

October 25, 2018

Ms. Erin Fanning  
Environmental Manager  
Bridgeton Landfill, LLC.  
13570 Saint Charles Rock Road  
Bridgeton, MO 63044

RE: Bridgeton Slip Failure and Separation Assessment  
3<sup>rd</sup> Quarter 2018 Inspection

Dear Erin,

On September 19, 2018, I performed an inspection of the Bridgeton Landfill for the purpose of identifying any visual evidence of instability or incipient failure. The inspection included the North and South Quarry fill areas. This inspection was for the 3<sup>rd</sup> quarter of 2018. The previous inspection was performed on 6/6/2018.

The observation of the slopes for both the North and South Quarry areas was performed to look for telltale signs of movements related to instability, including areas of suspension of the membrane on the upslope areas that would result if scarping, not visible due to the temporary membrane cap, existed. In addition, areas that showed indicated localized differential settlement were walked over to determine if any open tension cracking, an indication of separation, was present. The observations were made while walking along the areas within the landfill boundaries.

The inspection did not identify any un-previously observed (and reported) movements or signs of movement within the North or South Quarry that could be potential signs of instability. The landfill surface in the South Quarry shows signs of continued settlement with minor areas of tension in the membrane along the eastern side approximately above the underlying Quarry wall related to differential settlement in the area.

The previously reported minor surficial slumping along the southern ditch of the South Quarry appears to be resulting in a gradual reduction in slope along the lower edge of the landfill in the vicinity of the ditch. No indication that this surficial slumping is resulting in motions further upslope was observed. Rather the upslope area is lessening in elevation due to continued settlement, removing the likelihood of upslope movement related to the minor surficial slumping related to the ditch area. Given that these slump shapes have not progressed up slope it is not necessary to repair them at this time.

Since the quarterly inspections were begun in 2013, the sloping portions of the landfill are noticeably flatter and therefore, less prone to instability. As mentioned in the past few

● Page 2

inspection reports, there are very few areas within the heat affected portions of the South Quarry that have slopes exceeding 20%. This general reduction in vertical relief has essentially eliminated any potential for instability of any consequence in the South Quarry. The only slopes that are close to the original ground surface slopes in the South Quarry are those south of the neck area. These areas were examined for any signs of movement and none was observed.

Fill materials continue to be placed in the locally depressed areas to allow for drainage of stormwater in the South Quarry. The areas east of the main fills in South Quarry do exhibit signs of differential settlement along the vertical projection of the Quarry wall. No open tension cracking was indicated in area of the differential settlement when pressing the membrane down to contact the underlying ground surface in this area.

The North Quarry cap construction has been completed since the second quarter inspection of 2017. No signs of instability were observed in the North Quarry.

In addition, a review of the monthly settlement at grid points in the South Quarry for the past quarter was performed and the settlement in the North Quarry between July 16, 2018 and October 16, 2018. I did not see any indication of instability in the data. Monthly settlement mapping from July 2018 and September 2018 in the South Quarry was also reviewed. No indication of instability was observed in the South Quarry based on settlement patterns. As mentioned in previous reports, the Bridgeton site has not exhibited a coupling of instability and settlement. .

This is the twenty-fourth review I have performed of this type at the Bridgeton since the fall of 2012. To date, no signs of impending instability of any consequence has been identified or occurred.

I hope this information is helpful to you. Please call if there are any questions.

Sincerely,



Peter J. Carey, PE  
President