

# COP CHRONICLE

## SHILOH ROAD CORRIDOR - Billings, MT

COP CONSTRUCTION LLC

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Photos above: Waterline installation at the north end of Shiloh, near Poly Drive.

(Photos by Larry Brunmeier)



Above and below: Deep sewer installation with challenging existing utilities.

(Photos by Larry Brunmeier)



The Shiloh Road Corridor Utilities project involves widespread water and sewer improvements to the Shiloh Road/Interstate corridor roadway across the Billings west end in preparation for the upcoming Montana Department of Transportation (MDT) Shiloh Road Expansion. The final value of work, change orders included, will be \$2.5 million. The project started in September 2008 and is planned for completion in June 2009.

The project was estimated by Ed Allen with Doug Teller assigned as Project Manager. Larry Brunmeier is the project's primary Superintendent and Chris Reed is Project Engineer. Barry Benke, another COP Superintendent, has also been involved on several

phases of the project with his crew. The work force has varied from one crew at times to three crews at peak, totaling fifteen employees.

The project was designed by Sanderson Stewart working closely in conjunction with the interests of the City of Billings and the related MDT projects. Tim Pirtz, P.E. is the engineering company's Project Manager, and Tony Montez heads up construction inspection. City Staff Engineer Randy Straus is COP's contact for the many planning and coordination efforts necessary. One of the biggest challenges has been planning and constructing 12 different zones of work, moving equipment and resources between each location, and restoring every area. Each segment of work must be treated as a separate individual job. Winter weather and difficult soil conditions have been

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**From the desk of the President –**

In the last edition of the Chronicle, I presented a breakdown of a typical project that COP would construct. I have included the breakdown chart for reference. In this edition, I want to highlight the areas of this project where I believe the biggest opportunities exist for making the project a real success.



Project Components	Dollar Value	% of Direct Costs
Labor and Project Supervision	\$1,339,286	30%
Direct Materials	\$1,339,286	30%
Subcontracts	\$892,857	20%
Equipment	\$446,429	10%
Small Tools & Supplies	\$446,429	10%
<b>Direct Cost of the Work</b>	<b>\$4,464,287</b>	<b>100%</b>
Office Overhead Markup	\$401,785	9%
Profit Markup	\$133,928	3%
<b>Contract Amount</b>	<b>\$5,000,000</b>	

**Labor and Supervision:**

Labor comprises 30% of our example project. This area can have the largest effect on the profitability of the project. In order to demonstrate the magnitude of cost variations that can be experienced, I want to use two examples that indicate how paying attention to details makes such a difference. By not planning our work properly for the day, the crew on this example project started work ten minutes late in the morning and had to stop working productively five minutes early at the end of an eight hour day. Consequently, we have lost fifteen minutes of productive work for that eight hour day. Now, add to this a condition where the crew has to wait for compo-

nents such as materials, layout/elevation, equipment, etc. at various times during the eight hour day. If they wait three minutes twice in the morning for materials and wait three minutes three times in the afternoon for an elevation check, they would have lost an additional fifteen minutes. On the surface, lost time of thirty minutes, fifteen minutes of poor pre-planning plus fifteen minutes of waiting for materials and elevation, in an eight hour day does not seem to be significant, but as you will see, this is not the case. The thirty minutes of lost productivity equates to 6.25% of our labor budget for that day and if allowed to repeat, would result in \$83,700 in lost profit for the project.

**Equipment:**

In my opinion, this is the next area of work that can have the greatest effect on the profitability of the project. Equipment costs and productivity are directly related to labor. When we have thirty minutes of lost productivity, chances are we have lost the same amount of lost equipment productivity. Let's use the same thirty minutes of lost productivity in an eight hour day as we used in the labor and project supervision discussion above. This 6.25% lost productivity factor for our equipment usage equates to \$27,900.00 in the life of the project. In addition, the lead hoe operator swings into the bedding box at the end of the project causing \$828.00 damage to the sheet metal on the side of the hoe. This brings our extra cost for equipment to \$28,728.00.

**Small Tools and Supplies (ST&S):**

Small differences in the purchase of ST&S can have a significant effect on the bottom line. For every \$100 purchase we make, if we were to purchase that same amount for \$103, a 3% loss would be realized. So, in regard to our example project, this inefficient method of buying our ST&S could result in a \$13,400 loss to the bottom line.

**Direct Materials:**

As I explained in the previous edition, the direct materials component provides less opportunity for savings because the quotes taken at bid time are generally converted to a purchase order. However, inefficient use or loss of materials can dilute the profits of the project. For example, on a \$5,000,000 pipe job with 20,000 LF of water and sewer, if we over excavated an average of 1" extra on the bottom, 1" extra on and each side and used 1" extra of bedding over the pipe than we estimated, we would exceed our bedding budget by approximately \$8,100.00.

**Subcontracts and Overhead:**

The other components, subcontracts, regional and home office overhead, remain relatively constant on our projects and generally are not a significant source for variation in cost.

**Summary:**

If we summarize the effects on costs outlined above, they would result in the following breakdown:

As you can see, we have eliminated all the \$133,928 of estimated profit on the project. As a result of 30 minutes per day of lost productivity, over excavation of an extra inch on three sides of the excavation and an extra one inch of bedding over the pipe, spending three dollars extra per hundred dollars on small tools and supplies, and incurring minor damage to our excavator, we will complete the project with no profit in our pocket. While each of these items alone may not appear to be significant, when combined with other small issues over the course of the duration of the project, these small items can be the difference between success and failure. This example shows how relatively minor events can erode the profits on our projects. It is important to realize that each of us must pay attention to the details on a project.

Project Components	Extra Cost of Inefficiency	% of Profit Markup
Labor and Project Supervision	\$83,700	62.5%
Direct Materials	\$8,100	6.0%
Subcontracts	-0-	-0-
Equipment	\$28,728	21.5%
Small Tools & Supplies	\$13,400	10.0%
<b>TOTAL</b>	<b>\$133,928</b>	<b>100.00%</b>

# MEET THE FACES of COP

Doug Teller is the Project Manager of the Shiloh Road Corridor Project. He holds a Masters Degree in Construction Engineering from MSU-Bozeman, and has been with COP for four years. He grew up in a construction family, moving around the U.S. every 2 to 4 years, but luckily landed in Montana on three occasions. He started in the construction business with internships at copper mines in Chile, and has since worked in Utah and Montana. Doug enjoys outdoor activities such as fishing, skiing, floating rivers and recently started scuba diving. In February, he took part in an activity of a different nature - he stepped indoors to the alter and married his lovely lady, Jordan, who shares his enjoyment in outdoor adventures. Of COP, Doug noted, "I'm very happy to be part of this organization and work with such a talented group of people."



Chris Reed is the Project Engineer for the Shiloh Road Corridor Project. Seattle born and raised, he attended MSU and graduated as a Civil Engineer. Travels then took Chris up and down the east coast working construction and finally back to Montana. Chris enjoys his favorite activities of fly fishing, tying his own flies, hiking, skiing, and following the Bobcats.

Larry Brunmeier has been with COP for 16 years, starting as a pipe layer, and moving up to Project Superintendent. Larry is the Superintendent on the Shiloh Road Corridor. "COP is a respectful company to work for," he says. Larry, a Billings native, enjoys riding his Harley, fishing, hunting, and spending time with friends and family, including a son who also works for COP and two lovely daughters. Currently, wedding plans are being made for September when Larry says "I do" to his fiancé, Stacey.



Ed Allen started with COP in Yellowstone Park in 1973 as a heavy equipment operator. 36 years later he brings expertise to the table as the estimator on the Shiloh Road Corridor Project. Ed's interests lie with the Denver Broncos, Las Vegas, golfing and travel - making a point to visit Aruba for two months every year.



Debbie Mitchell, Contract Administrator, has worked for COP since 1996. She has two children but is enjoying an empty nest, as her oldest daughter will be marrying in August, and her youngest will be graduating from Colorado State University in May. The only "babies" at home now are her two black labs!

*Thanks to each of you for your tireless efforts in bringing the Shiloh Road Corridor Project to completion!*

(Each Chronicle will introduce other employees.)



The crew completing deep sewer main and service at the Hesper Road intersection. (Photo by Larry Brunmeier)

*“One of the primary challenges has been planning and building the twelve different segments, along with efficient restoration and mobilization of each segment.”*

*~ Doug Teller ~*



The crew crossing Shiloh Road with deep sewer, using COP's Cat 365 excavator. (Photo by Larry Brunmeier)

a large challenge for the crews. Some of the more complicated work has been deep sewer installation, up to 20 feet deep, at the Hesper Road intersection and the long stretch between Central and Broadwater.

All work is performed within the boundaries of the roadway right-of-way, and involves complex traffic control plans and timely asphalt restoration. There are several locations of major irrigation ditch crossings that have also posed numerous challenges, including dewatering, muddy soil conditions, and bypassing irrigation flows. The project's major crossings are Canyon Creek ditch and Hogan's Slough, with several crossings of the Shiloh Drain, and multiple crossings of minor farm ditches.

Cooperation from local residents, commercial businesses, landowners, and agricultural interests along the length of Shiloh Road, has also been critical to our forward progress. The Billings community has proven to be very supportive of these improvements and mindful of the safety of COP employees and motorists alike.

As the Shiloh Road Corridor Utilities project progresses on, COP is looking forward to continued work in the area with our recent award of the MDT Poly Drive South Utilities project. COP will be working in conjunction with Knife River on extensive storm water improvements to the north half of Shiloh Road. This work will start in late April.

**WHO IS RESPONSIBLE FOR SAFETY ON THE JOB?**

According to the federal Occupational Safety and Health Act, employers and employees have a shared responsibility for safety in the workplace. Each employer must provide employment and a place of employment free from recognized hazards that could cause harm to his employees. Each employee must comply with all safety rules and regulations applicable to his or her own actions and conduct. That seems simple enough, but let's look further.

COP has a proven safety program that establishes safe work practices for every project we are or will be involved in. Our safety rules and requirements are spelled out in the Employee Safety Handbook, our written Safety Program Manual and the Site Safety Plans prepared for each project. The Project Superintendent is primarily responsible for making sure each project employee knows, understands and follows safety requirements on the job.

However, it is EVERY employee's responsibility to comply with all applicable safety standards, rules and policies which apply to their respective job. If an employee is unsure or does not understand the safety requirements for his or her job, it is their responsibility to STOP and get help. It is also the responsibility of every employee to be watchful of our co-workers to ensure they understand and follow our safe work practices. We will have more on this in the next issue of the COP Chronicle.



Chris Cull, Safety Manager

**PROJECTS CURRENTLY UNDER CONSTRUCTION**

**COP CONSTRUCTION LLC**

**KALISPELL WASTEWATER TREATMENT PLANT**

Kalispell, Montana  
\$18,405,392

**EXXON CIVIL PROJECTS—  
API PIPE SUPPORTS**

Billings, Montana  
Value Pending

**MDOT HIGHWAY 191 - BIG SKY**

Belgrade, Montana  
\$13,031,497

**BRIARWOOD SANITARY SEWER**

Billings, Montana  
\$5,179,868

**SHILOH ROAD CORRIDOR - W.O. 07-16**

Billings, Montana  
\$2,626,939

**KING AVE. WEST  
SEWER IMPROVEMENTS**

Billings, Montana  
\$938,665

**POLY DRIVE SOUTH UTILITIES  
(Subquote to Knife River)**

Billings, Montana  
\$1,263,095

**THOMPSON FALLS FISH LADDER**

Thompson Falls, Montana  
\$5,900,000

**EAST ISLAND BRIDGE REMOVAL**

Livingston, Montana  
\$150,000

**S. FORK SHOSHONE RIVER BRIDGE**

Cody, Wyoming  
\$1,460,141

**DRY GULCH BRIDGES**

Vernal, Utah  
\$1,399,800

**WOODS CROSS WATER TANK**

Woods Cross, Utah  
\$3,595,982

**6 BRIDGES OVER STEINAKEER CANAL**

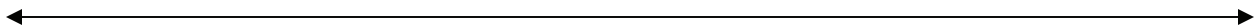
Vernal, Utah  
\$1,600,239

**P&G GOLDRUSH PIPE**

Bear River City, Utah  
\$2,039,607

**WAKEGAN PUMP STATION**

Bear River City, Utah  
\$686,209



**COP WYOMING LLC**

**TREE STREETS SANITARY SEWER & WATER**

Rock Springs, Wyoming  
\$4,736,172

**COLLEGE DR.-GRANT ST. EXTENSION**

Rock Springs, Wyoming  
\$2,068,625

**STORY FISH HATCHERY**

Story, Wyoming  
\$2,285,305

COP Wyoming LLC, based in Rock Springs, Wyoming, is a newly formed subsidiary of COP Construction LLC. Joe Troester is the Manager of COP Wyoming. At this time, Joe is overseeing two ongoing projects in Rock Springs, along with the assistance of Justin Tomison, Project Engineer, Pat O'Brien, Project Superintendent, and Robert Hernandez, Project Foreman.

COP Wyoming was recently awarded the Fish Hatchery Project in Story, Wyoming. Kevin Wood is the Project Manager, and Rod DeBuff is the Project Superintendent for this project.



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**President's Economic Update**

With the economic situation constantly in the news, I thought it appropriate to provide a perspective from COP's point of view. Since 1980, our economy has experienced four recessions, not counting the recession we are presently in. According to JP Morgan, recessions last on average approximately ten months, which would indicate that a recovery could start in the latter part of 2009 or early 2010. While recessions are stressful, they are a normal part of an economical cycle.

COP is positioned well to take advantage of this changing economy. With our strong backlog of work and the financial strength of the Company, we can successfully pursue the opportunities available to COP. However, to be successful in this extremely competitive market, where a large number of contractors are competing for a reduced volume of work, COP will need to find better and more efficient ways to perform the work. Those companies that adjust to the changes and challenges will survive and prosper. Let's work together in allowing COP to be successful by working smarter and adjusting to these ever changing challenges.