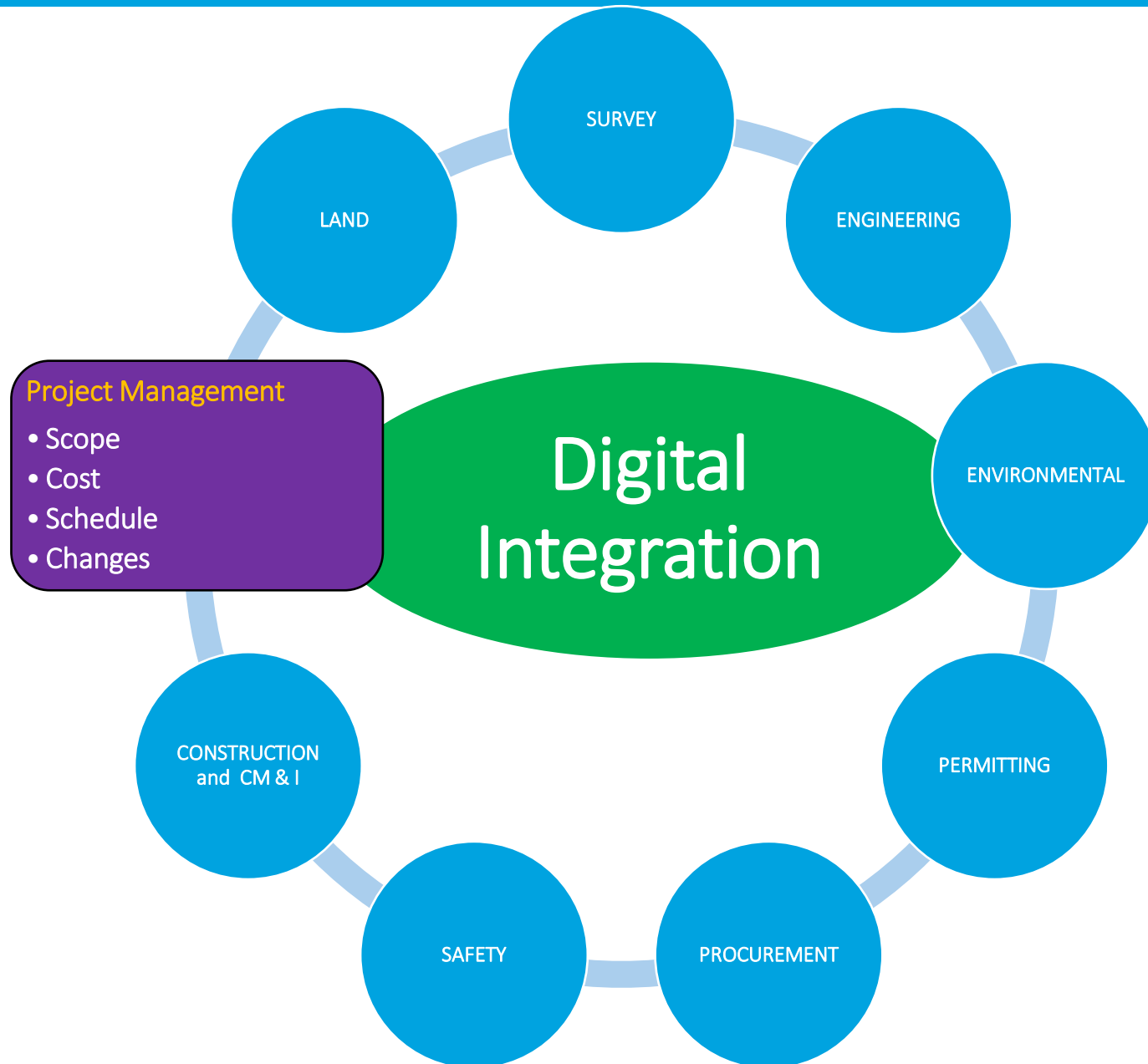


Transforming Project Execution Through Digitization

**The Pipeliners Association of Houston
Business Meeting
November 4, 2024**

Project Lifecycle



Why The Industry Needs Technology Integration

"Are we on budget, schedule, and what is our progress?"

Project Manager

- Collaboration
- Transparency
- Planning
- Data Quality and Audit
- Reporting/Analytics
- Standardization
- Portfolio Management
- Material Tracking

"How do I know this is Traceable, Verifiable, and Complete (TVC)?"

Owner/Operator

"I never gave permission for you to enter!"

Angry Landowner

"What do you mean it is not in Mill records, we buried it!"

Survey Supervisor

Cost Savings

Compliance

Meeting Deadlines

"I am not sure if that weld has been x-rayed"

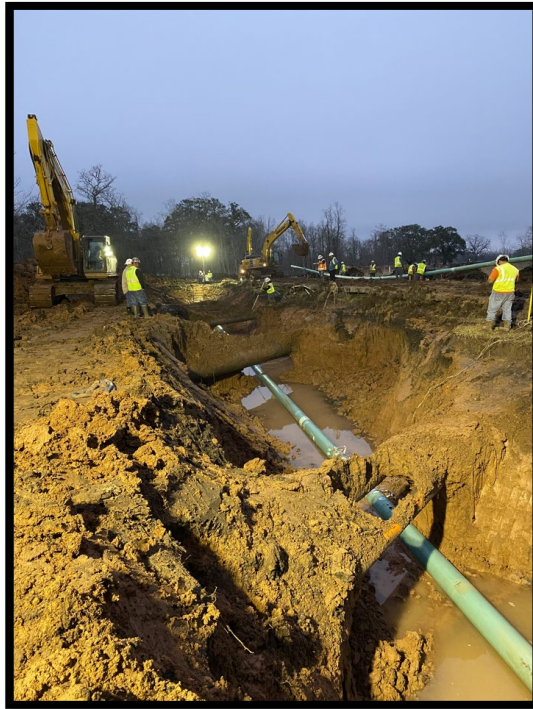
Welding Inspector

"I didn't know that was supposed to be heavy wall"

Party Chief

Project Compliance and Technology

“Are we tracking pups”
Inspection-Survey



Foreign Line Crossing Conformance & Compliance

“Are we building to design”
Project Manager – Owner Operator



Sleeve and coating Conformance & Compliance

“Are we meeting depth of cover”
Project Manager - Contractor



Pup Conformance & Compliance

Project Compliance and Technology

“Are we meeting material specs. (Ex: wall thickness and pipe changes)”

Project Manager - Contractor

“Are we meeting PHMSA’s TVC requirements”

Project Manager – Owner Operator

“Does the weld map verify against the tally report”

Project Manager - Contractor

(Joint Ahead: KMA013, Heat Ahead: T61136) (Joint Behind: KMA024, Heat Behind: T61136)

SAVE Epic Number Behind: 05391852B Segment Start Type: Loose End Form Lat: 28.415417674992018
Epic Number Ahead: 053918002 Segment Start Type: Loose End Form Lon: -98.40630695861576
Record Type: Weld Xray Type: Form Alt: 77.56110044568777
Station Start: 54800 Pipe Type:
Station End: 55115.1



Joint Ahead



Joint Behind



Welding



Xray Handwritten Values 1

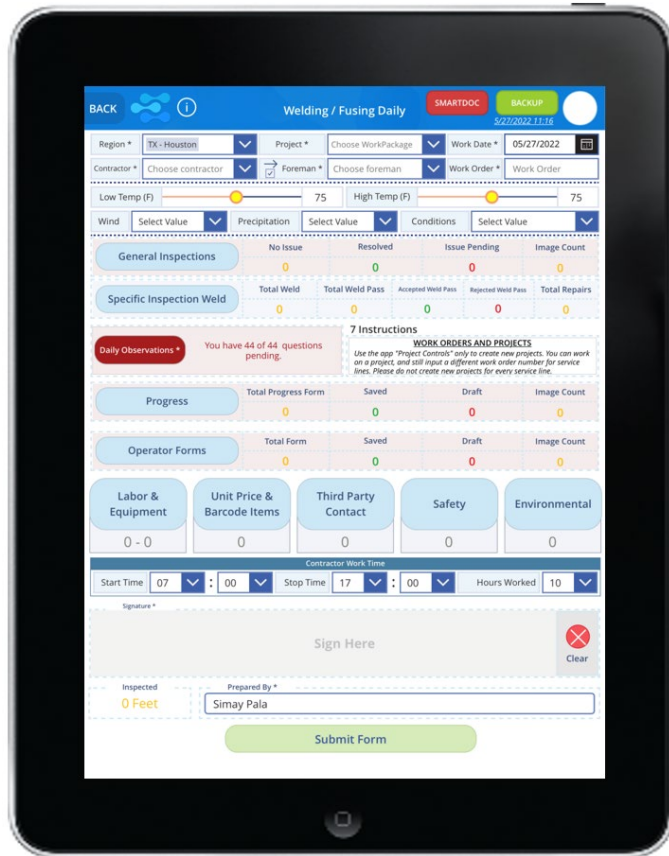


Xray Handwritten Values 2

📍 28.415418,-98.406307 📍 28.415418,-98.406307 📍 28.415418,-98.406307 📍 28.415420,-98.406304 📍 28.415414,-98.406294

Illustration of a mobile platform is used widely across pipeline transmission, distribution, utilities and gathering systems.

- Mobile View
- Web Dashboard



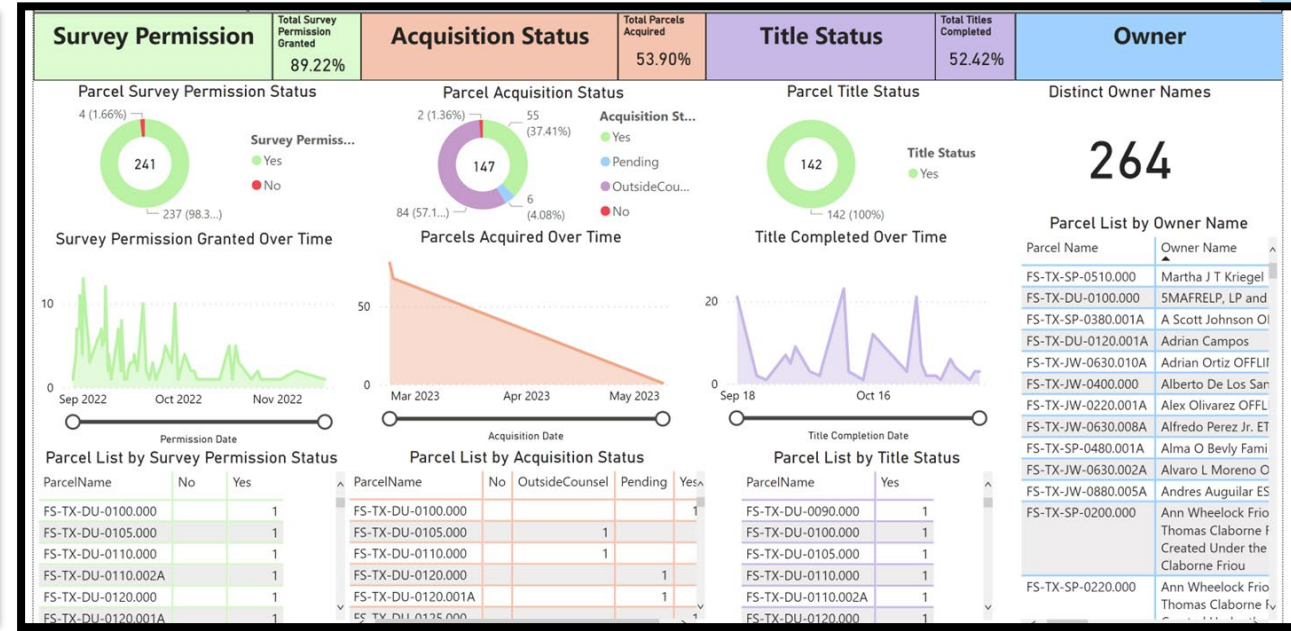
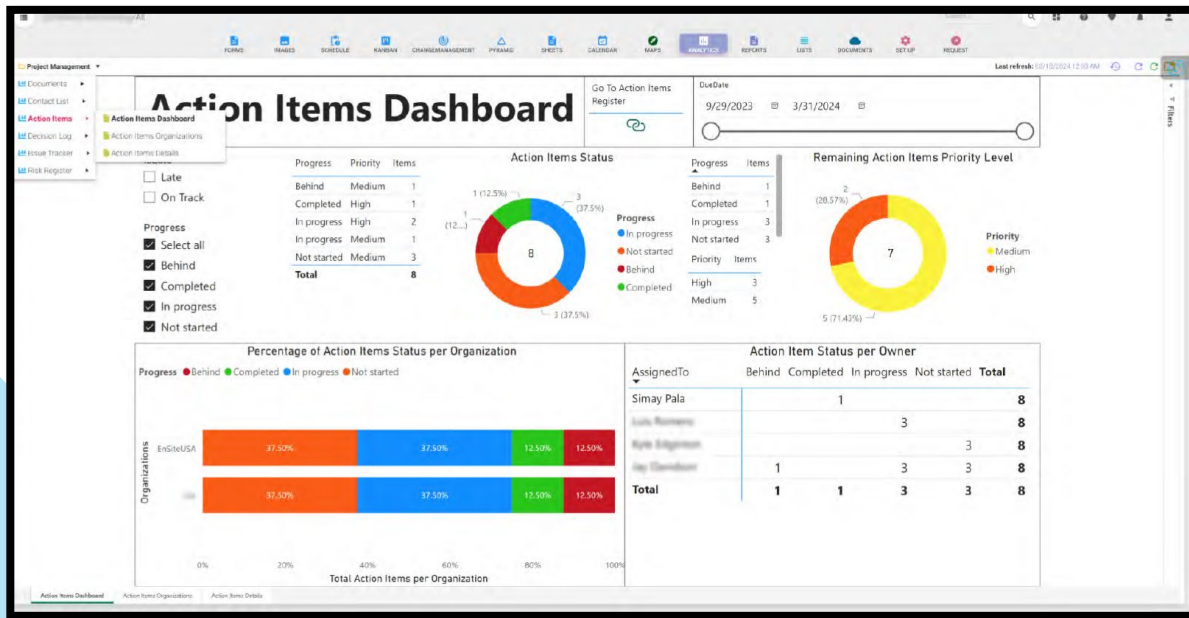
From The Field To The Office

Forward Thinking Project Management

- How are technology platforms in the industry closing the gap for Project Management?

➔ Think and Expect Real Time Project Transparency

- How many project stakeholders are involved in one project? Different Vendors, Project Hierarchy, Owner, etc..

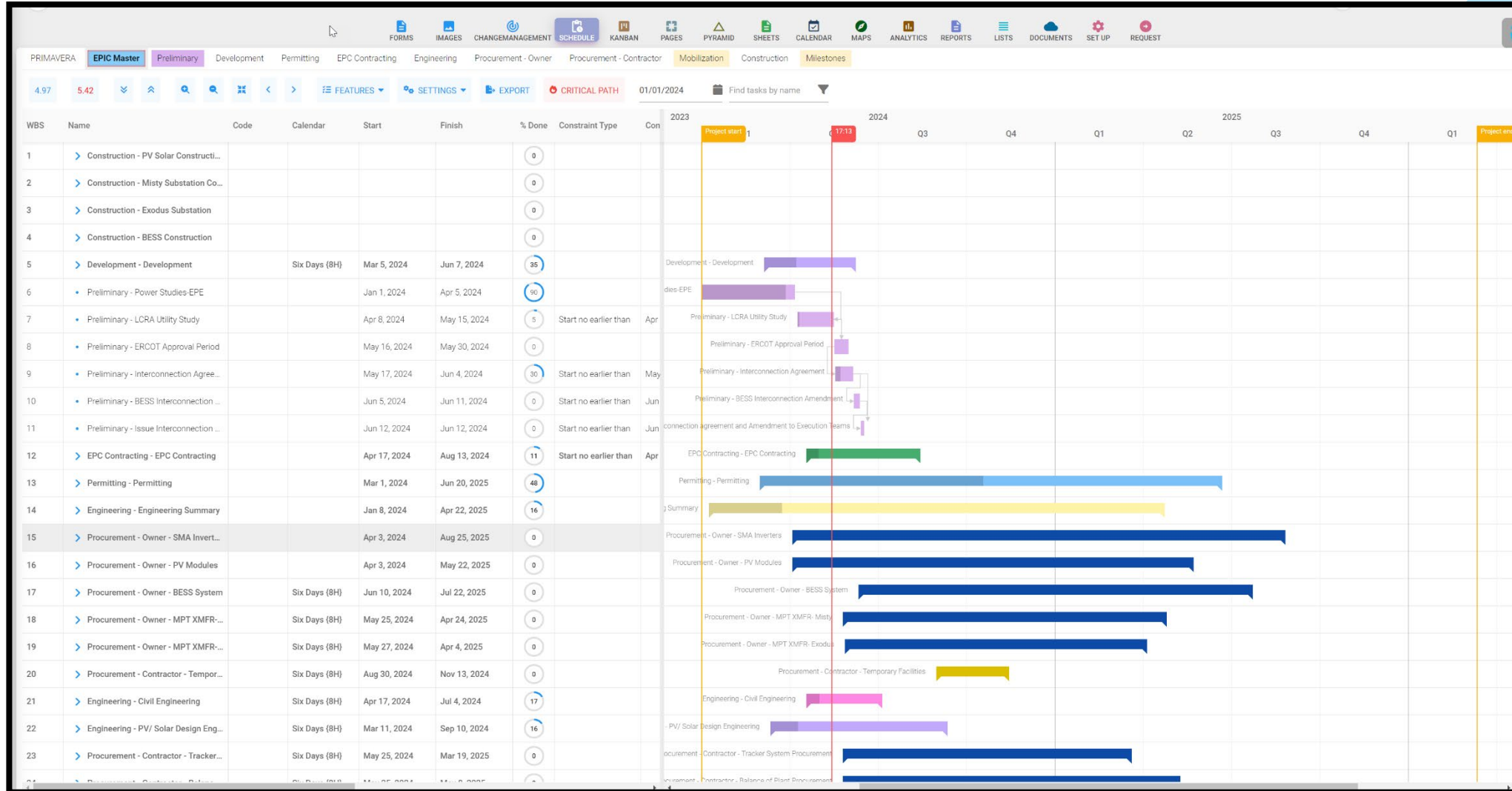


From the Field to the Office

An integrated approach to Project Scheduling

Multiple Vendor Schedule integration

- Master Schedule
- Baselines
- Milestones
- Primavera integration
- Construction



Integrating Management of Change

- How can you integrate change management into your strategy for technology?
- Consider managing change from project definition to automatically populating Total Install Cost Estimates.

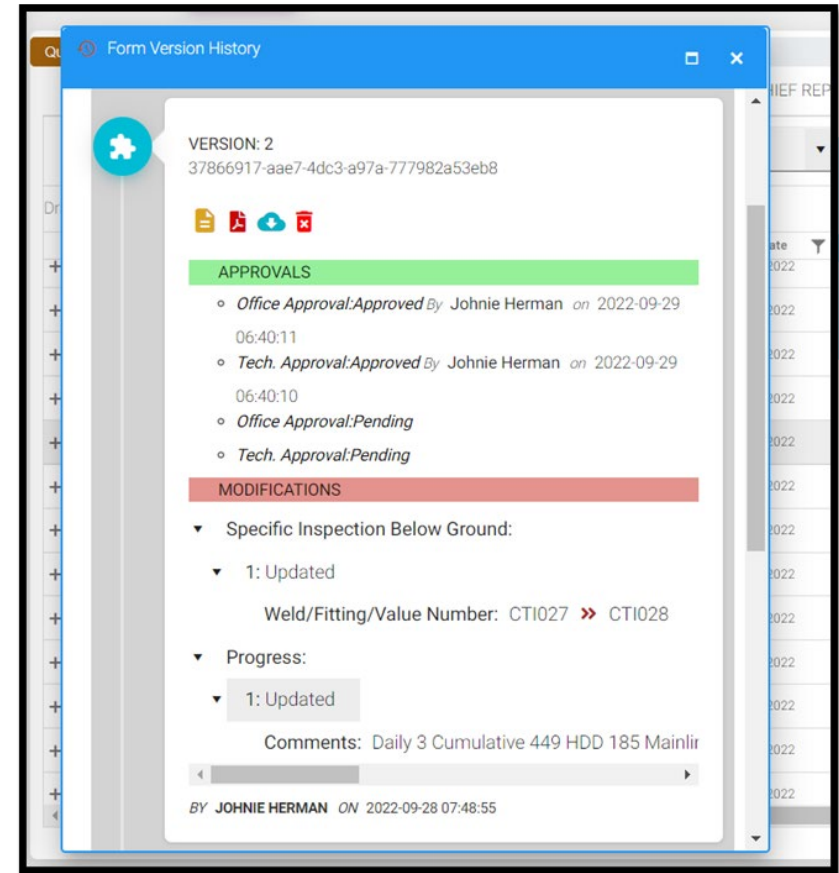
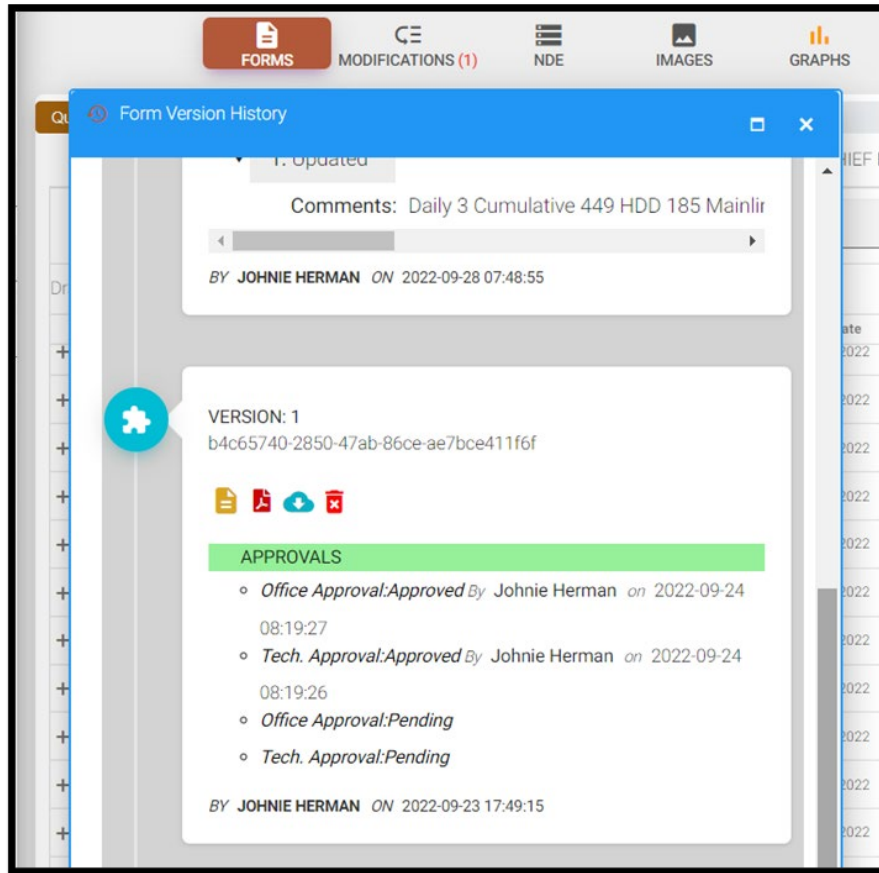
The screenshot displays a software interface for managing Change Order Requests (CORs). The interface is split into two main sections: a map on the left and a form on the right.

Map Section: The map shows a geographical area with a red line indicating a proposed change or route. Key locations labeled include Angeles, Red Bluff, Red Bluff Lake, and Arroyo Benito Tank. The map interface includes a sidebar with various basemap options (e.g., Topographic, Streets, OpenStreetMap, Imagery) and navigation tools.

Form Section: The form is titled "Change Order Request" and contains the following fields and sections:

- Change Order Request:** Fields for Project* (Dallas Oil), Work Package* (Houston), COR Name (07), COR Date* (3/6/2024), COR Number* (COR-0079), Contractor, and Contract Number (07).
- Originator:** A dropdown menu.
- Files:** A section for attaching files.
- Classification:** Includes "Source of Change" (Internal, Subcontractor, Other, Client, Vendor) and "Proposed Type" (Scope Change, Budget Shift, Trend, Other).
- Category:** Includes General, Route Variation, and Other.
- Location - Map:** A section for map-related information, showing "New Cost: \$0.00".
- Proposed Change:** Includes text input fields for "Description of Change", "Reason for Change", "Impact of Not Implementing Change", and "Alternative to Proposed Change".
- General Impact:** A section for general impact information.
- Affected Departments:** A section for affected departments.

Integrating Version Control



Version control and managing change is a key element to a healthy technology eco-system

Integrating Live Feedback from the Field

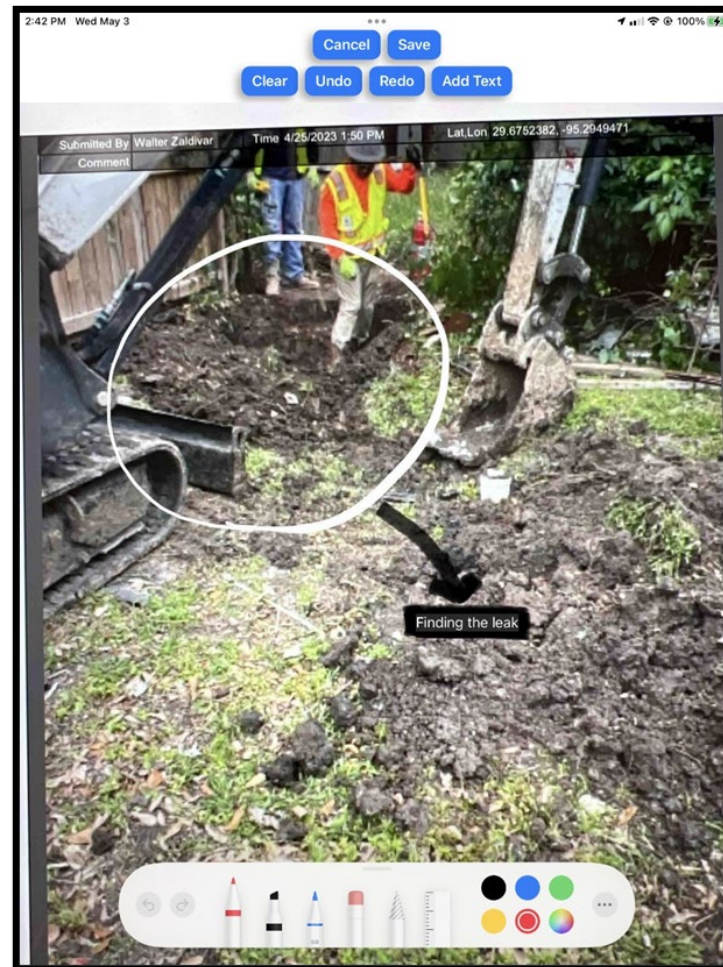
- An element of project transparency is live feedback from the field to the office.
- Geo-referenced pictures



Integrating Field Accountability & Digital Communication

Accountability and Communication are a key elements to a good strategy

The screenshot shows a mobile application interface for an 'Excavation Form'. At the top, it displays the time '2:42 PM', date 'Wed May 3', and battery status '100%'. The form includes several sections: a 'Cancel Permit Request' section with 'YES', 'NO', and 'N/A' options; a 'Remarks For This Section' section with a 'Paving Repair / Cut Ticket Image' field containing a small image; a 'Capture Location' section showing coordinates '29.732059, -95.539683, Accuracy: 35.0'; a 'Signature' section with a blue cursive signature; a 'Signed By' field with the name 'Simay Pala'; a 'Paving Repair / Restoration' section with fields for 'Final Repair Size', 'Final Repair Depth', and 'Paving Complete Date'; and three 'Sign Picked Up' sections (for 'Sign Picked Up', 'Restoration Complete', and 'Steel Plate Picked Up') each with 'YES', 'NO', and 'N/A' options.



A picture is worth a 1000 words, or is it?

- Annotate images
- Add Descriptions
- High Resolution
- Send in email on the spot
- Location Tagged
- Time Stamped

Integrating Project Compliance

“Does the pipe tally match the weld map?”

Date: 10/1/2021		Contractor: Berry Bros									
Project Name: Grand		Weather: Off and on rain showers, sunny late									
Total Welding Inspectors: 4		Total Welders On Job: 16									
Crew Type	Station Start	Station End	Footage	Total Cut Outs	Total Repairs	Welds			X-Rays		
						Previous	Today	To Date	Previous	Today	To Date
Firing Line 20	+	+		0	7	330	0	330	330	0	330
Firing Line 16	+	+		0	9	211	0	211	211	0	211
Firing Line 8	+	+		0	10	502	0	502	502	0	502
TieIn Crew 1	+	+		0	0	17	0	17	17	0	17
TieIn Crew 2	+	+		0	0	101	0	101	101	0	101
TieIn Crew 3	+	+		0	0	79	0	79	79	0	79
TieIn Crew 4	+	+		0	0	93	0	93	93	0	93
TieIn Crew 5	+	+		0	0	132	0	132	132	0	132
Fabrication Crew	+	+		0	0	89	0	89	88	0	88
Fusing Crew	+	+		0	0	0	0	0	0	0	0
Total				0	26	1554	0	1554	1553	0	1553
Repair Rate	1.67 %										
Comments											
HDPE (24in) - 46 welds to date. HDPE (24in) - No welding. HDPE (24in) Repair rate - 0% to date.											
Oil (8in) - 733 welds to date. Oil (8") Repair Rate - 1.36% to date.											
Gas (20/16in) - 775 welds to date. Gas (20/16in) Repair Rate - 2.06% to date											
Contractor welded 1 pull head weld for the bore at the BPX line crossing by CDP. No x-ray on site for the casing or pull head. Welders also came to BPX material yard and welded 2" vents for casing pipe. Contractor is working on 200 x 200 site so the stainless bypass piping can be welded.											
Larry Bostick				Larry Bostick				10/2/2021			
Senior Welding Inspector				Signature				Date Signed			

	TIME		TIME
	10/1/2021 11:11 AM		10/1/2021 1:00 PM
	LAT, LON		LAT, LON
31.88109, -103.99221	31.88117, -103.99136	DESCRIPTION	DESCRIPTION
Completed fusion on the riser.		Completed third and final fusion.	
	TIME		TIME
	10/1/2021 11:40 AM		10/1/2021 9:42 AM
	LAT, LON		LAT, LON
31.92565, -103.98373	31.85865, -104.01431	DESCRIPTION	DESCRIPTION
Welded vent pipe for casing at BPX yard.		Welding pull head at station 00+00	

What Is Your Strategy For Technology Integration?

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