INSIGHT

Mitigating Risk and Increasing Safety at Utility Crossings

Standards and Protocol

The rail industry has well established standards and permitting protocols that most (if not all) railroads follow. These standards and protocols establish requirements and expectations for those companies installing utilities along, under or over railroad right-of-way. Mitigating risk and driving safety is at the core of these requirements and expectations.

Yet for some railroads, companies are installing utilities along and across the rail right-of-way without any rail representation. Thus, the railroad is at risk of safety protocols not being followed, the utility being constructed in the wrong location, the contractor making field change decisions that could negatively impact the integrity of the track infrastructure or the contractor leaving the right-of-way in a state of disrepair.

Utility Permitting and Construction Observation Programs

To mitigate risk and avoid a potential catastrophe, some railroads are implementing utility permitting and construction observation programs. Initially, these programs are often met with resistance as the various entities navigated the new process and budgeted for the increased cost. Yet, through collaboration and communications, ultimately public safety and compliance with the permit win out.

Description of the Program

The process starts when the entity intending to install improvements on the railroad right-of-way completes an application, which generally includes company information and engineering details regarding the installation. Only after the application is reviewed, approved and executed

can the licensee move forward with scheduling of construction.

Bartlett & West, a rail solution provider headquartered out of Topeka, Kansas, partners with railroads to implement and manage utility permitting and construction observation programs. For the programs that Bartlett & West coordinates, every crossing requires a third-party flagman and Bartlett & West construction observer.

Once the flagman and construction observer are on site, the flagman is the Employee In Charge (EIC) on the project and manages the train protection on site while the Bartlett & West construction observer monitors construction to confirm compliance with the approved permit. On track protection usually involves a watchmen/lookout or Form B.

Once on site, the construction observer is monitoring daily progress and construction activity for compliance with the permit. During the entire installation, the construction observer utilizes a COMobile App that can be used on a laptop, a tablet or smartphone. The construction observer will write a narrative of the daily progress and will take pictures of the important events to supplement the narratives. When the installation is complete, the construction observer takes GPS points of where the utility crosses the railroad tracks. Below is a screen shot of the mobile application.

It is important to note that the presence of the flagman and construction observer does not relieve the contractor of their responsibility to maintain a clean and safe work environment. All parties keep a focus on safety but it remains the contractor's responsibility.

One of the most important but often overlooked aspect of an installation is placement of the utility markers on the railroad right-of-way. The construction observer will stay on site until the utility markers are placed and the site is restored to an acceptable condition. GPS shots are taken at the utility markers before all parties demobilize from the site.

As part of Bartlett & West's utility crossing program, an email gets distributed to roadmasters, signal supervisors and engineering staff to inform them of projects going on in their territory that week, including who the contractor, flagmen, and construction observers are in addition to anticipated schedules for each project.

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The Program in Action

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For example, a Bartlett & West construction observer was mobilized to a site for a dry bore and jack project. Upon arrival, the construction observer noticed grade stakes shown below and indicating excavation for the bore exit pit 12' away from the closest track, with no indication of shoring in the permit. An exit pit location this close to the tracks was not included in the permit application. This observation led to a discussion with the contractor about that excavation being in zone A and needing designed shoring for slope protection. The contractor indicated he had no plans for shoring and this would drastically delay the project. Through discussion with railroad, the construction observer offered an alternative to the shoring that required the contractor to extend the casing pipe beyond the shoring limits and out to the right-of-way line.

The contractor opted to pursue the casing extension option because the casing pipe could be procured quicker than shoring design. This is a case of a contractor not knowing the critical nature of railroad loads and the impact to adjacent excavation and attempting to save cost on casing pipe. The final solution provides the railroad the desired outcome of casing to the right-of-way line.

In another example, a city intended to make some drainage improvements and install a new junction box connecting existing 2-24" reinforced concrete pipes (RCP) that crossed railroad tracks to proposed storm sewer. When the construction observer arrived on site, he very astutely took a picture inside the RCP to visually inspect the condition of the existing culvert.

The inspection revealed that railroad loading over time had caused the RCP pipe joints to offset, which allowed material to sluff into the pipe. This obviously compromises the track subgrade as material continues to erode into the RCP. The construction observer contacted the

railroad's engineer and notified him of the issue and promptly stopped the project so the culvert and track subgrade could be fixed.

Resistance to the Program

While the goal of the program is to increase safety, some in utility and communications industry has begun lobbying to limit the amount railroads can charge for licenses and other associated fees. They are proposing legislation (which has been passed in states such as Minnesota, South Dakota and Mississippi) that ultimately would become law and limit the amount rail companies can charge. This would reduce the railroad's ability to staff utility crossings or hire a firm as railroad representation. If the legislation is passed, it may limit a railroad's ability to mitigate risk of a safety-related accident.

Benefits of the Program

The main goal and benefit to the utility program is that it drives safety compliance. All aspects of the process improve safety from the engineering review of the application to safety briefing and PPE compliance to taking a GPS shot of the installed utility. By driving safety compliance, the railroad reduces liability and risk of a catastrophe occurring.

It wasn't necessarily an initial goal of the program, but improved coordination and communication between all parties involved has been a huge benefit. The Bartlett & West scheduler works with the licensee and his or her contractor to confirm compliance with all permit requirements, plan construction activities, ensure a flagman will be present, confirm railroad communication lines have been located and summarize all relevant information in a weekly report to the roadmaster, signal supervisor and engineering representative.

The Engineering and Real Estate departments benefit by having access to as-built locations and all relevant documents—crossing agreement, construction observation report and in some cases the original design plans associated with a crossing. As Engineering is assessing customer or expansion projects, they have a clearer picture of the schedule and budget impacts related to utilities in the area by going to their enterprise GIS system.

And lastly, the contractor is not allowed to demobilize from the site without sufficiently restoring the right-of-way. This final step of compliance prevents drainage issues caused by poor grading or stock piled material left from construction. It saves railroad forces from having to mobilize to clean up a mess left after a project. This ensures the right of way is left in the same condition as it was before the project began.