

## Preparing Data, Folder Structure, Blank Database and Performing Data Import

### Table of Contents

Data Preparation.....	2
Geographic Information System (GIS) Data.....	2
Real Property Inventory (RPI) Data.....	3
Potential Explosives Sites (PES) Data.....	4
Standard ESS Database Folder Structure.....	5
Create Blank RPI Database.....	6
Import RPI Data.....	9
Create Blank Facility Database.....	15
Import PES Data.....	21

**NOTE:** Instructional Guides #3, 4, 5 and 6 are now combined into this one instructional guide.

**NOTE:** The ESS software will link the GIS, RPI, and PES data sets using the facility number. **Facility number values must be formatted the same in all three data sets to link properly.**

## 1. Data Preparation

The ESS software uses existing installation **GIS map data** combined with **Real Property Inventory data** and **Potential Explosives Sites (PES) data** to calculate, analyze, and generate ESQD arcs. Before starting the ESS software, the GIS, RPI, and PES data should be prepared for use with the ESS software. Below are a series of tips to help you collect, analyze, and format your database information. It is critical that you observe these tips in order for the data import to be done efficiently.

## 2. Geographic Information System (GIS) Data:

A. ESS uses GIS data for:

- (1) The map window display.
- (2) Spatial analysis of separation distances between map features.
- (3) Detection of barricaded facilities using line of site between features.
- (4) Development of site plan drawings.

B. GIS data is usually obtained from the **Installation DPW/GIS POC**, command regional office, or by special request can be obtained from US Army MAPPER. Image requests can be submitted through <https://mapper.army.mil/>

Ensure the acquisition and maintenance of GIS data is coordinated with the Installation DPW/GIS POC, command regional office. The Installation DPW/GIS POC should have the latest version of the GIS data. Changes you would like to have made to the GIS data should be implemented through the Installation DPW/GIS POC.

- (1) GIS data must be in an ESRI shapefile format or stored in a geodatabase.
- (2) Each GIS layer must have one field that can be used for unique ID numbers. This field must be completely populated without any null or duplicate values.
- (3) For each GIS layer, the ESS software will use facility number and name/description attributes. These attributes are optional but will be used to identify features and link to other data sets.
- (4) ESS will recognize SDSFIE 2.6 attributes by default. If attributes do not follow SDSFIE 2.6, the custom attribute fields can be identified and selected during the GIS import process.
- (5) Buildings and PES facilities must be represented as polygons. Attributes for building or facility number and name will be used.
- (6) Roads must be represented as polygons or centerlines.
- (7) The installation boundary layer must be represented as a polygon
- (8) The polygons for Earth Covered Magazines (ECM) must represent the storage room footprint and not the extent of the earthen berm.

(9) The ESQD arcs calculated and generated using ESS use the GIS Facility polygons to develop the graphic arcs. It is very important the facility polygons are the correct length, width, and are in the proper location. If the facility polygons are not accurate, the ESQD arcs generated will not be accurate. This may result in a violation between PES and ES facilities.

(10) All GIS layers used with ESS shall be in the same coordinate system. Any GIS layer can be used with ESS. Normally, the most common layers used are listed below:

- (a) buildings, both a ES and ES
- (b) used to identify public and non public transportation routes
- (c) delineates the base boundary
- (d) , and other datasets as required

**NOTE:** AutoCAD drawings maybe imported for reference display, but cannot be used for analysis.

### C. GIS Attributes Used by ESS

(1) **ID:** Each GIS layer must have one attribute field that that can be used as a unique ID. It must be completely populated without any null or duplicate values. If using SDSFIE layer, the SDSFIE ID field applies here.

(2) **Facility Number:** Each GIS layer must have one attribute filed that can be used to represent the facility number or name of the feature. It is recommended that the Facility Number be completely populated to make facility identification easy.

(3) **Facility Description:** Each GIS layer must have one attribute field that can be used to represent a description of the facility or feature. Nulls and duplicate values are okay.

## 3. Real Property Inventory Data:

A. Real Property Information (RPI) data is used with the ESS software to indicate the use of each facility. The ESS software reads the Category Codes in the RPI data and automatically translates the information into three letter Type Codes that define the general use of a facility.

(1) The RPI data comes from the Navy INFADS, Army IFS, Air Force ACES, or Army National Guard PRIDE database. This data can usually be downloaded in **Excel or text format** and converted to **MS Access format**.

(2) Ensure that the acquisition of RPI data is coordinated with the Real Property office at the base. The Real Property office will have the latest version of the RPI data. Changes you would like to have made to the RPI data should be implemented through the Real Property office.

(a) RPI data must be stored in a Microsoft Access database table (.mdb) or Excel Spreadsheet (.xls).

**NOTE:** The RPI data shall be formatted as ‘text’ and not as a number or any other format.

**NOTE:** The ESS software will link the GIS, RPI, and PES data sets using the facility number.

**Facility number values must be formatted the same in all three data sets to link properly.**

(b) RPI table must contain data for:

- I. Facility Number
- II. Facility Name or Description
- III. Facility Category Code

#### 4. Prepare PES Data

Potential Explosives Sites (PES) data is used with the ESS software to define the Net Explosive Weight (NEW) and properties of each explosives storage and handling location. **This information is usually managed by the Installation Safety Office.**

##### A. PES data requirements:

- (1) PES data must be stored in a Microsoft Access database table (.mdb) or Excel spreadsheet (.xls).
- (2) The PES data must consist of the following:
  - (a) Facility Number
  - (b) Facility Name
  - (c) PES Type (AGM, ECM, EOL, OSM, etc...)
  - (d) Net Explosive Weight for HD 1.1, 1.2.1, 1.2.2, 1.2.3, 1.3, 1.4, etc
  - (e) ECM Headwall Type (Undefined, 3-Bar, or 7-Bar)
- (3) If available:
  - (a) Front Barricaded (True/False)
  - (b) Length (internal and external dimensions of ECMs)
  - (c) Width (internal and external dimensions of ECMs)
  - (d) Volume (ft<sup>3</sup>) of ECMs

**B.** ESS can create a blank PES database in Microsoft Access Format, preconfigured with the default fields. If the default fields are not used, they can later be assigned during the PES import procedure. The data can then be input into the PES database. If the PES data already exists in MS Access or Excel format, it can be imported directly into the ESS software.

**Note:** The ESS software will link the GIS, RPI, and PES data sets using the facility number. **Facility number values must be formatted the same in all three data sets to link properly.**

## 5. Standard ESS Database Folder Structure

Preparing the folder structure for ESS is again critical for proper operation of the program. You must identify the folder structure on your computer or network for ESS input and output files. These folder locations can be in any drive/folder, HOWEVER, It is best to put them on the root directory of the system you plan to run the program on. Example: C:\ESS\Redstone\Attributes

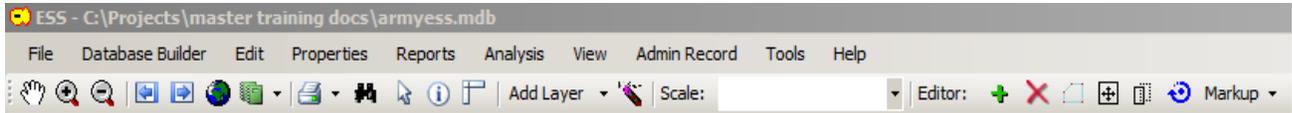
### A. Main ESS Project Folder:

- (1) **Subfolders** (These subfolders will be standard for all Army installations)
- (a) **Attributes:** Subfolder containing the PES and RPI data for input.
- (b) **GIS\_Data:** Subfolder containing the GIS data.
- (c) **Image:** Subfolder containing the aerial imagery (usually sid, tif, or jpg).
- (d) **Logs:** Subfolder used for output files; ESS will write text file logs of its operations to this folder.
- (e) **Master\_Plan:** Subfolder used to store ESS generated Site Analysis and ESQD Arc data in GIS format.
- (f) **Packages:** Subfolder used to store ESS generated Site Plan Package files.
- (g) **Temp:** Subfolder used for temporary space as ESS processes and analyzes the data.

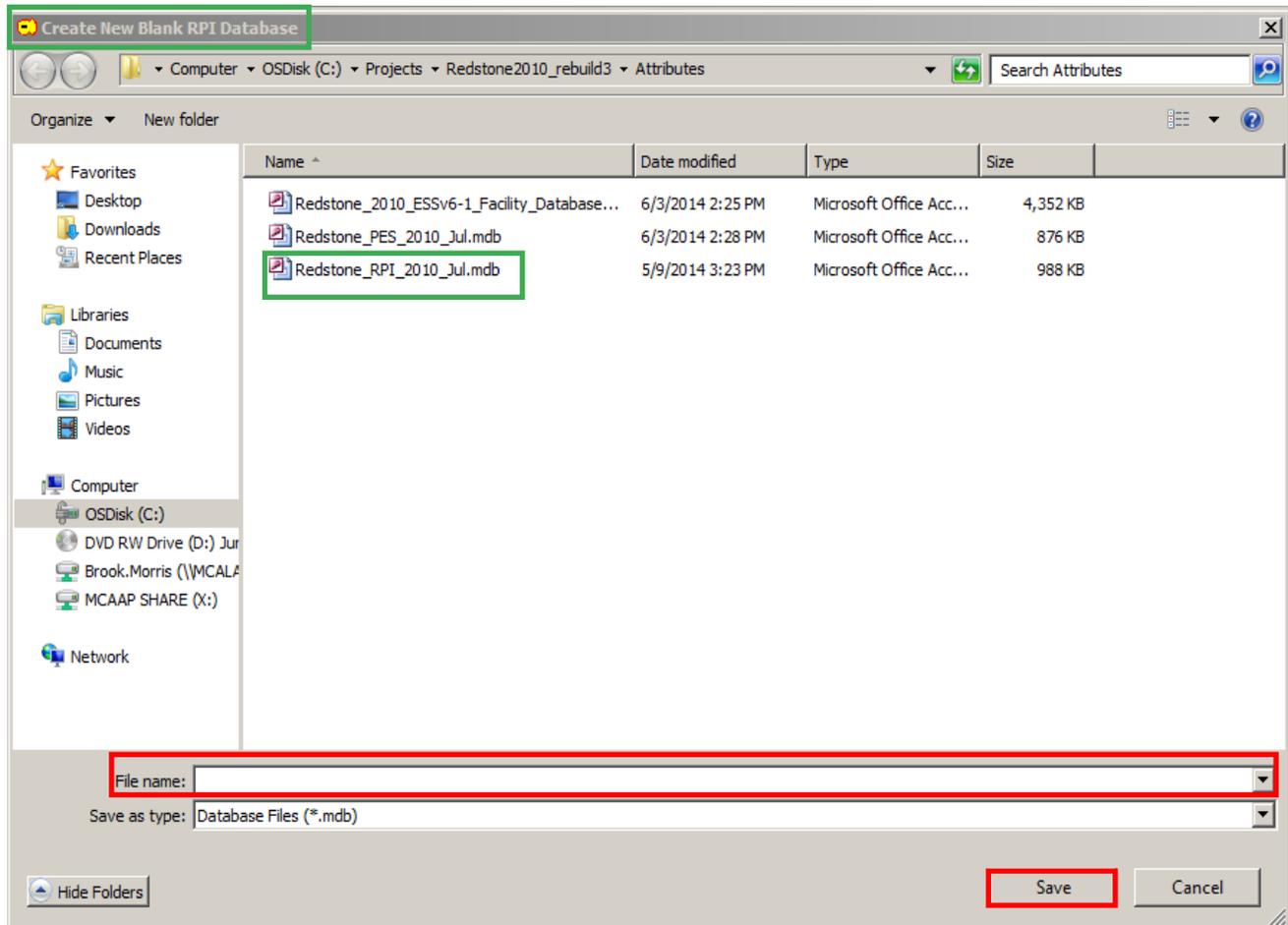
## 6. Create Blank RPI Database

The following instruction will walk you through the creation of a blank RPI database. This will allow you to import your RPI data obtained from the installation DPW/Real Property Office.

- A. Go into your **ESS Program**.
- B. Once the program is up, go to the **top tool bar** as seen below and click on **Database Builder > RPI Data > Create Blank RPI Database**

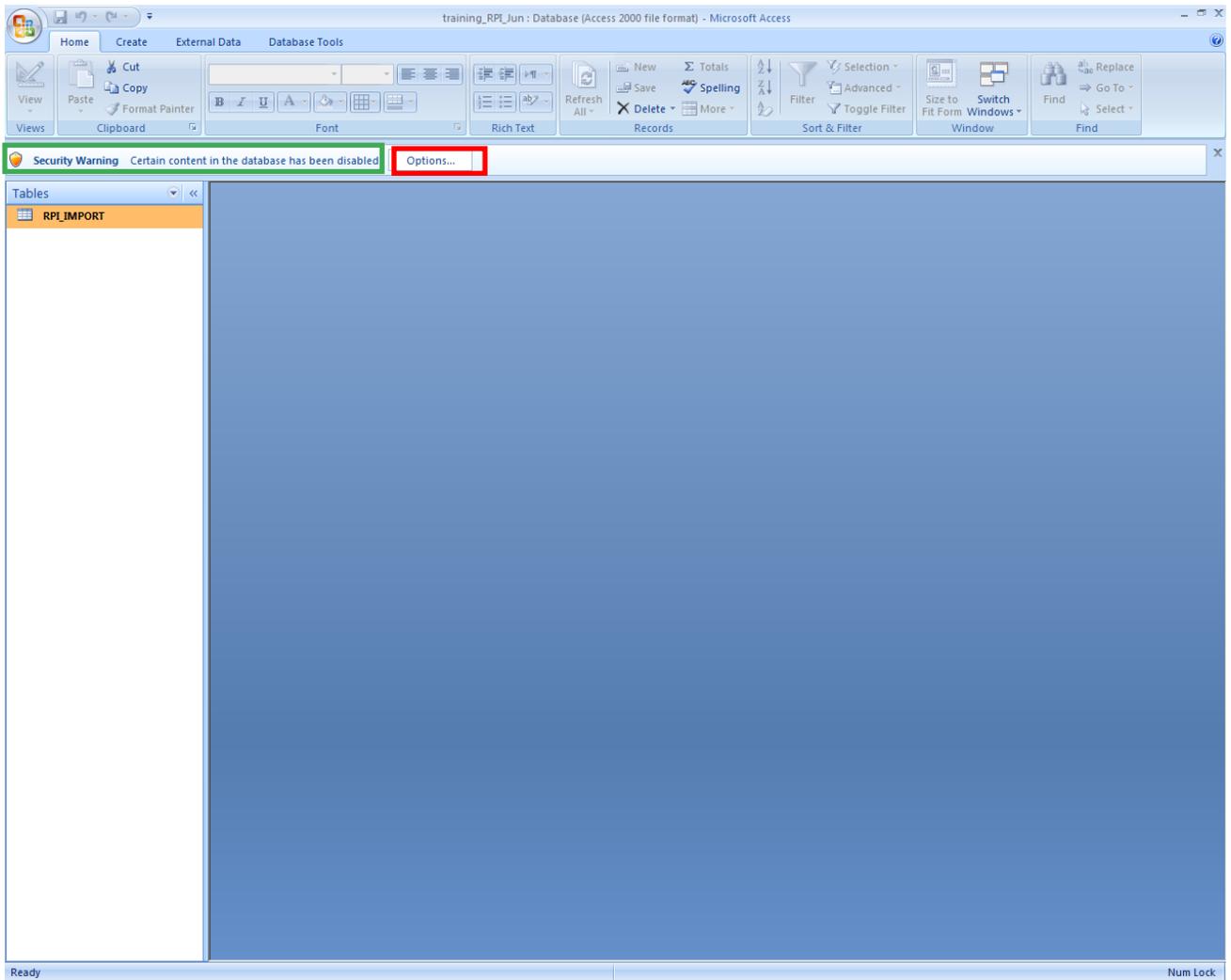


- C. This will bring up the **Create New Blank RPI Database** window below.

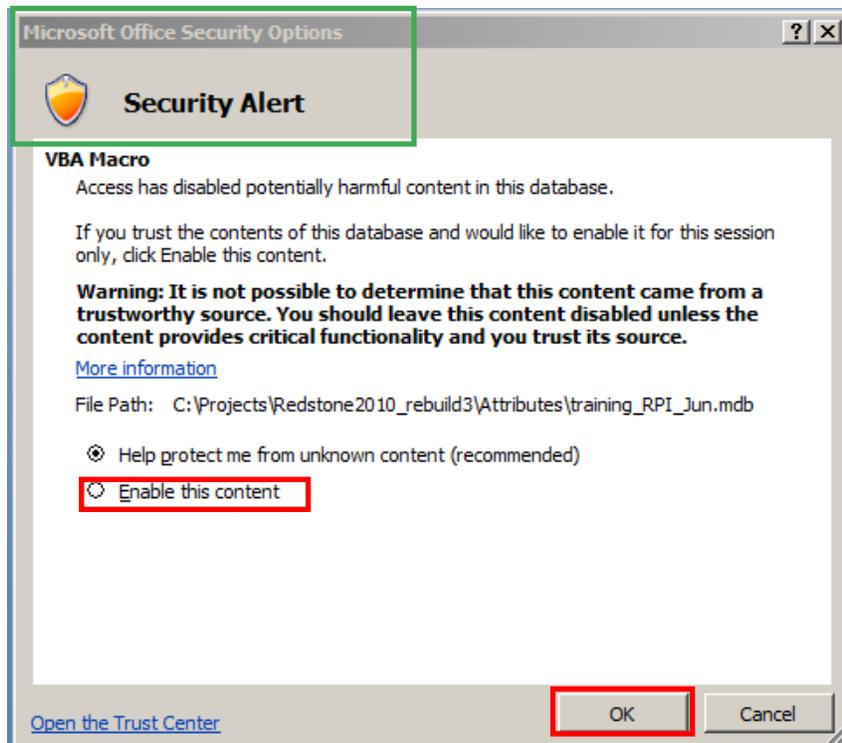


- D. In the **File Name** box create a name for your RPI database. It is highly suggested that your name reflect what database it is: (Ex. \*\_RPI.mdb; \*\_PES.mdb). If you note the existing files at the top center of the picture you will note a file named **Redstone\_RPI\_2010\_Jul.mdb** as an example.

- E. Click on the **Save** button when your file name has been entered.

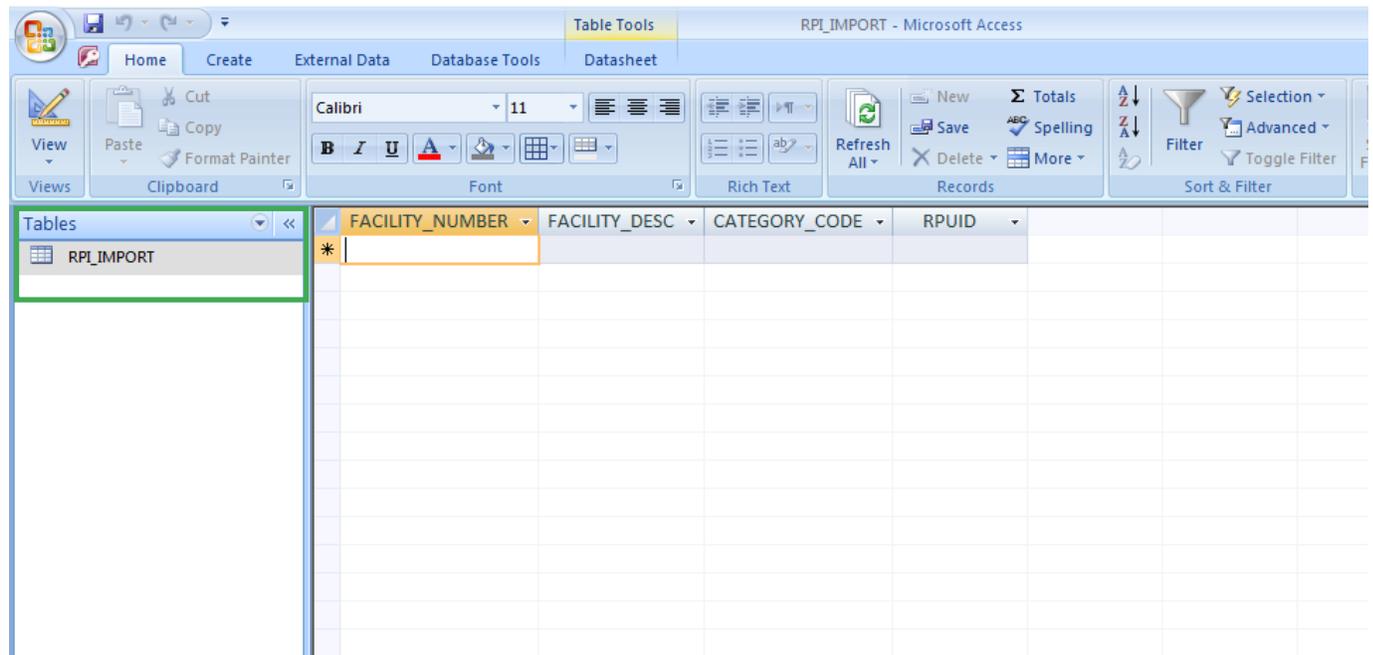


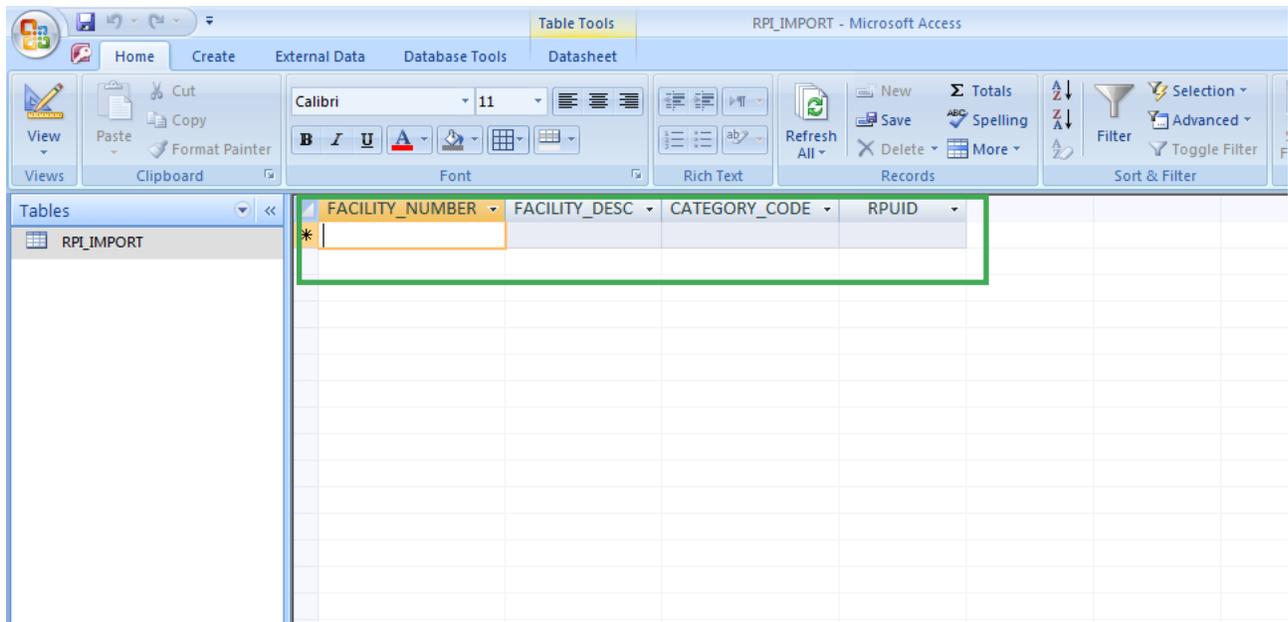
F. The **Empty RPI Database** window will then appear as seen above. In the center of the database window will be a **security warning** and an Options box to the warnings right. Click on the **Options** box.



G. The **Security Alert** window will appear as seen above. Click on **Enable this content** and then click on **OK**.

H. The blank RPI database will open in Microsoft Access. Note the image below, there is one table, called **RPI\_IMPORT**.





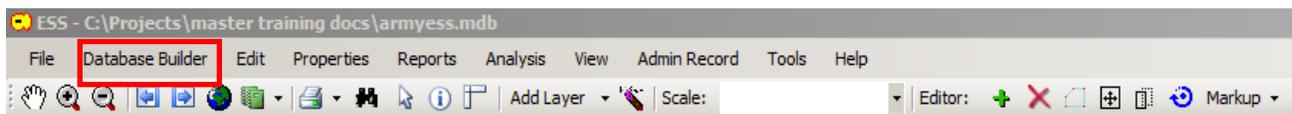
I. Note the default fields in the RPI Table: **Facility\_Number**, **Facility\_Desc**, **Sub\_Category\_Code**, and **RPU\_ID**.

J. Now that you have created the blank database you can proceed with populating the table with data. Make sure the facility numbers match those in the GIS data or future GIS data. You may need to coordinate with DPW/GIS department and perform a review of the RPI data for facility number format.

## 7. Import RPI Data

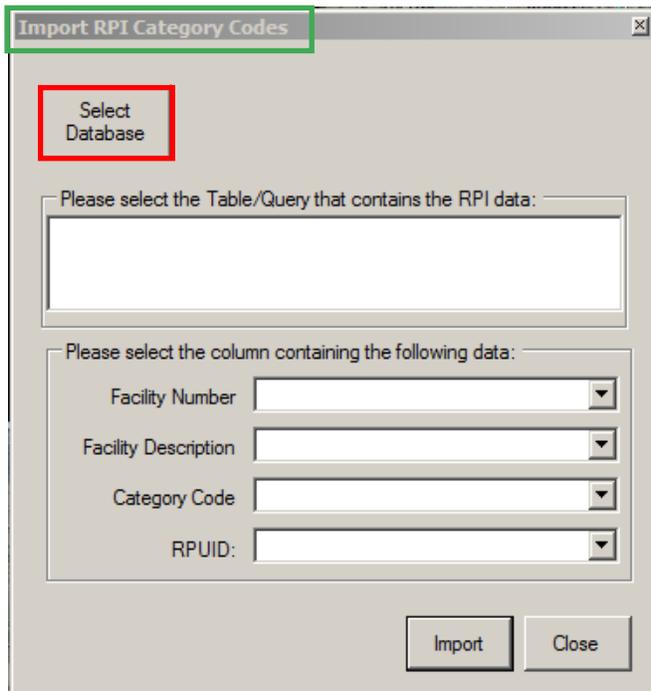
Once the RPI database has been created by obtaining existing data or by populating a blank RPI database, you can use the following steps to import the RPI data into ESS.

A. Go to your top tool bar and click on **Database Builder**



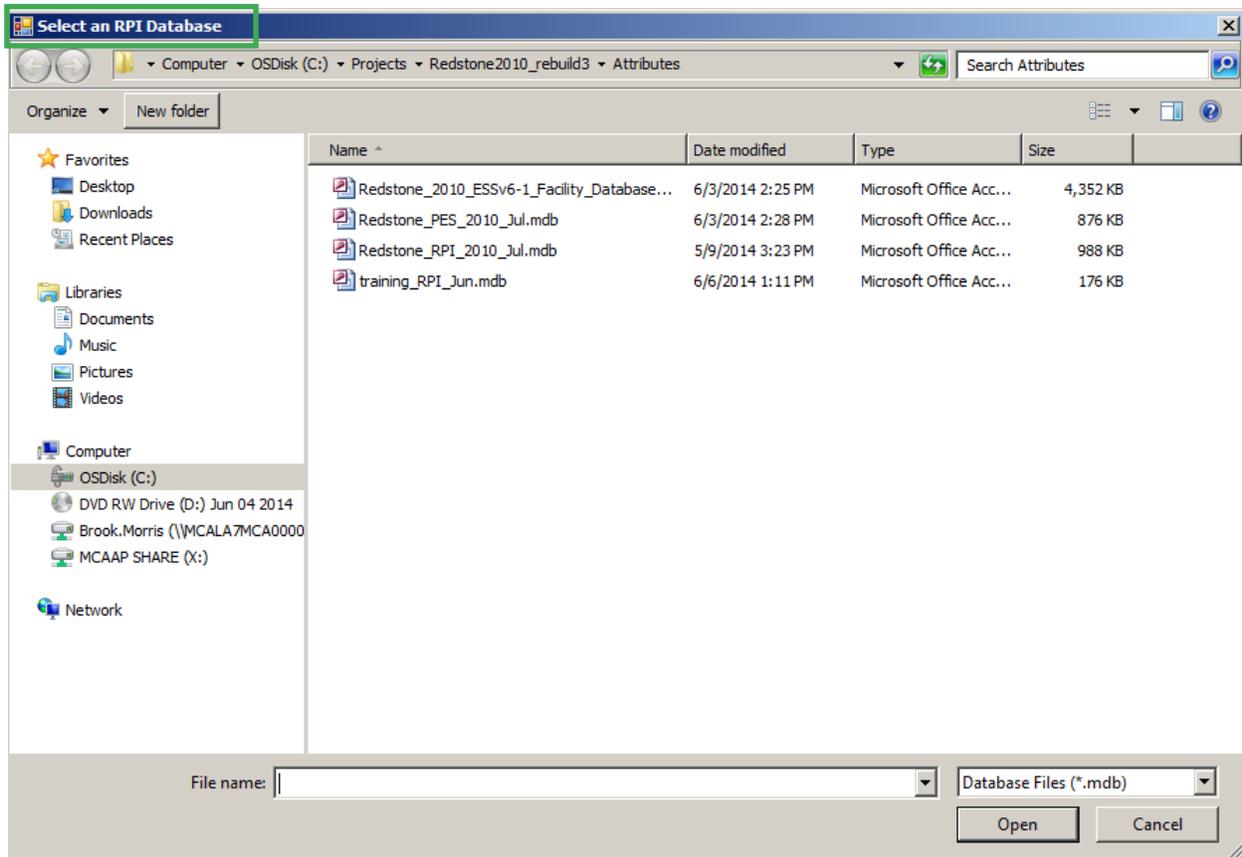
B. After clicking on **Database Builder**, Select **RPI Data**, then select **Import RPI Data**

C. This will open up the **Import RPI Category Codes** window below.

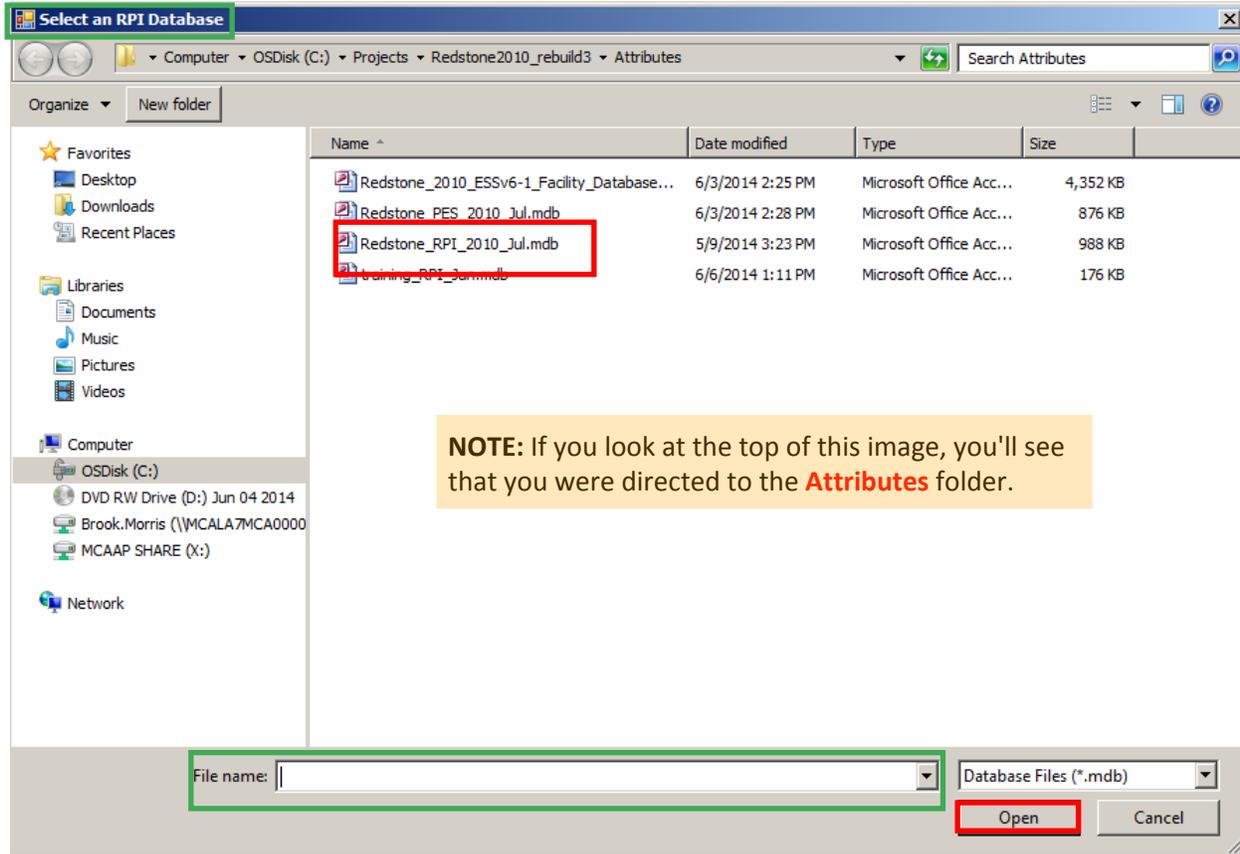


**NOTE:** You are being directed to the attributes folder. Select the RPI database you created. The default file type is a MS Access (\*.mdb) file. If importing an Excel spreadsheet, select the "Files of type:" pull down menu at the bottom right of the image below to select "Spreadsheet File (\*.xls)."

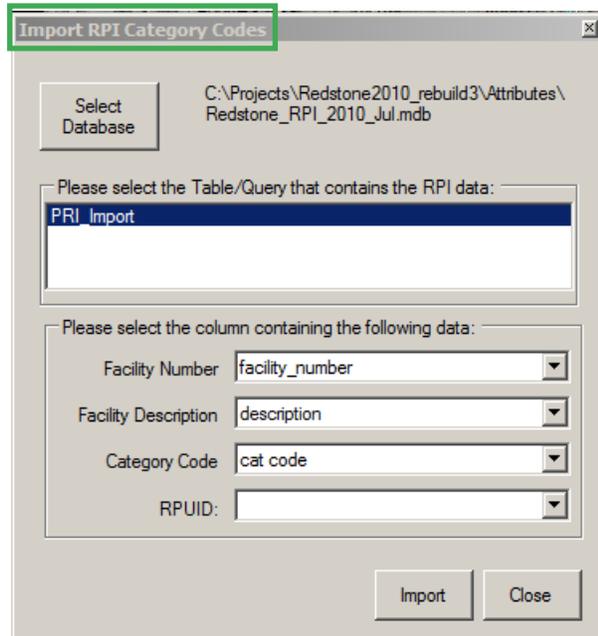
D. Click on **Select Database** in the window above. This will open up the **Select an RPI Database** window as seen below.



E. In the **Select an RPI Database** window you will see a file that you named. Click on the file created in the previous step 6D (Create Blank RPI Database) and it will fill in the File Name box below.



F. Click the **Open** button in the lower left corner. This will take you back to the **Import RPI Category Codes** window below.



**NOTE:** This step of the process is very similar to the **New Database Wizard Process, Step 9A, Add RPI Data.**

G. In the **Import RPI Category Codes** window below you will notice it has changed by populating the **fields from the table** you are about to import.

Import RPI Category Codes

Select Database C:\Projects\Redstone2010\_rebuild3\Attributes\Redstone\_RPI\_2010\_Jul.mdb

Please select the Table/Query that contains the RPI data:

PRI\_Import

Please select the column containing the following data:

Facility Number facility\_number

Facility Description description

Category Code cat code

RPUID:

Import Close

**NOTE:** If those fields do not contain the values you want, you can choose the appropriate field by clicking on the dropdown list. Make sure your data columns look like the fields in the image to the right. If you have the RPUID go ahead and put it in, but it is not necessary.

H. In the **Import RPI Category Codes** window below click on the **Import** button.

Import RPI Category Codes

Select Database C:\Projects\Redstone2010\_rebuild3\Attributes\Redstone\_RPI\_2010\_Jul.mdb

Please select the Table/Query that contains the RPI data:

PRI\_Import

Please select the column containing the following data:

Facility Number facility\_number

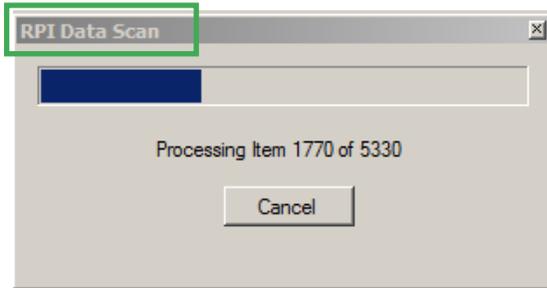
Facility Description description

Category Code cat code

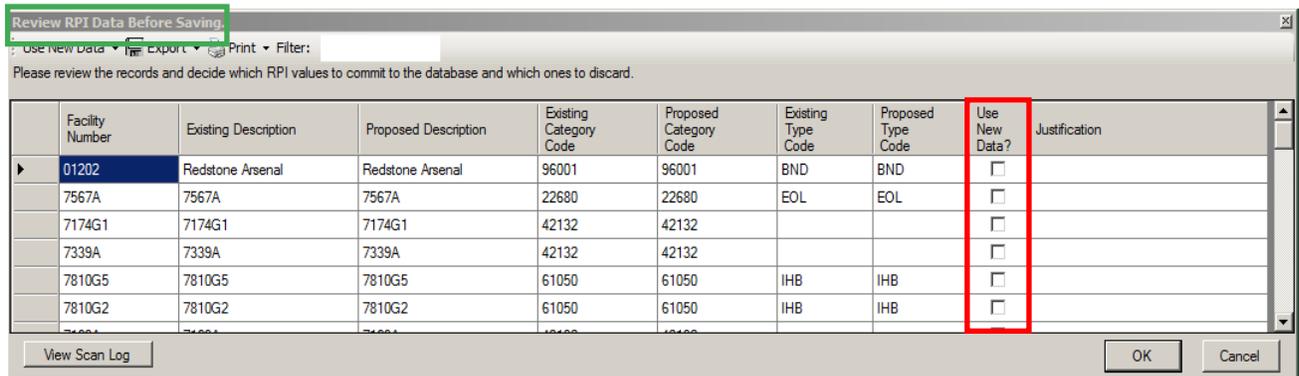
RPUID:

Import Close

I. During the Import process you will see the RPI Data Scan window below. This may take a few seconds or it may take up to a minute depending on the data file size.

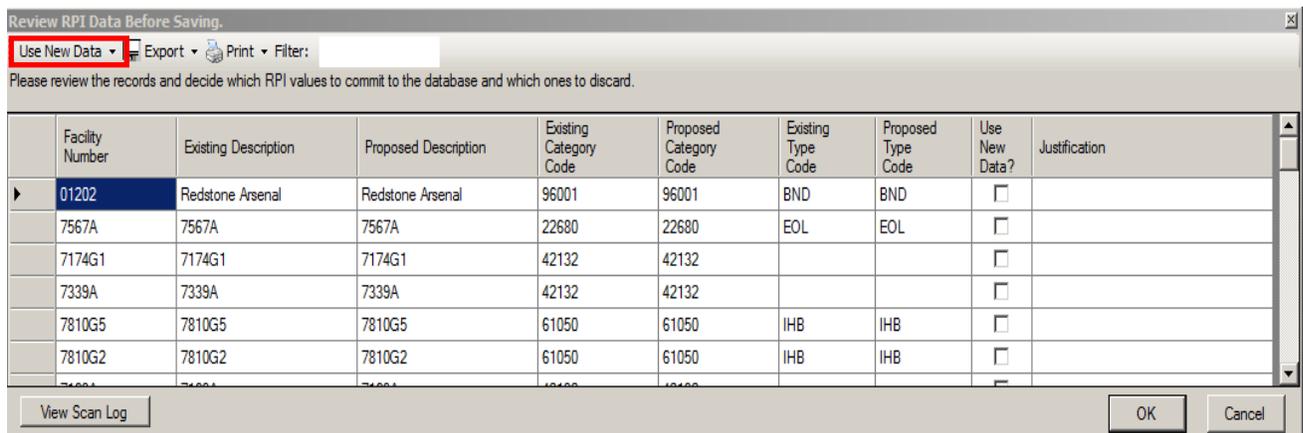


M. Before the RPI data is fully imported, ESS will bring up the **Review RPI Data Before saving** window. The program wants you to review the records and decide which RPI values to commit to the database and which ones to discard. This is helpful if you know which facilities are not correct within the RPI dataset.

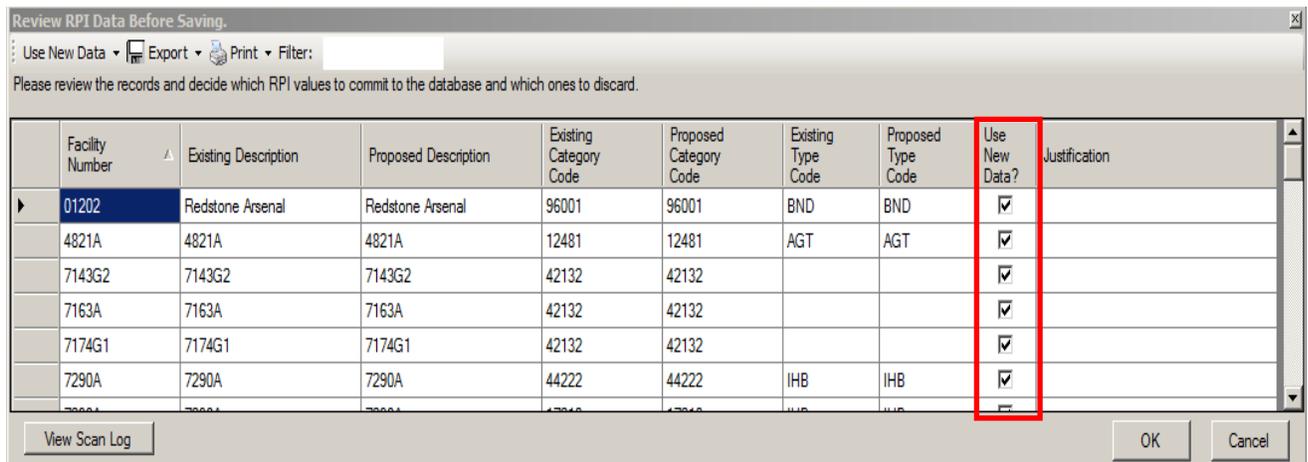


**NOTE:** Under the **Use New Data** column above, you will see that none of the records are checked. Before the RPI data is fully imported, ESS allows you to check/uncheck records under the **Use New Data** column highlighted in red if you do not want to import the RPI data for individual facilities. This would be used if the category code/description was incorrect or to avoid overwriting existing RPI data. In this process we want them all checked.

N. You can select the box in the upper left corner called **Use New Data>Select all**



O. Note the changes made to the **Use New Data** column below.



Review RPI Data Before Saving.

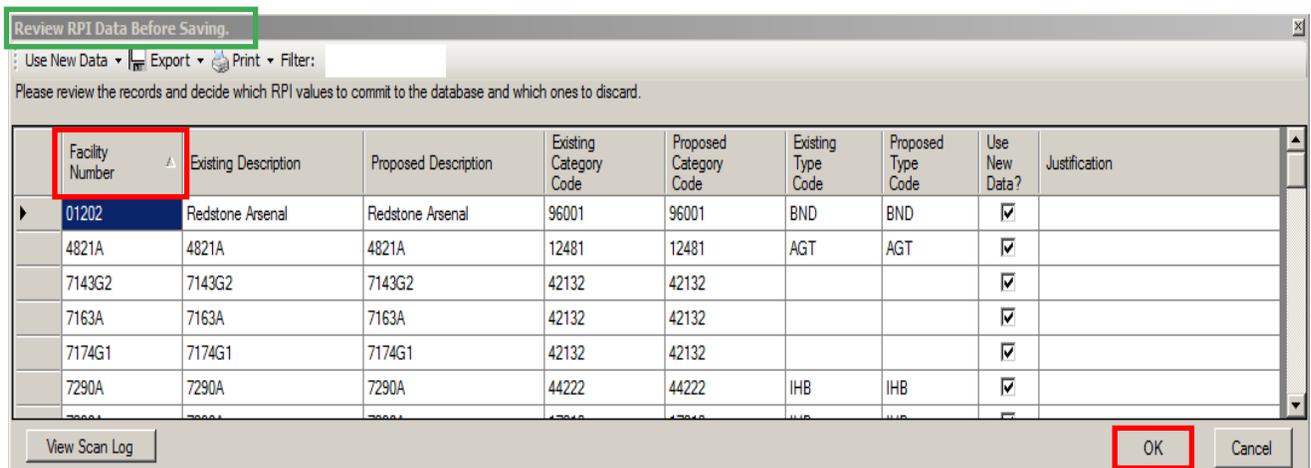
Use New Data | Export | Print | Filter: [Filter]

Please review the records and decide which RPI values to commit to the database and which ones to discard.

Facility Number	Existing Description	Proposed Description	Existing Category Code	Proposed Category Code	Existing Type Code	Proposed Type Code	Use New Data?	Justification
01202	Redstone Arsenal	Redstone Arsenal	96001	96001	BND	BND	<input checked="" type="checkbox"/>	
4821A	4821A	4821A	12481	12481	AGT	AGT	<input checked="" type="checkbox"/>	
7143G2	7143G2	7143G2	42132	42132			<input checked="" type="checkbox"/>	
7163A	7163A	7163A	42132	42132			<input checked="" type="checkbox"/>	
7174G1	7174G1	7174G1	42132	42132			<input checked="" type="checkbox"/>	
7290A	7290A	7290A	44222	44222	IHB	IHB	<input checked="" type="checkbox"/>	

View Scan Log | OK | Cancel

P. To sort the facility numbers within this data set simply move your mouse cursor over the column named **Facility Number** and click one time. This will sort the entries numerically for ease of use.



Review RPI Data Before Saving.

Use New Data | Export | Print | Filter: [Filter]

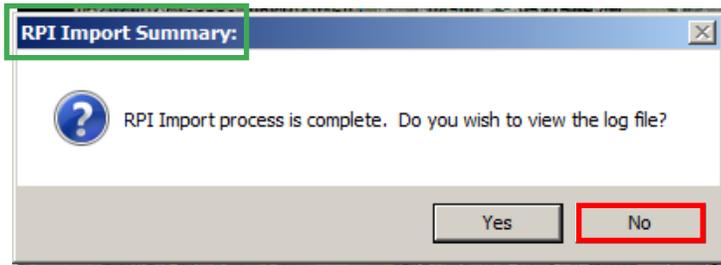
Please review the records and decide which RPI values to commit to the database and which ones to discard.

Facility Number	Existing Description	Proposed Description	Existing Category Code	Proposed Category Code	Existing Type Code	Proposed Type Code	Use New Data?	Justification
01202	Redstone Arsenal	Redstone Arsenal	96001	96001	BND	BND	<input checked="" type="checkbox"/>	
4821A	4821A	4821A	12481	12481	AGT	AGT	<input checked="" type="checkbox"/>	
7143G2	7143G2	7143G2	42132	42132			<input checked="" type="checkbox"/>	
7163A	7163A	7163A	42132	42132			<input checked="" type="checkbox"/>	
7174G1	7174G1	7174G1	42132	42132			<input checked="" type="checkbox"/>	
7290A	7290A	7290A	44222	44222	IHB	IHB	<input checked="" type="checkbox"/>	

View Scan Log | OK | Cancel

Q. In the lower left corner of the **Review RPI Data Before Saving** window click **OK**.

R. After clicking OK, you will see an **RPI Import Summary** window asking if you want to **View the log file**. The choice is your!



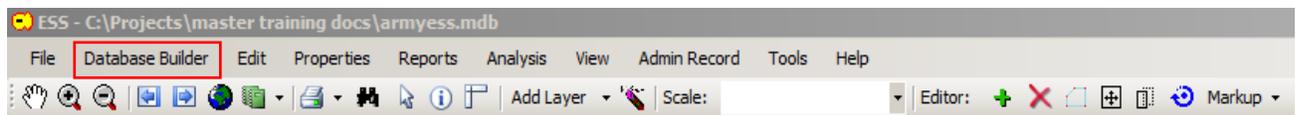
S. If you clicked **NO**, the program will return you to the main ESS screen and your RPI import is complete.

## 8. Create Blank PES Database

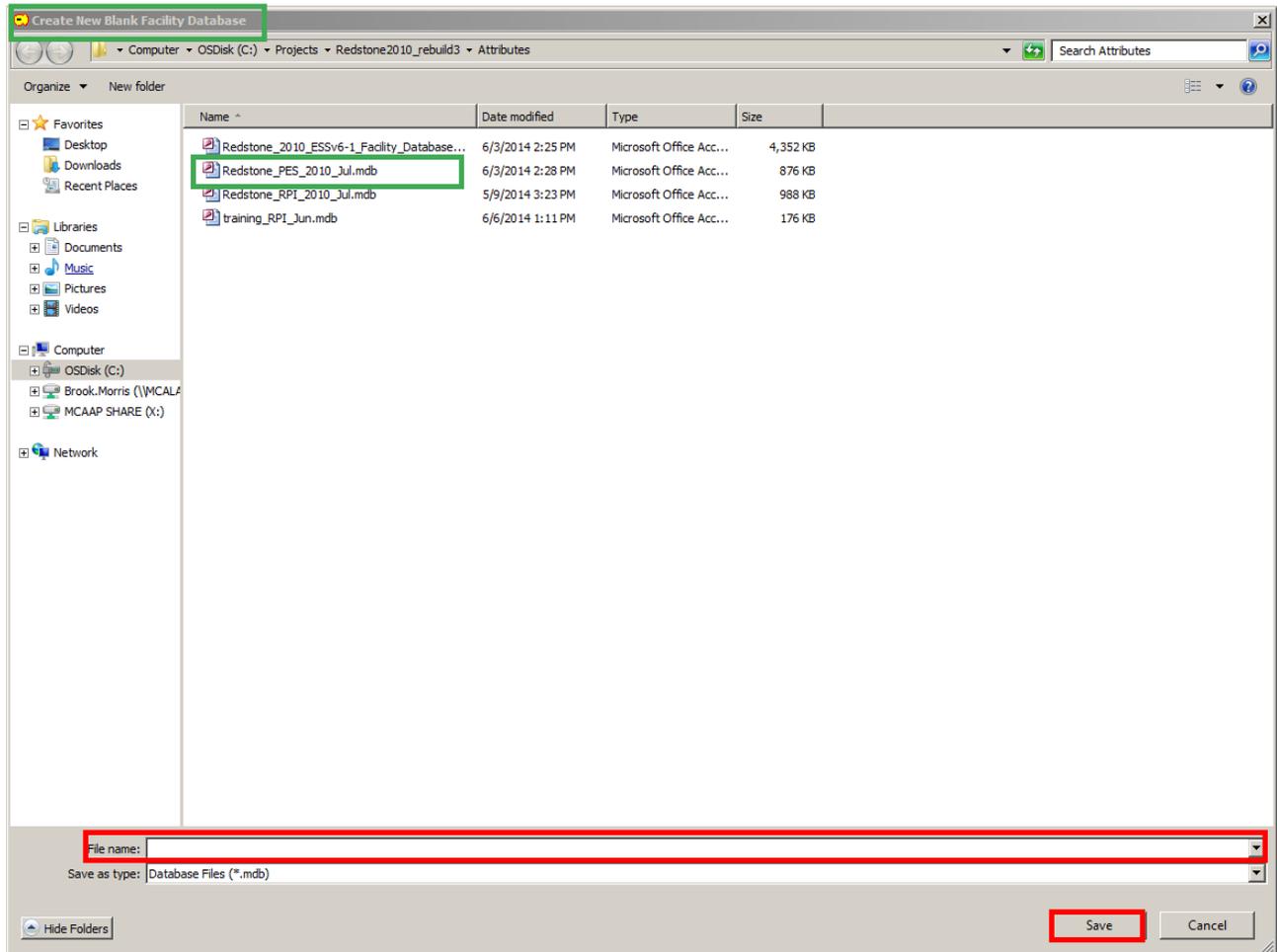
The following instruction will walk you through the creation of a blank PES database. This will allow you to import your PES data obtained from the installation DPW/Real Property Office or your respective installation safety office. Potential Explosives Sites (PES) data is used with the ESS software to define the Net Explosive Weight (NEW) and properties of each explosives storage and handling location.

A. Go into your **ESS Database**.

B. Once the program is up go to the **top tool bar** as seen below and click on **Database Builder > PES Data > Create New PES Database**



C. This will bring up the **Create New Blank Facility Database** window below.

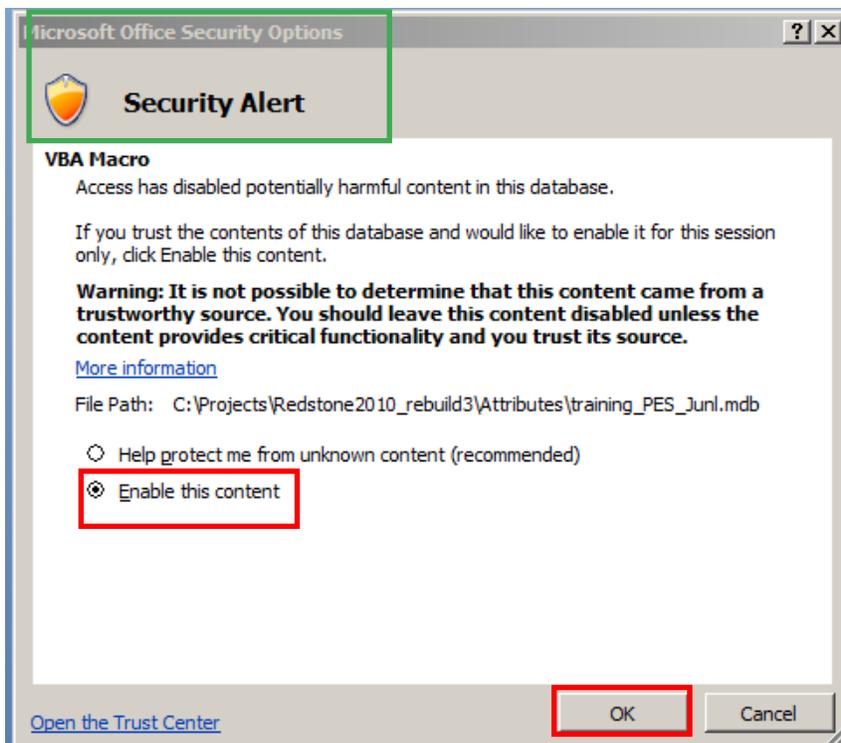


D. In the **File Name** box enter the name of your PES database. It is highly suggested that your name reflect what database it is: (Ex. \*\_PES.mdb). If you note the existing files at the top center of the picture you will see a file named **Redstone\_PES\_2010\_Jul.mdb** as an example.

E. Click on the **Save** button as seen in the image above when your file name has been entered.

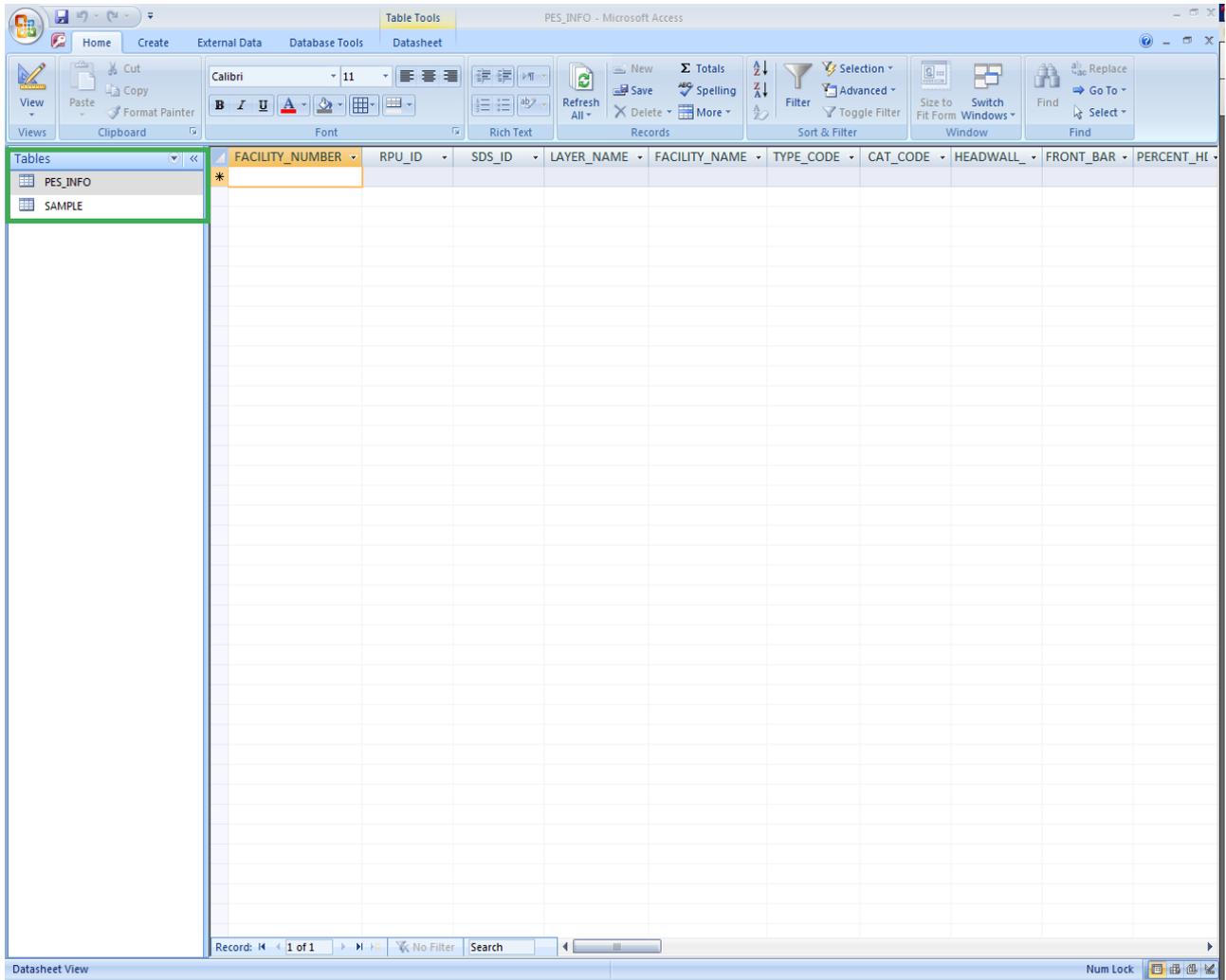


F. The **Empty PES Database** window will then appear as seen above. In the center of the database window will be a **security warning** and an Options box to the warnings right. Click on the **Options** box.

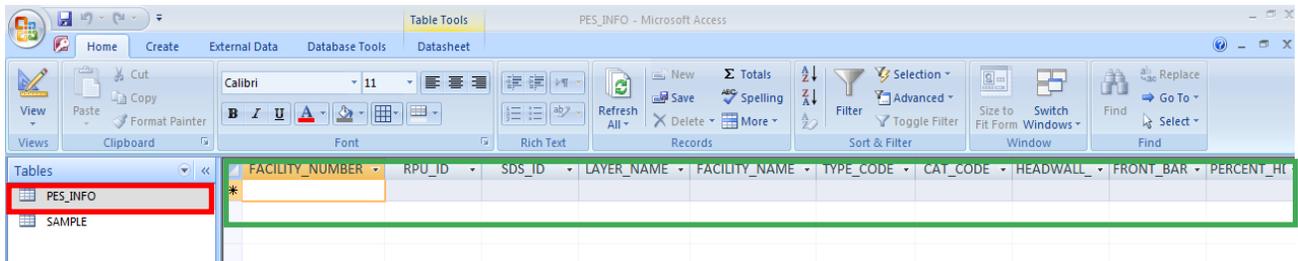


G. The **Security Alert** window will appear as seen above. Click on **Enable this content** and then click on **OK**.

H. The blank RPI database will open in Microsoft Access. Note the image below, there are two tables called **PES\_INFO** and another one called **SAMPLE**.

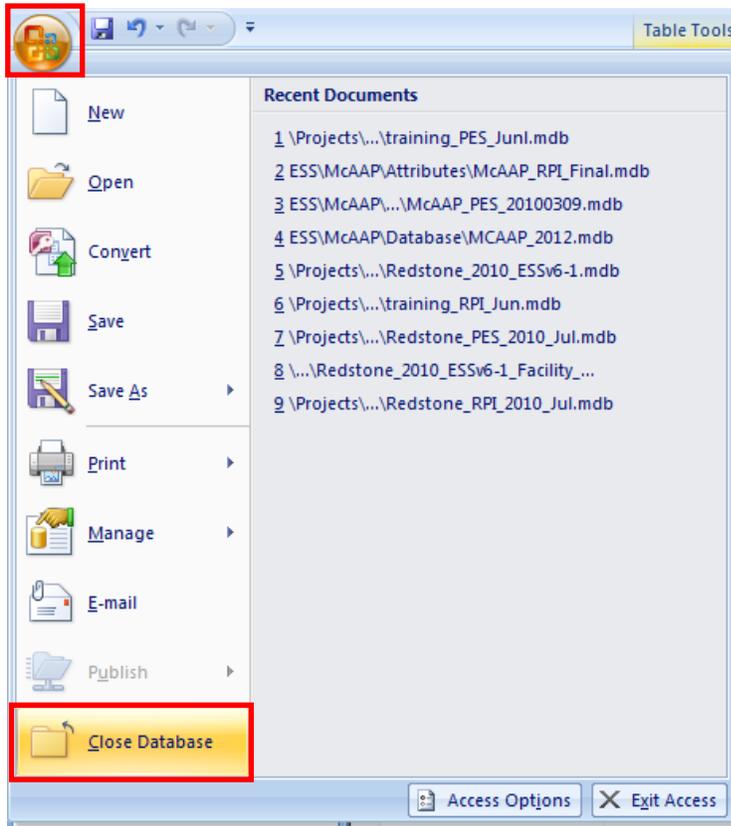


I. Click on the table called **PES\_INFO** and it will open up the table structure to the right. Note the image below. Study the default fields.



J. Below you will see a table called **Sample**. This table provides you with an example of what the PES\_INFO table will look like once populated with data

FACILITY_NL	RPU_ID	SDS_ID	LAYER_NAM	FACILITY_NA	TYPE_CODE	CAT_CODE	HEADWALL	FRONT_BAR	PERCENT_HI	COMBUSTIBI
1013				Ammo Prod Str	EOL					Y
1031				Ready Service I	RSL					Y
1032				Ready Service I	RSL					Y
1036				ES Related	AGM					Y
1041				Ammo Struc In	AGM					Y
1042				Ammo Struc In	AGM					Y
1045				Igloo Str Inst	ECM		U	N		Y
1046				Igloo Str Inst	ECM		U	N		Y
1047				Igloo Str Inst	ECM		7	Y	10	Y
1050				Ammo Struc In	AGM					Y
1051				Ammo Struc In	AGM					Y
1053				Guard Shack	GRD					Y
1061				Igloo Str Inst	ECM		U	N		Y
1062				Igloo Str Inst	ECM			N		Y
1063				Igloo Str Inst	ECM			N		Y
1064				Igloo Str Inst	ECM			N		Y
1065				Igloo Str Inst	ECM			N		Y
1066				Igloo Str Inst	ECM			N		Y
1067				Igloo Str Inst	ECM			N		Y
1070				Ready Service I	RSL					Y
Afld_CAP_600€				Afld_CAP_600€	CAP					Y
Afld_CAP_602€				Afld_CAP_602€	CAP					Y
Pier_ELP_7003				Pier_ELP_7003	ELP					Y
Pier_ELP_7005				Pier_ELP_7005	ELP					Y
Prkg_HDY_500€				Prky_HDY_500€	HDY					Y
Slab_OSM_305				SLAB_OSM_30€	OSM			N		Y
Slab_OSM_305				SLAB_OSM_30€	OSM			N		Y
*										

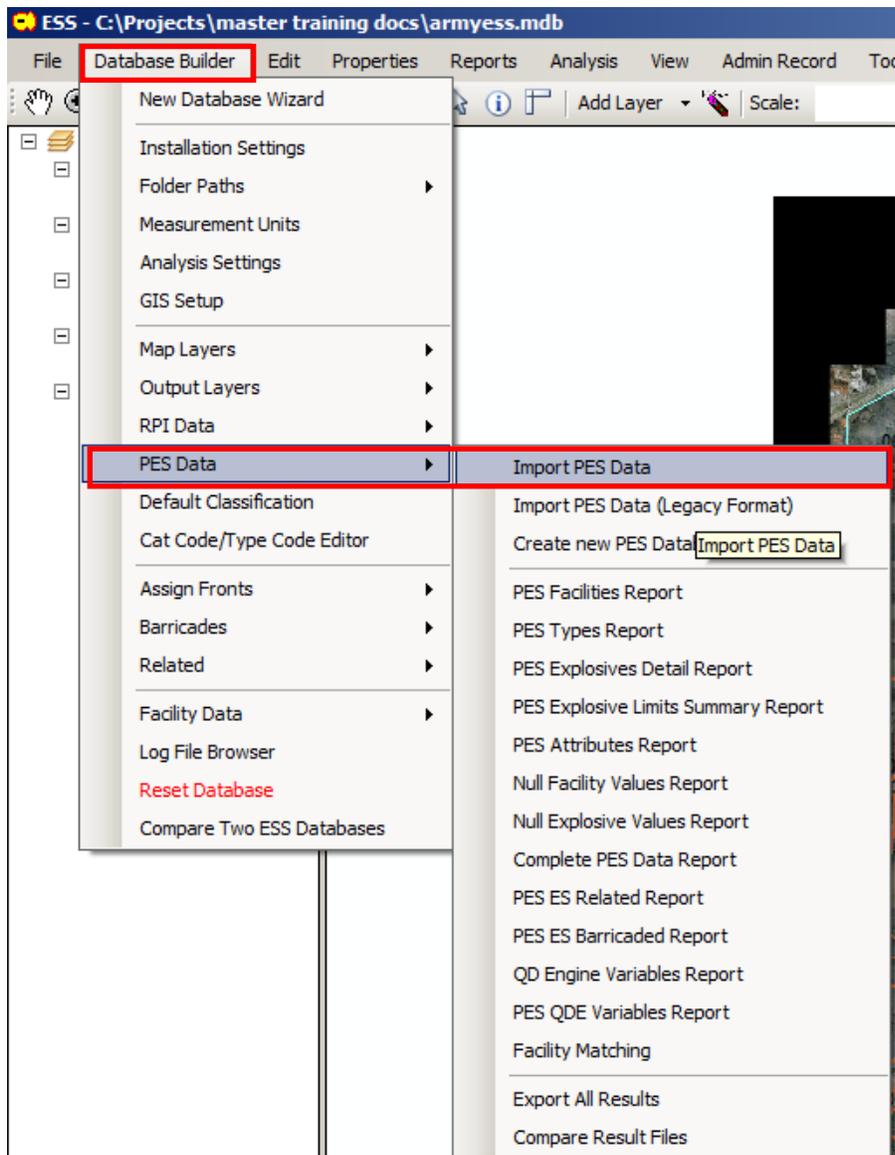


L. MS Access databases are the most easily prone database to get corrupted. Proper exit from the database is a simple step in preventing this from happening: Always close the Access database by selecting the **Microsoft Circle** in the upper left corner as seen in the image above. Then click on the option called **Close Database**. This ensures secure and protected closing of the application.

M. Now that you have created the blank database you can proceed with populating the table with data. Make sure the PES data matches the data in the RPI and GIS data or future GIS data. You may need to coordinate with DPW/GIS department and perform a review of the PES data for proper format.

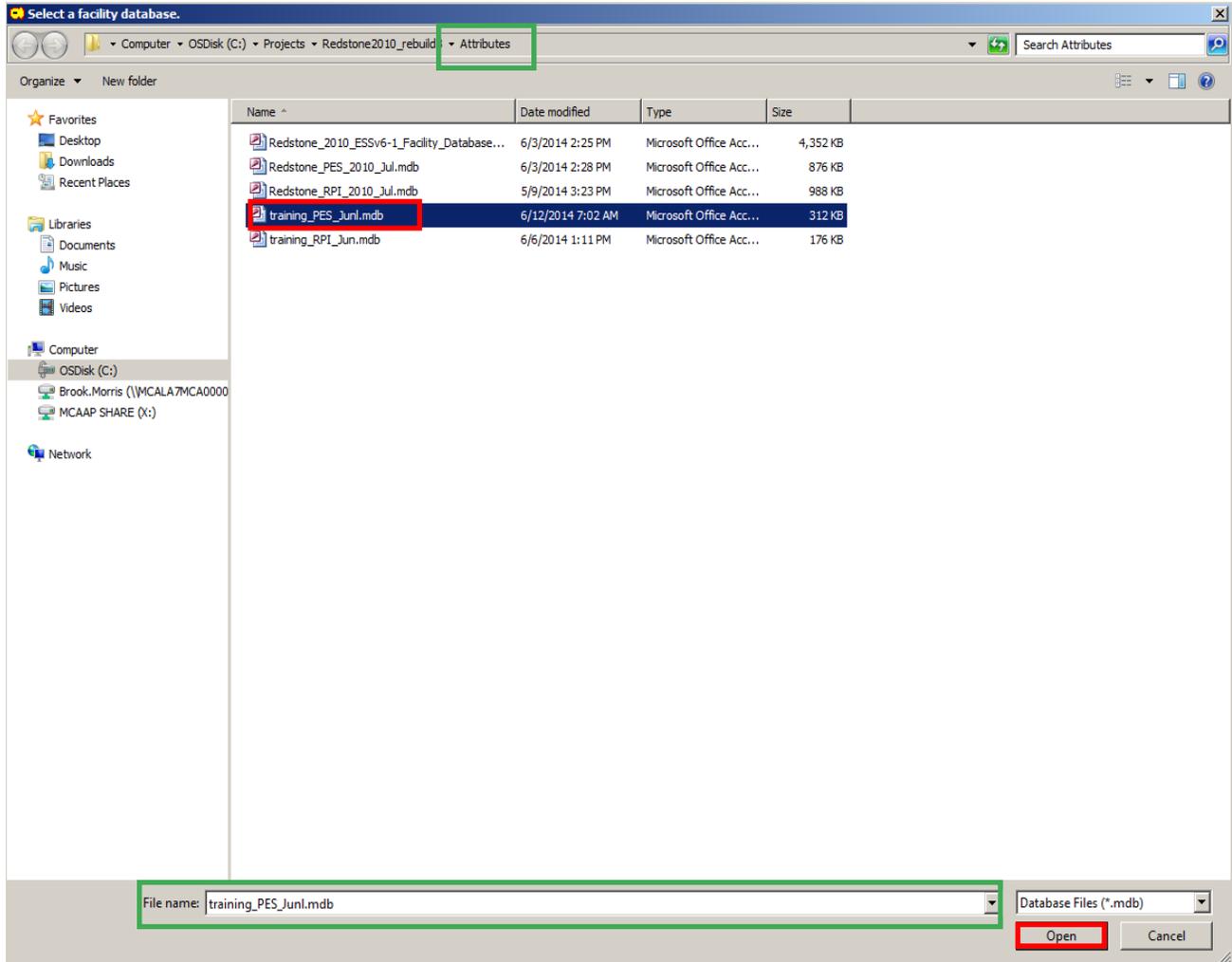
## 9. Import PES Data

A. Go to **Database Builder > PES Data > Import PES Data** as seen in the image below.

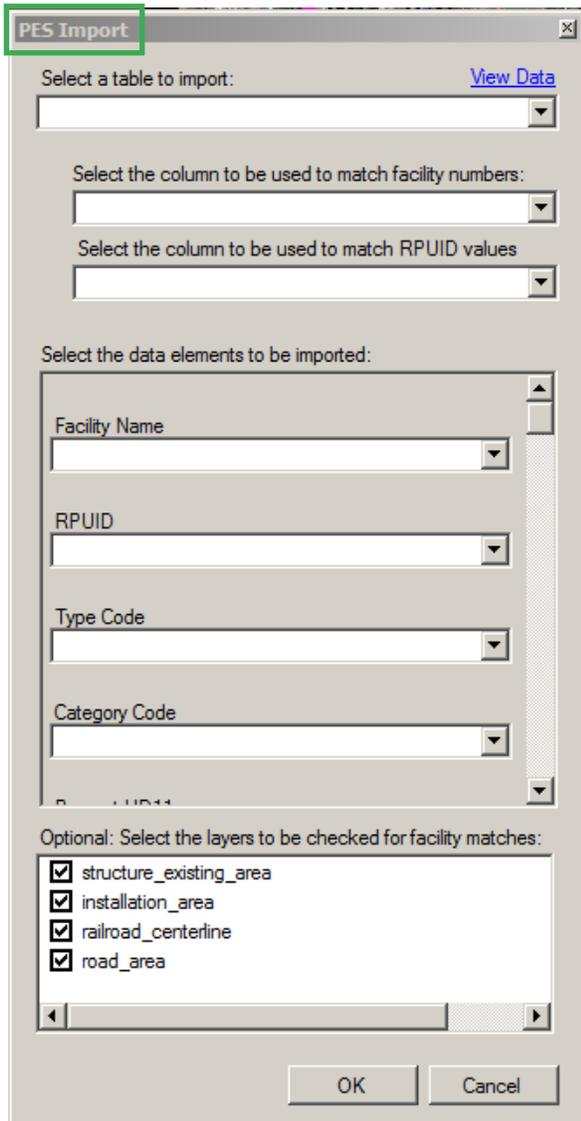


B. You will be directed to the **attributes** folder. Select the database that has the PES data you just created, then click on **Open**. The default file type is a MS Access (.mdb.) file. If importing an Excel spreadsheet, select the “Files of type” pull down menu at the bottom center of the image below to select “Spreadsheet File (.xls).”

B. You will be directed to the **attributes** folder as seen below. Select the PES database that you just created, then click on **Open**. The default file type is a MS Access (.mdb.) file. If importing an Excel spreadsheet, select the “Files of type” pull down menu at the bottom right of the image below to select “Spreadsheet File (.xls).”

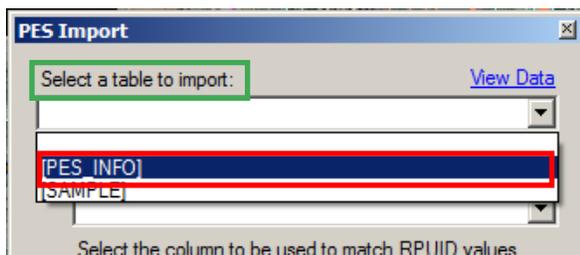


C. **PES Import** window will open as seen below.



D. In the **PES Import** window below you will see a drop down menu called **Select a Table to Import**.

E. In the **Select a Table to Import**, select the table called **PES\_INFO**.



F. After selecting the table called **PES\_INFO** you will see the fields below populated with specific names.

PES Import

Select a table to import: [View Data](#)

[PES\_INFO]

Select the column to be used to match facility numbers:

FACILITY\_NUMBER

Select the column to be used to match RPUID values

RPU\_ID

Select the data elements to be imported:

Facility Name  
FACILITY\_NAME

RPUID  
RPU\_ID

Type Code  
TYPE\_CODE

Category Code  
CAT\_CODE

Optional: Select the layers to be checked for facility matches:

- structure\_existing\_area
- installation\_area
- railroad\_centerline
- road\_area

OK Cancel

G. Add a **check** to any of the areas listed that contain facilities required to be included within your QD analysis.

H. In the box above named **Select the data elements to be imported**; Scroll down and review the fields to ensure that all of the fields you desire for your analysis have the selection criteria in place. If the selection criteria is not present, click on the drop down arrow on the right and select the appropriate field.

PES Import

Select a table to import: [View Data](#)  
[PES\_INFO]

Select the column to be used to match facility numbers:  
FACILITY\_NUMBER

Select the column to be used to match RPUID values  
RPU\_ID

Select the data elements to be imported:

Facility Name  
FACILITY\_NAME

RPUID  
RPU\_ID

Type Code  
TYPE\_CODE

Category Code  
CAT\_CODE

Optional: Select the layers to be checked for facility matches:

- structure\_existing\_area
- installation\_area
- railroad\_centerline
- road\_area

OK Cancel

I. Click on the **OK** button.

J. The **PES Import Results** window will open.

Import Set	Result	Total Rows	Rows Inserted	Rows Updated	Log
Facility Data	Succeeded	0	0	0	<a href="#">View Log</a>
QDE Variables - PES	Succeeded	0	0	0	<a href="#">View Log</a>
Rectangular & Round Magazines	Succeeded	0	0	0	<a href="#">View Log</a>
1.1 Data	Succeeded	0	0	0	<a href="#">View Log</a>
1.2.1 Data	Succeeded	0	0	0	<a href="#">View Log</a>
1.2.2 Data	Succeeded	0	0	0	<a href="#">View Log</a>
1.2.3 Data	Succeeded	0	0	0	<a href="#">View Log</a>
1.3 Data	Succeeded	0	0	0	<a href="#">View Log</a>
1.4 Data	Succeeded	0	0	0	<a href="#">View Log</a>

**Done**

**Note:** When viewing your import log you may see the status “Aborted”. That is because there was no data from that set to import. Example: If you had no Rectangular and Round Magazines within you PES import data set then you will see this status for those fields indicating 'Aborted'.

```

1.1 Data Import 129323343414464419.txt - Notepad
File Edit Format View Help
A column was not specified for data element 'High Density'. It will not be imported.
A column was not specified for data element 'Critical Area'. It will not be imported.
Beginning Import. 45 rows to process.

Processing row 1 of 45.
Facility Number '1010' found in field [Facility_Number].
Facility Number '1010' matched to OID [350].
The value of [0] was applied to field [PES_NEW].
The value of [Null] was ignored for field [FRAGMENTING_ITEM].
The value of [Null] was ignored for field [HFD_XX].
These values were applied as an update to an existing row in the destination database.
Processing of this row was successfully completed.

Processing row 2 of 45.
Facility Number '1013' found in field [Facility_Number].
Facility Number '1013' matched to OID [758].
The value of [0] was applied to field [PES_NEW].
The value of [Null] was ignored for field [FRAGMENTING_ITEM].
The value of [Null] was ignored for field [HFD_XX].
These values were applied as an update to an existing row in the destination database.
Processing of this row was successfully completed.

Processing row 3 of 45.
Facility Number '1026' found in field [Facility_Number].
Facility Number '1026' matched to OID [358].
The value of [0] was applied to field [PES_NEW].
The value of [Null] was ignored for field [FRAGMENTING_ITEM].
The value of [Null] was ignored for field [HFD_XX].
These values were applied as an update to an existing row in the destination database.
Processing of this row was successfully completed.

Processing row 4 of 45.
Facility Number '1031' found in field [Facility_Number].
Facility Number '1031' matched to OID [762].
The value of [5] was applied to field [PES_NEW].
The value of [Null] was ignored for field [FRAGMENTING_ITEM].
  
```

K. In the **PES Import Results** window you are provided the option to view the log for each data set imported. In the column named **Log** click on **View Log** if you desire to see the import results as seen above. If you do not wish to review the results then click on **Done**.

L. Upon clicking **Done**, you will be returned to the main ESS window. Your PES data import is now complete.