25</sup> Baaj Transcript, pp. 16032-16033, ln. 16-25 and 1-4.

<sup>26</sup> When an aggregate is resistant to attrition, it is more likely to retain its micro texture.

<sup>27</sup> PN is used to discriminate between acceptable and unacceptable aggregate material for use in construction.

<sup>28</sup> Baaj Transcript, pp. 16033-16034, ln. 5-25 and 1-10.

<sup>29</sup> There are meeting minutes from the August 21, 2007 RHVP paving construction meeting no. 10, which confirm that Golder had "completed their analysis and provided written confirmation indicating that



used vibratory or static rollers while placing the SMA; or (c) who made the determination, and on what basis, to proceed with paving the mainline after Dr. Uzarowski concluded that the test strip had failed.<sup>30</sup>

14. Ultimately, a determination on those issues is not necessary because the evidence confirms that:

- (a) the SMA mix design was appropriate;<sup>31</sup>
- (b) Dufferin commenced paving on August 1, 2007;<sup>32</sup>
- (c) Dufferin made the requisite adjustments while paving the RHVP to improve compaction<sup>33</sup> and to deal with the issues that were identified from the test strip;<sup>34</sup>
- (d) the paving of the mainline was found to be acceptable;<sup>35</sup> and

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the SMA mix design [was] satisfactory”. See Exhibit 3, Overview Document 3, para. 126. See also HAM0007913\_0002. See also Uzarowski Transcript, p. 506, ln. 7-11: “The mix, you know, was done in accordance with OPSS and met the requirements for the mix”. Marco Oddi (“**Oddi**”), the Senior Project Manager of the RHVP at the City, testified that Dufferin would not have commenced placing the SMA mix unless and until the mix design met the specified requirements – see Transcript from the Examination of Marco Oddi, dated May 5, 2022 (the “**Oddi Transcript**”), p. 1190, ln. 14-19. See also Transcript from the Examination of Ludomir Uzarowski, April 29, 2022 (the “**Uzarowski Transcript, Day 2**”), p. 605-606, ln. 20-25 and 1-3: the SMA mix design was approved at some point prior to August 21, 2007.

<sup>30</sup> The Inquiry heard evidence that Dufferin would have been forced to rip out the test strip if it did not meet all of the specifications or if it was horrible. See Transcript from the Examination of Marco Oddi, dated May 5, 2022 (the “**Oddi Transcript**”), pp. 1180-1181, ln. 14-25 and 1-2. In this case, the test strip was not removed and no penalty was applied. See Oddi Transcript, p. 1183, ln. 2-6. See also Uzarowski Transcript, Day 2, p. 630, ln. 19-23.

<sup>31</sup> Flintsch Transcript, pp. 15541-15542, ln. 21-25 and 1-5.

<sup>32</sup> Exhibit 3, Overview Document 3, para 117.

<sup>33</sup> Janicas Transcript, pp. 1281-1282, ln. 24-25 and 1-21. See also Uzarowski Transcript, pp. 498-500, ln. 21-25, 1-25, and 1-6.

<sup>34</sup> Uzarowski Transcript, Day 2, pp. 630-631, ln. 24-25 and 1-4.

<sup>35</sup> Uzarowski Transcript, Day 2, p. 604, ln. 13-16.

- (e) Golder collected and reviewed asphalt samples that it obtained during the RHVP paving and, in Dr. Uzarowski's opinion, the SMA test results were "good overall".<sup>36</sup>

15. Additionally, this Inquiry heard evidence regarding potential areas of low compaction of the SMA on the mainline. There is no evidence that these concerns were raised with Dufferin at the material time and, in any event, Dr. Flintsch confirmed that neither low compaction nor over compaction of the aggregates (inclusive of breaking or cracking of the aggregates) would have negatively impacted the frictional qualities of the SMA pavement.<sup>37</sup> In that respect, Dr. Flintsch's November 2022 report concluded:<sup>38</sup>

While the low compaction observed in asphalt nuclear density test results for the mix placed in early August 2007 in some of the sections could have a negative impact on durability, in my view the low compaction would not have contributed to low friction. Nor, in my view, would cracking or breaking of the aggregates due to over-compaction contribute to low friction.

16. On August 13, 2007, Dufferin completed paving on the RHVP.<sup>39</sup> As stated in the foregoing, Dufferin made all of the requisite adjustments to meet the specifications of the Mainline Paving Contract.<sup>40</sup> Accordingly, Dufferin was paid, without reduction, pursuant to the terms of the Mainline Paving Contract.<sup>41</sup>

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<sup>36</sup> Exhibit 23, Affidavit of Ludomir Uzarowski, affirmed April 8, 2022, para. 7, p. 4 (RHV0000928).

<sup>37</sup> Flintsch Transcript, pp. 15541-15542, ln. 18-25 and 1-11.

<sup>38</sup> Exhibit 220, Analysis of Friction on the RHVP prepared by Dr. Flintsch, dated November 2022, p. 26.

<sup>39</sup> Exhibit 3, Overview Document 3, para 121.

<sup>40</sup> Uzarowski Transcript, Day 2, pp. 630-631, ln. 24-25 and 1-4.

<sup>41</sup> Janicas Transcript, p. 1290, ln. 2-11. See also Oddi Transcript, p. 1183, ln. 2-9.

### **The Performance of the Demix Aggregates Over Time**

17. Finally, this Inquiry heard evidence regarding the average friction values of the RHVP. Dufferin takes no position in respect of what ought to be an acceptable frictional value for roadways, such as the RHVP, in Ontario. While this Inquiry may ultimately determine that there is no absolute number at which pavement is safe or unsafe,<sup>42</sup> Dufferin submits that there is no basis to conclude that the Demix aggregates were somehow susceptible to undue polishing or that they did not perform as expected.

18. While Dr. Flintsch opined that a drop in friction of 20% over the course of six years is a “significant drop,”<sup>43</sup> Dr. Flintsch admitted that he does not have “a lot of experience with other aggregates in Canada” and, as a result, he could not comment on whether the drop of 20% over the course of six years was “average or higher or lower than average”.<sup>44</sup> Conversely, David Hein,<sup>45</sup> an expert retained by the City with expertise and experience as a consulting engineer specializing in pavement design and materials engineering, had extensive experience with aggregates in Ontario.<sup>46</sup> Mr. Hein reviewed the results from the friction testing of the RHVP and concluded that: (a) the road underwent the “classic SMA trend,”<sup>47</sup> and (b) the drop in friction of 20% on the RHVP was “very typical” of what is seen in Ontario using similar aggregates.<sup>48</sup> As such, the RHVP’s

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<sup>42</sup> See, for example, Transcript from the Examination of David Hein, February 24, 2023 (the “**Hein Transcript**”), p. 16383, ln. 13-20.

<sup>43</sup> Exhibit 220, Analysis of Friction on the RHVP prepared by Dr. Flintsch, dated November 2022, p. 21.

<sup>44</sup> Flintsch Transcript, pp. 15638, ln. 13-16.

<sup>45</sup> Dr. Flintsch contacted, among others, Mr. Hein because Dr. Flintsch had no knowledge and experience with respect to Canadian friction management practices. Dr. Flintsch views Mr. Hein as being a friction expert in Canada. See Flintsch Transcript, pp. 15656-15657, ln. 2-25 and 1-20.

<sup>46</sup> See Exhibit 222, *Curriculum Vitae* of David K. Hein, HAM0064775\_00001, pp. A-1-A-25.

<sup>47</sup> Hein Transcript, pp. 16300-16301, ln. 15-25 and 1-4.

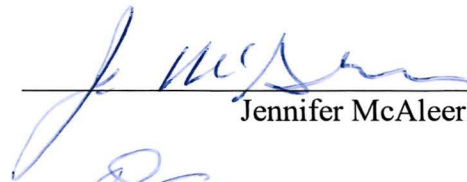
<sup>48</sup> Hein Transcript, p. 16301, ln. 10-19.


friction results followed a pattern that Mr. Hein “would have expected of just about any asphalt in the province of Ontario.”<sup>49</sup>

### **Recommendations**

19. Dufferin prides itself on being an innovative industry leader, with a strong reputation for quality and safety. As such, Dufferin is supportive of recommendations or initiatives that will promote the advancement of roadways in Ontario. Should it be of assistance to the Inquiry, Dufferin would be pleased to meet with the Commissioner or Commission Counsel to discuss the Inquiry’s potential recommendations, including the feasibility of implementing such recommendations or initiatives in Ontario.

**ALL OF WHICH IS RESPECTFULLY SUBMITTED** this 10<sup>th</sup> day of March, 2023.

  
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Jennifer McAleer

  
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<sup>49</sup> Hein Transcript, p. 16301, ln. 10-19.