Schuyler Williams | Geog 377 Lab 9

1. You would use the merge tool. The merge tool is located in Data management tools inside Arctoolbox, under the General category.
2. Dissolve simply aggregates features. For example, using the buffer tool, if dissolve was set to all, and two buffer distances were overlapping each other, it would connect both of these buffer distances and form one region out of both of them. If we skipped the dissolve step, (setting dissolve to none), the consequence would be that the buffer distance areas that are overlapping or touching would not aggregate and we would be left with separate regions, when instead we want connect and combined regions.
3. Sewers\_buffer300m should be the input and streams\_buffer20m should be the erase. Sewers should be the input feature because we want this feature to be placed within a certain distance of a sewer line, however we want it beyond a certain distance from the streams, so we want to erase the stream layer so we know we cannot put our feature in that area.
4. I used the ERASE tool to erase the streams layer buffer of 20m from the sewers 300m buffer layer, this outcome resulted in constraint 1&2. I used the INTERSECT tool to give me the data where both the land use type Brushland and the proper soil suit of >= 2 overlapped. This intersection gave me the outcome of constraint 3&4.
5. To complete this task, I went into the constraint1234\_multiple layers attribute table. I then chose select by attribute, and input “shape area > 2000” as my SQL query. I then right clicked the constraint1234\_multiple, went to data, export data, and exported the selected features into a new layer in the geodatabase.
6. The construction zone I would choose, after some thought, would be zone 10. Zone 10 would be the ideal zone because it is in the middle of the cost ranges, about 6,288.16. This cost gives us total area of 5030, which is plenty more than what is required, while also leaving room for expansion. This also allows us not to spend more money or use more land than we need to for our project. Also, this zone is located right next to road access, while also not being broken up by other areas, it is in fact 1 complete in contact zone. I would find this ideal for construction projects. It is also only located a few miles from the nearest city, making accessibility very convenient.
7. One factor that has not been taken into consideration in this project would be proximity to roads or urban areas. It is likely that the potential location would want to be located close to accessible roads; one to cut costs of building new roads, building new infrastructure, and for convenience. To take into consideration proximity for roads or urban areas, you would need to create a buffer of the desired distance from the roads or urban areas, and intersect or remove layers to achieve the desired outcome for analysis.

A second factor that has not been taken into consideration is the elevation or slope profile for the potential building sites. These factors could have major implications on building codes, safety, and cost of building. For instance, building on a slope requires greater architectural reinforcement than building on a flat surface. You would need to access a DEM, a digital elevation model and perform analysis on the slope and elevations in the desired areas to accurately choose a location that is most convenient and efficient for a building site.