

September 27, 2005

Mr. Garrett T. Schmidt and who it May Concern

Dear Sir or Madame:

For more than a decade the Town of Norman Wells Public Works Department has been caught in a "Catch 22" in the area of dust suppression. It is our mandate to provide a safe, smooth, dust free gravel driving surface, over a poor sub grade, within the budget allocated by the Municipal Council. Using DL10 Special as the suppression agent generally satisfies the first three criteria but creates a problem fiscally. The surface created is asphalt like in appearance and will stand up for a number of years in area's which have a suitable sub grade. Unfortunately, underlying the majority of our streets is discontinuous permafrost and ice lenses which in this time of global warming are thawing, severely affecting the driving surface.

Here is the "Catch 22". If I want to save on the cost of DL10 Special, (*app. \$.50 / liter FCB Norman Wells*) application rate, 1 liter / m2 on previously treated road, 3 liters / m2 on newly applied gravel, grading of the surface can only be to a depth of no more than 2" using a Sandvik type blade to suitably scarify the surface. This is done every 2 to 3 weeks in the summer and early fall. If we wait longer and the road potholes, while trying to cut to the depth of the potholes the usable oiled gravel is contaminated with dry gravel. Large chunks of driving surface also slip loose with the deeper cut and cannot be broken down and reapplied with our available equipment and methods. In this the worse case scenario additional costs are incurred applying additional suppression agent, new gravel (*\$24000 / km, 4" lift, applied*) and equipment time due to our inability to reclaim the materials lost in the chunks. In the normal 2" operation we cannot cut deep enough to aerate the gravel leaving moisture trapped beneath the cold roll and between the various layers. and are continually breaking down the fracture, until all we are working with are fines. Proper compaction cannot be realized without the fracture hence, raveled surface sooner, more gravel, more suppression agent, additional costs.

In 2002 our contractor brought information on the Road Badger to us. Upon investigating its use we thought that it could solve the problem of recovering gravel to the full depth of our wear course and reduce our costs by eliminating additional equipment and material costs. Unfortunately upon requesting purchase cost we found the Badger to be out of our reach. Using our original modus operandi, we continued with frustration, for another 2.5 years before going back to Road Badger to see how they could help us.

Initial cost estimates to bring the Badger to Norman Wells were again out of our budgeted reach but we were intent on moving forward and planned on trying again in 2006. Garrett was able to give us a substantial reduction in his stand by time (required for 2 weeks lost time shipping the unit from and back to Alberta), worked the Badger for longer than the 8 hour day specified in the contract, each and every day he was in Norman Wells at no additional cost enabling us to proceed at a reasonable increase to our budget. In Norman Wells our transportation costs to bring in equipment and personnel for specific projects can equal the operational costs of the project. Upon first seeing the Badger up close we were not to impressed, it looked kind of small and it was hard to see why Garrett was so excited about it. As soon as we hooked it up to the 140G we found out it was a touch little brute that could have been appropriately called Road Grizzly. We found that even

.....

September 27, 2005

Page 2

though knives could be removed to allow the grader to pull it through our surface material it was taking about 3 passes to get through the 3 to 5 inches of asphalt like wear course. Fortunately we had listened to Garrett and started on a .8 km section to test the machine in our material with an ambient air temperature of plus six Celsius. We were discouraged at the number of passes required but solved the problem on the next section by linking 2 graders together for the initial pass and on all subsequent sections of road completed. In this manner the next 11 plus km of road surface was ripped to the exact depth required, (up to 5") in one road width pass. 2 higher speed passes were required to completely reclaim all our gravel and dust suppression agent from the chunks (a process we have never been able to do) and another 2 passes to blend the gravel with the newly applied DL10 Special (much quicker and consistent than we could ever do by mixing with the grader). Normally we could do 1 km per day with the grader, maximum 2" depth, with the Badger we were completing 1.5 to 1.7km per day with one day at 2.4 km completed. All sections were taken down to 5" if the material was there, by windrowing the gravel and recovering as much of the hard packed buildup as we could with the Badger. Now we were impressed and concerned at the same time. We had this huge windrow of approximately 1200 to 1500 tonnes per km that was previously lost to us and only enough dust suppression agent to treat approximately 400 tonnes / km. We soon recognized that another savings had been realized by the Badgers ability to reclaim DL10 Special that was trapped in poorly mixed sections of our roads, allowing us to complete our project of over 12 km using 1 liter or less per m2 even though we were working with 2.5 times the amount of gravel. Garrett asked me how much would it have cost for you to do this normally and I told him "it is impossible for us to do what the Badger has done, using a grader, so I cannot make a comparison".

What I do know is this, if our wear course gets thin or we loose gravel to the chunks we have to apply new gravel at a cost of \$24,000 /km and suppression agent purchase and application to bind the new gravel \$14,000 /km = \$38,000.

With the Badger we recovered and reclaimed all the surface, slope and shoulder gravel and residual suppression agent trapped in layers up to 10 years old. Although the need for gravel application was eliminated due to the Badgers efficiency, in some area's of industrial use road we applied 200 tonne of gravel where there was little to be recovered during this project. We used from .7 to 1 liter of DL10 Special / m2 of road surface. Remember, it costs double to get work done in the north due to the freight and transportation costs. Even so we did it all for approximately \$10,153 / km. Now that we are spoiled we have to see how we can acquire a Road Badger.

Thank you, Garrett and Road Badger

H. Doug Whiteman

Public Works Manager

Town of Norman Wells, NT

Sincerely,



Mr.: H. Douglas Whiteman
Public Works Manager