



**TO:** Anne Tran  
*Policy and Planning*

**FROM:** Daniel Oleshko  
*SASD Business Planning/Hydraulic Modeling*

**DATE:** August 17, 2022

**SUBJECT:** ***Request 2312 – Hood Community Modeling***

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This memo summarizes the hydraulic modeling evaluation for the Hood community under buildout conditions. Policy and Planning requested the Hydraulic Modeling group to identify a possible connection location to the existing SASD sewer system to ensure that the SASD system has sufficient capacity for this area to connect.

#### **MODEL NETWORK INFORMATION**

- The 2019 buildout model
- The SASD 10-year design storm was used for wet weather simulation
- Hood community
  - Total area: 50.22 acres
  - Total ESD: 352.6 ESDs
    - Single Family Residential
      - ESD density: 6 ESD/ac
      - Minimum of 1 ESD per parcel
    - Multi-Family, Mobile Home, and Mixed Use Residential
      - ESD density: 10 ESD/ac
      - Minimum of 1.5 ESD per parcel
    - Vacant and non-residential parcels
      - ESD density: 6 ESD/ac
  - Connection point to SASD system: manhole 258-158-1001
  - New development's flow criteria
    - Domestic flow factor of 310 gallons/ESD/day
    - Rainfall dependent infiltration and inflow (RDI/I) of 0.7 percent
    - Groundwater infiltration (GWI) factor of 500 gpd/ac
- The Franklin septic community is approved to connect to the SASD system but is not included in this modeling evaluation.

## MODELING RESULTS

**Table 1:** Buildout flow values for the Community of Hood

Hood Community	10-yr Design Storm
<b>Peak Flow</b>	0.242 mgd
<b>Daily Volume</b>	0.124 Mgal

**Table 2:** Buildout flow values downstream of connection manhole 258-158-1001

Main Line 258-158-2002	10-yr Design Storm
<b>Capacity</b>	1.5 mgd
<b>Peak Wet Weather Flow</b> (without Hood Community)	1.463 mgd
<b>Peak Wet Weather Flow</b> (with Hood Community)	1.694 mgd

The evaluated Hood septic community is displayed red in figure 1.

The additional flow from the Hood community does not appear to have a significant impact on the buildout SASD system hydraulics. The modeling results show no throttle surcharge in the trunk system downstream of connection point (MH 258-158-1001) or backup surcharge at pump station S135 with or without the additional flow from the Hood community (figures 2 and 3).

Figure 1: Evaluated Hood septic community and the sewer trunk trace used for the profile view.

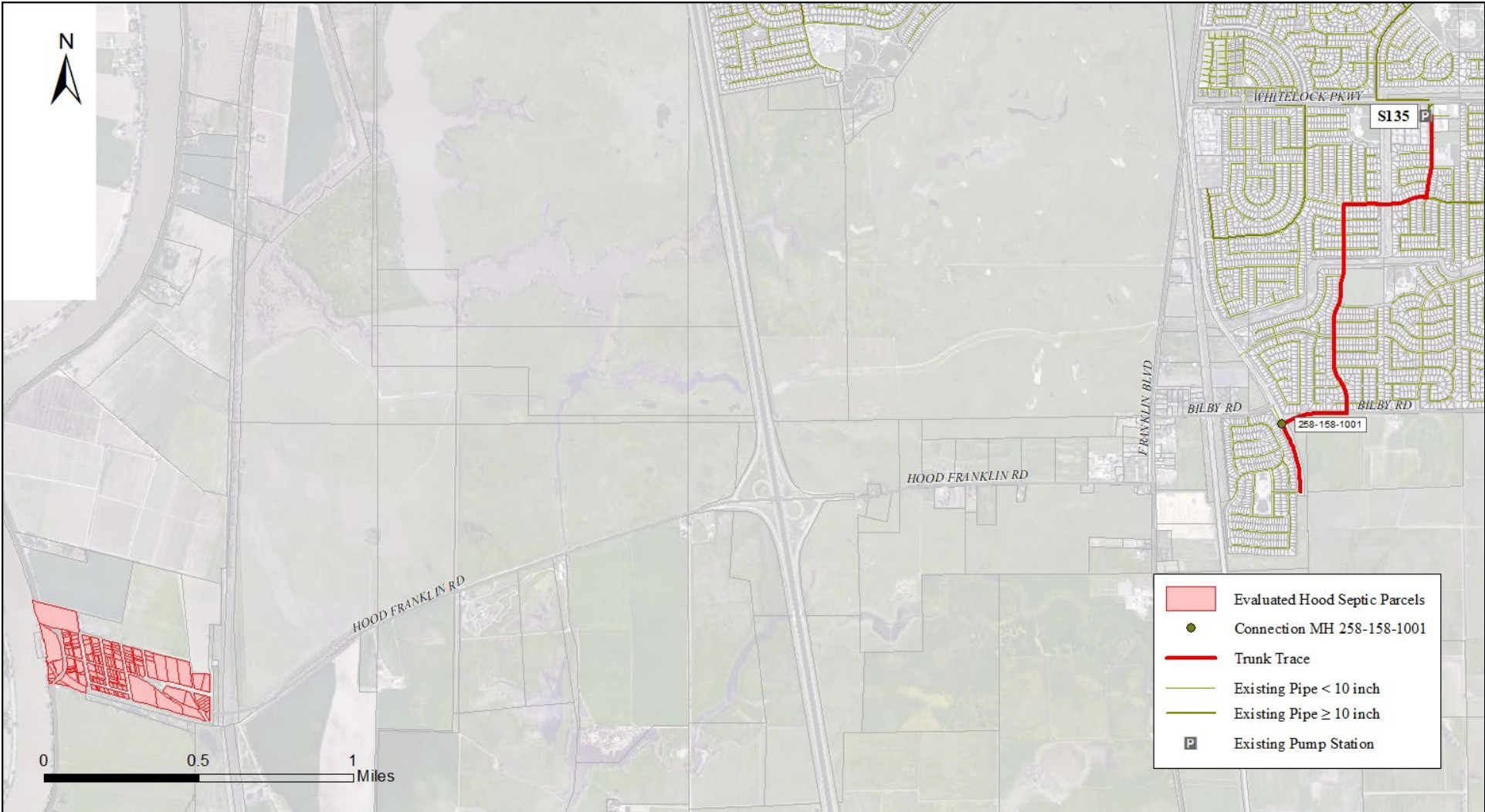


Figure 2: Profile view of the Trunk Trace under peak wet-weather flow (PWWF) buildout conditions without flow from the Hood community

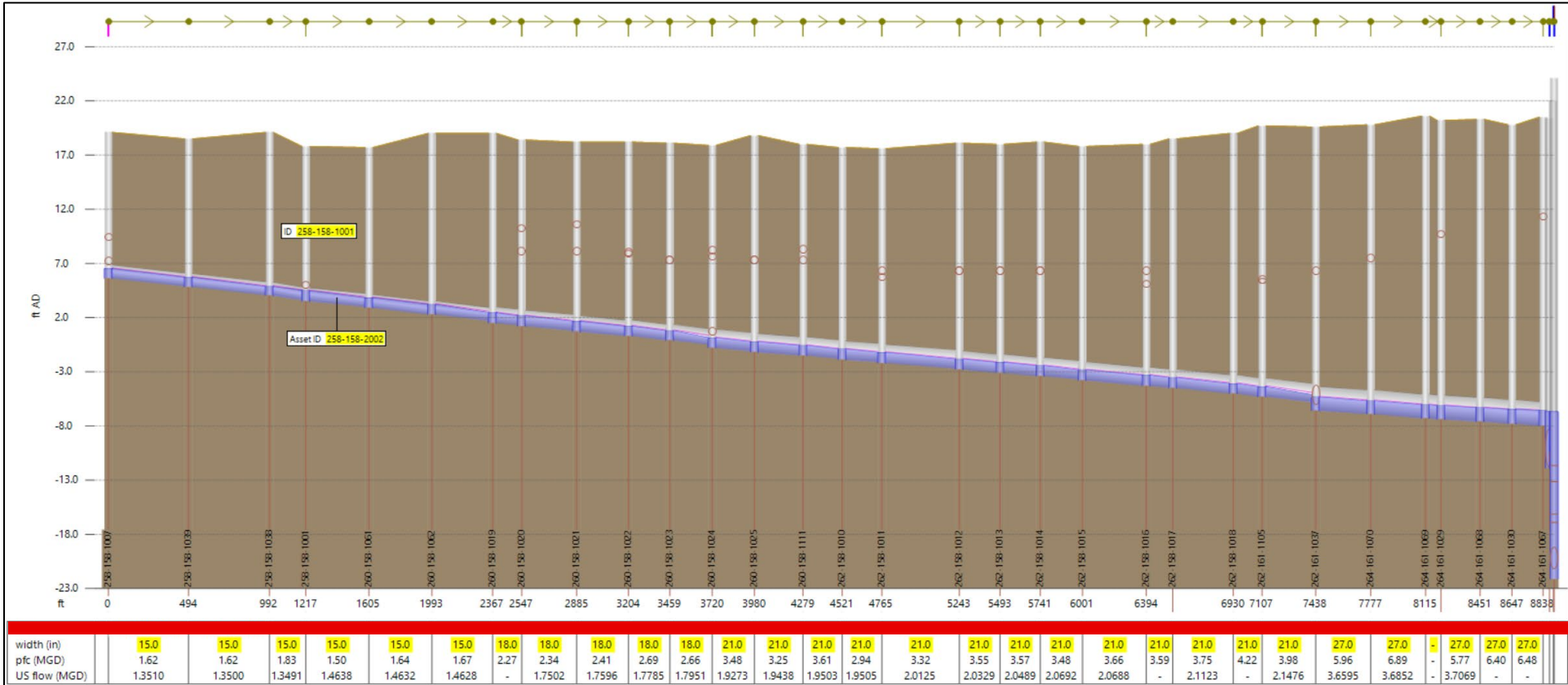


Figure 3: Profile view of the Trunk Trace under PWWF buildout conditions with the additional flow from the Hood communitiy

