ERRATA for
PE Civil: *Water Resources and Environmental Practice Exam*
Errata posted 06/01/2024

Revisions are shown in red.
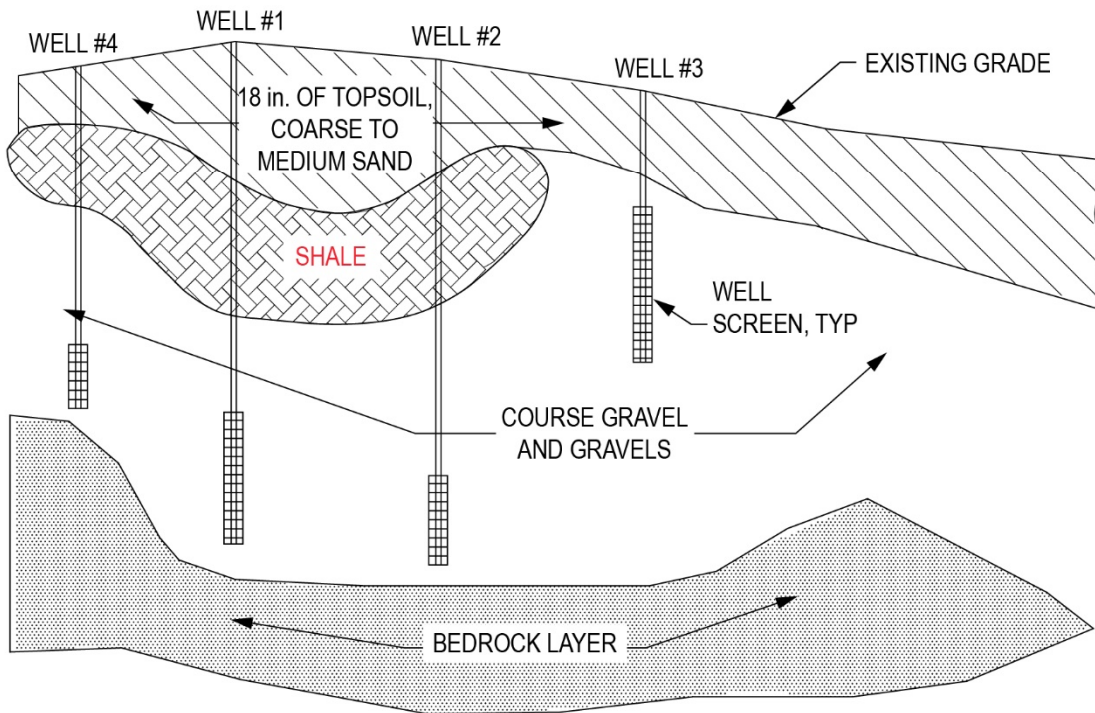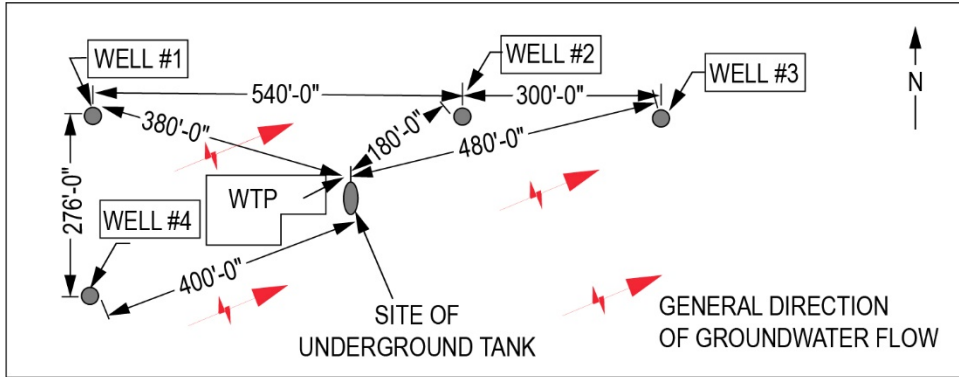
Question 12, p. 9:
Select the **two** that apply.

Question 21, p. 13:
A western community uses a water treatment facility to treat raw well water for iron and manganese removal. The water plant is no longer allowed to direct discharge backwash waste to the local receiving stream. The facility has four, 12-ft square gravity filters. A new red water lagoon is proposed to contain all backwash waste. Assume the average backwash rate is 15 gpm/ft^2 and the facility backwashes each filter in a single day once per week for 25 min. each. According to TSS Water Works 2018, the minimum lagoon size (ft) required is most nearly:

Question 56, p. 34:

WATER TREATMENT SITE PLAN

HYDROGEOLOGIC CROSS-SECTION OF WELL FIELD

Question 66, p. 39:

The primary clarifier of a trickling filter plant receives 1,000 lb of solids daily. The clarifier has a solids capture rate of 90% and produces an underflow sludge concentration of 9% (SG = 1.05). The volume of primary sludge (ft^3/day) is most nearly:

- ○ A. 2
- ○ B. 80
- ○ C. 150
- ○ D. 210

Solution 12, p. 52:

The following options are correct.

Option B: Polyvinyl chloride pipe (PVC) is commonly used for small sewers.

Option D: Vitrified clay pipe (VCP) is old technology but could be used.

THE CORRECT ANSWERS ARE: B, D

Solution 66, p. 75:

Refer to the Sludge Production section in the *PE Civil Reference Handbook.*

Using equation $\quad V_S = \dfrac{M}{P_S S_S g_w}$

Use SG of sludge $= 1.05$

$M = 1{,}000 \text{ lb/day} (0.9) = 900 \text{ lb/day}$

$P_S = 0.09$

$S_S = 1.05$

$g_w = 62.4 \text{ lb}/\text{ft}^3$

$V_S = \dfrac{900 \text{ lb/day}}{(0.09)(1.05)\left(62.4 \text{ lb}/\text{ft}^3\right)} = 152.6 \text{ lb}/\text{ft}^3$

$V_S = 153 \text{ lb}/\text{ft}^3$

Round to tens digits $= 150 \text{ lb}/\text{ft}^3$