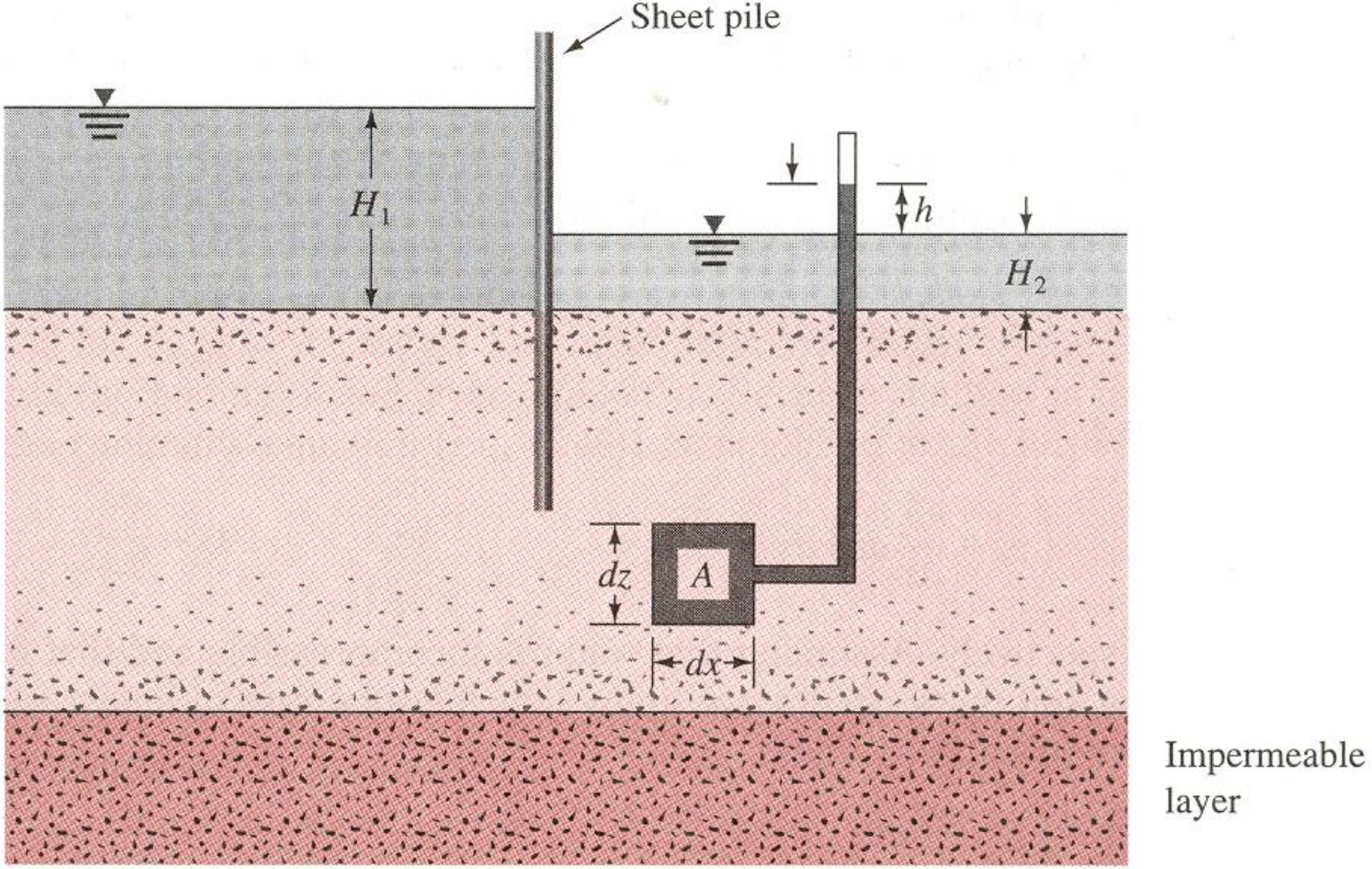
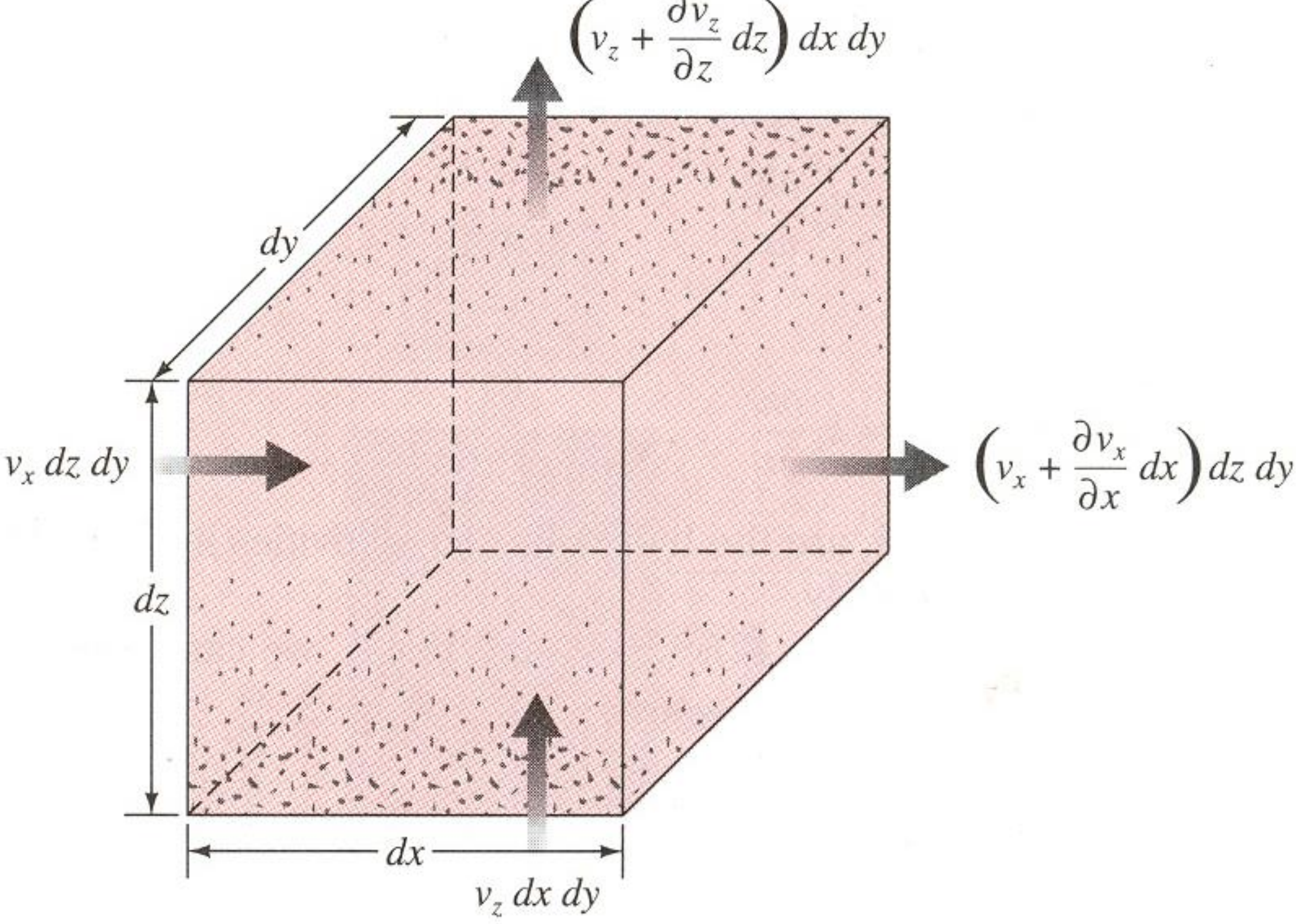
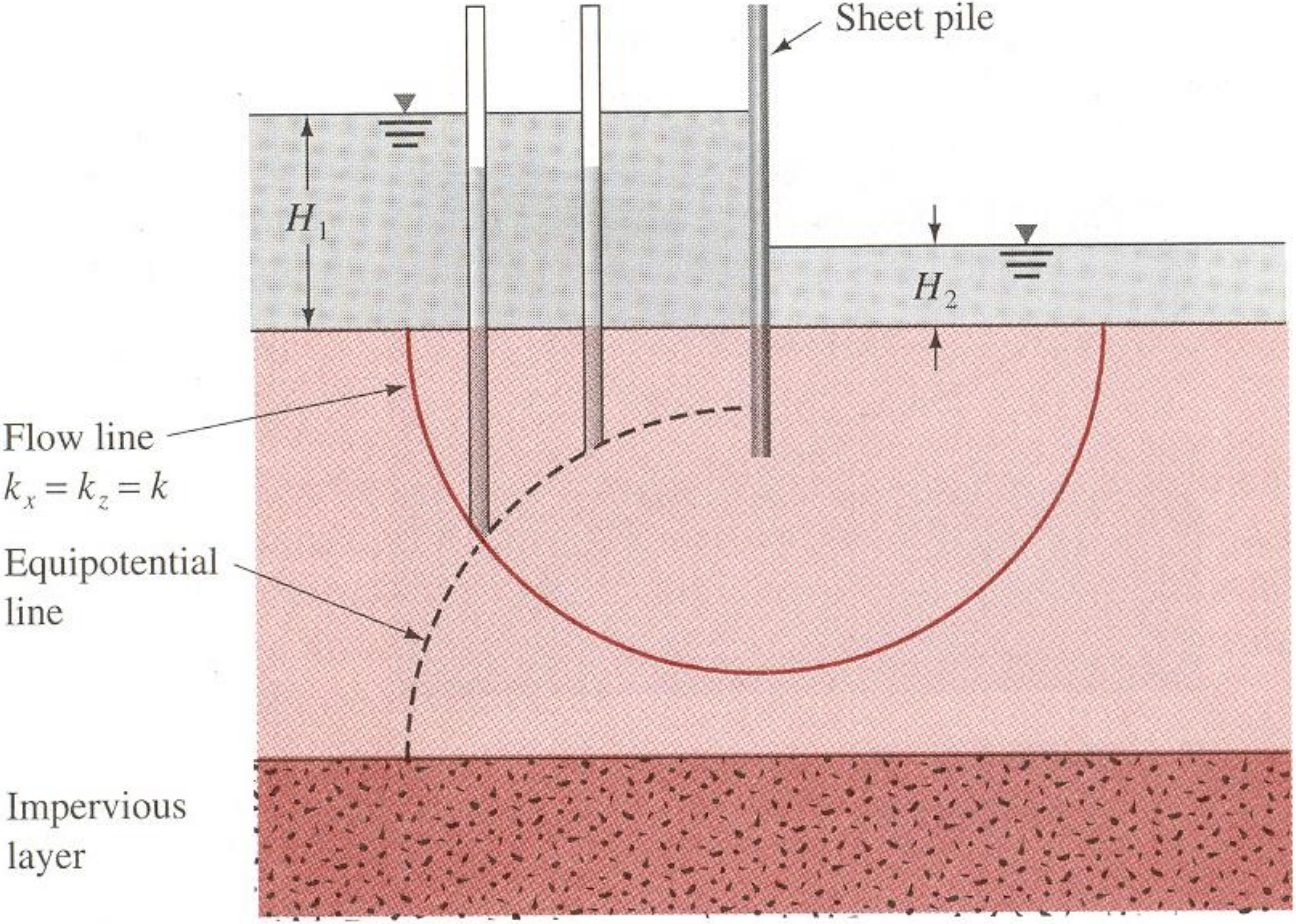
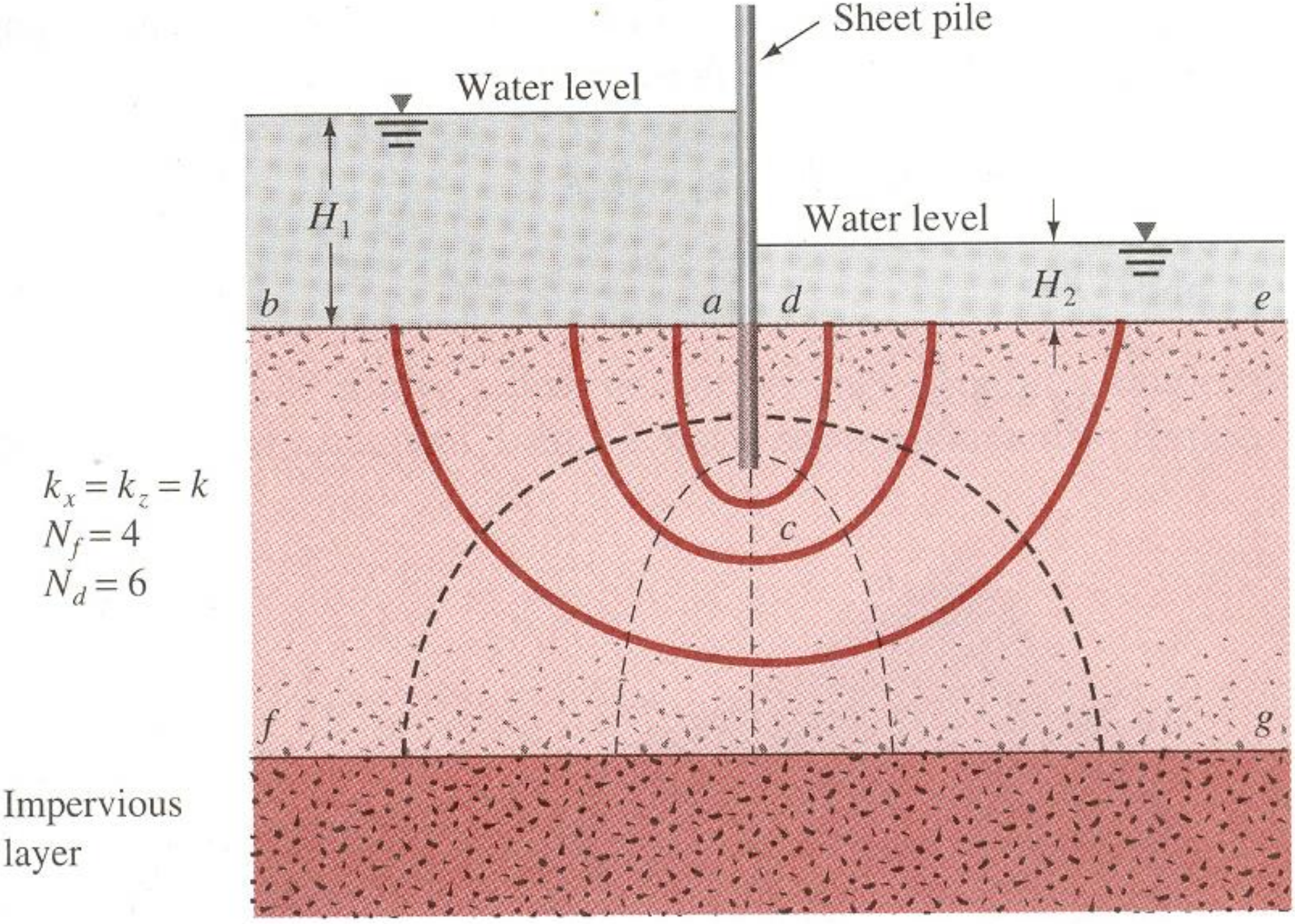


Sheet pile
H_1
h
H_2
dz
A
dx
Impermeable layer


$\left(v_z + \frac{\partial v_z}{\partial z} dz\right) dx\, dy$
dy
$v_x\, dz\, dy$
$\left(v_x + \frac{\partial v_x}{\partial x} dx\right) dz\, dy$
dz
dx
$v_z\, dx\, dy$
(b)

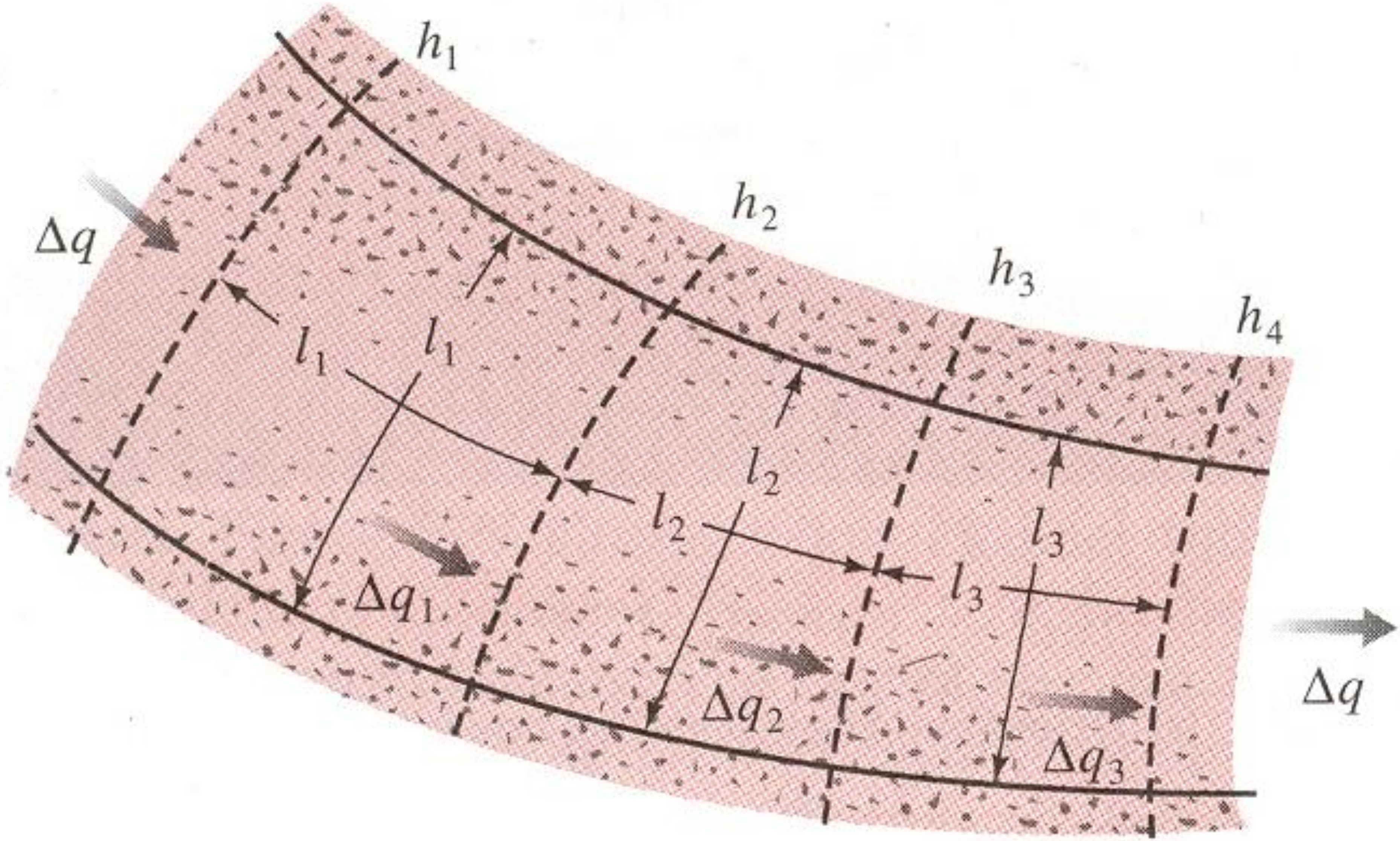


Sheet pile
H_1
H_2
Flow line
$k_x = k_z = k$
Equipotential line
Impervious layer

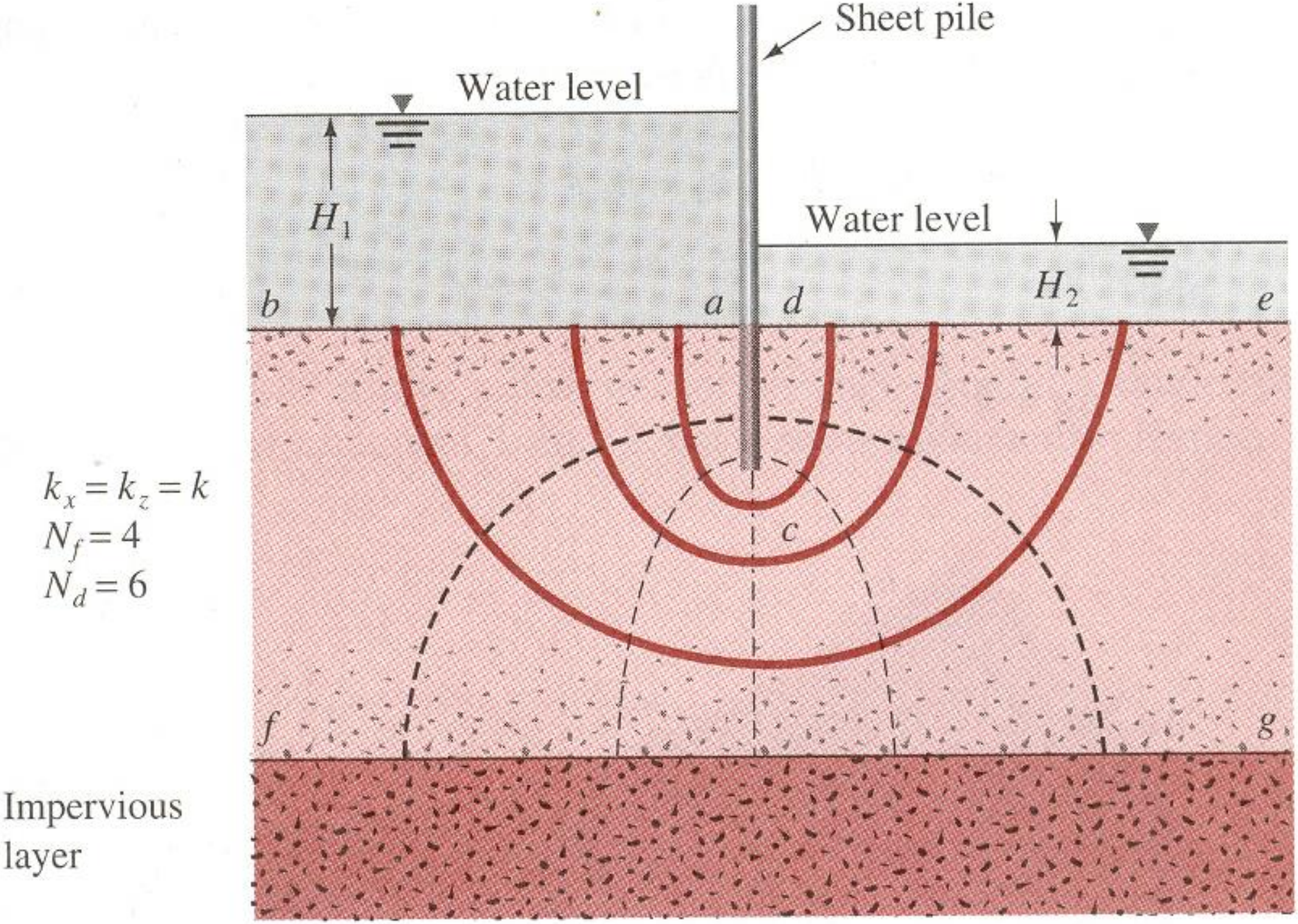


Sheet pile
Water level
H_1
Water level
H_2
b
a
d
e
c
f
g
$k_x = k_z = k$
$N_f = 4$
$N_d = 6$
Impervious layer

(b)

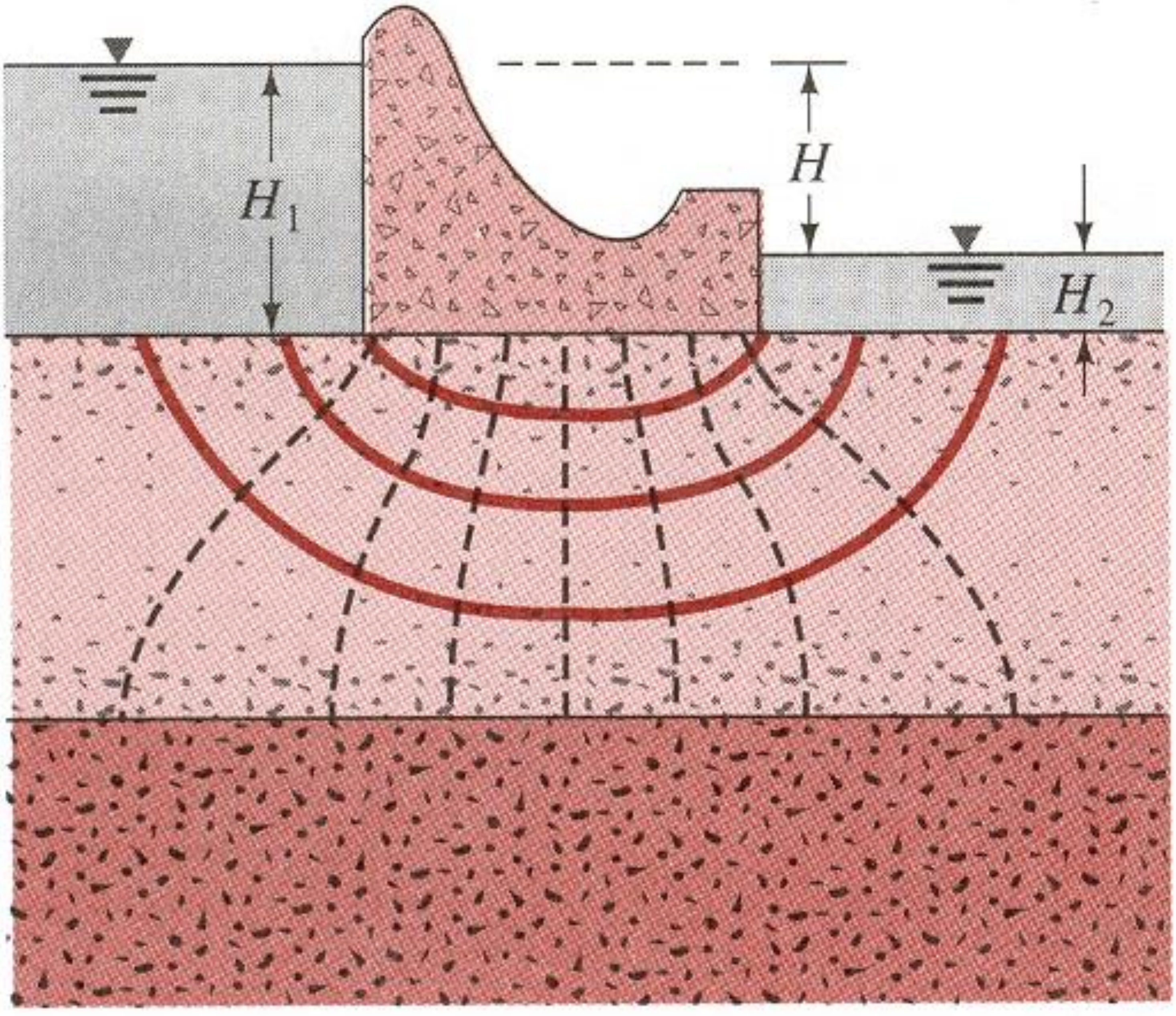


h1
h2
h3
h4
Δq
l1
l1
l2
l2
l3
l3
Δq1
Δq2
Δq3
Δq

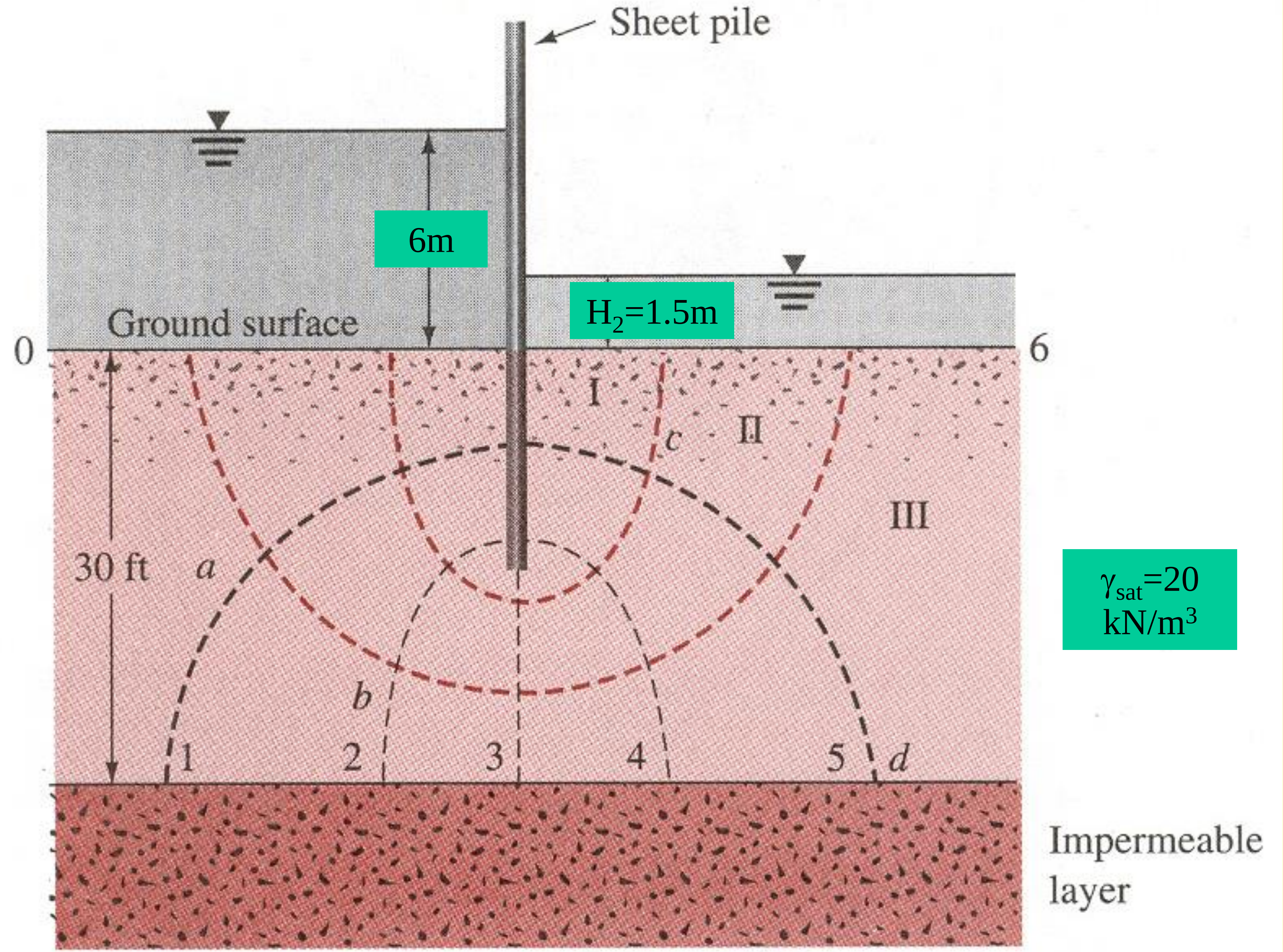


Sheet pile
Water level
Water level
H_1
H_2
b
a
d
e
c
f
g
$k_x = k_z = k$
$N_f = 4$
$N_d = 6$
Impervious
layer

(b)



$k_x = k_z = k$
$N_f = 4$
$N_d = 8$



Sheet pile
6m
H2=1.5m
Ground surface
0
6
I
II
III
c
a
b
d
30 ft
1
2
3
4
5
γsat=20 kN/m3
Impermeable layer

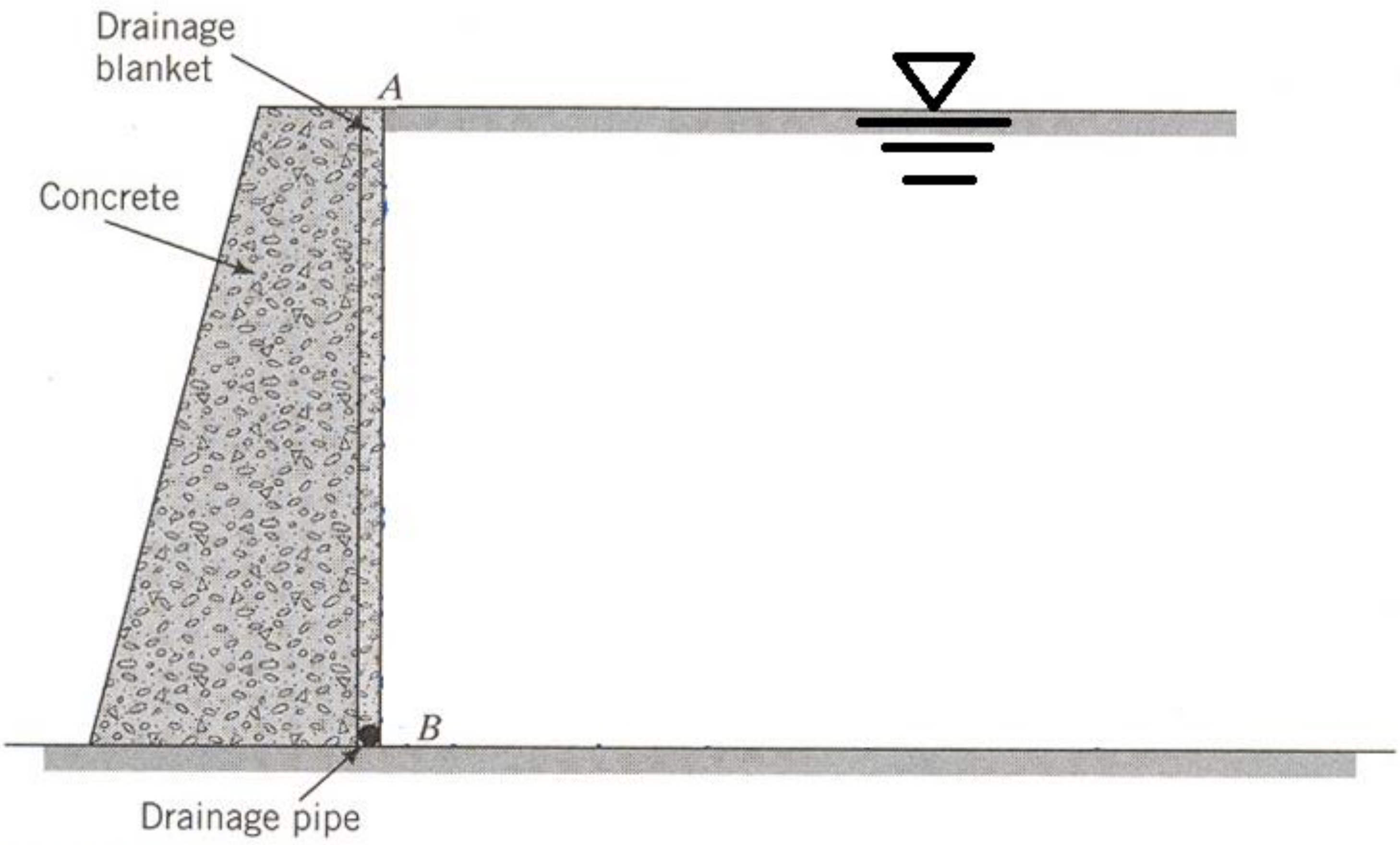


FIGURE 9.5 Flow net in the backfill of a retaining wall with a vertical drainage blanket.

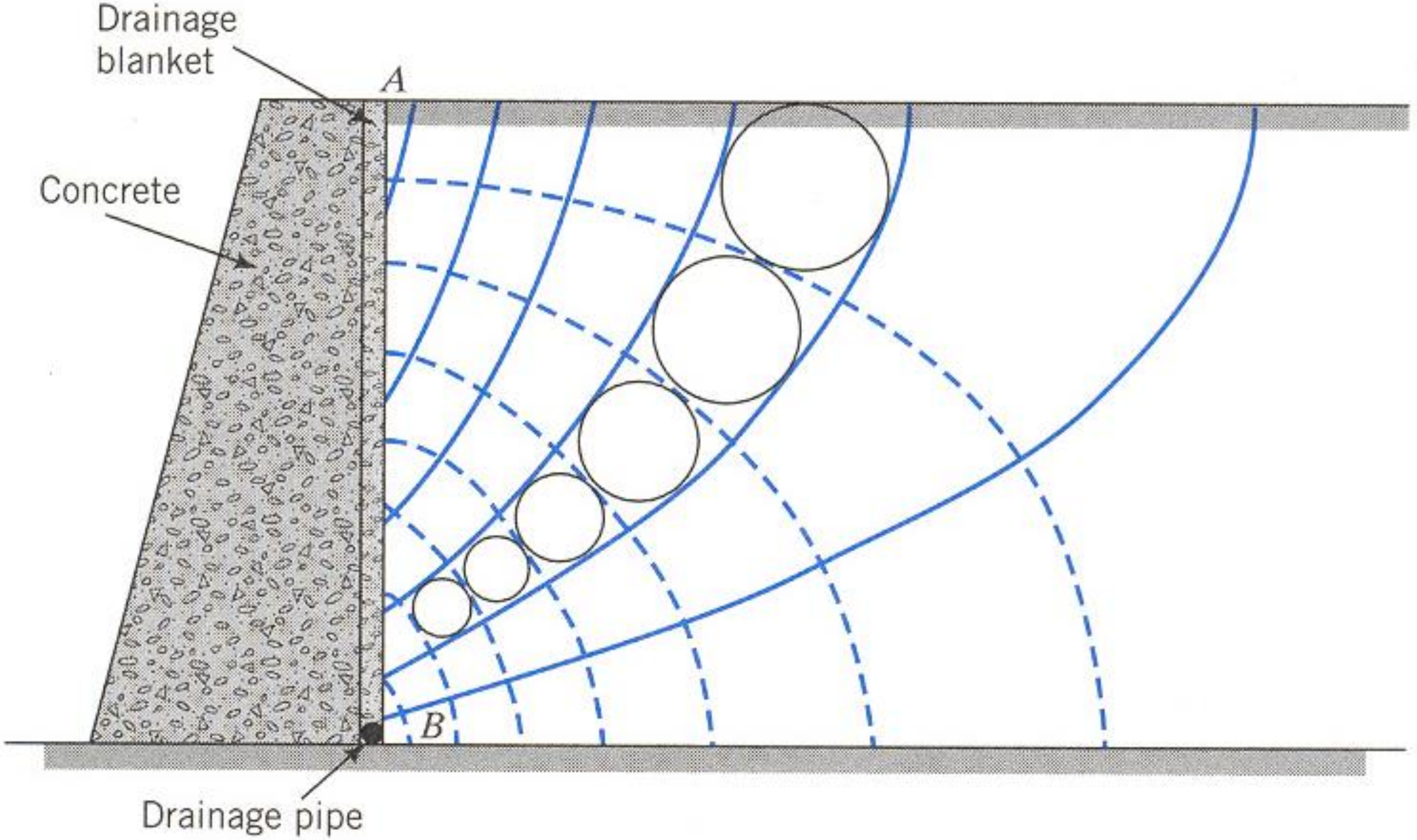
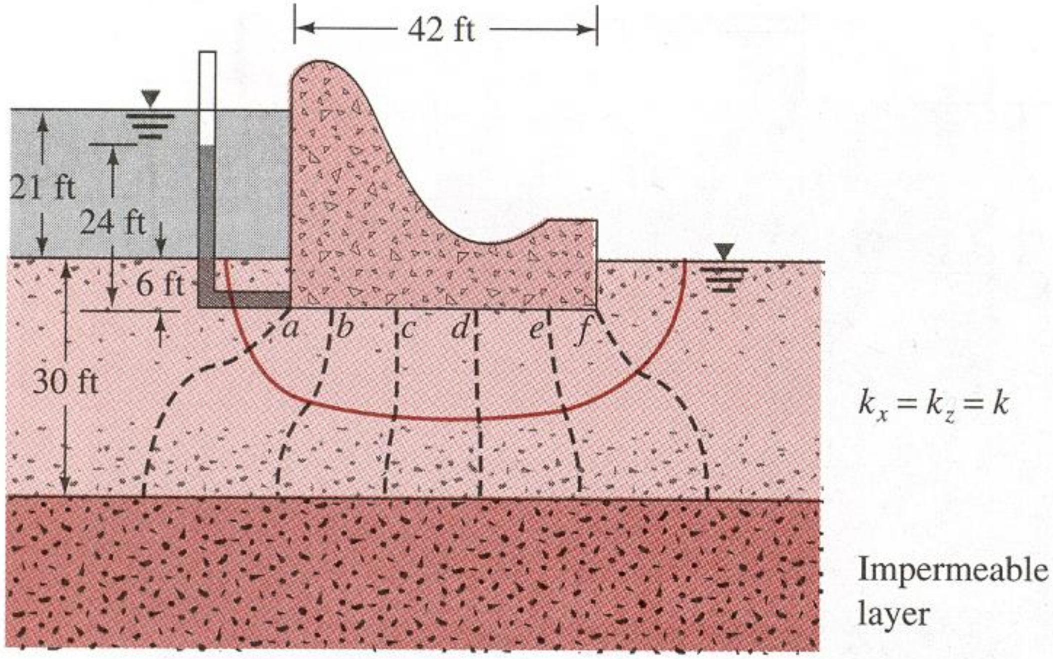
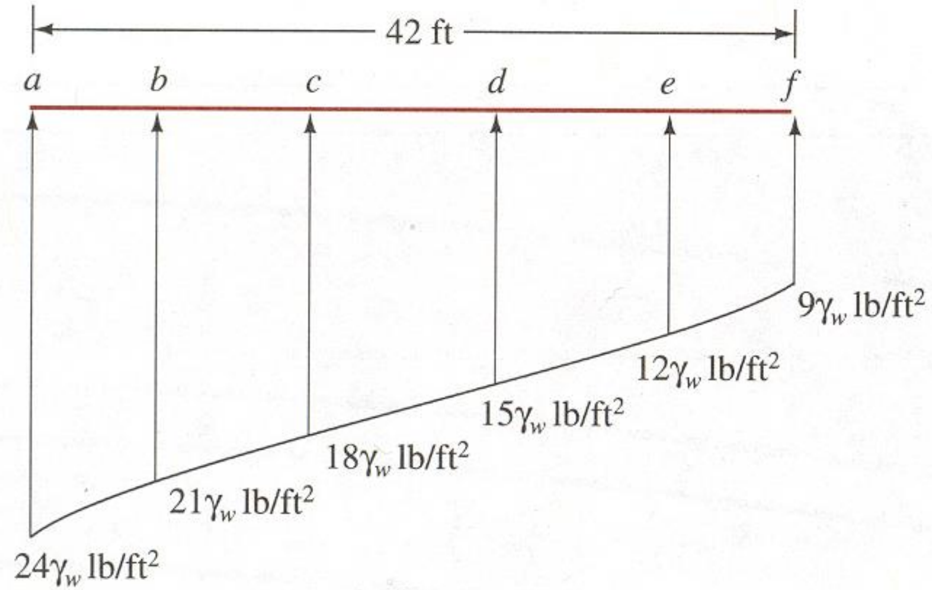


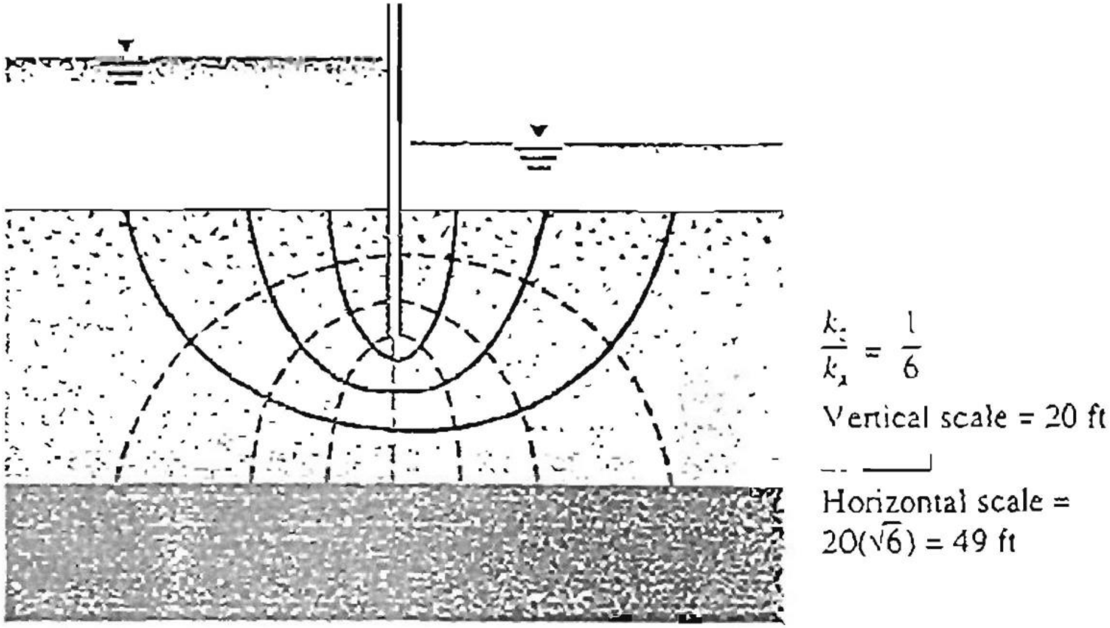
FIGURE 9.5 Flow net in the backfill of a retaining wall with a vertical drainage blanket.


42 ft
21 ft
24 ft
6 ft
30 ft
a
b
c
d
e
f
$k_x = k_z = k$
Impermeable layer

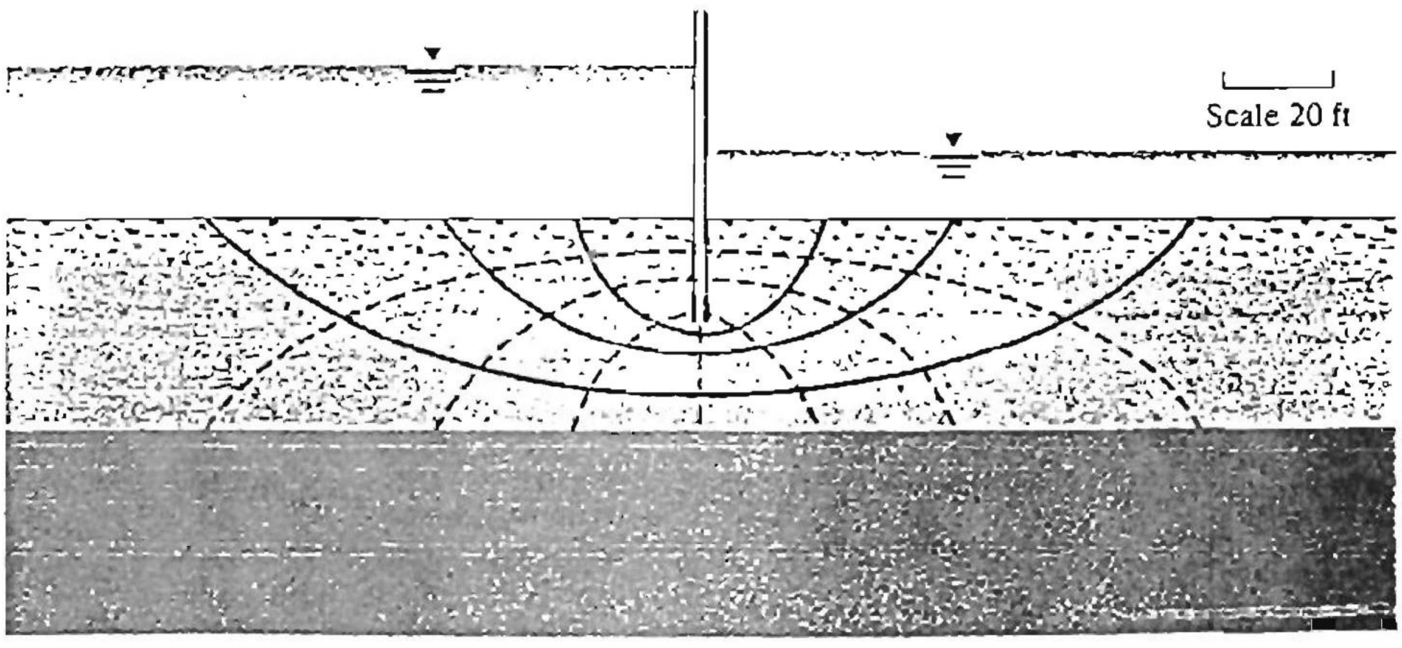
(a)


42 ft
a
b
c
d
e
f
$9\gamma_w$ lb/ft^2
$12\gamma_w$ lb/ft^2
$15\gamma_w$ lb/ft^2
$18\gamma_w$ lb/ft^2
$21\gamma_w$ lb/ft^2
$24\gamma_w$ lb/ft^2

(b)


$\frac{k_z}{k_x} = \frac{1}{6}$
Vertical scale = 20 ft
Horizontal scale = $20(\sqrt{6}) = 49$ ft

(a)


Scale 20 ft

(b)

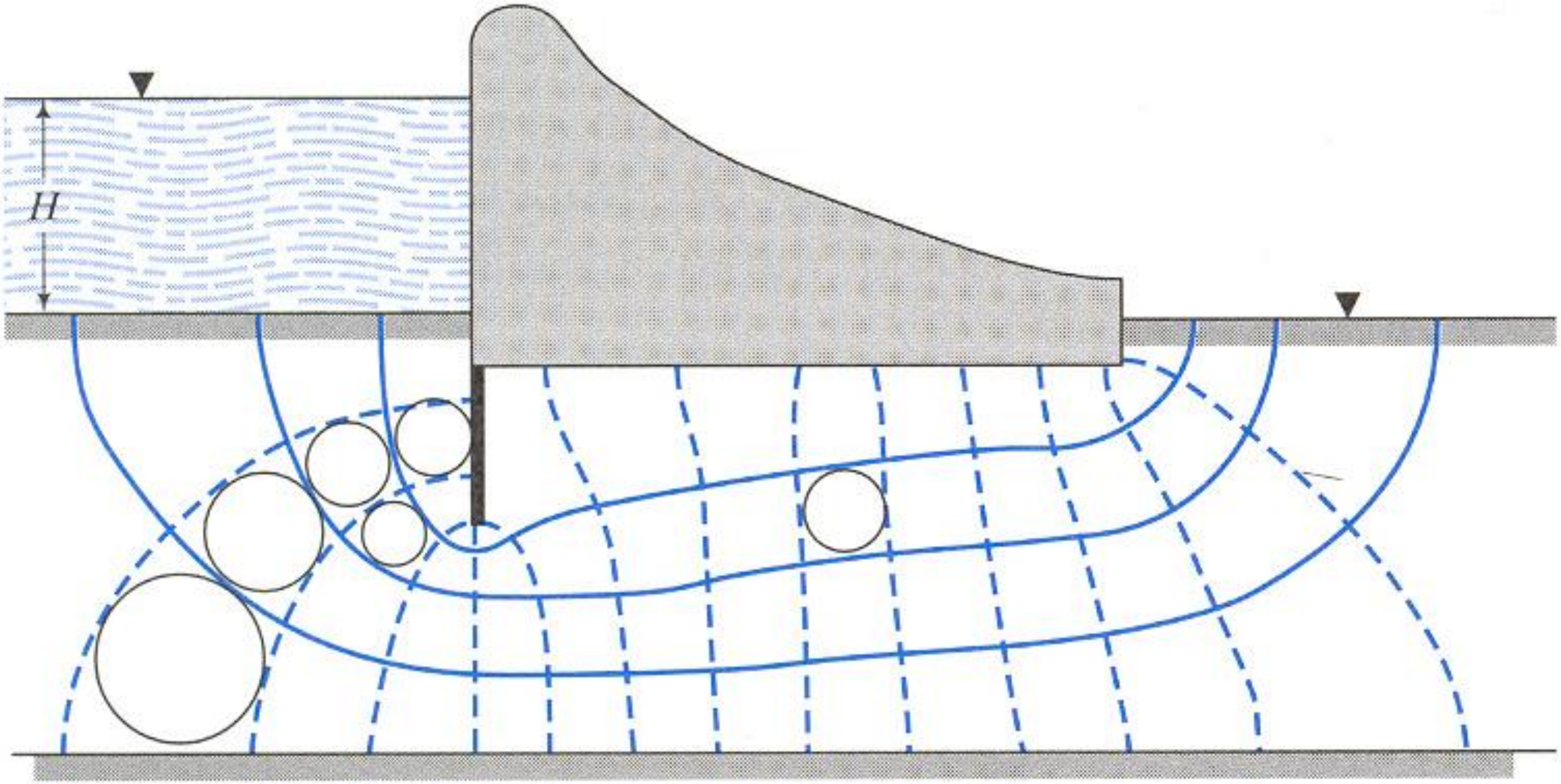
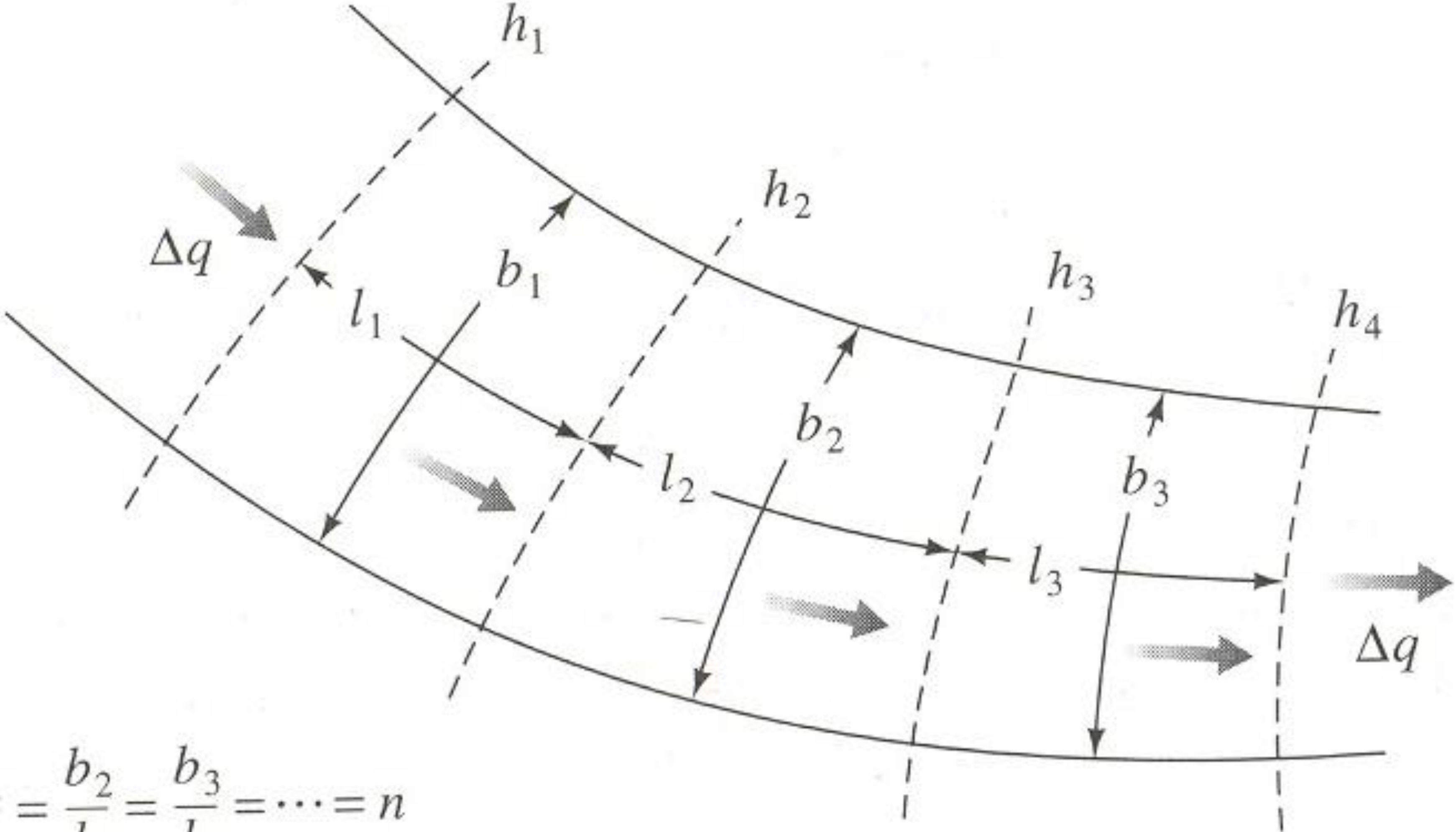
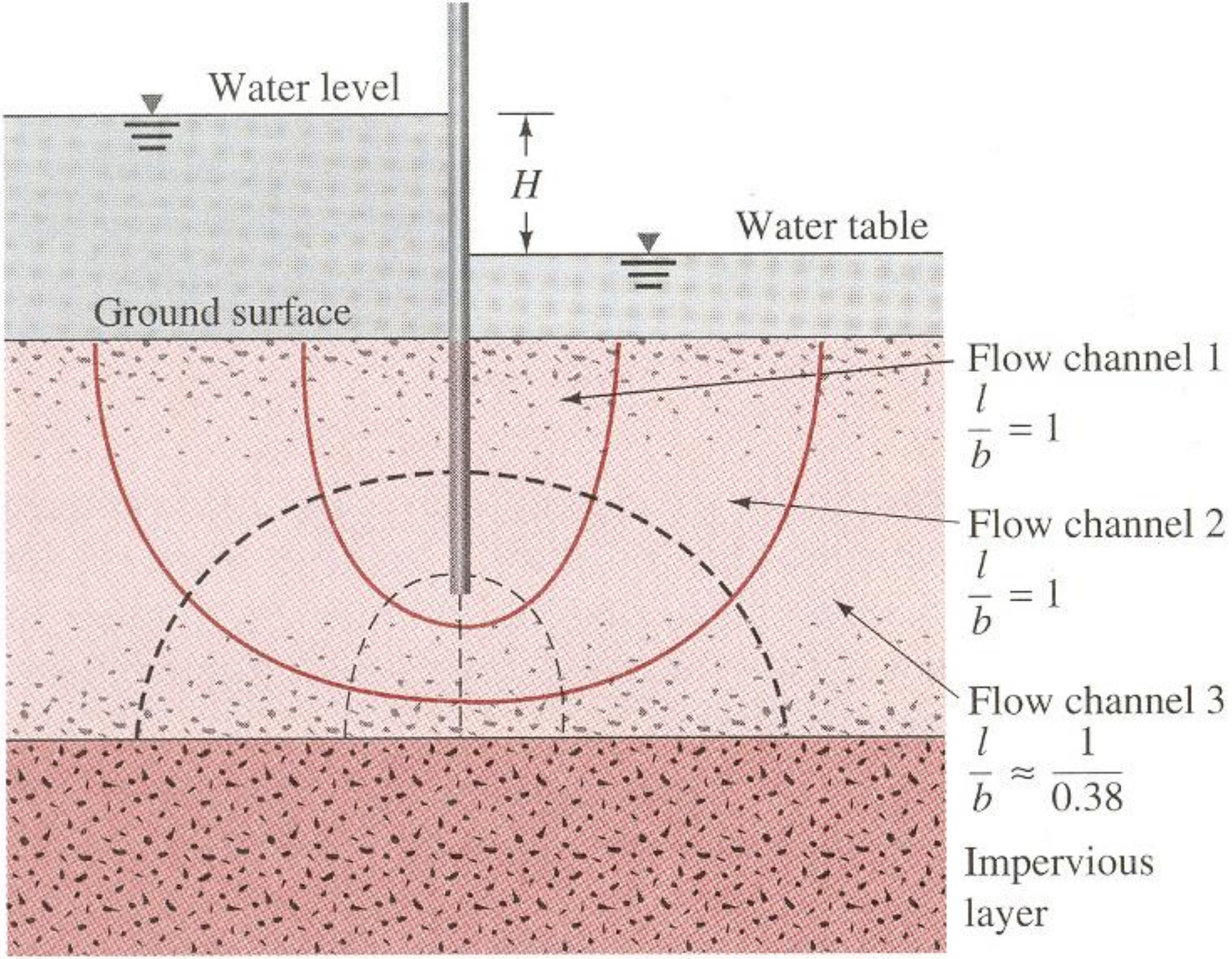


FIGURE 9.4 Flow net under a dam with a cutoff curtain (sheet pile) on the upstream end.



$$\frac{b_1}{l_1} = \frac{b_2}{l_2} = \frac{b_3}{l_3} = \cdots = n$$



Water level
H
Water table
Ground surface
Flow channel 1
$\frac{l}{b} = 1$
Flow channel 2
$\frac{l}{b} = 1$
Flow channel 3
$\frac{l}{b} \approx \frac{1}{0.38}$
Impervious layer

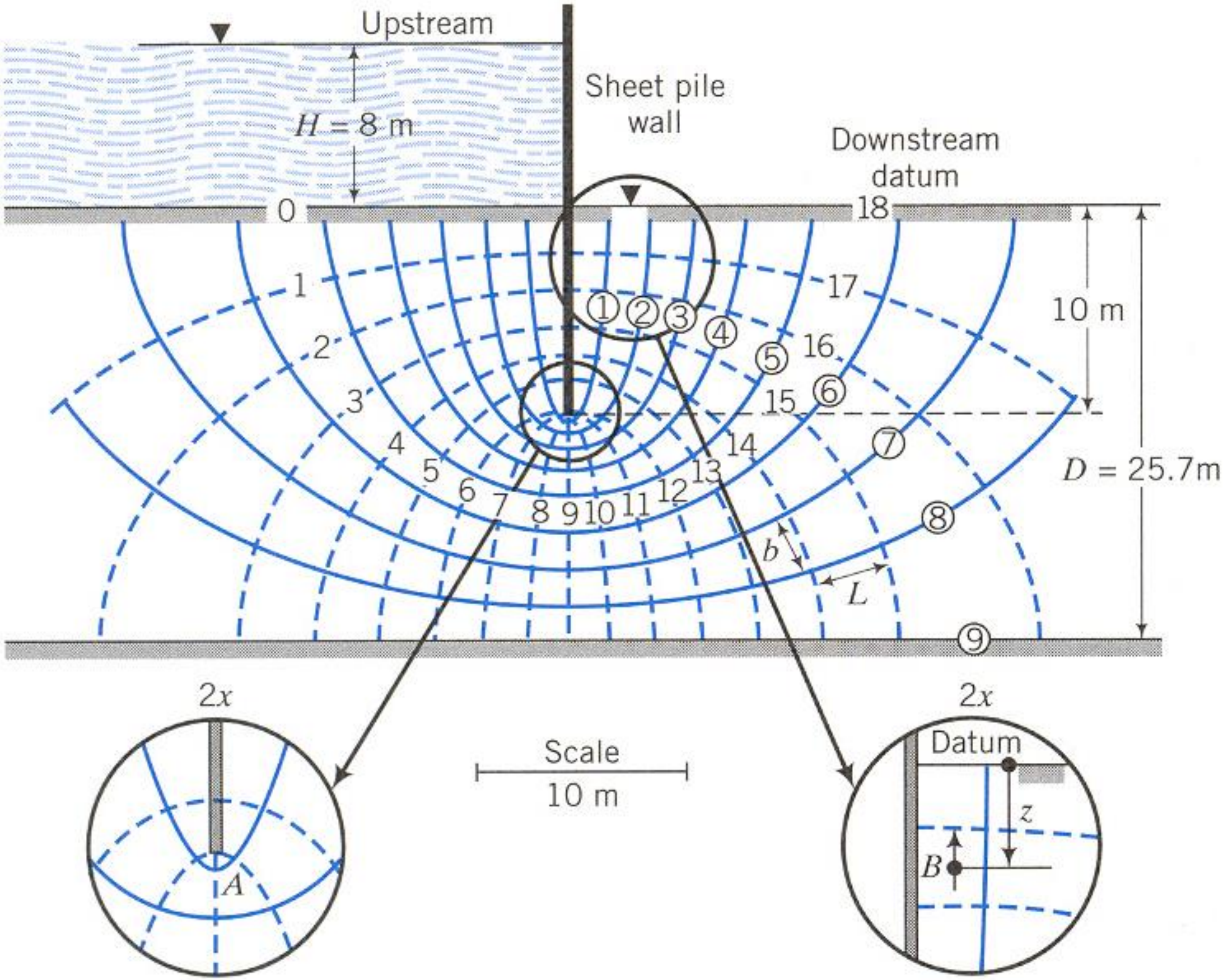


FIGURE 9.3 Flow net for a sheet pile.