Stop Rust and Mitigate the Halo Effect

Technical Report

On contact, Phoscrete stops corrosion.

Phoscrete's Liquid Activator - a form of phosphoric acid - is a common rust removal agent. Phoscrete converts the iron oxide, Fe_2O_3 (rust) to ferric phosphate, $FePO_4$.
See https://en.wikipedia.org/wiki/Phosphoric_acid#Rust_removal

No need to sandblast rusted rebar.

When possible, expose all corroded steel during demolition, use a wire brush to remove any loose scale, and install Phoscrete to encapsulate the reinforcing steel bars.

Phoscrete mitigates the Halo Effect.

According to NCHRP Report 558 *Manual on Service Life of Corrosion-Damaged Reinforced Concrete Bridge Superstructure Elements*, written by A Sohanghpurwala, published by Transportation Research Board, 2006, Chapter 4, Page 21, failure of a concrete patch due to accelerated or initiated corrosion along the repair perimeter - termed the "halo effect," can result from difference in pH of the patch material and the adjacent concrete.

Conventional concrete cures alkaline (higher pH) and over time the becomes more pH neutral. The corrosion reaction is accelerated in a more acidic (lower pH) environment. A more alkaline patch material draws the corrosion reaction to the adjacent lower pH concrete, increasing the Halo Effect.

Phoscrete cures slightly acidic and is lower pH than the existing adjacent concrete. The corrosion reaction from the adjacent concrete would be thereby drawn into the Phoscrete patch. Because the reinforcing steel is encapsulated by a corrosion-inhibiting material with low chloride ion penetrability, that also prevents the incursion of water, chlorides, and CO_2, the halo effect is mitigated.

Independent, accredited laboratory test reports on Phoscrete concretes are available upon request.