

Nebraska Department of Transportation

Evaluation Guide

Concrete Protection Barriers



2018 Edition

EVALUATION GUIDE - CONCRETE PROTECTION BARRIERS

Acceptable – The barriers appear to be in good condition, or only have minor spalls with hairline cracks and minor imperfections but are still structurally sound. The connecting loops are in place and in good condition.

Minor Imperfections include:

Surfaces - Concrete spalling, chipping or delamination less than 2.5 inches in depth with a side slope of at least 3:1 (taper rate from depth).

Corners - Concrete spalling, chipping or delamination less than 2 inches in depth and 4 inches in length measured horizontally, vertically, or diagonally from a corner.

Cracks that are 0.020" or less, exhibiting no displacement and do not compromise the structural integrity of the barrier.

Concrete spalling, chipping or delamination greater than 2.5 inches in depth may be repaired by the Contractor in accordance with ASTM C825.

The barrier is structurally sound if none of the spalling or chipping compromises the overall safety shape profile of the barrier or causes a potential snag point on the barrier system during an impact.



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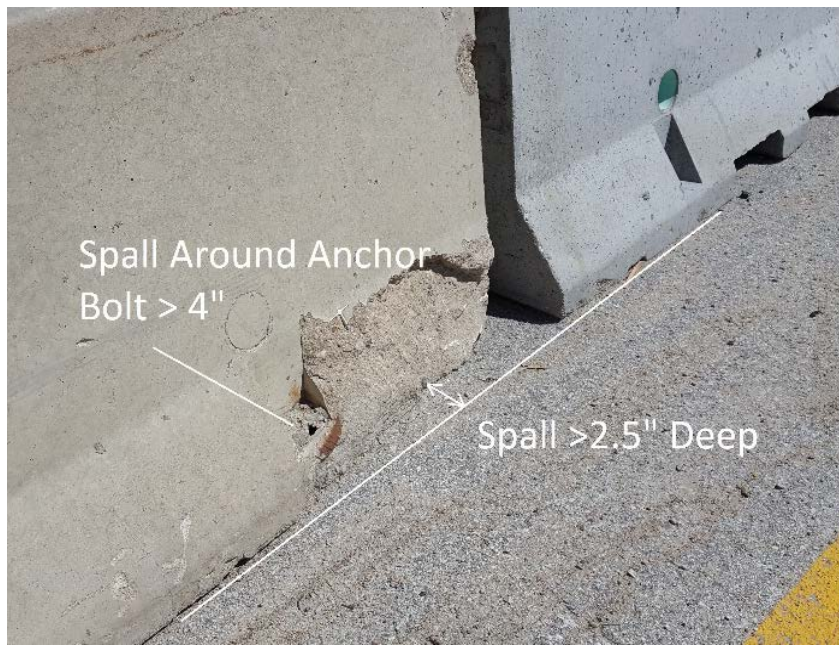
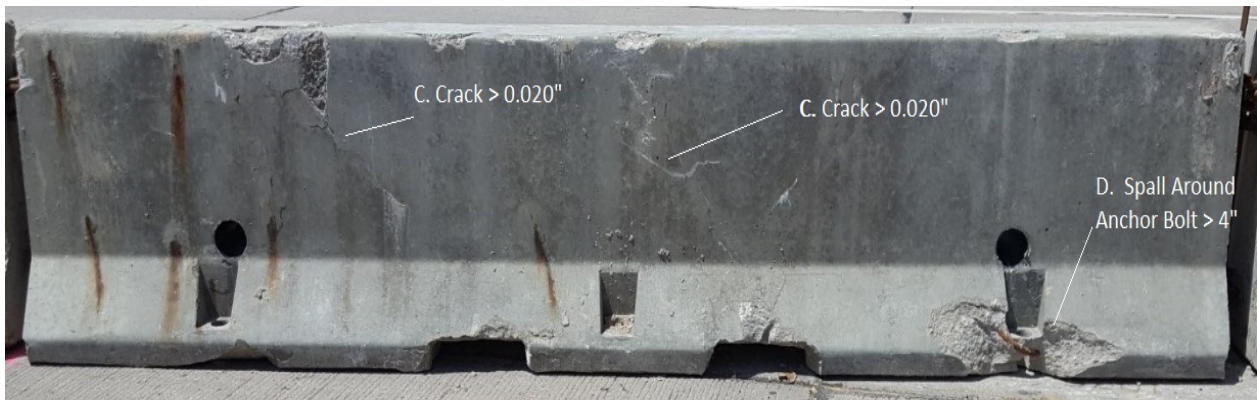
Unacceptable – Barriers that have large defects, or connecting loop bars that are bent, broken, or damaged.

Large defects include:

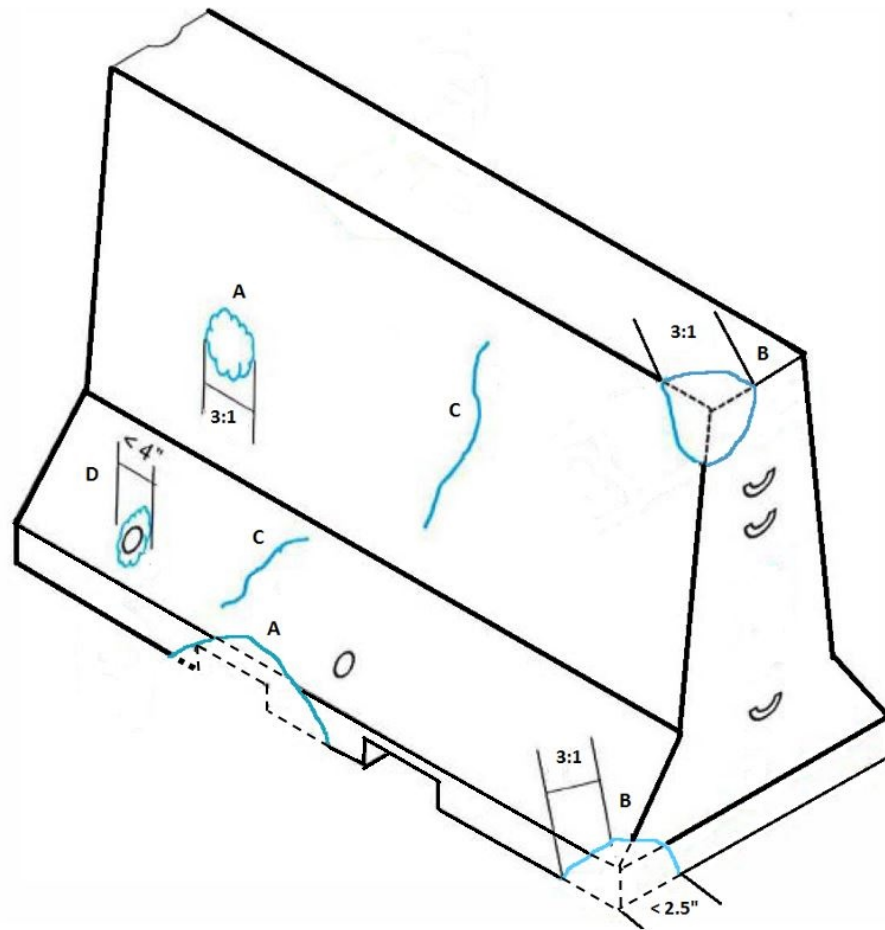
Concrete spalling, chipping or delamination greater than 2.5 inches in depth with any cracks exhibiting displacement or multiple defects which combine to make the barrier structurally unsound at the sole judgement of the Engineer.

Barriers that have open cracks greater than 0.020", cracks with unsound concrete that could easily be removed when hit, or cracks extending completely through the barrier. Type C barriers with cracks that extend from the edge of the wall base to the anchor bolt holes when used in a tie down configuration.

A barrier is deemed unacceptable if the overall safety shape profile of the barrier is compromised, there is a potential snag point on the barrier system, or the barrier is not structurally sound.



TYPICAL SAFETY SHAPE DEFECTS (NOT ALL INCLUSIVE)



Above is a diagram of a concrete protection barrier with some typical defects that may be acceptable. Below are the descriptions of defects that may be deemed acceptable.

- A. Spall on exposed surface of barrier, less than 2.5" in depth and the exposed cavity has a side slope of at least 3:1 (taper rate from depth). Does not create a snag point or compromise the safety shape.
- B. Spall on corner of barrier, less than 2.5" in depth and less than 4" measured horizontally, vertically, or diagonally. Does not create a snag point or compromise the safety shape.
- C. Crack < 0.020 ", exhibiting no surface displacement and not combined with other defects.
- D. Spall around tie down hole on type C, less than 4" measured horizontally, vertically, or diagonally.

NOTES:

No straightening of bent loops will be accepted on NDOT projects.

No 10' foot barriers allowed on any projects.

No Type A barriers (12.5' long, 4-loop) allowed on projects with a start date after January 1, 2018.