



Attention: Paul Matthews
B & B Roadway and Security Solutions
5900 S. Lake Forest Ste 230
McKinney, TX 75070
Attention: Mr. Paul Matthews

Date: 01/05/17

Mr. Matthews,

Based upon the test performed on December 13, 2016 at KARCO Engineering, LLC., the as-tested configuration of the wedge barrier Model 828 has received an impact rating of P1 at the M50 test level, based on the ASTM F2656-15 standard test method. This test evaluated the Wedge Barrier Model 828 for an impact to the center of the wedge barrier.

The M50 test level of the ASTM F2656-15 is evaluated using a 6,800 kg test vehicle traveling at a nominal velocity of 80 km/h. The P1 penetration rating is given when penetration beyond the protected side of the barrier is less than 1.0 m at the intersection of the leading lower vertical bed edge and the frame rail of the vehicle. Penetration was measured from the vertical plane created by the back (non-impacted) hinge point of the wedge barrier.

The Model 828 wedge completely disabled the test vehicle. The engine detached from the vehicle's frame rails and the transmission shifted forward and partially detached from the vehicle. The driveshaft was broken and separated from the transmission. The maximum penetration recorded was 0.95 m measured on the driver side of the vehicle.

The leading edge attack plate was subject to deformation and detached from three (3) of the blocking fingers. The two (2) outboard blocking fingers bent inwards towards the center of the unit. The two (2) center blocking fingers rotated towards the ground about the pivot shaft with respect to the direction of vehicle motion. The barrier was not operable after the impact.

Complete information relating to the test can be found in report number TR-P36279-01-NC and CD serial number 2016-4187 from KARCO Engineering, LLC., including test conditions, test vehicle information, test article specifications, manufacturer drawings. This letter should not be considered complete documentation of the test without consideration of the test report and deliverable CD.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Frank D. Richardson".

Frank D. Richardson
President
KARCO Engineering, LLC.