Rebar is delivered onto the project site for building the bridge foundation shaft rebar cages.

Crews assemble bridge foundation shaft rebar into circular cages ~80-110’ in length.

Crews prep the shaft location before beginning main shaft excavation work. The finished shafts will not be visible once the bridge construction is completed.

The drilling subcontractor prepares their crane and bridge shaft oscillator platform for foundation shaft installation work.

The drilling subcontractor sets up to install the west bridge foundation shaft at Pier 4 using an elevated work platform.

The drilling subcontractor mounts a shaft oscillator platform over the shaft hole and preps a crane for shaft excavation.

The drilling subcontractor uses a crane-mounted clamshell bucket to excavate earth from the shaft as steel casing segments are slowly lowered (‘oscillated’) into the ground to bottom-of-shaft depth.

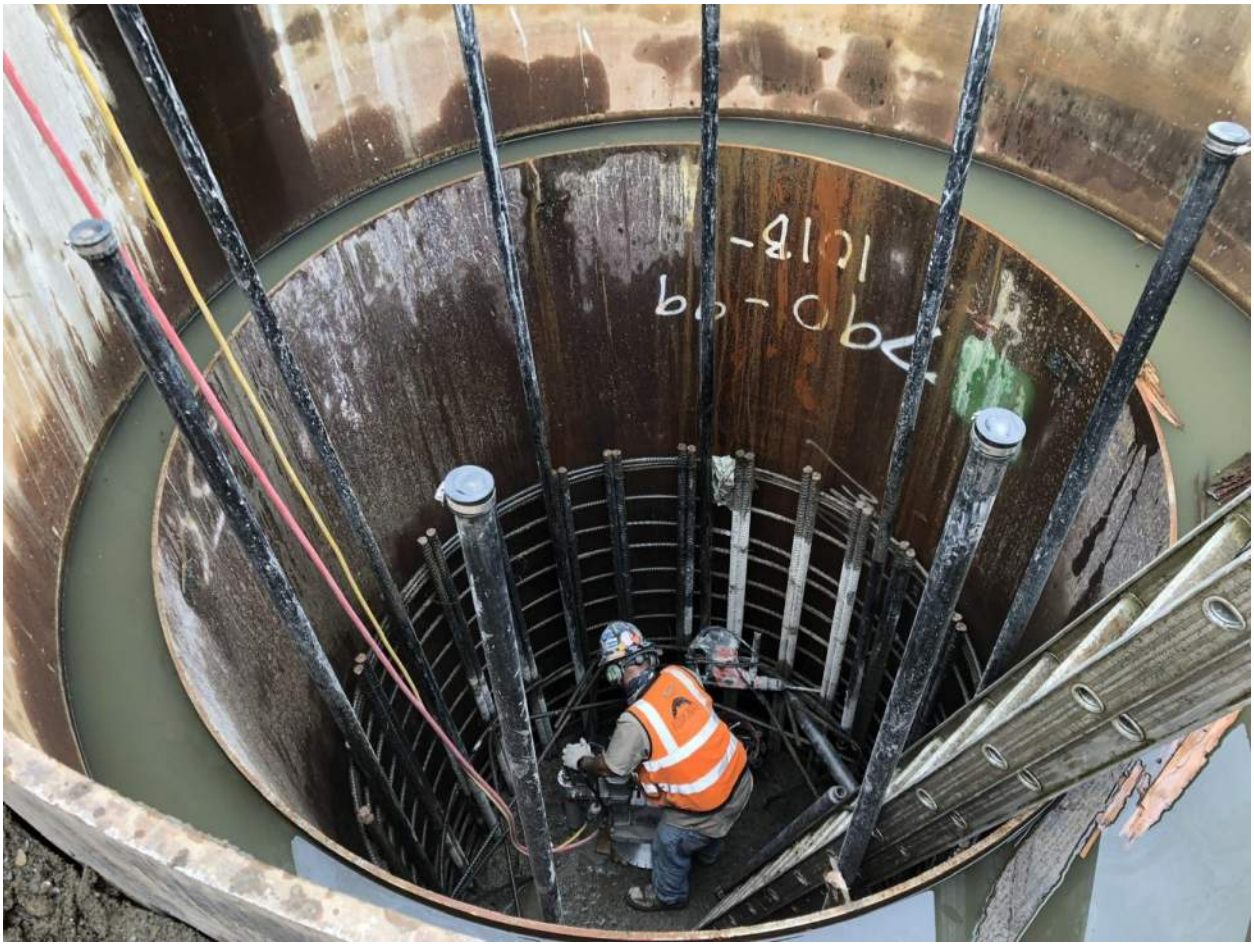
The finished shaft rebar cage (steel reinforcement) is lowered into the fully excavated shaft hole.


Genie
IFS
BOISE, IDAHO
208-367-1699

The shaft is filled with concrete from a concrete truck (blue and white) to a pump truck (green) through a pipe into the bottom of the shaft hole.

Once the primary foundation shaft concrete pour is completed, the contractor can disconnect the concrete pump truck and finish removing the temporary steel casing sections.

Crews assemble smaller diameter rebar cages for the reinforcement of the bridge columns.



Crews prep the top of the foundation shaft to build the bridge column on top of.

The column rebar cage is set on top of the shaft and a rectangular concrete column section is formed around the circular rebar cage. The shaft and column rebar cages overlap to help transfer load from the top of the bridge to its foundations.

Shaft excavation at Pier 4 west column.

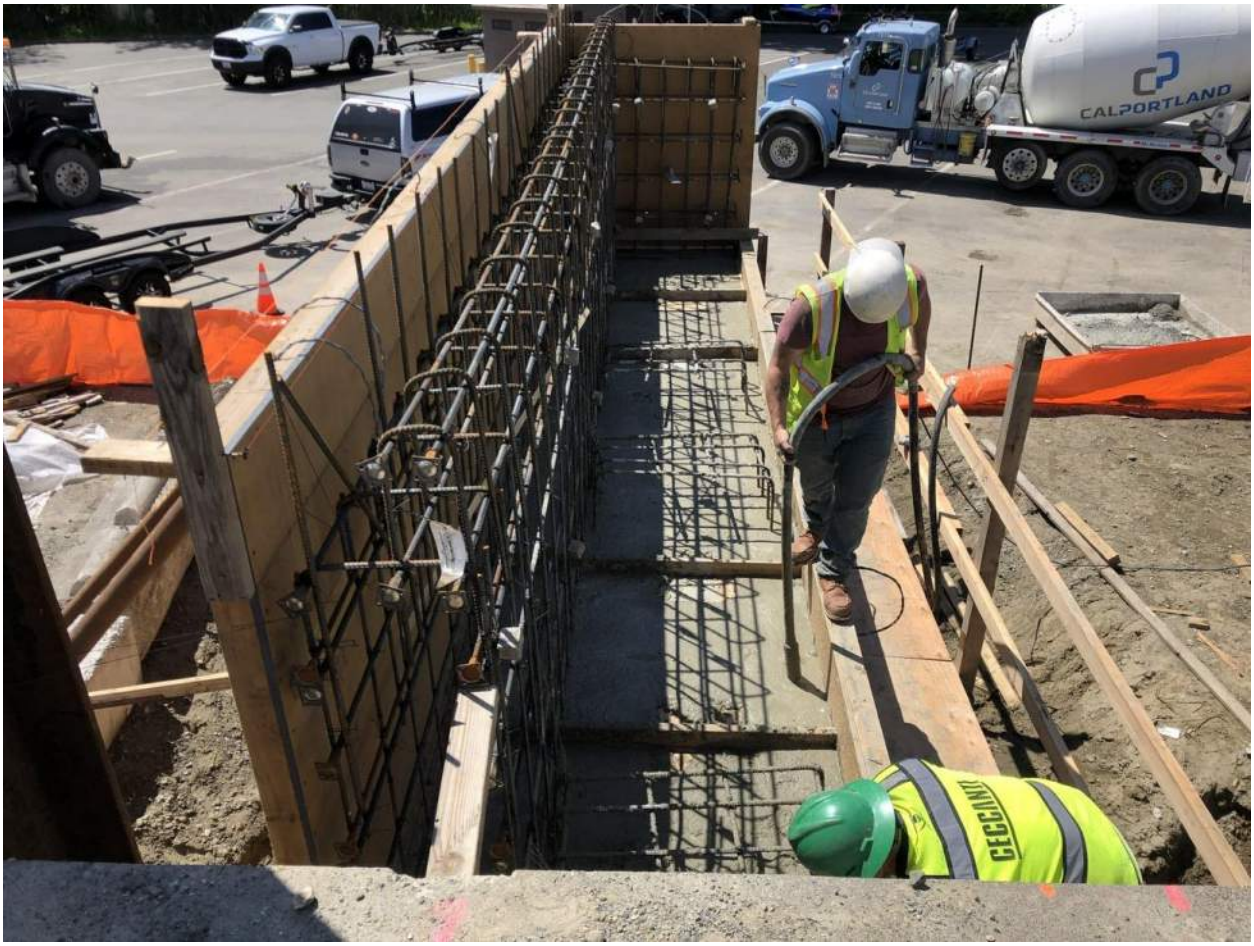
The drilling subcontractor uses temporary steel casing segments and a crane-mounted clamshell bucket to excavate earth from the shaft.

Bridge abutments need to be constructed at each end of the bridge structure. The contractor starts by standing up formwork paneling for the back face of the eventual finished concrete abutment.

Rebar for the lower part of the abutment section is installed. The abutments are constructed in halves. At Pier 1, the west half-width is being built first.

Crews continue rebar and formwork installation at the Pier 1 abutment.

A concrete truck (blue and white) and pump truck are used to pump concrete into the abutment formwork to pour the lower (wider) part of the concrete abutment.



Concrete is placed a few feet in depth at a time and is vibrated to completely fill the empty space around the rebar until the full height of the pour is reached.

After the concrete is poured and hardens, the formwork is stripped off the finished wall section. The bridge girders will sit on the ledge, and holes through the back wall near the top of the wall are used to carry utilities underneath the bridge.

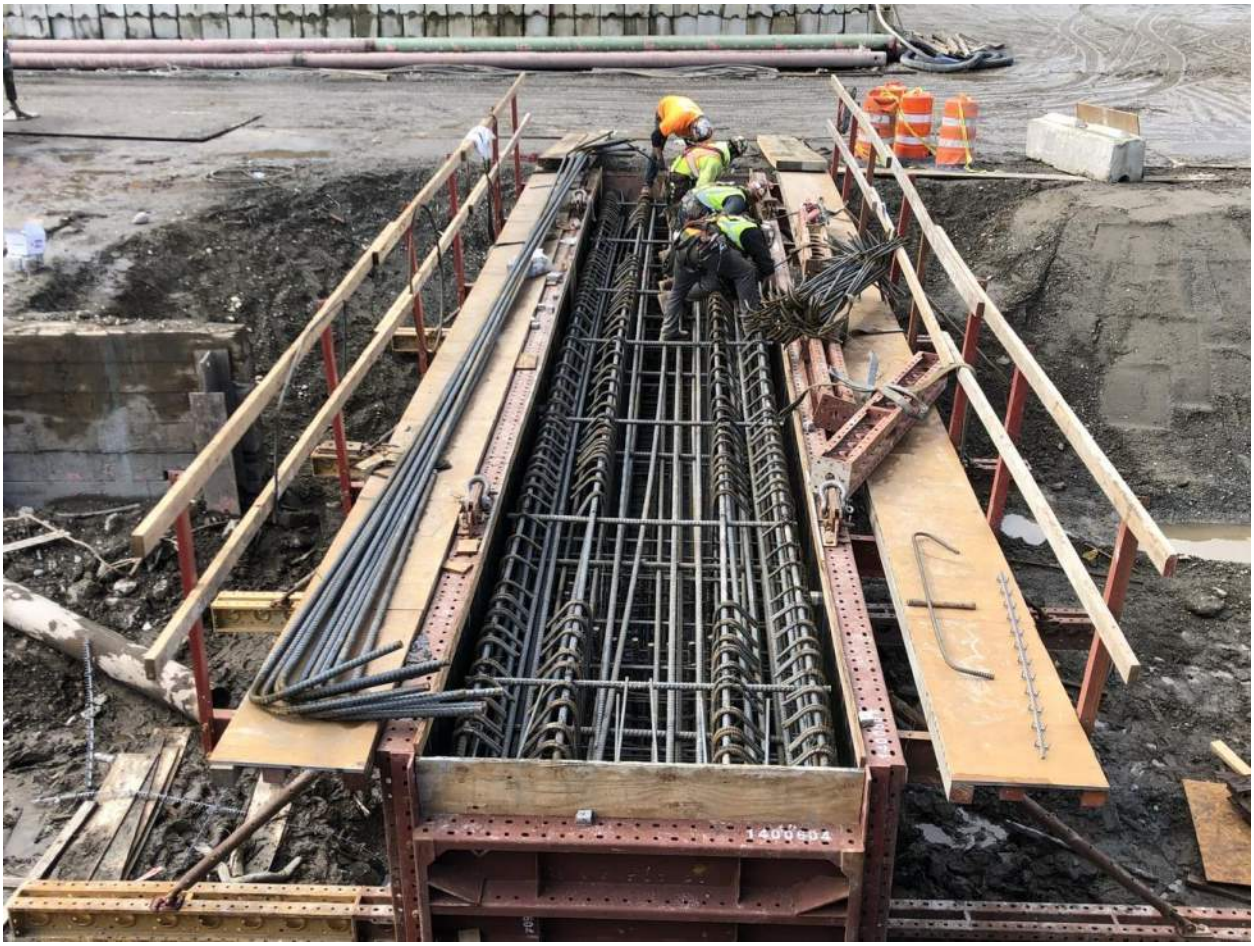
The contractor prepares the tops of the column sections to receive the crossbeam formwork. The tops of the column rebars will extend into the finished crossbeam section.

The contractor assembles steel formwork for casting the concrete crossbeams at each of the interior piers along the bridge.

The contractor uses a crane to ‘pick’ and ‘fly’ and place the pier crossbeam formwork on top of the bridge columns.

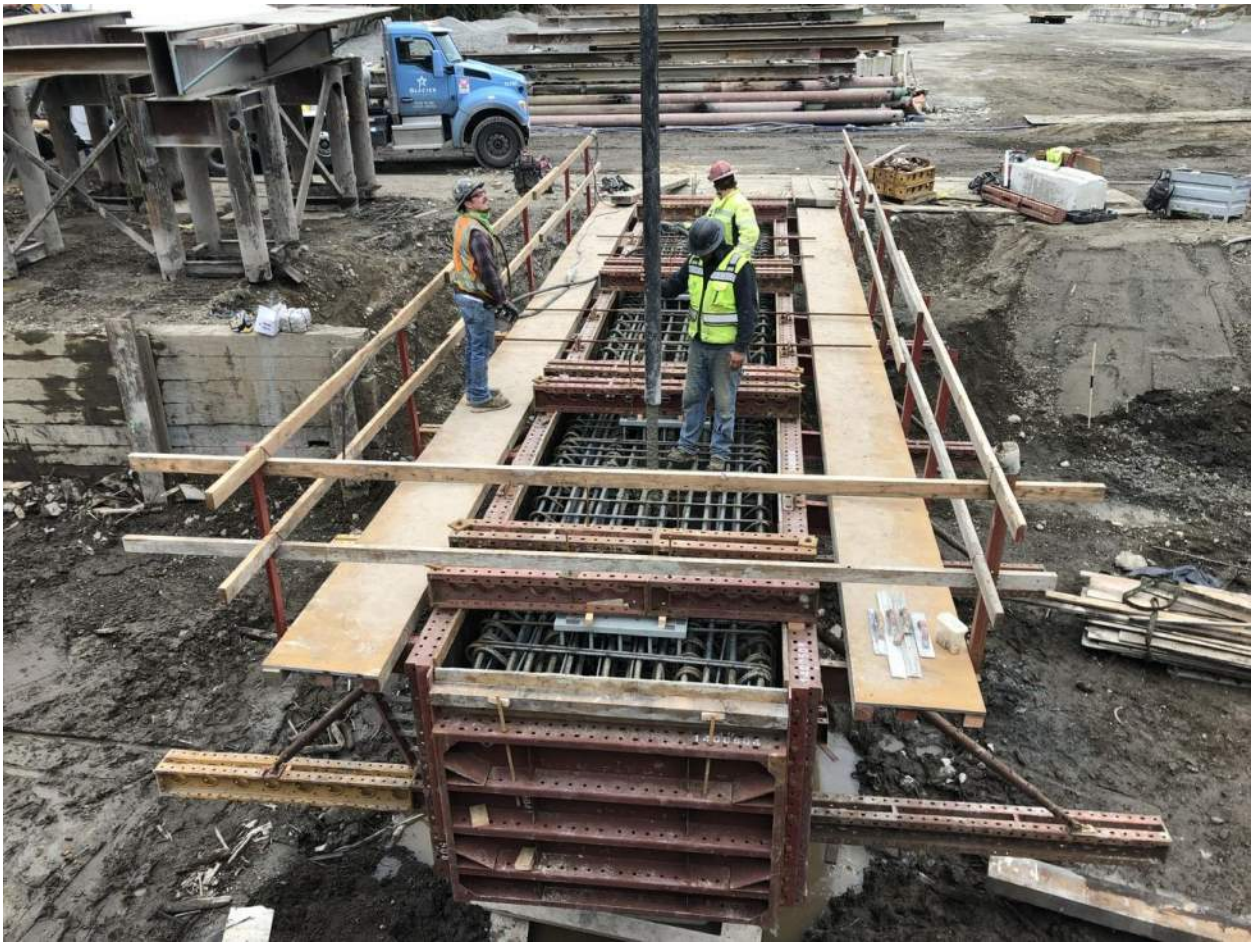
The pier crossbeam formwork is set into position on top of the two column sections at each pier.

A crane flies bundles of rebar up to the crossbeam formwork for building the crossbeam rebar cage.

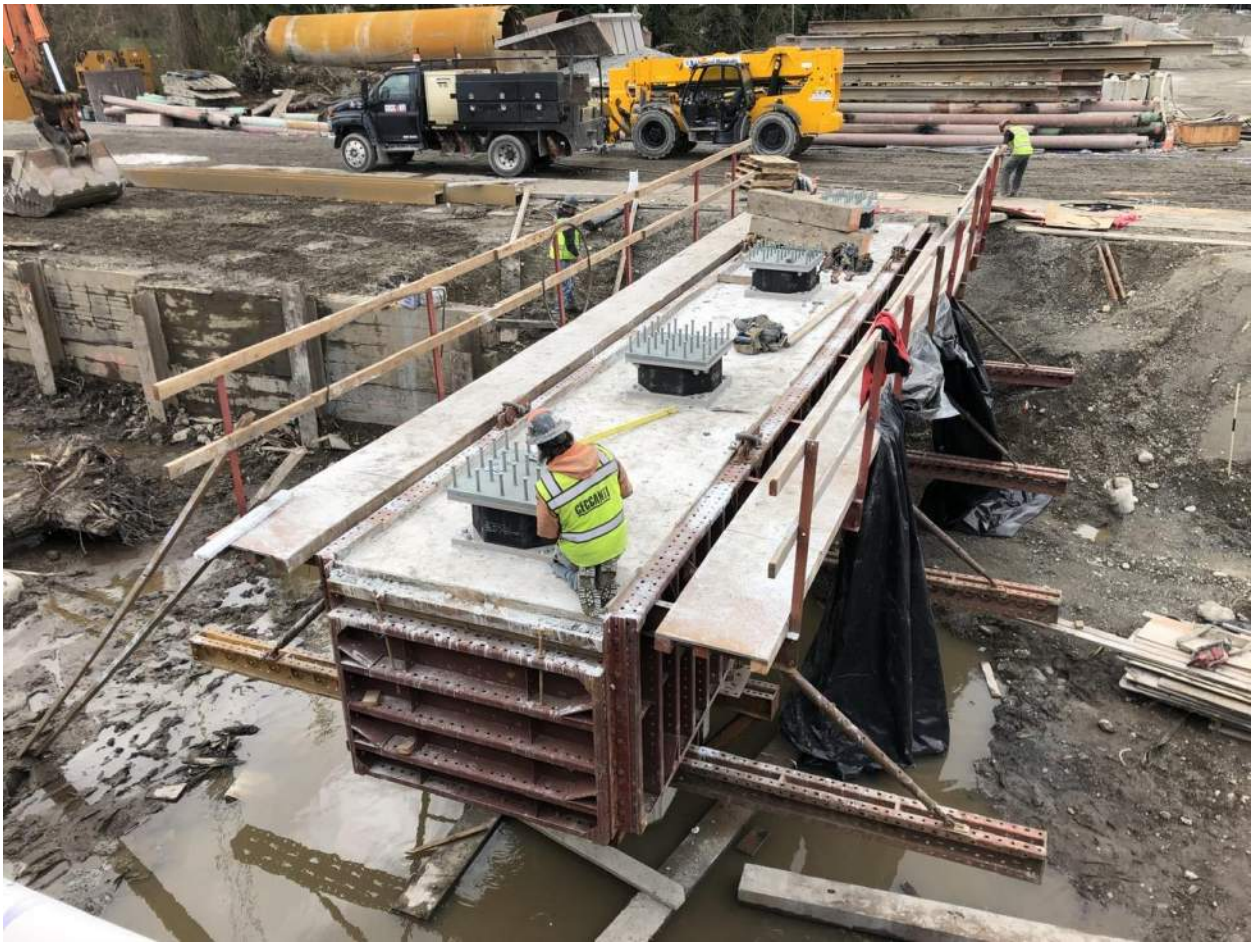


The crossbeam is one of the most heavily reinforced elements of the bridge structure.

A concrete pump truck is brought in to pour the concrete crossbeam section in the crossbeam formwork.



The contractor finishes the top surface of the crossbeam pour and mounts special bearings along the top of the crossbeam to receive each bridge girder.



The contractor checks each of the four specialty bearings along the top of the crossbeam. These will fully support the girders from the spans on either side of each pier once the bridge is finished, and help provide resistance to seismic events.

Once the crossbeam concrete has hardened, the outer steel formwork is removed.


OVERSIZE LOAD
Manitowoc
VPC

Girders are brought in on specialty trucks and picked by the contractor’s large red crane.

The contractor uses the crane to carefully set each bridge girder on temporary supports at the piers on either side of each span.

Each girder typically takes about an hour to offload from the truck and set in its final position along the bridge. The bridge will ultimately have twenty girders.

The ends of the girders at each interior pier rest on temporary wood blocking until the remainder of the spans are in place and more concrete is poured to make the structure continuous.

Pipes to carry fresh water and storm water are mounted on temporary supports between the girders along the bridge. Final installation of these lines will be completed once the concrete bridge deck has been poured.

The contractor adds minor elements to the newly set bridge girders.

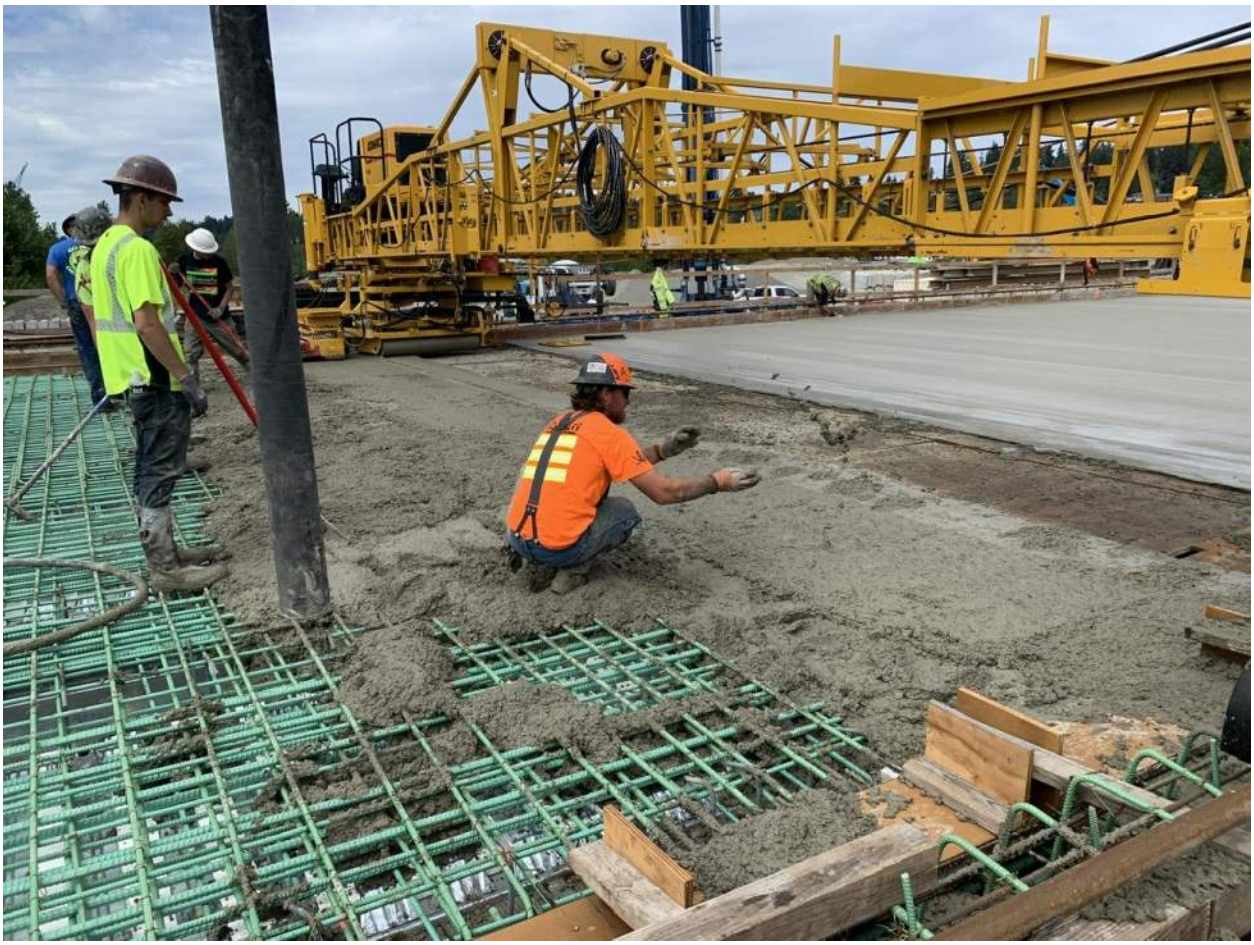
Bridge deck formwork is installed across the girders and spaces between girders so the concrete bridge deck can be poured. Formwork for overhangs is also added along either side of the bridge.

The contractor nears completion of deck formwork installation.

A subcontractor installs rebar for bridge deck reinforcement. These bars are covered with a green protective coating to prevent rusting and corrosion over the life of the bridge.

The Span 5 deck rebar installation is completed.

The bridge deck is poured using a concrete pump truck (below the bridge) and a paving machine mounted on rails along either side of the bridge deck extents.



Crews make sure the concrete is placed evenly across the entirety of the deck surface.

The paving machine has a roller and a brush to finish the top surface of the bridge deck concrete.

Once bridge deck paving is complete, the paving machine is removed from its rails by the large crane and shipped offsite.

The freshly placed bridge deck concrete is covered with wet burlap and kept wet with soaker hoses to aid in concrete curing (hardening).

The wet burlap is covered by white plastic to further protect the fresh concrete from UV exposure while it cures and to help keep it from drying out too quickly.

Once deck curing is finished, crews begin drilling into the new deck concrete to prep for new traffic barrier installation.

The final pours at the expansion joints on either end of the bridge are completed. Work along the bridge deck will continue until the fully completed bridge is in place and ready for traffic.