

STRUCTURE BULLETIN

NCDOT Construction Unit

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Epoxy Coated Reinforcing Steel is often used by NCDOT when additional corrosion protection of the reinforcement is needed. Although the epoxy gives some protection to the rebar, did you know that if there are nicks or damage in the coating, the chlorides attack the steel more aggressively than if it had not been coated at all? For this reason, it is critical that epoxy reinforcement is handled and stored carefully to minimize damage. Article 425-3 requires the epoxy coated bars to be stored 1ft above ground and covered (do not use solid plastic sheeting). The above picture is inadequate, but



unfortunately is commonly seen on construction sites. The specs also require covering epoxy coated bars that are placed in the forms if concrete is not placed within 30 days. This is because direct sunlight can damage the epoxy coating over time.

Improper handling, excessive bending when lifting bundles, or dragging materials over epoxy coated bars can also damage the coating. Article 425-4 requires that a visual inspection be done on the epoxy coated bars and that repairs are performed as described in 1070-7. This article of the specs should be reviewed for proper preparation and repair. Remember, NCDOT does NOT allow aerosol spray repair material for epoxy coating.



Instead, the approved epoxy repair material should be brushed on. The specs also have a limit of 5% of the surface area that can be patched before the bar has to be replaced. M&T can help check coating thickness or additional damage concerns when requested.



Don't field bend epoxy rebar

1. Epoxy Coated Reinforcing Steel
2. Rebar Lap Splice
3. Drainage Update for Type I Bridge Approach Fills

Rebar Lap Splice:

Have you ever heard the old rule of thumb of making a lap splice with 30 bar diameters? In other words, if you had a #4 bar that is 1/2" diameter, that would mean a lap splice of 15".

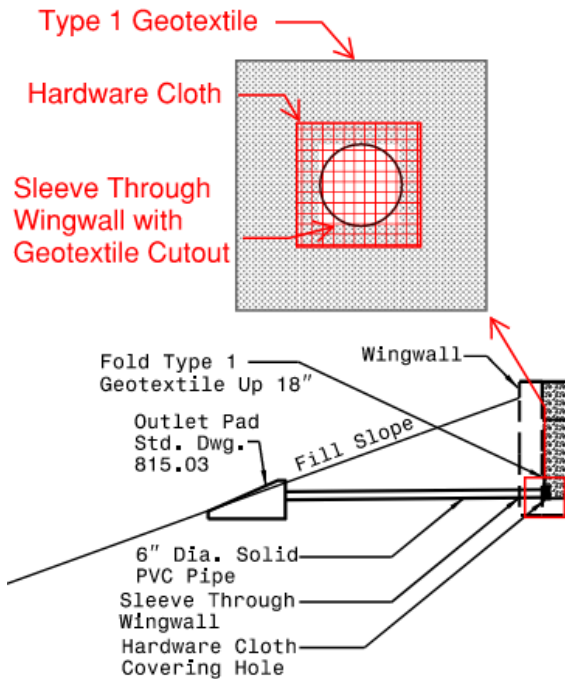
Although this rule of thumb may sometimes be ok, in most cases, this splice length is not adequate. The plans will provide the required splice length for each bar that is to be spliced, and these minimum lengths should always be followed. However, sometimes changes are made in the field by Engineers and the question is often asked, what is the minimum lap splice needed? The NCDOT SMU Design Manual has guidance on lap splice lengths. Factors such as coated or uncoated, compression or tension, location in the member, etc. are used to determine the minimum splice needed. Do not make this decision on your own. Check with your Regional Bridge Construction Engineer for guidance prior to contacting SMU.

Drainage Update for Type 1 Approach Fill:

The Drainage System for Type 1 Bridge Approach Fills was recently updated in the 2024 NCDOT Roadway Standard Drawings (423.01). After further review of this design change, it has come to our attention that the placement of Type 1 Geotextile over the opening of the PVC Sleeve through the wingwall could result in slower drainage and even blockage if the stone backfill became contaminated with fines. It is important that

approach fills are able to drain quickly in order to avoid unnecessary hydrostatic loads on the backwall and end bent cap. Due to these potential issues, the following suggested change has been made:

When placing the sleeve through the wingwall and the hardware cloth to cover it, cut out the Type 1 geotextile that would cover the outlet so that only hardware cloth is covering the opening. Be sure to overlap the hardware cloth and Type 1 Geotextile by at least 2". If for any reason the backfill used is something other than a Class V or Class VI material, leave the geotextile uncut and ignore this note.



Training Videos

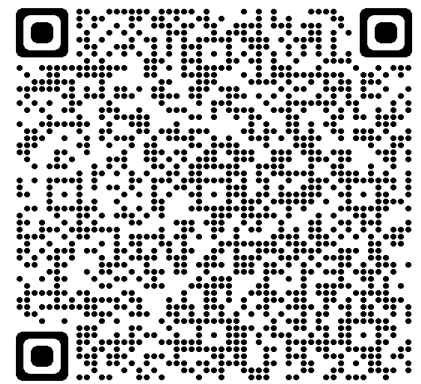
The 2024 Structure Inspector Training sessions that were videoed are now available on our [YouTube Channel](#).

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