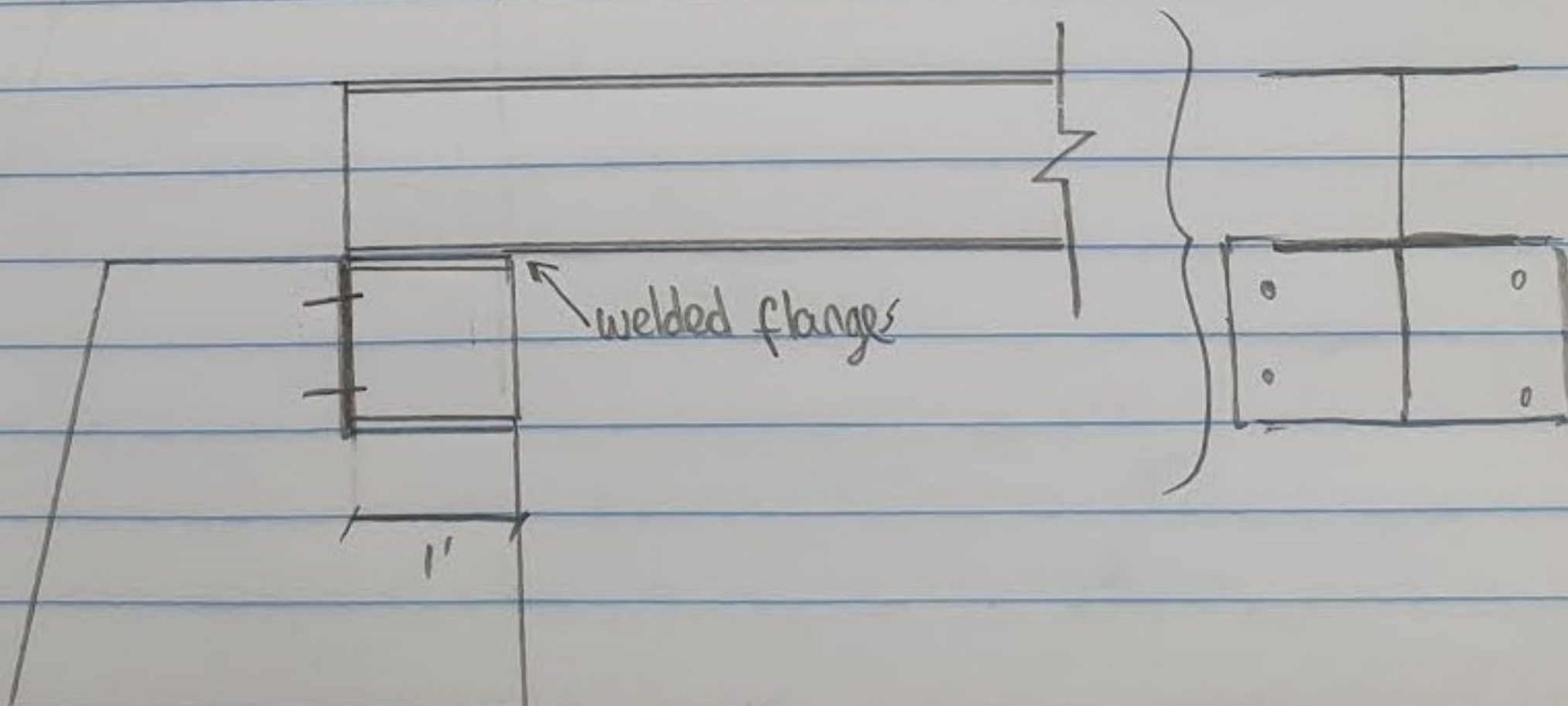
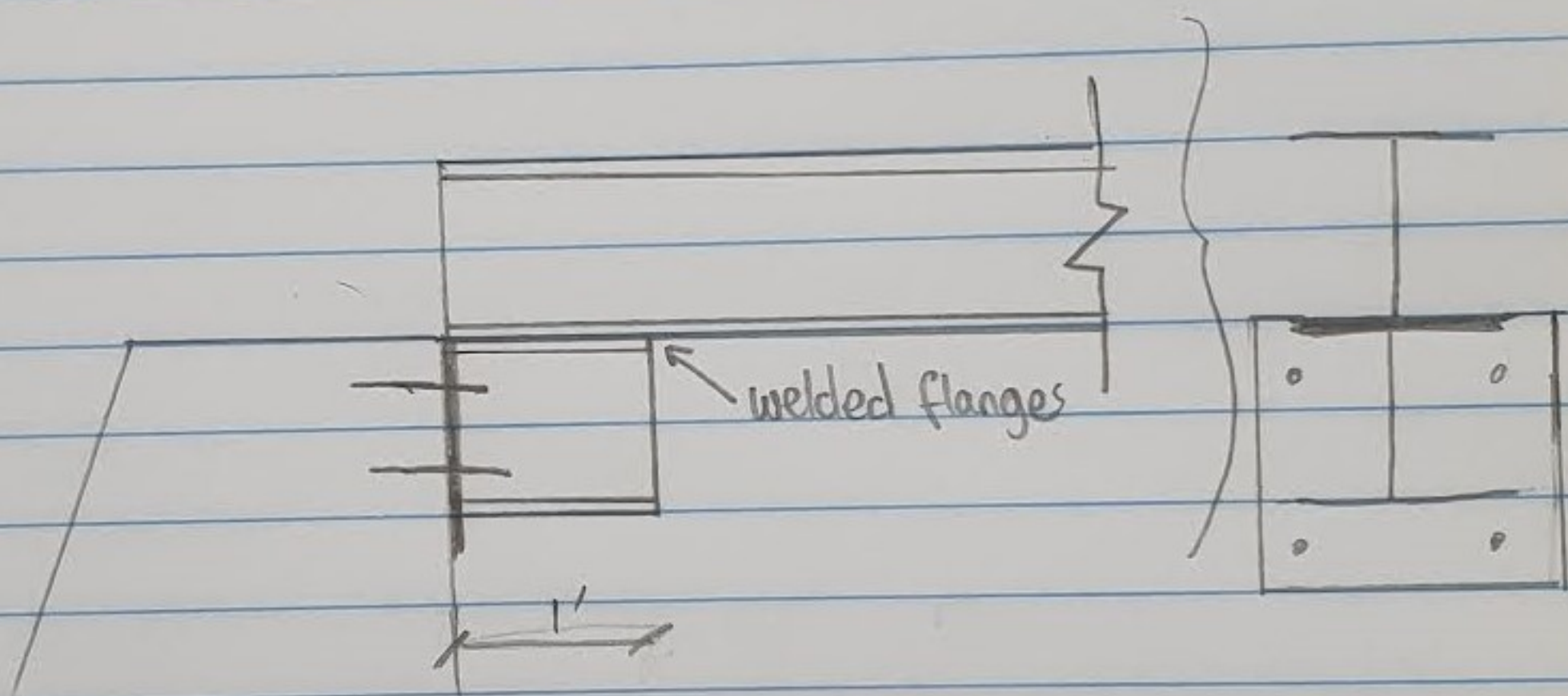
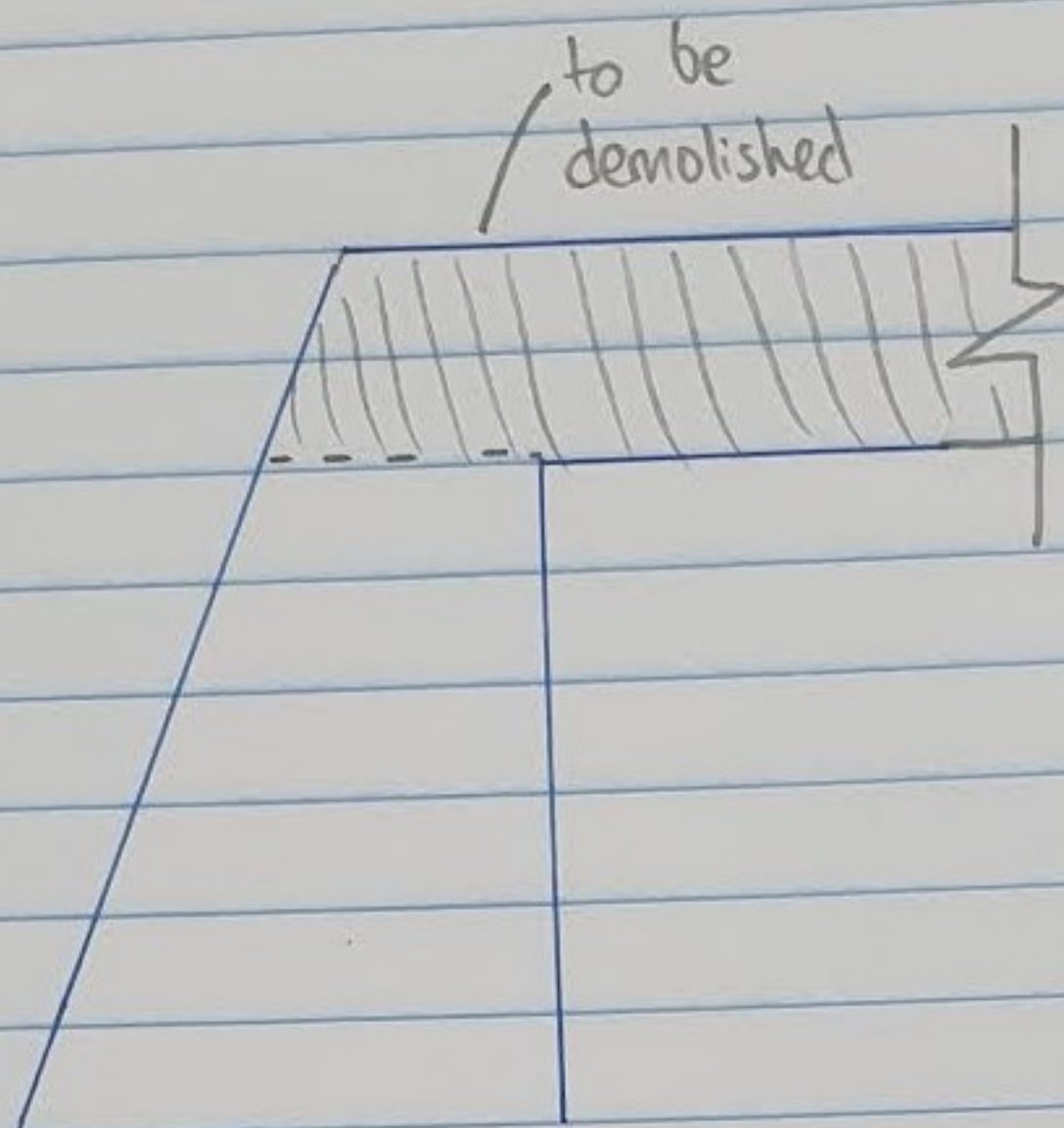
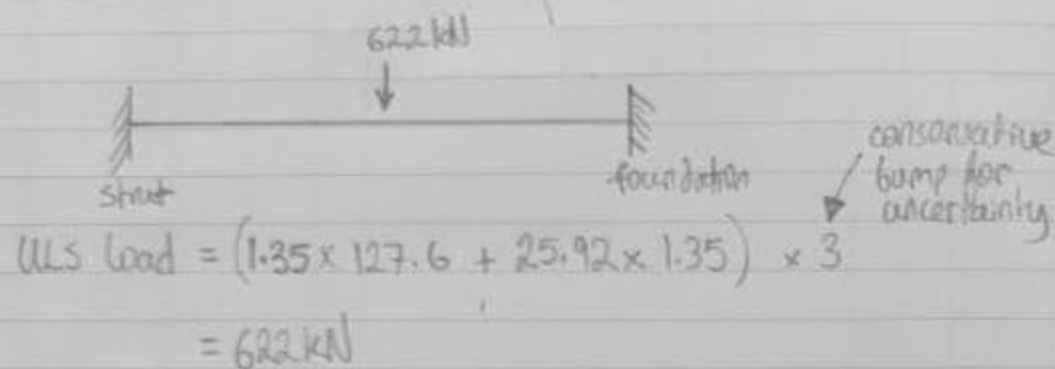


Strut 1



taking load in mid of wall (conservative for strut),
 also conservatively assuming fixed-fixed supports instead
 of fixed-pin.



$$\text{force on strut} = 622/2$$

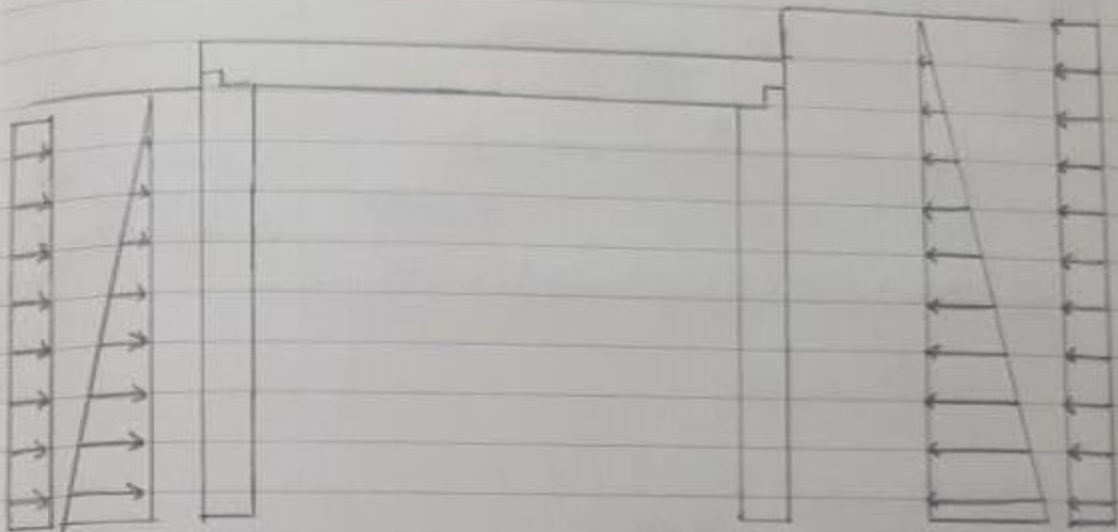
$$= 311 \text{ kN}$$

$\therefore$ designing beam column for axial compression
 of \$311 \text{ kN}\$

bending = self weight + \$2 \text{ kPa}\$ (and eccentricity)

$$\text{dead load} = 4.93 \times 6.7 = 331 \text{ kg} = 3.25 \text{ kN}$$

$$\text{live load} = 2 \times 0.304 \times 4.93 = 2.1 \text{ kN}$$



Existing retaining wall struts are corroding; the client would like to replace. The client has agreed to replace with steel struts.

There are no existing drawings $\therefore$ conservative assumptions are made.

Retaining wall loads

Dead loads $= 0.5 \times 19 \times 5.183^2 \times 0.5$ at rest earth pressure $(1 - \sin(30^\circ))$
 $= 127.6 \text{ kN}$

Live load $= 10 \times 0.5 \times 5.183$
 $= 25.92 \text{ kN}$