In consideration of the 4-foot flare requirement to construct the terminal treatment for GR-7, the shoulder in the terminal area must be widened sufficiently to accommodate site preparation for the terminal. The terminal should be located, or the barrier may need to be extended as needed, to provide a clear run-out path behind the terminal. The total length of the terminal is typically 37.5 feet. The length of need (LON) typically begins at the 3<sup>rd</sup> post.

On bridge replacement projects and other projects (involving guardrail upgrades) on which existing shoulders are of insufficient width and for which there are no provisions for widening such shoulders, additional fill material is required to be placed to ensure that the flare can be correctly installed. Typical installation details are shown in the Standard GR-7. Projects with paved shoulders - Details are shown on Standard MC-4).

When this situation occurs for the GR-7 terminals on projects without normal grading operations, a pay item [Guardrail Terminal site preparation (GR-SP) - Item Code 13349 with pay unit of Each] is to be used to cover the required embankment, benching and reseeding. (A Special Provision Copied Note is available for use in contracts involving this pay item.)

New construction projects provide the necessary shoulder widening for the required guardrail terminals; therefore, the separate pay item for site preparation is not applicable.

## GR-8 WEAK POST W-BEAM GUARDRAIL RUN-OFF ONLY TERMINAL

For run-off terminal treatment with Standard GR-8 (weak post guardrail), the GR-8, Type II terminal is acceptable only for divided roadways outside of the opposing traffic clear zone or one-way traffic situations. The guardrail is to be flush with the concrete anchor throughout the length of the anchor assembly in order for the installation to function properly without shearing the bolts.

Two-way traffic on an undivided facility would introduce the possibility of opposing traffic impacting an intended run-off terminal for another lane. Therefore, a GR-6, GR-7 or GR-9 terminal must be used with the proper transition to GR-2.

## **GR-9 W-BEAM TANGENT TERMINAL**

The GR-9 terminal is intended solely for use on the end of a tangent w-beam installation. Typically, a 1 foot offset (50:1 over the 50 foot terminal length) is provided at the impact head to reduce nuisance hits.

The total length of the terminal is typically 50 feet. The length of need (LON) typically begins at the 3<sup>rd</sup> post from the end. For GR-9 installations used to terminate GR-8 (weak post guardrail), an additional transition of GR-2 is required.

Guardrail terminals for use with median guardrail (MB-3) are designed to be hit from either side.