



# QA Program

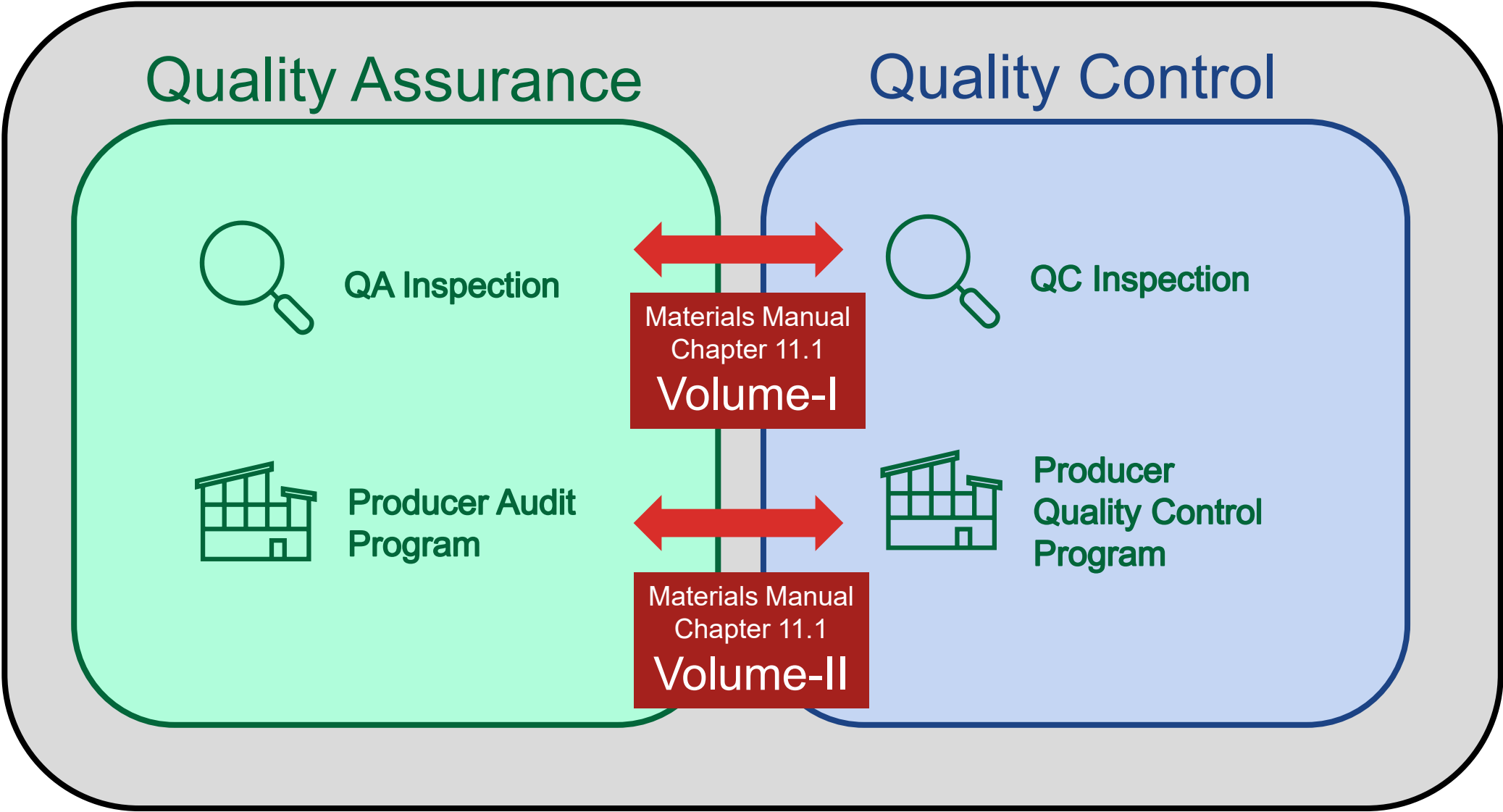
Adrian R Steele

Structural Metal QA Program Manager

Structural Metals and Coating  
Quality Assurance Program

State Materials Office

# Structural Metals and Coatings Quality Program





## Producer Audits

- **Material Manual Chapter 11 – Volume II**
  - **Table 1**
  - **Facilities audited once every two years**

<b>Table 1 - Materials Included in Chapter 11.1</b>
Steel Bridge Pedestrian Truss Category 1
Steel Bridge Advanced
Bridge Machinery
Bridge Forgings
Bridge Castings
Bridge Bearings (Rocker, Roller, Pot, Disc, Spherical, Sliding, Guide)
Modular Joints (Expansion and Finger)
Overhead Gantries
Overhead Spans / Trusses
Overhead Cantilevers
Overhead Monotubes
Guardrail (Thrie-Beam, W-Beam)
Shop Painting
Shop Metalizing



## Producer Audits

- Material Manual Chapter 11 – Volume II
  - Fabricators are no longer audited for these materials
  - DCE Memorandum 24-04
- **Stairs**
- **Stay-In-Place Forms (with Polymer coating)**
- **Stay-In-Place Forms (without Polymer coating)**
- **Laminated Bearing Pads**
- **Ancillary Bearing Pads**
- **Steel Mast Arm**
- **Steel Strain Pole**
- **Steel CCTV Pole**
- **Aluminum J-Arms**
- **Aluminum Light Poles**
- **Steel Mast Lighting (High Mast Lighting, Conventional Lighting)**
- **Steel Railing**
- **Aluminum Railing**
- **Drainage (Welded gratings, inlets, frames)**
- **Drainage (Cast manhole, grating, inlets, frames)**
- **Coated Steel Fence (Aluminized, PVC, Powder)**
- **Galvanizing**
- **Powder Coating**



## Producer Audits

- Material Manual Chapter 11 – Volume II
  - List of fabrication facilities can be found in MAC
  - Search Production Facilities selecting
    - Material Type
    - QC Plan Status = Accepted



## Materials Acceptance and Certification System

Dashboard Reports STRG/JGS Inspections Facilities: Production Facilities MAC Spec Evaluations Material C

Create Production Facility Profile My Production Facilities Search

Filter Options

Company  Managing District  Material Type  Facility Type  Production Facility Status  QC Plan Status

Contact

Brand Name  Product

Physical Location Updated Since

Currently selected criteria will yield 1816 results

Aggregate  
Aluminum J-Arms  
Aluminum Light Poles  
Aluminum Railing  
Asphalt  
Asphalt Binder  
Asphalt Emulsions  
Bridge Bearings  
Bridge Castings  
Bridge Forgings  
Bridge Machinery  
CCTV Pole  
Cement  
Coated Steel Fence  
Drainage Castings  
Drainage Welded  
Elastomeric Bearing Pads  
Fiber Reinforced Polymers  
Fly Ash

Search Clear Search

Use the filter options to display a list of Production Facilities

Production Facility PC-FL-007 - Excell Coatings, Inc.

Locations

QC Plans [1]

Products [0]

Mix Designs [0]

Documents [0]



## Producer Audits

- **Material Manual Chapter 11 – Volume II**
  - **Table 2**
  - **Facility Qualification Requirements**
  - **Necessary, but Not Sufficient**

<b>Table 2 - Required Production Facility Accreditation</b>	
<b>Structural Category</b>	<b>Accepted Accreditation Program</b>
Steel Bridge Pedestrian Truss Category 1	AISC Simple Bridge
Steel Bridge Advanced	AISC Advanced Bridge with Fracture Control Endorsement
Bridge Machinery, Bridge Bearings, Modular Joints, Overhead Gantries, Overhead Spans/Trusses, Overhead Cantilevers, Overhead Monotubes	AISC Component Manufacturer or AWS Welding Fabricator
Bridge Forgings, Bridge Castings, Guardrail	ISO 9001 (2015)
Shop Painting	AISC Sophisticated Paint Endorsement or AMPP QP3
Shop Metalizing	AMPP QP6



## Producer Audits

- **Material Manual Chapter 11 – Volume II**
  - **Table 3**
  - **Minimum Direct Experience Requirements for QC Management**

<b>Table 3 - Minimum Direct Experience Required for QC Management</b>	
<b>Material Types</b>	<b>QC Management</b>
Steel Bridge Pedestrian Category 1, Steel Bridge Advanced	5 yrs. experience, and an active AWS CWI, and Pre-installation Verification Certificate
Bridge Bearings, Bridge Machinery, Modular Joints	5 yrs. experience, and an active AWS CWI
Bridge Forgings, Bridge Castings	5 yrs. experience
Overhead Gantries, Overhead Spans/Trusses, Overhead Cantilevers, Overhead Monotubes	3 yrs. experience, and an active AWS CWI, and Pre-Installation Verification Certificate
Guardrail	3 yrs. experience, and an active AWS CWI, or active AWS CAWI, or AWS D1.1 Endorsement, or AWS D1.6 Endorsement, or Annual Audit by FDOT approved QA Firm
Shop Painting	3 yrs. experience, and an active AMPP Certified Coating Inspector
Shop Metalizing	3 yrs. Experience, and an active AMPP Certified Coating Inspector



## QA Inspections

- Material Manual Chapter 11 – Volume I
  - Commercial Inspection Program
  - 3 Parallel Contracts
    - CAH03 – Pennoni Engineering
    - CAG71 – KTA – Tator Inc.
    - CAG77 – WSP USA Inc.
  - ~50 inspectors
  - 235 Task Work Orders Issued
  - Daily Reporting
  - 70 Fabricators
  - Managed by SMO
  - Funded by Districts

The screenshot shows the FDOT Commercial Inspection System web application. The header includes the FDOT logo, the text "STATE MATERIALS OFFICE COMMERCIAL INSPECTION SYSTEM", and buttons for "Sign In/Out", "Cont. Dev", and "Exit".

The main content area is divided into several sections:

- REPORTS:** Includes buttons for "Edit and Approve Inspection Reports", "Print and Publish Approved Reports", and "Training Videos".
- CONTRACTS:** Includes buttons for "Construction Contracts" and "Inspection Contracts".
- TEAMS AND PEOPLE:** Includes buttons for "Manufacturer Locations", "Companies", and "People".
- REFERENCES:** Includes buttons for "Keywords", "Structure Types", and "Inspection Items".
- INSIGHTS:** Includes buttons for "Search Image Database" and "Analyses and Insights".

**DEFAULTS:** A section for selecting user information. It includes a dropdown for "I am:" (currently set to "Halim Kerim Bas - WSP USA Inc.") and a dropdown for "I am located at:" (currently set to "Field Work - General - (Job Site) (\* Field Work - General Location)").

**Bulletin Board:** A scrollable area containing several notices, including "Materials Manual Section 11.1.16.1", "Facility Qualification Update", "Arcosa Sumterville Distortion Control Plan", and "Image Attachment Issue Resolved".

The footer contains application version information (1.17, 2022), minimum screen resolution (1400x1050), authorization details (ID: 1, Username: halim, Access Level: [A]), and status indicators for "Num Lock" and "Online with SharePoint".



## QA Inspection

- **Material Manual Chapter 11 – Volume II**
  - **Table 4**
  - **Commercially Inspected Items**
    - **Required by Specification**
    - **At the Request of the Engineer**
    - **All overhead metal structures within the Department right of way (except elements listed under specification section 646, 649, 650, 653, 654, 659, 700, 715)**

<b>Table 4 – Components Requiring Commercial Inspection</b>
<b>Required by Specification</b>
Steel Bridge Pedestrian Tuss Category 1
Steel Bridge Advanced
Bridge Machinery
Bridge Bearings (Rocker, Roller, Pot, Disc, Spherical, Sliding, Guide)
Modular Joints (Expansion and Finger)
Overhead Gantries
Overhead Spans / Trusses
Overhead Cantilevers
Overhead Monotubes
Shop Painting
Shop Metalizing
<b>At the Request of the Engineer</b>
Steel Cable (Suspension, Bridge Stay, Guardrail)
Field Bolting
Field Welding
Field Coating
Buildings
Other Non-Standard Fabrication



## QA Inspection

- Material Manual Chapter 11 – Volume II
  - Section 11.1.13 Commercial Inspection
  - Request by contractor
  - Use request Form 675-070-07
- The 30 days are needed to:
  - Prepare an estimate and scope for CI
  - Encumber funds through the District
    - Federal, Local Agency, and Private Permit projects introduce additional layers to the process
  - Obtain a signed TWO contract amendment from the CI company.

This section of the **Materials Manual** discusses the scope, application, and scheduling of Commercial Inspection. The Contractor is responsible for sending the Production Facility's schedule to the Engineer at least 30 days prior to the beginning of fabrication. The components identified in **Table 4** require commercial inspection.



# QA Inspection

- Material Manual Chapter 11 – Volume II
  - Section 11.1.13 Commercial Inspection
  - Request by contractor, or Engineer for optional structures or components
  - Use request Form 675-070-07

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION  
**REQUEST FOR COMMERCIAL INSPECTION AND TESTING  
 OF STRUCTURAL METALS AND COATINGS**

Request for Commercial Inspection  
 Form # 675-070-07  
 March 2019

CONTRACT INFORMATION	
Financial Project Number:	Construction Contract Number:
Contract Description:	

CONSTRUCTION PROJECT MANAGER (FDOT PERSONNEL)	
Contact Name:	E-Mail Address:
Phone Number:	Cell Number:

CEI CONSULTANT (FDOT PERSONNEL)	
Company Name:	E-Mail Address:
Contact Name:	Cell Number:
Phone Number:	

LIST ALL PERSONS TO RECEIVE COMMERCIAL INSPECTION REPORTS	
Name:	E-Mail:
Name:	E-Mail:
Name:	E-Mail:
Name:	E-Mail:
What is the start date of the fabrication requiring commercial inspection?	

GENERAL CONTRACTOR	
Company Name:	E-Mail Address:
Contact Name:	Cell Number:
Phone Number:	

BRIDGE PRODUCTION FACILITIES	
List the types of bridge structures being fabricated on the project	
Pedestrian Bridge <input type="checkbox"/>	Steel Bridge (All Other) <input type="checkbox"/>
Other Components <input type="checkbox"/>	Bridge Machinery <input type="checkbox"/>
	Bridge Bearings <input type="checkbox"/>
	Modular Joints <input type="checkbox"/>
List the Names of Bridge Production Facilities and FDOT ID #s	
FDOT Production Facility Name:	FDOT Production Facility ID #:
FDOT Production Facility Name:	FDOT Production Facility ID #:
FDOT Production Facility Name:	FDOT Production Facility ID #:
Comments:	

OVERHEAD SIGN STRUCTURE PRODUCTION FACILITIES	
List the types and quantities of sign structures being fabricated on the project	
Overhead Gantry <input type="checkbox"/> Qty.:	Overhead Cantilever <input type="checkbox"/> Qty.:
	Overhead Span/Truss <input type="checkbox"/> Qty.:
	Monotube <input type="checkbox"/> Qty.:
List the Names of Sign Structure Production Facilities and FDOT ID #s	
FDOT Production Facility Name:	FDOT Production Facility ID #:
FDOT Production Facility Name:	FDOT Production Facility ID #:
FDOT Production Facility Name:	FDOT Production Facility ID #:

AT THE REQUEST OF THE ENGINEER	
List the types of additional inspection requested for this project	
Field Bolting <input type="checkbox"/>	Field Welding <input type="checkbox"/>
	Buildings <input type="checkbox"/>
	Steel Cable <input type="checkbox"/>
	Other Non-Standard Fabrication <input type="checkbox"/>
Comments:	

Preparer (CEI or District Personnel)	Date
--------------------------------------	------

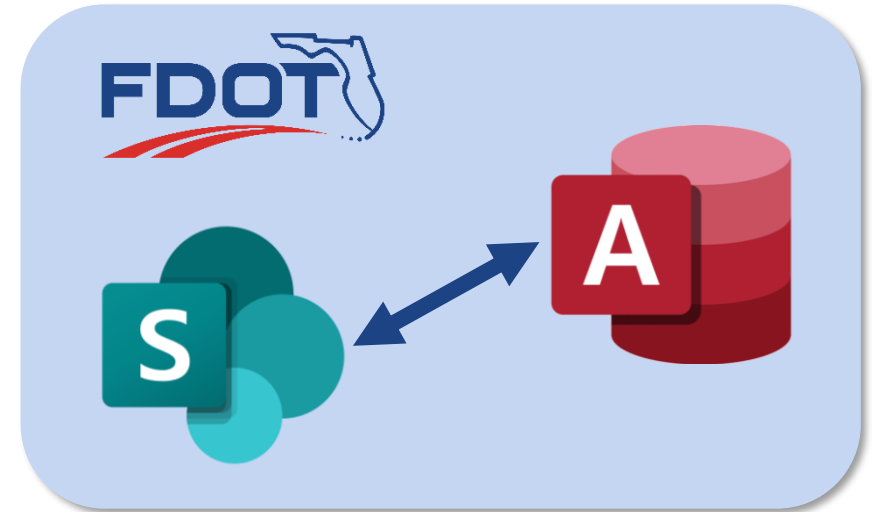
E-Mail the completed digital form to [SM-StructuresCI@dot.state.fl.us](mailto:SM-StructuresCI@dot.state.fl.us), FDOT State Materials Office a minimum of 30 days prior to the start of fabrication.

TO BE COMPLETED BY FDOT STATE MATERIALS OFFICE ONLY		
Commercial Inspection Firm Assigned to this Project	TWO #	Date

# FDOT Commercial Inspection System

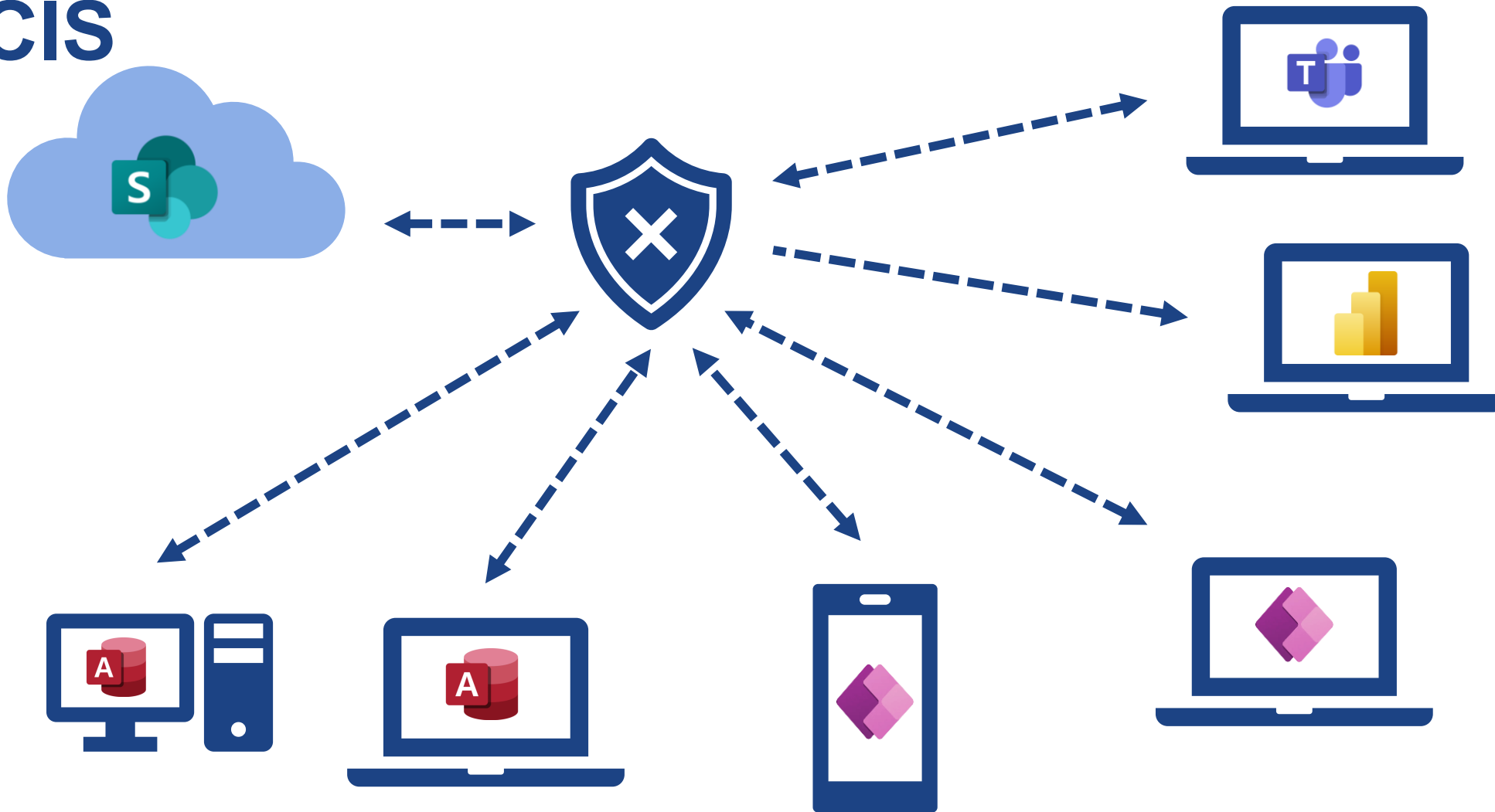
## What is CIS?

- Integrated commercial inspection database
- The system is owned by the Department
- Application is used by all QA Inspection firms
- Data is stored in Department's server
- Microsoft SharePoint based
- Future ready



# FDOT Commercial Inspection System

CIS

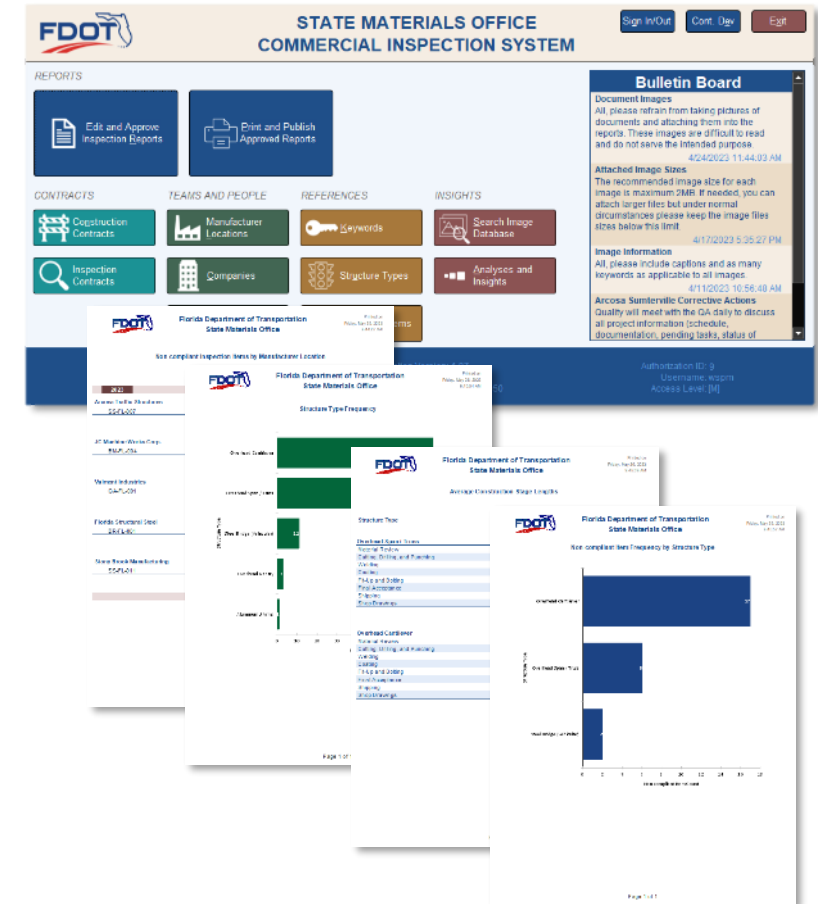


# FDOT Commercial Inspection System

## What does CIS achieve?

### Reporting Side:

- Provides a standard guideline to the QA inspectors.
- Improves reporting quality.
- Standardizes and streamlines the inspection process.
- Speeds up the report drafting allowing additional time to perform inspections.

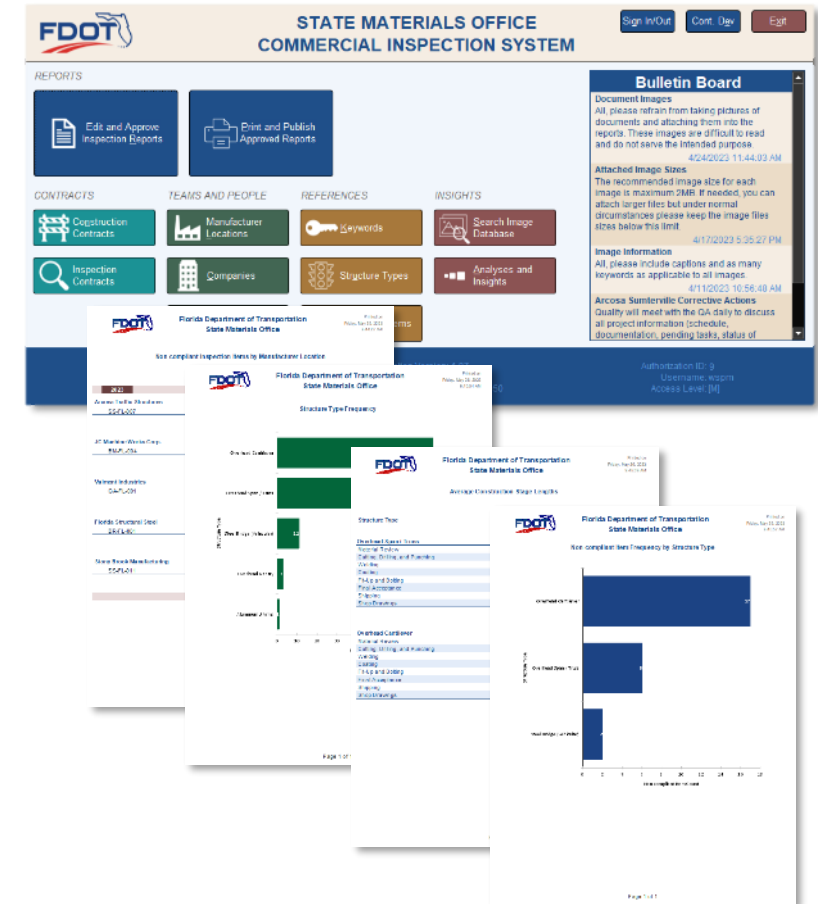


# FDOT Commercial Inspection System

## What does CIS achieve?

### Program Management Side:

- Perform data analytics to gain insights otherwise unavailable
- Audit manufacturers based on historical performance data
- Manage the QA inspection firms and their workload.



# FDOT Commercial Inspection System

## What does CIS achieve?

### Program Management Side:

- Identify chronic problems across districts
- Inform specification updates based on real world data
- Provide a broader understanding of the system in general



A screenshot of the FDOT Commercial Inspection System (CIS) interface. The main header reads "STATE MATERIALS OFFICE COMMERCIAL INSPECTION SYSTEM" with "Sign In/Out", "Conn. Dev", and "Edit" buttons. The interface is divided into several sections: "REPORTS" with "Edit and Approve Inspection Reports" and "Print and Publish Approved Reports"; "CONTRACTS" with "Construction Contracts" and "Inspection Contracts"; "TEAMS AND PEOPLE" with "Manufacturer Locations" and "Companies"; "REFERENCES" with "Keywords" and "Structure Types"; and "INSIGHTS" with "Search Image Database" and "Analyses and Insights". A "Bulletin Board" on the right contains document images and information. Below the main interface, several overlapping report windows are shown, including "Structure Type Frequency", "Average Chloride Ion Frequency", and "Overhead Crane Frequency by Structure Type". These reports feature bar charts and tables of data. The bottom right corner of the interface shows the user's authentication ID: 9, username: wpsm, and access level: [H].

# FDOT Commercial Inspection System

FDOT Commercial Inspection System

**FDOT** STATE MATERIALS OFFICE  
COMMERCIAL INSPECTION SYSTEM

Sign In/Out Cont. Dev Exit

### REPORTS

Edit and Approve Inspection Reports | Print and Publish Approved Reports | Training Videos

### CONTRACTS

Construction Contracts | Inspection Contracts

### TEAMS AND PEOPLE

Manufacturer Locations | Companies | People

### REFERENCES

Keywords | Structure Types | Inspection Items

### INSIGHTS

Search Image Database | Analyses and Insights

### DEFAULTS

Select your name and your current reporting location here. This information will be used to populate your new reports. The system will remember your selection until the release of the next version. If no selection is made here the system will still try to predict the manufacturer and the inspector name from prior Task Work Order reports.

I am:  | I am located at:

Application Version: 1.15 (2022) | Minimum Screen Resolution: 1400x1050 | Authorization ID: 9 | Username: wspm | Access Level: [M]

Click to view and edit past daily reports. | Num Lock | Online with SharePoint

### Bulletin Board

**AZZ Galvanizing - South Carolina**  
(GA-SC-002) Azz Galvanizing in Blacksburg, SC is added to approved galvanizers.  
11/7/2023 2:07:02 PM

**FDOT Audit (Tampa Steel)**  
FDOT (Tim M) will be auditing Tampa Steel Erecting 10/25  
10/3/2023 9:17:19 AM

**South Atlantic Galvanizing - Laurens (SC)**  
South Atlantic Galvanizing (Laurens, SC) has been added for Hot Dip Galvanizing  
9/15/2023 2:42:43 PM

**USA Structural Steel (Scope Expanded)**  
USA Structural Steel in East Sarasota has had their scope expanded to include Toll Gantries.  
9/15/2023 2:39:12 PM

**Bridge Brothers (Pickens, SC) Added**  
Bridge Brothers of Pickens, SC has been added. They are limited to weathering or galvanized steel bridges.  
9/13/2023 2:51:35 PM

**File and Folder Names**  
Please refrain from using special characters such as #, \$, %, & etc. in your file and folder names. These characters can stop you from uploading your images or other attachments to the system.  
8/16/2023 9:00:40 AM

**Arcosa Sumterville Corrective Actions**  
Arcosa was sent a CAR this morning: Perform 100% MT on all sign structure chord welds (on every structure that has not yet shipped

# FDOT Commercial Inspection System

**FDOT Commercial Inspection System**

## Daily Inspection Reports by Task Work Order

All daily inspection reports are seen for the selected task work order below. By toggling the checkbox on the right, you can view the previously approved daily reports as well. Only the top 25 reports are returned. Refine your filters to view older reports.

**Optional Filters:**

Approved:  My TWOs:

Start Date:

End Date:

Inspector:

IWO: 06 - CAG77 - (T6511)  
12 - CAG77 - (E8T77)  
15 - CAG77 - (E6N17)  
19 - CAG77 - (E2U46)  
20 - CAG77 - (T2724)  
22 - CAG77 - (E2Y63)  
24 - CAG77 - (E7R10)

QA Lead(s): Phil, Charles

List of Inspection Reports - Count: 25 (Only top 25 records returned. Refine filters to see older reports.)

ID	Insp. Day	Ready	Inspectors	Details	Delete
2334	12/29/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2315	12/28/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2306	12/27/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2293	12/26/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2280	12/22/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2254	12/21/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2234	12/20/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2217	12/19/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2201	12/18/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2185	12/15/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2173	12/14/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2160	12/13/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2158	12/13/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2172	12/12/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2125	12/11/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2111	12/8/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2097	12/7/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2096	12/6/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2071	12/6/2023	<input checked="" type="checkbox"/>	Jeremy Herndon	<input type="button" value="Details"/>	<input type="button" value="Delete"/>
2095	12/5/2023	<input checked="" type="checkbox"/>	Randilyn Cook	<input type="button" value="Details"/>	<input type="button" value="Delete"/>

Toggle the report approval status. Num Lock  Online with SharePoint

**FDOT Commercial Inspection System**

## Daily Report Details

ID: 2334  
Task Work Order: CAG77 - 15 - (E6N17)  
Inspection Day: 12/29/2023  
Inspectors: Aguimar Da Silva

Complete:   
Admin Approved:

Daily Narrative:  
JC# 3491 OHC-5  
JC finished welding the base plate and stiffeners to the HSS 18" x 18" x .750 steel column (ht#21172091) of the OHC-5 dual upright. A certified welder made the welds in the process and position using the parameters of an FDOT-approved (WPS) welding procedure.

TWO Files:

List of Inspection Items  
Daily Inspection Items Item Count: 1

ID: 3942 Structure: OHS-4 (OHS-4) Stage: Welding Image Count: 3  
Insp. Item: Sequence and quality of the weld is confirmed according to the code.

Manufacturer: JC Machine Works Corp. - Miami  Status: Compliant   
Comments: Pre-heat applied to the base metal per the approved welding procedure.

Enter the inspection day here. Num Lock  Online with SharePoint Filtered

# FDOT Commercial Inspection System

FDOT Commercial Inspection System
Print Approved Daily Inspection Reports Close

Select a task work order and a date range to print the approved daily reports for that range.

Active TWOs:     My TWOs:

First Day:

Last Day:

Inspection Contract:
 

- CAG71 - KTA-Tator Inc.
- CAG77 - WSP USA Inc.**
- CAH03 - Pennoni Engineering

Task Work Order:
 

- 06 - (T6511) RK&K
- 12 - (E8T77) CDR Maguire
- 15 - (E6N17) BCC Engineering**
- 19 - (E2U46) GAI Consultants
- 20 - (T2724) VIA Consulting Services
- 22 - (E2Y63) Lochner
- 24 - (E7R10) Atkins
- 25 - (T2692) CDM Smith

You can create manufacturer specific reports if you check the box below and select a related facility.

Filter by Manufacturer:

Manufacturers:
 

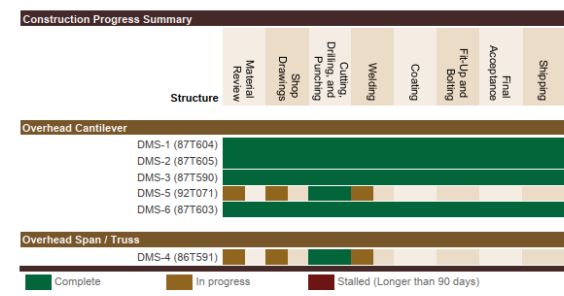
- JC Machine Works Corp. - Miami
- DS Brown - North Baltimore
- Florida Structural Steel - Tampa
- Florida Structural Steel - Gibsonton
- W&W / AFCO - Bristol

List of Top 25 Approved Inspection Reports in the given date range.

ID	Insp. Day	Distributed	Inspectors
2334	12/29/2023	<input type="checkbox"/>	Aguimar Da Silva
2315	12/28/2023	<input type="checkbox"/>	Aguimar Da Silva
2306	12/27/2023	<input type="checkbox"/>	Aguimar Da Silva
2293	12/26/2023	<input type="checkbox"/>	Aguimar Da Silva
2280	12/22/2023	<input type="checkbox"/>	Aguimar Da Silva
2254	12/21/2023	<input type="checkbox"/>	Aguimar Da Silva
2234	12/20/2023	<input type="checkbox"/>	Aguimar Da Silva
2217	12/19/2023	<input type="checkbox"/>	Aguimar Da Silva
2201	12/18/2023	<input type="checkbox"/>	Aguimar Da Silva
2185	12/15/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2173	12/14/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2160	12/13/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2158	12/13/2023	<input checked="" type="checkbox"/>	Aguimar Da Silva
2172	12/12/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2125	12/11/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2111	12/8/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2097	12/7/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2096	12/6/2023	<input checked="" type="checkbox"/>	Randilyn Cook
2071	12/6/2023	<input type="checkbox"/>	Jeremy Herndon
2095	12/5/2023	<input checked="" type="checkbox"/>	Randilyn Cook

Select the task work order here.
Num Lock     Online with SharePoint

# FDOT Commercial Inspection System



Printed on Wednesday, December 27, 2023 8:14:51 AM

**Florida Department of Transportation State Materials Office**

**Date Range: 12/16/2023 to 12/26/2023**

**Inspection Task Work Order Information**

Contract Number: CAG77  
 TWO: 12  
 Inspection Company: WSP USA Inc., Pink Diamond (WSP Sub)  
 QA Lead: Halim Kerim Bas, Phil Dzikowski  
 QA Lead Email: halim.k.bas@wsp.com, philip.dzikowski@wsp.com

**Relevant Construction Project Information**

Contract Number: E8177 Start Date: 1/1/2023  
 Project Description: Northern and Southern Queue Warning System  
 District: Turnpike FIN: 449253-1-52-01

**CEI Information**

Contact Person: Antonio Piedra CEI Firm: CDR Maguire  
 Phone: (954) 881-6272 Email: antonio.piedra@cdrmaguire.com

**Action Items**

Manufacturer: Arcosa Traffic Structures - Sumterville (SS-FL-007)	Designation: RFI-1	Duration: 25 d
Status: Resolved	Opening: 10/11/2023	Closing: 11/5/2023
Description: Column gusset plate too close to the column pipe end.	Structure: DMS-1	

Page 1 of 21

**Inspectors**

ID: 59 Name: Michael Philipps Phone: (336) 669-2924 Email: michael.philipps@wsp.com	ID: 67 Name: Samuel Wilbanks Phone: (256) 630-6975 Email: samuel.wilbanks@wsp.com
----------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------

**Manufacturers**

**ARCOSA**

ID: 19 TRAFFIC STRUCTURES  
 Company: Arcosa Traffic Structures  
 Facility: SS-FL-007  
 City: Sumterville State: FL  
 Type: Aluminum J-Arms, Overhead Cantilever, Overhead Gantry, Overhead Monotube, Overhead Span / Truss

Printed on Saturday, December 16, 2023 12:16:00 PM

**State Materials Office - Commercial Inspection System**

**Saturday, December 16, 2023**

Daily Report ID: 2195 Inspectors: Samuel Wilbanks

Daily Narrative: Structure DMS-4 is undergoing welding and nondestructive testing.  
 Structure DMS-5 is undergoing joint preparation for welding.

**Inspection Item: 3703, DMS-4 (86T591), Arcosa Traffic Structures - Sumterville (SS-FL-007)**

Non-destructive and/or visual testing of the welds by qualified inspectors shows passing results. Status: Compliant

Taken By: Samuel Wilbanks Capture Date: 12/16/2023  
 Taken By: Samuel Wilbanks Capture Date: 12/16/2023




Image 6466: MT on column gussets.




Image 6466: MT on column gussets.

Taken By: Samuel Wilbanks Capture Date: 12/16/2023




Image 6498: MT on column headplates.

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# FDOT Commercial Inspection System

**State Materials Office  
Commercial Inspection System**

**Year 2023  
Q1-Q2 Data Analysis Report**

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## Executive Summary

The State Materials Office has been searching for a way improving the reporting quality and effectiveness of the QA inspection program since late 2021. An integrated relational database was deemed as a fitting solution to this desire. In the fall 2022 the development of the new Commercial Inspection System (CIS) started and by the end of March 2023 the system was ready for deployment (see Figure 1). Since then, hundreds of reports, thousands of inspection items, and many other datapoints have been entered into the database. It has already standardized the language and improved the consistency of the commercial inspection reports.

However, unless the data is queried and processed to generate meaningful insights, its true potential would remain unrealized. Therefore, a biannual analysis report would be a fitting utilization of the system. This report includes these analyses on the new Commercial Inspection System database.



Figure 1: Screenshot of the State Materials Office Commercial Inspection System interface.

## Manufacturers

### Integrated Manufacturer Locations

The new system is not only utilized to perform reporting activities but also it is a tool to control the approval status of the QC plans for all manufacturers. If a manufacturer is not authorized to work on a certain type of structure, the inspectors will not be able to associate an inspection item with their facility. This will reveal any QA plan related to issues before the structures are manufactured.

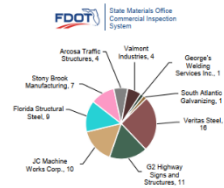


Figure 3: Structure count by manufacturer in CIS integrated Task Work Orders.

Figure 5 shows that Veritas Steel, G2 Highway Signs and Structures, JC Machine Works, and Florida Structural Steel are only a small portion



## Image Database

The new database does not include images as part of a PDF file or some other format of rich text. It deliberately collects the images with keywords and other meta data attached. Consequently, all these images can be queried based on keywords, structure types, manufacturers, inspectors, dates, etc. The images become part of the institutional memory of the SMO.

### Keyword Tree

The following keyword tree includes many of the utilized keywords for images. This gives an idea about what type of objects or phenomena are considered worthy of imaging by the inspectors. The size of the tiles are adjusted based on their frequency in reporting.



## Action Items

During the three months period that CIS has been actively in use and within the integrated Task Work Orders, only three NCRs have been entered into the database. There has been other NCRs initiated for TWOs that are outside the CIS, but they are also fewer than five in their count. Therefore, the sporadic nature of these action items prove that they are not a good measure of the manufacturer's capabilities or the quality of their processes.

Table 2: List of action items associated with the CIS integrated Task Work Orders.

Company Name	Description	Type
JC Machine Works Corp.	Materials not meeting FDOT requirements	Non-Conformance Report
JC Machine Works Corp.	Materials not meeting FDOT requirements	Non-Conformance Report
JC Machine Works Corp.	These leads to high right column in the field	Non-Conformance Report

In Table 3, JC Machine Works have all three of these NCRs and they are related to Material Test Reports (MTRs) and fit-up issues. The system also keeps track of the resolution of these items. For instance, if an action item has not been resolved for a long time, it will be recorded by the CIS. These durations can be utilized to assess the capabilities of the manufacturer to handle action items.

## Structure Types

It would be difficult to manage a quality control program without knowing the relevance of the different types of structures and construction methods based on their frequency. The new system enables the SMO to count the frequency of the steel structure types manufactured. However, this information must be assessed with attention to the details of the data. For instance, the steel bridges are not reported as a single structure but are divided into parts that can be shipped separately. Their count cannot be easily compared to, for example, the count of the sign structures. Similarly, some of the elements such as steel piles and aluminum J-arms are grouped together as it is neither practical nor useful to identify them individually.

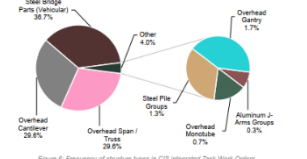
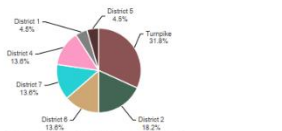


Figure 6: Frequency of structure types in CIS integrated Task Work Orders.

Figure 6 shows the frequency of steel structures manufactured. Steel bridge parts and overhead caster structures are the most frequently demanded types. As with other data types, these frequencies are subject to change over time.

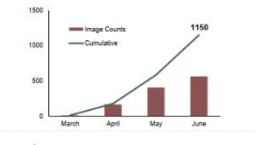
## FDOT Districts

There is a significant imbalance related to the amount of steel structure construction amongst different districts of FDOT. This imbalance is important to understand the workload and the weight of the QA inspection work needed to cover the needs of each district.



## Image Contributions Over Time

At this point of the database, the number of images contributed is growing at an increasing rate. During the month of June 2023, the image count exceeded 500 images. As new TWOs are migrated to the new system, the number of images contributed per month is expected to rise to approximately 1000. This indicates around 12,000 images per year. All these images can later be utilized for more advanced techniques such as machine learning or artificial intelligence if deemed necessary or appropriate by the SMO.



## Example CIS Images

Table 4: Example images from the CIS database.

Image	Keywords	Caption	Inspector
	Gusset Plate, Pipe Section, UT Testing	Ultrasonic examination utilizing longitudinal wave form, verifying the absence of lamellar tearing at parent material.	Tom Jasper
	Galvanizing, Shipping	Fabricated members for OHC-101 and OHC-102 loaded and strapped to trailer for shipping to Valmont Galvanizing.	Walter Borkowski
	Chord, Visual Inspection	Stony Brook quality control inspector M. Williams is executing closeout visual inspection of OC-1 chords.	Tom Jasper
	Bolt Hole, Angle	Chord splice angles drilled thru all components and match marked for each of the chord sections.	Rex Harrison

## Commercial Inspection Firms

CIS was activated in late March of 2023. Since then, the QA inspection firms have been migrating their reporting activities as new projects commenced. Currently, there are 29 Task Work Orders (TWO) either completed or active in the database. Pre-existing TWOs were not migrated in the middle of the projects to avoid creating data inconsistencies.

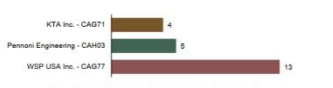
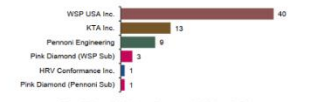


Figure 2 includes TWOs assigned to subcontractors of the three prime QA inspection firms. Based on the current speed of the migration process, by the end of 2023 the overwhelming majority of TWOs should have been integrated into the new system.

Integrated Inspectors and Managers  
As new TWOs are integrated into the database, more and more people started drafting their reports on the CIS. While some inspectors can cover multiple TWOs at the same time, some TWOs are covered by multiple inspectors due to their high volume of work.



In Figure 3, the subcontractors such as Pink Diamond and HRV are listed separately. If a single firm is a subcontractor to multiple QA primes at the same time, they are labelled accordingly. The numbers do not only include the inspectors but also QA managers who read, edit, approve, and distribute the daily reports on a weekly basis.



# Thank you.

# Questions



The screenshot displays the FDOT Commercial Inspection System interface. At the top, it features the FDOT logo and the title "STATE MATERIALS OFFICE COMMERCIAL INSPECTION SYSTEM". Navigation buttons for "Sign In/Out", "Cont. Dev.", and "Exit" are visible. The main dashboard includes sections for "REPORTS" (with "Edit and Approve Inspection Reports" and "Print and Publish Approval Reports" buttons), "CONTRACTS" (Construction Contracts, Inspection Contracts), "TEAMS AND PEOPLE" (Manufacturer Locations, Companies), "REFERENCES" (Keywords, Structure Types), and "INSIGHTS" (Search Image Database, Analyses and Insights). A "Bulletin Board" on the right contains document images and information regarding image sizes and attachments. Below the dashboard, several report thumbnails are shown, including "Structure Type Frequency" and "Average Traveltime Report Links".