

# Digital Construction Management

October 11, 2024

**nationalgrid**



New Mexico  
GAS COMPANY

**LOCUSVIEW**

# LOCUSVIEW

- Spin-out of GTI in 2014
- Software Products
  - Locusview Mobile
  - Locusview Web
- Services
  - Implementation services
  - Turnkey Package (hardware, software, managed services)
- Industry R&D, standards & best practices
- 25 utility customers, 80 contractors
- ~5000 field crews use our technology everyday



# Typical Construction Workflow

Inefficient, relying heavily on paper, disconnected tools and manual processes

## Pre-Construction

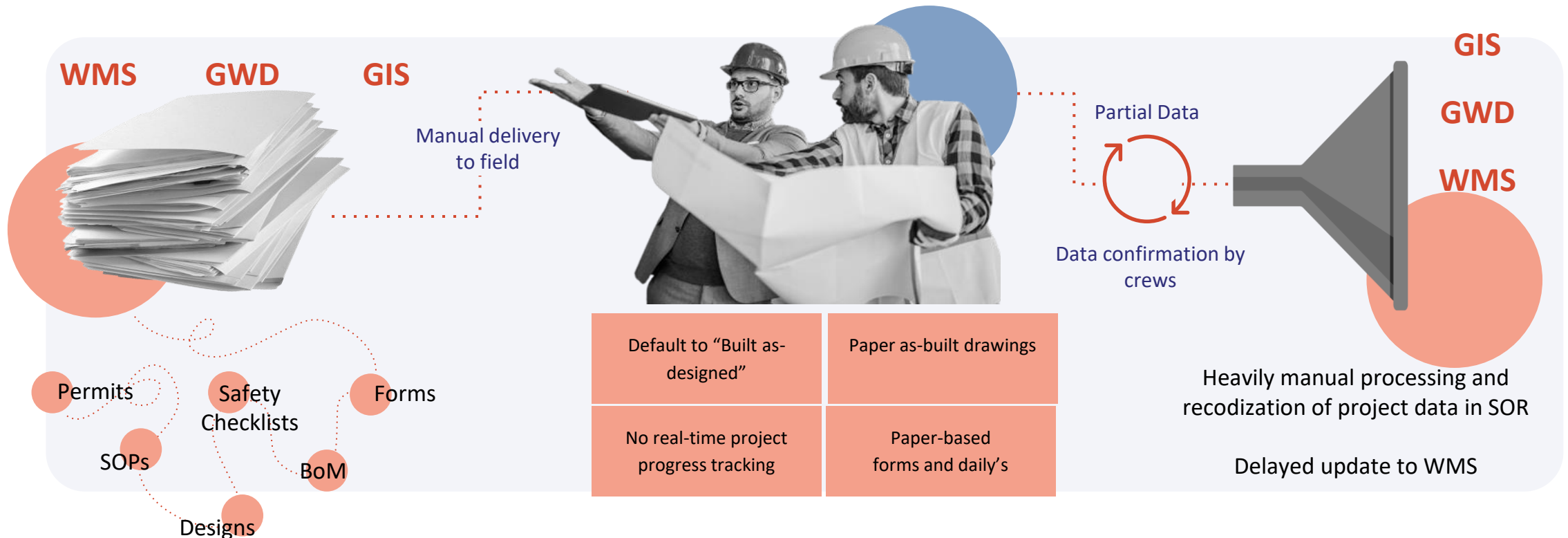
Data to field from multiple sources

## Construction

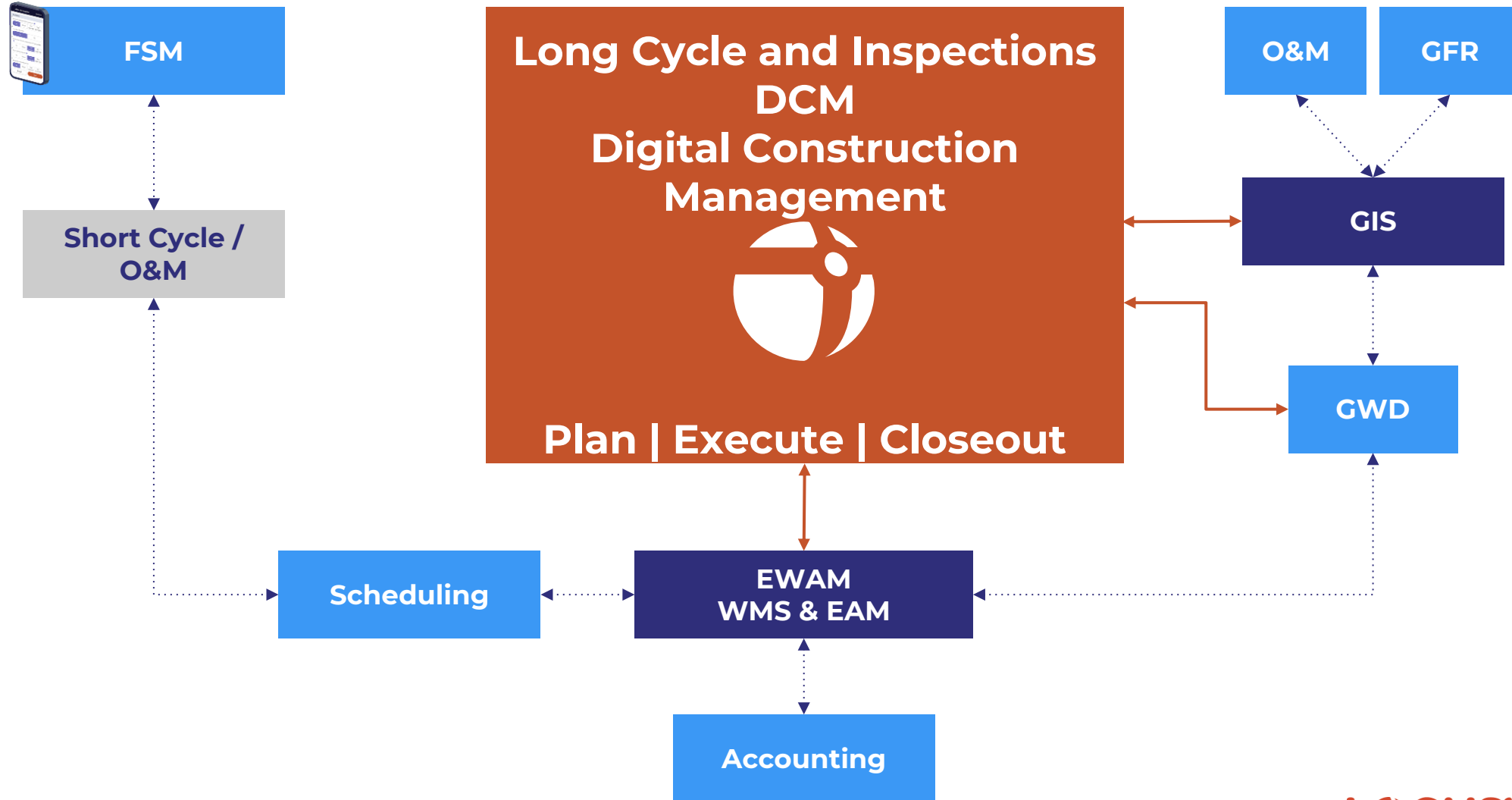
Data collection from multiple sources

## Post-Construction

Data assembled from all sources



# DCM Fit Within the Utility Enterprise

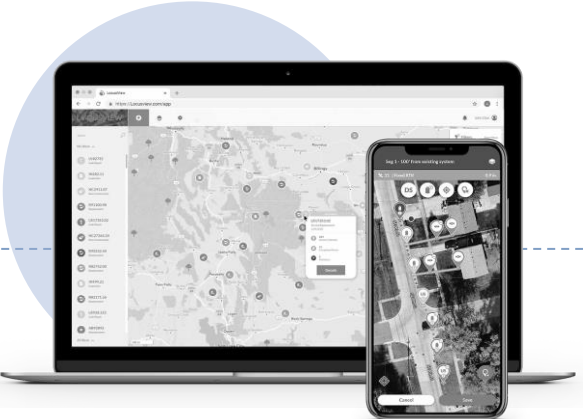


# Turnkey Solution

## Hardware



## Software



## Managed Services



- Contractor on/off boarding | Cloud Hosting
- RTK Maintenance | 24/7 Help Desk
- Data Plans | User Management | MDM

# LocusView - Gen 3 Transition

KEDLI – Contractor Oversight

Safety  
Above  
All  
Else

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# LocusView Gen 3 Transition – Contractor Oversight LI

## Contractor Oversight LI went live with the new LocusView Gen 3 Platform on 7/10/23.

The **Web** application grants enhanced project visibility by showing in real time field inspector inspections. This allows supervisors, engineers, etc. to interact dynamically with active projects. Coupled with leading edge documentation processes Contractor Oversight has gained unparalleled levels of transparency into MRP projects.

The **Mobile** application improved the user interface for the field users making documentation simpler and more focused towards key compliance aspects of the job. By adding the Walkdown and Audit process into the system a holistic view of a project is created.

The **Future** is bright with pending improvements to the LocusView Gen 3 platform. Not only is LocusView taking feedback and improving the platform independent of National Grid but the Contractor Oversight team is also working to improve the system with things like Instant OQ Validation, Compliance Helper Text, and more!

Web  
Application

- ◆ Real time visibility into project construction status
- ◆ Geo-based viewing of key project data points
- ◆ Enhanced documentation capacity with photos

Mobile  
Application

- ◆ Increased GPS plotting efficiency
- ◆ Augmented inspector user interface
- ◆ Digitized walkdown and post audit process
- ◆ Enhanced compliance abilities via helper text

Future  
State

- ◆ Instant OQ Validation
- ◆ Self-sufficiency
- ◆ Bulk project assignment, Power BI Dashboard, Helper Text, SOP documentation form, & more!

# Contractor Oversight LI

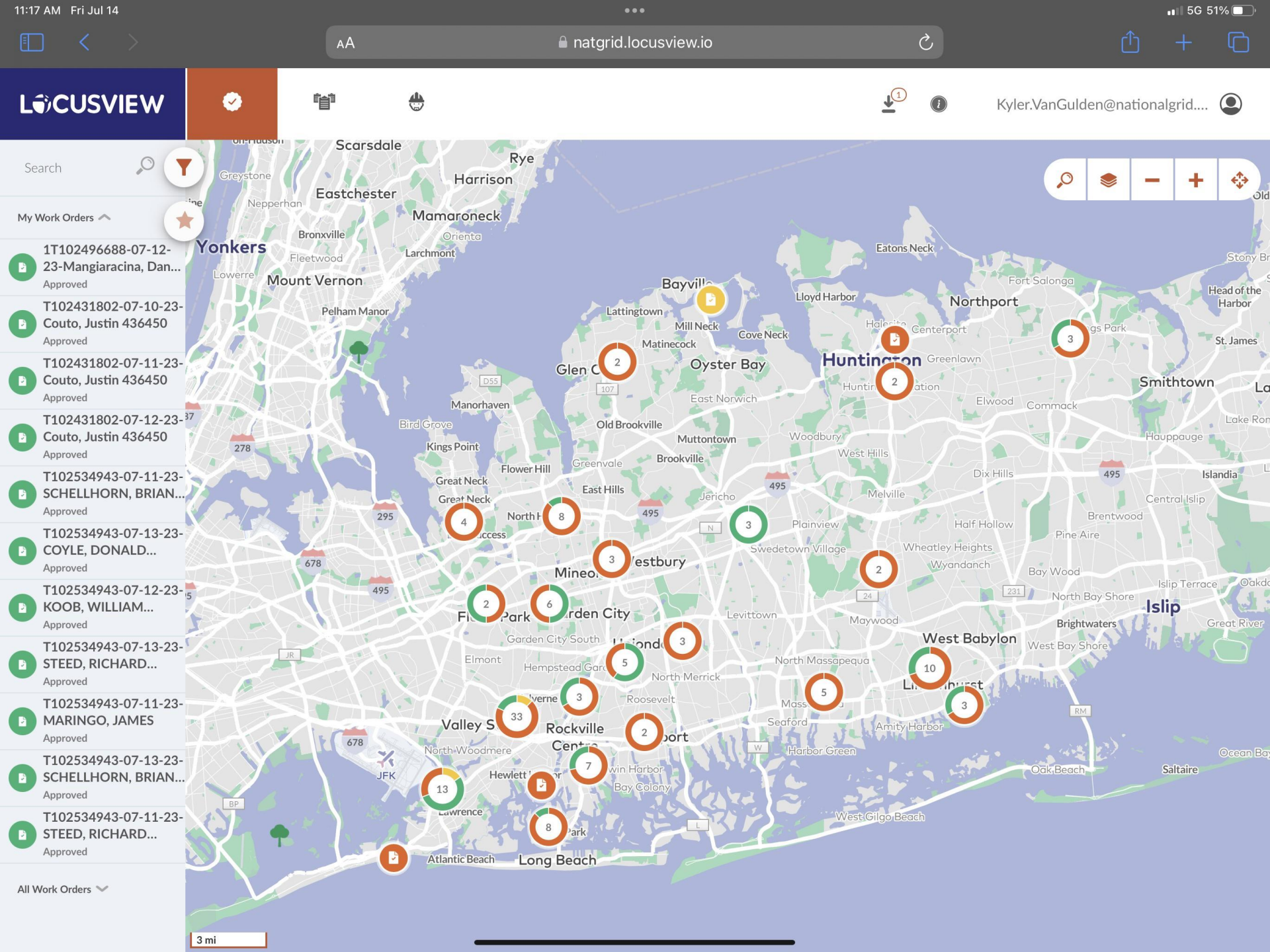
The **Web** application lets supervisors see their work in a variety of statuses so that effective management can take place when not on the job site.

Users can see **Approved** jobs, **Submitted** jobs, and **In Progress** jobs live on the map and can interact with them in a number of ways.

Users can use a variety of filters to look at jobs in unique ways. Jobs can be filtered by almost any field in the daily reports. For example; SOP number, T number, work type, size, pressure, inspector, contractor, foreman, and a lot more.

The next slide will show how a project can be viewed in greater detail.

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## Bancker (Chris Quinn) – New Business Service – 200 Westminster Rd, Lynbrook

The **Web** application allows users to see where excavations took place live on the map as the field inspector inputs them.

Each GPS point is manually placed in line with an ESRI compatible base layer map.

Each point can be interacted with in the web portal to reveal further details about what work took place at that particular location.

General details about the project such as the inspector, type of work, size, and pressure, and even photos of the job brief can be found in the Work Order Overview tab.

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The screenshot displays the LocusView web application interface. At the top, the browser address bar shows the URL `natgrid.locusview.io`. The application header includes the LocusView logo and navigation icons. A sidebar on the left contains a menu with options: Work Order Overview, Lifecycle Review, Alerts Overview, Assets, Forms, Dashboards, and Search. The main content area is split into a map and a details panel. The map shows a street grid with Westminister Rd and Peninsula Blvd, and several purple location pins indicating excavation sites. The details panel, titled "Daily Field Report - KEDLI", provides the following information:

- Date - Time:** 07/11/2023 05:00 PM
- Inspector:** Rodriguez Eric
- Supervisor:** John Burrello
- Program Type:** NB Service
- Type of Work:** NB Service
- Pipe Size/#:** 1" PE 60#
- SOP:** NO SOP GIVEN
- Job Brief Signature:** Signed job brief
- Job Brief Photo:** Two small thumbnail images of a job brief document.
- Job Brief Comment:**
- Process Owner/Engineer:**

# Questions?

## Kyler VanGulden

- Lead Supervisor Gas Construction
- [Kyler.VanGulden@nationalgrid.com](mailto:Kyler.VanGulden@nationalgrid.com)



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# Supply Chain and Asset Traceability for Energy (SCATE)

## Standardized Barcodes for Transmission Steel Pipe Field Pilot

Speaker's Name: Matt Swanson

## Main Objectives of the Advanced Field Pilot

- Locusview to aid in the digital capture of transmission construction project Traceability, Progress/Tracking and Inspection records
- Test SCATE standardized barcode for pipe
- Develop digital reporting tool for construction management
- Streamline GIS closeout process for Transmission



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## Project Selected

- Replace 42,240 ft (8 miles) of 8-in bare main with new 8-in steel pipe.  
MAOP for this line will be 500 psig





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# SCATE Standardized Barcode applied to Steel Pipe

Designator ID	Attribute	ID	Unique ID
Industry	Oil and Gas	1	11021145564T379.123456AB.AB12345
Sub Industry	Pipeline	1	
Version	1.1	02	
Asset Type	Line Pipe	1	
Asset Sub-type	API 5L Carbon Steel	1	
<b>Universal Catalog ID</b>			
PSL	2	4	
Process of Manufacture	ERW LFW	5	
Pipe Steel Grade	X42	5	
Specified Outside Diameter	16.000 in	64	
Specified Wall Thickness	1.000 in	T3	
<b>Unique ID</b>			
Manufacturer	Dura-Bond Pipe 1/McKeespor...	79	
<b>Traceability ID</b>			
Pipe Identifier	123456AB	123456AB	
Heat Number	AB12345	AB12345	



## Scanning Barcode for Receiving and Stringing Pipe

- Automate tracking during receiving process by creating daily report of received pipe that was scanned daily
- Streamline weld map by scanning upstream and downstream along with weld data (traceability)
- Export weld map into PDF and as data for review
- Weld Approval/Rejection Review with tracking on Rejections

# Digital Weld Map, Weld Data and Weld Inspection



6" NE Transmission Takeoff

Details Alerts Assets **31** Forms

**B** ↘

- Weld**  
XR Number: CTI14
- Pipe FAB30**  
Heat Number: CA7546\_1 Outside Diam...
- Weld**  
XR Number: CXRM1
- Pipe FAB32**  
Heat Number: CA7547\_1 Outside Diam...
- Weld**  
XR Number: BTI31
- Pipe BP116**

Weld

Details Forms Alerts **1**

Weld Type  
Tie In

XR Number  
CTI14

Weld Number

Welder ID (1st pass)  
Dk

Welder ID (2nd pass)  
DK

Welder ID (3rd pass)  
DK

Welder ID (4th pass)  
DK


Date Welded  
01/18/2024

Weld Procedure  
SMAW 20

Weld

Details Forms Alerts **1**


Photo of Weld



Weld Inspector Task

Weld Inspector Approval/Rejection  
Approval

Weld Inspector Name  
Cody Burt

Inspector Signature  
01/19/2024  


GPS Info

Accuracy  
1' 6"

Elevation  
41751.4"



# Inspection and Construction Management

- Daily progress forms configured and completed in app - totals calculated based on input
  - Totals and metrics available to back office team via Locusview web
- Inspections forms configured and completed in application
  - Specific rejections/failures create notifications to project engineer

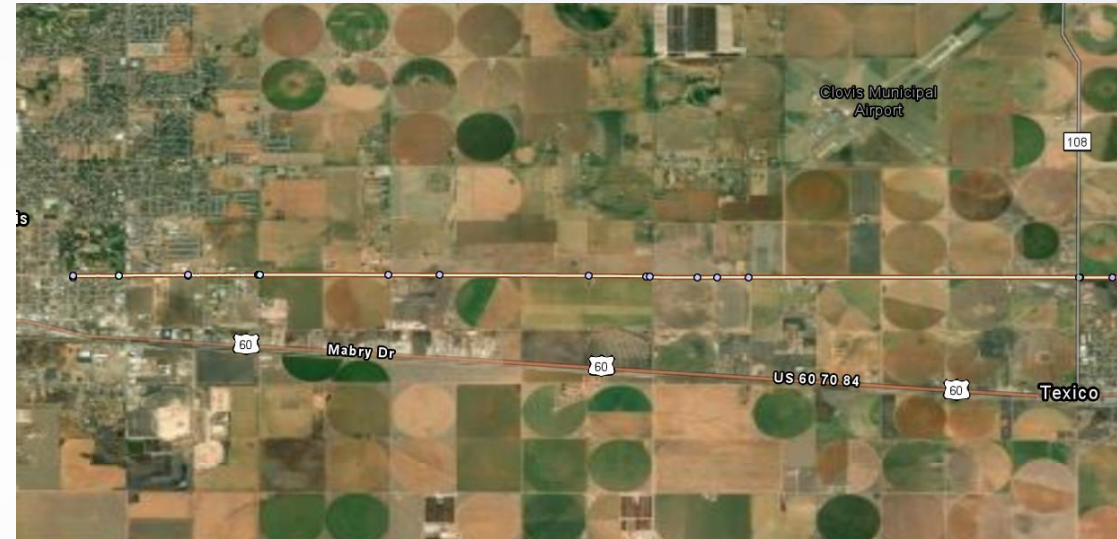
Site Info					
<b>Conditions</b>					
Temp (High)	95	Temp (Low)	85		
Site Conditions	Mud, Rain	Weather Delays	Yes		
<b>Manpower</b>					
Number of Superintendents	2	Superintendents	Luda, Ruben		
Number of Forepersons	3	Forepersons	Clayton, Harrison, Test		
Number of Laborers	1	Number of Operators	2		
Number of Welders	2	Number of Welder Helpers	1		
<b>Equipment</b>					
Equipment on Site		Equipment QTY			
Excavator		1			
<b>Activities Inspected</b>					
<b>Activity</b>					
Description	Station Start	Station End	Today's Footage	Total to Date	Comments
ROW	86234.53674,23456	86534.123545,12345	300	300	
Trenching	34563	235621	1345	213	test
Bending	12345	56789	234	12	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure do
Fabrication Installation 1	86334				Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure do
<b>Crossings</b>					
Type	Station Start	Station End	Line Type		
Line Crossing	2	-	2		
Line Crossing	2	-	2		
Road Crossing	1	2	-		
Road Crossing	34	4	-		
Road Crossing	5	6	-		
Road Crossing	7	77	-		
<b>Welds Completed</b>					
Size	Number of Prefab Welds Completed		Number of Mainline Welds Completed		
1/2"			-		
3/4"			-		
1"			-		
2"			-		
3"			-		
4"			-		
6"	4				



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## Streamline GIS

- GIS closeout very manual and timely process
- Streamline by export ETL GIS file into enterprise GIS at different intervals
- Before construction complete 90% of project was in GIS
- 5 day post completed GIS was complete and posted



# Questions



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