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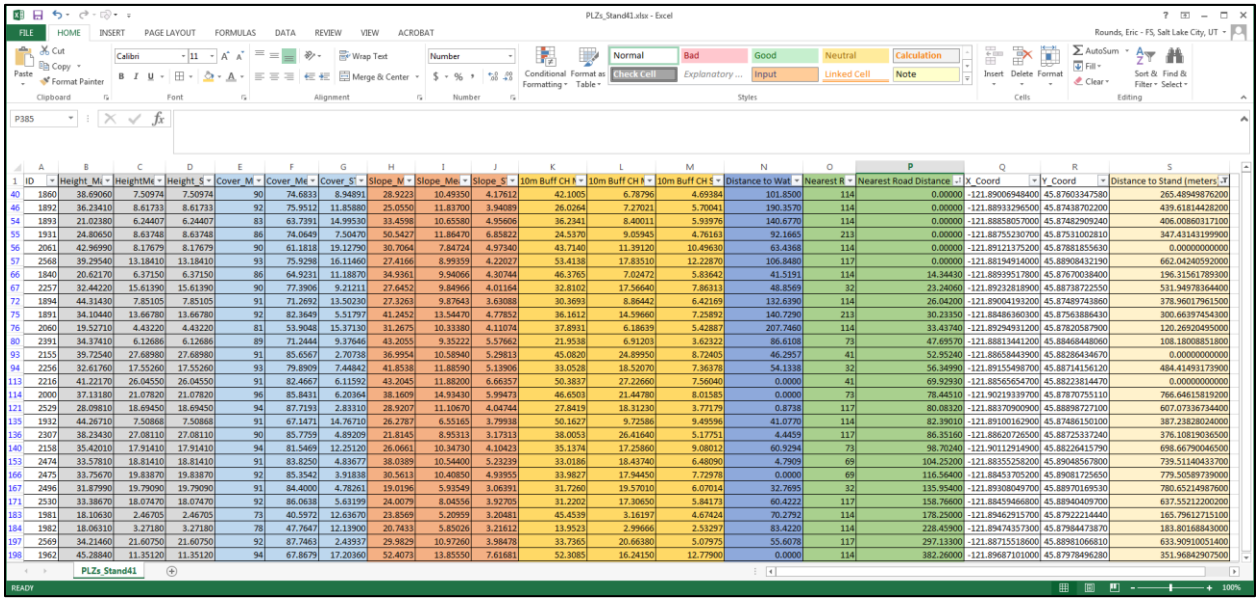
Version: eCognition & ArcMap 10.x

EXERCISE 6

Create Final Table in Excel



ID	Height_Me	HeightMe	Height_S	Cover_M	Cover_Me	Cover_S	Slope_M	Slope_Me	Slope_S	10m Buff CH	10m Buff CH	10m Buff CH	Distance to Wat	Nearest R	Nearest Road Distance	X_Coord	Y_Coord	Distance to Stand (meters
1860	38.69060	7.50974	7.50974	90	74.6833	8.94891	28.9223	10.49350	4.17612	42.1005	6.78796	4.69384	101.8500	114	0.00000	-121.89006948400	45.87603347580	265.48949876200
1892	36.23410	8.61733	8.61733	92	75.9512	11.85880	25.0550	11.83700	3.94089	26.0264	7.27021	5.70041	190.3570	114	0.00000	-121.88933296500	45.87438702200	439.61814428200
1893	21.02380	6.24407	6.24407	83	63.7391	14.99530	33.4598	10.65580	4.95606	36.2341	8.40011	5.93976	140.6770	114	0.00000	-121.88858057000	45.87482909240	406.00860317100
1931	24.80650	8.63748	8.63748	86	74.0649	7.50470	50.5427	11.86470	6.85822	24.5370	9.05945	4.76163	92.1665	213	0.00000	-121.88755230700	45.87531002810	347.43143199900
2061	42.96990	8.17679	8.17679	90	61.1818	19.12790	30.7064	7.84724	4.97340	43.7140	11.39120	10.49630	63.4368	114	0.00000	-121.89121375200	45.87881855630	0.00000000000
2568	39.29540	13.18410	13.18410	93	75.9298	16.11460	27.4166	8.99359	4.22027	53.4138	17.83510	12.22870	106.8480	117	0.00000	-121.88194914000	45.88908432190	662.04240592000
1840	20.62170	6.37150	6.37150	86	64.9231	11.18870	34.9361	9.94066	4.30744	46.3765	7.02472	5.83642	41.5191	114	14.34430	-121.88939517800	45.87670038400	196.31561789300
2257	32.44220	15.61390	15.61390	90	77.3906	9.21211	27.6452	9.84966	4.01164	32.8102	17.56640	7.86313	48.8569	32	23.24060	-121.89232818900	45.88738722550	531.94978364400
1894	44.31430	7.85105	7.85105	91	71.2692	13.50230	27.3263	9.87643	3.63088	30.3693	8.86442	6.42169	132.6390	114	26.04200	-121.89004193200	45.87489743860	378.96017961500
1891	34.10440	13.66780	13.66780	92	82.3649	5.51797	41.2452	13.54470	4.77852	36.1612	14.59660	7.25892	140.7290	213	30.23350	-121.88486360300	45.87563886430	300.66397454300
2060	19.52710	4.43220	4.43220	81	53.9048	15.37130	31.2675	10.33380	4.11074	37.8931	6.18639	5.42887	207.7460	114	33.43740	-121.89294931200	45.87820587900	120.26920495000
2391	34.37410	6.12686	6.12686	89	71.2444	9.37646	43.2055	9.35222	5.57662	21.9538	6.91203	3.62322	86.6108	73	47.69570	-121.88813441200	45.88468448060	108.18008851800
2155	39.72540	27.68980	27.68980	91	85.6567	2.70738	36.9954	10.58940	5.29813	45.0820	24.89950	8.72405	46.2957	41	52.95240	-121.88658443900	45.88286434670	0.00000000000
2256	32.61760	17.55260	17.55260	93	79.8909	7.44842	41.8538	11.88590	5.13906	33.0528	18.52070	7.36378	54.1338	32	56.34990	-121.89155498700	45.88714156120	484.41493173900
2216	41.22170	26.04550	26.04550	91	82.4667	6.11592	43.2045	11.88200	6.66357	50.3837	27.22660	7.56040	0.0000	41	69.92930	-121.88565654700	45.88223814470	0.00000000000
2000	37.13180	21.07820	21.07820	96	85.8431	6.20364	38.1609	14.93430	5.99473	46.6503	21.44780	8.01585	0.0000	73	78.44510	-121.90219339700	45.87870755110	766.64615819200
2529	28.09810	18.69450	18.69450	94	87.7193	2.83310	28.9207	11.10670	4.04744	27.8419	18.31230	3.77179	0.8738	117	80.08320	-121.88370900900	45.88898727100	607.07336734400
1932	44.26710	7.50868	7.50868	91	67.1471	14.76710	26.2787	6.55165	3.79938	50.1627	9.72586	9.49596	41.0770	114	82.39010	-121.89100162900	45.87486150100	387.23828024000
2307	38.23430	27.08110	27.08110	90	85.7759	4.89209	21.8145	8.95313	3.17313	38.0053	26.41640	5.17751	0.4459	117	86.35160	-121.88620726500	45.88725337240	376.10819036500
2158	35.42010	17.91410	17.91410	94	81.5469	12.25120	26.0661	10.34730	4.10423	35.1374	17.25860	9.08012	60.9294	73	98.70240	-121.90112914900	45.88226415790	698.66790046500
2474	33.57810	18.81410	18.81410	91	83.8250	4.83677	38.0389	10.54400	5.23239	33.0186	18.43740	6.48090	4.7909	69	104.25200	-121.88355258200	45.89048567800	739.51140433700
2475	33.75670	19.83870	19.83870	92	85.3542	3.91838	30.5613	10.40850	4.93955	33.9827	17.94450	7.72978	0.0000	69	116.56400	-121.88453705200	45.89081725650	779.50589739000
2496	31.87990	19.79090	19.79090	91	84.4000	4.78261	19.0196	5.93549	3.06391	31.7260	19.57010	6.07014	32.7695	32	135.95400	-121.89308049700	45.88970169530	780.65214987600
2530	33.38670	18.07470	18.07470	92	86.0638	5.63199	24.0079	8.04556	3.92705	31.2202	17.30650	5.84173	60.4222	117	158.76600	-121.88459466800	45.88940409700	637.55212200200
1981	18.10630	2.46705	2.46705	73	40.5972	12.63670	23.8569	5.20959	3.20481	45.4539	3.16197	4.67424	70.2792	114	178.25000	-121.89462915700	45.87922214440	165.79612715100
1982	18.06310	3.27180	3.27180	78	47.7647	12.13900	20.7433	5.85026	3.21612	13.9523	2.99666	2.53297	83.4220	114	228.45900	-121.89474357300	45.87984473870	183.80168843000
2569	34.21460	21.60750	21.60750	92	87.7463	2.43937	29.9829	10.97260	3.98478	33.7365	20.66380	5.07975	55.6078	117	297.13300	-121.88715518600	45.88981066810	633.90910051400
1962	45.28840	11.35120	11.35120	94	67.8679	17.20360	52.4073	13.85550	7.61681	52.3085	16.24150	12.77900	0.0000	114	382.26000	-121.89687101000	45.87978496280	351.96842907500

Introduction

Now that you have generated all of the pertinent statistics for potential landing zones for a single candidate stand, it is time to bring that attribute table into Excel where you can begin to identify the most ideal landing zones.

Objectives

- Modify table to be more intuitive for users
- Use filters and sorting in excel to narrow down potential landing zones to the best options

Required Data

- **PLZs_Stand41.dbf—**this is one of the files that accompanies the PLZs_Stand41 shapefile and contains the attribute table information.

Prerequisites

- **Microsoft Excel**
- **Completed Exercises 1-5**

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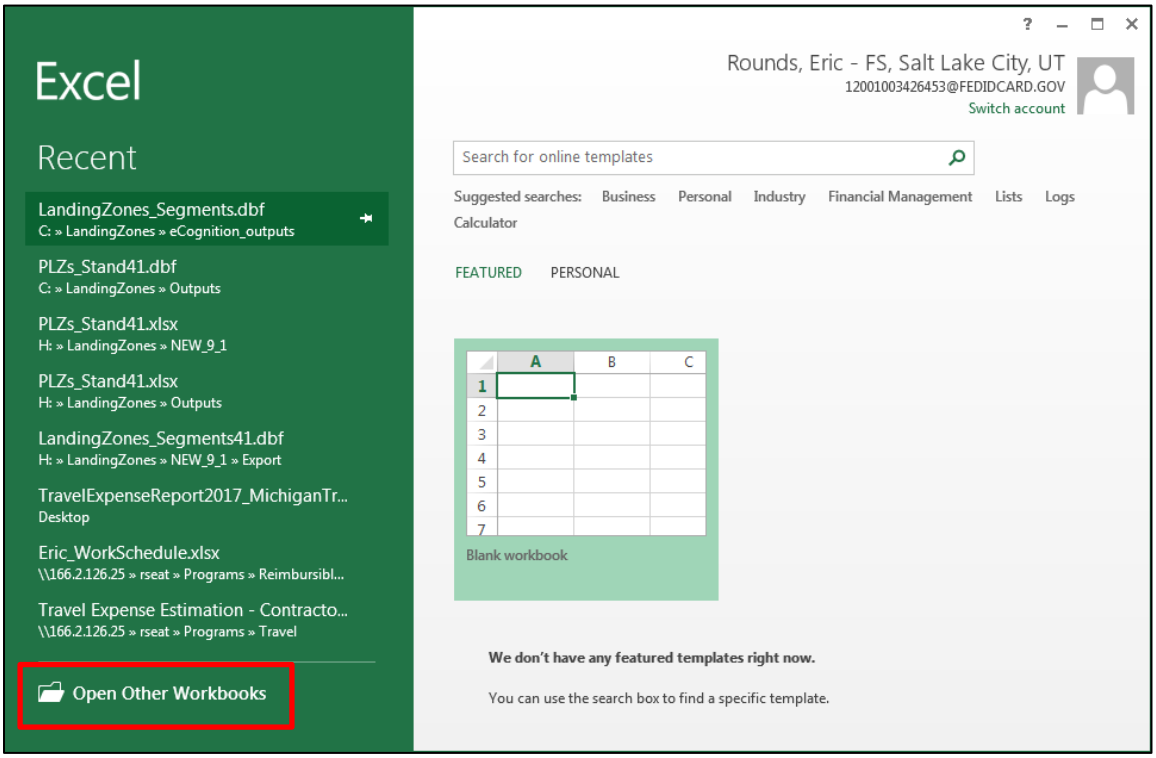
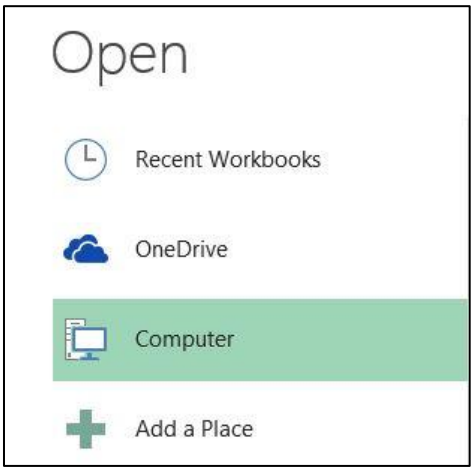
Part 1: Open Microsoft Excel

A. Start Excel

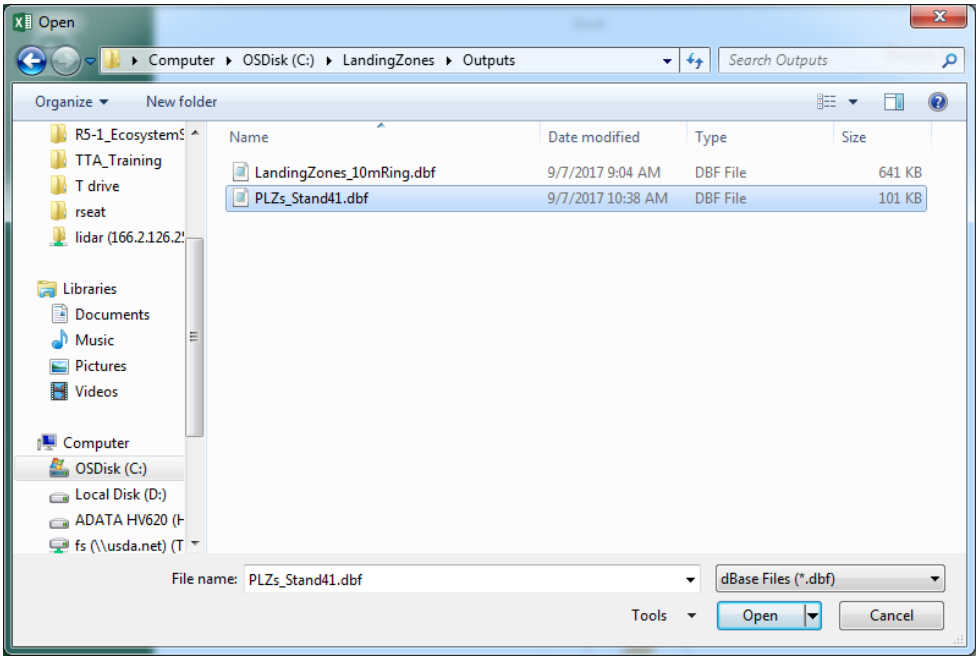
1. Open **Microsoft Excel** by navigating to **Start, All Programs and Microsoft Office 20xx.**
2. Click the **Open Other Workbooks** button at the bottom left of the window that opens up (see below).



3. Next, click the **Computer** button (see below) and navigate to the location of the **PLZs_Stand41** shapefile (C:\LandingZones\Outputs).



4. Once you've navigated to that folder, click the drop down menu that currently reads **All Excel Files (*.xl*;*xlsx,*.xlsm,** etc.) and select **dBase files** (see below).

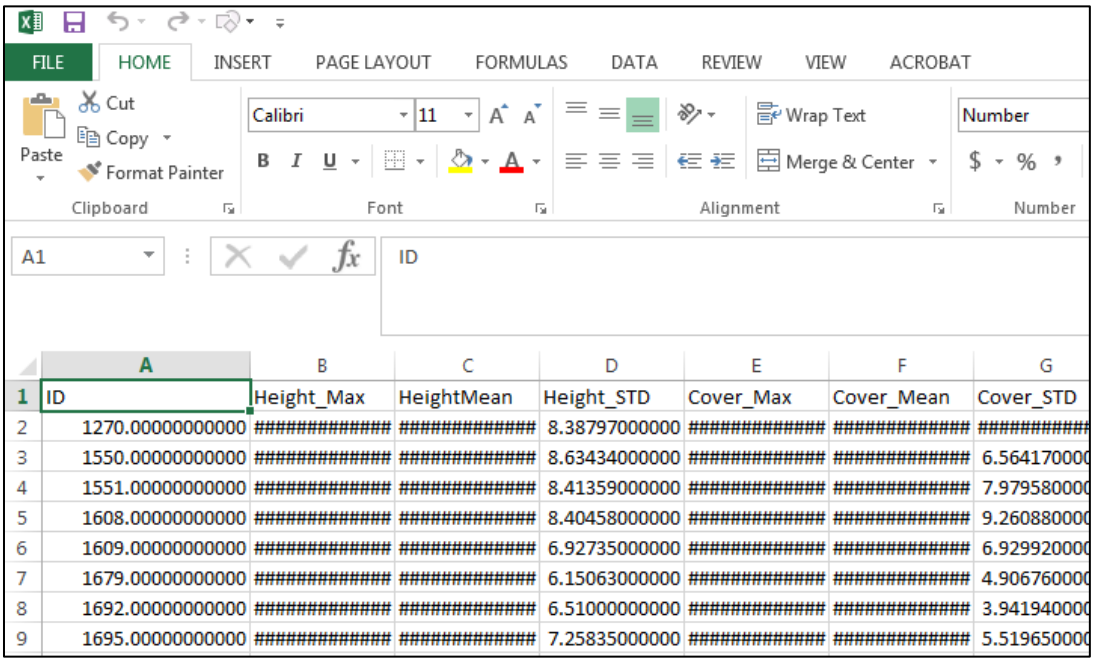


5. You should now see **PLZs_Stand41.dbf.** This is the database file associated with this shapefile and it contains all of the attribute table information.
6. Select **PLZs_Stand41.dbf** and click **Open**.

Part 2: Format Excel Table

A. Adjust Columns

1. At first, your excel sheet may look similar to the below image.

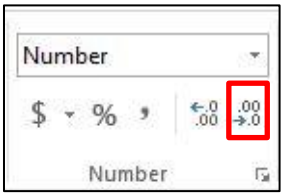


	A	B	C	D	E	F	G
1	ID	Height_Max	HeightMean	Height_STD	Cover_Max	Cover_Mean	Cover_STD
2	1270.00000000000	############	############	8.38797000000	############	############	###########
3	1550.00000000000	############	############	8.63434000000	############	############	6.564170000
4	1551.00000000000	############	############	8.41359000000	############	############	7.979580000
5	1608.00000000000	############	############	8.40458000000	############	############	9.260880000
6	1609.00000000000	############	############	6.92735000000	############	############	6.929920000
7	1679.00000000000	############	############	6.15063000000	############	############	4.906760000
8	1692.00000000000	############	############	6.51000000000	############	############	3.941940000
9	1695.00000000000	############	############	7.25835000000	############	############	5.519650000

2. To display the values in the columns that currently show **########...**, click the column **A** header, hold the **Shift** key and then click the final column (T). This should highlight all of the columns that contain information.
3. Next, place your cursor on the line between the column **A** and **B** headers and double click**.** This will expand the column widths and eliminate the pound symbols (#).

B. Adjust Number of Decimal Places

1. Highlight column **A** by clicking it.
2. Make sure that the **Home** tab is selected at the top of your Excel window and locate the **Number** section of the Home menu (see below).



   i. The **Decrease Decimal** button highlighted above will reduce the number of decimal places displayed in the data.

3. Click the **Decrease Decimal** button until the **ID** column has zero decimal places (see below).

	A	B
1	ID	Height_Max
2	1270	32.30480000000
3	1550	37.38510000000
4	1551	37.37390000000
5	1608	34.35070000000
6	1609	32.83860000000
7	1679	34.49100000000

4. To decrease the number of decimals for multiple columns at a time, select the next column (Height_Max), hold **Shift** and then select a range of columns you would like to adjust. Be careful though, because you don't want to eliminate any of the non-zero values. These vary in some columns, such as **DIST_Road**, which has values in 8 decimal places. This amount of detail isn't necessary, so adjust the number of decimals according to your own preference.
5. The **Cover_Max** and **FID_Road** columns can be adjusted to zero decimal places, while the **NEAR_DIST** column can be adjusted to two decimal places.

Part 3: Edit Column Names

Some of the column names are pretty intuitive, while others are not, especially for people who did not create the table themselves. In order to make the columns more intuitive for users, this section will walk you through making the column names more descriptive.

A. Edit Near Columns

1. Click cell **O1** that reads **FID_Road**.

2. Change the name to **Nearest Road FID**.
3. Next, click cell P**1** and change the name to **Nearest Road Distance (meters)**.
4. Place your cursor in between the column headings **P** and **Q**, and double click to expand these rows so that you can see the full names.
5. This portion of the table should look similar to the below image:

N	O	P	Q
DIST_Water	Nearest Road FID	Nearest Road Distance (meters)	X_Coord
151.0850	41	1179.72000	-121.88771632800
117.5790	222	0.00000	-121.90543029900
117.7770	222	19.80890	-121.90646175400
132.8040	41	1139.94000	-121.88763310700

B. Change Other Column Names

1. To make some of the column names more descriptive, you can simply add the units to the end of the column names.
2. Click **Height_Max** (B1) and add (**meters**) to the end of the name.
3. Do the same for the rest of the **Height** columns.
4. Add **(percent)** to the end of each of the 3 **Slope** columns, as well as the **Cover** columns.
5. Next, click on the **Buff_Max** column header (K1) and change the name to **10m Buff CH Max**.
6. Repeat this for **Buff_Mean** and **Buff_STD**, but use their respective statistic types, **Mean** and **STD**, instead of **Max** (see below).

K	L	M
10m Buff CH Max	10m Buff CH Mean	10m Buff CH STD
33.4288	17.28230	7.93044
45.7268	19.68880	10.00070
47.7612	20.21990	9.53479
32.6010	17.23330	7.51879

7. Change the **DIST_Water** header name to **Distance to Water (meters).**
8. Change the **NEAR_DIST** header name to **Distance to Stand (meters)**.
   i. You now have a set of names that are sufficiently descriptive for outside users of this dataset. Feel free to adjust these names according to your own preference.

Part 4: Highlight Related Statistics Rows

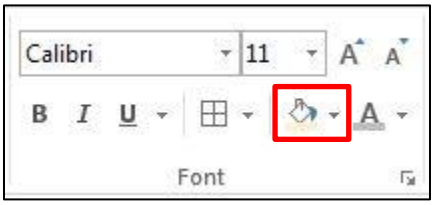
Since there are many different statistics in this table, you will assign different colors to related columns so that users of the table can easily differentiate between statistics for canopy height and cover, for instance.

A. Group Statistics By Colors

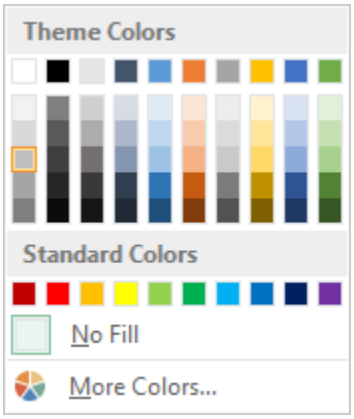
1. Click **column B** to highlight it.
2. Hold the **Shift** key and then select **column D** to highlight columns B, C and D (see below).

	A	B	C	D
1	ID	Height_Max (meters)	HeightMean (meters)	Height_STD (meters)
2	1270	32.3048	16.21560	8.38797
3	1550	37.3851	22.36510	8.63434
4	1551	37.3739	19.98090	8.41359
5	1608	34.3507	16.91740	8.40458
6	1609	32.8386	18.37470	6.92735
7	1679	34.4910	22.25710	6.15063
8	1692	37.4434	25.32210	6.51000
9	1695	37.4087	24.66760	7.25835
10	1777	40.1853	15.03130	7.31254

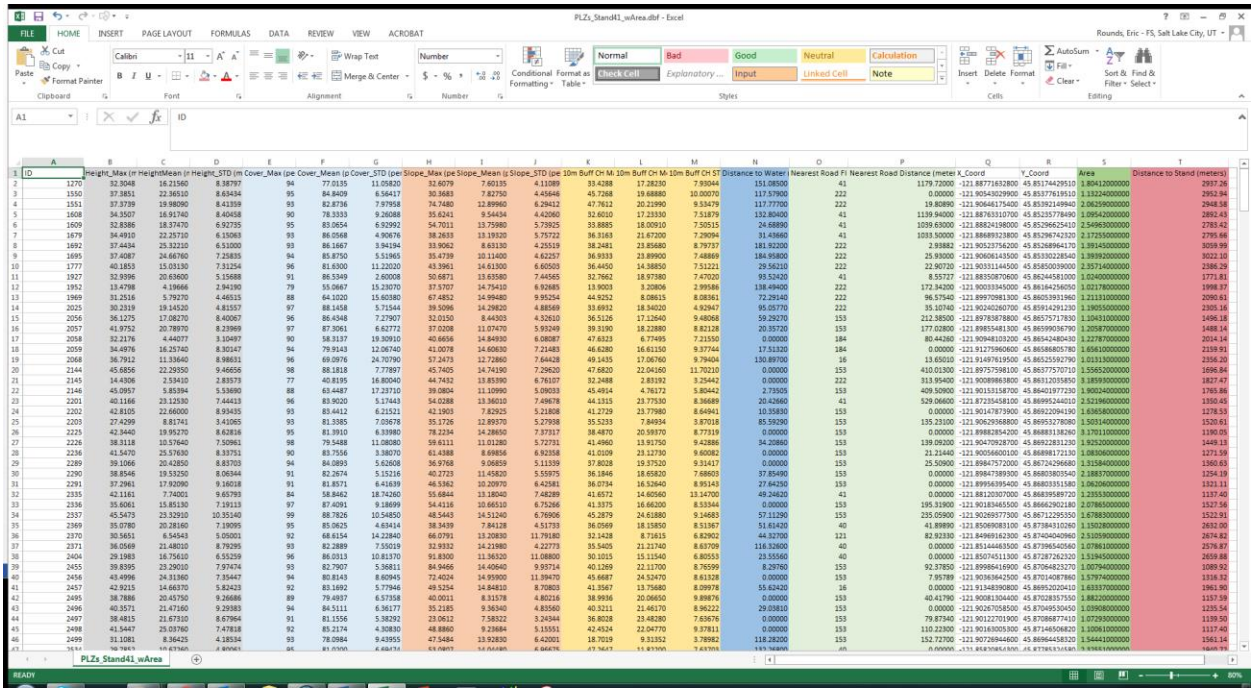
3. Next, ensure that the **Home** tab is selected at the top of the Excel window and click the **Fill Color** option in the **Font** section of the Home menu (see below).



4. Select a light shade of grey for these Height statistics fields (see below).

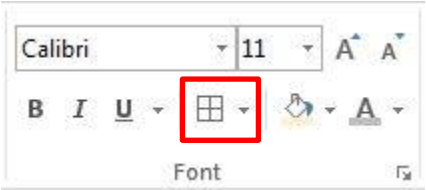


5. **Repeat steps 1-4** for the following groups of statistics: **Cover_***, **Slope_***, **10m Buff CH ***, **Distance to Water**, **Nearest Road *** and **Distance to Stand**. Use different light colors so that each of these groupings has a unique color.
   i. You can leave the **ID**, **X_Coord** and **Y_Coord** rows as they are.
6. The resulting table should look similar to the below image.



i. Since you use the Fill Colors for most of the rows, the divisions between individual cells are no longer visible.

7. Click anywhere in the Excel window and hold the **Ctrl** + **A** keys at the same time. This will select all of the cells in the spreadsheet.
8. Next, click the drop down menu on **Borders** button in the **Font** section of the Home tab at the top of the Excel window (see below).



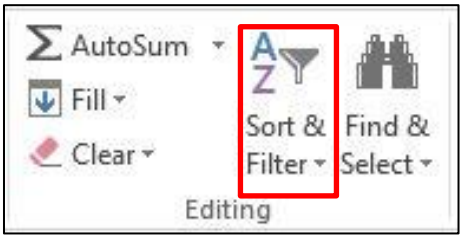
9. Choose the **All Borders** options.

Part 5: Add Filters

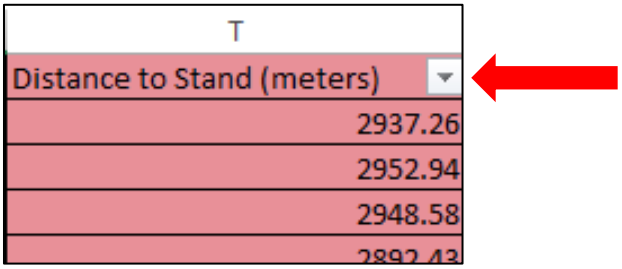
Now that all of the data is in a single spreadsheet and the column headers are intuitive, you can start narrowing down the best options based on the data you have. This section will provide some guidance for selecting the ideal landing zone for this single candidate stand, but, ultimately, you can choose the ideal stands based on your own preferences.

A. Add Column Filters

1. Select one of the column headers by clicking it.
2. Ensure the **Home** tab is selected at the top of the Excel window and click the **Sort & Filter** button at the far right of the Home menu (see below).



3. In the **Sort & Filter** menu, select **Filter**.
4. This will add a drop down arrow to each column header (see below).



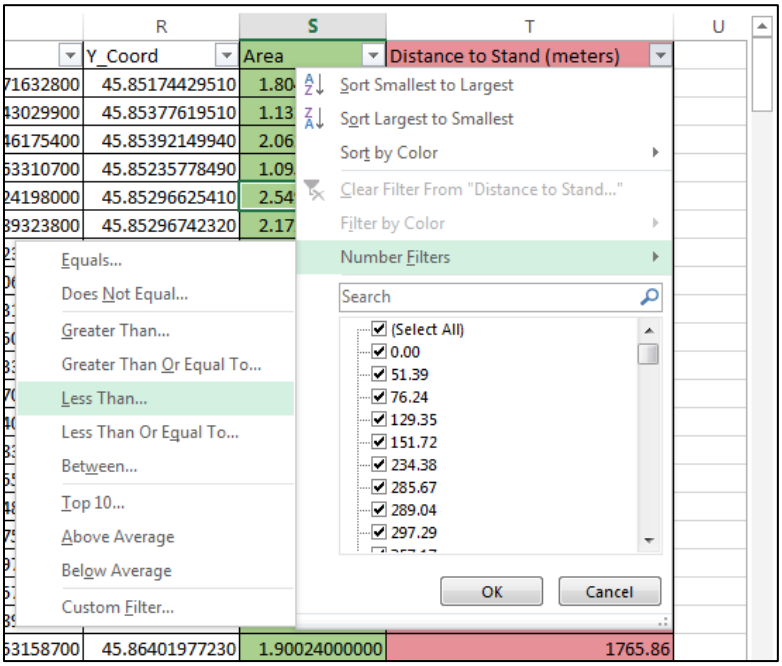
B. Sort By Maximum Slope

1. In the **Slope_Max (percent)** column, click the drop down filter button and select **Sort Smallest to Largest**.
   i. You will now see that the PLZs with the lowest maximum slope are at the top of the list.

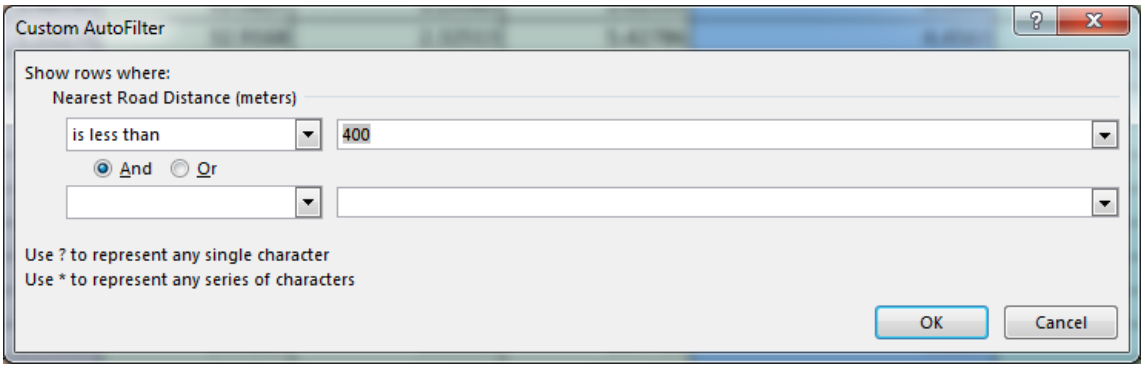
Note: *You can use all the three slope statistics to assess the suitability of a given PLZ. Sometimes a PLZ will have a high maximum slope value, but a low mean slope value. This may indicate that there are very few 1x1 meter pixels that have a high slope. If that is the case, you can look at that PLZ in ArcMap to see how much of the PLZ is above the desired slope threshold and where those pixels are located within the PLZ. If these pixels are on the edge of the PLZ, then you could still select it and simply not land in the steeper areas. In some cases, the high slope values may make up such an insignificant part of the PLZ that it is still suitable for helicopters despite the high maximum slope value. This is an important thing to understand because there are many PLZs with a relatively high maximum slope value*

C. Adding Number Filters

1. Click the drop down button in the **Nearest Road Distance (meters) column**, hover the cursor over **Number Filters** and select **Less than** (see below).



2. In the Custom AutoFilter window that opens up, type **400** (this value is just for demonstration) into the first line after the **is less than box** (see below).
   i. You can adjust this threshold as you see fit.



3. You can use any combination of the number filters and sorting to identify the best options for a helicopter landing zone.

Part 6: Save Excel Table

A. Save As

1. Click the **File** tab at the top of the Excel window and select **Save As**.
2. Click the **Browse** button and navigate to your **LandingZones** folder (C:\LandingZones).
3. Name the table **PLZs_Stand41** and leave the **Save as type** set to **Excel Workbook (*.xlsx)**.

Congratulations! You have successfully completed this exercise. You now have a final set of potential landing zones that can be used to assess the most suitable options for a given logging

activity. You can use this final table in tandem with the shapefile in ArcMap to make final decisions.