Allium's Stainless-Clad Rebar Used in California Bridge Deck Rehab, Designed to Deliver 150-Year Durability

NORTH BILLERICA, Mass., July 30, 2025 – Today, Allium announced that the company's innovative stainless-clad rebar was used in the replacement of the Long Valley Creek Bridge deck on U.S. Route 101 in Mendocino County, California. Allium's stainless-clad rebar can transform public infrastructure by delivering exceptional durability, significant cost savings, reduced environmental impact, and enhanced structural integrity, resulting in a service lifetime of up to 150 years or more. To address the demands of a corrosive coastal environment, Caltrans selected Allium's rebar to ensure long-term structural integrity and extend the bridge's longevity. In partnership with ALTA Rebar and Myers & Sons Construction, the project involved installing approximately 70,000 pounds of corrosion-resistant material. The project underscores Allium's growing role in delivering resilient infrastructure solutions for demanding environments nationwide.

Laying the Groundwork for Broader Adoption in California

This is the first time stainless-clad rebar has been used on a bridge in California, and this product is now progressing through the Caltrans new product evaluation program and testing, which ensures that materials used in public infrastructure are safe and durable. Caltrans' investment in understanding the product and application is promising for future projects throughout California, which has one of the most extensive and heavily used transportation infrastructure systems in the country. Allium's technology is set to significantly enhance the longevity of critical infrastructure, including bridges, ports, sea walls, roads, and tunnels.

"We partnered with Allium on a Caltrans bridge project in Ukiah, California, which required both stainless steel and black rebar. From start to finish, Allium exceeded expectations. Their stainless-clad rebar not only met the technical demands of the project but was also straightforward to install—our ironworkers found it familiar and easy to work with. Equally impressive was Allium's customer service, which was truly best-in-class. Their responsiveness and support throughout the process contributed directly to the success of the project and to our client's satisfaction. We're grateful for the partnership and look forward to incorporating Allium's products into many more projects in the future." Gregg Granillo - Vice President, Alta Rebar

"This project demonstrates how our stainless-clad rebar is redefining what's possible for long-lasting infrastructure," said Sam McAlpine, Co-Founder and Chief Technology Officer at Allium. *"By combining the strength of carbon steel with the corrosion resistance of stainless steel, we're delivering a high-performance solution that extends service life by decades, without requiring changes in how contractors build. It's a practical advancement for agencies like Caltrans focused on long-term durability and value."*

Engineering the Future of Infrastructure for Longevity and Value

Laboratory testing conducted by Allium has demonstrated a 20x reduction in corrosion for stainless-clad rebar compared to conventional carbon steel rebar. By reducing the need for repair and maintenance, lifecycle costs for the Long Valley Creek Bridge deck will be greatly reduced.

Allium expects an estimated 87% reduction in the cost of ownership over the next 75 years, based on a lifecycle analysis using publicly available data from Caltrans and the Federal Highway Administration.

Stainless steel prevents corrosion, which can significantly extend concrete lifetimes. Stainless-clad rebar is a composite metallic material, with a core of high-strength, low-cost carbon steel and an outer layer made of a stainless steel alloy containing chromium and other elements added to greatly improve corrosion performance. Without corrosion-resistant rebar, bridges typically require significant repairs after 20 years, with complete component replacement needed after 30 years. By eliminating corrosion with Allium's rebar, bridges require dramatically less repair and replacements over time, resulting in substantial long-term savings and reduced carbon emissions.

Integrating Seamlessly with Existing Construction Practices

A key reason Caltrans used stainless-clad rebar in this project is that these benefits can be realized without changing any other established construction practices. *"Stainless-clad rebar is a great fit not only because of its lifetime durability, but also due to its cost-effectiveness and ease of installation. I look forward to seeing this innovative material integrated into future Caltrans projects, now that it's commercially available through Allium,"* added Sonny Fereira, a recently retired Caltrans Senior Bridge Construction Engineer.

Allium's stainless-clad rebar has the same physical and mechanical characteristics as the ASTM A706 rebar Caltrans uses for bridge construction, can be fully cut or bent in the field, and requires no special handling or inspection. Allium is now offering the only stainless-clad rebar that meets the existing specifications for the AASHTO M 329M standard in the U.S. market.

About Allium:

Allium is a technology startup founded by Steven Jepeal and Samuel McAlpine, who began developing the technology as Ph.D. candidates at the Massachusetts Institute of Technology. Allium is focused on solving critical challenges with the durability and sustainability of our infrastructure. Allium is working to change the way that steel is manufactured to enable it to resist corrosion with an innovative stainless steel cladding process. This technology can more than triple the lifetime of key infrastructure like bridges, all while avoiding emissions from two of the world's largest CO2 sources, steel and concrete production. To learn more about Allium's technology and vision for a more sustainable world, visit www.alliumeng.com.

For more information about Allium's stainless-clad rebar product, email rebar@alliumeng.com

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