



**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
Peak Flow	0.242 mgd
Daily Volume	0.124 Mgal

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

Main Line 258-158-2002	10-yr Design Storm
Capacity	1.5 mgd
Peak Wet Weather Flow (without Hood Community)	1.463 mgd
Peak Wet Weather Flow (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.

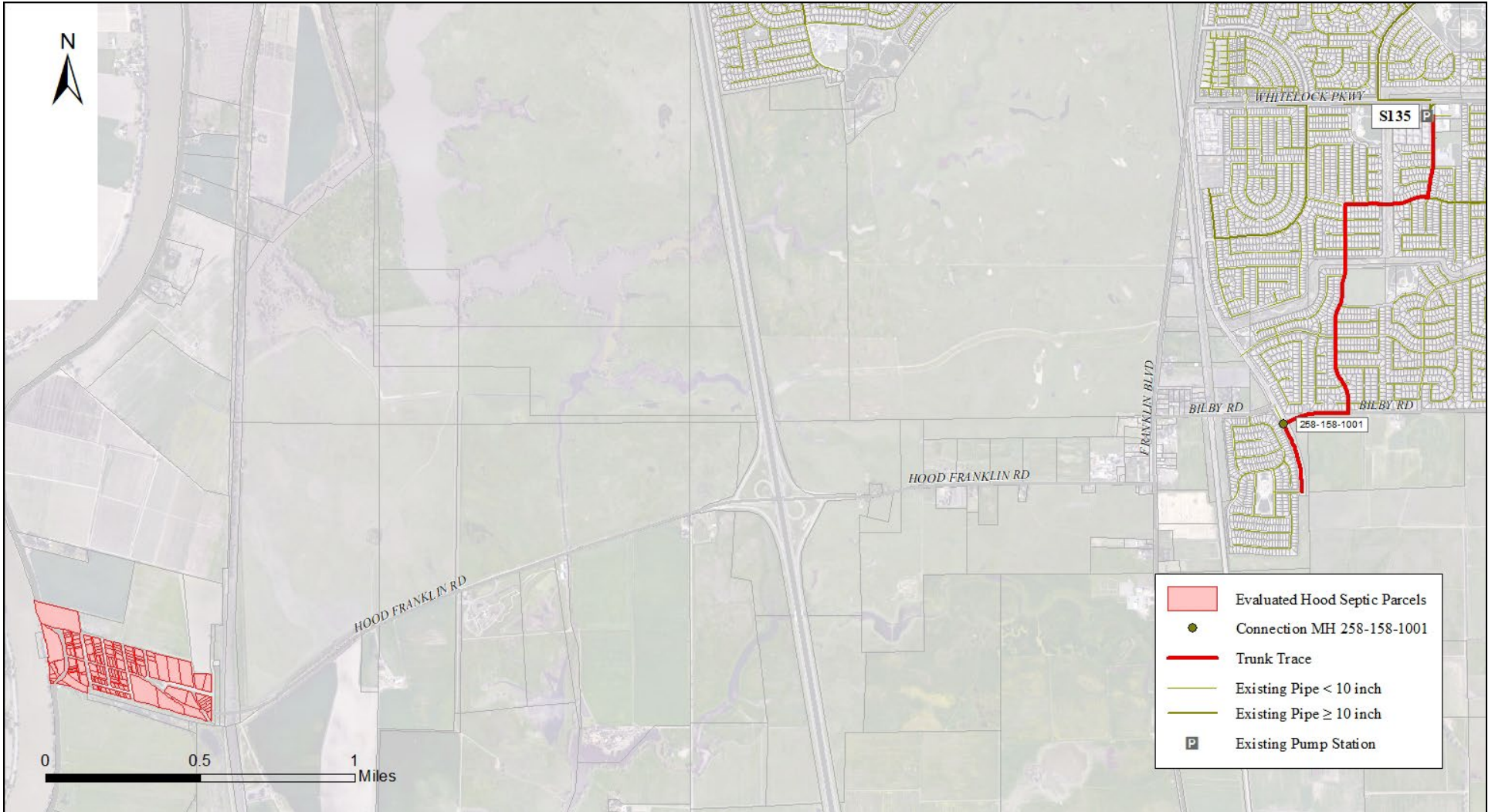


Figure 2: Profile view of the Trunk Trace under peak wet-weather flow (PWWF) buildout conditions without flow from the Hood community

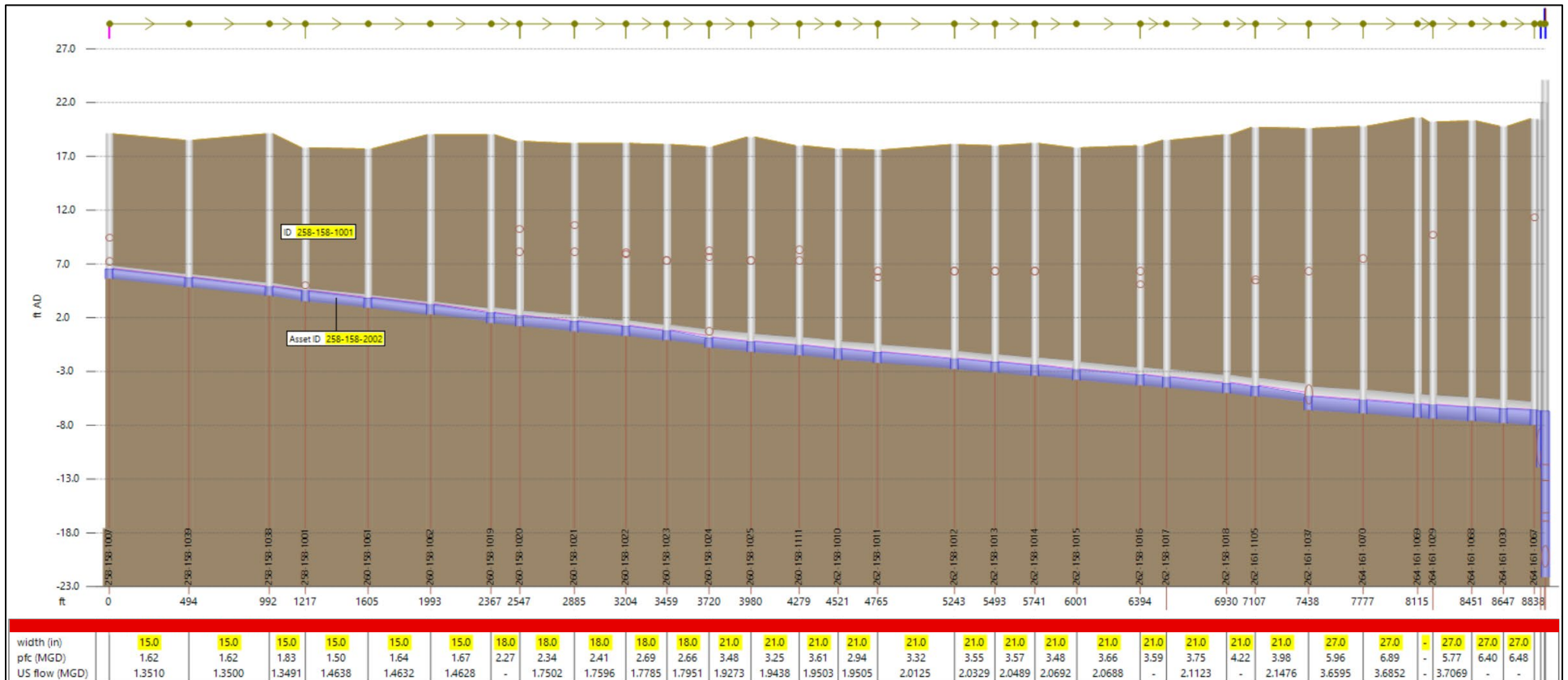


Figure 3: Profile view of the Trunk Trace under PWWF buildout conditions with the additional flow from the Hood community

