GDB_DataReview ArcMap Toolbox Tutorials

Air Force Civil Engineering Center (AFCEC) Geospatial Integration Office (GIO)

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Contents

Chapter 1

Overview

This document gives an overview of how to use the GDB_DataReview ArcMap Toolbox.

The GDB_DataReview ArcMap Toolbox provides numerous Python script tools to expedite the review of geodatabases in comparison with a template geodatabase model.

Chapter 2

Join Fields and Calculate

2.1 Overview

The ArcGIS Python Script Tool “Join Fields and Calculate” may be used to update the destination values in a target feature layer field with the values in another table’s fields using a common key (join). This script will perform similarly as if you joined a table to a feature class to calculate a certain field based on another field in the joined table.

2.2 Parameters

The tool has 8 parameters:

1. **Transfer_From (data type: Table View)** - Which table are do you want to transfer data from? This parameter must be the path to a table(e.g.: Comma-separated Values (.csv) file, Excel Workbook (.xlsx) Sheet, Esri geodatabase table, etc.). This table will act as ‘source’ data.
2. **Using_Join_Field (data type: Field)** - From the source table, which field should be used to joinwith another feature class’ attributes? This will provide the ‘key’ to transfer data from the source table to the target table.
3. **Source_Field (data type: Field)** - From the source table, which field’s data do you want to transfer to the target table? This field’s data will be updated in the target feature class that have matching fields.
4. **Destination_Feature (data type: Feature Layer or Feature Class)** - Which feature class do you want to transfer data to? This parameter must be the path to a Esri Feature Class or Feature Layer. This table will act as ‘target’ data source.
5. **Destination_Join_Field (data type: Field)** - From the target table, which field should be used to joinwith another feature class’ attributes? This will provide the ‘key’ to transfer data from the source table to the target table.
6. **Destination_Field (data type: Field)** - From the target table, which field’s data do you want to transfer from the source table? This field’s data will be updated from the source table that have matching fields using the join fields provided.
7. **Where_Clause (data type: String)** - How should the source values be filtered? Default is “IS NOT NULL”, otherwise you will overwrite the target features will null values.

8. **Remove_Leading_Zeros (data type: Boolean)** - Do you want to remove leading zeros from the Source Join Field prior to 'joining' the tables?

2.3 How to Use

2.3.1 Begin by opening the toolbox

Navigate to the location of the script tool, then right-click the 'Join Fields and Calculate' script tool to open (Fig. 2.1).

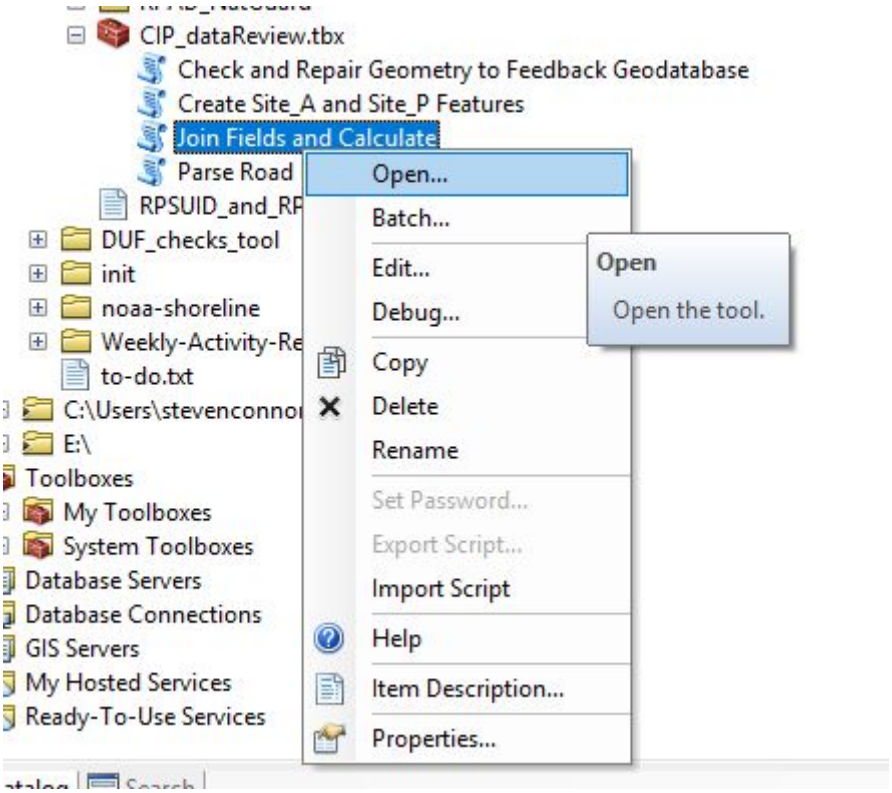


Figure 2.1: Opening the Tool

2.3.2 Fill out the parameters

Next, fill out the parameters for the tool. Here, we want to transfer the RPUID attributes (source field) from the 'RPSUID_and_RPUID.csv' table (transfer from) using the 'FacilityNumber' join field (Using_Join_Field) to the Building_A feature layer's (Destinate Feature) 'realPropertyUniqueID' field (Destination_Field) using the 'buildingNumber' field (Destination_Join_Field) (Fig. 2).

We also keep the default value in the 'Where Clause' parameter of 'IS NOT NULL,' in order to transfer RPUID from the source table where RPUIDs are not null, **otherwise you may overwrite the target features will null values** (Fig. 2).

We noticed that the 'buildingNumber' field has some leading zeros that we want to remove the beginning of the values, so we click the "Remove Leading Zeros" toggle (Fig. 2.2).

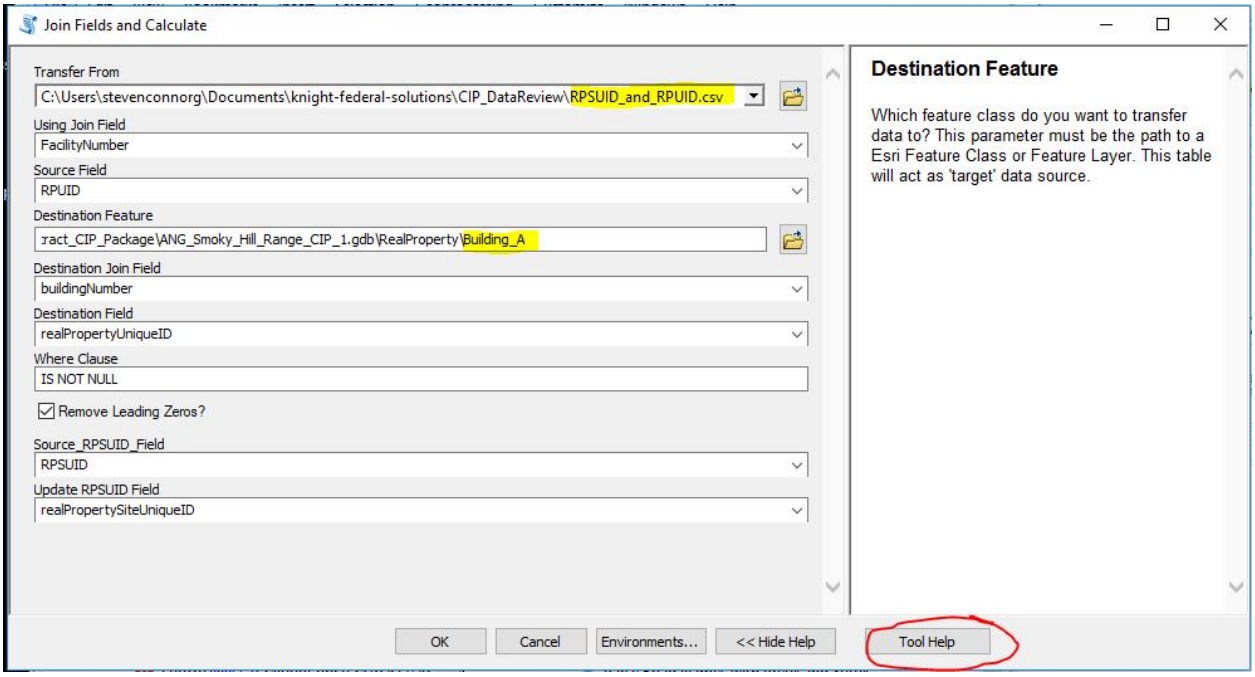


Figure 2.2: Tool parameters

Alternatively, you may also run this tool in ‘batch’ for multiple features in a geodatabase or geodatabases (Fig. 2.3).

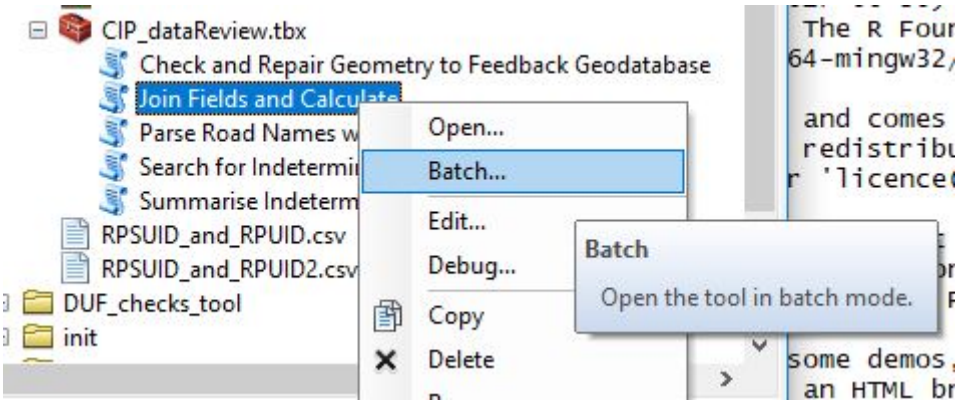


Figure 2.3: Running a tool in batch

You may also get more information for the tool and each tool parameter by clicking the ‘Tool Help’ button at the bottom of the tool dialog box.

2.3.3 Run the Tool and View Results

Open the destinate Feature Class and view the update destination field values (Fig. 2.4, Fig. 2.5).

dex	buildingNumber	realPropertyUniqueID	
99999	4002	521354	exis
99999	4003	1074312	exis
99999	5002	05002	exis
99999	5010	1019979	exis
99999	6001	523801	exis
99999	6004	523803	exis
99999	6010	523805	exis
99999	6012	523807	exis
99999	6013	523808	exis
99999	6020	523809	TBD
99999	6030	523810	exis
99999	N/A	OFF_BASE	exis
99999	N/A	OFF_BASE	exis
99999	N/A	OFF_BASE	exis

Figure 2.4: Attribues before running the tool

	buildingNumber	realPropertyUniqueID	
99	5002	05002	exis
99	5010	1019979	exis
99	4003	1074312	exis
99	TBD	23853	OBS
99	TBD	23854	OBS
99	4002	521354	exis
99	6001	523801	exis
99	6004	523803	exis
99	6010	523805	exis
99	6012	523807	exis
99	6013	523808	exis
99	6020	523809	TBD
99	6030	523810	exis
99	TBD	NO_RP_RECORD	OBS
99	TBD	NO_RP_RECORD	TBD
99	N/A	NO_RP_RECORD	exis

Figure 2.5: Attributes after running the tool

Chapter 3

Calculate Feature RPSUIDs from Overlapping Polygons

3.1 Overview

This tool utilizes spatial joins to update field values in the target Feature Classes field to equal the source Feature Class fields in a source geodatabase. Using 'wildcard' fitlers, this tool allows users to update particular target Feature Datasets, Feature Classes, and Fields. For the purposes of this tool within the scope of the CIP Data Review task, target Fields are, by default, any fields that begin with "realPropertySiteUnique," in order to udpate RPSUID fields called either "realPropertySiteUniqueIdentifier" or "realPropertySiteUniqueID"; however, this tool could be extended to any number of source/target Feature Class/Field values.

3.2 Parameters

The tool has 8 parameters:

1. **Geodatabase (data type: Workspace/File Geodatabase)** - The path to the input geodatabase to update Feature Classes in.
2. **Source Feature (data type: Feature Class)** - The path to the source Feature Class, which will be used to update Feature Class fields in target Feature Classes.
3. **Source_Field (data type: Field)** - The field within the source Feature Class used to update values in target Feature Classes.
4. **Target Feature Dataset Wildcard (data type: String)** - Within the input geodatabase, do you want to update only certain Feature Datasets? Use this wildcard to filter input geodatabase Feature Datasets. The Default is '*' for 'All Feature Datasets,' but if you only wanted to update the Feature Classes in the 'Auditory' Feature Dataset, set this parameter to 'Auditory.' Similarly, if you only wanted to update Feature Classes within environmental Feature Datasets, set this parameter to 'environmental*', which will loop through all Feature Classes within Feature Datasets that start with 'environmental.'
5. **Target Feature Class Wildcard (data type: String)** - Within the input geodatabase, do you want to update only certain Feature Classes? Use this wildcard to filter input geodatabase Feature Classes

to update. The Default is '*' for 'All Feature Classes,' but if you only wanted to update Feature Classes called "roadCenterline_L", set this parameter to 'roadCenterline_L.' Similarly, if you only wanted to update Feature Classes that begin with "road," set this parameter to 'road*', which will loop through all Feature Classes that start with 'road.'

6. **Target Field Wildcard (data type: String)** - This parameter is used to filter fields within the target Feature Classes that you want to update with the Source Feature Classes source Field. For the purposes of this tool within the scope of the CIP Data Review, this parameter is automatically set to "realPropertySiteUnique*" in order to 'catch' all RPSUID fields within the SDSFIE 3.101 data model, where certain fields are called "realPropertySiteUniqueIdentifier" and others are called "realPropertySiteUniqueID."

7. **Overlap Type (data type: String)** - How do you want to limit the spatial join? By default, this parameter is set to "within," in order to only update target features that are completely within the source features. This parameter may be changed to any of the following values, as specified in the SelectByLocation_management tool documentation:

   - *INTERSECT* —The features in the input layer will be selected if they intersect a selecting feature. This is the default.
   - *INTERSECT_3D* —The features in the input layer will be selected if they intersect a selecting feature in three-dimensional space (x, y, and z).
   - *WITHIN_A_DISTANCE* —The features in the input layer will be selected if they are within a specified distance of a selecting feature. Specify a distance in the Search Distance parameter.
   - *WITHIN_A_DISTANCE_3D* —The features in the input layer will be selected if they are within a specified distance of a selecting feature in three-dimensional space. Specify a distance in the Search Distance parameter.
   - *WITHIN_A_DISTANCE_GEODESIC* —The features in the input layer will be selected if they are within a specified distance of a selecting feature. Distance between features will be calculated using a geodesic method which takes into account the curvature of the earth and correctly deals with data near and across the dateline and poles.
   - *CONTAINS* —The features in the input layer will be selected if they contain a selecting feature.
   - *COMPLETELY_CONTAINS* —The features in the input layer will be selected if they completely contain a selecting feature.
   - *CONTAINS_CLEMENTINI* —This spatial relationship yields the same results as COMPLETELY_CONTAINS with the following exception: if the selecting feature is entirely on the boundary of the input feature (no part is properly inside or outside), the feature will not be selected. Clementini defines the boundary polygon as the line separating inside and outside, the boundary of a line is defined as its end points, and the boundary of a point is always empty.
   - *WITHIN* —The features in the input layer will be selected if they are within a selecting feature.
   - *COMPLETELY_WITHIN* — The features in the input layer will be selected if they are completely within or contained by a selecting feature.

- *WITHIN_CLEMENTINI* — The result will be identical to WITHIN with the exception that if the entirety of the feature in the input layer is on the boundary of the feature in the selecting layer, the feature will not be selected. Clementini defines the boundary polygon as the line separating inside and outside, the boundary of a line is defined as its end points, and the boundary of a point is always empty.

- *ARE_IDENTICAL_TO* — The features in the input layer will be selected if they are identical (in geometry) to a selecting feature.

- *BOUNDARY_TOUCHES* — The features in the input layer will be selected if they have a boundary that touches a selecting feature. When the inputs features are lines or polygons, the boundary of the input feature can only touch the boundary of the selecting feature, and no part of the input feature can cross the boundary of the selecting feature.

- *SHARE_A_LINE_SEGMENT_WITH* — The features in the input layer will be selected if they share a line segment with a selecting feature. The input and selecting features must be line or polygon.

- *CROSSED_BY_THE_OUTLINE_OF* — The features in the input layer will be selected if they are crossed by the outline of a selecting feature. The input and selecting features must be lines or polygons. If polygons are used for the input or selecting layer, the polygon's boundary (line) will be used. Lines that cross at a point will be selected, not lines that share a line segment.

- *HAVE_THEIR_CENTER_IN* — The features in the input layer will be selected if their center falls within a selecting feature. The center of the feature is calculated as follows: for polygon and multipoint, the geometry's centroid is used, and for line input, the geometry's midpoint is used.

3.3 How to Use

3.3.1 Begin by opening the toolbox

Navigate to the location of the script tool, then right-click the 'Calculate Feature RPSUIDs from Overlapping Polygon' script tool to open (Fig. 3.1).

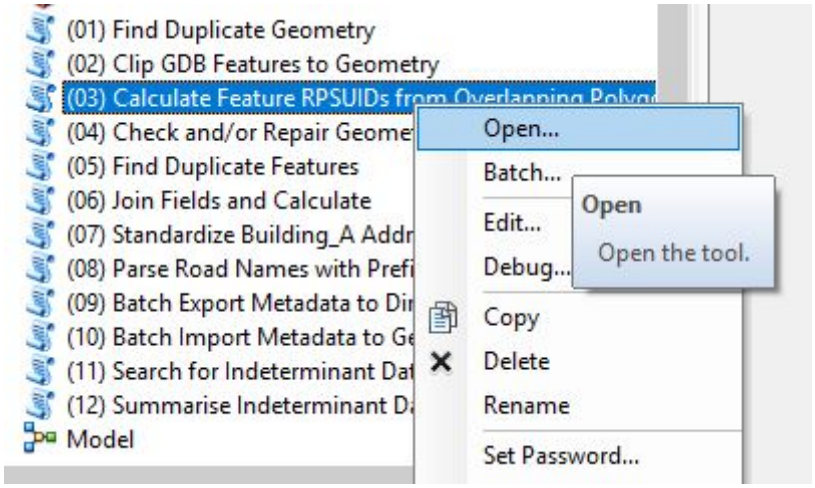
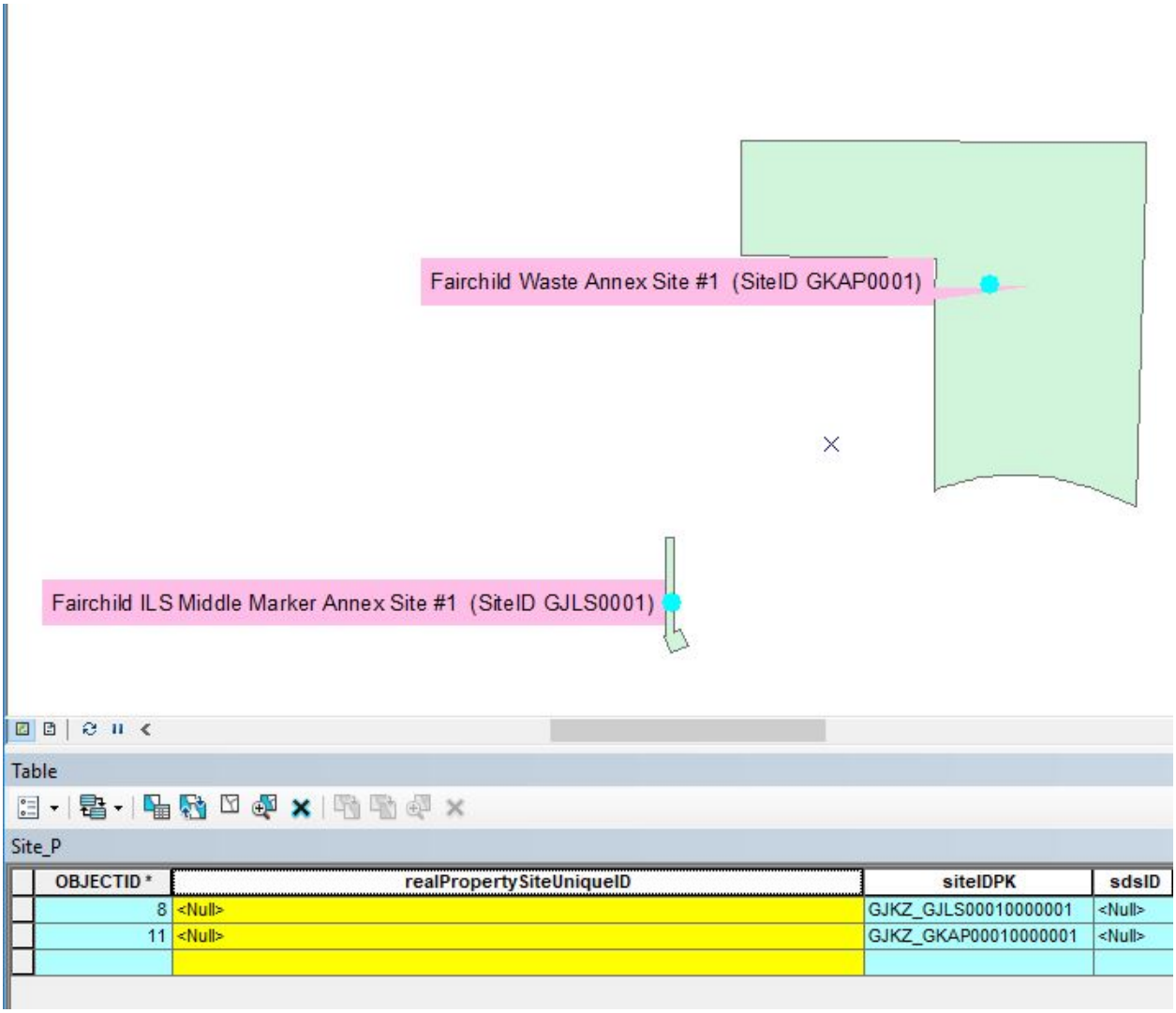


Figure 3.1: Opening the toolbox

3.3.2 Fill out the parameters

For this demostration, we want to update missing RPSUID values for 2 features in the Site_P Feature Class using RPSUID values from Site_A features that contain Site_P features 3.2).



OBJECTID *	realPropertySiteUniqueID	siteIDPK	sdsID
8	<Null>	GJKZ_GJLS00010000001	<Null>
11	<Null>	GJKZ_GKAP00010000001	<Null>

Figure 3.2: Missing RPSUID attributes for Site Point featuresl

Next, fill out the parameters for the tool. Here, we want to transfer the RPSUID attributes (Source Field) from the Site_A Feature Class in the Cadastre Feature Dataset (Fig. 3.3).

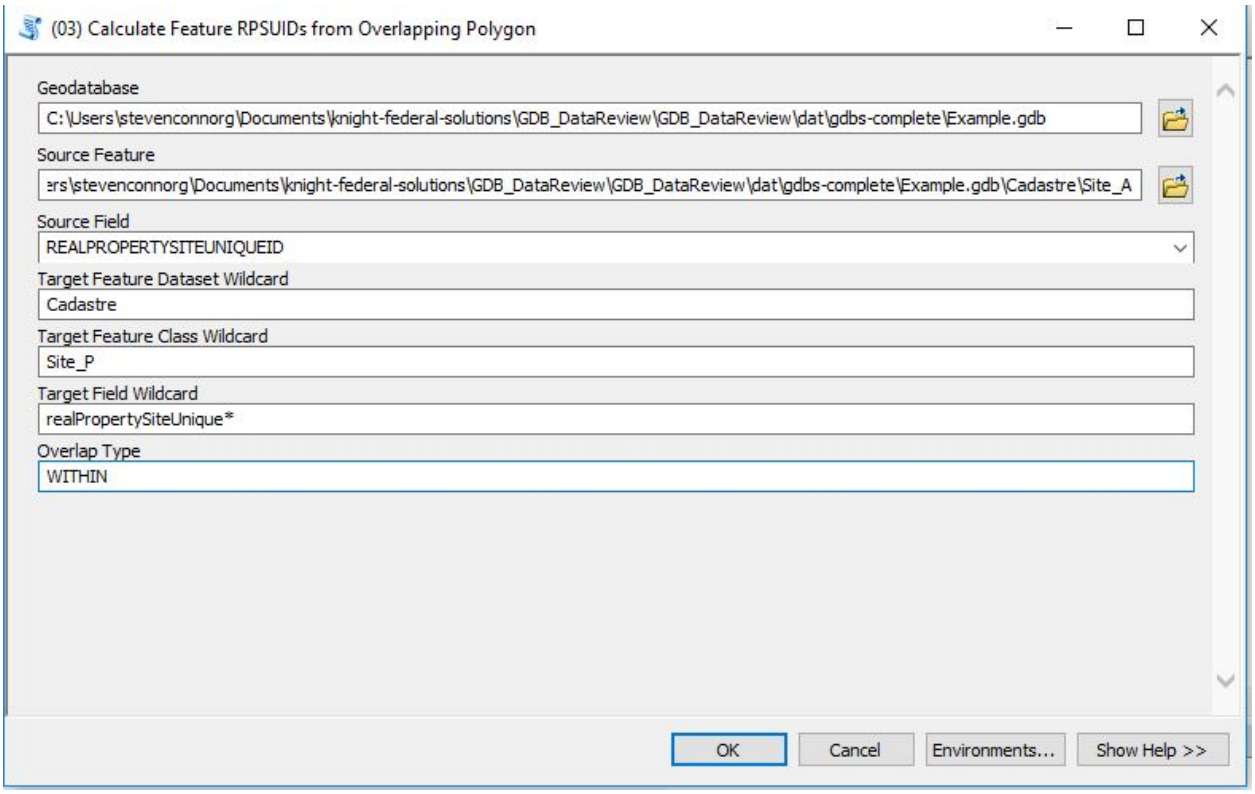


Figure 3.3: Tool parameters

Since we only want to update the Site_P features within the Cadastre Feature Dataset, we change the default value for the Target Feature Dataset Wildcard to “Cadastre,” since we know that the Site_P Feature Class is only found within the Cadastre Feature Dataset. Further, we change the default value of the Target Feature Class Wildcard parameters to “Site_P” in order to only update Site_P features within the Cadastre Dataset. Since we know that the RPSUID field names within all Feature Classes in the data model begin with ‘realPropertySiteUnique’, we can keep the default value for the Target Field Wildcard parameter in order to update the realPropertySiteUniqueID field in Site_P features with with the Source Field in the Source Feature Class.

For the purposes of this demostration, we keep the default value for the Overlap Type parameter to “WITHIN,” in order to update the fields that begin with “realPropertySiteUnique” for features that are *within* each Source Feature Class feature.

You may also get more information for the tool and each tool parameter by clicking the ‘Tool Help’ button at the bottom of the tool dialog box.

3.4 Run the Tool and View Results

If running the tool with Background Processessing disabled, we can see which RPSUIDs are being updated (Fig. 3.4).

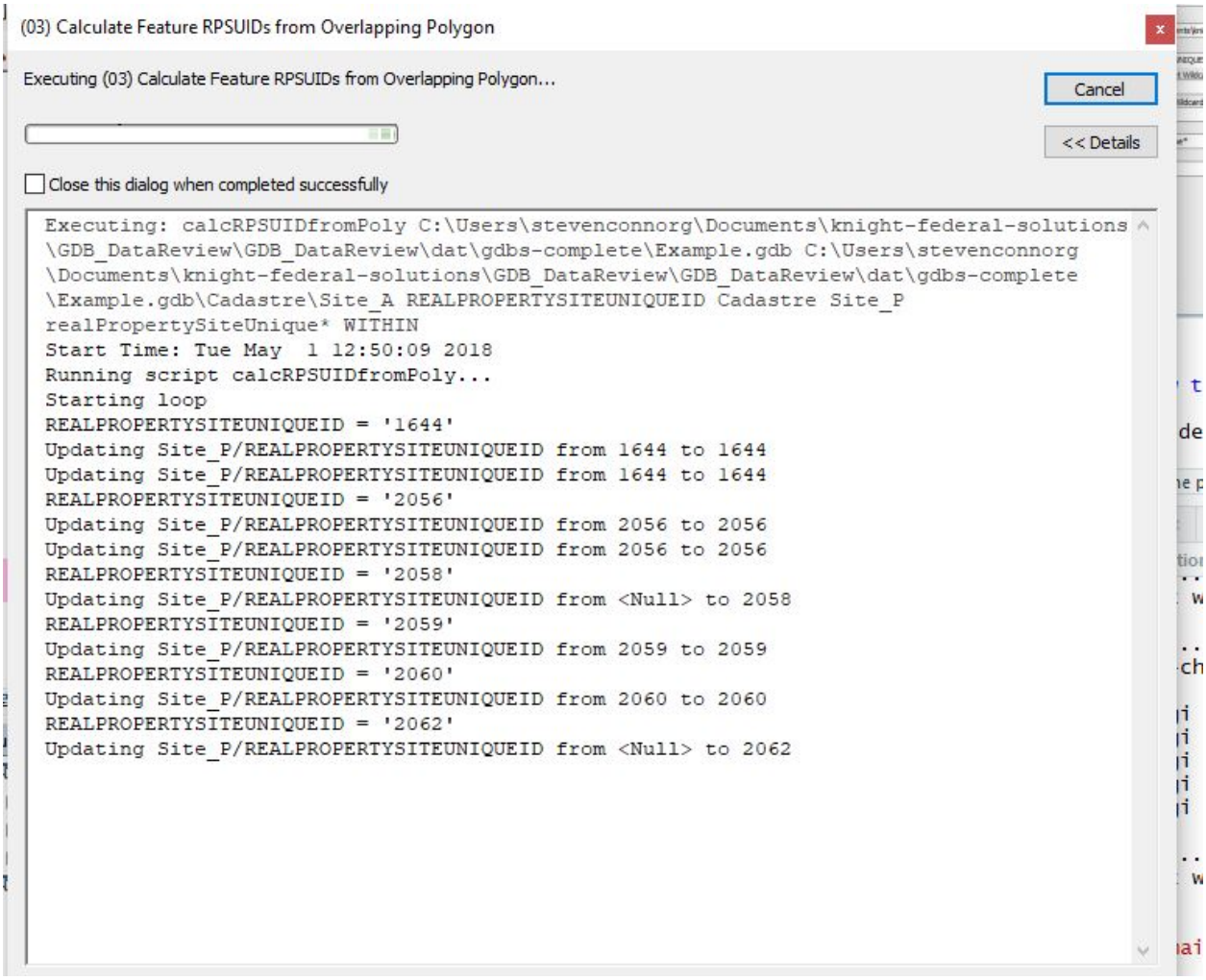


Figure 3.4: Tool parameters

After the tool has run, we see that the 2 Site_P features with missing RPSUID values are updated accordingly 3.5).

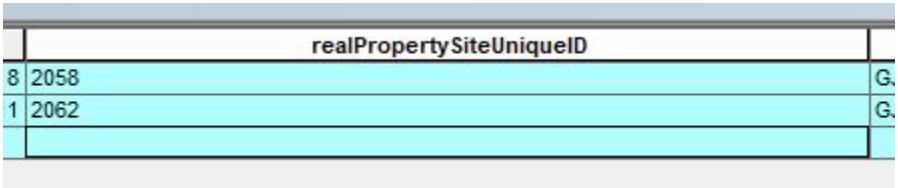


Figure 3.5: Updated attributes after running the tool

Chapter 4

Find Duplicate Geometry

4.1 Overview

The Find Duplicate Geometry tool allows users to search an entire geodatabase's Feature Classes within Feature Datasets for features with duplicate geometries. This tool loops through each Feature Dataset's Feature Class features and searches for duplicate geometries. All features with duplicate geometries are written to the output .csv file, as specified, and describes the Feature Dataset and Feature Class with duplicate geometries, the OBJECTIDs of the duplicate geometries, and a summary, which gives the count of duplicate geometries spread over unique geometries, Further, this tool creates layer files for each Feature Class' duplicate features, allowing users to edit their geodatabase directory from a temporary, filtered layer of only duplicate features to be evaluated further.

4.2 Parameters

The tool has 5 parameters:

1. **Input_Geodatabase (data type: Workspace) -** This parameter must be the path of the input geodatabase to search Feature Datasets' Feature Class features for duplicate geometries.

2. **XY_Tolerance (data type: String) -** The XY_Tolerance parameter will be applied to each vertex when evaluating if there is an identical vertex in another entity, and must be input in the same units as the the source geodatabase's coordinate reference system (CRS).

3. **Z_Tolerance (data type: String) -** The Z_Tolerance parameter will be applied to each vertex when evaluating if there is an identical vertex in another entity with regard to elevation, and must be input in the same units as the the source geodatabase's coordinate reference system (CRS).

4. **Output_CSV (data type: File) -** The path to the output Duplicate_Geometry_Summary .xlsx/.csv file.

5. **Output_Layers_Directory (data type: Folder) -** The path to the directory/folder to store layer files with duplicate geometries.

4.3 How to Use

4.3.1 Begin by opening the toolbox

Navigate to the location of the script toolbox, then right-click the 'Find Duplicate Geometry' script tool to open (Fig. 4.1).

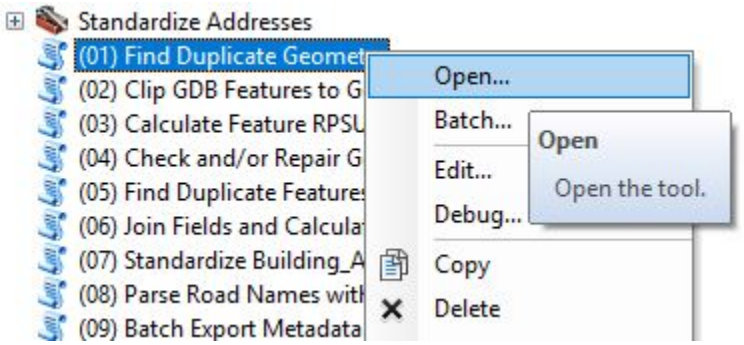


Figure 4.1: Opening the Find Duplicate Geometries tool

4.3.2 Fill out the parameters

Next, fill out the parameters for the tool. Here, we want to search all Feature Classes within Feature Datasets in the Example.gdb for duplicate geometries using the default XY Tolerance and Z Tolerance values of '0' (Fig. 4.2). We specify that we want the Duplicate Geometry Summary to be written to a Comma-separated Values (.csv) file called 'test.csv.' Further, we specify that we want all the duplicate Feature Class feature layers to be saved to the Output Layers Directory 'layer.'

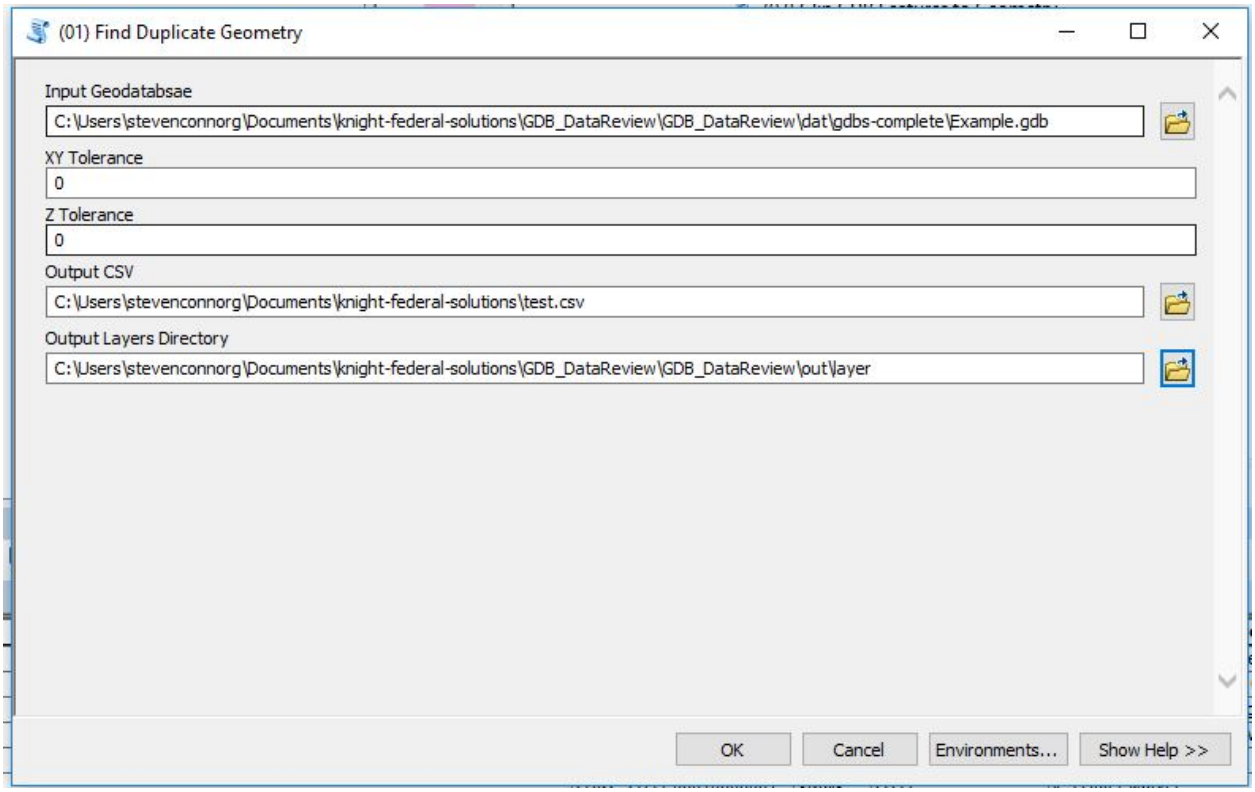


Figure 4.2: Find Duplicate Geometries parameters

4.4 Run the Tool and View Results

While the tool runs (with Background Processing disabled), we can see the messages from the tool, showing how many duplicate features are found for each Feature Class (Fig. 4.3).

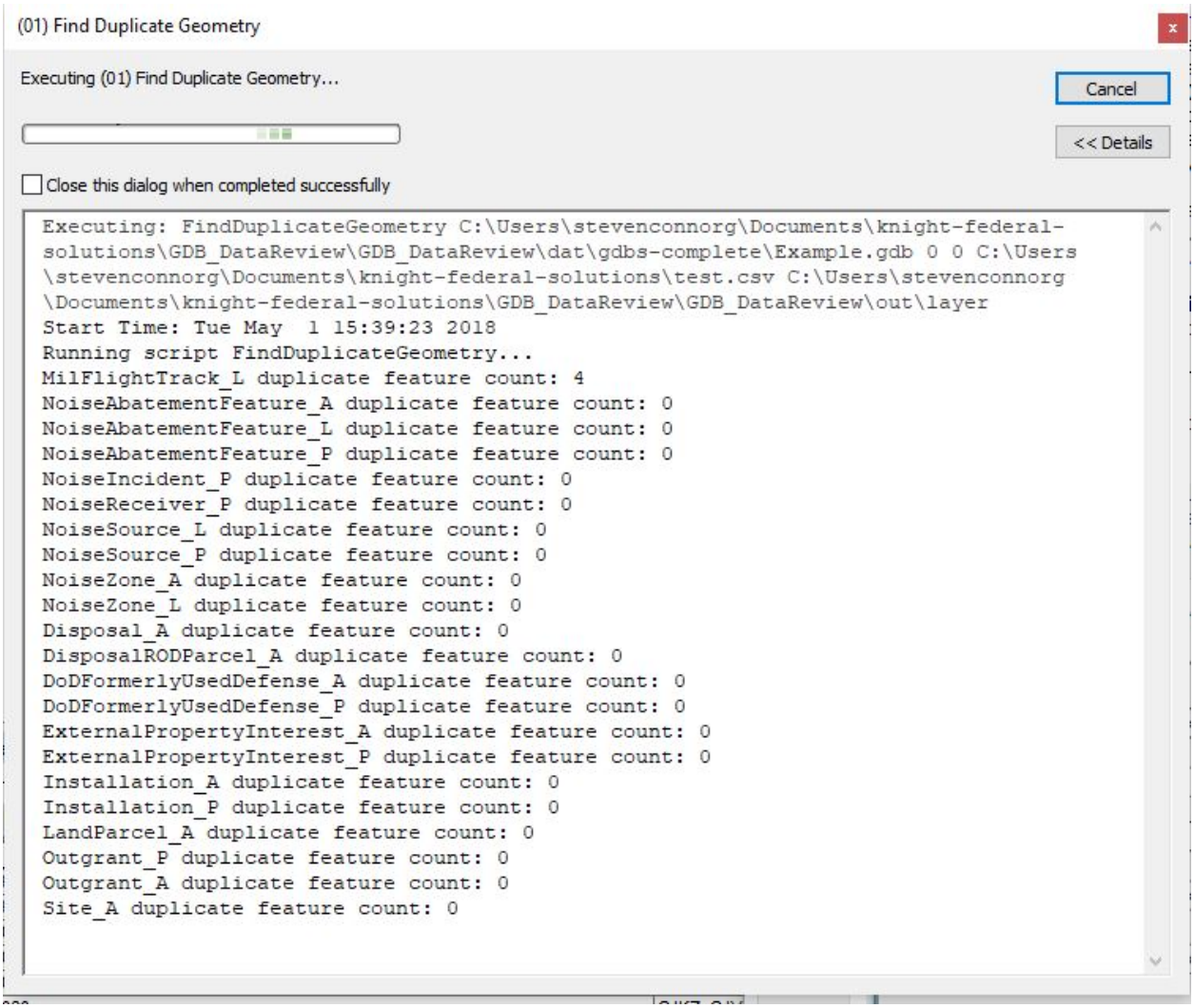


Figure 4.3: Find Duplicate Geometries parameters

After the tool has run, we can open the output .csv we specified in the tool parameters to examine which Feature Classes have duplicated geometries . For example, we find that the EnvRestorSampLoc_P Feature Class within the environmentalRestoration Feature Dataset has 17 total duplicates spread across 7 unique geometries (Fig. 4.4).

test

	OBJECTID	FEATUREDATASET	FEATURECLASS	DUPLICATEIDS	SUMMARY
	1	Auditory	MilFlightTrack_L	3, 36, 37, 38	4 duplicates across 2 features.
	2	DEMOLISHED	Building_A_31	1281, 1283	2 duplicates across 1 features.
	3	DEMOLISHED	eUGPrimary_L_31	1281, 1284	2 duplicates across 1 features.
	4	DEMOLISHED	AirfieldSurface_A_31	322, 326	2 duplicates across 1 features.
	5	environmentalNaturalResources	SpeciesPoint_P	3849, 6830	2 duplicates across 1 features.
	6	environmentalRestoration	EnvRestorSampLoc_P	19, 156, 187, 237, 247, 257, 295, 321	17 duplicates across 7 features.
	7	environmentalStorageTanks	StorageTank_P	9, 10	2 duplicates across 1 features.
	8	GeneralMisc	MonitoringLoc_P	9, 10, 12, 61, 62, 66	6 duplicates across 3 features.
	9	GeneralMisc	Sign_P	1061, 1102, 1168, 1169	4 duplicates across 2 features.
	10	NonSDS	Grids_PLSS	2508, 23255, 47507, 54312, 72411, 7	8 duplicates across 4 features.
	11	NonSDS	PlanningDTA	57, 66, 142, 155	4 duplicates across 2 features.
	12	NonSDS	RealProperty_Slab_A	76, 168, 242, 411, 424, 468, 563, 573	12 duplicates across 6 features.

Figure 4.4: Find Duplicate Geometries parameters

Navigating to the output layer directory we specified in the tool, we find layer files with duplicate features for each Feature Class (Fig. 4.5).

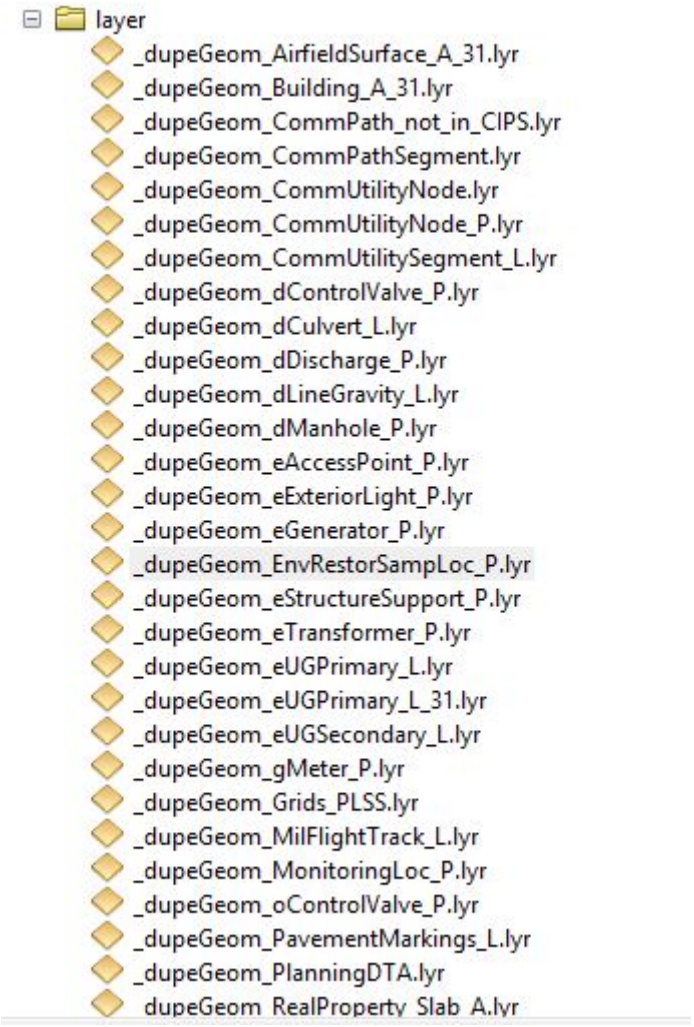


Figure 4.5: Find Duplicate Geometries parameters

After pulling in the _dupeGeom_EnvRestorSampLoc_P layer file, we can zoom to a feature and select the features at that location to examine the duplicate features at that location (Fig. 4.6).

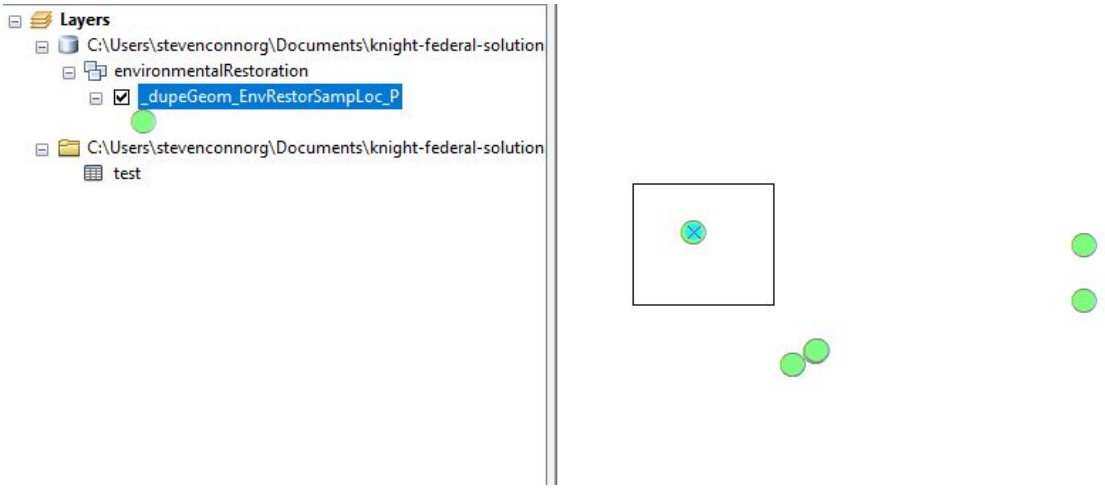
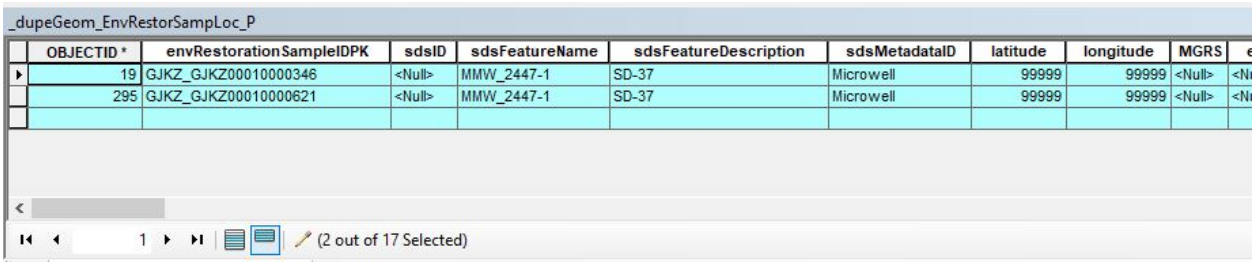


Figure 4.6: The features with duplicated geometries

Then, we can view the Attribute Table for the selected features to examine which feature we should amend or delete (Fig. 4.7). Here, we find that the attributes are exactly the same for the first duplicated geometry, and so we should probably delete one of these features. Editing the layer files directly will update the associated Feature Classes in the original geodatabase.



OBJECTID *	envRestorationSampleIDPK	sdsID	sdsFeatureName	sdsFeatureDescription	sdsMetadataID	latitude	longitude	MGRS
19	GJKZ_GJKZ00010000346	<Null>	MMW_2447-1	SD-37	Microwell	99999	99999	<Null>
295	GJKZ_GJKZ00010000621	<Null>	MMW_2447-1	SD-37	Microwell	99999	99999	<Null>

Figure 4.7: Attributes of duplicated features

we can pull in the layer files created for each Feature Class to manually inspect the duplicated features to determine if/which features should be amended or deleted.

Chapter 5

Delete Duplicate Features

5.1 Overview

The Find Duplicate Features tool allows users to search an entire geodatabase's Feature Classes for duplicated features This tool loops through each Feature Dataset's Feature Class features and searches for duplicate features, not including geometry.

By default, this tool does not consider compare attributes in across any fields that are 'OID', 'Guid', 'GlobalID', 'Blob', or 'Raster' field types. Furthmore, the following fields are ignored in searching for duplicate features, by default (not case sensitive): 'LAST_EDITED_DATE', 'LAST_EDITED_USER', 'CREATED_USER', 'CREATED_DATE'.

5.2 Parameters

The tool has 3 parameters:

1. **Input_Geodatabase (data type: Workspace)** - This parameter must be the path of the input geodatabase to search Feature Datasets' Feature Class features for duplicate features.
2. **XY_Tolerance (data type: String)** - The XY_Tolerance parameter will be applied to each vertex when evaluating if there is an identical vertex in another entity, and must be input in the same units as the the source geodatabase's coordinate reference system (CRS).
3. **Z_Tolerance (data type: String)** - The Z_Tolerance parameter will be applied to each vertex when evaluating if there is an identical vertex in another entity with regard to elevation, and must be input in the same units as the the source geodatabase's coordinate reference system (CRS).

5.3 How to Use

5.3.1 Begin by opening the toolbox

Navigate to the location of the script toolbox, then right-click the 'Find Duplicate Features' script tool to open (Fig. 5.1).

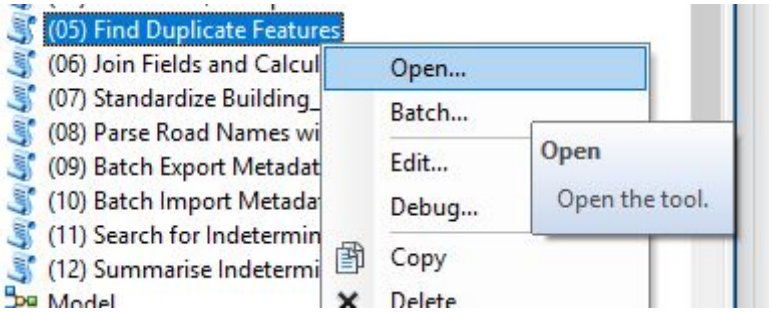


Figure 5.1: Opening the Delete Duplicate Features tool

5.3.2 Fill out the parameters

Next, fill out the parameters for the tool. Here, we want to search all Feature Classes within Feature Datasets in the Example.gdb for duplicate features (Fig. 5.2). We specify that we want to keep the default XY Tolerance and Z Tolerance parameters to zero, though this could be increased to allow duplicate geometry checks to be more lenient.

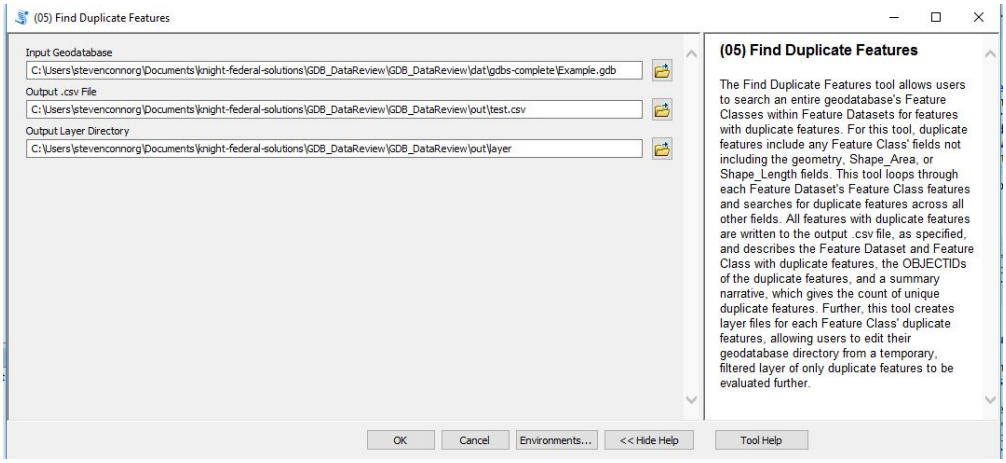


Figure 5.2: Delete Duplicate Features parameters

5.3.3 Run the Tool and View Results

While the tool runs (with Background Processing disabled), we can see the messages from the tool, which displays how many duplicate features will be deleted across each feature class, if applicable (Fig. 5.3). Here, we see that 102 duplicates were found in the MilFlightTrack_L feature class across 51 unique features, indicating that each of the 51 features may have been duplicated once (51 x 2 = 102).

Figure 5.3: Delete Duplicate Features messages

Chapter 6

Standardized Road Prefix, Name, and Suffix

6.1 Overview

The purpose of this tool is to standardize the 3 field (road prefix, road name, and road suffix) values within a feature class. This tool works by first searching the ROADNAME field within that feature class, then removes any prefixes or suffixes within the field and moves them to the appropriate field. For all prefixes and suffixes found, the prefixes are reformatted to “N”, “S”, “E”, and “W.” For all suffixes found, the suffixes are reformatted to standard USPS suffixes.

6.2 Parameters

The tool has 4 parameters:

1. **Road Feature Class (data type: Feature Class)** - This parameter must be the path to the Feature Class that has the 3 road fields to be standardized.
2. **Prefix Field (data type: Field)** - The field within the feature class that has or should have road prefixes.
3. **Name Field (data type: Field)** - The field within the feature class that has road names.
4. **Suffix Field (data type: Field)** - The field within the feature class that has or should have road suffixes.

6.3 How to Use

6.3.1 Begin by opening the toolbox

Navigate to the location of the script toolbox, then right-click the ‘Standardize 3 Address Fields’ script tool to open (Fig. 6.1).

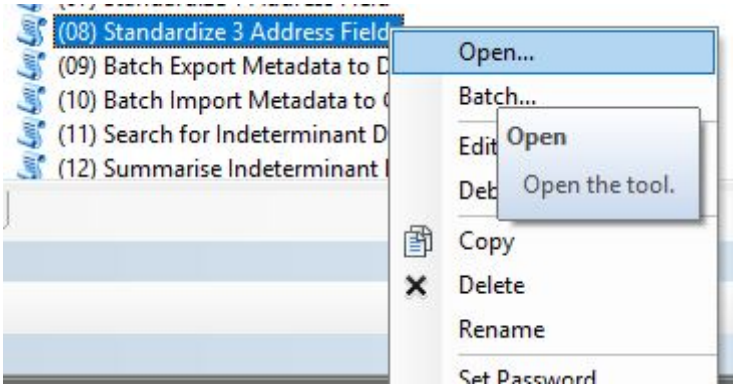


Figure 6.1: Opening the Delete Duplicate Features tool

6.3.2 Fill out the parameters

Next, fill out the parameters for the tool. Here, we want to update the road prefix, road name, and road suffix fields in the RoadCenterline_L feature class (Fig. 6.2). The fields can be derived directly from the Feature Class by using the drop-down menu.

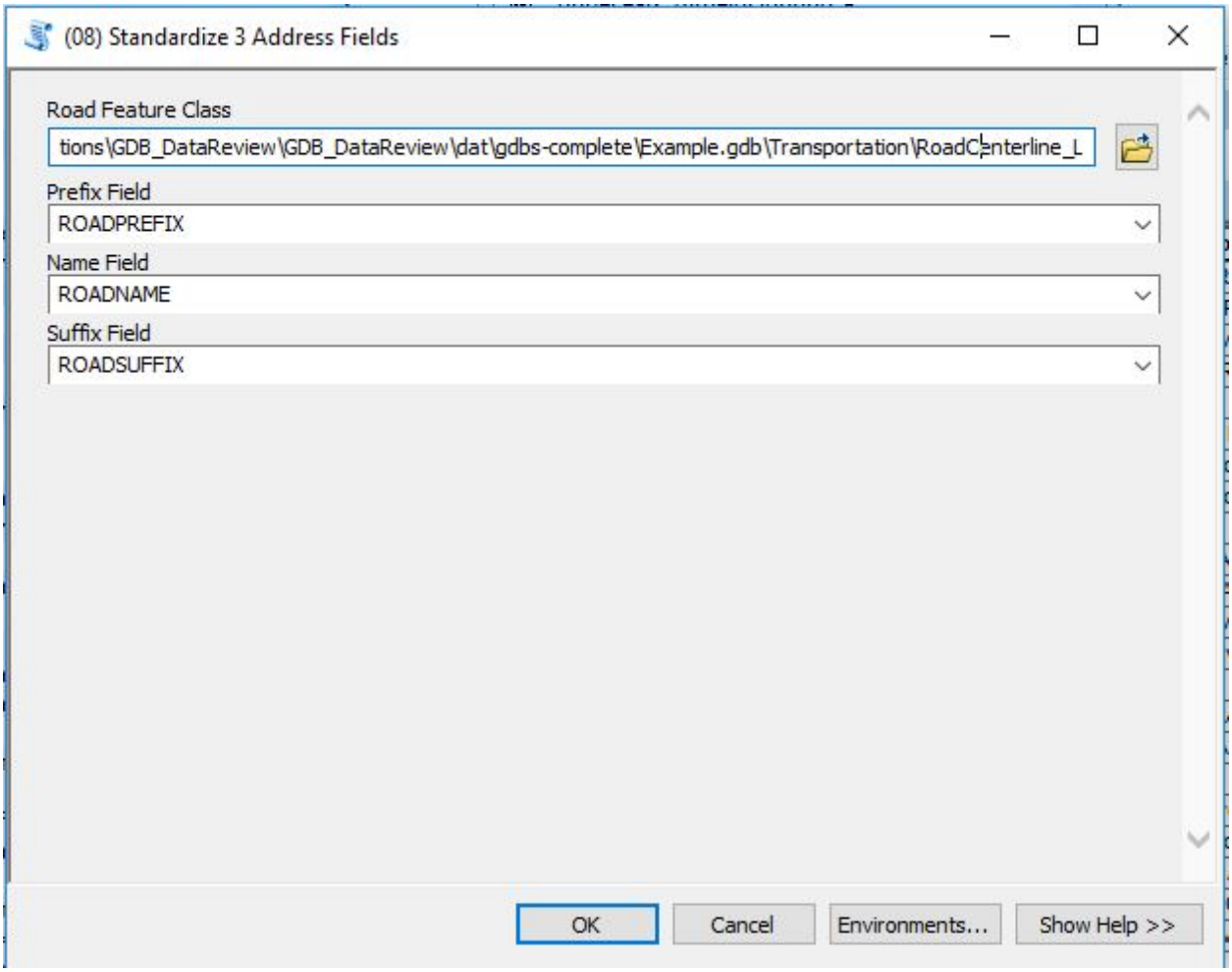


Figure 6.2: Opening the Delete Duplicate Features tool

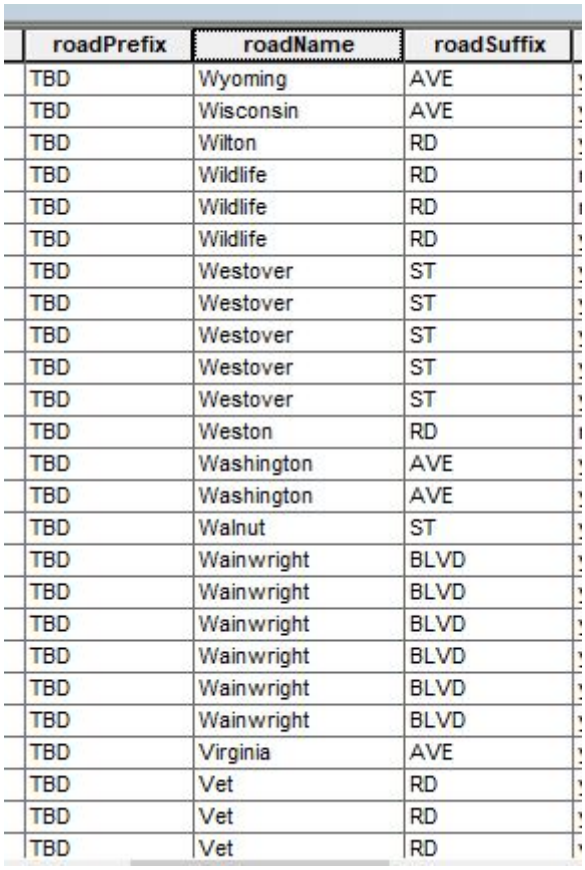
6.4 Run the Tool and View Results

Before running the tool, we see that, indeed, the road prefixes and road suffixes are incorrectly populated inside the road name field Open the destinate Feature Class and view the update destination field values (Fig. 6.3).

roadPrefix	roadName	roadSuffix	
TBD	Sikorsky Rd	TBD	y
TBD	Perimeter Rd	TBD	y
TBD	Hansell Ave	TBD	y
TBD	Obstacle Rd	TBD	y
TBD	Cuba Rd	TBD	y
TBD	Richmond Rd	TBD	y
TBD	Graham Rd	TBD	y
TBD	Gate 35 Rd	TBD	y
TBD	Bong St	TBD	y
TBD	Vermont Ave	TBD	y
TBD	Colorado Ave	TBD	y
TBD	El Paso Ave	TBD	y
TBD	Twining Ave	TBD	y
TBD	Marsh Rd	TBD	y
TBD	Nebraska Ave	TBD	y
TBD	O'Malley Ave	TBD	y
TBD	Mitchell Dr	TBD	y
TBD	Seattle Ave	TBD	y
TBD	Graham Rd	TBD	n
TBD	Delaware Ave	TBD	y
TBD	Ft. Wright Oval	TBD	y

Figure 6.3: Opening the Delete Duplicate Features tool

After running the tool, we can see that the prefixes and suffixes have been populated in the correct fields, and have also been standardized to match USPS standards (Fig. 6.4).



roadPrefix	roadName	roadSuffix
TBD	Wyoming	AVE
TBD	Wisconsin	AVE
TBD	Wilton	RD
TBD	Wildlife	RD
TBD	Wildlife	RD
TBD	Wildlife	RD
TBD	Westover	ST
TBD	Westover	ST
TBD	Westover	ST
TBD	Westover	ST
TBD	Westover	ST
TBD	Weston	RD
TBD	Washington	AVE
TBD	Washington	AVE
TBD	Walnut	ST
TBD	Wainwright	BLVD
TBD	Wainwright	BLVD
TBD	Wainwright	BLVD
TBD	Wainwright	BLVD
TBD	Wainwright	BLVD
TBD	Wainwright	BLVD
TBD	Virginia	AVE
TBD	Vet	RD
TBD	Vet	RD
TBD	Vet	RD

Figure 6.4: Opening the Delete Duplicate Features tool

Chapter 7

Search for Missing and Indeterminant Data

7.1 Overview

Search a 'source' geodatabase for indeterminate data from feature dataset/feature class combinations in a target geodatabase. First, searches for missing feature datasets in target geodatabase not in source geodatabase. Then, searches for feature classes in 'x' feature dataset. Then, for each feature class in the source geodatabase, this tool searches for 'indeterminate' values in each field. Indeterminate values, here, means any null, to be determined (TBD), or 'other' values.

This tool creates 4 output tables, each prepended with the name of the Model_Geodatabase (e.g.: If your 'model' geodatabase called 'CIP', the tables will be called (CIP_MissingFDS, CIP_Missing_FCs, CIP_MissingFields, and CIP_MissingData). These tables include:

- [modelGeodatabaseName]_MissingFDS - Gives a list of Feature Datasets within the target geodatabase that are not included in the source geodatabase.
- [modelGeodatabaseName]_MissingFCs - Gives a list of Feature Classes for each Feature Dataset within the target geodatabase that are not included in the source geodatabase.
- [modelGeodatabaseName]_MissingFields - Gives a list of Fields for each Feature Dataset/Feature Class combination within the target geodatabase that are not included in the source geodatabase.
- [modelGeodatabaseName]_MissingData - For each Feature Dataset/Feature Class combination in both the target and source geodatabase, this table gives an overview of missing attributes for each field in the source geodatabase's Feature Class.
  - For Fields in each of the source geodatabase's Feature Classes, this table highlights fields not included in the target geodatabase's Feature Class under the 'FIELD_NONSDS' column (e.g.: 'FIELD_NONSDS' = F when fields are included in both geodatabases, and 'FIELD_NONSDS' = T when the field exists in the source geodatabase for said Feature Class, but not the target geodatabase's Feature Class).
  - This table then lists whether or not the feature class is empty (i.e.: EMPTY_FC = T or F).
  - Then, for each field, the MissingData table gives a count of Null[1], 'TBD'[2], and

[1] Null values include :None, "None", "none", "NONE", "","-99999","77777",77777, " ","NA","na","N/A","n/a","NULL","Null","","null","""","","","","","","

[2] TBD values include : "tbd","TBD","To be determined","Tbd",99999,"99999"

'Other'[3] features, further giving the counts of each value in 'NULL_VALUE_COUNTS', 'TBD_VALUE_COUNTS', and 'OTHER_VALUE_COUNTS' fields.
- The sum of the Null, TBD, and Other features are populated in the 'TOTAL_INDT_COUNT' (i.e.: Total indeterminant feature count), with the 'TOTAL_DET_COUNT' column giving the total number of features with 'determinated' values (i.e.: not indeterminant values).
- The POP_VALS column lists the count of all unique populated values for each field, while the INC_POP_VALS column lists any field values that are not included in the field's domain.

7.2 Parameters

The tool has 2 parameters:

1. **Source Geodatabase (data type: Workspace/File Geodatabase)** - The path to the file geodatabase to be searched for indeterminant/missing data.
2. **Target Geodatabase (data type: Workspace/File Geodatabase)** - The path to the file geodatabase with which the source geodatabase will be compared against.

7.3 How to Use

7.3.1 Begin by opening the toolbox

Navigate to the location of the script toolbox, then right-click the 'Search for Indeterminant Data' script tool to open (Fig. 7.1).

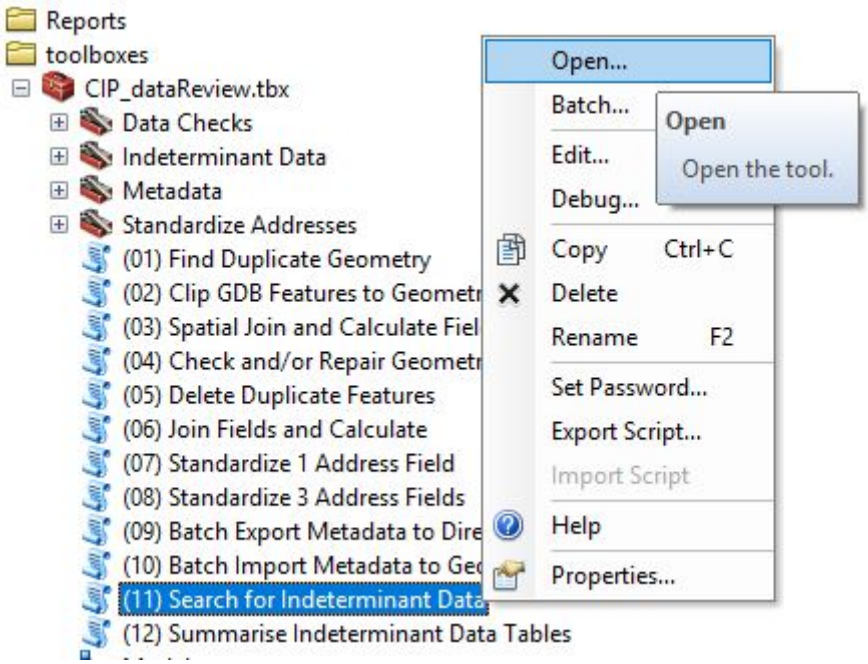


Figure 7.1: Opening the Delete Duplicate Features tool

[3] Other values include : "Other", "other", "OTHER","88888",88888

7.3.2 Fill out the parameters

Next, fill out the parameters for the tool. Here, we want to compare the 'Example.gdb' against the 'CIP.gdb' (Fig. 7.2). The fields can be derived directly from the Feature Class by using the drop-down menu.

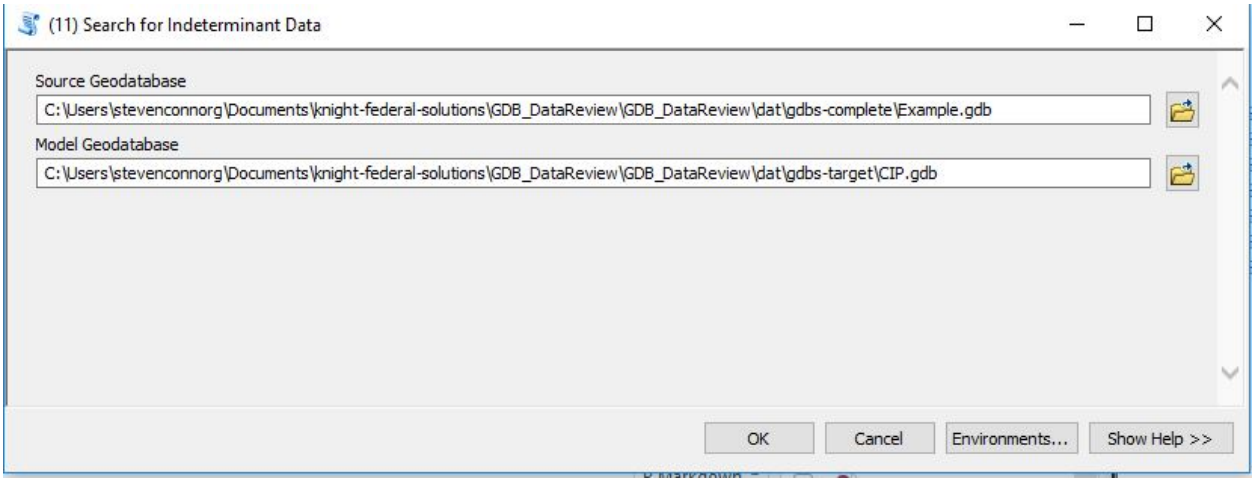


Figure 7.2: Opening the Delete Duplicate Features tool

7.4 Run the Tool and View Results

While we run the tool, we can see view the messages of the tool, giving a listing of the fields being searched for indeterminant data with the counts of indeterminant values (Fig. 7.3).

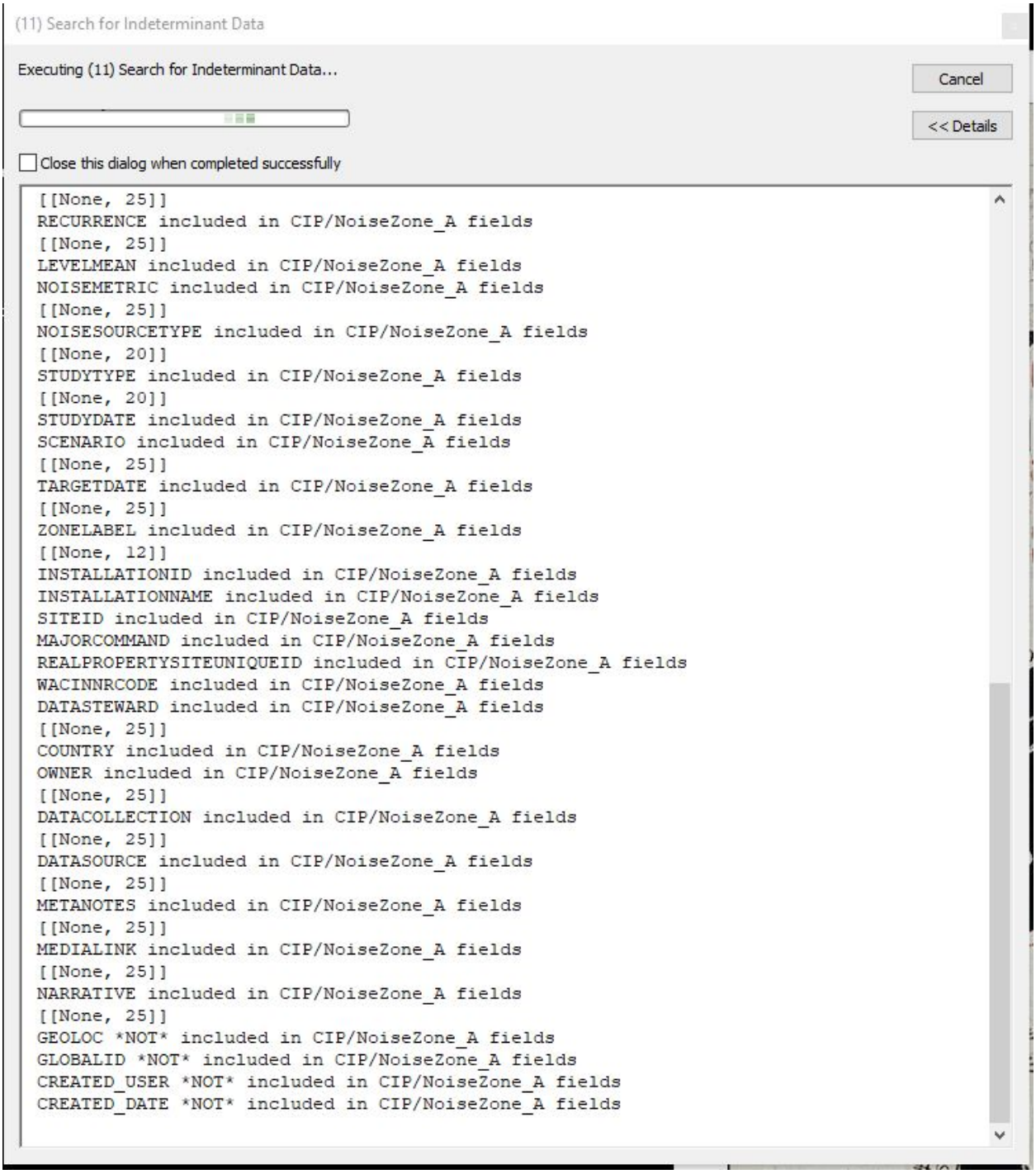


Figure 7.3: Opening the Delete Duplicate Features tool

After the tool has run, we can inspect the output tables within the ‘Example.gdb’ geodatabase (Fig. 7.4). Opening the CIP_MissingFDS table, we see that the Example geodatabase have no missing Feature Datasets 7.5).

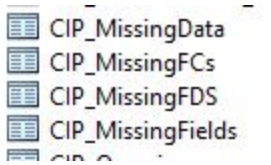


Figure 7.4: Opening the Delete Duplicate Features tool

Figure 7.5: Opening the Delete Duplicate Features tool

Examining the MissingFCs table, we see that the Example geodatabase has one Feature Class, RoadSeg_L from the Transportation Feature Dataset, missing when compared with the CIP geodatabase 7.6).

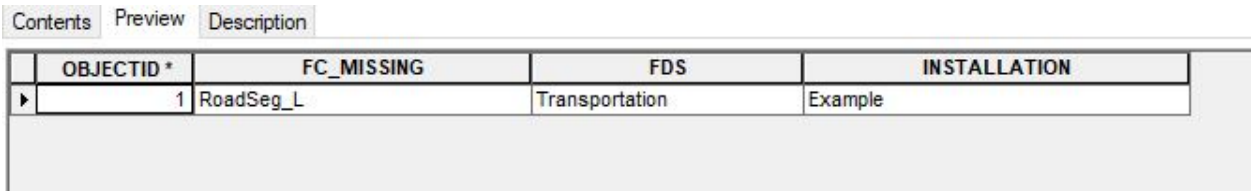
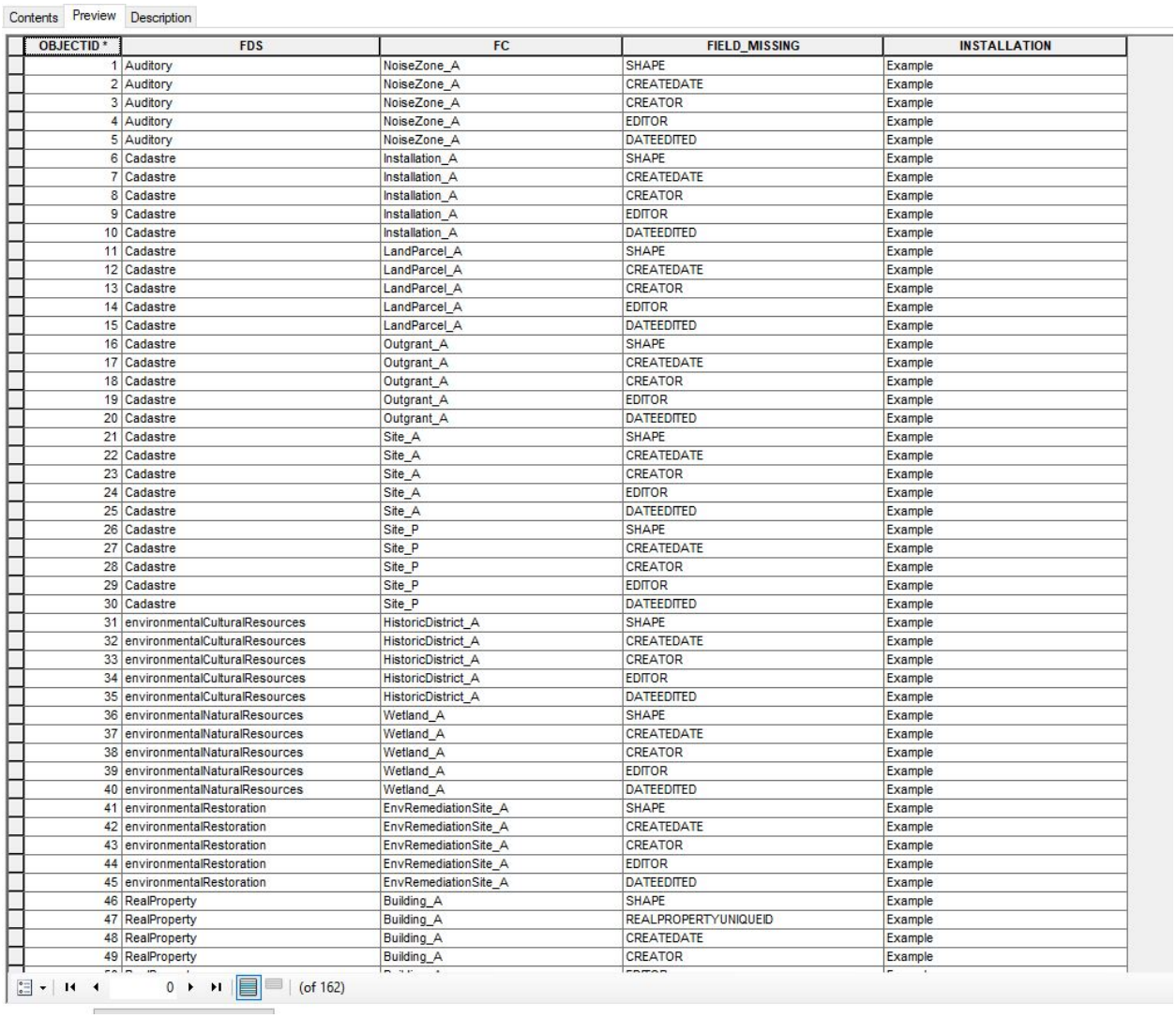


Figure 7.6: Opening the Delete Duplicate Features tool

We can look at the MissingFLD table to see which fields are missing from each Feature Class from the target geodatabase that are included in the source geodatabase 7.7).



Contents | Preview | Description

OBJECTID *	FDS	FC	FIELD_MISSING	INSTALLATION
1	Auditory	NoiseZone_A	SHAPE	Example
2	Auditory	NoiseZone_A	CREATEDATE	Example
3	Auditory	NoiseZone_A	CREATOR	Example
4	Auditory	NoiseZone_A	EDITOR	Example
5	Auditory	NoiseZone_A	DATEEDITED	Example
6	Cadastre	Installation_A	SHAPE	Example
7	Cadastre	Installation_A	CREATEDATE	Example
8	Cadastre	Installation_A	CREATOR	Example
9	Cadastre	Installation_A	EDITOR	Example
10	Cadastre	Installation_A	DATEEDITED	Example
11	Cadastre	LandParcel_A	SHAPE	Example
12	Cadastre	LandParcel_A	CREATEDATE	Example
13	Cadastre	LandParcel_A	CREATOR	Example
14	Cadastre	LandParcel_A	EDITOR	Example
15	Cadastre	LandParcel_A	DATEEDITED	Example
16	Cadastre	Outgrant_A	SHAPE	Example
17	Cadastre	Outgrant_A	CREATEDATE	Example
18	Cadastre	Outgrant_A	CREATOR	Example
19	Cadastre	Outgrant_A	EDITOR	Example
20	Cadastre	Outgrant_A	DATEEDITED	Example
21	Cadastre	Site_A	SHAPE	Example
22	Cadastre	Site_A	CREATEDATE	Example
23	Cadastre	Site_A	CREATOR	Example
24	Cadastre	Site_A	EDITOR	Example
25	Cadastre	Site_A	DATEEDITED	Example
26	Cadastre	Site_P	SHAPE	Example
27	Cadastre	Site_P	CREATEDATE	Example
28	Cadastre	Site_P	CREATOR	Example
29	Cadastre	Site_P	EDITOR	Example
30	Cadastre	Site_P	DATEEDITED	Example
31	environmentalCulturalResources	HistoricDistrict_A	SHAPE	Example
32	environmentalCulturalResources	HistoricDistrict_A	CREATEDATE	Example
33	environmentalCulturalResources	HistoricDistrict_A	CREATOR	Example
34	environmentalCulturalResources	HistoricDistrict_A	EDITOR	Example
35	environmentalCulturalResources	HistoricDistrict_A	DATEEDITED	Example
36	environmentalNaturalResources	Wetland_A	SHAPE	Example
37	environmentalNaturalResources	Wetland_A	CREATEDATE	Example
38	environmentalNaturalResources	Wetland_A	CREATOR	Example
39	environmentalNaturalResources	Wetland_A	EDITOR	Example
40	environmentalNaturalResources	Wetland_A	DATEEDITED	Example
41	environmentalRestoration	EnvRemediationSite_A	SHAPE	Example
42	environmentalRestoration	EnvRemediationSite_A	CREATEDATE	Example
43	environmentalRestoration	EnvRemediationSite_A	CREATOR	Example
44	environmentalRestoration	EnvRemediationSite_A	EDITOR	Example
45	environmentalRestoration	EnvRemediationSite_A	DATEEDITED	Example
46	RealProperty	Building_A	SHAPE	Example
47	RealProperty	Building_A	REALPROPERTYUNIQUEID	Example
48	RealProperty	Building_A	CREATEDATE	Example
49	RealProperty	Building_A	CREATOR	Example

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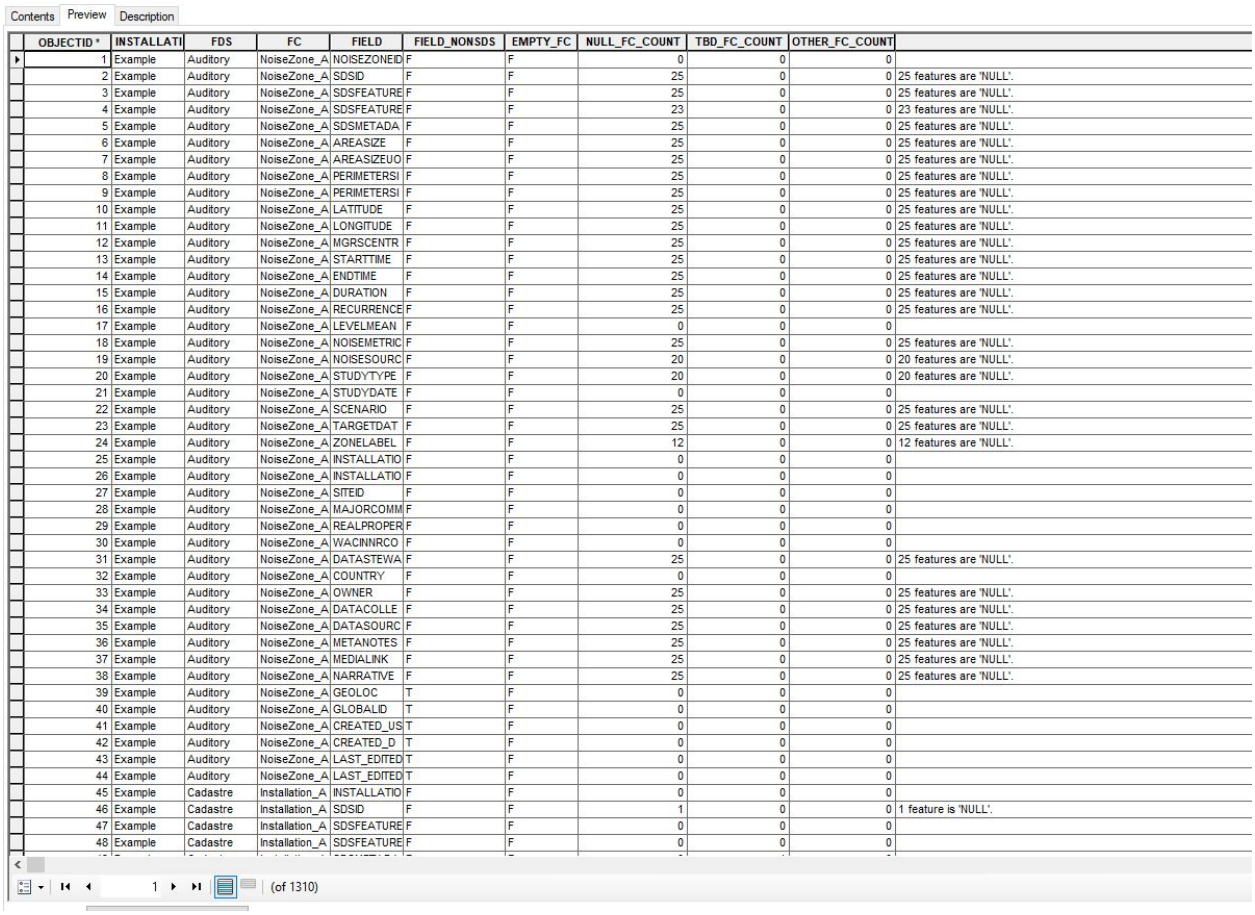
Figure 7.7: Opening the Delete Duplicate Features tool

To examine indeterminant field attribution, we can examine the MissingData table 7.8).



Contents | Preview | Description

OBJECTID *	INSTALLATI	FDS	FC	FIELD	FIELD_NONSDS	EMPTY_FC	NULL_FC_COUNT	TBD_FC_COUNT	OTHER_FC_COUNT	
1	Example	Auditory	NoiseZone_A	NOISEZONEID	F	F	0	0	0	
2	Example	Auditory	NoiseZone_A	SDSID	F	F	25	0	0	25 features are 'NULL'.
3	Example	Auditory	NoiseZone_A	SDSFEATURE	F	F	25	0	0	25 features are 'NULL'.
4	Example	Auditory	NoiseZone_A	SDSFEATURE	F	F	23	0	0	23 features are 'NULL'.
5	Example	Auditory	NoiseZone_A	SDSMETADA	F	F	25	0	0	25 features are 'NULL'.
6	Example	Auditory	NoiseZone_A	AREASIZE	F	F	25	0	0	25 features are 'NULL'.
7	Example	Auditory	NoiseZone_A	AREASIZEUO	F	F	25	0	0	25 features are 'NULL'.
8	Example	Auditory	NoiseZone_A	PERIMETERSI	F	F	25	0	0	25 features are 'NULL'.
9	Example	Auditory	NoiseZone_A	PERIMETERSI	F	F	25	0	0	25 features are 'NULL'.
10	Example	Auditory	NoiseZone_A	LATITUDE	F	F	25	0	0	25 features are 'NULL'.
11	Example	Auditory	NoiseZone_A	LONGITUDE	F	F	25	0	0	25 features are 'NULL'.
12	Example	Auditory	NoiseZone_A	MGRSCENTR	F	F	25	0	0	25 features are 'NULL'.
13	Example	Auditory	NoiseZone_A	STARTTIME	F	F	25	0	0	25 features are 'NULL'.
14	Example	Auditory	NoiseZone_A	ENDTIME	F	F	25	0	0	25 features are 'NULL'.
15	Example	Auditory	NoiseZone_A	DURATION	F	F	25	0	0	25 features are 'NULL'.
16	Example	Auditory	NoiseZone_A	RECURRENCE	F	F	25	0	0	25 features are 'NULL'.
17	Example	Auditory	NoiseZone_A	LEVELMEAN	F	F	0	0	0	
18	Example	Auditory	NoiseZone_A	NOISEMETRIC	F	F	25	0	0	25 features are 'NULL'.
19	Example	Auditory	NoiseZone_A	NOISESOURC	F	F	20	0	0	20 features are 'NULL'.
20	Example	Auditory	NoiseZone_A	STUDYTYPE	F	F	20	0	0	20 features are 'NULL'.
21	Example	Auditory	NoiseZone_A	STUDYDATE	F	F	0	0	0	
22	Example	Auditory	NoiseZone_A	SCENARIO	F	F	25	0	0	25 features are 'NULL'.
23	Example	Auditory	NoiseZone_A	TARGETDAT	F	F	25	0	0	25 features are 'NULL'.
24	Example	Auditory	NoiseZone_A	ZONELABEL	F	F	12	0	0	12 features are 'NULL'.
25	Example	Auditory	NoiseZone_A	INSTALLATIO	F	F	0	0	0	
26	Example	Auditory	NoiseZone_A	INSTALLATIO	F	F	0	0	0	
27	Example	Auditory	NoiseZone_A	SITEID	F	F	0	0	0	
28	Example	Auditory	NoiseZone_A	MAJORCOMM	F	F	0	0	0	
29	Example	Auditory	NoiseZone_A	REALPROPER	F	F	0	0	0	
30	Example	Auditory	NoiseZone_A	WACINNRCO	F	F	0	0	0	
31	Example	Auditory	NoiseZone_A	DATASTEWA	F	F	25	0	0	25 features are 'NULL'.
32	Example	Auditory	NoiseZone_A	COUNTRY	F	F	0	0	0	
33	Example	Auditory	NoiseZone_A	OWNER	F	F	25	0	0	25 features are 'NULL'.
34	Example	Auditory	NoiseZone_A	DATACOLLE	F	F	25	0	0	25 features are 'NULL'.
35	Example	Auditory	NoiseZone_A	DATASOURC	F	F	25	0	0	25 features are 'NULL'.
36	Example	Auditory	NoiseZone_A	METANOTES	F	F	25	0	0	25 features are 'NULL'.
37	Example	Auditory	NoiseZone_A	MEDIALINK	F	F	25	0	0	25 features are 'NULL'.
38	Example	Auditory	NoiseZone_A	NARRATIVE	F	F	25	0	0	25 features are 'NULL'.
39	Example	Auditory	NoiseZone_A	GEOLOC	T	F	0	0	0	
40	Example	Auditory	NoiseZone_A	GLOBALID	T	F	0	0	0	
41	Example	Auditory	NoiseZone_A	CREATED_US	T	F	0	0	0	
42	Example	Auditory	NoiseZone_A	CREATED_D	T	F	0	0	0	
43	Example	Auditory	NoiseZone_A	LAST_EDITED	T	F	0	0	0	
44	Example	Auditory	NoiseZone_A	LAST_EDITED	T	F	0	0	0	
45	Example	Cadastre	Installation_A	INSTALLATIO	F	F	0	0	0	
46	Example	Cadastre	Installation_A	SDSID	F	F	1	0	0	1 feature is 'NULL'.
47	Example	Cadastre	Installation_A	SDSFEATURE	F	F	0	0	0	
48	Example	Cadastre	Installation_A	SDSFEATURE	F	F	0	0	0	

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Figure 7.8: Opening the Delete Duplicate Features tool