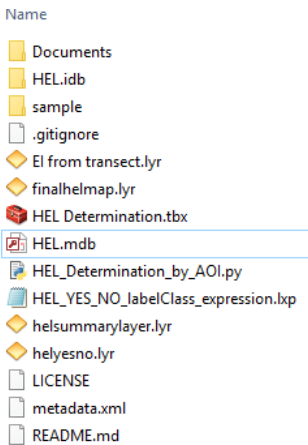


## HEL Tool Installation instructions for State GIS Specialist

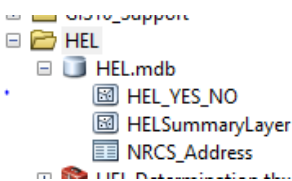
You can get a copy of the HEL model from <https://github.com/ajdiazdk/HEL-Determination> where the tool will be maintained. Or the GIS SharePoint [Shared Tools and Procedures](#)

Save zip file and unzip. the tool can be saved anywhere. However, consistency for a field office is important. We suggest keeping it on the C:\HEL (do NOT save on the desktop or within the user profile) The ability to use bat files to quickly update portions of the tool will greatly help a state if the folder is always found in the same location.

These are the minimum folders you need. You may wish to add extra folder for your field office.



The HEL.mdb is a personal geodatabase. Outputs are overwritten every time it is run. There is no feature dataset therefore projection is not an issue. If the user gets an error. Make sure that the access mdb has full write access. In my computer (ArcMap and access need to be closed) Right click HEL.mdb>properties>security tab. Check permissions.



Here are the setting for ArcMap that are provided in the user manual. If the normal.mxt is deleted or a new ArcMap version is used, those setting need to be verified.

## Prior ArcMap Setup

Open ArcMap or your County Template.

Select **Geoprocessing** >> **Environments...** >> **Workspace**

Set Workspace to a local folder such as c:\temp

Select **Geoprocessing** >> **Geoprocessing Options...** >>  **Overwrite the outputs of geoprocessing operations**

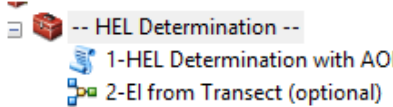
Select **Customize** >> **Extensions...** >>  **Spatial Analyst** and  **3D Analyst** for the transect tool

Turn on Toolbox 

Right click ArcToolbox Select Add 

Browse to C:\HEL\ and Select 

Your toolbox should now have

 -- HEL Determination --  
1-HEL Determination with AOI  
2-El from Transect (optional)

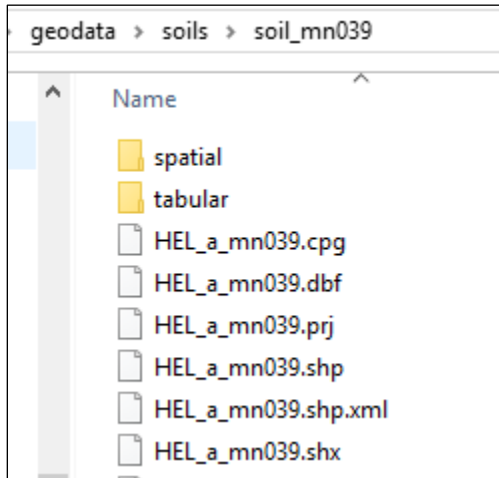
Right click in the Toolbox Area and Save to Default

Save your template as well.

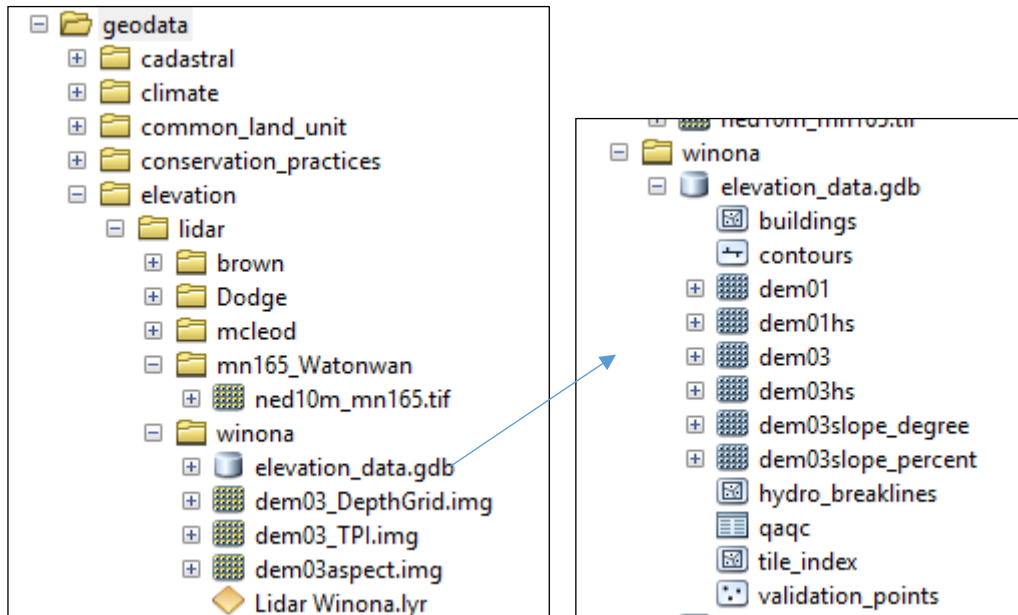
Save Settings	To File...
Load Settings	To Default

Data:

- 1) CLU layer is readily available in field offices for Conservation Planning in Toolkit.
- 2) Soil layer is readily available in field offices for Conservation Planning in Toolkit. It is joined 1-1 relationship with Frozen HEL attributes, or a state may have access to the original frozen HEL layers. Here is an example of HEL shapefile name and a good place to save it on the F:\ geodata



- 3) LiDAR DEM (3meter creates good results). Here is an example of how MN stores and distributes LiDAR data. Notice also an example of ned10m\_mn165.tif example if you do not have LiDAR yet the 3DEP 10m DEM is a valuable elevation dataset.

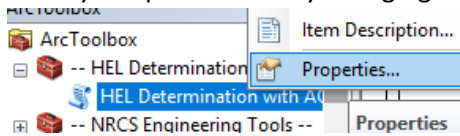


Running the tool:

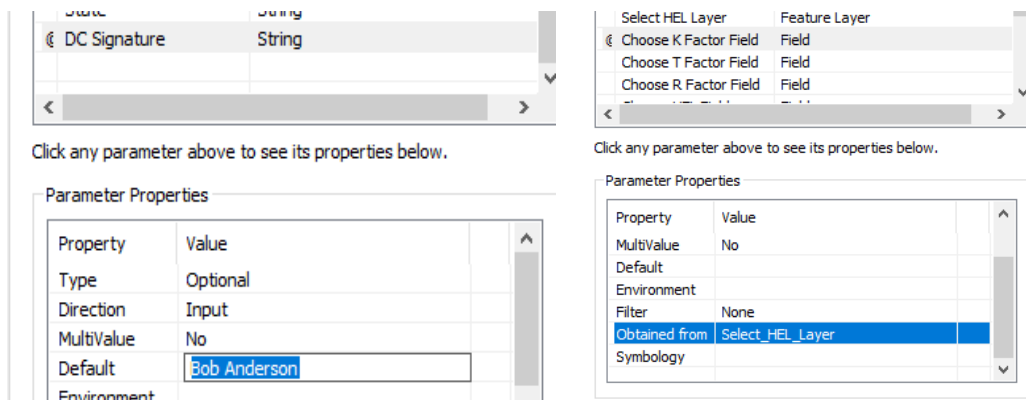
**BEFORE RUNNING ANY OF THE TOOLS, SELECT a CLU FIELD IN YOUR MAP.**

The need to input a tract and field number was removed to allow more flexibility across states. Tract numbers can change and would lead to unnecessary errors. In addition, a user would first zoom to the tract indicated on a 1026 request to evaluate land use changes and location prior to running the model.

- 1) Open a county template in ArcMap used by field office users. Since many state have already Toolkit templates created, those can be used and the user just adds the HEL and DEM layers.
- 2) Add the toolbox
- 3) Modify the parameters by changing the properties of the py script



For example. You can set default for CLU and HEL layers and the state and DC name. The K,T,R factor are extracted from the HEL layer and won't need a default.



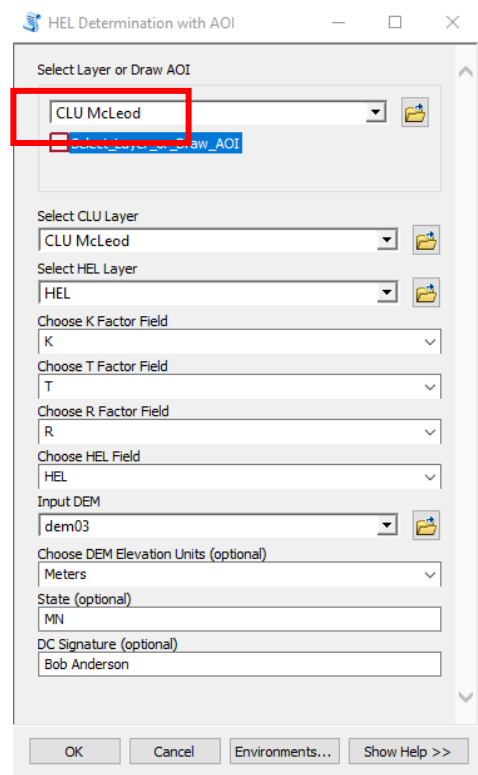
If the user will be using fields from the CLU or a shapefile. Then the "Select Layer or Draw AOI" must be changed to a layer in the map. This tends to be where there are user errors. Either the layer was not changed or it was changed and no field was selected and the py is analyzing the entire county

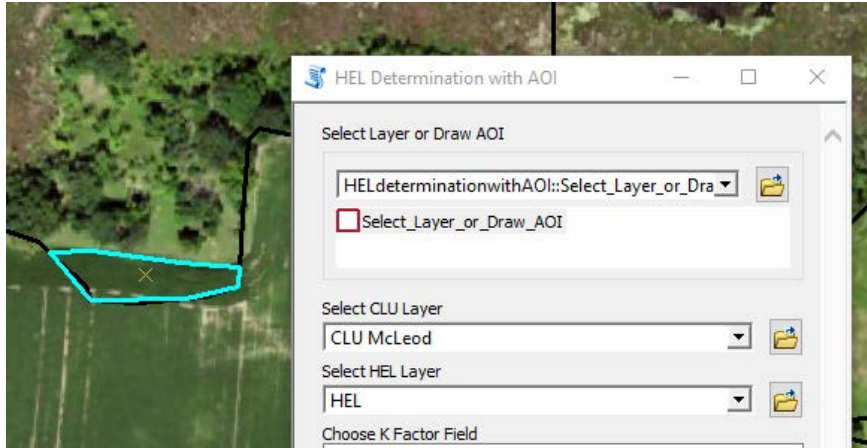
If a field is not already defined in a CLU, the user can do 1 of 2 things

- 1) export a field to a shapefile, edit, and split out the new areas converted to crop. Make sure each split has a unique CLUNBR. You can then run the tool on the temporary layer.

OR

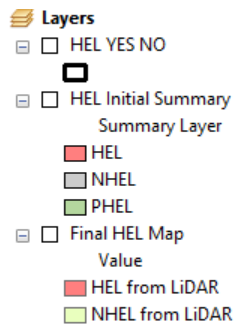
- 2) If draw an Area Of Interest representing the newly converted grounds. This is the default.



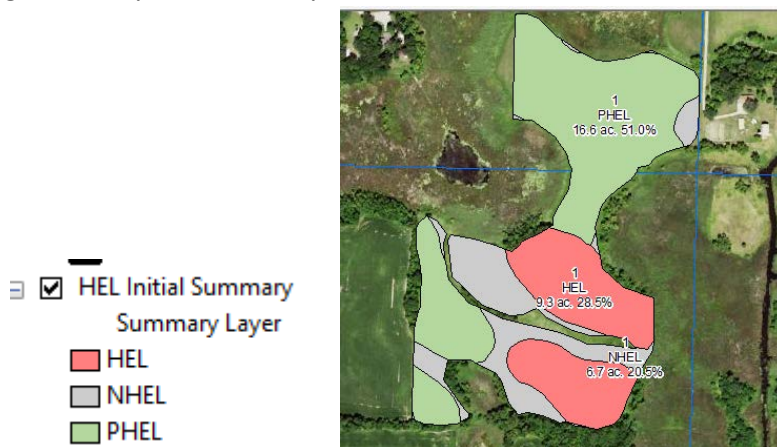


**OUTPUTS:**

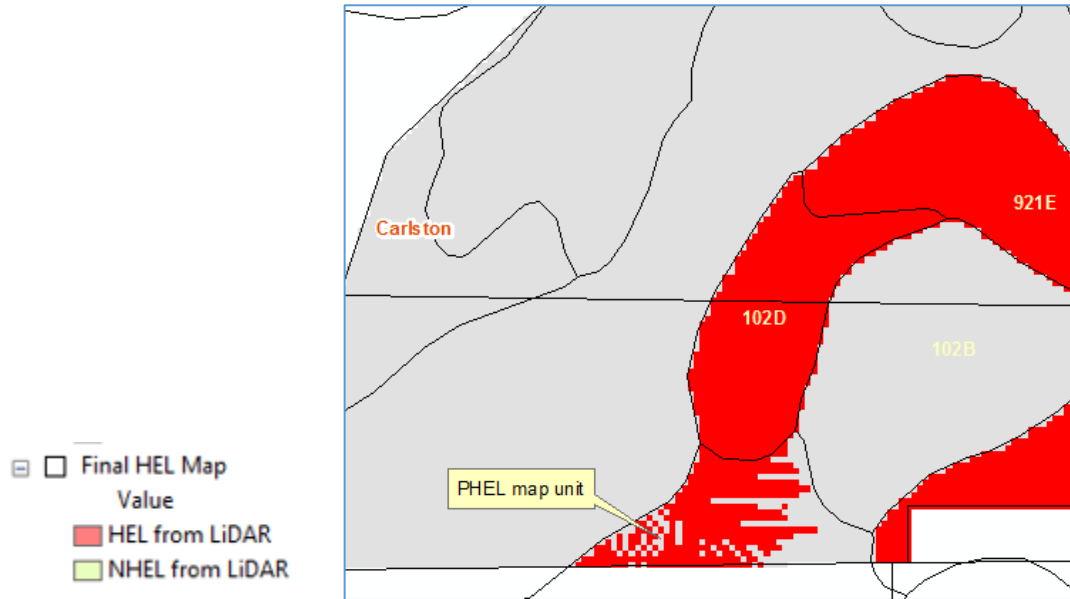
3 layers are created, and MS Access will open to create reports and mailings



- 1) The “HEL Initial Summary” Layer provides percent of HELC prior to LiDAR analysis of PHEL soils mapunits. Acres and Percent for each HEL type are tallied by field. This layer is more of a visual. Essentially, it is the intersect of the HEL an CLU layers. It is a Multi part Polygon so the labels may be duplicated. The User **MAY NEED TO TURN OFF DUPLICATE LABELS** in the Layer Properties. In any given field you should only see one label for NHEL, one for PHEL and one for HEL

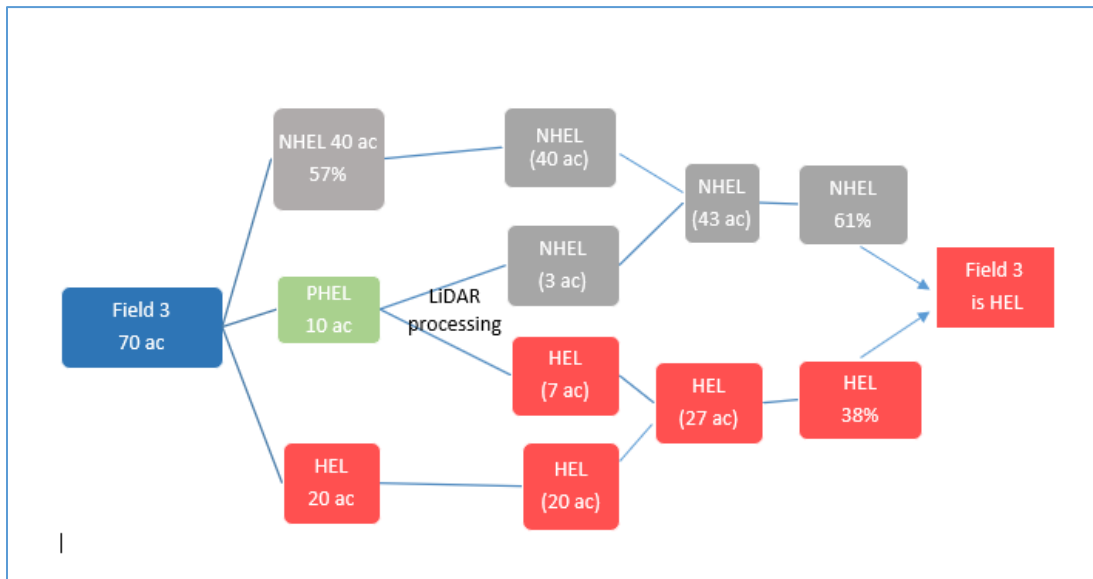


- 2) The “Final HEL map” includes pixels with the frozen HEL/NHEL values and pixels from PHEL map units analysed using LiDAR to derive EI values. The tool then converts the EI to HEL/NHEL.



- 3)

The “HEL Yes No” layer is the output summarizing the total area covered by the ‘red’ pixels (HEL) for each field analyzed within a Tract. So if a field has originally 70 ac HEL, 40 ac NHEL, and 10 ac PHEL. The PHEL map unit would be broken down based on lidar analysis (speckled look on the map) 7ac HEL and 3ac NHEL. Those are then tallied back with the other frozen HEL/NHEL map unit and the 33.33% or  $\geq 50$  acr calculated.

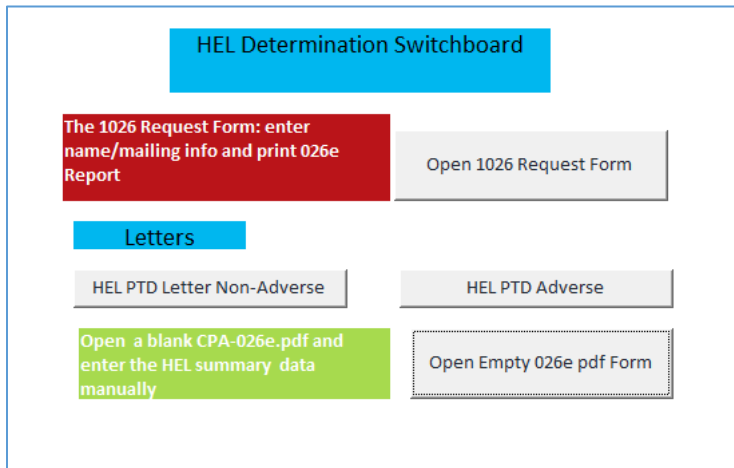


## Setting up the HEL.mdb

After running the Model Access will automatically open. It is important to close ArcMap. You can also open the HEL.mdb manually from C:\HEL (or your folder) \HEL.mdb in order to make changes.

The Switchboard includes the *Request Form* for the 026e and sample of letters.

If you are not familiar with Access Contact Christiane (info below) to navigate through the changes for your state.

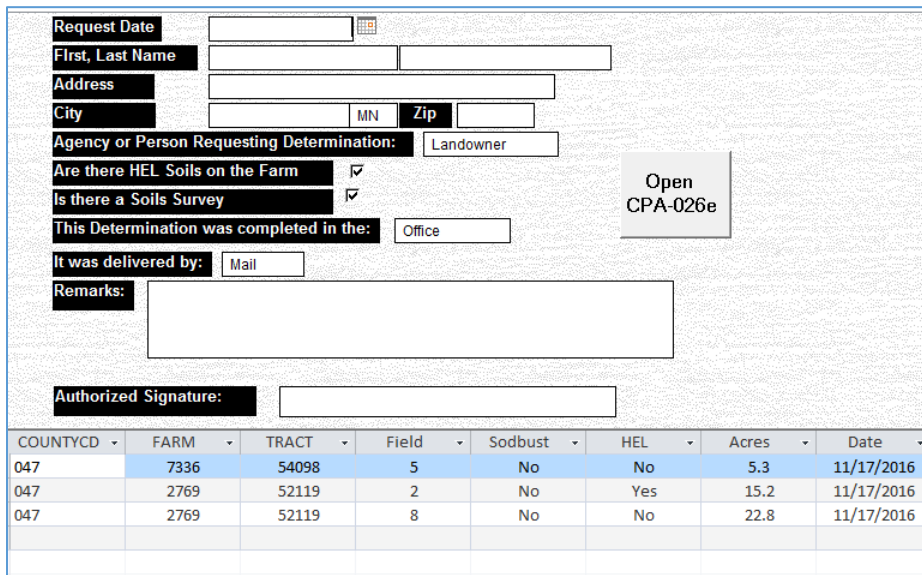


The image shows a software interface titled "HEL Determination Switchboard". It features several buttons and text boxes:

- A red box with the text: "The 1026 Request Form: enter name/mailling info and print 026e Report". Next to it is a button labeled "Open 1026 Request Form".
- A blue box labeled "Letters".
- Two buttons: "HEL PTD Letter Non-Adverse" and "HEL PTD Adverse".
- A green box with the text: "Open a blank CPA-026e.pdf and enter the HEL summary data manually". Next to it is a button labeled "Open Empty 026e pdf Form".

The information in the Request form is pulled from the HEL\_YES\_NO table.

The table at the bottom of the form can be modified as needed. If multiple Tracts were accidentally included. The extra line(s) could be deleted instead of re-running all the models in ArcMap (highlighted below). Some field offices, only use the HEL.mdb to print out 026 e and letters instead of running the ArcMap tool. When the determinations are simple HEL/NHEL.



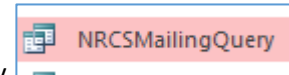
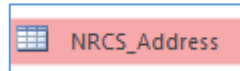
The image shows a "Request Form" with various input fields and a table at the bottom. The form includes fields for "Request Date", "First, Last Name", "Address", "City", "MN", "Zip", "Agency or Person Requesting Determination:" (with a dropdown menu showing "Landowner"), "Are there HEL Soils on the Farm" (checkbox checked), "Is there a Soils Survey" (checkbox checked), "This Determination was completed in the:" (dropdown menu showing "Office"), "It was delivered by:" (dropdown menu showing "Mail"), and "Remarks:". There is also a button labeled "Open CPA-026e" and a field for "Authorized Signature:". Below the form is a table with the following data:

COUNTYCD	FARM	TRACT	Field	Sodbust	HEL	Acres	Date
047	7336	54098	5	No	No	5.3	11/17/2016
047	2769	52119	2	No	Yes	15.2	11/17/2016
047	2769	52119	8	No	No	22.8	11/17/2016

If a field was Sodbusted the correct entry would need to be changed manually as the information is 'by field' in the 026e form.

COUNTYCD	FARM	TRACT	Field	Sodbust	HEL	Acres	Date
047	2769	52119	2	No	Yes	15.2	11/17/2016
047	2769	52119	8	No	No	22.8	11/17/2016
*							

## Updating LETTERS



The COUNTYCD field links to the Table **NRCS\_Address** via the Query **NRCSMailingQuery**

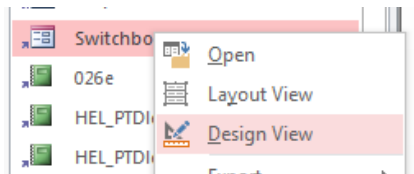
Here are the required fields

d:	HEL_YES_NO:	NRCSFIPS	NRCSAddress	NRCSAddress	NRCSAddress	NRCSAddress	NRCSAddress	NRCSAddress	NRCSAddress
le:	HEL_YES_NO	NRCS_Address	NRCS_Address	NRCS_Address	NRCS_Address	NRCS_Address	NRCS_Address	NRCS_Address	NRCS_Address
rt:									
wr:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
la:									
pr:									

You can open the table NRCS\_Address and copy and paste from an excel table, however make sure the fields line up. There are 2 records in there to show the format I used. The Only important format is the NRCSFIPS must match the CLU COUNTYCD code. Fipscode: 45 won't match with the CLU COUNTYCD 045. Add leading 0 if they are missing in your state address list.

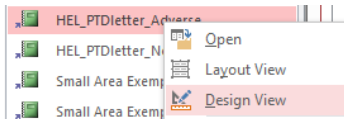
OBJECTID	Shape	NRCSCounty	NRCSSTATE	NRCSZIP	NRCSPHONE	NRCSFAX	NRCSAddress	NRCSAddress	NRCSFIPS
1		Cass	MN	56425	(218) 829-5965	(218) 828-8837	7118 Clearwater Rd	Baxter	045
2		Clay	MN	56560	(218) 233-7773	(855) 765-7523	1615 30th Avenue South	Moorhead	027
3		Barbour County	AL	36016	(334) 775-3266	(855) 747-0598	18 Nern Street	Clayton	005
*	(New)								

## UPDATING SWITCHBOX



## UPDATING LETTERS

The letters can all be customized by opening them in design view




Each text box (orange below) can be edited to fit a states need. Keep the text box small to fit on paper better.



HEL\_PTDLetter\_Non\_Adverse

Report Header  
Page Header

 United States Department of Agriculture

FARMNBR Header

Determination Date:

=[HEL\_YES\_NO.FirstName] & " " & [HEL\_YES\_NO.Last]  
Address  
=[HEL\_YES\_NO.City] & ", " & [HEL\_YES\_NO.State] & " "

RE: Highly Erodible Land (HEL) Determination

The Natural Resources Conservation Service (NRCS) recently received the Farm Service Agency (FSA) with a Highly Erodible Land Conservation (HEL) and Wetland Conservation (WC) Certification (form AD1026). As a result, NRCS is issuing a preliminary technical determination in accordance with the HELC provisions of the Food Security Act of 1985, as amended. This preliminary technical determination was conducted by NRCS field office staff and concluded that field(s) listed below is (are) not highly erodible fields. Please consider the enclosed NRCS-CPA-026e and map for more information.

Farm:	Tract:	Field(s)	Acres	HEL (Yes/No)

Detail

FARMNBR	TRACTNBR	CLUNBR	ALCACRE	HEL_YES

FARMNBR Footer

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Report Footer

This preliminary technical determination will become a final technical determination in accordance with regulatory requirements (Title 7 Code of Federal Regulations (C.F.R.) Part 614.8(a) (1)). NRCS has determined that the determination(s) presented here are not appealable. You may seek a review of this determination by filing with the National Appeals Division (NAD) director a written request no later than 30 calendar days after the date you receive this notice in accordance with the NRCS appeal procedures found at 7 C.F.R. Part 614 and the NAD appeal procedures found at 7 C.F.R. Part 11. If you believe that this issue is appealable, you must write to the NAD director at the applicable address shown and explain why you believe this determination is appealable. If you seek an appealability review with the NAD director, provide NRCS a copy of your request.:

National Appeals Division (NAD)  
3101 Park Center Drive, Suite 1100  
Alexandria, VA 22302

If you have questions concerning this determination and notification information, you may contact your designated District conservationist.

Sincerely,

Signature  
District Conservationist or Designated Conservationist  
USDA-NRCS  
Enclosure  
Cc: FSA County Executive Director, Farm Services Agency

The other entries in the letters are data driven. And do not need to be changed

FARMNBR Header

Determination Date:

=[HEL\_YES\_NO.FirstName] & " " & [HEL\_YES\_NO.Last]  
Address  
=[HEL\_YES\_NO.City] & ", " & [HEL\_YES\_NO.State] & " "

RE: Highly Erodible Land (HEL) Determination

The Natural Resources Conservation Service (NRCS) recently received the Farm Service Agency (FSA) with a Highly Erodible Land Conservation (HEL) and Wetland Conservation (WC) Certification (form AD1026). As a result, NRCS is issuing a preliminary technical determination in accordance with the HELC provisions of the Food Security Act of 1985, as amended. This preliminary technical determination was conducted by NRCS field office staff and concluded that field(s) listed below is (are) not highly erodible fields. Please consider the enclosed NRCS-CPA-026e and map for more information.

Farm:	Tract:	Field(s)	Acres	HEL (Yes/No)

Detail

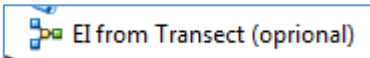
FARMNBR	TRACTNBR	CLUNBR	ALCACRE	HEL_YES

FARMNBR Footer

FARMNBR Footer Page Footer				
Natural Resources Conservation Service & " & (Page) 8 [NRCSMailingQuery.NRCSCity] & " & [NRCSMailingQuery.NRCSState] & " [NRCSMailingQuery.NRCSPhone] & " Fax " & [NRCSMailingQuery.NRCSFax] & " USDA is an equal opportunity provider, employer, and lender.				
Report Footer				
This preliminary technical determination will become a final technical determination in accordance with regulatory requirements (Title 7 Code of Federal Regulations (C.F.R.) Part 614.8(a) (1)). NRCS has determined that the determination(s) presented here are not appealable. You may seek a review of this determination by filing with the National Appeals Division (NAD) director a written request no later than 30 calendar days after the date you receive this notice in accordance with the NRCS appeal procedure found at 7 C.F.R. Part 614 and the NAD appeal procedures found at 7 C.F.R. Part 11. If you believe this issue is appealable, you must write to the NAD director at the applicable address shown and explain why you believe this determination is appealable. If you seek an appealability review with the NAD director, provide NRCS a copy of your request.:				
National Appeals Division (NAD) 3101 Park Center Drive, Suite 1100 Alexandria, VA 22302				
If you have questions concerning this determination and notification information, you may contact the designated District conservationist.				
Sincerely,				
Signature:				
District Conservationist or Designated Conservationist USDA-NRCS				

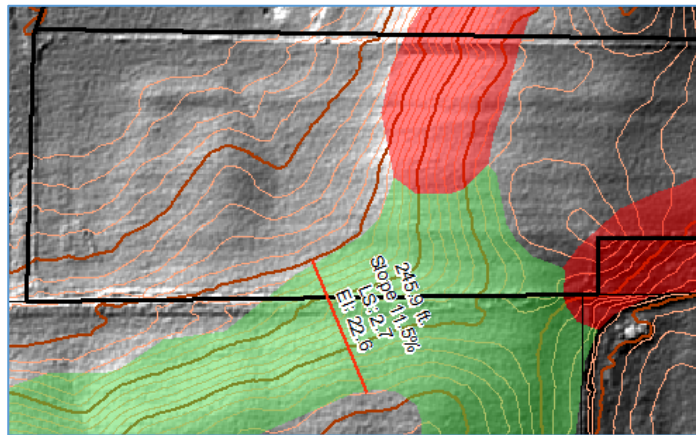
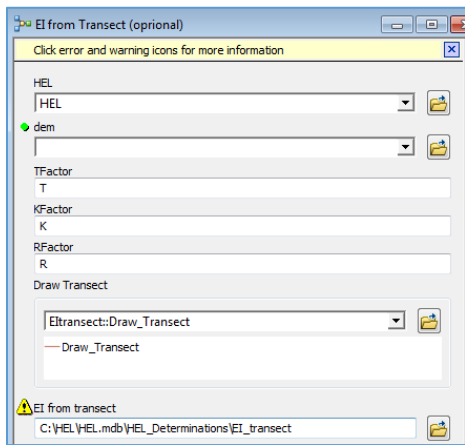
**It is important to close the access database prior to using the model in ArcMap**

Optional tool



The Model will extract from your DEM the slope and length from a line drawn on the map. **It is not linked to any other process, and is for display and reference purpose.** For example, if field calculations were requested during the Preliminary appeal process. The Transect could be verified against the LiDAR data. This tool requires 3D Analyst to be enabled

The tool is optional and as before, once Parameter are set in the Model (T,K,R,HEL), they can be removed from the Model display.



Please provide any changes, improvements to this Tool.

<p>Kevin Godsey, Soil Scientist Missouri NRCS MLRA Soil Survey, Marble office PO BOX 199 406 East Main St. Marble Hill, MO 63764 OFFICE 573-741-3033 FAX 855-835-0067 <a href="mailto:kevin.godsey@mo.usda.gov">kevin.godsey@mo.usda.gov</a></p>	<p>Christiane Roy SE MN Regional GIS Specialist <b>USDA - NRCS</b> 1485 Industrial Drive #102, Rochester, MN 555901 ☎:office (507) 405-3580 ☎:cell (507)-951-2256 ✉: <a href="mailto:christiane.roy@mn.usda.gov">christiane.roy@mn.usda.gov</a></p>
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