Bentley Construction
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**Strategy** | Build a construction platform with a broad set of integrated solutions that leverage core capabilities in Data Management, 3D/4D Modeling.

**Value** | Bentley Construction enables Construction firms to Win projects, Deliver them more efficiently, and Get Paid by managing data in civil, building and industrial project context to optimize decisions, resources, & profitability.

**Construction Environment**
- Task & Doc Mgmt.
- Web & Mobile
- VDC & Planning
- Project Management
- Field Management
- Project Digital Twin
- iTwin Services
- Const. Modeling
SYNCHRO is Bentley's purpose built construction portfolio (platform) that enables Construction firms to Win projects, Deliver them more efficiently, and Get Paid by managing data in the project context to optimize decisions, resources, & profitability.
Field Management

- Speed field data capture, improve data quality, & enable reporting to drive better decisions and compliance

Inspections, Checklists, Specs, Completions

Progress Tracking & Daily Logs

Issue Capture
Mobile - Field UX

- One Experience, Multiple views,
  Easy to use
Data driven Workflows - Inspections

The suggested data flow

Asset data flow in the current practice at INDOT
Leveraging Data to drive workflow

Contractor Instructions
- Installing underdrains around stations 370+00 to 420+00

Model Component
- Select pipe

Construction Steps
- Trench
- Bedding
- Lay Pipe
- Backfill

Inspection Checklist
- Ensure excavation width no greater than specified
- Ensure unsuitable material removed and replaced
- Check minimum bedding thickness
- Has the bedding material been compacted to standards?
- Has the contractor installed the culvert components to the horizontal & vertical tolerances specified?
- Has the backfill been placed and compacted uniformly in layers?
- Has the side and overlay zone been compacted to the specified requirements?
Leveraging Data to drive workflow

Contractor Instructions
Installing underdrains around stations 370+00 to 420+00

Model Component
Select pipe
- Length
- Pipe Size
- Begin Station
- Begin Offset
- End Station
- End Offset
- Alignment
- Begin Elevation
- End Elevation
- Start Structure
- End Structure
- Slope
- Material
- Manning's Flow

Construction Steps
Trench
Bedding
Lay Pipe
Backfill

Inspection Checklist
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Inspection Data (Pay Items)
Field Collect
- Date
- Length (715-05203)
- Begin Station
- Begin Offset
- End Station
- End Offset
- Alignment
- Pipe Size
- Material
- Manning's Flow

Field Verify
- Date
- Begin Station
- Begin Offset
- End Station
- End Offset
- Alignment
- Pipe Size
- Material
- Manning's Flow
- Begin Elevation
- End Elevation
Field Inspection in Action
Accessibility of data in field environment

“syncing of the inspection data from the mobile device, a construction manager/supervisor will be able to monitor progress and output reports”

“inspector is operating in an area where internet connection is not possible but GPS location is available”
Enriching Model for construction

Communicate in a common language from Design to Construction to Inspection - PayItems
Common interface to all Project Data

Simplified Access to All Project Data Models, PDF’s, Tasks and Reporting
Communication and productivity
Communication and productivity

511E41012 - CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS
Form Type: Quality  Date: 1/30/2019  Created By: corey.johnson@bentley.com

Details

JMF Conformance
Concrete Job Mix Formula (JMF) submitted 10 days before placing concrete and is in conformance with contract requirements?
511.03/1126/499

Fail (Comment Required)

Comment
OK

JMF Supplier and Location
Concrete JMF lists concrete supplier, plant location?
1126/JMF Submittal Form

Pass

Comment
Communication and productivity
Communication and productivity
Common Data Environment – Digital Twin
File-centric → Data-centric

- A database (distributed, a-synchronized)
- Contains
  - Multiple, coordinated Digital Engineering Models
  - Other models of related information
  - Change Sets
- Standard “core” iModel Schema
  - Optional discipline-specific “domain” schemas
  - Extensible

- A database (distributed, a-synchronized)
- Contains
  - Multiple, coordinated Digital Engineering Models
  - Other models of related information
  - Change Sets
- Standard “core” iModel Schema
  - Optional discipline-specific “domain” schemas
  - Extensible
• Automated
• Incremental (via iModel ChangeSets)
• Aggregates (many files → one iModel Database)
• Upgrades to iModel Schema

“Bridges” (adapters)
• RVT, IFC
• SmartPlant, PDMS
• DGN, DWG
• …

Silo only understood by the authoring application
iModel Services

Audit Trail
Automated Processing
Web Access
Analytics/Insights

The sky is the limit
Questions?