

Memo

TO: Sean Homyen, City of Douglas, Brandon Mieras, Williams and Works, Kaz Bajc, KLWSA

FROM: Bryan A. McDowell, PE

DATE: February 5, 2026

PROJECT NO.: 2501288

SUBJECT: 13 S. Union Street Douglas Preliminary Water and Sanitary Flow Estimates

Fishbeck has generated preliminary estimates for water and sanitary for the anticipated proposed uses for 13 S. Union Street Mixed Use Building located in Douglas, Michigan. The estimates are preliminary and are subject to change as the design progresses and tenants are assigned. These preliminary estimates are in response to comments raised at the planning commission meeting in November. Please feel free to contact us directly with any specific additional questions.

Water REU Estimates (these are preliminary estimates only, based on Oakland County REU Water Capacities)

Water REU/Flow Estimates

**Based on "Oakland County REU Water Capacities"*

3 Residential Units 0.6 REU/residence

$0.6 * 3 = 1.8$ REUs

4 Office Buildings @ 1,350 sft = 5400 sft

0.40 REU/1,000 sft, $5.4 * 0.40$ REU = 2.16 REU

3.96 REU * 300 gpd / 1 REU = **1188 gallons per day**

1188 gallons / day * 1 day / 24 hours * 1 hour / 60 min = **0.825 gpm**

Sanitary Flow Estimates

**Based on "Section 5 Wastewater Sources and Flows"*

3 Residential Units 66.2 gal/person/day

Assume 7 residences total

7 persons * 66.2 = 463.4 gallons per day

4 Office Buildings @ 1,350 sf = 5,400 sft

$0.18 \text{ gal / day / sf} * 5,400 \text{ sf} = 972 \text{ gallons per day}$

Total GPD estimate = $463.4 + 972 = \mathbf{1435 \text{ gallons per day}}$

$1435 \text{ gallons / day} * 1 \text{ day} / 24 \text{ hours} * 1 \text{ hour} / 60 \text{ min} = \mathbf{1.0 \text{ gpm}}$