



- GENERAL NOTES:**
1. Material to be built in accordance with the barrier specifications and contract documents.
 2. Anchors to be Clamcrete 1"ø Kelbond Anchors™, anchored to a minimum depth of 6 1/2" in structural concrete of road deck with Clamcrete Kelgrout™ resin and drilled and set in accordance with the manufacturer's instructions.
 3. All reinforcing bars to be AASHTO M31 (ASTM A615) grade 60 epoxy coated.
 4. Removal of type one barriers, wash and seal and replace with ASTM A153. Bearing plates shall be galvanized per AASHTO M270 (ASTM A207) grade 50.
 5. Concrete to have a minimum strength of 5,000 psi air entrained 4.5K to 7.5K.
 6. Barrier shall be precast in steel forms and shall have a smooth finish.
 7. Anchor bolts shall be 1"ø Kelbond Anchors™, ASTM A449-93 Type 1, fy 92,000 psi; nuts shall be ASTM A194 grade 2H; washers shall be ASTM F436, HD type.
 8. Before the installation begins (2), or more if needed for a representative sample, 1"ø Kelbond Anchors™ should be installed and bonded with the Clamcrete Kelgrout™ into the concrete deck where the barriers are to be installed (Refer to note #12, and #14 below). Perform the non-destructive test in accordance with the ASTM E-488 Standards to confirm that the minimum pullout requirement of 36 Kips can be achieved.
 9. A grout bed will not be required in specific applications, where the Resident Engineer or the Clamcrete representative confirms that the bridge deck bearing surfaces under the barriers are level, structurally sound and without significant gaps. When a grout bed is required, the contractor shall be responsible for placing the leveling grout beneath the barrier to ensure that the barrier is full contact with the deck. A bond breaker like a taylor sealant should may be used under the grout and a debonding agent may be applied to the bottom of the barriers, at the contractor's option. 1/2" thick elastomeric padding may be used, at the contractor's option, in lieu of the grout.
 10. Immediately prior to placement, the deck where the barrier will be placed must be air blown or swept clean. The foam strip shall be spot glued to the deck along the back face alignment of the barrier to provide the grout dam and the barrier then shimmed in place.
 11. A butyl rope shall be caulked under the traffic side edge of each barrier to complete the grout seal. The 1/2" rope shall be left in place for 3" then the interval is to allow the fluid grout to emerge and demonstrate that the void beneath the barrier has been fully filled. These gaps shall be plugged with butyl rope as soon as grout flows appear.
 12. After the grout has hardened, the 1-1/8"ø holes for the anchors are drilled through the bearing plate to a probe depth of 6 3/4" into the road deck using a compressed air drill similar to Sulair model MRD30. Larger or smaller bit sizes MAY NOT be used. Electric hammer drills MAY NOT be used. Diamond core drills may be used only in combination with a scuffing bit. Contact Clamcrete for detailed instructions and information on purchasing the scuffing bit.
 13. After the hole is drilled, place the undercut bit in the hole all the way to the bottom. Engage the drill and rotate the bit in a circular pattern to create a bulb at the bottom of the hole.
 14. Holes are then blown dry with clean, dry air to provide a dust free surface to ensure full bond of the Clamcrete Kelgrout™ to the concrete. Clamcrete Kelgrout™ shall be mixed in accordance with the instructions provided and the material poured into the clean holes. The anchor is then inserted into the hole to depth and rotated to ensure full wetting. After the resin has set and if non destructive testing has been successfully completed in a representative sample of the deck to the satisfaction of the engineer per note #3 above, the bolts can be tightened snug tight plus 1/4 turn. Use Loctite or equivalent thread locker to insure nut stays snug. In lieu of non destructive testing, each anchor can be pre-loaded to 36 Kips by a method to be determined by the contractor.
 15. The anchorage hole through the barrier shall be filled with contractor provided approved standard steel bar temporary use.
 16. Barrier weight = .023 tons per linear foot.
 17. The standard 20' long barrier is shown. Other special barriers with lengths greater than 12' and shorter than 20' can be provided.

