Nipomo Community Services District

Supplemental Water Project
Bid Package 1 (BP 1)
Santa Maria River Crossing
Monthly Progress Report

Prepared By:
MNS Engineers, Inc.

October 2013

Schedule and Budget Summary

Schedule Summary

Notice to Proceed	July 10, 2013
Original Contract Days	141
Contract Days Added	0
Revised Contract Days	141
Elapsed Time (Days)	(107)
Remaining Time (Days)	34
Contract Completion Date	November 28, 2013
Time Elapsed to Date	76%
Work Completed to Date	68%
Approved Change Orders (Days)	0 days

Budget Summary

Original Contract Amount	$5,847,090.00
Approved Change Orders (Cost)	$59,533.87
Revised Contract Amount	$5,906,623.87
Previous Payments	$3,855,649.04
Current Month Pay Request	$131,417.87
Total Work Completed	$3,987,066.91
Work Remaining	$1,919,556.96

Progress Summary

On September 24 ARB started the last ream with the 42-inch drill. In anticipation of completing the final reaming and pulling the HDPE pipe, they performed a hydrostatic pressure test on the fused pipe by welding flanged adapter assemblies to the ends and filling it with water. The hydrostatic test was successfully completed at a psi of 152.5 for 4 hours and 142.5 for one hour, during which time no pressure drop was observed, and no visible leaks were detected. After testing, the pipe was drained, the flanged adapter assemblies removed from the ends and two 4-inch ballast and vent pipes were pulled into the HDPE pipe.

ARB encountered significant resistance during what they thought would be the last 42-inch reaming while drilling through the Paso Robles Formation, moving the drill only 3 feet in one day from south to north. After progress increased, they encountered more resistance and finally loss of torque near Station 21+50, in the bluff near the north end. They decided to pull the drill back out to the south and were successful until approximately Station 6+80 when it became stuck in dense gravel and cobbles. They inserted a 9-inch drill bit/mud jet from the south side to flush whatever was blocking the 42-inch drill. This process freed the 42-inch drill, but it became stuck again. They re-inserted the 9-inch drill/mud jet and freed the 42-inch drill once again. They pulled it about 55 feet more when it became stuck a final time and the adapter connecting the drill pipe to the drill failed, causing the drill to be lost in the hole with no attachment to the north or south end. They pulled remaining drill pipe out of the north end and discovered the adapter had failed on that end as well.

On October 26, ARB abandoned the 42-inch drill in the hole, and started drilling another pilot hole 10 feet to the east of the first hole to get around the lost drill, and intersected the original hole 657 feet from the south side. On October 10 they completed the new pilot hole and started the reaming process again with the 26-inch drill from north to south. On October 12, they completed the 26-inch reaming pass and started the 36-inch reaming from south to north. On October 14, while performing the 36-inch ream under the bluff at the north end, sink holes formed on the surface and a large volume of material was returned with the mud to the south side. They continued the reaming for another 200 feet, creating more sink holes when the 36-inch drill became stuck at approximate Station 25+20. ARB installed 12-inch casing from the north side in an attempt to free the 36-inch drill. This was successful and they pulled the drill out from the south.

ARB decided to try and open the hole where material had failed in the bluff on the north side by doing another 26-inch reaming pass from north to south. They successfully completed this on October 18, but the sink holes continued to increase. ARB made one more attempt to do a 36-inch ream from south to north, which was successfully completed on October 20, but also caused further settlement of the sink holes on the north side.

On October 21, the project team of ARB, MNS Engineers, Jacobs Associates, AECOM and the District met to discuss grouting for stabilization of the loose, sandy material under the bluff which was causing failure during drilling, resulting in the sink holes. ARB decided to proceed with mobilization of a grouting subcontractor, GeoGrout, while at the same time attempting to make a final reaming pass with the 42-inch drill from north to south. During the 42-inch ream, the sink holes continued to increase in size and ARB experienced resistance from more settlement of material in the hole. ARB determined GeoGrout would need to be used to stabilize the hole prior to further drilling, and they began importing material to fill the sink holes and provide an area for GeoGrout to work over the pipeline alignment. GeoGrout arrived on October 23 and began

permeation grouting while ARB pushed the 42-inch drill out to the south to wait for the grouting to be completed. GeoGrout laid out a pattern of grout injection holes then started injecting a chemical grout which bonds with native material, resulting in a material density of a light sandstone. After completing the injection of chemical grout at each hole, GeoGrout backfilled the holes with cement grout. They worked day and night to do grout injections and as of October 25, the grouting process was approximately 25% complete.

In addition to the horizontal directional drilling, ARB also performed change order work to install a gate at the entrance to the north site which will prevent CRLFs from entering the site.

South Site – Santa Maria River

Pictures:

Aerial photo of the south side with ARB's equipment and the HDPE pipe fused and laid out to the east.

Water tanks (20,000 gallon) mobilized for hydrostatic pressure test of HDPE pipe.

ARB installing welded flanged adapter and DIP reducer with pressure test fitting to the west end of the HDPE pipe.

ARB bolting test fitting to the east end of the HDPE pipe.


Pressurizing the HDPE pipe for the hydrostatic pressure test.

New pump brought in by ARB to reach hydrostatic test pressure of 152.5 psi.

Pumping water out of HDPE pipe after successful hydrostatic pressure test.

Removing flanged adapter and DIP reducer from west end of pipe after hydrostatic pressure test.

ARB using mule tape and rope to prepare for pulling of two 4-inch pipes (ballast and vent) into HDPE pipe.

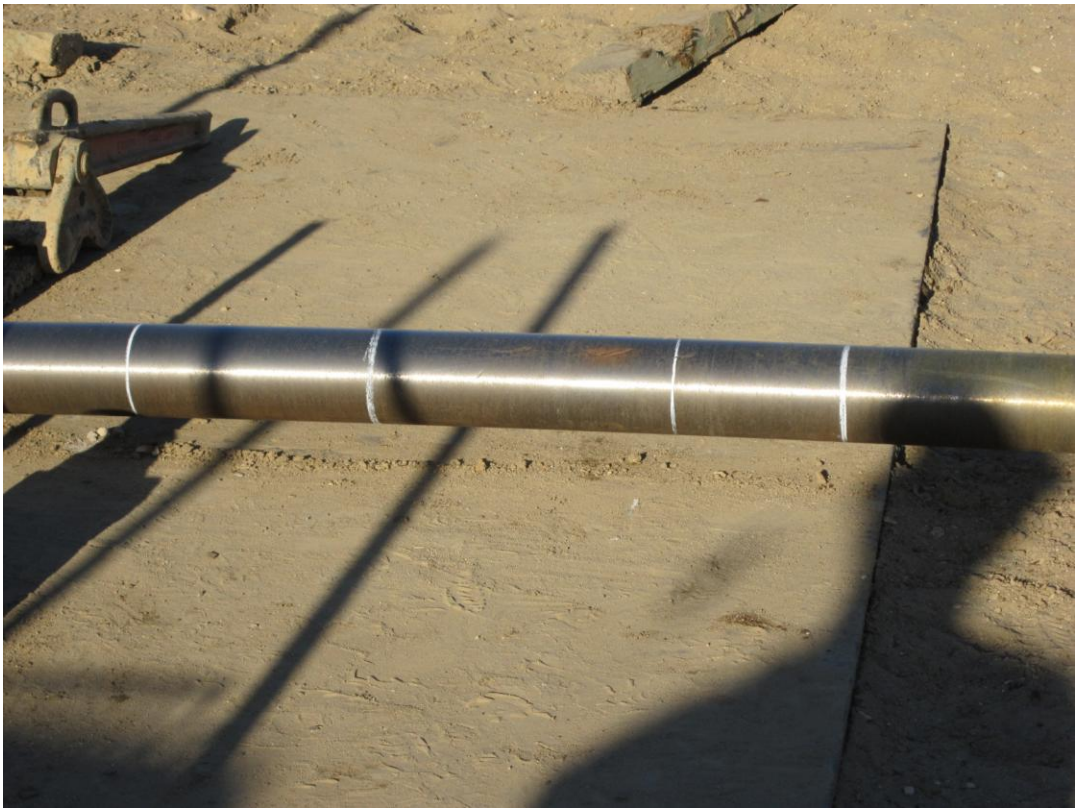
ARB feeding rope into HDPE pipe from west end.

ARB attaching rope to the two 4-inch ballast and vent pipes in preparation for inserting them into the HDPE pipe.

ARB positioning the two 4-inch pipes for pulling into the HDPE pipe.


Ballast and vent pipes successfully inserted into HDPE pipe.

Pull head welded onto HDPE pipe.


Approximately 3 feet marked on drill pipe to show progress for one day during the 42-inch reaming.

ARB installing 9-inch drill/mud jet to loosen the 42-inch drill.

ARB removing pipe string after the second failure of the adapters on the 42-inch drill.

One of the failed adapters from the 42-inch drill.

North Site & Access Road

Pictures:

Aerial view of the north side of the project with orange fencing around area where permeation grouting occurred.

Sink holes when initially discovered on October 14.

Settlement monitors installed by ARB to monitor further settlement closer to the edge of the bluff.

ARB inserting 12-inch casing into hole to help free 36-inch drill.

ARB removing 36-inch drill after it became stuck due to material settlement during the second reaming pass on October 16.

Sink holes increasing in size with continued reaming.

ARB inserting 42-inch drill for final attempt at completing the reaming from the north side on October 21.

Mud rising in sink hole within the temporary construction easement area as ARB proceeds with the 42-inch ream on October 21.

ARB backfilling sink holes with imported material in preparation for GeoGrout mobilization.

GeoGrout mobilizing one of their drill rigs to the north site on October 23.

Two GeoGrout drills completing first permeation grout injections.

GeoGrout continuing permeation grouting injections.

ARB personnel assigned to work with GeoGrout mixing cement grout.

GeoGrout backfilling drill hole with cement grout.

R. Burke Construction placing base for installation of a gate at the site entrance to prevent CRLFs from entering the site.

R. Burke Construction placing an AC apron under the gate to prevent CRLFs from entering the site.

Gate installed by ARB to prevent CRLFs from entering the site.