Gray & Osborne, Inc.
CONSULTING ENGINEERS

TECHNICAL MEMORANDUM

TO:	BRIAN JOHNSON, WATER SYSTEM SPECIALIST
FROM:	KERRI SIDEBOTTOM, P.E.
DATE:	JANUARY 20, 2023
SUBJECT:	2315 INTER AVENUE SE FIREFLOW AVAILABILITY CITY OF PUYALLUP, PIERCE COUNTY, WASHINGTON G&O #21415.14

Per your request, I have analyzed the available fire flow at two existing hydrants located at 2315 Inter Avenue SE, in the central part of the City's water service area. The setup of the Hydraulic Model and the assumptions used to determine the static pressure and available fire flow are noted below.

- The available fire flows and pressures are measured at Node J2154 and Node J2156, corresponding to existing Hydrant SE207 and Hydrant SE646, respectively, as shown in Figure 1 (attached).

- 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) and approved by the 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 gpm.

The hydrants are located in Zone 1, which is supplied by Maplewood Springs and the 15th Avenue SE Reservoirs. The system was modeled as-is, with no new piping proposed at this time.

The available pressure under 2038 peak hour demands at the Hydrant is included in Table 1.

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TABLE 1

Peak Hour Pressure

Node	Hydrant	Elevation (feet)	Peak Hour Pressure (psi)
J2154	SE207	58	46
J2156	SE646	58	46

Available fire flow was measured at two existing hydrants. Hydrant SE207 (Node J2154) is located on an existing 12-inch main along Inter Avenue SE, and Hydrant SE646 (Node J2156) is located on an existing 8-inch, dead-end main, extending north from Inter Avenue SE to the site. The results of this modeling are included in Table 2. The modeled fire flow is available at either Hydrant individually, but not both simultaneously.

TABLE 2

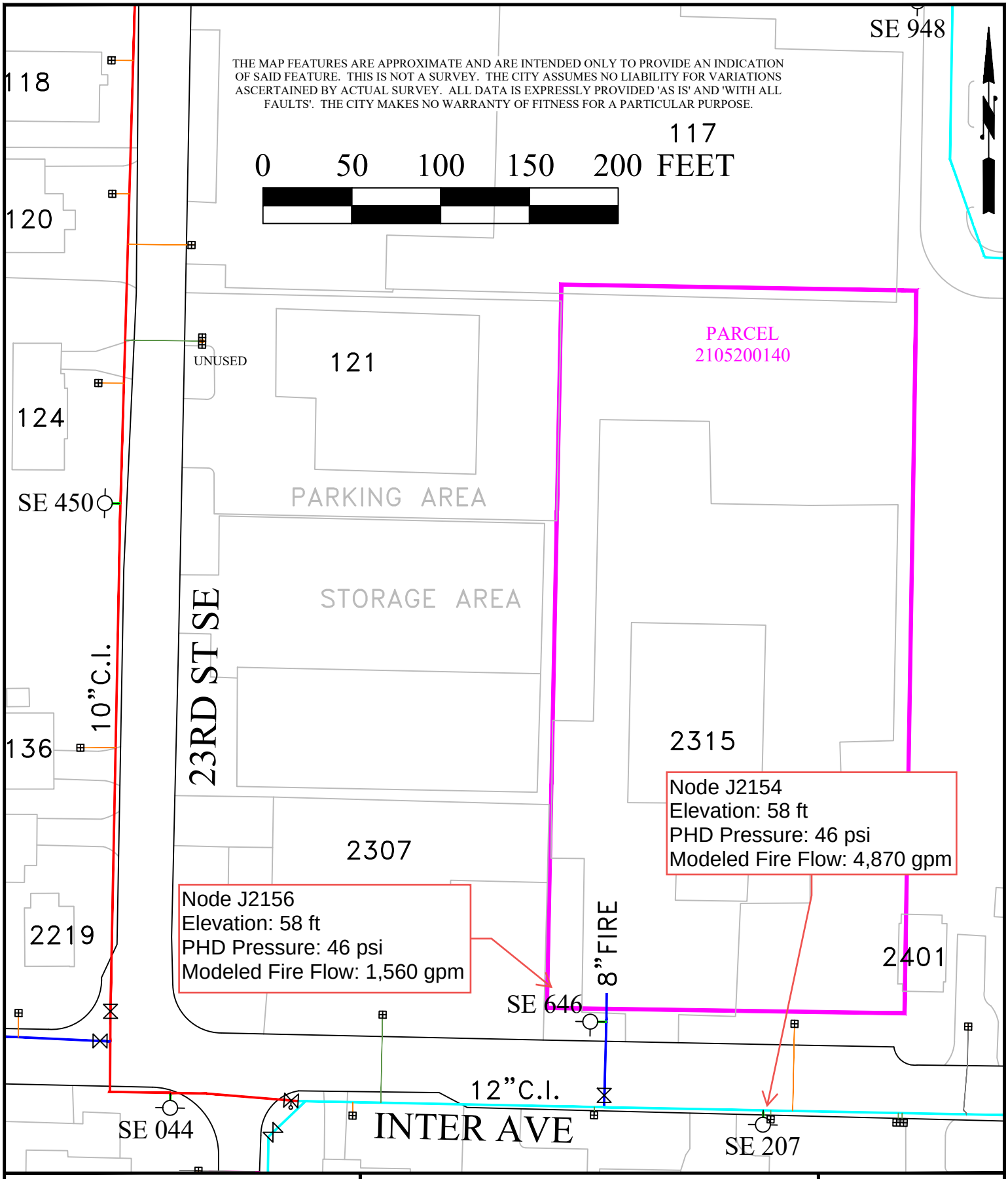
Modeled Fire Flow Availability

Node	Hydrant	Available Fire Flow (gpm)	Residual Pressure at Available Fire Flow (psi)	Minimum System Pressure at Available Fire Flow (psi)
J2154	SE207	4,870(1)	25	25
J2156	SE646	1,560(1)	34	30

(1) Limited by maximum, system-wide velocity of 10 fps.

Fire flow to both hydrants is limited by the 10 fps, maximum velocity through the existing 12-inch and 8-inch pipes.

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 what currently exists.



CITY OF PUYALLUP
PUBLIC WORKS
WATER DIVISION

HYDRAULIC MODEL FOR 2315 INTER AVE

SCALE AS SHOWN

01/17/2023

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