Gray & Osborne, Inc.
CONSULTING ENGINEERS

MEMORANDUM

TO:	BRIAN JOHNSON, WATER SYSTEM SPECIALIST
FROM:	MAYA VITA, E.I.T. KERRI SIDEBOTTOM, P.E.
DATE:	FEBRUARY 27, 2025
SUBJECT:	WESLEY HOMES FIRE FLOW AVAILABILITY – 707 39TH AVENUE SE CITY OF PUYALLUP, PIERCE COUNTY, WASHINGTON G&O #21415.23

Per your request, we have analyzed the available fire flow at the Wesley Homes site located at 707 39th Avenue SE. The following assumptions used to determine the static pressure and available fire flow are noted as follows.

- The available fire flows and pressures are measured at six nodes, corresponding to five existing hydrants within the Wesley Homes site, as shown in the attached figure.

- Water system demands are based on projected 2038 demands and reservoirs are depleted of fire suppression and equalizing storage, as established in the *2019 Water System Plan* (WSP), approved by the Washington State Department of Health (DOH). The City's water model was updated in 2021 to reflect additional system improvements since the WSP was developed.

- All pump stations are idle, and the Salmon Springs source is operating at 1,100 gallons per minute (gpm).

The site is located in Zone 4, which is supplied by the 39th Avenue SE Reservoir 1. The system was modeled with the piping indicated on the attached figure.

Available fire flow was modeled at six existing hydrants around the Wesley Homes site. All site piping is 12-inch ductile iron. The results of this modeling are included in Table 1. The modeled fire flow is available at either hydrant individually, but not simultaneously.

TABLE 2

Modeled Fire Flow Availability

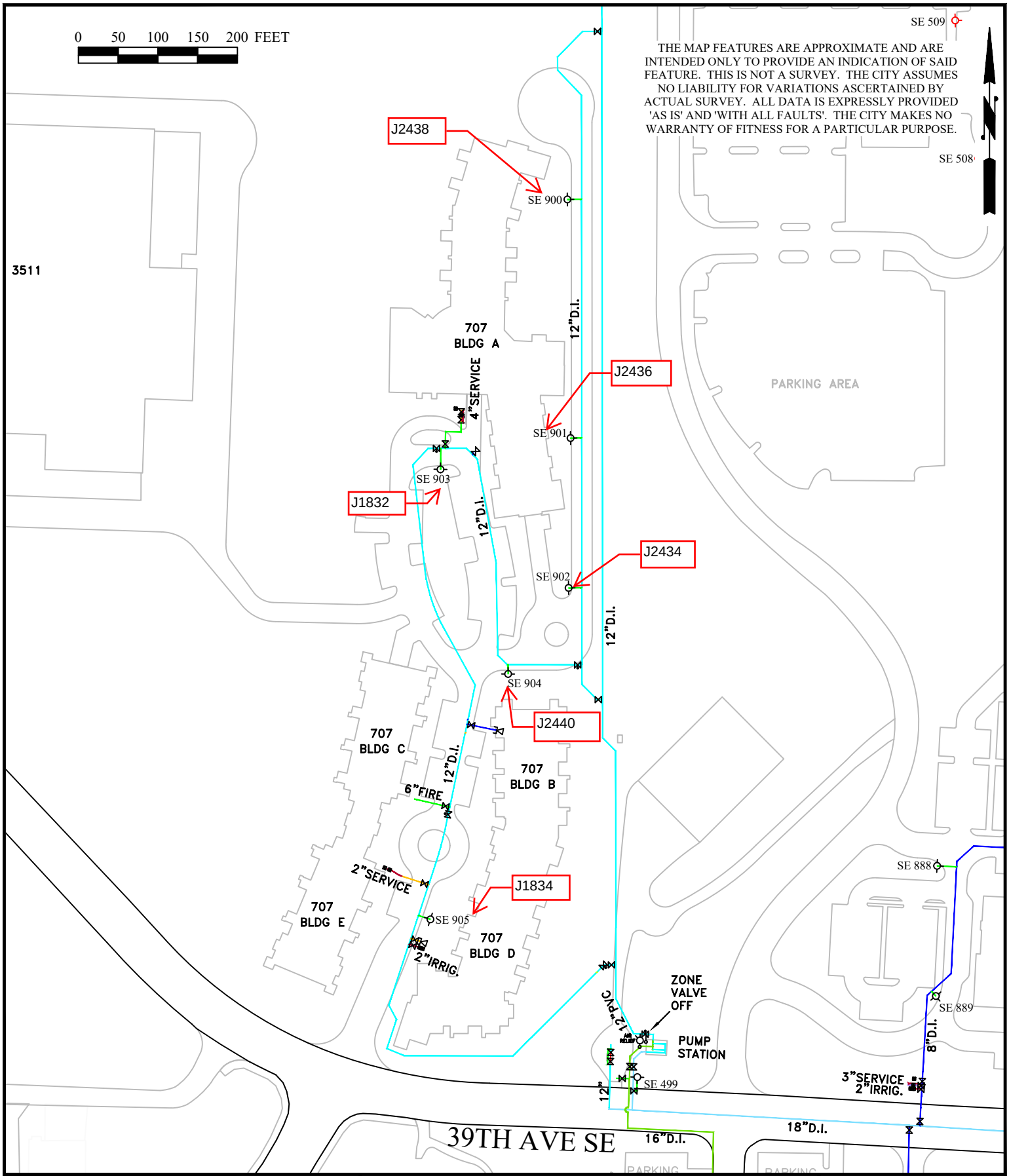
Node	Hydrant	Modeled Fire Flow, gpm	Residual Pressure at Modeled Fire Flow, psi	Minimum System Pressure at Modeled Fire Flow, psi
J1832	SE 903	3,320(1)	24	20
J1834	SE 905	3,250(1)	20	20
J2434	SE 902	3,330(1)	20	20
J2436	SE 901	3,350(1)	21	20
J2438	SE 900	3,390(1)	24	20
J2440	SE 904	3,340(1)	21	20

(1) Limited by the minimum system-wise pressure requirement of 20 psi at all service locations.

Fire flow to the hydrants is limited by the 20-psi minimum system pressure.

The Department of Health and City Standards for water distribution systems are to meet the peak hourly demand of the system while providing a minimum pressure of 30 psi, system-wide. Under peak daily demand with a fire flow, the system is designed to maintain a minimum pressure of 20 psi, system-wide. Although the peak hourly demand pressure may currently be higher than these standards, the Developer must recognize that the City may not provide pressure higher than 30 psi in the future. The flows and pressures determined in this memo are based on the approximate hydrant elevation at ground level. The Developer may design their sprinkler system for whatever pressure they wish; however, they must recognize and be responsible for conditions when the pressure may be less than currently exists.

MV/sr



CITY OF PUYALLUP
PUBLIC WORKS
WATER DIVISION

HYDRAULIC MODEL FOR WESLEY HOMES AT 707 39TH AVE SE

SCALE AS SHOWN

02/19/2025

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