



Office of Materials and Research

Field Data Collection System (FDCS) Version 4.2

Browser Training Guide

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January 2007

FIELD DATA COLLECTION SYSTEM 4.2

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OVERVIEW OF FDCS

What You Will Learn....

- Changes in Version 4.2
- New FDCS Process Flow

1 Overview of FDACS

This computer program is used by GDOT Testing Technicians and Contractor Testing Technicians to collect & distribute field test data. It is designed to be a standalone system (Client) that can be used in remote locations to collect field test data for future distribution to a central database (Server).

It is composed of a collection of field test data forms that are used to collect, distribute and report field material test data. This includes Roadway & Plant, Independent Assurance, Aggregates, and Portland Cement.

The four major components of FDACS are

- FDACS Client – the standalone version used in the field by technicians and plants to submit their test records.
- FDACS Production Server – the central database where uploaded field test records are authorized by OMR supervisors.
- FDACS Read-only Server – a non-editable view of the central database for GDOT personnel.
- FDACS Webview – a secure view for producers of their own data in the central database.

1.1 Changes in FDACS 4.2

The following are changes since version 4.1:

Client Side:

- Asphalt Reports re-written
- Aggregate Material Code Update
- 128C Source re-assigned

Server Side:

- Migrated data to SQL database
- Consolidated FDACS system to a single database (no copies)
 - Removed all batch jobs
- Update web upload

1.2 Functionality

FDACS performs multiple functions:

- Initial calculations on test data.
- Backs up or restores data.

- Exchanges data between technicians. Some tests are multi-part, which are started by one technician and completed by another, which means two different computers have to talk to each other. Computer diskettes or e-mail attachments are the recommended media to use to exchange test data between technicians and at remote locations.
- Generates hardcopy test reports and statistical summaries and quality ratings, including built-in calculations.
- Allows the user to edit, review or delete test data.
- Uploads test data to GDOT.
- For aggregate or cement producers, imports test data from their own system to FDCS using templates.
- Allows the user to import updated nuclear gauge factors to the Client after the gauges have been calibrated.

1.3 Target Audience

This course is designed for the following GDOT personnel who need test information for the Materials Certificate:

- Construction inspection
- Area Engineers
- Contract Administration
- Materials Audit

1.4 Course Prerequisites

- Basic Windows skills
- Basic knowledge of sampling & testing requirements for construction projects

1.5 Course Objectives

In order to successfully complete this course, you will complete the following tasks:

- Navigate in FDCS
- View Data
- Print Reports

1.6 New FDACS 4.2 Architecture

The system architecture has changed since the last version of FDACS. The main change has been the elimination of the batch process, which has been replaced with a more streamlined exchange of Client-Server data. The new architecture includes the following process:

1. FDACS Client Uploads data to the central SQL Server database.
2. GDOT users access to the central database on SQL Server through Terminal Services using Production or Read-only user interfaces.
3. External users view their own data via a secure web connection.

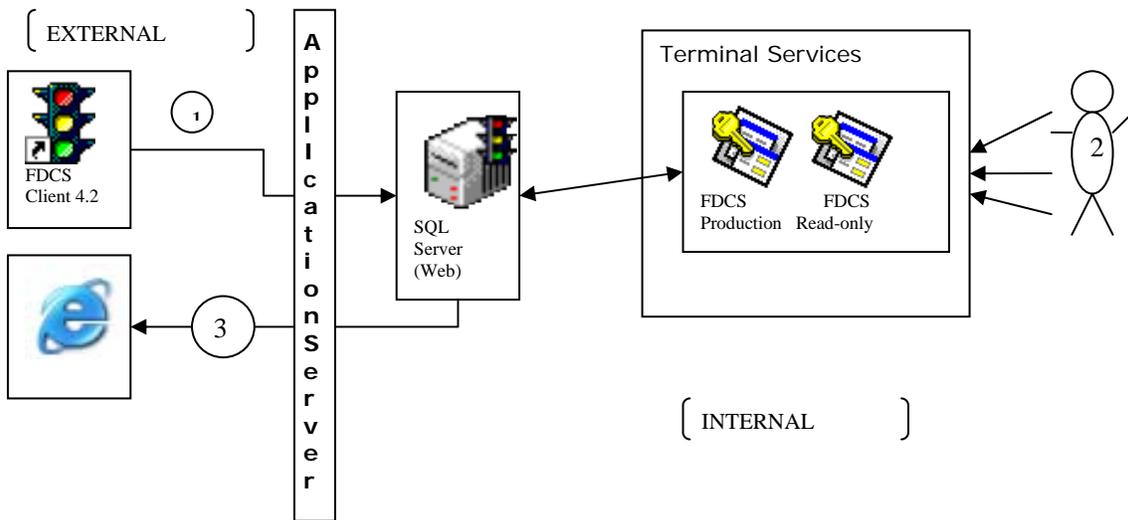


FIGURE 1. NEW FDACS SYSTEM ARCHITECTURE

1.7 Terminology

The following terms are used through out this document:

Term	Description
FDCS	Abbreviation for the Field Data Collection System.
Client	The edition of FDCS on the technician’s computer. The data collected in this edition should be uploaded to the Server version and can be used to generate local reports.
Server	The central database collection of uploaded test data. The data can be verified and used for various reports on a statewide basis.
Field	When referring to data entry, a single piece of information, such as a measurement or a description.
Record	A group of fields that describe one entity. In this application the entity is usually a sample taken for testing.
Key fields	Each record must contain a field or a set of fields that uniquely identifies it. This prevents duplicates and enables searching. These special fields are called key fields.
Filter	The process used to show you a specified selection of your records or just one record rather than all records at once.
Sort	The process used to put records in alphabetical or numeric order. Ascending is A-Z or lowest to highest; Descending is Z-A, or highest to lowest.
Form View	A window containing the contents of one or more test records that you may view, edit, or add to. A printed test record is often called a “report.”
Datasheet View	A table format displaying the same records shown in Form View.
Web View	The secure internet link for Producers to view their own uploaded records in the central database.
Report	A record or group of records, or calculation obtained from one or more records, specially formatted for printing.
Upload	The process of electronically sending data to the GDOT central database via the Internet.
Import	The process of adding data to the system from a source other than your default directory.
Backup	The process used to save data to another location the event of a system failure.
Restore	The process of adding backed up data to your default system. This is done if the data on your default system was corrupted or lost.

VIEWING INFORMATION ON THE SERVER

What You Will Learn....

- How to Install FDCS Server icon
- FDCS Server Navigation
- How to Generate, Print, and Save Reports

2 FDCS Server View

FDCS Server is the central database for test data collected on GDOT projects or at producer's Quality Control labs and Uploaded from the FDCS Client. The Terminal Services function allows GDOT personnel to quickly view central database information through "FDCS Server Read-only". For most GDOT personnel this is the link to use for test record review. Please note that the data cannot be changed when using this link.

OMR Testing Management supervisors (TMOS) and Technical Services Engineers (TSE) have special permissions to update and verify (authorize) FDCS test records Uploaded to the central database. Contact the Branch Chief or Supervisor to get "FDCS Server Production" permission established and the link installed on their computer. Users who do not have the necessary permission will receive an error message.

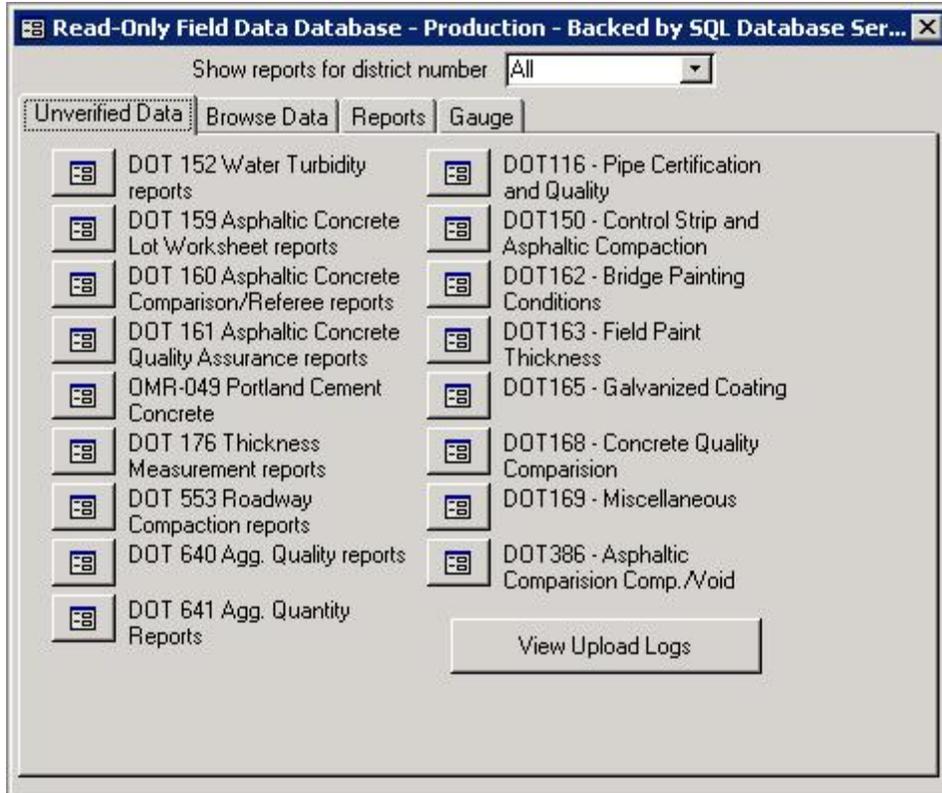
2.1 Installing the FDCS Server link

To install terminal services, do the following:

1. On the Desktop, double click on **My Computer**
2. Go to \\gdot.ad.local\gdot\Construction\Materials_Research\System\Install\Field Data
3. Select the **FDCS Server Read-Only** icon. This is an .rdp file.
4. Drag and drop this link to your Desktop for future use.
5. Exit My Computer.

To open FDCS Server Read-only:

1. Double click on the **FDCS Server Read-Only** icon on the Desktop.
2. Click **Ok**. The **Logon** window opens.
3. Enter your GDOT network **User name** and **Password**,
4. Click **Ok**. The Read Only Field Data Database opens.



On the Main Menu, users have the ability to filter records for a single District only, rather than viewing all records statewide. The four tabs available are:

- **Unverified Data** – a filtered view uploaded data for test records that have not been Verified (authorized) by OMR personnel.
- **Browse Data** – all data that has been uploaded to the central database.
- **Reports** – Asphalt, Aggregate, Cement, and other Materials Summary reports for all producer and technician submitted test records.
- **Gauge** – View, Edit, and Print functions for Nuclear Gauge calibration functions. ‘Create Nuclear Gauge File’ and ‘Update Gauge Factors from Update Disk’ are active in FDCS Server Production and are not available in FDCS Server Read-only. (This topic is covered in the FDCS Admin class.)

2.2 Viewing Unverified Data

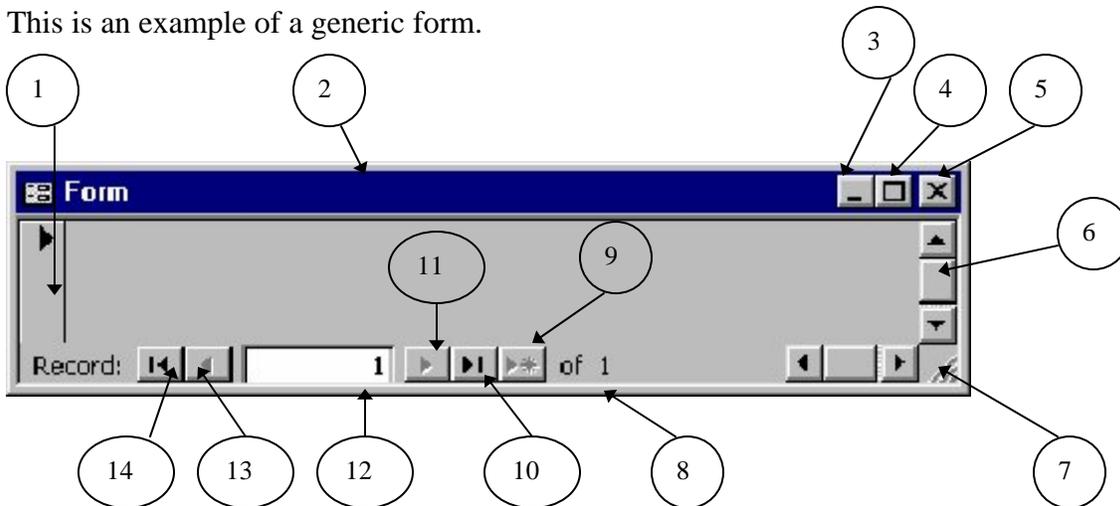
The Unverified Data tab on the Main Menu includes links to each of the forms in FDCS. When the user clicks on a button, the form view opens with the only the test records that have not been Verified (authorized) by a TMOS or TSE. This is a tool to bring the newly submitted test records to their attention, rather than searching through all records to find those that need authorization.

To open an Unverified test record:

1. On the FDCS Server Main Menu, click the **Unverified Data** tab.
2. Click the **DOT 159** button. The **DOT 159** form window opens. This is the same form that is seen on the FDCS Client.
3. Click the **Next Record** button at the bottom of the form. Notice that the number of records has been filtered; this indicates the number of records waiting to be authorized.
4. Close the **DOT 159** window to return to the Main Menu.

2.2.1 Form features

This is an example of a generic form.



Note: If the field on the form has a border, you can add data. If the field does not have a border, it is considered a calculated field and is generated by the FDCS system based on your input in either fields on previous windows or other fields on the form.

	Feature	Description
1	Selection Bar	Clicking this selects records for copying or pasting.
2	Title Bar	You can drag this to move the window.
3	Minimize	Click here to make the form smaller.
4	Maximize	Click here to make the form bigger.
5	Close & Save Data	Click here to close the form and automatically save the data you entered.

6	Scroll Bars	If the form is too big to fit in the window you can use the scroll bar.
7	Resize	If the window is too small you can drag this to make it larger.
8	Total	Displays the total number of records.
9	New	Creates or moves to a new record.
10	Last	Takes you to the last record for the form selected.
11	Next	Takes you to the record after the one displayed on the form.
12	Display Area	Shows the record number you are currently viewing.
13	Previous	Takes you to the record before the one displayed on the form.
14	First	Takes you to the first record of the form selected.

2.3 Browsing Data

The **Browse Data** tab on the Main Menu includes links to each of the forms in FDCS. Users have two options – **Open** and **Find**.

When the user clicks on the **Open** button, the form view opens with all those test records in the central database. This includes all Unverified records.

When the user clicks on the **Find** button, a window with selection parameters gives the opportunity to filter the records to only those that meet the criteria. Notice in the upper zone ‘Find by key information’ that more than one criteria can be entered. For instance, if Plant Number “123” and Type Mix “12.5mm” are both entered then only the records that match *both* criteria will be shown in the form view.

2.3.1 Find / Filter / Sort records

To find a recent test record for a contract/project:

1. On the FDCS Server Main Menu, click the **Browse Data** tab.
2. Click the DOT 159 **Find** button. The **Find DOT 159** window opens.

3. In the **Contract ID** field, type “T00000-00-000-0.”
4. Click the **Find** button under the **Contract ID** field.
5. The **DOT 159** form window opens. This is the same form that is seen on the FDCS Client.

6. Click the **Last Record** button at the bottom of the form. Notice that the number of records is filtered; this indicates the number of records for the criteria selected.

- On the Menu bar, click **View\Datasheet View**. The window switches from a form view to a table view of the test records.

Plant	Project ID:	Type Mix	Level:	Lot #	Contract ID
123	Training	12.5mm SP	N/A	3	T00000-00-000-
123	Training	12.5mm	N/A	2	T00000-00-000-
123	Training	12.5mm SP	N/A	1	T00000-00-000-
123	Training	19mm SP	N/A	15	T00000-00-000-
123	Training	19mm SP	N/A	14	T00000-00-000-
123	Training	12.5mm SA	N/A	16	T00000-00-000-
123	Training	19mm SP	N/A	13	T00000-00-000-
123	Training	12.5mm SP	N/A	14	T00000-00-000-
123	Training	12.5mm SP	N/A	13	T00000-00-000-
123	Training	12.5mm SP	N/A	12	T00000-00-000-
123	Training	12.5mm SP	N/A	11	T00000-00-000-
123	Training	12.5mm SP	N/A	10	T00000-00-000-
123	Training	12.5mm SP	N/A	9	T00000-00-000-
123	Training	12.5mm SP	N/A	8	T00000-00-000-
123	Training	12.5mm SP	N/A	7	T00000-00-000-
123	Training	19mm SP	N/A	11	T00000-00-000-
123	Training	12.5mm	N/A	5	T00000-00-000-

- Scroll to the right, and click in the **Date** field.
- On the Menu bar, click **Sort\Sort Descending**. This will sort the records to show the most recent test records at the top of the table.
- Click in the **Type Mix** field.
- On the Menu bar, click **Filter\Filter by Selection**. Notice that this limits the records shown to just those for the type of asphalt selected in step 10.
- On the Menu bar, click **View\Form View**. The window switches from a table view to the familiar form view of the test records, including the Print button.

Note: Find, Filter, and Sort can be used for any field selected in the test records. Filter and Sort can be done when in Form view as well as in Datasheet view. Datasheet view simply shows multiple records at the same time.

2.4 Reports

There are multiple reports available for FDCS Server. Click the **Reports** tab to view these report options.

- Asphalt Plant Rating Reports include the following:

Report Name	Report Description
Asphalt Plant Rating	The asphalt plant rating system was developed using the Mixture Control Tolerances established in Section 828 of Georgia's Standard Specifications. Uses the data from all of the entered 159 Asphalt Concrete Lot Worksheets within the specified time range to generate a rating for a specified plant. Requires three samples per product code to be rated.
Asphalt Plant Rating Probation	Same as above, but there is no minimum number of samples needed to generate a score.
Asphalt Tonnage Report	A report of all tonnage from all 159s within the specified time range.
IPD and PCT Voids Report	A statistical report of in-place densities and percent voids for each asphaltic concrete mix.
Gradation Report	A statistical breakdown of gradations for each asphaltic concrete mix.
Lots Summary Report	A summary report of Asphalt Lots per Contract ID
# of Reports per Asphalt Plant	Count of DOT 159 records per plant for the date range entered.
# of Reports per Plant by District	Count of DOT 159 records per plant for the date range entered, sorted by District number.
Statewide Average JMF Deviations	Averages, Standard Deviation, and number of Sample per sieve sizes, sorted by Type Mix .
List of all projects entered by users	Produces a list of unique project codes gathered from all entered 159 reports. This helps identify incorrectly typed project codes.

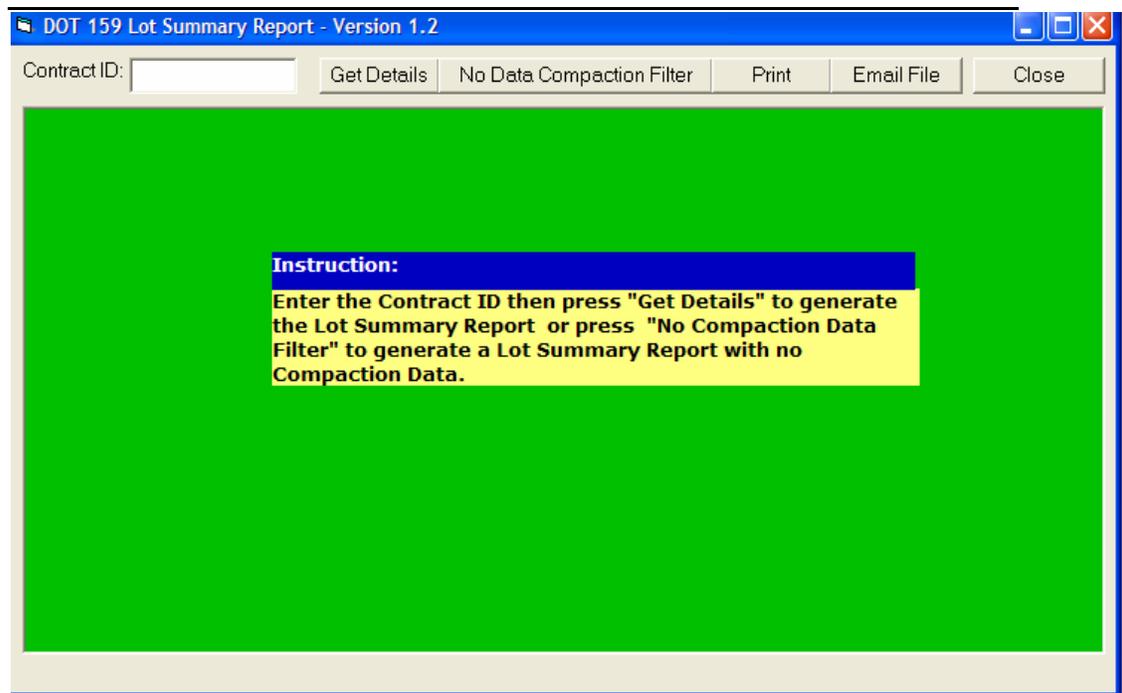
- Aggregate Reports include Quarry Rating reports and Aggregate test record Summary reports.
- Portland Cement Reports include selection criteria for Mill Code, From/To date ranges, or Material Type. All criteria are optional for limiting the records shown on the report. It is recommended that at least one criteria be entered, and multiple criteria can be used when generating a report.

- Materials Summary Reports include selection criteria for Material Test Type (by form number), From/To date ranges, Contract ID, or Technician ID. The Material Test Type is required, but the other criteria are optional for limiting the records shown on the report. Notice that multiple criteria can be used when generating a report.

2.4.1 Generating a Lot Summary Report:

To generate a test record report for a contract/project:

1. On the FDACS Server Main Menu, click the **Reports** tab.
2. Click the **Asphalt Plant Ratings** button.
3. Click the **Lots Summary Report** button. The **DOT 159 Lot Summary Report** window opens.



4. In the **Contract ID** field, enter T00000-00-000-0.
5. Click **Get Details**.

Note: You might receive an error that states, *No Record Found. Error 1*. Just click **OK**.



6. The **Lots Summary** report opens.

Note: Each Type Mix is grouped and a Total Quantity for each mix is calculated. The Lots are listed in numeric order, making it easier to notice missing Lots or missing compaction data.

The screenshot shows a window titled 'DOT 159 Lot Summary Report - Version 2.4.3'. The contract ID is 'B12345-00-000-0'. The report header reads: 'State of Georgia Department of Transportation Office of Material and Research DOT 159 Lot Summary Report Contract ID: B12345-00-000-0'. Below the header is a table with the following data:

Type Mix	Lot #	Level	Project ID	Contractor ID	Plant	TechID	Date	Total Quantity	Type Course	Avg Comp	Avg Void	Void Spec
19mm	02	A	STP-123(11)01	123CAB	123	9AB	2/21/2004	1,000.00	I			<input checked="" type="checkbox"/>
Total for Mix:								1,000.00				
19mm Mod.	03	B	STP-123(11)01	123CAB	123	9AB	2/21/2004	.00	I			<input checked="" type="checkbox"/>
Total for Mix:								.00				

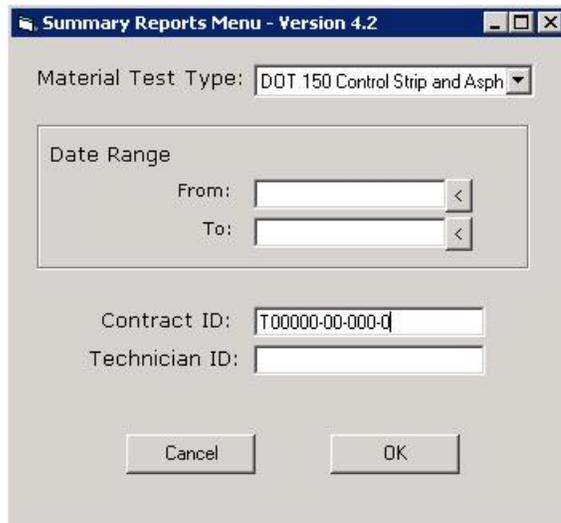
2.4.2 Generating a Materials Summary Report

To generate a summary report for other materials:

1. On the FDCC Server Main Menu, click the **Reports** tab.
2. Click the **Materials Summary Reports** button. The summary reports selection window opens.



3. The Material Test Type is a required field. Select **DOT 150** from the dropdown list.
4. In the **Contract ID** field, enter T00000-00-000-0.



5. Click **OK**. The **Materials Summary Report** opens.

Summary Report for All Material Types
 This report contains 17 pages. Refresh Print Email File Close

State of Georgia
 Department of Transportation
 Office of Materials and Research

Material Summary Report
 Material Test Type: DOT 150 Control Strip and Asphaltic Compaction

Number of Samples Taken
 From 7/1/2004 To 08/31/2004

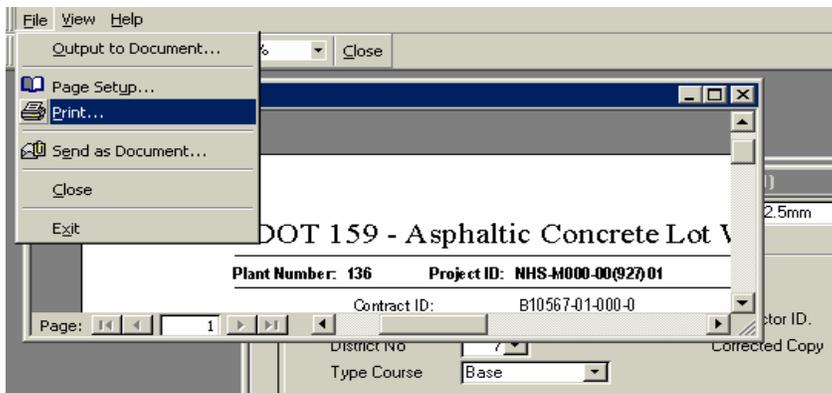
Sample Date	District	Contract ID	Contractor ID	Tech ID	Material Type	Total
8/2/2004	1		024100	1P	12.5mm SP	1
8/2/2004	1		291700	1K	19mm SP	1
7/29/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
7/30/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/19/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/19/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/23/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/24/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/30/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SMA	1
8/31/2004	1	B10654-01-000-0	2AP200	1K	12.5mm SMA	1
7/19/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SP	1
7/30/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SP	1
8/3/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SP	1
8/30/2004	1	B10654-01-000-0	2AP200	1P	12.5mm SP	1
7/19/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
7/20/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
7/30/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/2/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/9/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/11/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/16/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/17/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
8/30/2004	1	B10654-01-000-0	2AP200	1P	19mm SP	1
7/19/2004	1	B10654-01-000-0	2AP200	1P	25mm SP	1
7/23/2004	1	B10654-01-000-0	2SU220	10	25mm SP	1
8/2/2004	1	B10654-01-000-0	2AP200	1P	25mm SP	1

Note: You can only **Print** this report. The **Email File** feature is currently unavailable from the Terminal Services connection.

2.4.3 Printing Reports from FDACS Server

This is a continuation of the previous exercise and assumes you have opened a form for a test record.

1. On the **DOT 159** form, click the **Print in English Units** button. The report window opens.



2. On the menu bar, select **File>Print**.
3. When the print dialog box appears click **OK**.



2.4.4 Saving Reports from FDCS Server

Terminal Services acts a remote desktop to help speed the access to the data in FDCS Server. This also means the user is not on their own Profile on the computer with all the connections to their e-mail account. Therefore, in order to share the results of a report with people who do not have access to FDCS Server, the report must first be saved.

To save a report to a folder:

1. In an open report, from the **File** menu, select **Output to Document**.



2. Select the network folder where you wish to save the report, then click **OK**.

Note: It is recommended that you **Save in:** a mapped network drive such as a personal share or an office directory (like Q: or R: for OMR personnel).

Note: Be sure to use the rtf extension on the file. The Rich Text Format (.rtf) preserves the special formatting and header information in the test report. If you try to save the report using any other format extension it rearranges the data within the test report.

3. Click **Close**. You are returned to the **DOT 159** window.
4. Close the window to return to the FDCS Server Main Menu.

2.4.5 E-mailing Reports from FDCS Server

Do NOT use the EMAIL button or File\Send to Recipient to send FDCS Server reports to others. See 2.4.4 for more information on saving reports so they can be shared with people who do not have access to FDCS Server.

To email reports saved from FDCS Server it is recommended that you save all the reports to one folder on your computer. Then create an e-mail message and insert the reports into the message.

To e-mail FDCS reports as attachments:

1. Open your email program.
2. Create a new message.
3. Use the **Insert** menu to select and include saved FDCS report files in your email message.
4. Address and Send the message.

