



Materials Management System (MMS)
User's Guide – Construction
Version 2.0

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Maryland Department of Transportation
State Highway Administration
Office of Materials Technology

Table of Contents

1	Overview	4
1.1	Material Management System (MMS) Goals.....	4
1.2	MMS Benefits.....	5
2	Login to Material Management System	6
2.1	Internal User Login.....	6
2.2	External User Login.....	7
	External User Login (cont'd).....	9
3	Source of Supply	10
3.1	Update Material Sources.....	10
3.2	Update Submission Tasks.....	14
3.3	Update/Add Service Providers.....	15
	3.3.1 Update/Add Service Providers – Filtered Input.....	16
	3.3.2 Update Service Providers – Manual Input.....	17
3.4	Add Source Entry and Review Documents.....	18
3.5	Submit Entry for Review.....	19
3.6	Update Acceptance Requirements.....	20
4	Project Tasks and Documents	22
4.1	View User Tasks.....	22
4.2	View Project Tasks.....	22
4.3	View Project Documents.....	23
5	Material Products Application	24
5.1	Search for Material Products.....	25
5.2	View Material Products Details.....	26

List of Figures

Figure 1: MMS Welcome Screen	6
Figure 2: MMS Login Screen.....	7
Figure 3: Username/Password Do Not Match Screen	8
Figure 4: Password Administration Change Password Prompt Screen	9
Figure 5: Update Material Sources	10
Figure 6: Update Bid Item.....	11
Figure 7: Enter Bid Quantity	12
Figure 8: Source of Supply Submission History Pop-up Box	13
Figure 9: Update Submission Tasks	14
Figure 10: Update Service Providers.....	15
Figure 11: Product Selection	15
Figure 12: Update Service Providers – Filtered Input	16
Figure 13: Update Service Providers – Manual Input	17
Figure 14: Add Review Documents	18
Figure 15: Enter Supportive Documentation Information.....	18
Figure 16: Submit Entry for Review	19
Figure 17: Update Acceptance Requirements	20
Figure 18: Select a Task Designee	21
Figure 19: View User Tasks	22
Figure 20: View Project Tasks	22
Figure 21: View Project Documents	23
Figure 22: Materia Products Link.....	24
Figure 23: Search for Material Products.....	25
Figure 24: View Material Products Search.....	26
Figure 25: Material Product Detail - General Tab.....	26

1 Overview

1.1 Material Management System (MMS) Goals

The implementation of a single electronic MMS has the following mission critical goals:

- Manage the materials quality process throughout the construction project life cycle; this should include support for materials quality activities in traditional design-bid-build construction contracts, as well as design-build and other innovative contracting methods;
- Allow information sharing and knowledge transfer among key SHA stakeholders;
- Allow one-stop data entry and status reporting on progress against material quality goals;
- Provide construction project managers with a notification of potential materials discrepancies as part of the preparation of construction contractor progress estimates;
- Provide documentation of materials clearance compliance for FHWA certification;
- Allow lab managers to track the status and costs of testing within a given Technical Material Division;
- Automate the allocation of testing costs to the various projects;
- Identify sources and materials used on projects through a referencing system to allow for easier access to materials information during construction and ongoing maintenance of the asset; and
- Support capture of data from testing performed by construction contractors, and facilitate the comparison of this test data with SHA quality assurance test results.

1.2 MMS Benefits

The benefits that MMS create for SHA are:

- The central storage and retrieval of common data elements, reduction of data entry errors caused by re-entry of data fields;
- Assurance of real-time data updates, elimination of the need for smaller systems and associated integrations;
- The provision of more robust reporting tools;
- Allowance for easily accessible data and the provision of more robust tools to aid in the management of this complex information set;
- Automation by reducing the amount of paperwork involved and the amount of time taken to transmit information between materials sections as well as between OMT and construction project sites;
- Standardization by contributing to a workforce which is both more interchangeable between projects or districts or between materials sections and a workforce which is more accountable;
- Integration of MMS with existing software applications across SHA;
- Accurate and efficient materials management process;
- Accountability by keeping an audit trail of all changes to the test results, as well as maintaining a record of the entering of test results;
- Support implementation of a knowledge-based system;
- Prevent system obsolescence; and
- Reduction of overhead created by multiple systems and lower training and maintenance costs for large numbers of smaller disparate systems.

2 Login to Material Management System

2.1 Internal User Login

The internal login procedure is applicable only if the user has a valid username and password within the SHA network, and occurs within the SHA intranet as opposed to the internet. For such users, authentication is executed automatically in the background and does not require entry of a user name and password. To access the system internally, type the following URL on a web browser: http://shahanweb2/mms/MMSBrowser_BC.aspx

After a successful login, users can simply create a shortcut of the application to avoid having to type in the intranet address every time. The MMS Welcome screen is displayed after a successful login (see Figure 1).

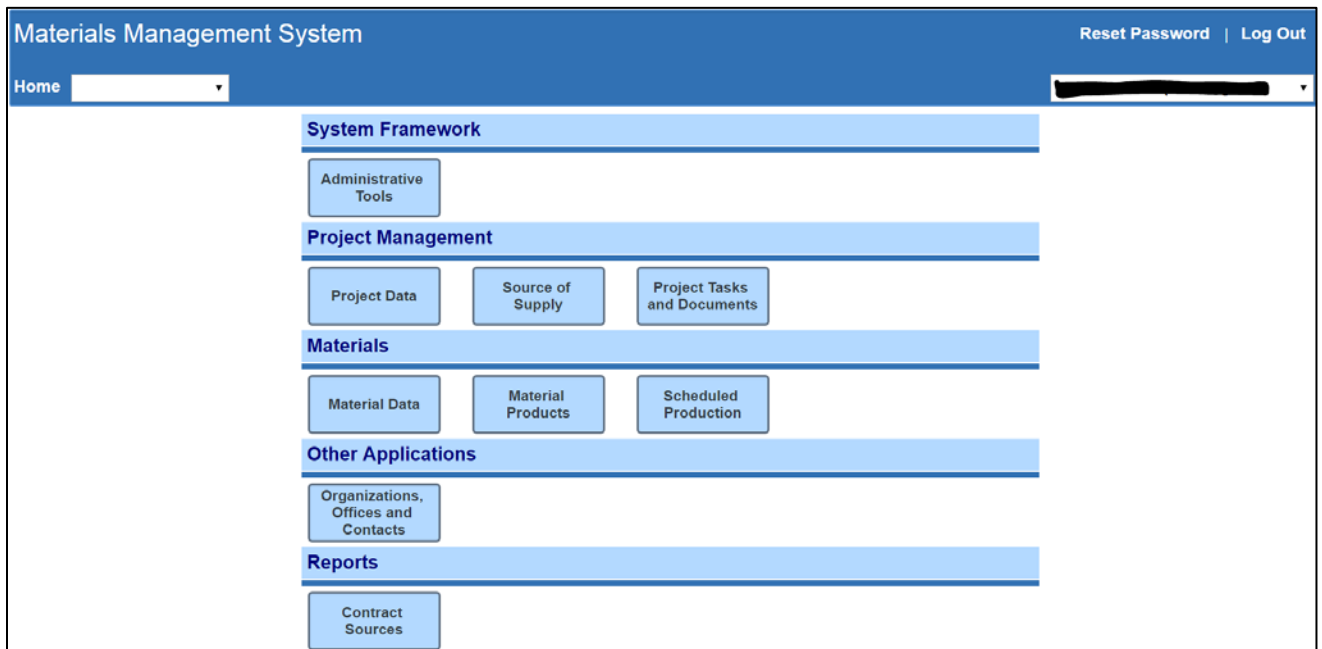


Figure 1: MMS Welcome Screen

2.2 External User Login

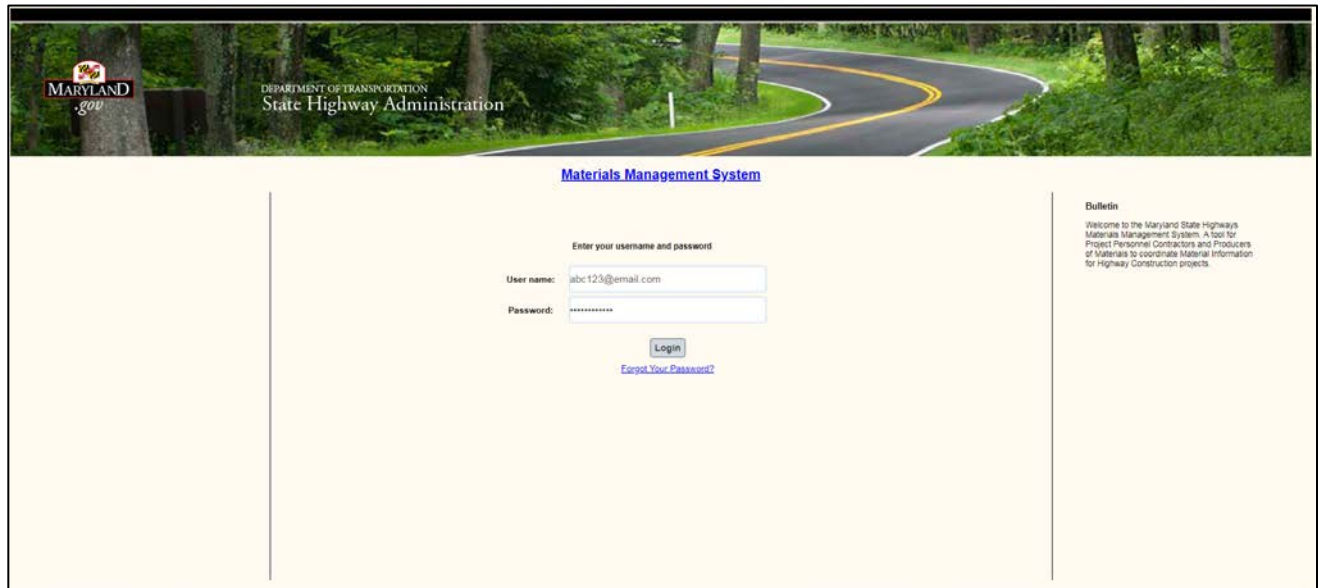
External user login into the MMS requires use of a user name (the user's full email address) and a password. This happens when users access the system via the internet.

To login to the Material Management System externally (via the internet), perform the following steps:

1. Go to <http://mms.sha.md.gov> on a web browser. Users will be required to enter their user name and password on the login screen. It is recommended that users write down and keep their password in a safe, readily accessible location.
2. Type in your user name. Your user name is your email address.

3. Enter your password and click

Login



The screenshot shows the login interface for the Materials Management System. At the top, there is a banner image of a winding road with trees, and the text 'MARYLAND .gov', 'DEPARTMENT OF TRANSPORTATION', and 'State Highway Administration'. Below the banner, the title 'Materials Management System' is centered. Underneath, there is a prompt 'Enter your username and password'. The 'User name:' field contains 'abc123@email.com' and the 'Password:' field is masked with asterisks. A 'Login' button is positioned below the password field, and a link for 'Forgot Your Password?' is located below the button. On the right side of the page, there is a 'Bulletin' section with a welcome message: 'Welcome to the Maryland State Highways Materials Management System. A tool for Project Personnel, Contractors and Producers of Materials to coordinate Material Information for Highway Construction projects.'

Figure 2: MMS Login Screen

4. If you enter an incorrect user name or password, the following screen is displayed:

Materials Management System

Please contact your Area Material Engineer or Material representative to initiate a new user request.
Username/Password do not match

Enter your username and password

User name:

Password:

[Forgot Your Password?](#)

Figure 3: Username/Password Do Not Match Screen

5. Contact your MMS administrator if you forgot your password and need to change it. Alternatively, if you have not been locked out of the system, you can use the forgot password option to reset your password. Users will be locked out after entering an incorrect password more than 3 consecutive times. Users will also be locked out after 60 days of inactivity, therefore it is recommended to login to the MMS system at least once every 60 days. Passwords must be changed every 90 days. The password creation rules are listed below.

External User Login (cont'd)

6. After initial login, users are prompted to change their passwords. The following prompt screen is displayed:

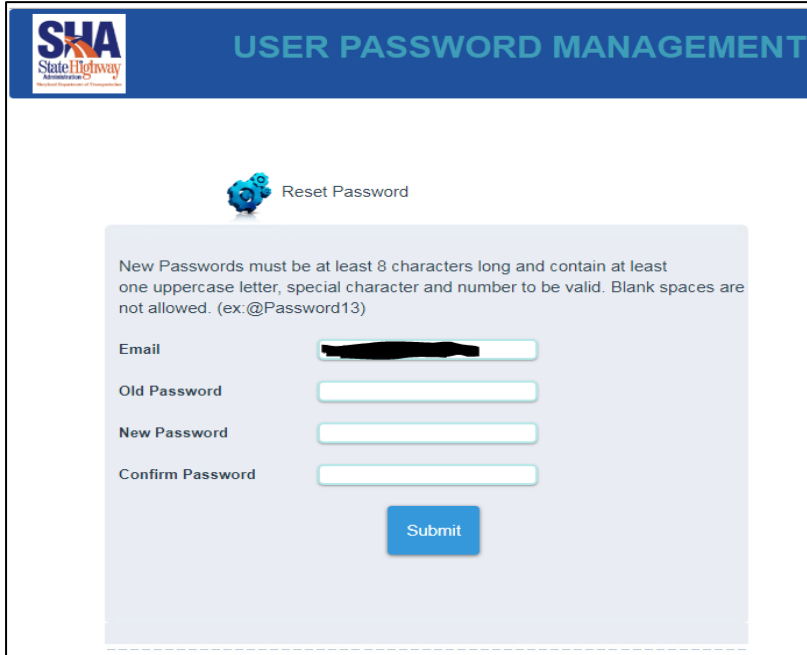


Figure 4: Password Administration Change Password Prompt Screen

7. The following minimum requirements must be met when changing a password.
1. Must be a minimum of eight (8) characters
 2. Must include at least one (1) capital letter
 3. Must include at least one (1) number
 4. Must include at least one (1) special character (! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~)
 5. Blank spaces are not permitted
 6. Account will be locked after 4 consecutive failed login attempts. Contact AME to reset account
 7. Prohibited from using passwords similar to previous password
 8. Prohibited from using any of your previous 10 passwords
 9. Account will be locked after 60 days of inactivity. Contact AME to reset
 10. Password must be changed every 90 days after which an account will be automatically locked.

Password Guidelines

When creating your new password, you will be required to enter your “Old Password.” The “Old Password” is the temporary password contained within this email below. Please manually type in each character and **do not copy and paste** what was sent to you. It is recommended that you login to the MMS at least once every 60 days to avoid an automatic lockout from the system. It is recommended that you write down your password and store in a secure location.

3 Source of Supply

One of the main goals of the Materials Management System is to submit sources of supply for materials that are being used on highway projects. All materials are associated with a Project Bid Item. The bid items are entered through another application that is part of Project Data, but this application may be used to add additional project-specific materials. The entire Source of Supply application requires a selection of a Contract Number.

3.1 Update Material Sources

The Material Sources tab screen allows users to associate additional materials with project bid items. This screen is also a reporting tool that enables users to review the status of a source submission.

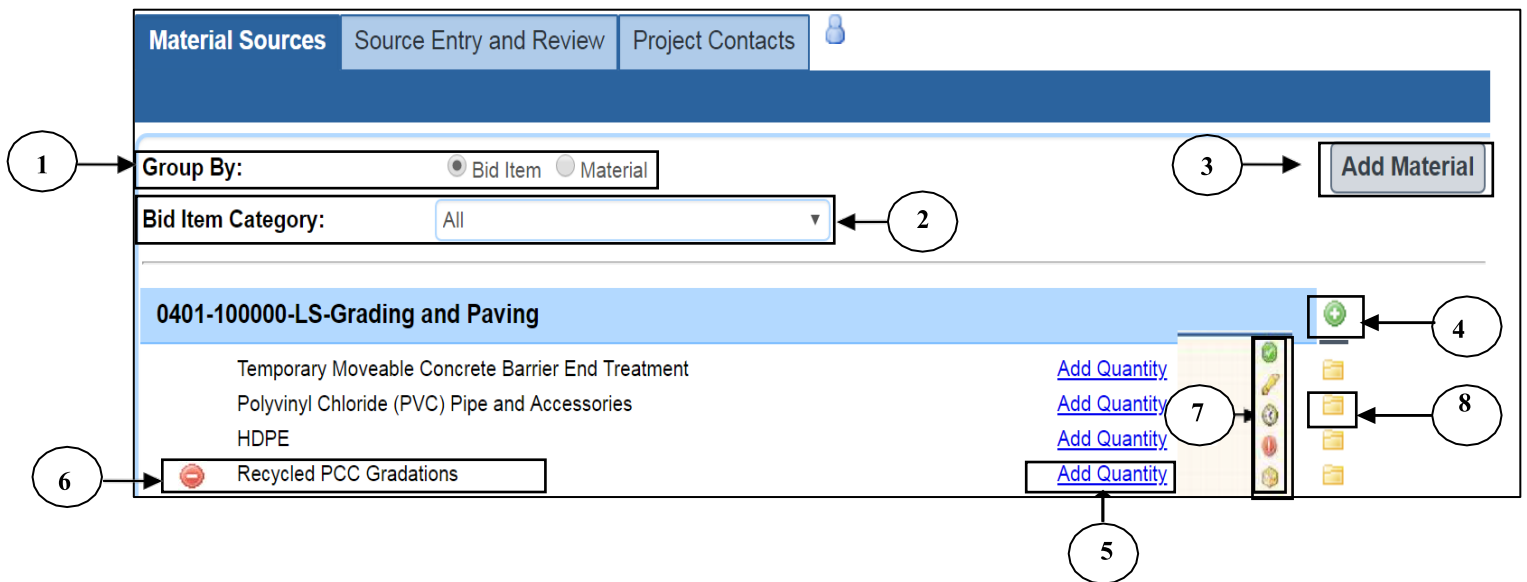


Figure 5: Update Material Sources

To update data in the “Material Sources” screen, perform the following steps:

1. Click on “Bid Item” or “Material” to display results either by Bid Items or by Sourced Materials.
2. When the “Bid Item” “Group By” radio button is selected, the “Bid Item Category” drop-down box will be displayed. Its purpose is to filter the list of bid items presented. If the Grouping is shown by “Materials,” this drop-down list filters or limits page-displayed results to materials of bid items per selected project (contract).
3. When the user clicks on the “Add Material” button, a popup window will appear and will prompt the user to select a bid item and its sourced material. (See Figure 6)

Update Material Sources (cont'd)

The screenshot shows a web form titled "Update Material Sources (cont'd)". It contains three dropdown menus and two buttons. Callout 3a points to the "Bid Item:" dropdown, which is set to "0401". Callout 3b points to the "Design Level Material:" dropdown, which is set to "Asphalt Mixtures". Callout 3c points to the "Sourced Level Material:" dropdown, which is set to "12.5mm DHMA". Callout 3d points to the "Save" and "Cancel" buttons at the bottom of the form.

Bid Item:	0401
Design Level Material:	Asphalt Mixtures
Sourced Level Material:	12.5mm DHMA

Save Cancel

Figure 6: Update Bid Item

Update Material Sources (cont'd)

To link a material with a bid item, perform the following steps.

- 3a. Select a bid item for the project in selection.
- 3b. Select a design level material for the project in selection.
- 3c. Select a sourced level material.

3d. Click the **Save** button to save or **Cancel** to exit.

4. Clicking on the “Add Material” icon (on a specific bid item) opens the same popup window as above, but with the bid item number already preselected. The user is prompted to select a sourced level material for the bid item.
5. Click on the link to input quantity on the material you associated with the bid item (see Figure 7).






The screenshot shows a rectangular popup window with a light blue border. At the top left, a callout circle labeled '5a' has an arrow pointing to a text input field. The input field is labeled 'Quantity:' and contains the text '500'. To the right of the input field is a dropdown menu with 'TON' selected and a downward arrow. A callout circle labeled '5b' has an arrow pointing to this dropdown menu. Below the input field and dropdown menu are two buttons: 'Save' and 'Cancel'. A callout circle labeled '5c' has an arrow pointing to the 'Save' button.

Figure 7: Enter Bid Quantity

To enter a quantity, perform the following steps.

- 5a. Enter the quantity of the Sourced Material being sourced in the “Quantity” field.
- 5b. Select the unit of measure of the Sourced material in the unit of measure drop-down box.

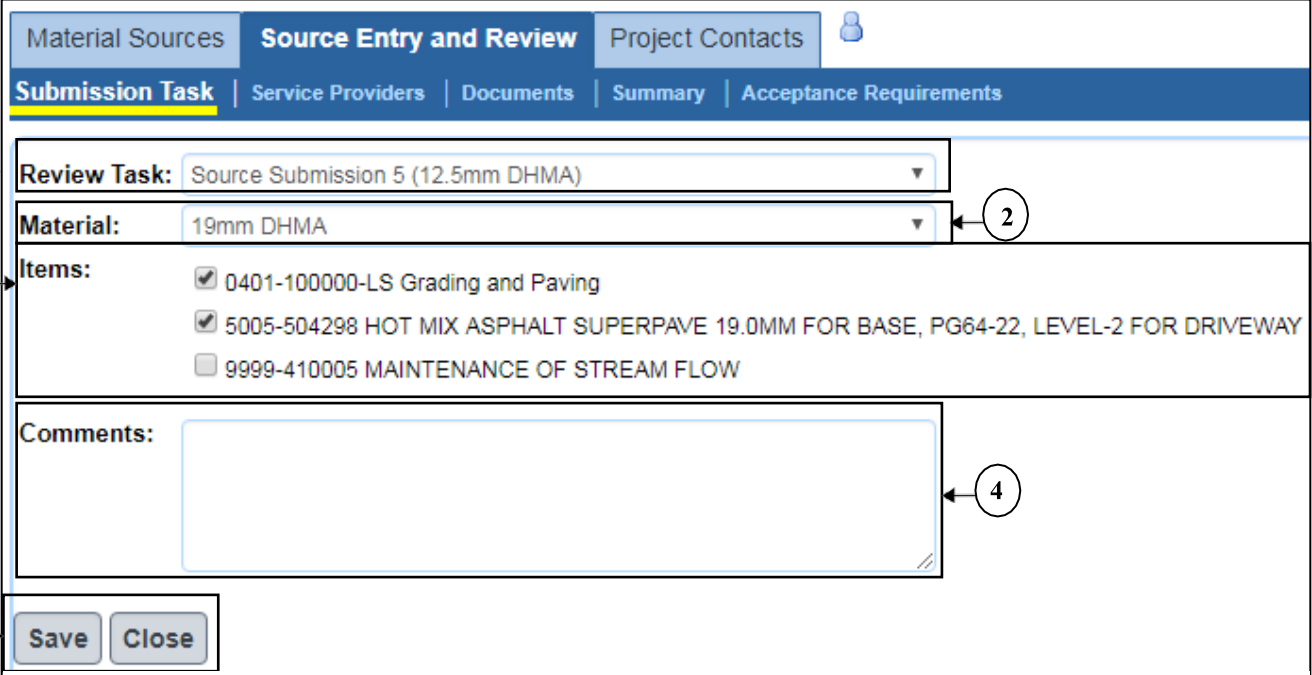
5c. Click **Save** to save or **Cancel** to exit the pop-up box.

6. Deletes the displayed source material from its displayed bid item.
7. Click on any of the following icons to navigate to Source Entry and Review tab screen. Each Icon implies a different submission status as given below.
 - () No Material has been submitted and submission is not created.
 - () A Source Supply submission is created but not submitted.
 - () There is presently a source submission review underway.
 - () There is an approved source of supply.
 - () The Source of Supply was rejected.
8. Clicking on the “Source of Supply History” icon will open a pop-out window to show the entire source submission history and review outcomes for the given bid item and material relation. (See Figure 8)

1001-12.5mm DHMA			
Producer	Supplier	Misc.	Outcome
Rock HMA Plant	Rock HMA Plant	Rock HMA Plant	Submitted Date: 04-MAR-10 Completed Date: Approved For Use Expiration Date:
Rock HMA Plant	Rock HMA Plant	Rock HMA Plant	Submitted Date: 04-MAR-10 Completed Date: Approved For Use Expiration Date:

Figure 8: Source of Supply Submission History Pop-up Box

3.2 Update Submission Tasks





The screenshot shows a web interface for updating submission tasks. At the top, there are tabs for 'Material Sources', 'Source Entry and Review', and 'Project Contacts'. Below these are sub-tabs for 'Submission Task', 'Service Providers', 'Documents', 'Summary', and 'Acceptance Requirements'. The main content area includes:

- 1**: A 'Review Task' drop-down menu currently showing 'Source Submission 5 (12.5mm DHMA)'.
- 2**: A 'Material' drop-down menu currently showing '19mm DHMA'.
- 3**: An 'Items' list with three entries:
 - 0401-100000-LS Grading and Paving
 - 5005-504298 HOT MIX ASPHALT SUPERPAVE 19.0MM FOR BASE, PG64-22, LEVEL-2 FOR DRIVEWAY
 - 9999-410005 MAINTENANCE OF STREAM FLOW
- 4**: A large text area labeled 'Comments' for entering notes.
- 5**: A button bar containing 'Save' and 'Close' buttons.

Figure 9: Update Submission Tasks

To update data in the “Source Entry and Review” “Submission Task” screen, perform the following steps:

1. Click on the “Review Task” drop-down box. The “Review Task” drop-down box enables the user to select a source submission or to create a new submission.
2. Select the “Material” drop-down box to show which material is associated with the project being sourced.
3. Select one or multiple bid items. The “Items” list box enables the user to select the bid item to which the source of submission refers.
4. Add comments regarding the submission underway in the “Comments” field.
5. Click  to update data or  to close the screen.

3.3 Update/Add Service Providers

The Service Providers screen enables the user to define which contractors are supplying and/or manufacturing materials for a given source of supply submission.

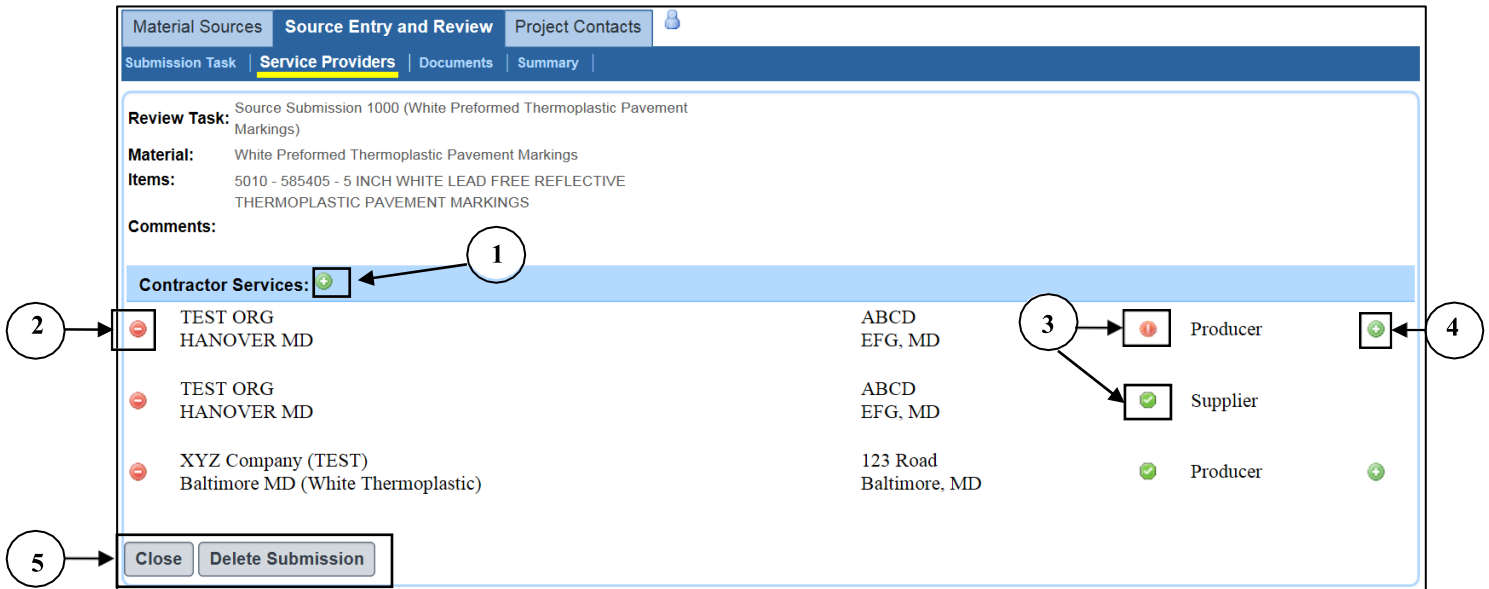


Figure 10: Update Service Providers

To update data in the “Source Entry and Review” “Service Providers” screen, perform the following steps:

1. Click on the add Contractor Services icon () to initiate a pop-up box in which service providers are entered for the specific source submission underway.
2. Click on the delete icon to delete the Service Provider shown.
3. The icon indicates the selected service provider is **not** qualified for sourcing on state projects. The icon indicates the selected service provider is qualified sourcing on state projects.
4. Click on this icon to open the pop-up window that will prompt the user to select a product that is approved and produced by the corresponding service provider (only applicable if a product is required for source approval).

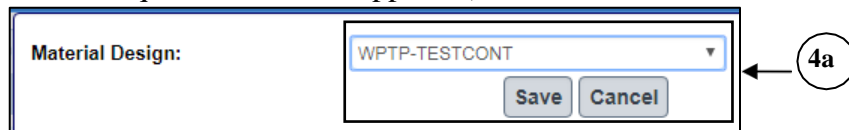


Figure 11: Product Selection

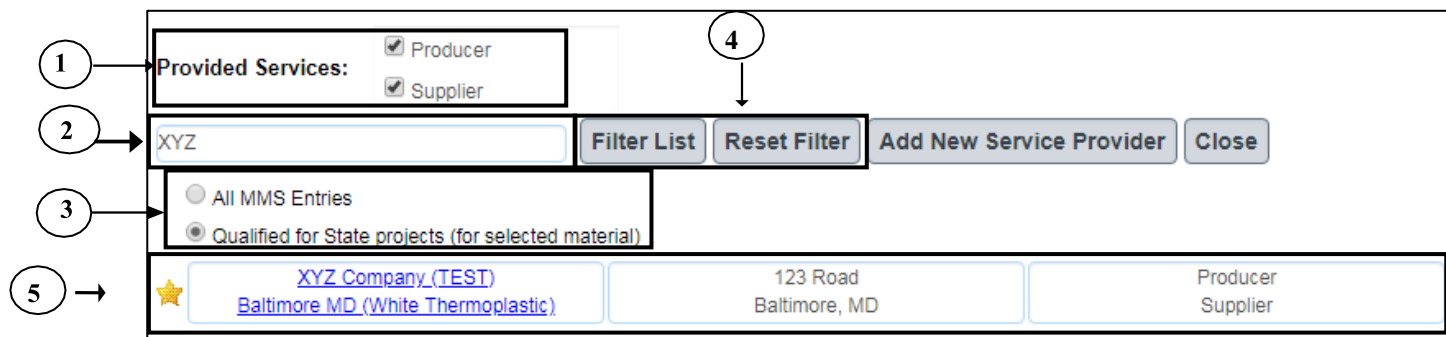
- 4a. Select the product you intend to source from the selected Service Provider.

Click to confirm the selection or to exit.

- Click [Close](#) to close the “Service Providers” screen or [Delete Submission](#) to delete the submission.

3.3.1 Update/Add Service Providers – Filtered Input

The “Service Provider” pop-up screen allows users to select a service provider that has been already processed in the past or to manually input a service provider. The following screen allows users to manually input a service provider.



<input checked="" type="checkbox"/> Producer <input checked="" type="checkbox"/> Supplier		4	
1	Provided Services:		
2	XYZ	Filter List	Reset Filter
3	<input type="radio"/> All MMS Entries <input checked="" type="radio"/> Qualified for State projects (for selected material)		
5	★ XYZ Company, (TEST) Baltimore MD (White Thermoplastic)	123 Road Baltimore, MD	Producer Supplier

Figure 12: Update Service Providers – Filtered Input

To update data in the “Source Entry and Review” “Service Providers” pop-up screen, perform the following steps:

- Select all applicable “Provided Services” of the facility being selected.
- If you know the name or address of the service provider you would like to source, enter it in the text box. Partial names or addresses work best. In this example, we can enter “XYZ” or “Balt.” The entries are not case sensitive.
- Select a radio button to choose whether you would like to filter the list of service providers that are qualified for state use or all MMS entries.

Note: The “All MMS Entries” option will include both (qualified and not qualified for state use) service providers. Selection of not qualified service providers may lead to rejection of the source submission.

- Click [Filter List](#) to display a list based on the radio button criteria you have selected. Clicking [Reset Filter](#) will clear the text box.
- Service providers that match your selected criteria will display in this list. The gold star indicates the service provider is qualified for sourcing on state projects. Click on the service provider’s blue link to select them as a source. (see Figure 12)

3.3.2 Update Service Providers – Manual Input

Figure 13: Update Service Providers – Manual Input

To manually add-in/update a service provider’s data in the “Source Provider Manual Entry” pop-up box, perform the following steps:

1. Select all applicable “Provided Services” of the facility being entered.
2. Enter the basic information of facility you would like to enter manually.
3. Click **Save** to save the facility information you entered, **Reset** to reset the values, or **Close** to close the form. This information will automatically be submitted to the Office of Materials Technology for review. Depending on the status of the facility you entered (qualified or not qualified), your source submission may be approved or rejected.

3.4 Add Source Entry and Review Documents

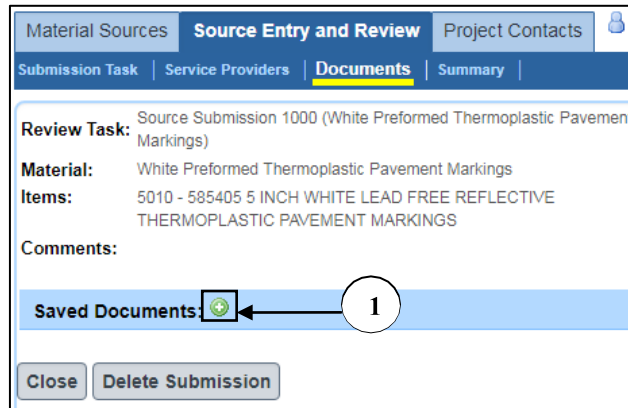


Figure 14: Add Review Documents

To upload supportive documentation to the source submission, perform the following steps:

1. Click on the upload documents icon () to initiate a pop-up box in which supportive documentation can be added to the source submission.
2. Enter all pertinent information:

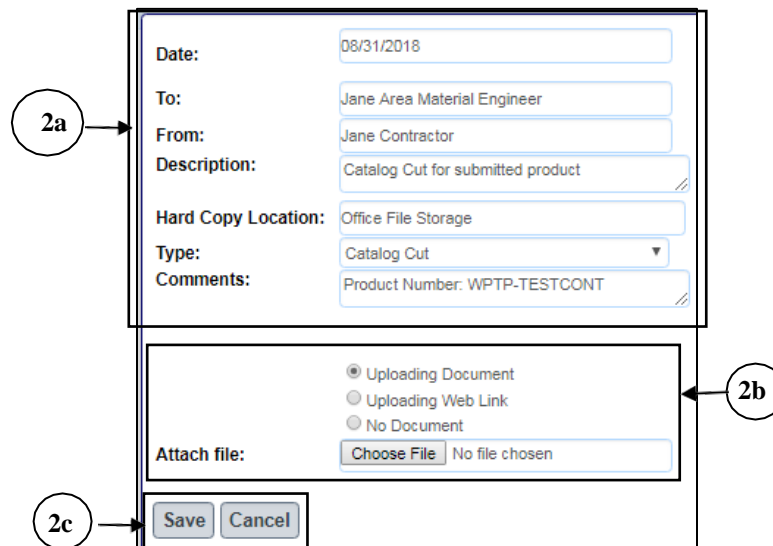


Figure 15: Enter Supportive Documentation Information

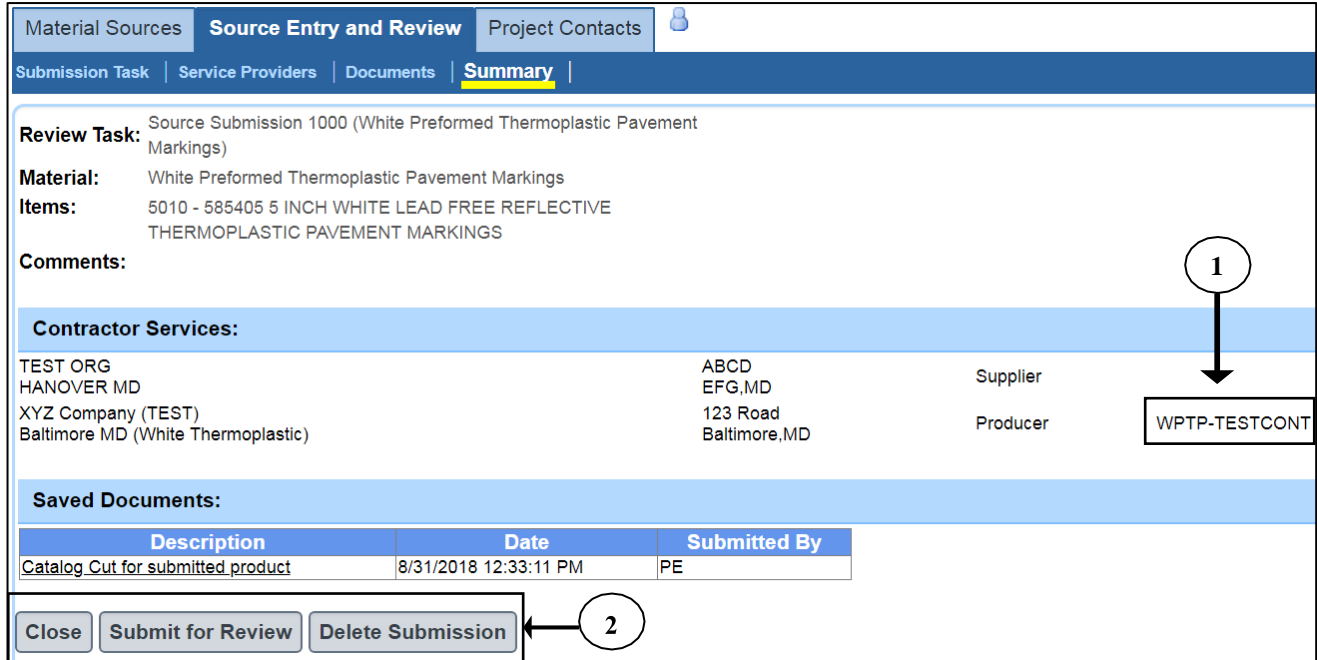
- 2a. Enter basic information on the facility you would like to enter manually.
- 2b. Select if you are uploading a document, web link, or no document at all.

Click on to open the dialogue and browse to the file's location. Selecting the "Uploading Web Link" radio button will allow you to enter a URL link to the supportive documentation.

- 2c. Click to upload the document or to exit without uploading.

3.5 Submit Entry for Review

The “Source Entry and Review” “Summary” screen summarizes information on the source submission process that is yet to be completed. The screen will only be editable to users with certain permission rights.



Material Sources | **Source Entry and Review** | Project Contacts

Submission Task | Service Providers | Documents | **Summary**

Review Task: Source Submission 1000 (White Preformed Thermoplastic Pavement Markings)

Material: White Preformed Thermoplastic Pavement Markings

Items: 5010 - 585405 5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS

Comments:

Contractor Services:

TEST ORG HANOVER MD	ABCD EFG,MD	Supplier	WPTP-TESTCONT
XYZ Company (TEST) Baltimore MD (White Thermoplastic)	123 Road Baltimore,MD	Producer	

Saved Documents:

Description	Date	Submitted By
Catalog Cut for submitted product	8/31/2018 12:33:11 PM	PE

Close | Submit for Review | Delete Submission

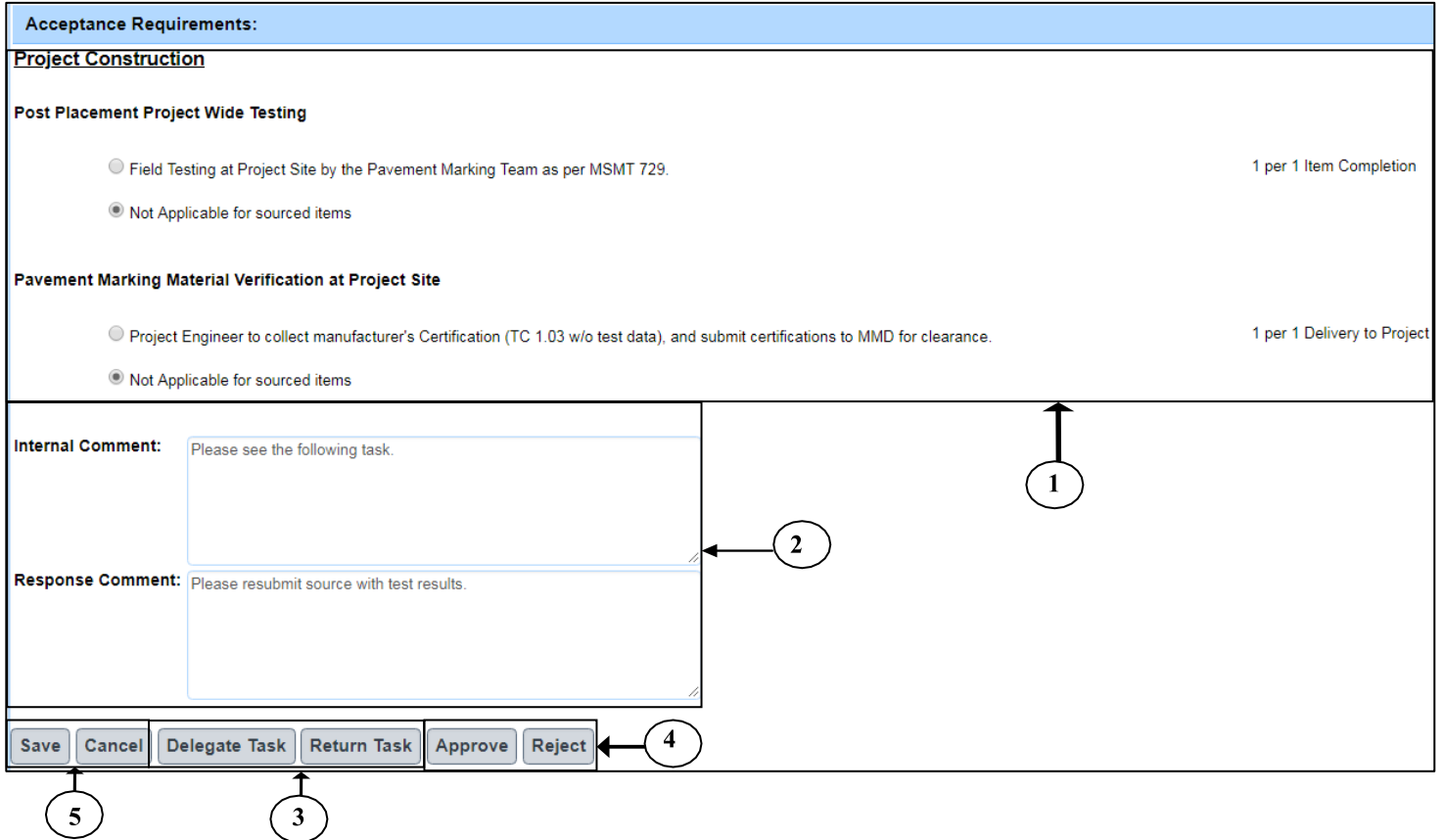
Figure 16: Submit Entry for Review

To update data in the “Source Entry and Review” “Summary” screen, perform the following:

- Note that the product you selected in the “Service Providers” tab appears in the summary as well.
- Click on the **Close** button to close the screen, **Submit for Review** to submit the source for review by the Office of Materials Technology, or **Delete Submission** to delete the submission.

3.6 Update Acceptance Requirements

The “Source Entry and Review-Acceptance Requirements” screen will only be available for source submissions that have already been carried out and are under review. This screen will only be accessed by users with certain permissions.



Acceptance Requirements:

Project Construction

Post Placement Project Wide Testing

Field Testing at Project Site by the Pavement Marking Team as per MSMT 729. 1 per 1 Item Completion
 Not Applicable for sourced items

Pavement Marking Material Verification at Project Site

Project Engineer to collect manufacturer's Certification (TC 1.03 w/o test data), and submit certifications to MMD for clearance. 1 per 1 Delivery to Project
 Not Applicable for sourced items

Internal Comment: Please see the following task.

Response Comment: Please resubmit source with test results.

Figure 17: Update Acceptance Requirements

To update data in the “Acceptance Requirements” screen, perform the following steps:

1. Click on the appropriate source “Acceptance Requirements” radio buttons. Selections are dependent on the Material being sourced. Listed on the right are the frequencies at which each task needs to be completed. In this example, these tasks are completed during the Project Construction Phase. Only users with certain privileges will have access to this part of the application.
2. Enter initial comments regarding the source submission.
3. Click to delegate the task of reviewing/inputting information on the source submission or click to return the delegated task back (see Figure 17).

Update Acceptance Requirements (cont'd)

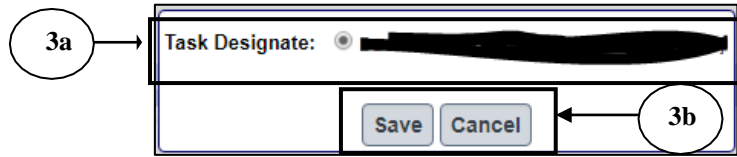


Figure 18: Select a Task Designee

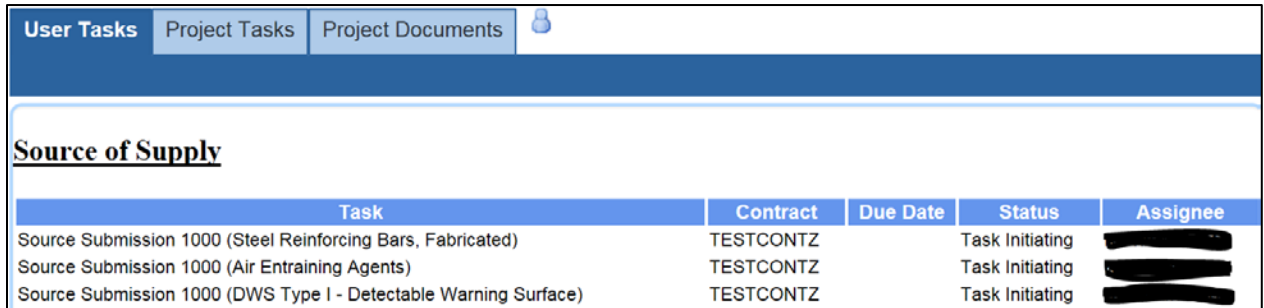
- 3a. Select the Source Review Task Designee from the “Task Designate” drop-down box.
- 3b. Click **Save** to save or **Cancel** to close the “Task Designate” pop-up box.
4. Click **Approve** to approve or **Reject** to reject the source submission.
5. Click **Save** to save the data changes or **Cancel** to cancel changes and exit the “Acceptance Requirements” screen.

4 Project Tasks and Documents

The Project Tasks and Documents module is a means to report various tasks and documents of a specific Project.

4.1 View User Tasks

The “User Tasks” screen is a tool to show any user what tasks he has assigned to him and what other tasks are available for him to work on and does not require selection of a contract.

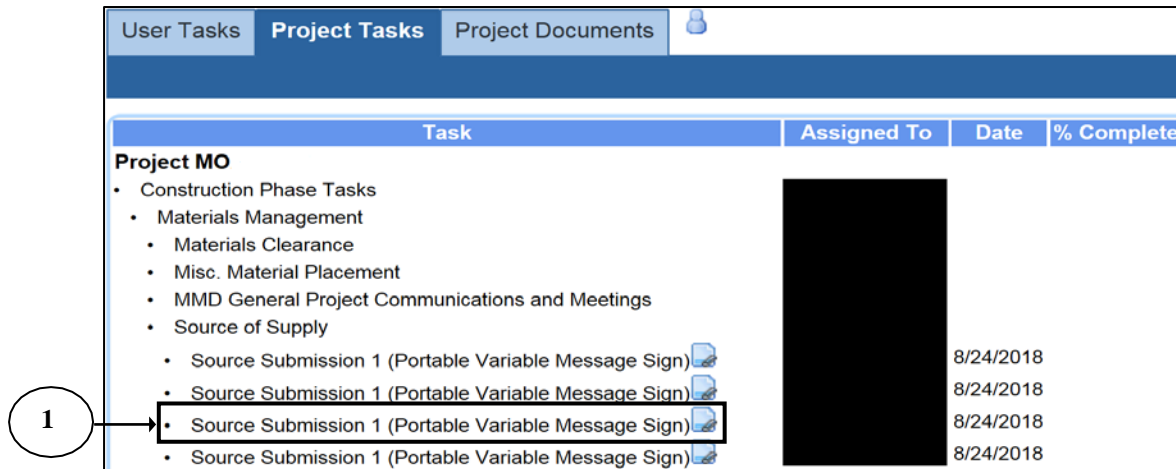


Task	Contract	Due Date	Status	Assignee
Source Submission 1000 (Steel Reinforcing Bars, Fabricated)	TESTCONTZ		Task Initiating	[Redacted]
Source Submission 1000 (Air Entraining Agents)	TESTCONTZ		Task Initiating	[Redacted]
Source Submission 1000 (DWS Type I - Detectable Warning Surface)	TESTCONTZ		Task Initiating	[Redacted]

Figure 19: View User Tasks

4.2 View Project Tasks

The “Project Tasks” screen is a tool to provide a hierarchical view of all tasks that are being worked on for a given project. The user must select contract number for this application to function properly.



Task	Assigned To	Date	% Complete
Project MO			
• Construction Phase Tasks			
• Materials Management			
• Materials Clearance			
• Misc. Material Placement			
• MMD General Project Communications and Meetings			
• Source of Supply			
• Source Submission 1 (Portable Variable Message Sign)	[Redacted]	8/24/2018	
• Source Submission 1 (Portable Variable Message Sign)	[Redacted]	8/24/2018	
• Source Submission 1 (Portable Variable Message Sign)	[Redacted]	8/24/2018	
• Source Submission 1 (Portable Variable Message Sign)	[Redacted]	8/24/2018	

Figure 20: View Project Tasks

Number	Description
1	Source Submission Number: Shows source submissions that have attached documents on file.

4.3 View Project Documents

The “Project Documents” screen lists all documents that are associated with a given project. It is a list of documents grouped by document type and ordered by date. The user must select a contract number for this application to function properly.


User Tasks				Project Tasks				Project Documents 			
Catalog Cut											
Document				Date	To	From					
Catalog Cut for submitted product				8/31/2018		Area					
						Materials PE					
						Engineer					
General Correspondence											
Document				Date	To	From					
balaji				3/30/2010	balaji	balaji					
balaji				3/30/2010	balaji	balaji					
test				3/31/2010	test	test					
test web link				3/31/2010	me	vou					

Figure 21: View Project Documents

5 Material Products Application

The Material Products application enables users to define specific material products that are used on state projects. This tool describes materials that are produced and provided for the state use on MDOT-SHA roadway projects. Specific OMT users can enter, update and validate product information and submit their specific product information. This module of the MMS may not be accessible by all users of the MMS.

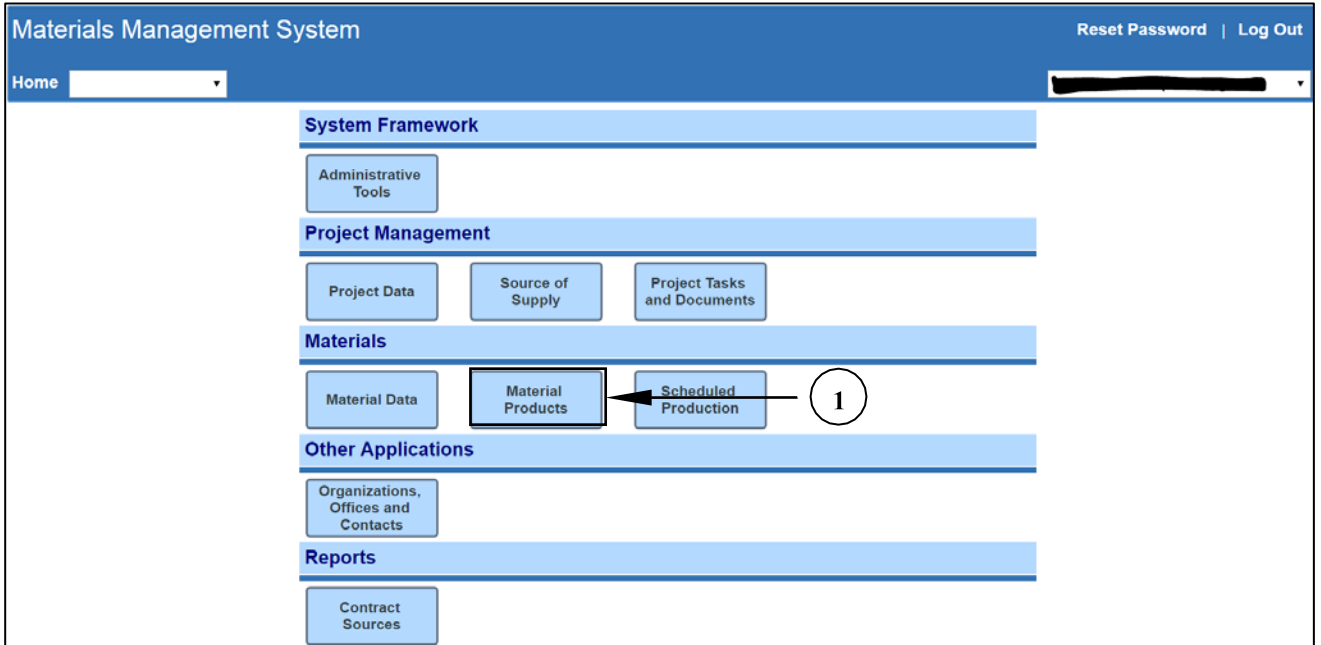


Figure 22: Materia Products Link

Number	Description
1	Material Products Link: From the MMS Welcome screen, click on the Material Products link to open the Search for Material Products screen (see Figure 22).

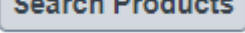

5.1 Search for Material Products

The screenshot shows a web interface for searching material products. At the top, there is a blue header with the text 'Search' and 'General'. Below the header, there are two input fields: 'Product ID:' and 'Material Category:'. The 'Product ID' field is highlighted with a circle labeled '1'. The 'Material Category' field is highlighted with a circle labeled '2'. To the right of these fields, there is a dropdown menu with radio button options: 'All Numbers', 'Under Review', 'Active', 'Expired', and 'Rejected'. This dropdown menu is highlighted with a circle labeled '3'. At the bottom of the form, there are two buttons: 'Search Products' and 'Clear'. The 'Search Products' button is highlighted with a circle labeled '4'.

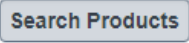
Figure 23: Search for Material Products

To search for material products, perform the following steps:

1. To search for a particular product, enter the Product ID in the “Product ID” field.
2. Click on the “Material Category” drop-down box and select a material category. The “Material Category” drop-down displays the type of material the product is satisfying. This list is populated with sourced level materials only.
3. To search for materials for a current project, check the Materials for Project checkbox and click the appropriate radio button selection. Choices are “All Numbers,” “Under Review,” “Active,” or “Expired.”

4. Click the  button to perform a search of a material product or  to clear the screen. The results of the search are displayed (see Figure 24).

TIP: The quickest way to search for all material products is by clicking on the

 button after the default blank screen is displayed.

5.2 View Material Products Details

Figure 24: View Material Products Search

To search for a material product, perform the following steps:

1. Click on the Material Product link to view details of the product.

Figure 25: Material Product Detail - General Tab