Survey

Parameters for program:

Input Files - each would have a hole id, the actual name of the columns will differ:

Hole ID - this can be ID, hole, Hole-ID, number, or some variation of that. It will be the only column that has a whole number which has a prefix of a letter and possibly a suffix as well. The program needs to account for different names in the column.

Standard format should be "FP-XXX" where XXX is the number. Sometimes there will be a "-b" behind the XXX, this would indicate that it is a battered pipe, there can also be an "a" or other letter behind the XXX in the form XXXa - this would indicate that it is a gap pipe and therefore would not be on the original survey. In the case of gap pipes, the id would have the same number as another pipe, but be distinguished by the "a" at the end. Sometimes the ID may be in another format, if this is the case, the actual number would be the ID and should be put into the format of "FP-XXX". The exception is if there is an "a" after the number, this would be "FP-XXXa"

Northing - Northing or y data will have different column headers such as Northing, north, y, etc.

Easting - this is the x data. This will have different column headers such as Easting, east, y, etc.

Elevation - this may or may not be in the base line. The elevation in the down hole is the starting elevation minus the down portion of the length.

Files that will be inputs:

\* Baseline Survey - ID, x and y data, and possibly elevation.

\* Top of Pipe Survey - ID, x, y and elevation.

\* Downhole survey - ID, azimuth, inclination, and length. May also have Northing and Easting data, but this is normally based off of arbitrary point such as 1000,1000,1000.

Output files:

\* Survey File for project - this will have the ID, north, east, elevation.

\* Point elevation file - This will be all the northing and eastings at a certain elevation. If downhole survey has not been added, the northing and easting will be the same as the top of pipe.

\* Graph of Northing vs depth, easting vs depth and northing vs easting.

Outputs

Survey Files: This will combine the original baseline survey with the top of pipe and downhole survey.

Everytime a file is uploaded the following is done:

1. The most current Survey file is taken and used, if no file, one will be created

2. A column listing if the data is baseline of survey will be created to show what type of data it is. All points in the downhole will have the same status.

3. If there is downhole added, the downhole is added to correct hole.

4. If there is survey data, the survey data will replace the baseline data and the status column will be changed from baseline to survey.

5. If there is a conflict in the data, the changelog will note the conflict, listing the full survey data that is in conflict.

6. If there is no conflicts, then the change log will say "no conflicts" and list the changed holes and added downhole surveys.

7. Data will be written into the new file which will have the file name structure of "YYYY.MM.DD\_PROJECT\_Survey" Where project will be given at the begining of the project and kept throughout. If there are more than one update done during a day, there will be a "vX" put at the end where X is the number of the version.

Point Elevation Files: This will give a csv file that gives all the points at a given elevation.

Every time an elevation is given the following is done:

1. For each hole, a northing and easting will be given.

2. If there is downhole data, this will be calculated from the downhole data.

3. If there is not downhole data, the baseline or top or pipe survey northing and easting will be given.

4. The file will be returned in a csv format.

Graph Data: This will give the deviations from North, East and North vs East.

Every time a graph is asked for the following is done:

1. Hole tops will be set to 0,0,0 with corresponding points making the same shift

2. Graphs will be made according to the directions below.

Data flow:

1. Initialize the program, preferably through a icon to click and start.

2. GUI would come up with the following options:

a. Initialize Project

b. Update Survey

c. Elevation Data

d. Graphs

After the selection, the following would happen:

If Initialize Project is picked:

1. User input:

a. It will ask for the baseline survey

b. It will have you set a folder where output will be

c. It will allow a PROJECT name to be given

2. Process:

a. It will initialize a new file in the given project with the name: "YYYY.MM.DD\_PROJECT\_Survey.csv"

b. Columns in this file will be:

1. ID

2. Status

3. Easting

4. Northing

5. Elevation

c. A project center will be determined using the baseline data. The center will be kept in the info for the project. Possibly using a text file, or some other means.

d. Each data point will be cleaned, the hole ID will be put into the form of "FP-XXX" or "FP-XXX-B"

e. Status will be set to Baseline

f. The northing, easting and elevation, if there is elevation will be transfered to the new file. If there is no elevation, a gui will pop up and ask what elevation to use as base.

g. All points will be set to given elevation.

If Update Survey is picked:

1. User input:

a. It will ask for the project folder, allowing it to be navigated to.

b. It will ask for Top of Pipe survey data and Downhole elevation. Either can be left blank, but there needs to be one for the program to run.

2. If Top of Pipe is given:

a. Determine the correct ID for each entry. Put in standard form.

b. Replace all top of pipe survey northing, easting and elevation.

c. Replace the Status with "Surveyed"

3. If Downhole is given:

a. Determine the correct ID for each entry. Put in standard form.

b. Add downhole data, calculating the northing easting and elevation at each level. The standard is for Boretrak data.

c. Add the same status as the top point to each downhole point.

4. If both, do both items 2 and 3.

If there are discrepanies with the data:

1. Baseline data should be within +-5.0, if it is greater than this, report on the change log.

2. If Survey already exsists and is different from the one given: Report the full entries in the change log, replace the information with the current file.

3. If the downhole data is different, give ID number and calculated data of both old and new, replace with the new.

4. If the pipe number does not exsist in Baseline survey.

a. Pop up window with the ID name and ask if the user wants to add it.

Output Changelog:

Add everything stated above alone with the number of survey updated, number of downhole updated, number of descrepencies. Then list descrepencies. Change log will have the same name format as csv files, but will say changelog instead of survey.

If Elevation Data is picked:

A GUI will pop up asking the elevation and asking for centered points or real survey.

For Centered points:

\* The points will all be calculated at the elevation and then will be centered around the project center.

For Real Survey:

\* Points will be given as is.

If Graphs is picked:

1. GUI will pop up and ask if: Individal Hole, All holes, latest holes

2. The Folder is chosen.

3. The latest data file is used.

4. All holes are set to 0,0,0 at the top.

If Individual Hole:

Will ask which hole.

If All Holes:

Will proceed to making graphs.

If latest holes:

Will check corrisponding changelog to determine the latest holes and graph those.

1. Each graph will be symetrical.

2. The first graph will be Northing vs Depth

3. The second graph will be Easting vs Depth

4. The last graph will be Norhting vs easting.

5. All graphs will round up to the largest whole number and use that as the bounds to the graph, unless it is less than 1, in which case the bounds will be 2.

6. Graphs will be on a 8.5x11, landscape page. The graphs vs depth will go the whole page length minus the margins of .5 on each side. The north vs east graph will be symetrical and have the same scale for units both x and y.

7. Each page will have the hole number stated above the north vs east graph.