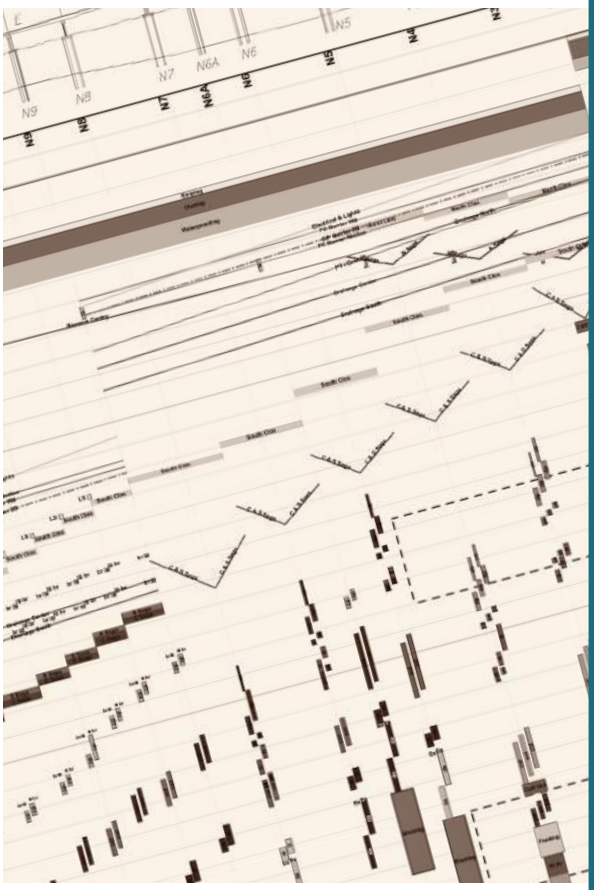
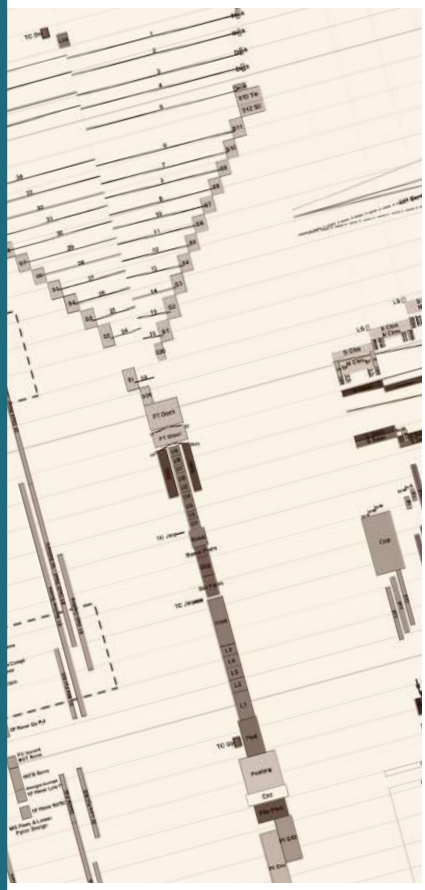


THE BEST-LAID PLANS

by Regan Ingalls Conley



Nobody gets hurt. Every day on a job is a fire drill.

Equipment is in the right place. No one has the right tools.

The work is right the first time. You're sending a guy down to Home Depot for 10,000 bolts because they're needed for the night shift that's about to start.

Everybody on the project understands the roadmap to get the work done. The work doesn't seem to have a purpose or a goal.

These "random acts of construction," as Jeff Riley, project manager of the Folsom Dam Spillway, calls them, are a red flag that the team skimped on planning. Planning efforts, good or bad, show up in the field—and in the bottom line.

"We've proved time and again when we don't [plan], we get poor results," area manager Paul Giuntini says.

THE PLANNING TOOLBOX

So how do you put together a good plan? Use the right tools.

The Planning Wheel

Good planning—whether it's for a multibillion-dollar megaproject or a simple one-page plan for a footing—follows the cycle of the planning wheel. This results in plans that are practical, resilient, and cost-effective.

The cycle begins with the plan-the-plan matrix, outlining the when, what, and who. Area manager Lee Zink says planners should assign man-hours to the planning effort when they put that matrix together. "Probably three-quarters of the time we miss that step," he says. On a big job, a resource-loaded schedule in Primavera will keep an overwhelming to-do list under control.

KB&M is good at studying and improving. "If there's a hole, it's in archiving the results," Paul says. "When you talk to people who've had a poor operation, you find out that someone else had the same problem five years ago and no one communicated it." By reviewing final plans, new jobs start their learning curve where the last project left off.

KB&M PLANNING WHEEL

"If we really do all these things religiously, we would be tremendously better than we are today," Paul says. "We are better than we were ten, twenty, thirty years ago, and we can get even better."

People

Kiewit has a vast store of knowledge. "Don't be afraid to call and bug people to get info," Lee says.

Paul agrees: "You can learn a lot this way. Don't assume that just because it's your job that you can't ask for help."

The earlier you put together a schedule, the better luck you'll have involving other people. Start as soon as you learn KB&M is the low bidder. With early scheduling, senior managers can make dates available for brainstorms and reviews.

Good management involvement is "huge," marine sponsor Greg Mix says, not only because of managers' experience and knowledge, but because their buy-in on a risky operation can give confidence we're working with the best plan.

Good planning requires a good brainstorm—more than one, Greg says—with the right experts to figure out how to get the job done. Once you have a plan, get those experts back to review it.

Craft personnel can provide valuable insight, too. Lee recommends hiring an experienced foreman for a week to help. Greg suggests seeking out recent retirees who might be available for a short stint. KB&M staff with craft backgrounds are also a good resource.

Past Plans

Many jobs involve similar operations; planners can draw on past projects for ideas and refine them for the task at hand. For example, with at least three pontoon projects behind us, the wall panel operations have been fine-tuned over the years, getting better with each project.

KB&M managers have mixed opinions about encouraging staff to tap the Center of Excellence (CoE) for sample plans.

Paul says planners should use the CoE. "Not everything that goes in there is the best, but it's a start," he says. "It's better than nothing."

Lee, however, says he worries that staff will look at a plan on the CoE and copy it, without thinking it through and making it their own. "That's really scary to me. And it's like plagiarism," he says.

Greg likes the idea of the CoE, but says wherever people get insight, they need to use their judgment. "You can get stupid ideas out of people, too."

PLANNING DONE RIGHT

"Successful operations have good plans, and I don't have to see the plans to know that," Paul says. He and others didn't have trouble naming examples.

Jene Van Zant was cited for segmental planning operations, Andy Palowski for work at Port Mann, and Ian Johnson for a plan that saved thousands of man-hours of work at Chesapeake Bay Bridge.

Planners for the segmental work on the SR-520 Evergreen Point Floating Bridge and Landings and the pre-cast yard at Honolulu Transit–Farrington Guideway all studied earlier KB&M work and reached out to people who were involved. Both these operations are beating their budgets.

KOSCIUSKO BRIDGE New York, New York

The Kosciuszko Bridge is slated for a massive makeover under a design-build contract awarded to a Skanska-Kiewit-Ecco joint venture by the New York State Department of Transportation. KB&M is teamed with the Eastern District on this project to build a new cable-stayed bridge between Queens and Brooklyn.

This Skanska-led job isn't following KB&M planning policies. It isn't following Eastern's or Skanska's either. They've created their own. With this many players, the first planning step is merging cultures by "picking the most effective tools from each process and applying those," says Carter Masterson, project manager for the bridge.

KB&M has a number of projects in the planning stage. *Currents* looked at three very different jobs across the country with different client types, different contracts, and varying sizes to see if the fundamentals still applied.

KB&M and Eastern do share fundamentals: What KB&M calls the planning wheel, Eastern calls the "five stage planning process." The team built a plan-the-plan matrix. They started with the schedule and backed out the work to determine how to staff the job. KB&M relies on Eastern's local experience to understand the client, unions, and regulations.

The contract requires a third-party quality control company. "Most of these guys are retired from the New York City DOT, so we get them involved in planning and not just with quality control. They're helpful with means and methods and little things that might be forgotten like material receiving and state standards lists," says Carter.

One practice the team has picked up from Eastern is a "mini-GOOJ" (Get Out of Jail), a final plan review that's required before the team is "released" to go to work.

Three big Kiewit projects in the area—K-Bridge, Goethals Bridge, and Bayonne—are all planning work right now, so they talk with each other to get ideas and help.

JV partner Skanska has a very different approach to planning and mostly relies on estimators to write up complete work plans that are handed off to the field. They also centralize subcontracting without field involvement. This isn't the KB&M way, but Carter is trying to take notes and learn as much as he can. He says the take-away, if you're on a non-sponsored JV, is that "to get better, we really need to study how they approach their work, because they're successful, too."

For the Mid-Town Tunnel, there was no identical previous work. Planning manager, Kent Werle, looked back to 1984 to how Kiewit built Baltimore's Fort McHenry Tunnel and then turned to European experts. He also drew on KB&M's floating bridge work. Kent is known for being pugnacious that plans meet high standards.

A plan developed at Skyway allowed the high-risk installation of the 800-ton match-cast segments to proceed without incident. The team took sufficient time to develop the plan and brought in the right people. Subcontractor Schwager-Davis, who designed the SLEDS for the operation, contributed to the plan and Ken Stinson, then Kiewit's chairman and CEO, brought his expertise to the reviews.

SAN FRANCISCO–OAKLAND BAY BRIDGE FOUNDATION DEMOLITION Oakland, California

A decade ago, KB&M was in the midst of building the Skyway segment of the new San Francisco–Oakland Bay Bridge. This summer, we came full circle when Caltrans awarded the first phase of a CM/GC contract for removing the old bridge foundations to a Kiewit-Manson joint venture. The team will provide preconstruction services assisting with design, constructability, and permitting and will conduct a demonstration test to prepare for controlled blasting of three caissons during the construction phase.

“Working on a CM/GC job is a very different atmosphere,” says preconstruction services manager, Jason Gagnon. Other than the demolition of a single test pier, the contract is all about the planning. The team is working with Caltrans, their consultants, and the designers to finalize the design, get permits, and establish a budget. In some ways, it’s similar to the final stage of a design-build pursuit, but with the client at the table. Jason describes it as “very collaborative.”

Caltrans has a stable of excellent engineers and designers; KB&M brings value by organizing the entire team. To divide and conquer, they’ve split into task forces, as would be done on a design-build project.

While the contract type might be uncommon for KB&M, “the fundamentals [of planning] apply, regardless,” says Jason.

To plan the demonstration test they brought in the subcontractor, Contract Drilling & Blasting, along with Caltrans’ blast consultant. The demonstration gives the team the opportunity to go through the entire planning wheel cycle for this operation before performing the on-site work.

As might be expected, permitting on a marine demolition job with in-water blasting is complex. The team put together a separate plan-the-plan matrix just to manage the effort to obtain the nine permits needed.

They’ve also held multiple brainstorms to develop the bubble curtain design.

KIEWIT/MANSON, AJV

From top: Segmental erection at SR-520; Farrington Guideway’s pre-cast yard; float-out of Mid-Town Tunnel’s concrete tube segments; installation of match cast segments at Skyway.

TESORO AVON WHARF UPGRADE Martinez, California

Nearly three years ago, KB&M began working with Tesoro to develop options for a new state-of-the-art wharf and upgraded access trestle. As a result, when the Cherne-KB&M-NorCal team won the construction contract this past summer, Todd Wille, the on-site construction manager, and other members of the team had already established a rapport with Tesoro.

Todd is finding that private clients tend to be more fluid in their approach. This can be challenging if you are used to working with a public agency's more definitive contract. "How do you plan something if you don't know what you're going to build?" asks Todd. It definitely isn't the old school 'get the drawings and give them a bid.'

But the fluidity enables Tesoro to get the most benefit from Kiewit's planning efforts. The team sits down one-on-one with Tesoro engineers to work out alternatives, finalize design packages, and work in requests from the Tesor operations staff.

They started with a plan-the-plan matrix for the schedule, procurement, commercial issues, and a few high level operations like temporary construction devices (a proposed construction trestle had been nixed by permitting agencies and a new option was needed).

For the first time, Todd is working with Kiewit's procurement shared services. He's seeing the benefit, but says "We should have had them involved from the very beginning. Now they're starting from scratch and they have to get up to speed."

As they move towards building work plans, they're determining how many people, what kind of experience, and when each needs to be there, so that the planning doesn't all happen at the eleventh hour.

Consulting with sponsors and area and district managers from all three districts at joint venture meetings reminds the team of the big picture. "It keeps you focused," Todd says. Brainstorms will bring in seasoned veterans and some younger staff, who may see things a little bit differently. Having the right people will help them find ways to do things better, at less cost, or faster than the estimate.

BE BOLDER

Staff can sometimes be reluctant to invest too much time, money or manpower in planning because it's hard to quantify the results, Greg acknowledges. However, the advice from those we spoke with is to be bolder in your planning efforts.

Project managers should know they have support from sponsors and senior management—both in their involvement and a commitment to line up the right resources. Paul says planning is "very important to me, I love doing it. It's rewarding if it's done right."

Sponsors should set the tone and keep a close eye on the risks that the planning needs to address.

Superintendents should review resources with the project manager if there are not enough staff to meet the planning schedule. Take work plans to the field and be fearless enough to start studying the work right away. If you try to "get up to speed" first, you miss opportunities to improve.

Engineers working on layouts, calculations, or rigging plans shouldn't shy away from picking up the phone and asking tons of questions. Their motto should be constant communication. Key foreman should offer their expertise on constructability and how to communicate the plan to the crews.

STUDY AND MODIFY

There are some "very basic symptoms" of bad planning, Lee says: "Poor housekeeping, poor material handling, poor access. Anyone can observe these things, and if you see them, you'll find out there's a root cause of a poor plan or no plan." If you're on a job that seems like the plans have holes or are missing altogether: Say something.

"Too often we turn a blind eye, and we really need to speak up," he says. "People aren't shy about bringing up safety stuff, but about quality, production, schedule—people tend to not say as much as they should."

Great strides are possible. At the The Dalles Dam Spillwall the team was pressed for planning time before the first season. The schedule had no float; when they met with unexpected challenges the work got behind and costs were high. The team took full advantage of the off-season to re-build the plan, ultimately finishing the project four weeks ahead of schedule with an "outstanding" rating from the client.

Lee also suggests implementing regular job walks to review planning, just as we have weekly safety walks. Observe, ask questions, and ask about the plan for the operation. Study and modify.