We have a box culvert with about a 44 foot span and low fill over the top. A copy of the plan sheet is provided. We would like to use box beam guardrail due to blowing snow issues. To my knowledge no box beam attachment to a box culvert has ever been tested.

This appears to be an ideal case for adapting the new MGS Box Culvert Rail to a box beam rail. As you know, box beam uses the same post (S3x5.7) as the MGS Bridge and Box Culvert Rails. Box beam has been demonstrated in redirectional crash tests (mounted at 28 inches) to perform in a much more forgiving manner than conventional w-beam and may resemble redirectional tests with the taller, more robust MGS.

Would it be possible to adapt the MGS Culvert System, only using box beam (presumably still mounted at 28”)? It would appear that the post spacing might be the biggest issue to determine since I am guessing the deflection of a box beam bridge rail should probably not exceed the MGS Bridge Rail in order to assure there would be no greater wheel snagging from an impacting vehicle as it rebounds back onto the box culvert curb. I would assume that using a box beam with a 3 foot spacing would be quite a bit stiffer than the MGS Bridge Rail, but perhaps at a four foot or even the standard six foot spacing, it might replicate the stiffness of the MGS Bridge Rail. Would this require crash testing or could an adequate “paper” case be made for using such a system?