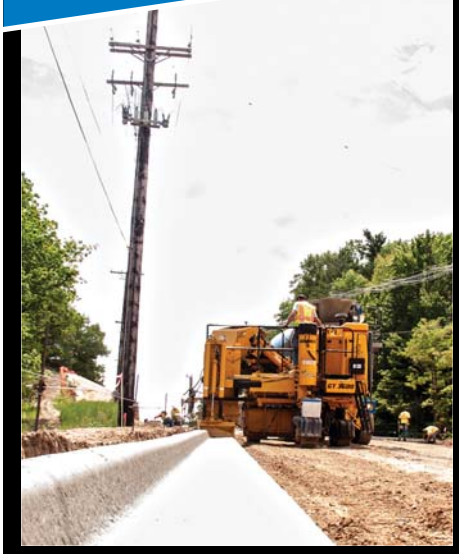
Lowering LaFranier Road



PROJECT: Lafranier Road

CHALLENGE: Undercut 12% grade to 7%; lower 20" watermain 10 ft deep, 15 ft away from second operational line; adapting project plans mid-stream to fulfill new client requests

SOLUTION: Patient and persistant planning, purposeful execution; deep trench safety systems; adaptive team

OWNER: Grand Traverse County Road Commission

CONTRACT AMOUNT: $2,438,000.00

DESIGN ENGINEER: Jim Johnson, Grand Traverse County Road Commission

ENGINEER PHONE NUMBER: 231-922-4848

LOCATION: Lafranier Rd, Traverse City

DATE STARTED: April 13, 2015

DATE COMPLETED: July 2, 2015

SELF-PERFORMED: 87%

PARTNERS: Bella Concrete, Action Traffic Maintenance, Give 'Em A Brake Safety, G&J Site Solutions, Strain Electric

South Airport Road is one of Traverse City, Michigan's busiest roads — a street that not only houses the entrances to Cherry Capital Airport and a slew of businesses, but one that many residents also use as an east-west traffic corridor to access the outer Traverse City area. Until recently, South Airport Road at Lafranier Road also played host to a less desirable feature: one of Traverse City's most dangerous intersections.

The intersection at Lafranier Road and South Airport has made drivers uneasy for years. Located south of South Airport Road, Lafranier Road featured a steep 12% grade that made stopping at the intersection difficult — particularly during Traverse City's hazardous winter seasons. Lafranier was also deteriorating and didn't have the pedestrian amenities necessary to support the numerous neighborhoods and

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developments along the road. Needless to say, the street needed a facelift.

The Grand Traverse County Road Commission awarded Team Elmer's the task of repairing Lafranier, with a special focus on reducing the grade to 7% at the end of the mile and half portion of the road that featured a steep hill and the South Airport intersection. The project was unique in many respects, including how much of the work was concentrated in such a small space.

The hill was the core focus on the project, requiring Team Elmer's to significantly adjust the grade of the road. The existing grade required a 12-foot cut to reach the 7% grade for the road section. In order to achieve this aim, Team Elmer's first had to lower the existing utilities 10 feet to allow enough coverage to avoid freeze-thaw cycles affecting the new utility location once the existing road was lowered to its new elevation grade per Grand Traverse County Road Commission (GTCRC) requirements.

Particularly challenging was a 20-inch water main utility situated beneath the road. The water main had to be lowered 10-feet, but the stipulation was that Team Elmer's couldn't shut off the water to do the move. Instead, we used a line stop, a temporary valve to stop the water flowing down the pipe, and trim the excess section. Line stops are used semi-regularly in situations where construction or contracting teams need to service a water system, but don't want to shut it off. A 20-inch line stop, however, is rare simply due to its size.

Cutting the hill down 12-feet also caused some challenges, given the space limitations of Lafranier Road itself. In order to widen the road, add a center turn lane, and build pedestrian-ready sidewalks on either side of the hill, Team Elmer's didn't have space to build suitable side slopes for the road. Instead, GTCRC designed a Redi-Rock retaining wall to hold back the sandy soils and keep the road stable.

To provide stability at both the top and bottom portions of the hill, sheet piling was installed to hold the soil in place. Team Elmer's then excavated the area to install the Redi-Rock retaining wall along the hill. The final wall was comprised of 1,300 blocks, ranging in size from 2,000 to 3,000 pounds. Despite the complexity of the work, our team finished the entire retaining wall in just seven days.

LaFranier Road By The Numbers

- **Earth Excavation: 11,737 cyds**
- **Crush & Shape: 18,937 cyds**
- **Gravel: 9,952 tons**
- **Culvert Installed: 74 feet**
- **Sidewalk & ADA Ramps: 11,674 sq feet**
- **Sewer/Water/Sanitary: 2,460 feet**
- **Undercut: 12 feet**

A mid-project change of plans, an added left-hand turn lane for a future development on Lafranier Road, changed the game yet again. Because of the new request, delays and additional time was expected, risking the original project completion date of July 4, particularly since adding the turn lane meant moving hydrants and lowering manhole structures, among other challenges.

A two-week extension was added. As it turned out, Team Elmer's didn't need the extra time. In fact, we finished the project even ahead of the original schedule, holding the ribbon cutting ceremony for Lafranier on the morning of July 2nd, just in time for the holiday weekend and for Traverse City's world-renowned National Cherry Festival.