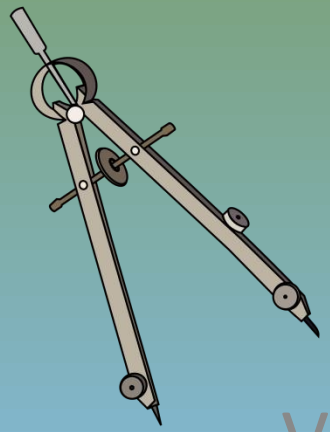


Tax Parcel Mapping

Visual Representations of Legal Descriptions and So Much More

Topics

I. E-Distribution

II. GIS & Tax Mapping

III. Tax Mapping Procedures

IV. Deeds, Property Descriptions, & You!

I. E-Distribution

A. Goals

B. Method

C. Deed images

D. Map patches

A. Goals

- The primary goal of converting to an E-Distribution System is to enable everyone to store documents digitally, and to increase efficiency by reducing the time taken to handle physical documents.
- Another goal is to reduce the material cost associated with deed distribution (paper, and postage).

B. Method

- Each deed that is filed at the County Clerk's office is scanned into a digital format.
- These deed images are distributed to us on a weekly basis.
- The file names of the deed images are given to us in a spreadsheet and this spreadsheet is used to classify and rename the image files according to the municipality associated with each transfer.
- We will now be distributing these files to the towns via the ECRPTS FTP site, exclusively.

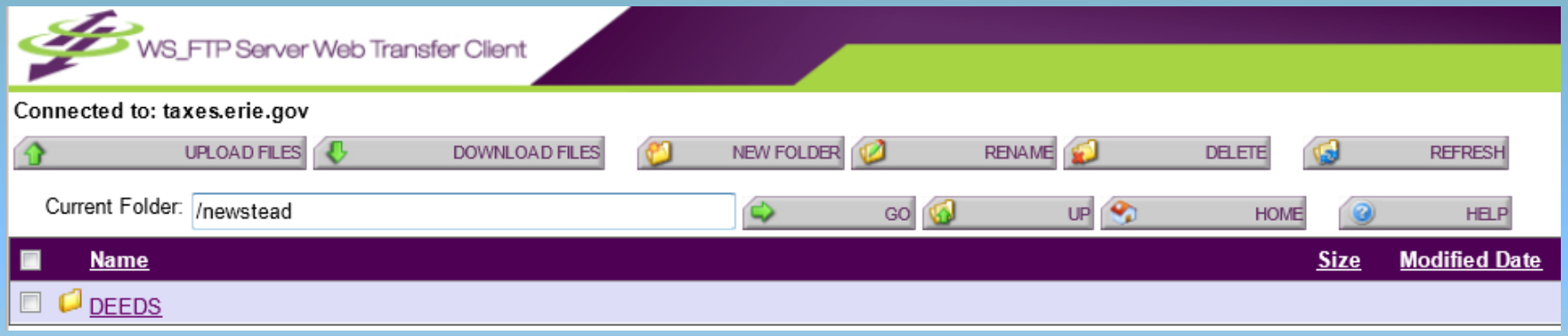
C. Deed Images

- Each deed is stored as a .tif image file. Each image contains multiple pages and includes the RP-5217.
- These images are delivered via the Erie County Real Property FTP site together in a compressed format (.zip) files.
- These images can be viewed using the Windows Photo Viewer.

D. Map Patches

- Map patches will be distributed in the on the FTP site similar to deed images. They will have their own subfolder.
- They will be distributed as .xps files.
- This file type allows for the exact duplication of a map patch to the correct scale automatically.
- These images can be viewed using the windows XPS viewer.

IPSWITCH
File Transfer
WS_FTP Server
Web Transfer Client
Username
Password
Language
English
Remember my password
Login


WS_FTP Server Web Transfer Client
Connected to: taxes.erie.gov
UPLOAD FILES
DOWNLOAD FILES
NEW FOLDER
RENAME
DELETE
REFRESH
Current Folder: /newstead
GO
UP
HOME
HELP
Name
Size
Modified Date
DEEDS

II. GIS and Tax Mapping

A. GIS, what is it?

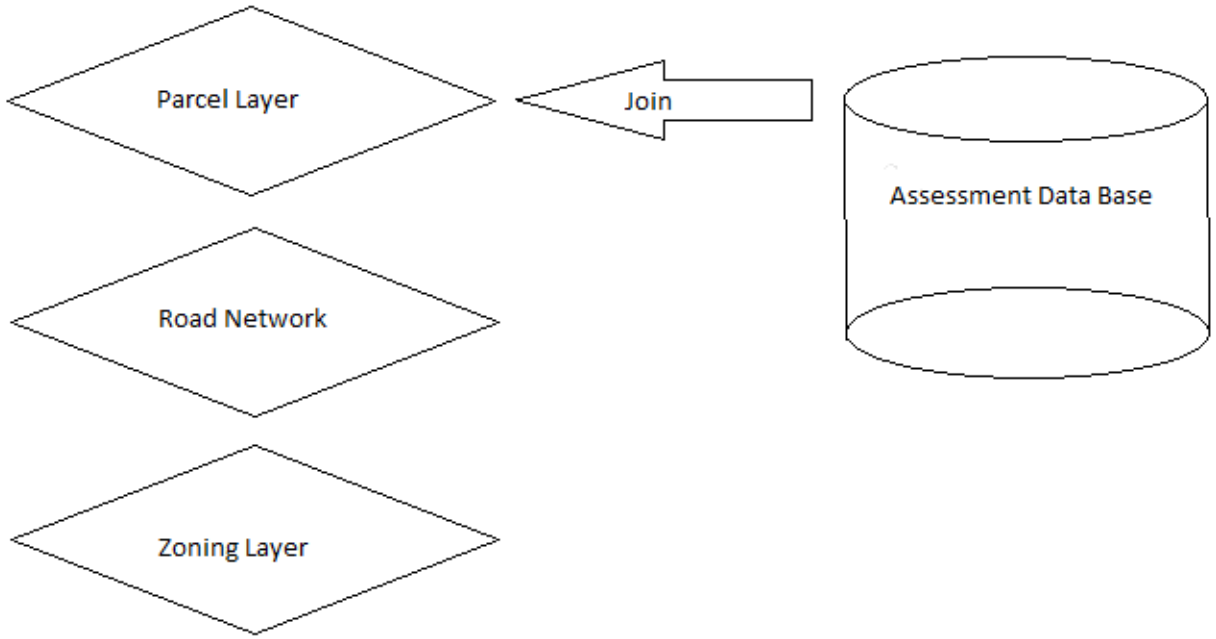
B. What we use it for day to day.

C. What some of the possibilities are.

A. GIS

- A modern GIS, or Geographical Information System, marries traditional maps with database technology and enables both the performance and display of spatial analysis.
- In order to create a modern GIS there needs to be spatially registered data, software to store and display the data, hardware for the software to run on, and people.

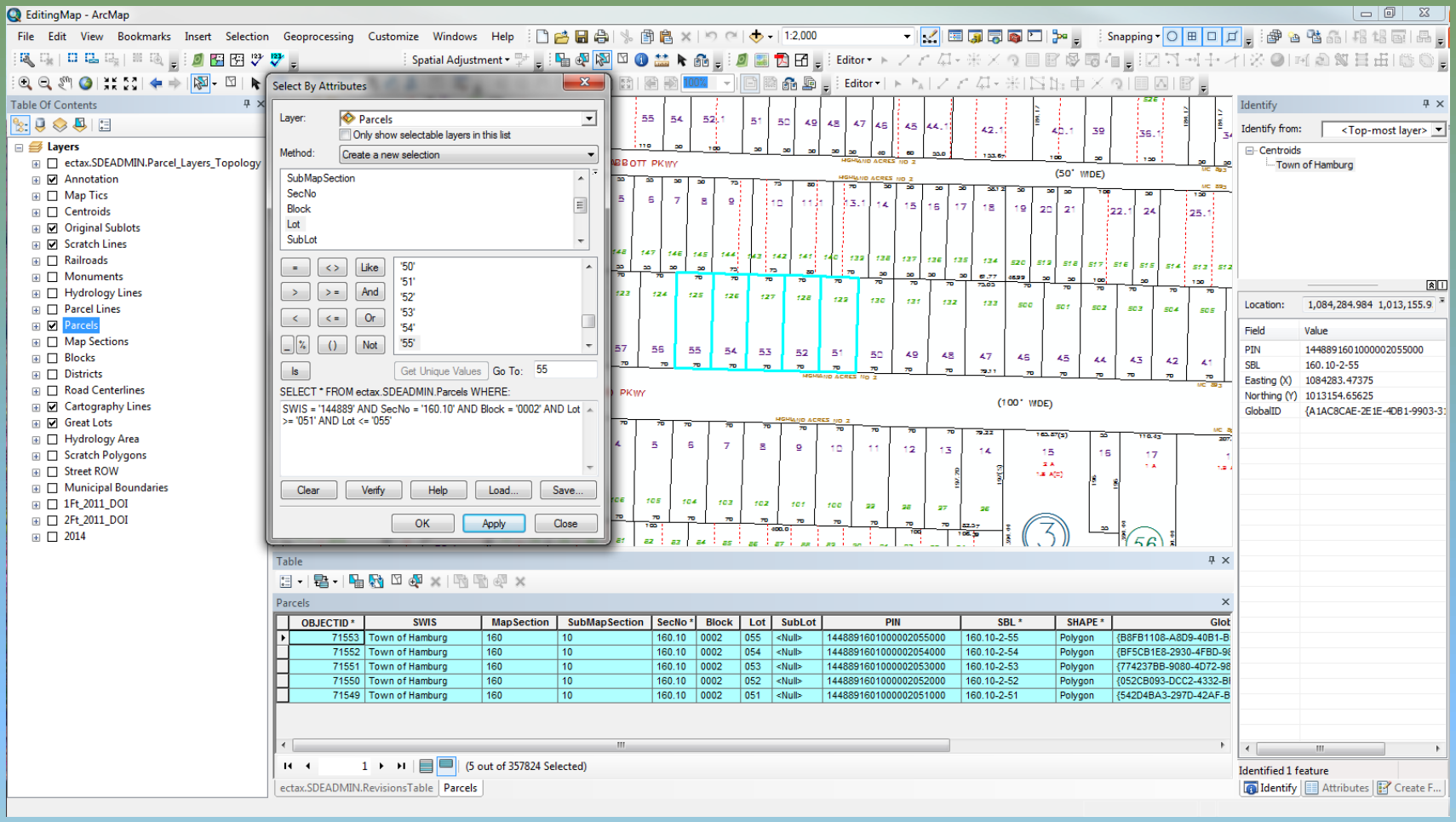
Diagram


Parcel Layer
Join
Assessment Data Base
Road Network
Zoning Layer

B. Everyday Uses

- ArcGIS 10.x is used to update and maintain the tax maps.
- Generate the tax map images in .pdf form and disseminate them.
- Take map patches, coordinates, and acreages from the GIS.
- Currently the GIS is separately maintained from ownership and assessment data.

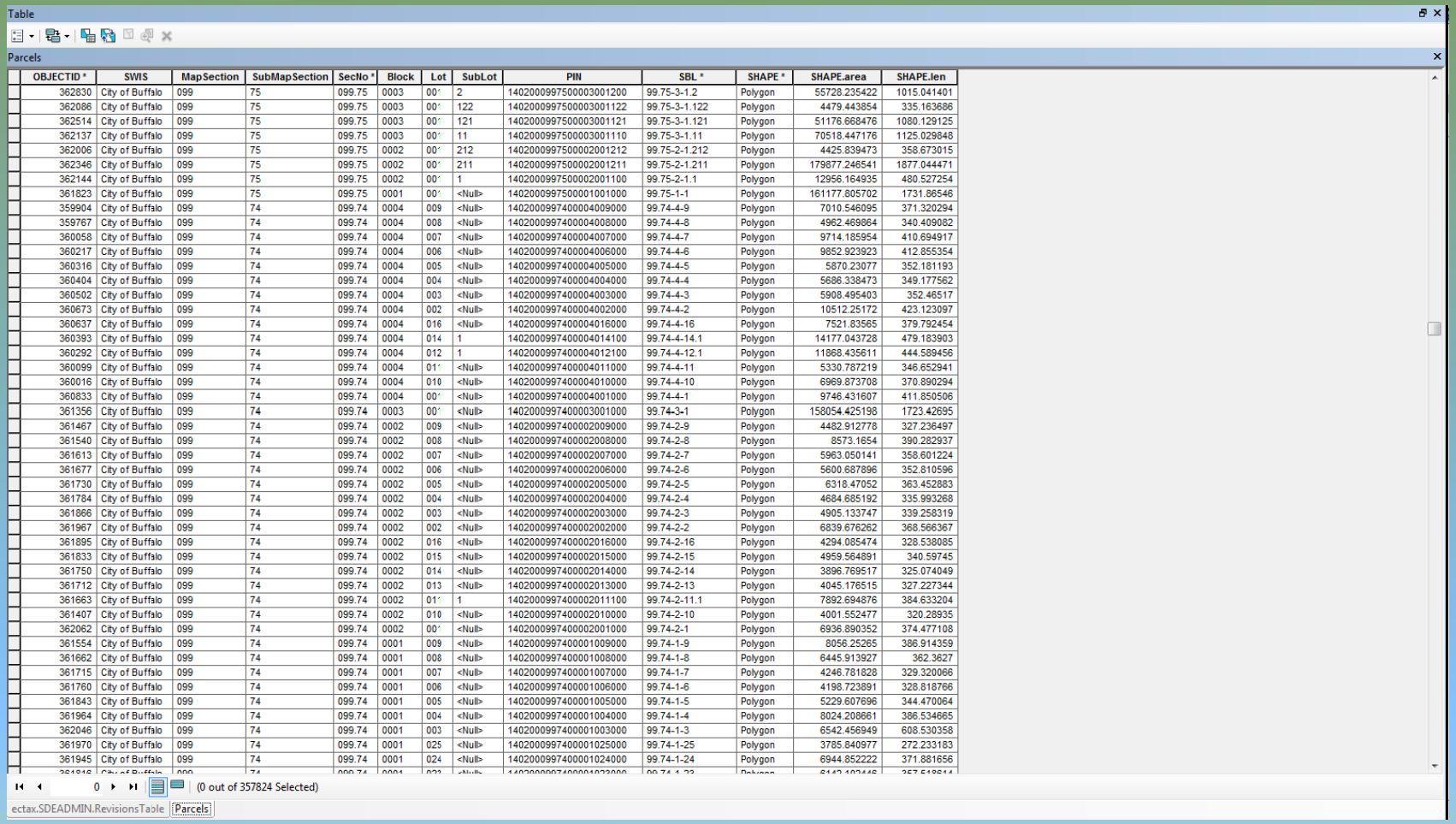
Example Standard View



C. Extended Uses

- ArcGIS allows the joining of data across different layers and tables, as long as there is a common uniquely identifiable field for each record in each layer or table that can be used as a key.
- Queries can then be written across multiple databases, and the results of these queries can then be displayed visually, allowing for the easy transfer of information.

Example Data Table



Table

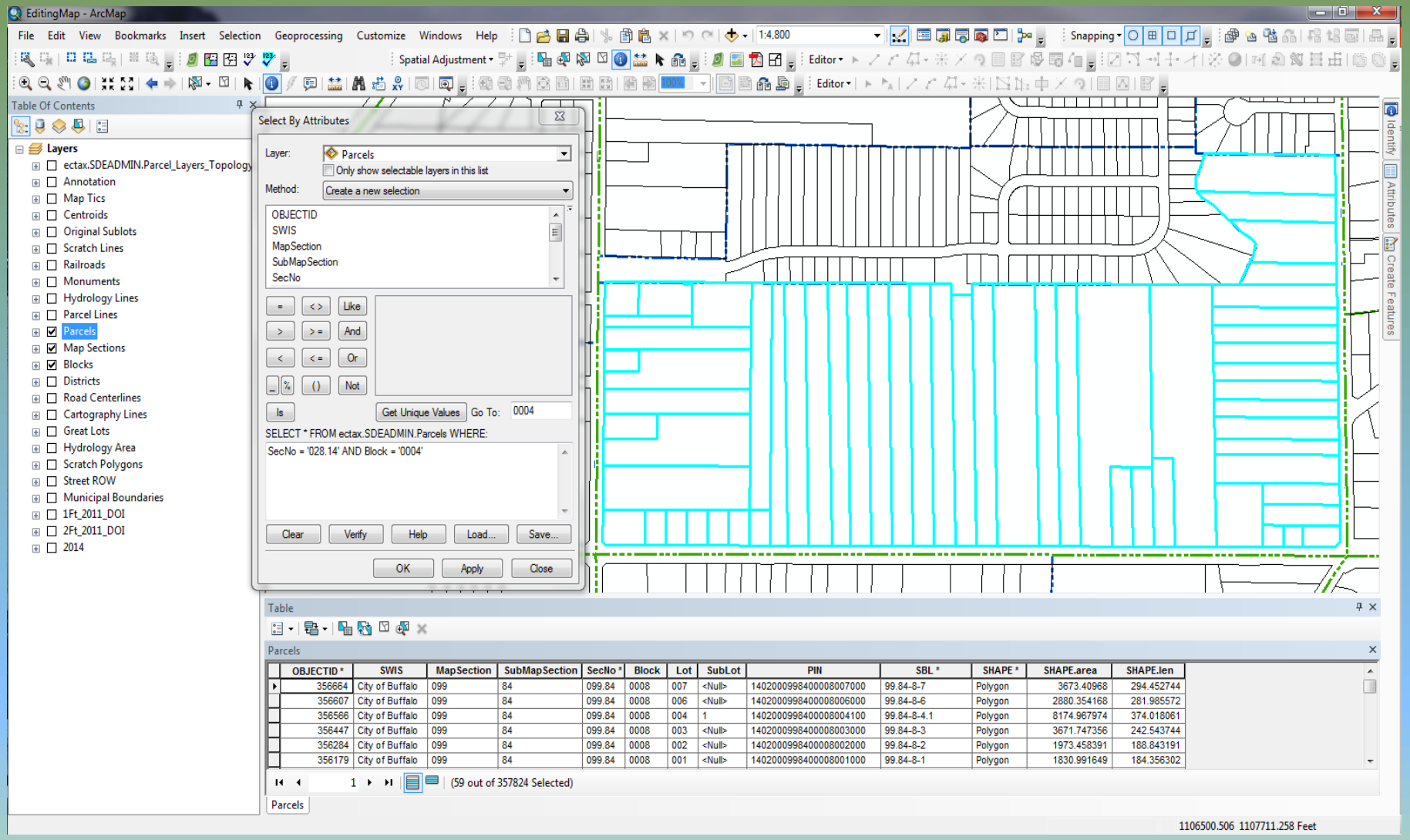
Parcels

OBJECTID *	SWIS	MapSection	SubMapSection	SecNo *	Block	Lot	SubLot	PIN	SBL *	SHAPE *	SHAPE.area	SHAPE.len
362830	City of Buffalo	099	75	099.75	0003	00′	2	14020009975000003001200	99.75-3-1.2	Polygon	55728.235422	1015.041401
362086	City of Buffalo	099	75	099.75	0003	00′	122	14020009975000003001122	99.75-3-1.122	Polygon	4479.443854	335.163686
362514	City of Buffalo	099	75	099.75	0003	00′	121	14020009975000003001121	99.75-3-1.121	Polygon	51176.668476	1080.129125
362137	City of Buffalo	099	75	099.75	0003	00′	11	14020009975000003001110	99.75-3-1.11	Polygon	70518.447176	1125.029848
362006	City of Buffalo	099	75	099.75	0002	00′	212	14020009975000002001212	99.75-2-1.212	Polygon	4425.839473	358.673015
362346	City of Buffalo	099	75	099.75	0002	00′	211	14020009975000002001211	99.75-2-1.211	Polygon	179877.246541	1877.044471
362144	City of Buffalo	099	75	099.75	0002	00′	1	14020009975000002001100	99.75-2-1.1	Polygon	12956.164935	480.527254
361823	City of Buffalo	099	75	099.75	0001	00′	<Null>	14020009975000001001000	99.75-1-1	Polygon	161177.805702	1731.86546
359904	City of Buffalo	099	74	099.74	0004	009	<Null>	14020009974000004009000	99.74-4-9	Polygon	7010.546095	371.320294
359767	City of Buffalo	099	74	099.74	0004	008	<Null>	14020009974000004008000	99.74-4-8	Polygon	4962.469864	340.409082
360058	City of Buffalo	099	74	099.74	0004	007	<Null>	14020009974000004007000	99.74-4-7	Polygon	9714.185954	410.694917
360217	City of Buffalo	099	74	099.74	0004	006	<Null>	14020009974000004006000	99.74-4-6	Polygon	9852.923923	412.855354
360316	City of Buffalo	099	74	099.74	0004	005	<Null>	14020009974000004005000	99.74-4-5	Polygon	5870.23077	352.181193
360404	City of Buffalo	099	74	099.74	0004	004	<Null>	14020009974000004004000	99.74-4-4	Polygon	5686.338473	349.177562
360502	City of Buffalo	099	74	099.74	0004	003	<Null>	14020009974000004003000	99.74-4-3	Polygon	5908.495403	352.46517
360673	City of Buffalo	099	74	099.74	0004	002	<Null>	14020009974000004002000	99.74-4-2	Polygon	10512.25172	423.123097
360637	City of Buffalo	099	74	099.74	0004	016	<Null>	14020009974000004016000	99.74-4-16	Polygon	7521.83565	379.792454
360393	City of Buffalo	099	74	099.74	0004	014	1	14020009974000004014100	99.74-4-14.1	Polygon	14177.043728	479.183903
360292	City of Buffalo	099	74	099.74	0004	012	1	14020009974000004012100	99.74-4-12.1	Polygon	11868.435611	444.589456
360099	City of Buffalo	099	74	099.74	0004	01′	<Null>	14020009974000004011000	99.74-4-11	Polygon	5330.787219	346.652941
360016	City of Buffalo	099	74	099.74	0004	010	<Null>	14020009974000004010000	99.74-4-10	Polygon	6969.873708	370.890294
360833	City of Buffalo	099	74	099.74	0004	00′	<Null>	14020009974000004001000	99.74-4-1	Polygon	9746.431607	411.850506
361356	City of Buffalo	099	74	099.74	0003	00′	<Null>	14020009974000003001000	99.74-3-1	Polygon	158054.425198	1723.42695
361467	City of Buffalo	099	74	099.74	0002	009	<Null>	14020009974000002009000	99.74-2-9	Polygon	4482.912778	327.236497
361540	City of Buffalo	099	74	099.74	0002	008	<Null>	14020009974000002008000	99.74-2-8	Polygon	8573.1654	390.282937
361613	City of Buffalo	099	74	099.74	0002	007	<Null>	14020009974000002007000	99.74-2-7	Polygon	5963.050141	358.601224
361677	City of Buffalo	099	74	099.74	0002	006	<Null>	14020009974000002006000	99.74-2-6	Polygon	5600.687896	352.810596
361730	City of Buffalo	099	74	099.74	0002	005	<Null>	14020009974000002005000	99.74-2-5	Polygon	6318.47052	363.452883
361784	City of Buffalo	099	74	099.74	0002	004	<Null>	14020009974000002004000	99.74-2-4	Polygon	4684.685192	335.993268
361866	City of Buffalo	099	74	099.74	0002	003	<Null>	14020009974000002003000	99.74-2-3	Polygon	4905.133747	339.258319
361967	City of Buffalo	099	74	099.74	0002	002	<Null>	14020009974000002002000	99.74-2-2	Polygon	6839.676262	368.566367
361895	City of Buffalo	099	74	099.74	0002	016	<Null>	14020009974000002016000	99.74-2-16	Polygon	4294.085474	328.538085
361833	City of Buffalo	099	74	099.74	0002	015	<Null>	14020009974000002015000	99.74-2-15	Polygon	4959.564891	340.59745
361750	City of Buffalo	099	74	099.74	0002	014	<Null>	14020009974000002014000	99.74-2-14	Polygon	3896.769517	325.074049
361712	City of Buffalo	099	74	099.74	0002	013	<Null>	14020009974000002013000	99.74-2-13	Polygon	4045.176515	327.227344
361663	City of Buffalo	099	74	099.74	0002	01′	1	14020009974000002011100	99.74-2-11.1	Polygon	7892.694876	384.633204
361407	City of Buffalo	099	74	099.74	0002	010	<Null>	14020009974000002010000	99.74-2-10	Polygon	4001.552477	320.28935
362062	City of Buffalo	099	74	099.74	0002	00′	<Null>	14020009974000002001000	99.74-2-1	Polygon	6936.890352	374.477108
361554	City of Buffalo	099	74	099.74	0001	009	<Null>	14020009974000001009000	99.74-1-9	Polygon	8056.25265	386.914359
361662	City of Buffalo	099	74	099.74	0001	008	<Null>	14020009974000001008000	99.74-1-8	Polygon	6445.913927	362.3627
361715	City of Buffalo	099	74	099.74	0001	007	<Null>	14020009974000001007000	99.74-1-7	Polygon	4246.781828	329.320066
361760	City of Buffalo	099	74	099.74	0001	006	<Null>	14020009974000001006000	99.74-1-6	Polygon	4198.723891	328.818766
361843	City of Buffalo	099	74	099.74	0001	005	<Null>	14020009974000001005000	99.74-1-5	Polygon	5229.607696	344.470064
361964	City of Buffalo	099	74	099.74	0001	004	<Null>	14020009974000001004000	99.74-1-4	Polygon	8024.208661	386.534665
362046	City of Buffalo	099	74	099.74	0001	003	<Null>	14020009974000001003000	99.74-1-3	Polygon	6542.456949	608.530358
361970	City of Buffalo	099	74	099.74	0001	025	<Null>	14020009974000001025000	99.74-1-25	Polygon	3785.840977	272.233183
361945	City of Buffalo	099	74	099.74	0001	024	<Null>	14020009974000001024000	99.74-1-24	Polygon	6944.852222	371.881656

0 (0 out of 357824 Selected)

ectax.SDEADMIN.RevisionsTable | Parcels

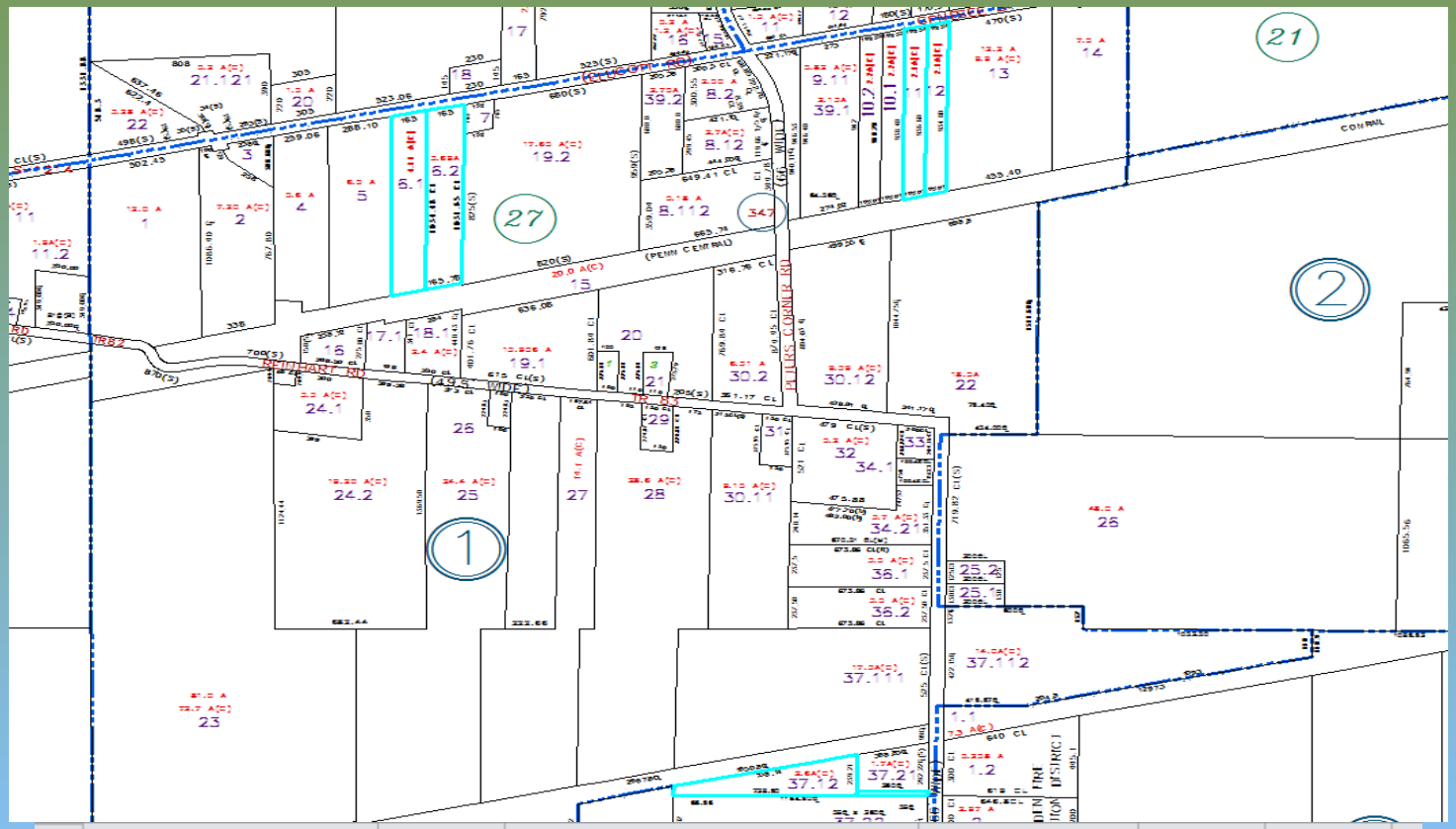
Example Query



Mismatch List

- In 2012 and 2014 using data provided with the assessment roll submitted in each of those years a mismatch list was created between the tax map and the assessment roll.
- This list was generated by doing a direct comparison between Parcel Identification Numbers on the tax map GIS and the final roll submitted that year, using the tax map as the basis of comparison.
- Those tax map parcels that did not have a direct match were the base mismatch list.
- Tax Exempt parcels and those parcels that were identified as not being taxed in the standard way (railroads, utilities) were removed from the 2014 final list submitted to each town.

Example Mismatch list



	A	B	C	D	E	F
1	97.00-1-6.1	0	NIEZGODA JOSEPH JR &IRENE	10/31/1984 0:00	9390	294
2	97.00-1-6.2	0	NIEZGODA JOSEPH JR&IRENE	9/1/1989 0:00	10069	641
3	97.00-1-11	0	SCHRODT ROY	10/21/2004 0:00	11084	8591
4	97.00-1-12	0	SCHRODT ROY	10/21/2004 0:00	11084	8591
5	97.00-1-37.12	2.6	LEROY JAMES E	8/31/2011 0:00	11207	9315
6	97.00-1-37.22	0	LEROY JAMES E	8/31/2011 0:00	11207	9315

Live GIS example

III. Tax Mapping Procedures

A. The PIN & SBL Number

B. Map Scale, Section and Subsection

C. Numbering Procedures

D. Subdivision Maps

A. PIN & SBL

- The PIN (Parcel Identification Number) is the means by which every parcel can be identified.
- The SBL number of a parcel is the parcel's section number, block, and lot designation.
- The PIN is formed from the SBL and the SWIS code for the municipality the parcel is contained within in the following format:

Parcel Identification Number

is formed in the following format:

(140200) + (111) + (060) + (0001) + (004)+ (120)

140200111060000100 4120

1. SWIS - SWIS code for every municipality
2. SECTION - map section
3. SUBSECTION - location and scale within section
4. BLOCK - displayed breakdown of a map
5. LOT - individual parcel
6. SUBLOT - child of an original parcel

SBL Number

is formed in the following format:

(111) + ‘.’ + (06) + ‘-’ + (0001) + ‘-’ + (004) + ‘.’ + (120)

111.06-1-4.12

1. SECTION - map section
2. SUBSECTION - location and scale within section
3. BLOCK - displayed breakdown of a map
4. LOT - individual parcel
5. SUBLOT - child of an original parcel

B. Map Scale, Sections, & Subsections

- Map Scale is the relationship between distance on a map, and the distance on the ground.
- Map Sections are scale representations of areas of the county's surface based on Cartesian grid coordinates.
- Each Map Section is further divided into Sub Sections which represent specific areas at larger scales.

Map Scale and Projections

- Do to the fact that the surface of the Earth is roughly spherical, and maps are not, we must use a projection of the Earth's surface to represent it as a Cartesian Plane.
- Map projections distort the scale in varying ways depending upon the projection used.
- Erie County uses the New York State Plane West Coordinate System, which is based on a Transverse Mercator Projection and uses feet as the unit of measurement, and is accurate to within 1 meter over 10,000 meters.

Map Scale

- Map Scale is determined by the density of parcels in an area.
- The Tax Maps utilize 4 scales:
  1. 1:4800, or 1 inch equals 400 feet.
  2. 1:2400, or 1 inch equals 200 feet.
  3. 1:1200, or 1 inch equals 100 feet.
  4. 1:600, or 1 inch equals 50 feet.

400 Scale Maps

- The 400 scale map is the smallest scale utilized for tax mapping.
- It is used to represent areas where parcels have substantial area.
- Many 400 scale maps are non contiguous, as parts of them have been rescaled to larger scale maps as a result of increased parcel fragmentation due to development.
- Many 400 scale maps should be rescaled going forward to better represent those areas that have undergone significantly increased parcel fragmentation.

200 Scale Maps

- The 200 scale map is an intermediate map, and is the least common map in the county.
- It is used to represent areas where parcel densities are not as dense as the larger scale maps, but where parcel areas are still significant in size.
- Many 400 scale maps have been rescaled into 200 scale maps as parcels have fragmented.
- Many 200 scale maps should also be rescaled into larger scales as parcel density has increased in the recent past.

100 Scale Maps

- The 100 scale map is the most common map in the county.
- It is used to represent areas where parcel density has increased as a result of parcel fragmentation . It is the most commonly used scale for new residential subdivision development.
- Many 100 scale maps were created from parts of 400 and 200 scale maps.
- 100 scale maps tend to adequately represent most current development.

50 Scale Maps

- The 50 scale map is the largest scale map scale in use and the second most common.
- It is used to represent areas where there is substantial parcel density, and condominiums.
- Most 50 scale maps are inside villages and cities with long established residential neighborhoods.
- Very few new 50 scale maps have been created.

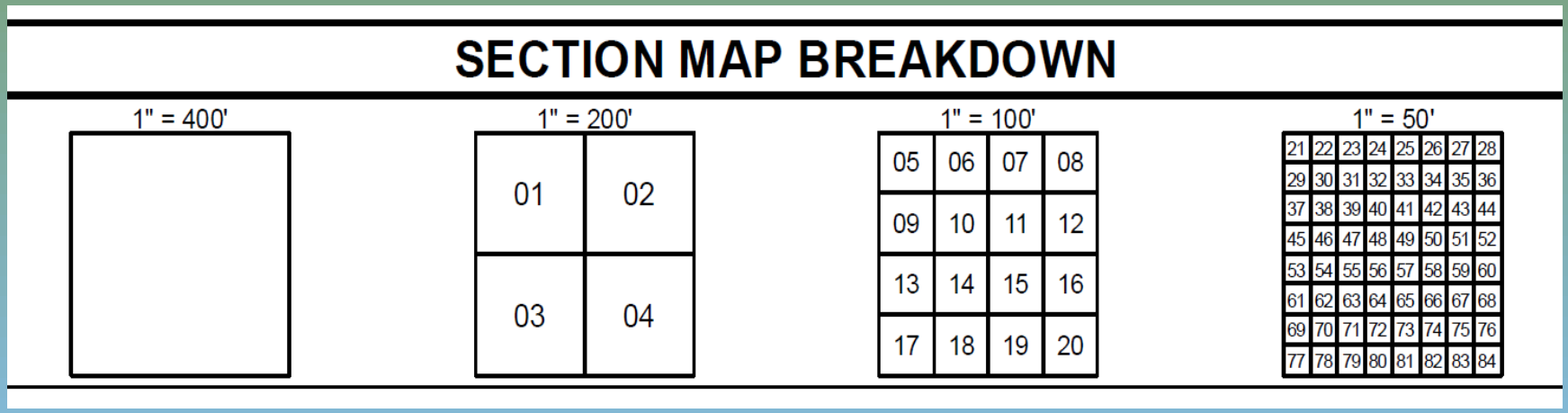
Map Sections

- The map section number is composed of two parts, the section and the subsection.
- The section is the overall number of an area defined by specific coordinates. Each is 8,000 feet north-south by 12,000 feet east-west.
- The subsection tells you where and at what scale a map fits into a section.

Map Subsections

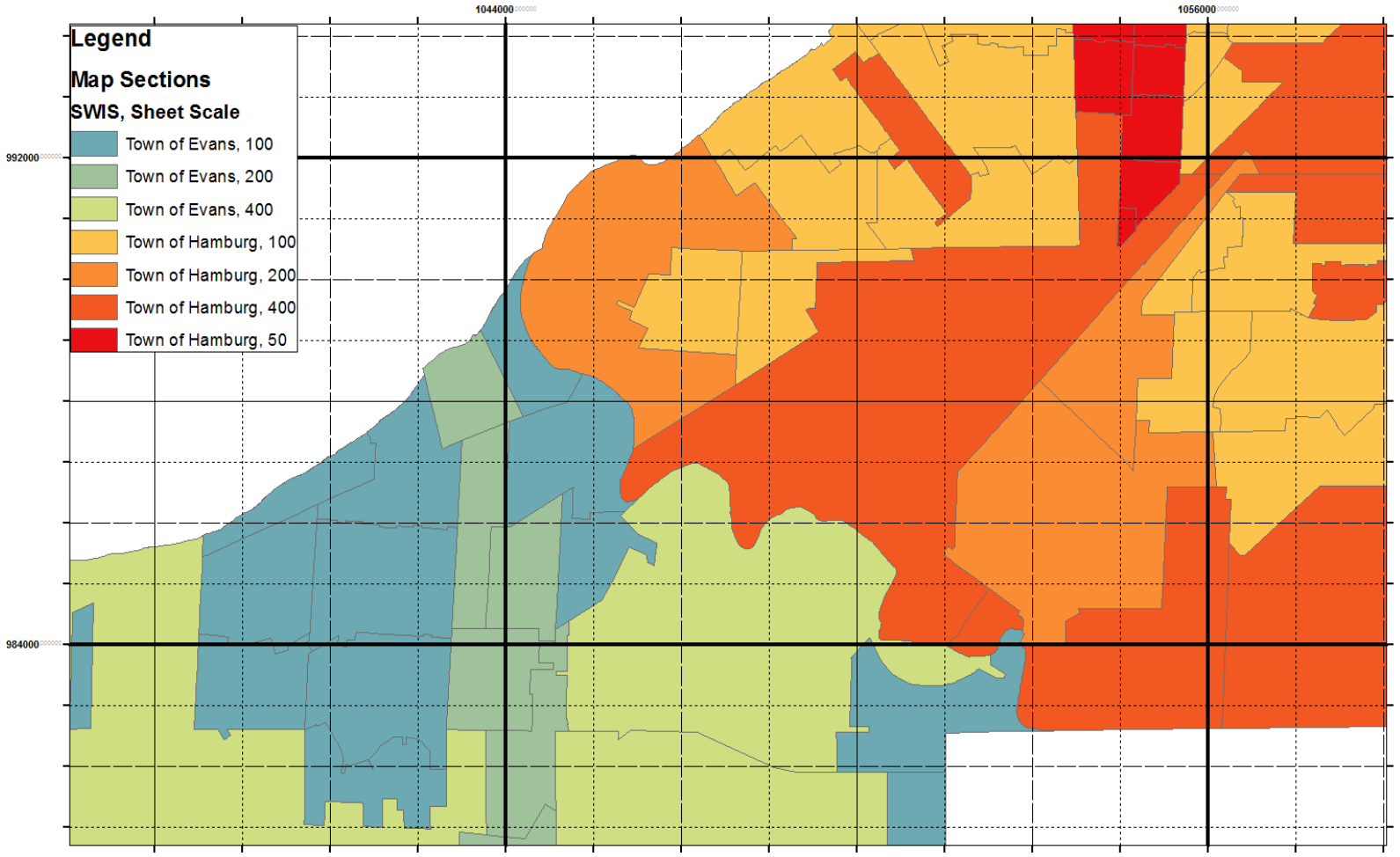
- All subsections (00) are scaled at 1’ to 400” and their outline contains all the larger scale maps with that section number.
- All subsections (01 – 04) are scaled at 1’ to 200” and each one refers to a specific quadrant of the larger (00) map.
- All subsections (05 – 20) are scaled at 1’ to 100” and each one refers to a specific quadrant of the larger (01 – 04) map.
- All subsections (21 – 84) are scaled at 1’ to 50” and each one refers to a specific quadrant of the larger (05 - 20) map.

Breakdown of Map Sections



This Diagram shows the breakdown of a section map by location, scale, and number.

Real Map Sub Sections



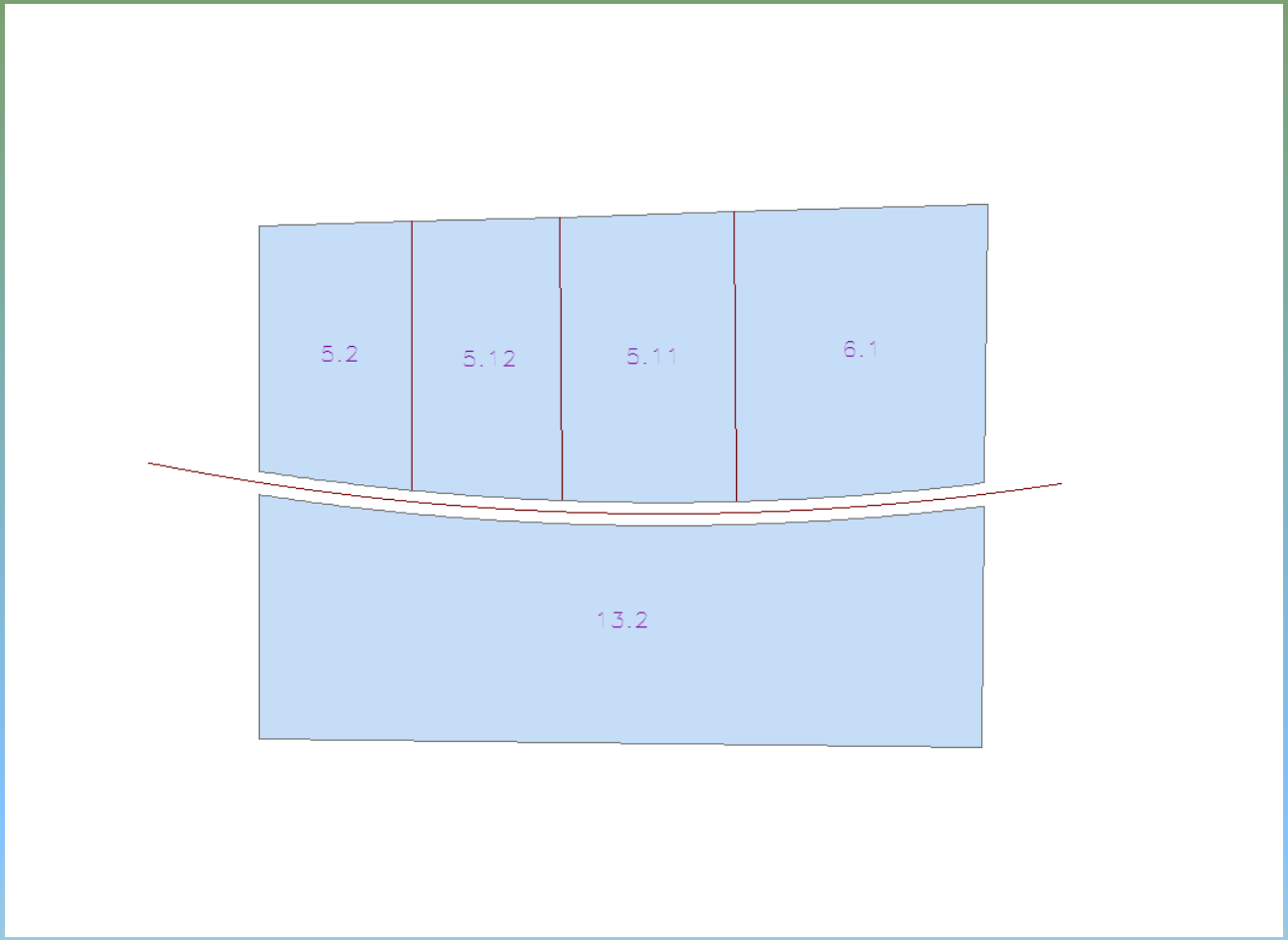
C. Tax Parcel Numbering Procedures

1. Splits
2. Merges
3. Road Abandonments
4. Road Appropriations
5. Keychanges

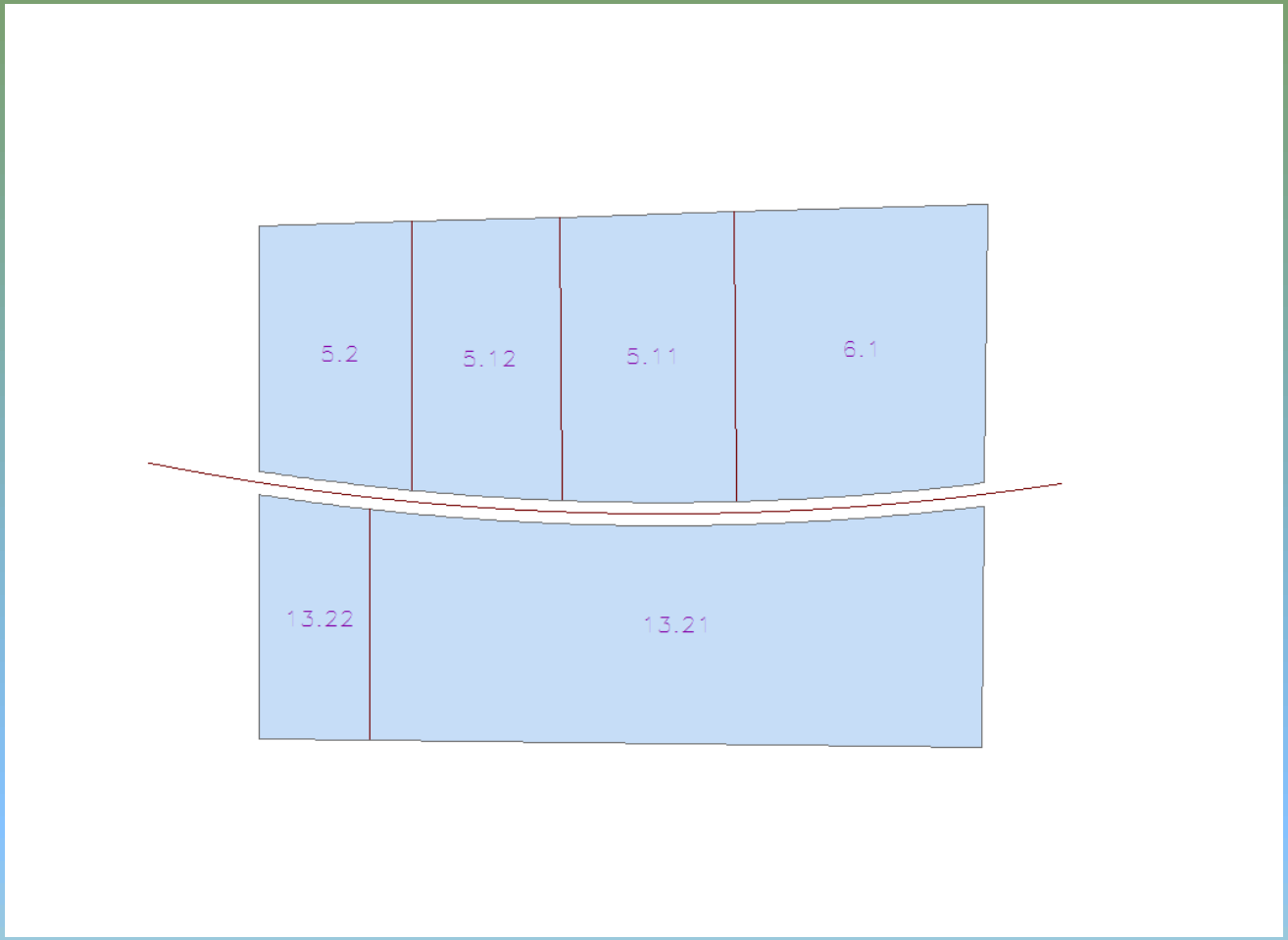
1. Numbering a Split

- The parcel not being transferred receives a 1 in the sublot portion of the subsequent SBL.
- The parcel being transferred receives a 2 in the sublot portion of the subsequent SBL.
- In the case where there are 3 digits in the sublot portion of the SBL we create new SBL numbers.
- The parcel not being transferred gets the lowest unused lot number in the block, while the parcel being transferred gets next lowest unused lot number.

Example Split 1A



Example Split 1B



2. Numbering a Merge

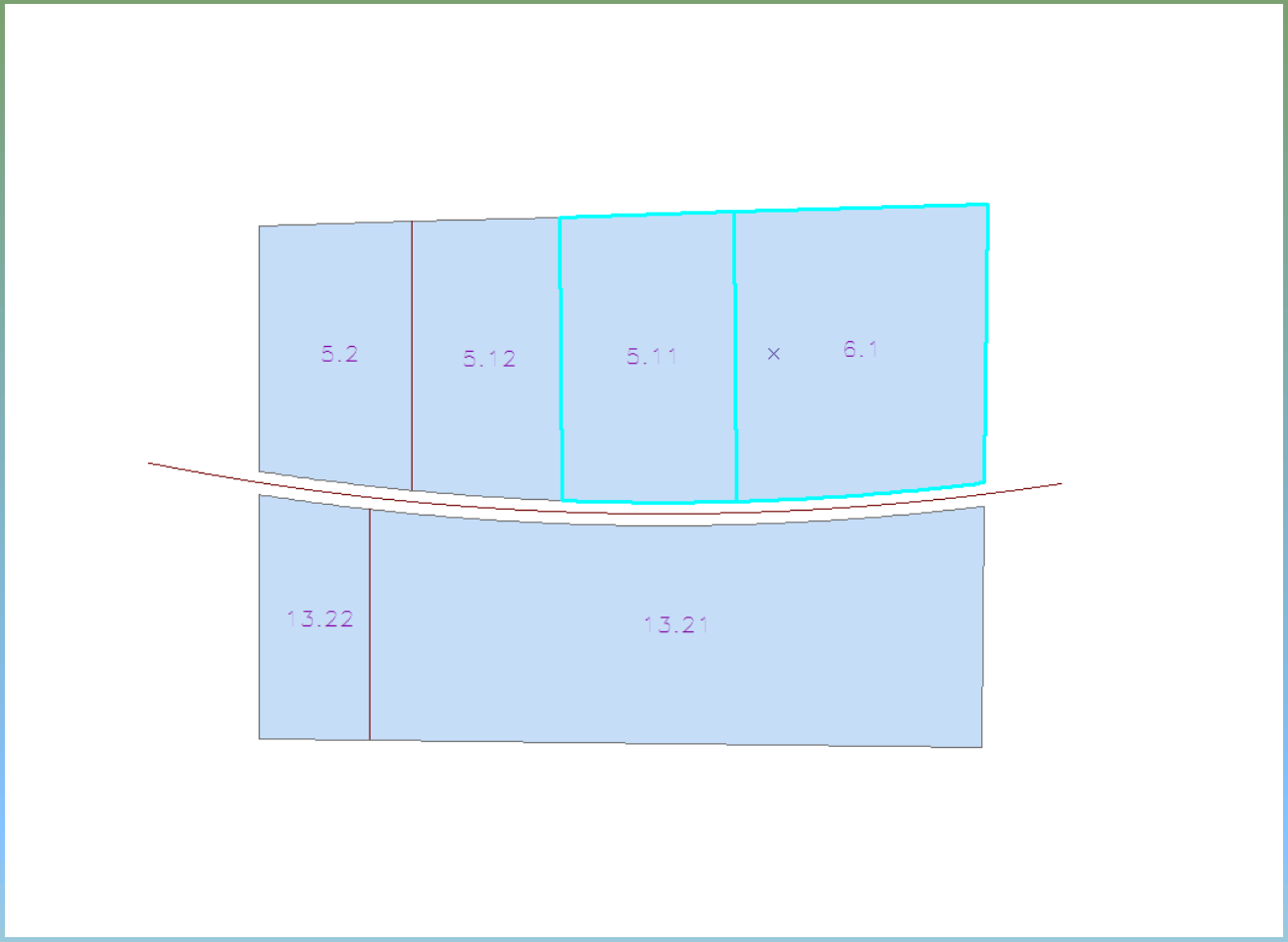
- The lowest SBL number of all the parcels involved in the merge will receive a 1 in the sublot portion of the subsequent SBL.
- In the case where there are 3 digits in the sublot portion of this SBL, the next highest unused lot number in the block will be used.

Conditions for Merging Parcels

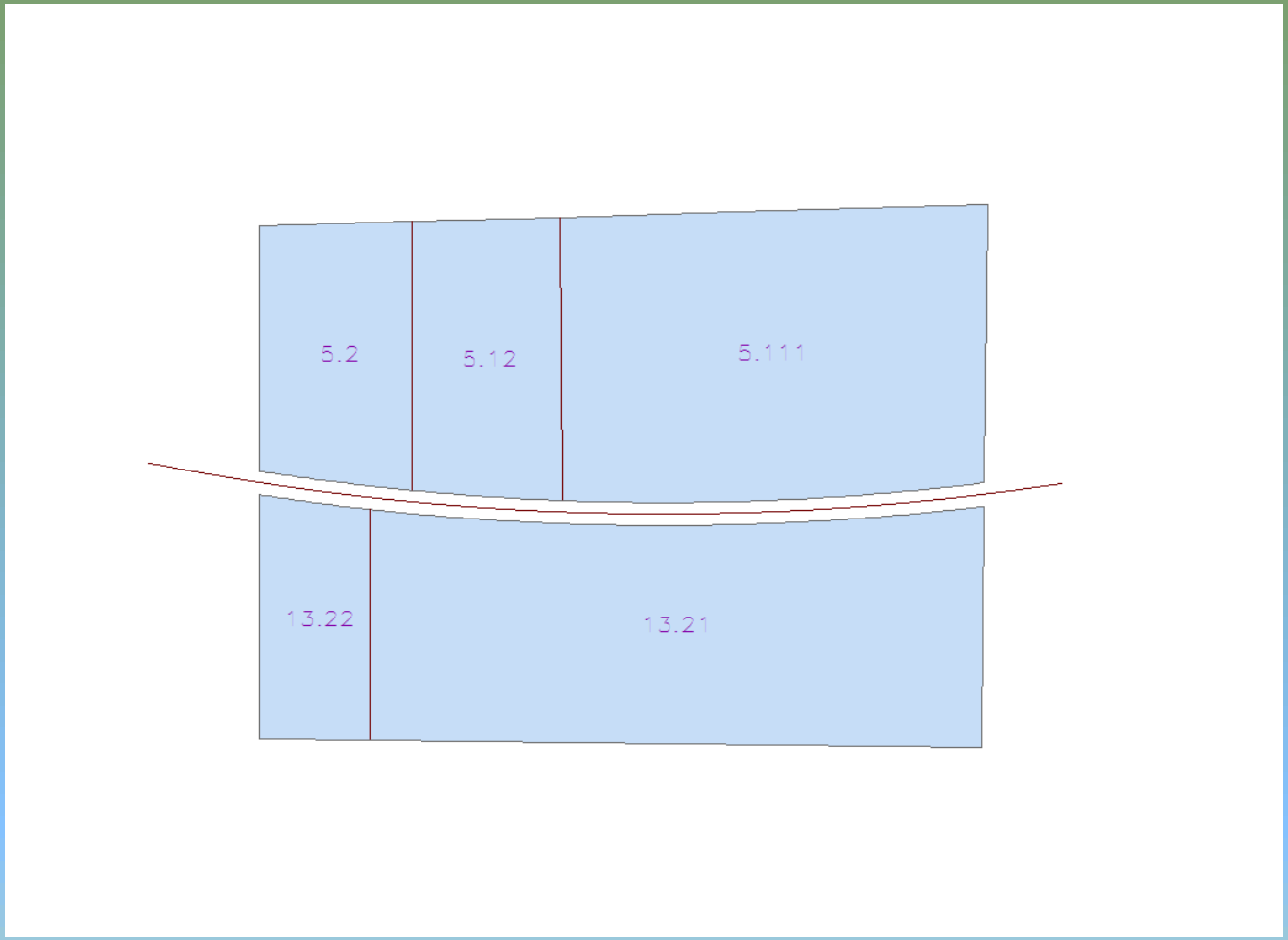
Parcels can be merged if:

1. All parcels have the same ownership listed on the their current deeds.
2. All parcels are adjacent.
   - Exceptions to parcel adjacency
     - Parcels which are separated by a public road or utility right of way can be merged, where a line perpendicular to the center line of the road or right of way can be drawn connecting the parcels can be merged.
     - Parcels split by a municipal boundary cannot be merged.

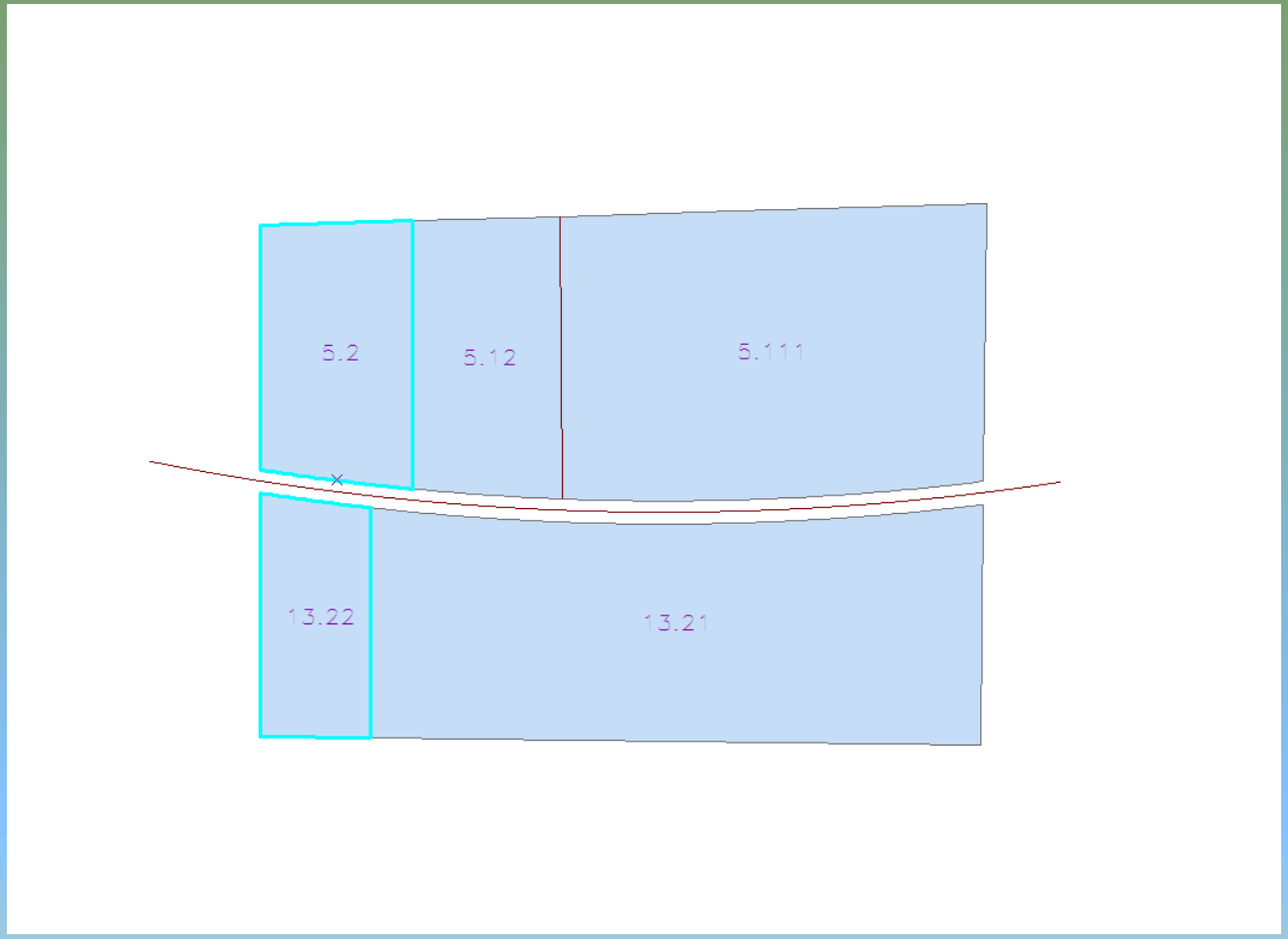
Merge Example 1A



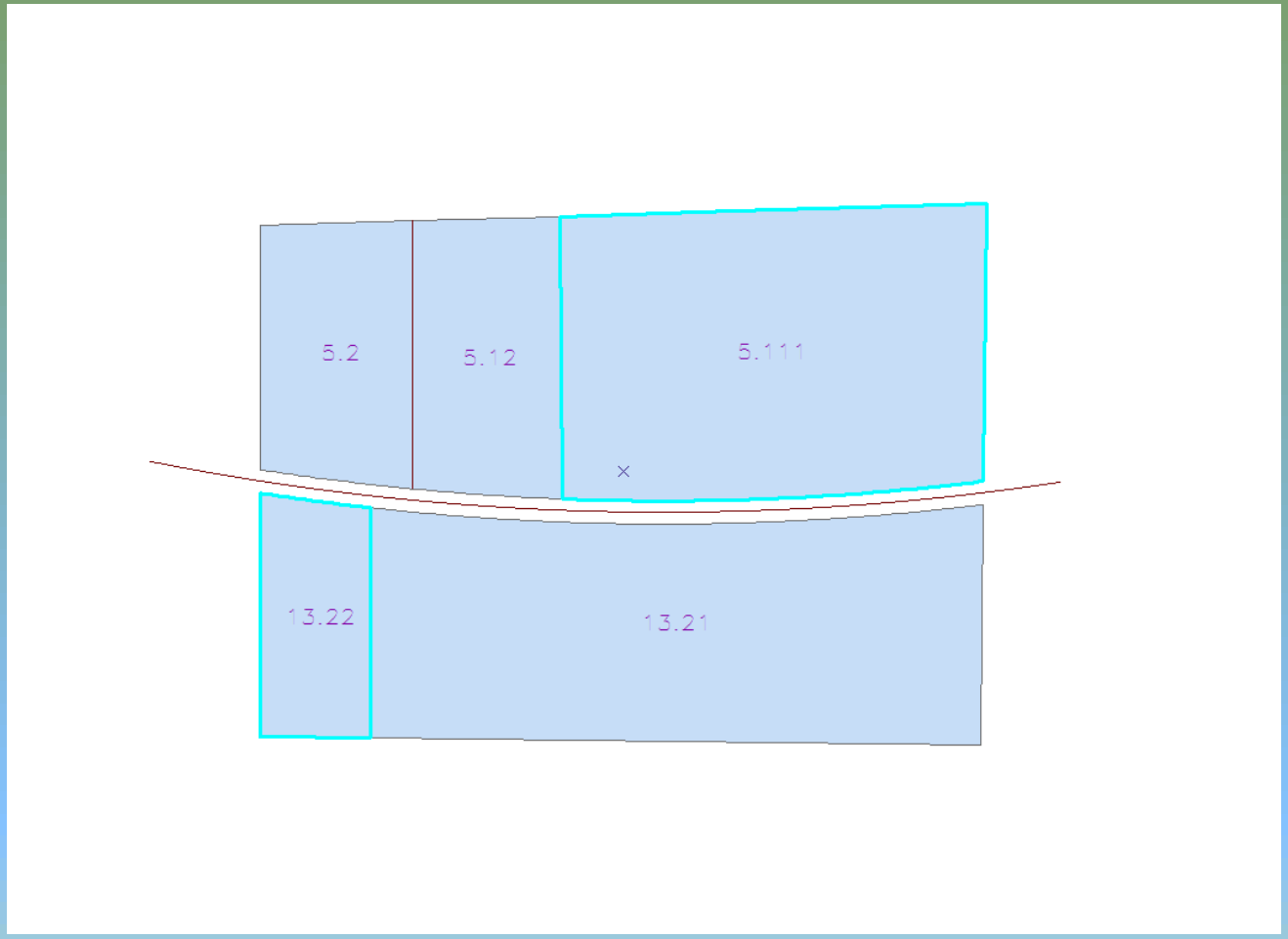
Merge Example 1B



Good to Merge



Not Good to Merge



3. Road Abandonments

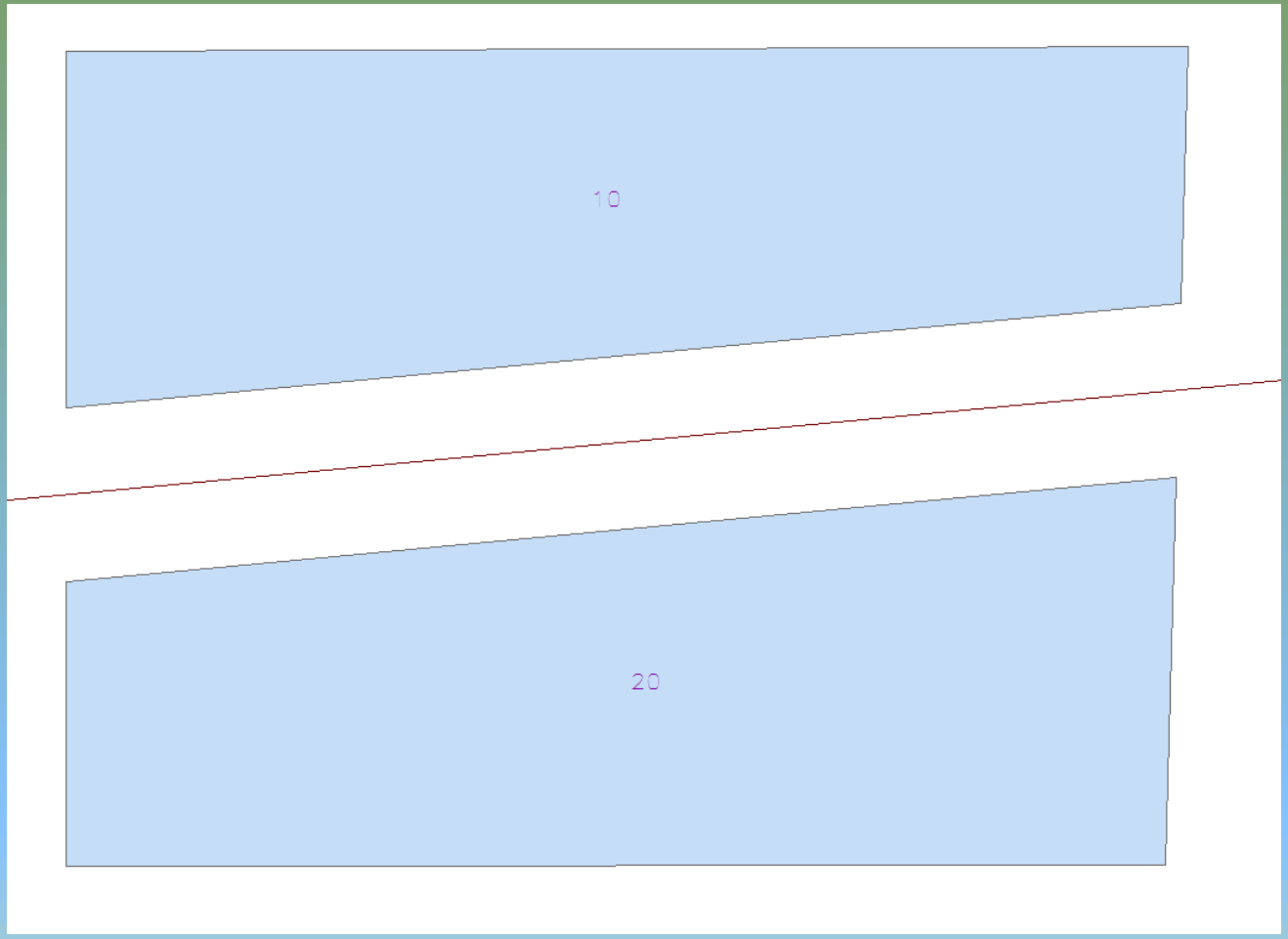
There are two kinds

a. Where the road is abandoned by resolution and no deeds were filed.
b. Where the road is abandoned and deeds covering the former road right of way were filed.

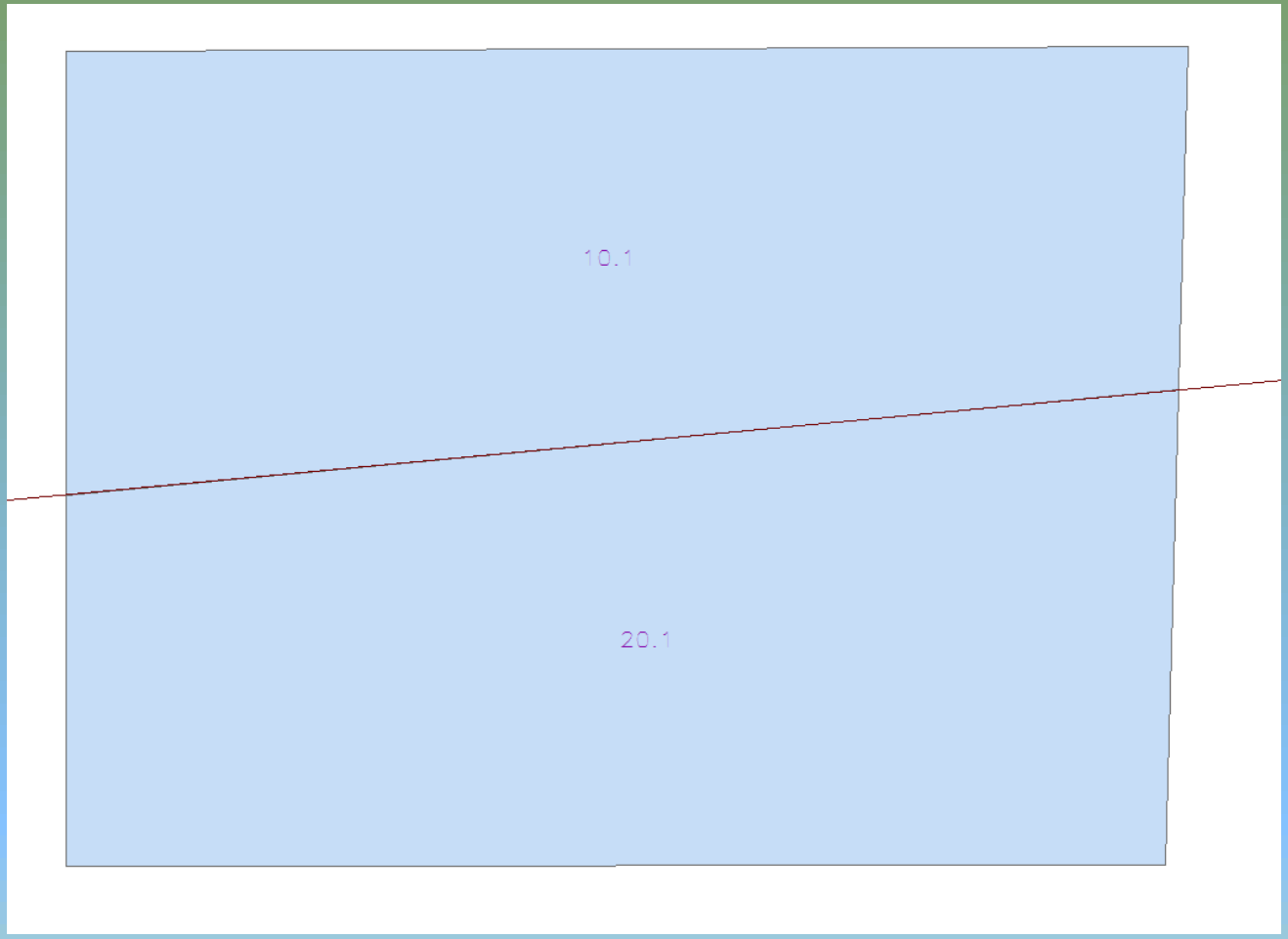
No deeds filed

- Where no deeds are filed, the road is split in half, and the each parcel adjacent to the road is extended to the former center line.
- Each parcel has a 1 added to the sublot portion of the SBL.

Example no deeds filed 1A



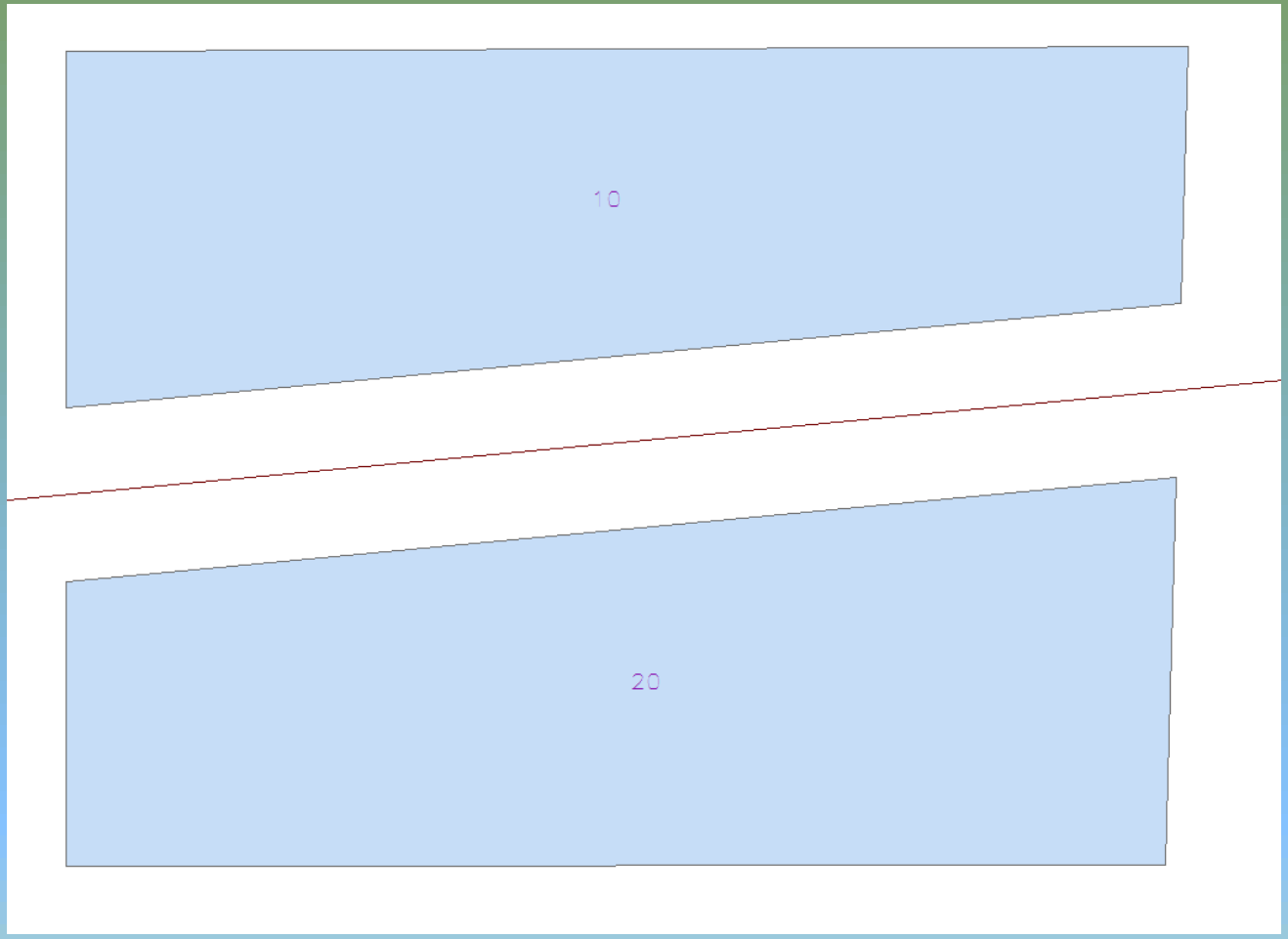
Example no deeds filed 1B



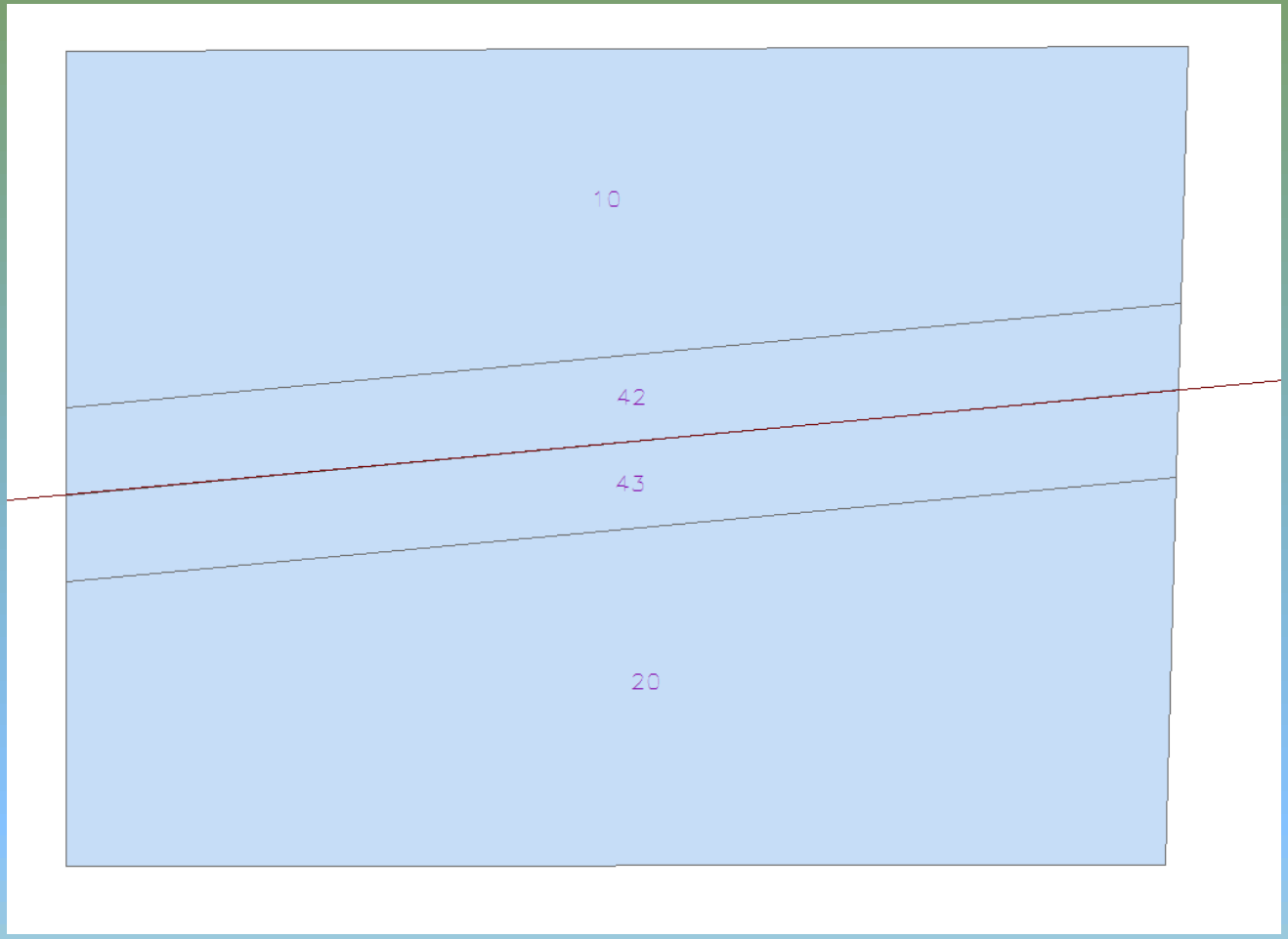
Deeds filed

- Where deeds have been filed, the property descriptions of part of the former road way are used to construct new parcels and given numbers like a new subdivision.
- Upon request these new parcels will be merged with adjacent parcels following the rules for merges.

Example Deeds filed 1A



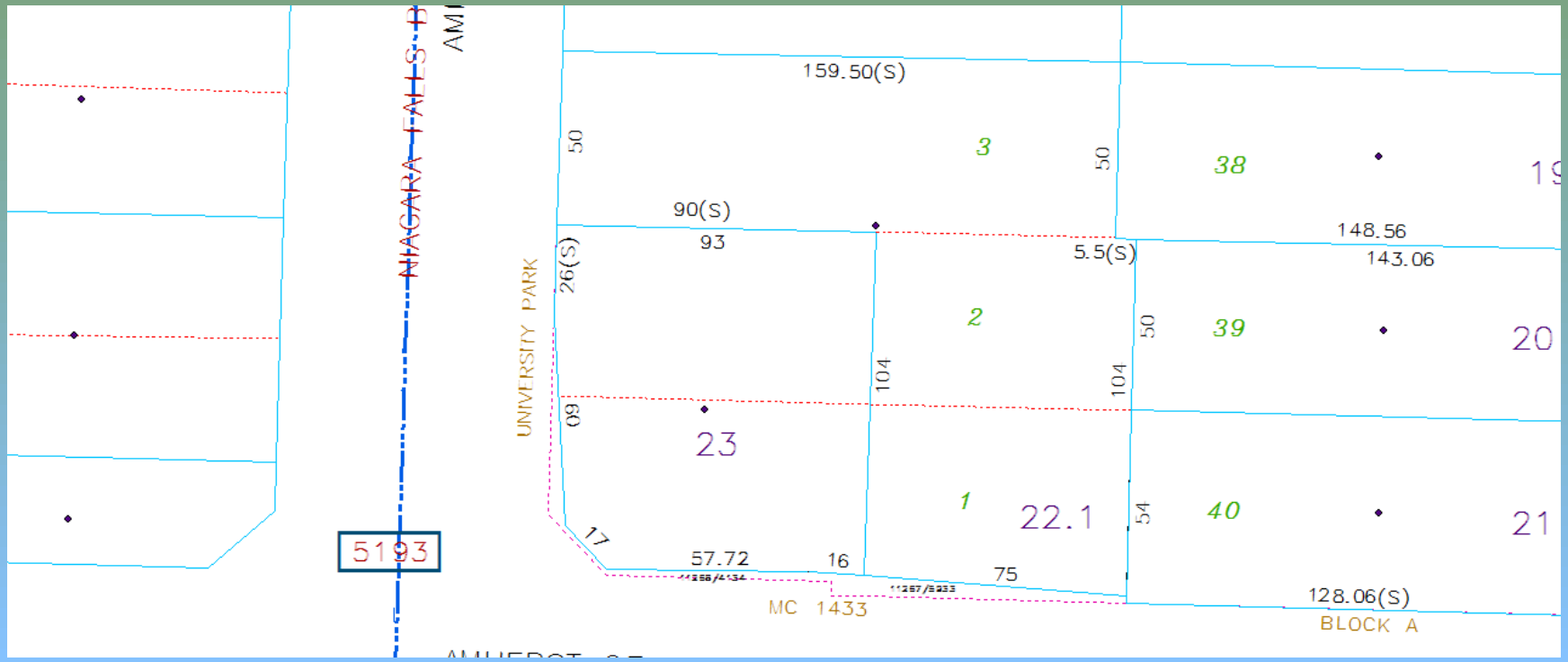
Example Deeds filed 1B



4. Appropriations

- Appropriations of land for the purposes of constructing roads do not change the parcel number of a parcel, but they may substantially change the shape and area of a parcel.
- The changes to the shape and area of a parcel due to a road appropriation will be shown on a tax map, and will be recorded in the revision tables.

Example Road Appropriation



5. Keychanges

- A Keychange is a change of parcel identification without changing any of the physical characteristics of the parcel.
- Keychanges are performed most commonly where map legibility can be improved through rescaling, consecutive renumbering, and contiguity.
- Keychanges often involve the creation and population of previously unused map sections and blocks.
- A common cause for wholesale rescaling is the introduction of a new subdivision into an area already greatly fragmented.

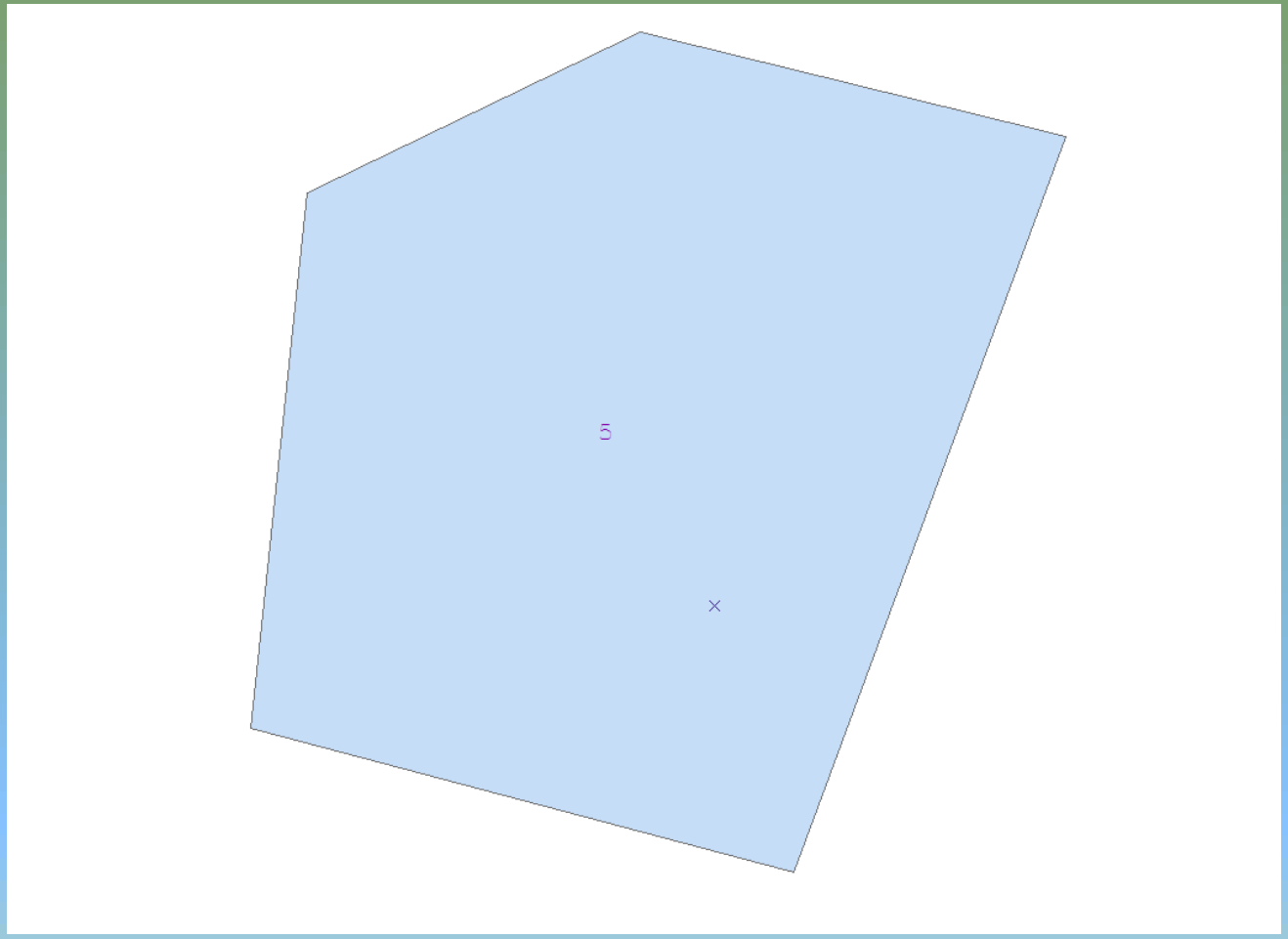
D. Subdivisions

- A subdivision is defined as 5 or more parcels of land each less than 5 acres in size deriving from a single parent parcel or ownership that have access to a public road being developed for residential purposes.
- Many subdivisions contain within them future roadways, as well as new parcels, we do not assign a new number to future roads.

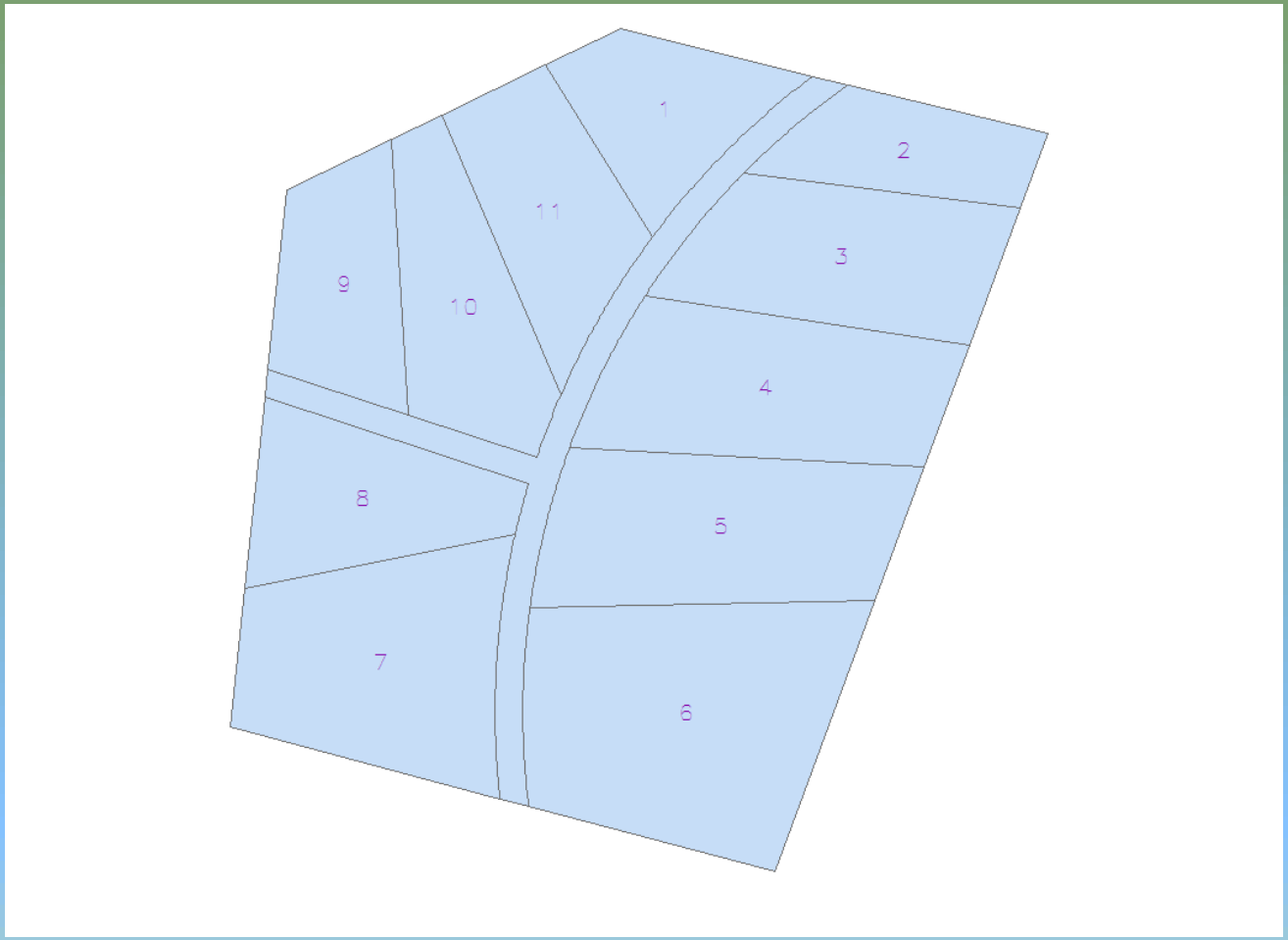
Numbering a Standard Subdivision

- Locate the parcel where the subdivision map is located.
- Determine if there is a change of scale required, and if so determine which subsection(s) will be expanded or created.
- Create a new block in the desired map section.
- Number the parcels by beginning at the northwest and move clockwise around the block.

Example New Subdivision 1A



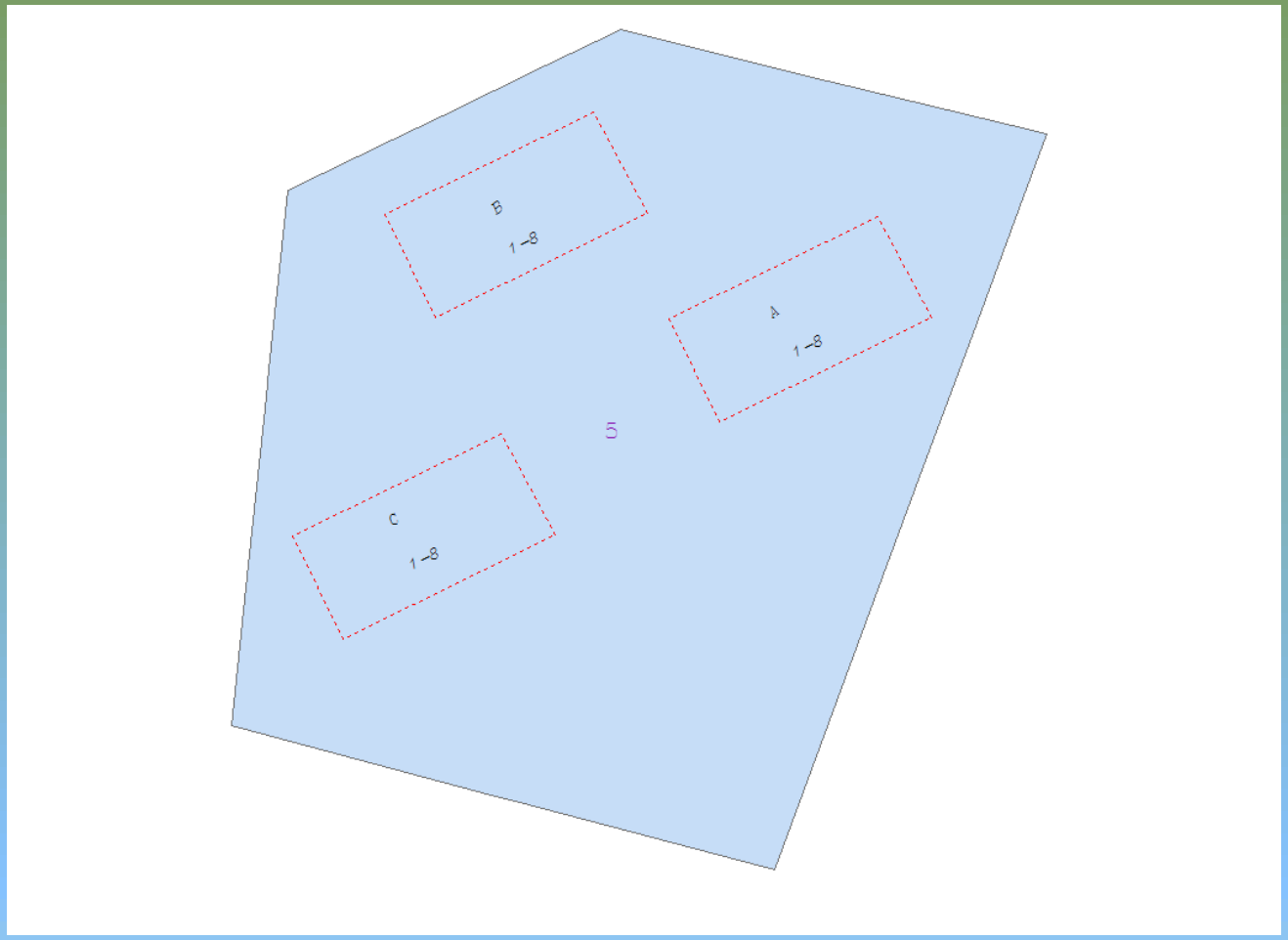
Example New Subdivision 1B



Numbering Condominiums & Townhouses

- Begins the same as a standard subdivision map would.
- Condominiums receive a number based on the common area SBL and the building and unit number as a suffix.
- Townhouses each receive their own number, as does the common area, following the standard subdivision procedure.

Example New Condominium



Example Condo PIN & SBL

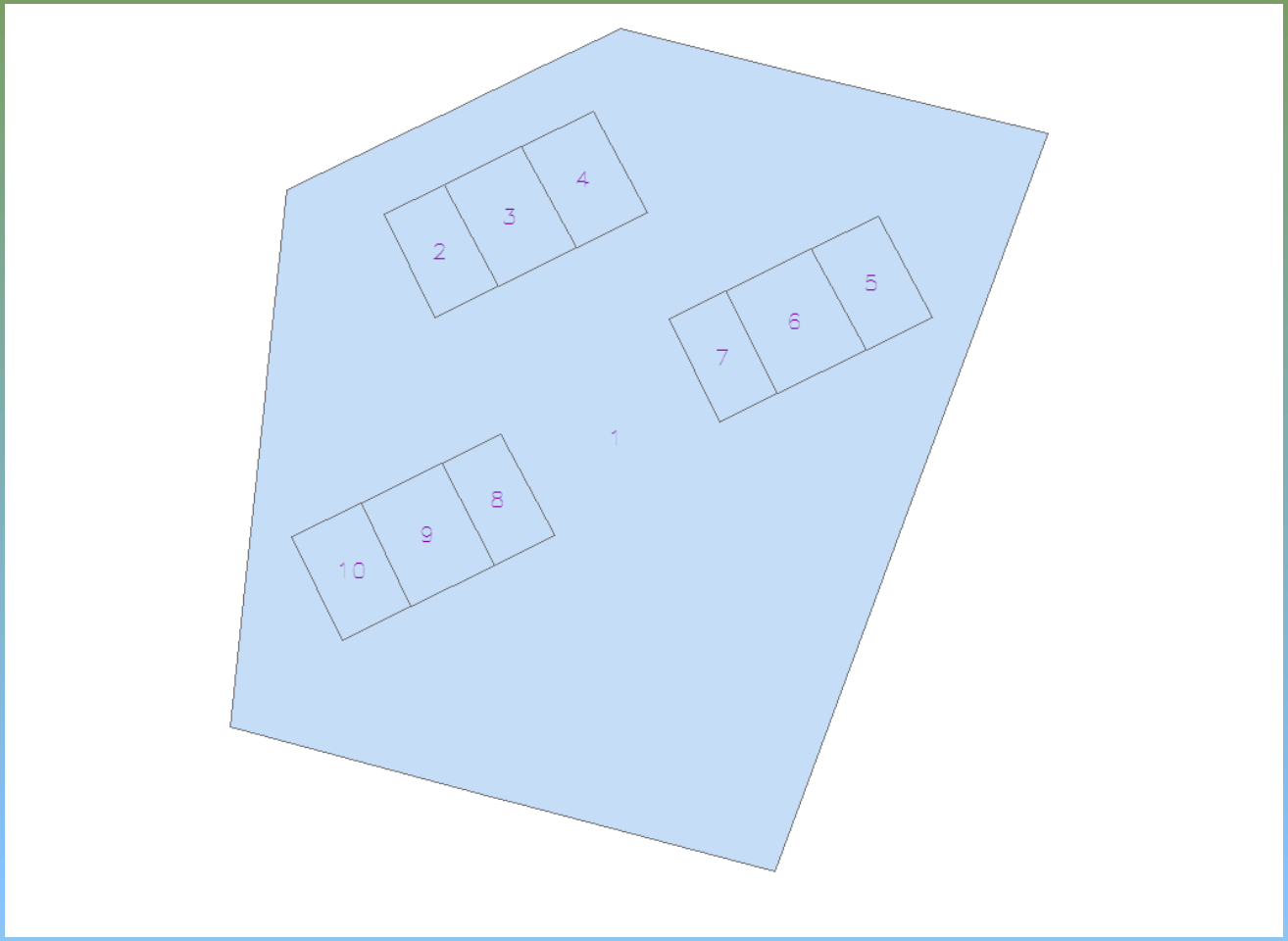
- PIN

  142289028680000100500 0A1
- SBL

  28.68-1-5./A1

1. SWIS - SWIS code for each municipality
2. SECTION - map section
3. SUBSECTION - location and scale within section
4. BLOCK - displayed breakdown of a map
5. LOT - individual parcel
6. SUBLOT - child of an original parcel
7. SUFFIX - used to specify individual units

Example New Townhouses



IV. Deeds, Property Descriptions, & You!

A. Chain of Title

B. Deed Descriptions

C. Dealing with Angles and Curves

D. Calculating Acreage

E. Conflict Resolution

A. Chain of Title & Records of Deeds

- Chain of Title is defined as the sequence of title to property.
- The County Clerk's Office maintains records of land transfers going back to the year 1808.
- Real Property Tax Services maintains a database with deed records going back to what was current when the tax maps were first implemented in the 1970s.
- The chain of title for a particular property can be determined using the grantor/ grantee indices for the deed books in the County Clerk's Office.

B. Deed Descriptions

1. Description
2. Types
3. Common Errors

1. Description of a Description

- A property description must contain uniquely identifiable characteristics, be legally sufficient, and form an enclosed area.

Parts of a Property Description

All that Tract or Parcel of Land Situate in the Town of Amherst, County of Erie and State of New York, being part of Lot Number seventy-six (76), Township twelve (12), Range seven (7) of the Holland Land Company's Survey, bounded and described as follows:

Beginning at a point in the center line of North French Road, distant one thousand seven hundred twenty-nine and five tenths (1,729.5) feet east of the west line of Lot Number seventy-six (76); thence southerly and parallel with the east line of said Lot Number seventy-six (76), three hundred fifty (350) feet to a point; thence east parallel with North French Road, one hundred (100) feet to a point; thence north and parallel with the east line of said Lot Number seventy-six (76); three hundred fifty (350) feet to the center line of North French Road thence west along the center line of North French Road; one hundred (100) feet to the place of beginning.

1. Header - contains information concerning the municipality and the rectangular survey system.

2. Body - contains information concerning the meets and bounds description or the Lot and Block system

2. Types of Deed Descriptions

a. Rectangular Survey System

b. Lot & Block System

c. Metes & Bounds System

a. Rectangular Survey System

- Congress 1785, large tracts of land
- Township Range and Section
- Ex)
  - All that Tract or Parcel of Land Situate in the (Town of Amherst), (County of Erie) and (State of New York), being part of **Lot Number seventy-six** (76), **Township twelve** (12), **Range seven** (7) of the ***Holland Land Company's Survey***, bounded and described as follows:

b. Lot & Block System

- Record Plat System (Map Covers)
- Map Cover, Block and Sub lot
- Ex)
  - ALL THAT TRACT OR PARCEL OF LAND, situate in The Town of Amherst, County of Erie and State of New York, being part of Lot No. 77, Township 12, Range 7 of the Holland Land Company's Survey and according to map filed in the Erie County Clerk's Office under **Cover Number 2257**, is known as **Subdivision Lot seventy** (70) situate on the north side of French Road.

c. Metes & Bounds System

- Original 13 Colonies before the Rectangular System
- Point of Beginning
- Angles and Distances

Example Meets and Bounds Body 1

- [***Beginning at a point*** in the center line of North French Road, distant one thousand seven hundred twenty-nine and five tenths (1,729.5) feet east of the west line of Lot Number seventy-six (76);] [**thence southerly** and parallel with the east line of said Lot Number seventy-six (76), three hundred fifty (350) feet to a point;] [**thence east** parallel with North French Road, one hundred (100) feet to a point;] [**thence north** and parallel with the east line of said Lot Number seventy-six (76 three hundred fifty (350) feet to the center line of North French Road;] [**thence west** along the center line of North French Road one hundred (100) feet ***to the place of beginning***.]

Example Meets and Bounds Body 2

- [**BEGINNING** at the southwest corner of said Lot Number one hundred fifty-eight (158);] [and running **thence** northerly along the westerly line of said Lot, twelve (12) chains to lands conveyed to Eleanor A. Millar by deed recorded in the Erie County Clerk's Office in Liber 818 of Deeds at page 484;] [**thence** easterly along the southerly line of lands so conveyed to Eleanor A. Millar, about thirty-five (35) chains to the easterly line of said Lot; **thence** southerly along the easterly line of said Lot, twelve (12)chains and twelve and one-half (12) links to the southeast corner of said Lot;] [**thence** westerly along the southerly line of said Lot, thirty-five (35) chains and fifty-nine (59) links to the place of beginning,] containing forty-two and one half (42.5) acres more or less.

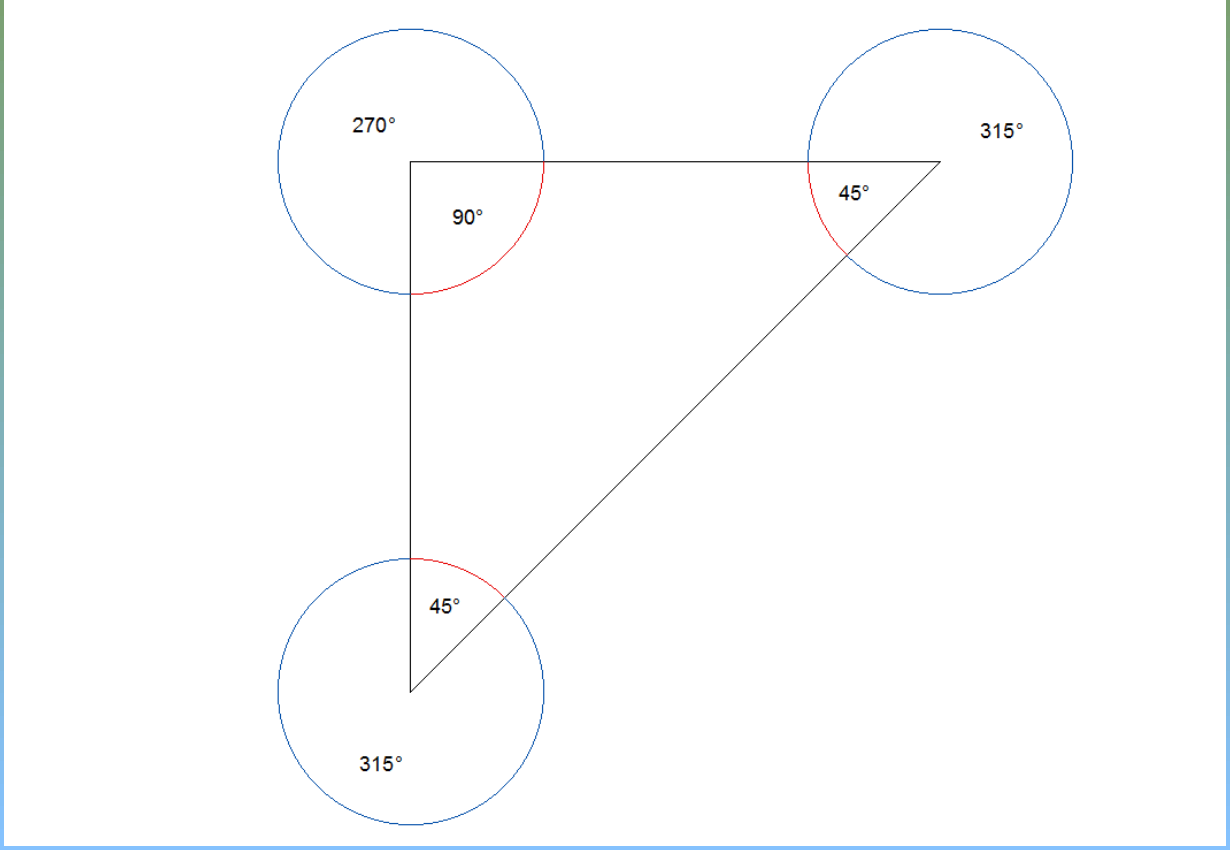
3. Common Errors in Deed Descriptions

- Typographical Errors
- Omitted Courses
- Missed angle calls
- Missing exceptions

C. Dealing with Angles and Curves

1. Interior/ Exterior Angles
2. Directional
3. Bearings
4. Deflections
5. Parts of a Curve

1. Interior / Exterior Angles



Interior Angles

Exterior Angles

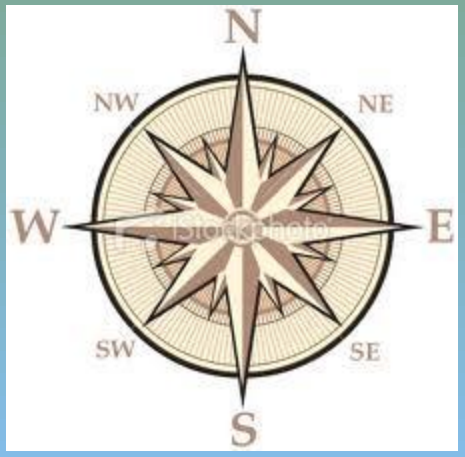
Working with interior and exterior angles

- Knowing the shape of the parcel is the only way of knowing the direction of the angle.
- The total of any pair of interior and exterior angle will add up to 360 degrees
- A way to determine if a parcel composed entirely of straight line segments closes is by following the following equation:

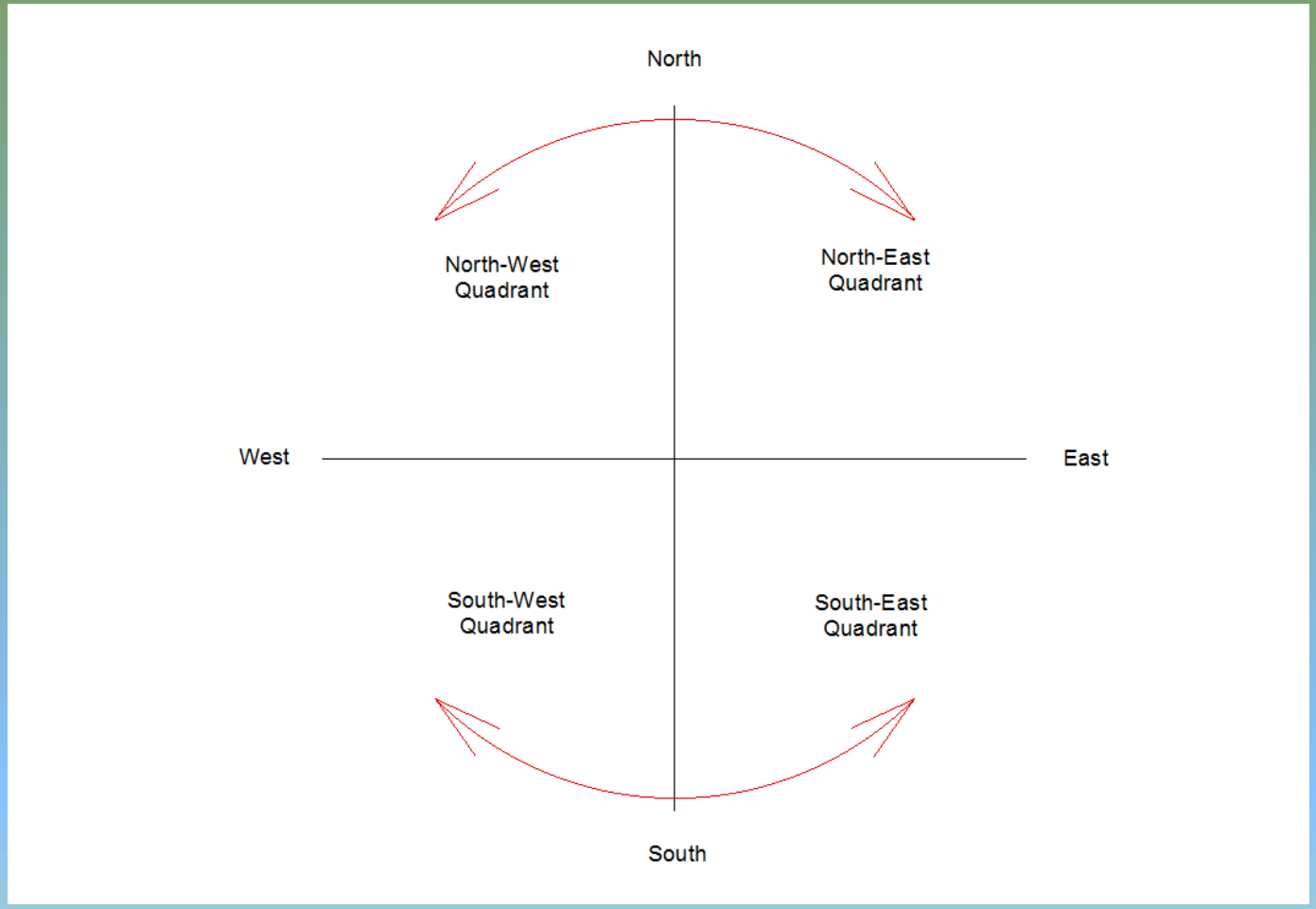
  (Number of Sides – 2) * 180° = total of all interior angles of the parcel

2. Directional

- North, South, East, West along…



3. Bearings

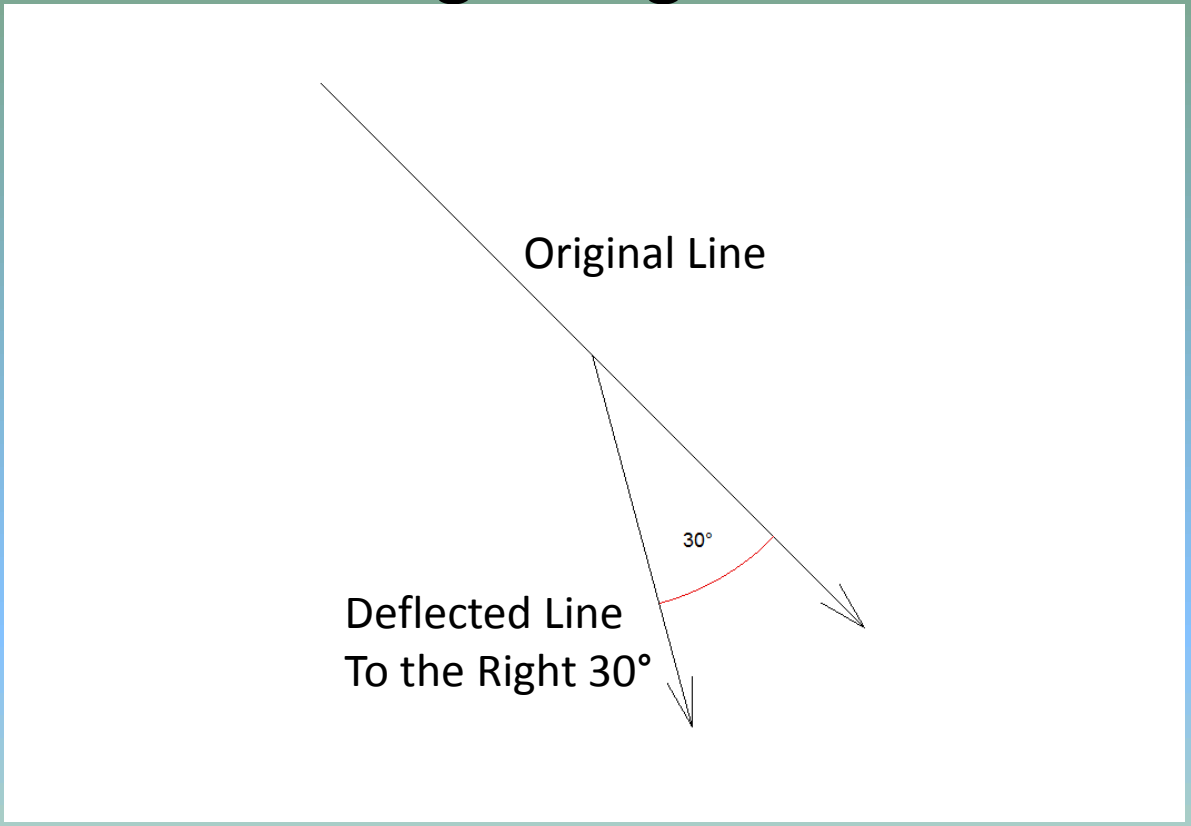

North
North-West Quadrant
North-East Quadrant
West
East
South-West Quadrant
South-East Quadrant
South

Bearings

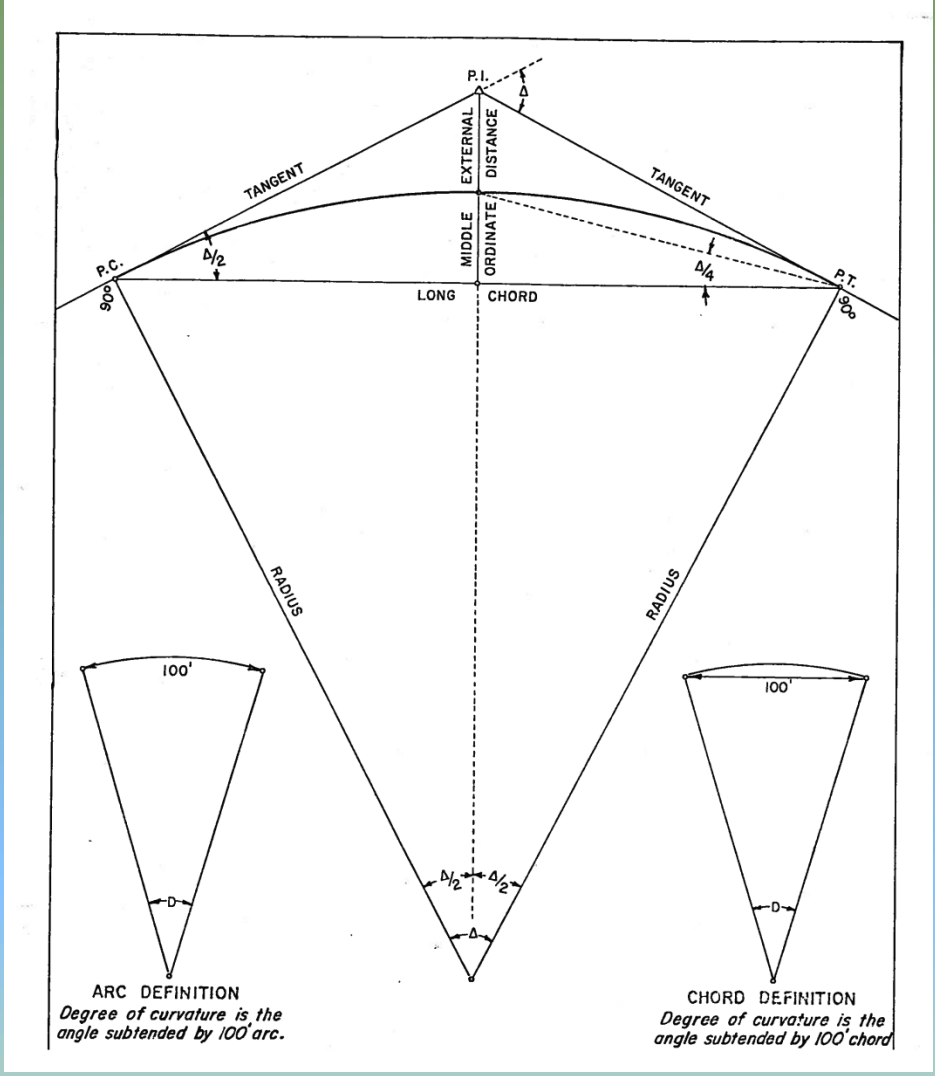
- Bearings are referenced off a North South reference line, and a point of beginning.
- This reference line can, and does, change between property descriptions and surveys of the same parcel, based on the methods of the surveyor.

4. Deflections

- Angle left or right as compared with the last course continuing straight.



5. Overview of Curves



- Four parts of a curve:
  1. Arc Length
  2. Radius of Curve
  3. Chord
  4. Central Angle

Equations

- Two of the four parts of the curve are necessary to calculate the arc of a curve, preferably radius and length of curve.
- Equations:
  - Central angle = 180° / (π * radius)
  - Chord = (2 * radius) * sin(Central angle / 2)

D. Calculating Acreage

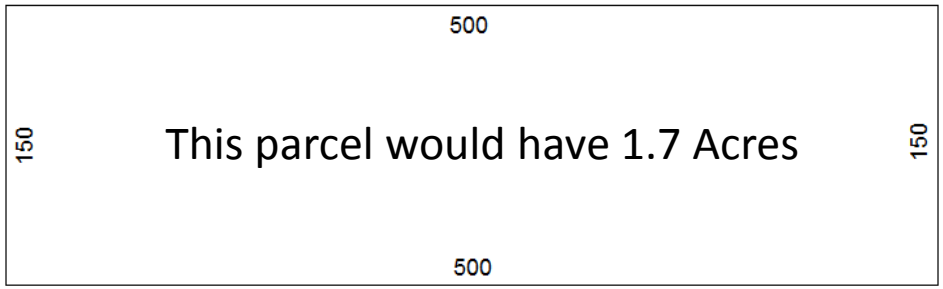
Methods for Calculating Acreage

1. Divide the Parcel into Rectangular and Triangular bits, calculate the square footage of each resulting polygon.
2. Let the computer do it!

We do not include public road right of way in the calculations.

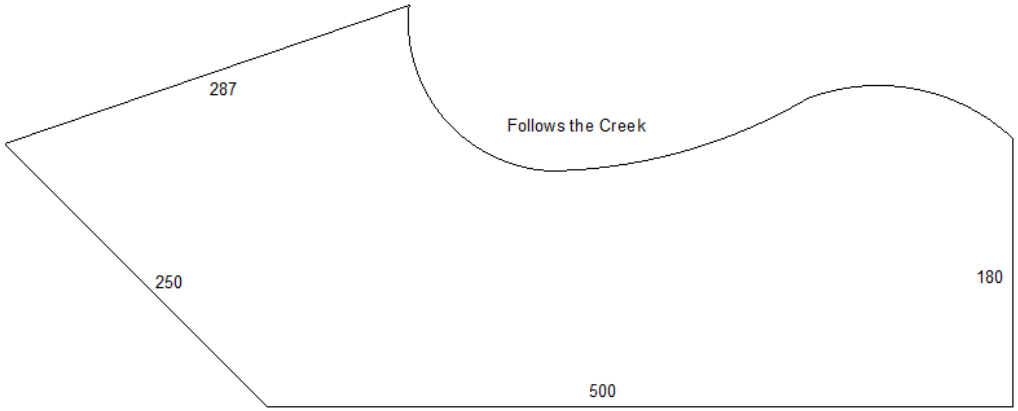
Example Calculating Acreage A

Area of a rectangle = base * height
Area of a triangle = (base * height) / 2
1 acre = 43,560 square feet



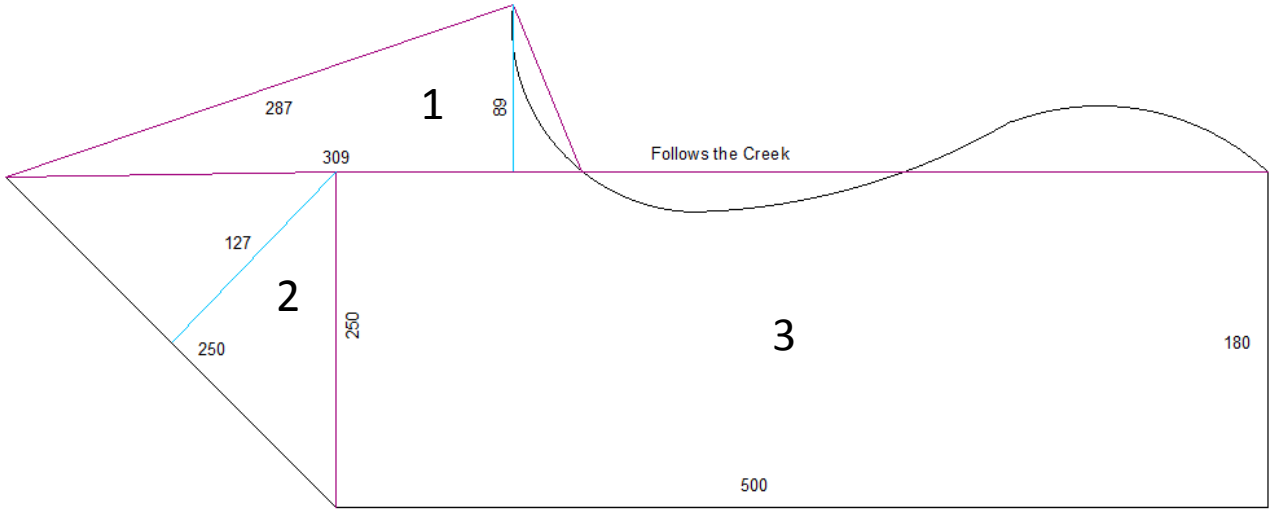
Example Calculating Acreage B

This is a rather more complex parcel



Example Calculating Acreage B

Here we can divide the parcel into 2 triangles and 1 rectangle, roughly covering the entire area



Area of 1 = (89*309)/2 = 13,750 Area of 2 = (127*250)/2 = 15,875

Area of 3 = 180 * 500 = 90,000 Total Area = 2.74 Acres

E. Conflict Resolution

When resolving conflicts between deeds we look at these three items.

1. Senior Rights - oldest parcel description
2. Written intentions of parties - descriptors with the meets and bounds description (along a line, to the creek, to an iron pin, etc.)
3. Right of Possession – unwritten conveyance (evidence of occupation and use)