

Cedars West Hydrograph – Assumptions

Assumptions

1. Frequency Storm was created using Table 5.2 of the iSWM manual
2. Maximum Time of Concentration of 25mins (Table 1.5 of iSWM manual for Commercial/Industrial) was used for both North and South parcel sites. Tc was calculated (see spreadsheet) based on 0.2% site slope for Overland and Shallow Concentrated Flow. No Channel/Gutter Flow was assumed for the site since both sites seem to sheet flow in to the sump ponds. In case, you all decide to change the methodology to use actual Tc instead of Maximum then you can refer to the calculations spreadsheet for actual numbers.
3. Open Space Good Condition Grass (grass > 75%) was assumed for land cover. Only Soil Type D exists on the site so CN was taken as 80.
4. % Impervious was assumed as 0%.

Methodology

1. Since I didn't have a digital parcel boundary, I georectified the pdf image of the site and sketched the parcel boundaries (shape file attached). I came up with 59.6 ac total.
2. Two Options were modeled to see sensitivity to the existing conditions hydrograph.
 - a. North and South Parcel were combined for Area parameter. Tlag of larger and more controlling North parcel was used. CN was same for both parcels.
 - b. North and South parcels were independently modeled and a combined hydrograph point "Combination" was created to see ultimate impact downstream of the South Parcel.
3. 1-yr, 25-yr, and 100-yr was modeled.

Results

1. See attached HMS v3.5 model for details.
2. Sensitivity check of the two options 2.a and 2.b in the Methodology section above gave very similar peak discharge and runoff results; however, option 2.a took longer to peak with slightly higher discharges. I would pick Option 2.a simply because it is easier to lump the two together but modelers may prefer to have them broken out like in Option 2.b.